



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

May 9, 2018

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

Attention: Eric Alsmeyer
NCDOT Coordinator, Division 5

Subject: **Modification Request for Section 404 Individual Permit, Individual Section 401 Water Quality Certification, Neuse Buffer Authorization, and Issuance of Tar-Pamlico Buffer Authorization** for the Rolesville Bypass from NC 96 (Zebulon Road) to SR 1103 (Flat Rock Church Road/Clifton Pond Road), Wake/Franklin Counties, Federal Aid No. STP-401(249), State Project No. 81403001, Division 5, TIP R-2814 C. Debit \$570.00 from WBS Element 34506.1.1.

Reference: Section 404 Individual Permit, issued July 14, 2009, USACE Action ID 2008-01316

Section 404 Individual Permit modification, issued December 6, 2016

Section 401 Individual Water Quality Certification, Isolated Wetlands Permit and Neuse Riparian Buffer Authorization issued June 16, 2009, NCDENR-DWQ Water Quality Certification Project No. 20090104 ver.1

Modification to the 401 Water Quality Certification, Isolated Wetlands Permit and Neuse & Tar-Pamlico Buffer Rules issued November 18, 2016, NCDWR Project No. 20090104 ver. 5.

Dear Sir:

Please see the enclosed revised permit drawings and impact summary sheets for the above referenced project.

Due to the installation of a new driveway access along US 401 (Sta. -L- 311+74 RT), there will be an additional 0.02 acre of mechanized clearing in jurisdictional wetlands (Permit Drawings Site 13B). An additional impact to Tar-Pamlico riparian buffers will occur due to this work totaling impacts of 1,013 square feet in zone 1 and 1,991 square feet in zone 2 (Buffer Permit Drawings Site 9D).

Also, the design has been revised at Site 14 (Sta. -L- 314+63 RT<). The raised grade at this site will result in an additional 0.01 acre of mechanized clearing in jurisdictional wetlands (Permit Drawing Site 14). Additionally, the raised grade will cause the proposed culvert to be lengthened by 5 linear feet. Bank stabilization at this site is adjusted for this increased culvert resulting in no net change in permanent stream impact.

During review of the buffer drawings for the permit modification request it was noticed that the buffer impacts for Site 9C were incorrect. Values for Zone 1 and Zone 2 had been reversed. This modification corrects these values on the buffer impact summary sheet. Total impacts to Tar-Pamlico riparian buffers (03020101) are 71,894 sq ft for Zone 1 and 51,226 sq ft for Zone 2. Mitigable impacts to Tar-Pamlico buffers, minus buffers in wetlands is 60,150 sq ft for Zone 1 and 37,584 sq ft for Zone 2. There are no change in impacts to buffers in the Neuse River basin as a result of these revisions.

Mitigation

Compensatory mitigation for the additional, unavoidable impacts to jurisdictional features is reflected in the attached revised DMS acceptance letter. These changes include an additional 0.03 acre of mechanized clearing in wetland mitigated at a 1:1 ratio, 5 linear feet of permanent stream impact mitigated at 2:1.

A copy of this modification request will be posted on the NCDOT website at <https://connect.ncdot.gov/resources/Environmental/>. If you have any questions or need additional information, please contact Jason Dilday at 919-707-6111 or jldilday@ncdot.gov.

Sincerely,



Philip S. Harris III, P.E., C.P.M.
Environment Analysis Unit

for

cc: NCDOT Permit Application Standard Distribution List



Environmental
Quality

ROY COOPER
Governor

November 18, 2016

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

Dear Mr. Harris:

Subject: Mitigation Acceptance Letter:

TIP Number R-2814C, US 401 Improvements from NC 96 to SR 1103, Wake and Franklin Counties

Reference: USACE 404 Individual Permit issued December 6, 2016 (USACE Action ID 2008-01316)

NCDWR 401 Water Quality Certification (WQC) issued November 18, 2016 (NCDWR ID 2009-0104)

The purpose of this letter is to notify you that the Division of Mitigation Services (DMS) will provide the additional stream, riparian wetland and buffer mitigation for the subject project. Based on the information supplied by you on March 28, 2018, the additional impacts are located in CU 03020101 of the Tar-Pamlico River Basin in the Central Piedmont (CP) Eco-Region, and are as follows:

Table 1 – Additional Impacts (feet / acres / square feet)

| Tar-Pamlico 03020101 CP | Stream | | | Wetlands | | | Buffer (Sq. Ft.) | |
|-------------------------------|--------|------|------|----------|--------------|---------------|------------------|----------------|
| | Cold | Cool | Warm | Riparian | Non-Riparian | Coastal Marsh | Zone 1 (3:1) | Zone 2 (1.5:1) |
| Impacts (feet/ acres) | 0 | 0 | 5.0 | 0.03 | 0 | 0 | 461.0 | 1,784.0 |

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

These impacts and associated mitigation needs were not projected by the NCDOT in the 2018 impact data. DMS is currently providing stream, riparian wetland, and buffer mitigation for the impacts associated with this project located in cataloging unit 03020201 of the Neuse River basin and cataloging unit 03020101 of the Tar-Pamlico River basin as required by the 404 and 401 permits issued in December and November 2016, as shown in the below table (in mitigation credits):



State of North Carolina | Environmental Quality
217 West Jones Street | 1601 Mail Service Center | Raleigh, North Carolina 27699-1601
919 707 8600

Table 2 – Current Permitted Impacts and Associated Mitigation Requirements provided by DMS (based on 2016 permits) and Revised Anticipated Impacts (based on mitigation request)

Tar-Pamlico 03020101

| Impact Type | Total Permitted Impacts (feet / acre / sq ft) | Mitigation Provided by DMS per Issued Permits (Credits) | Additional Impact (for approval) | Revised Total Impacts* |
|-----------------------------|--|---|--|---------------------------|
| Stream | 1,021.0 | 1,710.0 | 5.0 | 1,026.0 |
| Riparian Wetland | 0.33 | 0.59 | 0.03 | 0.36 |
| Riparian Buffer – Zone 1 | 59,689.0 | 179,067.0 | 461.0 | 60,150.0 |
| Riparian Buffer – Zone 2 | 35,800.0 | 53,700.0 | 1,784.0 | 56,376.0 |

*Some of the additional wetland impacts may be proposed to be mitigated at a 1:1 mitigation ratio. See permit application for details. DMS will provide the amount of mitigation as determined by the regulatory agencies.

All buffer mitigation requests and approvals are administrated through the Riparian Restoration Buffer Fund. The NCDOT will be responsible to ensure that appropriate compensation for the buffer mitigation will be provided in the agreed upon method of fund transfer. Upon receipt of the NCDWR's Buffer Authorization Certification, DMS will transfer funds from the NCDOT 2984 Fund into the Riparian Restoration Buffer Fund. Upon completion of transfer payment, NCDOT will have completed its riparian buffer mitigation responsibility for TIP Number R-2814C. Subsequently, DMS will conduct a review of current NCDOT ILF Program mitigation projects in the river basin to determine if available buffer mitigation credits exist. If there are buffer mitigation credits available, then the Riparian Restoration Buffer Fund will purchase the appropriate amount of buffer mitigation credits from NCDOT ILF Program.

This impact and associated mitigation need were under projected by the NCDOT in the 2018 impact data. DMS will commit to implement sufficient compensatory mitigation credits to offset the additional impacts associated with this project as determined by the regulatory agencies using the delivery timeline listed in Section F.3.c.iii of the In-Lieu Fee Instrument dated July 28, 2010. If you have any questions or need additional information, please contact Ms. Beth Harmon at 919-707-8420.

Sincerely,

James B. Stanfill
Asset Management Supervisor

Cc: Mr. Eric Alsmeyer, USACE – Raleigh Regulatory Field Office
Ms. Amy Chapman, NCDWR
File: R-2814C Additional





North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR NCDOT PROJECTS

(Version 2.07; Released October 2016)

| | | | | | | | | | | |
|--|--|---|--|---|--|----------|----------|------|---|--|
| WBS Element: | 34506.1.1 | TIP No.: | R-2814C | County(ies): | Wake Franklin | Page | 1 | of | 2 | |
| General Project Information | | | | | | | | | | |
| WBS Element: | 34506.1.1 | TIP Number: | R-2814C | Project Type: | Roadway Widening | Date: | 3/8/2018 | | | |
| NCDOT Contact: | Linda Johns | | | Contractor / Designer: | NCDOT Hydraulics Unit | | | | | |
| Address: | 1590 Mail Service Center Raleigh, NC 27699-1590 | | | Address: | 1590 Mail Service Center Raleigh, NC 27699-1590 | | | | | |
| | Phone: | 919-707-6728 | | | Phone: | | | | | |
| | Email: | lmjohns@ncdot.gov | | | Email: | | | | | |
| City/Town: | Rolesville | | | County(ies): | Wake | Franklin | | | | |
| River Basin(s): | Neuse | Tar-Pamlico | CAMA County? | No | No | | | | | |
| Wetlands within Project Limits? | Yes | | | | | | | | | |
| Project Description | | | | | | | | | | |
| Project Length (lin. miles or feet): | 6.6 miles | Surrounding Land Use: | Rolling topography, agriculture, forests, rural residential, changing to urban | | | | | | | |
| Project Built-Up Area (ac.) | | Proposed Project | | | Existing Site | | | | | |
| 61.0 ac. | | | | | 28.0 ac. | | | | | |
| Typical Cross Section Description: | The proposed cross-section for most of the project is four-lane, 46 ft. median divided section, utilizing 4 ft paved shoulders. North of -Y8-, Beaver Dam Dr. to the end of this portion of the project, a four-lane 20 ft median divided section utilizing curb and gutter is proposed. Lanes along the -L- line are typically 12 ft, and 10 ft on the -Y- lines. | | | Existing US 401 is a two to three-lane roadway, with variable width grass shoulders. The existing roadway has 10 ft lane widths, with 2 ft paved shoulders. | | | | | | |
| Annual Avg Daily Traffic (veh/hr/day): | Design/Future: | 15,848 | Year: | 2036 | Existing: | 10,892 | Year: | 2016 | | |
| General Project Narrative: (Description of Minimization of Water Quality Impacts) | <p>Design Rev 3-8-18 includes new driveway at -L- Sta 311+74 RT. Design rev 6-30-17 includes raising the grade at Site 14, left turn bulb widening throughout and revision to spread criteria due to increased design speed within curb and gutter portion of the project. R-2814C is the third part of four on R-2814, widening of US 401 in Wake and Franklin Counties from SR 2044 (Ligon Mill Rd) to SR 1700 (Fox Park Rd) in Louisburg, to a four-lane, median divided, superstreet design facility. Widening will be to the east or to the west of the existing two lanes of US 401. The proposed project is needed to alleviate the existing and future capacity deficiencies along US 401.</p> <p>Best Management Practices include utilization of an open shoulder typical section, as well as steepening fill slopes (and providing guardrail) to minimize impacts to jurisdictional features.</p> <p>Grass swales are proposed primarily as stormwater control measures where possible throughout the Neuse River basin, WS II (HQP) NSW areas, and in areas adjacent to jurisdictional features in the Tar-Pam River basin Class C, NSW areas. In open shoulder areas, shoulder berm gutter are proposed to capture roadway runoff into storm drain systems and route to outlets located far enough away from jurisdictional features so grass swale treatment could be obtained prior to reaching wetland, jurisdictional stream and/or buffer zone. Design revision created adjustments to the grass swales, noted in red on the Grass Swale Tab.</p> <p>Rip Rap bank stabilization is included in the design upstream and downstream of all major stream crossings, and downstream of all minor jurisdictional stream crossings. Rip rap at embankment is also added at the ends of ditches that outlet to jurisdictional streams. Rip rap toe protection is proposed at the bottom of all fill slopes that are adjacent to wetlands. Flat rip rap pads were used at the ends of ditches to slow velocities and diffuse concentrated flow.</p> <p>Environmental Site Design is proposed as a stormwater control device for roadway drainage entering Crooked Creek Trib 3.</p> | | | | | | | | | |
| Waterbody Information | | | | | | | | | | |
| Surface Water Body (1): | Little River | | | NCDWR Stream Index No.: | 27-57-(1)a | | | | | |
| NCDWR Surface Water Classification for Water Body | Primary Classification: | | | Water Supply II (WS-II) | | | | | | |
| | Supplemental Classification: | | | High Quality Waters (HQP) | | (NSW) | | | | |
| Other Stream Classification: | | | | | | | | | | |
| Impairments: | biological impairment | | | | | | | | | |
| Aquatic T&E Species? | Yes | Comments: Biological conclusions for Michaux's sumac, dwarf-wedge mussel, and Tar River spiny mussel are unresolved | | | | | | | | |
| NRTR Stream ID: | | | | Buffer Rules in Effect: | | Neuse | | | | |
| Project Includes Bridge Spanning Water Body? | No | Deck Drains Discharge Over Buffer? | N/A | | Dissipator Pads Provided in Buffer? | | N/A | | | |
| Deck Drains Discharge Over Water Body? | N/A | (If yes, provide justification in the General Project Narrative) | | | (If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative) | | | | | |
| (If yes, provide justification in the General Project Narrative) | | | | | | | | | | |



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



(Version 2.07; Released October 2016)

| | | | | | | | | | |
|--|-----------------------|---|-------------------------------------|---------------------------------|--|-------------|-------------|-----------|---|
| WBS Element: | 34506.1.1 | TIP No.: | R-2814C | County(ies): | Wake Franklin | Page | 2 | of | 2 |
| Additional Waterbody Information | | | | | | | | | |
| Surface Water Body (2): | Little River Trib 3 | | | NCDWR Stream Index No.: | 27-57-(1) | | | | |
| NCDWR Surface Water Classification for Water Body | | | Primary Classification: | Water Supply II (WS-II) | | | | | |
| | | | Supplemental Classification: | High Quality Waters (Hqw) | | (NSW) | | | |
| Other Stream Classification: | | | | | | | | | |
| Impairments: | | | | | | | | | |
| Aquatic T&E Species? | Yes | Comments: Biological conclusions for Michaux's sumac, dwarf-wedge mussel, and Tar River spiny mussel are unresolved | | | | | | | |
| NRTR Stream ID: | | | | Buffer Rules in Effect: | | | Neuse | | |
| Project Includes Bridge Spanning Water Body? | No | Deck Drains Discharge Over Buffer? | N/A | | Dissipator Pads Provided in Buffer? | | | N/A | |
| Deck Drains Discharge Over Water Body? | N/A | (If yes, provide justification in the General Project Narrative) | | | (If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative) | | | | |
| (If yes, provide justification in the General Project Narrative) | | | | | | | | | |
| Surface Water Body (3): | | | | | | | | | |
| UT to Little River Trib 3b | | | NCDWR Stream Index No.: | 27-57-(1) | | | | | |
| NCDWR Surface Water Classification for Water Body | | | Primary Classification: | Water Supply II (WS-II) | | | | | |
| | | | Supplemental Classification: | High Quality Waters (Hqw) | | (NSW) | | | |
| Other Stream Classification: | | | | | | | | | |
| Impairments: | | | | | | | | | |
| Aquatic T&E Species? | Yes | Comments: Biological conclusions for Michaux's sumac, dwarf-wedge mussel, and Tar River spiny mussel are unresolved | | | | | | | |
| NRTR Stream ID: | | | | Buffer Rules in Effect: | | | Neuse | | |
| Project Includes Bridge Spanning Water Body? | No | Deck Drains Discharge Over Buffer? | N/A | | Dissipator Pads Provided in Buffer? | | | N/A | |
| Deck Drains Discharge Over Water Body? | N/A | (If yes, provide justification in the General Project Narrative) | | | (If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative) | | | | |
| (If yes, provide justification in the General Project Narrative) | | | | | | | | | |
| Surface Water Body (4): | | | | | | | | | |
| Crooked Creek Trib 3 (Clifton's Pond) | | | NCDWR Stream Index No.: | 28-30-01 | | | | | |
| NCDWR Surface Water Classification for Water Body | | | Primary Classification: | Class C | | | | | |
| | | | Supplemental Classification: | Nutrient Sensitive Waters (NSW) | | | | | |
| Other Stream Classification: | | | | | | | | | |
| Impairments: | | | | | | | | | |
| Aquatic T&E Species? | Yes | Comments: Biological conclusions for Michaux's sumac, dwarf-wedge mussel, and Tar River spiny mussel are unresolved | | | | | | | |
| NRTR Stream ID: | | | | Buffer Rules in Effect: | | | Tar-Pamlico | | |
| Project Includes Bridge Spanning Water Body? | No | Deck Drains Discharge Over Buffer? | N/A | | Dissipator Pads Provided in Buffer? | | | N/A | |
| Deck Drains Discharge Over Water Body? | N/A | (If yes, provide justification in the General Project Narrative) | | | (If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative) | | | | |
| (If yes, provide justification in the General Project Narrative) | | | | | | | | | |
| Surface Water Body (5): | | | | | | | | | |
| Crooked Creek | | | NCDWR Stream Index No.: | 28-30 | | | | | |
| NCDWR Surface Water Classification for Water Body | | | Primary Classification: | Class C | | | | | |
| | | | Supplemental Classification: | Nutrient Sensitive Waters (NSW) | | | | | |
| Other Stream Classification: | | | | | | | | | |
| Impairments: | dissolved oxygen (DO) | | | | | | | | |
| Aquatic T&E Species? | Yes | Comments: Biological conclusions for Michaux's sumac, dwarf-wedge mussel, and Tar River spiny mussel are unresolved | | | | | | | |
| NRTR Stream ID: | | | | Buffer Rules in Effect: | | | Tar-Pamlico | | |
| Project Includes Bridge Spanning Water Body? | No | Deck Drains Discharge Over Buffer? | N/A | | Dissipator Pads Provided in Buffer? | | | N/A | |
| Deck Drains Discharge Over Water Body? | N/A | (If yes, provide justification in the General Project Narrative) | | | (If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative) | | | | |
| (If yes, provide justification in the General Project Narrative) | | | | | | | | | |

09/28/99

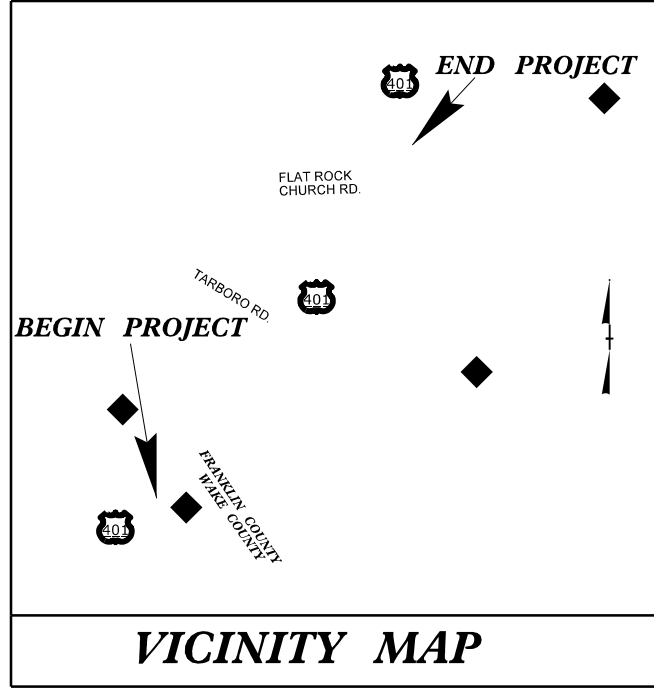
See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols
See Sheet 1C-1 thru 1C-6 For Survey Control Sheets

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PERMIT DRAWING
SHEET 1 OF 61

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|-----------------|-----------------------------|-------------|--------------|
| N.C. | R-2814C | 1 | |
| STATE PROJ. NO. | F.A. PROJ. NO. | DESCRIPTION | |
| 34506.1.4 | STP-401(249) | PE | |
| 34506.2.FR7 | STP-401(249) | RW | |
| 34506.2.FR7 | STP-401(249) | UTILITIES | |
| 34506.3.FR6 | STP-401(249) | CONSTR | |
| | | | |
| | | | |
| | | | |

TIP PROJECT: R-2814C



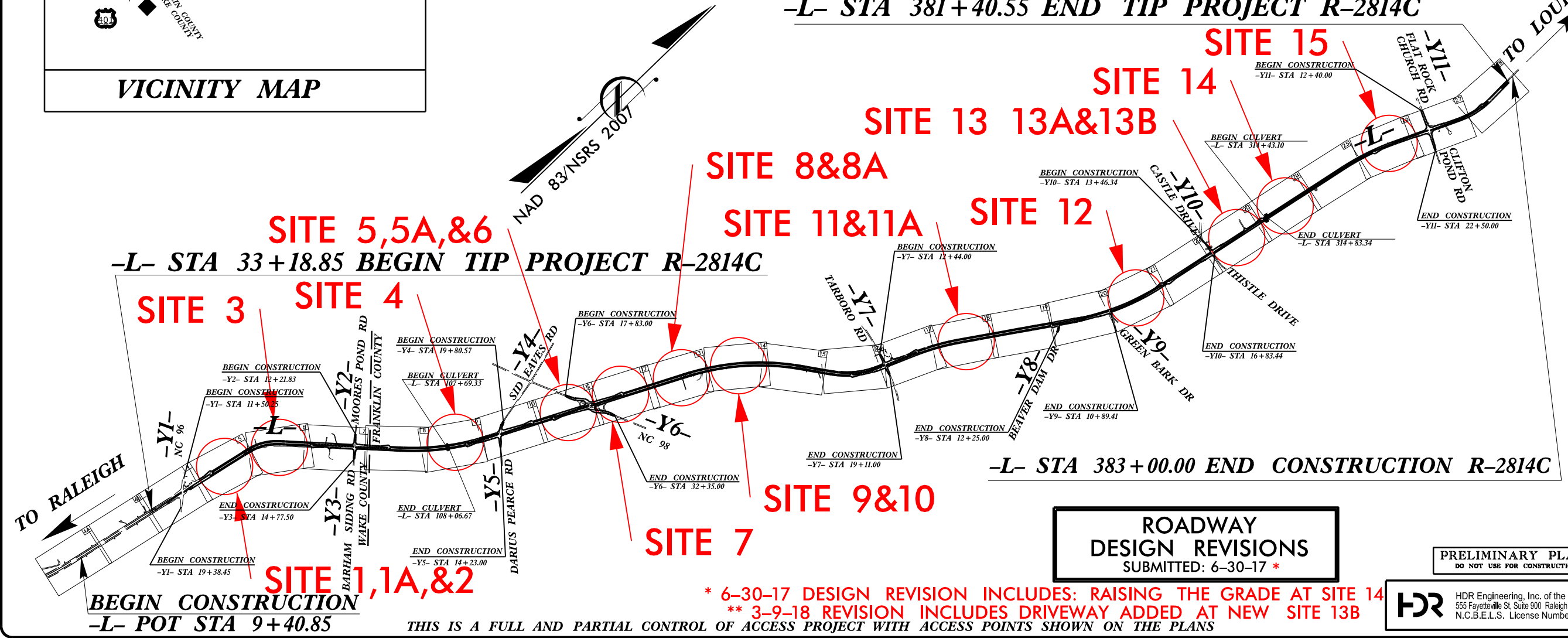
LOCATION: US 401 FROM NC 96 TO NORTH OF SR 1103 (FLAT ROCK CHURCH RD/CLIFTON POND RD)

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

WETLAND AND STREAM IMPACTS

REVISED: MARCH 9, 2018 **

-L- STA 381+40.55 END TIP PROJECT R-2814C



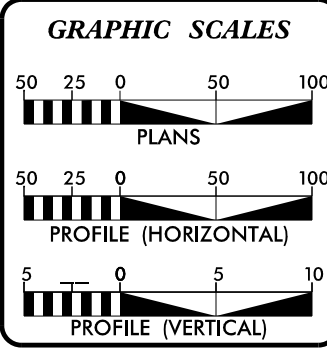
ROADWAY
DESIGN REVISIONS
SUBMITTED: 6-30-17 *

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

* 6-30-17 DESIGN REVISION INCLUDES: RAISING THE GRADE AT SITE 14
** 3-9-18 REVISION INCLUDES DRIVEWAY ADDED AT NEW SITE 13B

THIS IS A FULL AND PARTIAL CONTROL OF ACCESS PROJECT WITH ACCESS POINTS SHOWN ON THE PLANS

CONTRACT:



| DESIGN DATA | |
|----------------|-----------------|
| ADT 2016 = | 10,892 |
| ADT 2036 = | 15,848 |
| K = | 10 % |
| D = | 65 % |
| T = | 6 % * |
| V = | 60 MPH |
| * TTST = | 2% DUAL = 4% |
| FUNC CLASS = | MAJOR COLLECTOR |
| STATEWIDE TIER | |

| PROJECT LENGTH | |
|---|-------------|
| LENGTH OF ROADWAY TIP PROJECT R-2814C = | 6.580 MILES |
| LENGTH STRUCTURES TIP PROJECT R-2814C = | 0.015 MILES |
| TOTAL LENGTH OF TIP PROJECT R-2814C = | 6.595 MILES |

| | |
|--|--|
| Prepared In the Office of: DIVISION OF HIGHWAYS 1000 Birch Ridge Dr., Raleigh NC, 27610 | |
| 2012 STANDARD SPECIFICATIONS | |
| RIGHT OF WAY DATE: JANUARY 28, 2015 | PHILLIP E. ROGERS, PE PROJECT ENGINEER |
| LETTING DATE: JANUARY 15, 2019 | CASEY E. HARRIS, PE PROJECT DESIGN ENGINEER |

| HYDRAULICS ENGINEER | |
|-------------------------|------|
| SIGNATURE: | P.E. |
| ROADWAY DESIGN ENGINEER | |
| SIGNATURE: | P.E. |

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

3/9/2018
I:\hins
P:\NC Hydro\107026_R2814C\Hydraulics\PERMITS_Environmental\drawings\plans\wetland & surface water\R2814C_Hyd_tsh_wet.dgn
\$\$\$\$\$SYTIME\$\$\$\$\$
\$\$\$\$\$DGN\$\$\$\$\$
\$\$\$\$\$SERNAME\$\$\$\$\$

NAD 83/NSRS 2007

REVISÉD 1-10-18

MAI CHLINE -L- SIA 32/+00 SEE SHEET 25

320

SITE 14

MATCHLINE -L- STA 313+00 SEE S

NE -L- SIA 32/+00 SEE SHEET 23

Plan view of the proposed road layout. The drawing shows a road alignment with stationing from 313+00 to 313+50. Key features include:

- Station 313+00: A curve with a bearing of $N 20^{\circ} 59' 05.2'' E$.
- Station 313+25: A curve with a bearing of $N 20^{\circ} 59' 05.2'' E$.
- Station 313+50: A curve with a bearing of $N 20^{\circ} 59' 05.2'' E$.
- Proposed features: "WITH FLOWABLE FILL" and "REMOVE" are indicated at various points along the alignment.
- Other labels: "15' RCP", "15' RCP", and "15' RCP" are shown near the road edge.

Architectural drawing of a site plan. A building labeled 'S' is shown on the right. The drawing includes various landscape features like trees and paths. A dashed line indicates a boundary or path. A small cloud-like shape is labeled 'CENIC'. A red line with arrows points to a specific area, with text indicating 'BANK STABILIZATION' and 'RIP RAP CL II'. A note says 'SEE DETAIL C6'. A scale bar shows 0' to 30'.

 DENOTES MECHANIZED CLEARING
 DENOTES TEMPORARY

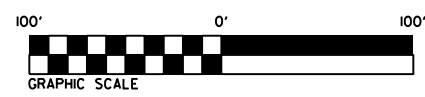

100' 0' 100'






ENGLISH

F F DENOTES FILL IN WETLAND

T T DENOTES TEMPORARY IMPACTS IN SURFACE WATER

GRAPHIC SCALE



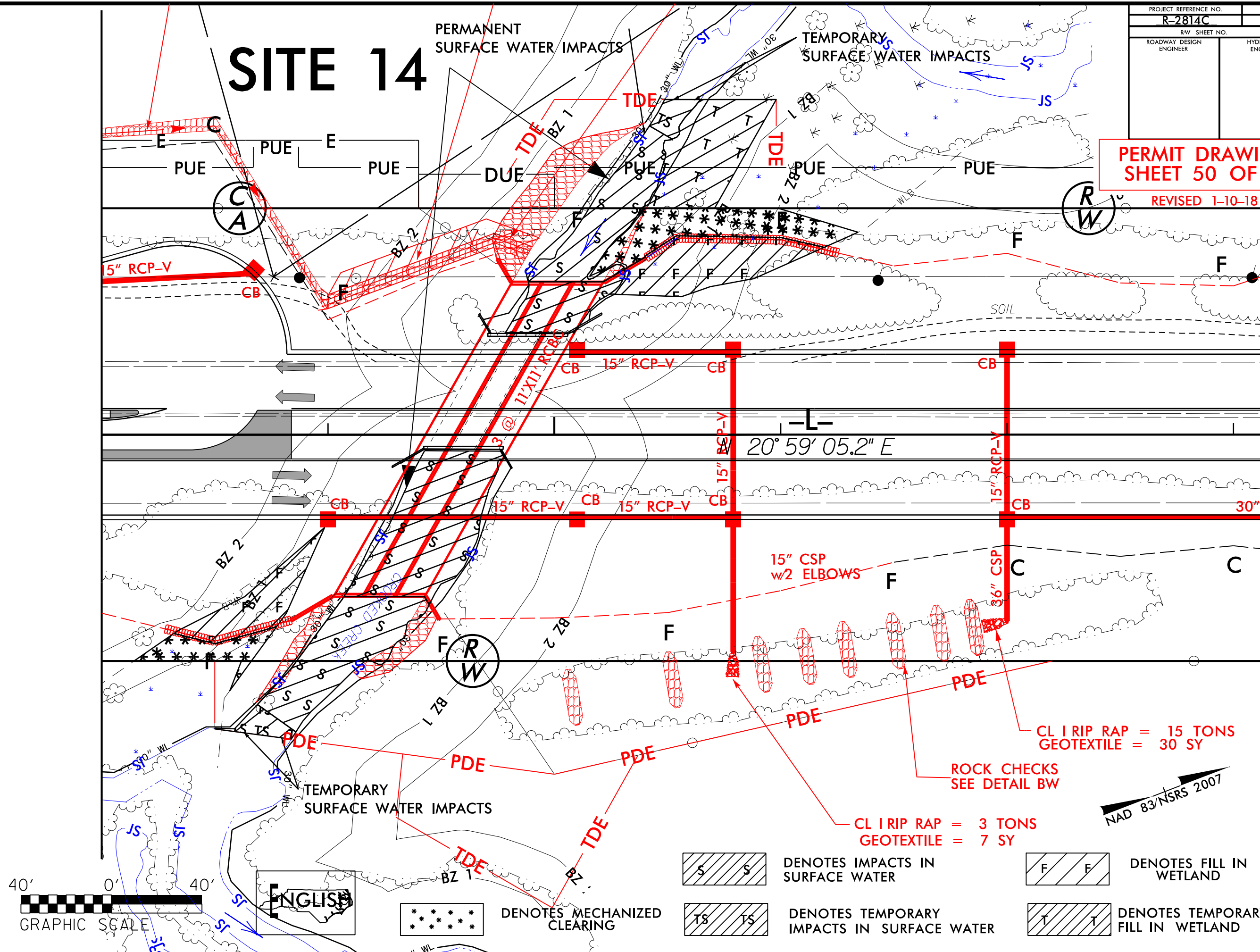
| | | | | | |
|---|-----------------------------|---|--|---|----------------------------------|
|  | DENOTES MECHANIZED CLEARING |  | DENOTES TEMPORARY FILL IN WETLAND |  | DENOTES IMPACTS IN SURFACE WATER |
|  | DENOTES FILL IN WETLAND |  | DENOTES TEMPORARY IMPACTS IN SURFACE WATER | | |

M02018
 ljohns
 P:\NC Hy

SITE 14

PERMIT DRAWING
SHEET 50 OF 61

REVISÉD 1-10-18



| WETLAND PERMIT IMPACT SUMMARY | | | | | | | | | | | | |
|-------------------------------|-------------------|------------------------|---------------------------------|-----------------------------|-----------------------------|--------------------------------------|--------------------------------|---------------------------|-----------------------|---|-------------------------------------|----------------------------|
| Site No. | Station (From/To) | Structure Size / Type | WETLAND IMPACTS | | | | | SURFACE WATER IMPACTS | | | | |
| | | | Permanent Fill In Wetlands (ac) | Temp. Fill In Wetlands (ac) | Excavation in Wetlands (ac) | Mechanized Clearing in Wetlands (ac) | Hand Clearing in Wetlands (ac) | Permanent SW impacts (ac) | Temp. SW impacts (ac) | Existing Channel Impacts Permanent (ft) | Existing Channel Impacts Temp. (ft) | Natural Stream Design (ft) |
| 1 | -L- 55+75 RT | 36" RCP | 0.04 | | | < 0.01 | | | | | | |
| 1A | -L- 55+75 LT | 36" RCP | | | 0.03 | | | | | | | |
| 2 | -L- 58+80 RT | 24" RCP | 0.04 | | | 0.01 | | | | | | |
| 3 | -L- 67+45 LT | Pond | | | | | | 0.28 | | | | |
| 3 | -L- 67+45 RT | Bank Stabilization | | | | < 0.01 | | < 0.01 | < 0.01 | 10 | 10 | |
| 4 | -L- 107+88 RT< | 3@12'X11' RCBC | 0.37 | 0.09 | | 0.10 | | | | | | |
| 5 | -L- 137+22 LT | 1@12'X7' RCBC | 0.42 | 0.06 | 0.02 | 0.07 | | 0.02 | | 123 | | |
| 5 | -L- 137+22 LT | Bank Stabilization | | | | | | < 0.01 | < 0.01 | 64 | 39 | |
| 5A | -L- 137+22 RT | 1@12'X7' RCBC | 0.06 | 0.02 | < 0.01 | 0.07 | | < 0.01 | | 12 | | |
| 5A | -L- 137+22 RT | Bank Stabilization | | | | | | 0.01 | < 0.01 | 60 | 31 | |
| 6 | -Y6- 21+86 RT | 1@12'X7' RCBC | 0.04 | 0.03 | 0.01 | 0.03 | | < 0.01 | | 49 | | |
| 6 | -Y6- 21+86 RT | Bank Stabilization | | | | | | < 0.01 | < 0.01 | 59 | 33 | |
| 7 | -Y6- 31+75 RT | Road/Toe Protection | 0.04 | | | 0.03 | | | | | | |
| 8 ** | -L- 168+21 LT | 2@7'X7' RCBC | 0.19 | < 0.01 | 0.04 | 0.10 | | 0.02 | | 161 | | |
| 8 | -L- 168+21 LT | Bank Stabilization | | | | | | 0.01 | < 0.01 | 75 | 31 | |
| 8A | -L- 168+21 RT | 2@7'X7' RCBC | < 0.01 | | 0.01 | 0.05 | | < 0.01 | | 10 | | |
| 8A | -L- 168+21 RT | Bank Stabilization | | | | | | 0.01 | < 0.01 | 42 | 28 | |
| 9 | -L- 175+00 LT | Roadway Fill | 0.17 | | | | | | | | | |
| 10 | -L- 180+25 RT | "False cut" Ditch fill | 0.01 | | | 0.05 | | | | | | |
| 11 | -L- 229+60 LT | 54" RCP | | | | | | < 0.01 | | 11 | | |
| 11 *** | -L- 229+60 LT | Bank Stabilization | | | | | | < 0.01 | < 0.01 | 21 | 6 | |
| 11A | -L- 229+60 RT | 54" RCP | 0.20 | | < 0.01 | 0.03 | | 0.02 | | 100 | | |
| 11A | -L- 229+60 RT | Bank Stabilization | | | | | | < 0.01 | < 0.01 | 19 | 6 | |
| | | | | | | | | | | | | |
| SHEET SUBTOTALS*: | | | 1.58 | 0.20 | 0.11 | 0.56 | | 0.40 | 0.02 | 816 | 184 | |

*Rounded totals are sum of actual impacts

NOTES:

- ** Rev 11-2-16 Site 8: Fill slope adjusted. Permanent Fill in Wetlands was 0.20 ac and is now 0.19ac. Mech. Clearing in Wetlands was 0.11 ac and is now 0.10 ac.
- *** Rev 11-4-16 Site 11 Ditch alignment adjustment. Increased Permanent Surface Water Impacts (Bank Stabilization) by 3', reduced Temporary Surface Water Impacts by 3'.
- **** Site 14: Design Revision raised grade at -L- 314+63, culvert extended.
- ***** Site 13B: Design Revision added Driveway at -L- 311+74 Rt. New Mechanized clearing in Wetland.

NC DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 September 1, 2016, Revised March 9, 2018 *****
 Wake/Franklin
 R-2814C
 34506.1.4

| 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) |
| 12 | -L- 283+77 RT< | 1@10'X8' RCBC | | | | | | 0.03 | | 113 | | |
| 12 | -L- 283+77 RT< | Bank Stabilization | | | | | | 0.02 | < 0.01 | 99 | 31 | |
| 13 | -L- 307+70 RT< | 66" RCP | | | | | | 0.02 | | 217 | | |
| 13 | -L- 307+70 RT< | Bank Stabilization | | | | | | < 0.01 | < 0.01 | 30 | 21 | |
| 13A | -L- 306+29-307+60 RT | Roadway Fill | | | | | | 0.02 | | 153 | | |
| 13B***** | -L- 311+74 RT | Driveway Fill | | | | 0.02 | | | | | | |
| 14 | -L- 314+63 RT< | 3@11'X11' RCBC | 0.06 | 0.04 | | 0.05 | | 0.08 | | 100 | | |
| 14 | -L- 314+63 RT< | Bank Stabilization | | | | | | 0.07 | < 0.01 | 158 | 32 | |
| 15 | -L- 344+35 LT | Pond Bank Stabilization | | | | | | < 0.01 | < 0.01 | 8 | 10 | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| SHEET SUBTOTALS*: | | | 0.06 | 0.04 | | 0.06 | | 0.26 | 0.02 | 877 | 94 | |
| TOTAL*: | | | 1.64 | 0.24 | 0.11 | 0.63 | | 0.66 | 0.04 | 1693 | 278 | |

*Rounded totals are sum of actual impacts

NOTES:

- was 0.11 ac and is now 0.10 ac.
- *** Rev 11-4-16 Site 11 Ditch alignment adjustment. Increased Permanent Surface Water Impacts (Bank Stabilization) by 3', reduced Temporary Surface Water Impacts by 3'.
- **** Site 14: Design Revision raised grade at -L- 314+63, culvert extended.
- ***** Site 13B: Design Revision added new Driveway at -L- 311+74 Rt. New Mechanized clearing in Wetland.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
September 1, 2016, Revised March 9, 2018 *****
Wake/Franklin
R-2814C
34506.1.4

SHEET 61 OF 61

09/08/2018

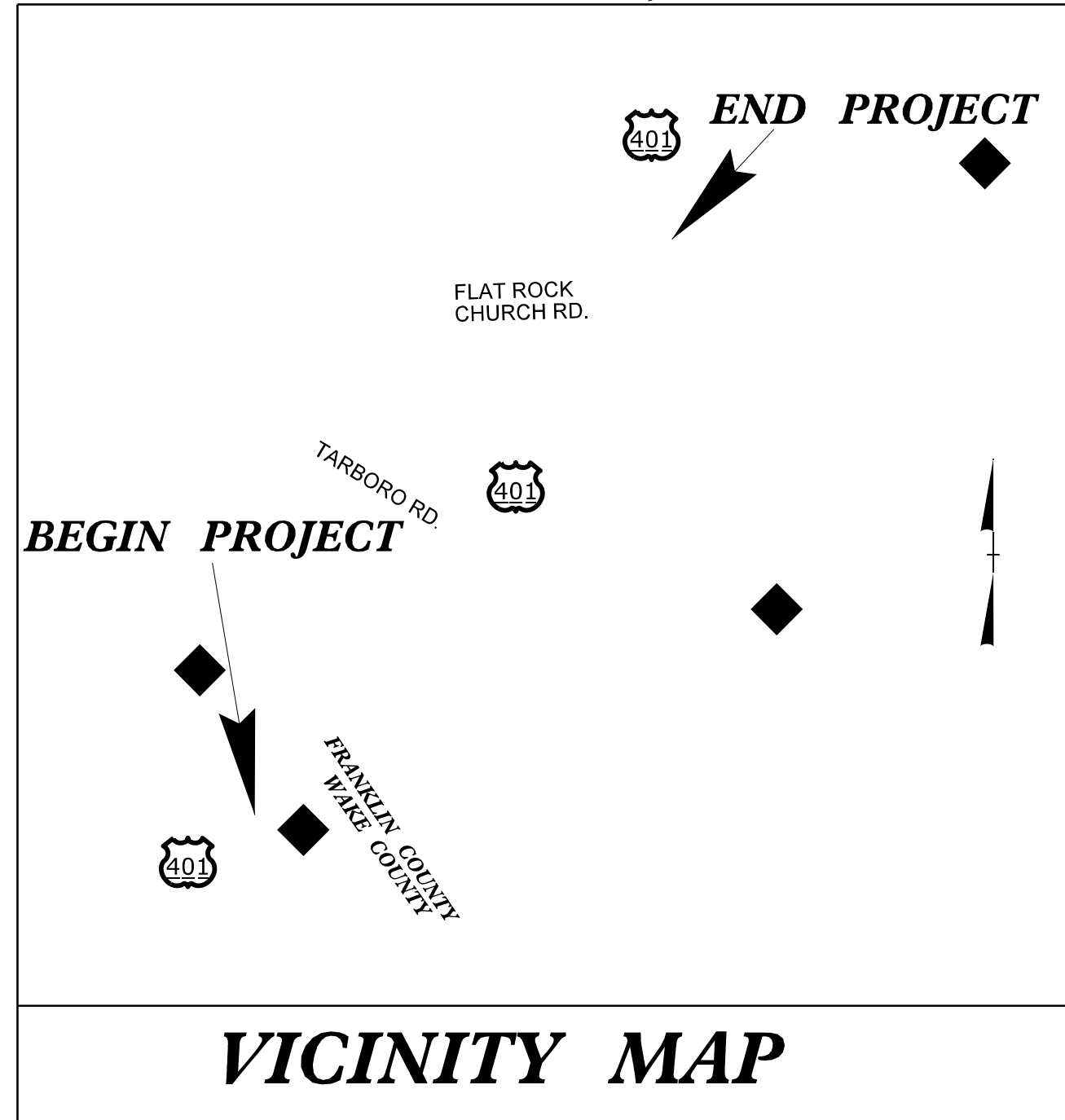
See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols
See Sheet 1C-1 thru 1C-6 For Survey Control Sheets

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PERMIT DRAWING
SHEET 1 OF 23

| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
|-----------------|-----------------------------|-------------|--------------|
| N.C. | R-2814C | 1 | |
| STATE PROJ. NO. | F.A. PROJ. NO. | DESCRIPTION | |
| 34506.1.4 | STP-401(249) | PE | |
| 34506.2.FR7 | STP-401(249) | RW | |
| 34506.2.FR7 | STP-401(249) | UTILITIES | |
| 34506.3.FR6 | STP-401(249) | CONSTR | |
| | | | |
| | | | |
| | | | |

TIP PROJECT: R-2814C

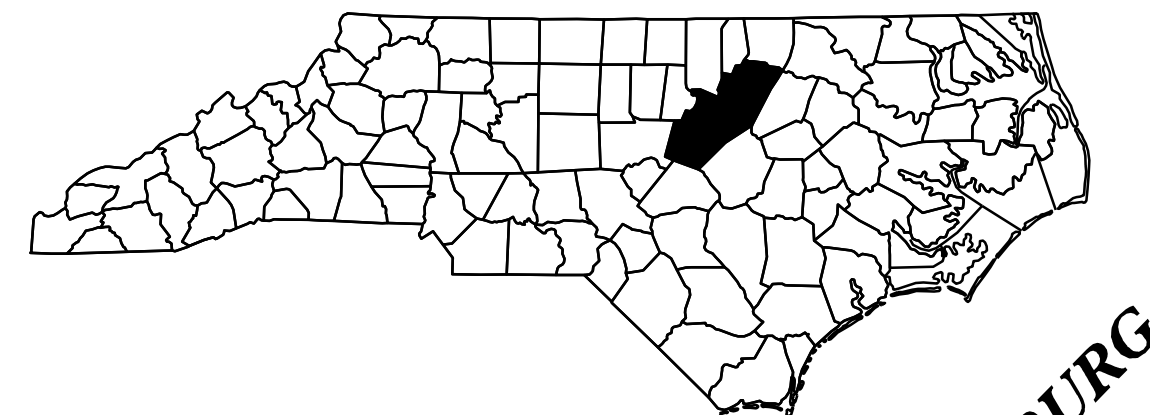


LOCATION: US 401 FROM NC 96 TO NORTH OF SR 1103 (FLAT ROCK CHURCH RD/CLIFTON POND RD)

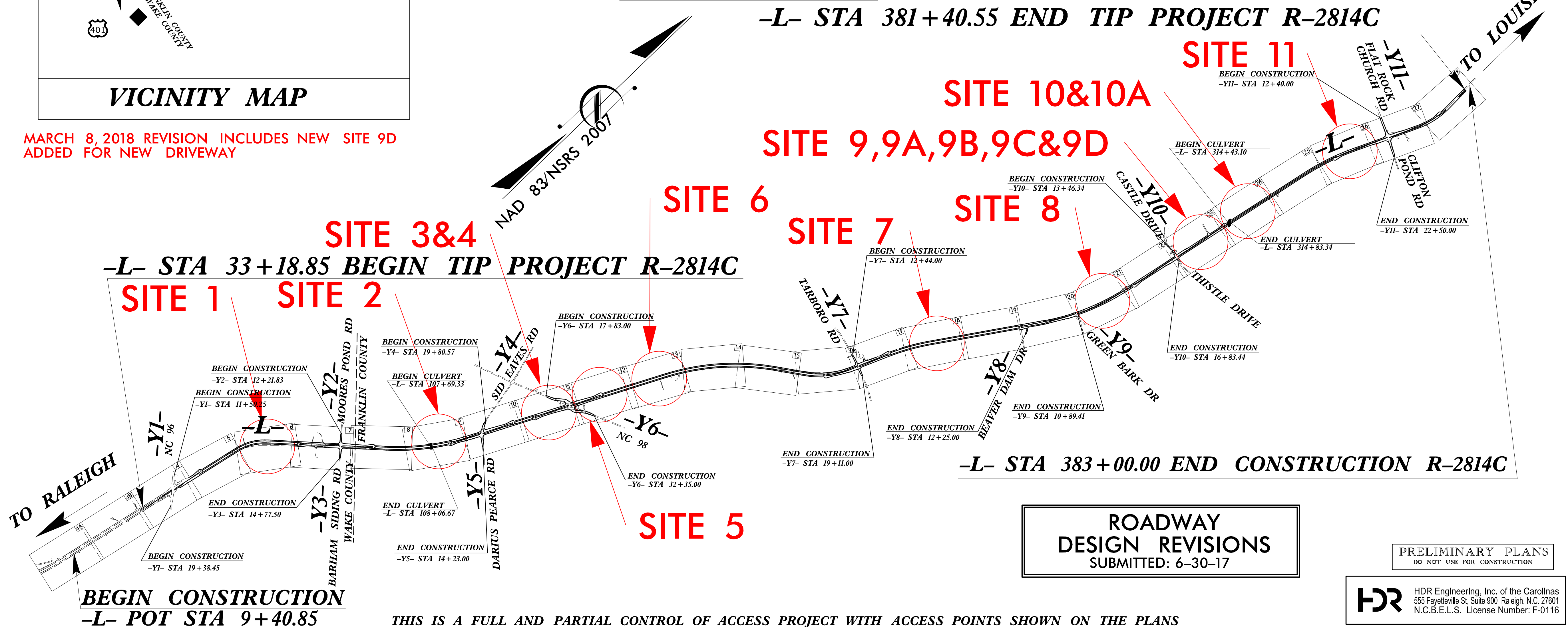
TYPE OF WORK: GRADING, DRAINAGE, PAVING, CULVERTS, & SIGNALS

BUFFER IMPACTS

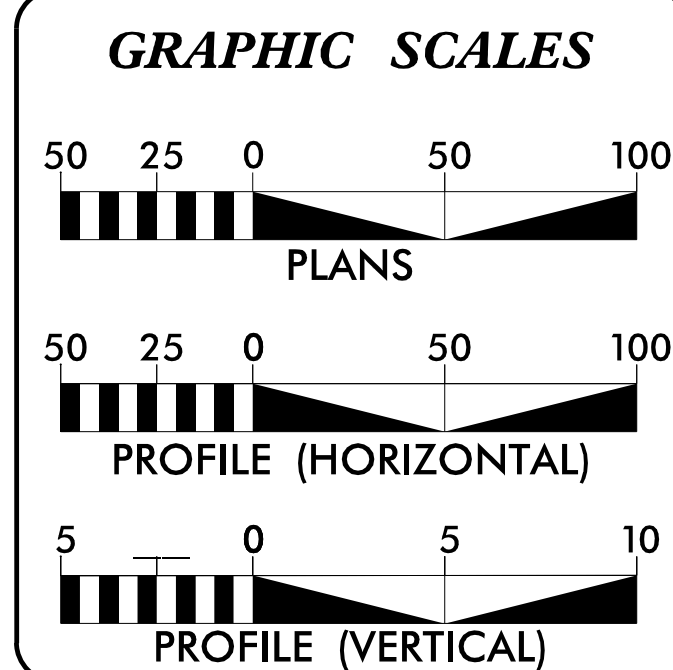
REVISED: MARCH 8, 2018



MARCH 8, 2018 REVISION INCLUDES NEW SITE 9D
ADDED FOR NEW DRIVEWAY



CONTRACT:



| DESIGN DATA | |
|----------------|-----------------|
| ADT 2016 = | 10,892 |
| ADT 2036 = | 15,848 |
| K = | 10 % |
| D = | 65 % |
| T = | 6 % * |
| V = | 60 MPH |
| * TTST = | 2% DUAL = 4% |
| FUNC CLASS = | MAJOR COLLECTOR |
| STATEWIDE TIER | |

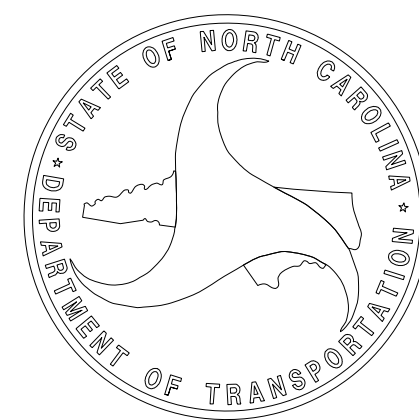
| PROJECT LENGTH | |
|---------------------------------------|---------------|
| LENGTH OF ROADWAY TIP PROJECT R-2814C | = 6.580 MILES |
| LENGTH STRUCTURES TIP PROJECT R-2814C | = 0.015 MILES |
| TOTAL LENGTH OF TIP PROJECT R-2814C | = 6.595 MILES |

| | |
|--|--|
| Prepared In the Office of: DIVISION OF HIGHWAYS 1000 Birch Ridge Dr., Raleigh NC, 27610 | |
| 2012 STANDARD SPECIFICATIONS | |
| RIGHT OF WAY DATE: JANUARY 28, 2015 | PHILLIP E. ROGERS, PE PROJECT ENGINEER |
| LETTING DATE: JANUARY 15, 2019 | CASEY E. HARRIS, PE PROJECT DESIGN ENGINEER |

| HYDRAULICS ENGINEER | |
|-------------------------|------|
| SIGNATURE: | P.E. |
| ROADWAY DESIGN ENGINEER | |
| SIGNATURE: | P.E. |

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

HDR HDR Engineering, Inc. of the Carolinas
555 Fayetteville St., Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

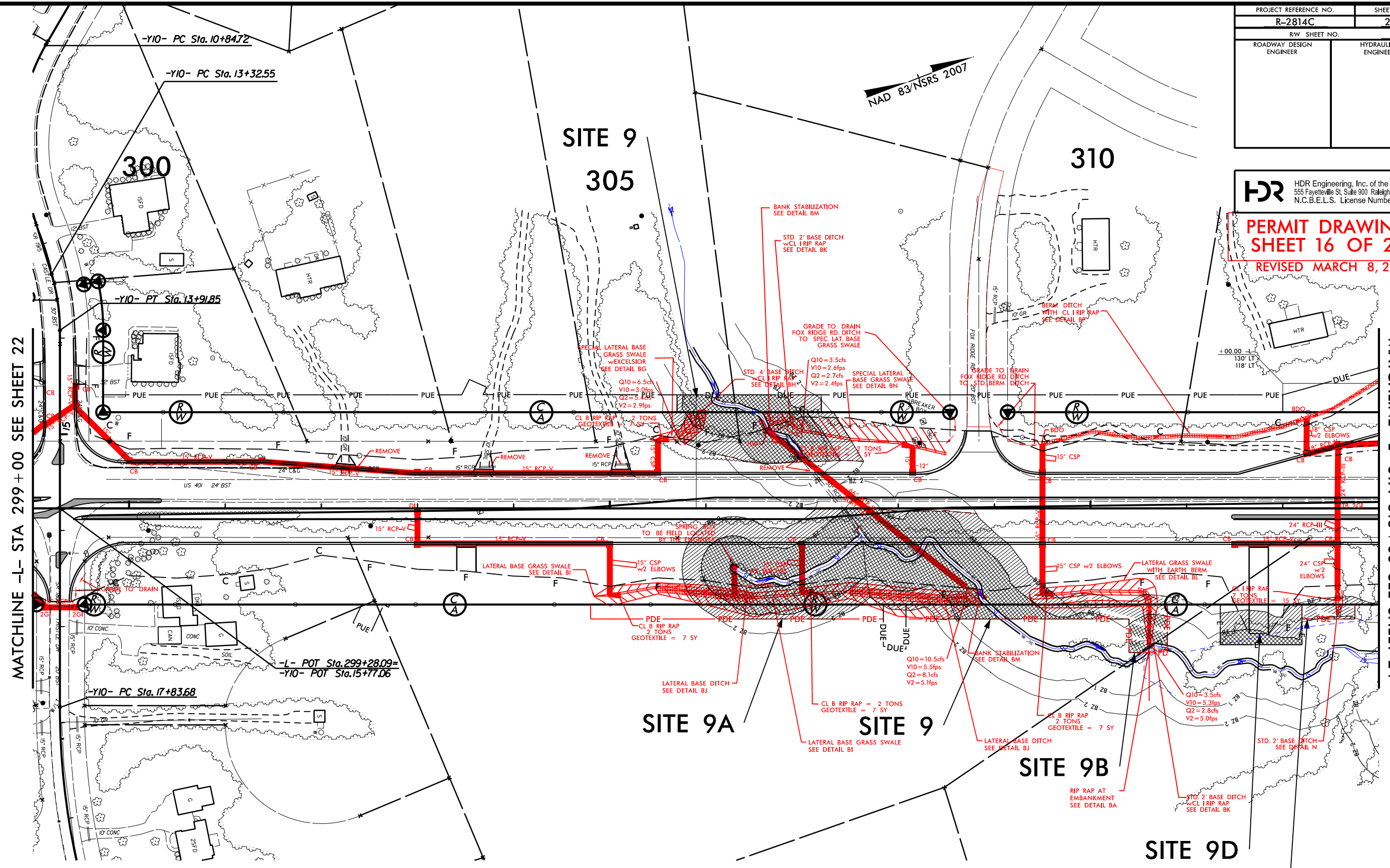


DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

| | |
|-------------------------|---------------------|
| PROJECT REFERENCE NO. | SHEET NO. |
| R-2814C | 23 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

HDR HDR Engineering, Inc. of the Carolinas
555 Fayetteville St., Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

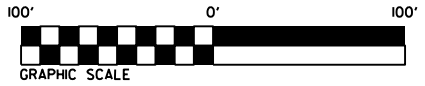
PERMIT DRAWING
SHEET 16 OF 23
REVISED MARCH 8, 2018



MATCHLINE -L- STA 299+00 SEE SHEET 22

MATCHLINE -L- STA 313+00 SEE SHEET 24

RIGHT OF WAY REVISION 12-28-16 EAD:
Parcels 89,102,113 & 121 - added text (NO CLAIM).
Parcel 114 - Changed property owner name.
Parcel 115 - Changed property owner name.
Parcel 116 - Changed property owner name.
Parcel 117 - Changed property owner name.
Parcel 118 - Changed property owner name.
Parcel 119 & 120 - Changed parcel nos. to 19Z and 120Z to show 2nd acquisition on parcels.
DESIGN REVISION: MODIFIED U-TURN BULB TO ACCOMMODATE SCHOOL BUS/CEH 8/14/17.



- ALLOWABLE IMPACTS ZONE 2
- ALLOWABLE IMPACTS ZONE 1
- MITIGABLE IMPACTS ZONE 2
- MITIGABLE IMPACTS ZONE 1

MARCH 8, 2018 REVISION INCLUDES NEW SITE 9D
ADDED FOR NEW DRIVEWAY

| BUFFER IMPACTS SUMMARY | |
|------------------------|--|
|------------------------|--|

[illegible]

* Site 6: Revision 11-4-16: Fill slope adjustment: Reduced BZ 2 Impacts by 127 sf.

* Site 9D: Revision 3-8-18. New site added for new driveway.

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

WAKE AND FRANKLIN COUNTIES
PROJECT: 34506.1.4 (R-2814C)

September 1, 2016, Rev November 4, 2016
Rev March 8, 2018
SHEET 22 OF 23

WETLANDS IN BUFFER IMPACTS SUMMARY

| | | | WETLANDS IN BUFFERS | |
|---------------|-----------------------|-------------------|---------------------------|---------------------------|
| SITE NO. | STRUCTURE SIZE / TYPE | STATION (FROM/TO) | | |
| | | | ZONE 1 (ft ²) | ZONE 2 (ft ²) |
| 1 | 30" RCP | -L- 64+50 RT< | 289 | |
| 2 | 3@ 12'X11' RCBC | -L- 107+88 RT< | 4,620 | 2,972 |
| 3 | 1@ 12'X7' RCBC | -L- 137+22 RT< | 12,958 | 7,299 |
| 4 | 1@ 12'X7' RCBC | -Y- 21+86 RT< | 2,661 | 527 |
| 5 | TOE PROTECTION | -Y- 31+25 RT | 786 | |
| 6 * | 2@ 7'X7' RCBC | -L- 168+21 RT< | 12,827 | 3,693 |
| 7 | 54" RCP | -L- 229+60 RT< | 4,090 | 3,432 |
| 9D ** | Driveway | -L- 311+74 RT | 552 | 207 |
| 10 | 3@ 11'x11' RCBC | -L- 314+63 RT< | 2,258 | 1,371 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| TOTAL: | | | 41,041 | 19,501 |

* Site 6: Revision 11-4-16: Fill slope adjustment: Reduced BZ 2 Impacts by 127 sf.

** Site 9D: Revision 3-8-18. New site added for new driveway.

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

WAKE AND FRANKLIN COUNTIES
PROJECT: 34506.1.4 (R-2814C)

September 1, 2016, Rev November 4, 2016

Rev March 8, 2018

SHEET 23 OF 23