STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

November 4, 2009

Mr. Tom Steffens
U. S. Army Corps of Engineers
Regulatory Field Office
Post Office Box 1000
Washington, NC 27889-1000

Mr. Stephen Lane
N. C. Dept. of Environment and Natural Resources
Division of Coastal Management
400 Commerce Avenue
Morehead City, NC 28557

Subject: **Application for Section 404 Individual Permit, Section 401 Water Quality Certification, Tar-Pamlico Buffer Authorization, and CAMA Major Development Permit** for the Replacement of Bridge No. 77 on NC 99 over Pantego Creek in Beaufort County. Federal Aid Project No. BRSTP-99(3), TIP No. B-3611, Debit $475 from WBS Element 33162.1.1.

Dear Sirs:

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 77 over Pantego Creek on NC 99. This application package consists of the cover letter, ENG Form 4345, CAMA MP Forms, EEP acceptance letter, Campbell Creek Mitigation Site Debit Ledger, USFWS concurrence letter, NCDWQ Stormwater Permit Exclusion letter, Interagency Hydraulic Design Meeting minutes, permit and buffer drawings, and half size plan sheets for B-3611. The certified mail receipts will be forwarded upon receipt.

Purpose and Need

The purpose and need of the project is to replace a structurally deficient and functionally obsolete bridge.

Summary of Impacts

Waters of the U.S

Construction of the proposed project will necessitate impacts to Jurisdictional Waters of the U.S. within the Tar-Pamlico River Basin (HUC 03020104, Sub-basin 03-03-07). There will be a total of 1.00 acre of permanent wetland impacts and 1.08 acres (1,937 linear feet) of permanent surface water impacts. There will be 0.27 acre of temporary impacts to wetlands and 0.50 acre (722 ft) of temporary surface water impacts due to temporary fill.

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

TELEPHONE: 919-431-2000
FAX: 919-431-2002

WEBSITE: WWW.NCDOT.ORG

LOCATION:
4701 ATLANTIC AVENUE
SUITE 116
RALEIGH NC 27604

Tar-Pamlico Riparian Buffers

There will be 7,212 ft^2 of impacts to riparian buffers for B-3611; of this, Zone 1 has 4,419 ft^2 and Zone 2 has 2,793 ft^2.

Summary of Mitigation

The proposed construction of B-3611 will impact 1.00 acre of jurisdictional wetlands that will require mitigation. The unavoidable impacts to CAMA jurisdictional wetlands will be offset by debiting 0.12 acre from the Campbell Creek Mitigation Site. The remaining unavoidable impacts to 0.88 acre of jurisdictional riparian wetlands will be offset by compensatory mitigation provided by the NC Ecosystem Enhancement Program (EEP).

Impacts to streams will not result in any permanent channel alteration; therefore, stream mitigation will not be necessary.

The 7,212 ft^2 of riparian buffer impacts are allowable without mitigation.

Project Schedule

Currently, B-3611 has a review date of March 30, 2010 and is scheduled to let May 18, 2010; it will be available for construction shortly thereafter. The let date, however, may advance as additional funds become available.

NEPA Document Status

A Categorical Exclusion (CE) was approved by the FHWA on November 7, 2007 for B-3611 and circulated to the appropriate agencies. A FHWA Right of Way Consultation was issued on December 9, 2008. Additional copies are available upon request.

Independent Utility

The subject project complies with 23 CFR Part 771.111(f), which lists the Federal Highway Administration (FHWA) characteristics of independent utility of a project:

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

Resource Status

Wetlands and surface waters within the B-3611 Preferred Alternative corridor were originally delineated in July 2001 and re-delineated in November 2006 using the field delineation method outlined in the 1987 Corps of Engineers Wetland Delineation Manual. The North Carolina Division of Water Quality's (DWQ) Identification Methods for the Origins of Intermittent and Perennial Streams was used to make stream determinations. Jurisdictional features were verified with William Wescott of the US Army Corps of Engineers (USACE) on September 12, 2007.

One jurisdictional stream, Pantego Creek (Stream Index # 29-34-34-(2), SC; NSW), has been identified within the project area of B-3611. Jurisdictional roadside canals occur in the project area, however, the USACE has determined these are not jurisdictional streams and therefore do not warrant mitigation.

Impacts to Jurisdictional Resources

Impacts to jurisdictional wetlands and surface waters for B-3611 are summarized below in Tables 1 & 2 respectively.

Table 1. Wetland Impacts

Permit Site	Station	Permanent (ac.)	Temporary (ac.)
1	11+50/17+71	0.01	0
2	17+39/31+59	0.88	0.27
4	59+26/62+04	0.04	0
5	62+36/70+33	0.06	0
6	64+98/66+54	< 0.01	0
7	66+95/71+45	0.01	0
	Total:	**1.00**	**0.27**

Table 2. Surface Water Impacts

Permit Site	Waterbody	Permanent (ft)	Temporary (ft)	Permanent (ac.)	Temporary (ac.)
1	Roadside Canal	15	0	< 0.01	0
2	Roadside Canal	973	722	0.58	0.50
4	Pantego Creek	137	0	0.13	0
5	Roadside Canal	764	0	0.37	0
7	Roadside Canal	48	0	< 0.01	0
	Total:	**1937**	**722**	**1.08**	**0.50**

Impacts to Waters of the U.S.

Permanent Impacts: Proposed permanent impacts include fill and excavation in wetlands. These impacts are to 1.00 acre of jurisdictional wetlands (0.12 acre in coastal marsh and 0.88 acre in riparian). There are 1.08 acres (1,937 linear feet) of surface water impacts from roadway fill in Pantego Creek and the roadside canals (these impacts do not necessitate alteration of the channel resulting in a bank-to-bank impact or impact to the thalweg).

Temporary Impacts: Proposed temporary impacts to riparian wetlands are 0.27 acre of temporary fill and temporary surface water impacts of 0.50 acre (722 ft). Proposed temporary impacts also include 0.18 acre (surface water) for a work bridge over Pantego Creek and adjacent wetlands.

Hand Clearing: There will be 0.81 acre of hand clearing in riparian wetlands.

Utility Impacts: There will be no impacts due to utilities.

Impacts to Tar-Pamlico River Basin Riparian Buffers

This project is located in the Tar-Pamlico River Basin; therefore, the regulations pertaining to the Tar-Pamlico River Buffer Rules (15A NCAC 2B.0233) apply. There will be 7,212 ft^2 of impacts to riparian buffers. This includes 4,419 ft^2 in Zone 1 and 2,793 ft^2 due to the bridge crossing at Site 4. According to the buffer rules, bridges are *Allowable*. Uses designated as *Allowable* may proceed

within the riparian buffer if there are no practical alternatives to the requested use pursuant to Item (8) of this Rule. All practicable measures to minimize impacts within buffer zones were followed.

Protected Species

The United States Fish and Wildlife Service (USFWS) list six federally protected species for Beaufort County as of the January 31, 2008 listing (Table 3).

Table 3. Federally Protected Species in Beaufort County

Common Name	Scientific Name	Federal Status	Habitat	Biological Conclusion
Kemp's ridley sea turtle	*Lepidochelys kempii*	E	No	No Effect
Red wolf	*Canis rufus*	E (XN)	Yes	MANLAA
Red-cockaded woodpecker	*Picoides borealis*	E	No	No Effect
West Indian manatee	*Trichechus manatus*	E	Yes	MANLAA
Rough-leaved loosestrife	*Lysimachia asperulaefolia*	E	Yes	No Effect
Sensitive joint-vetch	*Aeschynomene virginica*	T	Yes	No Effect

Key: E = Endangered, T = Threatened, E (XN) = Experimental (nonessential), MANLAA = May Affect, Not Likely to Adversely Affect

A Concurrence Request providing Biological Conclusions for each species was submitted to the USFWS in September 28, 2007. The USFWS responded with concurrence on October 4, 2007. A copy of the USFWS concurrence letter is included with this application.

Cultural Resources

Archaeology

The Historic Preservation Office (HPO) reviewed the project and determined there are no known archaeological sites within the proposed project area; therefore, no archaeological investigations were conducted.

Historic Architecture

The HPO reviewed the project and determined that no historic architecture surveys were required.

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.

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.

Avoidance and Minimization

All jurisdictional features were delineated, field verified and surveyed within the corridor for B-3611. 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:

- The project was designed to avoid or minimize disturbance to aquatic life movements
- NCDOT will minimize long-term water quality impacts using the most recent Best Management Practices for Protection of Surface Waters, as identified in the Federal Aid Highway Program (FHPM) and North Carolina Administrative Code, Chapter 4
- Crossings of jurisdictional areas were angled to cross as perpendicular as possible to minimize impacts.
- The use of Design Standards in Sensitive Watersheds
- The use of 3:1 fill slopes in jurisdictional areas
- The use of hand clearing in wetlands where practicable
- Construction of a 1,952 ft longer bridge over Pantego Creek
- To avoid and/or minimize impacts to anadromous fish, the "Stream Crossing Guidelines for Anadromous Fish Passage" will be followed including an in-stream construction moratorium from February 15 to June 15 for Pantego Creek
- The Guidelines for Avoiding Impacts to the West Indian Manatee: Precautionary Measures for Construction Activities in North Carolina Waters will be utilized to the maximum extent practicable
- The potential use of work barges
- A portion of the causeway on the east side will remain for recreational fishing per request of the Town of Belhaven.

Compensation

The NCDOT has avoided and minimized impacts to jurisdictional resources to the greatest extent possible as described above. The unavoidable impacts to CAMA jurisdictional wetlands will be offset by debiting 0.12 acre from the Campbell Creek Mitigation Site. The unavoidable impacts to jurisdictional riparian wetlands will be offset by compensatory mitigation provided by the EEP. Impacts to streams will not result in any permanent channel alteration; therefore, stream mitigation will not be necessary. A copy of the Campbell Creek Mitigation Site Debit Ledger and the EEP acceptance letter are attached.

Indirect and Cumulative Effects

The replacement bridge is not anticipated to alter traffic capacity, reduce travel times, notably alter property access to adjacent parcels, increase property exposure, or create a new transportation or land use node. Therefore, there are not sufficient transportation impacts causing activities present to stimulate residential, commercial, or industrial growth as a result of the project. In addition, this project is not expected to influence existing land uses in the vicinity of the project. Therefore, a detailed indirect and cumulative effects study is not necessary.

Regulatory Approvals

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

Section 401: Application is hereby made for a Section 401 Water Quality Certification from the NCDWQ.

Tar-Pamlico Riparian Buffer Authorization: NCDOT is requesting a Tar-Pamlico Riparian Buffer Authorization from the NCDWQ.

CAMA: NCDOT requests that the proposed work be authorized under a Coastal Area Management Act Major Development Permit. The landowner receipts are provided with this permit application. Authorization to debit the $475 Permit Application Fee from WBS Element 33162.1.1 is hereby given.

USCG: Under separate cover, NCDOT submitted a request for a United States Coast Guard (USCG) permit for B-3611 on August 19, 2009.

A copy of this permit application will be posted on the DOT website at: http://www.ncdot.org/doh/preconstruct/pe/neu/permit.html.

If you have any questions or need additional information, please contact Tyler Stanton at tstanton@ncdot.gov or (919) 431-6748.

Sincerely,

E. L. Lusk

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

W/attachment
- Mr. Brian Wrenn, NCDWQ (5 Copies)
- Ms. Kathy Matthews, USEPA
- Mr. Steve Sollod, NCDCM

W/o attachment (see website for attachments)
- Dr. David Chang, P.E., Hydraulics
- Mr. Greg Perfetti, P.E., Structure Design
- Mr. Victor Barbour, P.E., Project Services Unit
- Mr. Mark Staley, Roadside Environmental
- Mr. C. E. Lassiter, P.E., Division Engineer
- Mr. Jay Johnson, Division Environmental Officer
- Mr. Scott McLendon, USACE, Wilmington
- 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. Natalie Lockhart, PDEA
- Mr. Drew Joyner, P.E., Human Environment Unit Head
- Mr. Clarence W. Coleman, P.E., FHWA

DCM MP-1

APPLICATION for Major Development Permit

(last revised 12/27/06)

North Carolina DIVISION OF COASTAL MANAGEMENT

1. Primary Applicant/ Landowner Information

Business Name		Project Name (if applicable)		
North Carolina Department Of Transportation		B-3611		
Applicant 1: First Name	MI	Last Name		
Gregory	J.	Thorpe		
Applicant 2: First Name	MI	Last Name		
If additional applicants, please attach an additional page(s) with names listed.				
Mailing Address		PO Box	City	State
1598 Mail Service Center			Raleigh	NC
ZIP	Country	Phone No.		FAX No.
27699 1598	USA	919 - 431 - 2000 ext.		919 - 431 - 2002
Street Address *(if different from above)*		City	State	ZIP
				-
Email				

2. Agent/Contractor Information

Business Name				
Agent/ Contractor 1: First Name	MI	Last Name		
Agent/ Contractor 2: First Name	MI	Last Name		
Mailing Address		PO Box	City	State
ZIP		Phone No. 1		Phone No. 2
		- - ext.		- - ext.
FAX No.		Contractor #		
Street Address *(if different from above)*		City	State	ZIP
				-
Email				

<Form continues on back>

3. Project Location

County (can be multiple)	Street Address	State Rd. #
Beaufort		NC 99

Subdivision Name	City	State	Zip
			-

Phone No.	Lot No.(s) *(if many, attach additional page with list)*
- - ext.	, , , ,
a. In which NC river basin is the project located? Tar-Pamlico	b. Name of body of water nearest to proposed project Pantego Creek
c. Is the water body identified in (b) above, natural or manmade? ☒Natural ☐Manmade ☐Unknown	d. Name the closest major water body to the proposed project site. Pantego Creek
e. Is proposed work within city limits or planning jurisdiction? ☒Yes ☐No	f. If applicable, list the planning jurisdiction or city limit the proposed work falls within. Belhaven

4. Site Description

a. Total length of shoreline on the tract (ft.) 80	b. Size of entire tract (sq.ft.) 244,000
c. Size of individual lot(s) , , , *(If many lot sizes, please attach additional page with a list)*	d. Approximate elevation of tract above NHW *(normal high water)* or NWL *(normal water level)* ☐NHW or ☐NWL

e. Vegetation on tract
maintained/disturbed vegetation, marsh, loblolly pine forest

f. Man-made features and uses now on tract
Existing NC 99 Road Facility, canals

g. Identify and describe the existing land uses adjacent to the proposed project site.
community development and undeveloped areas

h. How does local government zone the tract? Residential, Commercial	i. Is the proposed project consistent with the applicable zoning? (Attach zoning compliance certificate, if applicable) ☐Yes ☐No ☒NA

j. Is the proposed activity part of an urban waterfront redevelopment proposal? ☐Yes ☒No

k. Has a professional archaeological assessment been done for the tract? If yes, attach a copy. ☐Yes ☐No ☒NA

If yes, by whom? HPO determined it was not neccessary

l. Is the proposed project located in a National Registered Historic District or does it involve a National Register listed or eligible property? ☐Yes ☒No ☐NA

<Form continues on next page>

m. (i) Are there wetlands on the site?	☒Yes ☐No
(ii) Are there coastal wetlands on the site?	☒Yes ☐No
(iii) If yes to either (i) or (ii) above, has a delineation been conducted? *(Attach documentation, if available)*	☒Yes ☐No

n. Describe existing wastewater treatment facilities.

N/A

o. Describe existing drinking water supply source.

N/A

p. Describe existing storm water management or treatment systems.

None

5. Activities and Impacts

a. Will the project be for commercial, public, or private use? ☐Commercial ☒Public/Government ☐Private/Community

b. Give a brief description of purpose, use, and daily operations of the project when complete.

Replace existing bridge due to low sufficiency rating. Lengthen bridge and improve road facility and safety with widening and addition of guardrail

c. Describe the proposed construction methodology, types of construction equipment to be used during construction, the number of each type of equipment and where it is to be stored.

Proposed construction utilizing temporary work bridges and potentially barges; however, no temporary causeway(s) will be used. Typical construction equipment includes crane, bulldozer, dump trucks, motor grader, etc.

d. List all development activities you propose.

Replace/Lengthen bridge; Remove portion of existing road fill/causeway to improve bridge hydraulic conveyance and offset surface water being filled in. Addition of fill due to widening facility and raising of the existing road grade. The grade has to be raised to provide access for future bridge maintenance/inspection activities.

e. Are the proposed activities maintenance of an existing project, new work, or both?	Both
f. What is the approximate total disturbed land area resulting from the proposed project?	10.8 ☐Sq.Ft or ☒Acres
g. Will the proposed project encroach on any public easement, public accessway or other area that the public has established use of?	☒Yes ☐No ☐NA

h. Describe location and type of existing and proposed discharges to waters of the state.

The existing bridge discharges bridge drainage through the wheel gaurds directly in to Pantego Creek.

The majority of the bridge deck drainage is being collected by closed deck drainage systems that discharge to grassed swales for treatment. The remainder (-L- Sta. 26+49 to Sta. 27+97) will be discharged directly over the old road bed.

i. Will wastewater or stormwater be discharged into a wetland?	☒Yes ☐No ☐NA
If yes, will this discharged water be of the same salinity as the receiving water?	☐Yes ☒No ☐NA
j. Is there any mitigation proposed? If yes, attach a mitigation proposal.	☒Yes ☐No ☐NA

<Form continues on back>

6. Additional Information

In addition to this completed application form, (MP-1) the following items below, if applicable, must be submitted in order for the application package to be complete. Items (a) – (f) are always applicable to any major development application. Please consult the application instruction booklet on how to properly prepare the required items below.

a. A project narrative.

b. An accurate, dated work plat (including plan view and cross-sectional drawings) drawn to scale. Please give the present status of the proposed project. Is any portion already complete? If previously authorized work, clearly indicate on maps, plats, drawings to distinguish between work completed and proposed.

c. A site or location map that is sufficiently detailed to guide agency personnel unfamiliar with the area to the site.

d. A copy of the deed (with state application only) or other instrument under which the applicant claims title to the affected properties.

e. The appropriate application fee. Check or money order made payable to DENR.

f. A list of the names and complete addresses of the adjacent waterfront (riparian) landowners and signed return receipts as proof that such owners have received a copy of the application and plats by certified mail. Such landowners must be advised that they have 30 days in which to submit comments on the proposed project to the Division of Coastal Management.

Name (See attached)	Phone No.
Address	
Name	Phone No.
Address	
Name	Phone No.
Address	

g. A list of previous state or federal permits issued for work on the project tract. Include permit numbers, permittee, and issuing dates.

h. Signed consultant or agent authorization form, if applicable.

i. Wetland delineation, if necessary.

j. A signed AEC hazard notice for projects in oceanfront and inlet areas. *(Must be signed by property owner)*

k. A statement of compliance with the N.C. Environmental Policy Act (N.C.G.S. 113A 1-10), if necessary. If the project involves expenditure of public funds or use of public lands, attach a statement documenting compliance with the North Carolina Environmental Policy Act.

7. Certification and Permission to Enter on Land

I understand that any permit issued in response to this application will allow only the development described in the application. The project will be subject to the conditions and restrictions contained in the permit.

I certify that I am authorized to grant, and do in fact grant permission to representatives of state and federal review agencies to enter on the aforementioned lands in connection with evaluating information related to this permit application and follow-up monitoring of the project.

I further certify that the information provided in this application is truthful to the best of my knowledge.

Date 11.4.09 Print Name E. Lusk

Signature E. L. Lusk

Please indicate application attachments pertaining to your proposed project.

☒DCM MP-2 Excavation and Fill Information ☒DCM MP-5 Bridges and Culverts

☐DCM MP-3 Upland Development

☐DCM MP-4 Structures Information

Form DCM MP-5

BRIDGES and CULVERTS

Attach this form to Joint Application for CAMA Major Permit, Form DCM MP-1. Be sure to complete all other sections of the Joint Application that relate to this proposed project. Please include all supplemental information.

1. BRIDGES

☐ *This section not applicable*

a. Is the proposed bridge:
☐Commercial ☒Public/Government ☐Private/Community

b. Water body to be crossed by bridge:
Pantego Creek

c. Type of bridge (construction material):
45" & 54" Prestressed Conc. Girder

d. Water depth at the proposed crossing at NLW or NWL:
10'

e. (i) Will proposed bridge replace an existing bridge? ☒Yes ☐No
If yes,
(ii) Length of existing bridge: 1400'
(iii) Width of existing bridge: 23.4'
(iv) Navigation clearance underneath existing bridge: 13.2'
(v) Will all, or a part of, the existing bridge be removed?
(Explain) Yes, all of existing bridge to be removed

f. (i) Will proposed bridge replace an existing culvert? ☐Yes ☒No
If yes,
(ii) Length of existing culvert: _____
(iii) Width of existing culvert: _____
(iv) Height of the top of the existing culvert above the NHW or NWL: _____
(v) Will all, or a part of, the existing culvert be removed?
(Explain)

g. Length of proposed bridge: 3352'

h. Width of proposed bridge: 35'

i. Will the proposed bridge affect existing water flow? ☐Yes ☒No
If yes, explain:

j. Will the proposed bridge affect navigation by reducing or increasing the existing navigable opening? ☒Yes ☐No
If yes, explain: Increase opening

k. Navigation clearance underneath proposed bridge: 17'

l. Have you contacted the U.S. Coast Guard concerning their approval? ☒Yes ☐No
If yes, explain: A USCG permit application was submitted Aug. 2008

m. Will the proposed bridge cross wetlands containing no navigable waters? ☒Yes ☐No
If yes, explain: Near Abutment No. 2 & from -L- Sta. 29+90 to 37+30 wetlands at fringe of open waters will be crossed

n. Height of proposed bridge above wetlands: 2.8' +/- Min. Clearance at Abut. 2

2. CULVERTS

☒ *This section not applicable*

a. Number of culverts proposed: _____

b. Water body in which the culvert is to be placed:

< Form continues on back>

c. Type of culvert (construction material):

_____

d. (i) Will proposed culvert replace an existing bridge? ☐Yes ☐No

If yes,

(ii) Length of existing bridge: _____

(iii) Width of existing bridge: _____

(iv) Navigation clearance underneath existing bridge: _____

(v) Will all, or a part of, the existing bridge be removed? (Explain)

_____

_____

_____

e. (i) Will proposed culvert replace an existing culvert? ☐Yes ☐No

If yes,

(ii) Length of existing culvert(s): _____

(iii) Width of existing culvert(s): _____

(iv) Height of the top of the existing culvert above the NHW or NWL: _____

(v) Will all, or a part of, the existing culvert be removed? (Explain)

_____

_____

_____

f. Length of proposed culvert: _____

g. Width of proposed culvert: _____

h. Height of the top of the proposed culvert above the NHW or NWL.

_____

i. Depth of culvert to be buried below existing bottom contour.

_____

j. Will the proposed culvert affect navigation by reducing or increasing the existing navigable opening? ☐Yes ☐No

If yes, explain:

_____

_____

_____

k. Will the proposed culvert affect existing water flow? ☐Yes ☐No

If yes, explain:

_____

_____

_____

3. EXCAVATION and FILL

☐*This section not applicable*

a. (i) Will the placement of the proposed bridge or culvert require any excavation below the NHW or NWL? ☒Yes ☐No

If yes,

(ii) Avg. length of area to be excavated: 1,245' (OAL)

(iii) Avg. width of area to be excavated: 48'

(iv) Avg. depth of area to be excavated: 3'

(v) Amount of material to be excavated in cubic yards: 3,240

(SEE ATTACHMENT FOR ITEMIZATION OF SITES)

b. (i) Will the placement of the proposed bridge or culvert require any excavation within coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.

☒CW 170 ☐SAV _____ ☐SB _____

☒WL 30,239 ☐None

(ii) Describe the purpose of the excavation in these areas:

Proposed excavation to relocate existing tidal and roadside canals

_____

_____

_____

c. (i) Will the placement of the proposed bridge or culvert require any high-ground excavation? ☒Yes ☐No

If yes,

(ii) Avg. length of area to be excavated: 2,007' (OAL)

(iii) Avg. width of area to be excavated: 40'

(iv) Avg. depth of area to be excavated: 5'

(v) Amount of material to be excavated in cubic yards: 6,072

(SEE ATTACHMENT FOR ITEMIZATION OF SITES)

d. If the placement of the bridge or culvert involves any excavation, please complete the following:

(i) Location of the spoil disposal area: To be used for roadway fill (To Be Determined by contractor)

(ii) Dimensions of the spoil disposal area: TBD

(iii) Do you claim title to the disposal area? ☐Yes ☒No *(If no, attach a letter granting permission from the owner.)*

(iv) Will the disposal area be available for future maintenance? ☐Yes ☐No

(v) Does the disposal area include any coastal wetlands/marsh (CW), submerged aquatic vegetation (SAVs), other wetlands (WL), or shell bottom (SB)?

☐CW ☐SAV ☐WL ☐SB ☒None

If any boxes are checked, give dimensions if different from (ii) above.

(vi) Does the disposal area include any area below the NHW or NWL? ? ☐Yes ☒No

If yes, give dimensions if different from (ii) above.

e. (i) Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item **d** above) to be placed below NHW or NWL? ☒Yes ☐No

If yes,

(ii) Avg. length of area to be filled: 2,275' (OAL)

(iii) Avg. width of area to be filled: 20'

(iv) Purpose of fill: Widening and relocation of roadway. Allocation of excavated material To Be Determined by contractor. (SEE ATTACHMENT FOR ITEMIZATION OF SITES)

f. (i) Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item **d** above) to be placed within coastal wetlands/marsh (CW), submerged aquatic vegetation (SAV), shell bottom (SB), or other wetlands (WL)? If any boxes are checked, provide the number of square feet affected.

☒CW 5,105 ☐SAV _____ ☐SB _____

☒WL 8,138 ☐None

(ii) Describe the purpose of the excavation in these areas:

Widening and relocation of roadway. Allocation of excavated material To Be Determined by contractor.

g. (i) Will the placement of the proposed bridge or culvert result in any fill (other than excavated material described in Item **d** above) to be placed on high-ground? ☒Yes ☐No

If yes,

(ii) Avg. length of area to be filled: 2,634' (OAL)

(iii) Avg. width of area to be filled: 67'

(iv) Purpose of fill: Widening and relocation of roadway. Allocation of excavated material To Be Determined by contractor. (SEE ATTACHMENT FOR ITEMIZATION OF SITES)

4. GENERAL

a. Will the proposed project require the relocation of any existing utility lines? ☒Yes ☐No

If yes, explain: Potentially, the power going to the navigation lights under the existing bridge will be relocated to the proposed bridge

If this portion of the proposed project has already received approval from local authorities, please attach a copy of the approval or certification.

b. Will the proposed project require the construction of any temporary detour structures? ☒Yes ☐No

If yes, explain: Traffic will be maintained on the existing bridge while the proposed bridge will be constructed to the west. Traffic will then be detoured on to the proposed bridge and realigned roadway

< Form continues on back>

c. Will the proposed project require any work channels? ☐Yes ☒No

If yes, complete Form DCM-MP-2.

d. How will excavated or fill material be kept on site and erosion controlled?

Use of Standard NCDOT BMP's and erosion control measures

e. What type of construction equipment will be used (for example, dragline, backhoe, or hydraulic dredge)?

Heavy highway construction equipment

f. Will wetlands be crossed in transporting equipment to project site? ☒Yes ☐No

If yes, explain steps that will be taken to avoid or minimize environmental impacts.

A temporary work bridge will be utilized to minimize environmental impacts by bridging over wetlands.

g. Will the placement of the proposed bridge or culvert require any shoreline stabilization? ☐Yes ☒No

If yes, complete form MP-2, Section 3 for Shoreline Stabilization only.

11.4.09

Date

B-3611

Project Name

E. L. Lusk

Applicant Name

E. L. Lusk

Applicant Signature

MP-5 Form Attachment
Itemization of Impacts Due to Multiple Sites

3. Excavation & Fill
a. Excavation below NWL

Station	Length (ft.)	Avg. Width (ft.)	Avg. Depth (ft.)	Excavated Material (cu. yds.)
-L- 17+25 to 26+50	925	15	2.7	1400
-L- 37+80 to 41+00	320	73	2.5	1840
AVG	581	48	3	
SUM	1245		**SUM**	3240

3. Excavation & Fill
c. High ground excavation above NWL

Station	Length (ft.)	Avg. Width (ft.)	Avg. Depth (ft.)	Excavated Material (cu. yds.)
-L- 17+25 to 26+50	925	28	3	1172
-L- 28+00 to 32+00	400	40	2.3	896
-L- 37+80 to 41+00	320	50	5.8	3375
-L- 60+00 to 62+50	250	10	3.6	583
-L- 59+75 to 60+77	112	10	1.6	46
AVG	440	40	5	
SUM	2007		**SUM**	6072

3. Excavation & Fill
e. Fill below NWL*
*NOTE: This is the total quantity and does not consider MP-5 Item 3 d.

Station	Length (ft.)	Avg. Width (ft.)	Fill Material (sq. ft.)
-L- 13+00 to 13+25	75	1.7	125
-L- 15+75	50	1.5	73
-L- 17+00 to 27+25	1025	21.4	21926
-L- 59+75 to 70+00	1025	20.0	20535
-L- 70+50 to 71+00	100	5.9	590
AVG	1008	20	
SUM	2275	**SUM**	43249

3. Excavation & Fill
e. Fill on high ground above NWL*
*NOTE: This is the total quantity and does not consider MP-5 Item 3 d.

Station	Length (ft.)	Avg. Width (ft.)
-L- 11+50 to 26+35	1485	71.7
-L- 60+01 to 71+50	1149	62.1
AVG		67
SUM	2634	

APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT
(33 CFR 325)

OMB APPROVAL NO. 0710-003
Expires December 31, 2004

Public reporting burden for this collection of information is estimated to average 10 hours per response, although the majority of applications should require 5 hours or less. This includes 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 this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Service Directorate of Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302; and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003), Washington, DC 20503. 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

Authority: Rivers and Harbors Act, Section 10, 33 USC 403: Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research and Sanctuaries Act, 33 USC 1413, Section 103. 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. 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 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 COMPLETED

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME	8. AUTHORIZED AGENT'S NAME AND TITLE (an agent is not required)
North Carolina Department of Transportation Project Development & Environmental Analysis	
6. APPLICANT'S ADDRESS	**9. AGENT'S ADDRESS**
1548 Mail Service Center Raleigh, NC 27699-1548	
7. APPLICANT'S PHONE NOs. W/AREA CODE a. Residence b. Business 919-733-3141	**10. AGENT'S PHONE NOs. W/AREA CODE** a. Residence b. Business

11. STATEMENT OF AUTHORIZATION

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.

APPLICANT'S SIGNATURE DATE

NAME, LOCATION, AND DESCRIPTION OR PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions)
B-3611

13. NAME OF WATERBODY, IF KNOWN (if applicable)
Pantego Creek

14. PROJECT STREET ADDRESS (if applicable)

15. LOCATION OF PROJECT
Beaufort (COUNTY) NC (STATE)

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions) **Section, Township, Range, Lat/Lon, and/or Accessors's Parcel Number, for example.**

17. DIRECTIONS TO THE SITE
Please see attached vicinity map and cover letter.

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

Replacement of Bridge No. 77 over Pantego Creek on NC 99

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

To replace a structurally deficient and functionally obsolete bridge.

USE BLOCKS 20-22 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

Construction of roadway and bridge.

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

Please see attached permit drawings

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

There will be a total of 1.00 acre of permanent riparian wetland impacts and 1.08 acres (1,937 linear feet) of permanent surface water impacts. There will be 0.27 acre of temporary impacts to wetlands due to temporary fill. There will also be 0.50 acre (722 ft) of temporary surface water impacts. In addition, there will be 0.01 acre of permanent surface water impacts due to bridge bents and 0.01 acre of temporary impacts to wetlands and surface waters for construction of a temporary work bridge. Erosion control measures will also necessitate temporary fill in hand cleared areas of wetlands (0.02 acre in 404 wetlands and 0.01 acre in CAMA wetlands).

23. Is Any Portion of the Work Already Complete? Yes ___ No _X___ IF YES, DESCRIBE THE COMPLETED WORK

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

Please see sheet attached list in the permit drawing package.

25. List of Other Certifications 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

26. Application is hereby made for a permit or permits to authorize the work described in this application. I certify that the 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.

E.P. Lupk 11.4.09

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.

Ecosystem Enhancement PROGRAM

October 20, 2009

Mr. William Wescott
U. S. Army Corps of Engineers
Washington Regulatory Field Office
Post Office Box 1000
Washington, North Carolina 27889-1000

Dear Mr. Wescott:

Subject: EEP Mitigation Acceptance Letter:

B-3611, Replace Bridge Number 77 over Pantego Creek on NC 99, Beaufort County; Tar-Pamlico River Basin (Cataloging Unit 03020104); Northern Outer Coastal Plain (NOCP) Eco-Region

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the compensatory riparian wetland mitigation for the unavoidable impact associated with the above referenced project. Based on the information supplied by the NCDOT on October 19, 2009, the impacts are located in CU 03020104 of the Tar-Pamlico River Basin in the Northern Outer Coastal Plain (NOCP) Eco-Region, and the anticipated mitigation credits needed to offset the impacts are as follows:

Tar-Pamlico 03020104 NOCP	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts (feet/acres)	0	0	0	0.88	0	0	0	0
Mitigation Units (Credits-up to 2:1)	0	0	0	1.76	0	0	0	0

Mitigation associated with this project will be provided in accordance with Section X of Amendment No. 2 to the Memorandum of Agreement between the N. C. Department of Environment and Natural Resources, the N. C. Department of Transportation, and the U. S. Army Corps of Engineers fully executed on March 8, 2007 (Tri-Party MOA). EEP commits to implement sufficient compensatory riparian wetland mitigation in the appropriate cataloging unit in the amount listed in the above table to offset the impacts associated with this project by the end of the MOA year in which this project is permitted. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from EEP.

If you have any questions or need additional information, please contact Ms. Beth Harmon at 919-715-1929.

Sincerely,

James B. Stanfill for

William D. Gilmore, P.E.
EEP Director

cc: Mr. Gregory J. Thorpe, Ph.D., NCDOT-PDEA
Mr. Brian Wrenn, Division of Water Quality, Wetlands/401 Unit
File: B-3611

Ecosystem Enhancement PROGRAM

October 20, 2009

Mr. Gregory J. Thorpe, Ph.D.
Manager, Project Development and Environmental Analysis Branch
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Dr. Thorpe:

Subject: EEP Mitigation Acceptance Letter:

B-3611, Replace Bridge Number 77 over Pantego Creek on NC 99, Beaufort County

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the compensatory riparian wetland mitigation for the subject project. Based on the information supplied by you on October 19, 2009, the impacts are located in CU 03020104 of the Tar-Pamlico River Basin in the Northern Outer Coastal Plain (NOCP) Eco-Region, and are as follows:

Tar-Pamlico 03020104 NOCP	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts (feet/acres)	0	0	0	0.88	0	0	0	0
Mitigation Units (Credits-up to 2:1)	0	0	0	1.76	0	0	0	0

EEP commits to implementing sufficient compensatory riparian wetland mitigation credits to offset the impacts associated with this project by the end of the MOA Year in which this project is permitted, in accordance with Section X of the Amendment No. 2 to the Memorandum of Agreement between the North Carolina Department of Environment and Natural Resources, the North Carolina Department of Transportation, and the U. S. Army Corps of Engineers, fully executed on March 8, 2007. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from EEP.

If you have any questions or need additional information, please contact Ms. Beth Harmon at 919-715-1929.

Sincerely,

James B. Stanfill for

William D. Gilmore, P.E.
EEP Director

cc: Mr. William Wescott, USACE – Washington Regulatory Field Office
Mr. Brian Wrenn, Division of Water Quality, Wetlands/401 Unit
File: B-3611

Compensatory Mitigation

The Campbell Creek Mitigation Site was constructed in 2006 as compensatory mitigation to offset unavoidable impacts associated with Tetterton Road (SR 1963). The project site is located approximately seven miles east of Aurora in Beaufort County. The Phase I site is adjacent to Campbell Creek and is approximately 29 acres in size. The site has undergone four years of successful hydrologic and vegetative monitoring as of the 2009 monitoring year.

In order to offset unavoidable Marsh impacts associated with T.I.P. B-3611, the Campbell Creek Mitigation Site will be debited 0.12 acres of Brackish Marsh Creation. This debit is reflected in the debit ledger below.

Site name	Site TIP	HUC	River Basin	Division	County	Mitigation Type
Campbell Creek	R-2510WM	3020104	Tar-Pamlico	2	Beaufort	Brackish Marsh Creation

As Built Quantity	Available	B-3611 Debit
1.33	1.057	0.12

CR, 10-08-01
CC: L. Williams

Bailey

RECEIVED
OCT 8 2007
DIVISION OF HIGHWAYS
PDEA-OFFICE OF NATURAL ENVIRONMENT

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Raleigh Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726

October 4, 2007

Gregory J. Thorpe, Ph.D.
North Carolina Department of Transportation
Project Development and Environmental Analysis
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Dr. Thorpe:

This letter is in response to your letter of September 28, 2007 which provided the U.S. Fish and Wildlife Service (Service) with the biological determination of the North Carolina Department of Transportation (NCDOT) that the replacement of Bridge No. 77 on NC 99 over Pantego Creek in Beaufort County (TIP No. B-3611) may affect, but is not likely to adversely affect the federally endangered West Indian manatee (*Trichechus manatus*) and red wolf (*Canis rufus*). In addition, NCDOT has determined that the project will have no effect on all other listed species. These comments are provided in accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543).

NCDOT has agreed to implement the Service's **GUIDELINES FOR AVOIDING IMPACTS TO THE WEST INDIAN MANATEE: Precautionary Measures for Construction Activities in North Carolina Waters.** Based on available information, the Service concurs with your determination that the proposed bridge replacement may affect, but is not likely to adversely affect the West Indian manatee and red wolf. Also, we concur that the project will have no effect on all other listed species. We believe that the requirements of section 7(a)(2) of the ESA have been satisfied. We remind you that obligations under section 7 consultation must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered in this review; (2) this action is subsequently modified in a manner that was not considered in this review; or (3) a new species is listed or critical habitat determined that may be affected by this identified action.

The Service appreciates the opportunity to review this project. If you have any questions regarding our response, please contact Mr. Gary Jordan at (919) 856-4520 (Ext. 32).

Sincerely,

Gary Jordan
for Pete Benjamin
Field Supervisor

Michael F. Easley, Governor

William G. Ross Jr., Secretary
North Carolina Department of Environment and Natural Resources

Coleen H. Sullins, Director
Division of Water Quality

January 6, 2009

Mr. Jay Twisdale, Jr. PE
NCDOT – Hydraulics Unit
1590 Mail Service Center
Raleigh, NC 27699-1590

Subject: **Stormwater Permit Exclusion – NC DOT Activity**
Replacement of Bridge No. 77 over Pantego Crk. on NC 99
Stormwater Project No. SW7081018
Beaufort County

Dear Mr. Twisdale:

On October 23, 2008, the Washington Regional Office of the Division of Water Quality received an exclusion request from Coastal Stormwater Permitting for the subject project. Staff review of the plans and supporting documents has determined that the project proposes activities that are excluded from State Stormwater permitting requirements as set forth in Section 2.(d)(1) of Session Law 2008-211, effective October 1, 2008, and the stormwater rules under Title 15A NCAC 2H .1000, as amended.

Therefore, the Director of the Division of Water Quality is hereby providing confirmation that the subject project is excluded from State Stormwater permitting requirements, being an activity of the NC DOT that is regulated in accordance with the provisions of the NC DOT's National Pollutant Discharge Elimination System (NPDES) Stormwater Permit.

Under Section 15A NCAC 2H .1003, any future development or changes to the proposed development, including but not limited to, the locations of the built-upon area and construction of additional built-upon area, may require approval or a Stormwater Management permit application and permit issuance from the Division of Water Quality prior to any construction. Any construction on the site prior to receipt of the required approval or permit will constitute a violation of Title 15A NCAC 2H.1000 and Session Law 2008-211, and may result in the initiation of appropriate enforcement action.

Please keep in mind that this determination does not affect your legal obligation to obtain other permits and approvals, which may be required by Federal, State, or local government agencies, rule or law. If you have any questions, or need additional information concerning this matter, please contact either Scott Vinson or me at (252) 946-6481.

Sincerely,

Al Hodge
Regional Supervisor
Surface Water Protection Section

AH/sv: S:\WQS\STORMWATER\PERMIT\SW7081018

cc: Washington Regional Office
Central Files

MINUTES OF THE INTERAGENCY HYDRAULIC DESIGN MEETING FOR B-3611, BEAUFORT CO.
JUNE 18, 2008

Team Members:
William Wescott, USACE (PRESENT VIA TELEPHONE)
Gary Jordan, USFWS (PRESENT)
Travis Wilson, NCWRC (PRESENT)
David Wainwright, NCDWQ (PRESENT)
Kathy Matthews, EPA (PRESENT)
Donnie Brew, FHWA
Steve Sollod, NCDCM (PRESENT)
Stephen Lane, NCDCM
David Harris, NCDOT Roadside Environmental Unit
Jimmy Goodnight, NCDOT Roadway
Mack Bailey, NCDOT Structure Design Unit (PRESENT)
John Williams, NCDOT PDEA
Chris Rivenbark, NCDOT PDEA-NEU (PRESENT)
Ed Eatmon, NCDOT Division 2
Eddie Bunn, NCDOT Construction Unit (PRESENT)
Jay Twisdale, NCDOT Hydraulics (PRESENT)

Participants:
Paul Atkinson, NCDOT Hydraulics (PRESENT)
Brook Anderson, NCDOT Hydraulics (PRESENT)
Dustin Creech, NCDOT Hydraulics (PRESENT)
Jiles Harrell, NCDOT Hydraulics (PRESENT)
Chris Underwood, NCDOT NEU (PRESENT)
David E. Bailey, NCDOT NEU (PRESENT)
Worth Calfee, NCDOT NEU (PRESENT)
Leilani Paugh, NCDOT NEU-ICI (PRESENT)
Bill Goodwin, NCDOT PDEA-Bridge Unit (PRESENT)
Natalie Lockhart, NCDOT PDEA-Bridge Unit (PRESENT)
Jon Loughry, NCDOT Roadway (PRESENT)
Steve Champion, NCDOT Structure Design Unit (PRESENT)
Ron Lucas, FHWA (PRESENT)

Jay Twisdale began the meeting with a brief overview of the project. He stated this project consists of a bridge replacement project on NC 99 between SR 1778 and US 264 BUS. (Main St.). The project is located in the Tar-Pamlico River Basin where riparian buffer zones are required. The existing bridge of 1400 ft. in length will be replaced with a 3352 ft. long prestressed concrete girder bridge. An on-site detour utilizing the existing bridge will convey traffic during construction. Surface drainage on the bridge will be collected primarily through closed deck drain systems and discharged at the bridge ends. Jay went through the plans sheet by sheet, discussing the drainage layout with emphasis on any impacts to affected wetlands or public trust waters. Specific comments are listed below by plan sheet number:

Sheet 4: Jay Twisdale stated that fill slopes throughout the project are 3:1 or flatter. The proposed fill slope on the north side of the alignment from -L- Sta. 11+50 to 16+75(LT) will partially impact a portion of tidal canal which is classified as a public trust area. Jay indicated that the 404 wetlands along the south side of the alignment within this station range would be unaffected. Kathy Matthews inquired about potentially steepening the fill slopes to 2:1 along the north side of the alignment provided there would not be stability issues in doing so. Steve Sollod seconded the request to steepen the north side fill slope if allowed by the Geotechnical Unit and requested that the amount of impacts be reduced as much as possible. Jay Twisdale indicated that such a request to the Geotechnical Unit had not been formally made as of yet. Steve Sollod added that the desired design scenario would limit the fill slope to intruding no more than 5 ft. into the public trust area. This distance would be measured perpendicularly from the normal high water line 5 ft. into the public trust area. Steve Sollod then requested a quantified amount of impacts to the coastal wetland fringe. Jay indicated that the horizontal alignment had been shifted as far South as possible to avoid more sizable impacts to the tidal canal and the CAMA wetland region just north of the public trust area. Chris Rivenbark concurred Jay's comment. Jay stated that the Hydraulics Unit would coordinate with the Geotechnical Unit to verify if the fill slopes could be steepened within the station range mentioned. In addition, Jay stated that the quantity of impacts to the public trust area in discussion will be calculated. Paul Atkinson stated that steepening the fill slopes to 2:1 with rock lining in areas of shallow fill may not reduce impacts due to the additional thickness of the rock lining which is additive to the footprint of the proposed fill slope.

In areas of alignment shift, the existing asphalt will be removed. Kathy Matthews inquired about potential wetland restoration along the old roadbed. Leilani Paugh recommended not pursuing marsh wetland restoration because the Division of Coastal Management will not give restoration credit without phragmites control. An alternative was suggested to restore the area to non-marsh wetlands. Leilani indicated that such a strip of wetland would not be viable partly because it would be a small strip isolated between the proposed roadway and the tidal canal. William Wescott suggested that the Department of Transportation may want to use this area of abandoned roadway as a treatment area for pavement runoff. Jay Twisdale added that the proposed hydraulic design on the next sheet would utilize the existing roadbed for that purpose. Leilani added that this is another reason not to pursue wetland reclamation along the abandoned roadway alignment.

Sheet 5: The proposed design utilizes the existing bridge as an on-site detour while construction of the new bridge will take place just north of the existing site. An on-site temporary detour around the proposed bridge tie-in will begin at -L- Sta. 20+60 and run on the east side prior to tying back to the roadway at approximate -L- Sta. 35+00. The proposed hydraulic design is to allow the temporary detour fill to temporarily fill in a portion of roadside canal. Consequently, the water in the roadside canal will temporarily head up into the 404 wetlands south of the project. After traffic is shifted onto the proposed alignment, the detour would be removed and the roadside canal would be replaced on the south side of the proposed alignment. Team members did not have any concerns with the proposed design.

Jay Twisdale stated that a closed deck drain system would be used from the bridge crest to the second interior bent at the beginning of the bridge. The closed deck drain system would discharge into a proposed grassed swale located on the former roadbed where the existing pavement is to be removed. The proposed grassed swale would serve to treat and convey the discharged waters toward Pantego Creek where the grassed swale will end in the ground prior to the limits of causeway removal, allowing the flow to head up and discharge as sheet flow into the canals and creek. David Wainwright requested that the grassed swale be as long as possible to adequately treat the waters discharged from the bridge. In the first two bridge spans, open deck drains would discharge surface drainage onto the former roadbed where the existing pavement is called to be removed and the old roadbed scarified. Steve Sollod inquired if the discharge from the open deck drains in the first two spans would create erosive velocities. Paul Atkinson indicated that the vertical drop would be approximately 3 ft. and should not create an erosive situation. Jay Twisdale added that this is the best design given the situation.

Sheet 6: The proposed design removes approximately 320 ft. of existing causeway from approximately -L- Sta. 37+50 to Sta. 40+70 and would restore the natural channel matching surrounding bathymetric elevations. Jay Twisdale requested that mitigation credit be given for the causeway removal. Both Leilani Paugh and Chris Rivenbark stated that mitigation credit could not be given for alteration involving surface waters.

Steve Sollod inquired about the bents in the left side canal potentially obstructing navigability of the canal. Mack Bailey stated that the design would satisfy minimum distance requirements between the piles to allow for canoeist to navigate unobstructed. The minimum clearance between piles was agreed to be 4 ft. at an earlier agency meeting.

Sheets 7&8: The proposed design removes approximately 390 ft. of causeway from approximately -L- Sta. 54+40 to Sta. 58+30. Steve Sollod commented that this is a significant amount of work to excavate the existing causeways down to match the surrounding bathymetric elevations of the natural channel. Steve Sollod proposed that it may be better to excavate to a marsh elevation. Travis Wilson requested that if the causeway is to be removed that the channel be restored as closely as possible to a pre-causeway state. William Wescott stated that it would be preferable to remove the causeway to a pre-causeway state to restore maritime navigability of the channel. Eddie Bunn concurred with William's comment.

Surface drainage will be collected in a closed deck drain system from the bridge crest to the second to the last interior bent. The proposed design will discharge collected drainage to the existing roadway alignment where the existing pavement is called to be removed and the remaining ground to be scarified. A grassed swale will then treat the system drainage and convey the water to approximately -L- Sta. 62+35(RT) before combining with tidal canal waters. A grated inlet near the end of the bridge will pick up any additional surface drainage and discharge into the grassed swale for treatment. Jay

Twisdale added that there were no other viable options for treatment due to site constraints.

The proposed design at approximately -L- Sta. 60+00 to Sta. 63+00 will fill in the entrance of an existing canal north of the existing alignment. Jay Twisdale stated that the canal would be relocated immediately north of the proposed alignment to maintain connectivity with the remainder of the existing canal. Paul Atkinson stated that the extent of the impacts resulting from the canal relocation work would be kept to a minimum. In response to William Wescott's questions, Jay confirmed that the canal would be relocated to the left (or west) side. Steve Sollod inquired about the extent of impacts to the patches of CAMA wetlands bordering the existing canal. Jay Twisdale indicated that the CAMA wetland at -L- Sta. 60+00(LT) would be significantly impacted by the proposed fill slope and canal relocation. Steve Sollod requested that the fill slope from -L- Sta. 62+00 to 63+00(LT) be pulled in as much as possible. Jay indicated that the fill slopes shown on the plans from -L- Sta. 62+60 to 70+25(LT) are subject to change following updates from Location & Surveys underwater bed shots of the existing canal. In response to Steve Sollod's question, Jay indicated that the proposed base width of the relocated canal may be around 5 ft. and that the existing canal base width was approximately 8 ft. Paul Atkinson reiterated that a minimal design would be specified to restore existing drainage patterns. Steve Sollod then asked if the canal was classified as a public trust area. William Wescott stated that it was not.

Mack Bailey inquired if deck drains would be used in the last two bridge spans since the closed deck drain system terminated at the second to the last interior bent. Paul Atkinson and Jay Twisdale indicated that the surface drainage collected from the final two bridge spans will be conveyed without deck drains in the bridge shoulder to the end of the bridge. Jay added that the trunk line for the closed deck drain system from the crest to the end of the bridge will be located on the right side of the alignment and that the trunk line for the deck drain system from the crest to the beginning of the bridge will be located along the left side of the bridge.

General Discussion: At the conclusion of the interagency meeting, there was some discussion in regards to marine fisheries and deadlines to have required paperwork submitted.

Travis Wilson stated that a moratorium on the project would be in effect from Feb. 15th to June 15th.

A team member inquired about the navigational clearance of the bridge. The proposed low chord of the new bridge is approximately 3.5 ft. higher than the existing.

Meeting adjourned with no further comments.

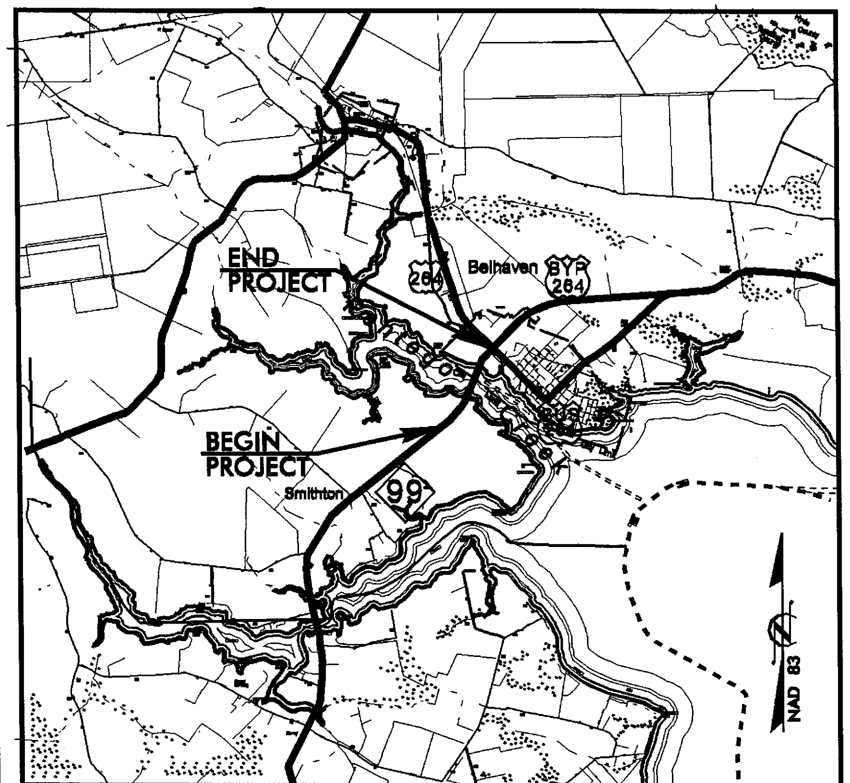
TIP PROJECT: B-3611

CONTRACT:

09-JUN-2009 12:44
r:\hydraulics\permits_environmental\drawings\wetland\b3611_hyd_prm_wet.dgn
ddcreech AT HY239440

09/08/99

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ENGLISH

BEAUFORT COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3611	1	

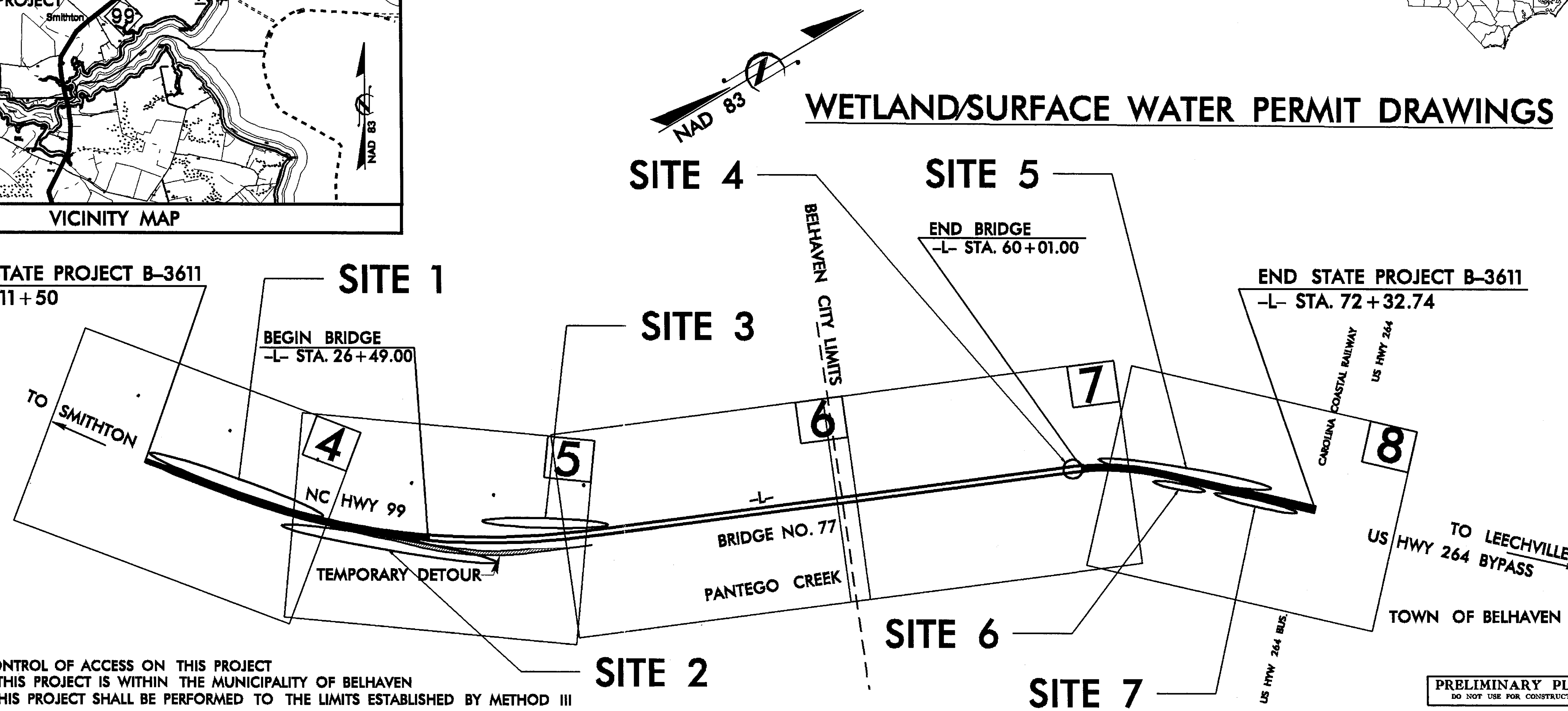
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
33162.1.1	BRSTP-99(3)	PE
33162.2.2	BRSTP-99(3)	R/W & UTIL

Permit Drawing
Sheet 1 of 17

LOCATION: BRIDGE NO. 77 OVER PANTEGO CREEK ON NC 99

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

WETLAND/SURFACE WATER PERMIT DRAWINGS



THERE IS NO CONTROL OF ACCESS ON THIS PROJECT
A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPALITY OF BELHAVEN
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III

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

ADT 2009 = 6270
ADT 2030 = 9600
DHV = 10 %
D = 60 %
T = 9 % *
V = 50/40 MPH
* TTST 6 DUAL 3
FUNC. CLASS = COLLECTOR

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3611 = 0.517 Miles
LENGTH STRUCTURE TIP PROJECT B-3611 = 0.635 Miles
TOTAL LENGTH TIP PROJECT B-3611 = 1.152 Miles

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MARCH 18, 2009

LETTING DATE:
MARCH 16, 2010

JIMMY GOODNIGHT, PE
PROJECT ENGINEER

MARK HUSSEY
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

P.E.
STATE HIGHWAY DESIGN ENGINEER

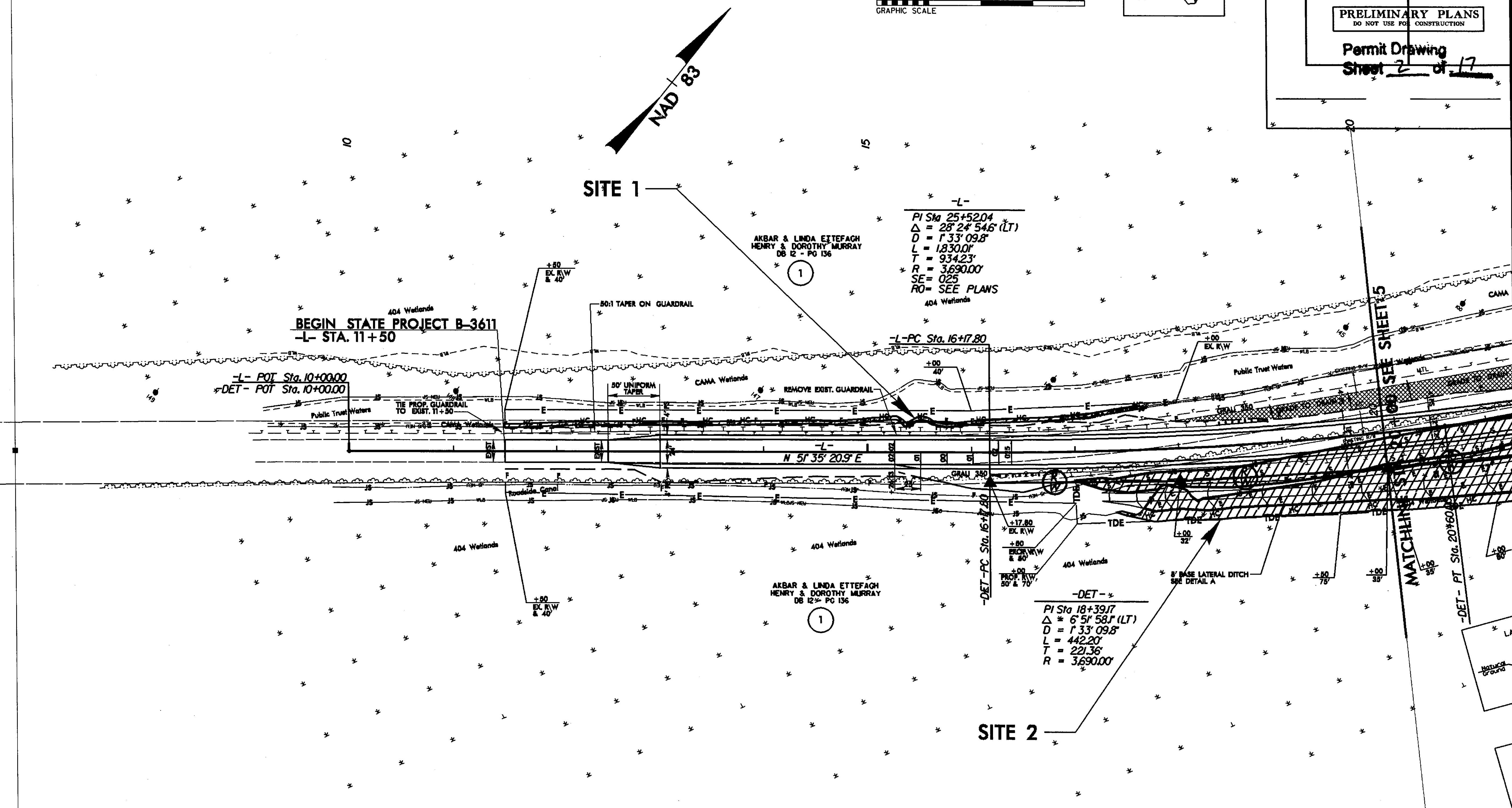
PROJECT REFERENCE NO.	SHEET NO.
B-3611	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 2 of 17

WETLAND/SURFACE WATER PERMIT DWG.

ENGLISH



50' 0' 50' 100' 150'
GRAPHIC SCALE
NAD 83
SITE 1
SITE 2
BEGIN STATE PROJECT B-3611
-L- STA. 11+50
-L- POT Sta. 10+00.00
-DET- POT Sta. 10+00.00
AKBAR & LINDA ETTEFAGH
HENRY & DOROTHY MURRAY
DB 12 - PG 136
-L-
PI Sta 25+52.04
Δ = 28° 24' 54.6" (LT)
D = 1° 33' 09.8"
L = 1,830.01'
T = 934.23'
R = 3,690.00'
SE= .025
RO= SEE PLANS
-L-PC Sta. 16+17.80
-DET-PC Sta. 16+17.80
N 5° 35' 20.9" E
-DET-
PI Sta 18+39.17
Δ = 6° 51' 58.5" (LT)
D = 1° 33' 09.8"
L = 442.20'
T = 221.36'
R = 3,690.00'
404 Wetlands
CAMA Wetlands
Public Trust Waters
Roadside Canal
50:1 TAPER ON GUARDRAIL
50' UNIFORM TAPER
TIE PROP. GUARDRAIL TO EXIST. 11+50
REMOVE EXIST. GUARDRAIL
8' BASE LATERAL DITCH SEE DETAIL A
MATCHLINE SEE SHEET 5
-DET- PT Sta. 20+60

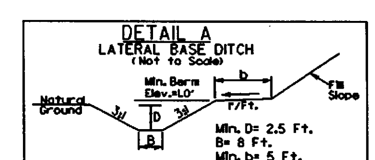
DENOTES IMPACTS IN SURFACE WATER

DENOTES EXCAVATION IN WETLAND

DENOTES FILL IN WETLAND

DENOTES HAND CLEARING

50' 0' 50' 100' 150'
GRAPHIC SCALE



-L- STA. 17+25 TO STA. 27+25 RT.
DDE = 2600 Cu. Yds.

SEE DETAIL SHEET 2-B FOR DETOUR DESIGN
SEE SHEET 9 FOR -L- PROFILE
SEE SHEET 11 FOR -DET- PROFILE

REVISIONS

8/17/99

09-JUN-2009 12:44
r:\hydraulics\permits-environmental\drawings\wetland\b3611_hyd_prm_wet.dgn

WETLAND/SURFACE WATER PERMIT DWG.

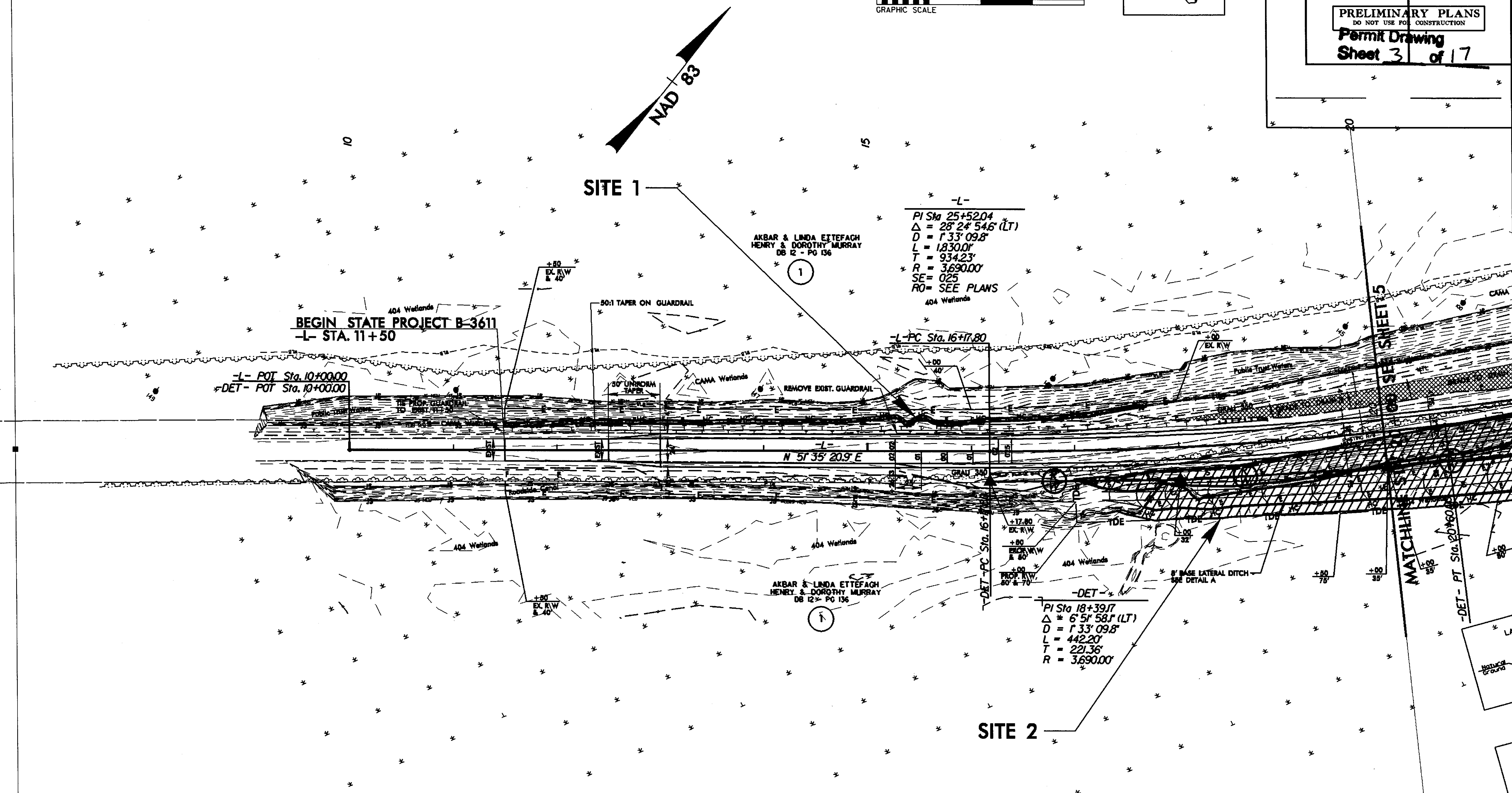
50' 0' 50' 100' 150'
GRAPHIC SCALE

PROJECT REFERENCE NO.	SHEET NO.
B-3611	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 3 of 17

ENGLISH



NAD 83
SITE 1
SITE 2
BEGIN STATE PROJECT B-3611
-L- STA. 11+50
-L- POT Sta. 10+00.00
-DET- POT Sta. 10+00.00
-L-
PI Sta 25+52.04
Δ = 28° 24' 54.6" (LT)
D = 1° 33' 09.8"
L = 1,830.01'
T = 934.23'
R = 3,690.00'
SE= .025
RO= SEE PLANS
-L- PC Sta. 16+17.80
-DET- PC Sta. 16+17.80
N 51° 35' 20.9" E
-DET-
PI Sta 18+39.17
Δ = 6° 51' 58.1" (LT)
D = 1° 33' 09.8"
L = 442.20'
T = 221.36'
R = 3,690.00'
AKBAR & LINDA ETTEFAGH
HENRY & DOROTHY MURRAY
DB 12 - PG 136
404 Wetlands
CAMA Wetlands
50:1 TAPER ON GUARDRAIL
REMOVE EXIST. GUARDRAIL
8' BASE LATERAL DITCH
SEE DETAIL A
MATCHLINE SEE SHEET 5
-DET- PT Sta. 20+60

DENOTES IMPACTS IN SURFACE WATER

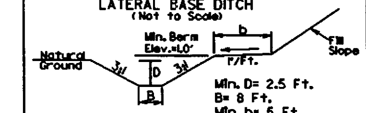
DENOTES EXCAVATION IN WETLAND

DENOTES FILL IN WETLAND

DENOTES HAND CLEARING

50' 0' 50' 100' 150'
GRAPHIC SCALE

DETAIL A
LATERAL BASE DITCH
(Not to Scale)



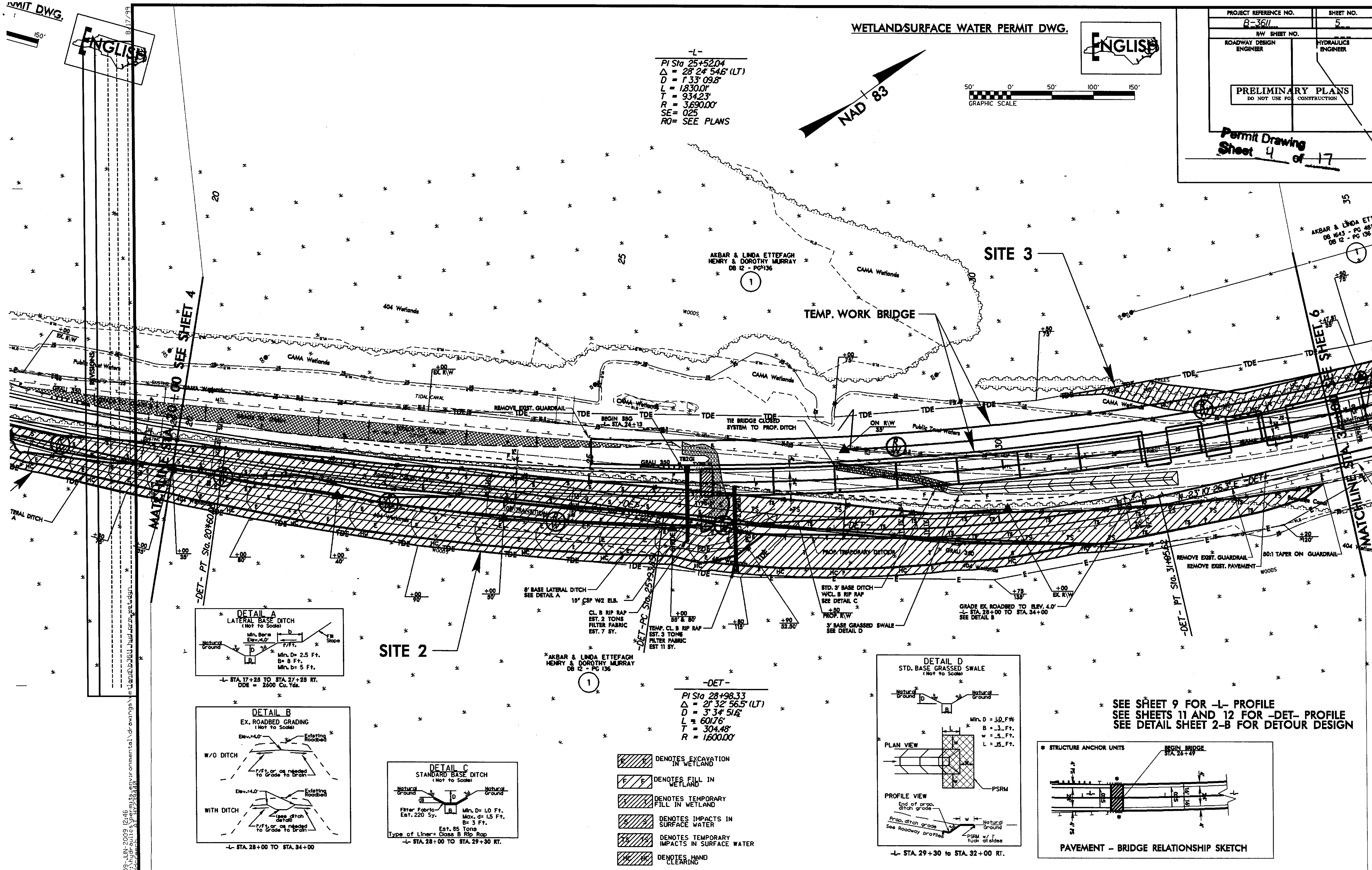
-L- STA. 17+25 TO STA. 27+25 RT.
DDE = 2600 Cu. Yds.

SEE DETAIL SHEET 2-B FOR DETOUR DESIGN
SEE SHEET 9 FOR -L- PROFILE
SEE SHEET 11 FOR -DET- PROFILE

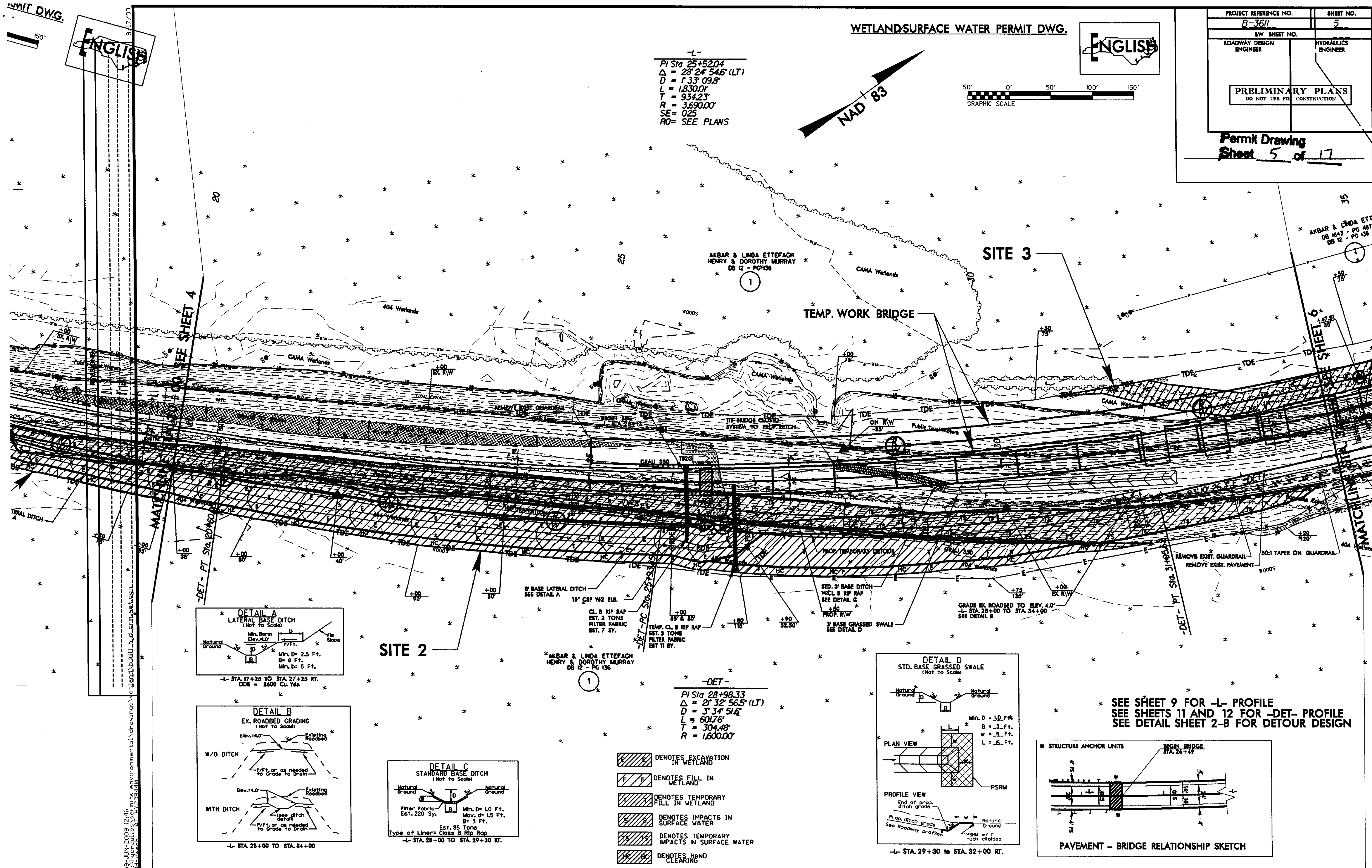
REVISIONS

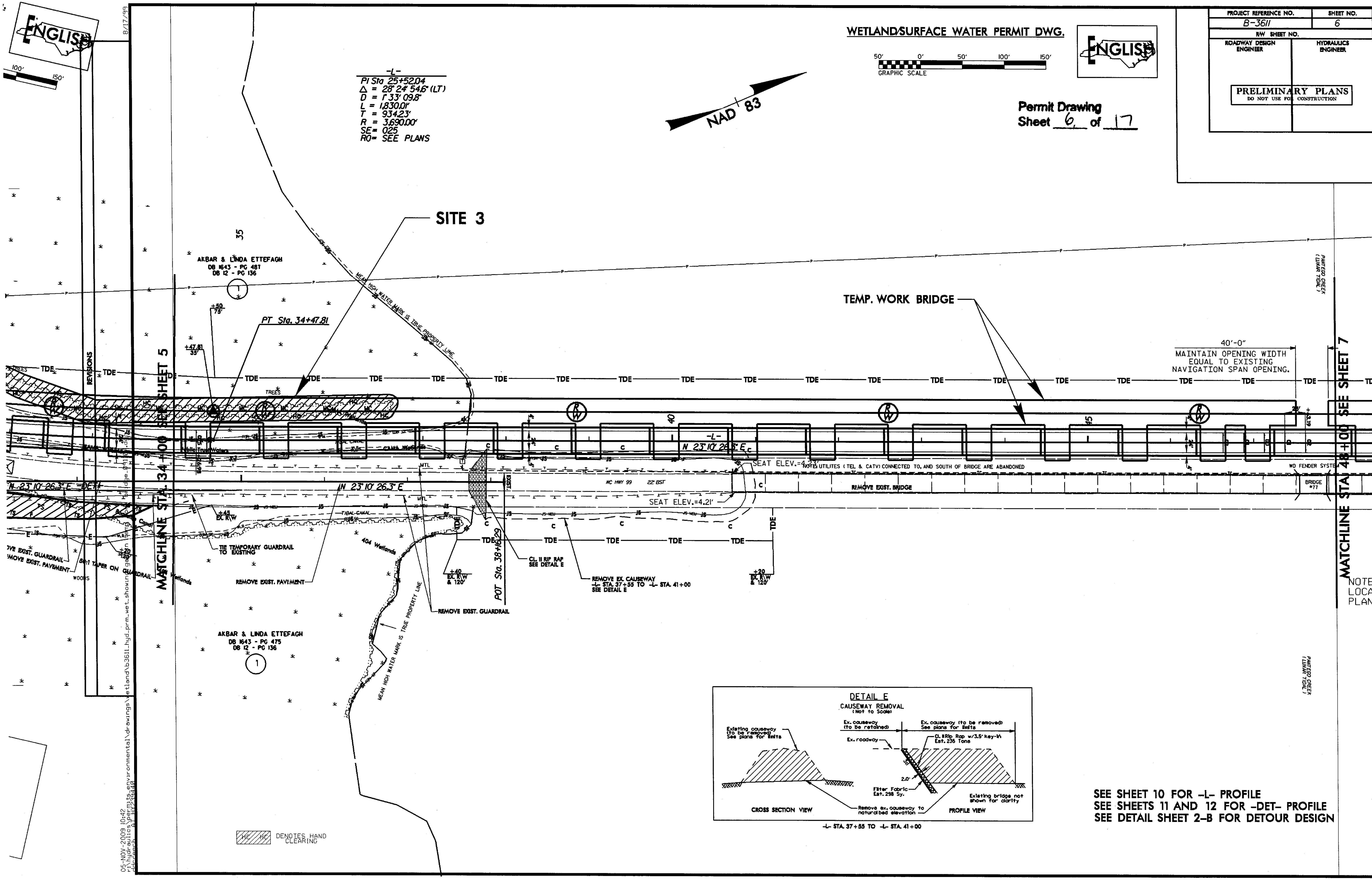
8/17/99

09-JUN-2009 12:45
r:\hydraulics\permits_environmental\drawings\wetland\b3611_hyd_prm_wet.dgn



WETLAND/SURFACE WATER PERMIT DWG.
ENGLISH
PROJECT REFERENCE NO. B-3611
SHEET NO. 5
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
Permit Drawing Sheet 4 of 17
GRAPHIC SCALE
NAD 83
-L-
PI Sta 25+52.04
Δ = 28° 24' 54.6" (LT)
D = 1° 33' 09.8"
L = 1,830.01'
T = 934.23'
R = 3,690.00'
SE= .025
RO= SEE PLANS
AKBAR & LINDA ETTEFACH
HENRY & DOROTHY MURRAY
DB 12 - PG 136
CAMA Wetlands
404 Wetlands
WOODS
SITE 3
TEMP. WORK BRIDGE
SEE SHEET 4
SEE SHEET 6
MATCHLINE
SITE 2
REMOVE EXIST. GUARDRAIL
BEGIN SBG
TIE BRIDGE CLOSED SYSTEM TO PROP. DITCH
Public Trust Waters
TIDAL CANAL
PROP. TEMPORARY DETOUR
REMOVE EXIST. PAVEMENT
50:1 TAPER ON GUARDRAIL
8' BASE LATERAL DITCH SEE DETAIL A
15" CSP W2 ELB.
CL. B RIP RAP EST. 2 TONS FILTER FABRIC EST. 7 SY.
TEMP. CL. B RIP RAP EST. 3 TONS FILTER FABRIC EST 11 SY.
STD. 3' BASE DITCH W/CL. B RIP RAP SEE DETAIL C
3' BASE GRASSED SWALE SEE DETAIL D
GRADE EX. ROADBED TO ELEV. 4.0' -L- STA. 28+00 TO STA. 34+00 SEE DETAIL B
DETAIL A
LATERAL BASE DITCH
(Not to Scale)
Min. D= 2.5 Ft.
B= 8 Ft.
Min. b= 5 Ft.
-L- STA. 17+25 TO STA. 27+25 RT.
DDE = 2600 Cu. Yds.
DETAIL B
EX. ROADBED GRADING
(Not to Scale)
W/O DITCH
WITH DITCH
-L- STA. 28+00 TO STA. 34+00
DETAIL C
STANDARD BASE DITCH
(Not to Scale)
Filter Fabric Est. 220 Sy.
Min. D= 1.0 Ft.
Max. d= 1.5 Ft.
B= 3 Ft.
Est. 85 Tons
Type of Liner= Class B Rip Rap
-L- STA. 28+00 TO STA. 29+30 RT.
-DET-
PI Sta 28+98.33
Δ = 21° 32' 56.5" (LT)
D = 3° 34' 51.6"
L = 601.76'
T = 304.48'
R = 1,600.00'
DENOTES EXCAVATION IN WETLAND
DENOTES FILL IN WETLAND
DENOTES TEMPORARY FILL IN WETLAND
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES HAND CLEARING
DETAIL D
STD. BASE GRASSED SWALE
(Not to Scale)
Min. D = 1.0 Ft.
B = 3 Ft.
w = 5 Ft.
L = 15 Ft.
PLAN VIEW
PROFILE VIEW
PSRM
-L- STA. 29+30 to STA. 32+00 RT.
SEE SHEET 9 FOR -L- PROFILE
SEE SHEETS 11 AND 12 FOR -DET- PROFILE
SEE DETAIL SHEET 2-B FOR DETOUR DESIGN
PAVEMENT - BRIDGE RELATIONSHIP SKETCH
09-JUN-2009 12:46


WETLAND/SURFACE WATER PERMIT DWG.
ENGLISH
PROJECT REFERENCE NO. B-3611
SHEET NO. 5
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
Permit Drawing
Sheet 5 of 17
GRAPHIC SCALE
NAD 83
-L-
PI Sta 25+52.04
Δ = 28° 24' 54.6" (LT)
D = 1° 33' 09.8"
L = 1,830.01'
T = 934.23'
R = 3,690.00'
SE= .025
RO= SEE PLANS
AKBAR & LINDA ETTEFAGH
HENRY & DOROTHY MURRAY
DB 12 - PG 136
CAMA Wetlands
404 Wetlands
WOODS
SITE 3
TEMP. WORK BRIDGE
SEE SHEET 4
SEE SHEET 6
MATCHLINE
AKBAR & LINDA ETTEFAGH
DB 1643 - PG 487
DB 12 - PG 136
Public Trust Waters
TIDAL CANAL
REMOVE EXIST. GUARDRAIL
TIE BRIDGE CLOSED SYSTEM TO PROP. DITCH
ON R/W
PROP. TEMPORARY DETOUR
REMOVE EXIST. GUARDRAIL
REMOVE EXIST. PAVEMENT
50:1 TAPER ON GUARDRAIL
LATERAL DITCH A
-DET- PT Sta. 20+60.47
-DET- PC Sta. 25+93.80
-DET- PT Sta. 31+95.56
8' BASE LATERAL DITCH SEE DETAIL A
15" CSP W2 ELB.
CL. B RIP RAP EST. 2 TONS FILTER FABRIC EST. 7 SY.
TEMP. CL. B RIP RAP EST. 3 TONS FILTER FABRIC EST 11 SY.
STD. 3' BASE DITCH W/CL. B RIP RAP SEE DETAIL C
PROP. R/W
3' BASE GRASSED SWALE SEE DETAIL D
GRADE EX. ROADBED TO ELEV. 4.0' -L- STA. 28+00 TO STA. 34+00 SEE DETAIL B
SITE 2
DETAIL A
LATERAL BASE DITCH
(Not to Scale)
Natural Ground
Min. Berm Elev.=4.0'
Fill Slope
Min. D= 2.5 Ft.
B= 8 Ft.
Min. b= 5 Ft.
-L- STA. 17+25 TO STA. 27+25 RT.
DDE = 2600 Cu. Yds.
DETAIL B
EX. ROADBED GRADING
(Not to Scale)
Elev.=4.0'
Existing Roadbed
W/O DITCH
1"/Ft. or as needed to Grade to Drain
WITH DITCH
(see ditch detail)
-L- STA. 28+00 TO STA. 34+00
DETAIL C
STANDARD BASE DITCH
(Not to Scale)
Natural Ground
Filter Fabric Est. 220 Sy.
Min. D= 1.0 Ft.
Max. d= 1.5 Ft.
B= 3 Ft.
Est. 85 Tons
Type of Liner= Class B Rip Rap
-L- STA. 28+00 TO STA. 29+30 RT.
-DET-
PI Sta 28+98.33
Δ = 21° 32' 56.5" (LT)
D = 3° 34' 51.6"
L = 601.76'
T = 304.48'
R = 1,600.00'
DENOTES EXCAVATION IN WETLAND
DENOTES FILL IN WETLAND
DENOTES TEMPORARY FILL IN WETLAND
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES HAND CLEARING
DETAIL D
STD. BASE GRASSED SWALE
(Not to Scale)
Min. D = 1.0 Ft.
B = 3 Ft.
w = 5 Ft.
L = 15 Ft.
PLAN VIEW
PSRM
PROFILE VIEW
End of prop. ditch grade
Prop. ditch grade
See Roadway profiles
PSRM w/ 1' tuck all sides
Natural Ground
-L- STA. 29+30 to STA. 32+00 RT.
SEE SHEET 9 FOR -L- PROFILE
SEE SHEETS 11 AND 12 FOR -DET- PROFILE
SEE DETAIL SHEET 2-B FOR DETOUR DESIGN
* STRUCTURE ANCHOR UNITS
BEGIN BRIDGE STA. 26+49
PAVEMENT - BRIDGE RELATIONSHIP SKETCH
09-JUN-2009 10:46


PROJECT REFERENCE NO.
B-3611
SHEET NO.
6
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
WETLAND/SURFACE WATER PERMIT DWG.
GRAPHIC SCALE
ENGLISH
Permit Drawing
Sheet 6 of 17
NAD 83
-L-
PI Sta 25+52.04
Δ = 28° 24' 54.6" (LT)
D = 1° 33' 09.8"
L = 1,830.01'
T = 934.23'
R = 3,690.00'
SE = .025
RO = SEE PLANS
SITE 3
AKBAR & LINDA ETTEFAGH
DB 1643 - PG 487
DB 12 - PG 136
PT Sta. 34+47.81
TEMP. WORK BRIDGE
40'-0"
MAINTAIN OPENING WIDTH
EQUAL TO EXISTING
NAVIGATION SPAN OPENING.
MATCHLINE STA. 34+00 SEE SHEET 5
MATCHLINE STA. 48+00 SEE SHEET 7
MEAN HIGH WATER MARK IS TRUE PROPERTY LINE
N 23° 10' 26.3" E
SEAT ELEV.=4.21'
NOTE: UTILITIES (TEL & CATV) CONNECTED TO, AND SOUTH OF BRIDGE ARE ABANDONED
REMOVE EXIST. BRIDGE
NC HWY 99
TIE TEMPORARY GUARDRAIL TO EXISTING
REMOVE EXIST. PAVEMENT
REMOVE EXIST. GUARDRAIL
404 Wetlands
POT Sta. 38+16.29
CL. II RIP RAP SEE DETAIL E
REMOVE EX. CAUSEWAY -L- STA. 37+55 TO -L- STA. 41+00 SEE DETAIL E
AKBAR & LINDA ETTEFAGH
DB 1643 - PG 475
DB 12 - PG 136
DETAIL E
CAUSEWAY REMOVAL
(Not to Scale)
CROSS SECTION VIEW
PROFILE VIEW
-L- STA. 37+55 TO -L- STA. 41+00
DENOTES HAND CLEARING
SEE SHEET 10 FOR -L- PROFILE
SEE SHEETS 11 AND 12 FOR -DET- PROFILE
SEE DETAIL SHEET 2-B FOR DETOUR DESIGN
05-NOV-2009 10:42

ENGLISH

8/17/99

100' 150'

WETLAND/SURFACE WATER PERMIT DWG.

50' 0' 50' 100' 150'
GRAPHIC SCALE

ENGLISH

PROJECT REFERENCE NO.	SHEET NO.
B-3611	6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 7 of 12

-L-
PI Sta 25+52.04
Δ = 28° 24' 54.6" (LT)
D = 1° 33' 09.8"
L = 1,830.01'
T = 934.23'
R = 3,690.00'
SE = 025
RO = SEE PLANS

NAD 83

SITE 3

TEMP. WORK BRIDGE

40'-0"
MAINTAIN OPENING WIDTH
EQUAL TO EXISTING
NAVIGATION SPAN OPENING.

AKBAR & LINDA ETTEFAGH
DB 1643 - PG 487
DB 12 - PG 136

PT Sta. 34+47.81

MEAN HIGH WATER MARK IS TRUE PROPERTY LINE

PANTEGO CREEK (LUNAR TIDAL)

REVISIONS

TDE

TREES

MATCHLINE STA. 34+00 SEE SHEET 5

MATCHLINE STA. 48+00 SEE SHEET 7

-L- N 23°10'26.3" E

SEAT ELEV.=4.21

NOTE: UTILITES (TEL & CATV) CONNECTED TO, AND SOUTH OF BRIDGE ARE ABANDONED

NC HWY 99 22 BST

REMOVE EXIST. BRIDGE

WD FENDER SYSTE

BRIDGE #77

POT. Sta. 38+16.29

404 Wetlands

TIE TEMPORARY GUARDRAIL TO EXISTING

REMOVE EXIST. PAVEMENT

REMOVE EXIST. GUARDRAIL

CL II RIP RAP SEE DETAIL E

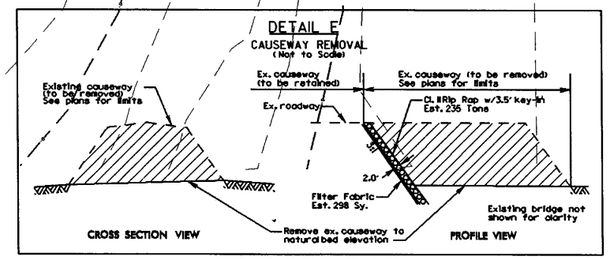
REMOVE EX. CAUSEWAY -L- STA. 37+55 TO -L- STA. 41+00 SEE DETAIL E

+40 Ex. R/W & 120'

+20 Ex. R/W & 120'

MEAN HIGH WATER MARK IS TRUE PROPERTY LINE

DETAIL E
CAUSEWAY REMOVAL
(Not To Scale)



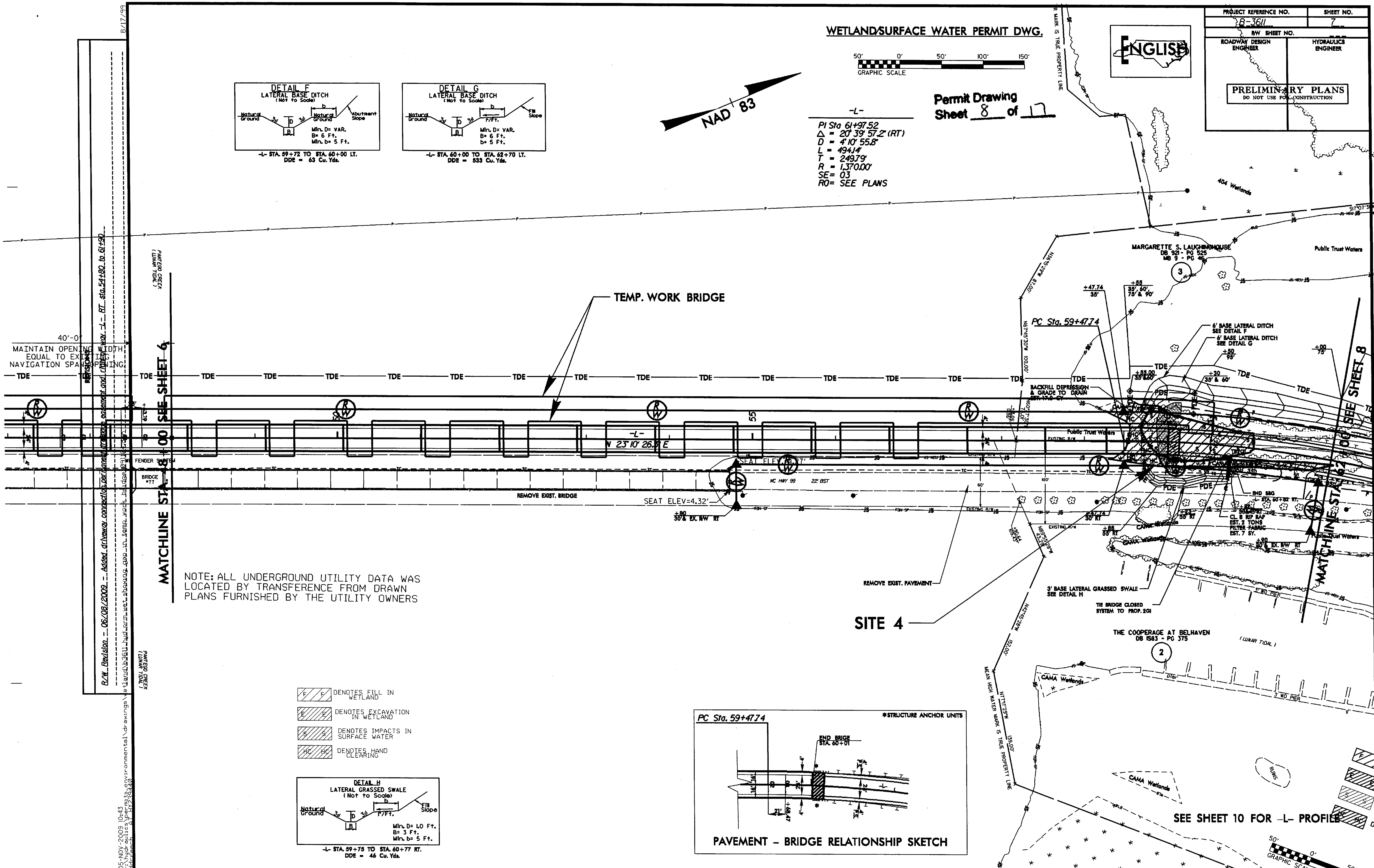
-L- STA. 37+55 TO -L- STA. 41+00

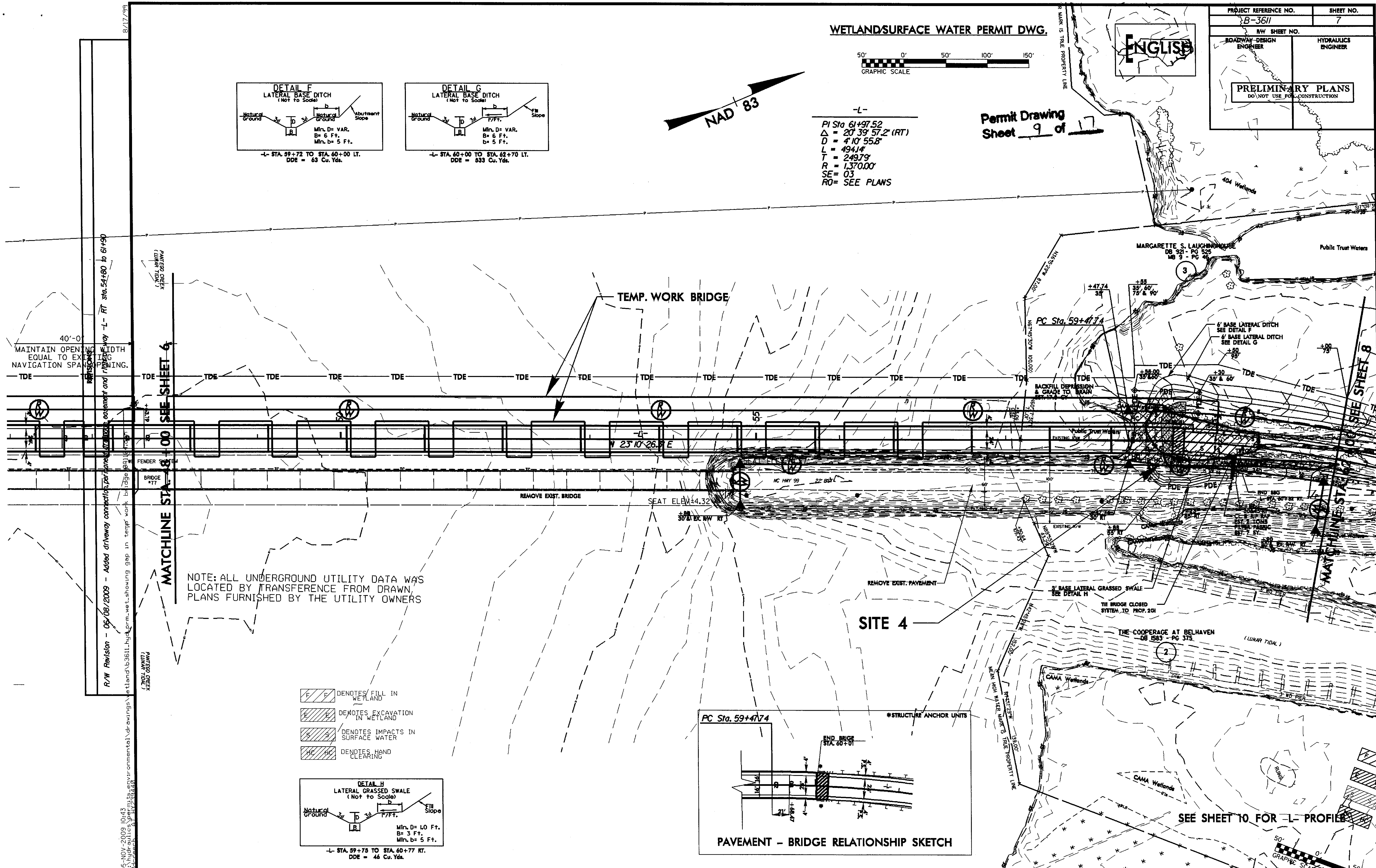
HC HC DENOTES HAND CLEARING

SEE SHEET 10 FOR -L- PROFILE
SEE SHEETS 11 AND 12 FOR -DET- PROFILE
SEE DETAIL SHEET 2-B FOR DETOUR DESIGN

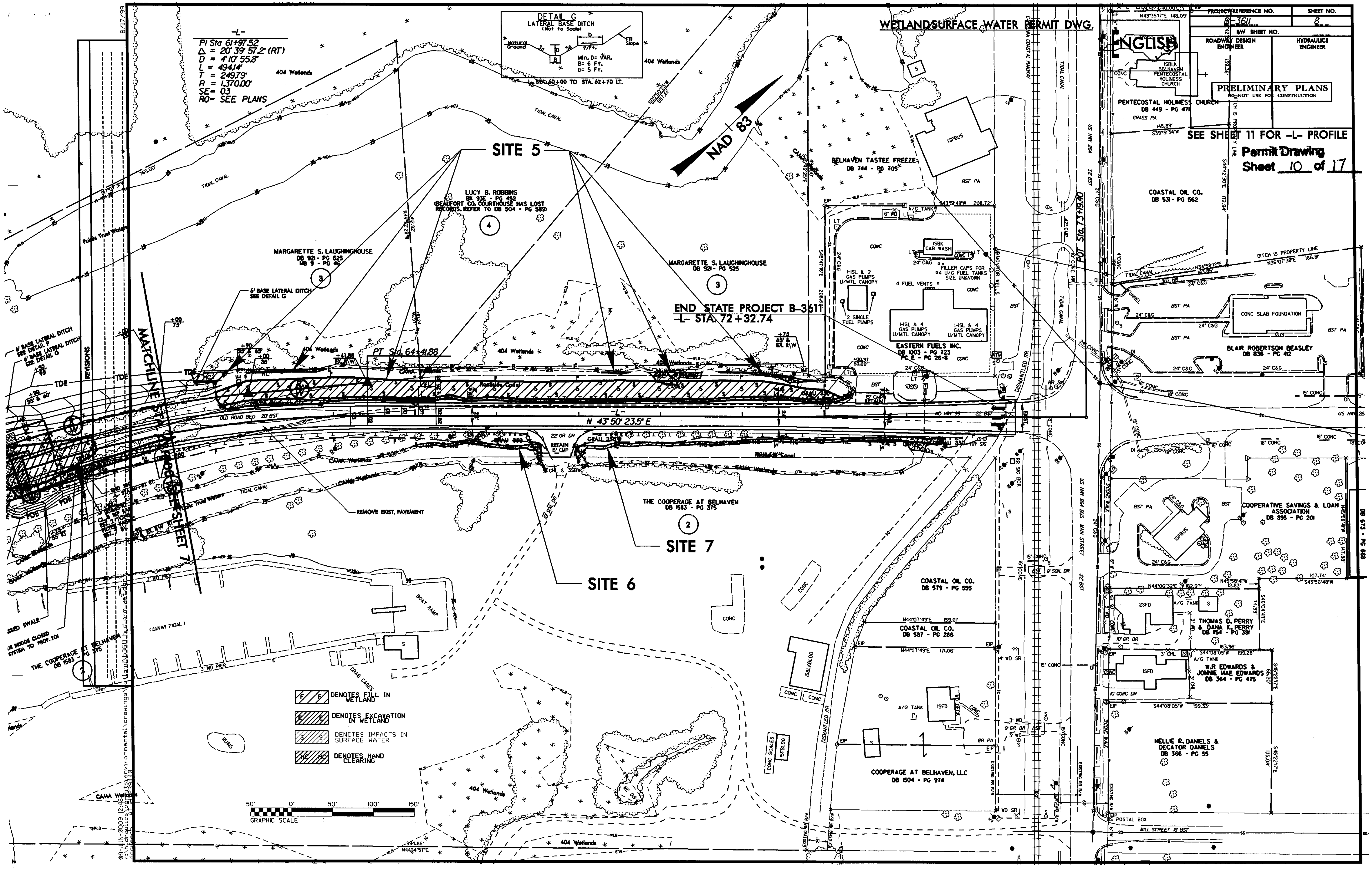
NOTE: A
LOCATE
PLANS

05-NOV-2009 10:42
r:\hydraulics\projects\environmental\drawings\wetland\b3611_hyd_env_wet_sheet6.dgn

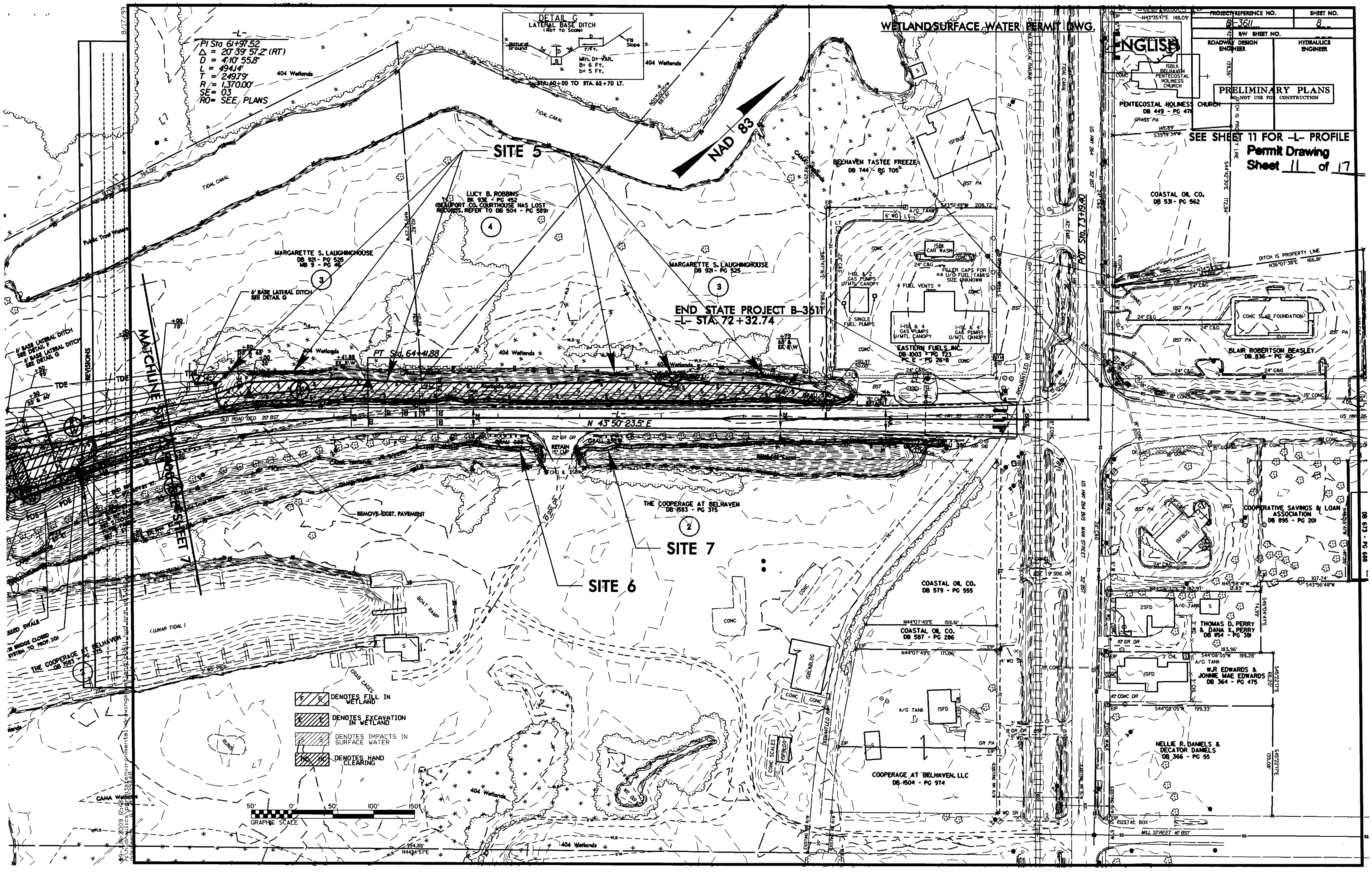

PROJECT REFERENCE NO.
B-3611
SHEET NO.
7
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
ENGLISH
WETLAND/SURFACE WATER PERMIT DWG.
GRAPHIC SCALE
50' 0' 50' 100' 150'
Permit Drawing Sheet 8 of 17
NAD 83
-L-
PI Sta 61+97.52
Δ = 20°39' 57.2" (RT)
D = 4°10' 55.8"
L = 494.14'
T = 249.79'
R = 1,370.00'
SE= 03
RO= SEE PLANS
DETAIL F
LATERAL BASE DITCH
(Not to Scale)
Natural Ground
Abutment Slope
Min. D= VAR.
B= 6 Ft.
Min. b= 5 Ft.
-L- STA. 59+72 TO STA. 60+00 LT.
DDE = 63 Cu. Yds.
DETAIL G
LATERAL BASE DITCH
(Not to Scale)
Natural Ground
Fill Slope
Min. D= VAR.
B= 6 Ft.
Min. b= 5 Ft.
-L- STA. 60+00 TO STA. 62+70 LT.
DDE = 533 Cu. Yds.
TEMP. WORK BRIDGE
40'-0"
MAINTAIN OPENING WIDTH EQUAL TO EXISTING NAVIGATION SPAN OPENING
PANTEGO CREEK (LUNAR TIDAL)
MATCHLINE STA. 48+00 SEE SHEET 6
MATCHLINE STA. 62+00 SEE SHEET 8
REVISIONS
R/W Revision - 06/08/2009 - Added driveway connection, permanent drainage easement and construction easement
FENDER SYSTEM
BRIDGE #77
REMOVE EXIST. BRIDGE
SEAT ELEV=4.32'
NC HWY 99 22' BST
404 Wetlands
MARGARETTE S. LAUGHINGHOUSE
DB 921 - PG 525
MB 3 - PG 46
Public Trust Waters
PC Sta. 59+47.74
6' BASE LATERAL DITCH SEE DETAIL F
6' BASE LATERAL DITCH SEE DETAIL G
BACKFILL DEPRESSION & GRADE TO DRAIN
END SBG
CL. B RIP RAP EST. 2 TONS
FILTER FABRIC EST. 7 SY.
CAMA Wetlands
REMOVE EXIST. PAVEMENT
3' BASE LATERAL GRASSED SWALE SEE DETAIL H
TIE BRIDGE CLOSED SYSTEM TO PROP. 2GI
SITE 4
THE COOPERAGE AT BELHAVEN
DB 1583 - PG 375
(LUNAR TIDAL)
3' WD PIER
MEAN HIGH WATER MARK IS TRUE PROPERTY LINE
RUINS
NOTE: ALL UNDERGROUND UTILITY DATA WAS LOCATED BY TRANSFERENCE FROM DRAWN PLANS FURNISHED BY THE UTILITY OWNERS
DENOTES FILL IN WETLAND
DENOTES EXCAVATION IN WETLAND
DENOTES IMPACTS IN SURFACE WATER
DENOTES HAND CLEARING
DETAIL H
LATERAL GRASSED SWALE
(Not to Scale)
Natural Ground
Fill Slope
Min. D= 1.0 Ft.
B= 3 Ft.
Min. b= 5 Ft.
-L- STA. 59+75 TO STA. 60+77 RT.
DDE = 46 Cu. Yds.
PC Sta. 59+47.74
*STRUCTURE ANCHOR UNITS
END BRIDGE STA. 60+01
PAVEMENT - BRIDGE RELATIONSHIP SKETCH
SEE SHEET 10 FOR -L- PROFILE
8/17/99
05-NOV-2009 10:43



PROJECT REFERENCE NO.
B-3611
SHEET NO.
7
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
ENGLISH
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
WETLAND/SURFACE WATER PERMIT DWG.
GRAPHIC SCALE
NAD 83
Permit Drawing Sheet 9 of 17
-L-
PI Sta 61+97.52
Δ = 20° 39' 57.2" (RT)
D = 4° 10' 55.8"
L = 494.14'
T = 249.79'
R = 1,370.00'
SE = .03
RO = SEE PLANS
DETAIL F
LATERAL BASE DITCH
(Not to Scale)
Min. D= VAR.
B= 6 Ft.
Min. b= 5 Ft.
-L- STA. 59+72 TO STA. 60+00 LT.
DDE = 63 Cu. Yds.
DETAIL G
LATERAL BASE DITCH
(Not to Scale)
Min. D= VAR.
B= 6 Ft.
Min. b= 5 Ft.
-L- STA. 60+00 TO STA. 62+70 LT.
DDE = 833 Cu. Yds.
DETAIL H
LATERAL GRASSED SWALE
(Not to Scale)
Min. D= 1.0 Ft.
B= 3 Ft.
Min. b= 5 Ft.
-L- STA. 59+75 TO STA. 60+77 RT.
DDE = 46 Cu. Yds.
TEMP. WORK BRIDGE
MAINTAIN OPENING WIDTH EQUAL TO EXISTING NAVIGATION SPAN OPENING.
40'-0"
MATCHLINE STA. 54+00 SEE SHEET 6
MATCHLINE STA. 62+00 SEE SHEET 8
N 23° 10' 26.5" E
REMOVE EXIST. BRIDGE
SEAT ELEV=4.32
PC Sta. 59+47.74
MARGARETTE S. LAUGHINGHOUSE
DB 921 - PG 525
MB 3 - PG 46
404 Wetlands
Public Trust Waters
6' BASE LATERAL DITCH SEE DETAIL F
6' BASE LATERAL DITCH SEE DETAIL G
BACKFILL DEPRESSION & GRADE TO DRAIN
REMOVE EXIST. PAVEMENT
3' BASE LATERAL GRASSED SWALE SEE DETAIL H
TIE BRIDGE CLOSED SYSTEM TO PROP. 2GI
SITE 4
THE COOPERAGE AT BELHAVEN
DB 1583 - PG 375
(LUNAR TIDAL)
CAMA Wetlands
NOTE: ALL UNDERGROUND UTILITY DATA WAS LOCATED BY TRANSFERENCE FROM DRAWN PLANS FURNISHED BY THE UTILITY OWNERS
DENOTES FILL IN WETLAND
DENOTES EXCAVATION IN WETLAND
DENOTES IMPACTS IN SURFACE WATER
DENOTES HAND CLEARING
PAVEMENT - BRIDGE RELATIONSHIP SKETCH
*STRUCTURE ANCHOR UNITS
END BRIGE STA. 60+01
SEE SHEET 10 FOR -L- PROFILE
R/W Revision - 05/08/2009 - Added driveway connection, permanent drainage easement and right of way -L- RT sta.54+80 to 61+90
REVISIONS
05-NOV-2009 10:43
8/17/99



WETLAND/SURFACE WATER PERMIT DWG.
PROJECT REFERENCE NO. B-3611
SHEET NO. 8
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
ENGLISH
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
SEE SHEET 11 FOR -L- PROFILE
Permit Drawing
Sheet 10 of 17
DETAIL G
LATERAL BASE DITCH
(Not to Scale)
-L-
PI Sta 61+97.52
Δ = 20° 39' 57.2" (RT)
D = 4° 10' 55.8"
L = 494.14'
T = 249.79'
R = 1,370.00'
SE = .03
RO = SEE PLANS
SITE 5
SITE 6
SITE 7
NAD 83
LUCY B. ROBBINS
BK 93E - PG 452
(BEAUFORT CO. COURTHOUSE HAS LOST RECORDS. REFER TO DB 504 - PG 589)
MARGARETTE S. LAUGHINGHOUSE
DB 921 - PG 525
MB 9 - PG 46
MARGARETTE S. LAUGHINGHOUSE
DB 921 - PG 525
BELHAVEN TASTEE FREEZE
DB 744 - PG 705
EASTERN FUELS INC.
DB 1003 - PG 723
PC E - PG 26-8
END STATE PROJECT B-3611
-L- STA. 72+32.74
PT Sta. 64+41.88
N 43° 50' 23.5" E
MATCHLINE SEE SHEET 7
THE COOPERAGE AT BELHAVEN
DB 1583 - PG 375
REMOVE EXIST. PAVEMENT
PENTECOSTAL HOLINESS CHURCH
DB 449 - PG 471
COASTAL OIL CO.
DB 531 - PG 562
BLAIR ROBERTSON BEASLEY
DB 836 - PG 412
COOPERATIVE SAVINGS & LOAN ASSOCIATION
DB 895 - PG 201
COASTAL OIL CO.
DB 579 - PG 555
COASTAL OIL CO.
DB 587 - PG 286
THOMAS D. PERRY & DANA K. PERRY
DB 1154 - PG 381
W.R EDWARDS & JONNIE MAE EDWARDS
DB 364 - PG 475
NELLIE R. DANIELS & DECATOR DANIELS
DB 366 - PG 55
COOPERAGE AT BELHAVEN, LLC
DB 1504 - PG 974
US HWY 264 BUS MAIN STREET
MILL STREET
DENOTES FILL IN WETLAND
DENOTES EXCAVATION IN WETLAND
DENOTES IMPACTS IN SURFACE WATER
DENOTES HAND CLEARING
GRAPHIC SCALE
50' 0' 50' 100' 150'


PROJECT REFERENCE NO.
SHEET NO.
B-3611
8
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
WETLAND/SURFACE WATER PERMIT DWG.
ENGLISH
SEE SHEET 11 FOR -L- PROFILE
Permit Drawing
Sheet 11 of 17
-L-
PI Sta 61+97.52
Δ = 20° 39' 57.2" (RT)
D = 4°10' 55.8"
L = 494.14'
T = 249.79'
R = 1,370.00'
SE = .03
RO = SEE PLANS
DETAIL G
LATERAL BASE DITCH
(Not to Scale)
Natural Ground
Fill Slope
Min. D= VAR.
B= 6 Ft.
b= 5 Ft.
STA. 60+00 TO STA. 62+70 LT.
404 Wetlands
TIDAL CANAL
NAD 83
SITE 5
SITE 6
SITE 7
LUCY B. ROBBINS
BK 93E - PG 452
(BEAUFORT CO. COURTHOUSE HAS LOST RECORDS. REFER TO DB 504 - PG 589)
MARGARETTE S. LAUGHINGHOUSE
DB 921 - PG 525
MB 3 - PG 46
BELHAVEN TASTEE FREEZE
DB 744 - PG 705
END STATE PROJECT B-3611
-L- STA. 72+32.74
PT Sta. 64+41.88
6' BASE LATERAL DITCH
SEE DETAIL G
6' BASE LATERAL DITCH
SEE DETAIL F
MATCHLINE -L- STA. 60+00 SEE SHEET 7
REVISIONS
OLD ROAD BED 20' BST
N 43° 50' 23.5" E
REMOVE EXIST. PAVEMENT
THE COOPERAGE AT BELHAVEN
DB 1583 - PG 375
(LUNAR TIDAL)
BOAT RAMP
CRAB CAGES
RUINS
CAMA Wetlands
EASTERN FUELS INC.
DB 1003 - PG 123
PC E - PG 26-8
ISBK CAR WASH
FILLER CAPS FOR 4 U/G FUEL TANKS SIZE UNKNOWN
4 FUEL VENTS
2 SINGLE FUEL PUMPS
1-ISL & 2 GAS PUMPS U/MTL CANOPY
1-ISL & 4 GAS PUMPS U/MTL CANOPY
PENTECOSTAL HOLINESS CHURCH
DB 449 - PG 471
ISBLK BELHAVEN PENTECOSTAL HOLINESS CHURCH
COASTAL OIL CO.
DB 531 - PG 562
DITCH IS PROPERTY LINE
CONC SLAB FOUNDATION
BLAIR ROBERTSON BEASLEY
DB 836 - PG 412
POT Sta. 73+19.40
DISMANTLED RR
US HWY 264 BUS MAIN STREET
NC HWY 99
COOPERATIVE SAVINGS & LOAN ASSOCIATION
DB 895 - PG 201
COASTAL OIL CO.
DB 579 - PG 555
COASTAL OIL CO.
DB 587 - PG 286
THOMAS D. PERRY & DANA K. PERRY
DB 1154 - PG 381
W.R EDWARDS & JONNIE MAE EDWARDS
DB 364 - PG 475
NELLIE R. DANIELS & DECATOR DANIELS
DB 366 - PG 55
COOPERAGE AT BELHAVEN, LLC
DB 1504 - PG 974
MILL STREET 16' BST
US POSTAL BOX
DB 673 - PG 688
DENOTES FILL IN WETLAND
DENOTES EXCAVATION IN WETLAND
DENOTES IMPACTS IN SURFACE WATER
DENOTES HAND CLEARING
50' 0' 50' 100' 150'
GRAPHIC SCALE
8/17/99
09-JUN-2009 12:48

WETLAND/SURFACE WATER PERMIT DWG.

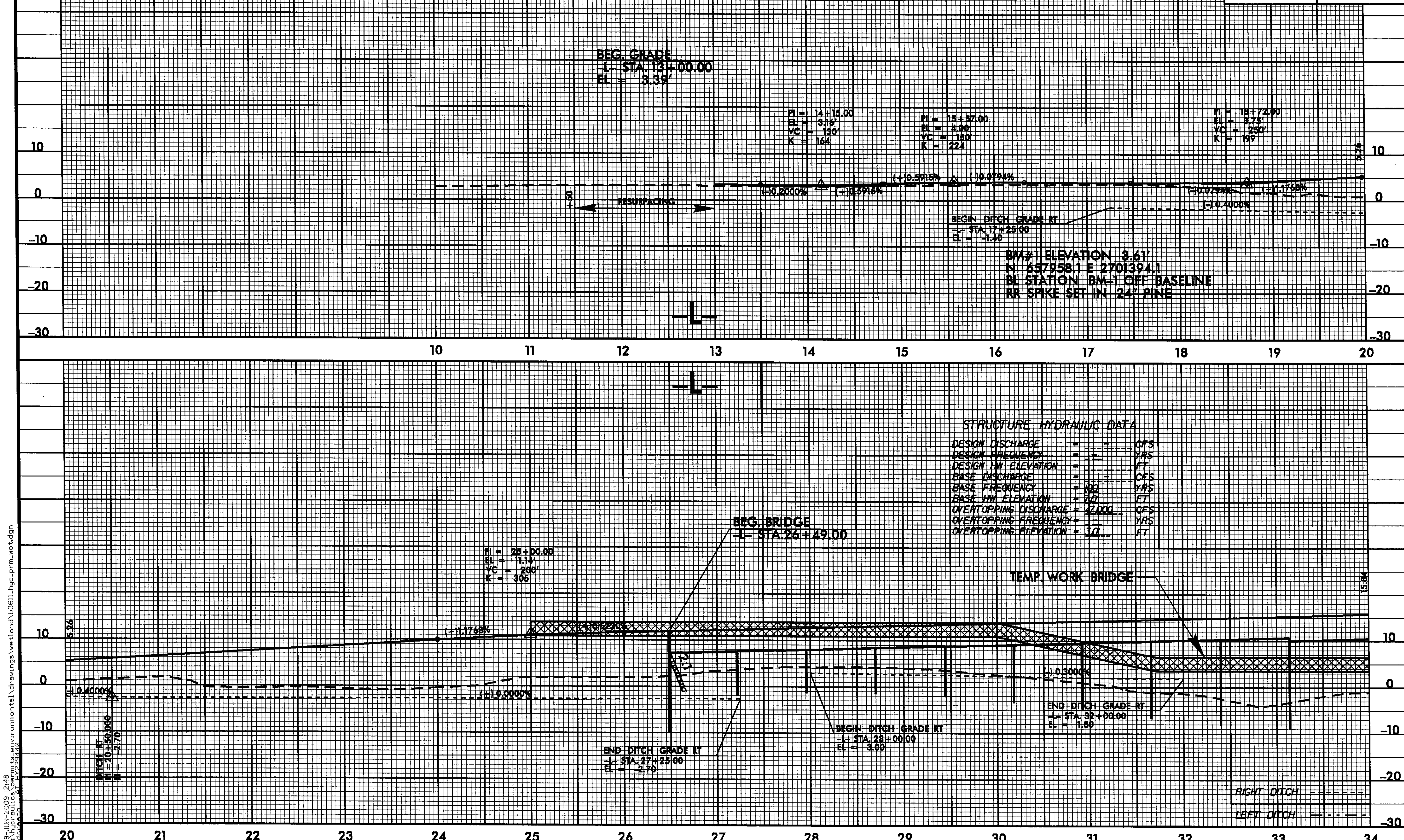
PROJECT REFERENCE NO.	SHEET NO.
B-3611	9

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

Permit Drawing
Sheet 12 of 17

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

5/28/99



BEG. GRADE
-L- STA. 13+00.00
EL = 3.39'
PI = 14+15.00
EL = 3.16'
VC = 130'
K = 164
PI = 15+57.00
EL = 4.00'
VC = 150'
K = 224
PI = 18+72.00
EL = 3.75'
VC = 250'
K = 199
(-)0.2000%
(+)0.5915%
(+)0.5915%
(-)0.0794%
(-)0.0794%
(+)1.1768%
(-)0.4000%
RESURFACING
BEGIN DITCH GRADE RT
-L- STA. 17+25.00
EL = -1.40
BM#1 ELEVATION 3.61'
N 657958.1 E 2701394.1
BL STATION BM-1 OFF BASELINE
RR SPIKE SET IN 24" PINE
-L-
5.26
STRUCTURE HYDRAULIC DATA
DESIGN DISCHARGE = - CFS
DESIGN FREQUENCY = - YRS
DESIGN HW ELEVATION = - FT
BASE DISCHARGE = - CFS
BASE FREQUENCY = 100 YRS
BASE HW ELEVATION = 7.0 FT
OVERTOPPING DISCHARGE = 47,000 CFS
OVERTOPPING FREQUENCY = - YRS
OVERTOPPING ELEVATION = 3.0 FT
BEG. BRIDGE
-L- STA. 26+49.00
PI = 25+00.00
EL = 11.14'
VC = 200'
K = 305
TEMP. WORK BRIDGE
(+)1.1768%
(-)0.4000%
(+)0.0000%
(-)0.3000%
2:1
END DITCH GRADE RT
-L- STA. 27+25.00
EL = -2.70
BEGIN DITCH GRADE RT
-L- STA. 28+00.00
EL = 3.00
END DITCH GRADE RT
-L- STA. 32+00.00
EL = 1.80
DITCH RT
PI = 20+50.000
EL = -2.70
15.84
RIGHT DITCH
LEFT DITCH

09-JUN-2009 12:48
r:\hydraulics\permits_environmental\drawings\wetland\b3611_hyd_prm_wet.dgn

WETLAND/SURFACE WATER PERMIT DWG.

PROJECT REFERENCE NO.	SHEET NO.
B-3611	10
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Permit Drawing
Sheet 13 of 17

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

5/28/99

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= ----	CFS
DESIGN FREQUENCY	= ---	YRS
DESIGN HW ELEVATION	= ---	FT
BASE DISCHARGE	= ----	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 7.0'	FT
OVERTOPPING DISCHARGE	= 47,000	CFS
OVERTOPPING FREQUENCY	= ---	YRS
OVERTOPPING ELEVATION	= 3.0'	FT

FINAL WORK BRIDGE GRADE TO BE SET BY CONTRACTOR.
MIN. LOW CHORD = 2.4' (2' ABOVE MEAN HIGH WATER).
EX. NAVIGATIONAL CHANNEL HEIGHT & WIDTH
(DISTANCE OF 32.0' @ ELEV. 13.2') TO BE MAINTAINED

TEMP. WORK BRIDGE

PI = 47+72.00
EL = 23.00'
VC = 350'
K = 223

22.22

15.84

(-)10.5220%

(+)1.0504%

6% MAX. GR.

MEAN TIDE LEVEL = 0.2'

MEAN LOW WATER = -0.7'

NORMAL WATER SURFACE = 0.0

MEAN HIGH WATER = 0.4'

72408

-L-

10
0
-10
-20
-30

34 35 36 37 38 39 40 41 42 43 44 45 46 47 48

-L-

FINAL WORK BRIDGE GRADE TO BE SET BY CONTRACTOR.
MIN. LOW CHORD = 2.4' (2' ABOVE MEAN HIGH WATER).
EX. NAVIGATIONAL CHANNEL HEIGHT & WIDTH
(DISTANCE OF 32.0' @ ELEV. 13.2') TO BE MAINTAINED

22.22

TEMP. WORK BRIDGE
6% MAX. GR.

END BRIDGE
-L- STA. 60+01.00

PI = 62+00.00
EL = 8.00'
VC = 170'
K = 107.9

BEGIN DITCH GRADE LT
-L- STA. 59+72.00
EL = 0.00

7.83

(-)1.0504%

(-)0.3922%

0.00%

27.72

BEGIN DITCH GRADE RT
-L- STA. 59+75 EL = 3.0

END DITCH GRADE RT
-L- STA. 60+77 EL = 4.2

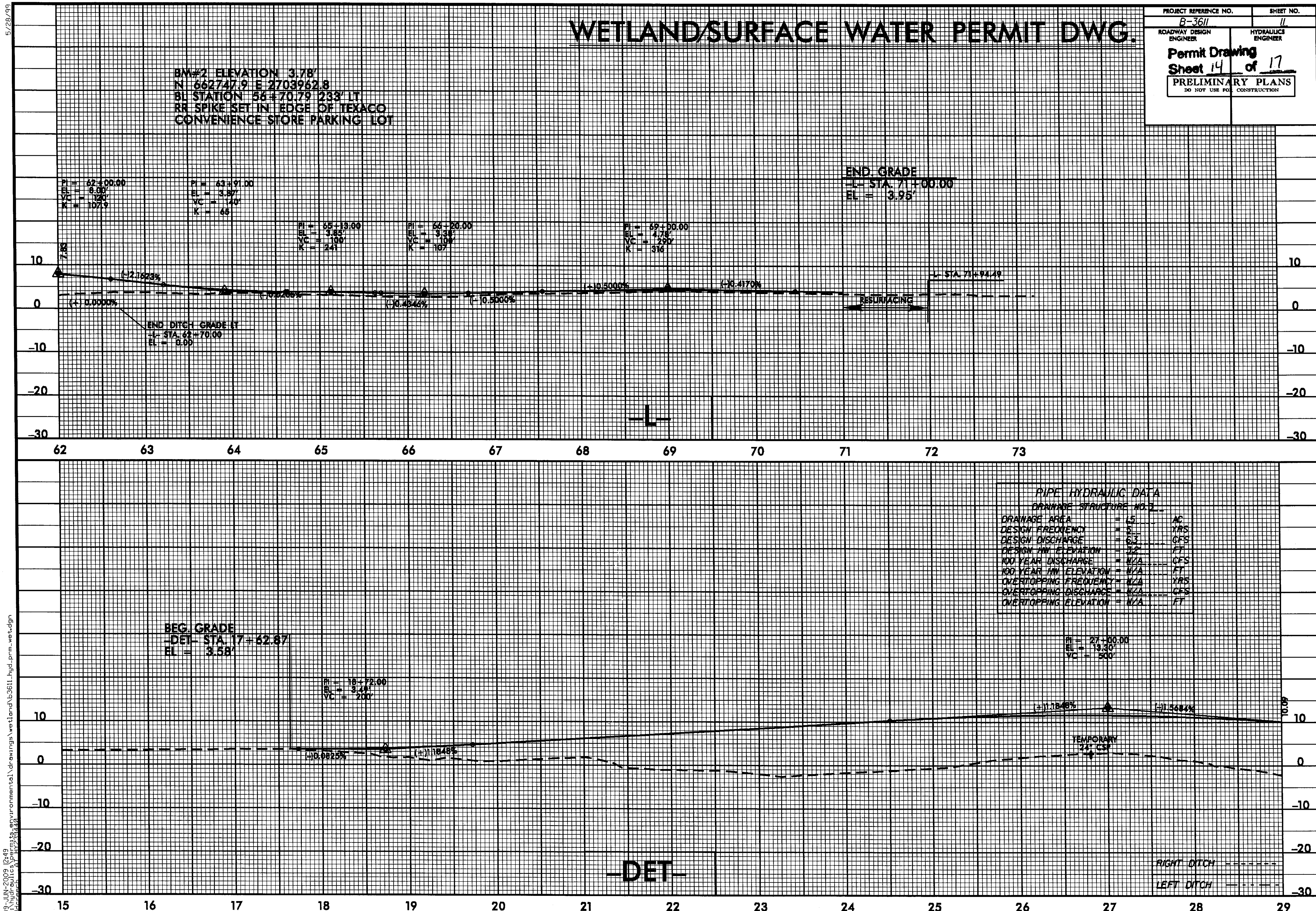
RIGHT DITCH - - - - - - - -

LEFT DITCH — - — - —

10
0
-10
-20
-30

48 49 50 51 52 53 54 55 56 57 58 59 60 61 62

09-JUN-2009 12:49
P:\hydro\b3611\prms_environmental\drawings\wetland\b3611_hyd1_prm_wet.dgn
Hydro Group: HYDRAULICS


WETLAND/SURFACE WATER PERMIT DWG.
PROJECT REFERENCE NO. B-3611
SHEET NO. 11
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
Permit Drawing Sheet 14 of 17
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
BM#2 ELEVATION 3.78'
N 662747.9 E 2703962.8
BL STATION 56+70.79 233' LT
RR SPIKE SET IN EDGE OF TEXACO
CONVENIENCE STORE PARKING LOT
PI = 62+00.00 EL = 8.00' VC = 120' K = 107.9
PI = 63+91.00 EL = 3.87' VC = 140' K = 65
PI = 65+13.00 EL = 3.85' VC = 100' K = 241
PI = 66+26.00 EL = 3.38' VC = 100' K = 107
PI = 69+00.00 EL = 4.78' VC = 290' K = 316
END GRADE -L- STA. 71+00.00 EL = 3.95'
(-)2.1623%
(+) 0.0000%
(-)0.4346%
(-)0.5000%
(+)0.5000%
(-)0.4170%
-L- STA. 71+94.49
RESURFACING
END DITCH GRADE LT -L- STA. 62+70.00 EL = 0.00
-L-
BEG. GRADE -DET- STA. 17+62.87 EL = 3.58'
PI = 18+72.00 EL = 3.49' VC = 200'
PI = 27+00.00 EL = 13.30' VC = 500'
(-)0.0825%
(+)1.1848%
(+)1.1848%
(-)1.5684%
TEMPORARY 24" CSP
-DET-
RIGHT DITCH
LEFT DITCH
5/28/99
09-JUN-2009 12:49
r:\hydraulics\permits_environmental\drawings\wetland\b3611_hyd_prm_wet.dgn

PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO. 3

DRAINAGE AREA	= 1.5	AC
DESIGN FREQUENCY	= 5	YRS
DESIGN DISCHARGE	= 6.3	CFS
DESIGN HW ELEVATION	= 3.2	FT
100 YEAR DISCHARGE	= N/A	CFS
100 YEAR HW ELEVATION	= N/A	FT
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= N/A	FT

PROJECT REFERENCE NO.	SHEET NO.
B-3611	12

ROADWAY DESIGN ENGINEER

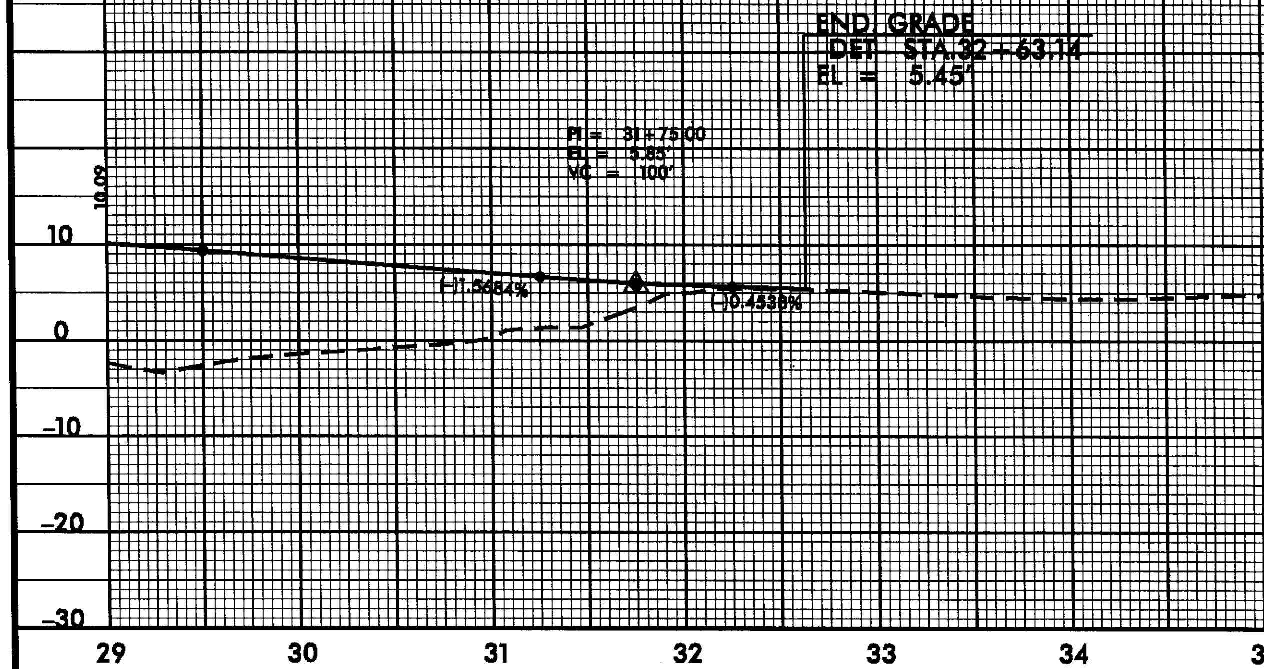
HYDRAULICS ENGINEER

Permit Drawing
Sheet 15 of 17

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-DET-

WETLAND/SURFACE WATER PERMIT DWG.



5/28/99

09-JUN-2009 12:49
r:\hydraulics\permits-environmental\drawings\wetland\b3611_hyd_prm_wet.dgn

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	-L- 11+50 to 17+71 LT.		0.01				0.03	<0.01		15		
2	-L- 17+39 to 31+59 RT.		0.19	0.27	0.69		0.31	0.58	0.50	973	722	
3	-L- 30+79 to 36+70 LT.	TEMP. BRIDGE					0.34					
4	-L- 59+26 to 62+04	BRIDGE	0.04		<0.01		0.04	0.13		137		
5	-L- 62+36 to 70+33 LT.		0.06		<0.01		0.04	0.37		764		
6	-L- 64+98 to 66+54 RT.		<0.01				0.01					
7	-L- 66+95 to 71+45 RT.		0.01				0.04	<0.01		48		
TOTALS:			0.31	0.27	0.69	0.00	0.81	1.08	0.50	1937	722	0

Additional Impacts Notes:

Permanent impacts due to bents in water or wetlands: 630 sq. ft. (0.014 acres)
Temporary impacts due to temporary work bridge bents in water or wetlands: 7716 sq. ft. (0.177 acres)

0.02 acres of temporary fill in wetlands in the hand clearing areas of the 404 wetlands for erosion control measures
0.01 acres of temporary fill in wetlands in the hand clearing areas of the CAMA wetlands for erosion control measures

ATN Revised 3/31/05

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

BEAUFORT COUNTY
WBS - 33162,1.1 (B-3611)
Permit Drawing
SHEET Sheet 16 of 17 6/08/2009

B-3611 Beaufort Co.
Property Owner Information

Courtesy Title	Alternate Courtesy Title	Last Name	First Name	Alternate Name	Address	City/Town	State	Zip Code	Home Phone	Business Phone	Contacted	How Conacted	Whom Contacted
Mr.	Mrs.	Ettefagh	Akbar	Linda Ettefagh	2216 Timberlake Dr.	Raleigh	NC	27604	(919) 872-6093		TRUE	Phone	Akbar
Ms.		Laughinghouse	Margrett S.		PO Box 279	Pantego	NC	27860	() 943-6182		TRUE	Person	Margrett
		River Mill Inn, Inc.			PO Box 31788	Raleigh	NC	27622			TRUE	Letter	River Mill Inn
		Belhaven Tastee Freeze			PO Box 279	Pantego	NC	27860			TRUE	Person	Margrett
		Eastern Fuels, Inc.			PO Box 1386	Ahoskie	NC	27910	(252) 332-5021		TRUE	Phone	Richard Short
		Eastern Fuels, Inc.			PO Box 1386	Ahoskie	NC	27910			FALSE		
		Eastern Fuels, Inc.			PO Box 1386	Ahoskie	NC	27910			FALSE		
Mr.	Mrs.	Flowers	Ronnie	Annie C. Flowers	725 Main Str.	Belhaven	NC	27810			TRUE	Letter	Ronnie
Ms.		Laughinghouse	Margrett S.		PO Box 279	Pantego	NC	27860			FALSE		
Mr.	Mrs.	Wood, Sr.	Paul R.	Hilda Wood	PO Box 122	Belhaven	NC	27810	(252) 943-3641		TRUE	Person	Hilda
Mr.		Chevez	Jaime		102 California Str.	Belhaven	NC	27810	(252) 944-0277		TRUE	Person	Celia
Mr.	Mrs.	Harris	Christopher	Mamie Harris	882 W. Main Str.	Belhaven	NC	27810	(252) 943-3357		TRUE	Person	Christopher
		NC Conference of Pentecostal Holiness Church, Inc.			PO Box 67	Falcon	NC	28342			TRUE	Letter	NCCPHChurch
		Eastern Fuels, Inc.			PO Box 1386	Ahoskie	NC	27910			FALSE		
Mr.		Beasley	Blair R.		PO Box 38	Colerain	NC	27924			TRUE	Letter	Blair
		Cooperative Savings and Loan Assoc.			770 W. Main Str.	Belhaven	NC	27810	(252) 943-2149		TRUE	Person	Deborah Dewey
Mr.	Mrs.	Perry	Thomas D.	Dana K. Perry	752 W. Main Str.	Belhaven	NC	27810	(252) 944-0226		TRUE	Person	Dana
Mr.		Edwards	W. Ralph		PO Box 234	Belhaven	NC	27810	(252) 944-0622		TRUE	Person	Ricky Edwards
Mr.		Daniels	Archie C.		519 Tooley Str.	Belhaven	NC	27810	(252) 943-2266		TRUE	Person	Archie
Mr.		Carawan	G. Ellis		PO Box 2511	Fairfax	VA	22031	(703) 385-2104		TRUE	Phone	G. Ellis
Mr.	Mrs.	Buckman	Thomas F.	Melanie Buckman	316 W. 3rd. Str.	Washington	NC	27889	(252) 946-2607	(252) 946-4137	TRUE	Person	Thomas
Mr.	Mr.	Howell	Fred T.	Colon W. Howell	PO Box 40	Pinetown	NC	27865			TRUE	Letter	Vernon
		BK Investors Limited Partnership			PO Box 9886	Greensboro	NC	27429			TRUE	Letter	
Ms.		Robbins	Lucy B.		661 E. Water Str.	Belhaven	NC	27810			FALSE		
Ms.		Robbins	Lucy B.		661 E. Water Str.	Belhaven	NC	27810			FALSE		
Ms.		Robbins	Lucy B.		661 E. Water Strt.	Belhaven	NC	27810			FALSE		
Ms.		Robbins	Lucy B.		661 E. Water Strt	Belhaven	NC	27810			FALSE		
Ms.		Robbins	Lucy B.		661 E. Water Strt	Belhaven	NC	27810			FALSE		

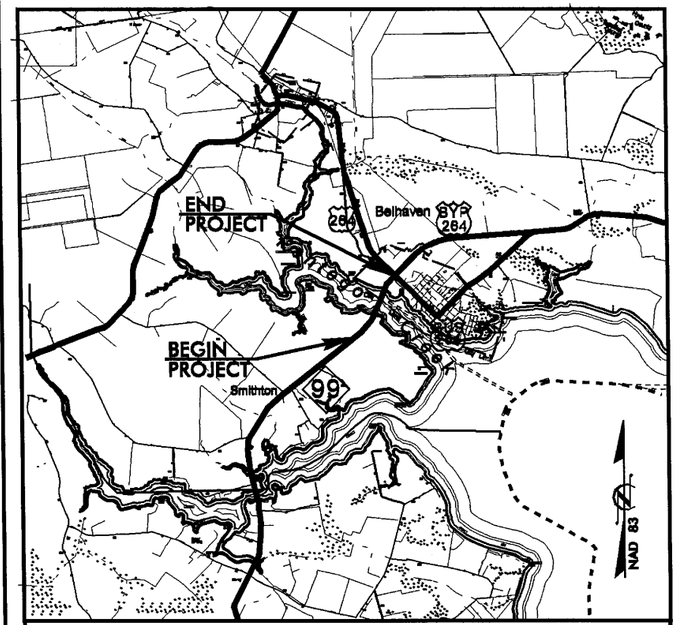
Permit Drawing
Sheet 17 of 17

09/08/99

TIP PROJECT: B-3611

CONTRACT:

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BEAUFORT COUNTY

LOCATION: BRIDGE NO. 77 OVER PANTEGO CREEK ON NC 99

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

ENGLISH

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3611	1	

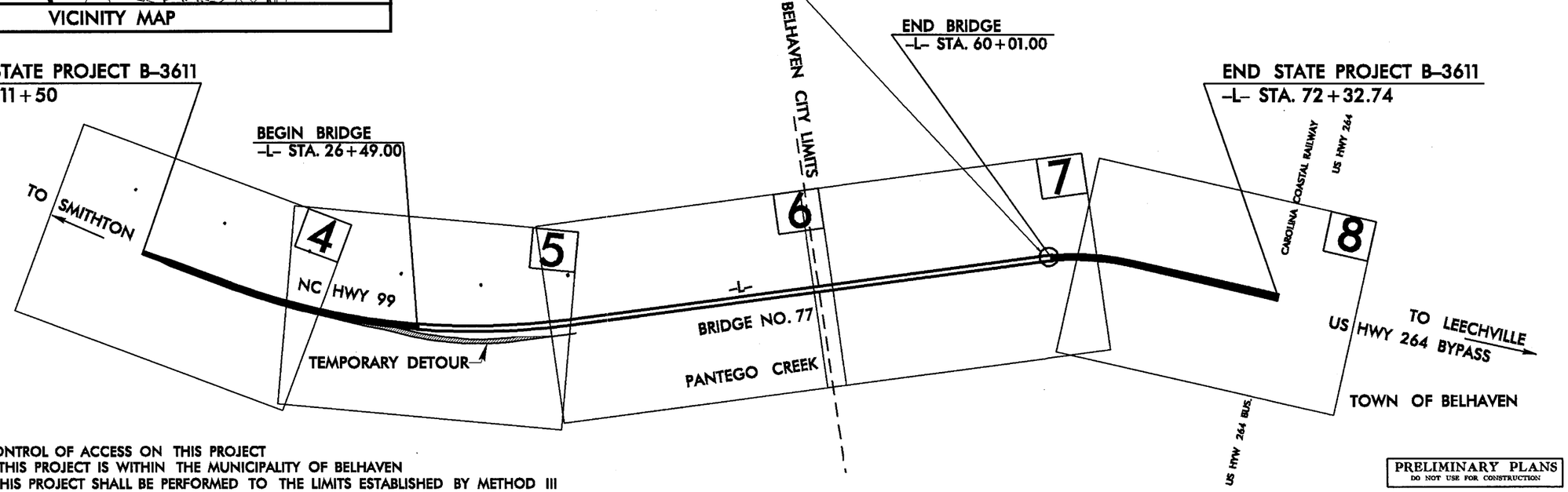
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33162.1.1	BRSTP-99(3)	PE
33162.2.2	BRSTP-99(3)	R/W & UTIL

Buffer Drawing
Sheet 1 of 17

NAD 83

BUFFER PERMIT DRAWINGS

SITE 1



THERE IS NO CONTROL OF ACCESS ON THIS PROJECT
A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPALITY OF BELHAVEN
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III

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

ADT 2009 = 6270
ADT 2030 = 9600
DHV = 10 %
D = 60 %
T = 9 % *
V = 50/40 MPH
* TTST 6 DUAL 3
FUNC. CLASS = COLLECTOR

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3611 = 0.517 Miles
LENGTH STRUCTURE TIP PROJECT B-3611 = 0.635 Miles
TOTAL LENGTH TIP PROJECT B-3611 = 1.152 Miles

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MARCH 18, 2009

LETTING DATE: MARCH 16, 2010

JIMMY GOODNIGHT, PE
PROJECT ENGINEER

MARK HUSSEY
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER P.E.

09-JUN-2009 12:34
n:\hydraulics\permits_environmental\drawings\buffer\b3611_hyd_prm_buf.dgn
ddoreach

AL HY239440

PROJECT REFERENCE NO.	SHEET NO.
B-3611	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Buffer Drawing
Sheet 2 of 17

REVISIONS

8/17/99

BUFFER PERMIT DWG.

50' 0' 50' 100' 150'
GRAPHIC SCALE

ENGLISH

NAD 83

BEGIN STATE PROJECT B-3611
-L- STA. 11+50

-L- POT Sta. 10+00.00
=DET- POT Sta. 10+00.00

-L-PC Sta. 16+17.80

-L-
PI Sta 25+52.04
Δ = 28° 24' 54.6" (LT)
D = 1° 33' 09.8"
L = 1,830.01'
T = 934.23'
R = 3,690.00'
SE= 025
RO= SEE PLANS

-DET-
PI Sta 18+39.17
Δ = 6° 51' 58.1" (LT)
D = 1° 33' 09.8"
L = 442.20'
T = 221.36'
R = 3,690.00'

AKBAR & LINDA ETTEFAGH
HENRY & DOROTHY MURRAY
DB 12- PG 136
(1)

50:1 TAPER ON GUARDRAIL
50' UNIFORM TAPER
TIE PROP. GUARDRAIL TO EXIST. 11+50
REMOVE EXIST. GUARDRAIL
8' BASE LATERAL DITCH SEE DETAIL A
MATCHLINE STA. 20+60 SEE SHEET 5
-DET- PT Sta. 20+60.00
404 Wetlands
CAMA Wetlands
Public Trust Waters
Roadside Canal
GRAU 350
TDE
EX. R/W & 40'
PROP. R/W 50' & 70'
EX. R/W

DETAIL A
LATERAL BASE DITCH
(Not to Scale)
Min. Berm Elev.=L.O.
Natural Ground
Fill Slope
F/Ft.
Min. D= 2.5 Ft.
B= 8 Ft.
Min. b= 5 Ft.

-L- STA. 17+25 TO STA. 27+25 RT.
DDE = 2600 Cu. Yds.

SEE DETAIL SHEET 2-B FOR DETOUR DESIGN
SEE SHEET 9 FOR -L- PROFILE
SEE SHEET 11 FOR -DET- PROFILE

09-JUN-2009 12:34
r:\hydraulics\permits\environmental\drawings\buffer\b3611buffercom.bufdgn

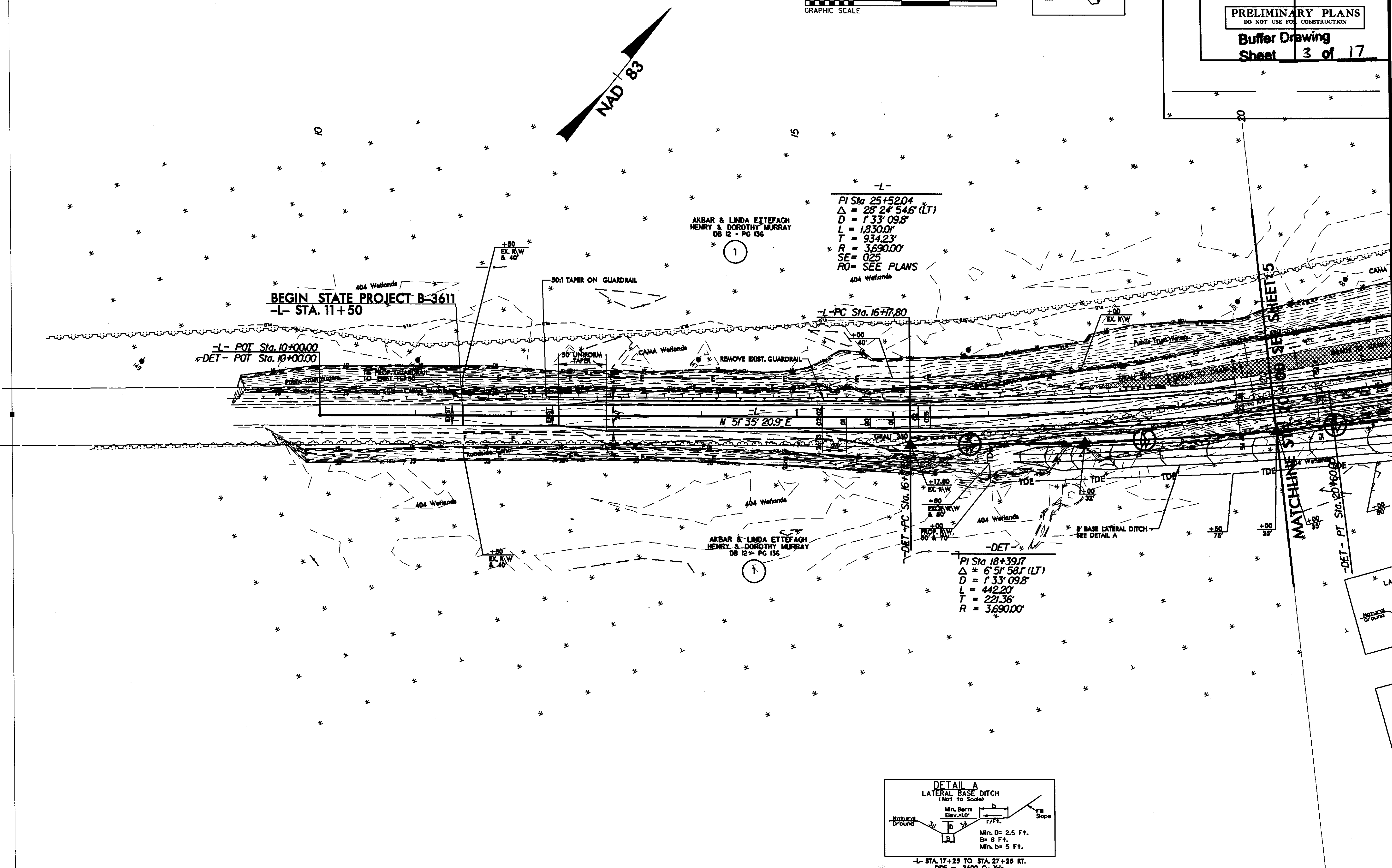
PROJECT REFERENCE NO.	SHEET NO.
B-3611	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Buffer Drawing
Sheet 3 of 17

BUFFER PERMIT DWG.

ENGLISH



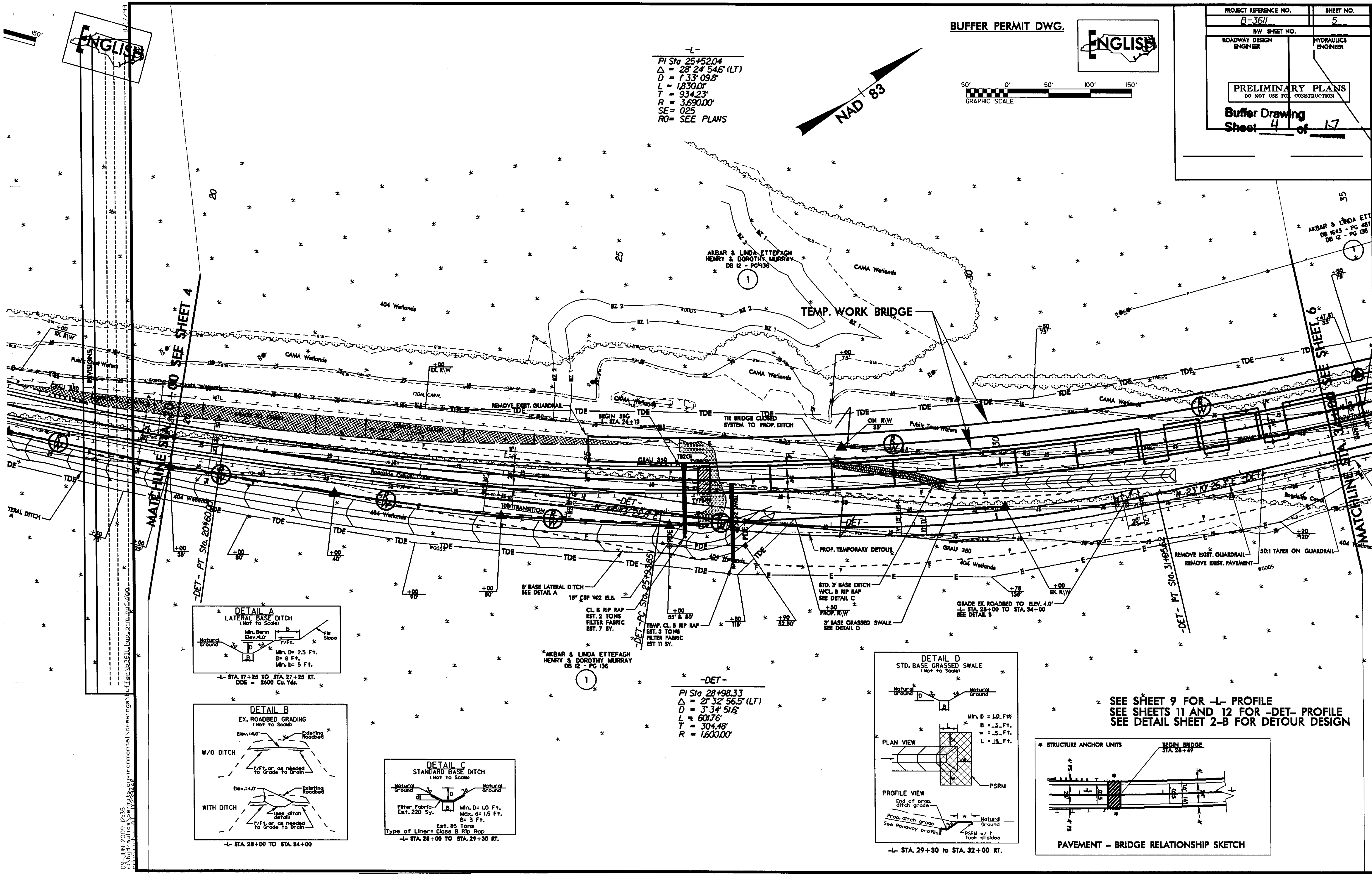
50' 0' 50' 100' 150'
GRAPHIC SCALE
NAD 83
BEGIN STATE PROJECT B-3611
-L- STA. 11+50
-L- POT Sta. 10+00.00
-DET- POT Sta. 10+00.00
AKBAR & LINDA ETTEFAGH
HENRY & DOROTHY MURRAY
DB 12 - PG 136
-L-
PI Sta 25+52.04
Δ = 28° 24' 54.6" (LT)
D = 1° 33' 09.8"
L = 1,830.01'
T = 934.23'
R = 3,690.00'
SE= .025
RO= SEE PLANS
404 Wetlands
CAMA Wetlands
50:1 TAPER ON GUARDRAIL
50' UNIFORM TAPER
REMOVE EXIST. GUARDRAIL
-L- PC Sta. 16+17.80
N 51° 35' 20.9" E
Roadside Canal
-DET- PC Sta. 16+17.80
-DET-
PI Sta 18+39.17
Δ = 6° 51' 58.5" (LT)
D = 1° 33' 09.8"
L = 442.20'
T = 221.36'
R = 3,690.00'
8' BASE LATERAL DITCH SEE DETAIL A
MATCHLINE STA. 20+00 SEE SHEET 5
-DET- PT Sta. 20+60.00
TDE
DETAIL A
LATERAL BASE DITCH
(Not to Scale)
Natural Ground
Min. Berm Elev.=1.0'
Fill Slope
Min. D= 2.5 Ft.
B= 8 Ft.
Min. b= 5 Ft.
-L- STA. 17+25 TO STA. 27+25 RT.
DDE = 2600 Cu. Yds.

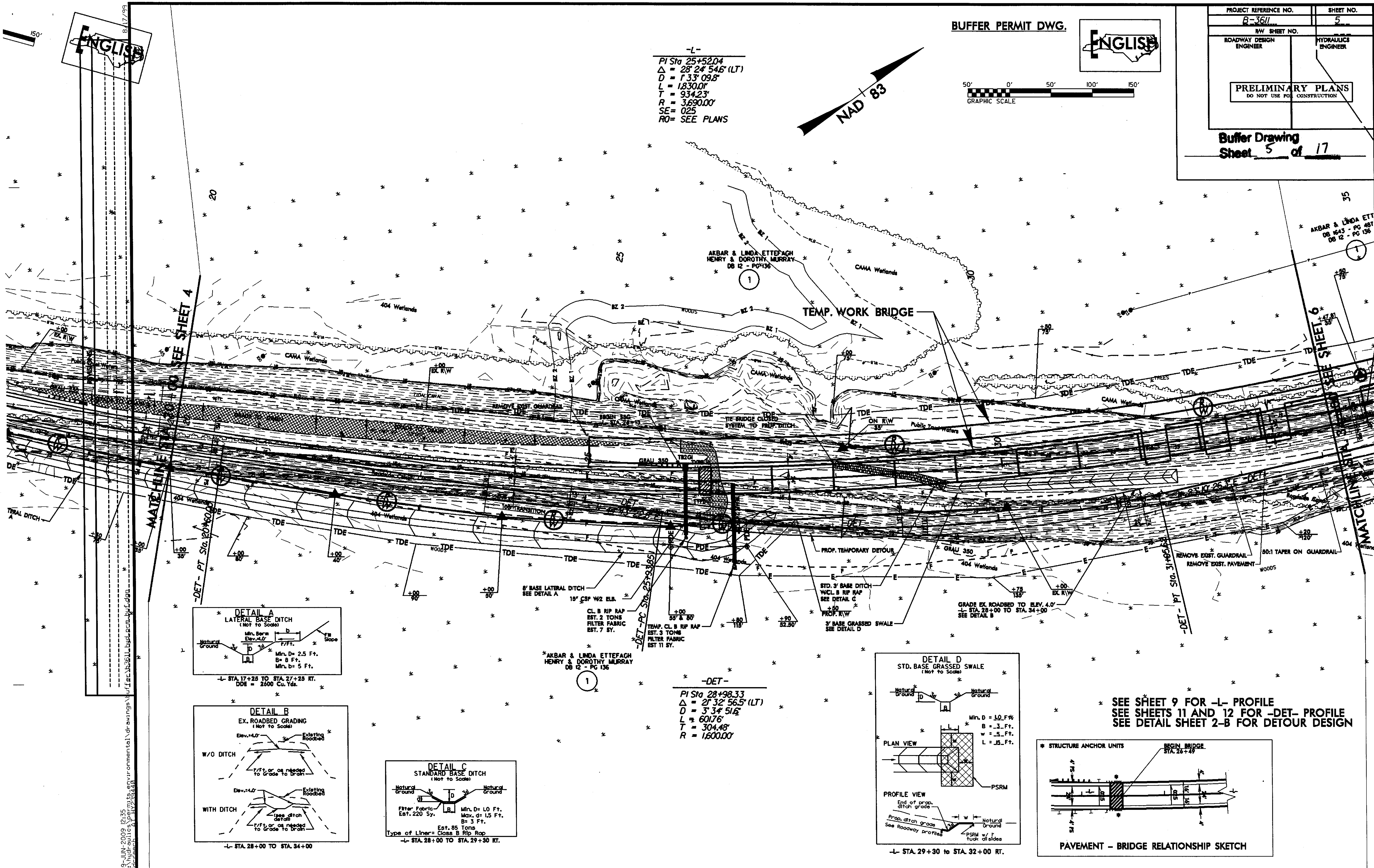
SEE DETAIL SHEET 2-B FOR DETOUR DESIGN
SEE SHEET 9 FOR -L- PROFILE
SEE SHEET 11 FOR -DET- PROFILE

REVISIONS

8/17/99

09-JUN-2009 12:34
r:\hydraulics\permits-environmental\drawings\buffer\b3611_hyd_prm_buf.dgn


BUFFER PERMIT DWG.
ENGLISH
PROJECT REFERENCE NO.
B-3611
SHEET NO.
5
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
Buffer Drawing
Sheet 4 of 17
GRAPHIC SCALE
NAD 83
-L-
PI Sta 25+52.04
Δ = 28° 24' 54.6" (LT)
D = 1° 33' 09.8"
L = 1,830.01'
T = 934.23'
R = 3,690.00'
SE= .025
RO= SEE PLANS
AKBAR & LINDA ETTEFAGH
HENRY & DOROTHY MURRAY
DB 12 - PG 136
CAMA Wetlands
404 Wetlands
TEMP. WORK BRIDGE
Public Trust Waters
TIDAL CANAL
REMOVE EXIST. GUARDRAIL
BEGIN SBG -L- STA. 24+13
TIE BRIDGE CLOSED SYSTEM TO PROP. DITCH
MATCHLINE STA. 20+00 SEE SHEET 4
MATCHLINE STA. 34+00 SEE SHEET 6
-DET- PT Sta. 20+60
-DET- PC Sta. 25+93.85
-DET- PT Sta. 31+95.62
N 44°43'22.8" E
N 23°10'26.3" E
8' BASE LATERAL DITCH SEE DETAIL A
15" CSP W2 ELB.
CL. B RIP RAP EST. 2 TONS FILTER FABRIC EST. 7 SY.
TEMP. CL. B RIP RAP EST. 3 TONS FILTER FABRIC EST 11 SY.
PROP. TEMPORARY DETOUR
STD. 3' BASE DITCH W/CL. B RIP RAP SEE DETAIL C
3' BASE GRASSED SWALE SEE DETAIL D
GRADE EX. ROADBED TO ELEV. 4.0' -L- STA. 28+00 TO STA. 34+00 SEE DETAIL B
REMOVE EXIST. GUARDRAIL
REMOVE EXIST. PAVEMENT
50:1 TAPER ON GUARDRAIL
DETAIL A
LATERAL BASE DITCH
(Not to Scale)
Min. D= 2.5 Ft.
B= 8 Ft.
Min. b= 5 Ft.
-L- STA. 17+25 TO STA. 27+25 RT.
DDE = 2600 Cu. Yds.
DETAIL B
EX. ROADBED GRADING
(Not to Scale)
W/O DITCH
WITH DITCH
-L- STA. 28+00 TO STA. 34+00
DETAIL C
STANDARD BASE DITCH
(Not to Scale)
Filter Fabric- Est. 220 Sy.
Min. D= 1.0 Ft.
Max. d= 1.5 Ft.
B= 3 Ft.
Est. 85 Tons
Type of Liner= Class B Rip Rap
-L- STA. 28+00 TO STA. 29+30 RT.
-DET-
PI Sta 28+98.33
Δ = 21° 32' 56.5" (LT)
D = 3° 34' 51.6"
L = 601.76'
T = 304.48'
R = 1,600.00'
DETAIL D
STD. BASE GRASSED SWALE
(Not to Scale)
Min. D = 1.0 Ft.
B = 3 Ft.
w = 5 Ft.
L = 15 Ft.
PLAN VIEW
PROFILE VIEW
PSRM
-L- STA. 29+30 to STA. 32+00 RT.
SEE SHEET 9 FOR -L- PROFILE
SEE SHEETS 11 AND 12 FOR -DET- PROFILE
SEE DETAIL SHEET 2-B FOR DETOUR DESIGN
* STRUCTURE ANCHOR UNITS
BEGIN BRIDGE STA. 26+49
PAVEMENT - BRIDGE RELATIONSHIP SKETCH
09-JUN-2009 12:35



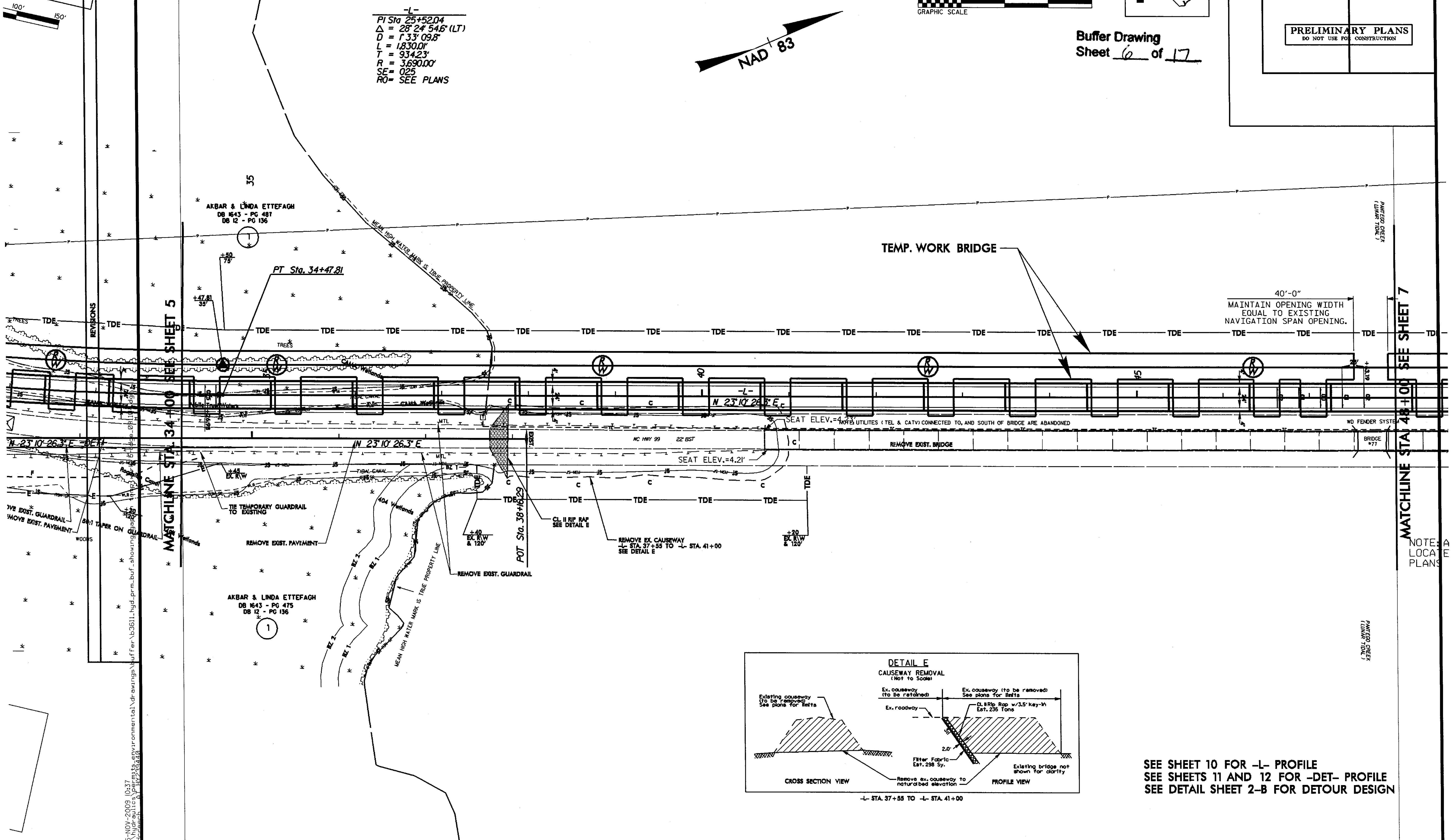
BUFFER PERMIT DWG.
ENGLISH
PROJECT REFERENCE NO.
B-3611
SHEET NO.
5
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
Buffer Drawing
Sheet 5 of 17
GRAPHIC SCALE
50' 0' 50' 100' 150'
NAD 83
-L-
PI Sta 25+52.04
Δ = 28° 24' 54.6" (LT)
D = 1° 33' 09.8"
L = 1,830.01'
T = 934.23'
R = 3,690.00'
SE= .025
RO= SEE PLANS
AKBAR & LINDA ETTEFAGH
HENRY & DOROTHY MURRAY
DB 12 - PG 136
CAMA Wetlands
404 Wetlands
TEMP. WORK BRIDGE
MATCHLINE STA.
SEE SHEET 4
SEE SHEET 6
-DET- PT Sta. 20+60
-DET- PC Sta. 25+93.85
-DET- PT Sta. 31+85.6
TDE
PROP. TEMPORARY DETOUR
GRAU 350
REMOVE EXIST. GUARDRAIL
REMOVE EXIST. PAVEMENT
50:1 TAPER ON GUARDRAIL
8' BASE LATERAL DITCH SEE DETAIL A
15" CSP W2 ELB.
CL. B RIP RAP EST. 2 TONS FILTER FABRIC EST. 7 SY.
TEMP. CL. B RIP RAP EST. 3 TONS FILTER FABRIC EST 11 SY.
STD. 3' BASE DITCH W/CL. B RIP RAP SEE DETAIL C
3' BASE GRASSED SWALE SEE DETAIL D
GRADE EX. ROADBED TO ELEV. 4.0' -L- STA. 28+00 TO STA. 34+00 SEE DETAIL B
TIE BRIDGE CLOSED SYSTEM TO PROP. DITCH
ON R/W
Public Trust Waters
AKBAR & LINDA ETTEFAGH
HENRY & DOROTHY MURRAY
DB 12 - PG 136
-DET-
PI Sta 28+98.33
Δ = 21° 32' 56.5" (LT)
D = 3° 34' 51.6"
L = 601.76'
T = 304.48'
R = 1,600.00'
DETAIL A
LATERAL BASE DITCH
(Not to Scale)
Min. D= 2.5 Ft.
B= 8 Ft.
Min. b= 5 Ft.
-L- STA. 17+25 TO STA. 27+25 RT.
DDE = 2600 Cu. Yds.
DETAIL B
EX. ROADBED GRADING
(Not to Scale)
W/O DITCH
WITH DITCH
-L- STA. 28+00 TO STA. 34+00
DETAIL C
STANDARD BASE DITCH
(Not to Scale)
Filter Fabric Est. 220 Sy.
Min. D= 1.0 Ft.
Max. d= 1.5 Ft.
B= 3 Ft.
Est. 85 Tons
Type of Liner= Class B Rip Rap
-L- STA. 28+00 TO STA. 29+30 RT.
DETAIL D
STD. BASE GRASSED SWALE
(Not to Scale)
Min. D = 1.0 Ft.
B = 3 Ft.
w = 5 Ft.
L = 15 Ft.
PLAN VIEW
PROFILE VIEW
PSRM
-L- STA. 29+30 to STA. 32+00 RT.
SEE SHEET 9 FOR -L- PROFILE
SEE SHEETS 11 AND 12 FOR -DET- PROFILE
SEE DETAIL SHEET 2-B FOR DETOUR DESIGN
STRUCTURE ANCHOR UNITS
BEGIN BRIDGE STA. 26+49
PAVEMENT - BRIDGE RELATIONSHIP SKETCH
09-JUN-2009 12:35
r:\hydraulics\permits_environmental\drawings\buffer\b3611_hyd_prm_buf.dgn

PROJECT REFERENCE NO.	SHEET NO.
B-3611	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

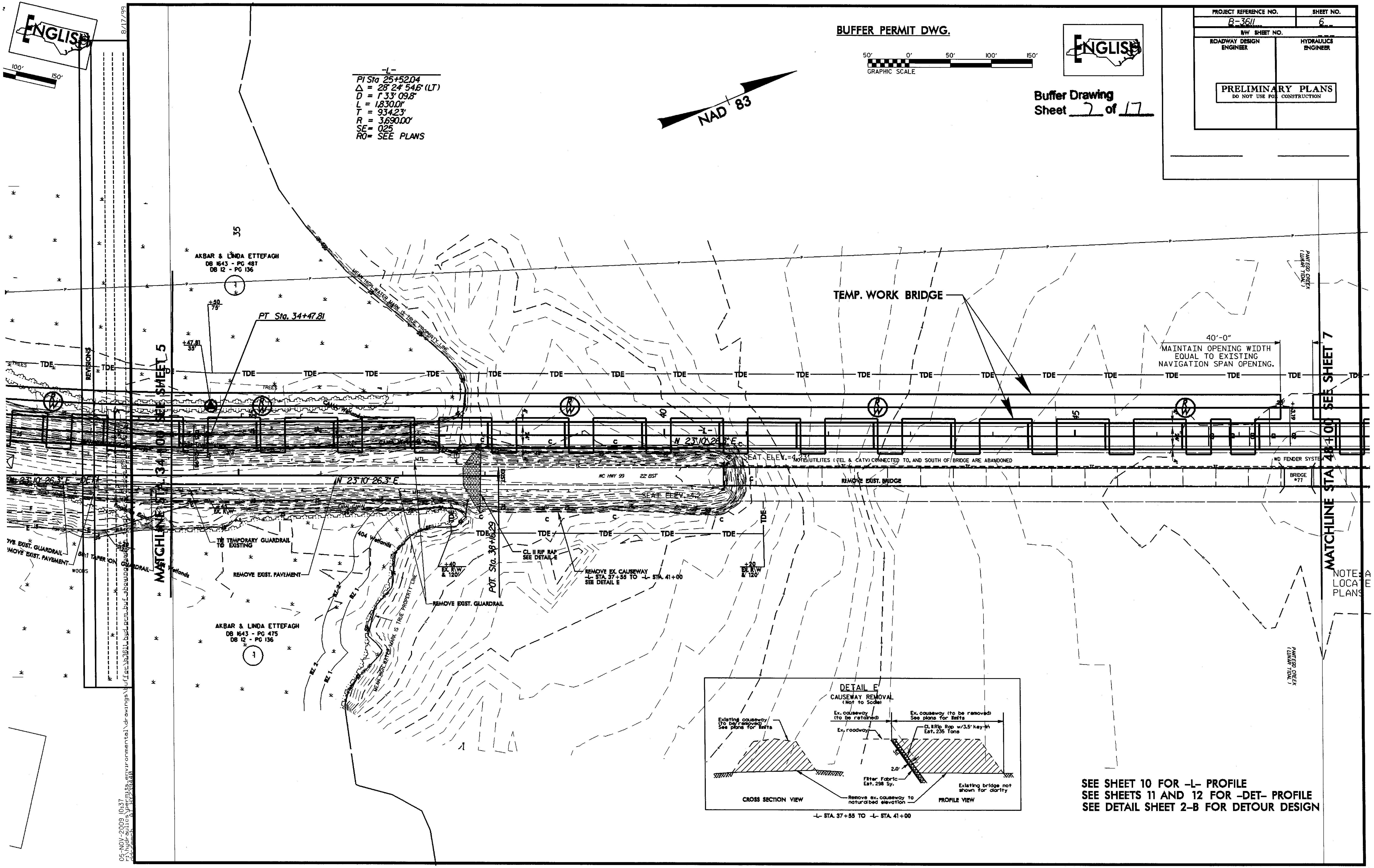
BUFFER PERMIT DWG.

Buffer Drawing
Sheet 6 of 17

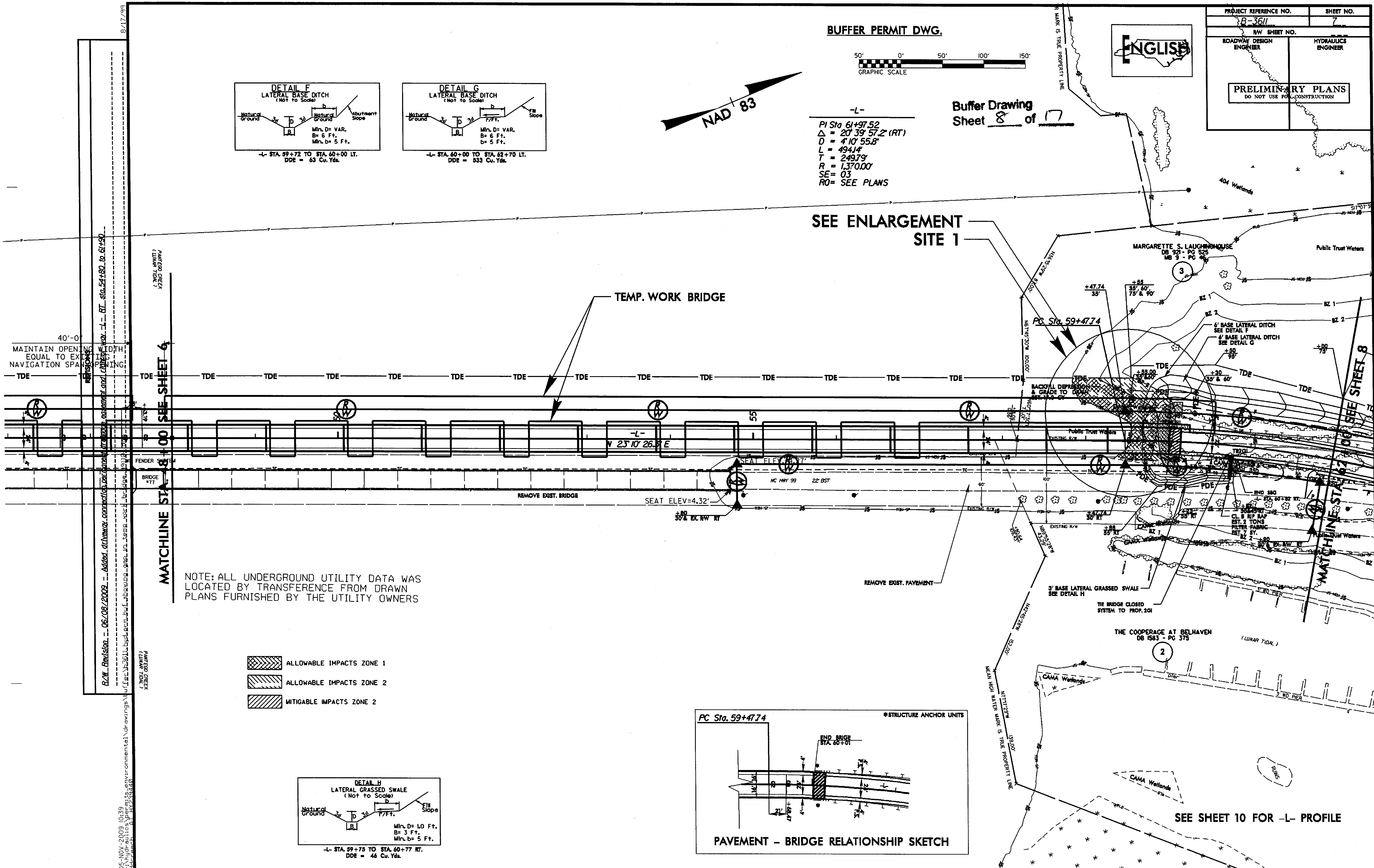


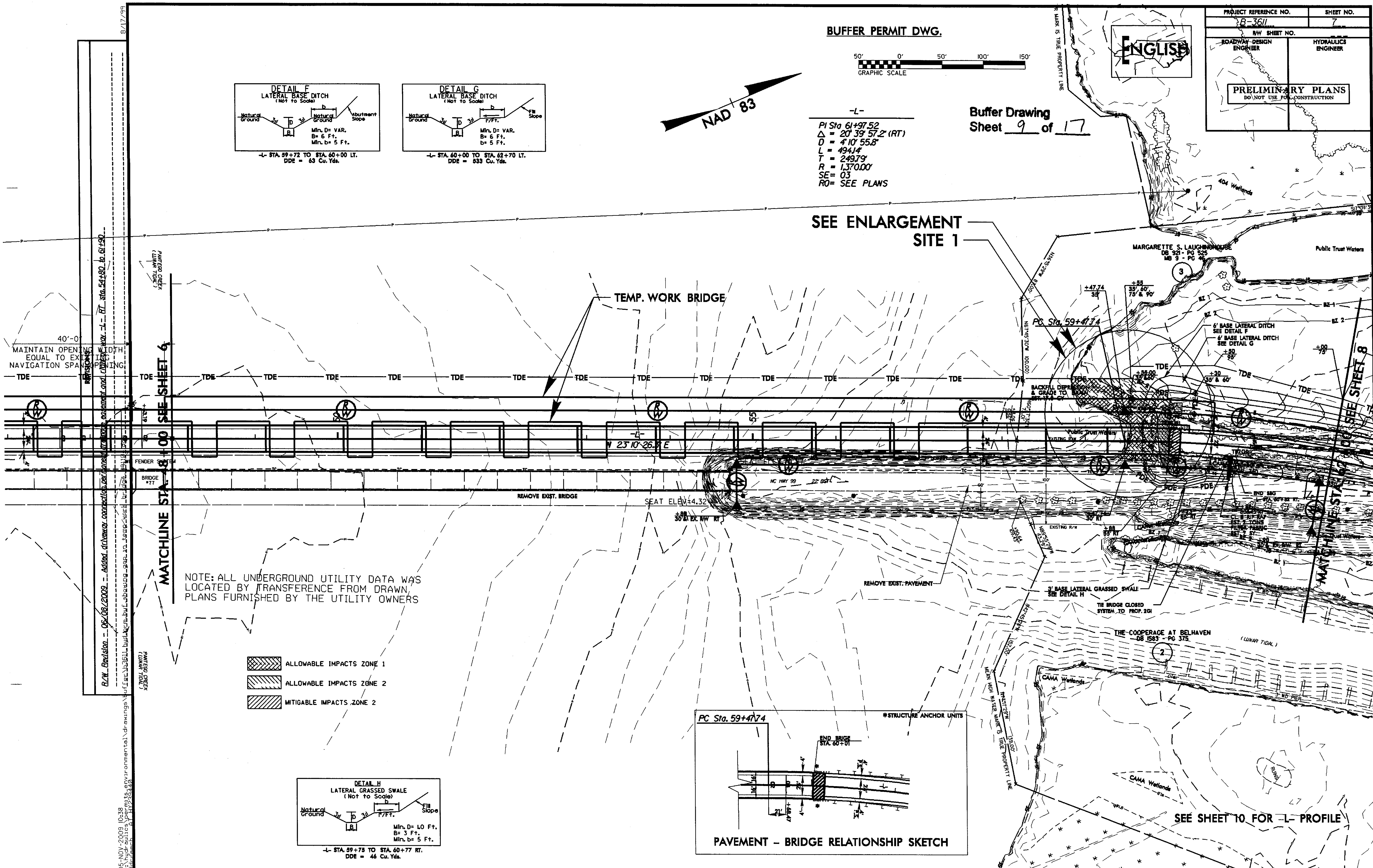
-L-
PI Sta 25+52.04
Δ = 28° 24' 54.6" (LT)
D = 1° 33' 09.8"
L = 1,830.01'
T = 934.23'
R = 3,690.00'
SE= 0.25
RO= SEE PLANS
NAD 83
GRAPHIC SCALE
AKBAR & LINDA ETTEFAGH
DB 1643 - PG 487
DB 12 - PG 136
PT Sta. 34+47.81
TEMP. WORK BRIDGE
40'-0"
MAINTAIN OPENING WIDTH
EQUAL TO EXISTING
NAVIGATION SPAN OPENING.
MATCHLINE STA. 34+00 SEE SHEET 5
MATCHLINE STA. 48+00 SEE SHEET 7
N 23° 10' 26.3" E
SEAT ELEV.=4.21'
NOTE: UTILITIES (TEL & CATV) CONNECTED TO, AND SOUTH OF BRIDGE ARE ABANDONED
REMOVE EXIST. BRIDGE
NC HWY 99
TIE TEMPORARY GUARDRAIL TO EXISTING
REMOVE EXIST. PAVEMENT
REMOVE EXIST. GUARDRAIL
CL. II RIP RAP SEE DETAIL E
POT Sta. 38+16.29
REMOVE EX. CAUSEWAY -L- STA. 37+55 TO -L- STA. 41+00 SEE DETAIL E
MEAN HIGH WATER MARK IS TRUE PROPERTY LINE
404 Wetlands
AKBAR & LINDA ETTEFAGH
DB 1643 - PG 475
DB 12 - PG 136
PANTEGO CREEK (LUNAR TIDAL)
DETAIL E
CAUSEWAY REMOVAL
(Not to Scale)
CROSS SECTION VIEW
PROFILE VIEW
-L- STA. 37+55 TO -L- STA. 41+00

SEE SHEET 10 FOR -L- PROFILE
SEE SHEETS 11 AND 12 FOR -DET- PROFILE
SEE DETAIL SHEET 2-B FOR DETOUR DESIGN

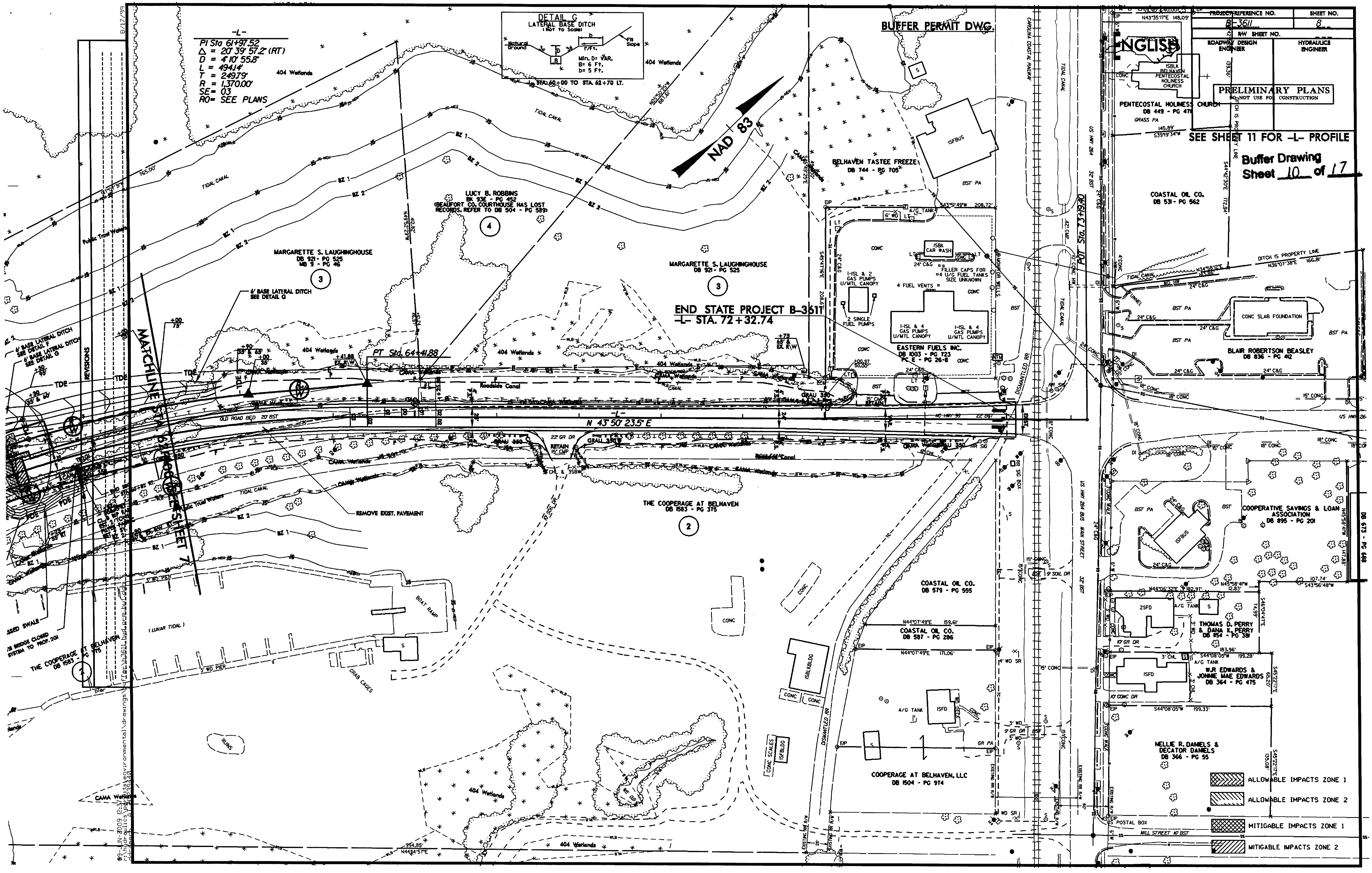


BUFFER PERMIT DWG.
GRAPHIC SCALE
50' 0' 50' 100' 150'
ENGLISH
PROJECT REFERENCE NO. B-3611
SHEET NO. 6
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
Buffer Drawing
Sheet 7 of 17
NAD 83
-L-
PI Sta 25+52.04
Δ = 28° 24' 54.6" (LT)
D = 1° 33' 09.8"
L = 1,830.01'
T = 934.23'
R = 3,690.00'
SE = .025
RO = SEE PLANS
AKBAR & LINDA ETTEFAGH
DB 1643 - PG 487
DB 12 - PG 136
AKBAR & LINDA ETTEFAGH
DB 1643 - PG 475
DB 12 - PG 136
PT Sta. 34+47.81
MEAN HIGH WATER MARK IS TRUE PROPERTY LINE
TEMP. WORK BRIDGE
40'-0"
MAINTAIN OPENING WIDTH EQUAL TO EXISTING NAVIGATION SPAN OPENING.
MATCHLINE STA. 34+00 SEE SHEET 5
MATCHLINE STA. 48+00 SEE SHEET 7
N 23°10'26.3" E
SEAT ELEV.=4.21'
NOTE: UTILITIES (TEL & CATV) CONNECTED TO, AND SOUTH OF BRIDGE ARE ABANDONED
NC HWY 99 22' BST
REMOVE EXIST. BRIDGE
WD FENDER SYSTEM
BRIDGE #77
TIE TEMPORARY GUARDRAIL TO EXISTING
REMOVE EXIST. GUARDRAIL
REMOVE EXIST. PAVEMENT
CL. II RIP RAP SEE DETAIL E
POT Sta. 38+16.29
REMOVE EX. CAUSEWAY -L- STA. 37+55 TO -L- STA. 41+00 SEE DETAIL E
REMOVE EXIST. GUARDRAIL
404 Wetlands
PANTEGO CREEK (LUNAR TIDAL)
DETAIL E
CAUSEWAY REMOVAL (Not to Scale)
Existing causeway (to be removed) See plans for limits
Ex. causeway (to be retained)
Ex. causeway (to be removed) See plans for limits
Ex. roadway
Cl. II Rip Rap w/3.5' key-in Est. 235 Tons
Filter Fabric Est. 298 Sy.
Remove ex. causeway to natural bed elevation
Existing bridge not shown for clarity
CROSS SECTION VIEW
PROFILE VIEW
-L- STA. 37+55 TO -L- STA. 41+00
SEE SHEET 10 FOR -L- PROFILE
SEE SHEETS 11 AND 12 FOR -DET- PROFILE
SEE DETAIL SHEET 2-B FOR DETOUR DESIGN

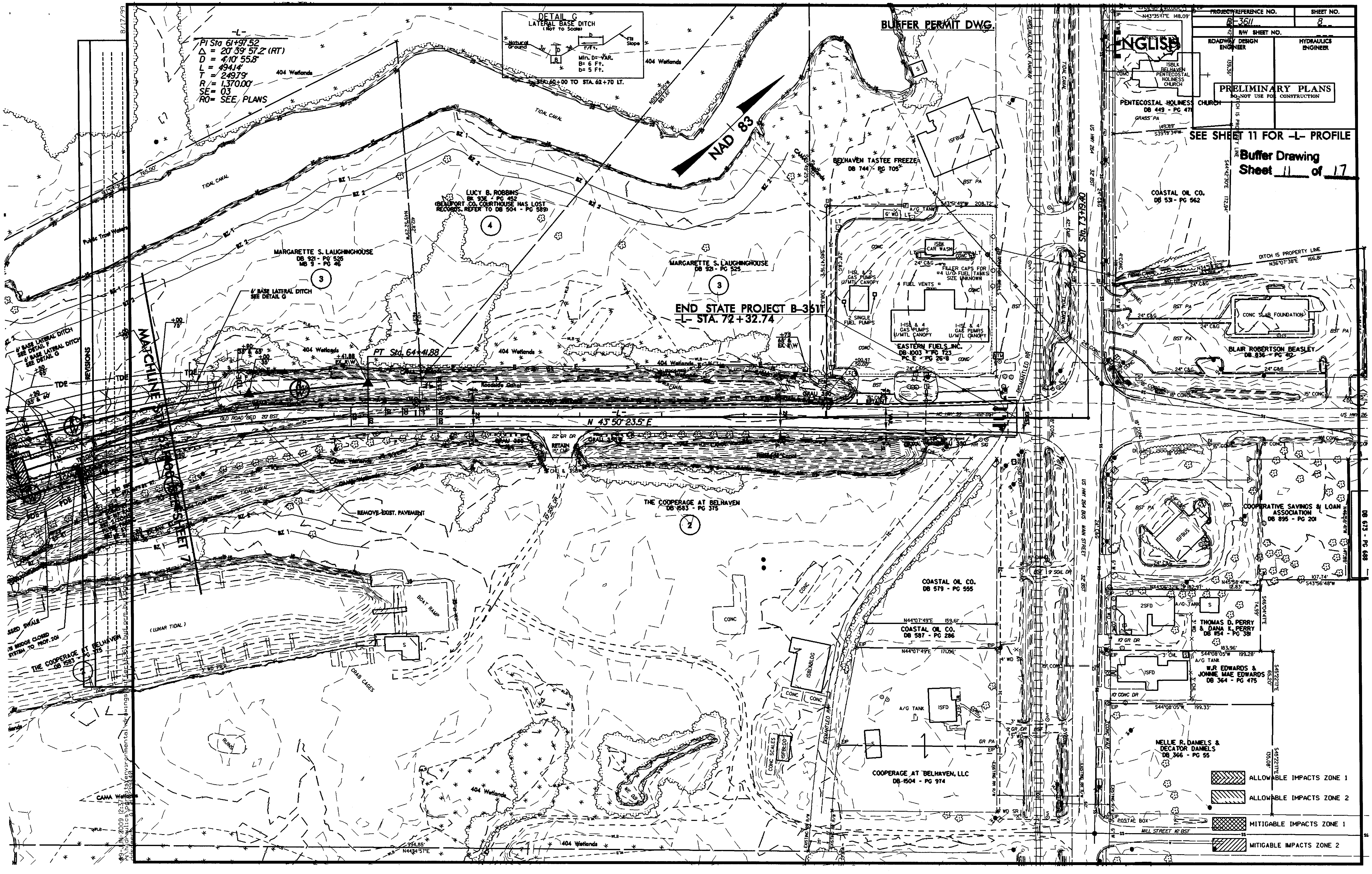

BUFFER PERMIT DWG.
50' 0' 50' 100' 150'
GRAPHIC SCALE
PROJECT REFERENCE NO. B-3611
SHEET NO. 7
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
ENGLISH
Buffer Drawing
Sheet 8 of 17
NAD 83
-L-
PI Sta 61+97.52
Δ = 20° 39' 57.2" (RT)
D = 4° 10' 55.8"
L = 494.14'
T = 249.79'
R = 1,370.00'
SE= .03
RO= SEE PLANS
DETAIL F
LATERAL BASE DITCH
(Not to Scale)
Natural Ground
Abutment Slope
Min. D= VAR.
B= 6 Ft.
Min. b= 5 Ft.
-L- STA. 59+72 TO STA. 60+00 LT.
DDE = 63 Cu. Yds.
DETAIL G
LATERAL BASE DITCH
(Not to Scale)
Natural Ground
Fill Slope
Min. D= VAR.
B= 6 Ft.
b= 5 Ft.
-L- STA. 60+00 TO STA. 62+70 LT.
DDE = 533 Cu. Yds.
SEE ENLARGEMENT
SITE 1
TEMP. WORK BRIDGE
40'-0"
MAINTAIN OPENING WIDTH
EQUAL TO EXISTING
NAVIGATION SPAN OPENING
REVISIONS
R/W Revision - 06/08/2009 - Added driveway connection, permanent drainage easement and crossing way -L- RT sta. 54+80 to 61+90
FENDER SYSTEM
BRIDGE #77
PANTEGO CREEK (LUNAR TIDAL)
MATCHLINE STA. 48+00 SEE SHEET 6
N 23° 10' 26.5" E
SEAT ELEV=4.27'
SEAT ELEV=4.32'
NC HWY 99 22' BST
REMOVE EXIST. BRIDGE
+80 30' & EX. RW RT
REMOVE EXIST. PAVEMENT
MARGARETTE S. LAUGHINGHOUSE
DB 921 - PG 525
MB 9 - PG 46
404 Wetlands
Public Trust Waters
PC Sta. 59+47.74
+47.74 35'
+55 35', 60', 75' & 90'
+55.00 35' & 60'
BACKFILL DEPRESSION & GRADE TO DRAIN EST. 17.0 CY
6' BASE LATERAL DITCH SEE DETAIL F
6' BASE LATERAL DITCH SEE DETAIL G
+50 95'
+30 35' & 60'
+00 75'
MATCHLINE STA. 62+00 SEE SHEET 8
N36°15'29"W 87.00'
N67°45'30"W 100.00'
N60°17'30"E 7.01'
N89°55'28"W 43.29'
N42°45'28"W 152.00'
N77°17'29"W 139.00'
MEAN HIGH WATER MARK IS TRUE PROPERTY LINE
EXISTING R/W
+47.74 30' RT
+88 55' RT
+90.64 109.43'
END SBG -L- STA. 60+82 RT.
CL. B RIP RAP EST. 2 TONS FILTER FABRIC EST. 7 SY.
+90 30' & EX. RW RT
CAMA Wetlands
3' BASE LATERAL GRASSED SWALE SEE DETAIL H
TIE BRIDGE CLOSED SYSTEM TO PROP. 2GI
THE COOPERAGE AT BELHAVEN
DB 1583 - PG 375
(LUNAR TIDAL)
3' WD PIER
RUINS
NOTE: ALL UNDERGROUND UTILITY DATA WAS LOCATED BY TRANSFERENCE FROM DRAWN PLANS FURNISHED BY THE UTILITY OWNERS
ALLOWABLE IMPACTS ZONE 1
ALLOWABLE IMPACTS ZONE 2
MITIGABLE IMPACTS ZONE 2
DETAIL H
LATERAL GRASSED SWALE
(Not to Scale)
Natural Ground
Fill Slope
Min. D= 1.0 Ft.
B= 3 Ft.
Min. b= 5 Ft.
-L- STA. 59+75 TO STA. 60+77 RT.
DDE = 46 Cu. Yds.
PC Sta. 59+47.74
*STRUCTURE ANCHOR UNITS
END BRIGE STA. 60+01
PAVEMENT - BRIDGE RELATIONSHIP SKETCH
SEE SHEET 10 FOR -L- PROFILE
8/17/99
05-NOV-2009 10:39
r:\hydraulics\permits_environmental\drawings\buffer\b3611_hyd_prm_buf_showing_gap_in_temp_work_bridge_19110.dgn



BUFFER PERMIT DWG.
50' 0' 50' 100' 150'
GRAPHIC SCALE
NAD 83
Buffer Drawing
Sheet 9 of 17
PROJECT REFERENCE NO. B-3611
SHEET NO. 7
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
ENGLISH
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
DETAIL F
LATERAL BASE DITCH
(Not to Scale)
Natural Ground
Abutment Slope
Min. D= VAR.
B= 6 Ft.
Min. b= 5 Ft.
-L- STA. 59+72 TO STA. 60+00 LT.
DDE = 63 Cu. Yds.
DETAIL G
LATERAL BASE DITCH
(Not to Scale)
Fill Slope
Min. D= VAR.
B= 6 Ft.
b= 5 Ft.
-L- STA. 60+00 TO STA. 62+70 LT.
DDE = 533 Cu. Yds.
-L-
PI Sta 61+97.52
Δ = 20° 39' 57.2" (RT)
D = 4° 10' 55.8"
L = 494.14'
T = 249.79'
R = 1,370.00'
SE= 03
RO= SEE PLANS
SEE ENLARGEMENT
SITE 1
TEMP. WORK BRIDGE
40'-0"
MAINTAIN OPENING WIDTH EQUAL TO EXISTING NAVIGATION SPAN OPENING
REVISIONS
R/W Revision - 06/08/2009 - Added driveway connection, permanent drainage easement and changed -L- RT sta. 54+80 to 61+90
PANTEGO CREEK (LUNAR TIDAL)
MATCHLINE STA. 48+00 SEE SHEET 6
FENDER SYSTEM
BRIDGE #77
REMOVE EXIST. BRIDGE
SEAT ELEV=4.32
N 23° 10' 26.3" E
NC HWY 99
MARGARETTE S. LAUGHINGHOUSE
DB 921 - PG 525
MB 9 - PG 46
404 Wetlands
Public Trust Waters
PC Sta. 59+47.74
6' BASE LATERAL DITCH SEE DETAIL F
6' BASE LATERAL DITCH SEE DETAIL G
BACKFILL DEPRESSION & GRADE TO DRAIN
EXISTING R/W
REMOVE EXIST. PAVEMENT
3' BASE LATERAL GRASSED SWALE SEE DETAIL H
TIE BRIDGE CLOSED SYSTEM TO PROP. 2GI
END SBG
CL. B RIP RAP EST. 2 TONS
FILTER FABRIC EST. 7 SY
MATCHLINE STA. 62+00 SEE SHEET 8
THE COOPERAGE AT BELHAVEN
DB 1583 - PG 375
(LUNAR TIDAL)
CAMA Wetlands
3' WD PIER
MEAN HIGH WATER MARK IS TRUE PROPERTY LINE
RUINS
NOTE: ALL UNDERGROUND UTILITY DATA WAS LOCATED BY TRANSFERENCE FROM DRAWN PLANS FURNISHED BY THE UTILITY OWNERS
ALLOWABLE IMPACTS ZONE 1
ALLOWABLE IMPACTS ZONE 2
MITIGABLE IMPACTS ZONE 2
DETAIL H
LATERAL GRASSED SWALE
(Not to Scale)
Natural Ground
Fill Slope
Min. D= 1.0 Ft.
B= 3 Ft.
Min. b= 5 Ft.
-L- STA. 59+75 TO STA. 60+77 RT.
DDE = 46 Cu. Yds.
*STRUCTURE ANCHOR UNITS
PC Sta. 59+47.74
END BRIGE STA. 60+01
PAVEMENT - BRIDGE RELATIONSHIP SKETCH
SEE SHEET 10 FOR -L- PROFILE
05-NOV-2009 10:38
r:\hydraulics\permits_environmental\drawings\buffer\b3611_hyd_prm_buf_showing_gap_in_temp_work_bridge_dgn
8/17/99



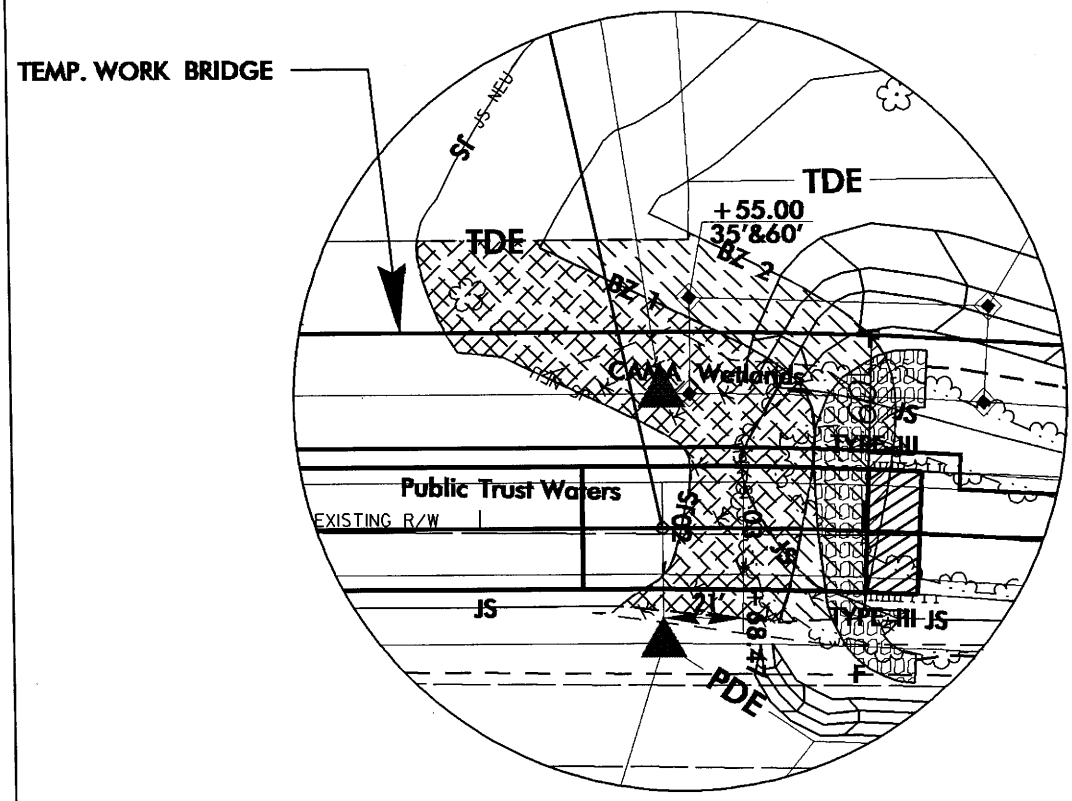
PROJECT REFERENCE NO.
SHEET NO.
B-3611
8
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
ENGLISH
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
BUFFER PERMIT DWG.
SEE SHEET 11 FOR -L- PROFILE
Buffer Drawing
Sheet 10 of 17
-L-
PI Sta 61+97.52
Δ = 20° 39' 57.2" (RT)
D = 4° 10' 55.8"
L = 494.14'
T = 249.79'
R = 1,370.00'
SE= .03
RO= SEE PLANS
DETAIL G
LATERAL BASE DITCH
(Not To Scale)
Min. D= VAR.
B= 6 Ft.
b= 5 Ft.
STA. 60+00 TO STA. 62+70 LT.
NAD 83
END STATE PROJECT B-3611
-L- STA. 72+32.74
MATCHLINE STA. 61+00 -L- SEE SHEET 7
N 43° 50' 23.5" E
POT Sta. 73+19.30
LUCY B. ROBBINS
BK 93E - PG 452
(BEAUFORT CO. COURTHOUSE HAS LOST RECORDS. REFER TO DB 504 - PG 589)
MARGARETTE S. LAUGHINGHOUSE
DB 921 - PG 525
MB 9 - PG 46
THE COOPERAGE AT BELHAVEN
DB 1583 - PG 375
BELHAVEN TASTEE FREEZE
DB 744 - PG 705
EASTERN FUELS INC.
DB 1003 - PG 723
PC E - PG 26-8
PENTECOSTAL HOLINESS CHURCH
DB 449 - PG 471
COASTAL OIL CO.
DB 531 - PG 562
BLAIR ROBERTSON BEASLEY
DB 836 - PG 412
COOPERATIVE SAVINGS & LOAN ASSOCIATION
DB 895 - PG 201
COASTAL OIL CO.
DB 579 - PG 555
COASTAL OIL CO.
DB 587 - PG 286
THOMAS D. PERRY & DANA K. PERRY
DB 854 - PG 381
W.R EDWARDS & JONNIE MAE EDWARDS
DB 364 - PG 475
NELLIE R. DANIELS & DECATOR DANIELS
DB 366 - PG 55
COOPERAGE AT BELHAVEN, LLC
DB 1504 - PG 974
6' BASE LATERAL DITCH SEE DETAIL G
REMOVE EXIST. PAVEMENT
404 Wetlands
TIDAL CANAL
Roadside Canal
US HWY 264 BUS MAIN STREET
MILL STREET
DISMANTLED RR
ALLOWABLE IMPACTS ZONE 1
ALLOWABLE IMPACTS ZONE 2
MITIGABLE IMPACTS ZONE 1
MITIGABLE IMPACTS ZONE 2



PROJECT REFERENCE NO.
B-3611
SHEET NO.
8
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
ENGLISH
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
BUFFER PERMIT DWG.
SEE SHEET 11 FOR -L- PROFILE
Buffer Drawing
Sheet 11 of 17
DETAIL G
LATERAL BASE DITCH
(Not to Scale)
Natural Ground
Fill Slope
Min. D= VAR.
B= 6 Ft.
b= 5 Ft.
STA. 60+00 TO STA. 62+70 LT.
-L-
PI Sta 61+97.52
Δ = 20°39'57.2" (RT)
D = 4°10'55.8"
L = 494.14'
T = 249.79'
R = 1,370.00'
SE = .03
RO = SEE PLANS
NAD 83
MATCHLINE SEE SHEET 7
TIDAL CANAL
404 Wetlands
LUCY B. ROBBINS
BK 336 - PG 452
(BEAUFORT CO. COURTHOUSE HAS LOST RECORDS. REFER TO DB 504 - PG 589)
MARGARETTE S. LAUGHINGHOUSE
DB 921 - PG 525
MB 9 - PG 46
MARGARETTE S. LAUGHINGHOUSE
DB 921 - PG 525
BELHAVEN TASTEE FREEZE
DB 744 - PG 705
6' BASE LATERAL DITCH
SEE DETAIL G
END STATE PROJECT B-3611
-L- STA. 72+32.74
PT Sta. 64+41.88
N 43°50'23.5" E
EASTERN FUELS INC.
DB 1003 - PG 123
PC E - PG 26-8
POT Sta. 73+19.20
PENTECOSTAL HOLINESS CHURCH
DB 449 - PG 471
COASTAL OIL CO.
DB 531 - PG 562
DITCH IS PROPERTY LINE
BLAIR ROBERTSON BEASLEY
DB 836 - PG 42
CONC SLAB FOUNDATION
THE COOPERAGE AT BELHAVEN
DB 1583 - PG 375
REMOVE EXIST. PAVEMENT
COOPERATIVE SAVINGS & LOAN ASSOCIATION
DB 895 - PG 201
COASTAL OIL CO.
DB 579 - PG 555
COASTAL OIL CO.
DB 597 - PG 286
THOMAS D. PERRY & DANA K. PERRY
DB 1154 - PG 381
W.R EDWARDS & JONNIE MAE EDWARDS
DB 364 - PG 475
NELLIE R. DANIELS & DECATOR DANIELS
DB 366 - PG 55
COOPERAGE AT BELHAVEN, LLC
DB 1504 - PG 974
BOAT RAMP
CRAB CAGES
MILL STREET
MAIN STREET
US HWY 264
ALLOWABLE IMPACTS ZONE 1
ALLOWABLE IMPACTS ZONE 2
MITIGABLE IMPACTS ZONE 1
MITIGABLE IMPACTS ZONE 2

ENLARGEMENT

SITE 1



NOTE: ABUTMENT RIP RAP SYMBOLS OMITTED FOR CLARITY

50′ 0′ 50′ 100′ 150′

GRAPHIC SCALE

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

MITIGABLE IMPACTS ZONE 2

PLAN VIEW

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

PROJECT: 33162.1.1 (B-3611)

BRIDGE NO. 77 OVER
PANTEGO CREEK ON NC 99

6/08/09

SHEET OF Buffer Drawing Sheet 12 of 17

5/28/99

BUFFER PERMIT DWG.

PROJECT REFERENCE NO.	SHEET NO.
B-3611	9
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Buffer Drawing Sheet 13 of 17

BEG. GRADE
-L- STA. 13+00.00
EL = 3.39'

PI = 14+15.00
EL = 3.15'
VC = 130'
K = 164

PI = 15+57.00
EL = 4.00'
VC = 150
K = 224

PI = 18+72.00
EL = 3.75'
VC = 250'
K = 159

5.26

(-)0.2000%

(+)8.5915%

(+)0.5915%

(-)0.0794%

(-)0.1758%

(-)0.2000%

RESURFACING

BEGIN DITCH GRADE RT
-L- STA. 17+25.00
EL = -1.30

BM#1 ELEVATION 3.61'
N 657958.1 E 2701394.1
BL STATION BM-1 OFF BASELINE
RR SPIKE SET IN 24" PINE

-L-

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	=	CFS
DESIGN FREQUENCY	=	YRS
DESIGN HW ELEVATION	=	FT
BASE DISCHARGE	=	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 7.0	FT
OVERTOPPING DISCHARGE	= 42,000	CFS
OVERTOPPING FREQUENCY	=	YRS
OVERTOPPING ELEVATION	= 3.0	FT

BEG. BRIDGE
-L- STA. 26+49.00

PI = 25+00.00
EL = 11.14'
VC = 200'
K = 305

TEMP. WORK BRIDGE

15.84

5.26

(-)1.1768%

(-)0.6220%

(-)0.4000%

(+)0.0000%

(+)0.3000%

DITCH RT
PI = 20+50.000
EL = -2.70

END DITCH GRADE RT
-L- STA. 27+25.00
EL = -2.70

BEGIN DITCH GRADE RT
-L- STA. 28+00.00
EL = 3.00

END DITCH GRADE RT
-L- STA. 32+00.00
EL = 1.80

RIGHT DITCH
LEFT DITCH

09-JUN-2009 12:39
n:\hydraulics\permits\environmental\drawings\buffer\b3611_hyd_prm_buf.dgn
ridgeroad

BUFFER PERMIT DWG.

PROJECT REFERENCE NO.	SHEET NO.
B-3611	10
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

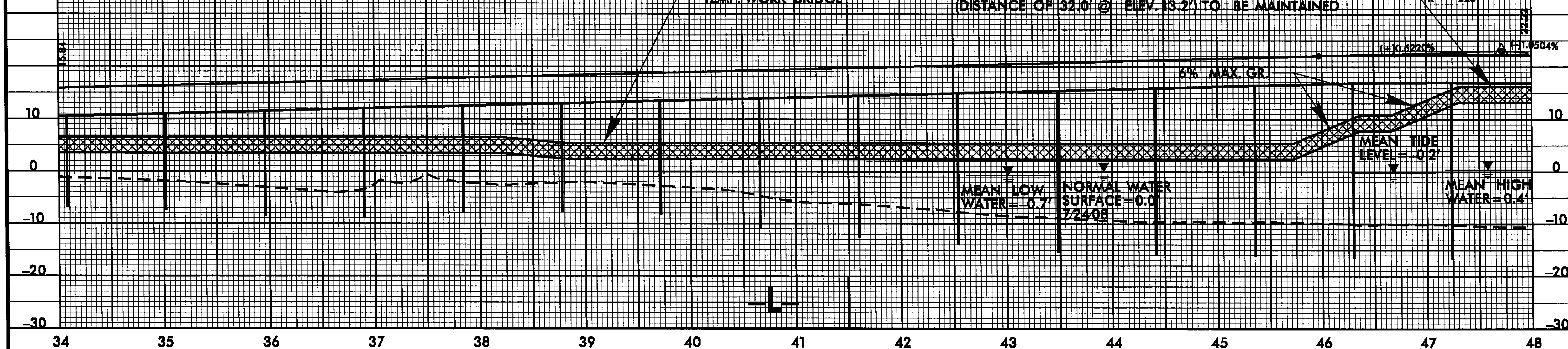
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Buffer Drawing
Sheet 14 **of** 17

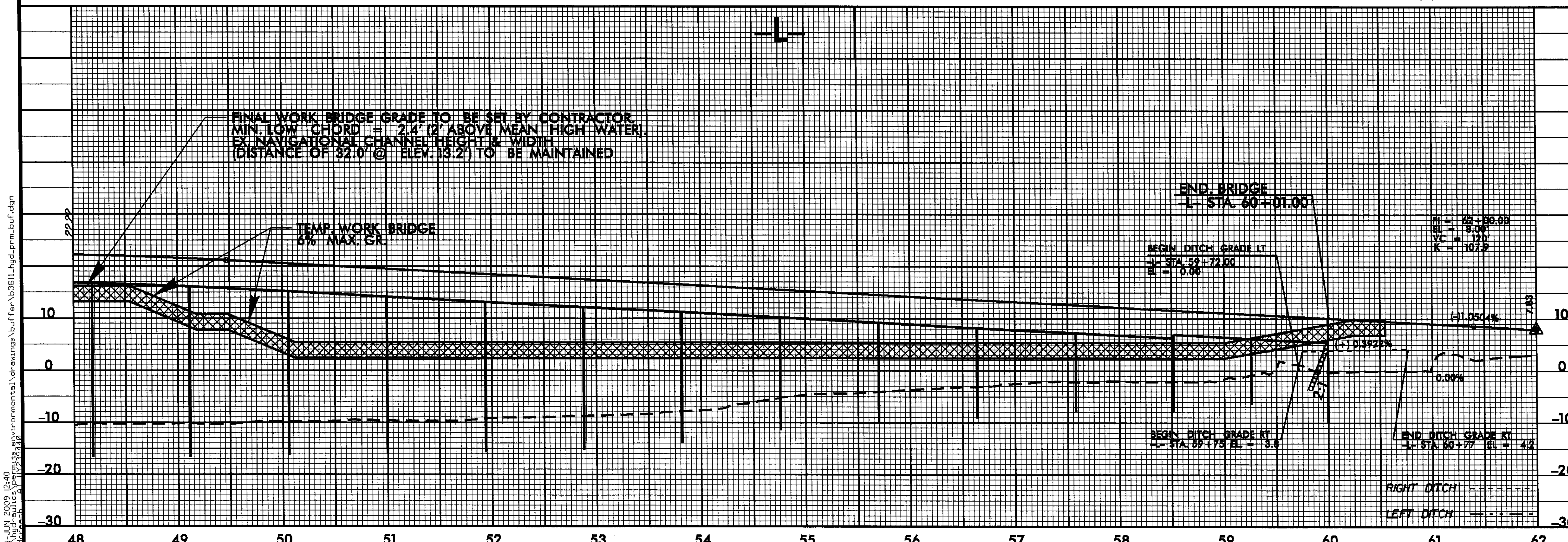
5/28/99

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	=	–	CFS
DESIGN FREQUENCY	=	–	YRS
DESIGN HW ELEVATION	=	–	FT
BASE DISCHARGE	=	–	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	7.0'	FT
OVERTOPPING DISCHARGE	=	47,000	CFS
OVERTOPPING FREQUENCY	=	–	YRS
OVERTOPPING ELEVATION	=	3.0'	FT



TEMP. WORK BRIDGE
FINAL WORK BRIDGE GRADE TO BE SET BY CONTRACTOR.
MIN. LOW CHORD = 2.4' (2' ABOVE MEAN HIGH WATER).
EX. NAVIGATIONAL CHANNEL HEIGHT & WIDTH
(DISTANCE OF 32.0' @ ELEV. 13.2') TO BE MAINTAINED
PI = 47+72.00
EL = 23.00'
VC = 350'
K = 223
15.84
22.22
(+)0.5220%
(-)1.0504%
6% MAX. GR.
MEAN TIDE LEVEL = -0.2'
MEAN LOW WATER = -0.7'
NORMAL WATER SURFACE = 0.0' 7/24/08
MEAN HIGH WATER = 0.4'
-L-
10
0
-10
-20
-30
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48



-L-
FINAL WORK BRIDGE GRADE TO BE SET BY CONTRACTOR.
MIN. LOW CHORD = 2.4' (2' ABOVE MEAN HIGH WATER).
EX. NAVIGATIONAL CHANNEL HEIGHT & WIDTH
(DISTANCE OF 32.0' @ ELEV. 13.2') TO BE MAINTAINED
TEMP. WORK BRIDGE
6% MAX. GR.
22.22
END BRIDGE
-L- STA. 60+01.00
PI = 62+00.00
EL = 8.00'
VC = 120'
K = 107.9
BEGIN DITCH GRADE LT
-L- STA. 59+72.00
EL = 0.00
7.83
(-)1.0504%
(+)0.3422%
2:1
0.00%
BEGIN DITCH GRADE RT
-L- STA. 59+75 EL = 3.8
END DITCH GRADE RT
-L- STA. 60+77 EL = 4.2
RIGHT DITCH
LEFT DITCH
10
0
-10
-20
-30
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62

09-JUN-2009 12:40
r:\hydraulics\permits_environmental\drawings\buffer\b3611_hyd_prm_buf.dgn

5/28/99

BUFFER PERMIT DWG.

PROJECT REFERENCE NO.	SHEET NO.
B-3611	11
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Buffer Drawing Sheet 15 of 17

BM#2 ELEVATION 3.78'
N 662747.9 E 2703962.8
BL STATION 56+70.79 233' LT
RR SPIKE SET IN EDGE OF TEXACO CONVENIENCE STORE PARKING LOT

END GRADE
-L- STA. 71+00.00
EL = 3.95'

PI = 62+00.00
EL = 8.00'
VC = 120'
K = 107.9

PI = 63+91.00
EL = 3.87'
VC = 40'
K = 65

PI = 65+13.00
EL = 9.85'
VC = 100'
K = 241

PI = 66+20.00
EL = 9.13'
VC = 100'
K = 107

PI = 69+00.00
EL = 4.78'
VC = 220'
K = 516

(-)2.1523%
(+) 0.0000%
(-)0.4344%
(-)0.5000%
(+)0.5000%
(-)0.4170%
RESURFACING
-L- STA. 71+94.49
END DITCH GRADE LT
-L- STA. 62+70.00
EL = 0.00

-L-

62 63 64 65 66 67 68 69 70 71 72 73

10 0 -10 -20 -30

BEG. GRADE
-DET- STA. 17+62.87
EL = 3.58'

PI = 18+72.00
EL = 3.48'
VC = 200'

(-)0.0825%
(+)1.1848%
(+)1.1848%

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO. 2

DRAINAGE AREA	= 1.5	AC
DESIGN FREQUENCY	= 5	YRS
DESIGN DISCHARGE	= 6.3	CFS
DESIGN HW ELEVATION	= 9.2	FT
100 YEAR DISCHARGE	= N/A	CFS
100 YEAR HW ELEVATION	= N/A	FT
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= N/A	FT

PI = 27+00.00
EL = 13.30'
VC = 500'

(+)1.1848%
(+)1.5684%
10.09
TEMPORARY
24" CSP

-DET-

RIGHT DITCH - - - - - - -
LEFT DITCH ——·——·——

15 16 17 18 19 20 21 22 23 24 25 26 27 28 29

10 0 -10 -20 -30

09-JUN-2009 12:40
r:\hydraulics_permits\environmental\drawings\buffer\b3611_hyd_prm_buf.dgn

5/28/99

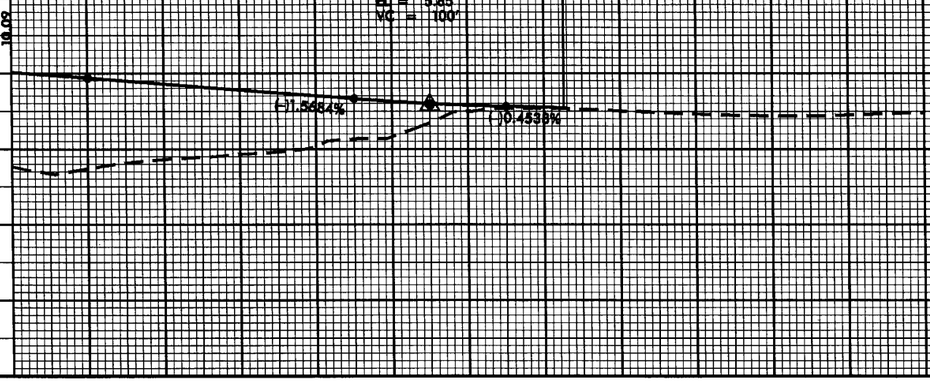
-DET-

BUFFER PERMIT DWG.

PROJECT REFERENCE NO.	SHEET NO.
B-3611	12
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Buffer Drawing
Sheet 16 of 17



09-JUN-2009 12:40
r:\hydraulics\permits\environmental\drawings\buffer\b3611_hyd_prm_buf.dgn

BUFFER IMPACTS SUMMARY

SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	IMPACT									BUFFER REPLACEMENT	
			TYPE			ALLOWABLE			MITIGABLE				
			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	BRIDGE	-L- 58+84.3 to 60+07.7		X		4419	2793	7212			0		
TOTAL:						4419	2793	7212	0	0	0	0	0

Note:
Upstream impacted buffer length 75'
Downstream impacted buffer length 30'

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

BEAUFORT COUNTY
PROJECT: 33162.1.1 (B-3611)

Buffer Drawing
Sheet 17 of 17

SHEET REV. 9/9/20

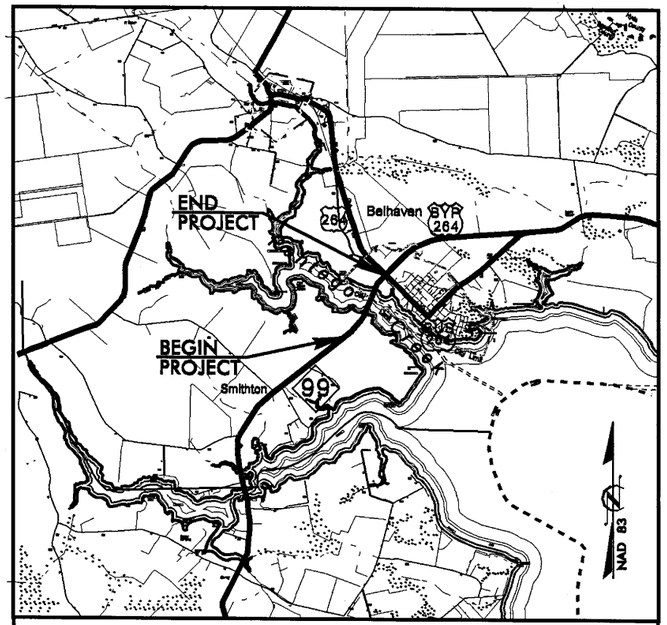
Rev. May 2006

09/08/99

TIP PROJECT: B-3611

CONTRACT:

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

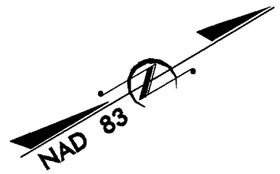
BEAUFORT COUNTY

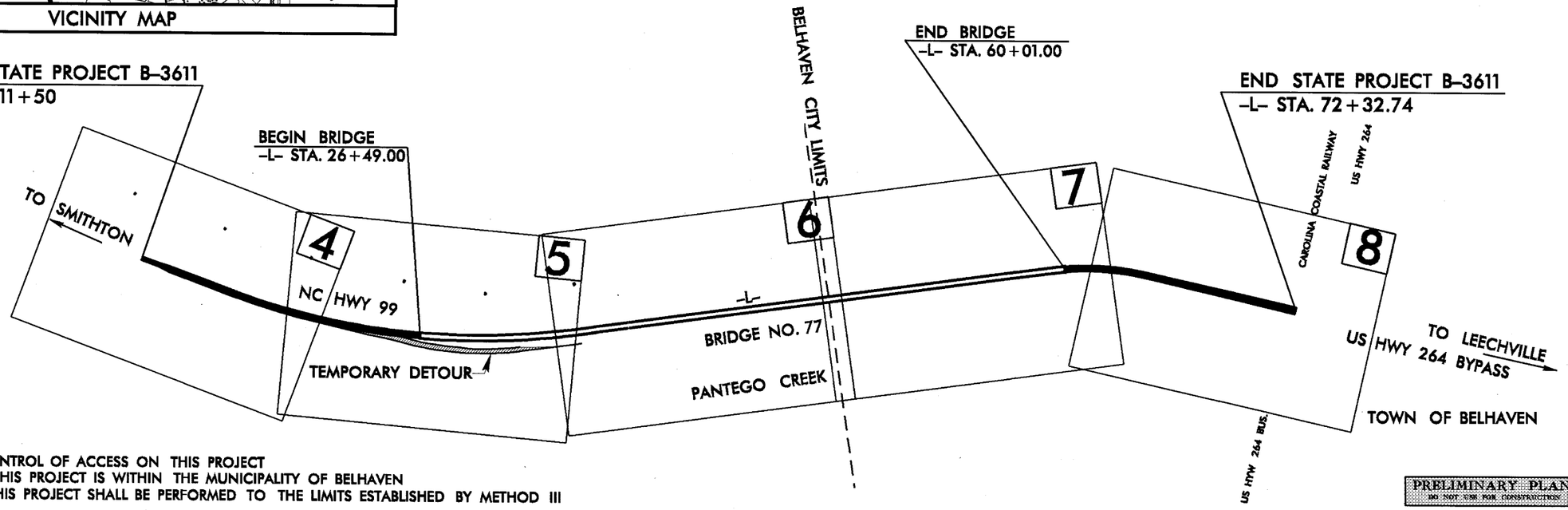
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3611	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33162.1.1	BRSTP-99(3)	PE
33162.2.2	BRSTP-99(3)	R/W & UTIL

LOCATION: BRIDGE NO. 77 OVER PANTEGO CREEK ON NC 99

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE





THERE IS NO CONTROL OF ACCESS ON THIS PROJECT
A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPALITY OF BELHAVEN
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III

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

ADT 2009 = 6270
ADT 2030 = 9600
DHV = 10 %
D = 60 %
T = 9 % *
V = 50/40 MPH
* TTST 6 DUAL 3
FUNC. CLASS = COLLECTOR

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3611 = 0.517 Miles
LENGTH STRUCTURE TIP PROJECT B-3611 = 0.635 Miles
TOTAL LENGTH TIP PROJECT B-3611 = 1.152 Miles

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MARCH 18, 2009

LETTING DATE: MARCH 15, 2011

JIMMY GOODNIGHT, PE
PROJECT ENGINEER

MARK HUSSEY
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

09-JUN-2009 14:18
r:\roadway\projects\b3611_rdy_tsh.dgn
$$$$USERNAME$$$$

3/15/06

PROJECT REFERENCE NO.	SHEET NO.
B-3611	1-B

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 Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB

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 — CSX TRANSPORTATION
- RR Signal Milepost — 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
- Proposed Right of Way Line with Iron Pin and Cap Marker
- Proposed Right of Way Line with Concrete or Granite Marker
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — TCE
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Utility Easement — PUE

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
- Proposed Wheel Chair Ramp Curb Cut — WCC
- Curb Cut for Future Wheel Chair Ramp — CCFR
- 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 — W
- 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

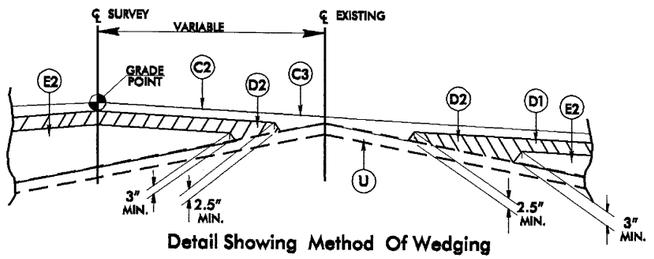
PROJECT REFERENCE NO.	SHEET NO.
B-3611	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

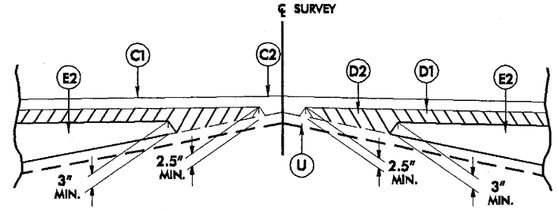
PAVEMENT SCHEDULE
(FINAL PAVEMENT DESIGN)

C1	PROP. APPROX. 1-1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 188 LBS. PER SQ. YD.
C2	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 188 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 LESS THAN 1-1/2" OR GREATER THAN 2" IN DEPTH.
D1	PROP. APPROX. 2-1/2 " ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 265 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I-9.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2-1/4" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5-1/2" IN DEPTH.
J	PROP. 8" AGGREGATE BASE COURSE.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL)

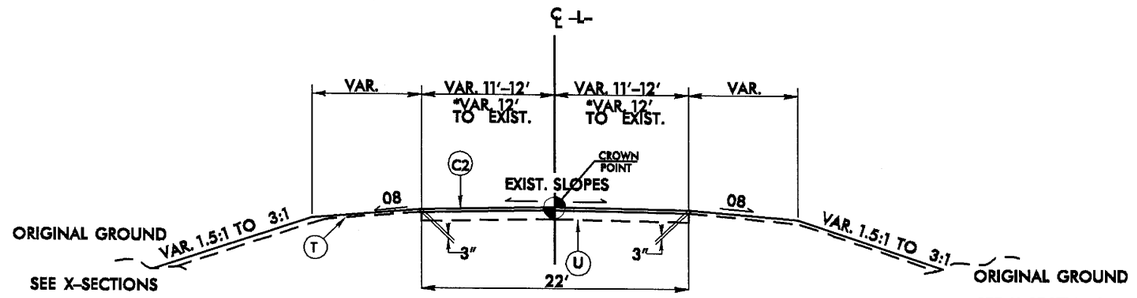
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



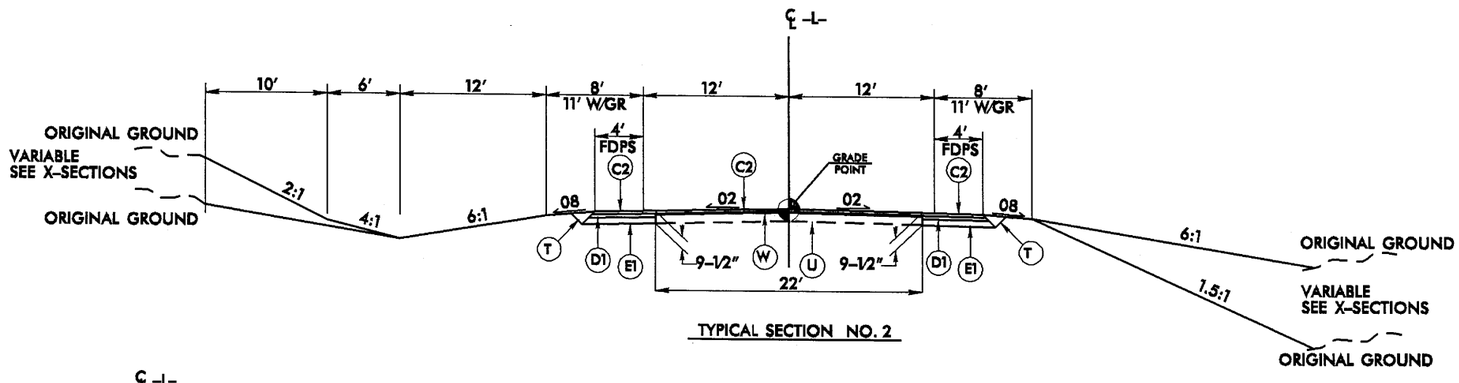
Detail Showing Method Of Wedging



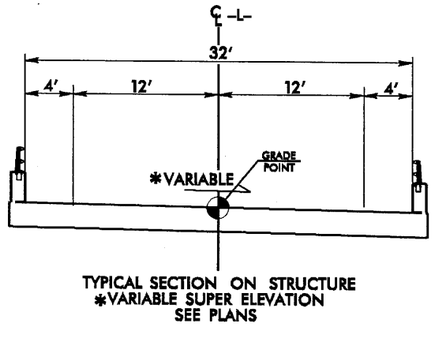
Detail Showing Method of Wedging



TYPICAL SECTION NO. 1



TYPICAL SECTION NO. 2



BICYCLE SAFE RAILS REQUIRED

TYPICAL SECTION ON STRUCTURE
*VARIABLE SUPER ELEVATION
SEE PLANS

USE TYPICAL SECTION NO.1 AS FOLLOWS:
–L– STA. 11+50 TO 13+00
–L– STA. 71+00 TO 72+32.74

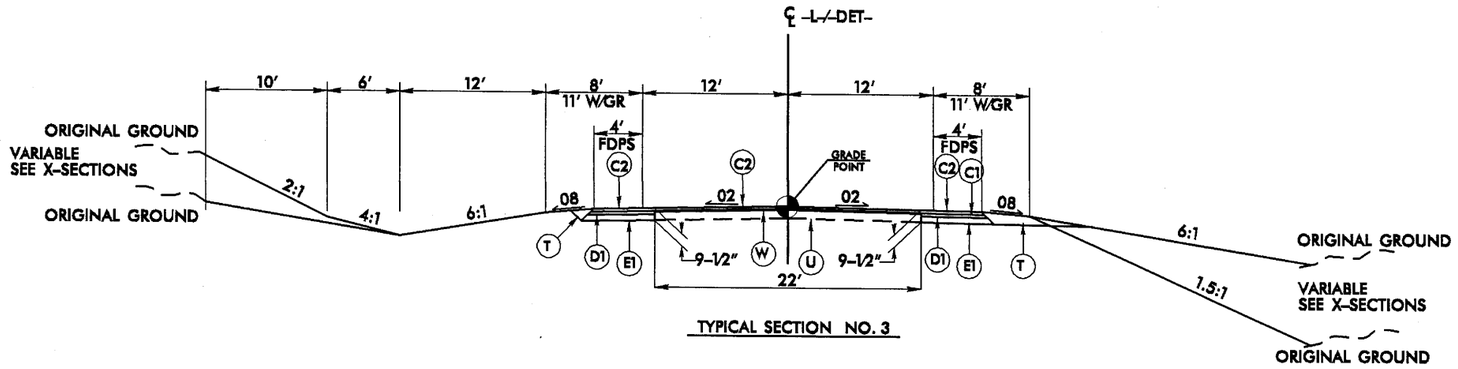
USE TYPICAL SECTION NO.2 AS FOLLOWS:
–L– STA. 13+00 TO 15+26.13
–L– STA. 63+50 TO 71+00

09-JUN-2009 14:17
r:\roadgen\prj\b3611_rdy_typ.dgn
$$$$USERNAME$$$$

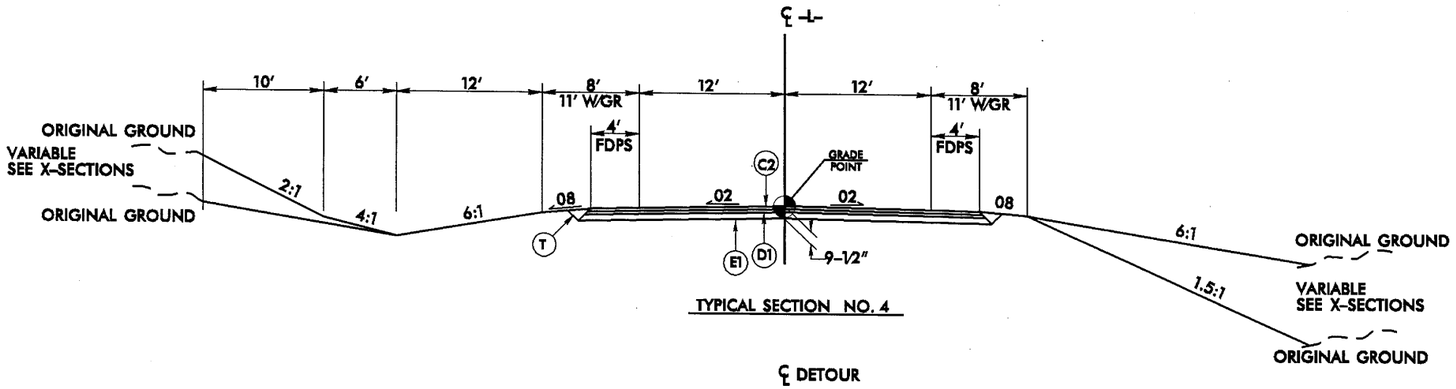
6/2/99

PROJECT REFERENCE NO.	SHEET NO.
B-3611	2-A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

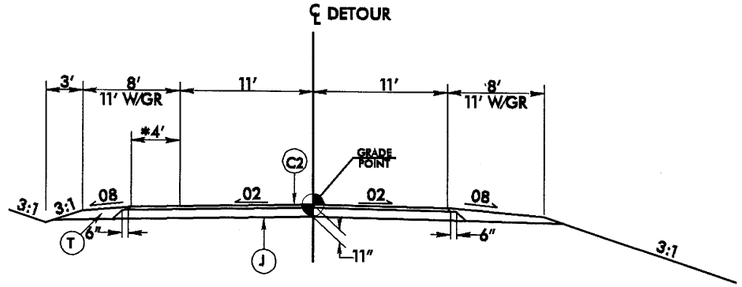
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



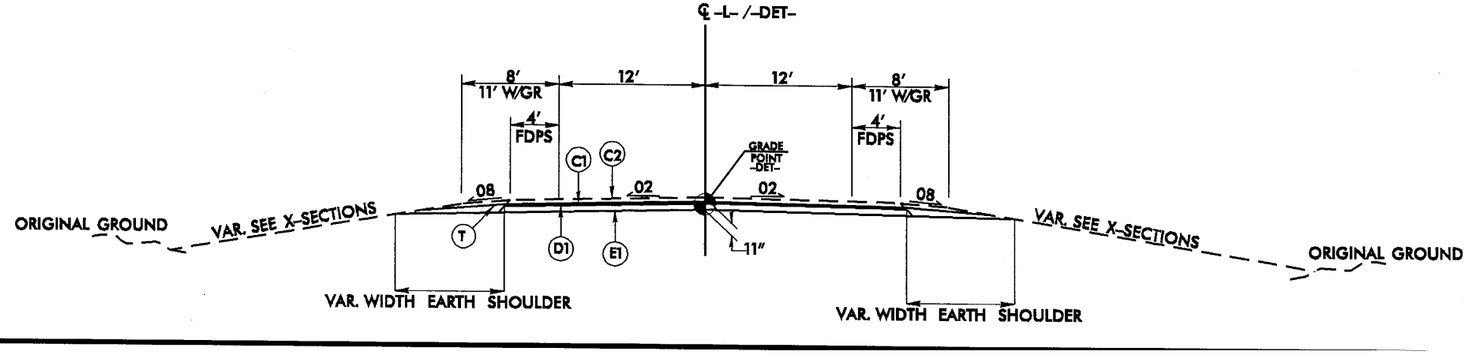
TYPICAL SECTION NO. 3



TYPICAL SECTION NO. 4



TYPICAL SECTION NO. 5



USE TYPICAL SECTION NO.3 AS FOLLOWS:
-L- STA. 15+26.13 TO 25+00.00

USE TYPICAL SECTION NO. 4 AS FOLLOWS:
-L- STA. 25+00+/- TO 26+49 (BEG. BRIDGE)
-L- STA. 60+01 (END BRIDGE) TO 63+50

USE TYPICAL SECTION NO. 5 AS FOLLOWS:
*-DET- STA. 25+50.00 TO 29+84
-DET- STA. 29+84 TO 31+64.60

PAVEMENT SCHEDULE	
C1	1-1/2" S9.5B
C2	3" S9.5B
C3	VAR. DEPTH S9.5B
D1	2-1/2" I19.0B
D2	VAR. DEPTH I19.0B
E1	4" B25.0B
E2	VAR. DEPTH B25.0B
J	6" ABC
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING

— — — — ULTIMATE -L- TEMPLATE

———— TEMPORARY DETOUR TEMPLATE DURING PHASE CONSTRUCTION

DETAIL OF GRADING AND PAVING LIMITS OF TEMPORARY DETOUR

USE FROM -DET- STA. 15+25 TO 25+00+/-

09-JUN-2009 14:17
I:\...\b3611_rdy_typ.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-3611	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

REVISIONS

NAD 83

10

15

AKBAR & LINDA ETTEFAGH
HENRY & DOROTHY MURRAY
DB 12 - PG 136
(1)

-L-
PI Sta 25+52.04
Δ = 28° 24' 54.6" (LT)
D = 1° 33' 09.8"
L = 1,830.01'
T = 934.23'
R = 3,690.00'
SE = 025
RO = SEE PLANS

BEGIN STATE PROJECT B-3611
-L- STA. 11+50

-L- POT Sta. 10+00.00
-DET- POT Sta. 10+00.00

TIE PROP. GUARDRAIL TO EXIST. 11+50

50:1 TAPER ON GUARDRAIL

50' UNIFORM TAPER

REMOVE EXIST. GUARDRAIL

-L-PC Sta. 16+17.80

BL-1POT 5+00.00=
-L- STA. 20+00.01 8.4958' LT

+50 EX. R/W & 40'

+00 EX. R/W

+00 40'

-L-
N 51° 35' 20.9" E

GRAU 350

-DET-PC Sta. 16+17.80

+17.80 EX. R/W

+80 EX. R/W & 80'

+00 PROP. R/W 50' & 70'

BM 1
N: 657958.1
E: 2701394.1
(OFF BASELINE)
ELEV=3.61'

TDE

+00 52'

+50 75'

+00 35'

8' BASE LATERAL DITCH
SEE DETAIL A

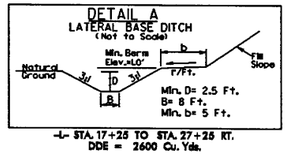
MATCHLINE STA. 20+00 SEE SHEET 5

AKBAR & LINDA ETTEFAGH
HENRY & DOROTHY MURRAY
DB 12- PG 136
(1)

+50 EX. R/W & 40'

-DET-
PI Sta 18+39.11
Δ = 6° 51' 58.1" (LT)
D = 1° 33' 09.8"
L = 442.20'
T = 221.36'
R = 3,690.00'

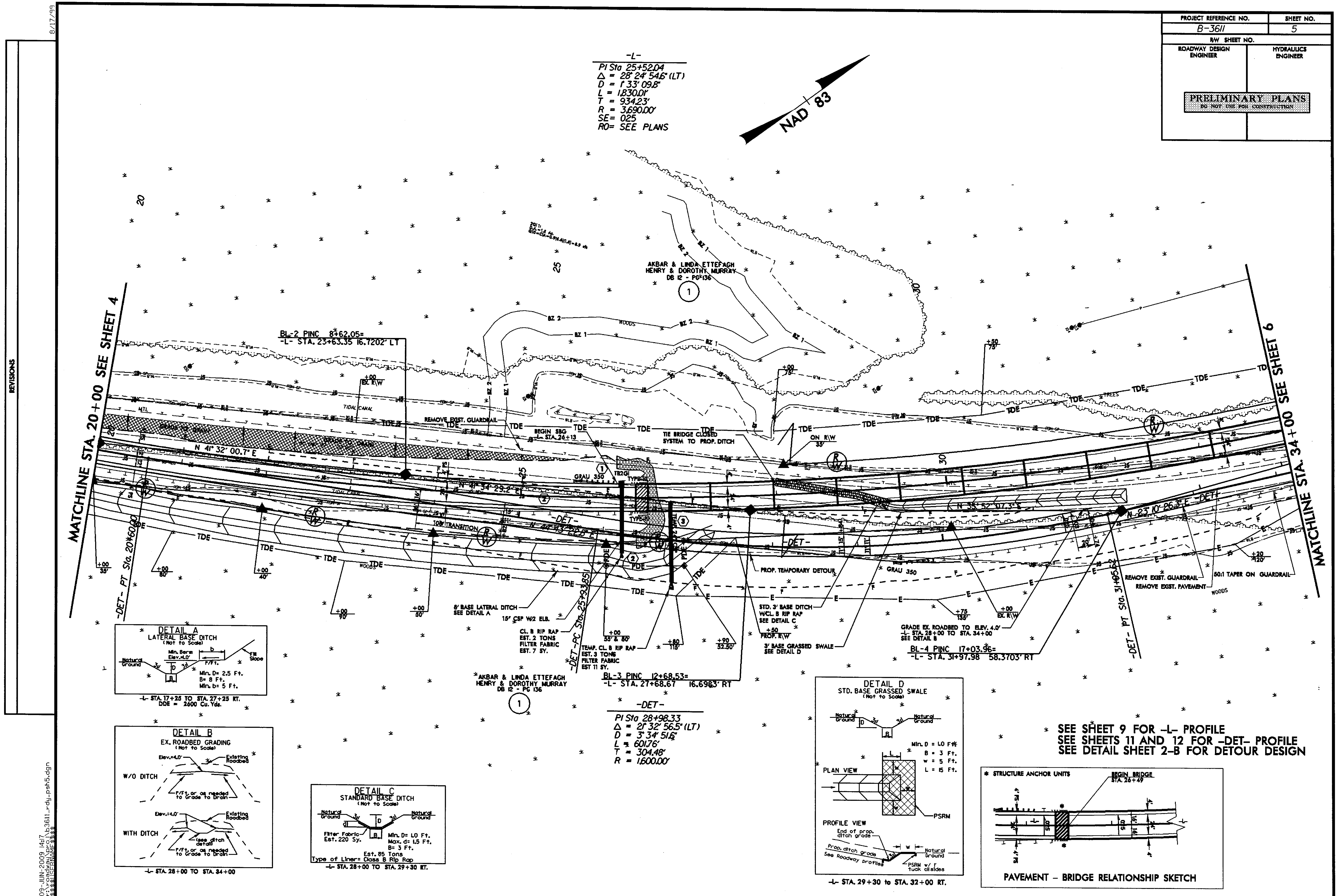
DETAIL A
LATERAL BASE DITCH
(Not to Scale)



-L- STA. 17+25 TO STA. 27+25 RT.
DDE = 2600 Cu. Yds.

SEE DETAIL SHEET 2-B FOR DETOUR DESIGN
SEE SHEET 9 FOR -L- PROFILE
SEE SHEET 11 FOR -DET- PROFILE

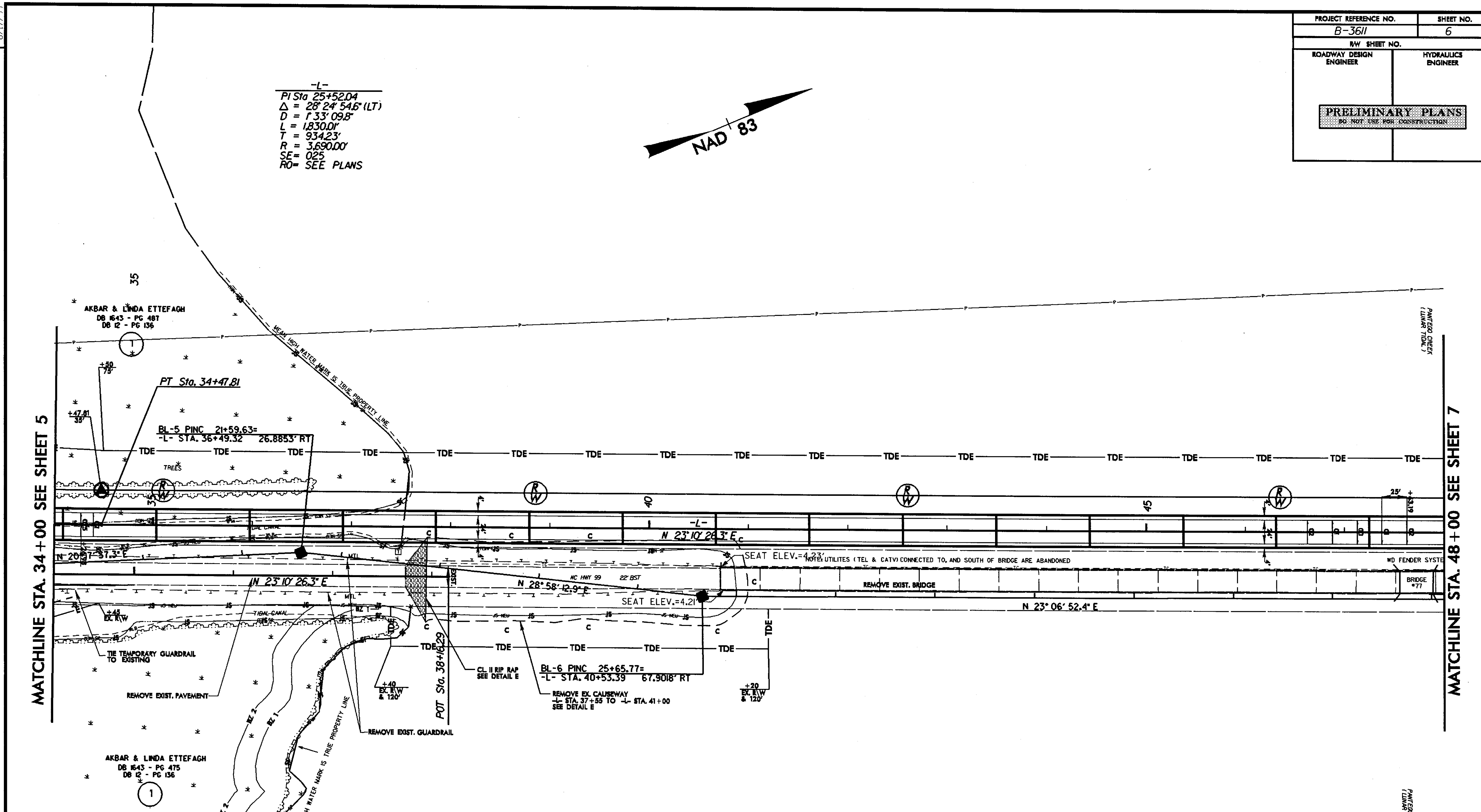
09-JUN-2009 14:17
r:\roadway\pro\b3611_rdy_psh4.dgn
$$$$USERNAME$$$$



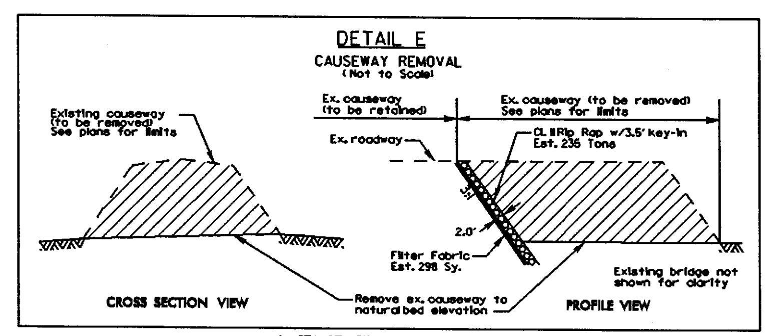
PROJECT REFERENCE NO.
B-3611
SHEET NO.
5
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
8/17/99
REVISIONS
-L-
PI Sta 25+52.04
Δ = 28° 24' 54.6" (LT)
D = 1° 33' 09.8"
L = 1,830.01'
T = 934.23'
R = 3,690.00'
SE= 025
RO= SEE PLANS
NAD 83
AKBAR & LINDA ETTEFAGH
HENRY & DOROTHY MURRAY
DB 12 - PG 136
BL-2 PINC 8+62.05=
-L- STA. 23+63.35 16.7202' LT
MATCHLINE STA. 20+00 SEE SHEET 4
MATCHLINE STA. 34+00 SEE SHEET 6
N 41° 32' 00.7" E
REMOVE EXIST. GUARDRAIL
BEGIN SBG
-L- STA. 24+13
TIE BRIDGE CLOSED SYSTEM TO PROP. DITCH
ON R/W
N 58° 52' 07.3" E
N 23° 10' 26.3" E
-DET-
PROP. TEMPORARY DETOUR
8' BASE LATERAL DITCH SEE DETAIL A
15" CSP W/2 ELB.
CL. B RIP RAP EST. 2 TONS FILTER FABRIC EST. 7 SY.
TEMP. CL. B RIP RAP EST. 3 TONS FILTER FABRIC EST 11 SY.
STD. 3' BASE DITCH W/CL. B RIP RAP SEE DETAIL C
3' BASE GRASSED SWALE SEE DETAIL D
GRADE EX. ROADBED TO ELEV. 4.0' -L- STA. 28+00 TO STA. 34+00 SEE DETAIL B
REMOVE EXIST. GUARDRAIL
REMOVE EXIST. PAVEMENT
50:1 TAPER ON GUARDRAIL
BL-3 PINC 12+68.53=
-L- STA. 27+68.67 16.6983' RT
BL-4 PINC 17+03.96=
-L- STA. 31+97.98 58.3703' RT
-DET- PT Sta. 20+60.00
-DET- PC Sta. 25+93.85
-DET- PT Sta. 31+95.62
-DET-
PI Sta 28+98.33
Δ = 21° 32' 56.5" (LT)
D = 3° 34' 51.6"
L = 601.76'
T = 304.48'
R = 1,600.00'
DETAIL A
LATERAL BASE DITCH
(Not to Scale)
Min. D= 2.5 Ft.
B= 8 Ft.
Min. b= 5 Ft.
-L- STA. 17+25 TO STA. 27+25 RT.
DDE = 2600 Cu. Yds.
DETAIL B
EX. ROADBED GRADING
(Not to Scale)
W/O DITCH
WITH DITCH
-L- STA. 28+00 TO STA. 34+00
DETAIL C
STANDARD BASE DITCH
(Not to Scale)
Filter Fabric Est. 220 Sy.
Min. D= 1.0 Ft.
Max. d= 1.5 Ft.
B= 3 Ft.
Est. 85 Tons
Type of Liner= Class B Rip Rap
-L- STA. 28+00 TO STA. 29+30 RT.
DETAIL D
STD. BASE GRASSED SWALE
(Not to Scale)
Min. D = 1.0 Ft.
B = 3 Ft.
W = 5 Ft.
L = 15 Ft.
PLAN VIEW
PROFILE VIEW
PSRM
-L- STA. 29+30 to STA. 32+00 RT.
SEE SHEET 9 FOR -L- PROFILE
SEE SHEETS 11 AND 12 FOR -DET- PROFILE
SEE DETAIL SHEET 2-B FOR DETOUR DESIGN
* STRUCTURE ANCHOR UNITS
BEGIN BRIDGE STA. 26+49
PAVEMENT - BRIDGE RELATIONSHIP SKETCH
09-JUN-2009 14:17

PROJECT REFERENCE NO.	SHEET NO.
B-3611	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



-L-
PI Sta 25+52.04
Δ = 28° 24' 54.6" (LT)
D = 1° 33' 09.8"
L = 1,830.01'
T = 934.23'
R = 3,690.00'
SE = .025
RO = SEE PLANS
NAD 83
AKBAR & LINDA ETTEFAGH
DB 1643 - PG 487
DB 12 - PG 136
PT Sta. 34+47.81
BL-5 PINC 21+59.63=
-L- STA. 36+49.32 26.8853' RT
MEAN HIGH WATER MARK IS TRUE PROPERTY LINE
TREES
N 23° 10' 26.3" E
SEAT ELEV.=4.23'
NOTE: UTILITIES (TEL & CATV) CONNECTED TO, AND SOUTH OF BRIDGE ARE ABANDONED
WD FENDER SYSTEM
REMOVE EXIST. BRIDGE
BRIDGE #77
N 28° 58' 12.9" E
NC HWY 99
22' BST
SEAT ELEV.=4.21'
N 23° 06' 52.4" E
TIDAL CANAL
TIE TEMPORARY GUARDRAIL TO EXISTING
REMOVE EXIST. PAVEMENT
POT Sta. 38+16.29
CL. II RIP RAP SEE DETAIL E
BL-6 PINC 25+65.77=
-L- STA. 40+53.39 67.9018' RT
REMOVE EX. CAUSEWAY -L- STA. 37+55 TO -L- STA. 41+00 SEE DETAIL E
REMOVE EXIST. GUARDRAIL
+40 EX. R/W & 120'
+20 EX. R/W & 120'
AKBAR & LINDA ETTEFAGH
DB 1643 - PG 475
DB 12 - PG 136
PANTEGO CREEK (LUNAR TIDAL)
MATCHLINE STA. 34+00 SEE SHEET 5
MATCHLINE STA. 48+00 SEE SHEET 7



DETAIL E
CAUSEWAY REMOVAL
(Not to Scale)
Existing causeway (to be removed) See plans for limits
Ex. causeway (to be retained)
Ex. causeway (to be removed) See plans for limits
Ex. roadway
CL II Rip Rap w/3.5' key-in Est. 236 Tons
Filter Fabric Est. 298 Sy.
Remove ex. causeway to natural bed elevation
Existing bridge not shown for clarity
CROSS SECTION VIEW
PROFILE VIEW
-L- STA. 37+55 TO -L- STA. 41+00

SEE SHEET 10 FOR -L- PROFILE
SEE SHEETS 11 AND 12 FOR -DET- PROFILE
SEE DETAIL SHEET 2-B FOR DETOUR DESIGN

REVISIONS

8/17/99

09-JUN-2009 14:17
r:\roadway\proj\b3611_rdy_psh6.dgn

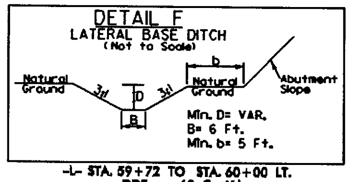
PROJECT REFERENCE NO.	SHEET NO.
B-3611	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

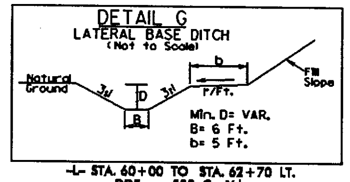
REVISIONS

R/W Revision - 06/08/2009 - Added driveway connection, permanent drainage easement and right of way -L- RT sta.54+80 to 61+90

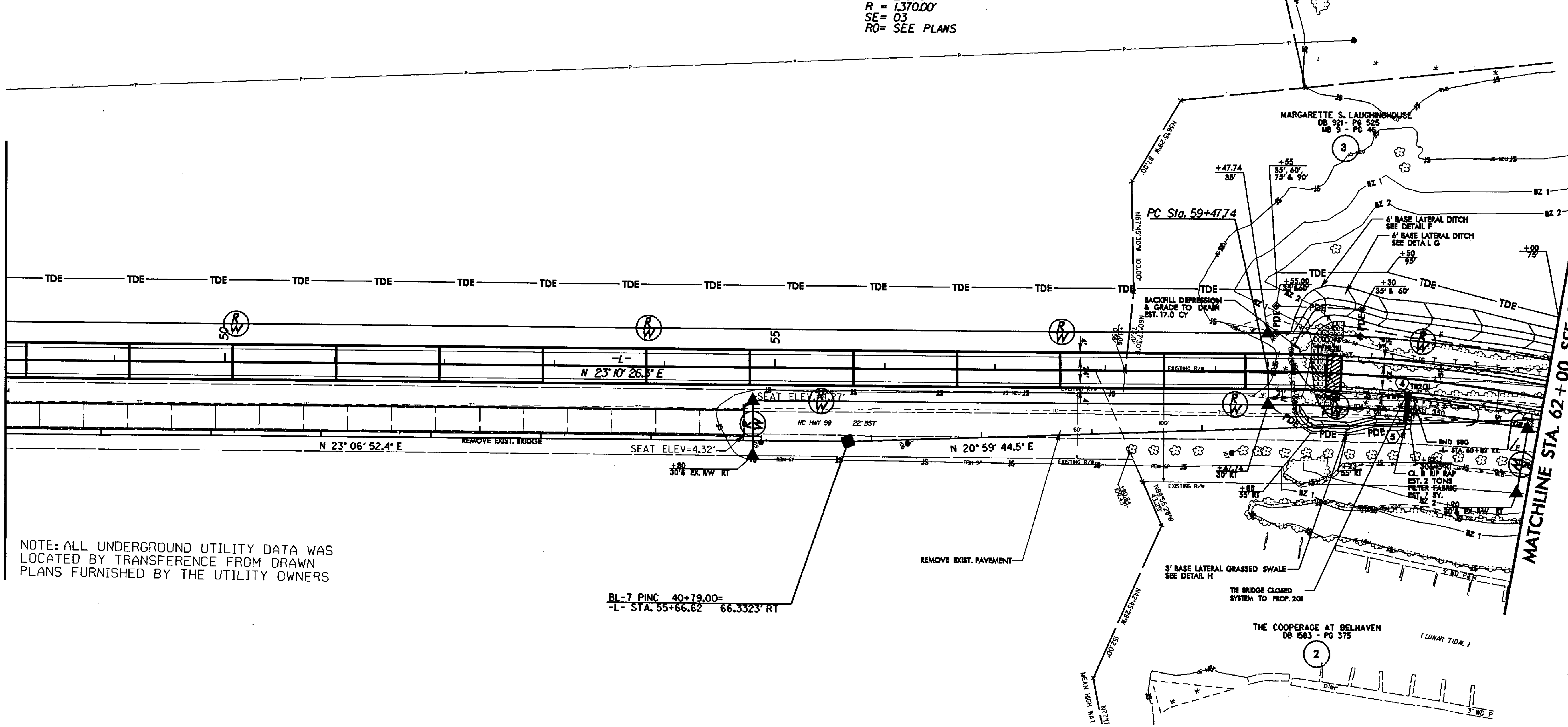
8/17/99



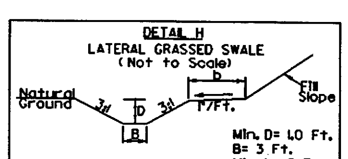
-L- STA. 59+72 TO STA. 60+00 LT.
DDE = 63 Cu. Yds.



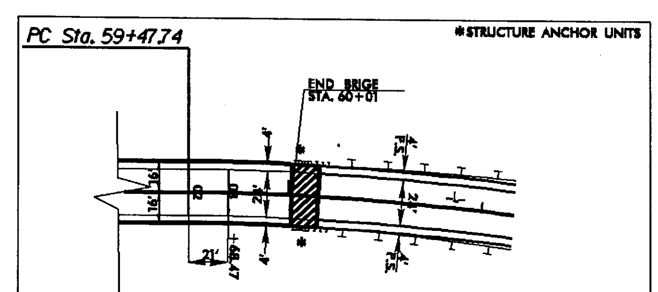
-L- STA. 60+00 TO STA. 62+70 LT.
DDE = 533 Cu. Yds.



NOTE: ALL UNDERGROUND UTILITY DATA WAS LOCATED BY TRANSFERENCE FROM DRAWN PLANS FURNISHED BY THE UTILITY OWNERS



-L- STA. 59+75 TO STA. 60+77 RT.
DDE = 46 Cu. Yds.



PAVEMENT - BRIDGE RELATIONSHIP SKETCH

SEE SHEET 10 FOR -L- PROFILE

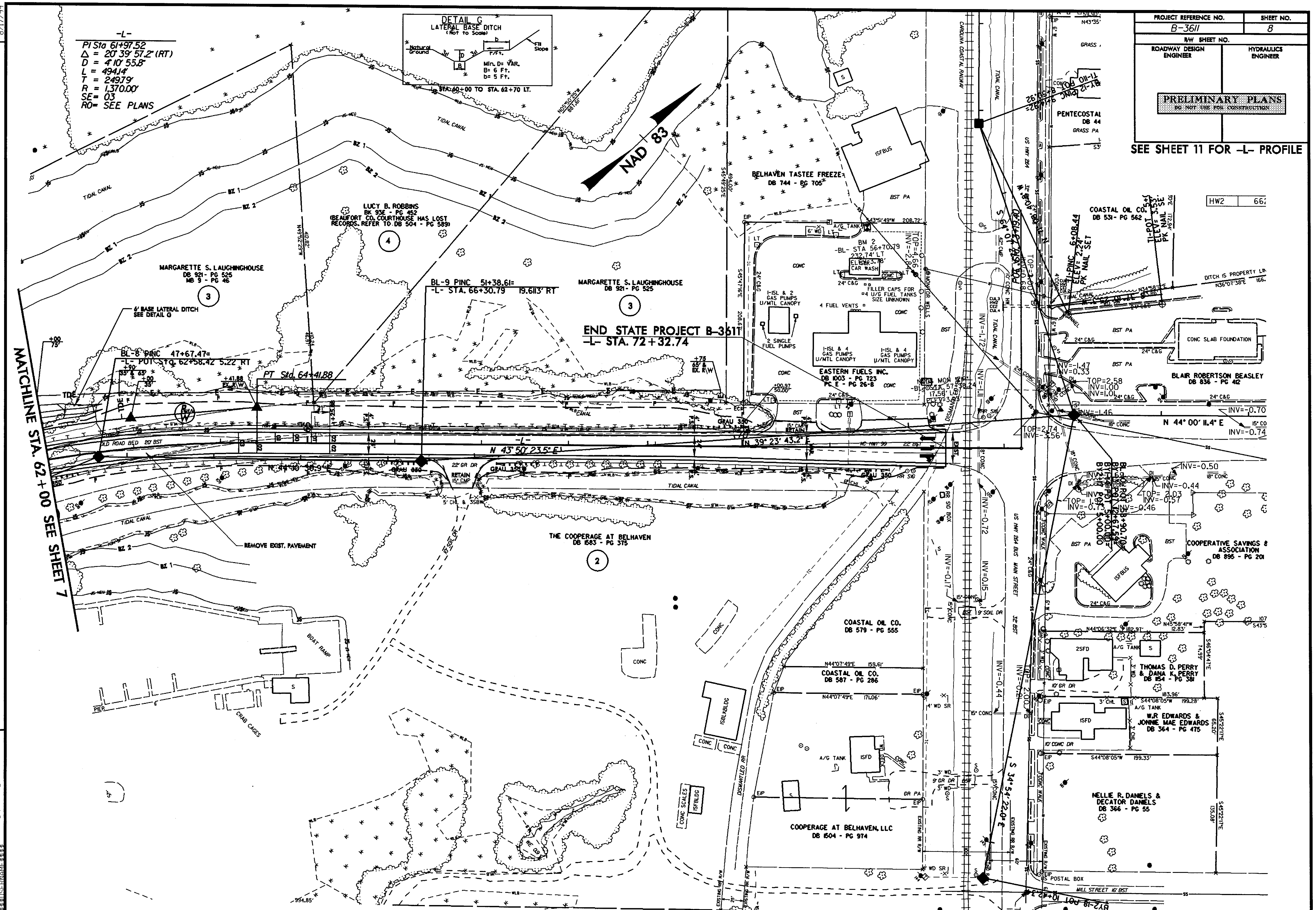
09-JUN-2009 14:18
r:\roadway\proj\b3611_rdy-psh7.dgn
$$$$USERNAME$$$$

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-3611	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SEE SHEET 11 FOR -L- PROFILE



REVISIONS

09-JUN-2009 14:18
r:\roadway\proj\b3611_rdy_psh8.dgn
$$$$USERNAME$$$$