



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

November 9, 2012

Addendum No. 1

RE: Contract ID C203128

WBS # 54000.3.STR01T4A

Durham, Wake Counties (U-4716A, B and C)

Clegg Passing Siding & Hopson Road Grade Separation and
Closing of At-Grade Railroad Crossings

November 20, 2012 Letting

To Whom It May Concern:

Reference is made to the plans and proposal form furnished to you on this project.

The following revisions have been made to Part 1 (U-4716B) of the plans:

On Sheet Nos. 1-D and 1-E the monument designation was revised from U4713-3 to U4716-3. Please void Sheet Nos. 1-D and 1-E in your plans and staple the revised Sheet Nos. 1-D and 1-E thereto.

The following revisions have been made to Part 2 (U-4716 A/C) of the plans:

On Sheet Nos. 1-C, 1-D and 1-E the monument designation was revised from U4713-3 to U4716-3. Please void Sheet Nos. 1-C, 1-D and 1-E in your plans and staple the revised Sheet Nos. 1-C, 1-D and 1-E thereto.

On Drawing Nos. 2, 2A and 2B, Typical #3 and #5 were revised and the left side sub-ballast depth was revised from 12" to 6". Please void Drawing Nos. 2, 2A and 2B in your plans and staple the revised Drawing Nos. 2, 2A and 2B thereto.

On Drawing No. 14 Detail "H" was changed to Detail "N" and permanent soil reinforcement matting was added. Please void Drawing No. 14 in your plans and staple the revised Drawing No. 14 thereto.

On Drawing No. EC-18, Detail "M" has been added. On Drawing EC-19 Detail "H" was changed to Detail "N". Please void Drawing Nos. EC-18 and EC-19 in your plans and staple the revised Drawing Nos. EC-18 and EC-19 thereto.

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
CONTRACT STANDARDS AND DEVELOPMENT UNIT
1591 MAIL SERVICE CENTER
RALEIGH NC 27699-1591

TELEPHONE: 919-707-6900
FAX: 919-250-4119
WEBSITE: WWW.NCDOT.ORG

LOCATION:
CENTURY CENTER COMPLEX
ENTRANCE B-2
1020 BIRCH RIDGE DRIVE
RALEIGH NC 27610

The following revisions have been made to the Cross-Section plans:

On Sheet Nos. X-18, X-19, X-20, X-88 and X-89 the left side sub-ballast depth has been revised from 12" to 6". Please void Sheet Nos. X-18, X-19, X-20, X-88 and X-89 in your plans and staple the revised Sheet Nos. X-18, X-19, X-20, X-88 and X-89 thereto.

The following revisions have been made to the Structure Plans:

On Sheet Nos. S-5, S-23 and S-32 a dimension was added for the parapet and the PVC conduit has been relocated. Please void Sheet Nos. S-5, S-23 and S-32 in your plans and staple the revised Sheet Nos. S-5, S-23 and S-32 thereto.

The following revisions have been made to the proposal:

On Page No. 10 the first paragraph of the project special provision entitled "Prequalification of Rail Road Grading Contractors (PIP)" has been revised. Please void Page No. 10 in your proposal and staple the revised Page No. 10 thereto.

On Page No. 26 the first paragraph of the project special provision entitled "Flagging Services" has been revised. Please void Page No. 26 in your proposal and staple the revised Page No. 26 thereto.

On Page No. 27 paragraph (1) under (B) Scheduling and Notification within the project special provision entitled "Flagging Services" has been revised. Please void Page No. 27 in your proposal and staple the revised Page No. 27 thereto.

On Page No. 28 the second paragraph under (C) Payment within the project special provision entitled "Flagging Services" has been revised. Please void Page No. 28 in your proposal and staple the revised Page No. 28 thereto.

On Page No. 55 a sentence was added to the paragraph under "Description" within the project special provision entitled "Supplemental Response For Erosion Control". Please void Page No. 55 in your proposal and staple the revised Page No. 55 thereto.

On Page No. 71 the project special provision entitled "Excavation" has been revised entirely. Please void Page No. 71 in your proposal and staple the revised Page No. 71 thereto.

On Page No. 85 a sentence was added to fourth and fifth paragraphs of the project special provision entitled "Embankment". Please void Page No. 85 in your proposal and staple the revised Page No. 85 thereto.

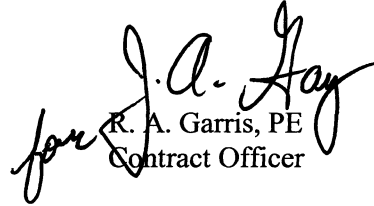
On Page Nos. 88 thru 91 revisions were made to the project special provision entitled "Geogrid For Soil Stabilization". Please void Page Nos. 88 thru 91 in your proposal and staple the revised Page Nos. 88 thru 91 thereto.

On Page No. 93 the project special provision entitled "Maintenance of Track Roadbed" has been revised entirely. Please void Page No. 93 in your proposal and staple the revised Page No. 93 thereto.

New Page No. 123-A has been added to include the project special provision entitled "Jordan Lake Watershed Nutrient Management Training Requirements". Please staple New Page No. 123-A after Page No. 123 in your proposal.

New Page Nos. P-48 thru P-84 have been added to include the permit drawings. Please staple New Page Nos. P-48 thru P-84 after Page No. P-47 in your proposal.

Sincerely,


R. A. Garris, PE
Contract Officer

RAG/jag

Attachments

cc: Mr. Ron Hancock, PE
Mr. J. W. Bowman, PE
Ms. D. M. Barbour, PE
Mr. J. V. Barbour, PE
Mr. R.E. Davenport, PE
Mr. Paul Worley
Project File (2)

Ms. Natalie Roskam, PE
Mr. Ray Arnold, PE
Mr. Ronnie Higgins
Mr. Larry Strickland
Ms. Lori Strickland
Ms. Marsha Sample

SPECIAL NOTICE TO BIDDERS:

(11-20-12)

SPI 19-4

This project involves constructing new railroad roadbed on existing Railroad Right of Ways. The North Carolina Department of Transportation will be administering the project and the work will be constructed in accordance with the *January 2012 NCDOT Standard Specification for Roads and Structures*. The *Standard Specifications for Roads and Structures, January 2012 of the North Carolina Department of Transportation*, hereinafter referred to as the *Standard Specifications*, shall apply to the articles of the Project Special Provisions. Portions of the work will be done in accordance with Norfolk Southern, Standard Specifications for Materials and Construction, January 2012 and North Carolina Railroad Company's, FORM NCR 103, SPECIFICATIONS FOR PIPELINE OCCUPANCY OF NORTH CAROLINA RAILROAD COMPANY, Revised January 2009 and FORM NCR 102, SPECIFIC REQUIREMENTS OF NORTH CAROLINA RAILROAD COMPANY FOR WORK ON ITS RIGHT OF WAY, September 1, 2003. These Project Special Provisions sections of the proposal have been written to be in accordance with these documents.

The construction will be taking place in existing Railroad Right of Way owned by North Carolina Railroad Company adjacent to existing tracks that are operated and maintained by Norfolk Southern Corporation. Safety in the Right of Way will be top priority and Norfolk Southern's safety and security policies shall be followed for all employees working within the Right of Way. The safety and security policies and guidelines are further defined in the special provisions.

All work adjacent to the live tracks shall be coordinated with the Norfolk Southern Railway (NSR) Roadway Worker In Charge, as defined later in this document. As a result of safety requirements for passing trains, there will be intermittent delays requiring all equipment within 25' of the operating tracks to stop work until authorized to proceed by the Railroad. This will result in intermittent delays to the contractor's operations. The contractor needs to account for this in preparing his bid. The contractor shall have no claims whatsoever against the Railroad or the Department for any delays or additional cost incurred for the delays or any changes to the information above after the date of receipt.

PREQUALIFICATION OF RAIL ROAD GRADING CONTRACTORS (PIP):

(11-20-12)

SPI 19-5

Contractors desiring to perform work on this project shall be prequalified in accordance with Article 102-2 of the *2012 Standard Specifications*. Due to this job being on NCRR right of way and working within close proximity of active rail tracks for both freight and passenger trains, all prime contractors must be prequalified to do work covered by **work code 5090**. All bidders shall be prequalified for work code 5090 within 10 calendar days of bid opening, in order to be awarded the contract.

The following criteria may be used to help prequalify contractors for this project:

- (A) Within the last 5 years, the applicant must have been a prime contractor on at least two (2) Interstate or US Route Improvement Projects (i.e. widening, resurfacing), or a prime contractor on two (2) railroad roadbed projects parallel and adjacent to active main track on a Class I Railroad. NCDOT may also consider comparable experience on heavily travelled state routes and airport runway projects.

Any cost incurred by the Company of Railroad for repairing damages to its corridor or to property of its tenants, caused by or resulting from the operations of the Contractor, shall be paid directly to the Company or Railroad by the Contractor.

CONTRACTOR FURNISHED TWO WAY RADIOS

The Contractor shall furnish a minimum of 3 push to talk, two way radios that operate on a frequency unique to the project and separate from NSR frequencies. The operational frequency should not be the same as the frequency on adjacent jobs unless directed by the Railroad Engineer. The radios will be used for communication between the RWIC/flagman or the Railroad's designated contact and the Contractor's Superintendent or designated contact on the job for safety. The Contractor will need to maintain at least 3 working radios at all time during the project. Project conditions and the contractors work may require the need for more than 3 radios on the project. It shall be the Contractors responsibility to furnish the number of radios required by NSR to maintain safety on the project. Failure on the part of the contractor to have working radios on site, can result in suspension of the work until the requirements of provision is met. There will be no direct payment for the cost of furnishing the radios. The cost will be included in other items of work in the contract.

The Contractor will need to submit information about the radios prior to use for approval by the Railroad.

The contractor shall have no claims whatsoever against the Railroad or the Department for any delays or additional cost incurred as a result of failure to have the required number of working radios on site each day.

FLAGGING SERVICES

All work to be performed by the Contractor within the Railroad Right of Way shall require a flagman be present. Any work to be performed by the contractor requiring flagging service shall be deferred by the contractor until the flagging protection required by the railroad is available at the job site. It will take approximately 30 days from the date the railroad receives notification of award from the NCDOT to provide flagging protection for this project.

(A) When Required

Under the terms of the agreement between the Department and the Railroad, the Railroad has sole authority to determine the need for flagging required to protect its operations. In general, the requirements of such services will be whenever the Contractor's personnel or equipment are or are likely to be, working on the Railroad's right-of-way, or across, over, adjacent to, or under a track, or when such work has disturbed or is likely to disturb a railroad structure or the railroad roadbed or surface and alignment of any track to such extent that the movement of trains must be controlled by flagging.

Normally, the Railroad will assign one flagman to a project; but in some cases, more than one may be necessary, such as yard limits where three (3) flagmen may be required. The Railroad Engineer will determine how many flagmen are required for the job. However,

if the Contractor works within distances that violates instructions given by the Railroad's authorized representative or performs work that has not been scheduled with the Railroad's authorized representative, a flagman or flagmen may be required full time until the project has been completed. Any additional cost for additional flagging as a result of the Contractor violating the instruction of the RWIC/flagman will be the contractor's responsibility and shall be deducted from the contractor's monies.

(B) Scheduling and Notification

- (1) The Contractor's work requiring railroad flagging services shall be scheduled in advance and updated weekly to insure flagman coverage for the work to be performed. Flagging services will be provided by the Railroad for work required by the contract to complete the project. The contractor's work schedule shall be during normal daylight hours for safety concerns. Nighttime operations are not permitted without prior written approval from the Railroad Engineer and the Department's Engineer and shall be only be considered on a case by case basis.
- (2) Not later than the time that approval is initially requested to begin work on Company corridor, the Contractor shall furnish to the Company, Railroad and the Department a schedule for all work required to complete the portion of the project within Company corridor and arrange for a job site meeting between the Contractor, the Department, and the Railroad's authorized representative. Flagman or Flagmen may not be provided until the job site meeting has been conducted and the Contractor's work scheduled.
- (3) The Contractor, through the Engineer, will be required to give the Railroad representative at least 10 working days of advance written notice of intent to begin work within Company corridor in accordance with this special provision. Once begun, when such work is then suspended at any time, or for any reason, the Contractor, through the Engineer, will be required to give the Railroad representative at least 3 working days of advance notice before resuming work on Railroad right of way. Such notices shall include sufficient details of the proposed work to enable the Railroad representative to determine if flagging will be required. If such notice is in writing, the Contractor shall furnish the Engineer a copy; if notice is given verbally, it shall be confirmed in writing with copy to the Engineer.
- (4) If flagging is required, no work shall be undertaken until the flagman, or flagmen are present at the job site. It may take up to 30 days to obtain flagging initially from the Railroad. When flagging begins, the flagman is usually assigned by the Railroad to work at the project site on a continual basis until no longer needed and cannot be called for on a spot basis. If flagging becomes unnecessary and is suspended, it may take up to 30 days to again obtain from the Railroad. Due to Railroad labor agreements, it is necessary to give 5 working days' notice before flagging service may be discontinued and responsibility for payment stopped.
- (5) If, after the flagman is assigned to the project site, an emergency arises that requires the flagman's presence elsewhere, then the Contractor shall delay work on Railroad right of way until such time as the flagman is again available. Any additional costs resulting from such delay shall be borne by the Contractor and not the Company, Department or Railroad.

(C) Payment

The Department will be responsible for paying the Railroad directly for any and all costs of flagging which may be required to accomplish the construction.

Any additional cost for additional flagging as a result of work that is determined to be for the benefit of the Contractor will be the contractor's responsibility and shall be deducted from the Contractor's monies.

- (1) The estimated cost of flagging service is the current rate per day based on a 10-hour work day. This cost includes the base pay for each flagman, overhead, and a per diem charge for travel expenses, meals and lodging. The charge by the Railroad will be the actual cost based on the rate of pay for the Railroad's employees who are available for flagging service at the time the service is required.
- (2) Work by a flagman in excess of 8 hours per day or 40 hours per week, but not more than 12 hours a day will result in overtime pay at 1½ times the appropriate rate. Work by a flagman in excess of 12 hours per day will result in overtime pay at 2 times the appropriate rate. If work is performed on a holiday, the flagging rate is 2½ times the normal rate.
- (3) Railroad work involved in preparing and handling bills will also be charged to the Department. Charges to the Department by the Railroad shall be in accordance with applicable provisions of the Federal-Aid Policy Guide, Title 23 Subchapter B, Part 140I and Subchapter G, Part 646B issued by the Federal Highway Administration on December 9, 1991, including all current amendments. Flagging costs are subject to change. The above estimates of flagging costs are provided for information only and are not binding in any way.

(D) Verification

The Railroad flagman assigned to the project will be responsible for notifying the Department Engineer upon arrival at the job site on the first day (or as soon thereafter as possible) that flagging services begin and on the last day that he performs such services for each separate period that services are provided. The Department Engineer will document such notification and general flagging times for verification purposes in the project records. When requested, the Department Engineer will also sign the flagman's diary showing daily time spent and activity at the project site. Also if requested, the flagman will cooperate with the Department by submitting daily timesheets or signing the Department Engineer's diary showing daily time spent at the project site.

Railroad's flagman will electronically enter flagging time via Railroad's electronic billing system. Any complaints concerning flagman or flagmen must be resolved in a timely manner. If need for flagman or flagmen is questioned, please contact Railroad's System Engineer of Public Improvements at (404) 529-1641. All verbal complaints must be

SUPPLEMENTAL CONTRACTOR EROSION CONTROL RESPONSIBILITIES:

The NCDOT Contractor shall be required to install and maintain erosion control devices and provide temporary and eventual permanent stabilization to disturbed areas until the final completion of the project contract as directed. In addition, the Contractor shall adhere to the requirements of the Erosion and Sediment Control/Stormwater Certification provided elsewhere in this contract until completion of the project. After the Contractor has completed the bulk of the grading work, erosion control responsibilities and work will continue to be required and not limited to, monitoring erosion control devices on a weekly basis and after each rainfall that equals or exceeds 0.5 inches, NPDES documentation, installation and maintenance of additional erosion control devices, providing temporary groundcover, and establishment of permanent vegetation on disturbed slopes.

Payment for installation and maintenance of temporary erosion control measures and providing temporary and permanent stabilization will be paid for at the appropriate contract unit price for the work. Mobilization payment for this work shall be paid as described in the section below. No additional payment shall be made for these supplemental responsibilities and work.

SUPPLEMENTAL RESPONSE FOR EROSION CONTROL:**Description**

Furnish the labor, materials, tools and equipment necessary to move personnel, equipment, and supplies to the project necessary for the pursuit of any or all of the erosion control responsibilities of the Contractor. This provision will only be applicable after the Contractor has completed all of his work, with the exception of maintenance and removal of erosion control, and has demobilized his work force while waiting for NSR to complete track construction. Payment will only be made for occurrences where the contractor mobilizes men and equipment to perform necessary erosion control measures as required by the Engineer.

Construction Methods

Contractor shall perform an erosion control action as described but not limited to the NPDES Inspection Form SPPP30. Each erosion control action may include one or more of the work items on the form, or a separate action that is the primary responsibility of the Contractor.

Measurement and Payment

Supplemental Response for Erosion Control will be measured and paid for by counting the actual number of times the Contractor moves onto the project, including borrow and waste sites, and satisfactorily completes an erosion control action described in Form 1675. The provisions of Article 104-5 of the *Standard Specifications* will not apply to this item of work.

Payment will be made under:

Pay Item	Pay Unit
Supplemental Response for Erosion Control	Each

EXCAVATION

This work shall be performed in accordance with Section 225, "ROADWAY EXCAVATION" of the Standard Specifications. The applicable typical roadbed template will be maintained throughout the railway portion of the project.

All waste excavated within the Railroad Right of Way, excluding concrete and asphalt materials, shall be placed at locations approved by the Engineer within the existing Railroad Right of Way. The waste material shall not be used inside the 2:1 slope on embankments, but can be placed outside of the 2:1 slope to flatten the slopes.

36" WELDED STEEL PIPE

(Special)

330-1 DESCRIPTION

This work shall consist of furnishing and installing 36" welded steel pipe by trenchless methods as shown in the contract, plans and as directed. The thickness of the wall shall be 0.532 inches.

330-2 MATERIALS

Refer to Division 10.

Item	Section
Welded Steel Pipe	1032-5

Use suppliers of metal pipe culverts, fittings and all other accessories covered by this section that meet the Department's Brand Certification program requirements for metal pipe culverts and are listed on the Materials and Tests Unit's pre-approved list for suppliers of metal pipe culvert. The pre-approved list is available on the Department's website

330-3 PIPE INSTALLATION

Replace section 330-3 of the 2012 Standard Specifications with the following:

The pipe shall be installed by dry boring and jacking under the tracks as shown in the plans. The pipe shall be carefully dry bored true to the line and grade given. The bore shall be held to a minimum to insure that there will be no settlement. All voids around the outside of the pipe shall be completely filled to the satisfaction of the Engineer.

The Contractor shall submit to the Railroad Engineer and the NCDOT Engineer a complete plan and schedule for pipe installation 2 weeks prior to the expected commencement of work. The submission shall include complete details of the sheeting, shoring and bracing for the protection of Railroad roadbed, materials and equipment pertinent to the operation. The Contractor shall

The additional sub-ballast needed to bring the roadbed to final grade will be measured and paid at the contract unit price per ton for sub-ballast in accordance with the Contract Special Provisions for sub-ballast.

Pay Item	Pay Unit
Unclassified Excavation	Cubic yards
Sub-ballast	Tons
<u>EMBANKMENT</u>	(Special)

This work shall be performed in accordance with Section 235, "EMBANKMENTS", of the Standard Specifications including the following:

All earth fills shall be made in uniform layers of not more than 6 inches thick after compaction. Rock may be placed in compacted layers of not more than 24 inches thick. Each fully compacted layer shall extend the full width of the cross section. Each layer shall be free from mud, snow, ice, or excessive (standing) water before a subsequent layer is placed.

Sandy or rocky material shall be spread in full width layers to form drainage planes from the center through the edge of the embankment. Pockets of open materials surrounded by more impervious material shall be avoided.

The fills shall be formed with suitable materials from on-site cuts and/or necessary suitable material from borrow pits. Organic material such as brush, stumps, roots and trees or other perishable items shall not be placed in embankments. Coal or organic shale shall not be included in the embankment. Bituminous material shall not be used in railroad embankment. In fill sections, after stripping the topsoil and organic material, the entire area which the embankment is to be placed shall be plowed and scarified for a minimum depth of 6 inches.

The initial lift and all future fill layers shall be compacted to 95 percent of maximum density per Standard Proctor in accordance with ASTM D698-T and AASHTO T 99, or 90 percent of maximum density per Modified Proctor in accordance with ASTM D-1557AASHTO T180, except that a minimum of the top **2 feet of fill shall be compacted to 100 percent Standard Proctor.** The top 12 inches of the subgrade in all cut sections that will be cut to subgrade elevation shall be plowed, scarified and compacted to 100 percent Standard Proctor.

The Contractor shall notify the Engineer of when fill layers are ready for compaction testing. Successive layers shall not be placed prior to an acceptable density being obtained on each layer. The moisture content of the soil shall be controlled as necessary to obtain the specified densities based upon the optimum moisture content for each material. Water shall be added to the soil when, in the opinion of the Engineer, additional moisture may be necessary to obtain the specified density. Soil that is too wet shall be allowed to dry or be worked by plowing, disking, harrowing, or other means to dry the material to a workable

Payment will be made under:

Pay Item	Pay Unit
__" B.C.C.M.P. Pipe Culverts, __" Thick	Linear Foot

GEOGRID FOR SOIL STABILIZATION **(Special)**

Description. This work shall consist of furnishing and placing geogrid in accordance with these specifications.

Reference Documents. The latest edition of the test standards and specifications mentioned below shall be used. Substitution of standards will require the prior written approval of the Engineer.

Material. Geogrid reinforcement design requirements shall be as described in section 7.0 below. Geogrid reinforcement shall consist of a regular network of integrally connected polymer tensile elements with aperture geometry sufficient to permit significant mechanical interlock with the surrounding soil, aggregate, or other material. The structure of the geogrid reinforcements shall be dimensionally stable and able to retain its geometry under construction stresses and shall have high resistance to damage during construction, to ultraviolet degradation, and to all forms of chemical and biological degradation encountered in the soil being reinforced.

Geogrid Reinforcement. Geogrids shall provide the following Engineering properties.

Property	Secondary Strength Orientation†	Primary Strength Orientation†
Allowable Long-term Tension Load @ 5% strain, (lb/ft)	191	316

†-Primary and secondary strength orientations of the geogrid will be the orientations in which the strength is highest and lowest, respectively.

Allowable long-term tension load is load at a given strain level divided by a reduction factor (RF) where $RF = RF_{ID} \times RF_{CR} \times RF_D$. The allowable long term tension loads at 5% strain shown in the table above are based on the following reduction factors:

$RF_{ID}=1.1; RF_{CR}=3.5; RF_D=1.1$

The individual reduction factors shall be documented in accordance with the site conditions, design calculations, and specifications. The reinforcement manufacturer shall certify and document the individual reduction factors as follows:

Installation Damage Reduction Factor (RF_{ID}): The reduction factor for installation damage, RF_{ID}, shall be documented by field and laboratory test results and literature review, as described in ASTM D 5818 for the reinforced backfill specified or for more severe soils. Samples subjected to installation damage shall be tested for tensile strength and deformation characteristics in accordance with ASTM D 4595 (modified for geogrid testing). Recommended values for reduction factors for installation damage (RF_{ID}) for various soils

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shall also be documented. The minimum installation damage reduction factor, RF_{ID} , shall be 1.1, regardless of product specific test results.

Creep Reduction Factor (RF_{CR}): Laboratory test results documenting creep performance over a range of load levels, for a minimum duration of 10,000 hours based on tension creep test (ASTM D 5262) shall be required. Creep test samples shall be of sufficient width to be representative of overall product creep response (fiber creep testing will not be accepted).

The creep-limiting strength, T_1 , shall be based on extrapolating the 10,000 hours (or longer duration) tension creep tests to a 75-year design life. The creep extrapolation method shall be based on methods described in FHWA NHI-00-43, "*Mechanically Stabilized Earth Walls and Reinforced Soil Slopes*" - Appendix "B". Laboratory test results and extrapolation methodology shall be documented.

The reduction factor for creep, RF_{CR} , is defined as the ratio of the average lot specific tensile strength @ 5 % strain, T_{ULTLOT} , to the creep-limiting strength, T_1 . The average lot specific tensile strength @ 5 % strain, T_{ULTLOT} , for the lot of material used for creep testing, T_{ULTLOT} , shall be determined from wide width tensile test, ASTM D 4595, (modified for geogrid testing). For calculating allowable long-term tensile load at 5% strain, the minimum creep reduction factor, RF_{CR} , shall be 3.5, regardless of the product specific test results.

Durability Reduction Factor (RF_D): The total reduction factor for durability, RF_D , shall be defined as the combined effects of chemical and biological degradation. Laboratory test results, extrapolation techniques, and a comprehensive literature review shall document the reduction factor for durability for all material components in accordance with FHWA NHI-00-044, "*Corrosion/Degradation of Soil Reinforcements for Mechanically Stabilized Earth Walls and Reinforced Soil Slopes*". The minimum durability reduction factor, RF_D , shall be 1.1, regardless of product specific test results.

Certification. Prior to construction the Contractor shall submit to the Engineer a Certification Package prepared by the geogrid reinforcement manufacturer. The Contractor shall allow 15 calendar days from the day the submittals are received by the Engineer for review and acceptance. The Certification shall state that the furnished geogrid reinforcement is in full compliance with the design requirements as stated in this document and the design drawings and is fit for use in long-term critical soil reinforcement applications. The submittal shall certify the following value for each geogrid reinforcement used on the project:

1. The allowable long-term tensile load @ 5% strain and @ failure for geogrid reinforcements.

The manufacturer shall also provide written certification that the material is capable of withstanding direct exposure to sunlight for 120 days with no measurable deterioration as measured per ASTM D 4355. The Contractor's submittal package

shall include, but not be limited to, actual test results for tension, creep, durability, construction damage, joint strength, pullout and quality control. A person having the legal authority to bond the manufacturer shall attest to the certificate. Any tests required shall be performed at no additional cost to the Department. If in the opinion of the Engineer, the required documentation is not provided for individual reduction factors (RF), default values for these design parameters shall be used in accordance with this specification.

The submittal shall certify the following values and document for each geogrid soil reinforcement used on the project:

Tensile Strength @ 5% strain: The tensile strength at 5 % strain, shall be determined from wide width tensile tests (ASTM D 4595) or rib tensile test for geogrids (ASTM D 6637). Geogrid samples tested in accordance with ASTM D 4595 shall have at least two geogrid apertures and a minimum gage length of 4 inches. All geogrid strength tests (ASTM D 4595 and ASTM D 6637) shall be conducted at a strain rate of 10% per minute based on actual gage length necessary to meet the testing sample dimension requirements. Laboratory test results documenting the tensile strength at 5% strain in the reinforcement direction shall be based on the minimum average roll values (MARV) for the product.

Manufacturing Quality Control. The Contractor shall provide to the Engineer a manufacturing quality control certificate and conformance testing results for all geosynthetic soil reinforcement delivered to the site. Sampling and conformance testing shall be in accordance with ASTM D 4354. Geosynthetic product acceptance shall be based on ASTM D 4759.

Geogrid samples tested in accordance with ASTM D 4595 shall have at least two geogrid apertures and a minimum gage length of 4 inches. All geogrid strength tests (ASTM D 4595 and ASTM D 6637) shall be conducted at a strain rate of 10% per minute based on actual gage length necessary to meet the testing sample dimension requirements. Conformance testing of the applicable index testing shown in the table below shall be provided for all geogrid reinforcement. The quality control certificate shall include roll numbers and identification, sampling procedures, and results of the conformance testing with a description of test methods used. The geogrid manufacturer shall have a manufacturing quality control program that includes QC testing no less frequently than each 200,000 sf (20,000sm) of production.

Type	Property	Test Method	Criteria
Polypropylene (PP)	UV Oxidation Resistance	ASTM D 4355	Minimum 70% strength retained after 500 hrs. in weatherometer
	Melt Flow Rate	ASTM D 1238	≤ 12 g/10 min
Polyethylene	UV Oxidation Resistance	ASTM D 4355	Minimum 70% strength retained after 500 hrs. in weatherometer

(HPDE)	Melt Flow Rate	ASTM D 1238	< 0.4 g/10 min
	Specific Gravity	ASTM D 792	1.2 Average
Polyester (PET)	Hydrolysis Resistance	Intrinsic Viscosity Method (ASTM D 4603 and GRI Test Method GG8) with Correlator or Determine Directly Using Gel Permeation Chromatography	Minimum Number Average Molecular Weight of 25,000
	Hydrolysis Resistance	Geotechnical Research Institute (GRI) GG7	Maximum Carboxyl End Group (CEG) Content of 30

Delivery, Storage and Handling: The Contractor shall be responsible for storage, handling and installation of all geogrids in accordance with specifications and the manufacturer’s recommendations.

Contractor shall deliver sufficient materials to the site to prevent interruption of the work. Contractor shall inspect all materials upon delivery. Contractor shall notify the Engineer, and vice versa, of any damage. Damaged-materials shall be returned and replaced at no cost to the Department. Contractor shall prevent mud, wet cement, epoxy, and similar materials which may affix themselves to the grid, from coming into contact with the geogrid material. Rolled geogrid material shall be laid flat or stood on edge for storage. Geogrid shall be kept covered with protective wrapping until ready for use.

Geogrid shall be handled carefully with approved handling devices in strict conformance with the manufacturer’s recommendations. Products shall not be dropped or rolled off trucks, nor shall products be otherwise dragged, rolled, or skidded.

Installation: All areas immediately beneath the installation area for the geogrid shall be properly prepared as specified within these provisions, and/or as directed by the Engineer. Geogrid reinforcement shall be placed to lay flat and pulled tight prior to backfilling. After a layer of geogrid has been placed, suitable means, such as pins or small piles of rocks, shall be used to hold geogrid in position until the subsequent soil layer can be placed. Under no circumstances shall a track-type vehicle be allowed on the geogrid before at least 6 inches of stone has been placed. Turning of tracked vehicles shall be kept to a minimum to prevent tracks from displacing the fill and the geogrid.

Geogrid Placement: The geogrid shall be installed in accordance with the manufacturer’s recommendations. The primary strength orientation of the geogrid/geotextile shall be placed perpendicular to the alignment. Horizontal coverage of less than 100 percent shall not be allowed unless specifically detailed on the plans. Minimum geogrid overlap of 3 feet shall be used.

93

to a mechanical spreader. The aggregate material may be placed by other methods approved by the Engineer. The sub-ballast section shall be constructed in two layers of equal thickness. Each layer of sub-ballast shall be fully compacted in lifts not to exceed 6" in thickness after compaction. Each layer of sub-ballast shall be compacted to a density of 100% of the Standard Proctor determined by AASHTO T 180 and maintained to the required cross-section during compaction. Moisture content shall be maintained within 2% +/- of optimum moisture to obtain the desired density. Water shall be added to the material if necessary to obtain the desired density. If the material is too wet to obtain the desired density, the material shall be worked by discing, harrowing or other means to dry the material to a workable moisture content.

Measurement and Payment

The quantity for *Sub-Ballast* to be paid for will be the actual number of tons of sub-ballast which has been used to construct the track roadbed sections, measured as provided for in Article 520-11 of the Standard Specifications. Such price and payment will be full compensation for all furnishing, weighing, hauling, and placing of sub-ballast and for any other work necessary for the construction of the track roadbed section.

Pay Item
Sub-ballast

Pay Unit
Ton

MAINTENANCE OF TRACK ROADBED (Special)

The Contractor shall be responsible for the maintenance of the track roadbed during the construction period. Ditches and temporary pipes shall be provided and maintained as may be necessary to satisfactorily drain the sub-grade. Where previously approved sub-grade is damaged by natural causes, by hauling equipment or other traffic the Contractor shall restore the sub-grade to the required lines, grades and typical sections and to the required density at no additional cost to the Department. There will be no direct payment for maintenance of the track roadbed. All cost associated with maintaining the track roadbed will be incidental to other items of work.

RIGHT OF WAY GATE

(Special)

DESCRIPTION

Furnish and erect right of way gates in conformity with the details shown in the plans and at the locations shown in the plans.

MATERIALS

Item Section

- 2" OD steel pipe, schedule 80
- 3 1/2" OD steel pipe, schedule 80

JORDAN LAKE WATERSHED NUTRIENT MANAGEMENT TRAINING REQUIREMENTS:

The person(s) responsible for applying fertilizer or person(s) conducting the application of fertilizer on this project within the Jordan Lake Watershed shall complete the following web-based training prior to performing this work:

<http://portal.ncdenr.org/web/jordanlake/fertilizer-management>

The cost of the training is \$10.00 and the training shall be paid for and completed at the expense of the Contractor and no direct payment will be made in this contract. A certificate of completion must be presented by the person(s) responsible for fertilizer application or person(s) conducting the application of fertilizer prior to performing fertilizer application on the project within the limits of the Jordan Lake Watershed.

STATE	U-4716A/C	PROJECT NUMBER	I
PROJECT NUMBER	39080.1.1	PROJECT TITLE	STP-1978(2)
DATE		SCALE	

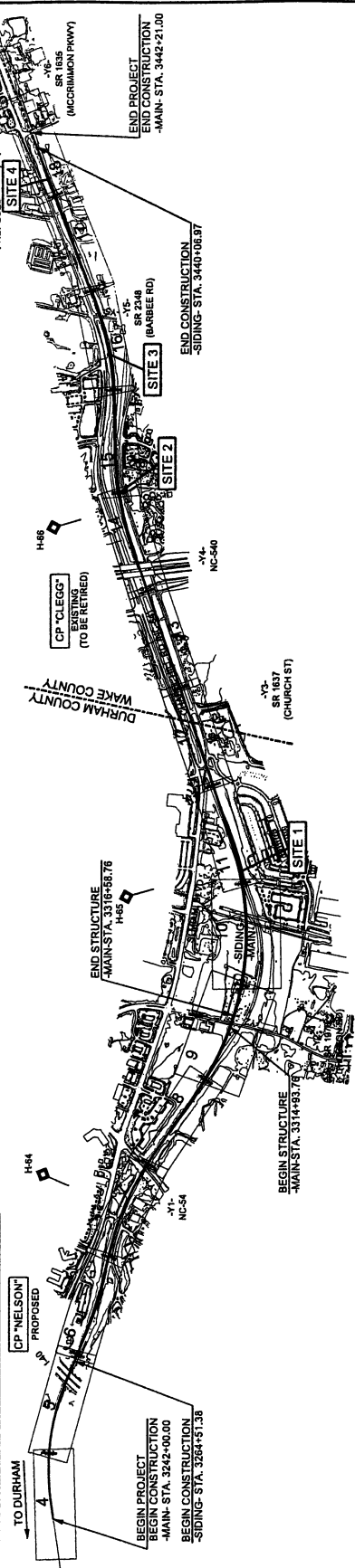
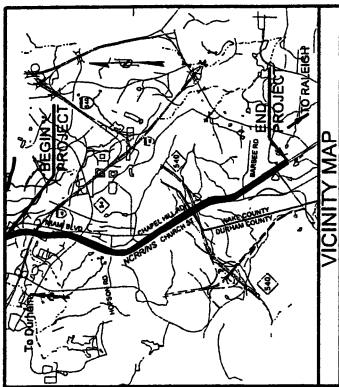


**NCDOT
RAIL DIVISION
DURHAM AND WAKE COUNTIES**

PROJECT TITLE: CLEGG PASSING SIDING AND HOPSON ROAD GRADE SEPARATION

LOCATION: CP "NELSON" (MP H-63.2) TO CP "CLEGG" (MP H-67.0) ON THE NCR/NS H-LINE

TYPE OF WORK: TRACK REALIGNMENT, NEW SIDING TRACK, AND GRADE SEPARATION STRUCTURE



WETLAND & STREAM IMPACTS

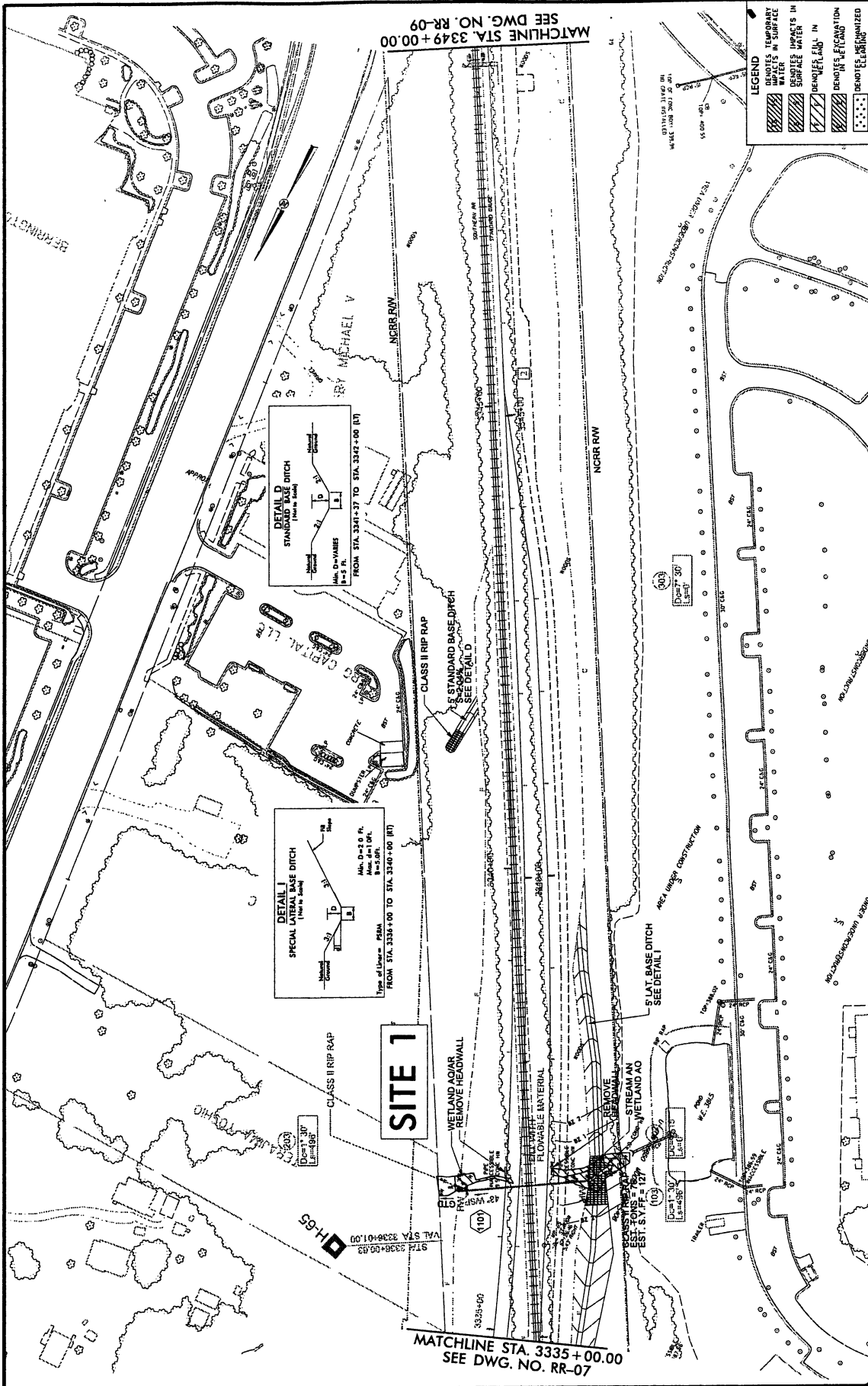
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

<p>HNTB 2013 STANDARD SPECIFICATIONS</p> <p>Prepared in the Office at: HNTB 1101 North Salisbury Street, Suite 200 Raleigh, NC 27601 Tel: 919.977.8000 Fax: 919.977.8001 www.hntb.com</p>	<p>PROJECT MANAGER ROBERT BURNETT, P.E.</p> <p>RAIL PROJECT MANAGER COREY VERNIER, P.E.</p> <p>RAIL PROJECT DESIGN ENGINEER PHILIP ROGERS, P.E.</p> <p>ROADWAY PROJECT ENGINEER JAMES BYRD, P.E.</p> <p>HYDRAULICS PROJECT ENGINEER JASON ORTHNER, P.E.</p> <p>NCDOT PROJECT ADVISOR</p>
	<p>RIGHT OF WAY DATE: N/A</p> <p>LETTING DATE: OCTOBER 16, 2012</p>
<p>PROJECT LENGTH</p> <p>LENGTH OF RAIL TIP PROJECT: 3.77 MI.</p> <p>LENGTH OF STRUCTURES TIP PROJECT: 165 FL.</p>	<p>GRAPHIC SCALES</p> <p>PLANS: 1" = 50'</p> <p>PROFILE (HORIZONTAL): 1" = 50'</p> <p>PROFILE (VERTICAL): 1" = 10'</p>
<p>RAIL ENGINEER</p> <p>HYDRAULICS ENGINEER</p>	<p>SIGNATURE: _____ P.E.</p> <p>SIGNATURE: _____ P.E.</p>



CONTRACT: 5400.1.STR0111B TIP PROJECT: U-4716A/C



<p>PROJECT U-4716 AC CLEGG PASSING SIDING & HOPSON RD. GRADE SEPARATION</p>	
<p>LOCATION CP "NELSON" TO CP "CLEGG"</p>	<p>DATE 11/09/12</p>
<p>DESIGNED BY DAC</p>	<p>CHECKED BY DAC</p>
<p>DRAWN BY DAC</p>	<p>SCALE 1"=100'</p>
<p>DATE 02/27/12</p>	<p>SHEET 01</p>
<p>WETLAND AND STREAM IMPACTS</p>	
<p>PERMIT DRAWINGS</p>	
<p>DATE 11-09-12</p>	

HNTB

 HNTB NORTH CAROLINA, P.C.

 100 SOUTH MAIN STREET, SUITE 200

 WELLSVILLE, NORTH CAROLINA 27884

 NO LICENSE NO. S-1334

INCOMPLETE PLANS

 PRELIMINARY PLANS

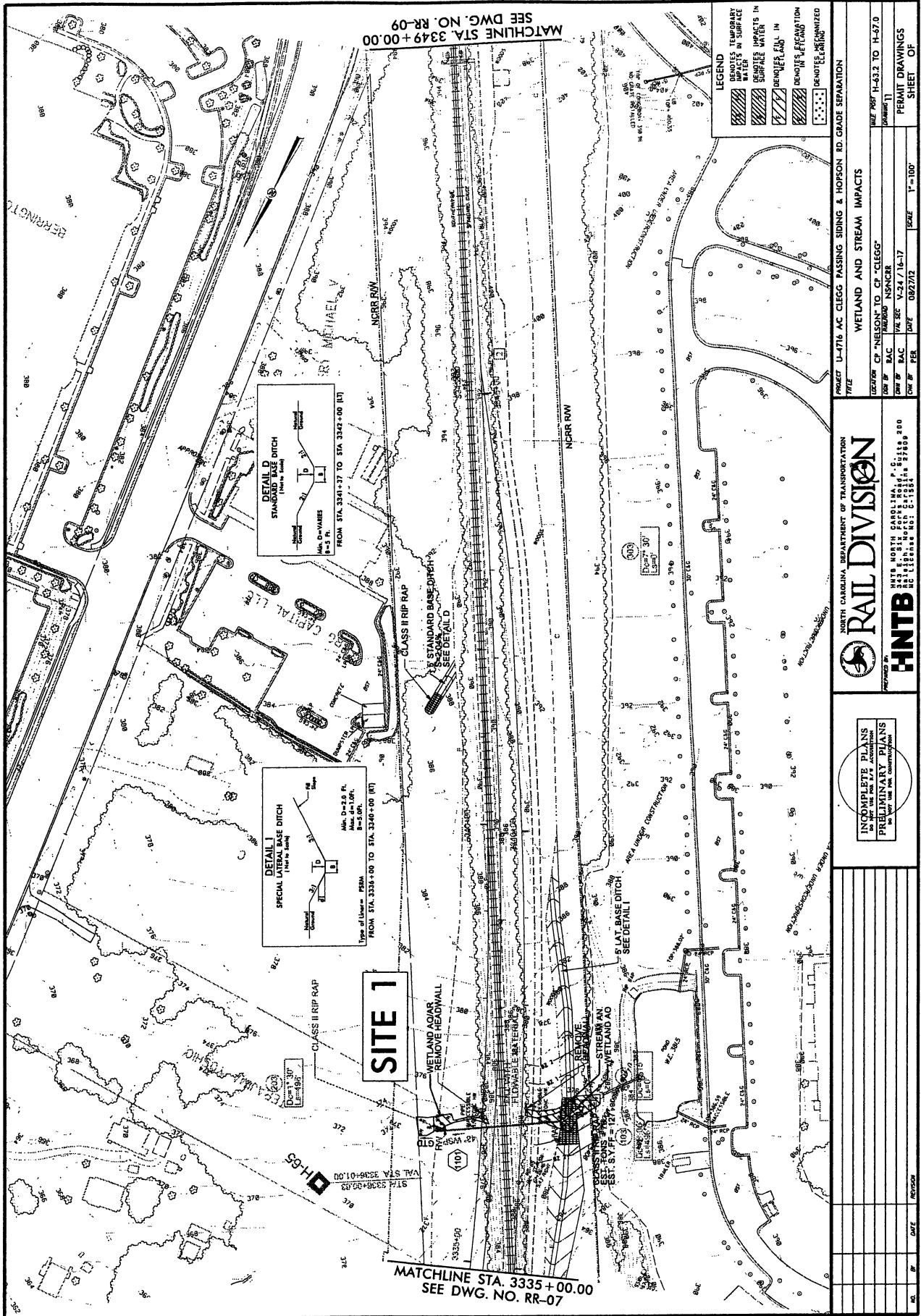
 DO NOT USE FOR CONSTRUCTION

NO.	BY	DATE	REVISION

H5:15 PM

 HOPSON.HYD@wetland.com

 SHEET NAME: 5355



PROJECT U-4716 AC CLEGG PASSING SIDING & HOPSON RD. GRADE SEPARATION	
DATE	11/9/12
SCALE	AS SHOWN
DATE	11/9/12
SCALE	AS SHOWN
DATE	11/9/12
SCALE	AS SHOWN
DATE	11/9/12
SCALE	AS SHOWN
DATE	11/9/12
SCALE	AS SHOWN

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

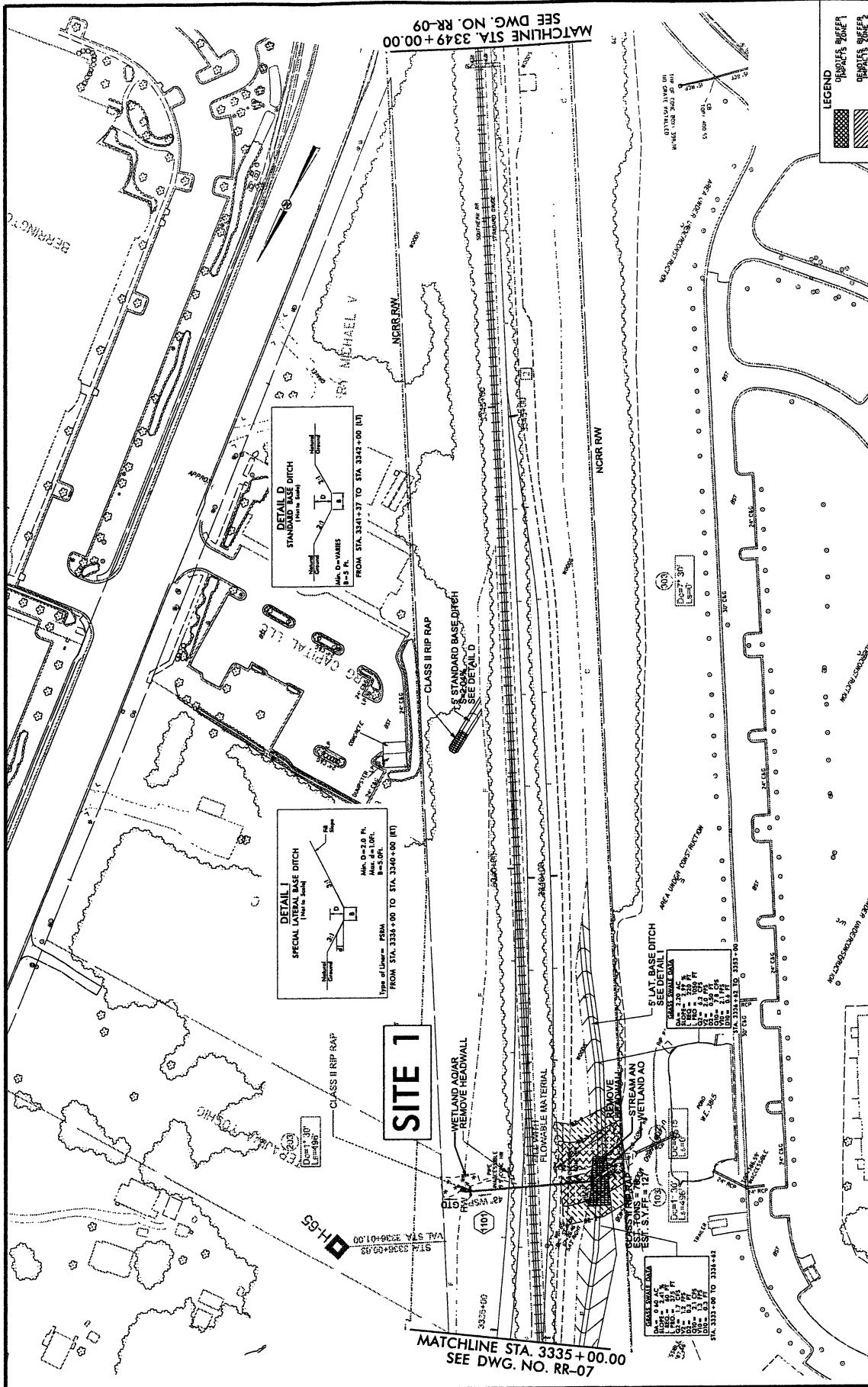
RAIL DIVISION

HNTB
HNTB NORTH CAROLINA, P.C.
3300 E. 8th Street, Raleigh, NC 27609
Tel: 919.977.1100
Fax: 919.977.1101

INCOMPLETE PLANS
PRELIMINARY PLANS
NO WARRANTY FOR CONSTRUCTION

NO.	BY	DATE	REVISION

153111 PM
Sheet: Hopson, hyd.0bwe1.dgn
Sheet Name: s335



MATCHLINE STA. 3349+00.00
SEE DWG. NO. RR-09

MATCHLINE STA. 3335+00.00
SEE DWG. NO. RR-07

LEGEND
 BUFFER
 IMPACTS

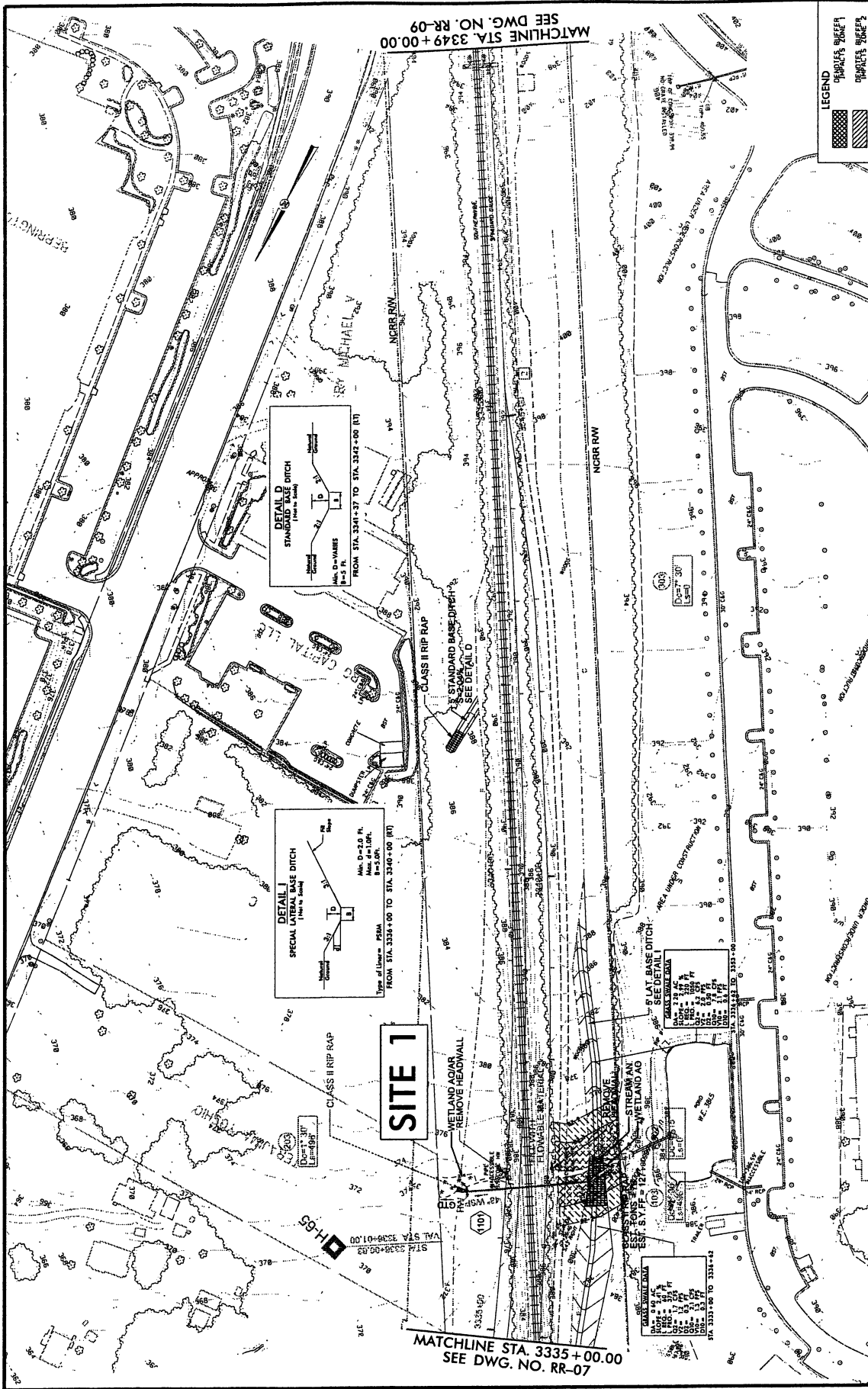
PROJECT U-4716 AC CLEGG PASSING SIDING & THOMPSON RD. GRADE SEPARATION

Rail Division
 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DESIGNED BY: HNTB
 CHECKED BY: HNTB
 DATE: 08/27/12

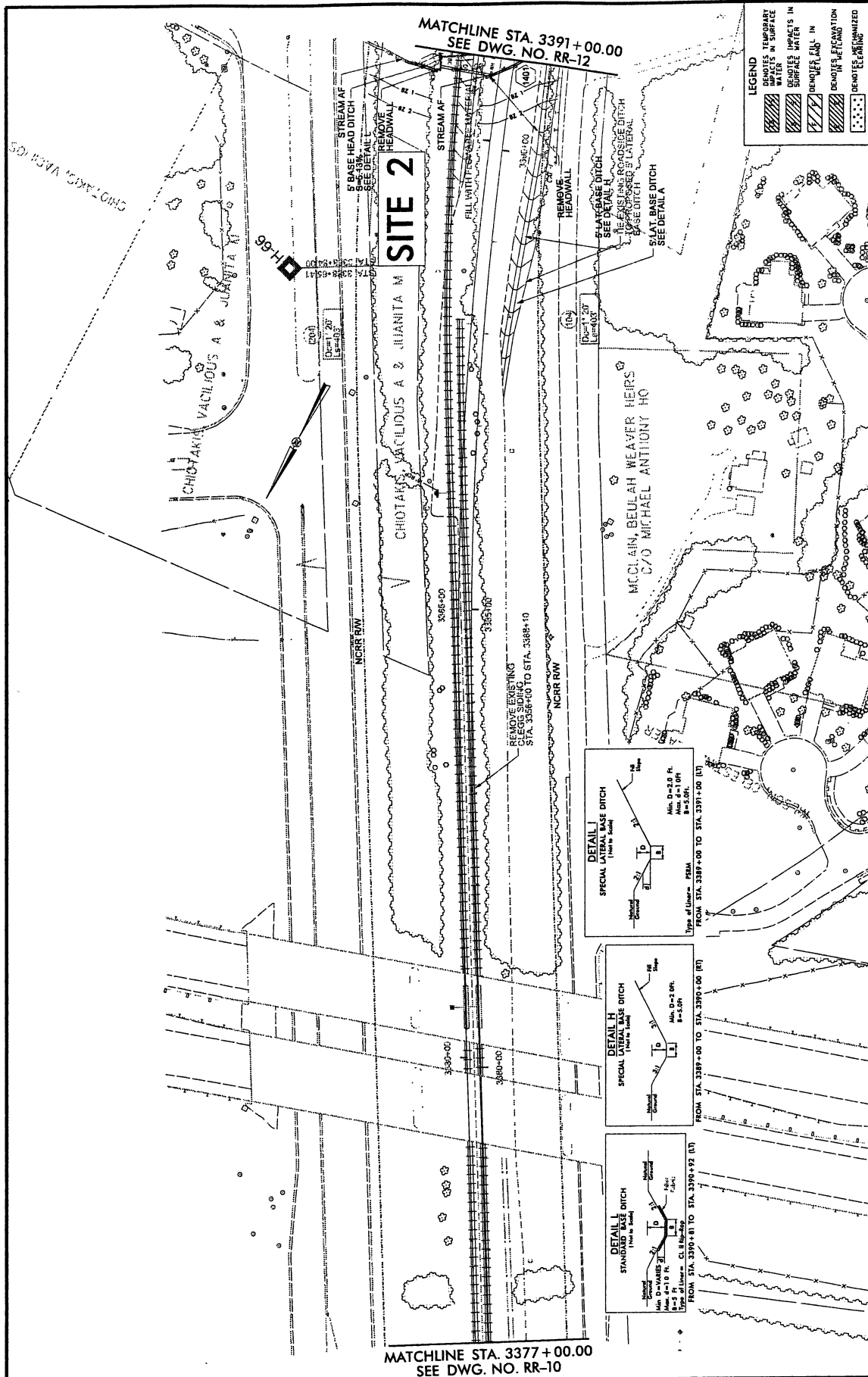
HNTB
 HNTB NORTH CAROLINA, P.C.
 200 W. WILKINSON ST., SUITE 1000
 WILMINGTON, NC 28401
 TEL: 704.772.3333
 FAX: 704.772.3334
 NC LICENSE NO. S-1552

NO.	REV.	DATE	BY	REVISION

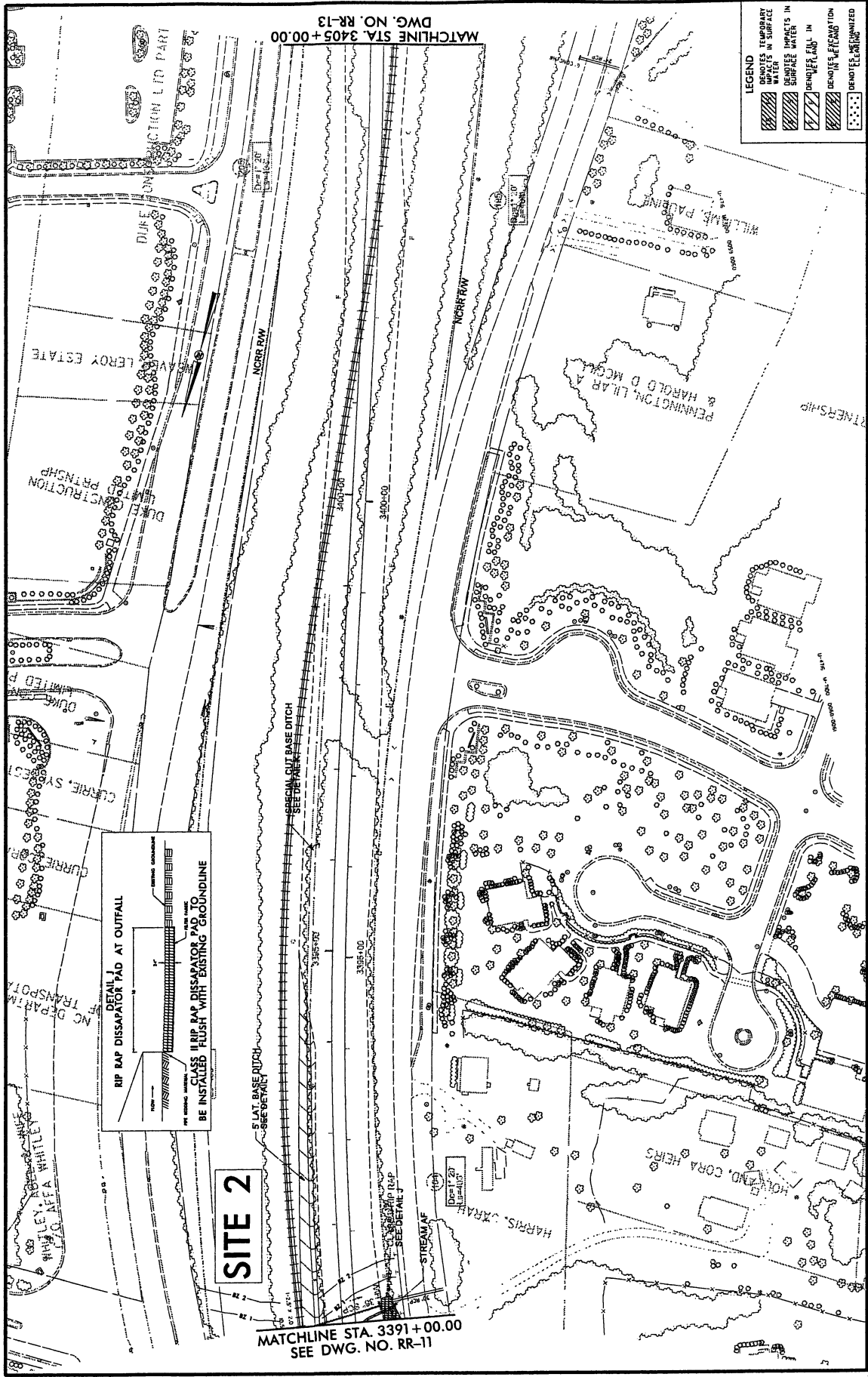


<p>LEGEND</p> <p>STREAM BUFFER</p> <p>RIP RAP BUFFER</p>	
<p>TITLE</p> <p>PROJECT U-718 AC CLEGG PASSING SIDING & HOPSON RD. GRADE SEPARATION</p> <p>STREAM BUFFER IMPACTS</p>	
<p>LOCATION CP NELSON TO CP CLEGG</p>	<p>DATE PER H-433.2 TO H-437.0</p>
<p>DWG BY SAC</p>	<p>DATE PER H-433.2 TO H-437.0</p>
<p>CHK BY SAC</p>	<p>DATE PER H-433.2 TO H-437.0</p>
<p>DATE PER H-433.2 TO H-437.0</p>	<p>SCALE 1"=100'</p>
<p>DATE PER H-433.2 TO H-437.0</p>	<p>PERMIT DRAWINGS</p>
<p>DATE PER H-433.2 TO H-437.0</p>	<p>SHEET OF</p>
<p>RAIL DIVISION</p> <p>NORTH CAROLINA DEPARTMENT OF TRANSPORTATION</p> <p>HNTB</p> <p>HNTB NORTH CAROLINA, INC. 118 200</p> <p>1000 NORTH COLLETT AVENUE</p> <p>RALEIGH, NORTH CAROLINA 27608</p> <p>TEL: 919.876.2100</p> <p>FAX: 919.876.2108</p>	
<p>INCOMPLETE PLANS</p> <p>DO NOT USE FOR CONSTRUCTION</p>	
<p>DATE</p>	<p>REVISION</p>

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PROJECT U-4716 AC CLEGG PASSING SIDING & HOPSON RD. GRADE SEPARATION W/ILE DESIGNER CP NELSON TO CP CLEGG DATE 05/08 DRAWN BY BAC DATE 04/17/16-17 CHECKED BY BAC DATE 07/23/17 SCALE 1"=100' PERMIT DRAWINGS SHEET OF	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RAIL DIVISION HNTB HNTB NORTH CAROLINA, P.C. 2111 HIGHWAY 101, FLOOR 200 RALEIGH, NC 27601 NC LICENSE NO. C-1554	
WETLAND AND STREAM IMPACTS INCOMPLETE PLANS PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



LEGEND
 DENOTES TEMPORARY IMPACTS IN SURFACE WATER
 DENOTES IMPACTS IN SURFACE WATER
 DENOTES FILL IN WETLAND
 DENOTES EXCAVATION IN WETLAND
 DENOTES REMOVAL OF WETLAND

PROJECT U-1716 AC CLEGG PASSING SIDING & HORSON RD. GRADE SEPARATION
 TITLE
 WETLAND AND STREAM IMPACTS
 LOCATION CP NELSON TO CP CLEGG
 DRAWN BY RAC
 DATE 07/23/12
 SCALE 1"=100'
 PERMIT DRAWINGS SHEET OF

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
 PREPARED BY
HNTB
 HNTB NORTH CAROLINA, P.C.
 100 S. WILSON ROAD, SUITE 200
 RICHMOND, VA 23261
 TEL: 804.644.1100 FAX: 804.644.1101

INCOMPLETE PLANS
 PRELIMINARY PLANS
 NOT FOR CONSTRUCTION

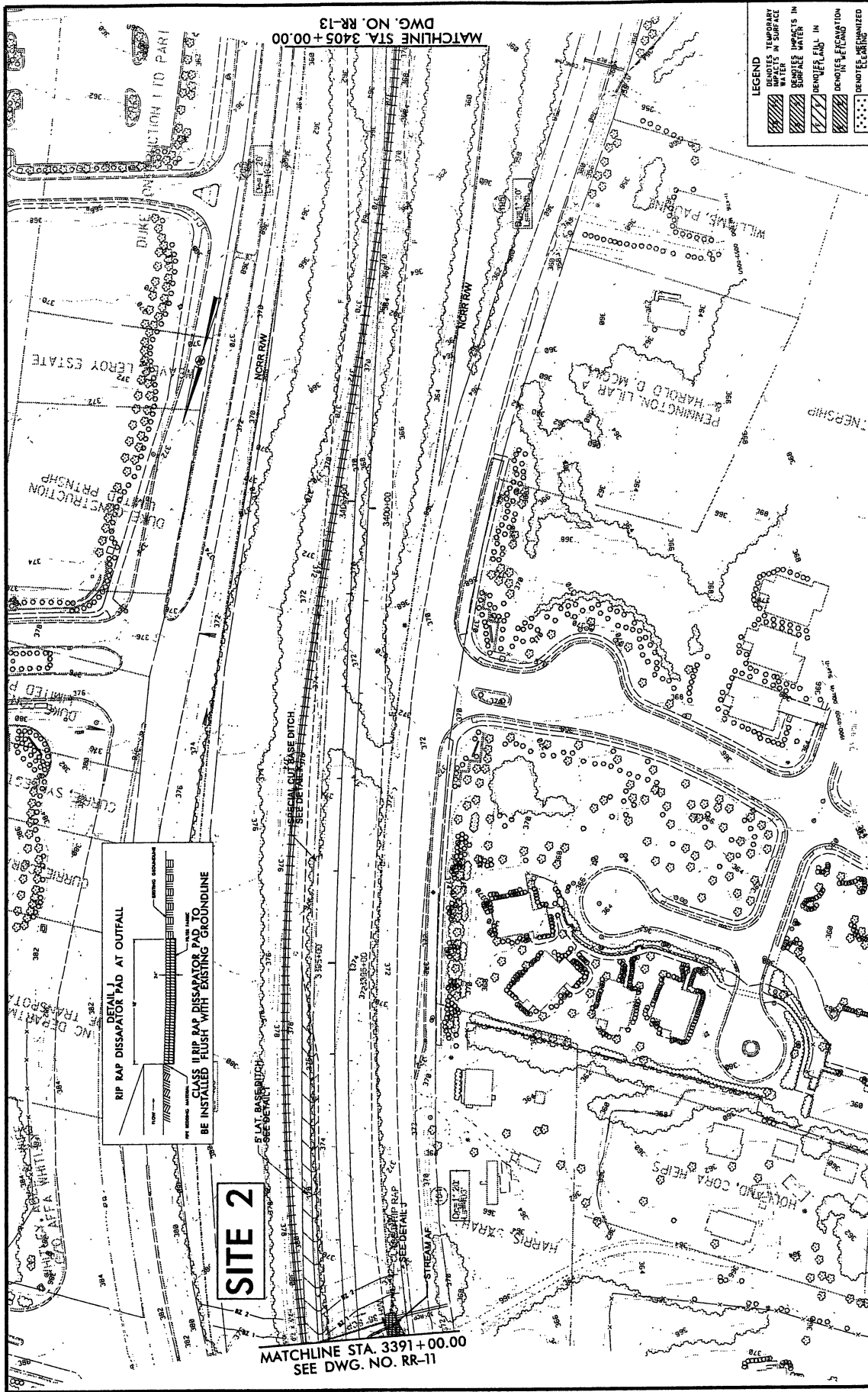
NO.	DATE	REVISION

DETAIL
 RIP RAP DISSIPATOR PAD AT OUTFALL
 CLASS II RIP RAP DISSIPATOR PAD TO BE INSTALLED FLUSH WITH EXISTING GROUNDLINE

SITE 2

MATCHLINE STA. 3391+00.00
 SEE DWG. NO. RR-11

MATCHLINE STA. 3405+00.00
 DWG. NO. RR-13



LEGEND

- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES DEBRIS IMPACTS IN SURFACE WATER
- DENOTES RIP RAP PAD
- DENOTES STREAM SEPARATION
- DENOTES CLEARING

<p>PROJECT: U-4715 AC CLEGG PASSING SIDING & HOFFSON RD. GRADE SEPARATION</p>	
<p>WETLAND AND STREAM IMPACTS</p>	
<p>LOCATION: CP "NELSON TO CP "CLEGG"</p>	<p>SCALE: 1"=100'</p>
<p>DATE: 11/15/12</p>	<p>PERMIT DRAWING</p>
<p>DATE: 11/15/12</p>	<p>SHEET: 01</p>

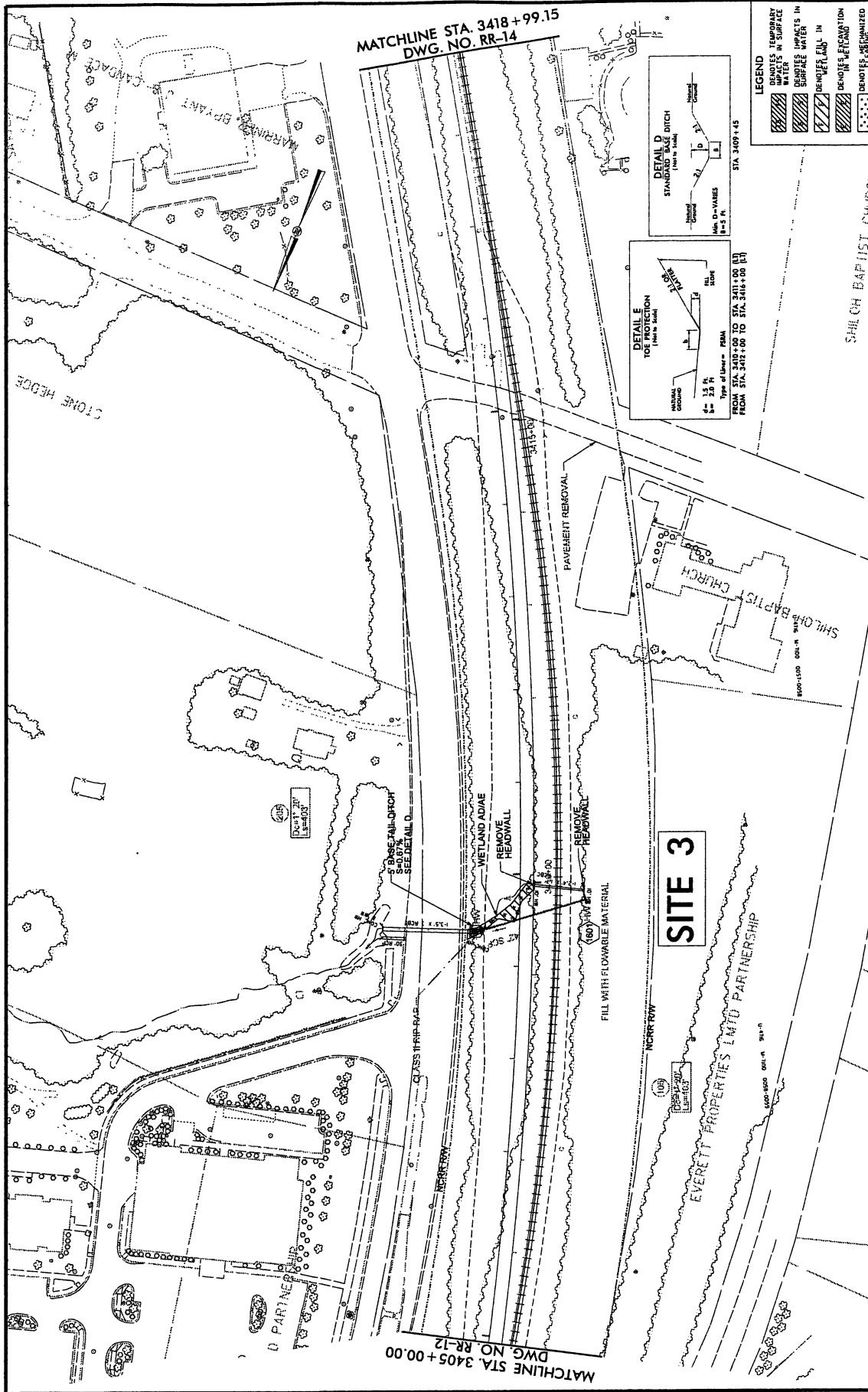
RAIL DIVISION

 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

INCOMPLETE PLANS
 DO NOT USE FOR CONSTRUCTION
 PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

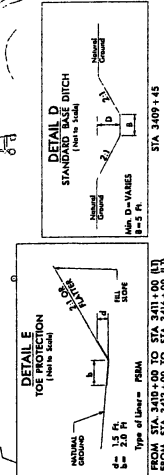
NO.	DATE	REVISION

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LEGEND

- DENOTES TEMPORARY IMPACTS IN SURFACE
- DENOTES PERMANENT IMPACTS IN SURFACE
- DENOTES FILL IN STREAM
- DENOTES FILL IN WETLAND
- DENOTES FILL IN STREAM
- DENOTES FILL IN WETLAND
- DENOTES FILL IN STREAM
- DENOTES FILL IN WETLAND



PROJECT	U-4716 AC CLEGG PASSING SIDING & HOPSON RD. GRADE SEPARATION
DATE	11/9/12
DRAWN BY	BAC
CHECKED BY	BAC
DATE	07/23/12
SCALE	1"=100'
PERMIT DRAWINGS	
SHEET	OF

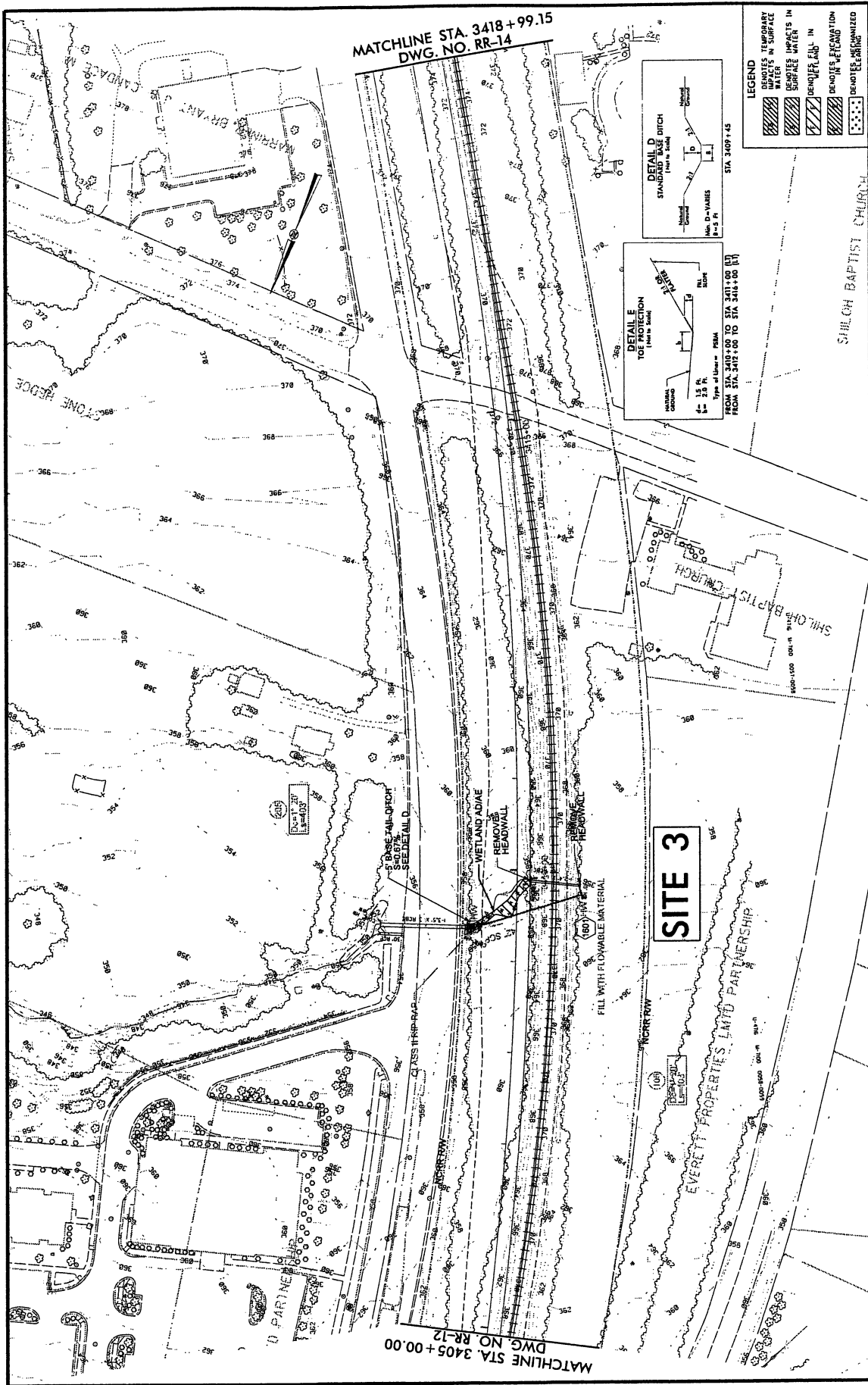
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

RAIL DIVISION

REGISTERED ENGINEER
HNTB
 HNTB NORTH CAROLINA, P.C.
 211 SOUTH MAIN STREET, SUITE 200
 WELLSVILLE, NC 28688
 NC LICENSE NO. C-1554

INCOMPLETE PLANS
 PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

NO.	DATE	REVISION



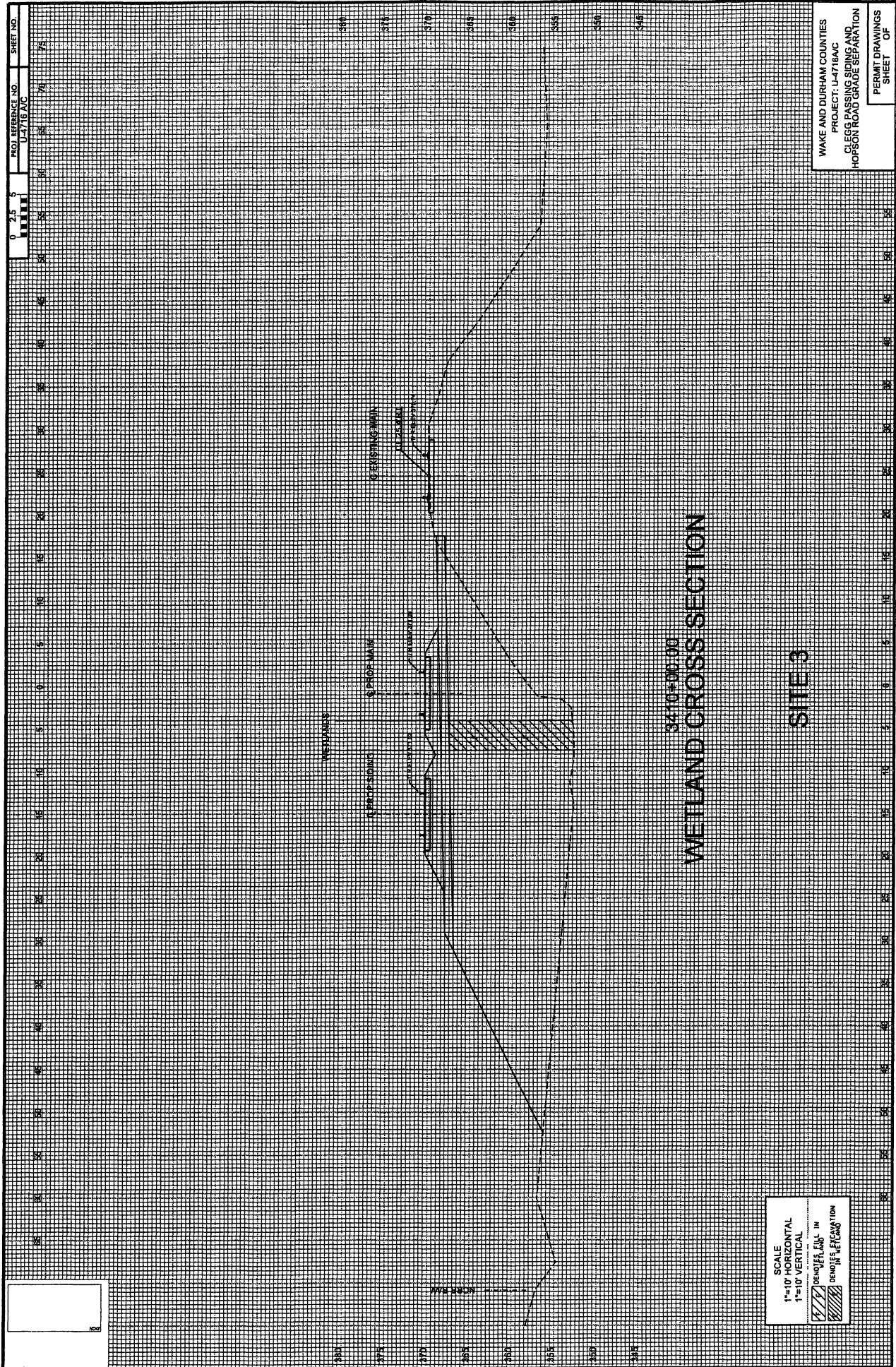
PROJECT	U-1716 AC CLEGG PASSING SIDING & HOPSON RD. GRADE SEPARATION
TITLE	WETLAND AND STREAM IMPACTS
DESIGNED BY	CP NELSON TO CP "CLEGG"
CHECKED BY	BAC NONNER
DATE	11/24/12
DESIGNED BY	FEJ
CHECKED BY	DFZ
DATE	07/20/12
SCALE	1"=100'
PERMIT DRAWINGS	
SHEET	OF

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

RAIL DIVISION
 PROJECT NO. 12-100
 HNTB NORTH CAROLINA, P.C., 100
 HUNTERS LANE, SUITE 100, RALEIGH, NC 27603
 HNTB LICENSE NO. C-1554

INCOMPLETE PLANS
 PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

NO.	BY	DATE	REVISION



SHEET NO. 5

PROJ. REFERENCE NO. U-4716 A/C

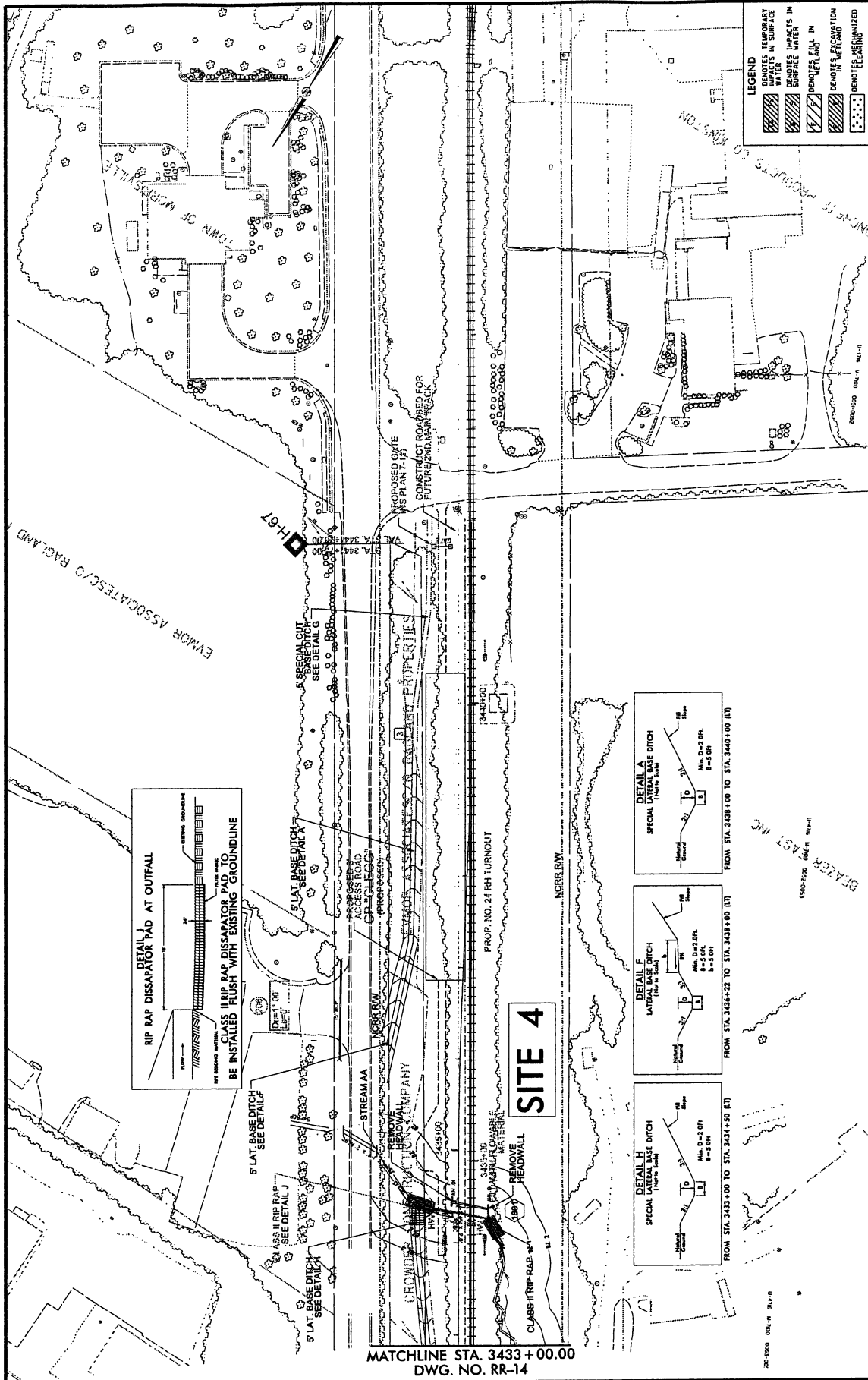
0 2.5 5

WAKE AND DURHAM COUNTIES
 PROJECT: U-4716A/C
 CLEGS PASSING SIDING AND
 HOPSON ROAD GRADE SEPARATION
 PERMIT DRAWINGS
 SHEET 5 OF 5

3/10/00
WETLAND CROSS SECTION

SITE 3

SCALE
 1" = 10' HORIZONTAL
 1" = 10' VERTICAL
 HATCHED AREA = WETLAND
 SOLID LINE = EXISTING MHW



NO.	BY	DATE	REVISION

NORTH CAROLINA, DEPARTMENT OF TRANSPORTATION

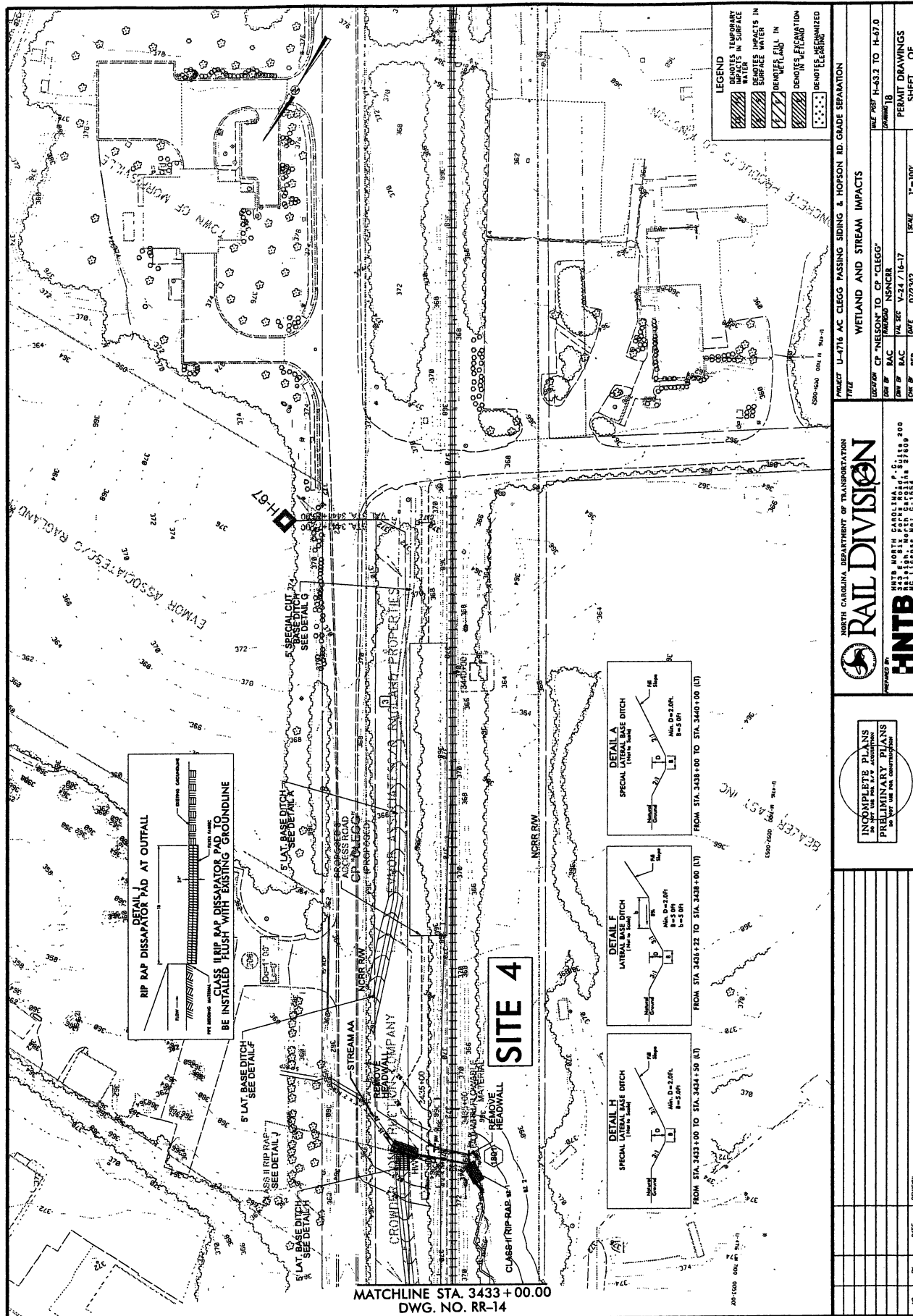
RAIL DIVISION

HNTB

HNTB NORTH CAROLINA, P.C.
1200 SOUTH MAIN STREET
RAIL DIVISION, SUITE 2100
Raleigh, NC 27601
REG. LICENSE NO. C-1554

PROJECT: U-1716 AC CLEGG PASSING SIDING & HOPSON RD. GRADE SEPARATION
TITLE: WETLAND AND STREAM IMPACTS
DATE: MAY 1997 H-45.12 TO H-47.0
DESIGNED BY: CP - NELSON TO: CP - CLEGG
DRAWN BY: RAC (SCALE) NSNCR
CHECKED BY: RAC (SCALE) V-24/10-17
DATE: 07/23/02
SCALE: 1"=100'
PERMIT DRAWINGS SHEET: OF

INCORPORATE PLANS
IN ALL WORK FOR THIS PROJECT
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



LEGEND

- ▨ DENOTES TEMPORARY WATERS IN SURFACE
- ▨ DENOTES IMPACTS IN SURFACE WATER
- ▨ RIPARIAN BUFFER, 50' IN
- ▨ DENOTES ENCROACHMENT
- ▨ DENOTES DEMARCATED ELEVATION

PROJECT U-4716 AC CLEGG PASSING SIDING & HOPSON RD. GRADE SEPARATION	
DATE	07/20/12
DESIGNED BY	CP 'CLEGG'
CHECKED BY	BAC
DRAWN BY	BAC
SCALE	1"=100'
WETLAND AND STREAM IMPACTS	
DATE	07/20/12
PROJECT NO.	U-4716
SHEET NO.	H-43.2 TO H-47.0
DRAWING NO.	RR-14
DATE	07/20/12
DRAWN BY	BAC
CHECKED BY	BAC
SCALE	1"=100'
PERMIT DRAWINGS SHEET OF	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

RAIL DIVISION

PROJECT NO. U-4716

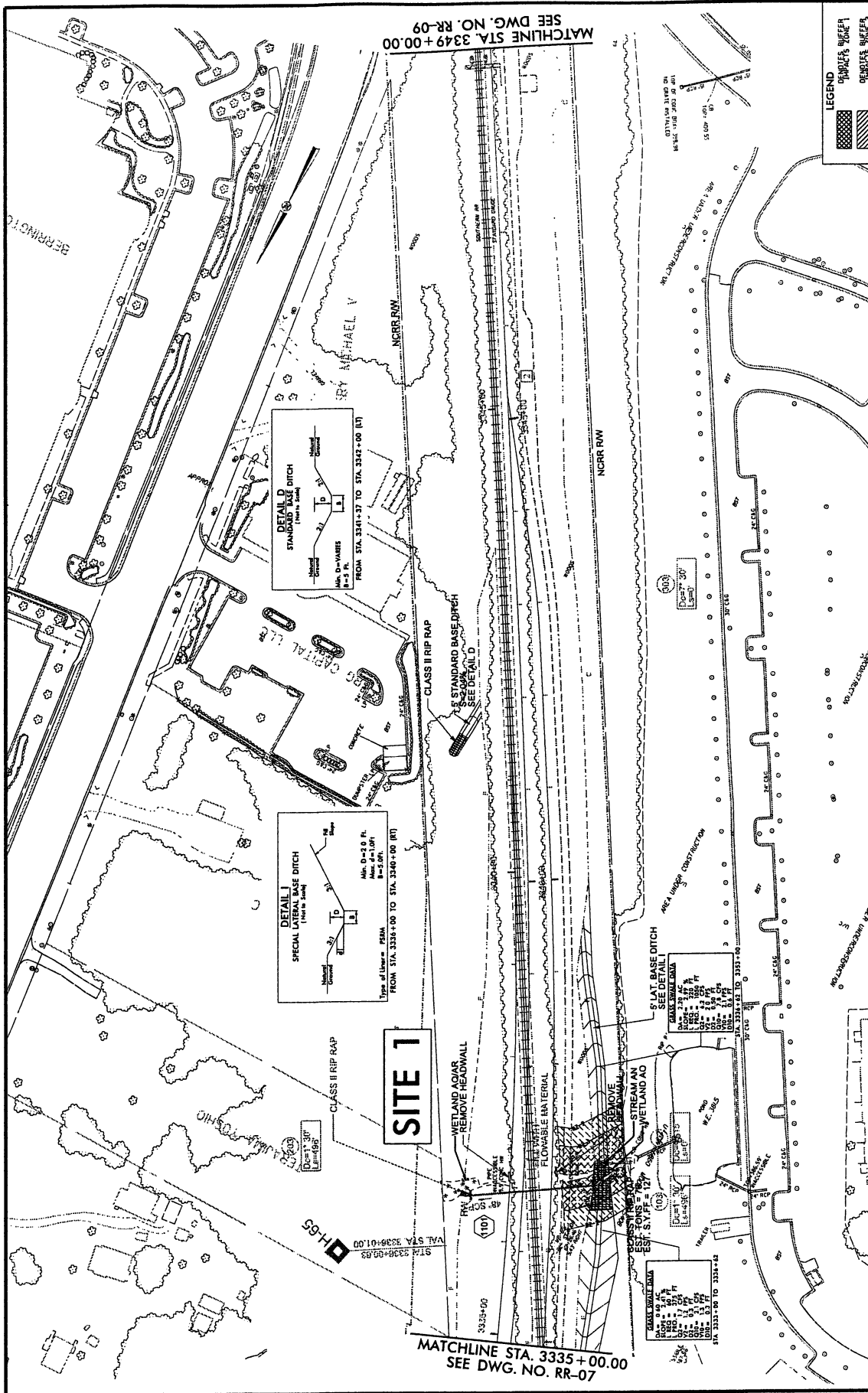
HNTB

HNTB NORTH CAROLINA, P.C., 200 SOUTH HARRIS STREET, RICHMOND, VIRGINIA 23260
 HNTB LICENSE NO. C-18551

INCOMPLETE PLANS
 IN THE PRESENCE OF
 PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

MATCHLINE STA. 3433+00.00
 DWG. NO. RR-14

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<p>PROJECT: U-1716 AC CLEGG PASSING SIDING & HOPSON RD. GRADE SEPARATION</p> <p>TITLE: STREAM BUFFER IMPACTS</p>	
DESIGNED BY: CP "NELSON" TO CP "CLEGG"	DATE: 11/09/12
DRAWN BY: BAC	DATE: 11/09/12
CHECKED BY: BAC	DATE: 11/09/12
DATE: 11/09/12	SCALE: 1"=100'
<p>PERMITS REQUIRED: YES</p> <p>PERMITS NOT REQUIRED: NO</p>	
<p>PROJECT: U-1716 AC CLEGG PASSING SIDING & HOPSON RD. GRADE SEPARATION</p> <p>TITLE: STREAM BUFFER IMPACTS</p>	
DESIGNED BY: CP "NELSON" TO CP "CLEGG"	DATE: 11/09/12
DRAWN BY: BAC	DATE: 11/09/12
CHECKED BY: BAC	DATE: 11/09/12
DATE: 11/09/12	SCALE: 1"=100'
<p>PERMITS REQUIRED: YES</p> <p>PERMITS NOT REQUIRED: NO</p>	

RAIL DIVISION

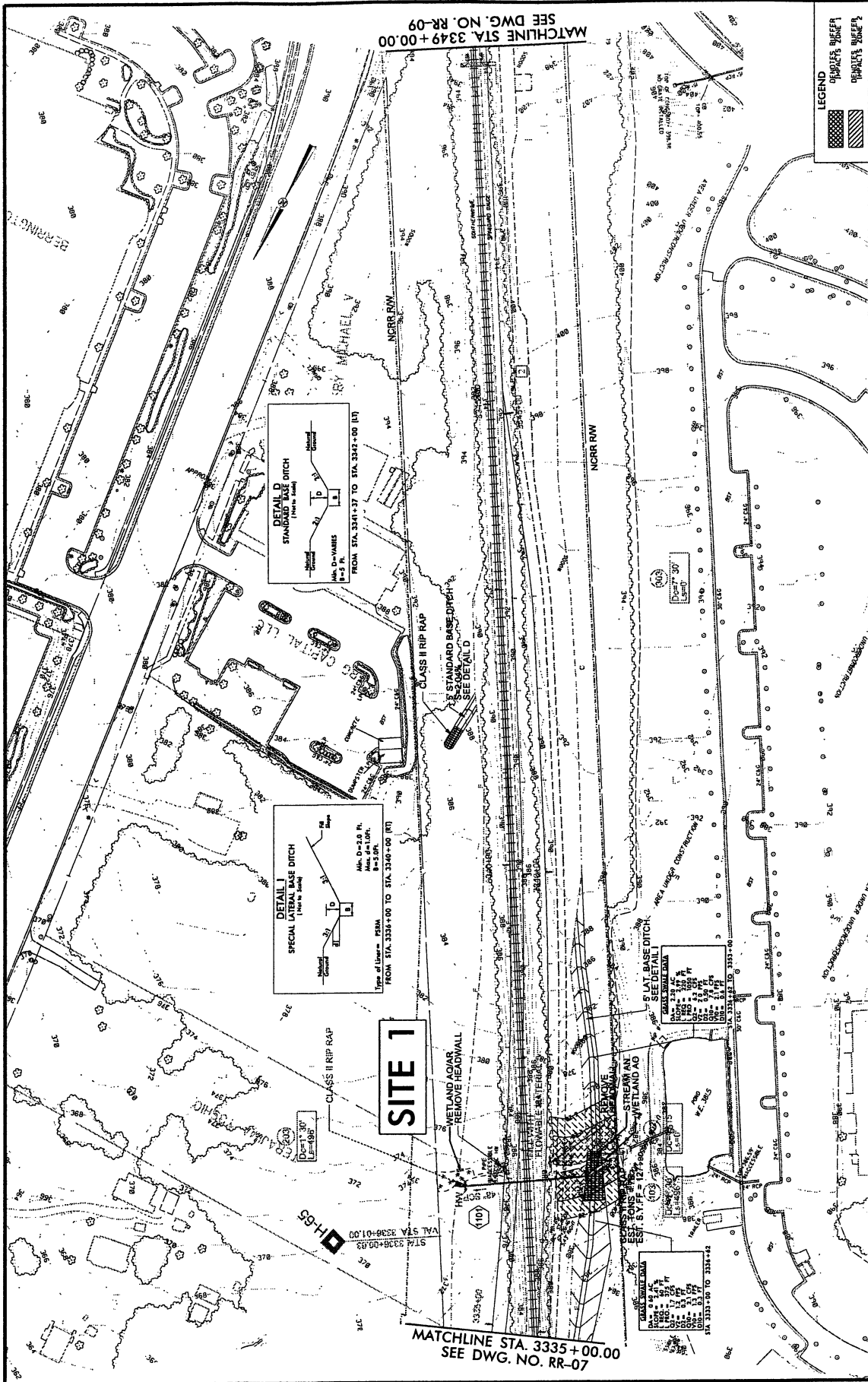
 HNTB

 HNTB NORTH CAROLINA, P.C.

 343 E. SIXTH STREET, SUITE 200

 WILMINGTON, NC 28401

INCOMPLETE PLANS
 PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

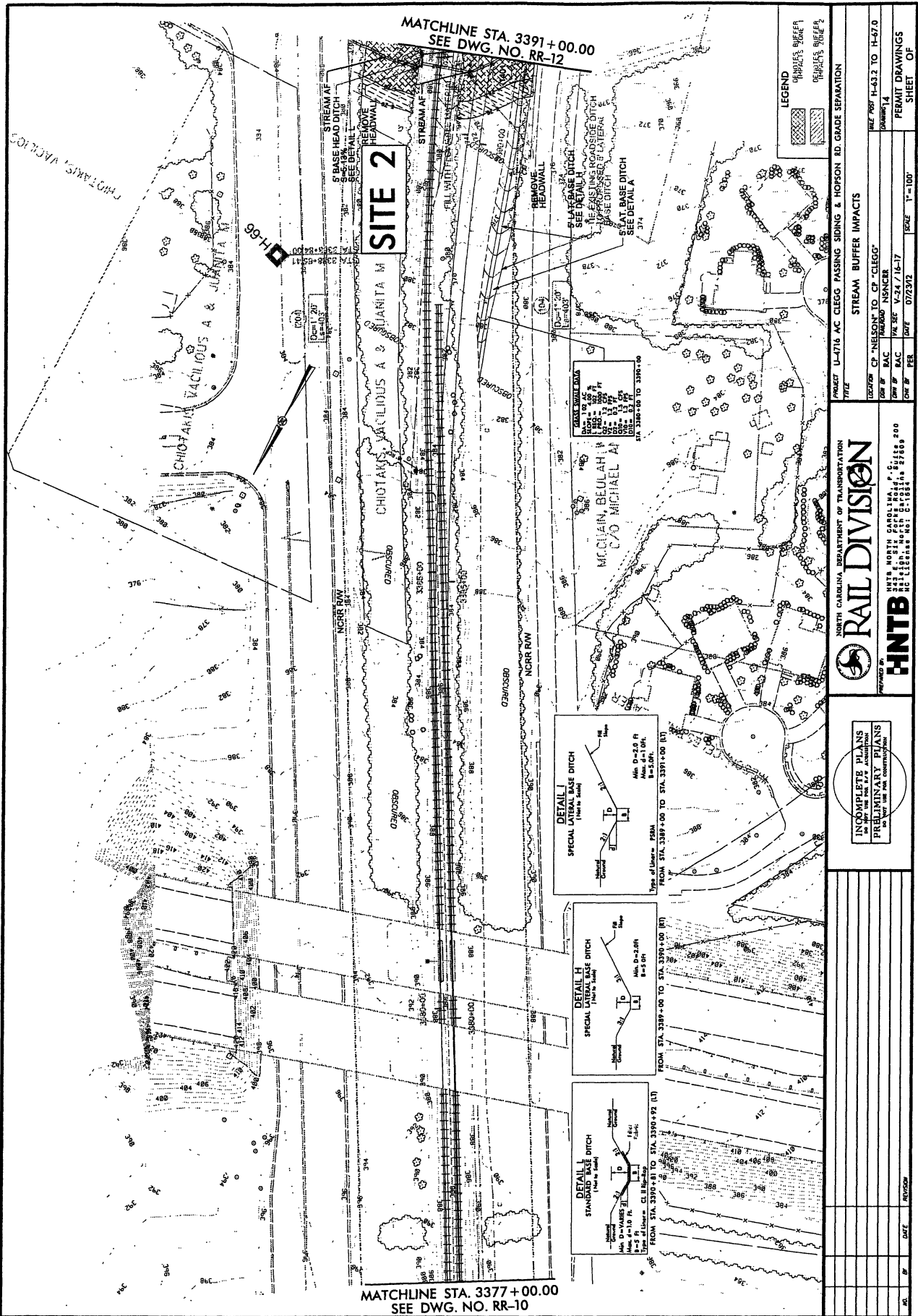


SITE 1

LEGEND
 STREAM BUFFER
 DEVELOPER BUFFER

PROJECT TITLE U-1716 AC CLEGG PASSING SIDING & HOPSON RD. GRADE SEPARATION			
DESIGNER CP "NELSON TO CP "CLEGG"	SHEET NO. U-53.2 TO U-57.0		
DRAWN BY RAC	CHECKED BY NSMCKR		
DATE V-28 / 10-17	PERMIT DRAWINGS SHEET OF		
DRAWN BY PER	DATE 07/20/12		
SCALE 1"=100'			
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RAIL DIVISION			
PROJECT NO. HNTB NORTH CAROLINA, P.C. 008 200			
HNTB HNTB NORTH CAROLINA, P.C. 008 200 10000 W. HIGHTSHIRE RD. SUITE 200 RALEIGH, NC 27615 TEL: 919.873.8200 FAX: 919.873.8201			
INCOMPLETE PLANS PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			
NO.	BY	DATE	REVISION

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SITE 2

MATCHLINE STA. 3391+00.00
SEE DWG. NO. RR-12

MATCHLINE STA. 3377+00.00
SEE DWG. NO. RR-10

LEGEND

[Symbol]	STREAM BUFFER
[Symbol]	IMPACTS BUFFER
[Symbol]	STREAM BUFFER
[Symbol]	IMPACTS BUFFER

PROJECT U-4716 AC CLEGG PASSING SIDING & HOPSON RD. GRADE SEPARATION	
DATE	07/23/12
SCALE	1"=100'
PERMIT DRAWINGS	SHEET
OF	OF

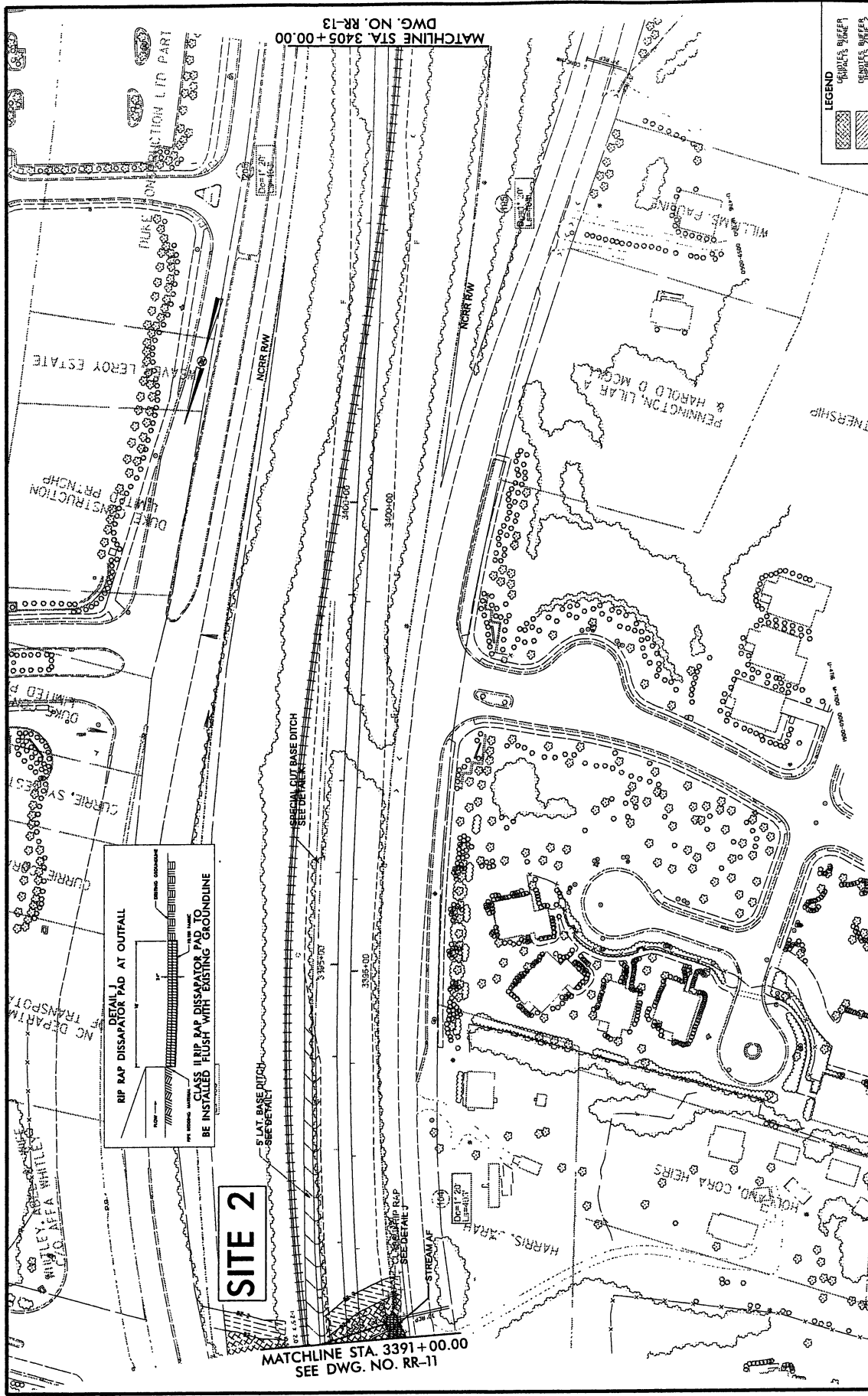
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
RAIL DIVISION	
PROJECT	U-4716 AC CLEGG PASSING SIDING & HOPSON RD. GRADE SEPARATION
DATE	07/23/12
SCALE	1"=100'
PERMIT DRAWINGS	SHEET
OF	OF

HNTB

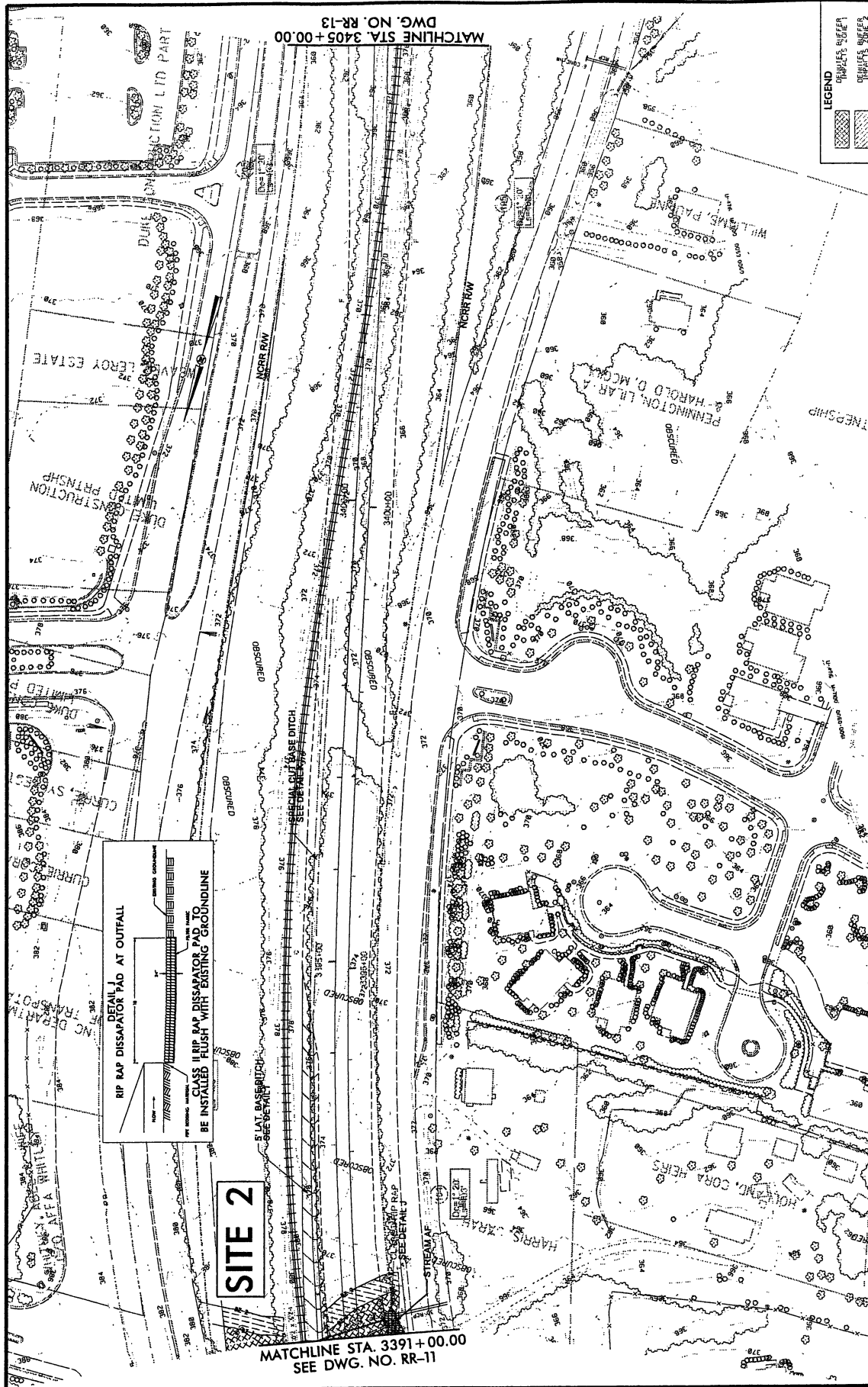
INCOMPLETE PLANS
IN PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NO.	BY	DATE	REVISION

2/27/14 PM
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\$\$\$\$\$USERNAME\$\$\$\$\$



<p>PROJECT: U-1716 AC CLEGG PASSING SIDING & HOPSON RD. GRADE SEPARATION</p> <p>LOCATION: CP NELSON TO CP CLEGG</p> <p>DATE: 11/9/12</p> <p>SCALE: 1"=100'</p>		
<p>ISSUED FOR: NSP/CR</p> <p>DATE: 11/9/12</p> <p>SCALE: 1"=100'</p>		
<p>ISSUED FOR: PER</p> <p>DATE: 07/23/12</p> <p>SCALE: 1"=100'</p>		
<p>PERMIT DRAWINGS SHEET OF</p>		
<p>INCOMPLETE PLANS PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION</p>		
<p>NORTH CAROLINA, DEPARTMENT OF TRANSPORTATION RAIL DIVISION</p> <p>HNTB HNTB NORTH CAROLINA, P.C. 1000 W. HARRIS STREET, SUITE 200 RANDOLPH COUNTY, NC 28134 PHONE: 704.784.8888 FAX: 704.784.8884 WWW.HNTB.COM</p>		
NO.	DATE	REVISION



LEGEND

[Hatched Box]	COMPLETE BUFFER
[Hatched Box]	COMPLETE BUFFER

PROJECT U-4716 AC CLEGG PASSING SIDING & HOFFSON RD. GRADE SEPARATION

DATE 11-09-12

SCALE 1"=100'

PERMIT DRAWINGS SHEET OF

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

RAIL DIVISION

DESIGNED BY HNTB

PROJECT NO. 11-09-12

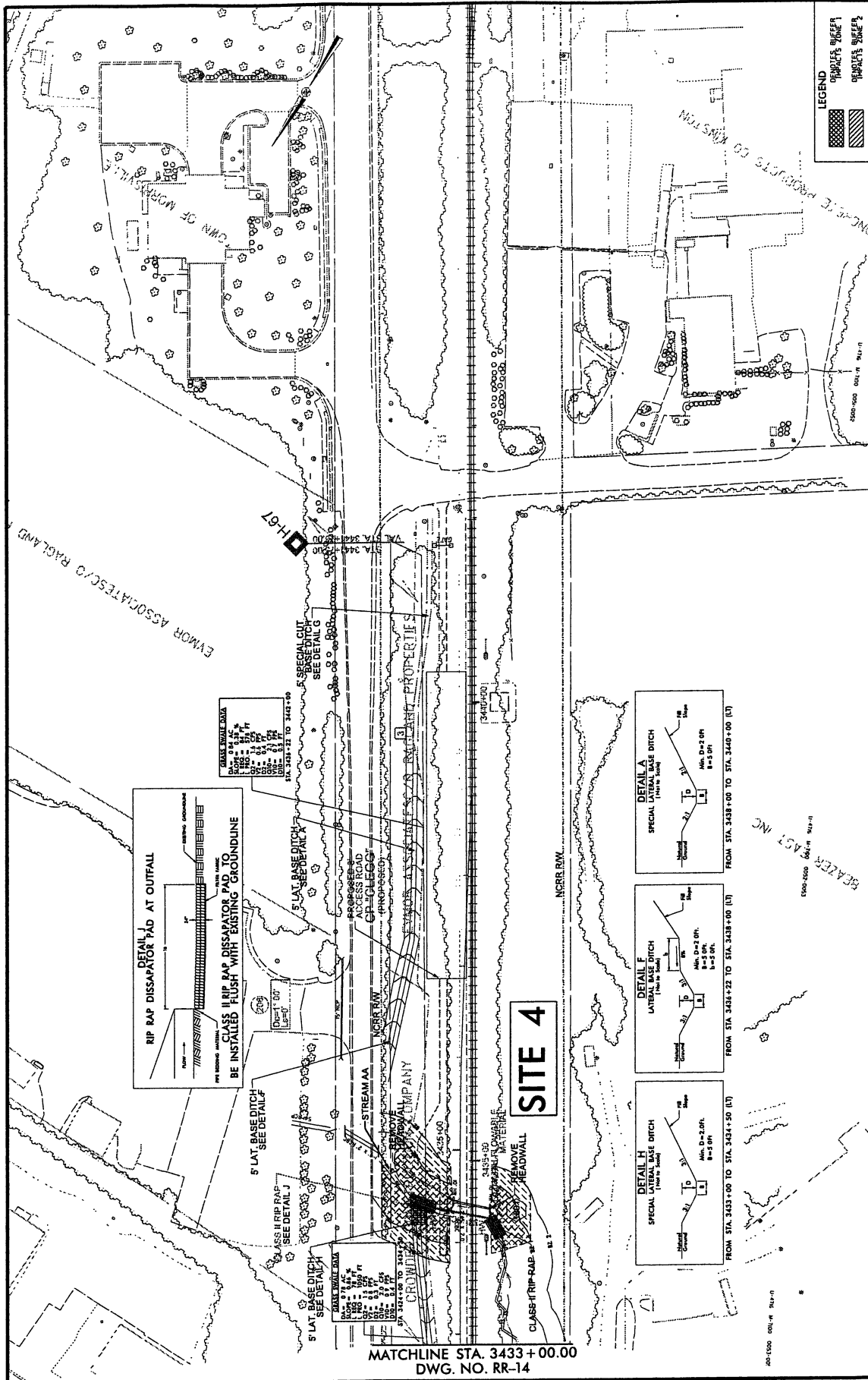
DATE 11-09-12

SCALE 1"=100'

INCOMPLETE PLANS
 PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

NO.	BY	DATE	REVISION

2:28:34 PM
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MATCHLINE STA. 3433+00.00
DWG. NO. RR-14

LEGEND
 PERMIT BUFFER 1
 PERMIT BUFFER 2

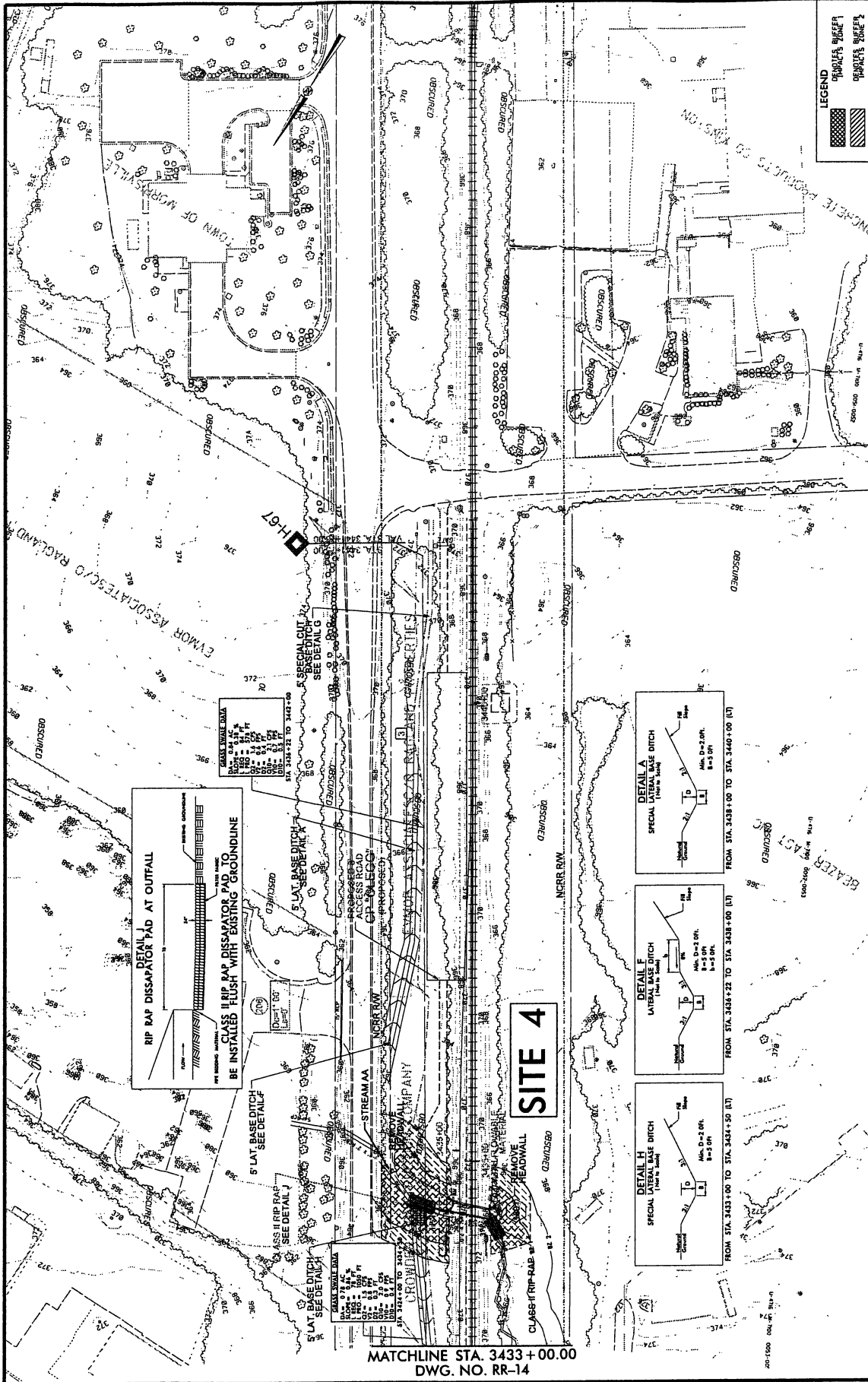
PROJECT		U-3716 AC CLEGG PASSING SIDING & HOPSON RD. GRADE SEPARATION	
TITLE		STREAM BUFFER IMPACTS	
DATE	BY	DATE	BY
10/20/09	CP "NELSON" TO CP "CLEGG"	11/09/12	H-43.2 TO H-47.0
DESIGN	PAC	PERMIT	PAC
DATE	BY	DATE	BY
08/17/11	PAC	07/23/12	PER
SCALE	1"=100'		
DATE	BY	DATE	BY

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RAIL DIVISION
 HNTB
 HNTB NORTH CAROLINA, P.C.
 100 SOUTH MAIN STREET, SUITE 200
 RALEIGH, NC 27601
 NC LICENSE NO. C-11884

INCOMPLETE PLANS
 PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

NO.	REV.	DATE	BY/CHK

2:28:50 PM
 Sheet: Hopson, ryd.bu@fsa.dgn
 888015E:RNAME:3333



LEGEND

- Stream Buffer
- Stream Buffer
- Stream Buffer
- Stream Buffer

PROJECT U-718 AC CLEGG PASSING SIDING & HOPSON RD. GRADE SEPARATION

TITLE

STREAM BUFFER IMPACTS

DATE	CP NELSON TO CP CLEGG	DATE	11-09-12
BY	RAC	DATE	11-09-12
CHK BY	RAC	DATE	11-09-12
APP BY	PEE	DATE	11-09-12
SCALE	1"=100'	PERMIT DRAWINGS	OF

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

RAIL DIVISION

HNTB

HNTB NORTH CAROLINA, P.C. 500
 1000 NORTH CAROLINA STREET
 RALEIGH, NORTH CAROLINA 27601
 NC LICENSE NO. C-15584

**INCOMPLETE PLANS
 IN CONFORMANCE WITH
 PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION**

NO.	BY	DATE	REVISION

MATCHLINE STA. 3433+00.00
 DWG. NO. RR-14

SITE 4

2/29/13 PM
 Site: Hopson, nyd.bu@fslb.dgn
 Sheet: RMAH-8888

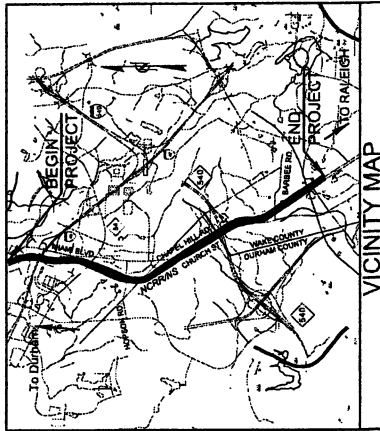
037DEL P17-18

TIP PROJECT: U-4716AC

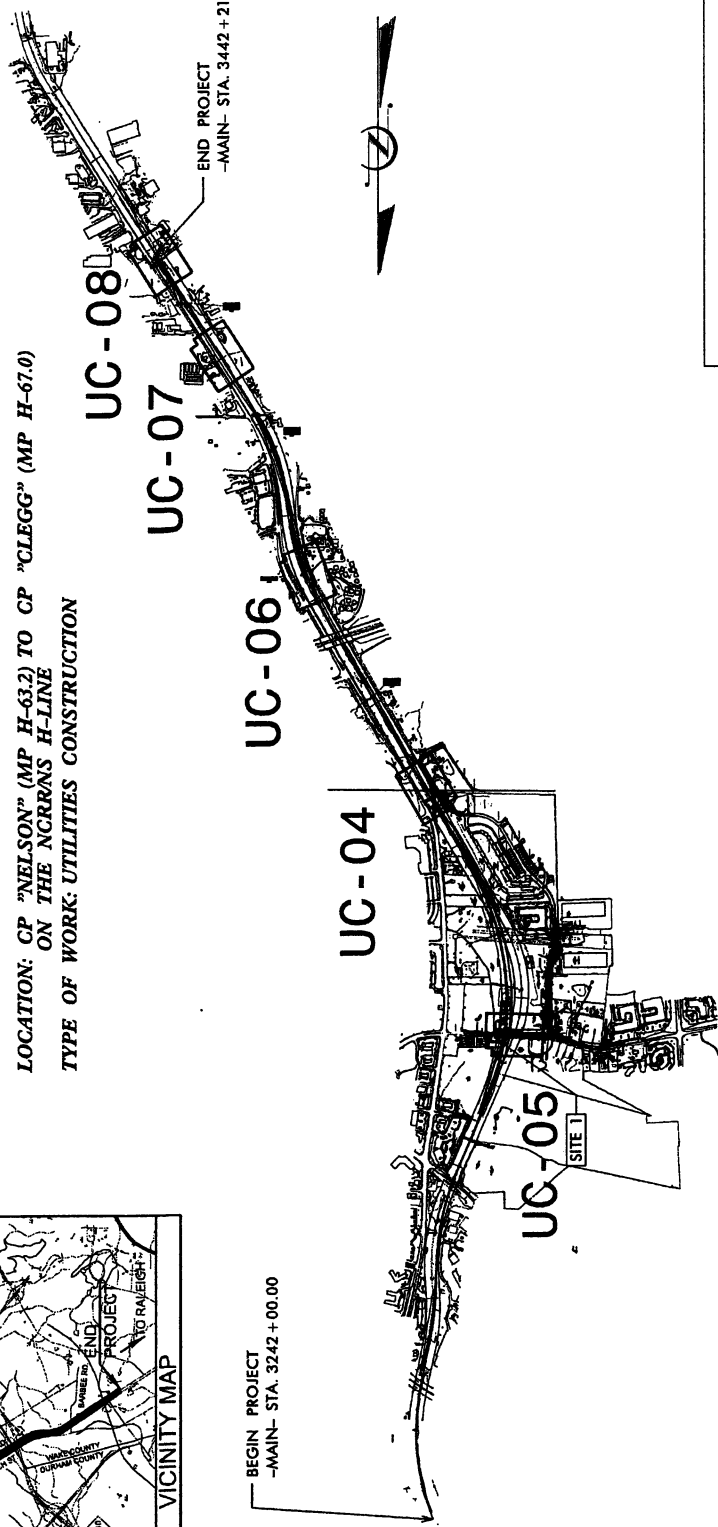
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAKE & DURHAM COUNTIES

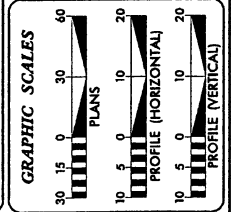
LOCATION: CP "NELSON" (MP H-63.2) TO CP "CLEGG" (MP H-67.0)
ON THE NCR/RS H-LINE
TYPE OF WORK: UTILITIES CONSTRUCTION



STATE	N.C.
FED. AID DISTRICT	U-4716AC
PROJECT NO.	UC-1



UTILITY BUFFER IMPACTS



SHEET NO.	DESCRIPTION
UC-1	TITLE SHEET
UC-2	SYMBOLS SHEET
UC-3	GENERAL NOTES SHEET
UC-4 TO UC-8	PLAN SHEETS
UC-9 TO UC-12	WATER PROFILES
UC-13 TO UC-14	SEWER PROFILES
UC-15 TO UC-19	DETAILS

UTILITY OWNERS ON THIS PROJECT:

WATER - CITY OF DURHAM
TOWN OF CARY

SEWER - DURHAM COUNTY

UTILITY DESIGN ENGINEER

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

RAIL DIVISION

Prepared for:

MA Engineering CONSULTANTS, INC.
10000 University Blvd., Suite 100
Charlotte, NC 28211
Phone: 704.369.7020 Fax: 704.369.7021

ENGINEERING & SAFETY BRANCH
DEVELOPMENT, DESIGN & CONSTRUCTION
10000 University Blvd., Suite 100
Charlotte, NC 28211
Phone: 704.369.7020 Fax: 704.369.7021

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAKE & DURHAM COUNTIES

FINAL PLANS

LOCATION: HOPSON RD. AND CHURCH ST. EXTENSION IN DURHAM

TYPE OF WORK: GRADING, PAVING, & DRAINAGE

BUFFER IMPACTS

PROJECT NUMBER	U-4716B
DATE	1
DESIGNED BY	PA
CHECKED BY	PA
APPROVED BY	PA
DATE	10/16/12
SCALE	AS SHOWN
PROJECT LOCATION	
PROJECT DESCRIPTION	
PROJECT NUMBER	
DATE	
DESIGNED BY	
CHECKED BY	
APPROVED BY	
DATE	
SCALE	
PROJECT LOCATION	
PROJECT DESCRIPTION	

INCOMPLETE PLANS
DO NOT BE USED FOR
CONSTRUCTION
PRELIMINARY PLANS
DO NOT BE USED FOR CONSTRUCTION

HYDRAULICS ENGINEER

PROJECT NUMBER: 42

ROADWAY DESIGN
ENGINEER

SIGNATURE

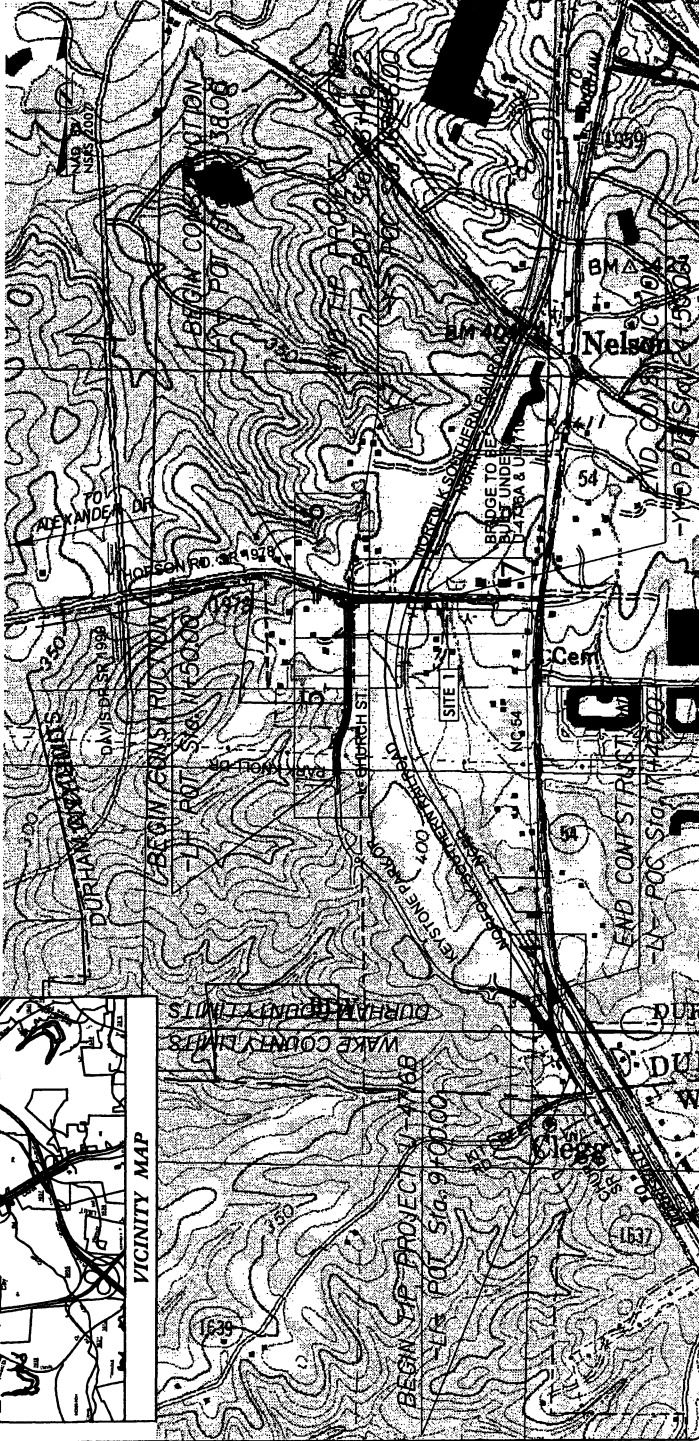
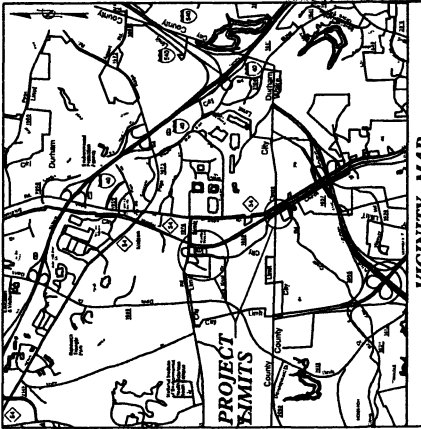
LETTING DATE:
OCT. 16, 2012

SEE STANDARD SPECIFICATIONS

PROJECT ENGINEER
GLENDA M. GIBSON, PE

PROJECT DESIGN ENGINEER
MICHAEL PERAREK, PE

See Sheet 1-A For Index of Sheets



DESIGN DATA

ADT 2010 =	1,500
ADT 2020 =	1,700
V =	40 MPH
LENGTH ROADWAY =	644
LENGTH STRUCTURE =	600
TOTAL LENGTH =	644



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

RAIL DIVISION

Prepared for:
ENGINEERING & SAFETY BRANCH
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
1000 EAST 7TH STREET
RALEIGH, NC 27601
PHONE 919-285-3225
FAX 919-285-3224

Prepared by:
GIBSON ENGINEERS, PC
1000 EAST 7TH STREET
RALEIGH, NC 27601
PHONE 919-285-3225
FAX 919-285-3224

TIP PROJECT: U-4716

CONTRACT: WBS-40325.13

DATE PLOTTED: 11/15/12 11:54 AM

NO.	DATE	BY	REVISION
1			
U-4716B			
DESIGNED BY	CHECKED BY	APPROVED BY	DATE
DRAWN BY	SCALE		
CHECKED BY	DATE		
APPROVED BY	DATE		
DATE			

BUFFER IMPACTS

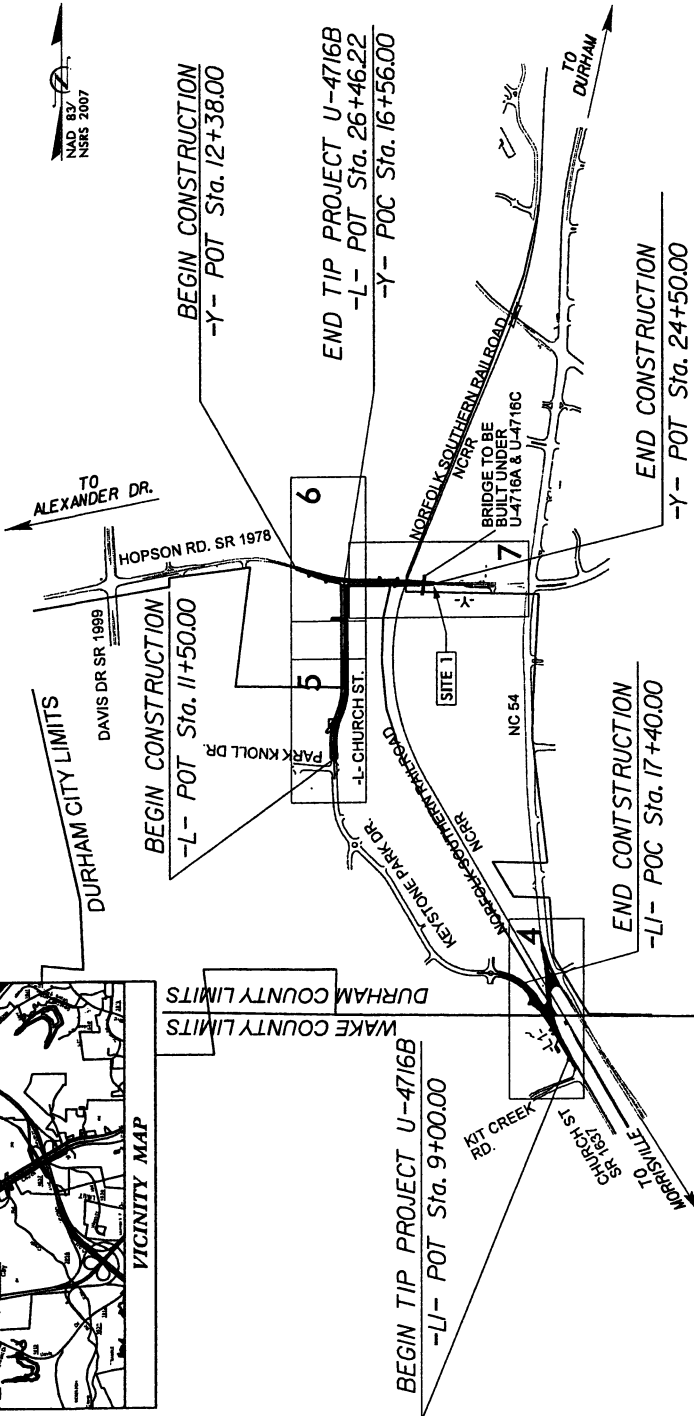
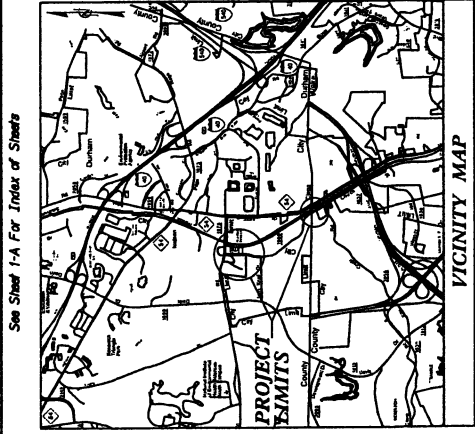
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAKE & DURHAM COUNTIES

FINAL PLANS

LOCATION: HOPSON RD. AND CHURCH ST. EXTENSION IN DURHAM

TYPE OF WORK: GRADING, PAVING, & DRAINAGE



INCOMPLETE PLANS
PRELIMINARY PLANS
NO CONTRACT

HYDRAULICS ENGINEER	
SIGNATURE	DATE
ROADWAY DESIGN ENGINEER	
SIGNATURE	DATE
LETTING DATE: OCT 16, 2012	
SMA STANDARD SPECIFICATIONS	
PROJECT ENGINEER GLENDA M. GIBSON, PE	
PROJECT DESIGN ENGINEER MICHAEL PEKAREK, PE	

Prepared for:

ENGINEERING & SAFETY BRANCH

MANAGEMENT CENTER
RAILROADS
1000 W. GOLF COURSE RD.
Raleigh, NC 27603
PHONE: 919-799-3333
FAX: 919-799-3333

GIBSON ENGINEERS, PC

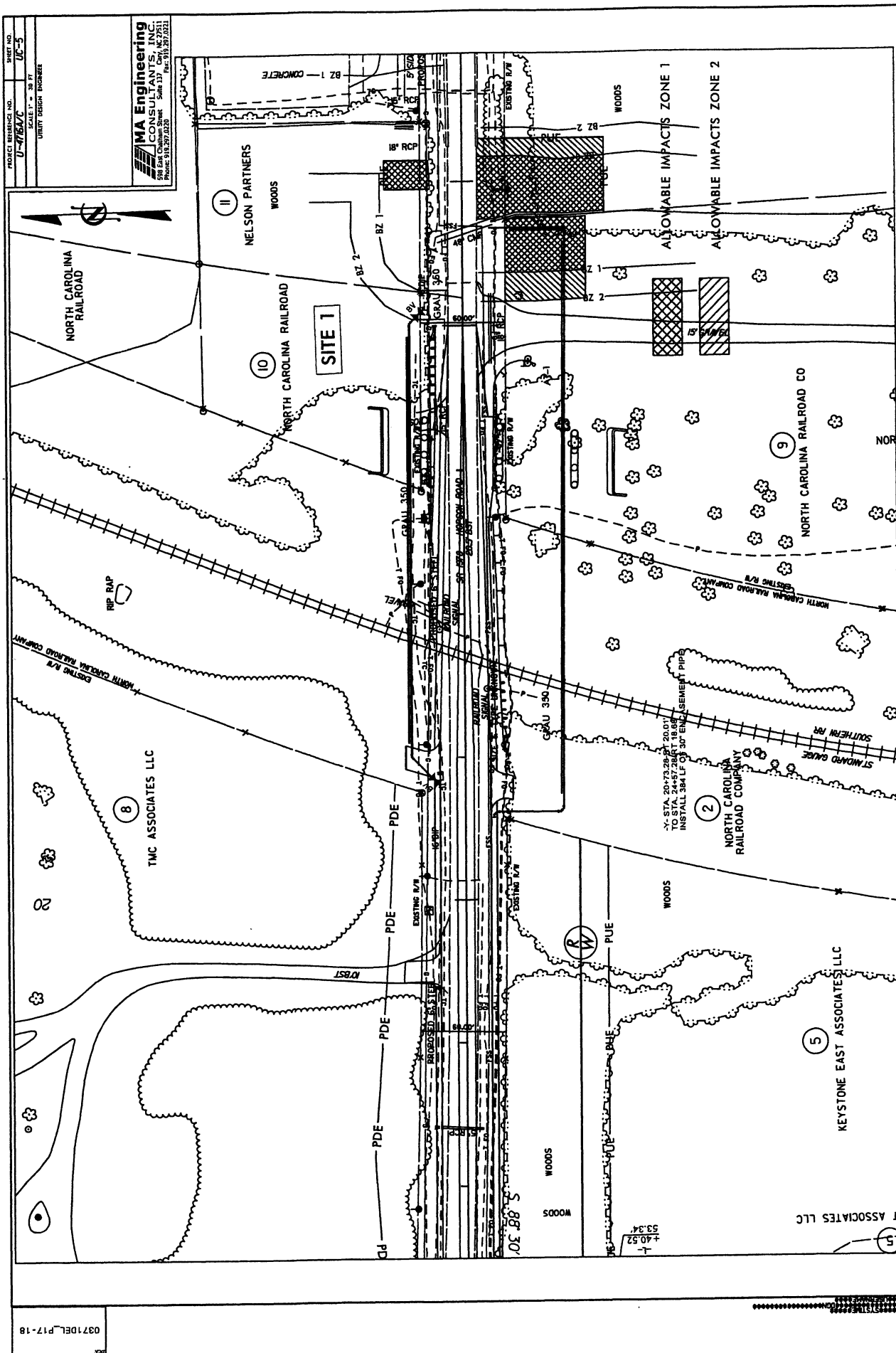
1000 W. GOLF COURSE RD.
RALEIGH, NC 27603
PHONE: 919-553-2332
FAX: 919-553-2324

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

RAIL DIVISION

<p>GRAPHIC SCALES</p> <p>PLANS: 1" = 50'</p> <p>PROFILE (HORIZONTAL): 1" = 50'</p> <p>PROFILE (VERTICAL): 1" = 20'</p>	<p>DESIGN DATA</p> <p>ADT 2010 = 1,500</p> <p>ADT 2020 = 4,700</p> <p>V = 40 MPH</p> <p>LENGTH ROADWAY = 0.44</p> <p>LENGTH STRUCTURE = 0.00</p> <p>TOTAL LENGTH = 0.44</p>
---	--

CONTRACT: WBS-40325.1.3 **TIP PROJECT: U-4716**



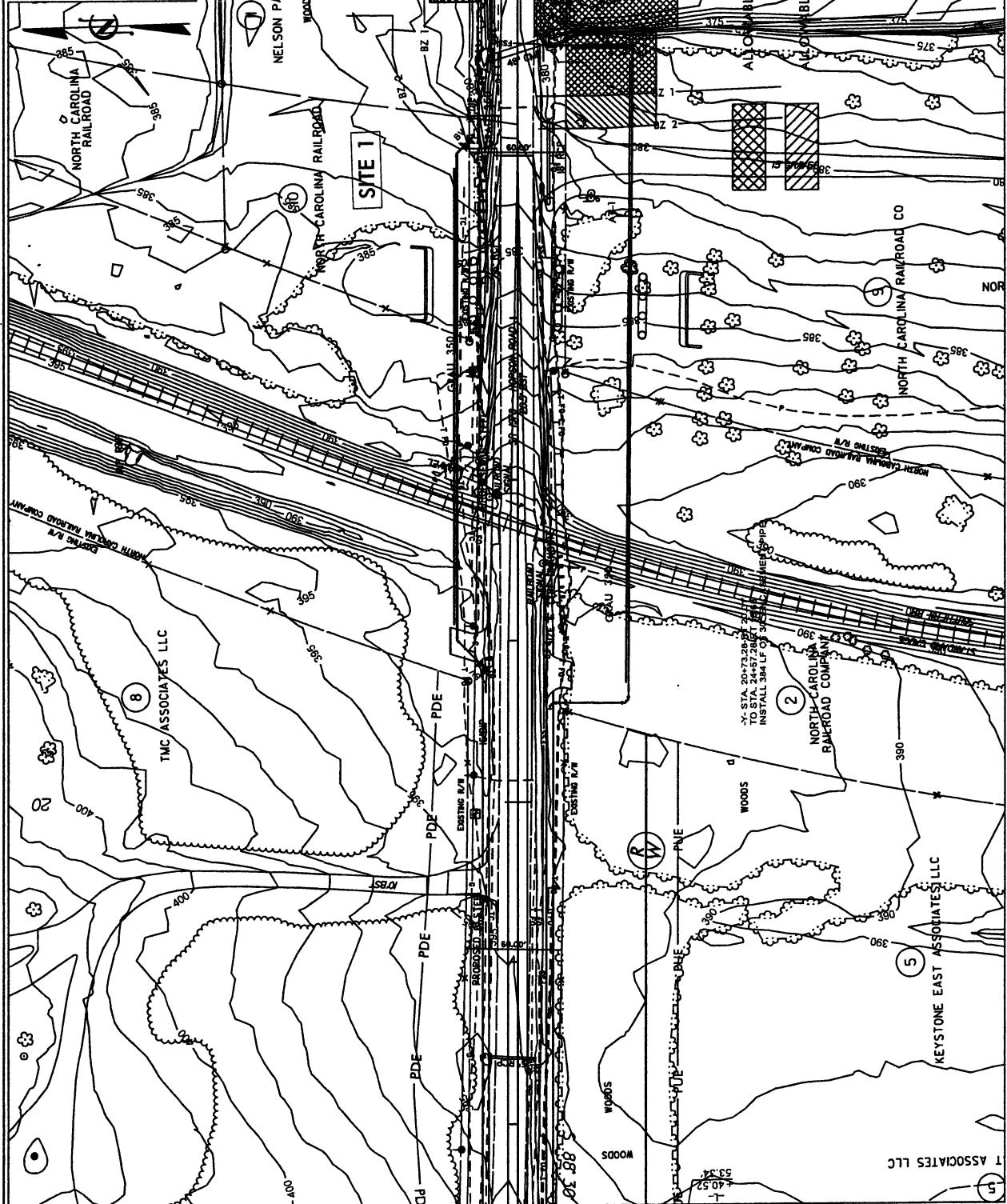
PROJECT REFERENCE NO. **U-47616**
 SHEET NO. **UC-5**
 SCALE: 1" = 30 FT
 UNITY DESIGN ENGINEER

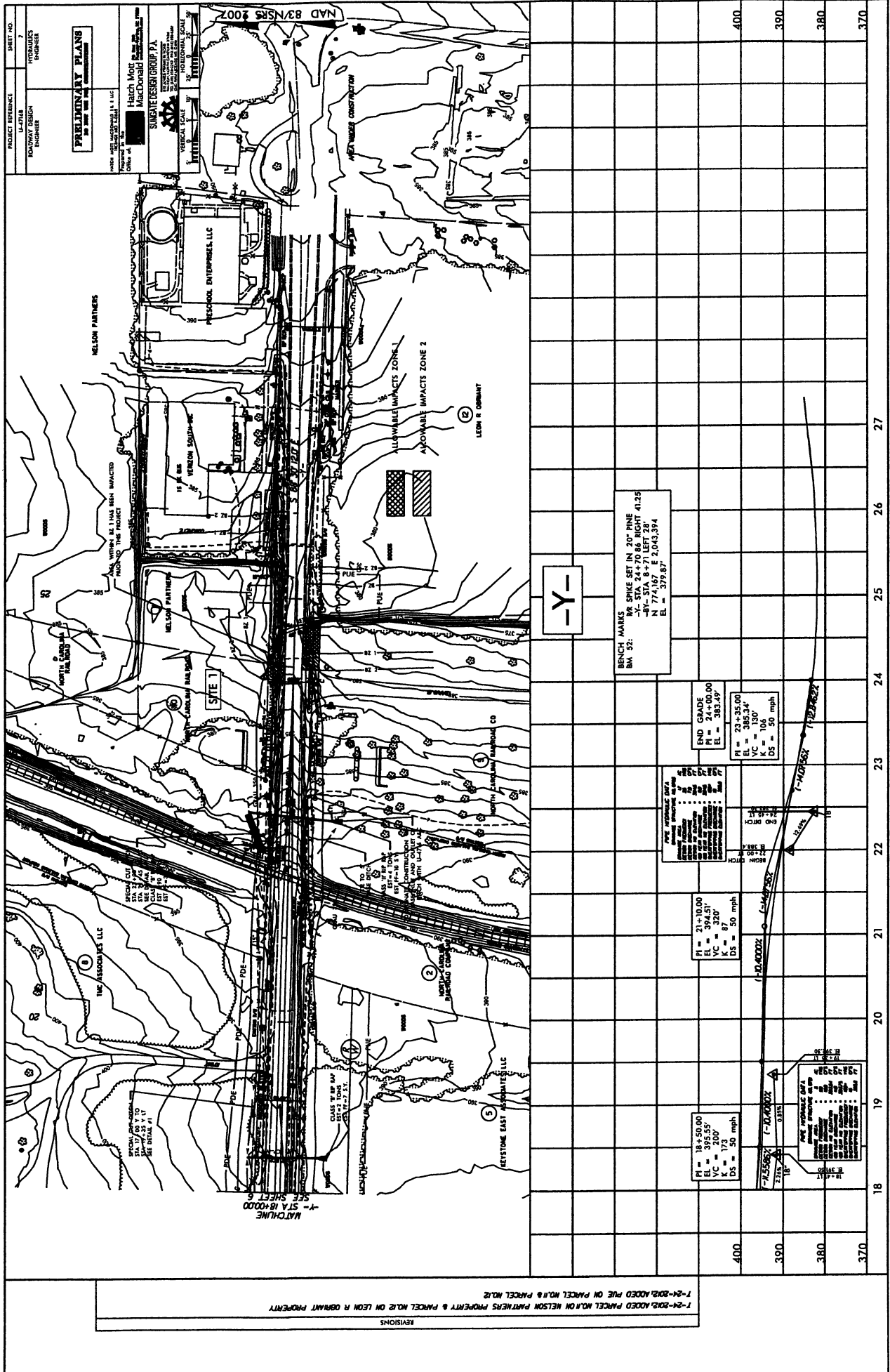
IMA Engineering
 CONSULTANTS, INC.
 1101 W. HARRIS ST. SUITE 111
 RICHMOND, VA 23262
 PHONE: 804.379.0030 FAX: 804.379.0211

0371DEL_P17-18

PROJECT REFERENCE NO. SHEET NO.
 U-47617C UC-5
 SCALE: 1" = 30 FT
 UTILITY DESIGN ENGINEER

TMA Engineering
 CONSULTANTS, INC.
 1000 S. 10th St., Suite 100
 Raleigh, NC 27603
 Phone: 919.279.0330
 Fax: 919.257.0211





PROJECT REFERENCE SHEET NO. 7
 LALITA
 ROADWAY DESIGN ENGINEER
 HYDRAULICS ENGINEER

PRELIMINARY PLAN
 HATCH MOFF MACDONALD
 SANGATI DESIGN GROUP P.A.
 HATCH MOFF MACDONALD
 SANGATI DESIGN GROUP P.A.
 OFFICE OF THE ENGINEER
 1110 N. 10TH ST. SUITE 200
 PHOENIX, AZ 85006
 NAD 83/NSRS 2007

VERTICAL SCALE: 1" = 10'
 HORIZONTAL SCALE: 1" = 40'

18+50.00
 PI = 18+50.00
 VC = 200'
 K = 173
 DS = 50 mph

21+10.00
 PI = 21+10.00
 VC = 200'
 K = 87
 DS = 50 mph

23+35.00
 PI = 23+35.00
 VC = 130'
 DS = 30 mph

END GRADE
 PI = 24+00.00
 EL = 2432.47'
 L = 233.47'

BENCH MARK
 BM 52:
 WY-SPKE SET IN 20" PIPE
 WY-STA 24+70.66 RIGHT 41.25'
 -BY- STA 8+71 LEFT 28'
 N 774.167 E 2,043.394
 EL = 379.87'

1-24-2012, ADDED PUE ON PARCEL NO. 11 & NELSON PARTNERS PROPERTY & PARCEL NO. 12 ON LEON R DRAINAGE PROPERTY
 REVISIONS

18 19 20 21 22 23 24 25 26 27
 400 390 380 370



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

(Version 1.2; Released September 2011)

Project/TIP No.: U-4716A/C County(ies): Wake Durham Page 1 of 3

General Project Information	
Project No.: U-4716A/C	Project Type: Roadway Relocation
NCDOT Contact: Marshall Clawson	Contractor / Designer: HINTB Corporation
Address: 120 Birch Ridge Drive Raleigh, NC 27610	Address: 343 E. Six Forks Road, Suite 200 Raleigh, NC 27609
Phone: 919-707-6713	Phone: 919-424-0437
Email: mclawson@ncdot.gov	Email: jabyrd@HINTB.com
City/Town: Raleigh	County(ies): Wake Durham
River Basin(s): Neuse	CAMA County? No
Primary Receiving Water: Unnamed Trib to Stirrup Iron Creek	NCDWQ Stream Index No.: 27-33-4-1
NCDWQ Surface Water Classification for Primary Receiving Water	Nutrient Sensitive Waters (NSW)
Other Stream Classification: None	
303(d) Impairments: None	
Buffer Rules in Effect: Neuse & Jordan Lake	
Project Description	
Project Length (lin. Miles or feet): 3.80	Surrounding Land Use: Commercial / Business / Residential
Project Built-Upon Area (ac.): 106.26	Proposed Project: Existing Site
Typical Cross Section Description: Double track rail line	Existing Site: 106.26 ac.
Average Daily Traffic (veh/hr/day): Design/Future: N/A	Existing: N/A
General Project Narrative: Project U-4716 A/C consists of a rail realignment and a grade separation at Hopson Road in Durham County, as well as double tracking from west of Interstate 40 in Durham County to west of McCrimmon Parkway in Wake County. The project is located in both the Neuse and Cape Fear River basins and is subject to buffer rules from the Neuse and Jordan Lake Watersheds.	
References	

