STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH, N.C.

C203359

CONTRACT AND
CONTRACT BONDS

FOR CONTRACT NO. C203359

WBS 38868.3.2 NHS-0017(68)

T.I.P NO. R-3601

COUNTY OF NEW HANOVER, BRUNSWICK
THIS IS THE ROADWAY CONTRACT
ROUTE NUMBER LENGTH 1.676 MILES
LOCATION US-17/74/76 FROM NC-133/SR-1472 INTERCHANGE TO THE US-421/NC-133 INTERCHANGE.

CONTRACTOR S. T. WOOTEN CORPORATION
ADDRESS P.O. BOX 2408
WILSON, NC 278942408

BIDS OPENED DECEMBER 17, 2013
CONTRACT EXECUTION JAN 27 2014

-- STATE OF NORTH CAROLINA--
DEPARTMENT OF TRANSPORTATION
RALEIGH, N.C.

FINAL REQUST FOR PROPOSALS

DESIGN-BUILD PROJECT

TIP R-3601

October 21, 2013
Includes Addendum No. 1 Dated October 21, 2013

Vendor#:	3760	PQ
	S. T. WOOTEN CORPORATION	
	P.O. Box 2408	
	WILSON	NC 278942408

DATE AND TIME OF TECHNICAL AND PRICE PROPOSAL SUBMISSION: **November 21, 2013 BY 4:00 PM**

DATE AND TIME OF PRICE PROPOSAL OPENING: **December 17, 2013 AT 2:00 PM**

CONTRACT ID: C 203359

WBS ELEMENT NO. 38868.3.FS2

FEDERAL-AID NO. NHS-0017(68)

COUNTIES: Brunswick / New Hanover

ROUTE NO. US 17-74-76 / NC 133

MILES: 1.7

LOCATION: US 17-74-76 from the NC 133 / SR 1472 Interchange to the US 421 / NC 133 Interchange

TYPE OF WORK: DESIGN-BUILD AS SPECIFIED IN THE SCOPE OF WORK CONTAINED IN THE REQUEST FOR PROPOSALS

NOTICE:

ALL PROPOSERS SHALL COMPLY WITH ALL APPLICABLE LAWS REGULATING THE PRACTICE OF GENERAL CONTRACTING AS CONTAINED IN CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA WHICH REQUIRES THE PROPOSER TO BE LICENSED BY THE N.C. LICENSING BOARD FOR CONTRACTORS WHEN BIDDING ON ANY NON-FEDERAL AID PROJECT WHERE THE BID IS $30,000 OR MORE, EXCEPT FOR CERTAIN SPECIALTY WORK AS DETERMINED BY THE LICENSING BOARD. PROPOSERS SHALL ALSO COMPLY WITH ALL OTHER APPLICABLE LAWS REGULATING THE PRACTICES OF ELECTRICAL, PLUMBING, HEATING AND AIR CONDITIONING AND REFRIGERATION CONTRACTING AS CONTAINED IN CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA. NOT WITHSTANDING THESE LIMITATIONS ON BIDDING, THE PROPOSER WHO IS AWARDED ANY PROJECT SHALL COMPLY WITH CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA FOR LICENSING REQUIREMENTS WITHIN 60 CALENDAR DAYS OF BID OPENING, REGARDLESS OF FUNDING SOURCES.

_____ 5% BID BOND OR BID DEPOSIT REQUIRED

_____

PROPOSAL FORM FOR THE CONSTRUCTION OF CONTRACT NO. C203359

IN BRUNSWICK & NEW HANOVER COUNTIES, NORTH CAROLINA

Date NOVEMBER 21 **20** 13

DEPARTMENT OF TRANSPORTATION,

RALEIGH, NORTH CAROLINA

The Design-Build Team herein acknowledges that it has carefully examined the location of the proposed work to be known as Contract No. C203359; has carefully examined the Final Request for Proposals (RFP) and all addendums thereto, specifications, special provisions, the form of contract, and the forms of contract payment bond and contract performance bonds, which are acknowledged to be part of the Contract; and thoroughly understands the stipulations, requirements and provisions. The undersigned Design-Build Team agrees to be bound upon their execution of the Contract and including any subsequent award to them by the Secretary of Transportation in accordance with this Contract to provide the necessary contract payment bond and contract performance bond within fourteen calendar days after the written notice of award is received by them.

The undersigned Design-Build Team further agrees to provide all necessary materials, machinery, implements, appliances, tools, labor, and other means of construction, except as otherwise noted, to perform all the work and required labor to design, construct and complete all the work necessary for State Highway Contract No. C203359 in Brunswick and New Hanover Counties by no later than the dates(s) specified in the Final RFP or Technical Proposal, whichever is earlier, and in accordance with the requirements of the Engineer, the Final RFP and Addenda thereto, the *2012 Standard Specifications for Roads and Structures*, specifications prepared by the Department, the Technical Proposal prepared by the Design-Build Team, at the lump sum price(s) bid by the Design-Build Team in their Price Proposal.

The Design-Build Team shall provide signed and sealed documents prepared by the Design-Build Team, which specifications and plans show the details covering this project and adhere to the items noted above.

The Design-Build Team acknowledges that project documents furnished by the Department are preliminary and provided solely to assist the Design-Build Team in the development of the project design. Unless otherwise noted herein, the Department does not warrant or guarantee the sufficiency or accuracy of any information furnished by the Department.

The Department does not warrant or guarantee the sufficiency or accuracy of any investigations made, nor the interpretations made or opinions of the Department as to the type of materials and conditions to be encountered at the project site. The Design-Build Team is advised to make such independent investigations, as they deem necessary to satisfy their self as to conditions to be encountered on this project. The Design-Build Team shall have no claim for additional compensation or for an extension of contract time for any reason resulting from the actual conditions encountered at the site differing from those indicated in any of the information or documents furnished by the Department except as may be allowed under the provisions of the Standard Specifications.

Although the Department has furnished preliminary designs for this project, unless otherwise noted herein, the Design-Build Team shall assume full responsibility, including liability, for the

project design, including the use of portions of the Department design, modification of such design, or other designs as may be submitted by the Design-Build Team.

The Design-Build Team shall be fully and totally responsible for the accuracy and completeness of all work performed under this contract, and shall indemnify and hold the Department harmless for any additional costs and all claims against the Department or the State which may arise due to errors or omissions of the Department in furnishing the preliminary project designs and information, and of the Design-Build Team in performing the work.

The published volume entitled *North Carolina Department of Transportation, Raleigh, Standard Specifications for Roads and Structures, January 2012,* as well as, all design manuals, policy and procedures manuals, and AASHTO publications and guidelines referenced in the Request For Proposals, with all amendments and supplements thereto, are by reference, incorporated and made part of this contract; that, except as herein modified, all the design, construction and Construction Engineering Inspection included in this contract is to be done in accordance with the documents noted above and under the direction of the Engineer.

If the Design-Build Proposal is accepted and the award is made, the Technical Proposal submitted by the Design-Build Team is by reference, incorporated and made part of this contract. The contract is valid only when signed either by the Contract Officer or such other person as may be designated by the Secretary to sign for the Department of Transportation. The conditions and provisions herein cannot be changed except by written approval as allowed by the Request for Proposals.

Accompanying the Design-Build Proposal shall be a bid bond secured by a corporate surety, or certified check payable to the order of the Department of Transportation, for five percent of the total bid price, which deposit is to be forfeited as liquidated damages in case this bid is accepted and the Design-Build Team shall fail to provide the required payment and performance bonds with the Department of Transportation, under the condition of this proposal, within 14 calendar days after the written notice of award is received by them, as provided in the Standard Specifications; otherwise said deposit will be returned to the Design-Build Team.

NORTH CAROLINA PROFESSIONAL SEAL 21140 ENGINEER RODGER D. ROCHELLE

10/21/13

Transportation Program Management Director

NORTH CAROLINA PROFESSIONAL SEAL 21076 ENGINEER RANDY A. GARRIS

10/21/13

State Contract Officer

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PROPOSAL FORMS - ITEMIZED SHEET, ETC.

Itemized Proposal Sheet (TAN SHEET)
Fuel Usage Factor Chart and Estimate of Quantities
Listing of DBE Subcontractors
Execution of Bid, Non-Collusion Affidavit, Debarment Certification and Gift Ban Certification
Signature Sheet

*** PROJECT SPECIAL PROVISIONS ***

CONTRACT TIME AND LIQUIDATED DAMAGES

07/12/07 DB1 G04A

The date of availability for this contract is January 27, 2014, except that the Design-Build Team shall not begin ground disturbing activities, including utility relocations and tree harvesting, until a meeting is held between the NCDOT, the regulatory agencies and the Design-Build Team.

The completion date for this contract is defined as the date proposed in the Technical Proposal by the proposer who is awarded the project. The completion date thus proposed shall not be later than November 15, 2016.

When observation periods are required by the special provisions, they are not a part of the work to be completed by the completion date and / or intermediate contract times. Should an observation period extend beyond the final completion date, the acceptable completion of the observation period shall be a part of the work covered by the performance and payment bonds.

The liquidated damages for this contract are **Five Thousand Dollars ($5,000.00)** per calendar day.

INTERMEDIATE CONTRACT TIME #1 AND LIQUIDATED DAMAGES

The Design-Build Team shall complete the widening of Bridge No. 108 on US 17-74-76 SB over Alligator Creek and construct the approaches and paving to open three through lanes to traffic from the US 421 merge to Sta. 74+00.00 -L-. The outside through lane shall be designed and constructed to merge safely between the Brunswick River Bridge and Sta. 74+00.00 -L-.

The date of availability for this intermediate contract time is the date of availability of the contract.

The completion date for this Intermediate Contract time #1 is defined as the date proposed in the Technical Proposal by the proposer who is awarded the project. The completion date thus proposed shall not be later than 540 days after the date of availability.

Liquidated Damages for this Intermediate Contract Time #1 are $5,000.00 per day.

INTERMEDIATE CONTRACT TIME #2 AND LIQUIDATED DAMAGES

In accordance with the signed and sealed plans provided by the Department, the Design-Build Team shall complete all work required for the Blackwell Road (-Y2-) and -Y2A- realignments and open both facilities to traffic, accommodating all movements.

The completion date for Intermediate Contract Time #2 is defined as the date proposed in the Technical Proposal by the proposer who is awarded the project. The completion date thus proposed shall not be later than May 31, 2014.

Liquidated Damages for this Intermediate Contract Time #2 are $1,000.00 per day.

INTERMEDIATE CONTRACT TIME #8 AND LIQUIDATED DAMAGES

The Design-Build Team shall complete all work, including the widening, paving, signals and all other work as shown on the Roadway Right of Way Plans developed by the Design-Build Team along NC 133 (River Road) from Main Street eastward and open to traffic the final intersection of NC 133 (River Road) and Blackwell Road (-Y2-), accommodating all movements. The final pavement layer and final pavement markings and markers are not a part of the work subject to Intermediate Contract Time #8.

The completion date for Intermediate Contract Time #8 is defined as the date proposed in the Technical Proposal by the proposer who is awarded the project. The completion date thus proposed shall not be later than February 25, 2015.

Liquidated Damages for this Intermediate Contract Time #8 are $1,000.00 per day.

OTHER LIQUIDATED DAMAGES AND INCENTIVES

(3/22/07) (Rev. 02/14/08) DB1 G11

Refer to the Traffic Management Scope of Work for more information on the following time restrictions and liquidated damages:

Liquidated Damages for Intermediate Contract Time #3 for lane narrowing, lane closure, holiday, and special event time restrictions for US 17-74-76, including ramps at east end of the project, are $2,500.00 per 15-minute period, or any portion thereof.

Liquidated Damages for Intermediate Contract Time #4 for lane narrowing, lane closure, holiday, and special event time restrictions for NC 133 (Village Road / River Road) and ramps at this interchange are $1,000.00 per 15-minute period, or any portion thereof.

Liquidated Damages for Intermediate Contract Time #5 for road closure time restrictions for US 17-74-76, including ramps, and NC 133/Village Road / River Road are $5,000.00 per 15-minute period, or any portion thereof.

Liquidated Damages for Intermediate Contract Time #6 for the limited Nightly Road Closure date and time restrictions for NC 133 (River Road / Village Road) are $5,000.00 per 15-minute period or any portion thereof.

Liquidated Damages for Intermediate Contract Time #7 for Continuous Weekend Road Closure date and time restrictions for NC 133 (River Road / Village Road) are $5,000.00 per 15-minute period or any portion thereof.

ALTERNATE BIDS

The Itemized Proposal Sheet provides for two bid alternates, depending on whether the Design-Build Team elects to produce their own bridge and / or bridge foundation design at Bridge No. 103 over the Brunswick River or elects to use the Department's sealed structure plans at this site.

Election to Use Department Provided Sealed Structure Plans for Bridge No. 103

In the event that the Design-Build Team elects to use the Department's sealed structure plans for Bridge No. 103, the Itemized Proposal Sheet provides for two line items (Alternate AA1) to account for likely changes in drilled pier lengths as a result of the static load test to be performed by the Department (reference Geotechnical Engineering Scope of Work).

In such case, measurement of the drilled piers shall be from bottom of bent cap to the drilled pier tip elevations as revised in the sealed structure plans resulting from the static load test. Payment will be made by linear foot as *"5'-0" Dia Drilled Piers at Bridge 103"*. All other work, materials, labor and equipment necessary for the design and construction of the drilled piers are considered incidental to this pay item. The pay item for *"5'-0" Dia Drilled Piers at Bridge 103"*is deemed a minor contract item.

The remainder of all work required by this contract will be paid on a lump sum basis under the pay item *"Design & Const Entire Project Excluding Bridge 103 Drilled Piers"*.

Election to Revise Bridge Design and/or Bridge Foundation Design for Bridge 103

In the event that the Design-Build Team elects to produce their own bridge and/or bridge foundation design at Bridge No. 103, then the entire work required of this contract will be paid for on a lump sum basis under *"Design & Construction of Entire Project"* (Alternate AA2). No measurement will be made.

PAYOUT SCHEDULE

(11-16-09) DB1 G13

No later than 12:00 o'clock noon on the sixth day after the opening of the Price Proposal, the responsive proposer with the lowest adjusted price shall submit a proposed Anticipated Monthly Payout Schedule to the office of the State Contract Officer. The information shall be submitted in a sealed package with the outer wrapping clearly marked "Anticipated Monthly Payout Schedule" along with the Design-Build Team name and the contract number. The Anticipated Monthly Payout Schedule will be used by the Department to establish the monthly funding levels for this project. The Anticipated Monthly Payout Schedule shall parallel, and agree with, the project schedule the Design-Build Team submits as a part of their Technical Proposal. The schedule shall include a monthly percentage breakdown (in terms of the total contract amount percentages) of the work anticipated to be completed. The schedule shall begin with the Date of Availability and end with the Actual Completion Date proposed by the Design-Build Team. If the Payout Schedule is not submitted as stated herein, the Technical and Price Proposals will be considered irregular by the Department, and the bid may be rejected.

Submit updates of the Anticipated Monthly Payout Schedule on March 15, June 15, September 15, and December 15 of each calendar year until project acceptance. Submit the all updates to the Resident Engineer with a copy to the State Construction Engineer at 1 South Wilmington St, 1543 Mail Service Center, Raleigh, NC 27699-1543.

MOBILIZATION

(9-1-11) DB1 G15A

Revise the 2012 *Standard Specifications for Roads and Structures* as follows:

Page 8-1, Subarticle 800-2, MEASUREMENT AND PAYMENT

Delete this subarticle in its entirety and replace with the following:

800-2 MEASUREMENT AND PAYMENT

5 percent of the "Total Amount of Bid for Entire Project" shall be considered the lump sum amount for Mobilization. Partial payments for Mobilization will be made beginning with the first partial pay estimate paid on the contract. Payment will be made at the rate of 50 percent of the lump sum amount calculated for Mobilization. The remaining 50 percent will be paid with the second partial payment.

SUBMITTAL OF QUANTITIES, FUEL BASE INDEX PRICE AND OPT-OUT OPTION

(06-08-11) DB1 G43

(A) **Submittal of Quantities**

Submit quantities on the *Fuel Usage Factor Chart and Estimate of Quantities* sheet, located in the back of this RFP, following the Itemized Proposal Sheet.

The Design-Build Team shall prepare an Estimate of Quantities that they anticipate incorporating into the completed project and upon which the Price Proposal was based. The quantity breakdown shall include all items of work that appear in the *Fuel Usage Factor Chart and Estimate of Quantities* sheet. Only those items of work which are specifically noted in the Fuel Usage Factor Chart will be subject to fuel price adjustments. Fuel price adjustments will not apply to changes in these quantities resulting from a supplemental agreement.

Submittal The submittal shall be signed and dated by an officer of the Design-Build Team. The information shall be copied and submitted in a separate sealed package with the outer wrapping clearly marked "Fuel Price Adjustment" and shall be delivered at the same time and location as the Technical and Price Proposal. The original shall be submitted in the Price Proposal.

Trade Secret Information submitted on the *Fuel Usage Factor Chart and Estimate of Quantities* s heet will be considered "Trade Secret" in accordance with the requirements of G.S. 66-152(3) until such time as the Price Proposal is opened.

(B) **Base Index Price**

The Design-Build Team's Estimate of Quantities will be used on the various partial payment estimates to determine fuel price adjustments. The Design-Build Team shall submit a payment request for quantities of work completed based on the work completed for that estimate period. The quantities requested for partial payment shall be reflective of the work actually accomplished for the specified period. The Design-Build Team shall certify that the quantities are reasonable for the specified period. The base index price for DIESEL #2 FUEL is $ **3.0850** per gallon.

(C) **Opt Out of Fuel Price Adjustment**

If the Design-Build Team elects not to pursue reimbursement for Fuel Price Adjustments, a quantity of zero shall be entered for all quantities in the *Fuel Usage Factor Chart and Estimate of Quantities* and the declination box shall be checked. Failure to complete this form will mean that the Design-Build Team is declining the Fuel Price Adjustments for this project.

(D) **Change Option**

The proposer will not be permitted to change the option after the Price Proposal and the copy of the *Fuel Usage Factor Chart and Estimate of Quantities* sheet are submitted.

(E) **Failure to Submit**

Failure to submit the *completed Fuel Usage Factor Chart and Estimate of Quantities* sheet separately and in the Price Proposal will result in the Technical and Price Proposal being considered irregular by the Department and the Technical and Price Proposal may be rejected.

INDIVIDUAL MEETINGS WITH PROPOSERS

(9-1-11) DB1 G048

The Department will provide at least two Question and Answer Sessions to meet with each proposer individually to specifically address questions regarding the draft Requests for Proposals.

The Department will attempt to arrange for a meeting between each individual proposer and the affected utility owners.

The Department will afford each proposer one additional meeting with the Department to discuss project specifics and address the proposers' concerns and questions. The meeting may occur at

any time after the first Question and Answer Session with the proposers and before two weeks prior to the date of Technical and Price Proposals submission. The proposer shall request this meeting in writing to the State Contract Officer, providing the Department a minimum of one week advance notice of the requested date. The proposer shall also state in the request those disciplines within the Department that are requested to be in attendance. The Department makes no assurance that the request may be honored on that specific date or that all disciplines requested can be in attendance.

Additional individual meetings may be permitted in accordance with the *Alternative Technical Concepts and Confidential Questions* Project Special Provision found elsewhere in this RFP.

PARTNERING

07/29/09 DB1 G49

As a part of its quality management program, the North Carolina Department of Transportation intends to encourage the formation of a cohesive relationship with the Design-Build Team and its principal subcontractors and suppliers. This relationship will be structured to draw on the strengths of each organization to identify and achieve reciprocal goals. The objectives are safe, effective, and efficient contract performance; and completion within budget, on schedule, and in accordance with the plans and specifications.

This relationship will be bilateral in makeup and participation will be totally voluntary. The cost associated with effectuating this relationship will be agreed to by both parties and shall be shared equally. Compensation for the Department's share of the partnering costs will be by Supplemental Agreement.

To implement this initiative prior to starting work in accordance with the requirements of Section 108 of the Standard Specifications and the Standard Special Provision for Division One (found elsewhere in this RFP), and prior to the preconstruction conference, the Design-Build Team's management personnel and Division Construction Engineer will initiate a partnering development seminar/team building workshop. Project personnel working with the assistance of the Construction Unit will make arrangements to determine attendees at the workshop, agenda of the workshop, duration, and location. Persons required to be in attendance will be the NCDOT Resident Engineer, the NCDOT Division Construction Engineer, and key project personnel; the Design-Build Team's senior management personnel, the Design-Build Team's on-site project manager, and key project supervisory personnel for both the Design-Build Team and principal subcontractors and suppliers. The project design engineers, FHWA, and key local government personnel will also be invited to attend as necessary.

Follow-up workshops may be held periodically throughout the duration of the contract as agreed by the Design-Build Team and the North Carolina Department of Transportation. In the event that additional workshops are held, compensation for the Department's share of the follow-up partnering workshops will be by Supplemental Agreement.

The establishment of the partnering charter on a project will not change the legal relationship to the contract nor relieve either party from any of the terms of the contract.

EXECUTION OF BID, NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION

(1/24/13) DB1 G52

The Proposer's attention is directed to the various sheets in the Request for Proposals which are to be signed by the Proposer. A list of these sheets is shown below. The signature sheets are located behind the Itemized Proposal Sheet in this Request for Proposal. The NCDOT bid bond form is available on-line at:

https://connect.ncdot.gov/letting/Pages/Design-Build-Resources.aspx

or by contacting the Records and Documents office at 919-707-6900.

1. Applicable Signature Sheets: 1, 2, 3, 4, 5, or 6 (Bid)

2. Bid Bond dated the day of Technical and Price Proposal submission

The Proposer shall certify to the best of his knowledge all subcontractors, material suppliers and vendors utilized herein current status concerning suspension, debarment, voluntary exclusion, or determination of ineligibility by any federal agency, in accordance with the "Debarment Certification" located behind the *Execution of Bid Non-Collusion Affidavit, Debarment Certification and Gift Ban Certification* signature sheets in this RFP. Execution of the bid signature sheets in conjunction with any applicable statements concerning exceptions, when such statements have been made on the "Debarment Certification", constitutes the Proposer's certification of "status" under penalty of perjury under the laws of the United States.

SUBMISSION OF DESIGN-BUILD PROPOSAL

(9-1-11) DB1 G55A

The Proposer's attention is directed that each Proposer's Design-Build Proposal shall comply with the following requirements in order for that Design-Build Proposal to be responsive and considered for award.

1. The Proposer shall be prequalified with the Department prior to submitting a Design-Build Proposal.

2. The Proposer shall deliver the Design-Build Proposal to the place indicated, and prior to the time indicated in this Request for Proposals.

3. The Design-Build Proposal documents shall be signed by an authorized employee of the Proposer.

4. The Design-Build Proposal shall be accompanied by Bid surety in the form of a Bid Bond or Bid Deposit, dated the day of Technical and Price Proposal submission.

5. If Disadvantaged Business Enterprises (DBE) goals are established for this contract, the Proposer shall complete the form Listing of DBE Subcontractors contained elsewhere in this RFP in accordance with the Project Special Provision entitled Disadvantaged Business Enterprises.

6. The Design-Build Proposal shall address all the requirements as specified in this Request for Proposals.

In addition to the above requirements, failure to comply with any of the requirements of Article 102-8 of the Standard Special Provisions, Division One (found elsewhere in this RFP), Article 102-9 of the 2012 *Standard Specifications for Roads and Structures,* or Article 102-10 of the 2012 *Standard Specifications for Roads and Structures* and as amended in the Standard Special Provisions, Division One (found elsewhere in this RFP) may result in a Design-Build Proposal being rejected.

ALTERNATIVE TECHNICAL CONCEPTS AND CONFIDENTIAL QUESTIONS

(06-08-11) DB1 G56A

To accommodate innovation that may or may not be specifically allowed by the RFP, or other documents incorporated into the contract by reference, the Design-Build Team has the option of submitting Confidential Questions and Alternative Technical Concepts.

Definitions

A Confidential Question is defined as a private query to the Department containing information whose disclosure could alert others to certain details of doing business in a particular manner.

An Alternative Technical Concept is a private query to the Department that requests a variance to the requirements of the RFP, or other documents incorporated into the contract by reference, that is equal or better in quality or effect as determined by the Department in its sole discretion and that have been used elsewhere under comparable circumstances.

Confidential Questions

The Design-Build Team will be permitted to ask Confidential Questions of the Department, and neither the question nor the answer will be shared with other Design-Build Teams. The Department, in its sole discretion, will determine if a question is considered confidential.

Confidential Questions arising prior to issuance of the Final RFP will be allowed during the industry review of the draft RFP with the individual Design-Build Teams. the Department will answer the Confidential Question verbally at the industry review meeting, if possible, and / or through subtle changes in the Final RFP, which will clarify the scope by either allowing or disallowing the request. To the greatest extent possible, the revision will be made in such a manner as to not disclose the Confidential Question.

After the issuance of the Final RFP, Confidential Questions may be asked by requesting a meeting with the State Contract Officer. The request shall be in writing and provide sufficient detail to evaluate the magnitude of the request. Questions shall be of such magnitude as to warrant a special meeting. Minor questions will not be acknowledged or answered. After evaluation, the State Contract Officer will respond to the question in writing to the Design-Build Team and/or through subtle changes in the Final RFP as reflected in an addendum, which will clarify the scope by either allowing or disallowing the request. To the greatest extent possible, the revision will be made in such a manner as to not disclose the Confidential Question.

If the Design-Build Team includes work based on the Confidential Questions and answers, the work shall be discussed in the Technical Proposal.

Alternative Technical Concepts

The Design-Build Team may include an ATC in the Technical and Price Proposal only if the ATC has been received by the Department by no later than three weeks prior to the deadline for submitting Technical and Price Proposals and it has been approved by the Department (including conditionally approved ATCs, if all conditions are met).

The submittal deadline above applies only to initial ATC submittals. Resubmittal of an ATC that (1) has been revised in response to the Department's requests for further information concerning a prior submittal or (2) is a Formal ATC for a Preliminary ATC that received a favorable response from the Department shall be received by the Department no later than one week prior to the deadline for submitting Technical and Price Proposals.

Should the Department revise the RFP after a Formal ATC has been approved, the Design-Build Team shall be solely responsible for reviewing the RFP and determining if the ATC deviates from the revised requirements. If necessary, the Design-Build Team must submit a request for approval of all additional required variance(s) within five business days of the revised RFP distribution.

An ATC shall in no way take advantage of an error or omission in the RFP, or other documents incorporated into the contract by reference. If, at the sole discretion of the Department, an ATC is deemed to take an advantage of an error or omission in the RFP, or other documents incorporated into the contract by reference, the RFP will be revised without regard to confidentiality. If at any time, the Department receives a documented question on the project similar to a concept submitted in the form of a Preliminary ATC or Formal ATC, the Department reserves the right to revise the RFP without further regard for confidentiality.

By approving an ATC, the Department acknowledges that the ATC may be included in the design and RFC plans; however, approval of any ATC in no way relieves the Design-Build Team of its obligation to satisfy (1) other contract requirements not specifically identified in the ATC submittal; (2) any obligation that may arise under applicable laws and regulations; and (3) any obligation mandated by the regulatory agencies as a permit condition.

ATC Submittals

Each ATC submittal shall include three individually bound hard copies and an electronic pdf file of the entire submittal and shall be submitted to the State Contract Officer at the address provided elsewhere in this RFP.

Formal ATCs

Each Formal ATC submittal shall include the following information:

1) Description. A detailed description and schematic drawings of the configuration of the ATC or other appropriate descriptive information (including, if appropriate, product details [i.e., specifications, construction tolerances, special provisions] and a traffic operational analysis, if appropriate);
2) Usage. Where and how the ATC would be used on the project;
3) Deviations. References to all requirements of the RFP, or other documents incorporated into the contract by reference, that are inconsistent with the proposed ATC, an explanation of the nature of the deviations from said requirements, and a request for approval of such variance(s);
4) Analysis. An analysis justifying use of the ATC and why the variance to the requirements of the RFP, or other documents incorporated into the contract by reference, should be allowed;
5) Impacts. Discussion of potential impacts on vehicular traffic, environmental impacts identified, community impact, safety and life-cycle project impacts, and infrastructure costs (including impacts on the cost of repair and maintenance);
6) History. A detailed description of other projects where the ATC has been used, the success of such usage, and names and telephone numbers of project owners that can confirm such statements;
7) Risks. A description of added risks to the Department and other entities associated with implementing the ATC; and
8) Costs. An estimate of the ATC implementation costs to the Department, the Design-Build Team, and other entities (right-of-way, utilities, mitigation, long term maintenance, etc.).

The Formal ATC, if approved, shall be included in the Price Proposal if the Design-Build Team elects to include it in their Technical Proposal.

Review of ATCs

A panel will be selected to review each ATC, which may or may not include members of the Technical Review Committee. The Design-Build Team shall make no direct contact with any member of the review panel, except as may be permitted by the State Contract Officer. Unapproved contact with any member of the review panel will result in a disqualification of that ATC.

The Department may request additional information regarding a proposed ATC at any time. To the greatest extent possible, the Department will return responses to, or request additional information from, the Design-Build Team within 15 business days of the original submittal of a Formal ATC. If additional information is requested, the Department will provide a response within 5 business days of receipt of all requested information.

The Department may conduct confidential one-on-one meeting(s) to discuss the Design-Build Team's ATC. Under no circumstances will the Department be responsible or liable to the Design-Build Team or any other party as a result of disclosing any ATC materials, whether the disclosure is deemed required by law, by an order of court, or occurs through inadvertence, mistake or negligence on the part of the Department or their respective officers, employees, contractors, or consultants.

In the event that the Department receives ATCs from more than one Design-Build Team that are deemed by the Department to be similar in nature, the Department reserves the right to modify the RFP without further regard for confidentiality.

The Department Response to Formal ATCs

The Department will review each Formal ATC and will respond to the Design-Build Team with one of the following determinations:

1) The ATC is approved;

2) The ATC is not approved;

3) The ATC is not approved in its present form, but may be approved upon satisfaction, in the Department's sole discretion, of certain identified conditions that shall be met or certain clarifications or modifications that shall be made (conditionally approved);

4) The submittal does not qualify as an ATC but may be included in the Proposal without an ATC (i.e., the concept complies with the baseline requirements of the RFP);

5) The submittal does not qualify as an ATC and may not be included in the Proposal;

6) The ATC is deemed to take advantage of an error or omission in the RFP, or other documents incorporated into the contract by reference, in which case the ATC will not be considered, and the RFP will be revised to correct the error or omission.

7) A documented question has been received outside of the ATC process on the same topic and the RFP will be revised to address that question; or

8) More than one ATC has been received on the same topic and the Department has elected to exercise its right to revise the RFP. This response could also follow and supersede one of the other previously supplied responses above.

Formal ATC Inclusion in Technical Proposal

The Design-Build Team may incorporate one or more approved Formal ATCs as part of its Technical and Price Proposals. If the Department responded to an Formal ATC by stating that it would be approved if certain conditions were met, those conditions shall be stipulated and met in the Technical Proposal.

In addition to outlining each implemented Formal ATC, and providing assurances to meet all attached conditions, the Design-Build Team shall also include a copy of the Formal ATC approval letter from the State Contract Officer in each of the twelve Technical Proposals submitted. This letter will be included in the distribution of the Technical Proposals to the Technical Review Committee.

Approval of an Formal ATC in no way implies that the Formal ATC will receive a favorable review from the Technical Review Committee. The Technical Proposals will be evaluated in regards to the evaluation criteria found in this RFP, regardless of whether or not Formal ATCs are included.

The Price Proposal shall reflect all incorporated Formal ATCs. Except for incorporating approved Formal ATCs, the Technical Proposal may not otherwise contain exceptions to, or deviations from, the requirements of the RFP, or other documents incorporated into the contract by reference.

Preliminary ATCs

At the Design-Build Team's option, a Preliminary ATC submittal may be made that presents a concept and a brief narrative of the benefits of said concept. The purpose of allowing such a Preliminary ATC is to limit the Design-Build Team's expense in the pursuit of a Formal ATC that may be quickly denied by the Department.

To the greatest extent possible, the Department will review Preliminary ATCs within 10 business days of submittal and provide written comments and one of the responses noted below. The Department's response to a Preliminary ATC submittal will be either (1) that the Preliminary ATC is denied; (2) that the Preliminary ATC would be considered as a Formal ATC if the Team so elects to pursue a Formal ATC submission; (3) that an ATC is not required; (4) a documented question has been received outside of the ATC process on the same topic and the RFP will be revised to address that question; or (5) that the ATC takes advantage of an error or omission in the RFP or other documents incorporated into the contract by reference, in which case the ATC will not be considered and the RFP will be revised to correct the error or omission. The Department in no way warrants that a favorable response to a Preliminary ATC submittal will translate into a favorable response to a Formal ATC submittal. Likewise, a favorable response to a Preliminary ATC submittal is not sufficient to include the ATC in a Technical Proposal.

VALUE ANALYSIS

(9-1-11) DB1 G57

Value Engineering Proposals, as specified in Article 104-12 of the 2012 *Standard Specifications for Roads and Structures* will be accepted. Only proposals, which alter the requirements of the RFP issued by the Department, will be considered as Value Engineering Proposals.

SCHEDULE OF ESTIMATED COMPLETION PROGRESS

(3/28/13) DB1 G58

The Design-Build Team's attention is directed to the Standard Special Provision entitled "Availability of Funds - Termination of Contracts" included elsewhere in this RFP. The Department of Transportation's schedule of estimated completion progress for this project as required by that Standard Special Provision is as follows:

Fiscal Year	Progress (Dollar Value)
2014 (07/01/13 – 06/30/14)	22 % of Total Amount Bid
2015 (07/01/14 – 06/30/15)	43 % of Total Amount Bid
2016 (07/01/15 – 06/30/16)	28 % of Total Amount Bid
2017 (07/01/16 – 06/30/17)	7 % of Total Amount Bid

The Design-Build Team shall also furnish its own progress schedule in accordance with Article 108-2 of the 2012 *Standard Specifications for Roads and Structures.* Any acceleration of the progress as shown by the Design-Build Team's progress schedule over the progress as shown above shall be subject to the approval of the Engineer.

DISADVANTAGED BUSINESS ENTERPRISE

(3/26/13) DB1 G061

Description

The purpose of this Special Provision is to carry out the U.S. Department of Transportation's policy of ensuring nondiscrimination in the award and administration of contracts financed in whole or in part with Federal funds. This provision is guided by 49 CFR Part 26.

Definitions

Additional DBE Subcontractors - Any DBE submitted at the time of bid that will not be used to meet the DBE goal. No submittal of a Letter of Intent is required.

Committed DBE Subcontractor - Any DBE submitted at the time of bid that is being used to meet the DBE goal by submission of a Letter of Intent. Or any DBE used as a replacement for a previously committed DBE firm.

Contract Goal Requirement - The approved DBE participation at time of award, but not greater than the advertised contract goal.

DBE Goal - A portion of the total contract, expressed as a percentage, that is to be performed by committed DBE subcontractor(s).

Disadvantaged Business Enterprise (DBE) - A firm certified as a Disadvantaged Business Enterprise through the North Carolina Unified Certification Program.

Goal Confirmation Letter - Written documentation from the Department to the Proposer confirming the Design-Build Team's approved, committed DBE participation along with a listing of the committed DBE firms.

Manufacturer - A firm that operates or maintains a factory or establishment that produces on the premises, the materials or supplies obtained by the Design-Build Team.

Regular Dealer - A firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials or supplies required for the performance of the contract are bought, kept in stock, and regularly sold to the public in the usual course of business. A regular dealer engages in, as its principal business and in its own name, the purchase and sale or lease of the products in question. A regular dealer in such bulk items as steel, cement, gravel, stone, and petroleum products need not keep such products in stock, if it owns and operates distribution equipment for the products. Brokers and packagers are not regarded as manufacturers or regular dealers within the meaning of this section.

North Carolina Unified Certification Program (NCUCP) - A program that provides comprehensive services and information to applicants for DBE certification, such that an applicant is required to apply only once for a DBE certification that will be honored by all recipients of USDOT funds in the state and not limited to the Department of Transportation only. The Certification Program is in accordance with 49 CFR Part 26.

United States Department of Transportation (USDOT) - Federal agency responsible for issuing regulations (49 CFR Part 26) and official guidance for the DBE program.

Forms and Websites Referenced in this Provision

DBE Payment Tracking System - On-line system in which the Design-Build Team enters the payments made to DBE subcontractors who have performed work on the project.

https://apps.dot.state.nc.us/Vendor/PaymentTracking/

RF-1 *DBE Replacement Request Form* - Form for replacing a committed DBE.

http://connect.ncdot.gov/projects/construction/Construction%20Forms/DBE%20MBE%20WBE%20Replacement%20Request%20Form.pdf

SAF *Subcontract Approval Form* - Form required for approval to sublet the contract.

http://connect.ncdot.gov/projects/construction/Construction%20Forms/Subcontract%20Approval%20Form%20Rev.%202012.zip

JC-1 *Joint Check Notification Form* - Form and procedures for joint check notification.

The form acts as a written joint check agreement among the parties providing full and prompt disclosure of the expected use of joint checks.

http://connect.ncdot.gov/projects/construction/Construction%20Forms/Joint%20Check%20Notification%20Form.pdf

Letter of Intent - Form signed by the Contractor and the DBE subcontractor, manufacturer or regular dealer that affirms that a portion of said contract is going to be performed by the signed DBE for the amount listed at the time of bid.

http://connect.ncdot.gov/letting/LetCentral/Letter%20of%20Intent%20to%20Perform%20as%20a%20Subcontractor.pdf

Listing of DBE Subcontractors Form - Form for entering DBE subcontractors on a project that will meet this DBE goal contained elsewhere in this RFP.

http://connect.ncdot.gov/municipalities/Bid%20Proposals%20for%20LGA%20Content/08%20DBE%20Subcontractors%20(Federal).doc

Subcontractor Quote Comparison Sheet - Spreadsheet for showing all subcontractor quotes in the work areas where DBEs quoted on the project. This sheet is submitted with good faith effort packages.

http://connect.ncdot.gov/business/SmallBusiness/Documents/DBE%20Subcontractor%20Quote%20Comparison%20Example.xls

DBE Goal

The following DBE goal for participation by Disadvantaged Business Enterprises is established for this contract:

Disadvantaged Business Enterprises **11**%

(A) *If the DBE goal is more than zero*, the Design-Build Team shall exercise all necessary and reasonable steps to ensure that DBEs participate in at least the percent of the contract as set forth above as the DBE goal.

(B) *If the DBE goal is zero*, the Design-Build Team shall make an effort to recruit and use DBEs during the performance of the contract. Any DBE participation obtained shall be reported to the Department.

This goal is to be met through utilization of highway construction contractors and/or right-of-way acquisition firms. Utilization of DBE firms performing design, or other preconstruction services, are not included in this goal.

Directory of Transportation Firms (Directory)

Real-time information is available about firms doing business with the Department and firms that are certified through NCUCP in the Directory of Transportation Firms. Only firms identified in the Directory as DBE certified shall be used to meet the DBE goal. The Directory can be found at the following link. https://partner.ncdot.gov/VendorDirectory/default.html

The listing of an individual firm in the directory shall not be construed as an endorsement of the firm's capability to perform certain work.

Listing of DBE Subcontractors

At the time of bid, Proposers shall submit all DBE participation that they anticipate to use during the life of the contract. Only those identified to meet the DBE goal will be considered committed, even though the listing shall include both committed DBE subcontractors and additional DBE subcontractors. Additional DBE subcontractor participation submitted at the time of bid will be used toward the Department's overall race-neutral goal. Only those firms with current DBE certification at the time of Price Proposal opening will be acceptable for listing in the Proposer's submittal of DBE participation. The Design-Build Team shall indicate the following required information:

** NOTE ** Relocated bullet on blank forms

(1) *If the DBE goal is more than zero,*

(a) Proposers, at the time the Price Proposal is submitted, shall submit a listing of DBE participation, including the names and addresses on *Listing of DBE Subcontractors* contained elsewhere in the contract documents in order for the Price Proposal to be considered responsive. Proposers shall indicate the total dollar value of the DBE participation for the contract.

(b) If Proposers have no DBE participation, they shall indicate this on the *Listing of DBE Subcontractors* by entering the word "None" or the number "0." This form shall be completed in its entirety. **Blank forms will not be deemed to represent zero participation.** Price Proposals submitted that do not have DBE participation indicated on the appropriate form will not be read publicly during the opening of the Price Proposals. The Department will not consider these Price Proposals for award and the proposal will be rejected.

(c) The Proposer shall be responsible for ensuring that the DBE is certified at the time of bid by checking the Directory of Transportation Firms. If the firm is not

certified at the time of the opening of the Price Proposals, that DBE's participation will not count towards achieving the DBE goal.

(2) *If the DBE goal is zero,* entries on the *Listing of DBE Subcontractors* are not required for the zero goal, however any DBE participation that is achieved during the project shall be reported in accordance with requirements contained elsewhere in this RFP.

DBE Prime Contractor

When a certified DBE firm proposes on a contract that contains a DBE goal, the DBE firm is responsible for meeting the goal or making good faith efforts to meet the goal, just like any other proposer. In most cases, a DBE proposer on a contract will meet the DBE goal by virtue of the work it performs on the contract with its own forces. However, all the work that is performed by the DBE proposer and any other DBE subcontractors will count toward the DBE goal. The DBE proposer shall list itself along with any DBE subcontractors, if any, in order to receive credit toward the DBE goal.

For example, if the DBE goal is 45% and the DBE proposer will only perform 40% of the contract work, the prime will list itself at 40%, and the additional 5% shall be obtained through additional DBE participation with DBE subcontractors or documented through a good faith effort.

DBE prime contractors shall also follow Sections A and B listed under *Listing of DBE Subcontractor* just as a non-DBE proposer would.

Written Documentation – Letter of Intent

The Proposer shall submit written documentation for each DBE that will be used to meet the DBE goal of the contract, indicating the Proposer's commitment to use the DBE in the contract. This documentation shall be submitted on the Department's form titled *Letter of Intent*.

The documentation shall be received in the office of the State Contractor Utilization Engineer or at DBE@ncdot.gov no later than 12:00 noon of the sixth calendar day following opening of Price Proposals, unless the sixth day falls on an official state holiday. In that situation, it is due in the office of the State Contractor Utilization Engineer no later than 12:00 noon on the next official state business day.

If the Proposer fails to submit the Letter of Intent from each committed DBE to be used toward the DBE goal, or if the form is incomplete (i.e. both signatures are not present), the DBE participation will not count toward meeting the DBE goal. If the lack of this participation drops the commitment below the DBE goal, the Design-Build Team shall submit evidence of good faith efforts, completed in its entirety, to the State Contractor Utilization Engineer or DBE@ncdot.gov no later than 12:00 noon on the eighth calendar day following opening of the Price Proposals, unless the eighth day falls on an official state holiday. In that situation, it is due in the office of the State Contractor Utilization Engineer no later than 12:00 noon on the next official state business day.

Submission of Good Faith Effort

If the Proposer fails to meet or exceed the DBE goal the Proposer with the apparent adjusted low price shall submit to the Department documentation of adequate good faith efforts made to reach the DBE goal.

A hard copy and an electronic copy of this information shall be received in the office of the State Contractor Utilization Engineer or at DBE@ncdot.gov no later than 12:00 noon of the sixth calendar day following opening of the Price Proposals unless the sixth day falls on an official state holiday. In that situation, it is due in the office of the State Contractor Utilization Engineer the next official state business day. If the Design-Build Team cannot send the information electronically, then one complete set and 9 copies of this information shall be received under the same time constraints above.

Note: Where the information submitted includes repetitious solicitation letters, it will be acceptable to submit a representative letter along with a distribution list of the firms that were solicited. Documentation of DBE quotations shall be a part of the good faith effort submittal. This documentation may include written subcontractor quotations, telephone log notations of verbal quotations, or other types of quotation documentation.

Consideration of Good Faith Effort for Projects with DBE Goals More Than Zero

Adequate good faith efforts mean that the Proposer took all necessary and reasonable steps to achieve the goal which, by their scope, intensity, and appropriateness, could reasonably be expected to obtain sufficient DBE participation. Adequate good faith efforts also mean that the Proposer actively and aggressively sought DBE participation. Mere *pro forma* efforts are not considered good faith efforts.

The Department will consider the quality, quantity, and intensity of the different kinds of efforts a Proposer has made. Listed below are examples of the types of actions a proposer will take in making a good faith effort to meet the goal and are not intended to be exclusive or exhaustive, nor is it intended to be a mandatory checklist.

(A) Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising, written notices, use of verifiable electronic means through the use of the NCDOT Directory of Transportation Firms) the interest of all certified DBEs who have the capability to perform the work of the contract. The Proposer must solicit this interest within at least 10 days prior to the opening of the Price Proposals to allow the DBEs to respond to the solicitation. Solicitation shall provide the opportunity to DBEs within the Division and surrounding Divisions where the project is located. The Proposer must determine with certainty if the DBEs are interested by taking appropriate steps to follow up initial solicitations.

(B) Selecting portions of the work to be performed by DBEs in order to increase the likelihood that the DBE goals will be achieved. Where appropriate, break out contract work items into economically feasible units to facilitate DBE participation, even when

the prime contractor might otherwise prefer to perform these work items with its own forces. Negotiate with subcontractors to assume part of the responsibility to meet the contract DBE goal when the work to be sublet includes potential for DBE participation (2nd and 3rd tier subcontractors).

(C) Providing interested DBEs with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.

(D) (1) Negotiating in good faith with interested DBEs. It is the Proposer's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBEs that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBEs to perform the work.

(2) A proposer using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBEs is not in itself sufficient reason for a proposer's failure to meet the contract DBE goal, as long as such costs are reasonable. Also, the ability or desire of a prime contractor to perform the work of a contract with its own organization does not relieve the Proposer of the responsibility to make good faith efforts. Proposing Design-Build Teams are not, however, required to accept higher quotes from DBEs if the price difference is excessive or unreasonable.

(E) Not rejecting DBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The Proposer's standing within its industry, membership in specific groups, organizations, or associates and political or social affiliations (for example, union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the Proposer's efforts to meet the project goal.

(F) Making efforts to assist interested DBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or proposer.

(G) Making efforts to assist interested DBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.

(H) Effectively using the services of available minority/women community organizations; minority/women contractors' groups; Federal, State, and local minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide

assistance in the recruitment and placement of DBEs. Contact within 7 days from the opening of the Price Proposals the Business Development Manager in the Business Opportunity and Work Force Development Unit to give notification of the Proposer's inability to get DBE quotes.

(I) Any other evidence that the Proposer submits which shows that the Proposer has made reasonable good faith efforts to meet the DBE goal.

In addition, the Department may take into account the following:

(1) Whether the Proposer's documentation reflects a clear and realistic plan for achieving the DBE goal.

(2) The Proposer's past performance in meeting the DBE goals.

(3) The performance of other proposers in meeting the DBE goal. For example, when the Proposer with the apparent adjusted low price fails to meet the DBE goal, but others meet it, you may reasonably raise the question of whether, with additional reasonable efforts the Proposer with the apparent adjusted low price could have met the goal. If the Proposer with the apparent adjusted low price fails to meet the DBE goal, but meets or exceeds the average DBE participation obtained by other proposers, the Department may view this, in conjunction with other factors, as evidence of the Proposer with the apparent adjusted low price having made a good faith effort.

If the Department does not award the contract to the Proposer with the apparent adjusted low price, the Department reserves the right to award the contract to the Proposer with the next adjusted lowest adjusted price that can satisfy to the Department that the DBE goal can be met or that an adequate good faith effort has been made to meet the DBE goal.

Non-Good Faith Appeal

The State Contractor Utilization Engineer will notify the Design-Build Team verbally and in writing of non-good faith. A Design-Build Team may appeal a determination of non-good faith made by the Goal Compliance Committee. If a Design-Build Team wishes to appeal the determination made by the Committee, they shall provide written notification to the State Contractual Services Engineer or at DBE@ncdot.gov. The appeal shall be made within 2 business days of notification of the determination of non-good faith.

Counting DBE Participation Toward Meeting DBE Goal

(A) Participation

The total dollar value of the participation by a committed DBE will be counted toward the contract goal requirement. The total dollar value of participation by a committed

DBE will be based upon the value of work actually performed by the DBE and the actual payments to DBE firms by the Design-Build Team.

(B) Joint Checks

Prior notification of joint check use shall be required when counting DBE participation for services or purchases that involves the use of a joint check. Notification shall be through submission of Form JC-1 *(Joint Check Notification Form)* and the use of joint checks shall be in accordance with the Department's Joint Check Procedures.

(C) Subcontracts (Non-Trucking)

A DBE may enter into subcontracts. Work that a DBE subcontracts to another DBE firm may be counted toward the contract goal requirement. Work that a DBE subcontracts to a non-DBE firm does not count toward the contract goal requirement. If a DBE contractor or subcontractor subcontracts a significantly greater portion of the work of the contract than would be expected on the basis of standard industry practices, it shall be presumed that the DBE is not performing a commercially useful function. The DBE may present evidence to rebut this presumption to the Department. The Department's decision on the rebuttal of this presumption is subject to review by the Federal Highway Administration but is not administratively appealable to USDOT.

(D) Joint Venture

When a DBE performs as a participant in a joint venture, the Design-Build Team may count toward its contract goal requirement a portion of the total value of participation with the DBE in the joint venture, that portion of the total dollar value being a distinct clearly defined portion of work that the DBE performs with its forces.

(E) Suppliers

A Design-Build Team may count toward its DBE requirement 60 percent of its expenditures for materials and supplies required to complete the contract and obtained from a DBE regular dealer and 100 percent of such expenditures from a DBE manufacturer.

(F) Manufacturers and Regular Dealers

A Design-Build Team may count toward its DBE requirement the following expenditures to DBE firms that are not manufacturers or regular dealers:

(1) The fees or commissions charged by a DBE firm for providing a *bona fide* service, such as professional, technical, consultant, or managerial services, or for providing bonds or insurance specifically required for the performance of a DOT-assisted contract, provided the fees or commissions are determined to be reasonable and not excessive as compared with fees and commissions customarily allowed for similar services.

(2) With respect to materials or supplies purchased from a DBE, which is neither a manufacturer nor a regular dealer, count the entire amount of fees or commissions charged for assistance in the procurement of the materials and supplies, or fees or transportation charges for the delivery of materials or supplies required on a job site (but not the cost of the materials and supplies themselves), provided the fees are determined to be reasonable and not excessive as compared with fees customarily allowed for similar services.

Commercially Useful Function

(A) DBE Utilization

The Design-Build Team may count toward its contract goal requirement only expenditures to DBEs that perform a commercially useful function in the work of a contract. A DBE performs a commercially useful function when it is responsible for execution of the work of the contract and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. To perform a commercially useful function, the DBE shall also be responsible with respect to materials and supplies used on the contract, for negotiating price, determining quality and quantity, ordering the material and installing (where applicable) and paying for the material itself. To determine whether a DBE is performing a commercially useful function, the Department will evaluate the amount of work subcontracted, industry practices, whether the amount the firm is to be paid under the contract is commensurate with the work it is actually performing and the DBE credit claimed for its performance of the work, and any other relevant factors.

(B) DBE Utilization in Trucking

The following factors will be used to determine if a DBE trucking firm is performing a commercially useful function.

(1) The DBE shall be responsible for the management and supervision of the entire trucking operation for which it is responsible on a particular contract, and there shall not be a contrived arrangement for the purpose of meeting DBE goals.

(2) The DBE shall itself own and operate at least one fully licensed, insured, and operational truck used on the contract.

(3) The DBE receives credit for the total value of the transportation services it provides on the contract using trucks it owns, insures, and operates using drivers it employs.

(4) The DBE may subcontract the work to another DBE firm, including an owner-operator who is certified as a DBE. The DBE who subcontracts work to

another DBE receives credit for the total value of the transportation services the subcontracted DBE provides on the contract.

(5) The DBE may also subcontract the work to a non-DBE firm, including from an owner-operator. The DBE who subcontracts the work to a non-DBE is entitled to credit for the total value of transportation services provided by the non-DBE subcontractor not to exceed the value of transportation services provided by DBE-owned trucks on the contract. Additional participation by non-DBE subcontractors receives credit only for the fee or commission it receives as a result of the subcontract arrangement. The value of services performed under subcontract agreements between the DBE and the Design-Build Team will not count towards the DBE contract requirement.

(6) A DBE may lease truck(s) from an established equipment leasing business open to the general public. The lease must indicate that the DBE has exclusive use of and control over the truck. This requirement does not preclude the leased truck from working for others during the term of the lease with the consent of the DBE, so long as the lease gives the DBE absolute priority for use of the leased truck. This type of lease may count toward the DBE's credit as long as the driver is under the DBE's payroll.

(7) Subcontracted / leased trucks shall display clearly on the dashboard the name of the DBE that they are subcontracted / leased to and their own company name if it is not identified on the truck itself. Magnetic door signs are not permitted.

DBE Replacement

When a Design-Build Team has relied on a commitment to a DBE firm (or an approved substitute DBE firm) to meet all or part of a contract goal requirement, the Design-Build Team shall not terminate the DBE for convenience. This includes, but is not limited to, instances in which the Design-Build Team seeks to perform the work of the terminated subcontractor with another DBE subcontractor, a non-DBE subcontractor, or with the Contractor's own forces or those of an affiliate. A DBE may only be terminated after receiving the Engineer's written approval based upon a finding of good cause for the termination.

All requests for replacement of a committed DBE firm shall be submitted to the Engineer for approval on Form RF-1 *(DBE Replacement Request).* If the Design-Build Team fails to follow this procedure, the Prime Contractor or other affiliated companies within the Design-build Team may be disqualified from further bidding for a period of up to 6 months.

The Design-Build Team shall comply with the following for replacement of a committed DBE:

(A) Performance Related Replacement

When a committed DBE is terminated for good cause as stated above, an additional DBE that was submitted at the time of bid may be used to fulfill the DBE commitment.

A good faith effort will only be required for removing a committed DBE if there were no additional DBEs submitted at the time of bid to cover the same amount of work as the DBE that was terminated.

If a replacement DBE is not found that can perform at least the same amount of work as the terminated DBE, the Design-Build Team shall submit a good faith effort documenting the steps taken. Such documentation shall include, but not be limited to, the following:

(1) Copies of written notification to DBEs that their interest is solicited in contracting the work defaulted by the previous DBE or in subcontracting other items of work in the contract.

(2) Efforts to negotiate with DBEs for specific subbids including, at a minimum:

(a) The names, addresses, and telephone numbers of DBEs who were contacted.
(b) A description of the information provided to DBEs regarding the plans and specifications for portions of the work to be performed.

(3) A list of reasons why DBE quotes were not accepted.

(4) Efforts made to assist the DBEs contacted, if needed, in obtaining bonding or insurance required by the Design-Build Team.

(B) Decertification Replacement

(1) When a committed DBE is decertified by the Department after the SAF (*Subcontract Approval Form*) has been received by the Department, the Department will not require the Design-Build Team to solicit replacement DBE participation equal to the remaining work to be performed by the decertified firm. The participation equal to the remaining work performed by the decertified firm will count toward the contract goal requirement.

(2) When a committed DBE is decertified prior to the Department receiving the SAF (*Subcontract Approval Form*) for the named DBE firm, the Design-Build Team shall take all necessary and reasonable steps to replace the DBE subcontractor with another DBE subcontractor to perform at least the same amount of work to meet the DBE goal requirement. If a DBE firm is not found to do the same amount of work, a good faith effort must be submitted to NCDOT (see A herein for required documentation).

Changes in the Work

When the Engineer makes changes that result in the reduction or elimination of work to be performed by a committed DBE, the Design-Build Team will not be required to seek additional participation. When the Engineer makes changes that result in additional work to be performed

by a DBE based upon the Design-Build Team's commitment, the DBE shall participate in additional work to the same extent as the DBE participated in the original contract work.

When the Engineer makes changes that result in extra work, which has more than a minimal impact on the contract amount, the Design-Build Team shall seek additional participation by DBEs unless otherwise approved by the Engineer.

When the Engineer makes changes that result in an alteration of plans or details of construction, and a portion or all of the work had been expected to be performed by a committed DBE, the Design-Build Team shall seek participation by DBEs unless otherwise approved by the Engineer.

When the Design-Build Team requests changes in the work that result in the reduction or elimination of work that the Design-Build Team committed to be performed by a DBE, the Design-Build Team shall seek additional participation by DBEs equal to the reduced DBE participation caused by the changes.

Reports and Documentation

A SAF (*Subcontract Approval Form*) shall be submitted for all work which is to be performed by a DBE subcontractor. The Department reserves the right to require copies of actual subcontract agreements involving DBE subcontractors.

When using transportation services to meet the contract commitment, the Design-Build Team shall submit a proposed trucking plan in addition to the SAF. The plan shall be submitted prior to beginning construction on the project. The plan shall include the names of all trucking firms proposed for use, their certification type(s), the number of trucks owned by the firm, as well as the individual truck identification numbers, and the line item(s) being performed.

Within 30 calendar days of entering into an agreement with a DBE for materials, supplies or services, not otherwise documented by the SAF as specified above, the Design-Build Team shall furnish the Engineer a copy of the agreement. The documentation shall also indicate the percentage (60% or 100%) of expenditures claimed for DBE credit.

Reporting Disadvantaged Business Enterprise Participation

The Design-Build Team shall provide the Engineer with an accounting of payments made to all DBE firms, including material suppliers and contractors at all levels (prime, subcontractor, or second tier subcontractor). This accounting shall be furnished to the Engineer for any given month by the end of the following month. Failure to submit this information accordingly may result in the following action:

(A) Withholding of money due in the next partial pay estimate; or

(B) Removal of an approved Prime Contractor or other affiliated companies within the Design-Build Team from the prequalified bidders' list or the removal of other entities from the approved subcontractors list.

While each contractor (prime, subcontractor, 2nd tier subcontractor) is responsible for accurate accounting of payments to DBEs, it shall be the prime contractor's responsibility to report all monthly and final payment information in the correct reporting manner.

Failure on the part of the Design-Build Team to submit the required information in the time frame specified may result in the disqualification of that Prime Contractor and any affiliate companies within the Design-Build Team from further bidding until the required information is submitted.

Failure on the part of any subcontractor to submit the required information in the time frame specified may result in the disqualification of that Prime Contractor or any affiliate companies within the Design-Build Team from being approved for work on future DOT projects until the required information is submitted.

Design-Build Teams reporting transportation services provided by non-DBE lessees shall evaluate the value of services provided during the month of the reporting period only.

At any time, the Engineer can request written verification of subcontractor payments.

The Design-Build Team shall report the accounting of payments through the Department's DBE Payment Tracking System.

Failure to Meet Contract Requirements

Failure to meet contract requirements in accordance with Subarticle 102-15(J) of the 2012 *Standard Specifications for Roads and Structures* may be cause to disqualify the Prime Contractor or any affiliated companies within the Design-Build Team from further bidding for a specified length of time.

CERTIFICATION FOR FEDERAL-AID CONTRACTS

(3-21-90) DB1 G85

The Proposer certifies, by signing and submitting a Design-Build Proposal, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, *Disclosure Form to Report Lobbying*, in accordance with its instructions.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by *Section 1352, Title 31, U.S. Code*. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

The Proposer also agrees by submitting a Design-Build Proposal that he or she shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such sub-recipients shall certify and disclose accordingly.

CONTRACTOR'S LICENSE REQUIREMENTS

(7-1-95) DB1 G88

If the Design-Build Team does not hold the proper license to perform any plumbing, heating, air conditioning, or electrical work in this contract, he will be required to sublet such work to a contractor properly licensed in accordance with *Article 2 of Chapter 87 of the General Statutes* (licensing of heating, plumbing, and air conditioning contractors) and *Article 4 of Chapter 87* of the *General Statutes* (licensing of electrical contractors).

U.S. DEPARTMENT OF TRANSPORTATION HOTLINE

(11-22-94) DB1 G100

To report bid rigging activities call: **1-800-424-9071**

The U.S. Department of Transportation (DOT) operates the above toll-free *hotline* Monday through Friday, 8:00 a.m. to 5:00 p.m. eastern time. Anyone with knowledge of possible bid rigging, bidder collusion, or other fraudulent activities should use the *hotline* to report such activities.

The *hotline* is part of the DOT's continuing effort to identify and investigate highway construction contract fraud and abuse. It is operated under the direction of the DOT Inspector General. All information will be treated confidentially and caller anonymity will be respected.

RESOURCE CONSERVATION

(3/27/13) 104-13 DB1 G118

In accordance with North Carolina Executive Order 156, NCGS 130A-309.14(2), and NCGS 136-28.8, it is the policy of the Department to aid in the reduction of materials that become a part of our solid waste stream, to divert materials from landfills, and to find ways to recycle and reuse materials for the benefit of the Citizens of North Carolina.

Initiate, develop and use products and construction methods that incorporate the use of recycled or solid waste products in accordance with Article 104-13 of the *2012 Standard Specifications*. Report the quantities of reused or recycled materials either incorporated in the project or diverted from landfills on the Project Construction Reuse and Recycling Reporting Form.

A location-based tool for finding local recycling facilities and the Project Construction Reuse and Recycling Reporting Form are available at:

http://connect.ncdot.gov/resources/Environmental/Pages/North-Carolina-Recycling-Locations.aspx

SUBSURFACE INFORMATION

(3-22-07) DB1 G119

Available subsurface information will be provided on this project. The Design-Build Team shall be responsible for additional investigations and for verifying the accuracy of the subsurface information supplied by the Department.

DOMESTIC STEEL

(3-6-13) 106 DB G 120

Revise the *2012 Standard Specifications for Roads and Structures* as follows:

Page 1-49, Subarticle 106-1(B) Domestic Steel, lines 2-7, replace the first paragraph with the following:

All steel and iron products that are permanently incorporated into this project shall be produced in the United States except minimal amounts of foreign steel and iron products may be used provided the combined material cost of the items involved does not exceed 0.1% of the total amount bid for the entire project or $2,500, whichever is greater, and that the contractor can provide invoices documenting the cost of the items. This minimal amount of foreign produced steel and iron products permitted for use is not applicable to high strength fasteners. Domestically produced high strength fasteners are required.

**** NOTE ** Deleted Cooperation Between Contractors Project Special Provision**

BID DOCUMENTATION

(Rev. 07-31-12) DB1 G142

General

The successful Design-Build Team shall submit the original, unaltered bid documentation or a certified copy of the original, unaltered bid documentation used to prepare the Price Proposal for this contract to the Department within 10 days after receipt of notice of award of contract. Such documentation shall be placed in escrow with a banking institution or other bonded document storage facility selected by the Department.

The Department will not execute the contract until the original, unaltered bid documentation or a certified copy of the original, unaltered bid documentation has been received by the Department.

Terms

Bid Documentation – Bid Documentation shall mean all written information, working papers, computer printouts, electronic media, charts, and all other data compilations which contain or reflect information, data, and calculations used by the Proposer in the preparation of the Price Proposal. The term *bid documentation* includes, but is not limited to, Design-Build Team equipment rates, Design-Build Team overhead rates, labor rates, efficiency or productivity factors, arithmetical calculations, and quotations from subcontractors and material suppliers to the extent that such rates and quotations were used by the Proposer in formulating and determining the Price Proposal. The term *bid documentation* also includes any manuals, which are standard to the industry used by the Proposer in determining the Price Proposal. Such manuals may be included in the bid documentation by reference. Such reference shall include the name and date of the publication and the publisher. *Bid Documentation* does not include bid documents provided by the Department for use by the Proposer in bidding on this project.

Design-Build Team's Representative – Officer of the Prime Contractor's company; if not an officer, the Contractor shall supply a letter signed and notarized by an officer of the Prime Contractor's company, granting permission for the representative to sign the escrow agreement on behalf of the Prime Contractor.

Escrow Agent – Officer of the select banking institution or other bonded document storage facility authorized to receive and release bid documentation.

Escrow Agreement Information

A copy of the Escrow Agreement will be mailed to the Proposer with the notice of award for informational purposes. The Proposer and Department will sign the actual Escrow Agreement at the time the bid documentation is delivered to the escrow agent.

Failure to Provide Bid Documentation

The Proposer's failure to provide the original, unaltered bid documentation or a certified copy of the original, unaltered bid documentation within 10 days after the notice of award is received by him may be just cause for rescinding the award of the contract and may result in the removal of the Proposer from the Department's list of qualified bidders for a period of up to 180 days. Award may then be made to the Proposer with the next lowest adjusted price or the work may be readvertised and constructed under the contract or otherwise, as the Department may decide.

Submittal of Bid Documentation

(A) Appointment – Email specs@ncdot.gov or call 919.707.6900 to schedule an appointment.

(B) Delivery - A representative of the Bidder shall deliver the original, unaltered bid documentation or a certified copy of the original, unaltered bid documentation to the Department, in a container suitable for sealing, within 10 days after the notice of award is received by him. Bid documentation will be considered a certified copy if the Bidder includes a letter to the Department from a chief officer of the company stating that the enclosed documentation is an *EXACT* copy of the original documentation. The letter shall be signed by a chief officer of the company, have the person's name and title typed below the signature, and the signature shall be notarized at the bottom of the letter.

(C) Packaging – The container shall be no larger than 15.5 inches in length by 12 inches wide by 11 inches high and shall be water resistant. The container shall be clearly marked on the face and the back of the container with the following information: Bid Documentation, Bidder's Name, Bidder's Address, Date of Escrow Submittal, Contract Number, TIP Number if applicable, and County.

Affidavit

In addition to the bid documentation, an affidavit signed under oath by an individual authorized by the Proposer to execute the bid shall be included. The affidavit shall list each bid document with sufficient specificity so a comparison may be made between the list and the bid documentation to ensure that all of the bid documentation listed in the affidavit has been enclosed. The affidavit shall attest that the affiant has personally examined the bid documentation, that the affidavit lists all of the documents used by the Proposer to determine the Price Proposal for this project, and that all such bid documentation has been included.

Verification

Upon delivery of the bid documentation, the Department's Contract Officer and the Proposer's representative will verify the accuracy and completeness of the bid documentation compared to the affidavit. Should a discrepancy exist, the Proposer's representative shall immediately furnish the Department's Contract Officer with any other needed bid documentation. The Department's Contract Officer upon determining that the bid documentation is complete will, in the presence of the Proposer's representative, immediately place the complete bid documentation and affidavit in the container and seal it. Both parties will deliver the sealed container to the escrow agent for placement in a safety deposit box, vault, or other secure accommodation.

Confidentiality of Bid Documentation

The bid documentation and affidavit in escrow are, and will remain, the property of the Proposer. The Department has no interest in, or right to, the bid documentation and affidavit other than to verify the contents and legibility of the bid documentation unless the Design-Build Team gives written notice of intent to file a claim, files a written claim, files a written and verified claim, or initiates litigation against the Department. In the event of such written notice of intent to file a claim, filing of a written claim, filing a written and verified claim, or initiation of litigation against the Department, or receipt of a letter from the Design-Build Team authorizing release,

the bid documentation and affidavit may become the property of the Department for use in considering any claim or in litigation as the Department may deem appropriate.

Any portion or portions of the bid documentation designated by the Proposer as a *trade secret* at the time the bid documentation is delivered to the Department's Contract Officer shall be protected from disclosure as provided by *G.S. 132-1.2.*

Duration and Use

The bid documentation and affidavit shall remain in escrow until 60 calendar days from the time the Contractor receives the final estimate; or until such time as the Design-Build Team:

(A) Gives written notice of intent to file a claim,
(B) Files a written claim,
(C) Files a written and verified claim,
(D) Initiates litigation against the Department related to the contract; or
(E) Authorizes in writing its release.

Upon the giving of written notice of intent to file a claim, filing a written claim, filing a written and verified claim, or the initiation of litigation by the Design-Build Team against the Department, or receipt of a letter from the Design-Build Team authorizing release, the Department may obtain the release and custody of the bid documentation.

The Proposer certifies and agrees that the sealed container placed in escrow contains all of the bid documentation used to determine the Price Proposal and that no other bid documentation shall be relevant or material in litigation over claims brought by the Design-Build Team arising out of this contract.

Release of Bid Documentation to the Contractor

If the bid documentation remains in escrow 60 calendar days after the time the Design-Build Team receives the final estimate and the Design-Build Team has not filed a written claim, filed a written and verified claim, or has not initiated litigation against the Department related to the contract, the Department will instruct the escrow agent to release the sealed container to the Prime Contractor.

The Contractor will be notified by certified letter from the escrow agent that the bid documentation will be released to the Contractor. The Contractor or his representative shall retrieve the bid documentation from the escrow agent within 30 days of the receipt of the certified letter. If the Contractor does not receive the documents within 30 days of the receipt of the certified letter, the Department will contact the Contractor to determine final dispersion of the bid documentation.

Payment

The cost of the escrow will be bourne by the Department. There will be no separate payment for all costs of compilation of the data, container, or verification of the bid documentation. Payment at the various contract unit or lump sum prices in the contract will be full compensation for all such costs.

TWELVE MONTH GUARANTEE

(7-15-03) DB1 G145

(A) The Design-Build Team shall guarantee materials and workmanship against latent and patent defects arising from faulty materials, faulty workmanship or negligence for a period of twelve months following the date of final acceptance of the work for maintenance and shall replace such defective materials and workmanship without cost to the Department. The Design-Build Team will not be responsible for damage due to normal wear and tear, for negligence on the part of the Department, and / or for use in excess of the design.

(B) Where items of equipment or material carry a manufacturer's guarantee for any period in excess of twelve months, then the manufacturer's guarantee shall apply for that particular piece of equipment or material. The Department's first remedy shall be through the manufacturer although the Design-Build Team shall be responsible for invoking the warranted repair work with the manufacturer. The Design-Build Team's responsibility shall be limited to the term of the manufacturer's guarantee. NCDOT would be afforded the same warranty as provided by the Manufacturer.

This guarantee provision shall be invoked only for major components of work in which the Design-Build Team would be wholly responsible for under the terms of the contract. Examples would include pavement structures, bridge components, and sign structures. This provision will not be used as a mechanism to force the Design-Build Team to return to the project to make repairs or perform additional work that the Department would normally compensate the Design-Build Team for. In addition, routine maintenance activities (i.e. mowing grass, debris removal, ruts in earth shoulders,) are not parts of this guarantee.

Appropriate provisions of the payment and/or performance bonds shall cover this guarantee for the project. In addition, failure on the part of the responsible entity(ies) of the Design-Build Team to perform guarantee work within the terms of this provision shall be just cause to remove the responsible entity(ies) from the Department's corresponding prequalified list. The Design-Build Team will be removed for a minimum of 6 months and will be reinstated only after all work has been corrected and the Design-Build Team requests reinstatement in writing.

To ensure uniform application statewide the Division Engineer will forward details regarding the circumstances surrounding any proposed guarantee repairs to the Chief Engineer for review and approval prior to the work being performed.

EROSION & SEDIMENT CONTROL / STORMWATER CERTIFICATION

(1-16-07) (Rev 07-13-12) DB1 G180

General

Schedule and conduct construction activities in a manner that will minimize soil erosion and the resulting sedimentation and turbidity of surface waters. Comply with the requirements herein regardless of whether or not a National Pollutant Discharge Elimination System (NPDES) permit for the work is required.

Establish a chain of responsibility for operations and subcontractors' operations to ensure that the *Erosion and Sediment Control / Stormwater Pollution Prevention Plan* is implemented and maintained over the life of the contract.

(A) *Certified Supervisor* – Provide a certified Erosion and Sediment Control / Stormwater (E&SC/SW) Supervisor to manage the Design-Build Team and subcontractor(s) operations, ensure compliance with Federal, State and Local ordinances and regulations, and to manage the Quality Control Program.

(B) *Certified Foreman* – Provide a certified, trained foreman for each construction operation that increases the potential for soil erosion or the possible sedimentation and turbidity of surface waters.

(C) *Certified Installer* – Provide a certified installer to install or direct the installation for erosion or sediment / stormwater control practices.

(D) *Certified Designer* – Provide a certified designer for the design of the erosion and sediment control / stormwater component of reclamation plans and, if applicable, for the design of the project erosion and sediment control / stormwater plan.

Roles and Responsibilities

(A) *Certified Erosion and Sediment Control / Stormwater Supervisor* - The Certified Supervisor shall be Level II and responsible for ensuring the erosion and sediment control / stormwater plan is adequately implemented and maintained on the project and for conducting the quality control program. The Certified Supervisor shall be on the project within 24 hours notice from initial exposure of an erodible surface to the project's final acceptance. Perform the following duties:

(1) Manage Operations - Coordinate and schedule the work of subcontractors so that erosion and sediment control/stormwater measures are fully executed for each operation and in a timely manner over the duration of the contract.

(a) Oversee the work of subcontractors so that appropriate erosion and sediment control/stormwater preventive measures are conformed to at each stage of the work.

(b) Prepare the required National Pollutant Discharge Elimination System (NPDES) Inspection Record and submit to the Engineer.

(c) Attend all weekly or monthly construction meetings to discuss the findings of the NPDES inspection and other related issues.

(d) Implement the erosion and sediment control / stormwater site plans requested.

(e) Provide any needed erosion and sediment control / stormwater practices for the Design-Build Team's temporary work not shown on the plans, such as, but not limited to work platforms, temporary construction, pumping operations, plant and storage yards, and cofferdams.

(f) Acquire applicable permits and comply with requirements for borrow pits, dewatering, and any temporary work conducted by the Design-Build Team in jurisdictional areas.

(g) Conduct all erosion and sediment control / stormwater work in a timely and workmanlike manner.

(h) Fully perform and install erosion and sediment control / stormwater work prior to any suspension of the work.

(i) Coordinate with Department, Federal, State and Local Regulatory agencies on resolution of erosion and sediment control / stormwater issues due to the Design-Build Team's operations.

(j) Ensure that proper cleanup occurs from vehicle tracking on paved surfaces and / or any location where sediment leaves the Right-of-Way.

(k) Have available a set of erosion and sediment control/stormwater plans that are initialed and include the installation date of Best Management Practices. These practices shall include temporary and permanent groundcover and be properly updated to reflect necessary plan and field changes for use and review by Department personnel as well as regulatory agencies.

(2) Requirements set forth under the NPDES Permit – The Department's NPDES Stormwater permit (NCS000250) outlines certain objectives and management measures pertaining to construction activities. The permit references *NCG010000, General Permit to Discharge Stormwater* under the NPDES, and states that the Department shall incorporate the applicable requirements into its delegated Erosion and Sediment Control Program for construction activities disturbing one or more acres of land. The Department further incorporates these requirements on all contracted bridge and culvert work at jurisdictional waters, regardless of size. Some of the requirements are, but are not limited to:

(a) Control project site waste to prevent contamination of surface or ground waters of the state, i.e. from equipment operations/maintenance construction materials, concrete washout, chemicals, litter, fuels, lubricants, coolants, hydraulic fluids, any other petroleum products, and sanitary waste.

(b) Inspect erosion and sediment control / stormwater devices and stormwater discharge outfalls at least once every 7 calendar days, twice weekly for

construction related Federal Clean Water Act, Section 303(d) impaired streams with turbidity violations, and within 24 hours after a significant rainfall event of 0.5 inch that occurs within a 24-hour period.

(c) Maintain an onsite rain gauge or use the Department's Multi-Sensor Precipitation Estimate website to maintain a daily record of rainfall amounts and dates.

(d) Maintain erosion and sediment control / stormwater inspection records for review by Department and Regulatory personnel upon request.

(e) Implement approved reclamation plans on all borrow pits, waste sites and staging areas.

(f) Maintain a log of turbidity test results as outlined in the Department's Procedure for Monitoring Borrow Pit Discharge.

(g) Provide secondary containment for bulk storage of liquid materials.

(h) Provide training for employees concerning general erosion and sediment control / stormwater awareness, the Department's NPDES Stormwater Permit NCS000250 requirements, and the applicable requirements of the *General Permit, NCG010000.*

(i) Report violations of the NPDES permit to the Engineer immediately who will notify the Division of Water Quality Regional Office within 24 hours of becoming aware of the violation.

(3) Quality Control Program - Maintain a quality control program to control erosion, prevent sedimentation and follow provisions/conditions of permits. The quality control program shall:

(a) Follow permit requirements related to the Design-Build Team and subcontractors' construction activities.

(b) Ensure that all operators and / or subcontractor(s) on site have the proper erosion and sediment control / stormwater certification.

(c) Notify the Engineer when the required certified erosion and sediment control / stormwater personnel are not available on the job site when needed.

(d) Conduct the inspections required by the NPDES permit.

(e) Take corrective actions in the proper timeframe as required by the NPDES permit for problem areas identified during the NPDES inspections.

(f) Incorporate erosion control into the work in a timely manner and stabilize disturbed areas with mulch / seed or vegetative cover on a section-by-section basis.

(g) Use flocculants approved by state regulatory authorities where appropriate and where required for turbidity and sedimentation reduction.

(h) Ensure proper installation and maintenance of temporary erosion and sediment control devices.

(i) Remove temporary erosion or sediment control devices when they are no longer necessary as agreed upon by the Engineer.

(j) The Design-Build Team's quality control and inspection procedures shall be subject to review by the Engineer. Maintain NPDES inspection records and make records available at all times for verification by the Engineer.

(B) *Certified Foreman* - At least one Certified Foreman shall be onsite for each type of work listed herein during the respective construction activities to control erosion, prevent sedimentation and follow permit provisions:

(1) Foreman in charge of grading activities
(2) Foreman in charge of bridge or culvert construction over jurisdictional areas
(3) Foreman in charge of utility activities

The Design-Build Team may request to use the same person as the Level II Supervisor and Level II Foreman. This person shall be onsite whenever construction activities as described above are taking place. This request shall be approved by the Engineer prior to work beginning.

The Design-Build Team may request to name a single Level II Foreman to oversee multiple construction activities on small bridge or culvert replacement projects. This request shall be approved by the Engineer prior to work beginning.

(C) *Certified Installers* - Provide at least one onsite, Level I Certified Installer for each of the following erosion and sediment control / stormwater crew:

(1) Seeding and Mulching
(2) Temporary Seeding
(3) Temporary Mulching
(4) Sodding
(5) Silt fence or other perimeter erosion / sediment control device installations
(6) Erosion control blanket installation
(7) Hydraulic tackifier installation
(8) Turbidity curtain installation
(9) Rock ditch check / sediment dam installation
(10) Ditch liner / matting installation
(11) Inlet protection
(12) Riprap placement
(13) Stormwater BMP installations (such as but not limited to level spreaders, retention / detention devices)
(14) Pipe installations within jurisdictional areas

If a Level I *Certified Installer* is not onsite, the Design-Build Team may substitute a Level II Foreman for a Level I Installer, provided the Level II Foreman is not tasked to another crew requiring Level II Foreman oversight.

(D) *Certified Designer* – Include the certification number of the Level III-B Certified Designer on the erosion and sediment control / stormwater component of all reclamation plans and if applicable, the certification number of the Level III-A Certified Designer on the design of the project erosion and sediment control / stormwater plan.

Preconstruction Meeting

Furnish the names of the *Certified Erosion and Sediment Control / Stormwater Supervisor, Certified Foremen, Certified Installers and Certified Designers* and notify the Engineer in writing of changes in certified personnel over the life of the contract within 2 days of change.

Ethical Responsibility

Any company performing work for the North Carolina Department of Transportation has the ethical responsibility to fully disclose any reprimand or dismissal of an employee resulting from improper testing or falsification of records.

Revocation or Suspension of Certification

Upon recommendation of the Chief Engineer to the certification entity, certification for Supervisor, Certified Foremen, Certified Installers and Certified Designer may be revoked or suspended with the issuance of an Immediate Corrective Action (ICA), Notice of Violation (NOV), or Cease and Desist Order for erosion and sediment control / stormwater related issues.

The Chief Engineer may recommend suspension or permanent revocation of such certification due to the following:

(A) Failure to adequately perform the duties as defined within this certification provision
(B) Issuance of an ICA, NOV, or Cease and Desist Order
(C) Failure to fully perform environmental commitments as detailed within the permit conditions and specifications
(D) Demonstration of erroneous documentation or reporting techniques
(E) Cheating or copying another candidate's work on an examination
(F) Intentional falsification of records
(G) Directing a subordinate under direct or indirect supervision to perform any of the above actions
(H) Dismissal from a company for any of the above reasons
(I) Suspension or revocation of one's certification by another entity

Suspension or revocation of a certification will be sent by certified mail to the certificant and the Corporate Head of the company that employs the certificant.

A certificant has the right to appeal any adverse action which results in suspension or permanent revocation of certification by responding, in writing, to the Chief Engineer within 10 calendar days after receiving notice of the proposed adverse action.

Chief Engineer
1536 Mail Service Center
Raleigh, NC 27699-1536

Failure to appeal within 10 calendar days will result in the proposed adverse action becoming effective on the date specified on the certified notice. Failure to appeal within the time specified will result in a waiver of all future appeal rights regarding the adverse action taken. The certificant will not be allowed to perform duties associated with the certification during the appeal process. The Chief Engineer will hear the appeal and make a decision within 7 days of hearing the appeal. The decision of the Chief Engineer will be final and will be made in writing to the certificant.

If a certification is temporarily suspended, the certificant shall pass any applicable written examination and any proficiency examination, at the conclusion of the specified suspension period, prior to having the certification reinstated.

Measurement and Payment

Certified Erosion and Sediment Control / Stormwater Supervisor, Certified Foremen, Certified Installers and *Certified Designer* will be incidental to the project for which no direct compensation will be made.

PROCEDURE FOR MONITORING BORROW PIT DISCHARGE

(1-22-13) DB1 G181

Water discharge from borrow pit sites shall not cause surface waters to exceed 50 NTUs (nephelometric turbidity unit) in streams not designated as trout waters and 10 NTUs in streams, lakes or reservoirs designated as trout waters. For lakes and reservoirs not designated as trout waters, the turbidity shall not exceed 25 NTUs. If the turbidity exceeds these levels due to natural background conditions, the existing turbidity level shall not be increased.

If during any operating day, the downstream water quality exceeds the standard, the Design-Build Team shall do all of the following:

(A) Either cease discharge or modify the discharge volume or turbidity levels to bring the downstream turbidity levels into compliance, or

(B) Evaluate the upstream conditions to determine if the exceedance of the standard is due to natural background conditions. If the background turbidity measurements exceed the standard, operation of the pit and discharge can continue as long as the stream turbidity levels are not increased due to the discharge.

(C) Measure and record the turbidity test results (time, date and sampler) at all defined sampling locations 30 minutes after startup and at a minimum, one additional sampling of all sampling locations during that 24-hour period in which the borrow pit is discharging.

(D) Notify DWQ within 24 hours of any stream turbidity standard exceedances that are not brought into compliance.

During the Environmental Assessment required by Article 230-4 of the 2012 *Standard Specifications for Roads and Structures*, the Design-Build Team shall define the point at which the discharge enters into the State's surface waters and the appropriate sampling locations. Sampling locations shall include points upstream and downstream from the point at which the discharge enters these waters. Upstream sampling location shall be located so that it is not influenced by backwater conditions and represents natural background conditions. Downstream sampling location shall be located at the point where complete mixing of the discharge and receiving water has occurred.

The discharge shall be closely monitored when water from the dewatering activities is introduced into jurisdictional wetlands. Any time visible sedimentation (deposition of sediment) on the wetland surface is observed, the dewatering activity will be suspended until turbidity levels in the stilling basin can be reduced to a level where sediment deposition does not occur. Staining of wetland surfaces from suspended clay particles, occurring after evaporation or infiltration, does not constitute sedimentation. No activities shall occur in wetlands that adversely affect the functioning of a wetland. Visible sedimentation will be considered an indication of possible adverse impacts on wetland use.

The Engineer will perform independent turbidity tests on a random basis. These results will be maintained in a log within the project records. Records will include, at a minimum, turbidity test results, time, date and name of sampler. Should the Department's test results exceed those of the Design-Build Team's test results, an immediate test shall be performed jointly with the results superseding the previous test results of both the Department and the Design-Build Team.

To plan, design, construct, and maintain BMPs to address water quality standards, the Design-Build Team shall use the *NCDOT Turbidity Reduction Options for Borrow Pits Matrix,* available at the website noted below:

http://www.ncdot.gov/doh/operations/dp_chief_eng/roadside/fieldops/downloads/Files/TurbidityReductionOptionSheet.pdf

Tier I Methods include stilling basins which are standard compensatory BMPs. Other Tier I methods are noncompensatory and shall be used when needed to meet the stream turbidity standards. Tier II Methods are also noncompensatory and are options that may be needed for protection of rare or unique resources or where special environmental conditions exist at the site which have led to additional requirements being placed in the DWQ's 401 Certifications and approval letters, Isolated Wetland Permits, Riparian Buffer Authorization or a DOT Reclamation Plan's Environmental Assessment for the specific site. Should the Design-Build Team exhaust all Tier I Methods on a site exclusive of rare or unique resources or special environmental

conditions, Tier II Methods may be required by regulators on a case by case basis per supplemental agreement.

The Design-Build Team may use cation exchange capacity (CEC) values from proposed site borings to plan and develop the Price Proposal for the project. CEC values exceeding 15 milliequivalents per 100 grams of soil may indicate a high potential for turbidity and should be avoided when dewatering into surface water is proposed.

No additional compensation for monitoring borrow pit discharge will be paid.

CLEARING AND GRUBBING

(9-1-11) DB2 R01

With the exception of areas with Permanent Utility Easements, perform clearing on this project to the limits established by Method "III" shown on Standard No. 200.03 of the 2012 *NCDOT Roadway Standard Drawings*. In areas with Permanent Utility Easements, clearing shall extend to the Right of Way limits.

BURNING RESTRICTIONS

(7-1-95) DB2 R05

Open burning is not permitted on any portion of the right of way limits established for this project. The Design-Build Team shall not burn the clearing, grubbing or demolition debris designated for disposal and generated from the project at locations within the project limits, off the project limits or at any waste or borrow sites in New Hanover County. The Design-Build Team shall dispose of the clearing, grubbing and demolition debris by means other than burning and in accordance with state and local rules and regulations.

PIPE INSTALLATION

09/28/12 300 DB3 R01

Revise the 2012 *Standard Specifications for Roads and Structures* as follows:

Page 3-1, Article 300-2, Materials, line 23-24, replace sentence with:

Provide foundation conditioning geotextile in accordance with Section 1056 for Type 4 geotextile.

DRAINAGE PIPE

(9-1-11) DB3 R36

Description

Where shown in the plans developed by the Design-Build Team, the Contractor shall use Reinforced Concrete Pipe, Corrugated Aluminum Alloy Pipe, Aluminized Corrugated Steel Pipe, Corrugated Polyethylene Pipe (HDPE Pipe) or Polyvinyl-Chloride Pipe (PVC Pipe) in accordance with the following requirements:

All pipe types are subject to the maximum and minimum fill height requirements as found on Roadway Standard Drawing 300.01 - Sheet 3 of 3. The appropriate Reinforced Concrete Pipe class and the appropriate gage thickness for Corrugated Aluminum Alloy Pipe and Aluminized Corrugated Steel Pipe shall be selected based on fill height.

Site specific conditions may limit a particular material beyond what is identified in this Special Provision. These conditions include, but are not limited to, abrasion, environmental, soil resistivity and pH, high ground water and special loading conditions. The Design-Build Team shall determine if additional restrictions are necessary.

Slope drains shall be Corrugated Aluminum Alloy Pipe, Corrugated Polyethylene Pipe (HDPE Pipe) or Polyvinyl-Chloride Pipe (PVC Pipe).

Transverse median drains, storm drainage system pipes and open-ended cross drains shall be Reinforced Concrete Pipe unless the pipe slope is greater than 10%, in which case the pipe shall be Corrugated Aluminum Alloy Pipe.

PRICE ADJUSTMENTS FOR ASPHALT BINDER

(9-1-11) DB6 R25

Price adjustments for asphalt binder for plant mix will be made in accordance with Section 620 of the 2012 *Standard Specifications for Roads and Structures.*

When it is determined that the monthly selling price of asphalt binder on the first business day of the calendar month during which the last day of the partial payment period occurs varies either upward or downward from the Base Price Index, the partial payment for that period will be adjusted. The partial payment will be adjusted by adding the difference (+ or -) of the base price index subtracted from the monthly selling price multiplied by the total theoretical quantity of asphalt binder authorized for use in the plant mix placed during the partial payment period involved.

The base price index for asphalt binder for plant mix is **$ 569.38** per ton.

This base price index represents an average of F.O.B. selling prices of asphalt binder at supplier's terminals on November 1, 2013.

PRICE ADJUSTMENTS - ASPHALT CONCRETE PLANT MIX

(9-1-11) (Rev. 3-13-13) DB6 R26

Revise the 2012 *Standard Specifications for Roads and Structures* as follows:

Page 6-18, Article 609-11 and Page 6-35, Article 610-14

Add the following paragraph before the first paragraph:

The "Asphalt Price" used to calculate any price adjustments set forth in this section shall be $40 per theoretical ton. This price shall apply for all mix types.

FOUNDATIONS AND ANCHOR ROD ASSEMBLIES FOR METAL POLES

3/26/13 DB9 R05

Description

Foundations for metal poles include foundations for signals, cameras, overhead and dynamic message signs (DMS) and high mount and low level light standards supported by metal poles or upright trusses. Foundations consist of footings with pedestals and drilled piers with or without grade beams or wings. Anchor rod assemblies consist of anchor rods (also called anchor bolts) with nuts and washers on the exposed ends of rods and nuts and a plate or washers on the other ends of rods embedded in the foundation.

Construct concrete foundations with the required resistances and dimensions and install anchor rod assemblies in accordance with the contract and accepted submittals. Construct drilled piers consisting of cast-in-place reinforced concrete cylindrical sections in excavated holes. Provide temporary casings or polymer slurry as needed to stabilize drilled pier excavations. Use a prequalified Drilled Pier Contractor to construct drilled piers for metal poles. Define "excavation" and "hole" as a drilled pier excavation and "pier" as a drilled pier.

This provision does not apply to materials and anchor rod assemblies for standard foundations for low level light standards. See Section 1405 of the 2012 *Standard Specifications for Roads and Structures* and *Roadway Standard Drawings* No. 1405.01 for materials and anchor rod assemblies for standard foundations. For construction of standard foundations for low level light standards, standard foundations are considered footings in this provision. This provision does not apply to foundations for signal pedestals; see Section 1743 of the 2012 *Standard Specifications for Roads and Structures* and *Roadway Standard Drawings* No. 1743.01.

Materials

Refer to the 2012 *Standard Specifications for Roads and Structures.*

Item	Section
Conduit	1091-3
Grout, Nonshrink	1003
Polymer Slurry	411-2(B)
Portland Cement Concrete	1000
Reinforcing Steel	1070
Rollers and Chairs	411-2(C)
Temporary Casings	411-2(A)

Provide Type 3 material certifications in accordance with Article 106-3 of the 2012 *Standard Specifications for Roads and Structures* for conduit, rollers, chairs and anchor rod assemblies. Store steel materials on blocking at least 12" above the ground and protect it at all times from damage; and when placing in the work make sure it is free from dirt, dust, loose mill scale, loose rust, paint, oil or other foreign materials. Load, transport, unload and store foundation and anchor rod assembly materials so materials are kept clean and free of damage. Bent, damaged or defective materials will be rejected.

Use conduit type in accordance with the contract. Use Class A concrete for footings and pedestals, Class Drilled Pier concrete for drilled piers and Class AA concrete for grade beams and wings including portions of drilled piers above bottom of wings elevations. Corrugated temporary casings may be accepted at the discretion of the Engineer. A list of approved polymer slurry products is available from:

connect.ncdot.gov/resources/Geological/Pages/Products.aspx

Provide anchor rod assemblies in accordance with the contract consisting of the following:

(A) Straight anchor rods,

(B) Heavy hex top and leveling nuts and flat washers on exposed ends of rods, and

(C) Nuts and either flat plates or washers on the other ends of anchor rods embedded in foundations.

Do not use lock washers. Use steel anchor rods, nuts and washers that meet ASTM F1554 for Grade 55 rods and Grade A nuts. Use steel plates and washers embedded in concrete with a nominal thickness of at least 1/4". Galvanize anchor rods and exposed nuts and washers in accordance with Article 1076-4 of the 2012 *Standard Specifications for Roads and Structures*. It is not necessary to galvanize nuts, plates and washers embedded in concrete.

Construction Methods

Install the required size and number of conduits in foundations in accordance with the accepted plans developed by the Design-Build Team and accepted submittals. Construct top of piers, footings, pedestals, grade beams and wings flat, level and within 1" of elevations shown in the accepted plans or approved by the Engineer. Provide an Ordinary Surface finish in accordance with Subarticle 825-6(B) of the 2012 *Standard Specifications for Roads and Structures* for portions of foundations exposed above finished grade. Do not remove anchor bolt templates or pedestal or grade beam forms or erect metal poles or upright trusses onto foundations until concrete attains a compressive strength of at least 3,000 psi.

(A) Drilled Piers

Before starting drilled pier construction, hold a predrill meeting to discuss the installation, monitoring and inspection of the drilled piers. Schedule this meeting after the Drilled Pier Contractor has mobilized to the site. The Resident or Division Traffic Engineer, Contractor and Drilled Pier Contractor Superintendent will attend this predrill meeting.

Do not excavate holes, install piles or allow equipment wheel loads or vibrations within 20 ft of completed piers until 16 hours after Drilled Pier concrete reaches initial set.

Check for correct drilled pier alignment and location before beginning drilling. Check plumbness of holes frequently during drilling.

Construct drilled piers with the minimum required diameters shown in the accepted plans developed by the Design-Build Team. Install piers with tip elevations no higher than shown in the plans or approved by the Engineer.

Excavate holes with equipment of the sizes required to construct drilled piers. Depending on the subsurface conditions encountered, drilling through rock and boulders may be required. Do not use blasting for drilled pier excavations.

Contain and dispose of drilling spoils and waste concrete as directed and in accordance with Section 802 of the 2012 *Standard Specifications for Roads and Structures*. Drilling spoils consist of all materials and fluids removed from excavations.

If unstable, caving or sloughing materials are anticipated or encountered, stabilize holes with temporary casings and/or polymer slurry. Do not use telescoping temporary casings. If it becomes necessary to replace a temporary casing during drilling, backfill the excavation, insert a larger casing around the casing to be replaced or stabilize the excavation with polymer slurry before removing the temporary casing.

If temporary casings become stuck or the Design-Build Team proposes leaving casings in place, temporary casings should be installed against undisturbed material. Unless otherwise approved, do not leave temporary casings in place for mast arm poles and cantilever signs. The Engineer will determine if casings may remain in place. If the Design-Build Team proposes leaving temporary casings in place, do not begin drilling until a casing installation method is approved.

Use polymer slurry and additives to stabilize holes in accordance with the slurry manufacturer's recommendations. Provide mixing water and equipment suitable for polymer slurry. Maintain polymer slurry at all times so slurry meets Table 411-3 of the 2012 *Standard Specifications for Roads and Structures* except for sand content.

Define a "sample set" as slurry samples collected from mid-height and within 2 feet of the bottom of holes. Take sample sets from excavations to test polymer slurry immediately after filling holes with slurry, at least every 4 hours thereafter and immediately before placing concrete. Do not place Drilled Pier concrete until both slurry samples from an excavation meet the required polymer slurry properties. If any slurry test results do not meet the requirements, the Engineer may suspend drilling until both samples from a sample set meet the required slurry properties.

Remove soft and loose material from bottom of holes using augers to the satisfaction of the Engineer. Assemble rebar cages and place cages and Drilled Pier concrete in accordance with Subarticle 411-4(E) except for the following:

(1) Inspections for tip resistance and bottom cleanliness are not required,

(2) Temporary casings may remain in place if approved, and

(3) Concrete placement may be paused near the top of pier elevations for anchor rod

assembly installation and conduit placement or

(4) If applicable, concrete placement may be stopped at bottom of grade beam or wings elevations for grade beam or wing construction.

If wet placement of concrete is anticipated or encountered, do not place Drilled Pier concrete until a concrete placement procedure is approved. If applicable, temporary casings and fluids may be removed when concrete placement is paused or stopped in accordance with the exceptions above provided holes are stable. Remove contaminated concrete from exposed Drilled Pier concrete after removing casings and fluids. If holes are unstable, do not remove temporary casings until a procedure for placing anchor rod assemblies and conduit or constructing grade beams or wings is approved.

Use collars to extend drilled piers above finished grade. Remove collars after Drilled Pier concrete sets and round top edges of piers.

If drilled piers are questionable, pile integrity testing (PIT) and further investigation may be required in accordance with Article 411-5 of the 2012 *Standard Specifications for Roads and Structures*. A drilled pier will be considered defective in accordance with Subarticle 411-5(D) of the 2012 *Standard Specifications for Roads and Structures* and drilled pier acceptance is based in part on the criteria in Article 411-6 of the 2012 *Standard Specifications for Roads and Structures* except for the top of pier tolerances in Subarticle 411-6(C).

If a drilled pier is under further investigation, do not grout core holes, backfill around the pier or perform any work on the drilled pier until the Engineer accepts the pier. If the drilled pier is accepted, dewater and grout core holes and backfill around the pier with approved material to finished grade. If the Engineer determines a pier is unacceptable, remediation is required in accordance with Article 411-6 of the 2012 *Standard Specifications for Roads and Structures*. No extension of completion date or time will be allowed for remediation of unacceptable drilled piers or post repair testing.

Permanently embed a plate in or mark top of piers with the pier diameter and depth, size and number of vertical reinforcing bars and the minimum compressive strength of the concrete mix at 28 days.

(B) Footings, Pedestals, Grade Beams and Wings

Excavate as necessary for footings, grade beams and wings in accordance with the plans, accepted submittals and Section 410 of the 2012 *Standard Specifications for Roads and Structures*. If unstable, caving or sloughing materials are anticipated or encountered, shore foundation excavations as needed with an approved method. Notify the Engineer when foundation excavation is complete. Do not place concrete or reinforcing steel until excavation dimensions and foundation material are approved.

Construct cast-in-place reinforced concrete footings, pedestals, grade beams and wings with the dimensions shown in the plans and in accordance with Section 825 of the 2012

Standard Specifications for Roads and Structures. Use forms to construct portions of pedestals and grade beams protruding above finished grade. Provide a chamfer with a 3/4" horizontal width for pedestal and grade beam edges exposed above finished grade. Backfill and fill in accordance with Article 410-8 of the 2012 *Standard Specifications for Roads and Structures*. Proper compaction around footings and wings is critical for foundations to resist uplift and torsion forces. Place concrete against undisturbed soil and do not use forms for standard foundations for low level light standards.

(C) Anchor Rod Assemblies

Size anchor rods for design and the required projection above top of foundations. Determine required anchor rod projections from nut, washer and base plate thicknesses and the following:

(1) Protrusion of 3 to 5 anchor rod threads above top nuts after tightening and

(2) Distance of one nut thickness between top of foundations and bottom of leveling nuts.

Protect anchor rod threads from damage during storage and installation of anchor rod assemblies. Before placing anchor rods in foundations, turn nuts onto and off rods past leveling nut locations. Turn nuts with the effort of one workman using an ordinary wrench without a cheater bar. Report any thread damage to the Engineer that requires extra effort to turn nuts.

Arrange anchor rods symmetrically about center of base plate locations as shown in the plans. Set anchor rod elevations based on required projections above top of foundations. Securely brace and hold rods in the correct position, orientation and alignment with a steel template. Do not weld to reinforcing steel, temporary casings or anchor rods.

Install top and leveling (bottom) nuts, washers and the base plate for each anchor rod assembly in accordance with the following procedure:

(1) Turn leveling nuts onto anchor rods to a distance of one nut thickness between the top of foundation and bottom of leveling nuts. Place washers over anchor rods on top of leveling nuts.

(2) Determine if nuts are level using a flat rigid template on top of washers. If necessary, lower leveling nuts to level the template in all directions or if applicable, lower nuts to tilt the template so the metal pole or upright truss will lean as shown in the plans. If leveling nuts and washers are not in full contact with the template, replace washers with galvanized beveled washers.

(3) Verify the distance between the foundation and leveling nuts is no more than one nut thickness.

(4) Place base plate with metal pole or upright truss over anchor rods on top of washers. High mount luminaires may be attached before erecting metal poles but

do not attach cables, mast arms or trusses to metal poles or upright trusses at this time.

(5) Place washers over anchor rods on top of base plate. Lubricate top nut bearing surfaces and exposed anchor rod threads above washers with beeswax, paraffin or other approved lubricants.

(6) Turn top nuts onto anchor rods. If nuts are not in full contact with washers or washers are not in full contact with the base plate, replace washers with galvanized beveled washers.

(7) Tighten top nuts to snug-tight with the full effort of one workman using a 12" wrench. Do not tighten any nut all at once. Turn top nuts in increments. Follow a star pattern cycling through each nut at least twice.

(8) Repeat (7) for leveling nuts.

(9) Replace washers above and below the base plate with galvanized beveled washers if the slope of any base plate face exceeds 1:20 (5%), any washer is not in firm contact with the base plate or any nut is not in firm contact with a washer. If any washers are replaced, repeat (7) and (8).

(10) With top and leveling nuts snug-tight, mark each top nut on a corner at the intersection of 2 flats and a corresponding reference mark on the base plate. Mark top nuts and base plate with ink or paint that is not water-soluble. Use the turn-of-nut method for pretensioning. Do not pretension any nut all at once. Turn top nuts in increments for a total turn that meets the following nut rotation requirements:

NUT ROTATION REQUIREMENTS (Turn-of-Nut Pretensioning Method)	
Anchor Rod Diameter, inch	**Requirement**
≤ 1 1/2	1/3 turn (2 flats)
> 1 1/2	1/6 turn (1 flat)

Follow a star pattern cycling through each nut at least twice.

(11) Ensure nuts, washers and base plates are in firm contact with each other for each anchor rod. Cables, mast arms and trusses may now be attached to metal poles and upright trusses.

(12) Between 4 and 14 days after pretensioning top nuts, use a torque wrench calibrated within the last 12 months to check nuts in the presence of the Engineer. Completely erect mast arm poles and cantilever signs and attach any hardware before checking top nuts for these structures. Check that top nuts meet the following torque requirements:

TORQUE REQUIREMENTS	
Anchor Rod Diameter, inch	**Requirement, ft-lb**
7/8	180
1	270
1 1/8	380
1 1/4	420
≥ 1 1/2	600

If necessary, retighten top nuts in the presence of the Engineer with a calibrated torque wrench to within ± 10 ft-lb of the required torque. Do not overtighten top nuts.

(13) Do not grout under base plate.

OVERHEAD SIGN SUPPORTS

(8-27-12) DB11 R012

Description

Design, fabricate, furnish and erect various types of overhead sign assemblies. Fabricate supporting structures using tubular members of either aluminum or steel. The types of overhead sign assemblies included in this specification are span structures and cantilever structures.

Materials

Structural Steel.....Section 1072
Overhead Sign Structures.....Section 1096
Signing Materials.....Section 1092
Organic Zinc Repair Paint .....Article 1080-9
Reinforcing Steel .....Section 1070
Direct Tension Indicators..... Sections 440 and 1072

Construction Methods

A. General

Fabricate overhead sign assemblies in accordance with the details shown in the approved working drawings and the requirements of these specifications.

No welding, cutting or drilling will be permitted in the field, unless approved by the Engineer.

Drill bolt holes and slots to finished size. Holes may also be punched to finished size, provided the diameter of the punched holes is at least twice the thickness of the metal being punched. Flame cutting of bolt holes and slots is not permitted.

Erect sign panels in accordance with the requirements for Type A or B signs as indicated in the plans or Roadway Standard Drawings. Field drill two holes per connection in the Z bars for attaching signs to overhead structures. Provide two U-bolts at each U-bolt connection such as each truss chord to sign hanger and each truss chord to walkway support or light support. Provide two U-bolts at each U-bolt connection where ends of truss chords are supported. The minimum diameter of all U-bolts is ½ inch.

For all U-bolt connections of hanger beams to overhead assembly truss chords, provide all U-bolts with a flat washer and double nuts at each end of the U-bolts. All double nuts that are on any U-bolt shall be the same thickness and weight. When assembled, the double nuts shall be brought tight against each other by the use of two wrenches.

Use two coats of a zinc-rich paint to touch up minor scars on all galvanized materials.

For high strength bolted connections, use direct tension indicators. Galvanize bolts, nuts and washers in accordance with the 2012 *Standard Specifications for Roads and Structures.*

B. Shop Drawings

Design the overhead sign supports, including foundations, prior to fabrication. Submit design calculations and working drawings of the designs to the Engineer for review and acceptance.

Have a professional engineer registered in the State of North Carolina perform the computations and render a set of sealed, signed and dated drawings detailing the construction of each structure.

Submit to the Engineer for review and acceptance complete design and fabrication details for each overhead sign assembly, including foundations and brackets for supporting the signs, and maintenance walkways, if applicable, electrical control boxes, and lighting luminaires. Base design upon the revised structure line drawings, wind load area and the wind speed shown in the plans, and in accordance with the 2009 AASHTO *Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, 5th Edition*, and the 2010 and 2011 Interim Revisions.

Submit thirteen (13) copies of completely detailed working drawings and one copy of the design calculations including all design assumptions for each overhead sign assembly to the Engineer for approval prior to fabrication. Working drawings shall include complete design and fabrication details (including foundations); provisions for attaching signs, maintenance walkways (when applicable), lighting luminaires to supporting structures, applicable material specifications, and any other information necessary for procuring and replacing any part of the complete overhead sign assembly.

Allow 15 days for initial working drawing review after the Engineer receives them. If revisions to working drawings are required, an additional 15 days shall be required for review and approval of the final working drawings.

Approval of working drawings by the Engineer shall not relieve the Design-Build Team of responsibility for the correctness of the drawings, or for the fit of all shop and field connections and anchors.

C. Design and Fabrication

The following criteria govern the design of overhead sign assemblies:

Design shall be in accordance with the 2009 AASHTO *Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, 5th Edition*, and the 2010 and 2011 Interim Revisions.

Within this Specification, there are several design criteria that are owner specified. They include:

- Overhead cantilever sign structures shall include galloping loads (exclude four-chord horizontal trusses).
- The natural wind gust speed in North Carolina shall be assumed to be 11.6 mph.
- The fatigue importance category used in the design, for each type of structure, shall be for:
    - Cantilever structures with span greater than 50 feet – Fatigue Category I
    - Cantilever structures with span less than or equal to 50 feet – Fatigue Category II
    - Non-cantilever structures – Fatigue Category II

The following Specification interpretations or criteria shall be used in the design of overhead sign assemblies:

- For design of supporting upright posts or columns, the effective length factor for columns "K", as provided for in Appendix B, Section B.5, shall be taken as the following, unless otherwise approved by the Engineer:

  Case 1 For a single upright post of cantilever or span type overhead sign structure, the effective column length factor, "K", shall be taken as 2.0.

Case 2 For twin post truss-type upright post with the post connected to one chord of a horizontal truss, the effective column length factor for that column shall be taken as 2.0.

Case 3 For twin post truss-type upright post with the post connected to two truss chords of a horizontal tri-chord or box truss, the effective column length factor for that column shall be taken as 1.65

- For twin post truss-type uprights, the unbraced length of the post shall be from the chord to post connection to the top of base plate.

For twin post truss-type uprights, when the post is subject to axial compression, bending moment, shear, and torsion the post shall satisfy the 2009 AASHTO *Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, 5th Edition*, and the 2010 and 2011 Interim Revisions Equations 5-17, 5-18 and 5-19. To reduce the effects of secondary bending, in lieu of Equation 5-18, the following equation may be used:

$$\frac{f_a}{F_a} + \frac{f_b}{\left(1 - \frac{0.6\, f_a}{F_{é}}\right) F_b} + \left(\frac{f_v}{F_v}\right)^2 \leq 1.0$$

Where fa = Computed axial compression stress at base of post

- The base plate thickness for all uprights and poles shall be a minimum of 2" but not less than that determined by the following criteria and design.

Case 1 Circular or rectangular solid base plates with the upright pole welded to the top surface of base plate with full penetration butt weld, and where no stiffeners are provided. A base plate with a small center hole, which is less than 1/5 of the upright diameter, and located concentrically with the upright pole, may be considered as a solid base plate.

The magnitude of bending moment in the base plate, induced by the anchoring force of each anchor bolt shall be calculated as $M = (P \times D_1) / 2$.

Case 2 Circular or rectangular base plate with the upright pole socketed into and attached to the base plate with two lines of fillet weld, and where no stiffeners are provided, or any base plate with a center hole that is larger in diameter than 1/5 of the upright diameter

The magnitude of bending moment induced by the anchoring force of each anchor bolt shall be calculated as $M = P \times D_2$.

- M - bending moment at the critical section of the base plate induced by one anchor bolt
- P - anchoring force of each anchor bolt
- D_1 - horizontal distance between the center of the anchor bolt and the outer face of the upright, or the difference between the radius of the bolt circle and the outside radius of the upright
- D_2 - horizontal distance between the face of the upright and the face of the anchor bolt nut

- The critical section shall be located at the face of the anchor bolt and perpendicular to the radius of the bolt circle. The overlapped part of two adjacent critical sections shall be considered ineffective.

- The thickness of Case 1 base plate shall not be less than that calculated based on formula for Case 2.

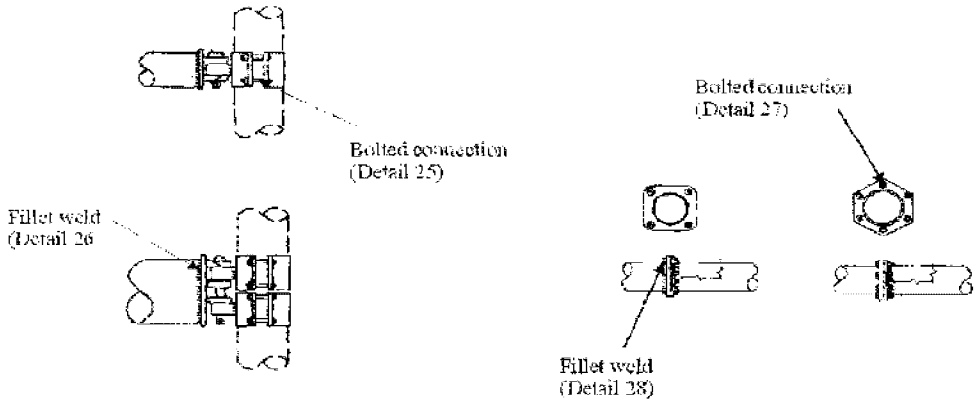
- Uprights, foundations, and trusses that support overhead signs shall be designed in accordance with the Overhead and Dynamic Message Sign Foundations Project Special Provision for the effects of torsion. Torsion shall be considered from dead load eccentricity of these attachments, as well as for attachments such as walkways, supporting brackets, lights, etc., that add to the torsion in the assembly. Truss vertical and horizontal truss diagonals in particular and any other assembly members shall be appropriately sized for these loads.

- Uprights, foundations, and trusses that support overhead mounted signs shall be designed for the proposed sign wind area and future wind areas. The design shall consider the effect of torsion induced by the eccentric force location of the center of wind force above (or below) the center of the supporting truss. Truss vertical and horizontal truss diagonals in particular and any other assembly members shall be appropriately sized for these loads.

For non-cantilevered monotube sign support structures, the following table and figures are considered as a required addition to the 2009 AASHTO *Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, 5th Edition*, and the 2010 and 2011 Interim Revisions:

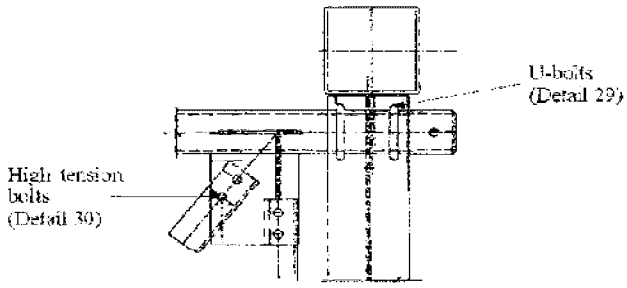
Construction	Detail	Stress Category	Application	Example
Mechanically Fastened Connections	25. Bolts in Tension	D	Beam column connection for monotube structures	16
Fillet Weld Connections	26. Fillet welded with one side normal to applied stress	E’	Beam column connection for monotube structures	17
Mechanically Fastened Connections	27. High strength bolts in tension	D	Monotube or truss-chord splice	17
Fillet Weld Connections	28. Fillet welded with one side normal to applied stress	E’	Monotube or truss-chord splice	17
Mechanically Fastened Connections	29. U-bolts tied to transverse truss column to keep chords in place	D	Horizontal truss connection with vertical truss	18
Mechanically Fastened Connections	30. Net section of full-tightened, high tension bolts in shear	B	Truss bolted joint	18

Add to the Specifications, Figure 11-1:



Beam-Column Connection for monotube structure
Example 16

Monotube beam splice
Example 17



Beam-Column Connection for Truss Structure
Example 18

Fabricate all overhead sign assemblies, including but not limited to foundations, in accordance with the details shown on the approved shop drawings and with the requirements of these Specifications.

Fabricate the span and cantilever supporting structures using tubular members of either aluminum or steel, using only one type of material throughout the project.

Horizontal components of the supporting structures for overhead signs may be of a truss design or a design using singular (monotube) horizontal members to support the sign panels.

Truss or singular member centerline must coincide with the centerline of sign design area shown on the structure line drawing.

Provide permanent camber in addition to dead load camber in accordance with the 2009 AASHTO *Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, 5th Edition*, and the 2010 and 2011 Interim Revisions.

Indicate on the shop drawings the amount of camber provided and the method employed in the fabrication of the support to obtain the camber.

Use cantilever sign structures that meet the following design criteria:

a. Do not exceed an L / 150 vertical dead load deflection at the end of the arm due to distortions in the arm and vertical support, where L is the length of the arm from the center of the vertical support to the outer edge of the sign.

b. Do not exceed an L / 40 horizontal deflection at the end of the arm due to distortions in the arm and vertical support, as a result of design wind load.

Fabricate attachment assemblies for mounting signs in a manner that allows easy removal of sign panels for repair.

OVERHEAD AND DYNAMIC MESSAGE SIGN FOUNDATIONS

(9-1-11) DB11 R013

Description

Sign foundations include foundations for overhead and dynamic message signs (DMS) supported by metal poles or upright trusses. Sign foundations consist of footings with pedestals or drilled piers with or without grade beams or wings, conduit and anchor rod assemblies. Construct sign foundations in accordance with the contract and accepted submittals. Define "cantilever sign" as an overhead cantilever sign support in accordance with Figure 1-1 of the AASHTO 2009 *Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals*, 5th Edition, with the 2010 and 2011 Interim Revisions.

Materials

Use sign foundation materials that meet the *Foundations and Anchor Rod Assemblies for Metal Poles* provision.

Assumed Subsurface Conditions

Assume the following soil parameters and groundwater elevation for sign foundations unless these subsurface conditions are not applicable to sign locations:

(D) Unit weight = 120 lb/cf,

(E) Friction angle = 30 degrees,

(F) Cohesion = 0 lb/sf, and

(G) Groundwater 7 feet below finished grade.

A subsurface investigation is required if the Engineer determines these assumed subsurface

conditions do not apply to a sign location and the sign cannot be moved. Subsurface conditions requiring a subsurface investigation include but are not limited to weathered or hard rock, boulders, very soft or loose soil, muck or shallow groundwater. No extension of completion date or time will be allowed for subsurface investigations.

Subsurface Investigations

Use a prequalified geotechnical consultant to perform one standard penetration test (SPT) boring in accordance with ASTM D1586 at each sign location requiring a subsurface investigation. Rough grade sign locations to within 2 feet of finished grade before beginning drilling. Drill borings to 2 drilled pier diameters below anticipated pier tip elevations or refusal, whichever is higher.

Use the computer software gINT version 8.0 or later manufactured by Bentley Systems, Inc. with the current NCDOT gINT library and data template to produce SPT boring logs. Provide boring logs sealed by a geologist or engineer licensed in the state of North Carolina.

Sign Foundation Designs

Design sign foundations for the appropriate wind zone and the clearances shown in the plans developed by the Design-Build Team and the slope of finished grade at each sign location. Use the assumed soil parameters and groundwater elevation above for sign foundation designs unless a subsurface investigation is performed or required by the Engineer. For sign locations requiring a subsurface investigation, design sign foundations for the subsurface conditions at each sign location. Design footings, pedestals, drilled piers, grade beams and wings in accordance with the AASHTO 2009 *Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals*, 5th Edition, with the 2010 and 2011 Interim Revisions. In some instances, conflicts with drainage structures may dictate sign foundation types.

Design footings in accordance with Section 4.4 of the AASHTO *Standard Specifications for Highway Bridges*. Do not use an allowable bearing pressure of more than 3,000 lb/sf for footings.

Design drilled piers for side resistance only in accordance with Section 4.6 of the AASHTO *Standard Specifications for Highway Bridges* except reduce ultimate side resistance by 25% for uplift. Use the computer software LPILE version 5.0 or later manufactured by Ensoft, Inc. to analyze drilled piers. Provide drilled pier designs with a horizontal deflection of less than 1" at top of piers. For cantilever signs with single drilled pier foundations supporting metal poles, use wings to resist torsion forces. Provide drilled pier designs with a factor of safety of at least 2.0 for torsion.

For drilled pier sign foundations supporting upright trusses, use dual drilled piers connected with a grade beam having a moment of inertia approximately equal to that of either pier. The Broms' method is acceptable to analyze drilled piers with grade beams instead of LPILE. Use a safety factor of at least 3.5 for the Broms' design method in accordance with C13.6.1.1 of the AASHTO 2009 *Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals*, 5th Edition, with the 2010 and 2011 Interim Revisions.

Submit boring logs, if any, working drawings and design calculations for acceptance in accordance with Article 105-2 of the *Standard Specifications*. Submit working drawings showing plan views, required foundation dimensions and elevations and typical sections with reinforcement, conduit and anchor rod assembly details. Include all boring logs, design calculations and LPILE output for sign foundation design submittals. Have sign foundations designed, detailed and sealed by an engineer licensed in the state of North Carolina.

Construction Methods

Construct footings, pedestals, drilled piers, grade beams and wings and install anchor rod assemblies for sign foundations in accordance with the *Foundations and Anchor Rod Assemblies for Metal Poles* provision.

HIGH MOUNT FOUNDATIONS

(9-1-11) DB11 R014

Description

High mount foundations for high mount standards consist of drilled piers or footings with pedestals, conduit and anchor rod assemblies. Construct high mount foundations in accordance with the contract and either *Roadway Standard Drawings* No. 1402.01 or the accepted submittals. Define "high mount standard foundation" as a drilled pier including the conduit and anchor rod assembly that meets Standard Drawing No. 1402.01.

Materials

Use high mount foundation materials that meet the *Foundations and Anchor Rod Assemblies for Metal Poles* provision.

High Mount Standard Foundations

Construct high mount standard foundations for the appropriate wind zone and high mount heights shown in the accepted plans developed by the Design-Build Team unless the following assumed site conditions are not applicable to high mount locations:

(H) Soil with unit weight (γ) $\geq$ 120 lb/cf and friction angle (ϕ) $\geq$ 30°,

(I) Groundwater at least 7 feet below finished grade, and

(J) Slope of finished grade 6:1 (H:V) or flatter.

A subsurface investigation and high mount foundation design are required if the Engineer determines these assumed site conditions do not apply to a high mount location and the high mount cannot be moved. Subsurface conditions requiring a high mount foundation design include but are not limited to weathered or hard rock, boulders, very soft or loose soil, muck or shallow groundwater. No extension of completion date or time will be allowed for subsurface investigations or high mount foundation designs.

Subsurface Investigations

Use a prequalified geotechnical consultant to perform one standard penetration test (SPT) boring in accordance with ASTM D1586 at each high mount location requiring a subsurface investigation. Rough grade high mount locations to within 2 feet of finished grade before beginning drilling. Drill borings to 2 drilled pier diameters below anticipated pier tip elevations or refusal, whichever is higher.

Use the computer software gINT version 8.0 or later manufactured by Bentley Systems, Inc. with the current NCDOT gINT library and data template to produce SPT boring logs. Provide boring logs sealed by a geologist or engineer licensed in the state of North Carolina.

High Mount Foundation Designs

Design high mount foundations for the wind zone and high mount heights shown in the accepted plans developed by the Design-Build Team and the slope of finished grade and subsurface conditions at each high mount location. Design drilled piers, footings and pedestals in accordance with the 4th Edition of the AASHTO 2009 *Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals*, 5th Edition, with the 2010 and 2011 Interim Revisions.

Design drilled piers for side resistance only in accordance with Section 4.6 of the *AASHTO Standard Specifications for Highway Bridges*. Use the computer software LPILE version 5.0 or later manufactured by Ensoft, Inc. to analyze drilled piers. Provide drilled pier designs with a horizontal deflection of less than 0.5" at top of piers.

Design footings in accordance with Section 4.4 of the *AASHTO Standard Specifications for Highway Bridges.* Do not use an allowable bearing pressure of more than 3,000 lb/sf for footings.

Submit boring logs, working drawings and design calculations for acceptance in accordance with Article 105-2 of the 2012 *Standard Specifications for Roads and Structures*. Submit working drawings showing plan views, required foundation dimensions and elevations and typical sections with reinforcement, conduit and anchor rod assembly details. Include all boring logs, design calculations and LPILE output for high mount foundation design submittals. Have high mount foundations designed, detailed and sealed by an engineer licensed in the state of North Carolina.

Construction Methods

Grade a 3-foot diameter level work area around high mount locations with cut and fill slopes as shown on Standard Drawing No. 1402.01. Construct drilled piers, footings and pedestals and install anchor rod assemblies for high mount foundations in accordance with the *Foundations* and Anchor Rod Assemblies for Metal Poles provision.

SONIC CALIPER TESTING

Description

This special provision governs the Sonic Caliper Testing (SCT) of axial load test drilled piers. SCT is to evaluate pier verticality, volume and diameter insitu by profiling the excavated surfaces of drilled piers before reinforcement or concrete placement. The Design-Build Team shall be responsible for obtaining the services of a SCT firm experienced with SCT testing and equipment approved by the Engineer. The Design-Build Team will be responsible for scheduling and coordinating the testing, and presentation of the data to the Engineer.

Preliminary Submittal – As part of the Drilled Pier Construction Sequence

Submit a technical proposal prepared by the SCT firm that addresses the testing procedures and qualifications and experience of the testing firm. Include at least 4 similar deep foundation projects for which the testing organization has been engaged. Use personnel having a minimum of one year of experience in SCT testing and interpretation. Within 30 working days, the Engineer will review the proposal and report to the Design-Build Team whether the SCT testing firm is approved and the proposal is acceptable.

Testing

Test axial load test drilled piers and determine verticality, diameter and volume. Use an approved independent testing firm meeting the requirements above to perform the SCT tests.

Provide the testing firm access to the top of the pier enabling one person to centralize and lower the SCT device into the test pier. Provide a surrounding work area clear and free of debris. Provide such assistance, equipment or necessary materials to the testing agency as required facilitating the SCT process. A 110-volt power source will be required at the test pier location for operation of the testing equipment.

Allow sufficient time for the calipering, which will occur between the completion of excavation and final clean out and the installation of the reinforcing steel cage prior to concreting. (Typically less than 30 minutes)

Perform the SCT testing process on the axial load test pier. Perform the SCT testing process in accordance with generally accepted SCT testing methods. The calipering system should be able to transmit and receive more than 50 data points at each elevation. At a minimum, take caliper readings every five (5) feet in uncased portions, every one (1) foot increments from five (5) feet above and below the bottom of casing, and every 20 feet in the casing.

If a feature, which in the opinion of the Engineer could affect the integrity of the uncased pier, is identified on the real time visual display, the Engineer may reduce the testing interval as necessary to improve the definition of the feature. Provide these additional readings at no additional cost to the department.

Test Reports

Provide real-time data regarding the pier verticality, diameter and volume to the Engineer on site as the SCT testing is in progress. Within one (1) hour after completing the SCT testing, provide a computer file of an analysis of pier verticality, diameter and volume. Within seven (7) working days after completion of each test, provide two (2) copies of a final report to the Engineer, including, as a minimum, the following information:

- Date of test
- Pier No., and Reference Elevation
- A plot of pier volume vs. depth
- Analysis of pier verticality; and
- Description of any pier wall encroachment

Evaluation of SCT Test Results

The Engineer will review the "real-time" data collected by the SCT testing firm during the testing process at each pier. The Engineer will determine if the pier verticality requirements have been met and inform the Design-Build Team. If defects or features noted by the testing firm in the pier excavation are deemed sufficient by the Engineer to potentially cause concrete loss or soil intrusion during concrete placement, or loss of bearing capacity, the Engineer will meet with the Design-Build Team to discuss remediation.

STATIC AXIAL LOAD TEST

Description

The work covered by this provision consists of constructing and performing an Osterberg Cell load test on a non-production drilled pier foundation (1) at the Brunswick River Bridge and (2) at other locations at the Design-Build Team's discretion. Reference Geotechnical Engineering Scope of Work. Furnish all materials and labor necessary to conduct an Osterberg Cell (O-Cell) Load Test and report results. Supply material, labor, and equipment as needed to perform the test. The test drilled pier shall be instrumented by LOADTEST, Inc. (the Osterberg Cell supplier) or others, as approved by the Engineer. The Osterberg Cell load test will be conducted by LOADTEST, Inc. or others, as approved by the Engineer, with the Design-Build Team providing auxiliary equipment and services as needed.

The Design-Build Team shall not construct any production drilled piers until the static axial load test is complete and the drilled pier foundation design is complete and verified.

Criteria

The test pier shall have a minimum diameter no less than 50% smaller than production drilled piers but no less than 4 feet in diameter. The test pier shall be constructed in accordance with Section 411 of the Standard Specifications and shall meet the requirements of the production drilled piers except the pier diameter and length. Test drilled pier construction procedures shall match those proposed for production drilled piers. The test pier shall be tested vertically in

accordance with standard Osterberg Cell load testing procedures and any procedures or requirements as noted within this special provision.
The test pier shall not be load tested until a minimum time period of seven (7) days after completion of the drilled pier construction and the concrete has achieved a minimum compressive strength of 4500 psi.

Load the test pier to a failure unless the rated cell capacity or the full stroke of the cell is achieved. A failure is defined as the measured vertical displacement of the pier tip (bottom) reaches 5% of the test pier diameter or the test pier plunges.

The Design-Build Team shall make all necessary arrangements with the supplier to have the Osterberg Cell load test satisfactorily performed on the test pier according to this provision. The supplier shall also supply to the Design-Build Team technical instruction and guidance in pre-construction activities, and on-site technical assistance and guidance during set up and performance of the test. The Design-Build Team shall closely follow instructions from the supplier, unless otherwise directed by the Engineer.

The test pier shall be instrumented with a minimum of ten (10) levels of waterproof vibrating wire sister bar strain gauges. The bottom level of strain gauges shall be within one (1) pier diameter of the bottom of the test pier. The location of the remaining levels of strain gauges shall be determined after performing an SPT test boring at the load test site. The bottom level of strain gauges shall have a minimum of four (4) individual strain gauges. All other strain gauge levels shall have a minimum of two (2) individual gauges.

The gauges shall be well capsulated, and attached to a sister bar, which can be easily tied to the rebar cage at the approved elevations within the test pier. The sister bars should be attached to the rebar cage in a manner that will prevent damage to the strain gauges during the concrete pour. Enough cable shall be provided to carry the strain data to a data collection device that shall be provided and operated by the Design-Build Team. Strain data shall be collected throughout the load test.

Testing equipment shall be checked before and rechecked after installation. The Design-Build Team shall be responsible for repairing damaged connections prior to testing.

Materials

The Design-Build Team shall supply all materials required to install the Osterberg Cell, conduct the load test, record the test progress and results, and remove the load test apparatus as required.

The Design-Build Team shall furnish at least one (1) Osterberg Cell with a rated total test capacity as shown on the *Static Axial Load Test for Replacement of BR 103 and 105 Over Brunswick River* plan sheet signed and sealed on October 10, 2013, to be supplied by:

LOADTEST, Inc.
2631-D NW 41st Street
Gainesville, FL 32606

Phone: (800) 368-1138
(352) 378-3717
Fax: (352) 378-3934

The Osterberg Cell to be provided shall be equipped with all necessary hydraulic lines, fittings, pressure source, pressure gauge and telltale devices.

Materials required include, but are not limited to, the following:

a) Fresh water from an approved source to mix with a water-soluble oil provided by LOADTEST, Inc., to form the hydraulic fluid used to pressurize the Osterberg Cell.

b) Materials sufficient to construct a stable reference beam system for monitoring movements of the pier during testing, supported at a minimum distance of five pier diameters from the center of the test pier to prevent disturbance of the reference system. A tripod shall be provided to support an automated digital survey level used to monitor movement of the reference system during testing.

   Alternatively, two survey levels located in excess of five pier diameters may be used to monitor the top of pier displacement in lieu of the beam. In this case, two tripods and weather protection shall be provided.

c) Materials sufficient to construct a protected work area (including provisions such as a tent or shed for protection from inclement weather for the load test equipment and personnel) of size and type required by the Engineer and LOADTEST, Inc.

d) Electric power, as required for lights, welding, instruments, etc.

e) Materials for carrier frame, steel bearing plates and/or other devices needed to adapt O-cell to rebar cage, as required.

Materials supplied which do not become a part of the finished structure become the responsibility of the Design-Build Team at the conclusion of the load test and shall be removed from the job site, unless otherwise directed by the Engineer.

Equipment and Labor

The Design-Build Team shall supply equipment and labor required to install the Osterberg Cell, conduct the load test, and remove the load test apparatus as required. Equipment and labor required includes but are not limited to:

a) Welding equipment and certified welding personnel, as required, to assemble the test equipment under the supervision of LOADTEST, Inc. personnel, attach hydraulic fittings and telltales to the Osterberg Cell, and prepare the work area.

b) Equipment and labor to construct the reinforcing steel cage and/or placement frame including any steel plates required for the test pier.

c) Equipment and operators for handling the Osterberg Cell, instrumentation and placement frame or reinforcing steel cage during the installation of the Osterberg Cell and during the conduct of the test, including but not limited to a crane or other lifting device, manual labor, and hand tools as required by LOADTEST, Inc. and the Engineer.

d) Equipment and labor sufficient to erect the protected work area and reference beam system, to be constructed to the requirements of the Engineer and LOADTEST, Inc.

e) Air compressor (minimum 185 cfm, 125 psi) for pump operation during load testing.

Procedure

Construct the test drilled pier in accordance with Section 411 of the 2012 Standard Specifications for Roads and Structures, the *Static Axial Load Test for Replacement of BR 103 and 105 Over Brunswick River* plan sheet, signed and sealed on October 10, 2013, and the approved pier installation procedure.

Perform SPT, SID, and Sonic Caliper Testing (SCT) on the completed excavation. Inspect test drilled pier in accordance with Section 411 of the 2012 Standard Specifications for Roads and Structures. See Sonic Caliper Testing special provision for details regarding SCT.

The Osterberg Cell, hydraulic supply lines and other attachments shall be assembled and made ready for installation under the direction of LOADTEST, Inc. and the Engineer, in a suitable area, adjacent to the test pier, to be provided by the Design-Build Team. The Osterberg Cell assembly shall be welded to the bottom of the cage in conjunction with the construction of the reinforcing steel cage as shown in the plans.

When the test pier excavation has been completed, inspected and accepted by the Engineer, the Design-Build Team shall install the Osterberg Cell and the reinforcing steel cage assembly in the excavation under the direction of LOADTEST, Inc. and the Engineer so that the Osterberg Cell and rebar cage are resting firmly in the excavation. The Design-Build Team shall use the utmost care in handling the placement/test equipment assembly so as not to damage the instrumentation during installation. The Design-Build Team shall limit the deflection of the cage to two (2) feet between pick points while lifting the cage from the horizontal position to vertical. The maximum spacing between pick points shall be 25 feet. The Design-Build Team shall provide support bracing, strong backs, etc. to maintain the deflection within the specified tolerance.

The drilled pier shall be concreted for its full length. In addition to the Department standard number of concrete compression test cylinders, at least six (6) concrete test cylinders shall be made

from the concrete used in the test pier. At least one of these test cylinders shall be tested prior to the load test and at least two cylinders shall be tested on the day of the load test.

During the period required to perform the load test, no construction activities may be performed in the foundation area near the load test. If test apparatus shows any signs of negative effects due to construction activities as determined by the Engineer, such activities shall cease immediately.

Completion of Load Test

After the completion of the load test, and at the direction of the Engineer, the Design-Build Team shall remove any equipment, material, and waste. The Design-Build Team shall remove the test pier down to a minimum of one-foot below the existing river bed or ground surface.

Testing and Reporting

The load testing shall be performed by a qualified Geotechnical Engineer approved in advance by the Engineer. The Geotechnical Engineer must have a demonstrated knowledge of load testing procedures, and have performed at least two Osterberg Cell load tests within the past two years. The Geotechnical Engineer shall provide a planned testing procedure for review by the Engineer two weeks before testing. Any deviations from the planned procedure should be explained and justified by the Geotechnical Engineer in the final report.

The load testing shall be performed in general compliance with ASTM D-1143 (Quick Test Method). Initially the loads shall be applied in increments equaling 5% of the anticipated final loading of the test pier. The magnitude of the load increments may be increased or decreased depending on actual test pier capacity.

Direct movement indicator measurements should be made of the following: downward pier end-bearing movement (min. of two indicators required), upward top-of-pier movement (min. of two indicators required), pier compression (min. of two indicators required).

Loads shall be applied at the prescribed intervals until the final loading of the pier is reached in either end bearing or side shear, or until the maximum capacity or maximum stroke of the O-cell is reached, unless otherwise directed by the Engineer.

At each load increment, or decrement movement indicators shall be read at 1.0, 2.0 and 4.0, 8.0 minute intervals while the load is held constant.

During unloading cycles the load decrement shall be such that at least four data points are acquired for the load versus movement curve. Additional cycles of loading and unloading using similar procedures may be required by the Engineer following the completion of the initial test cycle.

Dial gages, digital gages, or LVWDT's used to measure end bearing and side shear movement should have a minimum travel of 4 inches and be capable of being read to the nearest 0.001 inch division. End bearing movement may be alternately monitored using LVWDT's capable of measuring the expansion of the Osterberg Cell (6 inches). Dial gages, digital gages or LVWDT's used to measure pier compression should have a minimum travel of 1 inch and be capable of being read to the nearest 0.001 inch division.

If a reference beam is used, the reference beam selected shall have a minimum length equal to ten times the pier diameter and should be monitored during testing using a surveyor's level.

Unless otherwise specified by the Engineer, the Design-Build Team will supply eight (8) copies of a report of the load test, as prepared by LOADTEST, Inc. or others approved by the Engineer. A preliminary report containing the load-movement curves and test data shall be provided to the Engineer within three (3) days of the completion of load testing, to allow evaluation of the test results. A final report on the load testing shall be submitted to the Engineer within two (2) weeks after completion of all load testing on site.

Restrictions

If it is determined by the Engineer that either the test drilled pier or the static load test is unsatisfactory, due to the Design-Build Team's negligence or poor workmanship, it shall be the Design-Build Team's responsibility to install additional drilled piers and/or perform additional load tests as required to fulfill this provision.

OVERLAY SURFACE PREPARATION

(12-18-12)

Description

This provision applies to Bridge No. 108 and addresses the surface preparation activities required prior to the placement of latex modified concrete.

Definitions

Scarification shall consist of the removal of any asphalt wearing surface and concrete surface to a uniform depth within ½" of the plan overlay thickness to the limits shown on the plans.

Hydro-demolition shall consist of the removal of the deck surface by means of high pressure water blasting which will remove concrete, oil, dirt, concrete laitance and rust from the exposed reinforcing bars by direct impact, pressurization of micro and macro cracks and cavitation produced by jet instability.

Managing Hydro-Demolition Water

Prior to beginning work, submit for approval a Hydro-demolition Management Plan. This plan shall describe the collection, treatment, and disposal of run-off water generated by the scarification and hydro-demolition processes. Prepare the plan in accordance with the NCDOT Guidelines for Managing Hydro-demolition Water available at

www.ncdot.gov/projects/ncbridges/

The Design-Build Team shall comply with applicable regulation concerning such water disposal.

Equipment

Use the following surface preparation equipment:

- Scarifying equipment that is a power-operated, mechanical grinder capable of removing a minimum depth of ¼" for each pass.
- Hydro-demolition machine, self-propelled with a minimum orifice pressure of 17,000 psi.
- All water used for hydro-demolition shall be potable.
- Equipment capable of sawing concrete to the specified plan depth.
- Hand-held high velocity (7,500 psi minimum) water-jet equipment capable of removing rust scale from reinforcing steel, removing small chips of concrete partially loosened by the scarifying or chipping operation, and for removing rehydrated dust left from scarification.
- Power driven hand tools for removal of unsound concrete are required that meet the following requirements:
    - Pneumatic hammers weighing a nominal 35 lb or less.
    - Pneumatic hammer chisel-type bits that do not exceed the diameter of the shaft in width.
- Hand tools such as hammers and chisels for removal of final particles of unsound concrete.
- Vibratory screed for overlays, except as noted herein.

The hydro-demolition machine shall be self-propelled and capable of producing a water-jet through an orifice at a pressure of at least 17,000 psi. The machine shall move the jet transversely across the area and forward and backward so that the entire deck is covered with the water-jet and operated at a pressure sufficient to remove the unsound concrete.

The machine shall have sufficient means to control and vary the following functions:

(1) Water pressure.
(2) Angle and distance of the orifice in relation to the surface to be blasted.
(3) Limits of transverse and longitudinal movement of the orifice.
(4) Speed of the orifice in the transverse and longitudinal direction.

High pressure pump(s) shall be equipped with over-pressurization relief valves and rupture disc systems. All high pressure components shall be rated at full working pressure of the hydro-demolition system. The complete hydro-demolition system must be capable of depressurization from a single point.

The equipment must operate at a noise level less than 90 decibels at a distance of 50 feet.

Surface Preparation

Remove all existing asphalt overlays and all loose, disintegrated, unsound or contaminated concrete to the limits shown on the plans with the following requirements:

A. Sealing of Bridge Deck: Seal all expansion joints subject to run-off water from the hydro-demolition process with material approved by the Engineer, prior to beginning any demolition. The expansion joints shall remain sealed until water from the hydro-demolition process no longer passes over them. Take all steps necessary to eliminate the flow of water through the expansion joints, and any other locations water could leak from the deck.

   All deck drains in the immediate work area and other sections of the bridge affected by the work being performed shall be sealed prior to beginning scarification. Drains shall remain sealed until it has been determined that materials from the hydro-demolition and concrete overlay operations cannot be discharged through them any longer.

B. Scarifying Bridge Deck: Removal of any asphalt wearing surface from the bridge deck and scarification of the concrete deck to remove the entire concrete surface of the deck to a uniform depth within ½" of the plan overlay thickness, but not less than ½" inch above the top mat of reinforcing steel.

   It will be the Design-Build Team's responsibility to determine amount of cover for the reinforcing steel. Use a pachometer or other approved device, as directed by Engineer, prior to beginning hydro-demolition. Readings shall be taken in the presence of the Engineer. Readings should be taken for each span at 1/5 points longitudinally and 1/3 points transversely.

   Calibrate scarifying equipment in order to avoid damaging the reinforcing steel in the bridge floor or the approach slab. If reinforcing bars or bridge drainage devices are pulled up or snagged during scarification operations, cease work and consult with the Engineer to determine any necessary adjustments to the roto-milling operation.

   Remove and dispose of all concrete and asphalt, and thoroughly clean the scarified surface. In areas where reinforcing steel is located in the depth to be scarified, use another method with the Engineer's approval.

C. Calibration of Hydro-Demolition Equipment: Two trial areas will be designated by the Engineer to demonstrate that the equipment, personnel, and methods of operation are capable of producing results to the satisfaction of the Engineer. The first trial area shall consist of approximately 50 square feet of sound concrete as determined by the Engineer. The equipment shall be calibrated to remove the sound concrete from the scarified surface to the depth required to achieve the plan overlay thickness. After completion of this test area, the equipment shall be moved to the second area consisting of deteriorated or defective concrete, to determine whether this unsound concrete will be completely removed with the previous calibration and to establish a baseline for requiring the Design-Build Team to place under-deck containment in areas subject to full depth removal, before beginning the hydro-demolition process in a span. Should it be determined that not all defective concrete has

been removed, the hydro-demolition system shall be recalibrated to remove an additional ¼-inch of sound concrete, then re-test on deteriorated concrete.

If additional defective concrete is found, the depth of cut will increase in ¼-inch increments until only sound concrete is found remaining.

When satisfactory results are obtained, the machine parameters shall be used for production removal. The Design-Build Team shall make adjustments to the operating parameters, as required, to perform concrete removal as indicated on the plans and to adjust to the variance in the compressive strength of the concrete.

Hand held water blasting equipment, pneumatic hammers, and hand tools may be substituted for the hydro-demolition unit in inaccessible or inconvenient areas.

The Engineer will re-inspect after each removal and require additional removals until compliance with plans and specifications are met.

Regardless of the method of removal, the removal operation shall be stopped if it is determined that sound concrete is being removed to a depth greater than required by the plans including any 1/4 inch increments added per the above calibration process.

Appropriate recalibration, or change in equipment and methods shall be performed prior to resuming the removal operation.

D. Hydro-demolition (Overlay Depth): Remove by hydro-demolition or chipping with hand tools all loose, unsound and contaminated deck concrete and, if necessary, sound concrete in order to allow for the placement of an overlay with the minimum depth required elsewhere in this RFP. In areas where reinforcing steel is exposed and debonded for a length greater than 2 feet, remove deck to an average depth of ½" below the exposed and debonded reinforcing steel. Dispose of the unsound concrete, clean, repair or replace damaged reinforcing steel and thoroughly clean the newly exposed surface.

Care shall be taken not to cut, stretch, or damage any exposed reinforcing steel.

Any areas of the prepared surface contaminated by oil or other materials detrimental to good bond as a result of the Design-Build Team's operations shall be cleaned at the Design-Build Team's expense.

Class II Surface Preparation (Partial Depth): At locations as directed by the Engineer for Class II Surface Preparation, verify the depth of removal achieved by the hydro-demolition. The average depth of removal shall be approximately one-half the deck thickness but no less than ¾" below the top mat of steel. When hydro-demolition did not achieve the Class II Surface Preparation depth requirements, remove by hydro-demolition or chipping with hand tools all existing patches and contaminated concrete to the required depth.

All patches shall be removed under Class II surface preparation. If any patch cannot be removed by means of hydro-demolition, the Design-Build Team shall use hand tools to

remove the patch. Areas as directed by the Engineer that require Class II surface preparation, including the locations of existing patches, are from the best information available. The Design-Build Team shall verify prior to surface preparation the location of all existing patches.

Dispose of the removed concrete, clean, repair or replace rusted or loose reinforcing steel and thoroughly clean the newly exposed surface. Care shall be taken not to cut, stretch, or damage any exposed reinforcing steel.

In overhangs, removing concrete areas of less than 0.60 ft^2/ft. length of bridge without overhang support is permitted unless the Engineer directs otherwise. Overhang support is required for areas removed greater than 0.60 ft^2/ft. length of bridge. Submit details of overhang support to the Engineer for approval prior to beginning the work.

E. Class III Surface Preparation (Full Depth): Remove by hydro-demolition or chipping with hand tools the full depth of slab. Dispose of the removed concrete, clean, repair or replace damaged reinforcing steel and thoroughly clean the newly exposed surface. Care shall be taken not to cut, stretch, or damage any exposed reinforcing steel.

For areas of less than 3 ft^2, suspending forms from existing reinforcing steel using wire ties is permitted. For larger areas, support forms by blocking from the beam flanges, or other approved method.

Overhang support is required for full depth removal adjacent to bridge rails. Submit details of overhang support to the Engineer for approval prior to beginning the work.

Under Deck Containment: Under deck containment shall be installed where Class III surface preparation occurs. The containment shall be installed prior to hydro-demolition in the areas where full depth removal is required or blow thru may occur during the hydro-demolition process.

Submit for approval detailed plans for the under deck containment system. Detail how waste, debris, and wastewater are contained.

Concrete for Full Depth Repair: Fill the Class III surface preparation areas with Class AA, high early strength structural concrete or latex modified concrete in accordance with the methods described below:

Refill areas with Class AA concrete to the bottom of the proposed concrete overlay in accordance with Section 420 of the 2012 *Standard Specifications for Roads and Structures*. Any of the methods for curing Class AA concrete as stated in the 2012 *Standard Specifications for Roads and Structures* are permitted except the membrane curing compound method.

Provide a raked finish to the surface of the Class AA concrete which provides a minimum relief of 1/16" and a maximum relief of ¼". Place the overlay course after the Class AA concrete has attained a minimum compressive strength of 2500 psi. The strength shall be verified by an approved, non-destructive test method.

Refill the areas where concrete was removed with high early strength concrete as described in the Concrete for Deck Repair and Volumetric Mixer special provisions.

Refilling the areas from which concrete has been removed with latex modified concrete during the Class III repair is permitted if any of the following conditions are met:

- The reinforcing steel cover is 1½ inches or less for the top mat of steel.
- The area being repaired is less than 1 yd^2.
- The Engineer directs the fill.

G. Preparation of Reinforcing Steel: Remove concrete without cutting or damaging existing steel unless otherwise directed by the Engineer. Damaged reinforcing steel, such as bars with nicks deeper than 20% of the bar diameter, shall be repaired or replaced. Reinforcing steel which has a cross section reduced to 75% or less shall be replaced with new reinforcing steel of similar cross section area. Replacement bars shall be Grade 60 and meet the material requirements of Section 1070 of the 2012 *Standard Specifications for Roads and Structures*. Replacement bars shall be spliced to existing bars using either minimum 30 bar diameter lap splices to existing steel with 100% cross sectional area or approved mechanical connectors.

Support and protect the exposed reinforcing steel left unsupported by the hydro-demolition process against displacement and damage from loads such as those caused by removal equipment and delivery buggies. All reinforcing steel damaged or dislodged by these operations shall be replaced with bars of the same size at the Design-Build Team's expense.

Reinforcing steel exposed and cleaned by hydro-demolition will not require additional cleaning if encased in concrete within seven (7) days. Rebar exposed for more than seven (7) days shall be cleaned by high velocity water jets, with a minimum pressure 4,000 psi, prior to placement of the new concrete.

When large areas of the deck on composite bridges are removed resulting in the debonding of the primary reinforcing bars, the removal shall be performed in stages to comply with the construction sequence shown on the plans or as directed by the Engineer.

H. Safety: Provide a containment system for handling expected and unexpected blow thru of the deck. The containment system shall retain runoff water and debris and protect the area under the bridge deck. The Design-Build Team shall be responsible for any injury or damage caused by his operations. The containment system shall remain in place until the concrete has been cast and reach minimum strength.

Provide adequate lighting when performing hydro-demolition activities at night. Submit a lighting plan to the Engineer for approval prior to beginning work.

Removal of Debris: Removal of concrete debris shall be accomplished either by hand or mechanical means capable of removing wet debris and water in the same pass and after the hydro-demolition process to prevent debris from setting or adhering to the surface of the sound concrete. All concrete debris shall become the property of the Design-Build Team and shall be legally disposed of at the Design-Build Team's expense. The Design-Build Team shall be responsible for disposing of all debris generated by the scarification operations.

Any debris which is allowed to set or adhere to the surface of the sound concrete shall be carefully removed at no additional cost. Exercise care to avoid any damage to the remaining sound concrete or exposed reinforcement. Prior to the placement of the overlay, the entire surface shall be cleaned with high pressure water to remove any bond-breaking residue, loose material from the concrete surface, and / or rust from the reinforcing steel. This residue shall be collected and disposed of by the Design-Build Team.

CONCRETE FOR DECK REPAIR

(12-18-12)

DESCRIPTION

This provision applies to Bridge No. 108 and addresses the material requirements of high early strength structural concrete to be used for reconstruction of Class III repairs.

MATERIALS

Furnish Department approved pre-packaged concrete or bulk concrete materials in a mix proportioned to satisfy provisions for Class AA Concrete detailed in Section 1000-4 of the 2012 *Standard Specifications for Roads and Structures* or as otherwise noted in these provisions. Concrete mix shall meet the following requirements:

Physical Property	Threshold Limitation	Test Method
Compressive Strength (at 3 hrs.)	4500 psi (min.)	ASTM C39/C109
Slump	4 in. (min.) 7 in. (max.)	AASHTO T119
Water to Cement Ratio	0.450 (max.)	N/A
Modulus of Elasticity (at 28 days)	5200 ksi (max.)	ASTM C469
Coefficient of Thermal Expansion (at 28 days)	4.5 in./in./^{o}F (min.) 5.5 in./in./^{o}F (max.)	AASHTO T336
Concrete Setting Times Initial Final	 30 min. (max.) 40 min. (max)	ASTM C191

Concrete shall be capable of placement on existing concrete substrate surfaces within the following temperature limitations:

40^0 F (min.)

100^0 F (max.)

Measurement for determination of concrete material compositions shall be in accordance with Section 1000-8 of the 2012 *Standard Specifications for Roads and Structures.*

Submit pre-packaged concrete mix contents or concrete mix design, including laboratory compressive strength data, for a minimum of six 4-inch by 8-inch cylinders at an age of 3 hours and 1 day to the Engineer for review. Include test results for the slump and air content of the laboratory mix. Perform tests in accordance with AASHTO T119 and T152.

Provide aggregates that are free from ice, frost and frozen particles when introduced into the mixer.

For equipment, proportioning and mixing of concrete compositions, see Section 1000-12 of the 2012 *Standard Specifications for Roads and Structure*s and the Special Provision entitled "Volumetric Mixer". Prior to beginning any work, obtain approval for all equipment to be used for joint area preparation, mixing, placing, finishing, and curing the deck repair concrete.

LATEX MODIFIED CONCRETE

Description

This provision applies to Bridge No. 108. This work consists of furnishing and placing an overlay of latex modified concrete over conventional existing concrete or repair concrete on bridge decks and approach pavement. Perform this work in accordance with this Special Provision and the applicable parts of the 2012 *Standard Specifications for Roads and Structures.* For material, equipment, and proportioning and mixing of modified compositions, see Section 1000-7 of the 2012 *Standard Specifications for Roads and Structures.*

This provision is also applicable to filling any necessary Class II repairs.

Preparation of Surface

Completely clean all surfaces within 48 hours prior to placing the overlay unless otherwise approved.

Thoroughly soak the clean surface for at least 2 hours immediately prior to placing the latex modified concrete. After soaking the surface for at least 2 hours, cover it with a layer of white opaque polyethylene film that is at least 4 mils thick. Immediately prior to placing the latex modified concrete, remove standing water from the surface.

Placing and Finishing

Prior to placing modified material, install a bulkhead of easily compressible material at expansion joints to the required grade and profile. Placing material across expansion joints and sawing it later is not permitted.

Place and fasten screed rails in position to ensure finishing the new surface to the required profile. Do not treat screed rails with parting compound to facilitate their removal.

Separate screed rails and / or construction dams from the newly placed material by passing a pointing trowel along their inside face. Carefully make this trowel cut for the entire depth and length of rails or dams after the modified composition has sufficiently stiffened and cannot flow back.

Brush a latex cement mixture onto the wetted, prepared surface. Carefully give all vertical and horizontal surfaces a thorough, even coating and do not let the brushed material dry before it is covered with the additional material required for the final grade.

Construction joints other than those shown on the plans are not permitted.

When a tight, uniform surface is achieved and before the concrete becomes non-plastic, further finish the surface of the floor by burlap dragging or another acceptable method that produces an acceptable uniform surface texture.

Do not allow more than 15 feet of exposed latex concrete behind the screed. In the event of a delay of 10 minutes or more, temporarily cover all exposed latex concrete with wet burlap and white opaque polyethylene.

As soon as the surface supports burlap without deformations, cover the surface with a single layer of clean, wet burlap.

Do not place the latex modified concrete before the burlap is saturated and approved by the Engineer. Drain excess water from the wet burlap before placement.

Within 1 hour of covering with wet burlap, place a layer of 4 mil white opaque polyethylene film on the wet burlap and cure the surface for 48 hours. Then remove the curing material for an additional 96 hours air cure.

As soon as practical, after the concrete has hardened sufficiently, test the finished surface with an approved rolling straightedge that is designed, constructed, and adjusted so that it will accurately indicate or mark all floor areas which deviate from a plane surface by more than 1/8 inch in 10 feet. Remove all high areas in the hardened surface in excess of 1/8 inch in 10 feet with an approved grinding or cutting machine. Where variations are such that the corrections extend below the limits of the top layer of grout, seal the corrected surface with an approved sealing agent if required by the Engineer. If approved by the Engineer, correct low areas in an acceptable manner.

Groove the bridge floor in accordance with Article 420-14(B) of the Standard Specifications.

Limitations of Operations

The mixer is not permitted on the bridge deck unless otherwise approved.

No traffic is permitted on the finished latex modified concrete surface until the total specified curing time is completed and until the concrete reaches the minimum specified compressive strength.

Do not place latex modified concrete if the temperature of the concrete surface on which the overlay is to be placed is below 40° F or above 85° F. Measure the surface temperature by placing a thermometer under the insulation against the surface.

Prior to placing latex modified concrete, the Engineer determines the air temperature and wind speed. Do not place latex modified concrete if the ambient air temperature is below 45°F or above 85°F, or if the wind velocity is in excess of 10 mph. If working at night, provide approved lighting. Provide aggregates for use in the latex modified concrete that are free from ice, frost and frozen particles when introduced into the mixer.

Do not place latex modified concrete when the temperature of the latex modified concrete is below 45° F or above 85° F.

Do not place latex modified concrete if the National Weather Service predicts the air temperature at the site to be below 35° F during the next 72 hours. If this predicted air temperature is above 35° F but below 50° F, then use insulation to protect the latex modified concrete for a period of at least 48 hours.

Use insulation that meets the requirements of Subarticle 420-7(C) and, if required, place it on the latex modified concrete as soon as initial set permits.

When using insulation to protect latex modified concrete during the wet curing period, do not remove the insulation until the ambient air temperature is at least 40° F and rising. Leave the latex modified concrete uncovered for the 96 hour air curing period.

Assume all risks connected with the placement of latex modified concrete under cold weather conditions referred to above.

Stop all placement operations during periods of precipitation. Take adequate precautions to protect freshly placed latex modified concrete from sudden or unexpected precipitation. Keep an adequate quantity of protective coverings at the worksite to protect the freshly placed pavement from precipitation.

LATEX MODIFIED CONCRETE – VERY EARLY STRENGTH

(8-9-13)

DESCRIPTION

This provision addresses the requirements for furnishing and placing an overlay of latex modified concrete - very early strength (LMC-VES) over existing concrete or repair concrete on bridge decks. Perform this work in accordance with this Special Provision and the applicable sections of the 2012 *Standard Specifications for Roads and Structures.*

QUALITY CONTROL

Prior to installing any LMC-VES, the Design-Build Team shall schedule a pre-construction meeting with the Resident Engineer and the Area Bridge Construction Engineer.

The Design-Build Team shall submit a Quality Control Plan to the Engineer for approval which, at a minimum, describes the methods of: storing materials, calibrating mixers, controlling moisture content in the aggregate, maintaining proper mix temperature, retarder usage, curing and curing time, controlling evaporation rate, cleaning and removing excess water.

Prior to beginning work, provide proof of experience of the person in direct responsible charge by submitting a description of jobs similar in size and character that have been completed within the last five years. The name, address and telephone number of references for the submitted projects shall also be furnished. Failure to provide appropriate documentation shall result in the rejection of the proposed LMC-VES overlay contractor.

Before beginning any work, obtain approval for all equipment to be used for deck preparation, mixing, placing, finishing and curing the LMC-VES.

MATERIALS

For materials, equipment, and proportioning and mixing of modified compositions, see Section 1000-7 of the 2012 *Standard Specifications for Roads and Structures.*

Provide aggregates for use in the LMC-VES that are free from ice, frost, frozen particles or other contaminants when introduced into the mixer.

The 2012 *Standard Specifications for Roads and Structures* shall be revised as follows:

Table 1000-5 – Revise the following:

Cement Content, 658 lb/cy (min.) change to 658 lb/cy (max.)

Seven-day Compressive Strength, 3000 psi (min.) change to 3-hour Compressive Strength, 2500 psi (min.)

1000-7(A), Line 23 – Replace with the following:

Measure the slump after discharge from the mixer.

1000-7(A) – Add the following paragraph to the end of the section:

Submit the LMC-VES mix design, including laboratory compressive strength data for a minimum of six 4-inch by 8-inch cylinders at the appropriate age (seven days for normal setting concrete; three hours for very early strength concrete) to the Engineer for review. Include test results for the slump and air content of the laboratory mix. Perform tests in accordance with AASHTO T 22, T 119 and T 152.

For projects with multiple bridges using the same mix design or bridge decks with time constraints that require more than one night for placement, a relationship between the compressive strength and rebound hammer readings may be developed and used to estimate the three hour strength for opening to traffic in lieu of compressive strength testing. For the correct procedure, reference Document: PLH-LMC Rapid Set Overlays. Contact your local M&T representative for a copy of this document or see the following link: http://www.ncdot.org/doh/operations/materials/eforms.html under Physical Lab. Seven day concrete compressive strength sampling and testing is required in addition to the use of this method.

PREPARATION OF SURFACE

Completely clean all surfaces within 48 hours prior to placing the overlay unless otherwise approved by the Engineer.

Thoroughly soak the clean surface and maintain a wet surface for at least two hours immediately prior to placing the LMC-VES. After soaking the surface for at least two hours, cover it with a layer of white opaque polyethylene film that is at least four mils thick. Immediately prior to placing the LMC-VES, remove standing water from the surface using an approved vacuum system.

PLACING AND FINISHING

Prior to placing LMC-VES, install a bulkhead of easily compressible material at expansion joints to the required grade and profile. Placing material across expansion joints and sawing it later is not permitted.

Construction joints other than those shown on the plans will not be permitted unless approved by the Engineer. At construction joints, remove 4" of previously placed LMC-VES prior to placing the adjacent latex concrete. Also, for staged construction, 4" of previously poured LMC-VES shall be scarified, hydro-demolitioned and recast with the next stage.

Place and fasten screed rails in position to ensure finishing the new surface to the required profile. Do not treat screed rails with parting compound to facilitate their removal. Prior to placing the overlay attach a filler block to the bottom of the screed and pass it over the area to be repaired to check the thickness. The filler block thickness shall be equal to the design overlay thickness as shown in the plans. Remove all concrete that the block does not clear. Individual aggregates left after hydro-demolition may be allowed to project above the base of the filler block. Remove aggregate that does not provide a 1" clear cover to the top of the overlay.

Brush a latex cement mixture onto all vertical surfaces and do not let the brushed material dry before it is covered with the additional material required for the final grade. Remove all loose aggregate from the latex cement brushed surface prior to latex concrete placement (NOTE: For surfaces not prepared with hydro-demolition brush the lean latex mixture over horizontal and vertical surfaces).

Do not place the LMC-VES until the burlap is saturated and approved by the Engineer. Drain excess water from the wet burlap before placement.

Place the LMC-VES in one operation. Provide a minimum overlay thickness as shown in the plans.

Once LMC-VES placement begins a single layer of wet burlap shall be placed five feet behind the screed's burlap drag. In the event of a delay of ten minutes or more, temporarily cover all exposed latex concrete with wet burlap and white opaque polyethylene.

When a tight, uniform surface is achieved and before the concrete becomes non-plastic, further finish the surface of the floor by burlap dragging or another acceptable method that produces an acceptable uniform surface texture.

Promptly cover the surface with a second layer of clean, wet burlap as soon as the surface will support it without deformation. Wet cure only the surface for a minimum of three hours and until a compressive strength of 2500 psi is reached. Curing material shall be continually saturated during the wet cure period using a fogging system approved by the Engineer. The Engineer may require an increase in the minimum cure time when the overlay thickness is greater than 1.5 inches or the ambient temperature remains below 60°F.

Screed rails or construction dams shall be separated from the newly placed concrete by passing a pointing trowel along the face of the formwork and the newly placed concrete. Carefully make this trowel cut for the entire depth and length of rails or dams after the LMC-VES has sufficiently stiffened and cannot flow back.

As soon as practical, after the concrete has hardened sufficiently, test the finished surface with an approved rolling straightedge that is designed, constructed, and adjusted so that it will accurately indicate or mark all deck areas which deviate from a plane surface by more than 1/8" in 10'. Remove all high areas in the hardened surface in excess of 1/8" in 10' with an approved grinding or cutting machine. Additionally, the final LMC-VES deck surface shall not deviate from the

line and elevation indicated on the plans by more than 0.3" over any 50' length. Where variations are such that the corrections extend below the limits of the top layer of grout, seal the corrected surface with an approved sealing agent as required by the Engineer. If approved by the Engineer, correct low areas in an acceptable manner.

Unless otherwise indicated on the plans, groove the bridge floor in accordance with Article 420-14(B) of the 2012 *Standard Specifications for Roads and Structures*. Vehicular traffic may travel across a deck surface that has not been grooved; however, the entire deck area shall be grooved after the LMC-VES achieves design strength and no later than seven days after completion of the overlay unless otherwise approved by the Engineer.

LIMITATIONS OF OPERATIONS

The mixer will not be permitted on the bridge deck unless otherwise approved by the Engineer.

Traffic will not be permitted on the finished LMC-VES surface until the total specified curing time is completed and until the concrete reaches the minimum specified compressive strength.

Do not place LMC-VES if the temperature of the concrete surface on which the overlay is to be placed is below 50°F or above 85°F. Measure the surface temperature by placing a thermometer under the insulation against the surface.

Prior to placing LMC-VES, the Engineer and the Design-Build Team shall independently determine the air temperature and wind speed. Do not place LMC-VES if the ambient air temperature is below 50°F or above 85°F, or if the wind velocity is greater than 10 mph.

Do not place LMC-VES when the temperature of the LMC-VES is below 45°F or above 85°F.

Prior to placing LMC-VES, the Engineer and the Design-Build Team shall independently determine the evaporation rate and record in the diary. Do not place LMC-VES if the rate of evaporation of surface moisture from the LMC-VES determined by the Engineer or Design-build Team exceeds 0.05 pounds per square foot per hour during placement. The evaporation rate shall be calculated using the following formula:

$$E = (T_c^{2.5} - r * T_a^{2.5}) * (1 + 0.4V) * (10^{-6})$$

where:

E = Evaporation Rate

T_c = Concrete Temp (°F)

r = Relative Humidity (%/100)

T_a = Air Temp (°F)

V = Wind Velocity (mph)

If the calculated evaporation rate exceeds 0.05 pounds per square foot per hour, the Design-build Team may propose engineered controls of the parameters (temperature, relative humidity and / or wind velocity) to reduce the evaporation rate. The evaporation rate shall be recalculated, with the appropriate parameters, after the proposed control measures are in place. The recalculated evaporation rate shall be 0.05 pounds per square foot per hour or less, prior to placement.

Do not place LMC-VES if the National Weather Service predicts the air temperature at the site to be below 35°F during the next 24 hours. If the predicted air temperature is above 35°F but below 50°F, then use insulation to protect the LMC-VES for a period of at least 48 hours. Use insulation that meets the requirements of Subarticle 420-7(C) and, if required, place it on the LMC-VES as soon as initial set permits. When using insulation to protect LMC-VES during the wet curing period, do not remove the insulation until the ambient air temperature is at least 50°F and rising.

Stop all placement operations during periods of precipitation. Take adequate precautions to protect freshly placed LMC-VES from sudden or unexpected precipitation. Keep an adequate quantity of protective coverings at the worksite to protect the freshly placed pavement from precipitation.

If working at night, provide lighting approved by the Engineer.

SAFETY FENCE

Description

Safety Fence shall consist of furnishing materials, installing and maintaining polyethylene or polypropylene fence along the outside riparian buffer, wetland, or water boundary, or other boundaries located within the construction corridor to mark the areas that have been approved to infringe within the buffer, wetland, endangered vegetation, culturally sensitive areas or water. The fence shall be installed prior to any land disturbing activities.

Interior boundaries for jurisdictional areas noted above shall be delineated by stakes and highly visible flagging.

Jurisdictional boundaries at staging areas, waste sites, or borrow pits, whether considered outside or interior boundaries shall be delineated by stakes and highly visible flagging.

Materials

(A) Safety Fencing

Polyethylene or polypropylene fence shall be a highly visible preconstructed safety fence approved by the Engineer. The fence material shall have an ultraviolet coating.

Either wood posts or steel posts shall be used. Wood posts shall be hardwood with a wedge or pencil tip at one end, and shall be at least 5 feet in length with a minimum nominal 2" x 2" cross

section. Steel posts shall be at least 5 feet in length, and have a minimum weight of 0.85 lb / ft of length.

(B) Boundary Flagging

Wooden stakes shall be 4 feet in length with a minimum nominal 3/4"x 1-3/4" cross section. The flagging shall be at least 1" in width. The flagging material shall be vinyl and shall be orange in color and highly visible.

Construction Methods

No additional clearing and grubbing is anticipated for the installation of this fence. The fence shall be erected to conform to the general contour of the ground.

(A) Safety Fencing

Posts shall be set at a maximum spacing of 10 feet, maintained in a vertical position and hand set or set with a post driver. If hand set, all backfill material shall be thoroughly tamped. Wood posts may be sharpened to a dull point if power driven. Posts damaged by power driving shall be removed and replaced prior to final acceptance. The tops of all wood posts shall be cut at a 30-degree angle. The wood posts may, at the option of the Design-Build Team, be cut at this angle either before or after the posts are erected.

The fence fabric shall be attached to the wood posts with one 2" galvanized wire staple across each cable or to the steel posts with wire or other acceptable means.

Place construction stakes to establish the location of the safety fence in accordance with Article 105-9 or Article 801-1 of the 2012 *Standard Specifications for Roads and Structures.*

The Design-Build Team shall be required to maintain the safety fence in a satisfactory condition for the duration of the project as determined by the Engineer.

(B) Boundary Flagging

Installation for delineation of interior boundaries shall consist of wooden stakes on 25 feet maximum intervals with highly visible orange flagging attached. Stakes shall be installed a minimum of 6" into the ground. Interior boundaries may be staked on a tangent that runs parallel to buffer but must not encroach on the buffer at any location. Interior boundaries of hand clearing shall be identified with a different colored flagging to distinguish it from mechanized clearing.

Installation for delineation of interior boundaries will be placed in accordance with Article 105-9 or Article 801-1 of the 2012 *Standard Specifications for Roads and Structures.*

Installation for delineation of all jurisdictional boundaries at staging areas, waste sites, or borrow pits shall consist of wooden stakes on 25 feet maximum intervals with highly visible orange

flagging attached. Stakes shall be installed a minimum of 6" into the ground. Additional flagging may be placed on overhanging vegetation to enhance visibility but does not substitute for installation of stakes.

Installation for delineation of all jurisdictional boundaries at staging areas, waste sites, or borrow pits shall be performed in accordance with Subarticle 230-4(B)(3)(d) or Subarticle 802-2(F) of the 2012 *Standard Specifications for Roads and Structures.*

The Design-Build Team shall be required to maintain alternative stakes and highly visible flagging in a satisfactory condition for the duration of the project as determined by the Engineer.

PERMANENT SOIL REINFORCEMENT MAT

Description

This work shall consist of furnishing and placing *Permanent Soil Reinforcement Mat*, of the type specified, over previously prepared areas as directed by the Engineer.

Materials

The product shall be a permanent erosion control reinforcement mat and shall be constructed of synthetic or a combination of coconut and synthetic fibers evenly distributed throughout the mat between a bottom UV stabilized netting and a heavy duty UV stabilized top net. The matting shall be stitched together with UV stabilized polypropylene thread to form a permanent three-dimensional structure. The mat shall have the following minimum physical properties:

Property	Test Method	Value	Unit
Light Penetration	ASTM D6567	9	%
Thickness	ASTM D6525	0.40	in
Mass Per Unit Area	ASTM D6566	0.55	lb/sy
Tensile Strength	ASTM D6818	385	lb/ft
Elongation (Maximum)	ASTM D6818	49	%
Resiliency	ASTM D1777	>70	%
UV Stability *	ASTM D4355	≥80	%
Porosity (Permanent Net)	ECTC Guidelines	≥85	%
Maximum Permissible Shear Stress (Vegetated)	Performance Bench Test	≥8.0	lb/ft^2
Maximum Allowable Velocity (Vegetated)	Performance Bench Test	≥16.0	ft/s

*ASTM D1682 Tensile Strength and % strength retention of material after 1000 hours of exposure.

Submit a certification (Type 1, 2, or 3) from the manufacturer showing:

(A) The chemical and physical properties of the mat used, and

(B) Conformance of the mat with this specification.

Construction Methods

Matting shall be installed in accordance with Subarticle 1631-3(B) of the 2012 *Standard Specifications for Roads and Structures.*

All areas to be protected with the mat shall be brought to final grade and seeded in accordance with Section 1660 of the 2012 *Standard Specifications for Roads and Structures.* The surface of the soil shall be smooth, firm, stable and free of rocks, clods, roots or other obstructions that would prevent the mat from lying in direct contact with the soil surface. Areas where the mat is to be placed will not need to be mulched.

SANITARY SEWER
(8-31-13) 1520 DB15-1520

Revise the 2012 *Standard Specifications for Roads and Structures* as follows:

Page 15-11, Article 1520-3(A)(2) Testing, line 5, replace the second paragraph with the following:

Test all 24" and smaller gravity sewer lines for leakage using infiltration, exfiltration, or air test. Perform visual inspection on gravity sewer lines larger than 24". Perform line and grade testing and deflection testing on all gravity sewer lines.

GENERAL

The State will not be bound by oral explanations or instructions given at any time during the bidding process or after award. Only information that is received in response to this RFP will be evaluated; reference to information previously submitted will not suffice as a response to this solicitation.

NO CONTACT CLAUSE

To ensure that information is distributed equitably to all short-listed Design-Build Teams, all questions and requests for information shall be directed to the State Contract Officer through the Design-Build e-mail address. This precludes any Design-Build Team Member, or representative, from contacting representatives of the Department, other State Agencies or Federal Agencies either by phone, e-mail or in person concerning the Design-Build Project.

USE OF TERMS

Throughout this RFP and all manuals, documents and standards referred to in the RFP the terms Contractor, Bidder, Design-Builder, Design-Build Team, Team, Firm, Company, and Proposer are synonymous.

Throughout this RFP and all manuals, documents and standards referred to in the RFP, the terms NCDOT, Department, Engineer, and State are synonymous.

Throughout this RFP and all documents referred to in the RFP, references to the Technical Proposal include all Technical Proposal supplemental information that may be submitted in response to a Best and Final Offer RFP.

DESIGN REFERENCES

Design references developed and published by NCDOT and those developed and published by other agencies and adopted for use by NCDOT which are to be used in the design of this project may be obtained by contacting Contract Standards and Development within the Technical Services Division. Standard prices for materials, which the Department normally sells for a fee, will be in effect. The Design-Build Team shall be responsible for designing in accordance with the applicable documents and current revisions and supplements thereto.

REVIEW OF SUBMITTALS

Major design milestones and required design submittals shall be identified as activities on a CPM, bar chart, or other scheduling tool. This schedule shall be submitted to the Transportation Program Management Director and Resident Engineer concurrently with the first design submittal, or within 30 days of the contract award, whichever is earlier. The schedule shall be revised and resubmitted as design milestones change or as directed by the Transportation Program Management Director. Submittals will be reviewed within 10 working days (15 days for temporary structures, overhead sign assemblies, MSE walls, FEMA compliance documents, curved steel girder working drawings and temporary shoring) from the date of receipt by

NCDOT unless otherwise stipulated in the scope of work. All submittals shall be prepared and submitted in accordance with the "*Design-Build Submittal Guidelines*", which by reference are incorporated and made a part of this contract. All submittals shall be made simultaneously to the Transportation Program Management Director and the Resident Engineer. The Department will not accept subsequent submittals until prior submittal reviews have been completed for that item. The Design-Build Team shall inform the Transportation Program Management Director in writing of any proposed changes to the NCDOT preliminary designs, Technical Proposal and / or previously reviewed submittals and obtain approval prior to incorporation. The Design-Build Team shall prioritize submittals in the event that multiple submittals are made based on the current schedule. All submittals shall include pertinent Special Provisions. No work shall be performed prior to Department review of the design submittals.

OVERVIEW

The proposed improvements shall consist of widening US 17-74-76 to a four-lane divided facility with auxiliary lanes from the NC 133 (River Road) / SR 1472 (Village Road) interchange to the US 421 / NC 133 interchange west of Wilmington. The project will widen approximately 1.7 miles of US 17-74-76 and includes the construction of a Diverging Diamond Interchange (DDI) at the NC 133 (River Road) / SR 1472 (Village Road) interchange.

Project services shall include but are not limited to:

- **Design Services** – completion of construction plans
- **Construction Services** – necessary to build and ensure workmanship of the designed facility
- **Preparation of permit modification application packages** – as needed to accommodate the Design-Build Team's variations to the design and / or construction methods from those included in the approved permits contained in this RFP.

Construction Engineering Inspection will be provided by the NCDOT Division personnel.

- ✓ The R-3601 Categorical Exclusion (CE) was approved on September 20, 2010.
- ✓ The R-3601 Categorical Exclusion Addendum (CE Addendum) was approved August 15, 2011.

GENERAL SCOPE

The scope of work for this project includes design, construction and management of the project. The designs shall meet all appropriate latest versions of *AASHTO Policy on Geometric Design of Highways and Streets*, *AASHTO LRFD Bridge Design Specifications, Manual of Uniform Traffic Control Devices,* and all NCDOT design policies that are current as of the Technical and Price Proposal submission date or the Best and Final Offer submission date.

Construction shall include, but not be limited to, all necessary work items for roadway, drainage, utility coordination, erosion and sediment control, foundation, substructure and superstructure work. Construction engineering and management shall be the responsibility of the Design-Build

Team. Construction shall comply with 2012 NCDOT *Standard Specifications for Roads and Structures* and any special provisions.

Areas of work required for this project shall include, but are not limited to the following items:

1. Hydraulic Design
2. Roadway Design
3. Structure Design, as needed
4. Construction
5. Erosion and Sedimentation Control
6. Lighting (Construction Only)
7. Utility Construction
8. R/W Utilities, Conflicts and / or Construction
9. Traffic Control Design
10. Pavement Marking Design
11. Foundation Design for Structures and Roadway, as needed
12. Signing Design
13. Traffic Signal Design
14. Design and Construction Management
15. Construction Surveying
16. Location and Surveys
17. Public Involvement

All designs shall be in Microstation format using Geopak software (current version used by the Department).

DESIGN AND CONSTRUCTION PERFORMED BY DESIGN-BUILD TEAM

The design work consists of the preparation of all construction documents for widening approximately 1.7 miles of a four-lane divided facility to provide auxiliary lanes as outlined in the Scope of Work section of this RFP. The Design-Build Team shall prepare final designs, construction drawings and special provisions.

The Design-Build Team shall acknowledge that project documents furnished by the Department are preliminary and provided solely to assist the Design-Build Team in the development of the project design. The Design-Build Team shall be fully and totally responsible for the accuracy and completeness of all work performed under this contract and shall save the State harmless and shall be fully liable for any additional costs and all claims against the State which may arise due to errors, omissions and negligence of the Design-Build Team in performing the work required by this contract.

There shall be no assignment, subletting or transfer of the interest of the Design-Build Team in any of the work covered by the Contract without the written consent of the State, except that the Design-Build Team may, with prior written notification of such action to the State, sublet property searches and related services without further approval of the State.

The Design-Build Team shall certify all plans, specifications, estimates and engineering data furnished by the Team.

All work by the Design-Build Team shall be performed in a manner satisfactory to the State and in accordance with the established customs, practices, and procedures of the North Carolina Department of Transportation, and in conformity with the standards adopted by the American Association of State Highway Transportation Officials, and approved by the U.S. Secretary of Transportation as provided in Title 23, U.S. Code, Section 109 (b). The decision of the Engineer / State / Department shall control in all questions regarding location, type of design, dimension of design, and similar questions.

Alternate designs, details, or construction practices (such as those employed by other states, but not standard practice in NC) are subject to Department review and will be evaluated on a case by case basis.

The Design-Build Team shall not change team members, subconsultants or subcontractors identified in the Statement of Qualifications (SOQ) or Technical Proposal without written consent of the Engineer or the State Contract Officer. In addition, subconsultants and subcontractors not identified in the SOQ or Technical Proposal shall not perform any work without written consent by the Engineer. Individual offices of the Design-Build Team not identified in the Statement of Qualifications or the Technical Proposal submitted shall not perform any work without written consent by the Engineer. Failure to comply with this requirement may be justification for removing the Team from further consideration for this project and disqualification from submitting on future Design-Build Projects.

All firms shall be prequalified by the Department for the work they are to perform. Joint Ventures, LLCs or any legal structure that are different than the existing prequalification status must be prequalified prior to the Technical and Price Proposal submittal deadline. Subcontractors need only be prequalified prior to performing the work. Design firms should be prequalified prior to the Technical and Price Proposal submittal deadline. If not prequalified at the time of the Technical and Price Proposal submittal deadline, the prime contractor shall be solely responsible for either (1) ensuring that the design firm is prequalified prior to its first design submittal or (2) replacing that firm with a prequalified firm. Design firms and Natural Systems firms are prequalified by the particular office performing the work. If the work is to be performed by an office other than the one that is prequalified, that office shall be prequalified prior to any design submittals.

ACCESS TO PROVIDED MATERIALS

To facilitate distribution of documents that may be helpful to the Design-Build Teams in their development of a Technical and Price Proposal and subsequent designs, project material will be made accessible through a secure web portal. The Design-Build Project Manager for each short-listed team shall provide a list of team members that will require access to this portal. This list shall include the name, e-mail address, and North Carolina Identity Management (NCID) for each individual team member. Once the list is complete, it shall be submitted to the Design-Build e-mail address (designbuild@ncdot.gov). No distribution of Provided Materials will be possible prior to this list being submitted and the access privileges established as noted herein.

To create an NCID account, each individual shall go to NCDOT's Connect website (https://connect.ncdot.gov) and click on the "How to get an Account" link and then, "Create NCID".

The Department will obtain access rights for these individuals and notify the Design-Build Project Manager accordingly. Individuals may then re-enter the "Connect" site and login with their NCID account. Once logged in, the Teamsite "R-3601 Project" link will be apparent on the left side of the webpage.

Please note that all material provided, including the material provided through this portal, is provided for informational purposes only and is provided solely to assist the Design-Build Team in the development of the project design. By submitting a Technical Proposal and Price Proposal, the Design-Build Team acknowledges that they are fully and totally responsible for the project design, including the use of portions of the Department design, modification of such design, or other designs as may be submitted by the Design-Build Team. The Design-Build Team further acknowledges that they are fully and totally responsible for the accuracy and completeness of all work performed, including the determination of the accuracy of the information provided through this portal, and to the extent that the Design-Build Team chooses to rely on such information.

ETHICS POLICY

Employees employed by the Design-Build Team or employees employed by any subconsultant for the Design-Build Team to provide services for this project shall comply with the Department's ethics policy. Failure to comply with the ethics policy will result in the employee's removal from the project and may result in removal of the Company from the Department's appropriate prequalified list.

PRIOR INVOLVEMENT (Static Load Test)

Reference is made to the Design-Build Policy and Procedures dated October 6, 2011. This Policy requires that Design-Build Team members that have performed work on the project previously for the Department must request and receive an exemption from the Department in order to pursue the project as part of a Design-Build Team. Firms participating in the static load test work to be contracted and performed in support of Project R-3601 are hereby exempted from the prohibition of participating on a Design-Build Team.

APPROVAL OF PERSONNEL

The Department will have the right to approve or reject any personnel, assigned to a project by the Design-Build Team.

In the event of engagement of a former employee of the Department, the Design-Build Team or their subcontractors shall restrict such person or persons from working on any of the Design-Build Team's contracted projects in which the person or persons were "formerly involved" while employed by the State. The restriction period shall be for the duration of the contracted project

with which the person was involved. *Former Involvement* shall be defined as active participation in any of the following activities:

Drafting the contract
Defining the contract scope of the contract
Design-Build Team selection
Negotiation of the contract cost (including calculating manhours or fees); and
Contract administration

An exception to these terms may be granted when recommended by the Secretary and approved by the Board of Transportation.

Failure to comply with the terms stated above in this section shall be grounds for termination of this contract and / or not being considered for selection of work on future contracts for a period of one year.

SUBMITTAL OF TECHNICAL AND PRICE PROPOSALS

Technical and / or Price Proposals that do not adhere to all the requirements noted below may be considered non-responsive and may result in the Department not considering the Design-Build Team for award of the contract or reading their Price Proposal publicly.

GENERAL

Technical and Price Proposals will be accepted until **4:00 p.m. Local Time on Thursday, November 21, 2013** at the office of the State Contract Officer:

Mr. Randy A. Garris, PE
NCDOT - Contract Standards and Development
Century Center Complex - Building B
Entrance B2
1020 Birch Ridge Drive
Raleigh, NC 27610

No Proposals will be accepted after the time specified.

Proposals shall be submitted in 2 separate, sealed parcels containing the Technical Proposal in one and the Price Proposal in the other parcel.

TECHNICAL PROPOSAL

Technical Proposals shall be submitted in a sealed package. The outer wrapping shall clearly indicate the following information:

Technical Proposal
Submitted By: (Design-Build Team's Name)
Design-Build Team Address
Contract Number C 203359
TIP Number R-3601
Brunswick and New Hanover Counties
US 17-74-76 from NC 133 (River Road) /
SR 1472 (Village Road) Interchange to US 421 / NC 133 Interchange

If delivered by mail, the sealed envelope shall be placed in another sealed envelope and the outer envelope addressed to the Contract Officer as stated in the Request for Proposals. The outer envelope shall also bear the statement "Technical Proposal for the Design/Build of State Highway Contract No. C 203359".

Technical Proposal Requirements

12 Copies
8 ½ inch by 11 inch pages
No fold-out sheets allowed, except as permitted below
Printed on one side only
Double-spaced
Font size 12
Minimal font size 10 is permissible within embedded tables, charts, or graphics. No more than 50 pages, excluding the introductory letter to Mr. Randy Garris, P.E. (two-page maximum length) and the 11 inch by 17 inch appropriate plan sheets
24 x 36 inch fold out sheets will only be allowed to present interchange plans

Project team members, identified in the Statement of Qualifications, shall not be modified in the Technical Proposal without written approval of the Department. Any such request should be sent to the attention of Mr. Randy Garris, PE, at the address below:

NCDOT- Contract Standards and Development
Century Center Complex - Building B
1020 Birch Ridge Drive
Raleigh, NC 27610

PRICE PROPOSAL

Price Proposals shall be submitted in a sealed package. The outer wrapping will clearly indicate the following information:

Price Proposal
Submitted by (Design-Build Team's Name)
Design-Build Team Address
Contract Number C 203359
TIP Number R-3601
Brunswick and New Hanover Counties
US 17-74-76 from NC 133 (River Road) /
SR 1472 (Village Road) Interchange to US 421 / NC 133 Interchange

The Price Proposal shall be submitted by returning the Request for Proposals with the item sheets completed, and all required signatures and bonds. Failure to execute the required documents may render the proposal non-responsive.

If delivered by mail, the sealed envelope shall be placed in another sealed envelope and the outer envelope addressed to the Contract Officer as stated in the Request for Proposals. The outer envelope shall also bear the statement "Price Proposal for the Design/Build of State Highway Contract No. C 203359".

EVALUATIONS

Decisions based on cost alone will not establish the design standards for the project. Technical Proposals shall address the technical elements of the design and construction of the project. The Technical Review Committee will consider the understanding of the project, the anticipated problems and the solutions to those problems, in addition to other evaluation criteria identified herein.

The Design-Build Team's Technical Proposal shall be developed using narratives, tables, charts, plots, drawings and sketches as appropriate. The purpose of the Technical Proposal is to document the firm's understanding of the project, demonstrate the Team's capabilities to complete the project, document their selection of appropriate design criteria, and state their approach and schedule for completing all design and construction activities.

The review of design plans by the Department is not intended to reflect a reviewer's personal preferences, but rather to ensure that all contract requirements are met, sound engineering judgment is exercised by the Design-Build Team, and that the Design-Build Team adheres to all referenced documents, including but not limited to, design standards, codes, memos and manuals. As such, the award of the Design-Build contract does not in any way imply that the NCDOT accepts the details of the Technical Proposal submitted by the Design-Build Team.

The Technical Proposal will be evaluated in each of the following major categories:

	EVALUATION FACTORS	POINTS
1.	Management	10
2.	Responsiveness to Request for Proposal	25
3.	Long Term Maintenance	5
4.	Schedule and Milestones	25
5.	Innovation	5
6.	Maintenance of Traffic and Safety Plan	25
7.	Oral Interview	5

TECHNICAL PROPOSAL EVALUATION CRITERIA

1. Management – 10 points

Design-Build Team Management

- Describe the Design-Build Team's concept of design management. The proposal shall identify key positions and subordinate organizational units.
- Describe the plan for the coordination of civil / structural, utilities, traffic maintenance, constructability and environmental responsibility.
- Provide a narrative description of the proposed location of the design office(s) and their respective responsibilities.
- Describe how the designs developed by different firms and offices will be integrated.
- Describe how design personnel will interface with the construction personnel.
- Describe the overall strengths of the Design Team and their ability to fulfill the design requirements of this project.
- Provide a list of projects that the Transportation Management Designer has developed Transportation Management Plans, including a description and similarities to the subject project.

Quality Management

- Describe how the Design-Build Team will comply with the quality control requirements for both design and construction. Specifically, include a narrative describing the Design-Build Team's understanding of the Department's construction quality control philosophy for this project and how the Design-Build Team will implement it.
- The Design-Build Team should detail the number of inspectors they expect the Department to furnish, during various phases, to allow satisfactory progress of project construction.
- Describe any significant quality control issues experienced on NCDOT projects in the last ten years and how those issues will be addressed for this project.
- The narrative shall include both design and construction activities.

Construction Management

- Describe the Design-Build Team's concept of the project construction management organization and how it interrelates with the other elements of the Design-Build Team's organization for the project.
- Provide a brief narrative description of the Design-Build Team's proposed plan for performing construction on the project. This description shall include at least the following:

    - A construction organization chart for the project, showing the relationships between functions shown on the chart and the functional relationships with subcontractors.
    - The chart shall indicate how the Design-Build Team intends to divide the project into work segments to enable optimum construction performance.
    - Descriptions of those categories of work that the Design-Build Team anticipates will be performed by the Design-Build Team's own direct labor force and those categories that will be performed by subcontractors.
    - The Design-Build Team's plans and procedures to insure timely deliveries of materials to achieve the project schedule.
    - Describe the overall strengths of the construction team and their ability to fulfill the construction and construction management requirements of this project.
    - Describe the Design-Build Team's approach to site access and material staging.

2. Responsiveness to RFP – 25 points

Natural Environmental Responsibility

- Identify any changes to the design and / or construction methods provided by the department that may require permit modifications.
- Describe the Design-Build Team's approach to addressing environmental concerns within the project boundaries.
- Identify efforts to minimize impacts on wetlands, streams, riparian buffers, and other environmentally sensitive areas.
- Identify innovative approaches to minimize any impacts in environmentally sensitive areas. Describe any temporary impacts and associated minimization approaches.
- Identify methods of construction in wetlands, streams, and buffers.
- Describe all project / construction related Notice of Violations (NOV's) received by any team member within the last five years on projects in the United States and the disposition of each listed NOV.
- Describe the Design-Build Teams approach to Sedimentation and Erosion Control for the project.
- Provide a narrative overview of the Design-Build Team's Vegetation Management Plan.

Design Features

- Show plan view of design concepts with key elements noted.
- Identify preliminary horizontal and vertical alignments of all roadway elements.
- Identify proposed deviations to the preliminary and / or final designs provided by the Department.
- Identify any deviations, including proposed design exceptions, from the established design criteria that will be utilized. Explain why the deviation is necessary.
- Show typical sections for the mainline.
- Specify the mainline pavement alternate chosen.
- Specify where all underlying longitudinal joints will be located and demonstrate how the underlying longitudinal joint location will minimize reflective cracking.
- Identify drainage modifications and designs to be implemented.
- Identify all locations where the roll-over between adjacent lanes exceeds 0.04 in tangent sections and provide justification for the steeper cross slopes.
- Describe how the proposed longitudinal grades, superelevation, cross slopes, etc. will minimize hydroplaning concerns.
- Identify the appropriate design criteria for each feature, if not provided.
- Describe any geotechnical investigations to be performed by the Design-Build Team.
- Identify any special aesthetics considerations that will be part of the design. Reference the Structures Scope of Work for details on bridge aesthetic expectations.
- Identify any changes to the design and / or construction methods associated with wet utilities.
- Describe how the proposed design eliminates / increases utility conflicts that have been identified in the Utility Plans by Others and Utility Construction Plans provided by the Department. Describe how the Design-Build Team's design and construction methods minimize the Department's utility relocation costs.
- Identify any design deviations / construction methods that require additional right of way and / or easements.
- Identify types of retaining walls, if applicable.

3. Long Term Maintenance – 5 points

- Describe any special materials, not referenced elsewhere in the contract, incorporated into the project that would result in long term reduction in maintenance.
- Describe any special designs or construction methods that would reduce future maintenance costs to the Department.
- Estimate a minimum ten-year cost saving resulting from incorporation of these special materials, design, or construction methods into the project.

4. Schedule and Milestones – 25 points

- Provide a detailed schedule for the project including both design and construction activities. The schedule shall show the sequence and continuity of operations, as well as the month of delivery of usable segments of the project.

- The schedule shall clearly indicate the Design-Build Team's final completion date. **This date shall be clearly indicated on the Project Schedule and labeled "Final Completion Date"**.

- Indicate the proposed number of calendar days for Intermediate Contract Time #1, Intermediate Contract Time #2, and Intermediate Contract Time #8.

5. Innovation – 5 points

- Identify any aspects of the design or construction elements that the Design-Build Team considers innovative. Include a description of alternatives that were considered whether implemented or not.

6. Maintenance of Traffic and Safety Plan – 25 points

Maintenance of Traffic

- Describe any traffic control requirements that will be used for each construction phase.
- Describe how traffic will be maintained as appropriate and describe the Design-Build Team's understanding of any time restrictions noted in the RFP.
- Specifically describe how business, school, and residential access will be maintained, if applicable.
- Address how hauling will be conducted.
- Identify a Traffic Control Supervisor.
- If temporary shoring will be required, provide the type and why it is required.
- Include all proposed offsite detours; reason for need and duration.
- Provide duration times if temporary barrier is used along acceleration ramps in locations where ramp traffic merges with mainline traffic.
- Identify all proposed. road closures, durations, and justifications.
- Identify the intention to use any "on-site" detours.

Safety Plan

- Describe the safety considerations specific to the project.
- Discuss the Design-Build Team's overall approach to safety.
- Describe any proposed improvements that will be made prior to or during construction that will enhance the safety of the work force and/or travelling public both during and after the construction of the project.

7. Oral Interview – 5 points

- The Design-Build Team's Project Management Team shall present a brief introduction of the project team and design / construction approach.
- Introductory comments shall be held to no more than 25 minutes.

- The Department will use this interview to ask specific questions about the Team's Technical Proposal, background, philosophies, and approach to the project.
- Presentation, questions, and answers shall not exceed 75 minutes. No more than 10 people from the Design-Build Team may attend.

The Department will use the information presented in the oral interview to assist in the evaluation of the Technical Proposal.

Additional Warranty and / or Guarantee

- **The Extra Credit for this project shall be a Maximum of 5 Points.**

A twelve-month guarantee as outlined in the *Twelve-Month Guarantee* Project Special Provision is required for this project. However, the Design-Build Team may provide additional warranties and / or guarantees at their discretion. The Design-Build Team may be awarded additional points as "extra credit" to be added to the Technical Score.

The Design-Build Team may provide warranties and / or guarantees for major components of the project. Examples of major components are pavements, bridge components, and sign structures. If additional warranties and / or guarantees are offered, the Design-Build Team shall indicate in the Technical Proposal the general terms of the warranties and / or guarantees, a list of the items covered, performance parameters, notification and response parameters for corrective action, and evaluation periods. The Department will be responsible for annual inspections of the components covered by all warranties and / or guarantees offered by the Design-Build Team that extend beyond the required Twelve-Month Guarantee. The warranties and / or guarantees shall also define how disputes will be handled. Prior to the first partial payment, the Design-Build Team shall submit a document that provides additional warranty / guarantee specifics in sufficient detail that allows the document to be made a part of the contract through supplemental agreement.

No direct payment will be made for warranties and / or guarantees. Payment will be considered incidental to the lump sum price for the contract.

SELECTION PROCEDURE

There will be a Technical Review Committee (TRC) composed of five or more senior personnel from involved engineering groups that will evaluate the Technical Proposal on the basis of the criteria provided in the Request for Proposals.

The selection of a Design-Build Team will involve both technical quality and price. The Technical Proposals will be presented to the TRC for evaluation. The TRC shall first determine whether the proposals are responsive to the requirements of the Request for Proposals. The Department reserves the right to ask for clarification on any item in the Technical Proposal. A written response to this request for clarification shall be provided to the Department prior to the opening of the Price Proposals. The contents of the written response may affect the Technical Review Committee's determination of the Technical Proposal's responsiveness and/or the overall evaluation of the Technical Proposal. If any commitments or clarifications provided in

the written response conflict with the contents of the Technical Proposal, the contents of the written response will govern and be incorporated into the contract.

Each responsive Technical Proposal shall be evaluated based on the rating criteria provided in the Request for Proposals. The TRC will submit an overall consensus Technical Proposal score for each Design-Build Team to the State Contract Officer.

Quality Credit Evaluation Factors for Technical Proposals

Management	10
Responsiveness to Request for Proposal	25
Long Term Maintenance	5
Schedule and Milestones	25
Innovation	5
Maintenance of Traffic and Safety Plan	25
Oral Interview	5
Maximum Score	**100**

The State Contract Officer will use a table based on the maximum quality credit percentage to assign a Quality Credit Percentage to each proposal based on the proposal's overall Technical Score. The maximum quality credit percentage for this project will be **25%**. The Technical Review Committee may elect to assign point values to the nearest one-half of a point (e.g. 90.5). In this event, the Quality Credit Percentage will be determined by linearly interpolating within the table entitled "Quality Credit Percentage for Technical Proposals".

Quality Credit Percentage for Technical Proposals

Technical Score	Quality Credit (%)	Technical Score	Quality Credit (%)
100	25.00	84	11.67
99	24.17	83	10.83
98	23.33	82	10.00
97	22.50	81	9.17
96	21.67	80	8.33
95	20.83	79	7.50
94	20.00	78	6.67
93	19.17	77	5.83
92	18.33	76	5.00
91	17.50	75	4.17
90	16.67	74	3.33
89	15.83	73	2.50
88	15.00	72	1.67
87	14.17	71	0.83
86	13.33	70	0.00
85	12.50		

The maximum Technical Score, including any extra credit given for warranties or guarantees, shall not exceed 100 points in determining the Quality Credit percentage.

If any of the Technical Proposals are considered non-responsive, the State Contract Officer will notify those Design-Build Teams of that fact. The State Contract Officer shall publicly open the sealed Price Proposals and multiply each Design-Build Team's Price Proposal by the Quality Credit Percentage earned by the Design-Build Team's Technical Proposal to obtain the Quality Value of each Design-Build Team's Technical Proposal. The Quality Value will then be subtracted from each Design-Build Team's Price Proposal to obtain an Adjusted Price based upon Price and Quality combined. Unless all Proposals are rejected or the Department elects to proceed with the Best and Final Offer process, the Department will recommend to the State Transportation Board that the Design-Build Team having the lowest adjusted price be awarded the contract. The cost of the Design-Build contract will be the amount received as the Price Proposal.

The following table shows an example of the calculations involved in this process.

An Example of Calculating Quality Adjusted Price Ranking

Proposal	Technical Score	Quality Credit (%)	Price Proposal ($)	Quality Value ($)	Adjusted Price ($)
A	95	20.83	3,000,000	624,900	2,375,100
B	90	16.67	2,900,000	483,430	2,416,570
C *	90	16.67	2,800,000	466,760	2,333,240
D	80	8.33	2,700,000	224,910	2,475,090
E	70	0.00	2,600,000	0	2,600,000
* Successful Design-Build Team – Contract Cost $2,800,000					

Opening of Price Proposals

Prior to opening the Price Proposals, the State Contract Officer will provide to each Design-Build Team their Technical Score in a sealed envelope. The sealed envelope will contain that Team's score only.

At the time and date specified, the State Contract Officer will open the Price Proposals and calculate the percentage difference between the Price Proposals submitted and the Engineer's Estimate.

Should all of the Price Proposals be within an acceptable range or below the Engineer's Estimate the State Contract Officer will proceed to calculate the quality credit and publicly read the Price Proposal, Technical Score, and Adjusted Price as outlined in the selection procedure above.

Should any one or more of the Price Proposals be within an acceptable range or below the Engineer's Estimate and the remaining Price Proposals exceed an acceptable range of the Engineer's Estimate the State Contract Officer will go to a separate location to calculate the quality credit and determine if the Design-Build Team with the lowest Adjusted Price is within an acceptable range of the Engineer's Estimate. Should the Price Proposal of the Design-Build Team with the lowest Adjusted Price be within an acceptable range of the Engineer's Estimate or below the Engineer's Estimate the State Contract Officer will proceed to publicly read the Price Proposals, Technical Scores, and Adjusted Prices. Should the Price Proposal of the Design-Build

Team with the lowest Adjusted Price exceed an acceptable range of the Engineer's Estimate the State Contract Officer will publicly read the Price Proposals only and the Department will then determine whether to proceed to request a Best and Final Offer (BAFO) as outlined below.

Should all Price Proposals submitted exceed an acceptable range of the Engineer's Estimate the State Contract Officer will publicly read the Price Proposals only. The Department will then determine whether to proceed to request a Best and Final Offer (BAFO) as outlined below.

In the event that the Department elects to not proceed with a Best and Final Offer (BAFO), then the State Contract Officer will schedule a date and time to publicly reiterate all Price Proposals, and read all Technical Scores and Adjusted Prices.

Provided the Department elects to proceed to request a Best and Final Offer (BAFO), at the date and time specified, the State Contract Officer will open the Best and Final Offer Price Proposals and proceed to publicly read all Price Proposals, Technical Scores and Adjusted Prices.

Best and Final Offer

In the event initial Price Proposals exceed an acceptable range of the Engineer's Estimate or if the Department feels it is necessary for any reason the Department may choose to make amendments to the details of the RFP and request a Best and Final Offer from all of the previously short-listed teams. Alternately, the Department may choose to redistribute to the short-listed Design-Build Teams another RFP for the project with no amendments to the RFP scope.

After receipt of the redistributed RFP, the Design-Build Team has the option of changing their Technical Proposal details. If the Design-Build Team changes any component of the Technical Proposal, the TRC will review those amended components of the Technical Proposal and reevaluate the scores accordingly. The Design-Build Team shall highlight the changes to bring them to the Department's attention. A revised total score will be calculated, if appropriate, based on these amendments to the Technical Proposal.

Additional oral interviews will not be held. The Design-Build Teams shall submit both a revised Price Proposal and a revised Technical Proposal (if applicable) at the time, place, and date specified in the redistributed RFP. A revised Quality Credit Percentage (if required) and Adjusted Price will be determined. This will constitute the Design-Build Team's Best and Final Offer. Award of the project may be made to the Design-Build Team with the lowest Adjusted Price on this Best and Final Offer for the project.

Stipend

A stipulated fee of **$45,000** will be awarded to each short-listed Design-Build Team that provides a responsive, but unsuccessful, Design-Build Proposal. If a contract award is not made, all short-listed Design-Build Teams that provide a responsive Design-Build Proposal shall receive the stipulated fee. Once award is made, or a decision is made not to award, unsuccessful Design-Build Teams can apply for the stipulated fee by notifying the State Contract Officer in writing and providing an original invoice. If the Design-Build Team accepts the stipulated fee, the Department reserves the right to use any ideas or information contained in the Design-Build

Proposal and / or Alternative Technical Concepts, whether incorporated into the Design-Build Proposal or not, in connection with any contract awarded for the project, or in connection with any subsequent procurement, with no obligation to pay additional compensation to the unsuccessful Design-Build Team. The stipulated fee shall be paid to eligible Design-Build Teams within ninety days after the award of the contract or the decision not to award. Unsuccessful Design-Build Teams may elect to refuse payment of the stipulated fee and retain any rights to its Design-Build Proposal and the ideas and information contained therein.

In the event that the Department suspends or discontinues the procurement process prior to the Design-Build Proposal submittal date current at the time of the suspension, no stipulated fee will be paid.

DESIGN-BUILD SCOPE OF WORK (10-16-13)

****NOTE** Throughout this RFP, references to the Design-Build Team's design responsibilities, including but not limited to ensuring the accuracy and completeness of information provided by the Department, does not apply to signed and sealed documents / plans provided by the Department.**

- The Department will be responsible for the accuracy and completeness of all signed and sealed plans / reports provided by the Department and shall be fully liable for any additional costs, and extensions of contract time, due to errors in these plans / reports; however, the Design-Build Team shall be responsible for examining the sealed plans / reports and developing their own quantities to use in the formulation of their Price Proposal. No additional compensation will be provided as a result of an error or omission in the plan quantities unless such a quantity error or omission is due to an error in the design of the sealed drawings. For the provided sealed plans / reports, the Design-Build Team shall coordinate revisions due to any plan errors with the Engineer of Record through the Transportation Program Management Director.

- The Department will provide signed and sealed Structural Plans. In the event that the Design-Build Team elects not to adhere to the design depicted in the signed and sealed Structural Plans provided by the Department, the Design-Build Team shall develop new Structural Plans in accordance with the requirements noted in the Structures Scope of Work found elsewhere in this RFP.

- For use with the foundation design included in the aforementioned signed and sealed Structural Plans, the Department will provide signed and sealed plans for a static axial load test for the Brunswick River replacement bridge (Bridge No. 103). If the Design-Build Team elects to perform other static axial load tests, the Design-Build Team shall develop a static axial load test design in accordance with the requirements noted in the Geotechnical Engineering Scope of Work found elsewhere in this RFP.

- The Design-Build Team is cautioned that the vertical alignment on the signed and sealed Structural Plans for the Brunswick River replacement bridge (Bridge No.103) is not consistent with the approaching and departing roadway vertical alignment. If the Design-Build Team elects to use the Department's Structural Plans, the Department will provide revised signed and sealed Structural Plans that are based on the Design-Build Team's roadway vertical alignment. However, the Design-Build Team's vertical alignment must result in a low chord for each span that matches, or is higher, than the elevation above Mean High Tide shown on the US Coast Guard Permit Application provided by the Department. The resulting higher Brunswick River replacement bridge will not require additional Coast Guard coordination. The revised signed and sealed Structural Plans required solely to revise the Brunswick River replacement bridge vertical alignment will be provided to the Design-Build Team within fifteen working days of accepting the Design-Build Team's Preliminary Roadway Plans.

- The Department will provide signed and sealed Bridge Survey Reports. In the event that the Design-Build Team elects not to adhere to the design depicted in the sealed Bridge Survey Reports provided by the Department, the Design-Build Team shall develop new Bridge Survey Reports as required by the Hydraulic Guidelines noted elsewhere in this RFP. Reference the Hydraulics Scope of Work.

- The Department will provide signed and sealed Utility Construction Plans. Unless noted otherwise elsewhere in this RFP, the Design-Build Team shall be responsible for the coordination, permitting and construction of the utilities in accordance with the signed and sealed Utility Construction Plans provided by the Department.

- Preliminary Utilities by Others Plans will be provided by the Department. The Design-Build Team shall be responsible for all subsequent coordination with the utility owners to ensure that the final Utilities by Others Plans are consistent with the Design-Build Team's design and construction methods. Coordination shall include any necessary utility agreements when applicable. (Reference the Utilities Scope of Work found elsewhere in this RFP.)

- For the realignment of Blackwell Road (-Y2-) and -Y2A-, the Department will provide Erosion Control Plans, and signed and sealed Roadway Plans, Pavement Marking Plans, Signing Plans and Utility Construction Plans. In the event that the Design-Build Team elects not to adhere to the designs depicted in the aforementioned plans provided by the Department, the Design-Build Team shall develop new designs that adhere to all requirements in the appropriate Scope(s) of Work found elsewhere in this RFP.

- The Design-Build Team is encouraged to construct according to all provided sealed plans / documents. The Design-Build Team may choose to modify the designs on these signed and sealed plans / documents. In such case, the Design-Build Team shall assume full responsibility for the design of that work item and submit signed and sealed plans for Department review and acceptance. Intentions to do so must also be clearly noted in the Technical Proposal. Submittals for such design changes will be required to follow the Design-Build Submittal Guidelines as expected for other current Design-Build projects. No additional compensation will be provided and no extension of contract time will be granted due to the Design-Build Team's election to modify the sealed plans / documents provided by the Department.

- Changes to the designs provided by the Department that affect other design issues, including but not limited to, bridge lengths, sign structures, etc. shall render the Design-Build Team responsible for all re-design of the affected items. In all cases, the Technical Proposal shall clearly address the proposed resolution of affected designs.

- The Design-Build Team shall be responsible for the development, accuracy, completeness and sealing of all other design disciplines, including the development of Sealed Roadway Plans.

- This project shall be paid for on a lump sum basis, unless otherwise identified in the Itemized Proposal Sheet. Any other references to pay items, bases of payments, and measurement for the purpose of payment found in the plans or in this Request for Proposals shall be considered null and void.

ROADWAY SCOPE OF WORK (10-11-13)

Project Details

- The Design-Build Team shall design and construct a four-lane divided facility with auxiliary lanes from the NC 133 (River Road) / SR 1472 (Village Road) Interchange to the US 421 / NC 133 Interchange west of Wilmington in Brunswick and New Hanover Counties. Unless noted otherwise elsewhere in this RFP, the Design-Build Team shall design and construct the -L- Line providing the same or better access, widening, improvements and level of service included in the R-3601 Right of Way Plans provided by the Department. The limits of -L- Line construction shall be of sufficient length to tie to existing based upon the current NCDOT guidelines and standards. The mainline shall be designed and constructed to meet a 60 mph design speed for a level terrain freeway. The Design-Build Team shall provide all other design criteria in the Technical Proposal.

- Upon completion of the NC 133 (River Road) improvements, and to the extent possible without impacting existing underground utilities, the Design-Build Team shall completely remove the existing roadway and drainage structures within the abandoned section of Blackwell Road.

- Along the -L- Line, the Design-Build Team shall design and construct minimum 12-foot outside shoulders, ten-foot of which shall be full depth paved shoulders, including all acceleration, deceleration and auxiliary lanes, and ramps / loops to the back of the gore (12-foot width). The Design-Build Team may retain the existing outside paved shoulders, or any portion thereof, to obtain the aforementioned outside full depth paved shoulders. ~~(The Design-Build Team will not be required to remove and replace the existing outside paved shoulders to obtain the aforementioned ten-foot outside full-depth paved shoulder width.)~~ Along the -L- Line, the Design-Build Team shall design and construct minimum ten-foot median shoulders, six-foot of which shall be full depth paved shoulders.

- Unless noted otherwise elsewhere in this RFP, the Design-Build Team shall design and construct -Y- Lines, ramps, service roads and cul-de-sacs providing the same or better access, widening, improvements and level of service included in the R-3601 Right of Way Plans provided by the Department. The limits of -Y- Line construction shall be of sufficient length to tie to existing based upon the current NCDOT guidelines and standards.

- In accordance with the requirements noted below, the Design-Build Team shall design and construct a diverging diamond interchange (DDI) at the NC 133 (River Road) / SR 1472 (Village Road) Interchange:

    - Between and through the DDI crossovers, the Design-Build Team shall design and construct lane widths that accommodate a WB-67; however, the minimum lane width between and through the DDI crossovers shall be 15 feet. All approach / departure lanes to / from the crossovers shall be tapered to the crossover lane-width prior to entering / after exiting the curve approaching / departing the crossover.

- Unless noted otherwise elsewhere in this RFP, the Design-Build Team shall design and construct lane widths for all spurs (right and left turn movements from / to the mainline) that accommodate a WB-67; however, the minimum spur lane width shall be 15 feet. All approach / departure ramp lanes to / from the spurs shall be tapered to the spur lane width prior to entering / after exiting the spur. Regardless of the spur lane width, all spur alignments shall be located 15 feet from the edge of travel lane.

- The four ramp channelization islands shall be raised grass islands bordered with 2'-6" curb and gutter.

- Excluding the median section between the DDI crossovers, the Design-Build Team shall design and construct five-foot sidewalk on both sides of the -Y- Line. Between the DDI crossovers, the Design-Build Team shall provide a minimum ten-foot wide pedestrian accommodation within the -Y- Line median. Along both sides of the aforementioned ten-foot pedestrian accommodation, the Design-Build Team shall provide barrier (2'-6" concrete dual flat-faced barrier with metal handrail and no glare screen) that extends a minimum of 42" above the walking surface. The barrier shall meet AASHTO TL-2 crash test requirements and terminate with a ten-foot taper that reduces the barrier height to 2'-3". Excluding within the aforementioned ten-foot taper, the handrail shall be installed in accordance with the 10-30-2013 Proposed Pedestrian Safety Rail Detail provided by the Department.

- The curves approaching / departing the crossovers shall slope from the median to the outside at a 0.025 cross slope.

- The Design-Build Team shall design and construct one-lane ramps that provide a minimum 16-foot lane width unless otherwise noted in this document. The Design-Build Team shall design and construct two lane ramps that provide minimum 12-foot lanes. All ramps shall have 14-foot outside shoulders, four-foot of which shall be full depth paved shoulders and 12-foot inside shoulders, four-foot of which shall be full depth paved shoulders.

- Unless noted otherwise elsewhere in this RFP, the Design-Build Team shall design and construct at-grade intersections with the lane configurations noted in the Congestion Management Recommendations. All turn lane lengths shall meet the NCDOT standards where vehicle storage does not govern or the lengths required by the aforementioned Congestion Management Recommendations, whichever is greater. This determination shall be made by calculating the recommended treatment for turn lanes, incorporating the minimum deceleration lengths, as defined in the NCDOT Roadway Design Manual (Reference Section 9-1, Figure F-4A) and comparing the calculated values with the NCDOT minimum turn lane lengths. At all intersections impacted by the Design-Build Team's design and / or construction, excluding resurfacing, the Design-Build Team shall accommodate the right turn maneuver in accordance with the NCDOT Roadway Design manual (Reference Section 9-1, Figure F-4C).

- For all intersection / interchange design modifications, the Design-Build Team shall provide a traffic analysis that adheres to the January 1, 2012 Congestion Management Capacity Analysis Guidelines for the Department's review and acceptance.

- At all intersections with restricted movements impacted by the Design-Build Team's design and / or construction methods, excluding resurfacing, the Design-Build Team shall provide 5" keyed-in concrete monolithic channelization islands.

- US 17-74-76 is a full control of access facility. The Design-Build Team shall bring to the Transportation Program Management Director's attention any deviations from the proposed control of access shown on the R-3601 Right of Way Plans provided by the Department. Prior to negotiating right of way, easement and / or control of access with property owners, the Design-Build Team shall delineate the proposed acquisitions on the Right of Way Plans developed by the Design-Build Team for the Department's review and acceptance.

- Prior to installation, the Design-Build Team shall be responsible for coordinating with, and obtaining approval from, the NCDOT for the control of access fence placement. Excluding within marsh areas, the Design-Build Team shall be responsible for installation of the control of access fence as noted below:

  - Excluding along SR 1472 (Village Drive), the Design-Build Team shall install four-foot woven wire fence.

  - Along SR 1472 (Village Drive), the Design-Build Team shall install five-foot chain-link fence.

  - Except as required otherwise above, the Design-Build Team shall replace, in kind, all control of access fence damaged during construction.

  - Except as required otherwise above, the Design-Build Team shall install all missing control of access fence, matching the adjacent fence type.

- The Design-Build Team shall not further impact any cultural, historical or otherwise protected landmark or topographic feature beyond that shown on the R-3601 Right of Way Plans provided by the Department.

- The Design-Build Team shall provide milled rumble strips along the mainline outside and median paved shoulders, including ramp terminals, and acceleration, deceleration and auxiliary lanes, in accordance with the January 2012 Roadway Standard Drawings.

- For all bridges over roadways, the Design-Build Team shall submit vertical and horizontal clearance design calculations at all critical points. The Design-Build Team shall submit post construction survey points for the aforementioned critical points that verify construction adheres to the vertical and horizontal clearances accepted by NCDOT. The Design-Build Team shall be responsible for all costs associated with correcting vertical and horizontal clearances resulting from any construction variation from the design accepted by NCDOT.

- The Design-Build Team shall be responsible for all Service Road Studies for landlocked parcels, as required by variations to the Department's design. If required by the

aforementioned Service Road Studies, the Design-Build Team shall be responsible for the design and construction of all additional service roads, as well as all associated NEPA requirements.

- Excluding haul roads, the Design-Build Team shall design and construct resurfacing grades for all roadways impacted by construction. All resurfacing grades shall adhere to the design criteria and standards, provide all required pavement wedging (Reference the Pavement Management Scope of Work found elsewhere in this RFP) and adhere to the minimum requirements noted below:

  - The Design-Build Team shall resurface all lanes and shoulders of an undivided facility throughout the limits of proposed widening and construction.

  - The Design-Build Team shall resurface each one-way roadway of a divided facility throughout the limits of the one-way roadway widening and construction, allowing varying resurfacing limits for the opposing directions of travel.

  - Excluding the approximately 0.7-mile section of -RPLRT- extending from approximately Station 122+75 to Station 160+00, for both divided and undivided facilities, the Design-Build Team shall resurface all lanes and shoulders within the outermost construction limits of all proposed widening and construction, including any gaps along the facility where construction activities are not required.

  - The Design-Build Team shall resurface all existing facilities to the limits of pavement marking obliterations / revisions.

- The Design-Build Team shall provide turn-arounds on all roads that are dead-ended.

- The Design-Build Team shall inform the Transportation Program Management Director, in writing, of any proposed changes to the NCDOT preliminary design, previously reviewed submittals or the Design-Build Team's Technical Proposal and obtain approval prior to incorporation. The Design-Build Team shall note in the Technical Proposal any proposed deviations to the design shown on the R-3601 Right of Way Plans provided by the Department. The Design-Build Team shall be responsible for any activities, as deemed necessary by the Department or the FHWA, resulting from changes to the NCDOT preliminary design, including but not limited to, public involvement, NEPA re-evaluation and / or coordination with other stakeholders, including but not limited to the Cities of Leland and / or Belville. The Department shall not honor any requests for additional contract time or compensation for completion of the required activities resulting from changes to the NCDOT preliminary design.

- Excluding ramp horizontal alignments, design exceptions will not be allowed for the -L- Line. NCDOT prefers not to have design exceptions for the -Y- Lines and service roads. If the Design-Build Team anticipates any design exceptions, they shall be clearly noted in the Technical Proposal. Prior to requesting / incorporating a design exception into the Final Plans, the Design-Build Team must obtain prior conceptual approval from the Transportation

Program Management Director and the FHWA. If conceptual approval is obtained, the Design-Build Team shall be responsible for the development and approval of all design exceptions.

- A minimum four-foot 6:1 back slope shall extend from the back of all expressway gutter. Beyond that four-foot width, a 3:1 back slope will be acceptable.

General

- The design shall be in accordance with the 2011 AASHTO *A Policy on Geometric Design of Highways and Streets*, 2002 NCDOT *Roadway Design Manual*, including all revisions effective on the Technical Proposal submittal date, January 2012 NCDOT Roadway Standard Drawings, or as superseded by detail sheets located at **https://connect.ncdot.gov/resources/Specifications/Pages/2012-Roadway-Drawings.aspx,** *Roadway Design Policy and Procedure Manual, Roadway Design Guidelines for Design-Build Projects,* 2012 *North Carolina Standard Specifications for Roads and Structures* and the 2011 AASHTO *Roadside Design Guide*, 4th Edition and 2012 Errata.

- If the NCDOT *Roadway Design Manual*, the 2011 AASHTO *A Policy on Geometric Design of Highways and Streets*, the 2012 *Roadway Standard Drawings* and / or any other guidelines, standards or policies have desirable and / or minimum values, the Design-Build Team shall use the desirable values unless noted otherwise elsewhere in this RFP. Similarly, in case of conflicting design parameters, and / or ranges, in the various resources, the proposed design shall adhere to the most conservative values, unless noted otherwise elsewhere in this RFP.

- At all intersections, the Design-Build Team shall provide a maximum 0.05 roll-over between the outside edge of travel lane of the primary roadway and the beginning of the proposed grade for the secondary roadway.

- In all tangent sections, the algebraic difference in rates of cross slope (roll-over) between adjacent lanes shall only exceed 0.04 to eliminate hydraulic issues / concerns. In all tangent sections, the cross slope shall not be steeper than 0.025. The Design-Build Team shall identify all locations where the roll-over exceeds 0.04 between adjacent lanes in tangent sections and provide justification for the steeper cross slopes in the Technical Proposal.

- The Design-Build Team shall describe how the proposed longitudinal grades, superelevation, cross slopes, etc. will minimize hydroplaning concerns in the Technical Proposal.

- Unless noted otherwise elsewhere in this RFP, the maximum allowable cut and fill slope shall be 3:1. (Reference the Geotechnical Scope of Work found elsewhere in this RFP) The slopes in the interchange area shall follow the requirements set forth in the *Roadway Design Guidelines for Design-Build Projects* located on the Design-Build web site.

- Outside the project limits, the Design-Build Team will not be allowed to use the NCDOT right of way and / or property for borrow or waste sites. Within the project limits, the Design-Build Team shall adhere to the following:
  - Only clean waste material may be wasted within the NCDOT right of way or property
  - Debris shall not be buried within the NCDOT right of way or property
  - Normal grading operations shall occur, including but not limited to, removal of the existing embankments supporting all removed roadway sections
- Unless noted otherwise elsewhere in this RFP, the Design-Build Team shall design and construct bridge rail offsets as indicated in the NCDOT Roadway Design Manual or that are equal to the approach roadway paved shoulders, whichever is greater. Narrower bridge rail offsets based on bridge length will not be allowed. The Design-Build Team will not be required to widen existing bridges solely to provide the aforementioned minimum bridge rail offsets.
- Within the project paving limits, the Design-Build Team shall remove, dispose of and replace all existing guardrail along the mainline, all -Y- Lines and all ramps. Unless noted otherwise elsewhere in this RFP, all guardrail placement shall be in accordance with the January 2012 NCDOT *Roadway Standard Drawings* and / or approved details in lieu of standards. The Design-Build Team will not be required to widen existing outside shoulders solely to increase the horizontal offset for guardrail that can be located a minimum of twelve feet from the proposed edge of the travel lane. Along all 3:1 fill slopes, constructed at fill heights that are equal to or greater than 12 feet, the Design-Build Team shall install guardrail. Along all fill slopes steeper than 3:1, constructed at fill heights that are equal to or greater than six feet, the Design-Build Team shall install guardrail. The guardrail / guiderail design shall be submitted for review with the Preliminary Plans submittal.
- Along all -Y- Line and driveway intersection radii, the proposed sidewalk shall parallel the curb and gutter, terminating at the radius point.
- Functional classifications that have a defined usable shoulder width shall have the appropriately wider overall shoulder width.
- The Design-Build Team shall be responsible for the evaluation of the algebraic difference in rates of cross slope (roll-over) between existing shoulders and roadways and the associated suitability for carrying traffic during construction, if necessary. In the event that the roll-over is found to be unacceptable for the proposed temporary traffic patterns, the Design-Build Team shall be responsible for providing cross slopes that meet design standards and eliminate roll-over concerns.
- The Design-Build Team shall submit Design Criteria, and Structure Recommendations if necessary, for NCDOT and FHWA review and acceptance prior to submittal of the Preliminary Plans. If necessary, the Design-Build Team shall develop Structure Recommendations that adhere to the format noted in the March 25, 2003 and September 1, 2004 memos from Mr. Jay Bennett, PE, State Roadway Design Engineer.

- Unless noted otherwise elsewhere in this RFP, the design speed for all roadways shall be the greater of the minimum design speed for the facility type or the anticipated / actual posted speed plus five-mph. If a speed limit is not physically posted on an existing facility, General Statues mandate the speed limit as 55 mph, resulting in a 60 mph design speed.

- Within the vehicle recovery area, the Design-Build Team shall design and construct single face concrete barrier in front of all retaining walls and all elements acting as a retaining wall.

- At all intersections impacted by the Design-Build Team's design and / or construction methods, excluding resurfacing, the following design vehicles shall be required for all turning movements:

  - WB-67 at all ramp intersections with -Y- Lines (For side-by-side turning maneuvers, WB-67 for the outside movement only and SU-30 for inside movement)

  - WB-62 at all other intersections

- Excluding widened sections of existing bridges, a sag vertical curve low point will not be allowed on any proposed bridge or approach slab.

- ** NOTE ** Deleted bullet on minimum longitudinal grade

- Unless noted otherwise elsewhere in this RFP, the Design-Build Team shall design and construct all lane drops from the outside travelway.

- The Design-Build Team shall design and construct all driveways that adhere to the minimum requirements noted below:

  - The Design-Build Team shall provide horizontal and vertical alignments for all driveways that require 100 feet or longer to tie to existing.

  - The maximum driveway grade shall be 10%.

  - For shoulder sections, the minimum driveway turnout for residential and commercial properties shall be 16'-0" and 24'-0", respectively, or the existing width, whichever is greater.

  - For curb and gutter sections, the minimum driveway turnout for residential and commercial properties shall be 20'-0" and 28'-0", respectively, or the existing width, whichever is greater.

- The Design-Build Team shall contact Mr. Gary W. Thompson, North Carolina Geodetic Survey Director, prior to disturbing any geodetic monument.

- The Design-Build Team shall identify the need for any special roadway design details (i.e. any special drainage structures, rock embankment, rock plating, special guardrail, retaining

- walls, concrete barrier designs, etc.) and shall provide special design drawings. The Contract Standards and Development Unit may have special details available that can be provided to the Design-Build Team upon request.

- As identified in the October 30, 2013 Right of Way Recommendations, the Department has investigated six properties for hazardous and contaminated materials. The Department will clear the project limits of hazardous or contaminated materials within 30 days of the Department's approval of the Design-Build Team's Hydraulic Plans. In the unlikely event that additional hazardous and / or contaminated materials are encountered, these materials will be handled in accordance with Subarticle 104-8(A) of the 2012 *Standard Specifications for Roads and Structures*, and the Department will obtain the appropriate identification numbers and sign the shipping manifests as the generator.

NCDOT Information Supplied

- The NCDOT will provide copies of the Categorical Exclusion (CE) and Categorical Exclusion Addendum (CE Addendum) and the latest list of environmental commitments, municipal agreements and all pertinent approvals and correspondence. Unless noted otherwise elsewhere in this RFP, the Design-Build Team shall adhere to all commitments stated in the environmental documents.

- The NCDOT will provide electronic surveys. Any supplemental surveys, including but not limited to additional topography, existing and proposed roadway, structure sites, underground and overhead utilities, existing and proposed drainage, wetland delineation, right of way, parcel names, and deed research and descriptions shall be the responsibility of the Design-Build Team to acquire and process. The Design-Build Team shall modify / incorporate boundary information used for the determination and valuation of property solely under the direct supervision of a Professional Land Surveyor registered in North Carolina. Known existing utilities have been located and will be included with the survey data. The Design-Build Team shall be responsible for confirming the location of the utilities and the type / size of facilities. All supplemental Subsurface Utility Engineering (SUE) work shall be the responsibility of the Design-Build Team.

- The NCDOT will provide the R-3601 Right of Way Plans developed by the Department. The Design-Build Team is cautioned that the preliminary designs shown on these plans are provided solely to assist the Design-Build Team in the development of the project design. The Design-Build Team shall be fully and totally responsible for the accuracy and completeness of the project design, including, but not limited to, the use of the NCDOT's design, the use of portions of the NCDOT's design or modifications to the NCDOT's design.

- The NCDOT will provide final pavement designs for R-3601. The Design-Build Team shall be responsible for all temporary pavement designs. (Reference the Pavement Management Scope of Work found elsewhere in this RFP)

- The NCDOT will provide Geotechnical Subsurface Investigation and Bridge Foundation recommendations for R-3601. The Design-Build Team shall be responsible for any additional geotechnical information, geotechnical recommendations, as well as supplemental structural and roadway investigations. (Reference the Geotechnical Engineering Scope of Work found elsewhere in this RFP)

STRUCTURES SCOPE OF WORK (10-15-13)

Project Details

The Design-Build Team will be provided with sealed structural plans for the following structures:

- Replacement of Bridge Nos. 103 and 105 on US 17-74-76 over Brunswick River with one new bridge designated Bridge No. 103
- Replacement of Bridge No. 107 on US 17-74-76 over Alligator Creek
- Widening of Bridge No. 108 on US 17-74-76 over Alligator Creek

For the provided sealed structural plans, the Design-Build Team shall coordinate revisions due to any plan errors and / or omissions with the Engineering Firm of Record through the Transportation Program Management Director.

The Design-Build Team shall be responsible for removal and disposal of all existing structures replaced at the locations noted above. All handling, removing, shipping and disposing of these materials shall be in accordance with the 2012 NCDOT *Standard Specifications for Roads and Bridges*, NCDOT's Best Management Practices for Maintenance and Construction Activities and all permit conditions.

Bridge Rehabilitation for Bridge No. 108

The Design-Build Team shall overlay Bridge No. 108 in accordance with the requirements noted herein, only after all temporary pavement wedging has been completely removed from the bridge deck. For Bridge No. 108, the Design-Build Team shall overlay the existing portions of the deck with latex modified concrete or very early strength latex modified concrete. (Reference the *Overlay Surface Preparation*, *Latex Modified Concrete* and *Latex Modified Concrete – Very Early Strength* Project Special Provisions found elsewhere in this RFP). The Design-Build Team shall mill and hydro-demolition the existing deck to perform Class I and Class IA Surface Preparation. To allow the Department to complete a drag chain investigation immediately following the milling operation, the Design-Build Team shall provide written notification a minimum of 21 days prior to completing the milling operation. The Design-Build Team shall provide Class II and / or Class III Surface Preparation, for areas which are found to be unsound or delaminated, or areas that need to be removed due to the required joint replacement, as determined by the Engineer. In such case, the Class II and Class III repairs will be paid for as extra work in accordance with Subarticle 104-8(A) of the 2012 *Standard Specifications for Roads and Structures* at the price of $300 per square yard and $700 per square yard, respectively.

Modifications to Sealed Structural Plans

In the event the Design-Build Team chooses to modify the sealed structural plans provided by the Department, adherence to all guidelines listed below shall be required.

- Reference the Environmental Permits Scope of Work for the Design-Build Team's responsibilities in regards to permit modifications that are required due the election of the Design-Build Team to revise the design or construction methods that are detailed in the approved permits.

- Reference the Roadway Scope of Work for horizontal and vertical alignment requirements.

- Reference the Hydraulics Scope of Work for bridge drainage system requirements.

- Bridge geometry (width, length, skew, span arrangement, etc.) shall be in accordance with approved Structure Recommendations and approved Bridge Survey Reports provided by the Department or as modified by the Design-Build Team and accepted by the Department.

- Cored slab, box beam, fracture critical, cast-in-place deck slab and integral deck girder bridges shall not be allowed on this project.

- This project is deemed to be in a Highly Corrosive environment. All bridges shall include appropriate corrosion mitigation measures in accordance with the Structure Management Unit Manual and appropriate policy memos.

- For Bridge Nos. 103 and 105 on US 17-74-76 over the Brunswick River, the proposed low chord for each span shall match, or be higher than, the elevation above Mean High Tide shown on the US Coast Guard Permit Application provided by the Department. Note that the November 2012 Right of Way Consultation states that the Department determined eight feet of vertical clearance could be accommodated; however, the minimum vertical clearances shown on the US Coast Guard Permit Application are acceptable.

- For Bridge Nos. 107 and 108 on US 17-74-76 over Alligator Creek, the proposed low chord shall not be lower than the existing bridge low steel. If the proposed low chord, for any span, is lower than the elevation above Mean High Tide shown on the US Coast Guard Permit Waiver Request provided by the Department, the Design-Build Team shall be responsible for all activities required by the US Coast Guard.

- Reference the Geotechnical Engineering Scope of Work for options related to the foundation design for Bridge No. 103.

- The empirical method for deck design shall not be allowed.

- All bridge barrier rails shall be per Standard Drawing CBR1. Precast barriers are not allowed.

- A live load rating chart for both existing and proposed girders shall be included with the bridge plans and shall state design assumptions and methodology used in the load rating calculations. For Bridge No. 108, regardless of the existing girder ratings, these existing girders do not require replacement. The load rating shall be in accordance with the NCDOT Structure Management Unit Manual, including Policy Memos, and AASHTO's Manual for Bridge Evaluation.

- The number of expansion joints for each structure shall be kept to a minimum. Structures shall be integral if the criteria listed in the NCDOT *Structures Management Unit Manual* is met. If expansion joints are needed, attention should be paid to the joint requirements for NHS and NC routes in section 6.2.3.2 of the NCDOT *Structures Management Unit Manual.*

Bridge Aesthetics

This project has been designated as a NCDOT trial project for aesthetics. As such, the Design-Build Team is encouraged to include aesthetic bridge treatments in their Technical Proposal and design. As this corridor represents a southern gateway into the City of Wilmington, the Department has targeted a delta cost of approximately one-half percent (1/2 %) of the total construction cost to be dedicated to aesthetic bridge treatments. In accordance with the General Section, aesthetic bridge treatments will be a component of the Technical Proposal evaluations.

The Design-Build Team may elect to include aesthetic bridge treatments, such as, but not limited to, the following:

- Patterns, textures, etc. attached to, or inlaid on, the bridge superstructure or substructure
- Alternate bridge barrier rail types through an approved ATC. All bridge rails shall satisfy the appropriate NCHRP test level for that facility and shall be a minimum of 42 inches high the finished surface. All metal bridge rails shall be anodized.
- Color coating of the concrete barrier rails and/or exterior girders
- Patterned, textured surface of any required retaining walls

After contract award, the Design-Build Team shall clearly present, with appropriate visual aids, the design intent, any aesthetic theme, and preliminary details for each design element within the project to the Department and local officials. The Department will require 30 days to review these details to ensure that they are acceptable. Within ten working days of accepting the aesthetic details, the Department will revise the signed and sealed Structual Plans to incorporate aesthetic bridge treatments, including alternate bridge rails through an approved ATC, that do not impact the bridge's structural elements.

After approval of the bridge aesthetic concepts, the Design-Build Team shall include the accepted aesthetics details with the appropriate submittal of preliminary and final designs plans for each element. The Design-Build Team shall also submit for review any specifications, material requirements or construction processes needed to accomplish the aesthetic work along with the final design submittal for each element.

General

The Design-Build Team's primary design firm shall be on the Department's list of firms qualified for Structure Design and maintain an office in North Carolina.

Designs shall be in accordance with the latest edition of AASHTO LRFD Bridge Design Specifications (with exceptions noted in the NCDOT *Structures Management Unit Manual*), NCDOT *Structures Management Unit Manual* (including Policy Memos), and NCDOT *Bridge Policy Manual*, except as noted otherwise elsewhere in this RFP.

Unless noted otherwise elsewhere in this RFP, all construction and materials shall be in accordance with the 2012 NCDOT *Standard Specifications for Roads and Structures*, NCDOT Structures Management Unit Project Special Provisions, and NCDOT Structures Management Unit Standard Drawings.

Alternate designs, details, or construction practices (such as those employed by other states, but not standard practice in NC) are subject to Department review and approval, and will be evaluated on a case by case basis.

Monotube or cantilever DMS (if required on project) support structures shall not be allowed.

New bridge attachments, including but not limited to utilities, conduit and signs, shall not be allowed. (Reference the Utilites Scope of Work found elsewhere in this RFP)

HYDRAULICS SCOPE OF WORK (11-14-13)

- The Design-Build Team shall employ a private engineering firm to perform hydraulic design for all work required under this contract. The private engineering firm shall be prequalified for hydraulic design work under the Department's normal prequalification procedures prior to the Technical Proposal submittal date.
- The Design-Build Team shall hold a pre-design meeting with the Transportation Program Management Director and Hydraulic Review Engineer upon acceptance of the Preliminary Roadway Plans developed by the Design-Build Team.
- The Design-Build Team shall design the Storm Drainage using Geopak Drainage.
- If necessary, the Design-Build Team shall analyze spread for bridges identified in the Structures Scope of Work found elsewhere in this RFP, and provide mitigation that eliminates spread in a travel lane. If required, the Design-Build Team shall adhere to the bridge drainage system requirements noted below:
  - The Design-Build Team shall design bridge drainage without the use of Bridge Scuppers (open-grated inlets). If a closed drainage system is used on a bridge, the closed drainage system shall use vertical pipes at the flow line through the deck with no elbow and shall be consistent with that shown in the current NCDOT Stormwater Best Management Practices Toolbox.
- The Design-Build Team shall provide bridge drainage features that prevent direct discharge into waterways.
- The Design-Build Team shall provide revised permit drawings, calculations and impact sheets, and all other documents necessary for any modifications to the USACE 404 Permits and the NCDWQ Section 401 Certification. (Reference the Environmental Scope of Work found elsewhere in this RFP)
- The BSRs developed, sealed and provided by the Department utilized data from the report entitled "Scour Analysis of Tidal Bridges in the Cape Fear River Estuary System, North Carolina". This same report may be used by the Design-Build Team to support any re-design of the bridges on this project. No 2-D models are required.
- The Design-Build Team shall use a minimum ditch grade of 0.3% and avoid using ditches in wetlands.
- The Design-Build Team shall replace the cross pipe located at Station 74+00.00 -L MED- on the Right of Way Plans provided by the Department. Trenchless construction shall be used to install any portion of this pipe beneath any travel lane. For any other portions of pipes that cross under travel lanes of the mainline, as required by the Design-Build Team's hydraulic design, the pipes shall be installed using trenchless methods unless the installation work does not occur under an active travel lane. For this purpose, an active travel lane is considered to be any temporary or permanent travel lane that is either in use by traffic or is anticipated to be in use within one week (or other such duration as needed to ensure that any concerns regarding settlement and installation quality can be addressed prior to re-opening to traffic).
- The Design-Build Team shall remove or fill with flowable fill all pipes not retained for drainage purposes.

- Raised median island cuts will not be allowed.

- Reference the Structures Scope of Work found elsewhere in this RFP for bridge vertical clearance requirements.

- The Design-Build Team shall be responsible for assessing the Pre and Post Analyses and Stormwater Management Plan developed by the Department, and confirming that they are still applicable or revise as necessary. If necessary, the Design-Build Team shall prepare Pre and Post Analyses for increases in discharge and take appropriate action in accordance with the guidelines noted below to ensure that additional drainage is adequately handled. If necessary, the Design-Build Team shall develop a Stormwater Management Plan that, at a minimum, demonstrates the following:

  - Stormwater runoff from the project site does not threaten water quality

  - Stormwater runoff is controlled by minimizing built-upon surfaces

  - To the maximum extent practicable, stormwater runoff is diverted away from surface waters

  - To the maximum extent practicable, on-site stormwater control measures, as identified in the NCDOT Best Management Practices Toolbox effective on the Technical Proposal submittal date, are employed to minimize water quality impacts

General

- Unless otherwise permitted herein, design in accordance with criteria provided in the North Carolina Division of Highways *Guidelines for Drainage Studies and Hydraulics Design-1999* and the addendum *Handbook of Design for Highway Drainage Studies-1973,* North Carolina Department of Transportation "Stormwater Best Management Practices Toolbox – 2008" and the North Carolina Division of Highways Hydraulics Unit website:

  http://www.ncdot.org/doh/preconstruct/highway/hydro/

PAVEMENT MANAGEMENT SCOPE OF WORK (11-14-13)

The pavement design for the mainline median widening -LMED-, -LLT-, -LRT-, -RPLLT-, and -RPLRT-, shall consist of one of the following designs:

Alternate 1	Alternate 2
3.0" S9.5C	3.0" S9.5C
3.0" I19.0C	3.0" I19.0C
7.0" B25.0C	3.0" B25.0C
	8.0" ABC

The alternate chosen shall be identified in the Technical Proposal and shall be consistent through the project limits.

Other pavement designs for this project shall be as listed in the table below:

LINE	Surface	Intermediate	Base
-RPAY-, -RPAYLT-, -RPAYRT-, -RPBY-, -RPBYLT-, -RPBYRT-, -RPCY-, -RPCYLT-, -RPCYRT-, -RPDY-, -RPDYLT-, -RPDYRT-, -Y-, -YSBL- and –YNBL-	3.0" S9.5B	4.0" I19.0B	4.0" B25.0B
-Y1-	3.0" S9.5B	-	4.5" B25.0B
-Y3-	3.0" S9.5B	-	4.0" B25.0B
-LMED- (Outside Shoulder Widening)	3.0" S9.5C	-	11.0" B25.0C

The Design-Build Team shall mill the existing -Y1- (Main Street) pavement, from Station 10+50 to 11+82.50, to a depth of 1.5" and fill the milled area with 1.5" S9.5B. The Design-Build Team shall resurface the existing -LMED-, -LLT- and -LRT- pavement to the back of the gore (12-foot width) with a minimum 1.5" S9.5C. The Design-Build Team shall resurface the existing -Y-, -Y1- and -Y3- pavement with a minimum 1.5" S9.5B. The Design-Build Team shall resurface the existing ramps with a minimum 3.0" S9.5B.

Unless noted otherwise elsewhere in this RFP, the minimum widened width shall be six feet. The minimum widened may be reduced to four feet only if the Design-Build Team demonstrates that their new equipment properly compacts narrow widening and obtains prior Department approval. Tapers that tie proposed pavement to existing pavement and the -LMED- outside shoulder widening are excluded from the narrow widening requirements noted above.

In areas where the existing paved shoulders are proposed to be incorporated into a permanent travel lane, the Design-Build Team shall be responsible for evaluating the existing paved shoulder regarding its suitability for carrying the projected traffic volumes. In the event that the existing paved shoulder is found to be inadequate, the Design-Build Team shall be responsible

for upgrading the existing paved shoulder to an acceptable level or replacing the existing paved shoulder. The Design-Build Team shall submit their evaluation and proposed use of existing paved shoulders to the Transportation Program Management Director for review and acceptance or rejection.

The Design-Build Team shall be responsible for the design of all temporary pavements, including but not limited to pavement for temporary breakdown areas, and for the evaluation of existing shoulders and roadways regarding their suitability for carrying traffic during construction, if necessary. In the event that the existing shoulders and roadways are found to be inadequate for the proposed temporary traffic volumes and duration, the Design-Build Team shall be responsible for upgrading the pavement to an acceptable level. Temporary pavements shall be designed in accordance with the most recent version of the NCDOT *Pavement Design Procedure*. Temporary pavement designs and associated calculations shall be submitted for review and comments using the contract submittal process prior to incorporation. The expected duration for traffic on temporary pavement must be included as part of the submittal.

On all ramps, the adjacent through lane pavement structure design shall extend to the back of the gore (12-foot width).

Longitudinal joints of all surface course layers shall not be located in the final traffic pattern wheel path. The Design-Build Team shall indicate in the Technical Proposal where all underlying longitudinal joints will be located and demonstrated how the underlying joint location will minimize reflective cracking.

All driveways, up to the radius point, shall be constructed with the full-depth pavement design of the intersecting roadway. The entire impacted length of all non-concrete driveways with a 10% grade shall be constructed with 1.5" S9.5B and 8" ABC. Unless otherwise noted above, the Design-Build Team shall adhere to the following for all driveway construction

For existing gravel and soil driveways, use 8" ABC.
For existing asphalt driveways, use 1.5" S9.5B and 8" ABC.
For existing concrete driveways, use 6" jointed concrete reinforces with woven wire mesh.

The rate of application and the maximum and minimum thickness per application and layer shall be in accordance with NCDOT Roadway Design Manual.

Unless noted otherwise elsewhere in this RFP, the Design-Build Team shall pave from the edge of all paved shoulders to the face of all retaining walls located on the outside shoulder in fill sections, to the face of all guardrail and the area denoted as "Special Layer of Pavement" on Roadway Standard Drawing No. 862.01 with 6" of ABC (or 4" B25.0B), prime coat, at the normal application rate, and at least one lift of surface course. If the ABC pavement design is not used, the asphalt base course pavement design shall require a split seal. In these areas, the Design-Build Team's installation of ABC or black base shall be consistent with the pavement type for the specific roadway. As an alternative to the above pavement design for paving the shoulders to the face of guardrail, the Design-Build Team may use the adjacent travel lane pavement design. The Design-Build Team will not be required to pave to the face of guardrail for existing and proposed signs located outside the project's paving limits.

When a resurfacing grade ties to existing curb, bridge and / or pavement, the Design-Build Team shall perform incidental milling, such that the new pavement ties flush with the existing feature(s). When tying to the aforementioned feature(s), the Design-Build Team shall not reduce the minimum required surface layer pavement thickness noted above. At existing pavement ties, the Design-Build Team shall perform incidental milling for a minimum distance of 25 feet at bridges and six feet at curb sections. The Design-Build Team shall not perform incidental milling more than 72 hours prior to placement of the asphalt surface layer.

ALTERNATIVE TECHNICAL CONCEPTS

Alternative Technical Concepts that provide an alternate pavement design will be considered subject to the following restrictions:

- Unless noted otherwise elsewhere in this RFP, the pavement design in the ATC shall be determined using one of the methods noted below:

    1. The NCDOT Interim Pavement Design Procedure dated April 1, 2000, as modified by Modifications to the April 2000 Interim Pavement Design Procedure dated November 2007 using a minimum 30 year design life.
    2. The AASHTOWare Pavement ME Design Software, Version 1.3, Build 1.3.28. Unless clear and convincing supporting documentation is provided, the pavement design in the ATC shall incorporate the design parameters noted below:

Parameter	**Interstates and Other Freeways**
Design Life	30 years
Reliability	90%
Asphalt Pavement	
Total Rutting	0.75 in
AC Rutting	0.50 in
Top Down Cracking	1000 ft/mile
Bottom Up Cracking	10%
IRI (30 year design life)	185 in/mile
Concrete Pavement	
Faulting	0.15 in
Slab Cracking	10%
IRI (30 year design life)	185 in/mile

- The pavement design in the ATC must be sealed by a professional engineer who has experience in pavement design. The ATC submittal shall include a brief resume or description of the designer's pavement design experience.

- For all incorporated ATC pavement designs, the Design-Build Team shall include in the Technical Proposal a minimum three-year extension of the 12-month guarantee. (Reference the *Twelve Month Guarantee* Project Special Provision found elsewhere in this RFP)

ATCs complying with the above restrictions will be evaluated by a technical review panel in accordance with the usual ATC process. (Reference the *Alternative Technical Concepts and Confidential Questions* Project Special Provision found elsewhere in this RFP)

TRANSPORTATION MANAGEMENT SCOPE OF WORK (8-26-13)

I. Traffic Management Plans

A. Design Parameters

The Design-Build Team shall prepare the Transportation Management Plans which includes the Temporary Traffic Control Plan, the Traffic Operations Plan, and the Public Information Plan as it relates to the traffic control devices, and temporary pavement markings for this project following the parameters listed below. Use the most recent manuals, publications, and resources listed in this Scope of Work.

For additional information regarding the components of the Transportation Management Plan, review the *Work Zone Safety and Mobility Policy* found on the Work Zone Traffic Control Website at:

https://connect.ncdot.gov/projects/WZTC/Pages/default.aspx

Use the following design parameters for TMP development:

1. Except as otherwise allowed or required herein, maintain a minimum of two 11-foot travel lanes in each direction on US 17-74-76. Maintain 2-foot inside and outside paved shoulders in each direction of US 17-74-76.

2. Except as otherwise allowed herein, maintain existing number of travel lanes, lane widths, and paved shoulder widths on NC 133 (Village Road / River Road) and all other roadways and ramps.

3. Except as otherwise allowed herein, traffic barrier shall be located a minimum 2-foot offset (shy distance) from the edge of an open travel lane. All other traffic control devices shall be located a minimum 3-foor offset (shy distance) from the edge of an open travel lane.

4. Use of temporary barrier systems shall be shown on the Traffic Management Staging Concept. Temporary barrier systems shall be designed in accordance with the following requirements:

- Determine the need for temporary barrier in accordance with the *FHWA Final Rule on Temporary Traffic Control Devices (23 CFR 630 Subpart K).* Reference the NCDOT Work Zone Traffic Control website for examples and Guidelines on the Use of Positive Protection in Work Zones.

- The Design-Build Team shall adhere to the Roadside Design Guide in determining the length of need, flare rate and clear zone. The Design-Build Team shall adhere to the possible deflection of the proposed temporary barrier system in accordance with NCHRP-350 deflections from crash testing.

- Providing less than the minimum deflection distance shall require the use of anchored temporary barrier systems in accordance with the NCDOT 2012 *Standard Specifications for Roads and Structures.*

- The Design-Build Team shall avoid anchoring temporary barrier systems to proposed bridge decks, unless the 6' offset from the barrier to drop-off cannot be obtained. If anchored barrier is required, the method of repair to the proposed bridge deck shall be approved by the Engineer prior to anchoring the barrier.

5. Unless otherwise noted herein, the Design-Build Team should design the Transportation Management Plan for the posted speed limit.

6. *Roadway Standard Drawing* No. 1101.11 shall be used for calculating the length of temporary merges for lane closures and temporary traffic shifts.

7. For temporary traffic shifts that will remain in place for a period longer than 3 days, no breaks in the superelevation will be allowed within the shifting taper. In addition, any change in pavement cross-slopes within a travelled area shall not exceed 0.05.

8. Temporary traffic shifts requiring horizontal curves and/or vertical grades shall be considered a temporary alignment. All temporary alignments shall adhere to the NCDOT Roadway Design Manual, AASHTO A Policy on Geometric Design of Highways and Streets and the most current Highway Capacity Manual. Any temporary alignments on US 17-74-76 shall be designed for 50 mph minimum design speed or higher. Provide proper drainage for all temporary alignments and / or traffic shifts.

9. The Design-Build team shall maintain all existing acceleration ramp lengths and should avoid placing temporary barrier systems along acceleration ramps in locations where the ramp traffic merges with the mainline traffic. If the Design-Build Team places temporary barrier within this area, they shall provide the duration in which the barrier is present in the Technical Proposal.

10. Maintain access at all times to all residences, schools, bus stops, mass transit facilities (park and ride lots), emergency services, businesses, and all other facilities at all times. Submit plan to the Engineer on method to maintain access, prior to incorporation.

11. Traffic traveling in the same direction shall not be split (i.e. separation by any type of barrier, bridge piers, existing or proposed median, etc.).

12. Submit written request to the Engineer for all road closures 21 days prior to incorporation.

- US 17-74-76 and NC 133 (Village Road / River Road) shall not be closed except as provided for in ICT #6 and ICT #7. "On-site" detours will be allowed and shall follow the criteria found elsewhere in this Transportation Management Scope of Work. The intention to use any such "on-site" detour shall be identified in the Technical Proposal and will require approval by the Department.

- All proposed road closures, durations, and justifications shall be incorporated into the Technical Proposal and will require approval by the Department.

13. The Design-Build Team shall provide safe access for wide-loads and oversized permitted vehicles through the work zone. Safe access shall entail, but is not limited to, a sufficient pavement structure (Reference the Pavement Management Scope of Work found elsewhere in this RFP), required vertical clearance and minimum clear widths as follows:

Roadway	Minimum Clear Width
US 17-74-76	20 feet
All other roadways and ramps	18 feet

14. The Design-Build Team shall coordinate with the Division, NCDOT Communications Office, The Statewide Transportation Operation Center, and the City of Wilmington to manage traffic operations within the work zone and other roadways within the network that may be affected by the work zone activities. Coordination includes providing notification of planned lane or road closures, traffic detours, public information, traffic management, access management, incidents, etc.

15. Throughout the project construction, the Design-Build Team shall maintain safe access to all pedestrian facilities or provide alternate pedestrian facilities with the same connectivity.

16. The Design-Build Team shall make all modifications on any road to existing pavement markings, markers, and / or signing located outside the project limits that are necessitated by the traffic management strategies detailed in the Transportation Management Plans.

B. Transportation Management Plan Requirements

The Design-Build Team shall select a Private Engineering Firm (PEF) that has experience designing and sealing Transportation Management Plans for the North Carolina Department of Transportation (NCDOT) on comparable projects. The Design-Build Team shall list projects in the Technical Proposal that the Transportation Management Designer has developed Transportation Management Plans. This list shall include a description and similarities to the subject project.

The Design-Build Team shall develop Transportation Management Plans that maintain all types of traffic (motorists, bicyclists, greenways and pedestrians within the highway, including persons with disabilities in accordance with the Americans with Disabilities Act of 1990 (ADA), Title II, Paragraph 35.130) as defined by the *Manual for Uniform Traffic Control Devices (MUTCD).*

The Transportation Management Plans shall adhere to the "*Design-Build Submittal Guidelines*" and the "*Guidelines for Preparation of Traffic Control and Pavement Marking Plans for Design-Build Projects*", which by reference are incorporated herein and are a part of the contract. These documents are available on the Design-Build website.

The Work Zone Traffic Control website contains useful information that may be needed for the design of the Transportation Management Plans:

https://connect.ncdot.gov/projects/WZTC/Pages/default.aspx

The Staging Concept shall meet the Contract requirements and be accepted by the Department before the first phase can be submitted. Construction shall not begin until the first phase submittal meets the contract requirements and is accepted by the Department. Construction shall not begin on subsequent phase submittals until they meet the requirements of the Contract and are accepted by the Department. Any changes to the staging concept after acceptance shall require a submittal for review prior to any future phasing submittals being submitted. All submittals shall follow the 2012 *NCDOT Roadway Standard Drawings*, NCDOT 2012 *Standard Specifications for Roads and Structures*, the "*Guidelines for Preparation of Traffic Control and Pavement Marking Plans for Design-Build Projects*", *Manual for Uniform Traffic Control Devices*, and the "*Design-Build Submittal Guidelines*".

II. Project Operations Requirements

The following are Time Restrictions and notes that shall be included with the Transportation Management Plans General Notes, unless noted otherwise elsewhere in this RFP:

A. Time Restrictions

1. Intermediate Contract Times #3 and #4 for Lane Narrowing, Closure, Holiday, and Special Event Restrictions

As a minimum, the Design-Build Team shall maintain the existing number of lanes and shall not close or narrow a lane or shoulder during the times below. When traffic is placed into the final traffic pattern for any roadway, that shall become the minimal traffic pattern and the following time restrictions shall still apply.

Road Name	Day and Time Restrictions
US 17-74-76 (including ramps)	**From September 16th to May 15th** Monday thru Friday: 6:00 a.m. to 8:00 p.m. Saturday: 8:00 a.m. to 8:00 p.m. Sunday: 10:00 a.m. to 8:00 p.m. **From May 16th to September 15th** Monday thru Thursday: 6:00 a.m. to 11:00 p.m. Friday 6:00 a.m. to Sunday 11:00 p.m.

NC 133 (Village Road / River Road)	**From September 16th to May 15th** Monday thru Friday: 6:00 a.m. to 8:00 p.m. Saturday: 8:00 a.m. to 8:00 p.m. Sunday: 10:00 a.m. to 8:00 p.m. **From May 16th to September 15th** Monday thru Thursday: 6:00 a.m. to 11:00 p.m. Friday 6:00 a.m. to Sunday 11:00 p.m.

The Design-Build Team shall not install, reset, and / or remove any traffic control device during the times listed above.

In addition, the Design-Build Team shall not close or narrow a lane of traffic, detain the traffic flow or alter the traffic flow on or during holidays, holiday weekends, special events, or any other time when traffic is unusually heavy, including the following schedules:

(a) For any unexpected occurrence that creates unusually high traffic volumes, as directed by the Engineer.

(b) For the Azalea Festival, between the hours of 6:00 a.m. the day prior to the start of the Azalea Festival and 8:00 p.m. the day following the conclusion of the Azalea Festival.

(c) For the YMCA Tri-Span, from 12:01 a.m. to 12:00 midnight on the day of the event.

(d) For the Beach2Battleship Triathlon, from 12:01 a.m. to 12:00 midnight on the day of the event.

(e) For the Battleship Half Marathon, from 12:01 a.m. to 12:00 midnight on the day of the event.

(f) For New Year's between the hours of 6:00 a.m. December 31st and 8:00 p.m. January 2nd. If New Year's Day is on a Friday, Saturday, Sunday, or Monday then to 8:00 p.m. the following Tuesday.

(g) For Easter, between the hours of 6:00 a.m. Thursday and 8:00 p.m. Monday.

(h) For Memorial Day, between the hours of 6:00 a.m. Friday and 11:00 p.m. Tuesday.

(i) For Independence Day, between the hours of 6:00 a.m. July 3rd and 11:00 p.m. July 5th. If Independence Day is on a Friday, Saturday, Sunday or Monday, then between the hours of 6:00 a.m. the Thursday before Independence Day and 11:00 p.m. the Tuesday after Independence Day.

(j) For Labor Day, between the hours of 6:00 a.m. Friday and 11:00 p.m. Tuesday.

(k) For Thanksgiving Day, between the hours of 6:00 a.m. Tuesday and 8:00 p.m. Monday.

(l) For Christmas, between the hours of 6:00 a.m. the Friday before the week of Christmas Day and 8:00 p.m. the following Tuesday after the week of Christmas Day.

Liquidated Damages for Intermediate Contract Time #3 for the above lane narrowing, lane closure, holiday, and special event time restrictions for US 17-74-76 and ramps at the east end of the project are $2,500.00 per 15-minute period or any portion thereof.

Liquidated Damages for Intermediate Contract Time #4 for the above lane narrowing, lane closure, holiday, and special event time restrictions for NC 133 (Village Road / River Road) and ramps at this interchange are $1,000.00 per 15-minute period or any portion thereof.

2. Intermediate Contract Time #5 for Road Closure Restrictions for Construction Operations

As a minimum, the Design-Build Team shall maintain the existing traffic pattern for US 17-74-76 and NC 133 / Village Road / River Road and follow the road closure restrictions listed below. When a road closure is used, the Design-Build Team shall reopen the travel lanes by the end of the road closure duration to allow the traffic queue to deplete before re-closing the roadway.

The Design-Build Team shall not close any direction of travel for US 17-74-76 or NC 133 / Village Road / River Road during the times noted below. Closure shall only be allowed for the operations listed below:

Road Name	Day and Time Restrictions
US 17-74-76 (including ramps) NC 133 / Village Road / River Road	Every Day: 5:00 a.m. to 12:00 a.m. (midnight)

Maximum road closure duration of **30 minutes** shall be allowed for the roadways listed above (unless a detour is proposed and approved by NCDOT) for the following operations:

- Installation of overhead sign assemblies over travel lanes
- Traffic shifts
- Girder installation

The Design-Build Team shall indicate the purpose and intended frequency of road closures for the above construction activities.

Proposed road closures for any road within the project limits shall be approved by the Engineer prior to incorporation in the Transportation Management Plans.

Liquidated Damages for Intermediate Contract Time #5 for the above road closure time restrictions for US 17-74-76, including ramps, and NC 133 / Village Road / River Road are $5,000.00 per 15-minute period, or any portion thereof.

3. Intermediate Contract Time #6 for Nightly Road Closures (Off-site Detours) of NC 133 / Village Road / River Road)

The Design-Build Team will be allowed a maximum of 5 Nightly Road Closures of NC 133 / Village Road / River Road for the purpose of constructing the single face median barrier and/or paving/signing/marking the proposed Directional Diamond Interchange (DDI). The portion of NC 133 allowed to be closed is the section between the ramps under the US 17 structure where the paving, striping and

signalization work is to change the existing traffic pattern to the proposed DDI traffic pattern.

The Design-Build Team will be allowed to close NC 133 (Village Road / River Road) a maximum of 5 times during the dates and times listed below, provide an approved off-site detour is in in operation:

Road Name	Date Restrictions
NC 133 (Village Road / River Road)	**From September 16th through May 15th** Monday through Sunday 10 p.m. through 6 a.m.

Liquidated Damages for Intermediate Contract Time #6 for the above road closure date and time restrictions for NC 133 (River Road / Village Road) are $5,000.00 per 15-minute period or any portion thereof.

4. **Intermediate Contract Time #7 for Continuous Weekend Road Closure of NC 133 (Village Road / River Road)**

The Design-Build Team will be allowed 1 Continuous Weekend Road Closure of NC 133 (Village Road / River Road) for the purpose of tie-ing in and opening the proposed Directional Diamond Interchange (DDI). The portion of NC 133 allowed to be closed is the section between the ramps under the US 17 structure where the paving, striping and signalization work is to change the existing traffic pattern to the proposed DDI traffic pattern.

The Design-Build Team will be allowed to close NC 133 (Village Road / River Road) a single time for the Continuous Weekend Road Closure during the dates and times listed below:

Road Name	Date Restrictions
NC 133 (Village Road / River Road)	**From September 16th through May 15th** 9 p.m. Friday through 6 a.m. Monday

Liquidated Damages for Intermediate Contract Time #7 for the above road closure date and time restrictions for NC 133 (River Road / Village Road) are $5,000.00 per 15-minute period or any portion thereof.

5. Hauling Restrictions

The Design-Build Team shall adhere to the hauling restrictions noted in the NCDOT 2012 *Standard Specifications for Roads and Structures.*

The Design-Build Team shall conduct all hauling operations as follows:

- The Design-Build Team shall not conduct any hauling operations against the flow of traffic of an open travelway unless an approved temporary traffic barrier or guardrail separates the traffic from the hauling operation.

- The Design-Build Team shall not haul on US 17-74-76 during the holiday and special events time restrictions listed as Items (a) – (l) in Intermediate Contract Time #3, unless the hauling operation occurs completely behind temporary traffic barrier or guardrail and does not impact US 17-74-76 traffic operations.

- Design access locations so that haul vehicles do not enter and / or exit an open travel lane at speeds more than 10 mph below the posted speed limit.

- Hauling entrances, exits and crossings shall be shown on the Transportation Management Plan.

- The Design Build Team shall install a CMS on the shoulder of the open roadway 1000 ft. in advance of each truck entrance leading to the work site. The CMS shall display the following messages: "TRUCKS EXITING HIGHWAY" and "DO NOT FOLLOW TRUCKS".

Hauling operations that perpendicularly cross a roadway shall require Traffic Control and is subject to the time restrictions, and holiday, holiday weekend and special event restrictions listed in ICT #3 through #7.

The Design-Build Team shall address how hauling will be conducted in the Technical Proposal, including but not limited to, hauling of any materials to and from the site and hauling material within the NCDOT right of way.

Hauling shall not be allowed ingress and egress from any open travel lane during the following time restrictions:

Road Name	Time Restrictions
US 17-74-76 (including ramps)	Monday through Friday: 6:00 a.m. to 10:00 a.m. and 4:00 p.m. to 7:00 p.m.

Lane and Shoulder Closure Requirements

The Design-Build Team shall remove lane closure devices from the lane when work is not being performed behind the lane closure or when a lane closure is no longer needed.

When personnel and / or equipment are working within 15 feet of an open travel lane, the Design-Build Team shall close the nearest open shoulder using NCDOT 2012 Roadway Standard Drawing No. 1101.04, unless the work area is protected by an approved temporary traffic barrier or guardrail.

When barrier is placed on the shoulder of a roadway, install shoulder closure signs and devices using NCDOT 2012 Roadway Standard Drawing No. 1101.04 in advance of the barrier.

When personnel and / or equipment are working on the shoulder adjacent to an undivided facility and within 5 feet of an open travel lane, the Design-Build Team shall close the nearest open travel lane using NCDOT 2012 Roadway Standard Drawing No. 1101.02, unless the work area is protected by an approved temporary traffic barrier or guardrail.

When personnel and / or equipment are working on the shoulder adjacent to a divided facility and within 10 feet of an open travel lane, the Design-Build Team shall close the nearest open travel lane using NCDOT 2012 Roadway Standard Drawing No. 1101.02, unless the work area is protected by an approved temporary traffic barrier or guardrail.

When personnel and / or equipment are working within a lane of travel of an undivided or divided facility, the Design-Build Team shall close the lane using the appropriate roadway standard drawing from the NCDOT 2012 *Roadway Standard Drawings.* The Design-Build Team shall conduct the work so that all personnel and / or equipment remain within the closed travel lane.

The Design-Build Team shall not perform work simultaneously within 15 feet on both sides of an open travelway, or ramp, within the same location unless protected with guardrail or barrier.

The Design-Build Team shall not install more than 2 miles of lane closure on US 17-74-76 and no more than one mile on any other roadway measured from the beginning of the merge taper to the end of the lane closure.

The Design-Build Team shall not install more than one lane closure in either direction on any roadway.

B. Pavement Edge Drop off Requirements

The Design-Build Team shall backfill at a 6:1 slope up to the edge and elevation of the existing pavement in areas adjacent to an opened travel lane that has an edge of pavement drop-off as follows:

- Elevation differences that exceed 2 inches on roadways with posted speed limits of 45 mph or greater and a paved shoulder four-foot wide or less.

- Elevation differences greater than 3 inches on roadways with posted speed limits less than 45 mph and with a paved shoulder four-foot wide or less.

- Refer to the current *AASHTO Roadside Design Guide* for proper treatment of all other conditions.

- Do not exceed a difference of 2 inches in elevation between open lanes of traffic for nominal paving lifts of 1.5 inches.

C. Traffic Pattern Alterations

The Design-Build Team shall notify the Engineer in writing at least twenty-one (21) calendar days prior to any traffic pattern alteration. (Reference the Public Information Scope of Work found elsewhere in this RFP for public information requirements)

D. Signing

The Design-Build Team shall install advance work zone warning signs when work is within 40 feet from the edge of travel lane and no more than three days prior to the beginning of construction.

When no work is being conducted for a period longer than one week, the Design-Build Team shall remove or cover all advance work zone warning signs, as directed by the Engineer. Stationary work zone warning signs shall be covered with an opaque material that prevents reading of the sign at night by a driver traveling in either direction.

When portable work zone signs are not in use for periods longer than 30 minutes, the Design-Build Team shall lay the portable work zone sign flat on the ground and collapse the sign stand and lay it flat on the ground.

The Design-Build Team shall ensure proper signing (including but not limited to guide signs) is in place at all times during construction, as required by the *MUTCD*. All temporary signing shall be shown on the Traffic Management Plan or a Temporary Signing Plan to be approved by the Work Zone Traffic Control Section and/or the Signing and Delineation Unit.

E. Traffic Barrier

The Department will not provide any type of barrier for this project. The Design-Build Team shall use only an NCDOT approved temporary traffic barrier system and adhere to the following requirements:

- Install temporary traffic barrier system a maximum of two (2) weeks prior to beginning work in any location. Once the temporary traffic barrier system is installed at any location, proceed in a continuous manner to complete the proposed work in that location.

- Do not place temporary barrier used for traffic control directly on any surface other than asphalt or concrete.

- Once the temporary traffic barrier system is installed and no work has been or will be performed behind the temporary traffic barrier system for a period longer than two (2) months, remove / reset the temporary traffic barrier system unless the barrier is protecting traffic from a hazard.

- Install temporary barrier with the traffic flow beginning with the upstream side of traffic. Remove temporary barrier against the traffic flow beginning with the downstream side of traffic.
- Install and space drums no greater than twice the posted speed limit (mph) to close or keep the section of the roadway closed until the temporary traffic barrier system can be placed or after the temporary traffic barrier system has been removed.

- Protect the approach end of the temporary traffic barrier system at all times during the installation and removal of the barrier by either a truck mounted impact attenuator (maximum 72 hours) or a temporary crash cushion.

- Protect the approach end of the temporary traffic barrier system from oncoming traffic at all times by a temporary crash cushion unless the approach end of the temporary traffic barrier system is offset from oncoming traffic as follows:

Posted speed limit (mph)	**Minimum offset (feet)**
40 or less	15
45 - 50	20
55	25
60 mph or higher	30

- The Design-Build Team shall be responsible for providing proper connection between the existing bridge rails and temporary barrier systems and include this information in the appropriate plans.

F. Traffic Control Devices

The Design-Build Team shall use traffic control devices that conform to all NCDOT requirements and are listed on the Approved Products List. The use of any devices that are not shown on the Approved Product List shall require written approval from the Transportation Program Management Director prior to incorporation.

Channelizing device spacing shall not exceed a distance in feet equal to twice the posted speed limit. Channelization devices shall be spaced 10 feet on-center in radii. Skinny drums shall only be allowed as defined in Section 1180 of the NCDOT 2012 *Standard Specifications for Roads and Structures.*

Place Type III barricades, with "ROAD CLOSED" signs (R11-2) attached, of sufficient length to close entire roadway. Stagger or overlap barricades to allow for ingress or egress.

Place sets of three drums perpendicular to the edge of the travelway on 500-foot centers when unopened lanes are closed to traffic. These drums shall be in addition to channelizing devices.

When a CMS is placed within the clear zone, provide proper delineation and protection for the traveling public.

G. Temporary Pavement Markings, Markers and Delineation

The Design-Build Team shall show temporary pavement marking on the Traffic Control Plan that meet the requirements of the RFP and the *Guidelines for Preparation of Traffic Control and Pavement Marking Plans for Design-Build Projects.*

The Design-Build Team shall use pavement marking and marker products that conform to all NCDOT requirements and are listed on the NCDOT Approved Products List. The use of any devices that are not shown on the NCDOT Approved Products List shall require approval from the Transportation Program Management Unit Director prior to incorporation.

The Design-Build Team shall install pavement markings and markers in accordance with the NCDOT 2012 *Standard Specifications for Roads and Structures*, and in accordance with the manufacturer's procedures and specifications.

The Design-Build Team shall install temporary pavement markings that are the same width as existing pavement marking on all roadways, except that 6 inch markings shall be used on US-17-74-76. For roadways that do not have existing pavement marking, install temporary pavement markings that are the same width as required in the Pavement Marking Scope of Work for the final pavement marking.

The Design-Build Team shall install temporary pavement markings and temporary pavement markers on the interim surface or temporary pattern as follows:

Road	Marking	Marker
All Roads	Any Marking on the Approved Product List	Raised Temporary
All Structures	Cold Applied Plastic Type 4 - Removable Tape or Paint	Raised Temporary

The Design-Build Team may use any type of pavement markings on the NCDOT Approved Products List for temporary patterns. However, the Design-Build Team shall maintain a minimum retroreflectivity for pavement markings on all roads (existing and temporary markings) at all times during construction, as follows:

White:	125 mcd / lux / m2
Yellow:	100 mcd / lux / m2

When using Cold Applied Plastic (Type IV) pavement markings, place temporary raised markers half on and half off edgelines and centerlines to help secure the tape to the roadway. Markers shall be spaced the appropriate distance apart as described by the 2012 *Roadway Standard Drawing* 1250.01, Sheet 1 of 3.

Tie proposed pavement marking lines to existing pavement marking lines.

Remove / replace any conflicting / damaged pavement markings and markers by the end of each day's operation.

Prior to opening a roadway to traffic on facilities that the installation of a proposed monolithic island has not occurred, outline the location of the proposed monolithic island with the proper color pavement marking.

The Design-Build Team shall not place temporary markings other than Cold Applied Plastic Type 4 – Removable Tape on any final pavement surface unless the temporary markings are placed in the exact location of the final pavement markings.

Unless noted otherwise in this RFP, removal of the temporary pavement markings on asphalt surfaces shall be accomplished by an NCDOT approved system to minimize damage to the road surface. Temporary pavement markings shall not be obliterated with any type of Black Pavement Markings (paint or other material). The Design-Build Team shall remove all temporary pavement markings without removing more than 1/32 inch of the pavement surface.

H. Temporary Traffic Signals

Use the following notes if the Design-Build team recommends using temporary signals for maintenance of traffic. All recommended traffic signals must be approved by the Regional Traffic Engineer before implementation.

- Notify the Engineer in writing a minimum of two months before a traffic signal installation is required.

- Shift and revise all signal heads as shown on the accepted Design-Build Signal Plans.

I. Towing of Disabled Vehicles

The work covered by this section consists of furnishing on call towing services for all disabled vehicles displaying a lime green sticker within the US 17-74-76 construction limits and 1 mile beyond the US 17-74-76 construction limits in each direction.

The Design-Build Team shall provide a towing service that relocates disabled vehicles to secure pre-arranged locations outside of the project limits and off NCDOT right of way. The Design-Build Team shall provide tow vehicles capable of towing automobiles and light trucks (up to 10,000 pound gross vehicle weight) and medium and heavy-duty trucks (greater than 10,000 pound gross vehicle weight). All tow vehicles shall be able to tow using the "wheel lift" method and the conventional boom lift method.

The Design-Build Team shall immediately place a lime green Tow Sticker (provided by the Department) on all disabled vehicles. The Design-Build Team shall provide pertinent information on the sticker, including the designated tow location and the signature and agency of the person authorizing the tow.

A disabled vehicle shall be towed within **15 minutes** of placement of the lime green Tow Sticker. Only tow vehicles displaying a lime green sticker.

For all vehicles towed, the Design-Build Team shall keep a record of the approximate vehicle location, vehicle type, including make and color, and the vehicle license plate number. Maintain a record of the information on the Tow Stickers, including the exact time the vehicle was removed and the exact location of where the vehicle was towed. Immediately give this information to the Resident Engineer. Within 30 minutes of a vehicle being towed, the Design-Build Team shall contact the Highway Patrol and provide them with all the information necessary for the Highway Patrol Database.

Prior to any construction, the Design-Build Team shall arrange and attend a towing coordination meeting. The Design-Build Team shall coordinate this meeting with the Division and the Transportation Program Management Director. The meeting shall determine where vehicles will be towed, confirm towing requirements and determine how specific towing information will be conveyed to the appropriate personnel.

The towing service shall commence the date construction begins and shall be provided on each day of active construction. Prior to beginning construction on any given day, tow disabled vehicles prior to beginning work. The towing service base of operations shall have a publically accessible published telephone number that shall be manned, or have call forwarding to an employee on call, during the aforementioned towing service operation times. The towing service base of operation shall have an answering service at all other times.

If the Design-Build Team provides a project website, towing operation information shall be displayed on the website. This information shall include, but not be limited to, vehicle tow locations, reasons for work zone towing, time frame allowed before the abandoned

vehicle will be towed, how to retrieve the vehicle and any necessary phone numbers for retrieval.

The Design-Build Team shall request a No Parking - Tow Away Zone ordinance for US 17-74-76 through the City of Wilmington. "No Parking, Tow Away Zone" Signs shall be installed before any towing is allowed on US 17-74-76.

J. Traffic Control Supervisor

The Design-Build Team shall provide the service of at least one qualified Traffic Control Supervisor for the project in accordance with Section 1101-13 of the Standard Specifications for Roads and Structures.

The Traffic Control Supervisor shall be knowledgeable of Traffic Control Plan design, devices and application, and has full authority to ensure traffic is maintained in accordance with the plans and specifications.

The Design-Build Team shall identify a Traffic Control Supervisor in their Technical Proposal that has the following qualifications:

The Traffic Control Supervisor for the project shall be capable of performing the following:

(1) Be available and on call at all times to direct / make any necessary changes in the traffic control operations in a timely and safe manner. The Design Build Team shall provide the Engineer with back up contacts for times when the Traffic Control Supervisor is not available at the project.
(2) Coordinate and cooperate with traffic control supervisors of adjacent, and overlapping construction projects, as well as construction projects in proximity to the subject project, to ensure safe and adequate traffic control setup is maintained throughout the project at all times, including periods of construction inactivity.
(3) Coordinate and cooperate with NCDOT Division Incident Management staff in the event of a serious backup or incident on US 17-74-76.
(4) Coordinate and cooperate with personnel at the Statewide Transportation Operation Center, and the City of Wilmington to ensure proper messages are displayed on the CMSs and DMSs.
(5) Provide traffic control setup that ensures safe traffic operations and workers' safety throughout the construction area.
(6) Attend all scheduled incident management, traffic control coordination, and team meetings, as required by the Engineer.
(7) Monitor traffic delays and backups within the work zone.
(8) Coordinate and cooperate with personnel from City of Wilmington.
(9) The above requirements are the primary responsibilities of the TC supervisor. Any other functions that are assigned by Design Build Team to the TC supervisor shall be secondary to the Traffic control duties.

K. Law Enforcement

Law enforcement officers may be used to maintain traffic through the work area and / or intersections. The Design-Build team shall address where and how law enforcement officers will be used. Law enforcement officers shall be used during any rolling road block operations and to direct traffic when installing / removing / shifting traffic signal heads at intersections. The Design-Build Team shall:

- Be responsible for coordinating with the law enforcement agency for the use of law enforcement officers.
- Only utilize officers who are outfitted with law enforcement uniforms and marked vehicles, which are equipped with proper lights mounted on top of the vehicle and agency emblems.

L. Temporary Shoring for the Maintenance of Traffic

The Design-Build Team shall be responsible for all required temporary shoring, including but not limited to providing, installing, maintaining and removing. Temporary shoring for the maintenance of traffic is defined as shoring necessary to provide lateral support to the side of an excavation or embankment parallel to an open travelway when a theoretical 2:1 (H:V) slope from the bottom of the excavation or embankment intersects the existing ground line closer than 5 feet from the edge of pavement of the open travelway. The Design-Build Team shall identify locations where "temporary shoring for maintenance of traffic" will be required on the Traffic Control Staging Concept. The Design-Build Team shall install temporary traffic barrier as shown on the "PCB at Temporary Shoring Locations" detail available on the Work Zone Traffic Control Section website. This detail provides design information on the temporary traffic barrier location in relation to the temporary shoring and traffic location. The NCDOT Geotechnical Engineering Unit website has more information on temporary shoring. (Notes related to Temporary Shoring are not required in the General Notes sheet for the Traffic Control Plans)

https://connect.ncdot.gov/resources/Geological/Pages/default.aspx

The Design-Build Team shall identify on the appropriate traffic control detail where temporary shoring will be used by providing station limits, offsets, type of shoring and where temporary traffic barrier will be located, if needed.

M. Portable Temporary Lighting

Provide portable temporary lighting to conduct night work in accordance with the NCDOT 2012 *Standard Specifications for Roads and Structures.*

N. Work Zone Speed Limit Reductions / $250 Speeding Fine Ordinance

Upon formal request from the Design-Build Team, a work zone speed limit reduction and / or $250 speeding fine ordinance may be granted if the TMP and or traffic conditions meet the warrants.

O. Coordination

Coordinate with the Contractor, the City of Wilmington, and NCDOT Resident Engineer in charge of any project in the vicinity of this project for any work that may affect the construction and the temporary traffic control of this project.

Coordinate with the Contractor, the City of Wilmington and NCDOT Resident Engineer in charge of any project in the vicinity of this project to determine the placement of advance warning signs on all roads within the project limits.

The Design-Build Team shall coordinate with the Engineer, Law Enforcement, Emergency Services and the Work Zone Traffic Control Section to schedule and attend Traffic Safety and Operations Meetings. These meetings are held to monitor and assess safety and mobility during construction. The Traffic Safety and Operations Meetings may be held on monthly or on as needed basis during construction of the project. Additional Traffic Safety and Operations Meetings may be held to address any specific issue, as directed by the Engineer.

III. Public Information Plan Requirements

The Design-Build Team shall coordinate with the Department's Communications Office (See Public Information Scope of Work).

SIGNING SCOPE OF WORK (10-11-13)

General

Unless noted otherwise elsewhere in this RFP, the Design-Build Team shall prepare Signing Plans in accordance with the *Manual on Uniform Traffic Control Devices (MUTCD)* effective on the Technical Proposal submittal date, the 2011 *NC Supplement to the MUTCD,* NCDOT *Standard Specifications for Roads and Structures* (January 2012), the NCDOT Roadway Standard Drawings (January 2012) for the design and development of Signing Plans, the latest Standard Specifications for *Structural Supports for Highway Signs, Luminaires, and Traffic Signals* published by AASHTO, *Guidelines for Preparation of Signing Plans for Design-Build Projects*, the *Design-Build Submittal Guidelines*, the **R-3601 Signing Concept Map dated October 4, 2013** provided by the Department and the contract requirements contained herein.

Signing Plan Requirement

The Design-Build Team shall select a Private Engineering Firm (PEF) that has experience in designing and sealing Signing Plans for NCDOT on projects comparable to this project.

The Department shall provide the R-3601 Signing Concept Map dated October 4, 2013, which represents the minimum signing requirements, except as modified herein. The Design-Build Team shall use this Concept Map, in conjunction with all applicable standards, to develop the Signing Plans. The Design-Build Team shall not eliminate any signs shown on the aforementioned Concept Map without prior approval from the Engineer or as allowed elsewhere in this RFP. To minimize right of way, utility, drainage and / or jurisdictional impacts, or to install a sign behind existing guardrail, the Design-Build Team will be allowed to shift signs shown on the aforementioned Concept Map a maximum of 100 feet. To meet all applicable standards, the Design-Build Team shall be responsible for replacing / relocating all existing signs affected by the project, as well as providing all required additional signs, not shown on the aforementioned Concept Map, as necessary.

Signs Furnished by Design-Build Team

The Design-Build Team shall furnish in accordance with the specifications provided by the NCDOT.

Signing Project Limits

The Design-Build Team shall be responsible for the design, fabrication and installation of all signs required through the signing construction limits, as shown in the R-3601 Signing Concept Map dated October 4, 2013, of the mainline, all -Y- Lines and all cul-de-sacs. The Design-Build Team shall also be responsible for the design, fabrication and installation of all signs required beyond the construction limits of the mainline, all -Y- Lines and all cul-de-sacs to ensure adequate advance signage and spacing is provided.

The posted speed limit for this facility shall be 55 mph.

Sign Design

The Design-Build Team shall be responsible for the design, fabrication and installation of all signs required for the mainline, as well as all -Y- Lines and cul-de-sacs. The Design-Build Team shall be responsible for all Type A, B, and D sign designs, fabrication and installation for ground mounted signs. To the limits of the project as depicted on the R-3601 Signing Concept Map dated October 4, 2013, the Design-Build Team shall be responsible for sizing, fabricating, locating and installing all Type E (warning and regulatory signs), Type F signs (route marker assemblies) and milemarkers.

As shown on the R-3601 Signing Concept Map dated October 4, 2013, the Design-Build Team shall design signs to accommodate future "Business US 17" notation and future US 17 trailblazing messages.

The Design-Build Team shall design, fabricate and install US 17 mile markers every 1/2-mile on the project. Each milemarker location shall be on one U-post, on the outside shoulder for each direction of travel on the mainline. The milemarker designs shall be in accordance with the Intermediate Enhanced Reference Location Signs (D10-5) referenced in the Standard Highway Signs (2004 Edition and the 2012 Supplement to the 2004 Edition) and the revised NCDOT Roadway Standard Drawing 904D40, dated June 11, 2012. The aforementioned revised Roadway Standard Drawing may be referenced on the website noted below:

https://connect.ncdot.gov/resources/safety/Pages/Signing-and-Delineation.aspx

The Design-Build Team shall install 30" x 36" Chevron Alignment signs along all interchange loops and, as necessary, on ramps. The Design-Build Team shall install all Chevron Alignment signs on two U-channel posts that are spaced 24" apart. The Design-Build Team shall adhere to the Chevron Alignment sign height, spacing and orientation requirements specified in the MUTCD.

All sign designs shall be included in the Signing Plans. All sign designs shall be prepared using the latest version of GuideSign software. Refer to the Signing and Delineation Unit's main website below located under Private Engineering Firm by clicking on Seed Files (guidsign_english.dgn or guidsign_metric.dgn) for the latest GuidSign updates:

https://connect.ncdot.gov/resources/safety/Pages/Signing-and-Delineation.aspx

Logo Signs

The Design-Build Team is not responsible for designing, locating, or installing any new Logo Signs (blue service signs with specific business panels included on signs); however, the Design-Build Team shall be responsible for relocating existing Logo Signs upon completion of the applicable portion of the construction.

Sign Maintenance

The Design-Build Team shall maintain all existing signs during construction, including temporary installations of Guide and Logo Signs on supports to ensure signs are properly maintained and visible during project construction. The Design-Build Team shall be responsible for designing and installing temporary sign supports. If damage occurs to the Logo Signs or the business panels during construction or installation, notify the Division Logo Coordinator as soon as possible. The Design-Build Team shall be responsible for replacement of Logo Signs or Logo business panels should damage occurs. If the Logo Signs are removed and disposed of per the RFC Signing Plans, the business panels on the signs shall be removed and returned to the Division Logo Coordinator. The order of preference for Logo Signs shall be maintained during project construction (see MUTCD section 2F.02).

Temporary Signs

The Design-Build Team shall be responsible for designing, fabricating, and installing temporary signs and supports. (Reference the Signing Section of the Traffic Control and Pavement Markings Scope of Work found elsewhere in this RFP for additional temporary signing requirements.)

Interstate or US Route Designation

The Design-Build Team shall notify the State Signing and Delineation Engineer in writing of the manufacturing of signs that modify the Interstate or US route designation.

Sign Locations

The Design-Build Team shall be responsible for determining the station locations for all signs. To avoid sign placement in locations where their usefulness will be short- lived, the Design-Build Team shall coordinate the proposed sign designs and locations with existing and future projects through the Department.

Ground Mounted Supports

Unless otherwise approved by the Engineer, Type A and B ground mounted signs on a freeway or expressway, installed on breakaway supports, shall be located a minimum of 30 feet from the edge of the outside travel lane to the nearest edge of the sign. All Type A and B ground mounted signs on a freeway or expressway installed on non-breakaway supports shall be positively protected. All Type D, E, and F signs shall be installed on U-channel posts in accordance with the NCDOT Roadway Standard Drawings.

NCDOT will provide the software for Type A and B ground mounted sign support designs. The Design-Build Team shall be responsible for all design, fabrication, and installation of ground mounted supports and signs. Instructions for loading support design software will be made available upon request.

The Design-Build Team may choose the following options to design, fabricate and install "Exit X A" exit gore sign located east of Overhead Sign Assembly "V":

- Mount exit gore sign to existing bridge deck and protect supports with positive protection.

- Design exit gore sign supports to extend to the existing ground level below the existing bridge with positive protection at ground level.

The Design-Build Team shall design, fabricate and install ground mounted sign supports in accordance with the revised NCDOT Roadway Standard Drawing 903D10, Sheet 2 of 3, dated March 8, 2012. The aforementioned revised Roadway Standard Drawing may be referenced on the website noted below:

https://connect.ncdot.gov/resources/safety/Pages/Signing-and-Delineation.aspx

Overhead Sign Assemblies

The Design-Build Team shall design, fabricate and install overhead sign assemblies that meet all Department requirements. The windspeed for the overhead sign assembly designs shall be 130 mph. The Design-Build Team shall be responsible for calculating the windload area for the overhead sign assembly. The windload area shall be flush with the sign height and width. When calculating the windload area, the Design-Build Team shall include exit panels as part of the sign height. The coordination with future projects and sign messages shall be considered when designing and fabricating overhead sign assemblies.

The minimum vertical clearance beneath all overhead sign assemblies shall be 17 feet. For all overhead sign assemblies, the Design-Build Team shall submit documentation that verifies the actual vertical clearance at all critical points.

The Design-Build Team shall design, fabricate, and install overhead and pedestal sign supports and foundations in accordance with the Foundations and Anchor Road Assemblies for Metal Poles, Overhead and Dynamic Message Sign Foundations and Overhead Sign Supports Project Special Provisions found elsewhere in this RFP.

Lighting will not be required on overhead sign assemblies.

The Design-Build Team shall design and fabricate sign panels to match the overall square footage of the existing sign panels as shown for Existing Overhead Sign Assembly "AA" as shown on the R-3601 Signing Concept Map dated October 4, 2013.

~~All work associated with Overhead Sign Assembly "V", as shown on the R-3601 Signing Concept Map dated October 4, 2013, including the removal of the existing sign structure at this location, will be included in this contract but will be deemed Extra Work and will be paid for in accordance with Article 104-8(A) of the Standard Specifications.~~

Overhead Sign Supports for Freeway Facilities

Except as allowed below, overhead sign supports shall be located a minimum of 40 feet from the edge of the outside travel lane to the center of the sign supports. To minimize right of way, utility, drainage and / or jurisdictional impacts, or to allow a cantilever overhead sign assembly in lieu of a

full-span overhead sign assembly, the minimum 40-foot offset may be reduced. All overhead sign supports that are not located a minimum of 40 feet from the edge of the outside travel lane to the center of the sign support shall be protected by guardrail or other NCDOT approved positive protection barrier. When an overhead sign support is protected by guardrail, the face of the guardrail shall be located a minimum of eight feet from the center of the sign support.

The Design-Build Team shall provide the appropriate positive protection and drainage for all overhead sign median supports.

Overhead Sign Sheeting

The Design-Build Team shall design and fabricate overhead signs using Grade A retroflective sheeting for the legends (text), shields and border on Grade C retroflective sheeting background except as noted below:

- Black legend, black borders and black arrows on overhead signs shall be black non-reflective sheeting

For all overhead sign assemblies with lighting systems, the Design-Build Team shall remove and dispose of all signs, as well as the lighting system. The Design-Build Team shall replace the existing signs with signs that adhere to the requirements noted above.

Reference *Standard Practice for Retroreflectivity Sign Sheeting* under "Resource" on the NCDOT Signing and Delineation Unit's website noted below:

https://connect.ncdot.gov/resources/safety/Pages/Signing-and-Delineation.aspx

Guardrail or Other Protection for Signs and Overhead Assemblies

The Design-Build Team shall be responsible for determining, designing and installing any protection for proposed and existing sign supports within the limits of the project, including those located outside the roadway construction limits, as depicted on the R-3601 Signing Concept Map dated October 4, 2013.

Signing Roadway Standards, Typical Sheets and Specifications

Signing roadway standards and typical sheets to be used in summarizing quantities, standard specifications, and compiling Type E and F signs can be located at the following website:

https://connect.ncdot.gov/resources/safety/Pages/Signing-and-Delineation.aspx

The Design-Build Team shall incorporate the appropriate information onto these sheets and submit them to the Transportation Program Management Director for review and acceptance.

Removal and Disposal of Existing Signs

The Design-Build Team shall be responsible for determining those existing signs that will no longer be needed upon completion of the project. The Design-Build Team shall be responsible for removal and disposal of these signs and supports. The Design-Build Team shall show and note these signs on the Signing Plan view sheets.

The Design-Build Team shall remove and dispose of existing overhead signs that are not retained or reinstalled on the project.

Construction Revisions

After submittal of RFC Signing Plans, all construction revisions shall be submitted to NCDOT for review and acceptance prior to incorporation.

PAVEMENT MARKINGS SCOPE OF WORK (8-7-13)

General

The Design-Build Team shall prepare Final Pavement Marking Plans in accordance with the 2009 edition of the *Manual on Uniform Traffic Control Devices (MUTCD)*, the 2012 NCDOT Roadway Standard, "*Guidelines for Preparation of Traffic Control and Pavement Marking Plans for Design-Build Projects*", and the *"Design-Build Submittal Guidelines"* and the contract requirements contained herein.

Final Pavement Marking Plan Requirements

The Design-Build Team shall select a Private Engineering Firm (PEF) that has experience designing and sealing Pavement Marking Plans for NCDOT on comparable projects.

The Design-Build Team shall develop Pavement Marking Plans that maintain all types of traffic (motorists, bicyclists, and pedestrians within the highway, including persons with disabilities in accordance with the Americans with Disabilities Act of 1990 (ADA), Title II, Paragraph 35.130) as defined by the *Manual for Uniform Traffic Control Devices (MUTCD).* The Design-Build Team shall develop Pavement Marking Plans that maintain all types of traffic (motorists, bicyclists, and pedestrians within the highway, including persons with disabilities in accordance with the Americans with Disabilities Act of 1990 (ADA), Title II, Paragraph 35.130) as defined by the Manual for Uniform Traffic Control Devices (MUTCD).

If construction of sidewalks is part of the scope of work, curb ramps shall be shown and stationed in the plan (signalized and non-signalized intersections or points of pedestrian crossing). Curb ramps shall be constructed per current ADA standards and with guidance from the 2012 NCDOT Roadway Standard Drawings. If geometry of roadway does not allow for the use of the standard details provided, contact the Departments Contract Standards & Development Unit for alternative approved curb ramp design typicals.

Pavement Markings, Markers and Delineation

The Design-Build Team shall not place any final pavement markings and markers until the Final Pavement Marking Plans are submitted for review and acceptance.

The Design-Build Team shall use pavement marking and marker products that conform to all NCDOT requirements and are listed on the NCDOT's Approved Products List. The use of any devices that are not shown on the Approved Product List shall require written approval from the Signing and Delineation Unit.

The Design-Build Team shall install pavement markings and markers in accordance with the NCDOT 2012 *Standard Specifications for Roads and Structures*, and in accordance with the manufacturer's procedures and specifications.

The Design-Build Team shall install pavement markings and pavement markers on the final surface as follows:

Road	Marking	Marker
All	Thermoplastic	Snowplowable
Concrete Bridge Decks	Polyurea with Highly Reflective Elements	Raised

The Design-Build Team shall tie proposed pavement marking lines to existing pavement marking lines.

The Design-Build Team shall replace any pavement markings that have been damaged by the end of each day's operation.

All Full Control of Access interstate facilities and US routes require 6-inch wide pavement markings, i.e., lane lines, edge lines and skips for the final pavement marking. The Design-Build Team shall install gore lines that are twice the edge line thickness.

ITS AND SIGNALS SCOPE OF WORK (6-21-13)

I. GENERAL

The Design-Build Team shall design and prepare plans for the traffic signal installations, traffic signal revisions and communication plans for inclusion into the SR 1472 (Village Road) Standalone Closed Loop System. This work shall include, but not be limited to, the preparation of Traffic Signal Plans, Closed Loop Signal System Plans, Electrical and Programming Details, Utility Make-Ready Plans, Fiber Optic Communication Plans and Project Special Provisions. These plans shall be prepared in accordance with the "*Design-Build Submittal Guidelines*" and the "*Guidelines for Preparation of Traffic Signal & Intelligent Transportation System Plans on Design-Build Projects*" available on the Design-Build website.

The Design-Build Team shall select a Private Engineering Firm (PEF) that has experience designing and sealing ITS & Signal Plans for NCDOT on comparable projects.

A pre-design meeting shall take place between the NCDOT ITS & Signals Unit, the Design-Build Team, the Division Traffic Engineer, the Regional Traffic Engineer and any other pertinent NCDOT personnel before ITS & Signal designs begin. ITS & Signal Plan submittals shall only be reviewed and accepted by NCDOT ITS & Signals Unit after this pre-design meeting.

The Design-Build Team shall coordinate and implement all signal designs at the appropriate time as directed by the Engineer. The Design-Build Team shall maintain, monitor and adjust the traffic signals as needed throughout the project. All signal system timing plans shall be reviewed and accepted by the Department prior to implementation. The Design-Build Team shall also be responsible for the design and implementation of all temporary signal designs needed to maintain traffic during construction. The Design-Build Team shall maintain full actuation of the traffic signals on this project during the life of the project.

The Design-Build Team shall be responsible for providing a safe and economical design for the public. The Design-Build Team shall be responsible for ensuring that all plans and designs conform to the current design standards of the Intelligent Transportation Systems & Signals Unit. All plans and associated design material and specifications shall be reviewed and accepted by NCDOT before installation.

The Design-Build Team shall deliver all existing cabinets and contents, including but not limited to fiber and telephone modems, that are not reinstalled on this project to the Division 3 Traffic Services Office located at 5504 Barbados Blvd., Castle Hayne, NC 28429.

II. TRAFFIC SIGNALS

There is one traffic signal corridor that will be impacted by this project. It is NC 133 / SR 1472 (River Road / Village Road).

The Design-Build Team shall upgrade TWO (2) existing traffic signals and install ONE (1) new traffic signal. All of these signals shall be interconnected. Refer to Section III for the system

interconnection requirements. The traffic signal detection for the final traffic patterns shall be inductive loop detection. The Design-Build Team may provide out of street detection only for temporary traffic patterns during construction. The traffic signal work required at each intersection is listed below.

NC 133 / SR 1472 (Village Road) – 2 Signal Upgrades (DDI Interchange)		
Signal Number	**Intersection Description**	**Work Requirements**
03-0275	NC 133 / SR 1472 at US 17-NC 133 SB / US 74-76 WB Ramps (DDI)	The Design-Build Team shall design these TWO (2) existing signals to match all temporary construction phasing and the proposed final traffic pattern. This may include new signal supports, signal phasing changes, signal head changes, installation of auxiliary output files, closed loop system detectors and system interconnection equipment. **These signals already have 2070L controllers and 336 cabinets. The Design-Build Team may reuse the existing controllers and cabinets for as long as is feasible, however all traffic signals must remain in full operation during all temporary construction phases.** Vehicle detection, as noted above, shall be maintained for all movements throughout the life of the project. The Design-Build Team shall provide pedestrian signal heads at each approach with existing or proposed sidewalk and where vehicular traffic is not free-flowing. Do not provide pedestrian signals until traffic is in the final pattern. Prior to installation, the Division Traffic Engineer shall approve all pedestrian pushbutton locations in the field. The Design-Build Team shall use **metal poles with mast arms** as signal supports. The Design-Build Team shall also use pedestal mounted signal heads as needed at these intersections. **These signals shall be interconnected into the existing Village Road Closed Loop Signal System.** (Master Asset Number 10304) See Section III for signal communication requirements.
03-0276	NC 133 at US 17-NC 133 NB / US 74-76 EB Ramps (DDI)	

NC 133 (River Road) – 1 New Signal		
Signal Number	**Intersection Description**	**Work Requirements**
03-0504	NC 133 at SR 1551 (Blackwell Road)	The Design-Build Team shall design and install ONE (1) new, fully actuated traffic signal at this location. It shall include 2070L controllers. The cabinet shall include an auxiliary output file, closed loop system detectors and system interconnection equipment. Vehicle detection, as noted above, shall be maintained for all movements throughout the life of the project. Pedestrian signals are not required at this intersection. The Design-Build Team may use either **metal poles with mast arms or metal strain poles** for the signal supports as dictated by intersection geometry. **This signal shall be interconnected into the existing Village Road Closed Loop Signal System.** (Master Asset Number 10304) See Section III for signal communication requirements.

III. SIGNAL COMMUNICATIONS PLANS

The Design-Build Team shall be responsible for designing, installing, and maintaining a **Standalone fiber optic Closed Loop Signal System** along NC 133 / SR 1472 (Village Road).

The Design-Build Team shall be responsible for the removal of the existing wireless communications equipment at existing signal locations along NC133/SR1472 (Village Road). These existing signals will be interconnected into the **Standalone fiber optic Closed Loop Signal System** along NC 133 / SR 1472 (Village Road).

One new signal will be interconnected into the **Standalone fiber optic Closed Loop Signal System** along NC 133 / SR 1472 (Village Road).

The communications networks shall utilize single mode fiber optic cable as the communications medium.

Existing Wireless Equipment to be Removed along NC 133 / SR 1472 (Village Road)		
Remove the wireless communications equipment at the following intersections and return the equipment to NCDOT Division 3 Traffic Services. Remove existing wireless equipment including but not limited to radio, coax cables / jumpers, and antenna mounting hardware, antenna, connectors, splitters, and surge protection.		
INTERSECTION	**LOCATION**	**COMMENTS**
03-0086	South Navassa Road	Remove existing wireless equipment
03-0405	Fairview Road	Remove existing wireless equipment
03-0275	US 17-NC 133 SB/US 74-76 WB Ramp	Remove existing wireless equipment
03-0276	US 17-NC 133 NB/US 74-76 EB Ramp	Remove existing wireless equipment

Standalone Fiber Optic Closed Loop Signal System along NC 133 / SR 1472 (Village Road) – Existing Intersections		
Install fiber optic communications equipment along NC133/SR1472 (Village Road) at the following existing intersections:		
INTERSECTION	**LOCATION**	**COMMENTS**
03-0086	South Navassa Road	Install fiber optic communications equipment.
03-0405	Fairview Road	Install fiber optic communications equipment.
03-0275	US 17-NC 133 SB/US 74-76 WB Ramp	Install fiber optic communications equipment.
03-0276	US 17-NC 133 NB/US 74-76 EB Ramp	Install fiber optic communications equipment. Install phone drop at the master cabinet.

Standalone Fiber Optic Closed Loop Signal System along NC 133 / SR 1472 (Village Road) – New Intersection		
Install fiber optic communications equipment along NC133/SR1472 (Village Road) at the following new intersection:		
INTERSECTION	**LOCATION**	**COMMENTS**
03-0504	NC 133 at SR 1551 (Blackwell Road)	Install fiber optic communications equipment.

Communications Plans and Project Special Provisions

Prior to construction, the Design-Build Team shall provide a detailed set of Communications Plans and Project Special Provisions for the Department's review and acceptance. No

construction related to the installation of the communications system shall begin until NCDOT has accepted the RFC Plans and Specifications.

The Communications Plans and Project Special Provisions shall consist of the three major items listed below:

- Communications Cable & Conduit Routing Plans
- Splice Plans
- Project Special Provisions
- Catalog Cut Sheets

Utility Make-Ready Plans

In conjunction with the development of the Communications Cable and Conduit Routing Plans and Traffic Signal Plans, the Design-Build Team shall also develop a set of Utility Make-Ready Plans as required.

The Design-Build Team shall install all communications cables and conduit systems in such a manner that avoids conflicts with other utilities. All aerial communications cable installations shall be installed in accordance with the National Electrical Safety Code. The Design-Build team is responsible for coordinating all Utility Make Ready Work with the proper utility representatives.

IV. EXISTING ITS DEVICES

There are four (4) existing CCTV cameras and one (1) existing Dynamic Message Sign (DMS) within the project limits. Should the Design-Build Team damage ITS devices and / or associated equipment, the Design-Build Team shall immediately cease work and notify the Engineer. The Design-Build Team shall be responsible for all costs associated with repairing ITS devices and / or associated equipment damaged by the Design-Build Team.

The Design-Build Team shall relocate any CCTV camera or DMS and all associated equipment that are in conflict with the proposed design and / or construction.

The Design-Build Team shall determine if any existing CCTV or DMS device or equipment within the project limits needs to be relocated to resolve any construction conflicts. The Design-Build Team shall be responsible for the required relocation and / or adjustment of all existing CCTVs and existing DMS including but not limited to all related material and labor. Prior to relocating any ITS device or ITS equipment, the Design-Build Team shall coordinate with and obtain approval from the Engineer.

UTILITIES SCOPE OF WORK (7-18-13)

The Design-Build Team shall obtain the services of a Private Engineering Firm (PEF) knowledgeable in the NCDOT Utility Coordination Process involved with utility relocation / installation and highway construction. The Design-Build Team shall be responsible for coordinating all utility relocations, removals, and / or adjustments where the Design-Build Team and Utility Company, with concurrence from the Department, determine that such work is essential for highway safety and performance of the required highway construction.

The Department has coordinated with the owners of all known utilities in the project area that are in conflict with the Roadway Right of Way Plans provided by the Department.

In the event that the Design-Build Team elects to modify the roadway plans to the extent that the Utility Relocation Packages, Utility By Others Plans, or Utility Construction Plans require adjustment, then the Design-Build Team will be responsible for supplemental coordination necessary to revise these plans, and any associated agreements. No additional compensation will be paid and no extension of contract time will be granted in the event that the Design-Build Team's final design alters the above plans, and associated agreements that the Department has already established.

In the unlikely event that (1) an unknown utility is discovered to be in conflict with the Roadway Right of Way Plans provided by the Department, or (2) a new utility owner is impacted by the Design-Build Team's modified and final design, then the Design-Build Team shall be responsible for all coordination activities, and associated agreements with the new utility owner.

NCDOT will be the approving authority for all utility agreements and approval of plans.

Cost Responsibility

The Design-Build Team shall be responsible for all costs associated with utility relocations due to haul roads and / or any other temporary conditions resulting from the Design-Build Team's method of operation or sequence of work.

The Department has determined the cost responsibilities for the utilities known to be in conflict with the Roadway Right of Way Plans provided by the Department. The remainder of this section below applies to any new utility conflicts that arise, either unknown, or due to a modification that the Design-Build Team elects to make to the Roadway Right of Way Plans provided by the Department.

The NCDOT will be responsible for all non-betterment utility relocation cost when the utility company has prior rights of way / compensable interest. The utility company shall be responsible for the relocation costs if they cannot furnish evidence of prior rights of way or a compensable interest in their facilities. The Design-Build Team shall be responsible for determining the cost responsibility for the utility relocations. The Design-Build Team shall be responsible for all costs

associated with utility relocations due to haul roads and / or any other temporary conditions resulting from the Design-Build Team's methods of operation or sequence of work. NCDOT will be the approving authority for all utility agreements and approval of plans.

The utility company will be responsible for the relocation cost if they cannot furnish evidence of prior rights of way or a compensable interest in their facilities. The Design-Build Team shall be responsible for verifying the cost responsibility for the utility relocations.

Project Details

The Design-Build Team shall be responsible for verifying the utility locations, type of facilities, and identifying the utility owners in order to coordinate the relocation of any utilities, known and unknown, in conflict with the project. The following utilities are known to be located within the project construction limits:

Utility Owner	Utility Type	Cost Responsibility
Progress Energy	Power / Transmission	NCDOT (Prior Rights)
Progress Energy	Power / Distribution	NCDOT (Prior Rights)
AT&T	Aerial & Buried Telephone	Utility Owner
Earthlink	Cable	Utility Owner
Atlantic Telephone	Telecommunications	Utility Owner
Time Warner Cable	Cable	Utility Owner
MCNC	Telecommunication	Utility Owner
H2GO Brunswick Regional Water & Sewer	Water/Sewer	NCDOT (Prior Right)

Water and Sewer

The Design-Build Team shall identify in the Technical Proposal any changes to the design and / or construction methods associated with the wet utilities. All required coordination with the environmental agencies, approvals from the environmental agencies, public involvement, utility relocation / coordination, and / or permit modifications resulting from a variation in the Department's proposed design and / or construction methods shall be the sole responsibility of the Design-Build Team.

The Design-Build Team shall be responsible for relocating H2GO Brunswick Regional Water & Sewer facilities impacted by the project's construction. The Design-Build Team shall be responsible for all permitting and construction of the water and sewer facilities as depicted in the Utility Construction Plans and any additional design or construction costs for water and sewer due to the Design-Build Team election to revise the Roadway Right of Way Plans provided by the Department.

The contact for H2GO Brunswick Regional Water & Sewer is Mr. Bob Walker at (910) 371-9949, ext. 106.

Utility Relocation Plans

The NCDOT has obtained Utility Relocation Packages from the utility companies impacted by proposed construction. The Utility By Others plans will be provided to the Design Build Team.

Compensable Interest

Typically, affidavits, recorded easements or NCDOT agreements can serve as evidence of prior rights. A compensable interest is identified as follows:

(A) Existing or prior easement rights within the limits of the project, either by recorded right of way or adverse possession (Utility occupying the same location for twenty (20) plus years outside the existing highway rights of way).

(B) Entities covered under *General Statute 136-27.1* and *136-27.2.* Statute requires the NCDOT to pay the non-betterment cost for certain water, sewer and gas relocations.

(C) Utilities that have a joint-use agreement that constitutes a compensable interest with entities that have existing or prior easements rights within the project limits.

Work Performed by Design-Build Team for Utility Owners

If the Design-Build Team elects to make arrangements with a Governmental Agency or any other utility owner for proposed utility construction, in which the Agency / Utility Owner shall be responsible for the costs of work to be performed by the Design-Build Team, the Design-Build Team shall be responsible for negotiating all costs associated with the proposed construction. Once the Design-Build Team and the Agency / Utility Owner agree on a plan and a lump sum estimated cost for the utility construction, the Design-Build Team shall be responsible for submitting five (5) sets of 11 x 17 utility construction drawings to the State Utility Agent, via the Transportation Program Management Director, for further handling. Each set shall include a title sheet, plan sheets, profiles and special provisions if required. Also, a letter from the Agency / Utility Owner agreeing to the plans and lump sum cost must accompany this package. The NCDOT will reimburse the Design-Build Team the estimated lump sum cost under a Supplemental Agreement. The necessary Utility Agreement to the Agency / Utility Owner for reimbursement shall be a two party agreement between the NCDOT and the Agency / Utility Owner; and will be developed and executed by the Department.

If the Design-Build Team is requested, in writing, by a utility company to relocate facilities not impacted by the project's construction, and / or upgrade or incorporate new facilities as part of the highway construction, designs shall be coordinated with the Utility Owner and NCDOT Utility Coordination Unit. The associated design and construction costs shall be negotiated and agreed upon between the Design-Build Team and the utility company. The Design-Build Team shall develop designs; prepare all plans for needed agreements and permits; submit permits directly to

the agencies and obtain approval from the agencies. The Design-Build Team shall be responsible for all permit fees.

Cable TV

The cost in relocating CATV due to the highway construction shall be the responsibility of the CATV Company; however, under the following conditions the Design-Build Team shall bear the relocation expense:

(A) If the CATV Company can validate a recorded easement for facilities outside the maintained NCDOT rights of way.

(B) The adjustment is needed on existing utility poles to accommodate a proposed NCDOT Traffic Management System Fiber Optic Communication Cable Project.

The NCDOT will not permit CATV to place poles within the highway rights of way but will allow down guys for their facilities within the highway rights of way. Under most circumstances, the CATV Company will continue a joint-use attachment with the local Power and Telephone Company. If the CATV proposed relocation places buried facilities within the highway rights of way then plans and encroachment agreements shall be required by the NCDOT.

General

The Design-Build Team shall not commence work at points where the highway construction operations are adjacent to utility facilities, until making arrangements with the utility company to protect against damage that might result in expense, loss, disruption of service or other undue inconvenience to the public or utility owner. The Design-Build Team shall be responsible for damage to the existing or relocated utilities resulting from the Team's operations. In the event of interruption of any utilities by the project construction, the Design-Build Team shall promptly notify the proper authority (Utility Company) and cooperate with the authority in the prompt restoration of service.

The Design-Build Team shall accommodate utility adjustments, reconstruction, new installation and routine maintenance work that may be underway or take place during the progress of the contract.

The Design-Build Team shall be required to use the guidelines as set forth in the following:

(A) *NCDOT Utility Manual - Policies & Procedures for Accommodating Utilities on Highway Rights of Way*

(B) *Federal Aid Policy Guide* - Subchapter G, Part 645, Subparts A & B

(C) *Federal Highway Administration's Program Guide, Utility Adjustments & Accommodations on Federal Aid Highway Projects*

(D) *NCDOT Construction Manual* Section 105-8

(E) *NCDOT Right of Way Manual* - Chapter 16 Utility Relocations

(F) *NCDENR Public Water Supply* - Rules governing public water supply

(G) *NCDENR Division of Water Quality* - Title 15A - Environment and Natural Resources

Attachments to Existing and / or Proposed Structures

The Design-Build Team shall not attach any new utilities and / or conduit to the proposed or widened structures. Existing conduit containing active fiber facilities are located on the north side of Bridge No. 108 (westbound US 17-74-76 over Alligator Creek). This conduit may remain in place only if it is not in conflict with the proposed bridge widening.

Agreements

The Department has initiated the agreements for the utilities known to be in conflict with the Roadway Right of Way Plans provided by the Department and will finalize the agreements to the extent required to accommodate the Roadway Right of Way Plans provided by the Department. The remainder of this section below applies to any new utility conflicts that arise, either unknown, or due to a modification that the Design-Build Team elects to make to the Roadway Right of Way Plans provided by the Department.

If a utility company can provide evidence of prior rights of way or a compensable interest in their facilities, the Design-Build Team shall coordinate the non-betterment utility relocation cost with the utility company and develop the Utility Agreement.

The NCDOT State Utility Agent must execute approved agreements on Design-Build highway projects. The Utility Relocation Agreements (Cost Agreement) and encroachment agreements are available from the NCDOT Utility Coordination Unit. Reference Pages 59 and 60 of the *NCDOT Utility Manual on Policies & Procedures for Accommodating Utilities on Highway Rights of Way* for the different types of encroachment agreements available for use.

The Design-Build Team shall be required to utilize the NCDOT Standard Utility Encroachment Agreements as necessary in relocating utilities. The Encroachment Agreements shall be used under the following conditions:

(A) If a utility company is not occupying a valid right of way / compensable interest and the proposed relocation will place the relocated utilities within the existing or proposed highway rights of way.

(B) For **all** new utility installations within the existing or proposed highway rights of way. This includes all water, sewer and gas lines owned by entities covered under *General Statute 136-27.1* and *136-27.2.*

(C) In either case above, the Design-Build Team shall submit 5 copies of the encroachment plans plus 2 originals and 3 copies of the encroachment agreement to the NCDOT State Utility Agent, via the Transportation Program Management Director, for approval.

GEOTECHNICAL ENGINEERING SCOPE OF WORK (10-10-13)

I. GENERAL

All geotechnical data, tests, computations and supporting subsurface investigations and documentation submitted by the Design-Build Team shall be provided in English Units. Obtain the services of a firm prequalified for geotechnical work by the NCDOT Geotechnical Engineering Unit at:

https://partner.ncdot.gov/VendorDirectory/default.html

The prequalified geotechnical firm shall prepare foundation design recommendation reports for use in designing structure foundations (if not using Department provided sealed structural plans), roadway foundations, retaining walls, overhead sign structure and luminary foundations, and temporary structures.

The Engineer of Record who prepares the foundation design recommendation reports shall be a Professional Engineer registered in the State of North Carolina who has completed a minimum of three geotechnical design projects of scope and complexity similar to that anticipated for this project using the load and resistance factor design (LRFD) method and in accordance with the latest edition of the AASHTO *LRFD Bridge Design Specification.*

The prequalified geotechnical firm shall also determine if additional subsurface information, other than that required and noted elsewhere in this RFP, is required based upon the subsurface information provided by the NCDOT and the final roadway and structure designs. If a determination is made that additional subsurface information is required; the Design-Build Team shall use a prequalified geotechnical firm to perform all additional subsurface investigation and laboratory testing in accordance with the current NCDOT Geotechnical Engineering Unit *Guidelines and Procedures Manual for Subsurface Investigations.* Submit additional information collected by the Design-Build Team to the Geotechnical Engineering Unit for review. The Design-Build Team shall provide the final Subsurface Investigation report in electronic and hardcopy format to the NCDOT for its records.

If the Design-Build Team elects not to use the sealed structure plans provided by the Department; the Design-Build Team shall be responsible for obtaining the borings noted below for all bents where subsurface information is not sufficient to meet the investigation requirements unless the prequalified geotechnical firm submits documented justification that the subsurface investigation provided by the NCDOT is adequate for design purposes and the justification is acceptable to the Department. Any deviations to the requirements noted below shall require acceptance from the NCDOT Geotechnical Engineering Unit prior to construction:

- A minimum of one (1) standard penetration test (SPT) / rock core boring shall be required per bent for all bridges.

- All driven piles shall be located within 75 feet of an SPT / rock core boring.
- All drilled piers and other types of bridge foundations shall be located within 25 feet of an SPT / rock core boring.
- Borings shall extend to a depth below the foundation element that is, at a minimum, three times the diameter of the foundation element to show a complete subsurface profile.

The maximum spacing between borings for retaining walls shall be 200 feet, with a minimum of two borings; one at each end of the wall. Drill borings for retaining walls a minimum depth below the bottom of the wall equal to twice the maximum height of the wall.

The Design-Build Team is permitted to design bridges on this project using software that accounts for the structural effects of soil / pier interaction.

II. DESCRIPTION OF WORK

Unless otherwise noted herein, the Design-Build Team shall design foundations, embankments, slopes, and retaining walls in accordance with the current edition of the AASHTO *LRFD Bridge Design Specifications*, NCDOT *LRFD Driven Pile Foundation Design Policy,* all applicable NCDOT Geotechnical Engineering Unit Standard Provisions, NCDOT *Structures Management Unit Manual*, and NCDOT *Roadway Design Manual*. The NCDOT *LRFD Driven Pile Foundation Design Policy* is located on the NCDOT Geotechnical Engineering Unit's website at:

https://connect.ncdot.gov/resources/Geological/Pages/default.aspx

For *Geotechnical Guidelines for Design-Build Projects*, the Design-Build Team shall adhere to the guidelines located at the following website:

https://connect.ncdot.gov/letting/Pages/Design-Build-Resources.aspx

A. Structure Foundations

The Design-Build Team may choose one of the following two options for the design of each of the bridges' foundations:

Option 1:

Use the foundation design included in the sealed structure plans that were prepared and furnished by the Department.

If the Design-Build Team chooses Option 1 for the replacement bridge over Brunswick River, the Design-Build Team shall perform a static axial load test on a non-production drilled pier. The static axial load test shall be performed with NCDOT oversight and in accordance with the *Static Axial Load Test* Project Special Provision found elsewhere in this RFP and the *Static Axial Load Test for Replacement of BR*

103 and 105 over Brunswick River plan sheet signed and sealed on October 10, 2013. A minimum of one month prior to performing the static axial load test, the Design-Build Team shall provide an SPT boring that extends to elevation 170.0 feet at the static axial load test pier location.

After completion of the static axial load test, the Design-Build Team shall remove the test pier down to the ground surface. The Design-Build Team shall remove all ancillary items installed as part of the load test.

The Department may elect to issue revised sealed structure plans for the replacement bridge over Brunswick River with increased or decreased drilled pier lengths based on the static load test results and / or as may be necessary to accommodate field conditions. The Department will provide the aforementioned revised sealed structure plans within ten working days of approving the final static axial load test report. The Department will review the static axial load test report in accordance with the Design-Build Submittal Guidelines for geotechnical submittals.

As may be necessary to accommodate field conditions, the Department may elect to issue revised sealed structure plans for the bridges over Alligator Creek with increased or decreased drilled pier lengths. The Department will not honor requests for compensation for drilled piers that are lengthened by five feet or less. However, any additional drilled pier length greater than five feet will be paid for as extra work in accordance with Subarticle 104-8(A) of the 2012 *Standard Specifications for Roads and Structures*.

No extension of contract time will be granted for changes in drilled pier tip elevations.

Option 2:

The Design-Build Team may elect to prepare and submit their own foundation design for any bridge on the project. If the Design-Build Team chooses this option, the foundation design shall be done in accordance with the procedures described in the latest version of AASHTO LRFD Bridge Design Specifications.

Do not use driven piles for interior bent foundations for any bridge on the project.

In accordance with ASTM D-1143 or the *Static Axial Load Test* Project Special Provision found elsewhere in this RFP, the Design-Build Team may conduct a static axial load test on a non-production drilled pier for use in drilled pier foundation design. The minimum test pier diameter shall be 50% of the production drilled pier diameter or four feet, whichever is greater. At the test pier location, the Design-Build Team shall provide an SPT boring that extends below the bottom of the test pier a minimum distance of 15 feet or a distance equal to three test pier diameters, whichever is greater. Incorporate

the effect of loss of effective vertical stress due to scour when interpreting load test results. Load test results and static load test resistance factors from a static load test shall not be used for design of bridges at other locations on the project. Dual structures may be counted as a single structure site for the purposes of use of axial load test results and resistance factors. If the Design-Build Team chooses not to perform a static axial compressive load test, the drilled pier design shall use both skin and tip bearing capacities computed following the analytical procedures in the AASHTO LRFD Bridge Design Specifications.

If performing a load test under Option 2, submit load test design and details to the NCDOT Geotechnical Engineering Unit, via the Transportation Program Management Director, for review and acceptance prior to construction of a test drilled pier. Perform Sonic Caliper Testing in accordance with the special provision included in the contract on axial load tested drilled piers.

After completion of the static axial load test, the Design-Build Team shall remove the test pier down to the ground surface or a minimum of one foot below the existing river bed. Remove load test apparatus piles in accordance with all permit requirements.

No additional compensation will be made or extension of contract time granted due to the Design-Build Team's election to produce their own foundation design and construct in accordance with such design as approved by the Department.

Permanent steel casings shall be required for drilled piers that are constructed in six inches or more of water. Permanent steel casings are required for drilled piers constructed on sloped stream banks subject to degradation from flooding. Permanent steel casings that extend to the bottom of the cap shall remain in place.

Use the 100-year and 500-year hydraulic scour elevations from the structure survey report accepted by the NCDOT Hydraulics Unit as the 100-year and 500-year design scour elevations for design of bridge foundations. Do not use geologic scour history to adjust 100-year and 500-year design scour elevations upwards.

Analyze drilled pier using either LPile or FB-Pier. Design drilled piers with a sufficient pier or pile embedment in soil and / or rock to achieve "fixity".

Static load tests for drilled piers, as referenced by AASHTO *LRFD Bridge Design Specifications,* are limited to ASTM D-1143 or Osterberg O-cell load tests.

The Design-Build Team is responsible for designing approach embankments in accordance with the requirements of this Scope of Work for all structures on the project. End bent fill slopes up to 35 feet in height (defined as the difference

between grade point elevation and finished grade at toe of slope) shall be 1.5:1 (H:V) or flatter. End bent fill slopes with heights greater than 35 feet shall be 2:1 or flatter. All end bent cut slopes shall be 2:1 or flatter. Design all end bent fill slopes to have a minimum factor of safety of 1.3 for global stability. Design all end bent cut slopes to have a minimum factor of safety of 1.5 for global stability. For all end bent slopes, extend end bent slope protection from the toe of slope to berm and to 2.75:1 (H:V) slope.

In accordance with the NCDOT Roadway Standard Drawings, the Design-Build Team shall install reinforced bridge approach fills for all bridge end bents. For Bridge No. 108, the Design-Build Team shall grade the reinforced bridge approach fill to drain away from the existing bridge approach fill and shall provide details that illustrate how the reinforced bridge approach fill will tie to the existing bridge approach fill and how drainage will be accommodated.

B. Roadway Foundations

For roadway sections that are widened, if groundwater is encountered within four feet of the proposed subgrade elevation, one, or a combination of the following shall be required on the side(s) that is widened:

- A lateral ditch, with a grade and outfall that prevents ponding, cut on the low side(s) of the road to a depth of at least five feet below the subgrade.
- Subsurface Drain in accordance with NCDOT Standard Drawing 815.02 and Section 815 of the NCDOT 2012 *Standard Specifications for Roads and Structures* with grades and outfalls that prevent ponding or to deepest available outfall.
- A roadway grade that provides a minimum of four feet between the subgrade elevation and the groundwater elevation.

Unless otherwise noted herein, all unreinforced proposed fill slopes shall be 3:1 (H:V) or flatter except bridge end bent slopes (see Section A – Structure Foundations). All proposed soil cut slopes shall be 3:1 (H:V) or flatter, unless the slopes are designed with adequate reinforcement to provide the required stability. If steeper than 3:1 (H:V), all reinforced cut slopes and fill slopes may only be used if detailed design calculations and a slope stability analysis are submitted to the NCDOT Geotechnical Engineering Unit, via the Transportation Program Management Director, for review and acceptance prior to construction. Design all roadway fill slopes to have a minimum factor of safety of 1.3 for global stability. Design all roadway cut slopes to have a minimum factor of safety of 1.5 for global stability. Use limiting equilibrium methods, such as Modified Bishop, Simplified Janbu, Spencer, or any other generally accepted method for slope stability analysis. Submit detailed design calculations and slope stability analysis for all reinforced slopes and any non-reinforced slopes higher than ten feet for review and acceptance by the Geotechnical Engineering Unit prior to construction.

Bridge approach embankments are defined as embankments within 250 feet of end bents. Design and construct bridge approach embankments such that no more

than one (1) inch of settlement will occur after the waiting period or monitoring ends. Bridge approach embankment settlement monitoring shall be required when a waiting period of more than one month is recommended in the foundation design recommendation reports. When embankment monitoring is required, construct the embankment and approach fill to the proposed roadway grade prior to monitoring. Use an appropriate method to monitor settlement across the length of the embankment (from toe to toe) such as settlement gauges, surveyed stakes or other methods, but submit documentation describing the method and procedures to the NCDOT Geotechnical Engineering Unit, via the Transportation Program Management Director, for review and acceptance prior to construction of the embankment. Install a minimum of four (4) settlement gauges or survey stakes at each bridge approach embankment requiring settlement monitoring. Bridge approach embankment waiting periods may not be ended until less than one (1) inch of the anticipated settlement remains and less than 0.10 inch of settlement is measured over a period of four weeks. Do not drive piles or construct end bent caps until after bridge approach embankment waiting periods are complete.

Design and construct roadway embankments such that no more than two (2) inches of settlement will occur following pavement construction. Embankment settlement monitoring shall be required for locations when a total settlement of more than six (6) inches is calculated in the roadway foundations design recommendation report. Where computed settlement is greater than six (6) inches, monitor settlement across the width of the embankment at a maximum horizontal distance of 250 feet by settlement gauges or other approved methods. Submit documentation describing the method and procedures to the Geotechnical Engineering Unit, via the Design-Build Office, for review and acceptance prior to construction of the embankment. Roadway embankment waiting periods may not be ended until less than 2 inches of settlement is anticipated following pavement construction.

For roadway embankments where the organic content of soils exceeds 10% by weight within the construction limits of new embankments, widened embankments, or raised existing embankments, one of the following shall be required unless (1) the top of the organic soil layer is greater than 10 feet below the current ground surface and (2) the layer is less than 10 feet thick:

- Undercut all organic soils to at least the slope stake line(s). Backfill all undercut areas with select borrow material that adheres to the Select Material, Class III requirements in Section 1016 of the 2012 *Standard Specifications for Roads and Structures*. The Design-Build Team will not be allowed to install Geotextile Fabric to reduce the required organic soils undercut depth.
- Install / incorporate soil improvement techniques that mitigate long term settlement problems or transfer the embankment load to a deeper bearing stratum.

For bridge approach embankments where the organic content of soils exceeds 10% by weight within the construction limits of new embankments, widened embankments, or raised existing embankments, one of the following shall be required:

- Undercut all organic soils to at least the slope stake line(s). Backfill all undercut areas with select borrow material that adheres to the Select Material, Class III requirements in Section 1016 of the 2012 *Standard Specifications for Roads and Structures.*
- Install / incorporate soil improvement techniques that mitigate long term settlement problems or transfer the embankment load to a deeper bearing stratum.

Soil improvement techniques to mitigate long term settlement problems or to transfer embankment load to a deeper bearing stratum are allowed at bridge approach or roadway embankments. Soil improvement techniques shall follow the current industry standard practices and the guidelines of *Ground Improvement Methods FHWA publication NHI-04-001 or Geosynthetic Design and Construction Guidelines FHWA-HI-95-038.*

Mitigate all unsuitable soils to the extent that is required to improve the stability of the proposed embankment or subgrade. Use Select Granular Material in accordance with Section 265 of the NCDOT 2012 *Standard Specifications for Roads and Structures* to backfill undercut areas except when employing shallow undercut which requires the use of Select Material, Class IV.

C. Permanent Retaining Wall Structures

Retaining walls or abutment walls will not be allowed at any location where more than five feet of scour is calculated at the base of the wall.

For design and construction of mechanically stabilized earth (MSE) retaining walls, refer to the NCDOT *Policy for Mechanically Stabilized Earth Retaining Walls* which can be found at the NCDOT Geotechnical Engineering Unit's website at:

https://connect.ncdot.gov/resources/Geological/Pages/Products.aspx

With the exception of gravity walls, design and construct permanent retaining walls, in accordance with the applicable NCDOT Geotechnical Engineering Unit *Project Special Provisions,* which can be provided upon request by the Design-Build Team. Geotechnical Provisions and Notes can be found at the NCDOT Geotechnical Engineering Unit's website at:

https://connect.ncdot.gov/resources/Geological/Pages/Geotech_Provisions_Notes.aspx

With the exception of gravity walls, submit a wall layout and design for each retaining wall. The wall layout submittal shall include the following:

- Wall envelope with top of wall, bottom of wall, existing ground and finished grade elevations at incremental stations
- Wall alignment with stations and offsets
- Typical sections showing top and bottom of wall, drainage, embedment, slopes, barriers, fences, etc.
- Calculations for bearing capacity, global stability and settlement
- Details of conflicts with utilities and drainage structures
- Roadway plan sheets showing the wall (half size)
- Roadway cross sections showing the wall (half size)
- Traffic control plans showing the wall (half size)

Gravity walls shall be designed and constructed in accordance with the NCDOT Structure Standard Drawings and the NCDOT 2012 *Standard Specifications.* Gravity walls shall be identified in the roadway foundation design recommendation report. Cast-in-place cantilever walls shall be designed and constructed in accordance with the NCDOT 2012 *Standard Specifications.* Conceptual wall layouts and wall designs shall be submitted for NCDOT for review and acceptance.

Locate retaining walls at toes of slopes unless restricted by right of way limits. The Design-Build Team shall submit global stability calculations for slopes at retaining walls and obtain acceptance from the NCDOT prior to construction. Any slopes behind walls shall be 3:1 (H:V) or flatter.

Drainage over the top of retaining walls shall not be allowed. Sags in the top of walls are not permissible. Direct runoff above and below walls away from walls, if possible, or collect runoff at the walls and transmit it away. Curb and gutter or cast-in-place single faced barrier with paving up to the wall shall be required when runoff can not be directed away from the back or front of the wall. A paved concrete ditch with a minimum depth of six inches shall be required at the top of walls when slopes steeper than 6:1 (H:V) intersect the back of walls.

Precast or cast-in-place coping shall be required for walls without a cast-in-place face with the exception of when a barrier is integrated into the top of the wall. Extend coping or cast-in-place face a minimum of six inches above where the finished or existing grade intersects the back of the wall. A fence shall be required on top of the facing, coping or barrier or immediately behind the wall, if there is no slope behind the wall.

D. Temporary Structures

Design temporary retaining structures, which include earth retaining structures and cofferdams, in accordance with current allowable stress design AASHTO *Guide Design Specifications for Bridge Temporary Works,* the *Temporary*

Shoring Special Provision, and/or the applicable NCDOT Project Special Provision. The only submittal required to use the standard sheeting design is the "Standard Shoring Selection Form".

Traffic Control barrier on top of walls shall be in accordance with the NCDOT Work Zone Traffic Control Unit details available upon request by the Design-Build Team. If anchored barrier is required, then anchor the barrier in accordance with NCDOT *2012 Roadway Standard Drawing* Detail No. 1170.01.

III. CONSTRUCTION REQUIREMENTS

All construction and materials shall be in accordance with the NCDOT 2012 *Standard Specifications* and current NCDOT *Project Special Provisions* unless otherwise stated in this scope of work. The Design-Build Team shall be responsible for investigating, proposing and incorporating remedial measures for any construction problems related to foundations, retaining walls, subgrades, settlement, slopes, and construction vibrations. The NCDOT Geotechnical Engineering Unit shall review and accept these proposals.

The Design-Build Team shall be responsible for any damage or claim caused by construction, including damage caused by vibration (see Article 107-14 NCDOT 2012 *Standard Specifications for Roads and Structures*). The Design-Build Team shall be responsible for deciding what, if any, pre and post-construction monitoring and inventories need to be conducted to satisfy their liability concerns. Any monitoring and inventory work shall be performed by a qualified private engineering firm experienced in the effects of construction on existing structures.

The prequalified geotechnical firm that prepared the foundation designs shall review the settlement monitoring data a minimum of once a month and issue a letter prior to releasing the embankment or approach fill from monitoring. Submit the settlement monitoring data to the Transportation Program Management Director for review and acceptance prior to issuing the release letter.

The prequalified geotechnical firm that prepared the foundation designs shall review and approve all pile driving hammers and drilled pier construction sequences. After the prequalified geotechnical firm has approved these submittals, the Design-Build Team shall submit to the NCDOT for review and acceptance prior to beginning construction. The Department shall review and approve all pile driving hammers and drilled pier construction sequences.

Perform hammer approvals with GRLWEAP Version 2010 or later and in accordance with the NCDOT LRFD Driven Pile Foundation Design Policy. The foundation design firm shall develop pile driving inspection charts or tables, based upon PDA testing and CAPWAP analysis, if applicable, for acceptance by the NCDOT prior to pile installation.

Construct piles in accordance with Section 450 of the 2012 *Standard Specifications for Roads and Structures.*

Perform Pile Driving Analyzer (PDA) testing using a NCDOT prequalified company to develop pile driving inspection charts or tables. For each permanent bridge that includes driven piles, perform a minimum of one (1) PDA test (dual bridges are counted as one structure) for each pile size, pile type (material or shape) and pile driving hammer combination. Additional PDA tests may be required based upon the AASHTO LFRD Bridge Design Specifications. If the bridge length with driven pile foundations is longer than 400 feet, perform an additional PDA test at every 400 feet interval. Provide additional PDA testing for any revisions to pile type, size or hammer previously approved. The locations of specific piles to be tested must be accepted by the NCDOT prior to any PDA test. Perform PDA tests in accordance with ASTM D 4945-89, Standard Test Method for High Strain Dynamic Testing of Piles and this scope of work.

Analyze data with the Case Pile Wave Analysis Program (CAPWAP), version 2006 or later. At a minimum, analysis is required for a hammer blow near the end of initial drive and for each restrike and redrive. Additional CAPWAP analysis may be required as determined by the Engineer.

Meet the guidelines for NCDOT PDA reports from the Geotechnical Engineering Testing Contract for PDA test reports. To obtain a list of pre-approved Geotechnical Engineering Testing Contract companies to perform PDA testing and guidelines for PDA test report, contact the Geotechnical Engineering Unit at 919-707-6850. PDA testing may be performed by a technician, but PDA testing must be overseen and the reports sealed by a Professional Engineer registered in the State of North Carolina. Submit a complete PDA report sealed by the professional engineer who performed the test to the foundation design firm. If the Design-Build Team modifies the signed and sealed structural plans provided by the Department, the foundation design firm shall develop pile driving inspection charts or tables for acceptance by the NCDOT prior to pile installation. If the Design-Build Team does not modify the signed and sealed structural plans provided by the Department, the Design Build Team has the option of asking the Department to develop pile driving inspection charts or tables or may choose to develop pile driving inspection charts or tables for acceptance by the NCDOT prior to pile installation.

If the Design-Build Team elects not to use the sealed structure plans, use bentonite or polymer slurry construction for all drilled piers in accordance with Section 411 of the NCDOT 2012 *Standard Specifications for Roads and Structures.* If the Design-Build Team elects to use the sealed structure plans, use polymer slurry for all drilled piers in accordance with Section 411 of the NCDOT 2012 *Standard Specifications for Roads and Structures*.

Use current NCDOT inspection forms for drilled piers available on the NCDOT Geotechnical Engineering Unit's webpage. Construct and inspect drilled piers in accordance with Section 411 of the 2012 *Standard Specifications for Roads and Structures*. If the Design-Build Team elects to use the sealed structure plans, the Department will approve the drilled pier construction sequence prior to installation. The Department will inspect 25% of drilled piers at each bridge, but not less than two per bent, using the Shaft Inspection Device (SID). The Design-Build Team shall notify Hesham El-Boulaki by e-mail (hel-boulaki@ncdot.gov) a minimum of five days prior to the required SID testing, followed by a confirmation two

days prior to required SID testing. The Design-Build Team shall notify Hesham El-Boulaki of all SID testing cancellations as soon as possible at the e-mail address noted above and at (919) 329-4200. Perform SPT testing to verify end bearing capacity in a minimum of 25% of drilled piers at each bridge or one per bent, whichever is greater. Install Crosshole Sonic Logging (CSL) tubes in all drilled piers. CSL test a minimum of 25% of drilled piers at each bridge or one per bent, whichever is greater. If a CSL test identifies any defect in the drilled pier, the Department has the right to request additional CSL testing as needed. The Department will determine which piers will be CSL tested. Submit CSL test information and results to the Geotechnical Engineering Unit, via the Transportation Program Management Director, for review and acceptance.

The prequalified geotechnical firm that prepared the original design shall perform any changes to the foundation designs. All changes shall be based upon additional information, subsurface investigation and / or testing. Drilled pier tip elevations shall not be changed during construction unless the prequalified geotechnical firm that prepared the bridge foundation design redesigns the drilled pier from either an SPT / rock core boring, performed in accordance with ASTM standards at the subject pier location, or observations of the drilled pier excavation. If a drilled pier is designed based on a boring, do not drill a boring inside an open drilled pier excavation. Locate the boring within three pier diameters of the center of the subject pier and drill to a depth of two pier diameters below the revised tip elevation. If a drilled pier is redesigned based upon observations of the drilled pier excavation, the geotechnical engineer of record shall be present during the excavation to determine the actual subsurface conditions. Send copies of revised designs including additional subsurface information, calculations and any other supporting documentation sealed by a professional engineer registered in the State of North Carolina to the NCDOT for review.

Conduct proof rolling in accordance the NCDOT 2012 *Standard Specifications for Roads and Structures*, except use a full legally loaded dump truck.

Send copies of any inspection forms related to foundations, settlement or retaining walls to the NCDOT for review.

EROSION AND SEDIMENTATION CONTROL SCOPE OF WORK (8-14-13)

The NCDOT Roadside Environmental Unit shall review and accept all Erosion and Sedimentation Control Plans. Clearing & Grubbing and Final Grade Release for Construction (RFC) Erosion Control Plans shall be submitted to all NCDOT Personnel listed in the Design-Build Submittal Guidelines before **any** land disturbing activities, including clearing and grubbing, can commence. If the Design-Build Team chooses to perform the work in discrete sections, then a complete set of Clearing & Grubbing and Final Grade RFC Erosion Control Plans shall be submitted, accepted, and distributed as noted above prior to land disturbing activities, including clearing and grubbing, commencing in that section. No land disturbing activities, including clearing and grubbing, shall occur in any location that does not have accepted Clearing & Grubbing and Final Grade RFC Erosion Control Plans. Refer to the most recent version of the *NCDENR - Erosion and Sediment Control Planning and Design Manual* for erosion control design guidelines not addressed in this Scope of Work.

To ensure adherence with the August 3, 2011 NCG-010000 General Construction Permit, issued by the North Carolina Department of Environment and Natural Resources, Division of Water Quality, the Design-Build Team shall formally submit a project-wide Vegetation Management Procedure for the Department's review and acceptance prior to any land disturbing activities. After this initial review, the Design-Build Team shall concurrently provide the Resident Engineer and Roadside Environmental Field Operations Engineer updated versions of the Vegetation Management Procedure on a monthly basis. These updated versions will not require formal submittal to the Transportation Program Management Office, but will be subject to review comments by the aforementioned field personnel. All versions of the Vegetation Management Procedure shall include, but not be limited to, provisions for the early establishment of grasses / vegetation, and procedure and schedule details for fertilizer topdressing, supplemental seeding, mowing and repair seeding. The Vegetation Management Procedure shall be closely coordinated with the grading and hauling operations. The Design-Build Team shall provide a narrative overview of the Vegetation Management Procedure in the Technical Proposal.

From the beginning through the end of construction, the Design-Build Team shall maintain comprehensive "red-line" As-Built Plans that detail when and where permanent / temporary / repair seeding and topdressing have been performed.

Erosion and Sedimentation Control Plans shall at a minimum address the following:

I. Complete Set of Plans

A. Clearing and Grubbing Phase

1. Use correct NCDOT symbology.
2. Protect existing drainage structure inlets with Rock Inlet Sediment Trap Type 'A' (RIST-A), Rock Inlet Sediment Trap Type 'C' (RIST-C), Rock Pipe Inlet Sediment Trap Type 'A' (PIST-A), etc.
3. Utilize adequate perimeter controls (temporary silt ditches (TSD), temporary silt fence (TSF), etc.).

4. Utilize skimmer basins and rock measures with sediment control stone (Temporary Rock Sediment Dam Type 'B' (TRSD-B), Temporary Rock Silt Check Type 'A' (TRSC-A), etc.) at drainage outlets.
5. Take into account existing topography and show contour lines.
6. Utilize Temporary Rock Silt Checks Type 'B' (TRSC-B) to reduce velocity in existing ditches with spacing of 250 feet divided by percentage of ditch grade. Also utilize TRSC-B's in proposed TSD's and temporary diversions (TD).
7. Protect existing streams; do not place erosion control devices in live streams unless permitted by the Division of Water Quality 401 Certification and the Army Corps of Engineers 404 Permit.
8. Provide adequate silt storage for 3600 cubic feet per disturbed acre and sediment basins shall be sized with surface area equal to 435 square feet per cubic foot per second (cfs) of the peak inflow rate, Q10, using 10-year peak rainfall data (*NCDENR - Erosion and Sediment Control Planning and Design Manual* or NOAA's National Weather Service web site http://dipper.nws.noaa.gov/hdsc/pfds/ for partial duration (ARI) time series type). A Sediment Basin Designer Spreadsheet will be provided by the NCDOT Roadside Environmental Unit (REU) upon request.
9. Infiltration Basins shall provide adequate silt storage for 1800 cubic feet per disturbed acre with surface area equal to 325 square feet per cubic foot per second (cfs) of the peak inflow rate, Q10, using the 10-year peak rainfall data (*NCDENR - Erosion and Sediment Control Planning and Design Manual* or NOAA's National Weather Service web site http://dipper.nws.noaa.gov/hdsc/pfds/ for partial duration (ARI) time series type). Infiltration Basin shall be designed to dewater in 3 days or less. An Infiltration Basin Designer Spreadsheet will be provided by the NCDOT Roadside Environmental Unit (REU) upon request.
10. Skimmer Basins shall provide adequate silt storage for 1800 cubic feet per disturbed acre with surface area equal to 325 square feet per cubic foot per second (cfs) of the peak inflow rate, Q10, using the 10-year peak rainfall data (*NCDENR - Erosion and Sediment Control Planning and Design Manual* or NOAA's National Weather Service web site http://dipper.nws.noaa.gov/hdsc/pfds/ for partial duration (ARI) time series type). A Skimmer Basin Designer Spreadsheet will be provided by the NCDOT Roadside Environmental Unit (REU) upon request.
11. The minimum and maximum length to width ratio of all Sediment Basins shall be 2:1 and 6:1, respectively.
12. Coir Fiber Baffles shall be installed in all silt basins and sediment dams at drainage outlets. For silt basins with a 20-foot or longer length, three Coir Fiber Baffles shall be installed with a spacing of 1/4 the basin length. For silt basins with a length less than 20 feet, a minimum of two Coir Fiber Baffles shall be installed, with a spacing of 1/3 the basin length. The Design-Build Team will not be required to show the individual baffles on the Erosion Control Plans, but shall be required to incorporate the Coir Fiber Baffle Detail on the Erosion Control Plans.
13. Include any culvert and / or pipe construction sequence plan sheets in the Clearing & Grubbing Plans; all pipes 48 inches or larger, or any combination of pipes that total 48 inches or more require a construction sequence. Prior to installation of pipes smaller

than 48 inches in jurisdictional areas, the Design Build Team shall submit a phasing plan for managing the watercourse to the Resident Engineer for review and acceptance. The phasing plan shall be in accordance with the Best Management Practices for Construction and Maintenance Activities.

14. Incorporate temporary sediment basins into permanent stormwater devices.
15. Utilize Coir Fiber Wattles with Polyacrylamide (PAM) and / or TRSC-As with Matting and PAM in temporary and permanent, existing and proposed ditches at a spacing of 50 feet in areas where sediment basins are not feasible at drainage outlets and in areas where sediment basins at drainage outlets with sediment traps (i.e. PIST-A, RIST-A, etc.), cannot be properly sized to surface area and / or sediment storage requirements due to safety concerns, right of way restrictions, utility conflicts, or other construction limitations approved by the Roadside Environmental Unit.
16. Do not place erosion control devices that require excavation (i.e. basins, silt ditches, etc.) in wetlands or buffer zones.
17. Within the entire project limits, provide disturbed and undisturbed drainage areas in MicroStation Format.
18. For all drainage outlets where the runoff cannot be treated with a sediment basin and / or the sediment basin cannot be constructed to the required sediment storage or surface area requirements, provide a written explanation.
19. Provide drainage breaks for Temporary Silt Fence in wetland areas utilizing Coir Fiber Wattles with a maximum spacing of 200 ft.
20. Sediment Basins shall be placed on the perimeter of the project limits and outside of fill slopes to the maximum extent practicable.

B. Final Grade Phase

1. Use correct NCDOT symbology.
2. Protect existing and proposed drainage structure inlets with RIST-A, RIST-C, PIST-A, etc.
3. Utilize adequate perimeter controls (TSD, TSF, etc.).
4. Utilize TRSC-B's to reduce velocity in existing and proposed ditches with spacing of 250 feet divided by percentage of ditch grade. Also utilize TRSC-B's in proposed TSD's and TD's.
5. Utilize temporary slope drains and earth berms at top of fill slopes 5 feet or higher and a fill slope grade of 3:1 or steeper, or where there are superelevations above 0.04 and fills are greater than 3 feet. Maximum slope drain spacing shall be 200 feet.
6. Utilize rock energy dissipater and / or silt basin at outlet of slope drain.
7. Devices at all drainage turnouts shall utilize infiltration, skimmer, or sediment control stone (TRSD-B, TRSC-A, etc.) and a spillway with an adequately designed base length to distribute outflow.
8. Provide adequate silt storage for 3600 cubic feet per disturbed acre and sediment basins shall be sized with surface area equal to 435 square feet per cubic foot per second (cfs) of the peak inflow rate, Q10, using 10-year peak rainfall data (*NCDENR - Erosion and Sediment Control Planning and Design Manual* or NOAA's National Weather Service web site http://dipper.nws.noaa.gov/hdsc/pfds/ for partial duration

(ARI) time series type). A Sediment Basin Designer Spreadsheet will be provided by NCDOT REU upon request.

9. Infiltration Basins shall provide adequate silt storage for 1800 cubic feet per disturbed acre with surface area equal to 325 square feet per cubic foot per second (cfs) of the peak inflow rate, Q10, using the 10-year peak rainfall data (*NCDENR - Erosion and Sediment Control Planning and Design Manual* or NOAA's National Weather Service web site http://dipper.nws.noaa.gov/hdsc/pfds/ for partial duration (ARI) time series type). Infiltration Basin shall be designed to dewater in 3 days or less. An Infiltration Basin Designer Spreadsheet will be provided by the NCDOT Roadside Environmental Unit (REU) upon request.
10. Skimmer Basins shall provide adequate silt storage for 1800 cubic feet per disturbed acre with surface area equal to 325 square feet per cubic foot per second (cfs) of the peak inflow rate, Q10, using the 10-year peak rainfall data (*NCDENR - Erosion and Sediment Control Planning and Design Manual* or NOAA's National Weather Service web site http://dipper.nws.noaa.gov/hdsc/pfds/ for partial duration (ARI) time series type). A Skimmer Basin Designer Spreadsheet will be provided by the NCDOT Roadside Environmental Unit (REU) upon request.
11. Provide matting for erosion control in all ditch lines, including but not limited to temporary ditch lines (TDs) utilized to divert offsite runoff around construction areas, where the velocity is greater than 2.0 feet / sec, and the shear stress is 1.55 psf or less. For ditch lines with a shear stress above 1.55 psf, Permanent Soil Reinforcement Mat or Rip Rap shall be utilized.
12. Unless otherwise approved by the Roadside Environmental Field Operations Engineer, provide matting for erosion control on all slopes (cut and fill) that are 3:1 or steeper and a height of eight feet or greater.
13. The minimum and maximum length to width ratio of all Sediment Basins shall be 2:1 and 6:1, respectively.
14. Coir Fiber Baffles shall be installed in all silt basins and sediment dams at drainage outlets. For silt basins with a 20-foot or longer length, three Coir Fiber Baffles shall be installed with a spacing of 1/4 the basin length. For silt basins with a length less than 20 feet, a minimum of two Coir Fiber Baffles shall be installed, with a spacing of 1/3 the basin length. The Design-Build Team will not be required to show the individual baffles on the Erosion Control Plans, but shall be required to incorporate the Coir Fiber Baffle Detail on the Erosion Control Plans.
15. Incorporate temporary sediment basins into permanent stormwater devices.
16. Utilize Coir Wattles with Polyacrylamide (PAM) and / or TRSC-As with matting and PAM in temporary and permanent, existing and proposed ditches at a spacing of 50 feet in areas where sediment basins are not feasible at drainage outlets, and in areas where sediment basins at drainage outlets with sediment traps (i.e. PIST-A, RIST-A, etc.) cannot be properly sized to surface area and / or sediment storage requirements due to safety concerns, right of way restriction, utility conflicts, or other construction limitations approved by the Roadside Environmental Unit.
17. Do not place erosion control devices that require excavation (i.e. basins, silt ditches, etc.) in wetlands or buffer zones.

18. Within the entire project limits, provide disturbed and undisturbed drainage areas in MicroStation Format.
19. For all drainage outlets where the runoff cannot be treated with a sediment basin and / or the sediment basin cannot be constructed to the required sediment storage or surface area requirements, provide a written explanation.
20. Provide drainage breaks for Temporary Silt Fence in wetland areas utilizing Coir Fiber Wattles with a maximum spacing of 200 ft.
21. Sediment Basins shall be placed on the perimeter of the project limits and outside of fill slopes to the maximum extent practicable.

C. Intermediate Phase

Intermediate Erosion Control Plans shall only be required if design modifications and / or site conditions require additional erosion control design or design revisions to the RFC Clearing and Grubbing and / or RFC Final Grade Erosion Control Plans. Intermediate Plans shall be submitted for review and shall be accepted prior to construction of any aspect impacted by the revised erosion control design. For any intermediate phase, comply with Section B, "Final Grade Phase" above.

II. Detail Sheets and Notes

A. Provide project specific special notes and details such as skimmer basin, coir fiber wattle with Polyacrylamide (PAM), etc.
B. Provide matting summary sheet(s): matting for erosion control and permanent soil reinforcement mat
C. Provide reforestation sheet(s): regular, wetland, streambank and / or buffer showing appropriate species

III. Title Sheet

A. Show correct notes: NCG-01, HQW, ESA, clearing and grubbing, etc.
B. Show correct standards for project
C. List of standard NCDOT symbology
D. Show name and certification number of Level IIIA certified individual responsible for designing and/or reviewing Erosion and Sedimentation Control Plans

IV. Special Provisions

A. Erosion Control Special Provisions are available at the following website:

http://www.ncdot.org/doh/operations/dp_chief_eng/roadside/soil_water/special_provisions/

B. References in Erosion Control Special Provisions from the aforementioned website to Method of Measurement, Basis of Payment, or any other statement regarding direct payment for Erosion & Sediment Control measures shall be disregarded.
C. Erosion & Sediment Control / Stormwater Certification found elsewhere in this RFP.

V. Miscellaneous

A. Plan submittals shall include all pertinent design information required for review, such as design calculations, drainage areas, etc.

B. The NCDOT Roadside Environmental Unit will provide a sample set of Erosion and Sedimentation Control Plans (including any special details or special provisions used by the NCDOT Roadside Environmental Unit) and MicroStation Erosion Control Workspace to the Design-Build Team for reference upon request.

C. Plans shall address any environmental issues raised during the permitting process.

D. Sufficient time shall be allowed for the Design-Build Team to make any changes to the Erosion and Sedimentation Control Plans deemed necessary by the NCDOT Roadside Environmental Unit.

E. Temporary access and haul roads, other than public roads, constructed or used in connection with the project shall be considered a part of the project and addressed in the Erosion and Sedimentation Control Plans. Temporary access and haul roads located within the footprint and ROW/Easement corridor of the project shall be part of the highway Erosion and Sedimentation Control Plans. Temporary access and haul roads associated with borrow pits and staging areas shall be included in the Reclamation Plan.

F. Borrow or waste areas that are part of the project shall require a separate Reclamation Plan, unless the borrow or waste activity is regulated under the *Mining Act of 1971*, or is a landfill regulated by the Division of Solid Waste Management (NCDENR). For newly created borrow pit(s) that require dewatering, Borrow Pit(s) Dewatering Basins shall be required and shall be in accordance with the applicable Special Provision available at the website noted in Section IV above. The Design-Build Team shall submit the location and permit number for waste / borrow sites covered by the Mining Act or regulated by DSWM (DENR) concurrently to the Transportation Program Management Director and the Resident Engineer. For Reclamation Procedures, see:

http://www.ncdot.org/doh/operations/dp_chief_eng/roadside/fieldops/downloads/Files/ContractedReclamationProcedures.pdf

G. Whenever the Engineer determines that significant erosion and sedimentation continues despite the installation of approved protective practices, the Design-Build Team shall be required to and shall take additional protective action.

H. An accepted Erosion and Sedimentation Control Plan shall not exempt the Design-Build Team from making every effort to contain sediment onsite.

I. Any Erosion Control Design revisions made during the construction of the project shall be submitted to NCDOT REU by the 15th of the month via the Transportation Program Management Director. At anytime requested by the Engineer or the Roadside Environmental Unit, the Design-Build Team shall provide an updated version of the Erosion and Sedimentation Control Plans for distribution to all parties involved in the construction process.

J. The Design-Build Team shall comply with the *North Carolina Administrative Code Title 15 A Department of Environment and Natural Resources Chapter 4, Sediment Control.*

K. A pre-design meeting shall take place between the NCDOT Roadside Environmental Unit Soil & Water Engineering Section, the Design Build Team, and any other pertinent

NCDOT personnel before any Erosion and Sedimentation Control Designs are submitted to NCDOT Roadside Environmental Unit. Erosion and Sedimentation Control Plan submittals shall only be reviewed and accepted by NCDOT Roadside Environmental Unit after the Erosion Control Pre-Design Meeting. The Design Build Team shall be required to submit a tentative Erosion and Sedimentation Control Plan submittal schedule at the pre-design meeting.

L. At minimum, the Design Build Team shall bring one erosion control plan sheet with a Clearing & Grubbing erosion control design to the Erosion and Sedimentation Control Plan pre-design meeting.

M. All RFC Erosion and Sedimentation Control Plans, including any red line revisions, shall be kept on site at all times throughout the duration of the project.

N. Immediately after the clearing and grubbing erosion control measures have been installed for the entire project, or for individual sections if the Design-Build Team has divided the project into construction segments, the Design-Build Team's erosion and sedimentation control designer shall field verify constructed dimensions and installation of all erosion control devices. After this initial inspection(s), the aforementioned designer shall review the project conditions a minimum of every 30 days during the heavy grading operations, and as directed by the Engineer, to verify the field conditions of disturbed areas draining to erosion control devices to ensure the devices provide the current field condition requirement for sediment storage and surface area. During construction, the NCDOT may conduct separate field inspections of the project conditions and the erosion control devices. The erosion and sedimentation control designer shall make appropriate design revisions to the Clearing and Grubbing, Intermediate Erosion Control Plans and / or Final Grade Erosion Control Plans resulting from / required by the Design-Build Team and / or the Departmental field inspections for the Department's review and acceptance, in accordance with the Design-Build Submittal Guidelines. The Design-Build Team shall concurrently provide written documentation of all field verifications / inspections performed by the Design-Build Team to the NCDOT Roadside Environmental Unit, Soil and Water Engineering and Field Operations Section, and the Resident Engineer. At a minimum, this documentation shall detail what was observed during the field verification / inspection and all resulting required actions with a timeframe for implementation. When the project conditions no longer warrant, in the sole discretion of the Department, inspections by the erosion and sedimentation control designer may cease.

O. The Design-Build Team's erosion and sedimentation control designer shall submit design calculations, for the Department's review and acceptance, for all modifications to the Erosion and Sedimentation Control Plan that result in dimension modifications and / or relocations, other than minor shifts to accurately place, to the devices noted below:

- Riser Basin
- Skimmer Basin and all devices with Skimmers
- Temporary Rock Sediment Dam Type A
- Temporary Rock Sediment Dam Type B
- Temporary Rock Silt Check Type A
- Culvert Construction Sequences

- Temporary and Permanent Stream Channel Relocations

P. Erosion & Sediment Control / Stormwater Certification shall be required according to the Project Special Provision found elsewhere in this RFP.

Q. Prior to installation of any erosion control devices, the Design-Build Team shall verify boundaries of jurisdictional areas in the field and delineated with Safety Fence or flagging. For guidance on Safety Fence and flagging in jurisdictional areas, see:

http://www.ncdot.org/doh/operations/dp_chief_eng/roadside/fieldops/downloads/

R. Once RFC Erosion and Sedimentation Control Plans are issued, any major design change or addition, any change that involves calculations, and any addition, deletion, or relocation of a sediment basin shall be submitted to the NCDOT Roadside Environmental Unit for review and acceptance. Minor changes such as moving silt fence, adding or moving temporary ditches (unless adding new runoff flow to a sediment basin), and adding or moving slope drains shall be reviewed by the Engineer in the field.

S. All erosion control measures with stone extending beyond the construction limits shall be considered temporary fill. If impacted wetland areas are permitted as Hand Clearing, then the aforementioned temporary fill shall be permitted as Temporary Fill in Hand Cleared Areas for Erosion Control. (Reference the Environmental Permits Scope of Work found elsewhere in this RFP)

T. Sediment basins that drain directly into jurisdictional water or have a total drainage area of one acre or more, shall be designed and constructed with outlet structures that only withdraw water from the surface. For sediment basins that do not drain directly into jurisdictional water or have less than one acre of total drainage area, surface dewatering outlets and stone outlets may be provided.

U. Ground cover stabilization shall comply with the timeframe guidelines specified by the North Carolina Department of Environment and Natural Resources Division of Water Quality NCG-010000 General Construction Permit that became effective on August 3, 2011. Excluding the slopes noted below, temporary and permanent ground cover stabilization shall be provided within seven calendar days from the last land-disturbing activity. The Design-Build Team shall label all slopes subject to the seven-day ground cover stabilization requirements on all Erosion and Sedimentation Control Plans submitted to the Department for review and acceptance.

For the slopes noted below, temporary and permanent ground cover stabilization shall be provided within 14 calendar days from the last land-disturbing activity:

Slopes between 2:1 and 3:1, with a slope length of ten feet or less
Slopes 3:1 or flatter, with a slope length of 50 feet or less
Slopes 4:1 or flatter

Temporary and permanent ground cover stabilization shall be provided in accordance with the provisions in this contract and the Vegetation Management Procedure developed by the Design-Build Team.

Ground cover stabilization shall be done in accordance with the following:

Short Term Stabilization: 0 – 14 Days

At a minimum, erodible areas that will not be disturbed for 14 days or less shall be stabilized utilizing non-vegetative cover. Non-vegetative cover options include straw mulch, hydraulic applied erosion control products or rolled erosion control products.

Mid-Term Stabilization: 14 – 90 Days

Erodible areas that will not be disturbed for more than 14 days and less than 90 days shall be stabilized utilizing the following stabilization protocol:

March 1 - August 31	**September 1 - February 28**
50# German or Browntop Millet	50# Rye Grain or Wheat
500# Fertilizer	500# Fertilizer
4000# Limestone	4000# Limestone

Long Term Stabilization: 90+ Days

Erodible areas that will not be disturbed for more than 90 days shall be stabilized utilizing the following stabilization protocol:

All Roadway Areas

March 1 - August 31	**September 1 - February 28**
50# Tall Fescue Cultivars *	50# Tall Fescue Cultivars *
10# Centipede	10# Centipede
25# Bermudagrass (hulled)	35# Bermudagrass (unhulled)
500# Fertilizer	500# Fertilizer
4000# Limestone	4000# Limestone

Riparian and Wetland Locations

March 1 - August 31	**September 1 - February 28**
18# Creeping Red Fescue Cultivars *	*18# Creeping Red Fescue Cultivars **
6# Indiangrass	6# Indiangrass
8# Little Bluestem	8# Little Bluestem
4# Switchgrass	4# Switchgrass
25# Browntop or German Millet	35# Rye Grain
500# Fertilizer	500# Fertilizer
4000# Limestone	4000# Limestone

Waste and Borrow Locations

March 1 – August 31	**September 1 - February 28**
75# Tall Fescue Cultivars *	75# Tall Fescue Cultivars *
25# Bermudagrass (hulled)	35# Bermudagrass (unhulled)
500# Fertilizer	500# Fertilizer
4000# Limestone	4000# Limestone

*** Approved Tall Fescue Cultivars**

2nd Millennium	Duster	Magellan	Rendition
Avenger	Endeavor	Masterpiece	Scorpion
Barlexas	Escalade	Matador	Shelby
Barlexas II	Falcon II, III, IV & V	Matador GT	Signia
Barrera	Fidelity	Millennium	Silverstar
Barrington	Finesse II	Montauk	Southern Choice II
Biltmore	Firebird	Mustang 3	Stetson
Bingo	Focus	Olympic Gold	Tarheel
Bravo	Grande II	Padre	Titan Ltd
Cayenne	Greenkeeper	Paraiso	Titanium
Chapel Hill	Greystone	Picasso	Tomahawk
Chesapeake	Inferno	Piedmont	Tacer
Constitution	Justice	Pure Gold	Trooper
Chipper	Jaguar 3	Prospect	Turbo
Coronado	Kalahari	Quest	Ultimate
Coyote	Kentucky 31	Rebel Exeda	Watchdog
Davinci	Kitty Hawk	Rebel Sentry	Wolfpack
Dynasty	Kitty Hawk 2000	Regiment II	
Dominion	Lexington	Rembrandt	

**** Approved Creeping Red Fescue Cultivars**

Aberdeen	Boreal	Epic	Cindy Lou

The Design-Build Team shall apply centipede, at a rate of five pounds per acre, on cut and fill slopes 2:1 or steeper. From January 1 – December 31, the Design-Build Team shall apply an additional 20# of Sericea Lespedeza on cut and fill slopes 2:1 or steeper.

Fertilizer shall be 10-20-20 analysis or a different analysis that provides a 1-2-2 ratio applied at a rate that provides the same amount of plant food as a 10-20-20 analysis and as directed.

Soil Analysis

If vegetation establishment indicates a deficiency in soil nutrients or an incurred pH level is present, the Design-Build Team shall take soil samples and apply additional soil amendments to the affected area and as directed.

Fertilizer Topdressing

Prior to completion of the project, a minimum of one Fertilizer Topdressing application shall be done for all permanently seeded areas and as directed.

Fertilizer used for topdressing shall be 10-20-20 analysis applied at a rate of 500 pounds per acre; or a different analysis that provides a 1-2-2 ratio applied at a rate that provides the same amount of plant food as a 10-20-20 analysis and as directed.

Fertilizer used for waste and borrow areas shall be 16-8-8 grade applied at a rate of 500 pounds per acre; or a different analysis that provides a 2-1-1 ratio applied at a rate that provides the same amount of plant food as a 16-8-8 analysis and as directed.

Supplemental Seeding

For all supplemental seeding, the kinds of seed and proportions shall be the same as specified above for *Long Term Stabilization*, with the exception that centipede seed will not be allowed in the seed mix. The rate of application for supplemental seeding shall be between 25# to 75# per acre. Prior to topdressing, the Design-Build Team shall determine the actual rate per acre for supplemental seeding and submit the supplemental seeding rate and areas to the Department for review and acceptance.

To prevent disturbance of existing vegetation, minimum tillage equipment, consisting of a sod seeder, shall be used to incorporate seed into the soil where degree of slope allows. Where degree of slope prevents the use of a sod seeder, a clodbuster (ball and chain) may be used.

Mowing

The minimum mowing height shall be four inches.

EROSION CONTROL LIQUIDATED DAMAGES

The Design-Build Team shall observe and comply with Federal and State Laws, Local Laws, Ordinances, and Regulations; as well as Orders and Decrees of Bodies having any jurisdiction or authority in accordance with Section 107 of the 2012 *Standard Specifications for Roads and Structures.*

The Design-Build Team shall take all reasonable precautions to comply with all regulations of all authorities having jurisdiction over public and private land governing the protection of erosion and sedimentation. Any fines, remediation required or charges levied against the Department for failing to comply with all rules and regulations concerning erosion and sediment control, due to the Design-Build Team's negligence, carelessness, or failure to implement the Erosion and Sedimentation Control Plans and Specifications; or failure to maintain an approved Storm Water Pollution Prevention Plan (SWPPP), regardless of absence of neglect, shall be deducted from monies due the Design-Build Team. In addition to said fines, remediation required, or charges levied, any associated engineering costs or actions taken by the Department in order for the Department to comply with rules and regulations, as a result of the Design-Build Team's negligence, carelessness, or failure to implement the Erosion and Sedimentation Control Plans and Specifications; and / or the SWPPP, regardless of absence of neglect, shall be deducted from the monies due to the Design-Build Team.

RIGHT OF WAY SCOPE OF WORK (9-12-13)

As shown on the R-3601 Right of Way Plans provided by the Department, the NCDOT anticipates acquiring all right of way, easements and control of access for those parcels listed below by December 2013. In the event additional right of way, easements and / or control of access are needed to construct the project beyond that which has already been acquired by the Department, the Design-Build Team shall acquire the additional right of way, easement and / or control of access in accordance with the provisions of this scope of work.

The cost of the right of way, easement and control of access, as shown on the R-3601 Right of Way Plans provided by the Department, has been borne by the Department. The cost of both the acquisition services and the actual cost of any additional right of way, easement and / or control of access as required by the Design-Build Team's design or construction methods (including all erosion control measures), beyond that shown on the R-3601 Right of Way Plans provided by the Department, shall be the responsibility of the Design-Build Team. The following exception applies to this paragraph:

> If the Design-Build Team demonstrates to the Department's satisfaction that the project cannot be constructed, or utilities relocated / constructed, within the right of way, easements and / or control of access as shown on the R-3601 Right of Way Plans provided by the Department, the Department will bear the cost for the portion of the additional right of way, easement and / or control of access that is satisfactorily demonstrated by the Design-Build Team as needed to construct the facility.

The Department has aquired the right of way, easement and control of access for the following parcels on R-3601:

Parcel Nos. 010, 011, 012 and 033

The Department anticipates aquiring the right of way, easement and control of access for the following parcels on R-3601 by December 2013:

Parcel Nos. 013, 014, 015, 021, 024, 025, 026 and 032

For all additional right of way, easements and / or control of access required by the Design-Build Team's design, including all design revisions required by this RFP, and / or construction methods, the Design-Build Team shall carry out the following responsibilities:

- The Design-Build Team shall employ qualified, competent personnel who are currently **approved by the NCDOT Right of Way Branch** to provide all services necessary to perform all appraisal, (except appraisal reviews and updated appraisals required solely for condemned parcels), negotiation and relocation services required for completion of the project in accordance with G.S. 136-28.1 of the General Statutes of North Carolina, as amended, and in accordance with the requirements set forth in the *Uniform Appraisal Standards and General Legal Principles for Highway Right of Way*, the *North Carolina*

Department of Transportation's Right of Way Manual, the North Carolina Department of Transportation's *Rules and Regulations for the Use of Right of Way Consultants*, the *Code of Federal Regulations*, and *Chapter 133 of the General Statutes of North Carolina from Section 133-5 through 133-18*, hereby incorporated by reference, including the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. The Design-Build Team shall perform the services as set forth herein and furnish and deliver to the Department reports accompanied by all documents necessary for the settlement of claims and the recordation of deeds, or necessary for condemnation proceedings covering said properties. The Design-Build Team, acting as an agent on behalf of the State of North Carolina shall provide right of way acquisition services for any additional easements and / or right of way not already acquired for this project.

- A Department representative will be available to provide technical guidance on right of way acquisition procedures and to make timely decisions on approving relocation benefits and approving administrative adjustment settlements on behalf of the Department over and above the authority granted to the Department Right of Way Consultant Project Managers.

- The Design-Build Team shall submit a right of way project tracking report and right of way quality control plan to the Department. The Department standard forms and documents shall be used to the extent possible.

- The Design-Build Team shall provide a current title certificate for each parcel as of the date of closing or the date of filing of condemnation, unless required otherwise in the Department's Right of Way Manual.

- The Design-Build Team shall prepare all Final Condemnation Reports. For all plan revisions on condemned parcels that modify the area acquired, modify the Control of Access and / or impact the appraised value, the Design-Build Team shall be responsible for the following:

    - The Design-Build Team shall notify the Division Right of Way Agent, the Area Negotiator, Area Appraiser and the Attorney General in writing that revisions have been made that impact a condemned parcel, and provide updated plan sheets and revised area takes.
    - The Design-Build Team shall consult with the Attorney General and the Area Appraiser to determine the status of the negotiations and appraisal(s).
    - If settlement is not imminent, the Design-Build Team shall provide an updated Summary Sheet to the Area Appraiser for the Department's use in obtaining an updated appraisal(s).
    - Upon receipt of the approved updated appraisal(s), the Design-Build Team shall develop a revised written offer. If settlement is not reached, the Design-Build Team shall submit an updated Final Condemnation Report. If settlement is reached, the Design-Build Team shall notify the Attorney General and Area Appraiser in writing and submit an updated Final Condemnation Report with all necessary documentation.

- The Department will be responsible for payment for the additional deposit to the Attorney General's Office and the Attorney General will prepare and file an Amendment to the Declaration of Taking.

- The Design-Build Team shall prepare, obtain execution of and record documents conveying title to acquired properties to the Department with Register of Deeds and deliver all executed and recorded deeds and easements to the Department. For all property purchased in conjunction with the project, title shall be acquired in fee simple or easement and shall be conveyed to "The North Carolina Department of Transportation", free and clear of all liens and encumbrances except permitted encumbrances.

- It is understood and agreed by and between the parties hereto that all reports, surveys, studies, specifications, memoranda, estimates, etc., secured by and for the Design-Build Team shall become and remain the sole property of the Department upon termination or completion of the work, and the Department shall have the right to use same for any public purpose without compensation to the Design-Build Team.

- The Design-Build Team shall prepare appraisals in accordance with the Department's *Uniform Appraisal Standards and General Legal Principles for Highway Right of Way Acquisitions*. The Design-Build Team's appraiser shall be on the Department's approved state certified appraiser list. The Design-Build Team may request its state certified appraiser be added to the approved state certified appraiser list, subject to approval by the Department's State Appraiser.

- The Design-Build Team shall provide two apprisals for all appraisals over $1,000,000.00.

- The NCDOT, or its agent, will provide appraisal reviews complying with The Department's *Uniform Appraisal Standards and General Legal Principles for Highway Right of Way Acquisitions*. The reviewer will ensure that the appraisal meets the Department's guidelines and requirements, conforms to acceptable appraisal standards and techniques, does not include any non-compensible items or exclude any compensible items and that the value conclusions are reasonable and based on facts presented in the appraisal. The reviewer has the authority to approve, adjust, request additional data or corrections, or not to recommend and request another appraisal. Within 10 business days from the date of receipt, all appraisals will be reviewed by NCDOT Review Appraisers or Review Appraisers under contract to the corresponding NCDOT Area Appraisal Office. The NCDOT will sign as approving any and all appraisals to be used in acquisition.

- The Design-Build Team shall prepare Value Findings and / or Narrative Appraisals for all right of way and easement acquistitions. Claim Reports will not be allowed for any acquisition.

- The following shall be required:

    - Unless otherwise approved by the Engineer in writing, the Design-Build Team shall provide right of way and easement descriptions in metes and bounds format (bearings and distances). The Design-Build Team shall provide exhibits, diagrams and / or other information required to verify the aforementioned descriptions.

    - In accordance with the NCDOT Right of Way Manual, the Design-Build Team may prepare red-line adjustments for parcels that are not condemned. The Department must approve a red-line adjustment in writing prior to the Design-Build Team making an offer based on the red-line adjustment.

- The Design-Build Team shall provide a right of way certification prior to entering the property.

LIGHTING SCOPE OF WORK (6-21-13)

Provide and install roadway lighting equipment and materials, in accordance with the Final Lighting Plans provided by the Department, Division 14 of the 2012 NCDOT *Standard Specifications for Roads and Structures*, and the *Roadway Standard Drawings*, except as amended below. Prior to the Technical Proposal submittal date, the NCDOT will provide the Preliminary Lighting Plans. The Department will finalize the lighting design based upon the Design-Build Team's Release for Construction (RFC) Roadway Plans.

The Design-Build Team shall include all costs required to construct the roadway lighting shown in the aforementioned Preliminary Lighting Plans provided by the Department in their lump sum price bid for the entire project. The Department shall only compensate the Design-Build Team for additional lighting construction costs that result from design revisions incorporated at the Department's discretion and / or that result from errors or omissions in the Department's Preliminary Lighting Plans. The Design-Build Team shall be solely responsible for all additional lighting construction costs that result from design revisions incorporated at the Design-Build Team's discretion.

After the RFC Roadway Plans have been accepted by the Transportation Program Management Director, the Design-Build Team shall submit MicroStation files of the RFC Roadway Plans for the Department to complete the lighting design. The Design-Build Team shall allow the Department ten days after this submittal to update and finalize the lighting design.

The Design-Build Team shall allow ten days for Department review of each submittal for all materials including poles and foundation designs. An additional ten days shall be required for pole submittals from vendors that do not commonly do business with the Department.

Use the following address for the location of the NC DOT Warehouse:

Highway Division 3
5501 Barbados Blvd.
Castle Hayne, NC 28249

MAINTENANCE

The Design-Build Team shall assume responsibility for routine maintenance of the lighting systems for the duration of the contract in accordance with Division 14 of the 2012 NCDOT *Standard Specifications for Roads and Structures*, except as amended below.

- NCDOT will assume maintenance responsibility for the completed lighting systems after the project is accepted, and there is no chance of construction-related damage.

- The Design-Build Team shall re-lamp, repair and / or replace any newly installed non-functional luminaires within the project limits. All luminaires must be operational at project acceptance.

REMOVE SINGLE ARM LIGHT STANDARDS

Description

The work covered by this section consists of the removal of existing single arm metal light standards on breakaway bases and concrete foundations at locations shown on the plans. The standards are less than 55' mounting height, and are attached to the foundations with anchor bolts.

Concrete foundations to be removed or abandoned may be located in areas where, due to knockdowns, there are no light standards to be removed.

Materials

No materials are required for this work except such miscellaneous items as tape and terminal devices to dead-end circuits serving the light standards.

Construction Methods

Maintain operation of the existing lighting system until such time that it becomes in conflict with the actual construction work, or it becomes a hazard to traffic as determined by the Engineer.

Coordinate work with the NC DOT Traffic Services Supervisor to assure that circuits can be de-energized where and when necessary.

The Design-Build Team shall dispose of luminaires from pole-arms in accordance with DENR regulations and in a manner acceptable to the Engineer. Coordinate luminaire removal with the Engineer.

The Design-Build Team shall remove light standard and arms, couplings, anchor nuts, washers, transformer bases with doors and connecting bolts and fuse holders. Removed items shall become property of the Design-Build Team.

Remove or abandon existing concrete light standard foundations as defined in Standard Specifications Section 1400-10. Dispose of the removed concrete, reinforcing steel and anchor bolts in a manner acceptable to the Engineer. Backfill the holes with suitable material and compact backfill as required.

Abandon or remove the conductors and the conduit for the removed light standards as shown on the plans. Refer to Standard Specifications Section 1400-10.

REMOVE CONTROL SYSTEM

Description

The work covered by this section consists of providing all equipment, labor and materials necessary to remove an existing control system from the location shown on the plans. It also

includes delivery of control system and internal components to the NC DOT Warehouse and removal of the existing foundation and support structure.

Materials

No materials are required for this work except such miscellaneous items as tape and terminal devices to dead-end circuits serving the light standards.

Construction Methods

Maintain operation of the existing lighting system until such time that it becomes in conflict with the actual construction work, or it becomes a hazard to traffic as determined by the Engineer.

Coordinate work with the NC DOT Traffic Services Supervisor to assure that circuits can be de-energized where and when necessary.

Disconnect circuitry and remove control system enclosure from conduit and support structure, leaving all internal components intact. Remove underground circuitry, concrete pad and support structure.

All hoisting and lifting shall be with rope or web slings fastened in such a manner as to prevent damaging or marking any of the salvaged materials. The Design-Build Team shall provide proper transportation, protection and supports so that rain, etc. will not damage equipment. The Design-Build Team shall furnish labor, blocking materials and equipment to unload and properly store all salvaged materials. Lighting Control Panel and its internal components shall be delivered to the NC DOT Warehouse.

Dispose of the removed concrete, reinforcing steel, support structure and conduit in a manner acceptable to the Engineer.

LIGHT EMITTING DIODE (LED) LUMINAIRES

Description

Furnish, install and place into satisfactory operation, LED luminaires on 45' single arm roadway standards and 100' high mount standards.

The Design-Build Team shall supply Holophane LED high mount luminaires, part # HMLED 14 4K AHGL5FD1, or approved equal. Any alternate high mount luminaire submitted for approval will require luminaire samples to be submitted to the Department, at no cost to the Department, for evaluation prior to approval.

Evaluation will consist of installation of samples on existing Department owned facilities for a period no shorter than two (2) months prior to approval. Photometric data files in Illuminating Engineering Society (IES) format will be evaluated to determine if proposed alternate high mount luminaire meets or exceeds design critera prior to samples being sent.

High mount luminaire retrofit LED kits are not an acceptable alternative.

For LED roadway luminaires installed on the bracket arm of single arm standards, Design-Build Team shall include all LEDs/light bars, drivers, wiring inside the standard from the circuit conductors to the LED luminaire, in-line breakaway fuseholders with fuses and ground wiring at the pole on the light standards. Third party certified photometric files in IES format are required to be submitted with the catalog cuts for the proposed LED roadway luminaire. Photometric files must show that proposed luminaire will meet or exceed the design shown in the plans.

Materials

LUMINAIRE REQUIREMENTS

A. General Requirements
- LM-79 photometric test reports shall be provided for all LED luminaires. LM-79 luminaire photometric reports shall be produced by an independent test laboratory and include the following:
    - Name of test laboratory. The test laboratory must hold National Voluntary Laboratory Accreditation Program (NVLAP) accreditation for the IES LM-79 test procedure or must be qualified, verified, and recognized through the U.S. Department of Energy's CALiPER program.
    - Report number
    - Date
    - Complete luminaire catalog number. Catalog number tested must match the catalog number of the luminaire submitted, except for variations which do not affect performance.
    - Description of luminaire, LED light source(s), and LED driver(s)
    - Goniophotometry
    - Colorimetry

- LM-80 lumen maintenance test report shall be provided for each respective LED light source.
- Roadway luminaire shall be constructed of a single piece die cast aluminum housing. High mount luminaire shall be constructed of low copper 356 cast alumuinum. Each luminaire shall be finished gray in color unless otherwise noted.
- Roadway luminaire shall have a look of traditional roadway type cobrahead fixtures.
- Luminaires shall have a minimum L70 rating of 70,000 hours at 25°C. Provide a summary of reliability testing performed for LED driver.
- Roadway luminaires shall have a maximum total power consumption of 280 watts (W) at 480VAC. High mount luminaires shall have a maximum total power consumption of 600W at 480VAC. Nominal luminaire input wattage shall account for nominal applied voltage and any reduction in driver efficiency due to sub-optimal driver loading.
- Roadway luminaire shall have an IESNA distribution Type II. High mount luminaire shall have an IESNA distribution Type V.
- Luminaire LED modules shall meet dust and moisture rating of IP-65, minimum.

- Luminaire shall have an external label per ANSI C136.15.
- Roadway luminaire shall have an internal bubble level.
- Luminaires shall have an internal label per ANSI C136.22.
- Luminaires shall start and operate in -20°C to +40°C ambient.
- Electrically test fully assembled luminaires before shipment from factory.
- Effective Projected Area (EPA) and weight of the luminaires shall not exceed 1.0 square feet and 46 lbs for roadway luminaires and 1.6 square feet and 80 lbs. for high mount luminaires.
- Luminaires shall be designed for ease of electrical component replacement.
- Luminaires shall be rated for minimum 2G vibration, minimum, per ANSI C136.31-2010
- LED light sources and drivers shall be RoHS compliant.
- The luminaire manufacturer shall have no less than five (5) years of experience in manufacturing LED-based lighting products and the manufacturing facility must be ISO 9001 compliant.
- Roadway luminaire shall have a 1.25" to 2.0" adjustable tenon mount for connection to luminaire bracket arm assembly.
- Luminaire attachment hardware, nuts, bolts, and washers, etc. shall be made from 18-8 stainless steel, or steel conforming to ASTM A307 galvanized in accordance with ASTM A153.

B. Driver

- Rated case temperature shall be suitable for operation in the luminaire operating in the ambient temperature range of -20°C to +40°C.
- Shall be rated for 480VAC at 50/60 Hz, and shall operate normally for input voltage fluctuations of ± 10%.
- Shall have a minimum Power Factor (PF) of 0.90 at full input power and across specified voltage range.
- Roadway luminaires shall have maximum 600mA driver operating current.

C. Surge Suppression

- Integral surge protection shall meet ANSI/IEEE C62.45 procedures based on ANSI/IEEE C62.41.2 definitions for standard and optional waveforms for location category C-High 10kV/10kA test, IEC 61000-4-2 (Electrostatic Discharge) 8kV Air/4kV Contact test and IEC 61000-4-4 (Fast Transients).

D. Electromagnetic interference

- Luminaires shall have a maximum Total Harmonic Distortion (THD) of 20% at full input power and across specified voltage range.
- Luminaires shall comply with FCC 47 CFR part 15 non-consumer RFI/EMI standards.

E. Electrical safety testing

- Luminaires shall be listed for wet locations.
- Luminaires shall be UL listed and labeled.

F. Finish
- Luminaires shall be painted with a corrosion resistant polyester powdered paint with a minimum 2.0 mil thickness.
- Luminaires shall exceed a rating of six per ASTM D1654 after 1000 hours of salt spray fog testing per ASTM B117.
- The coating shall exhibit no greater than 30% reduction of gloss per ASTM D523, after 500 hours of QUV testing at ASTM G154 Cycle 6.

G. Thermal management
- Mechanical design of protruding external surfaces (heat sink fins) on roadway luminaries shall facilitate hose-down cleaning and discourage debris accumulation.
- High mount luminaires shall feature a perforated aluminum environmental guard between the optical housing and the driver housing.

H. Color Quality
- Minimum Color Rendering Index (CRI) of 60 with a Correlated Color Temperature (CCT) of 4000K to 5000K

I. Optics
- High mount luminaire shall feature multi die LED chip on board (COB) technology.
- Transmissive optical components shall be applied in accordance with OEM design guidelines to ensure suitability for the thermal/mechanical/chemical environment.
- High Mount luminaire shall have prismatic glass optics in symmetric distribution and provide overlapping pattern on application space to eliminate darks spots.

J. The following shall be in accordance with corresponding sections of ANSI C136.37
- All internal components shall be assembled and pre-wired using modular electrical connections.
- Terminal blocks shall be used for incoming AC lines
- Latching and hinging

K. Manufacturer or local sales representative shall provide installation and troubleshooting support via telephone and/or email.

Warranty

Provide a minimum five-year warranty covering maintained integrity and functionality of the luminaire housing, wiring, and connections, LED light source(s) and LED driver. Negligible light output from more than 10 percent of the LED packages constitutes luminaire failure.

Warranty period shall begin after project acceptance by the Department.

Construction Methods

Level and secure each luminaire in all directions. Securely terminate the wiring for each high mount luminaire and include an equipment grounding conductor to bond the housing to the supply cord grounding conductor.

Adjust any luminaires, as directed by the Engineer, to provide optimal illumination distribution.

All LED packages on all luminaires must be operating normally at contract completion. Any luminaire displaying improper operating characteristics prior to contract completion will be replaced by the Design-Build Team at no additional cost to the Department.

JUNCTION BOXES

Excluding the modifications noted below to the referenced Section 1091-5, the Design-Build Team shall adhere to all requirements of Section 1411 of the 2012 *Standard Specifications for Roads and Structures*:

- Page No. 10-202, revise the paragraph starting on Line 9 to read "Provide polymer concrete (PC) boxes which have bolted covers and open bottoms."

- Page No. 10-202, revise the sentence beginning on Line 14 to read "Other thermoplastic materials may be used for components which are not normally exposed to sunlight."

ENVIRONMENTAL SCOPE OF WORK (11-7-13)

Regulatory Permitting

NCDOT has been issued the USACE 404 Permits, the NCDWQ Section 401 Certifications and the Coastal Area Management Act (CAMA) Major Development Permits for this project.

Unless noted otherwise in this RFP, all work by the Design-Build Team shall be accomplished in compliance with the permits and certifications issued by the agencies and as may be amended under permit modification(s). The Design-Build Team shall provide each of its contractors and / or agents associated with the construction or maintenance of this project with a copy of the permits. Unless noted otherwise elsewhere in this RFP, the Design-Build Team shall also adhere to the commitments made as part of the Categorical Exclusion, Categorical Exclusion Addendum and all consultations. The Design-Build Team's attention is directed to the moratorium that applies to certain work on this project.

The Design-Build Team shall identify in the Technical Proposal any changes to the design and / or construction methods that may require permit modifications. The Department will not allow direct contact between the Design-Build Team and representatives of the environmental agencies. No direct contact between the Design-Build Team and the environmental agencies shall be allowed either by phone, e-mail, or in person, without representatives of the Department's Natural Environment Section (NES) – Project Management Group or the Division's Environmental Officer present. A representative from the Transportation Program Management shall be included on all correspondence. All required coordination with the environmental agencies, approvals from the environmental agencies, public involvement, utility relocation / coordination, and / or permit modifications / applications resulting from a variation in the Department's proposed design and / or construction methods shall be discussed with the Department. The Design-Build Team shall be responsible for preparing the necessary permit material for the Department to review and forward to the environmental agencies for approval.

For investigative borings within jurisdictional resources, the Design-Build Team shall submit all necessary Preconstruction Notification documents and forms to the Transportation Program Management Director for submittal to the appropriate agencies. The Design-Build Team shall not proceed with geotechnical investigations within jurisdictional resources until written approval is obtained from the appropriate agencies.

The Department will not honor any requests for additional contract time or compensation for any efforts required in order to obtain any permit modification(s), if necessary, including but not limited to public involvement, additional design effort, additional construction effort and / or additional environmental agency coordination and approvals.

In-water Work Moratorium

"In-water work" shall be defined as any activity that occurs in the Brunswick River, Alligator Creek or inundated wetland during an active (surface water) connection to the aforementioned water sources.

The National Marine Fisheries Service (NMFS) is requiring a January 1 - May 31 in-water work moratorium for shortnose and Atlantic sturgeon in the Brunswick River and Alligator Creek. The

NC Wildlife Resources Commission (NCWRC) and the NC Division of Marine Fisheries (NCDMF) have imposed a Primary Nursery Area moratorium for the Brunswick River from February 15 - September 30 and for Alligator Creek from February 15 - June 30. Since submittal of the permit application, the Department has obtained approval from the resource agencies for the moratoria dates noted above and will obtain any necessary permit modifications required solely due to these revised dates and / or allowing the activities noted below. The Design-Build Team shall assume that the ONLY in-water work that will be allowed during the above mentioned periods are those noted below:

- Work within casings may occur year round (all casings shall be installed outside of all moratoria)
- Static pile extraction
- Spudding associated with barges
- Geotechnical borings (Upon obtaining approval in accordance with the requirements noted above.)

On October 14, 2013, the Department afforded each short-listed Design-Build Team an individual meeting with the resource agencies. Technical and / or Price Proposals that rely upon assumptions that are inconsistent with the moratoria details / activities expressly outlined above, which may be based on discussions held during the aforementioned meetings, shall be solely at the Design-Build Team's risk. The Department will not honor any requests for a contract time extension or additional compensation if the Design-Build Team elects to assume in their Technical and / or Price Proposal that 1) additional in-water activities will be allowed during the moratoria and / or 2) the moratoria dates will be relaxed; and such assumptions are not ultimately approved by the resource agencies.

Mitigation Responsibilities

The Department has acquired the compensatory mitigation for unavoidable impacts to wetlands and surface waters due to the project construction from the Ecosystem Enhancement Program (EEP). This mitigation was based on impacts as identified in the planning stage.

Any changes proposed by the Design-Build Team to any design or construction details provided by the Department and / or inconsistent with the approved permits shall be approved by the Department prior to being submitted to the resource agencies for their approval.

Should additional jurisdictional impacts result from revised design and / or construction methods, suitable compensatory mitigation for wetlands and / or streams shall be the sole responsibility of the Design-Build Team. Therefore, it is important to note that additional mitigation will have to be approved by the environmental agencies and such approval shall require, at a minimum, the preparation and approval of a Mitigation Plan before permits are approved and before construction may commence. To mitigate for these additional jurisdictional impacts, the Design-Build Team shall be responsible for all costs associated with acquiring suitable mitigation. Construction of any on-site mitigation shall be performed by a contractor that has successfully constructed similar on-site mitigation. In the absence of suitable on-site mitigation, the Design-Build Team shall be responsible for acquiring additional mitigation from the Ecosystem Enhancement Program or an approved compensatory mitigation banking resource.

The Design-Build Team shall analyze all new areas to be impacted that were not analyzed during the NEPA Process and any staging areas that are located outside the project right of way. This analysis shall include performing all environmental assessments. These assessments shall require the Design-Build Team to engage the services of a competent environmental consultant to conduct a full environmental investigation to include, but not be limited to, Federally Listed Threatened and Endangered Species, wetlands, streams, avoidance and minimization in jurisdictional areas, compensatory mitigation, FEMA compliance, and historical, archaeological, and cultural resources surveys in these areas. The environmental consultant shall obtain concurrence through PDEA-NES and from the United

States Fish and Wildlife Service to document compliance with Section 7 of the *Endangered Species Act* for those species requiring such concurrence. In addition, the Design-Build Team shall identify additional mitigation required and fulfill all other requirements that the permitting agencies impose to obtain any necessary permit modifications. Any contract time extensions resulting from additional environmental assessments required by the Design-Build Team's design and / or construction methods impacting areas outside those previously analyzed through the NEPA Process shall be solely at the Department discretion.

U.S. Coast Guard Permit

A United States Coast Guard (USCG) Bridge Permit is not required for the proposed bridge replacements over the Brunswick River (Bridge Nos. 103 and 105) or the Alligator Creek (Bridge No. 107), or the associated bridge removals.

Although the aforementioned structures do not require a USCG Bridge Permit, the Design-Build Team shall adhere to the USCG requirements noted below:

- At no time shall the waterways be closed to navigation, or the existing vertical clearances be reduced, without the prior notification and approval of the USCG.

- Prior to commencement and upon completion of the bridge construction, the Design-Build Team shall notify the Fifth Coast Guard District Office and the National Ocean Service (NOS) of the National Oceanic and Atmosphere Administration (NOAA) in writing of the proposed / completed work. The latter notification shall include As Constructed Plans that certify the location and clearances of the completed structures.

Unanticipated Discovery

If the Design-Build Team discovers any previously unknown historic or archeological remains while accomplishing the authorized work, they shall immediately notify NCDOT Staff Archaeologist and / or NCDOT Project Development Engineer, as listed below, who will initiate the required State / Federal coordination. The Design-Build Team shall also immediately notify a representative from the Transportation Program management Unit. All questions regarding these sites should be addressed to Mr. Matthew Wilkerson, NCDOT Archaeology (919) 707-6089, or Mr. Charles Cox, PE, NCDOT Project Development (919) 707-6016.

PUBLIC INFORMATION SCOPE OF WORK (6-21-13)

NCDOT will take the lead role on this project and be responsible for a portion of the public information efforts through the Department's Communications Office. Unless noted otherwise elsewhere in this RFP, the NCDOT responsibilities include:

- Organizing public meetings
- Providing media announcements
- Developing and producing informational print materials
- Soliciting and administering advertisements, as deemed necessary
- Mailings to the identified target audiences, including information development and postage.

The Design-Build Team shall coordinate with the Department to promote public awareness for this project. The Design-Build Team's responsibilities shall include:

- Providing details surrounding the impacts to the public
- Providing advance notice to the Department of upcoming project impacts
- Assisting the Department in the development of the target audience list
- Attending and / or speaking at public meetings
- Hand delivery of time sensitive informational materials.

The Design-Build Team shall hold an initial project coordination meeting with NCDOT one month prior to start of construction to discuss project impacts to the public. This information will be used by the Department to create a Public Information Plan.

The Design-Build Team shall inform the Department at least twenty-one (21) calendar days in advance of any construction activity that will have significant impact on the public, including, but not limited to, the start of construction, major traffic shifts, road closures, ramp closures, detours, night work and project completion.

NCDOT will develop, with the assistance of the Design-Build Team, the specific list of target audiences for this project. The following groups are identified as typical target audiences to receive informational materials:

- Governmental agencies
- Municipalities directly affected by construction
- Transportation services
- Emergency services
- Neighborhood groups and private homes
- Industry and businesses
- Chamber of Commerce
- Individual schools effected by the project
- County / City school systems
- Any other organization as deemed necessary by the Department.

The amount of public involvement required for this project is directly based on the Design-Build Team's Transportation Management Plans and construction details.
The minimum public information requirements solely associated with the Transportation Management Plans shall include, but not be limited to the following:

- Public Meetings – If Beginning of Construction meeting for area businesses and residents is held, attending and / or speaking at this event.

- Distribution of Informational Materials - For beginning of construction and for all road closures with detour routes, the Design-Build Team shall be responsible for delivering time sensitive informational material provided by the NCDOT directly to portions of the target audience. If the Design-Build Team informs the Department of the aforementioned activities less than twenty-one (21) calendar days in advance, the Design-Build Team shall hand deliver the informational materials to the impacted target audiences.

The Department will be responsible for establishing, creating, maintaining and updating the project website for this project. However, throughout the project duration, the Design-Build Team shall coordinate with the NCDOT Communications Office to ensure the accuracy of the aforementioned project updates. At a minimum, the Design-Build Team shall designate a contact for public information inquiries / coordination. Throughout construction, this contact shall provide weekly updates to the NCDOT Communications Office, including, but not limited to, traffic control phasing, graphic illustrations, project pictures, etc.

The Design-Build Team shall include in their Lump Sum Bid price for the project, all costs associated with their involvement in the Public Information Scope of Work.

***** PROJECT SPECIAL PROVISION *****

(10-18-95) Z-1

PERMITS

The Design-Build Team's attention is directed to the following permits that have been issued to the Department of Transportation by the authority granting the permit.

PERMIT	AUTHORITY GRANTING THE PERMIT
Section 404 Nationwide Permits 23 and 5	U. S. Army Corps of Engineers
CAMA Major Development Permit	Division of Coastal Management, DENR State of North Carolina
Section 401 Water Quality Certification	Division of Environmental Management, DENR State of North Carolina

The Design-Build Team shall comply with all applicable permit conditions during construction of this project.

Agents of the permitting authority will periodically inspect the project for adherence to the permits.

The Design-Build Team's attention is also directed to Articles 107-10 and 107-14 of the 2012 *Standard Specifications for Roads and Structures* and the following:

Should the Design-Build Team propose to utilize construction methods (such as temporary structures or fill in waters and/or wetlands for haul roads, work platforms, cofferdams, etc.) not specifically identified in the permit (individual, general, or nationwide) authorizing the project it shall be the Design-Build Team's responsibility to coordinate with the Engineer to determine what, if any, additional permit action is required. The Design-Build Team shall also be responsible for initiating the request for the authorization of such construction method by the permitting agency. The request shall be submitted through the Engineer. The Design-Build Team shall not utilize the construction method until it is approved by the permitting agency. The request normally takes approximately 60 days to process; however, no extensions of time or additional compensation will be granted for delays resulting from the Design-Build Team's request for approval of construction methods not specifically identified in the permit.

Where construction moratoriums are contained in a permit condition which restricts the Design-Build Team's activities to certain times of the year, those moratoriums will apply only to the portions of the work taking place in the waters or wetlands provided that activities outside those areas are done in such a manner as to not affect the waters or wetlands.

RECEIVED
AUG 7 2013
CR
DIVISION OF HIGHWAYS
PDEA-OFFICE OF NATURAL ENVIRONMENT

NCDENR
North Carolina Department of Environment and Natural Resources
Division of Coastal Management

Pat McCrory
Governor

Braxton C. Davis
Director

John E. Skvarla, III
Secretary

August 2, 2013

Gregory J. Thorpe, Ph.D.
Environmental Manager Director
Project Development and Environmental Analysis Branch
NC Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Dr. Thorpe:

The enclosed permit constitutes authorization under the Coastal Area Management Act, and where applicable, the State Dredge and Fill Law, for you to proceed with your project proposal. The original (buff-colored form) is retained by you and it must be available on site when the project is inspected for compliance. Please sign both the original and the copy and return the copy to this office in the enclosed envelope. Signing the permit and proceeding means you have waived your right of appeal described below.

If you object to the permit or any of the conditions, you may request a hearing pursuant to NCGS 113A-121.1 or 113-229. Your petition for a hearing must be filed in accordance with NCGS Chapter 150B with the Office of Administrative Hearings, 6714 Mail Service Center, Raleigh, NC 27611-6714, (919) 733-2698 within twenty (20) days of this decision on your permit. You should also be aware that if another qualified party submits a valid objection to the issuance of this permit within twenty (20) days, the matter must be resolved prior to work initiation. The Coastal Resources Commission makes the final decision on any appeal.

The project plan is subject to those conditions appearing on the permit form. Otherwise, all work must be carried out in accordance with your application. Modifications, time extensions, and future maintenance require additional approval. Please read your permit carefully prior to starting work and review all project plans, as approved. If you are having the work done by a contractor, it would be to your benefit to be sure that he fully understands all permit requirements.

From time to time, Department personnel will visit the project site. To facilitate this review, we request that you complete and mail the enclosed Notice Card just prior to work initiation. However, if questions arise concerning permit conditions, environmental safeguards, or problem areas, you may contact Department personnel at any time for assistance. By working in accordance with the permit, you will be helping to protect our vitally important coastal resources.

Sincerely,

Douglas V. Huggett

Douglas V. Huggett
Major Permits and Consistency Manager

Enclosure

1638 Mail Service Center, Raleigh, NC 27699-1638
Internet: www.nccoastalmanagement.net

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Permit Number
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STATE OF NORTH CAROLINA
Department of Environment and Natural Resources
and
Coastal Resources Commission

Permit

for

X Major Development in an Area of Environmental Concern pursuant to NCGS 113A-118

X Excavation and/or filling pursuant to NCGS 113-229

Issued to **N.C. Department of Transportation, 1548 Mail Service Center, Raleigh, NC 27699-1548**

Authorizing development in Brunswick County at the Brunswick River and Alligator Creek on US 17-74-76 / NC 133 as requested in the permittee's application dated 4/26/13, including the attached drawings as referenced in Condition No. 1 of this permit.

This permit, issued on **8/2/13**, is subject to compliance with the application (where consistent with the permit), all applicable regulations, special conditions and notes set forth below. Any violation of these terms may be subject to fines, imprisonment or civil action, or may cause the permit to be null and void.

Widening and New Bridges on US 17-74-76 / NC 133 (TIP No. R-3601)

1) Unless specifically altered herein, all work authorized by this permit shall be carried out in accordance with the following sixty five (65) workplan drawings:

½ size drawings: Four (4) drawings dated 2/21/13, nine (9) drawings dated 2/28/13, twenty three (23) drawings dated 3/1/13, twenty three (23) drawings dated 3/4/13, one (1) drawing dated 4/8/13, two (2) drawings dated 5/21/13, and one (1) drawing dated as received on 5/3/13.

8 ½" X 11": One (1) drawing dated 4/23/12, and one (1) drawing dated 4/25/12.

(See attached sheets for Additional Conditions)

This permit action may be appealed by the permittee or other qualified persons within twenty (20) days of the issuing date. An appeal requires resolution prior to work initiation or continuance as the case may be.

This permit must be accessible on-site to Department personnel when the project is inspected for compliance.

Any maintenance work or project modification not covered hereunder requires further Division approval.

All work must cease when the permit expires on.

No Expiration Date, pursuant to GS 136-44.7B

In issuing this permit, the State of North Carolina agrees that your project is consistent with the North Carolina Coastal Management Program.

Signed by the authority of the Secretary of DENR and the Chairman of the Coastal Resources Commission.

Douglas V Huggett
for

Braxton C. Davis, Director
Division of Coastal Management

This permit and its conditions are hereby accepted.

E. L. Luck for Deborah M. Barbou, PE
Signature of Permittee

ADDITIONAL CONDITIONS

2) In order to protect anadromous fish during spawning periods and through embryonic, larval, or juvenile life stages, no in-water work shall be conducted in the Brunswick River from February 15 through September 30, and no in-water work shall be conducted in the Alligator Creek from February 15 through June 30, without prior approval of the NC Division of Coastal Management (DCM), in consultation with the appropriate resource agencies. The removal of bridge piles utilizing a static pull method is specifically excluded from these in-water work moratoriums.

NOTE: The permittee is reminded that additional in-water work moratoriums may be required by other regulatory agencies and shall be implemented, regardless of whether or not such requirements are addressed by individual conditions of this permit.

3) The authorized project is located within a Primary Nursery Area (PNA). Therefore, in accordance with T15A:07H:0208 of the rules of the Coastal Resources Commission, no new dredging or excavation within the PNA of the Brunswick River shall be permitted. Dredging in any manner, including "kicking" with boat propellers is not authorized. This prohibition shall be applied and enforced throughout the construction and any following maintenance activities.

4) Unless specifically altered herein, the NCDOT document "Best Management Practices for Bridge Demolition and Removal" (final 9/20/99) shall be followed during demolition and construction activities.

5) The permanent and temporary work bridge piles shall be installed with vibratory hammer, pile driver, or drilling. Should jetting of any bridge piles become necessary, additional authorization shall be required by DCM in consultation with the appropriate resource agencies.

6) Drill slurry, uncured concrete, and water that has been in contact with uncured concrete, shall not be allowed to contact waters of the State or water that will enter waters of the State. Drilling fluids shall be disposed of in an upland disposal site. Water returning to the river shall be of sufficient quality so as not to pose as threat to aquatic organisms or otherwise violate State water quality standards.

7) Excavated material from the drill-shaft construction shall be removed from the encasements directly into containment vessels and sufficient efforts shall be utilized to minimize spillage of spoil material into waters of the State.

8) Pilings from the existing bridges and the temporary work bridges, as well as any remnant pilings from previous bridges, shall be removed in their entirety, except that in the event that a piling breaks during removal and cannot be removed in its entirety, the piling may be cut off flush with the bed of the water body and DCM shall be notified of each occurrence within one working day.

9) Temporary work bridges shall maintain existing navigational channel height, in accordance with project commitments made within the permit application.

10) During bridge construction, the permittee shall make every attempt to allow the same navigation that is currently possible in the Brunswick River and Alligator Creek. If this is not possible, then adequate notice shall be provided to the public that navigation will be limited during construction. The notice shall include an estimate of the amount of time that the limited navigation will occur.

ADDITIONAL CONDITIONS

11) The permittee shall install and maintain at his expense any lights or signals prescribed by the U.S. Coast Guard, through regulations or otherwise, on the authorized facilities.

12) The temporary work bridges shall be removed in their entirety within 90 days after it is no longer needed and saved for reuse, recycled, or disposed of at an approved high ground site. However, if this timeframe occurs while the moratorium refeteenced in Condition No. 2 of this permit is in effect, then the temporary work bridges shall be removed in their entirety within 30 days of the moratorium end date.

13) Any debris resulting from the construction of the new bridges shall not enter wetlands or waters of the State, even temporarily.

14) The permittee and/or his contractor shall exercise all available precautions in day-to-day operations to prevent waste from entering the adjacent waters.

15) Any waste materials and debris associated with bridge construction or other activities shall be disposed of at an approved upland site or shall be recycled in an environmentally appropriate manner provided appropriate authorizations are obtained from any relevant state, federal, or local authorities.

16) The permittee and/or his contractor shall provide for proper storage and handling of all oils, chemicals, etc., necessary to carry out the project.

17) Construction staging areas shall be located only in upland areas, and not in wetlands or waters of the State.

18) Placement of riprap shall be limited to the areas as depicted on the attached workplan drawings. The riprap material shall be free from loose dirt or any pollutant. The riprap material shall consist of clean rock or masonry materials, such as but not limited to, granite, marl, or broken concrete.

19) The permittee shall minimize the need to cross wetlands in transporting equipment to the maximum extent practicable.

20) Construction mats shall be utilized to support equipment within wetland areas to minimize temporary wetland impacts. These mats shall be removed immediately following project completion.

Excavation and Fill

21) No excavation, filling, clearing or grubbing shall take place at any time in any vegetated wetlands or surrounding waters outside of the alignment of the areas indicated on the attached workplan drawings, without permit modification.

22) Material excavated may be used in fill areas associated with the project or shall be removed from the site and taken to an approved high ground location.

ADDITIONAL CONDITIONS

23) All excavated materials shall be confined above normal high water level and landward of regularly or irregularly flooded wetlands behind adequate dikes or other retaining structures to prevent spillover of solids into any wetlands or surrounding waters.

24) The temporary placement and double handling of any excavated or fill material within waters or vegetated wetlands is not authorized.

25) All fill material shall be clean and free of any pollutants except in trace quantities.

Sedimentation and Erosion Control

26) This project shall conform to all requirements of the NC Sedimentation Pollution Control Act and NC DOT's Memorandum of Agreement with the Division of Energy, Mineral and Land Resources.

27) Unless specifically altered herein, the permittee shall follow "Best Management Practices for the Protection of Surface Waters (3/97)" and shall also implement sedimentation and erosion control measures sufficient to protect aquatic resources. At a minimum, appropriate sedimentation and erosion control devices, measures or structures shall be implemented to ensure that eroded materials do not enter adjacent wetlands, watercourses, and property (e.g. silt fence, diversion swales or berms, etc.).

Barges

28) Barges shall be removed promptly when they are no longer needed.

29) Barges shall be utilized only in areas of sufficient depth such that the barges do not rest on the bottom during periods of low tide.

30) Caution shall be exercised with placement and removal of any barges to ensure that impacts to shallow water habitat are avoided and minimized to the maximum extent practicable.

Utilities Relocation

31) Any relocation of utility lines that has not been previously permitted by DCM or is not already depicted on the attached work plan drawings, or described within the attached permit application, shall require approval by DCM, either under the authority of this permit, or by the utility company obtaining separate authorization.

ADDITIONAL CONDITIONS

Wetland and Stream Mitigation

32) Due to the possibility that compaction, mechanized clearing and/or other site alterations might prevent any temporary Coastal Wetland impact area from re-attaining pre-project wetland functions, the permittee shall monitor temporary wetland impacts for three years after project completion. The permittee shall schedule a meeting with DCM to verify the extent and location of temporary impacts upon project completion. The permittee shall then provide an annual update on any wetland areas temporarily impacted by this project. This annual update shall consist of photographs and written report on the progress of these temporarily impacted areas in re-attaining wetland jurisdictional status. Three years after project completion, the permittee shall schedule an agency field meeting with DCM to determine if the wetland areas temporarily impacted by this project have re-attained pre-project wetland functions. If at the end of 3 years the wetland areas temporarily impacted by this project have not re-attained pre-project wetland functions, DCM shall determine whether compensatory wetland mitigation shall be required.

NOTE: The Ecosystem Enhancement Program (EEP) agreed to provide mitigation for 0.42 acre of riparian wetlands, 0.04 acre of Coastal Marsh, and 182 linear feet of stream impacts, in accordance to the EEP Mitigation Acceptance Letter, dated 6/25/13.

General

33) The permittee and/or contractor shall contact the DCM Transportation Field Representative at (252) 808-2808 extension No. 208 to schedule a pre-construction conference prior to project initiation.

34) DWQ authorized the proposed project (DWQ Project No. 130472) on 5/16/13 under Certification No. 3891. Any violation of the Certification approved by the DWQ shall be considered a violation of this CAMA permit.

NOTE: DWQ provided confirmation that the subject project is excluded from State Coastal Stormwater permitting requirements by way of the Stormwater Permit Exclusion letter, dated 4/2/13 (Project No. SW8130310).

NOTE: If it is determined that additional permanent and/or temporary impacts are necessary that are not shown on the attached permit drawings or described in the authorized permit application, permit modification or additional authorization from DCM may be required.

NOTE: This permit does not eliminate the need to obtain any additional state, federal, or local permits, approvals, or authorizations that may be required, including, but not limited to, the US Army Corps of Engineers and/or the US Coast Guard.

NOTE: The bridge demolition debris may be suitable for use as artificial reef material. The permittee is encouraged to contact the Artificial Reef Coordinator at the N.C. Division of Marine Fisheries Morehead City Office at (252) 726-7021 to coordinate review of the suitability of the material and arrangements for such use.

NCDENR
North Carolina Department of Environment and Natural Resources
Division of Water Quality
Pat McCrory
Governor
Charles Wakild, P. E.
Director
John E. Skvarla, III
Secretary

May 16, 2013
Brunswick County
NCDWQ Project No. 13-0472
Widening of US 17-74-76/ NC 133
TIP Project No. R-3601

APPROVAL of 401 WATER QUALITY CERTIFICATION, with ADDITIONAL CONDITIONS

Dr. Greg Thorpe, PhD., Manager
Project Development and Environmental Analysis
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina, 27699-1598

Dear Dr. Thorpe:

You have our approval, in accordance with the conditions listed below, for the following impacts associated with the widening of US 17-74-76/NC 133 from NC 133 (River Road)/SR 1472(Village Road) Interchange to the US 421/NC 133 Interchange in Brunswick County:

Stream Impacts in the Cape Fear River Basin

Site	Station	Permanent Fill in Intermittent Stream (linear ft)	Temporary Fill in Intermittent Stream (linear ft)	Permanent Fill in Perennial Stream (linear ft)	Temporary Fill in Perennial Stream (linear ft)	Total Stream Impact (linear ft)	Stream Impacts Requiring Mitigation (linear ft)
1	-Y2- 13+50	0	0	47	5	52	0
14	-Y- 34+96 to 36+35	0	0	135	6	135	0
TOTAL		**0**	**0**	**182**	**11**	**193**	0

Total Stream Impact for Project: 193 linear feet.

Wetland Impacts in the Cape Fear River Basin (riparian)

Site	Station	Fill (ac)	Fill (temporary) (ac)	Excavation (temporary) (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Total Wetland Impact (ac)
2	-LMED- 50+77	0	0	0	0	<0.01	<0.01
3	-LMED- 54+56 to 55+07	<0.01	0	<0.01**	0	0.02	0.02
4	-LMED- 63+40 to 64+46	0.05	0	0	0	0.03	0.08
4	-LMED- 66+05	<0.01	0	<0.01**	0	0.02	0.02
5	-LMED- 69+14 to 74+28	0.04	<0.01	0	0	0.19	0.23
5	-LMED- 75+10	0	0.01*	0.01*	0	0	0.02
6	-LMED- 83+10	0	0.01*	0.01*	0	0	0.02
7	-LRT- 85+80 to 86+75	0	0	0	0	0.01	0.01

225 Green St., Suite 714, Fayetteville, NC 28301-5095
Phone: 910-433-3300 \ FAX: 910-486-0707
Internet: www.ncwaterquality.org

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8	-LLT- 91+99	0	0	0	0	<0.01	<0.01
8	-LLT- 94+10	0	<0.01*	<0.01*	0	0	0.02
9	-LLT- 98+95 to 99+99	<0.01	0	0	0	0.02	0.02
10	-LRT- 101+08	0	0	0	0	<0.01	<0.01
11	-LLT- 111+77 to 113+16	0.02	0	0	0	0.03	0.05
11	-LRT- 112+39 to 115+42	0.14	0	0	0	0.08	0.22
12	-RPLRT- 116+15 to 121+70	0	0	0	0	0.02	0.02
13	-Y2- 20+65	0.16	0	0	0.04	0	0.20
15	-Y- 38+27	0	0	0	0	<0.01	<0.01
	EC measures in HC areas	0	0.04	0	0	0	0.04
TOTAL* **		**0.42**	**0.06**	**0.02**	**0.04**	**0.43**	**0.97**

Total Wetland Impact for Project: 0.93 acres.

*denotes temporary fill and excavation for pipe cleanout,
**denotes temporary excavation for pipe installation,
***totals may not match sum of individual impacts due to rounding

The project shall be constructed in accordance with your application dated received April 26, 2013. After reviewing your application, we have decided that these impacts are covered by General Water Quality Certification Number 3891. This certification corresponds to the Nationwide Permit 23 issued by the Corps of Engineers. In addition, you should acquire any other federal, state or local permits before you proceed with your project including (but not limited to) Sediment and Erosion Control, Non-Discharge and Water Supply Watershed regulations. This approval will expire with the accompanying 404 permit.

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

Condition(s) of Certification:

Project Specific Conditions

1. The NCDOT Division Environmental Officer or Environmental Assistant will conduct a pre-construction meeting with all appropriate staff to ensure that the project supervisor and essential staff understand the potential issues with stream and pipe alignment at the permitted site. NCDWQ staff shall be invited to the pre-construction meeting.

2. The permittee shall provide written verification that the final construction drawings comply with the permit drawings contained in the application dated April 26, 2013. Any deviations from the approved drawings are not authorized unless approved by the NC Division of Water Quality.

3. The permittee will need to adhere to all appropriate in-water work moratoria (including the use of pile driving or vibration techniques) prescribed by the NC Wildlife Resources Commission and, NC Division of Marine Fisheries. No in-water work is permitted between February 15th and September 30th of any year, without prior approval from the NC Division of Water Quality and the NC Wildlife Resources Commission. In addition, the permittee shall conform with the NCDOT policy entitled "Stream Crossing Guidelines for Anadromous Fish Passage (May 12, 1997) at all times.

4. A turbidity curtain will be installed in the stream if driving or drilling activities occur within the stream channel, on the stream bank, or within 5 feet of the top of bank of Alligator Creek and Brunswick River. This condition can be waived with prior approval from DWQ.

5. All portions of the proposed project draining to 303(d) listed watersheds that are impaired due to biological criteria exceedances shall not discharge stormwater directly to surface waters. Stormwater shall be treated using appropriate best management practices (e.g., vegetated conveyances, constructed wetlands, detention ponds, etc.) prior to discharging to surface waters.

6. Strict adherence to the most recent version of NCDOT's Best Management Practices For Bridge Demolition and Removal approved by the US Army Corps of Engineers is a condition of the 401 Water Quality Certification.

7. Bridge piles and bents shall be constructed using driven piles (hammer or vibratory) or drilled shaft construction methods. More specifically, jetting or other methods of pile driving are prohibited without prior written approval from NCDWQ first.

8. The post-construction removal of any temporary bridge structures must return the project site to its preconstruction contours and elevations. The impacted areas shall be revegetated with appropriate native species.

9. For the 11 linear feet of streams being impacted due to site dewatering activities, the site shall be graded to its preconstruction contours and revegetated with appropriate native species.

10. Material temporarily excavated for pipe installation shall be stockpiled in an upland area and placed back into the excavated area in a manner that restores the original grade and soil profile with the organic/root layer on top.

11. The project shall be constructed in accordance with the provisions of the NCDOT's National Pollutant Discharge Elimination (NPDES) Stormwater Permit as described in the submitted Stormwater Management Plan, dated March 29, 2013.

General Conditions

12. Unless otherwise approved in this certification, placement of culverts and other structures in open waters and streams shall be placed below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow passage of water and aquatic life. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or streambeds or banks, adjacent to or upstream and downstream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by NCDWQ. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact NCDWQ for guidance on how to proceed and to determine whether or not a permit modification will be required.

13. 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.

14. During the construction of the project, no staging of equipment of any kind is permitted in waters of the U.S., or protected riparian buffers.

15. The dimension, pattern and profile of the stream above and below the crossing shall not be modified. Disturbed floodplains and streams shall be restored to natural geomorphic conditions.

16. 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.

17. The Permittee shall ensure that the final design drawings adhere to the permit and to the permit drawings submitted for approval.

18. All work in or adjacent to stream waters shall be conducted in a dry work area. Approved BMP measures from the most current version of NCDOT Construction and Maintenance Activities manual such as sandbags, rock berms, cofferdams and other diversion structures shall be used to prevent excavation in flowing water.

19. Heavy equipment shall be operated from the banks rather than in the stream channel in order to minimize sedimentation and reduce the introduction of other pollutants into the stream.

20. All mechanized equipment operated near surface waters must be regularly inspected and maintained to prevent contamination of stream waters from fuels, lubricants, hydraulic fluids, or other toxic materials.

21. No rock, sand or other materials shall be dredged from the stream channel except where authorized by this certification.

22. Discharging hydroseed mixtures and washing out hydroseeders and other equipment in or adjacent to surface waters is prohibited.

23. 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 NCDWQ 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, NCDWQ may reevaluate and modify this certification.

24. All fill slopes located in jurisdictional wetlands shall be placed at slopes no flatter than 3:1, unless otherwise authorized by this certification..

25. 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.

26. The outside buffer, wetland or water boundary located within the construction corridor approved by this authorization shall be clearly marked by highly visible fencing prior to any land disturbing activities. Impacts to areas within the fencing are prohibited unless otherwise authorized by this certification.

27. 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.

28. The Permittee shall report any violations of this certification to the Division of Water Quality within 24 hours of discovery.

29. Upon completion of the project (including any impacts at associated borrow or waste sites), the NCDOT Division Engineer shall complete and return the enclosed "Certification of Completion Form" to notify NCDWQ when all work included in the 401 Certification has been completed.

30. 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.

31. There shall be no excavation from, or waste disposal into, jurisdictional wetlands or waters associated with this permit without appropriate modification. Should waste or borrow sites, or access roads to waste or borrow sites, be located in wetlands or streams, compensatory mitigation will be required since that is a direct impact from road construction activities.

32. 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:
    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.

33. Sediment and erosion control measures shall not be placed in wetlands or waters unless otherwise approved by this Certification.

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

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

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

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

Mr. Lacy Presnell, General Counsel
Department of Environment and Natural Resources
1601 Mail Service Center
Raleigh, NC 27699-1601

This letter completes the review of the Division of Water Quality under Section 401 of the Clean Water Act. If you have any questions, please contact Mason Herndon at (910) 308-4021 or mason.herndon@ncdenr.gov.

Sincerely,

Belinda S. Henson

for Charles Wakild
Director

ec: Brad Shaver, US Army Corps of Engineers, Wilmington Field Office
Stoney Mathis, Division 3 Environmental Officer
Chris Militscher, Environmental Protection Agency
Gary Jordan, US Fish and Wildlife Service
Travis Wilson, NC Wildlife Resources Commission
Amy James, NCDOT NES
Sonia Carrillo, NCDWQ Central Office
Steve Sollod, NC Coastal Management
Steven Lane, NC Coastal Management
File Copy

NCDWQ 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 Quality, 1650 Mail Service Center, Raleigh, NC, 27699-1650. This form may be returned to NCDWQ 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 _____

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

Action Id. **SAW-2007-03641-010** County: **Brunswick** U.S.G.S. Quad: **Wilmington**

GENERAL PERMIT (REGIONAL AND NATIONWIDE) VERIFICATION

Permittee: **NC DOT**
Attn: Mr. Phil Harris
Address: **Manager, PDEA**
1598 Mail Service Center
Raleigh, NC 27699

Agent: **NC DOT**
attn: Ms. Amy James
PDEA-Natural Environment Section
1598 Mail Service Center
Raleigh, NC 27699

Size (miles) **2+**
Nearest Waterway **Brunswick River/Alligator Creek**
USGS HUC **03030005**

Nearest Town **Leland**
River Basin **Cape Fear**
Coordinates Latitude: **34.2344**
Longitude: **-77.9795**

Location description: **The project area is along US 17/74/76 from the NC 133/SR 1472 interchange to the US 421/NC 133 interchange crossing Brunswick River and Alligator Creek near the Cape Fear River floodplain in Brunswick County.**

Description of projects area and activity: **The NCDOT propose to widen the aforementioned stretch of road from four to six lanes which also involves the replacement of two bridges over the Brunswick River and Alligator Creek. Additionally, the northbound bridge will be the start of an additional seventh lane that will continue on US 17 into Wilmington. The project as proposed would result in the permanent loss of 0.42 acres of non tidal wetlands, 0.04 acres of tidal wetlands, and 182 linear feet of intermittent stream. This authorization additionally includes the installation of temporary test piles outside the footprint of the permanent piles on the south side of the bridge in order to gain information for the future design.**

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

Authorization: Regional General Permit Number or Nationwide Permit Number: **NWP 23 and NW 5.**

SEE ATTACHED RGP or NWP GENERAL, REGIONAL AND SPECIAL CONDITIONS

Your work is authorized by the above referenced permit provided it is accomplished in strict accordance with the attached conditions and your submitted application, NW 23 request dated April 26, 2013 and NW 6 request dated July 25, 2013. Any violation of the attached conditions or deviation from your submitted plans may subject the permittee to a stop work order, a restoration order and/or appropriate legal action.

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

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

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

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

If there are any questions regarding this verification, any of the conditions of the Permit, or the Corps of Engineers regulatory program, please contact **Brad Shaver at 910-251-4611 or Brad.E.Shaver@usace.army.mil**.

Determination of Jurisdiction:

A. ☐ Based on preliminary information, there appear to be waters of the US including wetlands within the above described project area. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331).

B. ☐ There are Navigable Waters of the United States within the above described project area subject to the permit requirements of Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

C. ☐ There are waters of the US and/or wetlands within the above described project area subject to the permit requirements of Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

D. ☒ The jurisdictional areas within the above described project area have been identified under a previous action. Please reference jurisdictional determination issued 10/6/2008 and 2/24/2010. Action ID: **SAW-2007 3641**.

Basis For Determination: The subject area exhibited both an ordinary high water and had characteristics of wetlands as described in the 1987 Corps Delineation Manual and both resources are abutting or drain to the Cape Fear River, Brunswick River, or Alligator Creek, all of which are traditionally navigable water bodies that are subject to the ebb and flood of tides.

Remarks: See special conditions.

Corps Regulatory Official: SHAVER.BRAD.E.1276601756 Digitally signed by SHAVER.BRAD.E.1276601756 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=SHAVER.BRAD.E.1276601756 Date: 2013.08.29 15:12:06 -04'00' Date: **08/29/2013**

Expiration Date of Verification: **03/18/2017**

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 our customer Satisfaction Survey online at http://per2.nwp.usace.army.mil/survey.html .

Copy furnished (electronic):

NCDENR-DWR, Mr. Mason Herndon
NCDOT-NES, Mr. Chris Rivenbark
NC WRC, Mr. Travis Wilson
NCDENR-DCM, Mr. Stephen Lane
NCDENR-DCM, Mr Steve Sollod
NCDOT-Div 3, Mr. Stonewall Mathis
NCDOT-Div 3, Mr. Jackson Provost
USACE, Mr. Todd Tugwell
NCEEP, Ms. Beth Harmon

SPECIAL CONDITIONS

1. The NCDOT must use the United States Department of Interior, Fish and Wildlife Service's GUIDELINES FOR AVOIDING IMPACTS TO THE WEST INDIAN MANATTEE: Precautinary Measures for Construction Activities in North Carolina Waters.

2. The NCDOT must adhere to an inwater work moratorium for the Brunswick River between the periods of Jan 1 – Sept 30 of any year during the construction period. This moratorium takes into consideration the protection of both Sturgeon spawning areas as well as inland Primary Nursery Areas. An inwater work moratorium is also required for Alligator Creek during Feb 15-Sept 30 of any year during construction to protect inland Primary Nursery Areas. These dates may be adjusted in the future with correspondence from the agencies agreeing to shifts in the moratorium dates to include any conditions that may go along with the approved date changes.

3. NCDOT must hold a preconstruction meeting before road and utility construction to assure that each contractor working on the project is aware of the terms and conditions of the permit.

4. All activities described in the plans as temporary must be restored to their pre project conditions before completion of the project.

5. All structures necessary for the installation of the test piles and permanent piles must be removed upon project completion. The test piles authorized by this action must be removed one foot below the mud level once the testing period is complete.

6. Any directional bores proposed near or around jurisdictional features must take all necessary precautions to avoid any slurry or frac out incidents from entering jurisdictional areas. These precautions should include the use of vac trucks where appropriate and secondary containment around the entry and exit pits.

7. Confirmation should be obtained from NCDOT that the construction drawings and propsed impacts do not differ from the approved permit drawings.

8. In order to compensate for impacts associated with this permit, mitigation shall be provided in accordance with the provisions outlined on the most recent version of the attached Compensatory Mitigation Responsibility Transfer Form. The requirements of this form, including any special conditions listed on this form, are hereby incorporated as special conditions of this permit authorization.

Action ID Number: **SAW-2007-03641-010** **County:** **Brunswick**

Permittee: **NCDOT - PDEA**

Project Name: **NCDOT/R-3601/US 17-74-76/Division 3**

Date Verification Issued: **08/29/2013**

Project Manager: **Brad Shaver**

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

US ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT
Attn: Brad Shaver
69 Darlington Ave
Wilmington, NC 28403

Please note that your permitted activity is subject to a compliance inspection by a U. S. Army Corps of Engineers representative. If you fail to comply with this permit you are subject to permit suspension, modification, or revocation.

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

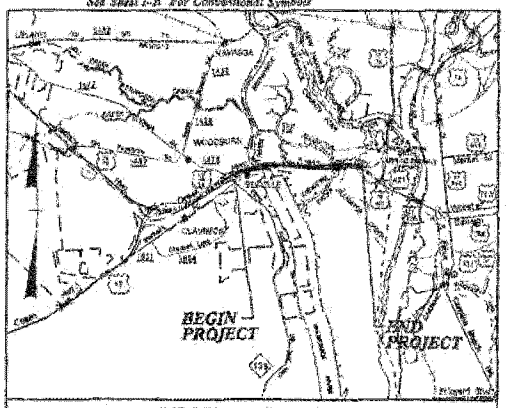
_____ _____

Signature of Permittee **Date**

TIP PROJECT: R-3601

CONTRACT:

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ENGLISH

BRUNSWICK AND NEW HANOVER COUNTIES

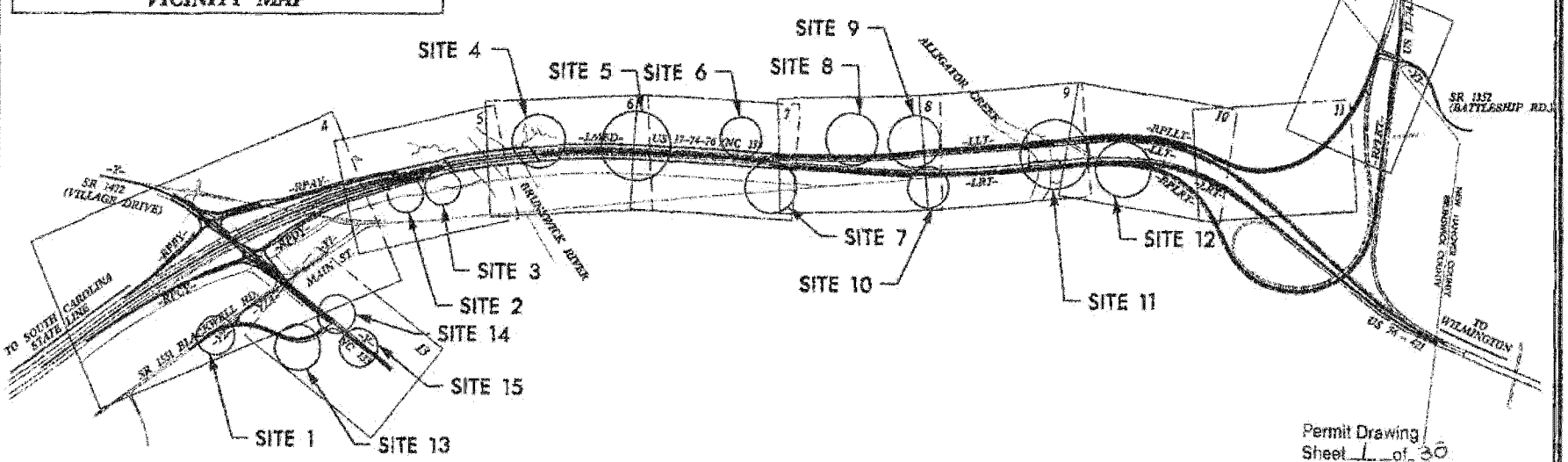
NAD 83/95

N.C.	R-3601	1
38868.1.1	NHS-0017(68)	P.E.
38868.2.1	NHS-0017(68)	RW & UTIL.

LOCATION: US 17-74-76 FROM NC 133 / SR 1472 INTERCHANGE TO THE US 421 /NC 133 INTERCHANGE

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

WETLAND/SURFACE WATER PERMIT DWG.



Permit Drawing
Sheet 1 of 30

A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF LELAND AND BELVILLE.

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.

PRELIMINARY PLANS

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2013 = 78,821 VPD
ADT 2035 = 107,000 VPD
DHV = 11 %
D = 55 %
*T = 6 %
V = 60 MPH
*(TTST 3% + DUALS 3%)

FUNC. CLASS. = FREEWAY
STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-3601 = 1.471 MILES
LENGTH STRUCTURE TIP PROJECT R-3601 = 0.205 MILES
TOTAL LENGTH TIP PROJECT R-3601 = 1.676 MILES

(EASTBOUND LANES WERE USED FOR LENGTH OF PROJECT CALCULATION.)

Prepared in the Office of:
DIVISION OF HIGHWAYS
1902 Birch Ridge Dr., Raleigh NC, 17610

RIGHT OF WAY DATE: FEBRUARY 28, 2013

LETTING DATE: FEBRUARY 18, 2014

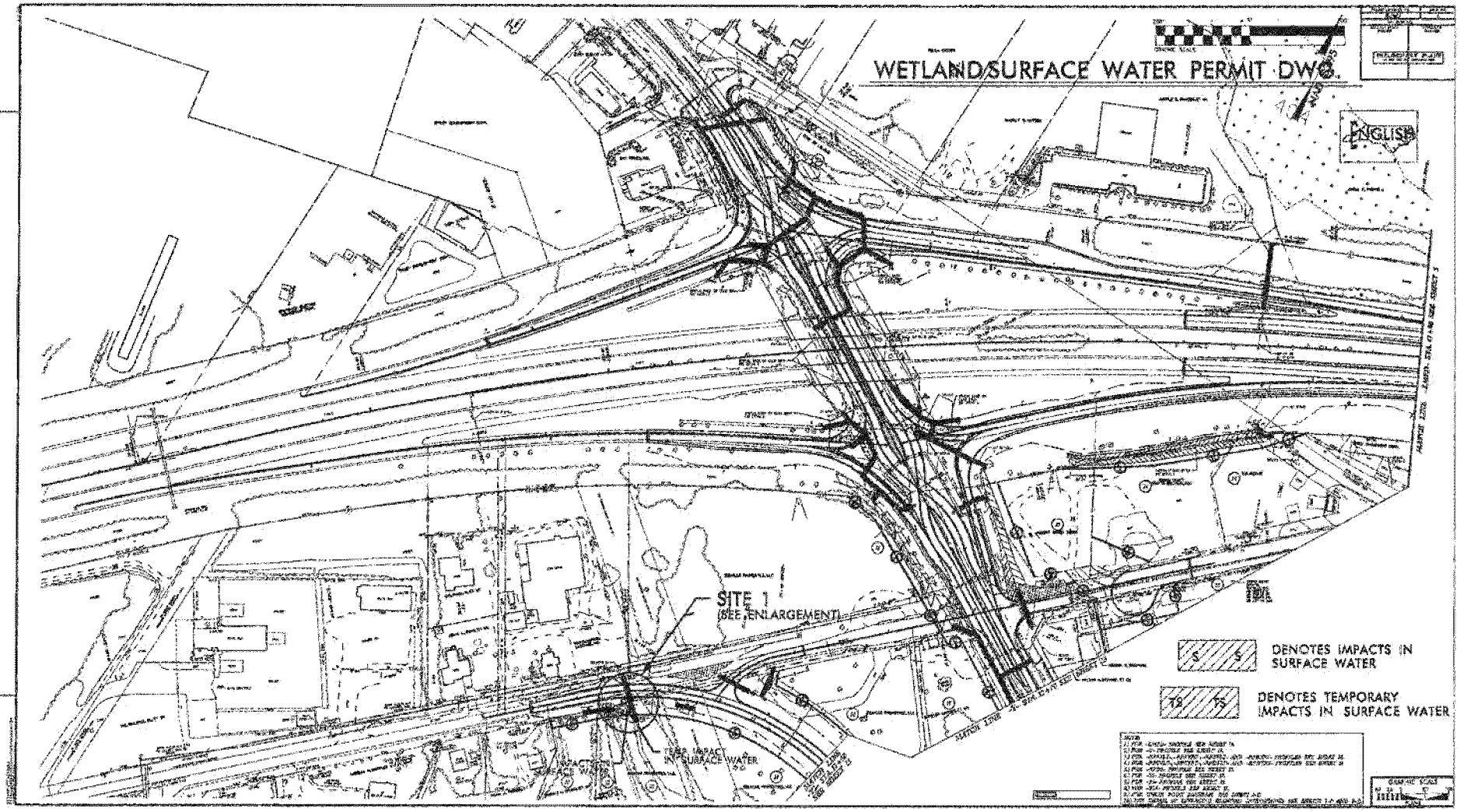
GARY LOVERING, PE
PROJECT ENGINEER

SUSAN C. LANCASTER, PE
PROJECT DESIGN ENGINEER

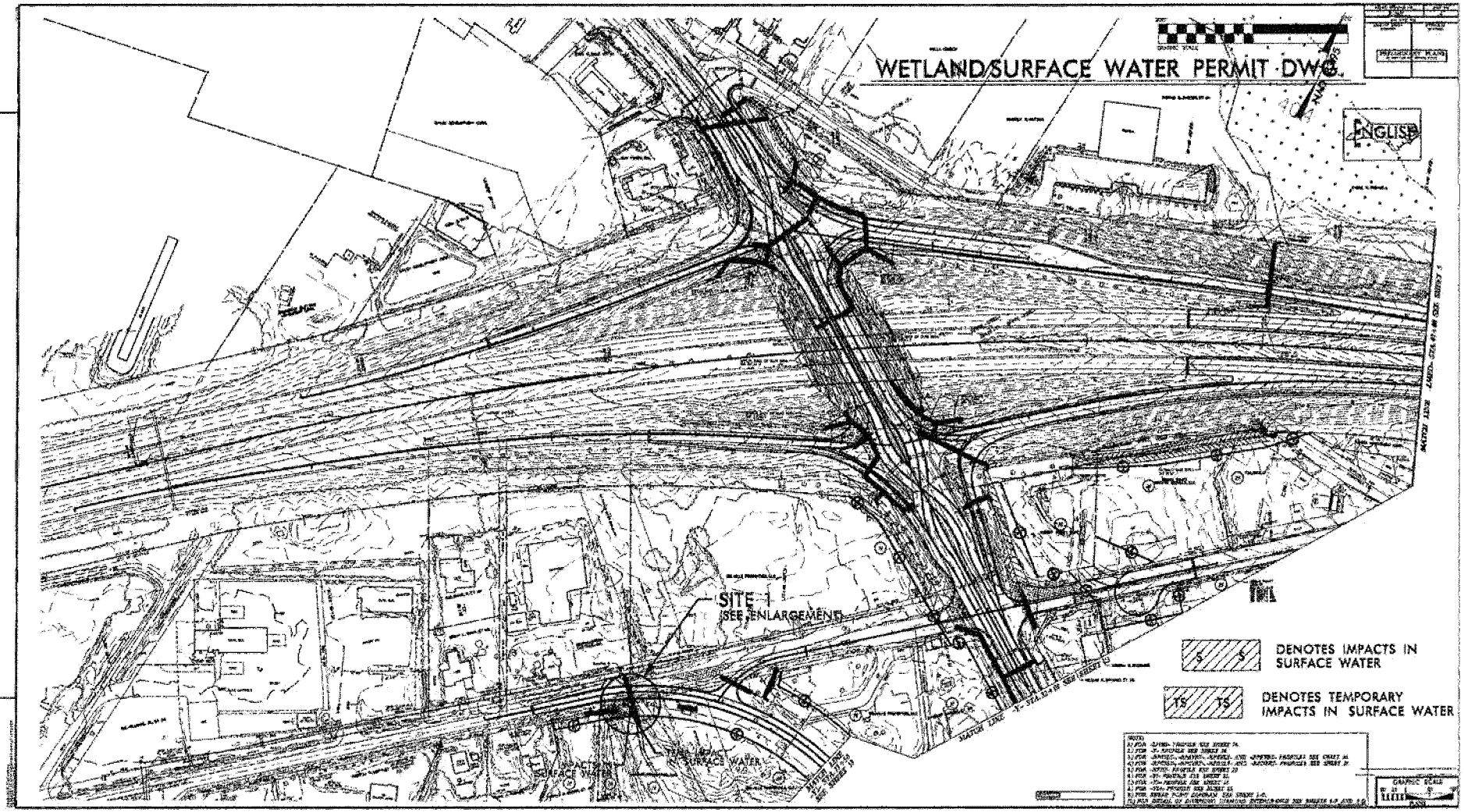
HYDRAULICS ENGINEER

ROADWAY DESIGN ENGINEER

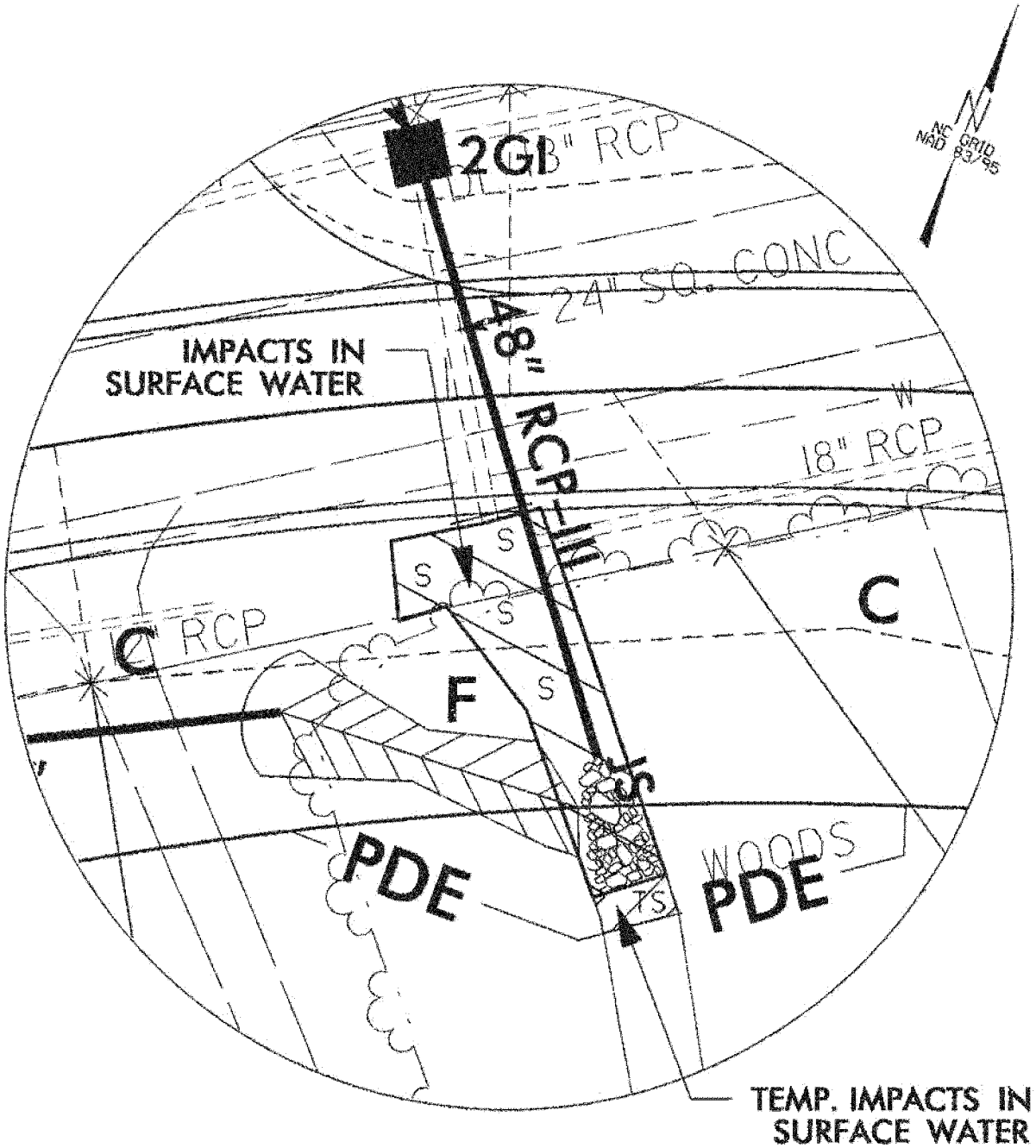
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA



Permit Drawing
Sheet 2 of 30



Permit Drawing
Sheet 2 of 30



SITE 1 ENLARGEMENT

S S DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

20' 0' 20'

GRAPHIC SCALE

NCDOT

DIVISION OF HIGHWAYS

BRUNSWICK AND

NEW HANOVER COUNTY

PROJECT: 38868.1.1 (R-3601)

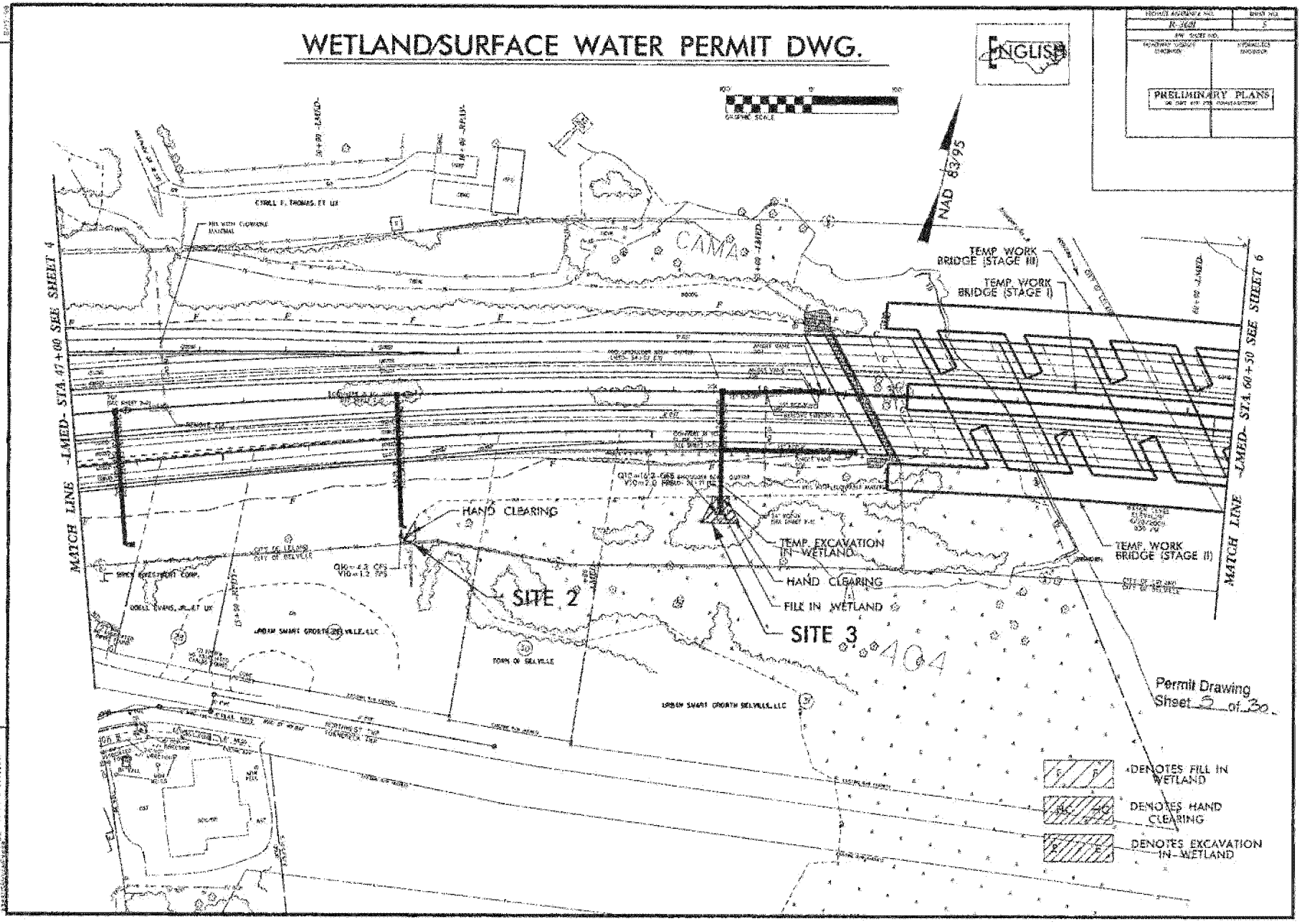
US 17 -74-76 FROM

NC 133 / SR 1472 INTERCHANGE TO

THE US 421 / NC 133 INTERCHANGE

SHEET 4 OF 30 04 / 23 / 12

WETLAND/SURFACE WATER PERMIT DWG.



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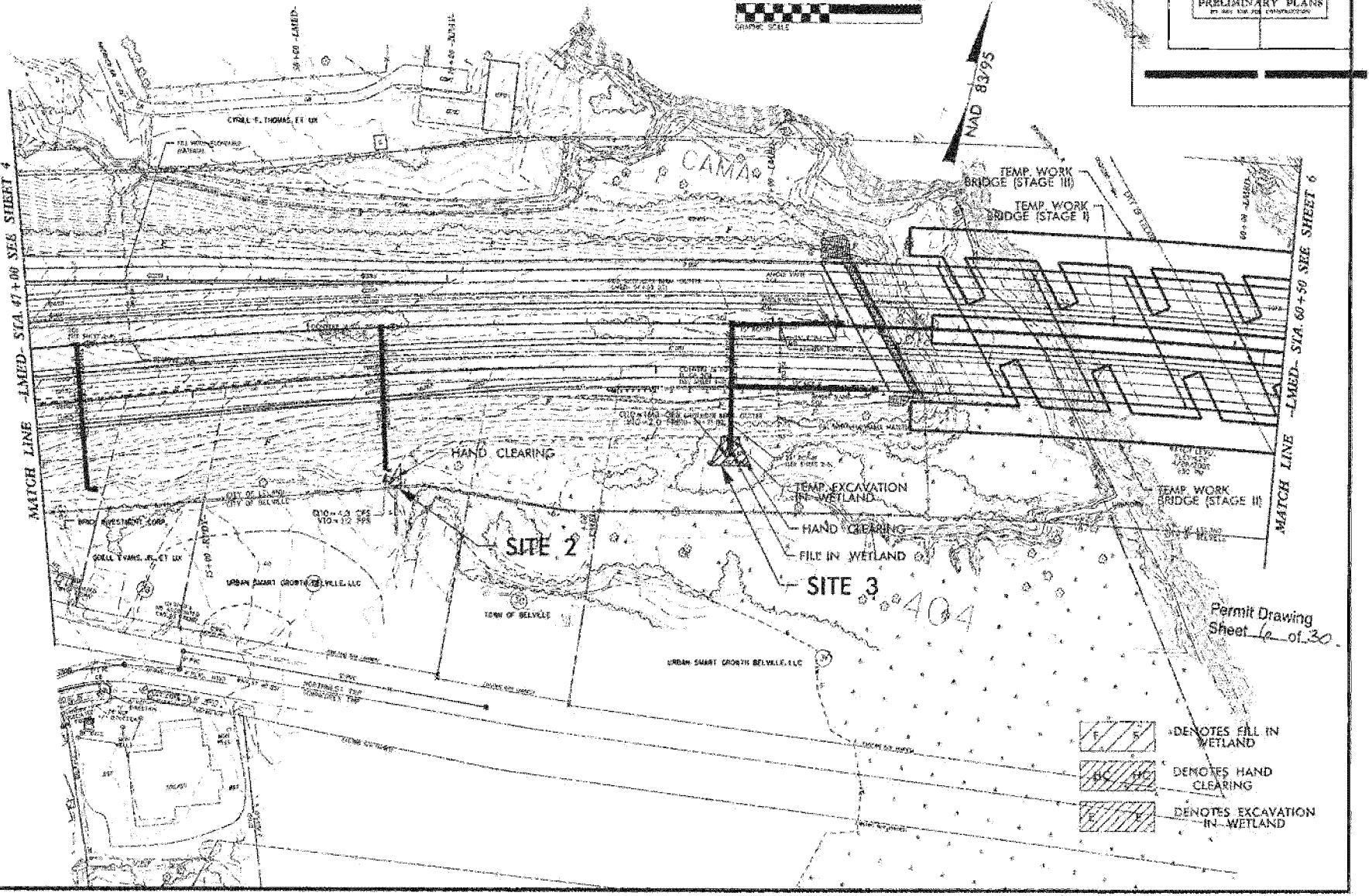

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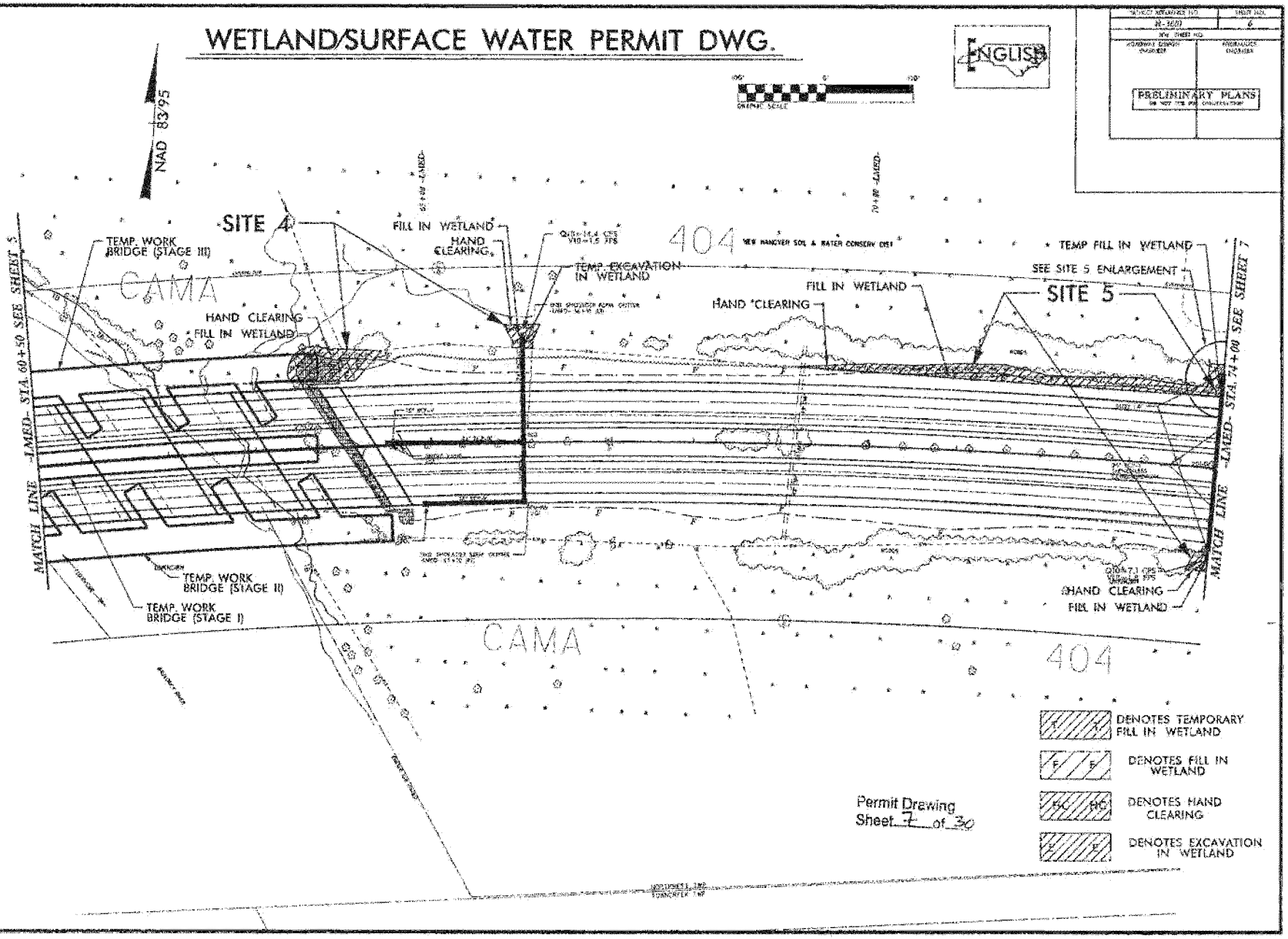

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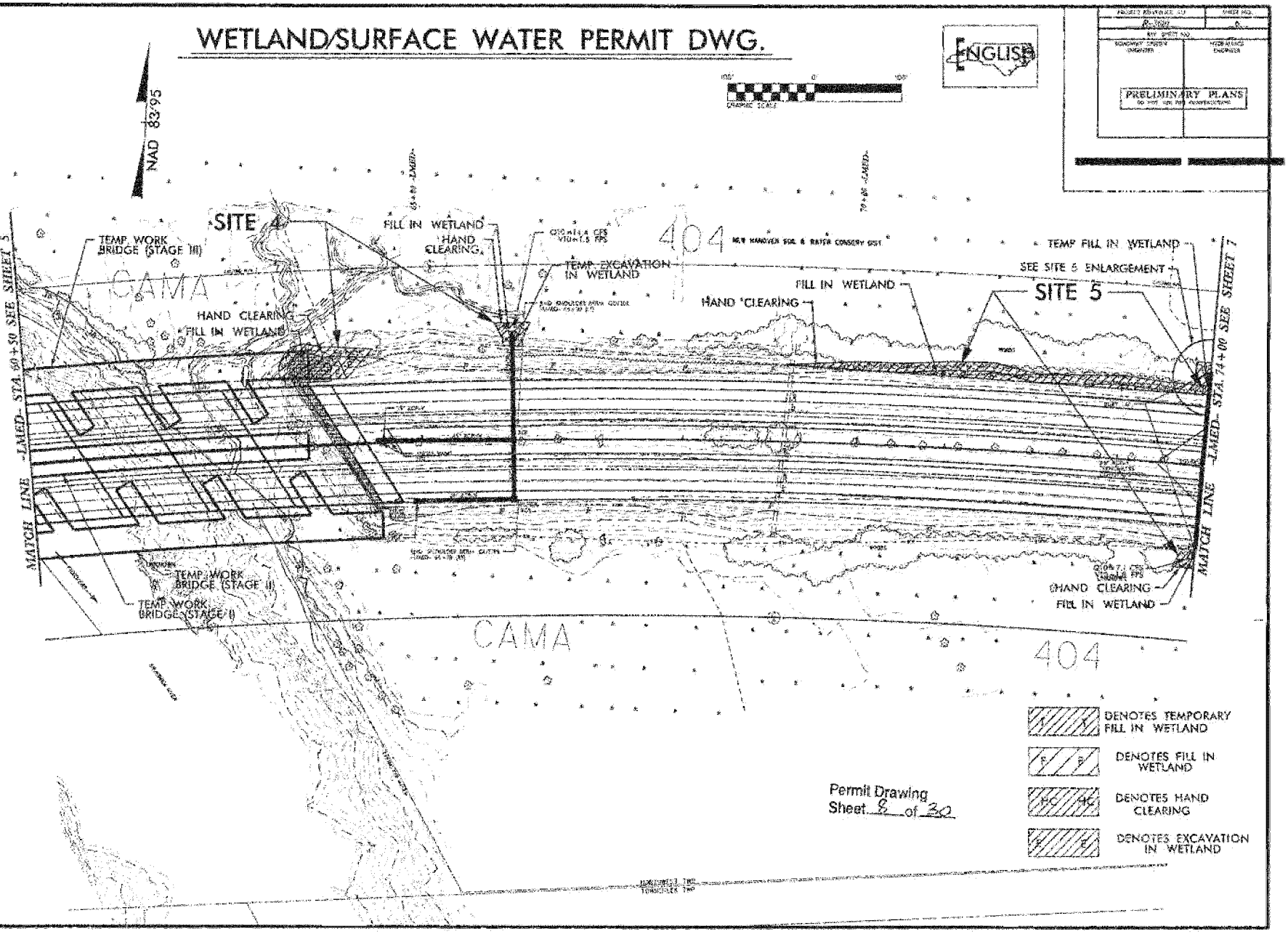

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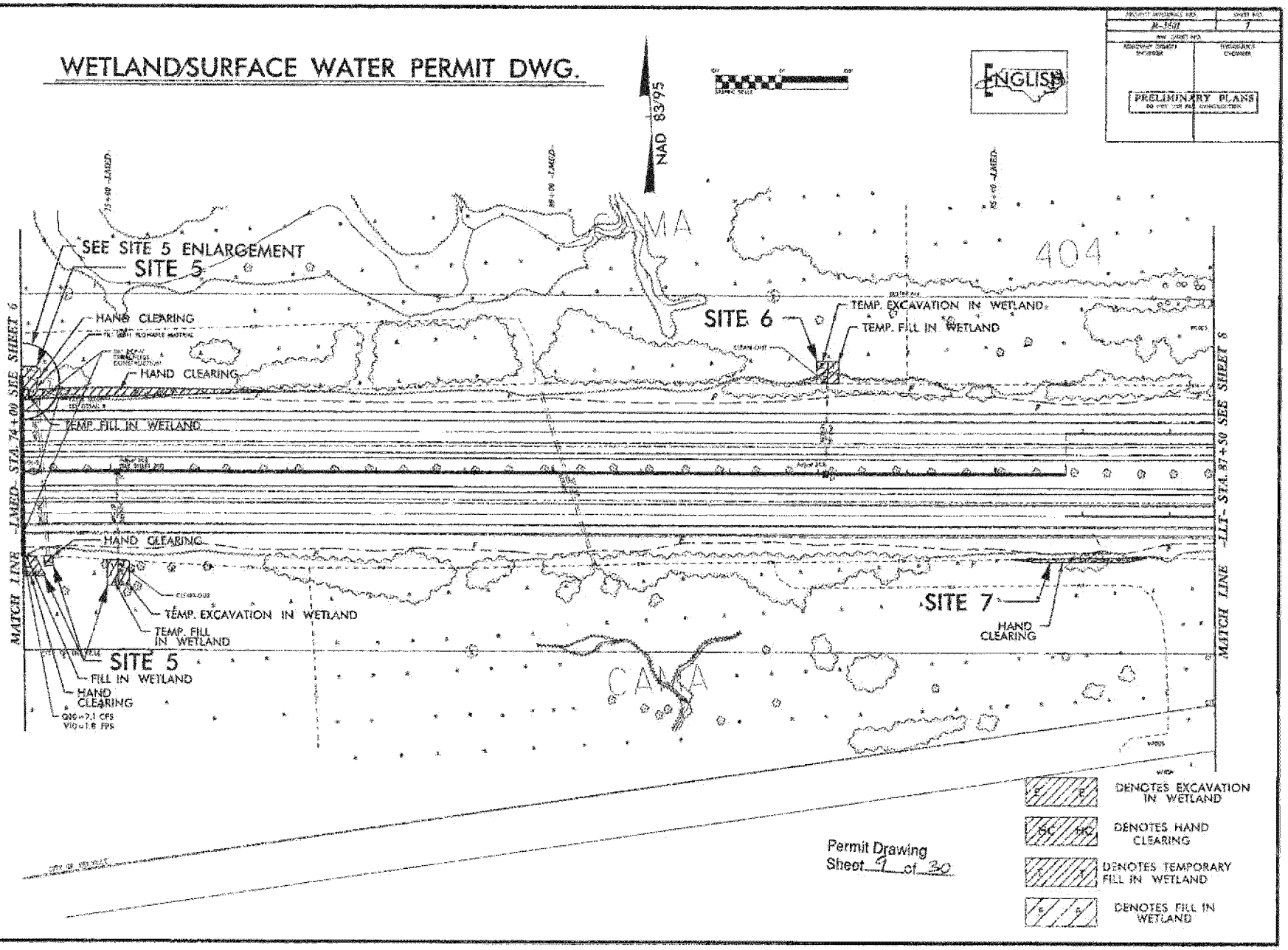

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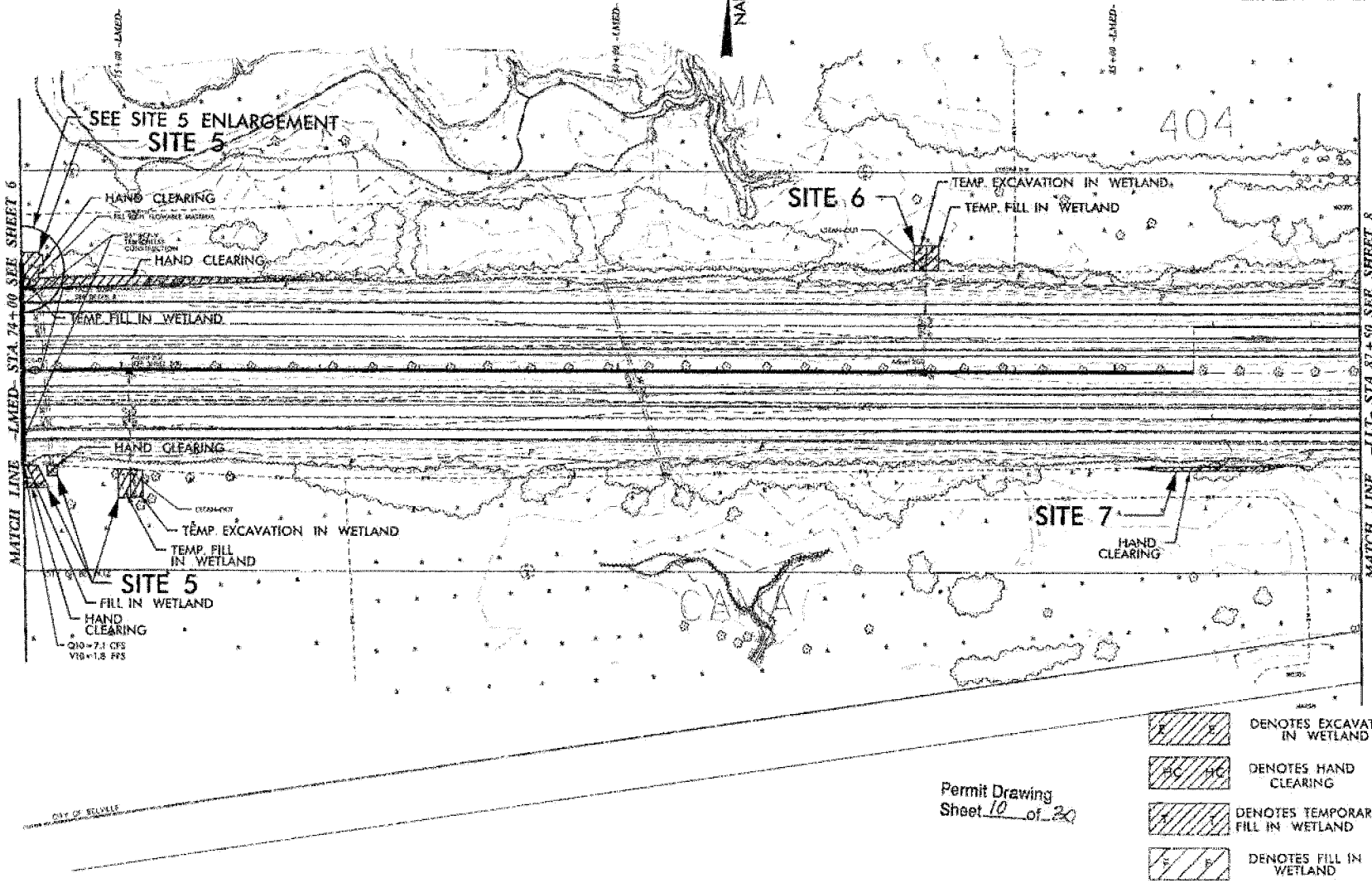
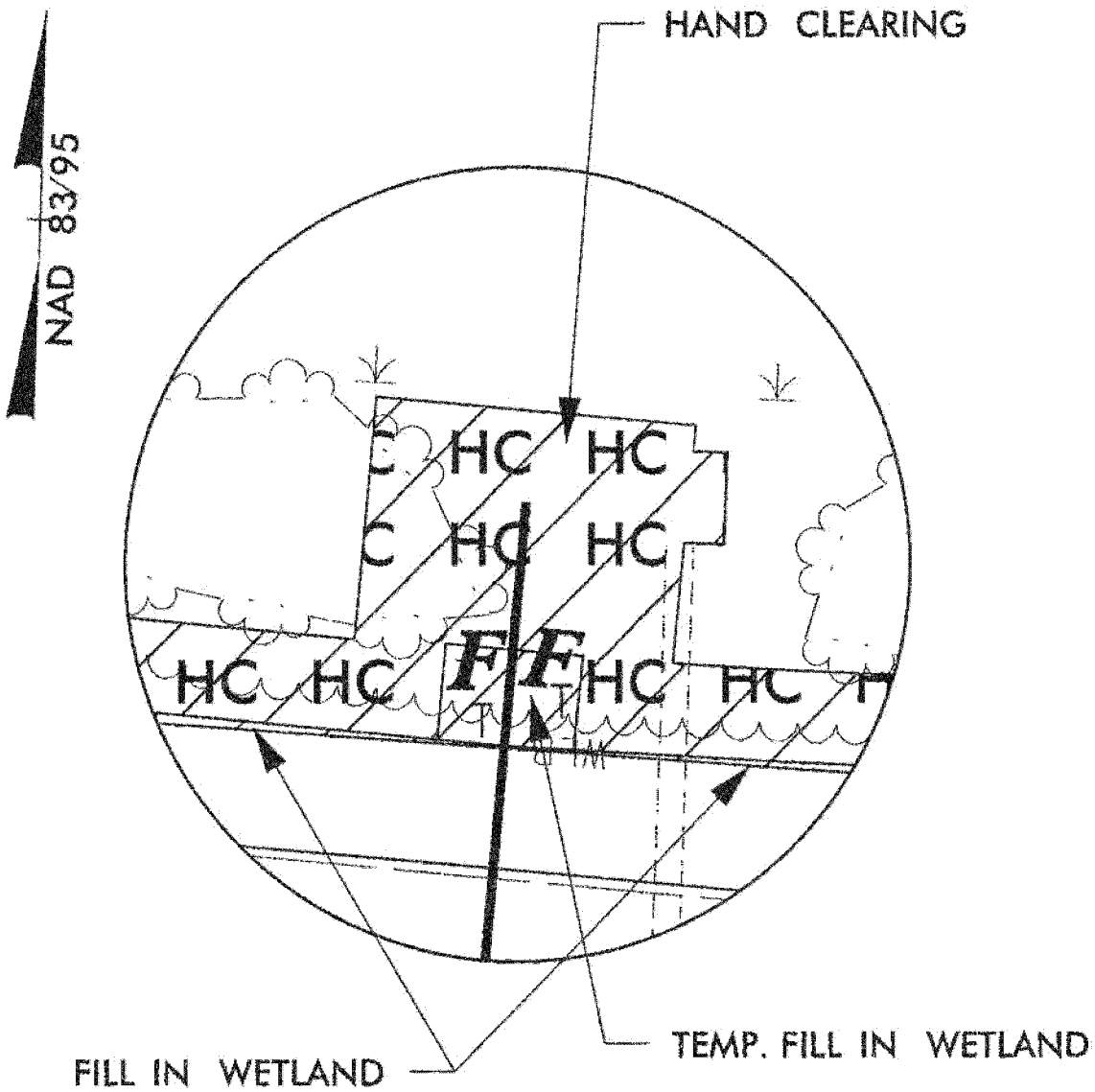


Permit Drawing
Sheet 10 of 20



SITE 5 ENLARGEMENT

T T DENOTES TEMPORARY FILL IN WETLAND

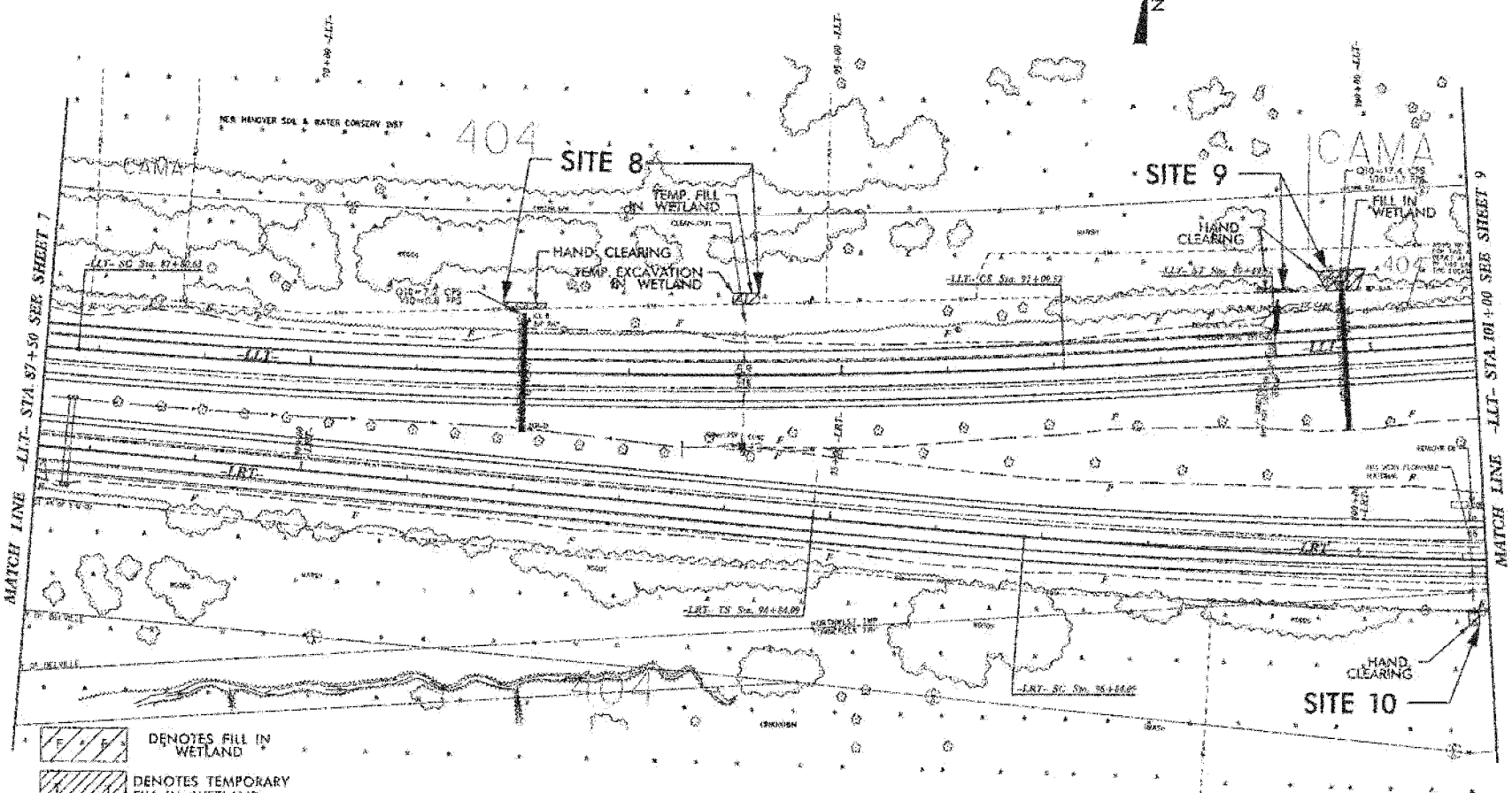
HC HC DENOTES HAND CLEARING

F F DENOTES FILL IN WETLAND

20' 0' 20'
GRAPHIC SCALE

NCDOT
DIVISION OF HIGHWAYS
BRUNSWICK AND
NEW HANOVER COUNTY
PROJECT: 38868.1.1 (R-3601)
US 17 -74-76 FROM
NC 133 / SR 1472 INTERCHANGE TO
THE US 421 / NC 133 INTERCHANGE
SHEET 11 OF 30 04 / 25 / 12

WETLAND/SURFACE WATER PERMIT DWG.



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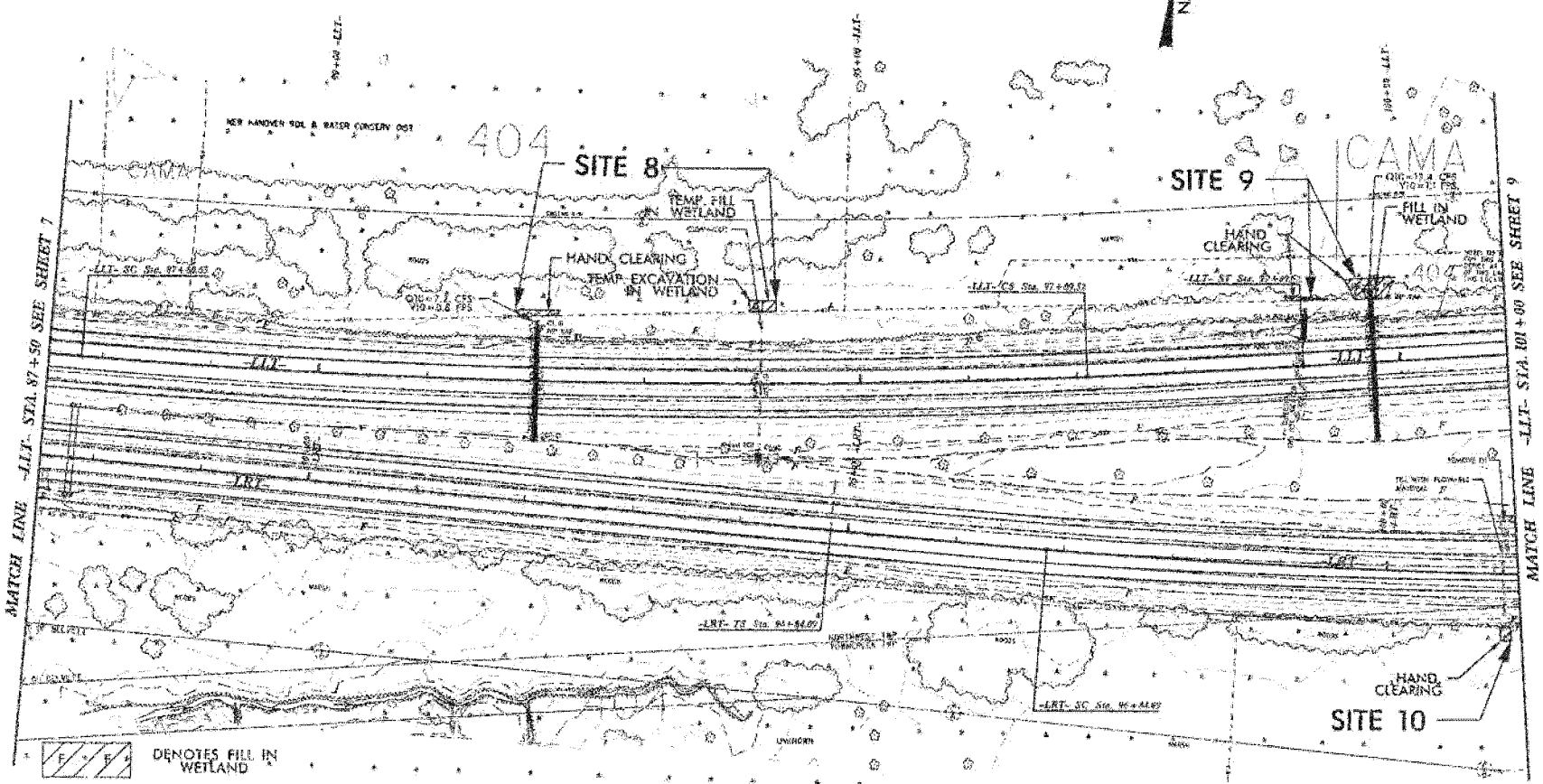

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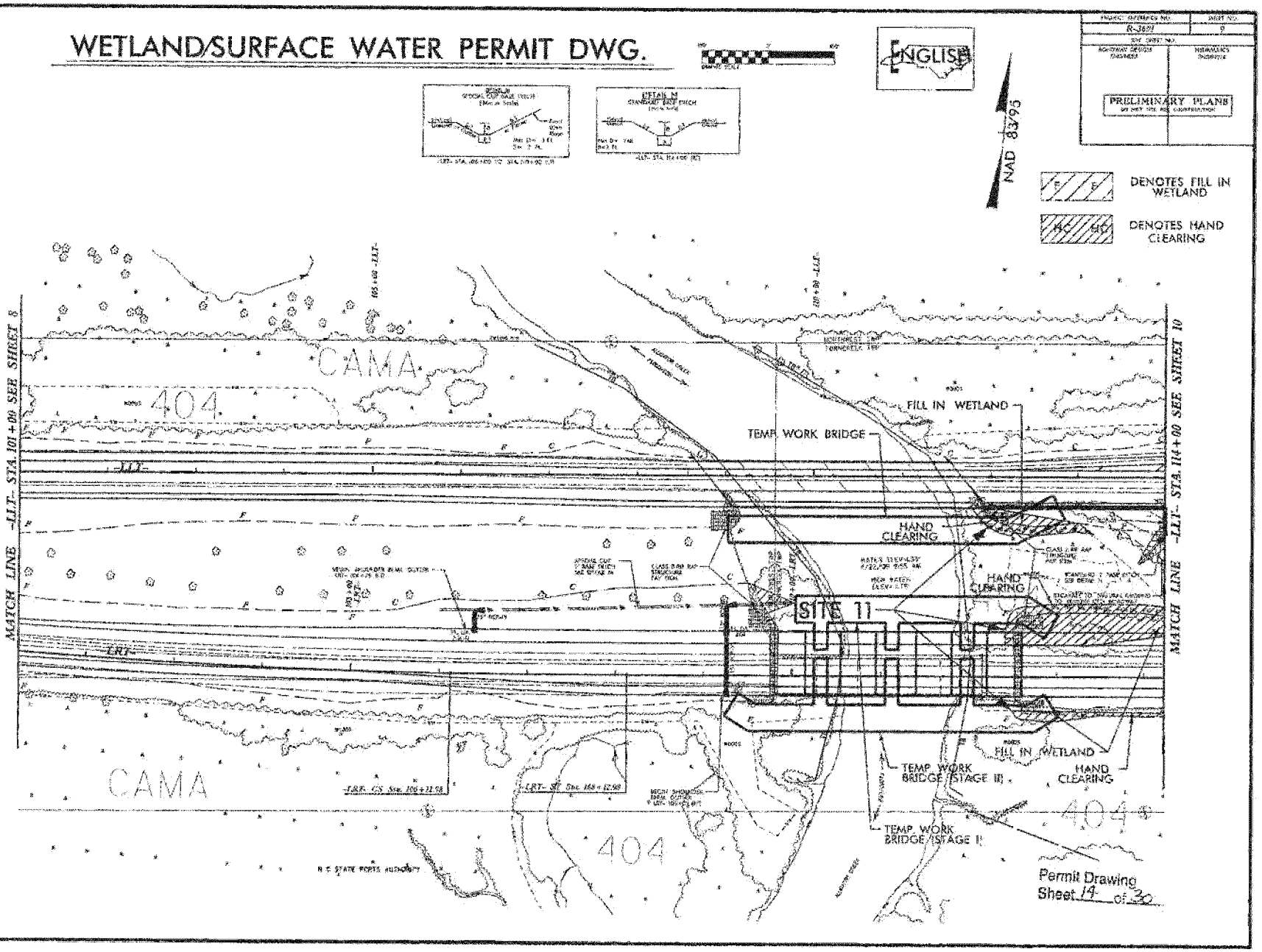

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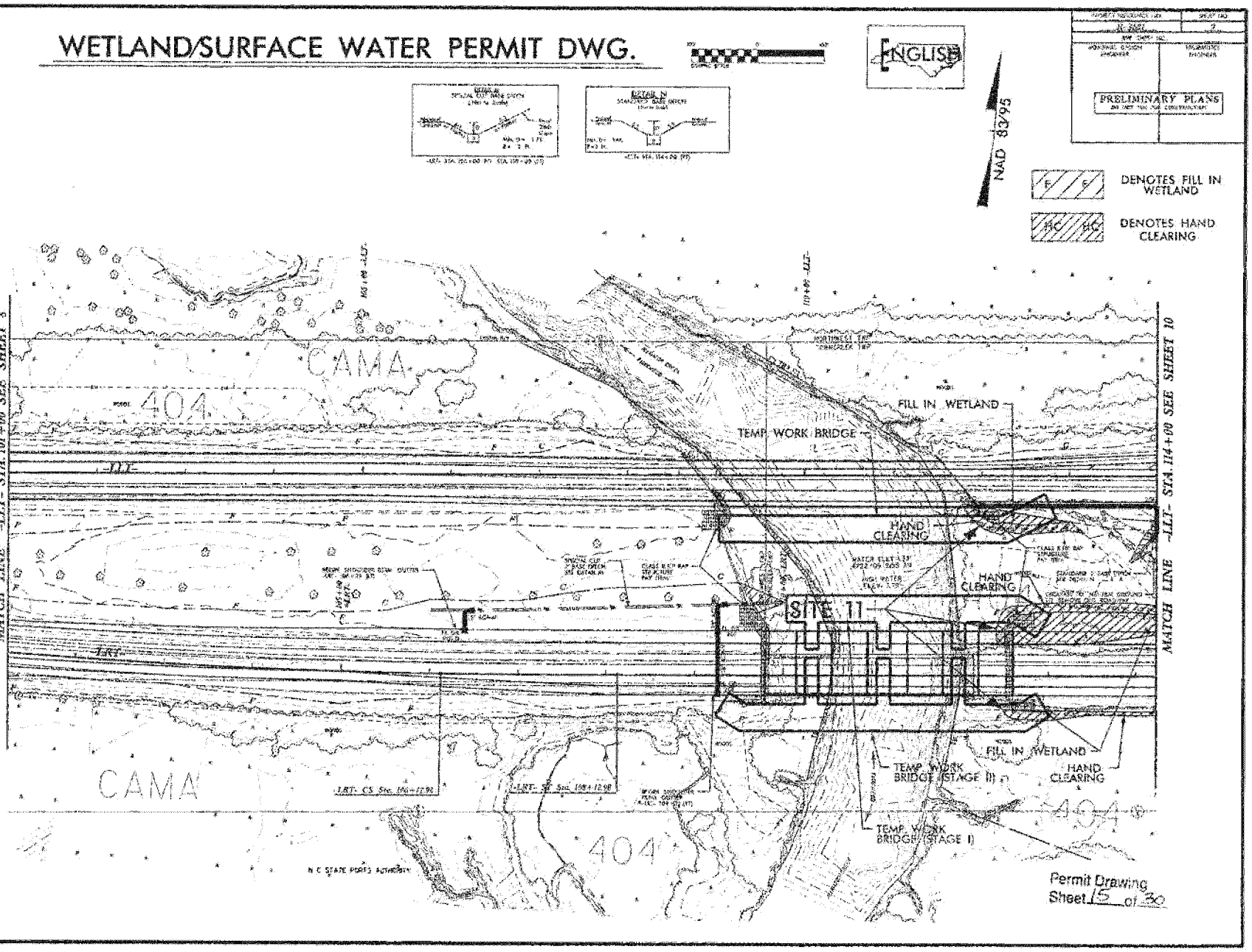
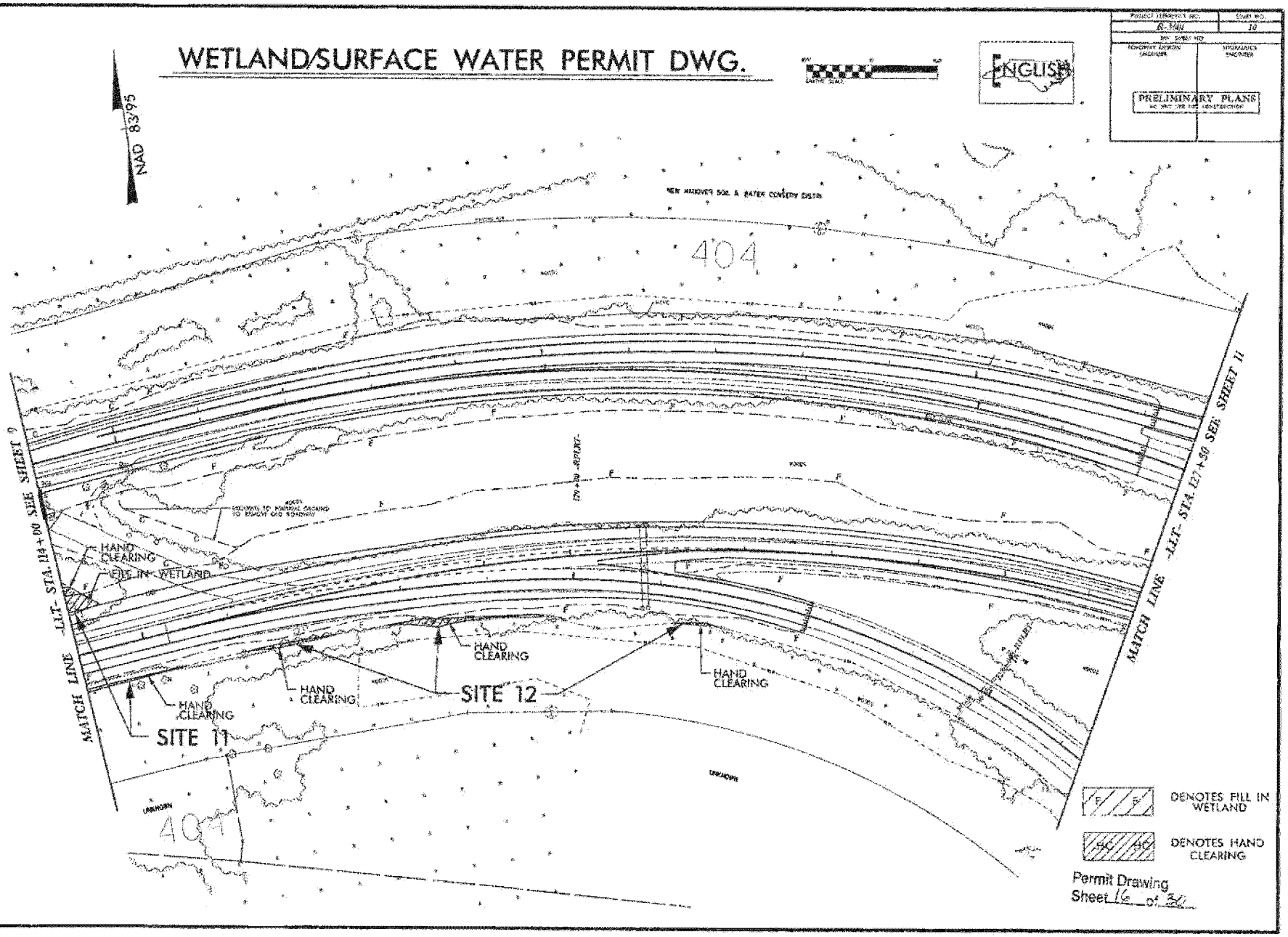
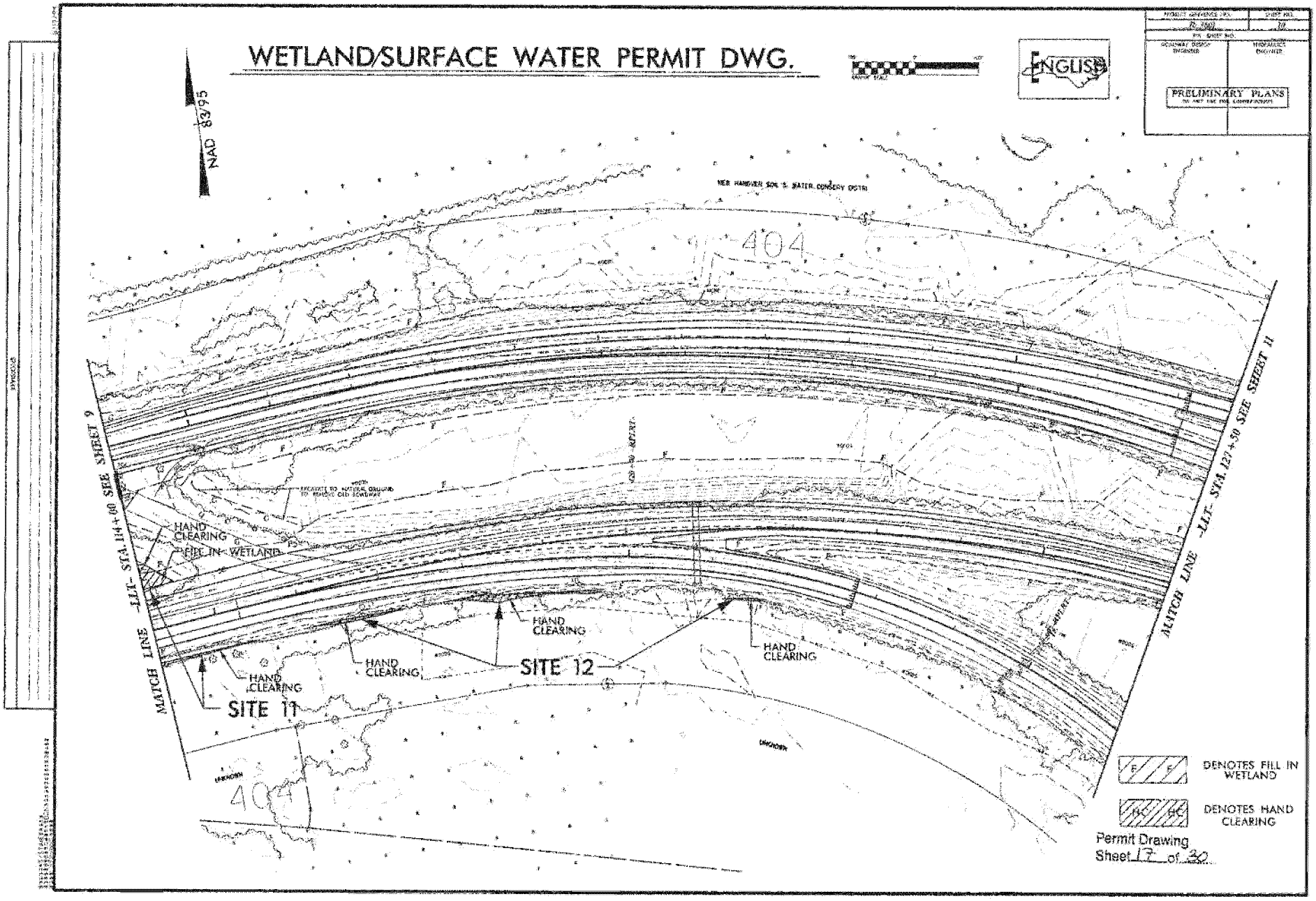
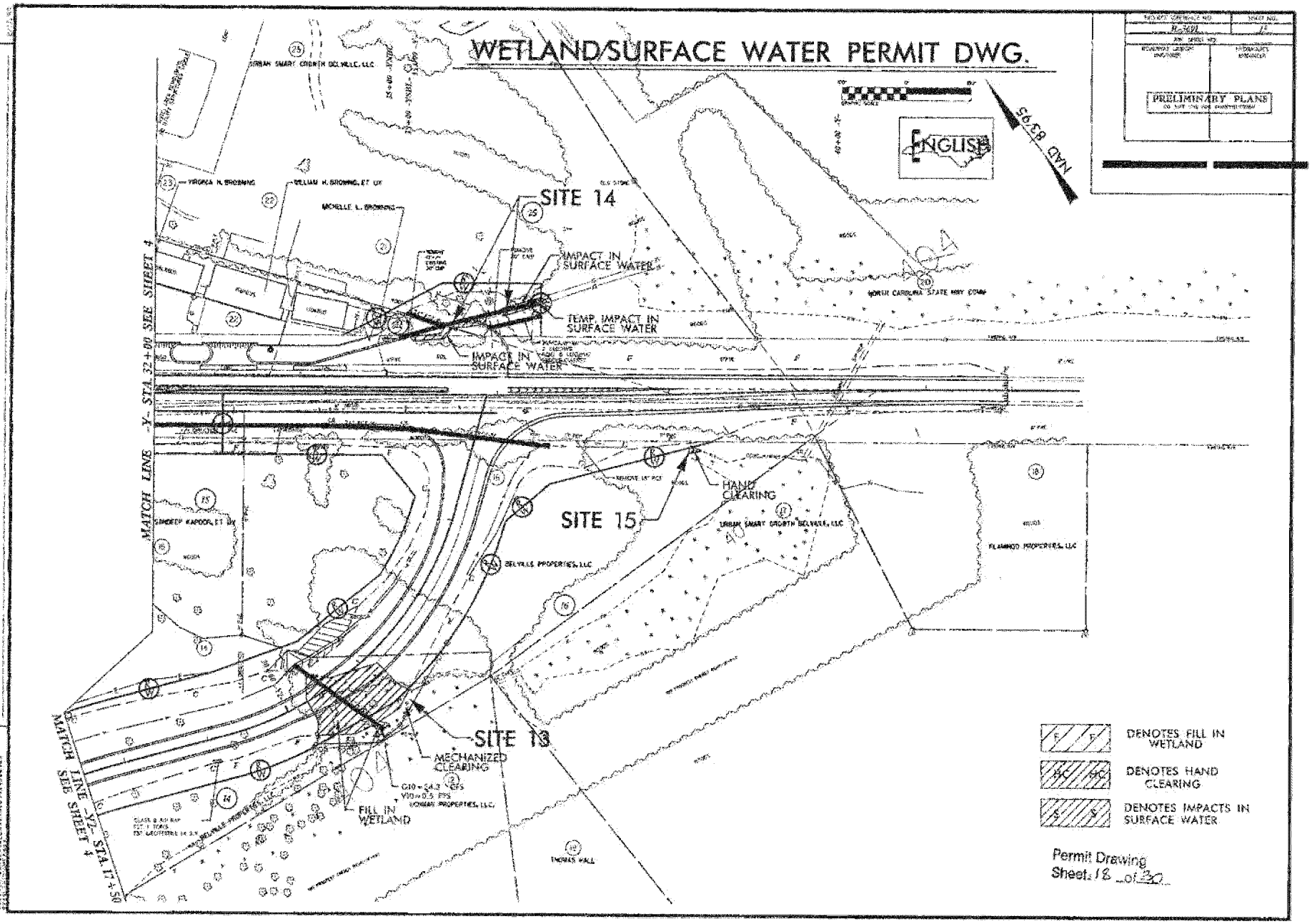


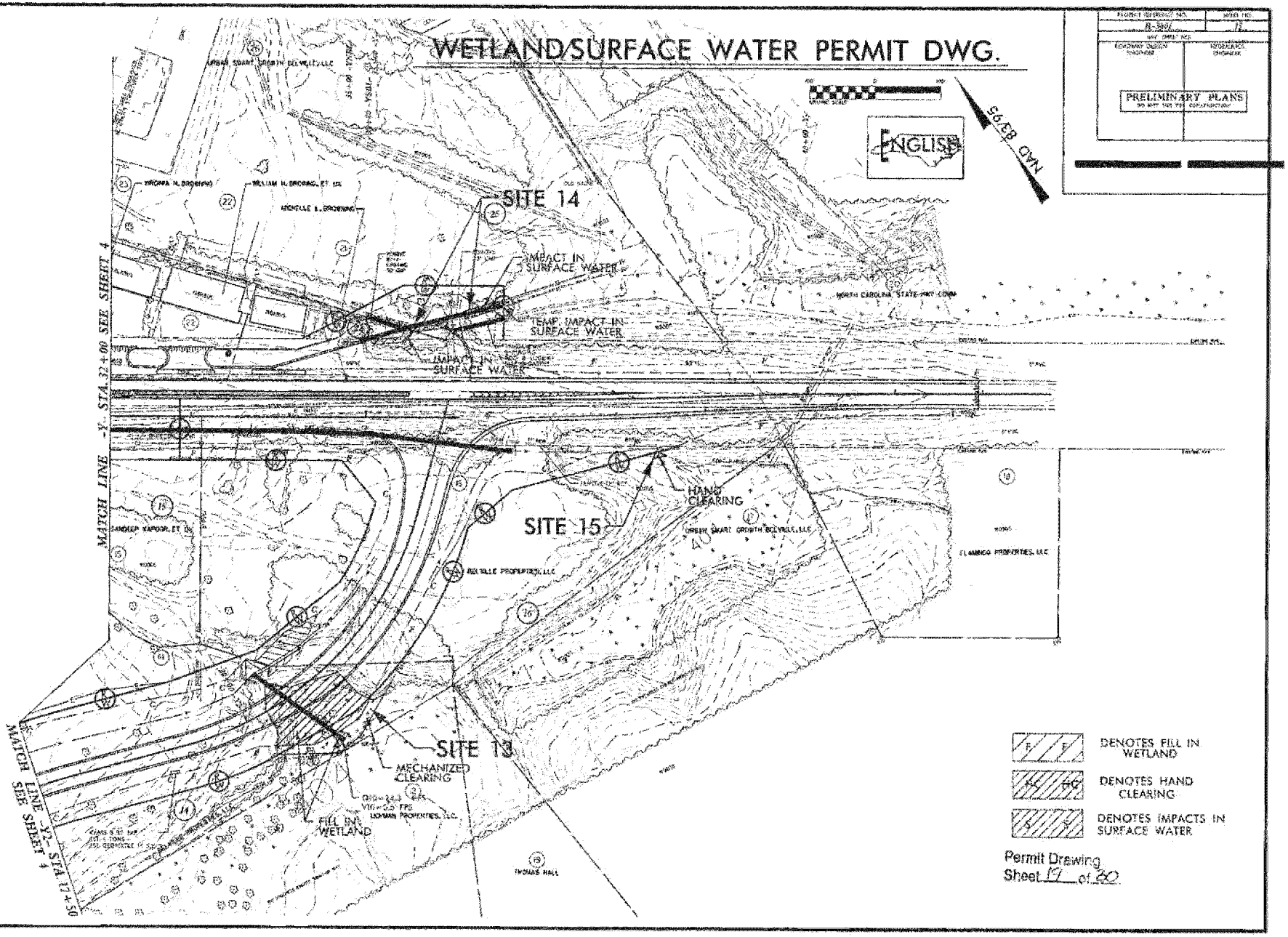
WETLAND/SURFACE WATER PERMIT DWG.

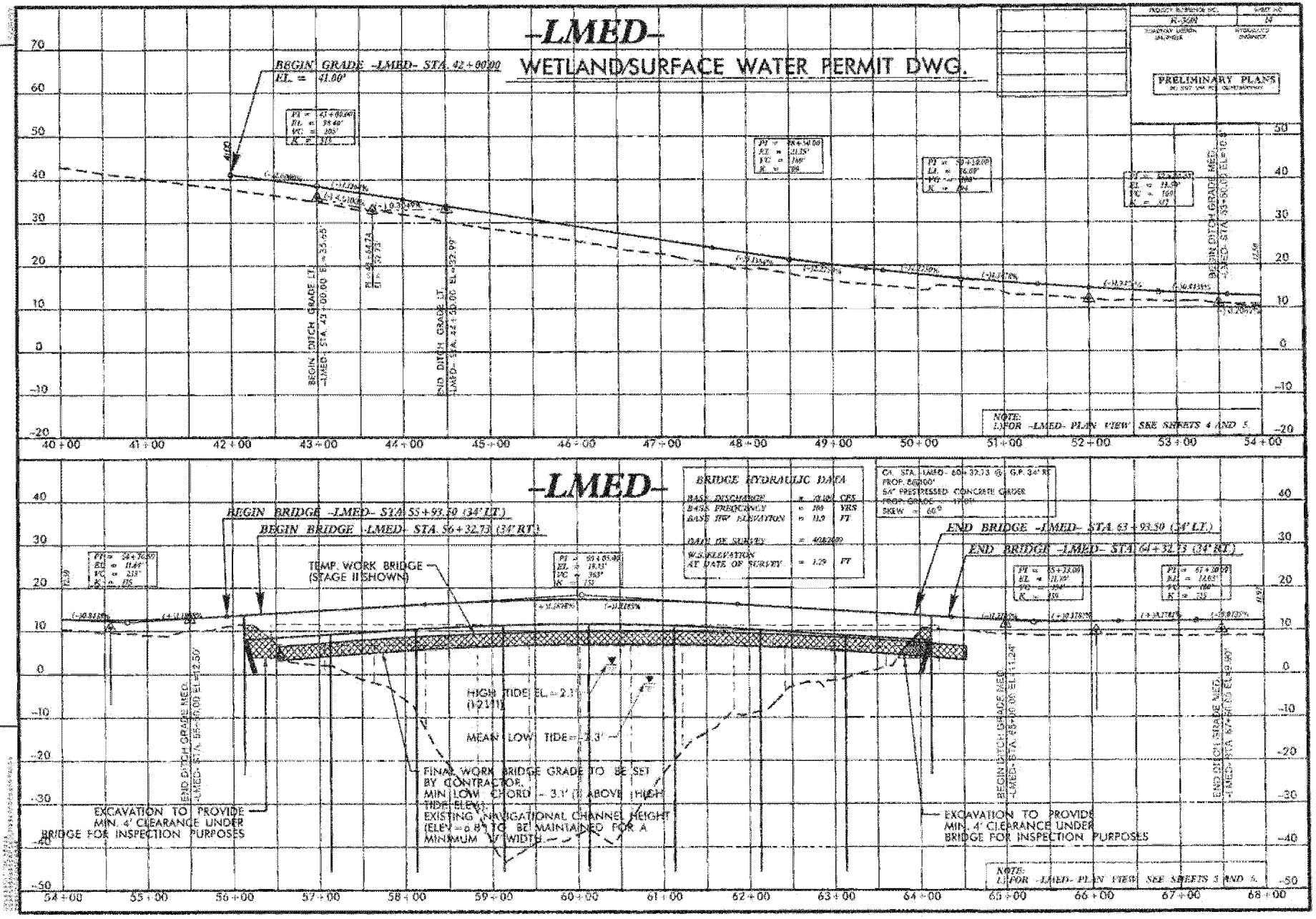


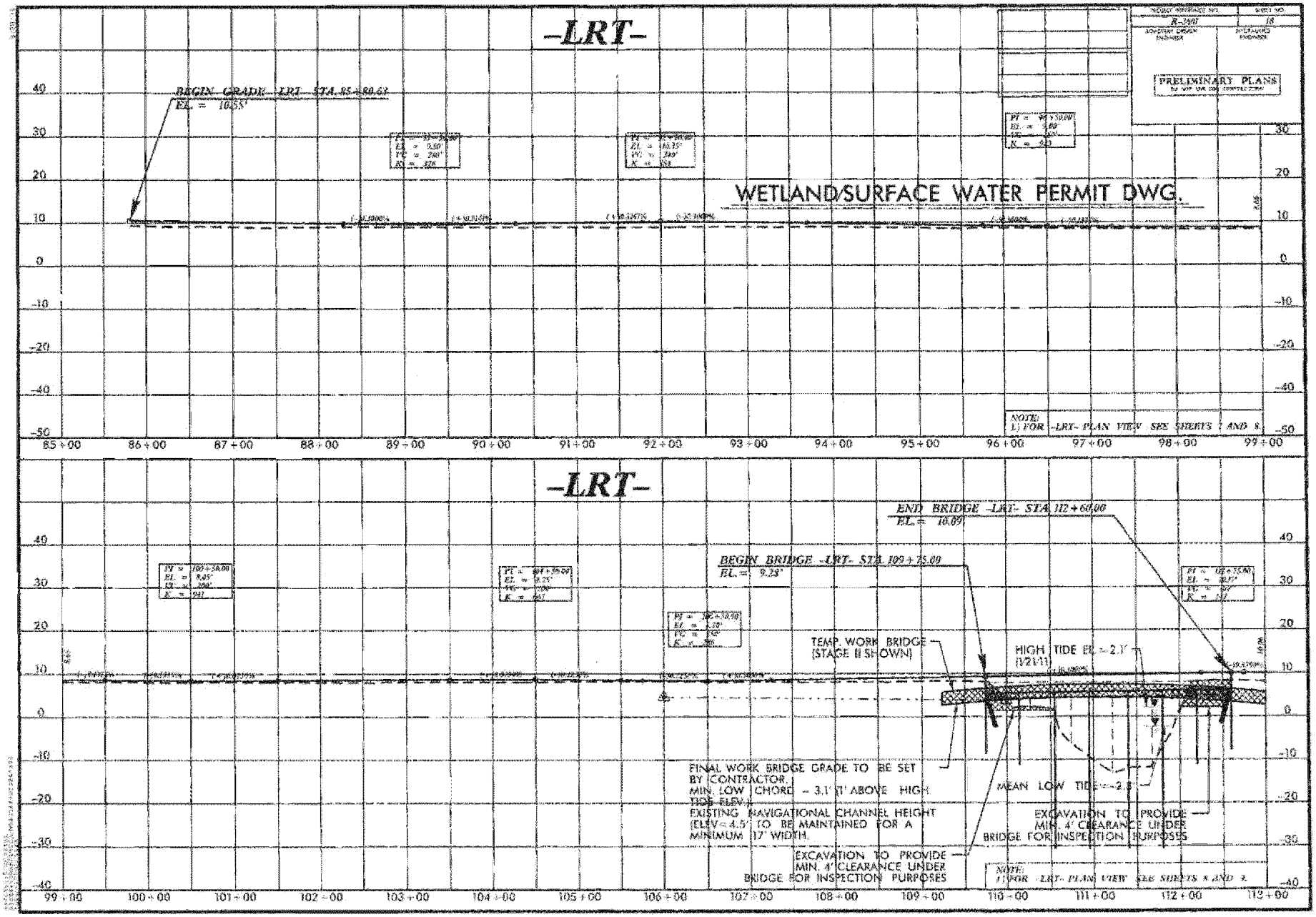

WETLAND/SURFACE WATER PERMIT DWG.
NAD 83/95
ENGLISH
PRELIMINARY PLANS
404
MATCH LINE -LLT- STA. 114+00 SEE SHEET 9
MATCH LINE -LLT- STA. 127+50 SEE SHEET 11
HAND CLEARING
FILL IN WETLAND
HAND CLEARING
HAND CLEARING
HAND CLEARING
HAND CLEARING
SITE 11
SITE 12
404
DENOTES FILL IN WETLAND
DENOTES HAND CLEARING
Permit Drawing
Sheet 17 of 30

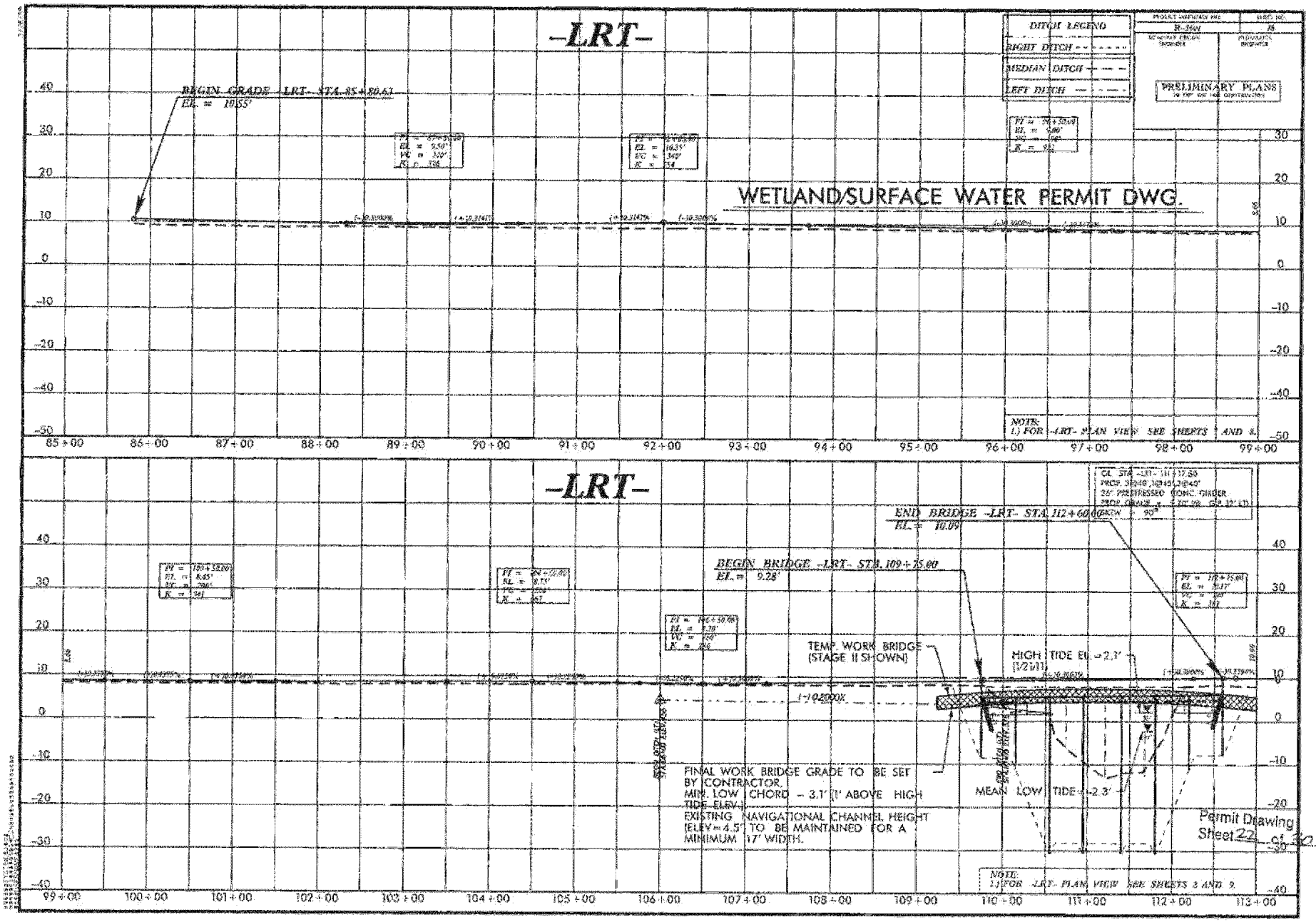

WETLAND/SURFACE WATER PERMIT DWG.
PRELIMINARY PLANS
ENGLISH
NAD 83/95
SITE 14
IMPACT IN SURFACE WATER
TEMP. IMPACT IN SURFACE WATER
IMPACT IN SURFACE WATER
SITE 15
HAND CLEARING
SITE 13
MECHANIZED CLEARING
FILL IN WETLAND
MATCH LINE -Y- STA. 32+00 SEE SHEET 4
MATCH LINE -Y2- STA. 17+50 SEE SHEET 4
DENOTES FILL IN WETLAND
DENOTES HAND CLEARING
DENOTES IMPACTS IN SURFACE WATER
Permit Drawing
Sheet 18 of 30

WETLAND/SURFACE WATER PERMIT DWG.

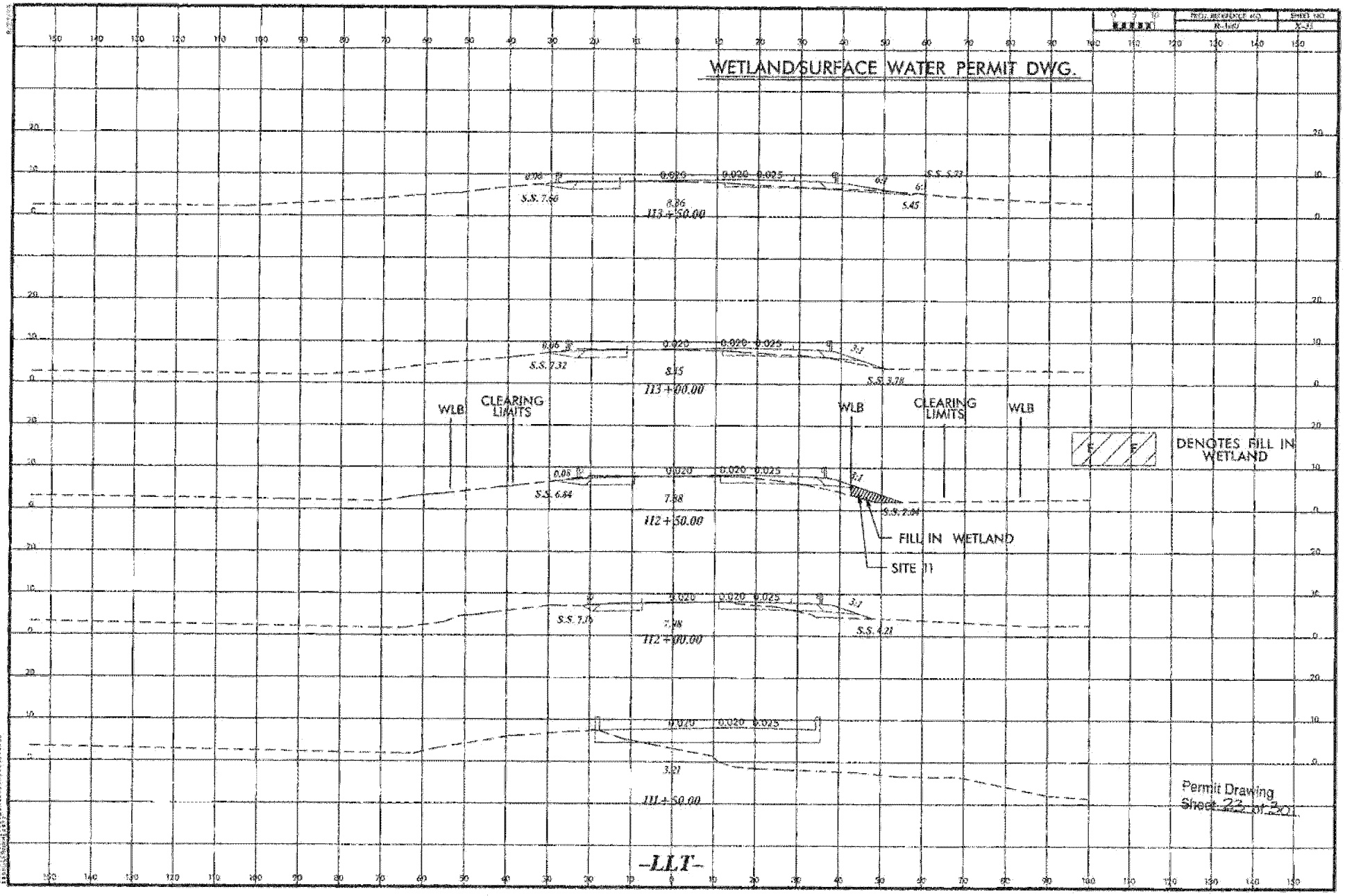


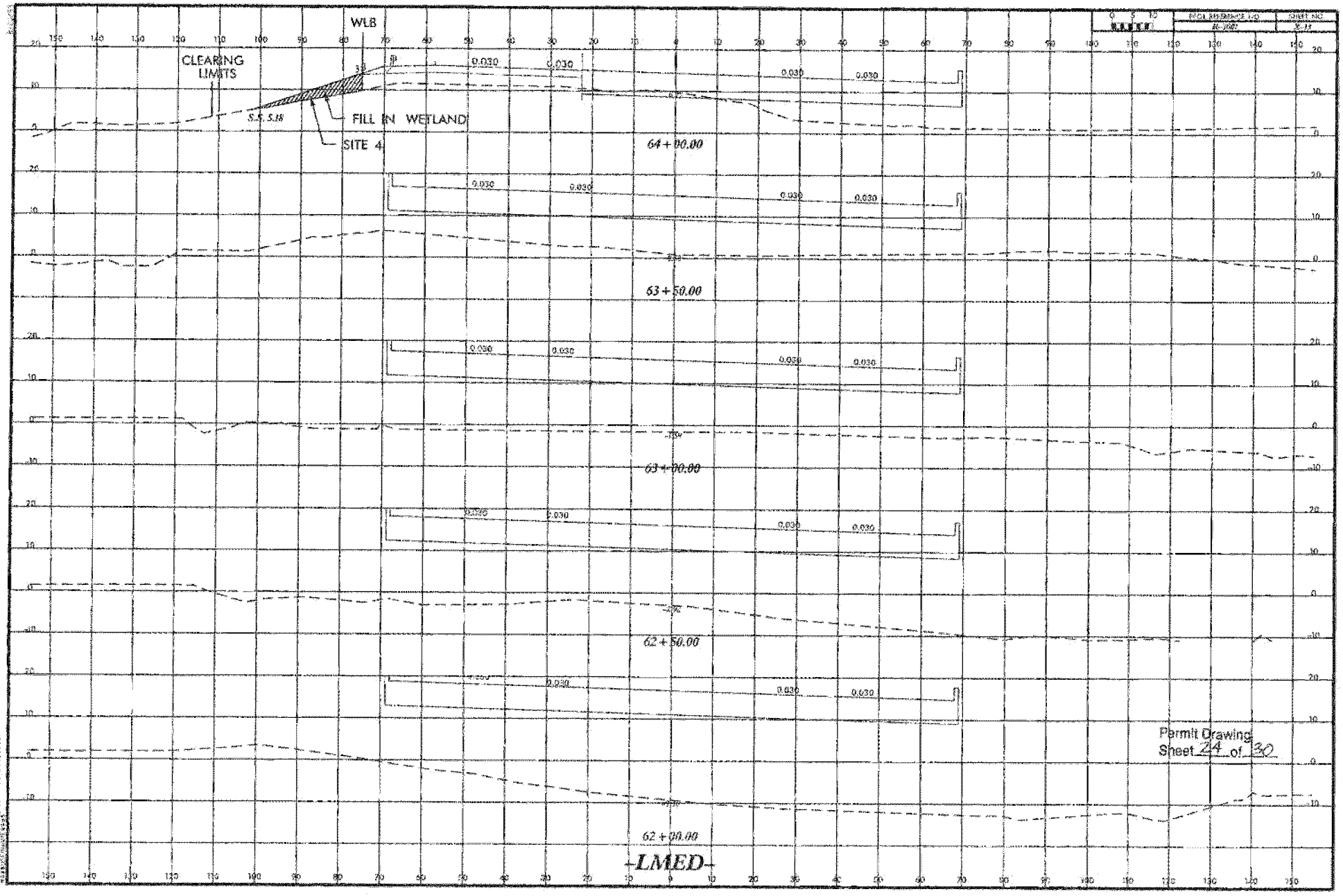

-LMED-
WETLAND/SURFACE WATER PERMIT DWG.
PRELIMINARY PLANS
BEGIN GRADE -LMED- STA. 42+00.00
EL. = 41.00'
BEGIN DITCH GRADE LT. -LMED- STA. 43+00.00 EL=35.65'
END DITCH GRADE LT. -LMED- STA. 44+50.00 EL=32.99'
BEGIN DITCH GRADE MED. -LMED- STA. 53+50.00 EL=10.8'
NOTE: 1.) FOR -LMED- PLAN VIEW SEE SHEETS 4 AND 5.
-LMED-
BRIDGE HYDRAULIC DATA
BASE DISCHARGE = 70,100 CFS
BASE FREQUENCY = 100 YRS
BASE HW ELEVATION = 11.9 FT
DATE OF SURVEY = 4/8/2000
W.S. ELEVATION AT DATE OF SURVEY = 1.29 FT
CA. STA. -LMED- 60+32.73 @ G.P. 34' RT
PROP. 86@100'
54" PRESTRESSED CONCRETE GIRDER
PROP. GRADE = 17.0%
SKEW = 60°
BEGIN BRIDGE -LMED- STA. 55+93.50 (34' LT.)
BEGIN BRIDGE -LMED- STA. 56+32.73 (34' RT.)
END BRIDGE -LMED- STA. 63+93.50 (34' LT.)
END BRIDGE -LMED- STA. 64+32.73 (34' RT.)
TEMP. WORK BRIDGE (STAGE II SHOWN)
HIGH TIDE EL. = 2.1' (1-21-11)
MEAN LOW TIDE = -3.3'
FINAL WORK BRIDGE GRADE TO BE SET BY CONTRACTOR. MIN. LOW CHORD = 3.1' (1' ABOVE HIGH TIDE ELEV.). EXISTING NAVIGATIONAL CHANNEL HEIGHT (ELEV = 6.8') TO BE MAINTAINED FOR A MINIMUM 1' WIDTH.
EXCAVATION TO PROVIDE MIN. 4' CLEARANCE UNDER BRIDGE FOR INSPECTION PURPOSES
END DITCH GRADE MED. -LMED- STA. 55+50.00 EL=12.50'
BEGIN DITCH GRADE MED. -LMED- STA. 65+00.00 EL=11.24'
END DITCH GRADE MED. -LMED- STA. 67+50.00 EL=9.90'
NOTE: 1.) FOR -LMED- PLAN VIEW SEE SHEETS 3 AND 5.

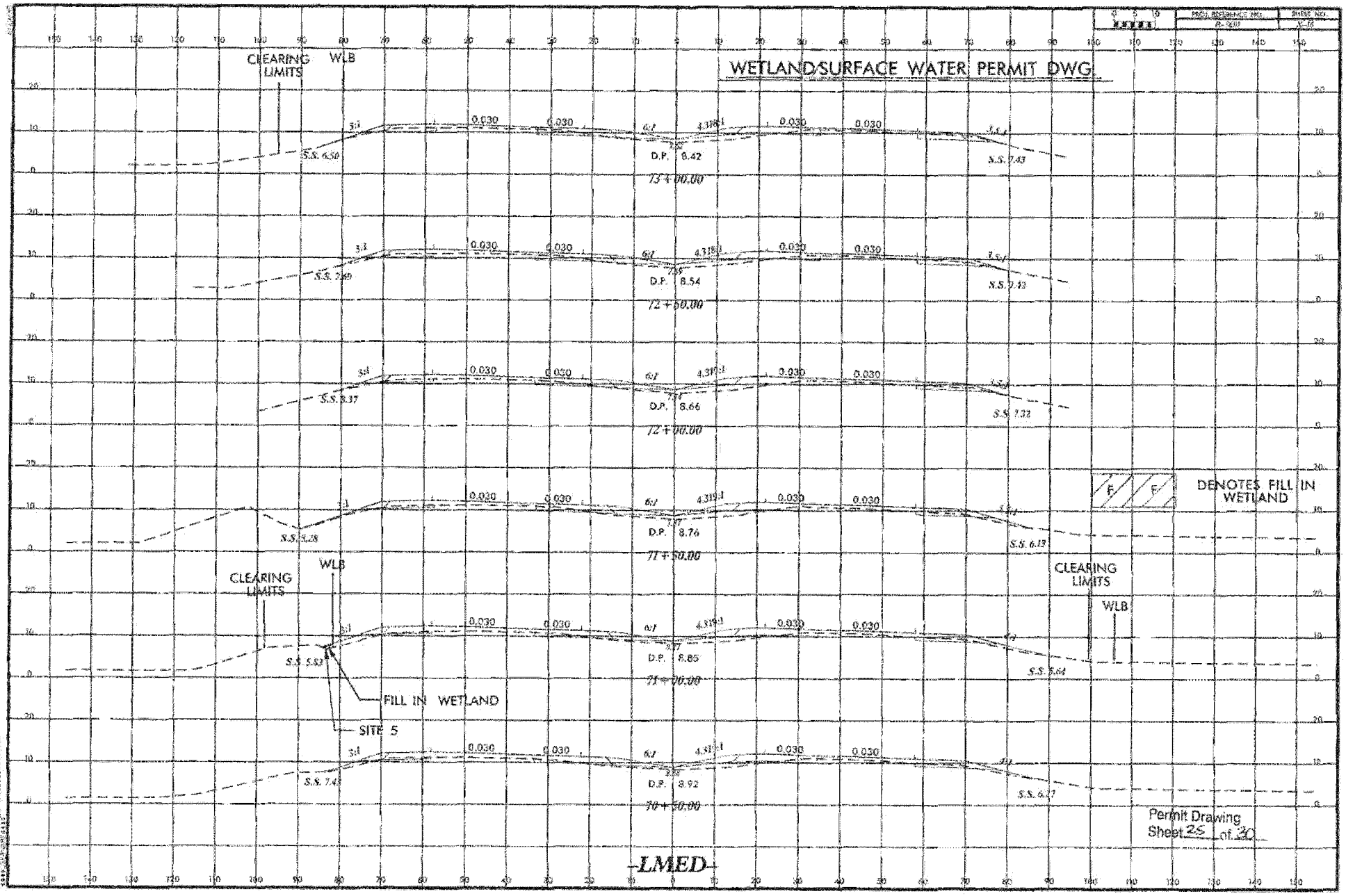

-LRT-
PRELIMINARY PLANS
BEGIN GRADE -LRT- STA. 85+80.63
EL. = 10.55'
WETLAND/SURFACE WATER PERMIT DWG.
NOTE:
1.) FOR -LRT- PLAN VIEW SEE SHEETS 7 AND 8.
85+00
86+00
87+00
88+00
89+00
90+00
91+00
92+00
93+00
94+00
95+00
96+00
97+00
98+00
99+00
-LRT-
END BRIDGE -LRT- STA. 112+60.00
EL. = 10.09'
BEGIN BRIDGE -LRT- STA. 109+75.00
EL. = 9.28'
TEMP. WORK BRIDGE
(STAGE II SHOWN)
HIGH TIDE EL. = 2.1'
(1/21/11)
MEAN LOW TIDE = -2.8'
FINAL WORK BRIDGE GRADE TO BE SET
BY CONTRACTOR.
MIN. LOW CHORD = 3.1' (1' ABOVE HIGH
TIDE ELEV.)
EXISTING NAVIGATIONAL CHANNEL HEIGHT
(ELEV = 4.5') TO BE MAINTAINED FOR A
MINIMUM 17' WIDTH.
EXCAVATION TO PROVIDE
MIN. 4' CLEARANCE UNDER
BRIDGE FOR INSPECTION PURPOSES
EXCAVATION TO PROVIDE
MIN. 4' CLEARANCE UNDER
BRIDGE FOR INSPECTION PURPOSES
NOTE:
1.) FOR -LRT- PLAN VIEW SEE SHEETS 8 AND 9.
99+00
100+00
101+00
102+00
103+00
104+00
105+00
106+00
107+00
108+00
109+00
110+00
111+00
112+00
113+00

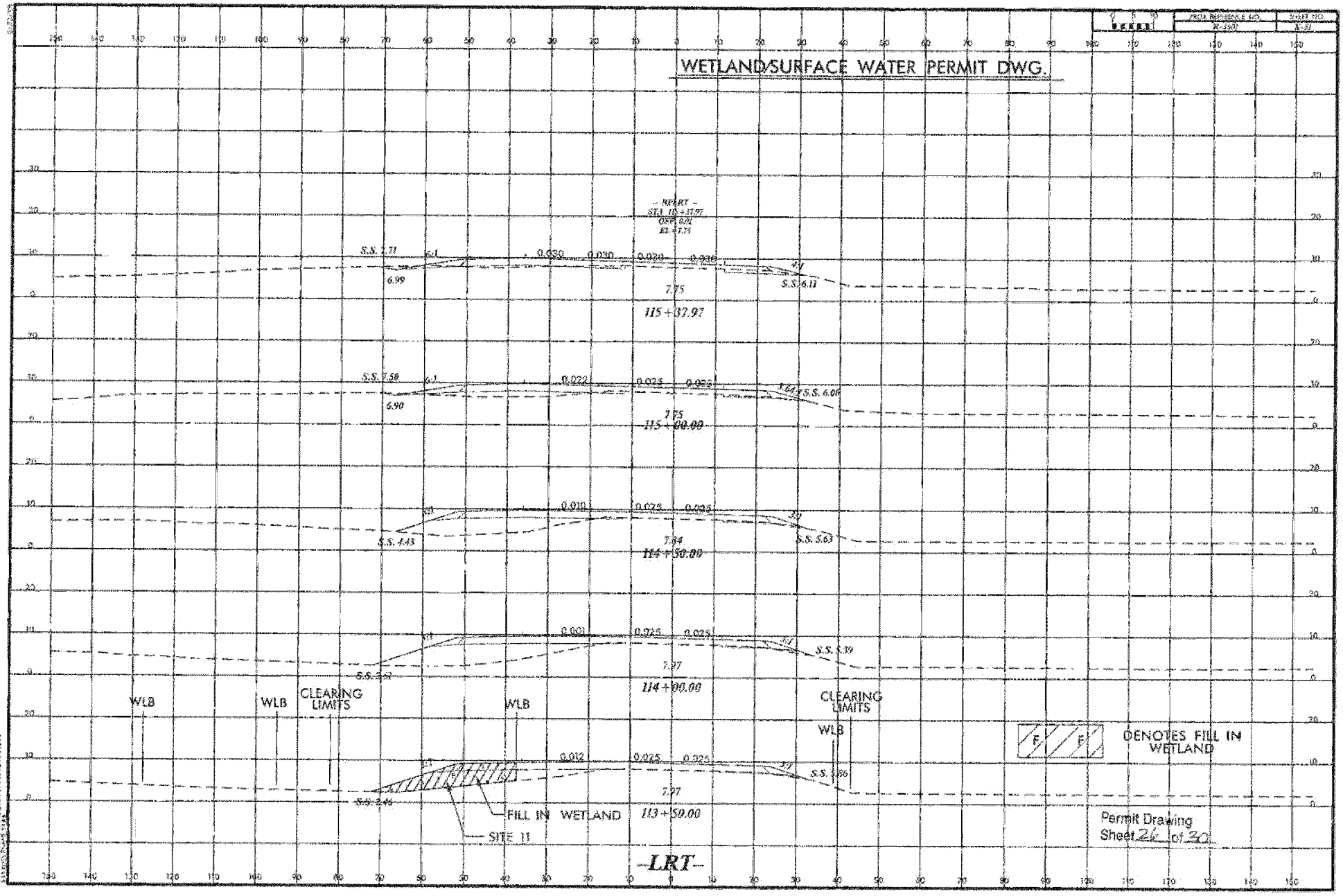


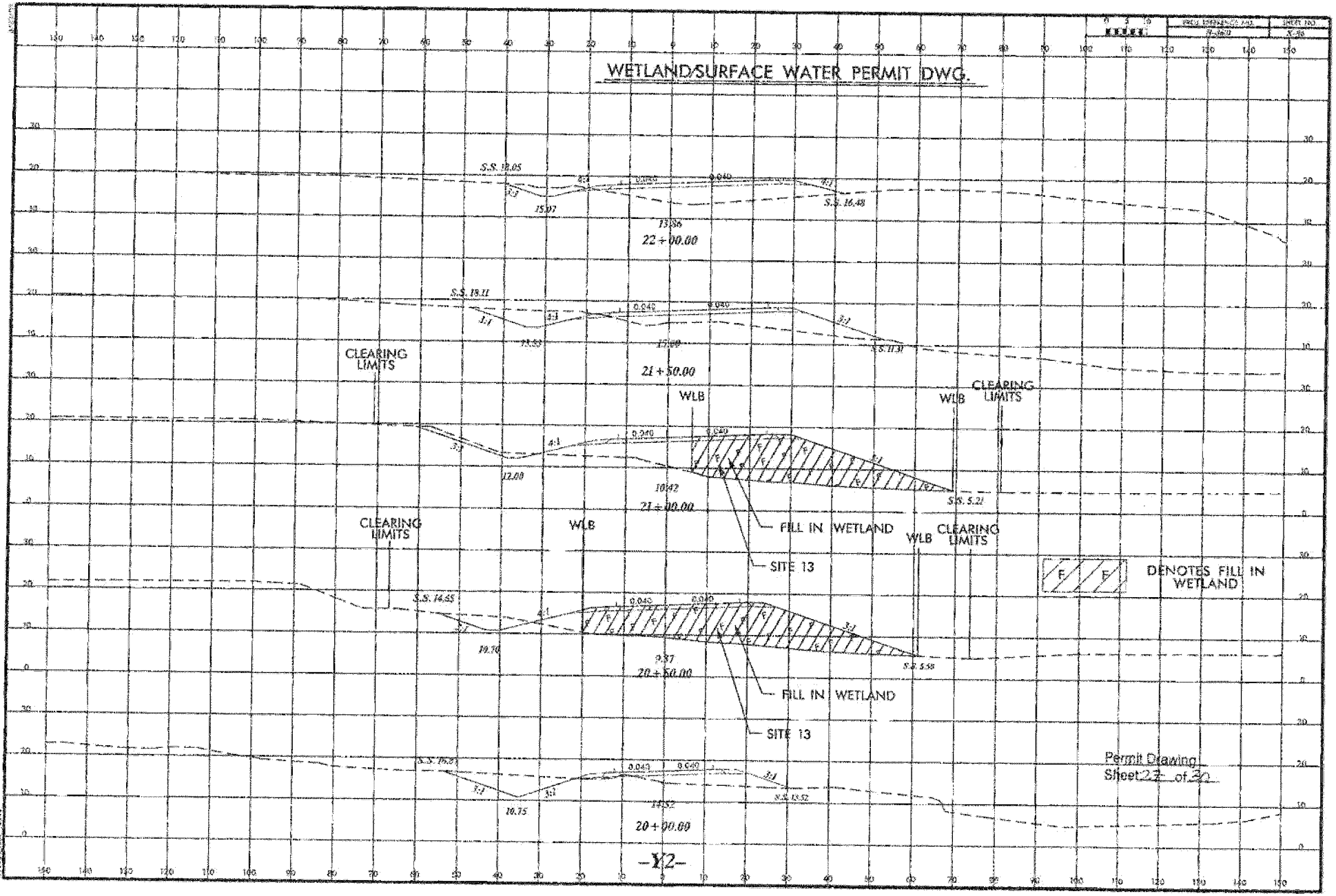
Permit Drawing
Sheet 22 of 32


WETLAND/SURFACE WATER PERMIT DWG.
113+50.00
113+00.00
112+50.00
112+00.00
111+50.00
WLB
CLEARING LIMITS
WLB
CLEARING LIMITS
WLB
DENOTES FILL IN WETLAND
FILL IN WETLAND
SITE 11
Permit Drawing
Sheet 22 of 201
-LLT-


WLB
CLEARING LIMITS
S.S.S.18
FILL IN WETLAND
SITE 4
0.030
64+00.00
63+50.00
63+00.00
62+50.00
62+00.00
-LMED-
Permit Drawing
Sheet 24 of 30


WETLAND/SURFACE WATER PERMIT DWG.
CLEARING LIMITS
WLB
S.S. 6.50
D.P. 8.42
73+00.00
S.S. 7.43
S.S. 7.49
D.P. 8.54
72+50.00
S.S. 7.43
S.S. 8.37
D.P. 8.66
72+00.00
S.S. 7.32
S.S. 5.28
D.P. 8.76
71+50.00
S.S. 6.13
DENOTES FILL IN WETLAND
CLEARING LIMITS
WLB
S.S. 5.83
D.P. 8.85
71+00.00
S.S. 5.64
FILL IN WETLAND
SITE 5
S.S. 7.4
D.P. 8.92
70+50.00
S.S. 6.27
0.030
3:1
6:1
LMED
Permit Drawing
Sheet 25 of 30


WETLAND/SURFACE WATER PERMIT DWG.
S.S. 7.71
6.1
0.030
0.030
0.030
0.030
4:1
6.99
S.S. 6.11
7.75
115+37.97
S.S. 7.50
6.1
0.022
0.025
0.025
3.64
S.S. 6.00
6.90
7.75
115+00.00
0.010
0.025
0.025
3:1
S.S. 4.43
S.S. 5.63
7.84
114+50.00
0.001
0.025
0.025
3:1
S.S. 5.39
7.97
114+00.00
WLB
WLB
CLEARING LIMITS
WLB
CLEARING LIMITS
WLB
0.012
0.025
0.025
3:1
S.S. 5.86
S.S. 2.46
7.97
113+50.00
FILL IN WETLAND
SITE 11
DENOTES FILL IN WETLAND
Permit Drawing
Sheet 26 of 30
-LRT-


WETLAND/SURFACE WATER PERMIT DWG.
S.S. 18.05
15.97
13.86
22+00.00
S.S. 16.48
S.S. 18.11
11.53
15.00
21+50.00
S.S. 11.31
CLEARING LIMITS
WLB
CLEARING LIMITS
WLB
12.00
10.42
21+00.00
S.S. 5.21
CLEARING LIMITS
WLB
FILL IN WETLAND
WLB
CLEARING LIMITS
SITE 13
DENOTES FILL IN WETLAND
S.S. 14.55
19.70
9.37
20+50.00
S.S. 5.58
FILL IN WETLAND
SITE 13
10.75
14.52
20+00.00
S.S. 13.52
Permit Drawing
Sheet 27 of 30
-Y2-

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
14	Belville Properties LLC.	6131 Oleander Dr., Wilmington, NC 28402
21	Michelle L. Browning	1121 Millstream Ct., Leland, NC 28451
25	Urban Smart Growth Belville, LLC.	P. O. Box 2109, Hollywood, CA
12	Uchman Properties LLC.	

NCDOT

DIVISION OF HIGHWAYS

BRUNSWICK AND

NEW HANOVER COUNTIES

PROJECT: 38868.1.1 (R-3601)

US 17-74-76 FROM NC 133/SR 1472

INTERCHANGE TO THE

US 421/NC 133 INTERCHANGE

SHEET 28 OF 30 04/04/12

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: CAMA Permanent Fill In Wetlands (ac)	404 Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	-Y2- STA 13+05	48" RCP							0.01	<0.01	47	5	
2	-LMED- STA 50+77	18" RCP						<0.01					
3	-LMED- STA 54+56	24" RCP		<0.01		<0.01**		0.02					
	-LMED- STA 55+07	FLOWABLE FILL											
4	-LMED- STA 63+40 TO	BRIDGE	0.04	0.01				0.03					
	-LMED- STA 64+46												
4	-LMED- STA 66+05	24" RCP		<0.01		<0.01**		0.02					
5	-LMED- STA 69+14 TO	ROADWAY/36" RCP		0.04	<0.01			0.19					
	-LMED- STA 74+26	36" CMP FLOWABLE FILL											
5	-LMED- STA 75+10	PIPE CLEANOUT			0.01*	0.01*							
6	-LMED- STA 83+10	PIPE CLEANOUT			0.01*	0.01*							
7	-LRT- STA 85+80 TO	ROADWAY						0.01					
	-LRT- STA 86+75												
***SUBTOTALS THIS SHEET:			0.04	0.05	0.02	0.02	0.00	0.27	0.01	<0.01	47	5	0

NOTES:

(See Notes on Sheet 2)

N.C.D.O.T.
DIVISION OF HIGHWAYS
BRUNSWICK AND NEW HANOVER COUNTY
PROJECT: 38868.1.1 (R-3601)
US 17-74-76 FROM NC 133/SR 1472
INTERCHANGE TO THE
US 421/NC 133 INTERCHANGE
SHEET OF (01/06/2012)

ATN Revised 3/31/05

Permit Drawing
Sheet 29 of 30

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: CAMA Permanent Fill In Wetlands (ac)	404 Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
8	-LLT- STA 91+99	18" RCP						<0.01					
8	-LLT- STA 94+10	PIPE CLEANOUT			<0.01*	<0.01*							
9	-LLT- STA 98+95 TO -LLT- STA 99+99	15" CAAP & 30" RCP		<0.01				0.02					
10	-LRT- STA 101+08	FLOWABLE FILL						<0.01					
11	-LLT- STA 111+77 TO -LLT- STA 113+16	BRIDGE/ROADWAY		0.02				0.03					
11	-LRT- STA 112+39 TO -LRT- STA 115+42	BRIDGE/ROADWAY		0.14				0.08					
12	-RPLRT- STA 116+15 TO -RPLRT- STA 121+70	ROADWAY						0.02					
13	-Y2- STA 20+65	ROADWAY/36" CAAP		0.16			0.04						
14	-Y- STA 34+96 TO -Y- STA 36+45	ROADWAY/STORM DRAIN							0.02	<0.01	135		
15	-Y- STA 38+27	ROADWAY						<0.01					
***TOTAL THIS SHEET:				0.33	<0.01	<0.01	0.04	0.16	0.02	<0.01	135	6	
***SUBTOTALS SHEET 1:			0.04	0.05	0.02	0.02	0.00	0.27	0.01	<0.01	47	5	
***TOTALS:			0.04	0.38	0.02	0.02	0.04	0.43	0.04	<0.01	182	11	0

NOTES:

* Temporary Fill and Temp. Excavation due to pipe cleanout. Temp. mats will be used for equipment to excavate a hole to capture cleaned out silt and then remove silt after flushout. Natural ground will be restored after flushout.

** Temporary Excavation for pipe installation. Natural ground will be restored after installation.

*** Totals may not match sum of individual impacts due to rounding.

Permanent impacts due to bents in water or wetlands: 0.03 acres.

Temporary impacts due to temporary work bridge bents in water or wetlands: 0.13 acres.

0.04 acres of Temporary Fill in Wetlands in the Hand Clearing areas for erosions control measures.

<0.01 acres (approx. 165ft^2) of Temporary Fill in CAMA wetlands in the Hand Clearing areas for erosions control measures.

N.C.D.O.T.
DIVISION OF HIGHWAYS
BRUNSWICK AND NEW HANOVER COUNTY
PROJECT: 38868.1.1 (R-3601)
US 17-74-76 FROM NC 133/SR 1472
INTERCHANGE TO THE
US 421/NC 133 INTERCHANGE
SHEET OF (01/08/2012)

Permit Drawing
Sheet 30 of 30

T.I.P. NO.	SHEET NO.
R-3601	1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

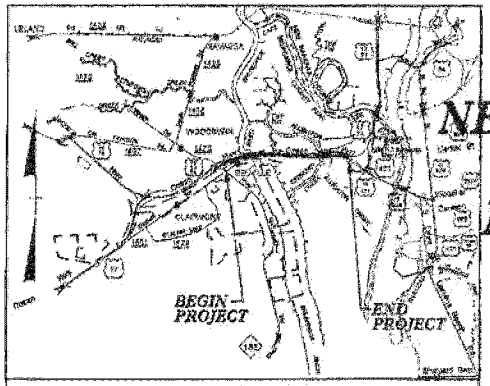
NEU UTILITY DRAWING PLANS
BRUNSWICK AND NEW HANOVER COUNTIES

NAD 83/95

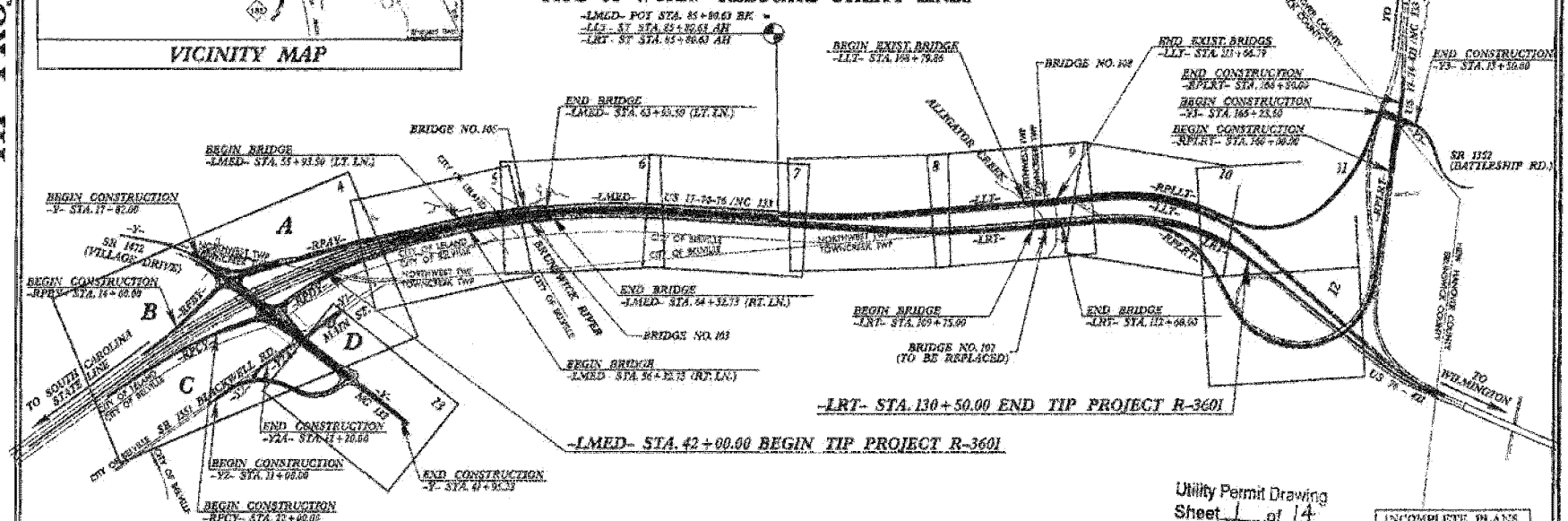
LOCATION: US 17-74-76 FROM NC 133 / SR 1472 INTERCHANGE TO THE US 421 /NC 133 INTERCHANGE

TYPE OF WORK: RELOCATE UTILITY LINES

TIP PROJECT:



VICINITY MAP



A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF LELAND AND BELVILLE.

Utility Permit Drawing
Sheet 1 of 14

INCOMPLETE PLANS
PRELIMINARY PLANS

GRAPHIC SCALES

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

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2 THUR 3A	PROFILE SHEETS
4 THRU 12	UTILITY DRAWING SHEETS

UTILITIES OWNER

1- AT&T
2- TIME WARNER CABLE (TWC)
3- EARTHLINK
4- MCNC
5- PROGRESS ENERGY (DISTRIBUTION)
6- ATMC
7- BRUNSWICK REGIONAL H2GO WATER AND SEWER

SEAL

PREPARED IN THE OFFICE OF:
DIVISION OF HIGHWAYS
UTILITIES UNIT
UTILITIES ENGINEERING

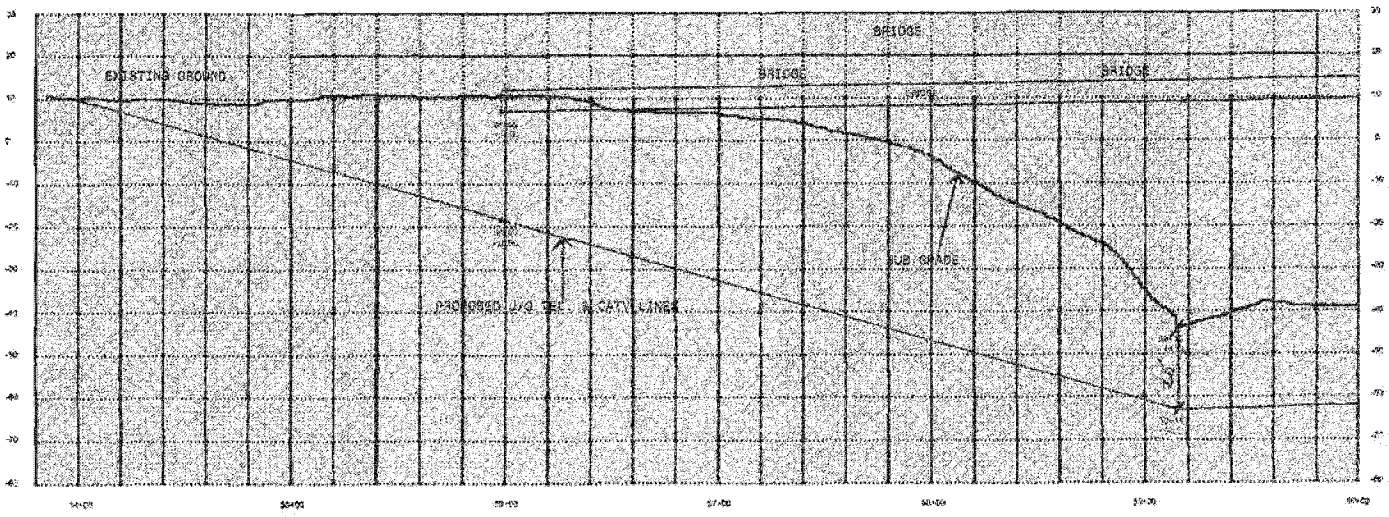
Hugo Woodington, P.E.	UTILITIES SECTION ENGINEER
Corey Hoagan, P.E.	UTILITIES SQUAD LEADER PROJECT ENGINEER
Hugh Howell	UTILITIES PROJECT DESIGNER

PROJECT REFERENCE NO.	SHEET NO.
R-3601	2
R/W SHEET NO.	
HIGHWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
PRELIMINARY PLANS

PROPOSED U/G TEL. LINE PROFILE

PRELIMINARY
BORE DETAIL - PROFILE VIEW



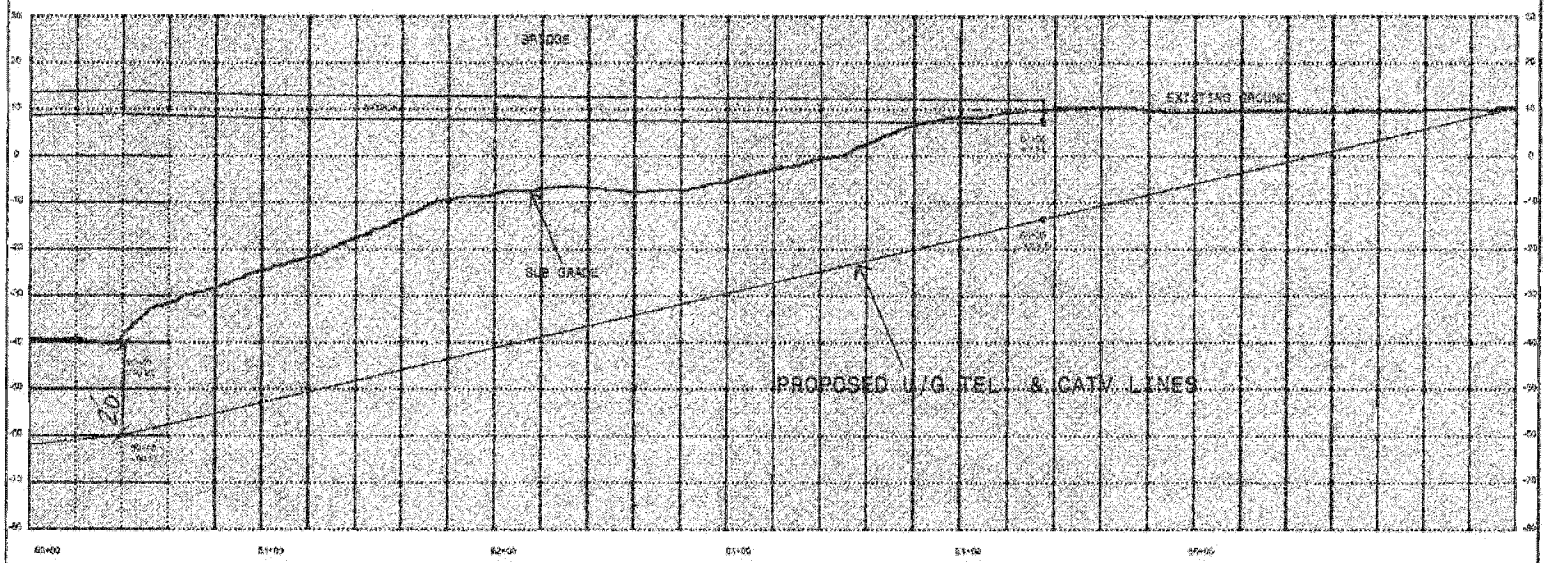
Utility Permit Drawing
Sheet 2 of 14

PROJECT REFERENCE NO.	SHEET NO.
5-3601	2A
S.R. SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
PRELIMINARY PLANS

PROPOSED U/G TEL. LINE PROFILE

PRELIMINARY
BORE DETAIL - PROFILE VIEW



Utility Permit Drawing
Sheet 3 of 14

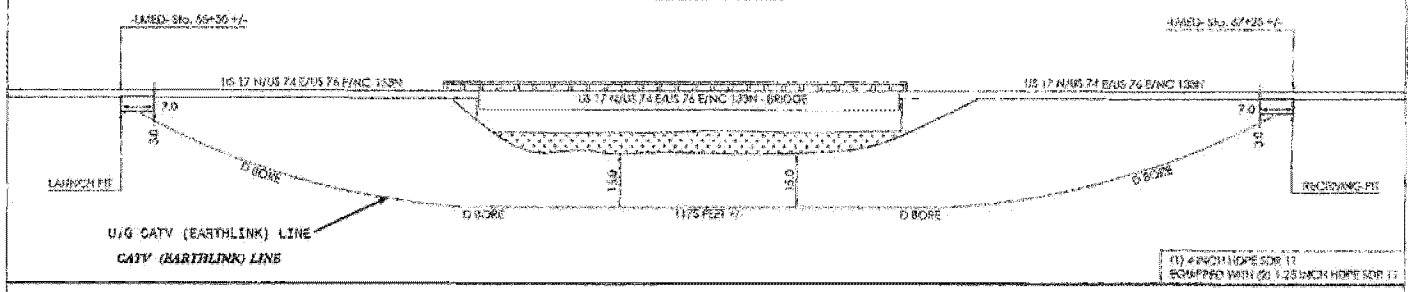
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-5601	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

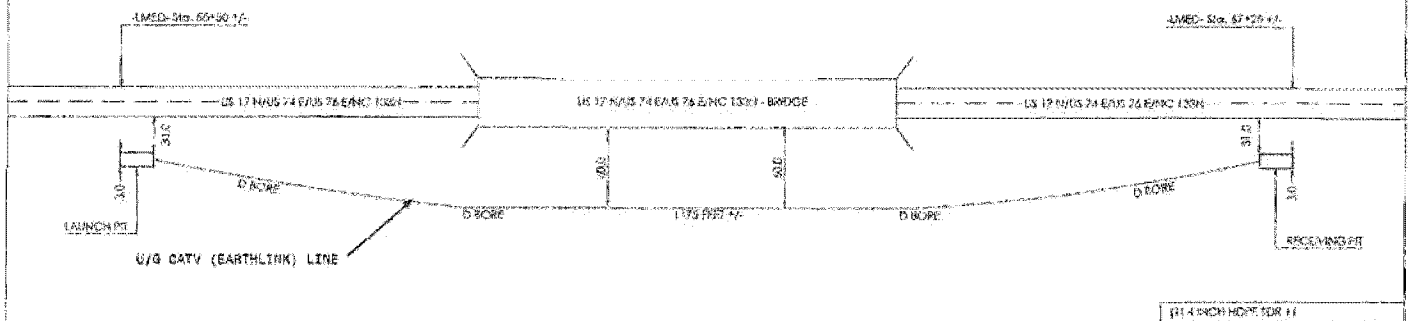
INCOMPLETE PLANS
PRELIMINARY PLANS

BRUNSWICK RIVER CROSSING
HORIZONTAL DIRECTIONAL DRILL

PROFILE VIEW



AERIAL VIEW



DIGITIZED PLAN DRAFTED BY:

TEMPLAR INC.

PAGE NOTES:

BETTI
3255 BURNT MILL DR
SUITE C
WILMINGTON, NC 28403

BELVILLE, NC

SCALE: NTS

TEMPLAR INC PROJECT NUMBER: T-122

WBS PROJECT NUMBER: R-5601

ALL THE INFORMATION ON THESE PLANS ARE PROPRIETARY AND SHALL NOT BE REPRODUCED OR DISCLOSED WITHOUT WRITTEN CONSENT.

DIAGNS.: D1.1

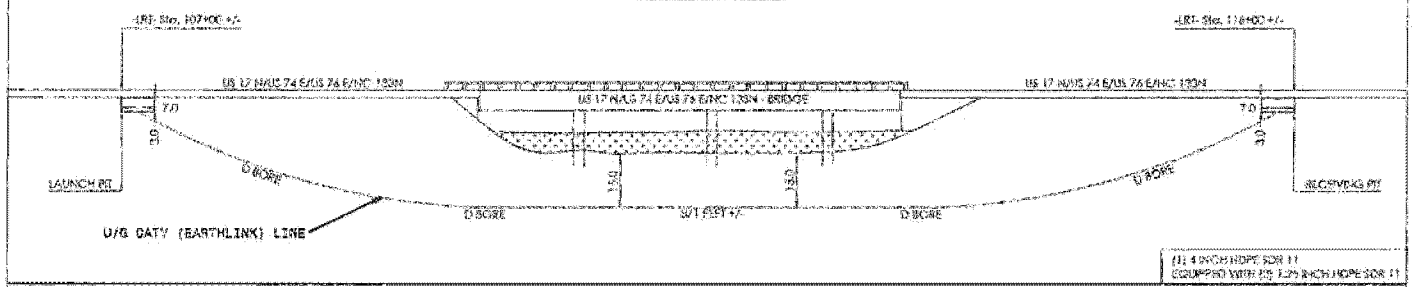
Utility Permit Drawing
Sheet 4 of 14

PROJECT REFERENCE NO.	SHEET NO.
R-3601	3A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

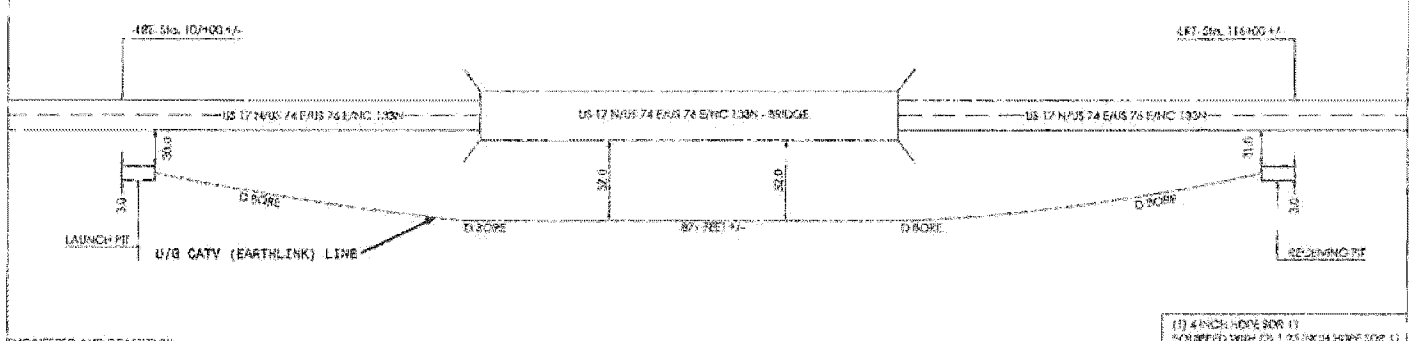
INCOMPLETE PLANS
PRELIMINARY PLANS

ALLIGATOR CREEK CROSSING
HORIZONTAL DIRECTIONAL DRILL

PROFILE VIEW



AERIAL VIEW



ENGINEERED AND DRAFTED BY:

TEMPLAR INC.

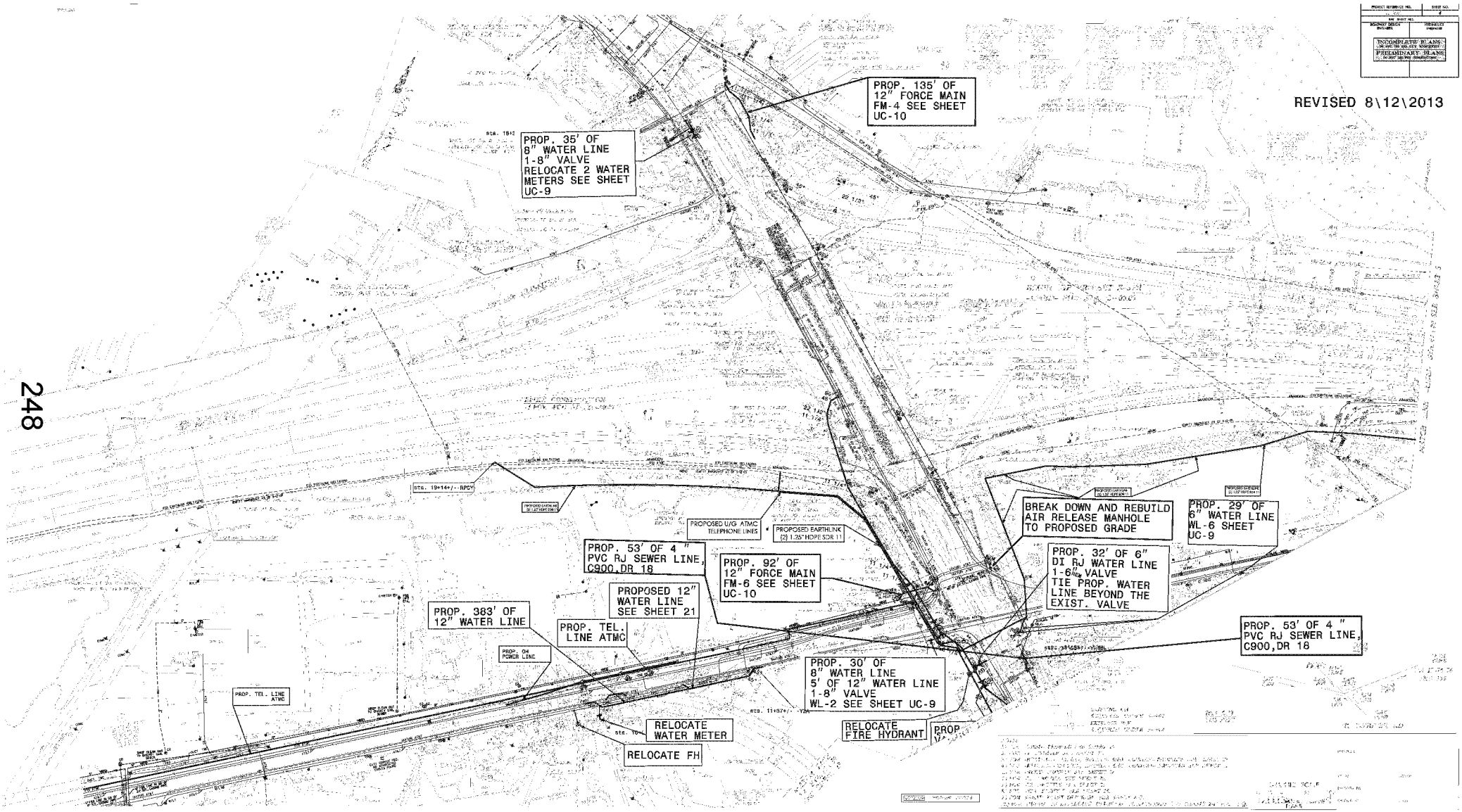
PAGE NOTES:

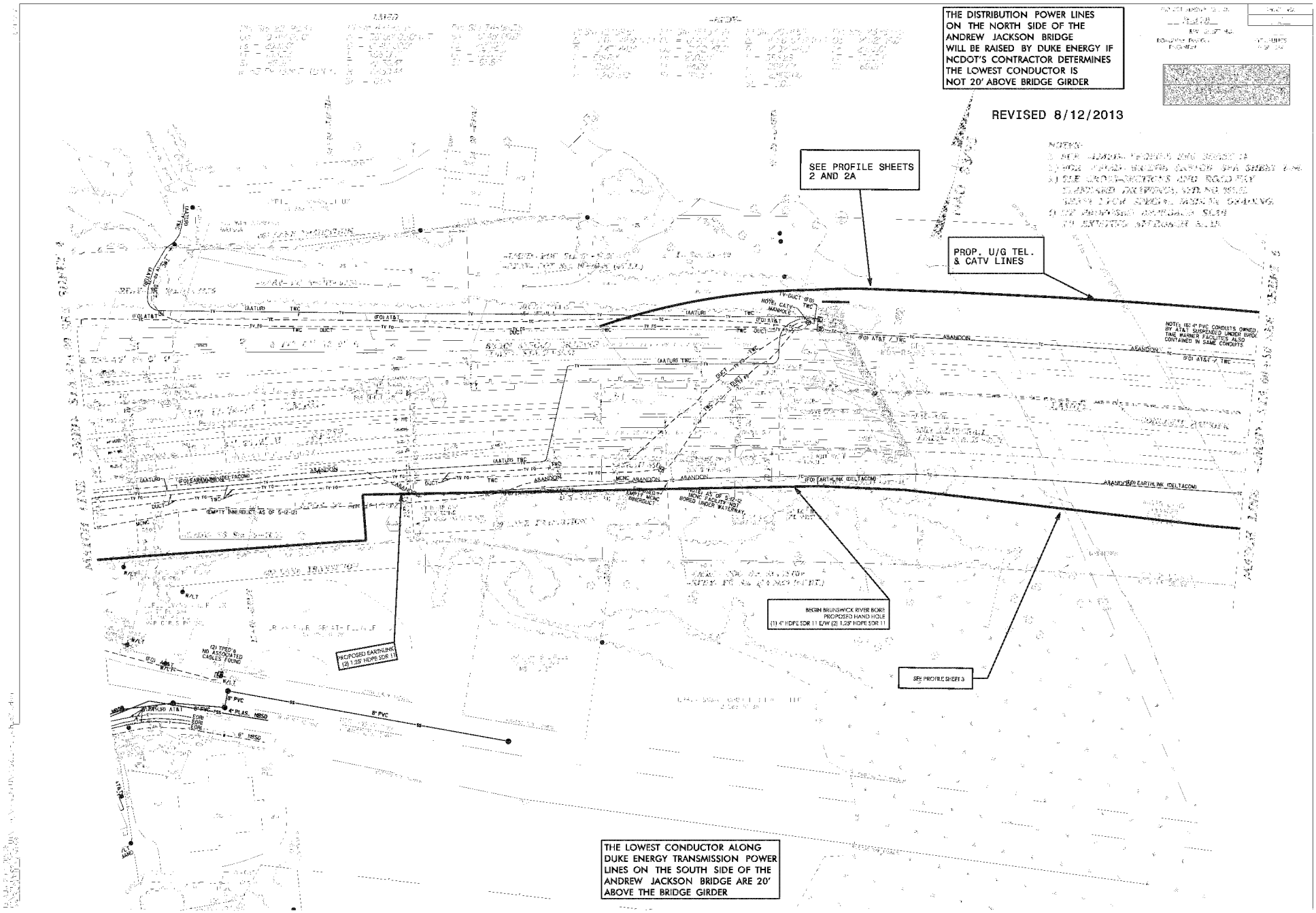
BTI
3255 BURNT MILL DR.
SUITE C
WILMINGTON, NC 28403

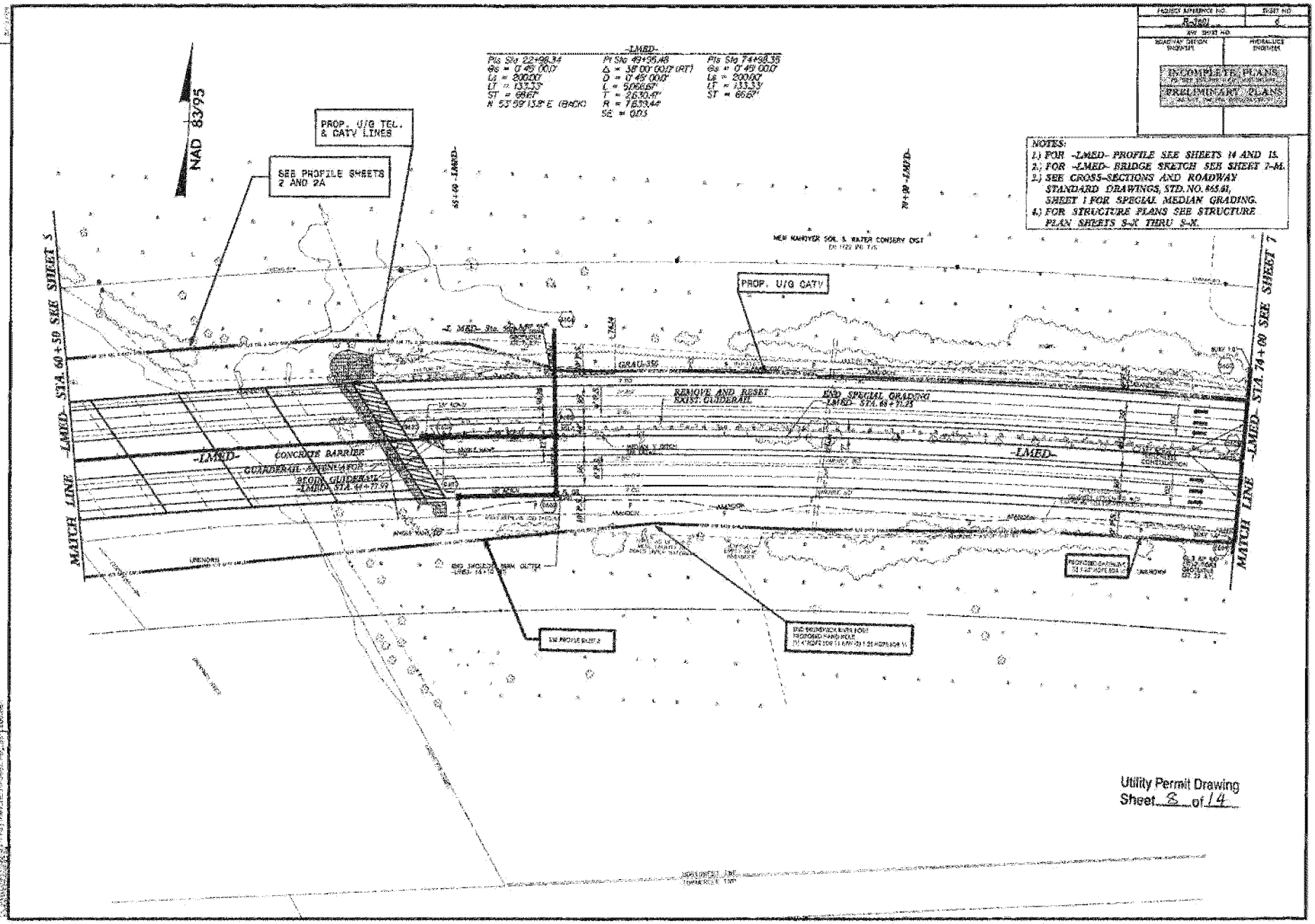
BELVILLE, NC	TEMPLAR, INC PROJECT NUMBER	ALL THE INFORMATION ON THESE PLANS ARE PROPRIETARY AND SHALL NOT BE REPRODUCED OR DISCLOSED WITHOUT WRITTEN CONSENT.	DWG NO.
SCALE	B-122		
NTS	STIPREJECT NUMBER		
	R-3601		

Utility Permit Drawing
Sheet 5 of 14

REVISIONS


PROP. 135' OF
12" FORCE MAIN
FM-4 SEE SHEET
UC-10
REVISED 8\12\2013
PROP. 35' OF
8" WATER LINE
1-8" VALVE
RELOCATE 2 WATER
METERS SEE SHEET
UC-9
sta. 19+14+/- RPCV
PROPOSED U/G ATMC
TELEPHONE LINES
PROPOSED EARTHLINK
(2) 1.25" HDPE SDR 11
BREAK DOWN AND REBUILD
AIR RELEASE MANHOLE
TO PROPOSED GRADE
PROP. 29' OF
6" WATER LINE
WL-6 SHEET
UC-9
PROP. 53' OF 4 "
PVC RJ SEWER LINE,
C900,DR 18
PROP. 92' OF
12" FORCE MAIN
FM-6 SEE SHEET
UC-10
PROP. 32' OF 6"
DI RJ WATER LINE
1-6" VALVE
TIE PROP. WATER
LINE BEYOND THE
EXIST. VALVE
PROPOSED 12"
WATER LINE
SEE SHEET 21
PROP. 383' OF
12" WATER LINE
PROP. TEL.
LINE ATMC
PROP. OH
POWER LINE
PROP. 53' OF 4 "
PVC RJ SEWER LINE,
C900,DR 18
PROP. 30' OF
8" WATER LINE
5' OF 12" WATER LINE
1-8" VALVE
WL-2 SEE SHEET UC-9
PROP. TEL. LINE
ATMC
RELOCATE
WATER METER
RELOCATE FH
RELOCATE
FIRE HYDRANT
PROP.


THE DISTRIBUTION POWER LINES ON THE NORTH SIDE OF THE ANDREW JACKSON BRIDGE WILL BE RAISED BY DUKE ENERGY IF NCDOT'S CONTRACTOR DETERMINES THE LOWEST CONDUCTOR IS NOT 20' ABOVE BRIDGE GIRDER
REVISED 8/12/2013
SEE PROFILE SHEETS 2 AND 2A
PROP. U/G TEL. & CATV LINES
BEGIN BRUNSWICK RIVER BORE PROPOSED HAND HOLE (1) 4" HDPE SDR 11 E/W (2) 1.25" HDPE SDR 11
SEE PROFILE SHEET 3
PROPOSED EARTHLINK (2) 1.25" HDPE SDR 11
THE LOWEST CONDUCTOR ALONG DUKE ENERGY TRANSMISSION POWER LINES ON THE SOUTH SIDE OF THE ANDREW JACKSON BRIDGE ARE 20' ABOVE THE BRIDGE GIRDER



NAD 83/95
PROP. U/G TEL. & CATV LINES
SEE PROFILE SHEETS 2 AND 2A
-LMED-
Pls Sta 22+98.34
Gs = 0°45'00.0"
Ls = 200.00'
LT = 133.33'
ST = 66.67'
N 53°59'13.8" E (BACK)
Pt Sta 49+95.48
Δ = 38°00'00.0" (RT)
D = 0°45'00.0"
L = 5,066.67'
T = 2,630.47'
R = 7,639.44'
SE = 0.03
Pls Sta 74+98.35
Gs = 0°45'00.0"
Ls = 200.00'
LT = 133.33'
ST = 66.67'
NOTES:
1.) FOR -LMED- PROFILE SEE SHEETS 14 AND 15.
2.) FOR -LMED- BRIDGE SKETCH SEE SHEET 7-M.
3.) SEE CROSS-SECTIONS AND ROADWAY STANDARD DRAWINGS, STD. NO. 865.01, SHEET 1 FOR SPECIAL MEDIAN GRADING.
4.) FOR STRUCTURE PLANS SEE STRUCTURE PLAN SHEETS S-X THRU S-X.
INCOMPLETE PLANS
PRELIMINARY PLANS
PROP. U/G CATV
NEW HANOVER SOIL & WATER CONSERV DIST
REMOVE AND RESET EXIST. GUIDERAIL
END SPECIAL GRADING -LMED- STA. 68+71.25
CONCRETE BARRIER
GUARDERAIL ATTENUATOR
BEGIN GUIDERAIL -LMED- STA. 64+77.99
MATCH LINE -LMED- STA. 60+50 SEE SHEET 5
MATCH LINE -LMED- STA. 74+00 SEE SHEET 7
Utility Permit Drawing
Sheet 8 of 14

PROJECT REFERENCE NO.	SHEET NO.
R-3601	7
ROAD-WAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-LMED-

Pis Sta 22+98.14	Pi Sta 48+95.48	Pis Sta 74+93.35
Θs = 0° 45' 00.0"	Δ = 38° 00' 00.0" (RT)	Θs = 0° 45' 00.0"
Ls = 200.00'	D = 0° 45' 00.0"	Ls = 200.00'
LT = 133.33'	L = 5,066.67'	LT = 133.33'
ST = 66.67'	T = 2,630.40'	ST = 66.67'
N 53° 59' 13.8" E (BACK)	R = 7,639.44'	
	SE = 0.03	

-LLT-

Pis Sta 97+43.96	Pi Sta 92+45.65	Pis Sta 97+76.89
Θs = 0° 45' 00.0"	Δ = 6° 58' 00.0" (LT)	Θs = 0° 45' 00.0"
Ls = 200.00'	D = 0° 45' 00.0"	Ls = 200.00'
LT = 133.33'	L = 926.89'	LT = 133.33'
ST = 66.67'	T = 465.02'	ST = 66.67'
S 66° 37' 46.2" E (BACK)	R = 7,639.44'	
	SE = 0.03	

DETAIL A
MEDIAN V-DITCH
(Not to Scale)

-LMED- STA. 74+00 TO STA. 74+00 (MED)
-LMED- STA. 82+00 TO STA. 84+00 (MED)
-LLT- STA. 85+00 TO STA. 85+00 (RT)

NAD 83/95

PROP. U/G CATV

MATCH LINE -LMED- STA. 74+00 SEE SHEET 9

MATCH LINE -LLT- STA. 87+50 SEE SHEET 8

FILL WITH FLOWABLE MATERIAL

36" RCP-Y TEMPORARY CONSTRUCTION

MEDIAN V DITCH SEE DETAIL A

CLEAN-OUT

REMOVE AND RESET EXIST. GUARDRAIL

-LMED-

S 66° 30' 46.2" E

-LLT-

-LRT-

-LLT- TS Sta. 85+98.63

END GUARDRAIL -LLT- STA. 87+50.00

-LMED- POT STA. 85+80.63 RK' =
-LLT- TS STA. 85+98.63 AH (40 LT) =
-LRT- POT STA. 85+80.63 AH (65 RT)

REMOVE EXIST. GUARDRAIL

-LMED- CS Sta. 74+31.46

-LMED- ST Sta. 75+31.46

PROPOSED CATV CABLE (3-1.25" PVC DUCT)

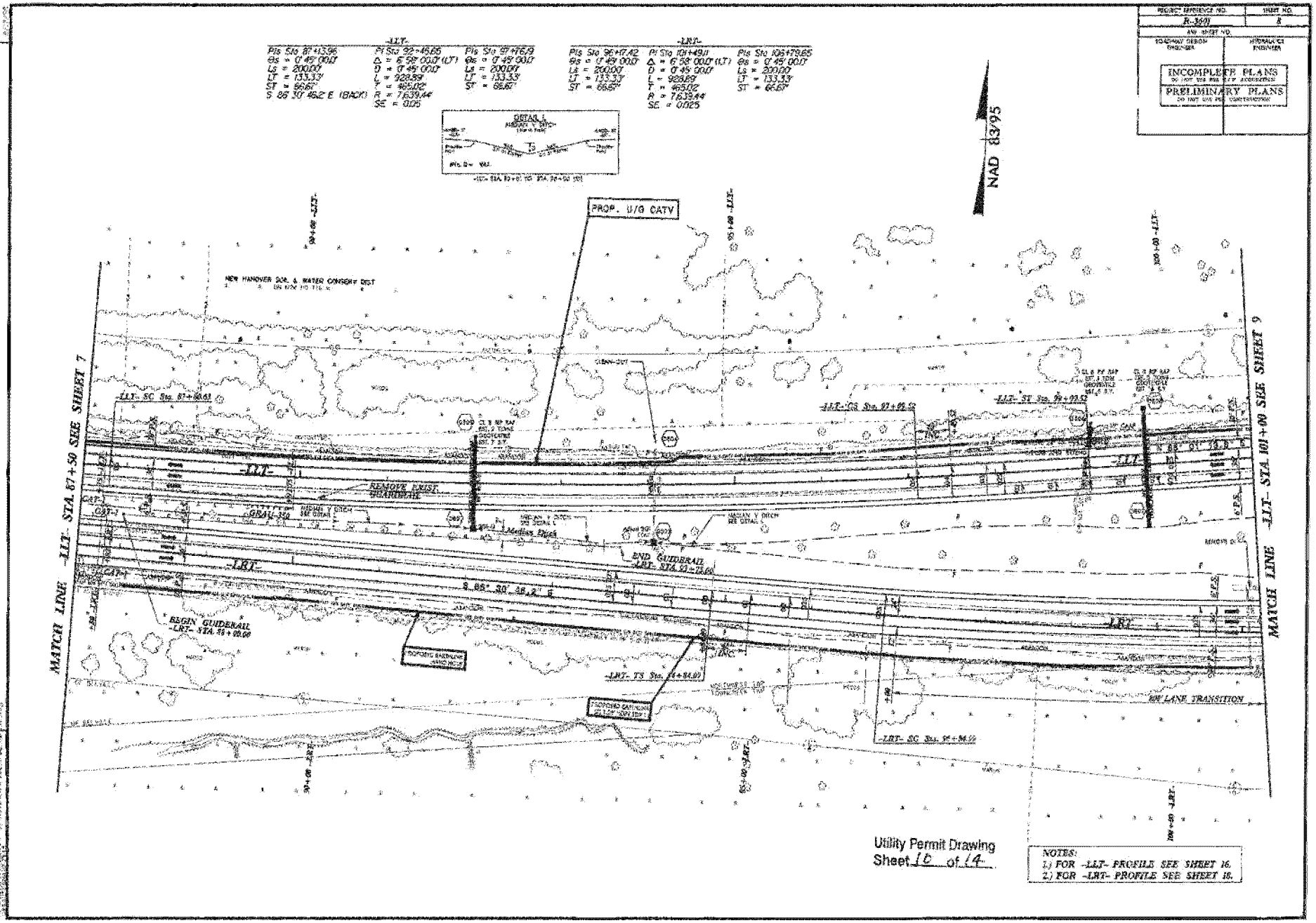
REMOVE EXISTING (1-1.25" PVC DUCT)

-LRT- POT Sta. 85+80.63

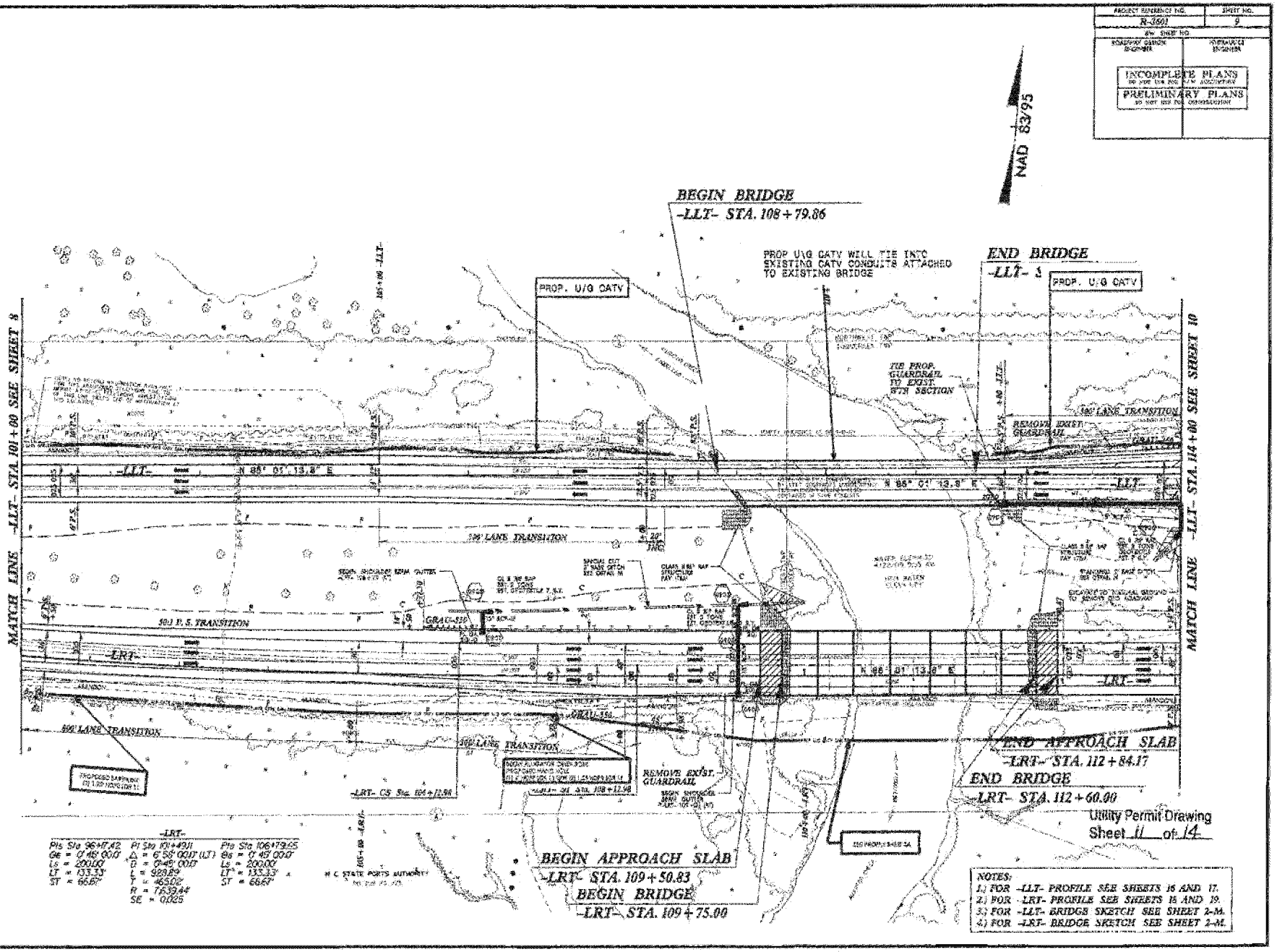
Utility Permit Drawing
Sheet 9 of 14

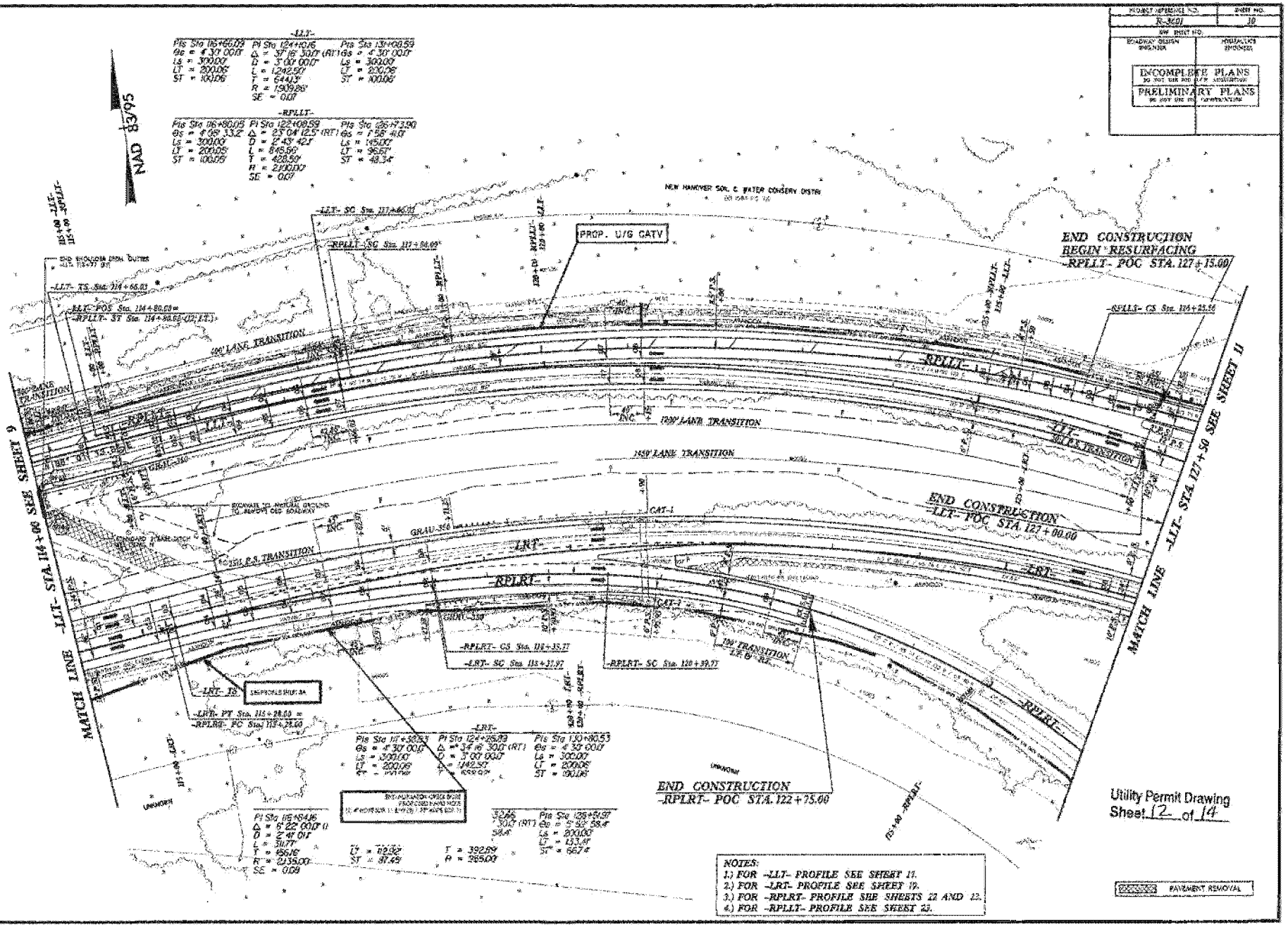
NOTES:
1.) FOR -LMED- PROFILE SEE SHEET 15.
2.) FOR -LLT- PROFILE SEE SHEET 16.
3.) FOR -LRT- PROFILE SEE SHEET 16.

REVISIONS

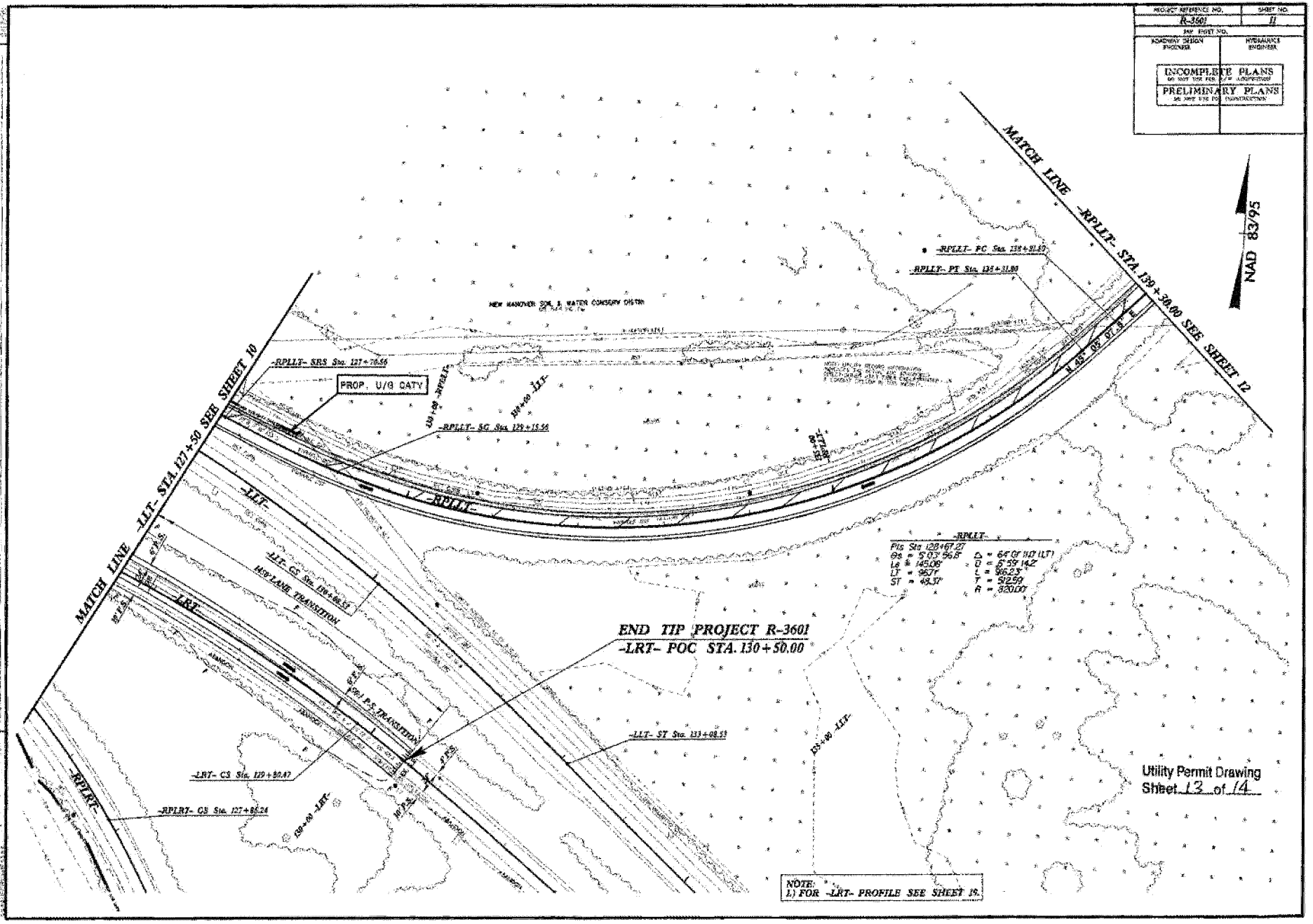


-LLT-
Pls Sta 87+13.96
Θs = 0°45'00.0"
Ls = 200.00'
LT = 133.33'
ST = 66.67'
S 86°30'46.2" E (BACK)
Pl Sta 92+45.65
Δ = 6°58'00.0" (LT)
D = 0°45'00.0"
L = 928.89'
T = 465.02'
R = 7,639.44'
SE = 0.05
Pls Sta 97+76.19
Θs = 0°45'00.0"
Ls = 200.00'
LT = 133.33'
ST = 66.67'
-LRT-
Pls Sta 96+17.42
Θs = 0°45'00.0"
Ls = 200.00'
LT = 133.33'
ST = 66.67'
Pl Sta 101+49.11
Δ = 6°58'00.0" (LT)
D = 0°45'00.0"
L = 928.89'
T = 465.02'
R = 7,639.44'
SE = 0.025
Pls Sta 106+79.65
Θs = 0°45'00.0"
Ls = 200.00'
LT = 133.33'
ST = 66.67'
DETAIL 1
NAD 83/95
PROP. U/G CATV
NEW HANOVER SOIL & WATER CONSERV DIST
MATCH LINE -LLT- STA. 87+50 SEE SHEET 7
MATCH LINE -LLT- STA. 101+00 SEE SHEET 9
-LLT-
-LRT-
REMOVE EXIST. GUARDRAIL
GRAU-350
Median Ditch
END GUIDERAIL -LRT- STA. 93+73.00
S 86° 30' 46.2" E
BEGIN GUIDERAIL -LRT- STA. 88+00.00
-LRT- TS Sta. 94+84.00
-LRT- SC Sta. 96+84.00
-LLT- SC Sta. 87+60.63
-LLT- CS Sta. 97+09.52
-LLT- ST Sta. 99+09.52
8 LANE TRANSITION
Utility Permit Drawing
Sheet 10 of 14
NOTES:
1.) FOR -LLT- PROFILE SEE SHEET 16.
2.) FOR -LRT- PROFILE SEE SHEET 18.
INCOMPLETE PLANS
PRELIMINARY PLANS

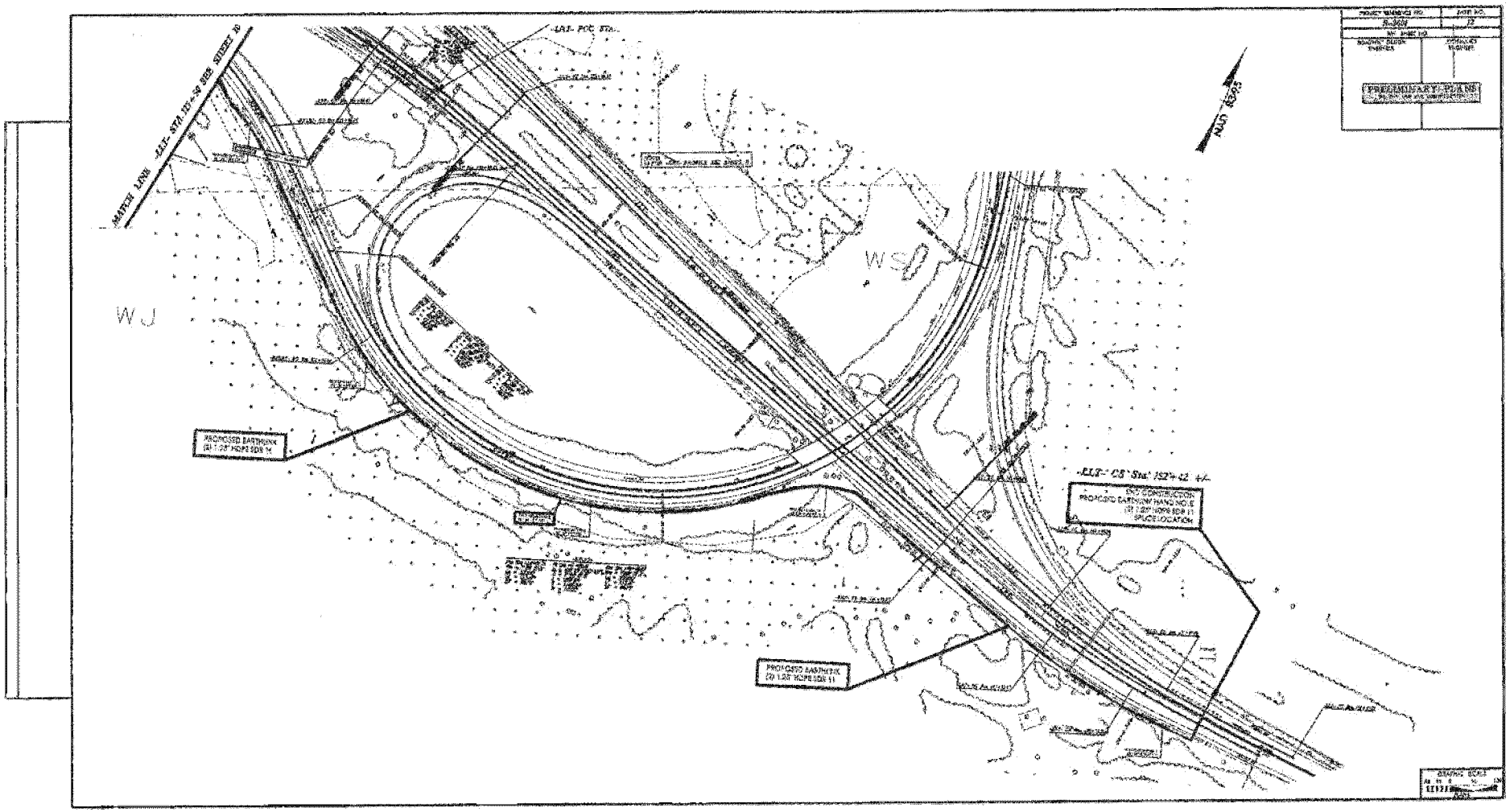

PROJECT REFERENCE NO.
R-3601
SHEET NO.
9
INCOMPLETE PLANS
PRELIMINARY PLANS
NAD 83/95
BEGIN BRIDGE
-LLT- STA. 108+79.86
PROP U/G CATV WILL TIE INTO EXISTING CATV CONDUITS ATTACHED TO EXISTING BRIDGE
END BRIDGE
PROP. U/G CATV
PROP. U/G CATV
TIE PROP. GUARDRAIL TO EXIST. WTR SECTION
REMOVE EXIST. GUARDRAIL
MATCH LINE -LLT- STA. 101+00 SEE SHEET 8
MATCH LINE -LLT- STA. 114+00 SEE SHEET 10
-LLT-
N 85° 01' 13.8" E
-LRT-
500' LANE TRANSITION
500' P. S. TRANSITION
GRAU-550
REMOVE EXIST. GUARDRAIL
END APPROACH SLAB
-LRT- STA. 112+84.17
END BRIDGE
-LRT- STA. 112+60.00
BEGIN APPROACH SLAB
-LRT- STA. 109+50.83
BEGIN BRIDGE
-LRT- STA. 109+75.00
-LRT-
Pls Sta 96+17.42
Ge = 0°45'00.0"
Ls = 200.00'
LT = 133.33'
ST = 66.67'
Pl Sta 101+49.11
Δ = 6°58'00.0" (LT)
D = 0°45'00.0"
L = 929.89'
T = 465.02'
R = 7,639.44'
SE = 0.025
Pls Sta 106+79.65
Ge = 0°45'00.0"
Ls = 200.00'
LT = 133.33'
ST = 66.67'
N C STATE PORTS AUTHORITY
NOTES:
1.) FOR -LLT- PROFILE SEE SHEETS 16 AND 17.
2.) FOR -LRT- PROFILE SEE SHEETS 18 AND 19.
3.) FOR -LLT- BRIDGE SKETCH SEE SHEET 2-M.
4.) FOR -LRT- BRIDGE SKETCH SEE SHEET 2-M.
Utility Permit Drawing
Sheet 11 of 14



INCOMPLETE PLANS
PRELIMINARY PLANS
NAD 83/95
NEW HANOVER SOIL & WATER CONSERV DISTRI
PROP. U/G CATV
END CONSTRUCTION
BEGIN RESURFACING
-RPLLT- POC STA. 127+15.00
END CONSTRUCTION
-LLT- POC STA. 127+00.00
END CONSTRUCTION
-RPLRT- POC STA. 122+75.00
MATCH LINE -LLT- STA. 114+00 SEE SHEET 9
MATCH LINE -LLT- STA. 127+50 SEE SHEET 11
1230' LANE TRANSITION
1450' LANE TRANSITION
-LLT-
-RPLRT-
-RPLLT-
-LRT-
NOTES:
1.) FOR -LLT- PROFILE SEE SHEET 17.
2.) FOR -LRT- PROFILE SEE SHEET 19.
3.) FOR -RPLRT- PROFILE SEE SHEETS 22 AND 23.
4.) FOR -RPLLT- PROFILE SEE SHEET 23.
PAVEMENT REMOVAL
Utility Permit Drawing
Sheet 12 of 14



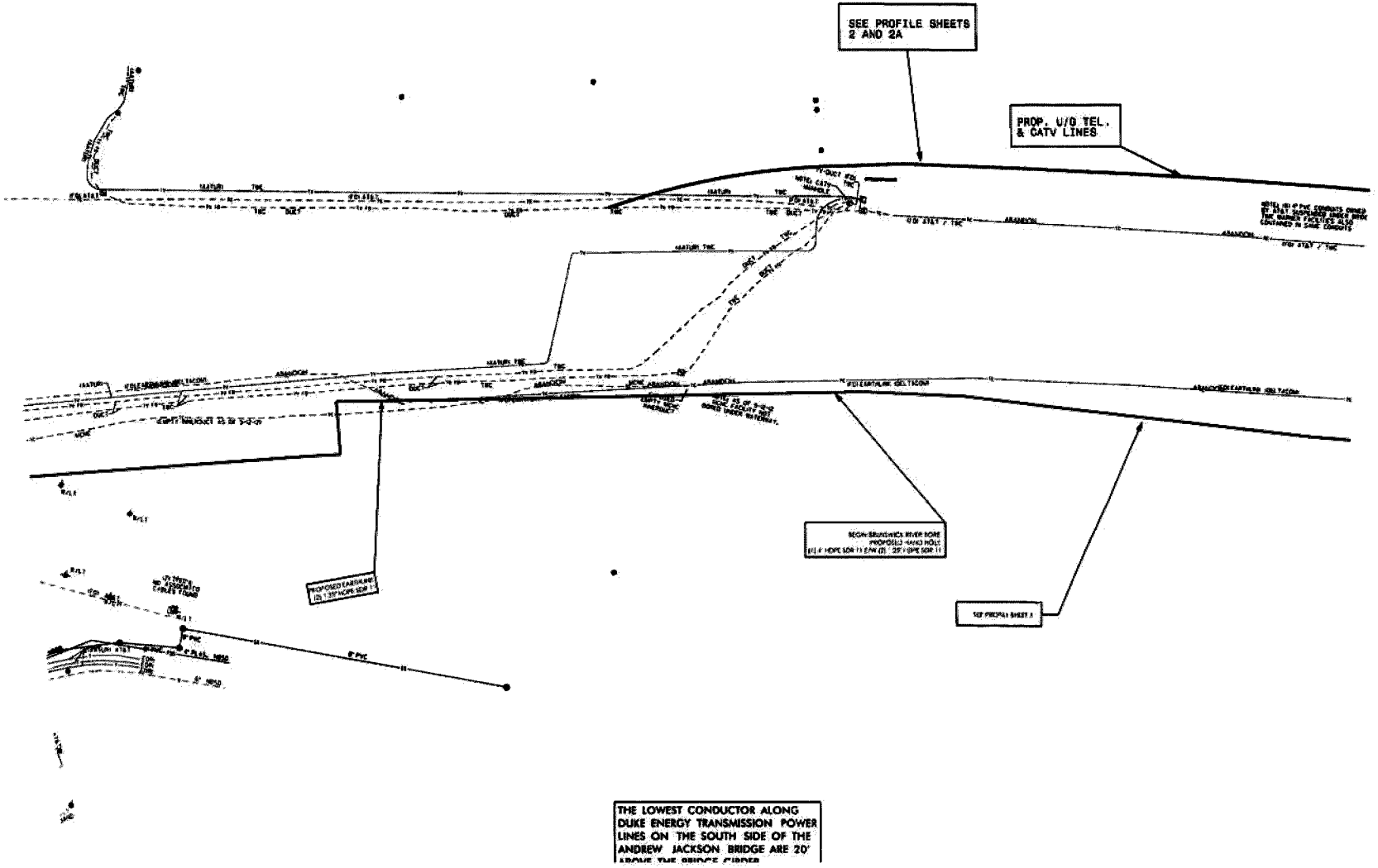
PROJECT REFERENCE NO.
R-3601
SHEET NO.
11
INCOMPLETE PLANS
PRELIMINARY PLANS
NAD 83/95
MATCH LINE -RPLLT- STA. 139+30.00 SEE SHEET 12
MATCH LINE -LLT- STA. 127+50 SEE SHEET 10
-RPLLT- PC Sta. 138+81.80
-RPLLT- PT Sta. 138+31.80
NEW HANOVER SOIL & WATER CONSERV DISTR
-RPLLT- SRS Sta. 127+76.56
PROP. U/G CATV
-RPLLT- SG Sta. 129+15.56
-RPLLT-
-LLT-
-LLT- CS Sta. 130+08.53
1450' LANE TRANSITION
-LRT-
END TIP PROJECT R-3601
-LRT- POC STA. 130+50.00
-LLT- ST Sta. 133+08.53
-LRT- CS Sta. 129+80.47
-RPLRT- CS Sta. 127+85.24
-RPLRT-
-RPLLT-
Pls Sta 128+67.27
Δ = 64° 01' 11.0" (LT)
D = 6° 59' 14.2"
L = 516.23'
T = 512.59'
R = 820.00'
NOTE:
1) FOR -LRT- PROFILE SEE SHEET 19.
Utility Permit Drawing
Sheet 13 of 14



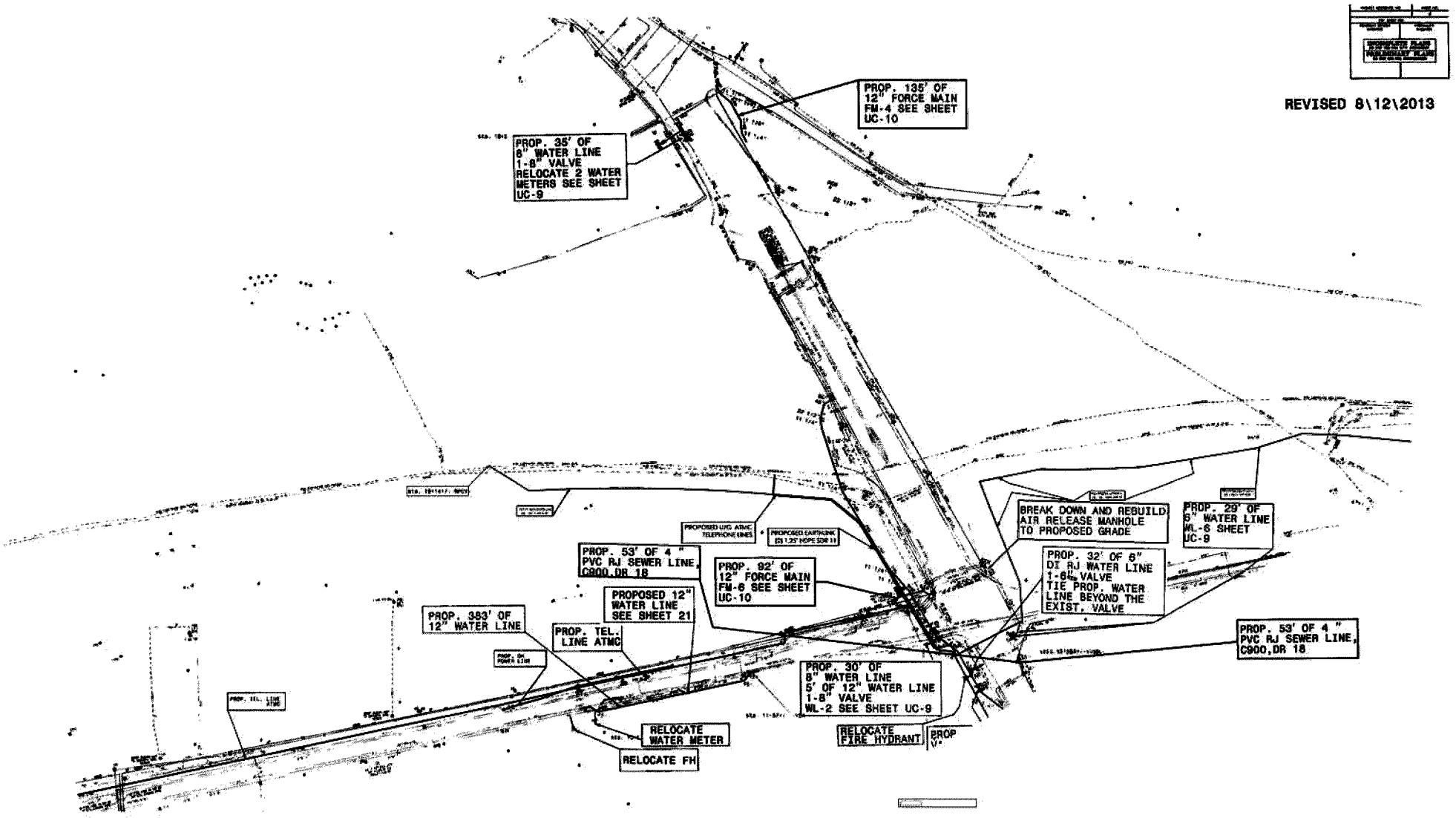
Utility Permit Drawing
Sheet 14 of 14

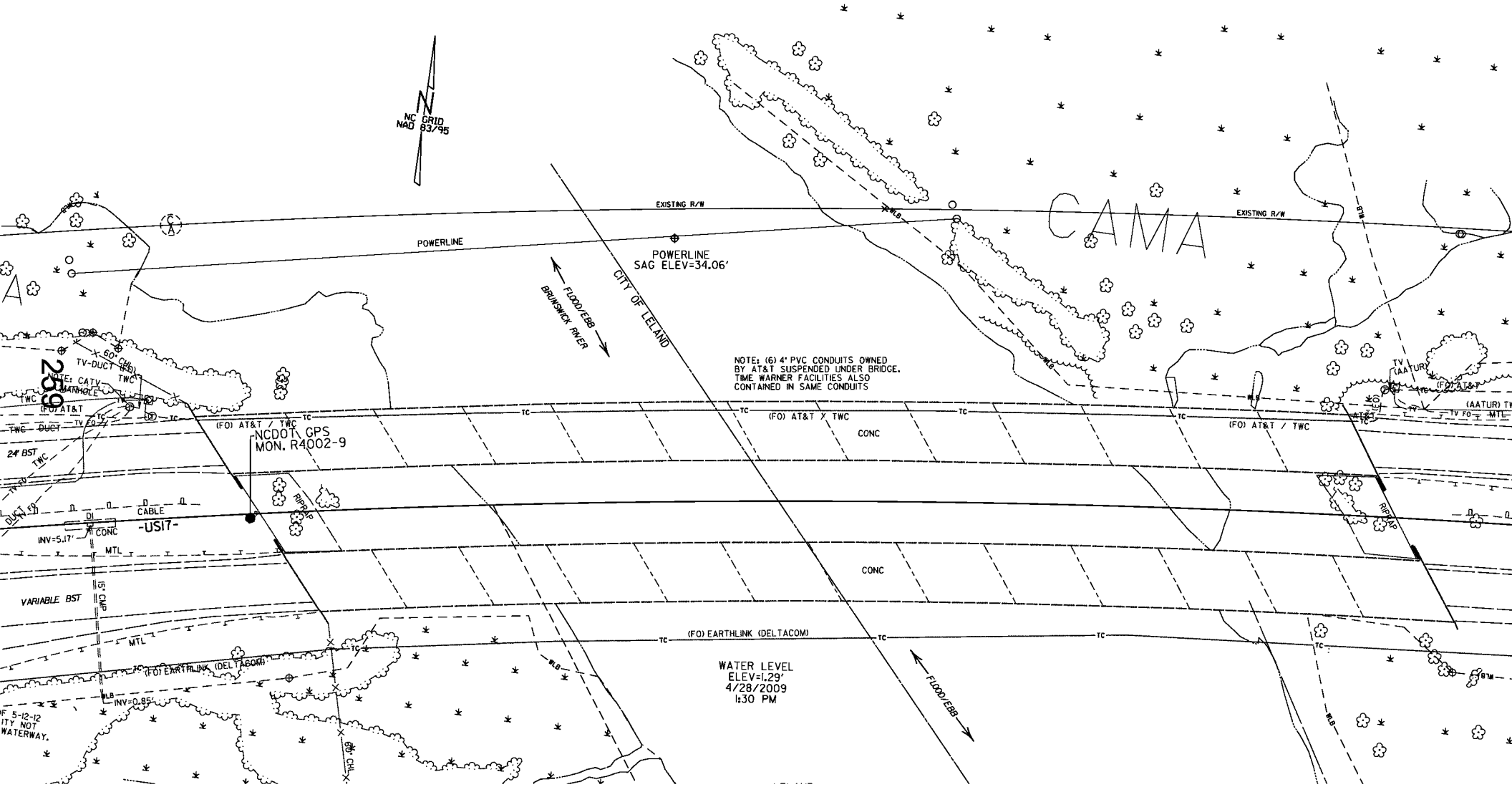
THE DISTRIBUTION POWER LINES ON THE NORTH SIDE OF THE ANDREW JACKSON BRIDGE WILL BE RAISED BY DUKE ENERGY IF NCDOT'S CONTRACTOR DETERMINES THE LOWEST CONDUCTOR IS NOT 20' ABOVE BRIDGE GIRDER

REVISED 8/12/2013



THE LOWEST CONDUCTOR ALONG DUKE ENERGY TRANSMISSION POWER LINES ON THE SOUTH SIDE OF THE ANDREW JACKSON BRIDGE ARE 20' ABOVE THE BRIDGE GIRDER


REVISED 8\12\2013
PROP. 135' OF 12" FORCE MAIN FM-4 SEE SHEET UC-10
PROP. 35' OF 8" WATER LINE 1-8" VALVE RELOCATE 2 WATER METERS SEE SHEET UC-9
PROPOSED U/G ATMC TELEPHONE LINES
PROPOSED EARTHLINK
PROP. 53' OF 4" PVC RJ SEWER LINE, C900, DR 18
PROP. 92' OF 12" FORCE MAIN FM-6 SEE SHEET UC-10
PROPOSED 12" WATER LINE SEE SHEET 21
PROP. 383' OF 12" WATER LINE
PROP. TEL. LINE ATMC
BREAK DOWN AND REBUILD AIR RELEASE MANHOLE TO PROPOSED GRADE
PROP. 29' OF 6" WATER LINE WL-6 SHEET UC-9
PROP. 32' OF 6" DI RJ WATER LINE 1-6" VALVE TIE PROP. WATER LINE BEYOND THE EXIST. VALVE
PROP. 53' OF 4" PVC RJ SEWER LINE, C900, DR 18
PROP. 30' OF 8" WATER LINE 5' OF 12" WATER LINE 1-8" VALVE WL-2 SEE SHEET UC-9
RELOCATE WATER METER
RELOCATE FH
RELOCATE FIRE HYDRANT
PROP



NC GRID
NAD 83/95
EXISTING R/W
POWERLINE
POWERLINE
SAG ELEV=34.06'
CAMA
FLOOD/EBB
BRUNSWICK RIVER
CITY OF LELAND
NOTE: (6) 4" PVC CONDUITS OWNED
BY AT&T SUSPENDED UNDER BRIDGE.
TIME WARNER FACILITIES ALSO
CONTAINED IN SAME CONDUITS
(FO) AT&T / TWC
NCDOT GPS
MON. R4002-9
CONC
RIPRAP
CABLE
-US17-
INV=5.17'
MTL
VARIABLE BST
15" CMP
(FO) EARTHLINK (DELTACOM)
WATER LEVEL
ELEV=1.29'
4/28/2009
1:30 PM
INV=0.85'
60" CHL
TV-DUCT
TWC
24" BST
TV (AATUR)
(AATUR) TV

259

*** STANDARD SPECIAL PROVISIONS ***

PLANT AND PEST QUARANTINES
(Imported Fire Ant, Gypsy Moth, Witchweed, And Other Noxious Weeds)
(3-18-03) (Rev. 8-31-13) DB1 G130

Within Quarantined Area
This project may be within a county regulated for plant and/or pests. If the project or any part of the Design-Build Team's operations is located within a quarantined area, thoroughly clean all equipment prior to moving out of the quarantined area. Comply with federal/state regulations by obtaining a certificate or limited permit for any regulated article moving from the quarantined area.

Originating in a Quarantined County
Obtain a certificate or limited permit issued by the N.C. Department of Agriculture/United States Department of Agriculture. Have the certificate or limited permit accompany the article when it arrives at the project site.

Contact
Contact the N.C. Department of Agriculture/United States Department of Agriculture at 1-800-206-9333, 919-707-3730, or **http://www.ncagr.gov/plantind/** to determine those specific project sites located in the quarantined area or for any regulated article used on this project originating in a quarantined county.

Regulated Articles Include
1. Soil, sand, gravel, compost, peat, humus, muck, and decomposed manure, separately or with other articles. This includes movement of articles listed above that may be associated with cut/waste, ditch pulling, and shoulder cutting.
2. Plants with roots including grass sod.
3. Plant crowns and roots.
4. Bulbs, corms, rhizomes, and tubers of ornamental plants.
5. Hay, straw, fodder, and plant litter of any kind.
6. Clearing and grubbing debris.
7. Used agricultural cultivating and harvesting equipment.
8. Used earth-moving equipment.
9. Any other products, articles, or means of conveyance, of any character, if determined by an inspector to present a hazard of spreading imported fire ant, gypsy moth, witchweed or other noxious weeds.

GIFTS FROM VENDORS AND CONTRACTORS
(12-15-09) DB1 G152

By Executive Order 24, issued by Governor Perdue, and *N.C. G.S.§ 133-32,* it is unlawful for any vendor or contractor (i.e. architect, bidder, contractor, construction manager, design professional, engineer, landlord, offeror, seller, subcontractor, supplier, or vendor), to make gifts or to give favors to any State employee of the Governor's Cabinet Agencies (i.e. Administration,

Commerce, Correction, Crime Control and Public Safety, Cultural Resources, Environment and Natural Resources, Health and Human Services, Juvenile Justice and Delinquency Prevention, Revenue, Transportation, and the Office of the Governor). This prohibition covers those vendors and contractors who:

(1) have a contract with a governmental agency; or
(2) have performed under such a contract within the past year; or
(3) anticipate bidding on such a contract in the future.

For additional information regarding the specific requirements and exemptions, vendors and contractors are encouraged to review Executive Order 24 and *G.S. § 133-32.*

Executive Order 24 also encouraged and invited other State Agencies to implement the requirements and prohibitions of the Executive Order to their agencies. Vendors and contractors should contact other State Agencies to determine if those agencies have adopted Executive Order 24.

STATE HIGHWAY ADMINISTRATOR TITLE CHANGE

07-31-12) DB1 G185

Revise the 2012 *Standard Specifications for Roads and Structures* as follows:

Replace all references to "State Highway Administrator" with "Chief Engineer".

BRIDGE APPROACH FILLS

(9-1-11) DB4 R01

Description

Bridge approach fills include bridge approach fills for sub regional tier bridges and reinforced bridge approach fills. Construct bridge approach fills in accordance with the contract and *Roadway Standard Drawings* No. 422.10 or 422.11. Define "geosynthetics" as geotextiles or geomembranes.

Materials

Refer to Division 10 of the *Standard Specifications for Roads and Structures.*

Item	Section
Anchor Pins	1056-2
Geotextiles	1056
Portland Cement Concrete	1000
Select Material	1016
Subsurface Drainage Materials	1044
Wire Staples	1060-8(D)

For bridge approach fills for sub regional tier bridges, provide Type 1 geotextile for filtration geotextiles. For reinforced bridge approach fills, provide Type 5 geotextile for geotextile reinforcement and Type 1 geotextile and No. 78M stone for drains. Use Class B concrete for

concrete pads.

Use Class III or V select material for reinforced bridge approach fills and only Class V select material (standard size No. 78M stone) for bridge approach fills for sub regional tier bridges. Provide PVC pipes, fittings and outlet pipes for subsurface drainage materials. For drains and PVC pipes behind end bents, use pipes with perforations that meet AASHTO M 278.

Use PVC, HDPE or linear low density polyethylene (LLDPE) geomembranes for reinforced bridge approach fills. For PVC geomembranes, provide grade PVC30 geomembranes that meet ASTM D7176. For HDPE and LLDPE geomembranes, use geomembranes with a nominal thickness of at least 30 mils that meet Geosynthetic Research Institute Standard Specifications GM13 or GM17, respectively. Handle and store geomembranes in accordance with Article 1056-2 of the 2012 *Standard Specifications for Roads and Structures*. Provide material certifications for geomembranes in accordance with Article 1056-3 of the 2012 *Standard Specifications for Roads and Structures*.

Construction Methods

Excavate as necessary for bridge approach fills in accordance with the contract. Notify the Engineer when foundation excavation is complete. Do not place geomembranes or filtration geotextiles until excavation dimensions and foundation material are approved. Attach geomembranes and filtration geotextiles to end bent cap back and wing walls with adhesives, tapes or other approved methods. Glue or weld geomembrane seams to prevent leakage.

For reinforced bridge approach fills, place geotextile reinforcement within 3" of locations shown in Standard Drawing No. 422.10 and in slight tension free of kinks, folds, wrinkles or creases. Install geotextile reinforcement with the orientation, dimensions and number of layers shown in Standard Drawing No. 422.10. Place first layer of geotextile reinforcement directly on geomembranes with no void or material in between. Install geotextile reinforcement with the machine direction (MD) parallel to the roadway centerline. The MD is the direction of the length or long dimension of the geotextile roll. Do not splice or overlap geotextile reinforcement in the MD so seams are perpendicular to the roadway centerline. Wrap geotextile reinforcement at end bent cap back and wing walls as shown in Standard Drawing No. 422.10 and directed by the Engineer. Extend geotextile reinforcement at least 4 feet back behind end bent cap back and wing walls into select material.

Overlap adjacent geotextiles at least 18" with seams oriented parallel to the roadway centerline. Hold geotextiles in place with wire staples or anchor pins as needed. Contact the Engineer when existing or future obstructions such as foundations, pavements, pipes, inlets or utilities will interfere with geosynthetics.

For reinforced bridge approach fills, construct one foot square drains consisting of 4" diameter continuous perforated PVC pipes surrounded by No. 78M stone wrapped in Type 1 geotextiles. Install drains in accordance with Standard Drawing No. 422.10. For bridge approach fills for sub regional tier bridges, install 4" diameter continuous perforated PVC drain pipes in accordance with Standard Drawing No. 422.11.

Use solvent cement to connect PVC pipes so joints do not leak. Connect perforated pipes to outlet pipes just behind wing walls. Provide drain pipes and drains with positive drainage towards outlets. Place pipe sleeves in or under wing walls for outlet pipes so positive drainage is maintained. Use sleeves that can withstand wing wall loads.

Place select material in 8" to 10" thick lifts. Use only hand operated compaction equipment to compact select material for bridge approach fills. Compact Class III select material in accordance with Subarticle 235-3(C) of the 2012 *Standard Specifications for Roads and Structuress*. Compact No. 78M stone with a vibratory compactor to the satisfaction of the Engineer. Do not displace or damage geosynthetics, drain pipes or drains when placing and compacting select material. End dumping directly on geosynthetics is not permitted. Do not operate heavy equipment on geosynthetics, drain pipes or drains until they are covered with at least 8" of select material. Replace any damaged geosynthetics, drain pipes or drains to the satisfaction of the Engineer.

Cover open ends of outlet pipes with rodent screens as shown in Standard Drawing No. 815.03. Connect ends of outlet pipes to concrete pads or existing drainage structures as directed by the Engineer. Construct concrete pads with an Ordinary surface finish that meets Subarticle 825-6(B) of the 2012 *Standard Specifications for Roads and Structures*.

PREPARATION OF SUBGRADE AND BASE

(9-1-11) DB5 R05

On mainline portions and ramps of this project, prepare the subgrade and base beneath the pavement structure in accordance with the applicable sections of the 2012 *Standard Specifications for Roads and Structures* except use an automatically controlled fine grading machine utilizing string lines, laser controls, or other approved methods to produce final subgrade and base surfaces meeting the lines, grades, and cross sections required by the plans or established by the Engineer.

ASPHALT PAVEMENTS - SUPERPAVE

(6-19-12) (Rev.8-31-13) 605, 609, 610, 650 DB 6 R01

Revise the 2012 *Standard Specifications for Roads and Structures* as follows:

Page 6-3, Article 605-7 APPLICATION RATES AND TEMPERATURES, replace this article, including Table 601-1, with the following:

Apply tack coat uniformly across the existing surface at target application rates shown in Table 605-1.

TABLE 605-1 APPLICATION RATES FOR TACK COAT	
Existing Surface	**Target Rate (gal/sy)** **Emulsified Asphalt**
New Asphalt	0.04 ± 0.01
Oxidized or Milled Asphalt	0.06 ± 0.01
Concrete	0.08 ± 0.01

Apply tack coat at a temperature within the ranges shown in Table 605-2. Tack coat shall not be overheated during storage, transport or at application.

TABLE 605-2 APPLICATION TEMPERATURE FOR TACK COAT	
Asphalt Material	**Temperature Range**
Asphalt Binder, Grade PG 64-22	350 - 400°F
Emulsified Asphalt, Grade RS-1H	130 - 160°F
Emulsified Asphalt, Grade CRS-1	130 - 160°F
Emulsified Asphalt, Grade CRS-1H	130 - 160°F
Emulsified Asphalt, Grade HFMS-1	130 - 160°F
Emulsified Asphalt, Grade CRS-2	130 - 160°F

Page 6-7, Article 609-3 FIELD VERIFICATION OF MIXTURE AND JOB MIX FORMULA ADJUSTMENTS, lines 35-37, delete the second sentence of the second paragraph.

Page 6-18, Article 610-1 DESCRIPTION, lines 40-41, delete the last sentence of the last paragraph.

Page 6-19, Subarticle 610-3(A) Mix Design-General, line 5, add the following as the first paragraph:

Warm mix asphalt (WMA) is allowed for use at the Contractor's option in accordance with the NCDOT Approved Products List for WMA Technologies available at:

https://connect.ncdot.gov/resources/Materials/MaterialsResources/Warm%20Mix%20Asphalt%20Approved%20List.pdf

Page 6-21, Subarticle 610-3(C) Job Mix Formula (JMF), replace Table 610-1 with the following:

TABLE 610-1
DESIGN MIXING TEMPERATURE AT THE ASPHALT PLANT[A]

Binder Grade	HMA JMF Temperature	WMA JMF Temperature Range
PG 64-22	300°F	225 - 275°F
PG 70-22	315°F	240 - 290°F
PG 76-22	335°F	260 - 310°F

A. The mix temperature, when checked in the truck at the roadway, shall be within plus 15° and minus 25° of the temperature specified on the JMF.

Page 6-21, Subarticle 610-3(C) Job Mix Formula (JMF), lines 4-6, delete first sentence of the second paragraph. Line 7, in the second sentence of the second paragraph, replace "275°F" with "275°F or greater."

Page 6-22, Article 610-4 WEATHER, TEMPERATURE AND SEASONAL LIMITATIONS FOR PRODUCING AND PLACING ASPHALT MIXTURES, lines 15-17, replace the second sentence of the first paragraph with the following:

Do not place asphalt material when the air or surface temperatures, measured at the location of the paving operation away from artificial heat, do not meet Table 610-5.

Page 6-23, Article 610-4 WEATHER, TEMPERATURE AND SEASONAL LIMITATIONS FOR PRODUCING AND PLACING ASPHALT MIXTURES, replace Table 610-5 with the following:

TABLE 610-5
PLACEMENT TEMPERATURES FOR ASPHALT

Asphalt Concrete Mix Type	Minimum Surface and Air Temperature
B25.0B, C	35°F
I19.0B, C, D	35°F
SF9.5A, S9.5B	40°F
S9.5C, S12.5C	45°F
S9.5D, S12.5D	50°F

Page 6-26, Article 610-7 HAULING OF ASPHALT MIXTURE, lines 22-23, in the fourth sentence of the first paragraph replace "so as to overlap the top of the truck bed and" with "to".

Page 6-41, Subrticle 650-3(B) Mix Design Criteria, replace Table 650-1 with the following:

TABLE 650-1
OGAFC GRADATION CRITERIA

Grading Requirements	**Total Percent Passing**		
Sieve Size (mm)	*Type FC-1*	*Type FC-1 Modified*	*Type FC-2 Modified*
19.0	-	-	100
12.5	100	100	80 - 100
9.50	75 - 100	75 - 100	55 - 80
4.75	25 - 45	25 - 45	15 - 30
2.36	5 - 15	5 - 15	5 - 15
0.075	1.0 - 3.0	1.0 - 3.0	2.0 - 4.0

ASPHALT BINDER CONTENT OF ASPHALT PLANT MIXES
(6-07-12) DB6 R15

The approximate asphalt binder content of the asphalt concrete plant mixtures used on this project will be as follows:

Asphalt Concrete Base Course	Type B 25.0_	4.4%
Asphalt Concrete Intermediate Course	Type I 19.0_	4.8%
Asphalt Concrete Surface Course	Type S 4.75A	6.8%
Asphalt Concrete Surface Course	Type SA-1	6.8%
Asphalt Concrete Surface Course	Type SF 9.5A	6.7%
Asphalt Concrete Surface Course	Type S 9.5_	6.0%
Asphalt Concrete Surface Course	Type S 12.5_	5.6%

The actual asphalt binder content will be established during construction by the Engineer within the limits established in the 2012 *Standard Specifications for Roads and Structures.*

ASPHALT PLANT MIXTURES
(07-01-95) DB6 R20

Place asphalt concrete base course material in trench sections with asphalt pavement spreaders made for the purpose or with other equipment approved by the Engineer.

FINAL SURFACE TESTING - ASPHALT PAVEMENTS
(9-1-11) DB6 R45

On the mainline, auxiliary lanes, acceleration and deceleration lanes and ramps with two or more layers of asphalt, perform smoothness acceptance testing of the longitudinal profile of the finished pavement surface using an Inertial Profiler in accordance with Article 610-13 of the 2012 *Standard Specifications for Roads and Structures.* The North Carolina Hearne Straigthedge will not be permitted on the mainline, auxiliary lanes, acceleration and deceleration lanes and ramps.

Replace Tables 610-7 of the 2012 *Standard Specifications for Roads and Structures* with the following Table.

MRI VALUES PER 0.10-MILE SECTION	
MRI after Completion (Inches Per Mile)	**Price Adjustment Per Lane (0.10-Mile Section)**
70.0 and Under	Acceptable (No pay adjustment)
70.1-90.0	PA = 650 – (10 * MRI)
Over 90.1	Corrective Action Required

Page 6-34, Replace Table 610-8 with the following:

Adjustment Schedule for Cumulative Straightedge Index (CSI) (Obtained by adding SE Index of up to 25 consecutive 100-foot sections)		
***CSI**	**ACCEPTANCE CATEGORY**	**CORRECTIVE ACTION**
0-0	Acceptable	None
1-0 or 2-0	Acceptable	None
3-0 or 4-0	Acceptable	None
Any Other Number	Unacceptable	Required

***Either Before or After Corrective Actions**

Page 6-35, Replace the 14th paragraph of Article 610-13(B) with the following:

Correct any deviation that exceeds a 0.3 inch blanking band such that the deviation is reduced to 0.2 inches or less.

Page 6-35, Replace the 16th, 17th, 18th, and 19th paragraphs of Article 610-13(B) with the following:

Take corrective actions as specified if the CSI indicates "Required" corrective action. The CSI after corrective action should meet or exceed "Acceptable" requirements.

Where corrective action is required, the test section(s) requiring corrective action will be retested, unless the Engineer directs the retesting of the entire lot.

Test sections and / or lots that are initially tested by the Design-Build Team which indicate excessive deviations such that corrective action is required, may be re-rolled with asphalt rollers while the mix is still warm and in a workable condition, to possibly correct the problem. In this instance, reevaluation of the test section(s) must be completed within 24 hours of pavement placement and these test results will serve as the initial test results.

SUBSURFACE DRAINAGE

(9-1-11) DB8 R05

Revise the 2012 *Standard Specifications for Roads and Structures* as follows:

Page 8-11, Article 815-1, Delete the first sentence and replace with the following:

The Design-Build Team shall construct subsurface drains, underdrains, blind drains and other types of drains where groundwater is within 4 feet of subgrade.

GUARDRAIL ANCHOR UNITS, TYPE M-350

(9-1-11) DB8 R60

Description

Furnish and install guardrail anchor units in accordance with the details in the plans developed by the Design-Build Team, the applicable requirements of Section 862 of the 2012 *Standard Specifications for Roads and Structures*, and at locations shown in the plans.

Materials

The Design Build Team may, at his option, furnish any one of the following guardrail anchor units or approved equal.

The guardrail anchor unit (SRT-350) as manufactured by:

TRINITY INDUSTRIES, INC.
2525 N. STEMMONS FREEWAY
DALLAS, TEXAS 75207
TELEPHONE: 800 644-7976

The guardrail anchor unit (FLEAT) as manufactured by:

ROAD SYSTEMS, INC.
3616 OLD HOWARD COUNTY AIRPORT
BIG SPRINGS, TEXAS 79720
TELEPHONE: 915-263-2435

The guardrail anchor unit (REGENT) as manufactured by:

ENERGY ABSORPTION SYSTEMS, INC.
ONE EAST WACKER DRIVE
CHICAGO, ILLINOIS 60601-2076
TELEPHONE: 888-32-ENERGY

Prior to installation the Design Build Team shall submit to the Engineer:

1. FHWA acceptance letter for each guardrail anchor unit certifying it meets the requirements of NCHRP Report 350, Test Level 3, in accordance with Section 106-2 of the 2012 *Standard Specifications for Roads and Structures.*

2. Certified working drawings and assembling instructions from the manufacturer for each guardrail anchor unit in accordance with Section 105-2 of the 2012 *Standard Specifications for Roads and Structures.*

No modifications shall be made to the guardrail anchor unit without the express written permission from the manufacturer. Perform installation in accordance with the details in the plans, and details and assembling instructions furnished by the manufacturer.

Construction

Guardrail end delineation is required on all approach and trailing end sections for both temporary and permanent installations. Guardrail end delineation consists of yellow reflective sheeting applied to the entire end section of the guardrail in accordance with Section 1088-3 of the 2012 *Standard Specifications for Roads and Structures* and is incidental to the cost of the guardrail anchor unit.

GUARDRAIL ANCHOR UNITS, TYPE 350

(9-1-11) DB8 R65

Description

Furnish and install guardrail anchor units in accordance with the details in the plans as developed by the Design-Build Team, the applicable requirements of Section 862 of the 2012 *Standard Specifications for Roads and Structures*, and at locations shown in the plans.

Materials

The Design-Build Team may at his option, furnish any one of the guardrail anchor units or approved equal.

Guardrail anchor unit (ET-2000) as manufactured by:

TRINITY INDUSTRIES, INC.
2525 N. STEMMONS FREEWAY
DALLAS, TEXAS 75207
TELEPHONE: 800-644-7976

The guardrail anchor unit (SKT 350) as manufactured by:

ROAD SYSTEMS, INC.
3616 OLD HOWARD COUNTY AIRPORT
BIG SPRING, TEXAS 79720
TELEPHONE: 915 263-2435

Prior to installation the Design-Build Team shall submit to the Engineer:

1. FHWA acceptance letter for each guardrail anchor unit certifying it meets the requirements of NCHRP Report 350, Test Level 3, in accordance with Section 106-2 of 2012 *Standard Specifications for Roads and Structures.*

2. Certified working drawings and assembling instructions from the manufacturer for each guardrail anchor unit in accordance with Section 105-2 of the 2012 *Standard Specifications for Roads and Structures.*

No modifications shall be made to the guardrail anchor unit without the express written permission from the manufacturer. Perform installation in accordance with the details in the plans, and details and assembling instructions furnished by the manufacturer.

Construction

Guardrail end delineation is required on all approach and trailing end sections for both temporary and permanent installations. Guardrail end delineation consists of yellow reflective sheeting applied to the entire end section of the guardrail in accordance with Section 1088-3 of the 2012 *Standard Specifications for Roads and Structures* and is incidental to the cost of the guardrail anchor unit.

PREFORMED SCOUR HOLE WITH LEVEL SPREADER APRON

(08-24-09) DB8 R105

Description

Construct and maintain preformed scour holes with spreader aprons at the locations shown on the plans and in accordance with the details in the plans. Work includes excavation, shaping and maintaining the hole and apron, furnishing and placing filter fabric, rip rap (class as specified in the plans) and permanent soil reinforcement matting.

Materials

Item	Section
Plain rip rap	1042
Filter Fabric	1056

The permanent soil reinforcement matting shall be permanent erosion control reinforcement mat and shall be constructed of synthetic or a combination of coconut and synthetic fibers evenly distributed throughout the mat between a bottom UV stabilized netting and a heavy duty UV stabilized top net. The matting shall be stitched together with UV stabilized polypropylene thread to form a permanent three dimensional structure. The mat shall have the following minimum physical properties:

Property	**Test Method**	**Value Unit**
Light Penetration	ASTM D6567	9 %
Thickness	ASTM D6525	0.40 in
Mass Per Unit Area	ASTM D6566	0.55 lb/sy
Tensile Strength	ASTM D6818	385 lb/ft
Elongation (Maximum)	ASTM D6818	49 %
Resiliency	ASTM D1777	>70 %
UV Stability *	ASTM 4355	≥80 %
Porosity (Permanent Net)	ECTC Guidelines	≥85 %
Maximum Permissible Shear Stress (Vegetated)	Performance Bench Test	≥8.0 lb/ft^2
Maximum Allowable Velocity (Vegetated)	Performance Bench Test	≥16.0 ft/s

*ASTM D1682 Tensile Strength and % strength retention of material after 1000 hours of exposure.

A certification (Type 1, 2, or 3) from the manufacturer showing:

(A) the chemical and physical properties of the mat used, and

(B) conformance of the mat with this specification will be required.

Construction Methods

All areas to be protected with the mat shall be brought to final grade and seeded in accordance with Section 1660 of the 2012 *Standard Specifications for Roads and Structures.* The surface of the soil shall be smooth, firm, stable and free of rocks, clods, roots or other obstructions that would prevent the mat from lying in direct contact with the soil surface. Areas where the mat is to be placed will not need to be mulched.

STREET SIGNS AND MARKERS AND ROUTE MARKERS

(07-01-95) DB9 R01

Move any existing street signs, markers, and route markers out of the construction limits of the project and install the street signs and markers and route markers so that they will be visible to the traveling public if there is sufficient right of way for these signs and markers outside of the construction limits.

Near the completion of the project and when so directed by the Engineer, move the signs and markers and install them in their proper location in regard to the finished pavement of the project.

Stockpile any signs or markers that cannot be relocated due to lack of right of way, or any signs and markers that will no longer be applicable after the construction of the project, at locations directed by the Engineer for removal by others.

The Design-Build Team shall be responsible to the owners for any damage to any street signs and markers or route markers during the above described operations.

MATERIALS

(3/27/13) (Rev. 8/31/13) 1000, 1005, 1050, 1074, 1078, 1080, 1081, 1084, 1087, 1092 DB 10 R01

Revise the 2012 *Standard Specifications for Roads and Structures* as follows:

Page 10-1, Article 1000-1, DESCRIPTION, line 14, add the following:

Use materials which do not produce a mottled appearance through rusting or other staining of the finished concrete surface.

Page 10-5, Table 1000-1, REQUIREMENTS FOR CONCRETE, replace with the following:

TABLE 1000-1
REQUIREMENTS FOR CONCRETE

Class of Concrete	Min. Comp. Strength at 28 days	Maximum Water-Cement Ratio				Consistency Max. Slump		Cement Content			
		Air-Entrained Concrete		Non Air-Entrained Concrete		Vibrated	Non-Vibrated	Vibrated		Non- Vibrated	
		Rounded Aggregate	Angular Aggre-gate	Rounded Aggregate	Angular Aggre-gate			Min.	Max.	Min.	Max.
Units	*psi*					*inch*	*inch*	*lb/cy*	*lb/cy*	*lb/cy*	*lb/cy*
AA	4,500	0.381	0.426	-	-	3.5	-	639	715	-	-
AA Slip Form	4,500	0.381	0.426	-	-	1.5	-	639	715	-	-
Drilled Pier	4,500	-	-	0.450	0.450	-	5-7 dry 7-9 wet	-	-	640	800
A	3,000	0.488	0.532	0.550	0.594	3.5	4	564	-	602	-
B	2,500	0.488	0.567	0.559	0.630	2.5	4	508	-	545	-
B Slip Formed	2,500	0.488	0.567	-	-	1.5	-	508	-	-	-
Sand Light-weight	4,500	-	0.420	-	-	4	-	715	-	-	-
Latex Modified	3,000 7 day	0.400	0.400	-	-	6	-	658	-	-	-
Flowable Fill excavatable	150 max. at 56 days	as needed	as needed	as needed	as needed	-	Flow-able	-	-	40	100
Flowable Fill non-excavatable	125	as needed	as needed	as needed	as needed	-	Flow-able	-	-	100	as needed
Pavement	4,500 design, field 650 flexural, design only	0.559	0.559	-	-	1.5 slip form 3.0 hand place	-	526	-	-	-
Precast	See Table 1077-1	as needed	as needed	-	-	6	as needed	as needed	as needed	as needed	as needed
Prestress	per contract	See Table 1078-1	See Table 1078-1	-	-	8	-	564	as needed	-	-

Page 10-65, Article 1050-1, GENERAL, line 41, replace the first sentence with:

All fencing material and accessories shall meet Section 106.

Page 10-23, Table 1005-1, AGGREGATE GRADATION-COARSE AGGREGATE, replace with the following:

TABLE 1005-1
AGGREGATE GRADATION - COARSE AGGREGATE

Std. Size #	Percentage of Total by Weight Passing												Remarks
	2"	1 1/2"	1"	3/4"	1/2"	3/8"	#4	#8	#10	#16	#40	#200	
4	100	90-100	20-55	0-15	-	0-5	-	-	-	-	-	A	Asphalt Plant Mix
467M	100	95-100	-	35-70	-	0-30	0-5	-	-	-	-	A	Asphalt Plant Mix
5	-	100	90-100	20-55	0-10	0-5	-	-	-	-	-	A	AST, Sediment Control Stone
57	-	100	95-100	-	25-60	-	0-10	0-5	-	-	-	A	AST, Str. Concrete, Shoulder Drain, Sediment Control Stone
57M	-	100	95-100	-	25-45	-	0-10	0-5	-	-	-	A	AST, Concrete Pavement
6M	-	-	100	90-100	20-55	0-20	0-8	-	-	-	-	A	AST
67	-	-	100	90-100	-	20-55	0-10	0-5	-	-	-	A	AST, Str. Concrete, Asphalt Plant Mix
78M	-	-	-	100	98-100	75-100	20-45	0-15	-	-	-	A	Asphalt Plant Mix, AST, Str. Conc, Weep Hole Drains
14M	-	-	-	-	-	100	35-70	5-20	-	0-8	-	A	Asphalt Plant Mix, AST, Weep Hole Drains, Str. Concrete
9	-	-	-	-	-	100	85-100	10-40	-	0-10	-	A	AST
ABC	-	100	75-97	-	55-80	-	35-55	-	25-45	-	14-30	4-12[B]	Aggregate Base Course, Aggregate Stabilization
ABC (M)	-	100	75-100	-	45-79	-	20-40	-	0-25	-	-	0-12[B]	Maintenance Stabilization
Light-weight[C]	-	-	-	-	100	80-100	5-40	0-20	-	0-10	-	0-2.5	AST

A. See Subarticle 1005-4(A).
B. See Subarticle 1005-4(B).
C. For Lightweight Aggregate used in Structural Concrete, see Subarticle 1014-2(E)(6).

Page 10-115, Subarticle 1074-7(B), Gray Iron Castings, lines 10-11, replace with the first two sentences with the following:

Supply gray iron castings meeting all facets of AASHTO M 306 excluding proof load. Proof load testing will only be required for new casting designs during the design process, and

conformance to M306 loading (40,000 lbs.) will be required only when noted on the design documents

Page 10-126, Table 1078-1, REQUIREMENTS FOR CONCRETE, replace with the following:

TABLE 1078-1 REQUIREMENTS FOR CONCRETE		
Property	**28 Day Design Compressive Strength 6,000 psi or less**	**28 Day Design Compressive Strength greater than 6,000 psi**
Maximum Water/Cementitious Material Ratio	0.45	0.40
Maximum Slump without HRWR	3.5"	3.5"
Maximum Slump with HRWR	8"	8"
Air Content (upon discharge into forms)	5 + 2%	5 + 2%

Page 10-151, Article 1080-4 Inspection and Sampling, lines 18-22, replace (B), (C) and (D) with the following:

(B) At least 3 panels prepared as specified in 5.5.10 of AASHTO M 300, Bullet Hole Immersion Test.

(C) At least 3 panels of 4"x6"x1/4" for the Elcometer Adhesion Pull Off Test, ASTM D4541.

(D) A certified test report from an approved independent testing laboratory for the Salt Fog Resistance Test, Cyclic Weathering Resistance Test, and Bullet Hole Immersion Test as specified in AASHTO M 300.

(E) A certified test report from an approved independent testing laboratory that the product has been tested for slip coefficient and meets AASHTO M253, Class B.

Page 10-161, Subarticle 1081-1(A) Classifications, lines 29-33, delete first 3 sentences of the description for Type 2 and replace with the following:

Type 2 - A low-modulus, general-purpose adhesive used in epoxy mortar repairs. It may be used to patch spalled, cracked or broken concrete where vibration, shock or expansion and contraction are expected.

Page 10-162, Subarticle 1081-1(A) Classifications, lines 4-7, delete the second and third sentences of the description for Type 3A. **Lines 16-22,** delete Types 6A, 6B and 6C.

Page 10-162, Subarticle 1081-1(B) Requirements, lines 26-30, replace the second paragraph with the following:

For epoxy resin systems used for embedding dowel bars, threaded rods, rebar, anchor bolts and other fixtures in hardened concrete, the manufacturer shall submit test results showing that the bonding system will obtain 125% of the specified required yield strength of the fixture. Furnish certification that, for the particular bolt grade, diameter and embedment depth required, the anchor system will not fail by adhesive failure and that there is no movement of the anchor bolt. For certification and anchorage, use 3,000 psi as the minimum Portland cement concrete compressive strength used in this test. Use adhesives that meet Section 1081.

List the properties of the adhesive on the container and include density, minimum and maximum temperature application, setting time, shelf life, pot life, shear strength and compressive strength.

Page 10-163, Table 1081-1 Properties of Mixed Epoxy Resin Systems, replace table with the following:

Table 1081-1
Properties of Mixed Epoxy Resin Systems

Property	Type 1	Type 2	Type 3	Type 3A	Type 4A	Type 4B	Type 5
Viscosity-Poises at 77°F ± 2°F	Gel	10-30	25-75	Gel	40-150	40-150	1-6
Spindle No.	-	3	4	-	4	4	2
Speed (RPM)	-	20	20	-	10	10	50
Pot Life (Minutes)	20-50	30-60	20-50	5-50	40-80	40-80	20-60
Minimum Tensile Strength at 7 days (psi)	1,500	2,000	4,000	4,000	1,500	1,500	4,000
Tensile Elongation at 7 days (%)	30 min.	30 min.	2-5	2-5	5-15	5-15	2-5
Min. Compressive Strength of 2" mortar cubes at 24 hours	3,000 (Neat)	4,000-	6,000-	6,000 (Neat)	3,000	3,000	6,000
Min. Compressive Strength of 2" mortar cubes at 7 days	5,000 (Neat)	-	-	-	-	5,000	-
Maximum Water Absorption (%)	1.5	1.0	1.0	1.5	1.0	1.0	1.0
Min. Bond Strength Slant Shear Test at 14 days (psi)	1,500	1,500	2,000	2,000	1,500	1,500	1,500

Page 10-164, Subarticle 1081-1(E) Prequalification, lines 31-33, replace the second sentence of the first paragraph with the following:

Manufacturers choosing to supply material for Department jobs must submit an application through the Value Management Unit with the following information for each type and brand name:

Page 10-164, Subarticle 1081-1(E)(3), line 37, replace this subarticle with the following:

(3) Type of the material in accordance with Articles 1081-1 and 1081-4.

Page 10-165, Subarticle 1081-1(E)(6), line 1, in the first sentence of the first paragraph replace "AASHTO M 237" with "the specifications".

Page 10-165, Subarticle 1081-1(E) Prequalification, line 9-10, delete the second sentence of the last paragraph.

Page 10-165, Subarticle 1081-1(F) Acceptance, line 14, in the first sentence of the first paragraph replace "Type 1" with "Type 3".

Page 10-169, Subarticle 1081-3(G) Anchor Bolt Adhesives, delete this subarticle.

Page 10-170, Article 1081-3 Hot Bitumen, line 9, add the following at the end of Section 1081:

1081-4 EPOXY RESIN ADHESIVE FOR BONDING TRAFFIC MARKINGS

(A) General

This section covers epoxy resin adhesive for bonding traffic markers to pavement surfaces.

(B) Classification

The types of epoxies and their uses are as shown below:

Type I – Rapid Setting, High Viscosity, Epoxy Adhesive. This type of adhesive provides rapid adherence to traffic markers to the surface of pavement.

Type II – Standard Setting, High Viscosity, Epoxy Adhesive. This type of adhesive is recommended for adherence of traffic markers to pavement surfaces when rapid set is not required.

Type III – Rapid Setting, Low Viscosity, Water Resistant, Epoxy Adhesive. This type of rapid setting adhesive, due to its low viscosity, is appropriate only for use with embedded traffic markers.

Type IV – Standard Set Epoxy for Blade Deflecting-Type Plowable Markers.

(C) Requirements

Epoxies shall conform to the requirements set forth in AASHTO M 237.

(D) Prequalification

Refer to Subarticle 1081-1(E).

(E) Acceptance

Refer to Subarticle 1081-1(F).

Page 10-173, Article 1084-2 STEEL SHEET PILES, lines 37-38, replace first paragraph with the following:

Steel sheet piles detailed for permanent applications shall be hot rolled and meet ASTM A572 or ASTM A690 unless otherwise required by the plans developed by the Design-Build Team. Steel sheet piles shall be coated as required by the plans developed by the Design-Build Team. Galvanized sheet piles shall be coated in accordance with Section 1076. Metallized sheet piles shall be metallized in accordance to the Project Special Provision "Thermal Sprayed Coatings (Metallization)" with an 8 mil, 99.9% aluminum alloy coating and a 0.5 mil seal coating. Any portion of the metallized sheet piling encased in concrete shall receive a barrier coat. The barrier coat shall be an approved waterborne coating with a low-viscosity which readily absorbs into the pores of the aluminum thermal sprayed coating. The waterborne coating shall be applied at a spreading rate that results in a theoretical 1.5 mil dry film thickness. The manufacturer shall issue a letter of certification that the resin chemistry of the waterborne coating is compatible with the 99.9% aluminum thermal sprayed alloy and suitable for tidal water applications.

Page 10-174, Subarticle 1086-1(B)(1) Epoxy, lines 18-24, replace this subarticle with the following:

The epoxy shall meet Article 1081-4.

The 2 types of epoxy adhesive which may be used are Type I, Rapid Setting, and Type II, Standard Setting. Use Type II when the pavement temperature is above 60°F or per the manufacturer's recommendations whichever is more stringent. Use Type I when the pavement temperature is between 50°F and 60°F or per the manufacturer's recommendations whichever is more stringent. Epoxy adhesive Type I, Cold Set, may be used to attach temporary pavement markers to the pavement surface when the pavement temperature is between 32°F and 50°F or per the manufacturer's recommendations whichever is more stringent.

Page 10-175, Subarticle 1086-2(E) Epoxy Adhesives, line 27, replace "Section 1081" with "Article 1081-4".

Page 10-177, Subarticle 1086-3(E) Epoxy Adhesives, line 22, replace "Section 1081" with "Article 1081-4".

Page 10-179, Subarticle 1087-4(A) Composition, lines 39-41, replace the third paragraph with the following:

All intermixed and drop-on glass beads shall not contain more than 75 ppm arsenic or 200 ppm lead.

Page 10-180, Subarticle 1087-4(B) Physical Characteristics, line 8, replace the second paragraph with the following:

All intermixed and drop-on glass beads shall comply with NCGS § 136-30.2 and 23 USC § 109(r).

Page 10-181, Subarticle 1087-7(A) Intermixed and Drop-on Glass Beads, line 24, add the following after the first paragraph:

Use X-ray Fluorescence for the normal sampling procedure for intermixed and drop-on beads, without crushing, to check for any levels of arsenic and lead. If any arsenic or lead is detected, the sample shall be crushed and repeat the test using X-ray Fluorescence. If the X-ray Fluorescence test shows more than a LOD of 5 ppm, test the beads using United States Environmental Protection Agency Method 6010B, 6010C or 3052 for no more than 75 ppm arsenic or 200 ppm lead.

Page 10-204, Subarticle 1092-2(A) Performance and Test Requirements, replace **Table 1092-3 Minimum Coefficient of Retroreflection for NC Grade A** with the following:

TABLE 1092-3
MINIMUM COEFFICIENT OF RETROREFLECTION FOR NC GRADE A
(Candelas Per Lux Per Square Meter)

Observation Angle, degrees	Entrance Angle, degrees	White	Yellow	Green	Red	Blue	Fluorescent Yellow Green	Fluorescent Yellow
0.2	-4.0	525	395	52	95	30	420	315
0.2	30.0	215	162	22	43	10	170	130
0.5	-4.0	310	230	31	56	18	245	185
0.5	30.0	135	100	14	27	6	110	81
1.0	-4.0	120	60	8	16	3.6	64	48
1.0	30.0	45	34	4.5	9	2	36	27

SELECT MATERIAL, CLASS III, TYPE 3

12-02-11 DB10 R005

Revise the 2012 *Standard Specifications for Roads and Structures* as follows:

Page 10-39, Article 1016-3, CLASS III, add the following after line 14:

Type 3 Select Material

Type 3 select material is a natural or manufactured fine aggregate material meeting the following gradation requirements and as described in Sections 1005 and 1006:

Percentage of Total by Weight Passing

3/8"	#4	#8	#16	#30	#50	#100	#200
100	95-100	65-100	35-95	15-75	5-35	0-25	0-8

Page 10-39, Article 1016-3, CLASS III, line 15, replace "either type" with "Type 1, Type 2 or Type 3".

Page 10-62, Article 1044-1, line 36, delete the sentence and replace with the following:

Subdrain fine aggregate shall meet Class III select material, Type 1 or Type 3.

Page 10-63, Article 1044-2, line 2, delete the sentence and replace with the following:

Subdrain coarse aggregate shall meet Class V select material.

SHOULDER AND SLOPE BORROW

1/22/13 1019 DB10 R10

Use soil in accordance with Section 1019 of the 2012 *Standard Specifications for Roads and Structures*. Use soil consisting of loose, friable, sandy material with a PI greater than 6 and less than 25 and a pH ranging from 5.5 to 7.0.

Soil with a pH ranging from 4.0 to 5.5 will be accepted without further testing if additional limestone is provided in accordance with the application rates shown in Table 1019-1A. Soil type is identified during the soil analysis. Soils with a pH above 7.0 require acidic amendments to be added. Submit proposed acidic amendments to the Engineer for review and approval. Soils with a pH below 4.0 or that do not meet the PI requirements shall not be used.

TABLE 1019-1A
ADDITIONAL LIMESTONE APPLICATION RATE TO RAISE pH

pH TEST RESULT	Sandy Soils Additional Rate (lbs. / Acre)	Silt Loam Soils Additional Rate (lbs. / Acre)	Clay Loam Soils Additional Rate (lbs. / Acre)
4.0 - 4.4	1,000	4,000	6,000
4.5 - 4.9	500	3,000	5,000
5.0 - 5.4	NA	2,000	4,000

Note: Limestone application rates shown in this table are in addition to the standard rate of 4000 lbs. / acre required for seeding and mulching.

No direct payment will be made for providing additional lime or acidic amendments for pH adjustment.

TEMPORARY SHORING

(3-26-13) DB11 R02

Description

Temporary shoring includes cantilever, braced and anchored shoring and temporary mechanically stabilized earth (MSE) walls. Temporary shoring does not include trench boxes. At the Design-Build Team's option, use any type of temporary shoring. In addition, the Design-Build Team may elect to consider the use of standard shoring where appropriate. In such case,

the Standard Shoring Project Special Provision, standard shoring selection forms, and Standard Temporary Shoring Drawings No. 1801.01 and / or 1801.02 will apply. The Standard Shoring provision can be found at:

https://connect.ncdot.gov/resources/Geological/Pages/Geotech_Provisions_Notes.aspx

and the standard shoring selection forms and aforementioned drawings may be found at:

https://connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx

Design and construct temporary shoring based on actual elevations and shoring dimensions in accordance with the contract and accepted submittals. Construct temporary shoring at locations shown in the plans developed by the Design-Build Team. Temporary shoring is required to maintain traffic when a 2:1 (H:V) slope from the top of an embankment or bottom of an excavation will intersect the existing ground line less than 5 feet from the edge of pavement of an open travelway. This provision does not apply to pipe, inlet or utility installation unless noted otherwise in the plans.

Positive protection includes concrete barrier and temporary guardrail. Provide positive protection for temporary shoring at locations shown in the plans and as directed. Positive protection is required if temporary shoring is located in the clear zone in accordance with the *AASHTO Roadside Design Guide*.

(A) Cantilever and Braced Shoring

Cantilever shoring consists of steel sheet piles or H-piles with timber lagging. Braced shoring consists of sheet piles or H-piles with timber lagging and bracing such as beams, plates, walers, struts, rakers, etc. Define "piles" as sheet piles or H-piles.

(B) Anchored Shoring

Anchored shoring consists of sheet piles with walers or H-piles with timber lagging anchored with ground or helical anchors. Driven anchors may be accepted at the discretion of the Engineer. A ground anchor consists of a grouted steel bar or multi-strand tendon with an anchorage. A helical anchor consists of a lead section with a central steel shaft and at least one helix steel plate followed by extensions with only central shafts (no helixes) and an anchorage. Anchorages consist of steel bearing plates with washers and hex nuts for bars or steel wedge plates and wedges for strands. Use a prequalified Anchored Wall Contractor to install ground anchors. Define "anchors" as ground, helical or driven anchors.

(C) Temporary MSE Walls

Temporary MSE walls include temporary geosynthetic and wire walls. Define "temporary wall" as a temporary MSE wall. Define "reinforcement" as geotextile, geogrid, welded wire grid or metallic strip reinforcement.

Temporary geosynthetic walls consist of geotextile or geogrid reinforcement wrapped

behind welded wire facing. Define "temporary geotextile wall" as a temporary geosynthetic wall with geotextile reinforcement and "temporary geogrid wall" as a temporary geosynthetic wall with geogrid reinforcement.

Temporary wire walls consist of welded wire grid or metallic strip reinforcement connected to welded wire facing. Define "Wire Wall Vendor" as the vendor supplying the temporary wire wall.

(D) Embedment

Define "embedment" for cantilever, braced and anchored shoring as the pile depth below the grade in front of shoring. Define "embedment" for temporary walls as the wall height below the grade in front of walls.

(E) Positive Protection

Define "unanchored or anchored portable concrete barrier" as portable concrete barrier (PCB) that meets *Roadway Standard Drawings* No. 1170.01. Define "concrete barrier" as unanchored or anchored PCB or an approved equal. Define "temporary guardrail" as temporary steel beam guardrail that meets *Roadway Standard Drawings* No. 862.02.

Materials

Refer to the 2012 *Standard Specifications for Roads and Structures.*

Item	Section
Anchor Pins	1056-2
Concrete Barrier Materials	1170-2
Flowable Fill, Excavatable	1000-6
Geotextiles	1056
Neat Cement Grout	1003
Portland Cement Concrete	1000
Select Material	1016
Steel Plates	1072-2
Steel Beam Guardrail Materials	862-2
Steel Sheet Piles and H-Piles	1084
Untreated Timber	1082-2
Welded Wire Reinforcement	1070-3
Wire Staples	1060-8(D)

Provide Type 6 material certifications for shoring material in accordance with Article 106-3 of the 2012 *Standard Specifications.* Use Class IV select material (standard size No. ABC) for temporary guardrail. Use nonshrink neat cement grout or Class A concrete that meets Article 450-2 of the 2012 *Standard Specifications for Roads and Structures* for drilled-in H-piles. Provide concrete with a slump of 6" to 8". Use an approved high-range water reducer to achieve this slump. Use untreated timber with a thickness of at least 3" and a bending stress of at least 1,000 psi for timber lagging. Provide steel bracing that meets ASTM A36.

Shoring Backfill

Use Class II, Type 1, Class III, Class V or Class VI select material or material that meets AASHTO M 145 for soil classification A-2-4 with a maximum PI of 6 for shoring backfill except do not use A-2-4 soil for backfill around culverts.

(A) Anchors

Store anchor materials on blocking a minimum of 12" above the ground and protect it at all times from damage; and when placing in the work make sure it is free from dirt, dust, loose mill scale, loose rust, paint, oil or other foreign materials. Load, transport, unload and store anchor materials such that they are kept clean and free of damage. Bent, damaged or defective materials will be rejected.

(1) Ground Anchors

Use high-strength deformed steel bars that meet AASHTO M 275 or seven-wire strands that meet ASTM A886 or Article 1070-5 of the 2012 *Standard Specifications for Roads and Structures*. Splice bars in accordance with Article 1070-9 of the 2012 *Standard Specifications for Roads and Structures*. Do not splice strands. Use bondbreakers, spacers and centralizers that meet Article 6.3.5 of the *AASHTO LRFD Bridge Construction Specifications*.

(2) Helical Anchors

Use helical anchors with an ICC Evaluation Service, Inc. (ICC-ES) report. Helical anchors without an ICC-ES report may be approved at the discretion of the Engineer. Provide couplers, thread bar adapters and bolts recommended by the Anchor Manufacturer to connect helical anchors together and to piles.

(3) Anchorages

Provide steel plates for bearing plates and steel washers, hex nuts, wedge plates and wedges recommended by the Anchor Manufacturer.

(B) Temporary Walls

(1) Welded Wire Facing

Use welded wire reinforcement for welded wire facing, struts and wires. For temporary wire walls, provide welded wire facing supplied by the Wire Wall Vendor or a manufacturer approved or licensed by the vendor. For temporary wire walls with separate reinforcement and facing components, provide connectors (e.g., bars, clamps, plates, etc.) and fasteners (e.g., bolts, nuts, washers, etc.) required by the Wire Wall Vendor.

Geotextiles

Provide Type 2 geotextile for separation and retention geotextiles. Provide Type 5 geotextile for geotextile reinforcement with ultimate tensile strengths in accordance with the accepted submittals.

(2) Geogrid Reinforcement

Handle and store geogrids in accordance with Article 1056-2 of the 2012 *Standard Specifications for Roads and Structures.* Define "machine direction" (MD) and "cross-machine direction" (CD) for geogrids in accordance with ASTM D4439.

Use geogrids with a roll width of at least 4 ft and an "approved" or "approved for provisional use" status code . The list of approved geogridsis available from:

connect.ncdot.gov/resources/Materials/Pages/SoilsLaboratory.aspx

Provide geogrids for geogrid reinforcement with design strengths in accordance with the accepted submittals. Geogrids are typically approved for ultimate tensile strengths in the MD and CD or short-term design strengths for a 3-year design life in the MD based on material type. Define material type from the website above for shoring backfill as follows:

Material Type	Shoring Backfill
Borrow	A-2-4 Soil
Fine Aggregate	Class II, Type 1 or Class III Select Material
Coarse Aggregate	Class V or VI Select Material

(3) Welded Wire Grid and Metallic Strip Reinforcement

Provide welded wire grid and metallic strip reinforcement supplied by the Wire Wall Vendor or a manufacturer approved or licensed by the vendor. Use welded wire grid reinforcement ("mesh", "mats" and "ladders") that meet Article 1070-3 of the 2012 *Standard Specifications for Roads and Structures* and metallic strip reinforcement ("straps") that meet ASTM A572 or A1011.

Preconstruction Requirements

(A) Concrete Barrier

Define "clear distance" behind concrete barrier as the horizontal distance between the barrier and edge of pavement. The minimum required clear distance for concrete barrier is shown in the plans. At the Design-Build Team's option or if the minimum required clear distance is not available, set concrete barrier next to and up against traffic side of temporary shoring except for barrier above temporary walls. Concrete barrier with the

minimum required clear distance is required above temporary walls.

(B) Temporary Guardrail

Define "clear distance" behind temporary guardrail as the horizontal distance between guardrail posts and temporary shoring. At the Design-Build Team's option or if clear distance for cantilever, braced and anchored shoring is less than 4 ft, attach guardrail to traffic side of shoring as shown in the plans. Place ABC in clear distance and around guardrail posts instead of pavement. Do not use temporary guardrail above temporary walls.

(C) Temporary Shoring Designs

Before beginning temporary shoring design, survey existing ground elevations in the vicinity of shoring locations to determine actual design heights (H). Submit 8 copies of working drawings and 3 copies of design calculations and a PDF copy of each for temporary shoring designs in accordance with Article 105-2 of the 2012 *Standard Specifications for Roads and Structures*. Submit working drawings showing plan views, shoring profiles, typical sections and details of temporary shoring design and construction sequence. Do not begin shoring construction until a design submittal is accepted.

Have cantilever and braced shoring designed, detailed and sealed by an engineer licensed in the state of North Carolina. Use a prequalified Anchored Wall Design Consultant to design anchored shoring. Provide anchored shoring designs sealed by a Design Engineer approved as a Geotechnical Engineer (key person) for an Anchored Wall Design Consultant. Include details in anchored shoring working drawings of anchor locations and lock-off loads, unit grout/ground bond strengths for ground anchors or minimum installation torque and torsional strength rating for helical anchors and if necessary, obstructions extending through shoring or interfering with anchors. Include details in the anchored shoring construction sequence of pile and anchor installation, excavation and anchor testing.

Use a prequalified MSE Wall Design Consultant to design temporary walls. Provide temporary wall designs sealed by a Design Engineer approved as a Geotechnical Engineer (key person) for the MSE Wall Design Consultant. Include details in temporary wall working drawings of geotextile and reinforcement types, locations and directions and obstructions extending through walls or interfering with reinforcement.

(1) Soil Parameters

Design temporary shoring for the assumed soil parameters and groundwater elevations shown in the plans. Assume the following soil parameters for shoring backfill:

(a) Unit weight (γ) = 120 lb/cf;

(b)

Friction Angle (Φ)	Shoring Backfill
30°	A-2-4 Soil
34°	Class II, Type 1 or Class III Select Material
38°	Class V or VI Select Material

(c) Cohesion (c) = 0 lb/sf.

(2) Traffic Surcharge

Design temporary shoring for a traffic surcharge of 250 lb/sf if traffic will be above and within H of shoring. This traffic surcharge does not apply to construction traffic. Design temporary shoring for any construction surcharge if construction traffic will be above and within H of shoring. For LRFD shoring designs, apply traffic (live load) surcharge in accordance with Figure C11.5.5-3 of the *AASHTO LRFD Bridge Design Specifications.*

(3) Cantilever, Braced and Anchored Shoring Designs

Use shoring backfill for fill sections and voids between cantilever, braced and anchored shoring and the critical failure surface. Use grout or concrete for embedded portions of drilled-in H-piles. Do not use drilled-in sheet piles.

Define "top of shoring" for cantilever, braced and anchored shoring as where the grade intersects the back of sheet piles or H-piles and timber lagging. Design cantilever, braced and anchored shoring for a traffic impact load of 2,000 lb/ft applied 18" above top of shoring if concrete barrier is above and next to shoring or temporary guardrail is above and attached to shoring. For anchored shoring designs, apply traffic impact load as horizontal load (P_{HI}) in accordance with Figure 3.11.6.3-2(a) of the AASHTO LRFD specifications.

Extend cantilever, braced and anchored shoring at least 32" above top of shoring if shoring is designed for traffic impact. Otherwise, extend shoring at least 6" above top of shoring.

Design cantilever, braced and anchored shoring for a maximum deflection of 3" if the horizontal distance to the closest edge of pavement or structure is less than H. Otherwise, design shoring for a maximum deflection of 6". Design cantilever and braced shoring in accordance with the plans and *AASHTO Guide Design Specifications for Bridge Temporary Works.*

Design anchored shoring in accordance with the plans and Article 11.9 of the *AASHTO LRFD Bridge Design Specifications.* Use a resistance factor of 0.80 for tensile resistance of anchors with bars, strands or shafts. Extend the unbonded length for ground anchors and the shallowest helix for helical anchors at least 5 ft

behind the critical failure surface. Do not extend anchors beyond right-of-way or easement limits. If existing or future obstructions such as foundations, guardrail posts, pavements, pipes, inlets or utilities will interfere with anchors, maintain a clearance of at least 6" between obstructions and anchors.

(4) Temporary Wall Designs

Use shoring backfill in the reinforced zone of temporary walls. Separation geotextiles are required between shoring backfill and backfill, natural ground or culverts along the sides of the reinforced zone perpendicular to the wall face. For Class V or VI select material in the reinforced zone, separation geotextiles are also required between shoring backfill and backfill or natural ground on top of and at the back of the reinforced zone.

Design temporary walls in accordance with the plans and Article 11.10 of the *AASHTO LRFD Bridge Design Specifications*. Embed temporary walls at least 18" except for walls on structures or rock as determined by the Engineer. Use a uniform reinforcement length throughout the wall height of at least 0.7H or 6 ft, whichever is greater. Extend the reinforced zone at least 6" beyond end of reinforcement. Do not locate the reinforced zone outside right-of-way or easement limits.

Use the simplified method for determining maximum reinforcement loads in accordance with the AASHTO LRFD specifications. For geotextile reinforcement, use geotextile properties approved by the Department or default values in accordance with the AASHTO LRFD specifications. For geogrid reinforcement, use approved geogrid properties available from the website shown elsewhere in this provision. If the website does not list a short-term design strength for an approved geogrid, use a short-term design strength equal to the ultimate tensile strength divided by 3.5 for the geogrid reinforcement. Use geosynthetic properties for the direction reinforcement will be installed, a 3-year design life and shoring backfill to be used in the reinforced zone.

Do not use more than 4 different reinforcement strengths for each temporary geosynthetic wall. Design temporary geotextile walls for a reinforcement coverage ratio (R_c) of 1.0 and temporary geogrid walls for an R_c of at least 0.8. For geogrid reinforcement with an R_c of less than 1.0, use a maximum horizontal clearance between geogrids of 3 feet and stagger reinforcement so geogrids are centered over gaps in the reinforcement layer below.

For temporary geosynthetic walls, use “L” shaped welded wire facing with 18" to 24" long legs. Locate geotextile or geogrid reinforcement so reinforcement layers are at the same level as the horizontal legs of welded wire facing. Use vertical reinforcement spacing equal to facing height. Wrap geotextile or geogrid reinforcement behind welded wire facing and extend reinforcement at least 3 ft back behind facing into shoring backfill.

For temporary wire walls with separate reinforcement and facing components, attach welded wire grid or metallic strip reinforcement to welded wire facing with a connection approved by the Department. For temporary geogrid and wire walls, retain shoring backfill at welded wire facing with retention geotextiles and extend geotextiles at least 3 feet back behind facing into backfill.

(D) Preconstruction Meeting

The Engineer may require a shoring preconstruction meeting to discuss the construction, inspection and testing of the temporary shoring. If required, schedule this meeting after all shoring submittals have been accepted. The Resident, District or Bridge Maintenance Engineer, Bridge or Roadway Construction Engineer, Geotechnical Operations Engineer, Contractor and Shoring Contractor Superintendent will attend this preconstruction meeting.

Construction Methods

Control drainage during construction in the vicinity of shoring. Direct run off away from shoring and shoring backfill. Contain and maintain backfill and protect material from erosion.

Install positive protection in accordance with the contract and accepted submittals. Use PCB in accordance with Section 1170 of the 2012 *Standard Specifications for Roads and Structures* and Standard Drawing No. 1170.01. Use temporary guardrail in accordance with Section 862 of the 2012 *Standard Specifications for Roads and Structures* and Standard Drawing No. 862.01, 862.02 and 862.03 of the 2012 *Roadway Standard Drawings*.

(A) Tolerances

Construct shoring with the following tolerances:

(1) Horizontal wires of welded wire facing are level in all directions,

(2) Shoring location is within 6" of horizontal and vertical alignment shown in the accepted submittals, and

(3) Shoring plumbness (batter) is not negative and within 2° of vertical.

(B) Cantilever, Braced and Anchored Shoring Installation

If overexcavation behind cantilever, braced or anchored shoring is shown in the accepted submittals, excavate before installing piles. Otherwise, install piles before excavating for shoring. Install cantilever, braced or anchored shoring in accordance with the construction sequence shown in the accepted submittals. Remove piles and if applicable, timber lagging when shoring is no longer needed.

(1) Pile Installation

Install piles with the minimum required embedment and extension in accordance

with Subarticles 450-3(D) and 450-3(E) of the 2012 *Standard Specifications for Roads and Structures* except that a pile driving equipment data form is not required. Piles may be installed with a vibratory hammer as approved by the Engineer.

Do not splice sheet piles. Use pile excavation to install drilled-in H-piles. After filling holes with grout or concrete to the elevations shown in the accepted submittals, remove any fluids and fill remaining portions of holes with flowable fill. Cure grout or concrete at least 7 days before excavating.

Notify the Engineer if refusal is reached before pile excavation or driven piles attain the minimum required embedment. When this occurs, a revised design submittal may be required.

(2) Excavation

Excavate in front of piles from the top down in accordance with the accepted submittals. For H-piles with timber lagging and braced and anchored shoring, excavate in staged horizontal lifts with a maximum height of 5 ft. Remove flowable fill and material in between H-piles as needed to install timber lagging. Position lagging with at least 3" of contact in the horizontal direction between the lagging and pile flanges. Do not excavate the next lift until timber lagging for the current lift is installed and if applicable, bracing and anchors for the current lift are accepted. Backfill behind cantilever, braced or anchored shoring with shoring backfill.

(3) Anchor Installation

If applicable, install foundations located behind anchored shoring before installing anchors. Fabricate and install ground anchors in accordance with the accepted submittals, Articles 6.4 and 6.5 of the *AASHTO LRFD Bridge Construction Specifications* and the following unless otherwise approved:

(a) Materials in accordance with this provision are required instead of materials conforming to Articles 6.4 and 6.5.3 of the AASHTO LRFD Specifications,

(b) Encapsulation-protected ground anchors in accordance with Article 6.4.1.2 of the AASHTO LRFD specifications are not required, and

(c) Corrosion protection for unbonded lengths of ground anchors and anchorage covers are not required.

Install helical anchors in accordance with the accepted submittals and Anchor Manufacturer's instructions. Measure torque during installation and do not exceed the torsional strength rating of the helical anchor. Attain the minimum required installation torque and penetration before terminating anchor installation.

When replacing a helical anchor, embed last helix of the replacement anchor at least 3 helix plate diameters past the location of the first helix of the previous anchor.

(4) Anchor Testing

Proof test and lock-off anchors in accordance with the accepted submittals and Article 6.5.5 of the *AASHTO LRFD Bridge Construction Specifications* except for the acceptance criteria in Article 6.5.5.5. For the AASHTO LRFD specifications, "ground anchor" refers to a ground or helical anchor and "tendon" refers to a bar, strand or shaft.

(a) Anchor Acceptance

Anchor acceptance is based in part on the following criteria.

(i) For ground and helical anchors, total movement is less than 0.04" between the 1 and 10 minute readings or less than 0.08" between the 6 and 60 minute readings.

(ii) For ground anchors, total movement at maximum test load exceeds 80% of the theoretical elastic elongation of the unbonded length.

(b) Anchor Test Results

Submit 2 copies of anchor test records including movement versus load plots for each load increment within 24 hours of completing each row of anchors. The Engineer will review the test records to determine if the anchors are acceptable.

If the Engineer determines an anchor is unacceptable, revise the anchor design or installation methods. Submit a revised anchored shoring design for acceptance and provide an acceptable anchor with the revised design or installation methods. If required, replace the anchor or provide additional anchors with the revised design or installation methods.

(C) Temporary Wall Installation

Excavate as necessary for temporary walls in accordance with the plans and accepted submittals. If applicable, install foundations located in the reinforced zone before placing shoring backfill or reinforcement unless otherwise approved. Notify the Engineer when foundation excavation is complete. Do not place shoring backfill or reinforcement until excavation dimensions and foundation material are approved.

Erect welded wire facing so the wall position is as shown in the plans and accepted submittals. Set welded wire facing adjacent to each other in the horizontal and vertical direction to completely cover the wall face with facing. Stagger welded wire facing to

create a running bond by centering facing over joints in the row below.

Wrap geotextile reinforcement and retention geotextiles behind welded wire facing as shown in the plans and accepted submittals and cover geotextiles with at least 3" of shoring backfill. Overlap adjacent geotextile reinforcement and retention and separation geotextiles at least 18" with seams oriented perpendicular to the wall face. Hold geotextiles in place with wire staples or anchor pins as needed.

Place reinforcement within 3" of locations shown in the plans and accepted submittals and in slight tension free of kinks, folds, wrinkles or creases. Install reinforcement with the direction shown in the plans and accepted submittals. For temporary wire walls with separate reinforcement and facing components, attach welded wire grid or metallic strip reinforcement to welded wire facing as shown in the accepted submittals. Do not splice or overlap reinforcement so seams are parallel to the wall face. Contact the Engineer when unanticipated existing or future obstructions such as foundations, pavements, pipes, inlets or utilities will interfere with reinforcement.

Place shoring backfill in the reinforced zone in 8" to 10" thick lifts. Compact A-2-4 soil and Class II, Type 1 and Class III select material in accordance with Subarticle 235-3(C) of the 2012 *Standard Specifications for Roads and Structures*. Use only hand operated compaction equipment to compact backfill within 3 feet of welded wire facing. At a distance greater than 3 feet, compact shoring backfill with at least 4 passes of an 8 ton to 10 ton vibratory roller in a direction parallel to the wall face. Smooth wheeled or rubber tired rollers are also acceptable for compacting backfill. Do not use sheepsfoot, grid rollers or other types of compaction equipment with feet. Do not displace or damage reinforcement when placing and compacting shoring backfill. End dumping directly on geotextile or geogrid reinforcement is not permitted. Do not operate heavy equipment on reinforcement until it is covered with at least 8" of shoring backfill. Replace any damaged reinforcement to the satisfaction of the Engineer.

Backfill for temporary walls outside the reinforced zone in accordance with Article 410-8 of the 2012 *Standard Specifications for Roads and Structures*. Bench temporary walls into the sides of excavations where applicable. For temporary geosynthetic walls with top of wall within 5 feet of finished grade, remove top facing and incorporate top reinforcement layer into fill when placing fill in front of wall. Temporary walls remain in place permanently unless otherwise required.

TRUCK MOUNTED CHANGEABLE MESSAGE SIGNS

06/27/2012) 1101.02 DB11 R10

Revise the 2012 *Roadway Standard Drawings* as follows:

Drawing No. 1101.02, Sheet 12, TEMPORARY LANE CLOSURES, replace General Note #11 with the following:

11- TRUCK MOUNTED CHANGEABLE MESSAGE SIGNS (TMCMS) USED ON SHADOW VEHICLES FOR "IN LANE" ACTIVITIES SHALL BE A MINIMUM OF 43" X 73". THE DISPLAY PANEL SHALL HAVE FULL MATRIX CAPABILITY WITH

THE CAPABILITY TO PROVIDE 2 MESSAGE LINES WITH 7 CHARACTERS PER LINE WITH A MINIMUM CHARACTER HEIGHT OF 18". FOR ADDITIONAL MESSAGING, CONTACT THE WORK ZONE TRAFFIC CONTROL SECTION.

12- TMCMS USED FOR ADVANCED WARNING ON VEHICLES LOCATED ON THE SHOULDER MAY BE SMALLER THAN 43" X 73". THE DISPLAY PANEL SHALL HAVE THE CAPABILITY TO PROVIDE 2 MESSAGE LINES WITH 7 CHARACTERS PER LINE WITH A MINIMUM CHARACTER HEIGHT OF 18". FOR ADDITIONAL MESSAGING, CONTACT THE WORK ZONE TRAFFIC CONTROL SECTION.

Drawing No. 1101.02, Sheet 13, TEMPORARY LANE CLOSURES, replace General Note #12 with the following:

12- TRUCK MOUNTED CHANGEABLE MESSAGE SIGNS (TMCMS) USED ON SHADOW VEHICLES FOR "IN LANE" ACTIVITIES SHALL BE A MINIMUM OF 43" X 73". THE DISPLAY PANEL SHALL HAVE FULL MATRIX CAPABILITY WITH THE CAPABILITY TO PROVIDE 2 MESSAGE LINES WITH 7 CHARACTERS PER LINE WITH A MINIMUM CHARACTER HEIGHT OF 18". FOR ADDITIONAL MESSAGING, CONTACT THE WORK ZONE TRAFFIC CONTROL SECTION.

13- TMCMS USED FOR ADVANCED WARNING ON VEHICLES LOCATED ON THE SHOULDER MAY BE SMALLER THAN 43" X 73". THE DISPLAY PANEL SHALL HAVE THE CAPABILITY TO PROVIDE 2 MESSAGE LINES WITH 7 CHARACTERS PER LINE WITH A MINIMUM CHARACTER HEIGHT OF 18". FOR ADDITIONAL MESSAGING, CONTACT THE WORK ZONE TRAFFIC CONTROL SECTION.

COORDINATION OF EXISTING LIGHTING WORK

(6-24-12) DB14 R002

Maintain operation of the existing lighting systems until such time that it becomes in conflict with the actual construction work, or it becomes a hazard to traffic as determined by the Engineer.

Use care in working around the lights and circuitry and phase operations so that the disruption of existing lighting systems will be minimized. Make repairs or replacements in conformance with the contract. Should the Design-Build Team fail to make such repairs within the time allowed, the Department will cause the necessary repairs to be made by others. The costs of such repairs will be deducted from any monies due the Design-Build Team on the next subsequent monthly or final payment.

ON-THE-JOB TRAINING

(3-27-13) Z-10

Description

The North Carolina Department of Transportation will administer a custom version of the Federal On-the-Job Training (OJT) Program, commonly referred to as the Alternate OJT Program. All contractors (existing and newcomers) will be automatically placed in the Alternate

Program. Standard OJT requirements typically associated with individual projects will no longer be applied at the project level. Instead, these requirements will be applicable on an annual basis for each contractor administered by the OJT Program Manager.

On the Job Training shall meet the requirements of 23 CFR 230.107 (b), 23 USC – Section 140, this provision and the On-the-Job Training Program Manual.

The Alternate OJT Program will allow a contractor to train employees on Federal, State and privately funded projects located in North Carolina. However, priority shall be given to training employees on NCDOT Federal-Aid funded projects.

Minorities and Women

Developing, training and upgrading of minorities and women toward journeyman level status is a primary objective of this special training provision. Accordingly, the Contractor shall make every effort to enroll minority and women as trainees to the extent that such persons are available within a reasonable area of recruitment. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

Assigning Training Goals

The Department, through the OJT Program Manager, will assign training goals for a calendar year based on the contractors' past three years' activity and the contractors' anticipated upcoming year's activity with the Department. At the beginning of each year, all contractors eligible will be contacted by the Department to determine the number of trainees that will be assigned for the upcoming calendar year. At that time the Contractor shall enter into an agreement with the Department to provide a self-imposed on-the-job training program for the calendar year. This agreement will include a specific number of annual training goals agreed to by both parties. The number of training assignments may range from 1 to 15 per contractor per calendar year. The Contractor shall sign an agreement to fulfill their annual goal for the year. A sample agreement is available at:

www.ncbowd.com/section/on-the-job-training

Training Classifications

The Contractor shall provide on-the-job training aimed at developing full journeyman level workers in the construction craft/operator positions. Preference shall be given to providing training in the following skilled work classifications:

Equipment Operators	Office Engineers
Truck Drivers	Estimators
Carpenters	Iron / Reinforcing Steel Workers
Concrete Finishers	Mechanics
Pipe Layers	Welders

The Department has established common training classifications and their respective training requirements that may be used by the contractors. However, the classifications established are not all-inclusive. Where the training is oriented toward construction applications, training will be allowed in lower-level management positions such as office engineers and estimators. Contractors shall submit new classifications for specific job functions that their employees are performing. The Department will review and recommend for acceptance to FHWA the new classifications proposed by contractors, if applicable. New classifications shall meet the following requirements:

> Proposed training classifications are reasonable and realistic based on the job skill classification needs, and
>
> The number of training hours specified in the training classification is consistent with common practices and provides enough time for the trainee to obtain journeyman level status.

The Contractor may allow trainees to be trained by a subcontractor provided that the Contractor retains primary responsibility for meeting the training and this provision is made applicable to the subcontract. However, only the Contractor will receive credit towards the annual goal for the trainee.

Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training. The number of trainees shall be distributed among the work classifications on the basis of the contractor's needs and the availability of journeymen in the various classifications within a reasonable area of recruitment.

No employee shall be employed as a trainee in any classification in which they have successfully completed a training course leading to journeyman level status or in which they have been employed as a journeyman.

Records and Reports

The Contractor shall maintain enrollment, monthly and completion reports documenting company compliance under these contract documents. These documents and any other information as requested shall be submitted to the OJT Program Manager.

Upon completion and graduation of the program, the Contractor shall provide each trainee with a certification Certificate showing the type and length of training satisfactorily completed.

Trainee Interviews

All trainees enrolled in the program will receive an initial and Trainee/Post graduate interview conducted by the OJT program staff.

Trainee Wages

Contractors shall compensate trainees on a graduating pay scale based upon a percentage of the prevailing minimum journeyman wages (Davis-Bacon Act). Minimum pay shall be as follows:

60 percent	of the journeyman wage for the first half of the training period
75 percent	of the journeyman wage for the third quarter of the training period
90 percent	of the journeyman wage for the last quarter of the training period

In no instance shall a trainee be paid less than the local minimum wage. The Contractor shall adhere to the minimum hourly wage rate that will satisfy both the NC Department of Labor (NCDOL) and the Department.

Achieving or Failing to Meet Training Goals

The Contractor will be credited for each trainee employed by him on the contract work who is currently enrolled or becomes enrolled in an approved program and who receives training for at least 50 percent of the specific program requirement. Trainees will be allowed to be transferred between projects if required by the Contractor's scheduled workload to meet training goals.

If a contractor fails to attain their training assignments for the calendar year, they may be taken off the NCDOT's Bidders List.

Measurement and Payment

No compensation will be made for providing required training in accordance with these contract documents.

STANDARD SPECIAL PROVISION

AVAILABILITY OF FUNDS – TERMINATION OF CONTRACTS

(9-1-11) Z-2

General Statute 143C-6-11. (h) Highway Appropriation is hereby incorporated verbatim in this contract as follows:

"(h) Amounts Encumbered – Transportation project appropriations may be encumbered in the amount of allotments made to the Department of Transportation by the Director for the estimated payments for transportation project contract work to be performed in the appropriation fiscal year. The allotments shall be multiyear allotments and shall be based on estimated revenues and shall be subject to the maximum contract authority contained in *General Statute 143C-6-11(c).* Payment for transportation project work performed pursuant to contract in any fiscal year other than the current fiscal year is subject to appropriations by the General Assembly. Transportation project contracts shall contain a schedule of estimated completion progress, and any acceleration of this progress shall be subject to the approval of the Department of Transportation provided funds are available. The State reserves the right to terminate or suspend any transportation project contract, and any transportation project contract shall be so terminated or suspended if funds will not be available for payment of the work to be performed during that fiscal year pursuant to the contract. In the event of termination of any contract, the contractor shall be given a written notice of termination at least 60 days before completion of scheduled work for which funds are available. In the event of termination, the contractor shall be paid for the work already performed in accordance with the contract specifications."

Payment will be made on any contract terminated pursuant to the special provision in accordance with Article 108-13(E), of the *North Carolina Department of Transportation Standard Specifications for Roads and Structures*, dated January 2012 and as amended by the Standard Special Provision, Division One found elsewhere in this RFP.

***** STANDARD SPECIAL PROVISIONS *****

NCDOT GENERAL SEED SPECIFICATIONS FOR SEED QUALITY

(5-7-11) Z-3

Seed shall be sampled and tested by the North Carolina Department of Agriculture and Consumer Services, Seed Testing Laboratory. When said samples are collected, the vendor shall supply an independent laboratory report for each lot to be tested. Results from seed so sampled shall be final. Seed not meeting the specifications shall be rejected by the Department of Transportation and shall not be delivered to North Carolina Department of Transportation warehouses. If seed has been delivered it shall be available for pickup and replacement at the supplier's expense.

Any re-labeling required by the North Carolina Department of Agriculture and Consumer Services, Seed Testing Laboratory, that would cause the label to reflect as otherwise specified herein shall be rejected by the North Carolina Department of Transportation.

Seed shall be free from seeds of the noxious weeds Johnsongrass, Balloonvine, Jimsonweed, Witchweed, Itchgrass, Serrated Tussock, Showy Crotalaria, Smooth Crotalaria, Sicklepod, Sandbur, Wild Onion, and Wild Garlic. Seed shall not be labeled with the above weed species on the seed analysis label. Tolerances as applied by the Association of Official Seed Analysts will NOT be allowed for the above noxious weeds except for Wild Onion and Wild Garlic.

Tolerances established by the Association of Official Seed Analysts will generally be recognized. However, for the purpose of figuring pure live seed, the found pure seed and found germination percentages as reported by the North Carolina Department of Agriculture and Consumer Services, Seed Testing Laboratory will be used. Allowances, as established by the NCDOT, will be recognized for minimum pure live seed as listed on the following pages.

The specifications for restricted noxious weed seed refers to the number per pound as follows:

Restricted Noxious Weed	Limitations per Lb. of Seed	Restricted Noxious Weed	Limitations per Lb. of Seed
Blessed Thistle	4 seeds	Cornflower (Ragged Robin)	27 seeds
Cocklebur	4 seeds	Texas Panicum	27 seeds
Spurred Anoda	4 seeds	Bracted Plantain	54 seeds
Velvetleaf	4 seeds	Buckhorn Plantain	54 seeds
Morning-glory	8 seeds	Broadleaf Dock	54 seeds
Corn Cockle	10 seeds	Curly Dock	54 seeds
Wild Radish	12 seeds	Dodder	54 seeds
Purple Nutsedge	27 seeds	Giant Foxtail	54 seeds
Yellow Nutsedge	27 seeds	Horsenettle	54 seeds
Canada Thistle	27 seeds	Quackgrass	54 seeds
Field Bindweed	27 seeds	Wild Mustard	54 seeds
Hedge Bindweed	27 seeds		

Seed of Pensacola Bahiagrass shall not contain more than 7% inert matter, Kentucky Bluegrass, Centipede and Fine or Hard Fescue shall not contain more than 5% inert matter whereas a maximum of 2% inert matter will be allowed on all other kinds of seed. In addition, all seed shall not contain more than 2% other crop seed nor more than 1% total weed seed. The germination rate as tested by the North Carolina Department of Agriculture shall not fall below 70%, which includes both dormant and hard seed. Seed shall be labeled with not more than 7%, 5% or 2% inert matter (according to above specifications), 2% other crop seed and 1% total weed seed.

Exceptions may be made for minimum pure live seed allowances when cases of seed variety shortages are verified. Pure live seed percentages will be applied in a verified shortage situation. Those purchase orders of deficient seed lots will be credited with the percentage that the seed is deficient.

FURTHER SPECIFICATIONS FOR EACH SEED GROUP ARE GIVEN BELOW:

Minimum 85% pure live seed; maximum 1% total weed seed; maximum 2% total other crop seed; maximum 144 restricted noxious weed seed per pound. Seed less than 83% pure live seed will not be approved.

Sericea Lespedeza
Oats (seeds)

Minimum 80% pure live seed; maximum 1% total weed seed; maximum 2% total other crop; maximum 144 restricted noxious weed seed per pound. Seed less than 78% pure live seed will not be approved.

Tall Fescue (all approved varieties)
Kobe Lespedeza
Korean Lespedeza
Weeping Lovegrass
Carpetgrass
Bermudagrass
Browntop Millet
German Millet - Strain R
Clover - Red/White/Crimson

Minimum 78% pure live seed; maximum 1% total weed seed; maximum 2% total other crop seed; maximum 144 restricted noxious weed seed per pound. Seed less than 76% pure live seed will not be approved.

Common or Sweet Sundangrass

Minimum 76% pure live seed; maximum 1% total weed seed; maximum 2% total other crop seed; maximum 144 restricted noxious weed seed per pound. Seed less than 74% pure live seed will not be approved.

Rye (grain; all varieties)
Kentucky Bluegrass (all approved varieties)
Hard Fescue (all approved varieties)
Shrub (bicolor) Lespedeza

Minimum 70% pure live seed; maximum 1% total weed seed; maximum 2% total other crop seed; maximum 144 noxious weed seed per pound. Seed less than 70% pure live seed will not be approved.

Centipedegrass
Crownvetch
Pensacola Bahiagrass
Creeping Red Fescue
Japanese Millet
Reed Canary Grass
Zoysia

Minimum 70% pure live seed; maximum 1% total weed seed; maximum 2% total other crop seed; maximum 5% inert matter;maximum 144 restricted noxious weed seed per pound.

Barnyard Grass
Big Bluestem
Little Bluestem
Bristly Locust
Birdsfoot Trefoil
Indiangrass
Orchardgrass
Switchgrass
Yellow Blossom Sweet Clover

STANDARD SPECIAL PROVISION

ERRATA

(1-17-12) (Rev. 8-31-13) Z-4

Revise the 2012 *Standard Specifications for Roads and Structures* as follows:

Division 2

Page 2-7, line 31, Article 215-2 Construction Methods, replace "Article 107-26" with "Article 107-25".

Page 2-17, Article 226-3, Measurement and Payment, line 2, delete "pipe culverts,".

Page 2-20, Subarticle 230-4(B), Contractor Furnished Sources, change references as follows: Line 1, replace "(4) Buffer Zone" with "(c) Buffer Zone"; **Line 12,** replace "(5) Evaluation for Potential Wetlands and Endangered Species" with "(d) Evaluation for Potential Wetlands and Endangered Species"; and **Line 33,** replace "(6) Approval" with "(4) Approval".

Division 4

Page 4-77, line 27, Subarticle 452-3(C) Concrete Coping, replace "sheet pile" with "reinforcement".

Division 6

Page 6-7, line 31, Article 609-3 Field Verification of Mixture and Job Mix Formula Adjustments, replace "30" with "45".

Page 6-10, line 42, Subarticle 609-6(C)(2), replace "Subarticle 609-6(E)" with "Subarticle 609-6(D)".

Page 6-11, Table 609-1 Control Limits, replace "Max. Spec. Limit" for the Target Source of $P_{0.075}/P_{be}$ Ratio with "1.0".

Page 6-40, Article 650-2 Materials, replace "Subarticle 1012-1(F)" with "Subarticle 1012-1(E)"

Division 8

Page 8-23, line 10, Article 838-2 Materials, replace "Portland Cement Concrete, Class B" with "Portland Cement Concrete, Class A".

Division 10

Page 10-74, Table 1056-1 Geotextile Requirements, replace "50%" for the UV Stability (Retained Strength) of Type 5 geotextiles with "70%".

Division 12

Page 12-7, Table 1205-3, add "FOR THERMOPLASTIC" to the end of the title.

Page 12-8, Subarticle 1205-5(B), line 13, replace "Table 1205-2" with "Table 1205-4".

Page 12-8, Table 1205-4 and 1205-5, replace "THERMOPLASTIC" in the title of these tables with "POLYUREA".

Page 12-9, Subarticle 1205-6(B), line 21, replace "Table 1205-4" with "Table 1205-6".

Page 12-11, Subarticle 1205-8(C), line 25, replace "Table 1205-5" with "Table 1205-7".

Division 15

Page 15-4, Subarticle 1505-3(F), line 26, replace "Subarticle 235-4(C)" with "Subarticle 235-3(C)".

Page 15-6, Subarticle 1510-3(B), after line 21, replace the allowable leakage formula with the following: $W = LD\sqrt{P} \div 148{,}000$

Page 15-6, Subarticle 1510-3(B), line 32, delete "may be performed concurrently or" and replace with "shall be performed".

Page 15-17, Subarticle 1540-3(E), line 27, delete "Type 1".

Division 17

Page 17-26, line 42, Subarticle 1731-3(D) Termination and Splicing within Interconnect Center, delete this subarticle.

Revise the 2012 *Roadway Standard Drawings* as follows:

1633.01 Sheet 1 of 1, English Standard Drawing for Matting Installation, replace "1633.01" with "1631.01".

***** STANDARD SPECIAL PROVISIONS *****

AWARD OF CONTRACT

(6-28-77) Z-6

"The North Carolina Department of Transportation, in accordance with the provisions of *Title VI of the Civil Rights Act of 1964* (78 Stat. 252) and the Regulations of the Department of Transportation (*49 C.F.R., Part 21*), issued pursuant to such act, hereby notifies all bidders that it will affirmatively insure that the contract entered into pursuant to this advertisement will be awarded to the lowest responsible bidder without discrimination on the ground of race, color, or national origin".

***** STANDARD SPECIAL PROVISIONS *****

MINORITY AND FEMALE EMPLOYMENT REQUIREMENTS

(12-18-07) Z-7

NOTICE OF REQUIREMENTS FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (*EXECUTIVE NUMBER 11246*)

1. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, see as shown on the attached sheet entitled "Employment Goals for Minority and Female Participation".

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and nonfederally involved construction.

The Contractor's compliance with the Executive Order and the regulations in *41 CFR Part 60-4* shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in *41 CFR 60-4.3(a)*, and its effort to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project or the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the executive Order and the regulations *in 41 CFR Part 60-4.* Compliance with the goals will be measured against the total work hours performed.

2. As used in this Notice and in the contract resulting from this solicitation, the "covered area" is the county or counties shown on the cover sheet of the proposal form and contract.

EMPLOYMENT GOALS FOR MINORITY AND FEMALE PARTICIPATION

Economic Areas

Area 023 29.7%
Bertie County
Camden County
Chowan County
Gates County
Hertford County
Pasquotank County
Perquimans County

Area 024 31.7%
Beaufort County
Carteret County
Craven County
Dare County
Edgecombe County
Green County
Halifax County
Hyde County
Jones County
Lenoir County
Martin County
Nash County
Northampton County
Pamlico County
Pitt County
Tyrrell County
Washington County
Wayne County
Wilson County

Area 025 23.5%
Columbus County
Duplin County
Onslow County
Pender County

Area 026 33.5%
Bladen County
Hoke County
Richmond County
Robeson County
Sampson County
Scotland County

Area 027 24.7%
Chatham County
Franklin County
Granville County
Harnett County
Johnston County
Lee County
Person County
Vance County
Warren County

Area 028 15.5%
Alleghany County
Ashe County
Caswell County
Davie County
Montgomery County
Moore County
Rockingham County
Surry County
Watauga County
Wilkes County

Area 029 15.7%
Alexander County
Anson County
Burke County
Cabarrus County
Caldwell County
Catawba County
Cleveland County
Iredell County
Lincoln County
Polk County
Rowan County
Rutherford County
Stanly County

Area 0480 8.5%
Buncombe County
Madison County

Area 030 6.3%
Avery County
Cherokee County
Clay County
Graham County
Haywood County
Henderson County
Jackson County
McDowell County
Macon County
Mitchell County
Swain County
Transylvania County
Yancey County

SMSA Areas

Area 5720 26.6%
Currituck County

Area 9200 20.7%
Brunswick County
New Hanover County

Area 2560 24.2%
Cumberland County

Area 6640 22.8%
Durham County
Orange County
Wake County

Area 1300 16.2%
Alamance County

Area 3120 16.4%
Davidson County
Forsyth County
Guilford County
Randolph County
Stokes County
Yadkin County

Area 1520 18.3%
Gaston County
Mecklenburg County
Union County

Goals for Female

Participation in Each Trade

(Statewide) 6.9%

STANDARD SPECIAL PROVISION

REQUIRED CONTRACT PROVISIONS FEDERAL - AID CONSTRUCTION CONTRACTS

FHWA - 1273 Electronic Version - May 1, 2012 Z-8

I. General
II. Nondiscrimination
III. Nonsegregated Facilities
IV. Davis-Bacon and Related Act Provisions
V. Contract Work Hours and Safety Standards Act Provisions
VI. Subletting or Assigning the Contract
VII. Safety: Accident Prevention
VIII. False Statements Concerning Highway Projects
IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
X. Compliance with Governmentwide Suspension and Debarment Requirements
XI. Certification Regarding Use of Contract Funds for Lobbying

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

   The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

   Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

   Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).
2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.
3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.
4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding $10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. **Equal Employment Opportunity:** Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are

incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.
b. The contractor will accept as its operating policy the following statement:
"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. **EEO Officer:** The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.
3. **Dissemination of Policy:** All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:
   a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.
   b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.
   c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.
   d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.
   e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.
4. **Recruitment:** When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.
   a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.
   b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.
   c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.
5. **Personnel Actions:** Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:
   a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.
   b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.
   c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.
   d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.
6. **Training and Promotion:**
   a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.
   b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).
   c The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.
   d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.
7. **Unions:** If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.
b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.
c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.
d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. **Reasonable Accommodation for Applicants / Employees with Disabilities:** The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.
9. **Selection of Subcontractors, Procurement of Materials and Leasing of Equipment:** The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.
   a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.
   b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.
10. **Assurance Required by 49 CFR 26.13(b):**
   a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.
   b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.
11. **Records and Reports:** The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.
   a. The records kept by the contractor shall document the following:
      (1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;
      (2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and
      (3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;
   b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. **Minimum wages**
   a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is

attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH–1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b. (1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. **Withholding.** The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. **Payrolls and basic records**

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b. (1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g. , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is

available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/esa/whd/forms/ wh347instr.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency.

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH–347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. **Apprentices and trainees**

a. Apprentices (programs of the USDOL). Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL). Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.
d. Apprentices and Trainees (programs of the U.S. DOT). Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

5. **Compliance with Copeland Act requirements.** The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.
6. **Subcontracts.** The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.
7. **Contract termination:** debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.
8. **Compliance with Davis-Bacon and Related Act requirements.** All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.
9. **Disputes concerning labor standards.** Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.
10. **Certification of eligibility.**
    a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).
    b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).
    c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. **Overtime requirements.** No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.
2. **Violation; liability for unpaid wages; liquidated damages.** In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.
3. **Withholding for unpaid wages and liquidated damages.** The FHWA or the contacting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.
4. **Subcontracts.** The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).
    a. The term "perform work with its own organization" refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:
    (1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
    (2) the prime contractor remains responsible for the quality of the work of the leased employees;
    (3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and

(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.
3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.
4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.
5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.
2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).
3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.
2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost $25,000 or more – as defined in 2 CFR Parts 180 and 1200.

1. **Instructions for Certification – First Tier Participants:**
   a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.
   b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.
   c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.
   d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
   e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).
   f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.
   g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.
   h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website **(https://www.epls.gov/)**, which is compiled by the General Services Administration.
   i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
   j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

2. **Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:**
   a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:
      (1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;
      (2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
      (3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and
      (4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.
   b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. **Instructions for Certification - Lower Tier Participants:**
   (Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost $25,000 or more - 2 CFR Parts 180 and 1200)
   a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.
   b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.
   c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.
   d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of

Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.
2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:
   a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
   b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.
3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

STANDARD SPECIAL PROVISION
MINIMUM WAGES
GENERAL DECISION NC130095 01/04/2013 NC95

Z-95

Date: January 4, 2013

General Decision Number: NC130095 01/04/2013 NC95

Superseded General Decision Numbers: NC20120095

State: North Carolina

Construction Type: HIGHWAY

COUNTIES:

Brunswick	New Hanover	Pender

HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects, railroad construction, bascule, suspension and spandrel arch bridges designed for commercial navigation, bridges involving marine construction, and other major bridges).

Modification Number	Publication Date
0	01/04/2013

SUNC2011-076 09/16/2011

	Rates	Fringes
CARPENTER (Form Work Only)	13.69	
CEMENT MASON/CONCRETE FINISHER	12.35	
IRONWORKER (Reinforcing)	14.88	
LABORER		
Asphalt, Asphalt Distributor, Raker, and Spreader	12.20	
Common or General		
Brunswick County	10.04	
New Hanover and Pender Counties	10.88	
Concrete Saw	13.52	
Landscape	9.34	
Luteman	12.73	
Mason Tender (Cement/Concrete)	11.43	
Pipelayer	12.05	
Traffic Control (Cone Setter)	11.15	
Traffic Control (Flagger)	9.89	
POWER EQUIPMENT OPERATORS		
Backhoe/Excavator/Trackhoe	13.86	
Broom/Sweeper	13.97	
Bulldozer	12.88	
Crane	19.87	
Curb Machine	14.43	
Distributor	15.27	
Drill	18.28	
Grader/Blade	16.47	
Loader	14.16	
Mechanic	17.37	
Milling Machine	14.38	
Oiler	13.58	
Paver	15.64	
Roller	13.94	
Scraper	14.35	
Screed	14.86	
Tractor	14.47	
TRUCK DRIVER		
Distributor	16.75	
Dump Truck	11.13	
Flatbed Truck	15.02	
Lowboy Truck	15.34	
Off the Road Truck	13.78	
Single Axle Truck	12.13	
Tack Truck	16.51	
Water Truck	13.39	

Welders – Receive rate prescribed for craft performing operation to which welding is incidental.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR 5.5(a)(1)(ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is union or non-union.

Union Identifiers

An identifier enclosed in dotted lines beginning with characters other than "SU" denotes that the union classification and rate have found to be prevailing for that classification. Example: PLUM0198-005 07/01/2011. The first four letters , PLUM, indicate the international union and the four-digit number, 0198, that follows indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2011, following these characters is the effective date of the most current negotiated rate/collective bargaining agreement which would be July 1, 2011 in the above example.

Union prevailing wage rates will be updated to reflect any changes in the collective bargaining agreements governing the rates.

0000/9999: weighted union wage rates will be published annually each January.

Non-Union Identifiers

Classifications listed under an "SU" identifier were derived from survey data by computing average rates and are not union rates; however, the data used in computing these rates may include both union and non-union data. Example: SULA2004-007 5/13/2010. SU indicates the rates are not union rates, LA indicates the State of Louisiana; 2004 is the year of the survey; and 007 is an internal number used in producing the wage determination. A 1993 or later date, 5/13/2010, indicates the classifications and rates under that identifier were issued as a General Wage Determination on that date.

Survey wage rates will remain in effect and will not change until a new survey is conducted.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U. S. Department of Labor
200 Constitution Avenue, N.W.
Washington, D.C. 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, D.C. 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, D.C. 20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

***** STANDARD SPECIAL PROVISIONS *****

(7-9-12)

DIVISION ONE OF STANDARD SPECIFICATIONS

Division One of the *2012 NCDOT Standard Specifications for Roads and Structures* (*Standard Specifications*) shall apply except as follows:

Definitions: Throughout Division One of the *Standard Specifications*, the term "Contractor" is replaced with "Design-Build Team", the term "Bidder" is replaced with "Proposer," the term "Bid" is replaced by "Price Proposal," and the phrase "lowest Responsible Bidder" is replaced with "responsible Proposer with the lowest adjusted price." The replacement of "Contractor" with "Design-Build Team" does not apply to Article 102-2. The replacement of the above terms also does not apply when the terms are part of a phrase (e.g. bid bond, prime contractor, total amount bid, etc.)

Deletions: Articles 102-4, 102-8(B), 102-9(C)(2), 103-2(B), and 103-4(B) of the *Standard Specifications* are deleted from Design-Build Contracts.

Modifications: The remainder of this Standard Special Provision includes modifications to Division One of the *Standard Specifications*.

SECTION 101
DEFINITION OF TERMS

Page 1-3, Article 101-3, replace and add certain definitions as follows:

ADDITIONAL WORK

Additional work is that which results from a change or alteration to the contract and for which there are contract unit prices in the original contract or an executed supplemental agreement.

ADVERTISEMENT

The public advertisement inviting Statements of Qualifications for the design and construction of specific projects.

AWARD

The decision of the Department of Transportation to accept the proposal of the selected Design-Build Team for work which is subject to the furnishing of payment and performance bonds, and such other conditions as may be otherwise provided by law, the Request for Proposals, and the *Standard Specifications*.

CONTRACT

The executed agreement between the Department and the successful proposer, covering the performance of, and compensation for, the work. The term contract is all inclusive with reference to all written agreements affecting a contractual relationship and all documents referred to therein. The contract shall include, but not be limited to, the Request for Proposals, the

Technical Proposal, the Price Proposal, the printed contract form and attachments, contract bonds, plans and associated special provisions prepared by the Design-Build Team, standard specifications and supplemental specifications standard special provisions and project special provisions contained in the Request for Proposals or as developed by the Design-Build Team and accepted by the Department, and all executed supplemental agreements. The contract shall constitute one instrument.

DATE OF AVAILABILITY

That date set forth in the Request for Proposals, by which it is anticipated that the Contract will be executed and sufficient design efforts or work sites within the project limits will be available for the Design-Build Team to begin his controlling operations or design.

DESIGN-BUILD

A form of contracting in which the successful proposer undertakes responsibility for both the design and construction of a project.

DESIGN-BUILD TEAM

An individual, partnership, joint venture, corporation or other legal entity that furnishes the necessary design and construction services, whether by itself or through subcontracts.

DESIGN-BUILD PROPOSAL

A proposal to contract consisting of a separately sealed Technical Proposal and a separately sealed Price Proposal submitted in response to a Request for Proposals on a Design-Build project.

PLANS

The project plans, Standard Drawings, working drawings and supplemental drawings, or reproductions thereof, accepted by the Engineer, which show the location, character, dimensions and details of the work to be performed. Unless otherwise noted within the Request for Proposals, the term "plans" refers to plans as developed by the Design-Build Team and accepted by the Department.

(A) Standard Drawings:

Drawings approved for repetitive use, showing details to be used where appropriate. All Standard Drawings approved by the Department plus subsequent revisions and additions. Standard Drawings are available for purchase from:

Randy A. Garris, PE
State Contract Officer
1591 Mail Service Center
Raleigh, NC 27699-1591

(B) Preliminary Plans:

Department-furnished drawings distributed in concert with a Request for Proposals, or as developed by the Design-Build Team.

(C) Project Plans:

Construction drawings prepared, sealed and completed by the Design-Build Team, or as provided by the Department, that contain specific details and dimensions peculiar to the work.

(D) Working Drawings and Supplemental Drawings:

Supplemental design sheets, shop drawings, or similar data which the Design-Build Team is required to submit to the Engineer.

(E) As-Constructed Drawings:

Final drawings prepared by the Design-Build Team, documenting the details and dimensions of the completed work.

PRICE PROPOSAL

The offer of a Proposer, submitted on the prescribed forms, to perform the work and furnish the labor and materials at the price quoted.

PROPOSAL (OR REQUEST FOR PROPOSALS)

The paper document provided by the Department that the proposer uses to develop his paper offer to perform the work at designated bid prices.

PROPOSER

An individual, partnership, firm, corporation, LLC, or joint venture formally submitting a Technical Proposal and Price Proposal in response to a Request for Proposals.

RIGHT OF WAY

The land area shown on the plans as right of way within which the project is to be constructed.

SCHEDULE OF VALUES

A schedule of work items necessary to complete work, along with the progress of each work item, primarily for the purpose of partial payments.

TABLE OF QUANTITIES

A listing of work items (corresponding to the items in the Trns*port pay item list) that contributes to a project completion. The table shall include estimated quantities for each work item.

TECHNICAL PROPOSAL

A submittal from a proposer, in accordance with requirements of the Request for Proposals, for the purpose of final selection. The Technical Proposal is defined to also include any supplemental information requested by the Department from a proposer prior to opening bids.

SECTION 102
PROPOSAL REQUIREMENTS AND CONDITIONS

Page 1-9, delete Article 102-1 and replace with the following:

102-1 INVITATION TO BID

After the advertisement has been made, an Invitation to Bid will be made available to known prequalified contractors and any other contracting firms, material suppliers and other interested parties who have requested they be placed on the Invitation to Bid mailing list, informing them that Statements of Qualifications and Proposals will be received for the construction of specific projects. Such invitation will indicate the contract identification number, length, locations and descriptions; a general summary of the scope of work to be performed; and information on how to receive a Request for Qualifications.

All projects will be advertised in daily newspapers throughout the state before the bid opening.

Page 1-12, delete Article 102-3 and replace with the following:

102-3 CONTENTS OF REQUEST FOR PROPOSALS

A Request for Proposals will be furnished by the Department to the selected proposers from among the respondents to the Request for Qualifications. Each Request for Proposals will be marked on the front cover by the Department with an identifier of the Proposer to whom it is being furnished. This Request for Proposals will state the location of the project and will show a schedule of contract items for which Technical and Price Proposals are invited. It will set forth the date and time Technical and Price Proposals are to be submitted and when the Price Proposals will be opened. The Request for Proposals will also include special provisions or requirements that vary from or are not contained in any preliminary design information or standard specifications.

The Request for Proposals will also include the printed contract forms and signature sheets for execution by both parties to the contract. In the event the Proposer is awarded the contract, execution of the Request for Proposals by the Proposer is considered the same as execution of the contract.

Standard specifications, sealed plans specifically identified as the Department's responsibility and other documents designated in the Request for Proposals shall be considered a part of the Request for Proposals whether or not they are attached thereto. All papers bound with the proposal are necessary parts thereof and shall not be detached, taken apart, or altered.

The names and identity of each prospective Proposer that receives a copy of the Request for Qualifications for the purposes of submitting a Statement of Qualifications shall be made public, except that a potential Proposer who obtains a Request for Qualifications may, at the time of ordering, request that his name remain confidential.

One copy of the Final Request for Proposals will be furnished to each prospective Proposer. Additional copies may be purchased for the sum of $25 each. The copy of the Final Request for

Proposals marked with the Proposer's name and prequalification number shall be returned to the Department as the Proposer's Price Proposal.

Page 1-14, Article 102-7, 4th paragraph, delete the first two sentences and replace with the following:

The Proposer is cautioned that details shown in the subsurface investigation report are preliminary only. The subsurface investigation and subsurface report, if provided, is done so for information purposes only.

Pages 1-14, delete Article 102-8 and replace with the following:

102-8 PREPARATION AND SUBMISSION OF BIDS

All Price Proposals shall be prepared and submitted in accordance with the following requirements:

1. The Request for Proposals provided by the Department shall be used and shall not be taken apart or altered. The Price Proposal shall be submitted on the same form, which has been furnished to the Proposer by the Department as identified by the Proposer's name marked on the front cover by the Department.
2. All entries including signatures shall be written in ink.
3. The Proposer shall submit a lump sum or unit price for every item in the Price Proposal. The lump sum or unit prices bid for the various contract items shall be written in figures.
4. An amount bid shall be entered in the Request for Proposals for every item and the price shall be written in figures in the "Amount Bid" column in the Request for Proposals.
5. An amount bid shall be entered in the proposal for every item on which a unit price has been submitted. The amount bid for each item other than lump sum items shall be determined by multiplying each unit bid price by the quantity for that item and shall be written in figures in the Amount Bid column in the proposal.
6. The total amount bid shall be written in figures in the proper place in the Request for Proposals. The total amount bid shall be determined by adding the amounts bid for each lump sum item.
7. Changes in any entry shall be made by marking through the entry in ink and making the correct entry adjacent thereto in ink. A representative of the Proposer shall initial the change in ink.
8. The Price Proposal shall be properly executed. To constitute proper execution, the Price Proposal shall be executed in strict compliance with the following:
    a. If a Price Proposal is by an individual, it shall show the name of the individual and shall be signed by the individual with the word "Individually" appearing under the signature. If the individual operates under a firm name, the bid shall be signed in the name of the individual doing business under the firm name.

b. If the Price Proposal is by a corporation, it shall be executed in the name of the corporation by the President, Vice President, or Assistant Vice President. It shall be attested by the Secretary or Assistant Secretary. The seal of the corporation shall be affixed. If the Price Proposal is executed on behalf of a corporation in any other manner than as above, a certified copy of the minutes of the Board of Directors of said corporation authorizing the manner and style of execution and the authority of the person executing shall be attached to the Price Proposal or shall be on file with the Department.

c. If the Price Proposal is made by a partnership, it shall be executed in the name of the partnership by one of the general partners.

d. If the Price Proposal is made by a limited liability company, it shall be signed by the manager, member, or authorized agent and notarized.

e. If the Price Proposal is made by a joint venture, it shall be executed by each of the joint venturers in the appropriate manner set out above. In addition, the execution by the joint venturers shall appear below their names.

f. The Price Proposal execution shall be notarized by a notary public whose commission is in effect on the date of execution. Such notarization shall be applicable both to the Price Proposal and to the Non-Collusion Affidavit, Debarment Certification and Gift Ban Certification that is part of the signature sheets.

9. The Price Proposal shall not contain any unauthorized additions, deletions, or conditional bids.

10. The Proposer shall not add any provision reserving the right to accept or reject an award or to enter into a contract pursuant to an award.

11. The Price Proposal shall be accompanied by a bid bond on the form furnished by the Department or by a bid deposit. The bid bond shall be completely and properly executed in accordance with the requirements of Article 102-10 and as modified herein. The bid deposit shall be a certified check or cashier check in accordance with Article 102-10 and as modified herein.

12. The Price Proposal shall be placed in a sealed envelope and shall have been delivered to and received by the Department prior to the time specified in the Request for Proposals.

Page 1-18, Article 102-10, 3rd paragraph, delete the fifth sentence and replace with the following:

The condition of the bid bond or bid deposit is: the Principal shall not withdraw its bid within 75 days after the submittal of the same, and if the Department shall award a contract to the Principal, the Principal shall within 14 calendar days after the notice of award is received by him, give payment and performance bonds with good and sufficient surety as required for the faithful performance of the contract and for the protection of all persons supplying labor and materials in the prosecution of the work.

Page 1-18, Article 102-10, delete the end of the Article beginning with, and inclusive of, the 6th paragraph.

Pages 1-19, delete Article 102-12 and replace with the following:

102-12 WITHDRAWAL OR REVISION OF BIDS

A Design-Build Team will not be permitted to withdraw its Technical and Price Proposals after they have been submitted to the Department, unless allowed under Article 103-3 or unless otherwise approved by the Chief Engineer.

Page 1-19, delete Article 102-13 and replace with the following:

102-13 RECEIPT AND OPENING OF BIDS

Price Proposals from shortlisted Proposers will be opened and read publicly on the date and time indicated in the Request for Proposals. The scores of the previously conducted evaluation of the Technical Proposals will also be read publicly in accordance with the procedures outlined in the Request for Proposals. Proposers, their authorized agents, and other interested parties are invited to be present.

Page 1-19, Article 102-14, replace the 1st paragraph with the following:

102-14 REJECTION OF BIDS

Any Price Proposal submitted which fails to comply with any of the requirements of Articles 102-8, 102-9 or 102-10, or with the requirements of the project scope and specifications shall be considered irregular and may be rejected. A Price Proposal that does not contain costs for all proposal items shall be considered irregular and may be rejected.

Page 1-20, Subarticle 102-15(O), delete and replace with the following:

(O) Failure to restrict a former Department employee as prohibited by Article 108-5.

SECTION 103
AWARD AND EXECUTION OF CONTRACT

Page 1-21, delete Article 103-1 and replace with the following:

103-1 CONSIDERATION OF PRICE PROPOSALS

After the Price Proposals are opened and read, they will be tabulated. The Price Proposal and score of the Technical Proposal will be made available in accordance with procedures outlined in the Request for Proposals. In the event of errors, omissions, or discrepancies in the bid prices, corrections to the Price Proposal will be made in accordance with the provisions of Article 103-2. Such corrected bid prices will be used to determine the lowest adjusted price.

After the reading of the Price Proposals and technical scores, the Department will calculate the lowest adjusted price as described in the Request for Proposals.

The right is reserved to reject any or all Price Proposals, to waive technicalities, to request the Proposer with the lowest adjusted price to submit an up-to-date financial and operating

statement, to advertise for new proposals, or to proceed to do the work otherwise, if in the judgment of the Department, the best interests of the State will be promoted thereby.

Page 1-21, Subarticle 103-2(A), add items (6) and (7) as follows:

(6) **Discrepancy in the "Total Amount Bid" and the addition of the "Amount Bid" for each line Item**

In the case of the Total Amount Bid does not equal the summation of each Amount Bid for the line items, the summation of each Amount Bid for the line items shall be deemed to be the correct Total Amount Bid for the entire project.

(7) **Omitted Total Amount Bid –Amount Bid Completed**

If the Total Amount Bid is not completed and the Amount Bid for all line items is completed the Total Amount Bid shall be the summation of the Amount Bid for all line items.

Page 1-24, Subarticle 103-4(A), first paragraph, replace the 4th and 5th sentences with the following:

Where award is to be made, the notice of award will be issued within 75 days after the submittal of Price Proposals, except with the consent of the responsible Proposer with the lowest adjusted price the decision to award the contract to such bidder may be delayed for as long a time as may be agreed upon by the Department and such Proposer. In the absence of such agreement, the Proposer may withdraw his Price Proposal at the expiration of the 75 days without penalty if no notice of award has been issued.

Page 1-25, Article 103-6, delete the 1st and 2nd paragraphs and replace with the following:

Checks that have been furnished as a bid deposit will be retained until after the contract bonds have been furnished by the successful proposer, at which time the checks that were furnished as a bid deposit will be returned.

SECTION 104
SCOPE OF WORK

Page 1-26, delete Article 104-1 and replace with the following:

104-1 INTENT OF CONTRACT

The intent of the contract is to prescribe the work or improvements that the Design-Build Team undertakes to perform, in full compliance with the contract documents. In case the method of construction or character of any part of the work is not covered by the contract, this section shall apply. The Design-Build Team shall perform all work in accordance with the contract or as may be modified by written orders, and shall do such special, additional, extra, and incidental work as may be considered necessary to complete the work to the full intent of the contract. Unless otherwise provided elsewhere in the contract, the Design-Build Team shall furnish all

implements, machinery, equipment, tools, materials, supplies, transportation, and labor necessary for the design, prosecution and completion of the work.

Page 1-26, Article 104-3, replace "plans or details of construction" with "contract" in all instances within this Article.

Page 1-35, Article 104-10, replace the first paragraph with the following:

104-10 MAINTENANCE OF THE PROJECT

The Design-Build Team shall maintain the project from the date of beginning construction on the project until the project is finally accepted. For sections of facilities impacted by utility construction / relocation performed by the Design-Build Team prior to beginning construction on the roadway project, maintenance of the impacted sections of facilities shall be performed by the Design-Build Team beginning concurrently with the impact. All existing and constructed guardrail / guiderail within the project limits shall be included in this maintenance. This maintenance shall be continuous and effective and shall be prosecuted with adequate equipment and forces to the end that all work covered by the contract is kept in satisfactory and acceptable conditions at all times. The Design-Build Team shall perform weekly inspections of guardrail and guiderail and shall report damages to the Engineer on the same day of the weekly inspection. Where damaged guardrail or guiderail is repaired or replaced as a result of maintaining the project in accordance with this Article, such repair or replacement shall be performed within 7 consecutive calendar days of such inspection report.

Page 1-35, Article 104-10, add the following after the last paragraph:

The Design-Build Team will not be compensated for performance of weekly inspections and damage reports for the guardrail / guiderail. Other maintenance activities for existing guardrail / guiderail will be handled in accordance with Articles 104-7 and 104-8.

SECTION 105
CONTROL OF WORK

Pages 1-40, delete Article 105-2 and replace with the following:

105-2 PLANS AND WORKING DRAWINGS

All plans shall be supplemented by such approved working drawings as are necessary to adequately control the work. Working drawings furnished by the Design-Build Team and approved by the Engineer shall consist of such detailed drawings as may be required to adequately control the work. They may include stress sheets, shop drawings, erection drawings, falsework drawings, cofferdam drawings, bending diagrams for reinforcing steel, catalog cuts, or any other supplementary drawings or similar data required of the Design-Build Team. When working drawings are approved by the Engineer, such approval shall not operate to relieve the Design-Build Team of any of his responsibility under the contract for the successful completion of the work.

Changes on shop drawings after approval and/or distribution shall be subject to the approval of the Engineer and he shall be furnished a record of such changes.

Page 1-41, Article 105-3, add the following after the 3rd paragraph:

The Design-Build Team shall bear all the costs of providing the burden of proof that the nonconforming work is reasonable and adequately addresses the design purpose. The Design-Build Team shall bear all risk for continuing with nonconforming work in question until it is accepted.

The Engineer may impose conditions for acceptance of the nonconforming work. The Design-Build Team shall bear all costs for fulfilling the conditions.

The decisions whether the product satisfies the design purpose, whether the nonconforming work is reasonably acceptable and the conditions for acceptance are at the sole discretion of the Engineer.

Pages 1-41, delete Article 105-4 and replace with the following:

105-4 COORDINATION OF PLANS, SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS, AND SPECIAL PROVISIONS

The Request for Proposals, all construction Plans, the Standard Specifications, Supplemental Specifications and Special Provisions and all supplementary documents are essential parts of the contract and a requirement occurring in one is as binding as though occurring in all. They are complementary and describe and provide the complete contract.

In case of discrepancy or conflict, the order in which they govern shall be as follows:

(A) Request for Proposals, in which Project Special Provisions govern Standard Special Provisions

(B) Technical Proposal from the Design-Build Team

(C) Accepted Plans and Details from the Design-Build Team, or sealed plans provided by the Department, as applicable

(D) Standard Drawings

(E) Standard Specifications

Where dimensions on the plans are given or can be computed from other given dimensions they shall govern over scaled dimensions.

The Design-Build Team shall take no advantage of any error or omission in the plans, estimated quantities, or specifications. In the event the Design-Build Team discovers an error or omission, he shall immediately notify the Engineer.

Page 1-43, Article 105-8, line 28, after the first sentence, add the following:

Identify excavation locations by means of pre-marking with white paint, flags, or stakes or provide a specific written description of the location in the locate request.

Page 1-44, delete Article 105-9 and replace with the following:

105-9 CONTRUCTION STAKES, LINES, AND GRADES

The Design-Build Team shall be responsible for all surveying, construction staking and layout required in the performance of the work. He will be responsible for the accuracy of lines, slopes, grades and other engineering work which he provides under this contract.

SECTION 106
CONTROL OF MATERIAL

Page 1-49, Article 106-2, add the following after the second paragraph:

Prior to beginning construction, the Design-Build Team shall provide a Table of Quantities as described in Article 101-3 of these specifications.

The Table of Quantities Work Items shall correspond to Pay Items as defined in the Standard Specifications. These Work Items have associated Materials and Conversion Factors. For non-standard Work Items, a Generic Work Item with the correct Unit of Measure and in an appropriate category will be used. For example, "GENERIC TRAFFIC CONTROL ITEM – EA" or "GENERIC RETAINING WALL ITEM – LF". For these Generic Work Items, Materials must be defined and appropriate conversion factors submitted.

An initial Table of Quantities shall be submitted no later than 30 calendar days after the date of award. The Table of Quantities shall be updated and resubmitted within 14 days of when a set of Plans is sealed as Release for Construction (RFC) Plans, and whenever there are substantial changes to the Quantities on previously incorporated RFC Plans.

Page 1-51, Article 106-6, add the following after the last paragraph:

For items normally pretested by the Department, the Design-Build Team shall provide a minimum of 30 days notice prior to the beginning of production of the items for this project along with final approved shop drawings.

SECTION 107
LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC

Page 1-61, delete Article 107-18 and replace with the following:

107-18 FURNISHING RIGHT OF WAY

The responsibility for coordinating the securing of all necessary rights of way is as outlined in the Request for Proposals.

SECTION 108
PROSECUTION AND PROGRESS

Page 1-64. Article 108-2, replace the 2nd paragraph with the following:

The Design-Build Team shall submit a Progress Schedule for review within thirty (30) calendar days of receiving Notice of Award. The Department will review the Progress Schedule within twenty-one (21) calendar days of receipt. The Design-Build Team shall make any necessary corrections and adjustments to the Progress Schedule as necessitated by the Department's review within seven (7) calendar days. The Department will review the revised Progress Schedule within seven (7) calendar days of receipt.

Page 1-64, Subarticle 108-2(A)(1), add the following:

(k) Utility relocation and construction

Page 1-65, Subarticle 108-2(A)(2), add the following:

(h) Critical design submittal dates

(i) Critical permitting dates

(j) Completion of right of way acquisition

(k) Completion of utility relocation and construction

Page 1-65, Article 108-2, add the following:

(D) The Design-Build Team shall provide a written narrative each month detailing the work and percentage of work completed, anticipated sequence of upcoming work (2 month forecast), controlling operation(s), intermediate completion dates, and milestones. If any milestones are exceeded or will not be achieved, the Design-Build Team shall provide in the written narrative details of the delay; controlling operation affected, impacts to other operations, revisions to future intermediate completion dates and milestones, and remedial action necessary to get the project back to the original completion date.

Page 1-65, delete Article 108-3 and replace with the following:

108-3 PRECONSTRUCTION AND PRE-DESIGN CONFERENCES

The selected Design-Build Team shall meet with the Engineer for a pre-design conference concerning the design phase of the work. This conference shall be held prior to the commencement of work, as it is determined according to Article 108-1, and will be scheduled by the Engineer. At the predesign conference, the Design-Build Team shall furnish authorized signature forms and a list of any proposed subcontractors associated with the design of the project.

A preconstruction conference shall be held at least 10 working days before construction activity begins. This second conference, concerning the construction phase, shall also be scheduled by

the Engineer. The Design-Build Team shall give the Engineer a minimum of 45 days notice before he plans to begin construction activities. This will allow the Engineer time for any environmental agency representatives involved in the permitting process, as well as any other pertinent entities, to be scheduled to attend the preconstruction conference. If the Design-Build Team is responsible for utilities in accordance with Article 105-8 and the Request for Proposals, he shall be responsible for coordinating with the Engineer in scheduling their attendance and for notifying them. The Design-Build Team shall also be responsible for coordinating with the Engineer in scheduling the attendance of subcontractors and others deemed appropriate, and for notifying them.

At the preconstruction conference, a list of any proposed subcontractors and major material suppliers associated with the construction of the project will be submitted.

If the contract has a DBE requirement, the Design-Build Team shall submit copies of completed and signed DBE subcontracts, purchase orders, or invoices to the Department.

The Design-Build Team shall submit a traffic control plan in accordance with Article 1101-5 and the Request for Proposals. The Design-Build Team shall designate an employee who is competent and experienced in traffic control to implement and monitor the traffic control plan. The qualifications of the designated employee must be satisfactory to the Engineer.

The Design-Build Team shall submit a safety plan and designate an employee as Safety Supervisor.

Both plans shall be submitted at the preconstruction conference and must be satisfactory to the Engineer. Should the design plan include activities that would place personnel on the work site, traffic control and safety plans for those activities shall be submitted at the predesign conference.

During the preconstruction conference, the Engineer will designate a Department employee or employees who will be responsible to see that the traffic control plans and any alterations thereto are implemented and monitored to the end that traffic is carried through the work in an effective manner. If approved by the Engineer, the Design-Build Team may designate one employee to be responsible for both the traffic control and safety plans. The Design-Build Team shall not designate its superintendent as the responsible person for either the traffic control plan or the safety plan, unless approved by the Engineer.

If the project requires that Design-Build Team or State personnel work from falsework, within shoring, or in any other hazardous area the Design-Build Team shall submit, as part of the Design-Build Team's safety plan, specific measures it will use to ensure worker safety.

The Design-Build Team shall also submit a program for erosion control and pollution prevention on all projects involving clearing and grubbing, earthwork, structural work, or other construction, when such work is likely to create erosion or pollution problems.

If the Design-Build Team fails to provide the required submissions, the Engineer may order the preconstruction conference suspended until such time as they are furnished. Work shall not begin until the preconstruction conference has been concluded and the safety plan has been approved, unless authorized by the Engineer. The Design-Build Team shall not be entitled to additional compensation or an extension of contract time resulting from any delays due to such a suspension.

The Design-Build Team shall designate a qualified employee as Quality Control Manager. The Quality Control Manager shall be responsible for implementing and monitoring the quality control requirements of the project.

Page 1-65, Article 108-4, add the following sentence to the end of this article:

The Design-Build Team shall record the proceedings of these conferences and distribute the final minutes of the conferences to all attendees.

Page 1-65, Article 108-5, delete the first sentence of the second paragraph and delete the first word of the second sentence of the second paragraph.

Page 1-66, Article 108-6, replace "40%" with "30%" in the 1st paragraph.

Page 1-66, Article 108-6, replace "35%" with "25%" in the 2nd paragraph.

Pages 1-68, delete Article 108-8 and replace with the following:

108-8 FAILURE TO MAINTAIN SATISFACTORY PROGRESS

The Engineer will check the Design-Build Team's progress at the time each partial pay request is received. The Design-Build Team's progress may be considered as unsatisfactory if, according to the Progress schedule, the projected finish date for all work exceeds the scheduled finish date by more than 10%.

When the Design-Build Team's progress is found to be unsatisfactory as described above, the Engineer may make written demand of the Design-Build Team to state in writing the reason for the unsatisfactory progress and produce such supporting data as the Engineer may require or the Design-Build Team may desire to submit. The Engineer will consider the justifications submitted by the Design-Build Team and extensions of the completion date that have or may be allowed in accordance with Article 108-10(B) and as modified herein.

When the Design-Build Team cannot satisfactorily justify the unsatisfactory progress the Engineer may invoke one or more of the following sanctions:

1. Withhold anticipated liquidated damages from amounts currently due or which become due.
2. Remove the Design-Build Team and individual managing firms of the Design-Build Team and/or prequalified design firms from the Department's Prequalified Bidders List.

When any of the above sanctions have been invoked, they shall remain in effect until rescinded by the Engineer.

Page 1-71, Article 108-10(B), add the following as the first paragraph:

Only delays to activities which affect the completion date or intermediate contract date will be considered for an extension of contract time. No extensions will be granted until a delay occurs which impacts the project's critical path and extends the work beyond the contract completion date or intermediate completion date. Any extension to the completion date or intermediate

contract date will be based on the number of calendar days the completion date or intermediate completion date is impacted as determined by the Engineer's analysis.

Pages 1-71, delete Subarticle 108-10(B)(1) in its entirety.

Page 1-75, Article 108-13, delete bullet (E)(2) in its entirety.

SECTION 109
MEASUREMENT AND PAYMENT

Page 1-76, Article 109-2, delete the last sentence of the 1st paragraph and replace with the following:

Payment to the Design-Build Team will be made only for the work completed, certified and accepted in accordance with the terms of the contract.

Pages 1-81, delete Article 109-4(A) and replace with the following:

109-4 PARTIAL PAYMENTS

(A) **General:**

Partial payments will be based upon progress estimates prepared by the Engineer at least once each month on the date established by the Engineer. Partial payments may be made twice each month if in the judgment of the Engineer the amount of work performed is sufficient to warrant such payment. No partial payment will be made when the total value of work performed since the last partial payment amounts to less than $10,000.00. Partial payments will be approximate only and will be subject to correction in the final estimate and payment.

When the contract includes one lump sum price for the entire work required by the contract, partial payments for the lump sum design-build price shall be based on a certified Schedule of Values submitted by the successful Design-Build Team and approved by the Engineer. The certification shall indicate the Design-Build Team has reviewed the information submitted and the information accurately represents the work performed for which payment is requested. The certified Schedule of Values shall be submitted no later than 30 calendar days after the date of award. Each item on the certified Schedule of Values shall be assigned a cost and quantity and shall be identified as an activity on the progress schedule. A revised certified Schedule of Values shall be submitted with each update of the Progress schedule as described in Article 108-2, and as modified herein, or when requested by the Engineer. A certified copy of the Table of Quantities shall also be submitted with each payment request. The certification of the Table of Quantities shall indicate the Design-Build Team has reviewed the information submitted and the information accurately represents the materials for the work performed for which payment is requested.

When the contract includes lump sum items for portions of the work required by the contract, and the applicable section of the Specifications or Request for Proposals specify the means by which the total amount bid be included in the partial pay estimates, the

Engineer will determine amounts due on the partial pay estimate in accordance with the applicable portion of the Specifications or Request for Proposals.

The Engineer will withhold an amount sufficient to cover anticipated liquidated damages as determined by the Engineer.

Page 1-82, Subarticle 109-5(D), delete the 4th and 5th paragraphs and replace with the following:

Partial payments will not be made on seed or any living or perishable plant materials.

Partial payment requests shall not be submitted by the Design-Build Team until those items requested have corresponding signed and sealed RFC plans accepted by the Department.

Pages 1-84, Article 109-10, add the following as bullets (E) and (F) under the 1st paragraph.

(E) Other submittals, as required by the Request for Proposals. If the Design-Build Team is performing Construction Engineering and Inspection services, As-Constructed Drawings.

(F) Documents or guarantees to support any warranty provided by the Design Build Team.

Contract Item Sheets For C203359

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
			ROADWAY ITEMS			
			******* BEGIN SCHEDULE AA ******* ******* (2 ALTERNATES) *******			
0001 AA1	0000900000-N	SP	GENERIC MISCELLANEOUS ITEM DESIGN & CONST ENTIRE PROJECT EXCLUDING BRIDGE 103 DRILLED PIERS	Lump Sum LS		
0002 AA1	0000930000-E	SP	GENERIC MISCELLANEOUS ITEM 5'-0" DIA DRILLED PIERS AT BRIDGE 103	10,127 LF		
			*** OR ***			
0003 AA2	0000900000-N	SP	GENERIC MISCELLANEOUS ITEM DESIGN & CONSTRUCTION OF ENTIRE PROJECT	Lump Sum LS	55,551,252.00	55,551,252.00
			***** END SCHEDULE AA *****			
			TOTAL AMOUNT OF BID FOR ENTIRE PROJECT			$55,551,252.00

1532/Jan13/Q10129/D2730000/E3

County : New Hanover, Brunswick

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
			ROADWAY ITEMS			
			******* BEGIN SCHEDULE AA ******* ******* (2 ALTERNATES) *******			
0001 AA1	0000900000-N	SP	GENERIC MISCELLANEOUS ITEM DESIGN & CONST ENTIRE PROJECT EXCLUDING BRIDGE 103 DRILLED PIERS	Lump Sum	L.S.	No Bid
0002 AA1	0000930000-E	SP	GENERIC MISCELLANEOUS ITEM 5'-0" DIA DRILLED PIERS AT BRIDGE 103	10,127 LF		No Bid
			*** OR ***			
0003 AA2	0000900000-N	SP	GENERIC MISCELLANEOUS ITEM DESIGN & CONSTRUCTION OF ENTIRE PROJECT	Lump Sum	L.S.	55,551,252.00
			***** END SCHEDULE AA *****			

1624/Aug20/Q10129.0/D2730000/E3 Total Amount Of Bid For Entire Project : 55,551,252.00

FUEL USAGE FACTOR CHART AND ESTIMATE OF QUANTITIES

Description of Work	Units	Fuel Usage Factor Diesel #2	Estimate of Quantities
Unclassified Excavation	Gal / CY	0.29	16,692 CY
Borrow Excavation	Gal / CY	0.29	33,720 CY
Class IV Subgrade Stabilization Aggregate Base Course Aggregate for Cement Treated Base Course Portland Cement for Cement Treated Base Course	Gal / Ton	0.55	20,500 Tons
Asphalt Concrete Base Course Asphalt Concrete Intermediate Course Asphalt Concrete Surface Course Open-Graded Asphalt Friction Course Sand Asphalt Surface Course, Type F-1	Gal / Ton	2.90	55,139 Tons
Portland Cement Concrete Pavement Concrete Shoulders Adjacent to Pavement	Gal / CY	0.98	_____ CY
Structural Concrete (Cast-in-Place Only)	Gal / CY	0.98	18,402 CY

☑ The above quantities represent a reasonable estimate of the total quantities anticipated, for each item, as pertaining to fuel price adjustments, and is representative of the design proposed in the Technical Proposal submitted under separate cover.

Or

☐ The Design-Build Team elects not to pursue reimbursement for Fuel Price Adjustments on this project.

The information submitted on this sheet is claimed as a "Trade Secret" in accordance with the requirements of G.S. 66-152(3) until such time as the Price Proposal is opened.

Jonathan Bivens
Signature, Title VICE PRESIDENT

11-21-13
Dated

JONATHAN BIVENS
Print Name, Title

(Submit a copy of this sheet in a separate sealed package with the outer wrapping clearly marked "Fuel Price Adjustment" and deliver with the Technical and Price Proposal.)

LISTING OF DBE SUBCONTRACTORS

Sheet 1 of 4

	Firm Name and Address	Item No.	Item Description	* Agreed upon Unit Price	** Dollar Volume of Item	
WB	Name Bullington Construction Inc. Address 417 Foxglove Lane Indian Trail NC 28079	3	Generic Misc. Item Design + Construction of Entire Project	175,670.00	175,670.00	Committed
DBE	Name Freeman Concrete Inc Address P.O. Box 402 Rocky Point, NC 28457	3	Generic Misc. Item Design + Construction of Entire Project	208,284.00	208,284.00	Committed
WB	Name Curtin Trucking Address P.O. Box 38220 Charlotte NC 28278	3	Generic Misc. Item Design + Construction of Entire Project	591,851.00	591,851.00	Committed
WB	Name Hiatt + Mason Enterprise Inc Address P.O. Box 1518 Mt. Airy NC 27030	3	Generic Misc. Item Design + Construction of Entire Project	2,252,300.00	2,252,300.00	Committed
MB	Name Military Federal Construction Co. Inc Address 846 Bell Fork Rd. Jacksonville NC 28540	3	Generic Misc. Item Design + Construction of Entire Project	474,696.76	474,696.76	Committed
WB	Name Stay Alert Safety Services Inc. Address P.O. Box 467 Kernersville, NC 27285	3	Generic Misc. Item Design + Construction of Entire Project	~~221,199.00~~ AB 139,122.00	~~221,199.00~~ AB 139,122.00	Committed
WB	Name Linebarry Inc. Address P.O. Box 307 Climax, NC 27233	3	Generic Misc. Item Design + Construction of Entire Project	172,160.00	172,160.00	Committed

This form must be completed in order for the Bid to be considered responsive and be publicly read.
Bidders with no DBE participation must so indicate this on the form by entering the word or number *zero*.

MISC2 DBE Goal Set 11.0

DBE Goal Obt. 8.8

Rev 9-26-11

LISTING OF DBE SUBCONTRACTORS

Sheet 2 of 4

	Firm Name and Address	Item No.	Item Description	* Agreed upon Unit Price	** Dollar Volume of Item	
MB	Name Simmons Public Utility Site-Work Inc Address 6545 Dothan Rd. Tabor City NC 28463	3	Generic Mix. Item Design + Construction of Entire Project	132,918.00	132,918.00	Committed
WB	Name Harold A. Pugeant Address 5844 Lease Ln Raleigh NC 27617	3	Generic Misc Item Design + Construction of Entire Project	135,469.75	135,469.75	Committed
WB	Name M.C.-Tech Land Developers Inc Address P.O. Box 418 Shallotte NC 28459	3	Generic Misc. Item Design + Construction of Entire Project	210,000.00	210,000.00	Committed
WB	Name Boss Construction Co. Inc. Address 229 Boxwood Church Rd Mocksville NC 27028	3	Generic Misc Item Design + Construction of Entire Project	101,223.00	101,223.00	Committed
WB	Name Stay Alert Safety Services Inc Address P.O. Box 467 Wernersville NC 27285 (material supplier)	3	Generic Misc Item Design + Construction of Entire Project	51,784.00	51,784.00	Committed
	Name Address					
	Name Address					

This form must be completed in order for the Bid to be considered responsive and be publicly read.
Bidders with no DBE participation must so indicate this on the form by entering the word or number *zero*.

MISC2

DBE Goal Set 11.0

DBE Goal Obt. 8.8

Rev 9-26-11

LISTING OF DBE SUBCONTRACTORS

Sheet 3 of 4

Firm Name and Address	Item No.	Item Description	* Agreed upon Unit Price	** Dollar Volume of Item
Name Address				
Name Address				
Name Address				
Name Address				
Name Address				
Name Address				
Name Address				

This form must be completed in order for the Bid to be considered responsive and be publicly read.
Bidders with no DBE participation must so indicate this on the form by entering the word or number *zero*.

MISC2

DBE Goal Set 11.0

DBE Goal Obt. 8.8

LISTING OF DBE SUBCONTRACTORS

Sheet 4 of 4

Firm Name and Address	Item No.	Item Description	* Agreed upon Unit Price	** Dollar Volume of Item
Name Address				
Name Address				
Name Address				
Name Address				

COST OF CONSTRUCTION WORK ONLY $ 52,847,952.00

*The Dollar Volume shown in this column shall be the Actual Price Agreed Upon by the Prime Contractor and the DBE subcontractor, and these prices will be used to determine the percentage of the DBE participation in the contract.

** Dollar Volume of DBE Subcontractor $ 4,645,478.57

Percentage of Total Construction Cost 8.79 %

(Including Right of Way Acquisition Services)

** - Must have entry even if figure to be entered is zero.

** - *If firm is a Material Supplier Only, show Dollar Volume as 60% of Agreed Upon Amount from Letter of Intent.*
If firm is a Manufacturer, show Dollar Volume as 100% of Agreed Upon Amount from Letter of Intent.

This form must be completed in order for the Bid to be considered responsive and be publicly read.
Bidders with no DBE participation must so indicate this on the form by entering the word or number *zero*.

DBE Goal Set 11.0
DBE Goal Obt. 8.8

LISTING OF DBE SUBCONTRACTORS

Sheet 1 of 4

Firm Name and Address	Item No.	Item Description	* Agreed upon Unit Price	** Dollar Volume of Item
Name Burlington Construction Inc. Address 417 Foxglove Lane Indian Trail NC 28079	3	Generic Misc. Item Design + Construction of Entire Project	175,670.00	175,670.00
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Name Hiatt + Mason Enterprise Inc Address P.O. Box 1378 Mt. Airy NC 27030	3	Generic Misc. Item Design + Construction of Entire Project	2,252,300.00	2,252,300.00
Name Military Federal Construction Co. Inc Address 846 Bell Fork Rd. Jacksonville NC 28540	3	Generic Misc. Item Design + Construction of Entire Project	474,696.76	474,696.76
Name Stay Alert Safety Services Inc. Address P.O. Box 467 Kernersville, NC 27285	3	Generic Misc. Item Design + Construction of Entire Project	~~221,199.00~~ AB 139,122.00	~~221,199.00~~ AB 139,122.00
Name Lineberry Inc. Address P.O. Box 307 Climax, NC 27233	3	Generic Misc Item Design + Construction of Entire Project	172,160.00	172,160.00

This form must be completed in order for the Bid to be considered responsive and be publicly read.
Bidders with no DBE participation must so indicate this on the form by entering the word or number *zero*.

LISTING OF DBE SUBCONTRACTORS

Sheet 2 of 4

Firm Name and Address	Item No.	Item Description	* Agreed upon Unit Price	** Dollar Volume of Item
Name Simmons Public Utility Site-Work Inc Address 6545 Dothan Rd. Tabor City NC 28,463	3	Generic Misc. Item Design + Construction of Entire Project	132,918.00	132,918.00
Name Harold A. Pursgear Address 5844 Lease Ln Raleigh NC 27617	3	Generic Misc Item Design + Construction of Entire Project	135,469.75	135,469.75
Name Mar-Tech Land Developers Inc Address P.O. Box 418 Shallotte NC 28459	3	Generic Misc. Item Design + Construction of Entire Project	210,000.00	210,000.00
Name Boss Construction Co. Inc. Address 229 Boxwood Church Rd Mocksville NC 27028	3	Generic Misc Item Design + Construction of Entire Project	101,223.00	101,223.00
Name Stay Alert Safety Services Inc Address P.O. Box 467 Kernersville NC 27285 (material supplier)	3	Generic Misc Item Design + Construction of Entire Project	51,784.00	51,784.00
Name Address				
Name Address				

This form must be completed in order for the Bid to be considered responsive and be publicly read.
Bidders with no DBE participation must so indicate this on the form by entering the word or number *zero*.

LISTING OF DBE SUBCONTRACTORS

Sheet 3 of 4

Firm Name and Address	Item No.	Item Description	* Agreed upon Unit Price	** Dollar Volume of Item
Name Address				
Name Address				
Name Address				
Name Address				
Name Address				
Name Address				
Name Address				

This form must be completed in order for the Bid to be considered responsive and be publicly read.
Bidders with no DBE participation must so indicate this on the form by entering the word or number *zero*.

LISTING OF DBE SUBCONTRACTORS

Sheet 4 of 4

Firm Name and Address	Item No.	Item Description	* Agreed upon Unit Price	** Dollar Volume of Item
Name Address				
Name Address				
Name Address				
Name Address				

COST OF CONSTRUCTION WORK ONLY $ 52,847,952.00

*The Dollar Volume shown in this column shall be the Actual Price Agreed Upon by the Prime Contractor and the DBE subcontractor, and these prices will be used to determine the percentage of the DBE participation in the contract.

** Dollar Volume of DBE Subcontractor $ 4,645,478.57

Percentage of Total Construction Cost 8.79 %

(Including Right of Way Acquisition Services)

** - Must have entry even if figure to be entered is zero.

** - *If firm is a Material Supplier Only, show Dollar Volume as 60% of Agreed Upon Amount from Letter of Intent.*
If firm is a Manufacturer, show Dollar Volume as 100% of Agreed Upon Amount from Letter of Intent.

This form must be completed in order for the Bid to be considered responsive and be publicly read.
Bidders with no DBE participation must so indicate this on the form by entering the word or number *zero*.

EXECUTION OF BID
NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION

CORPORATION

The person executing the bid, on behalf of the Bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the bidder has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Bidder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this bid in the proper manner also constitutes the Bidder's certification of status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

N.C.G.S. § 133-32 and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

SIGNATURE OF CONTRACTOR

S. T. WOOTEN CORPORATION

Full name of Corporation

P. O. Box 2406
Wilson, N. C. 27895

Address as prequalified

Attest _____ By _____

~~Secretary~~/Assistant Secretary — *Select appropriate title*

~~President~~/Vice President/~~Assistant Vice President~~ — *Select appropriate title*

Douglas W. Godwin
Print or type Signer's name

JONATHAN BIVENS
Print or type Signer's name

CORPORATE SEAL

AFFIDAVIT MUST BE NOTARIZED

Subscribed and sworn to before me this the
21st day of November, 20 13

Debra S. Brewer
Signature of Notary Public Debra S. Brewer

Of Johnston County
State of NC
My Commission Expires 02-05-2018

NOTARY SEAL

EXECUTION OF BID
NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION

PARTNERSHIP

The person executing the bid, on behalf of the Bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the bidder has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Bidder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this bid in the proper manner also constitutes the Bidder's certification of status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

N.C.G.S. § 133-32 and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

SIGNATURE OF CONTRACTOR

_____
Full Name of Partnership

_____
Address as Prequalified

_____ By _____
Signature of Witness Signature of Partner

_____ _____
Print or type Signer's name Print or type Signer's name

AFFIDAVIT MUST BE NOTARIZED

Subscribed and sworn to before me this the
day of _____ 20_____.

_____
Signature of Notary Public

of _____County
State of _____
My Commission Expires:_____

NOTARY SEAL

EXECUTION OF BID
NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION

LIMITED LIABILITY COMPANY

The person executing the bid, on behalf of the Bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the bidder has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Bidder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this bid in the proper manner also constitutes the Bidder's certification of status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

N.C.G.S. § 133-32 and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

SIGNATURE OF CONTRACTOR

_____
Full Name of Firm

_____
Address as Prequalified

_____	_____
Signature of Witness	Signature of Member/Manager/Authorized Agent *Select appropriate title*
_____	_____
Print or type Signer's name	Print or type Signer's Name

AFFIDAVIT MUST BE NOTARIZED

Subscribed and sworn to before me this the

_____ day of _____ 20__.

NOTARY SEAL

_____
Signature of Notary Public

of _____County

State of _____

My Commission Expires:_____

EXECUTION OF BID
NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION
JOINT VENTURE (2) or (3)

The person executing the bid, on behalf of the Bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the bidder has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the bidder has not been convicted of violating N.C.G.S. § 133-24 within the last three years, and that the Bidder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this bid in the proper manner also constitutes the Bidder's certification of status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

N.C.G.S. § 133-32 and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

SIGNATURE OF CONTRACTORS

Instructions: **2 Joint Venturers** Fill in lines (1), (2) and (3) and execute. **3 Joint Venturers** Fill in lines (1), (2), (3) and (4) and execute. On Line (1), fill in the name of the Joint Venture Company. On Line (2), fill in the name of one of the joint venturers and execute below in the appropriate manner. On Line (3), print or type the name of the other joint venturer and execute below in the appropriate manner. On Line (4), fill in the name of the third joint venturer, if applicable and execute below in the appropriate manner.

(1) _____
Name of Joint Venture

(2) _____
Name of Contractor

_____
Address as prequalified

_____	By	_____
Signature of Witness or Attest		Signature of Contractor
_____		_____
Print or type Signer's name		Print or type Signer's name

If Corporation, affix Corporate Seal and

(3) _____
Name of Contractor

_____
Address as prequalified

_____	By	_____
Signature of Witness or Attest		Signature of Contractor
_____		_____
Print or type Signer's name		Print or type Signer's name

If Corporation, affix Corporate Seal and

(4) _____
Name of Contractor *(for 3 Joint Venture only)*

_____
Address as prequalified

_____	By	_____
Signature of Witness or Attest		Signature of Contractor
_____		_____
Print or type Signer's name		Print or type Signer's name

If Corporation, affix Corporate Seal

NOTARY SEAL
Affidavit must be notarized for Line (2)
Subscribed and sworn to before me this
_____day of_____ 20___

_____
Signature of Notary Public
of _____County
State of _____
My Commission Expires:_____

NOTARY SEAL
Affidavit must be notarized for Line (3)
Subscribed and sworn to before me this
_____day of _____ 20___

_____
Signature of Notary Public
of _____County
State of _____
My Commission Expires:_____

NOTARY SEAL
Affidavit must be notarized for Line (4)
Subscribed and sworn to before me this
____day of _____ 20_____

_____
Signature of Notary Public
of _____County
State of _____
My Commission Expires:_____

EXECUTION OF BID
NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION

INDIVIDUAL DOING BUSINESS UNDER A FIRM NAME

The person executing the bid, on behalf of the Bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the bidder has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Bidder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this bid in the proper manner also constitutes the Bidder's certification of status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

N.C.G.S. § 133-32 and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

SIGNATURE OF CONTRACTOR

Name of Contractor _____
Individual name

Trading and doing business as _____
Full name of Firm

_____
Address as Prequalified

_____ _____
Signature of Witness Signature of Contractor, Individually

_____ _____
Print or type Signer's name Print or type Signer's name

AFFIDAVIT MUST BE NOTARIZED

Subscribed and sworn to before me this the
_____ day of _____ 20__.

_____
Signature of Notary Public
of _____County
State of _____
My Commission Expires:_____

NOTARY SEAL

EXECUTION OF BID

NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION

INDIVIDUAL DOING BUSINESS IN HIS OWN NAME

The person executing the bid, on behalf of the Bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the bidder has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Bidder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this bid in the proper manner also constitutes the Bidder's certification of status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

N.C.G.S. § 133-32 and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

SIGNATURE OF CONTRACTOR

Name of Contractor _____
Print or type Individual name

_____
Address as Prequalified

_____
Signature of Contractor, Individually

_____
Print or type Signer's Name

_____
Signature of Witness

_____
Print or type Signer's name

AFFIDAVIT MUST BE NOTARIZED

Subscribed and sworn to before me this the
_____ day of _____ 20__.

_____
Signature of Notary Public
of _____County
State of _____
My Commission Expires:_____

NOTARY SEAL

DEBARMENT CERTIFICATION

Conditions for certification:

1. The prequalified bidder shall provide immediate written notice to the Department if at any time the bidder learns that his certification was erroneous when he submitted his debarment certification or explanation that is file with the Department, or has become erroneous because of changed circumstances.

2. The terms *covered transaction, debarred, suspended, ineligible, lower tier covered transaction, participant, person, primary covered transaction, principal, proposal,* and *voluntarily excluded,* as used in this provision, have the meanings set out in the Definitions and Coverage sections of the rules implementing Executive Order 12549. A copy of the Federal Rules requiring this certification and detailing the definitions and coverages may be obtained from the Contract Officer of the Department.

3. The prequalified bidder agrees by submitting this form, that he will not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in NCDOT contracts, unless authorized by the Department.

4. For Federal Aid projects, the prequalified bidder further agrees that by submitting this form he will include the Federal-Aid Provision titled *Required Contract Provisions Federal-Aid Construction Contract (Form FHWA PR* 1273) provided by the Department, without subsequent modification, in all lower tier covered transactions.

5. The prequalified bidder may rely upon a certification of a participant in a lower tier covered transaction that he is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless he knows that the certification is erroneous. The bidder may decide the method and frequency by which he will determine the eligibility of his subcontractors.

6. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this provision. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

7. Except as authorized in paragraph 6 herein, the Department may terminate any contract if the bidder knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available by the Federal Government.

DEBARMENT CERTIFICATION

The prequalified bidder certifies to the best of his knowledge and belief, that he and his principals:

a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

b. Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records; making false statements; or receiving stolen property;

c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph b. of this certification; and

d. Have not within a three-year period preceding this proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

e. Will submit a revised Debarment Certification immediately if his status changes and will show in his bid proposal an explanation for the change in status.

If the prequalified bidder cannot certify that he is not debarred, he shall provide an explanation with this submittal. An explanation will not necessarily result in denial of participation in a contract.

Failure to submit a non-collusion affidavit and debarment certification will result in the prequalified bidder's bid being considered non-responsive.

☐ Check here if an explanation is attached to this certification.

Contract No **C203359**

County (ies): **Brunswick and New Hanover Counties**

ACCEPTED BY THE
DEPARTMENT OF TRANSPORTATION

Contract Officer

1/27/14
Date

Execution of Contract and Bonds
Approved as to Form:

Attorney General

Signature Sheet (Bid - Acceptance by Department)

Contract No. C203359

County New Hanover/Brunswick

CONTRACT PAYMENT BOND

Bond No. 018031745

Date of Payment Bond Execution	January 16th, 2014
Name of Principal Contractor	S. T. Wooten Corporation
Name of Surety:	Liberty Mutual Insurance Company 175 Berkeley St; Boston, MA 02117
Name of Contracting Body:	**North Carolina Department of Transportation** **Raleigh, North Carolina**
Amount of Bond:	$55,551,252.00
Contract ID No.:	C203359
County Name:	New Hanover/Brunswick

KNOW ALL MEN BY THESE PRESENTS, That we, the PRINCIPAL CONTRACTOR (hereafter, PRINCIPAL) and SURETY above named, are held and firmly bound unto the above named Contracting Body, hereinafter called the Contracting Body, in the penal sum of the amount stated above for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the principal entered into a certain contract with the Contracting Body, numbered as shown above and hereto attached:

NOW THEREFORE, if the principal shall promptly make payment to all persons supplying labor and material in the prosecution of the work provided for in said contract, and any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the surety being hereby waived, then this obligation to be void; otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bound parties have executed this instrument under their several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

Rev 5-17-11

Contract No. C203359

County New Hanover/Brunswick

CONTRACT PAYMENT BOND

Affix Seal of Surety Company

Liberty Mutual Insurance Company
Print or type Surety Company Name

By Angela M. Yount
Print, stamp or type name of Attorney-in-Fact

Angela M Yount
Signature of Attorney-in-Fact

Ramona Fewell
Signature of Witness

Ramona Fewell
Print or type Signer's Name

Rutherfoord A Marsh & McLennan Agency LLC Company
6230 Fairview Road Suite 230
Charlotte, NC 28210
Address of Attorney-in-Fact

Rev 5-17-11

Contract No. C203359
County New Hanover/Brunswick

CONTRACT PAYMENT BOND

CORPORATION

SIGNATURE OF CONTRACTOR (Principal)

S. T. Wooten Corporation
Full name of Corporation

Post Office Box 2408; Wilson, North Carolina 27894-2408
Address as prequalified

By: _____
Signature of ~~President, Vice~~ **President, ~~Assistant Vice President~~**
Select appropriate title

Brian Gurganus
Print or type Signer's name

Affix Corporate Seal

Attest _____
Signature of ~~**Secretary,**~~ **Assistant Secretary**
Select appropriate title

Douglas W. Godwin
Print or type Signer's name

Contract No. C203359
County New Hanover/Brunswick

CONTRACT PERFORMANCE BOND
Bond No. 018031745

Date of Performance Bond Execution:	January 16th, 2014
Name of Principal Contractor:	S. T. Wooten Corporation
Name of Surety:	Liberty Mutual Insurance Company 175 Berkeley Street; Boston, MA 02117
Name of Contracting Body:	**North Carolina Department of Transportation** **Raleigh, North Carolina**
Amount of Bond:	$55,551,252.00
Contract ID No.:	C203359
County Name:	New Hanover/Brunswick

KNOW ALL MEN BY THESE PRESENTS, That we, the PRINCIPAL CONTRACTOR (hereafter, PRINCIPAL) and SURETY above named, are held and firmly bound unto the above named Contracting Body, hereinafter called the Contracting Body, in the penal sum of the amount stated above for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that whereas the principal entered into a certain contract with the Contracting Body, numbered as shown above and hereto attached:

NOW THEREFORE, if the principal shall well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term of said contract and any extensions thereof that may be granted by the Contracting Body, with or without notice to the Surety, and during the life of any guaranty required under the contract, and shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the surety being hereby waived, then this obligation to be void; otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bound parties have executed this instrument under their several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by it undersigned representative, pursuant to authority of its governing body.

Rev 5-17-11

Contract No. C203359
County New Hanover/Brunswick

CONTRACT PERFORMANCE BOND

Affix Seal of Surety Company

Liberty Mutual Insurance Co.
Print or type Surety Company Name

By Angela M. Yount
Print, stamp or type name of Attorney-in-Fact

Signature of Attorney-in-Fact

Signature of witness

Ramona Fewell
Print or type Signer's Name

Rutherfoord A Marsh & McLennan Agency LLC Company
6230 Fairview Road Suite 230
Charlotte, NC 28210
Address of Attorney-in-Fact

Rev 5-17-11

Contract No. C203359
County New Hanover/Brunswick

CONTRACT PERFORMANCE BOND

CORPORATION

SIGNATURE OF CONTRACTOR (Principal)

S. T. Wooten Corporation
Full name of Corporation

Post Office Box 2408; Wilson, North Carolina 27894-2408
Address as prequalified

By: _____
Signature of ~~President~~, **Vice President, ~~Assistant Vice President~~**
Select appropriate title

Brian Gurganus
Print or type Signer's name

Affix Corporate Seal

Attest _____
Signature of ~~Secretary,~~ **Assistant Secretary**
Select appropriate title

Douglas W. Godwin
Print or type Signer's name

THIS POWER OF ATTORNEY IS NOT VALID UNLESS IT IS PRINTED ON RED BACKGROUND.
This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

Certificate No. 6029921

American Fire and Casualty Company
The Ohio Casualty Insurance Company
Liberty Mutual Insurance Company
West American Insurance Company

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That American Fire & Casualty Company and The Ohio Casualty Insurance Company are corporations duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Angela M. Yount; Bradford W. Gibson; Debra S. Ritter; Martin D. Pallazza; Ramona Fewell; Raymond J. Garruto

all of the city of Charlotte, state of NC each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 12th day of March, 2013.

American Fire and Casualty Company
The Ohio Casualty Insurance Company
Liberty Mutual Insurance Company
West American Insurance Company

By: Gregory W. Davenport
Gregory W. Davenport, Assistant Secretary

STATE OF WASHINGTON ss
COUNTY OF KING

On this 12th day of March, 2013, before me personally appeared Gregory W. Davenport, who acknowledged himself to be the Assistant Secretary of American Fire and Casualty Company, Liberty Mutual Insurance Company, The Ohio Casualty Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at Seattle, Washington, on the day and year first above written.

By: KD Riley
KD Riley, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of American Fire and Casualty Company, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

ARTICLE IV – OFFICERS – Section 12. Power of Attorney. Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

ARTICLE XIII – Execution of Contracts – SECTION 5. Surety Bonds and Undertakings. Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation – The President of the Company, acting pursuant to the Bylaws of the Company, authorizes Gregory W. Davenport, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization – By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, David M. Carey, the undersigned, Assistant Secretary, of American Fire and Casualty Company, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 16th day of January, 2014.

By: David M. Carey
David M. Carey, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, bank deposit, currency rate, interest rate or residual value guarantees.

To confirm the validity of this Power of Attorney call 1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day.