



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY  
GOVERNOR

LYNDO TIPPETT  
SECRETARY

July 21, 2008

US Army Corps of Engineers  
3331 Heritage Trade Dr., Suite 105  
Wake Forest, NC 27587

Attn: Mr. Eric Alsmeyer  
NCDOT Coordinator, Division 5

Dear Sir:

Subject: **Application for Modification to Section 404 and 401 permits and Neuse Buffer Authorization** for the replacement of Bridge No. 229 over Poplar Creek on SR 1007 (Poole Rd.) Wake County. Federal Aid Project No. BRSTP-1007(9), State Project No. 8.209301, WBS 33638.1.1, Division 5, TIP No. B-4301

Reference: NCDENR-DWQ Water Quality Certification and Neuse Buffer Authorization  
Project No. 20071844, dated November 7, 2008  
USACE Section 404 NWP 23 and 33, Action ID 200420706, dated March 26, 2008

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 229 over Poplar Creek. The project involves constructing the new bridge at the existing location, while maintaining traffic on a temporary on-site detour south (downstream) of the existing bridge during construction.

The purpose of this submittal is to request a modification to the Section 404 permit, Section 401 Water Quality Certification.

The revised design does not compromise NCDOT's compliance with the existing permit conditions. The revision has been evaluated for compliance with the avoidance/minimization criteria and are in compliance with all previous issues, including the following:

- Protected Species
- Aquatic Life passage
- FEMA compliance
- Cultural Resources.

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

TELEPHONE: 919-715-1334  
FAX: 919-715-5501  
WEBSITE: [WWW.NCDOT.ORG](http://WWW.NCDOT.ORG)

**LOCATION:**  
2728 CAPITAL BLVD.  
SUITE 240  
RALEIGH NC 27604

After further investigation, NCDOT can not construct the project as permitted. The hand clearing areas will now require temporary fill in wetlands. This will increase the temporary impacts to 0.1 acres for the 24 inch pipe and 0.11 acres for the detour roadway at Site 2.

The Section 401 approved 39 feet of permanent fill to Poplar Creek based on the PCN submitted with the permit application dated October 27, 2007. This was an error. There will only be 8 square feet (<0.01 acres) of permanent impact to Poplar Creek (Site 1) for the placement of the bent (6 piles).

Total impacts for the project are 0.02 acre of permanent fill in riverine wetlands, 0.39 acre of temporary fill in riverine wetlands and <0.01 acres (8 sq. ft.) of permanent fill in stream for the bent.

No change in buffer impacts.

### **Mitigation**

No mitigation is proposed for the increase in temporary impacts.

### **Regulatory Approvals**

Application is hereby made for the modification of the Section 404 NWP 23 and 33 Permit from the USACE and Section 401 Water Quality Certification from the NCDENR-DWQ.

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 call Rachelle Beaugard at 919-715-1383.

Sincerely,



for

Gregory J. Thorpe, Ph.D.

Environmental Management Director, PDEA

w/attachment

Mr. Brian Wrenn, NCDWQ (5 Copies)  
Mr. J. Wally Bowman, PE., Division Engineer  
Mr. Chris Murray, DEO

W/o attachment (see website for attachments)

Dr. David Chang, P.E., Hydraulics  
Mr. Mark Staley, Roadside Environmental  
Mr. Greg Perfetti, P.E., Structure Design  
Mr. Victor Barbour, P.E., Project Services Unit  
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. Gary Jordan, USFWS  
Mr. Travis Wilson, NCWRC  
Ms. Theresa Ellerby, PDEA

**Office Use Only:**

Form Version March 05

**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 checked="" 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: NWP 23, NWP 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: North Carolina Department of Transportation  
1598 Mail Service Center  
Raleigh, NC 27699-1598

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

E-mail Address: \_\_\_\_\_
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: Replacement of Bridge No. 229 over Poplar Creek on SR 1007 (Poole Road)
2. T.I.P. Project Number or State Project Number (NCDOT Only): B-4301
3. Property Identification Number (Tax PIN): N/A
4. Location  
County: Wake Nearest Town: Knightdale  
Subdivision name (include phase/lot number): N/A  
Directions to site (include road numbers/names, landmarks, etc.): From I-440 in Raleigh, take Poole Rd exit and travel 6.4 miles east on Poole Rd to bridge site.
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): \_\_\_\_\_°N \_\_\_\_\_°W
6. Property size (acres): N/A
7. Name of nearest receiving body of water: Poplar Creek
8. River Basin: Neuse  
(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: SR 1007 (Poole Rd) is classified as a rural major collector by the statewide functional classification system. Land use includes wooded areas and open fields interspersed with single-family residences.

10. Describe the overall project in detail, including the type of equipment to be used: \_\_\_\_\_  
The project involves removal of the existing structure and construction of a new bridge on the existing alignment, while maintaining traffic on a temporary on-site detour south (downstream) of the existing bridge during construction. The proposed structure will be approximately 100 feet in length, consisting of two 50-foot cored slab spans with end bents and one bent on piles. The proposed bridge has 36 feet 6 inches of clear roadway and will provide two travel lanes. The travel lanes will be 12 feet wide each with a 6 feet 3 inches wide shoulder on both lanes. Heavy duty excavation equipment will be used such as trucks, dozers, cranes, and other various equipment necessary for roadway construction.
11. Explain the purpose of the proposed work: The existing bridge, built in 1961 and having a sufficiency rating of 21.5 out of a possible 100 (for a new structure), is considered functionally obsolete and is in need of replacement. The new bridge is intended to provide a safer bridge structure consistent with federal and state bridge standards.

#### **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. N/A

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#### **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

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#### **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: see cover letter
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)
Site 2	Permanent fill	Bottomland HW forest	yes	60	0.02
Site 2	Temporary fill	Bottomland HW forest	yes	100	0.39
Total Wetland Impact (acres)					0.24

3. List the total acreage (estimated) of all existing wetlands on the property: 2.7
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)
Site 1	Poplar Creek	Fill: bridge piles	perennial	12 feet		<0.01
Total Stream Impact (by length and acreage)						<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	Name of Waterbody (if applicable)	Type of Impact	Type of Waterbody (lake, pond, estuary, sound, bay,	Area of Impact

(indicate on map)			ocean, etc.)	(acres)
Total Open Water Impact (acres)				0

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

Stream Impact (acres):	<0.01
Wetland Impact (acres):	0.41
Open Water Impact (acres):	0
Total Impact to Waters of the U.S. (acres)	0.41
Total Stream Impact (linear feet):	

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.

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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. \_\_\_\_\_

Temporary construction impacts due to erosion and sedimentation will be minimized through implementation of stringent erosion control methods and use of Best Management Practices (BMPs). Design Standards in Sensitive Watersheds and Best Management Practices for Protection of Surface Waters will be implemented. Fill slopes of 1.5:1 and 2:1 will be used to reduce the footprint of the project in the vicinity of the crossing, minimizing impacts to surface

waters. Bridge deck drains will not be allowed to discharge directly into surface waters. All concentrated flows will be discharged outside of the Neuse River Basin Riparian Buffers. Concentrated flows will be diffused prior to entering Zone 2 of the riparian buffer. A preformed scour hole will be constructed on the southeast side of the bridge outside of the buffer zones. The new bridge will be approximately 41 feet longer than existing bridge, thereby restoring a greater area of the floodplain in the vicinity of the crossing to its original grade. The bridge will be replaced in the existing location, minimizing impacts to adjacent surface waters and wetlands.

### 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.

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- 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): \_\_\_\_\_  
 Amount of buffer mitigation requested (square feet): \_\_\_\_\_  
 Amount of Riparian wetland mitigation requested (acres): \_\_\_\_\_  
 Amount of Non-riparian wetland mitigation requested (acres): \_\_\_\_\_  
 Amount of Coastal wetland mitigation requested (acres): \_\_\_\_\_

**IX. Environmental Documentation (required by DWQ)**

- Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land? Yes  No
- 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
- 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.

- 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	3892	3 (2 for Catawba)	N/A
2	2274	1.5	N/A
Total	6166		N/A

\* 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
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**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. N/A

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**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

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**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

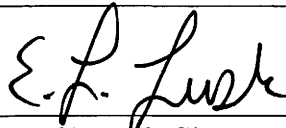
If yes, please submit a qualitative or quantitative cumulative impact analysis in accordance with the most recent North Carolina Division of Water Quality policy posted on our website at <http://h2o.enr.state.nc.us/ncwetlands>. If no, please provide a short narrative description: \_\_\_\_\_

N/A

**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).

N/A



7-21-08

**Applicant/Agent's Signature**

**Date**

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

**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	21+68 -L-	21" CORED SLAB BRIDGE (2@50')																
2	23+34 -L-	24" RCP Detour Roadway	0.02	0.10														
<b>TOTALS:</b>			0.02	0.39							< 0.01							

NC DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 Wake County  
 Project: B-4301 (Bridge #229)

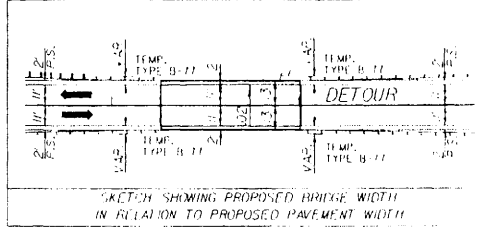
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# STREAM & WETLAND IMPACTS

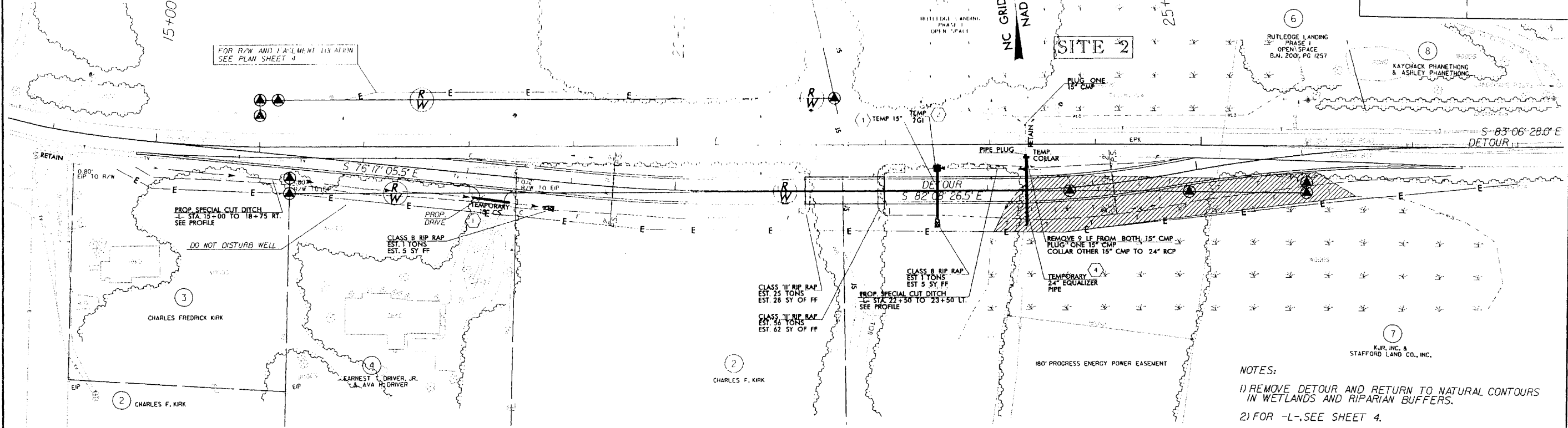
# DETOUR



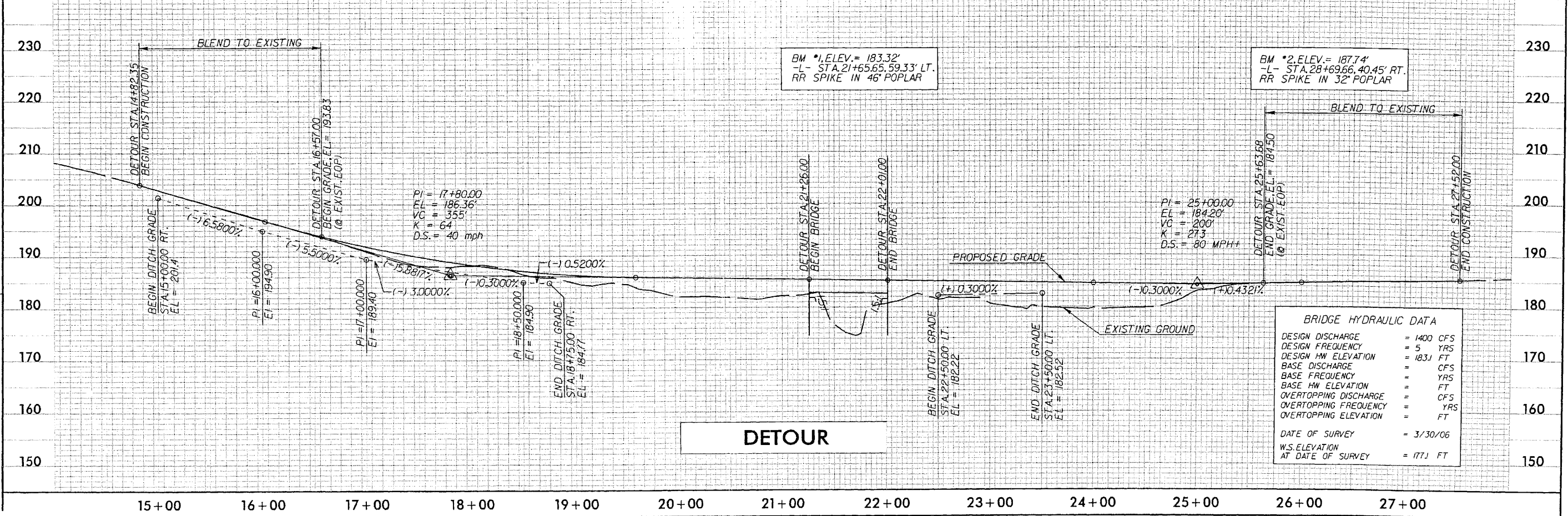
PROJECT REFERENCE NO. B-4301	SHEET NO. 2-C
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
Permit Drawing Sheet <u>6</u> of <u>9</u>	



I.G. ADAMS & SONS, INC.  
D.B. 8732, PG. 1430



- NOTES:
- 1) REMOVE DETOUR AND RETURN TO NATURAL CONTOURS IN WETLANDS AND RIPARIAN BUFFERS.
  - 2) FOR -L-, SEE SHEET 4.



REVISIONS

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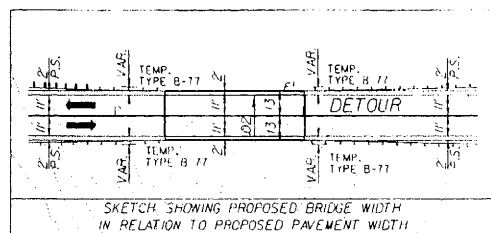
# STREAM & WETLAND IMPACTS

# DETOUR

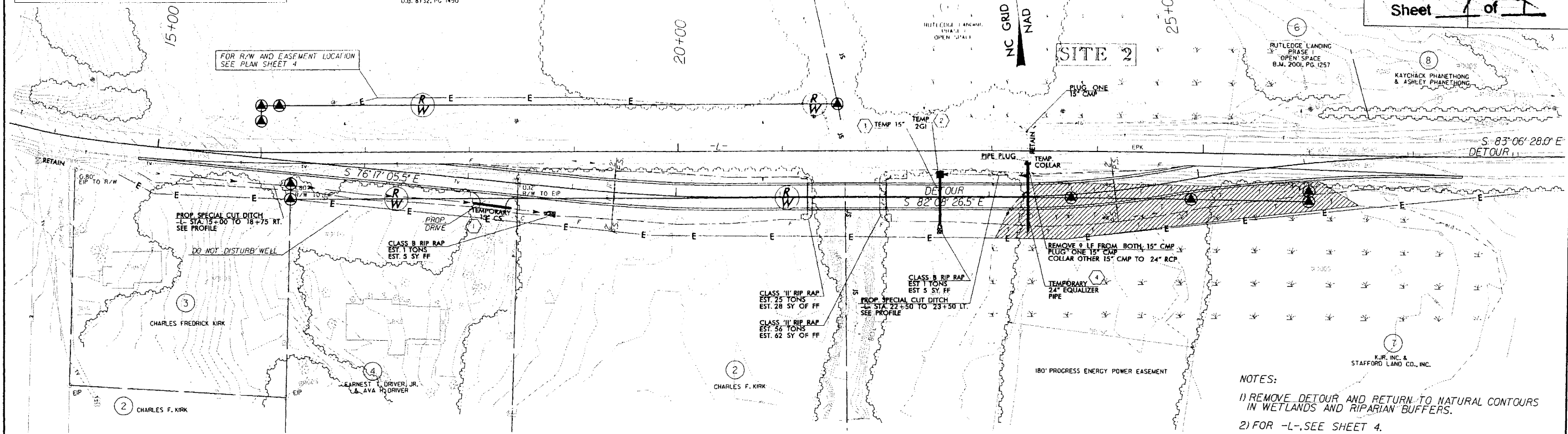
**MULKEY**  
ENGINEERS & CONSULTANTS  
PO BOX 23187  
Raleigh, NC 27626  
919.871.1111  
WWW.MULKEYINC.COM

PROJECT REFERENCE NO. B-4301 SHEET NO. 2-C  
RW SHEET NO. ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER

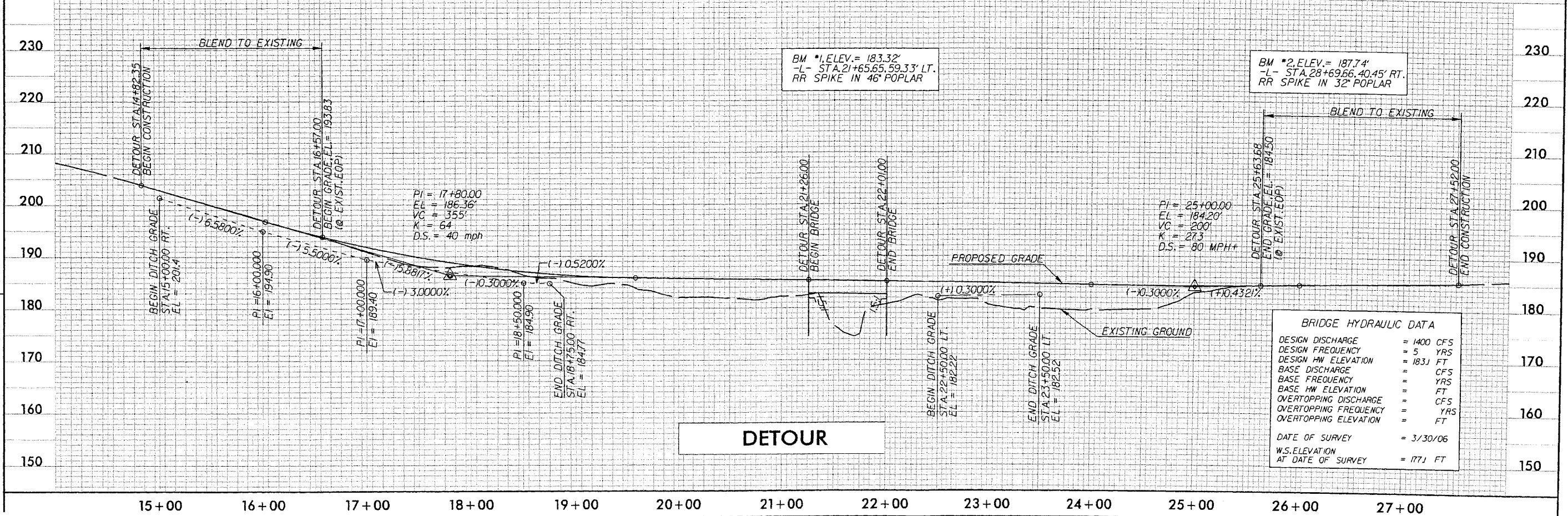
Permit Drawing Sheet 7 of 9



T.G. ADAMS & SONS, INC.  
O.B. 8732, PG. 1490



- NOTES:
- 1) REMOVE DETOUR AND RETURN TO NATURAL CONTOURS IN WETLANDS AND RIPARIAN BUFFERS.
  - 2) FOR -L-, SEE SHEET 4.



REVISIONS

15/6/2008 R:\Hydro\quicks\CA00\Par\m15\4301\_T\14.dwg 2/24/06 10:24:11 am - w.r.dog

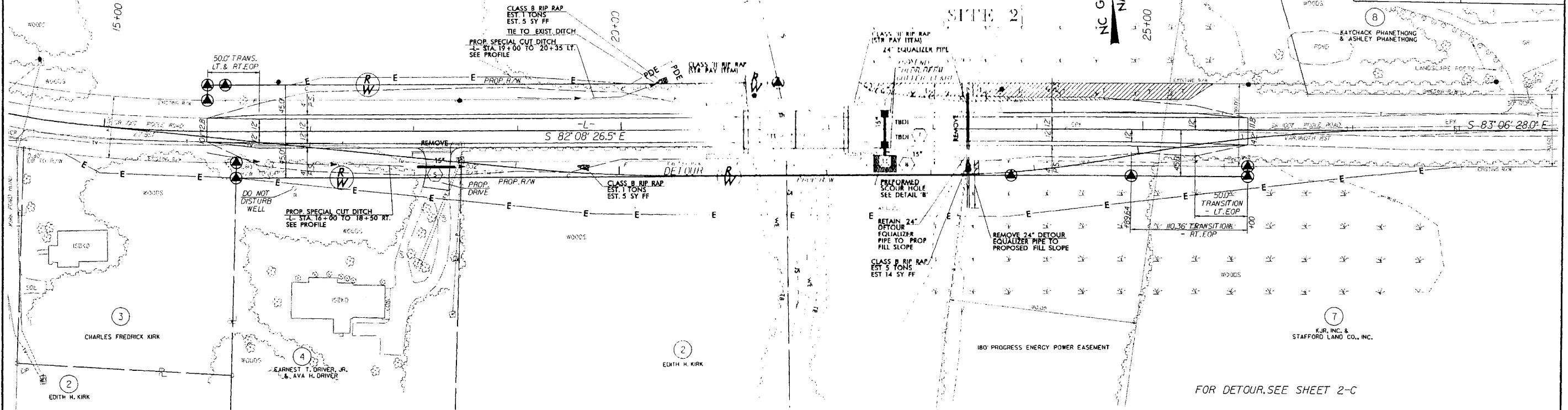
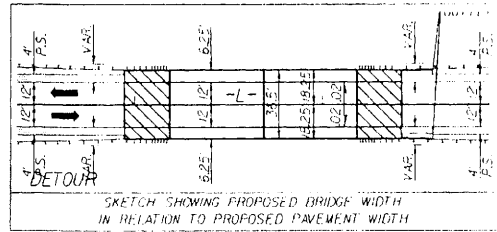


# STREAM & WETLAND IMPACTS

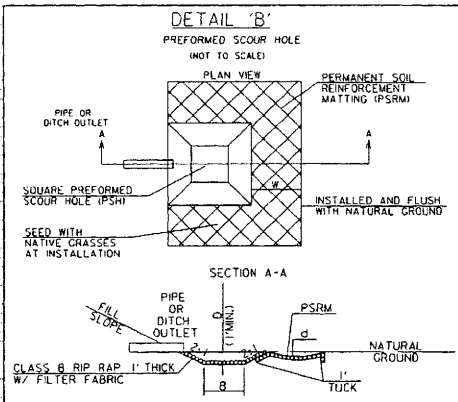
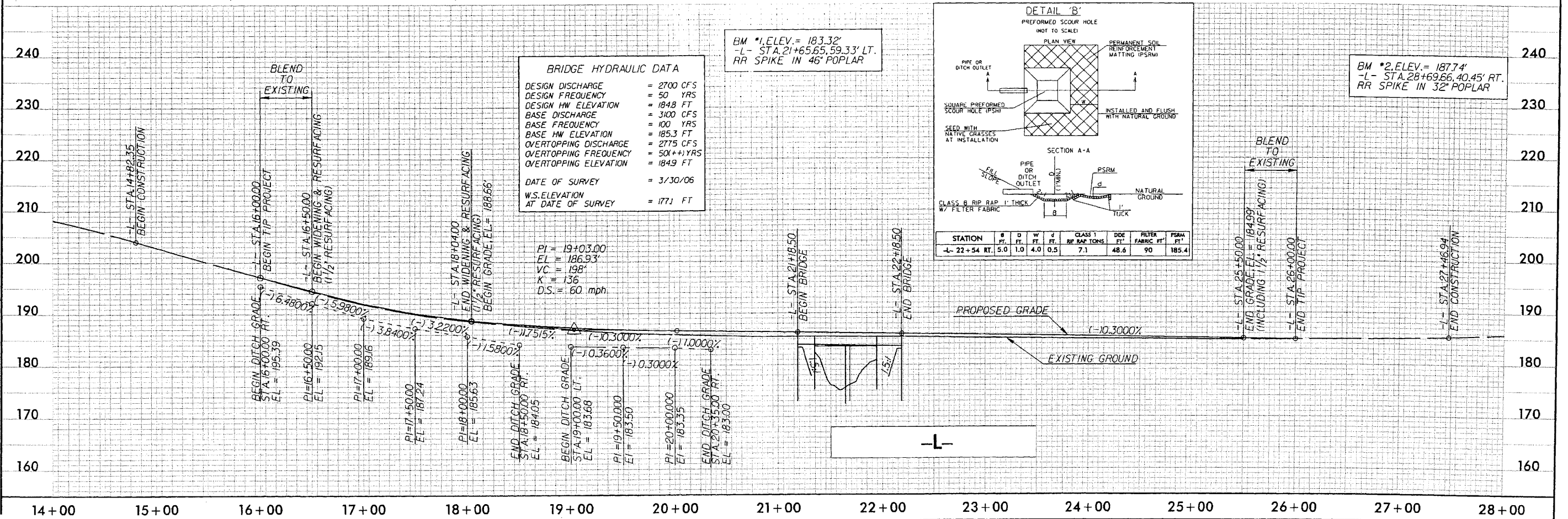
ENGLISH



PROJECT REFERENCE NO. B-4301	SHEET NO. 4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>Permit Drawing</b> Sheet <u>8</u> of <u>9</u>	



REVISIONS



BM #1, ELEV. = 183.32'  
-L- STA. 21+65.65, 59.33' LT.  
RR SPIKE IN 46' POPLAR

BM #2, ELEV. = 187.74'  
-L- STA. 28+69.66, 40.45' RT.  
RR SPIKE IN 32' POPLAR

16/2/2008 1:56:22 PM R:\Hydro\mulkey\CADD\Permit's\4300\_hyd.psd\4300\_srm\_wet.dgn

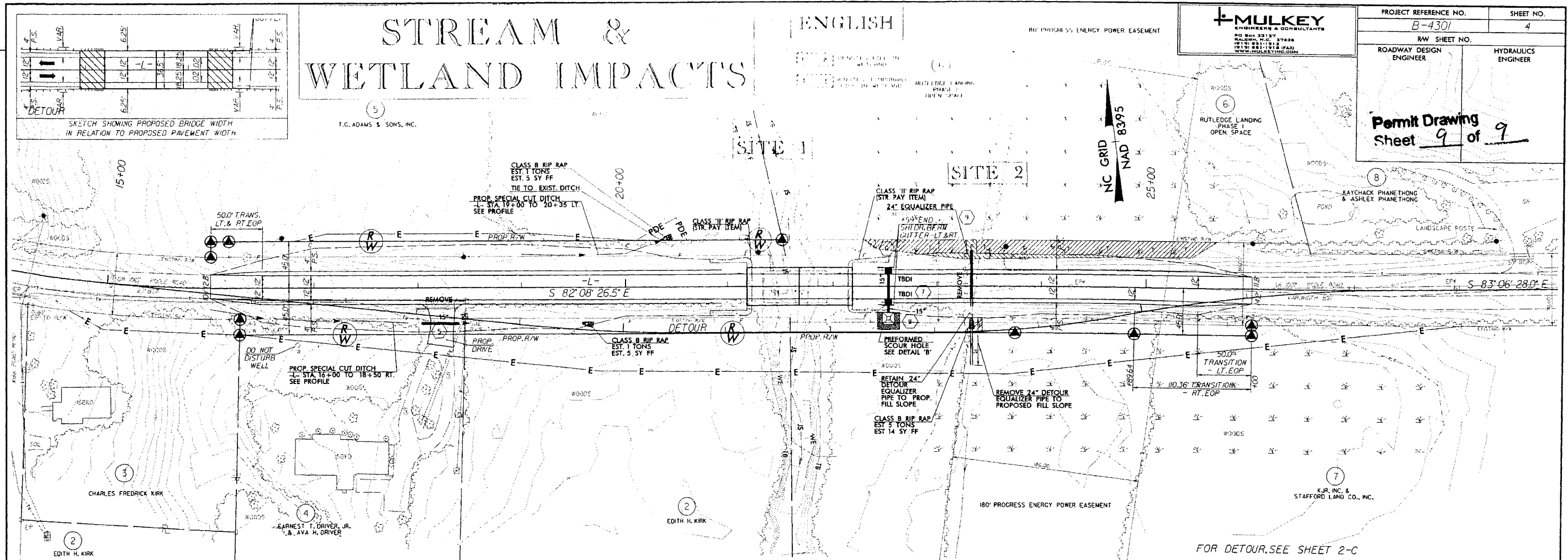
# STREAM & WETLAND IMPACTS

ENGLISH

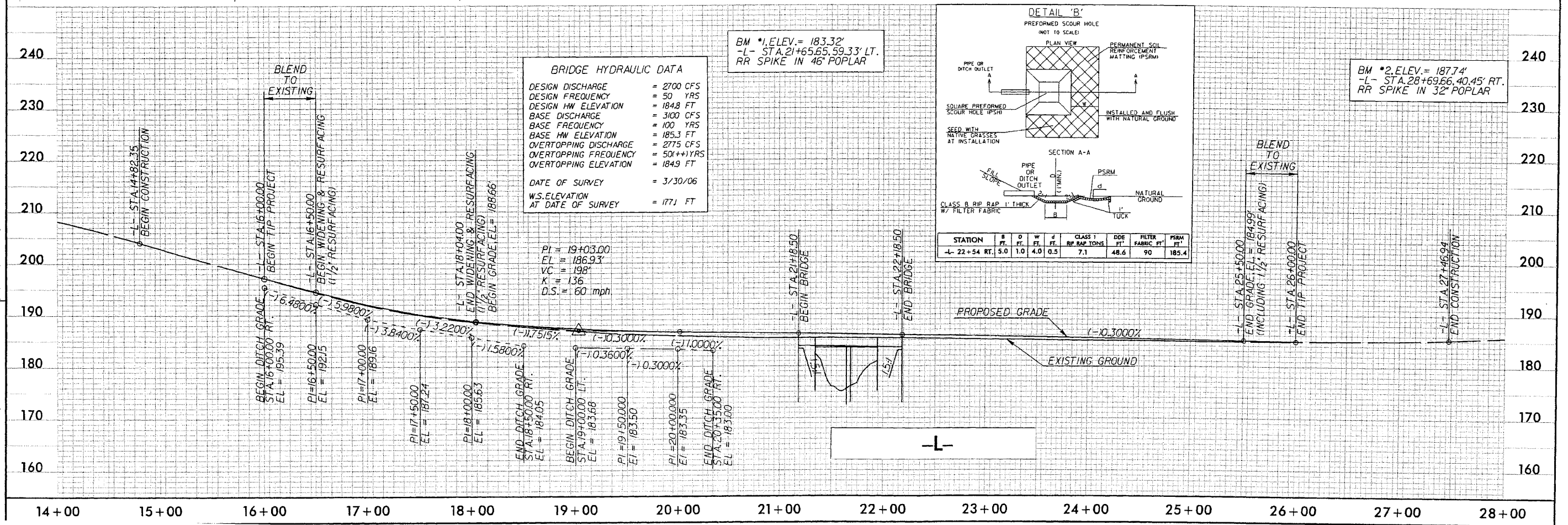
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PROJECT REFERENCE NO.	SHEET NO.
B-4301	4
RAW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Permit Drawing  
Sheet 9 of 9



REVISIONS



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7/16/2008