



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

August 24, 2017

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

ATTN: Ms. Loretta Beckwith
NCDOT Coordinator

Subject: **Application for Section 404 Nationwide Permits 23, and 33**, for the Proposed Replacement of Bridge 3 on SR 1128 (Possum Trot Road) over Possumtrot Creek in Yancey County, Division 13, TIP No. B-4848, Federal Aid Project No. BRZ-1128(7), Debit \$570 from WBS# 38618.1.2.

Dear Ms. Beckwith:

The North Carolina Department of Transportation (NCDOT) proposes to replace bridge number 3 on SR 112 (Possum Trot Road) over Possumtrot Creek in Yancey County with a double barrel (2 @ 13' X 5') reinforced concrete box culvert (RCBC). During construction, traffic will be maintained on the existing structure and roadway. Total permanent stream impacts are 229 lf, with 89 lf from the RCBC, and 140 lf from channel improvements. Temporary stream impacts associated with the channel improvements total 30 lf (<0.01 ac.).

Please see enclosed copies of the Pre-Construction Notification (PCN), DMS Acceptance Letter, Stormwater Management Plan, Permit Drawings, and Roadway Plan Sheets. A Categorical Exclusion (CE) was completed in October 2016 and distributed shortly thereafter. Additional copies are available upon request.

This project calls for a letting date of January 16, 2018 and a review date of November 28, 2017; however, the let date may advance as additional funding becomes available.

Pursuant to a July 30, 2013 letter from NCWRC, a moratorium prohibiting in-stream work and land disturbance with the 25-foot trout buffer is recommended from October 15 to April 15. Sediment and erosion control measure will adhere to the *Design Standards in Sensitive Watersheds*.

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
NATURAL ENVIRONMENT SECTION
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

Telephone: (919) 707-6000
Fax: (919) 212-5785
Customer Service: 1-877-368-4968
Website: www.ncdot.gov

Location:
1020 BIRCH RIDGE DRIVE
RALEIGH NC 27610

A copy of this permit application and its distribution list will be posted on the NCDOT Website at: <http://connect.ncdot.gov/resources/Environmental>. If you have any questions or need additional information, please call Bill Barrett at (919) 707-6103.

Sincerely,



For Philip S. Harris III, P.E., C.P.M.
Environmental Analysis Unit Head

cc: NCDOT Permit Application Standard Distribution List



Pre-Construction Notification (PCN) Form

For Nationwide Permits and Regional General Permits

(along with corresponding Water Quality Certifications)

June 28, 2017 Ver 1.8

*Please note: fields marked with a red asterisk * below are required. You will not be able to submit the form until all mandatory questions are answered.*

Below is a link to the DRAFT online help file.

<http://edocs.deq.nc.gov/WaterResources/0/doc/549884/Page1.aspx>

A. Processing Information

County (or Counties) where the project is located:*

Yancey

Is this project a public transportation project?*

Yes No

Is this a NCDOT Project?*

Yes No

(NCDOT only) T.I.P. or state project number:

B-4848

WBS #

38618.1.2

(for NCDOT use only)

1a. Type(s) of approval sought from the Corps:*

- Section 404 Permit (wetlands, streams and waters, Clean Water Act)
 Section 10 Permit (navigable waters, tidal waters, Rivers and Harbors Act)

1b. What type(s) of permit(s) do you wish to seek authorization?*

- Nationwide Permit (NWP)
 Regional General Permit (RGP)

Nationwide Permit (NWP) Number: 23 - Categorical Exclusions

Nationwide Permit (NWP) Number: 33 - Temporary Construction

NWP Number Other:

List all NW numbers you are applying for not on the drop down list.

1c. Type(s) of approval sought from the DWR:*

check all that apply

- 401 Water Quality Certification - Regular
 Non-404 Jurisdictional General Permit

- 401 Water Quality Certification - Express
 Riparian Buffer Authorization

1d. Is this notification solely for the record because written approval is not required?

For the record only for DWR 401 Certification: Yes No

For the record only for Corps Permit: Yes No

1e. 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

Acceptance Letter Attachment

Click the upload button or drag and drop files here to attach document

B-4848 - STR - FB 08 (Cool).pdf

62.28KB

FILE TYPE MUST BE PDF

1f. Is the project located in any of NC's twenty coastal counties? *

Yes No

B. Applicant Information

1a. Who is the Primary Contact? *

NCDOT

1b. Primary Contact Email: *

wabarrett@ncdot.gov

1c. Primary Contact Phone: *

(xxx)xxx-xxxx

(919)707-6103

1d. Who is applying for the permit?

Owner Applicant (other than owner) Agent/Consultant

(Check all that apply)

2. Owner Information

2a. Name(s) on recorded deed:

2b. Deed book and page no.:

2c. Responsible party:

(for Corporations)

2d. Address

Street Address

Address Line 2

City

State / Province / Region

Postal / Zip Code

Country

2e. Telephone Number:

(xxx)xxx-xxxx

2f. Fax Number:

(xxx)xxx-xxxx

2g. Email Address: *

pharris@ncdot.gov

C. Project Information and Prior Project History

1. Project Information

1a. Name of project: *

Replacement of Bridge 3 over Possomtrot Creek on SR 1128.

1b. Subdivision name:

(if appropriate)

1c. Nearest municipality / town: *

Burnsville

1d. Driving directions *

If it is a new project and can not easily be found in a GPS mapping system. Please provide directions.

35.912819 -82.401301

2. Project Identification

2a. Property Identification Number:

(tax PIN or parcel ID)

2b. Property size:

(in acres)

2c. Project Address

Street Address

Address Line 2

City

State / Province / Region

Postal / Zip Code

Country

2d. Site coordinates in decimal degrees

Please collect site coordinates in decimal degrees. Use between 4-6 digits (unless you are using a survey-grade GPS device) after the decimal place as appropriate, based on how the location was determined. (For example, most mobile phones with GPS provide locational precision in decimal degrees to map coordinates to 5 or 6 digits after the decimal place.)

Latitude: *

35.912819

ex: 34.208504

Longitude: *

-82.401301

-77.796371

3. Surface Waters

3a. Name of the nearest body of water to proposed project: *

Possomtrot Creek

3b. Water Resources Classification of nearest receiving water: *

C-TR

[Surface Water Lookup](#)

3c. What river basin(s) is your project located in? *

French Broad

[River Basin Lookup](#)

4. Project Description

4a. Describe the existing conditions on the site and the general land use in the vicinity of the project at the time of this application: *

The area in the bridge vicinity is comprised of crops and livestock agricultural operations, woods, several single-family residences and Summit Building Supply Company.

4b. Attach an 8 1/2 X 11 excerpt from the most recent version of the USGS topographic map indicating the location of the project site. (for DWR)

Click the upload button or drag and drop files here to attach document

File type must be pdf

4c. Attach an 8 1/2 X 11 excerpt from the most recent version of the published County NRCS Soil Survey map depicting the project site. (for DWR)

Click the upload button or drag and drop files here to attach document

File type must be pdf

4d. List the total estimated acreage of all existing wetlands on the property:

0

4e. List the total estimated linear feet of all existing streams on the property:

(intermittent and perennial)

825

4f. Explain the purpose of the proposed project:

To replace a functionally obsolete bridge approaching the end of its useful life.

4g. Describe the overall project in detail, including the type of equipment to be used:

The project involves replacing an existing bridge with a double barrel, reinforced concrete box culvert (2@13' x 5') on new alignment, to the southeast side of the existing bridge. The roadway grade will be similar to the existing grade. The new roadway will be realigned to straighten out S-curves just east of the existing bridge and provide an access point with better radii for large trucks entering and exiting the nearby Summit Building Supply Company. During construction, traffic will be maintained on the existing structure and roadway. Standard road building equipment, such as trucks, dozers, and cranes will be used.

4h. Please upload project drawings for the proposed project.

Click the upload button or drag and drop files here to attach document

B4848_Permit Drawings_20170421.pdf 2.18MB

B-4848_Rdy_Plans.pdf 1.21MB

File type must be pdf

5. Jurisdictional Determinations

5a. Have the wetlands or streams been delineated on the property or proposed impact areas? *

Yes

No

Unknown

Comments:

5b. If the Corps made a jurisdictional determination, what type of determination was made? *

Preliminary

Approved

Unknown

Corps AID Number:

Example: SAW-2017-99999

5c. If 5a is yes, who delineated the jurisdictional areas?

Name (if known):

Agency/Consultant Company:

Other:

5d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation.

5d1. Jurisdictional determination upload

Click the upload button or drag and drop files here to attach document

File type must be PDF

6. Project History

6a. Have permits or certifications been requested or obtained for this project (including all prior phases) in the past? *

Yes No Unknown

7. Future Project Plans

7a. Is this a phased project? *

Yes No

Are any other NWP(s), regional general permit(s), or individual permits(s) used, or intended to be used, to authorize any part of the proposed project or related activity? This includes other separate and distant crossing for linear projects that require Department of the Army authorization but don't require pre-construction notification.

D. Proposed Impacts Inventory

1. Impacts Summary

1a. Where are the impacts associated with 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.

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. Site # - Reason for impact	3b. Impact type	3c. Type of impact	3d. Stream name	3e. Stream Type	3f. Jurisdiction type	3g. Stream width	3h. Impact length
Site 1 - Culvert Map label (e.g. Road Crossing 1)	P Permanent (P) or Temporary (T)	Culvert	Possomtr ot Creek	Perennial Perennial (PER) or intermittent (INT)	Corps	Average 13 (feet)	89 (linear feet)
Site 1 - Upstream Channel Alignment Map label (e.g. Road Crossing 1)	P Permanent (P) or Temporary (T)	Stabilization	Possomtr ot Creek	Perennial Perennial (PER) or intermittent (INT)	Corps	Average 13 (feet)	39 (linear feet)

3a. Site # - Reason for impact	3b. Impact type	3c. Type of impact	3d. Stream name	3e. Stream Type	3f. Jurisdiction type	3g. Stream width	3h. Impact length
Site 1 - Upstream Channel Alignment Map label (e.g. Road Crossing 1)	T Permanent (P) or Temporary (T)	Dewatering	Possomtr ot Creek	Perennial Perennial (PER) or intermittent (INT)	Corps	Average 13 (feet)	19 (linear feet)
Site 1 - Downstream Channel Alignment Map label (e.g. Road Crossing 1)	P Permanent (P) or Temporary (T)	Stabilization	Possomtr ot Creek	Perennial Perennial (PER) or intermittent (INT)	Corps	Average 13 (feet)	101 (linear feet)
Site 1 - Downstream Channel Alignment Map label (e.g. Road Crossing 1)	T Permanent (P) or Temporary (T)	Dewatering	Possomtr ot Creek	Perennial Perennial (PER) or intermittent (INT)	Corps	Average 13 (feet)	11 (linear feet)

** All Perennial or Intermittent streams must be verified by DWR or delegated local government.

3i. Total jurisdictional ditch impact in square feet:

0

3i. Total permanent stream impacts:

229

3i. Total temporary stream impacts:

30

3i. Total stream and tributary impacts:

259

3j. Comments:

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.

5. Pond or Lake Construction

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

6. Buffer Impacts (for DWR)

If project will impact a protected riparian buffer, then complete the chart below. Individually list all buffer impacts below.

E. Impact Justification and Mitigation

1. Avoidance and Minimization

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

The reinforced box culvert (RCBC) has been designed to have as little environmental and surface water impacts as possible. Channel improvements were made for the proposed RCBC design.

A low flow barrel on the west side of the culvert is designed to match the stream width to maintain the normal flow width, depth, and velocity of the stream. This will maintain sediment transport to provide a stable stream during bankfull discharge. The barrel invert will be a minimum of one-foot below the streambed to allow for fish passage,

A high flow barrel on the east side of the culvert will provide flood conveyance during high flow storm events. This will reduce shear stress on the stream bottom. A floodplain bench will be cut in the existing ground at the inlet and outlet of the right (east) barrel to allow for additional water conveyance during high flow events. Excavation will be kept to a minimum to produce as little impacts as possible. Where excavation is necessary, geotextile and riprap will be utilized to reduce stream bank erosion.

The high flow barrel will have a 1.5-foot sill inset at the entrance and exit of the culvert. The low flow barrel will have 1.0-foot sills/baffles at 16.9 centers to retain sediment within the culvert. All sills will be constructed perpendicular to the culvert wall.

A grassed swale is being utilized for treatment before sheet flowing through a wooded area in to Bald Creek.

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

Best Management Practices for Surface Waters will be used during all phases of construction. The project will also adhere to Design Standards for Sensitive Waters, and a trout moratorium will be in place from October 15 to April 15 of any year.

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

2c. If yes, mitigation is required by (check all that apply):

DWR Corps

2d. If yes, which mitigation option(s) will be used for this project?

Mitigation bank Payment to in-lieu fee program Permittee Responsible Mitigation

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)

229

4c. If using stream mitigation, stream temperature:

cold

4d. Buffer mitigation requested (DWR 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

F. Stormwater Management and Diffuse Flow Plan (required by DWR)

1a. Does this project require a Stormwater Management Plan?

Yes No

1b. If this project DOES require a Stormwater Management Plan, then provide a brief, narrative description of the plan:

See attached permit drawings.

1c. What is the overall percent imperviousness of this project?

%

1d. Who will be responsible for the review of the Stormwater Management Plan? *

Certified Local Government DEMLR Stormwater Review
 DWR 401 & Buffer Permitting Branch DWR Transportation Permitting Branch

2. Diffuse Flow Plan

2a. Does the project include or is it adjacent to protected riparian buffers identified within one of the NC Riparian Buffer Protection Rules?

Yes No

If no, explain why:

5. DWR 401 Stormwater Review

5a. Is the Stormwater Management Plan (including BMP Supplemental Forms and Operation and Maintenance Agreements) attached?

Yes No

Stormwater Management Plan Upload

Click the upload button or drag and drop files here to attach document

file type must be pdf

G. Supplementary Information

1. Environmental Documentation

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.) *

Yes No

NEPA or SEPA Final Approval Letter

Click the upload button or drag and drop files here to attach document

FILE TYPE MUST BE PDF

2. Violations (DWR Requirement)

2a. Is the site in violation of DWR Water Quality Certification Rules (15A NCAC 2H .0500), Isolated Wetland Rules (15A NCAC 2H .1300), or DWR 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 (DWR 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 "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 (DWR Requirement)

4a. Describe, in detail, the treatment methods and dispositions (non-discharge or discharge) of wastewater generated from the proposed project. If the wastewater will be treated at a treatment plant, list the capacity available at that plant.

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, indicate the USFWS Field Office you have contacted.

Asheville

5d. Is this a DOT project located within Division's 1-8? *

Yes

No

5e. Will you cut any trees in order to conduct the work in waters of the U.S.? *

Yes No

5f. Does this project involve bridge maintenance or removal? *

Yes No

5f(1). If yes, have you inspected the bridge for signs of bat use such as staining, guano, bats, etc.? Representative photos of signs of bat use can be found in the NLEB SLOPES, Appendix F, pages 3-7.

Yes No

Link to the NLEB SLOPES document: http://saw-reg.usace.army.mil/NLEB/1-30-17-signed_NLEB-SLOPES&apps.pdf

If you answered "Yes" to 5f(1), did you discover any signs of bat use? *

Yes No Unknown

If yes, please show the location of the bridge on the permit drawings/project plans.

Click the upload button or drag and drop files here to attach document

File must be PDF

5g. Does this project involve the construction/installation of a wind turbine(s)?*

Yes No

If yes, please show the location of the wind turbine(s) on the permit drawings/project plans.

Click the upload button or drag and drop files here to attach document

File must be PDF

5h. Does this project involve (1) blasting, and/or (2) other percussive activities that will be conducted by machines, such as jackhammers, mechanized pile drivers, etc.? *

Yes No

If yes to either, please provide details to include type of percussive activity, purpose, duration, and specific location of this activity on the property.

Click the upload button or drag and drop files here to attach document

File must be PDF

5i. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat? *

USFWS Website:

-The project will have no effect, due to lack of habitat, for spreading avens, gray bat, Carolina northern flying squirrel, Rock gnome lichen, Roan Mountain bluet, and Spruce-fir moss spider.

-The project will have no effect, but habitat is present, for Virginia spiraea, which was surveyed in June 2013, and May 2015.

-A memo regarding the NELB was sent to the USFWS on 5/30/2017 and this species is in compliance with the 4(d) rule.

-The project may affect, but not likely to adversely affect the Appalachian elktoe, which was concurred upon by the Service on April 19, 2017.

6. Essential Fish Habitat (Corps Requirement)

6a. Will this project occur in or near an area designated as an Essential Fish Habitat? *

Yes No

6b. What data sources did you use to determine whether your site would impact an Essential Fish Habitat? *

NMFS County Index

7. Historic or Prehistoric Cultural Resources (Corps Requirement)

Link to the State Historic Preservation Office Historic Properties Map (does not include archaeological data: <http://gis.ncdcr.gov/hpoweb/>)

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? *

N/SEPA Documentation

7c. Historic or Prehistoric Information Upload

Click the upload button or drag and drop files here to attach document

File must be PDF

8. Flood Zone Designation (Corps Requirement)

Link to the FEMA Floodplain Maps: <https://msc.fema.gov/portal/search>

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.

Miscellaneous attachments not previously requested.

Click the upload button or drag and drop files here to attach document

B-4848 Permit App CL82417.pdf 265.67KB

B-4848 USFWS Concurrence.pdf 179.89KB

File must be PDF

Signature

*

By checking the box and signing below, I certify that:

- I have given true, accurate, and complete information on this form;
- I agree that submission of this PCN form is a "transaction" subject to Chapter 66, Article 40 of the NC General Statutes (the "Uniform Electronic Transactions Act");
- I agree to conduct this transaction by electronic means pursuant to Chapter 66, Article 40 of the NC General Statutes (the "Uniform Electronic Transactions Act");
- I understand that an electronic signature has the same legal effect and can be enforced in the same way as a written signature; AND
- I intend to electronically sign and submit the PCN form.

Full Name: *

Colin Mellor

Signature

Colin Mellor



ROY COOPER
Governor

August 18, 2017

Mr. Philip S. Harris, III, P.E., CPM
Project Development and Environmental Analysis Unit
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Mr. Harris:

Subject: Mitigation Acceptance Letter:

B-4848, Replace Bridge Number 3 over Possum Trot Creek on SR 1128, Yancey County

The purpose of this letter is to notify you that the Division of Mitigation Services (DMS) will provide the compensatory stream mitigation for the subject project. Based on the information supplied by you on August 14, 2017, the impacts are located in CU 06010108 of the French Broad River basin in the Northern Mountains (NM) Eco-Region, and are as follows:

French Broad 06010108 NM	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts (feet/acres)	0	229.0	0	0	0	0	0	0

*Some of the stream impacts may be proposed to be mitigated at a 1:1 mitigation ratio. See permit application for details.

The impacts and associated mitigation needs were under projected by the NCDOT in the 2017 impact data. DMS will commit to implement sufficient compensatory stream mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies using the delivery timeline listed in Section F.3.c.iii of the In-Lieu Fee Instrument dated July 28, 2010. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from DMS.

If you have any questions or need additional information, please contact Beth Harmon at 919-707-8420.

Sincerely,

James B. Stanfill
Credit Management Supervisor

cc: Mr. Lori Beckwith, USACE – Asheville Regulatory Field Office
Ms. Amy Chapman, NCDWR
File: B-4848





United States Department of the Interior



FISH AND WILDLIFE SERVICE

Asheville Field Office
160 Zillicoa Street Suite #B
Asheville, North Carolina 28801

April 19, 2017

Mr. Phillip S. Harris
North Carolina Department of Transportation
Project Development and Environmental Analysis Unit
1598 Mail Service Center
Raleigh, NC 27699-1598

Subject: Endangered Species Concurrence for the Proposed Replacement of Bridge No.3 on SR 1128 over Possumtrot Creek, Yancey County, North Carolina, TIP Project No B-4848.

Dear Mr. Harris:

We have reviewed your concurrence request and supporting documentation regarding potential impacts to the federally endangered Appalachian elktoe (*Alismidonta raveneliana*) from implementation of the subject project. We provide the following comments in accordance with the provisions of section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1543) (Act).

The North Carolina Department of Transportation (NCDOT) proposes to replace Bridge No. 3 over Possumtrot Creek. The replacement structure will be a double barrel box culvert. The culvert design will provide for the base stream flow in one barrel with the other barrel providing for overflow in high water events. The project site is about 1.0 mile from the confluence with the Cane River and about 4 miles from any occurrence of Appalachian elktoe.

According to the information provided, in July of 2013, a thorough survey of Possumtrot Creek and into the confluence with Bald Creek in the area of impact was conducted and no native freshwater mussels were found. Given the proximity of the project to the Cane River, we recommend that sediment and erosion control measures adhere to the Design Standards for Sensitive Watersheds. Based on the negative survey results and implementation of strict sediment and erosion control standards we agree that implementation of this project is "not likely to adversely affect" Appalachian elktoe. Therefore, the requirements under Section 7(c) of the Act are fulfilled. However, obligations under Section 7 of the Act must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered, (2) this action is subsequently modified in a manner that was not considered in this review, or (3) a new species is listed or critical habitat is determined that may be affected by the identified action.

If you have questions about these comments please contact Ms. Marella Buncick of our staff at 828/258-3939, Ext. 237. In any future correspondence concerning these projects, please reference our Log Number 13-050.

Sincerely,
- - *original signed* - -
Janet Mizzi
Field Supervisor



**North Carolina Department of Transportation
Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR NCDOT PROJECTS**



(Version 2.07; Released October 2016)

WBS Element: 38618.1.1 **TIP No.:** B-4848 **County(ies):** Yancey **Page** 1 **of** 1

General Project Information

WBS Element:	38618.1.1	TIP Number:	B-4848	Project Type:	Bridge Replacement	Date:	2/28/2017
NCDOT Contact:	Bill Zerman, PE			Contractor / Designer:	Trent Cormier, PE		
Address:	NCDOT Hydraulics Unit 1590 Mail Services Unit Raleigh, NC 27560			Address:	ICA Engineering, Inc. 5121 Kingdom Way, Suite 100 Raleigh, NC 27607		
Phone:	(919) 707-6755			Phone:	(919) 900-1608		
Email:	bzerman@ncdot.gov			Email:	trenton.cormier@hdrinc.com		
City/Town:	Cane River			County(ies):	Yancey		
River Basin(s):	French Broad			CAMA County?	No		
Wetlands within Project Limits?	No						

Project Description

Project Length (lin. miles or feet):	0.17	Surrounding Land Use:	Low Residential, Wooded, Agricultural, Low Commercial					
	Proposed Project			Existing Site				
Project Built-Up Area (ac.)	0.7	ac.	0.6	ac.				
Typical Cross Section Description:	Possum Trot Road (SR 1128): 2 paved lanes (total 20' wide), 3' shoulder (2' paved) on each side (7' with guardrail).			Possum Trot Road (SR 1128): 2 paved lanes (total 22' wide), open shoulder section.				
Annual Avg Daily Traffic (veh/hr/day):	Design/Future:	1600	Year:	2040	Existing:	1230	Year:	2015

**General Project Narrative:
(Description of Minimization of Water Quality Impacts)**

The North Carolina Department of Transportation (NCDOT) has proposed to replace Yancey County Bridge #003 on Possum Trot Road (SR 1128) over Possumtrot Creek. The existing structure is a one span bridge (1@26'8") and is a timber floor on I-Beams supported by Yount Masonry abutments. The proposed structure is a two barrel (2@13' X 5'), reinforced concrete box culvert (RCBC). This structure has been designed to have as little environmental and surface water impacts as possible. A floodplain bench will be cut into the existing ground at the inlet and outlet of the right barrel to allow for additional water conveyance during high flow events. Channel improvements were made for the proposed RCBC design. Excavation was kept to a minimum to produce as little impact as possible. Where excavation is necessary, geotextile and rip-rap were utilized for bank stabilization in an attempt to reduce stream bank erosion. A low flow barrel on the west side of the culvert was designed to match the stream width to maintain the normal flow width, depth and velocity of the stream. This will maintain sediment transport to provide a stable stream during bankfull discharge. The barrel invert will be a minimum of 1' below the stream bed to consider fish passage. A high flow barrel on the east side of the culvert will provide flood conveyance during high flow storm events. This will reduce shear stress on the stream bottom. A grassed swale is being utilized for treatment before sheet flowing through a wooded area into Bald Creek. Due to the nature of low impact bridge replacement, the increases in stormwater discharges (post vs pre condition) are insignificant. Therefore, additional stormwater measures are not required.

Waterbody Information

Surface Water Body (1):	Possumtrot Creek		NCDWR Stream Index No.:	7-3-22-7				
NCDWR Surface Water Classification for Water Body	Primary Classification:	Class C						
	Supplemental Classification:	Trout Waters (Tr)						
Other Stream Classification:	None							
Impairments:	None							
Aquatic T&E Species?	No	Comments:						
NRTR Stream ID:							Buffer Rules in Effect:	N/A
Project Includes Bridge Spanning Water Body?	No	Deck Drains Discharge Over Buffer?	N/A	Dissipator Pads Provided in Buffer?				N/A
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)				
(If yes, provide justification in the General Project Narrative)								



North Carolina Department of Transportation
 Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
 FOR NCDOT PROJECTS



(Version 2.07; Released October 2016)

WBS Element: 38618.1.1		TIP No.: B-4848		County(ies): Yancey		Page 2 of 2	
Bridge to Culvert Avoidance and Minimization							
Proposed Structure Summary							
Sheet No. & Station	Sheet No.: 4	Station: 13+07 -L-	Number of Barrels:		2		
Drainage Area (ac or sq mi):	3		Barrel Width/Diameter (ft):		13		
Surface Water Body:	(1) Possumtrot Creek		Barrel Height (ft):		5		
Culvert Type:			Culvert Length (ft)		89		
Avoidance and Minimization Efforts: (Bridge to Culvert)	The roadway grade was kept close to existing to minimize the culvert length and permanent stream impacts. In stream work was minimized to create the least amount of disturbance for aquatic life.						
Stream Slope				Fish and/or Aquatic Life Passage			
Existing Average Stream Slope (%):	3.70 %		Existing Low Flow Channel Dimensions in the Stream:		The existing stream has a base width of 12-14 feet.		
Proposed Culvert Slope (%):	3.20 %						
Culvert Burial				Proposed Low Flow Dimensions Through the Culvert:			
Proposed Culvert Burial Depth (ft):	1						
Existing Streambed Material:	Silt and Sand mixed with Gravel and Cobble			Proposed Low Flow Velocities in the Stream (ft/s):		We are proposing a 13' low flow width.	
Proposed Sills/Baffles:	The high flow barrel will have a 1.5 foot sill inset at the entrance and the exit of the culvert. The low flow barrel will have 1.0 foot sills/baffles at 16.9 centers to retain sediment within the culvert. All sills will be constructed perpendicular to the the culvert wall.					1.3	
						Proposed Low Flow Velocities Through the Culvert (ft/s):	
				Alternating Low Flow Sills/Baffles:		Low flow sills provided. Baffles were not needed to restrict flow.	
Culvert/Stream Alignment							
Stream Patterns Upstream and Downstream of the Culvert that Could Affect Fish Passage and Bank Stability:	The upstream crossing is located approximately 0.2 miles upstream and consists of 3 lines of 80" X 60" CMAP. The outlet of these pipes are perched approximately 3 feet over the NWS. Downstream is the confluence with Bald Creek as noted on the plans. Possumtrot Creek is well vegetated and stable within this reach.						
Bed Forms Impacted by Culvert (riffles, pools, glides, etc.):	The riffle/run/pool/glide sequence will be interrupted, but based on the sediment transport of the stream should be reestablished without degrading the overall reach.						
Low Flow Floodplain Bench Required? (provide justification)	Yes	A low flow bench is required for conveyance of the 100 year storm event, so adjacent properties will not be adversely impacted by the replacement.					
Bends at Inlet/Outlet? (describe culvert alignment with stream)	No	The culvert is in alignment with the stream.					
Stream Realignment Necessary? (provide justification)	No	Stream realignment was not necessary.					
Bank Stabilization:	Bank Stabilization is needed at the inlet and the outlet of the culvert to stabilize the banks.						
Outlet Velocities							
Natural Stream Channel 2-yr Velocity (ft/s):	4.2		Natural Stream Channel 10-yr Velocity (ft/s):		11.1		
Proposed Culvert 2-yr Outlet Velocity (ft/s):	6.6		Proposed Culvert 10-yr Outlet Velocity (ft/s):		8.6		
Roadway Geometric Considerations							
Evaluate/Describe Roadway Geometric Constraints:							
The roadway and geometric constraints are significant. The stream runs very close to the roadway, so the roadway alignment had to match closely with the stream to avoid fill slopes spilling into the stream. Additionally, the crossing is adjacent to an intersection which makes the construction of the bridge difficult at this location.							

09/08/19

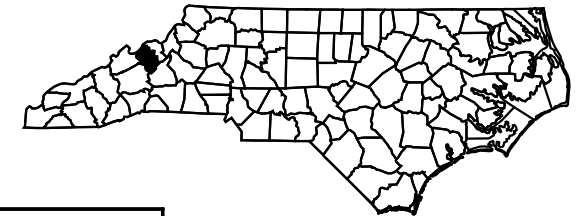
See Sheet 1A For Index of Sheets
 See Sheet 1B For Conventional Symbols
 See Sheet 1C-1 & 1C-2 For Survey Control Sheets

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

YANCEY COUNTY

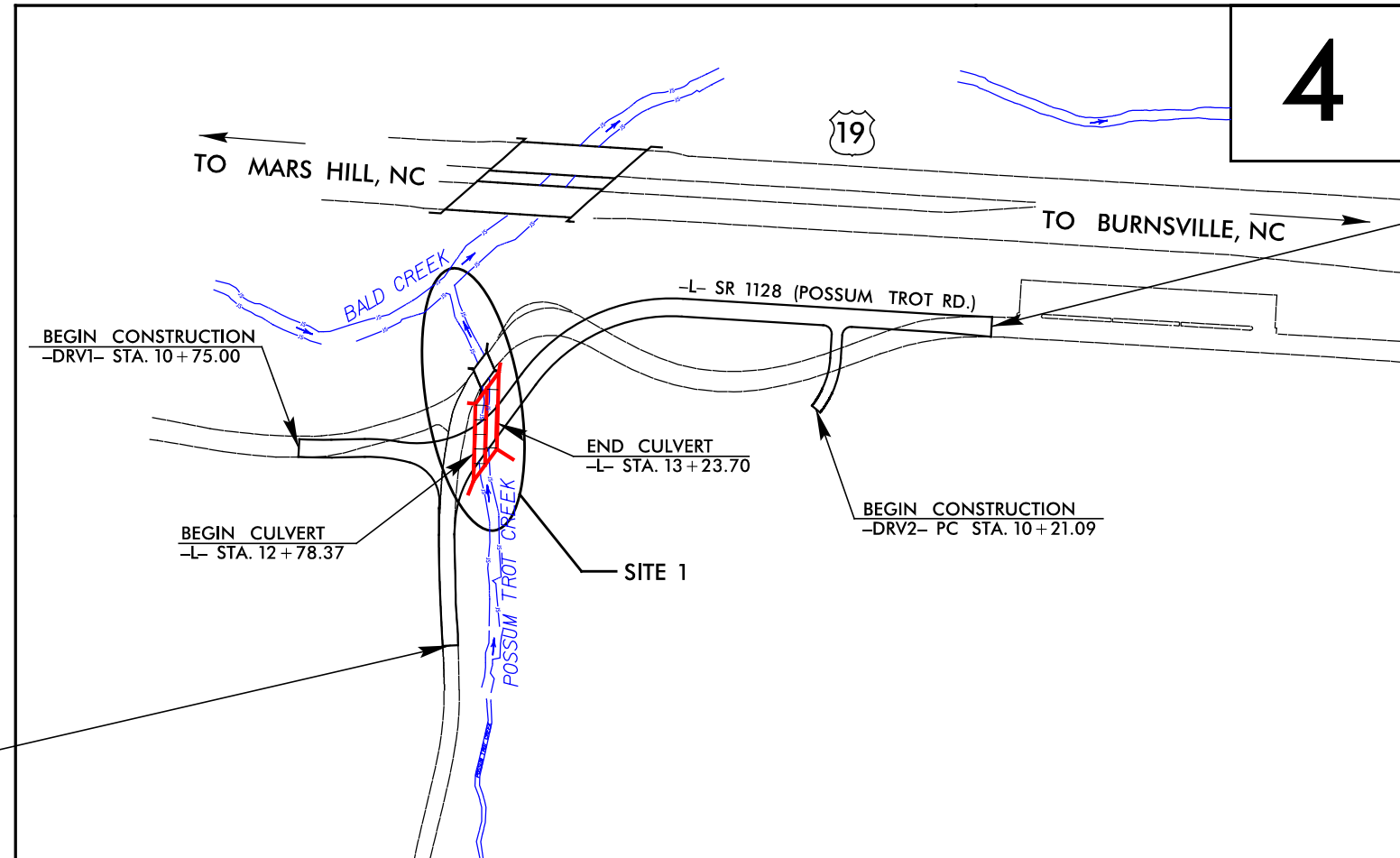
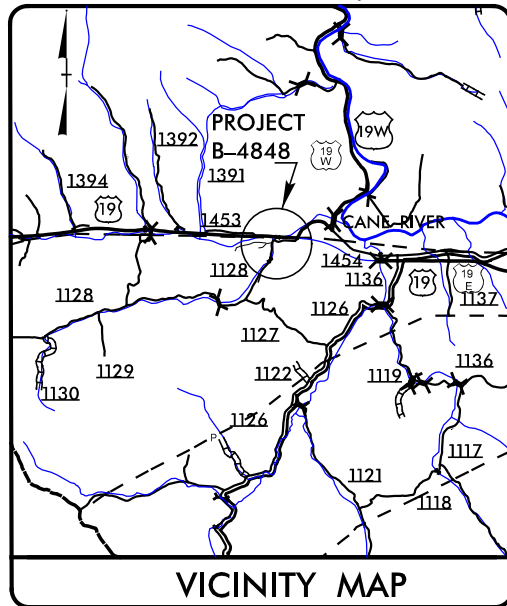
**LOCATION: REPLACE BRIDGE 3 OVER POSSUM TROT CREEK
 ON SR 1128**
TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE
WETLAND AND SURFACE WATER IMPACTS PERMIT

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4848	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
38618.1.1	BRZ-1128(7)	PE	
38618.1.2	BRZ-1128(7)	RW & UTILITIES	



TIP PROJECT: B-4848

CONTRACT: C203726



BEGIN TIP PROJECT B-4848
-L- STA. 10+50.00

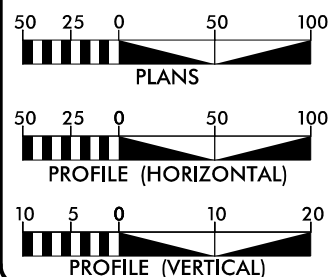


PERMIT DRAWING
SHEET 1 OF 6

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

THIS IS NOT A CONTROL OF ACCESS PROJECT
 THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARY
 CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

GRAPHIC SCALES



DESIGN DATA

ADT 2016 = 1244
 ADT 2040 = 1600
 K = 10 %
 D = 55 %
 T = 10 % *
 V = 25 MPH
 * TTST 1% DUAL 9%
 FUNC CLASS = LOCAL
 SUBREGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP NO. B-4848 = 0.158 MILE
 LENGTH OF STRUCTURE TIP NO. B-4848 = 0.008 MILE
 TOTAL LENGTH OF TIP NO. B-4848 = 0.166 MILE

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
 JANUARY 26, 2017

LETTING DATE:
 JANUARY 16, 2018

KEVIN E. MOORE, PE
 PROJECT ENGINEER

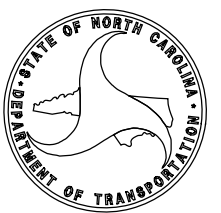
STEVEN D. KENDALL, PE
 PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN
 ENGINEER

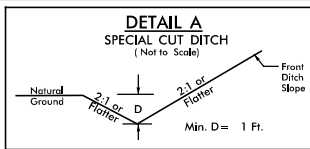
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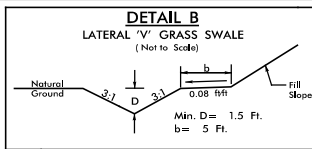
3292017
 IC ENGINEERING, INC.
 R:\5.0 PROJECT DEVELOPMENT\5.2 Work in Progress\Hydraulics\PERMITS Environmental Drawings\B4848_hyd_perm_vet_tsh.dgn

WETLAND AND SURFACE WATER IMPACTS PERMIT

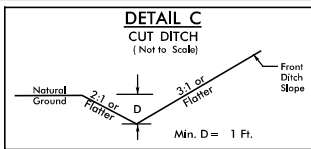
PROJECT REFERENCE NO. B-4848	SHEET NO. 4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
PERMIT DRAWING SHEET 2 OF 6	



FROM -L- STA. 13+25 TO STA. 14+75 RT
FROM -L- STA. 18+50 TO STA. 19+25 RT
FROM -DRV1- STA. 11+00 TO STA. 12+00 RT



FROM -L- STA. 14+90 TO STA. 17+75 LT



FROM -DRV2- STA. 10+75 TO STA. 11+08 RT

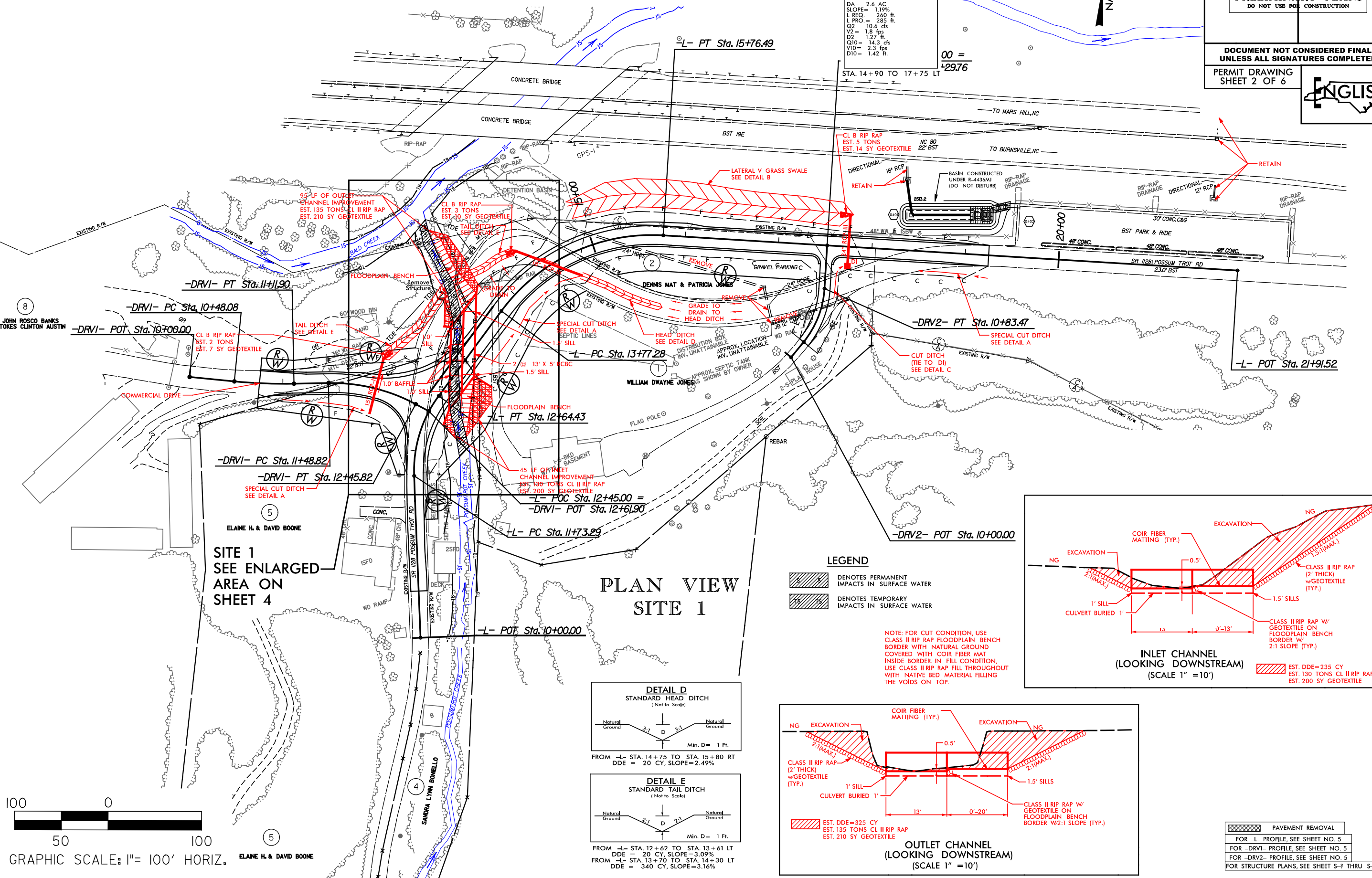
GRASS SWALE DATA

DA = 2.6 AC
SLOPE = 1.19%
L REQ. = 260 ft.
L PRO. = 285 ft.
Q2 = 10.6 cfs
Y2 = 1.8 ft.
D2 = 1.27 ft.
Q10 = 14.3 cfs
Y10 = 2.3 ft.
D10 = 1.42 ft.

00 = 129.76

STA. 14+90 TO 17+75 LT

NAD 83/2011



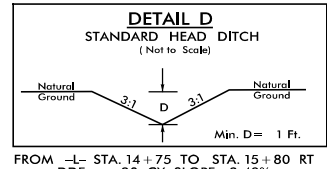
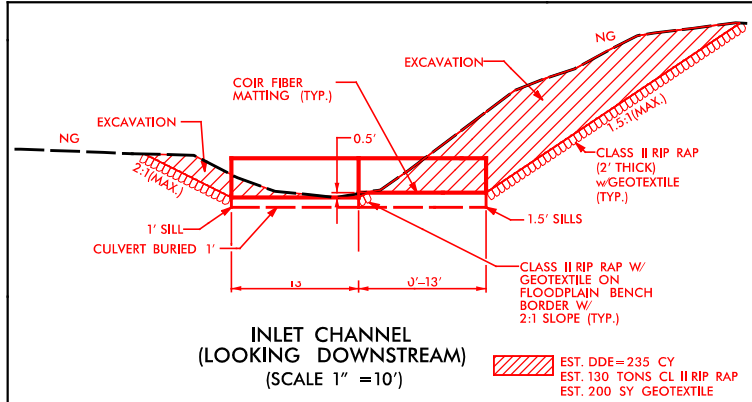
SITE 1
SEE ENLARGED
AREA ON
SHEET 4

PLAN VIEW SITE 1

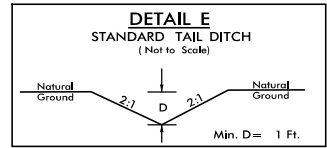
LEGEND

	DENOTES PERMANENT IMPACTS IN SURFACE WATER
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

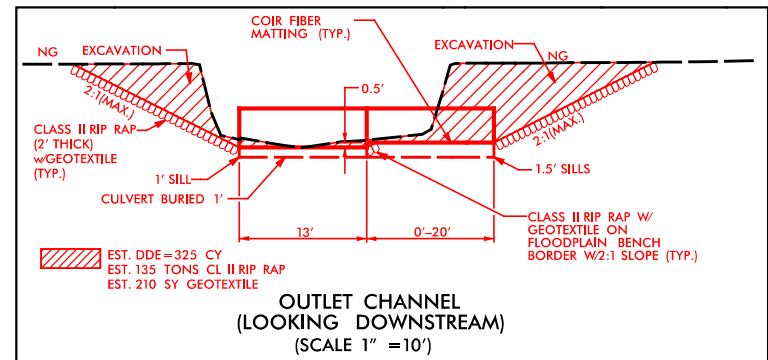
NOTE: FOR CUT CONDITION, USE CLASS II RIP RAP FLOODPLAIN BENCH BORDER WITH NATURAL GROUND COVERED WITH COIR FIBER MAT INSIDE BORDER. IN FILL CONDITION, USE CLASS II RIP RAP FILL THROUGHOUT WITH NATIVE BED MATERIAL FILLING THE VOIDS ON TOP.



FROM -L- STA. 14+75 TO STA. 15+80 RT
DDE = 20 CY, SLOPE=2.49%

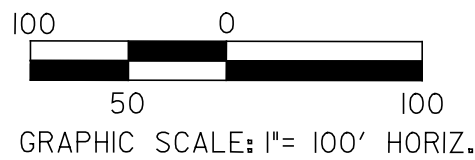


FROM -L- STA. 12+62 TO STA. 13+61 LT
DDE = 20 CY, SLOPE=3.09%
FROM -L- STA. 13+70 TO STA. 14+30 LT
DDE = 340 CY, SLOPE=3.16%



PAVEMENT REMOVAL

FOR -L- PROFILE, SEE SHEET NO. 5
FOR -DRV1- PROFILE, SEE SHEET NO. 5
FOR -DRV2- PROFILE, SEE SHEET NO. 5
FOR STRUCTURE PLANS, SEE SHEET S-? THRU S-??

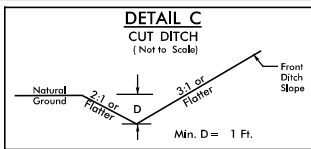
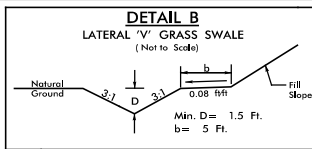
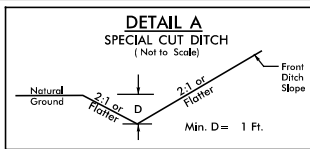


ELAINE H. & DAVID BOONE

4132017 ICA ENGINEERING, INC. R:\5.0 PROJECT DEVELOPMENT\5.2 Work in Progress\Hydraulics\PERMITS Environmental\Drawings\B4848 hyd perm_wat_psh_04.dgn

WETLAND AND SURFACE WATER IMPACTS PERMIT

PROJECT REFERENCE NO. B-4848	SHEET NO. 4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
PERMIT DRAWING SHEET 3 OF 6	



GRASS SWALE DATA

DA = 2.6 AC
 SLOPE = 1.19%
 L REQ. = 260 ft.
 L PRO. = 285 ft.
 Q2 = 10.6 cfs
 V2 = 1.8 ft.
 D2 = 1.27 ft.
 Q10 = 14.3 cfs
 V10 = 2.3 fps
 D10 = 1.42 ft.

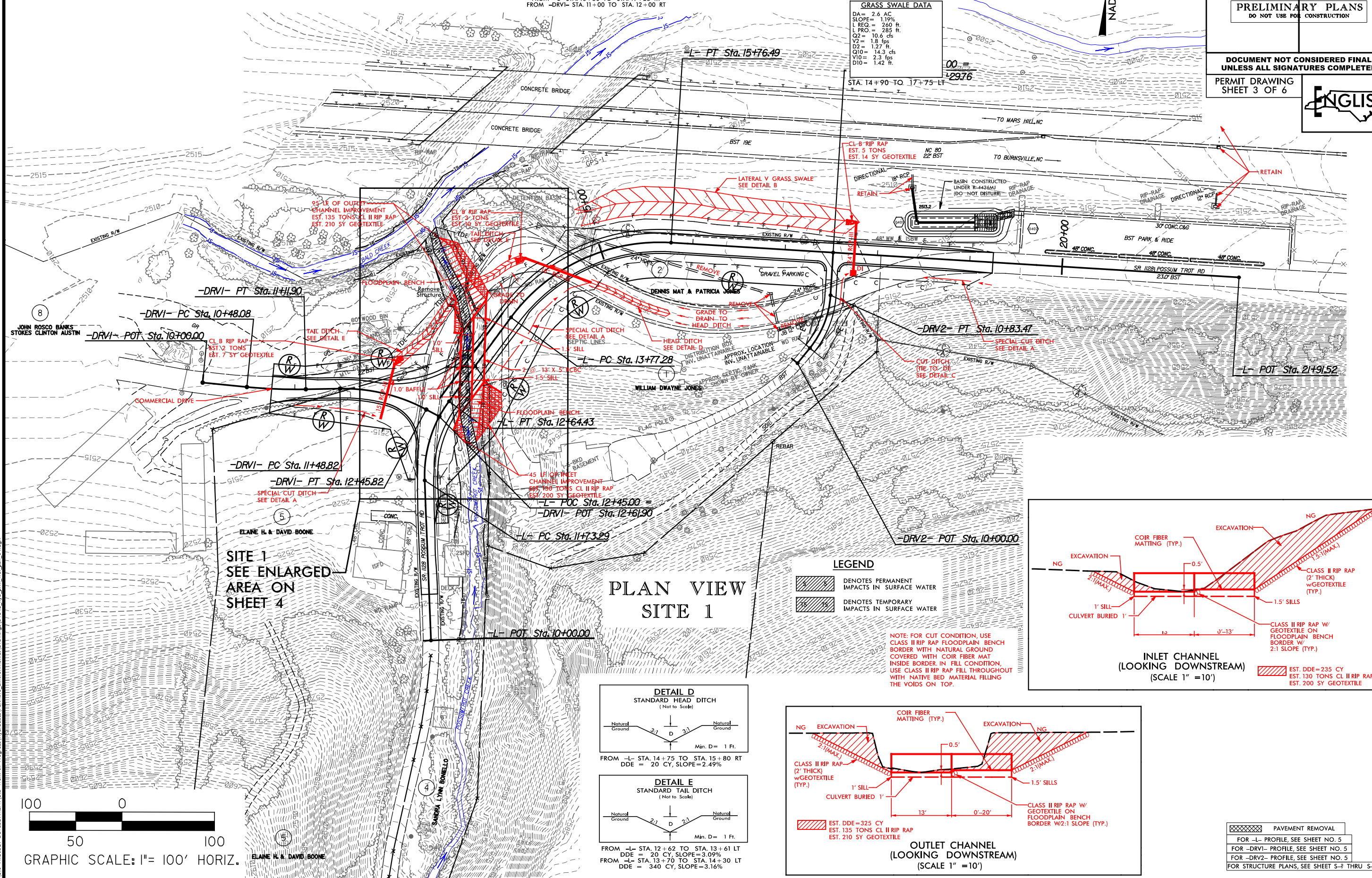
FROM -L- STA. 13+25 TO STA. 14+75 RT
 FROM -L- STA. 18+50 TO STA. 19+25 RT
 FROM -DRV- STA. 11+00 TO STA. 12+00 RT

FROM -L- STA. 14+90 TO STA. 17+75 LT

FROM -DRV2- STA. 10+75 TO STA. 11+08 RT

NAD 83/2011

4132017 ICA ENGINEERING, INC. Work in Progress/Hydraulics/PERMITS/Environmental/Drawings/B4848/hyd/perm_wat_psh_04.dgn



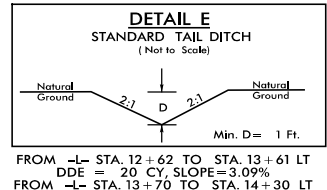
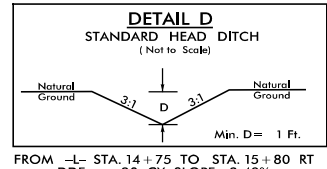
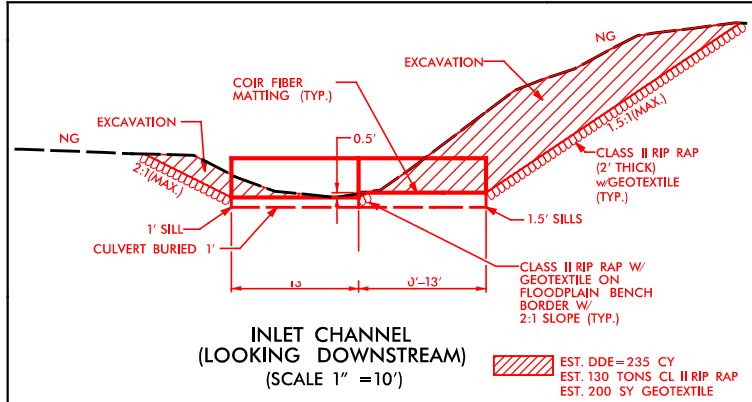
SITE 1
SEE ENLARGED AREA ON SHEET 4

PLAN VIEW SITE 1

LEGEND

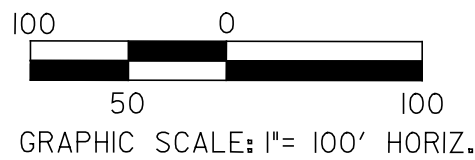
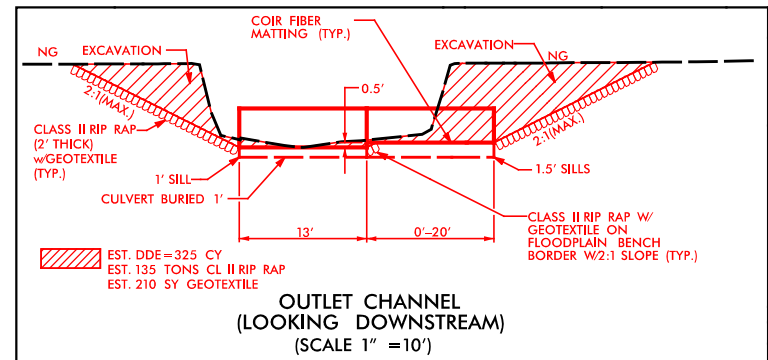
- DENOTES PERMANENT IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NOTE: FOR CUT CONDITION, USE CLASS II RIP RAP FLOODPLAIN BENCH BORDER WITH NATURAL GROUND COVERED WITH COIR FIBER MAT INSIDE BORDER. IN FILL CONDITION, USE CLASS II RIP RAP FILL THROUGHOUT WITH NATIVE BED MATERIAL FILLING THE VOIDS ON TOP.



FROM -L- STA. 14+75 TO STA. 15+80 RT
 DDE = 20 CY, SLOPE=2.49%

FROM -L- STA. 12+62 TO STA. 13+61 LT
 DDE = 20 CY, SLOPE=3.09%
 FROM -L- STA. 13+70 TO STA. 14+30 LT
 DDE = 340 CY, SLOPE=3.16%

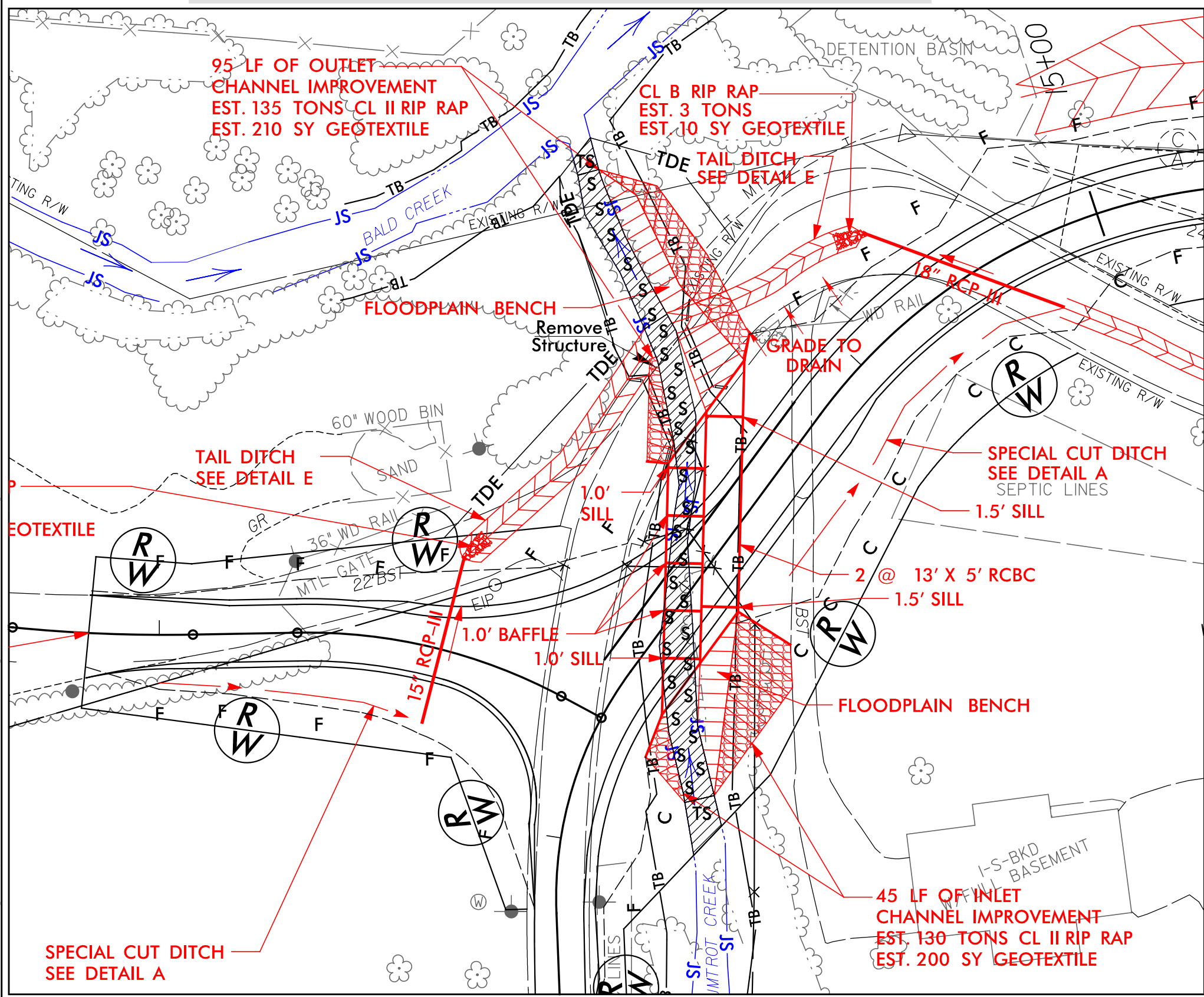


PAVEMENT REMOVAL

- FOR -L- PROFILE, SEE SHEET NO. 5
- FOR -DRV1- PROFILE, SEE SHEET NO. 5
- FOR -DRV2- PROFILE, SEE SHEET NO. 5
- FOR STRUCTURE PLANS, SEE SHEET S-2 THRU S-??

WETLAND AND SURFACE WATER IMPACTS PERMIT

PROJECT REFERENCE NO. <i>B-4848</i>	SHEET NO. 4A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
PERMIT DRAWING SHEET 4 OF 6	



SPECIAL CUT DITCH
SEE DETAIL A

95 LF OF OUTLET
CHANNEL IMPROVEMENT
EST. 135 TONS CL II RIP RAP
EST. 210 SY GEOTEXTILE

CL B RIP RAP
EST. 3 TONS
EST. 10 SY GEOTEXTILE

TAIL DITCH
SEE DETAIL E

FLOODPLAIN BENCH

Remove
Structure

GRADE TO
DRAIN

TAIL DITCH
SEE DETAIL E

SPECIAL CUT DITCH
SEE DETAIL A
SEPTIC LINES

1.5' SILL

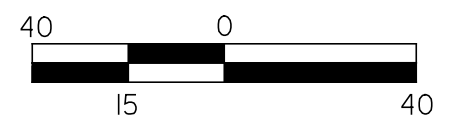
2 @ 13' X 5' RCBC
1.5' SILL

1.0' SILL

1.0' SILL

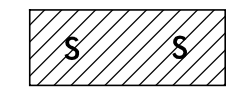
FLOODPLAIN BENCH

45 LF OF INLET
CHANNEL IMPROVEMENT
EST. 130 TONS CL II RIP RAP
EST. 200 SY GEOTEXTILE

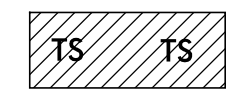


ENLARGED
PLAN VIEW
SITE 1

LEGEND



DENOTES PERMANENT
IMPACTS IN SURFACE WATER



DENOTES TEMPORARY
IMPACTS IN SURFACE WATER

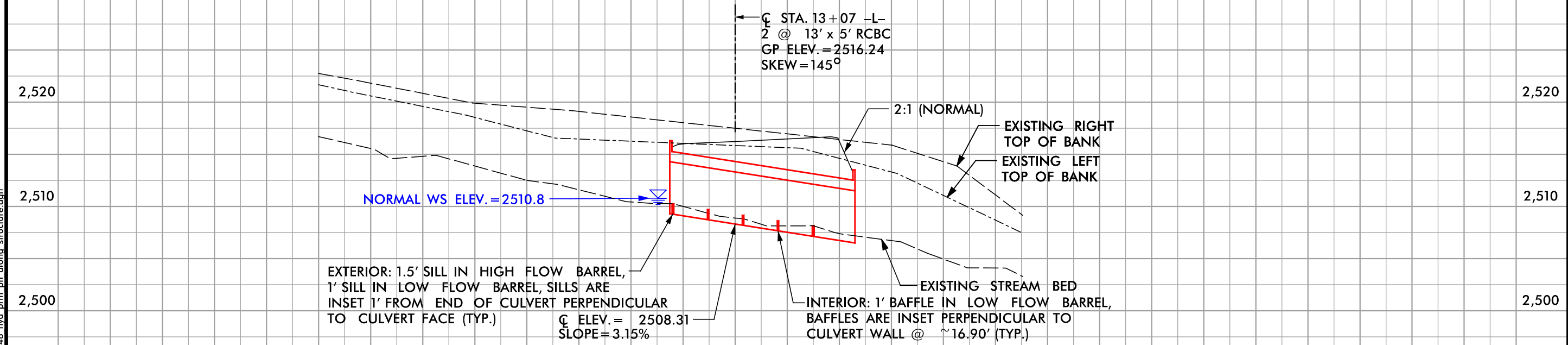
4/19/2017
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R:\5.0 PROJECT DEVELOPMENT\5.2 Work in Progress\Hydraulics\PERMITS\Environmental\Drawings\B4848_hyd_prm_wet_psh_04a.dgn

PROJECT REFERENCE	SHEET NO.
B-4848 - YANCEY 3	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
PERMIT DRAWING SHEET 5 OF 6	

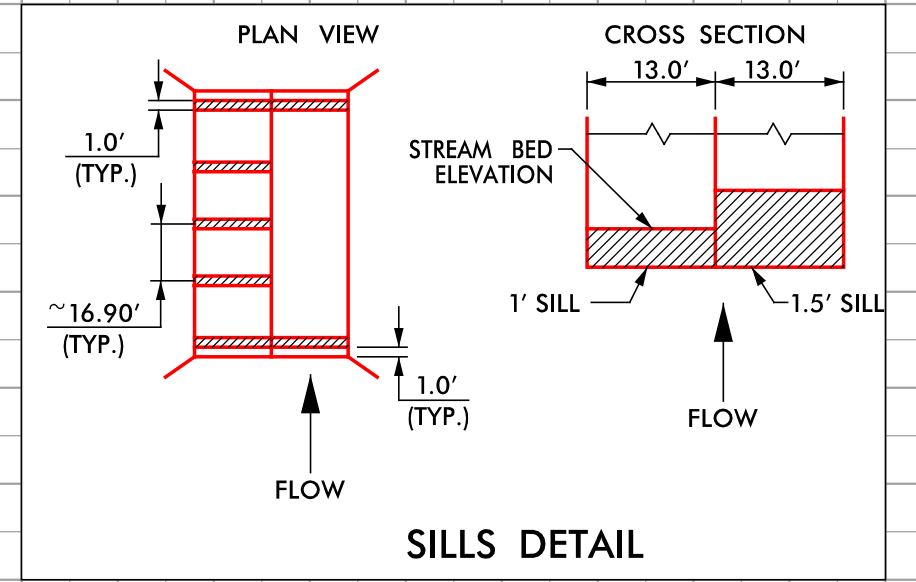


SITE 1

-L- 13+07



PROPOSED 2 @ 13' x 5' RCBC



NOTE: FOR CUT CONDITION, USE CLASS II RIP RAP FLOODPLAIN BENCH BORDER WITH NATURAL GROUND COVERED WITH COIR FIBER MAT INSIDE BORDER. IN FILL CONDITION, USE CLASS II RIP RAP FILL THROUGHOUT WITH NATIVE BED MATERIAL FILLING THE VOIDS ON TOP.

3/28/2017 ICA ENGINEERING, INC. R:\5.0 PROJECT DEVELOPMENT\5.2 Work in Progress\Hydraulics\PERMITS Environmental Drawings\B48.48 hyd prm pf along structure.dgn

250 200 150 100 50 0 50 100 150 200 250

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	FROM 12+61 TO 13+48 -L-	2 @ 13' X 5' RCBC						0.02		89		
1	FROM 12+02 TO 12+61 -L-	CHANNEL IMPROVEMENTS U/S						< 0.01	< 0.01	39	19	
1	FROM 13+48 TO 13+96 -L-	CHANNEL IMPROVEMENTS D/S						0.02	< 0.01	101	11	
TOTALS*:								0.05	< 0.01	229	30	0

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 MARCH 10, 2017
 YANCEY COUNTY
 B-4848
 38618.1.1
 SHEET 6 OF 6

09.08/199

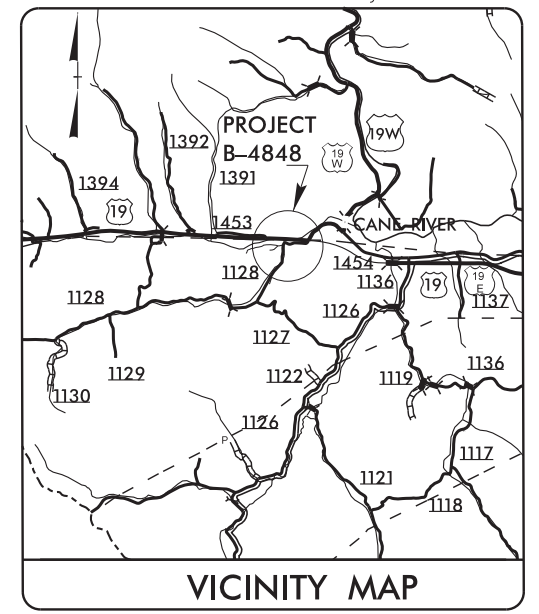
See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols
See Sheet 1C-1 & 1C-2 For Survey Control Sheets

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
YANCEY COUNTY

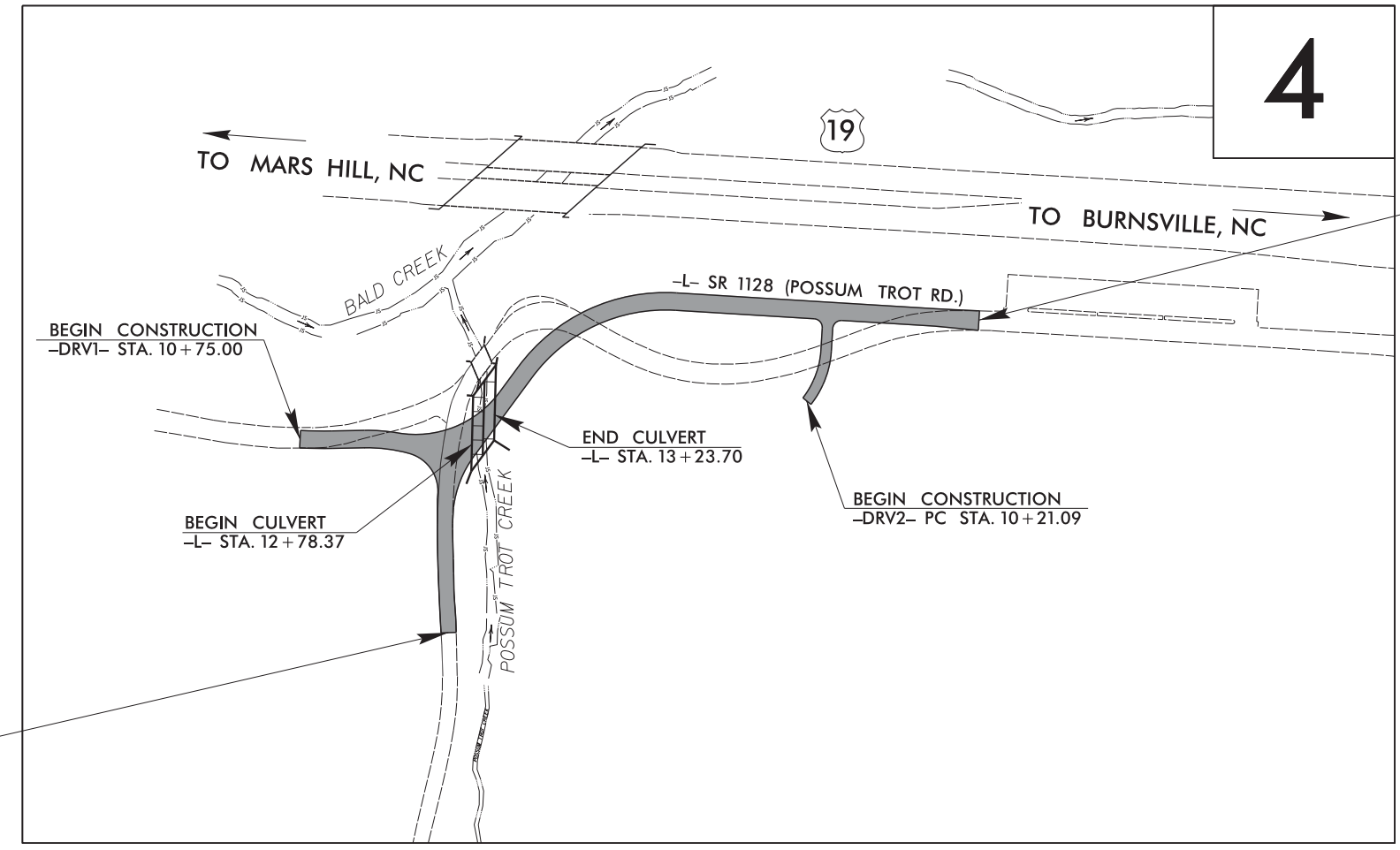
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4848	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
38618.1.1	BRZ-1128(7)	PE	
38618.1.2	BRZ-1128(7)	RW & UTILITIES	



CONTRACT: C203726 **TIP PROJECT: B-4848**



**LOCATION: REPLACE BRIDGE 3 OVER POSSUM TROT CREEK
ON SR 1128**
TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE



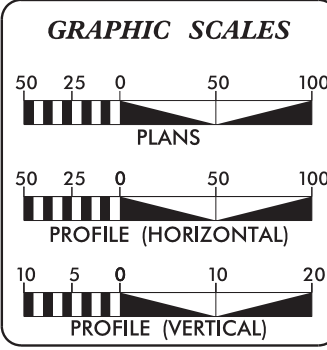
END TIP PROJECT B-4848
-L- STA. 19+25.00

BEGIN TIP PROJECT B-4848
-L- STA. 10+50.00



THIS IS NOT A CONTROL OF ACCESS PROJECT
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARY
CLEARING ON THIS PROJECT SHALL BE PREFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA

ADT 2016	= 1244
ADT 2040	= 1600
K	= 10 %
D	= 55 %
T	= 10 % *
V	= 25 MPH
* TTST	1% DUAL 9%
FUNC CLASS	= LOCAL SUBREGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP NO. B-4848	= 0.158 MILE
LENGTH OF STRUCTURE TIP NO. B-4848	= 0.008 MILE
TOTAL LENGTH OF TIP NO. B-4848	= 0.166 MILE

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JANUARY 26, 2017

LETTING DATE:
JANUARY 16, 2018

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

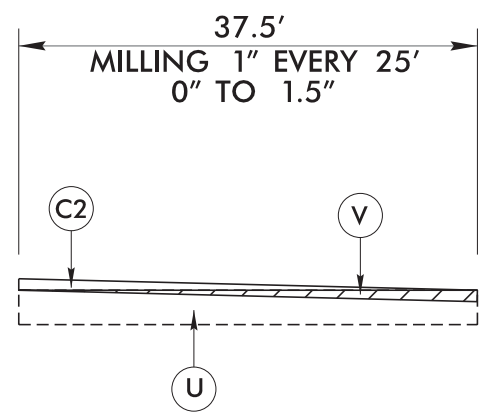
SIGNATURE: _____ P.E.



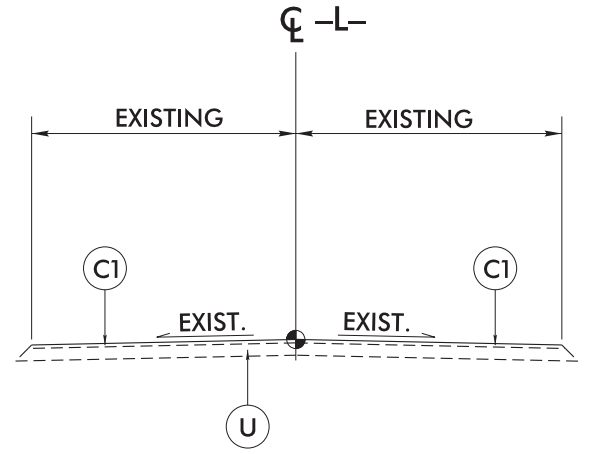
13-APR-2017 17:55
R:\Roadway\Proj\B4848_Rdy_tsh.dgn
\$\$\$\$\$SERNAME\$\$\$\$\$

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
E1	PROP. APPROX. 5½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING ASPHALT PAVEMENT, VARIABLE DEPTH
W	WEDGING

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



INCIDENTAL MILLING DETAIL



TYPICAL SECTION NO. 1

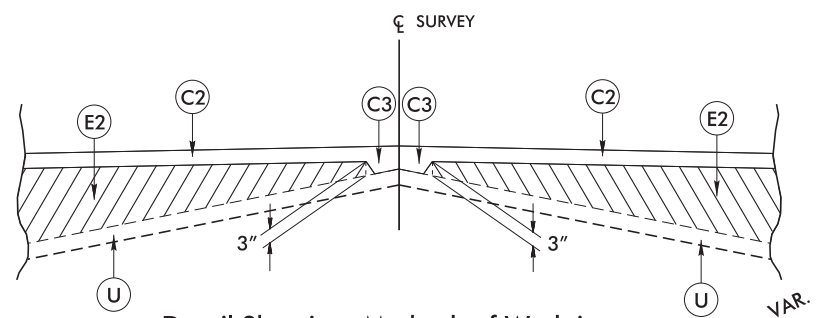
USE TYPICAL SECTION NO. 1 AS FOLLOWS

-L- STA 10+50.00 TO STA 11+75.00

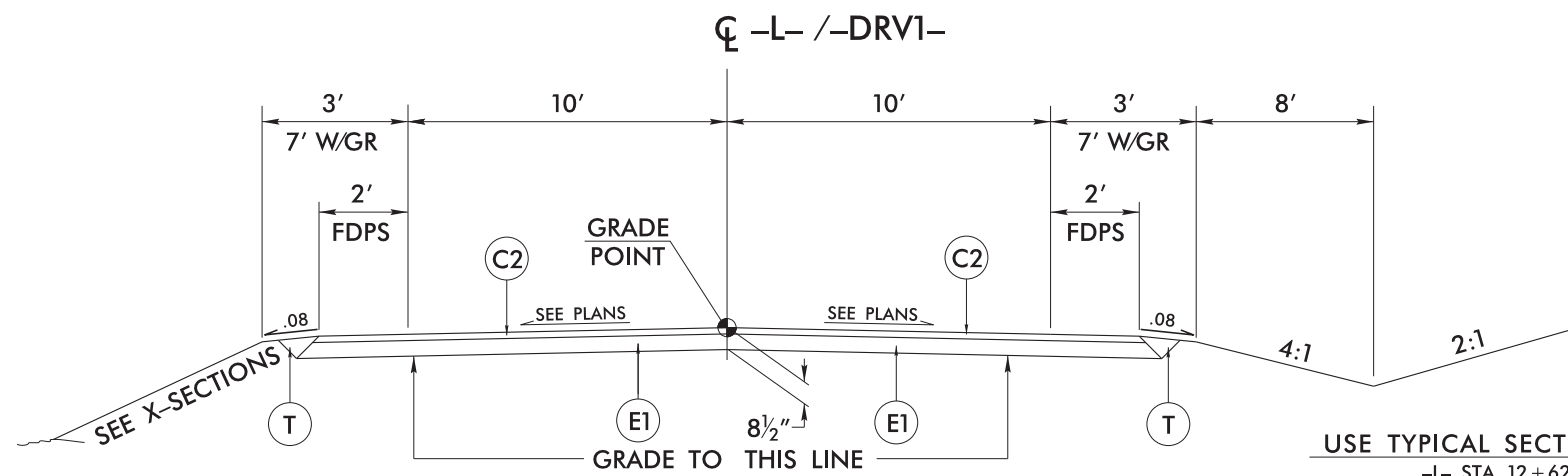
NOTE: MILLING REQUIRED FOR PAVEMENT TIE-IN
-L- STA. 10+50.00 TO STA. 11+75.00

NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 1
-L- STA. 10+50.00 TO STA. 11+00.00

NOTE: TRANSITION FROM EXISTING TO TYPICAL SECTION NO. 1
-L- STA. 19+00.00 TO STA. 19+25.00



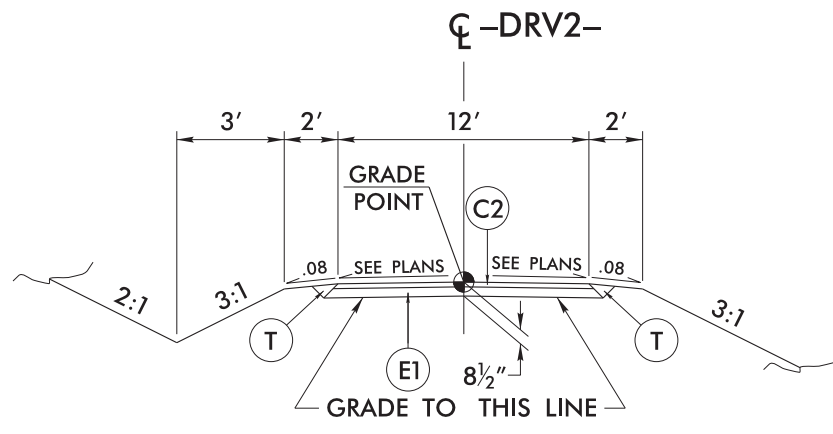
Detail Showing Method of Wedging



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 AS FOLLOWS

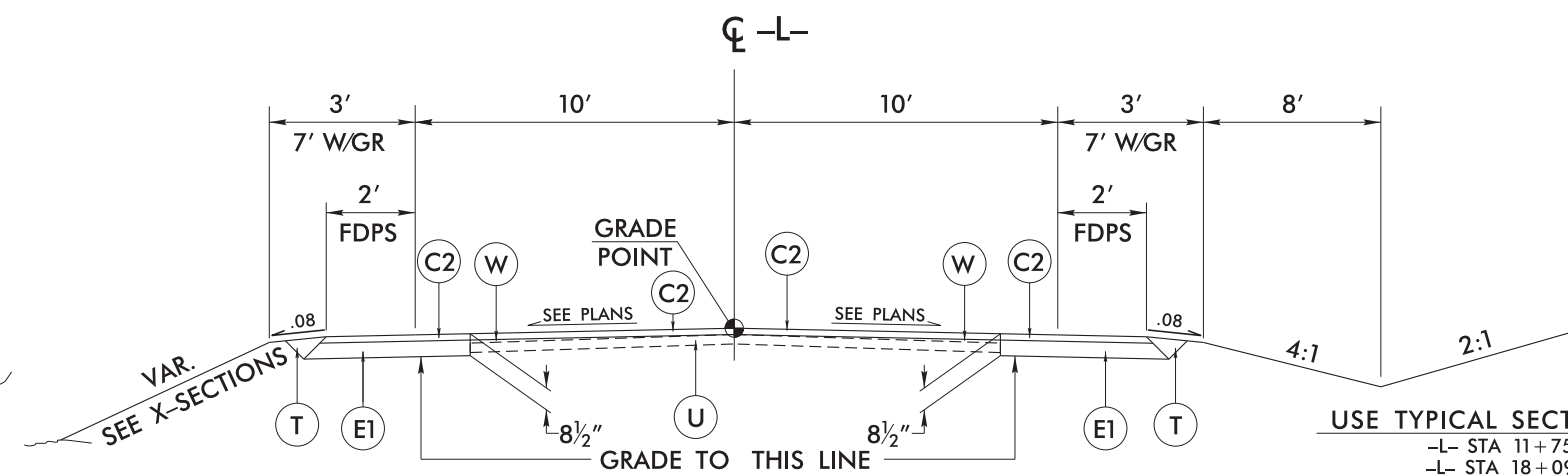
-L- STA 12+62.00 TO STA 18+09.00
-DRVI- STA 11+45.23 TO 12+51.97



TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4 AS FOLLOWS

-DRV2- STA 10+21.09 TO STA 11+19.76



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3 AS FOLLOWS

-L- STA 11+75.00 TO STA 12+62.00
-L- STA 18+09.00 TO STA 19+25.00

NOTE: MILLING REQUIRED FOR PAVEMENT TIE-IN
-L- STA. 18+50.00 TO STA. 19+25.00

-DRV1- STA 10+75.00 TO 11+45.23

PROJECT REFERENCE NO. B-4848		SHEET NO. 4	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

-L-

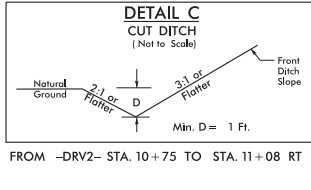
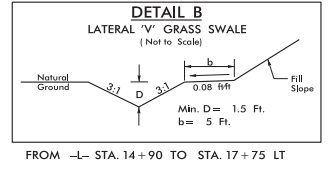
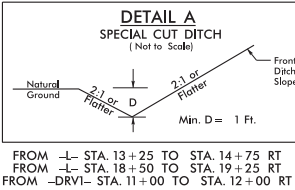
PI Sta 12+20.67 Δ = 38° 40' 52.8" (RT) D = 42' 26" 28.7" L = 91.4' T = 47.38' R = 135.00' SE = SEE PLANS	PI Sta 14+86.03 Δ = 57° 04' 07.2" (RT) D = 28' 38" 52.4" L = 199.21' T = 108.75' R = 200.00' SE = SEE PLANS
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-DRVI-

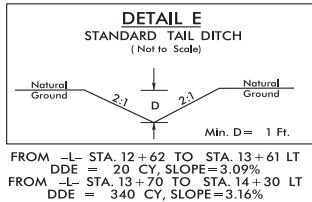
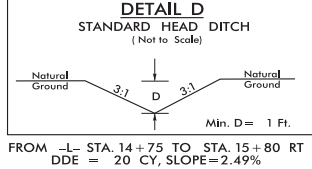
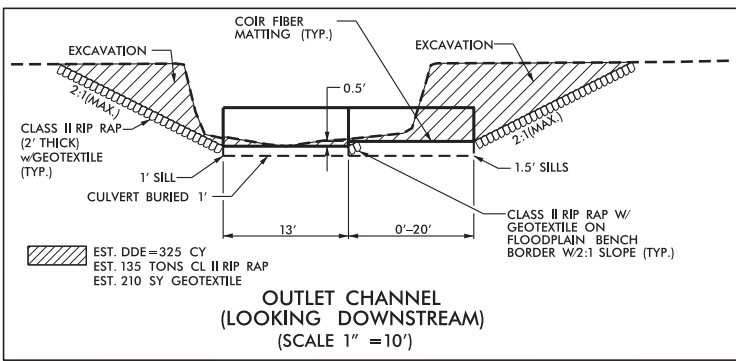
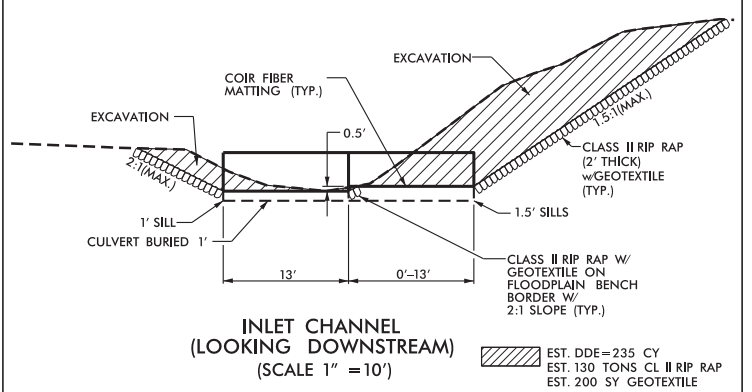
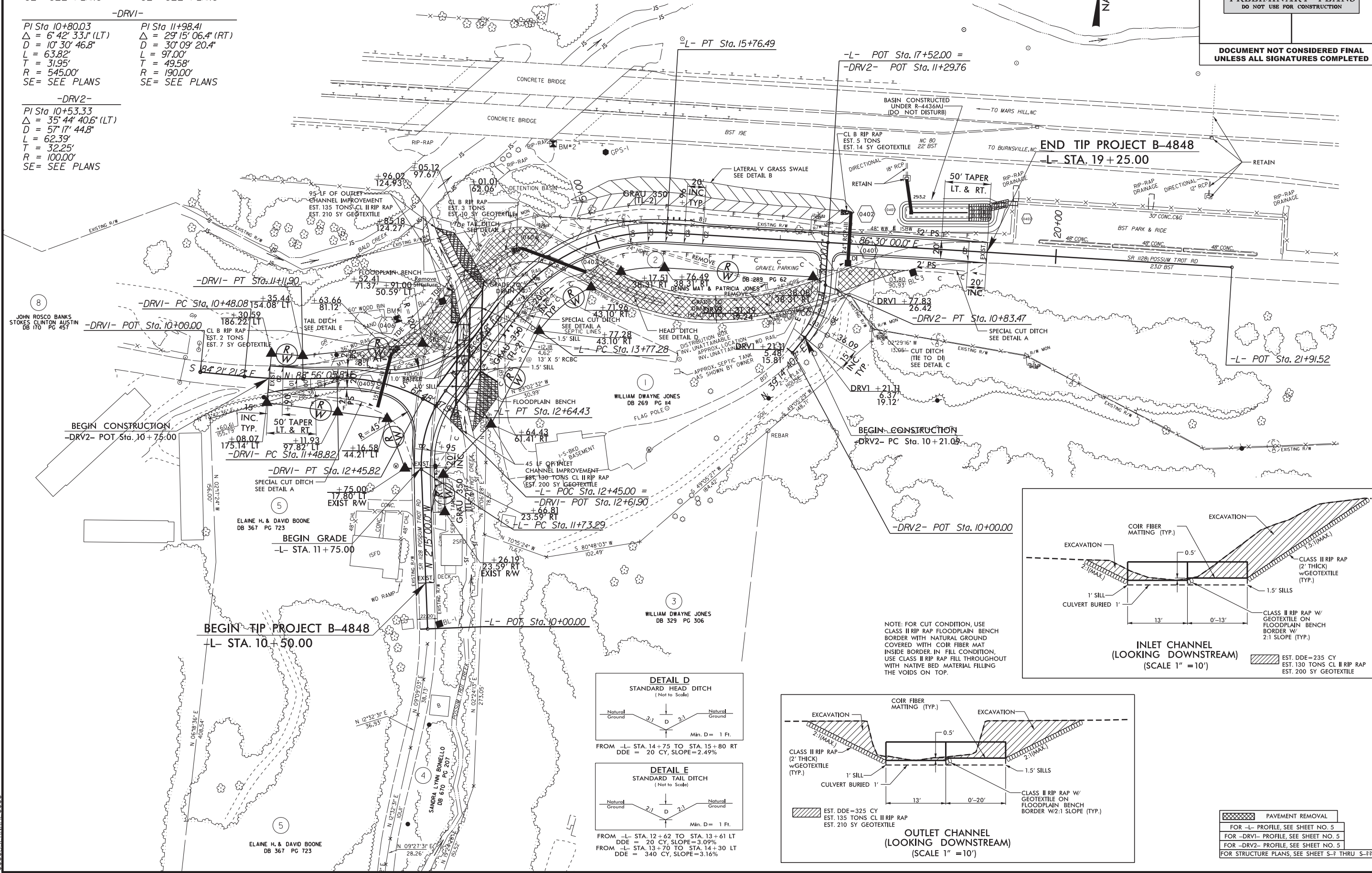
PI Sta 10+80.03 Δ = 6° 42' 33.1" (LT) D = 10' 30" 46.8" L = 63.82' T = 31.95' R = 545.00' SE = SEE PLANS	PI Sta 11+98.41 Δ = 29° 15' 06.4" (RT) D = 30' 09" 20.4" L = 97.00' T = 49.58' R = 190.00' SE = SEE PLANS
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-DRV2-

PI Sta 10+53.33 Δ = 35° 44' 40.6" (LT) D = 57' 17" 44.8" L = 62.39' T = 32.25' R = 100.00' SE = SEE PLANS



NAD 83/2011



PAVEMENT REMOVAL
FOR -L- PROFILE, SEE SHEET NO. 5
FOR -DRVI- PROFILE, SEE SHEET NO. 5
FOR -DRV2- PROFILE, SEE SHEET NO. 5
FOR STRUCTURE PLANS, SEE SHEET S-1 THRU S-7