STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT L. MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

May 6, 2013

U. S. Army Corps of Engineers
Regulatory Field Office
3331 Heritage Trade Drive Suite 105
Wake Forest, NC 27587

ATTN: Mr. Monte Matthews
NCDOT Coordinator

Subject: **Application for Section 404 Nationwide Permit 13 & 33** for the proposed replacement of Bridge No. 88 over Paul's Creek on SR 1621 (Sparger Road) in Surry County, Federal Aid Project No. BRZ-1621(4); Division 11; WBS No. 38591.1.1; TIP No. B-4821

Dear Sir:

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 88 over Paul's Creek with a 152-foot long, triple-span bridge with a 33-inch wide cored slab structure. There will be 60 linear feet of bank stabilization on Paul's Creek at two locations. There will be < 0.01 acre of temporary impacts from the utilization of two temporary causeways.

NCDOT does not propose mitigation for stream bank stabilization along Paul's Creek. Stabilizing the bank of a stream does not require fill in the stream bed and, therefore, under Section 404 of the Clean Water Act, does not constitute Loss of Waters of the U.S. and is not subject to compensatory mitigation by the USACE.

Please see enclosed copies of the Pre-Construction Notification (PCN), Stormwater Management Plan, permit drawings, and design plans. A Programmatic Categorical Exclusion (PCE) was completed in September 2012 and distributed shortly thereafter. Additional copies are available upon request.

Comments from the North Carolina Wildlife Resources Commission (NCWRC) will be required prior to authorization by the Corps of Engineers. By copy of this letter and attachments, NCDOT hereby requests NCWRC review. NCDOT requests that NCWRC forward their comments to the Corps of Engineers and the NCDOT within 30 calendar days of receipt of this application.

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT & ENVIRONMENTAL ANALYSIS UNIT
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1548

TELEPHONE: 919-707-6000
FAX: 919-212-5785
WEBSITE:NCDOT.GOV

LOCATION:
CENTURY CENTER, BUILDING B
1020 BIRCH RIDGE DRIVE
RALEIGH NC 27610

This project calls for a letting date of December 17, 2013, and a review date of October 29, 2013; however, the let date may advance as additional funding becomes available.

A copy of this permit application and its distribution list will be posted on the NCDOT Website at: http://www.ncdot.org/doh/preconstruct/pe/neu/permit.html. If you have any questions or need additional information, please call Bill Barrett at (919) 707-6103 or by e.mail at wabarrett@ncdot.gov.

Sincerely,

E. L. Lusk

for Gregory J. Thorpe, Ph.D., Manager
Project Development and Environmental Analysis Unit

cc:
NCDOT Permit Application Standard Distribution List

Office Use Only:
Corps action ID no. _____
DWQ project no. _____
Form Version 1.3 Dec 10 2008

Pre-Construction Notification (PCN) Form

A. Applicant Information

1. Processing

1a. Type(s) of approval sought from the Corps:	☒ Section 404 Permit ☐ Section 10 Permit	
1b. Specify Nationwide Permit (NWP) number: 13 33	or General Permit (GP) number:	
1c. Has the N WP or GP number been verified by the Corps?	☐ Yes	☒ No

1d. Type(s) of approval sought from the DWQ (check all that apply):

☒ 401 Water Quality Certification – Regular ☐ Non-404 Jurisdictional General Permit

☐ 401 Water Quality Certification – Express ☐ Riparian Buffer Authorization

1e. Is this notification solely for the record because written approval is not required?	For the record only for DWQ 401 Certification: ☒ Yes ☐ No	For the record only for Corps Permit: ☐ Yes ☒ No
1f. Is payment into a mitigation bank or in-lieu fee program proposed for mitigation of impacts? If so, attach the acceptance letter from mitigation bank or in-lieu fee program.		☐ Yes ☒ No
1g. Is the project located in any of NC's twenty coastal counties. If yes, answer 1h below.		☐ Yes ☒ No
1h. Is the project located within a NC DCM Area of Environmental Concern (AEC)?		☐ Yes ☒ No

2. Project Information

2a. Name of project:	Replacement of Bridge 88 over Paul's Creek on SR 1621(Sparger Road).
2b. County:	Surry
2c. Nearest municipality / town:	Mt. Airy
2d. Subdivision name:	*not applicable*
2e. NCDOT only, T.I.P. or state project no:	B-4821

3. Owner Information

3a. Name(s) on Recorded Deed:	North Carolina Department of Transportation
3b. Deed Book and Page No.	*not applicable*
3c. Responsible Party (for LLC if applicable):	*not applicable*
3d. Street address:	1598 Mail Service Center
3e. City, state, zip:	Raleigh, NC 27699-1598
3f. Telephone no.:	(919) 707-6103
3g. Fax no.:	(919) 212-5785
3h. Email address:	wabarrett@ncdot.gov

4. Applicant Information (if different from owner)	
4a. Applicant is:	☐ Agent ☐ Other, specify:
4b. Name:	*not applicable*
4c. Business name (if applicable):	
4d. Street address:	
4e. City, state, zip:	
4f. Telephone no.:	
4g. Fax no.:	
4h. Email address:	
5. Agent/Consultant Information (if applicable)	
5a. Name:	*not applicable*
5b. Business name (if applicable):	
5c. Street address:	
5d. City, state, zip:	
5e. Telephone no.:	
5f. Fax no.:	
5g. Email address:	

B. Project Information and Prior Project History		
1. Property Identification		
1a. Property identification no. (tax PIN or parcel ID):	*not applicable*	
1b. Site coordinates (in decimal degrees):	Latitude: 36.504272 (DD.DDDDDD)	Longitude: - 80.666729 (-DD.DDDDDD)
1c. Property size:	0.7 acre	
2. Surface Waters		
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	Pauls Creek	
2b. Water Quality Classification of nearest receiving water:	WS-IV	
2c. River basin:	Yadkin-Pee Dee	
3. Project Description		
3a. Describe the existing conditions on the site and the general land use in the vicinity of the project at the time of this application: Rural, single-family homes, with small businesses along NC 89.		
3b. List the total estimated acreage of all existing wetlands on the property: 0		
3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property: 267		
3d. Explain the purpose of the proposed project: To replace a structurally deficient (sufficiency rating of 8.3 out of 100) and functionally obsolete (deck geometry appraisal of 4 out of 9) bridge.		
3e. Describe the overall project in detail, including the type of equipment to be used: The project involves replacing a 136-foot bridge with a 152-foot, triple-span bridge on the existing alignment with an off-site detour. Standard road building equipment, such as trucks, dozers, and cranes will be used.		
4. Jurisdictional Determinations		
4a. Have jurisdictional wetland or stream determinations by the Corps or State been requested or obtained for this property / project (including all prior phases) in the past? Comments:	☐ Yes	☒ No ☐ Unknown
4b. If the Corps made the jurisdictional determination, what type of determination was made?	☐ Preliminary	☐ Final
4c. If yes, who delineated the jurisdictional areas? Name (if known):	Agency/Consultant Company: Other:	
4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation.		
5. Project History		
5a. Have permits or certifications been requested or obtained for this project (including all prior phases) in the past?	☐ Yes	☒ No ☐ Unknown
5b. If yes, explain in detail according to "help file" instructions.		
6. Future Project Plans		
6a. Is this a phased project?	☐ Yes	☒ No
6b. If yes, explain.		

C. Proposed Impacts Inventory

1. Impacts Summary

1a. Which sections were completed below for your project (check all that apply):

☐ Wetlands ☒ Streams - tributaries ☐ Buffers

☐ Open Waters ☐ Pond Construction

2. Wetland Impacts

If there are wetland impacts proposed on the site, then complete this question for each wetland area impacted.

2a. Wetland impact number – Permanent (P) or Temporary (T)	2b. Type of impact	2c. Type of wetland (if known)	2d. Forested	2e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)	2f. Area of impact (acres)
Site 1 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 2 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 3 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 4 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 5 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
Site 6 ☐ P ☐ T			☐ Yes ☐ No	☐ Corps ☐ DWQ	
				2g. **Total wetland impacts**	X Permanent X Temporary

2h. Comments:

3. Stream Impacts

If there are perennial or intermittent stream impacts (including temporary impacts) proposed on the site, then complete this question for all stream sites impacted.

3a. Stream impact number - Permanent (P) or Temporary (T)	3b. Type of impact	3c. Stream name	3d. Perennial (PER) or intermittent (INT)?	3e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)	3f. Average stream width (feet)	3g. Impact length (linear feet)
Site 1 ☒ P ☐ T	bank stabilization	Pauls Creek	☒ PER ☐ INT	☒ Corps ☐ DWQ	36	60
Site 2 ☐ P ☒ T	2 causeways	Pauls Creek	☒ PER ☐ INT	☒ Corps ☐ DWQ	36	<0.01 ac.
Site 3 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 4 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 5 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
Site 6 ☐ P ☐ T			☐ PER ☐ INT	☐ Corps ☐ DWQ		
					3h. **Total stream and tributary impacts**	60 Perm <0.01 ac Temp

3i. Comments: The temporary causeways will not impede more than 50% of the stream volume.

4. Open Water Impacts

If there are proposed impacts to lakes, ponds, estuaries, tributaries, sounds, the Atlantic Ocean, or any other open water of the U.S. then individually list all open water impacts below.

4a. Open water impact number – Permanent (P) or Temporary (T)	4b. Name of waterbody (if applicable)	4c. Type of impact	4d. Waterbody type	4e. Area of impact (acres)
O1 ☐ P ☐ T				
O2 ☐ P ☐ T				
O3 ☐ P ☐ T				
O4 ☐ P ☐ T				
			4f. Total open water impacts	X Permanent X Temporary

4g. Comments:

5. Pond or Lake Construction

If pond or lake construction proposed, then complete the chart below.

5a. Pond ID number	5b. Proposed use or purpose of pond	5c. Wetland Impacts (acres)			5d. Stream Impacts (feet)			5e. Upland (acres)
		Flooded	Filled	Excavated	Flooded	Filled	Excavated	Flooded
P1								
P2								
	5f. Total							

5g. Comments:

5h. Is a dam high hazard permit required?	☐ Yes ☐ No If yes, permit ID no:
5i. Expected pond surface area (acres):	
5j. Size of pond watershed (acres):	
5k. Method of construction:	

6. Buffer Impacts (for DWQ)

If project will impact a protected riparian buffer, then complete the chart below. If yes, then individually list all buffer impacts below. If any impacts require mitigation, then you **MUST** fill out Section D of this form.

6a. Project is in which protected basin?	☐ Neuse ☐ Catawba	☐ Tar-Pamlico ☐ Randleman	☐ Other:

6b. Buffer impact number – Permanent (P) or Temporary (T)	6c. Reason for impact	6d. Stream name	6e. Buffer mitigation required?	6f. Zone 1 impact (square feet)	6g. Zone 2 impact (square feet)
B1 ☐ P ☐ T			☐ Yes ☐ No		
B2 ☐ P ☐ T			☐ Yes ☐ No		
B3 ☐ P ☐ T			☐ Yes ☐ No		
		6h. **Total buffer impacts**			

6i. Comments:

D. Impact Justification and Mitigation

1. Avoidance and Minimization

1a. Specifically describe measures taken to avoid or minimize the proposed impacts in designing project.

The proposed bridge is 16 feet longer than the existing bridge; the existing bridge is a 3-span structure with two bents in the stream, while the new bridge will be a triple-span structure but will span the entire stream (no bents in the stream); there will be no deck drains on the proposed bridge; the proposed bridge will be at approximately the same grade as the existing structure; an off site detour will be used, 3:1 fill slopes will be utilizied where practicable.

1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques.

Use of Best Management Practices (BMP) and measures used in the project are non-structural and are an attempt tp reduce the stormwater impacts to the receiving stream due to erosion and runoff as well as attenuate and disperse stormwater before entering the receiving waters. Two temporary causeways will be utilized to remove the two existing interior bents.

2. Compensatory Mitigation for Impacts to Waters of the U.S. or Waters of the State

2a. Does the project require Compensatory Mitigation for impacts to Waters of the U.S. or Waters of the State?	☐ Yes ☒ No If no, explain: The NCDOT does not propose mitigation for stream bank stabilization activities. Stabilizing the bank of a stream does not require fill in the stream bed and, therefore, under Section 404 of the Clean Water Act, does not constitute Loss of Waters of the U.S. and is not subject to compensatory mitigation. Furthermore, the proposed bank stabilization activities are necessary to prevent erosion and sedimentation, i.e. preventing bank destabilization, and minimizing impacts to the environment.
2b. If yes, mitigation is required by (check all that apply):	☐ DWQ ☐ Corps
2c. If yes, which mitigat ion option will be used for this project?	☐ Mitigation bank ☐ Payment to in-lieu fee program ☐ Permittee Responsible Mitigation

3. Complete if Using a Mitigation Bank

3a. Name of Mitigation Bank: not applicable

3b. Credits Purchased (attach receipt and letter)	Type	Quantity

3c. Comments:

4. Complete if Making a Payment to In-lieu Fee Program

4a. Approval letter from in-lieu fee program is attached.	☐ Yes
4b. Stream mitigation requested:	linear feet
4c. If using stream mitigation, stream temperature:	☐ warm ☐ cool ☐ cold
4d. Buffer mitigation requested (DWQ only):	square feet
4e. Riparian wetland mitigation requested:	acres
4f. Non-riparian wetland mitigation requested:	acres
4g. Coastal (tidal) wetland mitigation requested:	acres

4h. Comments:

5. Complete if Using a Permittee Responsible Mitigation Plan

5a. If using a permittee responsible mitigation plan, provide a description of the proposed mitigation plan.

6. Buffer Mitigation (State Regulated Riparian Buffer Rules) – required by DWQ

6a. Will the project result in an impact within a protected riparian buffer that requires buffer mitigation?	☐ Yes ☐ No

6b. If yes, then identify the square feet of impact to each zone of the riparian buffer that requires mitigation. Calculate the amount of mitigation required.

Zone	6c. Reason for impact	6d. Total impact (square feet)	Multiplier	6e. Required mitigation (square feet)
Zone 1			3 (2 for Catawba)	
Zone 2			1.5	
	6f. **Total buffer mitigation required:**			

6g. If buffer mitigation is required, discuss what type of mitigation is proposed (e.g., payment to private mitigation bank, permittee responsible riparian buffer restoration, payment into an approved in-lieu fee fund).

6h. Comments:

E. Stormwater Management and Diffuse Flow Plan (required by DWQ)	
1. Diffuse Flow Plan	
1a. Does the project include or is it adjacent to protected riparian buffers identified within one of the NC Riparian Buffer Protection Rules?	☐ Yes ☒ No
1b. If yes, then is a diffuse flow plan included? If not, explain why. Comments:	☐ Yes ☐ No
2. Stormwater Management Plan	
2a. What is the overall percent imperviousness of this project?	N/A
2b. Does this project require a Stormwater Management Plan?	☒ Yes ☐ No
2c. If this project DOES NOT require a Stormwater Management Plan, explain why:	
2d. If this project DOES require a Stormwater Management Plan, then provide a brief, narrative description of the plan: See attached permit drawings.	
2e. Who will be responsible for the review of the Stormwater Management Plan?	☐ Certified Local Government ☐ DWQ Stormwater Program ☒ DWQ 401 Unit
3. Certified Local Government Stormwater Review	
3a. In which local government's jurisdiction is this project?	not applicable
3b. Which of the following locally-implemented stormwater management programs apply (check all that apply):	☐ Phase II ☐ NSW ☐ USMP ☐ Water Supply Watershed ☐ Other:
3c. Has the approved Stormwater Management Plan with proof of approval been attached?	☐ Yes ☐ No
4. DWQ Stormwater Program Review	
4a. Which of the following state-implemented stormwater management programs apply (check all that apply):	☐ Coastal counties ☐ HQW ☐ ORW ☐ Session Law 2006-246 ☐ Other:
4b. Has the approved Stormwater Management Plan with proof of approval been attached?	☒ Yes ☐ No
5. DWQ 401 Unit Stormwater Review	
5a. Does the Stormwater Management Plan meet the appropriate requirements?	☐ Yes ☐ No N/A
5b. Have all of the 401 Unit submittal requirements been met?	☐ Yes ☐ No N/A

F. Supplementary Information		
1. Environmental Documentation (DWQ Requirement)		
1a. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land?	☒ Yes	☐ No
1b. If you answered "yes" to the above, does the project require preparation of an environmental document pursuant to the requirements of the National or State (North Carolina) Environmental Policy Act (NEPA/SEPA)?	☒ Yes	☐ No
1c. If you answered "yes" to the above, has the document review been finalized by the State Clearing House? (If so, attach a copy of the NEPA or SEPA final approval letter.) Comments:	☒ Yes	☐ No
2. Violations (DWQ Requirement)		
2a. Is the site in violation of DWQ Wetland Rules (15A NCAC 2H .0500), Isolated Wetland Rules (15A NCAC 2H .1300), DWQ Surface Water or Wetland Standards, or Riparian Buffer Rules (15A NCAC 2B .0200)?	☐ Yes	☒ No
2b. Is this an after-the-fact permit application?	☐ Yes	☒ No
2c. If you answered "yes" to one or both of the above questions, provide an explanation of the violation(s):		
3. Cumulative Impacts (DWQ Requirement)		
3a. Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality?	☐ Yes ☒ No	
3b. If you answered "yes" to the above, submit a qualitative or quantitative cumulative impact analysis in accordance with the most recent DWQ policy. If you answered "no," provide a short narrative description. Due to the minimal transportation impact resulting from this bridge replacement, this project will neither influence nearby land uses nor stimulate growth. Therefore, a detailed indirect or cumulative effects study will not be necessary.		
4. Sewage Disposal (DWQ Requirement)		
4a. 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. not applicable		

5. Endangered Species and Designated Critical Habitat (Corps Requirement)		
5a. Will this project occur in or near an area with federally protected species or habitat?	☒ Yes	☐ No
5b. Have you checked with the USFWS concerning Endangered Species Act impacts?	☐ Yes	☒ No
5c. If yes, ind icate the USFWS Field Office you have contacted.	☐ Raleigh ☐ Asheville	
5d. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat? NHP, USFWS, NCDOT field surveys. There is habitat present at the site only for Schweinitz's sunflower. Surveys were last conducted on September 28, 2012, with no individuals of this species identified.		
6. Essential Fish Habitat (Corps Requirement)		
6a. Will this project occur in or near an area designated as essential fish habitat?	☐ Yes	☒ No
6b. What data sources did you use to determine whether your site would impact Essential Fish Habitat? NMFS County Index		
7. Historic or Prehistoric Cultural Resources (Corps Requirement)		
7a. Will this project occur in or near an area that the state, federal or tribal governments have designated as having historic or cultural preservation status (e.g., National Historic Trust designation or properties significant in North Carolina history and archaeology)?	☐ Yes	☒ No
7b. What data sources did you use to determine whether your site would impact historic or archeological resources? NEPA Documentation		
8. Flood Zone Designation (Corps Requirement)		
8a. Will this project occur in a FEMA-designated 100-year floodplain?	☐ Yes	☒ No
8b. If yes, explain how project meets FEMA requirements: NCDOT Hydraulics Unit coordination with FEMA		
8c. What source(s) did you use to make the floodplain determination? FEMA Maps		

Dr. Gregory J. Thorpe, Ph D Applicant/Agent's Printed Name	E. L. Lush Applicant/Agent's Signature (Agent's signature is valid only if an authorization letter from the applicant is provided.)	5.6.13 Date

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR LINEAR ROADWAY PROJECTS

(Version 1.2; Released July 2012)

Project/TIP No.: B-4821 **County(ies):** Surry

General Project Information

Project No.:	B-4821	**Project Type:**	Bridge Replacement	**Date:**	10/18/2012
NCDOT Contact:	Bill Zerman	**Contractor / Designer:**	Kimley-Horn and Associates		
Address:	NCDOT - Hydraulics Design Unit 1020 Birch Ridge Road Raleigh, NC 27610	**Address:**	3001 Weston Parkway Cary, NC 27513		
Phone:	919-707-6755	**Phone:**	919-677-2000		
Email:	bzerman@ncdot.gov	**Email:**	jason.lawing@kimley-horn.com		
City/Town:	Mount Airy	**County(ies):**	Surry		
River Basin(s):	Yadkin-Pee Dee	**CAMA County?**	No		
Primary Receiving Water:	Pauls Creek	**NCDWQ Stream Index No.:**	12-72-9-7		
NCDWQ Surface Water Classification for Primary Receiving Water	**Primary:**	Water Supply IV (WS-IV)			
	Supplemental:	None			
Other Stream Classification:	None				
303(d) Impairments:	None				
Buffer Rules in Effect	N/A				

Project Description

Project Length (lin. Miles or feet):	0.156 MI	**Surrounding Land Use:**	Rural

	Proposed Project	**Existing Site**
Project Built-Upon Area (ac.)	0.70 ac.	0.45 ac.
Typical Cross Section Description:	2 @ 11' wide lanes with typical 2' wide paved shoulders and side slopes that vary from 3:1 to 2:1 and lateral ditches with 2:1 front slopes and 2:1 back slopes.	2 @ 10' wide lanes with typical grass shoulders and side slopes that vary from approximately 1:1 to 3:1 and lateral ditches where necessary.
Average Daily Traffic (veh/hr/day):	Design/Future: 2100	Existing: 1750

General Project Narrative:

Replacement of Bridge #88 on SR 1621 (Sparger Rd) over Pauls Creek in Surry County. The bridge will be replaced with a 1 @ 40', 1 @ 70', 1 @ 40', 150' overall long x 33' wide cored slab structure. Lateral ditches with 2:1 front slopes and 2:1 back slopes.

References

Project/TIP No.: B-4821 **County(ies):** Surry

Project Environmental Summary

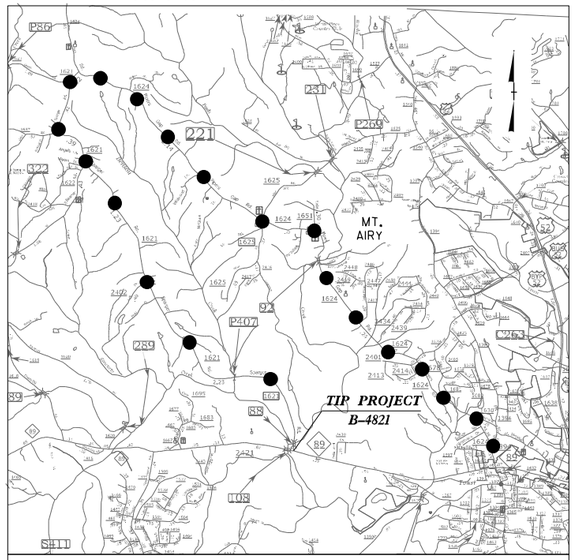
Surface Water Impacts

Sheet No.	Station (From / To)	Feature Impacted	Water / Wetland / Buffer Type	Receiving Surface Water Name	NRTR Map ID	NCDWQ Stream Index	NCDWQ Surface Water Classification	303(d) Impairments	Type of Impact	Existing SCM	Proposed SCM
4	13+27 -L- 13+37 -L-	Stream	Perennial	Pauls Creek		12-72-9-7	WS-IV	None	Fill	N/A	
4	13+53 -L- 13+53 -L-	Stream	Perennial	Pauls Creek		12-72-9-7	WS-IV	None	Stabilization	N/A	
4	13+64 -L- 13+64 -L-	Stream	Perennial	Pauls Creek		12-72-9-7	WS-IV	None	Stabilization	N/A	
4	13+69 -L- 13+85 -L-	Stream	Perennial	Pauls Creek		12-72-9-7	WS-IV	None	Fill	N/A	

* List all stream and surface water impact locations regardless of jurisdiction or size.
Equalizer Pipes to be noted as a minimization of impacts.
All proposed SCMs listed must also be listed under Swales, Preformed Sour Holes and other Energy Dissipators, or Other Stormwater Control Measures.

Description of Minimization of Impacts or Mitigation

References



09/08/99

TIP PROJECT: B-4821

CONTRACT: ____

$$$$SYSTIME$$$$
$$$$$DGN$$$$$$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

See Sheet 1-A For Index of Sheets

VICINITY MAP
OFFSITE DETOUR ROUTE ● ● ●

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SURRY COUNTY

LOCATION: BRIDGE 88 OVER PAUL'S CREEK ON SR 1621 (SPARGER RD.)

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

WETLAND AND STREAM IMPACTS PACKAGE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4821	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
38591.1.1	BRZ-1621(4)	P.E
38591.2.1	BRZ-1621(4)	RW & UTIL

PERMIT DRAWING SHEET 1 OF 8

NAD 83/88

** DESIGN EXCEPTION REQUIRED FOR SAG VERTICAL CURVE K FACTOR AND NIGHTTIME SSD.
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2012 = 1750
ADT 2035 = 2100
DHV = 11 %
D = 55 %
T = 6 % *
V = 55 MPH
* TTST =1% DUAL =5%
FUNC CLASS =LOCAL
SUB REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-4821 =	0.131	MI
LENGTH OF STRUCTURE TIP PROJECT B-4821 =	0.029	MI
TOTAL LENGTH OF TIP PROJECT B-4821 =	0.160	MI

Prepared In the Office of:

DIVISION OF HIGHWAYS

1000 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS

RIGHT WAY WAY DATE:
DECEMBER 4, 2012

LETTING DATE:
DECEMBER 15, 2013

JAMES A. SPEER, P.E
PROJECT ENGINEER

ALLISON K. WHITE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

OWNER'S NAME	ADDRESS
(1) (2) Veterinary Property Investments, LLC	2170 West Pine St Mount Airy, NC 27030
(3) (4) Hull, Howard W. and Betty J.	613 Maple Hollow Rd Mount Airy, NC 27030
(5) (6) King, Billy G. and Joyce A.	156 Lovers Lane Mount Airy, NC 27030
(7) King, Dale R. and Christie H.	223 Sparger Rd Mount Airy, NC 27030

PROPERTY OWNER NAME AND ADDRESS B–4821

NCDOT
DIVISION OF HIGHWAYS
SURRY COUNTY

PROJECT: 38591.1.1 (B–4821)
BRIDGE NO. 88 ON
SR 1621 (SPARGER RD)
OVER PAUL'S CREEK

10/15/2012

8/17/99

REVISIONS

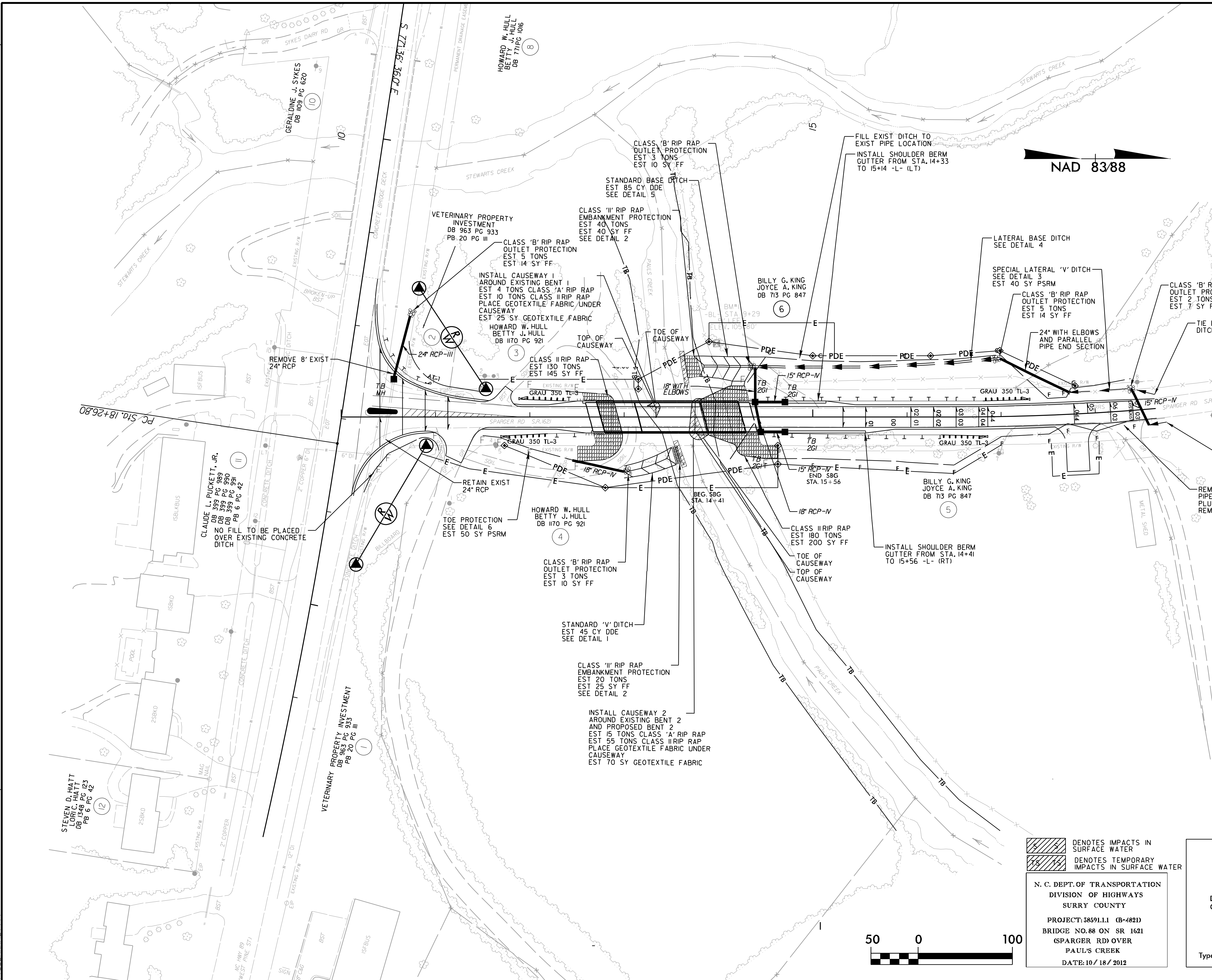
ROW REVISION 4/15/2013 * PARCEL 3 ELIMINATED DRIVE NEAR -L- STA 15+90.00 LT * REVISED DRAINAGE DESIGN BETWEEN -L- STA 14+00.00 TO -L- STA 16+00.00
* PARCELS 2 AND 3 * Revised Proposed PDE and TCE from -L- STA 13+15.00 LT to -L- STA 17+00.00 LT
* Revised Proposed PDE and TCE from -L- STA 14+63.00 RT to -L- STA 17+52.00 RT * CHANGED TCE LABELED -L- STA +85.00/35' RT TO STA +85.00/38.89' RT

PROJECT REFERENCE NO.	SHEET NO.
B-4821	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING SHEET 3 OF 8

NAD 83/88



S 77°36' 36.0" E
STEWARTS CREEK
PAULS CREEK
SPARGER RD SR 1621
PC Sta. 18+26.80
HOWARD W. HULL
BETTY J. HULL
DB 771 PG 1016
GERALDINE J. SYKES
DB 1109 PG 620
VETERINARY PROPERTY INVESTMENT
DB 963 PG 933
PB 20 PG III
CLASS 'B' RIP RAP OUTLET PROTECTION EST 5 TONS EST 14 SY FF
INSTALL CAUSEWAY 1 AROUND EXISTING BENT 1 EST 4 TONS CLASS 'A' RIP RAP EST 10 TONS CLASS II RIP RAP PLACE GEOTEXTILE FABRIC UNDER CAUSEWAY EST 25 SY GEOTEXTILE FABRIC
HOWARD W. HULL BETTY J. HULL DB 1170 PG 921
CLASS 'B' RIP RAP OUTLET PROTECTION EST 3 TONS EST 10 SY FF
STANDARD BASE DITCH EST 85 CY DDE SEE DETAIL 5
CLASS 'II' RIP RAP EMBANKMENT PROTECTION EST 40 TONS EST 40 SY FF SEE DETAIL 2
FILL EXIST DITCH TO EXIST PIPE LOCATION
INSTALL SHOULDER BERM GUTTER FROM STA. 14+33 TO 15+14 -L- (LT)
BILLY G. KING JOYCE A. KING DB 713 PG 847
LATERAL BASE DITCH SEE DETAIL 4
SPECIAL LATERAL 'V' DITCH SEE DETAIL 3 EST 40 SY PSRM
CLASS 'B' RIP RAP OUTLET PROTECTION EST 5 TONS EST 14 SY FF
24" WITH ELBOWS AND PARALLEL PIPE END SECTION
CLASS 'B' RIP RAP OUTLET PROTECTION EST 2 TONS EST 7 SY FF
DALE R. KING CHRISTIE H. KING DB 933 PG 526
TIE EXISTING DITCH TO PROPOSED
REMOVE 8' EXIST 24" RCP
24" RCP-III
TOP OF CAUSEWAY
TOE OF CAUSEWAY
CLASS II RIP RAP EST 130 TONS EST 145 SY FF
18" WITH ELBOWS
15" RCP-IV
GRAU 350 TL-3
RETAIN EXIST 24" RCP
NO FILL TO BE PLACED OVER EXISTING CONCRETE DITCH
CLAUDE L. PUCKETT, JR. DB 399 PG 989 DB 399 PG 990 DB 399 PG 991 DB PB 6 PG 42
TOE PROTECTION SEE DETAIL 6 EST 50 SY PSRM
HOWARD W. HULL BETTY J. HULL DB 1170 PG 921
18" RCP-IV
BEG. SBG STA. 14+41
15" RCP-IV END SBG STA. 15+56
18" RCP-IV
CLASS II RIP RAP EST 180 TONS EST 200 SY FF
TOE OF CAUSEWAY
TOP OF CAUSEWAY
INSTALL SHOULDER BERM GUTTER FROM STA. 14+41 TO 15+56 -L- (RT)
BILLY G. KING JOYCE A. KING DB 713 PG 847
DALE R. KING CHRISTIE H. KING DB 1070 PG 956
GRADE EXIST DITCH TO PIPE
REMOVE 12 LF OF EXIST PIPE ON BOTH ENDS PLUG, FILL AND ABANDON REMAINING EXIST PIPE
CLASS 'B' RIP RAP OUTLET PROTECTION EST 3 TONS EST 10 SY FF
STANDARD 'V' DITCH EST 45 CY DDE SEE DETAIL 1
CLASS 'II' RIP RAP EMBANKMENT PROTECTION EST 20 TONS EST 25 SY FF SEE DETAIL 2
INSTALL CAUSEWAY 2 AROUND EXISTING BENT 2 AND PROPOSED BENT 2 EST 15 TONS CLASS 'A' RIP RAP EST 55 TONS CLASS II RIP RAP PLACE GEOTEXTILE FABRIC UNDER CAUSEWAY EST 70 SY GEOTEXTILE FABRIC
VETERINARY PROPERTY INVESTMENT DB 963 PG 933 PB 20 PG III
STEVEN D. HIATT LORI C. HIATT DB 1348 PG 123 PB 6 PG 42
METAL SHED
50 0 100

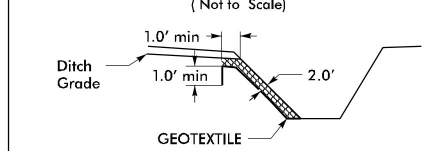
DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

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

PROJECT: 38591.1.1 (B-4821)
BRIDGE NO. 88 ON SR 1621
(SPARGER RD) OVER
PAUL'S CREEK
DATE: 10/18/2012

DETAIL 2
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner = Class 'II' Rip-Rap

STA. 13+53 -L- (RT)
STA. 13+77 -L- (LT)

PROJECT REFERENCE NO.	SHEET NO.
B-4821	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWING SHEET 4 OF 8

NAD 83/88

8/17/99

REVISIONS

ROW REVISION 4/15/2013 * PARCEL 3 ELIMINATED DRIVE NEAR -L- STA 15+90.00 LT * REVISED DRAINAGE DESIGN BETWEEN -L- STA 14+00.00 TO -L- STA 16+00.00
* PARCELS 2 AND 3 * Revised Proposed PDE and TCE from -L- STA 13+15.00 LT to -L- STA 17+00.00 LT
* Revised Proposed PDE and TCE from -L- STA 14+63.00 RT to -L- STA 17+52.00 RT * CHANGED TCE LABELED -L- STA +85.00/35' RT TO STA +85.00/38.89' RT

$$$$USERNAME$$$$
$$$$DESIGN$$$$
$$$$DRAWN$$$$
$$$$CHECKED$$$$
$$$$SEAL$$$$

PC Sta. 18+26.80

CLASS 'B' RIP RAP OUTLET PROTECTION EST 3 TONS EST 10 SY FF

STANDARD BASE DITCH EST 85 CY DDE SEE DETAIL 5

FILL EXIST DITCH TO EXIST PIPE LOCATION

INSTALL SHOULDER BERM GUTTER FROM STA. 14+33 TO 15+14 -L- (LT)

CLASS 'II' RIP RAP EMBANKMENT PROTECTION EST 40 TONS EST 40 SY FF SEE DETAIL 2

VETERINARY PROPERTY INVESTMENT DB. 963 PG 933 PB 20 PG 111

CLASS 'B' RIP RAP OUTLET PROTECTION EST 5 TONS EST 14 SY FF

INSTALL CAUSEWAY 1 AROUND EXISTING BENT 1 EST 4 TONS CLASS 'A' RIP RAP EST 10 TONS CLASS II RIP RAP PLACE GEOTEXTILE FABRIC UNDER CAUSEWAY EST 25 SY GEOTEXTILE FABRIC

HOWARD W. HULL BETTY J. HULL DB 1170 PG 921

TOP OF CAUSEWAY

TOE OF CAUSEWAY

REMOVE 8' EXIST 24" RCP

24" RCP-III

CLASS II RIP RAP EST 130 TONS EST 145 SY FF

GRAU 350 TL-3

TB 20I

18" WITH ELBOWS

15" RCP-IV

LATERAL BASE DITCH SEE DETAIL 4

SPECIAL LATERAL 'V' DITCH SEE DETAIL 3 EST 40 SY PSRM

BILLY G. KING JOYCE A. KING DB 713 PG 847

DALE R. KING CHRISTIE H. KING DB 933 PG 526

CLASS 'B' RIP RAP OUTLET PROTECTION EST 2 TONS EST 7 SY FF

24" WITH ELBOWS AND PARALLEL PIPE END SECTION

TIE EXISTING DITCH TO PROPOSED

SPARGER RD SR1621

RETAIN EXIST 24" RCP

18" RCP-IV

BEG. SBG STA. 14+41

15" RCP-IV END SBG STA. 15+56

DALE R. KING CHRISTIE H. KING DB 1070 PG 956

GRADE EXIST DITCH TO PIPE

REMOVE 12 LF OF EXIST PIPE ON BOTH ENDS PLUG, FILL AND ABANDON REMAINING EXIST PIPE

CLAUDE L. PUCKETT, JR. DB 399 PG 989 DB 399 PG 990 DB 399 PG 991 PB 6 PG 42

NO FILL TO BE PLACED OVER EXISTING CONCRETE DITCH

TOE PROTECTION SEE DETAIL 6 EST 50 SY PSRM

CLASS 'B' RIP RAP OUTLET PROTECTION EST 3 TONS EST 10 SY FF

CLASS II RIP RAP EST 180 TONS EST 200 SY FF

TOE OF CAUSEWAY

TOP OF CAUSEWAY

INSTALL SHOULDER BERM GUTTER FROM STA. 14+41 TO 15+56 -L- (RT)

STANDARD 'V' DITCH EST 45 CY DDE SEE DETAIL 1

CLASS 'II' RIP RAP EMBANKMENT PROTECTION EST 20 TONS EST 25 SY FF SEE DETAIL 2

INSTALL CAUSEWAY 2 AROUND EXISTING BENT 2 AND PROPOSED BENT 2 EST 15 TONS CLASS 'A' RIP RAP EST 55 TONS CLASS II RIP RAP PLACE GEOTEXTILE FABRIC UNDER CAUSEWAY EST 70 SY GEOTEXTILE FABRIC

STEVEN D. HYATT DORIS C. HYATT DB 1488 PG 123 PB 42 PG 42

VETERINARY PROPERTY INVESTMENT DB. 963 PG 933 PB 20 PG 111

DENOTES IMPACTS IN SURFACE WATER

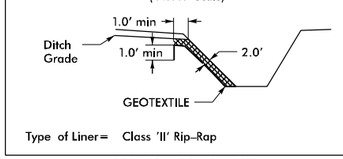
DENOTES TEMPORARY IMPACTS IN SURFACE WATER

50 0 100

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

PROJECT: 38591.1.1 (B-4821)
BRIDGE NO. 88 ON SR 1621 (SPARGER RD) OVER PAUL'S CREEK
DATE: 10/18/2012

DETAIL 2
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner = Class 'II' Rip-Rap

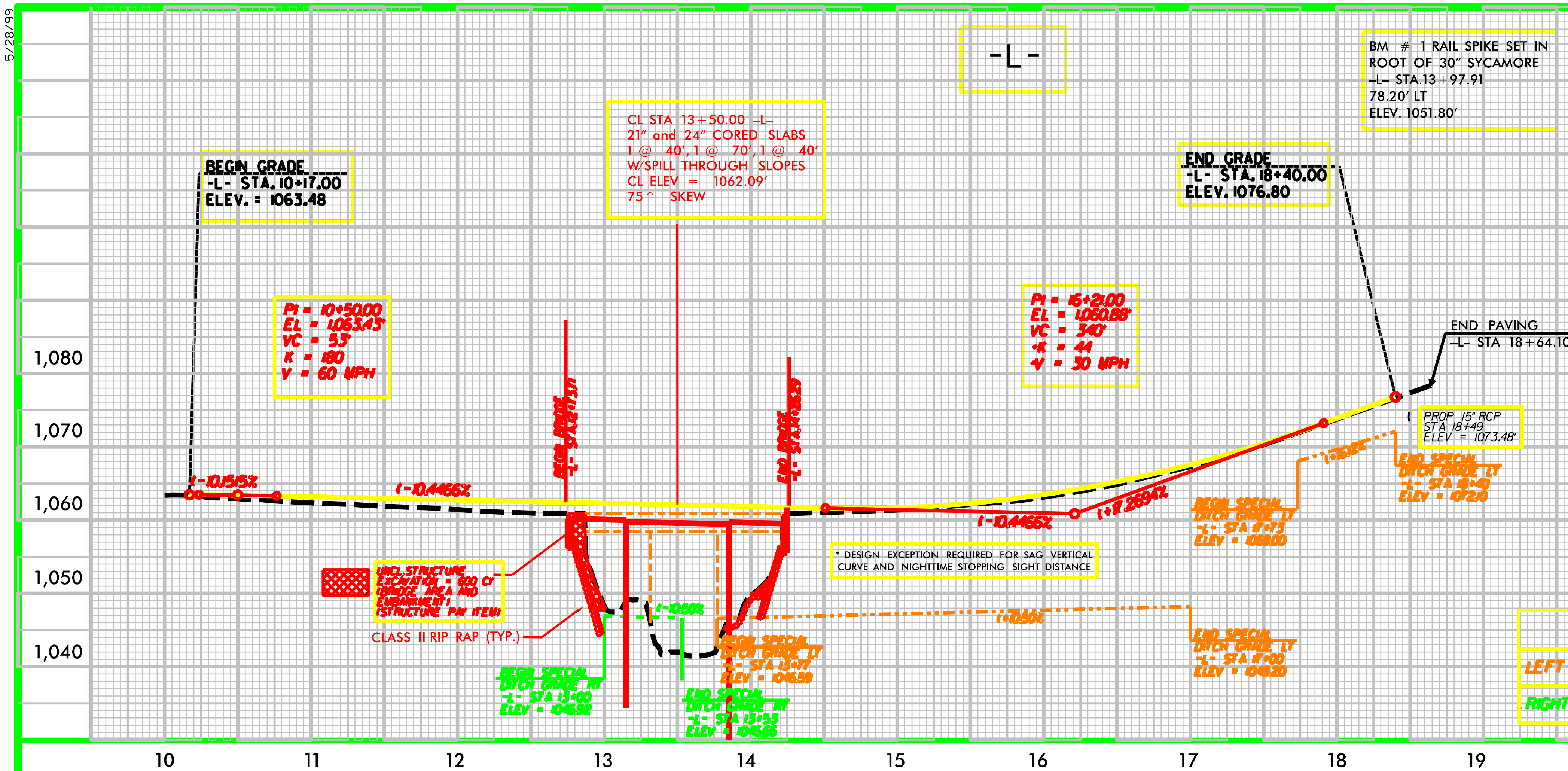
STA. 13+53 -L- (RT)
STA. 13+77 -L- (LT)

PROJECT REFERENCE NO.	SHEET NO.
B-4821	5

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



-L-
BEGIN GRADE
-L- STA. 10+17.00
ELEV. = 1063.48
PI = 10+50.00
EL = 1,063.45'
VC = 53'
K = 180
V = 60 MPH
CL STA 13+50.00 -L-
21" and 24" CORED SLABS
1 @ 40', 1 @ 70', 1 @ 40'
W/SPILL THROUGH SLOPES
CL ELEV = 1062.09'
75^ SKEW
BM # 1 RAIL SPIKE SET IN
ROOT OF 30" SYCAMORE
-L- STA.13+97.91
78.20' LT
ELEV. 1051.80'
END GRADE
-L- STA. 18+40.00
ELEV. 1076.80
PI = 16+21.00
EL = 1,060.88'
VC = 340'
*K = 44
*V = 30 MPH
END PAVING
-L- STA 18+64.10
PROP 15" RCP
STA 18+49
ELEV = 1073.48'
(-10.1515%
(-10.4466%
(-10.4466%
(+17.2694%
(-10.50%
(+10.50%
UNCL. STRUCTURE
EXCAVATION = 600 CY
(BRIDGE AREA AND
EMBANKMENT)
(STRUCTURE PAY ITEM)
CLASS II RIP RAP (TYP.)
BEGIN SPECIAL
DITCH GRADE RT
-L- STA 13+00
ELEV = 1046.92
END SPECIAL
DITCH GRADE RT
-L- STA 13+55
ELEV = 1046.66
BEGIN SPECIAL
DITCH GRADE LT
-L- STA 13+77
ELEV = 1046.59
END SPECIAL
DITCH GRADE LT
-L- STA 17+00
ELEV = 1048.20
BEGIN SPECIAL
DITCH GRADE LT
-L- STA 17+73
ELEV = 1068.00
END SPECIAL
DITCH GRADE LT
-L- STA 18+40
ELEV = 1072.10
* DESIGN EXCEPTION REQUIRED FOR SAG VERTICAL
CURVE AND NIGHTTIME STOPPING SIGHT DISTANCE
1,080
1,070
1,060
1,050
1,040
10
11
12
13
14
15
16
17
18
19

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	=	4100	CFS
DESIGN FREQUENCY	=	25	YRS
DESIGN HW ELEVATION	=	1053.3	FT
BASE DISCHARGE	=	5700	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	1054.85	FT
OVERTOPPING DISCHARGE	=	15500	CFS
OVERTOPPING FREQUENCY	=	500	YRS
OVERTOPPING ELEVATION	=	1061.7	FT
DATE OF SURVEY	=	March 22,2012	
W.S. ELEVATION AT DATE OF SURVEY	=	1042.9	FT

PIPE HYDRAULIC DATA

-L- Sta. 18+49.20

DRAINAGE AREA	=	1.1	AC
DESIGN FREQUENCY	=	25	YRS
DESIGN DISCHARGE	=	2.60	CFS
DESIGN HW ELEVATION	=	1075.45	FT
100 YEAR DISCHARGE	=	3	CFS
100 YEAR HW ELEVATION	=	1075.54	FT
OVERTOPPING FREQUENCY	=	N/A	YRS
OVERTOPPING DISCHARGE	=	N/A	CFS
OVERTOPPING ELEVATION	=	N/A	FT

DITCH LEGEND

LEFT DITCH

RIGHT DITCH

1,080

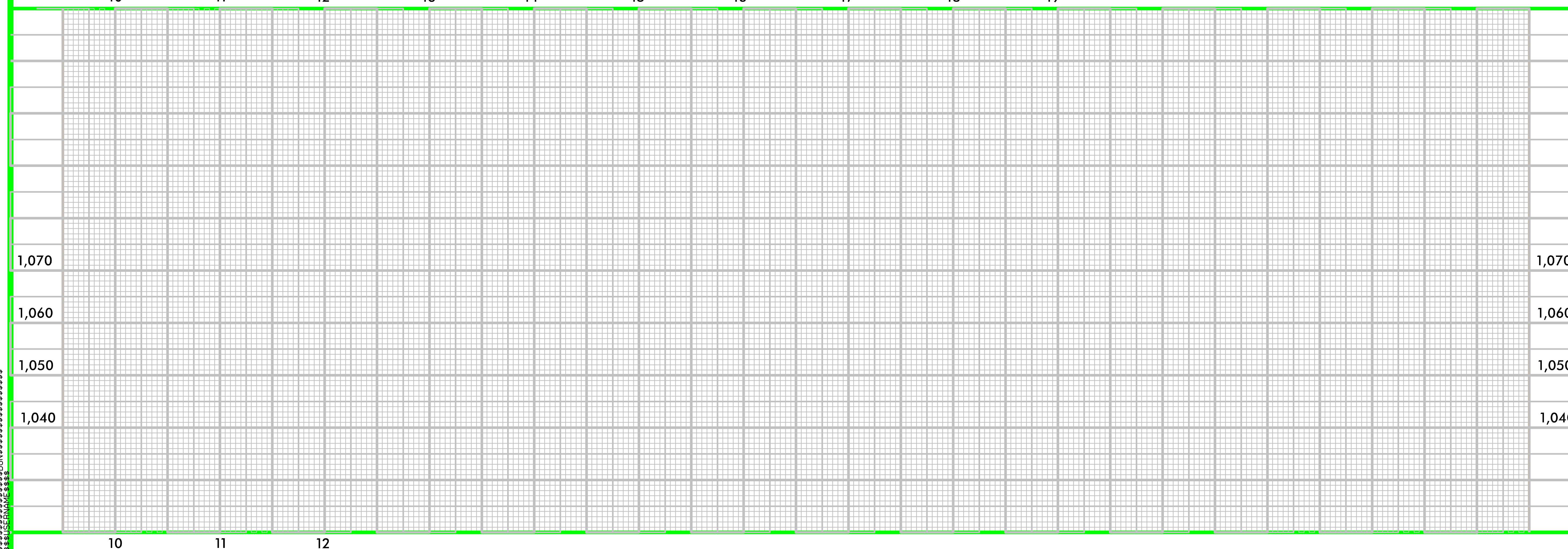
1,070

1,060

1,050

1,040

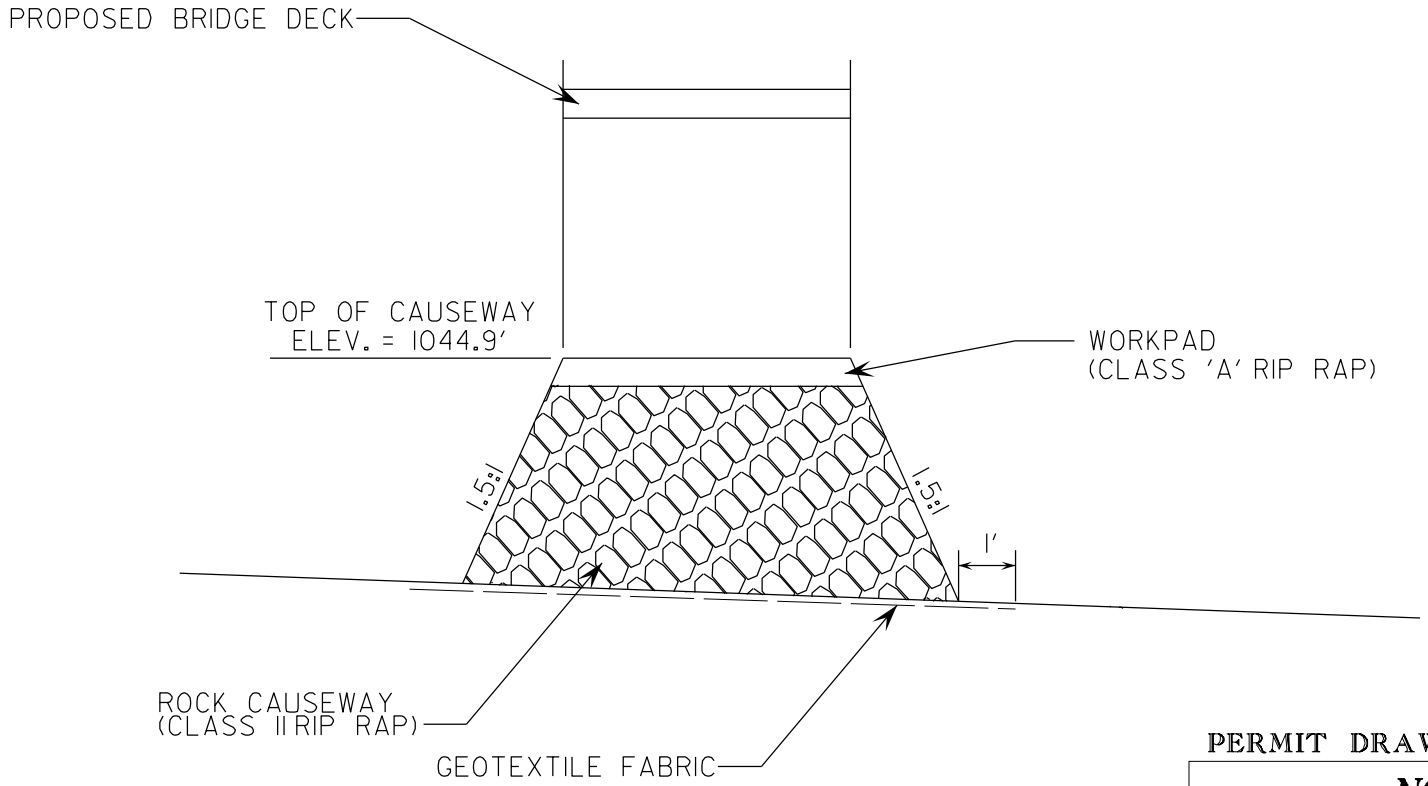
SEE SHEET 4 FOR PLAN VIEW



5/28/99

$$$$SYSTIME$$$$
$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

CAUSEWAY 1 DETAIL
(NOT TO SCALE)



QUANTITIES OF ESTIMATES: CAUSEWAY

VOLUME OF CLASS 'A' RIP RAP= 3 yds^3

AREA OF CLASS 'A' RIP RAP= 0.001 acres

Estimate 4 Tons Class 'A' Rip Rap

VOLUME OF CLASS II RIP RAP= 8 yds^3

AREA OF CLASS II RIP RAP= 0.003 acres

Estimate 10 Tons Class II Rip Rap

Estimate 25 SY of Geotextile Fabric

PERMIT DRAWING SHEET 6 OF 8

NCDOT

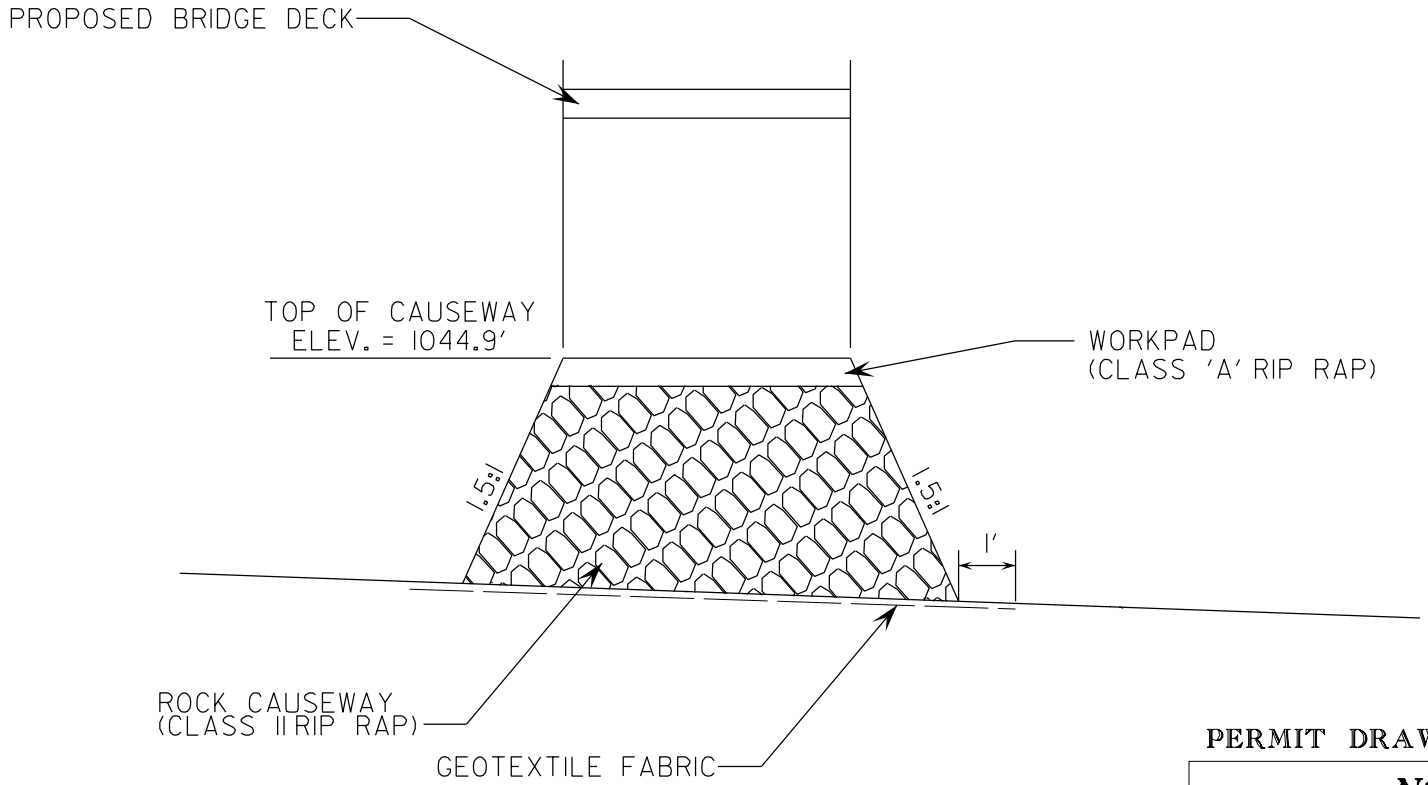
DIVISION OF HIGHWAYS
SURRY COUNTY
PROJECT: 38591.1.1 (B-4821)
REPLACEMENT OF BRIDGE NO.88
OVER PAUL'S CREEK
ON SR 1621 (SPARGER RD.)

10/18/2012

$FILES$

3/28/2013

CAUSEWAY 2 DETAIL
(NOT TO SCALE)



QUANTITIES OF ESTIMATES: CAUSEWAY

VOLUME OF CLASS 'A' RIP RAP= 10 yds^3

AREA OF CLASS 'A' RIP RAP= 0.006 acres

Estimate 15 Tons Class 'A' Rip Rap

VOLUME OF CLASS II RIP RAP= 40 yds^3

AREA OF CLASS II RIP RAP= 0.011 acres

Estimate 55 Tons Class II Rip Rap

Estimate 70 SY of Geotextile Fabric

PERMIT DRAWING SHEET 7 OF 8

NCDOT

DIVISION OF HIGHWAYS
SURRY COUNTY
PROJECT: 38591.1.1 (B-4821)
REPLACEMENT OF BRIDGE NO.88
OVER PAUL'S CREEK
ON SR 1621 (SPARGER RD.)

10/18/2012

$FILES$

3/28/2013

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
	13+27/13+37 -L- LT	CAUSEWAY							<0.01		14	
	13+53 -L- RT	EMBANKMENT PROTECTION								25		
	13+64 -L- LT	EMBANKMENT PROTECTION								35		
	13+69/13+85 -L- CL	CAUSEWAY							<0.01		37	
TOTALS:									<0.01	60	51	

NOTE: NO WETLANDS IN PROJECT AREA. THEREFORE NO WETLAND IMPACTS.

PERMIT DRAWING SHEET 8 OF 8

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SURRY COUNTY
PROJECT: 38591.1.1 (B-4821)

10/18/2012

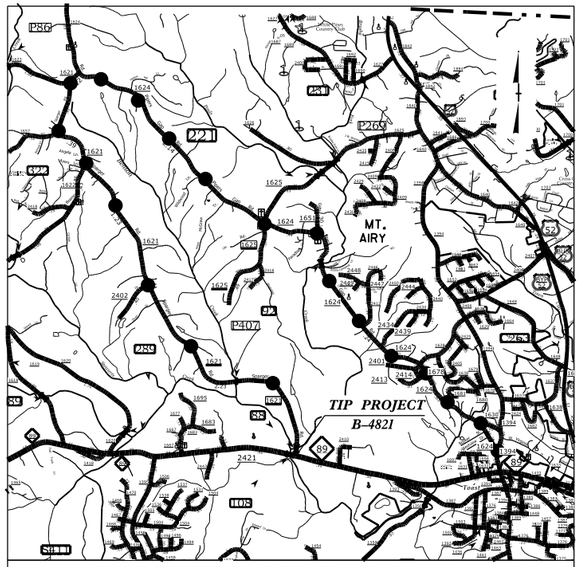
ATN Revised 3/31/05

09/08/99

TIP PROJECT: B-4821

CONTRACT: _____

See Sheet 1-A For Index of Sheets



VICINITY MAP
OFFSITE DETOUR ROUTE ●●●

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SURRY COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4821	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
38591.1.1	BRZ-1621(4)	P.E
38591.2.1	BRZ-1621(4)	RW & UTIL

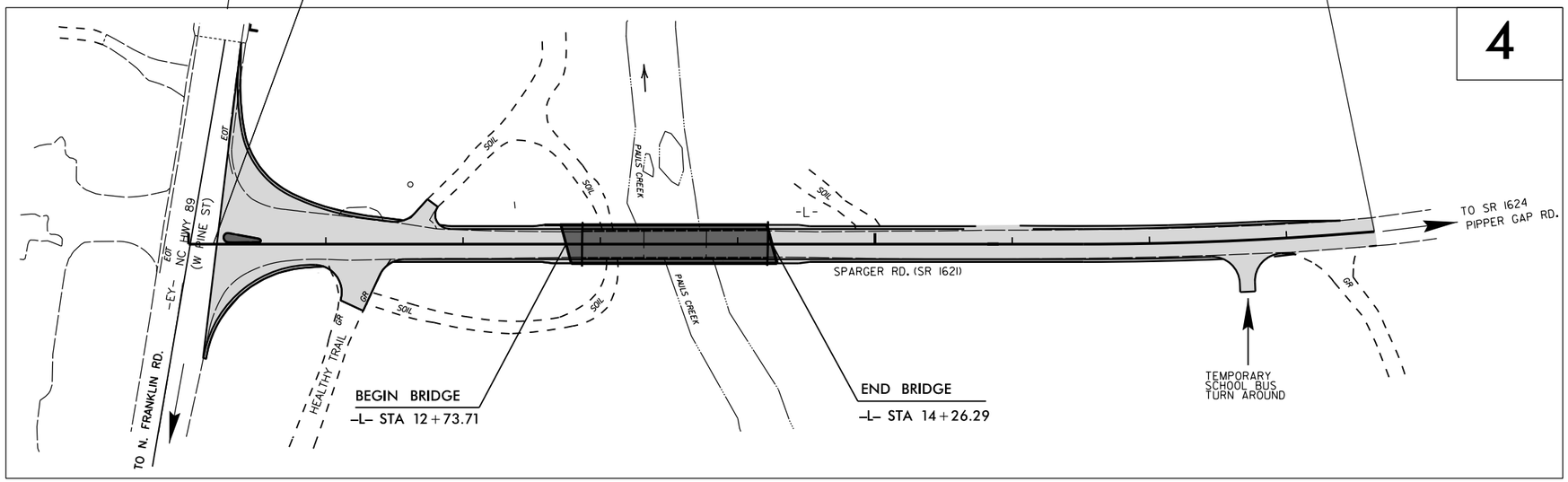
LOCATION: BRIDGE 88 OVER PAUL'S CREEK ON SR 1621 (SPARGER RD.)

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

NAD 83/88

BEGIN TIP PROJECT B-4821
-L- STA. 10+17.00

END TIP PROJECT B-4821
-L- STA 18+64.10



4

** DESIGN EXCEPTION REQUIRED FOR SAG VERTICAL CURVE K FACTOR AND NIGHTTIME SSD.
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2012 = 1750
ADT 2035 = 2100
DHV = 11 %
D = 55 %
T = 6 % *
V = 55 MPH
* TTST =1% DUAL =5%
FUNC CLASS =LOCAL
SUB REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-4821 = 0.131 MI
LENGTH OF STRUCTURE TIP PROJECT B-4821 = 0.029 MI
TOTAL LENGTH OF TIP PROJECT B-4821 = 0.160 MI

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

2012 STANDARD SPECIFICATIONS

RIGHT WAY WAY DATE:
DECEMBER 4, 2012

LETTING DATE:
DECEMBER 15, 2013

JAMES A. SPEER, P.E
PROJECT ENGINEER

ALLISON K. WHITE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

_____ P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

_____ P.E.
SIGNATURE:

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION ·

17-APR-2013 16:53
R:\Roadway\Proj\B4821_Rdy_tsh.dgn
$$$$USERNAME$$$$

04/16/11

PROJECT REFERENCE NO.	SHEET NO.
B-4821	1B

Note: Not to Scale

****S.U.E. = Subsurface Utility Engineering***

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- Known Soil Contamination: Area or Site
- Potential Soil Contamination: Area or Site

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

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

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

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

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

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

PROJECT REFERENCE NO.	SHEET NO.
B-4821	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

ROW REVISION 4/15/2013 * PARCEL 3 ELIMINATED DRIVE NEAR -L- STA 15+90.00 LT * REVISED DRAINAGE DESIGN BETWEEN -L- STA 14+00.00 TO -L- STA 16+00.00
* PARCELS 2 AND 3 * Revised Proposed PDE and TCE from -L- STA 13+15.00 LT to -L- STA 17+00.00 LT
* Revised Proposed PDE and TCE from -L- STA 14+63.00 RT to -L- STA 17+62.00 RT * CHANGED TCE LABELED -L- STA +85.00/35' RT TO STA +85.00/38.89' RT

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TRAFFIC DATA

	YEAR 2009 ADT / 2035 ADT
13200 / 14700	
NC 89 (W. PINE ST.)	500 / 700
	1700 / 2100
	SPARGER RD. (SR. 1621)
13900 / 15400	1200 / 1400

-L-
PI Sta 17+45.66
Δ = 4° 23' 16" (LT)
D = 2° 20' 19.0"
L = 187.62'
T = 93.86'
R = 2,450.00'
SE = 0.044
RUNOFF = 106'

-EY-
PI Sta 20+70.83
Δ = 4° 52' 39.2" (RT)
D = 1° 00' 00.0"
L = 487.76'
T = 244.03'
R = 5,729.58'

NAD 83/88

BEGIN TIP PROJECT B-4821
-L- 10+17.00

END TIP PROJECT B-4821
-L- 18+64.10

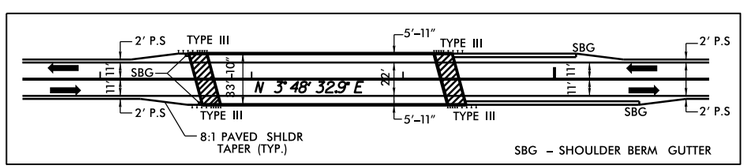
BEGIN APPR. SLAB
-L- STA. 12+62.62
BEGIN BRIDGE
-L- STA. 12+73.71

END APPR. SLAB
-L- STA. 14+37.38
END BRIDGE
-L- STA. 14+26.29

-L- POT Sta. 10+00.00
-EY- 17+98.44

PC Sta. 16+51.81
PT Sta. 18+39.43
POT Sta. 18+64.10

DETAIL SHOWING BRIDGE IN RELATION TO PAVEMENT

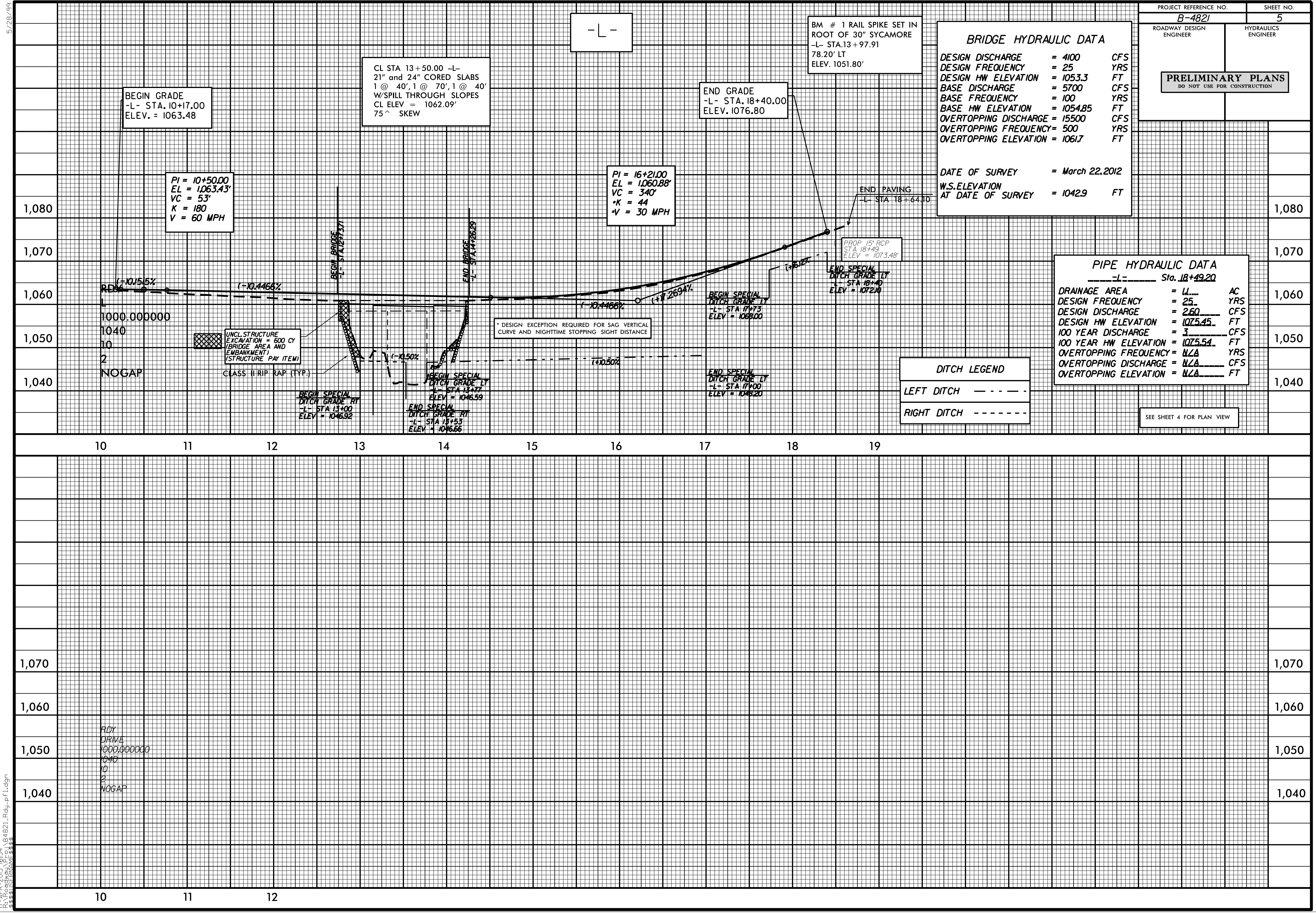


SEE SHEET 2A FOR INTERSECTION AND ISLAND DETAIL SHEET
SEE SHEET 2B FOR DITCH DETAIL SHEET
SEE SHEET 5 FOR PROFILE

PROJECT REFERENCE NO.	SHEET NO.
B-4821	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-



BM # 1 RAIL SPIKE SET IN ROOT OF 30" SYCAMORE –L– STA.13+97.91 78.20' LT ELEV. 1051.80'
CL STA 13+50.00 –L– 21" and 24" CORED SLABS 1 @ 40', 1 @ 70', 1 @ 40' W/SPILL THROUGH SLOPES CL ELEV = 1062.09' 75^ SKEW
BEGIN GRADE -L- STA. 10+17.00 ELEV. = 1063.48
END GRADE -L- STA. 18+40.00 ELEV. 1076.80
PI = 10+50.00 EL = 1,063.43' VC = 53' K = 180 V = 60 MPH
PI = 16+21.00 EL = 1,060.88' VC = 340' *K = 44 *V = 30 MPH
END PAVING -L- STA 18+64.10
(-)0.1515%
(-)0.4466%
(-)0.4466%
(+)7.2694%
(+)6.12%
(-)0.50%
(+)0.50%
BEGIN BRIDGE -L- STA.12+73.71
END BRIDGE -L- STA.14+26.29
PROP 15" RCP STA 18+49 ELEV = 1073.48'
END SPECIAL DITCH GRADE LT -L- STA 18+40 ELEV = 1072.10
BEGIN SPECIAL DITCH GRADE LT -L- STA 17+73 ELEV = 1068.00
END SPECIAL DITCH GRADE LT -L- STA 17+00 ELEV = 1048.20
BEGIN SPECIAL DITCH GRADE LT -L- STA 13+77 ELEV = 1046.59
BEGIN SPECIAL DITCH GRADE RT -L- STA 13+00 ELEV = 1046.92
END SPECIAL DITCH GRADE RT -L- STA 13+53 ELEV = 1046.66
UNCL. STRUCTURE EXCAVATION = 600 CY (BRIDGE AREA AND EMBANKMENT) (STRUCTURE PAY ITEM)
CLASS II RIP RAP (TYP.)
* DESIGN EXCEPTION REQUIRED FOR SAG VERTICAL CURVE AND NIGHTTIME STOPPING SIGHT DISTANCE
RDY
L
1000.000000
1040
10
2
NOGAP
RDY
DRIVE
1000.000000
1040
10
2
NOGAP
1,080
1,070
1,060
1,050
1,040
10
11
12
13
14
15
16
17
18
19

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 4100	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 1053.3	FT
BASE DISCHARGE	= 5700	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 1054.85	FT
OVERTOPPING DISCHARGE	= 15500	CFS
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING ELEVATION	= 1061.7	FT
DATE OF SURVEY	= March 22, 2012	
W.S. ELEVATION AT DATE OF SURVEY	= 1042.9	FT

PIPE HYDRAULIC DATA

-L- Sta. 18+49.20

DRAINAGE AREA	= 1.1	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 2.60	CFS
DESIGN HW ELEVATION	= 1075.45	FT
100 YEAR DISCHARGE	= 3	CFS
100 YEAR HW ELEVATION	= 1075.54	FT
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= N/A	FT

DITCH LEGEND

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

SEE SHEET 4 FOR PLAN VIEW

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