STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

December 10, 2020

MEMORANDUM TO: Mr. Greg Burns, P.E.
Division 6 Engineer

DocuSigned by:
Mack C. Rivenbark III
AAAD1248B309416...

FROM: for Philip S. Harris, III, P.E., Manager
Environmental Analysis Unit

SUBJECT: Cumberland County; I-95 Widening from south of SR 1832 (Murphy Road) to south of SR 1811 (Bud Hawkins Road); WBS 47532.1.1; Federal Aid Project No. NHS-0095(057); **TIP I-5986A**

Attached are the U.S. Army Corps of Engineers Individual Permit Modification and N.C. Division of Water Resources (NCDWR) Individual Water Quality Certification Modification. All environmental permits have been received for the construction of I-5986A.

A copy of this permit package will be posted on the NCDOT website at:
https://xfer.services.ncdot.gov/pdea/PermIssued/

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

Mr. Ron Davenport, P.E. State Contract Officer
Mr. Greg Price, Division Environmental Officer
Dr. Majed Al-Ghandour, P.E., Programming and TIP
Mr. Byron Sanders, Jr., P.E., Utilities
Mr. Stephen Morgan, P.E., Hydraulics
Mr. Brian Hanks, P.E., Structures Management
Mr. Mark Staley, Roadside Environmental
Mr. Lamar Sylvester, P.E., State Construction Engineer
Mrs. Beth Harmon, NCDMS

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL ANALYSIS UNIT
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

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

Location:
1000 BIRCH RIDGE DRIVE
RALEIGH NC 27610

PROJECT COMMITMENTS

Cumberland, Harnett, and Johnston Counties
I-95 Widening
Federal Project No. NHP-0095(057)
WBS No. 47532.1.1
TIP No. I-5986

COMMITMENTS FROM PROJECT DEVELOPMENT AND DESIGN

Current status, changes, or additions to the project commitments as shown in the environmental document for the project are printed in *italic* font.

Division 6 Construction, Resident Engineer's Office – Offsite Detours and Lane Closures

In order to have time to adequately reroute school buses, NCDOT will contact Cumberland County Transportation Department at (910) 678-2581, Harnett County Schools Transportation at (910) 893-3270, and Johnston County Public Schools Transportation Services at (910) 934- 6031 at least one month prior to road closures in their respective jurisdictions.

This commitment will be addressed prior to all closures.

NCDOT will contact Cumberland County Emergency Services at (910) 321-6736, Cumberland County Sheriff's Office at (910) 323-1500, Cumberland County EMS at (910) 615-5600, Harnett County Emergency Services at (910) 893-7580, Harnett County EMS at (910) 893-7563, Harnett County Sheriff's Office at (910) 893-9111, Dunn Emergency Services at (910) 892-1211, Dunn Police Department at (910) 892-2399, Johnston County Emergency Services at (919) 989-5050, Johnston County Sheriff at (919) 989-5010, Benson Police Department at (919) 894-2091, Benson Fire Department at (919) 894-8990, NC State Highway Patrol Troop B at (910) 486-1058, and NC State Highway Patrol Troop C at (919) 733-3911 at least one month prior to road and lane closures in their respective jurisdictions to make the necessary temporary reassignments to primary response routes.

The commitment was initially addressed during the Pre-Construction Meeting and will continue to be addressed during construction through direct contact with the appropriate agencies and monthly project coordination meetings with the NCDOT Statewide Operations Center (STOC).

NCDOT will contact the Cumberland County Community Transportation Program at (910) 678-7600, HARTS at (910) 814-4019, and JCATS at (919) 202-5030 at least one month prior to road closures to make the necessary temporary reassignments to transit routes.

This commitment will be addressed prior to all closures.

Division 6 Construction, Resident Engineer's Office – Business and Agricultural Access

To the extent feasibly possible, NCDOT will maintain access to business and agricultural parcels during construction and communicate with property owners about changes in, or limitations to, property access.

The commitment was addressed during design and will continue to be adjusted during right of way acquisition and construction.

Division 6 Construction, Resident Engineer's Office – Construction Noise

NCDOT will make all reasonable efforts to minimize construction noise exposure to sensitive receptors.

While construction noise is unavoidable and varies with a project's schedule, construction noise will be considered, especially near sensitive receptors, and adjustments made as needed during construction.

Division 6 Construction, Resident Engineer's Office – Construction Plans

This project involves construction activities in, or adjacent to, FEMA-regulated stream(s). Therefore, NCDOT Division 6 staff shall submit sealed, as-built construction plans to the NCDOT Hydraulics Unit upon completion of project construction, certifying that the drainage structure(s) and roadway embankment that are located within the 100-year floodplain were built, as shown, in the construction plans, both horizontally and vertically.

This commitment will be implemented after construction of the project is completed.

~~**Division 6 Construction, Resident Engineer's Office – Northern Long-eared Bat Compliance**~~

~~After project completion, the contract administrator for construction must submit the actual amount of tree clearing reported in tenths of acres. This information should be submitted at: **https://connect.ncdot.gov/site/construction/biosurveys/Lists/Northern%20Long%20Eared%20Bat/AllItems.aspx**~~

This commitment is no longer required due to changes in the Programmatic Biological Opinion (PBO). The total reported since the implementation of the PBO has equaled approximately 25% of the total incidental take.

Division 4 District Engineer and Project Development Engineer – Temporary Occupancy of Highway Right of Way

The Division 4 District Engineer and Project Development Engineer will collaborate with the Town of Benson to update the Right-of-Way Encroachment Agreement for the Benson Dog Park.

This commitment is not applicable to section I-5986A.

Design-Build Team, Work Zone Traffic Control, and Division 6 Construction, Resident Engineer's Office – Traffic Management Plan

The Transportation Management Plan will include staggered closing of interchanges, advertisements of any closures and detour routes, and detour signage to mitigate construction related travel time and congestion impacts on emergency services.

This commitment was addressed during design with continued coordination during construction.

Roadway Design, Structure Design, Division 6 Project Manager, and Design-Build Team – Bicycle and Pedestrian Accommodations

A minimum of five-foot, paved shoulders will be provided on Cumberland County bridge #250154 (Wade-Stedman Road over I-95) to accommodate NC State Bike Route 5. Existing sidewalks will be replaced if disturbed. A minimum of four-foot, paved shoulders will be provided on all new overpass bridges.

Completed. These commitments were addressed during design with 8-foot shoulders provided on the proposed Wade Stedman Bridge and all other overpass structures.

Hydraulic Unit - Conditional and Final Letters of Map Revision

The Hydraulics Unit will coordinate with the NC Floodplain Mapping Program (FMP), to determine status of the project, with regard to applicability of the NCDOT Memorandum of Agreement, or approval of a Conditional Letter of Map Revision (CLOMR) and subsequent final Letter of Map Revision (LOMR).

Completed. This commitment was addressed during design.

~~Division 6 Division Planning Engineer~~ *Design-Build Unit* – Bicycle/Pedestrian Access During Construction

The ~~Project Planning Engineer~~ *Design-Build Unit* will coordinate with NCDOT Division of Bicycle and Pedestrian Transportation to evaluate the necessary level of bicycle/pedestrian accommodation during construction.

The Design-Build Unit will coordinate with NCDOT Division of Bicycle and Pedestrian Transportation prior to all roadway closures within the project limits.

Design-Build Team – Farmland Impacts

The Design-Build Team will reassess farmland impacts in Cumberland County based on their design.

This commitment will be addressed by the Design-Build Team once right-of-way plans are completed.

Division 6 Division Planning Engineer, Project Manager, and Design-Build Team – Farmland Impacts

If a new alignment outside of the project footprint in Harnett and Johnston counties is considered and selected, NCDOT will reassess farmland impacts.

This commitment is not applicable to section I-5986A.

Division 6 Project Manager Engineer, Right-of-Way Agent, and Resident Engineer's Office - Coordination with Other Projects

NCDOT will coordinate right-of-way, utilities, hydraulics, traffic control, permitting, and construction of I-5986 with NCDOT STIP projects I-5883, I-5877, and I-5878.

This commitment was implemented during design and is ongoing during construction.

NCDOT Noise and Air – Extension Area

NCDOT will perform noise measurements and analyses in the Extension Area between Exit 56 and a point 2,500 feet south of the Exit 55 bridge. NCDOT will update the traffic noise report with the findings.

Completed. This commitment was addressed during design.

Division 6 Division Environmental Officer and NCDOT Biological Surveys Group – Extension Area

NCDOT will perform wetland delineations and surveys for threatened and endangered species in the Extension Area between Exit 56 and a point located 2,500 feet south of the Exit 55 bridge. If resources are located, NCDOT will update permits and coordinate with state and federal agencies as appropriate.

Completed. This commitment was addressed during design.

NCDOT Biological Surveys Group and Division 6 Division Environmental Officer – Cape Fear Shiner

NCDOT will perform surveys for the Cape Fear shiner (*Notropis mekistocholas*) in the expanded study area near Exits 58, 61, and 65 during the appropriate survey window. If resources are located, NCDOT will coordinate with state and federal agencies as appropriate.

Completed. The NCDOT BioSurvey Group perform surveys of the expanded study area near Exits 58, 61, and 65 and found no streams to survey for the Cape Fear shiner.

~~**NCDOT Biological Surveys Group and Division 6 Division Environmental Officer – Atlantic Pigtoe**~~

~~NCDOT will perform surveys for the Atlantic pigtoe (*Fusconaia masoni*) in the portion of the study area in Cape Fear River Basin. If resources are located, NCDOT will coordinate with state and federal agencies as appropriate.~~

This commitment was created in anticipation of a potential species listing, but is no longer required since the species has not been nor is it currently listed by U.S. Fish and Wildlife Service (USF&WS) as a Threatened or Endangered Species.

Division 6 Division Environmental Officer – Stream and Wetland Mitigation

The Division Environmental Officer will coordinate with Beth Harmon, NC Department of Environmental Quality Division of Mitigation Services (DMS), at (919) 707-8420 to arrange for stream and wetland mitigation of project impacts.

Completed. This commitment was complied with prior to permitting. The North Carolina Division of Mitigation Services (DMS) (formerly NCEEP) has agreed to implement the mitigation for the project. DMS has indicated in a letter dated August 20, 2020 that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the I-5986A Project, in accordance with DMS's Mitigation Banking Instrument signed July 28, 2010.

Division 6 Division Environmental Officer – Buffer Mitigation

The Division Environmental Officer will coordinate with Beth Harmon, NC Department of Environmental Quality Division of Mitigation Services (DMS), at (919) 707-8420 to arrange for buffer mitigation of project impacts in Johnston County. NCDOT, in coordination with DMS, will prepare and submit a buffer mitigation plan to the Division of Water Resources prior to the approval of the water quality certification.

This commitment is not applicable to section I-5986A.

Division 6 Project Manager and Right-of-Way Agent – Right-of-way Acquisition in Voluntary Agricultural Districts (VADs)

Prior to right-of-way acquisition, the NCDOT Project Manager will request that the Advisory Board hold a public hearing on the proposed condemnation of land within the Weeks Farms, Inc., VAD on Glen Eagle Road. The Project Manager will send the request to Lynn Lambert, 126 Alexander Drive, Suite 200, Lillington, NC 27546.

This commitment is not applicable to section I-5986A.

Division 6 Division Construction Engineer – Temporary Construction Easements in Voluntary Agricultural Districts (VADs)

The NCDOT Division Construction Engineer will ensure that any VAD lands converted to non-agricultural use as part of a temporary construction easement be returned to farmable condition by the project's completion.

This commitment is not applicable to section I-5986A.

Division 6 Division Construction Engineer, Right-of-Way Agent, NCDOT TPMU, FHWA, consultant – INFRA Grant quarterly reporting requirements

Infrastructure for Rebuilding America (INFRA) is a competitive grant program that is part of the Fixing America's Surface Transportation (FAST) Act. I-5986 is included in the program of projects for which NCDOT was awarded an INFRA Grant (I-95/US 70 (Future I-42) Innovative Technology and Rural Mobility Corridor Improvements). Quarterly reporting is required for all INFRA project components, regardless of funding type. Division 6 projects that are included in the INFRA program of projects include I-5986 A&B, I-5877, I-5878, I-5883, and I-5986C (ITS). At the time of the signing of this CE document, the term sheet and the INFRA reporting process are in development, guidance is forthcoming from FHWA. Division 6 should request a copy of the final term sheet from Jimmy Travis. Term sheet Item 12, Page 4 describes 'Quarterly Project Progress Reports'.

Completed. The INFRA Grant Term Sheets were executed by FHWA and NCDOT on July 11, 2019 and were distributed to all appropriated units of FHWA and NCDOT.

INFRA Contacts:
~~***NCDOT Transportation Program Management Unit (TPMU), Jimmy Travis, PE*** – INFRA term sheet contact for NCDOT jtravis@ncdot.gov, 919-707-6602~~
NCDOT Programs Management Office), Steven Hulsey, PE *– INFRA term sheet contact for NCDOT shulsey@ncdot.gov, 919-707-6634*
~~***FHWA Operations Engineer, Brad Hibbs, PE*** – INFRA reporting after NEPA is complete.~~

~~bradley.hibbs@dot.gov, 919-747-7006~~
FHWA Operations Engineer, Dale Privette, PE *– INFRA reporting after NEPA is complete. dale.privette@dot.gov, 919-747-7008*
~~***FHWA Planning & Environment Engineer, Kristina Solberg, PE*** – FHWA term sheet and INFRA reporting during NEPA phase, kristina.solberg@dot.gov, 919-747-7351~~
RS&H Transportation Engineer, Meredith Van Duyn, PE – consultant tasked by NCDOT management with gathering information from NCDOT Divisions 2 and 6 for the quarterly INFRA reporting. meredith.vanduyn@rsandh.com, 919-926-4102

COMMITMENTS FROM PERMITTING

Division 6 and Environmental Analysis Unit

USACE 404 Revised Condition #18

Phased Permitting: This permit only authorizes work on I-5986 A TIP I-5986. Construction on Sections 2, 3, and 4 of TIP I-5986 B shall not commence until all the following occur: (a) final design has been completed for those sections and submitted to the U.S. Army Corps of Engineers (Corps); (b) the Permittee has minimized impacts to waters and wetlands to the maximum extent practicable and the Corps concurs with this assessment; (c) any modification to the plans have been approved by the Corps in writing; and (d) a final compensatory mitigation plan has been submitted by the Permittee and approved by the Corps.

DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

November 24, 2020

Regulatory Division

Action ID: SAW-2018-02276
NC DOT TIP No.: I-5986 (Section A)
Corps Modification # 1

Mr. Philip S. Harris, III, P.E., CPM
N.C. Department of Transportation
1598 Mail Service Center
Raleigh, NC 27699-1598

Dear Mr. Harris:

Reference the Department of the Army (DA) permit issued on July 9, 2019, for the discharge of fill material into waters and wetlands adjacent to various creeks, and their tributaries in order to widen 26 miles of existing I-95 to an eight-lane median divided facility, on existing location from Murphy Road (exit 55) north to Interstate 40 (exit 81) in Cumberland, Harnett, and Johnston Counties, North Carolina. Reference is also made to your Section A permit modification request dated September 2, 2020. The NCDOT revised the project study area in three places along the I-5986 A section of the project to include additional survey areas, which were previously not with a part of the overall I-5986 project. This modification requests an additional 2 acres of permanent fill, excavation, and mechanized land clearing in wetlands and 608 linear feet of stream channel permanently impacted in association with the road project. Total revised permanent impacts associated with Section A portion of the I-5986 project are 12.43 acres of wetland and 1,737 linear feet of stream channel.

After the completion of the 15-day public notice, I have determined that the proposed project modifications described above are not contrary to the public interest and are consistent with the 404 (B) (1) Guidelines and therefore, the DA permit is hereby modified for I-5986 section A with three revised special conditions detailed below. The authorized work shall be completed in accordance with the attached revised drawings. All other conditions of the original permit remain applicable. The permit expiration date remains December 31, 2024.

Revised Special Conditions:

Revised condition #1. Work Limits: All work authorized by this permit shall be performed in strict compliance with the attached permit plans dated February 7, 2019, revised May 23, 2019, and further revised August 20, 2020 which are a part of this permit. The Permittee shall ensure that the construction design plans for this project do not deviate from the permit plans attached to this authorization. Any modification to the attached permit plans must be approved by the U.S. Army Corps of Engineers (Corps) prior to any active construction in waters or wetlands.

Revised condition #15. Mitigation: 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.

Revised Condition #18. Phased Permitting: This permit only authorizes work on I-5986 A TIP I-5986. Construction on Sections 2, 3, and 4 of TIP I-5986 B shall not commence until all the following occur: (a) final design has been completed for those sections and submitted to the U.S. Army Corps of Engineers (Corps); (b) the Permittee has minimized impacts to waters and wetlands to the maximum extent practicable and the Corps concurs with this assessment; (c) any modification to the plans have been approved by the Corps in writing; and (d) a final compensatory mitigation plan has been submitted by the Permittee and approved by the Corps.

This approved modification should be attached to the original permit and will be utilized for future compliance reviews of the project. If you have questions, please contact Liz Hair of the Wilmington Regulatory Field Office, at telephone (910) 251-4049 or by email at sarah.e.hair@usace.army.mil.

FOR THE DISTRICT ENGINEER

Monte Matthews Date: 2020.11.24 12:27:27 -05'00'

Monte K. Matthews
Lead Project Manager
Wilmington Regulatory Division

Enclosures:

1) 401 Water Quality Certification Modification dated November 6, 2020
2) Wetland and Stream Impact Drawings dated August 20, 2020 Section I-5986 A

Copies Furnished (electronic):

Ms. Joanne Steenhuis, NCDEQ-DWR
Mr. Chris Rivenbark/Ms. Deanna Riffey, NCDOT
Mr. Jim Rerko/Mr. Greg Price NCDOT
Ms. Amanetta Somerville, EPA
Mr. Gary Jordan, USFWS
Mr. Travis Wilson, NC WRC
Ms. Beth Harmon, NC DMS

DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

9 July 2019

Regulatory Division

Action ID: SAW-2018-02276

North Carolina Department of Transportation
Mr. James Rerko, PWS
Project Development and Environmental Analysis Engineer
1000 Transportation Drive
Fayetteville, North Carolina 28302

Dear Mr. Rerko:

In accordance with the written request of February 7, 2019 and subsequent revised request dated May 23, 2019, and the ensuing administrative record, enclosed is a permit to discharge dredged or fill material into waters of the U.S., associated with widening existing I-95 to an eight-lane median divided facility on existing location from Murphy Road (SR1832/exit 55) north to Interstate 40 (exit 81) in Cumberland, Harnett, and Johnston Counties, North Carolina

Any deviation in the authorized work will likely require modification of this permit. If any change in the authorized work is necessary, you should promptly submit revised plans to the Corps showing the proposed changes. You may not undertake the proposed changes until the Corps notified you that your permit has been modified.

Carefully read your permit. The general and special conditions are important. Your failure to comply with these conditions could result in a violation of Federal law. Certain significant general conditions require that:

a. You must complete construction before December 31, 2024.

b. You must notify this office in advance as to when you intend to commence and complete work.

c. You must allow representatives from this office to make periodic visits to your worksite as deemed necessary to assure compliance with permit plans and conditions.

You should address all questions regarding this authorization to Ms. Liz Hair at the Wilmington Regulatory Field Office, telephone number (910) 251-4049.

Thank you in advance for completing our Customer Survey Form. This can be accomplished by visiting our web-site at http://corpsmapu.usace.army.mil/cm_apex/f?p=136:4:0 and completing the survey on-line. We value your comments and appreciate your taking the time to complete a survey each time you interact with our office.

FOR THE COMMANDER

Robert J. Clark
Colonel, U.S. Army
District Commander

Enclosures

Copy Furnished (with enclosures):

Chief, Source Data Unit
NOAA/National Ocean Service
Attn: Sharon Tear N/CS261
1315 East-West Hwy., Rm 7316
Silver Spring, Maryland 20910-3282

Copies Furnished with special conditions and plans:

Mr. Kenneth Riley, Ph.D.
Habitat Conservation Division
National Marine Fisheries Service Southeast Region
101 Pivers Island Road
Beaufort, North Carolina 28516

Mr. Pete Benjamin
U.S. Fish and Wildlife Service
Raleigh Ecological Service Field Office
Post Office Box 33726
Raleigh, North Carolina 27636-3726

Mr. Todd Bowers
Wetlands and Streams Regulatory Section
U.S. Environmental Protection Agency – Region 4
Sam Nunn Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, Georgia 30303-8931

Mr. Doug Huggett
Division Coastal Management
N.C. Department of Environment and Natural Resources
400Commerce Avenue
Morehead City, North Carolina 28557

Dr. Pace Wilber
Habitat Conservation Division – Atlantic Branch
NOAA Fisheries Service
219 Fort Johnston Road
Charleston, South Carolina 29412

DEPARTMENT OF THE ARMY PERMIT

Permittee: NORTH CAROLINA DEPARTMENT OF TRANSPORTATION – DIV. 4 (NCDOT)
ATTN: MR. JAMES RERKO, PWS

Permit No.: SAW-2018-02276

Issuing Office: CESAW-RG-L

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description: Widen an approximate 26-mile portion of existing Interstate 95 to an eight-lane median-divided facility on existing location through Cumberland, Harnett and Johnston Counties, North Carolina. This is a phased permit, therefore Special Conditions detail the requirements for construction authorization for any specific section.

Project Location: The project begins approximately a half-mile south of SR 1832/Murphy Road (Exit 55) where 4-lane I-95 would taper to 8-lanes at Murphy Road (Exit 55) near Fayetteville, in Cumberland County and extends north through Harnett County and into Johnston County to the Interstate 40 interchange (Exit 81), north of the City of Benson.

General Conditions:

1. The time limit for completing the work authorized ends on December 31, 2024. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. 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 National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit,

Special Conditions:

SEE ATTACHED SPECIAL CONDITIONS

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

( ) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

(X) Section 404 of the Clean Water Act (33 U.S.C. 1344).

( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

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

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

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

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

*U.S. GOVERNMENT PRINTING OFFICE: 1986 - 717-425

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit, unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

James J. Rerko, PWS — 07/09/19

(PERMITTEE) NC DEPARTMENT OF TRANSPORTATION
ATTN: MR. JAMES RERKO, PWS — *(DATE)*

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

Mark M. Matthews for/ — 09 July 2019

(DISTRICT COMMANDER) ROBERT J. CLARK, COLONEL — *(DATE)*

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

(TRANSFEREE) — *(DATE)*

*U.S. GOVERNMENT PRINTING OFFICE: 1986 - 717-425

SPECIAL CONDITIONS
ACTION ID. SAW-2018-02276
NC DEPARTMENT OF TRANSPORATION
PROPOSED IMPROVEMENTS TO WIDEN I-95 TO EIGHT LANES FROM MURPHY ROAD (SR 1832/EXIT 55) TO I-40 (EXIT 81)
TIP NO. I-5986

1. WORK LIMITS: All work authorized by this permit shall be performed in strict compliance with the attached permit plans dated February 7, 2019 and revised May 23, 2019, which are a part of this permit. The Permittee shall ensure that the construction design plans for this project do not deviate from the permit plans attached to this authorization. Any modification to the attached permit plans must be approved by the U.S. Army Corps of Engineers (Corps) prior to any active construction in waters or wetlands.

2. UNAUTHORIZED DREDGE OR FILL: Except as authorized by this permit or any U.S. Army Corps of Engineers approved modification to this permit, no excavation, fill, or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, within waters or wetlands, or shall any activities take place that cause the degradation of waters or wetlands. There shall be no excavation from, waste disposal into, or degradation of, jurisdictional wetlands or waters associated with this permit without appropriate modification of this permit, including appropriate compensatory mitigation. This prohibition applies to all borrow and waste activities connected with this project. In addition, except as specified in the plans attached to this permit, no excavation, fill or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, in such a manner as to impair normal flows and circulation patterns within, into, or out of waters or wetlands or to reduce the reach of waters or wetlands.

3. PERMIT DISTRIBUTION: The Permittee shall require its contractors and/or agents to comply with the terms and conditions of this permit in the construction and maintenance of this project, and shall provide each of its contractors and/or agents associated with the construction or maintenance of this project with a copy of this permit. A copy of this permit, including all conditions and drawings shall be available at the project site during construction and maintenance of this project.

4. PRECONSTRUCTION MEETING: The Permittee shall conduct an onsite preconstruction meeting between its representatives, the contractor's representatives and the appropriate Corps of Engineers Project Manager prior to undertaking any work within jurisdictional waters and wetlands to ensure that there is a mutual understanding of all terms and conditions contained within the Department of the Army permit. The Permittee shall schedule the preconstruction meeting for a time frame when the Corps, and NCDWQ Project Managers can attend. The Permittee shall invite the Corps, and NCDWQ Project Managers a minimum of thirty (30) days in advance of the scheduled meeting in order to provide those individuals with ample opportunity to schedule and participate in the required meeting. The thirty (30) day requirement can be waived with the concurrence of the Corps.

5. NOTIFICATION OF CONSTRUCTION COMMENCEMENT AND COMPLETION: The Permittee shall notify the U.S. Army Corps of Engineers in writing prior to beginning the work authorized by this permit and again upon completion of the work authorized by this permit.

6. REPORTING ADDRESS: All reports, documentation and correspondence required by the conditions of this permit shall be submitted to the following address: U.S. Army Corps of Engineers, Regulatory Division, Wilmington Regulatory Field Office, Attn: Ms. Liz Hair, 69 Darlington Avenue,

Wilmington North Carolina, 28403, or sarah.e.hair@usace.army.mil. The Permittee shall reference the following permit number, SAW-2018-02276, on all submittals.

7. PERMIT REVOCATION: 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 United States and in such time and manner as the Secretary of the Army or his authorized representative may direct, restore the water or wetland to its pre-project condition.

8. REPORTING VIOLATIONS: Violation of these permit conditions or violation of Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act shall be reported to the Corps in writing and by telephone at: 910-251-4049 within 24 hours of the Permittee's discovery of the violation.

9. ENDANGERED SPECIES ACT: The U.S. Fish and Wildlife Service's (USFWS's) Programmatic Biological Opinion (BO) titled "Northern Long-eared Bat (NLEB) Programmatic Biological Opinion for North Carolina Department of Transportation (NCDOT) Activities in Eastern North Carolina (Divisions 1-8)," dated March 25, 2015, and adopted on April 10, 2015, contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with "incidental take" that are specified in the BO. Your authorization under this Department of the Army permit is conditional upon your compliance with all the mandatory terms and conditions associated with incidental take of the BO, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with incidental take of the BO, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute non-compliance with your Department of the Army permit. The USFWS is the appropriate authority to determine compliance with the terms and conditions of its BO, and with the ESA.

10. MAINTAIN CIRCULATION AND FLOW OF WATERS: Except as specified in the plans attached to this permit, no excavation, fill or mechanized land- clearing activities shall take place at any time in the construction or maintenance of this project, in such a manner as to impair normal flows and circulation patterns within waters or wetlands or to reduce the reach of waters or wetlands.

11. SEDIMENT EROSION CONTROL:

1. During the clearing phase of the project, heavy equipment shall not be operated in surface waters or stream channels. Temporary stream crossings will be used to access the opposite sides of stream channels. All temporary diversion channels and stream crossings will be constructed of non-

erodible materials. Grubbing of riparian vegetation will not occur until immediately before construction begins on a given segment of stream channel.

2. No fill or excavation impacts for the purposes of sedimentation and erosion control shall occur within jurisdictional waters, including wetlands, unless the impacts are included on the plan drawings and specifically authorized by this permit. This includes, but is not limited to, sediment control fences and other barriers intended to catch sediment losses.

3. The Permittee shall remove all sediment and erosion control measures placed in wetlands or waters, and shall restore natural grades on those areas, prior to project completion.

4. The Permittee shall use appropriate sediment and erosion control practices which equal or exceed those outlined in the most recent version of the "North Carolina Sediment and Erosion Control Planning and Design Manual" to ensure compliance with the appropriate turbidity water quality standard. Erosion and sediment control practices shall be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to ensure compliance with the appropriate turbidity water quality standards. 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 shall remain in full compliance with all aspects of the Sedimentation Pollution Control Act of 1973 (North Carolina General Statutes Chapter 113A Article 4). Adequate sedimentation and erosion control measures shall be implemented prior to any ground disturbing activities to minimize impacts to downstream aquatic resources. These measures shall be inspected and maintained regularly, especially following rainfall events. All fill material shall be adequately stabilized at the earliest practicable date to prevent sediment from entering into adjacent waters or wetlands.

12. CLEAN FILL: The Permittee shall use only clean fill material for this project. The fill material shall be free from items such as trash, construction debris, metal and plastic products, and concrete block with exposed reinforcement bars. Soils used for fill shall not be contaminated with any toxic substance in concentrations governed by Section 307 of the Clean Water Act. Unless otherwise authorized by this permit, all fill material placed in waters or wetlands shall be generated from an upland source.

13. WATER CONTAMINATION: All mechanized equipment shall be regularly inspected and maintained to prevent contamination of waters and wetlands from fuels, lubricants, hydraulic fluids,

or other toxic materials. In the event of a spill of petroleum products or any other hazardous waste, the Permittee shall immediately report it to the N.C. Division of Water Quality at (919) 733-3300 or (800) 858-0368 and provisions of the North Carolina Oil Pollution and Hazardous Substances Control Act shall be followed.

14. CULVERTS:

1. Unless otherwise requested in the application and depicted on the approved permit plans, culverts greater than 48 inches in diameter shall be buried at least one foot below the bed of the stream. Culverts 48 inches in diameter and 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 existing channel slope. The bottom of the culvert shall be placed at a depth below the natural stream bottom to provide for passage during drought or low flow conditions. Culverts shall be designed and constructed in a manner that minimizes destabilization and head cutting.

2. Measures shall be included in the construction/installation that will promote the safe passage of fish and other aquatic organisms. The dimension, pattern, and profile of the stream above and below a pipe or culvert shall not be modified by widening the stream channel or by reducing the depth of the stream in connection with the construction activity. The width, height, and gradient of a proposed opening shall 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.

3. The Permittee shall implement all reasonable and practicable measures to ensure that equipment, structures, fill pads, work, and operations associated with this project do not adversely affect upstream and/or downstream reaches. Adverse effects include, but are not limited to, channel instability, flooding, and/or stream bank erosion. The Permittee shall routinely monitor for these effects, cease all work when detected, take initial corrective measures to correct actively eroding areas, and notify this office immediately. Permanent corrective measures may require additional authorization by the U.S. Army Corps of Engineers.

15. MITIGATION: 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.

16. TEMPORARY IMPACTS RESTORATION MEASURES: Within 30 days of the date of completing the authorized work, the Permittee shall remove all temporary fills in waters of the United States and restore the affected areas to pre-construction contours and elevations. The affected areas shall be re- vegetated with native, non-invasive vegetation as necessary to minimize erosion and ensure site stability. In wetland areas where pipeline installation via trenching is authorized, wetland topsoil shall be segregated from the underlying subsoil, and the top 6 to 12 inches of the trench shall be backfilled with topsoil from the trench.

17. SILT FENCE: Prior to construction within any jurisdictional areas, the Permittee shall correctly install silt fencing (with or without safety fencing) parallel with the utility line corridor, on both sides of the jurisdictional crossing. This barrier is to serve both as an erosion control measure and a visual identifier of the limits of construction within any jurisdictional area. The Permittee shall maintain the fencing, at minimum, until the wetlands have re-vegetated and stabilized.

18. PHASED PERMITTING: This permit only authorizes work on I-5986 B Section 1 of TIP I-5986. Construction on Sections 2, 3, and 4 of TIP I-5986 B and I-5986 A shall not commence until all the following occur: (a) final design has been completed for those sections and submitted to the U.S. Army Corps of Engineers (Corps); (b) the Permittee has minimized impacts to waters and wetlands to the maximum extent practicable and the Corps concurs with this assessment; (c) any modification to the plans have been approved by the Corps in writing; and (d) a final compensatory mitigation plan has been submitted by the Permittee and approved by the Corps.

19. BORROW AND WASTE: To ensure that all borrow and waste activities occur on high ground and do not result in the degradation of adjacent waters and wetlands, except as authorized by this permit, the Permittee shall require its contractors and/or agents to identify all areas to be used as borrow and/or waste sites associated with this project. The Permittee shall provide the U.S. Army Corps of Engineers with appropriate maps indicating the locations of proposed borrow and/or waste sites as soon as such information is available. The Permittee shall submit to the Corps site-specific information needed to ensure that borrow and/or waste sites comply with all applicable Federal requirements, to include compliance with the Endangered Species Act and the National Historic Preservation Act, such as surveys or correspondence with agencies (e.g., the USFWS, the NC-HPO, etc.). The required information shall also include the location of all aquatic features, if any, out to a distance of 400 feet beyond the nearest boundary of the site. The Permittee shall not approve any borrow and/or waste sites before receiving written confirmation from the Corps that the

proposed site meets all Federal requirements, whether or not waters of the U.S., including wetlands, are located in the proposed borrow and/or waste site. All delineations of aquatic sites on borrow and/or waste sites shall be verified by the U.S. Army Corps of Engineers and shown on the approved reclamation plans. The Permittee shall ensure that all borrow and/or waste sites comply with Special Condition #2 of this permit. Additionally, the Permittee shall produce and maintain documentation of all borrow and waste sites associated with this project. This documentation will include data regarding soils, vegetation, hydrology, any delineation(s) of aquatic sites, and any jurisdictional determinations made by the Corps to clearly demonstrate compliance with Special Condition #2. All information will be available to the U.S. Army Corps of Engineers upon request. The Permittee shall require its contractors to complete and execute reclamation plans for each borrow and/or waste site and provide written documentation that the reclamation plans have been implemented and all work is completed. This documentation will be provided to the U.S. Army Corps of Engineers within 30 days of the completion of the reclamation work.

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ROY COOPER
Governor
MICHAEL S. REGAN
Secretary
S. DANIEL SMITH
Director

NORTH CAROLINA
Environmental Quality

November 6, 2020

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

Subject: Modification to the 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act with ADDITIONAL CONDITIONS for Proposed widening of existing I-95 to an eight-lane median divided facility on existing location from south of SR 1832 (Murphy Road- Exit 55) to south of SR1811 (Bud Hawkins Road – Exit 70) in Cumberland County, State Project No. WBS 47532.1.2 and 47532.1.3, STIP I-5986A.
NCDWR Project No. 20190214 V2

Dear Mr. Harris:

Attached hereto is a modification of Certification No. WQC004187 issued to The North Carolina Department of Transportation (NCDOT) dated November 6, 2020.

If we can be of further assistance, do not hesitate to contact us.

Sincerely,

DocuSigned by:
Amy Chapman
9C9886312DCD474...

S. Daniel Smith, Director
Division of Water Resources

Attachment

Electronic copy only distribution:
Liz Hair, US Army Corps of Engineers, Wilmington Field Office
Greg Price, Division 6 Environmental Officer
Chris Rivenbark, NC Department of Transportation
Chris Militscher, US Environmental Protection Agency
Gary Jordan, US Fish and Wildlife Service
Travis Wilson, NC Wildlife Resources Commission
Beth Harmon, Division of Mitigation Services
File Copy

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Modification to the 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act with ADDITIONAL CONDITIONS

THIS CERTIFICATION is a modification of the original certification dated June 30, 2019 and revision dated July 8, 2019 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 Resources (NCDWR) Regulations in 15 NCAC 2H .0500. This certification authorizes the NCDOT to impact an additional 13.199 acres of jurisdictional wetlands, 2,350 linear feet of jurisdictional streams in Cumberland County. The project shall be constructed pursuant to the modification dated received September 2, 2020. The authorized impacts are as described below:

Stream Impacts in the Cape Fear River Basin

Site	Station	NRTR Label	Perm Fill in Intermittent Stream (linear ft)	Temp Fill in Intermittent Stream (linear ft)	Perm Fill in Perennial Stream (linear ft)	Temp Fill in Perennial Stream (linear ft)	***Bank Stabilization	Total Stream Impact (linear ft)	Stream Impacts Requiring Mitigation (linear ft)
1*	Bank Stabilization; LSB-61+50 LT	DC				20	8	20	N/A
2*	Headwall, 66" WSP LSB-72+00 RT	SV-2			6	41		47	N/A
2*	Bank Stabilization LNB-71+75 LT	SV-1				19	19	19	N/A
4*	30" WSP LSB-101+16 LT	SA			18	23		41	N/A
9*	2@ 36" RCP L-100+28 RT	SB	63	10				73	N/A
15*	Roadway Fill, 66" RCP Y5RPC-13+02-21+32 RT	Baker Swamp			60			60	N/A
16*	54" WSP Structure Stabilization Y4-36+25 RT	Baker Swamp				34	15	34	N/A
18*	Roadway Fill, 60" RCP, 66" RCP L-198+56 – 203+59 RT	Baker Swamp			23	13		36	N/A
18*	66" WSP Structure Stabilization Y5-99+16 LT	Baker Swamp				28	22	28	N/A
23*	2@ 8'X8' RCBC L-252+34	SC			270	38		308	N/A
24*	3@ 10'X8' RCBC,	SD			197	26		223	N/A

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	Roadway Fill L-304+15								
25*	10'X7' RCBC L-355+00	SE	135	25				160	N/A
30*	12'X6' RCBC L-422+50	SF			103	8		111	N/A
33*	8'X8' Culvert L-540+45	SG			211	99		310	N/A
34*	10'X7'RCBC L-574+64	SH			174	30		204	N/A
37**	72" RCP, Roadway Fill L-622+64 to 626+94 LT	SI			26	20		46	N/A
37**	Structure Stabilization L-622+64 to 626+94 LT	SI					25		N/A
39**	7'X7' RCBC L-642+88	SJ	101	40				141	N/A
42**	Bridge Construction L-669+88- 684+49 LT & RT	Black River			16	246		262	N/A
47**	72" RCP L-766+40	SK	180	24				204	N/A
49**	2@ 8'X8' RCBC Ext Y5-45+24 LT	SY			15			15	N/A
49**	Bank Stabilization Y5-45+24 LT	SY				8	50	8	N/A
Total			**479**	**99**	**1119**	**653**	**139 *****	**2350**	N/A

Total Stream Impact for Project: 2350 linear feet

*Subbasin Upper Cape Fear 1674 linear feet

** Subbasin Black River 676 linear feet

****Bank stabilization doesn't count towards impacts**

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Wetland Impacts in the Cape Fear River Basin

Site	Station	NRTR Label	Fill (Perm) (ac)	Fill (temp) (ac)	Excav -ation (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)***	Area under Bridge (ac)	Total Wetland Impact (ac)
2*	Fill LSB- 72+00 RT	WCB	0.003	0.038					0.041
3*	Pipe Clean Out LNB-89+16 LT& RT	WA/WB		0.006					0.006
3*	Fill, 18” RCP LSB-88+37 to 95+69 LT	WA	0.001	0.006					0.007
3*	Mechanized Clearing LSB-88+37 - 95+69 LT	WA				0.018			0.018
4*	Fill, 30” WSP LSB- 101+16 LT	WC	0.001	0.033					0.034
4*	Fill, 30” WSP LSB- 99+00 LT	WA	0.002	0.027					0.029
5*	Fill, 66” WSP YINB-32+80 RT	WB	0.009	0.034					0.043
6*	Fill, 36” WSP YINB-39+39 LT	WD	0.001	0.039					0.040
6*	Fill, 36” WSP YINB-38+02 RT	WB	0.004	0.050					0.054
7*	Fill L-92+02 - 100+05 LT	WH	0.231						0.231
8*	Excavation (Ditch) L-90+87 - 91+10 RT	WE			0.024				0.024
9*	Fill L-94+37 - 100+20 RT	WF	0.135						0.135
9*	Excavation L-94+37 - 100+20 RT	WF			0.021				0.021
10*	Fill L-108+26 - 114+34 LT	WI	0.076						0.076
11*	Fill L-118+98 - 133+53 LT	WJ	0.531						0.531
11*	Mechanized Clearing L-118+98 - 133+53 LT	WJ				0.045			0.045
12*	Fill L-121+32 - 127+67 RT	WL	0.204	0.066					0.270

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12*	Excavation L-121+32 - 127+67 RT	WL			0.020				0.020
12*	Mechanized Clearing L-121+32 - 127+67 RT	WL				0.143			0.143
13*	Fill L-186+79 - 187+53 LT	WR	0.020						0.020
13*	Mechanized Clearing L-186+79 - 187+53 LT	WR				0.013			0.013
14*	Mechanized Clearing L-192+15 - 193+26 LT	WR				0.001			0.001
14*	Fill L-192+15 to 193+26 LT	WR		0.021					0.021
15*	Fill, 42” RCP L-190+05 RT	WO	0.004						0.004
15*	Mechanized Clearing L-190+05 RT	WO				0.006			0.006
15*	Fill L-192+05 RT	WO	0.001						0.001
15*	Mechanized Clearing L-192+05 RT	WO				0.006			0.006
15*	Fill, 66” RCP Y5RPC-13+02 - 21+32 RT	WO	0.136	0.034					0.170
15*	Mechanized Clearing Y5RPC-13+02 -21+32 RT	WO				0.165			0.165
15*	Fill, 54” WSP Y4-37+50 LT	WO	0.001	0.037					0.038
15*	Fill Y4-40+69 to 43+01 LT	WO	0.019						0.019
15*	Mechanized Clearing Y4-40+69 to 43+01 LT	WO				0.053			0.053
16*	Fill, 54” WSP Y4-36+25 RT	WN	0.006	0.025					0.031
16*	Fill Y4-40+32 to 42+06 RT	WN	0.035						0.035
16*	Mechanized Clearing Y4-40+32 to 42+06 RT	WN				0.042			0.042
16*	**Hand Clearing Y4-32+97- 33+91 RT &**	WN					0.373		

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	Y4-37+51 - 41+72 RT								
17*	Fill L-199+16 - 200+49 LT	WQ	0.057						0.057
17*	Mechanized Clearing L-199+16 - 200+49 LT	WQ				0.072			0.072
17*	Fill L-201+67 LT	WQ	0.002	0.009					0.011
18*	Fill, 60” RCP, 66” RCP L-198+56 - 203+59 RT	WP	0.106	0.002					0.108
18*	Mechanized Clearing L-198+56 - 203+59 RT	WP				0.066			0.066
18*	Fill, 66” WSP Y5-99+16 LT	WP	0.001	0.004					0.005
19*	Fill Y5LPD-37+73 - 40+14 LT & RT	WCG	0.857						0.857
20*	Fill Y5LPD-22+86 - 24+53 LT & RT	WX	0.402						0.402
20*	Mechanized Clearing Y5LPD-22+86 - 24+53 LT & RT	WX				0.034			0.034
21*	Fill Y5RPD-14+97 - 18+86 RT	WV	0.225						0.225
21*	Mechanized Clearing Y5RPD-14+97 - 18+86 RT	WV				0.020			0.020
21*	**Hand Clearing Y5C- 23+55 - 24+62 RT**	WV					0.072		
22*	Fill Y5FLY-57+08 - 62+55 LT & RT& Y5LPD-18+96 - 21+42 LT & RT	WW	2.663						2.663
22*	Mechanized Clearing Y5FLY-57+08 - 62+55 LT & RT& Y5LPD-18+96 - 21+42 LT & RT	WW				0.176			0.176
22*	**Hand Clearing Y5FLY-60+09 - 62+54 RT**	WW					0.204		
24*	Fill, 3@ 10’X8’ RCBC L-304+15	WZ/WY	0.056	0.047					0.103

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24*	Excavation L-304+15	WZ/WY			0.089				0.89
24*	Mechanized Clearing L-304+15	WZ/WY				0.080			0.080
24*	Fill L-302+20 LT	WY		0.004					0.004
24*	Mechanized Clearing L-302+20 LT	WY				0.002			0.002
24*	Fill L-306+80 LT	WZ		0.010					0.010
24*	Fill L-307+30 RT	WY		0.005					0.005
25*	Excavation, Fill, 10'X7' RCBC L-355+00	WAB		0.002	0.003				0.005
25*	Fill L-357+75 RT	WAB		0.008					0.008
26*	Fill Y7RPC-17+51 - 24+28 LT & RT	WAC	0.654	0.017					0.671
26*	Mechanized Clearing Y7RPC-17+51 to 24+28 LT & RT	WAC				0.151			0.151
27*	Fill Y7RPA 16+97 - L-392+99 LT	WAF	0.284						0.284
28*	Fill SR3-34+13 - 35+87 LT	WAG	0.047	0.005					0.052
28*	Mechanized Clearing SR3-34+13 - 35+87 LT	WAG				0.039			0.039
28*	**Hand Clearing L-395+04 - 398+40 LT**	WAG					0.224		
29*	Fill L-405+65 LT	WAH		0.009					0.009
29*	Excavation L-405+65 LT	WAH			0.027				0.027
30*	Fill, 12'X6' RCBC L-422+50	WAK/WAI	0.008	0.074					0.082
30*	Excavation	WAK/WAI			0.090				0.090

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	L-422+50								
30*	Fill L-422+46 - 437+14 RT	WAI	0.488						0.488
30*	Excavation L-422+46 - 437+14 RT	WAI			0.012				0.012
30*	Mechanized Clearing L-422+46 - 437+14 RT	WAI				0.037			0.037
30*	Fill L-422+85 - 436+87 LT	WAK	0.624						0.624
30*	Mechanized Clearing L-422+85 to 436+87 LT	WAK				0.015			0.015
30*	Fill L-425+50 LT	WAK		0.014					0.014
30*	**Hand Clearing L-424+05 - 426+04 LT**	WAK					0.058		
30*	**Hand Clearing L-430+62 - 435+09 LT**	WAL					0.196		
31*	Fill L-508+50 - 509+37 LT	WAM	0.042						0.042
31*	Mechanized Clearing L-508+50 - 509+37 LT	WAM				0.019			0.019
32*	Fill L-522+79 - 528+68 LT	WAN	0.081						0.081
32*	Mechanized Clearing L-522+79 - 528+68 LT	WAN				0.080			0.080
33*	Fill, 8'X8' Culvert L-540+45	WAP/WAQ		0.010					0.010
34*	Fill, 10'X7' RCBC L-574+64	WAS		0.025					0.025
34*	Mechanized Clearing L-574+64	WAS				0.002			0.002
35**	Fill L-602+70 to 606+71 LT	WAT	0.016	0.005					0.021
35**	Mechanized Clearing L-602+70 - 606+71 LT	WAT				0.044			0.044
36**	Mechanized Clearing L-618+01 - 618+14 RT	WAU				0.007			0.007
37**	Fill, 72" RCP	WAW	0.225	0.029					0.254

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	L-622+64 to 626+94 LT								
37**	Mechanized Clearing L-622+64 to 626+94 LT	WAW				0.137			0.137
38**	Fill L-640+26 to 640+69 RT	WAX		0.006					0.006
40**	Fill, 2@30” RCP L-660+20 RT	WAY	0.001	0.001					0.002
41**	Fill L-667+00 LT	WAZ		0.011					0.011
42**	Fill, Bridge L-669+88 - 684+49 LT & RT	WAZ	0.385	0.020					0.405
42**	Excavation L-669+88 - 684+49 LT & RT	WAZ			0.043				0.043
42**	Mechanized Clearing L-669+88 - 684+49 LT & RT	WAZ				0.207			0.207
42**	Hand Clearing L-669+88 - 684+49 LT & RT	WAZ					0.038		
43**	Fill L-692+28 - 694+59 RT	WAZ	0.090						0.090
43**	Mechanized Clearing L-692+28 - 694+59 RT	WAZ				0.053			0.053
44**	Fill L-695+05 LT	WAZ		0.006					0.006
45**	Mechanized Clearing L-731+00 LT	WBB				0.017			0.017
46**	Fill, 2@ 42” RCP L-735+80 LT	WBC	0.004						0.004
46**	Excavation L-735+80 LT	WBC			0.002				0.002
46**	Mechanized Clearing L-735+80 LT	WBC				0.028			0.028
47**	**Hand Clearing L-759+32 - 776+24 RT**	WBD					0.092		
47**	**Hand Clearing L-759+32 - 776+24 RT**	WBE					0.048		

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48**	Fill, Plug Exist 18" RCP L-403+25 LT	WCK		0.002					0.002
50**	Fill Y5-51+81 - 56+63 LT	WCJ	0.011						0.011
50**	Mechanized Clearing Y5-51+81 - 56+63 LT	WCJ				0.043			0.043
51**	Fill Y5-60+52 - 65+24 LT	WCI	0.114						0.114
51**	Mechanized Clearing Y5-60+52 - 65+24 LT	WCI				0.109			0.109
52**	Fill Y5- 64+45 RT	WT	0.002	0.006					0.008
53**	Fill Y5RPA-44+43 - 54+38 LT	WU	0.267						0.267
53**	Mechanized Clearing Y5RPA-44+43 - 54+38 LT	WU				0.108			0.108
54A**	Pipe Clean Out Y4-16+88 LT	WS		0.008					0.008
54B**	Pipe Clean Out Y4-19+00 LT	WS		0.005					0.005
54C**	Pipe Clean Out Y4- 21+67 LT	WS		0.005					0.005
55**	Fill Y5C-12+74 - 17+83 LT & RT	WCE	0.635						0.635
55**	Mechanized Clearing Y5C-12+74 - 17+83 LT & RT	WCE				0.220			0.220
56**	Fill Y5B-12+86 - 16+54 LT	WCE	0.013						0.013
56**	Mechanized Clearing Y5B-12+86 - 16+54 LT	WCE				0.065			0.065
Total			9.780	0.765	0.331	2.323	1.305***		13.199

Total Wetland Impact for Project: 13.199 acres
12.434 acres of wetlands require mitigation
***Subbasin Upper Cape Fear 11.08 acres**
**** Subbasin Black River 2.95 acres**
***** Hand clearing does not count towards impacts**

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The application provides adequate assurance that the discharge of fill material into the waters of the Cape Fear River Basin (Upper Cape Fear and Black River subbasins) in conjunction with the proposed development will not result in a violation of applicable Water Quality Standards and discharge guidelines. Therefore, the State of North Carolina certifies that this activity will not violate the applicable portions of Sections 301, 302, 303, 306, 307 of PL 92-500 and PL 95-217 if conducted in accordance with the application and conditions hereinafter set forth.

This approval is only valid for the purpose and design that you submitted in your modified application dated received September 2, 2020. All the authorized activities and conditions of certification associated with the original Water Quality Certification dated June 30, 2019 and revised July 8, 2019 still apply except where superseded by this certification. Should your project change, you are required to 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 any additional wetland impacts, or stream impacts, for this project (now or in the future) exceed one acre or 150 linear feet, respectively, additional compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7). For this approval to remain valid, you are required to comply with all the conditions listed below. In addition, you should obtain all other federal, state or local permits before proceeding with your project including (but not limited to) Sediment and Erosion control, Coastal Stormwater, Non-discharge and Water Supply watershed regulations. This Certification shall expire on the same day as the expiration date of the corresponding Corps of Engineers Permit.

Conditions of Certification:

1. This modification is applicable only to the additional proposed activities. All of the authorized activities and conditions of certification associated with the original Water Quality Certification dated June 30, 2019 and revision dated July 8, 2019 still apply except where superseded by this certification.
2. The NCDOT Division Environmental Officer or Environmental Assistant will conduct a pre-construction meeting with all appropriate staff to ensure that the project supervisor and essential staff understand the potential issues with stream and pipe alignment at the permitted site. NCDWR staff shall be invited to the pre-construction meeting. [15A NCAC 02H.0506(b)(2) and (b)(3)

3. Compensatory mitigation for impacts to 12.434 acres of wetlands is required. We understand that you have chosen to perform compensatory mitigation for impacts to wetlands through the North Carolina Division of Mitigation Services (DMS) (formerly NCEEP), and that the DMS has agreed to implement the mitigation for the project. DMS has indicated in a letter dated August 20, 2020 that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with DMS's Mitigation Banking Instrument signed July 28, 2010.

4. Turbidity curtains or other suitable measures shall be used to isolate all work areas from streams, including pile or casement installation, placement of riprap, excavation or filling. Strict adherence to the Construction and Maintenance Best Management Practices will be required. 15A NCAC 02H .0506 (b)(3) and (c)(3)

Violations of any condition herein set forth may result in revocation of this Certification and may result in criminal and/or civil penalties. This Certification shall become null and void unless the above conditions are made conditions of the Federal 404 and/or Coastal Area Management Act Permit. This Certification shall expire upon the expiration of the 404 or CAMA permit.

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.

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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. Bill F. Lane, General Counsel
Department of Environmental Quality
1601 Mail Service Center
Raleigh, NC 27699-1601

This the 6th day of November 2020
DIVISION OF WATER RESOURCES

DocuSigned by:
Amy Chapman
9C9886312DCD474...

S. Daniel Smith, Director

WQC No. WQC004187

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ROY COOPER
Governor
MICHAEL S. REGAN
Secretary
S. DANIEL SMITH
Director

NORTH CAROLINA
Environmental Quality

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 _____

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ROY COOPER
Governor
MICHAEL S. REGAN
Secretary
LINDA CULPEPPER
Director

NORTH CAROLINA
Environmental Quality

July 8, 2019

Jim Rerko, Project Development and Environmental Analysis Engineer
Division 6
1000 Transportation Drive
Fayetteville, NC 28302

Subject:401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act and Neuse Buffer Permit with ADDITIONAL CONDITIONS for Proposed improvements to widen I-95 to eight lanes from Murphy Road (SR 1832/Exit 55) to I-40 (Exit 81) in Cumberland, Harnett and Johnston Counties, State Project No. WBS 47532.1.2 and 47532.1.3, STIP No. I-5986.
NCDWR Project No. 20190214

Dear Mr. Rerko:

Attached hereto is a copy of revised Certification No. WQC004187 issued to The North Carolina Department of Transportation (NCDOT) dated July 8, 2019.

If we can be of further assistance, do not hesitate to contact us.

Sincerely,

DocuSigned by:
Amy Chapman
9C9886312DCD474...

Linda Culpepper, Director
Division of Water Resources

Attachment

Electronic copy only distribution:
Liz Hair, US Army Corps of Engineers, Wilmington Field Office
Greg Price, Division 6 Environmental Officer
Chris Rivenbark, NC Department of Transportation
Chris Militscher, US Environmental Protection Agency
Gary Jordan, US Fish and Wildlife Service
Travis Wilson, NC Wildlife Resources Commission
Beth Harmon, Division of Mitigation Services
Joanne Steenhuis, NC Division of Water Resources Wilmington Regional Office
File Copy

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401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act and Neuse Buffer rules, with ADDITIONAL CONDITIONS

THIS CERTIFICATION rescinds the previous issued certification dated June 30, 2019 and reissues the certification 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 Resources (NCDWR) Regulations in 15 NCAC 2H .0500 and 15A NCAC 2B .0233. This certification authorizes the NCDOT to impact 16.590 acres of jurisdictional wetlands, 6,283 linear feet of jurisdictional streams in Cumberland, Harnett and Johnston Counties and 90,270 square feet of protected riparian buffers in Johnston County. The project shall be constructed pursuant to the application dated received February 19, 2019. The authorized impacts are as described below:

SECTION 1 (I-5877) Stream Impacts in the Cape Fear River Basin

Site	Station	NRTR Label	Permanent Fill in Intermittent Stream (linear ft)	Temporary Fill in Intermittent Stream (linear ft)	Permanent Fill in Perennial Stream (linear ft)	Temporary Fill in Perennial Stream (linear ft)	Total Stream Impact (linear ft)	Stream Impacts Requiring Mitigation (linear ft)
1	800+95 to 801+38-L-RT Drainage Ditch	SC				44	44	N/A
3	801+10 to 803+74-L 42” Pipe	SI			121	19	140	N/A
5	816+14 to 816+28-L-RT 54” Pipe	SA	8	10			18	N/A
	Outlet Channel	SA	23				23	N/A
5A	11+04 to 11+40 SR7-LT Roadway Fill	SA	24				24	N/A
6	18+84 to 18+94-Y22-RT Bank Stabilization	SC			10		10	N/A
7	20+15 to 20+39-Y22-RT Drainage Ditch	SB	18	18			36	N/A
7A	46+22 to 47+34-Y12 60” Pipe	SB	44				44	N/A
	Inlet Bank Stabilization	SB	20	10			30	N/A
	Outlet Channel	SB	36	17			53	N/A
7B	1+84 to 13+35-Y1RPD-RT Roadway Fill	SB	113	11			124	N/A
8	844+71 to 845+24-L-RT Pipe Removal	SD		33			33	N/A
8A	849+47 to 849+75-L-RT Pipe Removal/Ditch	SD		9			9	N/A
	Outlet Channel	SD	22				22	N/A

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Site	Station	NRTR Label	Permanent Fill in Intermittent Stream (linear ft)	Temporary Fill in Intermittent Stream (linear ft)	Permanent Fill in Perennial Stream (linear ft)	Temporary Fill in Perennial Stream (linear ft)	Total Stream Impact (linear ft)	Stream Impacts Requiring Mitigation (linear ft)
8B	38+92 to 39+04-SR7 Pipe Removal/Ditch	SD	18	16			34	N/A
	Channel Realignment	SD	14				14	N/A
9	855+32 to 859+66-L 9’ x 8’ RCBC	SC			98	44	142	98
	Inlet Channel	SC			56	19	75	56
	Outlet Channel	SC			185	25	210	185
10	875+41 to 875+82-L 60” Pipe	SE			105	47	152	N/A
	Inlet Channel	SE			41		41	N/A
	Outlet Channel	SE			34	13	47	N/A
10A	4+58 to 15+95 Y13RPB-L 36” Pipe	SE			47		47	N/A
	Outlet Channel	SE			20	20	40	N/A
	Utility	SE				59	59	N/A
10B	21+71 to 22+25-DR5-RT Roadway Fill	SE				40	40	N/A
	Channel Realignment	SE			15		15	N/A
11	22+10 to 22+55 DR5 9’ x 8’ RCBC	SF			39		39	N/A
	Inlet Channel	SF			38	29	67	N/A
	Outlet Channel	SF			29	10	39	N/A
11A	19+83 to 21+03-Y13 8’ x 7’ RCBC	SF			8		8	N/A
	Inlet Channel	SF			40	12	52	N/A
	Outlet Channel	SF			42	10	52	N/A
	Utility	SF				22	22	N/A
11B	898+13 to 899+23-L 60” Pipe	SF			34		34	N/A
	Inlet Channel	SF			20	13	33	N/A

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Site	Station	NRTR Label	Permanent Fill in Intermittent Stream (linear ft)	Temporary Fill in Intermittent Stream (linear ft)	Permanent Fill in Perennial Stream (linear ft)	Temporary Fill in Perennial Stream (linear ft)	Total Stream Impact (linear ft)	Stream Impacts Requiring Mitigation (linear ft)
	Outlet Channel	SF			25	12	37	N/A
20	14+00 to 14+95-SR9 72" Pipe	SH	72				72	N/A
	Inlet Channel	SH	21	11			32	N/A
	Outlet Channel	SH	25	13			38	N/A
Total			**458**	**148**	**1007**	**438**	**2051**	**339**

SECTION 1 Total Stream Impact for Project: 2051 linear feet

SECTION 1 (I-5877) Wetland Impacts in the Cape Fear River Basin

	Station	NRTR Label	Fill (Perm) (ac)	Fill (Temp) (ac)	Excav -ation (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Area under Bridge (ac)	Total Wetland Impact (ac)
2	795+73 to 796+99- L-LT Roadway Fill	WD	0.111		0.051				0.162
4	811+37 to 814+11 -LT-RT Roadway Fill	WE	0.046			0.048			0.094
11	22+10 to 22+55-DR5 Inlet Channel	WF			0.001	0.012			0.013
12	22+75 to 30+68- DR5 Roadway Fill	WF	0.619		0.089	0.218			0.926
14	36+49 to 37+33- SR9-LT Roadway Fill	WB	0.004		0.005	0.019			0.028
	Utility						0.026		N/A
16	17+24 to 17+95- Y24-RT Roadway Fill	WC				0.008			0.008
	Utility						0.018		N/A
20	14+00 to 14+95- SR9 72" Pipe	WA	0.080		0.010	0.041			0.131
	Total		**0.860**		**0.156**	**0.346**	**0.044**		**1.362**

SECTION 1 Total Wetland Impact for Project: 1.362 acres.

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SECTION 1 (I-5877) Open Water Impacts in the Cape Fear River Basin

Site	Station	NRTR Label	Permanent Fill in Open Waters (ac)	Temporary Fill in Open Waters (ac)	Total Fill in Open Waters (ac)
5A	11+04 to 11+40 SR7-LT Pond	PA	0.182		0.182
10C	14+54 to 15+23-SR8-LT 30" Pipe	OWD		0.003	0.003
	48" Pipe	OWD	0.003		0.003
	Outlet Channel	OWD	0.001		0.001
15	16+32 to 16+62- Y24-RT Outlet channel	OWA	0.006	0.002	0.008
17	913+16 to 919+91 -L-RT Roadway fill	OWB	0.101		0.101
18	23+67 to 24+00 Y24-RT Roadway fill	OWB	0.003	0.001	0.004
	Utility	OWB		0.001	0.001
19	15+51 to 19+93 Y13-LT 66" Pipe	OWE	0.010	0.002	0.012
	Bank Stabilization	OWE	0.004		0.004
	Channel Realignment	OWE	0.051		0.051
Total			**0.361**	**0.009**	**0.370**

SECTION 1 Total Open Water Impact for Project: 0.370 acres.

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SECTION 2 (I-5878) Stream Impacts in the Cape Fear River Basin

Site	NRTR Label	Station (Type impact)	Permanent Fill in Intermittent Stream (linear ft)	Temporary Fill in Intermitten t Stream (linear ft)	Permanent Fill in Perennial Stream (linear ft)	Temporary Fill in Perennial Stream (linear ft)	Total Stream Impact (linear ft)	Stream Impacts Requiring Mitigation (linear ft)
1	SB	21+77 to 22+34-Y14RPB Roadway Fill			140		**140**	N/A
1A	SB	15+48-NBCD Roadway Fill			157		**157**	N/A
1B	SA	21+04 to 22+11-Y14RPB Roadway fill	35				**35**	N/A
2	SD	1035+24 to 1036+18-L-LT Roadway Fill			101		**101**	N/A
5	Stoney Run	1041+00 to 1043+91 -L			208		**208**	N/A
Total			**35**		**606**		**641**	

Total Stream Impact for Project: 641 linear feet

SECTION 2 (I-5878) Wetland Impacts in the Cape Fear River Basin

Site	NRTR Label	Station (Type Impact)	Fill (ac)	Fill (Temporary) (ac)	Excavation (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Area under Bridge (ac)	Total Wetland Impact (ac)
3	WBH	1038+02 to 1045 - 46-L-RT Roadway Fill	0.564						0.564
4	WBG	1038+70 to 1045+26 -L-RT Roadway Fill	0.749						0.749
6	WB	17+58 to 19+60-SR9A Roadway Fill	0.498						0.498
Total			**1.811**						**1.811**

Total Wetland Impact for Project: 1.811 acres.

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SECTION 3 (I-5883) Stream Impacts in the Cape Fear River Basin

Site	NRTR Label	Station (Type Impact)	Permanent Fill in Intermittent Stream (linear ft)	Temporary Fill in Intermittent Stream (linear ft)	Permanent Fill in Perennial Stream (linear ft)	Temporary Fill in Perennial Stream (linear ft)	Total Stream Impact (linear ft)	Stream Impacts Requiring Mitigation (linear ft)
1	SB	1075+84 to 1077+41-L-LT Roadway Fill			65		65	N/A
2	SC	44+86 to 48+09-SR13 Roadway Fill	329				329	N/A
3	SA	22+04 to 27+47-Y16RPC Roadway Fill			582		582	582
5	SG	32+96 to 33+11-SR15-RT Roadway Fill			12		12	N/A
6	SG	34+52 to 35+60-SR15RT Roadway Fill			111		111	N/A
7	SH	37+43 to 37+61-SR15-RT Roadway Fill			29		29	N/A
8	SK	85+45 to 88+88-SR15-RT Roadway Fill			38		38	N/A
10	SI	69+06 to 69+34-SR16 Roadway Fill	106				106	N/A
12	SI	10+37 to 12+14-Y17RPA-RT Roadway Fill			100		100	N/A
13	SE	53+57 to 54+92-SR13 Roadway Fill	167				167	N/A
Total			**602**		**937**		**1539**	**582**

Total Stream Impact for Project: 1539 linear feet

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SECTION 3 (I-5883) Wetland Impacts in the Cape Fear River Basin

Site	NRTR Label	Station (Type Impact)	Fill (ac)	Fill (temporary) (ac)	Excava -tion (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Area under Bridge (ac)	Total Wetland Impact (ac)
1	WB	1075+84 to 1077+41-L-LT Roadway Fill	0.045						0.045
4	WA	24+21 to 24+83-Y16RPC-LT Roadway Fill	0.017						0.017
8	WK	85+45 to 88+88-SR15-RT Roadway Fill	0.223						0.223
9	WG	52+29 to 55+07-SR16-LT Roadway Fill	0.263						0.263
11	WE	17+23 to 19+17-Y17RPC-RT Roadway Fill	0.087						0.087
12	WI	10+37 to 12+14-Y17RPA-RT Roadway Fill	0.094						0.094
14	WJ	12+67 to 13+62-Y26-RT Roadway Fill	0.051						0.051
15	WK	12+67 to 13+62-Y26-LT Roadway Fill	0.126						0.126
16	WD	24+28 to 24+55-Y17RPB-LT Roadway Fill	0.009						0.009
Total			**0.915**						**0.915**

Total Wetland Impact for Project: 0.915 acres.

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SECTION 4 (I-5986B) Stream Impacts in the Cape Fear and Neuse River Basins

Site	NRTR Label	Station (Type Impact)	Permanent Fill in Intermittent Stream (linear ft)	Temporary Fill in Intermittent Stream (linear ft)	Permanent Fill in Perennial Stream (linear ft)	Temporary Fill in Perennial Stream (linear ft)	Total Stream Impact (linear ft)	Stream Impacts Requiring Mitigation (linear ft)
2	Mingo Swamp	1252+25 to 1263+87-L-RT Roadway Fill			186		186	N/A
4	SM	1284+24 to 1285+34-L-RT Roadway Fill			48		48	N/A
5*	Hannah Creek	1316+85 to 1317+00-L-RT Roadway Fill	64				64	N/A
6*	SO	1344+69 to 1346+45-L-LT Roadway Fill			192		192	192
6A*	SO	1347+18 to 1349+60-L-RT Roadway Fill			174		174	174
6B*	SO	16+70 to 17+70-Y18RPD-LT Roadway Fill			28		28	28
8*	Driving Branch	1387+79 to 1391+45-L0LT Roadway Fill			69		69	N/A
11*	SQ	1387+71 to 1380+96-L-LT Roadway Fill			162		162	N/A
Total			**64**		**859**		**923**	**394**

SECTION 4 Total Stream Impact for Project: 923 linear feet (Cape Fear 234; Neuse 689)

***Indicates Neuse River Basin**

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SECTION 4 (I-5986B) Wetland Impacts in the Cape Fear and Neuse River Basins

Site	NRTR Label	Station (Type Impact)	Fill (ac)	Fill (temporary) (ac)	Excava -tion (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Area under Bridge (ac)	Total Wetland Impact (ac)
1	WBK	1252+48 to 1265+96-L-LT Roadway Fill	1.501						1.501
3	WBJ	1260+08 to 1260+65-L Roadway Fill	0.778						0.778
4	WBL	1284+24 to 1285+34-L-RT Roadway Fill	0.010						0.010
7*	WBP	1375+48 to 1376+00-L-RT Roadway Fill	0.003						0.003
9*	WBS	1387+79 to 1391+45-L0LT Roadway Fill	0.096						0.096
10*	WBR	1391+47 to 1392+78-L-RT Roadway Fill	0.056						0.056
Total			2.444						2.444

SECTION 4 Total Wetland Impact for Project: 2.444 acres. (Cape Fear 2.289; Neuse 0.155)

*Indicates Neuse River Basin

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SECTION 4 (I-5986B) Neuse Riparian Buffer Impacts

Site	Station) (Type Impact)	Zone 1 Impact (sq ft)	*minus* Wetlands in Zone 1 (sq ft)	= Zone 1 Buffers (not wetlands) (sq ft)	Zone 1 Buffer Mitigation Required (using 3:1 ratio)		Zone 2 Impact (sq ft)	*minus* Wetlands in Zone 2 (sq ft)	= Zone 2 Buffers (not wetlands) (sq ft)	Zone 2 Buffer Mitigation Required (using 1.5:1 ratio)
5**	1316+27 to 1317+54-L Roadway Fill	4,419	N/A	4,419	N/A		5,255	N/A	5,255	*N/A
6	1344+24 to 1346+94-L-LT Roadway Fill	14,343	N/A	14,343	43,029		12,530	N/A	12,530	18,795
6A	1347+68 to 1350+09-L-RT Roadway Fill	13,546	N/A	13,546	40,638		10,120	N/A	10,120	15,180
6B	16+61 to 17+96-Y18RPD-LT Roadway Fill	3,684	1,638	2,046	11,052		2,921	899	2,022	4381.5
7**	1375+82 to 1376+60-L-RT Roadway Fill	N/A			N/A		688	N/A	688	*N/A
8**	1389+73 to 1391+85-L Roadway Fill	6,599	4,428	2,171*	*N/A		3,531	1,302	2,229	*N/A
11**	1387+21 to 1389+73-L-LT Roadway Fill	8,639	77	8,562	*N/A		3,995	N/A	3,995	*N/A
Total		**51,230**			**94,719**		**39,040**			**38,356.5**

Total Buffer Impacts for Project: Zone 1 94,719 square feet; Zone 2 38,356.5 square feet.

* n/a = Total for Site is less than 1/3 acre and 150 linear feet of impact, no mitigation required

** Allowable Buffer Impacts

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(I-5986 A) Stream Impacts in the Cape Fear River Basin

Site	NRTR Label	Station (Type Impact)	Permanent Fill in Intermittent Stream (linear ft)	Temporary Fill in Intermittent Stream (linear ft)	Permanent Fill in Perennial Stream (linear ft)	Temporary Fill in Perennial Stream (linear ft)	Total Stream Impact (linear ft)	Stream Impacts Requiring Mitigation (linear ft)
3	SB	94+37 to 100+20-L-RT Roadway Fill	38				38	N/A
10	Baker Swamp	198+56 to 203+79-L-RT Roadway Fill			70		70	N/A
11	Baker Swamp	11+89 to 23+93-Y5RPC-RT Roadway Fill			63		63	N/A
13	SC	251+91 to 253+32-L Roadway Fill			116		116	N/A
15	SD	301+32 to 304+90-L Roadway Fill			138		138	N/A
18	SE	354+73 to 354+90-L Roadway Fill	130				130	N/A
23	SF	423+14 to 423+31-L-LT Roadway Fill			40		40	N/A
27	SG	539+19 to 540+76-L Roadway Fill			114		114	N/A
29	SH	574+35 to 574+56-L Roadway Fill			106		106	N/A
33	SI	625+60 to 626+52-L Roadway Fill			101		101	N/A
36	SJ	642+58 to 643+31-L Roadway Fill	67				67	N/A
38	Black River	665+70 to 684+31-L Roadway Fill			60		60	N/A
42	SK	761+05-L Roadway Fill	86				86	N/A
Total			**321**		**808**		**1129**	

Total Stream Impact for Project: 1129 linear feet

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(I-5986 A) Wetland Impacts in the Cape Fear River Basin

Site	NRTR Label	Station (Type Impact)	Fill (ac)	Fill (temporary) (ac)	Excava-tion (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Area under Bridge (ac)	Total Wetland Impact (ac)
1	WE	90+87 to 92+10-L-RT Roadway Fill	0.024						0.024
2	WH	91+98 to 110+06-L-LT Roadway Fill	0.233						0.233
3	WF	94+37 to 100+20-L-RT Roadway Fill	0.156						0.156
4	WI	108+26 to 114+34-L-LT Roadway Fill	0.076						0.076
5	WJ	118+98 to 133+53-L-LT Roadway Fill	0.536						0.536
6	WK	122+19 to 124+94-L-LT Roadway Fill	0.073						0.073
7	WL	121+32 to 127+68-L-RT Roadway Fill	0.648						0.648
8	WR	186+19 to 193+09-L-LT Roadway Fill	0.170				0.165		0.170
9	WQ	199+16 to 202+54-L-LT Roadway Fill	0.183						0.183
10	WP	198+56 to 203+79-L-RT Roadway Fill	0.371						0.371
11	WO	11+89 to 23+93-Y5RPC-RT Roadway Fill	1.352						1.352
12	WX	213+68 to 222+17-L-RT Roadway Fill	1.659						1.659
14	WZ	300+64 to 306+99-L-LT Roadway Fill	0.133						0.133
16	WY	302+03 to 307+02-L-RT Roadway Fill	0.178						0.178
17	WAA	351+49 to 351+95-L-RT Roadway Fill	0.005						0.005
19	WAB	354+90 to 357+78-L-RT Roadway Fill	0.024						0.024
20	WAF	384+05 to 292+99-L-LT Roadway Fill	0.284						0.284

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Site	NRTR Label	Station (Type Impact)	Fill (ac)	Fill (temporary) (ac)	Excava-tion (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Area under Bridge (ac)	Total Wetland Impact (ac)
21	WAH	405+58 to 405+78-L-LT Roadway Fill	0.005						0.005
22	WAK	422+17 to 437+17-L-LT Roadway Fill	0.672						0.672
24	WAI	418+39 to 437+17-L-RT Roadway Fill	0.761						0.761
25	WAM	508+34 to 509+39-L-LT Roadway Fill	0.087						0.087
26	WAN	522+79 to 528+98-L-LT Roadway Fill	0.364						0.364
28	WAS	573+52 to 575+47-L Roadway Fill	0.035						0.035
30	WAT	600+13 to 606+75-L-LT Roadway Fill	0.305						0.305
31	WAU	618+08 to 618+41-L-RT Roadway Fill	0.004						0.004
32	WAW	622+48 to 626+94-L-LT Roadway Fill	0.480						0.480
34	WAV	625+67 to 627+43-L-RT Roadway Fill	0.139						0.139
35	WAX	640+37 to 642+41-L-RT Roadway Fill	0.021						0.021
37	WAY	660+09 to 660+50-L-RT Roadway Fill	0.003						0.003
38	WAZ	665+70 to 684+31-L Roadway Fill	0.516						0.516
	WAZ	Bridge					0.080		N/A
38A	WAZ	690+67 to 694+59-L Roadway Fill	0.129						0.129
39	WBA	725+12 to 725+92-L-LT Roadway Fill	0.012						0.012
40	WBB	729+82 to 731+51-L-LT Roadway Fill	0.054						0.054
41	WBC	735+67 to 739+95-L-LT Roadway Fill	0.194						0.194

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Site	NRTR Label	Station (Type Impact)	Fill (ac)	Fill (temporary) (ac)	Excava-tion (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Area under Bridge (ac)	Total Wetland Impact (ac)
43	WU	30+59 to 33+43-Y5LPDA-RT Roadway Fill	0.172						0.172
Total			**10.058**				**0.245**		**10.058**

Total Wetland Impact for Project: 10.058 acres.

The application provides adequate assurance that the discharge of fill material into the waters of the Cape Fear and Neuse River Basins in conjunction with the proposed development will not result in a violation of applicable Water Quality Standards and discharge guidelines. Therefore, the State of North Carolina certifies that this activity will not violate the applicable portions of Sections 301, 302, 303, 306, 307 of PL 92-500 and PL 95-217 if conducted in accordance with the application and conditions hereinafter set forth.

This approval is only valid for the purpose and design that you submitted in your application dated received February 19, 2019 and subsequent information received on May 3rd and 23rd, 2019. Should your project change, you are required to 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 any additional wetland impacts, or stream impacts, for this project (now or in the future) exceed one acre or 300 linear feet, respectively, additional compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7). Additional buffer impacts may require compensatory mitigation as described in 15A NCAC 2B .0233. For this approval to remain valid, you are required to comply with all the conditions listed below. In addition, you should obtain all other federal, state or local permits before proceeding with your project including (but not limited to) Sediment and Erosion control, Coastal Stormwater, Non-discharge and Water Supply watershed regulations. This Certification shall expire on the same day as the expiration date of the corresponding Corps of Engineers Permit.

Conditions of Certification:

Project Specific Conditions

1. The NCDOT Division Environmental Officer or Environmental Assistant will conduct a pre-construction meeting with all appropriate staff to ensure that the project supervisor and essential staff understand the potential issues with wetlands, streams and pipe alignments for the permitted sites. NCDWR staff shall be invited to the pre-construction meeting. [15A NCAC 02H.0506(b)(2) and (b)(3)

2. At locations where ponds will be drained, proper measures will be taken to drain the pond with limited impact to upstream and downstream channel stability as well as to native aquatic species. Proper measures will be taken to avoid sediment release and/or sediment accumulation downstream as a result of pond draining. If typical pond draining techniques will create significant disturbance to native aquatic species, additional measures such as collection and relocation may be necessary to prevent a significant fish kill. NCDOT shall consult with NC Wildlife Resources staff to determine if there are any sensitive species, and the most appropriate measures to limit impacts to these species. The permittee shall observe any natural channel re-establishment, or utilize natural channel construction techniques, to ensure that the jurisdictional stream channel above and below the drained pond remain stable, and that no additional impacts occur within the natural stream channel as a result of draining the pond. [15A NCAC 2H.0506(b)(3)

3. As a condition of this 401 Water Quality Certification, any bridge demolition and construction must be accomplished in strict compliance with the most recent version of NCDOT's Best Management Practices

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for Construction and Maintenance Activities. [15A NCAC 02H .0507(d)(2) and 15A NCAC 02H .0506(b)(5)]

4. 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. To meet the requirements of NCDOT's NPDES permit NCS0000250, please refer to the most recent version of the *North Carolina Department of Transportation Stormwater Best Management Practices Toolbox* manual for approved measures. [15A NCAC 02H .0507(d)(2) and 15A NCAC 02H .0506(b)(5)]

5. Bridge piles and bents shall be constructed using driven piles (hammer or vibratory) or drilled shaft construction methods. More specifically, jetting or other methods of pile driving are prohibited without prior written approval from the NCDWR first. [15A NCAC 02H.0506(b)(2)]

6. No drill slurry or water that has been in contact with uncured concrete shall be allowed to enter surface waters. This water shall be captured, treated, and disposed of properly. [15A NCAC 02H .0506(b)(3)

7. A turbidity curtain will be installed in any stream if driving or drilling activities occur within the stream channel, on the stream bank, or within 5 feet of the top of bank. This condition can be waived with prior approval from the NCDWR. [15A NCAC 02H .0506(b)(3)

8. All bridge construction shall be performed from the existing bridge, temporary work bridges, temporary causeways, or floating or sunken barges. If work conditions require barges, they shall be floated into position and then sunk. The barges shall not be sunk and then dragged into position. Under no circumstances should barges be dragged along the bottom of the surface water. [15A NCAC 02H

9. 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)]

10. 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)]

11. Pipes and culverts used exclusively to maintain equilibrium in wetlands, where aquatic life passage is not a concern, shall not be buried. These pipes shall be installed at natural ground elevation. [15A NCAC 02H.0506(b)(2) and (b)(3)]
12. Turbidity curtains shall be used to isolate all work areas from streams, including pile or casement installation, placement of riprap, excavation or filling. Strict adherence to the Construction and Maintenance Best Management Practices will be required. [15A NCAC 02H .0506 (b)(3) and (c)(3)]

13. Erosion control matting in riparian areas shall not contain a nylon mesh grid which can impinge and entrap small animals. Matting should be secured in place by staples, stakes, or wherever possible live stakes of native trees. Riparian areas are defined as a distance 25 feet from top of stream bank. [15A NCAC 02B.0224, .0225]

14. NCDOT shall be in compliance with the NCS00250 issued to the NCDOT, including the applicable requirements of the NCG01000.

Mitigation

15. Compensatory mitigation for 1315 linear feet of impact to streams (921 in the Cape Fear Basin and 394 in the Neuse Basin) and 16.590 acres of wetlands (16.435 acres in the Cape Fear Basin and 0.155 acres in the Neuse Basin) 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),

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and that the DMS has agreed to implement the mitigation for the project. The DMS has indicated in letters dated June 5, 2019 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.

16. Compensatory mitigation for impacts to 94,719 square feet of protected riparian buffers in Zone 1 and 38,356.5 square feet of protected riparian buffers in Zone 2 shall be required. We understand that you have chosen to perform compensatory mitigation for impacts to protected buffers through use of the North Carolina Division of Mitigation Services (DMS) (formerly NCEEP). Mitigation for unavoidable impacts to the Neuse Riparian Buffers shall be provided in the Neuse River Basin and done in accordance with 15A NCAC .02B .0295**.** The DMS has indicated in a letter dated June 5, 2019 that they will assume responsibility for satisfying the compensatory mitigation requirements for the above-referenced project, in accordance with DMS's Mitigation Banking Instrument signed June 14, 2016.

General Conditions

17. 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)]

18. 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]

19. 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)]

20. The dimension, pattern and profile of the stream above and below the crossings shall not be modified. Disturbed floodplains and streams shall be restored to natural geomorphic conditions. [15A NCAC 02H.0506(b)(2)]

21. 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)]

22. 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)]

23. 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)]

24. 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)]

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25. 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)]

26. 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)]

27. Discharging hydroseed mixtures and washing out hydroseeders and other equipment in or adjacent to surface waters is prohibited. [15A NCAC 02H.0506(b)(3)]

28. When applicable, all construction activities shall be performed and maintained in full compliance with G.S. Chapter 113A Article 4 (Sediment and Pollution Control Act of 1973). Regardless of applicability of the Sediment and Pollution Control Act, all projects shall incorporate appropriate Best Management Practices for the control of sediment and erosion so that no violations of state water quality standards, statutes, or rules occur. [15A NCAC 02H .0506{b)(3) and (c)(3) and 15A NCAC 02B .0200]

29. Design, installation, operation, and maintenance of all sediment and erosion control measures shall be equal to or exceed the requirements specified in the most recent version of the *North Carolina Sediment and Erosion Control Manual,* or for linear transportation projects, the *NCDOT Sediment and Erosion Control Manual.*

30. All devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) sites, including contractor-owned or leased borrow pits associated with the project. Sufficient materials required for stabilization and/or repair of erosion control measures and stormwater routing and treatment shall be on site at all times.

31. For borrow pit sites, the erosion and sediment control measures shall be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Surface Mining Manual.* Reclamation measures and implementation shall comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act and the Mining Act of 1971.

32. If the project occurs in waters or watersheds classified as Primary Nursery Areas (PNAs), SA, WS-1, WS-11, High Quality Waters (HQW), or Outstanding Resource Waters (ORW), then the sedimentation and erosion control designs shall comply with the requirements set forth in 15A NCAC 04B .0124, *Design Standards in Sensitive Watershed*. [15A NCAC 02H.0506(b)(3) and (c)(3); GC 4135]

33. All sediment and erosion control devices shall be removed and the natural grade restored within two (2) months of the date that the NC DOT Roadside, Division of Energy, Mining and Land Resources (DEMLR) or locally delegated program has released the specific area within the project. [15A NCAC 02H.0506(b)(3) and (c)(3)]

34. 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]

35. 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)]

36. 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)]

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37. The outside buffer, wetland or water boundary located within the construction corridor approved by this authorization, including all non-commercial borrow and waste sites associated with the project, 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]

38. 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.

39. 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)]

40. 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" (or electronic form) to notify the NCDWR when all work included in the 401 Certification has been completed. [15A NCAC 02H.0502(f)]

41. Native riparian vegetation 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.0506(b)(2)]

42. 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)

43. 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.

44. Sediment and erosion control measures shall not be placed in wetlands or surface waters, or within 5 feet of the top of bank, without prior approval from DWR. [15A NCAC 02H.0506(b)(3) and (c)(3)]

45. Pursuant to 15A NCAC 2B .0233(6), sediment and erosion control devices shall not be placed in Zone 1 of any Neuse Buffer without prior approval by the NCDWR. At this time, the NCDWR has approved no sediment and erosion control devices in Zone 1, outside of the approved project impacts, anywhere on this project. Moreover, sediment and erosion control devices shall be allowed in Zone 2 of the buffers provided that Zone 1 is not compromised and that discharge is released as diffuse flow.

46. All stormwater runoff shall be directed as sheetflow through stream buffers at non-erosive velocities, unless otherwise approved by this certification. [15ANCAC 02B.0233(5)(a)]

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47. Due to the possibility that compaction and/or other site alterations might prevent the temporary wetland impact areas from re-attaining jurisdictional wetland status; the permittee shall provide an updates on the wetland areas temporarily impacted as the impacts are removed. This update shall be conducted through two growing seasons after completion of the work at the sites and shall consist of photographs and a brief report on the progress of the areas in re-attaining wetland jurisdictional status. Upon submission of these updates to the NCDWR, the permittee shall schedule an agency field meeting with the NCDWR to determine if the wetland areas temporarily impacted by this project have re-attained jurisdictional wetland status. If the wetland areas temporarily impacted by this project have not re-attained jurisdictional wetland status, the NCDWR shall determine if compensatory wetland mitigation is be required.

Violations of any condition herein set forth may result in revocation of this Certification and may result in criminal and/or civil penalties. This Certification shall become null and void unless the above conditions are made conditions of the Federal 404 and/or Coastal Area Management Act Permit. This Certification shall expire upon the expiration of the 404 or CAMA permit.

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. Bill F. Lane, General Counsel
Department of Environmental Quality
1601 Mail Service Center
Raleigh, NC 27699

This the 8th day of July 2019

DIVISION OF WATER RESOURCES

DocuSigned by:
Amy Chapman
9C9886312DCD474...
Linda Culpepper, Director

WQC No. 004187

DocuSign Envelope ID: DB3E7D64-7FAA-464D-9A7C-78528934CF46

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. _____

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Date _____

Submitted 9/2/2020

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.08; Released April 2018)

General Project Information

WBS Element:	47532.3.2	**TIP Number:**	I-5986A	**Project Type:** Roadway Widening	**Date:** 8/6/2020
NCDOT Contact:	Paul Atkinson, PE	**Contractor / Designer:**	Matthew Cook, PE		
Address:	1202 Birch Ridge Drive Raleigh, NC 27610	**Address:**	8601 Six Forks Road Forum 1, Suite 700 Raleigh, NC 27615		
Phone:	(919)707-6707	**Phone:**	(919)653-7350		
Email:	patkinson@ncdot.gov	**Email:**	mcook@rkk.com		
City/Town:	Raleigh	**County(ies):**	Cumberland		
River Basin(s):	Cape Fear	**CAMA County?**	No		
Wetlands within Project Limits?	Yes				

Project Description

Project Length (lin. miles or feet):	15.42 MI.	**Surrounding Land Use:**	Farmland, Woods, Little Residential

	Proposed Project	Existing Site
Project Built-Upon Area (ac.)	488.5 ac.	309.5 ac.
Typical Cross Section Description:	A typical cross-section is 174 foot-wide will be used; which will include ten 12-foot travel lanes, and two varying width traveling lanes from 0-foot to 12-foot. It also contains two 14-foot exterior shoulder sections where 12-feet is paved, and two 13-foot paved interior shoulder sections.	The existing typical section is 160-feet wide with four 12-foot lanes, exterior 10.5-foot paved shoulders, 3.5-foot paved interior shoulders, and 84-foot wide paved median.
Annual Avg Daily Traffic (veh/hr/day):	Design/Future: 73,800 Year: 2040	Existing: 56,700 Year: 2018

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

I-5986A is a roadway widening project of I-95 from the existing four lanes to the proposed ten lanes in Cumberland County. The expansion is 15.416 miles long and begins from Murphy Road (Exist 55) and ends south of Bud Hawkins Road- Exit (70). Wetlands, perennial streams, and intermittent streams are found within the limits of the project area. The jurisdictional streams within the study area have no impairments and do not provide habitat for any threatened or endangered aquatic species.

Design Mitigations for wetlands and streams include:

1. Steepening of roadway fill slopes within jurisdictional areas
2. Stormwater was designed to avoid direct discharge into jurisdictional features to the maximum extent practicable.
3. Stormwater design velocities entering jurisdictional features have been mitigated to be non-erosive (less than 2 fps).
4. Open shoulder sections were maximized to promote sheet flow from the roadway
5. Diffuse flow provided at outlets that do not have a well defined outfall.
6. RCBCs built offline. This provides faster construction in the dry, less time in / around the jurisdictional features, and a safer work area for the traveling public and construction crews.

Waterbody Information

Surface Water Body (1):	UT to Reese Creek	**NCDWR Stream Index No.:**	18-28-2
NCDWR Surface Water Classification for Water Body	**Primary Classification:**	Class C	
	Supplemental Classification:	None	
Other Stream Classification:	None		
Impairments:	None		
Aquatic T&E Species?	No	Comments:	
NRTR Stream ID:	No NRTR Name	**Buffer Rules in Effect:**	N/A

Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)	
(If yes, provide justification in the General Project Narrative)					

Submitted 9/2/2020

North Carolina Department of Transportation

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FOR NCDOT PROJECTS

(Version 2.08; Released April 2018)

Additional Waterbody Information

Surface Water Body (2):	UT to Reese Creek		**NCDWR Stream Index No.:**	18-28-2		
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C			
		Supplemental Classification:	None			
Other Stream Classification:	None					
Impairments:	None					
Aquatic T&E Species?	No	Comments:				
NRTR Stream ID:	No NRTR Name			**Buffer Rules in Effect:**	N/A	
Project Includes Bridge Spanning Water Body?		**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A	
Deck Drains Discharge Over Water Body?		(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):	Reese Creek		**NCDWR Stream Index No.:**	18-28-2		
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C			
		Supplemental Classification:	None			
Other Stream Classification:	None					
Impairments:	None					
Aquatic T&E Species?	No	Comments:				
NRTR Stream ID:	Reese Creek			**Buffer Rules in Effect:**	N/A	
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A	
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)		
(If yes, provide justification in the General Project Narrative)						

Surface Water Body (4):	UT to Reese Creek		**NCDWR Stream Index No.:**	18-28-2		
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C			
		Supplemental Classification:	None			
Other Stream Classification:	None					
Impairments:	None					
Aquatic T&E Species?	No	Comments:				
NRTR Stream ID:	SA			**Buffer Rules in Effect:**		
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):	UT to Baker Swamp		**NCDWR Stream Index No.:**	18-28-2-2		
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C			
		Supplemental Classification:	None			
Other Stream Classification:	None					
Impairments:	None					
Aquatic T&E Species?	No	Comments:				
NRTR Stream ID:	SB			**Buffer Rules in Effect:**	N/A	
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A	
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)		
(If yes, provide justification in the General Project Narrative)						

Submitted 9/2/2020

North Carolina Department of Transportation

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(Version 2.08; Released April 2018)

WBS Element:	47532.3.2	TIP No.:	I-5986A	County(ies):	Cumberland	Page	3	of	5

Additional Waterbody Information

Surface Water Body (6):	Baker Swamp		**NCDWR Stream Index No.:**	18-28-2-2			
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C				
		Supplemental Classification:	None				
Other Stream Classification:	None						
Impairments:	None						
Aquatic T&E Species?	No	Comments:					
NRTR Stream ID:	Baker Swamp			**Buffer Rules in Effect:**	N/A		
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A		
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)			
(If yes, provide justification in the General Project Narrative)							

Surface Water Body (7):	UT to Cape Fear River		**NCDWR Stream Index No.:**	18-(1)			
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Water Supply V (WS-V)				
		Supplemental Classification:	None				
Other Stream Classification:	None						
Impairments:	None						
Aquatic T&E Species?	No	Comments:					
NRTR Stream ID:	SC			**Buffer Rules in Effect:**	N/A		
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A		
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)			
(If yes, provide justification in the General Project Narrative)							

Surface Water Body (8):	UT to Cape Fear River		**NCDWR Stream Index No.:**	18-(1)			
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Water Supply V (WS-V)				
		Supplemental Classification:	None				
Other Stream Classification:	None						
Impairments:	None						
Aquatic T&E Species?	No	Comments:					
NRTR Stream ID:	SD			**Buffer Rules in Effect:**	N/A		
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A		
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)			
(If yes, provide justification in the General Project Narrative)							

Surface Water Body (9):	UT to Cape Fear River		**NCDWR Stream Index No.:**	18-(1)			
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Water Supply V (WS-V)				
		Supplemental Classification:	None				
Other Stream Classification:	None						
Impairments:	None						
Aquatic T&E Species?	No	Comments:					
NRTR Stream ID:	SE			**Buffer Rules in Effect:**	N/A		
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A		
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)			
(If yes, provide justification in the General Project Narrative)							

Submitted 9/2/2020

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WBS Element:	47532.3.2	TIP No.:	I-5986A	County(ies):	Cumberland	Page	4	of	5

Additional Waterbody Information

Surface Water Body (10):	UT to Cape Fear River		**NCDWR Stream Index No.:**	18-(1)			
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Water Supply V (WS-V)				
		Supplemental Classification:	None				
Other Stream Classification:	None						
Impairments:	None						
Aquatic T&E Species?	No	Comments:					
NRTR Stream ID:	SF			**Buffer Rules in Effect:**	N/A		
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A		
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)			
(If yes, provide justification in the General Project Narrative)							

Surface Water Body (11):	UT to Cape Fear River		**NCDWR Stream Index No.:**	18-(1)			
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Water Supply V (WS-V)				
		Supplemental Classification:	None				
Other Stream Classification:	None						
Impairments:	None						
Aquatic T&E Species?	No	Comments:					
NRTR Stream ID:	SG			**Buffer Rules in Effect:**	N/A		
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A		
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)			
(If yes, provide justification in the General Project Narrative)							

Surface Water Body (12):	UT to Cape Fear River		**NCDWR Stream Index No.:**	18-(1)			
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Water Supply V (WS-V)				
		Supplemental Classification:	None				
Other Stream Classification:	None						
Impairments:	None						
Aquatic T&E Species?	No	Comments:					
NRTR Stream ID:	SH			**Buffer Rules in Effect:**	N/A		
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A		
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)			
(If yes, provide justification in the General Project Narrative)							

Surface Water Body (13):	UT to Black River		**NCDWR Stream Index No.:**	18-68-12-1			
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C				
		Supplemental Classification:	Swamp Waters (Sw)				
Other Stream Classification:	None						
Impairments:	None						
Aquatic T&E Species?	No	Comments:					
NRTR Stream ID:	SI			**Buffer Rules in Effect:**	N/A		
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A		
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)			
(If yes, provide justification in the General Project Narrative)							

Submitted 9/2/2020

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.08; Released April 2018)

WBS Element:	47532.3.2	TIP No.:	I-5986A	County(ies):	Cumberland	Page	5	of	5

Additional Waterbody Information

Surface Water Body (14):	UT to Black River		**NCDWR Stream Index No.:**	18-68-12-1			
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C				
		Supplemental Classification:	Swamp Waters (Sw)				
Other Stream Classification:	None						
Impairments:	None						
Aquatic T&E Species?	No	Comments:					
NRTR Stream ID:	SJ			**Buffer Rules in Effect:**	N/A		
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A		
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)			
(If yes, provide justification in the General Project Narrative)							

Surface Water Body (15):	Black River		**NCDWR Stream Index No.:**	18-68-12-1			
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C				
		Supplemental Classification:	Swamp Waters (Sw)				
Other Stream Classification:	None						
Impairments:	None						
Aquatic T&E Species?	No	Comments:					
NRTR Stream ID:	Black River			**Buffer Rules in Effect:**	N/A		
Project Includes Bridge Spanning Water Body?	Yes	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A		
Deck Drains Discharge Over Water Body?	No	(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)							

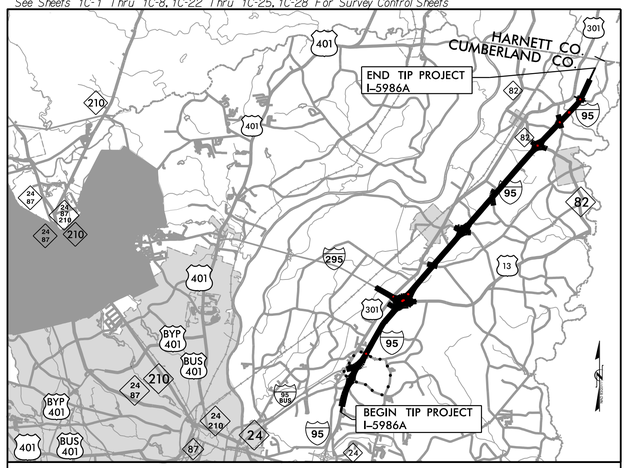
Surface Water Body (16):	UT to Black River		**NCDWR Stream Index No.:**	18-68-12-1			
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C				
		Supplemental Classification:	Swamp Waters (Sw)				
Other Stream Classification:	None						
Impairments:	None						
Aquatic T&E Species?	No	Comments:					
NRTR Stream ID:	SK			**Buffer Rules in Effect:**	N/A		
Project Includes Bridge Spanning Water Body?	No	**Deck Drains Discharge Over Buffer?**	N/A	**Dissipator Pads Provided in Buffer?**	N/A		
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)			
(If yes, provide justification in the General Project Narrative)							

Submitted 9/2/2020

09/08/99

CONTRACT: C204283 TIP PROJECT: I-5986A

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols
See Sheets 1C-1 Thru 1C-8, 1C-22 Thru 1C-25, 1C-28 For Survey Control Sheets



VICINITY MAP (NTS) OFFSITE DETOUR

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CUMBERLAND COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5986A	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
47532.2.2	NHP-0095(057)	R/W
47532.3.2	NHP-0095(057)	PE, UTIL., CONST.

LOCATION: I-95 WIDENING FROM SOUTH OF SR 1832 (MURPHY ROAD- EXIT 55) TO SOUTH OF SR 1811 (BUD HAWKINS ROAD-EXIT 70)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, LIGHTING, SIGNING, ITS, CULVERTS & STRUCTURES

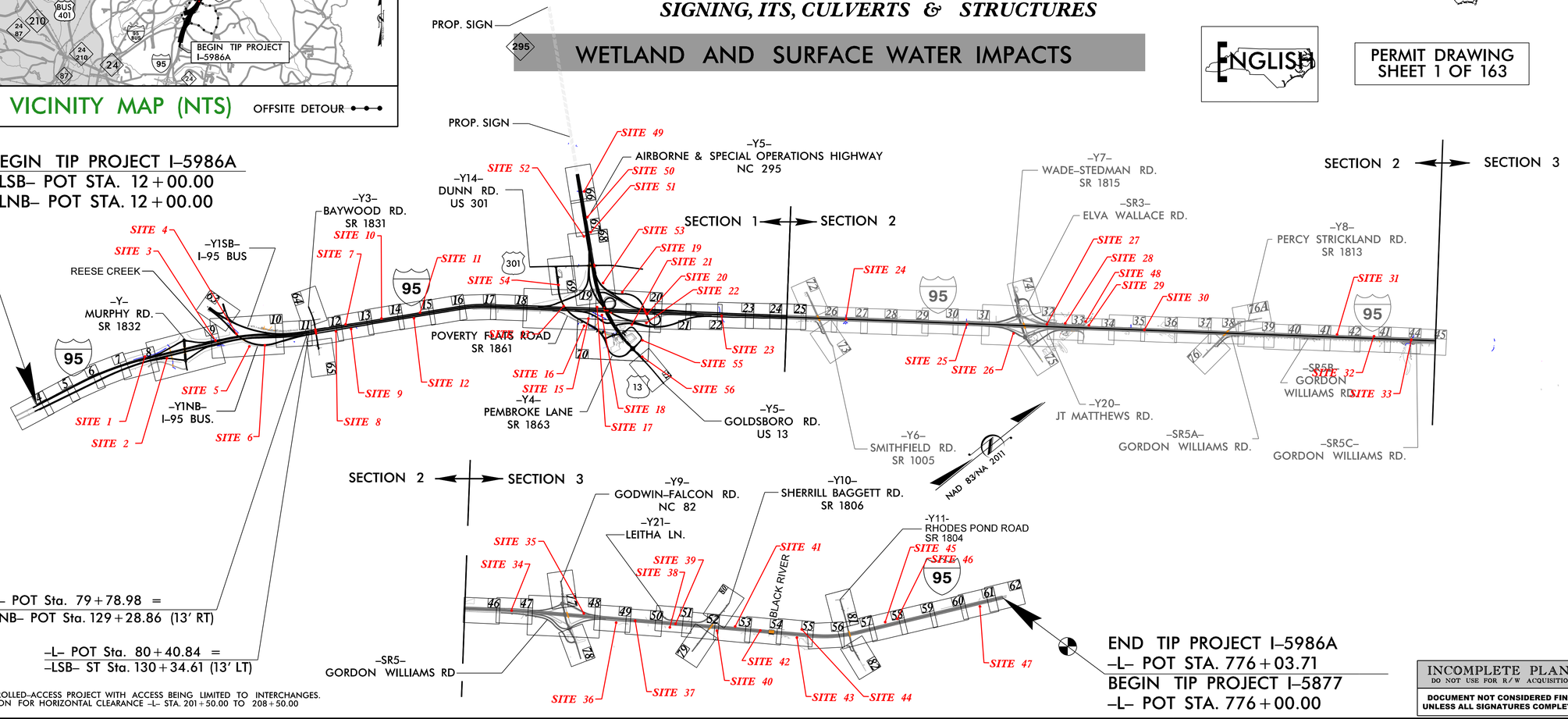
PROP. SIGN 295

WETLAND AND SURFACE WATER IMPACTS

ENGLISH

PERMIT DRAWING SHEET 1 OF 163

BEGIN TIP PROJECT I-5986A
-LSB- POT STA. 12+00.00
-LNB- POT STA. 12+00.00



-L- POT Sta. 79+78.98 =
-LNB- POT Sta. 129+28.86 (13' RT)

-L- POT Sta. 80+40.84 =
-LSB- ST Sta. 130+34.61 (13' LT)

END TIP PROJECT I-5986A
-L- POT STA. 776+03.71
BEGIN TIP PROJECT I-5877
-L- POT STA. 776+00.00

NOTES
1. THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.
2. DESIGN EXCEPTION FOR HORIZONTAL CLEARANCE -L- STA. 201+50.00 TO 208+50.00

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

PLANS: 50 25 0 50 100
PROFILE (HORIZONTAL): 50 25 0 50 100
PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

ADT 2018 = 56,700
ADT 2040 = 73,800
K = 55%
D = 7%
T = 18% *
V = 75 MPH

FUNC CLASS: INTERSTATE
* (TTST 13% + DUALS 5%)

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT I-5986A.....15.368 MILES
LENGTH STRUCTURE TIP PROJECT I-5986A.....0.048 MILES
TOTAL LENGTH TIP PROJECT I-5986A.....15.416 MILES

NCDOT CONTACT

Michael Penney, PE
PROJECT ENGINEER - DESIGN-BUILD UNIT

PLANS PREPARED BY:

RK&K
RUMMEL, KLEPPER & KAHL, LLP
8601 SIX FORKS ROAD, FORUM 1, SUITE 700
RALEIGH, NORTH CAROLINA 27615-3960
NC LICENSE NO. F-0112

S.T. WOOTEN

FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2018 STANDARD SPECIFICATIONS

LETTING DATE:
AUGUST 20, 2019

Michael T. Merritt, PE
PROJECT ENGINEER

Anthony A. Houser, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

8/20/2020
R:\Hydraulics\PERMITS_Environmental\Drawings\4B\I-5986A_Hyd_TSH.dgn
Fkeys

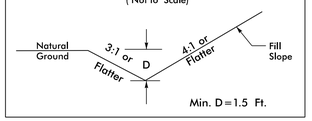
Submitted 9/2/2020

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	2D-1
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

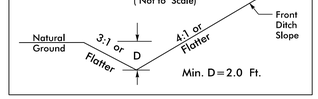
PERMIT DRAWING SHEET 2 OF 163

DETAIL A
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



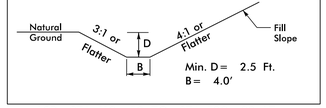
–Y1NB– STA. 44+50 TO STA. 47+00 RT
–L– STA. 210+50 TO STA. 212+25 RT
–Y5RPD– STA. 10+90 TO STA. 12+00 LT
–LSB– STA. 19+50 TO STA. 31+00 LT
–LSB– STA. 61+50 TO STA. 62+75 RT
–Y4– STA. 50+00 TO STA. 55+00 LT
–Y4– STA. 61+00 TO STA. 65+49 LT
–Y4A– STA. 10+54 TO STA. 13+50 RT
–Y5– STA. 65+00 TO STA. 68+00 RT
–Y5– STA. 85+50 TO STA. 86+50 LT
–Y5– STA. 85+00 TO STA. 89+00 RT
–Y5SPUR– STA. 19+49 TO STA. 22+03 LT
–SR5C_DET– STA. 12+70 TO STA. 13+10 RT
–SR5C_DET– STA. 15+00 TO STA. 16+32 RT

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)



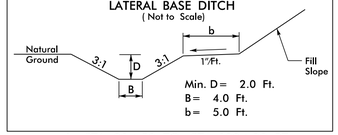
–Y1NB– STA. 47+00 TO STA. 59+00 RT
–L– STA. 103+00 TO STA. 107+72 LT
–L– STA. 138+50 TO STA. 186+00 RT
–L– STA. 232+00 TO STA. 239+00 LT
–L– STA. 256+00 TO STA. 269+00 LT
–L– STA. 232+50 TO STA. 241+50 RT
–L– STA. 245+00 TO STA. 249+00 RT
–Y5FLY– STA. 82+33 TO STA. 85+77 RT
–Y5SPURA– STA. 10+46 TO STA. 16+99 LT
–Y5RPA– STA. 36+85 TO STA. 37+50 LT
–Y5RPA– STA. 34+49 TO STA. 36+85 RT
–L– STA. 227+00 TO STA. 232+50 RT
–Y5LPD– STA. 12+79 TO STA. 14+50 LT
–Y5C– STA. 25+00 TO STA. 26+65 RT
–Y5C– STA. 24+50 TO STA. 25+92 LT
–LSB– STA. 68+50 TO STA. 76+50 LT
–L– STA. 221+58 TO STA. 232+00 LT

DETAIL C
SPECIAL LATERAL BASE DITCH
(Not to Scale)



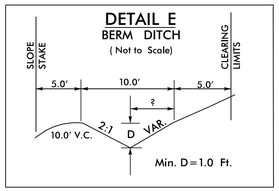
–LSB– STA. 112+50 TO STA. 129+00 LT
–L– STA. 212+25 TO STA. 220+00 RT
–L– STA. 208+50 TO STA. 215+00 LT
–Y5B– STA. 10+44 TO STA. 12+50 RT
–Y5FLY– STA. 66+80 TO STA. 70+00 LT
–Y5FLY– STA. 63+50 TO STA. 66+80 RT

DETAIL D
LATERAL BASE DITCH
(Not to Scale)



–L– STA. 90+50 TO STA. 100+28 RT
–L– STA. 162+00 TO STA. 165+50 LT
–L– STA. 247+00 TO STA. 251+50 LT
–L– STA. 252+00 TO STA. 256+00 LT
–L– STA. 253+00 TO STA. 255+00 RT
–Y5LPD– STA. 26+50 TO STA. 30+65 RT

DETAIL E
BERM DITCH
(Not to Scale)

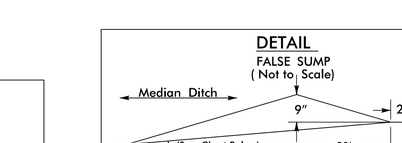


DETAIL NOT USED IN SECTION 1

DETAIL F
SPECIAL CUT BASE DITCH
(Not to Scale)

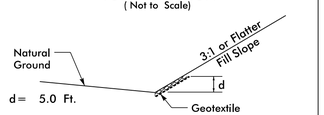
–L– STA. 132+50 TO STA. 137+00 LT
–L– STA. 159+00 TO STA. 162+00 LT
–L– STA. 165+50 TO STA. 167+00 LT
–L– STA. 223+11 TO STA. 226+23 RT
–L– STA. 239+00 TO STA. 247+00 LT
–L– STA. 255+00 TO STA. 269+00 RT
–Y5B– STA. 12+50 TO STA. 17+50 RT

DETAIL G
MEDIAN V DITCH
(Not to Scale)



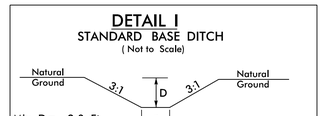
–LSB– 84+00 TO STA. 86+00 LT
–LSB– STA. 105+00 TO STA. 113+50 RT
–L– STA. 215+00 TO STA. 217+50 LT
–Y5– STA. 83+50 TO STA. 85+50 LT
–Y5RPA– STA. 45+00 TO STA. 49+00 LT

DETAIL H
TOE PROTECTION
(Not to Scale)



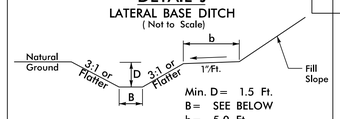
–L– STA. 121+50 TO STA. 127+90 RT
–L– STA. 186+71 TO STA. 187+92 LT
–L– STA. 198+60 TO STA. 203+00 RT
–L– STA. 199+36 TO STA. 202+57 LT
–Y4– STA. 40+82 TO STA. 43+12 LT
–Y4– STA. 40+38 TO STA. 41+90 RT
–Y5LPD– STA. 19+00 TO STA. 21+00 RT
–Y5LPD– STA. 20+21 TO STA. 24+50 LT
–Y5FLY– STA. 57+07 TO STA. 62+59 LT
–Y5RPD– STA. 15+00 TO STA. 24+34 RT
–Y5C– STA. 12+83 TO STA. 17+66 LT
–Y5C– STA. 12+64 TO STA. 17+88 RT
–Y5B– STA. 13+20 TO STA. 17+18 LT
–Y5RPC– STA. 13+37 TO STA. 21+33 RT
–Y5LPD– STA. 38+47 TO STA. 39+75 LT
–Y5LPD– STA. 37+76 TO STA. 39+18 RT
–Y5RPA– STA. 42+36 TO STA. 44+00 RT
–Y5– STA. 47+87 TO STA. 50+88 LT
–Y5– STA. 55+85 TO STA. 65+25 LT
–Y5– STA. 64+30 TO STA. 64+55 RT
–Y5– STA. 107+80 TO STA. 109+51 RT
–Y5LPD– STA. 44+31 TO STA. 48+12 RT
–YRPA– STA. 11+88 TO STA. 13+93 RT
–LSB– STA. 88+50 TO STA. 90+48 RT
–LSB– STA. 90+97 TO STA. 95+38 RT

DETAIL I
STANDARD BASE DITCH
(Not to Scale)



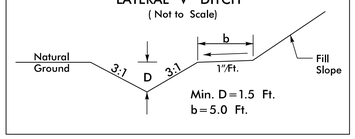
–Y5LPD– STA. 13+78 RT, L=285',
BEG. ELEV=131.67', END ELEV=130.90', S=0.3%
–LNB– STA. 60+18 TO 61+15 RT, D=1.25'
BEG. ELEV=114.10' END ELEV=111.40', S=2.8%
–LNB– STA. 61+15 TO 62+18 RT, D=1.25'
BEG. ELEV=111.40 END ELEV=113.10, S=1.7%

DETAIL J
LATERAL BASE DITCH
(Not to Scale)



–L– STA. 90+50 TO STA. 94+00 LT, B=4'
–L– STA. 118+50 TO STA. 121+12 LT, B=4'
–L– STA. 130+00 TO STA. 132+50 LT, B=4'
–L– STA. 137+00 TO STA. 138+00 LT, B=4'
–L– STA. 138+50 TO STA. 147+00 LT, B=4'
–L– STA. 147+00 TO STA. 154+50 LT, B=4'

DETAIL K
LATERAL 'V' DITCH
(Not to Scale)

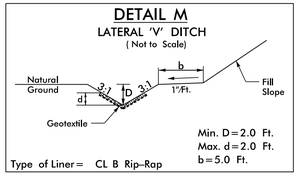


–L– STA. 89+00 TO STA. 90+50 RT
–L– STA. 112+50 TO STA. 113+81 RT
–L– STA. 129+00 TO STA. 131+50 RT
–L– STA. 138+00 TO STA. 138+50 LT
–L– STA. 154+50 TO STA. 158+87 LT
–L– STA. 249+00 TO STA. 253+00 RT
–Y5C– STA. 19+38 TO STA. 24+50 LT
–Y5– STA. 42+00 TO STA. 45+51 LT
–Y5– STA. 64+50 TO STA. 68+50 LT
–Y5– STA. 70+02 TO STA. 76+21 LT
–Y5– STA. 70+00 TO STA. 73+64 RT

DETAIL L
LATERAL BASE DITCH
(Not to Scale)

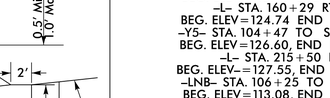
–L– STA. 128+00 TO STA. 130+00 LT

DETAIL M
LATERAL 'V' DITCH
(Not to Scale)



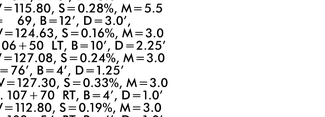
–Y5RPD– STA. 12+93 TO STA. 15+40 RT

DETAIL N
SPECIAL CUT BASE DITCH
(Not to Scale)



–L– STA. 107+72 TO STA. 109+00 LT, D=1.0'

DETAIL O
SPECIAL LATERAL BASE DITCH
(Not to Scale)

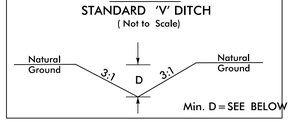


–LSB– STA. 31+00 TO STA. 37+00 LT, B=8', D=2.0'
–LSB– STA. 51+50 TO STA. 53+50 LT, B=11', D=1.5'
–LNB– STA. 115+00 TO STA. 118+50 RT, B=4', D=0.75'
–L– STA. 192+74 TO STA. 195+45 LT, B=7', D=2.0'
–Y4– STA. 42+00 TO STA. 61+50 RT, B=4', D=3.5'
–Y4– STA. 61+50 TO STA. 64+64 RT, B=4', D=2.75'

DETAIL P
LATERAL BASE DITCH
(Not to Scale)

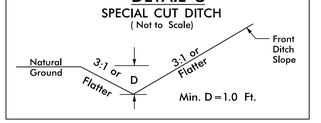
–Y3– STA. 18+50 TO STA. 19+15 LT, B=4', D=1.00'
–Y3– STA. 22+50 TO STA. 24+12 LT, B=4', D=2.00'
–L– STA. 128+00 TO STA. 129+00 RT, B=4', D=1.00'
–Y5– STA. 65+00 TO STA. 68+50 LT, B=4', D=1.00'

DETAIL T
STANDARD 'V' DITCH
(Not to Scale)



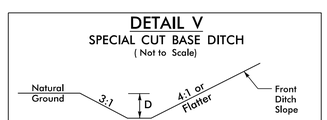
–Y1NB– STA. 44+50, L=53', S=0.8%, D=1.5'
BEG. ELEV=119.98, END ELEV=119.56, M=3.5
–Y5LPA– STA. 18+75, L=50', S=4.8%, D=1.0'
BEG. ELEV=144.45, END ELEV=142.05, M=3
–L– STA. 186+00 RT, L=200', S=0.3%, D=2.5'
BEG. ELEV=125.00, END ELEV=124.40'
–SR5C_DET– STA. 13+10 TO STA. 14+00, L=90', S=0.02%, D=1.0'
BEG. ELEV=140.43, END ELEV=140.41

DETAIL U
SPECIAL CUT DITCH
(Not to Scale)



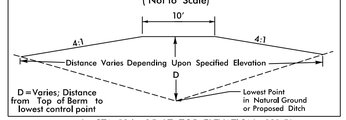
–LSB– STA. 81+00 TO STA. 84+00 LT
–LSB– STA. 128+50 TO STA. 129+00 LT
–LNB– STA. 45+20 TO STA. 48+00 LT
–LNB– STA. 118+50 TO STA. 120+52 RT
–L– STA. 102+12 TO STA. 103+00 LT
–L– STA. 111+00 TO STA. 112+50 RT
–L– STA. 113+81 TO STA. 118+50 LT
–L– STA. 131+50 TO STA. 132+50 RT
–L– STA. 169+00 TO STA. 173+00 LT
–L– STA. 232+50 TO STA. 241+50 RT

DETAIL V
SPECIAL CUT BASE DITCH
(Not to Scale)



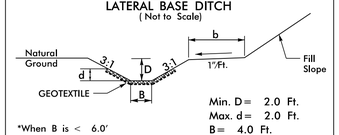
–LSB– STA. 57+50 TO STA. 61+50 RT, B=4', D=0.75'
–LSB– STA. 75+50 TO STA. 84+48 RT, B=4', D=0.75'
–LSB– STA. 94+00 TO STA. 96+00 RT, B=4', D=1.0'
–L– STA. 86+50 TO STA. 90+50 LT, B=4', D=1.5'
–L– STA. 94+00 TO STA. 100+28 LT, B=4', D=2.0'
–L– STA. 100+28 TO STA. 102+12 LT, B=4', D=1.0'
–L– STA. 109+00 TO STA. 113+81 LT, B=4', D=1.5'
–L– STA. 195+45 TO STA. 199+55 LT, B=7', D=1.0'

DETAIL Q
10' WIDE BERM
(Not to Scale)



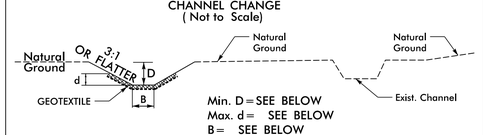
–L– STA. 126+25 LT; TOP ELEVATION=121.5'
–L– STA. 138+00 LT; TOP ELEVATION=128.5'
–L– STA. 154+50 LT; TOP ELEVATION=132.0'

DETAIL R
LATERAL BASE DITCH
(Not to Scale)



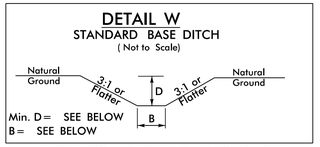
–L– STA. 158+87 TO STA. 159+00 LT, D=1.5'

DETAIL S
CHANNEL CHANGE
(Not to Scale)



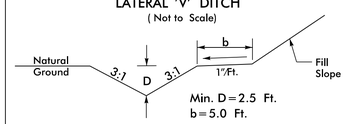
DETAIL NOT USED IN SECTION 1

DETAIL W
STANDARD BASE DITCH
(Not to Scale)



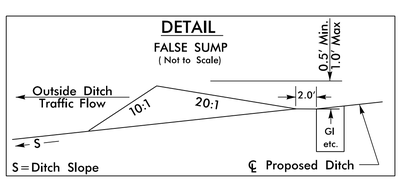
–L– STA. 128+00 RT, L=94 B=8', D=2.5'
BEG. ELEV=117.39 END ELEV=117.15, S=0.26%, M=6.0
–L– STA. 138+50 RT, L=41, B=6', D=2.0'
BEG. ELEV=122.78 END ELEV=122.45, S=0.80%, M=6.0
–L– STA. 113+81 RT, L=35, B=3', D=2.0'
BEG. ELEV=122.50 END ELEV=122.36, S=0.40%, M=3.0
–L– STA. 100+28 RT, L=22, B=6', D=2.5'
BEG. ELEV=121.50 END ELEV=121.43, S=0.33%, M=6.0
–L– STA. 107+72 RT, L= 70, B=3', D=2.0'
BEG. ELEV=120.09 END ELEV=120.30, S=0.30%, M=6.0
–L– STA. 121+12 RT, L=54', B=3', D=3.0'
BEG. ELEV=115.95 END ELEV=115.80, S=0.28%, M=5.5
–L– STA. 160+29 RT, L= 69, B=12', D=3.0',
BEG. ELEV=124.74 END ELEV=124.63, S=0.16%, M=3.0
–Y5– STA. 104+47 TO STA. 106+50 LT, B=10', D=2.25'
BEG. ELEV=126.60, END ELEV=127.08, S=0.24%, M=3.0
–L– STA. 215+50 LT, L=76', B=4', D=1.25'
BEG. ELEV–=127.55, END ELEV=127.30, S=0.33%, M=3.0
–LNB– STA. 106+25 TO STA. 107+70 RT, B=4', D=1.0'
BEG. ELEV=113.08, END ELEV=112.80, S=0.19%, M=3.0
–LNB– STA. 107+70 TO STA. 108+54 RT, B=4', D=1.0'
BEG. ELEV=112.80, END ELEV=115.21, S=2.9%, M=3.0
–LNB– STA. 115+00 RT, L=107', B=4', D=1.0'
BEG. ELEV=120.50, END ELEV=119.6, S=0.8%, M=3.0

DETAIL X
LATERAL 'V' DITCH
(Not to Scale)

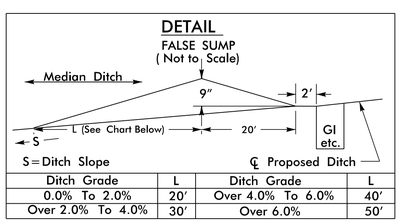


DETAIL NOT USED IN SECTION 1

DETAIL
FALSE SUMP
(Not to Scale)

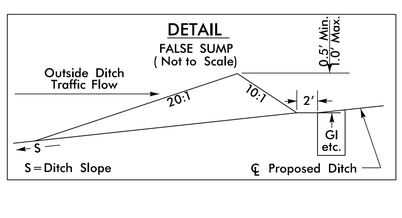


DETAIL
FALSE SUMP
(Not to Scale)



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'

DETAIL
FALSE SUMP
(Not to Scale)



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FKeys

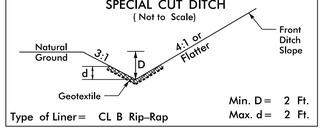
Submitted 9/2/2020

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	2D-2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 3 OF 163

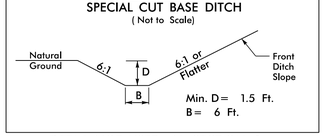
DETAIL Y
SPECIAL CUT DITCH
(Not to Scale)



Min. D = 2 Ft.
Max. d = 2 Ft.
Type of Liner = CL B Rip–Rap

DETAIL NOT USED IN SECTION 1

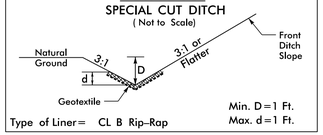
DETAIL Z
SPECIAL CUT BASE DITCH
(Not to Scale)



Min. D = 1.5 Ft.
B = 6 Ft.

DETAIL NOT USED IN SECTION 1

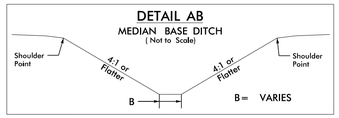
DETAIL AA
SPECIAL CUT DITCH
(Not to Scale)



Min. D = 1 Ft.
Max. d = 1 Ft.
Type of Liner = CL B Rip–Rap

–Y5FLY– STA. 80+14.68 TO STA. 82+33.14

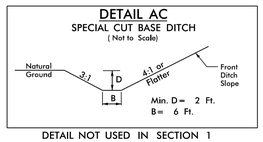
DETAIL AB
MEDIAN BASE DITCH
(Not to Scale)



B = VARIES

DETAIL NOT USED IN SECTION 1

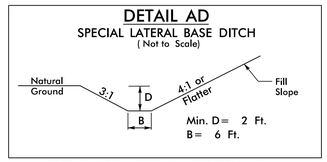
DETAIL AC
SPECIAL CUT BASE DITCH
(Not to Scale)



Min. D = 2 Ft.
B = 6 Ft.

DETAIL NOT USED IN SECTION 1

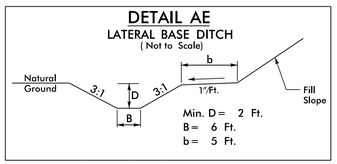
DETAIL AD
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Min. D = 2 Ft.
B = 6 Ft.

DETAIL NOT USED IN SECTION 1

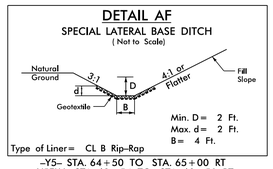
DETAIL AE
LATERAL BASE DITCH
(Not to Scale)



Min. D = 2 Ft.
B = 6 Ft.
b = 5 Ft.

DETAIL NOT USED IN SECTION 1

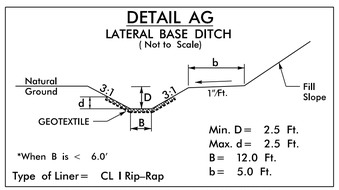
DETAIL AF
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Min. D = 2 Ft.
Max. d = 2 Ft.
B = 4 Ft.
Type of Liner = CL B Rip–Rap

–Y5– STA. 64+50 TO STA. 65+00 RT
–Y5FLY– STA. 62+54 TO STA. 63+50 RT

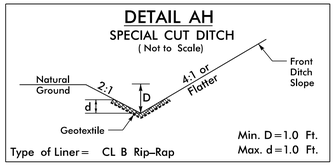
DETAIL AG
LATERAL BASE DITCH
(Not to Scale)



Min. D = 2.5 Ft.
Max. d = 2.5 Ft.
B = 12.0 Ft.
b = 5.0 Ft.
*When B is < 6.0'
Type of Liner = CL I Rip–Rap

DETAIL NOT USED IN SECTION 1

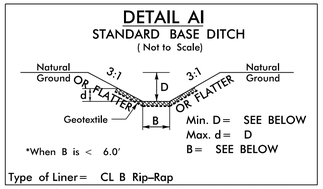
DETAIL AH
SPECIAL CUT DITCH
(Not to Scale)



Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
Type of Liner = CL B Rip–Rap

DETAIL NOT USED IN SECTION 1

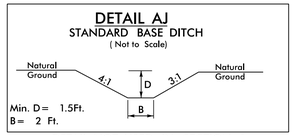
DETAIL AI
STANDARD BASE DITCH
(Not to Scale)



Min. D = SEE BELOW
Max. d = D
B = SEE BELOW
*When B is < 6.0'
Type of Liner = CL B Rip–Rap

–L– STA. 121+12 RT, L=54', B=3', D=3.0'
BEG. ELEV=115.95 END ELEV=115.80, S=0.28%, M=5.5
–Y1SB– STA. 18+58 TO 21+90 RT, B=4', D=2.5'
BEG. ELEV=119.34 END ELEV=115.4, S=1.7% M=3.0

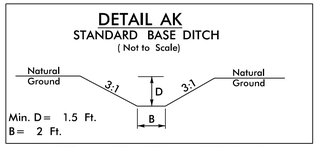
DETAIL AJ
STANDARD BASE DITCH
(Not to Scale)



Min. D = 1.5Ft.
B = 2 Ft.

DETAIL NOT USED IN SECTION 1

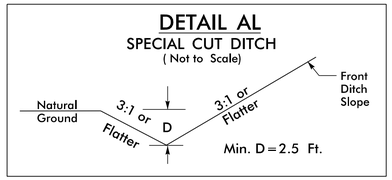
DETAIL AK
STANDARD BASE DITCH
(Not to Scale)



Min. D = 1.5 Ft.
B = 2 Ft.

DETAIL NOT USED IN SECTION 1

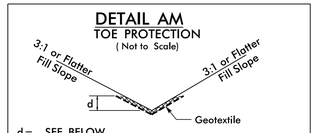
DETAIL AL
SPECIAL CUT DITCH
(Not to Scale)



Min. D = 2.5 Ft.

DETAIL NOT USED IN SECTION 1

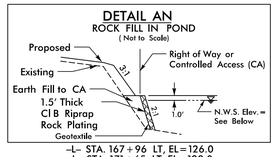
DETAIL AM
TOE PROTECTION
(Not to Scale)



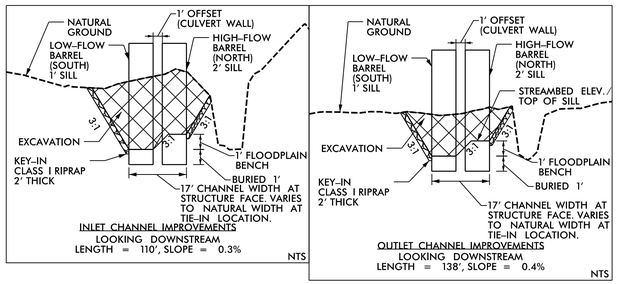
d = SEE BELOW
Type of Liner = B Rip–Rap

DETAIL NOT USED IN SECTION 1

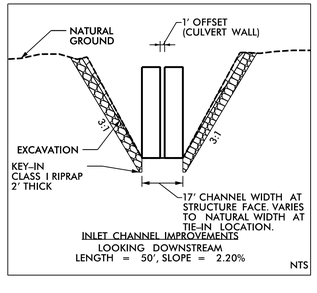
DETAIL AN
ROCK FILL IN POND
(Not to Scale)



–L– STA. 167+96 LT, EL=126.0
–L– STA. 171+65 LT, EL=128.0



CULVERT INLET AND OUTLET DETAILS
–L– STA 252+34.5



CULVERT INLET DETAIL
–Y5– STA 45+24

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8/21/2020
R:\Hydraulics\PERMITS_Environmental\Drawings\4B\I-5986A_HYD_Ditch Detail_Sect.dgn
Fkeys

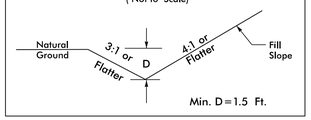
Submitted 9/2/2020

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	2D-3
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

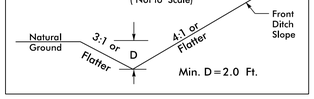
PERMIT DRAWING SHEET 4 OF 163

DETAIL A
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



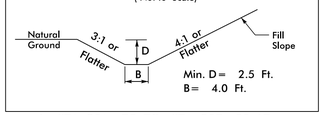
–L– STA. 333+00 TO STA. 340+50 RT
–L– STA. 341+00 TO STA. 345+00 LT
–L– STA. 499+65 TO STA. 500+00 LT
–SR5A– STA. 10+50 TO STA. 11+77 LT
–Y6– STA. 28+00 TO STA. 28+50 LT
–Y7A– STA. 15+00 TO STA. 16+00 LT
–Y8– STA. 16+00 TO STA. 16+50 RT
–Y8– STA. 29+50 TO STA. 34+50 RT

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)



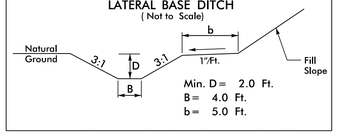
–L– STA. 280+00 TO STA. 280+50 LT
–L– STA. 313+50 TO STA. 320+00 RT
–L– STA. 322+00 TO STA. 324+00 RT
–L– STA. 379+00 TO STA. 381+00 LT
–L– STA. 379+50 TO STA. 385+00 RT
–L– STA. 401+00 TO STA. 403+00 LT
–L– STA. 401+50 TO STA. 402+50 RT
–L– STA. 407+50 TO STA. 409+00 RT
–L– STA. 406+50 TO STA. 421+50 LT
–L– STA. 448+50 TO STA. 453+50 LT
–L– STA. 474+50 TO STA. 485+00 LT
–L– STA. 475+00 TO STA. 489+50 RT
–L– STA. 500+00 TO STA. 518+00 RT
–L– STA. 541+00 TO STA. 550+00 RT
–Y20– STA. 10+35 TO STA. 12+00 LT
–Y20– STA. 10+35 TO STA. 12+00 RT
–Y20– STA. 17+50 TO STA. 19+00 LT
–Y20– STA. 20+87.64 TO STA. 22+44.57 RT
–Y6– STA. 11+00 TO STA. 13+50 LT
–Y6– STA. 11+00 TO STA. 13+00 RT
–Y6– STA. 29+50 TO STA. 32+00 LT
–Y6– STA. 29+00 TO STA. 32+00 RT
–Y7A– STA. 12+00 TO STA. 15+00 LT
–Y7A– STA. 12+00 TO STA. 14+50 RT
–Y7D– STA. 14+50 TO STA. 16+25 RT
–Y7RPA– STA. 11+40.19 TO STA. 15+43.19 RT
–Y7RPC– STA. 19+50 TO STA. 20+50 LT
–Y7RPD– STA. 11+84.98 TO STA. 17+96.54 LT

DETAIL C
SPECIAL LATERAL BASE DITCH
(Not to Scale)



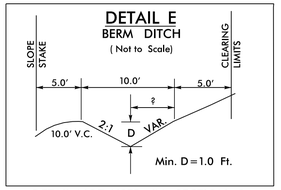
–L– STA. 306+75 TO STA. 307+00 LT
–L– STA. 339+00 TO STA. 341+00 LT
–L– STA. 422+20 TO STA. 427+50 RT
–L– STA. 496+50 TO STA. 499+65 LT
–L– STA. 504+50 TO STA. 508+50 LT
–L– STA. 529+50 TO STA. 538+77 LT
–L– STA. 541+75 TO STA. 550+50 LT
–L– STA. 425+58 TO STA. 435+00 LT
–L– STA. 440+50 TO STA. 448+50 LT
–L– STA. 510+00 TO STA. 513+00 LT
–L– STA. 539+70 TO STA. 540+58 LT
–SR3– STA. 32+78.79 TO STA. 34+17 LT
–Y8– STA. 33+50 TO STA. 36+00 LT

DETAIL D
LATERAL BASE DITCH
(Not to Scale)



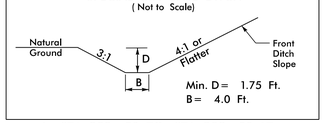
–L– STA. 280+50 TO STA. 282+50 LT
–L– STA. 296+50 TO STA. 301+00 LT
–L– STA. 316+50 TO STA. 327+50 LT
–L– STA. 327+50 TO STA. 336+00 LT
–L– STA. 300+50 TO STA. 302+30 RT
–L– STA. 357+79 TO STA. 364+00 RT
–L– STA. 370+00 TO STA. 370+50 LT
–L– STA. 372+00 TO STA. 375+50 LT
–L– STA. 405+46 TO STA. 407+50 RT
–L– STA. 470+50 TO STA. 474+50 LT
–L– STA. 500+00 TO STA. 504+50 LT
–Y7RPB– STA. 18+29 TO STA. 24+32.14 LT
–Y7B– STA. 14+72 TO STA. 15+71.74 RT
–Y7D– STA. 11+50 TO STA. 14+13 LT

DETAIL E
BERM DITCH
(Not to Scale)



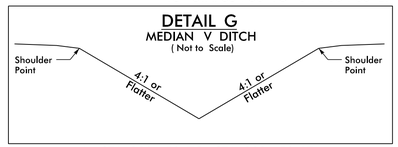
DETAIL NOT USED IN SECTION 2

DETAIL F
SPECIAL CUT BASE DITCH
(Not to Scale)



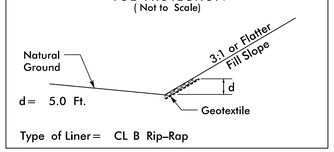
–L– STA. 282+50 TO STA. 288+50 LT
–L– STA. 307+00 TO STA. 316+50 LT
–L– STA. 296+50 TO STA. 300+50 RT
–L– STA. 307+50 TO STA. 308+50 RT
–L– STA. 336+00 TO STA. 339+00 LT
–L– STA. 361+00 TO STA. 362+00 LT
–L– STA. 364+00 TO STA. 364+50 RT
–L– STA. 370+50 TO STA. 372+00 LT
–L– STA. 371+50 TO STA. 372+50 RT
–L– STA. 453+50 TO STA. 461+50 LT
–L– STA. 465+00 TO STA. 470+50 LT
–L– STA. 438+00 TO STA. 460+00 RT
–L– STA. 435+00 TO STA. 440+50 LT
–L– STA. 493+00 TO STA. 496+50 LT
–Y7D– STA. 14+80 TO STA. 16+25 LT
–Y7RPB– STA. 10+18.97 TO STA. 18+29.27 LT
–Y7RPC– STA. 10+05.01 TO STA. 16+73.59 RT

DETAIL G
MEDIAN V DITCH
(Not to Scale)



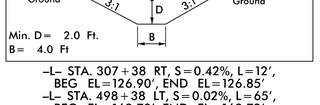
–L– STA. 390+50 TO STA. 392+50 LT
–Y20– STA. 21+93.18 TO STA. 22+44.57 LT
–Y7RPA– STA. 10+40.05 TO STA. 11+40.19 RT
–Y7RPD– STA. 10+84.95 TO STA. 11+84.98 LT

DETAIL H
TOE PROTECTION
(Not to Scale)



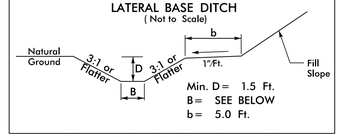
–L– STA. 300+78 TO STA. 303+84 LT
–L– STA. 423+10 TO STA. 425+20 LT
–L– STA. 508+50 TO STA. 509+52 LT
–L– STA. 522+75 TO STA. 525+40 LT
–L– STA. 435+00 TO STA. 437+00 RT
–SR3– STA. 34+16 TO STA. 35+78 LT
–Y7RPC– STA. 17+50 TO STA. 24+10 RT

DETAIL I
STANDARD BASE DITCH
(Not to Scale)



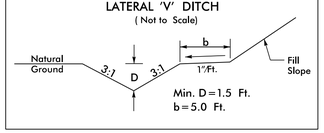
–L– STA. 307+38 RT, S=0.42%, L=12',
BEG EL=126.90', END EL=126.85'
–L– STA. 498+38 LT, S=0.02%, L=65',
BEG EL=169.73', END EL=169.72'
–SR3– STA. 23+79 LT, S=1.29%, L=35',
BEG EL=147.45', END EL=147.00'
–SR5A– STA. 17+00 LT, S=2.14%, L=65',
BEG EL=169.32', END EL=167.93'
–L– STA. 293+37 LT, S=0.30%, L=112',
BEG EL=135.23', END EL=134.89'
–Y7RPB– STA. 15+38 LT, S=0.00%, L=25',
BEG EL=136.50', END EL=136.50'

DETAIL J
LATERAL BASE DITCH
(Not to Scale)



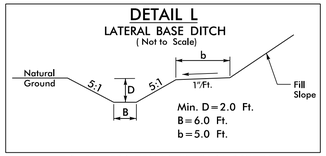
–L– STA. 340+50 TO STA. 355+00 RT, B=2'
–L– STA. 360+50 TO STA. 361+00 LT, B=4'
–L– STA. 372+50 TO STA. 376+50 RT, B=4'
–SR3– STA. 11+00 TO STA. 24+50 RT, B=4'
–Y7B– STA. 11+00 TO STA. 15+50 LT, B=4'
–Y7C– STA. 12+53 TO STA. 13+84 LT, B=4'
–Y7D– STA. 11+03 TO STA. 11+50 LT, B=4'
–Y7RPB– STA. 20+00 TO STA. 21+00 RT, B=4'
–Y7RPD– STA. 24+30 TO STA. 25+06 LT, B=4'

DETAIL K
LATERAL 'V' DITCH
(Not to Scale)



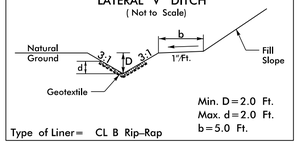
–L– STA. 280+00 TO STA. 289+00 RT
–L– STA. 320+00 TO STA. 322+00 RT
–L– STA. 324+00 TO STA. 333+00 RT
–L– STA. 345+00 TO STA. 351+00 LT
–L– STA. 353+00 TO STA. 355+00 LT
–L– STA. 402+50 TO STA. 403+00 RT
–L– STA. 403+00 TO STA. 406+50 LT
–SR3– STA. 24+50 TO STA. 28+00 LT
–Y20– STA. 19+00 TO STA. 21+93.18 LT
–Y20– STA. 22+44.57 TO STA. 22+95.34 RT
–Y6– STA. 13+50 TO STA. 15+50 LT
–Y6– STA. 23+00 TO STA. 28+50 RT
–Y6– STA. 28+50 TO STA. 29+50 LT
–Y7C– STA. 16+50 TO STA. 19+00 LT
–Y7D– STA. 11+00 TO STA. 14+50 RT
–Y7RPB– STA. 21+00 TO STA. 23+74 RT
–Y7RPC– STA. 17+13.38 TO STA. 19+00 LT
–Y7RPC– STA. 20+50 TO STA. 23+90 LT
–Y7RPD– STA. 22+00 TO STA. 24+00 RT
–Y8– STA. 26+19 TO STA. 29+50 RT

DETAIL L
LATERAL BASE DITCH
(Not to Scale)



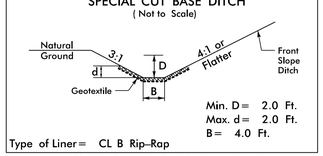
DETAIL NOT USED IN SECTION 2

DETAIL M
LATERAL 'V' DITCH
(Not to Scale)



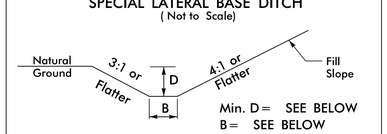
–Y7RPD– STA. 24+00 TO STA. 24+42 RT
–Y7C– STA. 11+00 TO STA. 12+53 LT

DETAIL N
SPECIAL CUT BASE DITCH
(Not to Scale)



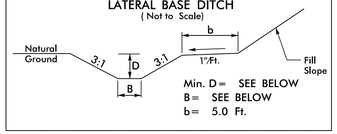
–L– STA. 513+00 TO STA. 517+50 LT
–Y20– STA. 32+51.25 TO STA. 33+42 RT

DETAIL O
SPECIAL LATERAL BASE DITCH
(Not to Scale)



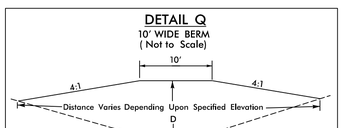
DETAIL NOT USED IN SECTION 2

DETAIL P
LATERAL BASE DITCH
(Not to Scale)



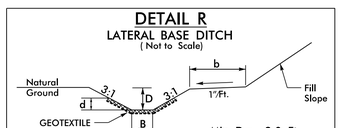
–SR3– STA. 18+50 TO 19+50 LT, B=6', D=1'
–Y8– STA. 33+00 TO 33+50 LT, B=6', D=1'
–L– STA. 355+00 TO STA. 360+50 LT, B=4', D=3'
–L– STA. 403+00 TO STA. 405+46 RT, B=4', D=4.5'
–Y20– STA. 22+95.34 TO STA. 24+46 RT, B=4', D=3'

DETAIL Q
10' WIDE BERM
(Not to Scale)



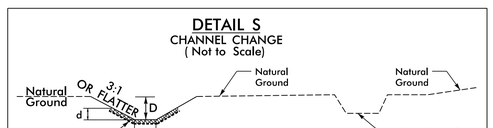
–L– STA. 500+00 LT, TOP ELEV.=173.0'
–L– STA. 500+00 RT, TOP ELEV.=172.3'
–SR3– STA. 20+50 RT, TOP ELEV.=151.0'
–SR3– STA. 24+50 RT, TOP ELEV.=150.0'

DETAIL R
LATERAL BASE DITCH
(Not to Scale)



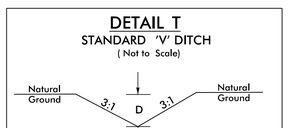
–L– STA. 517+50 TO STA. 521+00 LT

DETAIL S
CHANNEL CHANGE
(Not to Scale)



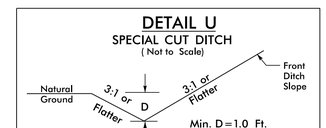
DETAIL NOT USED IN SECTION 2

DETAIL T
STANDARD 'V' DITCH
(Not to Scale)



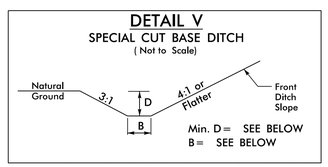
–Y9RPA– STA. 20+00, D=1'
BEG. ELEV=150.00 END ELEV=146.50, S=3.5%

DETAIL U
SPECIAL CUT DITCH
(Not to Scale)



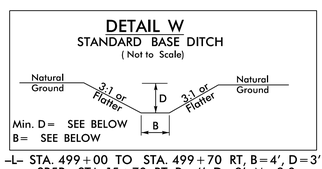
–L– STA. 518+00 TO STA. 522+50 RT
–SR5A– STA. 11+76.57 TO STA. 12+27.18 LT
–SR5A– STA. 11+76.57 TO STA. 12+27.18 RT
–SR5A– STA. 13+79.06 TO STA. 19+00 LT
–SR5A– STA. 13+79.06 TO STA. 19+00 RT
–Y8– STA. 11+00 TO STA. 12+00 LT
–Y8– STA. 11+00 TO STA. 16+00 RT
–Y8– STA. 34+50 TO STA. 36+00 RT

DETAIL V
SPECIAL CUT BASE DITCH
(Not to Scale)



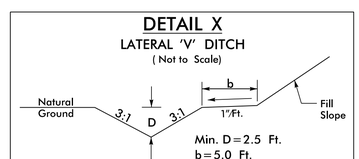
–Y20– STA. 24+45.78 TO STA. 32+51.25 RT, B=4', D=3.5'

DETAIL W
STANDARD BASE DITCH
(Not to Scale)



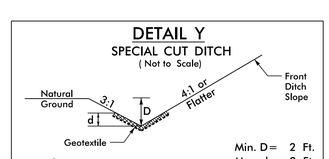
–L– STA. 499+00 TO STA. 499+70 RT, B=4', D=3'
–SR5B– STA. 15+70 RT, B=4', D=3', M=3.0
BEG EL=168.57', END EL=168.33', S=0.30%, L=78'
–Y20– STA. 32+51 LT, B=4', D=4.0'
BEG. ELEV=141.11 END ELEV=141.06, S=0.1%, M=4.0
–L– STA. 405+64 LT, B=4', D=3.0'
BEG. ELEV=140.22 END ELEV=139.80, S=0.3%, M=4.0

DETAIL X
LATERAL 'V' DITCH
(Not to Scale)



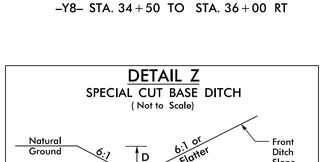
DETAIL NOT USED IN SECTION 2

DETAIL Y
SPECIAL CUT DITCH
(Not to Scale)



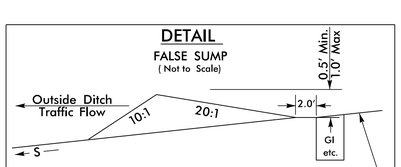
DETAIL NOT USED IN SECTION 2

DETAIL Z
SPECIAL CUT BASE DITCH
(Not to Scale)

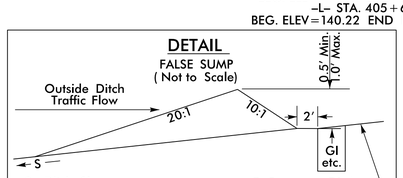


–L– STA. 437+00 TO STA. 438+00 RT

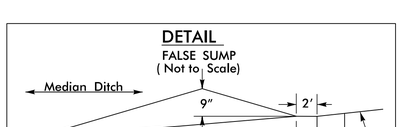
DETAIL
FALSE SUMP
(Not to Scale)



DETAIL
FALSE SUMP
(Not to Scale)



DETAIL
FALSE SUMP
(Not to Scale)



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'

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FKeys

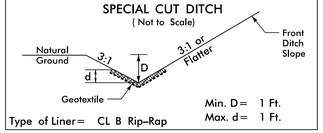
Submitted 9/2/2020

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	2D-4
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 5 OF 163

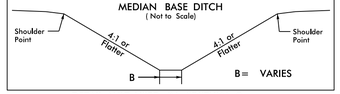
DETAIL AA
SPECIAL CUT DITCH
(Not to Scale)



Min. D = 1 Ft.
Max. d = 1 Ft.
Type of Liner = CL B Rip–Rap

DETAIL NOT USED IN SECTION 2

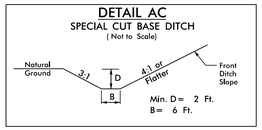
DETAIL AB
MEDIAN BASE DITCH
(Not to Scale)



B = VARIES

DETAIL NOT USED IN SECTION 2

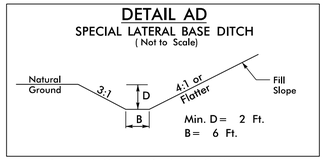
DETAIL AC
SPECIAL CUT BASE DITCH
(Not to Scale)



Min. D = 2 Ft.
B = 6 Ft.

DETAIL NOT USED IN SECTION 2

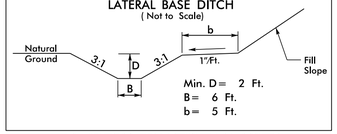
DETAIL AD
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Min. D = 2 Ft.
B = 6 Ft.

DETAIL NOT USED IN SECTION 2

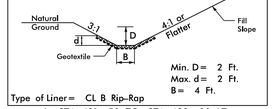
DETAIL AE
LATERAL BASE DITCH
(Not to Scale)



Min. D = 2 Ft.
B = 6 Ft.
b = 5 Ft.

DETAIL NOT USED IN SECTION 2

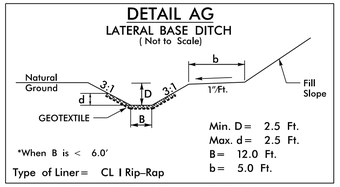
DETAIL AF
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Min. D = 2 Ft.
Max. d = 2 Ft.
B = 4 Ft.
Type of Liner = CL B Rip–Rap

–L– STA. 421+50 TO STA. 422+80 LT
–L– STA. 521+00 TO STA. 522+90 LT

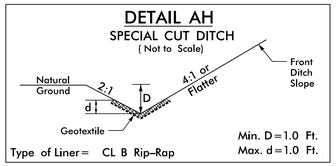
DETAIL AG
LATERAL BASE DITCH
(Not to Scale)



Min. D = 2.5 Ft.
Max. d = 2.5 Ft.
B = 12.0 Ft.
b = 5.0 Ft.
*When B is < 6.0'
Type of Liner = CL I Rip–Rap

DETAIL NOT USED IN SECTION 2

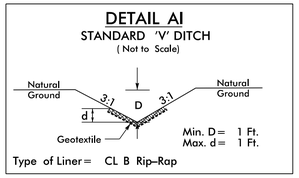
DETAIL AH
SPECIAL CUT DITCH
(Not to Scale)



Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
Type of Liner = CL B Rip–Rap

–L– STA. 296+00 TO STA. 296+50 LT

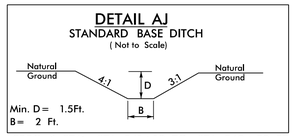
DETAIL AI
STANDARD 'V' DITCH
(Not to Scale)



Min. D = 1 Ft.
Max. d = 1 Ft.
Type of Liner = CL B Rip–Rap

–Y9RPA– STA. 20+00, D = 1'
BEG. ELEV = 155.88 END ELEV = 150.00, S = 25.6%

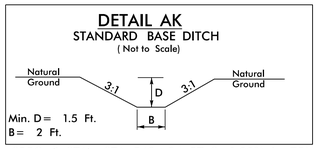
DETAIL AJ
STANDARD BASE DITCH
(Not to Scale)



Min. D = 1.5Ft.
B = 2 Ft.

–SR5C (L STA)– STA. 541+19 TO STA. 543+50 RT

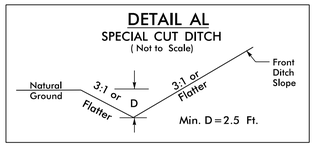
DETAIL AK
STANDARD BASE DITCH
(Not to Scale)



Min. D = 1.5 Ft.
B = 2 Ft.

–SR5C (L STA)– STA. 543+26 RT, S = 1.00%, L = 75',
BEG EL = 142.50', END EL = 141.75'

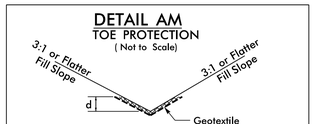
DETAIL AL
SPECIAL CUT DITCH
(Not to Scale)



Min. D = 2.5 Ft.

–L– STA. 489+50 TO STA. 499+60 RT

DETAIL AM
TOE PROTECTION
(Not to Scale)

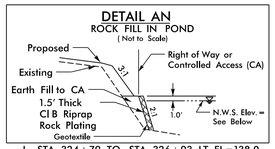


d = SEE BELOW

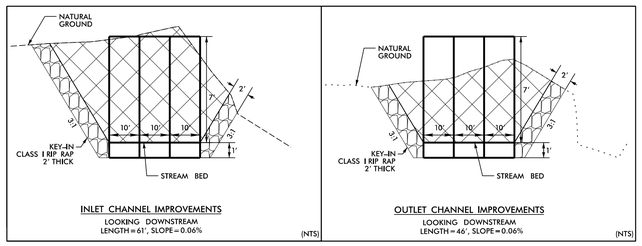
Type of Liner = B Rip–Rap

–L– STA. 522+00 TO STA. 540+00 RT, d = 2.5

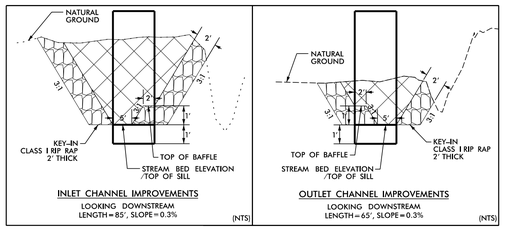
DETAIL AN
ROCK FILL IN POND
(Not to Scale)



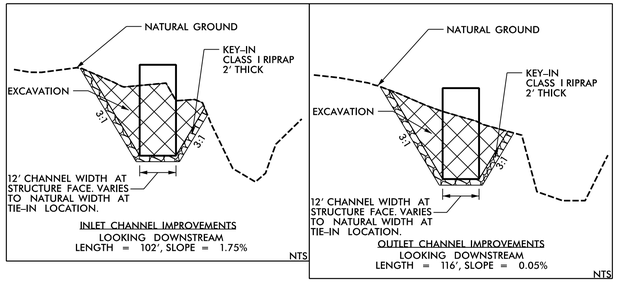
–L– STA 324+79 TO STA 326+93 LT, EL = 138.0
–L– STA 452+12 TO STA 454+94 LT, EL = 155.0
–L– STA 491+59 TO STA 492+86 LT, EL = 170.0



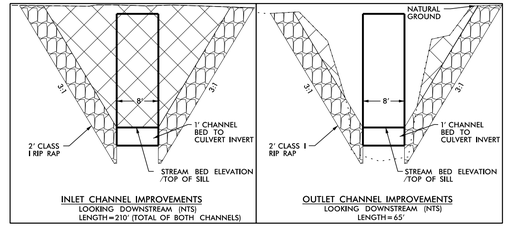
CULVERT INLET AND OUTLET DETAILS
–L– STA. 304+15



CULVERT INLET AND OUTLET DETAILS
–L– STA. 355+00



CULVERT INLET AND OUTLET DETAILS
–L– STA. 422+50.5



CULVERT INLET AND OUTLET DETAILS
–L– STA. 540+46

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R:\Hydraulics\PERMITS_Environmental\Drawings\4BN1-5986A_HYD_Ditch Detail_Sec2.dgn
F keys

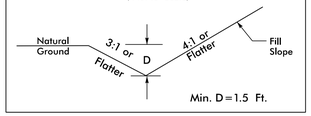
Submitted 9/2/2020

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	2D-5
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

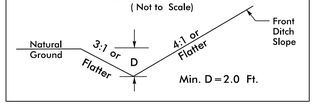
PERMIT DRAWING SHEET 6 OF 163

DETAIL A
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



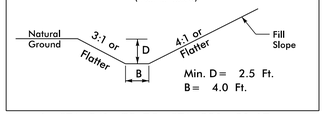
–L– STA. 626+93 TO STA. 629+50 LT
–L– STA. 627+50 TO STA. 629+00 RT
–L– STA. 735+00 TO STA. 735+85 LT
–L– STA. 740+00 TO STA. 742+50 LT
–L– STA. 761+00 TO STA. 761+35 LT

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)



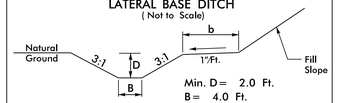
–L– STA. 582+00 TO STA. 585+00 LT
–L– STA. 595+00 TO STA. 599+50 LT
–L– STA. 599+00 TO STA. 600+00 RT
–L– STA. 609+50 TO STA. 610+50 LT
–L– STA. 620+00 TO STA. 620+50 LT
–L– STA. 629+50 TO STA. 635+00 LT
–L– STA. 629+00 TO STA. 637+00 RT
–L– STA. 647+00 TO STA. 649+00 LT
–L– STA. 646+00 TO STA. 650+50 RT
–L– STA. 653+00 TO STA. 659+00 RT
–L– STA. 696+00 TO STA. 709+00 LT
–L– STA. 711+50 TO STA. 715+00 RT
–L– STA. 711+50 TO STA. 735+00 LT
–L– STA. 725+50 TO STA. 726+50 RT
–L– STA. 731+50 TO STA. 732+50 RT
–L– STA. 742+50 TO STA. 753+00 LT
–L– STA. 758+50 TO STA. 759+00 LT
–L– STA. 760+00 TO STA. 761+00 LT
–SR5– STA. 14+00 TO STA. 17+96 RT
–SR5– STA. 20+92 TO STA. 22+92 RT
–SR5– STA. 33+47 TO STA. 37+00 RT
–SR5– STA. 37+50 TO STA. 41+50 LT
–Y9A– STA. 10+00 TO STA. 16+50 RT
–Y9A– STA. 10+00 TO STA. 16+00 LT
–Y9C– STA. 13+50 TO STA. 15+50 LT
–Y9C– STA. 13+00 TO STA. 15+50 RT
–Y9RPA– STA. 15+70 TO STA. 19+00 LT
–Y9RPA– STA. 14+73 TO STA. 18+50 RT
–Y9RPD– STA. 16+86 TO STA. 20+00 LT
–Y10– STA. 12+50 TO STA. 13+00 RT
–Y10– STA. 31+00 TO STA. 34+00 LT
–Y10– STA. 32+00 TO STA. 34+00 RT
–Y11– STA. 12+00 TO STA. 13+30 LT
–Y11– STA. 12+00 TO STA. 13+90 RT
–Y11– STA. 13+60 TO STA. 15+00 LT
–Y11– STA. 32+50 TO STA. 36+00 LT
–Y11DW– STA. 12+50 TO STA. 15+50 LT
–Y11DW– STA. 11+50 TO STA. 15+50 RT
–Y21– STA. 14+00 TO STA. 19+78 LT
Y21– STA. 14+50 TO STA. 16+82 RT

DETAIL C
SPECIAL LATERAL BASE DITCH
(Not to Scale)



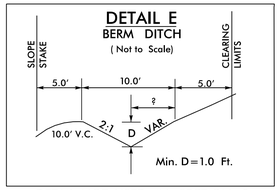
–L– STA. 541+75 TO STA. 550+50 LT
–L– STA. 620+50 TO STA. 622+47 LT
–L– STA. 756+50 TO STA. 758+50 LT
–Y9A– STA. 16+50 TO STA. 18+90 LT (3:1 FILL SLOPE)
–Y9C– STA. 13+50 TO STA. 15+50 LTT
–Y10– STA. 15+00 TO STA. 16+00 RT

DETAIL D
LATERAL BASE DITCH
(Not to Scale)



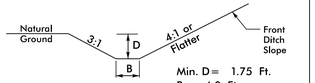
–L– STA. 573+00 TO STA. 573+60 LT
–L– STA. 639+50 TO STA. 640+35 RT
–L– STA. 642+70 TO STA. 646+00 RT
–L– STA. 656+00 TO STA. 660+10 LT
–L– STA. 666+00 TO STA. 667+00 LT
–L– STA. 694+80 TO STA. 696+50 RT
–L– STA. 699+50 TO STA. 704+40 RT
–L– STA. 732+50 TO STA. 742+00 RT
–L– STA. 748+00 TO STA. 756+40 RT
–L– STA. 753+00 TO STA. 756+40 LT
–L– STA. 764+00 TO STA. 776+50 LT
–SR5– STA. 17+96 TO STA. 19+55 RT
–SR5– STA. 19+65 TO STA. 20+92 RT
–Y9A– STA. 16+50 TO STA. 18+90 RT
–Y9C– STA. 11+40 TO STA. 13+00 RT
–Y9RPB– STA. 20+50 TO STA. 23+50 LT
–Y10– STA. 24+00 TO STA. 28+75 RT
–Y11– STA. 14+20 TO STA. 19+00 RT
–Y11– STA. 15+00 TO STA. 21+50 LT
–Y21– STA. 19+78 TO STA. 24+50 LT
–Y21– STA. 25+00 TO STA. 34+00 LT

DETAIL E
BERM DITCH
(Not to Scale)



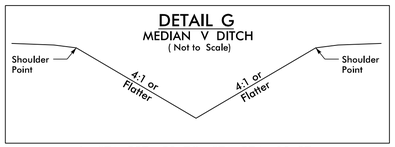
DETAIL NOT USED IN SECTION 3

DETAIL F
SPECIAL CUT BASE DITCH
(Not to Scale)



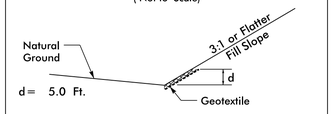
–L– STA. 550+50 TO STA. 573+00 LT
–L– STA. 585+00 TO STA. 590+15 LT
–L– STA. 585+00 TO STA. 590+50 RT
–L– STA. 594+50 TO STA. 599+00 RT
–L– STA. 637+50 TO STA. 639+50 RT
–L– STA. 654+50 TO STA. 656+00 LT
–L– STA. 659+00 TO STA. 660+10 RT
–L– STA. 660+10 TO STA. 666+00 LT
–L– STA. 696+50 TO STA. 699+50 RT
–L– STA. 742+00 TO STA. 748+00 RT
–Y9B– STA. 11+00 TO STA. 13+50 LT
–Y9B– STA. 16+00 TO STA. 19+50 LT
–Y9RPD– STA. 10+23 TO STA. 16+86 LT
–SR5– STA. 36+28 TO STA. 37+50 LT
–Y10– STA. 13+00 TO STA. 15+00 RT

DETAIL G
MEDIAN V DITCH
(Not to Scale)



–L– STA. 557+50 TO STA. 574+00 RT
–L– STA. 599+50 TO STA. 600+50 LT
–L– STA. 643+00 TO STA. 647+00 LT

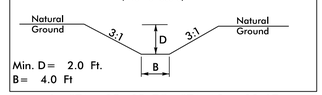
DETAIL H
TOE PROTECTION
(Not to Scale)



Type of Liner= CL B Rip–Rap

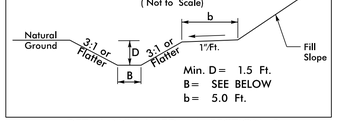
–L– STA. 605+75 TO STA. 606+83 LT
–L– STA. 622+50 TO STA. 627+00 LT
–L– STA. 625+75 TO STA. 627+50 RT
–L– STA. 674+70 TO STA. 677+10 RT
–L– STA. 678+75 TO STA. 684+10 RT
–L– STA. 692+30 TO STA. 694+76 RT
–L– STA. 735+85 TO STA. 736+10 LT
–Y9RPA– STA. 10+00 TO STA. 13+30 RT
–Y10– STA. 16+00 TO STA. 18+00 RT

DETAIL I
STANDARD BASE DITCH
(Not to Scale)



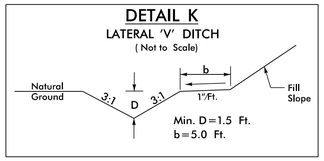
–L– STA. 695+15 TO STA. 696+00 LT,
BEG. EL=128.85', END EL=129.15', L=95', S=0.3%
–L– STA. 761+30 LT,
BEG. EL=145.03', END EL=144.20', L=28', S=3.0%
–L– STA. 593+50 LT,
BEG. EL=152.05', END EL=151.25', L=105', S=0.8%
–L– STA. 594+55 RT,
BEG. EL=152.60', END EL=151.20', L=53', S=2.6%
–Y9C– STA. 11+40 RT,
BEG. EL=153.80', END EL=151.00', L=300', S=0.9%
–Y9RPA– STA. 16+20 RT,
BEG. EL=150.32', END EL=150.15', L=54', S=0.3%

DETAIL J
LATERAL BASE DITCH
(Not to Scale)



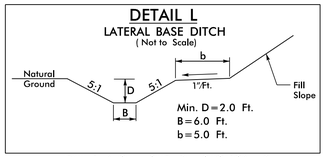
DETAIL NOT USED IN SECTION 3

DETAIL K
LATERAL 'V' DITCH
(Not to Scale)



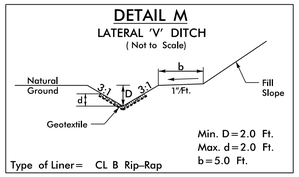
–Y9RPD– STA. 18+29 TO STA. 24+50 RT
–Y10– STA. 20+00 TO STA. 21+30 RT
–Y10– STA. 27+86 TO STA. 31+00 LT
–Y10– STA. 28+75 TO STA. 32+00 RT
–Y11– STA. 26+00 TO STA. 27+00 RT
–Y21– STA. 31+00 TO STA. 36+00 RT

DETAIL L
LATERAL BASE DITCH
(Not to Scale)



DETAIL NOT USED IN SECTION 3

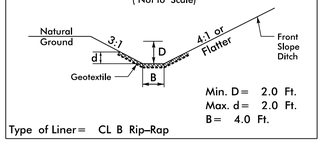
DETAIL M
LATERAL 'V' DITCH
(Not to Scale)



Type of Liner= CL B Rip–Rap

DETAIL NOT USED IN SECTION 3

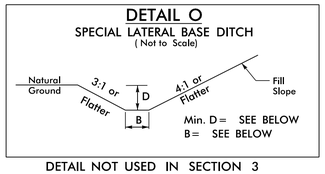
DETAIL N
SPECIAL CUT BASE DITCH
(Not to Scale)



Type of Liner= CL B Rip–Rap

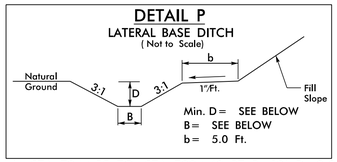
DETAIL NOT USED IN SECTION 3

DETAIL O
SPECIAL LATERAL BASE DITCH
(Not to Scale)



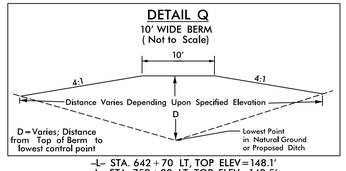
DETAIL NOT USED IN SECTION 3

DETAIL P
LATERAL BASE DITCH
(Not to Scale)



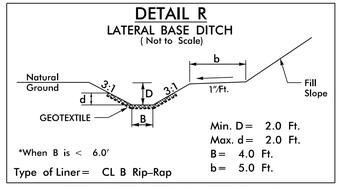
–L– STA. 704+55 TO STA. 709+40 RT, B=10', D=2.0'
–L– STA. 756+40 TO STA. 758+00 RT, B=12', D=2.5'
–Y11DW– STA. 11+00 TO STA. 11+50 LT, B=4', D=1.0'

DETAIL Q
10' WIDE BERM
(Not to Scale)



–L– STA. 642+70 LT, TOP ELEV=148.1'
–L– STA. 759+00 LT, TOP ELEV=148.5'
–L– STA. 762+00 LT, TOP ELEV=146.8'

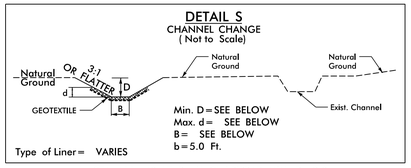
DETAIL R
LATERAL BASE DITCH
(Not to Scale)



Type of Liner= CL B Rip–Rap

DETAIL NOT USED IN SECTION 3

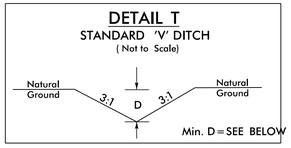
DETAIL S
CHANNEL CHANGE
(Not to Scale)



Type of Liner= VARIES

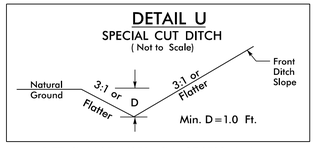
–L– STA. 766+40 LT, B=6', CL I RIPRAP, MIN D=3.0'
BEG. EL=138.55', END EL=137.85', L=55', S=1.3%
–L– STA. 766+40 RT, B=6', CL II RIPRAP, MIN D=3.0'
BEG. EL=134.80', END EL=134.35', L=48', S=0.9%

DETAIL T
STANDARD 'V' DITCH
(Not to Scale)



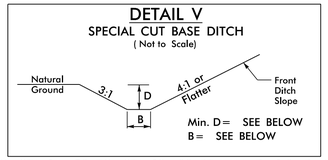
–L– STA. 735+85 LT,
BEG. EL=144.50', END EL=144.53', L=20', S=0.2%

DETAIL U
SPECIAL CUT DITCH
(Not to Scale)



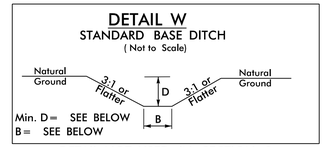
DETAIL NOT USED IN SECTION 3

DETAIL V
SPECIAL CUT BASE DITCH
(Not to Scale)



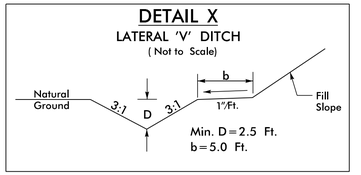
–Y9C– STA. 16+50 TO STA. 19+00 RT, MIN D=1.0', B=2'

DETAIL W
STANDARD BASE DITCH
(Not to Scale)



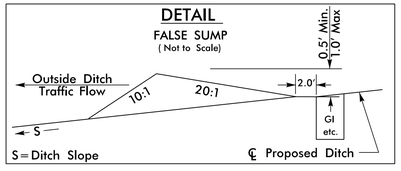
DETAIL NOT USED IN SECTION 3

DETAIL X
LATERAL 'V' DITCH
(Not to Scale)

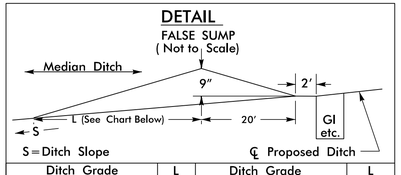


DETAIL NOT USED IN SECTION 3

DETAIL
FALSE SUMP
(Not to Scale)

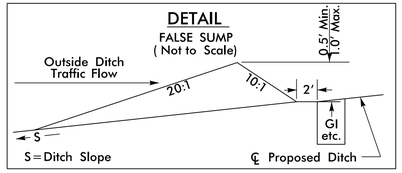


DETAIL
FALSE SUMP
(Not to Scale)

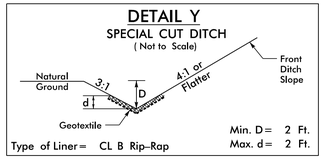


Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

DETAIL
FALSE SUMP
(Not to Scale)



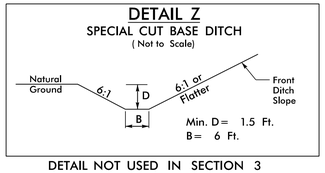
DETAIL Y
SPECIAL CUT DITCH
(Not to Scale)



Type of Liner= CL B Rip–Rap

–L– STA. 654+00 TO STA. 654+50 LT

DETAIL Z
SPECIAL CUT BASE DITCH
(Not to Scale)



DETAIL NOT USED IN SECTION 3

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R:\Hydraulics\PERMITS_Environmental\Drawings\4B\I-5986A_HYD_Ditch Detail_Sec3.dgn
Fkeys

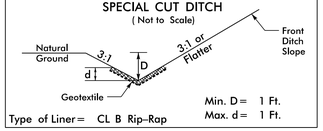
Submitted 9/2/2020

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	2D-6
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 7 OF 163

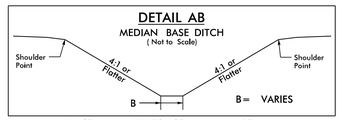
DETAIL AA
SPECIAL CUT DITCH
(Not to Scale)



Min. D = 1 Ft.
Max. d = 1 Ft.
Type of Liner = CL B Rip–Rap

DETAIL NOT USED IN SECTION 3

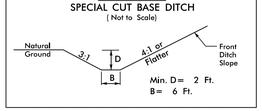
DETAIL AB
MEDIAN BASE DITCH
(Not to Scale)



B = VARIES

–L– STA. 575+00 TO STA. 577+75 RT
–L– STA. 635+00 TO STA. 642+50 LT
–Y9RPC– STA. 10+00 TO STA. 12+26 RT
–Y9RPC– STA. 17+50 TO STA. 24+00 RT

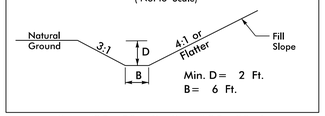
DETAIL AC
SPECIAL CUT BASE DITCH
(Not to Scale)



Min. D = 2 Ft.
B = 6 Ft.

–L– STA. 608+66 TO STA. 625+50 RT
–Y9RPB– STA. 11+19 TO STA. 20+50 LT

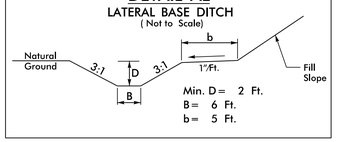
DETAIL AD
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Min. D = 2 Ft.
B = 6 Ft.

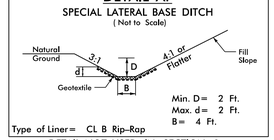
–L– STA. 625+50 TO STA. 625+90 RT

DETAIL AE
LATERAL BASE DITCH
(Not to Scale)



Min. D = 2 Ft.
B = 6 Ft.
b = 5 Ft.

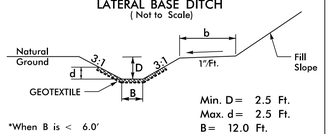
DETAIL AF
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Min. D = 2 Ft.
Max. d = 2 Ft.
B = 4 Ft.
Type of Liner = CL B Rip–Rap

DETAIL NOT USED IN SECTION 3

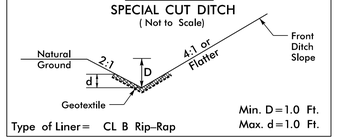
DETAIL AG
LATERAL BASE DITCH
(Not to Scale)



Min. D = 2.5 Ft.
Max. d = 2.5 Ft.
B = 12.0 Ft.
b = 5.0 Ft.
*When B is < 6.0'
Type of Liner = CL I Rip–Rap

–L– STA. 575+50 TO STA. 576+81 LT
–Y9RPB– STA. 10+00 TO STA. 11+19 LT

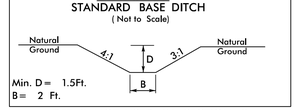
DETAIL AH
SPECIAL CUT DITCH
(Not to Scale)



Min. D = 1.0 Ft.
Max. d = 1.0 Ft.
Type of Liner = CL B Rip–Rap

DETAIL NOT USED IN SECTION 3

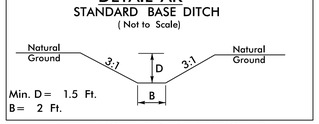
DETAIL AJ
STANDARD BASE DITCH
(Not to Scale)



Min. D = 1.5Ft.
B = 2 Ft.

DETAIL NOT USED IN SECTION 3

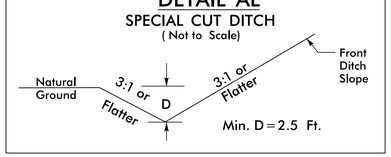
DETAIL AK
STANDARD BASE DITCH
(Not to Scale)



Min. D = 1.5 Ft.
B = 2 Ft.

DETAIL NOT USED IN SECTION 3

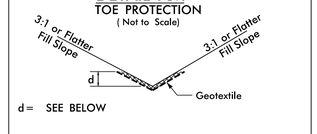
DETAIL AL
SPECIAL CUT DITCH
(Not to Scale)



Min. D = 2.5 Ft.

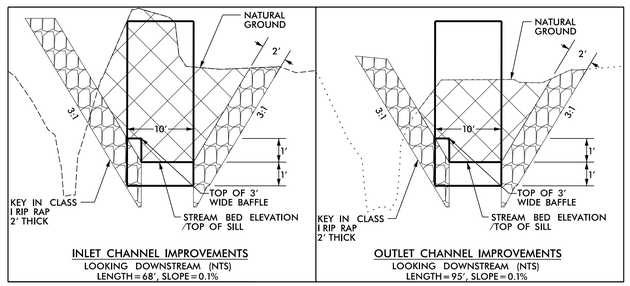
DETAIL NOT USED IN SECTION 3

DETAIL AM
TOE PROTECTION
(Not to Scale)



d = SEE BELOW
Type of Liner = B Rip–Rap

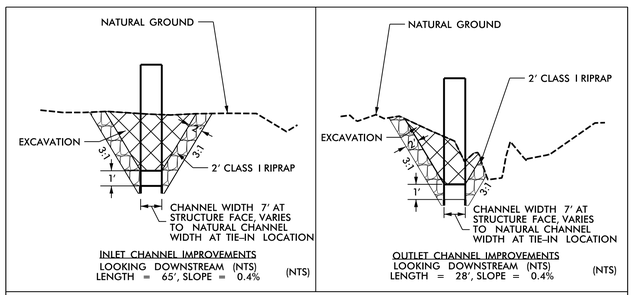
DETAIL NOT USED IN SECTION 3



INLET CHANNEL IMPROVEMENTS
LOOKING DOWNSTREAM (NTS)
LENGTH = 68', SLOPE = 0.1%

OUTLET CHANNEL IMPROVEMENTS
LOOKING DOWNSTREAM (NTS)
LENGTH = 95', SLOPE = 0.1%

CULVERT INLET AND OUTLET DETAILS
–L– 574+71

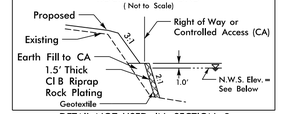


INLET CHANNEL IMPROVEMENTS
LOOKING DOWNSTREAM (NTS)
LENGTH = 65', SLOPE = 0.4% (NTS)

OUTLET CHANNEL IMPROVEMENTS
LOOKING DOWNSTREAM (NTS)
LENGTH = 28', SLOPE = 0.4% (NTS)

CULVERT INLET AND OUTLET DETAILS
–L– 642+72

DETAIL AN
ROCK FILL IN POND
(Not to Scale)



DETAIL NOT USED IN SECTION 3

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Fkeys

Submitted 9/2/2020

8/17/99

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

ENGLISH

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 8 OF 163

INSET A

NAD 83/NA 2011

SITE 1

DC

SEE INSET A

5 TONS CL B RIPRAP W/4 SY GEOTEXTILE ON BANKS ONLY

RETAIN EXISTING C/A FENCE

PROP. NOISE WALL NW1B

SPECIAL LATERAL 11' BASE DITCH SEE DETAIL O

WOODS

VAR BST

I-95 SBL VAR BST

3' BST

55+00

60+00

65+00

N 24° 58' 32.3" E

RETAIN DI

SPECIAL CUT BASE DITCH SEE DETAIL V

2GID-WSS

24" RCP III

SPECIAL LATERAL V DITCH SEE DETAIL A

FILL & TILL W/FLOWABLE FILL

REMOVE DI

CONC

STANDARD 4' BASE DITCH SEE DETAIL I

MATCHLINE -LSB- STA. 53+00.00 SEE SHEET 7

MATCHLINE -LNB- STA. 53+00.00 SEE SHEET 7

MATCHLINE -LNB- STA. 65+00.00 SEE SHEET 9

MATCHLINE -LSB- STA. 65+00.00 SEE SHEET 9

I-95 NBL 38' BST

10' BST

GRASS

RETAIN EXISTING C/A FENCE

EXISTING R/W

R/W MON

NON-IMPACTED BILLBOARD
-LNB- STATION 55+62 RT
MILEMARKER 54.1

BILLBOARD

CITY OF EASTOVER

SR 1833 SANDEROSA RD 27' BST

24" C&G

FOR -LNB- PROFILE SEE SHT. 86
FOR -LSB- PROFILE SEE SHT. 86
FOR -YRPB- PROFILE SEE SHT. 145

FOR DITCH DETAILS SEE SHTS. 2D-1 THRU 2D-2

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8/17/99

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

ENGLISH

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 9 OF 163

INSET A

NAD 83/NA 2011

SITE 1

DC

SEE INSET A

5 TONS CL B RIPRAP W/4 SY GEOTEXTILE ON BANKS ONLY

RETAIN EXISTING C/A FENCE

PROP. NOISE WALL NW1B

SPECIAL LATERAL 11' BASE DITCH SEE DETAIL O

MATCHLINE -LSB- STA. 53+00.00 SEE SHEET 7

MATCHLINE -LSB- STA. 65+00.00 SEE SHEET 9

MATCHLINE -LNB- STA. 53+00.00 SEE SHEET 7

MATCHLINE -LNB- STA. 65+00.00 SEE SHEET 9

55+00

60+00

65+00

N 24° 58' 32.3" E

RETAIN DI

24" RCP III

SPECIAL CUT BASE DITCH SEE DETAIL V

SPECIAL LATERAL V DITCH SEE DETAIL A

2GID-WSS

FILL & PAVE W/FLOWLINE

REMOVE DI

STANDARD 4' BASE DITCH SEE DETAIL I

RETAIN EXISTING C/A FENCE

NON-IMPACTED BILLBOARD
-LNB- STATION 55+62 RT
MILEMARKER 54.1

CITY OF EASTOVER

SR 1833 SANDEROSA RD 27' BST

FOR –LNB– PROFILE SEE SHT. 86
FOR –LSB– PROFILE SEE SHT. 86
FOR –YRPB– PROFILE SEE SHT. 145

FOR DITCH DETAILS SEE SHTS. 2D–1 THRU 2D–2

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ETLEE

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REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING SHEET 10 OF 163

INSET A

INSET B

BEGIN CONSTRUCTION
BEGIN OVERLAY
-Y- POT Sta. 10+05.90

END CONSTRUCTION
END OVERLAY
-Y- POC Sta. 19+83.13

MURPHY ROAD

WCC
WA
WB
WCA
WCB
SV-1
SV-2
SV-3
SITE 2
SITE 3
Reese Creek-1

SEE INSET A
SEE INSET B

RETAIN EXISTING C/A FENCE

MATCHLINE -LSB- STA. 65+00.00 SEE SHEET 8

MATCHLINE -LSB- STA. 91+00.00 SEE SHEET 10

MATCHLINE -LNB- STA. 65+00.00 SEE SHEET 8

MATCHLINE -LNB- STA. 91+00.00 SEE SHEET 10

-LSB-

-LNB-

-RPB-

-LPB-

50 25 0 50 100
SCALE FOR INSET

100 50 0 100 200
SCALE

ENGLISH

T T DENOTES TEMPORARY FILL IN WETLAND

F F DENOTES FILL IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

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REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 11 OF 163

INSET A

INSET B

BEGIN CONSTRUCTION
BEGIN OVERLAY
-Y- POT Sta. 10+05.90

END CONSTRUCTION
END OVERLAY
-Y- POC Sta. 19+83.13

MURPHY ROAD

SITE 2

SITE 3

WCC

WA

WB

WCB

WCA

SV-1

SV-2

SV-3

Reese Creek-1

SEE INSET A

SEE INSET B

RETAIN EXISTING C/A FENCE

MATCHLINE -LSB- STA. 65+00.00 SEE SHEET 8

MATCHLINE -LNB- STA. 65+00.00 SEE SHEET 8

MATCHLINE -LSB- STA. 91+00.00 SEE SHEET 10

MATCHLINE -LNB- STA. 91+00.00 SEE SHEET 10

N 8°57'01.2" E

S 42°18'18.3" W

S 42°41'41.6" W

N 24°58'32.9" E

N 24°59'21.1" E

S 27°02'02.9" W

S 56°52'09.0" E

S 56°52'09.0" E

SCALE FOR INSET: 50 25 0 50 100

SCALE: 100 50 0 100 200

ENGLISH

T T DENOTES TEMPORARY FILL IN WETLAND

F F DENOTES FILL IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

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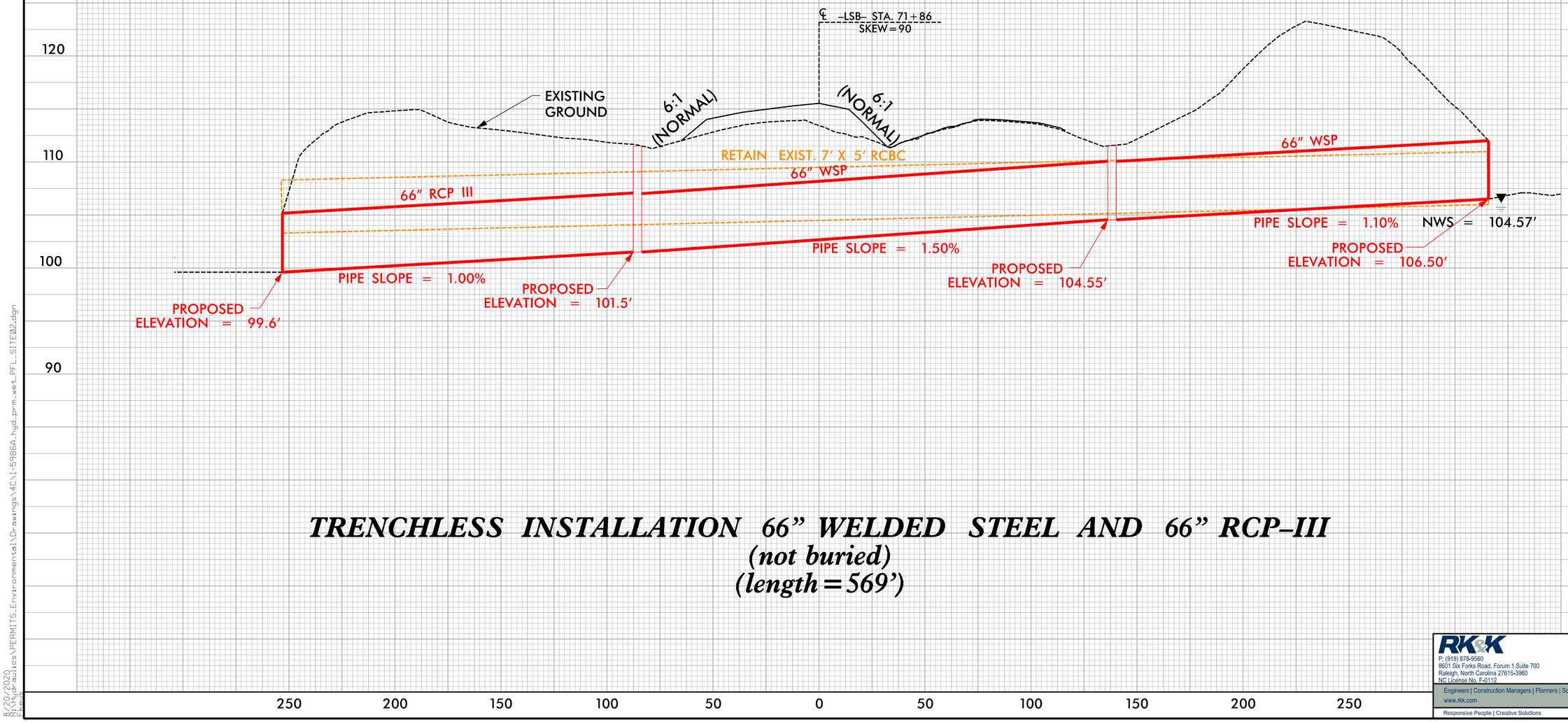
PROJECT REFERENCE NO.	SHEET NO.
I-5986A	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SITE 2
–LSB– STA. 71+86

PERMIT DRAWING
SHEET 12 OF 163

ENGLISH



TRENCHLESS INSTALLATION 66" WELDED STEEL AND 66" RCP–III
(not buried)
(length=569')

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8/20/2020
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Engineer

Submitted 9/2/2020

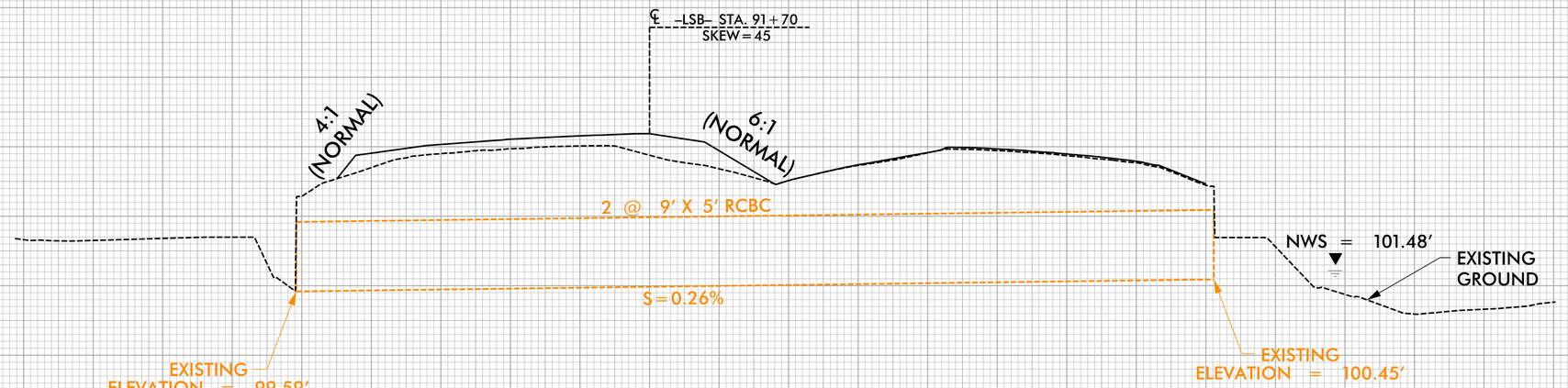
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SITE 3
–LSB– STA. 91+70

PERMIT DRAWING
SHEET 13 OF 163

ENGLISH



RETAIN EXISTING 2 @ 9'x5' RCBC
(length = 330')

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6/23/16

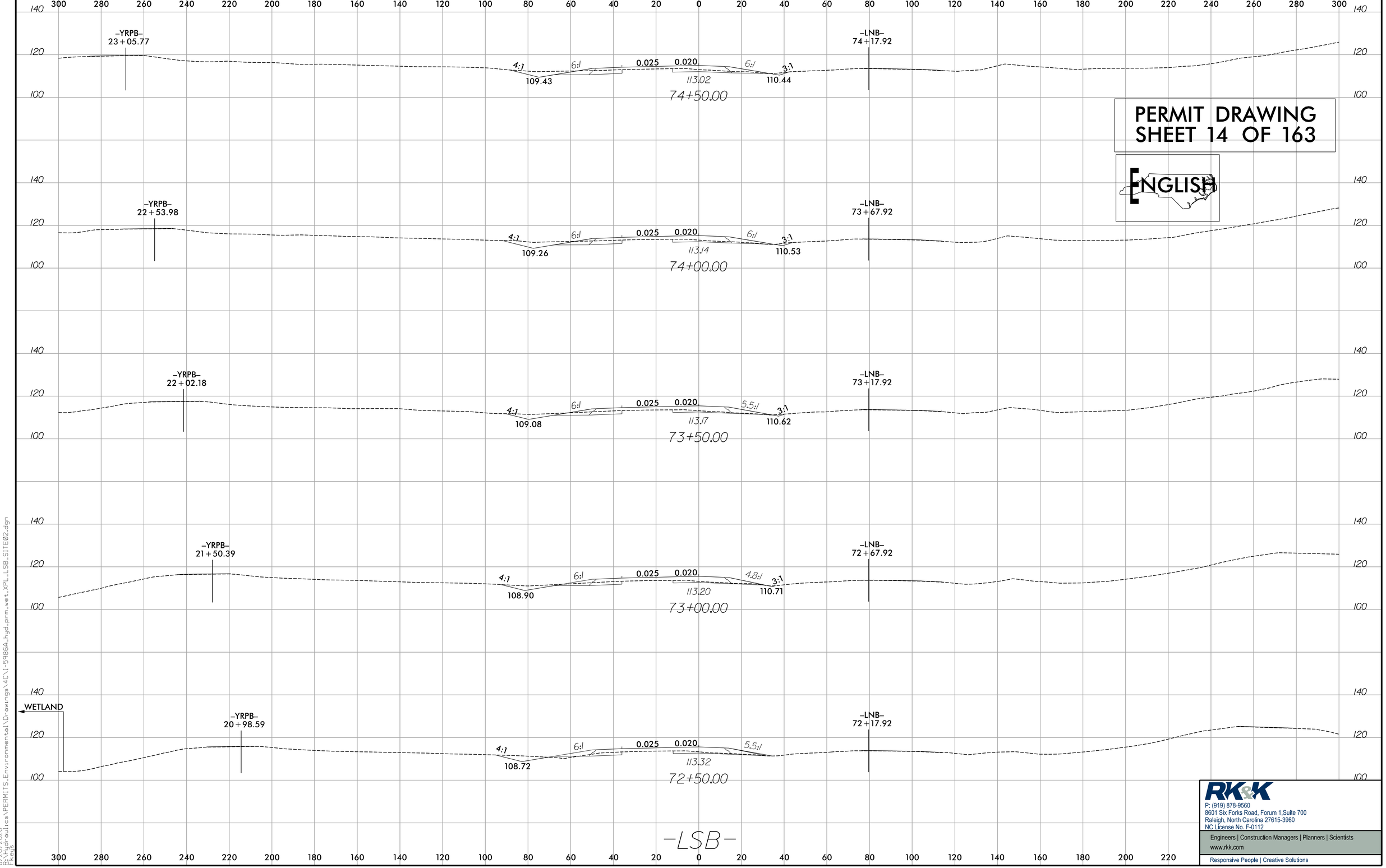
SITE 2

0 10 20

PROJ. REFERENCE NO.	SHEET NO.
I-5986A	S1 X-25

PERMIT DRAWING
SHEET 14 OF 163

ENGLISH



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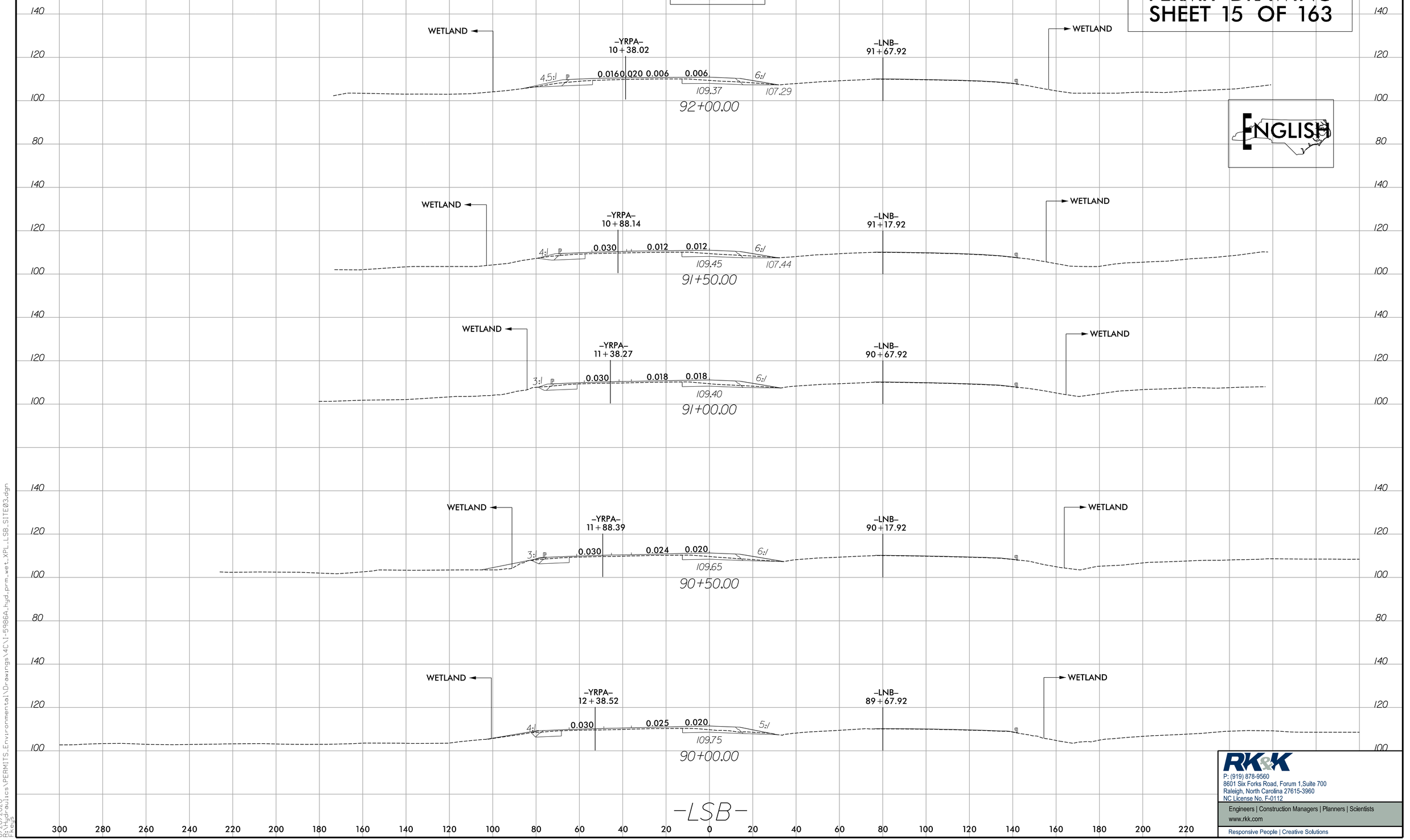
0 10 20	PROJ. REFERENCE NO.	SHEET NO.
	I-5986A	S1 X-32

SITE 3

PERMIT DRAWING
SHEET 15 OF 163



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8/20/2020
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REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
I-5985A	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 16 OF 163

SCALE FOR INSET: 50 25 0 50 100

SCALE: 100 50 0 100 200

ENGLISH

- DENOTES MECHANIZED CLEARING
- F F DENOTES FILL IN WETLAND
- DENOTES TEMPORARY FILL IN WETLAND
- S S DENOTES IMPACTS IN SURFACE WATER

NAD 83/NSRS 2011

MATCHLINE -Y1SB- STA. 35+00.00 SEE SHEET 63

MATCHLINE -Y1NB- STA. 20+00.00 SEE SHEET 63

INSET A — 3 TONS CL B RIPRAP W/10 SY GEOTEXTILE

INSET B — ONS CL B RIPRAP 6 SY GEOTEXTILE

INSET C — 24" CMP

I-95 BUS

RETAIN EXISTING C/A FENCE

SITE 3 — Reese Creek–1

SITE 3 — Reese Creek–2

SITE 4 — SA

SITE 4

SITE 5 — WB

SITE 6 — WD

WA

WC

SEE INSET A

SEE INSET B

SEE INSET C

SEE INSET D

SEE INSET E

SEE INSET F

-LSB-

-LNB-

MATCHLINE -LSB- STA. 91+00.00 SEE SHEET 9

MATCHLINE -LNB- STA. 91+00.00 SEE SHEET 9

MATCHLINE -LSB- 119+00.00 SEE SHEET 11

MATCHLINE -Y1NB- 46+50.00 SEE SHEET 11

INSET D — EXISTING 30" CMP; Q10 = 15.7 cfs; V10 = 1.43 fps; 48 LINEAR FT CL I RIPRAP W/8 SY GEOTEXTILE

INSET E — RCP; TAIN

INSET F — TRENCHES; Q10 = 2; V10 =

TRAFFIC DIAGRAM
ADT 2018
ADT 2040

I-95: 9,900 / 10,000 — 44,500 / 50,400 — 54,500 / 59,000

FOR -LNB- PROFILE SEE SHTS. 88 THRU 90
FOR -LSB- PROFILE SEE SHTS. 88 THRU 90
FOR -YRPA- PROFILE SEE SHT. 144
FOR -Y1NB- PROFILE SEE SHTS. 146 THRU 147
FOR -Y1SB- PROFILE SEE SHT. 148

FOR DITCH DETAILS SEE SHTS. 2D-1 THRU 2D-2

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REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
I-5985A	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 17 OF 163

SCALE FOR INSET: 50 25 0 50 100

SCALE: 100 50 0 100 200

ENGLISH

- DENOTES MECHANIZED CLEARING
- F F DENOTES FILL IN WETLAND
- DENOTES TEMPORARY FILL IN WETLAND
- S S DENOTES IMPACTS IN SURFACE WATER

NAD 83/NSRS 2011

MATCHLINE -Y1SB- STA. 35+00.00 SEE SHEET 63

MATCHLINE -Y1NB- STA. 20+00.00 SEE SHEET 63

INSET A: 3 TONS CL B RIPRAP W/10 SY GEOTEXTILE

INSET B: TONS CL B RIPRAP W/16 SY GEOTEXTILE; TRENCH; PLUG W/ RETAIN

INSET C: 24" CMP; STEEL

I-95 BUS

RETAIN EXISTING C/A FENCE

SITE 4 — SA — WC — SEE INSET C — SEE INSET B

SITE 3 — WA — Reese Creek–1 — SEE INSET A

MATCHLINE -LSB- STA. 91+00.00 SEE SHEET 9

MATCHLINE -LNB- STA. 91+00.00 SEE SHEET 9

Reese Creek–2 — SITE 3

SITE 5 — WB — SEE INSET D

SITE 6 — WD — SEE INSET E — SEE INSET F

MATCHLINE -LSB- 119+50.00 SEE SHEET 11

MATCHLINE -Y1NB- 46+50.00 SEE SHEET 11

INSET D: REMOVE APPROX 70 LF EXISTING 30" CMP; Q10 = 15.7 cfs; V10 = 1.43 fps; 48" CMP; CL I RIPRAP W/8 SY GEOTEXTILE

INSET E: RETAIN

INSET F: 24"x 40" HE; 16 TONS CL I RIPRAP W/24 SY GEOTEXTILE; TRENCH

TRAFFIC DIAGRAM
ADT 2018
ADT 2040

I-95: 9,900 / 12,000 — 44,600 / 62,400 — 54,500 / 69,000

FOR –LNB– PROFILE SEE SHTS. 88 THRU 90
FOR –LSB– PROFILE SEE SHTS. 88 THRU 90
FOR –YRPA– PROFILE SEE SHT. 144
FOR –Y1NB– PROFILE SEE SHTS. 146 THRU 147
FOR –Y1SB– PROFILE SEE SHT. 148

FOR DITCH DETAILS SEE SHTS. 2D-1 THRU 2D-2

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8/20/2020
Plotted: 8/20/2020
By: Mark Jackson
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Submitted 9/2/2020

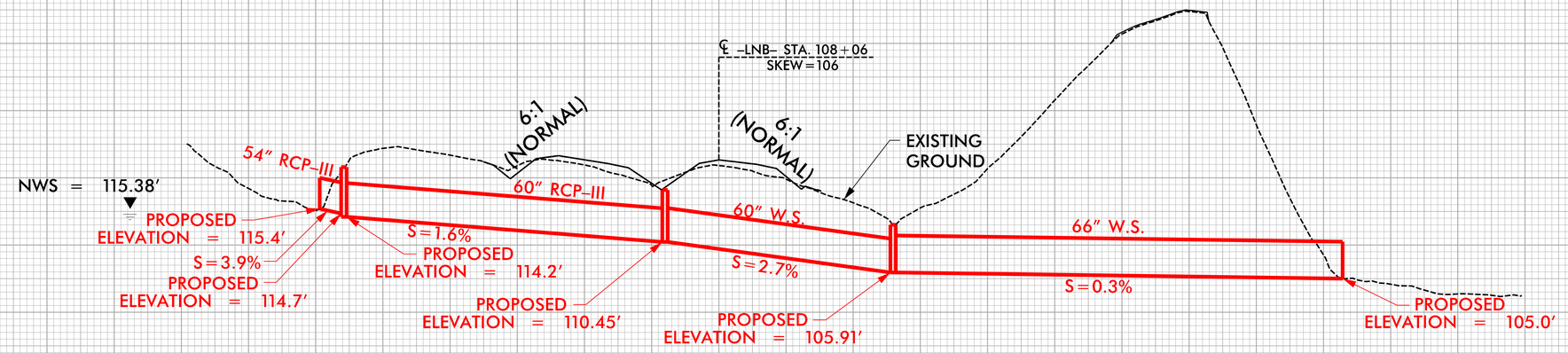
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SITE 5
–LNB– STA. 108+06

PERMIT DRAWING
SHEET 18 OF 163

ENGLISH



54" RCP–III, 60" RCP–III, TRENCHLESS INSTALLATION 60" WELDED STEEL, & TRENCHLESS INSTALLATION 66" WELDED STEEL
(not buried)
(length=744')

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Engineer

Submitted 9/2/2020

6/23/16

SITE 4

0 10 20

PROJ. REFERENCE NO.	SHEET NO.
I-5986A	S1 X-35

300 280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300

140 120 100

WETLAND

–LNB–
99+12.00

6:1 0.030 0.030 6:1 6:1
110.66 107.97
99+50.00

WETLAND

WETLAND

–LNB–
98+62.52

5.10:1 0.030 0.030 6:1 6:1
110.28 107.71
99+00.00

WETLAND

WETLAND

–LNB–
98+13.03

5.75:1 0.030 0.030 6:1 6:1
109.85 107.49
98+50.00

WETLAND

WETLAND

–LNB–
97+63.55

6:1 0.030 0.030 6:1 6:1
109.55 107.30
98+00.00

WETLAND

WETLAND

–LNB–
97+14.06

6:1 0.030 0.030 6:1 6:1
109.30 107.13
97+50.00

WETLAND

–LSB–

PERMIT DRAWING
SHEET 19 OF 163

ENGLISH

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ftegg

Submitted 9/2/2020

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING SHEET 20 OF 163

NAD 83/NA 2011

MATCHLINE -Y3- STA. 17+00.00 SEE SHEET 64

MATCHLINE -LSB- 130+00.00 SEE SHEET 11

MATCHLINE -L- STA. 93+00.00 SEE SHEET 13

MATCHLINE -Y3- STA. 25+00.00 SEE SHEET 65

SITE 7

SITE 8

WH

WE

LATERAL 4' BASE DITCH SEE DETAIL P

10' DITCH TAPER TO 30" INLET

2 TONS CL B RIPRAP W/7 SY GEO FAB

NON-IMPACTED BILLBOARD -L- STATION B6+50 LT MILEMARKER 55.6

NON-IMPACTED BILLBOARD -L- STATION 92+00 LT MILEMARKER 55.7

NON-IMPACTED BILLBOARD -L- STATION 92+50 RT MILEMARKER 55.7

RETAIN EXISTING C/A FENCE

LATERAL 4' BASE DITCH SEE DETAIL J

SPECIAL CUT 4' BASE DITCH SEE DETAIL V

LATERAL 'V' DITCH SEE DETAIL K

LATERAL 4' BASE DITCH SEE DETAIL D

2 TONS CL W/7 SY GE

REMOVE PIPE

REMOVE CB

REMOVE JB

REMOVE DI

2GIB-NSF

2GIB-WSF

15" RCP-IV

30" RCP-IV

15" RCP-III

15" CSP 2 ELBOWS

PLUG & FILL WITH FLOWABLE FILL

8 TONS CL B RIPRAP W/21 SY GEO FAB

2 TONS CL B RIPRAP W/7 SY GEO FAB

STRUCTURE BURIED STRUCTURE AND PIPES DRAWN IN APPROXIMATE LOCATION FROM PROJECT: 8.1347412

PROP. SBG

PROP. SBG

-Y3-

-L-

-LSB-

BAYWOOD RD

S 60° 34' 27.6" E

N 29° 29' 55.2" E

N 27°25'56" W 327.79'

N 29°33'04" E 724.67'

N 27°25'56" W 327.79'

N 29°33'04" E 724.67'

ACCESS AND UTILITY EASEMENT PB 124 PG 127

POND

WOODS

SOIL

BILLBOARD

GREU TL-3

I-95 NBL VAR BST

I-95 SBL VAR BST

105' BST

10' BST

4' BST

3' BST

2' BST

48" WW & ISBW

EXISTING R/W

R/W MON

MTL

CONC

SDOOM

JB

DI

85+00

90+00

60+00

130+00

SCALE

50 25 0 50 100

ENGLISH

F F DENOTES FILL IN WETLAND

E E DENOTES EXCAVATION IN WETLAND

FOR –LSB– PROFILE SEE SHT. 91
FOR –LLT SEC1– PROFILE SEE SHT. 92
FOR –LRT SEC1– PROFILE SEE SHT. 92
FOR –Y1NB– PROFILE SEE SHT. 147
FOR –Y3– PROFILE SEE SHT. 149

FOR DITCH DETAILS SEE SHTS. 2D-1 THRU 2D-2

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Kevin Lewis
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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING SHEET 21 OF 163

NAD 83/NA 2011

MATCHLINE -Y3- STA. 17+00.00 SEE SHEET 64

MATCHLINE -LSB- 130+00.00 SEE SHEET 11

MATCHLINE -L- STA. 93+00.00 SEE SHEET 13

MATCHLINE -Y3- STA. 25+00.00 SEE SHEET 65

SITE 7

SITE 8

WH

WE

BAYWOOD RD

S 60° 34' 27.6" E

N 29° 29' 55.2" E

N 29°33'04" E
724.67'

RETAIN EXISTING C/A FENCE

ACCESS AND UTILITY EASEMENT
DB 12, PG 129

POND

NON-IMPACTED BILLBOARD
-L- STATION B6+50 LT
MILEMARKER 55.6

NON-IMPACTED BILLBOARD
-L- STATION 92+00 LT
MILEMARKER 55.7

NON-IMPACTED BILLBOARD
-L- STATION 92+50 RT
MILEMARKER 55.7

LATERAL 4' BASE DITCH SEE DETAIL P

10' DITCH TAPER TO 30" INLET

2 TONS CL B RIPRAP W/7 SY GEO FAB

8 TONS CL B RIPRAP W/21 SY GEO FAB

2 TONS CL B RIPRAP W/7 SY GEO FAB

LATERAL 4' BASE DITCH SEE DETAIL J

SPECIAL CUT 4' BASE DITCH SEE DETAIL V

LATERAL 'V' DITCH SEE DETAIL K

2 TONS CL W/7 SY GE

LATERAL 4' BASE DITCH SEE DETAIL D

REMOVE PIPE

REMOVE CB

REMOVE JB

REMOVE DI

PLUG & FILL WITH FLOWABLE FILL

2GIB-NSF

2GIB-WSF

15" RCP-IV

18" RCP-IV

30" RCP-IV

15" RCP-III

15" CSP 2 ELBOWS

STRUCTURE BURIED STRUCTURE AND PIPES DRAWN IN APPROXIMATE LOCATION FROM PROJECT: 8.1347412

STRUCTURE BURIED STRUCTURE AND PIPES DRAWN IN APPROXIMATE LOCATION FROM PROJECT: 8.1347412

POSSIBLE STRUCTURE BURIED STRUCTURE AND PIPES DRAWN IN APPROXIMATE LOCATION FROM PROJECT: 8.1347412

GREU TL-3

PROP. SBG

PROP. SBGG

130+00

85+00

90+00

60+00

50 25 0 50 100
SCALE

ENGLISH

DENOTES FILL IN WETLAND

DENOTES EXCAVATION IN WETLAND

FOR –LSB– PROFILE SEE SHT. 91
FOR –LLT SEC1– PROFILE SEE SHT. 92
FOR –LRT SEC1– PROFILE SEE SHT. 92
FOR –Y1NB– PROFILE SEE SHT. 147
FOR –Y3– PROFILE SEE SHT. 149

FOR DITCH DETAILS SEE SHTS. 2D-1 THRU 2D-2

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Eric.Lee
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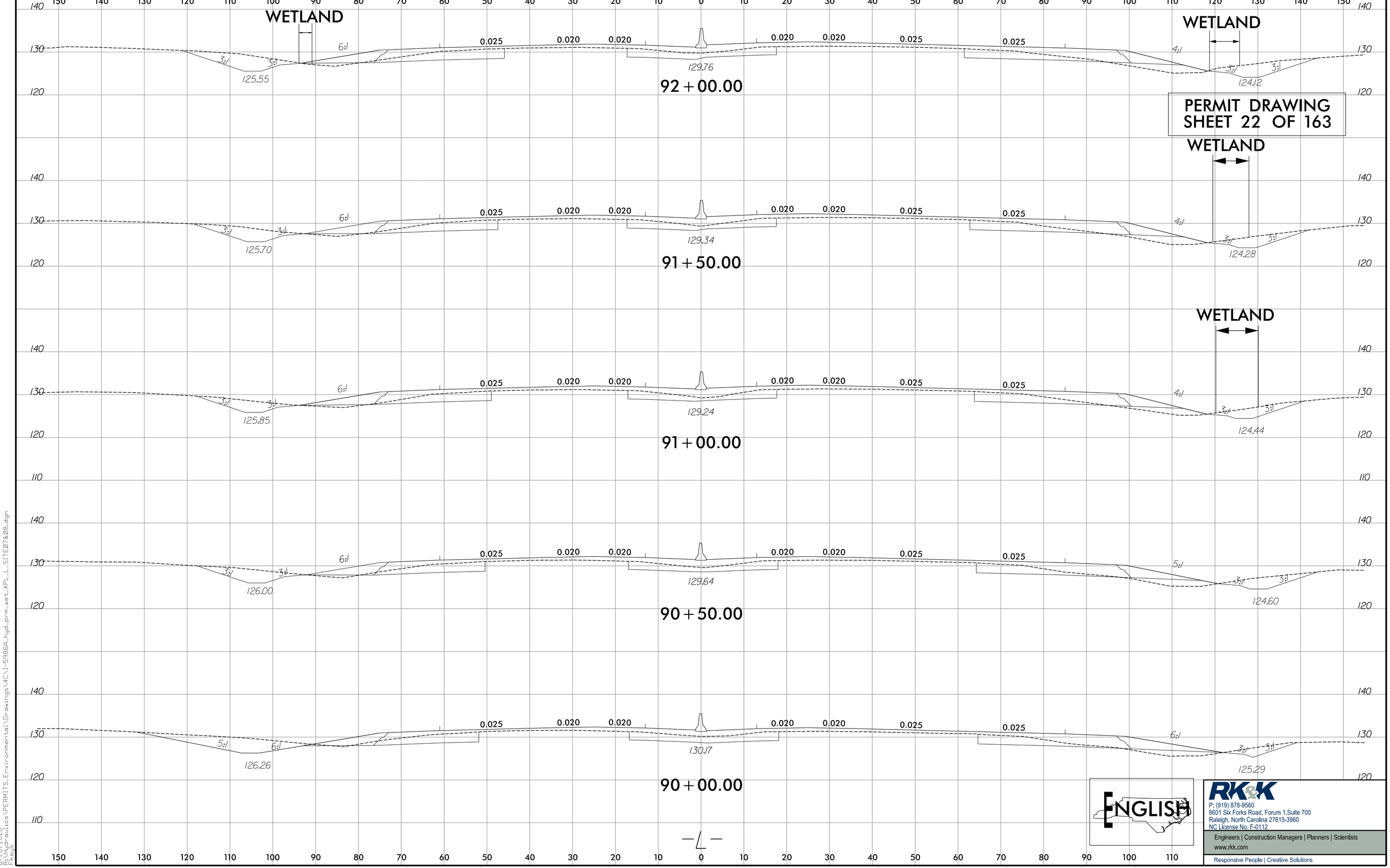
Submitted 9/2/2020

6/23/16

SITE 7 & 8

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-5986A	S1 X-54



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F. Kay

Submitted 9/2/2020

8/17/99

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

ENGLISH

E E DENOTES EXCAVATION IN WETLAND
F F DENOTES FILL IN WETLAND
S S DENOTES IMPACTS IN SURFACE WATER
TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 23 OF 163

NAD 83/NA 2011

Oak Hill Drive

Attica Drive

SITE 7

SITE 9

SEE INSET A

INSET A

MATCHLINE -L- STA. 93+00.00 SEE SHEET 12

MATCHLINE -L- STA. 106+00.00 SEE SHEET 14

LATERAL 4' BASE DITCH SEE DETAIL J

SPECIAL CUT 4' BASE DITCH SEE DETAIL V

SPECIAL CUT 4' BASE DITCH SEE DETAIL V

SPECIAL CUT 4' BASE DITCH SEE DETAIL V

SPECIAL CUT DITCH SEE DETAIL U

SPECIAL CUT DITCH SEE DETAIL B

PROP. WOVEN WIRE FENCE

FS MIN ELEV. 128.0

PLUG & FILL WITH FLOWABLE FILL

PLUG & FILL WITH FLOWABLE FILL

REMOVE DI

2GIB-WSF 2GIB-WSF

15" RCP-IV

15" RCP-IV

36" RCP-IV

2GIB-WSF

Q10 = 78.84 cfs
V10 = 2.05 ft/s

STANDARD 6' BASE DITCH SEE DETAIL W

30 TONS CL I RIPRAP W/60 SY GEO FAB

LATERAL 4' BASE DITCH SEE DETAIL D

RETAIN EXISTING C/A FENCE

PROP. WOVEN WIRE FENCE

72" CLF & 3' SBW

30' ACCESS AND UTILITY EASEMENT PB 124 PG 188

20' ACCESS EASEMENT PB 124 PG 188

EASEMENT TO POND ON LOT 1

WATER TOWER

GREU TL-3

CAT-1

I-95 SBL VAR BST

I-95 NBL VAR BST

I-95 SBL 37' BST

I-95 NBL 59' BST

95+00

100+00

105+00

WH

WF

SB

WG

FOR -LLT SEC1- PROFILE SEE SHT. 93
FOR -LRT SEC1- PROFILE SEE SHT. 93

FOR DITCH DETAILS SEE SHTS. 2D-1 THRU 2D-2

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25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

ENGLISH

F F DENOTES EXCAVATION IN WETLAND
F F DENOTES FILL IN WETLAND
S S DENOTES IMPACTS IN SURFACE WATER
TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING SHEET 24 OF 163

NAD 83/NA 2011

Oak Hill Drive

Attica Drive

SITE 7

SITE 9

WH

WF

WG

SB

PUE

LATERAL 4' BASE DITCH SEE DETAIL J

SPECIAL CUT 4' BASE DITCH SEE DETAIL V

SPECIAL CUT 4' BASE DITCH SEE DETAIL V

SPECIAL CUT 4' BASE DITCH SEE DETAIL V

SPECIAL CUT DITCH SEE DETAIL U

SPECIAL CUT DITCH SEE DETAIL B

PROP. WOVEN WIRE FENCE

FS MIN ELEV. 128.0

BILLBOARD

I S F D

CAR PORT

WOODS

HW

PLUG & FILL WITH FLOWABLE FILL

N 29° 29' 55.2" E -l-

95+00

100+00

105+00

REMOVE DI

2GIB-WSF 2GIB-WSF

15" RCP-IV

36" RCP-IV

2GIB-WSF

PLUG & FILL WITH FLOWABLE FILL

CAT-1

GREU TL-3

Q10=78.84 cfs
V10=2.05 ft/s

STANDARD 6' BASE DITCH SEE DETAIL W

LATERAL 4' BASE DITCH SEE DETAIL D

30 TONS CL I RIPRAP W/60 SY GEO FAB

RETAIN EXISTING C/A FENCE

SEE INSET A

20' ACCESS AND UTILITY EASEMENT PB 124 PG 188

EASEMENT TO POND ON LOT 1

INSET A

MATCHLINE -L- STA. 93+00.00 SEE SHEET 12

MATCHLINE -L- STA. 106+00.00 SEE SHEET 14

FOR -LLT SEC1- PROFILE SEE SHT. 93
FOR -LRT SEC1- PROFILE SEE SHT. 93

FOR DITCH DETAILS SEE SHTS. 2D-1 THRU 2D-2

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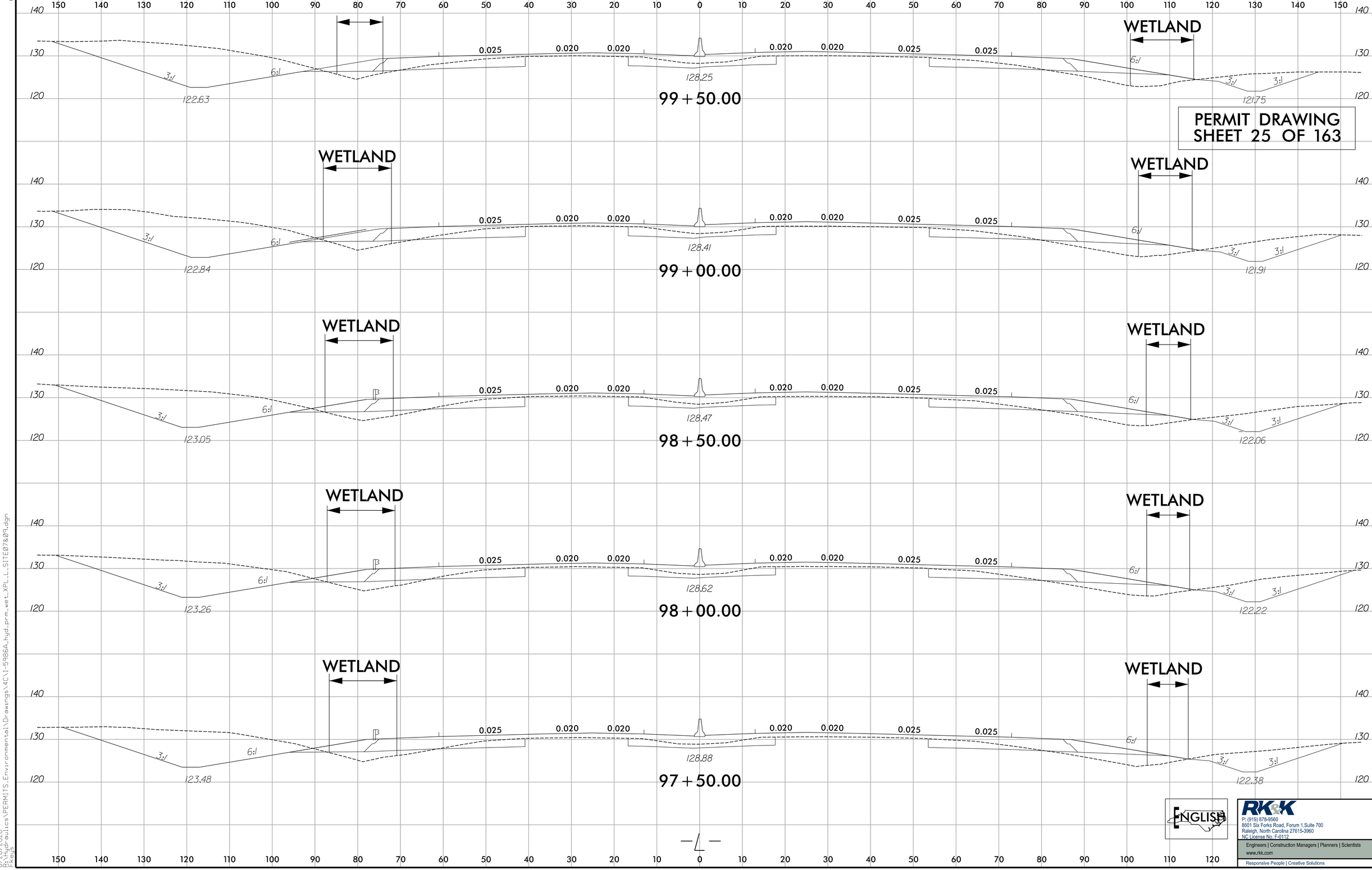
Submitted 9/2/2020

6/23/16

SITE 7 & 9

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-5986A	S1 X-57

PERMIT DRAWING
SHEET 25 OF 163



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tkemp

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PROJECT REFERENCE NO.	SHEET NO.
I-5986A	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING SHEET 26 OF 163

50 25 0 50 100
SCALE

ENGLISH

F F DENOTES FILL IN WETLAND

NAD 83/NA 2011

SITE 10

MATCHLINE -L- STA. 106+00.00 SEE SHEET 13

MATCHLINE -L- STA. 119+00.00 SEE SHEET 15

SPECIAL CUT DITCH SEE DETAIL B

SPECIAL CUT 4' BASE DITCH W/CL B RIPRAP SEE DETAIL N

SPECIAL CUT 4' BASE DITCH SEE DETAIL V

SPECIAL CUT DITCH SEE DETAIL U

SPECIAL CUT DITCH SEE DETAIL U

LATERAL 4' BASE DITCH SEE DETAIL J

PROP. WOVEN WIRE FENCE

HW

165'

FS MIN ELEV. 127.0'

WI

PLUG & FILL WITH FLOWABLE FILL

36" RCP-IV

42" RCP-IV

110+00

115+00

-L-

N 29° 29' 55.2" E

2GIB-WSF

REMOVE DI

15" RCP-IV

140'

PLUG & FILL WITH FLOWABLE FILL CAT-1

11 TONS CL B RIPRAP W/28 SY GEO FAB

STANDARD 3' BASE DITCH SEE DETAIL W

PDE

SPECIAL CUT DITCH SEE DETAIL U

LATERAL 'V' DITCH SEE DETAIL K

STD. 3' BASE DITCH SEE DETAIL W

CITY OF EASTOVER

48" WW & 15BW

WOODS

R/W MON

MTL

I-95 SBL 37' BST

I-95 NBL 37' BST

FIP

N 72°24'45.4" W 218.09'

N 72°18'57" W 353.35'

S 00°48'11" E 53.98'

S 80°39'49" W 330.98'

N 72°24'45.4" W 314.91'

N 72°18'57" W 332.09'

S 73°24'10" E 218.81'

N 02°35'10" W 36.68'

S 73°24'10" E 131.88'

S 34°07'50" W 208.33'

S 46°39'56" W 914.74'

S 72°24'45.4" E 119.28'

FOR –LLT SEC1– PROFILE SEE SHTS. 93 THRU 94
FOR –LRT SEC1– PROFILE SEE SHTS. 93 THRU 94
FOR DITCH DETAILS SEE SHTS. 2D–1 THRU 2D–2

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8/17/99

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SCALE

ENGLISH

F F DENOTES FILL IN WETLAND

NAD 83/NA 2011

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING SHEET 27 OF 163

SITE 10

MATCHLINE -L- STA. 106+00.00 SEE SHEET 13

MATCHLINE -L- STA. 119+00.00 SEE SHEET 15

SPECIAL CUT 4' BASE DITCH W/CL B RIPRAP SEE DETAIL N

SPECIAL CUT DITCH SEE DETAIL B

SPECIAL CUT 4' BASE DITCH SEE DETAIL V

SPECIAL CUT DITCH SEE DETAIL U

SPECIAL CUT DITCH SEE DETAIL U

LATERAL 4' BASE DITCH SEE DETAIL J

PROP. WOVEN WIRE FENCE

HW

FS MIN ELEV. 127.0'

165'

PLUG & FILL WITH FLOWABLE FILL

36" RCP-IV

2GIB-WSF

REMOVE DI

15" RCP-IV

110+00

115+00

-L-

N 29° 29' 55.2" E

140'

PLUG & FILL WITH FLOWABLE FILL CAT-1

11 TONS CL B RIPRAP W/28 SY GEO FAB

CITY OF EASTOVER

SPECIAL CUT DITCH SEE DETAIL U

LATERAL 'V' DITCH SEE DETAIL K

STD. 3' BASE DITCH SEE DETAIL W

STANDARD 3' BASE DITCH SEE DETAIL W

PDE

WI

WOODS

R/W MON

I-95 SBL 37' BST

FOR –LLT SEC1– PROFILE SEE SHTS. 93 THRU 94
FOR –LRT SEC1– PROFILE SEE SHTS. 93 THRU 94
FOR DITCH DETAILS SEE SHTS. 2D–1 THRU 2D–2

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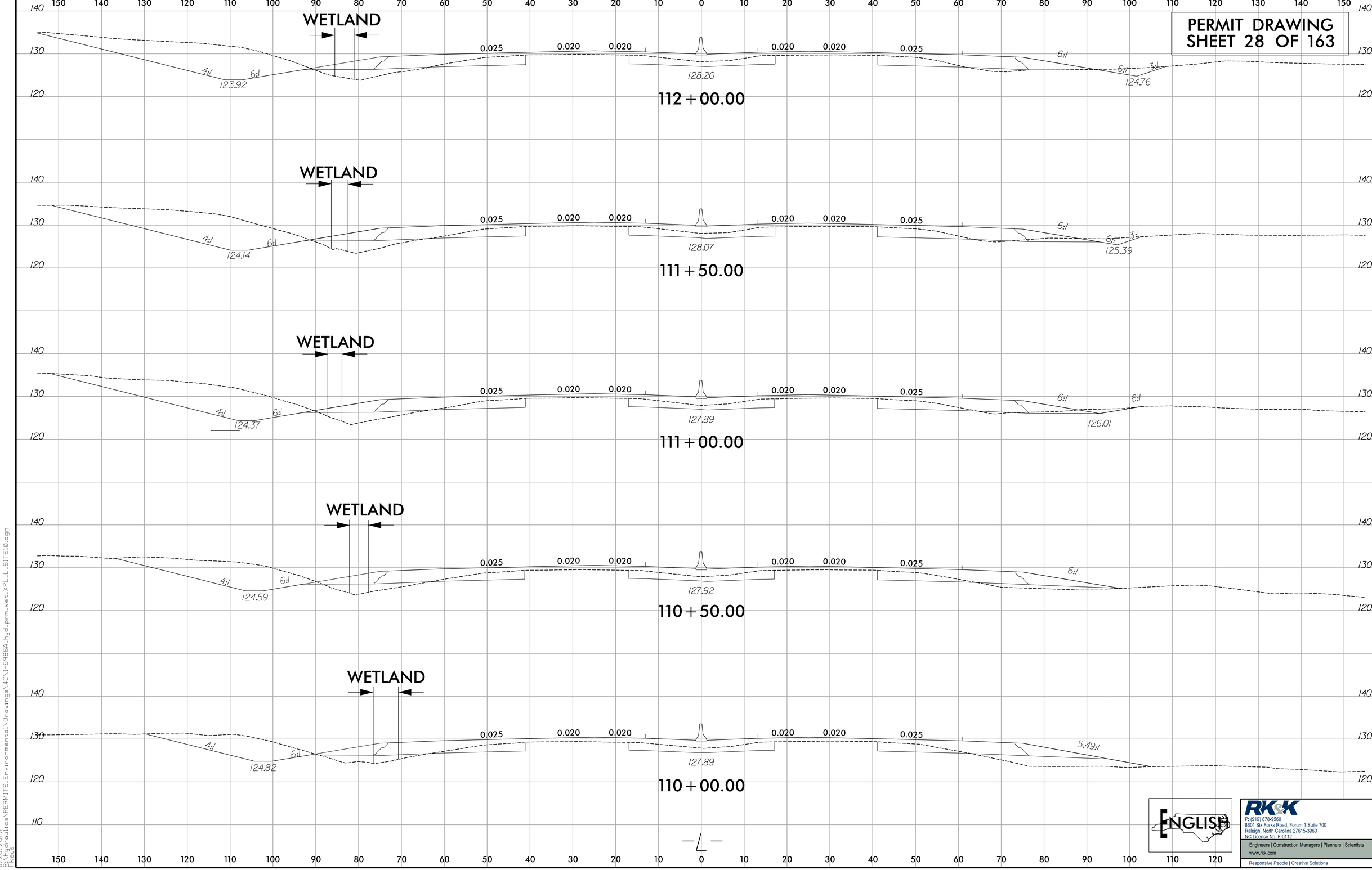
Submitted 9/2/2020

6/23/16

SITE 10

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-5986A	S1 X-62

PERMIT DRAWING
SHEET 28 OF 163



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Submitted 9/2/2020

8/17/99

50 25 0 50 100
SCALE

ENGLISH

DENOTES TEMPORARY FILL IN WETLAND
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES EXCAVATION IN WETLAND

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 29 OF 163

NAD 83/NA 2011

MATCHLINE -L- STA. 119+00.00 SEE SHEET 14

MATCHLINE -L- STA. 132+00.00 SEE SHEET 16

SITE 11

SITE 12

WK

WJ

WL

N 01°24'49" E 270.39'
N 01°24'49" E 246.73'
N 01°24'49" E 251.93'
N 01°24'49" E 194.65'
N 64°02'37" E 580.47'
S 88°29'24" E 525.52'
S 88°29'24" E 193.76'

PROP. WOVEN WIRE FENCE
REMOVE EXISTING FENCE
EXISTING R/W
WOODS
HW
LATERAL 4' BASE DITCH SEE DETAIL J
LATERAL 6' BASE DITCH SEE DETAIL L
LATERAL 4' BASE DITCH SEE DETAIL P
LATERAL V DITCH SEE DETAIL K
SPECIAL CUT DITCH SEE DETAIL U
STANDARD 8' BASE DITCH SEE DETAIL AI
Q10 = 116.4 cfs
V10 = 1.92 ft/s
Q10 = 99.48 cfs
V10 = 1.92 ft/s
EC Basin
+00.00
140.00', 175.00' RT
STANDARD 8' BASE DITCH SEE DETAIL W
TOE PROTECTION W/CL B RIP RAP SEE DETAIL H
98 TONS CL I RIPRAP W/52 SY GEO FAB
PLUG & FILL WITH FLOWABLE FILL
GREU TL-3
PROP. SBC
JB W/MH
48" RCP-IV
15" RCP-IV
REMOVE DI
2GIA-WSF
2GIB-WSF
PDE
140'
120+00
125+00
130+00
-L-
N 29° 29' 55.2" E

FOR –LLT SEC1– PROFILE SEE SHTS. 94 THRU 95
FOR –LRT SEC1– PROFILE SEE SHTS. 94 THRU 95

FOR DITCH DETAILS SEE SHTS. 2D–1 THRU 2D–2

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ekeller

Submitted 9/2/2020

8/17/99

50 25 0 50 100
SCALE

ENGLISH

DENOTES TEMPORARY FILL IN WETLAND
DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES EXCAVATION IN WETLAND

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 30 OF 163

NAD 83/NA 2011

N 01°24'49" E 270.39'
N 01°24'49" E 246.73'
N 01°24'49" E 251.93'
N 01°24'49" E 194.65'
N 64°02'37" E 580.47'
S 88°35'11" E 525.52'

MATCHLINE -L- STA. 119+00.00 SEE SHEET 14

MATCHLINE -L- STA. 132+00.00 SEE SHEET 16

SITE 11

SITE 12

WK

WJ

WL

LATERAL 4' BASE DITCH SEE DETAIL J

LATERAL 6' BASE DITCH SEE DETAIL L

PROP. WOVEN WIRE FENCE

REMOVE EXISTING FENCE

HW

WOODS

GREU TL-3

PLUG & FILL WITH FLOWABLE FILL

48" RCP-IV

REMOVE DI

2GIA-WSF

2GIB-WSF

15" RCP-IV

140'

98 TONS CL I RIPRAP W/52 SY GEO FAB

TOE PROTECTION W/CL B RIP RAP SEE DETAIL H

STANDARD 8' BASE DITCH SEE DETAIL AI

Q10 = 116.4 cfs
V10 = 1.92 ft/s

STANDARD 8' BASE DITCH SEE DETAIL W

LATERAL 4' BASE DITCH SEE DETAIL P

Q10 = 99.48 cfs
V10 = 1.92 ft/s

LATERAL V DITCH SEE DETAIL K

SPECIAL CUT DITCH SEE DETAIL U

EC Basin

+00.00
140.00' LT, 175.00' RT

JB W/MH

PDE

120+00

125+00

130+00

-L-

FOR –LLT SEC1– PROFILE SEE SHTS. 94 THRU 95
FOR –LRT SEC1– PROFILE SEE SHTS. 94 THRU 95

FOR DITCH DETAILS SEE SHTS. 2D–1 THRU 2D–2

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ERIC DAVIS
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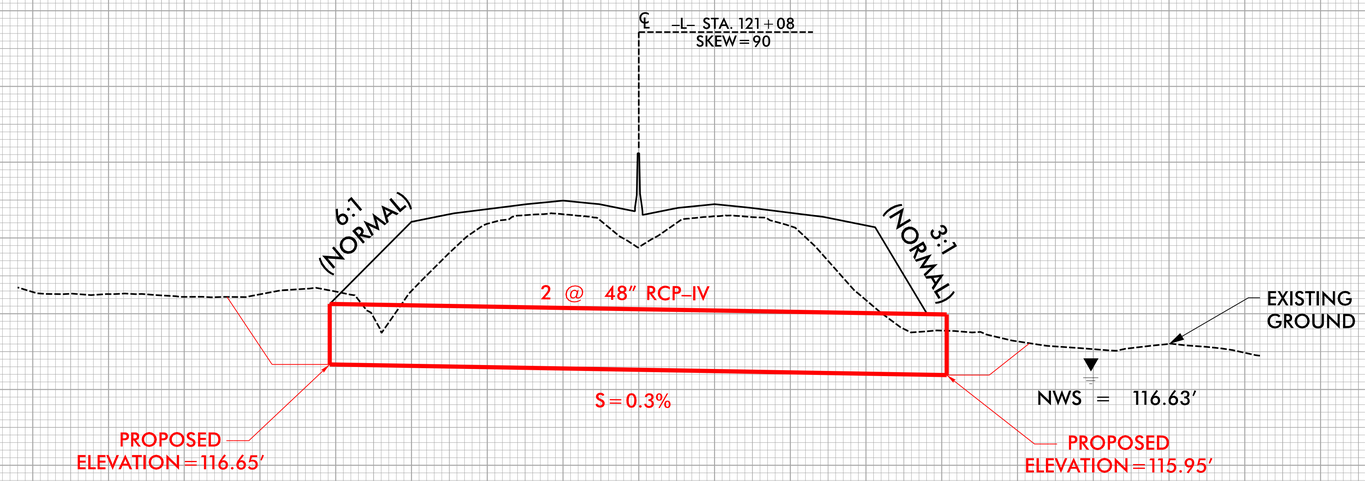
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SITE 11 & 12
–L– STA. 121+08

PERMIT DRAWING
SHEET 31 OF 163

ENGLISH



2 @ 48" RCP–IV
(not buried)
(length = 204')

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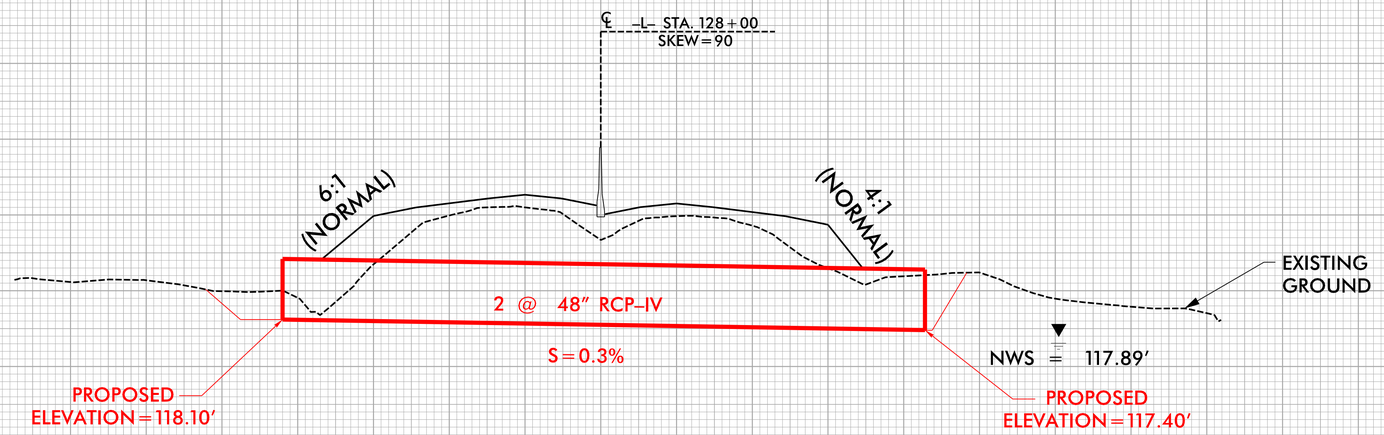
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SITE 11 & 12
–L– STA. 128+00

PERMIT DRAWING
SHEET 32 OF 163

ENGLISH



2 @ 48" RCP–IV
(not buried)
(length=212')

250 200 150 100 50 0 50 100 150 200 250

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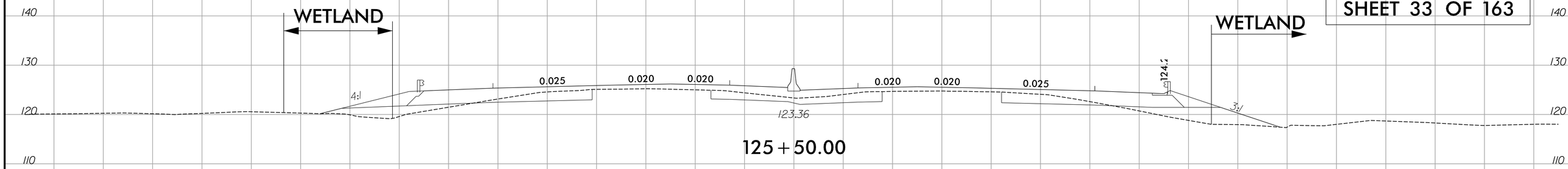
Submitted 9/2/2020

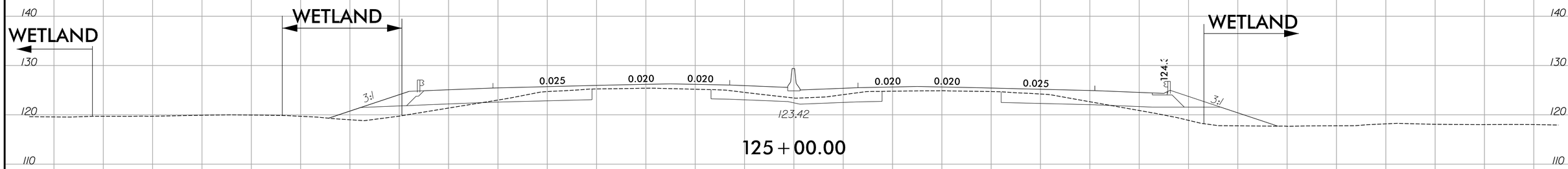
6/23/16

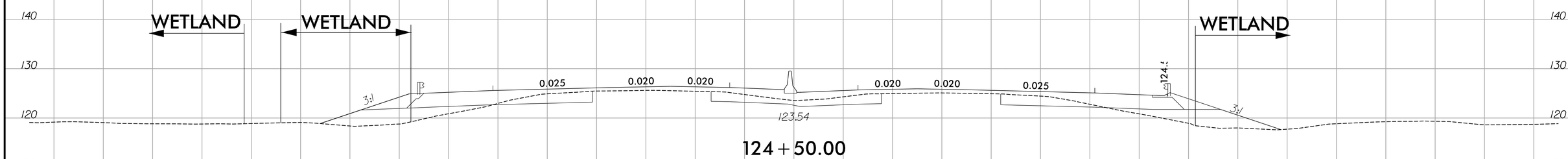
SITE 11 & 12

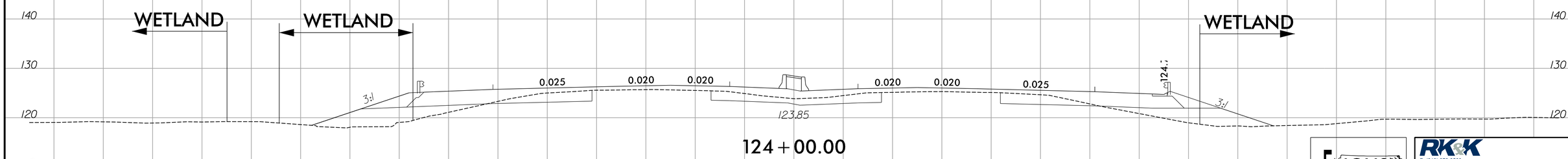
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-5986A	S1 X-68

PERMIT DRAWING
SHEET 33 OF 163









—L—

ENGLISH

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Flegg

Submitted 9/2/2020

8/17/99

50 25 0 50 100
SCALE

ENGLISH

F F DENOTES FILL IN WETLAND

NAD 83/NA 2011

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 34 OF 163

MILTON G EDWARDS, JR
GERALDINE G EDWARDS
DB 2350 PG 163

POND

POND

SITE 11

TEW FAMILY, LLC
C/O LACIE C TEW, MANAGER
DB 6151 PG 282
DB 3190 PG 598
PB 58 PG 87

BM #7

N 25°59'37" E
196.90'

BILLIE MCGIRT EVERETT COSTON
DB 2469 PG 564

MATCHLINE -L- STA. 132+00.00 SEE SHEET 15

MATCHLINE -L- STA. 145+00.00 SEE SHEET 17

PROP.WOVEN WIRE FENCE

LATERAL 4' BASE DITCH SEE DETAIL J

SPECIAL CUT 4' BASE DITCH SEE DETAIL F

LATERAL 'V' DITCH SEE DETAIL K

LATERAL 4' BASE DITCH SEE DETAIL J

LATERAL '4' BASE DITCH SEE DETAIL J

CHORD

WJ

165'

REMOVE EXISTING FENCE

BL-119

BL-120

INV (FES)=123.88

10' BST

I-95 SBL 37' BST

135+00

140+00

145+00

N 29° 29' 55.2" E

42" RCP-IV

PLUG & FILL WITH FLOWABLE FILL

REMOVE DI

2GIA-WSF

24" RCP-IV

2GIA-WSF

2GIB-WSF

15" RCP-IV

I-95 NBL 37' BST

140'

PLUG & FILL WITH FLOWABLE FILL

42" RCP-IV

9.5' BST

GREU TL-3

INV (FES)=122.48'

CAT-1

REMOVE EXISTING FENCE

R/W MON

SPECIAL CUT DITCH SEE DETAIL U

STANDARD 6' BASE DITCH SEE DETAIL W

WOODS

PDE

PDE

PDE

20 TONS CL I RIPRAP W/39 SY GEO FAB

SPECIAL CUT DITCH SEE DETAIL B

CHORD

PROP.WOVEN WIRE FENCE

CAROLYN R SPIVEY
LIFE ESTATE
DB 4883 PG 0202

N 52°57'39" W
42.13'

DEAN C BUIE
TRUSTEE FOR
KERI NICOLE BUIE
DB6266 PG 130
PB 58 PG 87

BILLIE MCGIRT EVERETT COSTON
DB 2469 PG 564

FOR –LLT SEC1– PROFILE SEE SHTS. 95 THRU 96
FOR –LRT SEC1– PROFILE SEE SHTS. 95 THRU 96

FOR DITCH DETAILS SEE SHTS. 2D-1 THRU 2D-2

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Features

Submitted 9/2/2020

8/17/99

50 25 0 50 100
SCALE

ENGLISH

F F DENOTES FILL IN WETLAND

NAD 83/NA 2011

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING
SHEET 35 OF 163

MILTON G EDWARDS, JR
GERALDINE G EDWARDS
DB 2350 PG 163

POND

POND

TEW FAMILY, LLC
C/O LACIE C TEW, MANAGER
DB 6151 PG 282
DB 3190 PG 598
PB 58 PG 87

BILLIE MCGIRT EVERETT COSTON
DB 2469 PG 564

N 25°59'37" E
196.90'

SITE 11

MATCHLINE -L- STA. 132+00.00 SEE SHEET 15

MATCHLINE -L- STA. 145+00.00 SEE SHEET 17

PROP.WOVEN WIRE FENCE

CHORD

LATERAL 4' BASE DITCH SEE DETAIL J

SPECIAL CUT 4' BASE DITCH SEE DETAIL F

LATERAL 'V' DITCH SEE DETAIL K

LATERAL 4' BASE DITCH SEE DETAIL J

LATERAL '4' BASE DITCH SEE DETAIL J

WJ

165'

REMOVE EXISTING FENCE

PLUG & FILL WITH FLOWABLE FILL

42" RCP-IV

135+00

N 29° 29' 55.2" E

140+00

145+00

2GIA-WSF

2GIB-WSF

2GIA-WSF

24" RCP-IV

13" RCP-IV

PLUG & FILL WITH FLOWABLE FILL

42" RCP-IV

140'

GREU TL-3

INV (FES)=122.48

CAT-1

REMOVE EXISTING FENCE

SPECIAL CUT DITCH SEE DETAIL U

STANDARD 6' BASE DITCH SEE DETAIL W

PDE

PDE

20 TONS CL I RIPRAP W/39 SY GEO FAB

SPECIAL CUT DITCH SEE DETAIL B

CHORD

PROP.WOVEN WIRE FENCE

CAROLYN R SRIVEY
LIFE ESTATE
DB 4883 PG 0202

N 52°57'29" W
42.13'

DEAN C BUIE
TRUSTEE FOR
KERI NICOLE BUIE
DB6266 PG 130
PB 58 PG 87

BILLIE MCGIRT EVERETT COSTON
DB 2469 PG 564

FOR –LLT SEC1– PROFILE SEE SHTS. 95 THRU 96
FOR –LRT SEC1– PROFILE SEE SHTS. 95 THRU 96

FOR DITCH DETAILS SEE SHTS. 2D-1 THRU 2D-2

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Features

Submitted 9/2/2020

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
I-5986	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 36 OF 163

MATCHLINE -Y4- 21+00.00 SEE SHEET 69

MATCHLINE -Y5RPB- 22+00.00 SEE SHEET 68

MATCHLINE -L- STA. 171+00.00 SEE SHEET 18

MATCHLINE -L- STA. 198+50.00 SEE SHEET 20

MATCHLINE -Y5RPC- STA. 16+50.00 SEE SHEET 20

MATCHLINE -Y4- STA. 39+00.00 SEE SHEET 70

INSET A

INSET F

INSET E

INSET B

INSET C

INSET D

SITE 54C

SITE 13

SITE 14

SITE 15

SITE 16

WS

WR

WM

WN

WO

B

C

RETAIN EXISTING C/A FENCE

PROP.WOVEN WIRE FENCE

RETAIN EXISTING FENCE

SEE INSET A

SEE INSET B

SEE INSET C

SEE INSET D

SEE INSET E

SEE INSET F

PIPE CLEAN OUT

TB JB w/MH

48" RCP-III

20 TONS CL I RIPRAP W/39 SY GEOFAB

33 TONS CL I RIPRAP W/62 SY GEOFAB

5 TONS CL II RIPRAP W/12 SY GEOFAB

BAKER SWAMP TR

34" PEMBROKE TR

N 40° 50' 46.3" E

N 43° 45' 55" E

S 71° 05' 36.4" E

N 64° 12' 33.6" E

SCALE FOR INSET

50 0 50 100

SCALE

100 50 0 100 200

ENGLISH

- F F — DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- S S — DENOTES IMPACTS IN SURFACE WATER
- TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- T T — DENOTES TEMPORARY FILL IN WETLAND

FOR -LLT SEC1- PROFILE SEE SHTS. 98 THRU 100
FOR -LRT SEC1- PROFILE SEE SHTS. 98 THRU 100
FOR -Y4- PROFILE SEE SHTS. 150 THRU 151
FOR -Y5RPB- PROFILE SEE SHTS. 164 THRU 165
FOR -Y5RPC- PROFILE SEE SHTS. 166
FOR DITCH DETAILS SEE SHTS. 2D-1 THRU 2D-2

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REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
I-5986	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 37 OF 163

NAD 83/NA 2011

INSET A

PIPE CLEAN OUT

INSET F

MATCHLINE -Y4- 21+00.00 SEE SHEET 69

MATCHLINE -Y5RPB- 22+00.00 SEE SHEET 68

SEE INSET A

SITE 54C

WS

RETAIN EXISTING C/A FENCE

S 71° 05' 36.4" W

WR

B

SITE 14

SITE 13

SEE INSET F

RETAIN EXISTING FENCE

MATCHLINE -L- STA. 171+00.00 SEE SHEET 18

RETAIN EXISTING C/A FENCE

PROP.WOVEN WIRE FENCE

TDE

TDE

ROCK-FILL TRENCH SEE DETAIL A10

175+00

180+00

185+00

190+00

195+00

N 40° 50' 46.3" E

N 43° 45' 55" E

PLUG & FILL W/FLOWABLE FILL

REMOVE 66

REMOVE 68

SPECIAL CUT DITCH SEE DETAIL B

SP. SEC. POVERTY FLATS RD

SR 1560 POVERTY FLATS RD

GREU TL

WM

H. GLARE SCREEN

WN

WO

CHORD

SITE 15

C

SITE 15

SEE INSET B

SEE INSET C

SEE INSET E

SEE INSET D

SITE 16

20 TONS CL I RIPRAP W39 SY GEOFAB

1 TONS CL B RIPRAP W12 SY GEOFAB

STANDARD 'Y' DRUM - SEE DETAIL E

END GLARE SCREEN BEGIN WW FENCE

BEGIN WW FENCE

END WW FENCE

74" PEMBROKE LN

35+00

40+00

10+00

15+00

SP. CUT 7' BASE DITCH SEE DETAIL Q

SP. UNZ 7' BASE DITCH SEE DETAIL Q

SP. CUT 7' BASE DITCH SEE DETAIL J

SP. UNZ 7' BASE DITCH SEE DETAIL J

SEE PROTECTION W/CL B RIPRAP SEE DETAIL H

TB JB w/MH

48" RCP-III

PROP.WOVEN WIRE FENCE

INSET E

INSET B

INSET C

INSET D

BAKER SWAMP 1

TRENCHLESS

PDE

JS

MATCHLINE -L- STA. 198+50.00 SEE SHEET 20

MATCHLINE -Y5RPC- STA. 16+50.00 SEE SHEET 20

MATCHLINE -Y4- STA. 39+00.00 SEE SHEET 70

SCALE FOR INSET

50 0 50 100

SCALE

100 50 0 100 200

ENGLISH

F F	DENOTES FILL IN WETLAND
	DENOTES MECHANIZED CLEARING
S S	DENOTES IMPACTS IN SURFACE WATER
TS TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
T T	DENOTES TEMPORARY FILL IN WETLAND

FOR -LLT SEC1- PROFILE SEE SHTS. 98 THRU 100
FOR -LRT SEC1- PROFILE SEE SHTS. 98 THRU 100
FOR -Y4- PROFILE SEE SHTS. 150 THRU 151
FOR -Y5RPB- PROFILE SEE SHTS. 164 THRU 165
FOR -Y5RPC- PROFILE SEE SHTS. 166
FOR DITCH DETAILS SEE SHTS. 2D-1 THRU 2D-2

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Submitted 9/2/2020

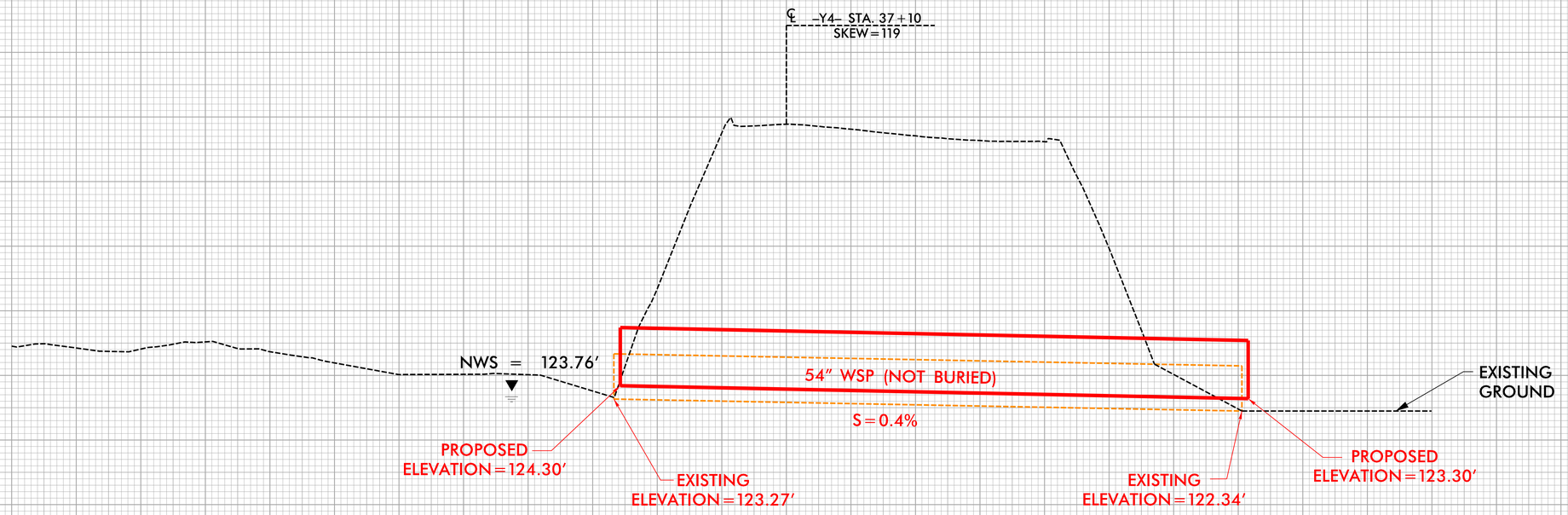
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SITE 15 & 16
–Y4– STA. 37+10

PERMIT DRAWING
SHEET 38 OF 163

ENGLISH



TRENCHLESS INSTALLATION 54" WELDED STEEL
(not buried)
(length=243')

250 200 150 100 50 0 50 100 150 200 250

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Submitted 9/2/2020

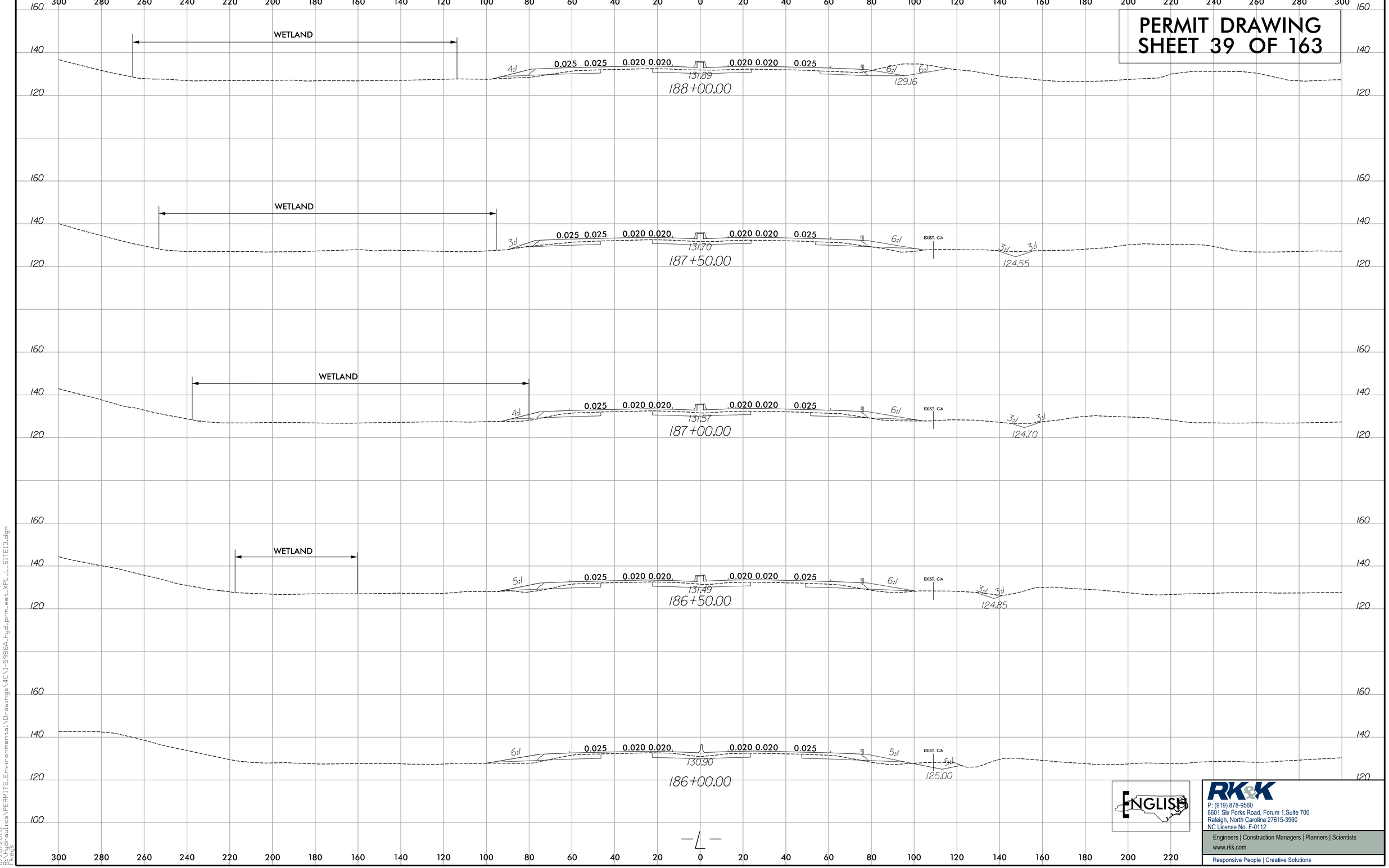
6/23/16

SITE 13

0 10 20

PROJ. REFERENCE NO.	SHEET NO.
I-5986A	S1 X-101

PERMIT DRAWING
SHEET 39 OF 163



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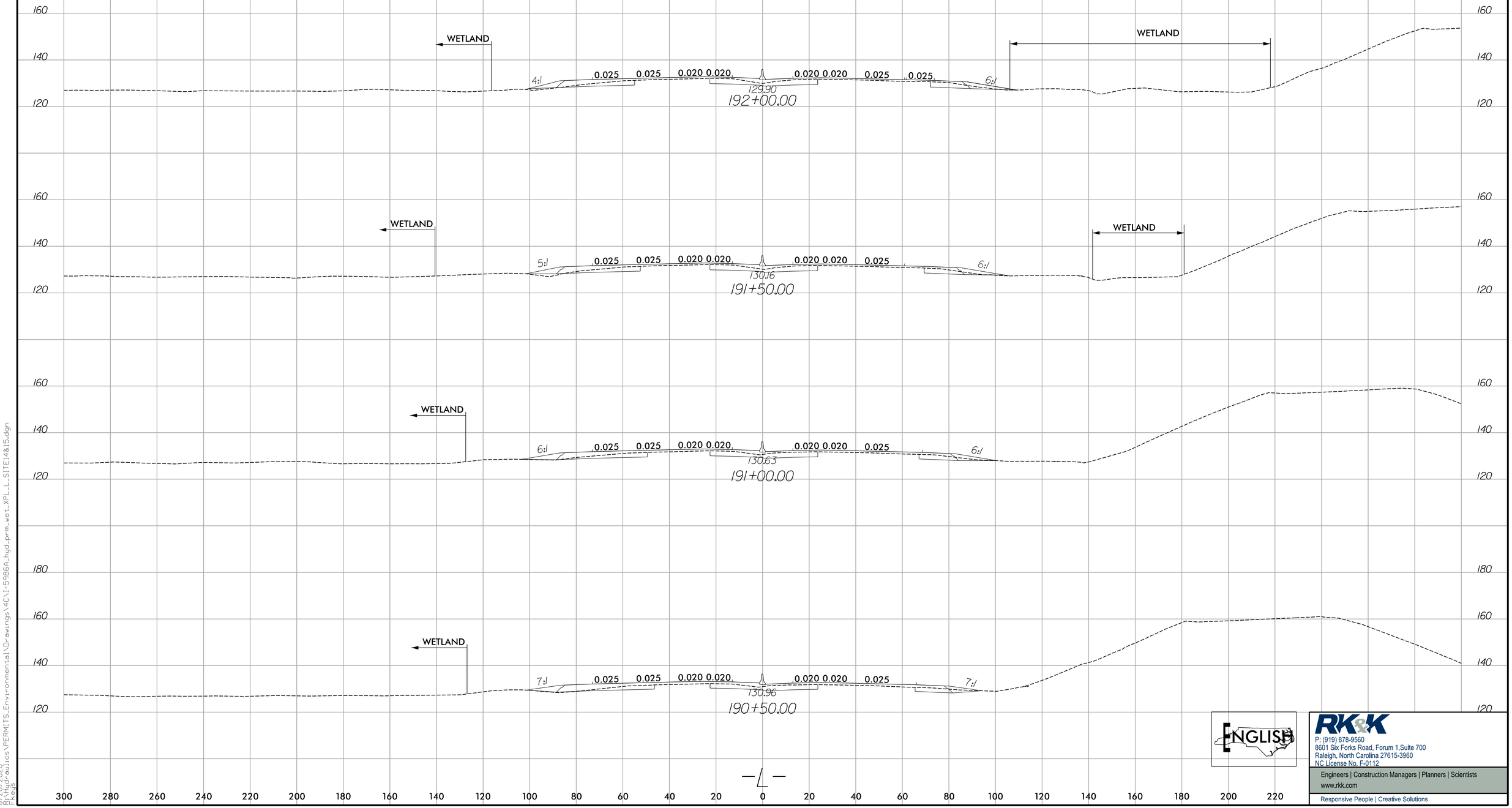
6/23/16

0 10 20	PROJ. REFERENCE NO.	SHEET NO.
	I-5986A	S1 X-103

SITE 14 & 15

PERMIT DRAWING
SHEET 40 OF 163



ENGLISH

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Plotted

Submitted 9/2/2020

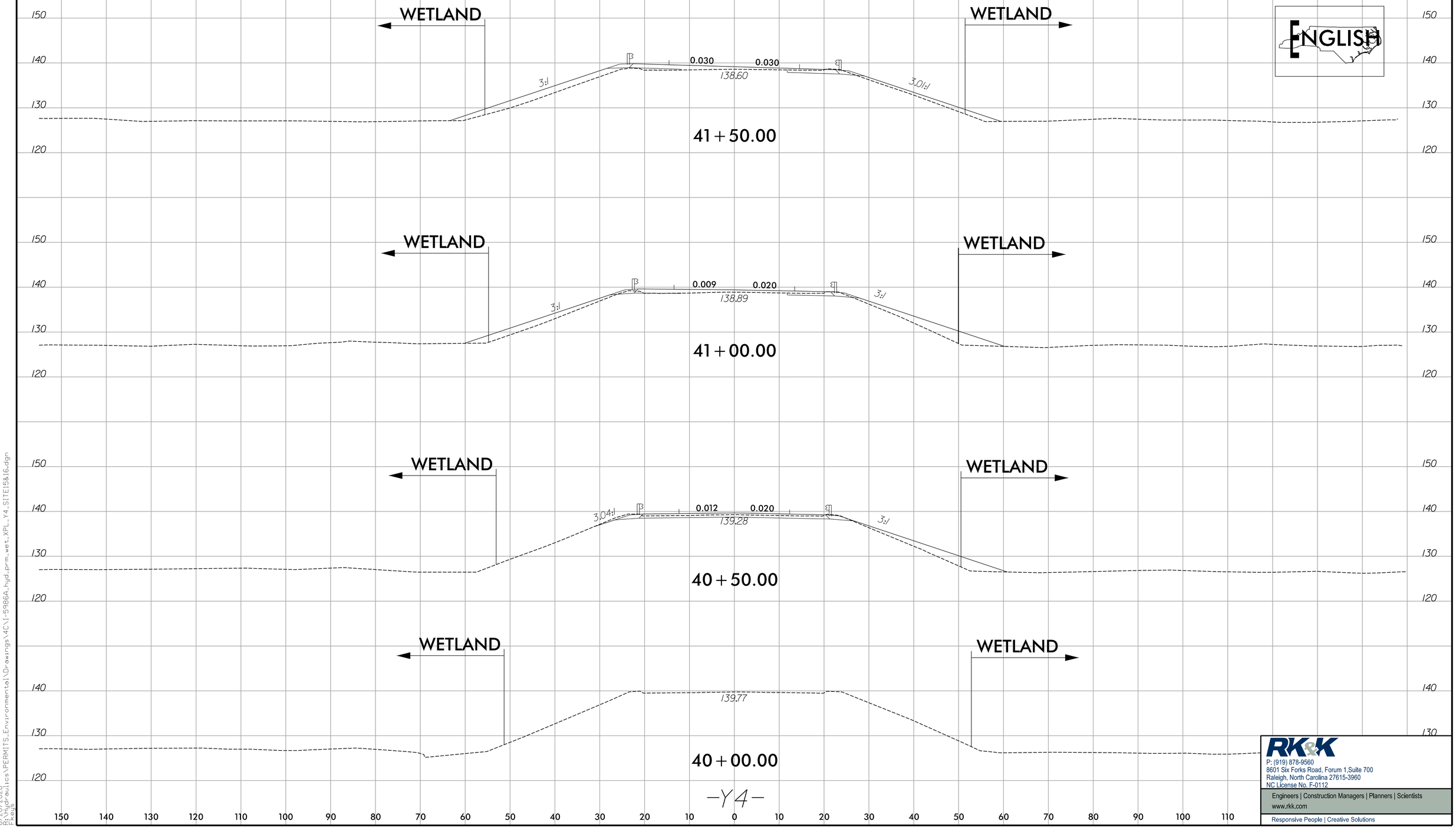
6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-5986A	S1 X-155

SITE 15 & 16

PERMIT DRAWING
SHEET 41 OF 163

ENGLISH



-Y4-

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FLeigh

Submitted 9/2/2020

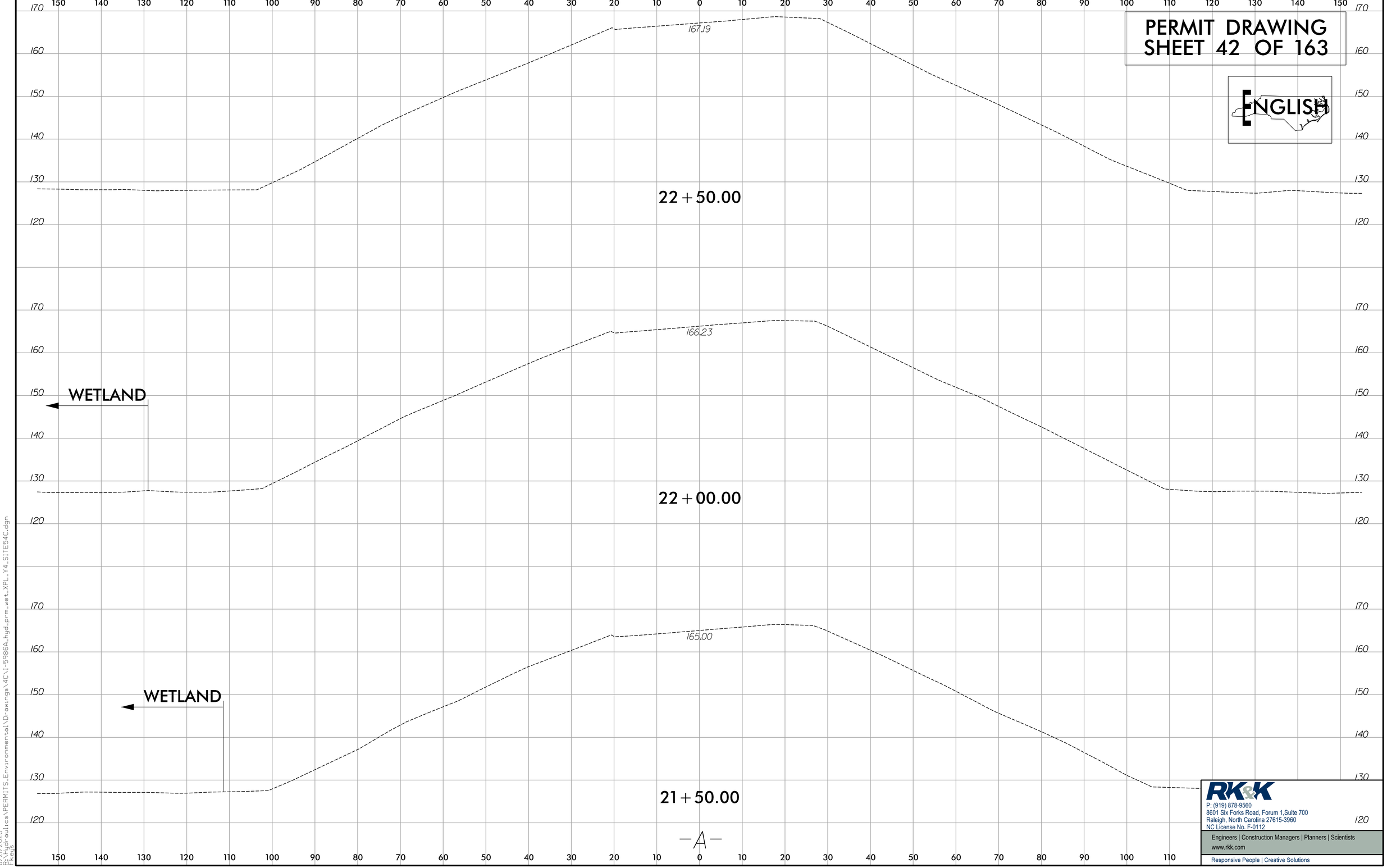
6/23/16

SITE 54C

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-5986A	X-2

PERMIT DRAWING
SHEET 42 OF 163

ENGLISH



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Plotted By: Leigh

Submitted 9/2/2020

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING SHEET 43 OF 163

INSET A

INSET B

INSET C

INSET D

INSET E

SITE 15 BAKER SWAMP 2

SITE 17

SITE 18 BAKER SWAMP 3

SITE 19

SITE 20

SITE 21

SITE 22

MATCHLINE -Y5FLY- STA. 36+00.00 SEE SHEET 68

MATCHLINE -Y5RPA- STA. 47+50.00 SEE SHEET 68

MATCHLINE -Y5- STA. 90+00.00 SEE SHEET 68

MATCHLINE -L- STA. 198+50.00 SEE SHEET 19

MATCHLINE -Y5RPC- STA. 16+80.00 SEE SHEET 19

MATCHLINE -L- STA. 227+00.00 SEE SHEET 21

MATCHLINE -Y5FLY- STA. 67+00.00 SEE SHEET 21

MATCHLINE -Y6- STA. 105+00.00 SEE SHEET 70

SCALE FOR INSET

SCALE

ENGLISH

DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

FOR DETAIL DETAILS SEE SHTS. 2D-1 THRU 2D-2

FOR CROSS SECTION FOR HORIZONTAL CLEARANCE SEE SHTS. 2L-1 THRU 2L-24

PAVEMENT REMOVAL

FOR -Y5SPURA- PROFILE SEE SHT. 163
FOR -Y5LPA- PROFILE SEE SHT. 164
FOR -Y5RPC- PROFILE SEE SHTS. 166
FOR -Y5LPD- PROFILE SEE SHTS. 167 AND 168
FOR -Y5FLY- PROFILE SEE SHTS. 170 AND 171

FOR -LLT SEC\- PROFILE SEE SHTS. 100 THRU 102
FOR -LRT SEC\- PROFILE SEE SHTS. 100 THRU 102
FOR -Y5SLT- PROFILE SEE SHTS. 157 AND 158
FOR -Y5RT- PROFILE SEE SHTS. 157 AND 158
FOR -Y5RPA- PROFILE SEE SHTS. 161 AND 162
FOR -Y5RPD- PROFILE SEE SHTS. 166 AND 167

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PROJECT REFERENCE NO.	SHEET NO.
I-5986A	20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 44 OF 163

INSET A

INSET B

INSET C

INSET D

INSET E

SITE 15 BAKER SWAMP 2

SITE 17

SITE 18 BAKER SWAMP 3

SITE 19

SITE 20

SITE 21

SITE 22

MATCHLINE -Y5- STA. 90+00.00 SEE SHEET 68

MATCHLINE -Y5FLY- STA. 38+00.00 SEE SHEET 68

MATCHLINE -Y5RPA- STA. 47+50.00 SEE SHEET 68

MATCHLINE -L- STA. 198+50.00 SEE SHEET 19

MATCHLINE -Y5RPC- STA. 16+80.00 SEE SHEET 19

MATCHLINE -L- STA. 227+00.00 SEE SHEET 21

MATCHLINE -Y5FLY- STA. 67+00.00 SEE SHEET 21

MATCHLINE -Y6- STA. 105+80.00 SEE SHEET 70

SCALE FOR INSET 100 0 100 200

SCALE 200 0 200 400

ENGLISH

DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

FOR DETAILS SEE SHTS. 2D-1 THRU 2D-2

DESIGN EXCEPTION FOR HORIZONTAL CLEARANCE L- STA. 21

PAVEMENT REMOVAL

FOR -Y5SPURA- PROFILE SEE SHT. 163
FOR -Y5LPA- PROFILE SEE SHT. 164
FOR -Y5RPC- PROFILE SEE SHT. 166
FOR -Y5LPD- PROFILE SEE SHTS. 167 AND 168
FOR -Y5FLY- PROFILE SEE SHTS. 170 AND 171

FOR -LLT SEC\- PROFILE SEE SHTS. 100 THRU 102
FOR -LRT SEC\- PROFILE SEE SHTS. 100 THRU 102
FOR -Y5SLT- PROFILE SEE SHTS. 157 AND 158
FOR -Y5RT- PROFILE SEE SHTS. 157 AND 158
FOR -Y5RPA- PROFILE SEE SHTS. 161 AND 162
FOR -Y5RPD- PROFILE SEE SHTS. 166 AND 167

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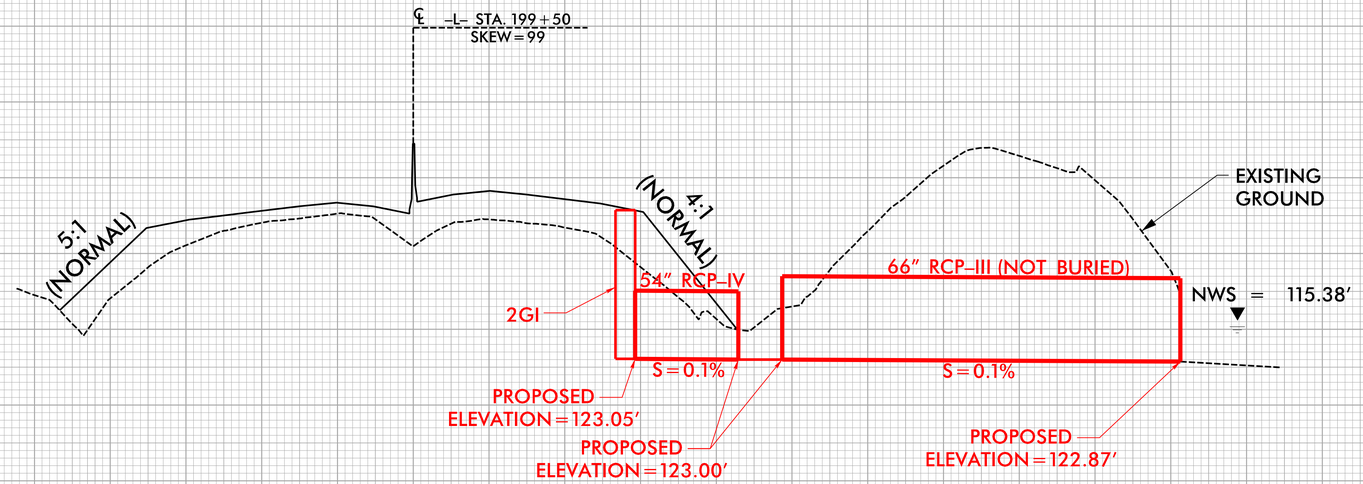
PROJECT REFERENCE NO.	SHEET NO.
I-5986A	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SITE 15/18
–L– STA. 199+50

PERMIT DRAWING
SHEET 45 OF 163

ENGLISH



150 140 130 120

250 200 150 100 50 0 50 100 150 200 250

54" RCP–IV (not buried) (length = 110')

66" RCP–III (not buried) (length = 131')

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K:\Hydraulics\PERMITS_Environmental\Drawings\4CV\I-5986A_hyd_prm_wet_PFL_SITE15.dgn
ElizabethMcCarthy

Submitted 9/2/2020

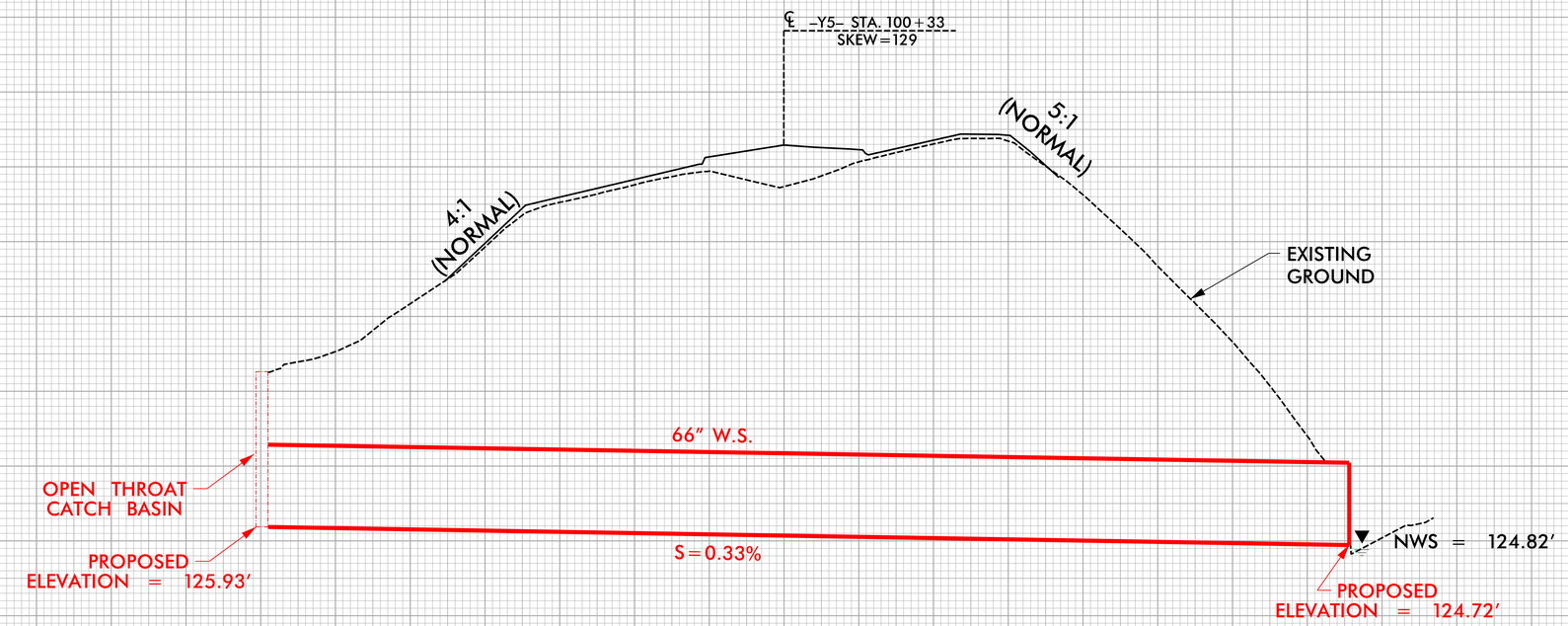
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SITE 18
–Y5– STA. 100+33

PERMIT DRAWING
SHEET 46 OF 163

ENGLISH



TRENCHLESS INSTALLATION 66" WELDED STEEL
(not buried)
(length=262')

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Eric.Hall

Submitted 9/2/2020

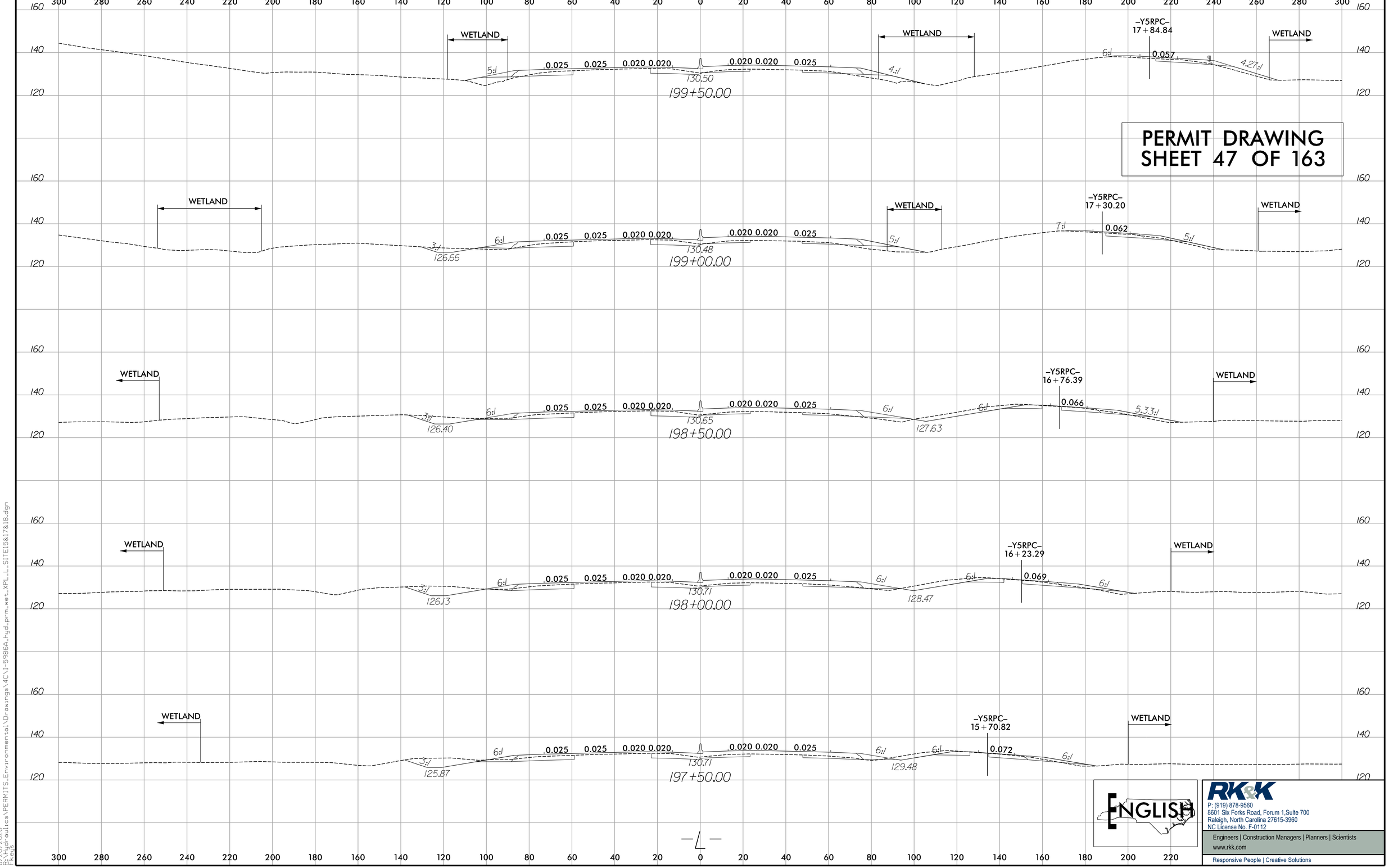
6/23/16

SITE 15, 17, & 18

0 10 20

PROJ. REFERENCE NO.	SHEET NO.
I-5986A	S1 X-106

PERMIT DRAWING
SHEET 47 OF 163



ENGLISH

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R.Eggert

Submitted 9/2/2020

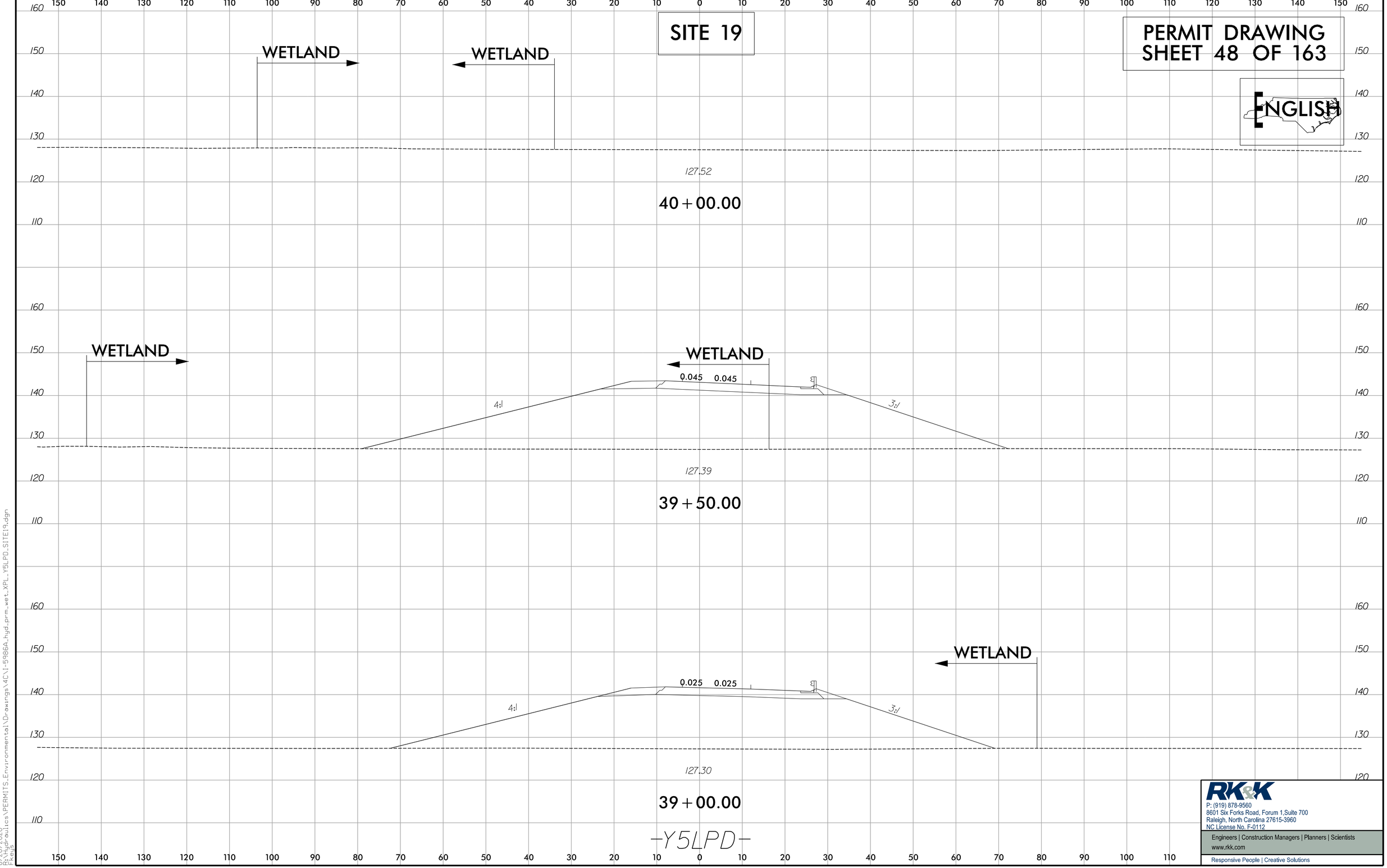
6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-5986A	S1 X-263

SITE 19

PERMIT DRAWING
SHEET 48 OF 163

ENGLISH



-Y5LPD-

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FK hgs

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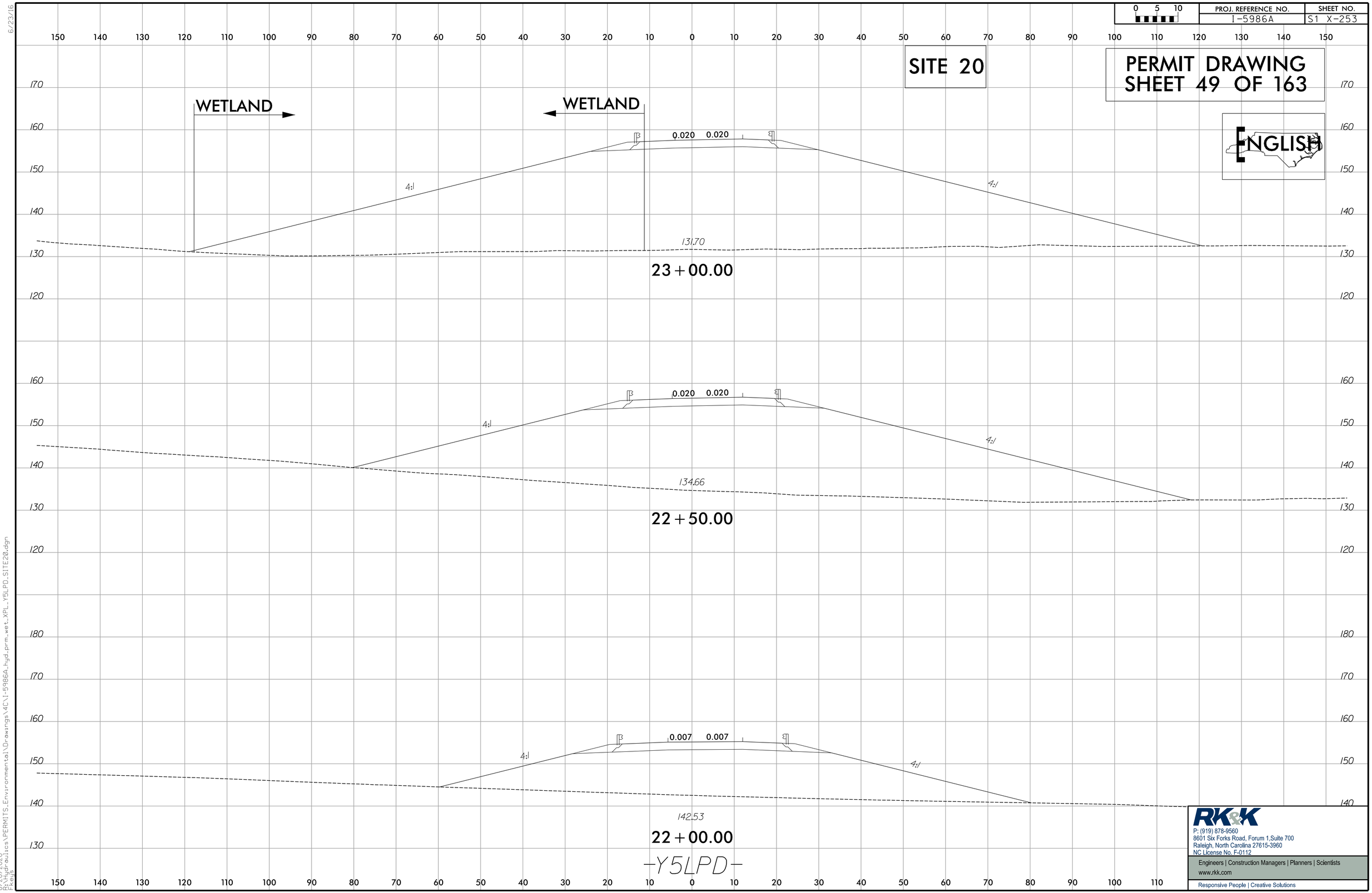
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-5986A	S1 X-253

SITE 20

PERMIT DRAWING
SHEET 49 OF 163

ENGLISH



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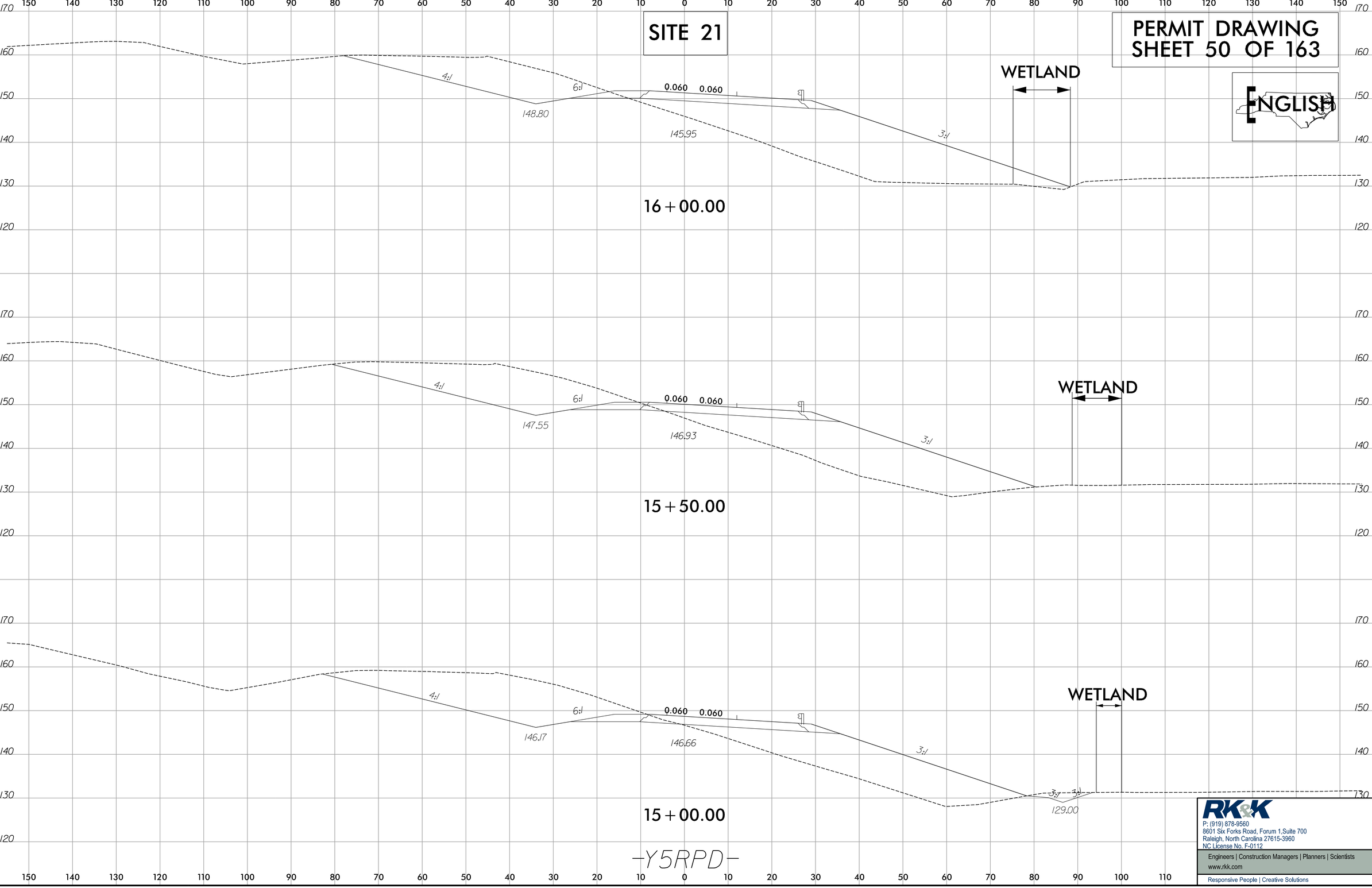
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-5986A	S1 X-248

SITE 21

PERMIT DRAWING
SHEET 50 OF 163

ENGLISH



-Y5RPD-

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Plotted

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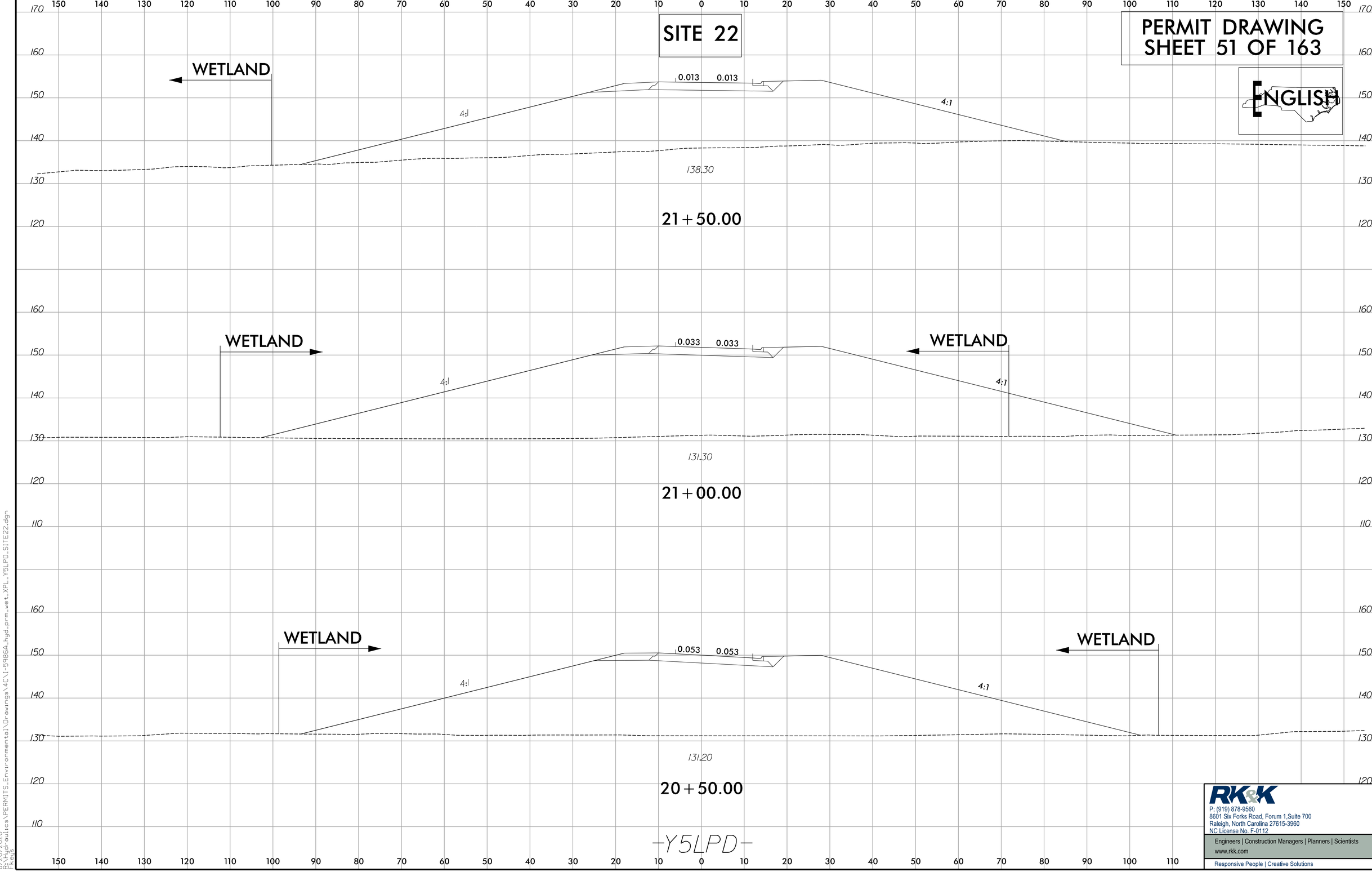
6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-5986A	S1 X-252

PERMIT DRAWING
SHEET 51 OF 163

ENGLISH

SITE 22



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FLeggett

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PROJECT REFERENCE NO.	SHEET NO.
I-5986A	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING SHEET 52 OF 163

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MATCHLINE -L- STA. 239+00.00 SEE SHEET 21

MATCHLINE -Y5FLYREV- STA. 80+00.00 SEE SHEET 21

MATCHLINE -L- STA. 252+00.00 SEE SHEET 23

SITE 23

NAD 83/NA 2011

S 68°39'04" E 132.00'

N 88°39'46" E 132.00'

CHORD

PROP. WOVEN WIRE FENCE

2 TONS CL B RIPRAP W/7 SY GEO FAB

SPECIAL CUT 4' BASE DITCH SEE DETAIL F

LATERAL 4' BASE DITCH SEE DETAIL D

3 TONS CL B RI W/10 SY GEO

PDE

48" WW & ISBW

R/W MON

GREU TL-3

CAT-1

WOODS

15" RCP-IV

PLUG & FILL W/ FLOWABLE FILL

I-95 SBL 46' BST

240+00

245+00

250+00

N 40° 50' 46.3" E

-L-

2GIB-WSF

REMOVE DI 15" RCP-IV

12' BST

10' BST

9.5' BST

MTL

18" RCP-IV

15" RCP-IV

I-95 NBL VAR BST

4.5' BST

RIP-RAP

PROP. SBG

SPECIAL CUT DITCH SEE-DETAIL U

4OTCB

8 TONS CL B RIPRAP W/21 SY GEO FAB

SPECIAL CUT DITCH SEE DETAIL AA

85+00

SPECIAL CUT DITCH SEE DETAIL B

2 TON CL B RIPRAP W/7 SY GEOFAB

LATERAL V DITCH SEE DETAIL K

PUE

50 25 0 50 100

SCALE

ENGLISH

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

FOR –LLT SEC1– PROFILE SEE SHTS. 103 AND 104
FOR –LRT SEC1– PROFILE SEE SHTS. 103 AND 104
FOR –Y5RPA– PROFILE SEE SHT. 161
FOR –Y5FLY– PROFILE SEE SHT. 171

FOR DITCH DETAILS SEE SHTS. 2D-1 THRU 2D-2

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PROJECT REFERENCE NO.	SHEET NO.
I-5986A	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING SHEET 53 OF 163

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NA 2011

S 68°39'04" E 132.00'

N 88°39'46" E 132.00'

SITE 23

MATCHLINE -L- STA. 239+00.00 SEE SHEET 21

MATCHLINE -L- STA. 252+00.00 SEE SHEET 23

MATCHLINE -Y5FLYREV- STA. 80+00.00 SEE SHEET 21

CHORD

PROP. WOVEN WIRE FENCE

PDE

2 TONS CL B RIPRAP W/7 SY GEO FAB

SPECIAL CUT 4' BASE DITCH SEE DETAIL F

LATERAL 4' BASE DITCH SEE DETAIL D

3 TONS CL B RI W/10 SY GEO

WOODS

48" WW & 1SBW

GREU TL-3

CAT-1

15" RCP-IV

18" RCP-IV

PLUG & FILL W/ FLOWABLE FILL

REMOVE DI 15" RCP-IV

REMOVE DI 18" RCP-IV

2GIB-WSF

240+00

245+00

250+00

N 40° 50' 46.3" E

-L-

I-95 SBL 46' BST

I-95 NBL VAR BST

12' BST

10' BST

9.5' BST

4.5' BST

MTL

RIP RAP

SPECIAL CUT DITCH SEE DETAIL U

4OTCB

8 TONS CL B RIPRAP W/21 SY GEO FAB

SPECIAL CUT DITCH SEE DETAIL B

SPECIAL CUT DITCH SEE DETAIL AA

85+00

PROP. SBG

2 TON CL B RIPRAP W/7 SY GEOFAB

LATERAL V DITCH SEE DETAIL K

PUE

SCALE 50 25 0 50 100

ENGLISH

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

FOR –LLT SEC1– PROFILE SEE SHTS. 103 AND 104
FOR –LRT SEC1– PROFILE SEE SHTS. 103 AND 104
FOR –Y5RPA– PROFILE SEE SHT. 161
FOR –Y5FLY– PROFILE SEE SHT. 171

FOR DITCH DETAILS SEE SHTS. 2D-1 THRU 2D-2

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Kelly

Submitted 9/2/2020

8/17/99

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

ENGLISH

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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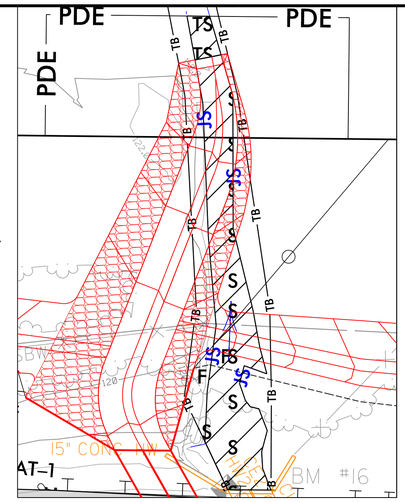
PERMIT DRAWING SHEET 54 OF 163

INSET A



NAD 83/NA 2011

SEE INSET A

SITE 23

SC-2

MATCHLINE -L- STA. 252+00.00 SEE SHEET 22

MATCHLINE -L- STA. 266+00.00 SEE SHEET 24

PROP.WOVEN WIRE FENCE

LATERAL 4' BASE DITCH SEE DETAIL D

SPECIAL CUT DITCH SEE DETAIL B

2 TONS CL B RIPRAP W/7 SY GEO FAB

SPECIAL CUT 4' BASE DITCH SEE DETAIL F

GREU TL-3

PLUG & FILL W/ FLOWABLE FILL

REMOVE DI

15" RCP-IV

2GIB-WSF

N 40° 50' 46.3" E

255+00

260+00

N 40° 44' 45.7" E

265+00

CAT-1

PROP. SBG

SEE INSET B

SITE 23

SC-1

INSET B

TIE FENCE TO CUVLERT WING WALL

TIE FENCE CUVLERT W WALL

PUE

CHORD

FOR -LLT SEC1- PROFILE SEE SHTS. 104 AND 105
FOR -LRT SEC1- PROFILE SEE SHTS. 104 AND 105
FOR DITCH DETAILS SEE SHTS. 2D-1 THRU 2D-2

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ekeen

Submitted 9/2/2020

8/17/99

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

ENGLISH

S/S DENOTES IMPACTS IN SURFACE WATER

TS/TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 55 OF 163

INSET A

NAD 83/NA 2011

SEE INSET A

SITE 23

SC-2

MATCHLINE -L- STA. 252+00.00 SEE SHEET 22

MATCHLINE -L- STA. 266+00.00 SEE SHEET 24

LATERAL 4' BASE DITCH SEE DETAIL D

SPECIAL CUT DITCH SEE DETAIL B

2 TONS CL B RIPRAP W/7 SY GEO FAB

PROP.WOVEN WIRE FENCE

GREU TL-3

PLUG & FILL W/ FLOWABLE FILL

REMOVE DI

2GIB-WSF

15" RCP-IV

SPECIAL CUT 4' BASE DITCH SEE DETAIL F

CHORD

SEE INSET B

SITE 23

SC-1

INSET B

PROP. SBG

TIE FENCE TO CUVLERT WING WALL

TIE FENCE CUVLERT W WALL

PUE

FOR -LLT SEC1- PROFILE SEE SHTS. 104 AND 105
FOR -LRT SEC1- PROFILE SEE SHTS. 104 AND 105
FOR DITCH DETAILS SEE SHTS. 2D-1 THRU 2D-2

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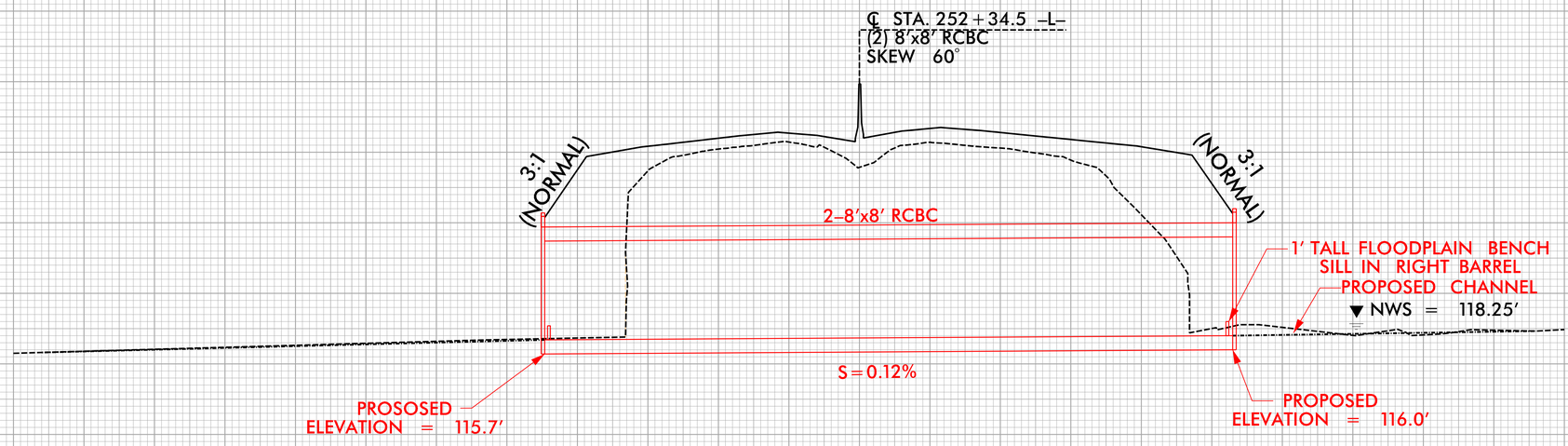
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SITE 23
–L– STA. 252+34

PERMIT DRAWING
SHEET 56 OF 163

ENGLISH



2 – 8'X 8'RCBC
(buried 1.0')
(length=244')

150 140 130 120 110

250 200 150 100 50 0 50 100 150 200 250

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ENGLISH

Submitted 9/2/2020

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	27
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 57 OF 163

8/17/99

TERAL 4' BASE DITCH SEE DETAIL D

TOE PROTECTION W/CL B RIPRAP SEE DETAIL H

160'

W/11 SY GEO FAB

2GIB-WSF

BEGIN WW FENCE

SP. LATERAL 4' BASE DITCH SEE DETAIL C

CAT-T
Q10 = 31.15 cfs
V10 = 1.91 ft/s

24" RCP-III

JB W/MH

15" RCP-III

PROP. SBG

18" RCP-III

2GIB-WSF

INSET A

N 41°32'49" E
618.73'

SITE 24

SEE INSET A

SD-2

WZ

Q10 = 7.95 cfs
V10 = 0.80 ft/s

Q10 = 61.9 cfs
V10 = 2.04 ft/s

PDF

3 TON CL B RIP RAP W/11 SY GEO FAB

2 TONS CL B RIP RAP W/7 SY GEO FAB

WOODS

PROP. WOVEN WIRE FENCE

REMOVE EXISTING FENCE

SP. CUT 4' BASE DITCH SEE DETAIL F

LATERAL 4' BASE DITCH SEE DETAIL D

TOE PROTECTION W/CL B RIPRAP SEE DETAIL H

24" RCP-III JB W/MH

15" RCP-III

PROP. SBG

GREU_TL-3

REMOVE DI

DI CONC

18" RCP-III

2GIB-WSF

15" RCP-IV

MATCHLINE -L- STA. 300+50.00 SEE SHEET 26

MATCHLINE -L- STA. 312+00.00 SEE SHEET 28

305+00

310+00

N 40° 50' 03.2" E

I-95 SBL 37" BST

I-95 NBL VAR BST

35" BST

MTL

MLB

6" CONC HW

PROP. SBG

1 TON CL B RIP RAP W/5 SY GEO FAB

15" RCP-III

Q10 = 35.35 cfs
V10 = 1.97 ft/s

LATERAL 4' BASE DITCH SEE DETAIL D

WOODS

SWAMP

WY

SD-1

SEE INSET B

STANDARD BASE DITCH SEE DETAIL I

SPECIAL CUT BASE DITCH SEE DETAIL F

RETAIN SYSTEM

18" RCP

Q10 = 17.79 cfs
V10 = 1.86 ft/s

PROP. WOVEN WIRE FENCE

SITE 24

S 40°38'56" W
406.09'

S CAT-1

INV (FES)=25.43'

INSET B

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

ENGLISH

F F DENOTES FILL IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

DENOTES MECHANIZED CLEARING

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

E E DENOTES EXCAVATION IN WETLAND

T T DENOTES TEMPORARY FILL IN WETLAND

FOR –LLT SEC2– PROFILE SEE SHTS. 108 THRU 109
FOR –LRT SEC2– PROFILE SEE SHTS. 108 THRU 109
FOR DITCH DETAILS SEE SHTS. 2D–3 THRU 2D–4

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8/21/2020
C:\pwworkingdirectory\jbaulics\PERMITS_Environmental\D-awings\4B\Section 2\I-5986A_hyd_4B_psh27.dgn
ESHAW

Submitted 9/2/2020

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	27
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING SHEET 58 OF 163

8/17/99

TERAL 4' BASE DITCH SEE DETAIL D

TOE PROTECTION W/CL B RIPRAP SEE DETAIL H

160'

W/11 SY GEO FAB

2GIB-WSF

BEGIN WW FENCE

SP. LATERAL 4' BASE DITCH SEE DETAIL C

Q10 = 31.15 cfs
V10 = 1.91 ft/s
CAT-T

24" RCP-III

JB W/MH

15" RCP-III

6" CONC HW

PROP. SBG

18" RCP-III

2GIB-WSF

INSET A

SITE 24

SEE INSET A

SD-2

WZ

Q10 = 7.95 cfs
V10 = 0.80 ft/s

Q10 = 61.9 cfs
V10 = 2.04 ft/s

3 TON CL B RIP RAP W/11 SY GEO FAB

2 TONS CL B RIP RAP W/ 7 SY GEO FAB

PROP. WOVEN WIRE FENCE

REMOVE EXISTING FENCE

SP. CUT 4' BASE DITCH SEE DETAIL F

LATERAL 4' BASE DITCH SEE DETAIL D

TOE PROTECTION W/CL B RIPRAP SEE DETAIL H

Q10 = 31.15 cfs
V10 = 1.91 ft/s

24" RCP-III JB W/MH

15" RCP-III

PROP. SBG

GREU TL-3

15" RCP-IV

REMOVE DI

DI CONC

2GIB-WSF

305+00

310+00

N 40° 50' 03.2" E

PLUG & FILL W/ FLOWABLE FILL

REMOVE EXISTING FENCE

SPECIAL CUT BASE DITCH SEE DETAIL F

STANDARD BASE DITCH SEE DETAIL I

RETAIN SYSTEM

Q10 = 17.79 cfs
V10 = 1.86 ft/s

WY

SD-1

SEE INSET B

SITE 24

1 TON CL B RIP RAP W/5 SY GEO FAB

2712

15" RCP-III

Q10 = 35.35 cfs
V10 = 1.97 ft/s

S CAT-1

INV (FES)=25.43

INSET B

MATCHLINE -L- STA. 300+50.00 SEE SHEET 26

MATCHLINE -L- STA. 312+00.00 SEE SHEET 28

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

ENGLISH

F F DENOTES FILL IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

DENOTES MECHANIZED CLEARING

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

E E DENOTES EXCAVATION IN WETLAND

T T DENOTES TEMPORARY FILL IN WETLAND

FOR -LLT SEC2- PROFILE SEE SHTS. 108 THRU 109
FOR -LRT SEC2- PROFILE SEE SHTS. 108 THRU 109
FOR DITCH DETAILS SEE SHTS. 2D-3 THRU 2D-4

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Submitted 9/2/2020

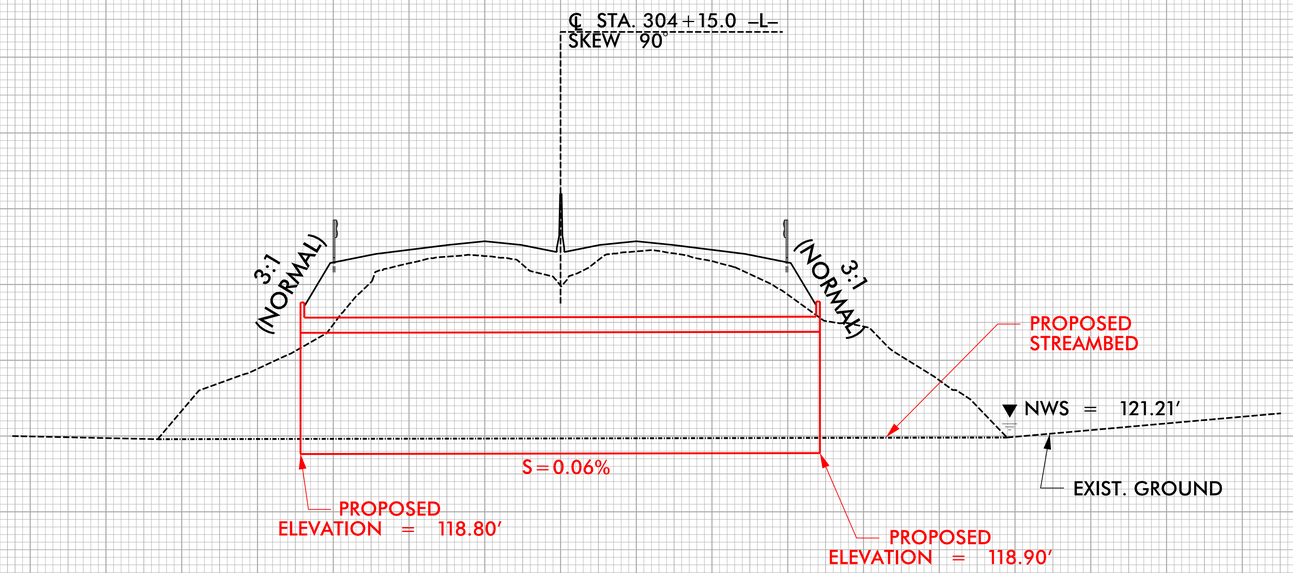
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SITE 24
–L– STA. 304+15

PERMIT DRAWING
SHEET 59 OF 163

ENGLISH



3 @ 10′ X 8′ RCBC
(buried 1.0′)
(length=171′)

150 140 130 120 110

250 200 150 100 50 0 50 100 150 200 250

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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-5986A	S2 X-8

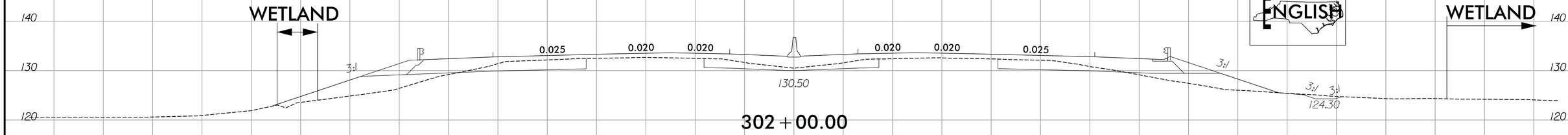
PERMIT DRAWING SHEET 59A OF 163

SITE 24

ENGLISH

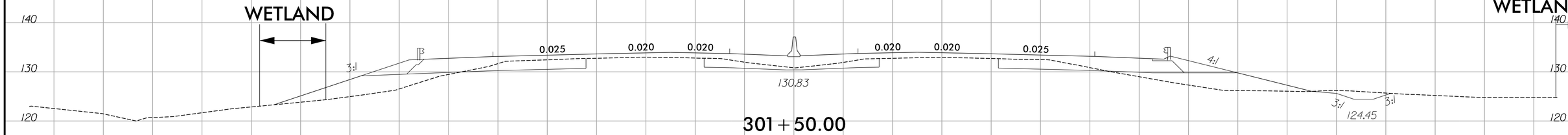
302 + 00.00

WETLAND



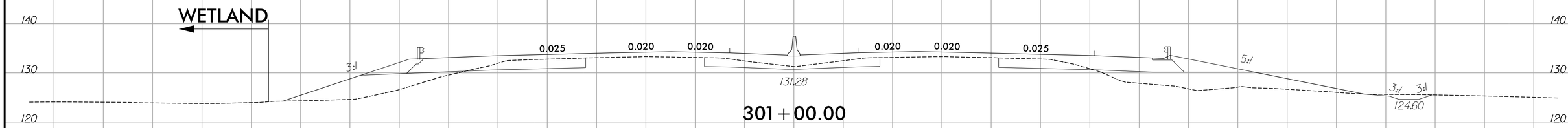
301 + 50.00

WETLAND



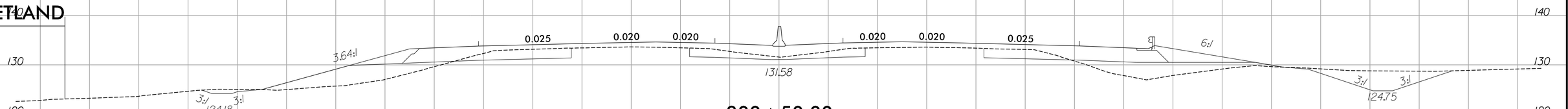
301 + 00.00

WETLAND



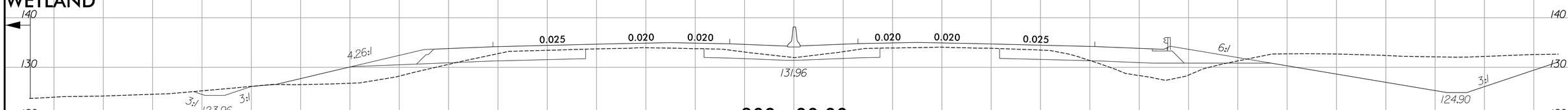
300 + 50.00

WETLAND



300 + 00.00

WETLAND



6/23/16

8/20/2020
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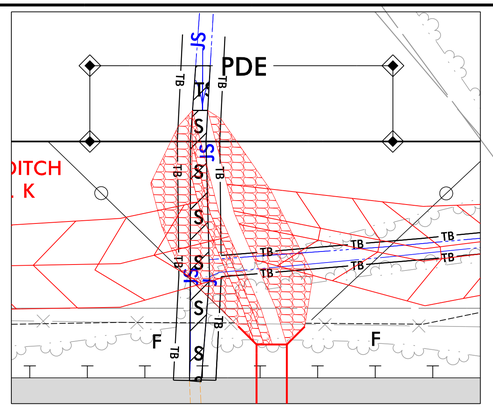
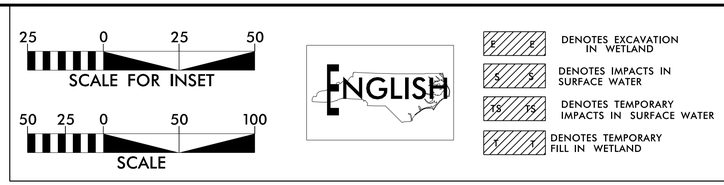
Plotted By: Kelly Lee

Submitted 9/2/2020

8/17/99





PROJECT REFERENCE NO.	SHEET NO.
I-5986A	31
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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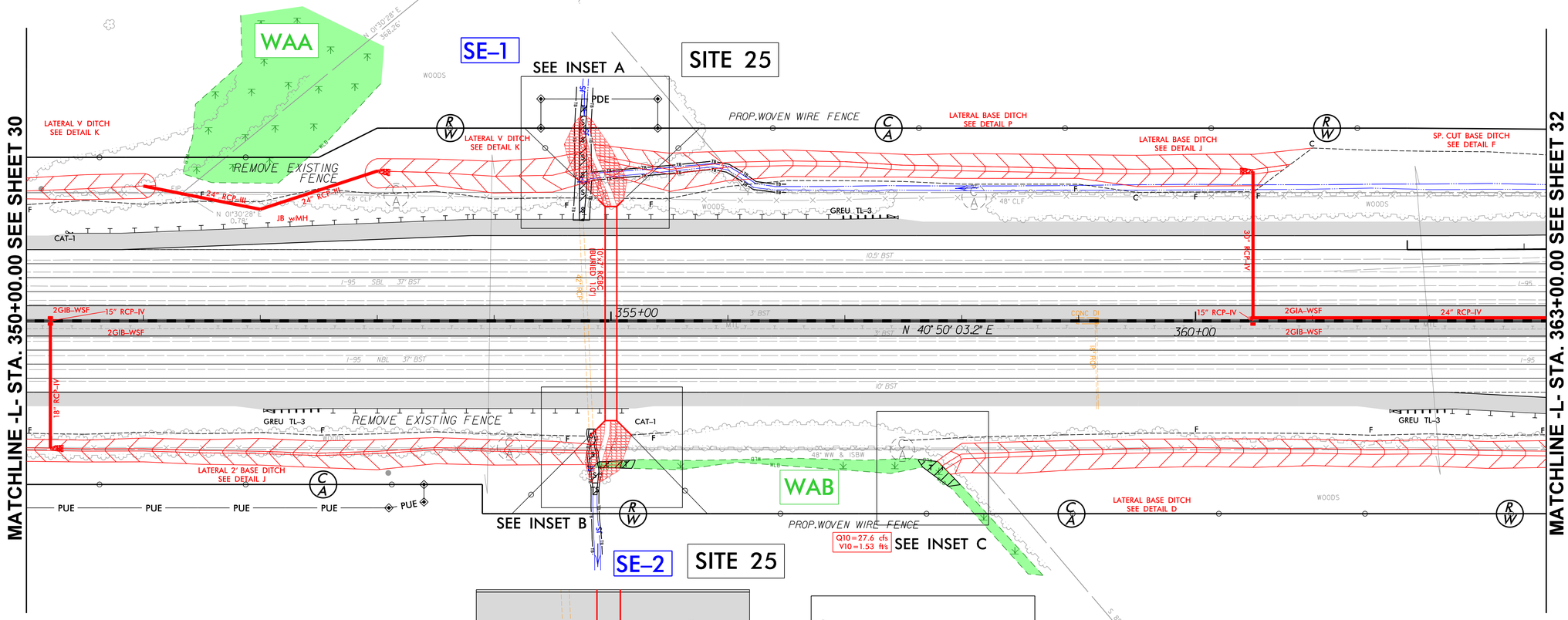
PERMIT DRAWING SHEET 60 OF 163



FOR –LLT SEC2– PROFILE SEE SHTS. 112 THRU 113
FOR –LRT SEC2– PROFILE SEE SHTS. 112 THRU 113
FOR –Y7RPB– PROFILE SEE SHT. 178
FOR DITCH DETAILS SEE SHTS. 2D–3 THRU 2D–4

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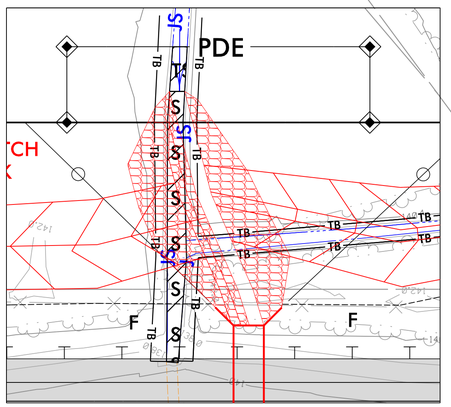
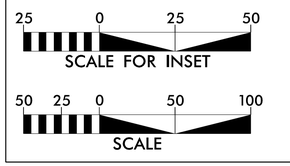
I:\5986\Roadway\Roadway Plans\PERMITS_Environmental\Drawings\4B\Section 2\I-5986A_hyd_4B_psh31.dgn
ekeen

Submitted 9/2/2020

8/17/99



INSET A



ENGLISH

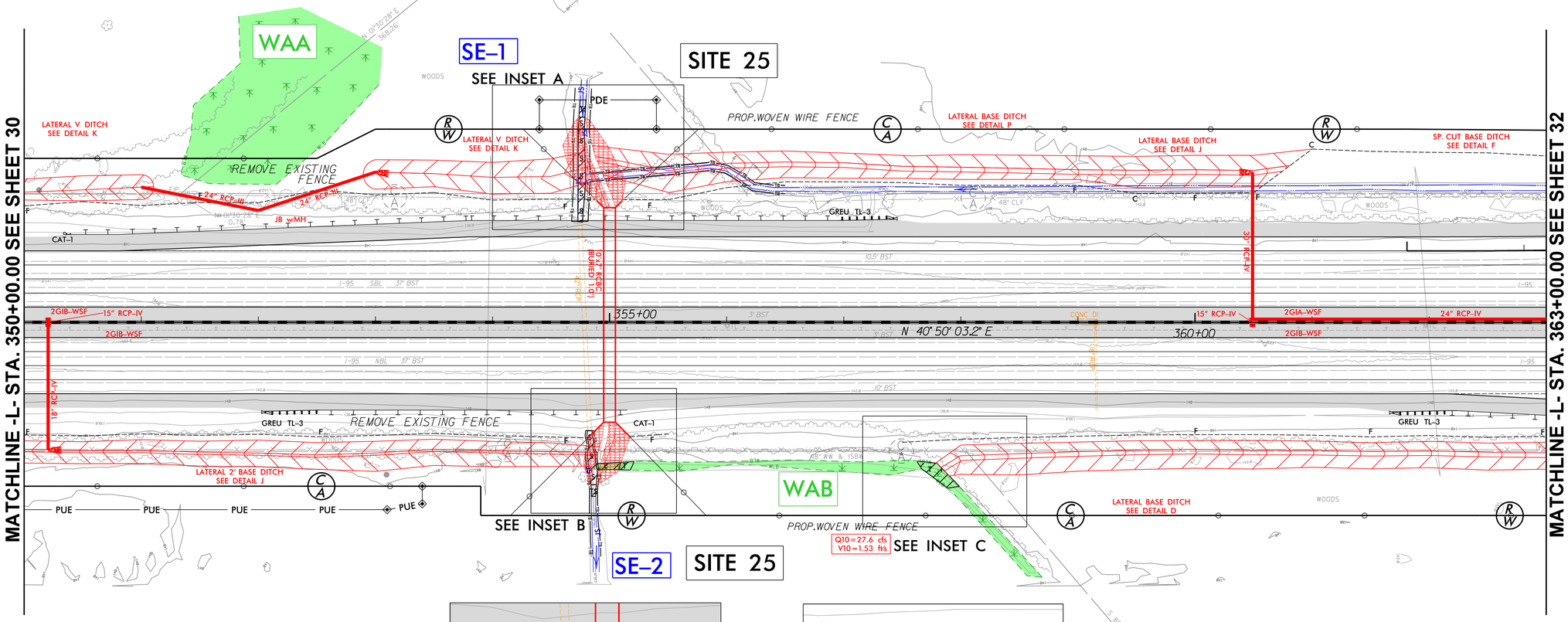
E E DENOTES EXCAVATION IN WETLAND
S S DENOTES IMPACTS IN SURFACE WATER
TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER
T T DENOTES TEMPORARY FILL IN WETLAND

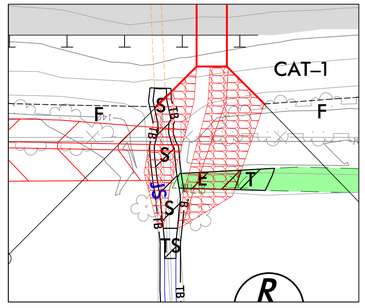
PROJECT REFERENCE NO.	SHEET NO.
I-5986A	31
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

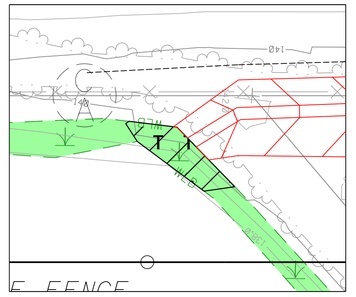
NAD 83/NA 2011

PERMIT DRAWING SHEET 61 OF 163





INSET B



INSET C

FOR –LLT SEC2– PROFILE SEE SHTS. 112 THRU 113
FOR –LRT SEC2– PROFILE SEE SHTS. 112 THRU 113
FOR –Y7RPB– PROFILE SEE SHT. 178
FOR DITCH DETAILS SEE SHTS. 2D–3 THRU 2D–4

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Ekelley

Submitted 9/2/2020

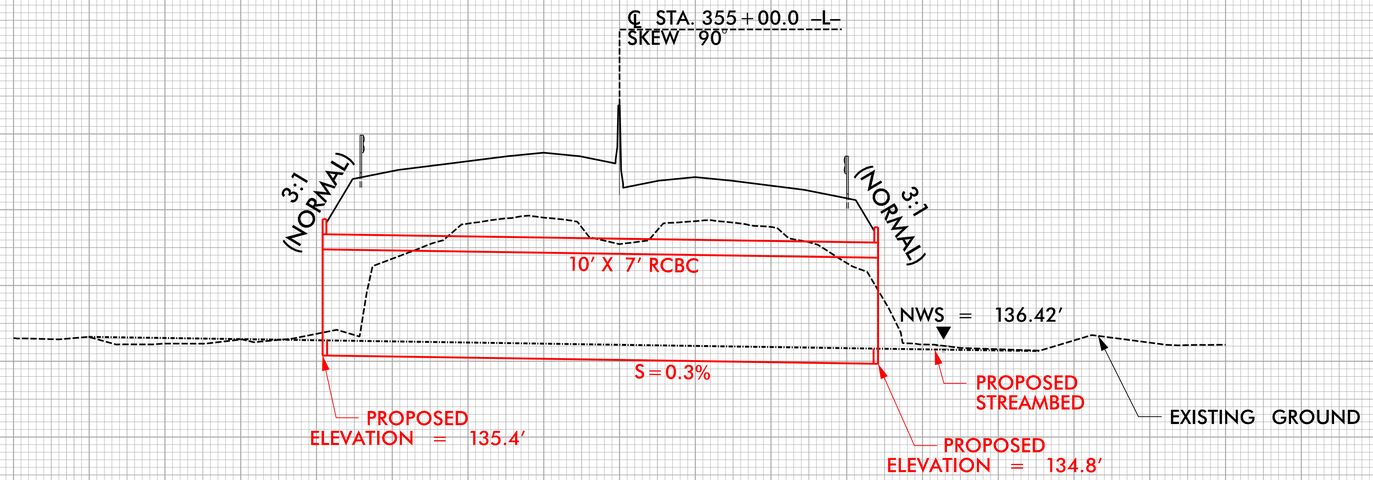
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SITE 25
–L– STA. 355+00

PERMIT DRAWING
SHEET 62 OF 163

ENGLISH



160 150 140 130 120

250 200 150 100 50 0 50 100 150 200 250

10' X 7' RCBC
(buried 1.0' with alternating 1.0' tall, 5.0' wide baffles)
(length=183')

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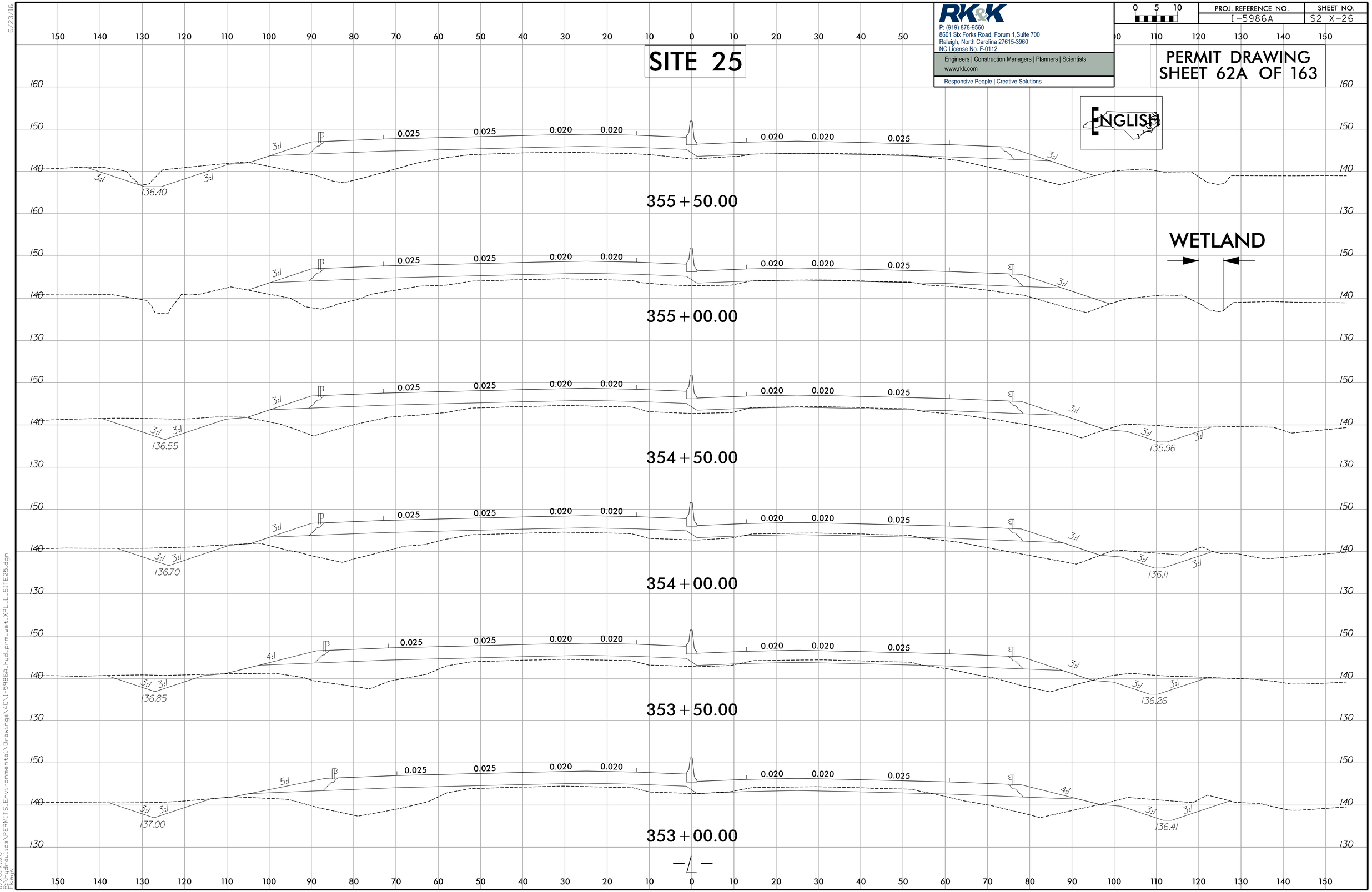
0 5 10

PROJ. REFERENCE NO.	SHEET NO.
I-5986A	S2 X-26

SITE 25

PERMIT DRAWING
SHEET 62A OF 163

ENGLISH



6/23/16
8/20/2020
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Plotted

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PROJECT REFERENCE NO.	SHEET NO.
I-5986A	32
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING
SHEET 63 OF 163

50 0 50 100
SCALE FOR INSET

100 50 0 100 200
SCALE

ENGLISH

DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES TEMPORARY FILL IN WETLAND

NAD 83/NA-2011

MATCHLINE -SR3- STA. 18+25.00 SEE SHEET 74

MATCHLINE -Y7B- STA. 14+50.00 SEE SHEET 74

MATCHLINE -SR3- STA. 29+50.00 SEE SHEET 33

MATCHLINE -L- STA. 363+00.00 SEE SHEET 31

MATCHLINE -L- STA. 390+00.00 SEE SHEET 33

MATCHLINE -Y7D- STA. 12+50.00 SEE SHEET 75

MATCHLINE -Y7B- STA. 14+00.00 SEE SHEET 75

MATCHLINE -Y7D- STA. 20+20.00 SEE SHEET 33

A

B

C

D

SITE 27

SITE 26

WAF

WAC

REMOVE EXISTING FENCE

PROP. WOVEN WIRE FENCE

INSET A

INSET B

SEE INSET A

SEE INSET B

FOR BRIDGE SKETCH SEE SHT. 2A–5
FOR CROSS SECTION LAYOUT SEE SHT. 2B–2
FOR –LLT_SEC2– PROFILE SEE SHTS. 113 THRU 115
FOR –LRT_SEC2– PROFILE SEE SHTS. 113 THRU 115
FOR –Y7B– PROFILE SEE SHT. 175
FOR –Y7C– PROFILE SEE SHT. 175
FOR –Y7D– PROFILE SEE SHT. 176
FOR –Y7RPA– PROFILE SEE SHT. 177
FOR –Y7RPB– PROFILE SEE SHT. 178
Y7RPC– PROFILE SEE SHTS. 178 THRU 179
Y7RPD– PROFILE SEE SHT. 179
Y7RAB2– PROFILE SEE SHT. 176
Y7RAB3– PROFILE SEE SHT. 176
Y20– PROFILE SEE SHT. 181
SR3– PROFILE SEE SHT. 182

ITCH DETAILS SEE SHTS. 2D–3 THRU 2D–4

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PROJECT REFERENCE NO.	SHEET NO.
I-5986A	32
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 64 OF 163

50 0 50 100
SCALE FOR INSET

100 50 0 100 200
SCALE

ENGLISH

DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES TEMPORARY FILL IN WETLAND

NAD 83/NSRS 2011

MATCHLINE -SR3- STA. 18+25.00 SEE SHEET 74

MATCHLINE -Y7B- STA. 14+50.00 SEE SHEET 74

MATCHLINE -SR3- STA. 29+50.00 SEE SHEET 33

MATCHLINE -L- STA. 363+00.00 SEE SHEET 31

MATCHLINE -L- STA. 390+00.00 SEE SHEET 33

MATCHLINE -Y7D- STA. 12+50.00 SEE SHEET 75

MATCHLINE -Y7B- STA. 14+00.00 SEE SHEET 75

MATCHLINE -Y7C- STA. 20+20.00 SEE SHEET 33

A

B

C

D

SITE 27

SITE 26

WAF

WAC

SEE INSET A

SEE INSET B

INSET A

INSET B

REMOVE EXISTING FENCE

PROP. WOVEN WIRE FENCE

EXISTING FENCE

GRADE TO DRAIN

FOR BRIDGE SKETCH SEE SHS. 2A–5
FOR CROSS SECTION LAYOUT SEE SHT. 2B–2
FOR –LLT_SEC2– PROFILE SEE SHTS. 113 THRU 115
FOR –LRT_SEC2– PROFILE SEE SHTS. 113 THRU 115
FOR –Y7B– PROFILE SEE SHT. 175
FOR –Y7C– PROFILE SEE SHT. 175
FOR –Y7D– PROFILE SEE SHT. 176
FOR –Y7RPA– PROFILE SEE SHT. 177
FOR –Y7RPB– PROFILE SEE SHT. 178
Y7RPC– PROFILE SEE SHTS. 178 THRU 179
Y7RPD– PROFILE SEE SHT. 179
Y7RAB2– PROFILE SEE SHT. 176
Y7RAB3– PROFILE SEE SHT. 176
Y20– PROFILE SEE SHT. 181
SR3– PROFILE SEE SHT. 182

ITCH DETAILS SEE SHTS. 2D–3 THRU 2D–4

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Submitted 9/2/2020

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-5986A	S2 X-135

SITE 26

PERMIT DRAWING
SHEET 65 OF 163

ENGLISH

WETLAND

0.070 0.070

3:1 3:1 6:1 3:1

145.13

142.92

21 + 00.00

WETLAND

0.070 0.070

6:1

142.41

20 + 50.00

WETLAND

0.070 0.070

3:1 6:1 3:1

144.57

142.56

20 + 00.00

WETLAND

0.069 0.069

3:1 6:1 3:1

144.29

142.20

19 + 50.00

WETLAND

0.070 0.070

3:1 3:1 5:1 4:1

142.28

141.59

19 + 00.00

WETLAND

0.070 0.070

3:1 3:1 4:1 4:1

141.55

141.81

18 + 50.00

-Y7RPC-

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F.Kopp

Submitted 9/2/2020

6/23/16

0 10 20	PROJ. REFERENCE NO.	SHEET NO.
	I-5986A	S2 X-37

SITE 27

PERMIT DRAWING SHEET 66 OF 163

ENGLISH

387+50.00

WETLAND
Y7RPA
13+40.75
0.070
3:1 6.03:1 144.57
0.025 0.020 0.020 0.020 0.020 0.025
148.82
6:1 6.22:1 147.35
Y7RPD
16+92.08
0.066 0.066
6:1 3:1 143.99

387+00.00

WETLAND
Y7RPA
13+91.10
0.070
3:1 6.05:1 144.63
0.025 0.020 0.020 0.020 0.020 0.025
149.01
6:1 6.27:1 147.61
Y7RPD
17+44.12
0.065 0.065
6:1 3:1 144.75

386+50.00

WETLAND
Y7RPA
14+41.61
0.069
3:1 6.07:1 144.68
0.025 0.020 0.020 0.020 0.020 0.025
149.07
6:1 6.31:1 147.60
Y7RPD
17+96.54
0.064 0.064
6:1 3:1 145.51

386+00.00

WETLAND
Y7RPA
14+92.29
0.069
3:1 6.07:1 144.74
0.025 0.020 0.020 0.020 0.020 0.025
149.15
6:1 6:1 147.58
Y7RPD
18+49.37
0.063 0.063
6.36:1 148.98
6.37:1 3.19:1 146.58

385+50.00

WETLAND
Y7RPA
15+43.19
0.068
3:1 6.12:1 144.79
6:1 6:1 148.59
0.025 0.020 0.020 0.020 0.020 0.025
149.05
6:1 147.55
6:1

385+00.00

WETLAND
Y7RPA
15+94.32
0.066
6.15:1 3.08:1 145.16
6:1 6:1 147.85
0.025 0.020 0.020 0.020 0.020 0.025
148.93
6.01:1 3:1 147.51

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K:\Highways\PERMITS_Environmental\Drawings\MCNI-5986A_hyd_prm_wet_XPL_Y7RPA_SITE27.dgn
F.Kopp

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PROJECT REFERENCE NO.	SHEET NO.
I-5986A	33
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING SHEET 67 OF 163

8/17/99

MATCHLINE -SR3- STA. 29+50.00 SEE SHEET 32

MATCHLINE -L- STA. 390+00.00 SEE SHEET 32

MATCHLINE -Y20- STA. 20+00.00 SEE SHEET 32

MATCHLINE -L- STA. 402+00.00 SEE SHEET 34

MATCHLINE -Y20- STA. 32+00.00 SEE SHEET 34

INSET A

Q10=17.0 cfs
V10=1.06 ft/s

SEE INSET A

END CONSTRUCTION –SR3– Sta. 36+00.00

NAD 83/NA 2011

PG

WAF

WAG

SITE 27

SITE 28

SP. LATERAL BASE DITCH SEE DETAIL C

Q10=3.43 cfs
V10=0.99 ft/s

5 TONS CL B RIP RAP
16 SY GEOTEXTILE

TOE PROTECTION W/CL B RIPRAP SEE DETAIL H

REMOVE 2 TONS CL B RIP RAP
7 SY GEOTEXTILE

MEDIAN DITCH SEE DETAIL G

PLUG & FILL W/FLOWABLE FILL

REMOVE DI

REMOVE EXISTING FENCE

PROP. CHAIN LINK FENCE

SPECIAL CUT DITCH SEE DETAIL B

LATERAL V DITCH SEE DETAIL K

LATERAL BASE DITCH SEE DETAIL P

8 TONS CL B RIP RAP
21 SY GEOTEXTILE

3 TONS CL B RIP RAP
10 SY GEOTEXTILE

REMOVE 75' PIPE

SP. CUT BASE DITCH SEE DETAIL V

JB w/MH

N 44° 42' 08.4" E

N 41° 05' 13.6" E

N 40° 50' 03.2" E

N 40° 50' 05.0" E

FS 43° 50' 03.2" W

SCALE FOR INSET: 25 0 25 50

SCALE: 50 25 0 50 100

ENGLISH

DENOTES TEMPORARY FILL IN WETLAND

DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

FOR –LLT_SEC2– PROFILE SEE SHTS. 115 THRU 116
FOR –LRT_SEC2– PROFILE SEE SHTS. 115 THRU 116
FOR –Y7RPA– PROFILE SEE SHT. 177
FOR –Y7RPD– PROFILE SEE SHT. 179
FOR –Y20– PROFILE SEE SHT. 181

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PROJECT REFERENCE NO.	SHEET NO.
I-5986A	33
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING
SHEET 68 OF 163

8/17/99

MATCHLINE -SR3- STA. 29+50.00 SEE SHEET 32

MATCHLINE -L- STA. 390+00.00 SEE SHEET 32

MATCHLINE -Y20- STA. 20+00.00 SEE SHEET 32

MATCHLINE -L- STA. 402+00.00 SEE SHEET 34

MATCHLINE -Y20- STA. 32+00.00 SEE SHEET 34

INSET A

Q10=17.0 cfs
V10=1.06 ft/s

SEE INSET A

END CONSTRUCTION
-SR3- Sta. 36+00.00

PG

WAF

WAG

SITE 27

SITE 28

SP. LATERAL BASE DITCH
SEE DETAIL C

Q10=3.43 cfs
V10=0.99 ft/s

5 TONS CL B RIP RAP
16 SY GEOTEXTILE

TOE PROTECTION
W/CL B RIPRAP
SEE DETAIL H

REMOVE 2 TONS CL B RIP RAP
7 SY GEOTEXTILE

MEDIAN DITCH
SEE DETAIL G

PROP. CHAIN LINK FENCE

REMOVE EXISTING FENCE

SPECIAL CUT DITCH
SEE DETAIL B

PLUG & FILL
W/FLOWABLE
FILL

REMOVE DI

2GIB-WSF
15" RCP-IV

2GIA-WSF
24" RCP-IV

18" RCP-IV

LATERAL V DITCH
SEE DETAIL K

LATERAL BASE DITCH
SEE DETAIL P

8 TONS CL B RIP RAP
21 SY GEOTEXTILE

3 TONS CL B RIP RAP
10 SY GEOTEXTILE

REMOVE 75'
PIPE

30" RCP-III

18" RCP-III

SP. CUT BASE DITCH
SEE DETAIL V

JB w/MH

N 44° 42' 08.4" E

N 41° 05' 13.6" E

N 40° 50' 03.2" E

N 40° 50' 05.0" E

SCALE FOR INSET 25 0 25 50

SCALE 50 25 0 50 100

ENGLISH

DENOTES TEMPORARY FILL IN WETLAND

DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

FOR –LLT_SEC2– PROFILE SEE SHTS. 115 THRU 116
FOR –LRT_SEC2– PROFILE SEE SHTS. 115 THRU 116
FOR –Y7RPA– PROFILE SEE SHT. 177
FOR –Y7RPD– PROFILE SEE SHT. 179
FOR –Y20– PROFILE SEE SHT. 181

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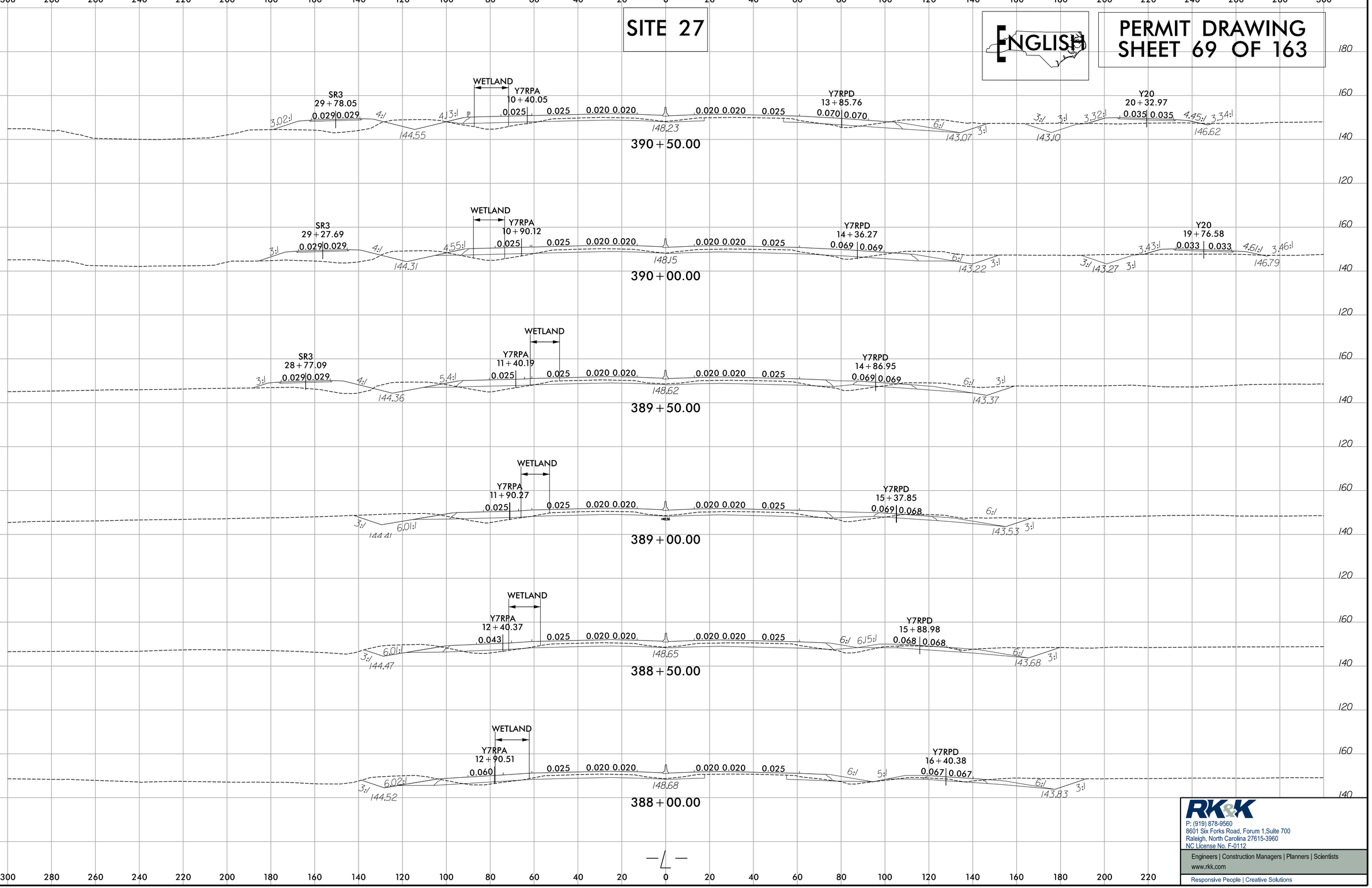
0 10 20	PROJ. REFERENCE NO.	SHEET NO.
	I-5986A	S2 X-38

SITE 27

ENGLISH

PERMIT DRAWING SHEET 69 OF 163



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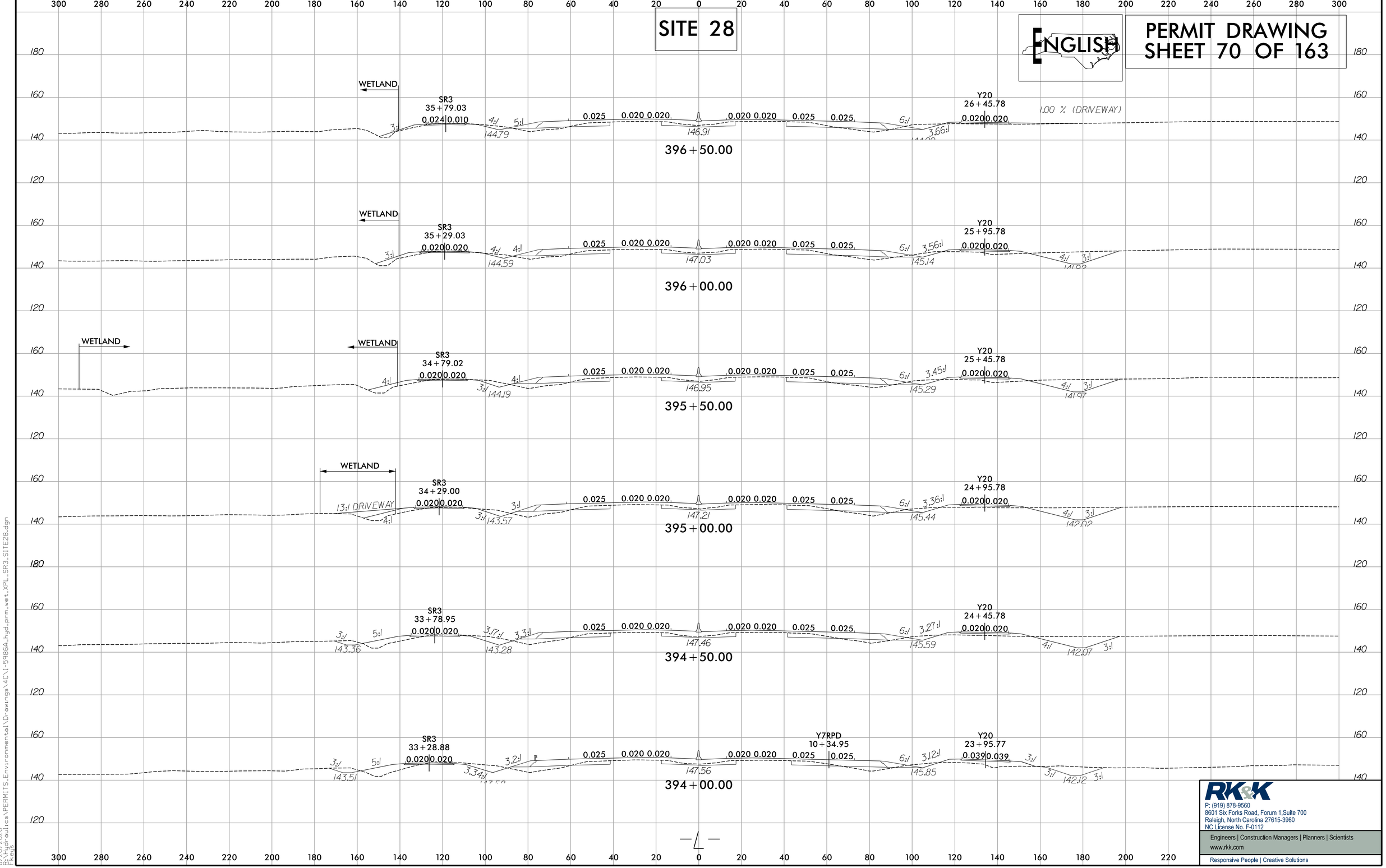
0 10 20	PROJ. REFERENCE NO.	SHEET NO.
	I-5986A	S2 X-40

SITE 28

ENGLISH

PERMIT DRAWING SHEET 70 OF 163



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PROJECT REFERENCE NO.	SHEET NO.
I-5986A	34
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING SHEET 71 OF 163

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NA 2011

WAG

WAH

Q10=130.0 cfs
V10=1.76 ft/s

SITE 48

SITE 29

STANDARD BASE DITCH SEE DETAIL W

SEE INSET A

SEE INSET B

SEE INSET C

INSET B

INSET A

INSET C

MATCHLINE -L- STA. 402+00.00 SEE SHEET 33

MATCHLINE -L- STA. 415+00.00 SEE SHEET 35

MATCHLINE -Y20- STA. 32+00.00 SEE SHEET 33

LATERAL V DITCH SEE DETAIL K

48 TONS CL I RIP RAP 89 SY GEOTEXTILE

SPECIAL CUT DITCH SEE DETAIL B

SP. CUT DITCH SEE DETAIL B

PROP. WOVEN WIRE FENCE

REMOVE EXISTING FENCE

PLUG & FILL W/FLOWABLE FILL

REMOVE DI & 10' PIPE

REMOVE DI & 11' PIPE

REMOVE DI

2GIB–WSF

2GIA–WSF

15" RCP–IV

24" RCP–IV

48" RCP–IV

405+00

410+00

415+00

N 40° 50' 03.2" E

LATERAL BASE DITCH SEE DETAIL P

40 TONS CL I RIP RAP 75 SY GEOTEXTILE

LATERAL BASE DITCH SEE DETAIL D

STANDARD BASE DITCH SEE DETAIL W

SP. CUT BASE DITCH SEE DETAIL V

SP. CUT BASE DITCH SEE DETAIL N

TRAFFIC SIGNAL HANDHOLE

PUE

HW

END CONSTRUCTION –Y20– Sta. 33+42.00

SCALE FOR INSET: 25 0 25 50

SCALE: 50 25 0 50 100

ENGLISH

DENOTES EXCAVATION IN WETLAND

DENOTES TEMPORARY FILL IN WETLAND

FOR –LLT_SEC2– PROFILE SEE SHT. 116
FOR –LRT_SEC2– PROFILE SEE SHT. 116
FOR –Y20– PROFILE SEE SHT. 181

FOR DITCH DETAILS SEE SHTS. 2D–3 THRU 2D–4

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EKelly

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PROJECT REFERENCE NO.	SHEET NO.
I-5986A	34
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING SHEET 72 OF 163

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NA 2011

MATCHLINE -L- STA. 402+00.00 SEE SHEET 33

MATCHLINE -L- STA. 415+00.00 SEE SHEET 35

MATCHLINE -Y20- STA. 32+00.00 SEE SHEET 33

WAG

WAH

Q10=130.0 cfs
V10=1.76 ft/s

SITE 48

SITE 29

STANDARD BASE DITCH SEE DETAIL W

SEE INSET A

SEE INSET B

SEE INSET C

INSET B

INSET A

INSET C

LATERAL V DITCH SEE DETAIL K

48 TONS CL I RIP RAP 89 SY GEOTEXTILE

SPECIAL CUT DITCH SEE DETAIL B

PROP.WOVEN WIRE FENCE

REMOVE EXISTING FENCE

SP. CUT DITCH SEE DETAIL B

PLUG & FILL W/FLOWABLE FILL

2GIB-WSF

15" RCP-IV

24" RCP-IV 2GIA-WSF

REMOVE DI & 10' PIPE

REMOVE DI & 11' PIPE

405+00

N 40° 50' 03.2" E

410+00

415+00

LATERAL BASE DITCH SEE DETAIL P

40 TONS CL I RIP RAP 75 SY GEOTEXTILE

LATERAL BASE DITCH SEE DETAIL D

SP. CUT BASE DITCH SEE DETAIL V

SP. CUT BASE DITCH SEE DETAIL N

END CONSTRUCTION –Y20– Sta. 33+42.00

SCALE FOR INSET: 25 0 25 50

SCALE: 50 25 0 50 100

ENGLISH

DENOTES EXCAVATION IN WETLAND

DENOTES TEMPORARY FILL IN WETLAND

FOR –LLT_SEC2– PROFILE SEE SHT. 116
FOR –LRT_SEC2– PROFILE SEE SHT. 116
FOR –Y20– PROFILE SEE SHT. 181

FOR DITCH DETAILS SEE SHTS. 2D–3 THRU 2D–4

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EKelly

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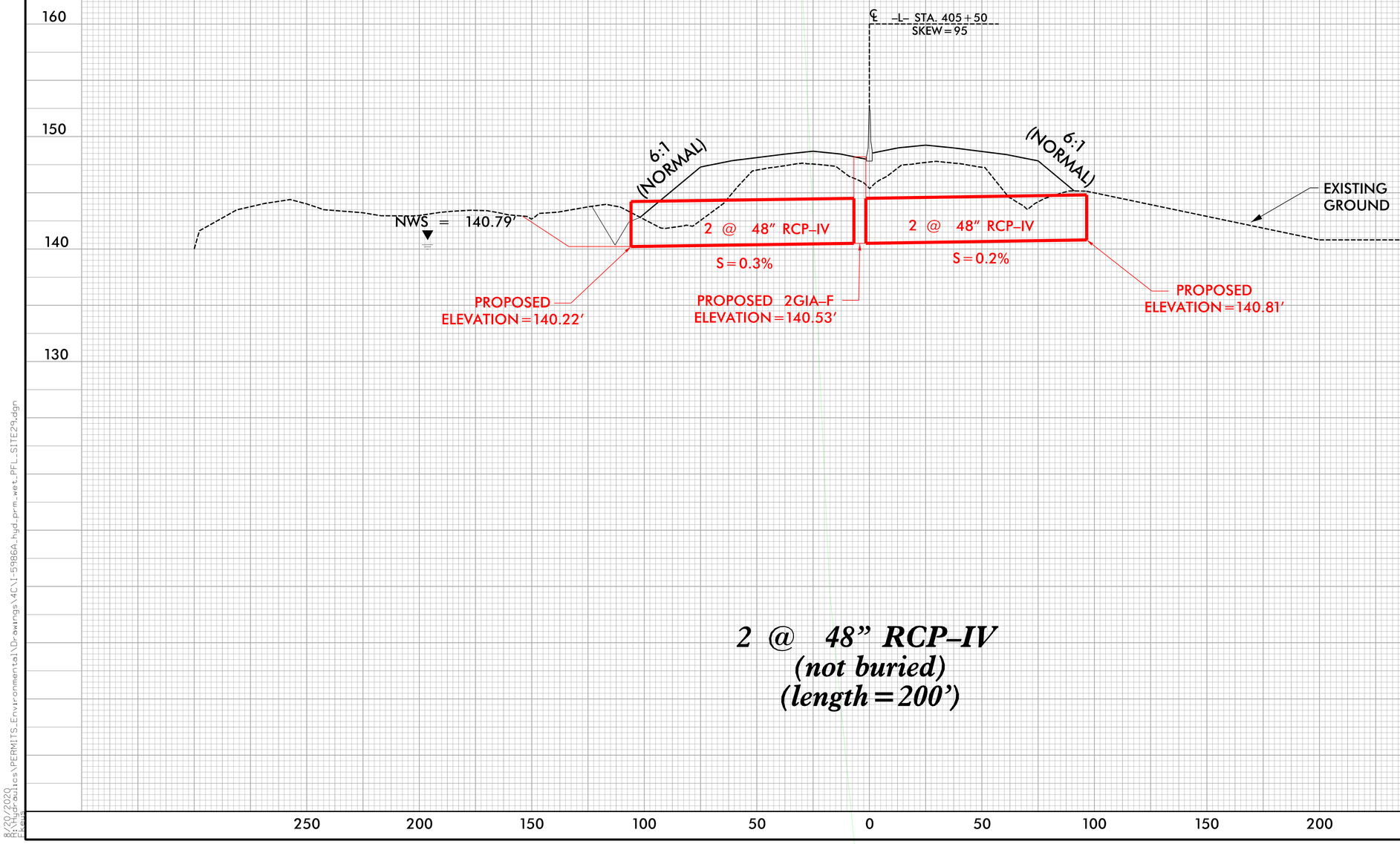
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SITE 29
–L– STA. 405 + 50

PERMIT DRAWING
SHEET 73 OF 163

ENGLISH



2 @ 48" RCP–IV
(not buried)
(length = 200')

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FLHUBER

Submitted 9/2/2020

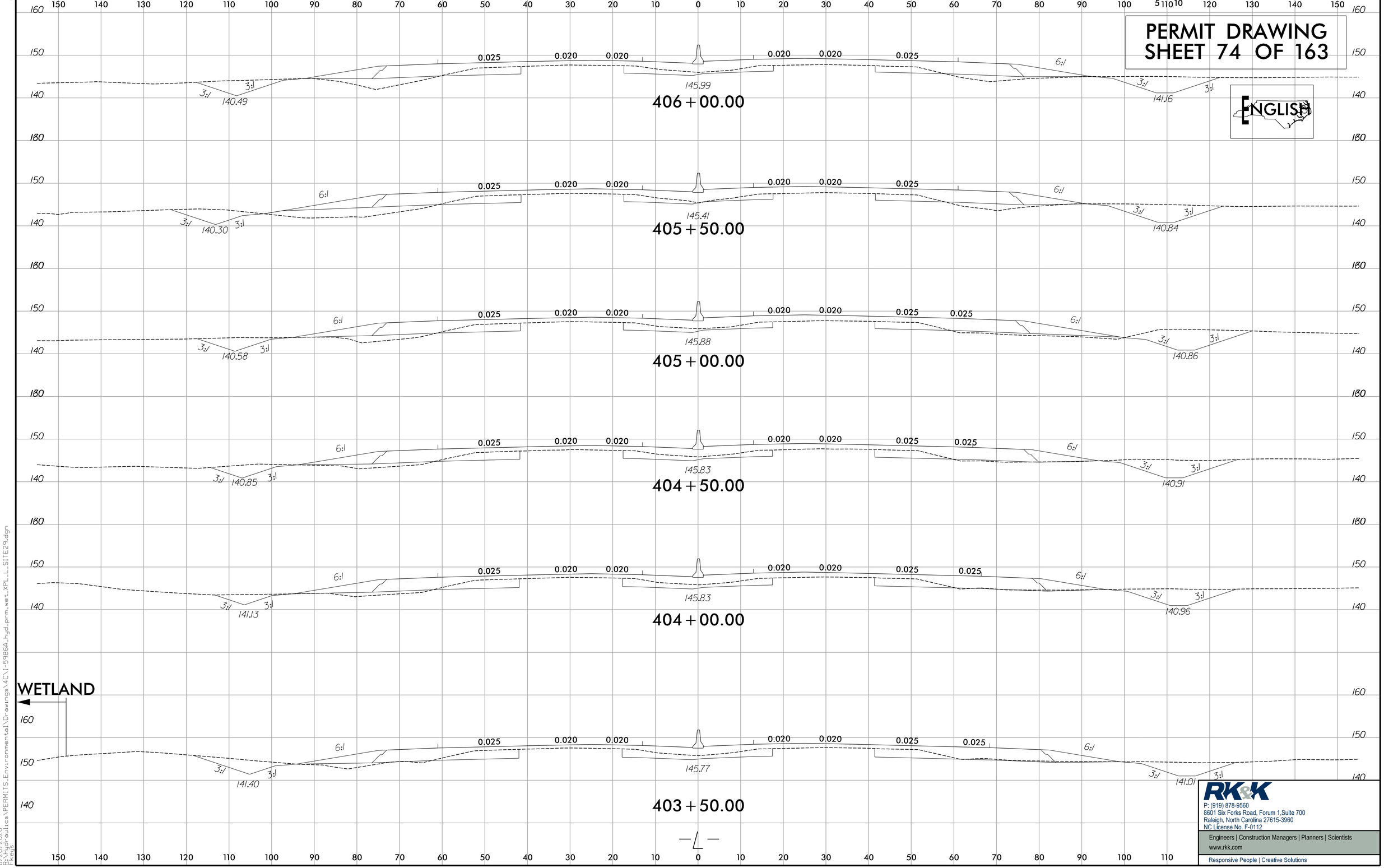
6/23/16

SITE 29

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-5986A	S2 X-44

PERMIT DRAWING
SHEET 74 OF 163

ENGLISH



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F.Hugh

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6/23/16

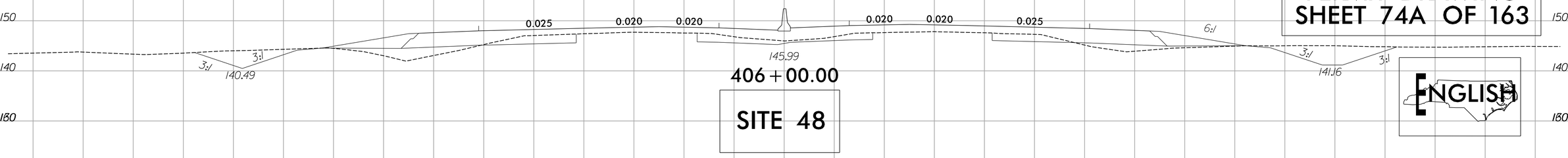
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-5986A	S2 X-44

PERMIT DRAWING SHEET 74A OF 163

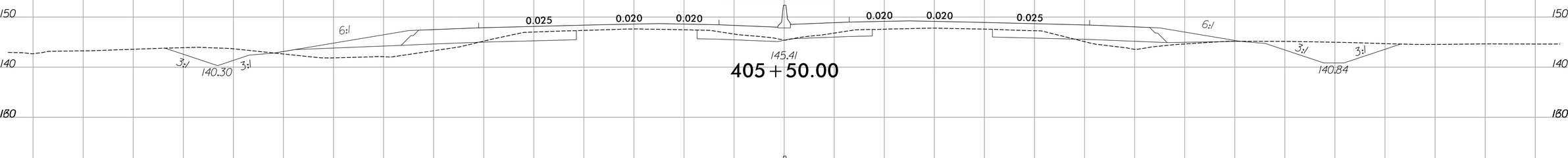
ENGLISH

SITE 48

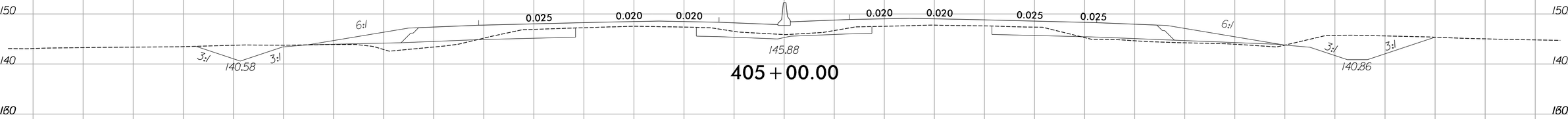
406+00.00



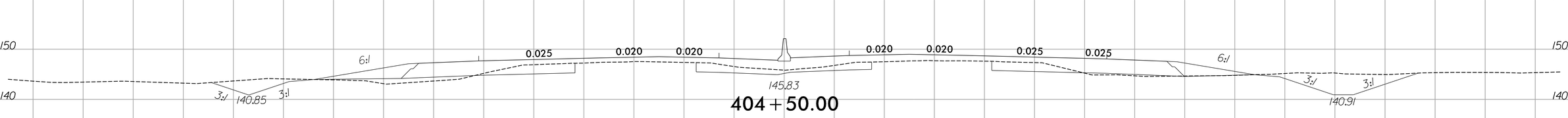
405+50.00



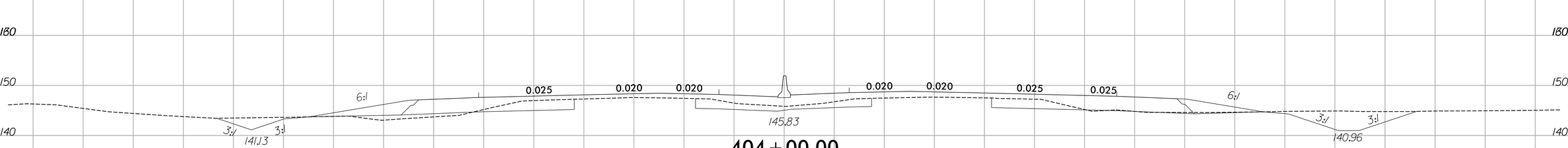
405+00.00



404+50.00

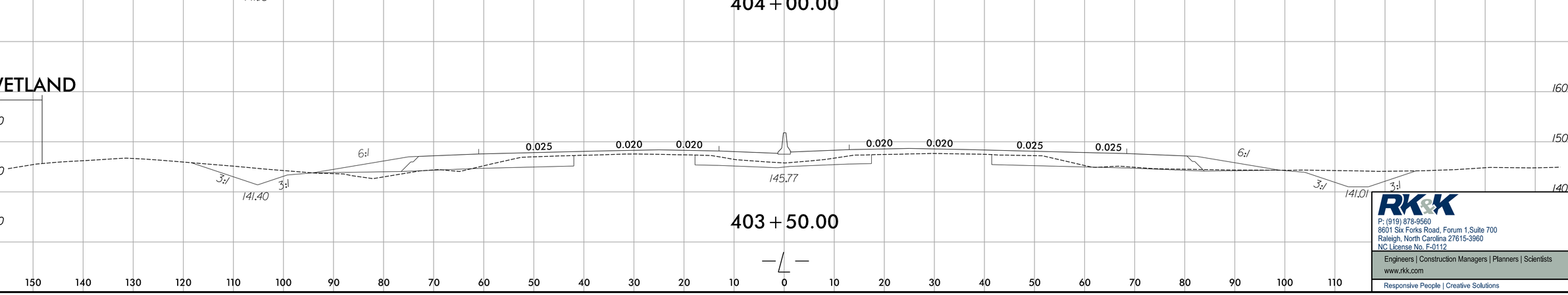


404+00.00



WETLAND

403+50.00



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F.Hegg

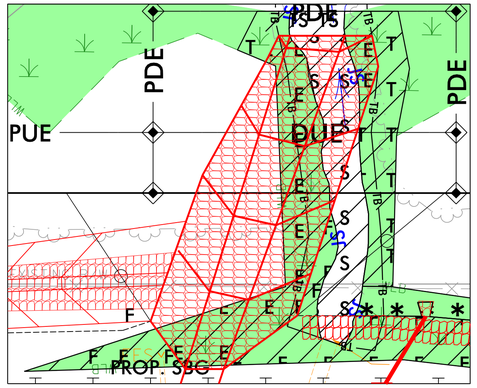
Submitted 9/2/2020

8/17/99

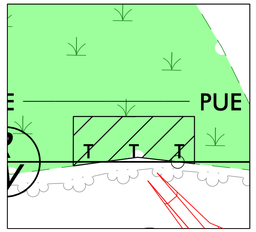
50 25 0 50 100
SCALE

ENGLISH

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



INSET B



INSET C

NAD 83/NA 2011

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	35
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING SHEET 75 OF 163

SITE 30

1 TON CL B RIP RAP W/5 SY GEO FAB

SEE INSET B

SEE INSET C

Q10=23.6 cfs
V10=1.69 ft/s

SP. LAT BASE DITCH SEE DETAIL C

3 TON CL B RIP RAP 10 SY GEOTEXTILE

ELECTRIC METER

MTL GRAIN SILO (TYP)

PUE

PROP.WOVEN WIRE FENCE

REMOVE EXISTING FENCE

SP. CUT DITCH SEE DETAIL B

SP. LAT. BASE DITCH SEE DETAIL AF

TOE PROTECTION SEE DETAIL H

48" WW W/ISBW

CAT-1

PROP. SBG

GREU TL-3

REMOVE

15" RCP-III

2GIB-WSF

10.5' BST

PLUG & FILL W/FLOWABLE FILL

18" RCP-V

12"x8" RCPC

2GIA-WSF

3' BST

I-95 SBL 37' BST

24" RCP-IV

CONC PAVED DITCH

REMOVE DI

REMOVE 10' OF 18" RCP

REMOVE 10' OF 24" RCP

420+00

425+00

N 40° 50' 03.2" E

I-95 NBL 37' BST

10' BST

WAK

WAI

SITE 30

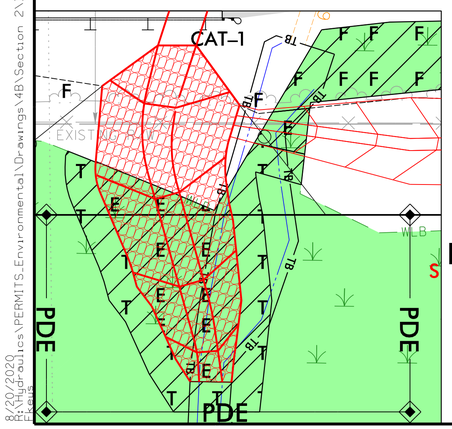
LINE CUT/FILL TRANSITION 2 TONS CL B RIPRAP W/7 SY GEOTEXTILE

1 TON CL B RIP RAP W/5 SY GEO FAB

SEE INSET A

MATCHLINE -L- STA. 415+00.00 SEE SHEET 34

MATCHLINE -L- STA. 428+00.00 SEE SHEET 36



INSET A

FOR –LLT_SEC2– PROFILE SEE SHT. 117
FOR –LRT_SEC2– PROFILE SEE SHT. 117
FOR DITCH DETAILS SEE SHTS. 2D–3 THRU 2D–4

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Submitted 9/2/2020

8/17/99

50 25 0 50 100
SCALE

ENGLISH

F F DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING
S S DENOTES IMPACTS IN SURFACE WATER
E E DENOTES EXCAVATION IN WETLAND
T T DENOTES TEMPORARY FILL IN WETLAND

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	35
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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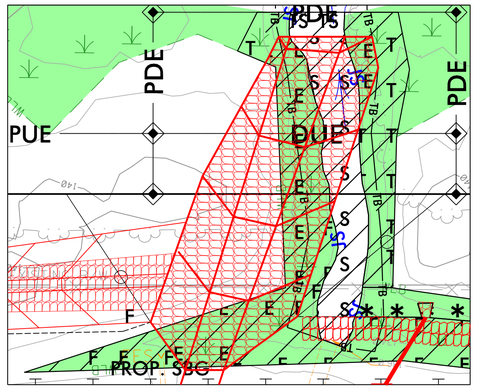
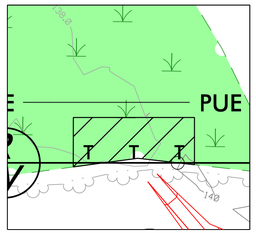
PERMIT DRAWING SHEET 76 OF 163



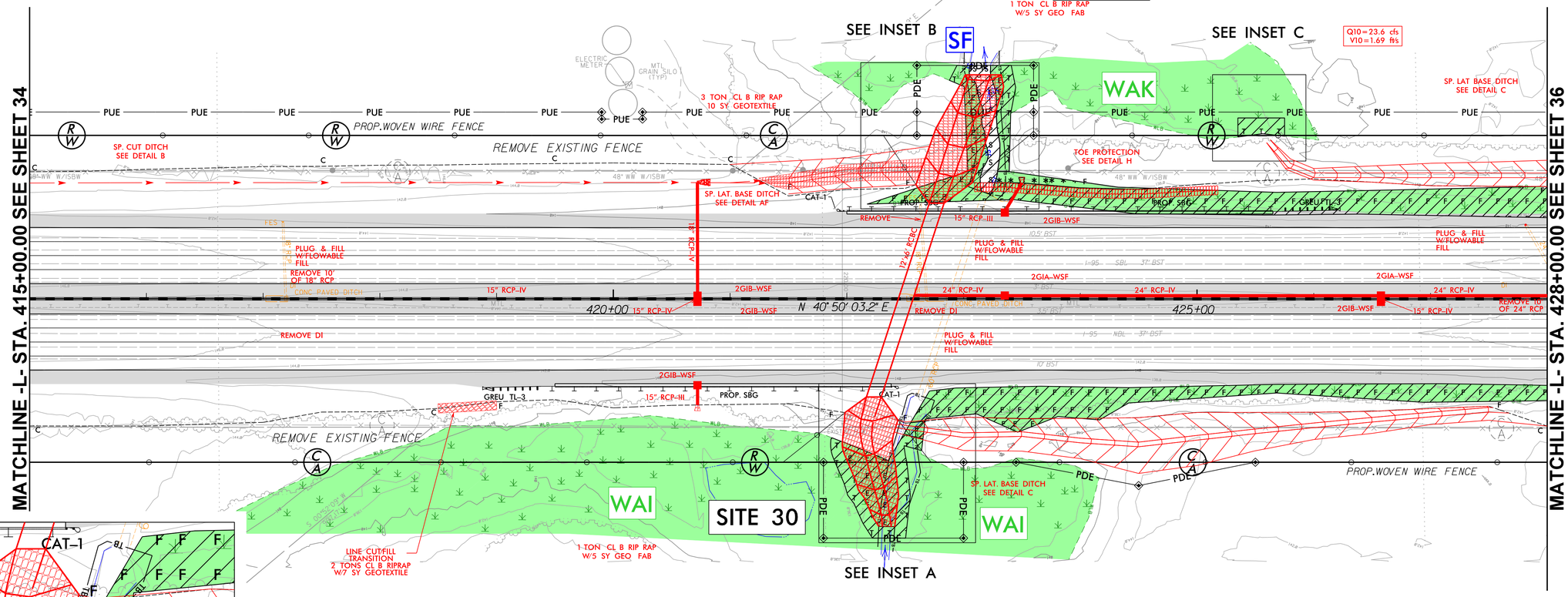
INSET B

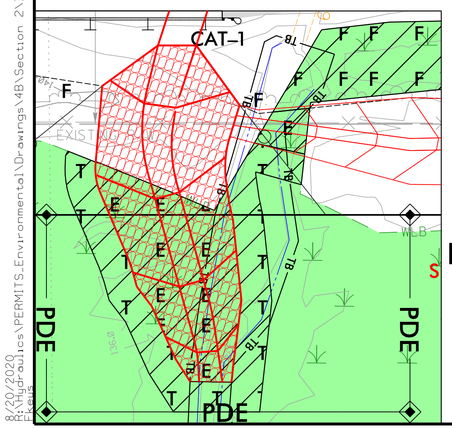


INSET C

NAD 83/NA 2011

SITE 30





INSET A

FOR –LLT_SEC2– PROFILE SEE SHT. 117
FOR –LRT_SEC2– PROFILE SEE SHT. 117
FOR DITCH DETAILS SEE SHTS. 2D–3 THRU 2D–4

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Submitted 9/2/2020

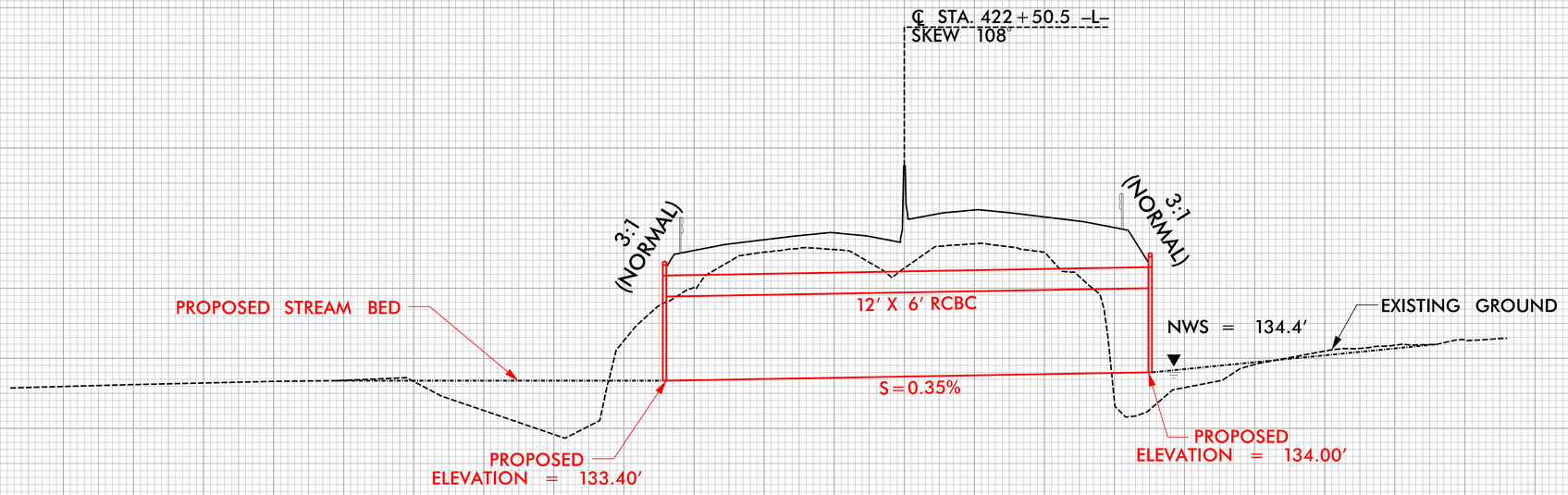
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SITE 30
–L– STA. 422+50

PERMIT DRAWING
SHEET 77 OF 163

ENGLISH



12' X 6' RCBC
(not buried)
(length=183')

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Kevin Lee

Submitted 9/2/2020

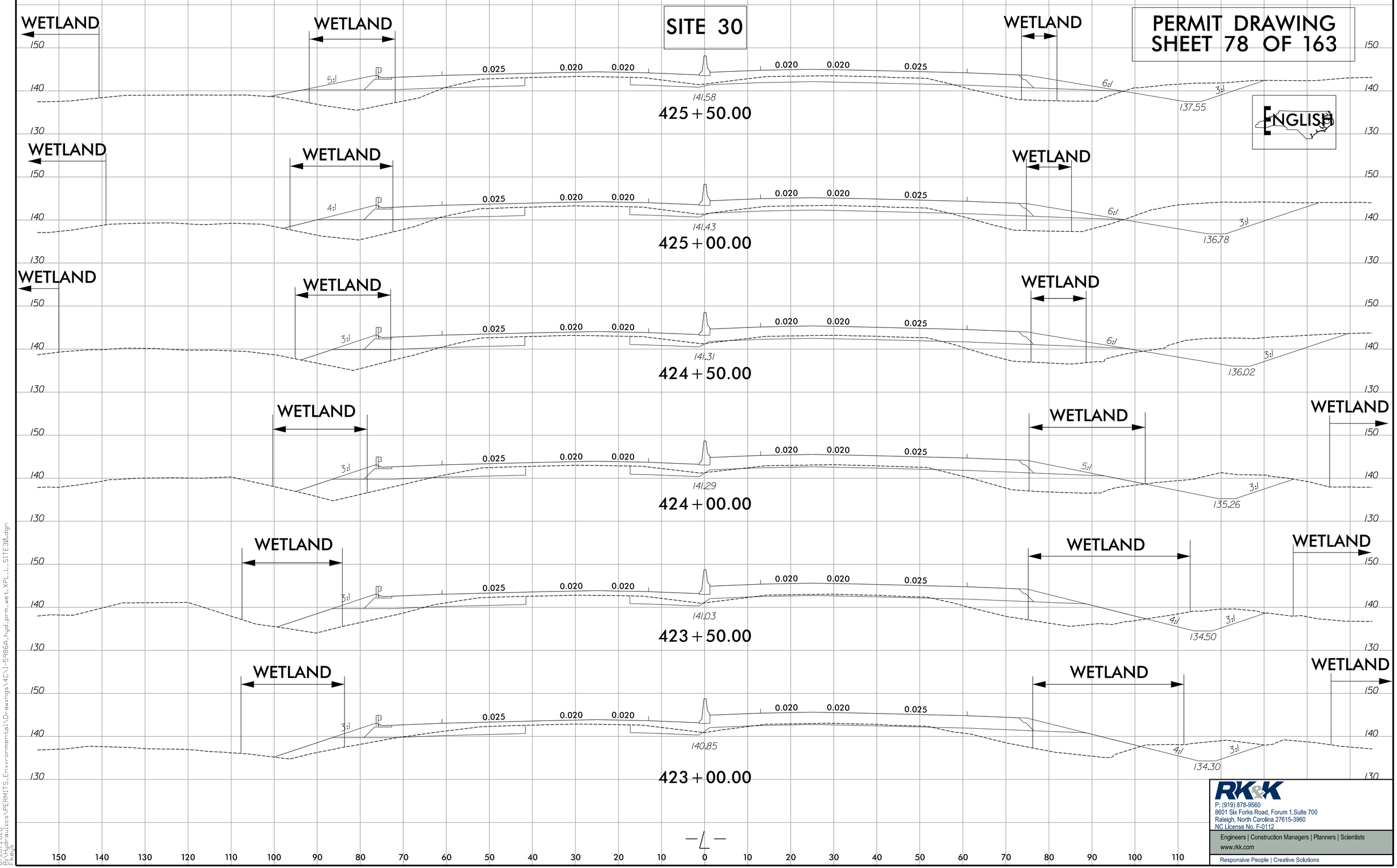
6/23/16

PROJ. REFERENCE NO.	SHEET NO.
I-5986A	S2 X-51

0 5 10

PERMIT DRAWING
SHEET 78 OF 163

SITE 30



ENGLISH

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FKeigh

Submitted 9/2/2020

8/17/99

50 25 0 50 100
SCALE

ENGLISH

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	36
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 79 OF 163

NAD 83/NA 2011

MATCHLINE -L- STA. 428+00.00 SEE SHEET 35

MATCHLINE -L- STA. 442+00.00 SEE SHEET 37

WAL

PH

WAK

WAI

WAJ

PI

SITE 30

SITE 30

SITE 30

PUE

PROP.WOVEN WIRE FENCE

REMOVE EXISTING FENCE

SP. LAT BASE DITCH SEE DETAIL C

SP. CUT BASE DITCH SEE DETAIL F

SP. CUT BASE DITCH SEE DETAIL Z

SP. CUT BASE DITCH SEE DETAIL H

POND

48" WW W/ISBW

EXISTING R/W

PLUG & FILL W/FLOWABLE FILL

REMOVE DI

CONC PAVED DITCH

24" RCP-IV

18" RCP-IV

15" RCP-IV

2GIA-WSF

2GIB-WSF

REMOVE 10' OF 24" RCP

REMOVE 10' OF 18" RCP

I-95 SBL 37' BST

I-95 NBL 37' BST

430+00

435+00

440+00

N 40° 50' 03.2" E

Q10 = 33.8 cfs
V10 = 2.00 fps

FOR -LLT_SEC2- PROFILE SEE SHTS. 117 THRU 118
FOR -LRT_SEC2- PROFILE SEE SHTS. 117 THRU 118
FOR DITCH DETAILS SEE SHTS. 2D-3 THRU 2D-4

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FLeo

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8/17/99

SCALE 50 25 0 50 100

ENGLISH

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	36
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 80 OF 163

NAD 83/NA 2011

MATCHLINE -L- STA. 428+00.00 SEE SHEET 35

MATCHLINE -L- STA. 442+00.00 SEE SHEET 37

SITE 30

WAL

PH

WAK

WAI

WAJ

PI

PUE

PROP.WOVEN WIRE FENCE

REMOVE EXISTING FENCE

SP. LAT BASE DITCH SEE DETAIL C

SP. CUT BASE DITCH SEE DETAIL F

SP. CUT BASE DITCH SEE DETAIL Z

PLUG & FILL W/FLOWABLE FILL

REMOVE 10' OF 24" RCP

REMOVE 10' OF 18" RCP

REMOVE DI

24" RCP-IV

18" RCP-IV

15" RCP-IV

2GIA-WSF

2GIB-WSF

CONC PAVED DITCH

FES

430+00

435+00

440+00

N 40° 50' 03.2" E

I-95 SBL 37' BST

I-95 NBL 37' BST

POND

Q10 = 33.8 cfs
V10 = 2.00 ft/s

FOR -LLT_SEC2- PROFILE SEE SHTS. 117 THRU 118
FOR -LRT_SEC2- PROFILE SEE SHTS. 117 THRU 118

FOR DITCH DETAILS SEE SHTS. 2D-3 THRU 2D-4

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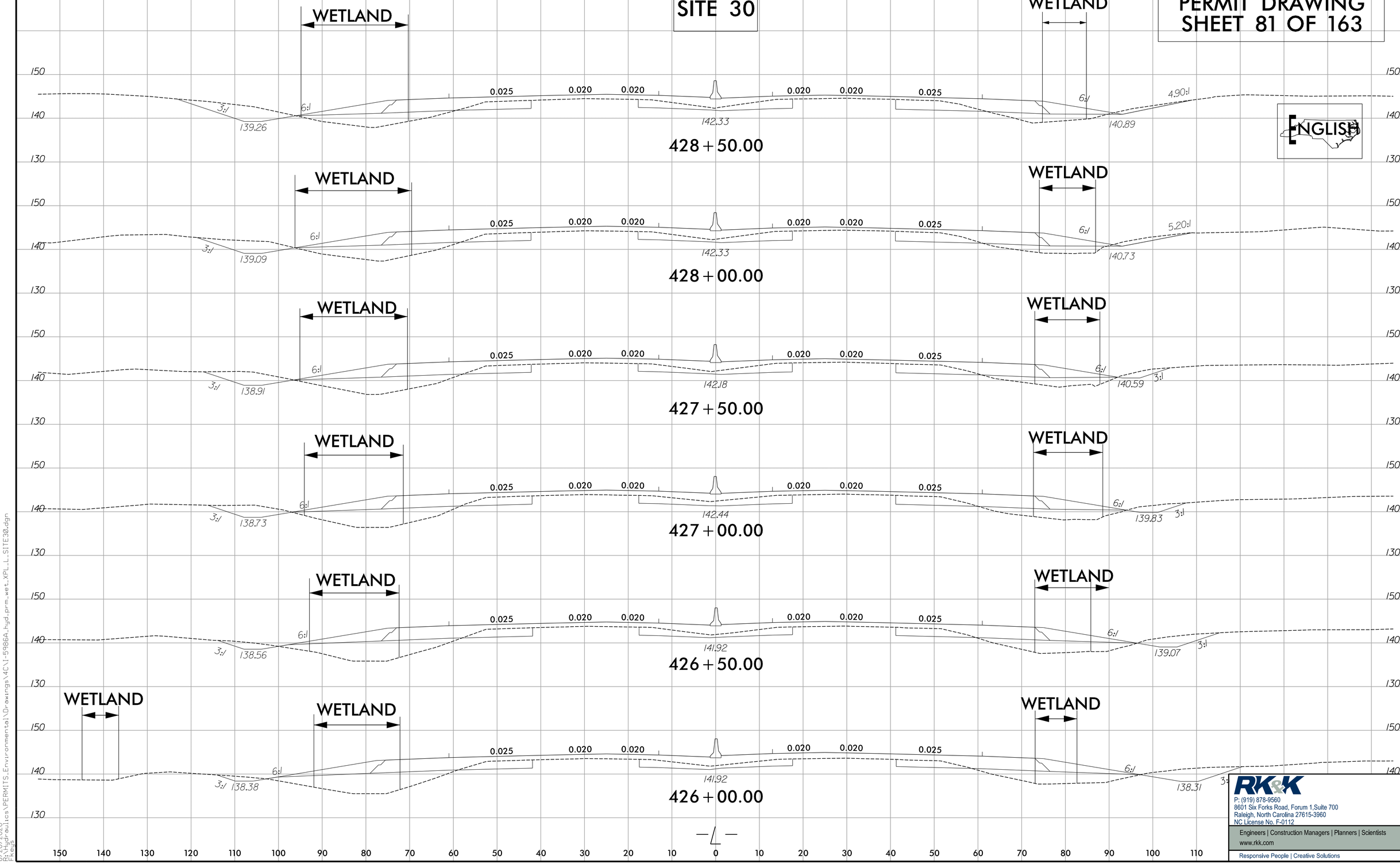
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-5986A	S2 X-52

SITE 30

PERMIT DRAWING SHEET 81 OF 163



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Flegg

Submitted 9/2/2020

8/17/99

50 25 0 50 100
SCALE

ENGLISH

DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	42
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING SHEET 82 OF 163

NAD 83/NA 2011

N 85°50'00" W 178.11'

N 53°01'45" W 2,420.25'

SITE 31

WAM

TOE PROTECTION SEE DETAIL H

Q10=23.4 cfs
V10=1.97 fps

LAT. BASE DITCH SEE DETAIL C

REMOVE EXISTING FENCE

APPROX 48' WW W/ISBW

PROP. WOVEN WIRE FENCE

LAT. BASE DITCH SEE DETAIL C

SP. CUT BASE DITCH SEE DETAIL N

EXISTING R/W

APPROX 48' WW W/ISBW

15" RCP-IV

REMOVE DI

2GIB-WSF

CONC PAVED DITCH

DI

505+00

510+00

N 40° 50' 03.2" E

515+00

18" RCP-IV

15" RCP-IV

2GIB-WSF 18" RCP-IV PAVED DITCH

2GIB-WSF

I-95 SBL 37' BST

I-95 NBL 37' BST

REMOVE 10' OF 18" RCP

18" RCP

PLUG & FILL W/FLOWABLE FILL

FES

RETAIN EXISTING FENCE

±30.00
EX R/W
115.00'

±30.00
EX R/W
115.00'

SP. CUT DITCH SEE DETAIL B

8' GR

49' WW W/ISBW

WOODS

GROUND BOARD OF DOOR

S 51°29' 02" E
2456.65'

MATCHLINE -L- STA. 505+00.00 SEE SHEET 41

MATCHLINE -L- STA. 517+00.00 SEE SHEET 43

FOR –LLT_SEC2– PROFILE SEE SHTS. 123 THRU 124
FOR –LRT_SEC2– PROFILE SEE SHTS. 123 THRU 124
FOR DITCH DETAILS SEE SHTS. 2D–3 THRU 2D–4

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ekaya

Submitted 9/2/2020

8/17/99

50 25 0 50 100
SCALE

ENGLISH

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	42
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 83 OF 163

NAD 83/NA 2011

N 85°50'00" W 178'//

N 53°01'02" W 2456.65'

SITE 31

WAM

TOE PROTECTION SEE DETAIL H

Q10=23.4 cfs
V10=1.97 fps

LAT. BASE DITCH SEE DETAIL C

REMOVE EXISTING FENCE

APPROX 48" WW W/ISBW

PROP. WOVEN WIRE FENCE

LAT. BASE DITCH SEE DETAIL C

SP. CUT BASE DITCH SEE DETAIL N

EXISTING R/W

15" RCP-IV

REMOVE DI

CONC. PAVED DITCH

DI

2GIB-WSF

505+00

510+00

N 40° 50' 03.2" E

18" RCP-IV

15" RCP-IV

515+00

2GIB-WSF 18" RCP-IV PAVED DITCH

2GIB-WSF

I-95 SBL 37' BST

I-95 NBL 37' BST

REMOVE 10' OF 18" RCP

18" RCP

PLUG & FILL W/FLOWABLE FILL

FES

RETAIN EXISTING FENCE

WOODS

8' GR

+30.00
EX R/W
115.00'

SP. CUT DITCH SEE DETAIL B

48" WW W/ISBW

MATCHLINE -L- STA. 505+00.00 SEE SHEET 41

MATCHLINE -L- STA. 517+00.00 SEE SHEET 43

S 53°29'02" E
2456.65'

FOR –LLT_SEC2– PROFILE SEE SHTS. 123 THRU 124
FOR –LRT_SEC2– PROFILE SEE SHTS. 123 THRU 124

FOR DITCH DETAILS SEE SHTS. 2D–3 THRU 2D–4

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Files

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Submitted 9/2/2020

6/23/16

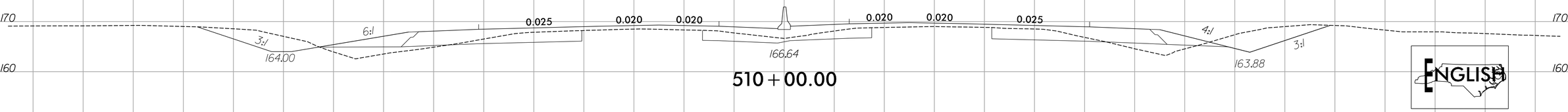
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-5986A	S2 X-81

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

SITE 31

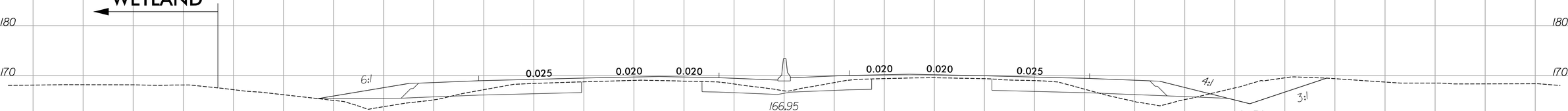
PERMIT DRAWING
SHEET 84 OF 163

ENGLISH



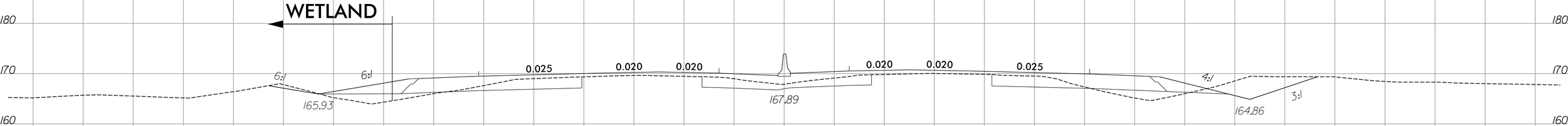
510 + 00.00

WETLAND



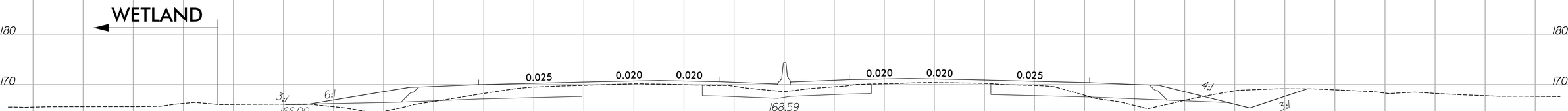
509 + 50.00

WETLAND

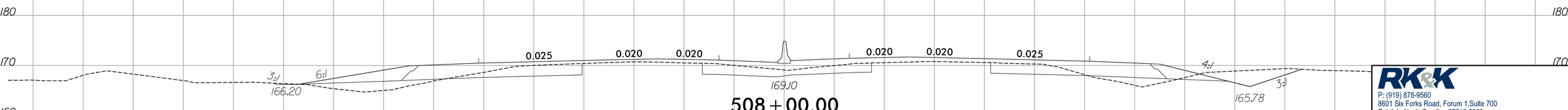


509 + 00.00

WETLAND



508 + 50.00



508 + 00.00

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

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Kelly

Submitted 9/2/2020

8/17/99

50 25 0 50 100
SCALE

ENGLISH

DENOTES MECHANIZED CLEARING

DENOTES FILL IN WETLAND

NAD 83/NA 2011

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	43
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 85 OF 163

SITE 32

MATCHLINE -L- STA. 517+00.00 SEE SHEET 42

MATCHLINE -L- STA. 530+00.00 SEE SHEET 44

LAT. BASE DITCH SEE DETAIL R

PROP. WOVEN WIRE FENCE

REMOVE EXISTING FENCE

SP. LAT. BASE DITCH SEE DETAIL AF

Q10 = 49.1 cfs
V10 = 1.83 ft/s

TOE PROTECTION SEE DETAIL H

WAN

SP. LAT BASE DITCH SEE DETAIL C

WOODS

APPROX 48" WW W/ISRW

EXISTING R/W

ELECTRIC METER

TRAFFIC CONTROL BOX

CAMERA POLE

10' BST

I-95 SBL 37' BST

18" RCP-IV

REMOVE DI

REMOVE 10' OF 18" RCP

PLUG & FILL W/FLOWABLE FILL

15" RCP-IV

2GIA-WSF

2GIB-WSF

520+00

24" RCP-IV

CONC PAVED DITCH

N 40° 50' 03.2" E

525+00

15" RCP-III

24" RCP-III

530+00

I-95 NBL 37' BST

FES

GREU TL-3

CAT-1

RETAIN EXISTING FENCE

RETAIN EXIST. RIP RAP

8' GR

TOE PROTECTION SEE DETAIL AM

RETAIN, CLEANOUT BOTH PIPES

TOE

TDE

+65.00 EX.R/W 150.00'

+10.00 EX.R/W 150.00'

SP. CUT DITCH SEE DETAIL U

8 TON CL B RIP RAP
21 SY GEOTEXTILE
CUT/FILL TRANSITION

WAO

11' GR

FOR –LLT_SEC2– PROFILE SEE SHTS. 124 THRU 125
FOR –LRT_SEC2– PROFILE SEE SHTS. 124 THRU 125

FOR DITCH DETAILS SEE SHTS. 2D–3 THRU 2D–4

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ESwanson

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8/17/99

50 25 0 50 100
SCALE

ENGLISH

DENOTES MECHANIZED CLEARING

DENOTES FILL IN WETLAND

NAD 83/NA 2011

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	43
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 86 OF 163

SITE 32

MATCHLINE -L- STA. 517+00.00 SEE SHEET 42

MATCHLINE -L- STA. 530+00.00 SEE SHEET 44

LAT. BASE DITCH SEE DETAIL R

PROP. WOVEN WIRE FENCE

REMOVE EXISTING FENCE

SP. LAT. BASE DITCH SEE DETAIL AF

Q10 = 49.1 cfs
V10 = 1.83 ft/s

TOE PROTECTION SEE DETAIL H

WAN

SP. LAT. BASE DITCH SEE DETAIL C

18" RCP-IV

REMOVE DI

REMOVE 10' OF 18" RCP

PLUG & FILL W/FLOWABLE FILL

15" RCP-IV

2GIA-WSF

2GIB-WSF

520+00

24" RCP-IV

CONC. PAVED DITCH

N 40° 50' 03.2" E

525+00

15" RCP-III

24" RCP-III

530+00

I-95 SBL 37' BST

I-95 NBL 37' BST

10' BST

5' BST

MTL

WOODS

APPROX 48" WW W/ISBW

ELECTRIC METER

TRAFFIC CONTROL BOX

CAMERA POLE

GREU TL-3

CAT-1

RETAIN EXISTING FENCE

RETAIN CLEANOUT BOTH PIPES

TOE PROTECTION SEE DETAIL AM

8' GR

TDE

+65.00 EX.R/W 150.00'

+10.00 EX.R/W 150.00'

SP. CUT DITCH SEE DETAIL U

8 TON CL B RIP RAP
21 SY GEOTEXTILE
CUT/FILL TRANSITION

WAO

FOR –LLT_SEC2– PROFILE SEE SHTS. 124 THRU 125
FOR –LRT_SEC2– PROFILE SEE SHTS. 124 THRU 125

FOR DITCH DETAILS SEE SHTS. 2D–3 THRU 2D–4

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ESwanson

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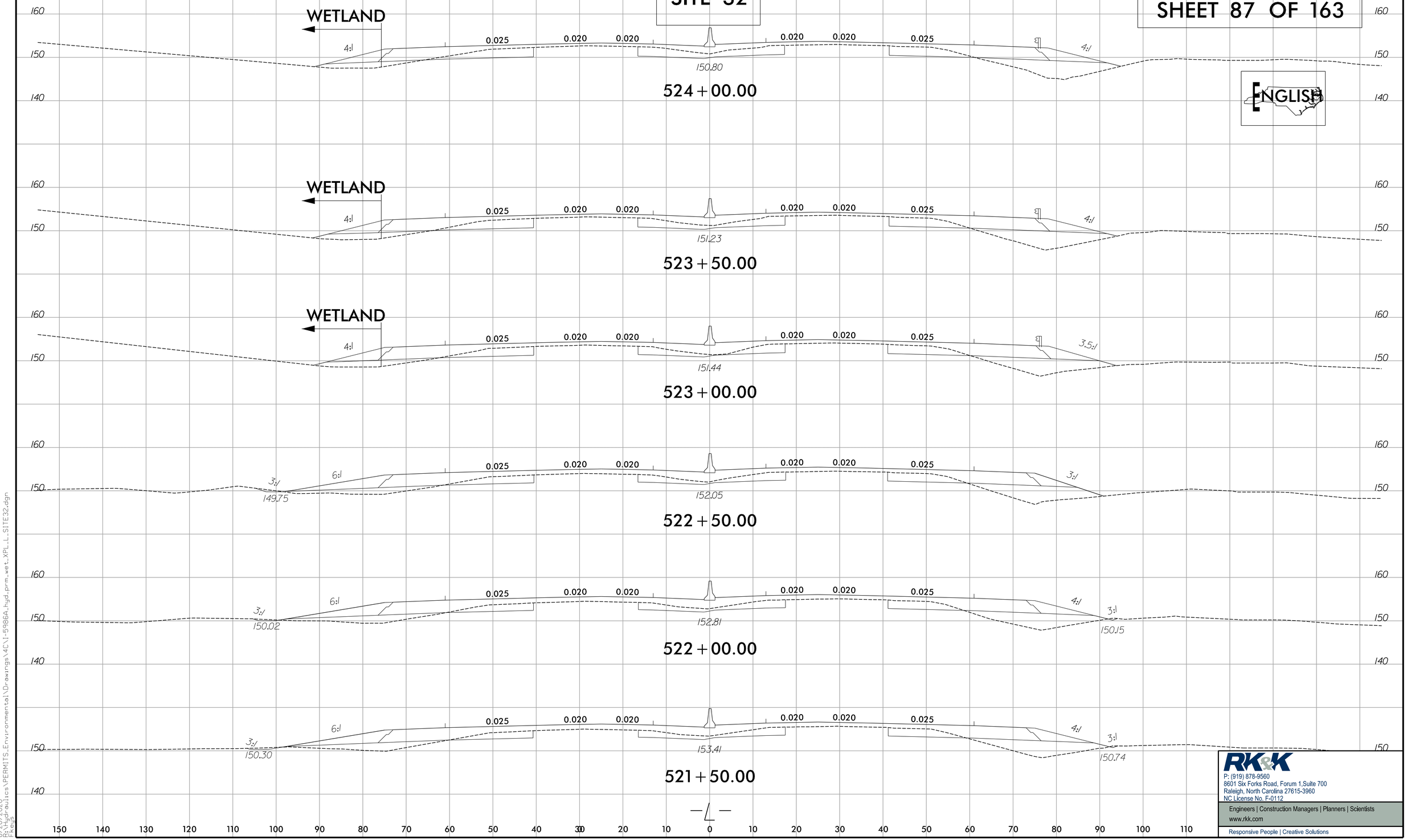
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-5986A	S2 X-86

SITE 32

PERMIT DRAWING
SHEET 87 OF 163

ENGLISH

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150



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Plotted By: Kelly Lee

Submitted 9/2/2020

8/17/99

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

ENGLISH

DENOTES TEMPORARY FILL IN WETLAND

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	44
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 88 OF 163

NAD 83/NA 2011

INSET A

8 TON CL B RIP RAP
21 SY GEOTEXTILE

SP. LAT BASE DITCH
SEE DETAIL C

48" WW W/ISBW

CONC CAT-1 FES

SITE 33

WAP

WAQ

SG-3

Q10=13.9 cfs
V10=1.63 fps

MATCHLINE -L- STA. 530+00.00 SEE SHEET 43

MATCHLINE -L- STA. 542+00.00 SEE SHEET 45

REMOVE EXISTING FENCE

PROP. WOVEN WIRE FENCE

535+00

N 40° 50' 03.2" E

540+00

15" RCP-III

24" RCP-III

30" RCP-III

2GIA-WSF

2GIB-WSF

REMOVE 10' OF 18" RCP

REMOVE DI

CONC PAVED DITCH

PLUG & FILL W/FLOWABLE FILL

1-9'x8' RCBC (BURIED 1')

I-95 SBL 37' BST

I-95 NBL 37' BST

SR 1960 GORDON WILLIAMS RD 19.5' BST

SEE INSET A

SEE INSET B

SG-1

SG-2

PK

SITE 35

POND

TOE PROTECTION
SEE DETAIL AM

RETAIN EXISTING FENCE

STANDARD BASE DITCH
SEE DETAIL AJ

10+00

N 41° 25' 55.9" E

N 40° 16' 52.1" E

INSET B

FOR -LLT_SEC2- PROFILE SEE SHTS. 125 THRU 126
FOR -LRT_SEC2- PROFILE SEE SHTS. 125 THRU 126
FOR -SR5C- PROFILE SEE SHT. 184
FOR -SR5C_DET- PROFILE SEE SHT. 2B-8

FOR DITCH DETAILS SEE SHTS. 2D-3 THRU 2D-4

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EKeen

Submitted 9/2/2020

8/17/99

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

ENGLISH

T T DENOTES TEMPORARY FILL IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83/NA 2011

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	44
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING SHEET 89 OF 163

INSET A

8 TON CL B RIP RAP
21 SY GEOTEXTILE

SP. LAT BASE DITCH
SEE DETAIL C

48" WW W/ISBW

CONC CAT-1 FES

SITE 33

WAP

WAQ

SG-3

Q10=13.9 cfs
V10=1.63 fps

MATCHLINE -L- STA. 530+00.00 SEE SHEET 43

MATCHLINE -L- STA. 542+00.00 SEE SHEET 45

REMOVE EXISTING FENCE

PROP. WOVEN WIRE FENCE

535+00

N 40° 50' 03.2" E

540+00

SEE INSET A

24" RCP-III

15" RCP-III

30" RCP-III

2GIA-WSF

2GIB-WSF

REMOVE DI

REMOVE 10' OF 18" RCP

PLUG & FILL W/FLOWABLE FILL

CONC PAVED DITCH

I-95 SBL 37' BST

I-95 NBL 37' BST

SR 1960 GORDON WILLIAMS RD 19.5' BST

10+00

N 41° 25' 55.9" E

15+00

TOE PROTECTION
SEE DETAIL AM

RETAIN EXISTING FENCE

SG-2

SG-1

PK

4GI

CONC HW

STANDARD BASE DITCH
SEE DETAIL AJ

SEE INSET B

SITE 33

N 40° 16' 52.1" E

INSET B

FOR -LLT_SEC2- PROFILE SEE SHTS. 125 THRU 126
FOR -LRT_SEC2- PROFILE SEE SHTS. 125 THRU 126
FOR -SR5C- PROFILE SEE SHT. 184
FOR -SR5C_DET- PROFILE SEE SHT. 2B-8

FOR DITCH DETAILS SEE SHTS. 2D-3 THRU 2D-4

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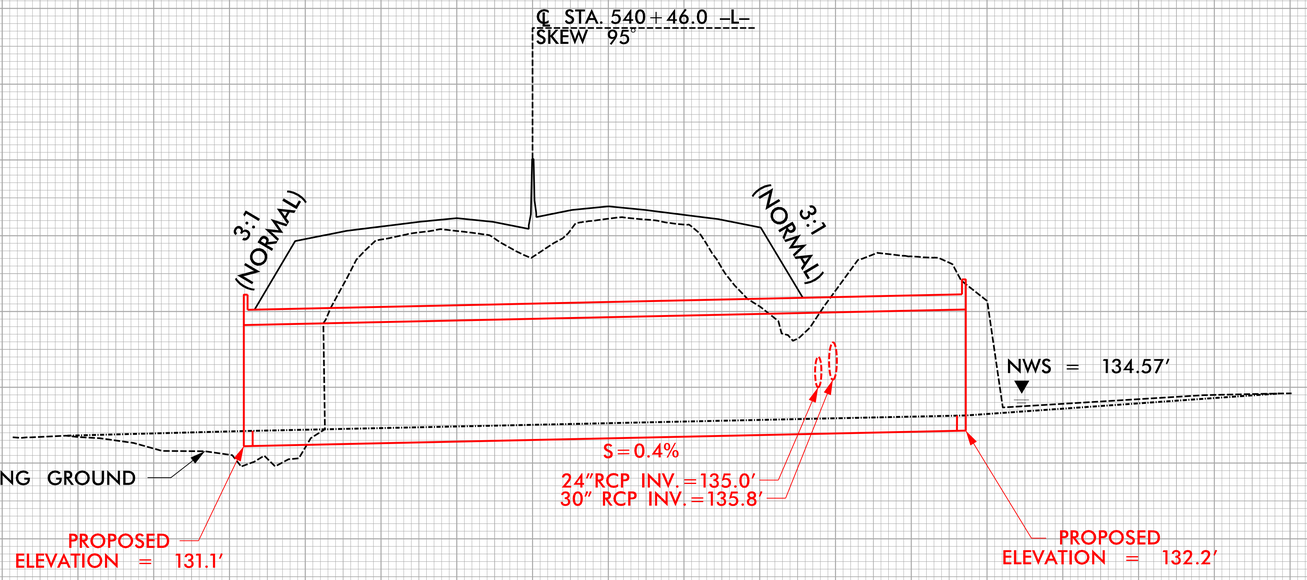
PROJECT REFERENCE NO.	SHEET NO.
I-5986A	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SITE 33
–L– STA. 540+46

PERMIT DRAWING
SHEET 90 OF 163

ENGLISH



160 150 140 130 120

250 200 150 100 50 0 50 100 150 200 250

8′ X 8′ RCBC
(buried 1.0′)
(length=238′)

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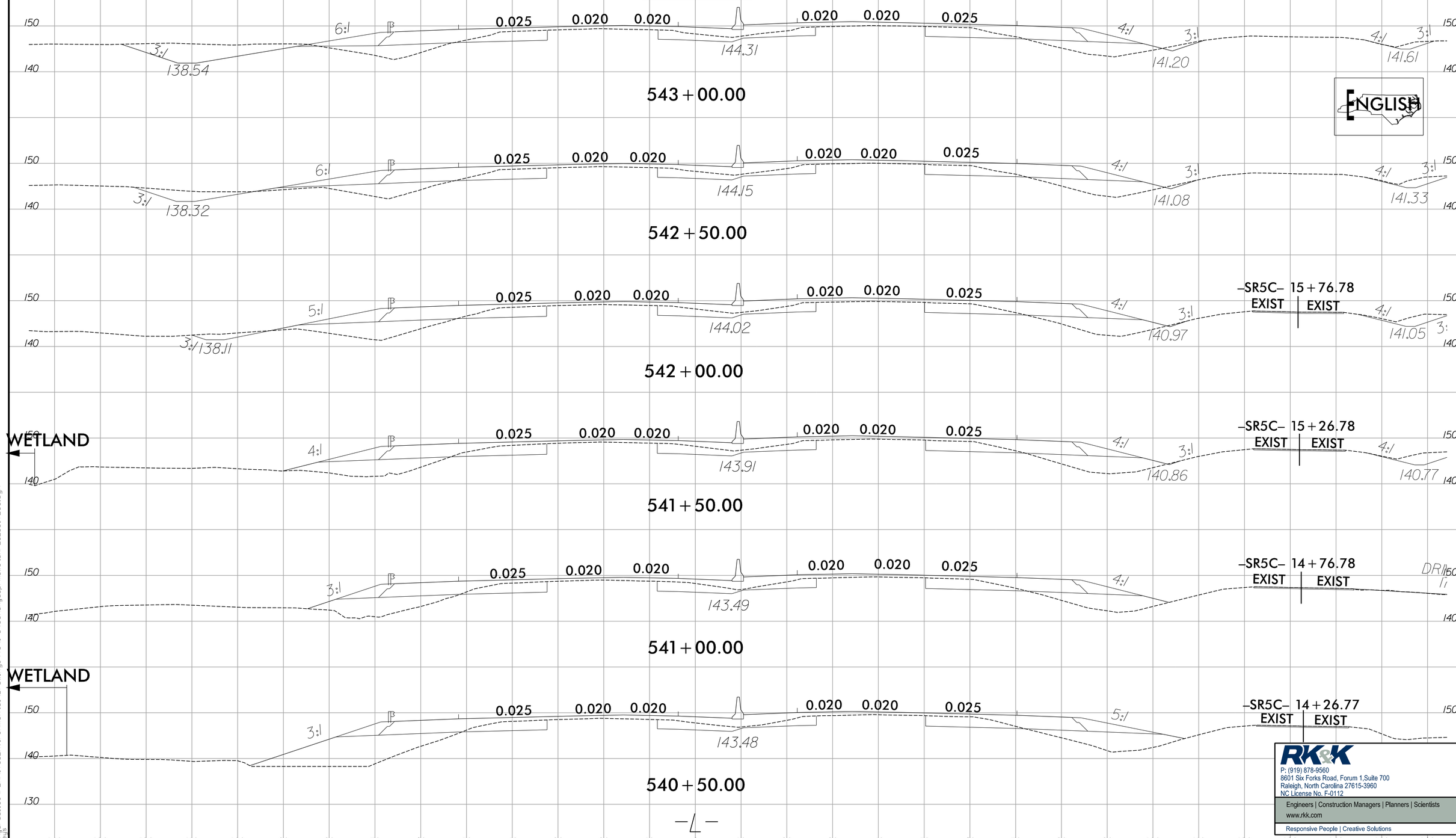
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-5986A	S2 X-93

SITE 33

PERMIT DRAWING
SHEET 91 OF 163



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25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

ENGLISH

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

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	47
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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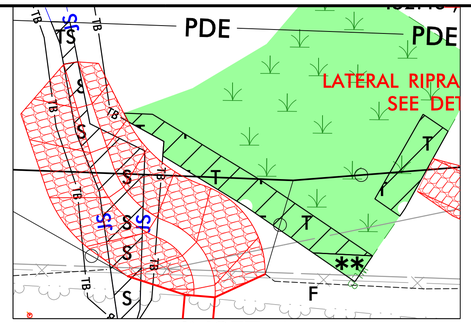
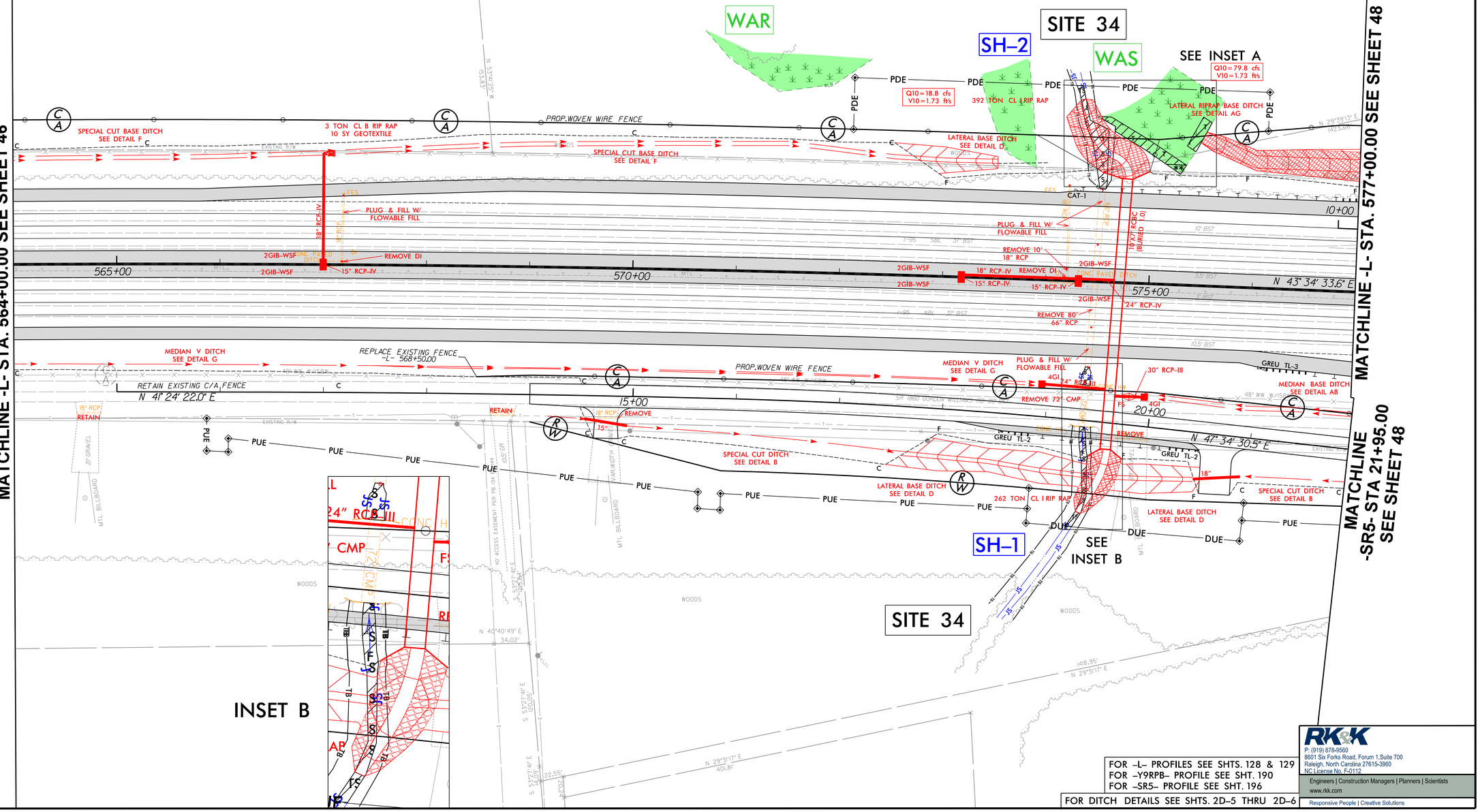
PERMIT DRAWING SHEET 92 OF 163

NAD 83/NA 2011





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25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

ENGLISH

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

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	47
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING SHEET 93 OF 163

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NAD 83/NA 2011

INSET A

WAR

SH–2

SITE 34

WAS

SEE INSET A

MATCHLINE -L- STA. 564+00.00 SEE SHEET 46

MATCHLINE -L- STA. 577+00.00 SEE SHEET 48

MATCHLINE -SR5- STA 21+95.00 SEE SHEET 48

SPECIAL CUT BASE DITCH SEE DETAIL F

3 TON CL B RIP RAP 10 SY GEOTEXTILE

PROP.WOVEN WIRE FENCE

LATERAL BASE DITCH SEE DETAIL D

Q10=18.8 cfs
V10=1.73 ft/s

392 TON CL I RIP RAP

LATERAL RIPRAP BASE DITCH SEE DETAIL AG

Q10=79.8 cfs
V10=1.73 ft/s

PLUG & FILL W/ FLOWABLE FILL

REMOVE DI

REMOVE 10' 18" RCP

REMOVE 80' 66" RCP

REMOVE 72" CMP

MEDIAN V DITCH SEE DETAIL G

REPLACE EXISTING FENCE –L– 568+50.00

RETAIN EXISTING C/A FENCE

MEDIAN BASE DITCH SEE DETAIL AB

SPECIAL CUT DITCH SEE DETAIL B

262 TON CL I RIP RAP

SEE INSET B

INSET B

SITE 34

FOR –L– PROFILES SEE SHTS. 128 & 129
FOR –Y9RPB– PROFILE SEE SHT. 190
FOR –SR5– PROFILE SEE SHT. 196

FOR DITCH DETAILS SEE SHTS. 2D–5 THRU 2D–6

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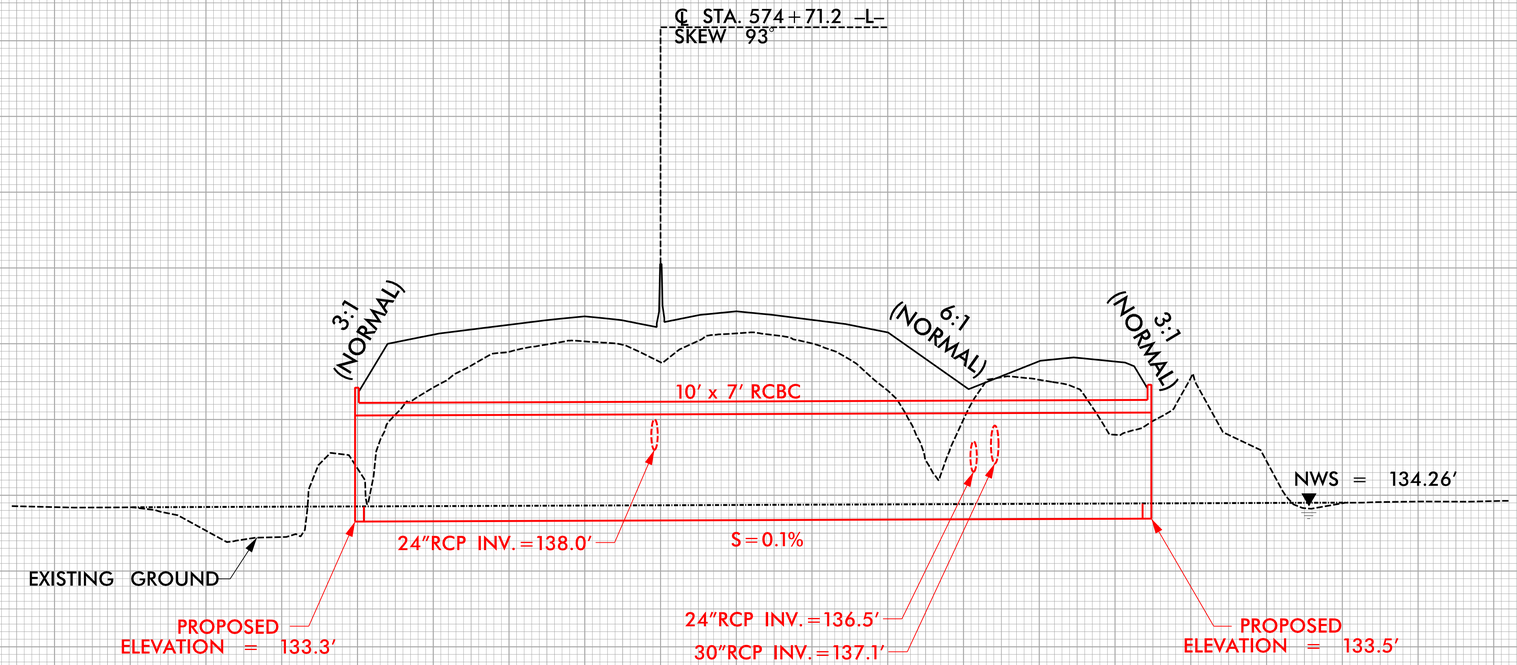
I-5986A	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SITE 34
–L– STA. 574 + 71

PERMIT DRAWING
SHEET 94 OF 163

ENGLISH



10' X 7' RCBC
(buried 1.0' alternating 1.0' tall, 3.0' wide baffles)
(length = 263')

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ERIC.GUTHRIE

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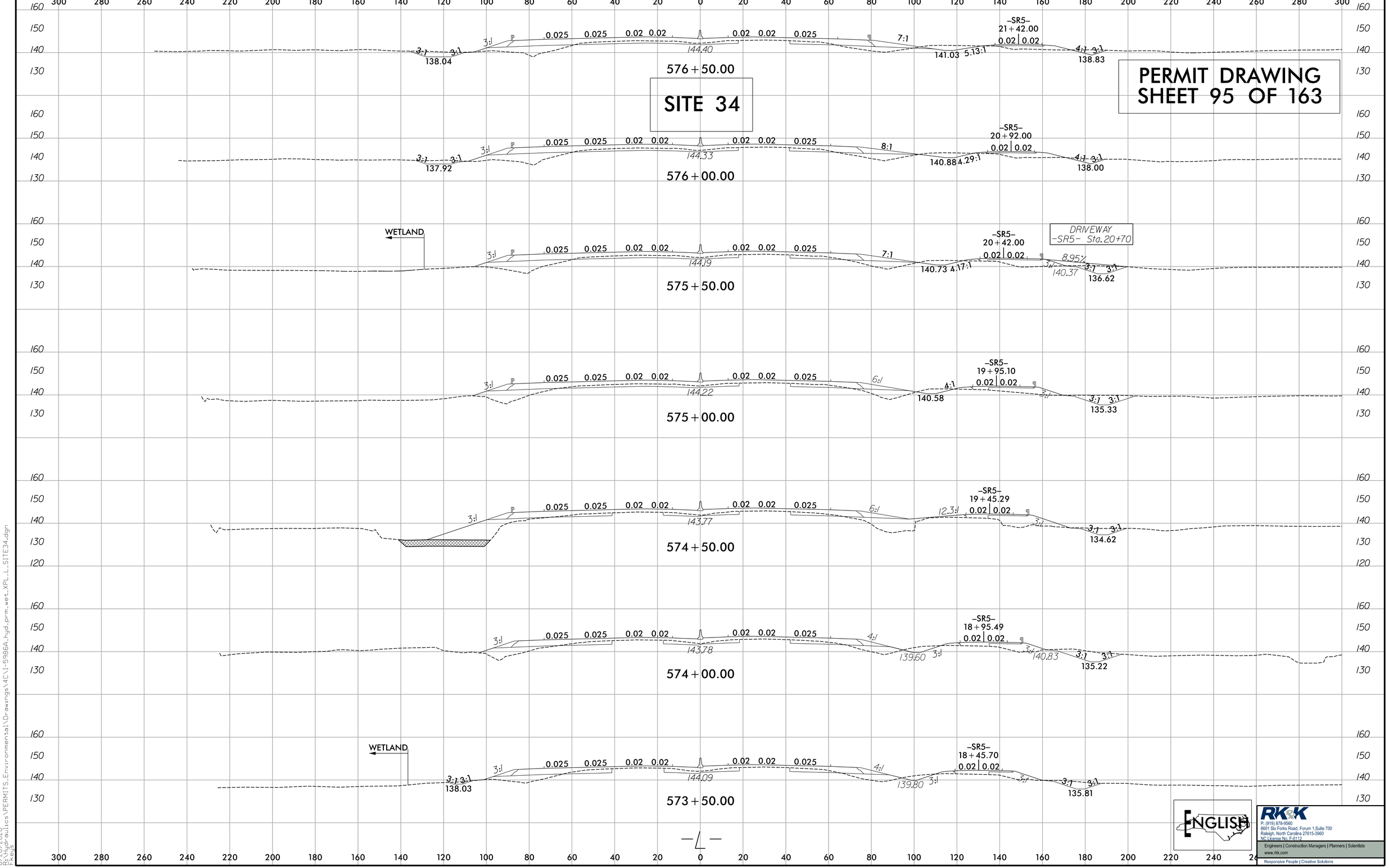
	I-5986A SECTION 3	X-10

PERMIT DRAWING SHEET 95 OF 163

SITE 34



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Plotted

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REVISIONS

ERWISE LABELED.

LED.

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	48
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING SHEET 96 OF 163

INSET A

MATCHLINE -Y9A- STA. 18+00.00 SEE SHEET 77

MATCHLINE -L- STA. 577+00.00 SEE SHEET 47

MATCHLINE -SR5- STA 21+95.00 SEE SHEET 47

MATCHLINE -L- STA. 605+00.00 SEE SHEET 49

MATCHLINE -SR5- STA 38+50.00 SEE SHEET 78

MATCHLINE -Y9C- STA. 12+00.00 SEE SHEET 78

SEE INSET A

SITE 35

A

B

C

D

SCALE FOR INSET

SCALE

ENGLISH

DENOTES TEMPORARY FILL IN WETLAND

DENOTES MECHANIZED CLEARING

FOR BRIDGE SKETCH SEE SHT. 2A–6

FOR CROSS–SECTION LAYOUT SEE SHTS. 2B–1 THRU 2B–3

TRUCK APRON

PAVEMENT REMOVAL

FOR DITCH DETAILS SEE SHTS. 2D–5 THRU 2D–6

FOR –L– PROFILES SEE SHTS. 129 THRU 131
FOR –Y9A– PROFILE SEE SHT. 187
FOR –Y9B– PROFILE SEE SHT. 187
FOR –Y9C– PROFILE SEE SHT. 188
FOR –Y9RPA– PROFILE SEE SHT. 189
FOR –Y9RPB– PROFILE SEE SHT. 190
FOR –Y9RPC– PROFILE SEE SHT. 191
FOR –Y9RPD– PROFILE SEE SHT. 192
FOR –RAB_Y9AB– PROFILE SEE SHT. 188
FOR –RAB_Y9BC– PROFILE SEE SHT. 188
FOR –SR5– PROFILE SEE SHTS. 196 & 197

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REVISIONS

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I-5986A	48
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 97 OF 163

INSET A

MATCHLINE -Y9A- STA. 18+00.00 SEE SHEET 77

MATCHLINE -L- STA. 577+00.00 SEE SHEET 47

MATCHLINE -SR5- STA 21+95.00 SEE SHEET 47

MATCHLINE -L- STA. 605+00.00 SEE SHEET 49

MATCHLINE -SR5- STA 38+50.00 SEE SHEET 78

MATCHLINE -Y9C- STA. 12+00.00 SEE SHEET 78

SEE INSET A

SITE 35

A

B

C

D

DYNAFALCON ROAD (NC 82)

PROP. FENCE WOVEN WIRE

STANDARD BASE DITCH SEE DETAIL I

SPECIAL CUT BASE DITCH SEE DETAIL F

SPECIAL CUT DITCH SEE DETAIL B

SPECIAL MEDIAN DITCH SEE DETAIL C

LATERAL BASE DITCH SEE DETAIL D

LATERAL SPREAD BASE DITCH SEE DETAIL AC

SPECIAL LATERAL BASE DITCH SEE DETAIL C

SPECIAL CUT BASE DITCH SEE DETAIL A

SPECIAL CUT DITCH SEE DETAIL A

SPECIAL CUT BASE DITCH SEE DETAIL E

SPECIAL CUT DITCH SEE DETAIL E

SPECIAL CUT DITCH SEE DETAIL F

SPECIAL CUT BASE DITCH SEE DETAIL F

SPECIAL CUT DITCH SEE DETAIL AB

SPECIAL CUT DITCH SEE DETAIL AA

SPECIAL CUT BASE DITCH SEE DETAIL B

SPECIAL CUT DITCH SEE DETAIL B

SPECIAL CUT BASE DITCH SEE DETAIL I

SPECIAL CUT DITCH SEE DETAIL I

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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-5986A SECTION 3	X-23

SITE 35

ENGLISH

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SHEET 98 OF 163

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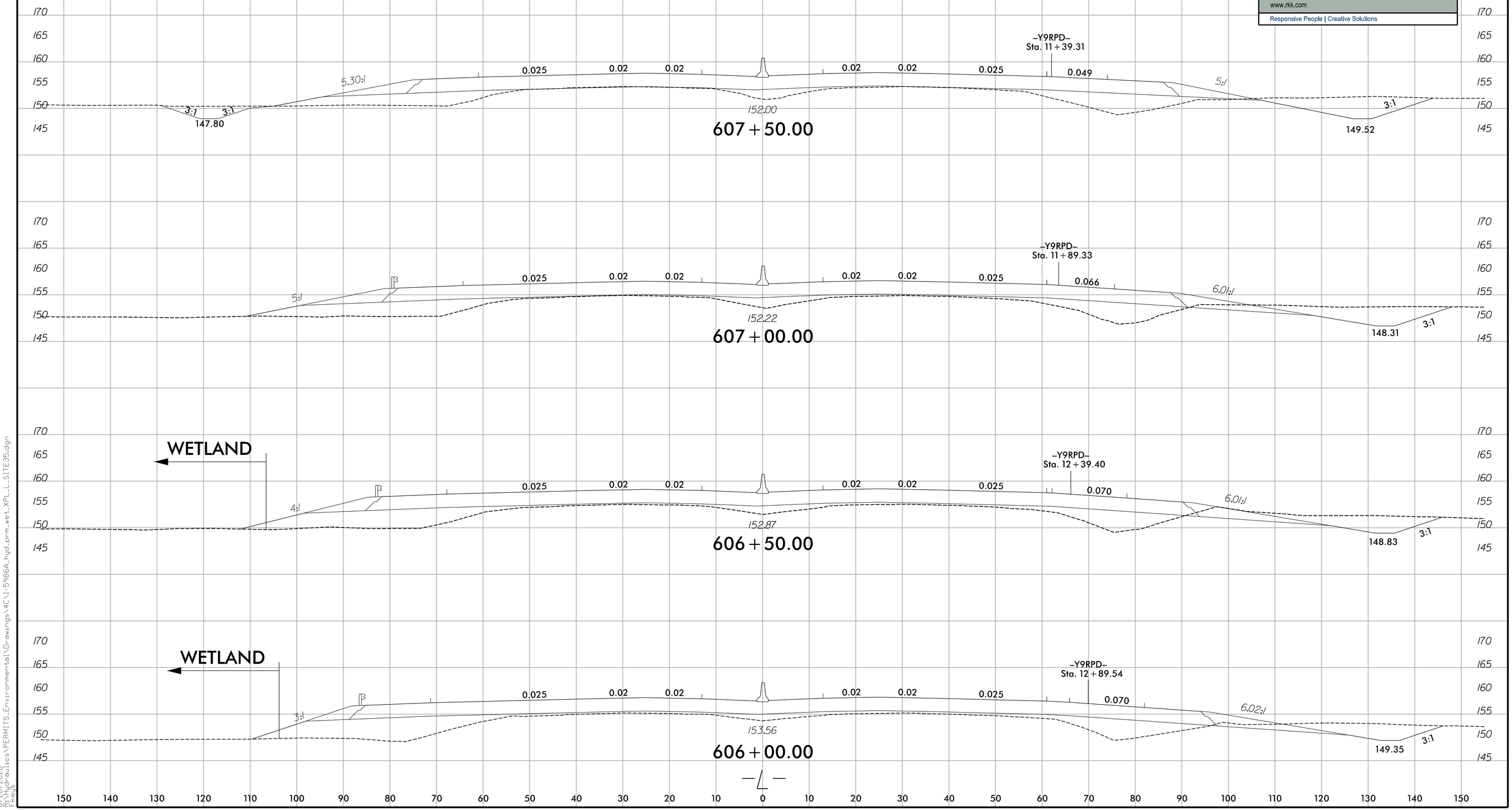

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8/17/99

50 25 0 50 100
SCALE

ENGLISH

DENOTES MECHANIZED CLEARING

DENOTES FILL IN WETLAND

PERMIT DRAWING SHEET 99 OF 163

PROJECT REFERENCE NO.	SHEET NO.
I-5986	49
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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NAD 83/NA 2011

MATCHLINE -L- STA. 605+00.00 SEE SHEET 48

MATCHLINE -L- STA. 618+00.00 SEE SHEET 50

S 47° 28' 33.7" W

-Y9RPA- POT Sta. 10+00.00=
-L- POT Sta.605+75.00 (61.0' LT)

SITE 35

WAT

WAU

DAWKINS, CHARLES FRANKLIN & WIFE JUANITA W
DB 10083 PG 228

MCINTYRE JR, DONALD M
DB 8486 PG 385
BK DB 298 PG 255

N 70°10'07" W
406.93'

N 67°47'00" W
653.38'

MCINTYRE JR, DONALD M
DB 8486 PG 383
BK DB 298 PG 255

STOP SIGN

LAT. BASE DITCH SEE DETAIL AE

PROP. FENCE WOVEN WIRE

EXISTING R/W

WOODS

TOE PROTECTION SEE DETAIL H

GREU TL-3

Bd CAT-1

10+00

PLUG & FILL W/ W/FLOWABLE

REMOVE 20' 30" RCP

REMOVE DI

CONC PAVED DITCH

2GI-WSF

610+00

N 43° 28' 33.7" E

PROP. TYPE T BARRIER

615+00

REMOVE 10' 18" RCP

15" RCP-IV

18" RCP

FES

-Y9RPD-

28.57' (TYP)

SPECIAL CUT BASE DITCH SEE DETAIL F

SPECIAL CUT BASE DITCH SEE DETAIL AC

52 TON CL I RIP RAP
100 SY GEOTEXTILE

2 TON CL B RIP RAP
7 SY GEOTEXTILE

800' ACCELERATION LANE

300' TAPER

-Y9RPD- SC Sta. 12+00.00

-Y9RPD- ST Sta. 10+00.00=
-L- POT Sta.608+89.30 (61.0' RT)

TURPIN JR, CLIFTON L
DB 2923 PG 481

TURPIN JR, CLIFTON L
DB 3462 PG 223
PB 35 PG 63

ALLEN, BEULAH M
DB 2454 PG 13
PB 38 PG 66

S 70°23'12" E
400.00'

S 70°48'37" E
383.35'

MCINTYRE JR, DONALD M
DB 8486 PG 385
BK DB 298 PG 255

-Y9RPD-	
PIs Sta 11+33.35	PI Sta 18+49.09
Θs = 2° 36' 15.7"	Δ = 32° 52' 34.4" (LT)
Ls = 200.00'	D = 2° 36' 15.7"
LT = 133.35'	L = 1,262.36'
ST = 66.68'	T = 649.09'
	R = 2,200.00'
	SE = 0.07
	DS = 65 MPH

FOR CROSS-SECTION LAYOUT SEE SHTS. 2B-1 THRU 2B-3

FOR -L- PROFILES SEE SHTS. 131 & 132
FOR -Y9RPA- PROFILE SEE SHT. 189
FOR -Y9RPD- PROFILE SEE SHT. 192

FOR DITCH DETAILS SEE SHTS. 2D-5 THRU 2D-6

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50 25 0 50 100
SCALE

ENGLISH

DENOTES MECHANIZED CLEARING

DENOTES FILL IN WETLAND

PERMIT DRAWING SHEET 100 OF 163

PROJECT REFERENCE NO.	SHEET NO.
I-5986	49
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NA 2011

N 70°00'07" W 406.93'

N 67°47'00" W 653.38'

S 47° 28' 33.7" W

–Y9RPA– POT Sta. 10+00.00=
–L– POT Sta.605+75.00 (61.0' LT)

SITE 35

WAT

MATCHLINE -L- STA. 605+00.00 SEE SHEET 48

MATCHLINE -L- STA. 618+00.00 SEE SHEET 50

PROP. SIGN

LAT. BASE DITCH SEE DETAIL AE

TOE PROTECTION SEE DETAIL H

GREU TL-3

10+00

PLUG & FILL W/ W/FLOWABLE

REMOVE 20' 30" RCP

REMOVE DI

CONC PAVED DITCH

2GI-WSF

610+00

N 43° 28' 33.7" E

–L–

PROP. TYPE T BARRIER

615+00

REMOVE 10' 18" RCP

15" RCP-IV

FES

–Y9RPD–

28.57' (TYP)

SPECIAL CUT BASE DITCH SEE DETAIL F

SPECIAL CUT BASE DITCH SEE DETAIL AC

52 TON CL I RIP RAP 100 SY GEOTEXTILE

PROP. FENCE WOVEN WIRE

EXISTING R/W

800' ACCELERATION LANE

2 TON CL B RIP RAP 7 SY GEOTEXTILE

300' TAPER

WAU

–Y9RPD– SC Sta. 12+00.00

–Y9RPD– ST Sta. 10+00.00=
–L– POT Sta.608+89.30 (61.0' RT)

S 70°43'37" E 365.35'

S 70°23'27" E 400.00'

–Y9RPD–	
PIs Sta 11+33.35	PI Sta 18+49.09
Θs = 2° 36' 15.7"	Δ = 32° 52' 34.4" (LT)
Ls = 200.00'	D = 2° 36' 15.7"
LT = 133.35'	L = 1,262.36'
ST = 66.68'	T = 649.09'
	R = 2,200.00'
	SE = 0.07
	DS = 65 MPH

FOR CROSS–SECTION LAYOUT SEE SHTS. 2B–1 THRU 2B–3

FOR –L– PROFILES SEE SHTS. 131 & 132
FOR –Y9RPA– PROFILE SEE SHT. 189
FOR –Y9RPD– PROFILE SEE SHT. 192

FOR DITCH DETAILS SEE SHTS. 2D–5 THRU 2D–6

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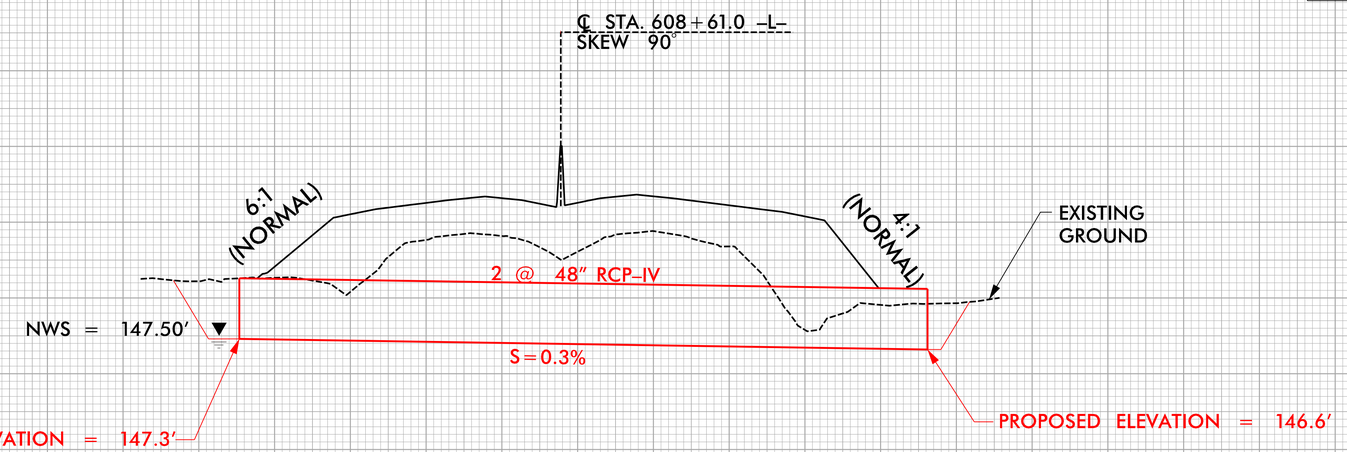
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SITE 35
–L– STA. 608+65

PERMIT DRAWING
SHEET 100A OF 163

ENGLISH



160
150
140
130
120

2 @ 48" RCP–IV
(not buried)
(length=229')

250 200 150 100 50 0 50 100 150 200 250

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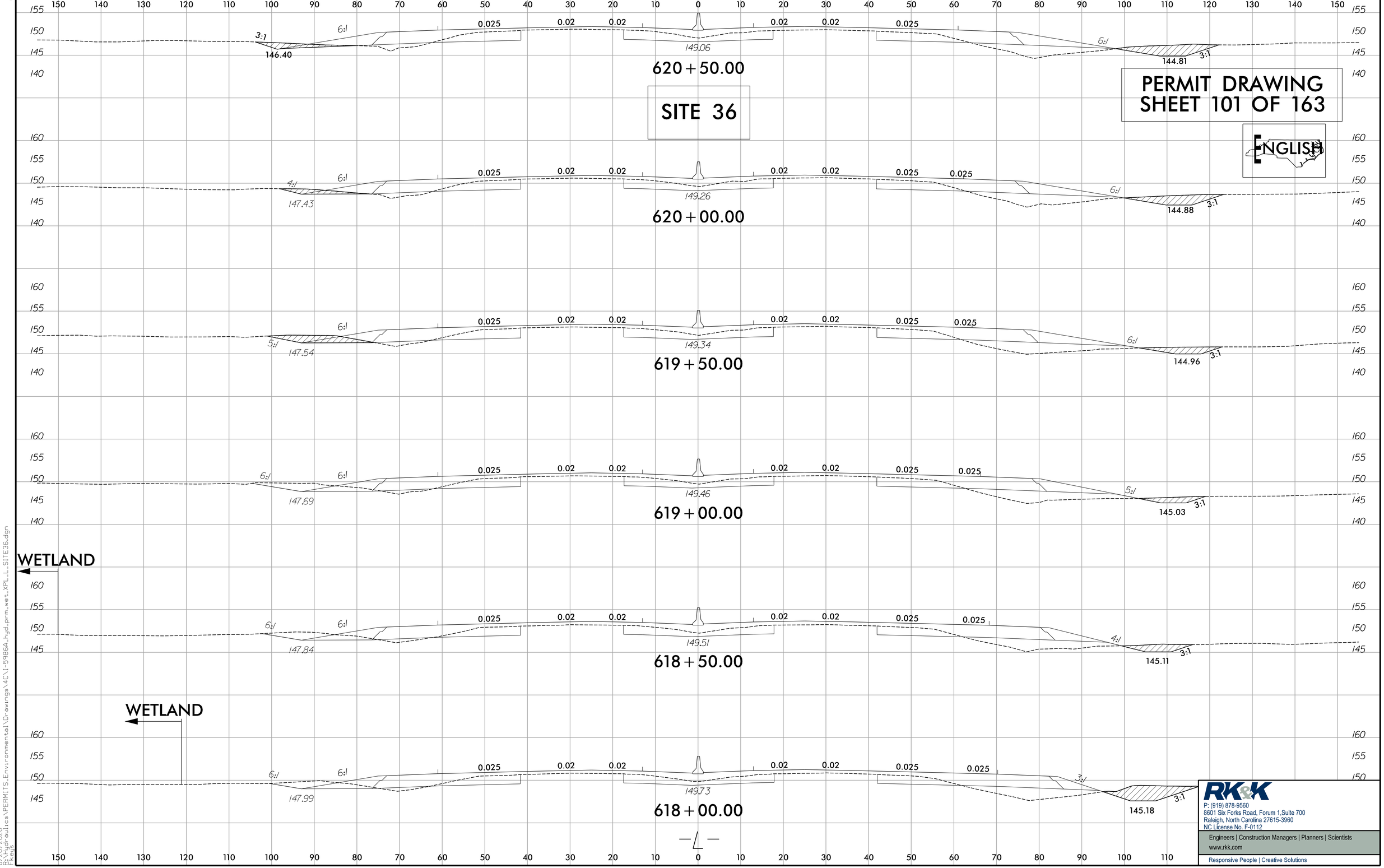
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-5986A SECTION 3	X-28



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FLeigh

Submitted 9/2/2020

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	50
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING SHEET 102 OF 163

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NA 2011

INSET A

EXISTING R/W
TOE PROTECTION SEE DETAIL H
REMOVE
REMOVE JB
SI-2
WLB

SITE 37

WAW

Q10 = 20.59 cfs
V10 = 1.68 ft/s

Q10 = 7.77 cfs
V10 = 1.33 ft/s

INV. OUT = 145.8'
PROP. WOVEN WIRE FENCE
SPECIAL LAT. BASE DITCH SEE DETAIL C
3 TON CL B RIP RAP 10 SY GEOTEXTILE
SPECIAL CUT DITCH SEE DETAIL B
INV. IN = 141.8'
PIPE IN = 140.8'
SPECIAL LAT. V DITCH SEE DETAIL A
SEE INSET A
WOODS
18" RCP-IV
REMOVE JB
REMOVE 10' 36" RCP
PLUG & FILL W/ W/FLOWABLE
2GI-WSF
15" RCP-IV
620+00
625+00
630+00
CONC PAVED DITCH
REMOVE DI
2GIA-WSF
30" RCP
2" RCP-IV BURIED 1.0'
N 43° 28' 33.7" E
I-95 SBL 37' BST
I-95 NBL 37' BST
9' BST
13' BST
10' BST

MATCHLINE -L- STA. 618+00.00 SEE SHEET 49

MATCHLINE -L- STA. 631+00.00 SEE SHEET 51

SPECIAL CUT BASE DITCH SEE DETAIL AC
EXISTING DITCH RUNS BETWEEN 0.1% TO 0.2%
PROP. WOVEN WIRE FENCE
DITCH TIES INTO WETLAND AND LOW POINT OF EXISTING GROUND
WAU
SITE 36
WAV
SITE 37
SI-1
SPECIAL LAT. BASE DITCH SEE DETAIL AD
38 TON CL II RIP RAP 78 SY GEOTEXTILE
Q10 = 5.29 cfs
V10 = 1.33 ft/s
SEE INSET B
INV. OUT = 141.56'
PIPE OUT = 140.56'
SP. LAT. V DITCH SEE DETAIL A
SPECIAL CUT DITCH SEE DETAIL B
Q10 = 1.95 cfs
V10 = 1.95 ft/s
S 67°47'00" E 1694.41'
S 67°54'31" E 1668.28'

INSET B

TOE PROTECTION SEE DETAIL H
AT. BASE DITCH DETAIL AD
38 TON CL II
78 SY GEOT

SCALE FOR INSET: 25 0 25 50
SCALE: 50 25 0 50 100

ENGLISH

- 1S 1S — DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- 1W 1W — DENOTES TEMPORARY FILL IN WETLAND
- S S — DENOTES IMPACTS IN SURFACE WATER
- DENOTES MECHANIZED CLEARING
- F F — DENOTES FILL IN WETLAND

FOR -L- PROFILES SEE SHTS. 132 & 133
FOR DITCH DETAILS SEE SHTS. 2D-5 THRU 2D-6

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...Kelly

Submitted 9/2/2020

8/17/99

PERMIT DRAWING SHEET 103 OF 163

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	50
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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NAD 83/NA 2011

INSET A

EXISTING R/W
TOE PROTECTION SEE DETAIL H
REMOVE
REMOVE JB
SIW
WLB

SITE 37

SI–2
WAW
Q10 = 20.59 cfs
V10 = 1.68 ft/s
Q10 = 7.77 cfs
V10 = 1.33 ft/s
INV. OUT = 145.8'
PROP. WOVEN WIRE FENCE
SPECIAL LAT. BASE DITCH SEE DETAIL C
3 TON CL B RIP RAP 10 SY GEOTEXTILE
SPECIAL CUT DITCH SEE DETAIL B
INV. IN = 141.8'
PIPE IN = 140.8
SPECIAL LAT. V DITCH SEE DETAIL A
SEE INSET A
18" RCP-IV
REMOVE 10' 36" RCP
REMOVE DI
PLUG & FILL W/ W/FLOWABLE
2" RCP-IV BURIED 1.0'
REMOVE 10' 30" RCP
2GI-WSF
2GIA-WSF
15" RCP-IV
620+00
625+00
630+00
N 43° 28' 33.7" E
WOODS
9' BST
13' BST
10' BST

MATCHLINE -L- STA. 618+00.00 SEE SHEET 49

MATCHLINE -L- STA. 631+00.00 SEE SHEET 51

SPECIAL CUT BASE DITCH SEE DETAIL AC
EXISTING DITCH RUNS BETWEEN 0.1% TO 0.2%
DITCH TIES INTO WETLAND AND LOW POINT OF EXISTING GROUND
PROP. WOVEN WIRE FENCE
WAU
WAV
SITE 36
SITE 37
SI–1
SPECIAL LAT. BASE DITCH SEE DETAIL AD
38 TON CL II RIP RAP 78 SY GEOTEXTILE
Q10 = 1.95 cfs
V10 = 1.95 ft/s
Q10 = 5.29 cfs
V10 = 1.33 ft/s
SEE INSET B
INV. OUT = 141.56'
PIPE OUT = 140.56'
SP. LAT. V DITCH SEE DETAIL A
SPECIAL CUT DITCH SEE DETAIL B
S 67°54'31" E 1668.28'
S 67°41'00" E 1694.41'

INSET B

TOE PROTECTION SEE DETAIL H
AT. BASE DITCH DETAIL AD
38 TON CL II
78 SY GEOTI

SCALE FOR INSET: 25 0 25 50
SCALE: 50 25 0 50 100

ENGLISH

IS IS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
TT	DENOTES TEMPORARY FILL IN WETLAND
S S	DENOTES IMPACTS IN SURFACE WATER
	DENOTES MECHANIZED CLEARING
F F	DENOTES FILL IN WETLAND

FOR –L– PROFILES SEE SHTS. 132 & 133
FOR DITCH DETAILS SEE SHTS. 2D–5 THRU 2D–6

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FKeller

Submitted 9/2/2020

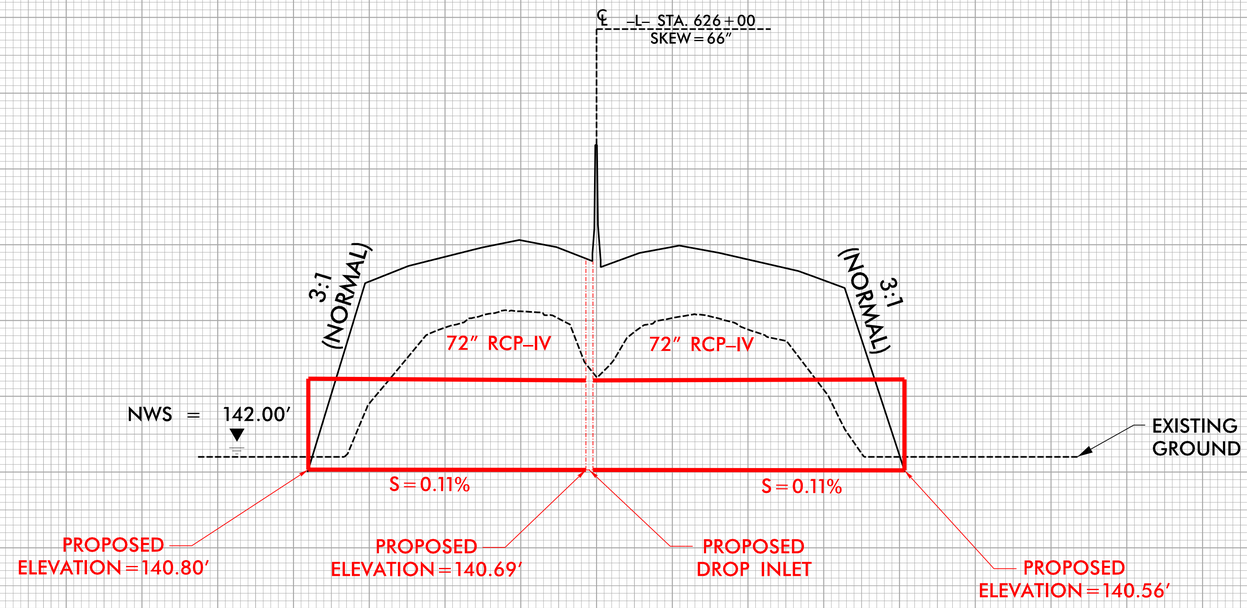
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SITE 37
–L– STA. 626+00

PERMIT DRAWING
SHEET 104 OF 163

ENGLISH



170 160 150 140 130

250 200 150 100 50 0 50 100 150 200 250

72" RCP–IV
(buried 1.0')
(total length=206')

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6/23/16

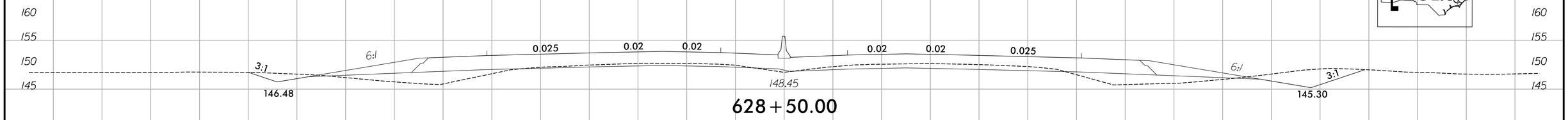
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-5986A SECTION 3	X-31

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

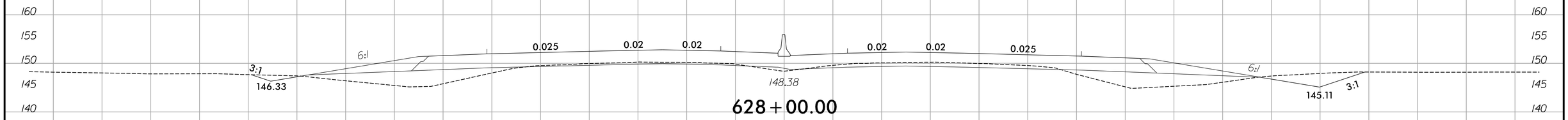
SITE 37

PERMIT DRAWING SHEET 105 OF 163

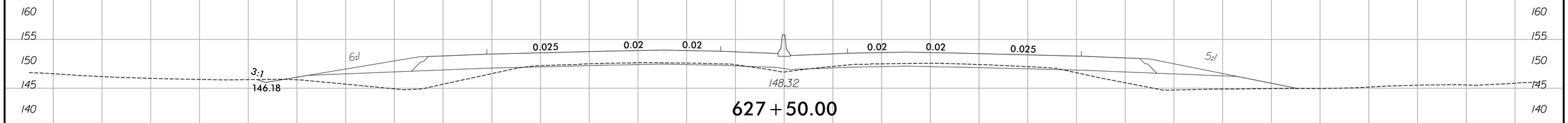
ENGLISH



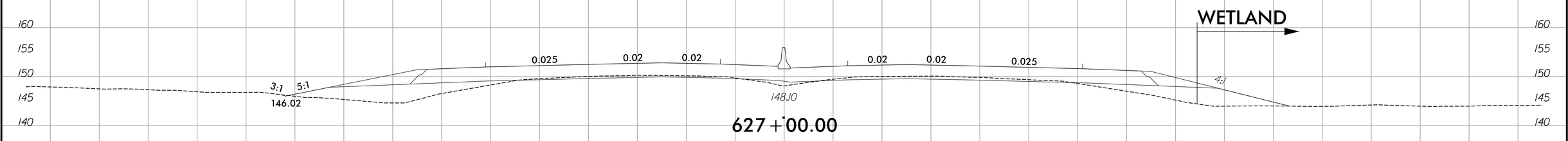
628+50.00



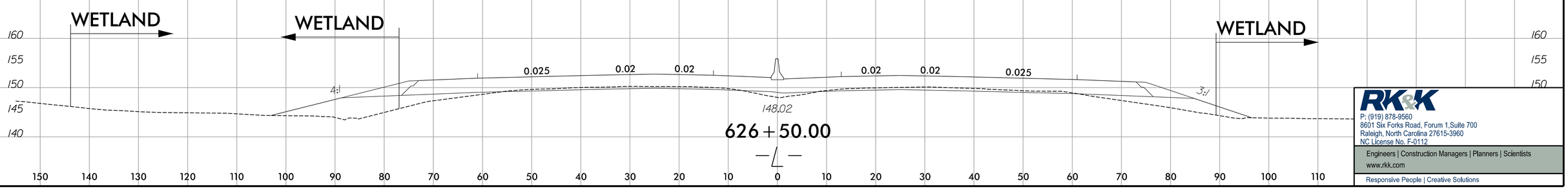
628+00.00



627+50.00



627+00.00



626+50.00

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Submitted 9/2/2020

8/17/99

50 25 0 50 100
SCALE

ENGLISH

DENOTES TEMPORARY FILL IN WETLAND

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	51
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 106 OF 163

NAD 83/NA 2011

MATCHLINE -L- STA. 631+00.00 SEE SHEET 50

MATCHLINE -L- STA. 642+00.00 SEE SHEET 52

10+00

S 66° 59' 47.1" E

BEGIN CONSTRUCTION
-Y21- Sta.13+55.00

BEGIN GRADE
-Y21- POC Sta.14+05.00

15+00

20+00

N 43° 28' 33.7" E

635+00

640+00

SPECIAL CUT DITCH SEE DETAIL B

LATERAL BASE DITCH SEE DETAIL D

MEDIAN BASE DITCH SEE DETAIL AB

PROP.CHAIN LINK FENCE

PROP.WOVEN WIRE FENCE

PROP.FENCE WOVEN WIRE

15" RCP-IV

18" RCP-IV

24" RCP-IV

2GI-WSF

2GIA-WSF

5 TON CL B RIP RAP
14 SY GEOTEXTILE

REMOVE 10' OF 18" RCP

REMOVE DI

CONC PAVED DITCH

PLUG & FILL W/ W/FLOWABLE

BROKEN

SPECIAL CUT BASE DITCH SEE DETAIL F

Q10 = 13.1 cfs
V10 = 1.40 fps

SEE INSET A

SITE 38

INSET A

LATERAL BASE DITCH SEE DETAIL D

WAX

FOR CROSS-SECTION LAYOUT SEE SHT. 2B-4

FOR -L- PROFILES SEE SHTS. 133 & 134
FOR -Y21- PROFILE SEE SHT. 195

FOR DITCH DETAILS SEE SHTS. 2D-5 THRU 2D-6

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tkeen

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8/17/99

50 25 0 50 100
SCALE

ENGLISH

DENOTES TEMPORARY FILL IN WETLAND

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	51
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 107 OF 163

NAD 83/NA 2011

MATCHLINE -L- STA. 631+00.00 SEE SHEET 50

MATCHLINE -L- STA. 642+00.00 SEE SHEET 52

BEGIN CONSTRUCTION
-Y21- Sta.13+55.00

BEGIN GRADE
-Y21- POC Sta.14+05.00

10+00

S 66° 59' 47.1" E

15+00

20+00

N 43° 28' 33.7" E

635+00

640+00

SPECIAL CUT DITCH SEE DETAIL B

PROP.CHAIN LINK FENCE

PROP.WOVEN WIRE FENCE

MEDIAN BASE DITCH SEE DETAIL AB

LATERAL BASE DITCH SEE DETAIL D

SPECIAL CUT BASE DITCH SEE DETAIL F

LATERAL BASE DITCH SEE DETAIL O

ES = 148.8'

CAT-1

GREU TL-3

15" RCP-IV

18" RCP-IV

24" RCP-IV

2GI-WSF

2GIA-WSF

4GI

REMOVE 10' OF 18" RCP

REMOVE DI

CONC PAVED DITCH

PLUG & FILL W/ W/FLOWABLE

BROKEN

5 TON CL B RIP RAP
14 SY GEOTEXTILE
PROP.FENCE WOVEN WIRE

SR 1807 BEGIN OF RIVER RD

SR 1807 END OF RIVER RD

SMALL CATCH BASIN

Q10 = 13.1 cfs
V10 = 1.40 fps

SEE INSET A

SITE 38

WAX

INSET A

LATERAL BASE DITCH SEE DETAIL D

FOR CROSS-SECTION LAYOUT SEE SHT. 2B-4

FOR -L- PROFILES SEE SHTS. 133 & 134
FOR -Y21- PROFILE SEE SHT. 195

FOR DITCH DETAILS SEE SHTS. 2D-5 THRU 2D-6

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Submitted 9/2/2020

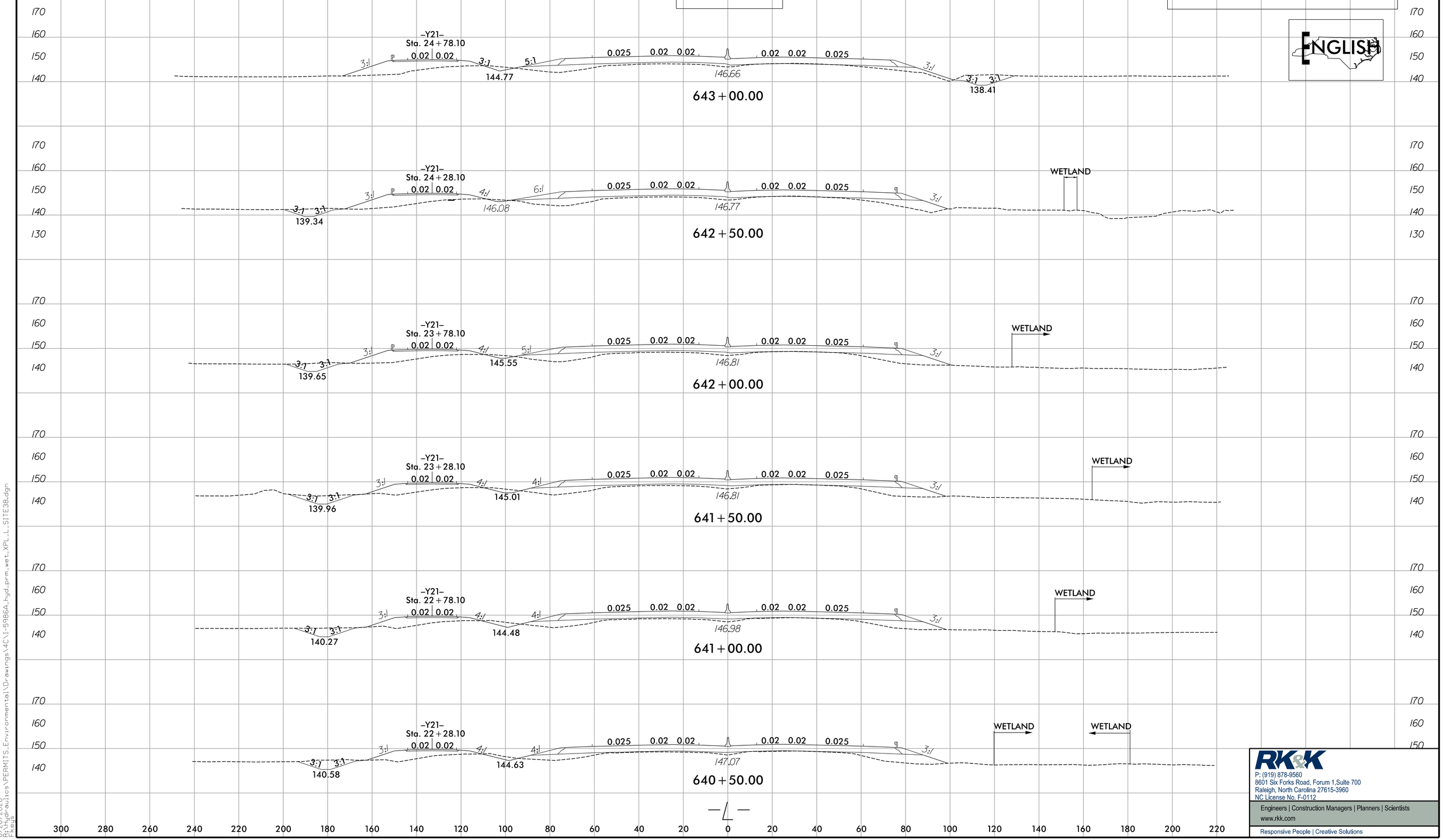
6/23/16

0 10 20	PROJ. REFERENCE NO.	SHEET NO.
	I-5986A SECTION 3	X-36

SITE 38

PERMIT DRAWING SHEET 108 OF 163

ENGLISH



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FLeigh

Submitted 9/2/2020

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

ENGLISH

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	52
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING SHEET 109 OF 163

NAD 83/NA 2011

MATCHLINE -Y21- STA. 35+00.00 SEE SHEET 80

MATCHLINE -Y10- STA. 25+00.00 SEE SHEET 80

MATCHLINE -L- STA. 642+00.00 SEE SHEET 51

MATCHLINE -L- STA. 655+00.00 SEE SHEET 53

MATCHLINE -Y10- STA. 18+00.00 SEE SHEET 79

SITE 39

SEE INSET A SJ–2

INSET A

150 TON CL I RIP RAP

LATERAL BASE DITCH SEE DETAIL D

10' WIDE BERM TOP ELEV.=148.1' SEE DETAIL Q

PDE

REMOVE 75'

25+00 54" RCP

5 TON CL B RIP RAP
14 SY GEOTEXTILE

LATERAL BASE DITCH SEE DETAIL D

LATERAL V DITCH SEE DETAIL K

N 43° 28' 33.7" E

30+00

24" RCP–III

OEP

PROP.WOVEN WIRE FENCE

2GIB–WSS

18" RCP–III

MEDIAN V DITCH SEE DETAIL G

4GI

30" RCP–III

JB W/MH

PLUG & FILL W/ FLOWABLE FILL

2GIA–WSF

SPECIAL CUT BASE DITCH SEE DETAIL F

+91.00
140.00

15" CSP 2 ELBOWS

10 TON CL B RIP RAP 28 SY GEOTEXTILE

SPECIAL CUT DITCH SEE DETAIL Y

30" RCP–III

REMOVE DI

CONC PAVED DITCH

645+00

650+00

655+00

N 43° 28' 33.7" E

N 17° 03' 54.0" W

15" RCP–IV

2GIB–WSF

PLUG & FILL W/ FLOWABLE FILL

REMOVE

LATERAL BASE DITCH SEE DETAIL D

54" RCP REMOVE

54 TON CL A RIP RAP

SEE INSET B SJ–1

SPECIAL CUT DITCH SEE DETAIL B

2 TON CL B RIP RAP 7 SY GEOTEXTILE

PROP.WOVEN WIRE FENCE

20+00

LAT. V DITCH SEE DETAIL K

15" CSP 2 ELBOWS

1 TON CL B RIP RAP 5 SY GEOTEXTILE

SITE 39

WAX

INSET B

CL A AP

REMO

EXISTING R

FOR BRIDGE SKETCH SEE SHT. 2A–6

FOR CROSS–SECTION LAYOUT SEE SHT. 2B–5

PAVEMENT REMOVAL

FOR –L– PROFILES SEE SHTS. 134 & 135
FOR –Y10– PROFILE SEE SHT. 193
FOR –Y21– PROFILE SEE SHT. 195

FOR DITCH DETAILS SEE SHTS. 2D–5 THRU 2D–6

ALL EXISTING ROW FENCE TO BE REMOVED UNLESS OTHERWISE LABELED.

ALL DRIVEWAY RADII 15' UNLESS OTHERWISE LABELED.

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Submitted 9/2/2020

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

ENGLISH

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PERMIT DRAWING
SHEET 110 OF 163

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	52
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NA 2011

MATCHLINE -Y21- STA. 35+00.00 SEE SHEET 80

MATCHLINE -Y10- STA. 25+00.00 SEE SHEET 80

MATCHLINE -L- STA. 642+00.00 SEE SHEET 51

MATCHLINE -L- STA. 655+00.00 SEE SHEET 53

MATCHLINE -Y10- STA. 18+00.00 SEE SHEET 79

INSET A

150 TON CL I RIP RAP
E DITCH
AIL D
DE BERM
EV. =148.1'
ETAIL Q
PDE
REMOVE 75'
54" RCP
25+00

SITE 39

SEE INSET A SJ–2

150 TON CL I RIP RAP
LATERAL BASE DITCH SEE DETAIL D
10' WIDE BERM TOP ELEV. =148.1' SEE DETAIL Q
PDE
REMOVE 75'
54" RCP
25+00
2GIB–WSS
24" RCP–III
18" RCP–III
7'-7" RCBC (BURIED 1.0')
PLUG & FILL W/ FLOWABLE FILL

LATERAL BASE DITCH SEE DETAIL D

5 TON CL B RIP RAP
14 SY GEOTEXTILE

24" RCP–III

30+00

N 43° 28' 33.7" E

MEDIAN V DITCH SEE DETAIL G

OEP

PROP.WOVEN WIRE FENCE

LATERAL V DITCH SEE DETAIL K

SPECIAL CUT BASE DITCH SEE DETAIL F

LATERAL BASE DITCH SEE DETAIL D

+91.00
140.00

12" CSP 2 ELBOWS

10 TON CL B RIP RAP 28 SY GEOTEXTILE

4GI

30" RCP–III

JB W/MH

2GIA–WSF

PLUG & FILL W/ FLOWABLE FILL

REMOVE DI

CONC PAVED DITCH

645+00

650+00

655+00

N 17° 03' 54.0" W

2GIB–WSF

15" RCP–IV

18" RCP REMOVE

REMOVE

SPECIAL CUT DITCH SEE DETAIL B

54 TON CL A RIP RAP

SEE INSET B SJ–1

LATERAL BASE DITCH SEE DETAIL D

SPECIAL CUT DITCH SEE DETAIL B

2 TON CL B RIP RAP 7 SY GEOTEXTILE

PROP.WOVEN WIRE FENCE

20+00

LAT. V DITCH SEE DETAIL K

15" CSP 2 ELBOWS

1 TON CL B RIP RAP 5 SY GEOTEXTILE

SITE 39

WAX

INSET B

REMO

EXISTING R

CL A

AP

FOR BRIDGE SKETCH SEE SHT. 2A–6

FOR CROSS–SECTION LAYOUT SEE SHT. 2B–5

PAVEMENT REMOVAL

FOR –L– PROFILES SEE SHTS. 134 & 135
FOR –Y10– PROFILE SEE SHT. 193
FOR –Y21– PROFILE SEE SHT. 195

FOR DITCH DETAILS SEE SHTS. 2D–5 THRU 2D–6

ALL EXISTING ROW FENCE TO BE REMOVED UNLESS OTHERWISE LABELED.

ALL DRIVEWAY RADII 15' UNLESS OTHERWISE LABELED.

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Features

Submitted 9/2/2020

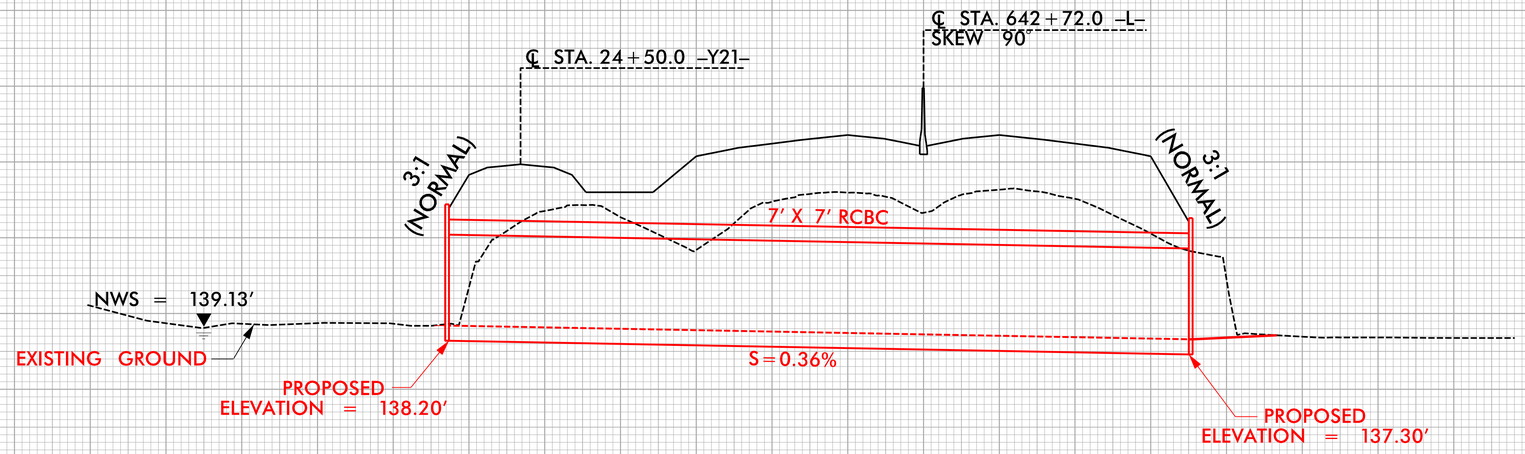
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SITE 39
–L– STA. 642 + 72

PERMIT DRAWING
SHEET 111 OF 163

ENGLISH



7'X 7'RCBC
(buried 1.0')
(length = 244')

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Submitted 9/2/2020

8/17/99

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

ENGLISH

DENOTES TEMPORARY FILL IN WETLAND

DENOTES FILL IN WETLAND

INSET B

NAD 83/NA 2011

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	53
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING SHEET 112 OF 163

WAZ

SITE 41

MATCHLINE -L- STA. 655+00.00 SEE SHEET 52

MATCHLINE -L- STA. 668+00.00 SEE SHEET 54

SEE INSET B

Q10 = 7.0 cfs
V10 = 1.53 ft/s

LATERAL BASE DITCH SEE DETAIL D

PROP. WOVEN WIRE FENCE

SPECIAL CUT BASE DITCH SEE DETAIL F

SPECIAL CUT DITCH SEE DETAIL B

FS MINIMUM ELEV. = 138.00'

PLUG & FILL W/ FLOWABLE FILL

REMOVE DI

CONC PAVED DITCH

2GIB-WSF

660+00

665+00

N 43° 56' 54.7" E

I-95 SBL 37' BST

I-95 NBL 37' BST

REMOVE DI

PLUG & FILL W/ FLOWABLE FILL

SPECIAL CUT DITCH SEE DETAIL B

SPECIAL CUT BASE DITCH SEE DETAIL F

15 TON CL B RIP RAP
37 SY GEOTEXTILE

Q10 = 36.3 cfs
V10 = 1.39 ft/s

CUT FILL TRANSITION
1 TON CL B RIP RAP
5 SY GEOTEXTILE

SEE INSET A

WAY

SITE 40

INSET A

ALL EXISTING ROW FENCE TO BE REMOVED UNLESS OTHERWISE LABELED.

ALL DRIVEWAY RADII 15' UNLESS OTHERWISE LABELED.

FOR –L– PROFILES SEE SHTS. 135 & 136

FOR DITCH DETAILS SEE SHTS. 2D–5 THRU 2D–6

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Submitted 9/2/2020

8/17/99

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

ENGLISH

T T DENOTES TEMPORARY FILL IN WETLAND

F F DENOTES FILL IN WETLAND

INSET B

NAD 83/NA 2011

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	53
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 113 OF 163

WAZ

SITE 41

MATCHLINE -L- STA. 655+00.00 SEE SHEET 52

MATCHLINE -L- STA. 668+00.00 SEE SHEET 54

SEE INSET B

Q10 = 7.0 cfs
V10 = 1.53 ft/s

LATERAL BASE DITCH SEE DETAIL D

PROP. WOVEN WIRE FENCE

SPECIAL CUT BASE DITCH SEE DETAIL F

SPECIAL CUT DITCH SEE DETAIL B

FS MINIMUM ELEV. = 138.00'

PUE

HW

CAT-1

PLUG & FILL W/ FLOWABLE FILL

REMOVE DI

CONC PAVED DITCH

2GIB-WSF

660+00

665+00

655+00

N 43° 56' 54.7" E

I-95 NBL 37' BST

REMOVE DI

SPECIAL CUT DITCH SEE DETAIL B

SPECIAL CUT BASE DITCH SEE DETAIL F

15 TON CL B RIP RAP
37 SY GEOTEXTILE

Q10 = 36.3 cfs
V10 = 1.39 ft/s

SEE INSET A

CUT FILL TRANSITION
1 TON CL B RIP RAP
5 SY GEOTEXTILE

PROP. WOVEN WIRE FENCE

WAY

SITE 40

WAZ

S 73°08'53" E
55.18'

736.98'
S 85°10'53" W

INSET A

ON CL B RIP RAP
SY GEOTEXTILE

FOR –L– PROFILES SEE SHTS. 135 & 136

FOR DITCH DETAILS SEE SHTS. 2D–5 THRU 2D–6

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6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-5986A SECTION 3	X-43

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

SITE 40

ENGLISH

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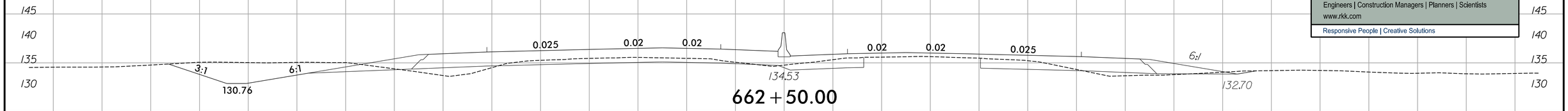
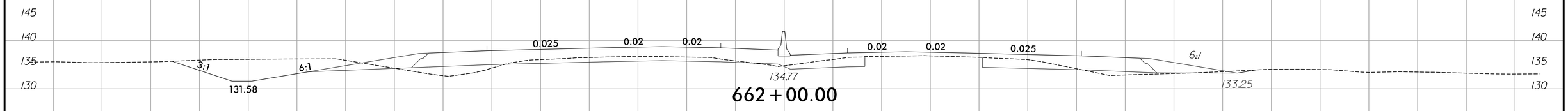
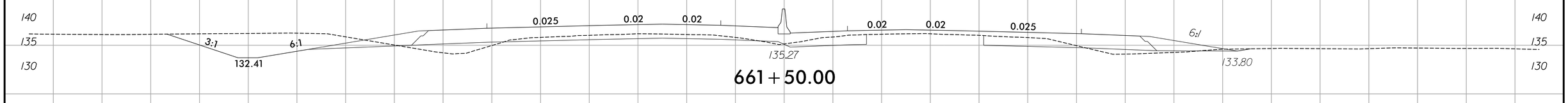


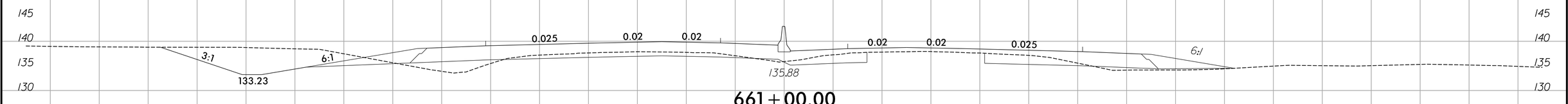
662 + 50.00



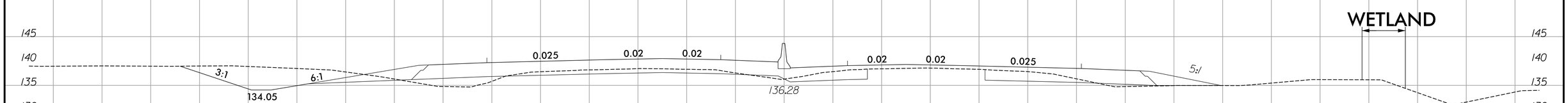
662 + 00.00



661 + 50.00



661 + 00.00



660 + 50.00

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Plotted

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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-5986A SECTION 3	X-45

PERMIT DRAWING
SHEET 115 OF 163

SITE 41

ENGLISH

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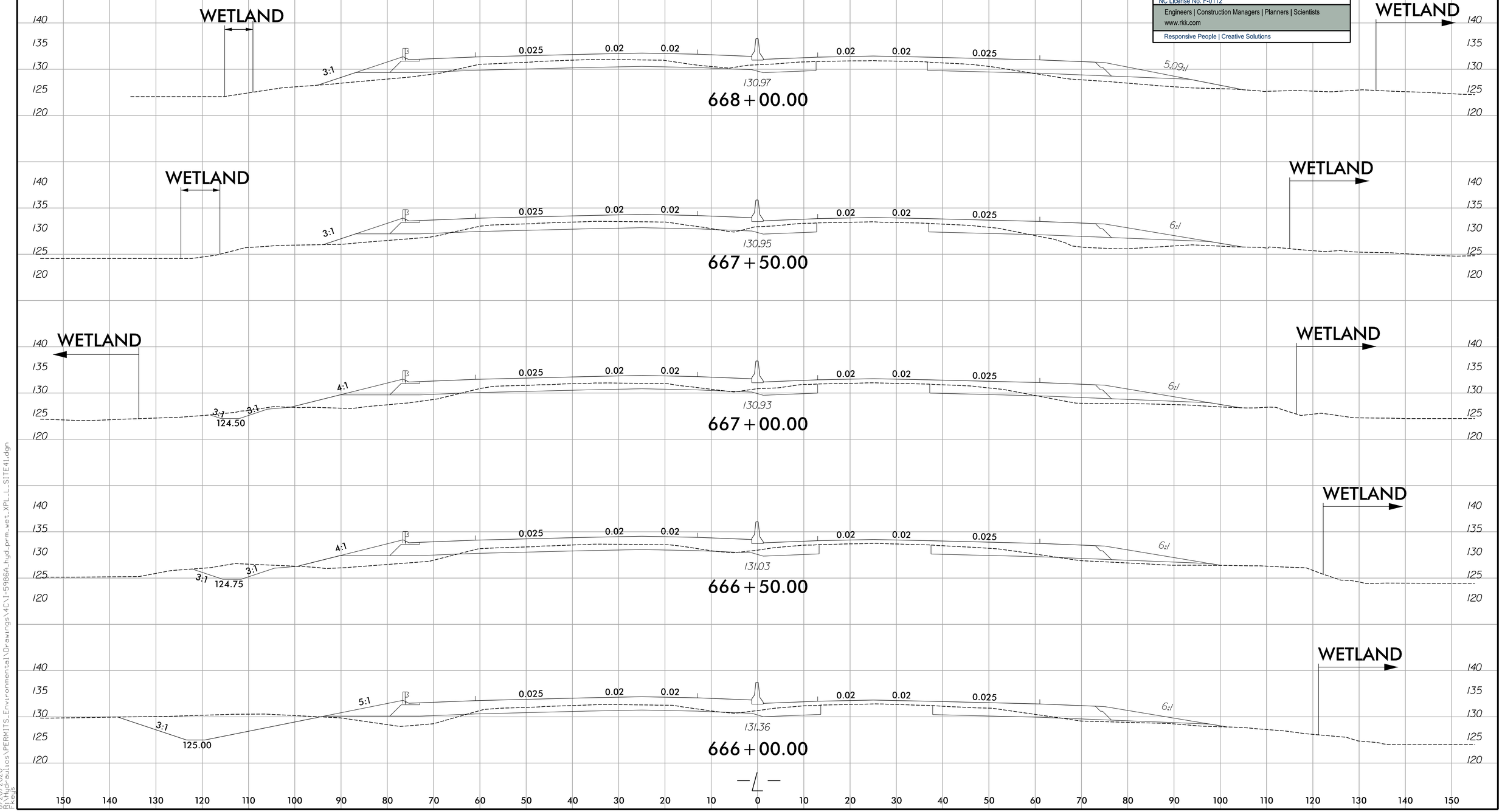

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8/17/99

SCALE FOR INSET: 25 0 25 50

SCALE: 50 25 0 50 100

ENGLISH

- DENOTES TEMPORARY FILL IN WETLAND
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES MECHANIZED CLEARING
- DENOTES FILL IN WETLAND
- DENOTES EXCAVATION IN WETLAND
- DENOTES HAND CLEARING

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	54
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING SHEET 116 OF 163

NAD 83/NA 2011

BLACK RIVER

SITE 41

SITE 42

MATCHLINE -L- STA. 668+00.00 SEE SHEET 53

MATCHLINE -L- STA. 681+00.00 SEE SHEET 55

WAZ

PROP.WOVEN WIRE FENCE

1 TON CL B RIP RAP
5 SY GEOTEXTILE

2 TON CL B RIP RAP
7 SY GEOTEXTILE

3 TON CL B RIP RAP
GEOTEXTILE

Q10 = 1.7 cfs
V10 = 0.76 ft/s

Q10 = 0.6 cfs
V10 = 0.64 ft/s

Q10 = 15.2 cfs
V10 = 1.99 ft/s

Q10 = 2.7 cfs
V10 = 0.68 ft/s

Q10 = 0.6 cfs
V10 = 0.76 ft/s

+00.00
140.00' LT

+00.00
140.00' RT

GREU TL-3

2GIB-WSF

2GIA-WSF

15" RCP-IV

24" RCP-IV

15" RCP-III

REMOVE DI

CONC PAVED DITCH

PLUG & FILL W/ FLOWABLE FILL

TOE PROTECTION
SEE DETAIL H

PROP. SBG

B-77

CAT-1

-L-

N 43° 56' 54.7" E

670+00

675+00

680+00

SEE INSET A

SEE INSET B

INSET A

INSET B

SITE 42

FOR BRIDGE SKETCH SEE SHT. 2A-7

FOR -L- PROFILES SEE SHT. 136

FOR DITCH DETAILS SEE SHTS. 2D-5 THRU 2D-6

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ekeen

Submitted 9/2/2020

8/17/99

SCALE FOR INSET: 25 0 25 50

SCALE: 50 25 0 50 100

ENGLISH

- DENOTES TEMPORARY FILL IN WETLAND
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES MECHANIZED CLEARING
- DENOTES FILL IN WETLAND
- DENOTES EXCAVATION IN WETLAND
- DENOTES HAND CLEARING

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	54
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 117 OF 163

NAD 83/NA 2011

BLACK RIVER

SITE 41

SITE 42

MATCHLINE -L- STA. 668+00.00 SEE SHEET 53

MATCHLINE -L- STA. 681+00.00 SEE SHEET 55

WAZ

PROP.WOVEN WIRE FENCE

1 TON CL B RIP RAP
5 SY GEOTEXTILE

2 TON CL B RIP RAP
7 SY GEOTEXTILE

3 TON CL B RIP RAP
GEOTEXTILE

Q10 = 1.7 cfs
V10 = 0.76 ft/s

Q10 = 0.6 cfs
V10 = 0.64 ft/s

Q10 = 15.2 cfs
V10 = 1.99 ft/s

Q10 = 2.7 cfs
V10 = 0.68 ft/s

Q10 = 0.6 cfs
V10 = 0.76 ft/s

+00.00
140.00' LT

+00.00
140.00' RT

-L-
N 43° 56' 54.7" E

670+00

675+00

680+00

REMOVE DI
CONC PAVED DITCH

PLUG & FILL W/
FLOWABLE FILL

TOE PROTECTION
SEE DETAIL H

CONC BRIDGE

GREU TL-3

PROP. SBG

B-77

CAT-1

WOODS

EXISTING R/W

SEE INSET A

SEE INSET B

INSET A

INSET B

SITE 42

15" RCP-IV
24" RCP-IV
15" RCP-III
2GIB-WSF
2GIA-WSF

FOR BRIDGE SKETCH SEE SHT. 2A-7

FOR -L- PROFILES SEE SHT. 136

FOR DITCH DETAILS SEE SHTS. 2D-5 THRU 2D-6

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Submitted 9/2/2020

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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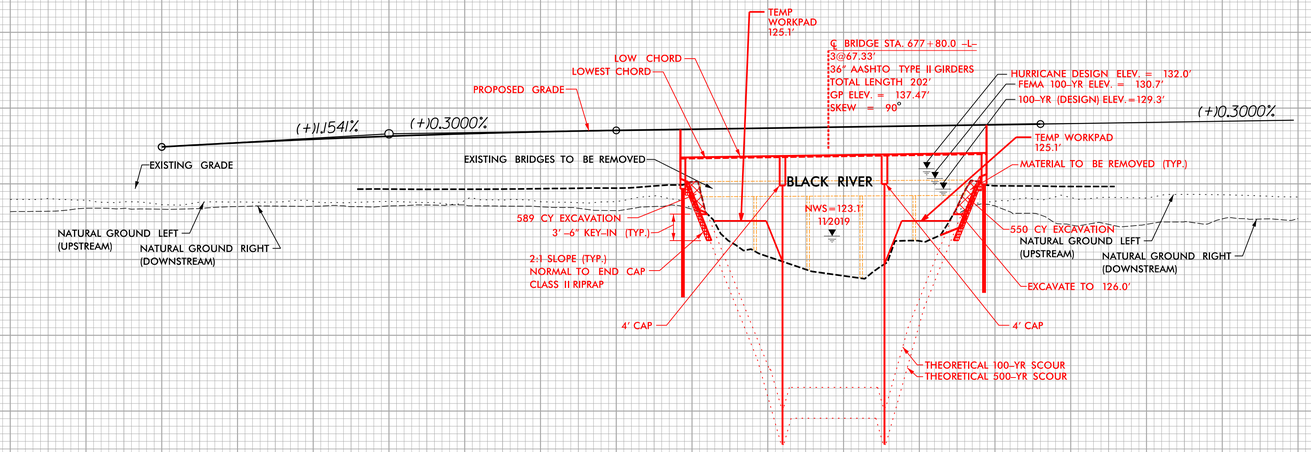
PERMIT DRAWING
SHEET 118 OF 163

ENGLISH

SITE 42
–L– STA. 677+80 LT

Temporary workpad installation to be determined during bridge construction. Both workpads will not be installed or used at the same time.

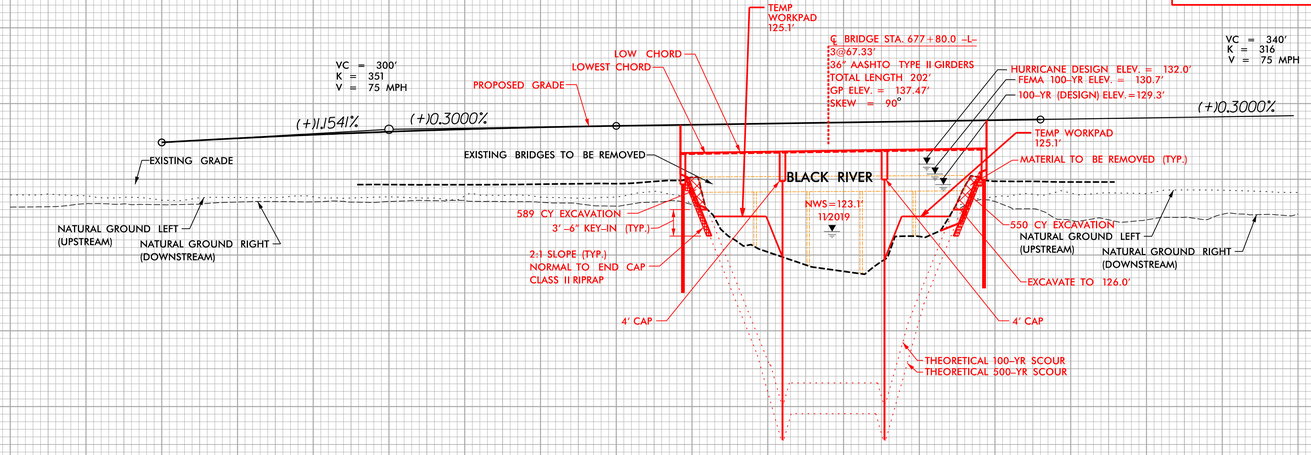


673+00 674+00 675+00 676+00 677+00 678+00 679+00 680+00 681+00

140 130 120 110

SITE 42
–L– STA. 677+80 RT

Temporary workpad installation to be determined during bridge construction. Both workpads will not be installed or used at the same time.



140 130 120 110

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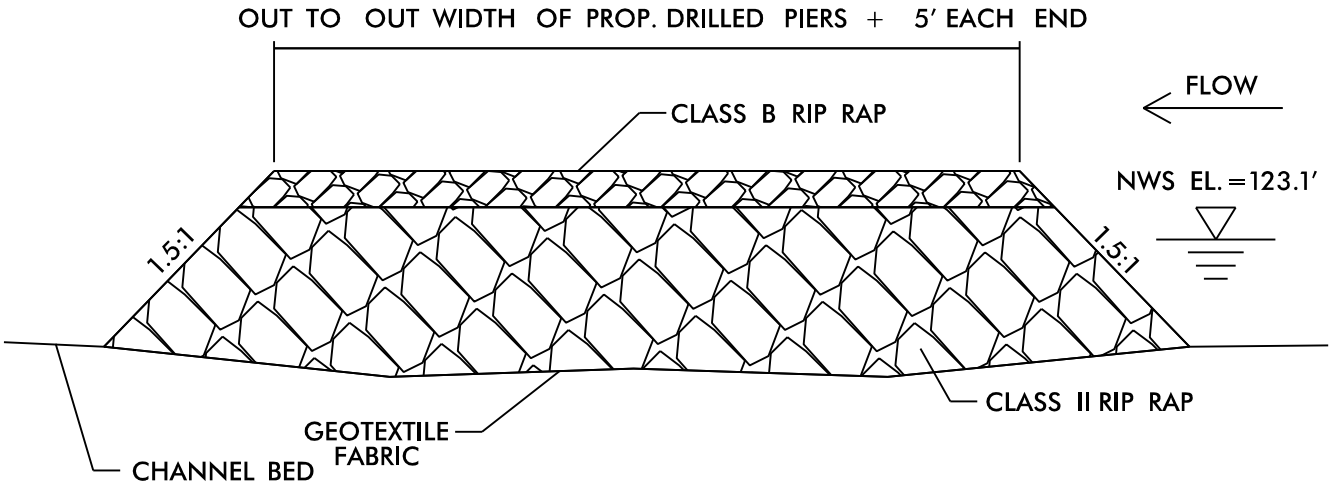
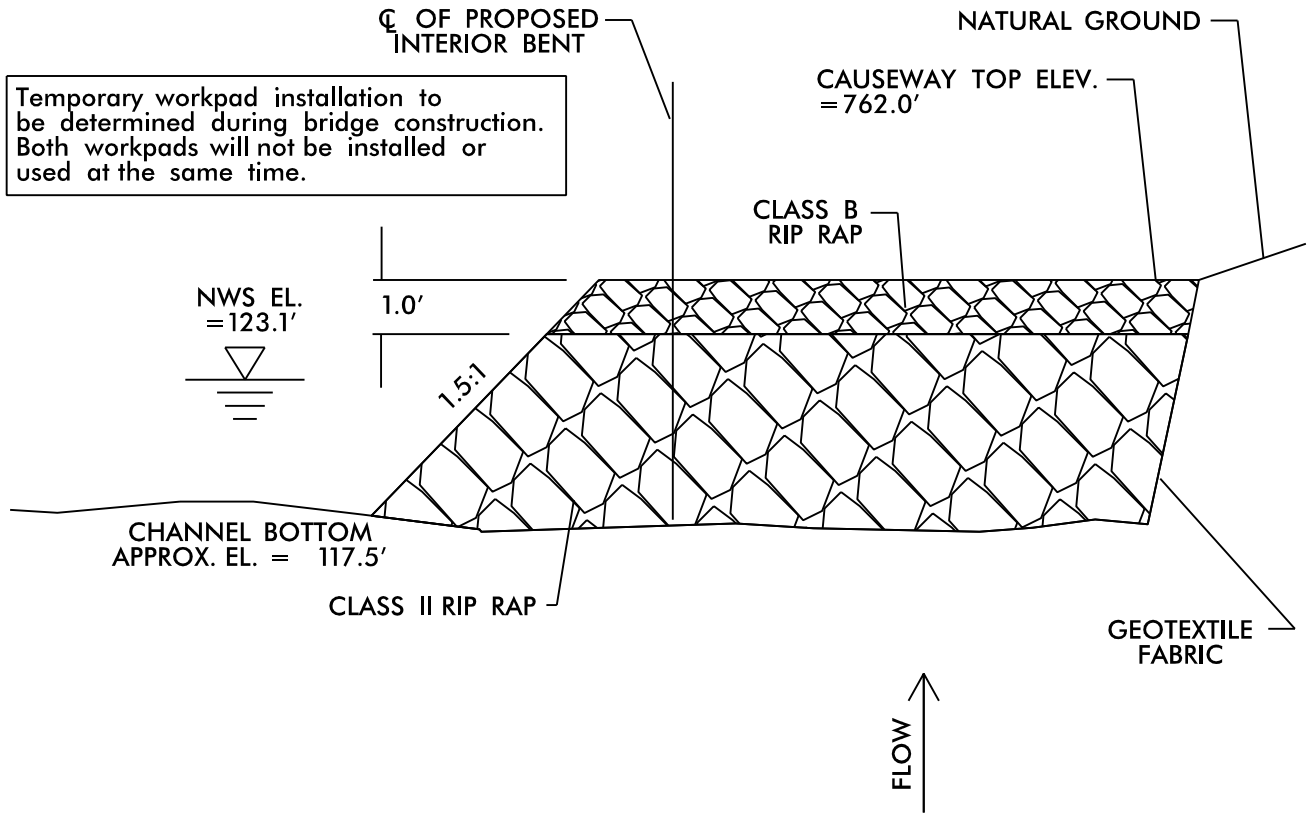
Plotted By: Ellen Pfleger

Submitted 9/2/2020

TEMPORARY WORK PAD DETAIL

NOT TO SCALE





STREAM CROSS SECTION TAKEN ALONG UPSTREAM TOE OF CAUSEWAY (MOST RESTRICTIVE LOCATION)

1. CHANNEL FLOW AREA BELOW NWS = 111.5 SF
2. PERCENT OF NWS FLOW AREA REMAINING WHILE CAUSEWAY IS IN PLACE = 54%

NCDOT

DIVISION OF HIGHWAYS
CUMBERLAND COUNTY
PROJECT: I-5986A / I-5877
BRIDGE OVER
BLACK RIVER
ON I-95

Submitted 9/2/2020

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-5986A SECTION 3	X-51

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

145 140 135 130 125 120

WETLAND

3:1

0.025 0.02 0.02 0.02 0.02 0.025

131.73

682+00.00

WETLAND

3:1

SITE 42

PERMIT DRAWING
SHEET 120 OF 163

ENGLISH

145 140 135 130 125 120

WETLAND

3:1

0.025 0.02 0.02 0.02 0.02 0.025

131.77

681+50.00

WETLAND

3:1

145 140 135 130 125 120

WETLAND

3:1

0.025 0.02 0.02 0.02 0.02 0.025

131.74

681+00.00

WETLAND

3:1

145 140 135 130 125 120

WETLAND

3:1

0.025 0.02 0.02 0.02 0.02 0.025

131.56

680+50.00

WETLAND

3:1

145 140 135 130 125 120

WETLAND

3:1

0.025 0.02 0.02 0.02 0.02 0.025

131.41

680+00.00

WETLAND

3:1

—℄—

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

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8/17/99

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

ENGLISH

F F DENOTES TEMPORARY FILL IN WETLAND
TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES MECHANIZED CLEARING
F F DENOTES FILL IN WETLAND

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	55
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING SHEET 121 OF 163

NAD 83/NA 2011

MATCHLINE -L- STA. 681+00.00 SEE SHEET 54

MATCHLINE -L- STA. 694+00.00 SEE SHEET 56

WAZ

PROP. WOVEN WIRE FENCE

Q10 = 2.1 cfs
V10 = 0.54 ft/s

1 TON CL B RIP RAP
5 SY GEOTEXTILE

15" CSP
2 ELBOWS

15" RCP-IV

GREU TL-3

2GIB-WSF

PROP. SBG

WOODS

685+00

690+00

N 43° 56' 54.7" E

N 27°22'06" E
801.70'

S 27°02'08" W
775.55'

I-95 SBL 37' BST

10' BST

9.5' BST

3' BST

REMOVE DI

CONC PAVED DITCH

PLUG & FILL W/ FLOWABLE FILL

15" RCP-III

CAT-1

2 TON CL B RIP RAP
7 SY GEOTEXTILE

3 TON CL B RIP RAP
11 SY GEOTEXTILE

Q10 = 2.5 cfs
V10 = 0.48 ft/s

TOE PROTECTION
SEE DETAIL H

SEE INSET A

EXISTING R/W

(CHORD)

SITE 42

SITE 43

INSET A

PROP. SBG

CAT-1

15" RCP-III

WOODS

TOE PROTECTION
SEE DETAIL H

1 TON CL B RIP RAP
5 SY GEOTEXTILE

FOR -L- PROFILES SEE SHT. 137
FOR DITCH DETAILS SEE SHTS. 2D-5 THRU 2D-6

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8/24/2020
Kelly
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Submitted 9/2/2020

8/17/99

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

ENGLISH

F F DENOTES TEMPORARY FILL IN WETLAND
TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES MECHANIZED CLEARING
F F DENOTES FILL IN WETLAND

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	55
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 122 OF 163

NAD 83/NA 2011

MATCHLINE -L- STA. 681+00.00 SEE SHEET 54

MATCHLINE -L- STA. 694+00.00 SEE SHEET 56

WAZ

PROP. WOVEN WIRE FENCE

Q10 = 2.1 cfs
V10 = 0.54 fps

1 TON CL B RIP RAP
5 SY GEOTEXTILE

15" CSP
2 ELBOWS

15" RCP-IV

GREU TL-3

2GIB-WSF

PROP. SBG

685+00

690+00

N 43° 56' 54.7" E

N 21°22'06" E
80.70'

S 21°02'09" W
75.55'

(CHORD)

REMOVE DI

CONC PAVED DITCH

PLUG & FILL W/ FLOWABLE FILL

CAT-1

15" RCP-III

TOE PROTECTION SEE DETAIL H

2 TON CL B RIP RAP
7 SY GEOTEXTILE

3 TON CL B RIP RAP
11 SY GEOTEXTILE

Q10 = 2.5 cfs
V10 = 0.48 fps

SEE INSET A

SITE 42

SITE 43

EXISTING R/W

INSET A

FOR -L- PROFILES SEE SHT. 137

FOR DITCH DETAILS SEE SHTS. 2D-5 THRU 2D-6

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ESwaim

Submitted 9/2/2020

8/17/99

50 25 0 50 100
SCALE

ENGLISH

DENOTES TEMPORARY FILL IN WETLAND

DENOTES MECHANIZED CLEARING

DENOTES FILL IN WETLAND

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	56
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 123 OF 163

S 27°18'02" W 482.52'

N 27°10'48" E 498.69'

N 5°08'38" W 60.85'

N 27°18'55" E 574.93'

NAD 83/NA 2011

SITE 44

WAZ

Q10=10.4 cfs
V10=1.45 ft/s

MATCHLINE -L- STA. 694+00.00 SEE SHEET 55

(CHORD)

PDE

PDE

STANDARD BASE DITCH SEE DETAIL I

5 TON CL B RIP RAP 14 SY GEOTEXTILE

PROP.WOVEN WIRE FENCE

WOODS

PLUG & FILL W/ FLOWABLE FILL

FES

REMOVE DI

CONC PAVED DITCH

2GIB-WSF

15" RCP-IV

695+00

700+00

SPECIAL CUT DITCH SEE DETAIL B

FS MINIMUM ELEV.= 139.5'

HW

I-95 NBL 37' BST

I-95 SBL 37' BST

10' BST

35' BST

18" RCP-IV

24" RCP-IV

REMOVE 10' 24" RCP

705+00

REMOVE

JB W/MH

48" WW W/ISBW

8 TON CL B RIP RAP 21 SY GEOTEXTILE

MATCHLINE -L- STA. 707+00.00 SEE SHEET 57

TOE PROTECTION SEE DETAIL H

LATERAL BASE DITCH SEE DETAIL D

EXISTING R/W

SPECIAL CUT BASE DITCH SEE DETAIL F

LATERAL BASE DITCH SEE DETAIL P

BILLBOARD

(CHORD)

WAZ

Q10=3.6 cfs
V10=1.60 ft/s

SITE 43

PUE

PUE

PUE

FOR –L– PROFILES SEE SHTS. 137 & 138

FOR DITCH DETAILS SEE SHTS. 2D–5 THRU 2D–6

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Keen

Submitted 9/2/2020

8/17/99

50 25 0 50 100
SCALE

ENGLISH

DENOTES TEMPORARY FILL IN WETLAND

DENOTES MECHANIZED CLEARING

DENOTES FILL IN WETLAND

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	56
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 124 OF 163

S 27°18'02" W 482.52'

N 5°08'39" W 60.89'

N 27°10'48" E 498.69'

N 27°18'55" E 574.93'

NAD 83/NA 2011

SITE 44

WAZ

Q10=10.4 cfs
V10=1.45 ft/s

(CHORD)

PDE

PDE

STANDARD BASE DITCH SEE DETAIL I

PROP.WOVEN WIRE FENCE

5 TON CL B RIP RAP 14 SY GEOTEXTILE

WOODS

FES

PLUG & FILL W/ FLOWABLE FILL

REMOVE DI

CONC PAVED DITCH

2GIB-WSF

15" RCP-IV

2GIB-WSF

695+00

700+00

705+00

SPECIAL CUT DITCH SEE DETAIL B

FS MINIMUM ELEV.= 139.5'

HW

18" RCP-IV

PLUG & FILL W/ FLOWABLE FILL

REMOVE DI

CONC PAVED DITCH

2GIB-WSF

15" RCP-IV

2GIB-WSF

24" RCP-IV

REMOVE 10' 24" RCP

PLUG & FILL W/ FLOWABLE FILL

30" RCP-IV

REMOVE DI

CONC PAVED DITCH

REMOVE

JB W/MH

48" WW W/ISBW

LATERAL BASE DITCH SEE DETAIL P

8 TON CL B RIP RAP 21 SY GEOTEXTILE

PROP.WOVEN WIRE FENCE

TOE PROTECTION SEE DETAIL H

LATERAL BASE DITCH SEE DETAIL D

SPECIAL CUT BASE DITCH SEE DETAIL F

LATERAL BASE DITCH SEE DETAIL D

PROP.WOVEN WIRE FENCE

(CHORD)

WAZ

Q10=3.6 cfs
V10=1.60 ft/s

SITE 43

PUE

PUE

PUE

MATCHLINE -L- STA. 694+00.00 SEE SHEET 55

MATCHLINE -L- STA. 707+00.00 SEE SHEET 57

FOR –L– PROFILES SEE SHTS. 137 & 138

FOR DITCH DETAILS SEE SHTS. 2D–5 THRU 2D–6

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Kevin

Submitted 9/2/2020

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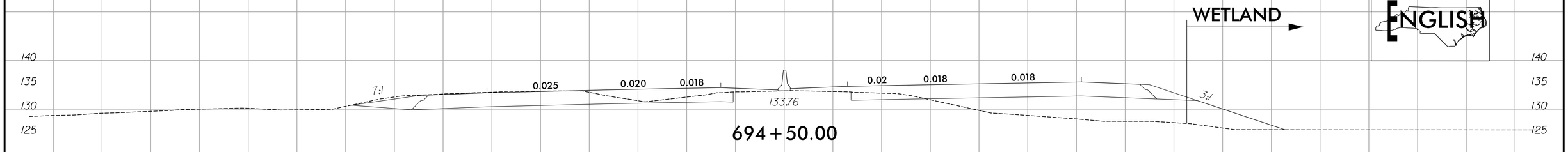
PROJ. REFERENCE NO.	SHEET NO.
I-5986A SECTION 3	X-56

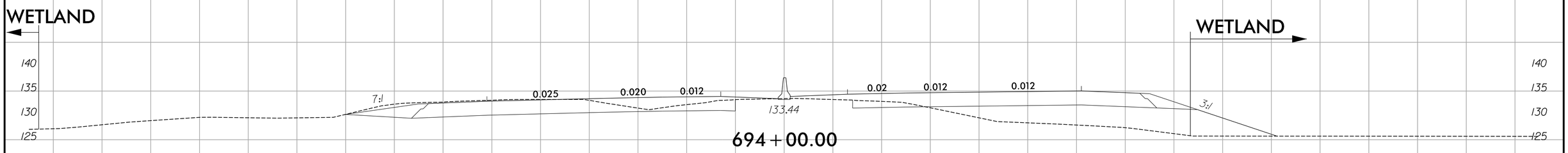
PERMIT DRAWING
SHEET 125 OF 163

ENGLISH

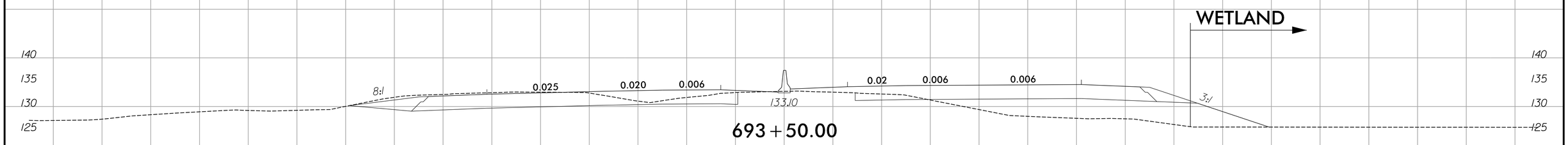
SITE 43 & 44



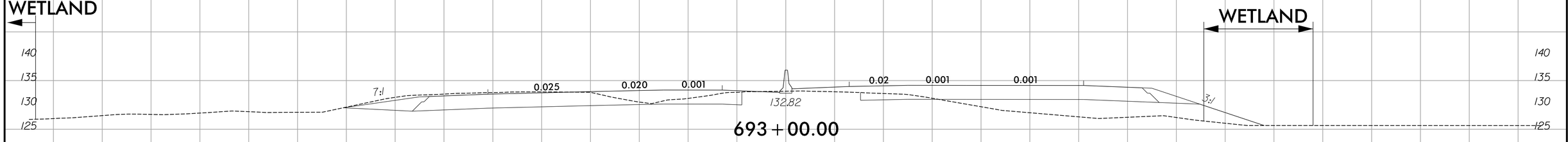
694+50.00



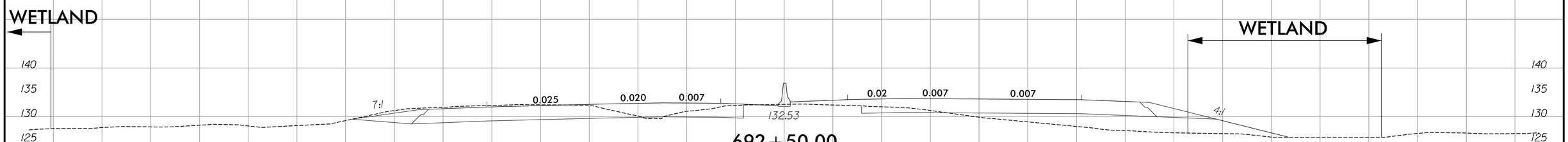
694+00.00



693+50.00



693+00.00



692+50.00

Submitted 9/2/2020

8/17/99

50 25 0 50 100
SCALE

ENGLISH

DENOTES MECHANIZED CLEARING

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	58
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 126 OF 163

NAD 83/NA 2011

N 25°28'35" E
555.99'

N 17°46'25" W
1106.26'

N 51°46'28" W
247.27'

SITE 45

WBA

WBA

WBB

+00.00
140.00' LT

PROP. WOVEN WIRE FENCE

SPECIAL CUT DITCH
SEE DETAIL B

SPECIAL CUT DITCH
SEE DETAIL B

SPECIAL CUT DITCH
SEE DETAIL B

EXISTING R/W

WOODS

48" WW W/SBW

-L-

725+00

N 25° 08' 46.4" E

730+00

I-95 SBL 37' BST

I-95 NBL 37' BST

REMOVE DI

CONC PAVED DITCH

PLUG & FILL W/
FLOWABLE FILL

2GIB-WSF

15" RCP-IV

18" RCP-IV

3 TON CL B RIP RAP
10 SY GEOTEXTILE F

LATERAL BASE DITCH
SEE DETAIL D

PUE

+95.00
140.00'
158.00'

+00.00
140.00' RT

N 57°06'31" E
206.43'

S 47°14'13" E
186.06'

N 00°25'
S 42°01'54" E

MATCHLINE -L- STA. 720+00.00 SEE SHEET 57

MATCHLINE -L- STA. 733+00.00 SEE SHEET 59

FOR –L– PROFILES SEE SHTS. 139 & 140

FOR DITCH DETAILS SEE SHTS. 2D–5 THRU 2D–6

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50 25 0 50 100
SCALE

ENGLISH

DENOTES MECHANIZED CLEARING

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	58
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 127 OF 163

NAD 83/NA 2011

N 25°28'35" E
555.99'

SITE 45

WBA

WBA

WBB

+00.00
140.00' LT

PROP. WOVEN WIRE FENCE

SPECIAL CUT DITCH
SEE DETAIL B

SPECIAL CUT DITCH
SEE DETAIL B

SPECIAL CUT DITCH
SEE DETAIL B

WOODS

EXISTING R/W

-L-

725+00

N 25° 08' 46.4" E

730+00

I-95 SBL 37' BST

I-95 NBL 37' BST

REMOVE DI

CONC PAVED DITCH

PLUG & FILL W/
FLOWABLE FILL

2GIB-WSF

15" RCP-IV

2GIB-WSF

15" RCP-IV

2GIB-WSF

18" RCP-IV

3 TON CL B RIP RAP
10 SY GEOTEXTILE

LATERAL BASE DITCH
SEE DETAIL D

48" WW W/SBW

PUE

+95.00
140.00'
158.00'

+00.00
140.00' RT

MATCHLINE -L- STA. 720+00.00 SEE SHEET 57

MATCHLINE -L- STA. 733+00.00 SEE SHEET 59

FOR –L– PROFILES SEE SHTS. 139 & 140

FOR DITCH DETAILS SEE SHTS. 2D–5 THRU 2D–6

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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-5986A SECTION 3	X-69

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

PERMIT DRAWING
SHEET 128 OF 163

SITE 45

ENGLISH

160 / 155 / 150 / 145

3:1 6:1 146.39 | 0.025 0.02 0.02 | 149.48 | 0.02 0.02 0.025 | 6:1 3:1 146.41

732+00.00

WETLAND

3:1 6:1 146.65 | 0.025 0.02 0.02 | 149.47 | 0.02 0.02 0.025 | 6:1 3:1 147.45

731+50.00

WETLAND

3:1 6:1 146.91 | 0.025 0.02 0.02 | 149.46 | 0.02 0.02 0.025 | 6:1 4:1 147.52

731+00.00

WETLAND

3:1 6:1 147.18 | 0.025 0.02 0.02 | 149.45 | 0.02 0.02 0.025 | 6:1 5:1 147.64

730+50.00

WETLAND

3:1 6:1 147.44 | 0.025 0.02 0.02 | 149.39 | 0.02 0.02 0.025 | 6:1 6:1 147.79

730+00.00

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

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Submitted 9/2/2020

8/17/99

50 25 0 50 100
SCALE

ENGLISH

E E DENOTES EXCAVATION IN WETLAND

DENOTES MECHANIZED CLEARING

F F DENOTES FILL IN WETLAND

NAD 83/NA 2011

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	59
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 129 OF 163

SITE 46

WBC

MATCHLINE -L- STA. 733+00.00 SEE SHEET 58

MATCHLINE -L- STA. 746+50.00 SEE SHEET 60

SPECIAL LATERAL V DITCH SEE DETAIL A

Q10 = 26.9 cfs
V10 = 1.70 ft/s

STANDARD V DITCH SEE DETAIL T

HOE PROTECTION

Q10 = 2.2 cfs
V10 = 0.92 ft/s

PROP. WOVEN WIRE FENCE

+00.00
140.00' LT

SPECIAL CUT DITCH SEE DETAIL B

WOODS

EXISTING R/W

SPECIAL LATERAL V DITCH SEE DETAIL A

SPECIAL CUT DITCH SEE DETAIL B

12" P.S.

BL-228

I-95 SBL 37' BST

I-95 NBL 37' BST

10' BST

42" RCP-IV

PLUG & FILL W/ FLOWABLE FILL

2GIA-WSF

3.5% 42" RCP-IV

CONC. PAVED DITCH

N 25° 08' 46.4" E

-L-

735+00

740+00

745+00

REMOVE DI

CONC. PAVED DITCH

PROP. TYPE T BARRIER

24" RCP-IV

26'

48"

.025 .02 .02

LATERAL BASE DITCH SEE DETAIL D

SPECIAL CUT BASE DITCH SEE DETAIL F

48" WW W/SBW

20 TON CL B RIP RAP
56 SY GEOTEXTILE

5 TON CL B RIP RAP
14 SY GEOTEXTILE

PUE

E

+00.00
140.00' RT

FOR –L– PROFILES SEE SHTS. 140 & 141

FOR DITCH DETAILS SEE SHTS. 2D–5 THRU 2D–6

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Submitted 9/2/2020

8/17/99

50 25 0 50 100
SCALE

ENGLISH

E E DENOTES EXCAVATION IN WETLAND

DENOTES MECHANIZED CLEARING

F F DENOTES FILL IN WETLAND

NAD 83/NA 2011

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	59
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 130 OF 163

MATCHLINE -L- STA. 733+00.00 SEE SHEET 58

MATCHLINE -L- STA. 746+50.00 SEE SHEET 60

SITE 46

WBC

Q10 = 26.9 cfs
V10 = 1.70 ft/s

Q10 = 2.2 cfs
V10 = 0.92 ft/s

SPECIAL LATERAL V DITCH SEE DETAIL A

STANDARD V DITCH SEE DETAIL T

HOE PROTECTION SEE SHEET A

SPECIAL CUT DITCH SEE DETAIL B

PROP. WOVEN WIRE FENCE

+00.00 140.00' LT

+00.00 140.00' RT

-L-

N 25° 08' 46.4" E

735+00

740+00

745+00

42" RCP-IV

2GIA-WSF

REMOVE DI

PLUG & FILL W/ FLOWABLE FILL

CONC PAVED DITCH

PROP. TYPE T BARRIER

24" RCP-IV

LATERAL BASE DITCH SEE DETAIL D

20 TON CL B RIP RAP
56 SY GEOTEXTILE

SPECIAL CUT BASE DITCH SEE DETAIL F

5 TON CL B RIP RAP
14 SY GEOTEXTILE

SPECIAL CUT BASE DITCH SEE DETAIL F

PUE

FOR -L- PROFILES SEE SHTS. 140 & 141

FOR DITCH DETAILS SEE SHTS. 2D-5 THRU 2D-6

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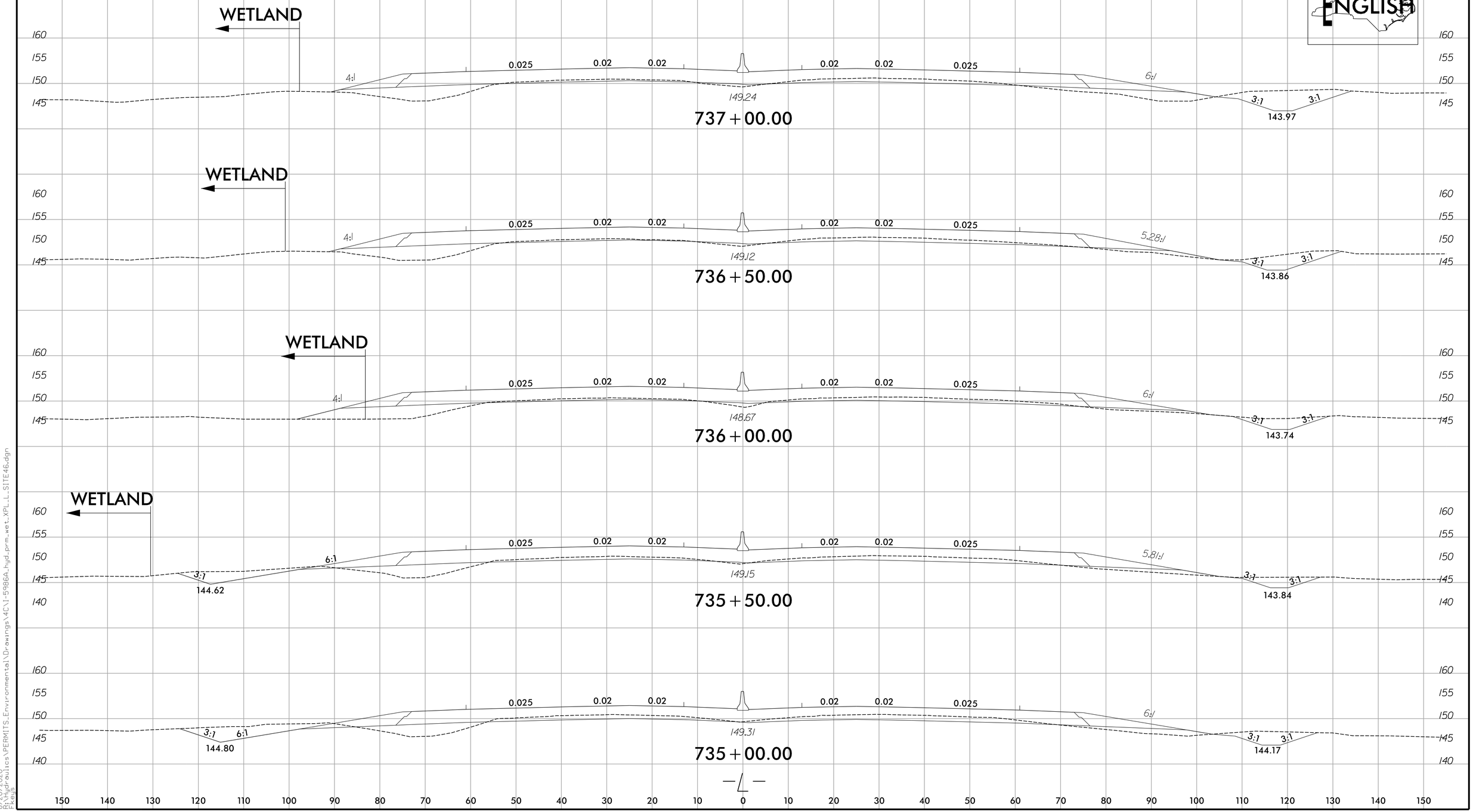
0 5 10

PROJ. REFERENCE NO.	SHEET NO.
I-5986A SECTION 3	X-71

PERMIT DRAWING SHEET 131 OF 163

ENGLISH

SITE 46



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8/20/2020
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Submitted 9/2/2020

8/17/99

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

ENGLISH

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	61
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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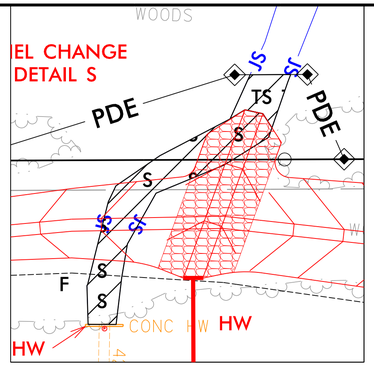
NAD 83/NA 2011

PERMIT DRAWING
SHEET 132 OF 163



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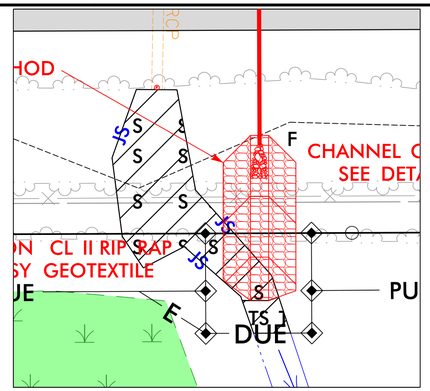

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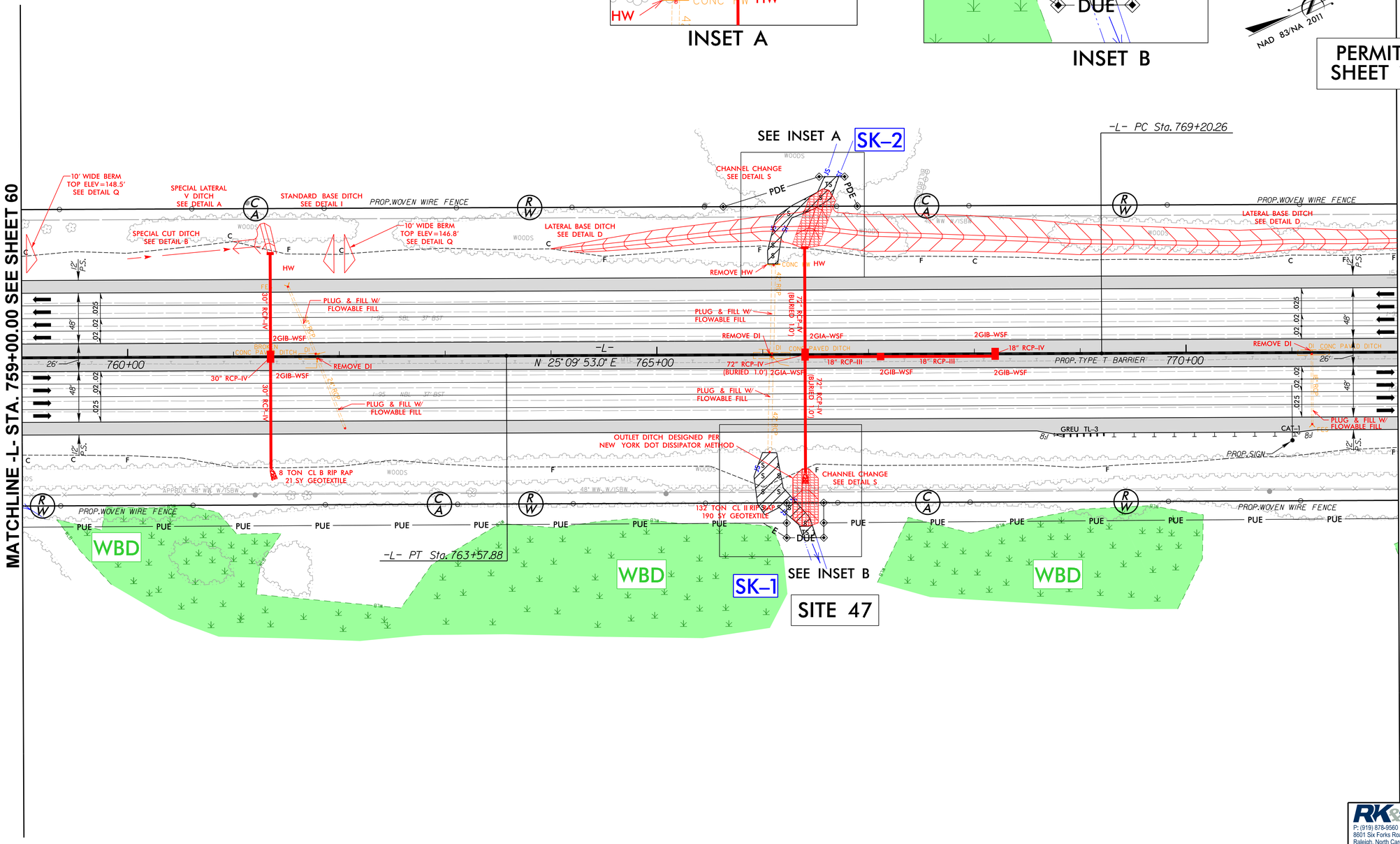

FOR -L- PROFILES SEE SHTS. 142 & 143

FOR DITCH DETAILS SEE SHTS. 2D-5 THRU 2D-6

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Submitted 9/2/2020

8/17/99

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

ENGLISH

S S DENOTES IMPACTS IN SURFACE WATER

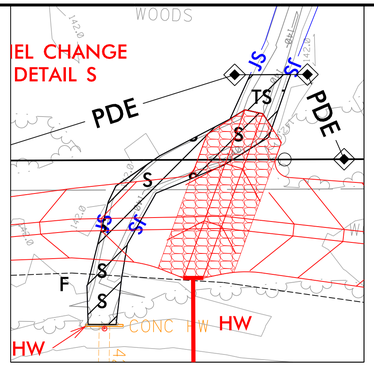
TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	61
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

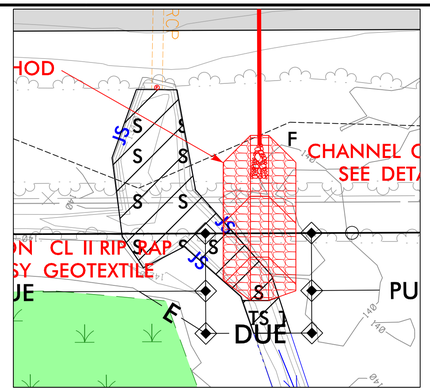
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NA 2011

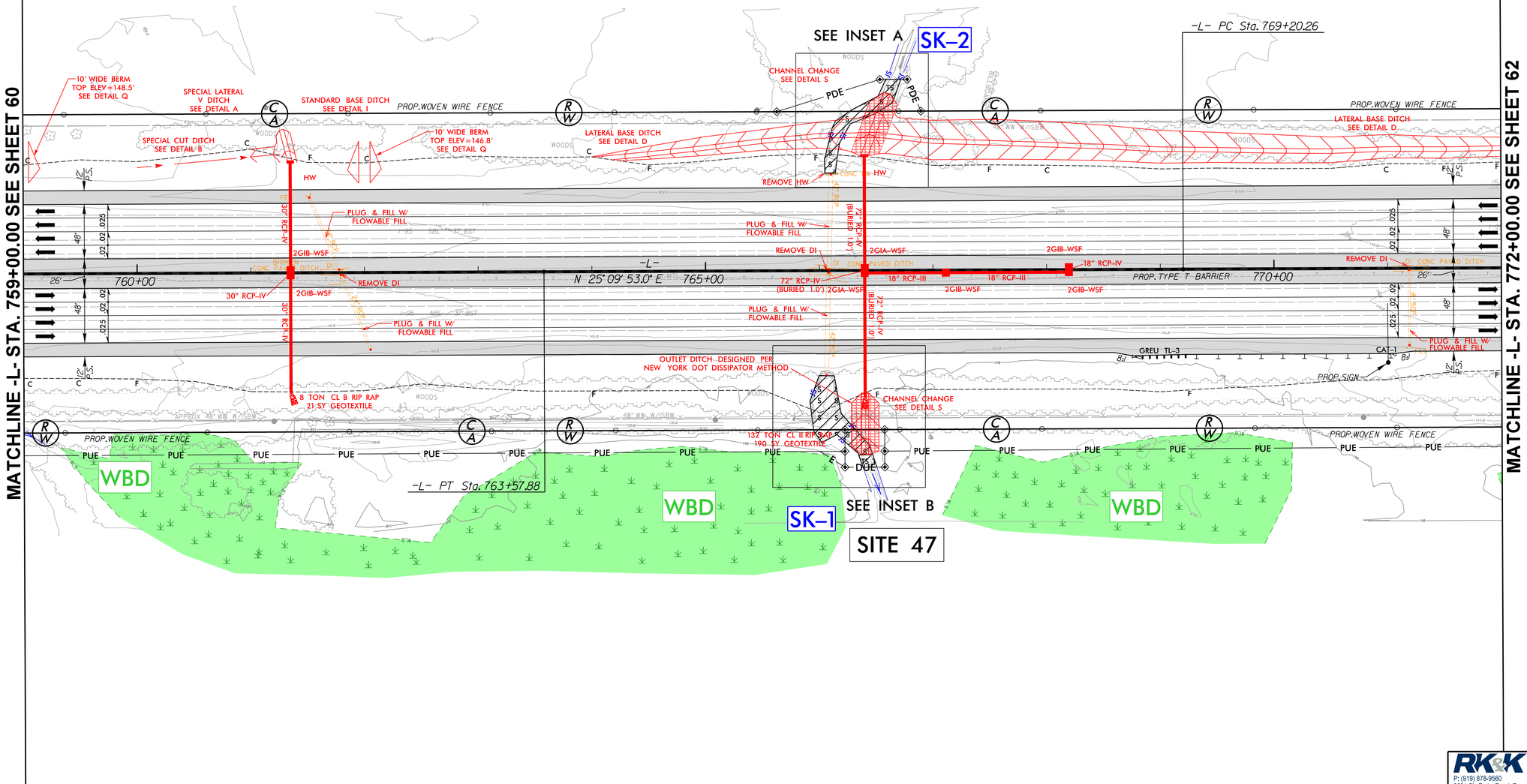
PERMIT DRAWING
SHEET 133 OF 163



INSET A



INSET B



FOR -L- PROFILES SEE SHTS. 142 & 143

FOR DITCH DETAILS SEE SHTS. 2D-5 THRU 2D-6

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Submitted 9/2/2020

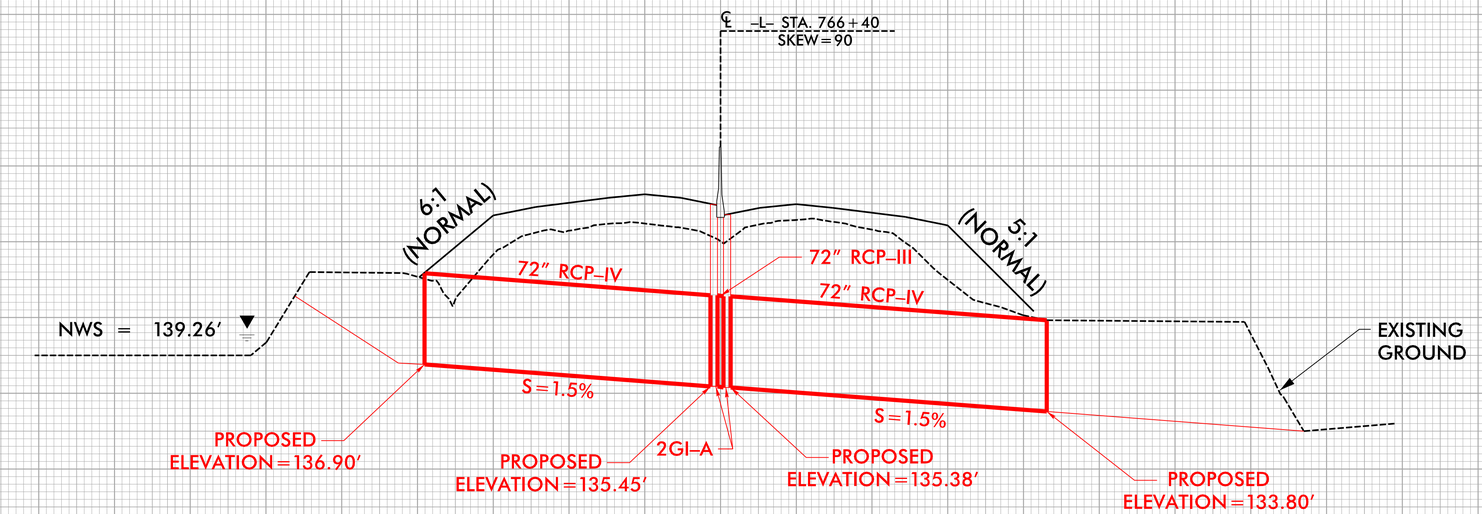
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SITE 47
–L– STA. 766+40

PERMIT DRAWING
SHEET 134 OF 163

ENGLISH



PROPOSED 72" RCP–IV
(buried 1.0')
(length=208')

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8/20/2020
K:\Hydraulics\PERMITS_Environmental\Drawings\4C\I-5986A_hyd_prm_wet_PFL_SITE47.dgn
Kathy

Submitted 9/2/2020

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	66
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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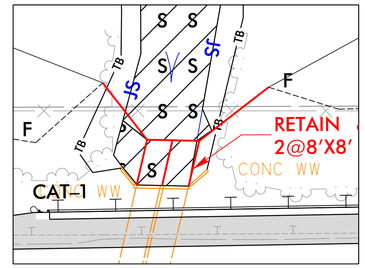
PERMIT DRAWING SHEET 135 OF 163

NAD 83/NA 2011



INSET A

BEGIN CONSTRUCTION
-Y5- POT Sta. 38+00.00

WCK

WCM

WCL

Q10 = 6.0 cfs
V10 = 0.75 f/s

SITE 49

SY-2

SY-1

PROP. WOVEN WIRE FENCE

RETAIN EXISTING C/A FENCE

REMOVE EXISTING GUIDERAIL

SEE INSET A

CHORD

LATERAL V DITCH
SEE DETAIL K

TOE PROTECTION
W/CL B RIPRAP
SEE DETAIL H

RETAIN & EXTEND
2@8'X8' RCBC

15" RCP

Adj. DI

S 60° 46' 48.1" E

NCDOT IRON/CAP

GREU TL-3

2GIB-WSF

CAT-1

CONC WW

PROP. SB-2

EXISTING R/W

48" WW & ISBW

36" C&G

24" BST

4" BST

11" BST

MTL

CABLE

I-295 WBL/GOLDSBORO RD 24" BST

I-295 EBL/GOLDSBORO RD 24" BST

35+00

40+00

45+00

MATCHLINE -Y5- STA. 49+00.00 SEE SHEET 67

SCALE FOR INSET: 25 0 25 50

SCALE: 50 25 0 50 100

ENGLISH

TS TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
S S	DENOTES IMPACTS IN SURFACE WATER
	DENOTES MECHANIZED CLEARING
F F	DENOTES FILL IN WETLAND

FOR -Y5LT- PROFILE SEE SHTS. 153 AND 154
FOR -Y5RT- PROFILE SEE SHTS. 153 AND 154

FOR DITCH DETAILS SEE SHTS. 2D-1 THRU 2D-2

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K:\Highways\Projects\PERMITS_Environmental\Drawings\48\Section 1\I-5986A_hyd_48_pst66.dgn
FLeggett

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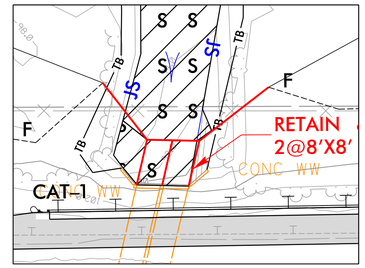
8/17/99

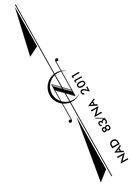
PROJECT REFERENCE NO.	SHEET NO.
I-5986A	66
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 136 OF 163



INSET A



BEGIN CONSTRUCTION
-Y5- POT Sta. 38+00.00

WCK

WCM

WCL

SY-2

SY-1

SITE 49

SEE INSET A

Q10 = 6.0 cfs
V10 = 0.75 ft/s

PROP. WOVEN WIRE FENCE

RETAIN EXISTING C/A FENCE

REMOVE EXISTING GUIDERAIL

LATERAL V DITCH
SEE DETAIL K

TOE PROTECTION
W/CL B RIPRAP
SEE DETAIL H

RETAIN & EXTEND
2@8'X8' RCBC
CONC WW

15" RCP
2GIB-WSF

PROP. SB-2

GREU TL-3

CAT-1

CHORD

EXISTING R/W

48" WW & ISBW

I-295 WBL/GOLDSBORO RD 24' BST

I-295 EBL/GOLDSBORO RD 24' BST

36" C&G

24' BST

4' BST

11' BST

MTL

CABLE

35+00

40+00

45+00

Adj. DI

S 60° 46' 48.1" E

NCDOT IRON/CAP

MATCHLINE -Y5- STA. 49+00.00 SEE SHEET 67

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

ENGLISH

TS TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
S S	DENOTES IMPACTS IN SURFACE WATER
	DENOTES MECHANIZED CLEARING
F F	DENOTES FILL IN WETLAND

FOR –Y5LT– PROFILE SEE SHTS. 153 AND 154
FOR –Y5RT– PROFILE SEE SHTS. 153 AND 154

FOR DITCH DETAILS SEE SHTS. 2D–1 THRU 2D–2

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K:\Hydraulics\PERMITS_Environmental\Drawings\48\Section 1\I-5986A_hyd_48_pst66_CON.dgn
Flesher, Jeffrey

Submitted 9/2/2020

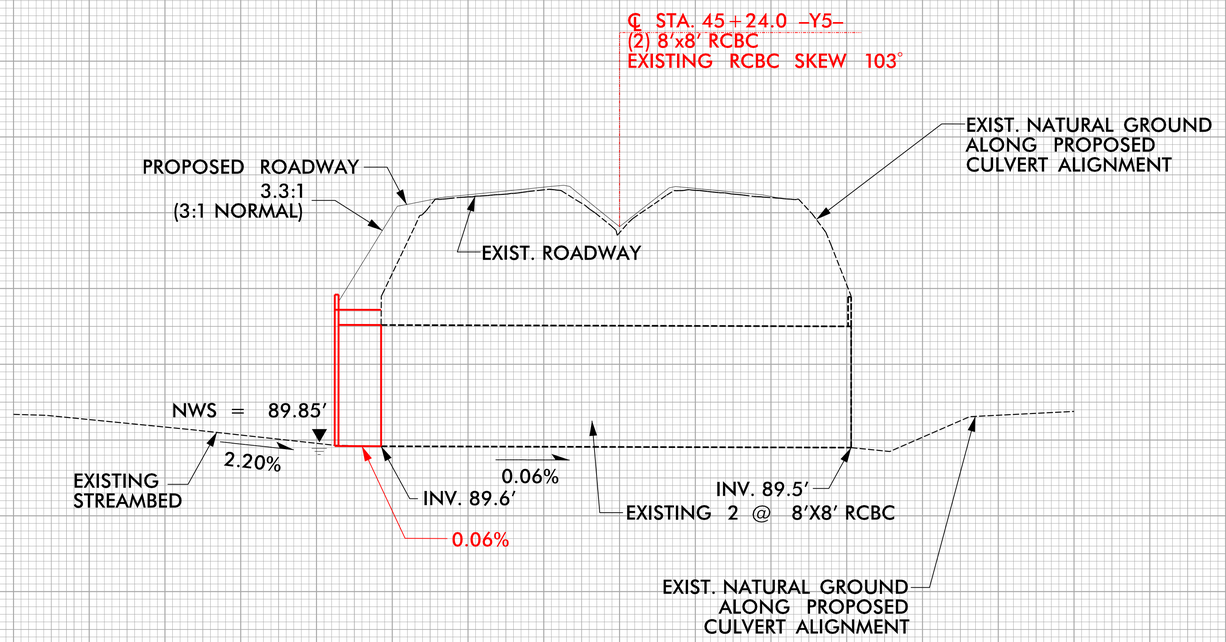
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SITE 49
–Y5– STA. 45+24

PERMIT DRAWING
SHEET 136A OF 163

ENGLISH



2 @ 8'X 8' RCBC EXTENSION
(not buried)
(length=170')

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K:\Hydraulics\PERMITS_Environmental\Drawings\4CV\I-5986A_hyd_prm_wet_PFL_SITE49.dgn
ElizabethLee

Submitted 9/2/2020

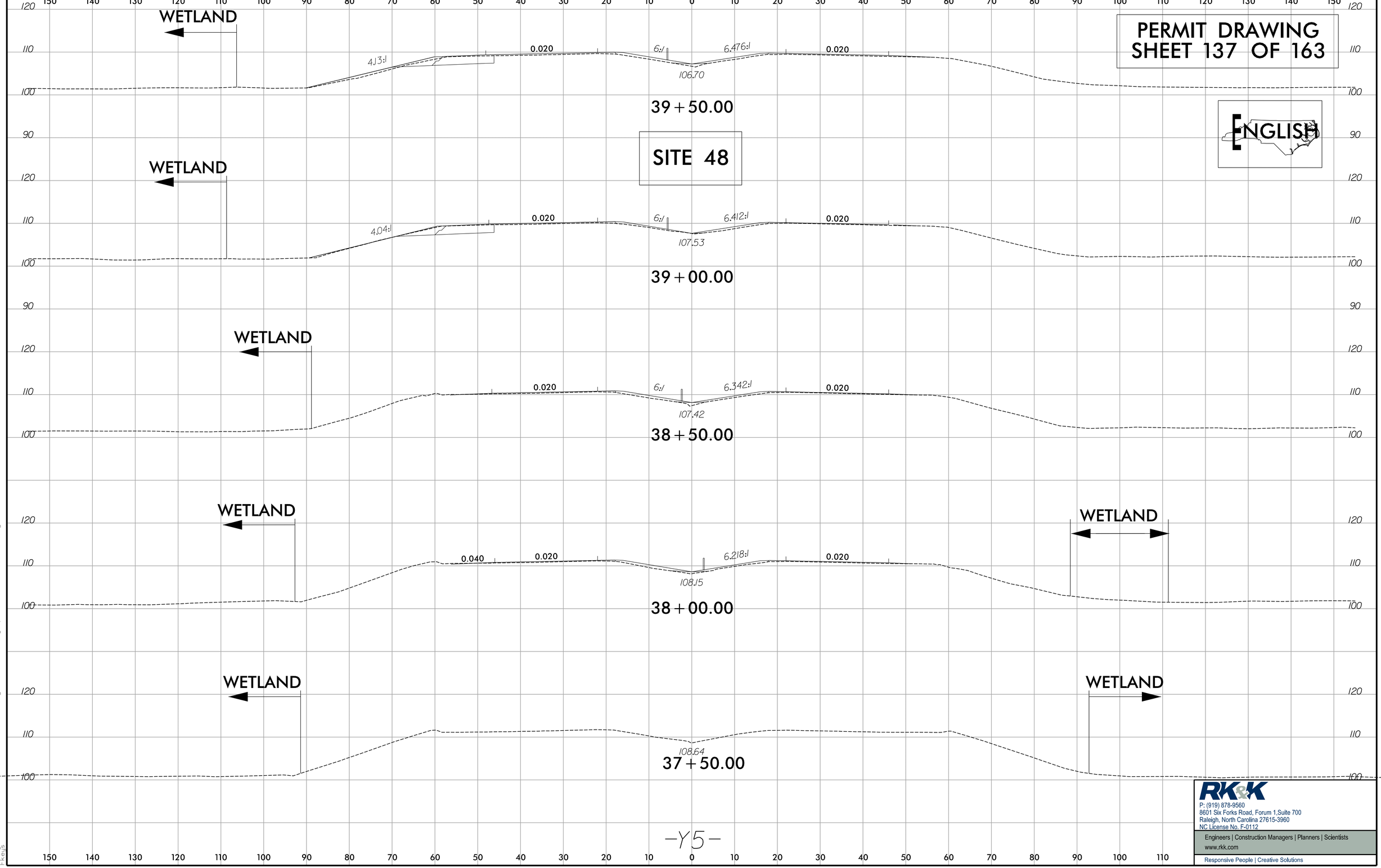
6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-5986A	S1 X-169

PERMIT DRAWING
SHEET 137 OF 163

ENGLISH

SITE 48



-Y5-

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RKK

Submitted 9/2/2020

8/17/99

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

ENGLISH

DENOTES TEMPORARY FILL IN WETLAND
DENOTES MECHANIZED CLEARING
DENOTES FILL IN WETLAND

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	67
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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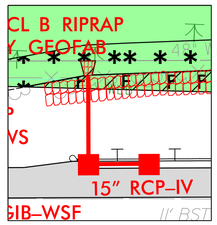
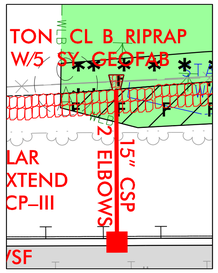
PERMIT DRAWING SHEET 138 OF 163

NAD 83/NA 2011

INSET A



INSET B



SITE 50

SITE 51

WCJ

WCI

WT

WT

WT

Q10=3.2 cfs
V10=0.64 ft/s

Q10=3.0 cfs
V10=0.63 ft/s

CHORD

PROP.WOVEN WIRE FENCE

TOE PROTECTION W/CL B RIPRAP SEE DETAIL H

SEE INSET A

SEE INSET B

1 TON CL B RIPRAP W/5 SY GEOFAB

15" CSP 2 ELBOWS

CAT-1

15" RCP-IV

2GIB-WSF

REMOVE SYSTEM

PROP. SBG

COLLAR AND EXTEND 24" RCP-III

EX. 24" EQUALIZER PIPE

EX. 24" RCP

RETAIN

RETAIN CB

RETAIN EXISTING SBG

GREU TL-3

RETAIN EXISTING C/A FENCE

STANDING WATER

WOODS

EXISTING R/W

R/W MON R&C

48" WW & ISDW

CABLE

NC 295

S 60° 51' 51.1" E

I-295 WBL/GOLDSBORO RD 24' BST

I-295 EBL/GOLDSBORO RD 24' BST

I-295 WBL/GOLDSBORO RD 38' BST

I-295 EBL/GOLDSBORO RD 38' BST

50+00

55+00

60+00

Adj. DI

FS

MATCHLINE -Y5- STA. 49+00.00 SEE SHEET 66

MATCHLINE -Y5- STA. 63+00.00 SEE SHEET 68

FOR –Y5LT– PROFILE SEE SHTS. 154 AND 155
FOR –Y5RT– PROFILE SEE SHTS. 154 AND 155
FOR DITCH DETAILS SEE SHTS. 2D–1 THRU 2D–2

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Ekeng

Submitted 9/2/2020

8/17/99

SCALE FOR INSET: 25 0 25 50

SCALE: 50 25 0 50 100

ENGLISH

DENOTES TEMPORARY FILL IN WETLAND

DENOTES MECHANIZED CLEARING

DENOTES FILL IN WETLAND

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	67
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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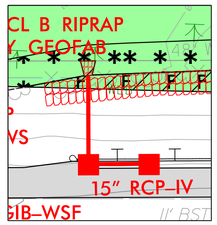
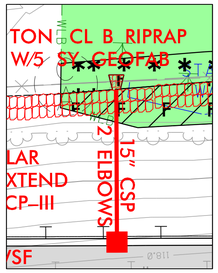
PERMIT DRAWING
SHEET 139 OF 163

NAD 83/NA 2011

INSET A



INSET B



SITE 50

SITE 51

WCJ

WCI

WT

WT

WT

PROP. WOVEN WIRE FENCE

RETAIN EXISTING C/A FENCE

TOE PROTECTION W/CL B RIPRAP SEE DETAIL H

SEE INSET A

SEE INSET B

Q10=3.2 cfs
V10=0.64 ft/s

Q10=3.0 cfs
V10=0.63 ft/s

1 TON CL B RIPRAP W/5 SY GEOFAB

15" CSP 2 ELBOWS

15" RCP–IV

2GIB–WSF

CAT–1

REMOVE SYSTEM

PROP. SBG

COLLAR AND EXTEND 24" RCP–III

24" RCP EQUALIZER PIPE

RETAIN EX. 24" EQUALIZER PIPE

RETAIN EX. 21" EQUALIZER PIPE

RETAIN CB

GREU TL–3

RETAIN EXISTING SBG

STANDING WATER

NC 295

S 60° 51' 51.1" E

I-295 WBL/GOLDSBORO RD 24' BST

I-295 EBL/GOLDSBORO RD 24' BST

I-295 WBL/GOLDSBORO RD 38' BST

I-295 EBL/GOLDSBORO RD 38' BST

50+00

55+00

60+00

Adj. DI

FS

CABLE

WOODS

EXISTING R/W

R/W MON R&C

48" WW & 15" SDW

CHORD

MATCHLINE -Y5- STA. 49+00.00 SEE SHEET 66

MATCHLINE -Y5- STA. 63+00.00 SEE SHEET 68

FOR –Y5LT– PROFILE SEE SHTS. 154 AND 155
FOR –Y5RT– PROFILE SEE SHTS. 154 AND 155
FOR DITCH DETAILS SEE SHTS. 2D–1 THRU 2D–2

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Ekeys

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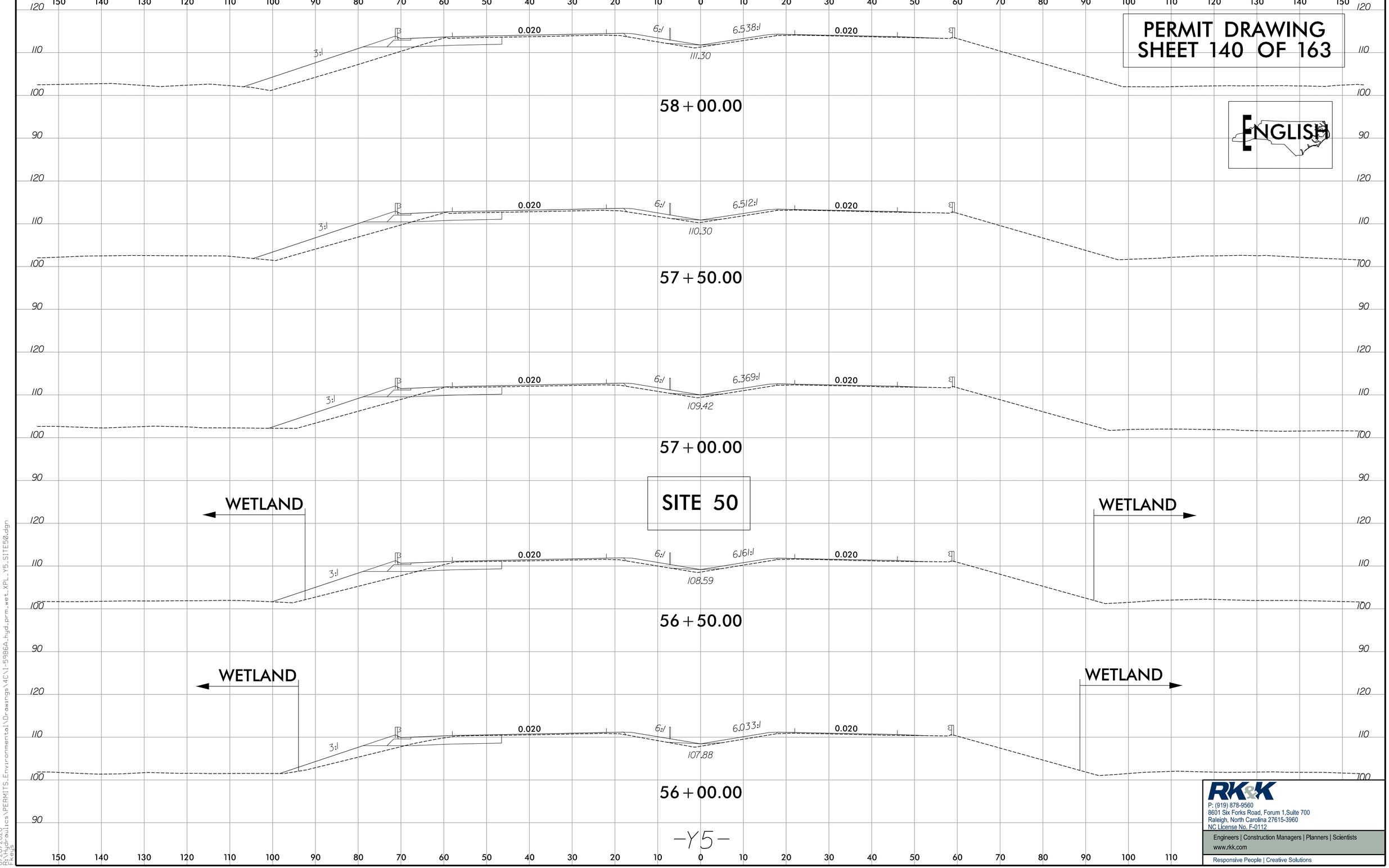
6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-5986A	S1 X-176

PERMIT DRAWING SHEET 140 OF 163

ENGLISH



-Y5-

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Plotted

Submitted 9/2/2020

SCALE FOR INSET

50 25 0 50 100

SCALE

100 50 0 100 200

ENGLISH

DENOTES TEMPORARY FILL IN WETLAND

DENOTES MECHANIZED CLEARING

DENOTES FILL IN WETLAND

INSET A

INSET B

INSET C

DUNN RD.

SITE 51

SITE 52

SITE 53

WCI

WT

WU

WR

WS

SEE INSET A

SEE INSET B

SEE INSET C

PROP. WOVEN WIRE FENCE

RETAIN EXISTING C/A FENCE

REMOVE EXISTING GUIDERAIL

MATCHLINE -Y6- STA. 63+00.00 SEE SHEET 67

MATCHLINE -Y6RPA- STA. 47+50.00 SEE SHEET 20

MATCHLINE -Y6- STA. 90+00.00 SEE SHEET 20

MATCHLINE -Y5FLY- STA. 38+00.00 SEE SHEET 20

MATCHLINE -Y5RPB- 22+00.00 SEE SHEET 19

PROJECT REFERENCE NO. 7-59864 | SHEET NO. 68

R/W SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 141 OF 163

FOR –Y14– PROFILE SEE SHT. 152
FOR –Y5LT– PROFILE SEE SHTS. 155 THRU 157
FOR –Y5RT– PROFILE SEE SHTS. 155 THRU 157
FOR –Y5RPA– PROFILE SEE SHT. 162
FOR –Y5SPURA– PROFILE SEE SHT. 163
FOR –Y5RPB– PROFILE SEE SHT. 164
FOR –Y5LPD– PROFILE SEE SHT. 168
FOR –Y5FLY– PROFILE SEE SHTS. 169 AND 170
FOR DITCH DETAILS SEE SHTS. 2D-1 THRU 2D-2

GRAPHIC SCALE
50 25 0 50
PLANS

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Submitted 9/2/2020

SCALE FOR INSET

50 25 0 50 100

SCALE FOR INSET

100 50 0 100 200

ENGLISH

DENOTES TEMPORARY FILL IN WETLAND

DENOTES MECHANIZED CLEARING

DENOTES FILL IN WETLAND

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	68
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 142 OF 163

INSET A

INSET B

INSET C

DUNN RD.

SITE 51

SITE 52

SITE 53

WCI

WT

WU

WR

WS

MATCHLINE -Y6- STA. 63+00.00 SEE SHEET 67

MATCHLINE -Y6- STA. 90+00.00 SEE SHEET 20

MATCHLINE -Y6FLY- STA. 38+00.00 SEE SHEET 20

MATCHLINE -Y6RPA- STA. 47+50.00 SEE SHEET 20

MATCHLINE -Y5RPB- 22+00.00 SEE SHEET 19

PROP. WOVEN WIRE FENCE

RETAIN EXISTING C/A FENCE

REMOVE EXISTING GUIDERAIL

S 67° 54' 54" E

S 57° 14' 23" E

S 48° 43' 27" E

S 77° 25' 13" W

S 69° 59' 17" W

S 28° 47' 13" W

N 47° 31' 55" E

FOR –Y14– PROFILE SEE SHT. 152	
FOR –Y5LT– PROFILE SEE SHTS. 155 THRU 157	
FOR –Y5RT– PROFILE SEE SHTS. 155 THRU 157	
FOR –Y5RPA– PROFILE SEE SHT. 162	
FOR –Y5SPURA– PROFILE SEE SHT. 163	
FOR –Y5RPB– PROFILE SEE SHT. 164	
FOR –Y5LFD– PROFILE SEE SHT. 168	
FOR –Y5FLY– PROFILE SEE SHTS. 169 AND 170	
FOR DITCH DETAILS SEE SHTS. 2D-1 THRU 2D-2	

GRAPHIC SCALE
50 25 0 50
PLANS

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10:42:46 AM

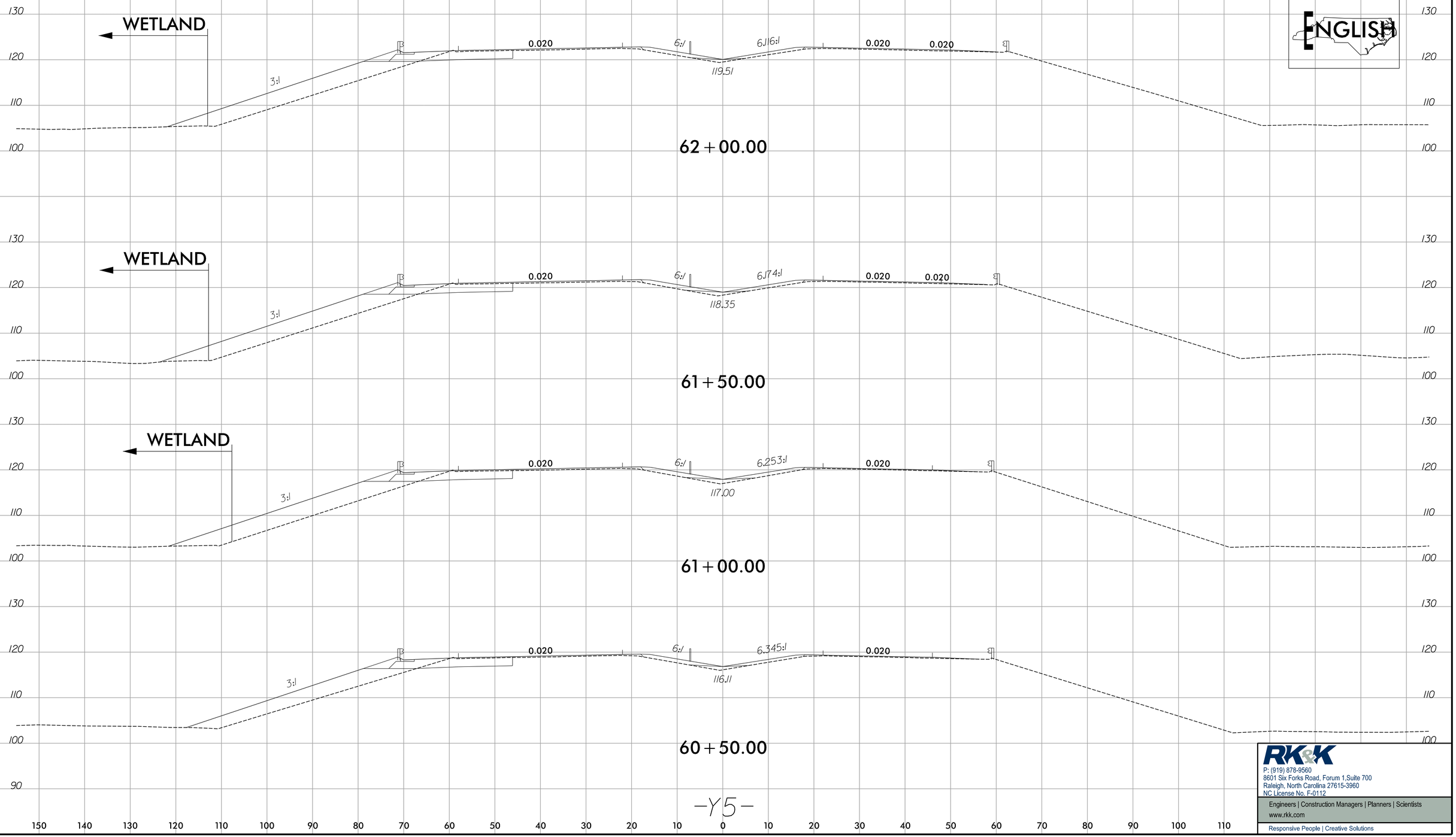
Submitted 9/2/2020

PROJ. REFERENCE NO.	SHEET NO.
I-5986A	S1 X-178

SITE 51

PERMIT DRAWING
SHEET 143 OF 163

ENGLISH



-Y5-

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Submitted 9/2/2020

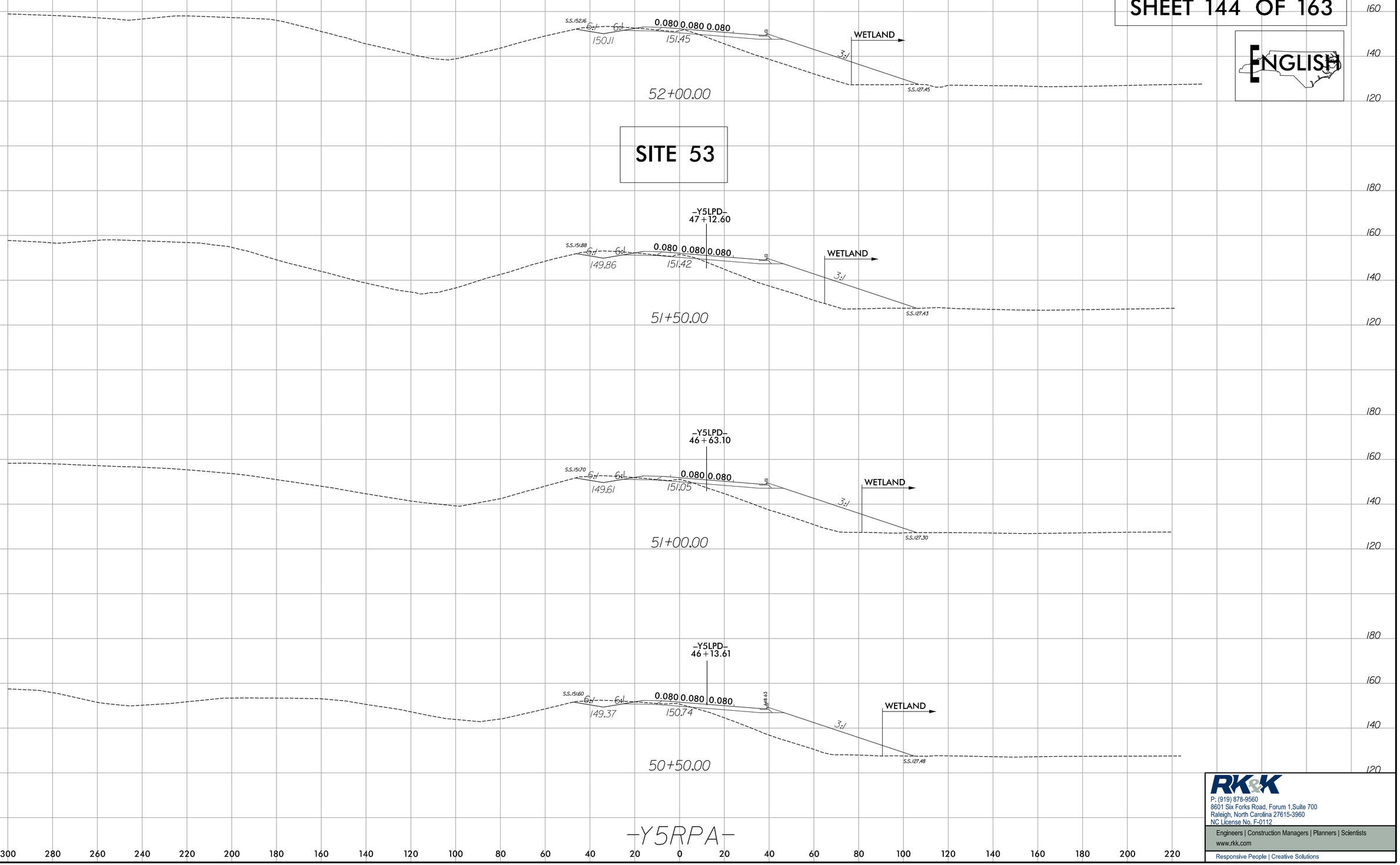
6/23/16

0 10 20	PROJ. REFERENCE NO.	SHEET NO.
	I-5986A	S1 X-230

PERMIT DRAWING
SHEET 144 OF 163

ENGLISH

SITE 53



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Plotted

Submitted 9/2/2020

8/17/99

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

ENGLISH

DENOTES TEMPORARY FILL IN WETLAND

PERMIT DRAWING
SHEET 145 OF 163

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	69
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NA 2011

BEGIN CONSTRUCTION
BEGIN OVERLAY
–Y4– POT Sta. 10+28.01

SITE 54 WS

SITE 54A

SITE 54B

PIPE CLEAN OUT

PIPE CLEAN OUT

RETAIN EXISTING SBG

PEMBROKE LN.

SR 1863 PEMBROKE LN

S 58°10'55.0" E

S 57°47'48.1" E

N 37°31'59.5" E

25+00

15+00

20+00

–Y4–

–Y14–

GREU TL-3

GREU TL-2

TO FLEA HILL RD (SR 1835)

N 52°57'34" W
193.22'

S 37°02'26" W
206.56'

RETAIN 6' RCP

RETAIN 24" RCP

RETAIN 42" RCP

RETAIN SYSTEM

RETAIN 24" C&G

RETAIN 42" C&G

RETAIN 36" C&G

RETAIN 6' BST

RETAIN 24" BST

RETAIN 42" BST

RETAIN 6' MTL

RETAIN 24" MTL

RETAIN 42" MTL

RETAIN 42" RCP

RETAIN 24" RCP

RETAIN 15" RCP

RETAIN 24" CMP

RETAIN 15" CMP

RETAIN 42" CMP

RETAIN 24" SBW

RETAIN 42" SBW

RETAIN 24" SBG

RETAIN 42" SBG

RETAIN 24" SSMH

RETAIN 42" SSMH

Submitted 9/2/2020

8/17/99

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

ENGLISH

DENOTES TEMPORARY FILL IN WETLAND

PERMIT DRAWING
SHEET 146 OF 163

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	69
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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NAD 83/NA 2011

BEGIN CONSTRUCTION
BEGIN OVERLAY
–Y4– POT Sta. 10+28.01

SITE 54 WS

SITE 54A

SITE 54B

PEMBROKE LN.

–Y4–

–Y14–

25+00 N 37° 31' 59.5" E

15+00 S 58° 10' 55.0" E

20+00 S 57° 47' 48.1" E

SR 1838 (DUNN RD)

SR 1863 (PEMBROKE LN)

TO FLEA HILL RD (SR 1835)

GREU TL-3

GREU TL-2

RETAIN EXISTING SBG

RETAIN

PIPE CLEAN OUT

WETLAND

WOODS

FIELD

2 S BRK B

N 52°57'34" W 193.22'

S 37°02'26" W 206.36'

MATCHLINE -Y4- 21+00.00 SEE SHEET 19

FOR –Y4– PROFILE SEE SHT. 150

FOR DITCH DETAILS SEE SHTS. 2D–1 THRU 2D–2

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6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	X-XXXX	X-1

SITE 54A

PERMIT DRAWING
SHEET 147 OF 163

ENGLISH

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

150
140
130
120

WETLAND

146.39

16 + 50.00

WETLAND

144.37

16 + 00.00

WETLAND

142.28

15 + 50.00

140.32

15 + 00.00

-Y4-

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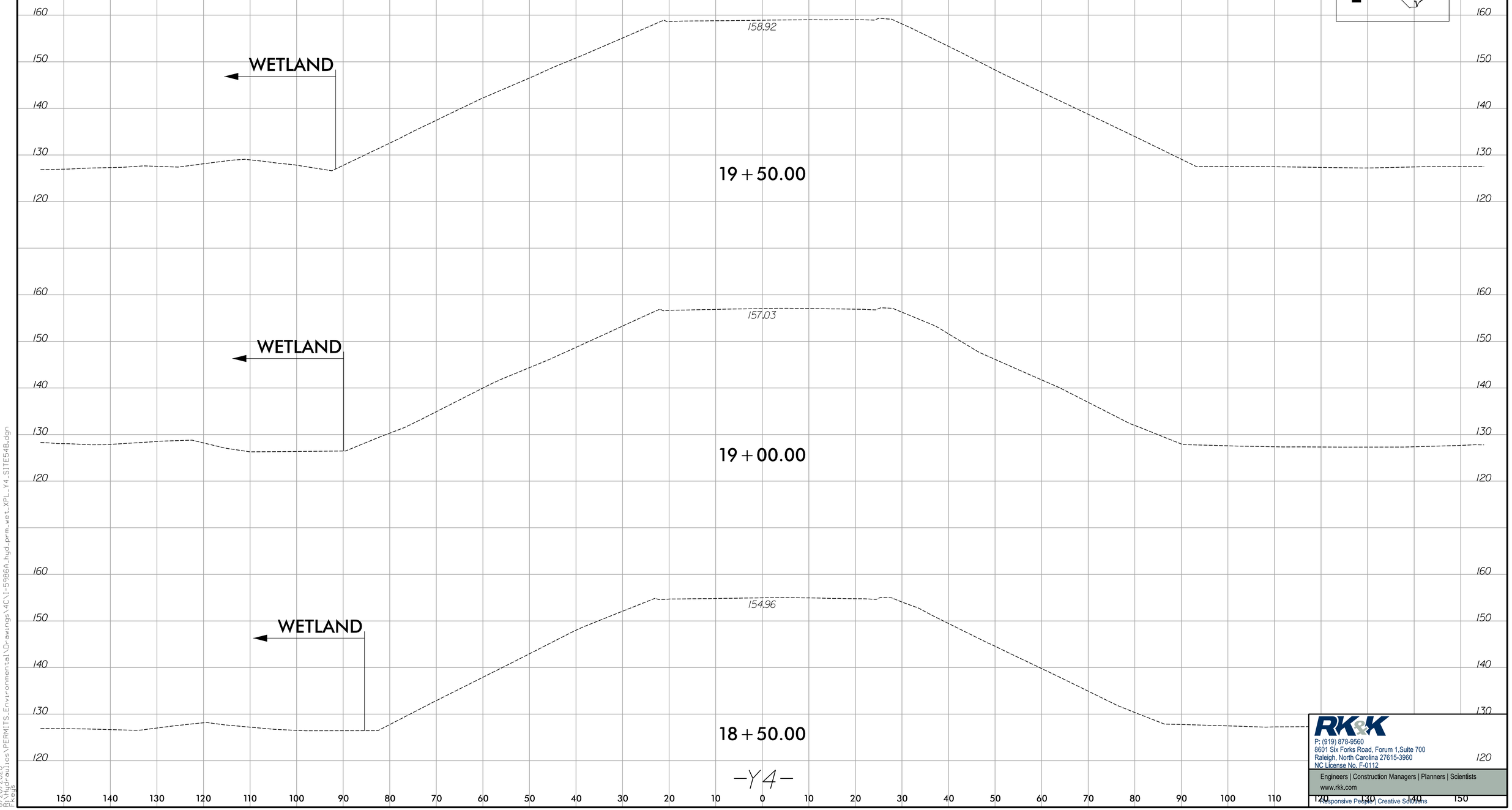
6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	X-XXXX	X-3

SITE 54B

PERMIT DRAWING
SHEET 148 OF 163

ENGLISH



-Y4-

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F.Kelly

Submitted 9/2/2020

REVISIONS

50 0 50 100
SCALE FOR INSET

100 0 100 200
SCALE

ENGLISH

DENOTES MECHANIZED CLEARING

DENOTES FILL IN WETLAND

NAD 83/NA 2011

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	70
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING
SHEET 149 OF 163

MATCHLINE -Y4- STA. 39+00.00 SEE SHEET 19

WO SITE 15

WN SITE 16

INSET A

PEMBROKE LN.

DESIGN SUBJECT TO CHANGE PENDING COORDINATION WITH THE DEVELOPER

MATCHLINE -Y5- STA. 105+00.00 SEE SHEET 20

WV

END CONSTRUCTION
-YSB- POT Sta. 26+66.96

WCE SITE 55

WCE SITE 56

NCDOT RIGHT OF WAY DB 9368 PG 365

PW DEED DB 5221 PG 0

MATCHLINE -Y5B- STA. 15+00.00 SEE SHEET 71

INSET A

EXISTING SBG

TOE PROTECTION W/CL B RIPRAP SEE DETAIL H

PLUG & FILL W/FLOWABLE FILL

REMOVE SYSTEM

GREU TL-3

PEMBROKE LN.

NOTE: ALL DRIVES ARE 16' WIDE WITH 10' RADII UNLESS OTHERWISE NOTED

PAVEMENT REMOVAL

CONCRETE TRUCK APRON

FOR –DR3– PROFILE SEE SHT. 152
FOR –Y4– PROFILE SEE SHT. 151
FOR –Y4A– PROFILE SEE SHT. 152
FOR –YSLT– PROFILE SEE SHT. 158
FOR –YSRT– PROFILE SEE SHT. 158
FOR –YSA– PROFILE SEE SHT. 159
FOR –YSB– PROFILE SEE SHT. 159
FOR –YSC– PROFILE SEE SHT. 160
FOR –YSRAB– PROFILE SEE SHT. 160

FOR DITCH DETAILS SEE SHTS. 2D-1 THRU 2D-2

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REVISIONS

50 0 50 100
SCALE FOR INSET

100 0 100 200
SCALE

ENGLISH

DENOTES MECHANIZED CLEARING

DENOTES FILL IN WETLAND

NAD 83/NA 2011

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	70
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 150 OF 163

MATCHLINE -Y4- STA. 39+00.00 SEE SHEET 19

WO SITE 15

WN SITE 16

INSET A

PEMBROKE LN.

DESIGN SUBJECT TO CHANGE PENDING COORDINATION WITH THE DEVELOPER

MATCHLINE -Y5- STA. 105+00.00 SEE SHEET 20

WV

END CONSTRUCTION
-YSB- POT Sta. 26+66.96

WCE

SITE 55

SITE 56

NCDOT RIGHT OF WAY DB 9368 PG 365

RW DEED DB 5221 PG 51

INSET A

EXISTING SBG

TOE PROTECTION W/CL B RIPRAP SEE DETAIL H

PLUG & FILL W/FLOWABLE FILL

REMOVE SYSTEM

PEMBROKE LN.

GREU TL-3

MATCHLINE -YSB- STA. 15+00.00 SEE SHEET 71

NOTE: ALL DRIVES ARE 16' WIDE WITH 10' RADII UNLESS OTHERWISE NOTED

PAVEMENT REMOVAL

CONCRETE TRUCK APRON

FOR –DR3– PROFILE SEE SHT. 152
FOR –Y4– PROFILE SEE SHT. 151
FOR –Y4A– PROFILE SEE SHT. 152
FOR –YSLT– PROFILE SEE SHT. 158
FOR –YSRT– PROFILE SEE SHT. 158
FOR –YSA– PROFILE SEE SHT. 159
FOR –YSB– PROFILE SEE SHT. 159
FOR –YSC– PROFILE SEE SHT. 160
FOR –YSRAB– PROFILE SEE SHT. 160

FOR DITCH DETAILS SEE SHTS 2D-1 THRU 2D-2

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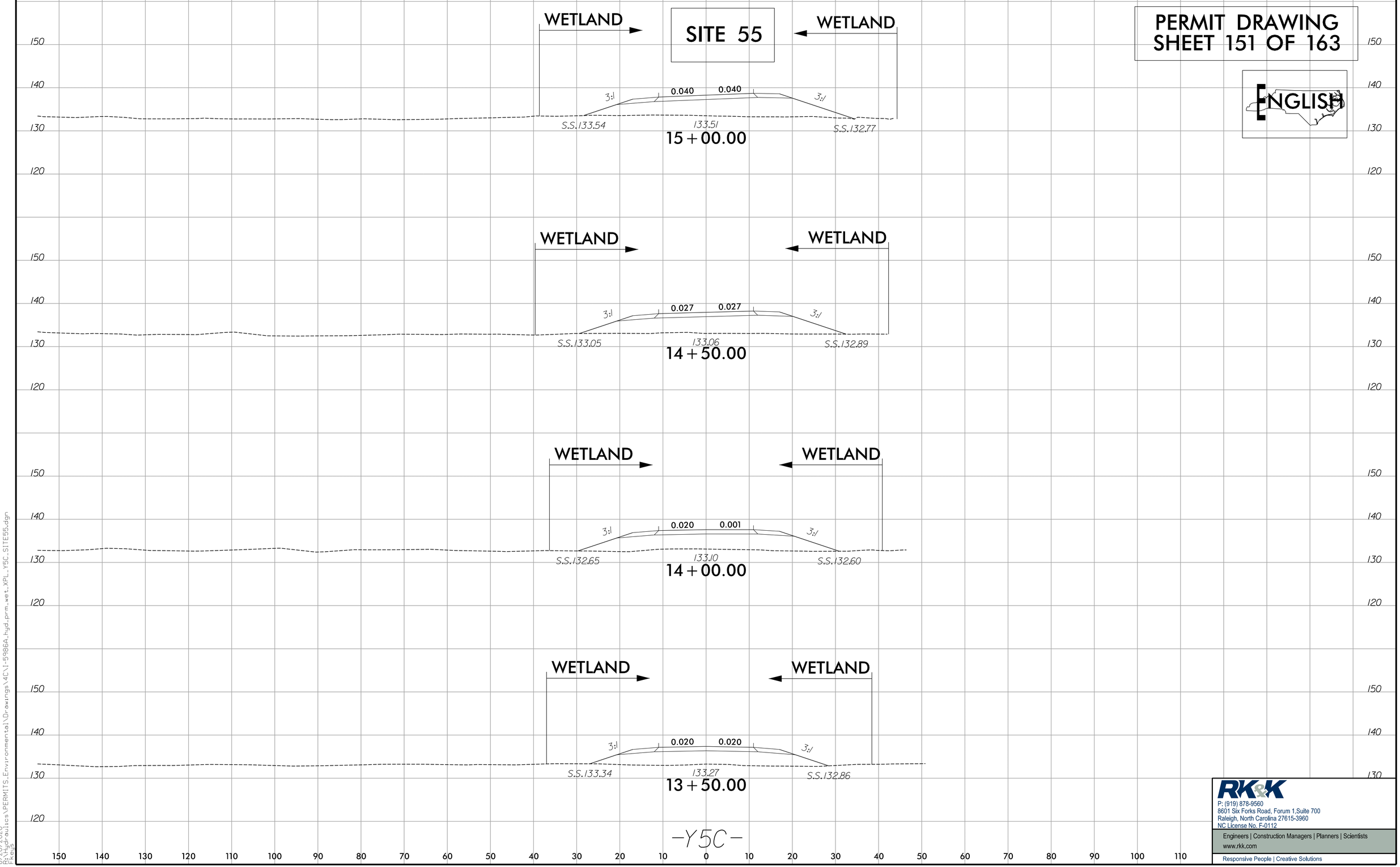
	I-5986A	S1 X-214

PERMIT DRAWING
SHEET 151 OF 163

ENGLISH

SITE 55



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FLeigh

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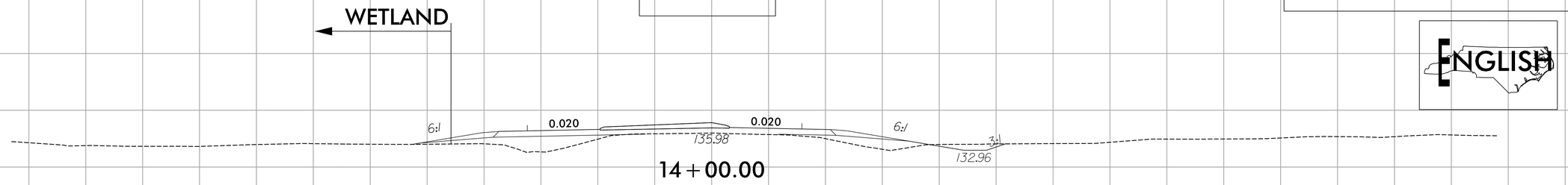
6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	I-5986A	S1 X-210

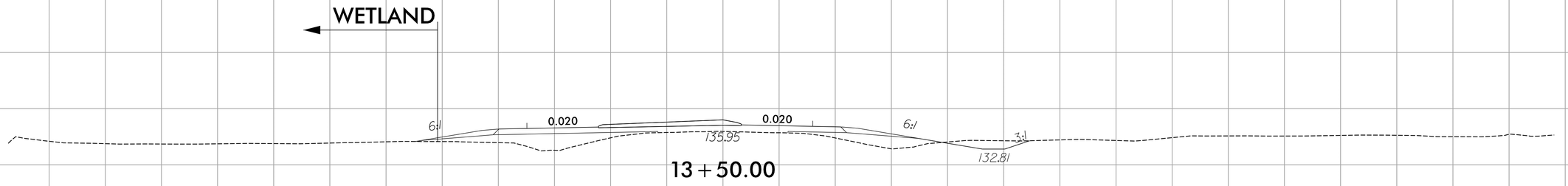
SITE 56

PERMIT DRAWING
SHEET 152 OF 163

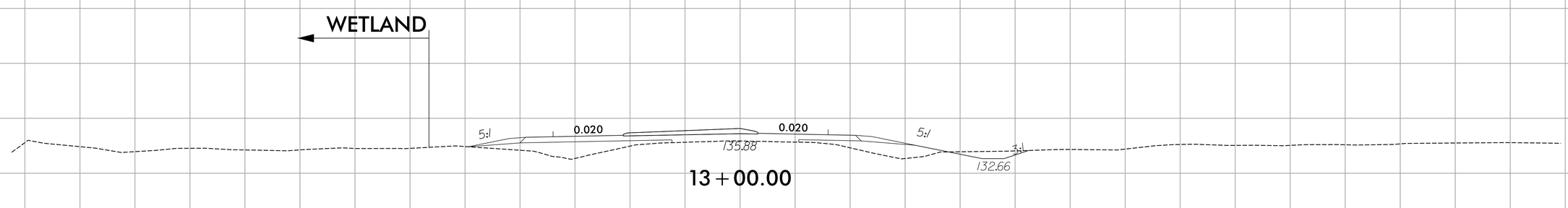
ENGLISH



14+00.00



13+50.00



13+00.00

12+50.00

-Y5B-

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Submitted 9/2/2020

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PROJECT REFERENCE NO.	SHEET NO.
I-5986A	

PERMIT DRAWING
SHEET 153 OF 163

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	71
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 154 OF 163

NAD 83/NA 2011

END CONSTRUCTION
–Y5B– POC Sta. 18+65.00

MATCHLINE -Y5B- STA. 15+00.00 SEE SHEET 70

NCDOT RIGHT OF WAY
DB 9368 PG 365

WCE

SITE 56

PROP. WOVEN WIRE FENCE

TOE PROTECTION
W/CL B RIPRAP
SEE DETAIL H

CHORD
CUTOVER

RW

CA

PUE

15+00

–Y5B–

N 85° 24' 23.8" E

GOLDSBORO RD
28' BST

TO JAMES DAIL RD (SR 1828)

Century Link Century Link Century Link

PVC, Town Of Eastover

20+00

25+00

N 88° 56' 18.6" E

S 64°42'
125.17'

N 0°32'27" W
368.41'

S 08°34'27" E
532.47'

S 37°07'29" E
517.88'

N 87°46'33" E
50.00'

N 1°58'06" W
104.55'

WOODS

14" PIN

ECM
15" RCP
OS

BK STEPS

WD DK

SFRKD

CONC

S.03' R/W-EIP

REMOVE
EXIST
CULVERT

SP. CUT 4' BASE DITCH
SEE DETAIL F

EIP

50 25 0 50 100
SCALE

ENGLISH

DENOTES MECHANIZED CLEARING

NOTE: ALL DRIVES ARE 16' WIDE WITH 10' RADII UNLESS OTHERWISE NOTED

FOR –Y5B– PROFILE SEE SHT. 159

FOR DITCH DETAILS SEE SHTS. 2D–1 THRU 2D–2

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PROJECT REFERENCE NO.	SHEET NO.
I-5986A	71
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 155 OF 163

NAD 83/NA 2011

END CONSTRUCTION
–Y5B– POC Sta. 18+65.00

MATCHLINE -Y5B- STA. 15+00.00 SEE SHEET 70

NCDOT RIGHT OF WAY
DB 9368 PG 365

WCE

SITE 56

PROP. WOVEN WIRE FENCE

TOE PROTECTION
W/CL B RIPRAP
SEE DETAIL H

CHORD
CUTOVER

REMOVE

SP. CUT 4' BASE DITCH
SEE DETAIL F

PUE

15+00 –Y5B– 20+00 25+00

N 85° 24' 23.8" E

N 88° 56' 18.6" E

GOLDSBORO RD 28' BST

TO JAMES DAIL RD (SR 1828)

Century Link Century Link

Town of Eastover

BK STEPS

WOODS

15" RCP

S 64°46'33" E 125.17'

S 37°07'29" E 517.88'

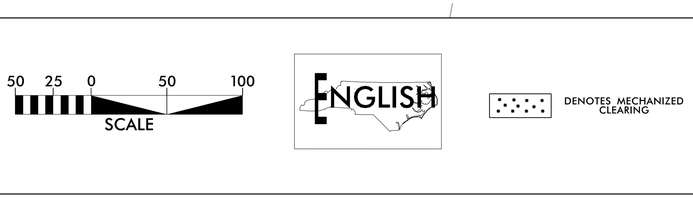
N 01°52'27" W 368.41'

S 08°34'27" E 532.47'

N 87°46'33" E 50.00'

N 75°58'00" W 104.61'

S 03° R/W-EIP



DENOTES MECHANIZED CLEARING

NOTE: ALL DRIVES ARE 16' WIDE WITH 10' RADII UNLESS OTHERWISE NOTED

FOR –Y5B– PROFILE SEE SHT. 159

FOR DITCH DETAILS SEE SHTS. 2D–1 THRU 2D–2

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WETLAND AND SURACE WATER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND 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)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	-LSB- 61+50 LT	Bank Stabilization: DC						0.001	0.002	8	20	
2	-LSB- 72+00 RT	Headwall, 66" WSP: SV-2, WCB	0.003	0.038				0.001	0.007	6	41	
	-LNB- 71+75 LT	Bank Stabilization: SV-1						0.008	0.010	19	19	
3	-LNB- 89+16 LT & RT	Pipe clean out: WA, WB		0.006								
	-LSB- 88+37 - 95+69 LT	Roadway Fill, 18" RCP: WA	0.001	0.006		0.018						
4	-LSB- 101+16 LT	30" WSP: SA, WC	0.001	0.033				0.004	0.003	18	23	
	-LSB- 99+00 LT	30" WSP: WA	0.002	0.027								
5	-YINB- 32+80 RT	66" WSP: WB	0.009	0.034								
6	-YINB- 39+39 LT	36" WSP: WD	0.001	0.039								
	-YINB- 38+02 RT	36" WSP: WB	0.004	0.050								
7	-L- 92+02 - 100+05 LT	Roadway Fill: WH	0.231									
8	-L- 90+87 - 91+10 RT	Ditch: WE			0.024							
TOTALS*:			**0.252**	**0.232**	**0.024**	**0.018**	**0.000**	**0.01**	**0.02**	**51**	**103**	**0**

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
8/21/2020
Cumberland / Harnett Counties
I-5986A / I-5877

Submitted 9/2/2020

WETLAND AND SURACE WATER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: Permanent Fill In Wetlands (ac)	WETLAND IMPACTS: Temp. Fill In Wetlands (ac)	WETLAND IMPACTS: Excavation in Wetlands (ac)	WETLAND IMPACTS: Mechanized Clearing in Wetlands (ac)	WETLAND IMPACTS: Hand Clearing in Wetlands (ac)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	SURFACE WATER IMPACTS: Temp. SW impacts (ac)	SURFACE WATER IMPACTS: Existing Channel Impacts Permanent (ft)	SURFACE WATER IMPACTS: Existing Channel Impacts Temp. (ft)	SURFACE WATER IMPACTS: Natural Stream Design (ft)
9	-L- 94+37 - 100+20 RT	Roadway Fill, Ditch: WF	0.135		0.021							
	-L- 100+28 RT	2 @ 36" RCP: SB						0.011	0.001	63	10	
10	-L- 108+26 - 114+34 LT	Roadway Fill: WI	0.076									
11	-L- 118+98 - 133+53 LT	Roadway Fill: WJ	0.531			0.045						
12	-L- 121+32 - 127+67 RT	Roadway Fill, Ditches: WL	0.204	0.066	0.020	0.143						
13	-L- 186+79 - 187+53 LT	Roadway Fill: WR	0.020			0.013						
14	-L- 192+15 - 193+26 LT	Ditch: WR		0.021		0.001						
15	-L- 190+05 RT	42" RCP: WO	0.004			0.006						
	-L- 192+05 RT	Roadway Fill: WO	0.001			0.006						
	-Y5RPC- 13+02 - 21+32 RT	Roadway Fill, 66" RCP: Baker Swamp 2, WO	0.136	0.034		0.165		0.018		60		
	-Y4- 37+50 LT	54" WSP: WO	0.001	0.037								
	-Y4- 40+69 to 43+01 LT	Prop Roadway Fill: WO	0.019			0.053						
TOTALS*:			**1.127**	**0.157**	**0.041**	**0.432**	**0.000**	**0.03**	**0.00**	**123**	**10**	**0**

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
8/21/2020
Cumberland / Harnett Counties
I-5986A / I-5877

Submitted 9/2/2020

WETLAND AND SURACE WATER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND 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)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
16	-Y4- 36+25 RT	54" WSP: Baker Swamp 1, WN Structure Stabilization	0.006	0.025				0.004	0.013	15	34	
	-Y4- 40+32 to 42+06 RT	Roadway Fill: WN	0.035			0.042						
17	-L- 199+16 - 200+49 LT	Prop Roadway Fill - WQ	0.057			0.072						
	-L- 201+67 LT	Rip Rap Outlet Pad - WQ	0.002	0.009								
18	-L- 198+56 - 203+59 RT	Roadway Fill, 60" RCP, 66" RCP: Baker Swamp 3, WP	0.106	0.002		0.066		0.010	0.006	23	13	
	-Y5- 99+16 LT	66" WSP: Baker Swamp 3, WP Structure Stabilization	0.001	0.004				0.007	0.012	22	28	
19	-Y5LPD- 37+73 - 40+14 LT & RT	Roadway Fill: WCG*	0.857									
20	-Y5LPD- 22+86 - 24+53 LT & RT	Roadway Fill: WX	0.402			0.034						
21	-Y5RPD- 14+97 - 18+86 RT	Roadway Fill: WV	0.225			0.020						
22	-Y5FLY- 57+08 - 62+55 LT & RT & -Y5LPD- 18+96 - 21+42 LT & RT	Roadway Fill: WW**	2.663			0.176						
23	-L- 252+34	2 @ 8'x8' RCBC: SC-1, SC-2						0.063	0.006	270	38	
TOTALS*:			**4.353**	**0.040**	**0.000**	**0.411**	**0.000**	**0.08**	**0.04**	**330**	**113**	**0**

*Rounded totals are sum of actual impacts

NOTES:

* Site 19: Area shown in impact table is a total take. Actual impact area is 0.772 acres.

** Site 22: Area shown in impact table is a total take inside -Y5LPD-. Actual impact area is 2.610 acres.

Submitted 9/2/2020

WETLAND AND SURACE WATER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND 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)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
24	-L- 304+15	3 @ 10'x8' RCBC, Roadway Fill, Ditch: SD-1, SD-2, WZ, WY	0.056	0.047	0.089	0.080		0.128	0.058	197	26	
	-L- 302+20 RT	Roadway Fill, Ditch: WY		0.004		0.002						
	-L- 306+80 LT	Ditch: WZ		0.010								
	-L- 307+30 RT	Ditch: WY		0.005								
25	-L- 355+00	10'x7' RCBC: SE-1, SE-2, WAB		0.002	0.003			0.017	0.003	135	25	
	-L- 357+75 RT	Ditch: WAB		0.008								
26	-Y7RPC- 17+51 - 24+28 Lt & RT	Roadway Fill: WAC	0.654	0.017		0.151						
27	-Y7RPA 16+97 RT - -L- 392+99 LT	Roadway Fill: WAF	0.284									
28	-SR3 - 34+13 - 35+87 LT	Roadway Fill: WAG	0.047	0.005		0.039						
29	-L- 405+65 LT	2 @ 48" RCP, Ditch: WAH		0.009	0.027							
30	-L- 422+50	12'x6' RCBC: SF, WAK, WAI	0.008	0.074	0.090			0.030	0.003	103	8	
	'-L- 422+46 - 437+14 RT	Roadway Fill, Ditch: WAI	0.488		0.012	0.037						
	-L- 422+85 - 436+87 LT	Roadway Fill: WAK	0.624			0.015						
	-L- 425+50 LT	Ditch: WAK		0.014								
TOTALS*:			**2.161**	**0.192**	**0.221**	**0.322**	**0.000**	**0.17**	**0.06**	**435**	**59**	**0**

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
8/21/2020
Cumberland / Harnett Counties
I-5986A / I-5877

Submitted 9/2/2020

WETLAND AND SURACE WATER IMPACTS 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)
31	-L- 508+50 - 509+37 LT	Roadway Fill: WAM	0.042			0.019						
32	-L- 522+79 - 528+68 LT	Roadway Fill: WAN	0.081			0.080						
33	-L- 540+45	8'x8' Culvert: SG-1, SG-2, SG-3, WAP, WAQ		0.010				0.051	0.011	211	99	
34	-L- 574+64	10'x7' RCBC: SH-1, SH-2		0.025		0.002		0.031	0.004	174	30	
35	-L- 602+70 - 606+71 LT	Prop Roadway Fill: WAT	0.016			0.044						
	-Y9RPA- 15+85 RT	Ditch: WAT		0.005								
36	-L- 618+01 - 618+41 RT	Ditch: WAU				0.007						
37	-L- 622+64 to 626+94 LT	72" RCP, Roadway Fill: SI-1, SI-2, WAW, WAV	0.225	0.029		0.137		0.003	0.003	26	20	
		Structure Stabilization: SI-1						0.003		25		
38	-L- 640+26 to 640+69 RT	Ditch: WAX		0.006								
TOTALS*:			**0.363**	**0.076**	**0.000**	**0.290**	**0.000**	**0.09**	**0.02**	**436**	**149**	**0**

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
8/21/2020
Cumberland / Harnett Counties
I-5986A / I-5877

Submitted 9/2/2020

WETLAND AND SURACE WATER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: Permanent Fill In Wetlands (ac)	WETLAND IMPACTS: Temp. Fill In Wetlands (ac)	WETLAND IMPACTS: Excavation in Wetlands (ac)	WETLAND IMPACTS: Mechanized Clearing in Wetlands (ac)	WETLAND IMPACTS: Hand Clearing in Wetlands (ac)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	SURFACE WATER IMPACTS: Temp. SW impacts (ac)	SURFACE WATER IMPACTS: Existing Channel Impacts Permanent (ft)	SURFACE WATER IMPACTS: Existing Channel Impacts Temp. (ft)	SURFACE WATER IMPACTS: Natural Stream Design (ft)
39	-L- 642+88	7'x7' RCBC: SJ-1, SJ-2						0.025	0.008	101	40	
40	-L- 660+20 RT	2 @ 30" RCP: WAY	0.001	0.001								
41	-L- 667+00 LT	Ditch: WAZ		0.011								
42	-L- 669+88 - 684+49 LT & RT	Bridge: Black River, WAZ *	0.385	0.020	0.043	0.207	0.038	0.0027	0.266	16	246	
43	-L- 692+28 - 694+59 RT	Roadway Fill: WAZ	0.090			0.053						
44	-L- 695+05 LT	Ditch: WAZ		0.006								
45	-L- 731+00 LT	Roadway Cut: WBB				0.017						
46	-L- 735+80 LT	2 @ 42" RCP: WBC	0.004		0.002	0.028						
47	-L- 766+40	72" RCP: SK-1, SK-2						0.063	0.007	180	24	
48	-L- 403+25 LT	Plug & Fill Exist. 18" RCP: WAG		0.002								
TOTALS*:			**0.480**	**0.040**	**0.044**	**0.304**	**0.038**	**0.09**	**0.28**	**297**	**310**	**0**

*Rounded totals are sum of actual impacts

NOTES:

* Black River bridge bents
  - 2 sets of interior bents in the water
  - 23 piles per bent
  - 20" diameter piles= 2.2sqft permanent surface water impact per pile
  - **Total: 101.2sqft permanent surface water impact (included in the Site 42 number above)**

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
8/21/2020
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Submitted 9/2/2020

WETLAND AND SURACE WATER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND 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)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
49	-Y5- 45+24 LT	2 @ 8'x8' RCBC Ext: SY-2						0.009		15		
		Bank Stabilization						0.029	0.005	50	8	
50	-Y5- 51+81 - 56+63 LT	Roadway Fill: WCJ	0.011			0.043						
51	-Y5- 60+52 - 65+24 LT	Roadway Fill: WCI	0.114			0.109						
52	-Y5- 64+45 RT	Ditch: WT	0.002	0.006								
53	-Y5RPA- 44+43 - 54+38 LT	Roadway Fill: WU	0.267			0.108						
54A	-Y4- 16+88 LT	Pipe clean out: WS		0.008								
54B	-Y4- 19+00 LT	Pipe clean out: WS		0.005								
54C	-Y4- 21+67 LT	Pipe clean out: WS		0.005								
55	-Y5C- 12+74 - 17+83 LT & RT	Roadway Fill: WCE	0.635			0.220						
56	-Y5B- 12+86 - 16+54 LT	Roadway Fill: WCE	0.013			0.065						
TOTALS*:			**1.042**	**0.023**	**0.000**	**0.545**	**0.000**	**0.04**	**0.01**	**65**	**8**	**0**

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
8/21/2020
Cumberland / Harnett Counties
I-5986A / I-5877

Submitted 9/2/2020

WETLAND AND SURACE WATER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND 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)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
TOTALS for 156:			**0.252**	**0.232**	**0.024**	**0.018**	**0.000**	**0.015**	**0.021**	**51**	**103**	**0**
TOTALS for 157:			**1.127**	**0.157**	**0.041**	**0.432**	**0.000**	**0.029**	**0.001**	**123**	**10**	**0**
TOTALS for 158:			**4.353**	**0.040**	**0.000**	**0.411**	**0.000**	**0.084**	**0.037**	**330**	**113**	**0**
TOTALS for 159:			**2.161**	**0.192**	**0.221**	**0.322**	**0.000**	**0.174**	**0.064**	**435**	**59**	**0**
TOTALS for 160:			**0.363**	**0.076**	**0.000**	**0.290**	**0.000**	**0.088**	**0.017**	**436**	**149**	**0**
TOTALS for 161:			**0.480**	**0.040**	**0.044**	**0.304**	**0.038**	**0.091**	**0.281**	**297**	**310**	**0**
TOTALS for 162:			**1.042**	**0.023**	**0.000**	**0.545**	**0.000**	**0.037**	**0.005**	**65**	**8**	**0**
GRAND TOTAL FOR PROJECT:			**9.783**	**0.759**	**0.330**	**2.321**	**0.038**	**0.517**	**0.427**	**1737**	**752**	**0**

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
8/21/2020
Cumberland / Harnett Counties
I-5986A / I-5877

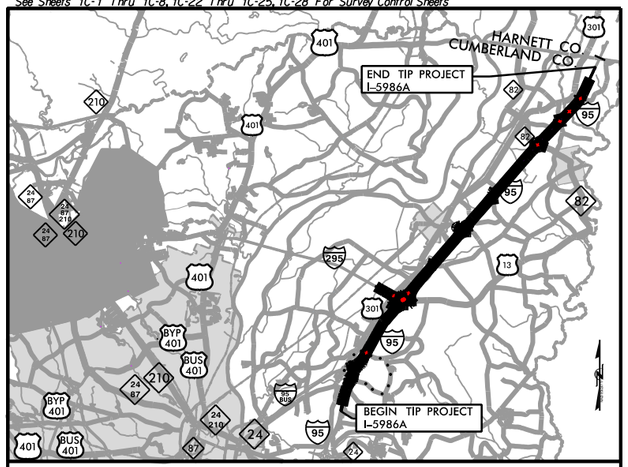
Submitted 9/2/2020

09/08/99

TIP PROJECT: I-5986A

CONTRACT: C204283

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols
See Sheets 1C-1 Thru 1C-8, 1C-22 Thru 1C-25, 1C-28 For Survey Control Sheets



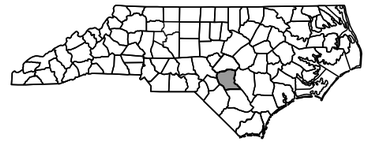
VICINITY MAP (NTS) OFFSITE DETOUR

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CUMBERLAND COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5986A	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
47532.2.2	NHP-0095(057)	R/W
47532.3.2	NHP-0095(057)	PE, UTIL., CONST.



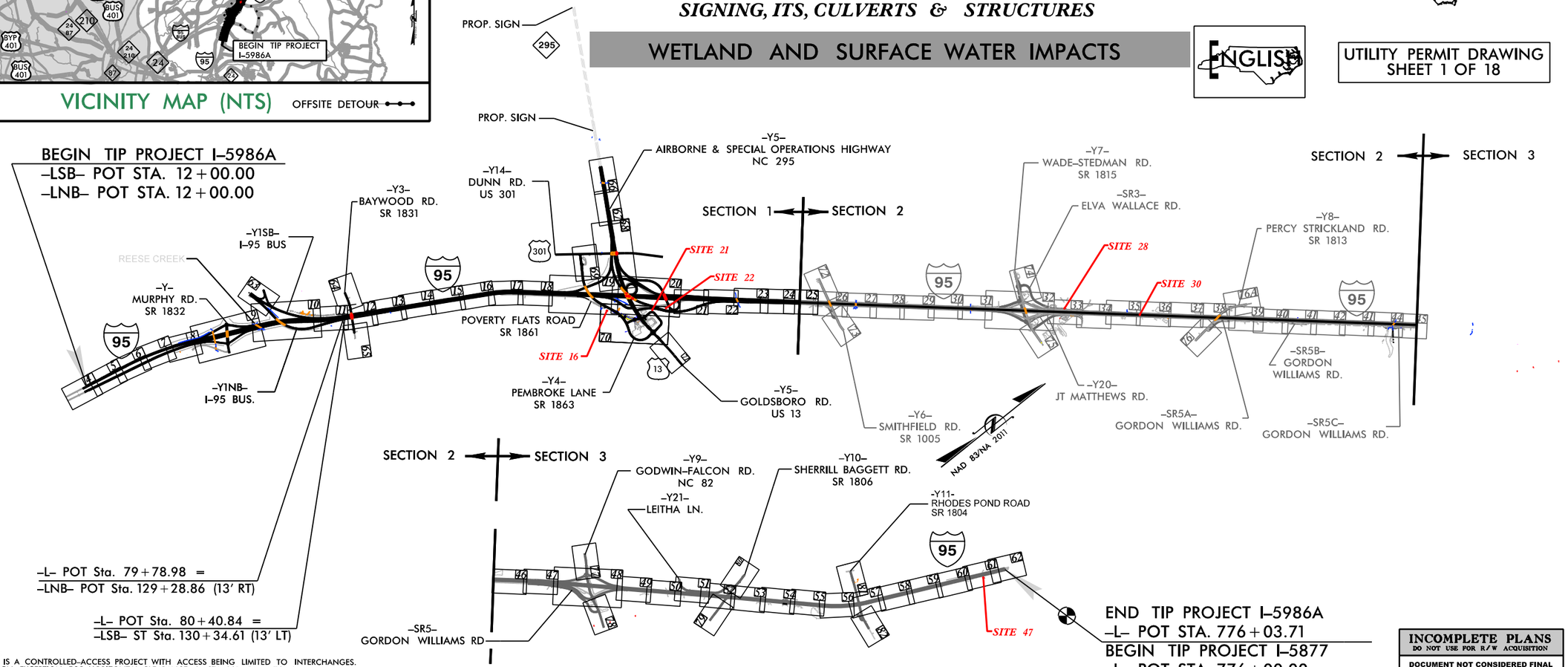
LOCATION: *I-95 WIDENING FROM SOUTH OF SR 1832 (MURPHY ROAD– EXIT 55) TO SOUTH OF SR 1811 (BUD HAWKINS ROAD–EXIT 70)*

TYPE OF WORK: *GRADING, DRAINAGE, PAVING, LIGHTING, SIGNING, ITS, CULVERTS & STRUCTURES*

WETLAND AND SURFACE WATER IMPACTS

ENGLISH

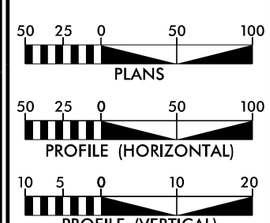
UTILITY PERMIT DRAWING
SHEET 1 OF 18



NOTES
1. THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.
2. DESIGN EXCEPTION FOR HORIZONTAL CLEARANCE –L– STA. 201+50.00 TO 208+50.00

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

ADT 2018 = 56,700
ADT 2040 = 73,800
K = 55%
D = 7%
T = 18% *
V = 75 MPH

FUNC CLASS: INTERSTATE
* (TTST 13% + DUALS 5%)

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT I-5986A.....15.368 MILES
LENGTH STRUCTURE TIP PROJECT I-5986A.....0.048 MILES
TOTAL LENGTH TIP PROJECT I-5986A.....15.416 MILES

NCDOT CONTACT

Michael Penney, PE
PROJECT ENGINEER – DESIGN-BUILD UNIT

PLANS PREPARED BY:

RK&K
RUMMEL, KLEPPER & KAHL, LLP
8601 SIX FORKS ROAD, FORUM 1, SUITE 700
RALEIGH, NORTH CAROLINA 27615-3960
NC LICENSE NO. F-0112

FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

S.T. WOOTEN

2018 STANDARD SPECIFICATIONS

LETTING DATE:
AUGUST 20, 2019

Michael T. Merritt, PE
PROJECT ENGINEER

Anthony A. Houser, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER
P.E.
SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

8/21/2020
R:\Hydraulics\PERMITS_Environmental\Drawings\Utilities\I-5986A_Hyd_UTL_TSH.dgn
FKeys

Submitted 9/2/2020

REVISIONS

PROJECT REFERENCE NO. I-5986 | SHEET NO. 19
R/W SHEET NO.
ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

UTILITY PERMIT DRAWING
SHEET 2 OF 18

MATCHLINE -Y4- 21+00.00 SEE SHEET 69

MATCHLINE -Y5RRB- 22+00.00 SEE SHEET 68

MATCHLINE -L- STA. 171+00.00 SEE SHEET 18

MATCHLINE -L- STA. 198+50.00 SEE SHEET 20

MATCHLINE -Y5RPC- STA. 16+50.00 SEE SHEET 20

MATCHLINE -Y4- STA. 39+00.00 SEE SHEET 70

RETAIN EXISTING C/A FENCE

PROP. WOVEN WIRE FENCE

EXISTING UNDERGROUND CENTURYLINK TELECOMMUNICATIONS TO REMAIN

NEW UNDERGROUND CENTURYLINK TELECOMMUNICATIONS FIBER OPTIC CABLES

NEW UNDERGROUND CENTURYLINK TELECOMMUNICATIONS FIBER OPTIC CABLES

EXISTING CENTURYLINK PEDESTAL

SITE 16

SEE INSET A

INSET A

BEGIN GLARE SCREEN

END GLARE SCREEN

PROP. DITCH

PROP. 6FT CHAIN LINK FENCE

SCALE FOR INSET
50 0 50 100

SCALE
100 50 0 100 200

ENGLISH

DENOTES HAND CLEARING

FOR -L- SEC'L- PROFILE SEE SHTS. 98 THRU 100
FOR -LRT SEC'L- PROFILE SEE SHTS. 98 THRU 100
FOR -Y4- PROFILE SEE SHTS. 150 THRU 151
FOR -Y5RPB- PROFILE SEE SHTS. 164 THRU 165
FOR -Y5RPC- PROFILE SEE SHTS. 166
FOR DITCH DETAILS SEE SHTS. 2D-1 THRU 2D-2

RK&K

Submitted 9/2/2020

REVISIONS

PROJECT REFERENCE NO. I-5986 | SHEET NO. 19
R/W SHEET NO.
ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

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UTILITY PERMIT DRAWING
SHEET 3 OF 18

MATCHLINE -Y4- 21+00.00 SEE SHEET 69

MATCHLINE -Y5RPB- 22+00.00 SEE SHEET 68

MATCHLINE -L- STA. 171+00.00 SEE SHEET 18

MATCHLINE -L- STA. 198+50.00 SEE SHEET 20

MATCHLINE -Y5RPC- STA. 16+50.00 SEE SHEET 20

MATCHLINE -L- STA. 199+00.00 SEE SHEET 70

RETAIN EXISTING C/A FENCE

PROP. WOVEN WIRE FENCE

EXISTING UNDERGROUND CENTURYLINK TELECOMMUNICATIONS TO REMAIN

NEW UNDERGROUND CENTURYLINK TELECOMMUNICATIONS FIBER OPTIC CABLES

CENTURYLINK PEDESTAL

SITE 16

SEE INSET A

INSET A

B

C

SCALE FOR INSET: 50 0 50 100

SCALE: 100 50 0 100 200

ENGLISH

DENOTES HAND CLEARING

FOR -LLT SECL- PROFILE SEE SHTS. 98 THRU 100
FOR -LRT SECL- PROFILE SEE SHTS. 98 THRU 100
FOR -Y4- PROFILE SEE SHTS. 150 THRU 151
FOR -Y5RPB- PROFILE SEE SHTS. 164 THRU 165
FOR -Y5RPC- PROFILE SEE SHTS. 166
FOR DITCH DETAILS SEE SHTS. 2D-1 THRU 2D-2

RK&K

Submitted 9/2/2020

PROJECT REFERENCE NO.	SHEET NO.
I-5998A	20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

UTILITY PERMIT DRAWING
SHEET 4 OF 18

INSET A

SEE INSET C

SEE INSET A

MATCHLINE -Y5FLY- STA. 198+50.00 SEE SHEET 19

MATCHLINE -Y5FLY- STA. 35+00.00 SEE SHEET 68

MATCHLINE -Y5RPA- STA. 47+50.00 SEE SHEET 68

MATCHLINE -Y5- STA. 90+00.00 SEE SHEET 68

MATCHLINE -Y5RPC- STA. 16+50.00 SEE SHEET 19

MATCHLINE -L- STA. 227+00.00 SEE SHEET 21

MATCHLINE -Y5- STA. 105+00.00 SEE SHEET 70

MATCHLINE -Y5FLY- STA. 67+00.00 SEE SHEET 21

SCALE FOR INSET: 100 0 100 200

SCALE: 200 0 200 400

ENGLISH

DENOTES HAND CLEARING

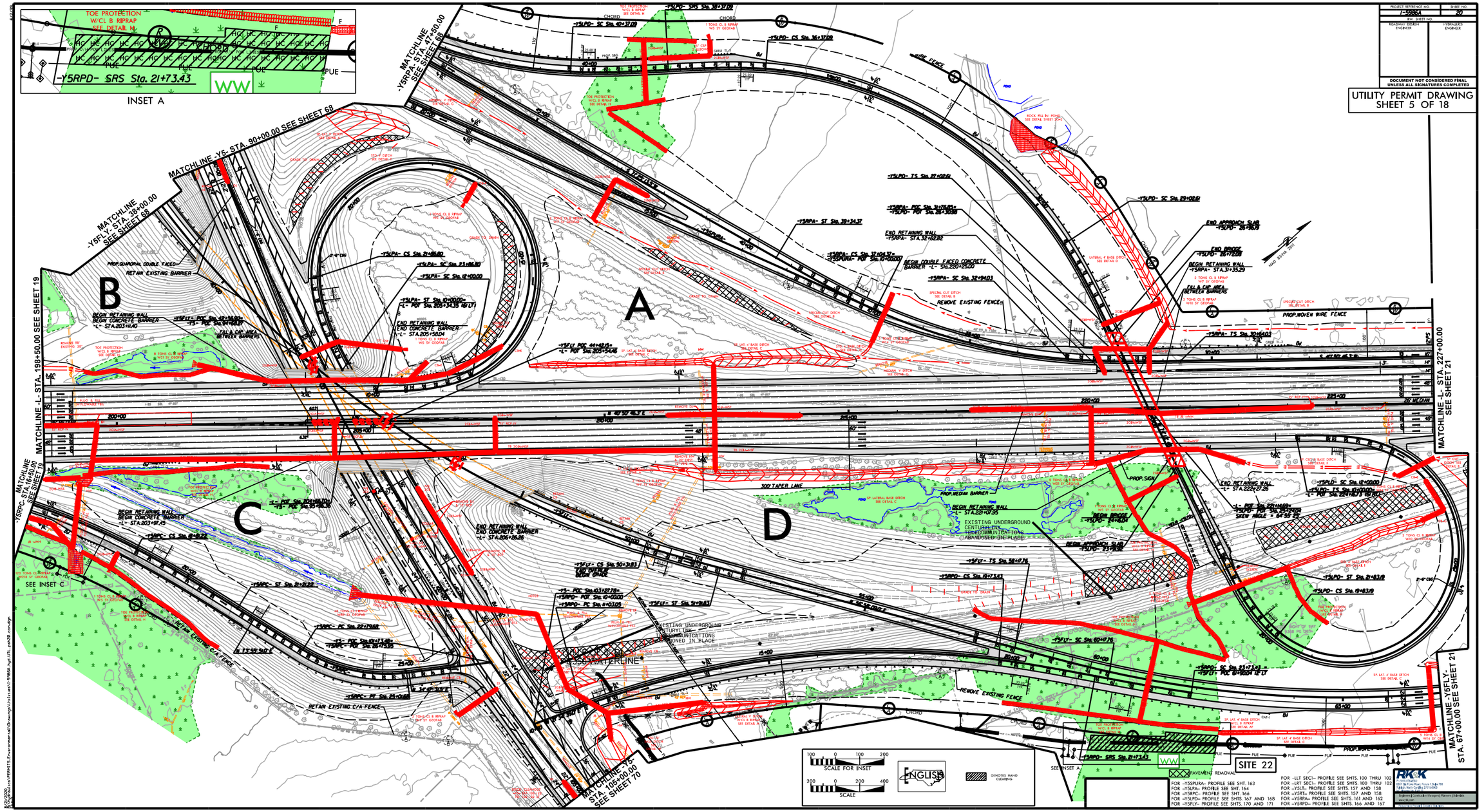
PAVEMENT REMOVAL

SITE 22

FOR -Y5SPURA- PROFILE SEE SHT. 163
FOR -Y5LPA- PROFILE SEE SHT. 164
FOR -Y5RPC- PROFILE SEE SHT. 166
FOR -Y5LPD- PROFILE SEE SHTS. 167 AND 168
FOR -Y5FLY- PROFILE SEE SHTS. 170 AND 171
FOR -LLT SEC1- PROFILE SEE SHTS. 100 THRU 102
FOR -LRT SEC1- PROFILE SEE SHTS. 100 THRU 102
FOR -Y5LT- PROFILE SEE SHTS. 157 AND 158
FOR -Y5RT- PROFILE SEE SHTS. 157 AND 158
FOR -Y5RPA- PROFILE SEE SHTS. 161 AND 162
FOR -Y5RPD- PROFILE SEE SHTS. 166 AND 167

RKK

Submitted 9/2/2020



Submitted 9/2/2020

8/17/99

UTILITY PERMIT DRAWING
SHEET 6 OF 18

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	33
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MATCHLINE -L- STA. 390+00.00 SEE SHEET 32

MATCHLINE -SR3- STA. 29+50.00 SEE SHEET 32

MATCHLINE -L- STA. 402+00.00 SEE SHEET 34

MATCHLINE -Y20- STA. 32+00.00 SEE SHEET 34

MATCHLINE -L- STA. 20+00.00 SEE SHEET 32

MATCHLINE -Y20- STA. 20+00.00 SEE SHEET 32

NEW UNDERGROUND CENTURYLINK TELECOMMUNICATIONS FIBER OPTIC CABLES

NEW UNDERGROUND CENTURYLINK TELECOMMUNICATIONS FIBER OPTIC CABLES

END CONSTRUCTION -SR3- Sta. 36+00.00

WAG

SITE 28

SEE INSET A

NAD 83/NA 2011

WATERLINE TO REMAIN

PROP. CHAIN LINK FENCE

REMOVE EXISTING FENCE

SPECIAL CUT DITCH SEE DETAIL B

SP. LATERAL BASE DITCH SEE DETAIL C

5 TONS CL B RIP RAP 16 SY GEOTEXTILE INV. OUT=143.0'

TOE PROTECTION W/CL B RIPRAP SEE DETAIL H

REMOVE 2 TONS CL B RIP RAP 7 SY GEOTEXTILE

MEDIAN DITCH SEE DETAIL G

LATERAL V DITCH SEE DETAIL K

LATERAL BASE DITCH SEE DETAIL P

8 TONS CL B RIP RAP 21 SY GEOTEXTILE INV. OUT=142.2'

3 TONS CL B RIP RAP TO BE GEOTEXTILE

SP. CUT BASE DITCH SEE DETAIL V

PLUG & FILL W/FLOWABLE FILL

REMOVE DI

RETAIN

JB w/MH

SCALE FOR INSET: 25 0 25 50

SCALE: 50 25 0 50 100

ENGLISH

DENOTES HAND CLEARING

INSET A

FOR –LLT_SEC2– PROFILE SEE SHTS. 115 THRU 116
FOR –LRT_SEC2– PROFILE SEE SHTS. 115 THRU 116
FOR –Y7RPA– PROFILE SEE SHT. 177
FOR –Y7RPD– PROFILE SEE SHT. 179
FOR –Y20– PROFILE SEE SHT. 181
FOR –SR3– PROFILE SEE SHT. 182

FOR DITCH DETAILS SEE SHTS. 2D–3 THRU 2D–4

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Raleigh, North Carolina 27615-3960
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Submitted 9/2/2020

8/17/99

UTILITY PERMIT DRAWING
SHEET 7 OF 18

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	33
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MATCHLINE -SR3- STA. 29+50.00 SEE SHEET 32

MATCHLINE -L- STA. 390+00.00 SEE SHEET 32

MATCHLINE -L- STA. 20+00.00 SEE SHEET 32

MATCHLINE -Y20- STA. 20+00.00 SEE SHEET 32

MATCHLINE -L- STA. 402+00.00 SEE SHEET 34

MATCHLINE -Y20- STA. 32+00.00 SEE SHEET 34

NEW UNDERGROUND CENTURYLINK TELECOMMUNICATIONS FIBER OPTIC CABLES

NEW UNDERGROUND CENTURYLINK TELECOMMUNICATIONS FIBER OPTIC CABLES

END CONSTRUCTION -SR3- Sta. 36+00.00

WAG

SITE 28

SEE INSET A

NAD 83/NA 2011

WATERLINE TO REMAIN

PROP. CHAIN LINK FENCE

REMOVE EXISTING FENCE

SPECIAL CUT DITCH SEE DETAIL B

SP. LATERAL BASE DITCH SEE DETAIL C

5 TONS CL B RIP RAP 16 SY GEOTEXTILE INV. OUT=143.0'

TOE PROTECTION W/CL B RIPRAP SEE DETAIL H

REMOVE 2 TONS CL B RIP RAP 7 SY GEOTEXTILE

MEDIAN DITCH SEE DETAIL G

LATERAL V DITCH SEE DETAIL K

LATERAL BASE DITCH SEE DETAIL P

SP. CUT BASE DITCH SEE DETAIL V

8 TONS CL B RIP RAP 21 SY GEOTEXTILE INV. OUT=142.2'

3 TONS CL B RIP RAP 10 SY GEOTEXTILE

PLUG & FILL W/FLOWABLE FILL

CONC PAVED DITCH

RETAIN 30" RCP

INSET A

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

ENGLISH

DENOTES HAND CLEARING

FOR –LLT_SEC2– PROFILE SEE SHTS. 115 THRU 116
FOR –LRT_SEC2– PROFILE SEE SHTS. 115 THRU 116
FOR –Y7RPA– PROFILE SEE SHT. 177
FOR –Y7RPD– PROFILE SEE SHT. 179
FOR –Y20– PROFILE SEE SHT. 181
FOR –SR3– PROFILE SEE SHT. 182

FOR DITCH DETAILS SEE SHTS. 2D–3 THRU 2D–4

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Engineer

Submitted 9/2/2020

8/17/99

25 0 25 50
SCALE FOR INSET

50 25 0 50 100
SCALE

ENGLISH

DENOTES HAND CLEARING

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	35
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

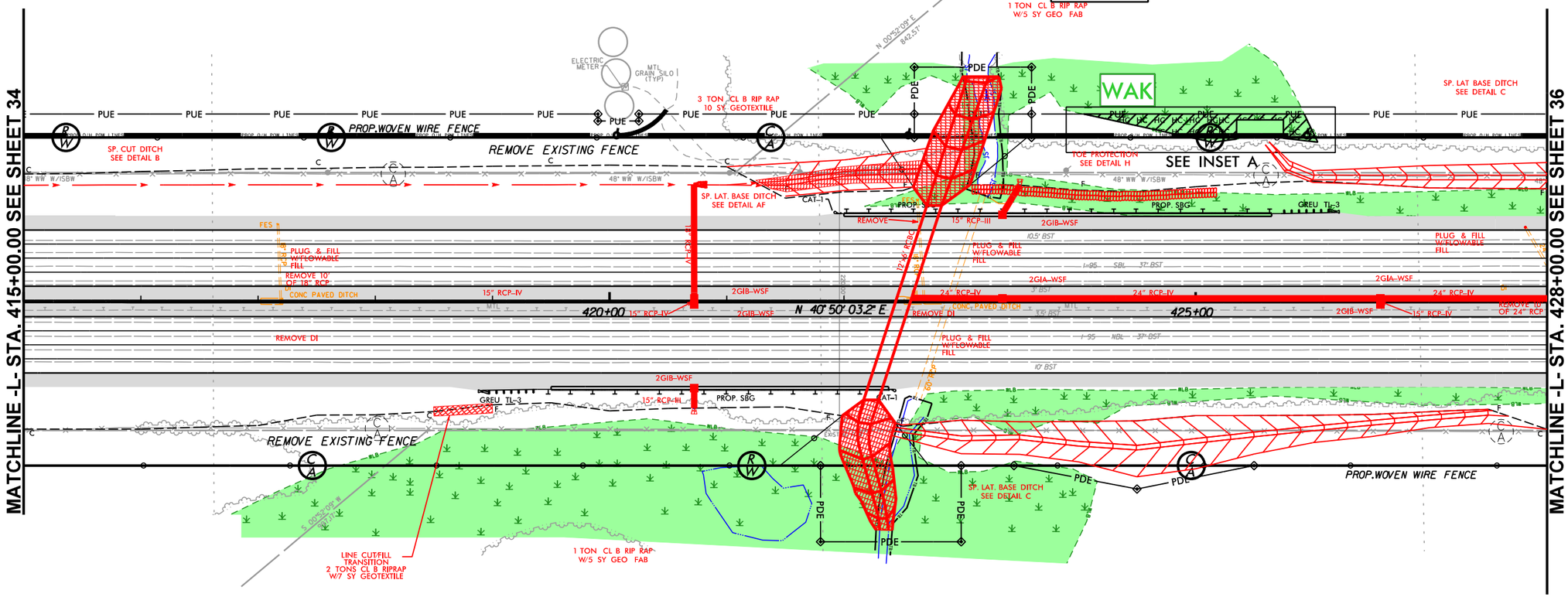
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NA 2011

UTILITY PERMIT DRAWING
SHEET 8 OF 18

INSET A

SITE 30



FOR –LLT_SEC2– PROFILE SEE SHT. 117
FOR –LRT_SEC2– PROFILE SEE SHT. 117
FOR DITCH DETAILS SEE SHTS. 2D–3 THRU 2D–4

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Submitted 9/2/2020

8/17/99

25 0 25 50
SCALE FOR INSET

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SCALE

ENGLISH

DENOTES HAND CLEARING

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	35
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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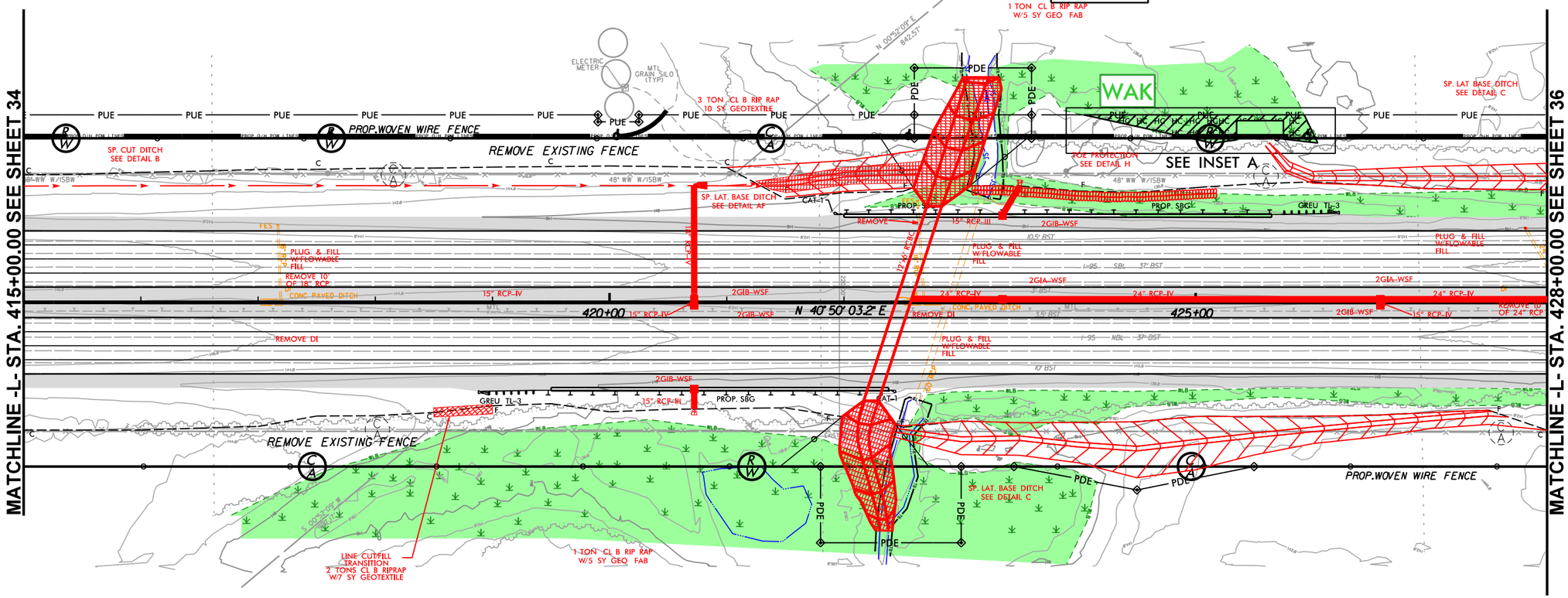
UTILITY PERMIT DRAWING
SHEET 9 OF 18

INSET A

SITE 30



FOR –LLT_SEC2– PROFILE SEE SHT. 117
FOR –LRT_SEC2– PROFILE SEE SHT. 117
FOR DITCH DETAILS SEE SHTS. 2D–3 THRU 2D–4

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Engineer

Submitted 9/2/2020

8/17/99

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SCALE

ENGLISH

DENOTES HAND CLEARING

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	36
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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NAD 83/NA 2011

UTILITY PERMIT DRAWING SHEET 10 OF 18

SITE 30 WAL

MATCHLINE -L- STA. 428+00.00 SEE SHEET 35

MATCHLINE -L- STA. 442+00.00 SEE SHEET 37

SEE INSET A

PUE — PROP O/H POW LINES — PROP. WOVEN WIRE FENCE — SP. LAT BASE DITCH SEE DETAIL C — SP. CUT BASE DITCH SEE DETAIL F — SP. CUT BASE DITCH SEE DETAIL Z

REMOVE EXISTING FENCE

48" WW W/ISBW — EXISTING R/W — MLG — WLG — 8"W — C — F

POND

PLUG & FILL W/FLOWABLE FILL — REMOVE 10' OF 24" RCP — REMOVE 10' OF 18" RCP — 15" RCP-IV — 18" RCP-IV — 24" RCP-IV — 2GIA-WSF — 2GIB-WSF — FES — CONC. PAVED DITCH — REMOVE DI — CONC. HW

I-95 SBL 37' BST — I-95 NBL 37' BST

430+00 — 435+00 — 440+00

N 40° 50' 03.2" E

139.60' — 139.65' — 140.24'

TCE PROTECTION SEE DETAIL H

NR SPIKE IN BASE OF 24 INCH PINE

INSET A

PUE — HC — PROP. WOVEN WIRE FENCE — PROP O/H POW LINES — SP. LAT BASE DITCH SEE DETAIL C

FOR –LLT_SEC2– PROFILE SEE SHTS. 117 THRU 118
FOR –LRT_SEC2– PROFILE SEE SHTS. 117 THRU 118
FOR DITCH DETAILS SEE SHTS. 2D–3 THRU 2D–4

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SCALE FOR INSET

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SCALE

ENGLISH

DENOTES HAND CLEARING

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	36
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NA 2011

UTILITY PERMIT DRAWING
SHEET 11 OF 18

SITE 30 WAL

SEE INSET A

MATCHLINE -L- STA. 428+00.00 SEE SHEET 35

MATCHLINE -L- STA. 442+00.00 SEE SHEET 37

PUE — PROP O/H POW LINES — PROP. WOVEN WIRE FENCE — SP. LAT BASE DITCH SEE DETAIL C — SP. CUT BASE DITCH SEE DETAIL F — SP. CUT BASE DITCH SEE DETAIL Z — REMOVE EXISTING FENCE — 48" WW W/ISBW — EXISTING R/W — POND — PLUG & FILL W/FLOWABLE FILL — FES — REMOVE 10' OF 24" RCP — REMOVE 10' OF 18" RCP — REMOVE DI — CONC. PAVED DITCH — 24" RCP-IV — 18" RCP-IV — 15" RCP-IV — 2CIA-WSF — 2CIB-WSF — 430+00 — 435+00 — N 40° 50' 03.2" E — 440+00 — TEMP PROTECTION SEE DETAIL H — 139.60' — 139.65' — 140.24'

INSET A

FOR –LLT_SEC2– PROFILE SEE SHTS. 117 THRU 118
FOR –LRT_SEC2– PROFILE SEE SHTS. 117 THRU 118
FOR DITCH DETAILS SEE SHTS. 2D–3 THRU 2D–4

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SCALE FOR INSET

50 25 0 50 100
SCALE

ENGLISH

DENOTES HAND CLEARING

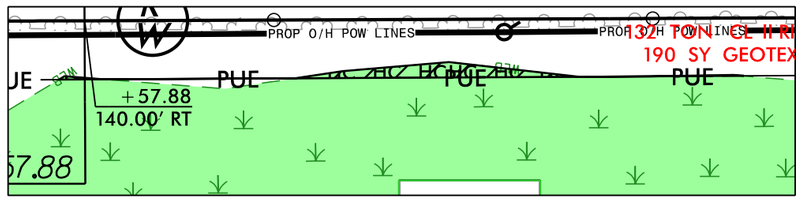
UTILITY PERMIT DRAWING
SHEET 12 OF 18

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	61
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

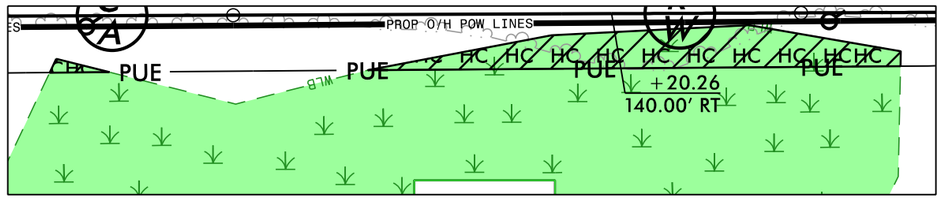
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

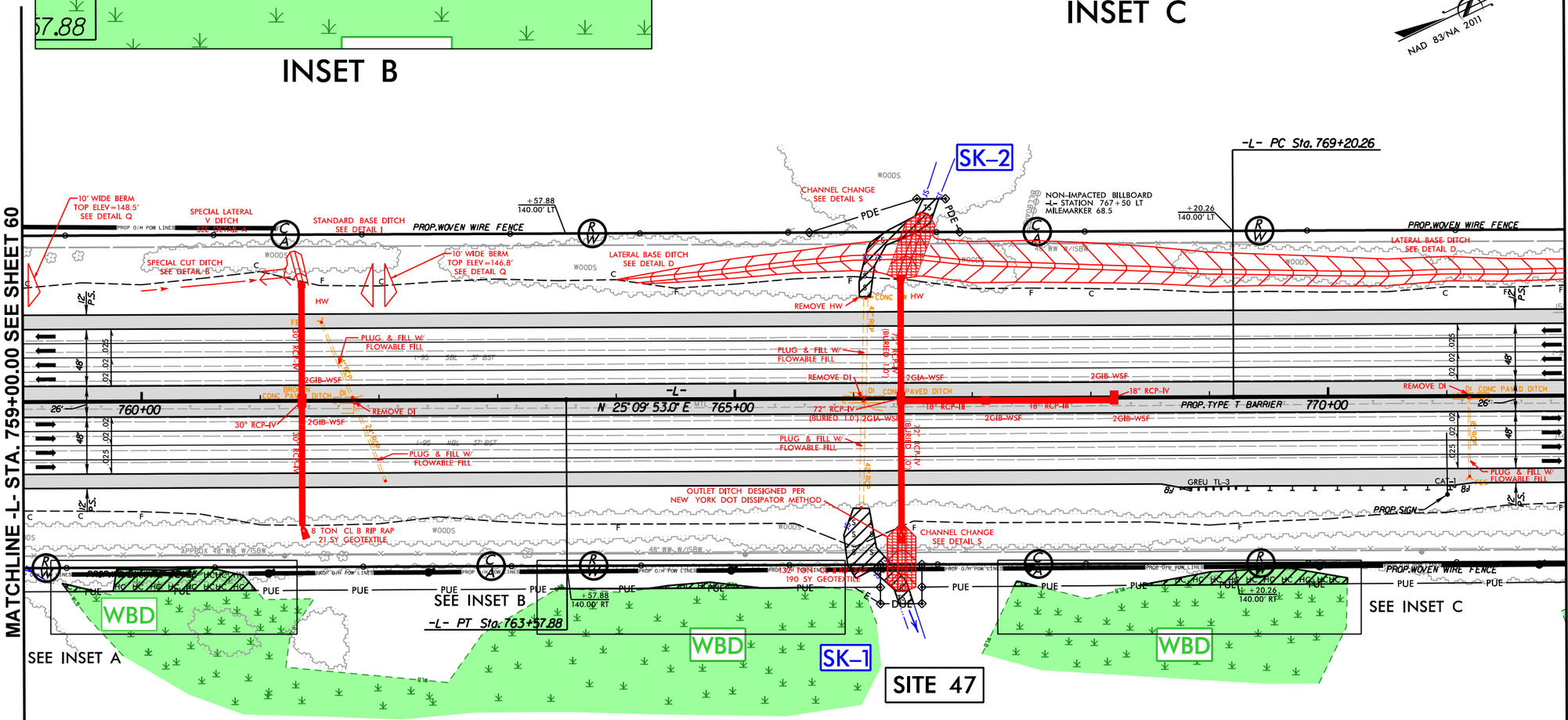
NAD 83/NA 2011

INSET B

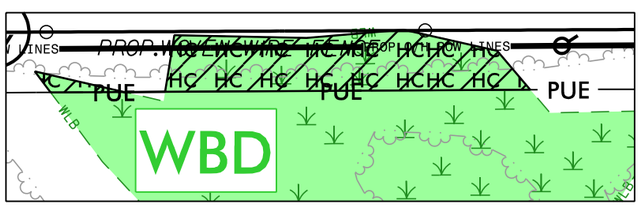


INSET C





INSET A



-L-	
PI Sta 761+15.78	PI Sta 770+75.39
Δ = 0° 01' 06.6" (RT)	Δ = 0° 01' 31.4" (LT)
D = 0° 00' 13.8"	D = 0° 00' 29.5"
L = 484.20'	L = 310.28'
T = 242.10'	T = 155.14'
R = 1,500,000.00'	R = 700,000.00'
SE = NC	SE = NC
DS = 75 MPH	DS = 75 MPH

FOR -L- PROFILES SEE SHTS. 142 & 143

FOR DITCH DETAILS SEE SHTS. 2D-5 THRU 2D-6

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Flexible

Submitted 9/2/2020

8/17/99

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SCALE FOR INSET

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SCALE

ENGLISH

DENOTES HAND CLEARING

UTILITY PERMIT DRAWING
SHEET 13 OF 18

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	61
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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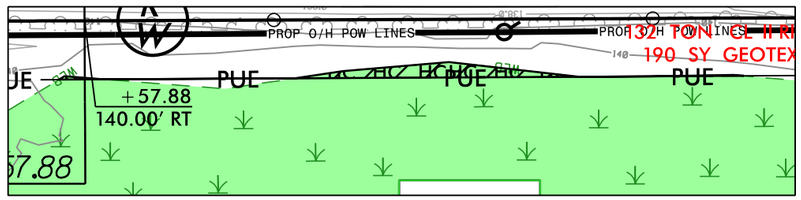
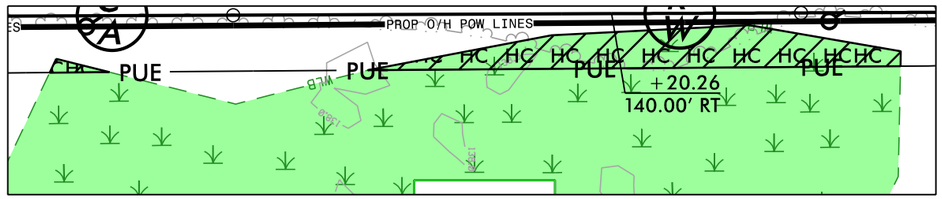
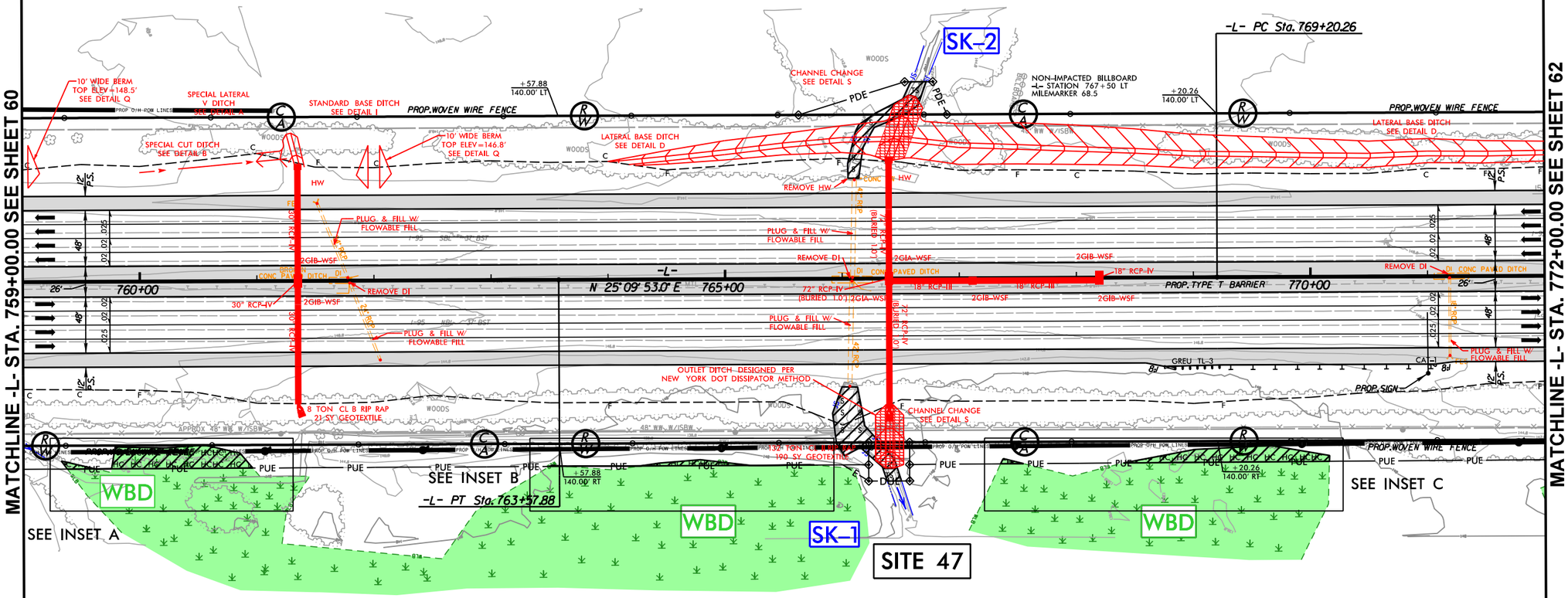
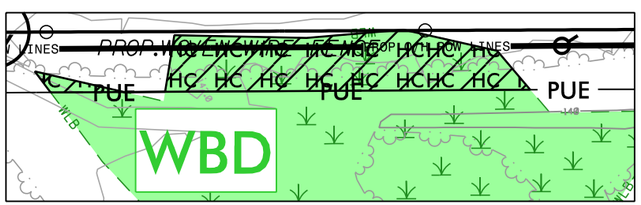






INSET A



-L-	
PI Sta 761+15.78	PI Sta 770+75.39
Δ = 0° 01' 06.6" (RT)	Δ = 0° 01' 31.4" (LT)
D = 0° 00' 13.8"	D = 0° 00' 29.5"
L = 484.20'	L = 310.28'
T = 242.10'	T = 155.14'
R = 1,500,000.00'	R = 700,000.00'
SE = NC	SE = NC
DS = 75 MPH	DS = 75 MPH

FOR -L- PROFILES SEE SHTS. 142 & 143

FOR DITCH DETAILS SEE SHTS. 2D-5 THRU 2D-6

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Submitted 9/2/2020

8/17/99

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SCALE FOR INSET

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DENOTES HAND CLEARING

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PROJECT REFERENCE NO.	SHEET NO.
I-5986A	62
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

UTILITY PERMIT DRAWING
SHEET 14 OF 18

MATCHLINE -L- STA. 772+00.00 SEE SHEET 61

PROP. WOVEN WIRE FENCE

LATERAL BASE DITCH SEE DETAIL D

WOODS

EXISTING R/W

FES

9.5' BST

I-95 SBL 37' BST

N 25°08'21.5" E

775+00

DI CONC PAVED DITCH

I-95 NBL 37' BST

10' BST

SEE INSET A

48" WW W/ISBW

EXISTING R/W

PUE

+03.71
EX R/W RT
146.00'

+42.00
156.00

WBE

SEE I-5877 PLANS

SITE 47

INSET A

PROP O/H POWER LINES

PUE

ALL EXISTING ROW FENCE TO BE REMOVED UNLESS OTHERWISE LABELED.

ALL DRIVEWAY RADII 15' UNLESS OTHERWISE LABELED.

FOR -L- PROFILES SEE SHT. 143

FOR DITCH DETAILS SEE SHTS. 2D-5 THRU 2D-6

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ENGLISH

DENOTES HAND CLEARING

NAD 83/NA 2011

PROJECT REFERENCE NO.	SHEET NO.
I-5986A	62
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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UTILITY PERMIT DRAWING SHEET 15 OF 18

MATCHLINE -L- STA. 772+00.00 SEE SHEET 61

PROP.WOVEN WIRE FENCE

LATERAL BASE DITCH SEE DETAIL D

WOODS

EXISTING R/W

FES

95' BST

SBL 37' BST

I-95 SBL 37' BST

DI CONC PAVED DITCH

N 25°08'21.5" E

775+00

I-95 NBL 37' BST

SEE INSET A

48" WW W/ISBW

PUE

HC

+03.71

42.00

156.00

EX R/W RT 146.00'

WBE

SEE I-5877 PLANS

SITE 47

INSET A

PROP O/H POW LINES

ALL EXISTING ROW FENCE TO BE REMOVED UNLESS OTHERWISE LABELED.

ALL DRIVEWAY RADII 15' UNLESS OTHERWISE LABELED.

FOR -L- PROFILES SEE SHT. 143

FOR DITCH DETAILS SEE SHTS. 2D-5 THRU 2D-6

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REVISIONS

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SCALE

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NAD 83/NSRS 2011

PROJECT REFERENCE NO. 7-59864 | SHEET NO. 79
R/W SHEET NO.
ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

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UTILITY PERMIT DRAWING
SHEET 16 OF 18

MATCHLINE -Y4- STA. 39+00.00
SEE SHEET 19

SITE 16
WN

SEE INSET A

DESIGN SUBJECT TO CHANGE PENDING COORDINATION WITH THE DEVELOPER

MATCHLINE -Y5- STA. 105+00.00
SEE SHEET 20

SITE 21
WV

NEW UNDERGROUND CENTURYLINK TELECOMMUNICATIONS FIBER OPTIC CABLES

NEW BORE CENTURYLINK TELECOMMUNICATIONS FIBER OPTIC CABLES

NEW UNDERGROUND CENTURYLINK TELECOMMUNICATIONS FIBER OPTIC CABLES

NEW BORE CENTURYLINK TELECOMMUNICATIONS FIBER OPTIC CABLES

NEW UNDERGROUND CENTURYLINK TELECOMMUNICATIONS FIBER OPTIC CABLES

END CONSTRUCTION
-YSB- POT Sta. 26+66.96

NEW SPECTRUM SPAN GUY

NEW AERIAL POWER DUKE ENERGY AND SPECTRUM CATV

NEW SPECTRUM CATV PEDESTAL

NEW UNDERGROUND SPECTRUM CATV

NEW AERIAL SPECTRUM CATV

NEW AERIAL POWER DUKE ENERGY AND SPECTRUM CATV

NEW UNDERGROUND CENTURYLINK TELECOMMUNICATIONS FIBER OPTIC CABLES

NEW BORE CENTURYLINK TELECOMMUNICATIONS FIBER OPTICSCABLES

NEW AERIAL POWER DUKE ENERGY AND SPECTRUM CATV

NEW UNDERGROUND CENTURYLINK TELECOMMUNICATIONS FIBER OPTIC CABLES

NCDOT RIGHT OF WAY DB 9368 PG 365

RW DEED DB 5221 PG 601

MATCHLINE -Y6B- STA. 15+00.00 SEE SHEET 71

INSET A

RETAIN EXISTING SBG

N 67° 21' 53.5" E

40+00

TOE PROTECTION W/CL B RIPRAP SEE DETAIL H

SITE 16

WN

22 TONS CL I RIPRAP W/25 SY GEOFAB

NOTE: ALL DRIVES ARE 16' WIDE WITH 10' RADII UNLESS OTHERWISE NOTED

PAVEMENT REMOVAL

CONCRETE TRUCK APRON

FOR –DR3– PROFILE SEE SHT. 152
FOR –Y4– PROFILE SEE SHT. 151
FOR –Y4A– PROFILE SEE SHT. 152
FOR –YSLT– PROFILE SEE SHT. 158
FOR –YSRT– PROFILE SEE SHT. 158
FOR –YSA– PROFILE SEE SHT. 159
FOR –Y5B– PROFILE SEE SHT. 159
FOR –Y5C– PROFILE SEE SHT. 160
FOR –YSRAL– PROFILE SEE SHT. 160

FOR DITCH DETAILS SEE SHTS 20-1 THRU 20-2

RK&K

Submitted 9/2/2020

REVISIONS

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SCALE FOR INSET

100 0 100 200
SCALE

ENGLISH

DENOTES HAND CLEARING

PROJECT REFERENCE NO. 7-35864 | SHEET NO. 79
R/W SHEET NO.
ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

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NAD 83/NSA 2011

UTILITY PERMIT DRAWING
SHEET 17 OF 18

MATCHLINE -Y4- STA. 39+00.00
SEE SHEET 19

SITE 16
WN

SEE INSET A

DESIGN SUBJECT TO CHANGE PENDING COORDINATION WITH THE DEVELOPER

MATCHLINE -Y5- STA. 105+00.00
SEE SHEET 20

SITE 21
WV

NEW UNDERGROUND CENTURYLINK TELECOMMUNICATIONS FIBER OPTIC CABLES

NEW BORE CENTURYLINK TELECOMMUNICATIONS FIBER OPTIC CABLES

NEW UNDERGROUND CENTURYLINK TELECOMMUNICATIONS FIBER OPTIC CABLES

NEW BORE CENTURYLINK TELECOMMUNICATIONS FIBER OPTIC CABLES

END CONSTRUCTION -Y5B- POT Sta. 26+66.96

NEW SPECTRUM SPAN GUY

NEW AERIAL POWER DUKE ENERGY AND SPECTRUM CATV

NEW SPECTRUM CATV PEDESTAL

NEW UNDERGROUND SPECTRUM CATV

NEW AERIAL SPECTRUM CATV

NEW AERIAL POWER DUKE ENERGY AND SPECTRUM CATV

NEW BORE CENTURYLINK TELECOMMUNICATIONS FIBER OPTICSCABLES

NEW UNDERGROUND CENTURYLINK TELECOMMUNICATIONS FIBER OPTIC CABLES

NEW AERIAL POWER DUKE ENERGY AND SPECTRUM CATV

NEW UNDERGROUND CENTURYLINK TELECOMMUNICATIONS FIBER OPTIC CABLES

MATCHLINE -Y6B- STA. 15+00.00 SEE SHEET 71

INSET A

RETAIN EXISTING SBG

N 67° 21' 53" E

40+00

TOE PROTECTION W/CL B RIPRAP SEE DETAIL H

SITE 16

WN

22 TONS CL I RIPRAP W/25 SY GEOFAB

NOTE: ALL DRIVES ARE 16' WIDE WITH 10' RADII UNLESS OTHERWISE NOTED

PAVEMENT REMOVAL

CONCRETE TRUCK APRON

FOR –DR3– PROFILE SEE SHT. 152
FOR –Y4– PROFILE SEE SHT. 151
FOR –Y4A– PROFILE SEE SHT. 152
FOR –Y5LT– PROFILE SEE SHT. 158
FOR –Y5RT– PROFILE SEE SHT. 158
FOR –Y5A– PROFILE SEE SHT. 159
FOR –Y5B– PROFILE SEE SHT. 159
FOR –Y5C– PROFILE SEE SHT. 160
FOR –Y5RAL– PROFILE SEE SHT. 160

FOR DITCH DETAILS SEE SHTS 20-1 THRU 20-2

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Submitted 9/2/2020

WETLAND AND SURACE WATER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND 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)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
16	-Y4- 32+97 - 33+91 RT & -Y4- 37+51 - 41+72 RT	Overhead power: WN*					0.373					
21	-Y5C- 23+55 - 24+62 RT	Overhead power: WV					0.072					
22	-Y5FLY- 60+09 - 62+54 RT	Overhead power: WW					0.204					
28	-L- 395+04 - 398+40 LT	Overhead power: WAG*					0.224					
30	-L- 424+05 - 426+04 LT	Overhead power: WAK*					0.058					
	-L- 430+62 - 435+09 LT	Overhead power: WAL*					0.196					
47	-L- 759+32 - 776+24 RT	Overhead power: WBD					0.092					
		Overhead power: WBE*					0.048					
TOTALS*:			**0.000**	**0.000**	**0.000**	**0.000**	**1.267**	**0.00**	**0.00**	**0**	**0**	**0**

*Rounded totals are sum of actual impacts

NOTES:

* Denotes proposed 2' diameter power pole will be used at 3.1sqft per pole, permanent fill in wetlands

Site 16: 4 poles= 12.4sqft

Site 28: 1 pole= 3.1sqft

Site 30: 2 poles= 6.2sqft

Site 47: 1 pole= 3.1sqft

Total= 25sqft permanent fill in wetlands

Revised 2018 Feb

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
8/21/2020
Cumberland / Harnett Counties
I-5986A / I-5877