




STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

ROY COOPER  
GOVERNOR

JAMES H. TROGDON, III  
SECRETARY

March 1, 2017

MEMORANDUM TO: Mr. Mark Stafford, P.E.  
Division 12 Engineer

FROM: Philip S. Harris, III, P.E., Manager   
for Natural Environment Section  
Project Development and Environmental Analysis Unit

SUBJECT: Catawba County; Widening of NC 16 at existing 2-lane section  
between SR 1895 and SR 1801.  
**R-3100 A & B** Federal Aid No. STP-16(4), WBS 34522.1.1

Attached are the US Army Corps of Engineers General Permit 31, and N.C. Division of Water Resources (NCDWR) Water Quality Certification. All environmental permits have been received for the construction of this project.

A copy of this permit package will be posted on the NCDOT website at:

<https://connect.ncdot.gov/resources/Environmental/Pages/default.aspx>

**Quick Links>Permit Documents> Issued Permits.**

cc: w/o attachment (see website for attachments)

Ms. Trish Beam, Division Environmental Officer  
Dr. Majed Al-Ghandour, P.E., Programming and TIP  
Ms. Brenda Moore, P.E., Roadway Design  
Mr. Ron Wilkins, P.E., Utilities Unit  
Mr. Bill Zerman, P.E., Hydraulics  
Mr. Tom Koch, P.E., Structure Design  
Mr. Mark Staley, Roadside Environmental  
Mr. Ron Hancock, P.E., State Roadway Construction Engineer  
Mr. Zahid Baloch, P.E., PDEA

# **PROJECT COMMITMENTS**

T.I.P Project No. R-3100  
Widening of NC 16 at existing two-lane section between SR 1895 and SR 1801  
Catawba County  
Federal Aid Project No. STP-16(4)  
WBS Element 34522.1.1

## **COMMITMENTS FROM PROJECT DEVELOPMENT AND DESIGN**

### **Division Construction**

NCDOT's Design Standards for Sensitive Watersheds will be implemented for the portion of the project that drains to Maiden Creek.

### **Project Development and Environmental Analysis Unit/Natural Environmental Unit - Northern long-eared bat**

NCDOT has determined that the proposed action does not require separate consultation on the grounds that the proposed action is consistent with the final Section 4(d) rule, codified at 50 C.F.R. § 17.40(o) and effective February 16, 2016. NCDOT may presume its determination is informed by best available Information and consider Section 7 responsibilities fulfilled for NLEB.

## **COMMITMENTS FROM PERMITTING**

### **Division Construction – Monitoring at Site 2**

As Per Condition #2 of the 404 Permit, the stream relocation associated with R-3100B Sites 2 & 2a shall be visually monitored with photo stations for at least two bankfull flow events occurring in separate calendar years to ensure channel stability post construction.

# U.S. ARMY CORPS OF ENGINEERS WILMINGTON DISTRICT

Action Id. SAW-2009-00902County: Catawba CountyU.S.G.S. Quad: Newton, NC-Quad

## GENERAL PERMIT (REGIONAL AND NATIONWIDE) VERIFICATION

Permittee: NC Dept. of Transportation  
Philip Harris  
 Address: 1598 Mail Service Center  
Raleigh, NC, 27699  
 Telephone Number: 919-707-6157  
 E-mail: maturchy@ncdot.gov

Size (acres) 8.2 miles Nearest Town Newton  
 Nearest Waterway to Smyre Creek, Bee Branch, Maiden Creek and South Fork Creek  
 River Basin Upper Catawba & South Fork Catawba Watersheds; Santee Basin  
 USGS HUC 03050101 & 03050102 Coordinates Latitude: 35.618385 Longitude: -81.133195

Location description: This proposed widening of NC 16 is 8.2 miles in length and is located from SR1801 (Claremont Road) to SR1895 (Tower Road) near Newton, Catawba County, North Carolina.

Description of projects area and activity: This verification authorizes the permanent impacts of 2,386 linear feet (lf) of stream (1,713 lf loss of water and 673 lf bank stabilization or benching), 537 lf of temporary stream impacts and 0.20 acre of permanent wetland impacts associated with the widening of NC16 in order to improve traffic flow and increase safety.

Applicable Law(s): ☒ Section 404 (Clean Water Act, 33 USC 1344)  
☐ Section 10 (Rivers and Harbors Act, 33 USC 403)

Authorization: Nationwide/General Permit Number: **GP 198200031 NC DOT Bridges, Widening Projects, Interchange Improvements (authorized 2015)**

### SEE ATTACHED NWP GENERAL, REGIONAL, AND/OR SPECIAL CONDITIONS

**Your work is authorized by the above referenced permit provided it is accomplished in strict accordance with the enclosed Conditions, your application signed and dated 2/24/2017, the enclosed plans and the updated mitigation plan received via email on 2/27/2017. Any violation of the attached conditions or deviation from your submitted plans may subject the permittee to a stop work order, a restoration order, a Class I administrative penalty, and/or appropriate legal action.**

This verification will remain valid until the expiration date identified below unless the nationwide authorization is modified, suspended or revoked. If, prior to the expiration date identified below, the nationwide permit authorization is reissued and/or modified, this verification will remain valid until the expiration date identified below, provided it complies with all requirements of the modified nationwide permit. If the nationwide permit authorization expires or is suspended, revoked, or is modified, such that the activity would no longer comply with the terms and conditions of the nationwide permit, activities which have commenced (i.e., are under construction) or are under contract to commence in reliance upon the nationwide permit, will remain authorized provided the activity is completed within twelve months of the date of the nationwide permit's expiration, modification or revocation, unless discretionary authority has been exercised on a case-by-case basis to modify, suspend or revoke the authorization.

Activities subject to Section 404 (as indicated above) may also require an individual Section 401 Water Quality Certification. You should contact the NC Division of Water Resources (telephone 919-807-6300) to determine Section 401 requirements.

For activities occurring within the twenty coastal counties subject to regulation under the Coastal Area Management Act (CAMA), prior to beginning work you must contact the N.C. Division of Coastal Management **Morehead City, NC, at (252) 808-2808.**

This Department of the Army verification does not relieve the permittee of the responsibility to obtain any other required Federal, State or local approvals/permits.

If there are any questions regarding this verification, any of the conditions of the Permit, or the Corps of Engineers regulatory program, please contact **Steve Kichefski at 828-271-7980 x234 or [steven.l.kichefski@usace.army.mil](mailto:steven.l.kichefski@usace.army.mil)**.

Corps Regulatory Official: KICHEFSKI.STEVEN.L.1386908 539 Digitally signed by KICHEFSKI.STEVEN.L.1386908539  
 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=KICHEFSKI.STEVEN.L.1386908539 Date: 2/28/2017  
 Date: 2017.02.28 23:57:25 -05'00'

**Determination of Jurisdiction:**

- A. ☐ There are **waters, including wetlands**, on the above described project area that may be subject to Section 404 of the Clean Water Act (CWA) (33 USC § 1344) and/or Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403). This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331). However, you may request an approved JD, which is an appealable action, by contacting the Corps district for further instruction. Please note, if work is authorized by either a general or nationwide permit, and you wish to request an appeal of an approved JD, the appeal must be received by the Corps and the appeal process concluded prior to the commencement of any work in waters of the United States and prior to any work that could alter the hydrology of waters of the United States.
- B. ☐ There are Navigable Waters of the United States within the above described project area subject to the permit requirements of Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403) and Section 404 of the Clean Water Act (CWA) (33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.
- C. ☒ There are **waters, including wetlands**, within the above described project area that are subject to the permit requirements of Section 404 of the Clean Water Act (CWA) (33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.
- D. ☒ The jurisdictional areas within the above described project area have been identified under a previous action. Please reference jurisdictional determination issued **12/1/2009**. Action ID: **SAW-2009-00902**.

**Basis For Determination:** The project area contains wetlands as determined by the 1987 Corps of Engineers Wetland Delineation Manual and the Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Eastern Mountain and Piedmont Region. These wetlands are adjacent to stream channels located on the property that exhibit indicators of ordinary high water marks. The stream channels within the project area are unnamed tributaries (UT's) to Smyre Creek, Bee Branch, Maiden Creek and South Fork Creek which flow into the South Fork Catawba Watershed (HUC:03050102) or Upper Catawba Watershed (HUC:03050101); Santee Basin. Both waterways flow to the Atlantic Ocean via the Catawba River and the Santee-Cooper River. The Catawba River is a Section 10 Navigable-In-Fact water starting at the Mountain Island Lake Dam.

**Remarks: None.**

**E. Attention USDA Program Participants**

This delineation/determination has been conducted to identify the limits of Corps' Clean Water Act jurisdiction for the particular site identified in this request. The delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA Program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

**F. Appeals Information (This information applies only to approved jurisdiction determinations as indicated in B and C above).**

This correspondence constitutes an approved jurisdiction determination for the above described site. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and request for appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the following address:

US Army Corps of Engineers  
South Atlantic Division  
Attn: Jason Steele, Review Officer  
60 Forsyth Street SW, Room 10M15  
Atlanta, Georgia 30303-8801  
Phone: (404) 562-5137

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by **4/28/2017**.



**SAW-2009-00902**

**\*\*It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this correspondence.\*\***

Corps Regulatory Official: **KICHEFSKI.STEVEN.L.1386908539**  
**Steve Kichefski**

Digitally signed by KICHEFSKI.STEVEN.L.1386908539  
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA,  
cn=KICHEFSKI.STEVEN.L.1386908539  
Date: 2017.02.28 23:58:06 -05'00'

Date of JD: **2/28/2017**

Expiration Date of JD: **2/28/2022**

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the Customer Satisfaction Survey located at [http://corpsmapu.usace.army.mil/cm\\_apex/f?p=136:4:0](http://corpsmapu.usace.army.mil/cm_apex/f?p=136:4:0)

Copy furnished (via email):

Agent: **Division of Water Resources**  
**Ms. Donna Hood**  
Address: **610 E. Center Ave.**  
**Mooreville, NC 28115**  
Telephone Number: **704-663-1699**  
E-mail: **Donna.Hood@ncdenr.gov**

**Special Conditions**

- 1. In order to compensate for impacts associated with this permit, mitigation shall be provided in accordance with the provisions outlined on the most recent version of the attached Compensatory Mitigation Responsibility Transfer Form. The requirements of this form, including any special conditions listed on this form, are hereby incorporated as special conditions of this permit authorization.**
- 2. The stream relocation associated with R-3100B Sites 2 & 2a shall be visually monitored with photo stations for at least two bankfull flow events occurring in separate calendar years to ensure channel stability post construction.**
- 3. Please be advised that if additional impacts to waters of the U.S., either on this property or on/adjacent to this property and associated with this project/activity, are proposed at a later date, those impacts will be combined with the current impacts to waters of the U.S. and will be reviewed cumulatively. Generally, compensatory mitigation will be required if individual or cumulative (i.e., past and present) losses or degradation of waters of the U.S. are greater than 150 linear feet of perennial or intermittent stream channel and/or 0.1 acre of wetland. Additionally, cumulative impacts that result in the loss or degradation of greater than 300 linear feet of perennial or intermittent\* stream channel, and/or 0.5 acre of wetland, will be processed under an Individual Permit. This verification of the use of the Nationwide Permit Program for this project does not imply that this office will necessarily approve any future proposal to impact waters of the U.S. on this property and/or associated with this project/activity.**

**\* The District Commander has the ability to waive the 300 linear foot limit for intermittent streams on a case-by-case basis. All requests for waiver must be in writing and shall include rationale for the request.**

Action ID Number: SAW-2009-00902

County: Catawba County

Permittee: NC Dept. of Transportation, Philip Harris

Project Name: NCDOT-NC16-R3100-Div12

Date Verification Issued: 2/28/2017

Project Manager: Steve Kichefski

Upon completion of the activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the following address:

US ARMY CORPS OF ENGINEERS  
WILMINGTON DISTRICT  
Attn: Steve Kichefski  
Asheville Regulatory Office  
U.S Army Corps of Engineers  
151 Patton Avenue, Room 208  
Asheville, North Carolina 28801

Please note that your permitted activity is subject to a compliance inspection by a U. S. Army Corps of Engineers representative. Failure to comply with any terms or conditions of this authorization may result in the Corps suspending, modifying or revoking the authorization and/or issuing a Class I administrative penalty, or initiating other appropriate legal action.

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and condition of the said permit, and required mitigation was completed in accordance with the permit conditions.

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Signature of Permittee

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Date

**U.S. ARMY CORPS OF ENGINEERS**  
**Wilmington District**  
**Compensatory Mitigation Responsibility Transfer Form**

**Permittee:** NCDOT/ Attn: Philip Harris  
**Project Name:** NCDOT-NC16-R3100-Div12

**Action ID:** SAW-2009-00902  
**County:** Catawba

**Instructions to Permittee:** The Permittee must provide a copy of this form to the Mitigation Sponsor, either an approved Mitigation Bank or the North Carolina Division of Mitigation Services (NCDMS), who will then sign the form to verify the transfer of the mitigation responsibility. Once the Sponsor has signed this form, it is the Permittee's responsibility to ensure that to the U.S. Army Corps of Engineers (USACE) Project Manager identified on page two is in receipt of a signed copy of this form before conducting authorized impacts, unless otherwise specified below. If more than one mitigation Sponsor will be used to provide the mitigation associated with the permit, or if the impacts and/or the mitigation will occur in more than one 8-digit Hydrologic Unit Code (HUC), multiple forms will be attached to the permit, and the separate forms for each Sponsor and/or HUC must be provided to the appropriate mitigation Sponsors.

**Instructions to Sponsor:** The Sponsor must verify that the mitigation requirements (credits) shown below are available at the identified site. By signing below, the Sponsor is accepting full responsibility for the identified mitigation, regardless of whether or not they have received payment from the Permittee. Once the form is signed, the Sponsor must update the bank ledger and provide a copy of the signed form and the updated bank ledger to the Permittee, the USACE Project Manager, and the Wilmington District Mitigation Office (see contact information on page 2). The Sponsor must also comply with all reporting requirements established in their authorizing instrument.

**Permitted Impacts and Compensatory Mitigation Requirements:**

**Permitted Impacts Requiring Mitigation\***

**8-digit HUC and Basin:** 03050102, Catawba River Basin

Stream Impacts (linear feet)			Wetland Impacts (acres)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-Riverine	Non-Riparian	Coastal
1223						

\*If more than one mitigation sponsor will be used for the permit, only include impacts to be mitigated by this sponsor.

**Compensatory Mitigation Requirements:**

**8-digit HUC and Basin:** 03050102, Catawba River Basin

Stream Mitigation (credits)			Wetland Mitigation (credits)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-Riverine	Non-Riparian	Coastal
2111						

**Mitigation Site Debited:** NCDMS

(List the name of the bank to be debited. For umbrella banks, also list the specific site. For NCDMS, list NCDMS. If the NCDMS acceptance letter identifies a specific site, also list the specific site to be debited).

***Section to be completed by the Mitigation Sponsor***

**Statement of Mitigation Liability Acceptance:** I, the undersigned, verify that I am authorized to approve mitigation transactions for the Mitigation Sponsor shown below, and I certify that the Sponsor agrees to accept full responsibility for providing the mitigation identified in this document (see the table above), associated with the USACE Permittee and Action ID number shown. I also verify that released credits (and/or advance credits for NCDMS), as approved by the USACE, are currently available at the mitigation site identified above. Further, I understand that if the Sponsor fails to provide the required compensatory mitigation, the USACE Wilmington District Engineer may pursue measures against the Sponsor to ensure compliance associated with the mitigation requirements.

**Mitigation Sponsor Name:** \_\_\_\_\_

**Name of Sponsor's Authorized Representative:** \_\_\_\_\_

\_\_\_\_\_  
**Signature of Sponsor's Authorized Representative**

\_\_\_\_\_  
**Date of Signature**

**USACE Wilmington District  
Compensatory Mitigation Responsibility Transfer Form, Page 2**

**Conditions for Transfer of Compensatory Mitigation Credit:**

- Once this document has been signed by the Mitigation Sponsor and the USACE is in receipt of the signed form, the Permittee is no longer responsible for providing the mitigation identified in this form, though the Permittee remains responsible for any other mitigation requirements stated in the permit conditions.
- Construction within jurisdictional areas authorized by the permit identified on page one of this form can begin only after the USACE is in receipt of a copy of this document signed by the Sponsor, confirming that the Sponsor has accepted responsibility for providing the mitigation requirements listed herein. For authorized impacts conducted by the North Carolina Department of Transportation (NCDOT), construction within jurisdictional areas may proceed upon permit issuance; however, a copy of this form signed by the Sponsor must be provided to the USACE within 30 days of permit issuance. NCDOT remains fully responsible for the mitigation until the USACE has received this form, confirming that the Sponsor has accepted responsibility for providing the mitigation requirements listed herein.
- Signed copies of this document must be retained by the Permittee, Mitigation Sponsor, and in the USACE administrative records for both the permit and the Bank/ILF Instrument. It is the Permittee's responsibility to ensure that the USACE Project Manager (address below) is provided with a signed copy of this form.
- If changes are proposed to the type, amount, or location of mitigation after this form has been signed and returned to the USACE, the Sponsor must obtain case-by-case approval from the USACE Project Manager and/or North Carolina Interagency Review Team (NCIRT). If approved, higher mitigation ratios may be applied, as per current District guidance and a new version of this form must be completed and included in the USACE administrative records for both the permit and the Bank/ILF Instrument.

**Comments/Additional Conditions:** MRTF 2 of 2 for this project (for HUC 03050102)

This form is not valid unless signed below by the USACE Project Manager and by the Mitigation Sponsor on Page 1. ***Once signed, the Sponsor should provide copies of this form along with an updated bank ledger to: 1) the Permittee, 2) the USACE Project Manager at the address below, and 3) the Wilmington District Mitigation Office, Attn: Todd Tugwell, 11405 Falls of Neuse Road, Wake Forest, NC 27587 (email: todd.tugwell@usace.army.mil).*** Questions regarding this form or any of the permit conditions may be directed to the USACE Project Manager below.

**USACE Project Manager:** Steve Kichefski  
**USACE Field Office:** Asheville Regulatory Field Office  
US Army Corps of Engineers  
151 Patton Avenue, Room 208  
Asheville, North Carolina 28801-5006  
**Email:** [steven.l.kichefski@usace.army.mil](mailto:steven.l.kichefski@usace.army.mil)

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ou=USA, cn=KICHEFSKI.STEVEN.L.1386908539  
Date: 2017.02.28 18:53:50 -05'00'

**USACE Project Manager Signature**

**February 28, 2017  
Date of Signature**

Current Wilmington District mitigation guidance, including information on mitigation ratios, functional assessments, and mitigation bank location and availability, and credit classifications (including stream temperature and wetland groupings) is available at <http://ribits.usace.army.mil>.

**U.S. ARMY CORPS OF ENGINEERS**  
**Wilmington District**  
**Compensatory Mitigation Responsibility Transfer Form**

**Permittee:** NCDOT/ Attn: Philip Harris  
**Project Name:** NCDOT-NC16-R3100-Div12

**Action ID:** SAW-2009-00902  
**County:** Catawba

**Instructions to Permittee:** The Permittee must provide a copy of this form to the Mitigation Sponsor, either an approved Mitigation Bank or the North Carolina Division of Mitigation Services (NCDMS), who will then sign the form to verify the transfer of the mitigation responsibility. Once the Sponsor has signed this form, it is the Permittee's responsibility to ensure that to the U.S. Army Corps of Engineers (USACE) Project Manager identified on page two is in receipt of a signed copy of this form before conducting authorized impacts, unless otherwise specified below. If more than one mitigation Sponsor will be used to provide the mitigation associated with the permit, or if the impacts and/or the mitigation will occur in more than one 8-digit Hydrologic Unit Code (HUC), multiple forms will be attached to the permit, and the separate forms for each Sponsor and/or HUC must be provided to the appropriate mitigation Sponsors.

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**Permitted Impacts and Compensatory Mitigation Requirements:**

**Permitted Impacts Requiring Mitigation\***

**8-digit HUC and Basin:** 03050101, Catawba River Basin

Stream Impacts (linear feet)			Wetland Impacts (acres)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-Riverine	Non-Riparian	Coastal
490				0.20		

\*If more than one mitigation sponsor will be used for the permit, only include impacts to be mitigated by this sponsor.

**Compensatory Mitigation Requirements:**

**8-digit HUC and Basin:** 03050101, Catawba River Basin

Stream Mitigation (credits)			Wetland Mitigation (credits)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-Riverine	Non-Riparian	Coastal
980				0.40		

**Mitigation Site Debited:** NCDMS

(List the name of the bank to be debited. For umbrella banks, also list the specific site. For NCDMS, list NCDMS. If the NCDMS acceptance letter identifies a specific site, also list the specific site to be debited).

***Section to be completed by the Mitigation Sponsor***

**Statement of Mitigation Liability Acceptance:** I, the undersigned, verify that I am authorized to approve mitigation transactions for the Mitigation Sponsor shown below, and I certify that the Sponsor agrees to accept full responsibility for providing the mitigation identified in this document (see the table above), associated with the USACE Permittee and Action ID number shown. I also verify that released credits (and/or advance credits for NCDMS), as approved by the USACE, are currently available at the mitigation site identified above. Further, I understand that if the Sponsor fails to provide the required compensatory mitigation, the USACE Wilmington District Engineer may pursue measures against the Sponsor to ensure compliance associated with the mitigation requirements.

**Mitigation Sponsor Name:** \_\_\_\_\_

**Name of Sponsor's Authorized Representative:** \_\_\_\_\_

\_\_\_\_\_  
**Signature of Sponsor's Authorized Representative**

\_\_\_\_\_  
**Date of Signature**

**USACE Wilmington District  
Compensatory Mitigation Responsibility Transfer Form, Page 2**

**Conditions for Transfer of Compensatory Mitigation Credit:**

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- Signed copies of this document must be retained by the Permittee, Mitigation Sponsor, and in the USACE administrative records for both the permit and the Bank/ILF Instrument. It is the Permittee's responsibility to ensure that the USACE Project Manager (address below) is provided with a signed copy of this form.
- If changes are proposed to the type, amount, or location of mitigation after this form has been signed and returned to the USACE, the Sponsor must obtain case-by-case approval from the USACE Project Manager and/or North Carolina Interagency Review Team (NCIRT). If approved, higher mitigation ratios may be applied, as per current District guidance and a new version of this form must be completed and included in the USACE administrative records for both the permit and the Bank/ILF Instrument.

**Comments/Additional Conditions:** MRTF 1 of 2 for this project (for HUC 03050101)

This form is not valid unless signed below by the USACE Project Manager and by the Mitigation Sponsor on Page 1. ***Once signed, the Sponsor should provide copies of this form along with an updated bank ledger to: 1) the Permittee, 2) the USACE Project Manager at the address below, and 3) the Wilmington District Mitigation Office, Attn: Todd Tugwell, 11405 Falls of Neuse Road, Wake Forest, NC 27587 (email: todd.tugwell@usace.army.mil).*** Questions regarding this form or any of the permit conditions may be directed to the USACE Project Manager below.

**USACE Project Manager:** Steve Kichefski  
**USACE Field Office:** Asheville Regulatory Field Office  
US Army Corps of Engineers  
151 Patton Avenue, Room 208  
Asheville, North Carolina 28801-5006  
**Email:** [steven.l.kichefski@usace.army.mil](mailto:steven.l.kichefski@usace.army.mil)

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ou=USA, cn=KICHEFSKI.STEVEN.L.1386908539  
Date: 2017.02.28 18:50:19 -05'00'

**USACE Project Manager Signature**

**February 28, 2017  
Date of Signature**

Current Wilmington District mitigation guidance, including information on mitigation ratios, functional assessments, and mitigation bank location and availability, and credit classifications (including stream temperature and wetland groupings) is available at <http://ribits.usace.army.mil>.

DEPARTMENT OF THE ARMY  
Wilmington District, Corps of Engineers  
69 Darlington Avenue  
Wilmington, North Carolina 28403-1343  
April 30, 2015

**Regional General Permit No. 198200031**

**Name of Permittee: North Carolina Department of Transportation**

**Effective Date: April 30, 2015**

**Expiration Date: April 30, 2020**

**DEPARTMENT OF THE ARMY  
REGIONAL GENERAL PERMIT**

A regional general permit (RGP) to perform work in or affecting navigable waters of the United States and waters of the United States, upon recommendation of the Chief of Engineers, pursuant to Section 10 of the Rivers and Harbors Act of March 3, 1899 (33 U.S.C. 403), and Section 404 of the Clean Water Act (33 U.S.C. 1344), is hereby modified and re-issued by authority of the Secretary of the Army by the

District Commander  
U.S. Army Engineer District, Wilmington  
Corps of Engineers  
69 Darlington Avenue  
Wilmington, North Carolina 28403-1343

**TO AUTHORIZE THE DISCHARGE OF DREDGED OR FILL MATERIAL IN WATERS OF THE UNITED STATES (U.S.), INCLUDING WETLANDS, ASSOCIATED WITH MAINTENANCE, REPAIR, AND CONSTRUCTION PROJECTS CONDUCTED BY THE VARIOUS DIVISIONS OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION (NCDOT) INCLUDING THE NCDOT DIVISION OF HIGHWAYS, RAIL, BICYCLE/PEDESTRIAN, ECT.**

Activities authorized are:

- a. Construction, maintenance, and repair of bridges, to include work on the approaches, where permanent impacts resulting in a loss of waters of the U.S. will be less than or equal to 500 linear feet (lf) of stream and/or one (1) acre of wetland/non-tidal open water for each single and complete linear project\*.
- b. Best-fit widening projects that have undergone interagency review and completed the current interagency Merger Process, which merges the requirements of the National Environmental Policy Act (NEPA) with those found within Section 404 of the Clean Water Act (CWA).



While there is no impact threshold for these widening projects, the Corps has the discretion to require an individual permit if it determines that the proposed impacts will have more than a minimal impact on the aquatic environment or on other environmental factors, or if the project would normally require an Environmental Impact Statement (EIS) under current Federal Highway Administration (FHWA) guidelines. Best-fit projects may include a small amount of new location roadway for components such as interchanges or intersections, provided the new location portion has been concurred upon by the merger team.

c. Minor widening projects, such as paving and/or widening secondary roads, or interchange improvements, when permanent impacts which result in a loss of waters of the U.S. from installation and/or extension of culverts and/or pipes will be less than or equal to 500 lf of stream and/or one (1) acre of wetland/non-tidal open water for each single and complete linear project\*.

d. Stream relocation(s) associated with projects identified in a-c above. Stream relocation lengths are to be evaluated independently and are not included within each respective maximum limit threshold for the authorized actions stated above.

***\*Single and complete linear project:*** A linear project is a project constructed for the purpose of getting people, goods, or services from a point of origin to a terminal point, which often involves multiple crossings of one or more waterbodies at separate and distant locations. The term “single and complete project” is defined as that portion of the total linear project proposed or accomplished by one owner/developer or partnership or other association of owners/developers that includes all crossings of a single water of the U.S. (i.e., a single waterbody) at a specific location. For linear projects crossing a single or multiple waterbodies several times at separate and distant locations, each crossing is considered a single and complete project for purposes of this RGP. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

Generally, off-site detours are preferred to avoid and minimize impacts to the human and natural environment. However, if an off-site detour is considered impracticable, then an on-site detour may be considered as a necessary component of the actions described above. Impacts from the detour may be considered temporary and may not require compensatory mitigation if the impacted area is restored to its pre-project condition after construction is complete. If the construction of a detour (on-site or off-site) includes standard undercutting methods, removal of all material and backfilling with suitable material is required.

#### 1. Special Conditions.

a. The applicant must submit a pre-construction notification (PCN) with specified attachments to the District Engineer and receive written verification from the Corps that the proposed work complies with this RGP prior to commencing any activity authorized by this RGP.

b. If the project will not impact a designated “Area of Environmental Concern” (AEC) in the twenty (20) counties of North Carolina covered by the North Carolina Coastal Area Management Act (CAMA), then a consistency submission is not required. If the project will impact a designated AEC and meets the definition of “development”, then the applicant must

obtain the required CAMA permit. Development activities may not commence until a copy of the approved CAMA permit is furnished to the appropriate Wilmington District Regulatory Field Office (Wilmington Field Office – 69 Darlington Avenue, Wilmington, NC 28403 or Washington Field Office – 2407 West 5th Street, Washington, NC 27889).

The twenty (20) CAMA counties in North Carolina include Beaufort, Bertie, Brunswick, Camden, Carteret, Chowan, Craven, Currituck, Dare, Gates, Hertford, Hyde, New Hanover, Onslow, Pamlico, Pasquotank, Pender, Perquimans, Tyrrell, and Washington.

c. Discharges into Waters of the U.S. designated by either the North Carolina Division of Marine Fisheries (NCDMF) or the North Carolina Wildlife Resources Commission (NCWRC) as anadromous fish spawning areas are prohibited during the period between February 1 and June 30, without prior written approval from NCDMF, NCWRC, National Marine Fisheries Service (NMFS), and the Corps. Discharges into waters of the U.S. designated by NCDMF as primary nursery areas and discharges into waters of the U.S. designated by NCWRC as primary nursery areas in inland waters shall be coordinated with NCDCM (per existing agreement with NCDMF) and NCWRC prior to being authorized by this RGP. Coordination with NCDCM and NCWRC may result in a required construction moratorium during periods of significant biological productivity or critical life stages.

The applicant should contact:

**NC Division of Marine Fisheries  
3441 Arendell Street  
Morehead City, NC 28557  
Telephone 252-726-7021  
or 800-682-2632**

**North Carolina Wildlife Resources Commission  
Habitat Conservation Program Manager  
1721 Mail Service Center  
Raleigh, NC 27699-1721  
Telephone (919) 733-7638**

d. This permit does not authorize the use of culverts in areas designated as anadromous fish spawning areas by the NCDMF or the NCWRC.

e. Waters of the U.S. designated as sturgeon spawning areas are excluded during the period between February 1 and June 30, without prior written approval from NMFS.

f. If the project is located within the twenty (20) counties of North Carolina designated as coastal counties by CAMA, then all pipe and culvert inverts will be buried at least one foot below normal bed elevation when they are placed within the Public Trust AEC and/or the Estuarine Waters AEC as designated by CAMA. If the project is not located within the twenty (20) counties of North Carolina designated as coastal counties by CAMA, then culvert inverts will be buried at least one foot below the bed of the stream for culverts greater than 48 inches in diameter. Culverts 48 inches in diameter or less shall be buried or placed on the stream bed as practicable and appropriate to maintain aquatic passage, and every effort shall be made to maintain the existing channel slope. The potential for destabilization of the channel and head cutting upstream should be considered in the placement of the culvert. A waiver from the depth specifications in this condition may be requested in writing. The waiver will only be issued if it can be demonstrated that the impacts of complying with this condition would result in more adverse impacts to the aquatic environment. Culverts placed in wetlands do not have to be buried.

g. No work shall be authorized by this RGP within the twenty coastal counties, as defined by the NCDCM, without prior consultation with NOAA Fisheries. For each activity reviewed by the Corps where it is determined that the activity may affect Essential Fish Habitat (EFH) for federally managed species, an EFH Assessment shall be prepared by the applicant and forwarded to the Corps and NOAA Fisheries for review and comment prior to authorization of work.

h. Discharges of dredged or fill material into waters of the U.S., including wetlands, must be minimized or avoided to the maximum extent practicable.

i. No activity may result in substantial permanent disruption of the movement of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area. The dimension, pattern, and profile of the stream above and below a pipe or culvert should not be modified by widening the stream channel or by reducing the depth of the stream in connection with the construction activity. It is acceptable to use rock vanes at culvert outlets to ensure, enhance, or maintain aquatic passage. Pre-formed scour holes are acceptable when designed for velocity reduction. The width, height, and gradient of a proposed opening should be such as to pass the average historical low flow and spring flow without adversely altering flow velocity. Spring flow should be determined from gauge data, if available. In the absence of such data, bankfull flow can be used as a comparable level. Where adjacent floodplain is available, flows exceeding bank-full should be accommodated by installing culverts at the floodplain elevation, if practicable. If multiple culverts are used, the construction of floodplain benches and/or sills to maintain base flow is required, if practicable.

j. Upon completion of any work authorized by this RGP, all temporary fills (to include culverts, etc.) will be completely removed from waters of the U.S. and the areas will be restored to preconstruction conditions, to include pre-project elevations and contours, restoring natural hydrology and stream corridors, and reestablishing native vegetation/riparian corridors. This work will be completed within 60 days of completion of project construction. If this timeframe occurs while a required moratorium of this permit is in effect, the temporary fill shall be removed in its entirety within 60 days of the moratorium end date. If vegetation cannot be planted due to the time of the year, all disturbed areas will be seeded with a native mix appropriate for the impacted area, and vegetation will be planted in the fall. A native seed mix may contain non-invasive small grain annuals (e.g. millet and rye grain) to ensure adequate cover while native vegetation becomes established. The PCN must include a restoration plan showing how all temporary fills and structures will be removed and how the area will be restored to pre-project conditions.

k. All activities authorized by this RGP shall, to the extent practicable, be conducted "in the dry", with barriers installed between work areas and aquatic habitat to protect that habitat from sediment, concrete, and other pollutants. Where concrete is utilized, measures will be taken to prevent live or fresh concrete, including bags of uncured concrete, from coming into contact with waters of the U.S. until the concrete has cured/hardened. All water in the work area that has been in contact with concrete shall only be returned to waters of the U.S. when it no longer poses a threat to aquatic organisms (concrete is set and cured).

l. In cases where new alignment approaches are to be constructed and the existing approach fill in waters of the U.S. is to be abandoned and no longer maintained as a roadway, the

abandoned fill shall be removed and the area will be restored to preexisting wetland/stream conditions and elevations, to include restoring natural hydrology and stream corridors, and reestablishing native vegetation/riparian corridors, to the extent practicable. This activity may qualify as compensatory mitigation credit for the project and will be assessed on a case-by-case basis in accordance with Special Conditions “q” and “r” below. A restoration plan detailing this activity will be required with the submittal of the PCN.

m. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and storm water management activities, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

n. The project must be implemented and/or conducted so that all reasonable and practicable measures to ensure that equipment, structures, fill pads, and work associated with the project do not adversely affect upstream and/or downstream reaches. Adverse effects include, but are not limited to, channel instability, flooding, and/or shoreline/streambank erosion. During construction, the permittee shall routinely monitor for these effects, cease all work if/when detected, take initial corrective measures to correct actively eroding areas, and notify the Corps immediately. Permanent corrective measures may require additional authorization from the Corps.

o. All PCNs will describe sedimentation and erosion control structures and measures proposed for placement in waters of the U.S. To the extent practicable, structures and measures should be depicted on maps, surveys or drawings showing location and impacts to jurisdictional wetlands and streams. In addition, appropriate soil and erosion control measures must be established and maintained during construction. All fills, temporary and permanent, must be adequately stabilized at the earliest practicable date to prevent erosion of fill material into adjacent waters or wetlands.

p. Before discharging dredged or fill material into waters of the U.S. in the twenty-five (25) mountain counties of North Carolina, the applicant will submit a PCN to the NCWRC and the Corps concurrently. The PCN shall summarize alternatives to conducting work in mountain trout waters considered during the planning process, detail why alternatives were or were not selected, and contain a compensatory mitigation plan for all unavoidable adverse impacts to mountain trout waters. For proposals where a bridge is replaced with a culvert, the PCN must also include details of any on-site evaluations that were conducted to determine that installation of a culvert will not adversely affect passage of fish or other aquatic biota at the project site. This information must include factors such as the proposed slope of the culvert and determinations of how the slope will be expected to allow or impede passage, the necessity of baffles and/or sills to ensure passage, design considerations to ensure that expected baseflow will be maintained for passage and that post-construction velocities will not prevent passage, site conditions that will or will not allow proper burial of the culvert, existing structures (e.g., perched culverts, waterfalls, etc.) and/or stream patterns up and downstream of the culvert site that could affect passage and bank stability, and any other considerations regarding passage. The level of detail for this information should be based on site conditions (i.e., culverts on a slope over 3% will most likely

require more information than culverts on a slope that is less than 1%, etc.). Also, in order to evaluate potential impacts, describe bedforms that will be impacted by the proposed culvert – e.g., pools, glides, riffles, etc. The NCWRC will respond both to the proponent and directly to the Corps.

The twenty-five (25) designated trout counties of North Carolina include Alleghany, Caldwell, Watauga, Ashe, Mitchell, Wilkes, Avery, Burke, Stokes, Surry, Buncombe, Henderson, Polk, Cherokee, Jackson, Rutherford, Clay, Macon, Swain, Graham, Madison, Transylvania, Haywood, McDowell, and Yancey.

The applicant may contact NCWRC at:

North Carolina Wildlife Resources  
Commission  
Ms. Marla Chambers  
Western NCDOT Permit Coordinator  
206 Charter Street  
Albemarle, NC 28001  
Office: 704-982-9181

q. Compensatory mitigation will be required for permanent impacts resulting in a loss of waters of the U.S., including wetlands, from culverts/pipes and associated fill. Mitigation will also be required for stream relocation projects. The applicant will attach a proposed mitigation plan to the PCN. Mitigation proposals will be in accordance with currently approved Wilmington District and/or Corps-wide mitigation regulations and guidance. The Corps Project Manager will make the final determination concerning the appropriate amount and type of mitigation.

r. Stream relocation(s) associated with projects may be authorized under this RGP. As stated above, mitigation will be required for all relocation projects. If the stream relocation is conducted in accordance with the requirements stated below in 1-5, the relocated segment of stream may\* be considered toward reducing the amount of compensatory mitigation required. A relocation plan must be submitted with the PCN that addresses all factors required within the current Wilmington District, Corps of Engineers Stream Mitigation Guidelines, which can include, but may not be limited to:

(1) The relocated stream has pattern, profile, and dimension based on natural channel design. If natural channel design construction is not possible due to site constraints, the relocated stream must have pattern, profile, and dimension similar to, or better than, the existing stream. Note that site constraints do not include those situations where NCDOT chooses not to acquire additional adjacent property that is available for purchase.

(2) The new stream meets the current buffer requirements as stated in current District stream mitigation guidance. If the required buffer widths cannot be obtained, a project-by-project decision will be completed to determine if additional compensatory mitigation is required.

(3) The new location allows the relocated stream to remain stable (e.g., in a

valley vs. on a slope, no bends that will impact stability, etc.).

(4) There is no loss of channel for any reason (e.g., old channel is 200' and new channel is 150' = 50' channel loss; part of the new channel is put in a culvert; the new channel (sides and bottom) is hardened with concrete, rip rap, etc.).

(5) The Corps will determine if monitoring and reporting will be required for a specific project and the parameters of any required monitoring and reporting. If monitoring is required, a monitoring plan must be included with the PCN and meet current requirements.

All relocation plans must clearly depict both the existing channel and the proposed (relocated) channel.

\* Conducting stream relocation(s) in accordance with 1-5 above may not fully compensate for the impact and may require additional compensatory mitigation. The Corps Project Manager will determine if the proposed amount of mitigation is adequate on a project-by-project basis.

If stream relocation cannot be conducted in accordance with 1-5 above, mitigation at a 2:1 ratio will typically be required unless: (1) the applicant provides a Stream Quality Assessment Worksheet or NCSAM documentation (when available) that supports a different mitigation ratio; (2) the Corps Project Manager determines that the relocated stream, while not in full compliance with 1-5 above, warrants partial mitigation, or; (3) the Corps determines that the existing stream is an excellent quality stream, in which case a 3:1 mitigation ratio may be required. The Corps Project Manager will make the final determination concerning the appropriate amount and type of mitigation.

If the Corps determines that the proposed stream relocation is of such a magnitude that it cannot be authorized by this RGP, an Individual Permit will be required.

s. The applicant shall sign and return the compliance certificate that is attached to the RGP verification letter.

t. In the event that any Federal agency maintains an objection or any required State authorization is outstanding, no notice to proceed will be given until objections are resolved and State authorizations are issued.

u. The Corps may place additional special conditions, limitations, or restrictions on any verification of the use of RGP 31 on a project-by-project basis.

## 2. General Conditions.

a. Except as authorized by this RGP or any Corps approved modification to this RGP, no excavation, fill or mechanized land-clearing activities shall take place within waters or wetlands, at any time in the construction or maintenance of this project. This permit does not authorize temporary placement or double handling of excavated or fill material within waters or wetlands outside the permitted area. This prohibition applies to all borrow and fill activities connected with this project.

b. Authorization under this RGP does not obviate the need to obtain other federal, state, or local authorizations.

c. All work authorized by this RGP must comply with the terms and conditions of the applicable CWA Section 401 Water Quality Certification for this RGP issued by the NCDWR.

d. The permittee shall employ all sedimentation and erosion control measures necessary to prevent an increase in sedimentation or turbidity within waters and wetlands outside the permit area. This shall include, but is not limited to, the immediate installation of silt fencing or similar appropriate devices around all areas subject to soil disturbance or the movement of earthen fill, and the immediate stabilization of all disturbed areas. Additionally, the project must remain in full compliance with all aspects of the Sedimentation Pollution Control Act of 1973 (North Carolina General Statutes Chapter 113A Article 4).

e. The activities authorized by this RGP must not interfere with the public's right to free navigation on all navigable waters of the U.S. No attempt will be made by the permittee to prevent the full and free use by the public of all navigable waters at or adjacent to the authorized work for a reason other than safety.

f. The permittee understands and agrees that, if future operations by the U.S. require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the U.S. No claim shall be made against the U.S. on account of any such removal or alteration.

g. The permittee, upon receipt of a notice of revocation of this permit or upon its expiration before completion of the work will, without expense to the U.S. and in such time and manner as the Secretary of the Army or his authorized representative may direct, restore the affected water of the U.S. to its former conditions.

h. The permittee will allow the Wilmington District Engineer or his representative to inspect the authorized activity at any time deemed necessary to assure that the activity is being performed or maintained in strict accordance with the Special and General Conditions of this permit.

i. This RGP does not grant any property rights or exclusive privileges.

j. This permit does not authorize any injury to the property or rights of others.

k. This RGP does not authorize the interference with any existing or proposed federal project.

l. In issuing this permit, the Federal Government does not assume any liability for the following:

(1) Damages to the permitted project or uses thereof as a result of other permitted



or unpermitted activities or from natural causes.

(2) Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the U.S. in the public interest.

(3) Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

(4) Design or construction deficiencies associated with the permitted work.

(5) Damage claims associated with any future modification, suspension, or revocation of this permit.

m. Authorization provided by this RGP may be modified, suspended or revoked in whole or in part if the Wilmington District Engineer, acting for the Secretary of the Army, determines that such action is in the best public interest. The term of this RGP shall be five (5) years unless subject to modification, suspension or revocation. Any modification, suspension or revocation of this authorization will not be the basis for any claim for damages against the U.S. Government.

n. This RGP does not authorize any activity, which the District Engineer determines, after any necessary investigations, will adversely affect:

(1) Rivers named in Section 3 of the Wild and Scenic Rivers Act (15 U.S.C. 1273), those proposed for inclusion as provided by Sections 4 and 5 of the Act, and wild, scenic and recreational rivers established by state and local entities.

(2) Sites included in or determined eligible for listing in the National Registry of Natural Landmarks.

(3) NOAA designated marine sanctuaries, National Estuarine Research Reserves, and coral reefs.

(4) Submerged Aquatic Vegetation (SAV) as defined by the N.C. Division of Marine Fisheries at 15A NCAC 03I .0101(4)(i)).

o. Endangered Species.

(1) No activity is authorized under this RGP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species. No activity is authorized under this RGP which "may affect" a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed.

(2) Federal agencies should follow their own procedures for complying with the requirements of the ESA. Federal permittees (and when FHWA is the lead federal agency) must provide the district engineer with the appropriate documentation to demonstrate compliance with

those requirements. The district engineer will review the documentation and determine whether it is sufficient to address ESA compliance for the RGP activity, or whether additional ESA consultation is necessary.

(3) Non-federal permittees must submit a PCN to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect federally-listed endangered or threatened species or designated critical habitat, the PCN must include the name(s) of the endangered or threatened species that might be affected by the proposed work or that utilize the designated critical habitat that might be affected by the proposed work. The district engineer will determine whether the proposed activity “may affect” or will have “no effect” to listed species and designated critical habitat and will notify the non-federal applicant of the Corps’ determination within 45 days of receipt of a complete PCN notification. In cases where the non-federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the project, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activities will have “no effect” on listed species or critical habitat, or until Section 7 consultation has been completed. If the non-federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(4) As a result of formal or informal consultation with the U.S. Fish and Wildlife Service (USFWS) or NMFS, the district engineer may add species-specific endangered species conditions to the RGP.

(5) Authorization of an activity by a RGP does not authorize the “take” of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with “incidental take” provisions, etc.) from the USFWS or the NMFS, the ESA prohibits any person subject to the jurisdiction of the U.S. to take a listed species, where “take” means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word “harm” in the definition of “take” means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(6) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the USFWS and NMFS or their world wide web pages at <http://www.fws.gov/> or <http://www.fws.gov/ipac> and <http://www.noaa.gov/fisheries.html> respectively.

p. The permittee is responsible for obtaining any “take” permits required under the USFWS’s regulations governing compliance with the Migratory Bird Treaty Act or the Bald and Golden Eagle Protection Act. The permittee should contact the appropriate local office of the USFWS to determine if such “take” permits are required for a particular activity.

q. For proposed activities the sixteen counties listed below, applicants must provide a

copy of the PCN to the USFWS, 160 Zillicoa Street, Asheville, North Carolina 28801. This PCN must be sent concurrently to the USFWS and the Corps Project Manager for that specific county.

Counties with tributaries that drain to designated critical habitat that require notification to the Asheville USFWS: Avery, Cherokee, Forsyth, Graham, Haywood, Henderson, Jackson, Macon, Mecklenburg, Mitchell, Stokes, Surry, Swain, Transylvania, Union and Yancey.

Applicants may contact the appropriate USFWS office listed below or the US Army Corps of Engineers:

US Fish and Wildlife Service  
Asheville Field Office  
160 Zillicoa Street  
Asheville, NC 28801  
Telephone: (828) 258-3939

Asheville USFWS Office counties: All counties west of and including Anson, Stanly, Davidson, Forsyth and Stokes Counties.

US Fish and Wildlife Service  
Raleigh Field Office  
Post Office Box 33726  
Raleigh, NC 27636-3726  
Telephone: (919) 856-4520

Raleigh USFWS Office counties: all counties east of and including Richmond, Montgomery, Randolph, Guilford, and Rockingham Counties.

r. Permittees are advised that development activities in or near a floodway may be subject to the National Flood Insurance Program that prohibits any development, including fill, within a floodway that results in any increase in base flood elevations. This RGP does not authorize any activity prohibited by the National Flood Insurance Program.

s. The permittee must make every reasonable effort to perform the work authorized herein in a manner so as to minimize any adverse impact on fish, wildlife and natural environmental values.

t. All activities authorized by this RGP that involve the use of riprap material for bank stabilization, the following measures shall be applied:

(1) Filter cloth must be placed underneath the riprap as an additional requirement of its use in North Carolina waters.

(2) The placement of riprap shall be limited to the areas depicted on submitted work plan drawings and not be placed in a manner that prevents or impedes fish passage.

(3) The riprap material shall be clean and free from loose dirt or any pollutant

except in trace quantities that will not have an adverse environmental effect.

(4) It shall be of a size sufficient to prevent its movement from the authorized alignment by natural forces under normal conditions.

(5) The riprap material shall consist of clean rock or masonry material such as, but not limited to, granite, marl, or broken concrete.

(6) A waiver from the specifications in this general condition may be requested in writing. The waiver will only be issued if it can be demonstrated that the impacts of complying with this condition will result in greater adverse impacts to the aquatic environment.

u. The permittee must install and maintain, at his expense, any signal lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, on authorized facilities. For further information, the permittee should contact the U.S. Coast Guard Marine Safety Office at (910) 772-2191.

v. The permittee must maintain any structure or work authorized by this permit in good condition and in conformance with the terms and conditions of this permit. The Permittee is not relieved of this requirement if the Permittee abandons the structure or work. Transfer in fee simple of the work authorized by this permit will automatically transfer this permit to the property's new owner, with all of the rights and responsibilities enumerated herein. The permittee must inform any subsequent owner of all activities undertaken under the authority of this permit and provide the subsequent owner with a copy of the terms and conditions of this permit.

w. At his sole discretion, any time during the processing cycle, the Wilmington District Engineer may determine that this RGP will not be applicable to a specific proposal. In such case, the procedures for processing an individual permit in accordance with 33 CFR 325 will be available.

x. The activity must comply with applicable FEMA approved state or local floodplain management requirements.

y. All fill material placed in waters or wetlands shall be generated from an upland source and will be clean and free of any pollutants except in trace quantities. Metal products, organic materials (including debris from land clearing activities), or unsightly debris will not be used.

z. All excavated material will be disposed of in approved upland disposal areas.

aa. Historic Properties.

(1) In cases where the district engineer determines that the activity may affect properties listed, or eligible for listing, in the National Register of Historic Places (NRHP), the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(2) Federal permittees (or when FHWA is the lead federal agency) should follow their own procedures for complying with the requirements of Section 106 of the NHPA. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address Section 106 compliance for this RGP activity, or whether additional Section 106 consultation is necessary.

(3) Non-federal permittees must submit a PCN to the district engineer if the authorized activity may have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the NRHP, including previously unidentified properties. For such activities, the PCN must state which historic properties may be affected by the proposed work or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of or potential for the presence of historic resources can be sought from the State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Officer (THPO), as appropriate, and the NRHP (see 33 CFR 330.4(g)). When reviewing PCNs, district engineers will comply with the current procedures for addressing the requirements of Section 106 of the NHPA. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted and these efforts, the district engineer shall determine whether the proposed activity has the potential to cause an effect on the historic properties. Where the non-federal applicant has identified historic properties on which the activity may have the potential to cause effects and so notified the Corps, the non-federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects or that consultation under Section 106 of the NHPA has been completed.

(4) The district engineer will notify the prospective permittee within 45 days of receipt of a complete PCN whether NHPA Section 106 consultation is required. Section 106 consultation is not required when the Corps determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR §800.3(a)). If NHPA Section 106 consultation is required and will occur, the district engineer will notify the non-federal applicant that he or she cannot begin work until Section 106 consultation is completed. If the non-federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(5) Prospective permittees should be aware that Section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit will relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the

undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

bb. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the NRHP.

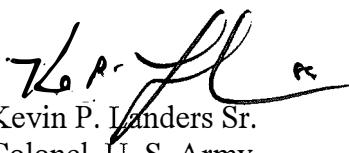
cc. There will be no unreasonable interference with navigation or the right of the public to riparian access by the existence or use of activities authorized by this RGP.

dd. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

ee. This RGP will not be applicable to proposed construction when the Wilmington District Engineer determines that the proposed activity will significantly affect the quality of the human environment and determines that an EIS must be prepared.

ff. Activities which have commenced (i.e. are under construction) or are under contract to commence in reliance upon this general permit will remain authorized provided the activity is completed within twelve months of the date of the general permit's expiration, modification, or revocation. Activities completed under the authorization of this general permit which were in effect at the time the activity was completed continue to be authorized by the general permit.

BY AUTHORITY OF THE SECRETARY OF THE ARMY:



Kevin P. Landers Sr.  
Colonel, U. S. Army  
District Commander



ROY COOPER  
*Governor*

MICHAEL S. REGAN  
*Secretary*

S. JAY ZIMMERMAN  
*Director*

February 28, 2017  
Catawba County  
NCDWR Project No. 20160982v.2  
NC 16 Widening from SR 1801 to  
SR 1895  
TIP/State Project No. R-3100 A/B

**APPROVAL of 401 WATER QUALITY CERTIFICATION, with ADDITIONAL CONDITIONS**

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

Dear Mr. Harris:

You have our approval, in accordance with the conditions listed below, for the following impacts for the purpose of widening NC 16 from SR 1801 to SR 1895 in Catawba County:

**Wetland Impacts in the Catawba River Basin (riverine)**

Site	Fill (ac)	Fill (temporary) (ac)	Excavation (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Total Wetland Impact (ac)	Impacts Requiring Mitigation (ac)
R-3100 A - Site 6	0.06					0.06	0.06
R-3100 A - Site 7	0.10					0.10	0.10
R-3100 A - Site 8			0.02	0.02		0.04	0.04
<b>Total</b>	<b>0.16</b>	<b>0.00</b>	<b>0.02</b>	<b>0.02</b>	<b>0.00</b>	<b>0.20</b>	<b>0.20</b>

**Total Wetland Impact for Project: 0.20 acres.**





**Stream Impacts in the Catawba River Basin**

Site	Bank Stabilization (linear ft)	Permanent Fill in Perennial Stream (linear ft)	Temporary Fill in Perennial Stream (linear ft)	Permanent Fill in Intermittent Stream (linear ft)	Temporary Fill in Intermittent Stream (linear ft)	Total Stream Impact (linear ft)	Stream Impacts Requiring Mitigation (linear ft)
R-3100 A Site 1	77	163	51			291	240
R-3100 A Site 2	82	74	38			194	156
R-3100 A Site 3	104	76	24			204	180
R-3100 A Site 4	10			35	20	65	0
R-3100 A Site 5	6			43	20	69	0
R-3100 A Site 8				42		42	0
R-3100 A Site 9	25	220	51			296	245
R-3100 A Site 10			22			22	0
Totals for A section	304	533	186	120	40	1183	821
R-3100 B Site 1	48	99	55			202	0
R-3100 B Site 2	39	465	43			547	504
R-3100 B Site 2A	0	177	33			210	177
R-3100 B Site 3W	22	0	27			49	0
R-3100 B Site 3C	33	55	16			104	0
R-3100 B Site 3E	17	0	45			62	0
R-3100 B Site 4	20	172	43			235	192
R-3100 B Site 5	66	92	16			174	158
R-3100 B Site 6	40	0	14			54	0
R-3100 B Site 7	84	0	19			103	0
Totals for B section	369	1060	311			1740	1031
<b>TOTAL</b>	<b>673</b>	<b>1593</b>	<b>497</b>	<b>120</b>	<b>40</b>	<b>2923</b>	<b>1852</b>

**Total Stream Impact for Project: 2923 linear feet**

**Total Stream Impacts Requiring Mitigation: 1852 linear feet**

**Highlighted areas drain to WS-II/HQW waters, design for sensitive watersheds shall be used in these areas**

The project shall be constructed in accordance with your application dated received February 24, 2017. After reviewing your application, we have decided that these impacts are covered by General Water Quality Certification Number 3886. This certification corresponds to the General Permit 198200031 issued by the Corps of Engineers. In addition, you should acquire any other federal, state or local permits before you proceed with your project including (but not limited to) Sediment and Erosion Control, Non-Discharge and Water Supply Watershed regulations. This approval will expire with the accompanying 404 permit.

This approval is valid solely for the purpose and design described in your application (unless modified below). Should your project change, you must notify the NCDWR and submit a new application. If the property is sold, the new owner must be given a copy of this Certification and approval letter, and is thereby responsible for complying with all the conditions. If total wetland fills for this project (now or in the future) exceed one acre, or of total impacts to streams (now or in the future) exceed 150 linear feet, compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7). For this approval to remain valid, you must adhere to the conditions listed in the attached certification(s) and any additional conditions listed below.

## Condition(s) of Certification:

### Project Specific Conditions

1. Channel relocations shall be completed and stabilized, and approved on site by NCDWR staff, prior to diverting water into the new channel. Natural stream bed material will be salvaged from excavation of the existing stream, stockpiled separately, and subsequently reused as native stream material for the bed of the newly relocated stream. Stream banks shall be matted with coir-fiber matting. Vegetation used for bank stabilization shall be limited to native riparian vegetation, and should include establishment of a vegetated buffer on both sides of the relocated channel to the maximum extent practical. Also, rip-rap may be allowed if it is necessary to maintain the physical integrity of the stream, but the applicant must provide written justification and any calculations used to determine the extent of rip-rap coverage requested. Once the stream has been turned into the new channel, it may be necessary to relocate stranded fish to the new channel to prevent fish kills. [15A NCAC 02H .0506(b)(3)]
2. Riprap shall not be placed in the active thalweg channel or placed in the streambed in a manner that precludes aquatic life passage. Bioengineering boulders or structures should be properly designed, sized and installed. [15A NCAC 02H.0506(b)(2)]
3. For the linear feet of streams being impacted due to site dewatering activities, the site shall be graded to its preconstruction contours and revegetated with appropriate native species. [15A NCAC 02H.0506(b)(2)]
4. The stream channel shall be excavated no deeper than the natural bed material of the stream, to the maximum extent practicable. Efforts must be made to minimize impacts to the stream banks, as well as to vegetation responsible for maintaining the stream bank stability. Any applicable riparian buffer impact for access to stream channel shall be temporary and be revegetated with native riparian species. [15A NCAC 02H.0506(b)(2)]
5. If multiple pipes or barrels are required, they shall be designed to mimic natural stream cross section as closely as possible including pipes or barrels at flood plain elevation and/or sills where appropriate. Widening the stream channel should be avoided. Stream channel widening at the inlet or outlet end of structures typically decreases water velocity causing sediment deposition that requires increased maintenance and disrupts aquatic life passage. [15A NCAC 02H.0506(b)(2)]
6. The permittee shall use Design Standards in Sensitive Watersheds/(15A NCAC 4B.0124[a]-[e]) in areas draining to WS-II/ Hqw waters. However, due to the size of the project, the NCDOT shall not be required to meet 15A NCAC 4B .0124(a) regarding the maximum amount of uncovered acres.
7. NCDOT shall be in compliance with the NCS00250 issued to the NCDOT, including the applicable requirements of the NCG01000. Please note the extra protections for the sensitive watersheds.
8. Tall fescue shall not be used in the establishment of temporary or permanent groundcover within riparian areas. For the establishment of permanent herbaceous cover, erosion control matting shall be used in conjunction with an appropriate native seed mix on disturbed soils within the riparian area and on disturbed steep slopes with the following exception. Erosion control matting is not necessary if the area is contained by perimeter erosion control devices such as silt fence, temporary sediment ditches, basins, etc. Matting should be secured in place with staples, stakes, or wherever possible, live stakes of native trees. Erosion control matting placed in riparian areas shall not contain a nylon mesh grid, which can impinge and entrap small animals. For the establishment of temporary groundcover within riparian areas, hydroseeding along with wood or cellulose based hydro mulch applied from a fertilizer- and limestone-free tank is allowable at the appropriate rate in conjunction with the erosion control measures. Discharging hydroseed mixtures and wood or cellulose mulch into surface waters is prohibited. Riparian areas are defined as a distance 25 feet landward from top of stream bank.
9. All portions of the proposed project draining to 303(d) listed watersheds that are impaired due to biological criteria exceedances shall not discharge stormwater directly to surface waters. Stormwater shall be treated using appropriate best management practices (e.g., vegetated conveyances, constructed wetlands, detention ponds, etc.) prior to discharging to surface waters.

10. Compensatory mitigation for 1852 linear feet of impact to streams is required. We understand that you have chosen to perform compensatory mitigation for impacts to streams through the North Carolina Division of Mitigation Service (DMS) (formerly NCEEP), and that the DMS has agreed to implement the mitigation for the project. The DMS has indicated in a letter dated October 11, 2016 that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with the DMS Mitigation Banking Instrument signed July 28, 2010.

#### **General Conditions**

1. Unless otherwise approved in this certification, placement of culverts and other structures in open waters and streams shall be placed below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow passage of water and aquatic life. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or streambeds or banks, adjacent to or upstream and downstream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by NCDWR. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact NCDWR for guidance on how to proceed and to determine whether or not a permit modification will be required. [15A NCAC 02H.0506(b)(2)]
2. If concrete is used during construction, a dry work area shall be maintained to prevent direct contact between curing concrete and stream water. Water that inadvertently contacts uncured concrete shall not be discharged to surface waters due to the potential for elevated pH and possible aquatic life and fish kills. [15A NCAC 02B.0200]
3. During the construction of the project, no staging of equipment of any kind is permitted in waters of the U.S., or protected riparian buffers. [15A NCAC 02H.0506(b)(2)]
4. The dimension, pattern and profile of the stream above and below the crossing shall not be modified. Disturbed floodplains and streams shall be restored to natural geomorphic conditions. [15A NCAC 02H.0506(b)(2)]
5. The use of rip-rap above the Normal High Water Mark shall be minimized. Any rip-rap placed for stream stabilization shall be placed in stream channels in such a manner that it does not impede aquatic life passage. [15A NCAC 02H.0506(b)(2)]
6. The Permittee shall ensure that the final design drawings adhere to the permit and to the permit drawings submitted for approval. [15A NCAC 02H .0507(c) and 15A NCAC 02H .0506 (b)(2) and (c)(2)]
7. All work in or adjacent to stream waters shall be conducted in a dry work area. Approved BMP measures from the most current version of NCDOT Construction and Maintenance Activities manual such as sandbags, rock berms, cofferdams and other diversion structures shall be used to prevent excavation in flowing water. [15A NCAC 02H.0506(b)(3) and (c)(3)]
8. Heavy equipment shall be operated from the banks rather than in the stream channel in order to minimize sedimentation and reduce the introduction of other pollutants into the stream. [15A NCAC 02H.0506(b)(3)]
9. All mechanized equipment operated near surface waters must be regularly inspected and maintained to prevent contamination of stream waters from fuels, lubricants, hydraulic fluids, or other toxic materials. [15A NCAC 02H.0506(b)(3)]
10. No rock, sand or other materials shall be dredged from the stream channel except where authorized by this certification. [15A NCAC 02H.0506(b)(3)]
11. Discharging hydroseed mixtures and washing out hydroseeders and other equipment in or adjacent to surface waters is prohibited. [15A NCAC 02H.0506(b)(3)]

12. The permittee and its authorized agents shall conduct its activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with §303(d) of the Clean Water Act) and any other appropriate requirements of State and Federal law. If the NCDWR determines that such standards or laws are not being met (including the failure to sustain a designated or achieved use) or that State or federal law is being violated, or that further conditions are necessary to assure compliance, the NCDWR may reevaluate and modify this certification. [15A NCAC 02B.0200]
13. All fill slopes located in jurisdictional wetlands shall be placed at slopes no flatter than 3:1, unless otherwise authorized by this certification. [15A NCAC 02H.0506(b)(2)]
14. A copy of this Water Quality Certification shall be maintained on the construction site at all times. In addition, the Water Quality Certification and all subsequent modifications, if any, shall be maintained with the Division Engineer and the on-site project manager. [15A NCAC 02H .0507(c) and 15A NCAC 02H .0506 (b)(2) and (c)(2)]
15. The outside buffer, wetland or water boundary located within the construction corridor approved by this authorization shall be clearly marked by highly visible fencing prior to any land disturbing activities. Impacts to areas within the fencing are prohibited unless otherwise authorized by this certification. [15A NCAC 02H.0501 and .0502]
16. The issuance of this certification does not exempt the Permittee from complying with any and all statutes, rules, regulations, or ordinances that may be imposed by other government agencies (i.e. local, state, and federal) having jurisdiction, including but not limited to applicable buffer rules, stormwater management rules, soil erosion and sedimentation control requirements, etc.
17. The Permittee shall report any violations of this certification to the Division of Water Resources within 24 hours of discovery. [15A NCAC 02B.0506(b)(2)]
18. Upon completion of the project (including any impacts at associated borrow or waste sites), the NCDOT Division Engineer shall complete and return the enclosed "Certification of Completion Form" to notify the NCDWR when all work included in the 401 Certification has been completed. [15A NCAC 02H.0502(f)]
19. Native riparian vegetation (**ex. *Salix nigra*, *Juncus* (spp), *Carex* (spp), et al.**) must be reestablished in the riparian areas within the construction limits of the project by the end of the growing season following completion of construction. [15A NCAC 02B.0231(b)(6)]
20. There shall be no excavation from, or waste disposal into, jurisdictional wetlands or waters associated with this permit without appropriate modification. Should waste or borrow sites, or access roads to waste or borrow sites, be located in wetlands or streams, compensatory mitigation will be required since that is a direct impact from road construction activities.[ 15A NCAC 02H.0506(b)(3) and (c)(3)]
21. Erosion and sediment control practices must be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to protect surface waters standards [15A NCAC 02H.0506(b)(3) and (c)(3)]:
  - a. The erosion and sediment control measures for the project must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Sediment and Erosion Control Planning and Design Manual*.
  - b. The design, installation, operation, and maintenance of the sediment and erosion control measures must be such that they equal, or exceed, the requirements specified in the most recent version of the *North Carolina Sediment and Erosion Control Manual*. The devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) projects, including contractor-owned or leased borrow pits associated with the project.
  - c. For borrow pit sites, the erosion and sediment control measures must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Surface Mining Manual*.
  - d. The reclamation measures and implementation must comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act.
22. Sediment and erosion control measures shall not be placed in wetlands or waters unless otherwise approved by this Certification. [15A NCAC 02H.0506(b)(3) and (c)(3)]

If you wish to contest any statement in the attached Certification you must file a petition for an administrative hearing. You may obtain the petition form from the office of Administrative hearings. You must file the petition with the office of Administrative Hearings within sixty (60) days of receipt of this notice. A petition is considered filed when it is received in the office of Administrative Hearings during normal office hours. The Office of Administrative Hearings accepts filings Monday through Friday between the hours of 8:00am and 5:00pm, except for official state holidays. The original and one (1) copy of the petition must be filed with the Office of Administrative Hearings.

The petition may be faxed-provided the original and one copy of the document is received by the Office of Administrative Hearings within five (5) business days following the faxed transmission.  
The mailing address for the Office of Administrative Hearings is:

Office of Administrative Hearings  
6714 Mail Service Center  
Raleigh, NC 27699-6714  
Telephone: (919) 431-3000, Facsimile: (919) 431-3100

A copy of the petition must also be served on DEQ as follows:

Mr. Sam M. Hayes, General Counsel  
Department of Environmental Quality  
1601 Mail Service Center

This letter completes the review of the Division of Water Resources under Section 401 of the Clean Water Act. If you have any questions, please contact Donna Hood at (704)682-2839 or [donna.hood@ncdenr.gov](mailto:donna.hood@ncdenr.gov).

Sincerely,

A handwritten signature in blue ink, appearing to read "S. Jay Zimmerman".

S. Jay Zimmerman, Director  
Division of Water Resources

Electronic copy only distribution:

Steve Kichefski, US Army Corps of Engineers, Asheville Field Office  
Trish Beam, Division 12 Environmental Officer  
Rodger Rochelle, NC Department of Transportation  
Colin Mellor, NC Department of Transportation  
Carla Dagnino, NC Department of Transportation  
Beth Harmon, Division of Mitigation Services  
Dr. Cynthia Van Der Wiele, US Environmental Protection Agency  
Marella Buncick, US Fish and Wildlife Service  
Marla Chambers, NC Wildlife Resources Commission  
Beth Harmon, Division of Mitigation Services  
File Copy



ROY COOPER  
*Governor*

MICHAEL S. REGAN  
*Secretary*

S. JAY ZIMMERMAN  
*Director*

NCDWR Project No.: \_\_\_\_\_ County: \_\_\_\_\_

Applicant: \_\_\_\_\_

Project Name: \_\_\_\_\_

Date of Issuance of 401 Water Quality Certification: \_\_\_\_\_

#### **Certificate of Completion**

Upon completion of all work approved within the 401 Water Quality Certification or applicable Buffer Rules, and any subsequent modifications, the applicant is required to return this certificate to the 401 Transportation Permitting Unit, North Carolina Division of Water Resources, 1617 Mail Service Center, Raleigh, NC, 27699-1617. This form may be returned to NCDWR by the applicant, the applicant's authorized agent, or the project engineer. It is not necessary to send certificates from all of these.

#### ***Applicant's Certification***

I, \_\_\_\_\_, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

#### ***Agent's Certification***

I, \_\_\_\_\_, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

#### ***Engineer's Certification***

\_\_\_\_\_ Partial \_\_\_\_\_ Final

I, \_\_\_\_\_, as a duly registered Professional Engineer in the State of North Carolina, having been authorized to observe (periodically, weekly, full time) the construction of the project for the Permittee hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature \_\_\_\_\_ Registration No. \_\_\_\_\_

Date \_\_\_\_\_





# Water Quality Certification No. 3886

**GENERAL CERTIFICATION FOR PROJECTS ELIGIBLE FOR U.S. ARMY CORPS OF  
ENGINEERS NATIONWIDE PERMIT NUMBER 14 (LINEAR TRANSPORTATION PROJECTS)  
AND REGIONAL GENERAL PERMIT 198200031 (WORK ASSOCIATED WITH BRIDGE  
CONSTRUCTION, MAINTENANCE OR REPAIR CONDUCTED BY NCDOT OR OTHER  
GOVERNMENT AGENCIES)  
AND RIPARIAN AREA PROTECTION RULES (BUFFER RULES)**

Water Quality Certification Number 3886 is issued in conformity with the requirements of Section 401, Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Quality (DWQ) Regulations in 15A NCAC 02H .0500 and 15A NCAC 02B .0200 for the discharge of fill material to waters and adjacent wetland areas or to wetland areas that are not a part of the surface tributary system to interstate waters or navigable waters of the United States (as described in 33 CFR 330 Appendix A (B) (14) of the Corps of Engineers regulations (Nationwide Permit No. 14 and Regional General Permit 198200031) and for the Riparian Area Protection Rules (Buffer Rules) in 15A NCAC 02B .0200.

The State of North Carolina certifies that the specified category of activity will not violate applicable portions of Sections 301, 302, 303, 306 and 307 of the Public Laws 92-500 and 95-217 if conducted in accordance with the conditions hereinafter set forth.

Any proposed fill or modification of wetlands and/or waters, including streams, under this General Certification requires application to, and written approval from the Division of Water Quality except for the single family lot exemption described below.

**Activities meeting any one (1) of the following thresholds or circumstances require *written approval* for a 401 Water Quality Certification from the Division of Water Quality (the "Division"):**

- a) Any temporary or permanent impacts to wetlands, open waters and/or streams, including stream relocations, except for construction of a driveway to a single family lot as long as the driveway involves *less than 25 feet* of temporary and/or permanent stream channel impacts, including any in-stream stabilization needed for the crossing; or
- b) Any impact associated with a high density project (as defined in Item (A)(iv) of the **401 Stormwater Requirements**) that is not subject to either a state stormwater program (such as, but not limited to, Coastal Counties, HQW, ORW or state-implemented Phase II NPDES) or a certified community's stormwater program; or
- c) Any impact associated with a Notice of Violation or an enforcement action for violation(s) of DWQ Wetland Rules (15A NCAC 02H .0500), Isolated Wetland Rules (15A NCAC 02H .1300), DWQ Surface Water or Wetland Standards, or Riparian Buffer Rules (15A NCAC 02B .0200); or
- d) Any impacts to streams and/or buffers in the Neuse, Tar-Pamlico, or Catawba River Basins or in the Randleman, Jordan or Goose Creek Watersheds (or any other basin or watershed with Riparian Area Protection Rules [Buffer Rules] in effect at the time of application) *unless* the activities are listed as "EXEMPT" from these rules or a Buffer Authorization Certificate is issued through N.C. Division of Coastal Management (DCM) delegation for "ALLOWABLE" activities.

In accordance with North Carolina General Statute 143-215.3D(e), written approval for a 401 Water Quality General Certification must include the appropriate fee. If a project also requires a CAMA Permit, then one payment to both agencies shall be submitted and will be the higher of the two fees.

**Activities included in this General Certification that do not meet one of the thresholds listed above do not require written approval from the Division as long as they comply with**



# Water Quality Certification No. 3886

**the Conditions of Certification listed below. If any of these Conditions cannot be met, then written approval from the Division is required.**

Conditions of Certification:

1. No Impacts Beyond those Authorized in the Written Approval or Beyond the Threshold of Use of this Certification

No waste, spoil, solids, or fill of any kind shall occur in wetlands, waters, or riparian areas beyond the footprint of the impacts depicted in the Pre-Construction Notification, as authorized in the written approval from the Division or beyond the thresholds established for use of this Certification without written authorization, including incidental impacts. All construction activities, including the design, installation, operation, and maintenance of sediment and erosion control Best Management Practices shall be performed so that no violations of state water quality standards, statutes, or rules occur. Approved plans and specifications for this project are incorporated by reference and are enforceable parts of this permit.

2. Standard Erosion and Sediment Control Practices

Erosion and sediment control practices must be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices and if applicable, comply with the specific conditions and requirements of the NPDES Construction Stormwater Permit issued to the site:

- a. Design, installation, operation, and maintenance of the sediment and erosion control measures must be such that they equal or exceed the requirements specified in the most recent version of the *North Carolina Sediment and Erosion Control Manual*. The devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) projects, including contractor-owned or leased borrow pits associated with the project.
- b. For borrow pit sites, the erosion and sediment control measures must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Surface Mining Manual*.
- c. Reclamation measures and implementation must comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act and the Mining Act of 1971.
- d. Sufficient materials required for stabilization and/or repair of erosion control measures and stormwater routing and treatment shall be on site at all times.
- e. If the project occurs in waters or watersheds classified as Primary Nursery Areas (PNAs), SA, WS-I, WS-II, High Quality (HQW), or Outstanding Resource (ORW) waters, then the sedimentation and erosion control designs must comply with the requirements set forth in 15A NCAC 04B .0124, *Design Standards in Sensitive Watersheds*.

## Water Quality Certification No. 3886

### 3. No Sediment and Erosion Control Measures in Wetlands or Waters

Sediment and erosion control measures shall not be placed in wetlands or waters. Exceptions to this condition require application submittal to and written approval by the Division. If placement of sediment and erosion control devices in wetlands and waters is unavoidable, then design and placement of temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands, stream beds, or banks, adjacent to or upstream and downstream of the above structures. All sediment and erosion control devices shall be removed and the natural grade restored within two (2) months of the date that the Division of Land Resources (DLR) or locally delegated program has released the specific area within the project.

### 4. Construction Stormwater Permit NCG010000

An NPDES Construction Stormwater Permit is required for construction projects that disturb one (1) or more acres of land. This Permit allows stormwater to be discharged during land disturbing construction activities as stipulated in the conditions of the permit. If your project is covered by this permit, full compliance with permit conditions including the erosion & sedimentation control plan, inspections and maintenance, self-monitoring, record keeping and reporting requirements is required. A copy of the general permit (NCG010000), inspection log sheets, and other information may be found at <http://portal.ncdenr.org/web/wq/ws/su/npdessw#tab-w>.

The North Carolina Department of Transportation (NCDOT) shall be required to be in full compliance with the conditions related to construction activities within the most recent version of their individual NPDES (NCS000250) stormwater permit.

### 5. Construction Moratoriums and Coordination

If activities must occur during periods of high biological activity (i.e. sea turtle nesting, fish spawning, or bird nesting), then biological monitoring may be required at the request of other state or federal agencies and coordinated with these activities.

All moratoriums on construction activities established by the NC Wildlife Resources Commission (WRC), US Fish and Wildlife Service (USFWS), NC Division of Marine Fisheries (DMF), or National Marine Fisheries Service (NMFS) to lessen impacts on trout, anadromous fish, larval/post-larval fishes and crustaceans, or other aquatic species of concern shall be implemented. Exceptions to this condition require written approval by the resource agency responsible for the given moratorium.

Work within the twenty-five (25) designated trout counties or identified state or federal endangered or threatened species habitat shall be coordinated with the appropriate WRC, USFWS, NMFS, and/or DMF personnel.

### 6. Work in the Dry

All work in or adjacent to stream waters shall be conducted so that the flowing stream does not come in contact with the disturbed area. Approved best management practices from the most current version of the NC Sediment and Erosion Control Manual, or the NC DOT Construction and Maintenance Activities Manual, such as sandbags, rock berms, cofferdams, and other diversion structures shall be used to minimize excavation in flowing water. Exceptions to this condition require application submittal to and written approval by the Division.

# Water Quality Certification No. 3886

## 7. Riparian Area Protection (Buffer) Rules

Activities located in the protected riparian areas (whether jurisdictional wetlands or not), within the Neuse, Tar-Pamlico, or Catawba River Basins or in the Randleman, Jordan, or Goose Creek Watersheds (or any other basin or watershed with buffer rules) shall be limited to "uses" identified within and constructed in accordance with 15A NCAC 02B .0233, .0259, .0243, .0250, .0267 and .0605, and shall be located, designed, constructed, and maintained to have minimal disturbance to protect water quality to the maximum extent practicable through the use of best management practices. All buffer rule requirements, including diffuse flow requirements, must be met.

8. If concrete is used during the construction, then all necessary measures shall be taken to prevent direct contact between uncured or curing concrete and waters of the state. Water that inadvertently contacts uncured concrete shall not be discharged to waters of the state due to the potential for elevated pH and possible aquatic life/ fish kills.
9. Bridge deck drains shall not discharge directly into the stream. Stormwater shall be directed across the bridge and pre-treated through site-appropriate means (grassed swales, pre-formed scour holes, vegetated buffers, etc.) before entering the stream. Please refer to the most current version of *Stormwater Best Management Practices*. Exceptions to this condition require written approval by the Division.

## 10. Compensatory Mitigation

In accordance with 15A NCAC 02H .0506 (h), compensatory mitigation may be required for losses of equal to or greater than 150 linear feet of streams (intermittent and perennial) and/or equal to or greater than one (1) acre of wetlands. For linear public transportation projects, impacts equal to or exceeding 150 linear feet per stream shall require mitigation.

Buffer mitigation may be required for any project with Buffer Rules in effect at the time of application for activities classified as "Allowable with Mitigation" or "Prohibited" within the Table of Uses.

A determination of buffer, wetland, and stream mitigation requirements shall be made for any General Water Quality Certification for this Nationwide and/or Regional General Permit. Design and monitoring protocols shall follow the US Army Corps of Engineers Wilmington District *Stream Mitigation Guidelines* (April 2003) or its subsequent updates. Compensatory mitigation plans shall be submitted to the Division for written approval as required in those protocols. The mitigation plan must be implemented and/or constructed before any impacts occur on site. Alternatively, the Division will accept payment into an in-lieu fee program or a mitigation bank. In these cases, proof of payment shall be provided to the Division before any impacts occur on site.



## Water Quality Certification No. 3886

11. Relocated stream designs should include the same dimensions, patterns, and profiles as the existing channel (or a stable reference reach if the existing channel is unstable), to the maximum extent practical. The new channel should be constructed in the dry and water shall not be turned into the new channel until the banks are stabilized. Vegetation used for bank stabilization shall be limited to native woody species, and should include establishment of a 30-foot wide wooded and an adjacent 20-foot wide vegetated buffer on both sides of the relocated channel to the maximum extent practical. A transitional phase incorporating appropriate erosion control matting materials and seedling establishment is allowable, however matting that incorporates plastic mesh and/or plastic twine shall not be used in wetlands, riparian buffers or floodplains as recommended by the North Carolina Sediment and Erosion Control Manual. Rip-rap, A-Jacks, concrete, gabions or other hard structures may be allowed if it is necessary to maintain the physical integrity of the stream; however, the applicant must provide written justification and any calculations used to determine the extent of rip-rap coverage. Please note that if the stream relocation is conducted as a stream restoration as defined in the US Army Corps of Engineers Wilmington District, April 2003 *Stream Mitigation Guidelines* (or its subsequent updates), the restored length may be used as compensatory mitigation for the impacts resulting from the relocation.

### 12. Stormwater Management Plan Requirements

All applications shall address stormwater management throughout the entire project area per the 401 Stormwater Requirements, referenced herein as "**Attachment A**" at the end of this Certification.

### 13. Placement of Culverts and Other Structures in Waters and Wetlands

Culverts required for this project shall be designed and installed in such a manner that the original stream profiles are not altered and allow for aquatic life movement during low flows. Existing stream dimensions (including the cross section dimensions, pattern, and longitudinal profile) must be maintained above and below locations of each culvert.

Placement of culverts and other structures in waters and streams must be below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than or equal to 48 inches, to allow low flow passage of water and aquatic life.

When topographic constraints indicate culvert slopes of greater than 5%, culvert burial is not required, provided that all alternative options for flattening the slope have been investigated and aquatic life movement/ connectivity has been provided when possible (rock ladders, crossvanes, etc). Notification to the Division including supporting documentation to include a location map of the culvert, culvert profile drawings, and slope calculations shall be provided to the Division 60 days prior to the installation of the culvert.

When bedrock is present in culvert locations, culvert burial is not required provided that there is sufficient documentation of the presence of bedrock. Notification to the Division including supporting documentation such as, but not limited to, a location map of the culvert, geotechnical reports, photographs, etc shall be provided to the Division a minimum of 60 days prior to the installation of the culvert. If bedrock is discovered during construction, then the Division shall be notified by phone or email within 24 hours of discovery.

If other site-specific topographic constraints preclude the ability to bury the culverts as described above and/or it can be demonstrated that burying the culvert would result in destabilization of the channel, then exceptions to this condition require application submittal to, and written approval by, the Division of Water Quality, regardless of the total impacts to streams or wetlands from the project.

## Water Quality Certification No. 3886

Installation of culverts in wetlands must ensure continuity of water movement and be designed to adequately accommodate high water or flood conditions. Additionally, when roadways, causeways, or other fill projects are constructed across FEMA-designated floodways or wetlands, openings such as culverts or bridges must be provided to maintain the natural hydrology of the system as well as prevent constriction of the floodway that may result in destabilization of streams or wetlands.

The establishment of native, woody vegetation and other soft stream bank stabilization techniques must be used where practicable instead of riprap or other bank hardening methods.

14. All temporary fill and culverts shall be removed and the impacted area returned to natural conditions within 60 days of the determination that the temporary impact is no longer necessary. The impacted areas shall be restored to original grade, including each stream's original cross sectional dimensions, plan form pattern, and longitudinal bed and bed profile, and the various sites shall be stabilized with natural woody vegetation (except for the approved maintenance areas) and restored to prevent erosion.
15. All temporary pipes/ culverts/ riprap pads etc, shall be installed in all streams as outlined in the most recent edition of the *North Carolina Sediment and Erosion Control Planning and Design Manual* or the *North Carolina Surface Mining Manual* so as not to restrict stream flow or cause dis-equilibrium during use of this General Certification.
16. Any riprap required for proper culvert placement, stream stabilization, or restoration of temporarily disturbed areas shall be restricted to the area directly impacted by the approved construction activity. All rip-rap shall be buried and/or "keyed in" such that the original stream elevation and streambank contours are restored and maintained. Placement of rip-rap or other approved materials shall not result in de-stabilization of the stream bed or banks upstream or downstream of the area.
17. Any rip-rap used for stream stabilization shall be of a size and density so as not to be able to be carried off by wave, current action, or stream flows and consist of clean rock or masonry material free of debris or toxic pollutants. Rip-rap shall not be installed in the streambed except in specific areas required for velocity control and to ensure structural integrity of bank stabilization measures.
18. A one-time application of fertilizer to re-establish vegetation is allowed in disturbed areas including riparian buffers, but is restricted to no closer than 10 feet from top of bank of streams. Any fertilizer application must comply with all other Federal, State and Local regulations.
19. If this Water Quality Certification is used to access building sites, then all lots owned by the applicant must be buildable without additional impacts to streams or wetlands. The applicant is required to provide evidence that the lots are buildable without requiring additional impacts to wetlands, waters, or buffers if required to do so in writing by the Division. For road construction purposes, this Certification shall only be utilized from natural high ground to natural high ground.
20. Deed notifications or similar mechanisms shall be placed on all retained jurisdictional wetlands, waters, and protective buffers within the project boundaries in order to assure compliance for future wetland, water, and buffer impact. These mechanisms shall be put in place at the time of recording of the property or of individual lots, whichever is appropriate. A sample deed notification can be downloaded from the 401/Wetlands Unit web site at <http://portal.ncdenr.org/web/wq/swp/ws/401/certsandpermits/apply/forms>. The text of the sample deed notification may be modified as appropriate to suit to a specific project. Documentation of deed notifications shall be provided to the Division upon request.

## Water Quality Certification No. 3886

21. If an environmental document is required under the National or State Environmental Policy Act (NEPA or SEPA), then this General Certification is not valid until a Finding of No Significant Impact (FONSI) or Record of Decision (ROD) is issued by the State Clearinghouse.
22. In the twenty (20) coastal counties, the appropriate DWQ Regional Office must be contacted to determine if Coastal Stormwater Regulations will be required.
23. This General Certification does not relieve the applicant of the responsibility to obtain all other required Federal, State, or Local approvals.
24. The applicant/permittee and their authorized agents shall conduct all activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with §303(d) of the Clean Water Act), and any other appropriate requirements of State and Federal Law. If the Division determines that such standards or laws are not being met, including failure to sustain a designated or achieved use, or that State or Federal law is being violated, or that further conditions are necessary to assure compliance, then the Division may reevaluate and modify this General Water Quality Certification.
25. When written authorization is required for use of this certification, upon completion of all permitted impacts included within the approval and any subsequent modifications, the applicant shall be required to return the certificate of completion attached to the approval. One copy of the certificate shall be sent to the DWQ Central Office in Raleigh at 1650 Mail Service Center, Raleigh, NC, 27699-1650.
26. Additional site-specific conditions, including monitoring and/or modeling requirements, may be added to the written approval letter for projects proposed under this Water Quality Certification in order to ensure compliance with all applicable water quality and effluent standards.
27. This certification grants permission to the director, an authorized representative of the Director, or DENR staff, upon the presentation of proper credentials, to enter the property during normal business hours.

This General Certification shall expire on the same day as the expiration date of the corresponding Nationwide and/or Regional General Permit. The conditions in effect on the date of issuance of Certification for a specific project shall remain in effect for the life of the project, regardless of the expiration date of this Certification.

Non-compliance with or violation of the conditions herein set forth by a specific project may result in revocation of this General Certification for the project and may also result in criminal and/or civil penalties.

The Director of the North Carolina Division of Water Quality may require submission of a formal application for Individual Certification for any project in this category of activity if it is determined that the project is likely to have a significant adverse effect upon water quality, including state or federally listed endangered or threatened aquatic species, or degrade the waters so that existing uses of the wetland or downstream waters are precluded.

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Public hearings may be held for specific applications or group of applications prior to a Certification decision if deemed in the public's best interest by the Director of the North Carolina Division of Water Quality.

Effective date: March 19, 2012

DIVISION OF WATER QUALITY

By

A handwritten signature in blue ink, appearing to read "Charles Wakild", followed by a stylized flourish.

Charles Wakild, P.E.

Director

*History Note: Water Quality Certification (WQC) Number 3886 issued March 12, 2012 replaces WQC Number 3820 issued April 6, 2010; WQC Number 3627 issued March 2007; WQC Number 3404 issued March 2003; WQC Number 3375 issued March 18, 2002; WQC Number 3289 issued June 1, 2000; WQC Number 3103 issued February 11, 1997; WQC Number 2732 issued May 1, 1992; WQC Number 2666 issued January 21, 1992; WQC Number 2177 issued November 5, 1987. This WQC is rescinded when the Corps of Engineers reauthorizes any of the corresponding Nationwide and/or Regional General Permits or when deemed appropriate by the Director of the Division of Water Quality.*



# Water Quality Certification No. 3886

## Attachment A: 401 Stormwater Requirements

The requirements listed below shall be implemented in order to comply with Condition 12 of this General Certification. For the North Carolina Department of Transportation, compliance with NCDOT's Individual NPDES permit NCS000250 shall serve to satisfy the 401 and Isolated Wetland Stormwater Requirements.<sup>1</sup>

- A. **Design and Implementation Requirements.** All projects, regardless of project area, amount of built-upon area or amount of jurisdictional impact, shall meet the following stormwater design requirements:
- i. **Non-Erosive Discharge to Streams and Wetlands.** Stormwater conveyances that discharge to streams and wetlands must discharge at a non-erosive velocity prior to entering the stream or wetland during the peak flow from the ten-year storm.<sup>2</sup>
  - ii. **Vegetated Setbacks.** A 30-foot wide vegetated setback must be maintained adjacent to streams, rivers and tidal waters in areas that are not subject to a state Riparian Area Protection Rule or other more stringent vegetated setback requirements. The width of the setback shall be measured horizontally from the normal pool elevation of impounded structures, the top-of-bank of streams and rivers, and the mean high waterline of tidal waters, perpendicular to shoreline. Vegetated setback and filters required by state rules or local governments may be met concurrently with this requirement and may contain coastal, isolated or 404 jurisdictional wetlands. Non-jurisdictional portions of the vegetated setback may be cleared and graded, but must be planted with and maintained in grass or other vegetative or plant material.<sup>3</sup>
  - iii. **Construction and Operation.** The stormwater management plan must be constructed and operational before any permanent building or other structure is occupied or utilized at the site. The stormwater management plan, including drainage patterns, must be maintained in perpetuity.<sup>4</sup>
  - iv. **Coordination with Other Stormwater Programs.** Projects that are subject to another Division of Water Quality (DWQ) stormwater program, including (but not limited to) the 20 Coastal Counties, HQW, ORW or state-implemented Phase II NPDES, or a Certified Community's stormwater management program, must be constructed and maintained in compliance with the approved stormwater management plan.<sup>5</sup>
  - v. **Stormwater Design Requirements for Projects Not Covered Under Item (iv).** Projects that are not subject to another DWQ stormwater program or a Certified Community's stormwater program shall meet all of the following requirements:
    - a. **Low Density.** A site is low density if all the following requirements are met:
      1. The development has a built upon area of twenty-four percent (24%) or less, considering both current and future development. When determining the amount of built upon area, coastal wetlands shall be included; however, ponds, lakes and rivers as specified in North Carolina's Schedule of Classifications shall be excluded. If a portion of project has a density greater than 24%, the higher density area must be located in an upland area and away from surface waters and drainageways to the maximum extent practicable.<sup>6</sup>
      2. All stormwater runoff from the built upon areas is transported primarily via vegetated conveyances designed in accordance with the most recent version of the *NC DWQ Stormwater Best Management Practices Manual*. Alternative designs may be approved if the applicant can show that the design provides



## Water Quality Certification No. 3886

equal or better water quality protection than the practices specified in the manual. The project must not include a stormwater collection system (such as piped conveyances) as defined in 15A NCAC 02B .0202(60).<sup>7</sup>

- b. **High Density.** Projects that do not meet the Low Density requirements shall meet the following requirements:

1. Stormwater runoff from the entire site must be treated by structural stormwater controls (BMPs) that are designed to remove eighty-five percent (85%) of the average annual amount of Total Suspended Solids (TSS). Stormwater runoff that drains directly to Nutrient Sensitive Waters (NSW) must also be treated to remove thirty percent (30%) of Total Nitrogen (TN) and Total Phosphorus (TP).<sup>8</sup>
2. All BMPs must be designed in accordance with the version of the *NC DWQ Stormwater Best Management Practices Manual* that is in place on the date of stormwater management plan submittal. Alternative designs may be approved if the applicant can show that the design provides equal or better water quality protection than the practices specified in the manual.<sup>9</sup>
3. DWQ may add specific stormwater management requirements on a case-by-case basis in order to ensure that a proposed activity will not violate water quality standards.<sup>10</sup>
4. DWQ may approve Low Impact Developments (LIDs) that meet the guidance set forth in the *Low Impact Development: A Guidebook for North Carolina*.<sup>11</sup>
5. Proposed new development undertaken by a local government solely as a public road project shall follow the requirements of the NC DOT BMP Toolbox rather than Items (1)-(4) above.<sup>12</sup>

- B. **Submittal Requirements.** The submittal requirements listed below apply only to projects that require written authorization as indicated in the applicable General Certification as well as projects that require an Isolated Wetlands Permit. **Any required documentation shall be sent to the Wetlands, Buffers and Stormwater Compliance and Permitting Unit at 1650 Mail Service Center, Raleigh, NC 27699-1650.**

- i. **Projects that are Subject to Another DWQ Stormwater Program:** If the project is subject to another DWQ stormwater program, such as the 20 Coastal Counties, HQW, ORW or state-implemented Phase II NPDES, then the applicant shall submit a copy of the stormwater approval letter before any impacts occur on site.<sup>13</sup>
- ii. **Projects that are Subject to a Certified Community's Stormwater Program.** If the project is subject to a certified local government's stormwater program, then the applicant shall submit one set of approved stormwater management plan details and calculations with documentation of the local government's approval before any impacts occur on site.<sup>5</sup>
- iii. **Projects Not Covered Under Items (i) or (ii).** If the project is not subject to another DWQ Stormwater Program or a Certified Community's stormwater program, then it shall be reviewed and approved by the DWQ through the Water Quality Certification authorization process.
  - a. **Low Density.** For low density projects, the applicant shall submit two copies of the DWQ Low Density Supplement Form with all required items.<sup>13</sup>

## Water Quality Certification No. 3886

- b. **High Density.** For high density projects, the applicant shall submit two copies of a DWQ BMP Supplement Form and all required items at the specified scales for each BMP that is proposed.<sup>13</sup>
- iv. **Phasing.** Stormwater management plans may be phased on a case-by-case basis, with the submittal of a final stormwater management plan per Items (i)-(iii) above required for the current phase and a conceptual stormwater management plan for the future phase(s). The stormwater management plan for each future phase must be approved by the appropriate entity before construction of that phase is commenced. The approved stormwater management plan for each future phase must be constructed and operational before any permanent building or other structure associated with that phase is occupied.<sup>14</sup>
- v. **Stormwater Management Plan Modifications.** The stormwater management plan may not be modified without prior written authorization from the entity that approved the plan. If the project is within a Certified Community, then the applicant shall submit one set of approved stormwater management plan details and calculations with documentation of the local government's approval for record-keeping purposes. If the project is subject to DWQ review, then the applicant shall submit two copies of the appropriate Supplement Forms per Item (iii) above for any BMPs that have been modified for DWQ's review and approval.<sup>15</sup>

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<sup>1</sup> The stormwater requirement for 401 applications is codified in 15A NCAC 02H .0506(b)(5) and (c)(5).

<sup>2</sup> Non erosive discharge rates are required in SL 2008-211§2(b)(1). The 10-year design storm standard is codified in 15A NCAC 02H .1008(f)(2) and .1008(g)(1).

<sup>3</sup> 30-foot vegetated setbacks are required in SL 2006-246§9(d), SL 2008-211§2(b), 15A NCAC 02H .1006(2)(c) and .1007(1)(a).

<sup>4</sup> Construction and maintenance of the stormwater plan is necessary to satisfy 15A NCAC 02H .0506(b)(5).

<sup>5</sup> Conveys application procedure to streamline the permitting process and reduce any unnecessary duplication in the review of stormwater management plans.

<sup>6</sup> Low density built upon area thresholds are set in SL 2006-246§9(c) and SL 2008-211§2(b).

<sup>7</sup> The requirement for low density development to use vegetated conveyances is codified in SL 2006-246§9(c), SL 2008-211§2(b), 15A NCAC 02H .1006(2)(b) and .1007(1)(a). The Stormwater BMP Manual is also referenced in 15A NCAC 02B .0265(3)(a) and .0277(4)(e).

<sup>8</sup> 85% TSS removal is required in SL 2006-246§9(d), SL 2008-211§2(b), 15A NCAC 02H .1006(2)(c), 15A NCAC 02H .1007(1)(a). The 30% TN and TP removal requirements for NSW waters are set forth in 15A NCAC 02B .0232, 15A NCAC 02B .0257(a)(1), 15A NCAC 02B .0265(3)(a) and 15A NCAC 02B .0277(4).

<sup>9</sup> The Stormwater BMP Manual is also referenced in 15A NCAC 02B .0265(3)(a) and .0277(4)(e).

<sup>10</sup> The requirement for DWQ to ensure that water quality standards are protected before issuing a 401 certification is codified in 15A NCAC 02H .0506.

<sup>11</sup> The LID Toolbox is also referenced in 15A NCAC 02B .0277(4)(g).

<sup>12</sup> The term "public road project" is defined in 15A NCAC 02B .0265(3)(a).

<sup>13</sup> Conveys application procedure to streamline the permitting process.

<sup>14</sup> Phased development is addressed as a "common plan of development" in 15A NCAC 02H .1003(3).

<sup>15</sup> Procedures for modifying stormwater plans are set forth in 15A NCAC 02H .1011.



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

ROY COOPER  
GOVERNOR

JAMES H. TROGDON, III  
SECRETARY

February 27, 2017

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

ATTN: Mr. Steve Kichefski  
NCDOT Coordinator

Subject: **Supplemental Information for the Site 2 Stream Relocation on Section B**

Reference: Application for Regional General Permit No 31, dated February 24, 2017  
Individual Permit Application dated October 12, 2016  
Request to Rescind Individual 404 and 401 Water Quality Certification, dated December 8, 2016.

The information below is provided to supplement the February 24, 2017 Regional General Permit No 31 application to provide additional information for the stream relocation at Permit Site R-3100 B, Site 2.

General Project Information:

The North Carolina Department of Transportation (NCDOT) proposes to widen NC 16 from the current 4 lane section east of Conover at 1801 (Claremont Road) to the current 4 lane section west of Denver near SR 1895 (Tower Road) Catawba County. The project is approximately 8.2 miles in length.

Site Specific Description:

NC 16 will be widened using a "best fit symmetrical widening." In the vicinity of Site 2, two streams parallel NC 16 on either side of the road. At the Merger Point 4B meeting, after looking at many options and scenarios, it was determined to avoid permanent loss of water impacts to the UT to Smyre Creek, that was a larger, and higher scoring system on the DWQ Stream Identification Form.

The avoidance to one stream, results in a stream relocation impact to the other UT to Smyre Creek. This UT is located between NC 16 and Coley Pond Road. The stream appears to have been relocated either by the existing NC 16 or by a sewer line in the past. It currently has very little buffer, contains vegetation in the form of kudzu, and receives untreated highway stormwater.

*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](http://www.ncdot.gov)

*Location:*  
1020 BIRCH RIDGE DRIVE  
RALEIGH NC 27610

## Project Impacts in Area of Stream Relocation:

### **R-3100 B Permit Site 2:**

The wider roadway slopes will require the removal of the existing 6' x 6' box culvert, and replacement with a 10' x 10' culvert with 3' alternating baffles. It will also result in the relocation of a parallel stream to NC 16.

The culvert replacement will result in 52 linear feet (<0.01 acre) of permanent stream impact, 39 linear feet (<0.01 acre) of permanent stream impact by way of bank stabilization, and 11 linear feet (<0.01 acre) of temporary stream impact.

The channel re-alignment will result in 413 linear feet (0.05 acre) of permanent stream impact, and 32 linear feet (<0.01 acre) of temporary impact.

**Site 2A** was created to separate the impacts with an adjoining tributary for permitting purposes. It was evaluated in the 4B and 4C Concurrence Meetings with Site 2.

The confluence of this tributary with Site 2 will result in 177 linear feet (0.02 acre) of permanent stream impact, and 33 linear feet (<0.01 acre) of temporary stream impact.

Additional Information pursuant to Regional General Permit No. 198200031, Section r, which states:

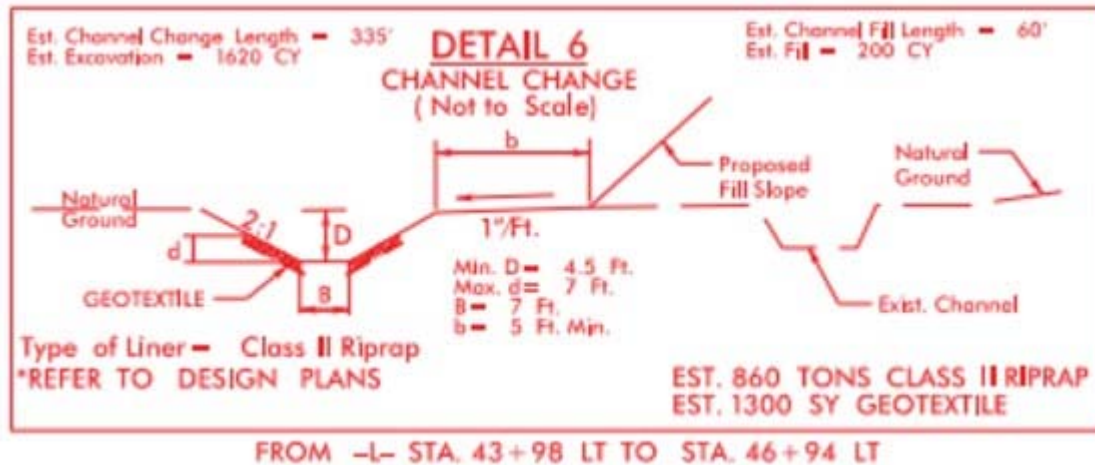
*r. Stream relocation(s) associated with projects may be authorized under this RGP. As stated above, mitigation will be required for all relocation projects. If the stream relocation is conducted in accordance with the requirements stated below in 1-5, the relocated segment of stream may\* be considered toward reducing the amount of compensatory mitigation required. A relocation plan must be submitted with the PCN that addresses all factors required within the current Wilmington District, Corps of Engineers Stream Mitigation Guidelines, which can include, but may not be limited to:*

*(1) The relocated stream has pattern, profile, and dimension based on natural channel design. If natural channel design construction is not possible due to site constraints, the relocated stream must have pattern, profile, and dimension similar to, or better than, the existing stream. Note that site constraints do not include those situations where NCDOT chooses not to acquire additional adjacent property that is available for purchase.*

The current stream dimension is an incised system with approximately 5' bank height, and bed width ranging from 3-7 feet. The banks of the system are steep with kudzu as the dominant vegetation.

In the revised stream profile, the banks will be placed at a 2:1 slope. See Detail 6 below. The bed width will remain approximately the same, and the bank vegetation will be planted as noted in the planting plan described in Figure 1. For stabilization purposes, riprap on geotextile fabric will line the banks.

The culvert will contain 3' alternating baffles to maintain the "natural" stream width of 7' through the culvert.



(2) The new stream meets the current buffer requirements as stated in current District stream mitigation guidance. If the required buffer widths cannot be obtained, a project by-project decision will be completed to determine if additional compensatory mitigation is required.

Site 2: Stream buffer enhancements/ improvements:

Roadside Environmental treated this as a full stream restoration, and applied the planting plan as if that was the case. This will provide the system a buffer, which currently does not exist (or exists in the form of kudzu).

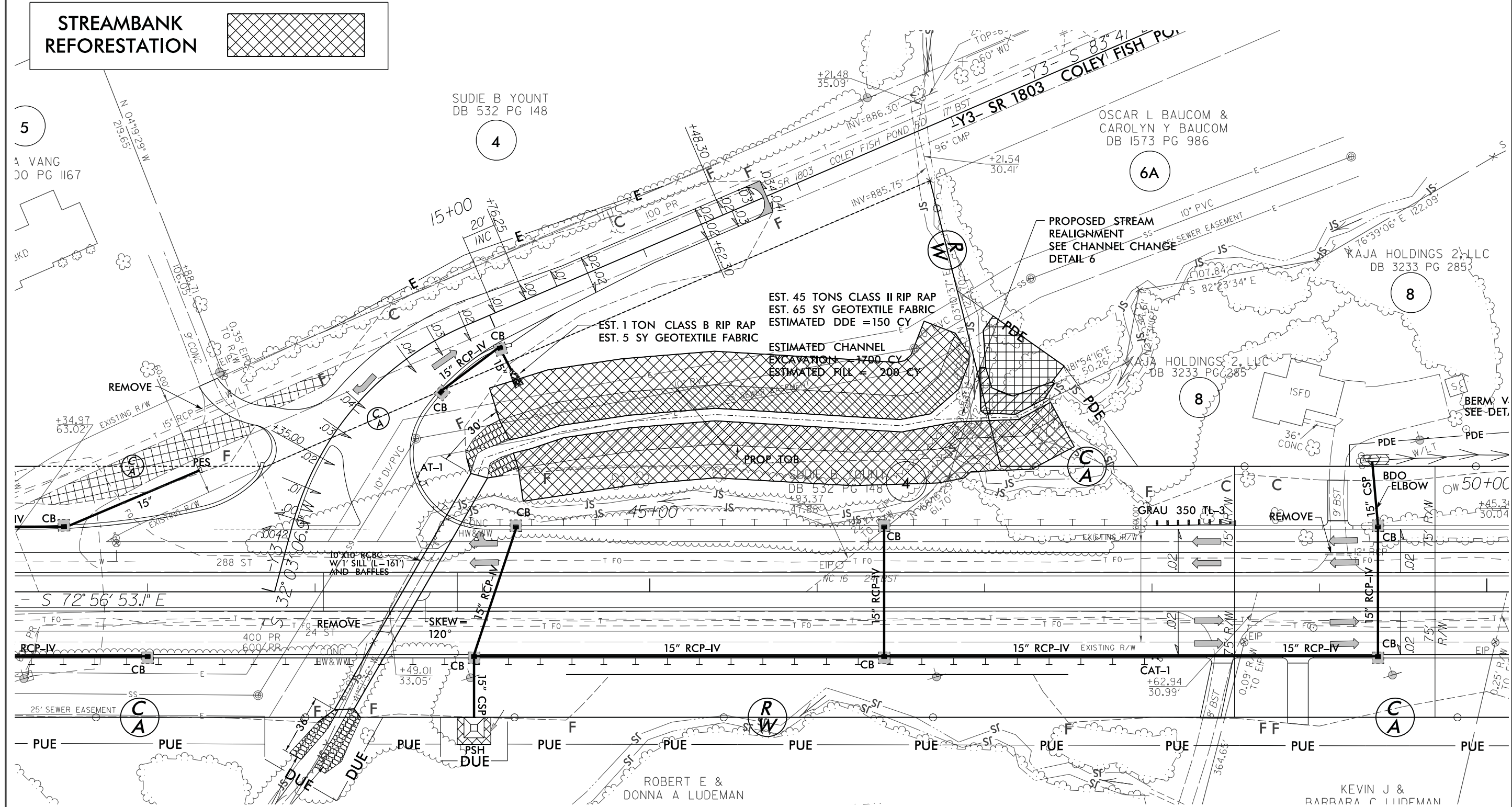
Note that Roadside Environmental has placed plantings inside the 25' sewer easement. Those plantings are subject to the maintenance of the buffer, and may be mowed periodically, outside of NCDOT control.

The NCDOT reforestation plan follows this page.

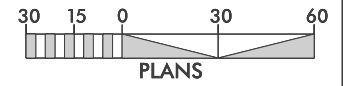


# 0.5 ACRE STREAMBANK REFORESTATION

PROJECT REFERENCE NO.	SHEET NO.
R-3100B	EC-20A/CONST.06
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

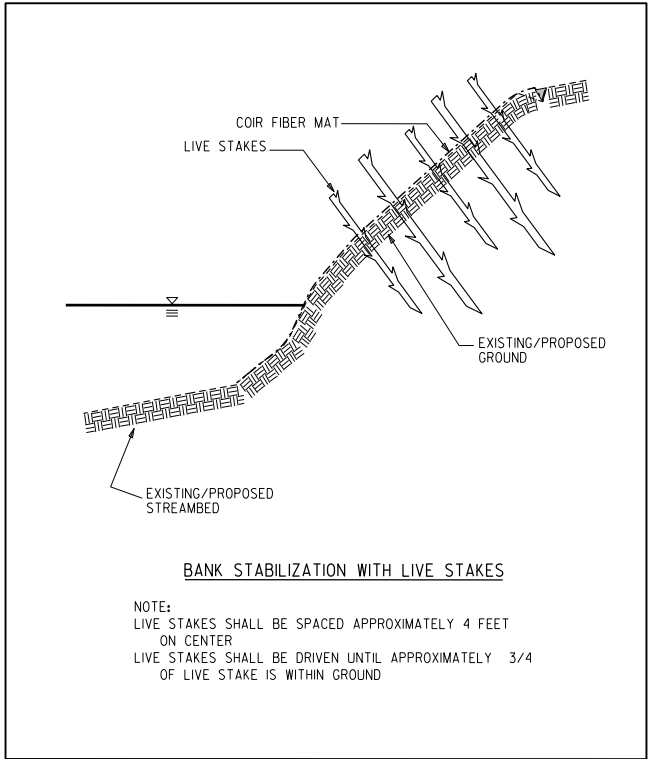
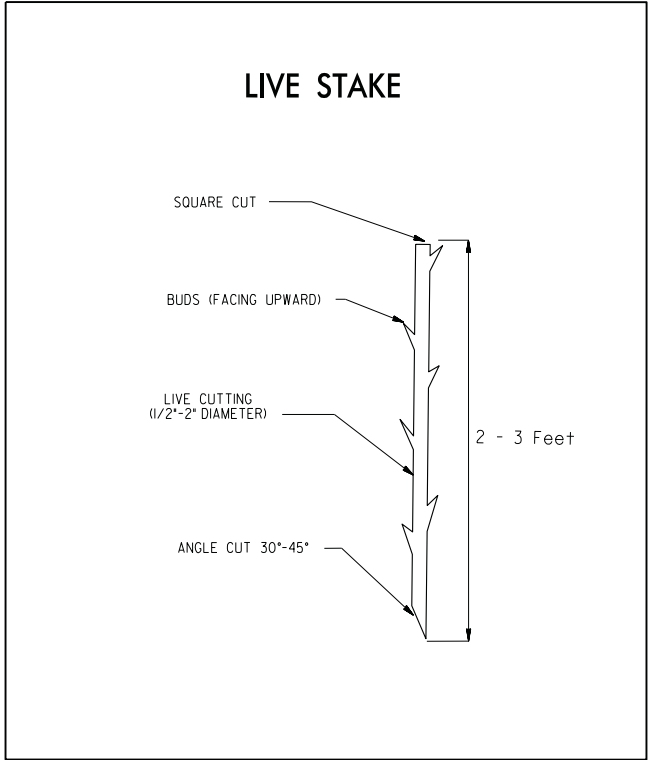


SEE RF-2, RF-3 AND PROJECT SPECIAL PROVISIONS

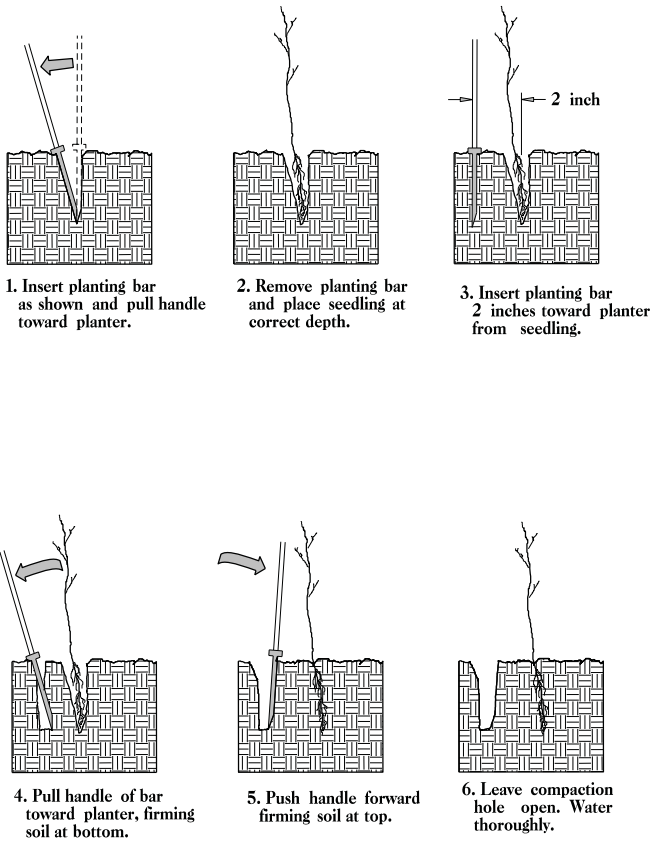


PLANTING DETAILS

LIVE STAKES PLANTING DETAIL



BAREROOT PLANTING DETAIL  
DIBBLE PLANTING METHOD  
USING THE KBC PLANTING BAR

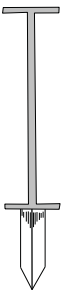


PLANTING NOTES:

PLANTING BAG  
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.



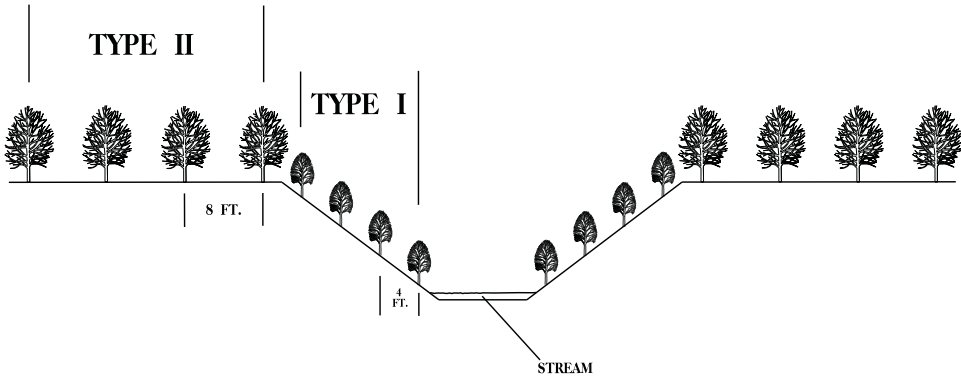
KBC PLANTING BAR  
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.



ROOT PRUNING  
All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.

- TYPE 1 STREAMBANK REFORESTATION SHALL BE PLANTED 3 FT. TO 5 FT. ON CENTER, RANDOM SPACING, AVERAGING 4 FT. ON CENTER, APPROXIMATELY 2724 PLANTS PER ACRE.
- TYPE 2 STREAMBANK REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.
- NOTE: TYPE 1 AND TYPE 2 STREAMBANK REFORESTATION SHALL BE PAID FOR AS "STREAMBANK REFORESTATION"

STREAMBANK REFORESTATION TYPICAL



STREAMBANK REFORESTATION

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

TYPE 1

50% SALIX NIGRA	BLACK WILLOW	2 ft - 3 ft LIVE STAKES
50% CORNUS AMOMUM	SILKY DOGWOOD	2 ft - 3 ft LIVE STAKES

TYPE 2

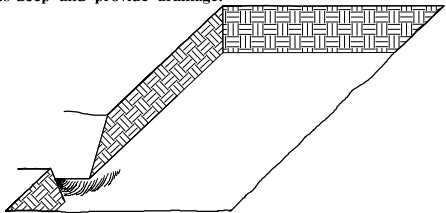
25% LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in - 18 in BR
25% PLATANUS OCCIDENTALIS	SYCAMORE	12 in - 18 in BR
25% PRUNUS SEROTINA	BLACK CHERRY	12 in - 18 in BR
25% BETULA NIGRA	RIVER BIRCH	12 in - 18 in BR

- SEE PLAN SHEETS FOR AREAS TO BE PLANTED

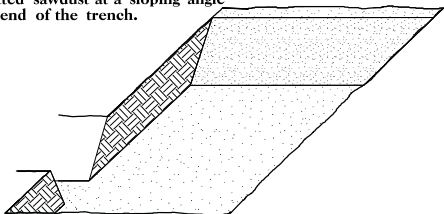
PLANTING DETAILS  
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

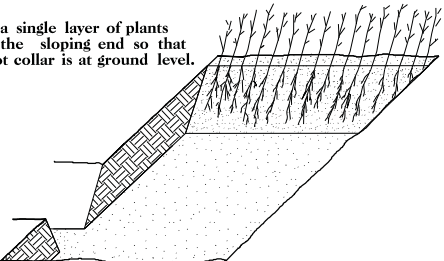
1. Locate a healing-in site in a shady, well protected area.  
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



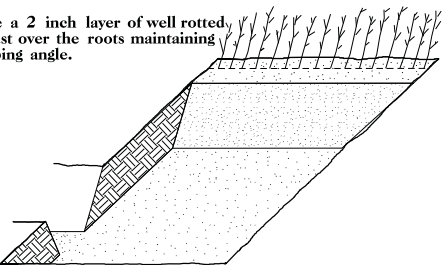
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



4. Place a single layer of plants against the sloping end so that the root collar is at ground level.

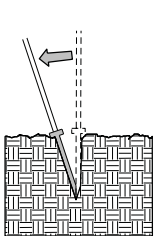


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

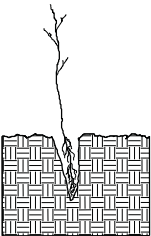


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

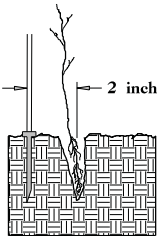
DIBBLE PLANTING METHOD  
USING THE KBC PLANTING BAR



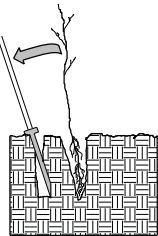
1. Insert planting bar as shown and pull handle toward planter.



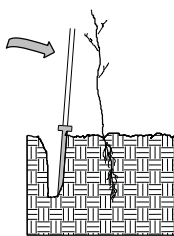
2. Remove planting bar and place seedling at correct depth.



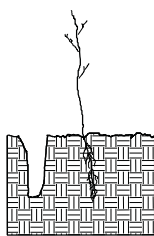
3. Insert planting bar 2 inches toward planter from seedling.



4. Pull handle of bar toward planter, firming soil at bottom.



5. Push handle forward firming soil at top.



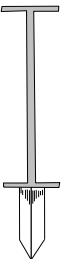
6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

**PLANTING BAG**  
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.



**KBC PLANTING BAR**  
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.



**ROOT PRUNING**  
All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.

REFORESTATION

- ☐ TREE REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

REFORESTATION

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

25% LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in - 18 in BR
25% PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	12 in - 18 in BR
25% FRAXINUS PENNSYLVANICA	GREEN ASH	12 in - 18 in BR
25% BETULA NIGRA	RIVER BIRCH	12 in - 18 in BR

REFORESTATION DETAIL SHEET

N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT

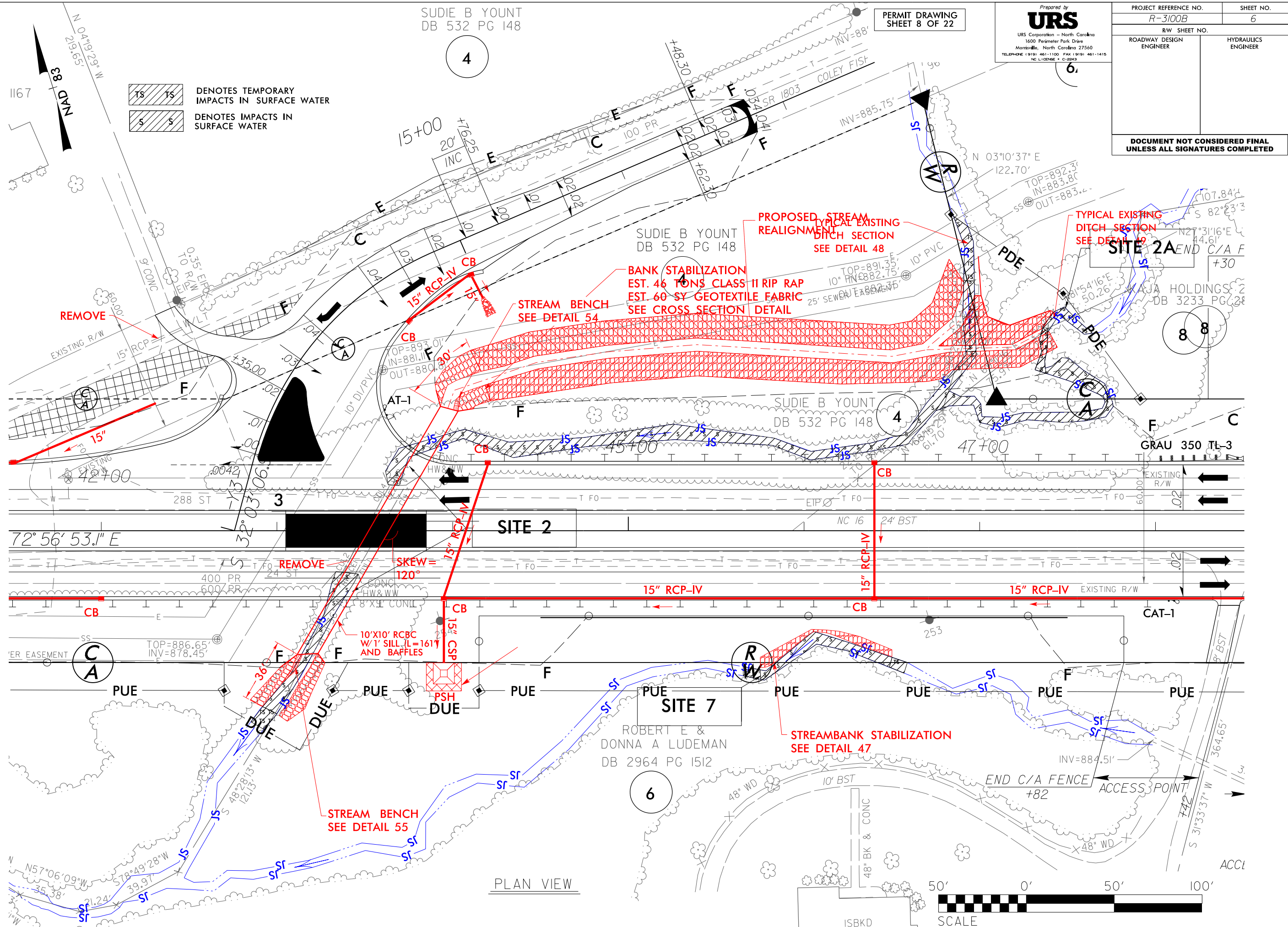


#### Stormwater

Currently, stormwater runs off of the roadway untreated into the stream area.

Stormwater in the new study area will be captured and discharged on the opposite side of the roadway (and downstream) into a pre-formed scour hole. Therefore, the relocated system will not receive roadway stormwater.

Permit Drawing Sheet 8 of 22 displays the stormwater system and is included on the following page.



*(3) The new location allows the relocated stream to remain stable (e.g., in a 6 valley vs. on a slope, no bends that will impact stability, etc.).*

There are two main bends in the relocated stream system. The first is in the transition from the current to the new channel. The current profile (as noted above) includes Class II Riprap to ensure stability. The second bend is located at the culvert entrance. This area will also contain Class II Riprap to the transition to the new culvert for stability.

*(4) There is no loss of channel for any reason (e.g., old channel is 200' and new channel is 150' = 50' channel loss; part of the new channel is put in a culvert; the new channel (sides and bottom) is hardened with concrete, rip rap, etc.).*

Measurements:

The existing channel at Site 2 is 413 linear feet.

The future, shifted channel at Site 2 will be 335 linear feet.

*(5) The Corps will determine if monitoring and reporting will be required for a specific project and the parameters of any required monitoring and reporting. If monitoring is required, a monitoring plan must be included with the PCN and meet current requirements.*

Visual- photographic monitoring will be completed annually for 2 years after completion of the relocation. Two bank full events should be photographed in that period.



## North Carolina Department of Transportation

Highway Stormwater Program  
STORMWATER MANAGEMENT PLAN  
FOR LINEAR ROADWAY PROJECTS

(Version 1.2; Released September 2011)

Project/TIP No.: R-3100B County(ies): Catawba Page 1 of 2

## General Project Information

Project No.:	R-3100B	Project Type:	Roadway Widening	Date:	9/28/2016
NCDOT Contact:	Bill Zerman, PE	Contractor / Designer:	URS Corporation - North Carolina; Dennis Hoyle, PE, PLS		
Address:	1590 Mail Service Center Raleigh, NC 27699-1590	Address:	701 Corporate Center Dr., Suite 475 Raleigh, NC 27607		
	Phone:		919-707-6755	Phone:	919-854-6200
	Email:		bzerman@ncdot.gov	Email:	dennis.hoyle@aecom.com
City/Town:	Newton, NC	County(ies):	Catawba		
River Basin(s):	Catawba	CAMA County?	No		
Primary Receiving Water:	Smyre Creek; Maiden Creek	NCDWQ Stream Index No.:	11-129-5-4-1, 11-129-5-7-2-(1)		
NCDWQ Surface Water Classification for Primary Receiving Water	Primary:	Class C	Water Supply V (WS-V)		
	Supplemental:	None	None		
Other Stream Classification:	None	S4a/S4b	C		
303(d) Impairments:	biological impairment				
Buffer Rules in Effect	N/A				

## Project Description

Project Length (lin. Miles or feet):	3.46 miles	Surrounding Land Use:	Low-Density residential (R-30)	
	Proposed Project		Existing Site	
Project Built-Upon Area (ac.)	28.55 ac.		15.03 ac.	
Typical Cross Section Description:	Divided median highway with two lanes in each direction and bulb turnouts for limited access. 12' lane widths.		Two lane highway with intersection. 11' lane widths	
Average Daily Traffic (veh/hr/day):	Design/Future:	20,200 VPD	Existing:	13,050 VPD

**General Project Narrative:**

East of Newton, NC in the Catawba River Basin, 3.46 miles of NC16, existing 2-lane highway alignment between Claremont Road and east of Balls Creek Road, will be replaced with a 4-lane divided highway section with raised median and superstreet intersection design. The new alignment will follow the existing path of NC 16.

The roadway drainage system will consist of curb and gutter draining roadway runoff to median and curb inlets with outlets disconnected from surface waters. Drainage system outlets utilize energy dissipation devices such as pre-formed scour holes and rip rap pads as well as grassed channels and swales. Where channels flow into jurisdictional streams, riprap will be used to stabilize the banks.

Two named streams or their tributaries are affected by the proposed project:  
Smyre Creek - Index # 11-129-5-4-1; Stream Classification C  
Maiden Creek - Index # 11-129-5-7-2-(1); Stream Classification WS-V; 303(d) Parameter of Interest: Benthos Fair (Nar, AL, FW)

There are five jurisdictional stream crossings. Two crossings require culverts equal to a 60" diameter each. Two crossings utilize box culverts. Pipes and culverts within jurisdictional streams are designed with a buried depth of 20% of the diameter for pipe sizes up to and including 48" and a buried depth of one foot for box culverts and pipes over 48".

A tributary to Smyre Creek will undergo approximately 300 feet of realignment.

## References

NCDENR - Surface Water Classification Web Mapping (<http://portal.ncdenr.org/web/wq/ps/csu/maps>); NCDENR Draft 2014 303d List



(Version 1.2; Released September 2011)

Page 2 of 2

[illegible]

All proposed SCMs listed must also be listed under Swales, Preformed Sour Holes and other Energy Dissipators, or Other Stormwater Control Measures.

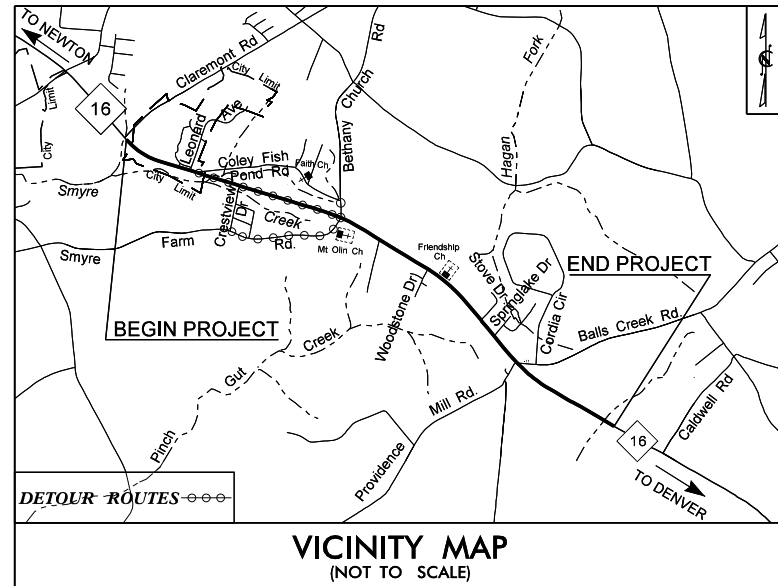
Pipes and culverts within jurisdictional streams are designed with a buried depth of 20% of the diameter for pipe sizes up to and including 48" and a buried depth of one foot for box culverts and pipes over 48".

## References

TIP PROJECT: R-3100B

CONTRACT: C203800

See Sheet 1-A For Index of Sheets  
See Sheet 1-B For Conventional Symbols



STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

CATAWBA COUNTY

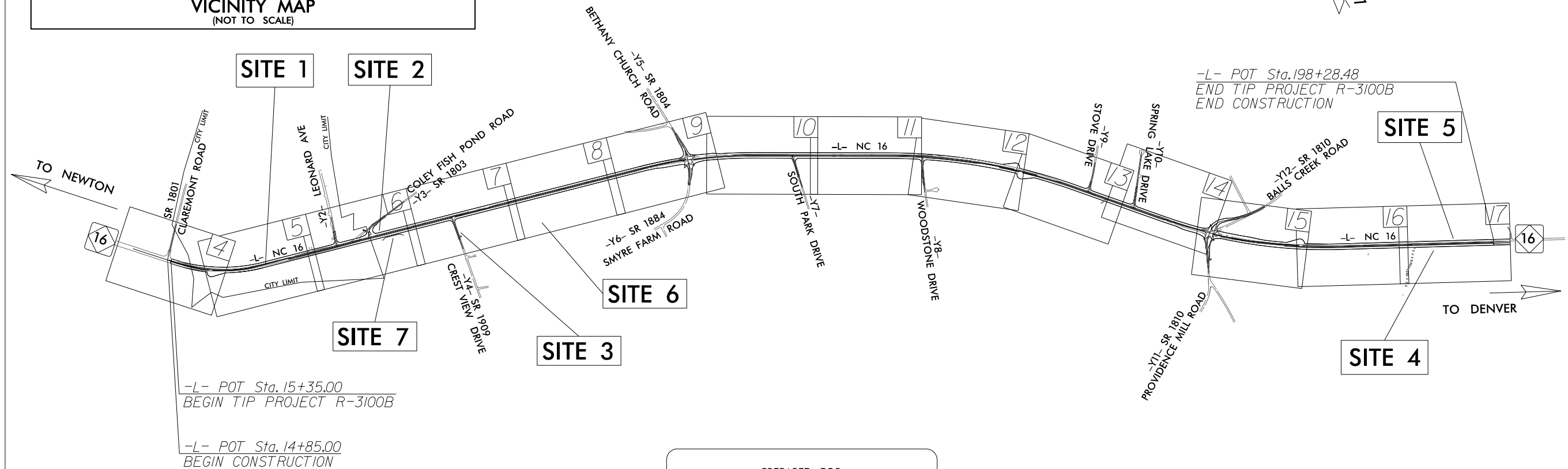
LOCATION: NC 16 FROM NORTH OF SR 1801 (CLAREMONT RD)  
TO NORTH OF SR 1814 (CALDWELL RD)

TYPE OF WORK: GRADING, DRAINAGE, RETAINING WALL,  
CULVERTS, PAVING & SIGNALS

WETLAND AND STREAM IMPACTS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3100B	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34522.1.4	STP-0016(53)	PE	
34522.2.FR4	STP-0016(53)	ROW	
34522.2.FRU4	STP-0016(53)	UTIL.	
34522.3.5	STP-0016(52)	CONST.	

PART 2 OF 2  
PERMIT DRAWING  
SHEET 1 OF 22



PREPARED FOR  
DEPARTMENT OF TRANSPORTATION  
RALEIGH, NC

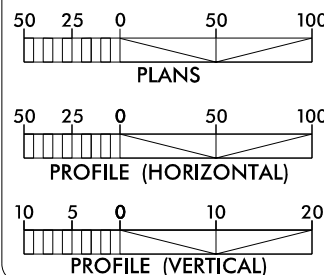
NCDOT CONTACT: GARY LOVERING, PE

★ PROPOSED SIGNAL

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

THIS PROJECT IS PARTIAL CONTROL-ACCESS, WITH ACCESS BEING LIMITED TO POINTS AS SHOWN ON PLANS.

GRAPHIC SCALES



DESIGN DATA

ADT 2017 = 13,408  
ADT 2037 = 20,558  
K = 10 %  
D = 65 %  
T = 9 % \*  
V = 50 MPH  
\*(TTST 4% + DUAL 5%)  
FUNC CL = RURAL ARTERIAL  
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-3100B = 3.465 Miles  
TOTAL LENGTH TIP PROJECT R-3100B = 3.465 Miles

URS

Prepared in the Office of:  
URS Corporation - North Carolina  
1600 Perimeter Park Drive  
Morrisville, North Carolina 27560  
TELEPHONE (919) 461-1100 FAX (919) 461-1415  
NC LICENSE # C-2243

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:  
JANUARY 30, 2015

LETTING DATE:  
APRIL 18, 2017

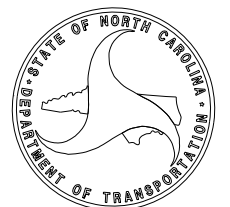
EDWARD G. EDENS, PE  
PROJECT ENGINEER

KEVIN J. VAN METRE, PE  
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: \_\_\_\_\_ P.E.  
ROADWAY DESIGN  
ENGINEER

SIGNATURE: \_\_\_\_\_ P.E.

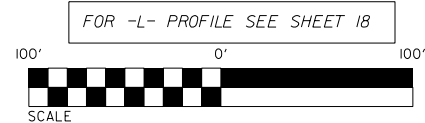
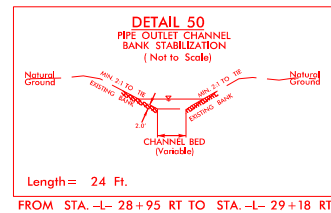
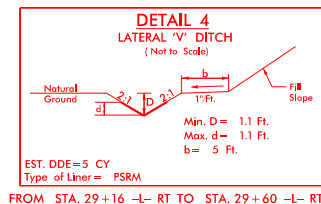




## REVISIONS

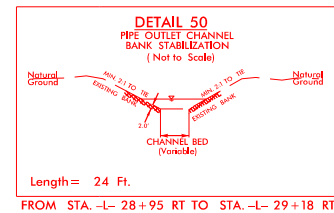
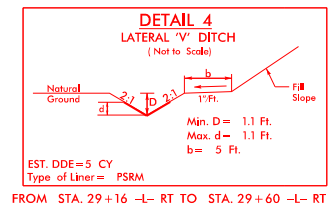
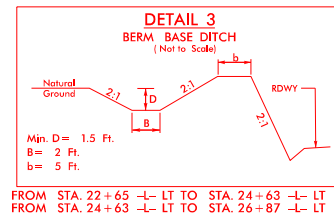
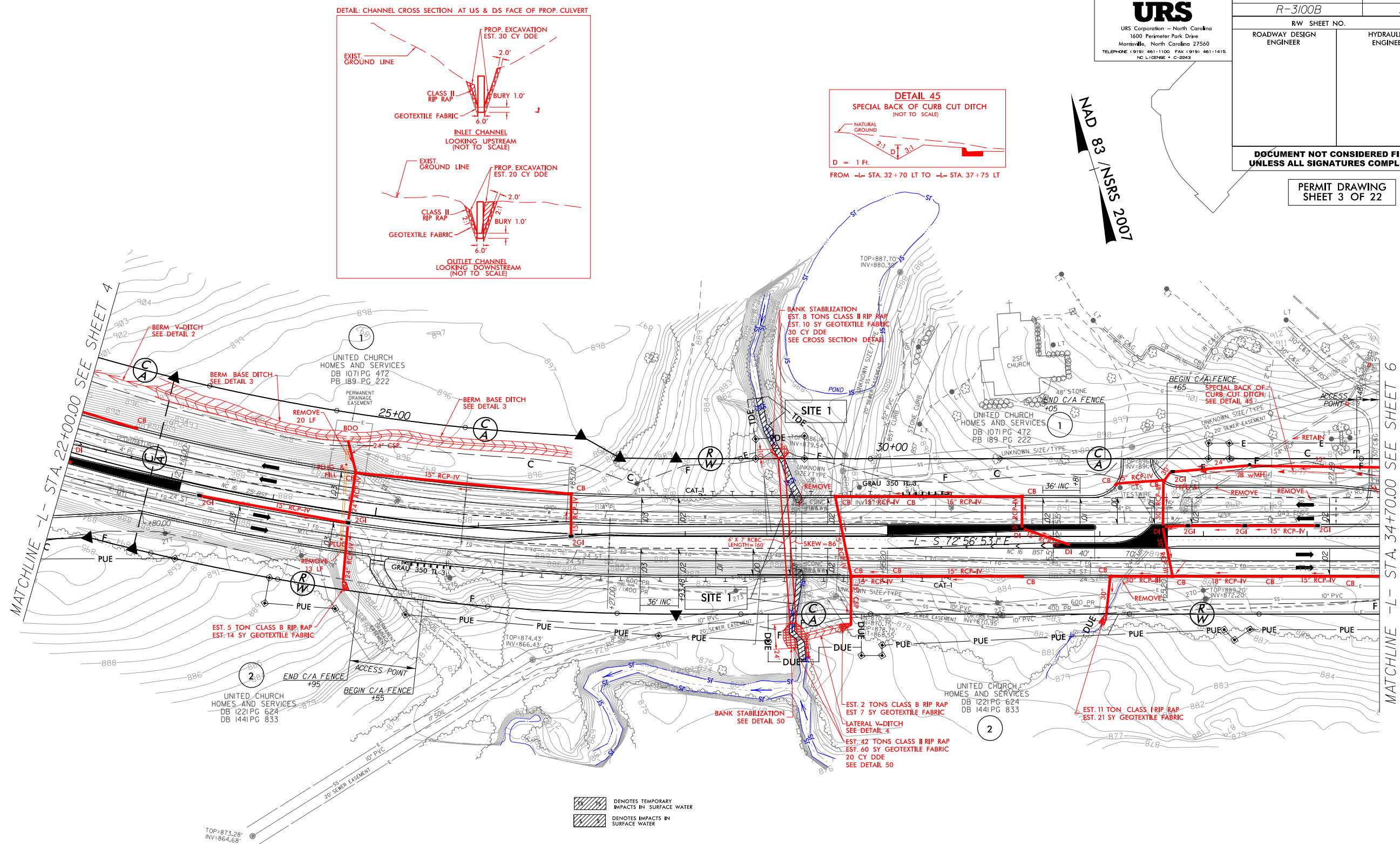
PROJECT REFERENCE NO.	SHEET NO.
R-3100B	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<p><b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b></p>	

\$\$\$\$SYTIME\$\$\$\$\$  
 \$\$\$DDN\$\$\$\$\$  
 \$\$\$USERNAME\$\$\$\$\$



## REVISIONS

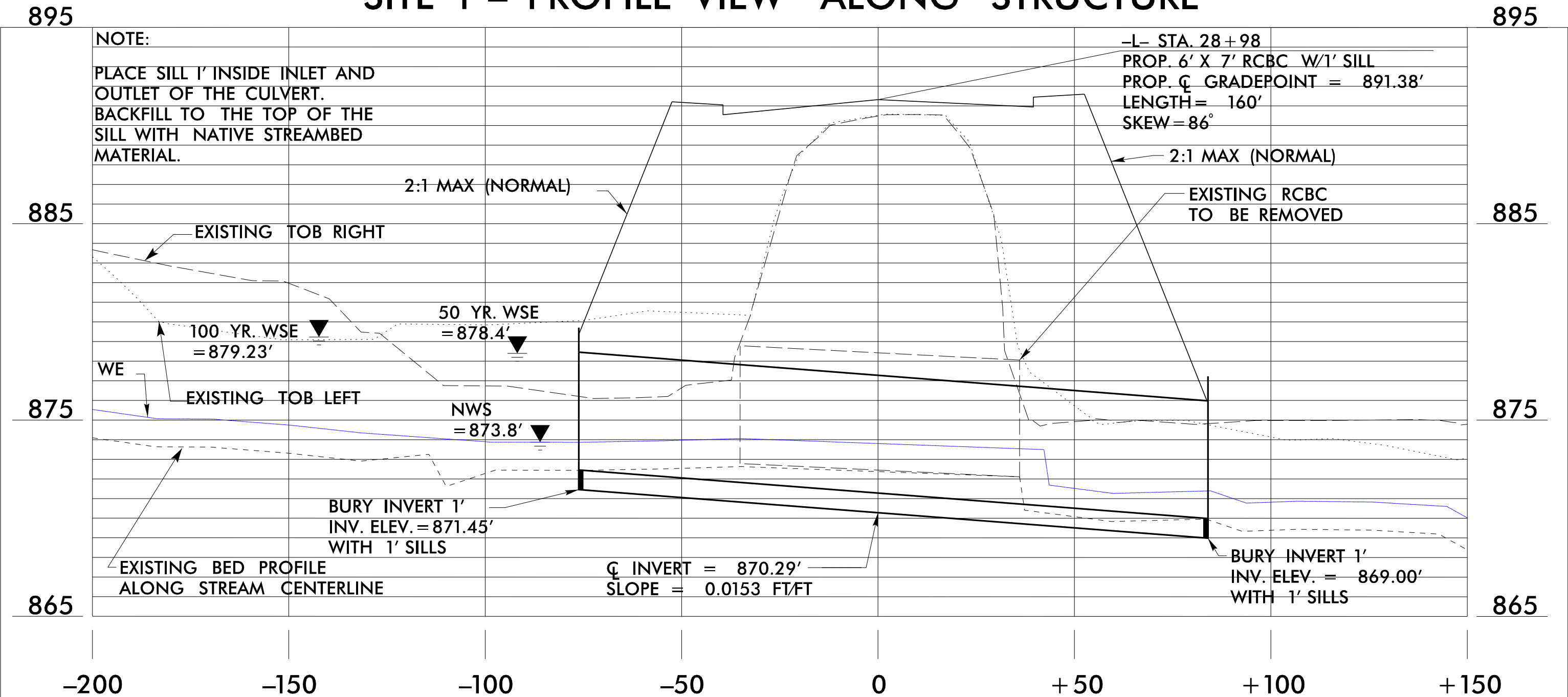
PROJECT REFERENCE NO.	SHEET NO.
R-3100B	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<p><b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b></p>	







# SITE 1 – PROFILE VIEW ALONG STRUCTURE



## PROFILE

### STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE =	250 CFS
DESIGN FREQUENCY =	50 YRS
DESIGN WS ELEVATION =	878.4 FT
BASE DISCHARGE =	300 CFS
BASE FREQUENCY =	100 YRS
BASE WS ELEVATION =	879.23 FT
OT DISCHARGE =	900 CFS
OT FREQUENCY =	>500 YRS
OT WS ELEVATION* =	891.5 FT

\*ROADWAY LOW POINT

Native Material consists of material that is excavated from the stream bed or floodplain at the project site during culvert construction. Only material that is excavated from the stream bed may be used to line the low flow culvert barrel. Rip rap may be used to supplement the Native Material in the high flow culvert barrel(s). If rip rap is used to line the high flow culvert barrel(s), Native Material should be placed on top to fill voids and provide a flat surface for animal passage. Native Material is subject to approval by the engineer and may be subject to permit conditions.

NCDOT

DIVISION OF HIGHWAYS  
CATAWBA COUNTY

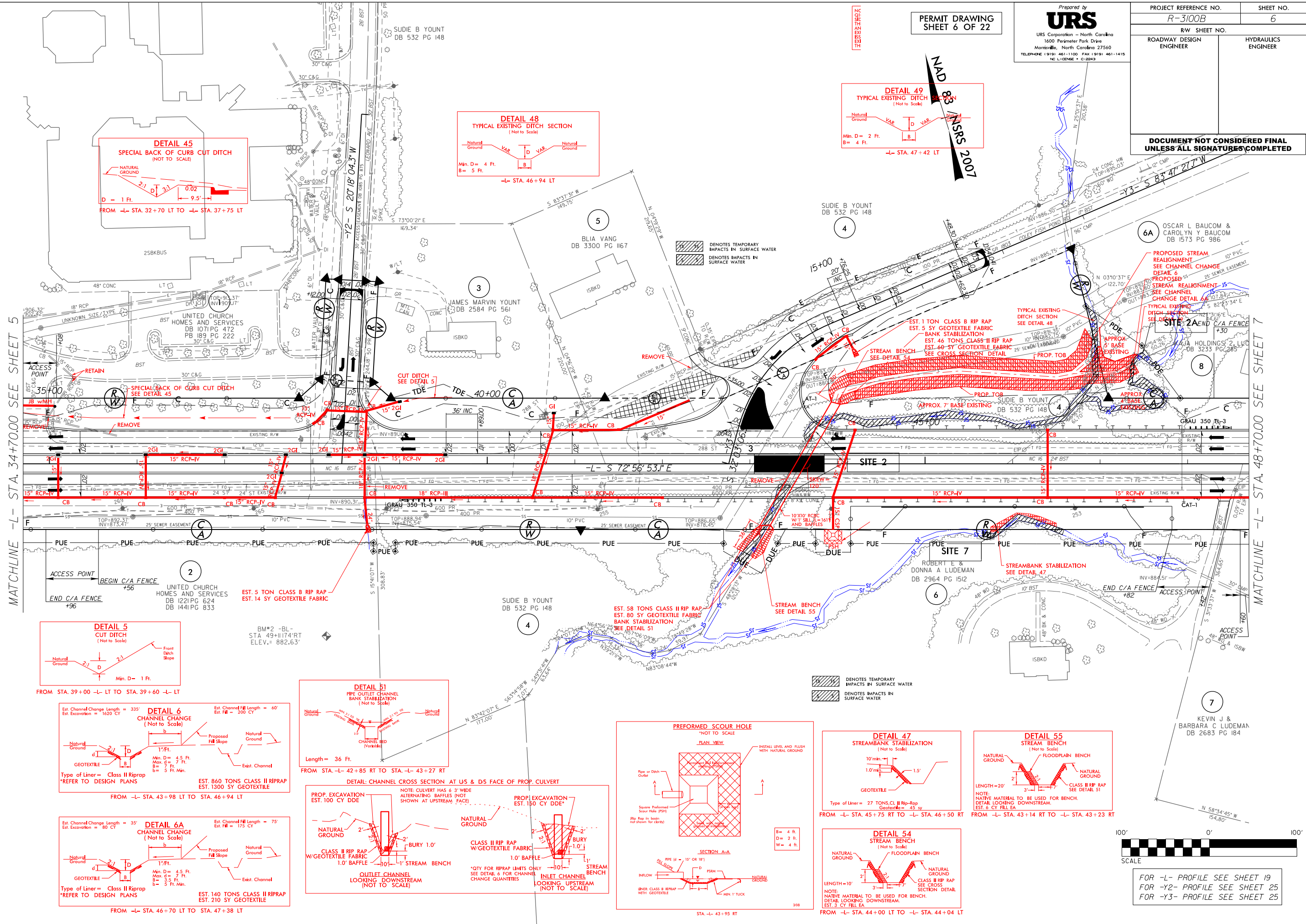
PROJECT: 34522.1.4 (R-3100B)

NC 16 NORTH OF SR 1801 (CLAREMONT RD)  
AND NORTH OF SR 1814 (CALDWELL RD)

SITE 1

PERMIT DRAWING  
SHEET 5 OF 22

02 / 20 / 17





8/17/99

PERMIT DRAWING  
SHEET 7 OF 22

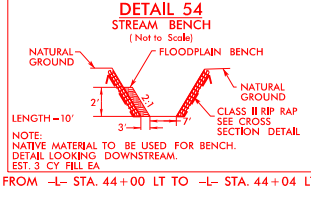
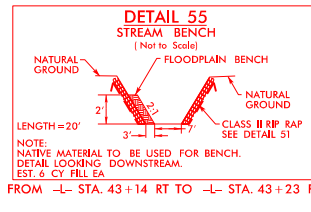
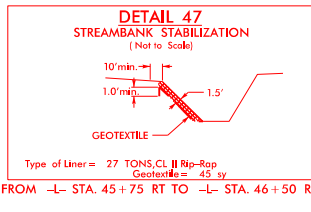
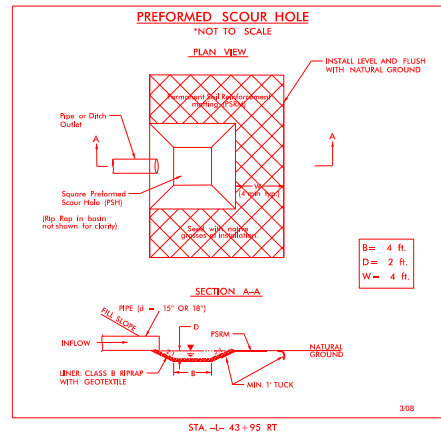
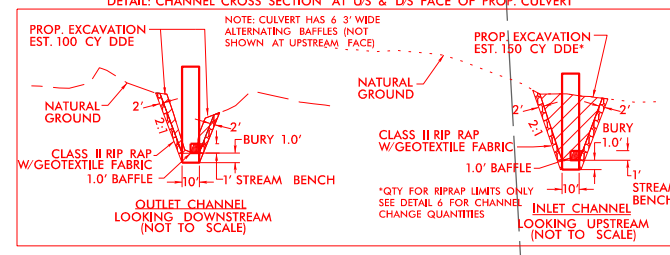
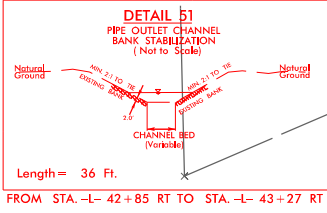
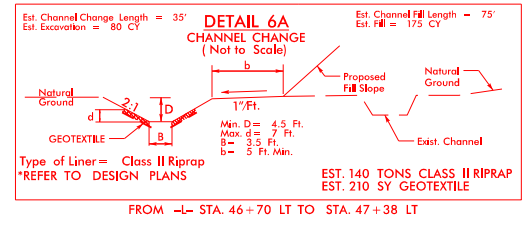
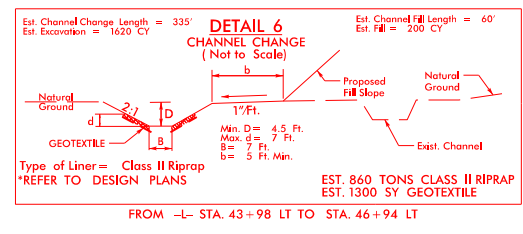
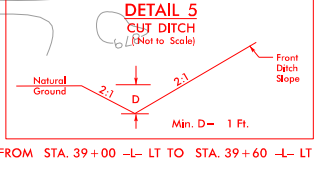
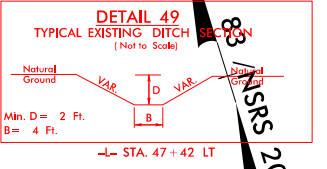
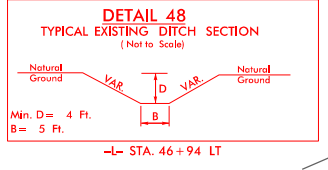
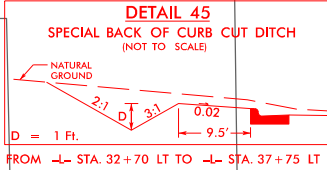
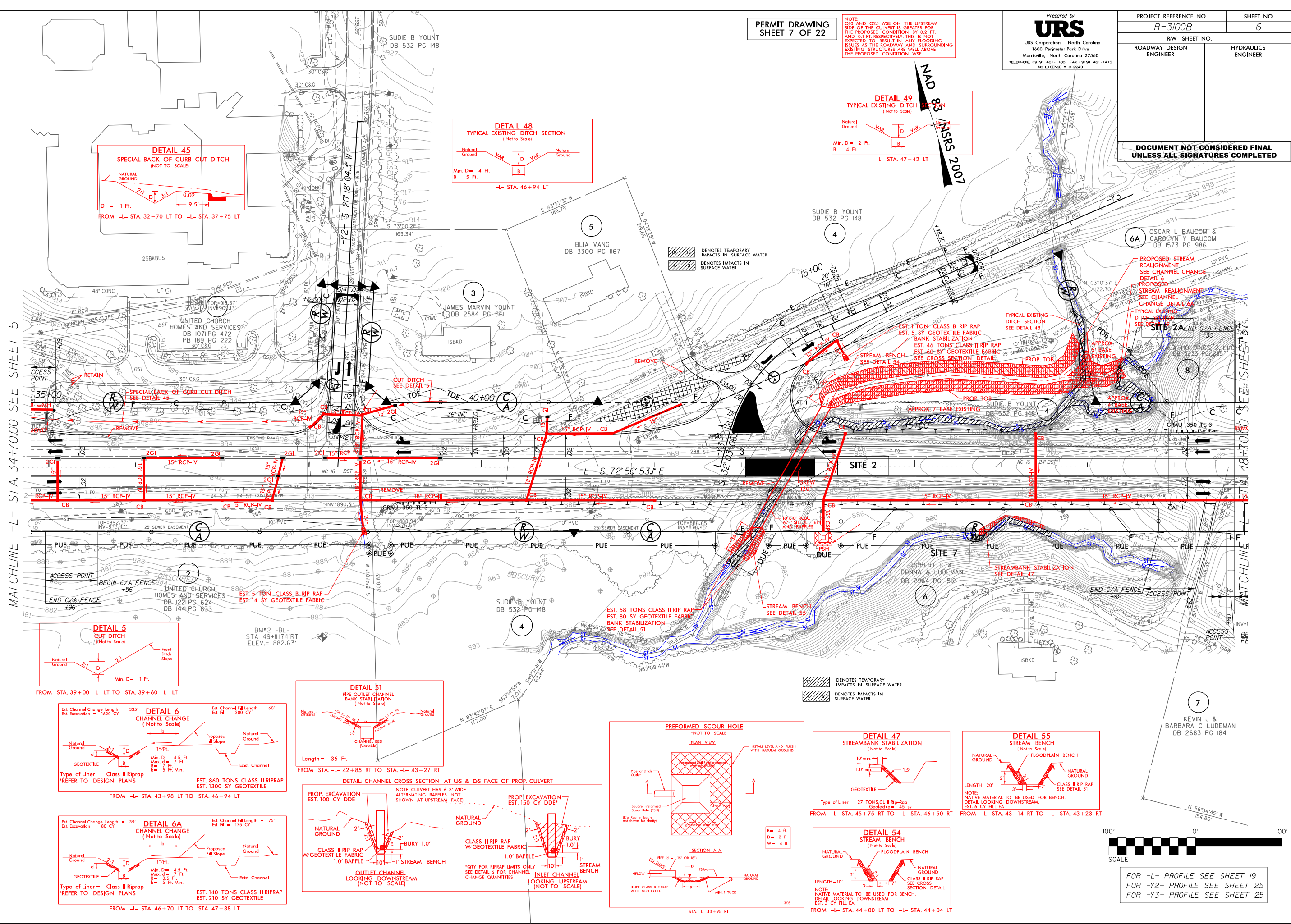
NOTE:  
Q10 AND Q25 WSE ON THE UPSTREAM  
SIDE OF THE CULVERT IS GREATER FOR  
THE PROPOSED CONDITION BY 0.2 FT.  
AND 0.1 FT. RESPECTIVELY. THIS IS NOT  
EXPECTED TO RESULT IN ANY FLOODING  
ISSUES AS THE ROADWAY AND SURROUNDING  
EXISTING STRUCTURES ARE WELL ABOVE  
THE PROPOSED CONDITION WSE.

Prepared by  
**URS**  
URS Corporation - North Carolina  
1600 Perimeter Park Drive  
Morrisville, North Carolina 27560  
TELEPHONE (919) 461-1100 FAX (919) 461-1415  
NC L100000000 - C-28843

PROJECT REFERENCE NO.		SHEET NO.
R-3100B		6
RW SHEET NO.		HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		

MATCHLINE -L- STA. 34+70.00 SEE SHEET 5

MATCHLINE -L- STA. 48+70.00 SEE SHEET 6



FOR -L- PROFILE SEE SHEET 19  
FOR -Y2- PROFILE SEE SHEET 25  
FOR -Y3- PROFILE SEE SHEET 25





8/17/99

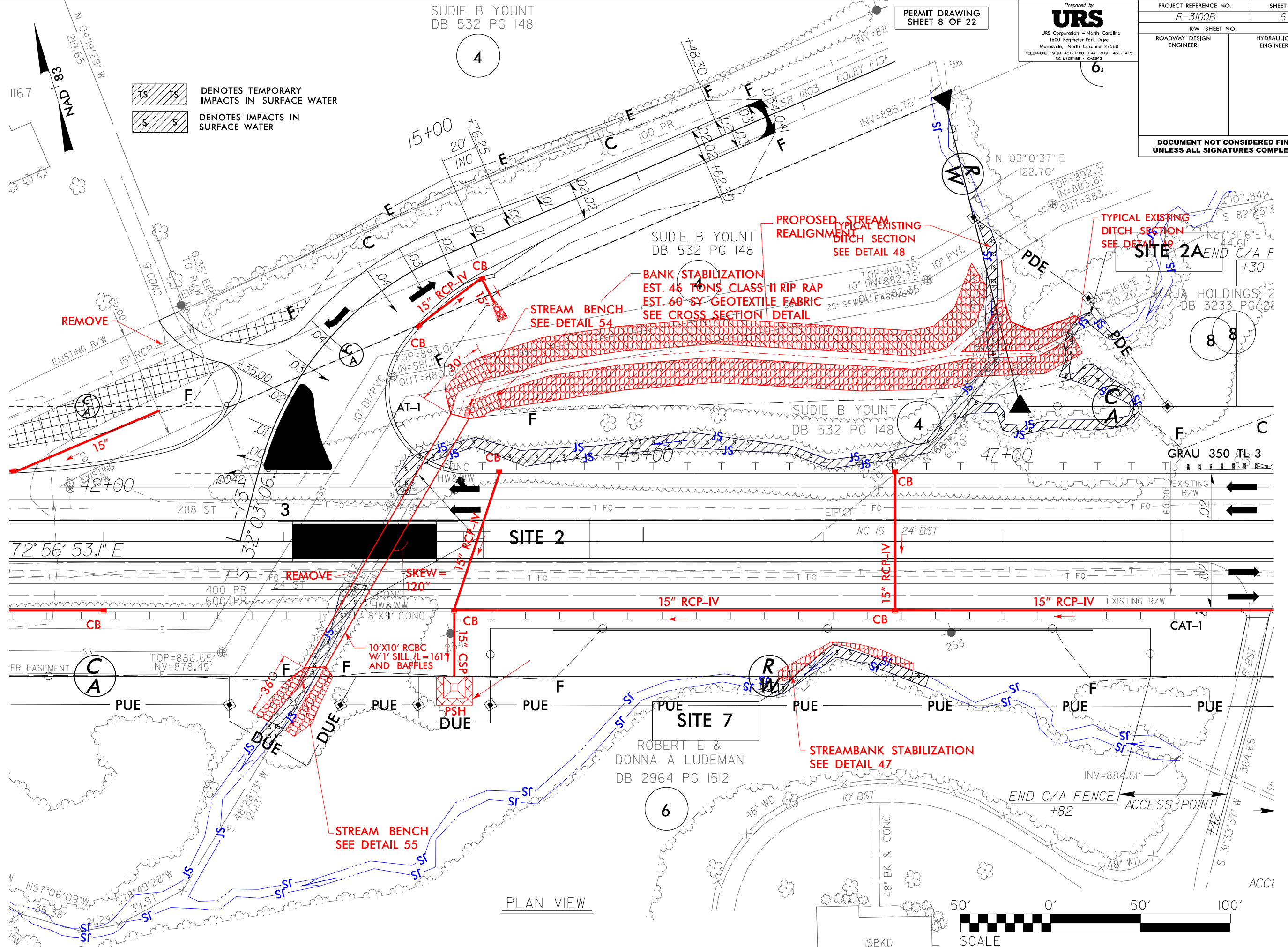
SUDIE B YOUNT  
DB 532 PG 148

PERMIT DRAWING  
SHEET 8 OF 22

Prepared by  
**URS**  
URS Corporation - North Carolina  
1600 Perimeter Park Drive  
Morrisville, North Carolina 27560  
TELEPHONE (919) 461-1100 FAX (919) 461-1415  
NC LICENSE # C-25933

PROJECT REFERENCE NO.		SHEET NO.
R-3100B		6
RW SHEET NO.		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		

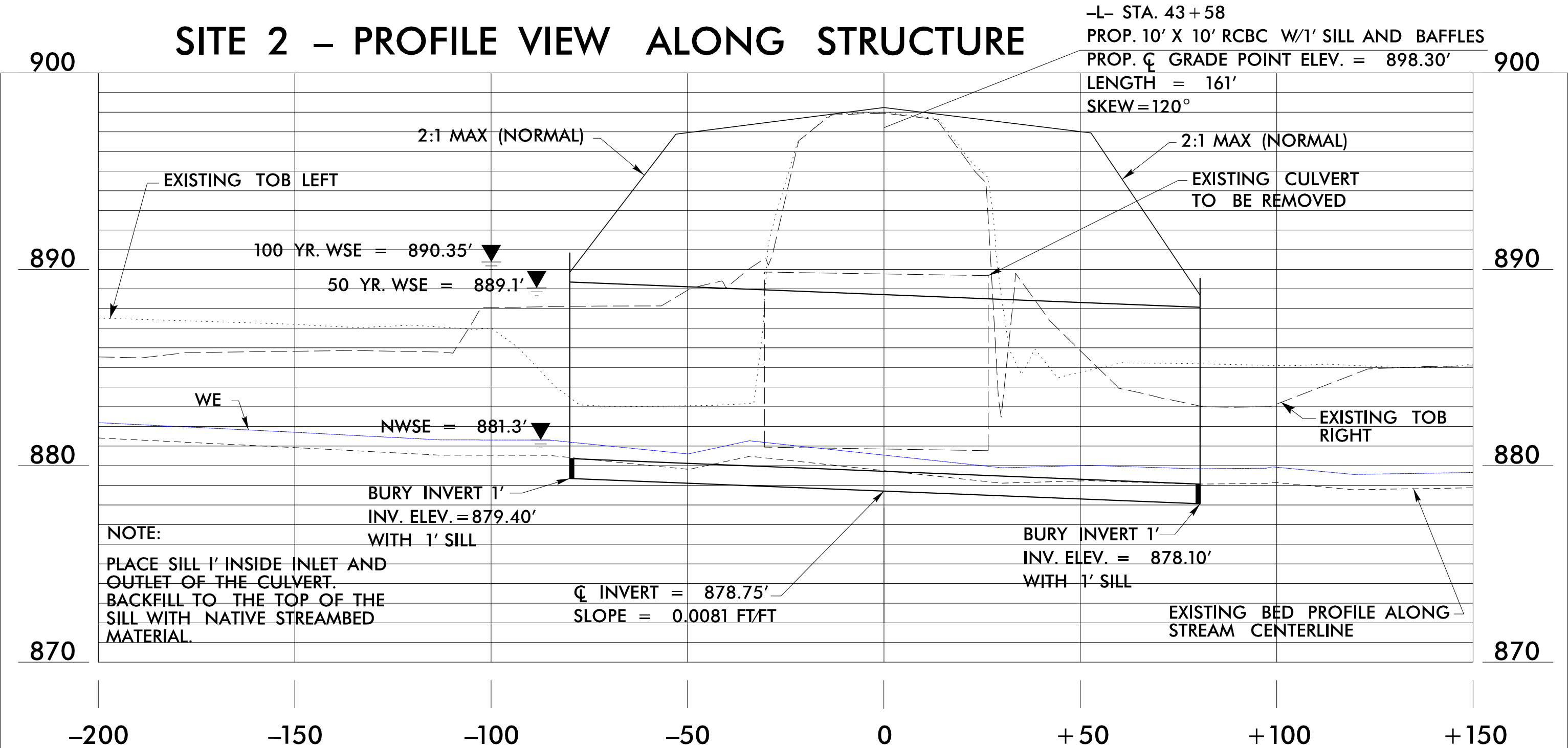
 DENOTES TEMPORARY  
IMPACTS IN SURFACE WATER  
 DENOTES IMPACTS IN  
SURFACE WATER



PLAN VIEW



# SITE 2 – PROFILE VIEW ALONG STRUCTURE



## PROFILE

### STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE =	650	CFS
DESIGN FREQUENCY =	50	YR.
DESIGN WS ELEVATION =	889.1	FT.
BASE DISCHARGE =	800	CFS
BASE FREQUENCY =	100	YR.
BASE WS ELEVATION =	890.35	FT.
OT DISCHARGE =	1500	CFS
OT FREQUENCY =	>500	YR.
OT WS ELEVATION =	897.4	FT.

Native Material consists of material that is excavated from the stream bed or floodplain at the project site during culvert construction. Only material that is excavated from the stream bed may be used to line the low flow culvert barrel. Rip rap may be used to supplement the Native Material in the high flow culvert barrel(s). If rip rap is used to line the high flow culvert barrel(s), Native Material should be placed on top to fill voids and provide a flat surface for animal passage. Native Material is subject to approval by the engineer and may be subject to permit conditions.

## NCDOT

DIVISION OF HIGHWAYS  
CATAWBA COUNTY  
PROJECT: 34522.1.4 (R-3100B)

NC 16 NORTH OF SR 1801 (CLAREMONT RD)  
AND NORTH OF SR 1814 (CALDWELL RD)  
SITE 2

PERMIT DRAWING  
SHEET 9 OF 22

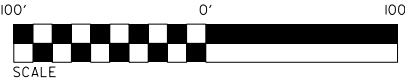
02 // 20 // 17



## REVISIONS

NAD 83 / NSRS 2007

PERMIT DRAWING  
SHEET 10 OF 22



FOR -L- PROFILE SEE SHEET 19  
FOR -Y4- PROFILE SEE SHEET 25



8/17/99

REVISIONS

MATCHLINE -L- STA. 48+70.00 SEE SHEET 6

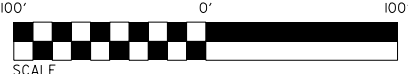
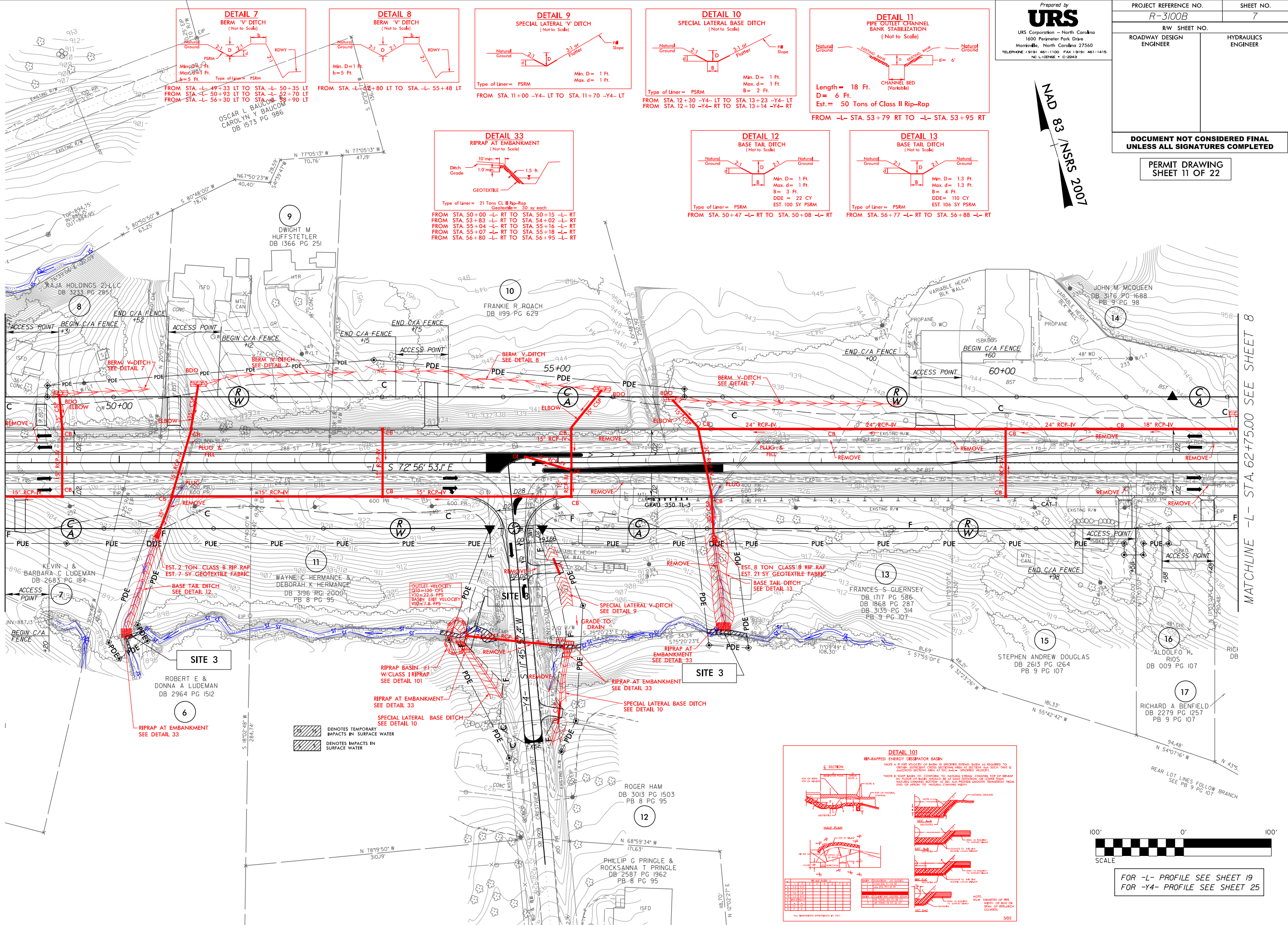
MATCHLINE -L- STA. 62+75.00 SEE SHEET 8

Prepared by  
**URS**  
URS Corporation - North Carolina  
1600 Perimeter Park Drive  
Morrisville, North Carolina 27560  
TELEPHONE (919) 461-1100 FAX (919) 461-1415  
NC L100000000 C-20043

PROJECT REFERENCE NO. <i>R-3100B</i>		SHEET NO. <i>7</i>
RW SHEET NO.		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>		

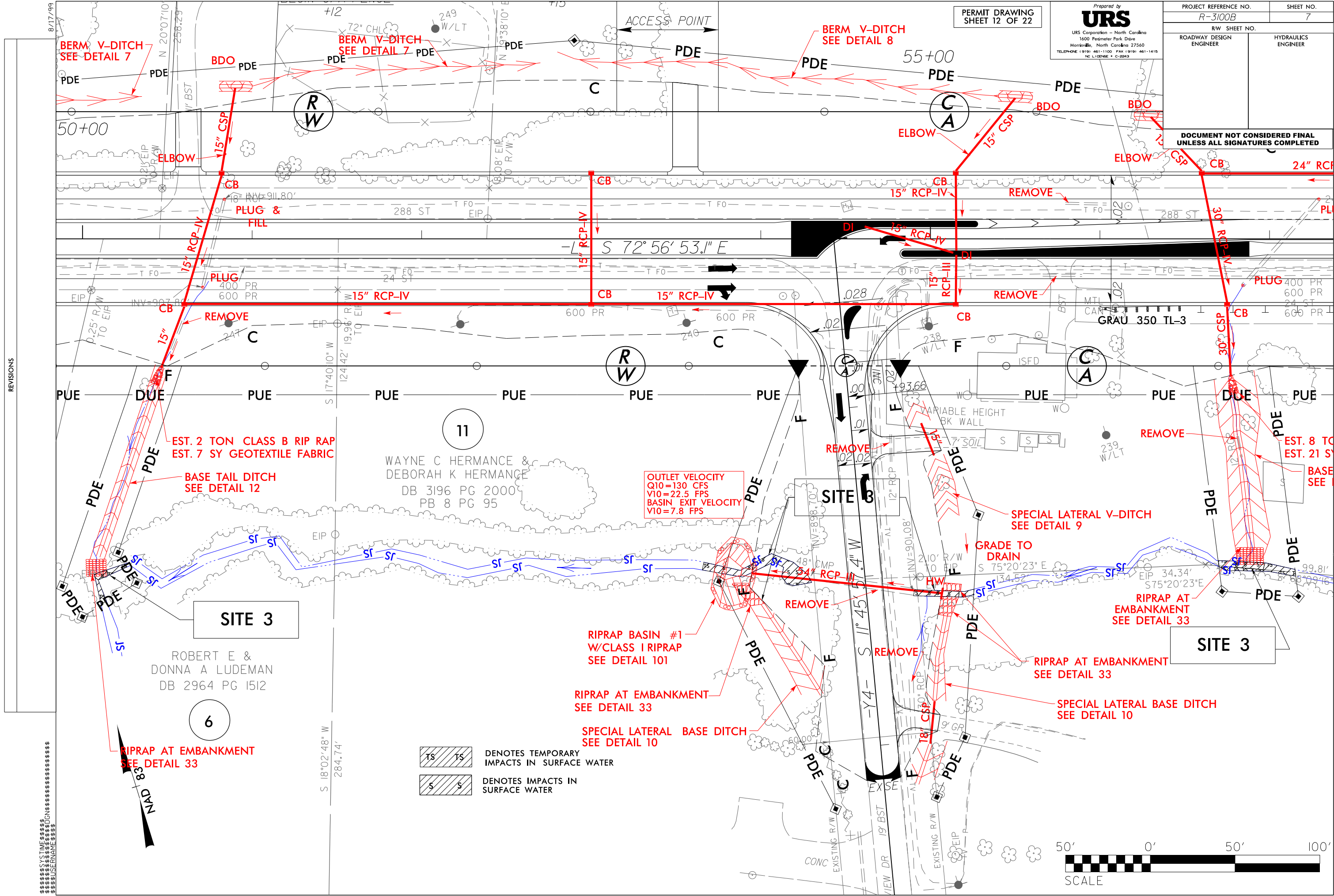
PERMIT DRAWING  
SHEET 11 OF 22

NAD 83 / NRS 2007



FOR -L- PROFILE SEE SHEET 19  
FOR -Y4- PROFILE SEE SHEET 25





PERMIT DRAWING  
SHEET 12 OF 22

Prepared by  
**URS**  
URS Corporation - North Carolina  
1600 Perimeter Park Drive  
Morrisville, North Carolina 27560  
TELEPHONE (919) 461-1100 FAX (919) 461-1415  
NC LICENSE # C-22643

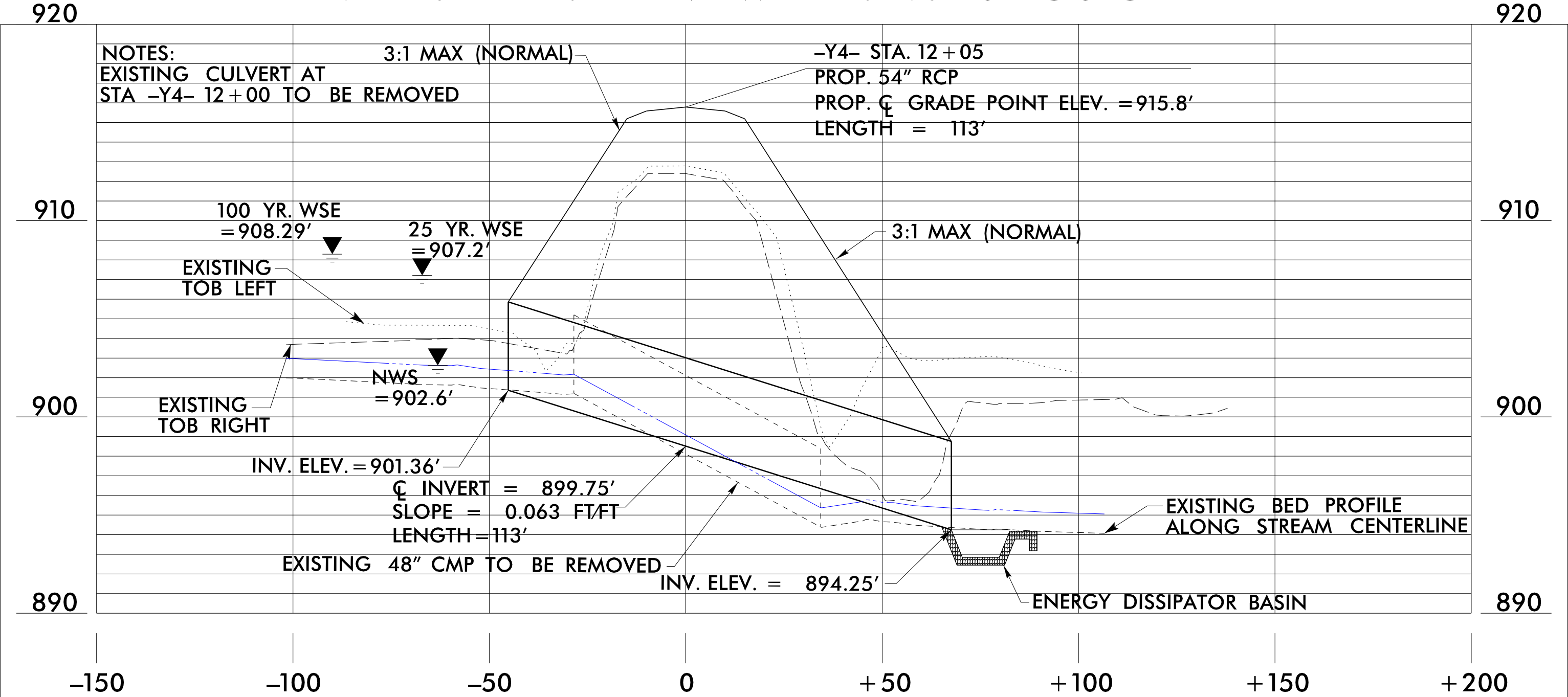
PROJECT REFERENCE NO.		SHEET NO.
R-3100B		7
R/W SHEET NO.		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

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



SITE 3 – PROFILE VIEW ALONG STRUCTURE



PROFILE

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE =	150	CFS
DESIGN FREQUENCY =	25	YR.
DESIGN WS ELEVATION =	907.2	FT.
BASE DISCHARGE =	180	CFS
BASE FREQUENCY =	100	YR.
BASE WS ELEVATION =	908.29	FT.
OT DISCHARGE =	264	CFS
OT FREQUENCY =	200+	YR.
OT WS ELEVATION =	912.5	FT.

Native Material consists of material that is excavated from the stream bed or floodplain at the project site during culvert construction. Only material that is excavated from the stream bed may be used to line the low flow culvert barrel. Rip rap may be used to supplement the Native Material in the high flow culvert barrel(s). If rip rap is used to line the high flow culvert barrel(s), Native Material should be placed on top to fill voids and provide a flat surface for animal passage. Native Material is subject to approval by the engineer and may be subject to permit conditions.

NCDOT

DIVISION OF HIGHWAYS  
CATAWBA COUNTY  
PROJECT: 34522.1.4 (R-3100B)

NC 16 NORTH OF SR 1801 (CLAREMONT RD)  
AND NORTH OF SR 1814 (CALDWELL RD)

SITE 3

PERMIT DRAWING  
SHEET 13 OF 22

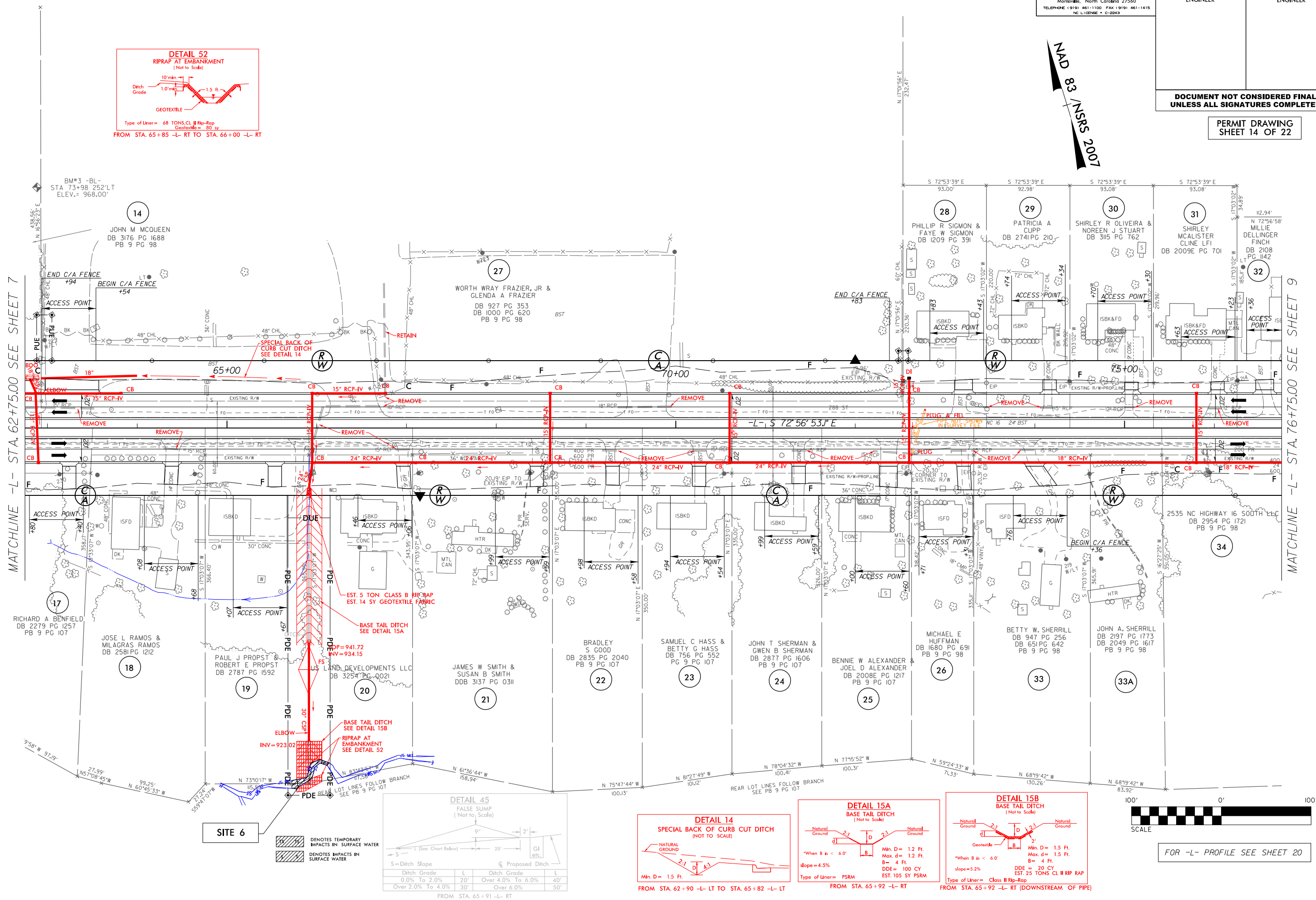
02 // 20 // 17

## REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
<i>R-3100B</i>	<i>8</i>
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<p><b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b></p>	

MATCHLINE -L- STA. 62+75.00 SEE SHEET 7

MATCHLINE -/- STA. 76+75.00 SEE SHEET 9





## REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
<i>R-3100B</i>	<i>8</i>
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<p><b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b></p>	

**DETAIL 52**  
RIPRAP AT EMBANKMENT  
(Not to Scale)

Type of Liner = 68 TONS CL II Rip-Rap  
Geotextile = 80 sy

FROM STA. 65+85 -L- RT TO STA. 66+00 -L- RT

**DETAIL 45**  
FALSE SUMP  
(Not to Scale)

S = Ditch Slope  
L = Length of Sump

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

FROM STA. 65+91 -L- RT

**DETAIL 14**  
SPECIAL BACK OF CURB CUT DITCH  
(NOT TO SCALE)

Min. D = 1.5 Ft.

FROM STA. 62+90 -L- LT TO STA. 65+82 -L- LT

**DETAIL 15A**  
BASE TAIL DITCH  
(Not to Scale)

Min. D = 1.2 Ft.  
Max. d = 1.2 Ft.  
B = 4 Ft.  
DDE = 100 CY  
EST. 105 SY PSRM

Type of Liner = PSRM

FROM STA. 65+92 -L- RT

**DETAIL 15B**  
BASE TAIL DITCH  
(Not to Scale)

Min. D = 1.5 Ft.  
Max. d = 1.5 Ft.  
B = 4 Ft.  
DDE = 20 CY  
EST. 25 TONS CL II RIP RAP

Type of Liner = Class II Rip-Rap

FROM STA. 65+92 -L- RT (DOWNSTREAM OF PIPE)

SCALE

FOR -L- PROFILE SEE SHEET 20

8/17/99

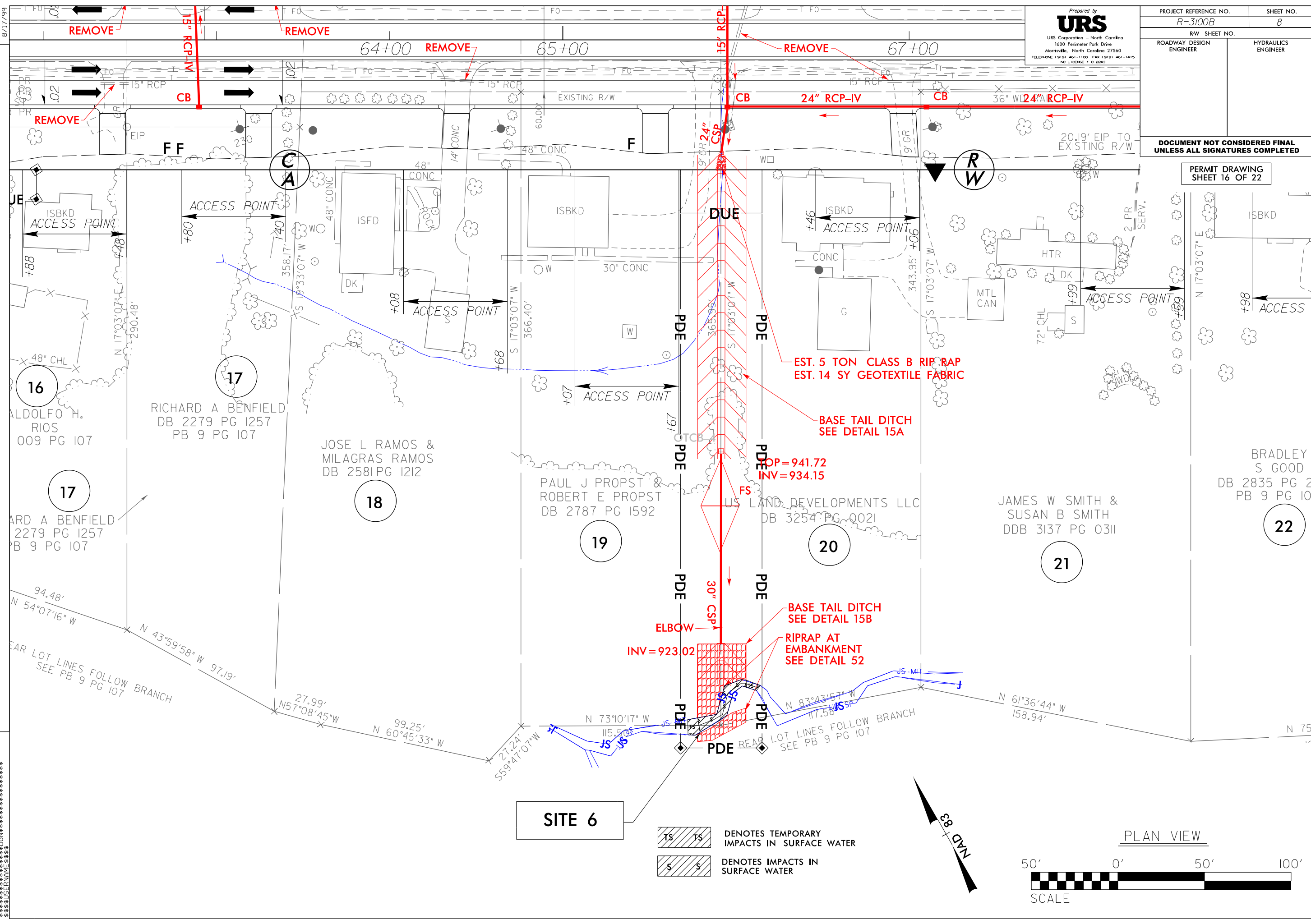
Prepared by  
**URS**  
URS Corporation - North Carolina  
1600 Perimeter Park Drive  
Morrisville, North Carolina 27560  
TELEPHONE (919) 461-1100 FAX (919) 461-1415  
NC L100000000 - C-28843

PROJECT REFERENCE NO. <i>R-3100B</i>		SHEET NO. <i>8</i>
RW SHEET NO.		HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER		

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

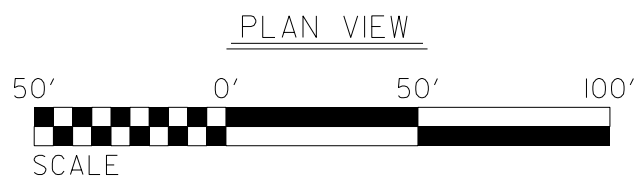
PERMIT DRAWING  
SHEET 16 OF 22

REVISIONS



**SITE 6**

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



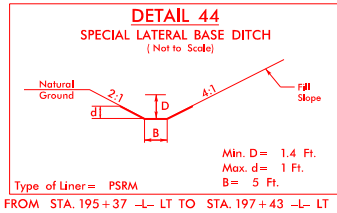
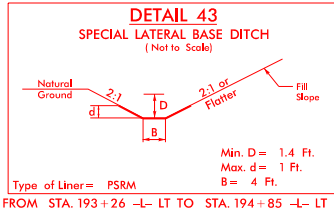
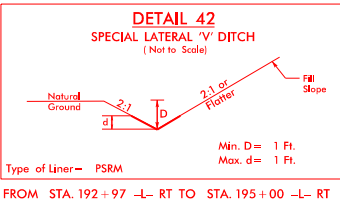
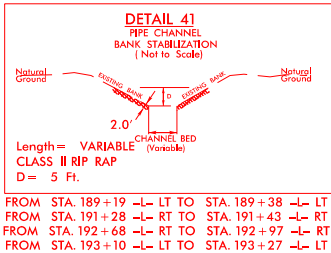


8/17/99

REVISIONS

MATCHLINE -L- STA.186+00.00 SEE SHEET 16

SYSTEMS TIME: 8/17/99 10:00 AM  
DRAWN BY: J. L. BARNES  
CHECKED BY: J. L. BARNES  
DATE: 8/17/99

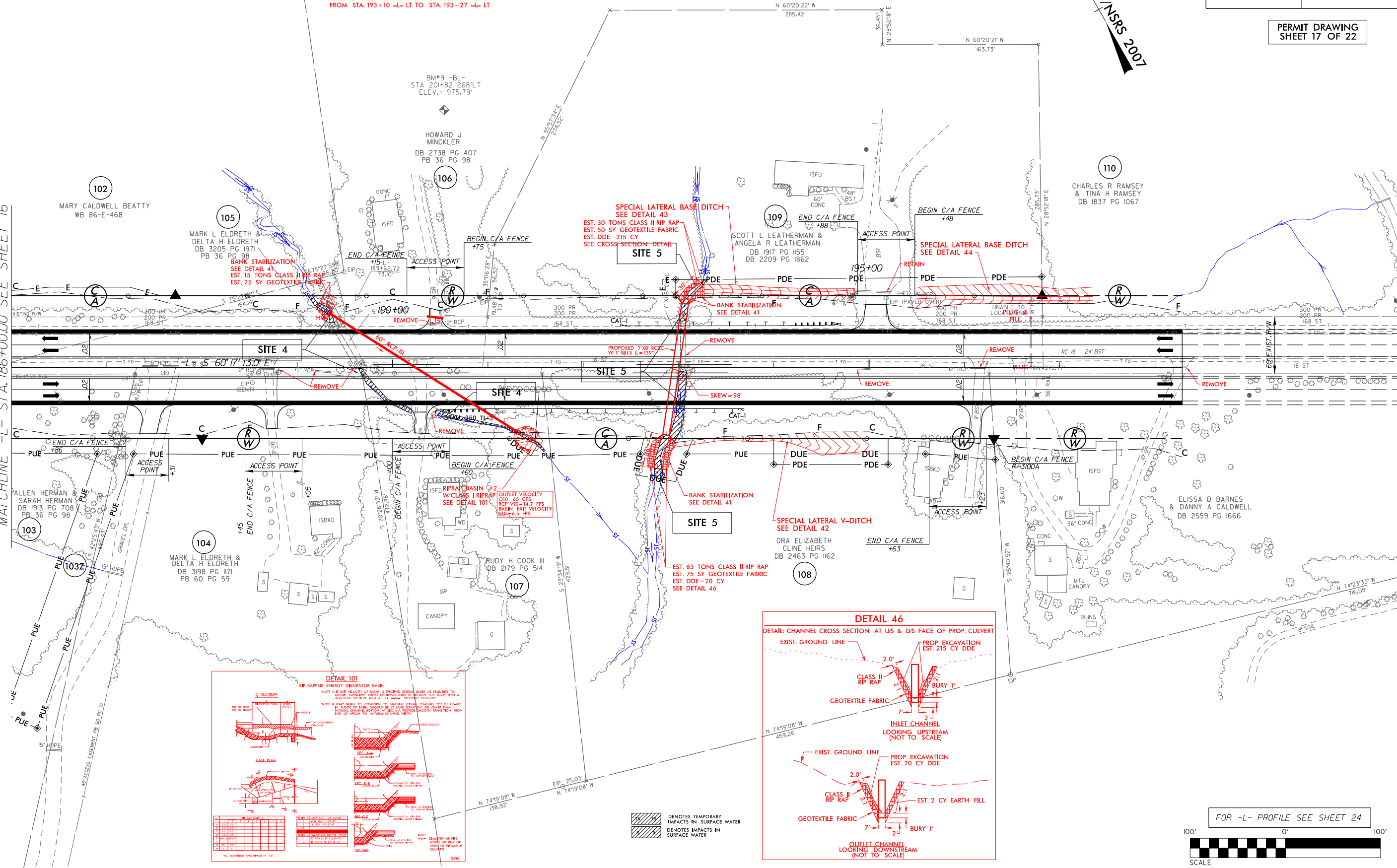


Prepared by  
**URS**  
URS Corporation - North Carolina  
1600 Perimeter Park Drive  
Morrisville, North Carolina 27560  
TELEPHONE (919) 461-1100 FAX (919) 461-1415  
NC L100000000 - C-20043

PROJECT REFERENCE NO. <i>R-3100B</i>		SHEET NO. <i>17</i>	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER			

PERMIT DRAWING  
SHEET 17 OF 22

NAD 83 / NSRS 2007

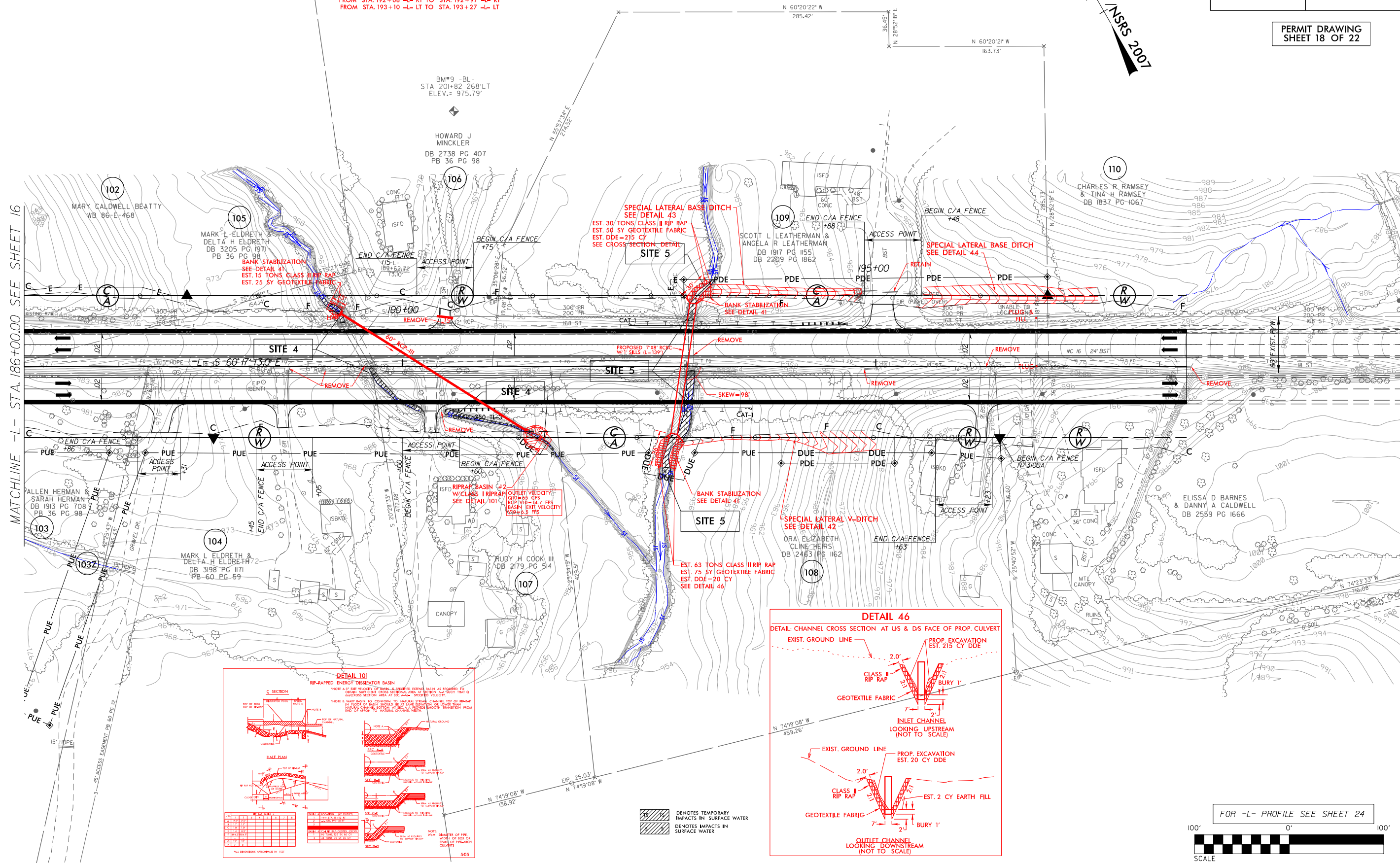
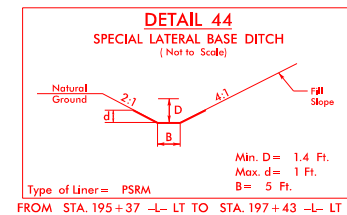




## REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
<i>R-3100B</i>	<i>17</i>
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NAD 83 / NRS 2007



8/17/99

MINCKLER  
DB 2738 PG 407  
PB 36 PG 98

Prepared by  
**URS**  
URS Corporation - North Carolina  
1600 Perimeter Park Drive  
Morrisville, North Carolina 27560  
TELEPHONE (919) 461-1100 FAX (919) 461-1415  
NC LICENSE # C-26243

PROJECT REFERENCE NO. <i>R-3100B</i>		SHEET NO. <i>17</i>
RW SHEET NO.		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>		

PERMIT DRAWING  
SHEET 19 OF 22

SCOTT L LEATHERMAN &  
ANGELA R LEATHERMAN  
DB 1917 PG 1155  
DB 2209 PG 1862

MARK L ELDRETH &  
ELTA H ELDRETH  
DB 3205 PG 1971  
PB 36 PG 98

**BANK STABILIZATION  
SEE DETAIL 41  
EST. 15 TONS CLASS II RIP RAP  
EST. 25 SY GEOTEXTILE FABRIC**

**SPECIAL LATERAL BASE DITCH  
SEE DETAIL 43  
EST. 30 TONS CLASS II RIP RAP  
EST. 50 SY GEOTEXTILE FABRIC  
EST. DDE=215 CY  
SEE CROSS SECTION DETAIL  
SITE 5**

**BANK STABILIZATION  
SEE DETAIL 41**

**SITE 4**

**SITE 5**

**SITE 4**

**SITE 5**

**SITE 5**

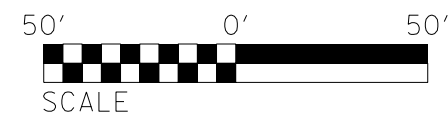
**108**

**RIPRAP BASIN #2  
W/CLASS I RIPRAP  
SEE DETAIL 101**

**EST. 63 TONS CLASS II RIP RAP  
EST. 75 SY GEOTEXTILE FABRIC  
EST. DDE=20 CY  
SEE DETAIL 46**

TS TS  
S S  
DENOTES TEMPORARY  
IMPACTS IN SURFACE WATER  
DENOTES IMPACTS IN  
SURFACE WATER

PLAN VIEW



REVISIONS

ELDTRETH &  
H ELDRETH  
98 PG 1171  
0 PG 59

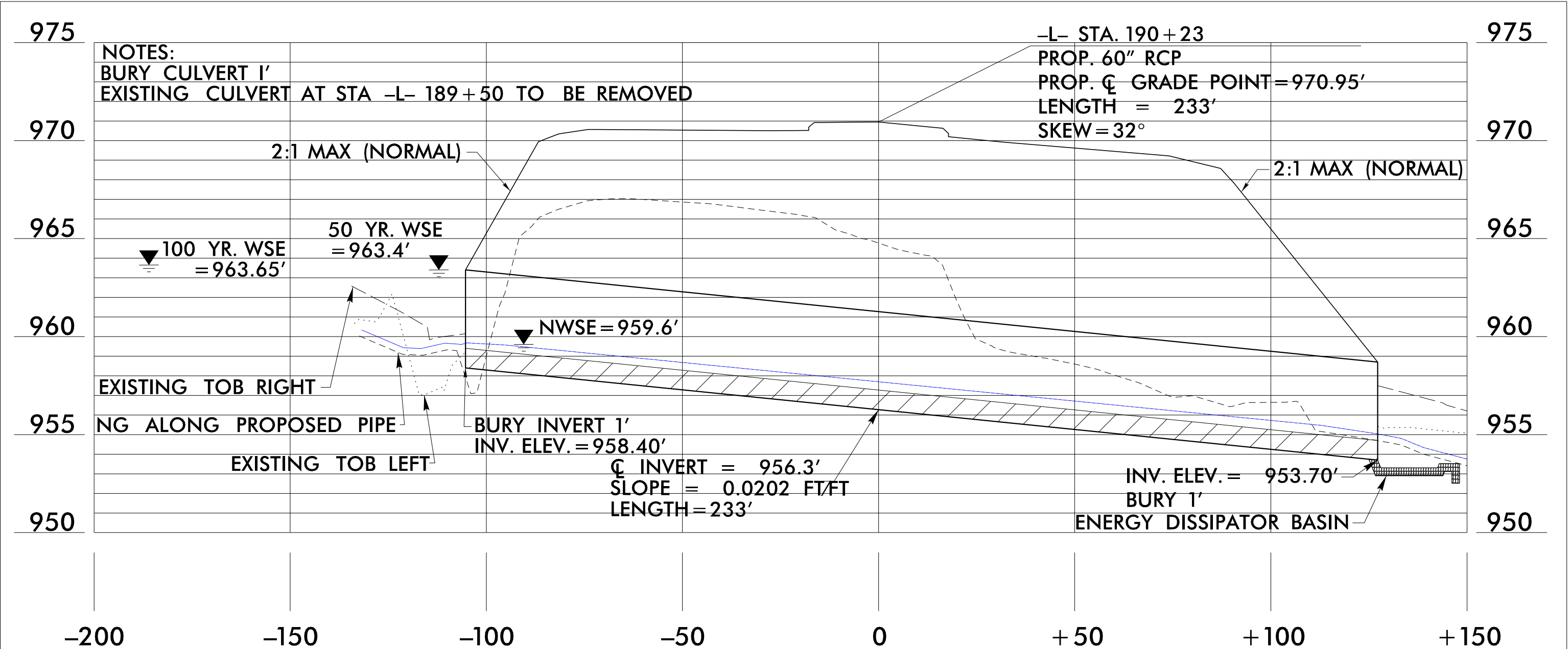
RUDY H COOK III  
DB 2179 PG 514

END C/A FENCE  
+63

NAD 83



SITE 4 – PROFILE VIEW ALONG STRUCTURE



PROFILE

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE =	80	CFS
DESIGN FREQUENCY =	50	YR.
DESIGN WS ELEVATION =	963.4	FT.
BASE DISCHARGE =	85	CFS
BASE FREQUENCY =	100	YR.
BASE WS ELEVATION =	963.65	FT.
OT DISCHARGE =	368	CFS
OT FREQUENCY =	500+	YR.
OT WS ELEVATION =	970.1	FT.

NCDOT

DIVISION OF HIGHWAYS  
CATAWBA COUNTY

PROJECT: 34522.1.4 (R-3100B)

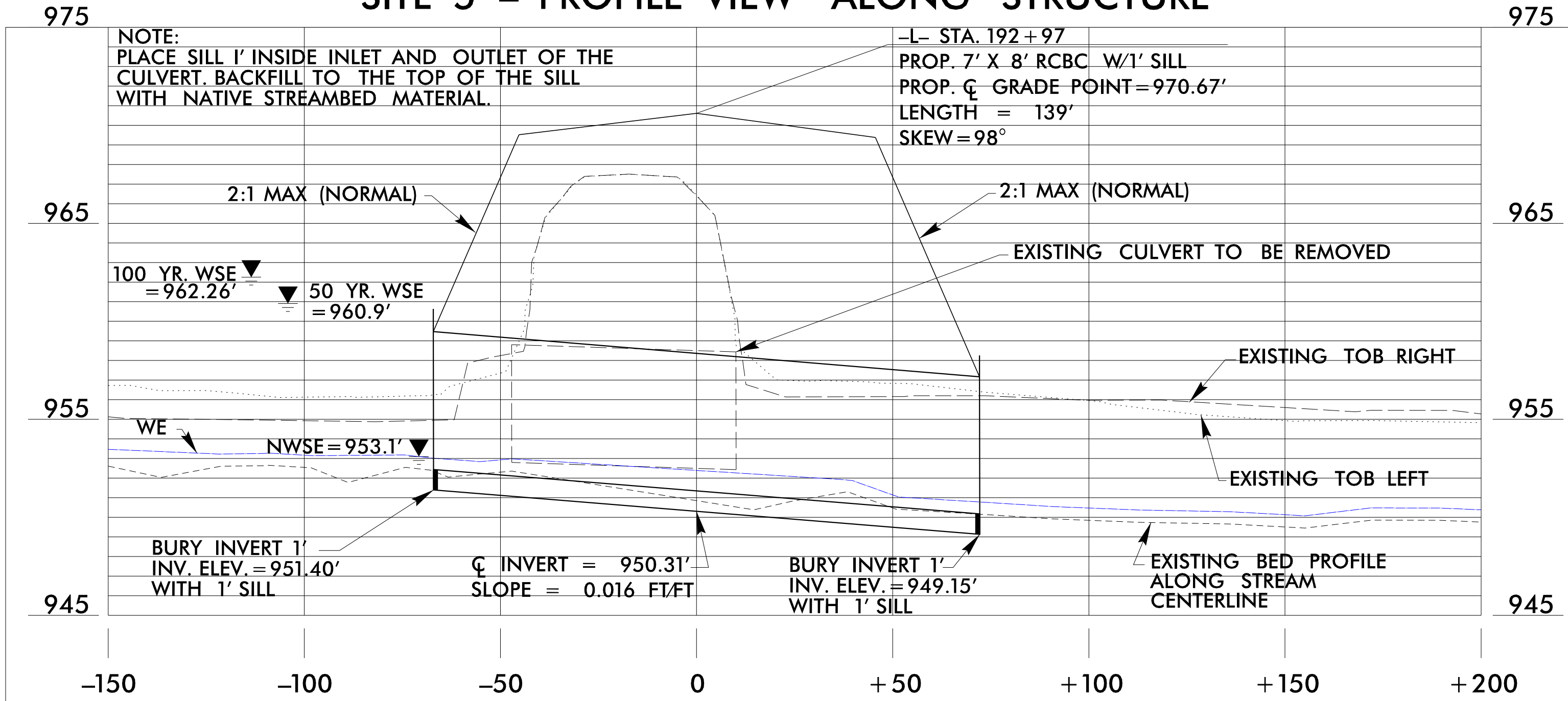
NC 16 NORTH OF SR 1801 (CLAREMONT RD)  
AND NORTH OF SR 1814 (CALDWELL RD)

SITE 4

PERMIT DRAWING  
SHEET 20 OF 22

02 // 20 // 17

SITE 5 – PROFILE VIEW ALONG STRUCTURE



PROFILE

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE =	480	CFS
DESIGN FREQUENCY =	50	YR.
DESIGN WS ELEVATION =	960.9	FT.
BASE DISCHARGE =	580	CFS
BASE FREQUENCY =	100	YR.
BASE WS ELEVATION =	962.26	FT.
OT DISCHARGE =	1100	CFS
OT FREQUENCY =	>500	YR.
OT WS ELEVATION =	970.5	FT.

Native Material consists of material that is excavated from the stream bed or floodplain at the project site during culvert construction. Only material that is excavated from the stream bed may be used to line the low flow culvert barrel. Rip rap may be used to supplement the Native Material in the high flow culvert barrel(s). If rip rap is used to line the high flow culvert barrel(s), Native Material should be placed on top to fill voids and provide a flat surface for animal passage. Native Material is subject to approval by the engineer and may be subject to permit conditions.

NCDOT

DIVISION OF HIGHWAYS  
CATAWBA COUNTY  
PROJECT: 34522.1.4 (R-3100B)

NC 16 NORTH OF SR 1801 (CLAREMONT RD)  
AND NORTH OF SR 1814 (CALDWELL RD)

SITE 5



PERMIT DRAWING  
SHEET 21 OF 22

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)
1	28+68 to 29+16 -L-	6'x7' RCBC (Culvert)						0.01		99		
1	28+68 to 29+16 -L-	6'x7' RCBC (Stream)							< 0.01		52	
1	28+68 to 29+16 -L-	Bank Stabilization						< 0.01	< 0.01	48	3	
2	42+85 to 46+98 -L-	10'x10' RCBC (Culvert)						< 0.01		52		
2	42+85 to 46+98 -L-	Fill/Channel Relocation						0.05	< 0.01	413	32	
2	42+85 to 46+98 -L-	Bank Stabilization						< 0.01	< 0.01	39	11	
2A	46+79 to 47+76 -L-	Fill/Channel Relocation						0.02	< 0.01	177	33	
3 Center	11+82 to 12+18 -Y4-	54" RCP (Culvert)						< 0.01		55		
3	11+82 to 12+18 -Y4-	Bank Stabilization						< 0.01	< 0.01	33	16	
3 West	50+07 to 50+26 -L-	Bank Stabilization						< 0.01	< 0.01	22	27	
3 East	56+70 to 57+16 -L-	Bank Stabilization						< 0.01	< 0.01	17	45	
4	189+11 to 191+53 -L-	60" RCP (Culvert)						0.01		172		
4	189+11 to 191+53 -L-	60" RCP (Stream)							< 0.01		28	
4	189+11 to 191+53 -L-	Bank Stabilization						< 0.01	< 0.01	20	15	
5	192+75 to 193+30 -L-	7'x8' RCBC (Culvert)						0.02		92		
5	192+75 to 193+30 -L-	Bank Stabilization						< 0.01	< 0.01	66	16	
6	65+72 to 66+14 -L-	Bank Stabilization						< 0.01	< 0.01	40	14	
7	45+65 to 46+59 -L-	Bank Stabilization						0.01	< 0.01	84	19	
TOTALS*:								0.18	0.03	1429	311	0

\*Rounded totals are sum of actual impacts

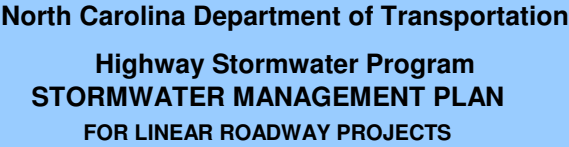
NOTES:

NC DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
02/20/2017  
Catawba County  
R-3100B  
34522.1.4

		<div>North Carolina Department of Transportation</div> <div>Highway Stormwater Program</div> <div>STORMWATER MANAGEMENT PLAN</div> <div>FOR LINEAR ROADWAY PROJECTS</div>							
(Version 1.2; Released September 2011)									
Project/TIP No.: R-3100A		County(ies): Catawba		Page 1 of 4					
General Project Information									
Project No.:		R-3100A		Project Type:		Roadway Widening			
NCDOT Contact:		Jay Twisdale		Contractor / Designer:		Richard A. Moore, PE, McKim and Creed			
	Address:		NCDOT - Hydraulic Design Unit 1020 Birch Ridge Road / 1590 Mail Service Center Raleigh, NC 27610 / Raleigh, NC 27699-1590			Address:		243 North Front Street Wilmington, NC 28401	
	Phone:		919-707-6700			Phone:		910-343-1048	
	Email:		jtwisdale@ncdot.gov			Email:		ramoore@mckimcreed.com	
City/Town:		Newton, NC		County(ies):		Catawba			
River Basin(s):		Catawba		CAMA County?		No			
Primary Receiving Water:		Bee Branch, UT to South Fork Mountain Creek		NCDWQ Stream Index No.:		Multiple			
NCDWQ Surface Water Classification for Primary Receiving Water			Primary:		Water Supply IV (WS-IV)		Water Supply II (WS-II)		
			Supplemental:		None		High Quality Waters (HQP)		
Other Stream Classification:			None						
303(d) Impairments:			None						
Buffer Rules in Effect			Catawba						
Project Description									
Project Length (lin. Miles or feet):		4.78		Surrounding Land Use:		Residential, Agricultural, Commercial, Undeveloped			
		Proposed Project				Existing Site			
Project Built-Upon Area (ac.)		48.14 ac.				17.75 ac.			
Typical Cross Section Description:		4-lane divided highway with 23' raised median with 1'6" curb and gutter and 8' shoulders. 2'9" curb and gutter installation in superelevation. Superstreet intersections.				2-lane shoulder section			
Average Daily Traffic (veh/hr/day):		Design/Future: 18,700 (2040)				Existing: 10,100 (2015)			
General Project Narrative:		<p>This project is located to the southeast of Newton, NC and is in the Catawba River Basin. The project consists of widening an existing, primarily 2-lane shoulder section roadway with a 4-lane divided section with superstreet intersections. The total project length is 4.78 miles all on existing location. The projects drainage system consists of primarily ditches, cross pipes, storm drainage systems and box culverts. There is one named tributary that crosses under the proposed roadway and 24 other stream segments within the project corridor (as identified in the Natural Resources Technical Report (NRTR)). The 2 named streams or their tributaries impacted by this project are:</p> <ul style="list-style-type: none"><li>• Bee Branch SIN 11-129-5-7-2-2 Stream Classification WS-II; HPW</li><li>• South Fork Mountain Creek SIN 11-98-(0.5) Stream Classification WS-IV</li></ul> <p>Approximately 1.73 miles of the beginning of the project is located within the Bee Branch drainage area which has a classification of WS-II; HPW. The project crosses Bee Branch and several ditches outlet to swales located within the Bee Branch drainage area. Grass swales meeting DWQ criteria to the maximum extent practicable are proposed on the three (3) quadrants that drain directly into the Bee Branch crossing to treat roadway drainage. Other ditches within the Bee Branch drainage area have been designed with 3:1 side slopes to the maximum extent practicable and longitudinal slopes as flat as practicable. In addition, preformed scour holes have been used at cross pipe outlets to provide diffuse flow in overland areas.</p> <p>The remainder of the project is located within the South Fork Mountain Creek drainage area which has a classification of WS-IV. Grass swales meeting DWQ criteria to the maximum extent practicable have been designed at all points of discharge into the streams as identified in the NRTR. In addition, preformed scour holes have been used at cross pipe outlets to provide diffuse flow in overland areas. Further, two (2) rip-rap energy dissipator basins have been designed to provide diffuse flow in one overland area and reduce flows to non-erosive velocities in another.</p> <p>Box culverts in jurisdictional streams will be buried 1'. There are no cross pipes located in jurisdictional streams.</p>							
References									
NCDOT PDEA Natural Resources Technical Report, May 2009									



All proposed SCMs listed must also be listed under Swales, Preformed Sour Holes and other Energy Dissipators, or Other Stormwater Control Measures.



**(Version 1.2; Released September 2011)**

<b>Project/TIP No.:</b>	R-3100A	<b>County(ies):</b>	Catawba	<b>Page</b>	<b>3</b>	<b>of</b>	<b>4</b>
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## Swales

YES NO

Have minimum design criteria, as presented in the NCDOT Best Management Practices Toolbox, Version 1 (March 2008), been met and verified? If No, provide further explanantion of why design criteria was not met.

### Additional Comments



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



(Version 1.2; Released September 2011)

Project/TIP No.: R-3100A County(ies): Catawba Page 4 of 4

Preformed Scour Holes and Energy Dissipators

Sheet No.	Station	Energy Dissipator Type	Riprap Type	Drainage Area (ac)	Conveyance Structure	Pipe/Structure Dimensions (in)	Q10 (cfs)	V10 (fps)
14	153+20 RT	Riprap Energy Dissipator Basin	Class II	64.29	Pipe	60	114.4	
15	164+06 RT	PFSH	Class 'B'	0.02	Pipe	15	0.1	
15	166+75 LT	PFSH	Class 'B'	0.99	Pipe	15	4.6	
15	171+60 RT	PFSH	Class 'B'	0.42	Pipe	15	1.7	
18	202+48 RT	Riprap Apron / Pad	Class II	16.16	Pipe	30	27.4	
18	208+85 RT	Riprap Apron / Pad	Class II	11.26	Pipe	18	23.6	
19	220+12 LT	Riprap Apron / Pad	Class II	6.62	Pipe	36	46.7	
20	233+03 RT	PFSH	Class 'B'	0.27	Pipe	15	1.3	
21	248+78 RT	Riprap Apron / Pad	Class II	29.21	Pipe	15 & 42	48.9	
<input type="checkbox"/> YES <input type="checkbox"/> NO								

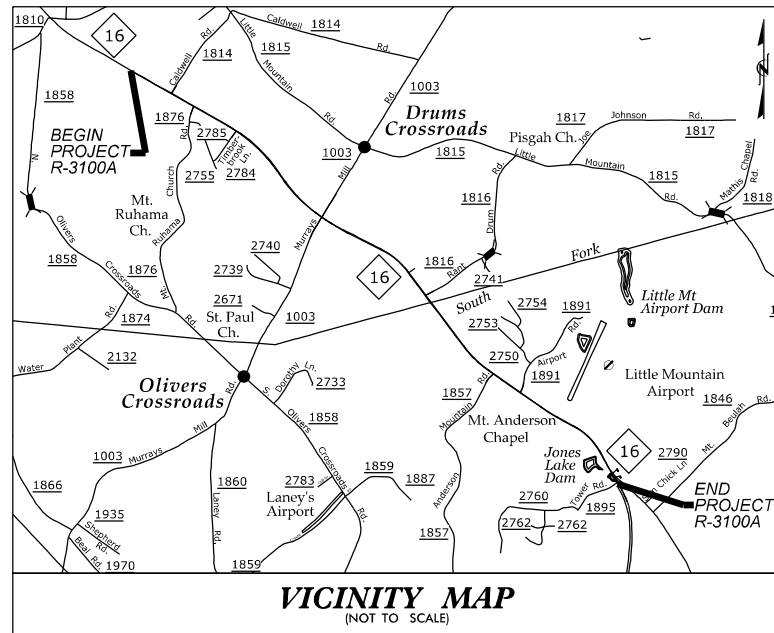
Have minimum design criteria, as presented in the NCDOT Best Management Practices Toolbox (2008), NCDOT Standard Details, or FHWA HEC-14 (July 2006), been met and verified, as applicable? If No, provide further explanantion of why design criteria was not met.

Additional Comments

\* Refer to the NCDOT Best Management Practices Toolbox, Version 1 (March 2008), NCDOT Standard Details, the Federal Highway Administration (FHWA) Hydraulic Engineering Circular No. 14 (HEC-14), Third Edition, Hydraulic Design of Energy Dissipators for Culverts and Channels (July 2006), as applicable, for design guidance and criteria.

TIP PROJECT: R-3100A

CONTRACT:



VICINITY MAP  
(NOT TO SCALE)

SEE SHEET 1-A FOR INDEX OF SHEETS  
SEE SHEET 1-B FOR SYMBOLOLOGY

R/W SUBMITTAL

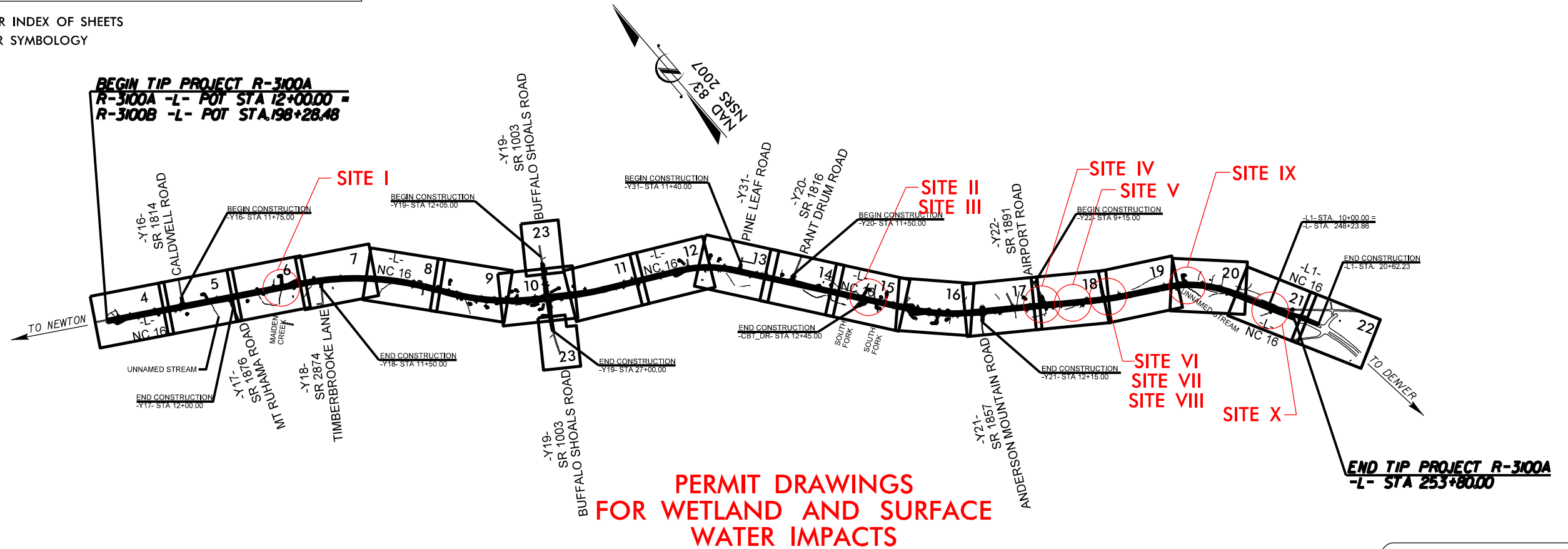
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
**CATAWBA COUNTY**

LOCATION: NC 16 FROM NORTH OF SR 1814 (CALDWELL ROAD) TO SR 1895 (TOWER ROAD)

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

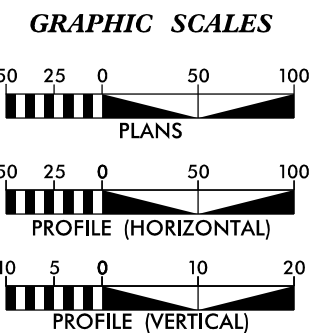
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3100A	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34522.1.3	STP-0016(52)	P.E.	
34522.2.3	STP-0016(52)	RW, UTIL.	

PERMIT DRAWING  
SHEET 1 OF 32



THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.  
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY \_\_\_\_\_.  
THIS IS A PARTIAL CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO POINTS AS SHOWN ON THE PLANS.

NCDOT CONTACT:  
BRENDA L. MOORE, P.E.  
ENGINEERING COORDINATION  
ROADWAY DESIGN UNIT



DESIGN DATA

ADT 2014 =	10,100
ADT 2034 =	18,700
DHV =	10 %
D =	60 %
T =	9 % *
V =	60 MPH
* TTST 4%	DUAL 5%
FUNC CLASS =	RURAL ARTERIAL REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-3100A	= 4.781	MILES
TOTAL LENGTH OF TIP PROJECT R-3100A	= 4.781	MILES

Prepared In the Office of:

PO Box 700  
Raleigh, NC 27602  
(919) 552-2253  
(919) 552-2254 (Fax)  
www.hatchmott.com  
LICENSE NO. F-0669

Hatch Mott MacDonald

MCKIM & CREED  
243 NORTH FRONT STREET  
WILMINGTON, NORTH CAROLINA 28401  
TEL: (910) 343-1048 FAX: (910) 796-6262

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:  
AUGUST 30, 2013

LETTING DATE:  
AUGUST 18, 2015

TIM JORDAN, PE  
PROJECT ENGINEER

RICK MOORE, PE  
HYDRAULICS PROJECT ENGINEER

ROADWAY DESIGN ENGINEER

PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION

SIGNATURE: \_\_\_\_\_ P.E.

HYDRAULICS ENGINEER

SIGNATURE: \_\_\_\_\_ P.E.

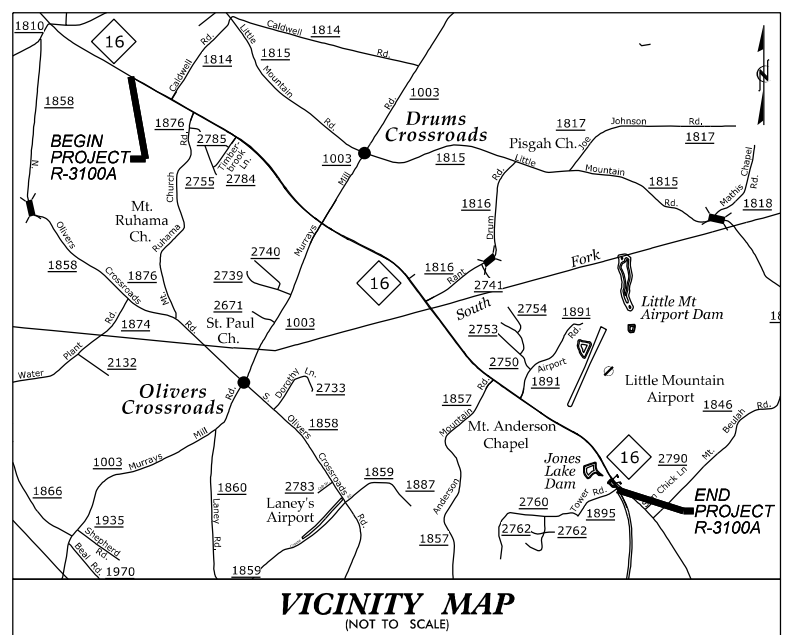
DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER



TIP PROJECT: R-3100A

CONTRACT:



SEE SHEET 1-A FOR INDEX OF SHEETS  
SEE SHEET 1-B FOR SYMBOLOLOGY

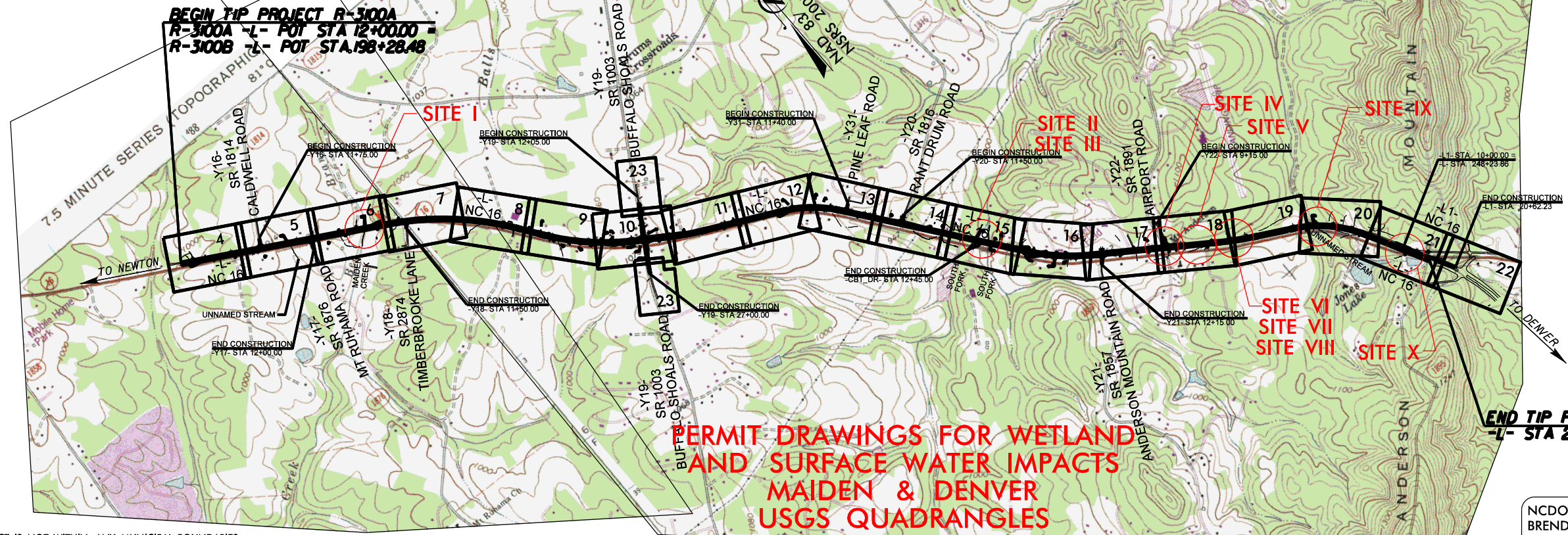
R/W SUBMITTAL

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
**CATAWBA COUNTY**

LOCATION: NC 16 FROM NORTH OF SR 1814 (CALDWELL ROAD) TO SR 1895 (TOWER ROAD)  
TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND CULVERTS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3100A	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34522.1.3	STP-0016(52)	P.E.	
34522.2.3	STP-0016(52)	RW, UTIL.	

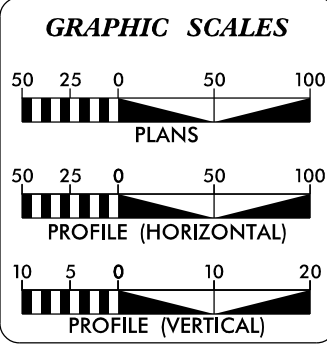
PERMIT DRAWING  
SHEET 2 OF 32



PERMIT DRAWINGS FOR WETLAND  
AND SURFACE WATER IMPACTS  
MAIDEN & DENVER  
USGS QUADRANGLES

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.  
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY  
THIS IS A PARTIAL CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO POINTS AS SHOWN ON THE PLANS.

NCDOT CONTACT:  
BRENDA L. MOORE, P.E.  
ENGINEERING COORDINATION  
ROADWAY DESIGN UNIT



DESIGN DATA

ADT 2014 =	10,100
ADT 2034 =	18,700
DHV =	10 %
D =	60 %
T =	9 % *
V =	60 MPH
* TTST 4%	DUAL 5%
FUNC CLASS =	RURAL ARTERIAL REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-3100A	= 4.781	MILES
TOTAL LENGTH OF TIP PROJECT R-3100A	= 4.781	MILES

Prepared In the Office of:

PO Box 700  
Fidelity Varina, NC 27526  
(919) 552-2253  
(919) 552-2254 (Fax)  
www.hatchmottmacdonald.com  
LICENSE NO. F-0669

Hatch Mott MacDonald

MCKIM & CREED  
NC LICENSE #1322  
243 NORTH FRONT STREET  
WILMINGTON, NORTH CAROLINA 28401  
TEL: (910) 343-1048 FAX: (910) 796-6282

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:  
AUGUST 30, 2013

LETTING DATE:  
AUGUST 18, 2015

TIM JORDAN, PE  
PROJECT ENGINEER

RICK MOORE, PE  
HYDRAULICS PROJECT ENGINEER

ROADWAY DESIGN ENGINEER

PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION

SIGNATURE: \_\_\_\_\_ P.E.

HYDRAULICS ENGINEER

SIGNATURE: \_\_\_\_\_ P.E.

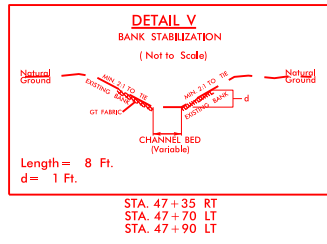
DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA


STATE HIGHWAY DESIGN ENGINEER

P.E.



<i>Pis</i>	<i>Sta</i>	52+08.00	<i>Pi</i>	<i>Sta</i>	64+61.32
$\Theta_s$	=	0° 36' 24.6"	$\Delta$	=	24° 10' 39.5" (RT)
<i>Ls</i>	=	120.00'	<i>D</i>	=	1° 00' 41.0"
<i>LT</i>	=	80.00'	<i>L</i>	=	2,390.51'
<i>ST</i>	=	40.00'	<i>T</i>	=	1213.31'
			<i>R</i>	=	5,665.00'
			<i>SE</i>	=	03
			<i>RO</i>	=	120°



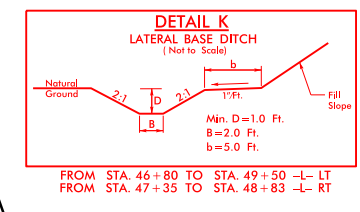
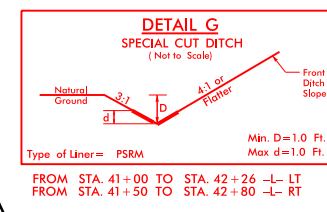
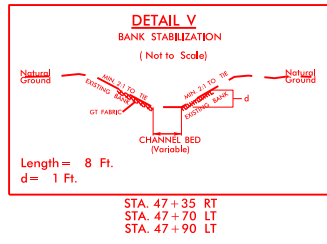
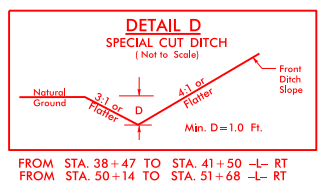

 DENOTES IMPACTS IN SURFACE WATER  
 DENOTES TEMPORARY IMPACTS IN SURFACE WATER

100' 0'  
 GRAPHIC SCALE



8/17/99

8/17/99



**PERMIT DRAWING  
SHEET 4 OF 32**

**-L-**

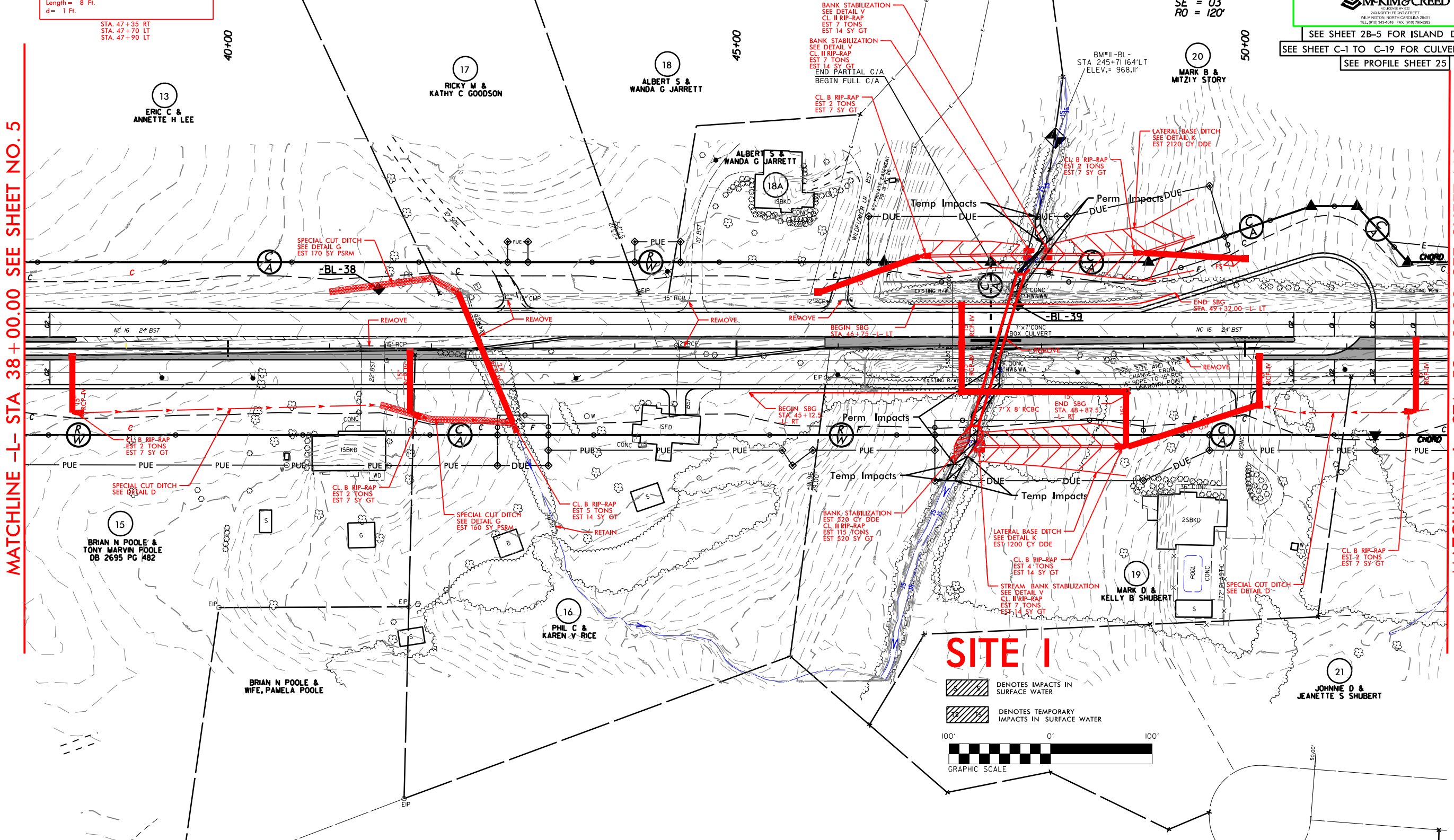
Pls Sta 52+08.00  
Os = 0° 36' 24.6"  
Ls = 120.00'  
LT = 80.00'  
ST = 40.00'

Pl Sta 64+61.32  
Δ = 24° 10' 39.5" (RT)  
D = 1° 00' 41.0"  
L = 2,390.51'  
T = 1,213.31'  
R = 5,665.00'  
SE = 03  
RO = 120'

PROJECT REFERENCE NO. R-3100A		SHEET NO. 6	
ROADWAY DESIGN		HYDRAULICS ENGINEER	
MOTT MACDONALD 14 E. LLC LICENSE NO. E-06669			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
Prepared in the Office of:			
MOTT MACDONALD		PO Box 700 Fuquay-Varina, NC 27526 www.mottmac.com/amarcos	
SEE SHEET 2B-5 FOR ISLAND DETAIL			
SEE PROFILE SHEET 25			

MATCHLINE -L- STA 38+00.00 SEE SHEET NO. 5

MATCHLINE -L- STA 52+00.00 SEE SHEET NO. 7

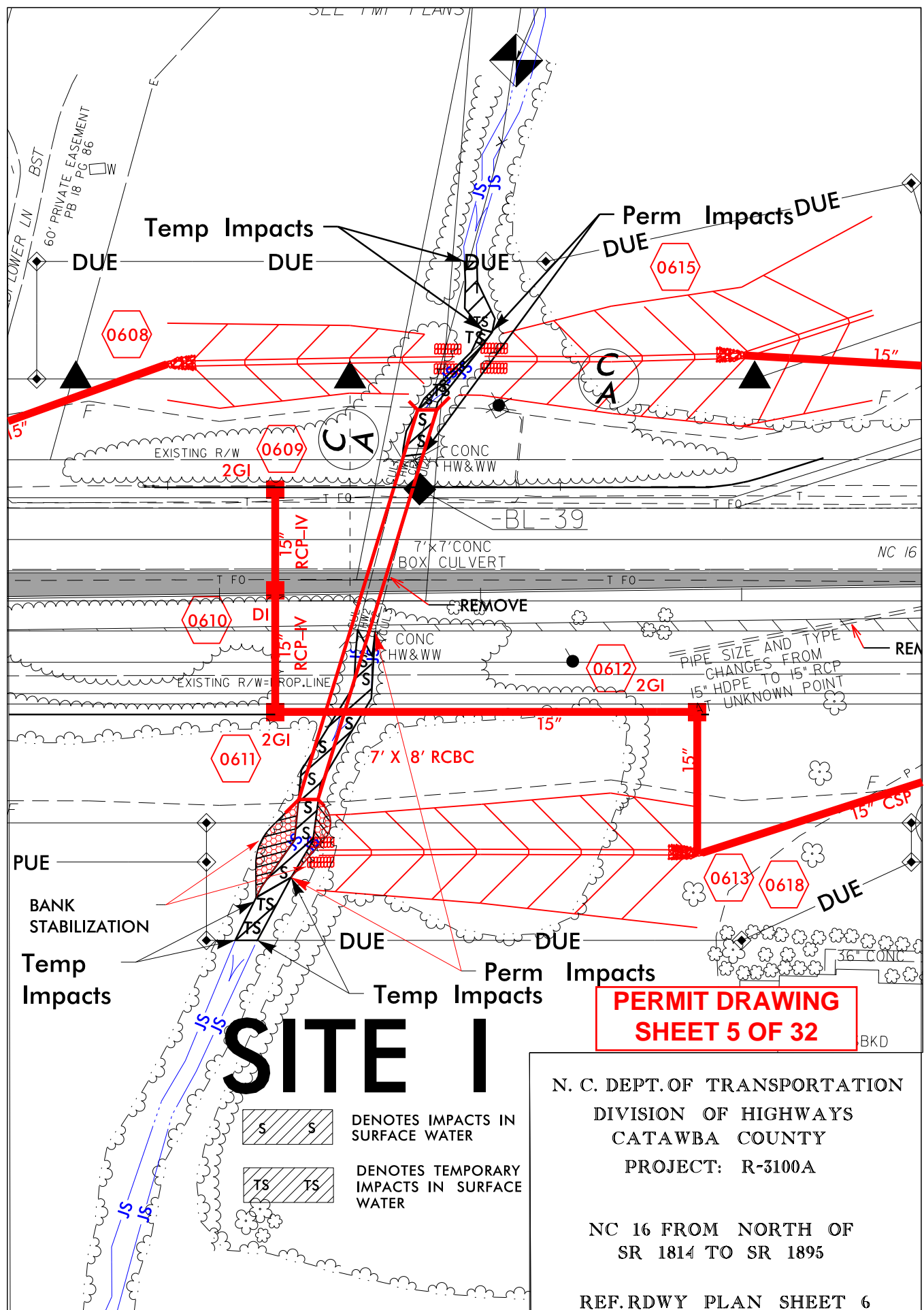


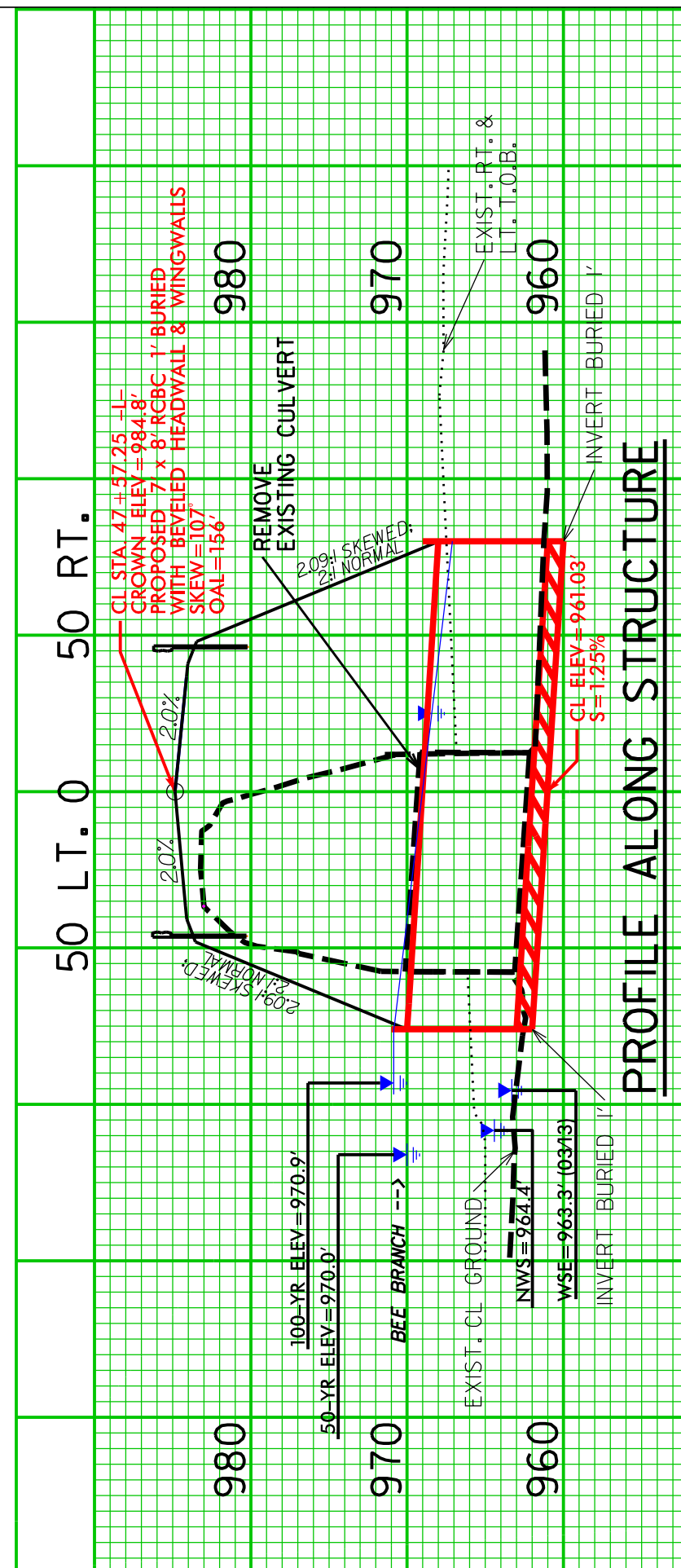
**SITE I**

100' 0' 100'

GRAPHIC SCALE

100'





N. C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
CATAWBA COUNTY  
PROJECT: R-3100A

NC 16 FROM NORTH OF  
SR 1814 TO SR 1895

REF. CSR

# SITE

REF. CSR

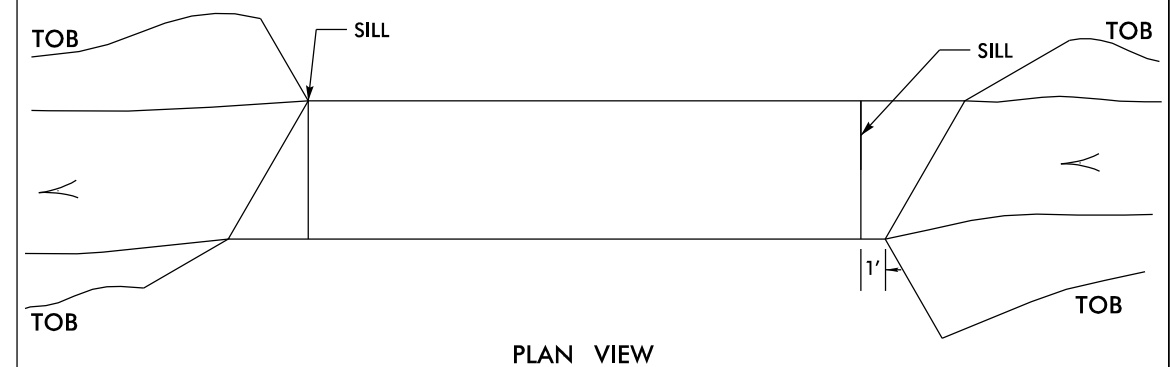
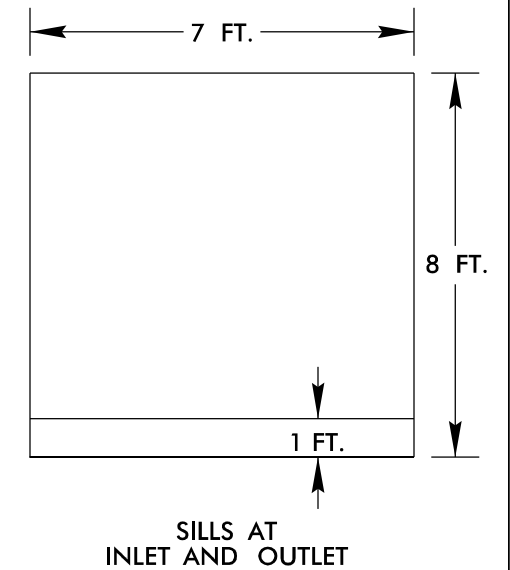
## DETAIL 1

(NOT TO SCALE)

## SKEWED LOW FLOW CHANNEL AND SILLS

- \*NOTES:

- 1) SILLS ARE TO BE 1.0 FT. WIDE, CAST SEPARATELY AND ATTACHED BY DOWELS.
- 2) TOP OF LOW FLOW SILLS SHOULD MATCH STREAM BED ELEVATION IN LOW FLOW CHANNEL OF STREAM. (THALWEG)
- 3) DO NOT SET ELEVATION OF HIGH SILL ABOVE BANK FULL.
- 4) NUMBER OF SILLS DETERMINED BY THE ENGINEER.



**PERMIT DRAWING  
SHEET 6 OF 32**

212

# SITE 1

N. C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
CATAWBA COUNTY  
PROJECT: R-3100A

NC 16 FROM NORTH OF  
SR 1814 TO SR 1895

REF. CSR



**DETAIL E**  
SPECIAL LATERAL BASE DITCH  
(Not to Scale)

Min. D=1.0 Ft.  
Max. d=1.0 Ft.  
B=2.0 Ft.

Type of Liner = PSRM  
FROM STA. 168+00 TO STA. 169+15 -L- LT

**PERMIT DRAWING**  
**SHEET 7 OF 32**

**BANK STABILIZATION**  
STA 165+35 LT & RT

**INLET CHANNEL TYP.**  
(LOOKING DOWNSTREAM)  
(NOT TO SCALE)

**OUTLET CHANNEL TYP.**  
(LOOKING DOWNSTREAM)  
(NOT TO SCALE)

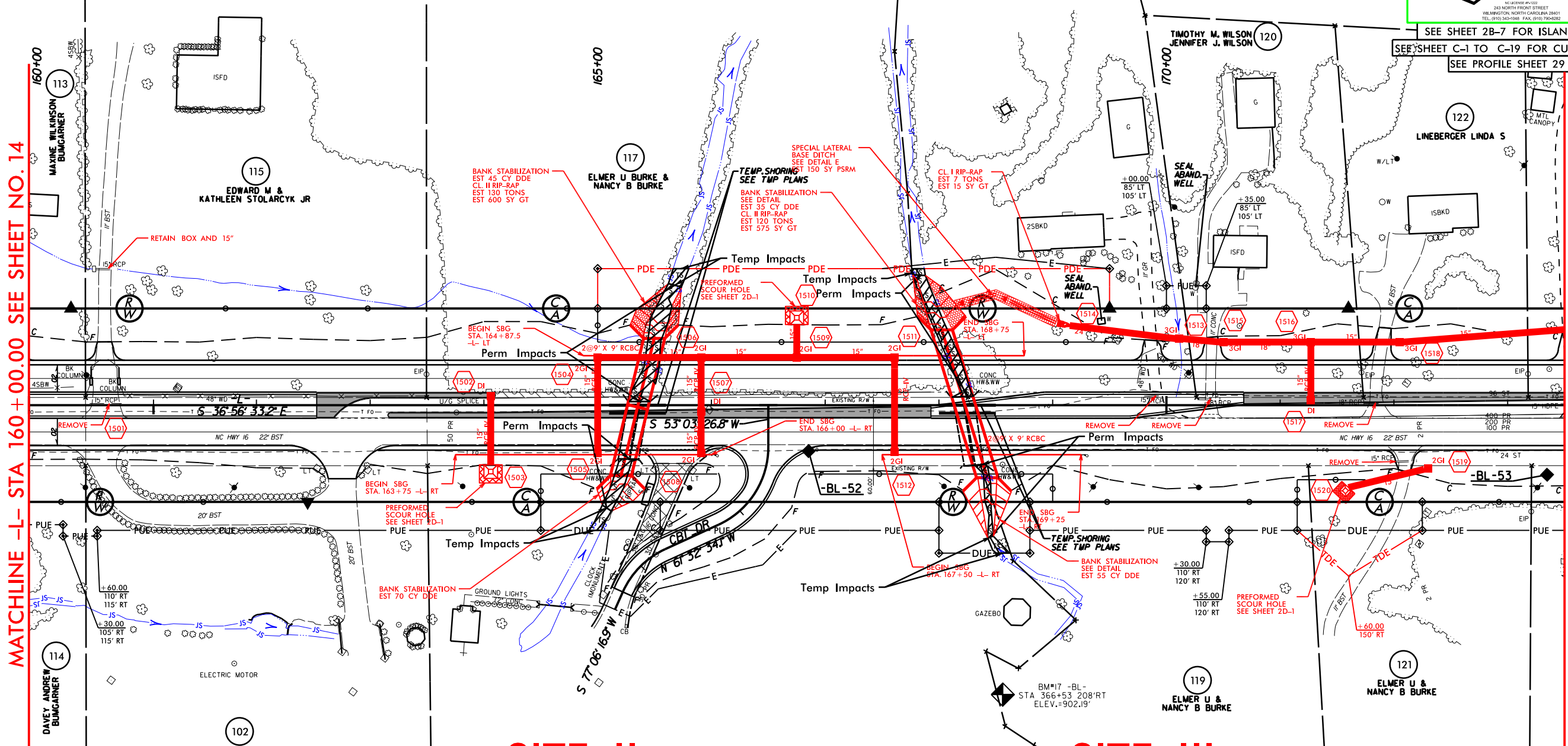
**BANK STABILIZATION**  
STA 168+23 LT & RT

**INLET CHANNEL TYP.**  
(LOOKING DOWNSTREAM)  
(NOT TO SCALE)

**OUTLET CHANNEL TYP.**  
(LOOKING DOWNSTREAM)  
(NOT TO SCALE)

MATCHLINE -L- STA 160+00.00 SEE SHEET NO. 14

MATCHLINE -L- STA 173+50.00 SEE SHEET NO. 16

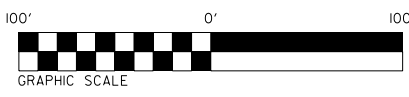


**SITE II**

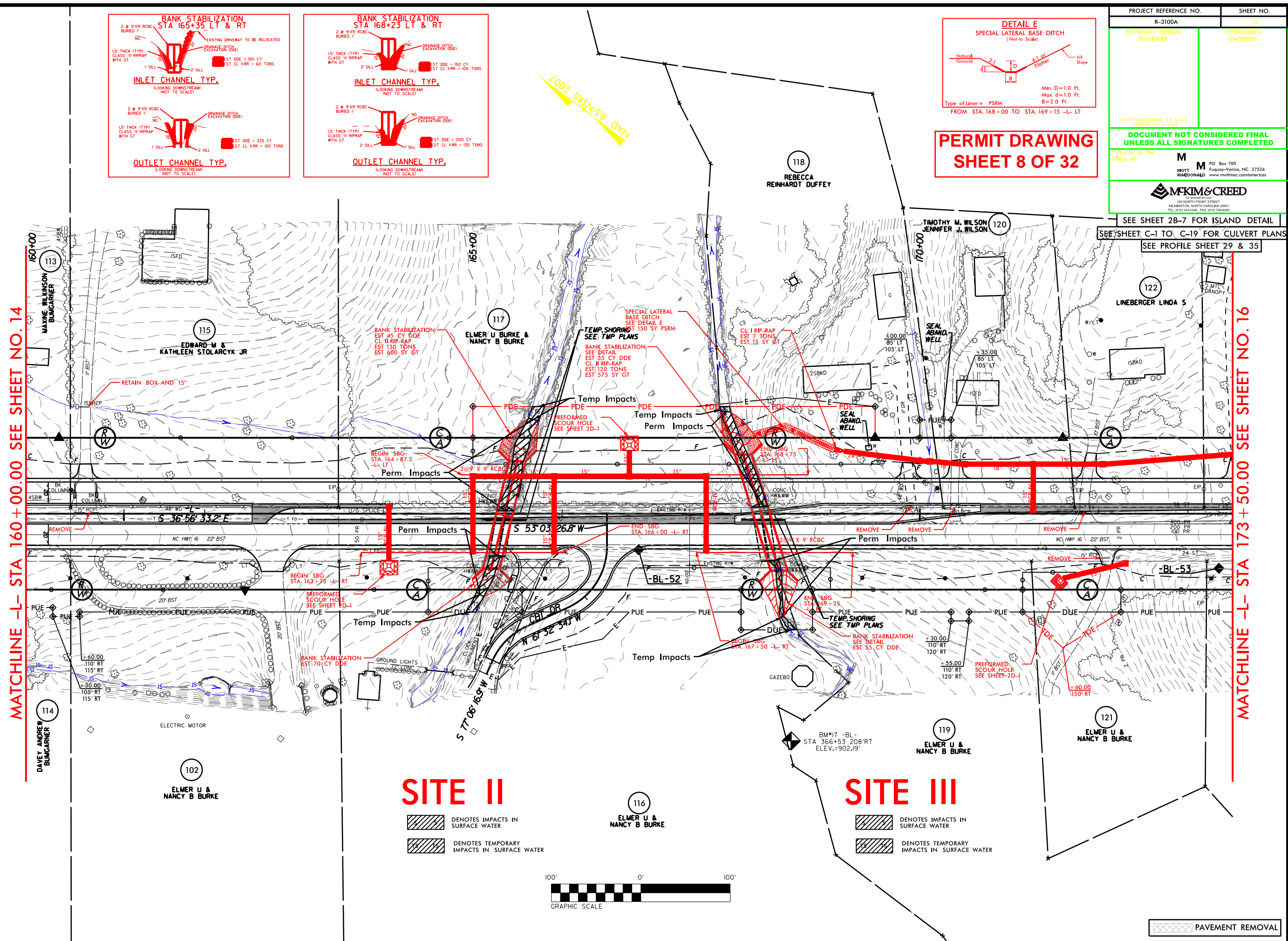
**SITE III**

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

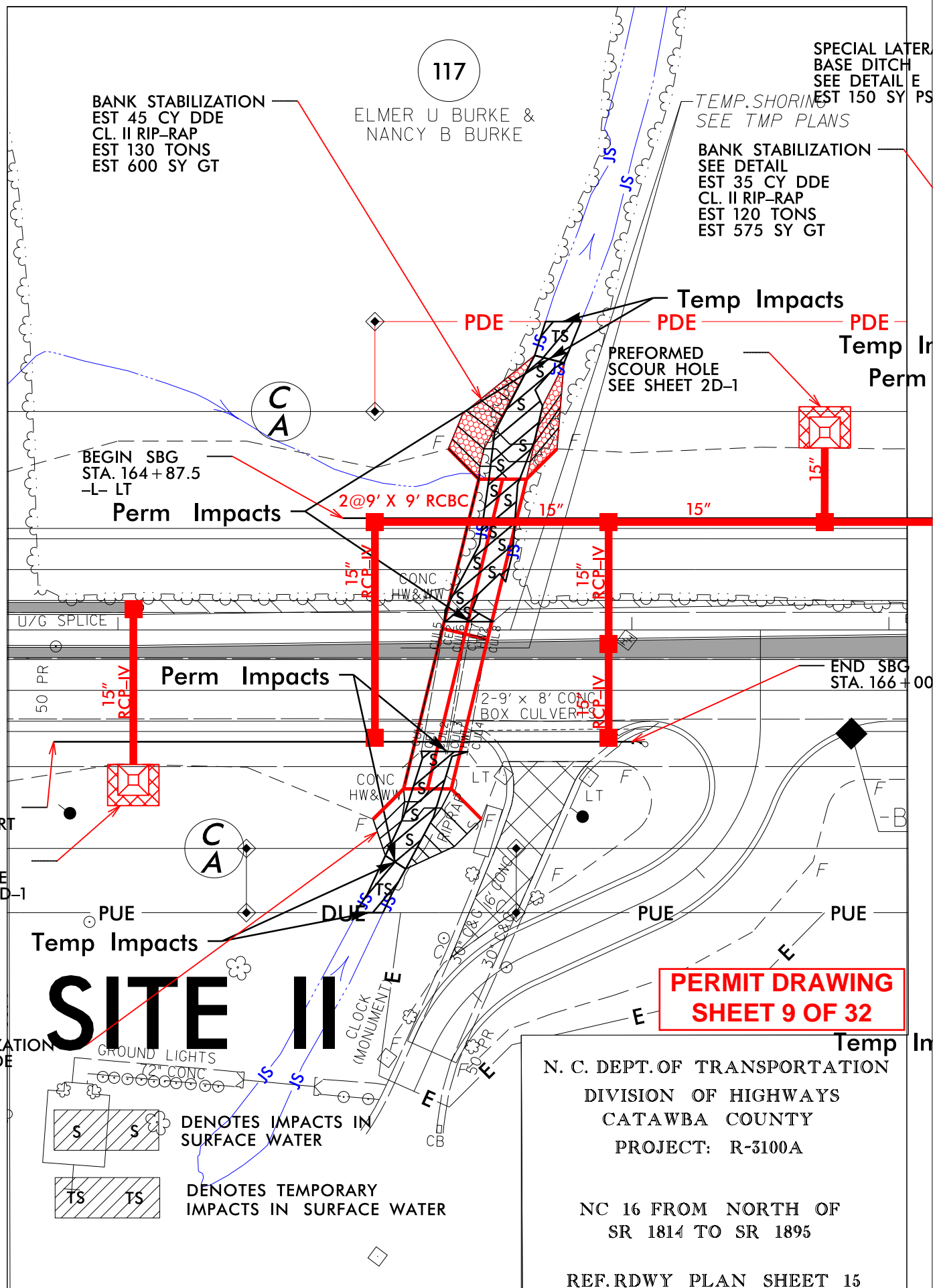
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER



PAVEMENT REMOVAL

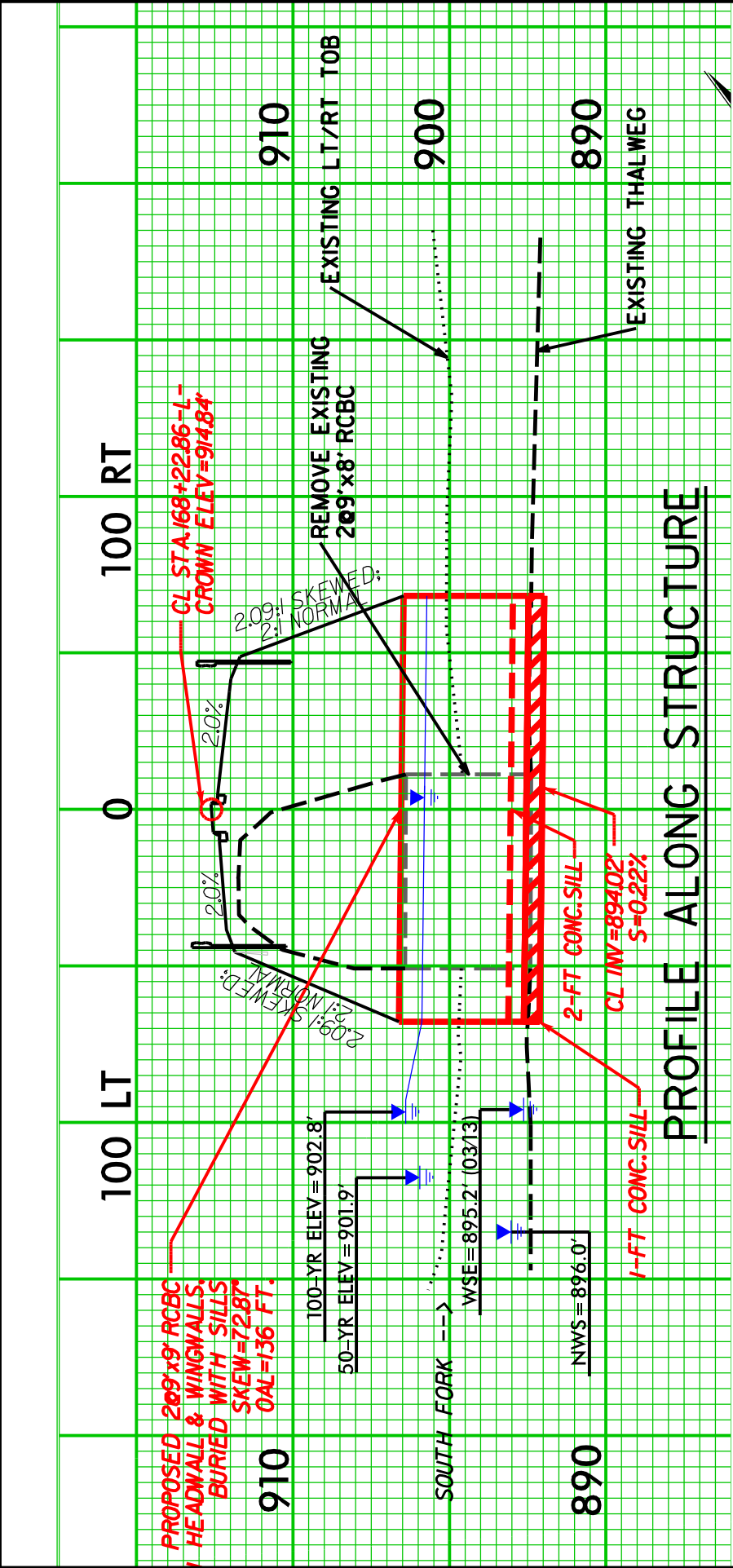










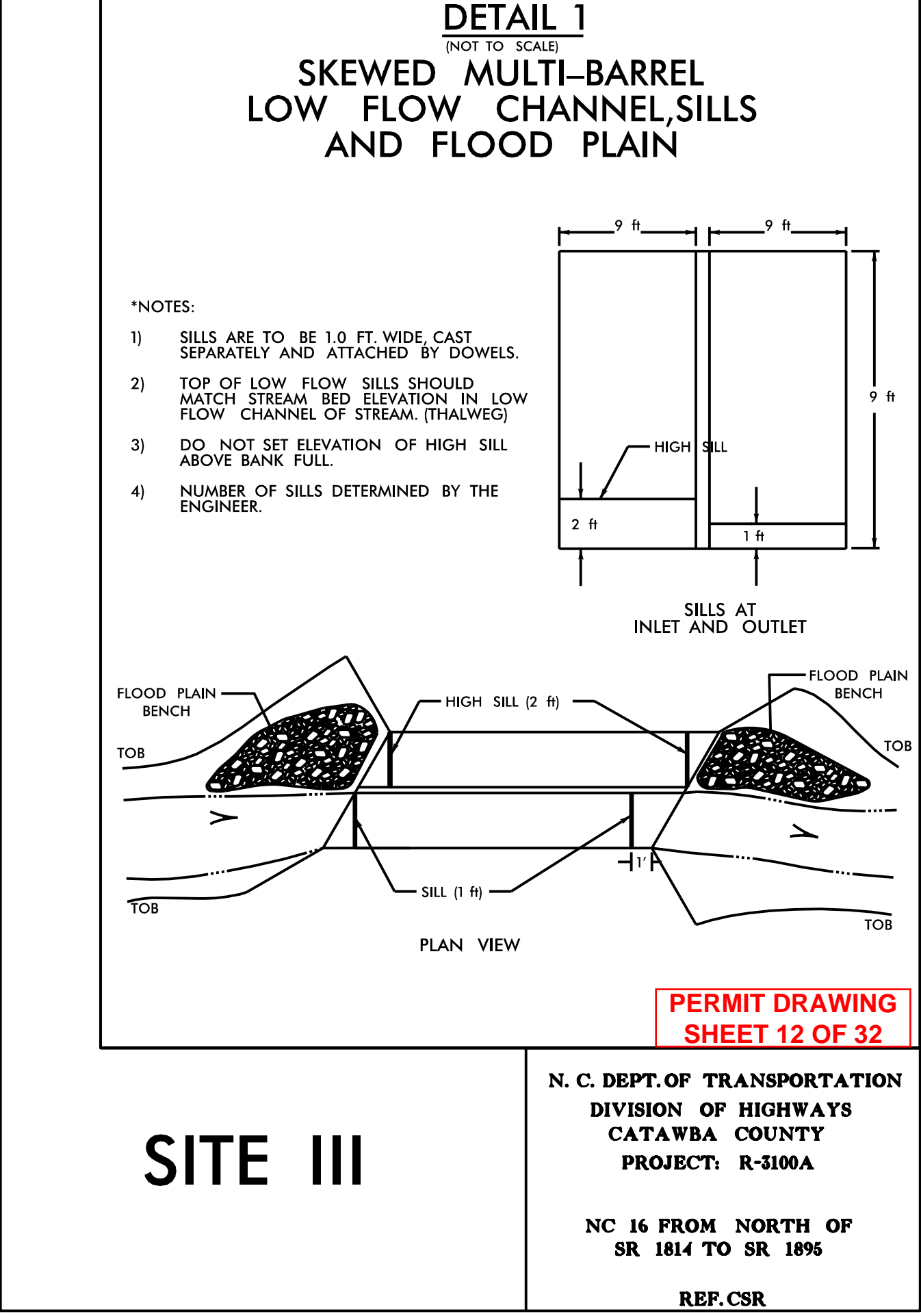


N. C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
CATAWBA COUNTY  
PROJECT: R-3100A

NC 16 FROM NORTH OF  
SR 1814 TO SR 1895

REF. CSR

# SITE III





REVISIONS

DATE: 4-6-2015 - PARCEL 140; REVISED EXISTING RIGHT OF WAY TO MATCH EXISTING RECORDED PLAT, APPROX. 50 FT FROM THE EXISTING CENTERLINE.

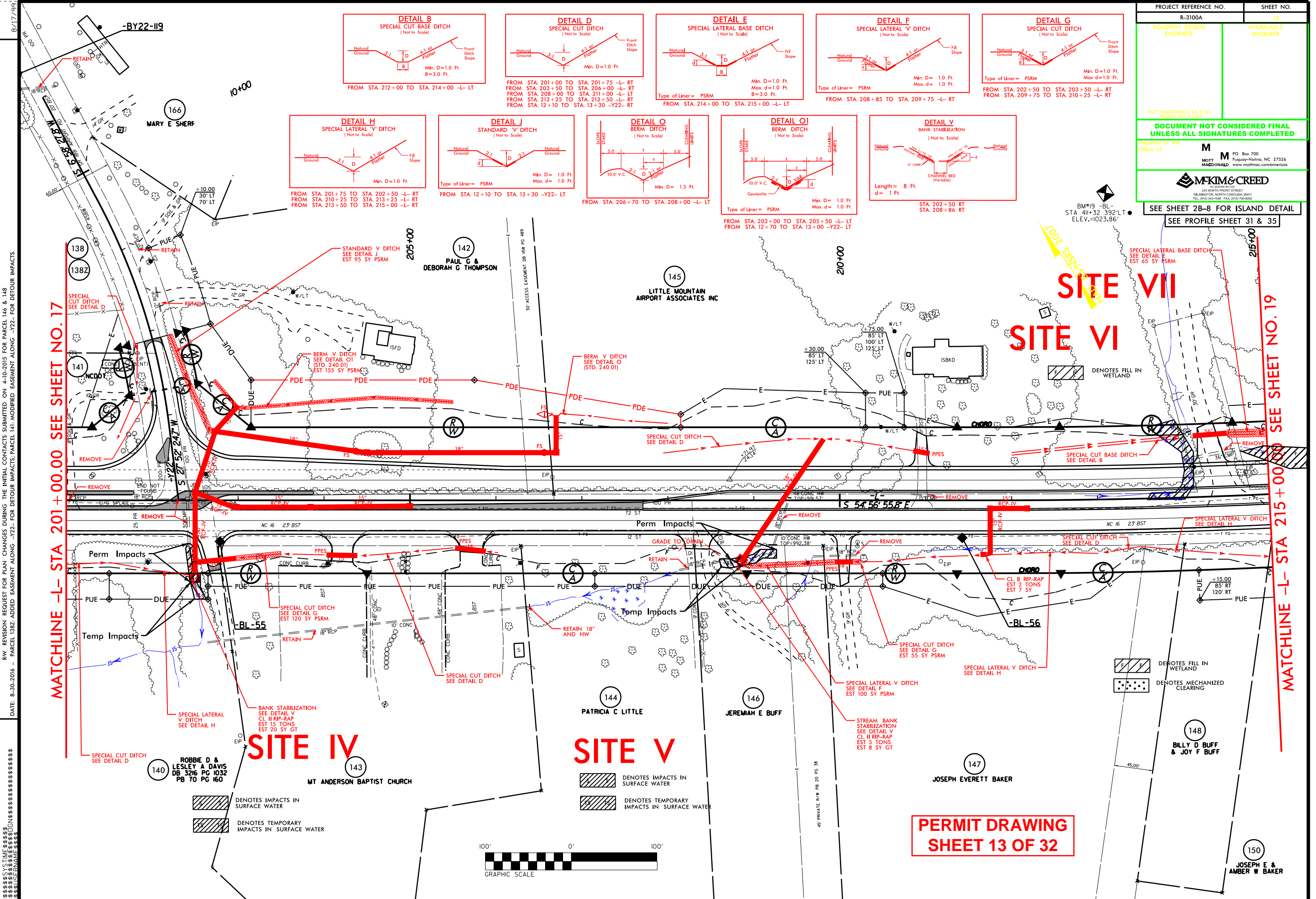
DATE: 5-7-2015 - PARCEL 146; CHANGED PROPERTY OWNER NAME TO JEREMIAH E BUFF.

DATE: 5-7-2015 - RW; REVISION REQUEST FOR PLAN CHANGES DURING THE INITIAL CONTACTS SUBMITTED ON 2-19-2015 FOR PARCEL 146.

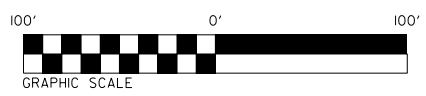
DATE: 6-16-2015 - RW; REVISION REQUEST FOR PLAN CHANGES DURING THE INITIAL CONTACTS SUBMITTED ON 3-5-2015 FOR PARCEL 140.

DATE: 6-16-2015 - RW; REVISION REQUEST FOR PLAN CHANGES DURING THE INITIAL CONTACTS SUBMITTED ON 4-7-2015 FOR PARCEL 143, 146 & 148.

DATE: 8-30-2016 - PARCEL 1382; ADDED EASEMENT ALONG -Y22- FOR DETOUR IMPACTS ALONG -Y22- FOR DETOUR IMPACTS.



PROJECT REFERENCE NO.		SHEET NO.	
R-3100A		18	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
MOTT MACDONALD 14 E. LLC LICENSE NO. E-06669		MOTT MACDONALD PO Box 700 Fuquay-Varina, NC 27526 www.mottmac.com/maemo	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
Prepared in the Office of:			
SEE SHEET 2B-8 FOR ISLAND DETAIL			
SEE PROFILE SHEET 31 & 35			





REVISIONS

DATE: 4-6-2015 - PARCEL 140; REVISED EXISTING RIGHT OF WAY TO MATCH EXISTING RECORDED PLAT, APPROX. 50 FT FROM THE EXISTING CENTERLINE.

DATE: 5-7-2015 - PARCEL 146; CHANGED PROPERTY OWNER NAME TO JEREMIAH E BUFF.

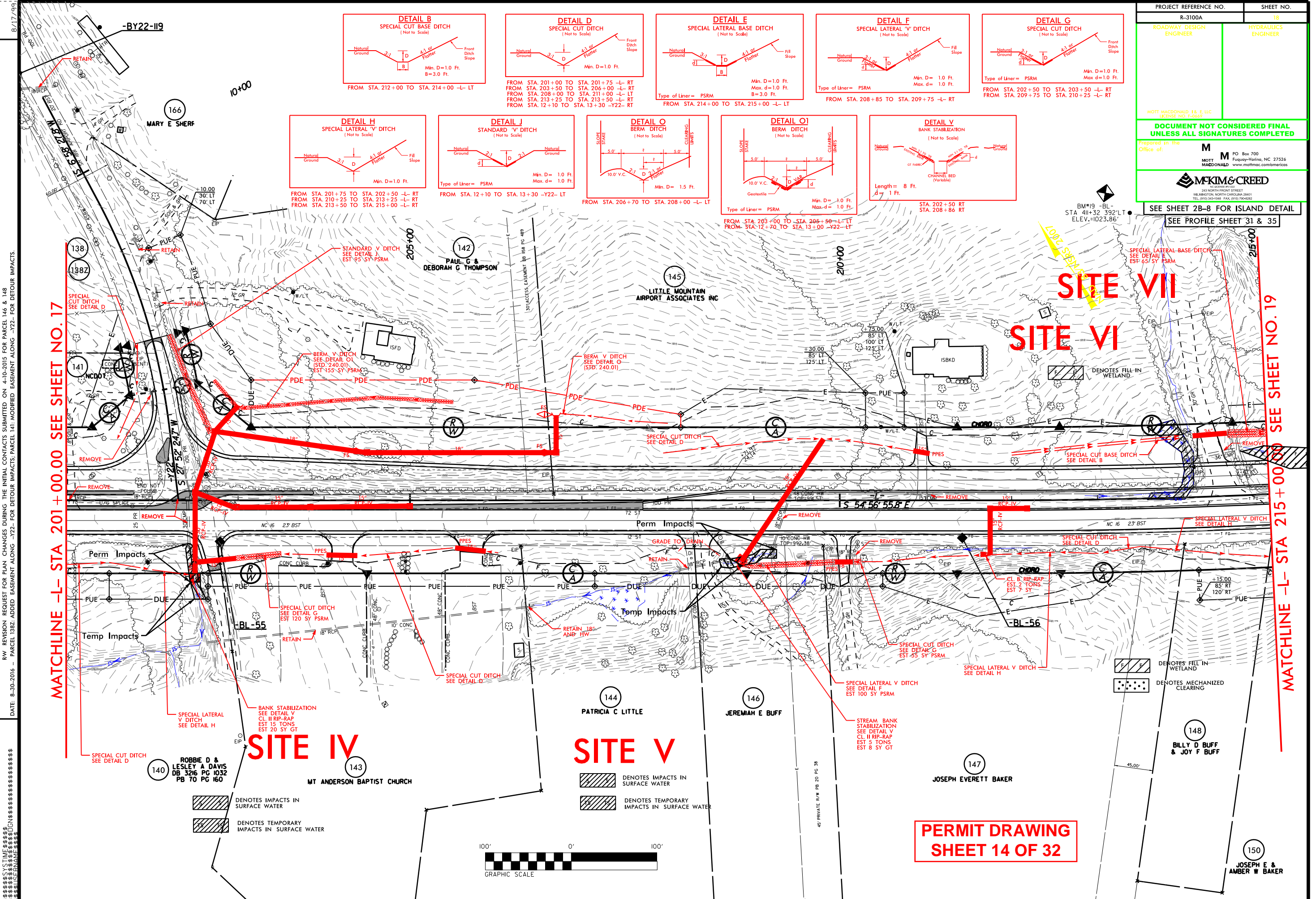
DATE: 5-7-2015 - RW REVISION REQUEST FOR PLAN CHANGES DURING THE INITIAL CONTACTS SUBMITTED ON 2-19-2015 FOR PARCEL 146

DATE: 6-16-2015 - RW REVISION REQUEST FOR PLAN CHANGES DURING THE INITIAL CONTACTS SUBMITTED ON 4-7-2015 FOR PARCEL 140

DATE: 6-16-2015 - RW REVISION REQUEST FOR PLAN CHANGES DURING THE INITIAL CONTACTS SUBMITTED ON 4-7-2015 FOR PARCEL 143, 146 & 148

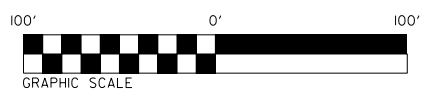
DATE: 8-30-2016 - RW REVISION REQUEST FOR PLAN CHANGES DURING THE INITIAL CONTACTS SUBMITTED ON 4-10-2015 FOR PARCEL 146 & 148

DATE: 8-30-2016 - PARCEL 1382; ADDED EASEMENT ALONG -Y22- FOR DETOUR IMPACTS ALONG -Y22- FOR DETOUR IMPACTS.

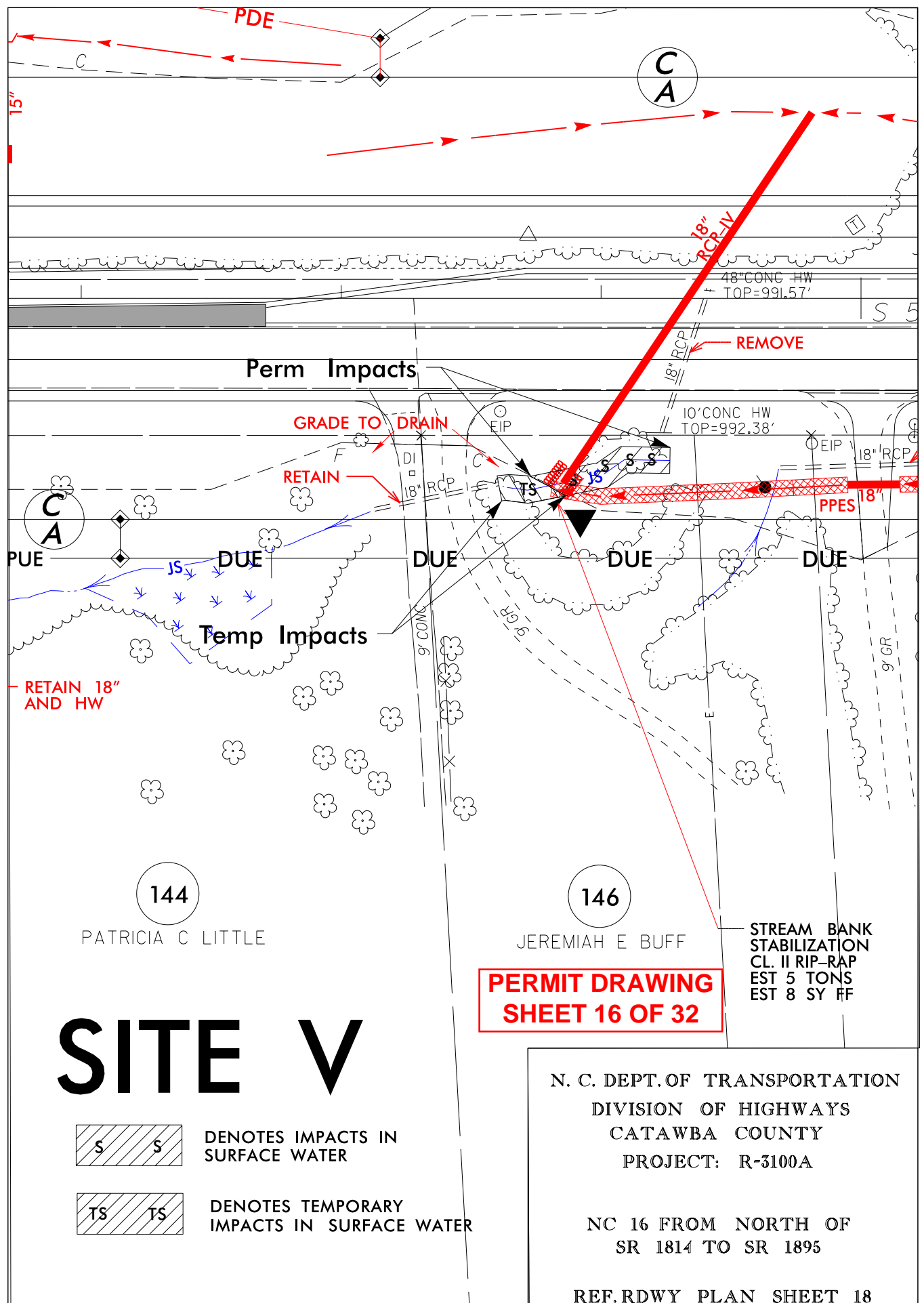


PROJECT REFERENCE NO.		SHEET NO.	
R-3100A		18	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
MOTT MACDONALD 14 E LLC LICENSE NO. E-06669			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
Prepared in the Office of:			
MOTT MACDONALD		PO Box 700 Fuquay-Varina, NC 27526 www.mottmac.com/amarcos	
MKM&CREED			
243 NORTH FRONT STREET WILMINGTON, NORTH CAROLINA 28401 TEL: (910) 343-0488 FAX: (910) 343-0482			
SEE SHEET 2B-8 FOR ISLAND DETAIL		SEE PROFILE SHEET 31 & 35	

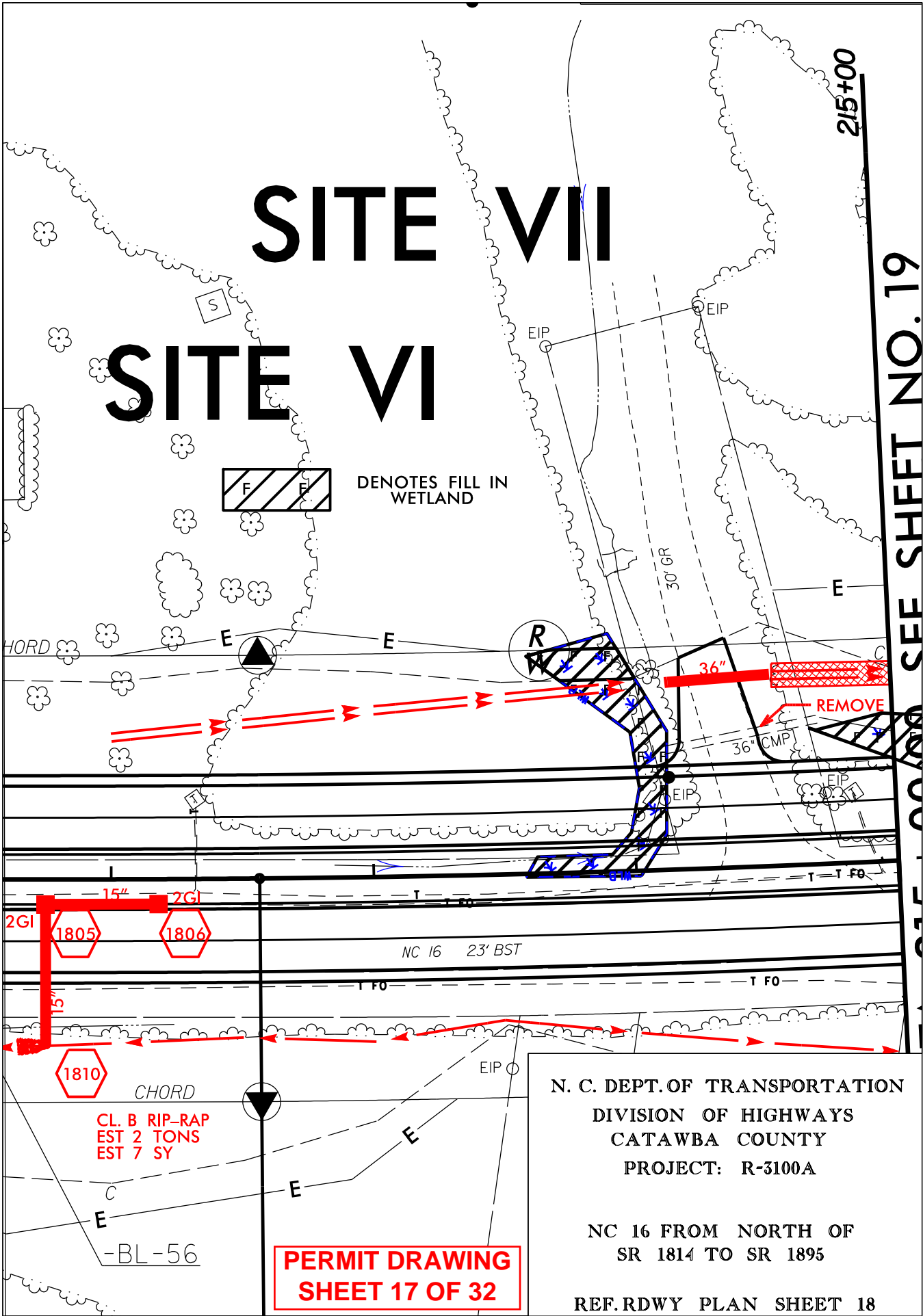
PERMIT DRAWING  
SHEET 14 OF 32

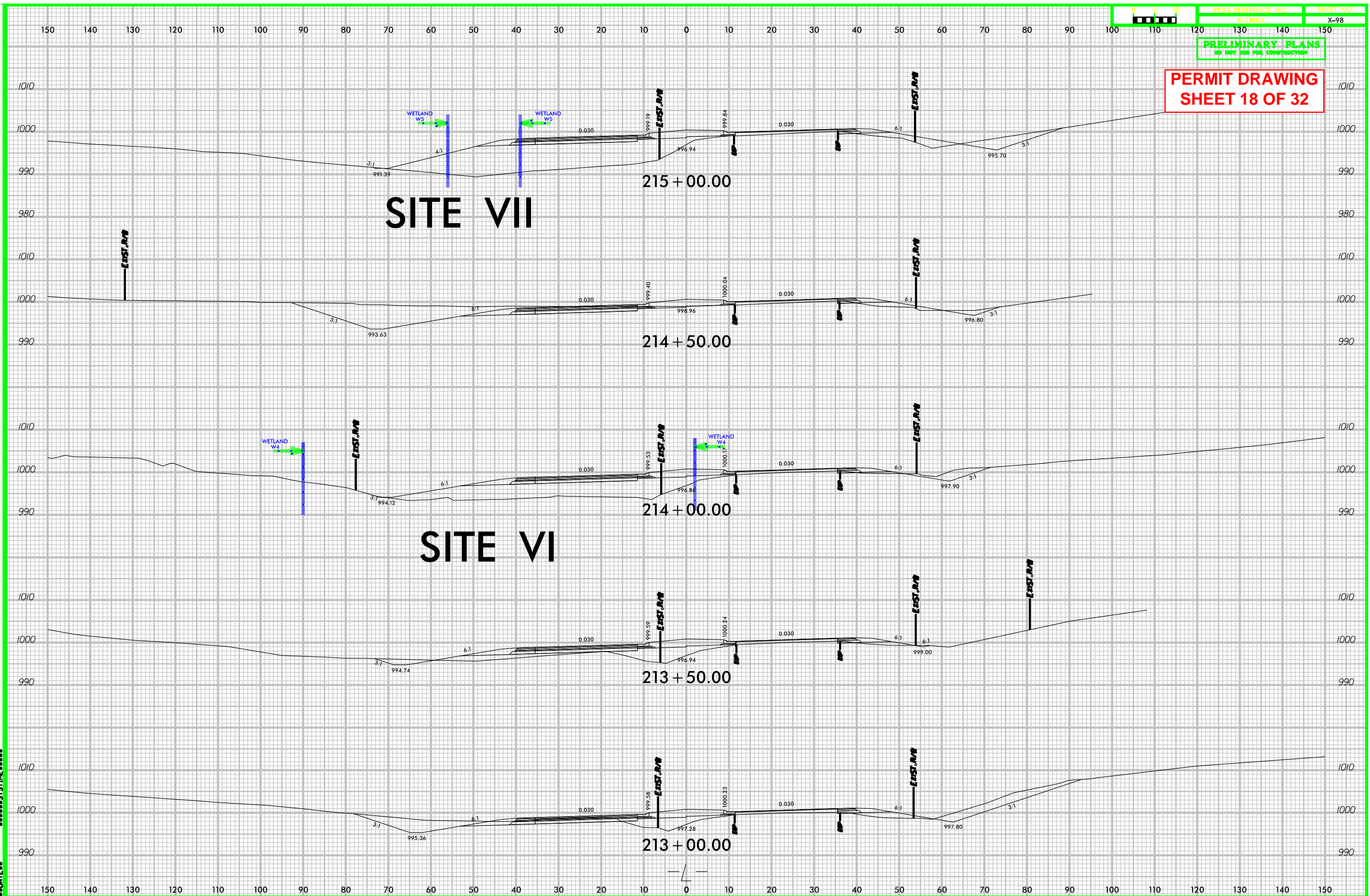














PERMIT DRAWING  
SHEET 19 OF 32

PROJECT REFERENCE  
R-3100A

SHEET NO.  
19

ROADWAY DESIGN  
ENGINEER

HYDRAULICS  
ENGINEER

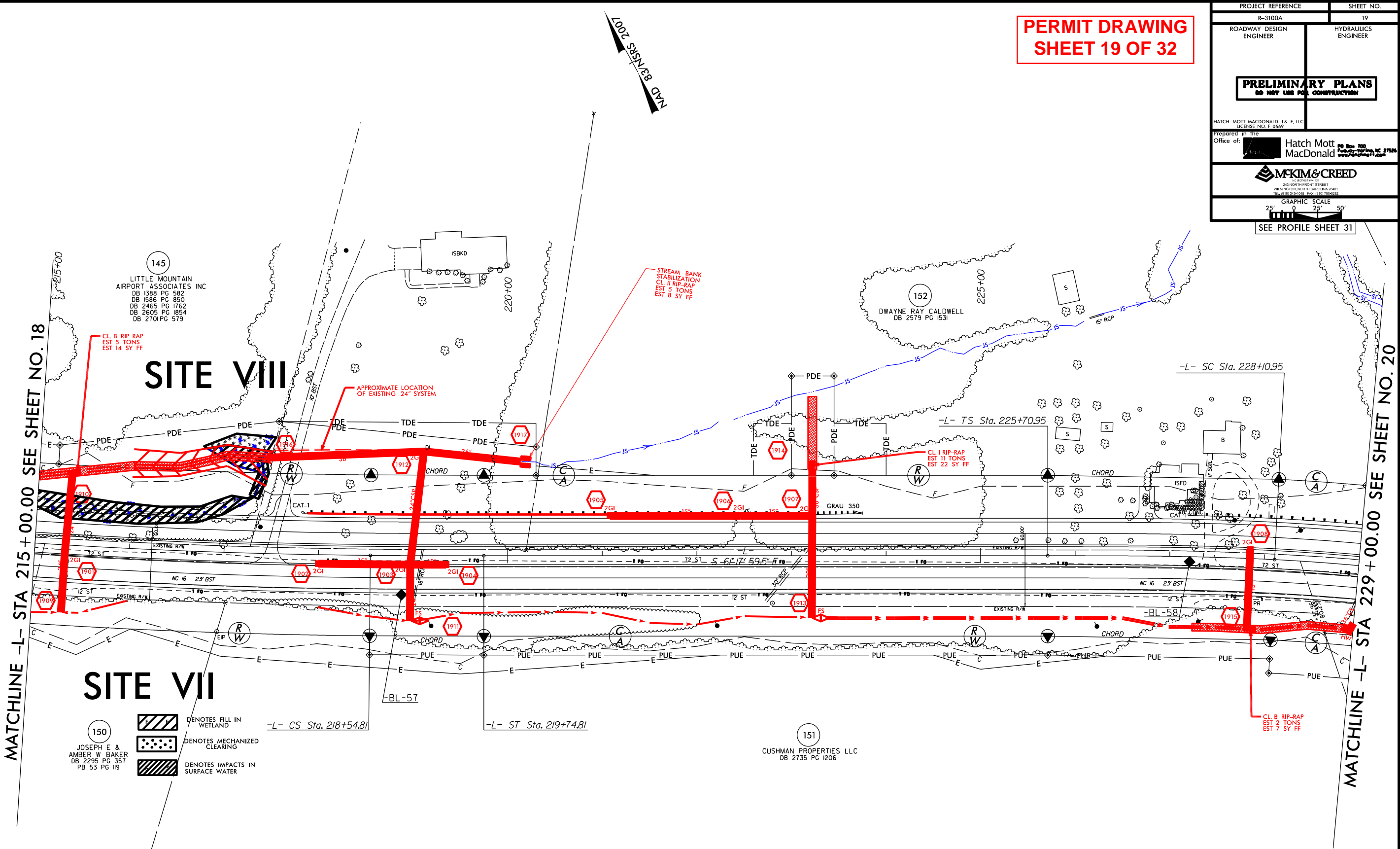
PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION

HATCH MOTT MACDONALD I & E, LLC  
LICENSE NO. T-26667

Office of: Hatch Mott MacDonald  
243 NORTH FRONT STREET  
WILMINGTON, NORTH CAROLINA 28401  
TEL: (910) 343-1048 FAX: (910) 700-4282

GRAPHIC SCALE  
25' 0 25' 50'

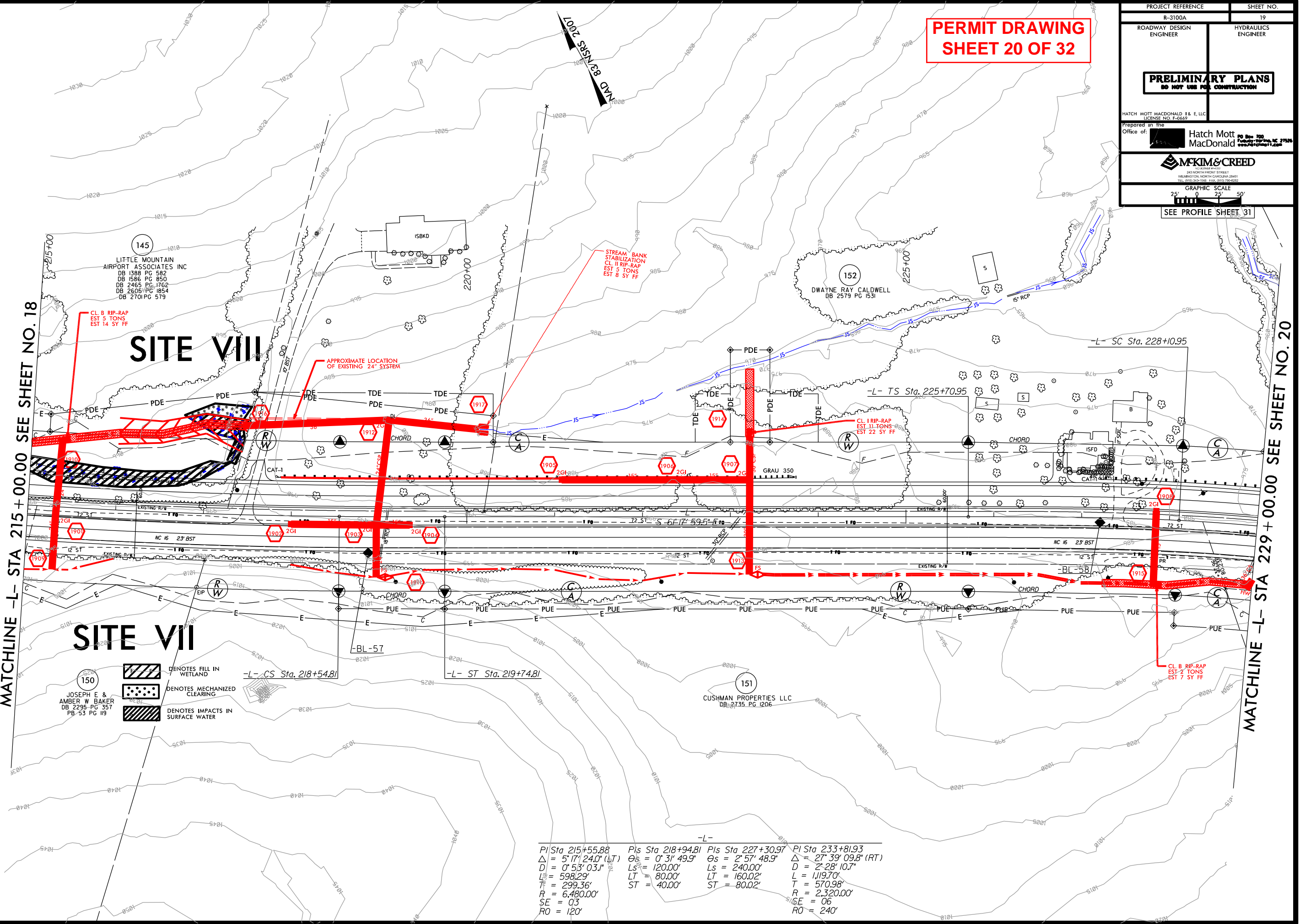
SEE PROFILE SHEET 31



-L-			
PI Sta 215+55.88	PIs Sta 218+94.81	PIs Sta 227+30.97	PI Sta 233+81.93
$\Delta = 5^{\circ}17'24.0"$ (LT)	$\Theta_s = 0^{\circ}31'49.9"$	$\Theta_s = 2^{\circ}57'48.9"$	$\Delta = 27^{\circ}39'09.8"$ (RT)
$D = 0^{\circ}53'03.1"$	$L_s = 120.00'$	$L_s = 240.00'$	$D = 2^{\circ}28'10.7"$
$L = 598.29'$	$LT = 80.00'$	$LT = 160.02'$	$L = 1,119.70'$
$T = 299.36'$	$ST = 40.00'$	$ST = 80.02'$	$T = 570.98'$
$R = 6,480.00'$			$R = 2,320.00'$
$SE = 03$			$SE = 06$
$RO = 120^{\circ}$			$RO = 240^{\circ}$

PERMIT DRAWING  
SHEET 20 OF 32

PROJECT REFERENCE		SHEET NO.	
R-3100A		19	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION			
HATCH MOTT MACDONALD I & E, LLC LICENSE NO. T-26667			
Prepared in the Office of: Hatch Mott MacDonald PO Box 700 Durham, NC 27602 919.286.1100 919.286.1101			
<b>MCKIM &amp; CREED</b> 243 NORTH FRONT STREET WILMINGTON, NORTH CAROLINA 28401 TEL: (910) 343-1000 FAX: (910) 700-4200			
GRAPHIC SCALE 25' 0' 25' 50'			
SEE PROFILE SHEET 31			



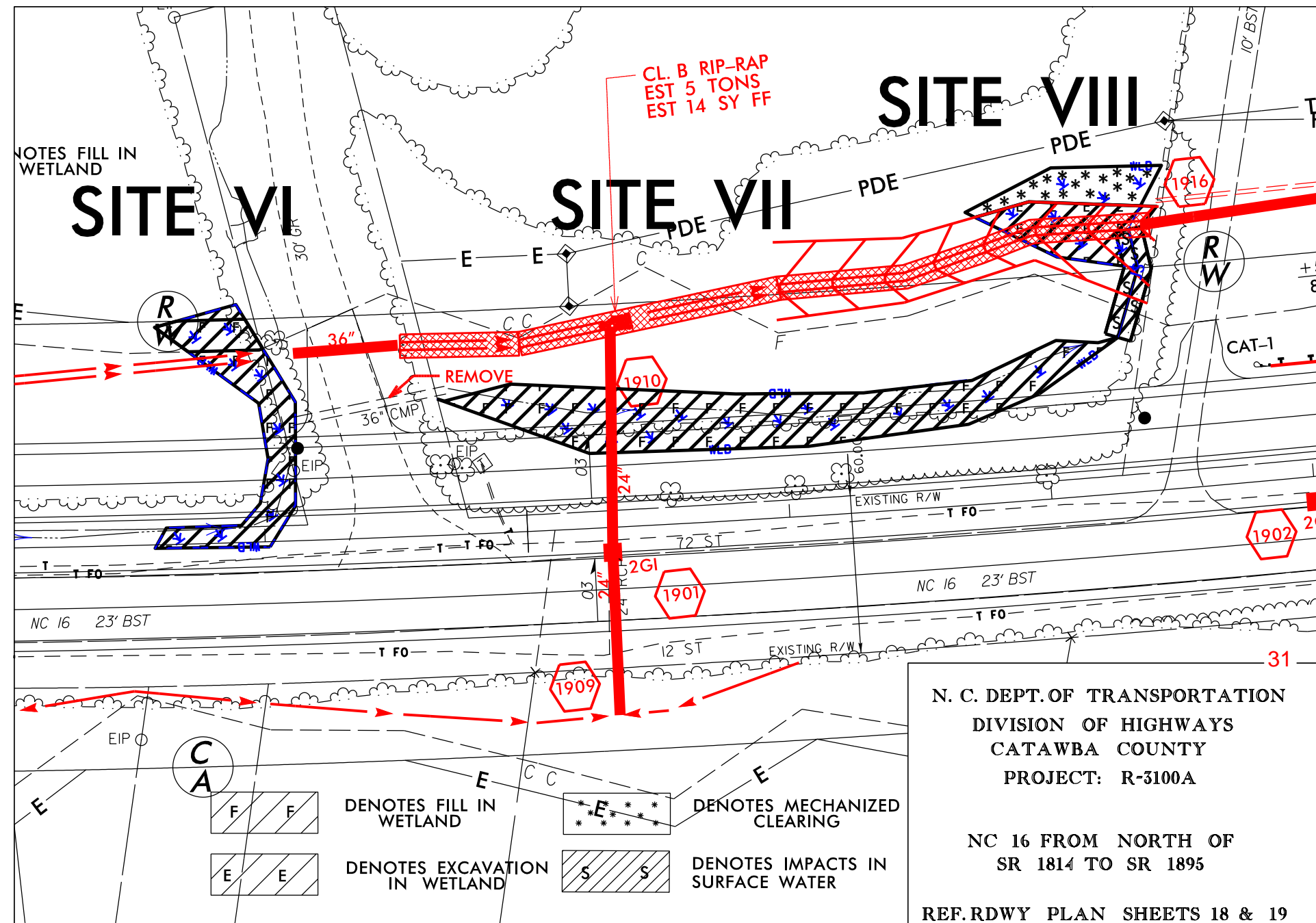
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LITTLE MOUNTAIN  
AIRPORT ASSOCIATES INC  
DB 1388 PG 582  
DB 1586 PG 850  
DB 2465 PG 1762  
DB 2605 PG 1854  
DB 2701 PG 579

152  
DWAYNE RAY CALDWELL  
DB 2579 PG 1531

150  
JOSEPH E &  
AMBER W BAKER  
DB 2298 PG 357  
PB 53 PG 119

151  
CUSHMAN PROPERTIES LLC  
DB 2735 PG 1206

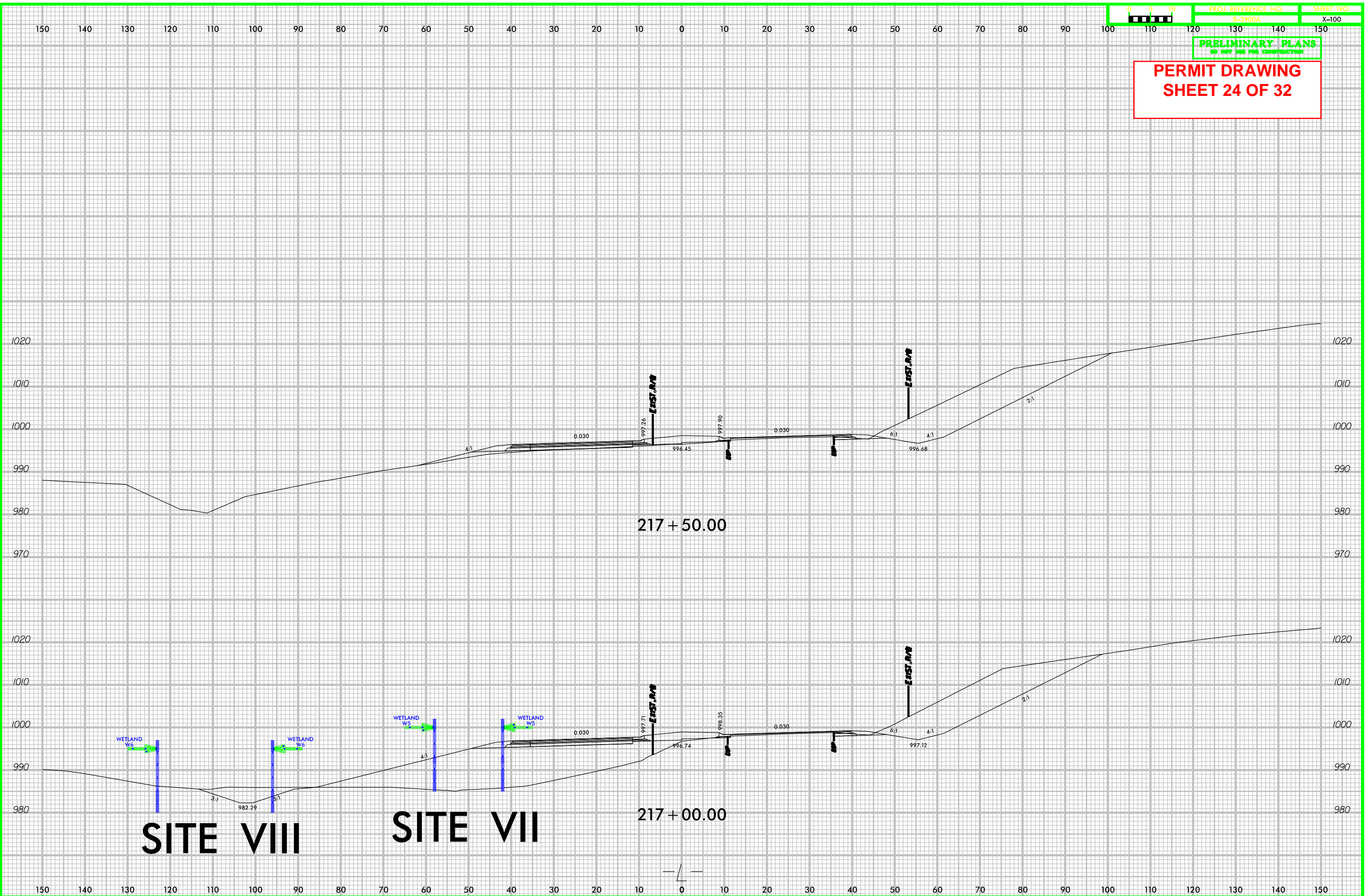
PI Sta 215+55.88	PIs Sta 218+94.81	PIs Sta 227+30.97	PI Sta 233+81.93
$\Delta = 5' 17" 24.0" (LT)$	$\Delta = 0' 31' 49.9"$	$\Delta = 2' 57' 48.9"$	$\Delta = 27' 39' 09.8" (RT)$
$D = 0' 53' 03.1"$	$Ls = 120.00'$	$Ls = 240.00'$	$D = 2' 28' 10.7"$
$Ls = 598.29'$	$LT = 80.00'$	$LT = 160.02'$	$L = 1,119.70'$
$T = 299.36'$	$ST = 40.00'$	$ST = 80.02'$	$T = 570.98'$
$R = 6,480.00'$			$R = 2,320.00'$
$SE = 03$			$SE = 06$
$RO = 120'$			$RO = 240'$



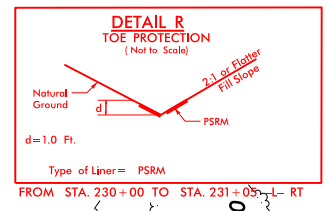
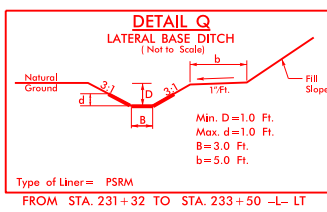
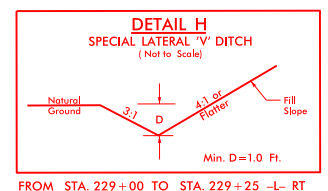
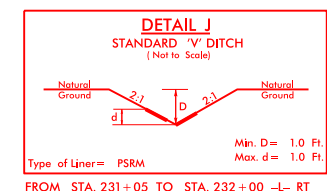
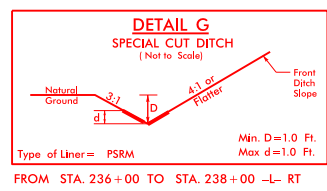
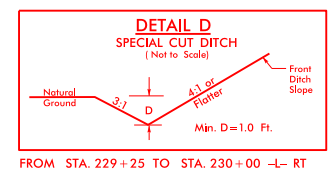
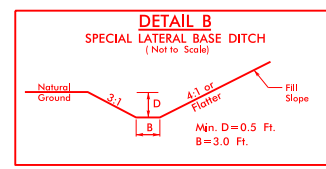






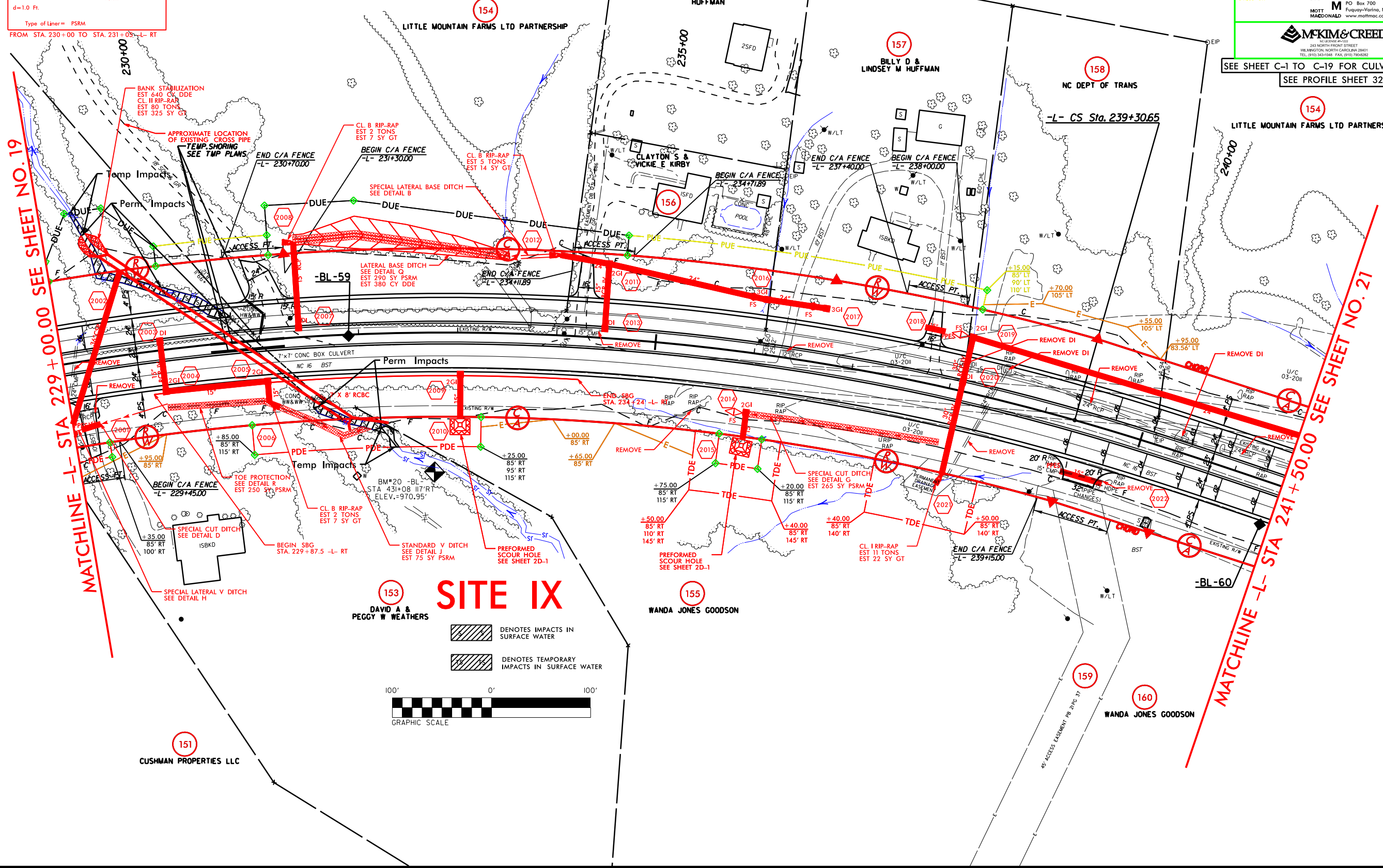


8/17/99



**PERMIT DRAWING**  
**SHEET 25 OF 32**

PROJECT REFERENCE NO. R-3100A		SHEET NO. 20	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
MOTT MACDONALD 14 E. LLC LICENSE NO. E-06669			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
Prepared in the Office of: MOTT MACDONALD PO Box 700 Fuquay-Varina, NC 27526 www.mottmac.com/amarcos			
MKM&CREED 243 NORTH FRONT STREET WILMINGTON, NORTH CAROLINA 28401 TEL: (910) 343-4548 FAX: (910) 343-4582			
SEE SHEET C-1 TO C-19 FOR CULVERT PLANS SEE PROFILE SHEET 32			



REVISIONS

CUSTOMER'S USE ONLY  
DATE  
BY  
CHECKED  
APPROVED  
DESIGNED  
DRAWN  
PLOTTED  
PLOT DATE







**PERMIT DRAWING  
SHEET 27 OF 32**

CL. B RIP-RAP  
EST 2 TONS  
EST 7 SY FF

APPROXIMATE LOCATION  
OF EXISTING CROSS PIPE

-TEMP.SHORING  
SEE TMP PLANS.

## Temp Impacts

## Perm Impacts

**- DUE**

**DUF-**

**PUÉ**

-BL-59

NC 16

## Perm Impacts

## ~~X 8' RCBC~~ Temp Impacts

**CL. B RIP-RAP**  
**EST 2 TONS**  
**EST 7 SY FF**

EST 7 SY EE

# SITE IX

DENOTES IMPACTS IN  
SURFACE WATER



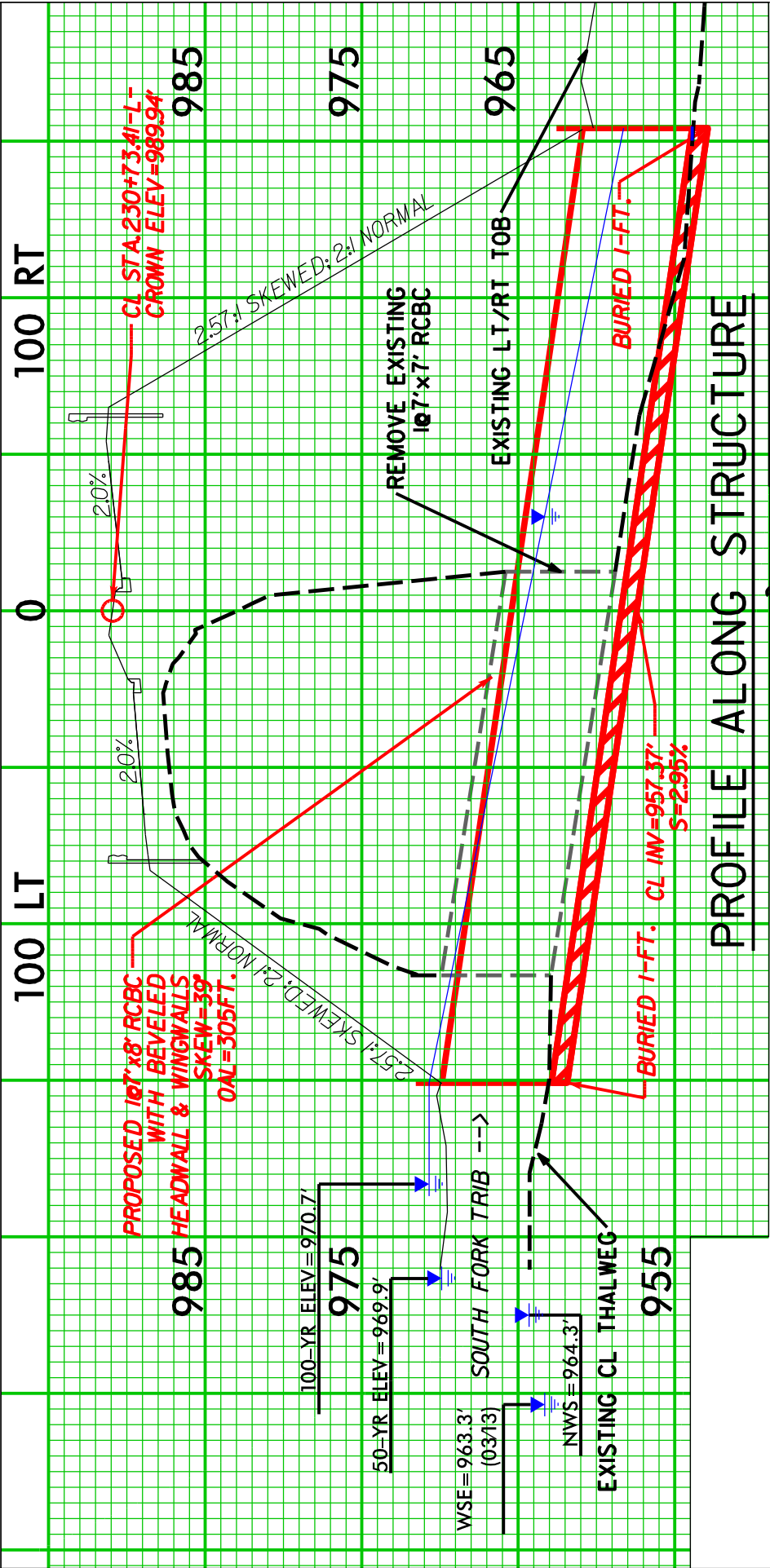
**DENOTES TEMPORARY  
 IMPACTS IN SURFACE WATER**

ISBKD

N. C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
CATAWBA COUNTY  
PROJECT: R-3100A

NC 16 FROM NORTH OF  
SR 1814 TO SR 1895

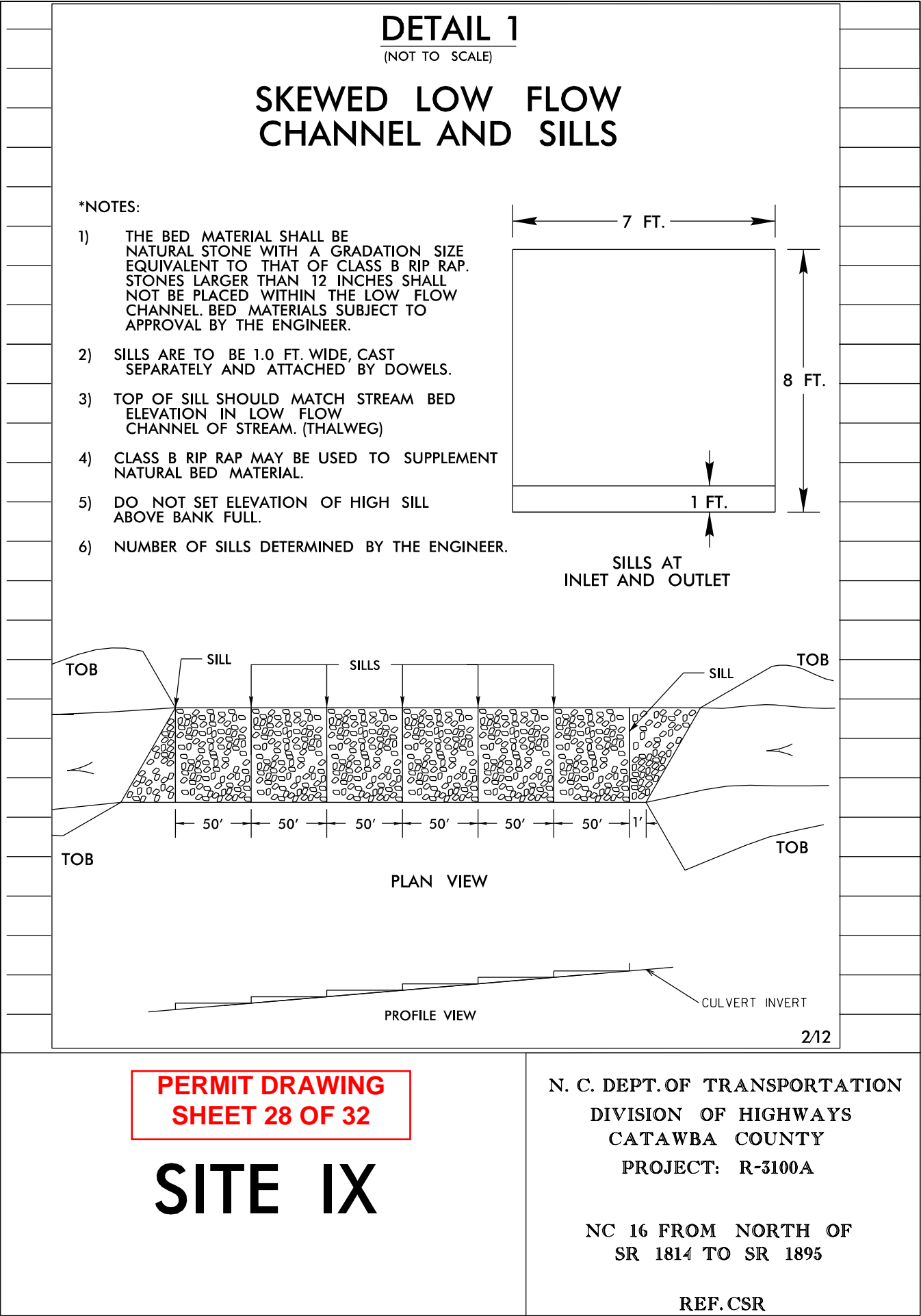
REF. RDWY PLAN SHEET 20



N. C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
CATAWBA COUNTY  
PROJECT: R-3100A  
NC 16 FROM NORTH OF  
SR 1814 TO SR 1895  
REF. CSR

# SITE IX

PROFILE ALONG STRUCTURE



GILBERT H SR &  
SYLVIA G CALDWELL  
DB 1987 PG 1278  
PB 32 PG 148

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UNLESS ALL SIGNATURES COMPLETED**

Prepared in the  
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MacDonald PO Box 700  
Fusbury-Vorning, NC 27526  
www.hatchmott.com


**McKIM & CREED**  
ARCHITECTS

243 NORTH FRONT STREET  
WILMINGTON, NORTH CAROLINA 28401  
TEL. (910) 343-1048 FAX. (910) 750-0282

SEE PROFILE SHEET 32 &amp; 33

**MATCHLINE -L1- STA 17 + 50.00 SEE SHEET NO. 22**

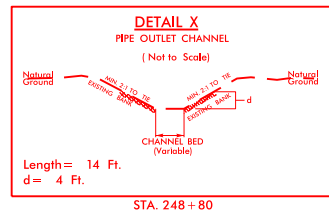
DATE: 6-16-2015 - RW REVISION REQUEST FOR PLAN CHANGES DURING THE INITIAL CONTACTS SUBMITTED ON 4-21-2015 FOR PARCEL 154 & 161



-LI-				-L-			
<i>Pls Sta 11+06.67</i>	<i>Pl Sta 12+29.45</i>	<i>Pls Sta 13+52.22</i>	<i>Pls Sta 15+92.23</i>	<i>Pl Sta 18+60.76</i>	<i>Pl Sta 233+81.93</i>	<i>Pls Sta 240+10.67</i>	
<i>Os = 1°10' 41.9"</i>	<i>Δ = 2° 02' 44.5" (LT)</i>	<i>Os = 1°10' 41.9"</i>	<i>Os = 1° 32' 02.5"</i>	<i>Δ = 6° 11' 14.5" (RT)</i>	<i>Δ = 27° 39' 09.8" (RT)</i>	<i>Os = 2° 57' 48.9"</i>	
<i>Ls = 160.00'</i>	<i>D = 1° 28' 22.4"</i>	<i>Ls = 160.00'</i>	<i>Ls = 200.00'</i>	<i>D = 1° 32' 02.5"</i>	<i>D = 2° 28' 10.7"</i>	<i>Ls = 240.00'</i>	
<i>LT = 106.67'</i>	<i>L = 138.89'</i>	<i>LT = 106.67'</i>	<i>LT = 133.34'</i>	<i>L = 403.34'</i>	<i>L = 119.70'</i>	<i>LT = 160.02'</i>	
<i>ST = 53.34'</i>	<i>T = 69.45'</i>	<i>ST = 53.34'</i>	<i>ST = 66.67'</i>	<i>T = 201.87'</i>	<i>T = 570.98'</i>	<i>ST = 80.02'</i>	
	<i>R = 3,890.00'</i>			<i>R = 3,735.00'</i>	<i>R = 2,320.00'</i>		
	<i>SE = 04'</i>			<i>SE = 05'</i>	<i>SE = 06'</i>		
	<i>RO = 160'</i>			<i>RO = 200'</i>	<i>RO = 240'</i>		




\$\$\$\$SYTIME\$\$\$\$\$  
 \$\$\$DDGN\$\$\$\$\$  
 \$\$\$LICEDNAME\$\$\$

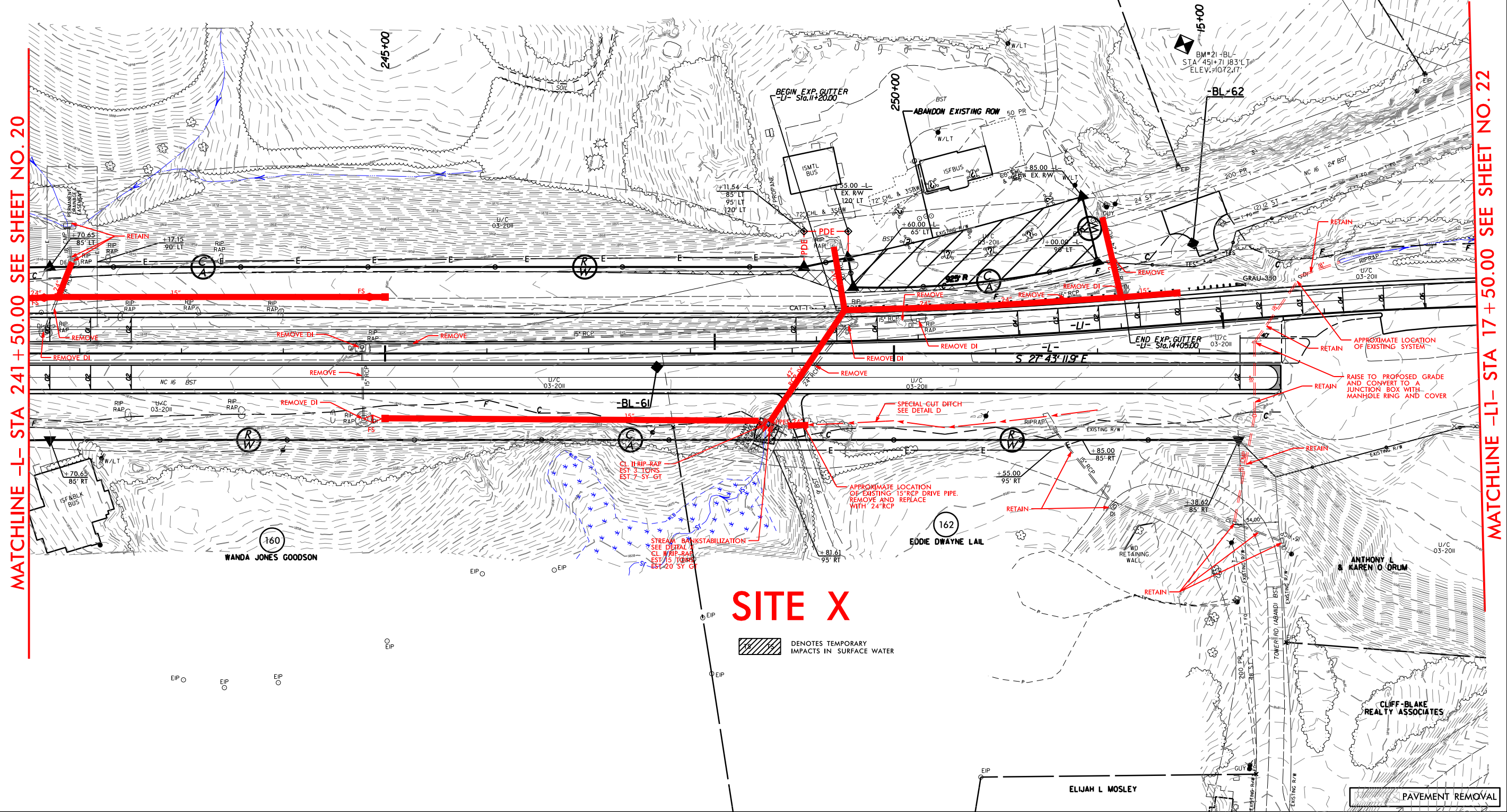


NAD 83/NSRS 2007

GILBERT H SR &  
SYLVIA G CALDWELL

PROJECT REFERENCE NO.		SHEET NO.
R-3100A		21
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
MOIT MACDONALD 1 & E LLC LICENSE NO. P-2669		
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>		
pared in the ice of:		
<div>M M PO Box 700 MOTT Fuquay-Varina, NC 27526 MACDONALD www.mottmac.com/americas</div>		
 <div>MKIM &amp; CREED 243 NORTH FRONT STREET WILMINGTON, NORTH CAROLINA 28401 TEL: (910) 336-1888 FAX: (910) 706-8812</div>		

MATCHLINE -L1- STA 17 + 50.00 SEE SHEET NO. 22







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)
I	47+58 -L- LT & RT	7'X8' RCBC						0.02	< 0.01	163	51	
		BANK STABIL.								77		
II	165+35 -L- LT & RT	2 @ 9'X9' RCBC						0.04	0.01	74	38	
		BANK STABIL.								82		
III	168+23 LT & RT	2 @ 9'X9' RCBC						0.03	< 0.01	76	24	
		BANK STABIL.								104		
IV	201+53 -L- RT	30" RCP						< 0.01	< 0.01	35	20	
		BANK STABIL.								10		
V	208+80 -L- RT	18" RCP						0.01	< 0.01	43	20	
		BANK STABIL.								6		
VI	213+60 -L- LT	BASE DITCH	0.04									
	214+12-L- LT	RDWY FILL	0.02									
VII	214+70 -L- LT											
	217+30-L- LT	RDWY FILL	0.10									
VIII	216+68 -L- LT	BASE DITCH			0.02	0.02						
	217+45 -L- LT	RDWY FILL						< 0.01		42		
IX	230+72 LT & RT	7'X8' RCBC						0.04	< 0.01	220	51	
		BANK STABIL.								25		
X	248+78 -L- RT	42" RCP							< 0.01		22	
TOTALS:			0.16		0.02	0.02		0.14	0.06	957	226	

PERMIT DRAWING  
 SHEET 32 OF 32

NC DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
  
 CATAWBA COUNTY  
 WBS - 34522.1.3 (R-3100A)  
  
 SHEET
 10/6/2016