



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

June 4, 2008

MEMORANDUM TO: Mr. J. Wally Bowman, PE
Division Five Engineer

FROM: Philip S. Harris, III, P.E., Unit Head *E. F. Furr*
Natural Environment Unit
Project Development and Environmental Analysis Branch

SUBJECT: Durham County, Widening of US 15-501 from North of SR
2294 (Mt. Moriah Rd) to South of SR1116 (Garrett Rd);
T.I.P. Number U-4012; WBS No. 35012.1.1; State Project
No. 8.1352301

Attached are the modifications to the U.S. Army Corps of Engineers Section 404 Individual Permit and the N.C. Division of Water Quality Section 401 Individual Water Quality Certification for the above referenced project. All environmental permits have been received for the construction of this project.

PSH/gyb

Attachment

Cc:

Mr. Majed Alghandour, P. E., Programming and TIP
Mr. Jay Bennett, P.E., Roadway Design
Dr. David Chang, P.E., Hydraulics
Mr. Randy Garris, P.E. State Contract Officer
Mr. Art McMillan, P.E., Highway Design
Mr. Greg Perfetti, P.E., Structure Design
Mr. Mark Staley, Roadside Environmental
Mr. John F. Sullivan, FHWA
Ms. Beth Harmon, EEP
Mr. Eric Midkiff, P.E., PDEA Central Region Unit Head
Mr. Chris Murray, Division Environmental Officer

PROJECT COMMITMENTS

**Durham County
Widening of US 15-501 from
North of SR 2294 (Mt. Moriah Road) to
South of SR1116 (Garrett Road)
State Project 8.1352301
WBS No. 35012.1.1
TIP No. U-4012**

Commitments Developed Through Project Development and Design

Roadway Design Unit, Structure Design Unit, and Division 5 Construction

US 15-501 Between Academy Road and Old Durham-chapel Hill Road is identified as a bicycle route in the Durham-chapel Hill MPO's Regional Bicycle Plan. The City of Durham has requested that the outside shoulders in each direction of US 15-501 throughout the project area be 10 feet wide to allow for bicycle passage. Roadway Design will incorporate 10-foot outside paved shoulders into the design where space allows Structure Design will also design the bridge rails with a minimum height of 54 inches in order to provide safe passage for bicyclists in accordance with the latest AASHTO guidelines.

The proposed bicycle accommodations have been incorporated into the design.

Structure Design Unit

The Triangle Transit Authority (TTA) is planning for a railway corridor near the project area. One alternative may be located parallel to US 15-501. If this alternative is chosen, TTA would like their railway to be positioned as close as possible to the bridge over New Hope Creek. Therefore, replacement bridge structures will use a standard wing-wall design, which calls for the wing-wall to extend approximately 3 feet away from the superstructure. This would allow the railway bridge superstructure to be placed as close as 13 feet to the U-4012 bridge superstructure.

The new bridges include the wing-wall design.

Project Development and Environmental Analysis, Roadway Design Unit, Structure Design Unit, and Hydraulics Unit

The dual bridges over New Hope Creek will be designed to accommodate wildlife crossings and greenway trails on both sides of the creek. A minimum vertical clearance of 10 feet will be carried out underneath the entire bridge to accommodate future greenway trail uses. Use of a barrier / source of cover will be investigated for the area between the greenway and wildlife crossing areas. Bridge columns of the permanent bridge will be kept out of New Hope Creek. Use of riprap will be limited to the slope stabilization areas near the bridge ends per current NCDOT design guidelines. A small amount of riprap may also be placed on the banks of New Hope Creek underneath the bridge in order to minimize scour. Riprap will be avoided in the areas reserved for greenway trails and wildlife crossings.

Space for wildlife crossings and planned greenway trails has been incorporated into the design. The greenway trail is not being constructed as part of this project; therefore, the construction of any barrier or source of cover should coincide with construction of the greenway.

PROJECT COMMITMENTS

Riprap is shown in the final plans in areas where the existing piers are to be removed. The riprap is needed to stabilize the stream bank, and it has been kept of o areas reserved fro the wildlife crossings and greenway trails.

Project Development and Environmental Analysis, Roadway Design Unit, and Division 5 Construction

High fencing (10 feet) will be installed up to the developed areas along all four quadrants of New Hope creek parallel to US 15-501; however, the installation of the fencing will be delayed until adequate wildlife crossing data can be collected following the completion of the New Hope Creek bridges. Use of deer ramps, constructed of dirt, will be investigated for installation along all fence lines if they can be constructed without creating a hazard to the travelling public.

Fencing will be installed after the NCDOT-sponsored research study "Wildlife Use of an Underpass of the US 15-501 Highway Bridges over New Hope Creek" (Project 2004-2007), is completed. The wildlife fencing will then be installed under a separate contract.

Roadway Design Unit, Structure Design Unit, Hydraulics Unit, and Division 5 Construction

The temporary detour bridge over New Hope Creek will be approximately 150 feet in length and be located on the northwest side of US 15-501.

This commitment has been incorporated into the design. No bents for the detour bridge will be placed in the creek.

Commitments Developed Through 404/401 Permitting

Roadside Environmental Unit and Division 5 Construction

All sediment and erosion control measures shall not be place in wetlands or waters to the maximum extent practicable. If placement of sediment and erosion control devices in wetlands and waters is unavoidable, they shall be removed and the natural grade restored after the Division of Land Resources as released the project.

All Temporary fills in wetlands and surface waters shall be removed upon completion of the project. In addition, the post-construction removal of any temporary bridge structures or fill will need to return the project site to its pre-construction contours and elevations. The re-vegetation of the impacted areas with appropriated native species will be required.

Hydraulics Unit and Division 5 Construction

The dimension, pattern and profile of the stream above and below the crossing should not be modified by widening the stream channel or reducing the depth of the stream. Disturbed floodplains and streams should be restored to natural geomorphic conditions.

Roadway Design Unit, Hydraulics Unit, and Division 5 Construction

Two copies of the final construction drawings shall be furnished to NCDWQ prior to the pre-construction meeting. Written verification shall be provided to NCDWQ that the final construction

PROJECT COMMITMENTS

drawings comply with the permit drawings contained in NCDOT's application dated July 22, 23004.

NCDOT will ensure that the construction design plans for this project do not deviate from the permit plans. Written verification shall be provided that the final construction drawings comply with the permit drawings prior to any active construction in waters of the United States, including wetlands. Any deviation in the construction design plans will be brought to the attention of the Corps of Engineers, Wake Forest Regulatory Field Office prior to any active construction in waters or wetlands.

Prior to commencing construction within jurisdictional waters of the United States for any portion of the proposed project, NCDOT shall forward the latest version of project construction drawings to the Corps of Engineers, Wake Forest Regulatory Field Office NCDOT Regulatory Project manager. Half-size drawings will be acceptable.

Hydraulics Unit and Division 5 Construction

Culverts that are less than 48-inch in diameter should be buried to a depth equal to or greater than 20% of their size to allow for aquatic life passage, unless otherwise authorized by the Water Quality Certification. Culverts that are 48-inch in diameter or larger should be buried at least 12 inches below the stream bottom to allow natural stream bottom material to become established in the culvert following installation and to provide aquatic life passage during periods of low flow. These measurements must be based on natural thalweg depths.

Project Development and Environmental Analysis and Division 5 Construction

All work must be performed in strict compliance with the plans (submitted with the application dated July 22, 2004), which are a part of the Section 404 Individual Permit. Any modification to the permit plans must be approved by the USACE prior to implementation.

A modification was granted indicating approval of design changes on April 22, 2008.

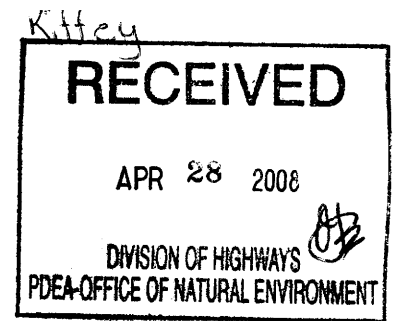
Project Development and Environmental Analysis

Compensatory mitigation for the unavoidable impacts to 0.71 acre of riverine wetland and 164 linear feet of stream associated with the proposed project shall be provided by the Ecosystem Enhancement Program (EEP), as outlined in the letter dated December 9, 2004 from William D. Gilmore, EEP Director. Pursuant to the EEP Memorandum of Agreement (MOA) between the State of North Carolina and the US Army Corps of Engineers signed on July 22, 2003, the EEP will provide 1.42 acres restoration-equivalent mitigation of riverine wetland, and 328 linear feet of warm water stream restoration-equivalent mitigation in the Cape Fear River Basin (Hydrologic Cataloging Unit 03030002) by July 22, 2005. For wetland, a minimum of 1: (impact to mitigation) must be in the form of wetland restoration. The NCDOT shall, within 30 days of the issue date of the Section 404 permit, certify that sufficient funds have been provided to EEP to complete the required mitigation, pursuant to Paragraph V. of the MOA.

This is a permit modification. No special commitments have changed or been added.



DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
P.O. BOX 1890
WILMINGTON, NORTH CAROLINA 28402-1890



IN REPLY REFER TO

April 22, 2008

Regulatory Division

SUBJECT: Action ID 200020945; TIP No. U-4012

Gregory J. Thorpe, Ph.D.
Environmental Management Director, PDEA
N.C. Department of Transportation
1598 Mail Service Center
Raleigh, NC 27699-1598

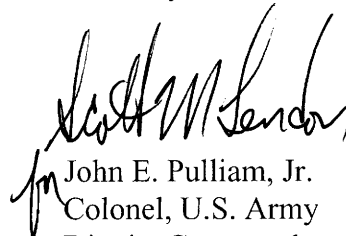
Dear Dr. Thorpe:

Reference the Department of the Army (DA) permit issued on March 16, 2005, to authorize the discharge of dredged and fill material into the waters of United States, for construction of widening of US 15-501 (T.I.P. No. U-4012), crossing New Hope Creek and an unnamed tributary of New Hope Creek, and adjacent wetlands, between SR 2294 (Mt. Moriah Road) and SR 1116 (Garrett Road), in Durham, Durham County, North Carolina. Reference also your March 13, 2008 letter requesting modification of the permit to authorize the addition of riprap on New Hope Creek at two sites, and to extend the permit expiration date to December 31, 2011, so that the permitted work in waters of the United States can be completed. The modifications impact 72 linear feet of New Hope Creek stream bank, at Stations 70+35 and 70-75 -L-, by placement of additional riprap to stabilize the stream bank after removal of existing piers. You also noted design modifications for a special cut grass swale and a lateral grass swale that will not result in additional Section 404 impacts.

We have reviewed the proposed modifications, and determined that they are minor, and that an additional public notice will not be necessary, and that the extension request is reasonable. Therefore, the permit is hereby modified to include the work as shown on the enclosed revised drawings 3, 7, 11 and 14 of 15, and to extend the permit expiration date to December 31, 2011. It is understood that all other conditions of the modified permit remain applicable.

If you have questions, please contact Eric Alsmeyer of the Raleigh Regulatory Field Office, at telephone (919) 554-4884, extension 23.

Sincerely,



John E. Pulliam, Jr.
Colonel, U.S. Army
District Commander

Enclosure

Copies Furnished (without enclosure):

Federal Highway Administration
310 New Bern Ave., Rm. 410
Raleigh, North Carolina 27601-1442

Mr. Brian Wrenn
Division of Water Quality
North Carolina Department of
Environment and
Natural Resources
1650 Mail Service Center
Raleigh, NC 27699-1650

**NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND
REQUEST FOR APPEAL**

Applicant: North Carolina Turnpike Authority, Steven D. DeWitt	File Number: 2007-02903	Date: 4/14/2008
Attached is:		See Section below
<input checked="" type="checkbox"/> INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)		A
<input type="checkbox"/> PROFFERED PERMIT (Standard Permit or Letter of permission)		B
<input type="checkbox"/> PERMIT DENIAL		C
<input type="checkbox"/> APPROVED JURISDICTIONAL DETERMINATION		D
<input type="checkbox"/> PRELIMINARY JURISDICTIONAL DETERMINATION		E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at <http://www.usace.army.mil/inet/functions/cw/cecwo/reg> or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **OBJECT:** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- **ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the district engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:
US Army Corps of Engineers, Wilmington District
Raleigh Regulatory Field Office
ATTN: Jean Manuele, Field Office Chief
3331 Heritage Trade Drive, Suite 105
Wake Forest, NC 27587

If you only have questions regarding the appeal process you may also contact:
Mr. Mike Bell, Administrative Appeal Review Officer
CESAD-ET-CO-R
U.S. Army Corps of Engineers, South Atlantic Division
60 Forsyth Street, Room 9M15
Atlanta, Georgia 30303-8801



Michael F. Easley, Governor
William G. Ross Jr., Secretary
North Carolina Department of Environment and Natural Resources

Coleen Sullins, Director
Division of Water Quality

R. Riffey

RECEIVED

April 2, 2008

APR 8 2008

DIVISION OF HIGHWAYS
PDEA-OFFICE OF NATURAL ENVIRONMENT

Dr. Greg Thorpe, PhD., Manager
Planning and Environmental Branch
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina, 27699-1548

Subject: Modification to the 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act with ADDITIONAL CONDITIONS for Proposed widening of US 15-501 in Durham County, Federal Aid Project No. NHF-15(8), State Project No. 35012.1.1, TIP No. U-4012. DWQ Project No. 20042000 ver.2

Dear Dr. Thorpe:

Attached hereto is a modification of Certification No. 3500 issued to The North Carolina Department of Transportation dated February 9, 2005. This modification is applicable only to the additional proposed activities. All the authorized activities and conditions of certification associated with the original Water Quality Certification dated February 9, 2005 still apply except where superceded by this certification.

If we can be of further assistance, do not hesitate to contact us.

Sincerely,

Coleen Sullins,
Director

Attachments

cc: Eric Alsmeyer, US Army Corps of Engineers, Raleigh Field Office
Deanna Riffey, NCDOT NEU
Chris Murray, Division 5 Environmental Officer
Travis Wilson, NC Wildlife Resources Commission
Ecosystem Enhancement Program
Kathy Matthews, US EPA
File Copy



Modification to the 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act with ADDITIONAL CONDITIONS

THIS CERTIFICATION is issued in conformity with the requirements of Section 401 Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Quality (DWQ) Regulations in 15 NCAC 2H .0500. This certification modification authorizes the NCDOT to impact an additional 72 linear feet of jurisdictional streams in Durham County. The project shall be constructed pursuant to the modification request dated received March 27, 2008. The additional authorized impacts are as described below:

New Stream Impacts in the Cape Fear River Basin

Site	Riprap to Perennial Stream (linear ft)	Total Stream Impact (linear ft)	Stream Impacts Requiring Mitigation (linear ft)
1	72	72	0
Total	72	72	0

Total Stream Impact for Project: 72 linear feet

The application provides adequate assurance that the discharge of fill material into the waters of the Cape Fear River Basin in conjunction with the proposed development will not result in a violation of applicable Water Quality Standards and discharge guidelines. Therefore, the State of North Carolina certifies that this activity will not violate the applicable portions of Sections 301, 302, 303, 306, 307 of PL 92-500 and PL 95-217 if conducted in accordance with the application and conditions hereinafter set forth.

This approval is only valid for the purpose and design that you submitted in your modified application dated received March 27, 2008. All the authorized activities and conditions of certification associated with the original Water Quality Certification dated February 9, 2005 still apply except where superceded by this certification. Should your project change, you are required to notify the DWQ and submit a new application. If the property is sold, the new owner must be given a copy of this Certification and approval letter, and is thereby responsible for complying with all the conditions. If any additional wetland impacts, or stream impacts, for this project (now or in the future) exceed one acre or 150 linear feet, respectively, additional compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7). For this approval to remain valid, you are required to comply with all the conditions listed below. In addition, you should obtain all other federal, state or local permits before proceeding with your project including (but not limited to) Sediment and Erosion control, Coastal Stormwater, Non-discharge and Water Supply watershed regulations. This Certification shall expire on the same day as the expiration date of the corresponding Corps of Engineers Permit.

Conditions of Certification:

1. All conditions written into previous Water Quality Certifications for this project still apply.

Violations of any condition herein set forth may result in revocation of this Certification and may result in criminal and/or civil penalties. This Certification shall become null and void unless the above conditions are made conditions of the Federal 404 and/or Coastal Area Management Act Permit. This Certification shall expire upon the expiration of the 404 or CAMA permit.



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

Coleen Sullins, Director
Division of Water Quality

If this Certification is unacceptable to you have the right to an adjudicatory hearing upon written request within sixty (60) days following receipt of this Certification. This request must be in the form of a written petition conforming to Chapter 150B of the North Carolina General Statutes and filed with the Office of Administrative Hearings, 6714 Mail Service Center, Raleigh, N.C. 27699-6714. If modifications are made to an original Certification, you have the right to an adjudicatory hearing on the modifications upon written request within sixty (60) days following receipt of the Certification. Unless such demands are made, this Certification shall be final and binding.

This the 2nd day of April 2008

DIVISION OF WATER QUALITY

A handwritten signature in black ink, appearing to read "B. L. W.", written over a horizontal line.

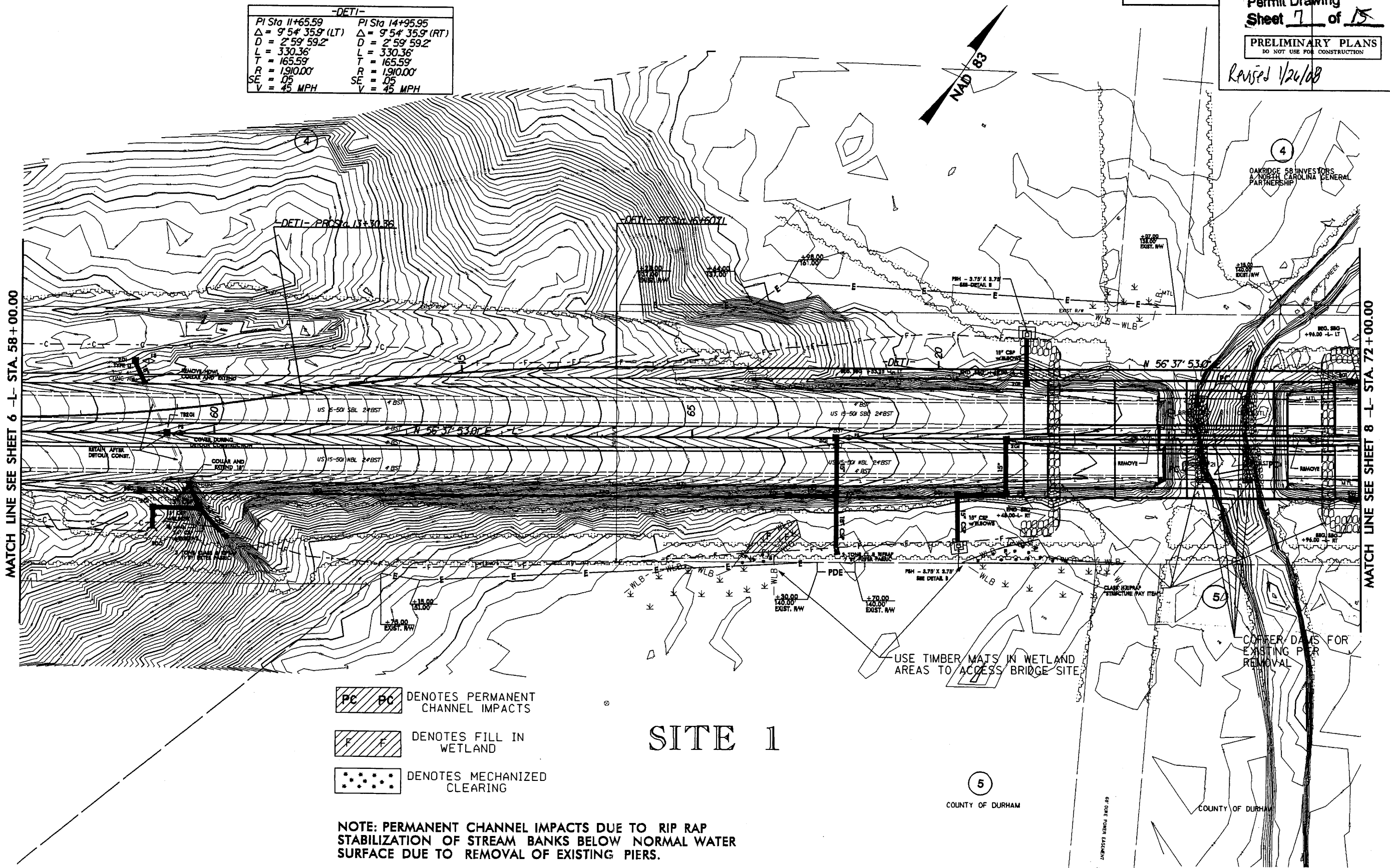
Coleen Sullins
Director

WQC No. 3500

ENGLISH

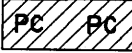
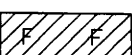
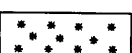
PROJECT REFERENCE NO. U-4012	SHEET NO. 7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
Permit Drawing	
Sheet 7 of 15	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Revised 1/26/08	

-DETI-	
PI Sta 11+65.59	PI Sta 14+95.95
$\Delta = 9' 54" 35.9" (LT)$	$\Delta = 9' 54" 35.9" (RT)$
$D = 2' 59" 59.2"$	$D = 2' 59" 59.2"$
$L = 330.36'$	$L = 330.36'$
$T = 165.59'$	$T = 165.59'$
$R = 1910.00'$	$R = 1910.00'$
SE = 05	SE = 05
V = 45 MPH	V = 45 MPH



MATCH LINE SEE SHEET 6 - L- STA. 58+00.00

MATCH LINE SEE SHEET 8 - L- STA. 72+00.00

-  DENOTES PERMANENT CHANNEL IMPACTS
-  DENOTES FILL IN WETLAND
-  DENOTES MECHANIZED CLEARING

SITE 1

NOTE: PERMANENT CHANNEL IMPACTS DUE TO RIP RAP STABILIZATION OF STREAM BANKS BELOW NORMAL WATER SURFACE DUE TO REMOVAL OF EXISTING PIERS.

USE TIMBER MATS IN WETLAND AREAS TO ACCESS BRIDGE SITE

COVER DAMS FOR EXISTING PIER REMOVAL

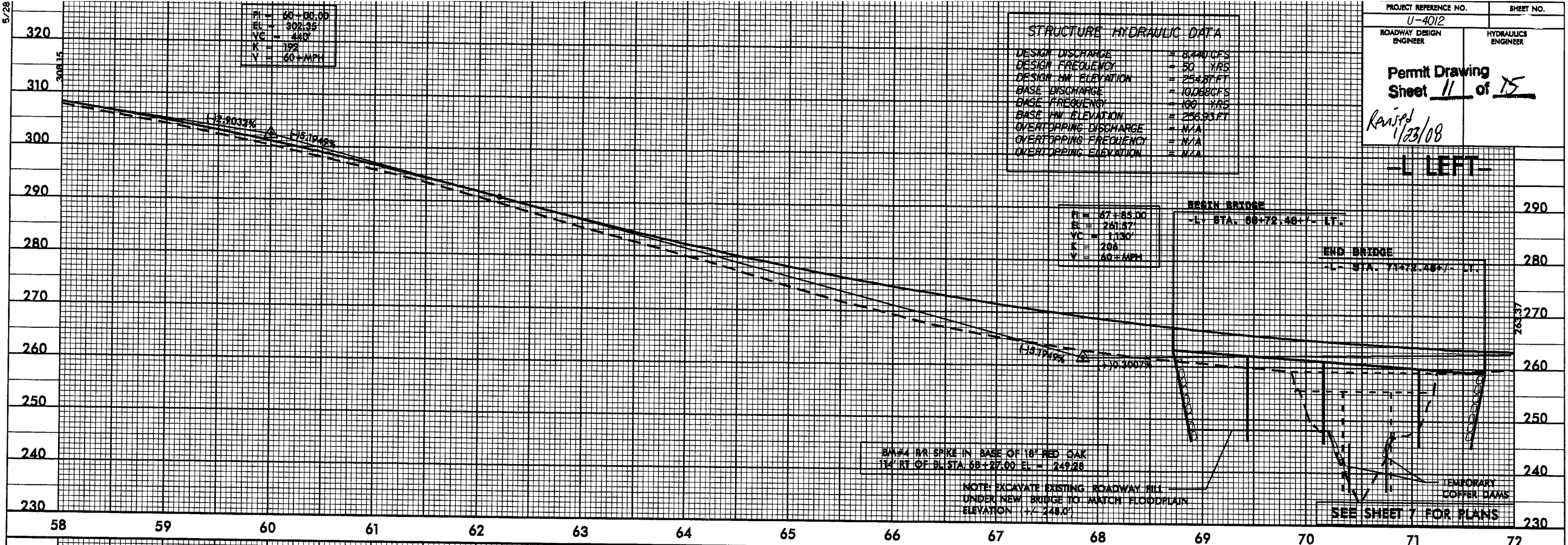
- SEE SHEET 2-C FOR STRUCTURE STAGING
- SEE SHEET 2- FOR SPECIAL MEDIAN GRADING DETAIL
- SEE SHEETS 9 THRU 12 FOR DETOURS
- SEE SHEETS 14 AND 16 FOR -L- PROFILES
- SEE SHEETS S-1 THRU S- FOR STRUCTURE PLANS

REVISIONS

26-FEB-2008 15:05
F:\Hydr-sulcis\U-4012\7_05h
Durham AL H1221556

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 8440 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 254.87 FT
BASE DISCHARGE	= 10068 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 256.93 FT
OVERTOPPING DISCHARGE	= N/A
OVERTOPPING FREQUENCY	= N/A
OVERTOPPING ELEVATION	= N/A



PI = 67+83.00
 EL = 241.87
 VC = 1130'
 K = 206
 V = 60+ MPH

BEGIN BRIDGE
 -L- STA. 68+72.48+/- LT.

END BRIDGE
 -L- STA. 71+72.48+/- LT.

BMW4 NR SPIKE IN BASE OF 18" RED OAK
 14' RT OF BL STA. 68+27.00 EL = 249.28

NOTE: EXCAVATE EXISTING ROADWAY HILL UNDER NEW BRIDGE TO MATCH FLOODPLAIN ELEVATION +/- 248.0'

SEE SHEET 7 FOR PLANS

-L LEFT-

STRUCTURE HYDRAULIC DATA

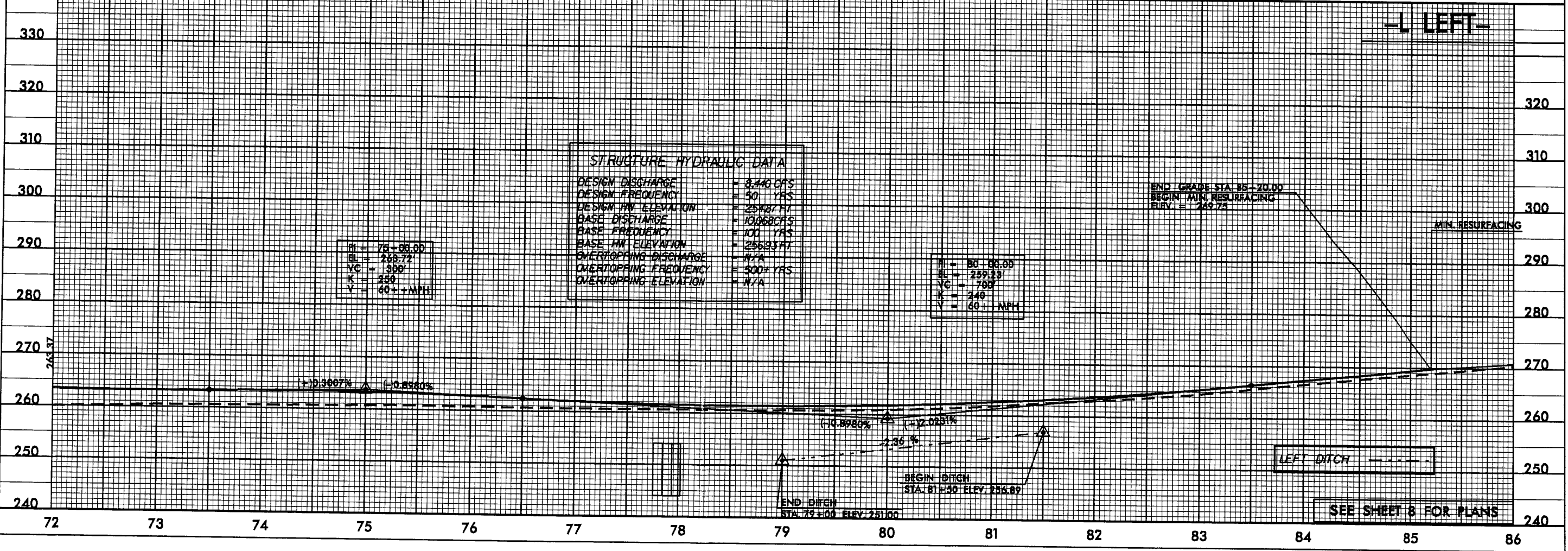
DESIGN DISCHARGE	= 8440 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 254.87 FT
BASE DISCHARGE	= 10068 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 256.93 FT
OVERTOPPING DISCHARGE	= N/A
OVERTOPPING FREQUENCY	= 300+ YRS
OVERTOPPING ELEVATION	= N/A

PI = 75+08.00
 EL = 269.72
 VC = 300'
 K = 250
 V = 60+ MPH

PI = 80+00.00
 EL = 259.33
 VC = 700'
 K = 240
 V = 60+ MPH

END GRADE STA. 85+20.00
 BEGIN MAIN RESURFACING CURV = 269.72

MIN. RESURFACING



END DITCH
 STA. 79+00 ELEV. 251.00

BEGIN DITCH
 STA. 81+30 ELEV. 256.89

LEFT DITCH

SEE SHEET 8 FOR PLANS

-L LEFT-

Const. Rev. - Additional Rip Rap added around the bridge piers of the existing US 15-501 bridges to match the Structure Design plans. BCK 1-22-08

23-JAN-2008 13:29
 E:\PROJECTS\U4012\21 HY221538
 E:\PROJECTS\U4012\21 HY221538

