STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

November 13, 2019

MEMORANDUM TO: Mr. Michael Pettyjohn, P.E.
Division 11 Engineer

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

SUBJECT: 404 Individual Permit and 401 Water Quality Certification for the improvements to NC 107 from SR 1136 to NC 105 Bypass in Boone, Watauga County, Division 11; WBS No 37512.1.5, **TIP: R-2566 B/BA**

Enclosed is the US Army Corps of Engineers Permit, NC Division of Water Resources Water Quality Certification, and Project Commitments ("greensheet") for the above-referenced project. All environmental permits have been received for the construction of this project.

The permit package has been posted on the NCDOT website at:
https://xfer.services.ncdot.gov/pdea/PermIssued/

ec:

Mr. Ron Davenport, P.E. Contracts Management
Mr. Kevin Hining, Division Environmental Officer
Dr. Majed Al-Ghandour, P.E., Programming and TIP
Mr. Stephen Morgan, P.E., Hydraulics
Mr. Brian Hanks, P.E., Structure Design
Mr. Mark Staley, Roadside Environmental
Mr. Lamar Sylvester, P.E., State Roadway Construction Engineer

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

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

Location:
1000 BIRCH RIDGE DRIVE
RALEIGH NC 27610

PROJECT COMMITMENTS

T.I.P. Project No R-2566B
NC 105 Improvements from Clark's Creek Road (SR 1136) to
NC 105 Bypass (SR 1107) in Boone
Watauga County
Federal Aid Project NHPP-0150(004)
W.B.S. No. 37512.1.5

COMMITMENTS FROM PROJECT DEVELOPMENT AND DESIGN

Due to the high quality waters and trout waters throughout the project corridor, Design Standards in Sensitive Watersheds will be implemented.

Based on a recommendation from the North Carolina Wildlife Resources Commission (NCWRC), a moratorium will be placed on in-stream work and land disturbance to the 25-foot trout buffer from October 15th to April 15th for the entire corridor, to protect reproducing trout.

Coordination between NCDOT and NCWRC established a moratorium from April 1 to November 1 for the Watauga River and Laurel Fork. A trout moratorium from October 15 to April 15 will be in effect for all other streams on the project. See Commitments From Permitting.

The NCDOT Biological Surveys Group will be notified thirty days prior to demolition in order to preform a pre-demolition bridge check for listed bat species.

COMMITMENTS FROM PERMITTING

Division 11 Construction, Roadside Enviromental Unit

404 Special Condition #16: **In-Water Work Moratoria:** To avoid adverse impacts to the Eastern Hellbender in the project area, no in-water work shall be conducted from April 1 to November 1, within the Watauga River and Laurel Fork, and adjacent wetlands that have an active connection to these tributaries during periods of inundation. To avoid adverse impacts to reproducing trout in the project area, no in-water work shall be conducted from October 15 to April 15, within perennial tributaries, other than the Watauga River and Laurel Fork, and their adjacent wetlands that have an active connection to these tributaries during periods of inundation.

DEPARTMENT OF THE ARMY PERMIT

Permittee **North Carolina Department of Transportation**

Permit No. **SAW-2010-00653**

Issuing Office **CESAW-RG**

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: **TIP R-2566 B and BA; NC 105 improvements, impacting 0.47 acre of wetlands, 4,499 linear feet of tributaries, and 0.01 acre of open water pond.**

Project Location: **Existing NC 105 from Clark's Creek Road (SR 1136) to NC 105 Bypass (SR 1107), near Boone, Watauga County, NC, in the Watauga watershed (HUC 06010103); Latitude and Longitude (at Watauga River bridge): 36.194 N, -81.745 W.**

Permit Conditions:

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.

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

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.

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.

for Carla Drew — November 6, 2019

(PERMITTEE) **PHILLIP S. HARRIS, (NCDOT)** *(DATE)*

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

Mandy Matthews for — 06 Nov 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-2010-00653
NCDOT TIPs R-2566B and R-2566BA; NC 105

1. CONSTRUCTION PLANS: All work authorized by this permit shall be performed in strict compliance with the attached permit plans, which were submitted on March 29, 2019 (Section BA), and July 2, 2019 (Section B), 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. PHASED PERMIT: This permit only authorizes work on Section BA of TIP R-2566. Construction on Section B of TIP R--2566 shall not commence until: (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 through standard Merger 4B and 4C meetings; (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.

3. 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 4 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 4. 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.

SPECIAL CONDITIONS
Action ID SAW-2010-00653
NCDOT; TIPs R-2566B and R-2566BA; NC 105

4. 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.

5. 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.

6. PRECONSTRUCTION MEETING: The Permittee shall conduct an onsite preconstruction meeting between its representatives, the contractor's representatives and the appropriate U.S. Army 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 NCDWR Project Managers can attend. The Permittee shall invite the Corps and NCDWR 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.

7. 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.

8. REPORTING ADDRESS: All reports, documentation, and correspondence required by the conditions of this permit shall be submitted to the following: U.S. Army Corps of Engineers, Wilmington District; Raleigh Regulatory Field Office, Attn: Eric Alsmeyer; 3331 Heritage Trade Drive, Suite 105; Wake Forest, NC 27587, or eric.c.alsmeyer@usace.army.mil The Permittee shall reference the following permit number, SAW-2010-00653, on all submittals.

9. 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.

10. REPORTING VIOLATIONS: Violation of these permit conditions or violation of Section 404 of the Clean Water Act shall be reported to the Corps in writing and by telephone at: 919.554.4884, extension 23, within 24 hours of the Permittee's discovery of the violation.

11. ENDANGERED SPECIES ACT: The Permittee shall implement all necessary measures to ensure the authorized activity does not kill, injure, capture, harass, or otherwise harm any federally-listed threatened or endangered species. While accomplishing the authorized work, if the Permittee discovers or observes an injured or dead threatened or endangered species, the U.S. Army Corps of Engineers, Wilmington District; Raleigh Regulatory Field Office, Attn: Eric Alsmeyer; 3331 Heritage Trade Drive, Suite 105; Wake Forest, NC 27587, at 919.554.4884, extension 23, or eric.c.alsmeyer@usace.army.mil will be immediately notified to initiate the required Federal coordination.

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.

12. MAINTAIN FLOWS AND CIRCULATION PATTERNS 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 and/or wetlands.

13. SEDIMENT AND 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 waters and/or wetlands, 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.

14. CLEAN FILL: The Permittee shall use only clean fill material for this project. The fill material shall be free of items such as trash, construction debris, metal and plastic products, and concrete block with exposed metal 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.

15. 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 Resources at (919) 733-3300 or (800) 858-0368 and provisions of the North Carolina Oil Pollution and Hazardous Substances Control Act shall be followed.

16. IN-WATER WORK MORATORIA: To avoid adverse impacts to the Eastern Hellbender in the project area, no in-water work shall be conducted from April 1 to November 1, within the Watauga River and Laurel Fork, and adjacent wetlands that have an active connection to these tributaries during periods of inundation. To avoid adverse impacts to reproducing trout in the project area, no in-water work shall be conducted from October 15 to April 15, within perennial tributaries, other than the Watauga River and Laurel Fork, and their adjacent wetlands that have an active connection to these tributaries during periods of inundation.

17. AQUATIC LIFE MOVEMENT: No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area. All discharges of dredged or fill material within waters of the United States shall be designed and constructed to maintain low flows to sustain the movement of aquatic species.

18. PROHIBITIONS ON CONCRETE: The Permittee shall take measures necessary to prevent live or fresh concrete, including bags of uncured concrete, from coming into contact with any water in or entering into waters of the United States. Water inside coffer dams or casings that has been in contact with concrete shall only be returned to waters of the United States when it no longer poses a threat to aquatic organisms (concrete is set and cured).

19. COMPENSATORY 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.

20. 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 culvert 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 culvert or pipe 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.

4) Culverts placed within wetlands must be installed in a manner that does not restrict the flows and circulation patterns of waters of the United States. Culverts placed across wetland fills purely for the purposes of equalizing surface water shall not be buried, but the culverts must be of adequate size and/or number to ensure unrestricted transmission of water.

21. TEMPORARY FILLS: Within thirty (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.

End Special Conditions – SAW-2010-00653

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

Permittee: NCDOT **Action ID:** SAW-2010-00653
Project Name: TIP R-2566; Section BA/NC105/DIV11 **County:** Watauga

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

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

Permitted Impacts and Compensatory Mitigation Requirements

Permitted Impacts Requiring Mitigation*: **8-digit HUC and Basin:** 06010103, Watauga River Basin

Stream Impacts (linear feet)			Wetland Impacts (acres)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-Riverine	Non-Riparian	Coastal
		203				

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

Compensatory Mitigation Requirements: **8-digit HUC and Basin:** 06010103, Watauga River Basin

Stream Mitigation (credits)			Wetland Mitigation (credits)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-Riverine	Non-Riparian	Coastal
		406				

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

Section to be completed by the Mitigation Sponsor

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

Mitigation Sponsor Name: _____

Name of Sponsor's Authorized Representative: _____

_____ _____
Signature of Sponsor's Authorized Representative **Date of Signature**

USACE Wilmington District
Compensatory Mitigation Responsibility Transfer Form, Page 2

Conditions for Transfer of Compensatory Mitigation Credit:

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

Comments/Additional Conditions:

This form is not valid unless signed below by the USACE Project Manager and by the Mitigation Sponsor on Page 1. ***Once signed, the Sponsor should provide copies of this form along with an updated bank ledger to: 1) the Permittee, 2) the USACE Project Manager at the address below, and 3) the Wilmington District Mitigation Office, Attn: Todd Tugwell, 3331 Heritage Trade Drive, Suite 105, Wake Forest, NC 27587 (email: todd.tugwell@usace.army.mil)***. Questions regarding this form or any of the permit conditions may be directed to the USACE Project Manager below.

USACE Project Manager: Eric Alsmeyer
USACE Field Office: Raleigh Regulatory Field Office
US Army Corps of Engineers
3331 Heritage Trade Drive, Suite 105
Wake Forest, NC 27587
Email: **eric.c.alsmeyer@usacearmy.mil**

USACE Project Manager Signature

November 6, 2019
Date of Signature

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

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the Customer Satisfaction Survey located at our website at http://regulatory.usacesurvey.com/ to complete the survey online.

DocuSign Envelope ID: 07E15835-9AF7-408F-8EDE-EF4DA0127D68

ROY COOPER
Governor
MICHAEL S. REGAN
Secretary
LINDA CULPEPPER
Director

NORTH CAROLINA
Environmental Quality

June 19, 2019

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: 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act with ADDITIONAL CONDITIONS for proposed improvements to NC 105 and Bridge No. 5 replacement over the Watauga River in Watauga County; WBS 37512.1.1; TIPs R-2566BA and R-2566B. NCDWR Project No. 20190397

Dear Mr. Harris:

Attached hereto is a copy of Certification No.004194 issued to The North Carolina Department of Transportation (NCDOT) dated June 19, 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

Attachments

Electronic copy only distribution:
Steve Kichefsky, US Army Corps of Engineers, Asheville Field Office
Kevin Hining, Division 11 Environmental Officer
Carla Dagnino, NC Department of Transportation
Chris Militscher, US Environmental Protection Agency
Claire Ellwanger, US Fish and Wildlife Service
Marla Chambers, NC Wildlife Resources Commission
Beth Harmon, Division of Mitigation Services
File Copy

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

THIS CERTIFICATION is issued in conformity with the requirements of Section 401 Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Resources (NCDWR) Regulations in 15 NCAC 2H. This certification authorizes the NCDOT to impact 0.57 acres (preliminary for B-Section; no wetland impacts for BA Section) of jurisdictional wetlands; 4,099 linear feet of jurisdictional streams (preliminary for B-Section); and, 600 linear feet of jurisdictional streams for BA Section (203 permanent and 397 temporary) in Watauga County. The project shall be constructed pursuant to the application dated received March 29, 2019 (revised April 17, 2019). The authorized impacts are as described below:

Stream Impacts in the Watauga River Basin R-2566BA; Final

Site	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)
	Culvert			
1	100	10	110	-
2	-	274	274	-
3	-	70	70	-
4	73	22	95	-
5	30	21	51	-
Total	**203**	**397**	**600**	**-**

Total Stream Impact for Section BA: 600 linear feet

Stream Impacts in the Watauga River Basin R-2566B; Preliminary

Site	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)
1A, B	300	-	300	300
1	163	-	163	-
4, 6, 8	479	-	479	479
5, 7	169	-	169	-
9	163	-	163	-
10	77	-	77	-
11	132	-	132	-

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Stream Impacts in the Watauga River Basin R-2566B; Preliminary

Site	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)
12	93	-	93	-
14, 15	66	-	66	-
16	135	-	135	-
18	42	-	42	-
19	90	-	90	-
20	42	-	42	-
21	242	-	242	-
25	217	-	217	-
26	152	-	152	-
28	50	-	50	-
29	54	-	54	-
30	73	-	73	-
31	52	-	52	-
32	130	-	130	-
34	115	-	115	-
35	268	-	268	-
36, 37	150	-	150	-
38	59	-	59	-
39	40	-	40	-
42	98	-	98	-
Additional	200	-	200	-
Total	**4,099**	**-**	**4,099**	**779**

Total Preliminary Stream Impacts for Project: 4,099 linear feet

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Wetland Impacts in the Watauga River Basin (Riverine) Preliminary; B Section

Site	Fill (ac)	Excavation (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Total Wetland Impact (ac)
1A	0.09	-	-	-	0.09
1B	<0.01	-	-	-	<0.01
2	0.02	-	-	-	0.02
3	0.04	-	-	-	0.04
7	0.02	-	-	-	0.02
10	0.01	-	-	-	0.01
11	0.02	-	-	-	0.02
13	0.03	-	-	-	0.03
17	0.08	-	-	-	0.08
20	0.06	-	-	-	0.06
27	0.03	-	-	-	0.03
32	0.03	-	-	-	0.03
33	<0.01	-	-	-	<0.01
35	0.02	-	-	-	0.02
40	<0.01	-	-	-	<0.01
Additional	0.10	-	-	-	0.10
Total	**0.57**	**-**	**-**	**-**	**0.57**

Total Preliminary Wetland Impact for Project: 0.57 acres.

The application provides adequate assurance that the discharge of fill material into the waters of the Watauga River Basin 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 March 29, 2019 (revised April 17, 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). For this approval to remain valid, you are required to comply with all the conditions listed below. In addition, you should obtain all

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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.

Condition(s) of Certification:

Specific Conditions

1. When final design plans are completed for R-2566B, a modification to the 401 Water Quality Certification shall be submitted with five copies and fees to the NC Division of Water Resources. Final designs shall reflect all appropriate avoidance, minimization, and mitigation for impacts to wetlands, streams, and other surface waters. No construction activities that impact any wetlands, streams, surface waters located in R-2566B shall begin until after the permittee applies for and receives a written modification of the 401 Water Quality Certification from the NC Division of Water Resources. [15A NCAC 02H. 0506(b)]

2. Compensatory mitigation for 779 linear feet of impact to streams for the B Section is required. We understand that you have chosen to perform compensatory mitigation for impacts to streams through the North Carolina Division of Mitigation Service (DMS) (formerly NCEEP), and that the DMS has agreed to implement the mitigation for the project. The DMS has indicated in a letter dated April 12, 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.

3. NCDOT shall be in compliance with the NCS000250 issued to the NCDOT, including the applicable requirements of NCG010000. Please note the extra protections for the sensitive watersheds. [15A NCAC 02B.0224 and 0225]

4. NCDOT will adhere to a trout moratorium for tributaries to the Watauga River and Laurel Fork during October 15 through April 15 prohibiting in-water work and land disturbance within 25 feet of the stream. [15A NCAC 02H .0506(b)(2) and 15A NCAC 04B.0125]

5. NCDOT will coordinate with NCWRC regarding rescue and relocation of the eastern hellbender prior to causeway installation to determine if river conditions will facilitate the task. NCDOT will adhere to an in-water moratorium from April 1 through November 1 to protect early life stages and spawning activities of the hellbender. [15A NCAC 02H .0506(b)(2) and 15A NCAC 04B.0125]

6. Bridge demolition and construction must be accomplished in strict compliance with the most recent version of NCDOT's Best Management Practices for Construction and Maintenance Activities. [15A NCAC 02H .0507(d)(2) and 15A NCAC 02H .0506(b)(5)]

7. 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)

8. Post-construction removal of any temporary bridge structures/workpads must return the project site to its preconstruction contours and elevations. The impacted areas shall be revegetated with appropriate native species. [15A NCAC 02H .0506(b)(2)

9. 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. This requirement is waived if noted/shown on permit plans that burial will not occur. 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 by the NCDWR. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact the 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)]

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10. 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]

General Conditions

1. 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)]

2. 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)]

3. 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)]

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

5. 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]

6. 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)]

7. 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)]

8. The outside buffer, wetland or water boundary located within the construction corridor approved by this authorization shall be clearly marked by highly visible fencing or flagging 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]

9. 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.

10. 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)]

11. Upon completion of the project (including any impacts at associated borrow or waste sites), the NCDOT Division Engineer (or appointee) shall complete and return the enclosed "Certification of Completion Form" to notify the NCDWR when all work included in the 401 Certification has been completed. [15A NCAC 02H.0502(f)]

12. 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 02H.0506(b)(3) and (c)(3)]

13. 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,

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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)]

14. Where placement of sediment and erosion control devices in wetlands and/or waters is unavoidable, they shall be removed, and the natural grade restored upon completion of the project. [15A NCAC 02H.0506(b)(3) and (c)(3)].

15. 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.

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-providing 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

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This the 19th day of June, 2019

DIVISION OF WATER RESOURCES

Linda Culpepper, Director

WQC No. 004194

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ROY COOPER
Governor
MICHAEL S. REGAN
Secretary
LINDA CULPEPPER
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.

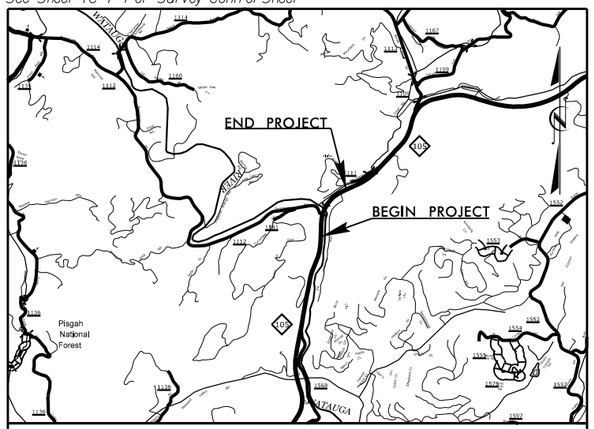
Signature _____ Registration No. _____

Date _____

TIP PROJECT: R-2566BA

CONTRACT: _

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WATAUGA COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2566BA	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
37512.1.4	NHP-0105(005)	PE
37512.2.3		UTIL., ROW

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

LOCATION: NC 105 – CONSTRUCT NEW BRIDGE OVER WATAUGA RIVER AND LEFT-TURN LANE AT SR 1112 (BROADSTONE RD.) WITHIN THE LIMITS OF R-2566B

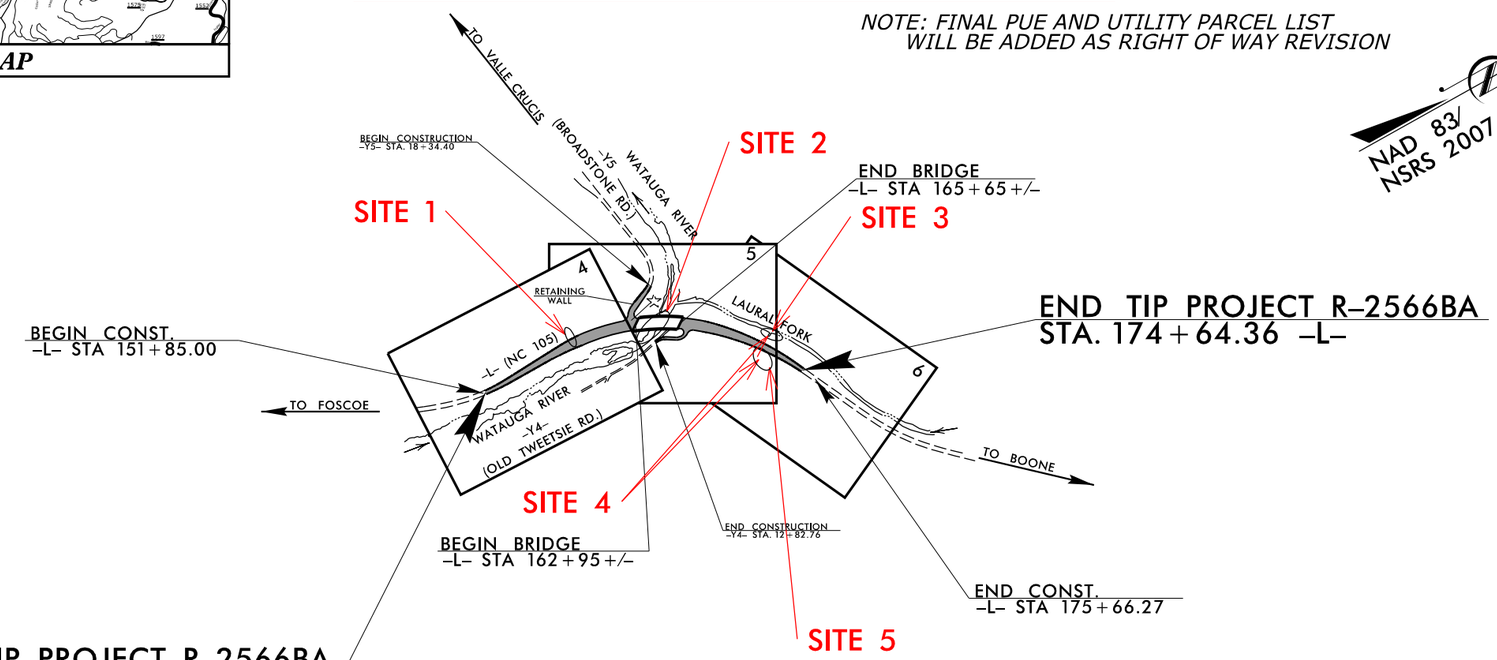
TYPE OF WORK: DRAINAGE, GRADING, PAVING, SIGNAL & STRUCTURE

PERMIT DRAWING
SHEET 1 OF 9

WETLAND AND SURFACE WATER IMPACTS PERMIT

NOTE: FINAL PUE AND UTILITY PARCEL LIST WILL BE ADDED AS RIGHT OF WAY REVISION

NAD 83/
NSRS 2007



THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

☆ EXISTING TRAFFIC SIGNAL TO BE RETROFITTED

HYDRAULIC ENGINEERS

TGS ENGINEERS
TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

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 2019 = 15,000
ADT 2040 = 18,000
K = 10 %
D = 60 %
T = 6 % *
V = 60 MPH
* TTST=2% DUAL=4%
FUNC CLASS=ARTERIAL

STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-2566BA	=	0.378 MILES
LENGTH STRUCTURE TIP PROJECT R-2566BA	=	0.051 MILES
TOTAL LENGTH OF TIP PROJECT R-2566BA	=	0.429 MILES

Prepared for the North Carolina Department of Transportation in the Office of:

WETHERILL ENGINEERING
1223 JONES FRANKLIN ROAD
Raleigh, N.C. 27606
License No. F-0277
Bus: 919 851 8077
Fax: 919 851 8107

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: SEPTEMBER 21, 2018

LETTING DATE: SEPTEMBER 17, 2019

EDWARD G. WETHERILL, PE
PROJECT ENGINEER

BOB A. MAY, PE
PROJECT DESIGN ENGINEER

NCDOT CONTACT: NATHAN N. ADIMA, PE
ROADWAY DESIGN: PROJECT ENGINEER

HYDRAULICS ENGINEER

_____ P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

_____ P.E.
SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

10/13/2018
X:\NCDOT\R-2566BA\Hydraulics\PERMITS_Environmental\Drawings\R-2566BA_Rdy_psh_01_tsh.dgn
User:dpetty

PERMIT DRAWING SHEET 2 OF 9

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Bus: 919 851 8077
Fax: 919 851 8107
TRANSPORTATION PLANNING/DESIGN • BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN • GIS/GPS • CONSTRUCTION OBSERVATION

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

PROJECT REFERENCE NO.	SHEET NO.
R-2566BA	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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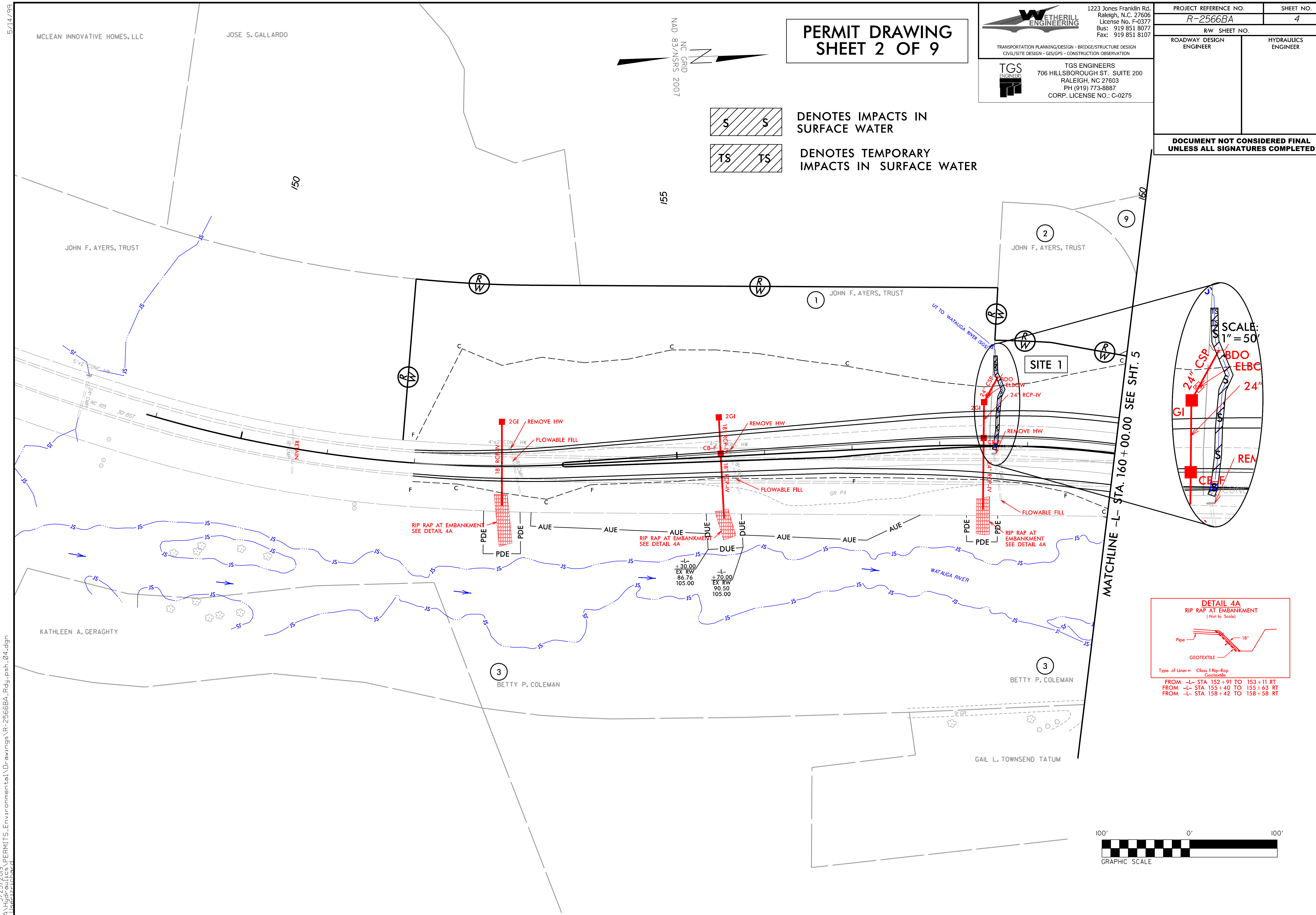

NC GRID NAD 83/NSRS 2007
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
MCLEAN INNOVATIVE HOMES, LLC
JOSE S. GALLARDO
JOHN F. AYERS, TRUST
KATHLEEN A. GERAGHTY
BETTY P. COLEMAN
GAIL L. TOWNSEND TATUM
150
155
160
SITE 1
SCALE: 1" = 50'
2GI
REMOVE HW
FLOWABLE FILL
RIP RAP AT EMBANKMENT SEE DETAIL 4A
24" CSP
BDO
ELBOW
24" RCP-IV
WATAUGA RIVER
UT TO WATAUGA RIVER
PDE
AUE
DUE
-L- +30.00 EX RW 86.76 105.00
-L- +70.00 EX RW 90.50 105.00
MATCHLINE -L- STA. 160+00.00 SEE SHT. 5
DETAIL 4A
RIP RAP AT EMBANKMENT
(Not to Scale)
Pipe
18"
GEOTEXTILE
Type of Liner= Class I Rip-Rap Geotextile
FROM -L- STA 152+91 TO 153+11 RT
FROM -L- STA 155+40 TO 155+63 RT
FROM -L- STA 158+42 TO 158+58 RT
100' 0' 100'
GRAPHIC SCALE

SEE SHT. 7 FOR -L- PROFILE

5/14/99

3/25/2019
...R-2566BA\Hydraulics\PERMITS_Environmental\Drawings\R-2566BA_Rdy_psh_04.dgn

WETHERILL ENGINEERING
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
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Bus: 919 851 8077
Fax: 919 851 8107
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

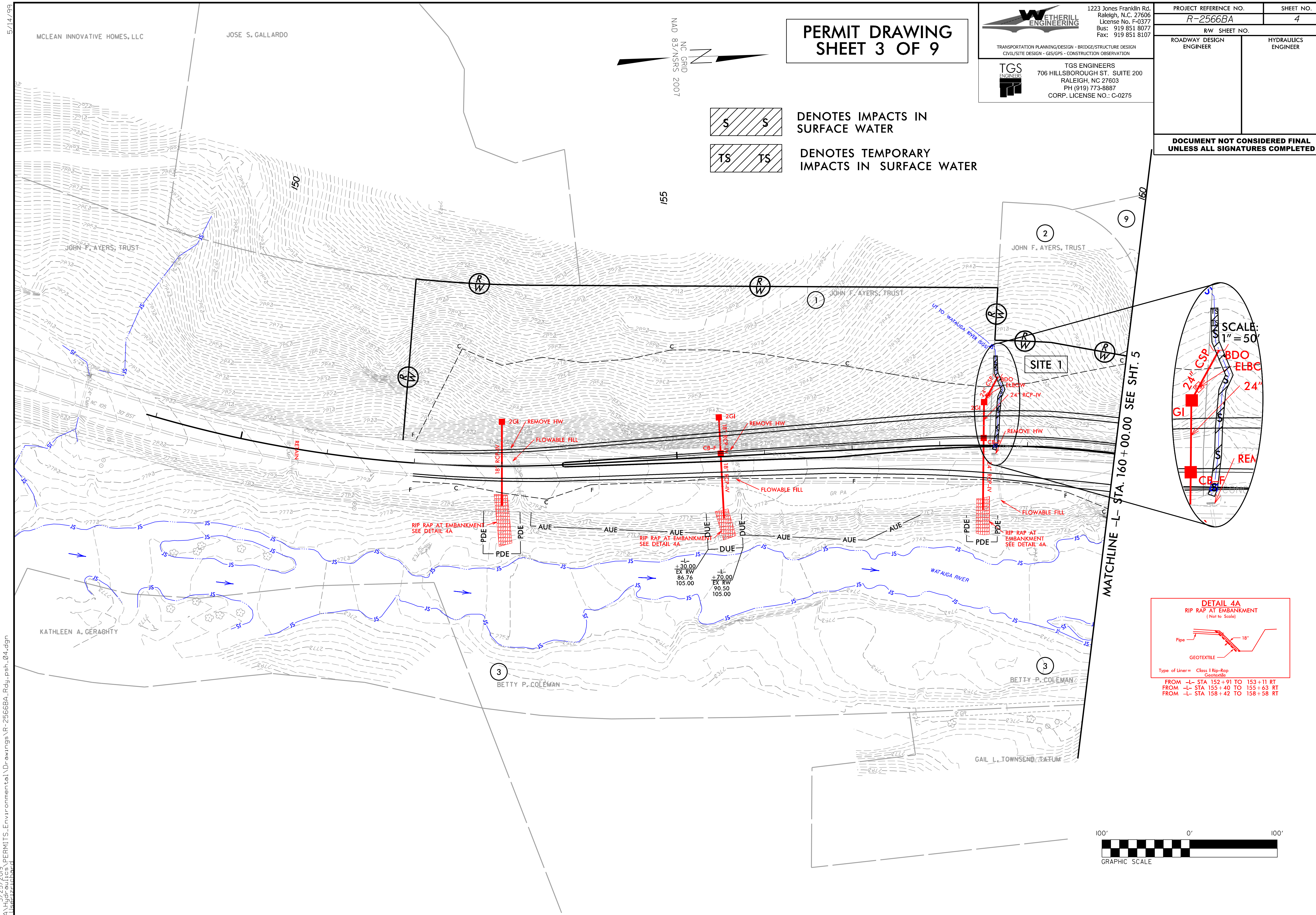
PROJECT REFERENCE NO.	SHEET NO.
R-2566BA	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 3 OF 9

S S — DENOTES IMPACTS IN SURFACE WATER

TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER



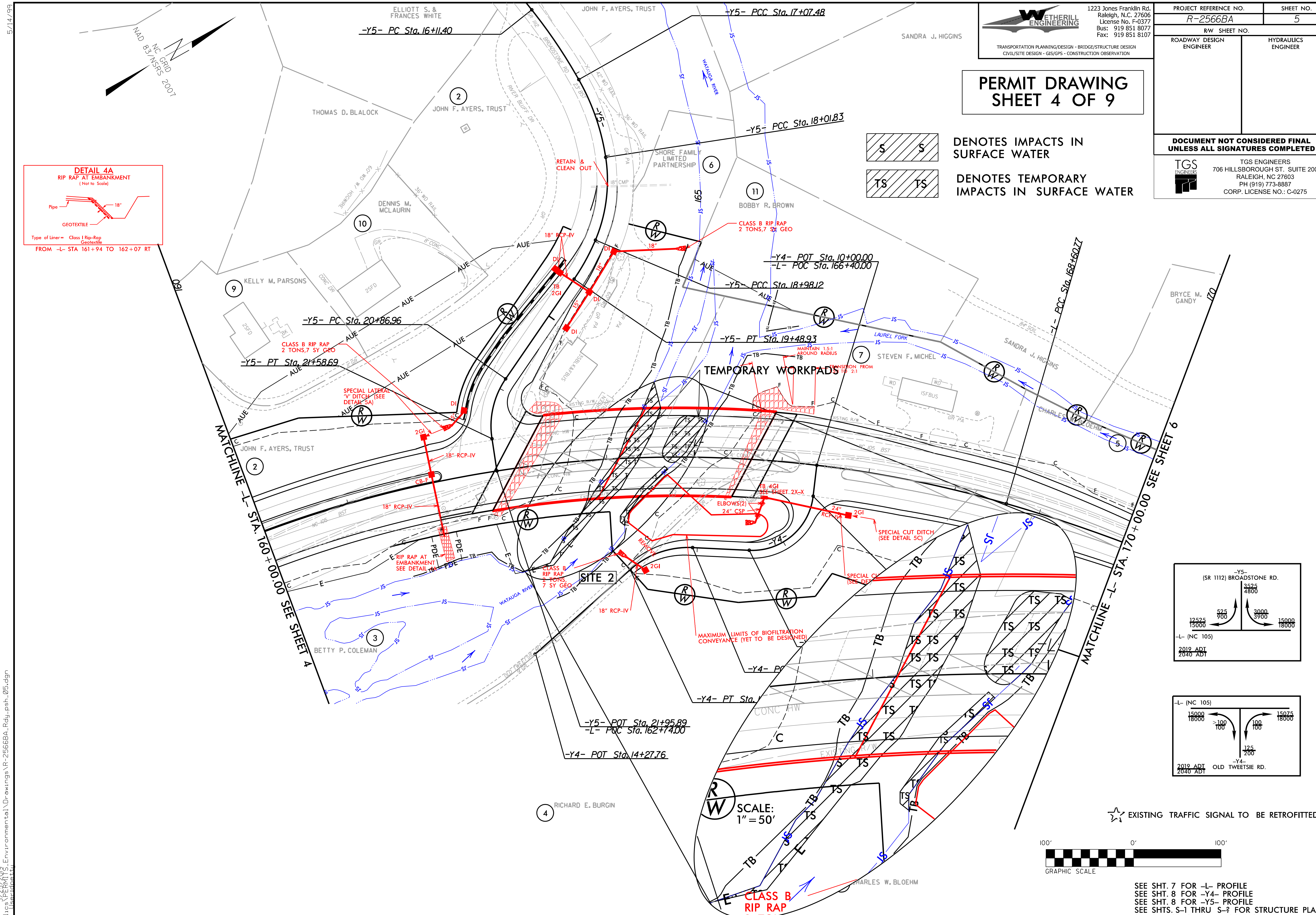
DETAIL 4A
RIP RAP AT EMBANKMENT
(Not to Scale)
Pipe
18"
GEOTEXTILE
Type of Liner= Class I Rip-Rap Geotextile

FROM -L- STA 152+91 TO 153+11 RT
FROM -L- STA 155+40 TO 155+63 RT
FROM -L- STA 158+42 TO 158+58 RT

100' 0' 100'
GRAPHIC SCALE

SEE SHT. 7 FOR -L- PROFILE

3/25/2019
R-2566BA\Hydraulics\PERMITS_Environmental\Drawings\R-2566BA_Rdy_psh_04.dgn


PROJECT REFERENCE NO. R-2566BA
SHEET NO. 5
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
WETHERILL ENGINEERING
1223 Jones Franklin Rd. Raleigh, N.C. 27606 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION
TGS ENGINEERS 706 HILLSBOROUGH ST. SUITE 200 RALEIGH, NC 27603 PH (919) 773-8887 CORP. LICENSE NO.: C-0275
PERMIT DRAWING SHEET 4 OF 9
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DETAIL 4A
RIP RAP AT EMBANKMENT
(Not to Scale)
Type of Liner = Class I Rip-Rap Geotextile
FROM -L- STA 161+94 TO 162+07 RT
NC GRID NAD 83/NSRS 2007
-Y5- PC Sta. 16+11.40
-Y5- PCC Sta. 17+07.48
-Y5- PCC Sta. 18+01.83
-Y4- POT Sta. 10+00.00
-L- POC Sta. 166+40.00
-Y5- PCC Sta. 18+98.12
-Y5- PT Sta. 19+48.93
-Y5- PC Sta. 20+86.96
-Y5- PT Sta. 21+58.69
-Y5- POT Sta. 21+95.89
-L- POC Sta. 162+74.00
-Y4- POT Sta. 14+27.76
-L- PCC Sta. 168+60.77
TEMPORARY WORKPADS
SITE 2
MATCHLINE -L- STA. 160+00.00 SEE SHEET 4
MATCHLINE -L- STA. 170+00.00 SEE SHEET 6
ELLIOTT S. & FRANCES WHITE
JOHN F. AYERS, TRUST
THOMAS D. BLALOCK
SHORE FAMILY LIMITED PARTNERSHIP
BOBBY R. BROWN
DENNIS M. MCLAURIN
KELLY M. PARSONS
STEVEN F. MICHEL
SANDRA J. HIGGINS
BRYCE M. GANDY
BETTY P. COLEMAN
RICHARD E. BURGIN
CHARLES W. BLOEHM
WATAUGA RIVER
LAUREL FORK
CLASS B RIP RAP 2 TONS,7 SY GEO
SPECIAL LATERAL 'V' DITCH (SEE DETAIL 5A)
RETAIN & CLEAN OUT
SPECIAL CUT DITCH (SEE DETAIL 5C)
MAXIMUM LIMITS OF BIOFILTRATION CONVEYANCE (YET TO BE DESIGNED)
RIP RAP AT EMBANKMENT SEE DETAIL 4A
-Y5- (SR 1112) BROADSTONE RD.
-L- (NC 105)
2019 ADT / 2040 ADT
-Y4- OLD TWEETSIE RD.
EXISTING TRAFFIC SIGNAL TO BE RETROFITTED
SCALE: 1" = 50'
GRAPHIC SCALE
SEE SHT. 7 FOR -L- PROFILE
SEE SHT. 8 FOR -Y4- PROFILE
SEE SHT. 8 FOR -Y5- PROFILE
SEE SHTS. S-1 THRU S-? FOR STRUCTURE PLANS
SEE SHT. 2A-4 FOR RETAINING WALL
5/14/99
3/25/2019

5/14/99

WETHERILL ENGINEERING
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

PROJECT REFERENCE NO.	SHEET NO.
R-2566BA	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING SHEET 5 OF 9

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

NAD 83/NSRS 2007 NC GRID

DETAIL 4A
RIP RAP AT EMBANKMENT
(Not to Scale)

Type of Liner– Class I Rip-Rap Geotextile
FROM –L– STA 161+94 TO 162+07 RT

–Y5– PC Sta. 16+11.40
–Y5– PCC Sta. 17+07.48
–Y5– PCC Sta. 18+01.83
–Y5– PCC Sta. 18+98.12
–Y5– PT Sta. 19+48.93
–Y5– PC Sta. 20+86.96
–Y5– PT Sta. 21+58.69
–Y5– POT Sta. 21+95.89
–L– POC Sta. 162+74.00
–Y4– POT Sta. 10+00.00
–L– POC Sta. 166+40.00
–Y4– POT Sta. 14+27.76
–L– PCC Sta. 168+60.77

MATCHLINE –L– STA. 160+00.00 SEE SHEET 4

MATCHLINE –L– STA. 170+00.00 SEE SHEET 6

ELLIOTT S. & FRANCES WHITE
JOHN F. AYERS, TRUST
THOMAS D. BULLOCK
DENNIS M. MCLAURIN
KELLY M. PARSONS
SHORE FAMILY LIMITED PARTNERSHIP
BOBBY R. BROWN
SANDRA J. HIGGINS
STEVEN T. MICHEL
BRYCE M. GANDY
BETTY P. COLEMAN
RICHARD E. BURGIN
CHARLES W. BLOEHM

RETAIN & CLEAN OUT
18" CMP
CLASS B RIP RAP 2 TONS, 7 SY GEO
18" RCP-IV
DI
TB 2GI
SPECIAL LATERAL "V" DITCH (SEE DETAIL 5A)
CB-F
RIP RAP AT EMBANKMENT SEE DETAIL
CLASS B RIP RAP 2 TONS, 7 SY GEO
SITE 2
MAXIMUM LIMITS OF BIOFILTRATION CONVEYANCE (YET TO BE DESIGNED)
TEMPORARY WORKPADS
MAINTAIN 1.5:1 AROUND RADIUS
TRANSITION FROM 1.5:1 TO 2:1
TB 4GI SEE SHEET 2X-X
ELBOWS(2) 24" CSP
24" RCP-IV
2GI
SPECIAL CUT DITCH (SEE DETAIL 5C)
REMOVE
WATAUGA RIVER
LAUREL FORK
OLD TWEETSIE RD.

–Y5– (SR 1112) BROADSTONE RD.
3525 / 4800
525 / 900
3000 / 3900
12525 / 15000
15000 / 18000
–L– (NC 105)
2019 ADT / 2040 ADT

–L– (NC 105)
15000 / 18000
>100 / 100
100 / 100
15075 / 18000
125 / 200
–Y4– OLD TWEETSIE RD.
2019 ADT / 2040 ADT

SCALE: 1" = 50'

☆ EXISTING TRAFFIC SIGNAL TO BE RETROFITTED

100' 0' 100'
GRAPHIC SCALE

SEE SHT. 7 FOR –L– PROFILE
SEE SHT. 8 FOR –Y4– PROFILE
SEE SHT. 8 FOR –Y5– PROFILE
SEE SHTS. S-1 THRU S-? FOR STRUCTURE PLANS
SEE SHT. 2A-4 FOR RETAINING WALL

3/25/2019
\\Hydraulics\Projects\Environmental\Drawings\R-2566BA_Rdy_psh_05.dgn
User:dpetty

R/W SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

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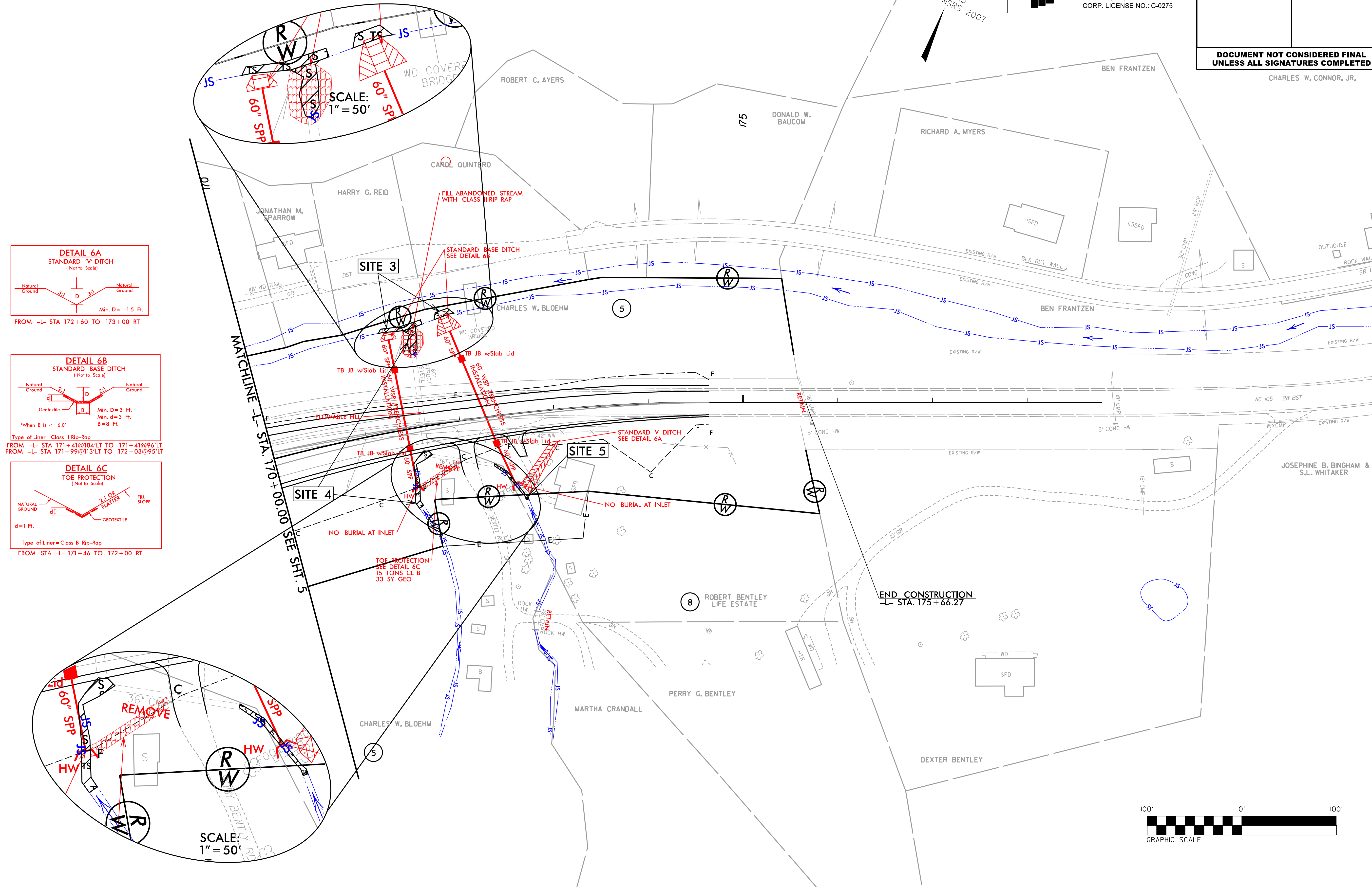
WETHERILL ENGINEERING
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

PERMIT DRAWING SHEET 6 OF 9

DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER



SEE SHT. 8 FOR -L- PROFILE

5/14/99

S S — DENOTES IMPACTS IN SURFACE WATER

TS TS — DENOTES TEMPORARY IMPACTS IN SURFACE WATER

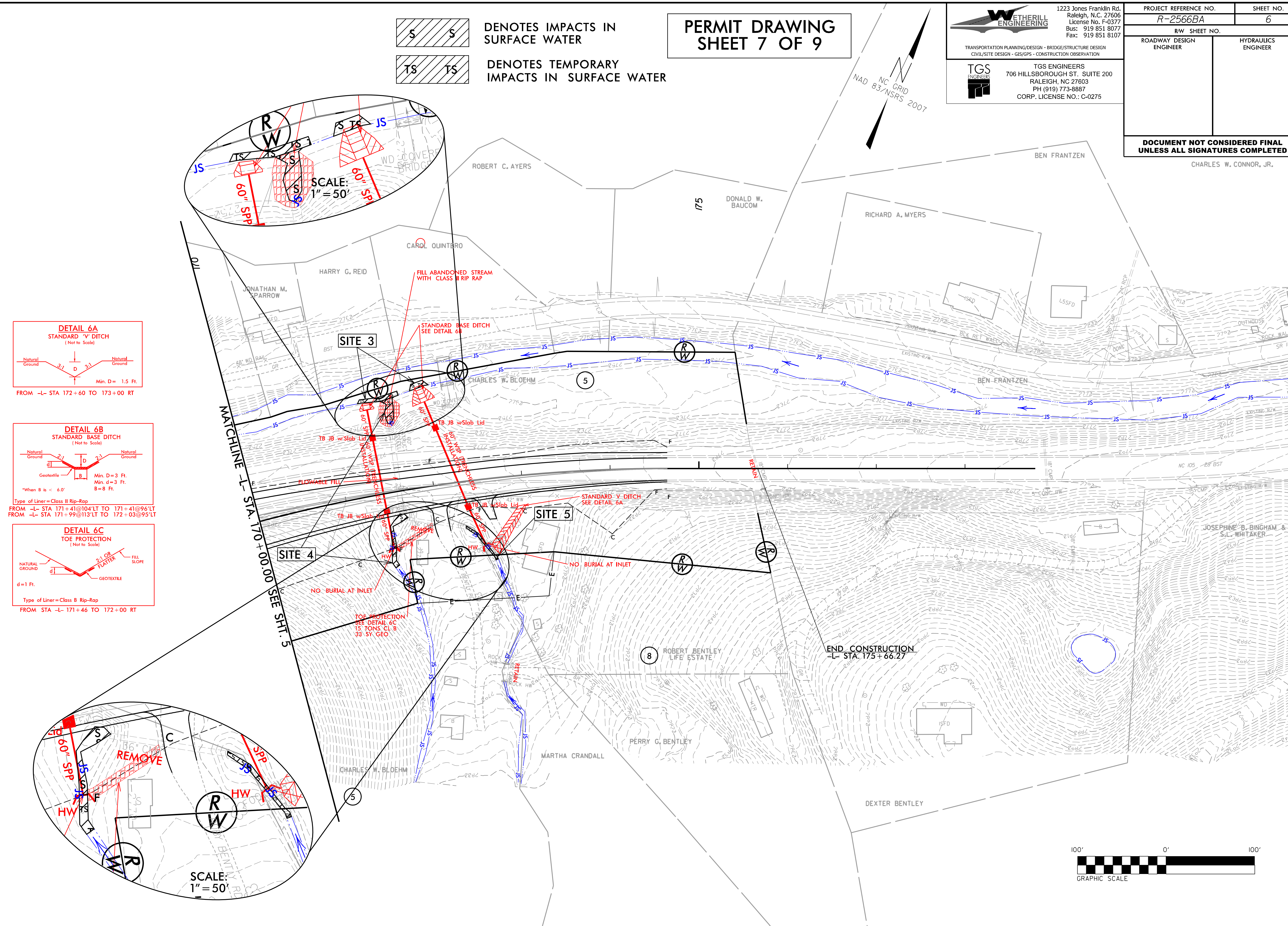
PERMIT DRAWING SHEET 7 OF 9

WETHERILL ENGINEERING
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

PROJECT REFERENCE NO.	SHEET NO.
R-2566BA	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



SEE SHT. 8 FOR -L- PROFILE

3/25/2019
R-2566BA\Hydraulics\PERMITS_Environmental\Drawings\R-2566BA_Rdy_psh_06.dgn

1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107

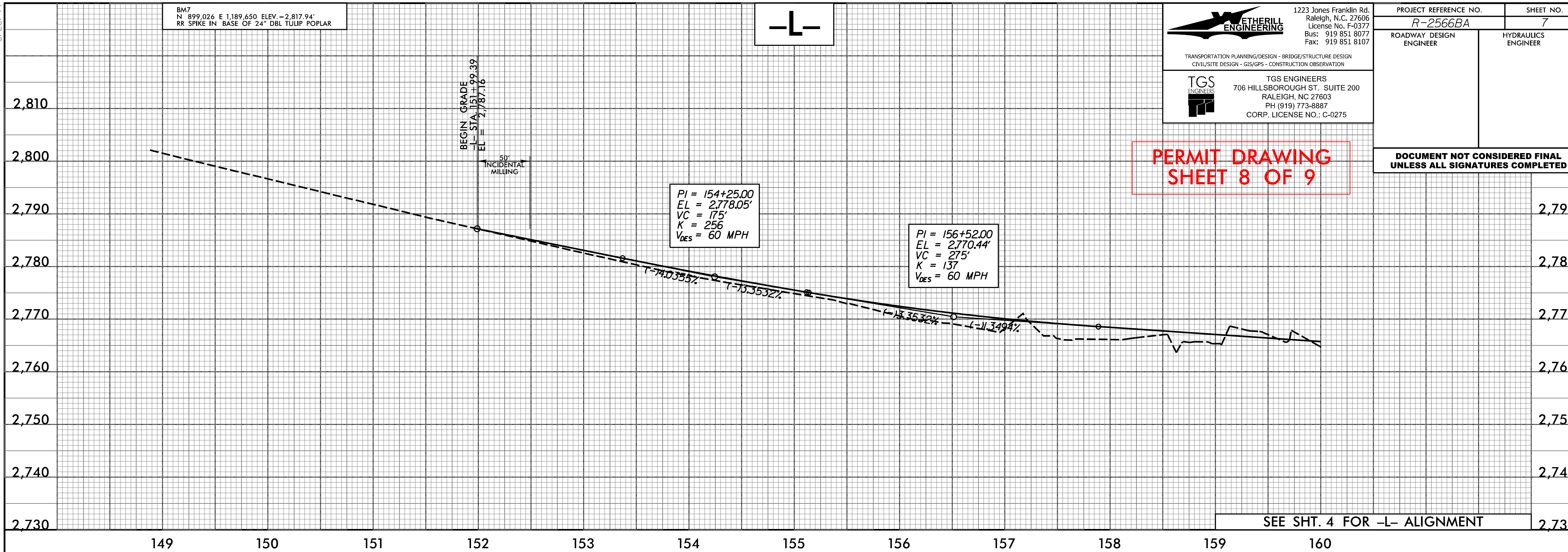
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

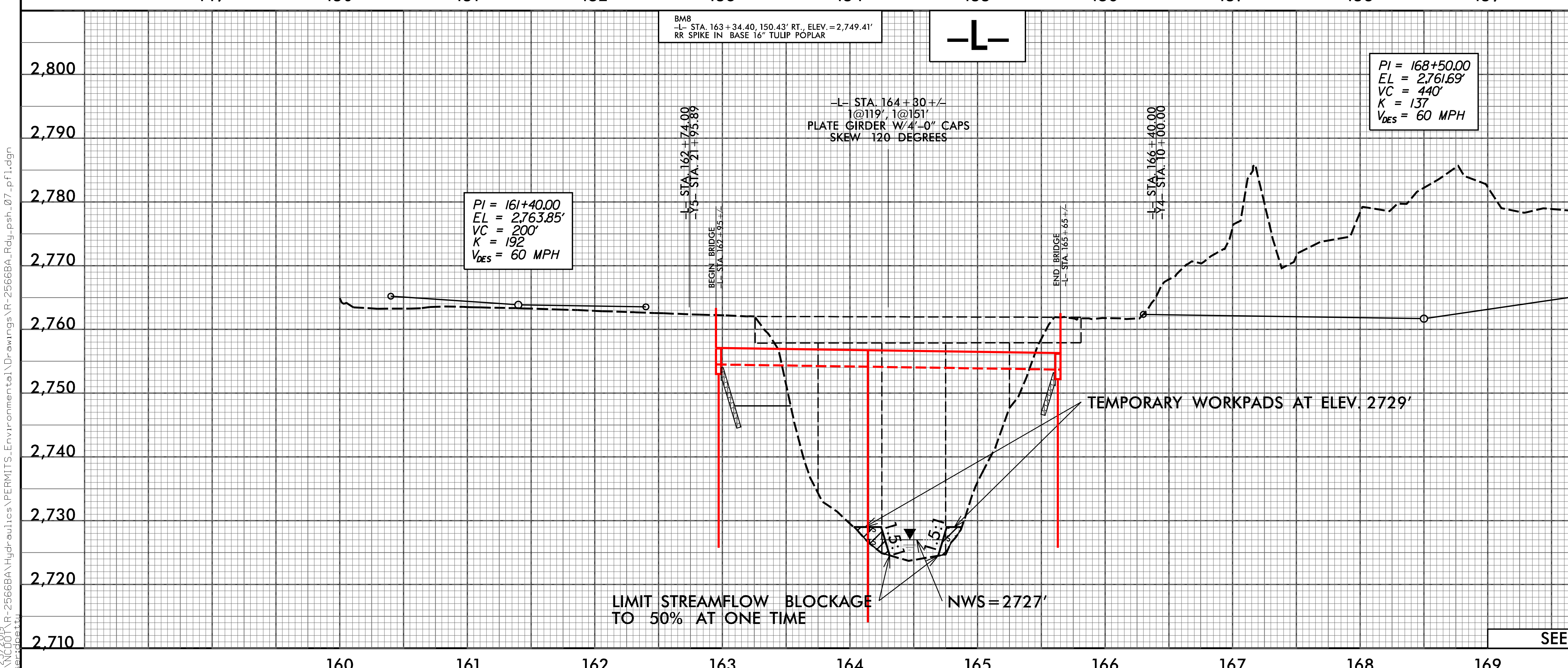
TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

PROJECT REFERENCE NO.	SHEET NO.
R-2566BA	7
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 8 OF 9





BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	=	12,244	CFS
DESIGN FREQUENCY	=	50	YRS
DESIGN HW ELEVATION	=	2,743.5	FT
BASE DISCHARGE	=	15,538	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	2,745.2	FT
OVERTOPPING DISCHARGE	=	25,567+	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	2,765.1	FT
DATE OF SURVEY	=	4/5/2018	
W.S.ELEVATION AT DATE OF SURVEY	=	2,727.0	FT

5/28/99
3/25/2019
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WETLAND AND SURACE WATER IMPACTS SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	158+60/158+72 LT	24" CSP						< 0.01	< 0.01	100	10	
2	162+93/165+13	Temporary Workpad							0.12		274	
2	164+12/164+70 RT	Biofiltration conveyance							0.01			
3	171+33/172+10	60" SSP							< 0.01		70	
4	171+39/171+72	60" SSP						0.01	< 0.01	73	22	
5	172+30/172+63 RT	60" SSP						< 0.01	< 0.01	30	21	
TOTALS*:								0.02	0.15	203	397	0

*Rounded totals are sum of actual impacts

NOTES:
<0.01 acres of Permanent SW impacts for bridge interior bent (drilled shafts) at 164+14.

Site2:Limit streamflow blockage to 50% at one time;Biofiltration conveyance linear impacts accounted for in workpad impacts

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
3/25/2019
WATAUGA COUNTY
R-2566BA
37512.1.4
SHEET 9 OF 9

09/08/19

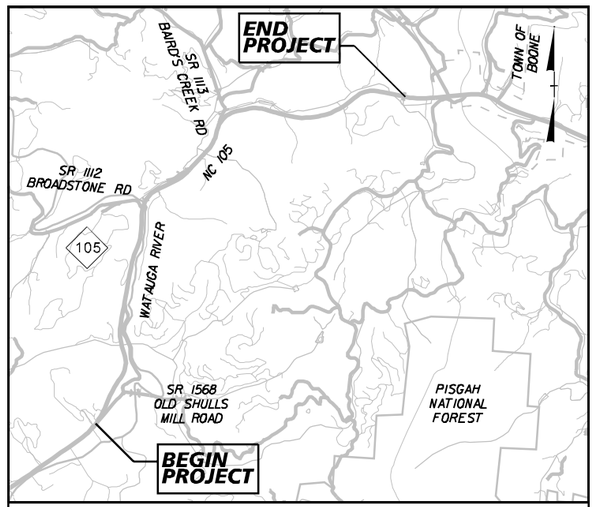
TIP PROJECT: R-2566B

CONTRACT:

K:\CHL_PROJ\0362\2 - (R-2566\Hydraulics\PERMITS_Environmental\CADD\R-2566B_1stdgn

4/11/2019

SEE SHEET 1A FOR INDEX OF SHEETS (FUTURE)
SEE SHEET 1B FOR CONVENTIONAL PLAN SHEET SYMBOLS



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WATAUGA COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2566B	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
37512.1.1	NHPP-0150(004)	PE

15% PLANS - FOR REVIEW ONLY
NOT FOR UTILITY OR HYDRAULIC DESIGN

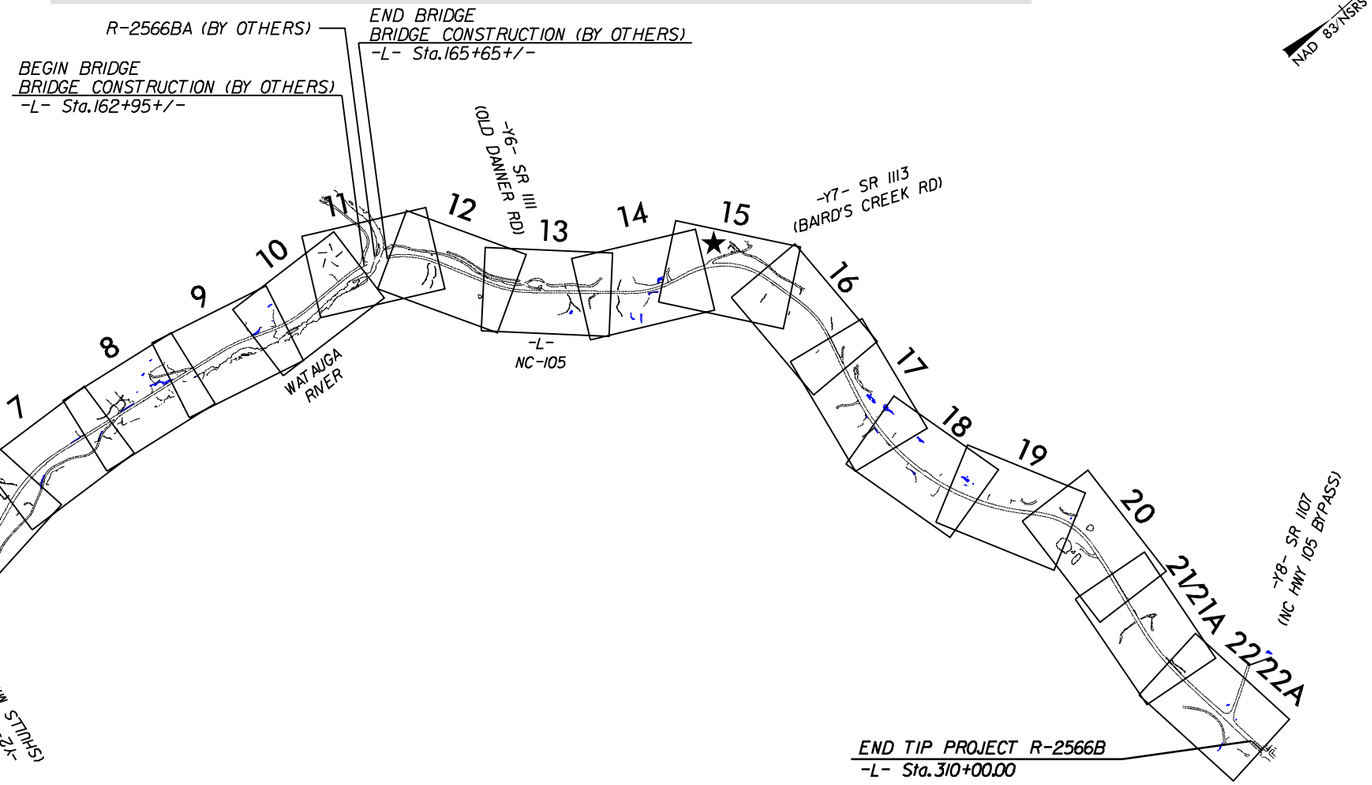
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

LOCATION: *NC 105 FROM SR 1568 (OLD SHULLS MILL RD) IN WATAUGA TO SR 1107 (NC 105 BYPASS)*

TYPE OF WORK: *GRADING, DRAINAGE, PAVING, SIGNALS, CULVERTS, AND RETAINING WALLS*

PRELIMINARY WETLAND AND SURFACE WATER IMPACTS PERMIT

NAD 83/NSRS 2007



NCDOT CONTACT:
NATHAN ADIMA, P.E.
NCDOT – DIVISIONS 11–14
1000 BIRCH RIDGE DRIVE
RALEIGH, NC 27610

★ TRAFFIC SIGNAL
EXISTING TRAFFIC SIGNAL TO BE UPGRADED

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD ?.

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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 2022 = 15700 VPD
ADT 2040 = 18300 VPD
K = 9%
D = 60%
T = 6%*
V = 50 & 60 MPH

FUNCTIONAL CLASSIFICATION: RURAL ARTERIAL
* 2% TTST 4% DUAL
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-2566B = 4.032 MILES

TOTAL LENGTH TIP PROJECT R-2566B = 4.032 MILES

PLANS PREPARED FOR THE NCDOT BY: Kimley»Horn

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: 10/09/2020

LETTING DATE: 10/18/2022

TONY SPACEK, P.E.
PROJECT ENGINEER

BRANDON MURR, EIT
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

-L-		
PI Sta 69+03.11	PI Sta 77+25.46	PIs Sta 82+29.57
△ = 15° 12' 35.3" (LT)	△ = 15° 23' 55.6" (LT)	Θs = 1° 27' 13.6"
D = 2° 02' 46.6"	D = 1° 42' 37.2"	Ls = 170.00'
L = 743.29'	L = 900.34'	LT = 113.34'
T = 373.84'	T = 456.20'	ST = 56.67'
R = 2,800.00'	R = 3,350.00'	
SE = 5% (EXIST.)	SE = 5%	
DS = 65 MPH	DS = 70 MPH	
RO = 135'	RO = 170'	

-Y1-	
PI Sta 11+55.36	PI Sta 21+27.42
△ = 92° 59' 28.6" (LT)	△ = 15° 10' 18.8" (RT)
D = 57° 17' 44.8"	D = 2° 51' 53.2"
L = 162.30'	L = 529.60'
T = 105.36'	T = 266.36'
R = 100.00'	R = 2,000.00'
SE = 4%	SE = 3%
DS = 20 MPH	DS = 30 MPH
RO = 20'	RO = 42'

SEE SHEET 23 FOR -L- PROFILE
SEE SHEET 35 FOR -Y1- PROFILE

50' 0' 100'
GRAPHIC SCALE

Kimley»Horn ©2018
200 SOUTH TRYON, SUITE 200
CHARLOTTE, N.C. 28202

PROJECT REFERENCE NO.	SHEET NO.
R-2566B	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NAD 83/NSRS 2007

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS
5/14/99

70 75 80

SITE 1B
SITE 1A
RICHARD RAY CLARK
SITE 1
SITE 2
SITE 3
RICHARD RAY & DEBRA B. CLARK
PAUL S. & ELIZABETH B. LOFLIN
LUTTRELL AND LOFLIN, LLC
-L- NC-105
-Y1- SR 1568 (OLD SHULLS MILL RD)
S 55° 18' 02" E
N 31° 41' 41.2" E
GREU TL-3
TYPE B77
2' PVC VERTICAL PIPE (POND OUTLET)
FOUNTAIN
FLAGPOLE
MATCHLINE -L- STA 83+00 (SEE SHEET 5)
MATCHLINE -Y1- STA 20+50 (SEE SHEET 5)

STREAM IMPACTS WITHIN SLOPE STAKES +25'•
WETLAND IMPACTS WITHIN SLOPE STAKES +25'•
POND IMPACTS WITHIN SLOPE STAKES +25'•
SLOPE STAKES +25'
•PRELIMINARY IMPACTS

KNCHL_PRJ\01036212 - (R-2566)\Hydraulics\PERMITS_Environmental\CADD\R-2566B_rdy_psh_04.dgn
4/11/2019

-L-					
PIs Sta 82+29.57	PIs Sta 84+66.92	PI Sta 87+54.47	PIs Sta 90+40.15	PIs Sta 93+20.23	PI Sta 98+46.09
Θs = 1° 27' 13.6"	Θs = 2° 39' 51.3"	Δ = 12° 52' 10.3" (RT)	Θs = 2° 39' 51.3"	Θs = 6° 05' 39.1"	Δ = 44° 18' 56.6" (LT)
Ls = 170.00'	Ls = 186.00'	D = 2° 51' 53.2"	Ls = 186.00'	Ls = 234.00'	D = 5° 12' 31.3"
LT = 113.34'	LT = 124.01'	L = 449.23'	LT = 124.01'	LT = 156.09'	L = 850.80'
ST = 56.67'	ST = 62.01'	T = 225.56'	ST = 62.01'	ST = 78.08'	T = 447.96'
		R = 2,000.00'			R = 1,100.00'
		SE = 6%			SE = 6%
		DS = 65 MPH			DS = 55 MPH
		RO = 186'			RO = 234'

-Y1-		
PI Sta 21+27.42	PI Sta 26+96.76	PI Sta 29+49.90
Δ = 15° 10' 18.8" (RT)	Δ = 50° 13' 57.6" (RT)	Δ = 0° 30' 41.8" (RT)
D = 2° 51' 53.2"	D = 19° 05' 54.9"	D = 0° 30' 00.0"
L = 529.60'	L = 263.02'	L = 102.32'
T = 266.36'	T = 140.63'	T = 51.16'
R = 2,000.00'	R = 300.00'	R = 11,459.16'
SE = 3%	SE = 4%	SE = EXIST
DS = 30 MPH	DS = 30 MPH	DS = EXIST
RO = 42'	RO = 56'	RO = 56'

-Y2-
PI Sta 13+16.56
Δ = 79° 21' 39.3" (RT)
D = 36° 57' 54.1"
L = 214.69'
T = 128.59'
R = 155.00'
SE = EXIST
DS = EXIST
RO = 52

Kimley»Horn ©2018
200 SOUTH TRYON, SUITE 200
CHARLOTTE, N.C. 28202

GRAPHIC SCALE 50' 0' 100'

PROJECT REFERENCE NO.	SHEET NO.
R-2566B	5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NSRS 2007

REVISIONS

5/14/99

BM#4
BL- STA 84+10
50' LEFT
ELEVATION=2977.69'

SITE 4
SITE 5
SITE 6
SITE 7
SITE 8

-L- NC-105
GREU TL-3
-Y1- SR 1568 (OLD SHULLS MILL RD)
-Y2- SR 1568 (OLD SHULLS MILL RD)
-Y1- SR 1557 (SHULLS MILL RD)
N 46° 52' 00.0" E
N 68° 01' 13.0" E
N 11° 20' 26.3" W
S 82° 54' 02.4" E

MATCHLINE -L- STA 83+00 (SEE SHEET 4)
MATCHLINE -L- STA 96+00 (SEE SHEET 6)
MATCHLINE -Y1- STA 20+50 (SEE SHEET 4)

RICHARD RAY & DEBRA B. CLARK
LUTTRELL AND LOFLIN, LLC
JACKLYN LUTTRELL LIVING TRUST, LYNNE ANN LUTTRELL LIVING TRUST & PAUL STEVEN LOFLIN
BLUE RIDGE ELECTRIC
PEARL R. LUTTRELL

SEE SHEET 23 FOR -L- PROFILE
SEE SHEET 35 FOR -Y1- PROFILE
SEE SHEET 36 FOR -Y2- PROFILE

STREAM IMPACTS WITHIN SLOPE STAKES +25'•
WETLAND IMPACTS WITHIN SLOPE STAKES +25'•
POND IMPACTS WITHIN SLOPE STAKES +25'•
SLOPE STAKES +25'
•PRELIMINARY IMPACTS

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4/11/2019

-L-			
PI Sta 98+46.09	PIs Sta 103+27.02	PIs Sta 106+42.97	PI Sta 110+79.92
Δ = 44° 18' 56.6" (LT)	Θs = 6° 05' 39.1"	Θs = 3° 39' 25.8"	Δ = 21° 30' 12.6" (RT)
D = 5° 12' 31.3"	Ls = 234.00'	Ls = 240.00'	D = 3° 02' 51.5"
L = 850.80'	LT = 156.09'	LT = 160.03'	L = 705.58'
T = 447.96'	ST = 78.08'	ST = 80.03'	T = 356.99'
R = 1,100.00'			R = 1,880.00'
SE = 6%			SE = 6%
DS = 55			DS = 65
RO = 234'			RO = 240'

SEE SHEET 24 FOR -L- PROFILE

50' 0' 100'
GRAPHIC SCALE

NAD 83/NSRS 2007

Kimley»Horn ©2018
200 SOUTH TRYON, SUITE 200
CHARLOTTE, N.C. 28202

PROJECT REFERENCE NO.	SHEET NO.
R-2566B	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS
5/14/99

MATCHLINE -L- STA 96+00 (SEE SHEET 5)

MATCHLINE -L- STA 109+00 (SEE SHEET 7)

-L- NC-105

BM#5
-BL- STA 105+48
101' LEFT
ELEVATION=2980.33'

SITE 10

SITE 9

SITE 9

JACK LUTTRELL LIVING TRUST, LYNNE LUTTRELL LIVING TRUST & PAUL STEVEN LOFLIN

DENISE GROHS LIVING TRUST

DAVID & DONNA KOHR

DANIEL K. JONES

LUTTRELL AND LOFLIN LLC

TO SR 1557 SHULLS MILL RD.

OLD SHULLS MILL RD.

GREU TL-3

	STREAM IMPACTS WITHIN SLOPE STAKES +25'•
	WETLAND IMPACTS WITHIN SLOPE STAKES +25'•
	POND IMPACTS WITHIN SLOPE STAKES +25'•
	SLOPE STAKES +25'

•PRELIMINARY IMPACTS

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-L-

PI Sta 110+79.92
Δ = 21° 30' 12.6" (RT)
D = 3° 02' 51.5"
L = 705.58'
T = 356.99'
R = 1,880.00'
SE = 6%
DS = 65
R0 = 240'

PIs Sta 115+08.54
Θs = 3° 39' 25.8"
Ls = 240.00'
LT = 160.03'
ST = 80.03'

SEE SHEET 24 FOR -L- PROFILE

50' 0' 100'
GRAPHIC SCALE

Kimley»Horn ©2018
200 SOUTH TRYON, SUITE 200
CHARLOTTE, N.C. 28202

PROJECT REFERENCE NO.	SHEET NO.
R-2566B	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NSRS 2007

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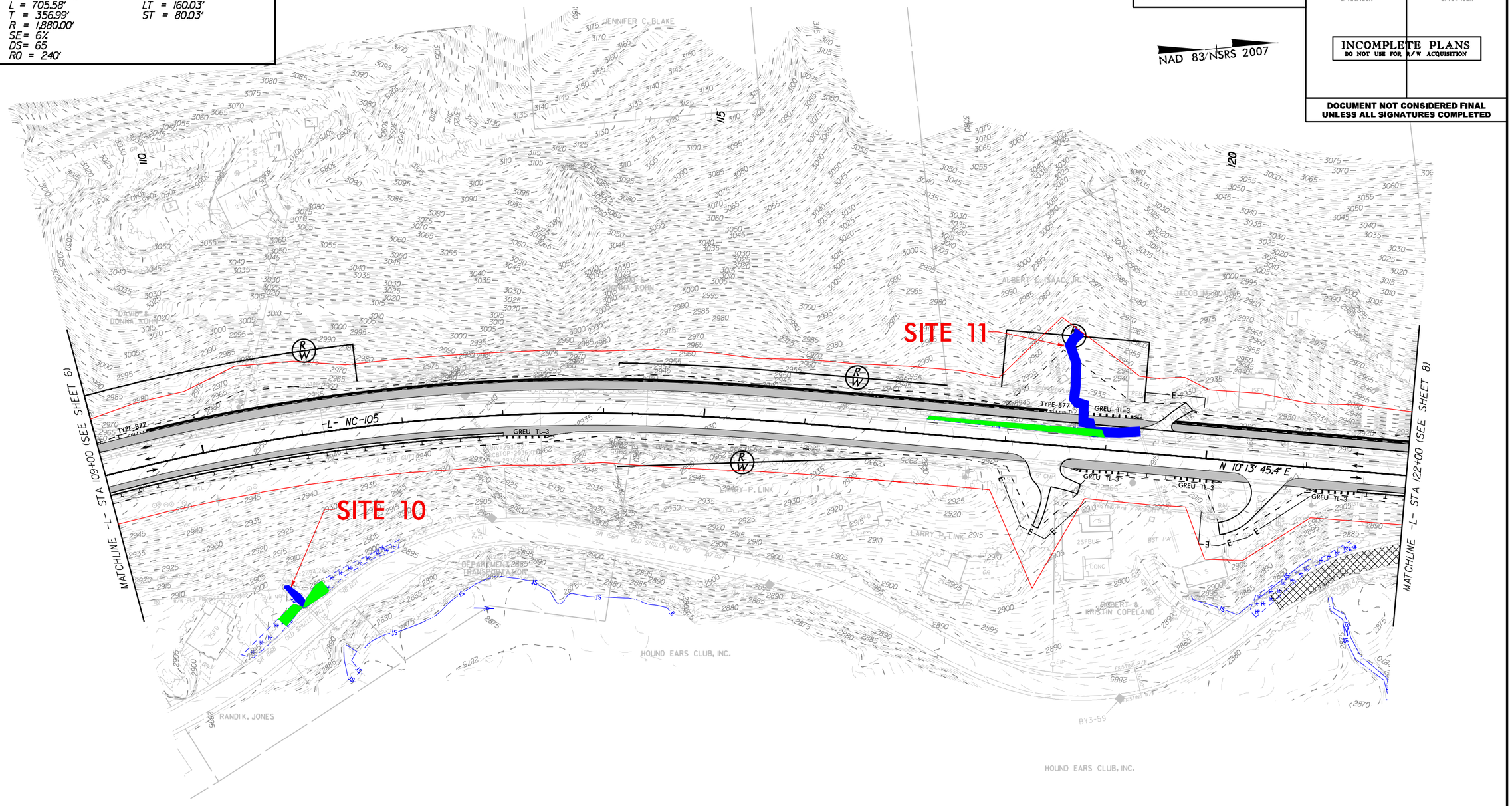

STREAM IMPACTS WITHIN SLOPE STAKES +25'•
WETLAND IMPACTS WITHIN SLOPE STAKES +25'•
POND IMPACTS WITHIN SLOPE STAKES +25'•
SLOPE STAKES +25'
•PRELIMINARY IMPACTS

4/11/2019 KNCHL_PROJ\036212 - (R-2566)\Hydraulics\PERMITS_Environmental\CADD\R-2566B_rdy_psh_01.dgn

SEE SHEET 25 FOR -L- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
R-2566B	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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200 SOUTH TRYON, SUITE 200
CHARLOTTE, N.C. 28202

50' 0' 100'
GRAPHIC SCALE

NAD 83/NSRS 2007

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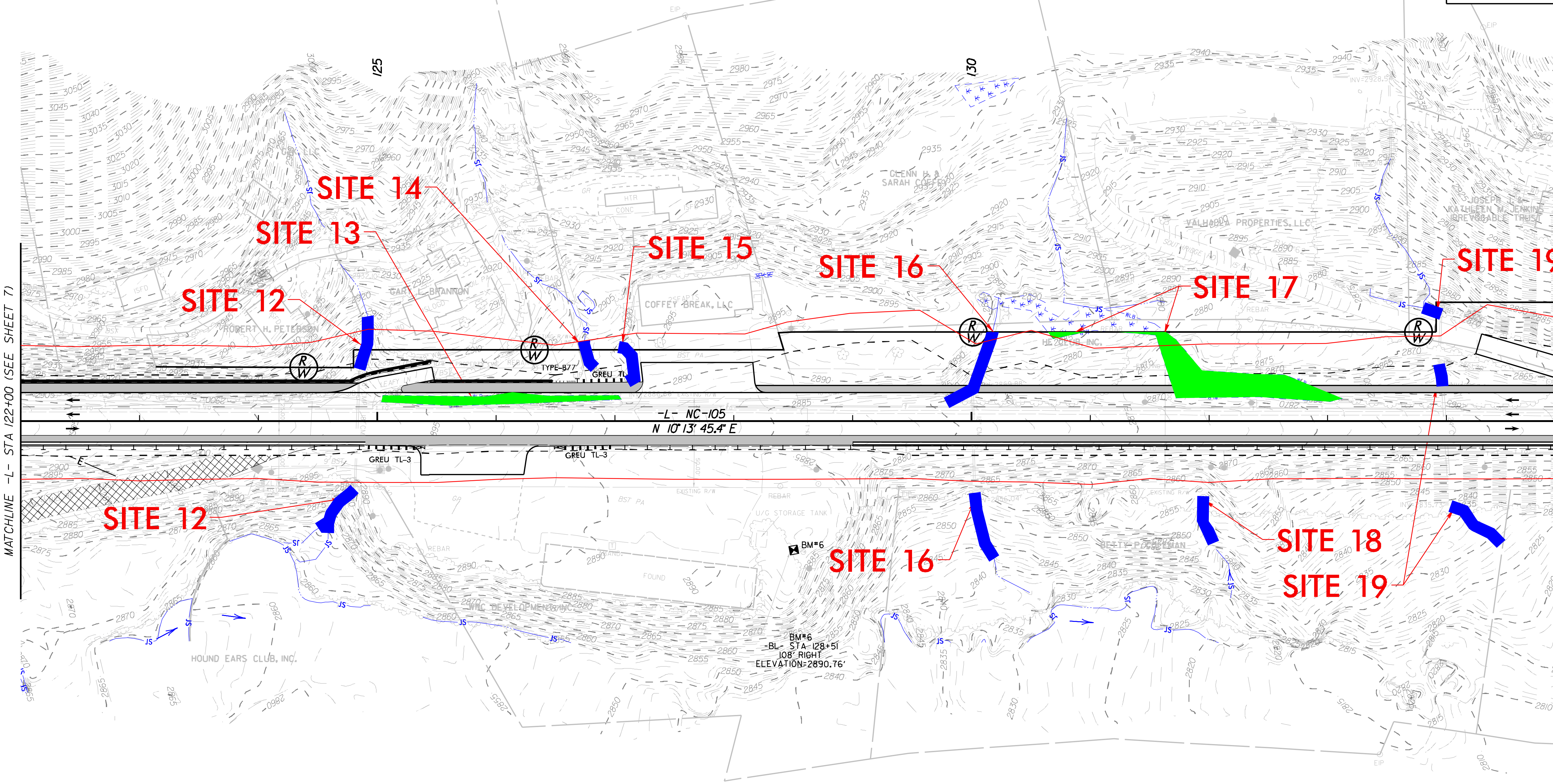

(blue)	STREAM IMPACTS WITHIN SLOPE STAKES +25'*
(green)	WETLAND IMPACTS WITHIN SLOPE STAKES +25'*
(cyan)	POND IMPACTS WITHIN SLOPE STAKES +25'*
(red line)	SLOPE STAKES +25'

*PRELIMINARY IMPACTS

K:\CHL_PRJ\011036212 - (R-2566\Hydraulics\PERMITS_Environmental\CADD\R-2566B_rdy_psh_08.dgn

4/11/2019

-L-

PIs Sta 140+52.37	PI Sta 141+90.52	PIs Sta 143+28.71	PIs Sta 148+10.22	PI Sta 150+76.47
Θs = 3° 49' 11.0"	Δ = 3° 42' 12.1" (RT)	Θs = 3° 49' 11.0"	Θs = 4° 17' 49.9"	Δ = 13° 16' 58.0" (LT)
Ls = 240.00'	D = 3° 10' 59.2"	Ls = 240.00'	Ls = 240.00'	D = 3° 34' 51.6"
LT = 160.04'	L = 116.34'	LT = 160.04'	LT = 160.05'	L = 370.93'
ST = 80.03'	T = 58.19'	ST = 80.03'	ST = 80.04'	T = 186.30'
	R = 1,800.00'			R = 1,600.00'
	SE = 6%			SE = 6%
	DS = 65			DS = 60
	RO = 240°			RO = 240°

SEE SHEET 25 FOR -L- PROFILE

50' 0' 100'
GRAPHIC SCALE

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200 SOUTH TRYON, SUITE 200
CHARLOTTE, N.C. 28202

PI Sta 150+76.47 (LT)
Δ = 13° 16' 58.0"
D = 3° 34' 51.6"
NAD 1983 NSRS 2007
NAD 1983
R = 1,600.00'
SE = 6%
DS = 60

PROJECT REFERENCE NO.	SHEET NO.
R-2566B	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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REVISIONS
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MCLEAN INNOVATIVE HOMES, LLC

SITE 20

SITE 21

BM#7
-BL- STA 145+98
51' LEFT
ELEVATION=2817.94'
RR SPIKE IN BASE
24" DBL TULIP-POPLAR

-L- NC-105
N 10° 13' 45.4" E

-L- NC-105
N 21° 34' 18.7" E

MATCHLINE -L- STA 135+00 (SEE SHEET 8)

MATCHLINE -L- STA 149+00 (SEE SHEET 10)

WATAUGA RIVER

SANDRA JEAN GLOVER LIVING TRUST

EARL D. LOVEJOY LIVING TRUST

JOHN F. AYERS TRUST

KELLY M. TAYLOR

ENTRUST OF TAMPA 3010, LLC

JEAN DAVIS MOBERG LIVING TRUST

BETTY P. COLEMAN

DWAYNE R. HUNT

KATHLEEN A. GERAGHTY

GREU TL-3 TYPE-B77

STREAM IMPACTS WITHIN SLOPE STAKES +25'•
WETLAND IMPACTS WITHIN SLOPE STAKES +25'•
POND IMPACTS WITHIN SLOPE STAKES +25'•
SLOPE STAKES +25'
•PRELIMINARY IMPACTS

4/11/2019 KACHL_PRJ0I103622 - (R-2566)\Hydraulics\PERMITS_Environmental\CADD\R-2566B_rdy_psh_08.dgn

-L-			
PI Sta 150+76.47	PIs Sta 153+41.14	PIs Sta 158+39.08	PI Sta 165+98.50
Δ = 13° 16' 58.0" (LT)	Θs = 4° 17' 49.9"	Θs = 6° 52' 31.8"	Δ = 51° 31' 45.6" (RT)
D = 3° 34' 51.6"	Ls = 240.00'	Ls = 324.00'	D = 4° 14' 38.9"
L = 370.93'	LT = 160.05'	LT = 216.16'	L = 1,214.13'
T = 186.30'	ST = 80.04'	ST = 108.15'	T = 651.59'
R = 1,600.00'			R = 1,350.00'
SE = 6%			SE = 6%
DS = 60			DS = 60
RO = 240'			RO = 324'

SEE SHEET 26 FOR -L- PROFILE

NOTE:
THE PROPOSED ROW SHOWN BETWEEN STA. 158+59.82 TO STA. 171+63.75 IS ANTICIPATED TO BE ACQUIRED AS A PART OF THE R-2566BA PROJECT.

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CHARLOTTE, N.C. 28202

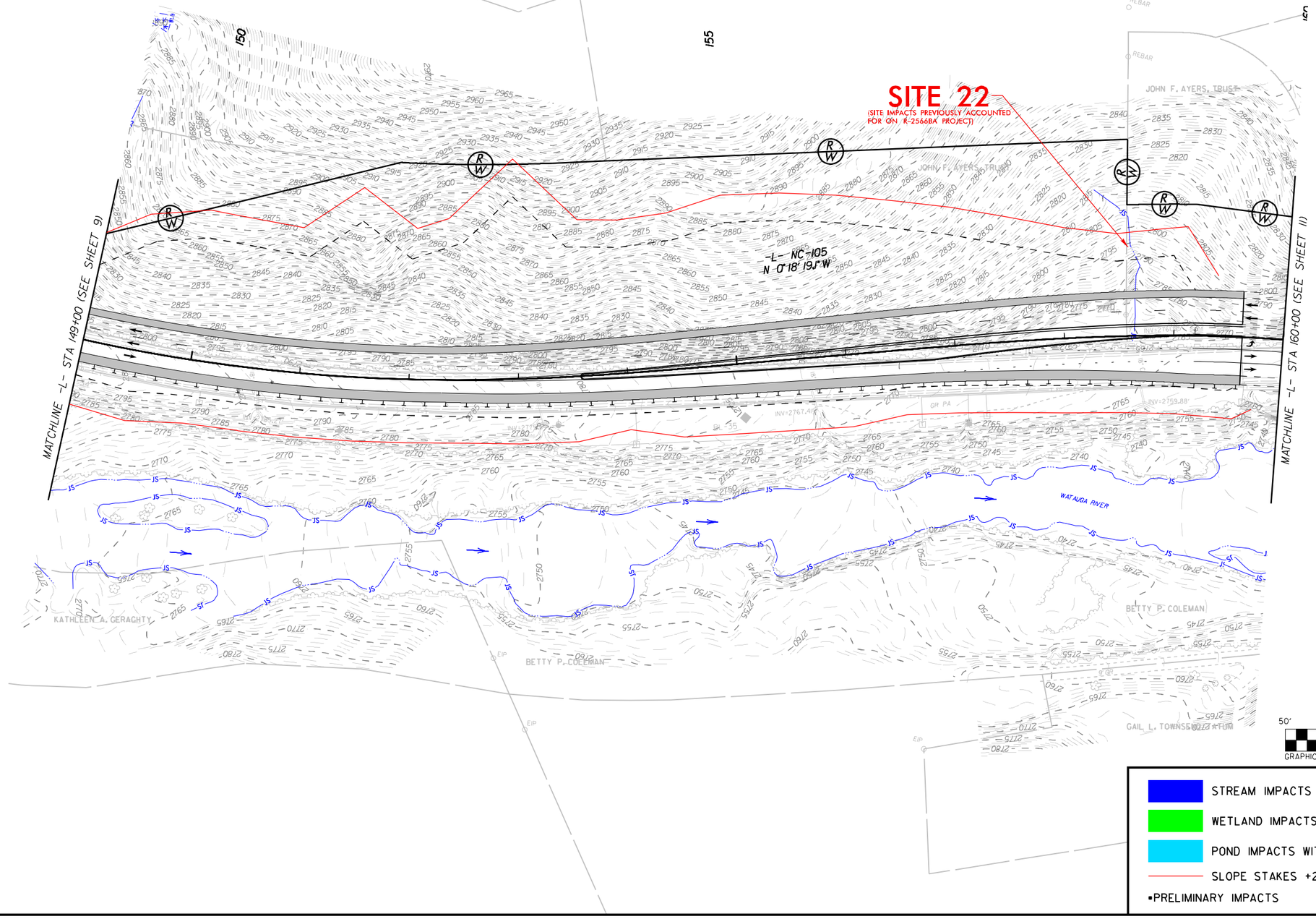
NAD 83/NSRS 2007

PROJECT REFERENCE NO.	SHEET NO.
R-2566B	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS 5/14/99



STREAM IMPACTS WITHIN SLOPE STAKES +25'•
WETLAND IMPACTS WITHIN SLOPE STAKES +25'•
POND IMPACTS WITHIN SLOPE STAKES +25'•
SLOPE STAKES +25'
•PRELIMINARY IMPACTS

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4/11/2019

-L-
PI Sta 165+98.50
△ = 51° 31' 45.6" (RT)
D = 4° 14' 38.9"
L = 1,214.13'
T = 651.59'
R = 1,350.00'
SE = 6%
DS = 60
RO = 324'

SEE SHEET 26 FOR -L- PROFILE

Kimley»Horn
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CHARLOTTE, N.C. 28202

PROJECT REFERENCE NO.	SHEET NO.
R-2566B	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NSRS 2007

NOTE:
THE PROPOSED ROW SHOWN BETWEEN STA. 158+59.82 TO STA. 171+63.75 IS ANTICIPATED TO BE ACQUIRED AS A PART OF THE R-2566BA PROJECT.

MATCHLINE -L- STA 160+00 (SEE SHEET 10)

MATCHLINE -L- STA 170+00 (SEE SHEET 12)

-L- NC-105

LAUREL FORK

BM#8
-BL- STA 163+44
160' RIGHT
ELEVATION=2749.41'
RR SPIKE IN BASE
16" TULIP-POPLAR

THOMAS D. BLALOCK
JOHN F. AYERS, TRUST
ELLIOTT S. & FRANCES WHITE
SHORE FAMILY LIMITED PARTNERSHIP
SANDRA J. HIGGINS
BOBBY R. BROWN
DENNIS M. MCLAURIN
KELLY M. PARSONS
STEVEN F. MICHEL
BRYCE M. GANDY
BETTY P. COLEMAN
RICHARD E. BURGIN
CHARLES W. BLOEHM

IMPACTS ON THIS SHEET PREVIOUSLY ACCOUNTED FOR ON R-2566BA PROJECT.

50' 0' 100'
GRAPHIC SCALE

STREAM IMPACTS WITHIN SLOPE STAKES +25'•
WETLAND IMPACTS WITHIN SLOPE STAKES +25'•
POND IMPACTS WITHIN SLOPE STAKES +25'•
SLOPE STAKES +25'
•PRELIMINARY IMPACTS

REVISIONS
5/14/99

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4/11/2019

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-L-

PI Sta 165+98.50	PIs Sta 172+69.20	PIs Sta 180+43.89	PI Sta 182+60.47
△ = 51° 31' 45.6" (RT)	Θs = 6° 52' 31.8"	Θs = 6° 37' 47.8"	△ = 8° 52' 54.5" (LT)
D = 4° 14' 38.9"	Ls = 324.00'	Ls = 324.00'	D = 4° 05' 33.2"
L = 1,214.13'	LT = 216.16'	LT = 216.15'	L = 217.02'
T = 651.59'	ST = 108.15'	ST = 108.14'	T = 108.73'
R = 1,350.00'			R = 1,400.00'
SE = 6%			SE = 6%
DS = 60			DS = 60
RO = 324'			RO = 324'

SEE SHEET 27 FOR -L- PROFILE

NOTE:
THE PROPOSED ROW SHOWN BETWEEN STA. 158+59.82 TO STA. 171+63.75 IS ANTICIPATED TO BE ACQUIRED AS A PART OF THE R-2566BA PROJECT.

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CHARLOTTE, N.C. 28202

PROJECT REFERENCE NO.	SHEET NO.
R-2566B	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

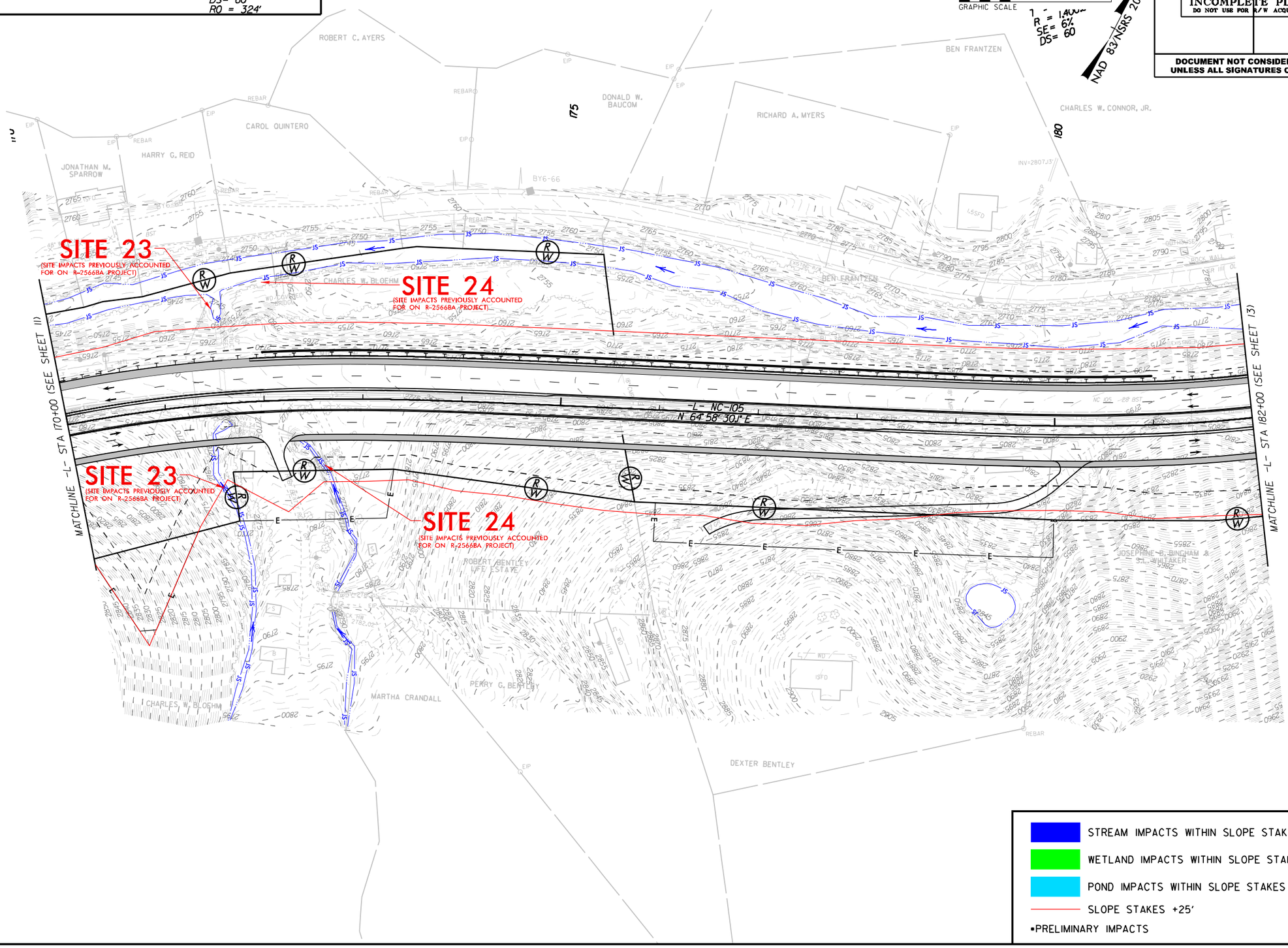
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

50' 0' 100'
GRAPHIC SCALE

NAD 83/NSRS 2007

R = 1,400'
SE = 6%
DS = 60



STREAM IMPACTS WITHIN SLOPE STAKES +25'•
WETLAND IMPACTS WITHIN SLOPE STAKES +25'•
POND IMPACTS WITHIN SLOPE STAKES +25'•
SLOPE STAKES +25'
•PRELIMINARY IMPACTS

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4/11/2019

5/14/99

REVISIONS

-L-	
PI Sta 182+60.47	PIs Sta 184+76.90
Δ = 8° 52' 54.5" (LT)	θs = 6° 37' 47.8"
D = 4° 05' 33.2"	Ls = 324.00'
L = 217.02'	LT = 216.15'
T = 108.73'	ST = 108.14'
R = 1,400.00'	
SE = 6%	
DS = 60	
RO = 324'	

-Y3-		
PI Sta 10+71.40	PI Sta 11+47.94	PI Sta 12+23.00
Δ = 60° 06' 59.4" (LT)	Δ = 9° 19' 55.6" (RT)	Δ = 17° 59' 12.5" (RT)
D = 133° 14' 45.6"	D = 8° 18' 13.5"	D = 47° 44' 47.3"
L = 45.12'	L = 112.38'	L = 37.67'
T = 24.88'	T = 56.32'	T = 18.99'
R = 43.00'	R = 690.00'	R = 120.00'
SE = 3%	SE = EXIST	SE = EXIST
DS = 15	DS = 15	DS = EXIST
RO = 39'	RO = 39'	RO = EXIST

SEE SHEET 27 FOR -L- PROFILE
SEE SHEET 36 FOR -Y3- PROFILE

50' 0' 100'
GRAPHIC SCALE

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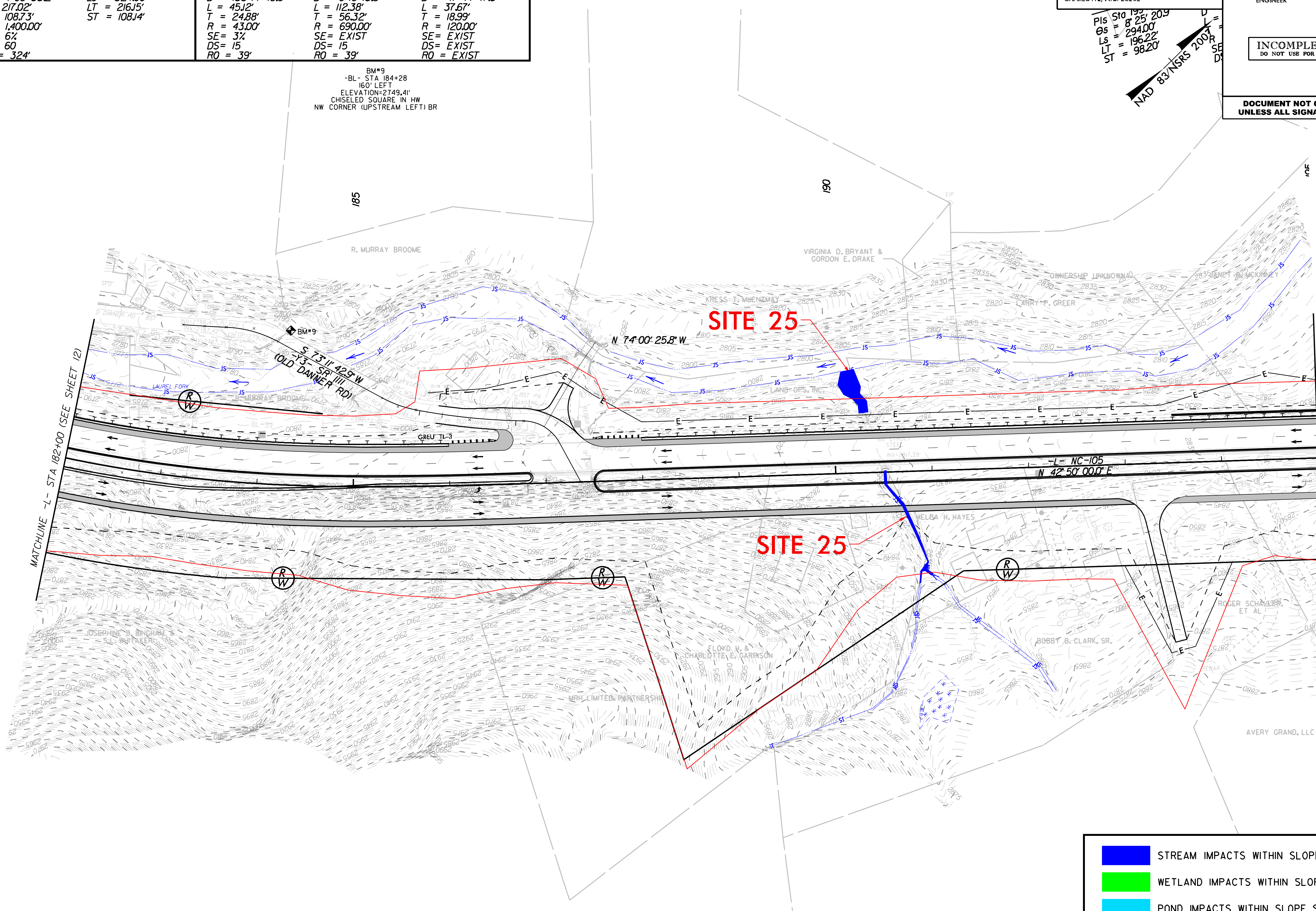
200 SOUTH TRYON, SUITE 200
CHARLOTTE, N.C. 28202

PROJECT REFERENCE NO.	SHEET NO.
R-2566B	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



- STREAM IMPACTS WITHIN SLOPE STAKES +25'*
- WETLAND IMPACTS WITHIN SLOPE STAKES +25'*
- POND IMPACTS WITHIN SLOPE STAKES +25'*
- SLOPE STAKES +25'

*PRELIMINARY IMPACTS

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4/11/2019

-L-

PIs Sta 199+67.34	PI Sta 201+77.10	PIs Sta 203+86.36	PIs Sta 207+78.43
Θs = 8° 25' 20.9"	Δ = 12° 46' 44.4" (LT)	Θs = 8° 25' 20.9"	Θs = 9° 21' 29.9"
Ls = 294.00'	D = 5° 43' 46.5"	Ls = 294.00'	Ls = 294.00'
LT = 196.22'	L = 223.04'	LT = 196.22'	LT = 196.27'
ST = 98.20'	T = 111.98'	ST = 98.20'	ST = 98.25'
	R = 1,000.00'		
	SE = 6%		
	DS = 50		
	RO = 294'		

SEE SHEET 28 FOR -L- PROFILE

GRAPHIC SCALE 50' 0' 100'

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CHARLOTTE, N.C. 28202

PROJECT REFERENCE NO.	SHEET NO.
R-2566B	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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NAD 83/NSRS 2007

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MATCHLINE -L- STA 195+00 (SEE SHEET 13)

MATCHLINE -L- STA 208+00 (SEE SHEET 15)

SITE 26

SITE 27

SITE 28

BM#10
-BL- STA 204+27
94' LEFT
ELEVATION=2839.66'

STEPHEN POE

JANET D. MCKINNEY

PHILLIP B. MUNCY

MARY W. HUFF

JANE D. YASMINE

GRED PI-3

-L- NC-105
N 42° 00' 00.0" E

STREAM IMPACTS WITHIN SLOPE STAKES +25'•
WETLAND IMPACTS WITHIN SLOPE STAKES +25'•
POND IMPACTS WITHIN SLOPE STAKES +25'•
SLOPE STAKES +25'
•PRELIMINARY IMPACTS

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4/11/2019

-L-		
PIs Sta 207+78.43	PI Sta 212+59.36	PIs Sta 216+98.97
Θs = 9° 21′ 29.9″	Δ = 46° 07′ 37.8″ (RT)	Θs = 9° 21′ 29.9″
Ls = 294.00′	D = 6° 21′ 58.3″	Ls = 294.00′
LT = 196.27′	L = 724.56′	LT = 196.27′
ST = 98.25′	T = 383.21′	ST = 98.25′
	R = 900.00′	
	SE = 6%	
	DS = 50	
	RO = 294′	

-Y4-			
PI Sta 10+64.41	PI Sta 11+57.44	PI Sta 12+92.36	PI Sta 14+43.76
Δ = 63° 03′ 17.2″ (RT)	Δ = 10° 08′ 30.7″ (RT)	Δ = 3° 02′ 38.0″ (RT)	Δ = 4° 45′ 11.9″ (RT)
D = 54° 34′ 02.7″	D = 12° 08′ 19.9″	D = 1° 37′ 56.5″	D = 28° 38′ 52.4″
L = 115.55′	L = 83.55′	L = 186.47′	L = 16.59′
T = 64.41′	T = 41.88′	T = 93.26′	T = 8.30′
R = 105.00′	R = 472.00′	R = 3,510.01′	R = 200.00′
SE = 4%	SE = 4%	SE = 4%	SE = EXIST
DS = 30	DS = 30	DS = 30	DS = EXIST
RO = 52′	RO = 52′	RO = 52′	RO = EXIST

SEE SHEET 28 FOR -L- PROFILE
SEE SHEET 37 FOR -Y4- PROFILE

GRAPHIC SCALE 0′ 50′ 100′

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CHARLOTTE, N.C. 28202

PROJECT REFERENCE NO.	SHEET NO.
R-2566B	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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REVISIONS

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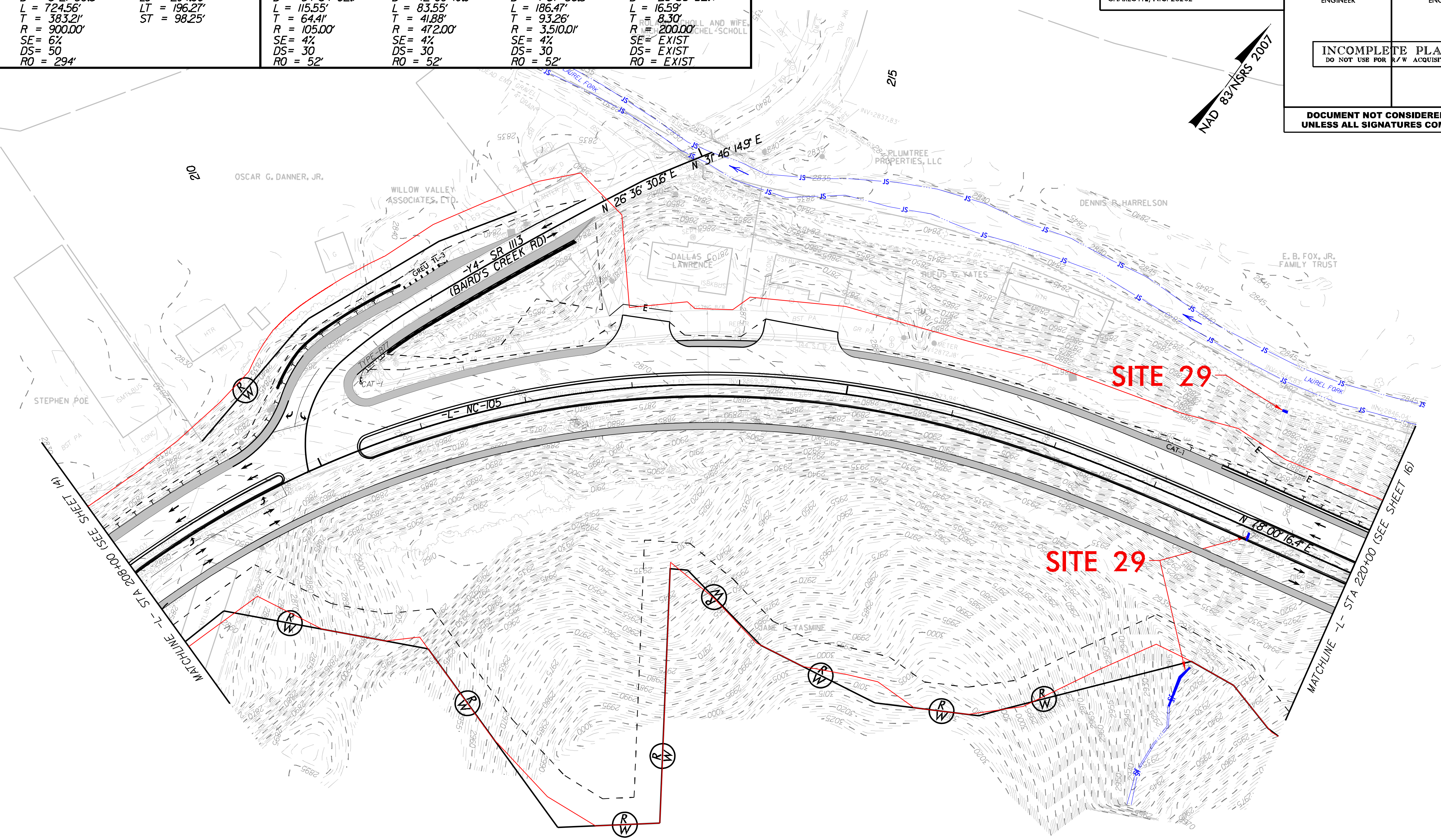

(blue)	STREAM IMPACTS WITHIN SLOPE STAKES +25′*
(green)	WETLAND IMPACTS WITHIN SLOPE STAKES +25′*
(cyan)	POND IMPACTS WITHIN SLOPE STAKES +25′*
(red line)	SLOPE STAKES +25′

*PRELIMINARY IMPACTS

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4/11/2019

-L-		
PIs Sta 223+68.86	PI Sta 226+29.18	PIs Sta 228+87.83
Θs = 7° 01' 07.4"	Δ = 15° 25' 16.0" (RT)	Θs = 7° 01' 07.4"
Ls = 294.00'	D = 4° 46' 28.7"	Ls = 294.00'
LT = 196.15'	L = 322.98'	LT = 196.15'
ST = 98.14'	T = 162.47'	ST = 98.14'
	R = 1,200.00'	
	SE = 6%	
	DS = 55	
	RO = 294'	

SEE SHEET 29 FOR -L- PROFILE

GRAPHIC SCALE 50' 0' 100'

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200 SOUTH TRYON, SUITE 200
CHARLOTTE, N.C. 28202

PROJECT REFERENCE NO.	SHEET NO.
R-2566B	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

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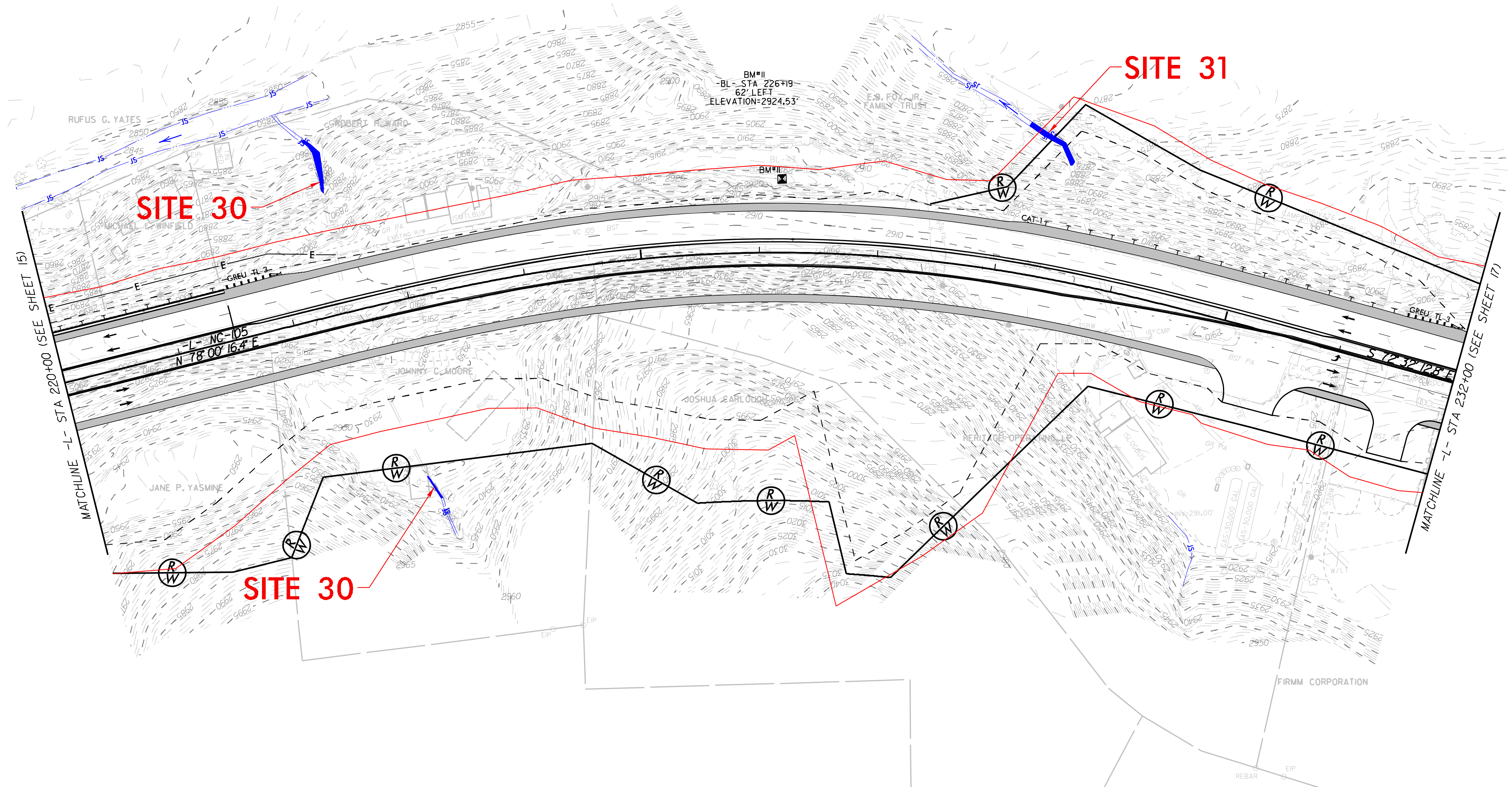

(blue)	STREAM IMPACTS WITHIN SLOPE STAKES +25'*
(green)	WETLAND IMPACTS WITHIN SLOPE STAKES +25'*
(cyan)	POND IMPACTS WITHIN SLOPE STAKES +25'*
(red line)	SLOPE STAKES +25'

*PRELIMINARY IMPACTS

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4/11/2019

-L-	
PIs Sta 236+41.21	PI Sta 247+33.03
Θs = 1° 54' 12.2"	Δ = 38° 22' 19.3" (LT)
Ls = 196.00'	D = 1° 56' 32.0"
LT = 130.67'	L = 1,975.67'
ST = 65.34'	T = 1,026.49'
	R = 2,950.00'
	SE= 4%
	DS= 55
	RO = 196'

SEE SHEET 29 FOR -L- PROFILE

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200 SOUTH TRYON, SUITE 200
CHARLOTTE, N.C. 28202
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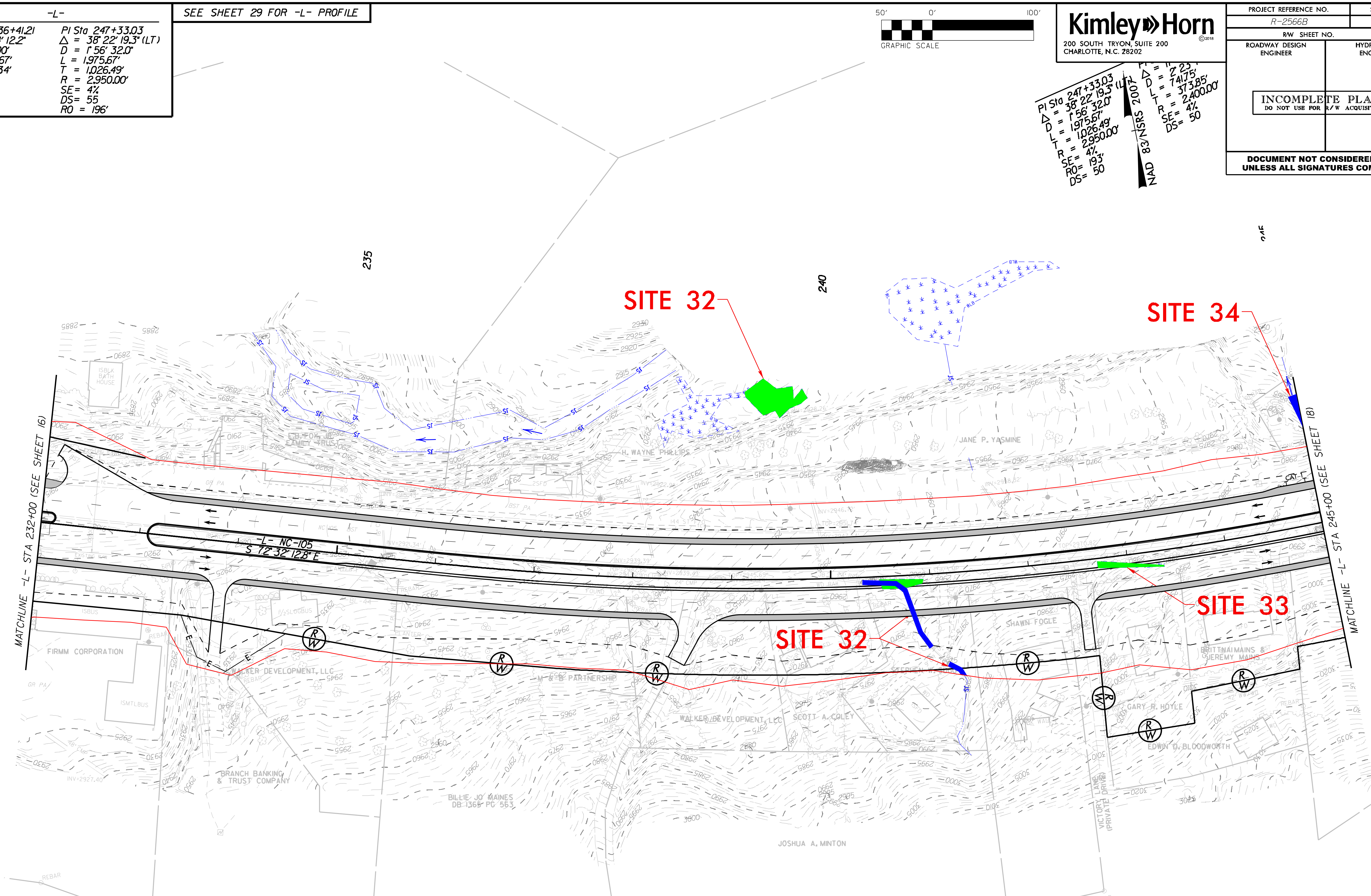
PROJECT REFERENCE NO.	SHEET NO.
R-2566B	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



STREAM IMPACTS WITHIN SLOPE STAKES +25'•
WETLAND IMPACTS WITHIN SLOPE STAKES +25'•
POND IMPACTS WITHIN SLOPE STAKES +25'•
SLOPE STAKES +25'
•PRELIMINARY IMPACTS

REVISIONS

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4/11/2019

PROJECT REFERENCE NO.	SHEET NO.
R-2566B	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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200 SOUTH TRYON, SUITE 200
CHARLOTTE, N.C. 28202

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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REVISIONS

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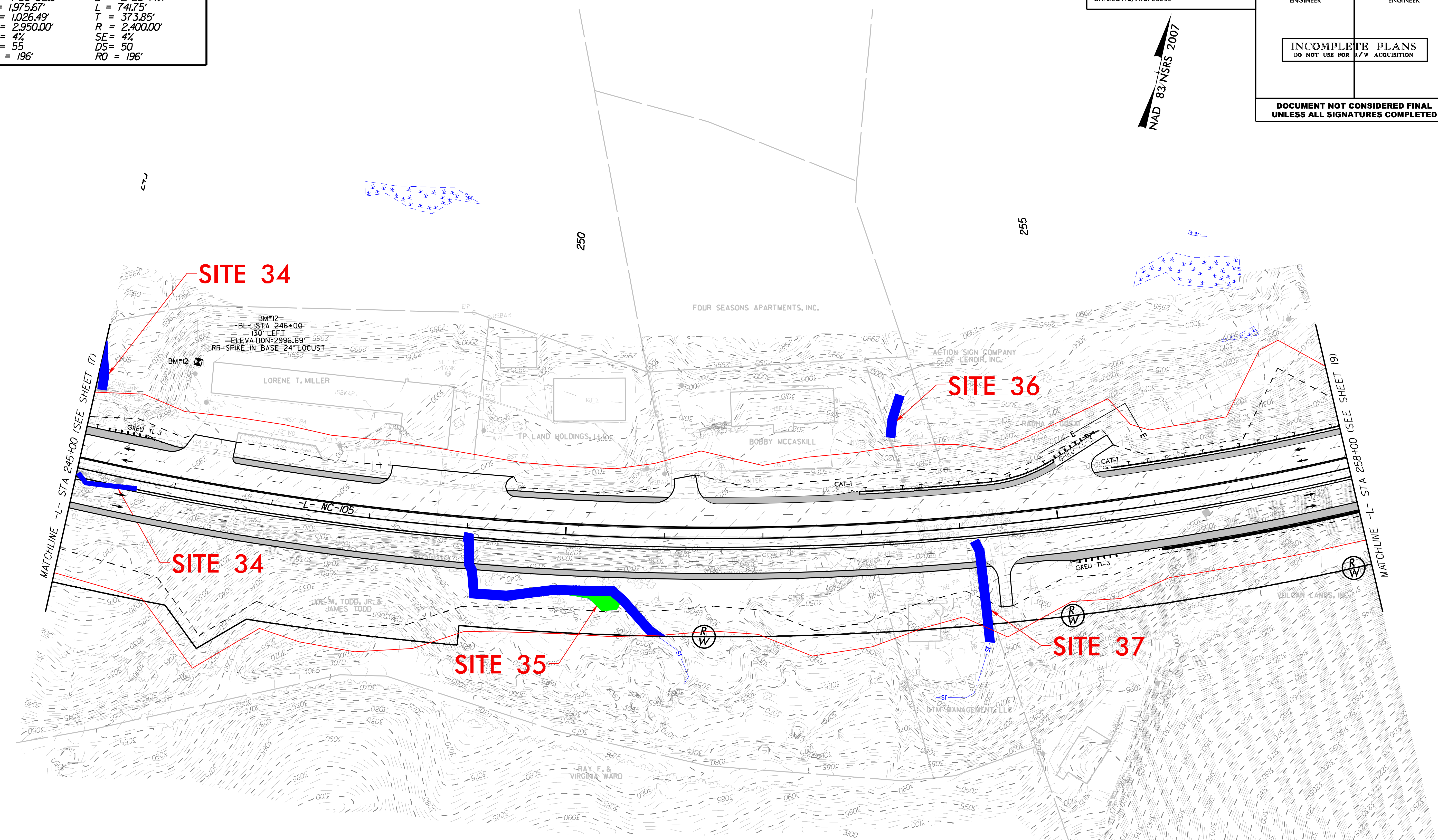
SEE SHEET 30 FOR -L- PROFILE

-L-

PI Sta 247+33.03	PI Sta 260+56.06
Δ = 38° 22' 19.3" (LT)	Δ = 17° 42' 28.3" (LT)
D = 1° 56' 32.0"	D = 2° 23' 14.4"
L = 1,975.67'	L = 741.75'
T = 1,026.49'	T = 373.85'
R = 2,950.00'	R = 2,400.00'
SE = 4%	SE = 4%
DS = 55	DS = 50
RO = 196'	RO = 196'

50' 0' 100'
GRAPHIC SCALE

NAD 83/NSRS 2007



STREAM IMPACTS WITHIN SLOPE STAKES +25'*
WETLAND IMPACTS WITHIN SLOPE STAKES +25'*
POND IMPACTS WITHIN SLOPE STAKES +25'*
SLOPE STAKES +25'
*PRELIMINARY IMPACTS

K:\CHL_PRJ\011036212 - (R-2566)\Hydraulics\PERMITS_Environmental\CADD\R-2566B_rdy_psh_18.dgn

4/11/2019

REVISIONS

5/14/99

-L-

PI Sta 260+56.06
Δ = 17° 42' 28.3" (LT)
D = 2° 23' 14.4"
L = 741.75'
T = 373.85'
R = 2,400.00'
SE = 4%
DS = 50
RO = 196'

PIs Sta 264+89.30
Θs = 2° 20' 22.5"
Ls = 196.00'
LT = 130.68'
ST = 65.34'

PIs Sta 268+16.18
Θs = 8° 25' 20.9"
Ls = 294.00'
LT = 196.22'
ST = 98.20'

PI Sta 272+63.32
Δ = 38° 30' 53.3" (RT)
D = 5° 43' 46.5"
L = 672.21'
T = 349.36'
R = 1,000.00'
SE = 6%
DS = 50
RO = 294'

SEE SHEET 31 FOR -L- PROFILE

50' 0' 100'
GRAPHIC SCALE

Kimley»Horn
200 SOUTH TRYON, SUITE 200
CHARLOTTE, N.C. 28202
©2018

PROJECT REFERENCE NO.	SHEET NO.
R-2566B	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NSRS 2007

260

265

270

SITE 38

SITE 39

MATCHLINE -L- STA 258+00 (SEE SHEET 18)

MATCHLINE -L- STA 271+50 (SEE SHEET 20)

-L- NC-105

BM#13
-BL- STA 262+58
122' LEFT
ELEVATION=3085.82'
RR SPIKE IN BST PARKING
OF VULCAN QUARRY OFFICE

JAMES & GLENDA SIMMONS

PCB ASPHALT PLC

GREU TL-3

CAT 1

ROCK SQUARE LIMITED PARTNERSHIP

SHOP

SMTL SHOP

H2O TANK

STREAM IMPACTS WITHIN SLOPE STAKES +25'•
WETLAND IMPACTS WITHIN SLOPE STAKES +25'•
POND IMPACTS WITHIN SLOPE STAKES +25'•
SLOPE STAKES +25'
•PRELIMINARY IMPACTS

4/11/2019 KNCHL_PRJ\01036212 - (R-2566)\Hydraulics\PERMITS_E\nvironmental\CADD\R-2566B_rdy_psh_19.dgn

-L-

PI Sta 272+63.32
Δ = 38° 30' 53.3" (RT)
D = 5° 43' 46.5"
L = 672.21'
T = 349.36'
R = 1,000.00'
SE = 6%
DS = 50
RO = 294'

PIs Sta 276+84.37
Θs = 8° 25' 20.9"
Ls = 294.00'
LT = 196.22'
ST = 98.20'

SEE SHEET 32 FOR -L- PROFILE

50' 0' 100'
GRAPHIC SCALE

Kimley»Horn ©2018
200 SOUTH TRYON, SUITE 200
CHARLOTTE, N.C. 28202

NAD 83/NSRS 2007

PROJECT REFERENCE NO.	SHEET NO.
R-2566B	20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

5/14/99

275

280

SITE 41

SITE 40

-L- NC-105

MATCHLINE -L- STA 271+50 (SEE SHEET 19)

MATCHLINE -L- STA 284+00 (SEE SHEET 21)

BM#14
-BL- STA 283+63
75' LEFT
ELEVATION=3204.11'
CHISELED 'X' IN TOP ANCHOR BOLT
CHICK-FIL-A SIGN

BM#14

-L- NC-105
S 77° 30' 00.0" E

VULCAN CONSTRUCTION MATERIALS LP

STREAM IMPACTS WITHIN SLOPE STAKES +25'•
WETLAND IMPACTS WITHIN SLOPE STAKES +25'•
POND IMPACTS WITHIN SLOPE STAKES +25'•
SLOPE STAKES +25'
•PRELIMINARY IMPACTS

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4/11/2019

-L-

PIs Sta 289+92.17
Θs = 2° 26' 28.7"
Ls = 196.00'
LT = 130.68'
ST = 65.34'

PI Sta 293+19.90
Δ = 13° 01' 02.7" (LT)
D = 2° 29' 28.0"
L = 522.55'
T = 262.41'
R = 2,300.00'
SE = 4%
DS = 50
R0 = 196'

PIs Sta 296+45.39
Θs = 2° 26' 28.7"
Ls = 196.00'
LT = 130.68'
ST = 65.34'

SEE SHEET 33 FOR -L- PROFILE

50' 0' 100'
GRAPHIC SCALE

Kimley»Horn ©2018
200 SOUTH TRYON, SUITE 200
CHARLOTTE, N.C. 28202

PROJECT REFERENCE NO.	SHEET NO.
R-2566B	21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/NSRS 2007

REVISIONS

5/14/99

285

290

295

SITE 42

SITE 42

MATCHLINE -L- STA 284+00 (SEE SHEET 20)

MATCHLINE -L- STA 297+00 (SEE SHEET 22)

-L- NC-105
S 77° 30' 00.0" E

JOHN TAYLOR CONWAY

CHANDLER CONCRETE HIGH COUNTRY, LLC

DEWEY C. & MARJORIE WRIGHT

FARLON P. PRESNELL

VULCAN LANDS, INC

GH WINKLER FAMILY LIMITED PARTNERSHIP

ISMTLBUS

CONCRETE PLANT

12" STEEL PIPE

STREAM IMPACTS WITHIN SLOPE STAKES +25'•
WETLAND IMPACTS WITHIN SLOPE STAKES +25'•
POND IMPACTS WITHIN SLOPE STAKES +25'•
SLOPE STAKES +25'
•PRELIMINARY IMPACTS

R-2566B Prelimary Permit Impact Summary Table					
Plan Sheet Number	Station (To/From)	Site Identifier	Wetland Impacts Within Slope Stakes +25' (Acres)	Stream Impacts Within Slope Stakes +25' (Linear Feet)	Pond Impacts Within Slope Stakes +25' (Acres)
4	68+74/70+81 -L- RT	1A	0.09		
4	68+74/70+81 -L- RT	1A		235	
4	71+87/72+15 -L- LT	1B	< 0.01		
4	71+27/71+51 -L- LT	1B		25	
4	71+78/72+36 -L- LT	1B		40	
4	13+48 RT/13+97 LT -Y1-	1		134	
4	76+68/76+83 -L- RT	1		29	
4	17+78/19+54 -Y1- RT	2	0.02		
4	17+78 LT/19+54 RT -Y1-	3	0.04		
5	86+77/87+09 -L- LT	4		62	
5	85+79/86+50 -L- RT	4		81	
5	88+84/89+09 -L- LT	5		51	
5	89+09/89+39 -L- RT	5		43	
5	17+97/18+08 -Y1- LT	6		38	
5	17+99/18+48 -Y1- RT	6		57	
5	10+95/11+16 -Y2- LT	7		47	
5	10+74/11+43 -Y2- RT	7	0.02	28	
5	26+37/28+99 -Y1- RT	8		241	
6	105+88/106+72 -L- LT	9		101	
6	106+69/107+23 -L- RT	9		62	
6	108+13/108+34 -L- LT	10		50	
7	110+43/111+03 -L- RT	10	0.01	27	
7	117+20/118+98 -L- LT	11	0.02		
7	118+51/119+34 -L- LT	11		132	
8	124+80/124+97 -L- LT	12		46	
8	124+48/124+85 -L- RT	12		47	
8	125+03/127+06 -L- LT	13	0.03		
8	126+68/126+87 -L- LT	14		26	
8	127+02/127+22 -L- LT	15		40	
8	129+76/130+23 -L- LT	16		76	
8	129+98/130+23 -L- RT	16		59	
8	130+64/130+97 -L- LT	17	< 0.01		
8	131+23/133+13 -L- LT	17	0.08		
8	131+90/132+08 -L- RT	18		42	
8	133+78/133+97 -L- LT	19		16	
8	133+88/134+02 -L- LT	19		19	
8	134+01/134+49 -L- RT	19		55	
9	144+93/146+67 -L- LT	20	0.06	42	
9	147+75/148+53 -L- LT	21		130	
9	147+65/148+31 -L- RT	21		112	
10	158+28/158+76 -L- LT	22	Impacts Previously Accounted for on R-2566BA Project		
12	171+33/171+72 -L- LT	23	Impacts Previously Accounted for on R-2566BA Project		
12	171+39/171+66 -L- RT	23	Impacts Previously Accounted for on R-2566BA Project		
12	171+84/172+10 -L- LT	24	Impacts Previously Accounted for on R-2566BA Project		
12	172+30/172+63 -L- RT	24	Impacts Previously Accounted for on R-2566BA Project		
13	190+05/190+36 -L- LT	25		72	
13	190+49/190+99 -L- RT	25		145	
14	197+08/197+23 -L- LT	26		50	
14	197+11/197+27 -L- RT	26		102	
14	200+98/202+38 -L- RT	27		190	
14	201+14/202+51 -L- RT	27	0.03		
14	201+94/202+50 -L- LT	27		58	
14	202+93/203+47 -L- LT	28		50	
15	218+97/219+00 -L- RT	29		9	
15	218+80/218+86 -L- LT	29		3	
15	218+93/218+99 -L- LT	29		42	
16	222+43/222+55 -L- LT	30		51	
16	222+81/222+91 -L- RT	30		22	
16	228+09/228+50 -L- LT	31		52	
17	239+13/239+81 -L- LT	32	0.03		
17	240+31/241+00 -L- RT	32		110	
17	240+48/240+94 -L- RT	32	< 0.01		
17	241+12/241+31 -L- RT	32		20	
17	242+69/243+37 -L- RT	33	< 0.01		
17/18	244+91/245+12 -L- LT	34		50	
18	244+99/245+63 -L- RT	34		65	
18	248+96/251+04 -L- RT	35		268	
18	249+79/250+59 -L- RT	35	0.02		
18	253+30/253+54 -L- LT	36		45	
18	254+09/254+25 -L- RT	37		105	
19	260+62/260+78 -L- LT	38		59	
19	263+85/263+97 -L- LT	39		40	
20	271+85/271+97 -L- LT	40	< 0.01		
20	274+19/274+63 -L- LT	41			< 0.01
21	287+86/288+13 -L- RT	42		60	
21	287+89/288+09 -L- LT	42		38	
TOTAL			0.47	3899	0.01