



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

April 16, 2009

U. S. Army Corps of Engineers
Regulatory Field Office
151 Patton Avenue, Room 208
Asheville, NC 28801-5006

ATTN: Mr. Steve Lund
NCDOT Coordinator

Subject: **Application for Section 404 Nationwide Permit 23, Section 401 Water Quality Certification and Revised Application for Section 404 Nationwide Permit 33** for the proposed replacement of Bridge No. 99 over Long Creek on SR 1968 in Stanly County, Federal Aid Project No. BRZ-1968(1); State Project No. 8.2681701; Division 10; TIP No. B-3909, \$240.00 Debit Work Order 8.2861701, WBS Element 33344.1.1.

Reference: February 4, 2009 Application for Section 404 Nationwide Permit 33

Dear Sir:

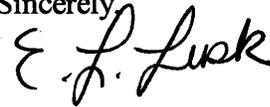
The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 99 over Long Creek on SR 1968. In addition to the 0.05 acre (49 linear feet) of temporary stream impacts requested in the original permit application dated February 4, 2009, there will be 90 linear feet of permanent stream impacts and <0.01 acre (45 linear feet) of temporary stream impacts to a previously undocumented intermittent unnamed tributary to Long Creek. There will be a total of 0.05 acre (94 linear feet) of temporary stream impacts and 90 linear feet of permanent stream impacts on this project.

Please see enclosed copies of the Revised Pre-Construction Notification (PCN), permit drawings and design plans for the above-referenced project. The Categorical Exclusion (CE) was completed in March 2003 and the CE Addendum was completed in July 2006. Documents were distributed shortly thereafter. Additional copies are available upon request.

This project calls for a letting date of September 15, 2009 and a review date of July 28, 2009.

A copy of this permit application will be posted on the NCDOT Website at: <http://www.ncdot.org/doh/preconstruct/pe/>. If you have any questions or need additional information, please e-mail Erin Cheely at ekcheely@ncdot.gov.

Sincerely,



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

W/attachment:

- Mr. Brian Wrenn, NCDWQ (2 Copies)
- Ms. Marella Buncick, USFWS
- Ms. Marla Chambers, NCWRC

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. Barry Moose, P.E., Division Engineer
- Mr. Larry Thompson, DEO
- Mr. Jay Bennett, P.E., Roadway Design
- Mr. Majed Alghandour, P. E., Programming and TIP
- Mr. Art McMillan, P.E., Highway Design
- Mr. Scott McLendon, USACE, Wilmington
- Mr. Ahmad Al-Sharawneh, PDEA Project Planning Engineer

USACE Action ID No. _____ DWQ No. _____

(If any particular item is not applicable to this project, please enter "Not Applicable" or "N/A".)

I. Processing

- 1. Check all of the approval(s) requested for this project:

<input checked="" type="checkbox"/> Section 404 Permit	<input type="checkbox"/> Riparian or Watershed Buffer Rules
<input type="checkbox"/> Section 10 Permit	<input type="checkbox"/> Isolated Wetland Permit from DWQ
<input checked="" type="checkbox"/> 401 Water Quality Certification	<input type="checkbox"/> Express 401 Water Quality Certification
- 2. Nationwide, Regional or General Permit Number(s) Requested: NW 23 & 33
- 3. If this notification is solely a courtesy copy because written approval for the 401 Certification is not required, check here:
- 4. If payment into the North Carolina Ecosystem Enhancement Program (NCEEP) is proposed for mitigation of impacts, attach the acceptance letter from NCEEP, complete section VIII, and check here:
- 5. If your project is located in any of North Carolina's twenty coastal counties (listed on page 4), and the project is within a North Carolina Division of Coastal Management Area of Environmental Concern (see the top of page 2 for further details), check here:

II. Applicant Information

- 1. Owner/Applicant Information

Name: Gregory J. Thorpe, Ph.D., Environmental Management Director

Mailing Address: 1598 Mail Service Center

Telephone Number: (919) 733-3141 Fax Number: (919) 733-9794

E-mail Address: ekcheely@ncdot.gov
- 2. Agent/Consultant Information (A signed and dated copy of the Agent Authorization letter must be attached if the Agent has signatory authority for the owner/applicant.)

Name: _____

Company Affiliation: _____

Mailing Address: _____

Telephone Number: _____ Fax Number: _____

E-mail Address: _____

III. Project Information

Attach a **vicinity map** clearly showing the location of the property with respect to local landmarks such as towns, rivers, and roads. Also provide a detailed **site plan** showing property boundaries and development plans in relation to surrounding properties. Both the vicinity map and site plan must include a scale and north arrow. The specific footprints of all buildings, impervious surfaces, or other facilities must be included. If possible, the maps and plans should include the appropriate USGS Topographic Quad Map and NRCS Soil Survey with the property boundaries outlined. Plan drawings, or other maps may be included at the applicant's discretion, so long as the property is clearly defined. For administrative and distribution purposes, the USACE requires information to be submitted on sheets no larger than 11 by 17-inch format; however, DWQ may accept paperwork of any size. DWQ prefers full-size construction drawings rather than a sequential sheet version of the full-size plans. If full-size plans are reduced to a small scale such that the final version is illegible, the applicant will be informed that the project has been placed on hold until decipherable maps are provided.

1. Name of project: Bridge No. 99 over Long Creek on SR 1968
2. T.I.P. Project Number or State Project Number (NCDOT Only): B-3909
3. Property Identification Number (Tax PIN): N/A
4. Location
County: Stanly Nearest Town: Albemarle
Subdivision name (include phase/lot number): N/A
Directions to site (include road numbers/names, landmarks, etc.): _____
5. Site coordinates (For linear projects, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)
Decimal Degrees (6 digits minimum): 35°16'00" °N -80°15'25" °W
6. Property size (acres): N/A
7. Name of nearest receiving body of water: Long Creek flows into the Rocky River approximately 4.6 stream miles from the project area. Long Creek has a DWQ classification of "C" and the Hydrological Cataloguing Unit is 03040105.
8. River Basin: Yadkin-Pee Dee River Basin
(Note – this must be one of North Carolina's seventeen designated major river basins. The River Basin map is available at <http://h2o.enr.state.nc.us/admin/maps/>.)
9. Describe the existing conditions on the site and general land use in the vicinity of the project at the time of this application: 60% wooded, 40% agriculture (pasture)/residential

10. Describe the overall project in detail, including the type of equipment to be used: Standard construction equipment will be used (backhoes, bulldozers, cranes and/or other heavy machinery)
11. Explain the purpose of the proposed work: The purpose of the project is to replace a functionally obsolete and structurally deficient structure (sufficiency rating 48.5 out of 100). The replacement of this inadequate structure will result in safer and more efficient traffic operations.

IV. Prior Project History

If jurisdictional determinations and/or permits have been requested and/or obtained for this project (including all prior phases of the same subdivision) in the past, please explain. Include the USACE Action ID Number, DWQ Project Number, application date, and date permits and certifications were issued or withdrawn. Provide photocopies of previously issued permits, certifications or other useful information. Describe previously approved wetland, stream and buffer impacts, along with associated mitigation (where applicable). If this is a NCDOT project, list and describe permits issued for prior segments of the same T.I.P. project, along with construction schedules.

A JD was issued for this project on April 23, 2002 under Action ID # 200230733.

V. Future Project Plans

Are any future permit requests anticipated for this project? If so, describe the anticipated work, and provide justification for the exclusion of this work from the current application.

N/A

VI. Proposed Impacts to Waters of the United States/Waters of the State

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to wetlands, open water, and stream channels associated with the project. Each impact must be listed separately in the tables below (e.g., culvert installation should be listed separately from riprap dissipater pads). Be sure to indicate if an impact is temporary. All proposed impacts, permanent and temporary, must be listed, and must be labeled and clearly identifiable on an accompanying site plan. All wetlands and waters, and all streams (intermittent and perennial) should be shown on a delineation map, whether or not impacts are proposed to these systems. Wetland and stream evaluation and delineation forms should be included as appropriate. Photographs may be included at the applicant's discretion. If this proposed impact is strictly for wetland or stream mitigation, list and describe the impact in Section VIII below. If additional space is needed for listing or description, please attach a separate sheet.

1. Provide a written description of the proposed impacts: Permanent: There will be 90 linear feet of permanent impacts to an intermittent UT to Long Creek (UT1) due to stream relocation just to the north of the existing channel. Temporary: There will be 0.05 acre (49 linear feet) of temporary stream impacts due to the placement of two temporary causeways in Long Creek and 45 linear feet (<0.01 acre) of temporary stream impacts due to the relocation of UT1.

2. Individually list wetland impacts. Types of impacts include, but are not limited to mechanized clearing, grading, fill, excavation, flooding, ditching/drainage, etc. For dams, separately list impacts due to both structure and flooding.

Wetland Impact Site Number (indicate on map)	Type of Impact	Type of Wetland (e.g., forested, marsh, herbaceous, bog, etc.)	Located within 100-year Floodplain (yes/no)	Distance to Nearest Stream (linear feet)	Area of Impact (acres)
No wetlands within construction limits.					

3. List the total acreage (estimated) of all existing wetlands on the property: N/A

4. Individually list all intermittent and perennial stream impacts. Be sure to identify temporary impacts. Stream impacts include, but are not limited to placement of fill or culverts, dam construction, flooding, relocation, stabilization activities (e.g., cement walls, rip-rap, crib walls, gabions, etc.), excavation, ditching/straightening, etc. If stream relocation is proposed, plans and profiles showing the linear footprint for both the original and relocated streams must be included. To calculate acreage, multiply length X width, then divide by 43,560.

Stream Impact Number (indicate on map)	Stream Name	Type of Impact	Perennial or Intermittent?	Average Stream Width Before Impact	Impact Length (linear feet)	Area of Impact (acres)
1	Long Creek	Temporary	Perennial	75 ft	49	0.05
2	UT1	Permanent	Intermittent	2 ft.	90	0.01
2	UT1	Temporary	Intermittent	2 ft.	45	<0.01
Total Permanent Stream Impact (by length and acreage)					90	0.01

5. Individually list all open water impacts (including lakes, ponds, estuaries, sounds, Atlantic Ocean and any other water of the U.S.). Open water impacts include, but are not limited to fill, excavation, dredging, flooding, drainage, bulkheads, etc.

Open Water Impact Site Number (indicate on map)	Name of Waterbody (if applicable)	Type of Impact	Type of Waterbody (lake, pond, estuary, sound, bay, ocean, etc.)	Area of Impact (acres)
No open water impacts				
Total Open Water Impact (acres)				

6. List the cumulative impact to all Waters of the U.S. resulting from the project:

Stream Impact (acres):	Permanent: 0.01 Temporary: 0.05
Wetland Impact (acres):	0
Open Water Impact (acres):	0
Total Impact to Waters of the U.S. (acres)	Permanent: 0.01 Temporary: 0.05
Total Stream Impact (linear feet):	Permanent: 90 Temporary: 94

7. Isolated Waters

Do any isolated waters exist on the property? Yes No

Describe all impacts to isolated waters, and include the type of water (wetland or stream) and the size of the proposed impact (acres or linear feet). Please note that this section only applies to waters that have specifically been determined to be isolated by the USACE.

N/A

8. Pond Creation

If construction of a pond is proposed, associated wetland and stream impacts should be included above in the wetland and stream impact sections. Also, the proposed pond should be described here and illustrated on any maps included with this application.

Pond to be created in (check all that apply): uplands stream wetlands

Describe the method of construction (e.g., dam/embankment, excavation, installation of draw-down valve or spillway, etc.):

Proposed use or purpose of pond (e.g., livestock watering, irrigation, aesthetic, trout pond, local stormwater requirement, etc.):

Current land use in the vicinity of the pond:

Size of watershed draining to pond: Expected pond surface area:

VII. Impact Justification (Avoidance and Minimization)

Specifically describe measures taken to avoid the proposed impacts. It may be useful to provide information related to site constraints such as topography, building ordinances, accessibility, and financial viability of the project. The applicant may attach drawings of alternative, lower-impact site layouts, and explain why these design options were not feasible. Also discuss how impacts were minimized once the desired site plan was developed. If applicable, discuss construction techniques to be followed during construction to reduce impacts. No deck drains will be used and NCDOT's Best Management Practices will be followed. The bridge will be replaced in-place with an off-site detour. Temporary causeways will not be installed at the same time to maintain adequate flow in the creek. The temporary causeways will be removed after construction has been completed. In addition, the new bridge will be 264 feet long, which is significantly longer than the existing 82.5-foot bridge.

VIII. Mitigation

DWQ - In accordance with 15A NCAC 2H .0500, mitigation may be required by the NC Division of Water Quality for projects involving greater than or equal to one acre of impacts to freshwater wetlands or greater than or equal to 150 linear feet of total impacts to perennial streams.

USACE – In accordance with the Final Notice of Issuance and Modification of Nationwide Permits, published in the Federal Register on January 15, 2002, mitigation will be required when necessary to ensure that adverse effects to the aquatic environment are minimal. Factors including size and type of proposed impact and function and relative value of the impacted aquatic resource will be considered in determining acceptability of appropriate and practicable mitigation as proposed. Examples of mitigation that may be appropriate and practicable include,

but are not limited to: reducing the size of the project; establishing and maintaining wetland and/or upland vegetated buffers to protect open waters such as streams; and replacing losses of aquatic resource functions and values by creating, restoring, enhancing, or preserving similar functions and values, preferable in the same watershed.

If mitigation is required for this project, a copy of the mitigation plan must be attached in order for USACE or DWQ to consider the application complete for processing. Any application lacking a required mitigation plan or NCEEP concurrence shall be placed on hold as incomplete. An applicant may also choose to review the current guidelines for stream restoration in DWQ's Draft Technical Guide for Stream Work in North Carolina, available at <http://h2o.enr.state.nc.us/ncwetlands/strmgide.html>.

1. Provide a brief description of the proposed mitigation plan. The description should provide as much information as possible, including, but not limited to: site location (attach directions and/or map, if offsite), affected stream and river basin, type and amount (acreage/linear feet) of mitigation proposed (restoration, enhancement, creation, or preservation), a plan view, preservation mechanism (e.g., deed restrictions, conservation easement, etc.), and a description of the current site conditions and proposed method of construction. Please attach a separate sheet if more space is needed.

No mitigation is proposed for this project because the 0.05 acre of impacts to Long Creek and UT1 are temporary and will not cause an adverse effect or significant loss of waters of the United States. The only permanent impacts for this project are to UT1, which is a low-scoring intermittent stream.

2. Mitigation may also be made by payment into the North Carolina Ecosystem Enhancement Program (NCEEP). Please note it is the applicant's responsibility to contact the NCEEP at (919) 715-0476 to determine availability, and written approval from the NCEEP indicating that they are will to accept payment for the mitigation must be attached to this form. For additional information regarding the application process for the NCEEP, check the NCEEP website at <http://h2o.enr.state.nc.us/wrp/index.htm>. If use of the NCEEP is proposed, please check the appropriate box on page five and provide the following information:

Amount of stream mitigation requested (linear feet): 0
Amount of buffer mitigation requested (square feet): 0
Amount of Riparian wetland mitigation requested (acres): 0
Amount of Non-riparian wetland mitigation requested (acres): 0
Amount of Coastal wetland mitigation requested (acres): 0

IX. Environmental Documentation (required by DWQ)

1. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land? Yes No
2. If yes, does the project require preparation of an environmental document pursuant to the requirements of the National or North Carolina Environmental Policy Act (NEPA/SEPA)?

Note: If you are not sure whether a NEPA/SEPA document is required, call the SEPA coordinator at (919) 733-5083 to review current thresholds for environmental documentation.
 Yes No

3. If yes, has the document review been finalized by the State Clearinghouse? If so, please attach a copy of the NEPA or SEPA final approval letter. Yes No

X. Proposed Impacts on Riparian and Watershed Buffers (required by DWQ)

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to required state and local buffers associated with the project. The applicant must also provide justification for these impacts in Section VII above. All proposed impacts must be listed herein, and must be clearly identifiable on the accompanying site plan. All buffers must be shown on a map, whether or not impacts are proposed to the buffers. Correspondence from the DWQ Regional Office may be included as appropriate. Photographs may also be included at the applicant's discretion.

1. Will the project impact protected riparian buffers identified within 15A NCAC 2B .0233 (Neuse), 15A NCAC 2B .0259 (Tar-Pamlico), 15A NCAC 02B .0243 (Catawba) 15A NCAC 2B .0250 (Randleman Rules and Water Supply Buffer Requirements), or other (please identify _____)? Yes No
2. If "yes", identify the square feet and acreage of impact to each zone of the riparian buffers. If buffer mitigation is required calculate the required amount of mitigation by applying the buffer multipliers.

Zone*	Impact (square feet)	Multiplier	Required Mitigation
1		3 (2 for Catawba)	
2		1.5	
Total			

* Zone 1 extends out 30 feet perpendicular from the top of the near bank of channel; Zone 2 extends an additional 20 feet from the edge of Zone 1.

3. If buffer mitigation is required, please discuss what type of mitigation is proposed (i.e., Donation of Property, Riparian Buffer Restoration / Enhancement, or Payment into the Riparian Buffer Restoration Fund). Please attach all appropriate information as identified within 15A NCAC 2B .0242 or .0244, or .0260. N/A

XI. Stormwater (required by DWQ)

Describe impervious acreage (existing and proposed) versus total acreage on the site. Discuss stormwater controls proposed in order to protect surface waters and wetlands downstream from the property. If percent impervious surface exceeds 20%, please provide calculations demonstrating total proposed impervious level. Impervious surfaces will not significantly increase as a result of this project. The bridge will be replaced in place. There will be no deck drains installed.

XII. Sewage Disposal (required by DWQ)

Clearly detail the ultimate treatment methods and disposition (non-discharge or discharge) of wastewater generated from the proposed project, or available capacity of the subject facility.

N/A

XIII. Violations (required by DWQ)

Is this site in violation of DWQ Wetland Rules (15A NCAC 2H .0500) or any Buffer Rules?

Yes No

Is this an after-the-fact permit application? Yes No

XIV. Cumulative Impacts (required by DWQ)

Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality? Yes No

If yes, please submit a qualitative or quantitative cumulative impact analysis in accordance with the most recent North Carolina Division of Water Quality policy posted on our website at <http://h2o.enr.state.nc.us/ncwetlands>. If no, please provide a short narrative description: _____

The new bridge will be constructed in the same location as the old bridge.

XV. Other Circumstances (Optional):

It is the applicant's responsibility to submit the application sufficiently in advance of desired construction dates to allow processing time for these permits. However, an applicant may choose to list constraints associated with construction or sequencing that may impose limits on work schedules (e.g., draw-down schedules for lakes, dates associated with Endangered and Threatened Species, accessibility problems, or other issues outside of the applicant's control).

As of January 31, 2008, the US Fish and Wildlife Service (USFWS) lists one species for Stanly County, Schweinitz's sunflower. A survey for this species was last conducted on September 27th, 2007. Suitable habitat for this species exists within the project area, however no individuals were found. The biological conclusion for this species remains "No Effect". The bald eagle has been delisted from the Endangered Species Act as of August 8, 2007. It is still protected under the Bald and Golden Eagle Protection Act. There are no large bodies of water within 1 mile and 660 feet of the project study, there fore no survey is needed and this project will not affect the bald eagle.

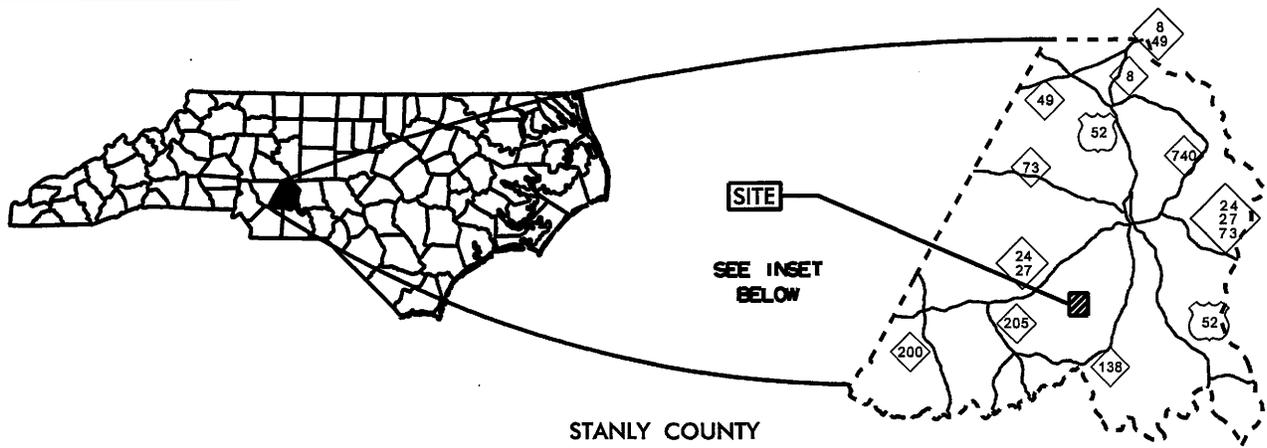
E. L. Luck

4.16.09

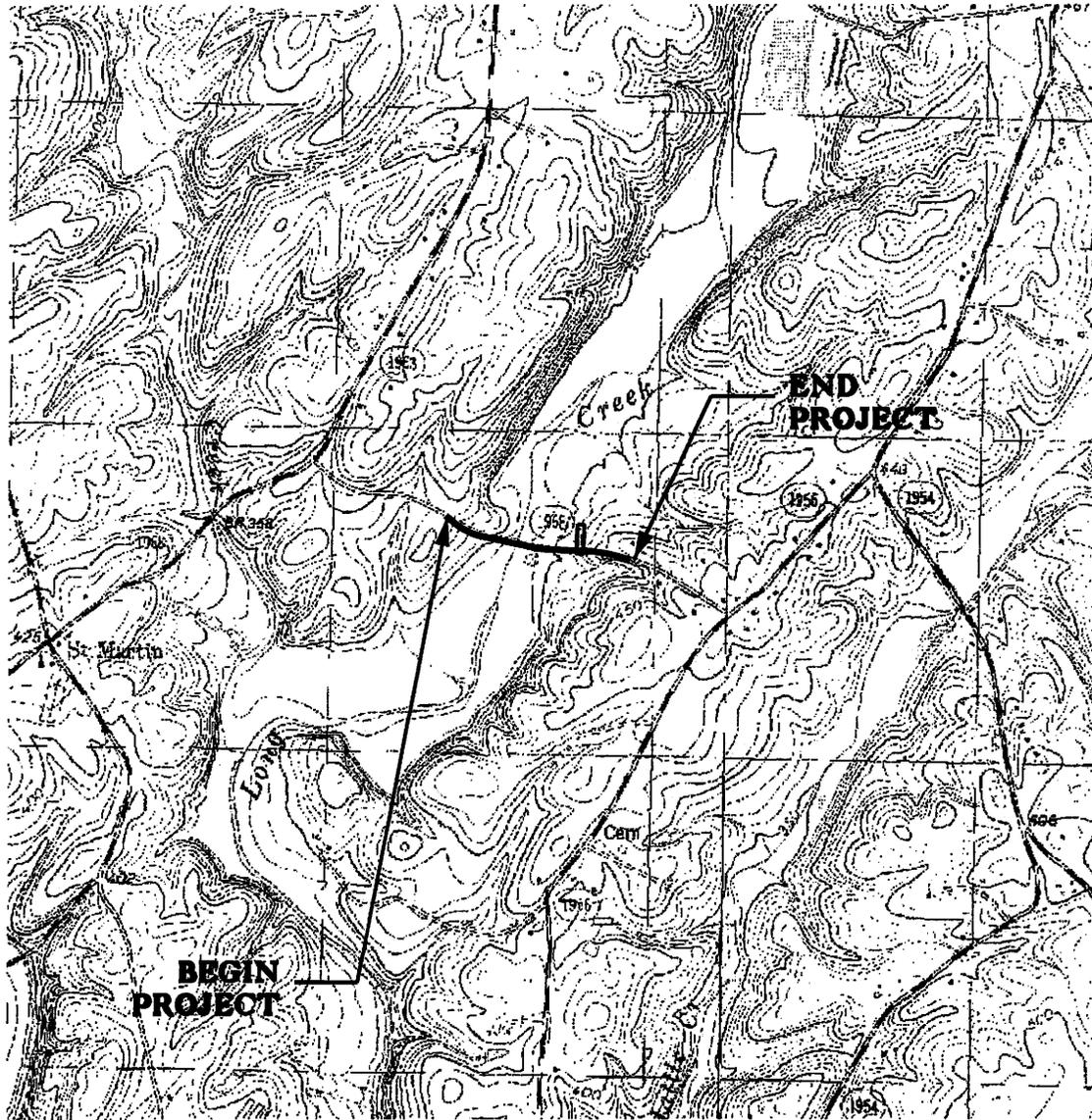
Applicant/Agent's Signature

Date

(Agent's signature is valid only if an authorization letter from the applicant is provided.)



STANLY COUNTY



**WETLAND/STREAM IMPACTS
VICINITY MAP**

Revised
 Permit Drawing
 Sheet 1 of 10

**N.C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS**

STANLY COUNTY

PROJECT: 33344.1.1 (B-3909)
 BRIDGE NO. 99 OVER
 LONG CREEK ON SR 1968
 (HARTSELL RD)

SHEET ___ OF ___

100208

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
1	JANET S. AND RICKY D. EUDY	245 JAMES RD OAKBORO, NC 28129
4	THOMAS D. AND CARISSA F. JORDAN	290443 HARTSELL RD ALBEMARLE, NC 28001

Revised
Permit Drawing
Sheet 2 of 10

NCDOT

DIVISION OF HIGHWAYS

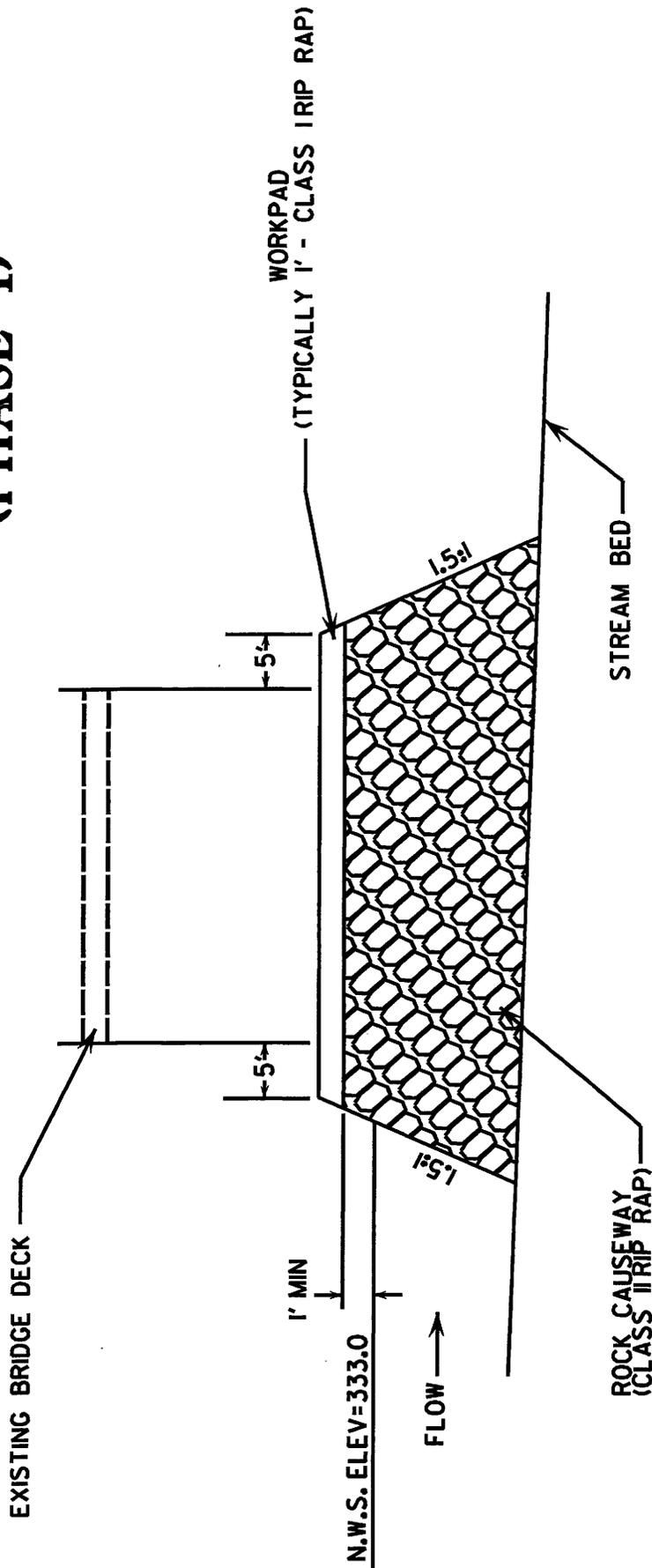
STANLY COUNTY

PROJECT: 33344.1.1 (B-3909)
BRIDGE NO. 99 OVER
LONG CREEK ON SR 1968
(HARTSELL RD)

SHEET OF

10/04/08

TEMP CAUSEWAY DETAIL (NOT TO SCALE) (PHASE 1)



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

PROJECT: 33344.1.1 (B-3909)
BRIDGE NO. 99 OVER
LONG CREEK ON SR 1968
(HARTSELL RD)

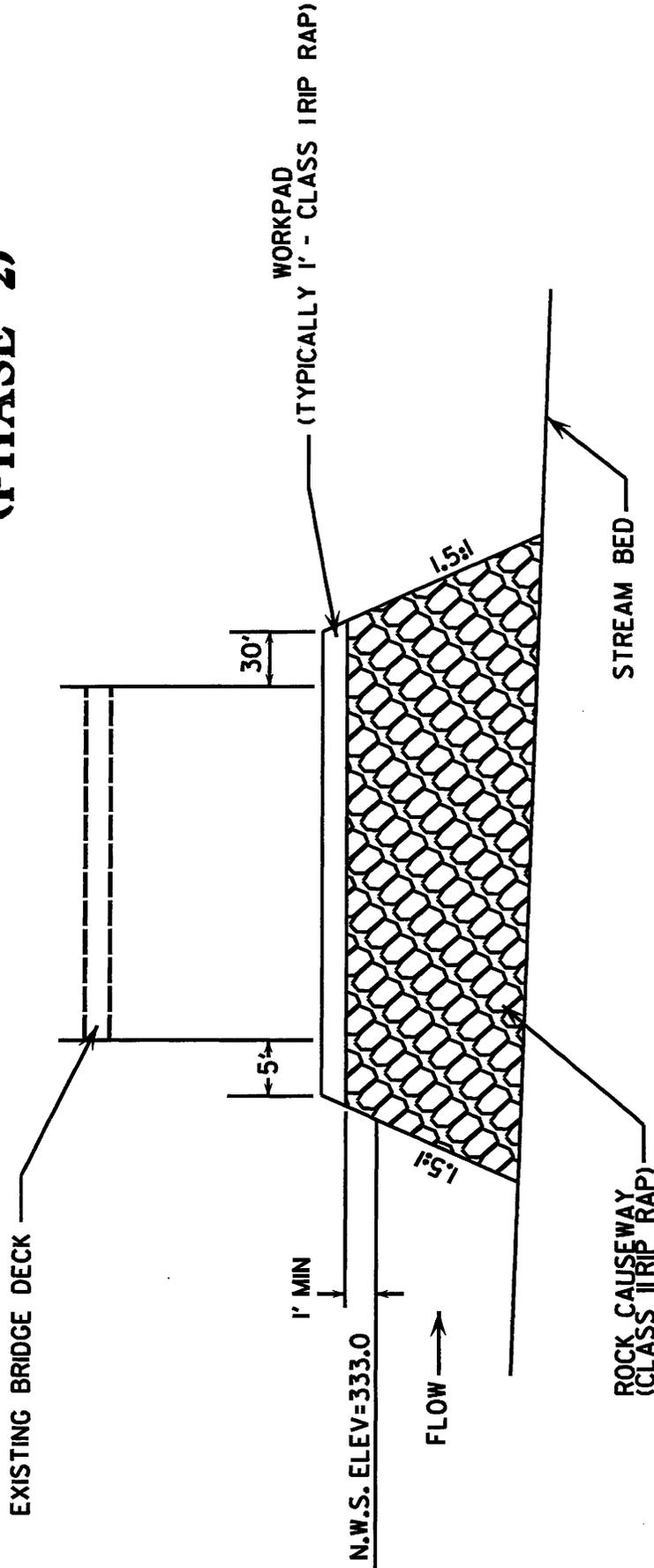
SHEET ___ OF ___ 10/02/08

QUANTITIES OF ESTIMATES

VOLUME OF CLASS II RIP RAP= 37 yds³
AREA OF CLASS II RIP RAP= 0.01 ac
Estimate 53 Tons Class 'II' Rip Rap

Revised
Permit Drawing
Sheet 3 of 10

TEMP CAUSEWAY DETAIL (NOT TO SCALE) (PHASE 2)



QUANTITIES OF ESTIMATES

VOLUME OF CLASS 1 RIP RAP = 130 yds³
 AREA OF CLASS 1 RIP RAP = 0.04 ac
 Estimate 185 Tons Class '1' Rip Rap

Revised
 Permit Drawing
 Sheet 4 of 10

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

PROJECT: 33344.1.1 (B-3909)
 BRIDGE NO. 99 OVER
 LONG CREEK ON SR 1968
 (HARTSELL RD)

SHEET _____ OF _____ 10/02/08

05/08/99

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Symbology

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

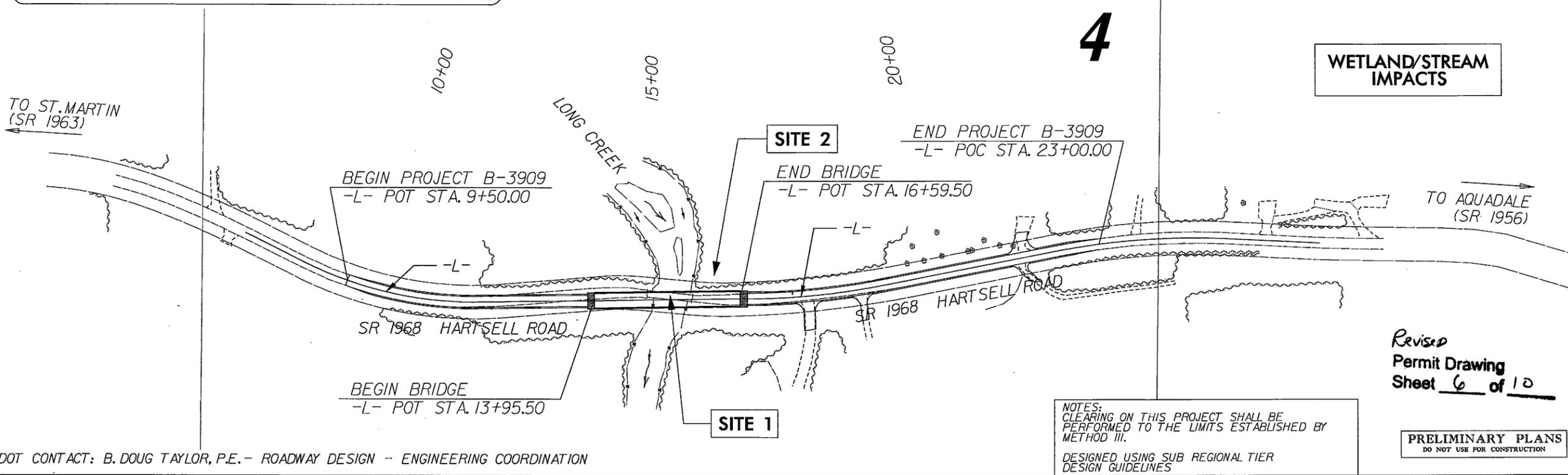
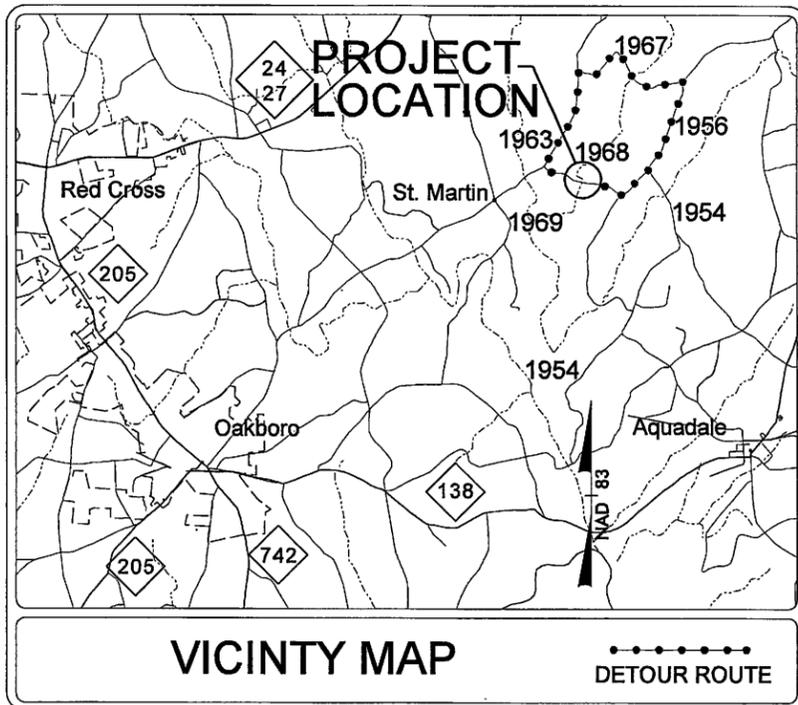
STANLY COUNTY

**LOCATION: BRIDGE NO. 99 OVER LONG CREEK
ON SR 1968 (HARTSELL RD)**

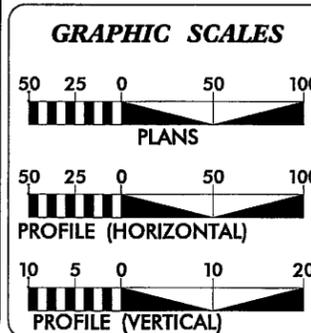
TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3909	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33344.1.1	BRZ-1968(1)	P.E.	

TIP PROJECT: B-3909



CONTRACT:



DESIGN DATA

ADT 2009 = 740	ADT 2030 = 1,080
DHV = 11 %	D = 60 %
T = 3 % *	V = 50 MPH
FUNC. CLASS = RURAL LOCAL	*TTST 1% DUAL 2%

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-3909 = 0.206 MILES
LENGTH OF STRUCTURE TIP PROJECT B-3909 = 0.050 MILES
TOTAL LENGTH OF TIP PROJECT B-3909 = 0.256 MILES

Prepared In the Office of:
WILBUR SMITH ASSOCIATES
421 FAYETTEVILLE STREET, RALEIGH NC, 27601

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
AUGUST 29, 2008

LETTING DATE:
AUGUST 18, 2009

DAVID L. WILVER, P.E.
PROJECT ENGINEER

BENJAMIN R. CRAWFORD, P.E.
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.

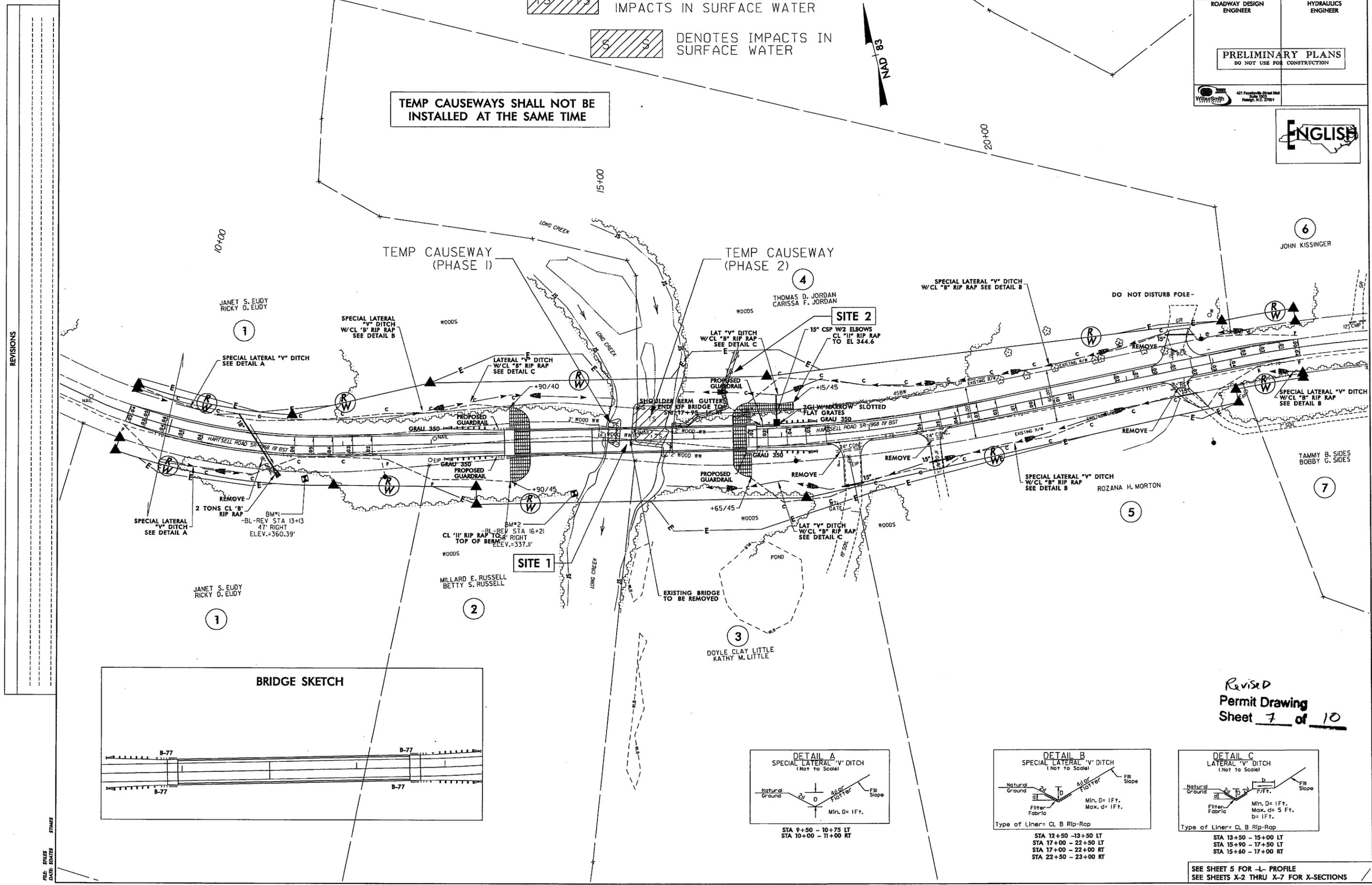
PROJECT REFERENCE NO. B-3909	SHEET NO. 4
R/W SHEET NO. ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



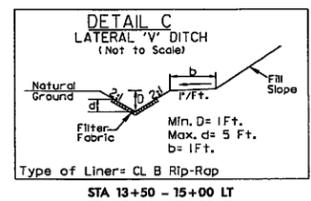
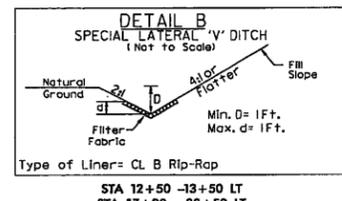
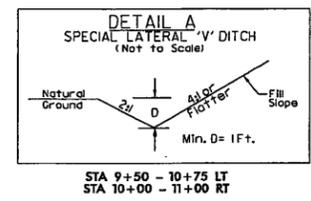
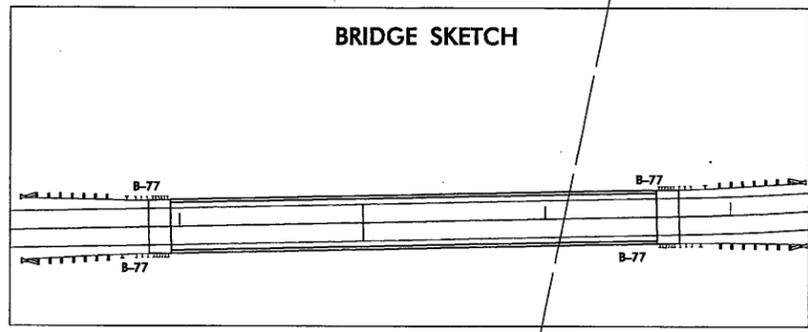
DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES IMPACTS IN SURFACE WATER

TEMP CAUSEWAYS SHALL NOT BE INSTALLED AT THE SAME TIME



REVISIONS



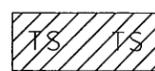
Revised
Permit Drawing
Sheet 7 of 10

SEE SHEET 5 FOR -L- PROFILE
SEE SHEETS X-2 THRU X-7 FOR X-SECTIONS

FILE: SP18R DATE: 04/25/18 ST/MS

PROJECT REFERENCE NO. B-3909	SHEET NO. 4
RW SHEET NO. ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
	

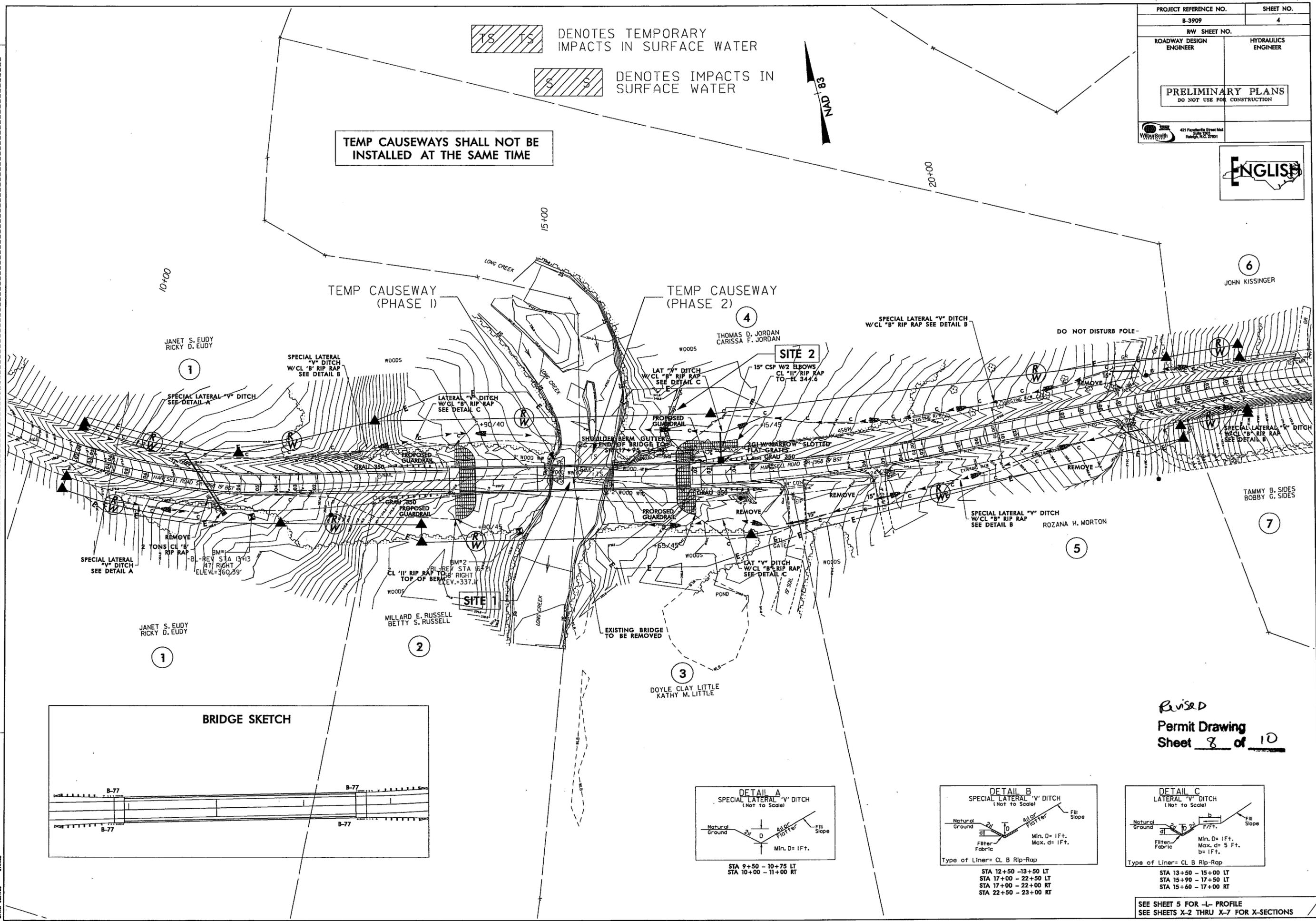


 DENOTES TEMPORARY IMPACTS IN SURFACE WATER

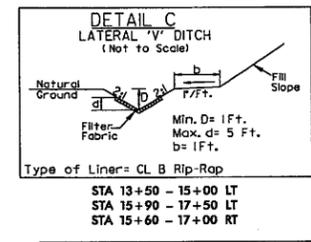
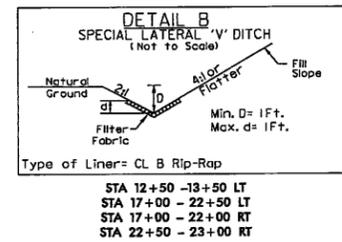
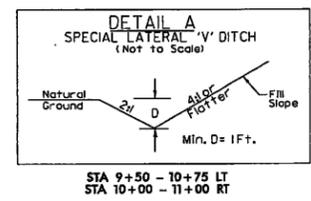
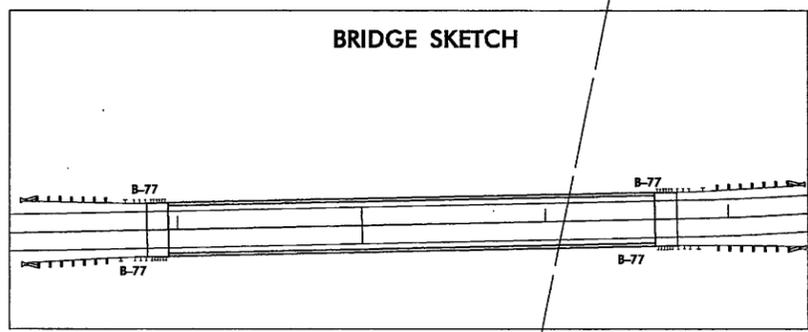
 DENOTES IMPACTS IN SURFACE WATER



TEMP CAUSEWAYS SHALL NOT BE INSTALLED AT THE SAME TIME



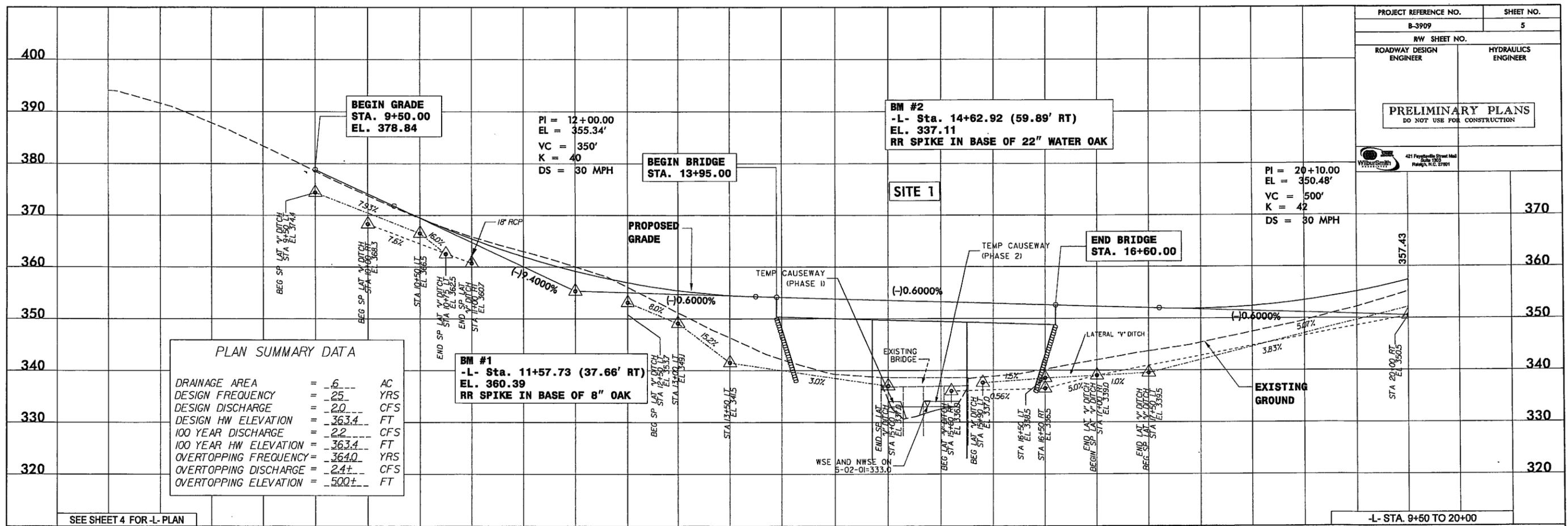
REVISIONS



Revised
Permit Drawing
Sheet 8 of 10

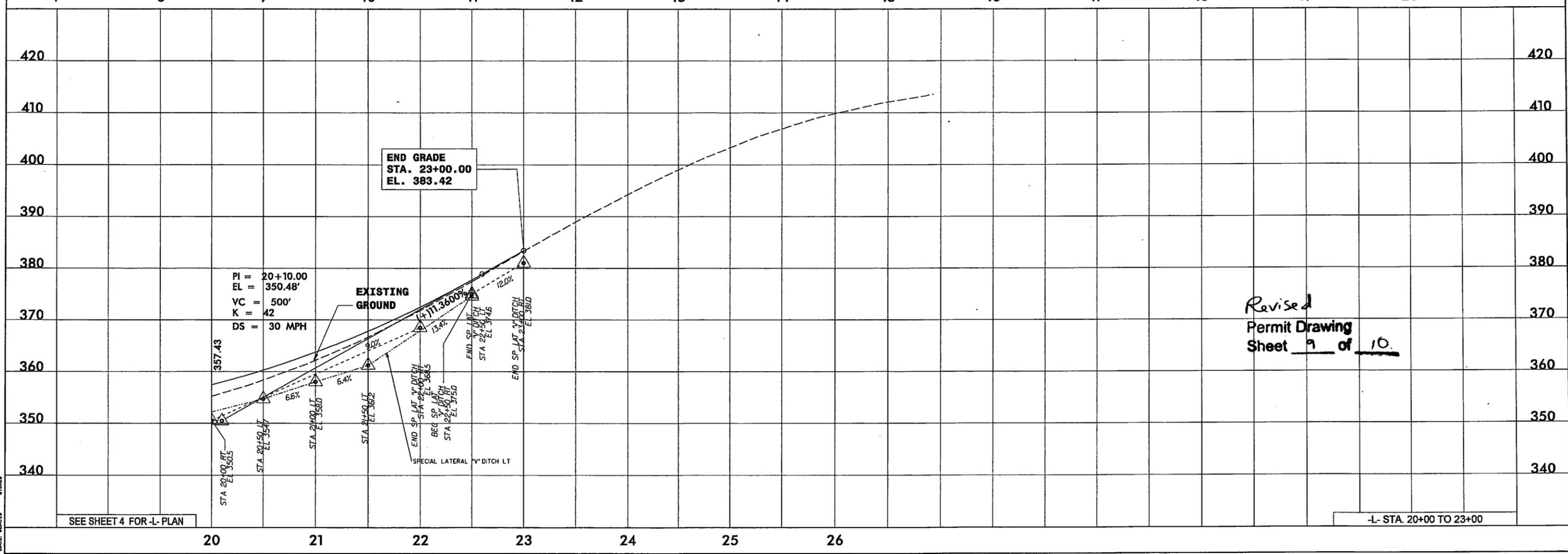
SEE SHEET 5 FOR -L- PROFILE
SEE SHEETS X-2 THRU X-7 FOR X-SECTIONS

FILE: 5FILES
DATE: 8/20/15
STWMS



SEE SHEET 4 FOR -L- PLAN

-L- STA. 9+50 TO 20+00

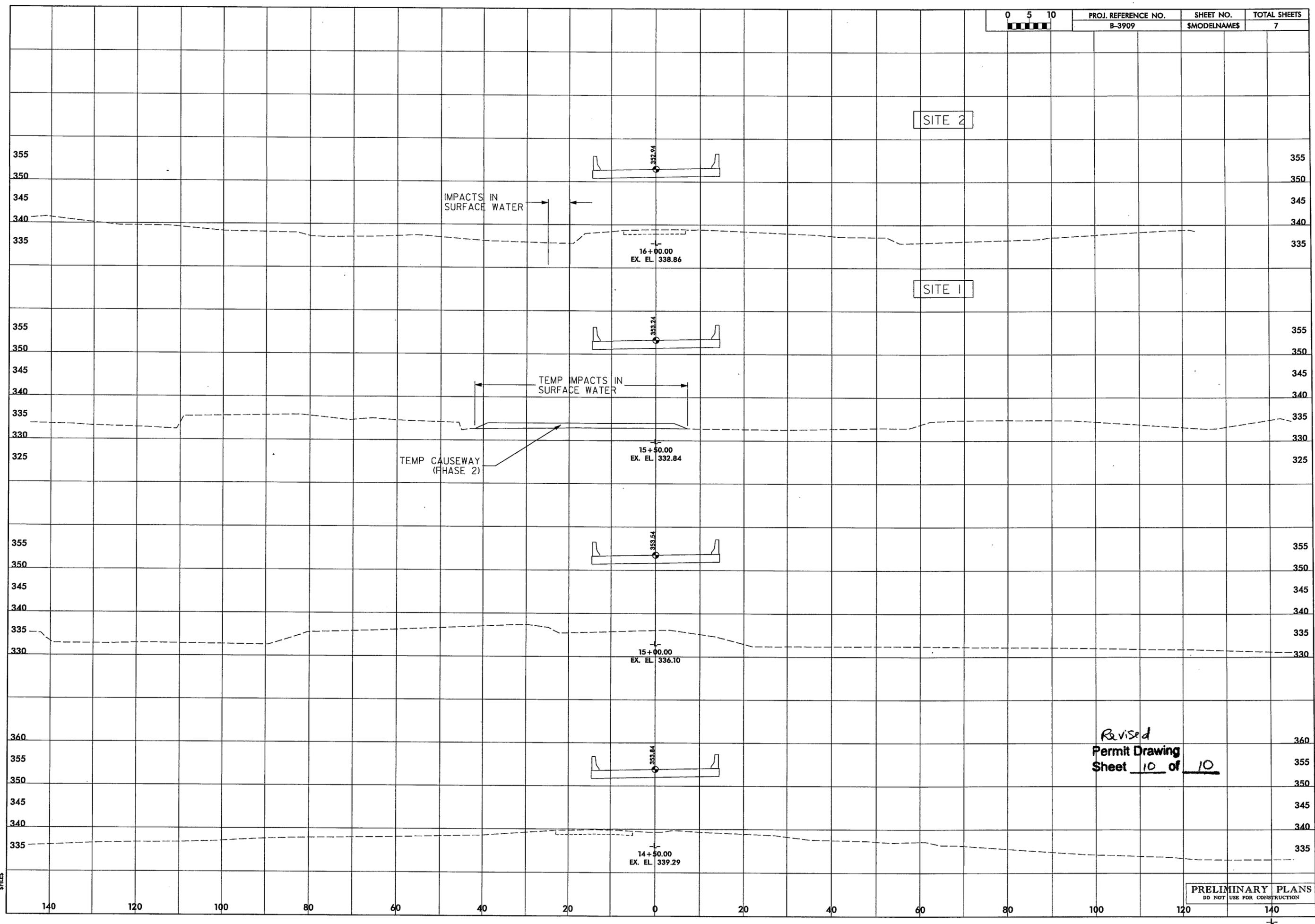


SEE SHEET 4 FOR -L- PLAN

-L- STA. 20+00 TO 23+00

Revised
 Permit Drawing
 Sheet 9 of 10

FILE: #FILES
 DATE: #DATES
 #TIMES



SITE 2

SITE 1

IMPACTS IN SURFACE WATER

TEMP IMPACTS IN SURFACE WATER

TEMP CAUSEWAY (PHASE 2)

16+00.00
EX. EL. 338.86

15+50.00
EX. EL. 332.84

15+00.00
EX. EL. 336.10

14+50.00
EX. EL. 339.29

Revised
Permit Drawing
Sheet 10 of 10

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

DATE: _____
SCALE: _____
BY: _____

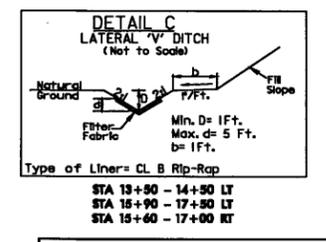
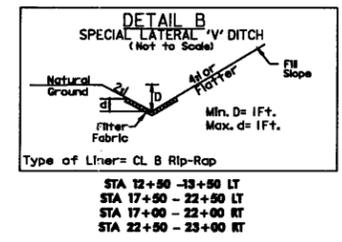
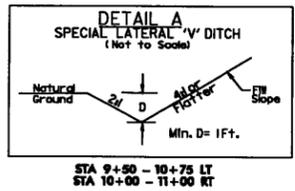
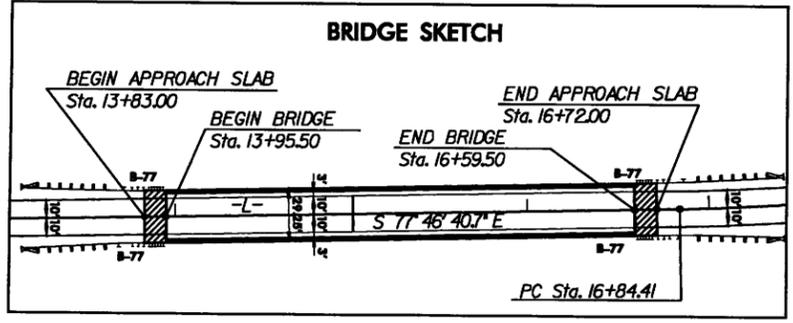
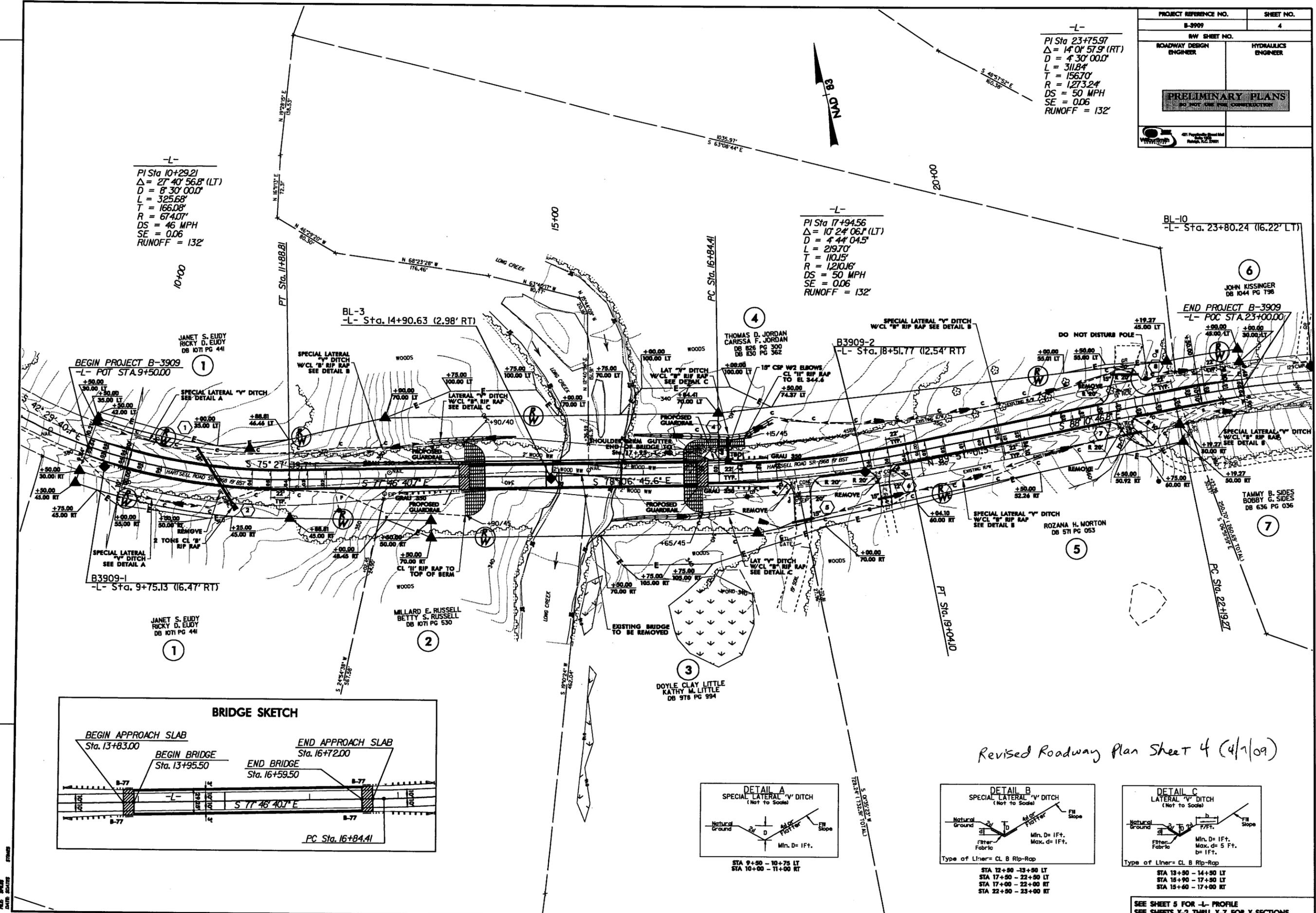
PROJECT REFERENCE NO.	SHEET NO.
B-3909	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

-L-
 PI Sta 23+75.97
 $\Delta = 14^{\circ} 01' 57.9" (RT)$
 $D = 430' 00.0"$
 $L = 311.84'$
 $T = 156.70'$
 $R = 1273.24'$
 $DS = 50 \text{ MPH}$
 $SE = 0.06$
 $RUNOFF = 132'$

-L-
 PI Sta 10+29.21
 $\Delta = 27^{\circ} 40' 56.8" (LT)$
 $D = 830' 00.0"$
 $L = 325.68'$
 $T = 166.08'$
 $R = 674.07'$
 $DS = 46 \text{ MPH}$
 $SE = 0.06$
 $RUNOFF = 132'$

-L-
 PI Sta 17+94.56
 $\Delta = 10^{\circ} 24' 06.1" (LT)$
 $D = 444' 04.5"$
 $L = 219.70'$
 $T = 110.15'$
 $R = 1210.16'$
 $DS = 50 \text{ MPH}$
 $SE = 0.06$
 $RUNOFF = 132'$

BL-10
 -L- Sta. 23+80.24 (16.22' RT)



Revised Roadway Plan Sheet 4 (4/1/09)

SEE SHEET 5 FOR -L- PROFILE
 SEE SHEETS X-2 THRU X-7 FOR X-SECTIONS