

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

C203801

CONTRACT AND  
CONTRACT BONDS

FOR CONTRACT NO. C203801

WBS 34518.3.FR3 STP-0221(41)

T.I.P NO. R-2915C

COUNTY OF ASHE

THIS IS THE ROADWAY & CULVERT CONTRACT

ROUTE NUMBER US 221 LENGTH 3.979 MILES

LOCATION US-221 FROM NORTH OF SOUTH FORK NEW RIVER TO SOUTH OF  
NC-194.

CONTRACTOR VECELLIO & GROGAN INC

ADDRESS P.O. BOX 2438

BECKLEY, WV 258022438

BIDS OPENED NOVEMBER 15, 2016

CONTRACT EXECUTION 12/6/2016

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

PROPOSAL

**INCLUDES ADDENDUM No. 1 DATED 11-03-16**

DATE AND TIME OF BID OPENING: **NOVEMBER 15, 2016 AT 2:00 PM**

CONTRACT ID C203801  
WBS 34518.3.FR3

FEDERAL-AID NO. STP-0221(41)  
COUNTY ASHE  
T.I.P. NO. R-2915C  
MILES 3.979  
ROUTE NO. US 221  
LOCATION US-221 FROM NORTH OF SOUTH FORK NEW RIVER TO SOUTH OF NC-194.

TYPE OF WORK GRADING, DRAINAGE, PAVING, CULVERT, AND RETAINING WALLS.

**NOTICE:**

ALL BIDDERS 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 BIDDER 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. BIDDERS 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. NOTWITHSTANDING THESE LIMITATIONS ON BIDDING, THE BIDDER WHO IS AWARDED ANY FEDERAL - AID FUNDED PROJECT SHALL COMPLY WITH CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA FOR LICENSING REQUIREMENTS WITHIN 60 CALENDAR DAYS OF BID OPENING.

**BIDS WILL BE RECEIVED AS SHOWN BELOW:**

**THIS IS A ROADWAY & CULVERT PROPOSAL**

**5% BID BOND OR BID DEPOSIT REQUIRED**

---

**PROPOSAL FOR THE CONSTRUCTION OF  
CONTRACT No. C203801 IN ASHE COUNTY, NORTH CAROLINA**

Date \_\_\_\_\_ 20 \_\_\_\_\_

**DEPARTMENT OF TRANSPORTATION,  
RALEIGH, NORTH CAROLINA**

The Bidder has carefully examined the location of the proposed work to be known as Contract No. C203801; has carefully examined the plans and specifications, which are acknowledged to be part of the proposal, the special provisions, the proposal, the form of contract, and the forms of contract payment bond and contract performance bond; and thoroughly understands the stipulations, requirements and provisions. The undersigned bidder agrees to be bound upon his execution of the bid and subsequent award to him by the Board of Transportation in accordance with this proposal to provide the necessary contract payment bond and contract performance bond within fourteen days after the written notice of award is received by him. The undersigned Bidder further agrees to provide all necessary machinery, tools, labor, and other means of construction; and to do all the work and to furnish all materials, except as otherwise noted, necessary to perform and complete the said contract in accordance with *the 2012 Standard Specifications for Roads and Structures* by the dates(s) specified in the Project Special Provisions and in accordance with the requirements of the Engineer, and at the unit or lump sum prices, as the case may be, for the various items given on the sheets contained herein.

The Bidder shall provide and furnish all the materials, machinery, implements, appliances and tools, and perform the work and required labor to construct and complete State Highway Contract No. C203801 in Ashe County, for the unit or lump sum prices, as the case may be, bid by the Bidder in his bid and according to the proposal, plans, and specifications prepared by said Department, which proposal, plans, and specifications show the details covering this project, and hereby become a part of this contract.

The published volume entitled *North Carolina Department of Transportation, Raleigh, Standard Specifications for Roads and Structures, January 2012* with all amendments and supplements thereto, is by reference incorporated into and made a part of this contract; that, except as herein modified, all the construction and work included in this contract is to be done in accordance with the specifications contained in said volume, and amendments and supplements thereto, under the direction of the Engineer.

If the proposal is accepted and the award is made, 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 over the signature of the said Contract Officer.

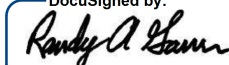
The quantities shown in the itemized proposal for the project are considered to be approximate only and are given as the basis for comparison of bids. The Department of Transportation may increase or decrease the quantity of any item or portion of the work as may be deemed necessary or expedient.

An increase or decrease in the quantity of an item will not be regarded as sufficient ground for an increase or decrease in the unit prices, nor in the time allowed for the completion of the work, except as provided for the contract.

Accompanying this bid is 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 Bidder 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 him, as provided in the *Standard Specifications*; otherwise said deposit will be returned to the Bidder.



*State Contract Officer*

DocuSigned by:  
  
A7079FC32A09478...

11/3/2016

## **TABLE OF CONTENTS**

### **COVER SHEET PROPOSAL SHEET**

### **PROJECT SPECIAL PROVISIONS**

CONTRACT TIME AND LIQUIDATED DAMAGES: .....	G-1
INTERMEDIATE CONTRACT TIME NUMBER 1 AND LIQUIDATED DAMAGES A+B	
BIDDING:.....	G-1
INTERMEDIATE CONTRACT TIME NUMBER 2 AND LIQUIDATED DAMAGES: .....	G-5
INTERMEDIATE CONTRACT TIME NUMBER 3 AND LIQUIDATED DAMAGES: .....	G-6
INTERMEDIATE CONTRACT TIME NUMBER 4 AND LIQUIDATED DAMAGES: .....	G-6
INTERMEDIATE CONTRACT TIME NUMBER 5 AND LIQUIDATED DAMAGES: .....	G-7
INTERMEDIATE CONTRACT TIME NUMBER 6 AND LIQUIDATED DAMAGES: .....	G-7
INTERMEDIATE CONTRACT TIME NUMBER 7 AND LIQUIDATED DAMAGES: .....	G-7
INTERMEDIATE CONTRACT TIME NUMBER 8 AND LIQUIDATED DAMAGES: .....	G-8
PERMANENT VEGETATION ESTABLISHMENT:.....	G-8
CONSTRUCTION MORATORIUM:.....	G-9
DELAY IN RIGHT OF ENTRY: .....	G-9
MAJOR CONTRACT ITEMS: .....	G-9
SPECIALTY ITEMS: .....	G-9
FUEL PRICE ADJUSTMENT:.....	G-10
PAYOUT SCHEDULE: .....	G-10
SCHEDULE OF ESTIMATED COMPLETION PROGRESS:.....	G-11
DISADVANTAGED BUSINESS ENTERPRISE: .....	G-11
CERTIFICATION FOR FEDERAL-AID CONTRACTS: .....	G-24
U.S. DEPARTMENT OF TRANSPORTATION HOTLINE: .....	G-25
CARGO PREFERENCE ACT: .....	G-25
SUBSURFACE INFORMATION:.....	G-26
LOCATING EXISTING UNDERGROUND UTILITIES:.....	G-26
VALUE ENGINEERING PROPOSAL: .....	G-26
RESOURCE CONSERVATION AND ENV. SUSTAINABLE PRACTICES:.....	G-27
DOMESTIC STEEL: .....	G-28
PORTABLE CONCRETE BARRIER - (Partial Payments for Materials):.....	G-28
MAINTENANCE OF THE PROJECT: .....	G-28
COOPERATION BETWEEN CONTRACTORS:.....	G-29
BID DOCUMENTATION: .....	G-29
TWELVE MONTH GUARANTEE: .....	G-33
IRAN DIVESTMENT ACT: .....	G-33
GIFTS FROM VENDORS AND CONTRACTORS: .....	G-34
LIABILITY INSURANCE:.....	G-34
EROSION AND SEDIMENT CONTROL/STORMWATER CERTIFICATION: .....	G-35
PROCEDURE FOR MONITORING BORROW PIT DISCHARGE:.....	G-40
EMPLOYMENT:.....	G-42
STATE HIGHWAY ADMINISTRATOR TITLE CHANGE:.....	G-42

SUBLETTING OF CONTRACT: ..... G-42

ROADWAY ..... R-1

### **STANDARD SPECIAL PROVISIONS**

AVAILABILITY FUNDS – TERMINATION OF CONTRACTS .....	SSP-1
NCDOT GENERAL SEED SPECIFICATION FOR SEED QUALITY .....	SSP-2
ERRATA.....	SSP-5
PLANT AND PEST QUARANTINES .....	SSP-7
AWARD OF CONTRACT .....	SSP-8
MINORITY AND FEMALE EMPLOYMENT REQUIREMENTS .....	SSP-13
REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONST. CONTRACTS .....	SSP-16
ON-THE-JOB TRAINING .....	SSP-25
NCDENR NAME CHANGE.....	SSP-28
MINIMUM WAGES .....	SSP-29

### **UNIT PROJECT SPECIAL PROVISIONS**

GEOTECHNICAL.....	GT-0.1
GEOENVIRONMENTAL.....	GV-1
UTILITY BY OTHERS.....	UBO-1
EROSION CONTROL .....	EC-1
STRUCTURE / CULVERTS.....	ST-1

**PERMITS** ..... P-1

### **PROPOSAL ITEM SHEET**

ITEM SHEET(S) (TAN SHEETS)

**PROJECT SPECIAL PROVISIONS****GENERAL****CONTRACT TIME AND LIQUIDATED DAMAGES:**

(8-15-00) (Rev. 12-18-07)

108

SP1 G07 A

The date of availability for this contract is **January 3, 2017**, except that work in jurisdictional waters and wetlands shall not begin until a meeting between the DOT, Regulatory Agencies, and the Contractor is held as stipulated in the permits contained elsewhere in this proposal. This delay in availability has been considered in determining the contract time for this project.

The completion date for this contract is **December 28, 2020**.

Except where otherwise provided by the contract, observation periods required by the contract will not be a part of the work to be completed by the completion date and/or intermediate contract times stated in the contract. The acceptable completion of the observation periods that extend beyond the final completion date shall be a part of the work covered by the performance and payment bonds.

The liquidated damages for this contract are **Two Hundred Dollars (\$ 200.00)** per calendar day. These liquidated damages will not be cumulative with any liquidated damages which may become chargeable under Intermediate Contract Time Number 1.

**INTERMEDIATE CONTRACT TIME NUMBER 1 AND LIQUIDATED DAMAGES A+B BIDDING:**

(6-19-07) (Rev. 1-17-12)

108

SPI 1-02

Except for the work required under Project Special Provisions entitled *Planting, Reforestation* and/or *Permanent Vegetation Establishment* included elsewhere in the proposal, the Contractor shall complete all work included in this contract and shall place and maintain traffic on same.

The intermediate contract time for this work shall be determined by the Bidder and entered into the itemized electronic bid by the Bidder in the place indicated. In no case shall the Bidder bid more than **One Thousand Two Hundred and Seventy-Five** consecutive calendar days.

The date of availability for this intermediate contract time is **January 3, 2017**.

The daily cost for this intermediate contract time is **Four Thousand Five Hundred Dollars (\$4,500.00)** per calendar day.

The liquidated damages for this intermediate contract time are **Four Thousand Five Hundred Dollars (\$4,500.00)** per calendar day.

Upon apparent completion of all work required to be completed by this intermediate date, a final inspection will be held in accordance with Article 105-17 of the *2012 Standard Specifications* and upon acceptance, the Department will assume responsibility for the maintenance of all work except

*Planting, Reforestation and/or Permanent Vegetation Establishment.* The Contractor will be responsible for and make corrections of all damages to the completed roadway caused by his planting operations, whether occurring prior to or after placing traffic through the project.

Revise the *2012 Standard Specifications* as follows:

**Page 1-6, Article 101,** delete Intermediate Completion Date and the definition and substitute the following:

**INTERMEDIATE COMPLETION DATE:** That date as determined by adding the number of calendar days bid by the Contractor to the date of availability, or as revised by authorized extensions, by which date it is required that the intermediate work set forth in the contract will be satisfactorily completed. The date of availability will be counted as the first contract calendar day.

**Page 1-6, Article 101,** delete Intermediate Contract Time (Days) and the definition and substitute the following:

**INTERMEDIATE CONTRACT TIME (DAYS):** The number of days bid by the Contractor including authorized extensions to the intermediate completion date.

**Page 1-15, Subarticle 102-8(A)(6), line 15,** delete the second sentence of (6) and substitute the following:

The total amount bid shall be determined by adding the amounts bid for each item and for the contract time.

**Page 1-16, Subarticle 102-8(B),** add the following paragraph after line 23:

(10) The intermediate contract time bid shall be entered in the Expedite file. The number of calendar days shall be entered in figures in the "Unit Cost" column. The amount bid for the contract time will be determined by multiplying the number of calendar days bid by the daily cost per calendar day indicated in the proposal/electronic bid file and shall be the amount appearing in figures in the "Amount" column of the electronic bid.

**Page 1-19, Article 102-14,** add the following paragraph after the first paragraph, line 33:

Any bid submitted in which the Bidder fails to bid the intermediate contract time or bids more intermediate contract time than specified in these provisions shall be considered nonresponsive and will not be read.

**Page 1-21, Article 103-1,** delete the first paragraph and substitute the following:

After the bids are opened and read, they will be compared on the basis of the summation of the products of the quantities shown in the bid schedule and the unit bid prices and the product of the cost per calendar day shown in the bid schedule and the contract time. The results of such comparisons will be immediately available to the public. In the event of errors, omissions,

discrepancies, in the bid prices or contract time bid, corrections to the bid prices or contract time bid will be made in accordance with Article 103-2 of the *2012 Standard Specifications*. Such corrected bid prices or contract time bid will be used for comparison and consideration of bids.

**Page 1-24, Subarticle 103-4(A), line 10,** delete this subarticle and substitute the following:

**(A) General**

The award of the contract, if it is awarded, will be made by the Department, to the lowest responsible Bidder. In determining the total amount bid by a Bidder, the Department will consider the dollar amount bid to perform all the work under the terms of the contract and the total number of calendar days to complete the intermediate work. The lowest bid will be determined by the Department as the lowest combination of (A) and (B) according to the following formula:

Total Amount Bid =  $A + (B \times DC)$  where:

A = the total dollar amount for all work to be performed under the contract,

B = the intermediate contract time in calendar days bid not to exceed the maximum number of calendar days specified in the proposal, and

DC = is the daily cost as stipulated in the proposal.

The preceding formula shall be used only to determine the lowest and best bid and shall not be used to determine the final payment to the Contractor upon completion of the work.

In the event that two or more Bidders submit the lowest total bid, the award, if made, will be made to the Bidder bidding the lowest number of calendar days to complete the intermediate work.

The lowest responsible Bidder will be notified by letter that his bid has been accepted and that he has been awarded the contract. This letter shall constitute the notice of award. The notice of award, if the award is made, will be issued within 60 days after the opening of bids, except that with consent of the lowest responsible Bidder, 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 Bidder. In the absence of such agreement, the lowest responsible Bidder may withdraw his bid at the expiration of the 60 days without penalty if no notice of award has been issued.

Award of a contract involving any unbalanced bid price(s) may be made in accordance with Article 102-14 of the *2012 Standard Specifications*.

**Page 1-71, Subarticle 108-10(B)(1), line 5,** delete this subarticle and substitute the following:

- (1) If the total dollar value of the final quantities adjusted as provided herein less the dollar value of quantities represented by supplemental agreements which previously extended the completion date, or intermediate completion date, or intermediate completion time, exceeds the dollar value of the total amount bid, excluding the amount bid for contract time or intermediate contract time, the completion date, intermediate completion date or intermediate completion time will be extended by the number of calendar days or hours obtained by multiplying the contract time (days), intermediate contract time (days) or

intermediate contract time (hours) as bid or set forth in the special provisions by that percentage that such reduced final dollar value exceeds the total amount bid, excluding the amount bid for contract time or intermediate contract time. The total dollar value of the final quantities for pro-rata computations shall be adjusted by excluding the following:

- (a) Unit bid price changes caused by price adjustments to asphalt cement.
- (b) Fuel adjustments.
- (c) Unit price reductions under the provisions of Article 105-3 of the *2012 Standard Specifications*.
- (d) Payment for trainees.
- (e) Unit price changes due to pay factors established by the Specifications.

**Page 1-72, Subarticle 108-10(B)(5), line 27**, delete this subarticle and substitute the following:

- (5) In the event accumulated authorized extensions in the completion date or intermediate completion date extend the completion date or intermediate completion date beyond December 15 following expiration of the completion date or intermediate completion date, the completion date or intermediate complete date will be further extended by the number of calendar days between December 15 of one year and March 16 of the following year, provided the accumulated authorized time extensions equal to or exceed ten percent of the original time bid. Where a contract time or intermediate contract time is specified in the contract, the ten percent exclusion specified herein will not be applicable. If any portion of such accumulated authorized time extensions are for delays which occurred after the original contract time or intermediate contract time (days) expired and during the period between December 15 of one year and March 16 of the following year, this portion of the extension will be deducted from the number of additional calendar days awarded due to the extension of the completion date or intermediate completion date beyond December 15.

The Contractor's plea that the maximum allowable contract time (days), intermediate contract time (days), or intermediate contract time (hours) as specified in the contract was insufficient will not be considered grounds as a valid extension in the completion date, intermediate completion date or intermediate completion time.

**Page 1-73, Article 108-11, line 13**, insert "as bid or" after the word "times" in the third line of the second paragraph.

**Page 8-1, Article 800-2, lines 10-12 and 18-20**, insert "excluding the amount bid for contract time or intermediate contract time" following the phrase "% of the total amount bid" throughout the article.

**INTERMEDIATE CONTRACT TIME NUMBER 2 AND LIQUIDATED DAMAGES:**

(2-20-07)

108

SP1 G14 A

The Contractor shall complete the required work of installing, maintaining, and removing the traffic control devices for lane closures and restoring traffic to the existing traffic pattern. The Contractor shall not close or narrow a lane of traffic on **US 221** during the following time restrictions:

**DAY AND TIME RESTRICTIONS**

**Monday thru Friday  
from 7:00 am to 9:00 am &  
from 4:00 pm to 6:00 pm**

In addition, the Contractor shall not close or narrow a lane of traffic on **US 221**, detain and/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:

**HOLIDAY AND HOLIDAY WEEKEND LANE CLOSURE RESTRICTIONS**

1. For **unexpected occurrence** that creates unusually high traffic volumes, as directed by the Engineer.
2. For **New Year's Day**, between the hours of **7:00 AM** December 31st and **6:00 PM** January 2nd. If New Year's Day is on a Friday, Saturday, Sunday or Monday, then until **6:00 PM** the following Tuesday.
3. For **Easter**, between the hours of **7:00 AM** Thursday and **6:00 PM** Monday.
4. For **Memorial Day**, between the hours of **7:00 AM** Friday and **6:00 PM** Tuesday.
5. For **Independence Day**, between the hours of **7:00 AM** the day before Independence Day and **6:00 PM** the day after Independence Day.

If **Independence Day** is on a Friday, Saturday, Sunday or Monday, then between the hours of **7:00 AM** the Thursday before Independence Day and **6:00 PM** the Tuesday after Independence Day.

6. For **Labor Day**, between the hours of **7:00 AM** Friday and **6:00 PM** Tuesday.
7. For **Thanksgiving Day**, between the hours of **7:00 AM** Tuesday and **6:00 PM** Monday.
8. For **Christmas**, between the hours of **7:00 AM** the Friday before the week of Christmas Day and **6:00 PM** the following Tuesday after the week of Christmas Day.
9. For **Christmas in July**, typically occurring at the first weekend in July between the hours of **7:00 AM** Friday and **6:00 PM** the following Monday.

Holidays and holiday weekends shall include New Year's, Easter, Memorial Day, Independence Day, Labor Day, Thanksgiving, and Christmas. The Contractor shall schedule his work so that lane closures will not be required during these periods, unless otherwise directed by the Engineer.

The time of availability for this intermediate contract work shall be the time the Contractor begins to install all traffic control devices for lane closures according to the time restrictions listed herein.

The completion time for this intermediate contract work shall be the time the Contractor is required to complete the removal of all traffic control devices for lane closures according to the time restrictions stated above and place traffic in the existing traffic pattern.

The liquidated damages are **One Thousand Dollars (\$ 1,000.00)** per hour.

**INTERMEDIATE CONTRACT TIME NUMBER 3 AND LIQUIDATED DAMAGES:**

(2-20-07) (Rev. 10-15-13)

108

SP1 G14 E

**Stopping traffic will only be allowed for blasting operation.** The Contractor shall complete the required work of installing, maintaining and removing the traffic control devices for **stopping traffic** and restoring traffic to the existing traffic pattern. The Contractor shall not stop traffic on **US 221** during the following time restrictions:

**DAY AND TIME RESTRICTIONS**

**Monday thru Friday  
7:00 AM to 9:00 AM  
4:00 PM to 6:00 PM  
Saturday 10:00 AM to 6:00 PM**

The maximum allowable time for **stopping traffic for blasting operations** is **15** minutes for **US 221**. The Contractor shall reopen the travel lanes to traffic until any resulting traffic queue is depleted.

The time of availability for this intermediate contract time will be the time the Contractor begins to install traffic control devices required for the **stopping traffic** according to the time restrictions stated herein.

The completion time for this intermediate contract time will be the time the Contractor is required to complete the removal of traffic control devices required for the **stopping traffic** according to the time restrictions stated herein and restore traffic to the existing traffic pattern.

The liquidated damages are **Five Hundred Dollars (\$500.00)** per **15** minute time period.

**INTERMEDIATE CONTRACT TIME NUMBER 4 AND LIQUIDATED DAMAGES:**

(2-20-07) (Rev. 6-18-13)

108

SP1 G14 H

The Contractor shall complete the work required of **Phase I, Step 7B thru Phase I, Step 7D** as shown on Sheet(s) **TMP- 16** and shall place and maintain traffic on same.

The date of availability for this intermediate contract time is the date the Contractor elects to begin the work.

The completion date for this intermediate contract time is the date which is **Sixty (60)** consecutive calendar days after and including the date the Contractor begins this work.

The liquidated damages are **Five Hundred Dollars (\$500.00)** per calendar day.

**INTERMEDIATE CONTRACT TIME NUMBER 5 AND LIQUIDATED DAMAGES:**

(2-20-07) (Rev. 6-18-13)

108

SP1 G14 F

The Contractor shall complete the work required of **Phase I, Step 8C thru Phase I, Step 8E** as shown on Sheet(s) **TMP-21** and shall place and maintain traffic on same.

The time of availability for this intermediate contract time is the **Friday** at **10:00 PM** that the Contractor elects to begin the work.

The completion time for this intermediate contract time is the following **Monday** at **6:00 AM** after the time of availability.

The liquidated damages are **Five Hundred Dollars (\$500.00)** per hour.

**INTERMEDIATE CONTRACT TIME NUMBER 6 AND LIQUIDATED DAMAGES:**

(2-20-07) (Rev. 6-18-13)

108

SP1 G14 H

The Contractor shall complete the work required of **Phase II, Step 2B thru Phase II, Step 2D** as shown on Sheet(s) **TMP-39** and shall place and maintain traffic on same.

The date of availability for this intermediate contract time is the date the Contractor elects to begin the work.

The completion date for this intermediate contract time is the date which is **ten (10)** consecutive calendar days after and including the date the Contractor begins this work.

The liquidated damages are **Five Hundred Dollars (\$500.00)** per calendar day.

**INTERMEDIATE CONTRACT TIME NUMBER 7 AND LIQUIDATED DAMAGES:**

(2-20-07) (Rev. 6-18-13)

108

SP1 G14 H

The Contractor shall complete the work required of **Phase III, Step 6B thru Phase III, Step 6F** as shown on Sheet(s) **TMP-49 & TMP-50** and shall place and maintain traffic on same.

The date of availability for this intermediate contract time is the date the Contractor elects to begin the work.

The completion date for this intermediate contract time is the date which is **thirty (30)** consecutive calendar days after and including the date the Contractor begins this work.

The liquidated damages are **Seven Hundred and Fifty Dollars (\$750.00)** per calendar day.

**INTERMEDIATE CONTRACT TIME NUMBER 8 AND LIQUIDATED DAMAGES:**

(2-20-07) (Rev. 6-18-13)

108

SP1 G14 F

The Contractor shall complete the work required of **Phase III, Step 6D** as shown on Sheet(s) **TMP-46** and shall place and maintain traffic on same.

The time of availability for this intermediate contract time is the **Friday at 10:00 PM** that the Contractor elects to begin the work.

The completion time for this intermediate contract time is the following **Monday at 6:00 AM** after the time of availability.

The liquidated damages are **One Thousand Dollars (\$1,000.00)** per hour.

**PERMANENT VEGETATION ESTABLISHMENT:**

(2-16-12) (Rev. 10-15-13)

104

SP1 G16

Establish a permanent stand of the vegetation mixture shown in the contract. During the period between initial vegetation planting and final project acceptance, perform all work necessary to establish permanent vegetation on all erodible areas within the project limits, as well as, in borrow and waste pits. This work shall include erosion control device maintenance and installation, repair seeding and mulching, supplemental seeding and mulching, mowing, and fertilizer topdressing, as directed. All work shall be performed in accordance with the applicable section of the *2012 Standard Specifications*. All work required for initial vegetation planting shall be performed as a part of the work necessary for the completion and acceptance of the Intermediate Contract Time (ICT). Between the time of ICT and Final Project acceptance, or otherwise referred to as the vegetation establishment period, the Department will be responsible for preparing the required National Pollutant Discharge Elimination System (NPDES) inspection records.

Once the Engineer has determined that the permanent vegetation establishment requirement has been achieved at an 80% vegetation density (the amount of established vegetation per given area to stabilize the soil) and no erodible areas exist within the project limits, the Contractor will be notified to remove the remaining erosion control devices that are no longer needed. The Contractor will be responsible for, and shall correct any areas disturbed by operations performed in permanent vegetation establishment and the removal of temporary erosion control measures, whether occurring prior to or after placing traffic on the project.

Payment for *Response for Erosion Control, Seeding and Mulching, Repair Seeding, Supplemental Seeding, Mowing, Fertilizer Topdressing, Silt Excavation, and Stone for Erosion Control* will be made at contract unit prices for the affected items. Work required that is not represented by contract line items will be paid in accordance with Articles 104-7 or 104-3 of the *2012 Standard Specifications*. No additional compensation will be made for maintenance and removal of temporary erosion control items.

**CONSTRUCTION MORATORIUM:**

(7-15-14)

SP1 G18A

No in-water work or land disturbance within the 25 ft wide buffer zone will be allowed from **October 15** through **April 15** of any year.

**DELAY IN RIGHT OF ENTRY:**

(7-1-95) (Rev. 7-15-14)

108

SP1 G22

The Contractor will not be allowed right of entry to the following parcel(s) prior to the listed date(s) unless otherwise permitted by the Engineer.

<b>Parcel No.</b>	<b>Property Owner</b>	<b>Date</b>
31	Fleetwood VFD	11/1/17
56	Dennis Grogan	11/30/16
92	Neil Wagner	1/3/17
98	Hadley Goss	11/10/16
102S	Toby Outdoors, LLC	10/31/16
35S	Fleetwood Falls, Inc.	10/31/16
46S	Image Designers, Inc.	10/31/16
102S2	Capital, LLC	11/6/16
108S	Capital, LLC	11/6/16

**MAJOR CONTRACT ITEMS:**

(2-19-02)

104

SP1 G28

The following listed items are the major contract items for this contract (see Article 104-5 of the *2012 Standard Specifications*):

<b>Line #</b>	<b>Description</b>
6 —	Unclassified Excavation

**SPECIALTY ITEMS:**

(7-1-95)(Rev. 1-17-12)

108-6

Items listed below will be the specialty items for this contract (see Article 108-6 of the *2012 Standard Specifications*).

<b>Line #</b>	<b>Description</b>
126 thru 141	Guardrail
142 thru 149	Fencing
153 thru 159	Signing
177 thru 181, 186 thru 187	Long-Life Pavement Markings
192	Permanent Pavement Markers
193 thru 227, 229 thru 233	Erosion Control
228	Reforestation

**FUEL PRICE ADJUSTMENT:**

(11-15-05) (Rev. 2-18-14)

109-8

SP1 G43

Revise the *2012 Standard Specifications* as follows:

**Page 1-83, Article 109-8, Fuel Price Adjustments**, add the following:

The base index price for DIESEL #2 FUEL is \$ **1.5950** per gallon. Where any of the following are included as pay items in the contract, they will be eligible for fuel price adjustment.

The pay items and the fuel factor used in calculating adjustments to be made will be as follows:

Description	Units	Fuel Usage Factor Diesel
Unclassified Excavation	Gal/CY	0.29
Borrow Excavation	Gal/CY	0.29
Class IV Subgrade Stabilization	Gal/Ton	0.55
Aggregate Base Course	Gal/Ton	0.55
Sub-Ballast	Gal/Ton	0.55
Asphalt Concrete Base Course, Type _____	Gal/Ton	2.90
Asphalt Concrete Intermediate Course, Type _____	Gal/Ton	2.90
Asphalt Concrete Surface Course, Type _____	Gal/Ton	2.90
Open-Graded Asphalt Friction Course	Gal/Ton	2.90
Permeable Asphalt Drainage Course, Type _____	Gal/Ton	2.90
Sand Asphalt Surface Course, Type _____	Gal/Ton	2.90
Aggregate for Cement Treated Base Course	Gal/Ton	0.55
Portland Cement for Cement Treated Base Course	Gal/Ton	0.55
___" Portland Cement Concrete Pavement	Gal/SY	0.245
Concrete Shoulders Adjacent to ___" Pavement	Gal/SY	0.245

**PAYOUT SCHEDULE:**

(1-19-10) (Rev. 1-17-12)

108

SP1 G57

Submit an Anticipated Monthly Payout Schedule prior to beginning construction. The Anticipated Monthly Payout Schedule will be used by the Department to monitor funding levels for this project. Include a monthly percentage breakdown (in terms of the total contract amount) of the work anticipated to be completed. The schedule should begin with the date the Contractor plans to begin construction and end with the anticipated completion date. 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 original Anticipated Monthly Payout Schedule and all subsequent updates to the Resident Engineer with a copy to the State Construction Engineer at 1 South Wilmington Street, 1543 Mail Service Center, Raleigh, NC 27699-1543.

**SCHEDULE OF ESTIMATED COMPLETION PROGRESS:**

(7-15-08) (Rev. 5-17-16)

108-2

SP1 G58

The Contractor's attention is directed to the Standard Special Provision entitled *Availability of Funds Termination of Contracts* included elsewhere in this proposal. 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 (% of Dollar Value)
2017	(7/01/16 - 6/30/17)	<b>20%</b> of Total Amount Bid
2018	(7/01/17 - 6/30/18)	<b>37%</b> of Total Amount Bid
2019	(7/01/18 - 6/30/19)	<b>26%</b> of Total Amount Bid
2020	(7/01/19 - 6/30/20)	<b>17%</b> of Total Amount Bid

The Contractor shall also furnish his own progress schedule in accordance with Article 108-2 of the *2012 Standard Specifications*. Any acceleration of the progress as shown by the Contractor's progress schedule over the progress as shown above shall be subject to the approval of the Engineer.

**DISADVANTAGED BUSINESS ENTERPRISE:**

(10-16-07)(Rev. 4-19-16)

102-15(J)

SP1 G61

**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 bidder confirming the Contractor'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 Contractor.

*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 Contractor enters the payments made to DBE subcontractors who have performed work on the project.  
<https://apps.dot.state.nc.us/Vendor/PaymentTracking/>

*DBE-IS Subcontractor Payment Information* - Form for reporting the payments made to all DBE firms working on the project. This form is for paper bid projects only.  
<http://www.ncdot.org/doh/forms/files/DBE-IS.xls>

*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. This form is for paper bids only.

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

*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 **9.0** %

- (A) *If the DBE goal is more than zero*, the Contractor 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 Contractor 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.

### **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, bidders 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 bid opening will be acceptable for listing in the bidder's submittal of DBE participation. The Contractor shall indicate the following required information:

**(A) Electronic Bids**

Bidders shall submit a listing of DBE participation in the appropriate section of Expedite, the bidding software of Bid Express®.

- (1) Submit the names and addresses of DBE firms identified to participate in the contract. If the bidder uses the updated listing of DBE firms shown in Expedite, the bidder may use the dropdown menu to access the name and address of the DBE firm.
- (2) Submit the contract line numbers of work to be performed by each DBE firm. When no figures or firms are entered, the bidder will be considered to have no DBE participation.
- (3) The bidder 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 bid-letting, that DBE's participation will not count towards achieving the DBE goal.

**(B) Paper Bids**

- (1) *If the DBE goal is more than zero,*
  - (a) Bidders, at the time the bid 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 bid to be considered responsive. Bidders shall indicate the total dollar value of the DBE participation for the contract.
  - (b) If bidders 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.** Bids submitted that do not have DBE participation indicated on the appropriate form will not be read publicly during the opening of bids. The Department will not consider these bids for award and the proposal will be rejected.

- (c) The bidder 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 bid-letting, that DBE's participation will not count towards achieving the corresponding 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 the special provision.

### **DBE Prime Contractor**

When a certified DBE firm bids 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 bidder. In most cases, a DBE bidder 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 bidder and any other DBE subcontractors will count toward the DBE goal. The DBE bidder 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 bidder 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 bidder would.

### **Written Documentation – Letter of Intent**

The bidder shall submit written documentation for each DBE that will be used to meet the DBE goal of the contract, indicating the bidder'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 bids, 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 bidder 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 Contractor 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 bids, 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 bidder fails to meet or exceed the DBE goal, the apparent lowest responsive bidder 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 bids 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 contractor 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 bidder 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 bidder 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 bidder has made. Listed below are examples of the types of actions a bidder 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 bidder must solicit this interest within at least 10 days prior to bid opening 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 bidder 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.
  - (1) 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.
  - (2) 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 (2<sup>nd</sup> and 3<sup>rd</sup> 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 bidder'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 bidder 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 bidder'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 bidder of the responsibility to make good faith efforts. Bidding contractors 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 bidder'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 bidder'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 bidder.
- (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 bid opening the Business Development Manager in the Business Opportunity and Work Force Development Unit to give notification of the bidder's inability to get DBE quotes.
- (I) Any other evidence that the bidder submits which shows that the bidder has made reasonable good faith efforts to meet the DBE goal.

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

- (1) Whether the bidder's documentation reflects a clear and realistic plan for achieving the DBE goal.
- (2) The bidders' past performance in meeting the DBE goals.
- (3) The performance of other bidders in meeting the DBE goal. For example, when the apparent successful bidder fails to meet the DBE goal, but others meet it, you may reasonably raise the question of whether, with additional reasonable efforts the apparent successful bidder could have met the goal. If the apparent successful bidder fails to meet the DBE goal, but meets or exceeds the average DBE participation obtained by other bidders, the Department may view this, in conjunction with other factors, as evidence of the apparent successful bidder having made a good faith effort.

If the Department does not award the contract to the apparent lowest responsive bidder, the Department reserves the right to award the contract to the next lowest responsive bidder 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 Contractual Services Engineer will notify the contractor verbally and in writing of non-good faith. A contractor may appeal a determination of non-good faith made by the Goal Compliance Committee. If a contractor 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 Contractor.

**(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 Contractor 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 contractor 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 contractor 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 Contractor 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 Contractor 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 Contractor 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 contractor shall not terminate the DBE for convenience. This includes, but is not limited to, instances in which the Contractor 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. The prime contractor must give the DBE firm five (5) calendar days to respond to the prime contractor's notice of termination and advise the prime contractor and the Department of the reasons, if any, why the firm objects to the proposed termination of its subcontract and why the Department should not approve the action.

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 Contractor fails to follow this procedure, the Contractor may be disqualified from further bidding for a period of up to 6 months.

The Contractor 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 Contractor 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 Contractor.

(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 Contractor 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 Contractor 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 Contractor 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 Contractor'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 Contractor 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 Contractor shall seek participation by DBEs unless otherwise approved by the Engineer.

When the Contractor requests changes in the work that result in the reduction or elimination of work that the Contractor committed to be performed by a DBE, the Contractor 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 Contractor 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 Contractor 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 Contractor 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 contractor 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 Contractor to submit the required information in the time frame specified may result in the disqualification of that contractor and any affiliate companies 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 contractor and any affiliate companies from being approved for work on future DOT projects until the required information is submitted.

Contractors 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 Contractor 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* may be cause to disqualify the Contractor.

### **CERTIFICATION FOR FEDERAL-AID CONTRACTS:**

(3-21-90)

SP1 G85

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.

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 prospective participant also agrees by submitting his or her bid or 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 subrecipients shall certify and disclose accordingly.

**U.S. DEPARTMENT OF TRANSPORTATION HOTLINE:**

(11-22-94)

108-5

SP1 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 is operated under the direction of the DOT Inspector General. All information will be treated confidentially and caller anonymity will be respected.

**CARGO PREFERENCE ACT:**

(2-16-16)

Privately owned United States-flag commercial vessels transporting cargoes are subject to the Cargo Preference Act (CPA) of 1954 requirements and regulations found in 46 CFR 381.7. Contractors are directed to clause (b) of 46 CFR 381.7 as follows:

- (b) Contractor and Subcontractor Clauses. "Use of United States-flag vessels: The contractor agrees-
- “(1) To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels.
  - (2) To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b) (1) of this

section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590.

(3) To insert the substance of the provisions of this clause in all subcontracts issued pursuant to this contract."

**SUBSURFACE INFORMATION:**

(7-1-95)

450

SP1 G112 D

Subsurface information is available on the roadway and structure portions of this project.

**LOCATING EXISTING UNDERGROUND UTILITIES:**

(3-20-12)

105

SP1 G115

Revise the *2012 Standard Specifications* as follows:

**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.

**VALUE ENGINEERING PROPOSAL:**

(05-19-15)

104

SP01 G116

Revise the *2012 Standard Specifications* as follows:

**Page 1-36, Subarticle 104-12(B) Evaluation of Proposals, lines 42-44, replace the fourth sentence of the second paragraph with the following:**

Pending execution of a formal supplemental agreement implementing an approved VEP and transferal of final plans (hard copy and electronic) sealed by an engineer licensed in the State of North Carolina incorporating an approved VEP to the Resident Engineer and the State Value Management Engineer, the Contractor shall remain obligated to perform the work in accordance with the terms of the existing contract.

**Page 1-37, Subarticle 104-12(D) Preliminary Review, lines 9-12, replace the first sentence of the first paragraph with the following:**

Should the Contractor desire a preliminary review of a possible VEP, before expending considerable time and expense in full development, a copy of the Preliminary VEP shall be submitted to the Resident Engineer and the State Value Management Engineer at ValueManagementUnit@ncdot.gov.

**Page 1-37, Subarticle 104-12(E) Final Proposal, lines 22-23, replace the first sentence of the first paragraph with the following:**

A copy of the Final VEP shall be submitted by the Contractor to the Resident Engineer and the State Value Management Engineer at ValueManagementUnit@ncdot.gov.

**Page 1-38, Subarticle 104-12(F) Modifications, lines 2-8,** replace the first paragraph with the following:

To facilitate the preparation of revisions to contract drawings, the Contractor may purchase reproducible copies of drawings for his use through the Department's Value Management Unit. The preparation of new design drawings by or for the Contractor shall be coordinated with the appropriate Design Branch through the State Value Management Engineer. The Contractor shall provide, at no charge to the Department, one set of reproducible drawings of the approved design needed to implement the VEP. Drawings (hard copy and electronic) which are sealed by an engineer licensed in the State of North Carolina shall be submitted to the State Value Management Engineer no later than ten (10) business days after acceptance of a VEP unless otherwise permitted.

**Page 1-38, Subarticle 104-12(F) Modifications, line 17,** add the following at the end of the third paragraph:

Supplemental agreements executed for design-bid-build contracts shall reflect any realized savings in the corresponding line items. Supplemental agreements executed for design-build contracts shall add one line item deducting the full savings from the total contract price and one line item crediting the Contractor with 50% of the total VEP savings.

**Page 1-38, Subarticle 104-12(F) Modifications, lines 45-47,** replace the eighth paragraph with the following:

Unless and until a supplemental agreement is executed and issued by the Department and final plans (hard copy and electronic) sealed by an engineer licensed in the State of North Carolina incorporating an approved VEP have been provided to the Resident Engineer and the State Value Management Engineer, the Contractor shall remain obligated to perform the work in accordance with the terms of the existing contract.

**RESOURCE CONSERVATION AND ENV. SUSTAINABLE PRACTICES:**

(5-21-13) (Rev. 5-19-15)

104-13

SP1 G118

In accordance with North Carolina Executive Order 156, NCGS 130A-309.14(3), and NCGS 136-28.8, it is the objective of the Department to aid in the reduction of materials that become a part of our solid waste stream, to divert materials from landfills, to find ways to recycle and reuse materials, to consider and minimize, where economically feasible, the environmental impacts associated with agency land use and acquisition, construction, maintenance and facility management for the benefit of the Citizens of North Carolina.

To achieve the mission of reducing environmental impacts across the state, the Department is committed to supporting the efforts to initiate, develop and use products and construction methods that incorporate the use of recycled, solid waste products and environmentally sustainable practices in accordance with Article 104-13 of the *Standard Specifications*.

Report the quantities of reused or recycled materials either incorporated in the project or diverted from landfills and any practice that minimizes the environmental impact on the project annually

on the Project Construction Reuse and Recycling Reporting Form. The Project Construction Reuse and Recycling Reporting Form and a location tool for local recycling facilities are available at:

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

Submit the Project Construction Reuse and Recycling Reporting Form by August 1 annually to [valuemanagementunit@ncdot.gov](mailto:valuemanagementunit@ncdot.gov). For questions regarding the form or reporting, please contact the State Value Management Engineer at 919-707-4810.

### **DOMESTIC STEEL:**

(4-16-13)

106

SP1 G120

Revise the *2012 Standard Specifications* 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. If invoices showing the cost of the material are not provided, the amount of the bid item involving the foreign material will be used for calculations. 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.

### **PORTABLE CONCRETE BARRIER - (Partial Payments for Materials):**

(7-1-95) (Rev. 8-16-11)

1170-4

SP1 G121

When so authorized by the Engineer, partial materials payments will be made up to 95 percent of the delivered cost of portable concrete barrier, provided that these materials have been delivered on the project and stored in an acceptable manner, and further provided the documents listed in Subarticle 109-5(C) of the *2012 Standard Specifications* have been furnished to the Engineer.

The provisions of Subarticle 109-5(B) of the *2012 Standard Specifications* will apply to the portable concrete barrier.

### **MAINTENANCE OF THE PROJECT:**

(11-20-07) (Rev. 1-17-12)

104-10

SP1 G125

Revise the *2012 Standard Specifications* as follows:

**Page 1-35, Article 104-10 Maintenance of the Project, line 25,** add the following after the first sentence of the first paragraph:

All guardrail/guiderail within the project limits shall be included in this maintenance.

**Page 1-35, Article 104-10 Maintenance of the Project, line 30,** add the following as the last sentence of the first paragraph:

The Contractor 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 Maintenance of the Project, lines 42-44,** replace the last sentence of the last paragraph with the following:

The Contractor will not be directly compensated for any maintenance operations necessary, except for maintenance of guardrail/guiderail, as this work will be considered incidental to the work covered by the various contract items. The provisions of Article 104-7, Extra Work, and Article 104-8, Compensation and Record Keeping will apply to authorized maintenance of guardrail/guiderail. Performance of weekly inspections of guardrail/guiderail, and the damage reports required as described above, will be considered to be an incidental part of the work being paid for by the various contract items.

**COOPERATION BETWEEN CONTRACTORS:**

(7-1-95)

105-7

SP1 G133

The Contractor's attention is directed to Article 105-7 of the *2012 Standard Specifications*.

R-2915D located on the north end to this project is currently under construction and will completed prior to the completion of R-2915C.

R-2915 A/B located on the south end of this project is currently under construction and is anticipated to be completed within the same construction season as this project.

The Contractor on this project shall cooperate with the Contractor working within or adjacent to the limits of this project to the extent that the work can be carried out to the best advantage of all concerned.

**BID DOCUMENTATION:**

(1-1-02) (Rev.8-18-15)

103

SP1 G142

**General**

The successful Bidder (Contractor) shall submit the original, unaltered bid documentation or a certified copy of the original, unaltered bid documentation used to prepare the bid 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 Bidder in the preparation of the bid. The term *bid documentation* includes, but is not limited to, contractor equipment rates, contractor 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 Bidder in formulating and determining the bid. The term *bid documentation* also includes any manuals, which are standard to the industry used by the Bidder in determining the bid. 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 Bidder in bidding on this project. The Bid Documentation can be in the form of electronic submittal (i.e. thumb drive) or paper. If the Bidder elects to submit the Bid Documentation in electronic format, the Department requires a backup submittal (i.e. a second thumb drive) in case one is corrupted.

*Contractor's Representative* - Officer of the Contractor's company; if not an officer, the Contractor shall supply a letter signed and notarized by an officer of the Contractor's company, granting permission for the representative to sign the escrow agreement on behalf of the 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 draft copy of the Escrow Agreement will be mailed to the Bidder after the notice of award for informational purposes. The Bidder 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 Bidder'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 may be just cause for rescinding the award of the contract and may result in the removal of the Bidder from the Department's list of qualified bidders for a period of up to 180 days. Award may then be made to the next lowest responsible bidder 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](mailto: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.

- (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**

Bid documentation will be considered a certified copy if the Bidder includes an affidavit stating that the enclosed documentation is an EXACT copy of the original documentation used by the Bidder to determine the bid for this project. The affidavit shall also 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 for escrow. The affidavit shall attest that the affiant has personally examined the bid documentation, that the affidavit lists all of the documents used by the Bidder to determine the bid for this project, and that all bid documentation has been included. The affidavit 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 affidavit.

### **Verification**

Upon delivery of the bid documentation, the Department's Contract Officer and the Bidder's representative will verify the accuracy and completeness of the bid documentation compared to the affidavit. Should a discrepancy exist, the Bidder'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 Bidder'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 Bidder. 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 Contractor 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 Contractor 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 Bidder 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 Contractor:

- (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 Contractor against the Department, or receipt of a letter from the Contractor authorizing release, the Department may obtain the release and custody of the bid documentation.

The Bidder certifies and agrees that the sealed container placed in escrow contains all of the bid documentation used to determine the bid and that no other bid documentation shall be relevant or material in litigation over claims brought by the Contractor 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 Contractor receives the final estimate and the Contractor 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 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 disposition of the bid documentation.

**Payment**

The cost of the escrow will be borne 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)

108

SP1 G145

- (A) The Contractor 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 Contractor will not be responsible for damage due to faulty design, 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 Contractor is responsible for invoking the warranted repair work with the manufacturer. The Contractor'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 Contractor 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 Contractor to return to the project to make repairs or perform additional work that the Department would normally compensate the Contractor 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.

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.

**IRAN DIVESTMENT ACT:**

(5-17-16)

SP01 G151

As a result of the Iran Divestment Act of 2015 (Act), Article 6E, N.C. General Statute § 147-86.55, the State Treasurer published the Final Divestment List (List) which includes the Final Divestment List-Iran, and the Parent and Subsidiary Guidance-Iran. These lists identify companies and persons engaged in investment activities in Iran and will be updated every 180 days. The List can be found at <https://www.nctreasurer.com/inside-the-department/OpenGovernment/Pages/Iran-Divestment-Act-Resources.aspx>

By submitting the Offer, the Contractor certifies that, as of the date of this bid, it is not on the then-current List created by the State Treasurer. The Contractor must notify the Department immediately if, at any time before the award of the contract, it is added to the List.

As an ongoing obligation, the Contractor must notify the Department immediately if, at any time during the contract term, it is added to the List. Consistent with § 147-86.59, the Contractor shall not contract with any person to perform a part of the work if, at the time the subcontract is signed, that person is on the then-current List.

During the term of the Contract, should the Department receive information that a person is in violation of the Act as stated above, the Department will offer the person an opportunity to respond and the Department will take action as appropriate and provided for by law, rule, or contract.

**GIFTS FROM VENDORS AND CONTRACTORS:**

(12-15-09)

107-1

SP1 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:

- (A) Have a contract with a governmental agency; or
- (B) Have performed under such a contract within the past year; or
- (C) 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 *N.C.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.

**LIABILITY INSURANCE:**

(5-20-14)

SP1 G160

Revise the *2012 Standard Specifications* as follows:

**Page 1-60, Article 107-15 LIABILITY INSURANCE, line 16**, add the following as the second sentence of the third paragraph:

Prior to beginning services, all contractors shall provide proof of coverage issued by a workers' compensation insurance carrier, or a certificate of compliance issued by the Department of Insurance for self-insured subcontractors, irrespective of whether having regularly in service fewer than three employees.

**EROSION AND SEDIMENT CONTROL/STORMWATER CERTIFICATION:**

(1-16-07) (Rev 9-18-12)

105-16, 225-2, 16

SP1 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 Pollution 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 Supervisor to manage the Contractor and subcontractor operations, insure compliance with Federal, State and Local ordinances and regulations, and 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 Contractor'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 Contractor 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 Contractor's operations.
  - (j) Ensure that proper cleanup occurs from vehicle tracking on paved surfaces 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 operation/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 Contractor and subcontractors' construction activities.
  - (b) Ensure that all operators and subcontractors 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 Contractor'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 Contractor 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 Contractor 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 Contractor 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 Certified Designer on the erosion and sediment control/stormwater component of all reclamation plans and if applicable, the certification number of the Level III 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 Designer* and notify the Engineer 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 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. 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:**

(2-20-07) (Rev. 3-19-13)

105-16, 230, 801

SP1 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 Contractor 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*, the Contractor 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 Contractor's test results, an immediate test shall be performed jointly with the results superseding the previous test results of both the Department and the Contractor.

The Contractor shall use the *NCDOT Turbidity Reduction Options for Borrow Pits Matrix*, available at [http://www.ncdot.gov/doh/operations/dp\\_chief\\_eng/roadside/fieldops/downloads/Files/TurbidityReductionOptionSheet.pdf](http://www.ncdot.gov/doh/operations/dp_chief_eng/roadside/fieldops/downloads/Files/TurbidityReductionOptionSheet.pdf) to plan, design, construct, and maintain BMPs to address water quality standards. 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 Contractor 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 Contractor may use cation exchange capacity (CEC) values from proposed site borings to plan and develop the bid 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.

**EMPLOYMENT:**

(11-15-11) (Rev. 1-17-12)

108, 102

SP1 G184

Revise the *2012 Standard Specifications* as follows:

**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.

**Page 1-65, Article 108-5 Character of Workmen, Methods, and Equipment, line 32**, delete all of line 32, the first sentence of the second paragraph and the first word of the second sentence of the second paragraph.

**STATE HIGHWAY ADMINISTRATOR TITLE CHANGE:**

(9-18-12)

SP1 G185

Revise the *2012 Standard Specifications* as follows:

Replace all references to “State Highway Administrator” with “Chief Engineer”.

**SUBLETTING OF CONTRACT:**

(11-18-2014)

108-6

SP1 G186

Revise the *2012 Standard Specifications* as follows:

**Page 1-66, Article 108-6 Subletting of Contract, line 37**, add the following as the second sentence of the first paragraph:

All requests to sublet work shall be submitted within 30 days of the date of availability or prior to expiration of 20% of the contract time, whichever date is later, unless otherwise approved by the Engineer.

**Page 1-67, Article 108-6 Subletting of Contract, line 7**, add the following as the second sentence of the fourth paragraph:

Purchasing materials for subcontractors is not included in the percentage of work required to be performed by the Contractor. If the Contractor sublets items of work but elects to purchase material for the subcontractor, the value of the material purchased will be included in the total dollar amount considered to have been sublet.

**PROJECT SPECIAL PROVISIONS****ROADWAY****CLEARING AND GRUBBING - METHOD III:**

(4-6-06) (Rev.8-18-15)

200

SP2 R02B

Perform clearing on this project to the limits established by Method “III” shown on Standard Drawing No. 200.03 of the *2012 Roadway Standard Drawings*. Conventional clearing methods may be used except where permit drawings or conditions have been included in the proposal which require certain areas to be cleared by hand methods.

**BUILDING REMOVAL:**

(1-1-02) (Rev. 4-16-13)

215

SP2 R15 C

Remove the buildings, underground storage tanks and appurtenances listed below in accordance with Section 215 of the *2012 Standard Specifications*:

Parcel 10 - Rt. of survey station 280+80-L- to 283+50-L-, one story brick dwelling (1029 sf) with carport (353 sf), single wide mobile home (840 sf) with deck (42sf), double wide mobile home (2,100 sf) with deck (25 sf)

Parcel 31 - Rt. of survey station 320+45-L- to 322+50-L-, brick & frame fire department building (3,083 sf), with basement (3,083 sf), balcony (52 sf), and deck/ramp (134 sf); block & frame open shed (500 sf).

Parcel 34 – Lt. of survey station 323+48-L- to 326+45-L-, one story brick dwelling (1,835 sf) with basement (1,835 sf) and carport (380 sf).

Parcel 42A – Rt. of survey station 345+24-L- to 346+86-L-, one story brick dwelling (2,233 sf) with basement (2,233 sf) and garage (560 sf).

Parcel 42 – Rt. of survey station 346+86-L- to 351+90-L-, one story framed dwelling (1,285 sf).

Parcel 56 – Lt. of survey station 372+60-L- to 375+70-L-, one story brick dwelling (1,377 sf) with carport (340 sf).

Parcel 60 – Lt. of survey station 376+00-L- to 377+50-L-, one story block and framed dwelling (1,427 sf)

Parcel 70 – Lt. of survey station 382+20-L- to 383+60-L-, single wide mobile home (1,213 sf) with deck (461 sf) and metal carport; shed/storage building (70 sf).

Parcel 90 – Rt. of survey station 427+05-L- to 433+00-L-, one story framed dwelling (1,534 sf) with basement (1,686 sf), deck (260 sf), and fireplace ; playhouse (96 sf), shed/storage building (390 sf).

Parcel 99 – Lt. of survey station 441+00-L- to 443+30-L-/11+50-Y13- to 13+45-Y13-, double wide mobile home (1,404 sf) with porch (176 sf) and deck (144 sf); shed/storage building (80 sf), shed/storage building (72 sf).

Parcel 102 – Rt. of survey station 443+15-L- to 452+40-L-, shed/storage building (192 sf).

When the description of the work for an item indicates a building partially inside and partially outside the right of way and/or construction area, but does not require the building to be cut off, the entire building shall be removed.

**TEMPORARY DETOURS:**

(7-1-95) (Rev. 11-19-13)

1101

SP2 R30B

Construct temporary detours required on this project in accordance with the typical sections in the plans or as directed.

After the detours have served their purpose, remove the portions deemed unsuitable for use as a permanent part of the project as directed by the Engineer. Salvage and stockpile the aggregate base course removed from the detours at locations within the right of way, as directed by the Engineer, for removal by State Forces. Place pavement and earth material removed from the detour in embankments or dispose of in waste areas furnished by the Contractor.

Aggregate base course and earth material that is removed will be measured and will be paid at the contract unit price per cubic yard for *Unclassified Excavation*. Pavement that is removed will be measured and will be paid at the contract unit price per square yard for *Removal of Existing Pavement*. Pipe culverts removed from the detours remain the property of the Contractor. Pipe culverts that are removed will be measured and will be paid at the contract unit price per linear foot for *Pipe Removal*. Payment for the construction of the detours will be made at the contract unit prices for the various items involved.

Such prices and payments will be full compensation for constructing the detours and for the work of removing, salvaging, and stockpiling aggregate base course; removing pipe culverts; and for placing earth material and pavement in embankments or disposing of earth material and pavement in waste areas.

**SHOULDER AND FILL SLOPE MATERIAL:**

(5-21-02)

235, 560

SP2 R45 B

**Description**

Perform the required shoulder and slope construction for this project in accordance with the applicable requirements of Section 560 and Section 235 of the *2012 Standard Specifications*.

**Measurement and Payment**

When the Contractor elects to obtain material from an area located beneath a proposed fill sections which does not require excavation for any reason other than to generate acceptable shoulder and fill slope material, the work of performing the excavation will be considered incidental to the item

of *Borrow Excavation* or *Shoulder Borrow*. If there is no pay item for *Borrow* or *Shoulder Borrow* in the contract, this work will be considered incidental to *Unclassified Excavation*. Stockpile the excavated material in a manner to facilitate measurement by the Engineer. Fill the void created by the excavation of the shoulder and fill slope material with suitable material. Payment for material used from the stockpile will be made at the contract unit price for *Borrow Excavation* or *Shoulder Borrow*. If there is no pay item for *Borrow Excavation* or *Shoulder Borrow*, then the material will be paid for at the contract unit price for *Unclassified Excavation*. The material used to fill the void created by the excavation of the shoulder and fill slope material will be made at the contract unit price for *Unclassified Excavation*, *Borrow Excavation*, or *Shoulder Borrow*, depending on the source of the material.

Material generated from undercut excavation, unclassified excavation or clearing and grubbing operations that is placed directly on shoulders or slope areas, will not be measured separately for payment, as payment for the work requiring the excavation will be considered adequate compensation for depositing and grading the material on the shoulders or slopes.

When undercut excavation is performed at the direction of the Engineer and the material excavated is found to be suitable for use as shoulder and fill slope material, and there is no area on the project currently prepared to receive the material generated by the undercut operation, the Contractor may construct a stockpile for use as borrow at a later date. Payment for the material used from the stockpile will be made at the contract unit price for *Borrow Excavation* or *Shoulder Borrow*.

When shoulder material is obtained from borrow sources or from stockpiled material, payment for the work of shoulder construction will be made at the contract unit price per cubic yard for *Borrow Excavation* or *Shoulder Borrow* in accordance with the applicable provisions of Section 230 or Section 560 of the *2012 Standard Specifications*.

### **ROCK AND BROKEN PAVEMENT FILLS:**

(2-16-16)

235

SP2 R85

Revise the *2012 Standard Specifications* as follows:

**Page 2-22, Article 235-2 MATERIALS**, add the following after line 19:

<b>Item</b>	<b>Section</b>
Geotextile for Rock and Broken Pavement Fills, Type 2	1056

Provide Type 2 geotextile for filtration geotextiles. Use rip rap and No. 57 stone from either a quarry or onsite material to fill voids in rock and broken pavement fills. Provide small and large size rip rap with stone sizes that meet Class A and B in accordance with Table 1042-1 and No. 57 stone with a gradation that meets Table 1005-1 or use similar size onsite material approved by the Engineer.

**Page 2-23, Subarticle 235-3(B) Embankment Formation**, lines 18-19, delete the third sentence in the seventh paragraph.

**Page 2-23, Subarticle 235-3(B) Embankment Formation**, lines 21-23, replace the eighth paragraph with the following:

Before placing embankment fill material or filtration geotextiles over rock and broken pavement, fill voids in the top of rock and broken pavement fill with rip rap and No. 57 stone. Place and compact larger rip rap first followed by smaller rip rap. Then, fill any remaining voids with No. 57 stone so geotextiles are not torn, ripped or otherwise damaged when installed and covered. Compact rip rap and No. 57 stone with tracked equipment or other approved methods. Install filtration geotextiles on top of rock, broken pavement, rip rap and No. 57 stone in accordance with Article 270-3 before placing remaining embankment fill material.

Remove any rocks, debris or pavement pieces from the roadbed larger than 2" within 12" of the subgrade or finished grade, whichever is lower.

**Page 2-24, Article 235-5 MEASUREMENT AND PAYMENT**, line 13, add the following to the end of the first paragraph:

Payment for rip rap, No. 57 stone and geotextiles to construct embankments with rock and broken pavement fills will be considered incidental to the work in Sections 225, 226, 230 and 240.

**BLASTING:**

(2-16-16)

220

SP2 R88B

Revise the *2012 Standard Specifications* as follows:

**Page 2-8, Article 220-1 DESCRIPTION**, line 22, delete "cushion, ".

**Page 2-8, Article 220-1 DESCRIPTION**, line 23, add the following after the third sentence:

Unless required otherwise in the contract, design blasts for the vibration and air overpressure limits in this section.

**Page 2-9, Subarticle 220-3(A) Vibration and Air Overpressure Limits**, line 18, add the following to the end of Subarticle 220-3(A):

Unless required otherwise in the contract or directed, design production and trench blasts in accordance with the following:

- (1) Production Blasting
  - (a) For rock cut slopes steeper than 1.5:1 (H:V) without pre-splitting, do not use production blast holes more than 4" in diameter within 10 ft of finished slope faces or neat lines
  - (b) Do not drill production holes below bottom of adjacent pre-split blast holes
  - (c) Use delay blasting to detonate production blast holes towards a free face
- (2) Trench Blasting
  - (a) Do not use trench blast holes more than 3" in diameter
  - (b) Do not use ANFO or other bulk loaded products
  - (c) Use cartridge explosives or other explosive types designed for trench blasting
  - (d) Use charges with a diameter of 1/2" to 3/4" less than the trench blast hole diameter

**AUTOMATED MACHINE GUIDANCE**

(1-2-11)

SPI 5-05

**General**

This Special Provision contains requirements to be followed if the Contractor elects to use Global Positioning System (GPS) machine control grading and shall be used in conjunction with Section 801 of the *Standard Specifications*. The use of this technology is referenced as Automated Machine Guidance (AMG).

All equipment using AMG shall be able to generate end results that meet the *Standard Specifications*. Perform test sections for each type of work to be completed with AMG to demonstrate that the system has the capability to achieve acceptable results. If acceptable results can not be achieved, conform to the requirements for conventional stakeout.

The Contractor shall be responsible for all errors resulting from the use of AMG and shall correct deficiencies to the satisfaction of the Engineer at no cost to the Department.

**Submittals**

If the Contractor elects to use AMG, a Digital Terrain Model (DTM) of the design surface and all intermediate surfaces shall be developed and submitted to the Engineer for review.

At least 90 days prior to beginning grading operations, the Contractor shall submit to the Engineer an AMG work plan to include, but not limited to, proposed equipment, control software manufacturer and version, types of work to be completed using AMG, project site calibration report, repetitive calibration methods for construction equipment and rover units to be used for the duration of the project, and local GPS base station to be used for broadcasting differential correction data to rover units (this may include the NC Network RTK). All surveys must be tied to existing project control as established by NCDOT.

**Inspection**

The Engineer will perform quality assurance checks of all work associated with AMG. If it is determined that work is not being performed in a manner that will assure accurate results, the Engineer may require corrective action at no cost to the Department.

The Contractor shall provide the Engineer with one GPS rover unit for use during the duration of the contract. The rover will be loaded with the same model that is used with the AMG and have the same capability as rover units used by the Contractor. The rover will be kept in the possession of the Engineer and will be returned to the Contractor upon completion of the contract. Any maintenance or repairs required for the rover will be the responsibility of the Contractor. Formal training of at least 8 hours shall be provided to the Engineer by the Contractor on the use of the proposed AMG system.

**Subgrade and Base Controls**

If the Contractor elects to use AMG for fine grading and placement of base or other roadway materials, the GPS shall be supplemented with a laser or robotic total station. Include details of the proposed system in the AMG work plan. In addition, the following requirements apply for the use of AMG for subgrade and base construction.

Provide control points at intervals along the project not to exceed 1,000 feet. The horizontal position of these points shall be determined by static GPS sessions or by traverse connection from the original base line control points. The elevation of these control points shall be established using differential leveling from project benchmarks, forming closed loops where practical. A copy of all new control point information shall be provided to the Engineer prior to construction activities.

Provide control points and conventional survey grade stakes at 500 foot intervals and at critical points such as, but not limited to, PCs, PTs, superelevation transition points, and other critical points as requested by the Engineer.

Provide hubs at the top of the finished subgrade at all hinge points on the cross section at 500 foot intervals. These hubs shall be established using conventional survey methods for use by the Engineer to check the accuracy of construction.

**Measurement and Payment**

No direct payment will be made for work required to utilize this provision. All work will be considered incidental to various grading operations.

**PIPE INSTALLATION:**

(11-20-12) (Rev. 8-18-15)

300

SP3 R01

Revise the *2012 Standard Specifications* as follows:

**Page 3-1, Article 300-2, Materials**, line 15, in the materials table, replace “Flowable Fill” and “Geotextiles” with the following:

<b>Item</b>	<b>Section</b>
Flowable Fill, Excavatable	1000-6
Grout, Type 2	1003
Geotextiles, Type 4	1056

**Page 3-1, Article 300-2, Materials**, lines 23-24, replace sentence with the following:

Provide foundation conditioning geotextile and geotextile to wrap pipe joints in accordance with Section 1056 for Type 4 geotextile.

**Page 3-3, Subarticle 300-6(A), Rigid Pipe**, line 2, in the first paragraph, replace “an approved non-shrink grout.” with “grout.” and line 4, in the second paragraph, replace “filtration geotextile” with “geotextile”.

**Page 3-3, Article 300-7, Backfilling**, lines 37-38, in the first and second sentences of the fifth paragraph, replace “Excavatable flowable fill” with “Flowable fill”.

**CORRUGATED STEEL STRUCTURAL PLATE PIPE AND PIPE ARCH:**

(7-21-15)

SPI 3-07

**Description**

Furnish and install corrugated steel structural plate pipe and pipe arch of the size and gauge called for on the plans at locations indicated in the contract. The work includes the construction of joints and connections to other pipes, endwalls, and other drainage structures.

**Materials**

The plate and fasteners for corrugated steel structural plate pipe and pipe arch shall meet the requirements of AASHTO M167.

When elongated pipe is called for by the contract, shop form the pipe to provide for a 5 percent elongation.

Unless otherwise required by the contract, place bolt holes along those edges of the plates that form longitudinal seams in the finished structure in 2 rows spaced 2” apart. Space the bolt holes a maximum of 6” apart.

Space bolt holes along those edges of the plates that form circumferential seams in the finished structure a maximum of 12” apart.

The maximum distance from the center of any bolt hole to the edge of the plate shall not be less than 1 3/4 times the diameter of the bolt. The diameter of bolt holes in longitudinal seams, excepting those at plate corners, shall not exceed the bolt diameter by more than 1/8”. The diameter of holes in circumferential seams, including those at plate corners, shall not exceed the bolt diameter by more than 1/2” and the average of the diameter on the major and minor axes shall not exceed the bolt diameter by more than 1/4”.

Cut plates for forming skewed or sloped ends to give the required angle of skew or slope. Burned edges shall be free from oxide and burrs and present a workmanlike finish. Repair damaged spelter coating around cut or burned edges as required by AASHTO M36.

Furnish an erection drawing for each installation. Mark each plate as necessary to insure proper placement in the structure.

Suppliers that provide metal pipe culverts, fittings, and all other accessories covered by this section shall meet the requirements of the Department’s Brand Certification program for metal pipe culverts, and be listed on the Department’s pre-approved list for suppliers of metal pipe culvert.

Provide for review, design and detail drawings for all structural plate elbows, wyes, and tees. All designs and details shall meet the requirements of AASHTO Section 12 and be sealed by a North

Carolina Licensed Professional Engineer. Provide seven copies of the plans and one copy of the design calculations to the Engineer for review and acceptance prior to beginning fabrication. Include the cost of any required reinforcement (stiffeners, miscellaneous fabricated steel, heavier gauge plates, etc.) in the unit bid prices for the items involved.

Provide elbows, wyees, and tees of at least the same gauge as the connecting pipe culvert.

### **Acceptance**

Acceptance of corrugated steel structural plate pipe and pipe arches, and its accessories will be based on, but not limited to, visual inspections, classification requirements, check samples taken from material delivered to the project, and conformance to the annual Brand Registration. Culvert pipe materials not meeting the above requirements will be rejected unless written approval is obtained from the State Materials Engineer.

### **Construction Methods**

#### **(A) Excavation, Foundation Preparation, and Backfilling**

Install the pipe and pipe arch in accordance with Section 300 of the *2012 Standard Specifications* except place a minimum of 6 inch thickness of foundation conditioning material in accordance with the details shown in the plans.

#### **(B) Erection**

Erect in accordance with the manufacturer's assembly diagrams and instruction sheets. All erection procedures and methods shall meet industry standards. Handle structural plate with reasonable care. Do not drag or skid plate. The plate or the assembled pipe or pipe arch will be rejected, if the spelter coating is broken beyond repair prior to acceptance.

Assemble the entire pipe culvert completely before placing any backfill. Maintain correct position of pipe during assembly, correct for spiraling.

Install all bolts in accordance with the procedures specified by the manufacturer before backfill is placed. Tighten all nuts to a minimum of 100 foot-pounds and a maximum of 200 foot-pounds of torque. Check nut tightness with a properly calibrated torque wrench before, during, and after placing backfill.

Camber the invert grade by an amount sufficient to prevent the development of sag or back slope in the flow line after the backfill is placed. The Contractor shall determine the amount of camber required and submit to the Engineer for approval.

**(C) Workmanship**

Provide quality workmanship when installing the pipe and pipe arch. Evidence of poor or inadequate workmanship includes but is not limited to the following:

- (1) Uneven laps.
- (2) Improper shaping.
- (3) Variation from a straight center line.
- (4) Ragged edges.
- (5) Loose, unevenly lined or spaced bolts.
- (6) Illegible identification stamp on any plate.
- (7) Bruised, scaled or broken spelter coating.
- (8) Dents or bends in the metal itself.

Poor or inadequate workmanship may constitute sufficient cause for rejection of the completed or partially completed work, or of any materials proposed for use in the work.

**(D) Elbows, Wyes, and Tees**

Shop fabricate all structural plate elbows, wyes, and tees with the angle between the branch and main line of the lateral as noted on the plans. Provide joint connections in accordance with the manufacturer's instructions.

**Measurement and Payment**

*Corrugated Steel Structural Plate Pipe or Pipe Arch* will be measured and paid for as the actual number of linear feet of pipe or pipe arch, measured along the flow line of the pipe or pipe arch, not including elbows, wyes, and tees, to the nearest foot, that has been completed and accepted.

Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
___ "C.S. Structural Plate Pipe, ___ Gauge	Linear Foot
___ "C.S. Structural Plate Pipe, ___ Gauge, Elongated	Linear Foot
___ "x___" C.S. Structural Plate Pipe Arch, ___ Gauge	Linear Foot
___ "C.S. Structural Plate Pipe Elbow, Elongated, ___ Gauge (___" x ___" Corrugation)	Each
___ "C.S. Structural Plate Pipe Elbow, Elongated, ___ Gauge with ___ Bolts, ___" x ___" Corrugation	Each
___ "C.S. Structural Plate Pipe Wye, Elongated, ___ Gauge, (___" x ___" Corrugation)	Each
___ "C.S. Structural Plate Pipe Wye, Elongated, ___ Gauge with ___ Bolts, ___" x ___" Corrugation	Each
___ "C.S. Structural Plate Pipe Tee, Elongated, ___ Gauge, ___" x ___" Corrugation	Each
___ "C.S. Structural Plate Pipe Tee, Elongated, ___ Gauge with ___ Bolts, ___" x ___" Corrugation	Each

**SPRING BOX PIPE:****Description**

Furnish and install spring box pipe as detailed in the plans, the *2012 NCDOT Roadway Standard Drawings*, the *2012 Standard Specifications*, and as directed by the Engineer.

**Measurement and Payment**

Spring box pipe will be measured and paid for as the actual number of linear feet incorporated in the completed and accepted work. Measurement will be made along the surface of the pipe.

Payment will be made under:

**Pay Item**

6" DI Pipe (Spring Box)

6" PVC Pipe Culverts (Spring Box)

**Pay Unit**

Linear Foot

Linear Foot

**FLOWABLE FILL:**

(9-17-02) (Rev 1-17-12)

300, 340, 1000, 1530, 1540, 1550

SP3 R30

**Description**

This work consists of all work necessary to place flowable fill in accordance with these provisions, the plans, and as directed.

**Materials**

Refer to Division 10 of the *2012 Standard Specifications*.

**Item**

Flowable Fill

**Section**

1000-6

**Construction Methods**

Discharge flowable fill material directly from the truck into the space to be filled, or by other approved methods. The mix may be placed full depth or in lifts as site conditions dictate. The Contractor shall provide a method to plug the ends of the existing pipe in order to contain the flowable fill.

**Measurement and Payment**

At locations where flowable fill is called for on the plans and a pay item for flowable fill is included in the contract, *Flowable Fill* will be measured in cubic yards and paid as the actual number of cubic yards that have been satisfactorily placed and accepted. Such price and payment will be full

compensation for all work covered by this provision including, but not limited to, the mix design, furnishing, hauling, placing and containing the flowable fill.

Payment will be made under:

**Pay Item**

Flowable Fill

**Pay Unit**

Cubic Yard

**CENTRIFUGALLY CAST CONCRETE PIPE LINER:**

Furnish and install pipe liner as shown at recommended locations on the plans. Pipe liner should be centrifugally cast concrete from NCDOT Approved Product Listing for drainage pipe liners at the following link or an approved equal:

<https://connect.ncdot.gov/resources/Products/Pages/default.aspx>

Pipe liner is subject to approval by the Engineer.

*Centrifugally Cast Concrete Pipe Liner* will be measured and paid as the actual number of linear feet of pipe liner that has been incorporated into the completed and accepted work.

**Pay Item**

Centrifugally Cast Concrete Pipe Liner (     ” Pipe)

**Pay Unit**

Linear Foot

**PREPARATION OF SUBGRADE AND BASE:**

(1-16-96)

610

SP5 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* except use an automatically controlled fine grading machine using 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.

No direct payment will be made for the work required by this provision as it will be considered incidental to other work being paid for by the various items in the contract.

**CLASS IV SUBGRADE STABILIZATION IN LIEU OF CHEMICAL STABILIZATION:**

(6-16-15)

501, 542

SP05 R017

**Description**

In lieu of chemical stabilization, provide Class IV Subgrade Stabilization by replacing 8” of subgrade soils with geotextile and Class IV select material. This substitution is allowed in full typical section width and cannot result in chemically stabilized sections less than 1,000 feet in length, unless otherwise approved by the Engineer. Notify the Engineer at least 30 days in advance of starting Class IV Subgrade Stabilization in lieu of Chemical Stabilization.

**Materials**

Refer to the *2012 Standard Specifications*.

<b>Item</b>	<b>Section</b>
Geotextile for Soil Stabilization, Type 4	1056
Select Material, Class IV	1016

Use Class IV Select Material for Class IV Subgrade Stabilization.

**Construction Methods**

Install geotextile for soil stabilization in accordance with Article 270-3 in the *2012 Standard Specifications*. Place Class IV subgrade stabilization (standard size no. ABC) by end dumping ABC on geotextiles. Do not operate heavy equipment on geotextiles until geotextiles are covered with Class IV subgrade stabilization. Compact ABC to 97% of AASHTO T 180 as modified by the Department.

Maintain Class IV subgrade stabilization in an acceptable condition and minimize the use of heavy equipment on ABC in order to avoid damaging aggregate subgrades. Provide and maintain drainage ditches and drains as required to prevent entrapping water in aggregate subgrades.

**Measurement and Payment**

*Class IV Subgrade Stabilization in Lieu of Chemical Stabilization* will be paid at the prices established in the contract that relate to the chemical stabilization type that is being replaced (Lime or Cement). No direct payment will be made for additional excavation required to accommodate this alternate.

The total amount paid for this subgrade stabilization alternative will be limited to the contract amounts per square yard for replacement for Portland cement or lime, theoretical tons of Portland cement or lime replaced, mixing of cement or lime, and theoretical gallons of asphalt curing seal replaced at the rate of 0.15 gallons per square yard.

A Supplement Agreement will be executed prior to starting the work to create a square yard price for the *Class IV Subgrade Stabilization in Lieu of Chemical Stabilization* and deleting the quantities associated with the work being replaced.

**ASPHALT PAVEMENTS - SUPERPAVE:**

(6-19-12) (Rev. 8-16-16)

605, 609, 610, 650

SP6 R01

Revise the 2012 *Standard Specifications* as follows:

**Page 6-3, Article 605-7, APPLICATION RATES AND TEMPERATURES**, replace this article, including Table 605-1, with the following:

Apply tack coat uniformly across the existing surface at target application rates shown in Table 605-1.

<b>TABLE 605-1 APPLICATION RATES FOR TACK COAT</b>	
<b>Existing Surface</b>	<b>Target Rate (gal/sy)</b>
	<b>Emulsified Asphalt</b>
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.

<b>TABLE 605-2 APPLICATION TEMPERATURE FOR TACK COAT</b>	
<b>Asphalt Material</b>	<b>Temperature Range</b>
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 6-6, Subarticle 607-5(A), Milled Asphalt Pavement**, line 25, add the following to the end of the paragraph:

Areas to be paid under these items include mainline, turn lanes, shoulders, and other areas milled in conjunction with the mainline and any additional equipment necessary to remove pavement in the area of manholes, water valves, curb, gutter and other obstructions.

**Page 6-6, Subarticle 607-5(C), Incidental Milling**, lines 42-48, replace the paragraph with the following:

*Incidental Milling* to be paid will be the actual number of square yards of surface milled where the Contractor is required to mill butt joints, irregular areas and intersections milled as a separate operation from mainline milling and re-mill areas that are not due to the Contractor's negligence whose length is less than 100 feet. Measurement will be made as provided in Subarticle 607-5(A) for each cut the Contractor is directed to perform. Where the Contractor elects to make multiple

cuts to achieve the final depth, no additional measurement will be made. Compensation will be made at the contract unit price per square yard for *Incidental Milling*.

**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 6-20, Subarticle 610-3(C), Job Mix Formula (JMF)**, lines 47-48, replace the last sentence of the third paragraph with the following:

The JMF mix temperature shall be within the ranges shown in Table 610-1 unless otherwise approved.

**Page 6-21, Subarticle 610-3(C) Job Mix Formula (JMF)**, replace Table 610-1 with the following:

<b>TABLE 610-1</b>	
<b>MIXING TEMPERATURE AT THE ASPHALT PLANT</b>	
<b>Binder Grade</b>	<b>JMF Mix Temperature</b>
PG 58-28; PG 64-22	250 - 290°F
PG 70-22	275- 305°F
PG 76-22	300- 325°F

**Page 6-21, Subarticle 610-3(C) Job Mix Formula (JMF)**, lines 1-2, in the first sentence of the first paragraph, delete "and compaction". Lines 4-7, delete the second paragraph and replace with the following:

When RAS is used, the JMF mix temperature shall be established at 275°F or higher.

**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:

<b>TABLE 610-5 PLACEMENT TEMPERATURES FOR ASPHALT</b>	
<b>Asphalt Concrete Mix Type</b>	<b>Minimum Surface and Air Temperature</b>
B25.0B, C	35°F
I19.0B, C, D	35°F
SF9.5A, S9.5B	40°F <sup>A</sup>
S9.5C, S12.5C	45°F <sup>A</sup>
S9.5D, S12.5D	50°F

**A.** For the final layer of surface mixes containing recycled asphalt shingles (RAS), the minimum surface and air temperature shall be 50°F.

**Page 6-23, Subarticle 610-5(A), General**, lines 33-34, replace the last sentence of the third paragraph with the following:

Produce the mixture at the asphalt plant within  $\pm 25$  °F of the JMF mix temperature. The temperature of the mixture, when discharged from the mixer, shall not exceed 350°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”. Line 28, in the last paragraph, replace “+15 °F to -25 °F of the specified JMF temperature.” with “ $\pm 25$  °F of the specified JMF mix temperature.”

**Page 6-26, Article 610-8, SPREADING AND FINISHING, line 34**, add the following new paragraph:

As referenced in Section 9.6.3 of the *HMA/QMS Manual*, use the automatic screed controls on the paver to control the longitudinal profile. Where approved by the Engineer, the Contractor has the option to use either a fixed or mobile string line.

**Page 6-29, Article 610-13, FINAL SURFACE TESTING AND ACCEPTANCE, line 39**, add the following after the first sentence in the first paragraph:

Smoothness acceptance testing using the inertial profiler is not required on ramps, loops and turn lanes.

**Page 6-30, Subarticle 610-13(A), Option 1 – Inertial Profiler, lines 15-16**, replace the fourth sentence of the fourth paragraph with the following:

The interval at which relative profile elevations are reported shall be 2”.

**Page 6-30, Subarticle 610-13(A), Option 1 – Inertial Profiler, lines 25-28,** replace the ninth paragraph with the following:

Operate the profiler at any speed as per the manufacturer’s recommendations to collect valid data.

**Page 6-30, Subarticle 610-13(A), Option 1 – Inertial Profiler, lines 30-31,** delete the third sentence of the tenth paragraph.

**Page 6-31, Subarticle 610-13(A), Option 1 – Inertial Profiler, lines 11-13,** replace the first sentence of the third paragraph with the following:

After testing, transfer the profile data from the profiler portable computer’s hard drive to a write once storage media (Flash drive, USB, DVD-R or CD-R) or electronic media approved by the Engineer.

**Page 6-31, Subarticle 610-13(A), Option 1 – Inertial Profiler, lines 17-18,** replace the first sentence of the fourth paragraph with the following:

Submit a report with the documentation and electronic data of the evaluation for each section to the Engineer within 10 days after completion of the smoothness testing. The report shall be in the tabular format for each 0.10 segment or a portion thereof with a summary of the MRI values and the localized roughness areas including corresponding project station numbers or acceptable reference points. Calculate the pay adjustments for all segments in accordance with the formulas in Sections (1) and (2) shown below. The Engineer shall review and approval all pay adjustments unless corrective action is required.

**Page 6-31, Subarticle 610-13(A)(1), Acceptance for New Construction, lines 36-37,** replace the third paragraph with the following:

The price adjustment will apply to each 0.10-mile section or prorated for a portion thereof, based on the Mean Roughness Index (MRI), the average IRI values from both wheel paths.

**Page 6-32, Subarticle 610-13(A)(2), Localized Roughness, lines 12-16,** replace the first paragraph with the following:

Areas of localized roughness shall be identified through the “Smoothness Assurance Module (SAM)” provided in the ProVAL software. Use the SAM report to optimize repair strategies by analyzing the measurements from profiles collected using inertial profilers. The ride quality threshold for localized roughness shall be 165 in/mile for any sections that are 15 ft. to 100 ft. in length at the continuous short interval of 25 ft. Submit a continuous roughness report to identify each section with project station numbers or reference points outside the threshold and identify all localized roughness, with the signature of the Operator included with the submitted IRI trace and electronic files.

**Page 6-32, Subarticle 610-13(A)(2), Localized Roughness, line 21,** add the following new paragraph:

If the Engineer does not require corrective action, the pay adjustment for each area of localized roughness shall be based on the following formula:

$$PA = (165 - LR\#) 5$$

Where:

PA = Pay Adjustment (dollars)  
 LR# = The Localized Roughness number determined from SAM report for the ride quality threshold

**Page 6-41, Subarticle 650-3(B), Mix Design Criteria**, replace Table 650-1 with the following:

<b>TABLE 650-1 OGAFC GRADATION CRITERIA</b>			
<i>Sieve Size (mm)</i>	<i>Type FC-1</i>	<i>Type FC-1 Modified</i>	<i>Type FC-2 Modified</i>
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:**

(11-21-00) (Rev. 7-17-12)

609

SP6 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*.

**ASPHALT PLANT MIXTURES:**

(7-1-95)

609

SP6 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.

**PRICE ADJUSTMENT - ASPHALT BINDER FOR PLANT MIX:**

(11-21-00)

620

SP6 R25

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

The base price index for asphalt binder for plant mix is \$ **337.50** per ton.

This base price index represents an average of F.O.B. selling prices of asphalt binder at supplier's terminals on **September 1, 2016**.

**CONVERT EXISTING DI TO 3GI:**

(1-1-02) (Rev. 7-18-06)

840, 859

SP8 R50

At the proper phase of construction, convert the existing DI at locations indicated in the plans or where directed, to 3GI in accordance with the details in the plans and the applicable requirements of Sections 840 and 859 of the *2012 Standard Specifications*.

*Convert Existing DI to 3GI* will be measured and paid as each, completed and accepted. Such price and payment is considered full compensation for all equipment, materials, labor, tools, and incidentals necessary to complete each conversion satisfactorily.

Payment will be made under:

**Pay Item**

Convert Existing DI to 3GI

**Pay Unit**

Each

**CONVERT EXISTING TB2GI TO TBJB/SLAB:**

(1-1-02) (Rev. 7-18-06)

840, 859

SP8 R50

At the proper phase of construction, convert the existing TB2GI at locations indicated in the plans or where directed, to TBJB/SLAB in accordance with the details in the plans and the applicable requirements of Sections 840 and 859 of the *2012 Standard Specifications*.

*Convert Existing TB2GI to TBJB/SLAB* will be measured and paid as each, completed and accepted. Such price and payment is considered full compensation for all equipment, materials, labor, tools, and incidentals necessary to complete each conversion satisfactorily.

Payment will be made under:

**Pay Item**

Convert Existing TB2GI to TBJB/Slab

**Pay Unit**

Each

**CONVERT EXISTING TBJB TO TB2GI:**

(1-1-02) (Rev. 7-18-06)

840, 859

SP8 R50

At the proper phase of construction, convert the existing TBJB at locations indicated in the plans or where directed, to TB2GI in accordance with the details in the plans and the applicable requirements of Sections 840 and 859 of the *2012 Standard Specifications*.

*Convert Existing TBJB to TB2GI* will be measured and paid as each, completed and accepted. Such price and payment is considered full compensation for all equipment, materials, labor, tools, and incidentals necessary to complete each conversion satisfactorily.

Payment will be made under:

**Pay Item**

Convert Existing TBJB to TB2GI

**Pay Unit**

Each

**CONVERT EXISTING JB TO DI:**

(1-1-02) (Rev. 7-18-06)

840, 859

SP8 R50

At the proper phase of construction, convert the existing JB at locations indicated in the plans or where directed, to DI in accordance with the details in the plans and the applicable requirements of Sections 840 and 859 of the *2012 Standard Specifications*.

*Convert Existing JB to DI* will be measured and paid as each, completed and accepted. Such price and payment is considered full compensation for all equipment, materials, labor, tools, and incidentals necessary to complete each conversion satisfactorily.

Payment will be made under:

**Pay Item**

Convert Existing JB to DI

**Pay Unit**

Each

**GUARDRAIL ANCHOR UNITS, TYPE 350 (TL-3):**

(4-20-04) (Rev. 7-21-15)

862

SP08 R065

**Description**

Furnish and install guardrail anchor units in accordance with the details in the plans, the applicable requirements of Section 862 of the *2012 Standard Specifications*, and at locations shown in the plans.

**Materials**

Furnish guardrail anchor units listed on the NCDOT Approved Products List at <https://apps.dot.state.nc.us/vendor/approvedproducts/> or approved equal.

Prior to installation the Contractor shall submit to the Engineer:

- (A) FHWA acceptance letter for each guardrail anchor unit certifying it meets the requirements of NCHRP Report 350, Test Level 3, in accordance with Article 106-2 of the *2012 Standard Specifications*.
- (B) Certified working drawings and assembling instructions from the manufacturer for each guardrail anchor unit in accordance with Article 105-2 of the *2012 Standard Specifications*.

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 Methods**

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 Article 1088-3 of the *2012 Standard Specifications* and is incidental to the cost of the guardrail anchor unit.

**Measurement and Payment**

Measurement and payment will be made in accordance with Article 862-6 of the *2012 Standard Specifications*.

Payment will be made under:

**Pay Item**

Guardrail Anchor Units, Type 350

**Pay Unit**

Each

**EXTRA LENGTH GUARDRAIL POSTS:**

(11-17-09)

SPI 8-21A

**Description**

The Contractor shall use extra length guardrail posts at the locations indicated in the plans and as directed by the Engineer.

**Materials****Item**

Guardrail Steel Post (8')

**Section**

1046-3

**Construction Methods**

Extra length guardrail posts shall be installed in accordance with Section 862 of the *Standard Specifications* and the *Roadway Standard Drawings*.

**Measurement and Payment**

*Extra Length Guardrail Post* will be measured and paid for in units of each that have been installed and accepted.

Payment will be made under:

**Pay Item**

Extra Length Guardrail Post (8' Steel)

**Pay Unit**

Each

**TEMPORARY 4 STRAND BARBED WIRE FENCE WITH POSTS:****Description**

Construct temporary barbed wire fence with posts at locations indicated in the plans and as directed by the Engineer. After the fence has served its purpose and is no longer needed, as determined by the Engineer, it shall be removed. The temporary fence becomes the property of the Contractor.

**Materials**

Refer to Section 866 of the *Standard Specifications*.

**Construction Methods**

Barbed wire fence shall be installed in accordance with Section 866 of the *Standard Specifications*, *Roadway Standard Drawing* 866.04, and as directed by the Engineer. The fence shall be maintained as directed by the Engineer.

**Measurement and Payment**

*Temporary 4 Strand Barbed Wire Fence With Posts* will be measured and paid for as the actual number of linear feet of fence constructed and accepted, measured in place from center of end post to center of end post. All posts used for the barbed wire fence are included in the price of the barbed wire fence and will not be paid for separately. Such price and payment will be full compensation for all materials, labor, fence maintenance, removal, and incidentals, necessary to satisfactorily complete the work.

Payment will be made under:

**Pay Item**

Temporary 4 Strand Barbed Wire Fence With Posts

**Pay Unit**

Linear Foot

**CHAIN LINK FENCING WITH BARBED WIRE ON EXTENSION ARMS:**

(7-1-95)

866

SP8 R100

**Description**

Provide 96" chain link fencing with barbed wire on extension arms in accordance with the plans, Section 866 of the *2012 Standard Specifications*, and the provisions herein.

**Construction Methods**

On all 96" fencing on this project, place three strands of barbed wire placed at the top of the fence fabric. Attach the barbed wire to extension arms that are to be fitted to the post tops.

Provide extension arms constructed to locate the top most strand of barbed wire approximately 12 inches above and approximately 12 inches out from the top rail. Space all strands of barbed

wire at an approximately equal distance from each other. Make provisions for supporting the top rail. The arm shall make a 45 degree angle with the post, and be an item of standard manufacture. Have samples of extension arms to be used on the project approved prior to their installation.

Fabricate the extension arms from pressed steel or malleable wrought iron, or either of these materials in conjunction with a cast base. Provide a minimum weight of the arm material of 14 gauge. Provide a complete arm assembly of sufficient strength to support the barbed wire when stretched to proper tension. Galvanize all arms in accordance with ASTM A153.

Erect extension arms so as to point away from the pavement. Splicing of barbed wire between the arms will not be permitted. Use a method of attaching barbed wire to the arms acceptable to the Engineer.

### **Measurement and Payment**

No direct payment will be made for furnishing and installing the barbed wire and extension arms as such work will be considered incidental to other work being paid by the various fencing items in the contract.

### **PREFORMED SCOUR HOLE WITH LEVEL SPREADER APRON:**

(10-15-02) (Rev. 10-20-09)

410

SP8 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**

<b>Item</b>	<b>Section</b>
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:

<b>Property</b>	<b>Test Method</b>	<b>Value Unit</b>
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 <sup>2</sup>
Maximum Allowable Velocity (Vegetated)	Performance Bench Test	≥16.0 ft/s

\*ASTM D1682 Tensile Strength and % strength retention of material after 1,000 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**

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*. 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.

### **Measurement and Payment**

*Preformed Scour Holes with Level Spreader Aprons* will be measured and paid as the actual number incorporated into the completed and accepted work. Such price and payment will be full compensation for all work covered by this provision.

Payment will be made under:

#### **Pay Item**

Preformed Scour Hole with Level Spreader Aprons

#### **Pay Unit**

Each

### **STREET SIGNS AND MARKERS AND ROUTE MARKERS:**

(7-1-95)

900

SP9 R02

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 Contractor shall be responsible to the owners for any damage to any street signs and markers or route markers during the above described operations.

No direct payment will be made for relocating, reinstalling, and/or stockpiling the street signs and markers and route markers as such work shall be considered incidental to other work being paid for by the various items in the contract.

**MATERIALS:**

(2-21-12) (Rev. 3-15-16)

1000, 1002, 1005, 1016, 1018, 1024, 1050, 1074, 1078, 1080, 1081, 1086, 1084, 1087, 1092

SP10 R01

Revise the *2012 Standard Specifications* as follows:

**Page 10-1, Article 1000-1, DESCRIPTION, lines 9-10**, replace the last sentence of the first paragraph with the following:

Type IL, IP, IS or IT blended cement may be used instead of Portland cement.

**Page 10-1, Article 1000-1, DESCRIPTION, line 14**, add the following:

If any change is made to the mix design, submit a new mix design (with the exception of an approved pozzolan source change).

If any major change is made to the mix design, also submit new test results showing the mix design conforms to the criteria. Define a major change to the mix design as:

- (1) A source change in coarse aggregate, fine aggregate or cement.
- (2) A pozzolan class or type change (e.g. Class F fly ash to Class C fly ash).
- (3) A quantitative change in coarse aggregate (applies to an increase or decrease greater than 5%), fine aggregate (applies to an increase or decrease greater than 5%), water (applies to an increase only), cement (applies to a decrease only), or pozzolan (applies to an increase or decrease greater than 5%).

Use materials which do not produce a mottled appearance through rusting or other staining of the finished concrete surface.

**Page 10-1, Article 1000-2, MATERIALS, line 16; Page 10-8, Subarticle 1000-7(A), Materials, line 8; and Page 10-18, Article 1002-2, MATERIALS, line 9**, add the following to the table of item references:

Item	Section
Type IL Blended Cement	1024-1

**Page 10-1, Subarticle 1000-3(A), Composition and Design, lines 25-27,** replace the second paragraph with the following:

Fly ash may be substituted for cement in the mix design up to 30% at a rate of 1.0 lb of fly ash to each pound of cement replaced.

**Page 10-2, Subarticle 1000-3(A), Composition and Design, lines 12-21,** delete the third paragraph through the sixth paragraph beginning with “If any change is made to the mix design, submit...” through “...(applies to a decrease only).”

**Page 10-5, Table 1000-1, REQUIREMENTS FOR CONCRETE,** replace with the following:

<b>TABLE 1000-1 REQUIREMENTS FOR CONCRETE</b>											
<b>Class of Concrete</b>	<b>Min. Comp. Strength at 28 days</b>	<b>Maximum Water-Cement Ratio</b>				<b>Consistency Max. Slump</b>		<b>Cement Content</b>			
		<b>Air-Entrained Concrete</b>		<b>Non Air- Entrained Concrete</b>		<b>Vibrated</b>	<b>Non- Vibrated</b>	<b>Vibrated</b>		<b>Non- Vibrated</b>	
		<b>Rounded Aggregate</b>	<b>Angular Aggregate</b>	<b>Rounded Aggregate</b>	<b>Angular Aggregate</b>			<b>Min.</b>	<b>Max.</b>	<b>Min.</b>	<b>Max.</b>
<i>Units</i>	<i>psi</i>					<i>inch</i>	<i>inch</i>	<i>lb/cy</i>	<i>lb/cy</i>	<i>lb/cy</i>	<i>lb/cy</i>
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	1.5 machine- placed 2.5 hand- placed	4	508	-	545	-
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 10-6, Subarticle 1000-4(I), Use of Fly Ash, lines 36-2,** replace the first paragraph with the following:

Fly ash may be substituted for cement in the mix design up to 30% at a rate of 1.0 lb of fly ash to each pound of cement replaced. Use Table 1000-1 to determine the maximum allowable water-cementitious material (cement + fly ash) ratio for the classes of concrete listed.

**Page 10-7, Table 1000-3, MAXIMUM WATER-CEMENTITIOUS MATERIAL RATIO,** delete the table.

**Page 10-7, Article 1000-5, HIGH EARLY STRENGTH PORTLAND CEMENT CONCRETE, lines 30-31,** delete the second sentence of the third paragraph.

**Page 10-19, Article 1002-3, SHOTCRETE FOR TEMPORARY SUPPORT OF EXCAVATIONS, line 30,** add the following at the end of Section 1002:

**(H) Handling and Storing Test Panels**

Notify the Area Materials Engineer when preconstruction or production test panels are made within 24 hours of shooting the panels. Field cure and protect test panels from damage in accordance with ASTM C1140 until the Department transports panels to the Materials and Tests Regional Laboratory for coring.

Page 10-23, Table 1005-1, AGGREGATE GRADATION-COARSE AGGREGATE, replace with the following:

<b>TABLE 1005-1</b> <b>AGGREGATE GRADATION - COARSE AGGREGATE</b>													
Percentage of Total by Weight Passing													
Std. Size #	2"	1 1/2"	1"	3/4"	1/2"	3/8"	#4	#8	#10	#16	#40	#200	Remarks
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,
9	-	-	-	-	-	100	85-100	10-40	-	0-10	-	A	AST
ABC	-	100	75-97	-	55-80	-	35-55	-	25-45	-	14-30	4-12 <sup>B</sup>	Aggregate Base Course, Aggregate Stabilization
ABC (M)	-	100	75-100	-	45-79	-	20-40	-	0-25	-	-	0-12 <sup>B</sup>	Maintenance Stabilization
Light- 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 10-39, Article 1016-3, CLASSIFICATIONS , lines 27-32, replace with the following:**

Select material is clean, unweathered durable, blasted rock material obtained from an approved source. While no specific gradation is required, the below criteria will be used to evaluate the materials for visual acceptance by the Engineer:

- (A) At least 50% of the rock has a diameter of from 1.5 ft to 3 ft,
- (B) 30% of the rock ranges in size from 2" to 1.5 ft in diameter, and
- (C) Not more than 20% of the rock is less than 2" in diameter. No rippable rock will be permitted.

**Page 10-40, Tables 1018-1 and 1018-2, PIEDMONT, WESTERN AND COASTAL AREA CRITERIA FOR ACCEPTANCE OF BORROW MATERIAL, under second column in both tables, replace second row with the following:**

Acceptable, but not to be used in the top 3 ft of embankment or backfill

**Page 10-46, Article 1024-1, PORTLAND CEMENT, line 33, add the following as the ninth paragraph:**

Use Type IL blended cement that meets AASHTO M 240, except that the limestone content is limited to between 5 and 12% by weight and the constituents shall be interground. Class F fly ash can replace a portion of Type IL blended cement and shall be replaced as outlined in Subarticle 1000-4(I) for Portland cement. For mixes that contain cement with alkali content between 0.6% and 1.0% and for mixes that contain a reactive aggregate documented by the Department, use a pozzolan in the amount shown in Table 1024-1.

**Page 10-46, Table 1024-1, POZZOLANS FOR USE IN PORTLAND CEMENT CONCRETE, replace with the following:**

<b>TABLE 1024-1 POZZOLANS FOR USE IN PORTLAND CEMENT CONCRETE</b>	
<b>Pozzolan</b>	<b>Rate</b>
Class F Fly Ash	20% - 30% by weight of required cement content with 1.0 lb Class F fly ash per lb of cement replaced
Ground Granulated Blast Furnace Slag	35%-50% by weight of required cement content with 1.0 lb slag per lb of cement replaced
Microsilica	4%-8% by weight of required cement content with 1.0 lb microsilica per lb of cement replaced

**Page 10-47, Subarticle 1024-3(B), Approved Sources, lines 16-18, replace the second sentence of the second paragraph with the following:**

Tests shall be performed by AASHTO's designated National Transportation Product Evaluation Program (NTPEP) laboratory for concrete admixture testing.

**Page 10-65, Article 1050-1, GENERAL, line 41**, replace the first sentence with the following:

All fencing material and accessories shall meet Section 106.

**Page 10-115, Subarticle 1074-7(B), Gray Iron Castings, lines 10-11**, replace 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 lb.) will be required only when noted on the design documents.

**Page 10-126, Table 1078-1, REQUIREMENTS FOR CONCRETE**, replace with the following:

<b>TABLE 1078-1 REQUIREMENTS FOR CONCRETE</b>		
<b>Property</b>	<b>28 Day Design Compressive Strength 6,000 psi or less</b>	<b>28 Day Design Compressive Strength greater than 6,000 psi</b>
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 with the following:

<b>TABLE 1081-1 PROPERTIES OF MIXED EPOXY RESIN SYSTEMS</b>							
<b>Property</b>	<b>Type 1</b>	<b>Type 2</b>	<b>Type 3</b>	<b>Type 3A</b>	<b>Type 4A</b>	<b>Type 4B</b>	<b>Type 5</b>
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 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. Steel sheet piles shall be coated as required

by the plans. 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 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.

**SELECT MATERIAL, CLASS III, TYPE 3:**

(1-17-12)

1016, 1044

SP10 R05

Revise the *2012 Standard Specifications* 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:**

(3-19-13)

1019

SP10 R10

Use soil in accordance with Section 1019 of the *2012 Standard Specifications*. 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.

<b>pH TEST RESULT</b>	<b>Sandy Soils Additional Rate (lbs. / Acre)</b>	<b>Silt Loam Soils Additional Rate (lbs. / Acre)</b>	<b>Clay Loam Soils Additional Rate (lbs. / Acre)</b>
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.

**GROUT PRODUCTION AND DELIVERY:**

(3-17-15)

1003

SP10 R20

Revise the *2012 Standard Specifications* as follows:

Replace Section 1003 with the following:

**SECTION 1003  
GROUT PRODUCTION AND DELIVERY**

**1003-1 DESCRIPTION**

This section addresses cement grout to be used for structures, foundations, retaining walls, concrete barriers, embankments, pavements and other applications in accordance with the contract. Produce non-metallic grout composed of Portland cement and water and at the Contractor's option or as required, aggregate and pozzolans. Include chemical admixtures as required or needed. Provide sand cement or neat cement grout as required. Define "sand cement grout" as grout with only fine aggregate and "neat cement grout" as grout without aggregate.

The types of grout with their typical uses are as shown below:

**Type 1** – A cement grout with only a 3-day strength requirement and a fluid consistency that is typically used for filling subsurface voids.

**Type 2** – A nonshrink grout with strength, height change and flow conforming to ASTM C1107 that is typically used for foundations, ground anchors and soil nails.

**Type 3** – A nonshrink grout with high early strength and freeze-thaw durability requirements that is typically used in pile blockouts, grout pockets, shear keys, dowel holes and recesses for concrete barriers and structures.

**Type 4** – A neat cement grout with low strength, a fluid consistency and high fly ash content that is typically used for slab jacking.

**Type 5** – A low slump, low mobility sand cement grout with minimal strength that is typically used for compaction grouting.

**MATERIALS**

Refer to Division 10.

<b>Item</b>	<b>Section</b>
Chemical Admixtures	1024-3
Fine Aggregate	1014-1
Fly Ash	1024-5
Ground Granulated Blast Furnace Slag	1024-6
Portland Cement	1024-1
Silica Fume	1024-7
Water	1024-4

Do not use grout that contains soluble chlorides or more than 1% soluble sulfate. At the Contractor's option, use an approved packaged grout instead of the materials above except for water. Use packaged grouts that are on the NCDOT Approved Products List.

Use admixtures for grout that are on the NCDOT Approved Products List or other admixtures in accordance with Subarticle 1024-3(E) except do not use concrete additives or unclassified or other admixtures in Type 4 or 5 grout. Use Class F fly ash for Type 4 grout and Type II Portland cement for Type 5 grout.

Use well graded rounded aggregate with a gradation, liquid limit (LL) and plasticity index (PI) that meet Table 1003-1 for Type 5 grout. Fly ash may be substituted for a portion of the fines in the aggregate. Do not use any other pozzolans in Type 5 grout.

<b>TABLE 1003-1</b>			
<b>AGGREGATE REQUIREMENTS FOR TYPE 5 GROUT</b>			
<b>Gradation</b>		<b>Maximum Liquid Limit</b>	<b>Maximum Plasticity Index</b>
<b>Sieve Designation per AASHTO M 92</b>	<b>Percentage Passing (% by weight)</b>		
3/8"	100	N/A	N/A
No. 4	70 – 95		
No. 8	50 – 90		
No. 16	30 – 80		
No. 30	25 – 70		
No. 50	20 – 50		
No. 100	15 – 40		
No. 200	10 – 30	25	10

**COMPOSITION AND DESIGN**

When using an approved packaged grout, a grout mix design submittal is not required. Otherwise, submit proposed grout mix designs for each grout mix to be used in the work. Mixes for all grout shall be designed by a Certified Concrete Mix Design Technician or an

Engineer licensed by the State of North Carolina. Mix proportions shall be determined by a testing laboratory approved by the Department. Base grout mix designs on laboratory trial batches that meet Table 1003-2 and this section. With permission, the Contractor may use a quantity of chemical admixture within the range shown on the current list of approved admixtures maintained by the Materials and Tests Unit.

Submit grout mix designs in terms of saturated surface dry weights on Materials and Tests Form 312U at least 35 days before proposed use. Adjust batch proportions to compensate for surface moisture contained in the aggregates at the time of batching. Changes in the saturated surface dry mix proportions will not be permitted unless revised grout mix designs have been submitted to the Engineer and approved.

Accompany Materials and Tests Form 312U with a listing of laboratory test results of compressive strength, density and flow or slump and if applicable, aggregate gradation, durability and height change. List the compressive strength of at least three 2" cubes at the age of 3 and 28 days.

The Engineer will review the grout mix design for compliance with the contract and notify the Contractor as to its acceptability. Do not use a grout mix until written notice has been received. Acceptance of the grout mix design or use of approved packaged grouts does not relieve the Contractor of his responsibility to furnish a product that meets the contract. Upon written request from the Contractor, a grout mix design accepted and used satisfactorily on any Department project may be accepted for use on other projects.

Perform laboratory tests in accordance with the following test procedures:

<b>Property</b>	<b>Test Method</b>
Aggregate Gradation <sup>A</sup>	AASHTO T 27
Compressive Strength	AASHTO T 106
Density (Unit Weight)	AASHTO T 121, AASHTO T 133 <sup>B</sup> , ANSI/API RP <sup>C</sup> 13B-1 <sup>B</sup> (Section 4, Mud Balance)
Durability	AASHTO T 161 <sup>D</sup>
Flow	ASTM C939 (Flow Cone)
Height Change	ASTM C1090 <sup>E</sup>
Slump	AASHTO T 119

**A.** Applicable to grout with aggregate.

**B.** Applicable to Neat Cement Grout.

**C.** American National Standards Institute/American Petroleum Institute Recommended Practice.

**D.** Procedure A (Rapid Freezing and Thawing in Water) required.

**E.** Moist room storage required.

**GROUT REQUIREMENTS**

Provide grout types in accordance with the contract. Use grouts with properties that meet Table 1003-2. The compressive strength of the grout will be considered the average compressive strength test results of three 2" cubes at each age. Make cubes that meet AASHTO T 106 from the grout delivered for the work or mixed on-site. Make cubes at such frequencies as the Engineer may determine and cure them in accordance with AASHTO T 106.

<b>TABLE 1003-2 GROUT REQUIREMENTS</b>					
<b>Type of Grout</b>	<b>Minimum Compressive Strength at</b>		<b>Height Change at 28 days</b>	<b>Flow<sup>A</sup>/Slump<sup>B</sup></b>	<b>Minimum Durability Factor</b>
	<b>3 days</b>	<b>28 days</b>			
1	3,000 psi	—	—	10 – 30 sec	—
2	Table 1 <sup>C</sup>			Fluid Consistency <sup>C</sup>	—
3	5,000 psi	—	0 – 0.2%	Per Accepted Grout Mix Design/ Approved Packaged Grout	80
4 <sup>D</sup>	600 psi	1,500 psi	—	10 – 26 sec	—
5	—	500 psi	—	1 – 3"	—

**A.** Applicable to Type 1 through 4 grouts.

**B.** Applicable to Type 5 grout.

**C.** ASTM C1107.

**D.** Use Type 4 grout with proportions by volume of 1 part cement and 3 parts fly ash.

**TEMPERATURE REQUIREMENTS**

When using an approved packaged grout, follow the manufacturer's instructions for grout and air temperature at the time of placement. Otherwise, the grout temperature at the time of placement shall be not less than 50°F nor more than 90°F. Do not place grout when the air temperature measured at the location of the grouting operation in the shade away from artificial heat is below 40°F.

**ELAPSED TIME FOR PLACING GROUT**

Agitate grout continuously before placement. Regulate the delivery so the maximum interval between the placing of batches at the work site does not exceed 20 minutes. Place grout before exceeding the times in Table 1003-3. Measure the elapsed time as the time between adding the mixing water to the grout mix and placing the grout.

<b>TABLE 1003-3</b> <b>ELAPSED TIME FOR PLACING GROUT</b> <b>(with continuous agitation)</b>		
<b>Air or Grout Temperature, Whichever is Higher</b>	<b>Maximum Elapsed Time</b>	
	<b>No Retarding Admixture Used</b>	<b>Retarding Admixture Used</b>
90°F or above	30 minutes	1 hr. 15 minutes
80°F through 89°F	45 minutes	1 hr. 30 minutes
79°F or below	60 minutes	1 hr. 45 minutes

**MIXING AND DELIVERY**

Use grout free of any lumps and undispersed cement. When using an approved packaged grout, mix grout in accordance with the manufacturer's instructions. Otherwise, comply with Articles 1000-8 through 1000-12 to the extent applicable for grout instead of concrete.

**GEOSYNTHETICS:**

(2-16-16)

1056

SP10 R25

Revise the *2012 Standard Specifications* as follows:

Replace Section 1056 with the following:

**SECTION 1056**  
**GEOSYNTHETICS**

**DESCRIPTION**

Provide geosynthetics for subsurface drainage, separation, stabilization, reinforcement, erosion control, filtration and other applications in accordance with the contract. Use geotextiles, geocomposite drains and geocells that are on the NCDOT Approved Products List. Prefabricated geocomposite drains include sheet, strip and vertical drains (PVDs), i.e., "wick drains" consisting of a geotextile attached to and/or encapsulating a plastic drainage core. Geocells are comprised of ultrasonically welded polymer strips that when expanded form a 3D honeycomb grid that is typically filled with material to support vegetation.

If necessary or required, hold geotextiles and sheet drains in place with new wire staples, i.e., "sod staples" that meet Subarticle 1060-8(D) or new anchor pins. Use steel anchor pins with a diameter of at least 3/16" and a length of at least 18" and with a point at one end and a head at the other end that will retain a steel washer with an outside diameter of at least 1.5".

**HANDLING AND STORING**

Load, transport, unload and store geosynthetics so geosynthetics are kept clean and free of damage. Label, ship and store geosynthetics in accordance with Section 7 of AASHTO M 288. Geosynthetics with defects, flaws, deterioration or damage will be rejected. Do not unwrap geosynthetics until just before installation. Do not leave geosynthetics exposed for more than 7 days before covering except for geosynthetics for temporary wall faces and erosion control.

**CERTIFICATIONS**

Provide Type 1, Type 2 or Type 4 material certifications in accordance with Article 106-3 for geosynthetics. Define “minimum average roll value” (MARV) in accordance with ASTM D4439. Provide certifications with MARV for geosynthetic properties as required. Test geosynthetics using laboratories accredited by the Geosynthetic Accreditation Institute (GAI) to perform the required test methods. Sample geosynthetics in accordance with ASTM D4354.

**GEOTEXTILES**

When required, sew geotextiles together in accordance with Article X1.1.4 of AASHTO M 288. Provide sewn seams with seam strengths meeting the required strengths for the geotextile type and class specified.

Provide geotextile types and classes in accordance with the contract. Geotextiles will be identified by the product name printed directly on the geotextile. When geotextiles are not marked with a product name or marked with only a manufacturing plant identification code, geotextiles will be identified by product labels attached to the geotextile wrapping. When identification is based on labels instead of markings, unwrap geotextiles just before use in the presence of the Engineer to confirm that the product labels on both ends of the outside of the geotextile outer wrapping match the labels affixed to both ends of the inside of the geotextile roll core. Partial geotextile rolls without the product name printed on the geotextile or product labels affixed to the geotextile roll core may not be used.

Use woven or nonwoven geotextiles with properties that meet Table 1056-1. Define “machine direction” (MD) and “cross-machine direction” (CD) in accordance with ASTM D4439.

<b>TABLE 1056-1 GEOTEXTILE REQUIREMENTS</b>						
<b>Property</b>	<b>Requirement</b>					<b>Test Method</b>
	<b>Type 1</b>	<b>Type 2</b>	<b>Type 3<sup>A</sup></b>	<b>Type 4</b>	<b>Type 5<sup>B</sup></b>	
<i>Typical Application</i>	<i>Shoulder Drains</i>	<i>Under Rip Rap</i>	<i>Silt Fence Fabric</i>	<i>Soil Stabilization</i>	<i>Temporary Walls</i>	
Elongation (MD & CD)	≥ 50%	≥ 50%	≤ 25%	< 50%	< 50%	ASTM D4632
Grab Strength (MD & CD)	Table 1 <sup>D</sup> , Class 3	Table 1 <sup>D</sup> , Class 1	100 lb <sup>C</sup>	Table 1 <sup>D</sup> , Class 3	—	ASTM D4632
Tear Strength (MD & CD)			—			ASTM D4533
Puncture Strength			—			ASTM D6241
Ultimate Tensile Strength (MD & CD)	—	—	—	—	2,400 lb/ft <sup>C</sup> (unless required otherwise in the contract)	ASTM D4595
Permittivity	Table 2 <sup>D</sup> , 15% to 50% <i>in Situ</i> Soil Passing 0.075 mm	Table 6 <sup>D</sup> , 15% to 50% <i>in Situ</i> Soil Passing 0.075mm	Table 7 <sup>D</sup>	Table 5 <sup>D</sup>	0.20 sec <sup>-1,C</sup>	ASTM D4491
Apparent Opening Size					0.60 mm <sup>E</sup>	ASTM D4751
UV Stability (Retained Strength)					70% <sup>C</sup> (after 500 hr of exposure)	ASTM D4355

- A.** Minimum roll width of 36" required.  
**B.** Minimum roll width of 13 ft required.  
**C.** MARV per Article 1056-3.  
**D.** AASHTO M 288.  
**E.** Maximum average roll value.

### **GEOCOMPOSITE DRAINS**

Provide geocomposite drain types in accordance with the contract and with properties that meet Table 1056-2.

**TABLE 1056-2  
GEOCOMPOSITE DRAIN REQUIREMENTS**

Property	Requirement			Test Method
	Sheet Drain	Strip Drain	Wick Drain	
Width	≥ 12" (unless required otherwise in the contract)	12" ±1/4"	4" ±1/4"	N/A
In-Plane Flow Rate <sup>A</sup> (with gradient of 1.0 and 24-hour seating period)	6 gpm/ft @ applied normal compressive stress of 10 psi	15 gpm/ft @ applied normal compressive stress of 7.26 psi	1.5 gpm <sup>B</sup> @ applied normal compressive stress of 40 psi	ASTM D4716

**A.** MARV per Article 1056-3.

**B.** Per 4" drain width.

For sheet and strip drains, use accessories (e.g., pipe outlets, connectors, fittings, etc.) recommended by the Drain Manufacturer. Provide sheet and strip drains with Type 1 geotextiles heat bonded or glued to HDPE, polypropylene or high impact polystyrene drainage cores that meet Table 1056-3.

**TABLE 1056-3  
DRAINAGE CORE REQUIREMENTS**

Property	Requirement (MARV)		Method
	Sheet Drain	Strip Drain	
Thickness	1/4"	1"	ASTM D1777 or D5199
Compressive Strength	40 psi	30 psi	ASTM D6364

For wick drains with a geotextile wrapped around a corrugated drainage core and seamed to itself, use drainage cores with an ultimate tensile strength of at least 225 lb per 4" width in accordance with ASTM D4595 and geotextiles with properties that meet Table 1056-4.

**TABLE 1056-4  
WICK DRAIN GEOTEXTILE REQUIREMENTS**

Property	Requirement	Test Method
Elongation	≥ 50%	ASTM D4632
Grab Strength	Table 1 <sup>A</sup> , Class 3	ASTM D4632
Tear Strength		ASTM D4533
Puncture Strength		ASTM D6241
Permittivity	0.7 sec <sup>-1</sup> . <sup>B</sup>	ASTM D4491
Apparent Opening Size (AOS)	Table 2 <sup>A</sup> , > 50% <i>in Situ</i> Soil Passing 0.075 mm	ASTM D4751
UV Stability (Retained Strength)		ASTM D4355

**A.** AASHTO M 288.

**B.** MARV per Article 1056-3.

For wick drains with a geotextile fused to both faces of a corrugated drainage core along the peaks of the corrugations, use wick drains with an ultimate tensile strength of at least 1,650 lb/ft in accordance with ASTM D4595 and geotextiles with a permittivity, AOS and UV stability that meet Table 1056-4.

## **GEOCELLS**

Geocells will be identified by product labels attached to the geocell wrapping. Unwrap geocells just before use in the presence of the Engineer. Previously opened geocell products will be rejected.

Manufacture geocells from virgin polyethylene resin with no more than 10% rework, also called “regrind”, materials. Use geocells made from textured and perforated HDPE strips with an open area of 10% to 20% and properties that meet Table 1056-5.

<b>TABLE 1056-5 GEOCELL REQUIREMENTS</b>		
<b>Property</b>	<b>Minimum Requirement</b>	<b>Test Method</b>
Cell Depth	4"	N/A
Sheet Thickness	50 mil -5%, +10%	ASTM D5199
Density	58.4 lb/cf	ASTM D1505
Carbon Black Content	1.5%	ASTM D1603 or D4218
ESCR <sup>A</sup>	5000 hr	ASTM D1693
Coefficient of Direct Sliding (with material that meets AASHTO M 145 for soil classification A-2)	0.85	ASTM D5321
Short-Term Seam (Peel) Strength (for 4" seam)	320 lb	USACE <sup>C</sup> Technical Report GL-86-19, Appendix A
Long-Term Seam (Hang) Strength <sup>B</sup> (for 4" seam)	160 lb	

**A.** Environmental Stress Crack Resistance.

**B.** Minimum test period of 168 hr with a temperature change from 74°F to 130°F in 1-hour cycles.

**C.** US Army Corps of Engineers.

Provide geocell accessories (e.g., stakes, pins, clips, staples, rings, tendons, anchors, deadmen, etc.) recommended by the Geocell Manufacturer.

## **TEMPORARY SHORING:**

(2-20-07) (Rev. 3-17-15)

SP11 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 Contractor's option, use any type of temporary shoring unless noted otherwise in the plans or as directed. 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 and as directed. 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 ft 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 Standard Drawing No. 1170.01 of the *2012 Roadway Standard Drawings*. Define “concrete barrier” as unanchored or anchored PCB or an approved equal. Define “temporary guardrail” as temporary steel beam guardrail that meets Standard Drawing No. 862.02 of the *2012 Roadway Standard Drawings*.

**Materials**

Refer to the *2012 Standard Specifications*.

<b>Item</b>	<b>Section</b>
Anchor Pins	1056-2
Concrete Barrier Materials	1170-2
Flowable Fill, Excavatable	1000-6
Geotextiles	1056
Grout	1003
Portland Cement Concrete	1000
Select Material	1016
Steel Beam Guardrail Materials	862-2
Steel Plates	1072-2
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 materials in accordance with Article 106-3 of the *2012 Standard Specifications*. Use Class IV select material (standard size No. ABC) for temporary guardrail. Use neat cement grout for Type 2 grout for ground anchors. Use Class A concrete that meets Article 450-2 of the *2012 Standard Specifications* or Type 1 grout for drilled-in piles. Provide 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.

**(A) 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.

**(B) 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 so materials 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*. Splice bars in accordance with Article 1070-9 of the *2012 Standard Specifications*. 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.

**(C) 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.

**(2) 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.

**(3) Geogrid Reinforcement**

Handle and store geogrids in accordance with Article 1056-2 of the *2012 Standard Specifications*. 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 geogrids is available from: [connect.ncdot.gov/resources/Materials/Pages/SoilsLaboratory.aspx](http://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:

<b>Material Type</b>	<b>Shoring Backfill</b>
Borrow	A-2-4 Soil
Fine Aggregate	Class II, Type 1 or Class III Select Material
Coarse Aggregate	Class V or VI Select Material

**(4) 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* 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 Contractor’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 Contractor’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*. 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)	Friction Angle ( $\phi$ )	Shoring Backfill
(b)	Unit Weight ( $\gamma$ ) = 120 lb/cf;	
	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 concrete or grout 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 longer. 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 ft 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 ft 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 and if this meeting occurs before all shoring submittals have been accepted, additional preconstruction meetings may be required before beginning construction of temporary shoring without accepted submittals. The Resident, District or Bridge Maintenance Engineer, Bridge or Roadway Construction Engineer, Geotechnical Operations Engineer, Contractor and Shoring Contractor Superintendent will attend preconstruction meetings.

**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* and Standard Drawing No. 1170.01 of the *2012 Roadway Standard Drawings*. Use temporary guardrail in accordance with Section 862 of the *2012 Standard Specifications* 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 over excavation 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* 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 concrete or grout to the elevations shown in the accepted submittals, remove any fluids and fill remaining portions of holes with flowable fill. Cure concrete or grout 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.
- (d) Measure grout temperature, density and flow during grouting with at least the same frequency grout cubes are made for compressive strength. Perform density and flow field tests in the presence of the Engineer in accordance with American National Standards Institute/American Petroleum Institute Recommended Practice 13B-1 (Section 4, Mud Balance) and ASTM C939 (Flow Cone), respectively.

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*. Use only hand operated compaction equipment to compact backfill within 3 ft of welded wire facing. At a distance greater than 3 ft, 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*. Bench temporary walls into the sides of excavations where applicable. For temporary geosynthetic walls with top of wall within 5 ft 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.

**Measurement and Payment**

*Temporary Shoring* will be measured and paid in square feet. Temporary walls will be measured as the square feet of exposed wall face area. Cantilever, braced or anchored shoring will be measured as the square feet of exposed shoring face area with the shoring height equal to the difference between the top and bottom of shoring elevations. Define “top of shoring” as where the grade intersects the back of sheet piles or H-piles and timber lagging. Define “bottom of shoring” as where the grade intersects front of sheet piles or H-piles and timber lagging. No measurement will be made for any embedment, shoring extension above top of shoring or pavement thickness above temporary walls.

The contract unit price for *Temporary Shoring* will be full compensation for providing shoring designs, submittals and materials, excavating, backfilling, hauling and removing excavated materials and supplying all labor, tools, equipment and incidentals necessary to construct temporary shoring.

No payment will be made for temporary shoring not shown in the plans or required by the Engineer including shoring for OSHA reasons or the Contractor’s convenience. No value engineering proposals will be accepted based solely on revising or eliminating shoring locations shown in the plans or estimated quantities shown in the bid item sheets as a result of actual field measurements or site conditions.

PCB will be measured and paid in accordance with Section 1170 of the *2012 Standard Specifications*. No additional payment will be made for anchoring PCB for temporary shoring. Costs for anchoring PCB will be incidental to temporary shoring.

Temporary guardrail will be measured and paid for in accordance with Section 862 of the *2012 Standard Specifications*.

Payment will be made under:

**Pay Item**

Temporary Shoring

**Pay Unit**

Square Foot

**TRUCK MOUNTED CHANGEABLE MESSAGE SIGNS:**

(8-21-12)

1101.02

SP11 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.

**GROUT REFERENCES FOR POSITIVE PROTECTION:**

(5-19-15)

1170

SP11 R20

Revise the *2012 Standard Specifications* as follows:

**Page 11-14, Article 1170-2, Materials**, line 30, in the materials table, replace "Freeze-Thaw Durable Grout, Nonshrink" with "Grout, Type 3".

**Page 11-14, Article 1170-2, Materials**, lines 31-32, delete the first paragraph after the materials table.

**PERMANENT SEEDING AND MULCHING:**

(7-1-95)

1660

SP16 R02

The Department desires that permanent seeding and mulching be established on this project as soon as practical after slopes or portions of slopes have been graded. As an incentive to obtain an early stand of vegetation on this project, the Contractor's attention is called to the following:

For all permanent seeding and mulching that is satisfactorily completed in accordance with the requirements of Section 1660 in the *2012 Standard Specifications* and within the following percentages of elapsed contract times, an additional payment will be made to the Contractor as an incentive additive. The incentive additive will be determined by multiplying the number of acres

of seeding and mulching satisfactorily completed times the contract unit bid price per acre for Seeding and Mulching times the appropriate percentage additive.

<b>Percentage of Elapsed Contract Time</b>	<b>Percentage Additive</b>
0% - 30%	30%
30.01% - 50%	15%

Percentage of elapsed contract time is defined as the number of calendar days from the date of availability of the contract to the date the permanent seeding and mulching is acceptably completed divided by the total original contract time.

**STANDARD SPECIAL PROVISION**  
**AVAILABILITY OF FUNDS – TERMINATION OF CONTRACTS**

(5-20-08)

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 Subarticle 108-13(E) of the *2012 Standard Specifications*.

**STANDARD SPECIAL PROVISION**  
**NCDOT GENERAL SEED SPECIFICATION FOR SEED QUALITY**

(5-17-11)

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, Sickledpod, 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:

<b><u>Restricted Noxious Weed</u></b>	<b><u>Limitations per Lb. Of Seed</u></b>	<b><u>Restricted Noxious Weed</u></b>	<b><u>Limitations per Lb. of Seed</u></b>
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)	Bermudagrass
Kobe Lespedeza	Browntop Millet
Korean Lespedeza	German Millet – Strain R
Weeping Lovegrass	Clover – Red/White/Crimson
Carpetgrass	

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. 04-21-15)

Z-4

Revise the *2012 Standard Specifications* 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 3**

**Page 3-1, after line 15, Article 300-2 Materials**, replace “1032-9(F)” with “1032-6(F)”.

**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 7**

**Page 7-1, Article 700-3, CONCRETE HAULING EQUIPMENT**, line 33, replace “competition” with “completion”.

**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 10-166, Article 1081-3 Hot Bitumen**, replace “Table 1081-16” with “Table 1081-2”, replace “Table 1081-17” with “Table 1081-3”, and replace “Table 1081-18” with “Table 1081-4”.

**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) Backfilling, 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 PROVISION****PLANT AND PEST QUARANTINES****(Imported Fire Ant, Gypsy Moth, Witchweed, And Other Noxious Weeds)**

(3-18-03) (Rev. 10-15-13)

Z-04a

**Within Quarantined Area**

This project may be within a county regulated for plant and/or pests. If the project or any part of the Contractor'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, 919-733-6932, 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.

**STANDARD SPECIAL PROVISION****AWARD OF CONTRACT**

(6-28-77)(Rev 2/16/2016)

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”.

**TITLE VI AND NONDISCRIMINATION****I. Title VI Assurance**

During the performance of this contract, the contractor, for itself, its assignees and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

**(1) Compliance with Regulations:** The contractor shall comply with the Regulation relative to nondiscrimination in Federally-assisted programs of the Department of Transportation (hereinafter, "DOT") Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time, (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this contract.

**(2) Nondiscrimination:** The Contractor, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor shall not participate either directly or indirectly in the discrimination prohibited by section 21.5 of the Regulations, including employment practices when the contract covers a program set forth in Appendix B of the Regulations.

**(3) Solicitations for Subcontractors, Including Procurements of Materials and Equipment:** In all solicitations either by competitive bidding or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the contractor of the contractor's obligations under this contract and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin.

**(4) Information and Reports:** The contractor shall provide all information and reports required by the Regulations or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the North Carolina Department of Transportation (NCDOT) or the Federal Highway Administration (FHWA) to be pertinent to ascertain compliance with such Regulations, orders and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information the contractor shall so certify to the NCDOT, or the FHWA as appropriate, and shall set forth what efforts it has made to obtain the information.

**(5) Sanctions for Noncompliance:** In the event of the contractor's noncompliance with the nondiscrimination provisions of this contract, the NCDOT shall impose such contract sanctions as it or the FHWA may determine to be appropriate, including, but not limited to:

- (a) Withholding of payments to the contractor under the contract until the contractor complies, and/or
- (b) Cancellation, termination or suspension of the contract, in whole or in part.

**(6) Incorporation of Provisions:** The contractor shall include the provisions of paragraphs (1) through (6) in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto.

The contractor shall take such action with respect to any subcontractor procurement as the NCDOT or the FHWA may direct as a means of enforcing such provisions including sanctions for noncompliance: provided, however, that, in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the contractor may request the NCDOT to enter into such litigation to protect the interests of the NCDOT, and, in addition, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

## **II. Title VI Nondiscrimination Program**

Title VI of the 1964 Civil Rights Act, 42 U.S.C. 2000d, provides that: "No person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." The broader application of nondiscrimination law is found in other statutes, executive orders, and regulations (see Section III, Pertinent Nondiscrimination Authorities), which provide additional protections based on age, sex, disability and religion. In addition, the 1987 Civil Rights Restoration Act extends nondiscrimination coverage to all programs and activities of federal-aid recipients and contractors, including those that are not federally-funded.

### *Nondiscrimination Assurance*

The North Carolina Department of Transportation (NCDOT) hereby gives assurance that no person shall on the ground of race, color, national origin, sex, age, and disability, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity conducted by the recipient, as provided by Title VI of the Civil Rights Act of 1964, the Civil Rights Restoration Act of 1987, and any other related Civil Rights authorities, whether those programs and activities are federally funded or not.

### *Obligation*

During the performance of this contract, the Contractor and its subcontractors are responsible for complying with NCDOT's Title VI Program. The Contractor must ensure that NCDOT's Notice of Nondiscrimination is posted in conspicuous locations accessible to all employees and subcontractors on the jobsite, along with the Contractor's own Equal Employment Opportunity (EEO) Policy Statement. The Contractor shall physically incorporate this "**TITLE VI AND NONDISCRIMINATION**" language, in its entirety, into all its subcontracts on federally-assisted and state-funded NCDOT-owned projects, and ensure its inclusion by subcontractors into all subsequent lower tier subcontracts. The Contractor and its subcontractors shall also physically incorporate the **FHWA-1273**, in its entirety, into all subcontracts and subsequent lower tier subcontracts on Federal-aid highway construction contracts only. The Contractor is also

responsible for making its subcontractors aware of NCDOT's Discrimination Complaints Process, as follows:

### FILING OF COMPLAINTS

1. **Applicability** – These complaint procedures apply to the beneficiaries of the NCDOT's programs, activities, and services, including, but not limited to, members of the public, contractors, subcontractors, consultants, and other sub-recipients of federal and state funds.
2. **Eligibility** – Any person or class of persons who believes he/she has been subjected to discrimination or retaliation prohibited by any of the Civil Rights authorities, based upon race, color, sex, age, national origin, or disability, may file a written complaint with NCDOT's Civil Rights office. The law prohibits intimidation or retaliation of any sort. The complaint may be filed by the affected individual or a representative, and must be in writing.
3. **Time Limits and Filing Options** – A complaint must be filed no later than 180 calendar days after the following:
  - The date of the alleged act of discrimination; or
  - The date when the person(s) became aware of the alleged discrimination; or
  - Where there has been a continuing course of conduct, the date on which that conduct was discontinued or the latest instance of the conduct.

Title VI and other discrimination complaints may be submitted to the following entities:

- **North Carolina Department of Transportation**, Office of Equal Opportunity & Workforce Services (EOWS), External Civil Rights Section, 1511 Mail Service Center, Raleigh, NC 27699-1511; 919-508-1808 or toll free 800-522-0453
- **US Department of Transportation**, Departmental Office of Civil Rights, External Civil Rights Programs Division, 1200 New Jersey Avenue, SE, Washington, DC 20590; 202-366-4070

**Federal Highway Administration**, North Carolina Division Office, 310 New Bern Avenue, Suite 410, Raleigh, NC 27601, 919-747-7010

**Federal Highway Administration**, Office of Civil Rights, 1200 New Jersey Avenue, SE, 8<sup>th</sup> Floor, E81-314, Washington, DC 20590, 202-366-0693 / 366-0752

**Federal Transit Administration**, Office of Civil Rights, ATTN: Title VI Program Coordinator, East Bldg. 5<sup>th</sup> Floor – TCR, 1200 New Jersey Avenue, SE, Washington, DC 20590

**Federal Aviation Administration**, Office of Civil Rights, 800 Independence Avenue, SW, Washington, DC 20591, 202-267-3258

- **US Department of Justice**, Special Litigation Section, Civil Rights Division, 950 Pennsylvania Avenue, NW, Washington, DC 20530, 202-514-6255 or toll free 877-218-5228

4. **Format for Complaints** – Complaints must be in **writing** and **signed** by the complainant(s) or a representative and include the complainant's name, address, and telephone number. Complaints received by fax or e-mail will be acknowledged and processed. Allegations received by telephone will be reduced to writing and provided to the complainant for confirmation or revision before processing. Complaints will be accepted in other languages including Braille.
5. **Discrimination Complaint Form** – Contact NCDOT EOWS at the phone number above to receive a full copy of the Discrimination Complaint Form and procedures.

- 6. Complaint Basis** – Allegations must be based on issues involving race, color, national origin, sex, age, or disability. The term “basis” refers to the complainant’s membership in a protected group category. Contact this office to receive a Discrimination Complaint Form.

Protected Categories	Definition	Examples	Applicable Statutes and Regulations	
			FHWA	FTA
Race	An individual belonging to one of the accepted racial groups; or the perception, based usually on physical characteristics that a person is a member of a racial group	Black/African American, Hispanic/Latino, Asian, American Indian/Alaska Native, Native Hawaiian/Pacific Islander, White	Title VI of the Civil Rights Act of 1964; 49 CFR Part 21; 23 CFR 200	Title VI of the Civil Rights Act of 1964; 49 CFR Part 21; Circular 4702.1B
Color	Color of skin, including shade of skin within a racial group	Black, White, brown, yellow, etc.		
National Origin	Place of birth. Citizenship is not a factor. Discrimination based on language or a person’s accent is also covered.	Mexican, Cuban, Japanese, Vietnamese, Chinese		
Sex	Gender	Women and Men	1973 Federal-Aid Highway Act	Title IX of the Education Amendments of 1972
Age	Persons of any age	21 year old person	Age Discrimination Act of 1975	
Disability	Physical or mental impairment, permanent or temporary, or perceived.	Blind, alcoholic, paraplegic, epileptic, diabetic, arthritic	Section 504 of the Rehabilitation Act of 1973; Americans with Disabilities Act of 1990	

### III. Pertinent Nondiscrimination Authorities

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest agrees to comply with the following non-discrimination statutes and authorities, including, but not limited to:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d *et seq.*, 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin); and 49 CFR Part 21.
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 *et seq.*), (prohibits discrimination on the basis of sex);
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 *et seq.*), as amended, (prohibits discrimination on the basis of disability); and 49 CFR Part 27;

- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 *et seq.*), (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms “programs or activities” to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131 – 12189) as implemented by Department of Transportation regulations at 49 C.F.R. parts 37 and 38;
- The Federal Aviation Administration’s Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 *et seq.*).
- Title VII of the Civil Rights Act of 1964 (42 U.S.C. § 2000e *et seq.*, Pub. L. 88-352), (prohibits employment discrimination on the basis of race, color, religion, sex, or national origin);
- 49 CFR Part 26, regulation to ensure nondiscrimination in the award and administration of DOT-assisted contracts in the Department's highway, transit, and airport financial assistance programs, as regards the use of Disadvantaged Business Enterprises (DBEs);
- Form FHWA-1273, “Required Contract Provisions,” a collection of contract provisions and proposal notices that are generally applicable to *all Federal-aid construction projects* and must be made a part of, and physically incorporated into, *all federally-assisted contracts*, as well as appropriate subcontracts and purchase orders, particularly Sections II (Nondiscrimination) and III (Nonsegregated Facilities).

**STANDARD SPECIAL PROVISION****MINORITY AND FEMALE EMPLOYMENT REQUIREMENTS**

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:
- 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.
  - 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.
  - 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.
  - 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.
- The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.
  - The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.
10. **Assurance Required by 49 CFR 26.13(b):**
- The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.
  - The contractor or subcontractor shall not discriminate on the basis of race, color, religion, sex, 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.
- The records kept by the contractor shall document the following:
    - The number and work hours of minority and non-minority group members and women employed in each work classification on the project;
    - The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and
    - The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;
  - 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

- 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.

#### VI. 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 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 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****ON-THE-JOB TRAINING**

(10-16-07) (Rev. 4-21-15)

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.\

**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****NAME CHANGE FOR NCDENR**

(1-19-16)

Z-11

**Description**

Wherever in the 2012 Standard Specifications, Project Special Provisions, Standard Special Provisions, Permits or Plans that reference is made to “NCDENR” or “North Carolina Department of Environment and Natural Resources”, replace with “NCDEQ” or “North Carolina Department of Environmental Quality” respectively, as the case may be.

**STANDARD SPECIAL PROVISION**  
**MINIMUM WAGES**  
**GENERAL DECISION NC160099 01/08/2016 NC99**

Z-099

Date: January 8, 2016

General Decision Number: NC160099 01/08/2016 NC99

Superseded General Decision Numbers: NC20150099

State: North Carolina

Construction Type: HIGHWAY

**COUNTIES:**

Alleghany	Jackson	Surry
Ashe	Lincoln	Swain
Avery	Macon	Transylvania
Cherokee	McDowell	Watauga
Clay	Mitchell	Wilkes
Cleveland	Polk	Yancey
Graham	Rutherford	

**HIGHWAY CONSTRUCTION PROJECTS** (excluding tunnels, building structures in rest area projects & railroad construction; bascule, suspension & spandrel arch bridges designed for commercial navigation, bridges involving marine construction; and other major bridges).

Note: Executive Order (EO) 13658 establishes an hourly minimum wage of \$10.15 for calendar year 2016 that applies to all contracts subject to the Davis-Bacon Act for which the solicitation is issued on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.15 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract for calendar year 2016. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at [www.dol.gov/whd/govcontracts](http://www.dol.gov/whd/govcontracts).

Modification Number  
0

Publication Date  
01/08/2016

SUNC2014-001 11/13/2014

	Rates	Fringes
BLASTER	21.83	
CARPENTER	12.54	
CEMENT MASON/CONCRETE FINISHER	14.10	
ELECTRICIAN		
Electrician	19.19	2.39
Telecommunications Technician	15.13	
IRONWORKER	14.53	
LABORER		
Asphalt Raker and Spreader	12.23	

	Rates	Fringes
Asphalt Screed/Jackman	15.22	
Carpenter Tender	10.00	
Cement Mason/Concrete Finisher Tender	12.26	
Common or General	10.68	
Guardrail/Fence Installer	13.43	
Pipelaye	12.22	
Traffic Signal/Lighting Installer	15.85	
PAINTER		
Bridge	19.62	
POWER EQUIPMENT OPERATORS		
Asphalt Broom Tractor	11.00	
Bulldozer Fine	16.20	
Bulldozer Rough	13.89	
Concrete Grinder/Groover	24.66	
Crane Boom Trucks	14.44	.53
Crane Other	19.59	
Crane Rough/All-Terrain	21.25	
Drill Operator Rock	15.25	
Drill Operator Structure	20.92	
Excavator Fine	16.11	
Excavator Rough	13.10	
Grader/Blade Fine	19.24	
Grader/Blade Rough	13.07	
Loader 2 Cubic Yards or Less	13.38	
Loader Greater Than 2 Cubic Yards	16.01	
Material Transfer Vehicle (Shuttle Buggy)	17.39	
Mechanic	18.51	
Milling Machine	13.88	
Off-Road Hauler/Water Tanker	13.87	
Oiler/Greaser	14.98	
Pavement Marking Equipment	13.33	
Paver Asphalt	15.68	.05
Roller Asphalt Breakdown	14.05	.06
Roller Asphalt Finish	14.98	.04
Roller Other	11.75	
Scraper Finish	13.87	
Scraper Rough	11.53	
Slip Form Machine	20.79	
Tack Truck/Distributor Operator	14.67	.06
TRUCK DRIVER		
GVWR of 26,000 Lbs or Less	11.72	
GVWR of 26,000 Lbs or Greater	13.50	

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 a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

#### Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 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. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

#### Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

#### Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

**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

**PROJECT SPECIAL PROVISIONS****GEOTECHNICAL**

GEOTEXTILE FOR PAVEMENT STABILIZATION - (1/21/2014)	GT-1.1 - GT-1.2
SPECIAL - MSE RETAINING WALL (SPECIAL)	GT-2.1 - GT-2.11
SPECIAL - SOIL NAIL RETAINING WALL (SPECIAL)	GT-3.1 - GT-3.13
STANDARD SHORING - (3/17/2015)	GT-4.1 - GT-4.4
TEMPORARY SOIL NAIL WALLS - (3/17/2015)	GT-5.1 - GT-5.9
TOE BENCHING EXCAVATION (SPECIAL)	GT-6.1 - GT-6.2
ROCK BUTTRESS EMBANKMENT (SPECIAL)	GT-7.1 - GT-7.2

DocuSigned by:  
*Geotechnical Engineering Unit*  
E06538624A11498...

9/16/2016

**GEOTEXTILE FOR PAVEMENT STABILIZATION:****(1-21-14)****Description**

Furnish and place geotextile for pavement stabilization in accordance with the contract. Geotextile for pavement stabilization may be required to prevent pavement cracking and provide separation between the subgrade and pavement section at locations shown in the plans and as directed.

**Materials**

Refer to Division 10 of the *Standard Specifications*.

**Item**

Geotextiles

**Section**

1056

Provide Type 5 geotextile for geotextile for pavement stabilization that meets the following requirements:

<b>GEOTEXTILE FOR PAVEMENT STABILIZATION REQUIREMENTS</b>		
<b>Property</b>	<b>Requirement (MARV<sup>A</sup>)</b>	<b>Test Method</b>
Tensile Strength @ 5% Strain (MD & CD <sup>A</sup> )	1,900 lb/ft	ASTM D4595
Ultimate Tensile Strength (MD & CD <sup>A</sup> )	4,800 lb/ft	ASTM D4595
Melting Point	300° F	ASTM D276

A. Define “minimum average roll value” (MARV), “machine direction” (MD) and “cross-machine direction” (CD) in accordance with ASTM D4439.

**Construction Methods**

Notify the Engineer when the roadbed is completed within 2" of subgrade elevation. The Engineer will sample and test subgrade soils for quality to determine if geotextile for pavement stabilization is required at locations shown in the plans and other locations as directed. For subgrades without stabilization, allow 24 days to determine if geotextile for pavement stabilization is required. For stabilized subgrades with geotextile for pavement stabilization, stabilize subgrade soils to 12" beyond the base course as shown in the plans.

Place geotextile for pavement stabilization on subgrades immediately below pavement sections as shown in the plans and in slight tension free of kinks, folds, wrinkles or creases. Install geotextiles with the MD perpendicular to the roadway centerline. The MD is the direction of the length or long dimension of the geotextile roll. Do not splice or overlap geotextiles in the MD so splices or overlaps are parallel to the roadway centerline. Extend geotextile for pavement stabilization 12" beyond the base course as shown in the plans.

Completely cover subgrades with geotextile for pavement stabilization so geotextiles are adjacent to each other in the CD, i.e., perpendicular to the MD. The CD is the direction of the width or short dimension of the geotextile roll. Overlapping geotextiles in the CD is permitted but not required. Overlap geotextiles in the direction that base course will be placed to prevent lifting the edge of the top geotextile.

For asphalt base courses, asphalt mixture temperatures in the truck may not exceed 315° F at the time of placement. Do not damage geotextile for pavement stabilization when constructing base

courses. Place and compact base courses in accordance with the *Standard Specifications*. Do not operate heavy equipment on geotextiles any more than necessary to construct pavement sections. Replace any damaged geotextiles to the satisfaction of the Engineer.

**Measurement and Payment**

*Geotextile for Pavement Stabilization* will be measured and paid in square yards. Geotextiles will be measured along subgrades as the square yards of exposed geotextiles before placing base courses. No measurement will be made for overlapping geotextiles. The contract unit price for *Geotextile for Pavement Stabilization* will be full compensation for providing, transporting and placing geotextiles.

Payment will be made under:

**Pay Item**

Geotextile for Pavement Stabilization

**Pay Unit**

Square Yard



DocuSigned by:  
*Scott A. Hidden*  
F760CAEB96FC4D3...

7/12/2016

**MECHANICALLY STABILIZED EARTH RETAINING WALLS****(SPECIAL)****1.0 GENERAL**

Construct mechanically stabilized earth (MSE) retaining walls consisting of steel or geosynthetic reinforcement in the reinforced zone connected to vertical facing elements. Use precast concrete panels for vertical facing elements and coarse aggregate in the reinforced zone unless noted otherwise in the plans. Provide reinforced concrete coping as required. Design and construct MSE retaining walls based on actual elevations and wall dimensions in accordance with the contract and accepted submittals. Use a prequalified MSE Wall Installer to construct MSE retaining walls.

Define “reinforcement” as steel or geosynthetic reinforcement and “geosynthetics” as geosynthetic grids (geogrids) or strips (geostrips). Define “aggregate” as coarse or fine aggregate. Define “panel” as a precast concrete panel and “coping” as precast or cast-in-place concrete coping.

Define “MSE wall” as a mechanically stabilized earth retaining wall and “MSE Wall Vendor” as the vendor supplying the chosen MSE wall system. Define “MSE panel wall” as an MSE wall with panels and “MSE segmental wall” as an MSE wall with segmental retaining wall (SRW) units. Define “abutment wall” as an MSE wall with bridge foundations in any portion of the reinforced zone or an MSE wall connected to an abutment wall. Even if bridge foundations only penetrate a small part of the reinforced zone, the entire MSE wall is considered an abutment wall.

Use an approved MSE wall system in accordance with the plans and any NCDOT restrictions or exceptions for the chosen system. Value engineering proposals for other MSE wall systems will not be considered. Do not use MSE wall systems with an “approved for provisional use” status for abutment walls or MSE walls subject to scour, walls with design heights greater than 35 ft or walls supporting or adjacent to railroads or interstate highways. The list of approved MSE wall systems with approval status is available from:

[connect.ncdot.gov/resources/Geological/Pages/Products.aspx](http://connect.ncdot.gov/resources/Geological/Pages/Products.aspx)

**2.0 MATERIALS**

Refer to the *Standard Specifications*.

<b>Item</b>	<b>Section</b>
Aggregate	1014
Anchor Pins	1056-2
Curing Agents	1026
Epoxy, Type 3A	1081
Geotextiles, Type 2	1056
Grout, Type 3	1003
Joint Materials	1028
Portland Cement Concrete, Class A	1000
Precast Retaining Wall Coping	1077
Reinforcing Steel	1070

Retaining Wall Panels	1077
Segmental Retaining Wall Units	1040-4
Shoulder Drain Materials	816-2
Wire Staples	1060-8(D)

Provide Type 2 geotextile for filtration and separation geotextiles. Use Class A concrete for cast-in-place coping, leveling concrete and pads.

Use panels and SRW units from producers approved by the Department and licensed by the MSE Wall Vendor. Unless required otherwise in the contract, produce panels with a smooth flat final finish that meets Article 1077-11 of the *Standard Specifications*. Accurately locate and secure reinforcement connectors in panels and maintain required concrete cover. Produce panels within 1/4" of the panel dimensions shown in the accepted submittals.

Damaged panels or SRW units with excessive discoloration, chips or cracks as determined by the Engineer will be rejected. Do not damage reinforcement connection devices or mechanisms in handling or storing panels and SRW units.

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. Handle and store geosynthetics in accordance with Article 1056-2 of the *Standard Specifications*. Load, transport, unload and store MSE wall materials so materials are kept clean and free of damage. Bent, damaged or defective materials will be rejected.

#### A. Aggregate

Use standard size No. 57, 57M, 67 or 78M that meets Table 1005-1 of the *Standard Specifications* for coarse aggregate except do not use No. 57 or 57M stone in the reinforced zone of MSE walls with geosynthetic reinforcement or connectors. Use the following for fine aggregate:

1. Standard size No. 1S, 2S, 2MS or 4S that meets Table 1005-2 of the *Standard Specifications* or
2. Gradation that meets Class III, Type 3 select material in accordance with Article 1016-3 of the *Standard Specifications*.

Fine aggregate is exempt from mortar strength in Subarticle 1014-1(E) of the *Standard Specifications*. Use fine aggregate with a maximum organic content of 1.0%. Provide aggregate with electrochemical properties that meet the following requirements:

AGGREGATE ELECTROCHEMICAL REQUIREMENTS					
Aggregate Type	Reinforcement or Connector Material	pH	Resistivity	Chlorides	Sulfates
Coarse	Steel	Not Required			
Fine	Steel	5 – 10	$\geq 3,000 \Omega \cdot \text{cm}$	$\leq 100 \text{ ppm}$	$\leq 200 \text{ ppm}$

Coarse or Fine	Polyester Type (PET) Geogrid	5 – 8	N/A*	N/A*	N/A*
Coarse or Fine	Geostrip or Polyolefin Geogrid	4.5 – 9	N/A*	N/A*	N/A*

\* Resistivity, chlorides and sulfates are not applicable to geosynthetics.

Use aggregate from a source that meets the *Mechanically Stabilized Earth Wall Aggregate Sampling and Testing Procedures*. Perform pH tests for coarse aggregate in accordance with Materials and Tests (M&T) Unit Chemical Procedure C-Elec. Perform organic content tests for fine aggregate in accordance with AASHTO T 267 instead of Subarticle 1014-1(D) of the *Standard Specifications*. Perform electrochemical tests for fine aggregate in accordance with the following test procedures:

Property	Test Method
pH	AASHTO T 289
Resistivity	AASHTO T 288
Chlorides	AASHTO T 291
Sulfates	AASHTO T 290

## B. Reinforcement

Provide steel or geosynthetic reinforcement supplied by the MSE Wall Vendor or a manufacturer approved or licensed by the vendor. Use reinforcement approved for the chosen MSE wall system. The list of approved reinforcement for each MSE wall system is available from the website shown elsewhere in this provision.

### 1. Steel Reinforcement

Provide Type 1 material certifications in accordance with Article 106-3 of the *Standard Specifications* for steel reinforcement. Use welded wire grid reinforcement (“mesh”, “mats” and “ladders”) that meet Article 1070-3 of the *Standard Specifications* and metallic strip reinforcement (“straps”) that meet ASTM A572 or A1011. Galvanize steel reinforcement in accordance with Section 1076 of the *Standard Specifications*.

### 2. Geosynthetic Reinforcement

Define “machine direction” (MD) for geosynthetics in accordance with ASTM D4439. Provide Type 1 material certifications for geosynthetic strengths in the MD in accordance with Article 1056-3 of the *Standard Specifications*. Test geosynthetics in accordance with ASTM D6637.

### C. Bearing Pads

For MSE panel walls, use bearing pads that meet Section 3.6.1.a of the *FHWA Design and Construction of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes – Volume I* (Publication No. FHWA-NHI-10-024). Provide bearing pads with thicknesses that meet the following:

<b>BEARING PAD THICKNESS</b>	
<b>Facing Area per Panel (A)</b>	<b>Minimum Pad Thickness After Compression (based on 2 times panel weight above pads)</b>
$A \leq 30$ sf	1/2"
$30 \text{ sf} < A \leq 75$ sf	3/4"

### D. Miscellaneous Components

Miscellaneous components may include connectors (e.g., anchors, bars, clamps, pins, plates, ties, etc.), fasteners (e.g., bolts, nuts, washers, etc.) and any other MSE wall components not included above. Galvanize steel components in accordance with Section 1076 of the *Standard Specifications*. Provide miscellaneous components approved for the chosen MSE wall system. The list of approved miscellaneous components for each MSE wall system is available from the website shown elsewhere in this provision.

### E. Ashlar Architectural Finish

Create an Ashlar Architectural Finish on the exposed wall face. The pattern is to have a minimum/maximum relief of 0.5"/1.0", or as directed by the Engineer. The selected Ashlar pattern is to be approved by the Engineer prior to ordering or placement in the forms. The coping is to be smooth finished.

## 3.0 PRECONSTRUCTION REQUIREMENTS

### A. MSE Wall Surveys

The Retaining Wall Plans show a plan view, typical sections, details, notes and an elevation or profile view (wall envelope) for each MSE wall. Before beginning MSE wall design, survey existing ground elevations shown in the plans and other elevations in the vicinity of MSE wall locations as needed. For proposed slopes above or below MSE walls, survey existing ground elevations to at least 10 ft beyond slope stake points. Based on these elevations, finished grades and actual MSE wall dimensions and details, submit revised wall envelopes for acceptance. Use accepted wall envelopes for design.

## B. MSE Wall Designs

For MSE wall designs, submit 11 copies of working drawings and 3 copies of design calculations and a PDF copy of each at least 30 days before the preconstruction meeting. Note name and NCDOT ID number of the panel or SRW unit production facility on the working drawings. Do not begin MSE wall construction until a design submittal is accepted.

Use a prequalified MSE Wall Design Consultant to design MSE walls. Provide designs sealed by a Design Engineer approved as a Geotechnical Engineer (key person) for the MSE Wall Design Consultant.

Design MSE walls in accordance with the plans, *AASHTO LRFD Bridge Design Specifications* and any NCDOT restrictions for the chosen MSE wall system unless otherwise required. Design MSE walls for seismic if walls are located in seismic zone 2 based on Figure 2-1 of the *Structure Design Manual*. Use a uniform reinforcement length throughout the wall height of at least  $0.7H$  with  $H$  as shown in the plans or 6 ft, whichever is longer, unless noted otherwise in the plans. Extend the reinforced zone at least 6" beyond end of reinforcement. Do not locate drains, the reinforced zone or leveling pads outside right-of-way or easement limits.

Use the simplified method for determining maximum reinforcement loads and design parameters approved for the chosen MSE wall system or default values in accordance with the AASHTO LRFD specifications. Design steel components including reinforcement and connectors for the design life noted in the plans and aggregate type in the reinforced zone. Use corrosion loss rates for galvanizing in accordance with the AASHTO LRFD specifications for nonaggressive backfill and carbon steel corrosion rates in accordance with the following:

<b>CARBON STEEL CORROSION RATES</b>	
<b>Aggregate Type (in reinforced zone)</b>	<b>Corrosion Loss Rate (after zinc depletion)</b>
Coarse	0.47 mil/year
Fine (except abutment walls)	0.58 mil/year
Fine (abutment walls)	0.70 mil/year

For geosynthetic reinforcement and connectors, use approved geosynthetic properties for the design life noted in the plans and aggregate type in the reinforced zone.

When noted in the plans, design MSE walls for a live load (traffic) surcharge of 250 lb/sf in accordance with Figure C11.5.6-3(b) of the AASHTO LRFD specifications. For steel beam guardrail with 8 ft posts or concrete barrier rail above MSE walls, analyze top 2 reinforcement layers for traffic impact loads in accordance with Section 7.2 of the FHWA MSE wall manual shown elsewhere in this provision except use the following for geosynthetic reinforcement rupture:

$$\phi T_{al} R_c \geq T_{max} + (T_I / RF_{CR})$$

Where,

- $\phi$  = resistance factor for tensile resistance in accordance with Section 7.2.1 of the FHWA MSE wall manual,
- $T_{al}$  = long-term geosynthetic design strength approved for chosen MSE wall system,
- $R_c$  = reinforcement coverage ratio = 1 for continuous geosynthetic reinforcement,
- $T_{max}$  = factored static load in accordance with Section 7.2 of the FHWA MSE wall manual,
- $T_I$  = factored impact load in accordance with Section 7.2 of the FHWA MSE wall manual and
- $RF_{CR}$  = creep reduction factor approved for chosen MSE wall system.

If existing or future obstructions such as foundations, guardrail, fence or handrail posts, moment slabs, pavements, pipes, inlets or utilities will interfere with reinforcement, maintain a clearance of at least 3" between obstructions and reinforcement unless otherwise approved. Locate reinforcement layers so all of reinforcement length is within 3" of corresponding connection elevations.

Use 6" thick cast-in-place unreinforced concrete leveling pads beneath panels and SRW units that are continuous at steps and extend at least 6" in front of and behind bottom row of panels or SRW units. Unless required otherwise in the plans, embed top of leveling pads in accordance with the following requirements:

<b>EMBEDMENT REQUIREMENTS</b>		
<b>Front Slope<sup>1</sup> (H:V)</b>	<b>Minimum Embedment Depth<sup>2</sup> (whichever is greater)</b>	
6:1 or flatter (except abutment walls)	H/20	1 ft for H ≤ 10 ft 2 ft for H > 10 ft
6:1 or flatter (abutment walls)	H/10	2 ft
> 6:1 to < 3:1	H/10	2 ft
3:1 to 2:1	H/7	2 ft

1. Front slope is as shown in the plans.
2. Define "H" as the maximum design height plus embedment per wall with the design height and embedment as shown in the plans.

When noted in the plans, locate a continuous aggregate shoulder drain along the base of the reinforced zone behind the aggregate. Provide wall drainage systems consisting of drains and outlet components in accordance with Standard Drawing No. 816.02 of the *Roadway Standard Drawings*.

For MSE panel walls, cover joints at back of panels with filtration geotextiles at least 12" wide. If the approval of the chosen MSE wall system does not require a minimum number of bearing pads, provide the number of pads in accordance with the following:

NUMBER OF BEARING PADS		
Facing Area per Panel (A)	Maximum Wall Height Above Horizontal Panel Joint	Minimum Number of Pads per Horizontal Panel Joint
$A \leq 30$ sf	25 ft	2
	35 ft <sup>1</sup>	3
$30 \text{ sf} < A \leq 75$ sf	25 ft	3
	35 ft <sup>1</sup>	4

1. Additional bearing pads per horizontal panel joint may be required for wall heights above joints greater than 35 ft.

For MSE segmental walls, coarse aggregate is required in any SRW unit core spaces and between and behind SRW units for a horizontal distance of at least 18". Separation geotextiles are required between the aggregate and overlying fill or pavement sections except when concrete pavement, full depth asphalt or cement treated base is placed directly on aggregate. When noted in the plans, separation geotextiles are also required at the back of the reinforced zone between the aggregate and backfill or natural ground. Unless required otherwise in the plans, use reinforced concrete coping at top of walls that meets the following requirements:

1. Coping dimensions as shown in the plans,
2. At the Contractor's option, coping that is precast or cast-in-place concrete for MSE panel walls unless cast-in-place coping is required as shown in the plans,
3. Cast-in-place concrete coping for MSE segmental walls and
4. At the Contractor's option and when shown in the plans, cast-in-place concrete coping that extends down back of panels or SRW units or connects to panels or SRW units with dowels.

For MSE segmental walls with dowels, attach dowels to top courses of SRW units in accordance with the following:

1. Set dowels in core spaces of SRW units filled with grout instead of coarse aggregate or
2. Embed adhesively anchored dowels in holes of solid SRW units with epoxy.

For MSE panel walls with coping, connect cast-in-place concrete coping or leveling concrete for precast concrete coping to top row of panels with dowels cast into panels. When concrete barrier rail is required above MSE walls, use concrete barrier rail with moment slab as shown in the plans.

Submit working drawings and design calculations for acceptance in accordance with Article 105-2 of the *Standard Specifications*. Submit working drawings showing plan views, wall profiles with foundation pressures, typical sections with reinforcement and

connection details, aggregate locations and types, geotextile locations and details of leveling pads, panels or SRW units, coping, bin walls, slip joints, etc. If necessary, include details on working drawings for concrete barrier rail with moment slab, reinforcement splices if allowed for the chosen MSE wall system, reinforcement connected to end bent caps and obstructions extending through walls or interfering with reinforcement, leveling pads, barriers or moment slabs. Submit design calculations for each wall section with different surcharge loads, geometry or material parameters. At least one analysis is required for each wall section with different reinforcement lengths. When designing MSE walls with computer software other than MSEW, use MSEW, version 3.0 with update 14.93 or later, manufactured by ADAMA Engineering, Inc. to verify the design. At least one MSEW analysis is required per 100 ft of wall length with at least one analysis for the wall section with the longest reinforcement. Submit electronic MSEW input files and PDF output files with design calculations.

#### C. Preconstruction Meeting

Before starting MSE wall construction, hold a preconstruction meeting to discuss the construction and inspection of the MSE walls. If this meeting occurs before all MSE wall submittals have been accepted, additional preconstruction meetings may be required before beginning construction of MSE walls without accepted submittals. The Resident or Bridge Maintenance Engineer, Bridge Construction Engineer, Geotechnical Operations Engineer, Contractor and MSE Wall Installer Superintendent will attend preconstruction meetings.

### 4.0 CORROSION MONITORING

Corrosion monitoring is required for MSE walls with steel reinforcement. The Engineer will determine the number of monitoring locations and where to install the instrumentation. Contact M&T before beginning wall construction. M&T will provide the corrosion monitoring instrumentation kits and if necessary, assistance with installation.

### 5.0 SITE ASSISTANCE

Unless otherwise approved, provide an MSE Wall Vendor representative to assist and guide the MSE Wall Installer on-site for at least 8 hours when the first panels or SRW units and reinforcement layer are placed. If problems are encountered during construction, the Engineer may require the vendor representative to return to the site for a time period determined by the Engineer.

### 6.0 CONSTRUCTION METHODS

Control drainage during construction in the vicinity of MSE walls. Direct run off away from MSE walls, aggregate and backfill. Contain and maintain aggregate and backfill and protect material from erosion.

Excavate as necessary for MSE walls in accordance with the accepted submittals. If applicable and at the Contractor's option, use temporary shoring for wall construction instead of temporary slopes to construct MSE walls. Define "temporary shoring for wall

construction” as temporary shoring not shown in the plans or required by the Engineer including shoring for OSHA reasons or the Contractor’s convenience.

Unless required otherwise in the plans, install foundations located in the reinforced zone before placing aggregate or reinforcement. Brace piles in the reinforced zone to maintain alignment when placing and compacting aggregate. Secure piles together with steel members near top of piles. Clamp members to piles instead of welding if bracing is at or below pile cut-off elevations.

Notify the Engineer when foundation excavation is complete. Do not place leveling pad concrete, aggregate or reinforcement until excavation dimensions and foundation material are approved.

Construct cast-in-place concrete leveling pads at elevations and with dimensions shown in the accepted submittals and in accordance with Section 420 of the *Standard Specifications*. Cure leveling pads at least 24 hours before placing panels or SRW units.

Erect and support panels and stack SRW units so the final wall position is as shown in the accepted submittals. Stagger SRW units to create a running bond by centering SRW units over joints in the row below as shown in the accepted submittals. Space bearing pads in horizontal panel joints as shown in the accepted submittals and cover all panel joints with filtration geotextiles as shown in the accepted submittals. Attach filtration geotextiles to back of panels with adhesives, tapes or other approved methods.

Construct MSE walls with the following tolerances:

- A. SRW units are level from front to back and between units when checked with a 4 ft long level,
- B. Vertical joint widths are 1/4" maximum for SRW units and 3/4",  $\pm 1/4$ " for panels,
- C. Final wall face is within 3/4" of horizontal and vertical alignment shown in the accepted submittals when measured along a 10 ft straightedge and
- D. Final wall plumbness (batter) is not negative (wall face leaning forward) and within 0.5° of vertical unless otherwise approved.

Place reinforcement at locations and elevations shown in the accepted submittals and within 3" of corresponding connection elevations. Install reinforcement with the direction shown in the accepted submittals. Place reinforcement in slight tension free of kinks, folds, wrinkles or creases. Reinforcement may be spliced once per reinforcement length if shown in the accepted submittals. Use reinforcement pieces at least 6 ft long. Contact the Engineer when unanticipated existing or future obstructions such as foundations, guardrail, fence or handrail posts, pavements, pipes, inlets or utilities will interfere with reinforcement. To avoid obstructions, deflect, skew or modify reinforcement as shown in the accepted submittals.

Place aggregate in the reinforced zone in 8" to 10" thick lifts. Compact fine aggregate in accordance with Subarticle 235-3(C) of the *Standard Specifications*. Use only hand operated compaction equipment to compact aggregate within 3 ft of panels or SRW units. At a distance greater than 3 ft, compact aggregate 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 aggregate. Do not use sheepsfoot, grid rollers or other types of compaction equipment with feet. Do not displace or damage reinforcement when placing and compacting aggregate. End dumping directly on geosynthetics is not permitted. Do not operate heavy equipment on reinforcement until it is covered with at least 8" of aggregate. Replace any damaged reinforcement to the satisfaction of the Engineer.

Backfill for MSE walls outside the reinforced zone in accordance with Article 410-8 of the *Standard Specifications*. If a drain is required, install wall drainage systems as shown in the accepted submittals and in accordance with Section 816 of the *Standard Specifications*.

Install dowels as necessary for SRW units and place and construct coping and leveling concrete as shown in the accepted submittals. Construct leveling concrete in accordance with Section 420 of the *Standard Specifications*. Construct cast-in-place concrete coping in accordance with Subarticle 452-3(C) of the *Standard Specifications*. When single faced precast concrete barrier is required in front of and against MSE walls, stop coping just above barrier so coping does not interfere with placing barrier up against wall faces.

When separation geotextiles are required, overlap adjacent geotextiles at least 18" and hold separation geotextiles in place with wire staples or anchor pins as needed. Seal joints above and behind MSE walls between coping and concrete slope protection with silicone sealant.

## **7.0 MEASUREMENT AND PAYMENT**

*MSE Retaining Wall Nos. 1, 2, and 3* will be measured and paid in square feet. MSE walls will be measured as the square feet of wall face area with the pay height equal to the difference between top of wall and top of leveling pad elevations. Define "top of wall" as top of coping or top of panels or SRW units for MSE walls without coping.

The contract unit price for *MSE Retaining Wall Nos. 1, 2, and 3* will be full compensation for providing designs, submittals, labor, tools, equipment and MSE wall materials, excavating, backfilling, hauling and removing excavated materials and supplying site assistance, leveling pads, panels, SRW units, reinforcement, aggregate, wall drainage systems, geotextiles, bearing pads, coping, miscellaneous components and any incidentals necessary to construct MSE walls. The contract unit price for *MSE Retaining Wall Nos. 1, 2, and 3* will also be full compensation for reinforcement connected to and aggregate behind end bent caps in the reinforced zone, if required.

No separate payment will be made for temporary shoring for wall construction. Temporary shoring for wall construction will be incidental to the contract unit price for *MSE Retaining Wall Nos. 1, 2, and 3*.

The contract unit price for *MSE Retaining Wall Nos. 1, 2, and 3* does not include the cost for ditches, fences, handrails, barrier or guardrail associated with MSE walls as these items will be paid for elsewhere in the contract.

Where it is necessary to provide backfill material behind the reinforced zone from sources other than excavated areas or borrow sources used in connection with other work in the contract, payment for furnishing and hauling such backfill material will be paid as extra work in accordance with Article 104-7 of the *Standard Specifications*. Placing and compacting such backfill material is not considered extra work but is incidental to the work being performed.

Payment will be made under:

**Pay Item**

MSE Retaining Wall Nos. \_

**Pay Unit**

Square Foot



DocuSigned by:

Michael Stephens

8196315B3C7046C...

8/1/2016

**SOIL NAIL RETAINING WALLS****(SPECIAL)****1.0 GENERAL**

Construct soil nail retaining walls consisting of soil nails spaced at a regular pattern and connected to a cast-in-place reinforced concrete face. A soil nail consists of a steel bar grouted in a drilled hole inclined at an angle below horizontal. Use shotcrete for temporary support of excavations during construction. Design and construct soil nail retaining walls based on actual elevations and wall dimensions in accordance with the contract and accepted submittals. Use a prequalified Anchored Wall Contractor to construct soil nail retaining walls. Define "soil nail wall" as a soil nail retaining wall and "Soil Nail Wall Contractor" as the Anchored Wall Contractor installing soil nails and applying shotcrete. Define "nail" as a soil nail and "concrete facing" as a cast-in-place reinforced concrete face.

**2.0 MATERIALS**

Refer to the *Standard Specifications*.

<b>Item</b>	<b>Section</b>
Anchor Pins	1056-2
Curing Agents	1026
Geocomposites	1056
Joint Materials	1028
Masonry	1040
Grout, Type 2	1003
Portland Cement Concrete, Class A	1000
Reinforcing Steel	1070
Select Material, Class VI	1016
Shotcrete	1002
Shoulder Drain Materials	816-2
Steel Plates	1072-2
Welded Stud Shear Connectors	1072-6

Provide Class VI select material (standard size No. 57 stone) for leveling pads. Use Class A concrete for concrete facing and neat cement grout for Type 2 grout.

Provide soil nails consisting of grouted steel bars and nail head assemblies. Use epoxy coated or encapsulated deformed steel bars that meet AASHTO M 275 or M 31, Grade 60 or 75. Splice bars in accordance with Article 1070-9 of the *Standard Specifications*. Provide epoxy coated bars that meet Article 1070-7 of the *Standard Specifications*.

For encapsulated bars, use nonperforated corrugated HDPE sheaths at least 0.04" thick that meet AASHTO M 252. Provide at least 0.4" of grout cover between bars and sheathing and at least 0.8" of grout cover between sheathing and drill hole walls.

Fabricate centralizers from schedule 40 PVC plastic pipe or tube, steel or other material not detrimental to steel bars (no wood). Size centralizers to position bars within 1" of drill hole centers and allow tremies to be inserted to ends of holes. Use centralizers that do not interfere with grout placement or flow around bars. Centralizers are required both inside and outside sheaths for encapsulated nails.

Provide nail head assemblies consisting of nuts, washers and bearing plates with welded stud shear connectors. Use steel plates for bearing plates and steel washers and hex nuts recommended by the Soil Nail Manufacturer.

Provide Type 3 material certifications for soil nail materials in accordance with Article 106-3 of the *Standard Specifications*. 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 soil nail wall materials so materials are kept clean and free of damage. Do not crack, fracture or otherwise damage grout inside sheaths of encapsulated nails. Bent, damaged or defective materials will be rejected.

Provide concrete facing and coping meeting the requirements of Section 1000 of the *Standard Specifications*. Use Class A Concrete in accordance with Article 1000-4 of the *Standard Specifications* and curing agents for concrete in accordance with Section 1026 of the *Standard Specifications*.

Create an Ashlar Architectural Finish on the exposed wall face. The pattern is to have a minimum/maximum relief of 0.5"/1.0", or as directed by the Engineer. The selected Ashlar pattern is to be approved by the Engineer prior to ordering or placement in the forms. The coping is to be smooth finished.

### **3.0 PRECONSTRUCTION REQUIREMENTS**

#### **A. Soil Nail Wall Surveys**

The Retaining Wall Plans show a plan view, typical sections, details, notes and an elevation or profile view (wall envelope) for each soil nail wall. Before beginning soil nail wall design, survey existing ground elevations shown in the plans and other elevations in the vicinity of soil nail wall locations as needed. For proposed slopes above or below soil nail walls, survey existing ground elevations to at least 10 ft beyond slope stake points. Based on these elevations, finished grades and actual soil nail wall dimensions and details, submit revised wall envelopes for acceptance. Use accepted wall envelopes for design.

#### **B. Soil Nail Wall Designs**

For soil nail wall designs, submit 11 copies of working drawings and 3 copies of design calculations and a PDF copy of each at least 30 days before the preconstruction meeting. Do not begin soil nail wall construction until a design submittal is accepted.

Use a prequalified Anchored Wall Design Consultant to design soil nail walls. Provide designs sealed by a Design Engineer approved as a Geotechnical Engineer (key person) for the Anchored Wall Design Consultant.

Design soil nail walls in accordance with the plans and allowable stress design method in the *FHWA Geotechnical Engineering Circular No. 7 "Soil Nail Walls"* (Publication No. FHWA-IF-03-017) unless otherwise required. Design soil nail walls for seismic if walls are located in seismic zone 2 based on Figure 2-1 of the *Structure Design Manual*.

Design soil nails that meet the following unless otherwise approved:

1. Horizontal and vertical spacing of at least 3 ft,
2. Inclination of at least 12° below horizontal,
3. Clearance between ends of bars and drill holes of at least 6" and
4. Diameter of 6" to 10".

Four inch diameter soil nails may be approved for nails in rock at the discretion of the Engineer. Do not extend nails beyond right-of-way or easement limits. If existing or future obstructions such as foundations, guardrail, fence or handrail posts, pavements, pipes, inlets or utilities will interfere with nails, maintain a clearance of at least 6" between obstructions and nails.

When noted in the plans, design soil nail walls for a live load (traffic) surcharge of 250 lb/sf. For steel beam guardrail with 8 ft posts above soil nail walls, analyze walls for a horizontal load of 300 lb/ft of wall. For concrete barrier rail above soil nail walls, analyze walls for a horizontal load of 500 lb/ft of wall.

Provide wall drainage systems consisting of geocomposite drain strips, drains and outlet components. Place drain strips with a horizontal spacing of no more than 10 ft and center strips between adjacent nails. Attach drain strips to excavation faces and connect strips to leveling pads. Locate a continuous aggregate shoulder drain along the base of concrete facing in front of leveling pads. Provide drains and outlet components in accordance with Standard Drawing No. 816.02 of the *Roadway Standard Drawings*.

Use shotcrete at least 4" thick and reinforce shotcrete with #4 waler bars around nail heads. Two waler bars (one on each side of nail head) in the horizontal and vertical directions are required for a total of 4 bars per nail.

Use No. 57 stone for aggregate leveling pads. Use 6" thick leveling pads beneath concrete facing. Unless required otherwise in the plans, embed top of leveling pads at least 12" below bottom of walls shown in the plans.

Use concrete facing with the dimensions shown in the plans and attach facing to nail heads with welded stud shear connectors. When concrete barrier rail is required above soil nail walls, use concrete barrier rail with moment slab as shown in the plans.

Submit working drawings and design calculations including unit grout/ground bond strengths for acceptance in accordance with Article 105-2 of the *Standard Specifications*. Submit working drawings showing plan views, wall profiles with nail locations including known test nail locations, typical sections and details of nails, drainage, shotcrete, leveling pads and concrete facing. If necessary, include details on working drawings for concrete barrier rail with moment slab and obstructions extending through walls or interfering with nails, barriers or moment slabs. Submit design calculations for each wall section with different surcharge loads, geometry or material parameters. At least one analysis is required for each wall section with different nail lengths.

When designing soil nail walls with computer software other than SnailWin, use SnailWin version 3.10 or later, developed by the California Department of Transportation (CALTRANS) to verify the design. Use SnailWin in accordance with the following:

1. Pre-factored yield stress (150, 75 or 60 ksi) and punching shear for reinforcement (nail) strengths,
2. Allowable bond strengths for bond stress,
3. Default value of 1.0 for bond stress factor and
4. Pullout controls for all nails, i.e., yield stress or punching shear do not control.

Determine  $T_{\max-s}$  from SnailWin as shown in Table D.4 of FHWA GEC 7 and use the factored maximum design nail force ( $T_{\max-s}/0.55$ ) for design. At least one SnailWin analysis is required per 100 ft of wall length with at least one analysis for the wall section with the longest nails. Submit electronic SnailWin input files and PDF output files with design calculations.

#### C. Soil Nail Wall Construction Plan

Submit 4 copies and a PDF copy of a soil nail wall construction plan at least 30 days before the preconstruction meeting. Do not begin soil nail wall construction until the construction plan submittal is accepted. Provide detailed project specific information in the soil nail wall construction plan that includes the following:

1. Overall description and sequence of soil nail wall construction;
2. List and sizes of excavation equipment, drill rigs and tools, tremies and grouting equipment;
3. Procedures for excavations, drilling and grouting, soil nail and wall drainage system installation and facing construction;
4. Details of shotcrete equipment and application including mix process, test panels, thickness gauges and shooting methods;
5. Shotcrete nozzleman with certification in accordance with Article 1002-1 of the *Standard Specifications*;
6. Plan and methods for nail testing with calibration certificates dated within 90 days of the submittal date;
7. Examples of construction and test nail records to be used in accordance with Sections 4.0(F) and 5.0(E) of this provision;
8. Approved packaged grout or grout mix design with acceptable ranges for flow and density that meets Section 1003 of the *Standard Specifications*;
9. Shotcrete mix design that meets Section 1002 of the *Standard Specifications*; and
10. Other information shown in the plans or requested by the Engineer.

If alternate construction procedures are proposed or necessary, a revised soil nail wall construction plan submittal may be required. If the work deviates from the accepted submittal without prior approval, the Engineer may suspend soil nail wall construction until a revised plan is accepted.

**D. Preconstruction Meeting**

Before starting soil nail wall construction, hold a preconstruction meeting to discuss the construction, inspection and testing of the soil nail walls. If this meeting occurs before all soil nail wall submittals have been accepted, additional preconstruction meetings may be required before beginning construction of soil nail walls without accepted submittals. The Resident or Bridge Maintenance Engineer, Bridge Construction Engineer, Geotechnical Operations Engineer, Contractor and Soil Nail Wall Contractor Superintendent will attend preconstruction meetings.

**4.0 CONSTRUCTION METHODS**

Control drainage during construction in the vicinity of soil nail walls. Direct run off away from soil nail walls and areas above and behind walls.

Notify the Engineer before blasting in the vicinity of soil nail walls. Perform blasting in accordance with the contract. Unless required otherwise in the plans, install foundations located behind soil nail walls before beginning wall construction.

Install soil nail walls in accordance with the accepted submittals and as directed. Do not excavate behind soil nail walls. If overexcavation occurs, repair walls with an approved method and a revised soil nail wall design or construction plan may be required.

**A. Excavation**

Excavate for soil nail walls from the top down in accordance with the accepted submittals. Excavate in staged horizontal lifts with no negative batter (excavation face leaning forward). Excavate lifts in accordance with the following:

1. Heights not to exceed vertical nail spacing,
2. Bottom of lifts no more than 3 ft below nail locations for current lift and
3. Horizontal and vertical alignment within 2" of location shown in the accepted submittals.

Remove any cobbles, boulders, rubble or debris that will protrude more than 2" into the required shotcrete thickness. Rocky ground such as colluvium, boulder fills and weathered rock may be difficult to excavate without leaving voids.

Apply shotcrete to excavation faces within 24 hours of excavating each lift unless otherwise approved. Shotcreting may be delayed if it can be demonstrated that delays will not adversely affect excavation stability. If excavation faces will be exposed for more than 24 hours, use polyethylene sheets anchored at top and bottom of lifts to protect excavation faces from changes in moisture content.

If an excavation becomes unstable at any time, suspend soil nail wall construction and temporarily stabilize the excavation by immediately placing an earth berm up against the unstable excavation face. When this occurs, repair walls with an approved method and a revised soil nail wall design or construction plan may be required.

Do not excavate the next lift until nail installations and testing and shotcrete application for the current lift are accepted and grout and shotcrete for the current lift have cured at least 3 days and 1 day, respectively.

## B. Soil Nails

Install soil nails in the same way as acceptable test nails. Drill and grout nails the same day and do not leave drill holes open overnight.

Control drilling and grouting to prevent excessive ground movements, damaging structures and pavements or fracturing rock and soil formations. If ground heave or subsidence occurs, suspend soil nail wall construction and take corrective action to minimize movement. If property damage occurs, make repairs with an approved method and a revised soil nail wall design or construction plan may be required.

### 1. Drilling

Use drill rigs of the sizes necessary to install soil nails and with sufficient capacity to drill through whatever materials are encountered. Drill straight and clean holes with the dimensions and inclination shown in the accepted submittals. Drill holes within 6" of locations and 2° of inclination shown in the accepted submittals unless otherwise approved.

Stabilize drill holes with temporary casings if unstable, caving or sloughing material is anticipated or encountered. Do not use drilling fluids to stabilize drill holes or remove cuttings.

### 2. Steel Bars

Center steel bars in drill holes with centralizers. Securely attach centralizers along bars at no more than 8 ft centers. Attach uppermost and lowermost centralizers 18" from excavation faces and ends of holes.

Do not insert steel bars into drill holes until hole locations, dimensions, inclination and cleanliness are approved. Do not vibrate, drive or otherwise force bars into holes. If a steel bar cannot be completely and easily inserted into a drill hole, remove the bar and clean or redrill the hole.

### 3. Grouting

Remove oil, rust inhibitors, residual drilling fluids and similar foreign materials from holding tanks/hoppers, stirring devices, pumps, lines, tremie pipes and any other equipment in contact with grout before use. Measure grout temperature, density and flow during grouting with at least the same frequency grout cubes are made for compressive strength. Perform density and flow field tests in the presence of the Engineer in accordance with American National Standards Institute/American Petroleum Institute Recommended Practice 13B-1 (Section 4, Mud Balance) and ASTM C939 (Flow Cone), respectively.

Inject grout at the lowest point of drill holes through tremies, e.g., grout tubes, casings,

hollow-stem augers or drill rods, in one continuous operation. Fill drill holes progressively from ends of holes to excavation faces and withdraw tremies at a slow even rate as holes are filled to prevent voids in grout. Extend tremies into grout at least 5 ft at all times except when grout is initially placed in holes.

Provide grout free of segregation, intrusions, contamination, structural damage or inadequate consolidation (honeycombing). Cold joints in grout are not allowed except for test nails. Remove any temporary casings as grout is placed and record grout volume for each drill hole.

#### 4. Nail Heads

Weld stud shear connectors to bearing plates of nails in accordance with Article 1072-6 of the *Standard Specifications*. Install nail head assemblies after shotcreting. Before shotcrete reaches initial set, seat bearing plates and tighten nuts so plates contact shotcrete uniformly. If uniform contact is not possible, install nail head assemblies on mortar pads so nail heads are evenly loaded.

#### C. Wall Drainage Systems

Install wall drainage systems as shown in the accepted submittals and in accordance with Section 816 of the *Standard Specifications*. Before installing shotcrete reinforcement, place geocomposite drain strips with the geotextile side against excavation faces. For highly irregular faces and at the discretion of the Engineer, drain strips may be placed after shotcreting over weep holes through the shotcrete. Hold drain strips in place with anchor pins so strips are in continuous contact with surfaces to which they are attached and allow for full flow the entire height of soil nail walls. Discontinuous drain strips are not allowed. If splices are needed, overlap drain strips at least 12" so flow is not impeded. Connect drain strips to leveling pads by embedding strip ends at least 4" into No. 57 stone.

#### D. Shotcrete

Clean ungrouted zones of drill holes and excavation faces of loose materials, mud, rebound and other foreign material. Moisten surfaces to receive shotcrete. Install shotcrete reinforcement in accordance with the contract and accepted submittals. Secure reinforcing steel so shooting does not displace or vibrate reinforcement. Install approved thickness gauges on 5 ft centers in the horizontal and vertical directions to measure shotcrete thickness.

Apply shotcrete in accordance with the contract, accepted submittals and Subarticle 1002-3(F) of the *Standard Specifications*. Use approved shotcrete nozzlemen who made satisfactory preconstruction test panels to apply shotcrete. Direct shotcrete at right angles to excavation faces except when shooting around reinforcing steel. Rotate nozzle steadily in small circular patterns and apply shotcrete from bottom of lifts up.

Make shotcrete surfaces uniform and free of sloughing or sagging. Completely fill ungrouted zones of drill holes and any other voids with shotcrete. Taper construction joints to a thin edge over a horizontal distance of at least the shotcrete thickness. Wet joint surfaces before shooting adjacent sections.

Repair surface defects as soon as possible after shooting. Remove any shotcrete which lacks uniformity, exhibits segregation, honeycombing or lamination or contains any voids or sand pockets and replace with fresh shotcrete to the satisfaction of the Engineer. Protect shotcrete from freezing and rain until shotcrete reaches initial set.

#### E. Leveling Pads and Concrete Facing

Construct aggregate leveling pads at elevations and with dimensions shown in the accepted submittals. Compact leveling pads with a vibratory compactor to the satisfaction of the Engineer.

Construct concrete facing in accordance with the accepted submittals and Section 420 of the *Standard Specifications*. Do not remove forms until concrete attains a compressive strength of at least 2,400 psi. Unless required otherwise in the plans, provide a Class 2 surface finish for concrete facing that meets Subarticle 420-17(F) of the *Standard Specifications*. Construct concrete facing joints at a spacing of 10 ft to 12 ft unless required otherwise in the plans. Make 1/2" thick expansion joints that meet Article 420-10 of the *Standard Specifications* for every third joint and 1/2" deep grooved contraction or sawed joints that meet Subarticle 825-10(B) or 825-10(E) respectively for the remaining joints. Stop reinforcing steel for concrete facing 2" on either side of expansion joints.

If a brick veneer is required, construct brick masonry in accordance with Section 830 of the *Standard Specifications*. Anchor brick veneers to soil nail walls with approved brick to concrete type anchors in accordance with the manufacturer's instructions. Space anchors no more than 16" apart in the vertical direction and no more than 32" apart in the horizontal direction with each row of anchors staggered 16" from the row above and below.

Seal joints above and behind soil nail walls between concrete facing and slope protection with silicone sealant.

#### F. Construction Records

Provide 2 copies of soil nail wall construction records within 24 hours of completing each lift. Include the following in construction records:

1. Names of Soil Nail Wall Contractor, Superintendent, Nozzleman, Drill Rig Operator, Project Manager and Design Engineer;
2. Wall description, county, Department's contract, TIP and WBS element number;
3. Wall station and number and lift location, dimensions, elevations and description;
4. Nail locations, dimensions and inclinations, bar types, sizes and grades, corrosion protection and temporary casing information;
5. Date and time drilling begins and ends, steel bars are inserted into drill holes, grout and shotcrete are mixed and arrives on-site and grout placement and shotcrete application begins and ends;
6. Grout volume, temperature, flow and density records;
7. Ground and surface water conditions and elevations if applicable;
8. Weather conditions including air temperature at time of grout placement and shotcrete

application; and

9. All other pertinent details related to soil nail wall construction.

After completing each soil nail wall or stage of a wall, provide a PDF copy of all corresponding construction records.

## 5.0 NAIL TESTING

Test soil nails in accordance with the contract and as directed. “Verification tests” are performed on nails not incorporated into soil nail walls, i.e., sacrificial nails and “proof tests” are performed on nails incorporated into walls, i.e., production nails. Define “verification test nail” and “proof test nail” as a nail tested with either a verification or proof test, respectively. Define “test nails” as verification or proof test nails.

Verification tests are typically required for at least one nail per soil type per soil nail wall or 2 nails per wall, whichever is greater. Proof tests are typically required for at least one nail per nail row per soil nail wall or at least 5% of production nails, whichever is greater. More or less test nails may be required depending on subsurface conditions encountered. The Engineer will determine the number and locations of verification and proof tests required. The approximate known test nail locations are shown in the plans.

Do not test nails until grout and shotcrete attain the required 3 day compressive strength. Do not install any production nails until verification tests are accepted.

### A. Test Equipment

Use the following equipment to test nails:

1. Two dial gauges with rigid supports,
2. Hydraulic jack and pressure gauge,
3. Jacking block or reaction frame and
4. Electrical resistance load cell (verification tests only).

Provide dial gauges with enough range and precision to measure the maximum test nail movement to 0.001". Use pressure gauges graduated in 100 psi increments or less. Submit identification numbers and calibration records for load cells, jacks and pressure gauges with the soil nail wall construction plan. Calibrate each jack and pressure gauge as a unit.

Align test equipment to uniformly and evenly load test nails. Use a jacking block or reaction frame that does not damage or contact shotcrete within 3 ft of nail heads. Place dial gauges opposite each other on either side of test nails and align gauges within 5° of bar inclinations. Set up test equipment so resetting or repositioning equipment during nail testing is not needed.

### B. Test Nails

Test nails include both unbonded and bond lengths. Grout only bond lengths before nail testing. Provide unbonded and bond lengths of at least 3 ft and 10 ft, respectively.

Steel bars for production nails may be overstressed under higher test nail loads. If necessary, use larger size or higher grade bars with more capacity for test nails instead of shortening bond lengths to less than the minimum required.

### C. Verification Tests

Install verification test nails with the same equipment, installation methods and drill hole diameter and inclination as production nails.

Determine maximum bond length for verification test nails ( $L_{BVT}$ ) using the following:

$$L_{BVT} \leq (C_{RT} \times A_t \times f_y) / (Q_{ALL} \times 3)$$

Where,

$L_{BVT}$  = bond length (ft),

$C_{RT}$  = reduction coefficient, 0.9 for Grade 60 and 75 bars or 0.8 for Grade 150 bars,

$A_t$  = bar area (in<sup>2</sup>),

$f_y$  = bar yield stress (ksi) and

$Q_{ALL}$  = allowable unit grout/ground bond strength (kips/ft).

Determine design test load for verification test nails ( $DTL_{VT}$ ) based on as-built bond length and allowable unit grout/ground bond strength using the following:

$$DTL_{VT} = L_{BVT} \times Q_{ALL}$$

Where,

$DTL_{VT}$  = design test load (kips).

Perform verification tests by incrementally loading nails to failure or a load of 300% of  $DTL_{VT}$  based on the following schedule:

<b>Load</b>	<b>Hold Time</b>
AL*	1 minute
0.25 $DTL_{VT}$	10 minutes
0.50 $DTL_{VT}$	10 minutes
0.75 $DTL_{VT}$	10 minutes
1.00 $DTL_{VT}$	10 minutes
1.25 $DTL_{VT}$	10 minutes
1.50 $DTL_{VT}$	60 minutes (creep test)
1.75 $DTL_{VT}$	10 minutes
2.00 $DTL_{VT}$	10 minutes
2.50 $DTL_{VT}$	10 minutes
3.00 $DTL_{VT}$	10 minutes
AL*	1 minute

\* Alignment load (AL) is the minimum load needed to align test equipment and should not exceed 0.05  $DTL_{VT}$ .

Reset dial gauges to zero after applying alignment load. Record test nail movement at each

load increment and permanent set after load is reduced to alignment load. Monitor verification test nails for creep at the 1.5 DTL<sub>VT</sub> load increment. Measure and record movement during creep test at 1, 2, 3, 5, 6, 10, 20, 30, 50 and 60 minutes. Repump jack as needed to maintain load during hold times.

#### D. Proof Tests

Determine maximum bond length for proof test nails (L<sub>BPT</sub>) using the following:

$$L_{BPT} \leq (C_{RT} \times A_t \times f_y) / (Q_{ALL} \times 1.5)$$

Where variables are defined in Section 5.0(C) above.

Determine design test load for proof test nails (DTL<sub>PT</sub>) based on as-built bond length and allowable unit grout/ground bond strength using the following:

$$DTL_{PT} = L_{BPT} \times Q_{ALL}$$

Where variables are defined in Section 5.0(C) above.

Perform proof tests by incrementally loading nails to failure or a load of 150% of DTL<sub>PT</sub> based on the following schedule:

Load	Hold Time
AL*	Until movement stabilizes
0.25 DTL <sub>PT</sub>	Until movement stabilizes
0.50 DTL <sub>PT</sub>	Until movement stabilizes
0.75 DTL <sub>PT</sub>	Until movement stabilizes
1.00 DTL <sub>PT</sub>	Until movement stabilizes
1.25 DTL <sub>PT</sub>	Until movement stabilizes
1.50 DTL <sub>PT</sub>	10 or 60 minutes (creep test)
AL*	1 minute

\* Alignment load (AL) is the minimum load needed to align test equipment and should not exceed 0.05 DTL<sub>PT</sub>.

Reset dial gauges to zero after applying alignment load. Record test nail movement at each load increment and monitor proof test nails for creep at the 1.5 DTL<sub>PT</sub> load increment. Measure and record movement during creep test at 1, 2, 3, 5, 6 and 10 minutes. If test nail movement between 1 and 10 minutes is greater than 0.04", maintain the 1.5 DTL<sub>PT</sub> load increment for an additional 50 minutes and record movement at 20, 30, 50 and 60 minutes. Repump jack as needed to maintain load during hold times.

#### E. Test Nail Acceptance

Submit 2 copies of test nail records including load versus movement and time versus creep movement plots within 24 hours of completing each verification or proof test. The Engineer will review the test nail records to determine if test nails are acceptable. Test nail acceptance is based in part on the following criteria.

1. For verification tests, total movement during creep test is less than 0.08" between the 6

and 60 minute readings and creep rate is linear or decreasing throughout hold time.

2. For proof tests, total movement during creep test is less than 0.04" between the 1 and 10 minute readings or less than 0.08" between the 6 and 60 minute readings and creep rate is linear or decreasing throughout hold time.
3. Total movement at maximum load exceeds 80% of the theoretical elastic elongation of the unbonded length.
4. Pullout failure does not occur at or before the 2.0 DTL<sub>VT</sub> or 1.5 DTL<sub>PT</sub> load increment. Define "pullout failure" as the inability to increase load while movement continues. Record pullout failure load as part of test nail data.

For proof test nails, maintain stability of unbonded lengths for subsequent grouting. If a proof test nail is accepted but the unbonded length cannot be satisfactorily grouted, do not incorporate the proof test nail into the soil nail wall and add another production nail to replace the test nail.

If the Engineer determines a verification test nail is unacceptable, revise the soil nail design or installation methods. Submit a revised soil nail wall design or construction plan for acceptance and provide acceptable verification test nails with the revised design or installation methods.

If the Engineer determines a proof test nail is unacceptable, either perform additional proof tests on adjacent production nails or revise the soil nail design or installation methods for the production nails represented by the unacceptable proof test nail as determined by the Engineer. Submit a revised soil nail wall design or construction plan for acceptance, provide an acceptable proof test nail with the revised design or installation methods and install additional production nails for the nails represented by the unacceptable proof test nail.

After completing nail testing for each soil nail wall or stage of a wall, provide a PDF copy of all corresponding test nail records.

## 6.0 MEASUREMENT AND PAYMENT

*Soil Nail Retaining Walls* will be measured and paid in square feet. Soil nail walls will be measured as the square feet of wall face area with the pay height equal to the difference between top of wall and top of leveling pad elevations. Define "top of wall" as top of concrete facing.

The contract unit price for *Soil Nail Retaining Walls* will be full compensation for providing designs, submittals, labor, tools, equipment and soil nail wall materials, excavating, hauling and removing excavated materials, installing soil nails, grouting, shotcreting and supplying wall drainage systems, leveling pads, concrete facing, concrete coping and any incidentals necessary to construct soil nail walls. The contract unit price for *Soil Nail Retaining Walls* will also be full compensation for brick veneers, if required. No additional payment will be made and no extension of completion date or time will be allowed for repairing property damage, overexcavations or unstable excavations, unacceptable test nails or thicker shotcrete or concrete facing.

The contract unit price for *Soil Nail Retaining Walls* does not include the cost for ditches, fences, handrails, barrier or guardrail associated with soil nail walls as these items will be paid for elsewhere in the contract.

*Soil Nail Verification Tests* and *Soil Nail Proof Tests* will be measured and paid in units of each. Soil nail testing will be measured as the number of initial verification or proof tests performed. The contract unit prices for *Soil Nail Verification Tests* and *Soil Nail Proof Tests* will be full compensation for initial nail testing. No payment will be made for subsequent nail testing performed on the same or replacement test nails.

Payment will be made under:

**Pay Item**

Soil Nail Retaining Walls  
Soil Nail Verification Tests  
Soil Nail Proof Tests

**Pay Unit**

Square Foot  
Each  
Each



DocuSigned by:

Michael H. Stephens

C447682092314CC  
8/1/2016

**STANDARD SHORING:****(3-17-15)****Description**

Standard shoring includes standard temporary shoring and standard temporary mechanically stabilized earth (MSE) walls. At the Contractor's option, use standard shoring as noted in the plans or as directed. When using standard shoring, a temporary shoring design submittal is not required. Construct standard shoring based on actual elevations and shoring dimensions in accordance with the contract and Standard Detail No. 1801.01 or 1801.02.

Define "standard temporary shoring" as cantilever shoring that meets the standard temporary shoring detail (Standard Detail No. 1801.01). Define "standard temporary wall" as a temporary MSE wall with geotextile or geogrid reinforcement that meets the standard temporary wall detail (Standard Detail No. 1801.02). Define "standard temporary geotextile wall" as a standard temporary wall with geotextile reinforcement and "standard temporary geogrid wall" as a standard temporary wall with geogrid reinforcement. Define "geosynthetics" as geotextiles or geogrids.

Provide positive protection for standard shoring at locations shown in the plans and as directed. See *Temporary Shoring* provision for positive protection types and definitions.

**Materials**

Refer to the *Standard Specifications*.

<b>Item</b>	<b>Section</b>
Anchor Pins	1056-2
Concrete Barrier Materials	1170-2
Flowable Fill, Excavatable	1000-6
Geotextiles	1056
Grout, Type 1	1003
Portland Cement Concrete	1000
Select Material	1016
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 materials. Use Class IV select material (standard size No. ABC) for temporary guardrail. Use Class A concrete that meets Article 450-2 of the *Standard Specifications* or grout for drilled-in piles.

Based on actual shoring height, positive protection, groundwater elevation, slope or surcharge case and traffic impact at each standard temporary shoring location, use sheet piles with the minimum required section modulus or H-piles with the sizes shown in Standard Detail No. 1801.01. Use untreated timber with a thickness of at least 3" and a bending stress of at least 1,000 psi for timber lagging.

**(A) 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 the following:

- (1) A-2-4 soil for backfill around culverts,
- (2) A-2-4 soil in the reinforced zone of standard temporary walls with a back slope and
- (3) Class VI select material in the reinforced zone of standard temporary geotextile walls.

**(B) Standard Temporary Walls**

Use welded wire reinforcement for welded wire facing, struts and wires with the dimensions and minimum wire sizes shown in Standard Detail No. 1801.02. Provide Type 2 geotextile for separation and retention geotextiles. Define “machine direction” (MD) and “cross-machine direction” (CD) for geosynthetics in accordance with ASTM D4439. Do not use more than 4 different reinforcement strengths for each standard temporary wall.

**(1) Geotextile Reinforcement**

Provide Type 5 geotextile for geotextile reinforcement with a mass per unit area of at least 8 oz/sy in accordance with ASTM D5261. Based on actual wall height, groundwater elevation, slope or surcharge case and shoring backfill to be used in the reinforced zone at each standard temporary geotextile wall location, provide geotextiles with ultimate tensile strengths as shown in Standard Detail No. 1801.02.

**(2) Geogrid Reinforcement**

Handle and store geogrids in accordance with Article 1056-2 of the *Standard Specifications*. 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 geogrids is available from:

[connect.ncdot.gov/resources/Materials/Pages/SoilsLaboratory.aspx](http://connect.ncdot.gov/resources/Materials/Pages/SoilsLaboratory.aspx)

Based on actual wall height, groundwater elevation, slope or surcharge case and shoring backfill to be used in the reinforced zone at each standard temporary geogrid wall location, provide geogrids for geogrid reinforcement with short-term design strengths as shown in Standard Detail No. 1801.02. 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:

<b>Material Type</b>	<b>Shoring Backfill</b>
Borrow	A-2-4 Soil
Fine Aggregate	Class II, Type 1 or Class III Select Material
Coarse Aggregate	Class V or VI Select Material

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.

### **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 Contractor’s option or if the minimum required clear distance is not available, set concrete barrier next to and up against traffic side of standard shoring except for barrier above standard temporary walls. Concrete barrier with the minimum required clear distance is required above standard temporary walls.

#### **(B) Temporary Guardrail**

Define “clear distance” behind temporary guardrail as the horizontal distance between guardrail posts and standard shoring. At the Contractor’s option or if clear distance for standard temporary 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 standard temporary walls.

#### **(C) Standard Shoring Selection Forms**

Before beginning standard shoring construction, survey existing ground elevations in the vicinity of standard shoring locations to determine actual shoring or wall heights (H). Submit a standard shoring selection form for each location at least 7 days before starting standard shoring construction. Standard shoring selection forms are available from:

[connect.ncdot.gov/resources/Geological/Pages/Geotech\\_Forms\\_Details.aspx](http://connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx)

#### **(D) Preconstruction Meeting**

The Engineer may require a shoring preconstruction meeting to discuss the construction and inspection of the standard shoring. If required, schedule this meeting after all standard shoring selection forms have been submitted. 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**

Construct standard shoring in accordance with the *Temporary Shoring* provision.

#### **(A) Standard Temporary Shoring Installation**

Based on actual shoring height, positive protection, groundwater elevation, slope or surcharge case and traffic impact at each standard temporary shoring location, install piles with the minimum required embedment and extension for each shoring section in accordance with Standard Detail No. 1801.01. For concrete barrier above and next to standard temporary shoring and temporary guardrail above and attached to standard temporary shoring, use “surcharge case with traffic impact” in accordance with Standard Detail No. 1801.01. Otherwise, use “slope or surcharge case with no traffic impact” in accordance with Standard Detail No. 1801.01. If refusal is reached before driven piles attain the minimum required embedment, use drilled-in H-piles with timber lagging for standard temporary shoring.

**(B) Standard Temporary Walls Installation**

Based on actual wall height, groundwater elevation, slope or surcharge case, geotextile or geogrid reinforcement and shoring backfill in the reinforced zone at each standard temporary wall location, construct walls with the minimum required reinforcement length and number of reinforcement layers for each wall section in accordance with Standard Detail No. 1801.02. For standard temporary walls with pile foundations in the reinforced zone, drive piles through reinforcement after constructing temporary walls.

For standard temporary walls with interior angles less than 90°, wrap geosynthetics at acute corners as directed by the Engineer. Place geosynthetics as shown in Standard Detail No. 1801.02. Place separation geotextiles 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, place separation geotextiles between shoring backfill and backfill or natural ground on top of and at the back of the reinforced zone.

**Measurement and Payment**

Standard shoring will be measured and paid in accordance with the *Temporary Shoring* provision.



DocuSigned by:  
*Scott A. Hidden*  
F760CAEB96FC4D3...

7/22/2016

**TEMPORARY SOIL NAIL WALLS:****(3-17-15)****Description**

Construct temporary soil nail walls consisting of soil nails spaced at a regular pattern and connected to a reinforced shotcrete face. A soil nail consists of a steel bar grouted in a drilled hole inclined at an angle below horizontal. At the Contractor's option, use temporary soil nail walls instead of temporary shoring for full cut sections. Design and construct temporary soil nail walls based on actual elevations and wall dimensions in accordance with the contract and accepted submittals. Use a prequalified Anchored Wall Contractor to construct temporary soil nail walls. Define "soil nail wall" as a temporary soil nail wall and "Soil Nail Wall Contractor" as the Anchored Wall Contractor installing soil nails and applying shotcrete. Define "nail" as a soil nail.

Provide positive protection for soil nail walls at locations shown in the plans and as directed. See *Temporary Shoring* provision for positive protection types and definitions.

**Materials**

Refer to Division 10 of the *Standard Specifications*.

<b>Item</b>	<b>Section</b>
Anchor Pins	1056-2
Geocomposites	1056
Grout, Type 2	1003
Reinforcing Steel	1070
Shotcrete	1002
Select Material, Class IV	1016
Steel Plates	1072-2

Use Class IV select material (standard size No. ABC) for temporary guardrail and neat cement grout for Type 2 grout.

Provide soil nails consisting of grouted steel bars and nail head assemblies. Use deformed steel bars that meet AASHTO M 275 or M 31, Grade 60 or 75. Splice bars in accordance with Article 1070-9 of the *Standard Specifications*.

Fabricate centralizers from schedule 40 PVC plastic pipe or tube, steel or other material not detrimental to steel bars (no wood). Size centralizers to position bars within 1" of drill hole centers and allow tremies to be inserted to ends of holes. Use centralizers that do not interfere with grout placement or flow around bars.

Provide nail head assemblies consisting of nuts, washers and bearing plates. Use steel plates for bearing plates and steel washers and hex nuts recommended by the Soil Nail Manufacturer.

Provide Type 6 material certifications for soil nail materials in accordance with Article 106-3 of the *Standard Specifications*. 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 soil nail wall materials so materials are kept clean and free of damage. Bent, damaged or defective materials will be rejected.

**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 Contractor’s option or if the minimum required clear distance is not available, set concrete barrier next to and up against traffic side of soil nail walls except for barrier above walls. Concrete barrier with the minimum required clear distance is required above soil nail walls.

**(B) Temporary Guardrail**

Define “clear distance” behind temporary guardrail as the horizontal distance between guardrail posts and soil nail walls. At the Contractor’s option or if clear distance for soil nail walls is less than 4 ft, use temporary guardrail with 8 ft posts and a clear distance of at least 2.5 ft. Place ABC in clear distance and around guardrail posts instead of pavement.

**(C) Soil Nail Wall Designs**

Before beginning soil nail wall design, survey existing ground elevations in the vicinity of wall locations to determine actual design heights (H). Use a prequalified Anchored Wall Design Consultant to design soil nail walls. Provide designs sealed by a Design Engineer approved as a Geotechnical Engineer (key person) for the Anchored Wall Design Consultant.

Submit 8 copies of working drawings and 3 copies of design calculations and a PDF copy of each for soil nail wall designs in accordance with Article 105-2 of the *Standard Specifications*. Submit working drawings showing plan views, wall profiles, typical sections and details of soil nail wall design and construction sequence. Include details in working drawings of soil nail locations, unit grout/ground bond strengths, shotcrete reinforcement and if necessary, obstructions extending through walls or interfering with nails. Include details in construction sequence of excavation, grouting, installing reinforcement, nail testing and shotcreting with mix designs and shotcrete nozzleman certifications. Do not begin soil nail wall construction until a design submittal is accepted.

Design soil nail walls in accordance with the plans and allowable stress design method in the *FHWA Geotechnical Engineering Circular No. 7 “Soil Nail Walls”* (Publication No. FHWA-IF-03-017) unless otherwise required.

Design soil nails that meet the following unless otherwise approved:

- (1) Horizontal and vertical spacing of at least 3 ft,
- (2) Inclination of at least 12° below horizontal and
- (3) Diameter of 4" to 10".

Do not extend nails beyond right-of-way or easement limits. If existing or future obstructions such as foundations, pavements, pipes, inlets or utilities will interfere with nails, maintain a clearance of at least 6" between obstructions and nails.

Design soil nail walls for a traffic surcharge of 250 lb/sf if traffic will be above and within H of walls. This traffic surcharge does not apply to construction traffic. Design

soil nail walls for any construction surcharge if construction traffic will be above and within H of walls. For temporary guardrail with 8 ft posts above soil nail walls, analyze walls for a horizontal load of 300 lb/ft of wall.

Place geocomposite drain strips with a horizontal spacing of no more than 10 ft and center strips between adjacent nails. Attach drain strips to excavation faces. Use shotcrete at least 4" thick and reinforce shotcrete with #4 waler bars around nail heads. Two waler bars (one on each side of nail head) in the horizontal and vertical directions are required for a total of 4 bars per nail.

**(D) Preconstruction Meeting**

Before starting soil nail wall construction, hold a preconstruction meeting to discuss the construction, inspection and testing of the soil nail walls. If this meeting occurs before all soil nail wall submittals have been accepted, additional preconstruction meetings may be required before beginning construction of soil nail walls without accepted submittals. The Resident, District or Bridge Maintenance Engineer, Bridge or Roadway Construction Engineer, Geotechnical Operations Engineer, Contractor and Soil Nail Wall Contractor Superintendent will attend preconstruction meetings.

**Construction Methods**

Control drainage during construction in the vicinity of soil nail walls. Direct run off away from soil nail walls and areas above and behind walls.

Install foundations located behind soil nail walls before beginning wall construction. Do not excavate behind soil nail walls. If overexcavation occurs, repair walls with an approved method and a revised soil nail wall design may be required.

Install positive protection in accordance with the contract and accepted submittals. Use PCB in accordance with Section 1170 of the *Standard Specifications* and Standard Drawing No. 1170.01 of the *Roadway Standard Drawings*. Use temporary guardrail in accordance with Section 862 of the *Standard Specifications* and Standard Drawing No. 862.01, 862.02 and 862.03 of the *Roadway Standard Drawings*.

**(A) Excavation**

Excavate for soil nail walls from the top down in accordance with the accepted submittals. Excavate in staged horizontal lifts with no negative batter (excavation face leaning forward). Excavate lifts in accordance with the following:

- (1) Heights not to exceed vertical nail spacing,
- (2) Bottom of lifts no more than 3 ft below nail locations for current lift and
- (3) Horizontal and vertical alignment within 6" of location shown in the accepted submittals.

Remove any cobbles, boulders, rubble or debris that will protrude more than 2" into the required shotcrete thickness. Rocky ground such as colluvium, boulder fills and weathered rock may be difficult to excavate without leaving voids.

Apply shotcrete to excavation faces within 24 hours of excavating each lift unless otherwise approved. Shotcreting may be delayed if it can be demonstrated that delays

will not adversely affect excavation stability. If excavation faces will be exposed for more than 24 hours, use polyethylene sheets anchored at top and bottom of lifts to protect excavation faces from changes in moisture content.

If an excavation becomes unstable at any time, suspend soil nail wall construction and temporarily stabilize the excavation by immediately placing an earth berm up against the unstable excavation face. When this occurs, repair walls with an approved method and a revised soil nail wall design may be required.

Do not excavate the next lift until nail installations and testing and shotcrete application for the current lift are accepted and grout and shotcrete for the current lift have cured at least 3 days and 1 day, respectively.

**(B) Soil Nails**

Drill and grout nails the same day and do not leave drill holes open overnight. Control drilling and grouting to prevent excessive ground movements, damaging structures and pavements or fracturing rock and soil formations. If ground heave or subsidence occurs, suspend soil nail wall construction and take corrective action to minimize movement. If property damage occurs, make repairs with an approved method and a revised soil nail wall design may be required.

**(1) Drilling**

Use drill rigs of the sizes necessary to install soil nails and with sufficient capacity to drill through whatever materials are encountered. Drill straight and clean holes with the dimensions and inclination shown in the accepted submittals. Drill holes within 6" of locations and 2° of inclination shown in the accepted submittals unless otherwise approved.

Stabilize drill holes with temporary casings if unstable, caving or sloughing material is anticipated or encountered. Do not use drilling fluids to stabilize drill holes or remove cuttings.

**(2) Steel Bars**

Center steel bars in drill holes with centralizers. Securely attach centralizers along bars at no more than 8 ft centers. Attach uppermost and lowermost centralizers 18" from excavation faces and ends of holes.

Do not insert steel bars into drill holes until hole locations, dimensions, inclination and cleanliness are approved. Do not vibrate, drive or otherwise force bars into holes. If a steel bar cannot be completely and easily inserted into a drill hole, remove the bar and clean or redrill the hole.

**(3) Grouting**

Remove oil, rust inhibitors, residual drilling fluids and similar foreign materials from holding tanks/hoppers, stirring devices, pumps, lines, tremie pipes and any other equipment in contact with grout before use. Measure grout temperature, density and flow during grouting with at least the same frequency grout cubes are made for compressive strength. Perform density and flow field tests in the presence of the Engineer in accordance with American National Standards

Institute/American Petroleum Institute Recommended Practice 13B-1 (Section 4, Mud Balance) and ASTM C939 (Flow Cone), respectively.

Inject grout at the lowest point of drill holes through tremies, e.g., grout tubes, casings, hollow-stem augers or drill rods, in one continuous operation. Fill drill holes progressively from ends of holes to excavation faces and withdraw tremies at a slow even rate as holes are filled to prevent voids in grout. Extend tremies into grout at least 5 ft at all times except when grout is initially placed in holes.

Provide grout free of segregation, intrusions, contamination, structural damage or inadequate consolidation (honeycombing). Cold joints in grout are not allowed except for test nails. Remove any temporary casings as grout is placed and record grout volume for each drill hole.

(4) **Nail Heads**

Install nail head assemblies after shotcreting. Before shotcrete reaches initial set, seat bearing plates and tighten nuts so plates contact shotcrete uniformly. If uniform contact is not possible, install nail head assemblies on mortar pads so nail heads are evenly loaded.

**(C) Drain Strips**

Install geocomposite drain strips as shown in the accepted submittals. Before installing shotcrete reinforcement, place drain strips with the geotextile side against excavation faces. For highly irregular faces and at the discretion of the Engineer, drain strips may be placed after shotcreting over weep holes through the shotcrete. Hold drain strips in place with anchor pins so strips are in continuous contact with surfaces to which they are attached and allow for full flow the entire height of soil nail walls. Discontinuous drain strips are not allowed. If splices are needed, overlap drain strips at least 12" so flow is not impeded. Cut off excess drain strip length and expose strip ends below shotcrete when soil nail wall construction is complete.

**(D) Shotcrete**

Clean ungrouted zones of drill holes and excavation faces of loose materials, mud, rebound and other foreign material. Moisten surfaces to receive shotcrete. Install shotcrete reinforcement in accordance with the contract and accepted submittals. Secure reinforcing steel so shooting does not displace or vibrate reinforcement. Install approved thickness gauges on 5 ft centers in the horizontal and vertical directions to measure shotcrete thickness.

Apply shotcrete in accordance with the contract, accepted submittals and Subarticle 1002-3(F) of the *Standard Specifications*. Use approved shotcrete nozzlemen who made satisfactory preconstruction test panels to apply shotcrete. Direct shotcrete at right angles to excavation faces except when shooting around reinforcing steel. Rotate nozzle steadily in small circular patterns and apply shotcrete from bottom of lifts up.

Make shotcrete surfaces uniform and free of sloughing or sagging. Completely fill ungrouted zones of drill holes and any other voids with shotcrete. Taper construction joints to a thin edge over a horizontal distance of at least the shotcrete thickness. Wet joint surfaces before shooting adjacent sections.

Repair surface defects as soon as possible after shooting. Remove any shotcrete which lacks uniformity, exhibits segregation, honeycombing or lamination or contains any voids or sand pockets and replace with fresh shotcrete to the satisfaction of the Engineer. Protect shotcrete from freezing and rain until shotcrete reaches initial set.

**(E) Construction Records**

Provide 2 copies of soil nail wall construction records within 24 hours of completing each lift. Include the following in construction records:

- (1) Names of Soil Nail Wall Contractor, Superintendent, Nozzleman, Drill Rig Operator, Project Manager and Design Engineer;
- (2) Wall description, county, Department's contract, TIP and WBS element number;
- (3) Wall station and number and lift location, dimensions, elevations and description;
- (4) Nail locations, dimensions and inclinations, bar types, sizes and grades and temporary casing information;
- (5) Date and time drilling begins and ends, steel bars are inserted into drill holes, grout and shotcrete are mixed and arrives on-site and grout placement and shotcrete application begins and ends;
- (6) Grout volume, temperature, flow and density records;
- (7) Ground and surface water conditions and elevations if applicable;
- (8) Weather conditions including air temperature at time of grout placement and shotcrete application; and
- (9) All other pertinent details related to soil nail wall construction.

After completing each soil nail wall or stage of a wall, provide a PDF copy of all corresponding construction records.

**Nail Testing**

"Proof tests" are performed on nails incorporated into walls, i.e., production nails. Define "test nail" as a nail tested with a proof test. Proof tests are typically required for at least one nail per nail row per soil nail wall or at least 5% of production nails, whichever is greater. More or less test nails may be required depending on subsurface conditions encountered. The Engineer will determine the number and locations of proof tests required. Do not test nails until grout and shotcrete attain the required 3 day compressive strength.

**(A) Test Equipment**

Use the following equipment to test nails:

- (1) Two dial gauges with rigid supports,
- (2) Hydraulic jack and pressure gauge and
- (3) Jacking block or reaction frame.

Provide dial gauges with enough range and precision to measure the maximum test nail movement to 0.001". Use pressure gauges graduated in 100 psi increments or less. Submit identification numbers and calibration records for load cells, jacks and pressure

gauges with the soil nail wall design. Calibrate each jack and pressure gauge as a unit.

Align test equipment to uniformly and evenly load test nails. Use a jacking block or reaction frame that does not damage or contact shotcrete within 3 ft of nail heads. Place dial gauges opposite each other on either side of test nails and align gauges within 5° of bar inclinations. Set up test equipment so resetting or repositioning equipment during nail testing is not needed.

**(B) Test Nails**

Test nails include both unbonded and bond lengths. Grout only bond lengths before nail testing. Provide unbonded and bond lengths of at least 3 ft and 10 ft, respectively.

Steel bars for production nails may be overstressed under higher test nail loads. If necessary, use larger size or higher grade bars with more capacity for test nails instead of shortening bond lengths to less than the minimum required.

**(C) Proof Tests**

Determine maximum bond length ( $L_B$ ) using the following:

$$L_B \leq (C_{RT} \times A_t \times f_y) / (Q_{ALL} \times 1.5)$$

Where,

- $L_B$  = bond length (ft),
- $C_{RT}$  = reduction coefficient, 0.9 for Grade 60 and 75 bars or 0.8 for Grade 150 bars,
- $A_t$  = bar area (in<sup>2</sup>),
- $f_y$  = bar yield stress (ksi) and
- $Q_{ALL}$  = allowable unit grout/ground bond strength (kips/ft).

Determine design test load (DTL) based on as-built bond length and allowable unit grout/ground bond strength using the following:

$$DTL = L_B \times Q_{ALL}$$

Where,

- DTL = design test load (kips).

Perform proof tests by incrementally loading nails to failure or a load of 150% of DTL based on the following schedule:

<b>Load</b>	<b>Hold Time</b>
AL*	Until movement stabilizes
0.25 DTL	Until movement stabilizes
0.50 DTL	Until movement stabilizes
0.75 DTL	Until movement stabilizes
1.00 DTL	Until movement stabilizes
1.25 DTL	Until movement stabilizes
1.50 DTL	10 or 60 minutes (creep test)
AL*	1 minute

\* Alignment load (AL) is the minimum load needed to align test equipment and should not exceed 0.05 DTL.

Reset dial gauges to zero after applying alignment load. Record test nail movement at each load increment and monitor test nails for creep at the 1.5 DTL load increment. Measure and record movement during creep test at 1, 2, 3, 5, 6 and 10 minutes. If test nail movement between 1 and 10 minutes is greater than 0.04", maintain the 1.5 DTL load increment for an additional 50 minutes and record movement at 20, 30, 50 and 60 minutes. Repump jack as needed to maintain load during hold times.

**(D) Test Nail Acceptance**

Submit 2 copies of test nail records including load versus movement and time versus creep movement plots within 24 hours of completing each proof test. The Engineer will review the test nail records to determine if test nails are acceptable. Test nail acceptance is based in part on the following criteria.

- (1) Total movement during creep test is less than 0.04" between the 1 and 10 minute readings or less than 0.08" between the 6 and 60 minute readings and creep rate is linear or decreasing throughout hold time.
- (2) Total movement at maximum load exceeds 80% of the theoretical elastic elongation of the unbonded length.
- (3) Pullout failure does not occur at or before the 1.5 DTL load increment. Define "pullout failure" as the inability to increase load while movement continues. Record pullout failure load as part of test nail data.

Maintain stability of unbonded lengths for subsequent grouting. If a test nail is accepted but the unbonded length cannot be satisfactorily grouted, do not incorporate the test nail into the soil nail wall and add another production nail to replace the test nail.

If the Engineer determines a test nail is unacceptable, either perform additional proof tests on adjacent production nails or revise the soil nail design or installation methods for the production nails represented by the unacceptable test nail as determined by the Engineer. Submit a revised soil nail wall design for acceptance, provide an acceptable test nail with the revised design or installation methods and install additional production nails for the nails represented by the unacceptable test nail.

After completing nail testing for each soil nail wall or stage of a wall, provide a PDF copy of all corresponding test nail records.

**Measurement and Payment**

Temporary soil nail walls will be measured and paid in square feet. Temporary soil nail walls will be paid for at the contract unit price for *Temporary Shoring*. Temporary soil nail walls will be measured as the square feet of exposed wall face area. No measurement will be made for any embedment or pavement thickness above soil nail walls.

The contract unit price for *Temporary Shoring* will be full compensation for providing soil nail wall designs, submittals, labor, tools, equipment and soil nail wall materials, excavating, hauling and removing excavated materials, installing and testing soil nails, grouting, shotcreting and supplying drain strips and any incidentals necessary to construct soil nail walls. No additional payment will be made and no extension of completion date or time will be allowed for repairing property damage, overexcavations or unstable excavations, unacceptable test nails or thicker shotcrete.

No payment will be made for temporary shoring not shown in the plans or required by the Engineer including shoring for OSHA reasons or the Contractor's convenience. No value engineering proposals will be accepted based solely on revising or eliminating shoring locations shown in the plans or estimated quantities shown in the bid item sheets as a result of actual field measurements or site conditions.

PCB will be measured and paid in accordance with Section 1170 of the *Standard Specifications*. No additional payment will be made for anchoring PCB for soil nail walls. Costs for anchoring PCB will be incidental to soil nail walls.

Temporary guardrail will be measured and paid for in accordance with Section 862 of the *Standard Specifications*.



DocuSigned by:  
*Scott A. Hidden*  
F760CAEB96FC4D3...

7/22/2016

**TOE BENCHING EXCAVATION****(SPECIAL)****1.0 DESCRIPTION**

Excavate material necessary for the formation of benches in the existing ground beneath proposed embankments in order to increase the bond between the existing ground and the proposed embankment.

**2.0 CONSTRUCTION METHODS**

When embankments are to be placed and compacted on hillsides, or when new embankments are to be compacted against existing embankment, or when embankment is built in part widths, or at other locations designated by the Engineer, excavate benches in the existing ground in accordance with the detail shown on the plans and as directed by the Engineer.

Use, where practical, all material removed in the excavation in the formation of embankments. No excavated material shall be wasted except as directed in the plans or permitted by the Engineer. Dispose of waste material in a manner which will not cause damage to adjacent property, nor mar the appearance of the completed roadway.

**3.0 METHOD OF MEASUREMENT**

The quantity of excavation to be paid for will be the actual number of cubic yards of materials, measured in their original position and computed by the average end area method, which have been acceptably excavated in accordance with the plans and specifications or as directed by the Engineer. Original cross-sections for the determination of excavation quantities will be taken before any grading begins. Final cross-sections will be the sections required by the plans or directed by the Engineer.

The upper bound of the benching excavation is the point at which the 5' (V) by x' (H) typical benches as shown on the plans intersect the existing ground line. The x' dimension which varies depending on existing slope grades.

No measurement will be made of any materials excavated outside of authorized excavation limits, or of any materials excavated before stakes have been set.

**4.0 BASIS OF PAYMENT**

The quantity of excavation, measured as provided for above, will be paid for at the contract unit price per cubic yard for "Toe Benching Excavation". The above prices and payments will be full compensation for all work covered by this section, including but not limited to

excavation, blasting, and hauling; disposal of materials; removal and disposal of stumps and the formation and compaction of embankments.

Payment will be made under:

Toe Benching Excavation.....Cubic Yard



DocuSigned by:

Shane C. Clark

1F4E87E6D6AD4EA...

8/4/2016

**ROCK BUTTRESS EMBANKMENT:****(SPECIAL)****Description**

Construct rock buttress embankments for fill slopes steeper than 1.5:1.0 in accordance with the contract at locations shown on the plans.

**Materials**

Refer to Division 10 of the *Standard Specifications*:

<b>Item</b>	<b>Section</b>
Select Material, Class VII	1016
Select Material, Class IV	1042

Use Class VII Select Material for rock embankments. Class VII Select Material must be mechanically sorted to Specification. Use Select Material, Class IV on top of rock embankments.

**Construction Methods**

Construct 1.5:1.0 rock buttress embankments above in accordance with the slopes, dimensions and elevations shown on the plans and Section 235 of the *Standard Specifications*. Place and grade rock so smaller pieces are uniformly distributed throughout rock embankments. Provide a uniform surface free of obstructions, debris and groups of large rocks that could cause voids within embankments. When placing rock embankments in lifts, place core material to the top of the lift elevation before placing the next lift of rock embankment.

Place and compact Select Material, Class IV material until an 18 inch thick layer has been established on top of rock embankments.

**Measurement and Payment**

*Select Material, Class VII* and *Select Material, Class IV* will be measured and paid for in tons. Select material will be measured by weighing material in trucks in accordance with Article 106-7 of the *Standard Specifications*. The contract unit prices for *Select Material, Class VII* and *Select Material, Class IV* will be full compensation for providing, hauling, handling, placing, compacting and maintaining select material.

Payment will be made under:

**Pay Item**

Select Material, Class VII

Select Material, Class IV

**Pay Unit**

Ton

Ton



DocuSigned by:

Shane C. Clark

1F4E87E6D6AD4EA...

9/13/2016

**PROJECT SPECIAL PROVISIONS  
GEOENVIRONMENTAL**

**CONTAMINATED SOIL (7/22/2015)**

The Contractor's attention is directed to the fact that soil contaminated with petroleum hydrocarbon compounds may exist within the project area. The known areas of potential contamination are indicated on corresponding plans sheets. Information relating to these contaminated areas and investigation reports will be available at the following web address by navigating to the correct letting year and month then selecting, "Plans and Proposals", "Ashe R-2915C", "GeoEnv Postings":

<http://dotw-xfer01.dot.state.nc.us/dsplan/>

Petroleum contaminated soil may be encountered during any earthwork activities on the project. The Contractor shall only excavate those soils that the Engineer designates necessary to complete a particular task. The Engineer shall determine if soil is contaminated based on petroleum odors and unusual soil staining. Contaminated soil not required to be excavated is to remain in place and undisturbed. Undisturbed soil shall remain in place, whether contaminated or not. The Contractor shall stockpile all contaminated soil excavated from the project in a location approved by the Engineer.

The stockpile shall be created within the property boundaries of the source material and in accordance with the Stockpile Detail found in the plans. If the volume of contaminated material exceeds available space on site, the Contractor shall obtain a permit from the NCDENR UST Section's Regional Office for off-site temporary storage. The Engineer will notify the GeoEnvironmental Section of the stockpile and the GeoEnvironmental Section will arrange for the testing and disposal of the contaminated stockpile within two weeks of notification.

The quantity of contaminated soil excavated and stockpiled shall be the actual number of tons of material, which has been acceptably excavated, transported, and weighed with certified scales. The quantity of contaminated soil, measured as provided above, shall be paid for at the contract unit price per ton for "Stockpiling Contaminated Soil".

**Pay Item**

Stockpiling Contaminated Soil

**Pay Unit**

Ton

DocuSigned by:

**Cyrus Parker**

C96492AF5E824DF...

7/22/2015



PROJECT SPECIAL PROVISIONS

## Utilities by Others

**General:**

The following utility companies have facilities that will be in conflict with the construction of this project.

- A) Blue Ridge EMC – Distribution Power
- B) Skyline Telephone
- C) Ashe County Cable

All utility work listed herein will be performed by the utility owner. All utilities are shown on the plans from the best available information.

The Contractor's attention is directed to Article 105-8 of the 2012 Standard Specifications for Roads and Structures.

**Utilities Requiring Adjustments:**

- A) Blue Ridge EMC – Distribution Power  
Mr. Hoss Prestwood  
(828) 493-3196  
[hoss.prestwood@blueridgeemc.com](mailto:hoss.prestwood@blueridgeemc.com)

1. See "Utilities By Others Plans" for utility conflicts
2. Blue Ridge EMC will relocate their facilities in coordination with the NCDOT contractor. The NCDOT contractor should give BREMC 4 weeks notice and 3 months to complete their relocation for each section cleared and rough graded. The sections will need to be determined by the NCDOT contractor and relayed to BREMC at a preconstruction conference held before construction begins with all utilities invited.

- B) Skyline Telephone – Telephone  
Eric Holt  
(336) 876-6591  
[eric.holt@skyline.org](mailto:eric.holt@skyline.org)

1. See "Utilities By Others Plans" for utility conflicts
2. Skyline Telephone will abandon their existing underground facilities and attach to the proposed BREMC poles. The existing phone lines will remain active until the new lines are relocated to the BREMCO poles. They will have all existing underground lines abandoned and relocated to existing BREMC poles by June 30, 2017. Skyline will require 4 weeks notice from the time BREMC begins relocating their poles and 3 months to complete their work to the new poles at each section. Skyline should be invited to the preconstruction conference with BREMC and the DOT contractor.

PROJECT SPECIAL PROVISIONS

Utilities by Others



C) Ashe County Cable – CATV

Jeff Smith

(336) 918-4421

[jrsmith070357@yahoo.com](mailto:jrsmith070357@yahoo.com)

1. See “Utilities By Others Plans” for utility conflicts
2. Ashe County Cable is currently attached to BREMC poles from Y5 (Grandfather Pine Dr.) to Y9 (Paul Goodman Road) and will transfer their cable to the proposed BREMC poles. Ashe County will require 4 weeks notice once BREMC begins setting poles and 2 months to complete their work. Ashe County Cable should be invited to the preconstruction.

**Project Special Provisions  
Erosion Control**

**STABILIZATION REQUIREMENTS:**

(3-11-2016)

Stabilization for this project shall comply with the time frame guidelines as specified by the NCG-010000 general construction permit effective August 3, 2011 issued by the North Carolina Department of Environment and Natural Resources Division of Water Quality. Temporary or permanent ground cover stabilization shall occur within 7 calendar days from the last land-disturbing activity, with the following exceptions in which temporary or permanent ground cover shall be provided in 14 calendar days from the last land-disturbing activity:

- Slopes between 2:1 and 3:1, with a slope length of 10 ft. or less
- Slopes 3:1 or flatter, with a slope of length of 50 ft. or less
- Slopes 4:1 or flatter

The stabilization timeframe for High Quality Water (HQW) Zones shall be 7 calendar days with no exceptions for slope grades or lengths. High Quality Water Zones (HQW) Zones are defined by North Carolina Administrative Code 15A NCAC 04A.0105 (25). Temporary and permanent ground cover stabilization shall be achieved in accordance with the provisions in this contract and as directed.

**SEEDING AND MULCHING:****(West)**

The kinds of seed and fertilizer, and the rates of application of seed, fertilizer, and limestone, shall be as stated below. During periods of overlapping dates, the kind of seed to be used shall be determined. All rates are in pounds per acre.

## Shoulder and Median Areas

**August 1 - June 1**

20# Kentucky Bluegrass  
75# Hard Fescue  
25# Rye Grain  
500# Fertilizer  
4000# Limestone

**May 1 - September 1**

20# Kentucky Bluegrass  
75# Hard Fescue  
10# German or Browntop Millet  
500# Fertilizer  
4000# Limestone

## Areas Beyond the Mowing Pattern, Waste and Borrow Areas:

**August 1 - June 1**

100# Tall Fescue  
15# Kentucky Bluegrass  
30# Hard Fescue  
25# Rye Grain  
500# Fertilizer

**May 1 - September 1**

100# Tall Fescue  
15# Kentucky Bluegrass  
30# Hard Fescue  
10# German or Browntop Millet  
500# Fertilizer

4000# Limestone

4000# Limestone

## Approved Tall Fescue Cultivars

06 Dust	Escalade	Justice	Serengeti
2 <sup>nd</sup> Millennium	Essential	Kalahari	Shelby
3 <sup>rd</sup> Millennium	Evergreen 2	Kitty Hawk 2000	Sheridan
Apache III	Falcon IV	Legitimate	Signia
Avenger	Falcon NG	Lexington	Silver Hawk
Barlexas	Falcon V	LSD	Sliverstar
Barlexas II	Faith	Magellan	Shenandoah Elite
Bar Fa	Fat Cat	Matador	Sidewinder
Barrera	Festnova	Millennium SRP	Skyline
Barrington	Fidelity	Monet	Solara
Barrobusto	Finelawn Elite	Mustang 4	Southern Choice II
Barvado	Finelawn Xpress	Ninja 2	Speedway
Biltmore	Finesse II	Ol' Glory	Spyder LS
Bingo	Firebird	Olympic Gold	Sunset Gold
Bizem	Firecracker LS	Padre	Taccoa
Blackwatch	Firenza	Patagonia	Tanzania
Blade Runner II	Five Point	Pedigree	Trio
Bonsai	Focus	Picasso	Tahoe II
Braveheart	Forte	Piedmont	Talladega
Bravo	Garrison	Plantation	Tarheel
Bullseye	Gazelle II	Proseeds 5301	Terrano
Cannavaro	Gold Medallion	Prospect	Titan Ltd
Catalyst	Grande 3	Pure Gold	Titanium LS
Cayenne	Greenbrooks	Quest	Tracer
Cessane Rz	Greenkeeper	Raptor II	Traverse SRP
Chipper	Gremlin	Rebel Exeda	Tulsa Time
Cochise IV	Greystone	Rebel Sentry	Turbo
Constitution	Guardian 21	Rebel IV	Turbo RZ
Corgi	Guardian 41	Regiment II	Tuxedo RZ
Corona	Hemi	Regenerate	Ultimate
Coyote	Honky Tonk	Rendition	Venture
Darlington	Hot Rod	Rhambler 2 SRP	Umbrella
Davinci	Hunter	Rembrandt	Van Gogh
Desire	Inferno	Reunion	Watchdog
Dominion	Innovator	Riverside	Wolfpack II
Dynamic	Integrity	RNP	Xtremegreen
Dynasty	Jaguar 3	Rocket	
Endeavor	Jamboree	Scorpion	

## Approved Kentucky Bluegrass Cultivars:

4-Season	Blue Velvet	Gladstone	Quantum Leap
Alexa II	Blueberry	Granite	Rambo
America	Boomerang	Hampton	Rhapsody
Apollo	Brilliant	Harmonie	Rhythm
Arcadia	Cabernet	Impact	Rita
Aries	Champagne	Jefferson	Royce
Armada	Champlain	Juliet	Rubicon
Arrow	Chicago II	Jump Start	Rugby II
Arrowhead	Corsair	Keeneland	Shiraz
Aura	Courtyard	Langara	Showcase
Avid	Delight	Liberator	Skype
Award	Diva	Madison	Solar Eclipse
Awesome	Dynamo	Mercury	Sonoma
Bandera	Eagleton	Midnight	Sorbonne
Barduke	Emblem	Midnight II	Starburst
Barnique	Empire	Moon Shadow	Sudden Impact
Baroness	Envicta	Moonlight SLT	Total Eclipse
Barrister	Everest	Mystere	Touche
Barvette HGT	Everglade	Nu Destiny	Tsunami
Bedazzled	Excursion	NuChicago	Unique
Belissimo	Freedom II	NuGlade	Valor
Bewitched	Freedom III	Odyssey	Voyager II
Beyond	Front Page	Perfection	Washington
Blacksburg II	Futurity	Pinot	Zinfandel
Blackstone	Gaelic	Princeton 105	
Blue Note	Ginney II	Prosperity	

## Approved Hard Fescue Cultivars:

Aurora II	Eureka II	Oxford	Scaldis II
Aurora Gold	Firefly	Reliant II	Spartan II
Berkshire	Granite	Reliant IV	Stonehenge
Bighorn GT	Heron	Rescue 911	
Chariot	Nordic	Rhino	

On cut and fill slopes 2:1 or steeper add 20# Sericea Lespedeza January 1 - December 31.

Fertilizer shall be 10-20-20 analysis. A different analysis of fertilizer may be used provided the 1-2-2 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as a 10-20-20 analysis and as directed.

**Native Grass Seeding And Mulching****(West)**

Native Grass Seeding and Mulching shall be performed on the disturbed areas of wetlands and riparian areas, and adjacent to Stream Relocation and/or trout stream construction within a 50 foot zone on both sides of the stream or depression, measured from top of stream bank or center of depression. The stream bank of the stream relocation shall be seeded by a method that does not alter the typical cross section of the stream bank. Native Grass Seeding and Mulching shall also be performed in the permanent soil reinforcement mat section of preformed scour holes, and in other areas as directed.

The kinds of seed and fertilizer, and the rates of application of seed, fertilizer, and limestone, shall be as stated below. During periods of overlapping dates, the kind of seed to be used shall be determined. All rates are in pounds per acre.

**August 1 - June 1**

18#	Creeping Red Fescue
8#	Big Bluestem
6#	Indiangrass
4#	Switchgrass
35#	Rye Grain
500#	Fertilizer
4000#	Limestone

**May 1 – September 1**

18#	Creeping Red Fescue
8#	Big Bluestem
6#	Indiangrass
4#	Switchgrass
25#	German or Browntop Millet
500#	Fertilizer
4000#	Limestone

**Approved Creeping Red Fescue Cultivars:**

Aberdeen

Boreal

Epic

Cindy Lou

Fertilizer shall be 10-20-20 analysis. A different analysis of fertilizer may be used provided the 1-2-2 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as a 10-20-20 analysis and as directed.

Native Grass Seeding and Mulching shall be performed in accordance with Section 1660 of the *Standard Specifications* and vegetative cover sufficient to restrain erosion shall be installed immediately following grade establishment.

**Measurement and Payment**

Native Grass *Seeding and Mulching* will be measured and paid for in accordance with Article 1660-8 of the *Standard Specifications*.

**TEMPORARY SEEDING:**

Fertilizer shall be the same analysis as specified for *Seeding and Mulching* and applied at the rate of 400 pounds and seeded at the rate of 50 pounds per acre. German Millet, or Browntop Millet shall be used in summer months and rye grain during the remainder of the year. The Engineer will determine the exact dates for using each kind of seed.

**FERTILIZER TOPDRESSING:**

Fertilizer used for topdressing shall be 16-8-8 grade and shall be applied at the rate of 500 pounds per acre. A different analysis of fertilizer may be used provided the 2-1-1 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as 16-8-8 analysis and as directed.

**SUPPLEMENTAL SEEDING:**

The kinds of seed and proportions shall be the same as specified for *Seeding and Mulching*, and the rate of application may vary from 25# to 75# per acre. The actual rate per acre will be determined prior to the time of topdressing and the Contractor will be notified in writing of the rate per acre, total quantity needed, and areas on which to apply the supplemental seed. Minimum tillage equipment, consisting of a sod seeder shall be used for incorporating seed into the soil as to prevent disturbance of existing vegetation. A clodbuster (ball and chain) may be used where degree of slope prevents the use of a sod seeder.

**MOWING:**

The minimum mowing height on this project shall be six inches.

**LAWN TYPE APPEARANCE:**

All areas adjacent to lawns must be hand finished as directed to give a lawn type appearance. Remove all trash, debris, and stones  $\frac{3}{4}$ " and larger in diameter or other obstructions that could interfere with providing a smooth lawn type appearance. These areas shall be reseeded to match their original vegetative conditions, unless directed otherwise by the Field Operations Engineer.

**REFORESTATION:****Description**

*Reforestation* will be planted within interchanges and along the outside borders of the road, and in other areas as directed. *Reforestation* is not shown on the plan sheets. See the Reforestation Detail Sheet.

All non-maintained riparian buffers impacted by the placement of temporary fill or clearing activities shall be restored to the preconstruction contours and revegetated with native woody species.

The entire *Reforestation* operation shall comply with the requirements of Section 1670 of the *Standard Specifications*.

**Materials**

*Reforestation* shall be bare root seedlings 12"-18" tall.

**Construction Methods**

*Reforestation* shall be planted as soon as practical following permanent *Seeding and Mulching*. The seedlings shall be planted in a 16-foot wide swath adjacent to mowing pattern line, or as directed.

Root dip: The roots of reforestation seedlings shall be coated with a slurry of water, and either a fine clay (kaolin) or a superabsorbent that is designated as a bare root dip. The type, mixture ratio, method of application, and the time of application shall be submitted to the Engineer for approval.

With the approval of the Engineer, seedlings may be coated before delivery to the job or at the time of planting, but at no time shall the roots of the seedlings be allowed to dry out. The roots shall be moistened immediately prior to planting.

Seasonal Limitations: *Reforestation* shall be planted from November 15 through March 15.

**Measurement and Payment**

*Reforestation* will be measured and paid for in accordance with Article 1670-17 of the *Standard Specifications*.

**RESPONSE FOR EROSION CONTROL:****Description**

Furnish the labor, materials, tools and equipment necessary to move personnel, equipment, and supplies to the project necessary for the pursuit of any or all of the following work as shown herein, by an approved subcontractor.

<b>Section</b>	<b>Erosion Control Item</b>	<b>Unit</b>
1605	Temporary Silt Fence	LF
1606	Special Sediment Control Fence	LF/TON
1615	Temporary Mulching	ACR
1620	Seed - Temporary Seeding	LB
1620	Fertilizer - Temporary Seeding	TN
1631	Matting for Erosion Control	SY
SP	Coir Fiber Mat	SY

1640	Coir Fiber Baffles	LF
SP	Permanent Soil Reinforcement Mat	SY
1660	Seeding and Mulching	ACR
1661	Seed - Repair Seeding	LB
1661	Fertilizer - Repair Seeding	TON
1662	Seed - Supplemental Seeding	LB
1665	Fertilizer Topdressing	TON
SP	Safety/Highly Visible Fencing	LF
SP	Response for Erosion Control	EA

### **Construction Methods**

Provide an approved subcontractor who performs an erosion control action as described in the NPDES Inspection Form SPPP30. Each erosion control action may include one or more of the above work items.

### **Measurement and Payment**

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

Payment will be made under:

#### **Pay Item**

Response for Erosion Control

#### **Pay Unit**

Each

### **HIGH QUALITY WATERS:**

#### **Description**

The South Fork New River has been identified as high quality waters. This designation requires special procedures to be used for clearing and grubbing, temporary stream crossings, and grading operations within the High Quality Water Zone and as designated by the Engineer. The High Quality Water Zones are identified on the plans as Environmentally Sensitive Areas. This also requires special procedures to be used for seeding and mulching and staged seeding.

The High Quality Water Zone/Environmentally Sensitive Area shall be defined as a 50-foot buffer zone on both sides of the stream measured from top of streambank.

**Construction Methods****(A) Clearing and Grubbing**

In areas identified as High Quality Water Zones/Environmentally Sensitive Areas, the Contractor may perform clearing operations, but not grubbing operations until immediately prior to beginning grading operations as described in Article 200-1 of the *Standard Specifications*. Only clearing operations (not grubbing) shall be allowed in this buffer zone until immediately prior to beginning grading operations. Erosion control devices shall be installed immediately following the clearing operation.

**(B) Grading**

Once grading operations begin in identified High Quality Water Zones/ Environmentally Sensitive Areas, work shall progress in a continuous manner until complete. All construction within these areas shall progress in a continuous manner such that each phase is complete and areas are permanently stabilized prior to beginning of next phase. Failure on the part of the Contractor to complete any phase of construction in a continuous manner in High Quality Water Zones/ Environmentally Sensitive Areas will be just cause for the Engineer to direct the suspension of work in accordance with Article 108-7 of the *Standard Specifications*.

**(C) Temporary Stream Crossings**

Any crossing of streams within the limits of this project shall be accomplished in accordance with the requirements of Subarticle 107-12 of the *Standard Specifications*.

**(D) Seeding and Mulching**

Seeding and mulching shall be performed in accordance with Section 1660 of the *Standard Specifications* and vegetative cover sufficient to restrain erosion shall be installed immediately following grade establishment.

Seeding and mulching shall be performed on the areas disturbed by construction immediately following final grade establishment. No appreciable time shall lapse into the contract time without stabilization of slopes, ditches and other areas within the High Quality Water Zones/Environmentally Sensitive Areas.

**(E) Stage Seeding**

The work covered by this section shall consist of the establishment of a vegetative cover on cut and fill slopes as grading progresses. Seeding and mulching shall be done in stages on cut and fill slopes that are greater than 20 feet in height measured along the slope, or greater than 2 acres in area. Each stage shall not exceed the limits stated above.

Additional payments will not be made for the requirements of this section, as the cost for this work shall be included in the contract unit prices for the work involved.

**MINIMIZE REMOVAL OF VEGETATION:**

The Contractor shall minimize removal of vegetation within project limits to the maximum extent practicable. Vegetation along stream banks and adjacent to other jurisdictional resources outside the construction limits shall only be removed upon approval of Engineer. No additional payment will be made for this minimization work.

**STOCKPILE AREAS:**

The Contractor shall install and maintain erosion control devices sufficient to contain sediment around any erodible material stockpile areas as directed. No earthen-material stockpile shall be located within the 25 foot buffer zone of any surface water classified as trout waters by the Environmental Management Commission.

**ACCESS AND HAUL ROADS:**

At the end of each working day, the Contractor shall install or re-establish temporary diversions or earth berms across access/haul roads to direct runoff into sediment devices. Silt fence sections that are temporarily removed shall be reinstalled across access/haul roads at the end of each working day.

**WASTE AND BORROW SOURCES:**

Payment for temporary erosion control measures, except those made necessary by the Contractor's own negligence or for his own convenience, will be paid for at the appropriate contract unit price for the devices or measures utilized in borrow sources and waste areas.

No additional payment will be made for erosion control devices or permanent seeding and mulching in any commercial borrow or waste pit. All erosion and sediment control practices that may be required on a commercial borrow or waste site will be done at the Contractor's expense.

All offsite Staging Areas, Borrow and Waste sites shall be in accordance with "Borrow and Waste Site Reclamation Procedures for Contracted Projects" located at:

[http://www.ncdot.gov/doh/operations/dp\\_chief\\_eng/roadside/fieldops/downloads/Files/ContractedReclamationProcedures.pdf](http://www.ncdot.gov/doh/operations/dp_chief_eng/roadside/fieldops/downloads/Files/ContractedReclamationProcedures.pdf)

All forms and documents referenced in the "Borrow and Waste Site Reclamation Procedures for Contracted Projects" shall be included with the reclamation plans for offsite staging areas, and borrow and waste sites.

**TEMPORARY DIVERSION:**

This work consists of installation, maintenance, and cleanout of *Temporary Diversions* in accordance with Section 1630 of the *Standard Specifications*. The quantity of excavation for installation and cleanout will be measured and paid for as *Silt Excavation* in accordance with Article 1630-3 of the *Standard Specifications*.

**CLEAN WATER DIVERSION:****Description**

This work consists of installing, maintaining, and removing any and all material required for the construction of clean water diversions. The clean water diversions shall be used to direct water flowing from offsite around/away from specific area(s) of construction.

**Materials**

Refer to Division 10

**Item**

Geotextile for Soil Stabilization, Type 4

**Section**

1056

**Construction Methods**

The Contractor shall install the clean water diversions in accordance with the details in the plans and at locations indicated in the plans, and as directed. Upon installation, the excavated material shall be immediately stabilized as provided in Section 1620 of the *Standard Specifications*. Other stabilization methods may be utilized with prior approval from the Engineer.

Line clean water diversion with geotextile unrolled in the direction of flow and lay smoothly but loosely on soil surface without creases. Bury top of slope geotextile edge in a trench at least 5" deep and tamp securely. Make vertical overlaps a minimum of 18" with upstream geotextile overlapping the downstream geotextile.

Secure geotextile with eleven gauge wire staples shaped into a *u* shape with a length of not less than 6" and a throat not less than 1" in width. Place staples along outer edges and throughout the geotextile a maximum of 3 ft. horizontally and vertically.

**Measurement and Payment**

*Silt Excavation* will be measured and paid for in accordance with Article 1630-4 of the *Standard Specifications*.

*Geotextile for Soil Stabilization* will be measured and paid for in accordance with Article 270-4 of the *Standard Specifications*.

Stabilization of the excavated material will be paid for as *Temporary Seeding* as provided in Section 1620 of the *Standard Specifications*.

Such price and payment shall be considered full compensation for all work covered by this section including all materials, construction, maintenance, and removal of the clean water diversions.

### **SAFETY FENCE AND JURISDICTIONAL FLAGGING:**

#### **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 may be used. Wood posts shall be hardwood with a wedge or pencil tip at one end, and shall be at least 5 ft. in length with a minimum nominal 2" x 2" cross section. Steel posts shall be at least 5 ft. 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 ft., maintained in a vertical position and hand set or set with a post driver. Posts shall be installed a minimum of 2 ft. into the ground. 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 Contractor, be cut at this angle either before or after the posts are erected.

The fence geotextile 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 *Standard Specifications*. No direct pay will be made for the staking of the safety fence. All stakeouts for safety fence shall be considered incidental to the work being paid for as "Construction Surveying", except that where there is no pay item for construction surveying, all safety fence stakeout will be performed by state forces.

The Contractor 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

Boundary flagging 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.

Boundary flagging delineation of interior boundaries will be placed in accordance with Article 105-9 or Article 801-1 of the *Standard Specifications*. No direct pay will be made for delineation of the interior boundaries. This delineation will be considered incidental to the work being paid for as *Construction Surveying*, except that where there is no pay item or construction surveying the cost of boundary flagging delineation shall be included in the unit prices bid for the various items in the contract. 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 of boundary flagging for delineation of all jurisdictional boundaries at staging areas, waste sites, or borrow pits shall be performed in accordance with Subarticle 230-4(B)(5) or Subarticle 802-2(F) of the *Standard Specifications*. No direct pay will be made for this delineation, as the cost of same shall be included in the unit prices bid for the various items in the contract.

The Contractor 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.

### Measurement and Payment

*Safety Fence* will be measured and paid as the actual number of linear feet of polyethylene or polypropylene fence installed in place and accepted. Such payment will be full compensation including but not limited to furnishing and installing fence geotextile with necessary posts and post bracing, staples, tie wires, tools, equipment and incidentals necessary to complete this work.

Payment will be made under:

Pay Item	Pay Unit
Safety Fence	Linear Foot

### **PERMANENT SOIL REINFORCEMENT MAT:**

#### Description

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

#### 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 <sup>2</sup>
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 *Standard Specifications*.

All areas to be protected with the mat shall be brought to final grade and seeded in accordance with Section 1660 of the *Standard Specifications*. 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.

### **Measurement and Payment**

*Permanent Soil Reinforcement Mat* will be measured and paid for as the actual number of square yards measured along the surface of the ground over which Permanent Soil Reinforcement Mat is installed and accepted. Overlaps will not be included in the measurement, and will be considered as incidental to the work. Such payment shall be full compensation for furnishing and installing the mat, including overlaps, and for all required maintenance.

Payment will be made under:

#### **Pay Item**

Permanent Soil Reinforcement Mat

#### **Pay Unit**

Square Yard

### **SKIMMER BASIN WITH BAFFLES:**

#### **Description**

Provide a skimmer basin to remove sediment from construction site runoff at locations shown in the erosion control plans. See the Skimmer Basin with Baffles Detail sheet provided in the erosion control plans. Work includes constructing sediment basin, installation of temporary slope drain pipe and coir fiber baffles, furnishing, installation and cleanout of skimmer, providing and placing stone pad on bottom of basin underneath skimmer device, providing and placing a geotextile spillway liner, providing coir fiber mat stabilization for the skimmer outlet, disposing of excess materials, removing temporary slope drain, coir fiber baffles, geotextile liner and skimmer device, backfilling basin area with suitable material and providing proper drainage when basin area is abandoned.

**Materials**

<b>Item</b>	<b>Section</b>
Stone for Erosion Control, Class B	1042
Geotextile for Soil Stabilization, Type 4	1056
Fertilizer for Temporary Seeding	1060-2
Seed for Temporary Seeding	1060-4
Seeding and Mulching	1060-4
Matting for Erosion Control	1060-8
Staples	1060-8
Coir Fiber Mat	1060-14
Temporary Slope Drain	1622-2
Coir Fiber Baffle	1640

Provide appropriately sized and approved skimmer device.

Provide Schedule 40 PVC pipe with a length of 6 ft. to attach to the skimmer and the coupling connection to serve as the arm pipe. For skimmer sizes of 2.5 in. and smaller, the arm pipe diameter shall be 1.5 inches. For skimmer sizes of 3 in. and larger, refer to manufacturer recommendation.

Provide 4" diameter Schedule 40 PVC pipe to attach to coupling connection of skimmer to serve as the barrel pipe through the earthen dam.

Anchors: Staples, stakes, or reinforcement bars shall be used as anchors.

**Wooden Stakes:**

Provide hardwood stakes 12" - 24" long with a 2" x 2" nominal square cross section. One end of the stake must be sharpened or beveled to facilitate driving through the coir fiber mat and down into the underlying soil. The other end of the stake needs to have a 1" - 2" long head at the top with a 1" - 2" notch following to catch and secure the coir fiber mat.

**Steel Reinforcement Bars:**

Provide uncoated #10 steel reinforcement bars 24" nominal length. The bars shall have a 4" diameter bend at one end with a 4" straight section at the tip to catch and secure the coir fiber mat.

**Staples:**

Provide staples made of 0.125" diameter new steel wire formed into a *u* shape not less than 12" in length with a throat of 1" in width.

## Construction Methods

Excavate basin according to the erosion control plans with basin surface free of obstructions, debris, and pockets of low-density material. Install temporary slope drain pipe and construct the primary spillway according to the Skimmer Basin with Baffles Detail sheet in the erosion control plans. Temporary slope drain pipe at inlet of basin may be replaced by geotextile as directed. Construct the coir fiber baffles according to *Roadway Standard Drawings* No. 1640.01 and Section 1640 of the *Standard Specifications*.

Install skimmer device according to manufacturer recommendations. Install 4" Schedule 40 PVC pipe into dam on the lower side of basin 1 ft. from the bottom of the basin and according to the detail, and extend the pipe so the basin will drain. Attach a 6 ft. arm pipe to the coupling connection and skimmer according to manufacturer recommendations. The coupling shall be rigid and non-buoyant and not exceed a diameter of 4" and 12" in length. Attach the rope included with the skimmer to the tee between the vent socket and the tube inlet, and the other end to a wooden stake or metal post. Clean out skimmer device when it becomes clogged with sediment and/or debris and is unable to float at the top of water in skimmer basin. Take appropriate measures to avoid ice accumulation in the skimmer device. Construct a stone pad of Class B stone directly underneath the skimmer device at bottom of basin. The pad shall be a minimum of 12" in height, and shall have a minimum cross sectional area of 4 ft. by 4 ft.

Line primary spillway with geotextile unrolled in the direction of flow and lay smoothly but loosely on soil surface without creases. Bury edges of geotextile in a trench at least 5" deep and tamp firmly. If geotextile for the primary spillway is not one continuous piece of material, make horizontal overlaps a minimum of 18" with upstream geotextile overlapping the downstream geotextile. Secure geotextile with eleven gauge wire staples shaped into a *u* shape with a length of not less than 12" and a throat not less than 1" in width. Place staples along outer edges and throughout the geotextile a maximum of 3 ft. horizontally and vertically. Geotextile shall be placed to the bottom and across the entire width of the basin according to the Skimmer Basin with Baffles detail. Place sealant inside basin around barrel pipe on top of geotextile with a minimum width of 6 in.

At the skimmer outlet, provide a smooth soil surface free from stones, clods, or debris that will prevent contact of the coir fiber matting with the soil. Unroll the matting and apply without stretching such that it will lie smoothly but loosely on the soil surface. Wooden stakes, reinforcement bars, or staples may be used as anchors in accordance with the details in the plans and as directed. Place anchors across the matting at the ends approximately 1 ft. apart. Place anchors along the outer edges and down the center of the matting 3 ft. apart.

All bare side slope sections of the skimmer basin shall be seeded with a temporary or permanent seed mix as directed and in accordance with Articles 1620-3, 1620-4, 1620-5, 1660-4, 1660-5 and 1660-7 of the *Standard Specifications*. Straw or excelsior matting shall be installed on all bare side slope sections immediately upon the completion of seeding and in accordance with Article 1631-3 of the *Standard Specifications*.

**Measurement and Payment**

*Silt Excavation* will be measured and paid for in accordance with Article 1630-4 of the *Standard Specifications*, as calculated from the typical section throughout the length of the basin as shown on the final approved plans.

*Geotextile for Soil Stabilization* will be measured and paid for in accordance with Article 270-4 of the *Standard Specifications*.

*Coir Fiber Baffles* will be measured and paid for in accordance with Article 1640-4 of the *Standard Specifications*.

\_\_\_" *Skimmer* will be measured in units of each. \_\_\_" *Skimmer* will be measured and paid for as the maximum number of each size skimmer acceptably installed and in use at any one time during the life of the project. Barrel and arm pipe, cleanout, relocation and reinstallation of \_\_\_" *Skimmer* is considered incidental to the measurement of the quantity of \_\_\_" *Skimmer* and no separate payment will be made. No separate payment shall be made if \_\_\_" *Skimmer*, barrel and/or arm pipe(s) are damaged by ice accumulation.

*Coir Fiber Mat* will be measured and paid for as the actual number of square yards measured along the surface of the ground over which coir fiber mat is installed and accepted.

*Temporary Slope Drain* will be measured and paid for in accordance with Article 1622-4 of the *Standard Specifications*.

*Stone for Erosion Control, Class \_\_\_* will be measured and paid for in accordance with Article 1610-4 of the *Standard Specifications*.

*Seeding and Mulching* will be measured and paid for in accordance with Article 1660-8 of the *Standard Specifications*.

*Seed for Temporary Seeding* will be measured and paid for in accordance with Article 1620-6 of the *Standard Specifications*.

*Fertilizer for Temporary Seeding* will be measured and paid for in accordance with Article 1620-6 of the *Standard Specifications*.

*Matting for Erosion Control* will be measured and paid for in accordance with Article 1631-4 of the *Standard Specifications*.

No measurement will be made for other items or for over excavation or stockpiling.

Payment will be made under:

**Pay Item**

\_\_\_" Skimmer  
Coir Fiber Mat

**Pay Unit**

Each  
Square Yard

**TIERED SKIMMER BASIN WITH BAFFLES:**

**Description**

Provide a tiered skimmer basin to remove sediment from construction site runoff at locations shown in the erosion control plans. See the Tiered Skimmer Basin Detail sheet provided in the erosion control plans. Tiered Skimmer Basins shall be installed in areas where topography creates a large elevation difference between the inlet and outlet of a single skimmer basin. Work includes constructing sediment basins, installation of coir fiber baffles, installation of temporary slope drain pipe, furnishing, installation and cleanout of skimmer, providing and placing stone pad on bottom of basin underneath skimmer device, providing and placing geotextile spillway liners, providing coir fiber mat stabilization for the skimmer outlet, disposing of excess materials, removing temporary slope drain pipe, coir fiber baffles, geotextile liner and skimmer device, backfilling basin area with suitable material and providing proper drainage when basin area is abandoned.

**Materials**

<b>Item</b>	<b>Section</b>
Stone for Erosion Control, Class B	1042
Geotextile for Soil Stabilization, Type 4	1056
Fertilizer for Temporary Seeding	1060-2
Seed for Temporary Seeding	1060-4
Seeding and Mulching	1060-4
Matting for Erosion Control	1060-8
Staples	1060-8
Coir Fiber Mat	1060-14
Temporary Slope Drain	1622-2
Coir Fiber Baffle	1640

Provide appropriately sized and approved skimmer device.

Provide Schedule 40 PVC pipe with a length of 6 ft. to attach to the skimmer and the coupling connection to serve as the arm pipe. For skimmer sizes of 2.5 in. and smaller, the arm pipe diameter shall be 1.5 inches. For skimmer sizes of 3 in. and larger, refer to manufacturer recommendation.

Provide 4" diameter Schedule 40 PVC pipe to attach to coupling connection of skimmer to serve as the barrel pipe through the earthen dam.

Anchors: Staples, stakes, or reinforcement bars shall be used as anchors.

Wooden Stakes:

Provide hardwood stakes 12"- 24" long with a 2" x 2" nominal square cross section. One end of the stake must be sharpened or beveled to facilitate driving through the coir fiber mat and down into the underlying soil. The other end of the stake needs to have a 1"- 2" long head at the top with a 1"- 2" notch following to catch and secure the coir fiber mat.

Steel Reinforcement Bars:

Provide uncoated #10 steel reinforcement bars 24" nominal length. The bars shall have a 4" diameter bend at one end with a 4" straight section at the tip to catch and secure the coir fiber mat.

Staples:

Provide staples made of 0.125" diameter new steel wire formed into a *u* shape not less than 12" in length with a throat of 1" in width.

## Construction Methods

Excavate basins according to the erosion control plans with basin surface free of obstructions, debris, and pockets of low-density material. Install temporary slope drain pipe and construct the primary spillways according to the Tiered Skimmer Basin Detail sheet in the erosion control plans. Construct the coir fiber baffles according to *Roadway Standard Drawings* No. 1640.01 and Section 1640 of the *Standard Specifications*. Multiple upper basins, or Modified Silt Basins Type 'B' as labeled on the detail, may be required based on site conditions and as directed.

Install skimmer device according to manufacturer recommendations. Install 4" Schedule 40 PVC pipe into dam on the lower side of basin 1 ft. from the bottom of the basin and according to the detail, and extend the pipe so the basin will drain. Attach a 6 ft. arm pipe to the coupling connection and skimmer according to manufacturer recommendations. The coupling shall be rigid and non-buoyant and not exceed a diameter of 4" and 12" in length. Attach the rope included with the skimmer to the tee between the vent socket and the tube inlet, and the other end to a wooden stake or metal post. Clean out skimmer device when it becomes clogged with sediment and/or debris and is unable to float at the top of water in skimmer basin. Take appropriate measures to avoid ice accumulation in the skimmer device. Construct a stone pad of Class B stone directly underneath the skimmer device at bottom of basin. The pad shall be a minimum of 12" in height, and shall have a minimum cross sectional area of 4 ft. by 4 ft.

Line primary spillways with geotextile unrolled in the direction of flow and lay smoothly but loosely on soil surface without creases. Bury edges of geotextile in a trench at least 5" deep and tamp firmly. If geotextile for primary spillways is not one continuous piece of material, make horizontal overlaps a minimum of 18" with upstream geotextile overlapping the downstream geotextile. Secure geotextile with eleven gauge wire staples shaped into a *u* shape with a length

of not less than 12" and a throat not less than 1" in width. Place staples along outer edges and throughout the geotextile a maximum of 3 ft. horizontally and vertically. Geotextile shall be placed to the bottom and across the entire width of the basin according to the Tiered Skimmer Basin with Baffles detail.

At the skimmer outlet, provide a smooth soil surface free from stones, clods, or debris that will prevent contact of the coir fiber matting with the soil. Unroll the matting and apply without stretching such that it will lie smoothly but loosely on the soil surface. Wooden stakes, reinforcement bars, or staples may be used as anchors in accordance with the details in the plans and as directed. Place anchors across the matting at the ends approximately 1 ft. apart. Place anchors along the outer edges and down the center of the matting 3 ft. apart. Place sealant inside basin around barrel pipe on top of geotextile with a minimum width of 6 in.

All bare side slope sections of the skimmer basin shall be seeded with a temporary or permanent seed mix as directed and in accordance with Articles 1620-3, 1620-4, 1620-5, 1660-4, 1660-5 and 1660-7 of the *Standard Specifications*. Straw or excelsior matting shall be installed on all bare side slope sections immediately upon the completion of seeding and in accordance with Article 1631-3 of the *Standard Specifications*.

### **Measurement and Payment**

*Silt Excavation* will be measured and paid for in accordance with Article 1630-4 of the *Standard Specifications*, as calculated from the typical section throughout the length of the basin as shown on the final approved plans.

*Geotextile for Soil Stabilization* will be measured and paid for in accordance with Article 270-4 of the *Standard Specifications*.

*Coir Fiber Baffles* will be measured and paid for in accordance with Article 1640-4 of the *Standard Specifications*.

\_\_\_" *Skimmer* will be measured in units of each. \_\_\_" *Skimmer* will be measured and paid for as the maximum number of each size skimmer acceptably installed and in use at any one time during the life of the project. Barrel and arm pipe, cleanout, relocation and reinstallation of \_\_\_" *Skimmer* is considered incidental to the measurement of the quantity of \_\_\_" *Skimmer* and no separate payment will be made. No separate payment shall be made if \_\_\_" *Skimmer*, barrel and/or arm pipe(s) are damaged by ice accumulation.

*Coir Fiber Mat* will be measured and paid for as the actual number of square yards measured along the surface of the ground over which coir fiber mat is installed and accepted.

*Temporary Slope Drain* will be measured and paid for in accordance with Article 1622-4 of the *Standard Specifications*.

*Stone for Erosion Control, Class \_\_\_* will be measured and paid for in accordance with Article 1610-4 of the *Standard Specifications*.

*Seeding and Mulching* will be measured and paid for in accordance with Article 1660-8 of the *Standard Specifications*.

*Seed for Temporary Seeding* will be measured and paid for in accordance with Article 1620-6 of the *Standard Specifications*.

*Fertilizer for Temporary Seeding* will be measured and paid for in accordance with Article 1620-6 of the *Standard Specifications*.

*Matting for Erosion Control* will be measured and paid for in accordance with Article 1631-4 of the *Standard Specifications*.

No measurement will be made for other items or for over excavation or stockpiling.

Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
___" Skimmer	Each
Coir Fiber Mat	Square Yard

### **COIR FIBER WATTLES WITH POLYACRYLAMIDE (PAM):**

#### **Description**

Coir Fiber Wattles are tubular products consisting of coir fibers (coconut fibers) encased in coir fiber netting. Coir Fiber Wattles are used on slopes or channels to intercept runoff and act as a velocity break. Coir Fiber Wattles are to be placed at locations shown on the plans or as directed. Installation shall follow the detail provided in the plans and as directed. Work includes furnishing materials, installation of coir fiber wattles, matting installation, PAM application, and removing wattles.

#### **Materials**

Coir Fiber Wattle shall meet the following specifications:

100% Coir (Coconut) Fibers	
Minimum Diameter	12 in.
Minimum Density	3.5 lb/ft <sup>3</sup> +/- 10%
Net Material	Coir Fiber
Net Openings	2 in. x 2 in.
Net Strength	90 lbs.
Minimum Weight	2.6 lbs./ft. +/- 10%

Anchors: Stakes shall be used as anchors.

**Wooden Stakes:**

Provide hardwood stakes a minimum of 2-ft. long with a 2 in. x 2 in. nominal square cross section. One end of the stake must be sharpened or beveled to facilitate driving down into the underlying soil.

Matting shall meet the requirements of Article 1060-8 of the *Standard Specifications*, or shall meet specifications provided elsewhere in this contract.

Provide staples made of 0.125" diameter new steel wire formed into a *u* shape not less than 12" in length with a throat of 1" in width.

Polyacrylamide (PAM) shall be applied in powder form and shall be anionic or neutrally charged. Soil samples shall be obtained in areas where the wattles will be placed, and from offsite material used to construct the roadway, and analyzed for the appropriate PAM flocculant to be utilized with each wattle. The PAM product used shall be listed on the North Carolina Department of Environment and Natural Resources (NCDENR) Division of Water Quality (DWQ) web site as an approved PAM product for use in North Carolina.

**Construction Methods**

Coir Fiber Wattles shall be secured to the soil by wire staples approximately every 1 linear foot and at the end of each section of wattle. A minimum of 4 stakes shall be installed on the downstream side of the wattle with a maximum spacing of 2 linear feet along the wattle, and according to the detail. Install a minimum of 2 stakes on the upstream side of the wattle according to the detail provided in the plans. Stakes shall be driven into the ground a minimum of 10 in. with no more than 2 in. projecting from the top of the wattle. Drive stakes at an angle according to the detail provided in the plans.

Only install coir fiber wattle(s) to a height in ditch so flow will not wash around wattle and scour ditch slopes and according to the detail provided in the plans and as directed. Overlap adjoining sections of wattles a minimum of 6 in.

Installation of matting shall be in accordance with the detail provided in the plans, and in accordance with Article 1631-3 of the *Standard Specifications*, or in accordance with specifications provided elsewhere in this contract.

Apply PAM over the lower center portion of the coir fiber wattle where the water is going to flow over at a rate of 2 ounces per wattle, and 1 ounce of PAM on matting on each side of the wattle. PAM applications shall be done during construction activities after every rainfall event that is equal to or exceeds 0.50 in.

The Contractor shall maintain the coir fiber wattles until the project is accepted or until the wattles are removed, and shall remove and dispose of silt accumulations at the wattles when so directed in accordance with the requirements of Section 1630 of the *Standard Specifications*.

**Measurement and Payment**

*Coir Fiber Wattles* will be measured and paid for by the actual number of linear feet of wattles which are installed and accepted. Such price and payment will be full compensation for all work covered by this section, including, but not limited to, furnishing all materials, labor, equipment and incidentals necessary to install the *Coir Fiber Wattles*.

Matting will be measured and paid for in accordance with Article 1631-4 of the *Standard Specifications*, or in accordance with specifications provided elsewhere in this contract.

*Polyacrylamide(PAM)* will be measured and paid for by the actual weight in pounds of PAM applied to the coir fiber wattles. Such price and payment will be full compensation for all work covered by this section, including, but not limited to, furnishing all materials, labor, equipment and incidentals necessary to apply the *Polyacrylamide(PAM)*.

Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
Polyacrylamide(PAM)	Pound
Coir Fiber Wattle	Linear Foot

**TEMPORARY ROCK SILT CHECK TYPE A WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM):****Description**

Temporary Rock Silt Checks Type A with Excelsior Matting and Polyacrylamide (PAM) are devices utilized in temporary and permanent ditches to reduce runoff velocity and incorporate PAM into the construction runoff to increase settling of sediment particles and reduce turbidity of runoff. Temporary Rock Silt Checks Type A with Excelsior Matting and PAM are to be placed at locations shown on the plans or as directed. Installation shall follow the detail provided in the plans and as directed. Work includes furnishing materials, installation of Temporary Rock Silt Checks Type A, matting installation, PAM application, and removing Temporary Rock Silt Checks Type A with Excelsior Matting and PAM.

**Materials**

Structural stone shall be class B stone that meets the requirements of Section 1042 of the *Standard Specifications* for Stone for Erosion Control, Class B.

Sediment control stone shall be #5 or #57 stone, which meets the requirements of Section 1005 of the *Standard Specifications* for these stone sizes.

Matting shall meet the requirements of Excelsior Matting in Subarticle 1060-8(B) of the *Standard Specifications*, or shall meet specifications provided elsewhere in this contract.

Polyacrylamide (PAM) shall be applied in powder form and shall be anionic or neutrally charged. Soil samples shall be obtained in areas where the Temporary Rock Silt Checks Type A with Excelsior Matting and PAM will be placed, and from offsite material used to construct the roadway, and analyzed for the appropriate PAM flocculant to be utilized with each Temporary Rock Silt Check Type A. The PAM product used shall be listed on the North Carolina Department of Environment and Natural Resources (NCDENR) Division of Water Quality (DWQ) web site as an approved PAM product for use in North Carolina.

### **Construction Methods**

Temporary Rock Silt Checks Type A shall be installed in accordance with Subarticle 1633-3(A) of the *Standard Specifications*, Roadway Standard Drawing No. 1633.01 and the detail provided in the plans.

Installation of matting shall be in accordance with the detail provided in the plans, and anchored by placing Class B stone on top of the matting at the upper and lower ends.

Apply PAM at a rate of 4 ounces over the center portion of the Temporary Rock Silt Checks Type A and matting where the water is going to flow over. PAM applications shall be done during construction activities and after every rainfall event that is equal to or exceeds 0.50 in.

The Contractor shall maintain the Temporary Rock Silt Checks Type A with Excelsior Matting and PAM until the project is accepted or until the Temporary Rock Silt Checks Type A with Excelsior Matting and PAM are removed, and shall remove and dispose of silt accumulations at the Temporary Rock Silt Checks Type A with Excelsior Matting and PAM when so directed in accordance with the requirements of Section 1630 of the *Standard Specifications*.

### **Measurement and Payment**

*Temporary Rock Silt Checks Type A* will be measured and paid for in accordance with Article 1633-5 of the *Standard Specifications*, or in accordance with specifications provided elsewhere in this contract.

Matting will be measured and paid for in accordance with Article 1631-4 of the *Standard Specifications*, or in accordance with specifications provided elsewhere in this contract.

*Polyacrylamide(PAM)* will be measured and paid for by the actual weight in pounds of PAM applied to the Temporary Rock Silt Checks Type A. Such price and payment will be full compensation for all work covered by this section, including, but not limited to, furnishing all materials, labor, equipment and incidentals necessary to apply the *Polyacrylamide(PAM)*.

Payment will be made under:

#### **Pay Item**

Polyacrylamide(PAM)

#### **Pay Unit**

Pound

**IMPERVIOUS DIKE:****Description**

This work consists of furnishing, installing, maintaining, and removing an *Impervious Dike* for the purpose of diverting normal stream flow around the construction site. The Contractor shall construct an impervious dike in such a manner approved by the Engineer. The impervious dike shall not permit seepage of water into the construction site or contribute to siltation of the stream. The impervious dike shall be constructed of an acceptable material in the locations noted on the plans or as directed.

**Materials**

Acceptable materials shall include but not be limited to sheet piles, sandbags, and/or the placement of an acceptable size stone lined with polypropylene or other impervious geotextile.

Earth material shall not be used to construct an impervious dike when it is in direct contact with the stream unless vegetation can be established before contact with the stream takes place.

**Measurement and Payment**

*Impervious Dike* will be measured and paid as the actual number of linear feet of impervious dike(s) constructed, measured in place from end to end of each separate installation that has been completed and accepted. Such price and payment will be full compensation for all work including but not limited to furnishing materials, construction, maintenance, and removal of the impervious dike.

Payment will be made under:

**Pay Item**

Impervious Dike

**Pay Unit**

Linear Foot

**TEMPORARY PIPE FOR CULVERT CONSTRUCTION:****Description**

This work consists of furnishing, installing, maintaining and removing any and all temporary pipe used on this project in conjunction with the culvert construction.

**Construction Methods**

The Contractor shall install temporary pipe in locations shown on the plans in such a manner approved by the Engineer. The temporary pipe shall provide a passageway for the stream through the work-site. The minimum size requirements will be as stated on the erosion control plans.

**Measurement and Payment**

\_\_\_" *Temporary Pipe* will be measured and paid for at the contract unit price per linear foot of temporary pipe approved by the Engineer and measured in place from end to end. Such price and payment will be full compensation for all work covered by this section including but not limited to furnishing all materials required for installation, construction, maintenance, and removal of temporary pipe.

Payment will be made under:

**Pay Item****Pay Unit**

\_\_\_" Temporary Pipe

Linear Foot

**COIR FIBER MAT:****Description**

Furnish material, install and maintain coir fiber mat in locations shown on the plans or in locations as directed. Work includes providing all materials, excavating and backfilling, and placing and securing coir fiber mat with stakes, steel reinforcement bars or staples as directed.

**Materials****Item****Section**

Coir Fiber Mat

1060-14

Anchors: Stakes, reinforcement bars, or staples shall be used as anchors.

**Wooden Stakes:**

Provide hardwood stakes 12"- 24" long with a 2" x 2" nominal square cross section. One end of the stake must be sharpened or beveled to facilitate driving through the coir fiber mat and down into the underlying soil. The other end of the stake needs to have a 1"- 2" long head at the top with a 1"- 2" notch following to catch and secure the coir fiber mat.

**Steel Reinforcement Bars:**

Provide uncoated #10 steel reinforcement bars 24" nominal length. The bars shall have a 4" diameter bend at one end with a 4" straight section at the tip to catch and secure the coir fiber mat.

**Staples:**

Provide staples made of 0.125" diameter new steel wire formed into a *u* shape not less than 12" in length with a throat of 1" in width.

## Construction Methods

Place the coir fiber mat immediately upon final grading. Provide a smooth soil surface free from stones, clods, or debris that will prevent the contact of the mat with the soil. Unroll the mat and apply without stretching such that it will lie smoothly but loosely on the soil surface.

For stream relocation applications, take care to preserve the required line, grade, and cross section of the area covered. Bury the top slope end of each piece of mat in a narrow trench at least 6 in. deep and tamp firmly. Where one roll of matting ends and a second roll begins, overlap the end of the upper roll over the buried end of the second roll so there is a 6 in. overlap. Construct check trenches at least 12 in. deep every 50 ft. longitudinally along the edges of the mat or as directed. Fold over and bury mat to the full depth of the trench, close and tamp firmly. Overlap mat at least 6 in. where 2 or more widths of mat are installed side by side.

Place anchors across the mat at the ends approximately 1 ft. apart. Place anchors along the outer edges and down the center of the mat 3 ft. apart.

Adjustments in the trenching or anchoring requirements to fit individual site conditions may be required.

## Measurement and Payment

*Coir Fiber Mat* will be measured and paid for as the actual number of square yards measured along the surface of the ground over which coir fiber mat is installed and accepted.

No measurement will be made for anchor items.

Payment will be made under:

Pay Item	Pay Unit
Coir Fiber Mat	Square Yard

## STREAMBANK REFORESTATION:

### Description

*Streambank Reforestation* will be planted in areas designated on the plans and as directed. See the Streambank Reforestation Detail Sheets.

The entire *Streambank Reforestation* operation shall comply with the requirements of Section 1670 of the *Standard Specifications*.

## Materials

Item	Section
Coir Fiber Mat	1060-14

**Live Stakes:**

*Type I Streambank Reforestation* shall be live stakes, planted along both streambanks. Live stakes shall be ½" - 2" in diameter. Stakes shall also be 2 ft. - 3 ft. in length.

Live staking plant material shall consist of a random mix made up of 50% Black Willow (*Salix nigra*) and 50% Silky Dogwood (*Cornus amomum*). Other species may be substituted upon approval of the Engineer. All plant material shall be harvested locally (within the same physiographic ecoregion and plant hardiness zone) or purchased from a local nursery, with the approval of the Engineer. All live stakes shall be dormant at time of acquisition and planting.

Staples, stakes, or reinforcement bars shall be used as anchors and shall meet the following requirements:

**Wooden Stakes:**

Provide hardwood stakes 12" - 24" long with a 2" x 2" nominal square cross section. One end of the stake must be sharpened or beveled to facilitate driving through the coir fiber mat and down into the underlying soil. The other end of the stake needs to have a 1" - 2" long head at the top with a 1" - 2" notch following to catch and secure the coir fiber mat.

**Steel Reinforcement Bars:**

Provide uncoated #10 steel reinforcement bars 24" nominal length. The bars shall have a 4" diameter bend at one end with a 4" straight section at the tip to catch and secure the coir fiber mat.

**Staples:**

Provide staples made of 0.125" diameter new steel wire formed into a *u* shape not less than 12" in length with a throat of 1" in width.

**Bare Root Seedlings:**

*Type II Streambank Reforestation* shall be bare root seedlings 12"-18" tall.

**Construction Methods**

Coir fiber matting shall be installed on the streambanks where live staking is to be planted as shown on the Streambank Reforestation Detail Sheets and in locations as directed. Work includes providing all materials, excavating and backfilling, and placing and securing coir fiber mat.

Provide a smooth soil surface free from stones, clods, or debris that will prevent the contact of the matting with the soil. Place the matting immediately upon final grading and permanent seeding. Take care to preserve the required line, grade, and cross section of the area covered.

Unroll the matting and apply without stretching such that it will lie smoothly but loosely on the soil surface. Bury the top slope end of each piece of matting in a narrow trench at least 6" deep and tamp firmly. Where one roll of matting ends and a second roll begins, overlap the end of the upper roll over the buried end of the second roll so there is a 6" overlap. Construct check trenches at least 12" deep every 50 ft. longitudinally along the edges of the matting, or as directed. Fold over and bury matting to the full depth of the trench, close and tamp firmly. Overlap matting at least 6" where 2 or more widths of matting are installed side by side.

Wooden stakes, reinforcement bars, or staples may be used as anchors in accordance with the Streambank Reforestation Detail Sheets and as directed. Place anchors across the matting at ends, junctions, and check trenches approximately 1 ft. apart. Place anchors down the center of each strip of matting 3 ft. apart. Place anchors along all lapped edges 1 ft. apart. Refer to the Streambank Reforestation Detail Sheets for anchoring pattern. The Engineer may require adjustments in the trenching or anchoring requirements to fit individual site conditions.

During preparation of the live stakes, the basal ends shall be cleanly cut at an angle to facilitate easy insertion into the soil, while the tops shall be cut square or blunt for tamping. All limbs shall be removed from the sides of the live cutting prior to installation.

Live stakes shall be installed within 48 hours of cutting. Outside storage locations should be continually shaded and protected from wind and direct sunlight. Live cut plant material shall remain moist at all times before planting.

Stakes shall be spaced approximately 4 ft. on center. Live stakes shall be installed according to the configuration presented on the Streambank Reforestation Detail Sheets.

Tamp live stakes perpendicularly into the finished bank slope with a dead blow hammer, with buds oriented in an upward direction. Stakes should be tamped until approximately  $\frac{3}{4}$  of the stake length is within the ground. The area around each live stake shall be compacted by foot after the live stake has been installed.

1"- 2" shall be cut cleanly off of the top of each live stake with loppers at an angle of approximately 15 degrees following installation. Any stakes that are split or damaged during installation shall be removed and replaced.

The bare root seedlings shall be planted as soon as practical following permanent *Seeding and Mulching*. The seedlings shall be planted from top of bank out, along both sides of the stream, as designated on the plans.

Root dip: The roots of reforestation seedlings shall be coated with a slurry of water, and either a fine clay (kaolin) or a superabsorbent that is designated as a bare root dip. The type, mixture

ratio, method of application, and the time of application shall be submitted to the Engineer for approval.

With the approval of the Engineer, seedlings may be coated before delivery to the job or at the time of planting, but at no time shall the roots of the seedlings be allowed to dry out. The roots shall be moistened immediately prior to planting.

Seasonal Limitations: Streambank reforestation shall be planted from November 15 through March 15.

### **Measurement and Payment**

*Streambank Reforestation* will be measured and paid for as the actual number of acres of land measured along the surface of the ground, which has been acceptably planted in accordance with this section.

Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
Streambank Reforestation	Acre

### **CONCRETE WASHOUT STRUCTURE:**

(12-01-15)

### **Description**

Concrete washout structures are enclosures above or below grade to contain concrete waste water and associated concrete mix from washing out ready-mix trucks, drums, pumps, or other equipment. Concrete washouts must collect and retain all the concrete washout water and solids, so that this material does not migrate to surface waters or into the ground water. These enclosures are not intended for concrete waste not associated with wash out operations.

The concrete washout structure may include constructed devices above or below ground and or commercially available devices designed specifically to capture concrete waste water.

### **Materials**

<b>Item</b>	<b>Section</b>
Temporary Silt Fence	1605

*Safety Fence* shall meet the specifications as provided elsewhere in this contract.

Geomembrane basin liner shall meet the following minimum physical properties for low permeability; it shall consist of a polypropylene or polyethylene 10 mil thick geomembrane. If the minimum setback dimensions can be achieved the liner is not required. (5 feet above

groundwater, 50 feet from top of bank of perennial stream, other surface water body, or wetland.)

### **Construction Methods**

Build an enclosed earthen berm or excavate to form an enclosure in accordance with the details and as directed.

Install temporary silt fence around the perimeter of the enclosure in accordance with the details and as directed if structure is not located in an area where existing erosion and sedimentation control devices are capable to containing any loss of sediment.

Post a sign with the words “Concrete Washout” in close proximity of the concrete washout area, so it is clearly visible to site personnel.

The construction details for the above grade and below grade concrete washout structures can be found on the following web page link:

[http://www.ncdot.gov/doh/operations/dp\\_chief\\_eng/roadside/soil\\_water/details/](http://www.ncdot.gov/doh/operations/dp_chief_eng/roadside/soil_water/details/)

Alternate details for accommodating concrete washout may be submitted for review and approval.

The alternate details shall include the method used to retain and dispose of the concrete waste water within the project limits and in accordance with the minimum setback requirements. (5 feet above groundwater, 50 feet from top of bank of perennial stream, other surface water body, or wetland.)

### **Maintenance and Removal**

Maintain the concrete washout structure(s) to provide adequate holding capacity plus a minimum freeboard of 12 inches. Remove and dispose of hardened concrete and return the structure to a functional condition after reaching 75% capacity.

Inspect concrete washout structures for damage and maintain for effectiveness.

Remove the concrete washout structures and sign upon project completion. Grade the earth material to match the existing contours and permanently seed and mulch area.

### **Measurement and Payment**

*Concrete Washout Structure* will be paid for per each enclosure installed in accordance with the details. If alternate details are approved then those details will also be paid for per each approved and installed device.

*Temporary Silt Fence* will be measured and paid for in accordance with Article 1605-5 of the *Standard Specifications*.

No measurement will be made for other items or for over excavation or stockpiling.

Payment will be made under:

**Pay Item**

Concrete Washout Structure

**Pay Unit**

Each

**FABRIC INSERT INLET PROTECTION DEVICE**

**Description**

This work shall consist of installing, maintaining, and removing *Fabric Insert Inlet Protection Device*, of the type specified, in inlet structures (catch basins, drop inlets, etc) in areas where asphalt or concrete may not be fully removed in lieu Rock Inlet Sediment Traps Type C, or as directed.

**Materials**

The product shall be a fabric inlet protection device composed of a fitted woven polypropylene geotextile double sewn with nylon thread. The *Fabric Insert Inlet Protection Device* shall be manufactured to fit the opening of the catch basin or drop inlet and will have two dump straps attached at the bottom to facilitate the emptying of the device and shall have lifting loops for lifting the device from the basin. The *Fabric Insert Inlet Protection Device* shall have a restraint cord approximately halfway up the bag to keep the sides away from the catch basin walls.

The stitching shall meet the following physical properties:

<b>Physical</b>	<b>Test Method</b>	<b>English</b>
Average Wide Width Strength	ASTM D-4884	165 lb/in

The fitted filter assembly shall have the following physical properties:

<b>Physical</b>	<b>Test Method</b>	<b>English</b>
Grab Tensile	ASTM D-4632	315 x 300 lbs
Grab Elongation	ASTM D-4632	15 x 15 %
Minimum Puncture Strength	ASTM D-4833	125 lbs
Mullen Burst	ASTM D-3786	650 PSI
Minimum UV Resistance	ASTM D-4355	90 %.
Flow Rate	ASTM D-4491	40 gal/min/ft <sup>2</sup>
Apparent Opening	ASTM D-4751	40 US Sieve
Permittivity	ASTM D-4491	0.55 sec <sup>-1</sup>

### Construction Methods

Strictly comply with manufacturer's installation instructions and recommendations. Maintenance shall include regular daily inspections and after each qualifying rain event. The *Fabric Insert Inlet Protection Device* shall be emptied, cleaned and placed back into the basin when it reaches 50% capacity or as directed.

### Measurement and Payment

This work will be paid for at the contract unit price per *Fabric Insert Inlet Protection Device* of the type specified, complete in place and accepted. Such payment shall be full compensation for furnishing and installing the *Fabric Insert Inlet Protection Device* in accordance with this specification and for all required maintenance.

Maintenance of the device, cleanout and disposal of accumulated sediments shall be paid for by *Fabric Insert Inlet Protection Device Cleanout*.

Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
Fabric Insert Inlet Protection Device	Each
Fabric Insert Inlet Protection Device Cleanout	Each

### **TEMPORARY PIPE FOR CLEAN WATER DIVERSION:**

(05-04-2016)

### Description

This work consists of furnishing, installing, reinstalling, maintaining and removing any and all temporary pipe, anchoring, connection and outlet protection used on this project in conjunction with the clean water diversions. The temporary pipe for clean water diversion shall be used to direct water flowing from offsite around/away from specific area(s) of construction.

### Materials

Provide flexible plastic pipe and fittings meeting AASHTO M 294 of minimum size as stated in the erosion control plans.

Refer to Division 10

<b>Item</b>	
Corrugated HDPE Pipe	1032
Geotextile for Soil Stabilization, Type 2	1056
Rip Rap Class '1'	1042

(See Project Special Provisions for Revised Section 1056 Geosynthetics)

**Construction Methods**

The Contractor shall install temporary pipe in locations shown on the plans in such a manner approved by the Engineer. The temporary pipe for clean water diversion shall provide a passageway for offsite stormwater runoff to be routed around or through the work-site. The minimum size requirements will be as stated on the erosion control plans. Install pipe at the outlet of Clean Water Diversions or connect to existing pipes as shown on the plans. Anchor the pipe in accordance with 1622.01 of the *Roadway Standard Drawings*. Construct pipe outlet geotextile and stone in accordance with 876.02 of the *Roadway Standard Drawings*. The pipe shall remain in place unless an area is under active construction and may be temporarily moved for construction operations as approved by the Engineer. The pipe shall be connected prior to any rainfall event and as directed.

**Measurement and Payment**

\_\_\_" *Temporary Pipe for Clean Water Diversion* will be measured and paid for at the contract unit price per linear foot of temporary pipe approved by the Engineer and measured in place from end to end. Such price and payment will be full compensation for all work covered by this section including but not limited to furnishing all materials required for installation, construction, maintenance, and removal of temporary pipe.

*Geotextile for Soil Stabilization* will be measured and paid for in accordance with Article 270-4 of the *Standard Specifications*.

*Riprap, Class \_\_\_* will be measured and paid for in accordance with Article 876-4 of the *Standard Specifications*.

*Reinstallation of Temporary Pipe for Clean Water Diversion* shall be measured and paid for at the contract unit price per linear foot of pipe reinstalled at locations shown on the plans and as directed and approved by the Engineer. Such price and payment shall be full compensation of the reinstallation of the pipe.

Payment will be made under:

**Pay Item**

\_\_\_" Temporary Pipe  
Reinstallation of Temporary Pipe for Clean Water Diversion

**Pay Unit**

Linear Foot  
Linear Foot

# ST-1

Project R-2915C

Ashe County

## Project Special Provisions Culvert

### Table of Contents

	Page #
Construction, Maintenance & Removal of Temporary Structure at Station 374+56.00 -L- (SPECIAL)	ST-2
Falsework and Formwork (4-5-12)	ST-2
Submittal of Working Drawings (6-19-15)	ST-8
Crane Safety (8-15-05)	ST-15
Grout for Structures (9-30-11)	ST-15
Asbestos Assessment for Bridge Demolition and Renovation Activities (12-30-15)	ST-17
Removal of Existing Structures at Sta. 374+56.00 -L- (SPECIAL)	ST-19

For MSE Walls, see Geotechnical special provisions.

8/16/2016



DocuSigned by:  
*Wael Arafat*  
4139C12A32AB406...

## **PROJECT SPECIAL PROVISIONS** **CULVERT**

**PROJECT R-2915C**

**ASHE COUNTY**

### **CONSTRUCTION, MAINTENANCE AND REMOVAL** **OF TEMPORARY STRUCTURE AT STATION 374+56.00-L-**

**(SPECIAL)**

Construct, maintain and afterwards remove a temporary aluminum box culvert and temporary top slab in accordance with the applicable parts of the Standard Specifications, this Special Provision and the manufacturer's recommendations. Provide a temporary aluminum box culvert with a minimum overall length of 45 feet, and a clear opening as shown in the Erosion Control plans.

Design of the temporary aluminum box culvert, supplemental support plates, and temporary top slab shall be the responsibility of the Contractor and shall comply with the latest AASHTO design specifications and requirements. The Contractor shall submit to the Engineer, fourteen (14) days prior to commencing work at the site, two sets of detailed plans and design calculations that have been checked and sealed by a North Carolina Registered Professional Engineer.

Construction loads that exceed highway load limits are not allowed on the structure without approval from the Engineer. Live load traffic is not allowed on the structure until the structure has been backfilled and paved.

Upon removal, the temporary aluminum box culvert shall become the property of the N.C. Department of Transportation. Deliver the material to NCDOT Bridge Maintenance Yard at 1989 NC Hwy 194 N. Boone, NC 28607. Contact David Scott at 828-268-6062 or David Wayne at 336-903-9124 at least one week prior to delivery. Bridge Maintenance Unit will provide the manpower and equipment to unload the material. Coordinate with the Bridge Maintenance Unit for loading sections in accordance with their equipment's unloading capabilities. All material shall be removed carefully without damage.

No separate payment will be made for select backfill material required for use with the temporary aluminum box culvert, including hauling, furnishing, and placing and removing select backfill material.

The lump sum price bid for "Construction, Maintenance and Removal of Temporary Structure at Station 374+56.00 -L-" will be full compensation for the above work including all materials, equipment, tools, labor and incidentals necessary to complete and monitor the work.

### **FALSEWORK AND FORMWORK**

**(4-5-12)**

#### **1.0 DESCRIPTION**

Use this Special Provision as a guide to develop temporary works submittals required by the Standard Specifications or other provisions; no additional submittals are required herein. Such temporary works include, but are not limited to, falsework and formwork.

Falsework is any temporary construction used to support the permanent structure until it becomes self-supporting. Formwork is the temporary structure or mold used to retain

plastic or fluid concrete in its designated shape until it hardens. Access scaffolding is a temporary structure that functions as a work platform that supports construction personnel, materials, and tools, but is not intended to support the structure. Scaffolding systems that are used to temporarily support permanent structures (as opposed to functioning as work platforms) are considered to be falsework under the definitions given. Shoring is a component of falsework such as horizontal, vertical, or inclined support members. Where the term “temporary works” is used, it includes all of the temporary facilities used in bridge construction that do not become part of the permanent structure.

Design and construct safe and adequate temporary works that will support all loads imposed and provide the necessary rigidity to achieve the lines and grades shown on the plans in the final structure.

## **2.0 MATERIALS**

Select materials suitable for temporary works; however, select materials that also ensure the safety and quality required by the design assumptions. The Engineer has authority to reject material on the basis of its condition, inappropriate use, safety, or nonconformance with the plans. Clearly identify allowable loads or stresses for all materials or manufactured devices on the plans. Revise the plan and notify the Engineer if any change to materials or material strengths is required.

## **3.0 DESIGN REQUIREMENTS**

### **A. Working Drawings**

Provide working drawings for items as specified in the contract, or as required by the Engineer, with design calculations and supporting data in sufficient detail to permit a structural and safety review of the proposed design of the temporary work.

On the drawings, show all information necessary to allow the design of any component to be checked independently as determined by the Engineer.

When concrete placement is involved, include data such as the drawings of proposed sequence, rate of placement, direction of placement, and location of all construction joints. Submit the number of copies as called for by the contract.

When required, have the drawings and calculations prepared under the guidance of, and sealed by, a North Carolina Registered Professional Engineer who is knowledgeable in temporary works design.

If requested by the Engineer, submit with the working drawings manufacturer’s catalog data listing the weight of all construction equipment that will be supported on the temporary work. Show anticipated total settlements and/or deflections of falsework and forms on the working drawings. Include falsework footing settlements, joint take-up, and deflection of beams or girders.

## ST-4

R-2915C

Ashe Co.

As an option for the Contractor, overhang falsework hangers may be uniformly spaced, at a maximum of 36 inches, provided the following conditions are met:

Member Type (PCG)	Member Depth, (inches)	Max. Overhang Width, (inches)	Max. Slab Edge Thickness, (inches)	Max. Screed Wheel Weight, (lbs.)	Bracket Min. Vertical Leg Extension, (inches)
II	36	39	14	2000	26
III	45	42	14	2000	35
IV	54	45	14	2000	44
MBT	63	51	12	2000	50
MBT	72	55	12	1700	48

Overhang width is measured from the centerline of the girder to the edge of the deck slab.

For Type II, III & IV prestressed concrete girders (PCG), 45-degree cast-in-place half hangers and rods must have a minimum safe working load of 6,000 lbs.

For MBT prestressed concrete girders, 45-degree angle holes for falsework hanger rods shall be cast through the girder top flange and located, measuring along the top of the member, 1'-2½" from the edge of the top flange. Hanger hardware and rods must have a minimum safe working load of 6,000 lbs.

The overhang bracket provided for the diagonal leg shall have a minimum safe working load of 3,750 lbs. The vertical leg of the bracket shall extend to the point that the heel bears on the girder bottom flange, no closer than 4 inches from the bottom of the member. However, for 72-inch members, the heel of the bracket shall bear on the web, near the bottom flange transition.

Provide adequate overhang falsework and determine the appropriate adjustments for deck geometry, equipment, casting procedures and casting conditions.

If the optional overhang falsework spacing is used, indicate this on the falsework submittal and advise the girder producer of the proposed details. Failure to notify the Engineer of hanger type and hanger spacing on prestressed concrete girder casting drawings may delay the approval of those drawings.

Falsework hangers that support concentrated loads and are installed at the edge of thin top flange concrete girders (such as bulb tee girders) shall be spaced so as not to exceed 75% of the manufacturer's stated safe working load. Use of dual leg hangers (such as Meadow Burke HF-42 and HF-43) are not allowed on concrete girders with thin top flanges. Design the falsework and forms supporting deck slabs and overhangs on girder bridges so that there will be no differential settlement between the girders and the deck forms during placement of deck concrete.

When staged construction of the bridge deck is required, detail falsework and forms for screed and fluid concrete loads to be independent of any previous deck pour components when the mid-span girder deflection due to deck weight is greater than  $\frac{3}{4}$ ".

Note on the working drawings any anchorages, connectors, inserts, steel sleeves or other such devices used as part of the falsework or formwork that remains in the permanent structure. If the plan notes indicate that the structure contains the necessary corrosion protection required for a Corrosive Site, epoxy coat, galvanize or metalize these devices. Electroplating will not be allowed. Any coating required by the Engineer will be considered incidental to the various pay items requiring temporary works.

Design falsework and formwork requiring submittals in accordance with the 1995 AASHTO *Guide Design Specifications for Bridge Temporary Works* except as noted herein.

#### 1. Wind Loads

Table 2.2 of Article 2.2.5.1 is modified to include wind velocities up to 110 mph. In addition, Table 2.2A is included to provide the maximum wind speeds by county in North Carolina.

**Table 2.2 - Wind Pressure Values**

Height Zone feet above ground	Pressure, lb/ft <sup>2</sup> for Indicated Wind Velocity, mph				
	70	80	90	100	110
0 to 30	15	20	25	30	35
30 to 50	20	25	30	35	40
50 to 100	25	30	35	40	45
over 100	30	35	40	45	50

#### 2. Time of Removal

The following requirements replace those of Article 3.4.8.2.

Do not remove forms until the concrete has attained strengths required in Article 420-16 of the Standard Specifications and these Special Provisions.

Do not remove forms until the concrete has sufficient strength to prevent damage to the surface.

**Table 2.2A - Steady State Maximum Wind Speeds by Counties in North Carolina**

COUNTY	25 YR (mph)	COUNTY	25 YR (mph)	COUNTY	25 YR (mph)
Alamance	70	Franklin	70	Pamlico	100
Alexander	70	Gaston	70	Pasquotank	100
Alleghany	70	Gates	90	Pender	100
Anson	70	Graham	80	Perquimans	100
Ashe	70	Granville	70	Person	70
Avery	70	Greene	80	Pitt	90
Beaufort	100	Guilford	70	Polk	80
Bertie	90	Halifax	80	Randolph	70
Bladen	90	Harnett	70	Richmond	70
Brunswick	100	Haywood	80	Robeson	80
Buncombe	80	Henderson	80	Rockingham	70
Burke	70	Hertford	90	Rowan	70
Cabarrus	70	Hoke	70	Rutherford	70
Caldwell	70	Hyde	110	Sampson	90
Camden	100	Iredell	70	Scotland	70
Carteret	110	Jackson	80	Stanley	70
Caswell	70	Johnston	80	Stokes	70
Catawba	70	Jones	100	Surry	70
Cherokee	80	Lee	70	Swain	80
Chatham	70	Lenoir	90	Transylvania	80
Chowan	90	Lincoln	70	Tyrell	100
Clay	80	Macon	80	Union	70
Cleveland	70	Madison	80	Vance	70
Columbus	90	Martin	90	Wake	70
Craven	100	McDowell	70	Warren	70
Cumberland	80	Mecklenburg	70	Washington	100
Currituck	100	Mitchell	70	Watauga	70
Dare	110	Montgomery	70	Wayne	80
Davidson	70	Moore	70	Wilkes	70
Davie	70	Nash	80	Wilson	80
Duplin	90	New Hanover	100	Yadkin	70
Durham	70	Northampton	80	Yancey	70
Edgecombe	80	Onslow	100		
Forsyth	70	Orange	70		

#### B. Review and Approval

The Engineer is responsible for the review and approval of temporary works' drawings.

Submit the working drawings sufficiently in advance of proposed use to allow for their review, revision (if needed), and approval without delay to the work.

The time period for review of the working drawings does not begin until complete drawings and design calculations, when required, are received by the Engineer.

Do not start construction of any temporary work for which working drawings are required until the drawings have been approved. Such approval does not relieve the Contractor of the responsibility for the accuracy and adequacy of the working drawings.

### 4.0 CONSTRUCTION REQUIREMENTS

All requirements of Section 420 of the Standard Specifications apply.

Construct temporary works in conformance with the approved working drawings. Ensure that the quality of materials and workmanship employed is consistent with that assumed in the design of the temporary works. Do not weld falsework members to any portion of the permanent structure unless approved. Show any welding to the permanent structure on the approved construction drawings.

Provide tell-tales attached to the forms and extending to the ground, or other means, for accurate measurement of falsework settlement. Make sure that the anticipated compressive settlement and/or deflection of falsework does not exceed 1 inch. For cast-in-place concrete structures, make sure that the calculated deflection of falsework flexural members does not exceed 1/240 of their span regardless of whether or not the deflection is compensated by camber strips.

#### A. Maintenance and Inspection

Inspect and maintain the temporary work in an acceptable condition throughout the period of its use. Certify that the manufactured devices have been maintained in a condition to allow them to safely carry their rated loads. Clearly mark each piece so that its capacity can be readily determined at the job site.

Perform an in-depth inspection of an applicable portion(s) of the temporary works, in the presence of the Engineer, not more than 24 hours prior to the beginning of each concrete placement. Inspect other temporary works at least once a month to ensure that they are functioning properly. Have a North Carolina Registered Professional Engineer inspect the cofferdams, shoring, sheathing, support of excavation structures, and support systems for load tests prior to loading.

**B. Foundations**

Determine the safe bearing capacity of the foundation material on which the supports for temporary works rest. If required by the Engineer, conduct load tests to verify proposed bearing capacity values that are marginal or in other high-risk situations.

The use of the foundation support values shown on the contract plans of the permanent structure is permitted if the foundations are on the same level and on the same soil as those of the permanent structure.

Allow for adequate site drainage or soil protection to prevent soil saturation and washout of the soil supporting the temporary works supports.

If piles are used, the estimation of capacities and later confirmation during construction using standard procedures based on the driving characteristics of the pile is permitted. If preferred, use load tests to confirm the estimated capacities; or, if required by the Engineer conduct load tests to verify bearing capacity values that are marginal or in other high risk situations.

The Engineer reviews and approves the proposed pile and soil bearing capacities.

**5.0 REMOVAL**

Unless otherwise permitted, remove and keep all temporary works upon completion of the work. Do not disturb or otherwise damage the finished work.

Remove temporary works in conformance with the contract documents. Remove them in such a manner as to permit the structure to uniformly and gradually take the stresses due to its own weight.

**6.0 METHOD OF MEASUREMENT**

Unless otherwise specified, temporary works will not be directly measured.

**7.0 BASIS OF PAYMENT**

Payment at the contract unit prices for the various pay items requiring temporary works will be full compensation for the above falsework and formwork.

**SUBMITTAL OF WORKING DRAWINGS****(6-19-15)****1.0 GENERAL**

Submit working drawings in accordance with Article 105-2 of the *Standard Specifications* and this provision. For this provision, “submittals” refers to only those listed in this provision. The list of submittals contained herein does not represent a list of required submittals for the project. Submittals are only necessary for those items as required by the contract. Make submittals that are not specifically noted in this provision directly to the

Engineer. Either the Structures Management Unit or the Geotechnical Engineering Unit or both units will jointly review submittals.

If a submittal contains variations from plan details or specifications or significantly affects project cost, field construction or operations, discuss the submittal with and submit all copies to the Engineer. State the reason for the proposed variation in the submittal. To minimize review time, make sure all submittals are complete when initially submitted. Provide a contact name and information with each submittal. Direct any questions regarding submittal requirements to the Engineer, Structures Management Unit contacts or the Geotechnical Engineering Unit contacts noted below.

In order to facilitate in-plant inspection by NCDOT and approval of working drawings, provide the name, address and telephone number of the facility where fabrication will actually be done if different than shown on the title block of the submitted working drawings. This includes, but is not limited to, precast concrete items, prestressed concrete items and fabricated steel or aluminum items.

## 2.0 ADDRESSES AND CONTACTS

For submittals to the Structures Management Unit, use the following addresses:

Via US mail:

Mr. T. K. Koch, P. E.  
State Structures Engineer  
North Carolina Department of  
Transportation  
Structures Management Unit  
1581 Mail Service Center  
Raleigh, NC 27699-1581

Via other delivery service:

Mr. T. K. Koch, P. E.  
State Structures Engineer  
North Carolina Department of  
Transportation  
Structures Management Unit  
1000 Birch Ridge Drive  
Raleigh, NC 27610

Attention: Mr. P. D. Lambert, P. E.

Attention: Mr. P. D. Lambert, P. E.

Submittals may also be made via email. Send submittals to:

[plambert@ncdot.gov](mailto:plambert@ncdot.gov)

(Paul Lambert)

Send an additional e-copy of the submittal to the following addresses:

[jgaither@ncdot.gov](mailto:jgaither@ncdot.gov)

(James Gaither)

[mrorie@ncdot.gov](mailto:mrorie@ncdot.gov)

(Madonna Rorie)

For submittals to the Geotechnical Engineering Unit, use the following addresses:

For projects in Divisions 1-7, use the following Eastern Regional Office address:

Via US mail:

Mr. K. J. Kim, Ph. D., P. E.  
Eastern Regional Geotechnical  
Manager  
North Carolina Department of  
Transportation  
Geotechnical Engineering Unit -  
Eastern Regional Office  
1570 Mail Service Center  
Raleigh, NC 27699-1570

Via other delivery service:

Mr. K. J. Kim, Ph. D., P. E.  
Eastern Regional Geotechnical  
Manager  
North Carolina Department of  
Transportation  
Geotechnical Engineering Unit -  
Eastern Regional Office  
3301 Jones Sausage Road, Suite 100  
Garner, NC 27529

For projects in Divisions 8-14, use the following Western Regional Office address:

Via US mail:

Mr. Eric Williams, P. E.  
Western Regional Geotechnical  
Manager  
North Carolina Department of  
Transportation  
Geotechnical Engineering Unit -  
Western Regional Office  
5253 Z Max Boulevard  
Harrisburg, NC 28075

Via other delivery service:

Mr. Eric Williams, P. E.  
Western Regional Geotechnical  
Manager  
North Carolina Department of  
Transportation  
Geotechnical Engineering Unit -  
Western Regional Office  
5253 Z Max Boulevard  
Harrisburg, NC 28075

The status of the review of structure-related submittals sent to the Structures Management Unit can be viewed from the Unit's web site, via the "Drawing Submittal Status" link.

Direct any questions concerning submittal review status, review comments or drawing markups to the following contacts:

Primary Structures Contact:

Paul Lambert (919) 707-6407  
(919) 250-4082 facsimile

Secondary Structures Contacts:

James Gaither (919) 707-6409  
Madonna Rorie (919) 707-6508

Eastern Regional Geotechnical Contact (Divisions 1-7):

K. J. Kim (919) 662-4710  
(919) 662-3095 facsimile  
[kkim@ncdot.gov](mailto:kkim@ncdot.gov)

Western Regional Geotechnical Contact (Divisions 8-14):

Eric Williams (704) 455-8902  
 (704) 455-8912 facsimile  
[ewilliams3@ncdot.gov](mailto:ewilliams3@ncdot.gov)

### 3.0 SUBMITTAL COPIES

Furnish one complete copy of each submittal, including all attachments, to the Engineer. At the same time, submit the number of hard copies shown below of the same complete submittal directly to the Structures Management Unit and/or the Geotechnical Engineering Unit.

The first table below covers “Structure Submittals”. The Engineer will receive review comments and drawing markups for these submittals from the Structures Management Unit. The second table in this section covers “Geotechnical Submittals”. The Engineer will receive review comments and drawing markups for these submittals from the Geotechnical Engineering Unit.

Unless otherwise required, submit one set of supporting calculations to either the Structures Management Unit or the Geotechnical Engineering Unit unless both units require submittal copies in which case submit a set of supporting calculations to each unit. Provide additional copies of any submittal as directed.

#### **STRUCTURE SUBMITTALS**

<b>Submittal</b>	<b>Copies Required by Structures Management Unit</b>	<b>Copies Required by Geotechnical Engineering Unit</b>	<b>Contract Reference Requiring Submittal <sup>1</sup></b>
Arch Culvert Falsework	5	0	Plan Note, SN Sheet & “Falsework and Formwork”
Box Culvert Falsework <sup>7</sup>	5	0	Plan Note, SN Sheet & “Falsework and Formwork”
Cofferdams	6	2	Article 410-4
Foam Joint Seals <sup>6</sup>	9	0	“Foam Joint Seals”
Expansion Joint Seals (hold down plate type with base angle)	9	0	“Expansion Joint Seals”
Expansion Joint Seals (modular)	2, then 9	0	“Modular Expansion Joint Seals”

**STRUCTURE SUBMITTALS**

<b>Submittal</b>	<b>Copies Required by Structures Management Unit</b>	<b>Copies Required by Geotechnical Engineering Unit</b>	<b>Contract Reference Requiring Submittal <sup>1</sup></b>
Expansion Joint Seals (strip seals)	9	0	“Strip Seals”
Falsework & Forms <sup>2</sup> (substructure)	8	0	Article 420-3 & “Falsework and Formwork”
Falsework & Forms (superstructure)	8	0	Article 420-3 & “Falsework and Formwork”
Girder Erection over Railroad	5	0	Railroad Provisions
Maintenance and Protection of Traffic Beneath Proposed Structure	8	0	“Maintenance and Protection of Traffic Beneath Proposed Structure at Station ____”
Metal Bridge Railing	8	0	Plan Note
Metal Stay-in-Place Forms	8	0	Article 420-3
Metalwork for Elastomeric Bearings <sup>4,5</sup>	7	0	Article 1072-8
Miscellaneous Metalwork <sup>4,5</sup>	7	0	Article 1072-8
Disc Bearings <sup>4</sup>	8	0	“Disc Bearings”
Overhead and Digital Message Signs (DMS) (metalwork and foundations)	13	0	Applicable Provisions
Placement of Equipment on Structures (cranes, etc.)	7	0	Article 420-20
Precast Concrete Box Culverts	2, then 1 reproducible	0	“Optional Precast Reinforced Concrete Box Culvert at Station ____”
Prestressed Concrete Cored Slab (detensioning sequences) <sup>3</sup>	6	0	Article 1078-11
Prestressed Concrete Deck Panels	6 and 1 reproducible	0	Article 420-3

**STRUCTURE SUBMITTALS**

<b>Submittal</b>	<b>Copies Required by Structures Management Unit</b>	<b>Copies Required by Geotechnical Engineering Unit</b>	<b>Contract Reference Requiring Submittal <sup>1</sup></b>
Prestressed Concrete Girder (strand elongation and detensioning sequences)	6	0	Articles 1078-8 and 1078-11
Removal of Existing Structure over Railroad	5	0	Railroad Provisions
Revised Bridge Deck Plans (adaptation to prestressed deck panels)	2, then 1 reproducible	0	Article 420-3
Revised Bridge Deck Plans (adaptation to modular expansion joint seals)	2, then 1 reproducible	0	“Modular Expansion Joint Seals”
Sound Barrier Wall (precast items)	10	0	Article 1077-2 & “Sound Barrier Wall”
Sound Barrier Wall Steel Fabrication Plans <sup>5</sup>	7	0	Article 1072-8 & “Sound Barrier Wall”
Structural Steel <sup>4</sup>	2, then 7	0	Article 1072-8
Temporary Detour Structures	10	2	Article 400-3 & “Construction, Maintenance and Removal of Temporary Structure at Station _____”
TFE Expansion Bearings <sup>4</sup>	8	0	Article 1072-8

**FOOTNOTES**

1. References are provided to help locate the part of the contract where the submittals are required. References in quotes refer to the provision by that name. Articles refer to the *Standard Specifications*.
2. Submittals for these items are necessary only when required by a note on plans.
3. Submittals for these items may not be required. A list of pre-approved sequences is available from the producer or the Materials & Tests Unit.
4. The fabricator may submit these items directly to the Structures Management Unit.

5. The two sets of preliminary submittals required by Article 1072-8 of the *Standard Specifications* are not required for these items.
6. Submittals for Fabrication Drawings are not required. Submittals for Catalogue Cuts of Proposed Material are required. See Section 5.A of the referenced provision.
7. Submittals are necessary only when the top slab thickness is 18" or greater.

### **GEOTECHNICAL SUBMITTALS**

<b>Submittal</b>	<b>Copies Required by Geotechnical Engineering Unit</b>	<b>Copies Required by Structures Management Unit</b>	<b>Contract Reference Requiring Submittal <sup>1</sup></b>
Drilled Pier Construction Plans <sup>2</sup>	1	0	Subarticle 411-3(A)
Crosshole Sonic Logging (CSL) Reports <sup>2</sup>	1	0	Subarticle 411-5(A)(2)
Pile Driving Equipment Data Forms <sup>2,3</sup>	1	0	Subarticle 450-3(D)(2)
Pile Driving Analyzer (PDA) Reports <sup>2</sup>	1	0	Subarticle 450-3(F)(3)
Retaining Walls <sup>4</sup>	8 drawings, 2 calculations	2 drawings	Applicable Provisions
Temporary Shoring <sup>4</sup>	5 drawings, 2 calculations	2 drawings	"Temporary Shoring" & "Temporary Soil Nail Walls"

### **FOOTNOTES**

1. References are provided to help locate the part of the contract where the submittals are required. References in quotes refer to the provision by that name. Subarticles refer to the *Standard Specifications*.
2. Submit one hard copy of submittal to the Engineer. Submit a second copy of submittal electronically (PDF via email) or by facsimile, US mail or other delivery service to the appropriate Geotechnical Engineering Unit regional office. Electronic submission is preferred.
3. The Pile Driving Equipment Data Form is available from:  
[https://connect.ncdot.gov/resources/Geological/Pages/Geotech\\_Forms\\_Details.aspx](https://connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx)  
 See second page of form for submittal instructions.
4. Electronic copy of submittal is required. See referenced provision.

**CRANE SAFETY****(8-15-05)**

Comply with the manufacturer specifications and limitations applicable to the operation of any and all cranes and derricks. Prime contractors, sub-contractors, and fully operated rental companies shall comply with the current Occupational Safety and Health Administration regulations (OSHA).

Submit all items listed below to the Engineer prior to beginning crane operations involving critical lifts. A critical lift is defined as any lift that exceeds 75 percent of the manufacturer's crane chart capacity for the radius at which the load will be lifted or requires the use of more than one crane. Changes in personnel or equipment must be reported to the Engineer and all applicable items listed below must be updated and submitted prior to continuing with crane operations.

**CRANE SAFETY SUBMITTAL LIST**

- A. **Competent Person:** Provide the name and qualifications of the "Competent Person" responsible for crane safety and lifting operations. The named competent person will have the responsibility and authority to stop any work activity due to safety concerns.
- B. **Riggers:** Provide the qualifications and experience of the persons responsible for rigging operations. Qualifications and experience should include, but not be limited to, weight calculations, center of gravity determinations, selection and inspection of sling and rigging equipment, and safe rigging practices.
- C. **Crane Inspections:** Inspection records for all cranes shall be current and readily accessible for review upon request.
- D. **Certifications:** By July 1, 2006, crane operators performing critical lifts shall be certified by NC CCO (National Commission for the Certification of Crane Operators), or satisfactorily complete the Carolinas AGC's Professional Crane Operator's Proficiency Program. Other approved nationally accredited programs will be considered upon request. All crane operators shall also have a current CDL medical card. Submit a list of anticipated critical lifts and corresponding crane operator(s). Include current certification for the type of crane operated (small hydraulic, large hydraulic, small lattice, large lattice) and medical evaluations for each operator.

**GROUT FOR STRUCTURES****(9-30-11)****1.0 DESCRIPTION**

This special provision addresses grout for use in pile blockouts, grout pockets, shear keys, dowel holes and recesses for structures. This provision does not apply to grout placed in post-tensioning ducts for bridge beams, girders, or decks. Mix and place grout in accordance with the manufacturer's recommendations, the applicable sections of the Standard Specifications and this provision.

**2.0 MATERIAL REQUIREMENTS**

Use a Department approved pre-packaged, non-shrink, non-metallic grout. Contact the Materials and Tests Unit for a list of approved pre-packaged grouts and consult the manufacturer to determine if the pre-packaged grout selected is suitable for the required application.

When using an approved pre-packaged grout, a grout mix design submittal is not required.

The grout shall be free of soluble chlorides and contain less than one percent soluble sulfate. Supply water in compliance with Article 1024-4 of the Standard Specifications.

Aggregate may be added to the mix only where recommended or permitted by the manufacturer and Engineer. The quantity and gradation of the aggregate shall be in accordance with the manufacturer's recommendations.

Admixtures, if approved by the Department, shall be used in accordance with the manufacturer's recommendations. The manufacture date shall be clearly stamped on each container. Admixtures with an expired shelf life shall not be used.

The Engineer reserves the right to reject material based on unsatisfactory performance.

Initial setting time shall not be less than 10 minutes when tested in accordance with ASTM C266.

Test the expansion and shrinkage of the grout in accordance with ASTM C1090. The grout shall expand no more than 0.2% and shall exhibit no shrinkage. Furnish a Type 4 material certification showing results of tests conducted to determine the properties listed in the Standard Specifications and to assure the material is non-shrink.

Unless required elsewhere in the contract the compressive strength at 3 days shall be at least 5000 psi. Compressive strength in the laboratory shall be determined in accordance with ASTM C109 except the test mix shall contain only water and the dry manufactured material. Compressive strength in the field will be determined by molding and testing 4" x 8" cylinders in accordance with AASHTO T22. Construction loading and traffic loading shall not be allowed until the 3 day compressive strength is achieved.

When tested in accordance with ASTM C666, Procedure A, the durability factor of the grout shall not be less than 80.

**3.0 SAMPLING AND PLACEMENT**

Place and maintain components in final position until grout placement is complete and accepted. Concrete surfaces to receive grout shall be free of defective concrete, laitance, oil, grease and other foreign matter. Saturate concrete surfaces with clean water and remove excess water prior to placing grout.

Do not place grout if the grout temperature is less than 50°F or more than 90°F or if the air temperature measured at the location of the grouting operation in the shade away from artificial heat is below 45°F.

Provide grout at a rate that permits proper handling, placing and finishing in accordance with the manufacturer's recommendations unless directed otherwise by the Engineer. Use grout free of any lumps and undispersed cement. Agitate grout continuously before placement.

Control grout delivery so the interval between placing batches in the same component does not exceed 20 minutes.

The Engineer will determine the locations to sample grout and the number and type of samples collected for field and laboratory testing. The compressive strength of the grout will be considered the average compressive strength test results of 3 cube or 2 cylinder specimens at 28 days.

#### **4.0 BASIS OF PAYMENT**

No separate payment will be made for "Grout for Structures". The cost of the material, equipment, labor, placement, and any incidentals necessary to complete the work shall be considered incidental to the structure item requiring grout.

### **ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES**

**(12-30-15)**

#### **1.0 INSPECTION FOR ASBESTOS CONTAINING MATERIAL**

Prior to conducting bridge demolition or renovation activities, the Contractor shall thoroughly inspect the bridge or affected components for the presence of asbestos containing material (ACM) using a firm prequalified by NCDOT to perform asbestos surveys. The inspection must be performed by a N.C. accredited asbestos inspector with experience inspecting bridges or other industrial structures. The N.C. accredited asbestos inspector must conduct a thorough inspection, identifying all asbestos-containing material as required by the Environmental Protection Agency National Emission Standards for Hazardous Air Pollutants (NESHAP) Code of Federal Regulations (CFR) 40 CFR, Part 61, Subpart M.

The Contractor shall submit an inspection report to the Engineer, which at a minimum must include information required in 40 CFR 763.85 (a)(4) vi)(A)-(E), as well as a project location map, photos of existing structure, the date of inspection and the name, N.C. accreditation number, and signature of the N.C. accredited asbestos inspector who performed the inspection and completed the report. The cover sheet of the report shall include project identification information. Place the following notes on the cover sheet of the report and check the appropriate box:

\_\_\_ ACM was found  
\_\_\_ ACM was not found

## **2.0 REMOVAL AND DISPOSAL OF ASBESTOS CONTAINING MATERIAL**

If ACM is found, notify the Engineer. Compensation for removal and disposal of ACM is considered extra work in accordance with Article 104-7 of the Standard Specifications.

An Asbestos Removal Permit must be obtained from the Health Hazards Control Unit (HHCU) of the N.C. Department of Health & Human Services, Division of Public Health, if more than 35 cubic feet, 160 square feet, or 260 linear feet of regulated ACM (RACM) is to be removed from a structure and this work must be completed by a contractor prequalified by NCDOT to perform asbestos abatement. RACM is defined in 40 CFR, Part 61, Subpart M. Note: 40 CFR 763.85 (a)(4) vi)(D) defines ACM as surfacing, TSI and Miscellaneous which does not meet the NESHAP RACM.

## **3.0 DEMOLITION NOTIFICATION**

Even if no ACM is found (or if quantities are less than those required for a permit), a Demolition Notification (DHHS-3768) must be submitted to the HHCU. Notifications and Asbestos Permit applications require an original signature and must be submitted to the HHCU 10 working days prior to beginning demolition activities. The 10 working day period starts based on the post-marked date or date of hand delivery. Demolition that does not begin as originally notified requires submission of a separate revision form HHCU 3768-R to HHCU. Reference the North Carolina Administrative Code, Chapter 10A, Subchapter 41C, Article .0605 for directives on revision submissions.

### Contact Information

Health Hazards Control Unit (HHCU)  
N.C. Department of Health and Human Services  
1912 Mail Service Center  
Raleigh, NC 27699-1912  
Telephone: (919) 707-5950  
Fax: (919) 870-4808

## **4.0 SPECIAL CONSIDERATIONS**

Buncombe, Forsyth, and Mecklenburg counties also have asbestos permitting and NESHAP requirements must be followed. For projects involving permitted RACM removals, both the applicable county and the state (HHCU) must be notified.

For demolitions with no RACM, only the local environmental agencies must be notified. Contact information is as follows:

Buncombe County

WNC Regional Air Pollution Control Agency  
49 Mt. Carmel Road  
Asheville, NC 28806  
(828) 250-6777

Forsyth County

Environmental Affairs Department  
537 N. Spruce Street  
Winston-Salem, NC 27101  
(336) 703-2440

Mecklenburg County

Land Use and Environmental Services Agency  
Mecklenburg Air Quality  
700 N. Tryon Street  
Charlotte, NC 28202  
(704) 336-5430

**5.0 ADDITIONAL INFORMATION**

Additional information may be found on N.C. asbestos rules, regulations, procedures and N.C. accredited inspectors, as well as associated forms for demolition notifications and asbestos permit applications at the N.C. Asbestos Hazard Management Program website:

[www.epi.state.nc.us/epi/asbestos/ahmp.html](http://www.epi.state.nc.us/epi/asbestos/ahmp.html)

**6.0 BASIS OF PAYMENT**

Payment for the work required in this provision will be at the lump sum contract unit price for “Asbestos Assessment”. Such payment will be full compensation for all asbestos inspections, reports, permitting and notifications.

**REMOVAL OF EXISTING STRUCTURES AT STA. 374+56.00 -L- (SPECIAL)**

The existing structures shall be removed in accordance with the Standard Specifications except as noted below:

Upon removal, all steel I-beams, internal bracing and diaphragms, bearing plates, and timber rail elements shall be salvaged from Bridge #336 on SR 1178 and remain as the property of the North Carolina Department of Transportation. Deliver the salvaged material to NCDOT Bridge Maintenance Yard at 1989 NC Hwy 194 N. Boone, NC 28607. Contact David Scott at 828-268-6062 or David Wayne at 336-903-9124 at least one week prior to delivery. Bridge Maintenance Unit will provide the manpower and equipment to unload the salvaged material. Coordinate with the Bridge Maintenance Unit for loading salvaged material in accordance with their equipment's unloading capabilities. All salvaged material shall be removed carefully without damage.

## ST-20

R-2915C

Ashe Co.

No separate measurement will be made for this work and the entire cost of this work shall be included in the lump sum price bid for “ Removal of Existing Structures at Station 374+56.00 -L-”

**PROJECT SPECIAL PROVISION**

(10-18-95) (Rev. 10-15-13)

Z-1

**PERMITS**

The Contractor's attention is directed to the following permits, which have been issued to the Department of Transportation by the authority granting the permit.

<b><u>PERMIT</u></b>	<b><u>AUTHORITY GRANTING THE PERMIT</u></b>
Dredge and Fill and/or Work in Navigable Waters (404)	U. S. Army Corps of Engineers
Water Quality (401)	Division of Environmental Management, NCDEQ State of North Carolina
Trout Buffer Zone Waiver	Division of Energy, Mineral, and Land Resources, NCDEQ, State of North Carolina

The Contractor shall comply with all applicable permit conditions during construction of this project. Those conditions marked by \* are the responsibility of the Department and the Contractor has no responsibility in accomplishing those conditions.

Agents of the permitting authority will periodically inspect the project for adherence to the permits.

The Contractor's attention is also directed to Articles 107-10 and 107-13 of the *2012 Standard Specifications* and the following:

Should the Contractor 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 Contractor's responsibility to coordinate with the Engineer to determine what, if any, additional permit action is required. The Contractor 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 Contractor 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 Contractor'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 Contractor'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 is done in such a manner as to not affect the waters or wetlands.**



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

August 31, 2016

Regulatory Division

Action ID: SAW- 2012-00882

Mr. Philip S. Harris III, P.E., C.P.M.  
North Carolina Department of Transportation  
Division of Highways  
Natural Environment Section Head  
1598 Mail Service Center  
Raleigh, North Carolina 27699-1598

Dear Mr. Harris:

I refer to your Department of the Army (DA) Individual Permit dated January 7, 2015, in which we authorized the placement of fill material into 3.04 acre of wetlands and 7,886 linear feet (11) of stream, and temporary placement of fill material into 0.31 acres of Waters of the US, associated with the widening of US Highway 221 from US 421 to US 221 Business/NC 88 in Jefferson, in Watauga and Ashe Counties, North Carolina (TIP Numbers R-2519 A-E). This was a phased permit and only authorized work on Sections A, B and D. Sections C and E were not authorized to commence until final design was completed. impacts to waters and wetlands were minimized to the extent practicable, and all modified plans including, but not limited to, a compensatory mitigation plan were submitted and approved by the US Army Corps of Engineers (the Corps).

I also refer to the letter dated July 28, 2016, in which you requested a modification for final impacts to Section 2519-C of the project. This modification request included details for each proposed impact site, the updated mitigation acceptance letter, stormwater management plan, permit drawings, and design plans for Section C. The updated projected impacts for the overall (Sections A-E) project are 3.11 acres of permanent wetland impacts, 8,196 linear feet of permanent stream impacts (7,023 linear feet of fill and 1,173 linear feet of bank stabilization), and 0.34 acre of temporary stream impacts. The revised permit impact totals for Section C of this project include 2,573 linear feet of permanent stream impacts (2,339 linear feet of permanent fill and 234 linear feet of bank stabilization) and 0.27 acre of permanent wetland impacts. This final design of Section C reflects changes to many areas with an overall addition of 310 linear feet of permanent stream impacts (73 linear feet of channel fill and 234 linear feet of bank stabilization) and 0.7 acre of permanent wetland impacts.


After review of the information you submitted and the inclusion of the following special conditions, we have determined that your existing DA authorization is modified to include the work detailed in your submittal dated July 28, 2016.

1. All work authorized by this permit must be performed in strict compliance with the originally approved application and plans for R-2915, which were received on July 22, 2014 and the updated modification request and plans dated July 28, 2016.
2. This permit only authorizes work on Sections A, B, C and D of TIP R-2915. Construction on Section E shall not commence until final design has been completed for this section, the permittee has minimized impacts to waters and wetlands to the maximum extent practicable, modifications to the plans and a compensatory mitigation plan have been approved by the Corps. Preliminary plans for R-2915E were provided with the July 22, 2014 application, however, these plans are not to be used for construction purposes.
3. 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. Mitigation for R-2915 Sections A/B/D were already required by permit issued January 7, 2015. A Mitigation Responsibility Transfer Form is attached required to offset final design impacts to Section C of R-2915.

In addition to special conditions stated above, all conditions of the original permit and its expiration date of December 31, 2019 remain applicable.

If you have questions, please contact Steve Kichefski at (828) 271-7980 extension 234.

Sincerely,

  
for/ Kevin P. Landers Sr.  
Colonel, U.S. Army  
District Commander

Enclosure

Copies Furnished w/o enclosure:

Mr. Roger Rochelle, P.E  
NCDOT - Technical Services  
1516 Mail Service Center  
Raleigh, North Carolina 27699-1516

Ms. Amy Chapman  
NCDEQ, DWR - Transportation Permitting Units  
1617 Mail Service Center  
Raleigh, North Carolina 27699-1617

Mr. Dave Wanucha  
NCDEQ, DWR - Transportation Permitting Unit  
NCDEQ Winston Salem Regional Office  
450 West Hanes Mill Road, Suite 300  
Winston Salem, North Carolina 27105

Ms. Marella Buncick  
U.S. Fish & Wildlife Service  
160 Zillicoa Street  
Asheville, North Carolina 28801

Ms. Marla Chambers  
NCDOT Coordinator  
Habitat Conservation Program  
NC Wildlife Resources Commission  
C/o NCDOT  
206 Charter Street  
Albemarle, North Carolina 28001

Ms. Cynthia Van Der Wiele  
U.S. EPA - Region 4 NEPA Program Office  
C/o USEPA-RTP  
109 T.W. Alexander Dr. - Mail Code: E143-08  
Research Triangle Park, NC 27709



P-5

PAT MCCRORY

Governor

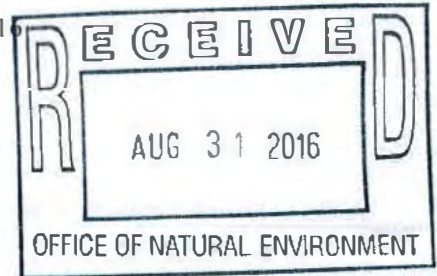
DONALD R. VAN DER VAART

Secretary

S. JAY ZIMMERMAN

Director

August 23, 2016



Mr. Philip S. Harris, III, P.E., CPM  
Natural Environment Section Head  
Project Development and Environmental Analysis  
North Carolina Department of Transportation  
1598 Mail Service Center  
Raleigh, North Carolina, 27699-1598

**Subject: 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act with  
ADDITIONAL CONDITIONS for US 221 Widening from US 421 to US 221 Business/NC 88 in  
Jefferson located in Watauga and Ashe Counties. Federal Aid Project No. STP-0221(13), TIP No.  
R-2915, WBS 34518.1.1. NCDWR Project No. 20140762.**

Dear Mr. Harris:

Attached hereto is a modification of Certification No. 004001 originally issued to The North Carolina Department of Transportation (NCDOT) dated September 8, 2014. Revised DWR Project No. is 20140764\_v2. This modification is to add impacts related to the C Section of R-2915.

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

Sincerely,

S. Jay Zimmerman, Director  
Division of Water Resources

Attachments

Electronic copy only distribution:

Steve Kichefsky, US Army Corps of Engineers, Asheville Field Office  
Heath Slaughter, Division 11 Environmental Officer  
Rodger Rochelle, NC Department of Transportation  
Colin Mellor, NC Department of Transportation  
Carla Dagnino, NC Department of Transportation  
Dr. Cynthia Van Der Wiele, US Environmental Protection Agency  
Marella Buncick, US Fish and Wildlife Service  
Marla Chambers, NC Wildlife Resources Commission  
Beth Harmon, Division of Mitigation Services  
Dave Wanucha, NC Division of Water Resources Winston Salem Regional Office  
File Copy

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

**THIS CERTIFICATION** is issued in conformity with the requirements of Section 401 Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Resources (NCDWR) Regulations in 15 NCAC 2H. This certification authorizes the NCDOT to impact an additional 0.27 acres of jurisdictional wetlands and 2,339 linear feet of jurisdictional streams in Ashe County. The project shall be constructed pursuant to the modification dated received July 28, 2016. The authorized impacts are as described below in Tables 1 and 2.

**Table 1. Stream Impacts in the New River Basin for Section R-2915C.**

Site	Permanent Fill in Stream (linear ft.)		Temporary Fill in Stream (linear ft.)	Total Stream Impact (linear ft.)	Stream Impacts Requiring Mitigation (linear ft.)	
	Culvert/Pipe	Bank Stabilization			USACE	NCDWR
2A	71	-	34	105	71	-
2B	-	19	49	68	-	-
3	-	-	10	10	-	-
4	210	16	35	261	210	210+16
5	236	20	21	277	236	236+20
6	53	10	17	80	53	-
7	37	-	6	43	37	-
8	134	10	29	173	134	-
9	31	-	28	59	31	-
10	14	-	21	35	14	-
11	45	12	23	80	45	-
12	78	-	20	98	78	-
13A	270	-	23	293	270	270
13B <sup>1</sup>	48	-	-	48	48	-
14	-	4	10	14	-	-
14B	-	13	-	13	-	-
16	256	-	84	340	256	256
17	-	-	30	30	-	-
19A	58	-	-	58	58	-
19B	-	18	-	18	-	18
21	170/113*	-	-	283	283	170
22	-	21	-	21	-	21
23	163*	-	45	208	163	-
24	-	16	-	16	-	16
25A	262	-	10	272	262	262
25B	60	-	10	70	60	-
26	-	13	12	25	-	-
27	-	17	-	17	-	17
28	-	17	-	17	-	17
31	-	20	-	20	-	20
32	30	8	12	50	30	-
<b>Totals</b>	<b>2,339</b>	<b>234</b>	<b>529</b>	<b>3,102</b>	<b>2,339</b>	<b>1,549</b>

<sup>1</sup> 13B is a channel relocation. \*Indicates stream is intermittent.

**Table 2. Riparian Wetland Impacts in the New River Basin for Section R-2915C.**

Site	Permanent Fill (ac)	Temporary Fill (ac)	Excavation (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Total Wetland Impact (ac)	Wetland Impacts Requiring Mitigation (ac)	
							USACE	NCDWR
1 <sup>1</sup>	0.14	-	-	0.02	-	0.16	0.16	-
2A <sup>1</sup>	0.01	-	-	<0.01	-	0.03	0.03	-
20 <sup>1</sup>	0.04	-	-	0.02	-	0.06	0.06	-
26 <sup>1</sup>	0.01	-	-	-	-	0.01	0.01	-
29	<0.01	-	-	<0.01	-	0.01	0.01	-
30	-	-	-	<0.01	-	<0.01	<0.01	-
<b>Total<sup>*</sup></b>	<b>0.22</b>	<b>-</b>	<b>-</b>	<b>0.05</b>	<b>-</b>	<b>0.27</b>	<b>0.27</b>	<b>-</b>

<sup>1</sup> Total take of wetland. \*Totals are rounded.

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

This approval is only valid for the purpose and design that you submitted in your modified application dated received July 28, 2016. All the authorized activities and conditions of certification associated with the original Water Quality Certification dated September 8, 2014 still apply including those listed below in this modification. Should your project change, you are required to notify the NCDWR and submit a new application. If the property is sold, the new owner must be given a copy of this Certification and approval letter, and is thereby responsible for complying with all the conditions. If any additional wetland impacts, or stream impacts, for this project (now or in the future) exceed one acre or 150 linear feet, respectively, additional compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7). For this approval to remain valid, you are required to comply with all the conditions listed below. In addition, you should obtain all other federal, state or local permits before proceeding with your project including (but not limited to) Sediment and Erosion control, Coastal Stormwater, Non-discharge and Water Supply watershed regulations. This Certification shall expire on the same day as the expiration date of the corresponding Corps of Engineers Permit.

**Condition(s) of Certification:**

1. This modification is applicable only to the additional proposed activities. All of the authorized activities and conditions of certification associated with the original Water Quality Certification dated September 8, 2014 for Sections A, B and D still apply including those listed below in this modification.
2. Sediment and erosion control measures shall not be placed in wetlands or waters without prior notification to Division of Water Resources. [15A NCAC 02H.0506(b)(3) and (c)(3)]
3. The Permittee shall report any violations of this certification to the Division of Water Resources within 24 hours of discovery. [15A NCAC 02B.0506(b)(2)]
4. A copy of the original Water Quality Certification and this subsequent modification shall be maintained on the construction site at all times and shall be maintained with the Division Engineer and the on-site project manager. [15A NCAC 02H .0507(c) and 15A NCAC 02H .0506 (b)(2) and (c)(2)]
5. 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 permitted sites. NCDWR staff shall be invited to the pre-construction meeting. [15A NCAC 02H.0506(b)(2) and (b)(3)]
6. If NCDOT is unable to meet culvert burial requirements (one foot or 20 percent of culvert diameter for culverts with a diameter greater than 48 inches) due to bedrock or other limiting features encountered during construction (i.e. constructability issues), please contact the NCDWR for guidance on how to proceed and to determine whether or not a permit modification will be required. [15A NCAC 02H.0506(b)(2)].

7. Compensatory mitigation for 1,549 linear feet of impact to streams is required. We understand that you have chosen to perform compensatory mitigation for impacts to streams through the North Carolina Division of Mitigation Service (DMS) (formerly NCEEP), and that the DMS has agreed to implement the mitigation for the project. The DMS has indicated in a letter dated July 27, 2016 that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with the DMS Mitigation Banking Instrument signed July 28, 2010.

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

If you wish to contest any statement in the attached Certification you must file a petition for an administrative hearing. You may obtain the petition form from the office of Administrative hearings. You must file the petition with the office of Administrative Hearings within sixty (60) days of receipt of this notice. A petition is considered filed when it is received in the office of Administrative Hearings during normal office hours. The Office of Administrative Hearings accepts filings Monday through Friday between the hours of 8:00am and 5:00pm, except for official state holidays. The original and one (1) copy of the petition must be filed with the Office of Administrative Hearings.

The petition may be faxed-provided the original and one copy of the document is received by the Office of Administrative Hearings within five (5) business days following the faxed transmission. The mailing address for the Office of Administrative Hearings is:

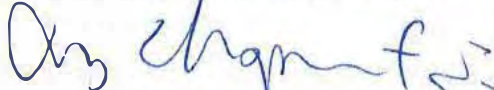
Office of Administrative Hearings  
6714 Mail Service Center  
Raleigh, NC 27699-6714  
Telephone: (919) 431-3000, Facsimile: (919) 431-3100

A copy of the petition must also be served on DEQ as follows:

Mr. Sam M. Hayes, General Counsel  
Department of Environmental Quality  
1601 Mail Service Center

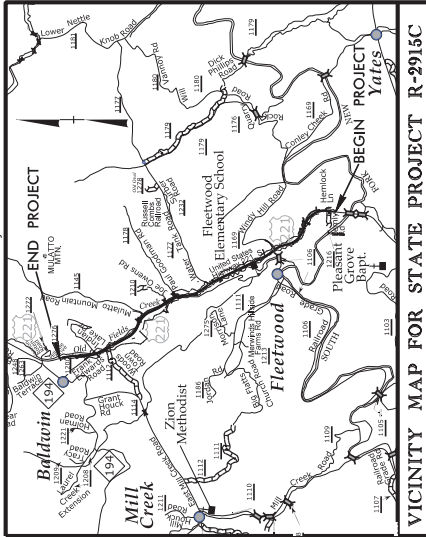
This the 23rd day of August 2016

DIVISION OF WATER RESOURCES



S. Jay Zimmerman, Director

## CONTRACT:

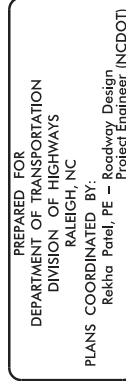


**ASHE COUNTY**

# WETLAND & STREAM IMPACTS



**P-9**



**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

<p><b>LOGHNER</b>          1000 W. 10th Avenue          Suite 202          Denver, CO 80202</p>	<p><b>300 STANDARD SPECIFICATIONS</b></p>	<p><b>RIGHT OF WAY DATE:</b>          November 21, 2014</p>	<p><b>LETTING DATE:</b>          November 15, 2016</p>	<p><b>PROJECT DESIGN ENGINEER</b></p>
<p><b>LOGHNER</b>          1000 W. 10th Avenue          Suite 202          Denver, CO 80202</p>	<p><b>300 STANDARD SPECIFICATIONS</b></p>	<p><b>RIGHT OF WAY DATE:</b>          November 21, 2014</p>	<p><b>LETTING DATE:</b>          November 15, 2016</p>	<p><b>PROJECT DESIGN ENGINEER</b></p>
<p><b>LOGHNER</b>          1000 W. 10th Avenue          Suite 202          Denver, CO 80202</p>	<p><b>300 STANDARD SPECIFICATIONS</b></p>	<p><b>RIGHT OF WAY DATE:</b>          November 21, 2014</p>	<p><b>LETTING DATE:</b>          November 15, 2016</p>	<p><b>PROJECT DESIGN ENGINEER</b></p>
<p><b>LOGHNER</b>          1000 W. 10th Avenue          Suite 202          Denver, CO 80202</p>	<p><b>300 STANDARD SPECIFICATIONS</b></p>	<p><b>RIGHT OF WAY DATE:</b>          November 21, 2014</p>	<p><b>LETTING DATE:</b>          November 15, 2016</p>	<p><b>PROJECT DESIGN ENGINEER</b></p>
<p><b>LOGHNER</b>          1000 W. 10th Avenue          Suite 202          Denver, CO 80202</p>	<p><b>300 STANDARD SPECIFICATIONS</b></p>	<p><b>RIGHT OF WAY DATE:</b>          November 21, 2014</p>	<p><b>LETTING DATE:</b>          November 15, 2016</p>	<p><b>PROJECT DESIGN ENGINEER</b></p>
<p><b>LOGHNER</b>          1000 W. 10th Avenue          Suite 202          Denver, CO 80202</p>	<p><b>300 STANDARD SPECIFICATIONS</b></p>	<p><b>RIGHT OF WAY DATE:</b>          November 21, 2014</p>	<p><b>LETTING DATE:</b>          November 15, 2016</p>	<p><b>PROJECT DESIGN ENGINEER</b></p>

***HYDRAULICS ENGINEER***

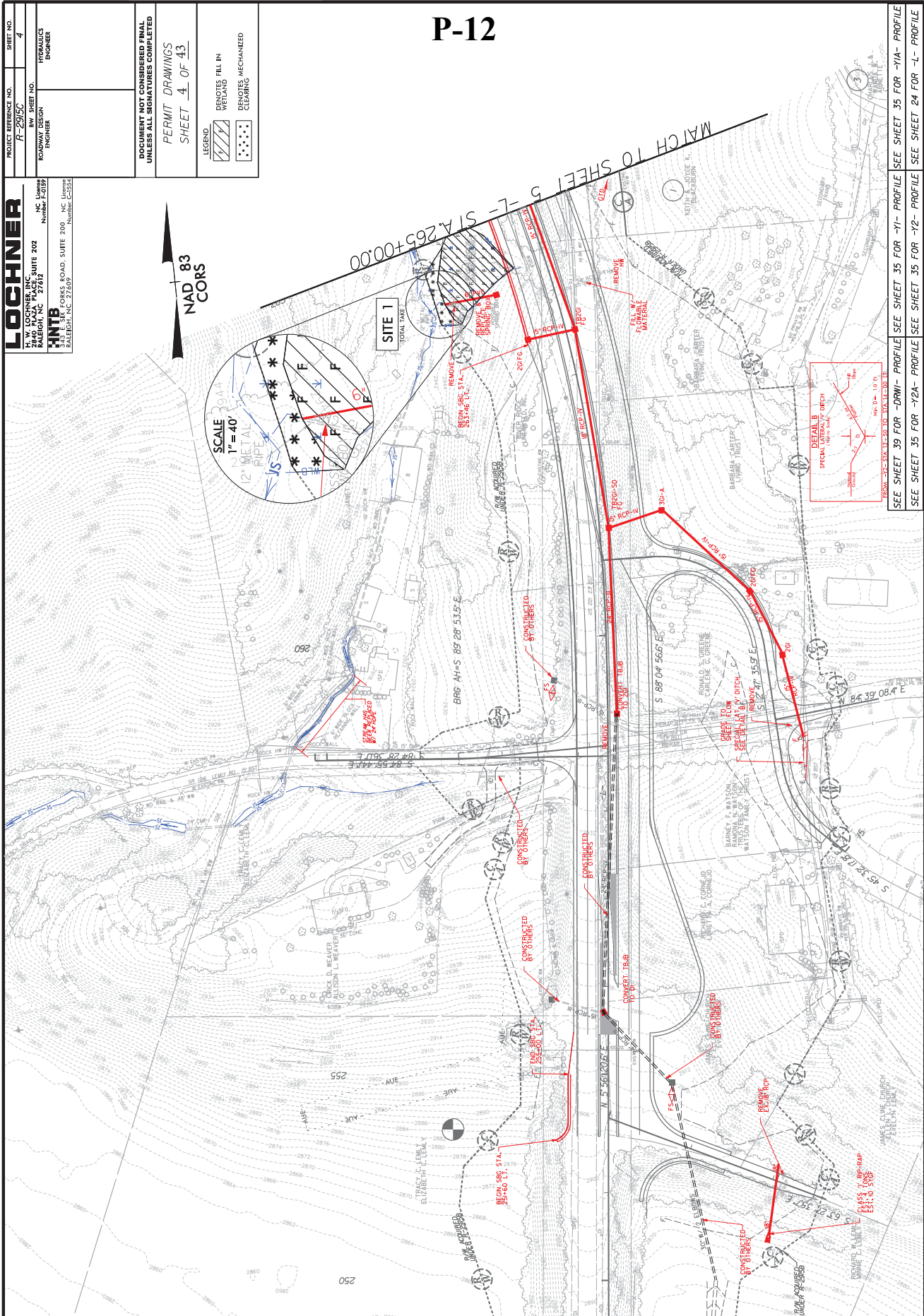
***ROADWAY DESIGN ENGINEER***

***P.E.***

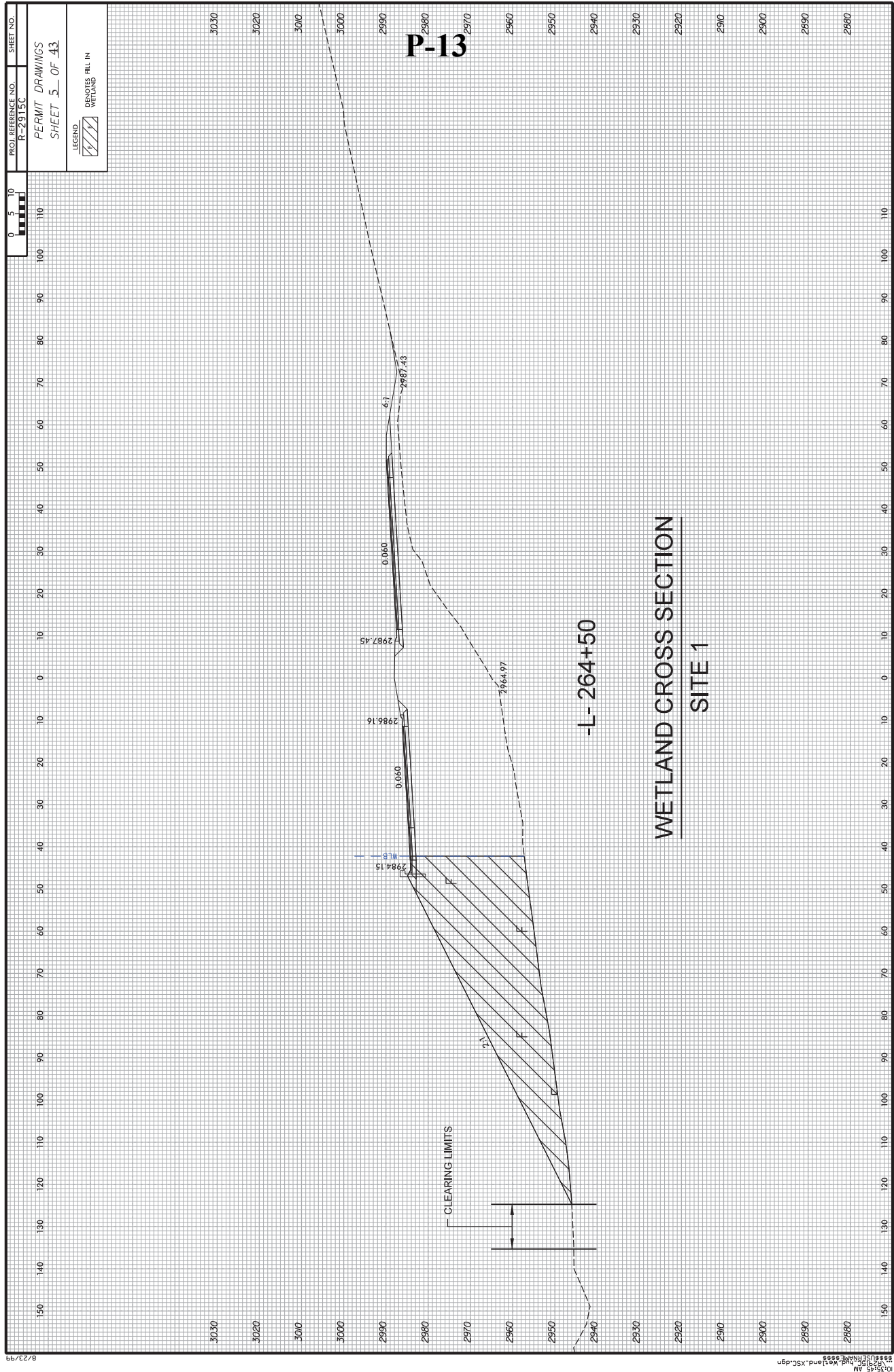


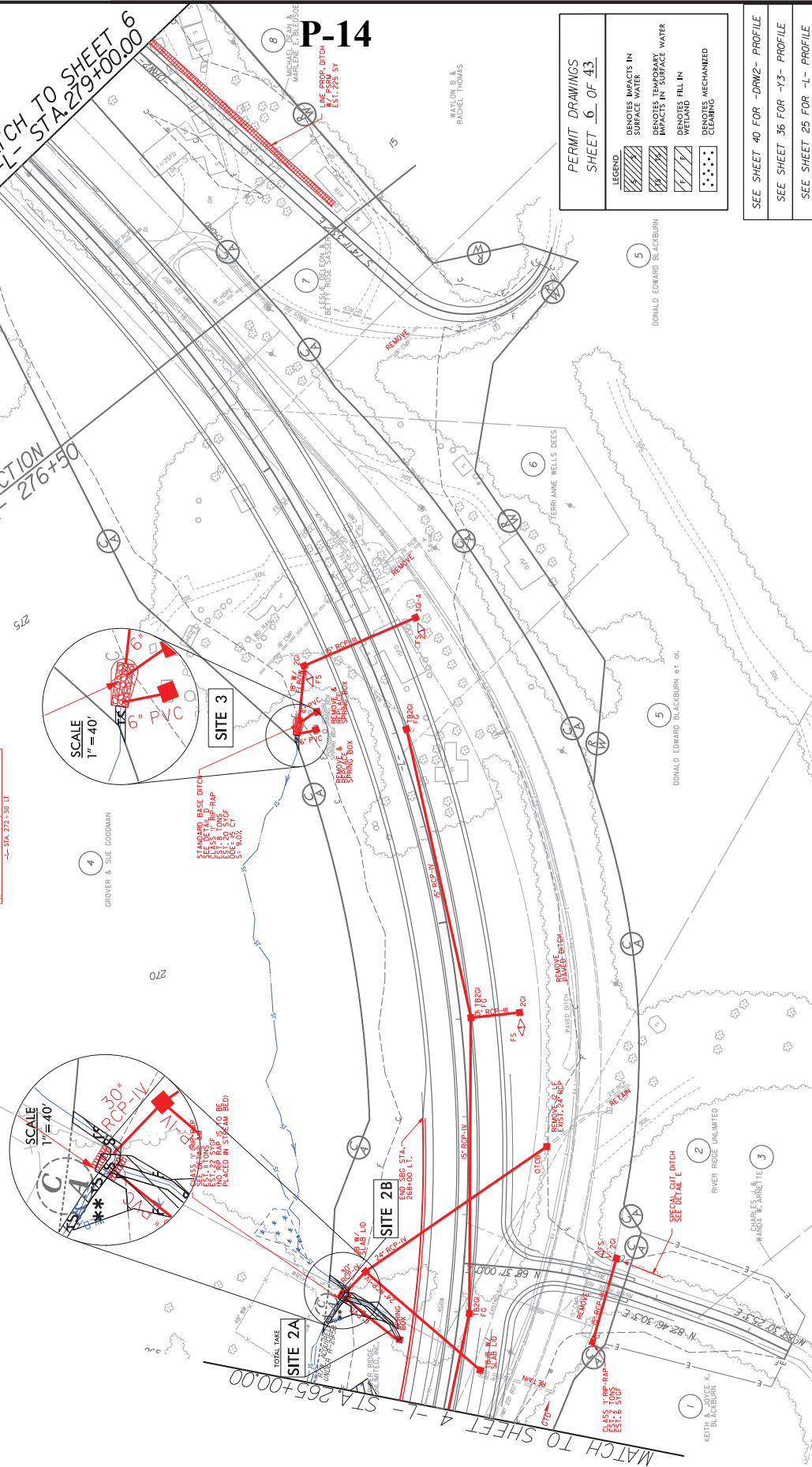
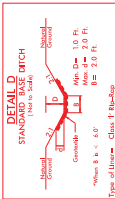
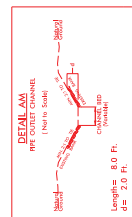






SEE SHEET 39 FOR -DRAI- PROFILE	SEE SHEET 35 FOR -YI- PROFILE	SEE SHEET 35 FOR -YIA- PROFILE
SEE SHEET 35 FOR -Y2A- PROFILE	SEE SHEET 35 FOR -Y2- PROFILE	SEE SHEET 24 FOR -L- PROFILE







PROJ. REFERENCE NO.

R-2915C

SHEET NO.

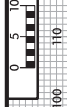
8 OF 43

PERMIT DRAWINGS

SHEET 8 OF 43

LEGEND

DENOTES FILL IN WETLAND



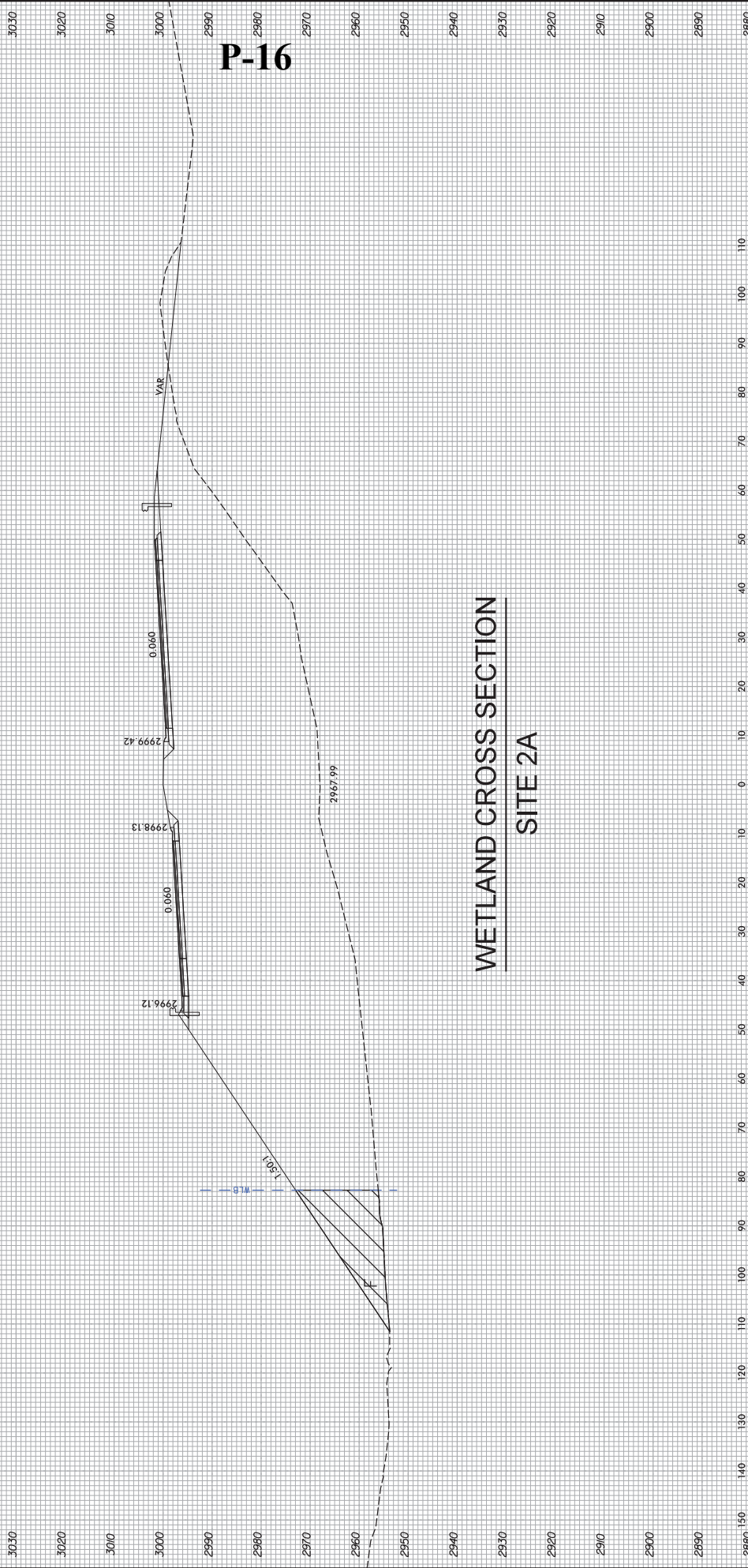
B/23/99

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110

3030 3020 3010 3000 2990 2980 2970 2960 2950 2940 2930 2920 2910 2900 2890 2880

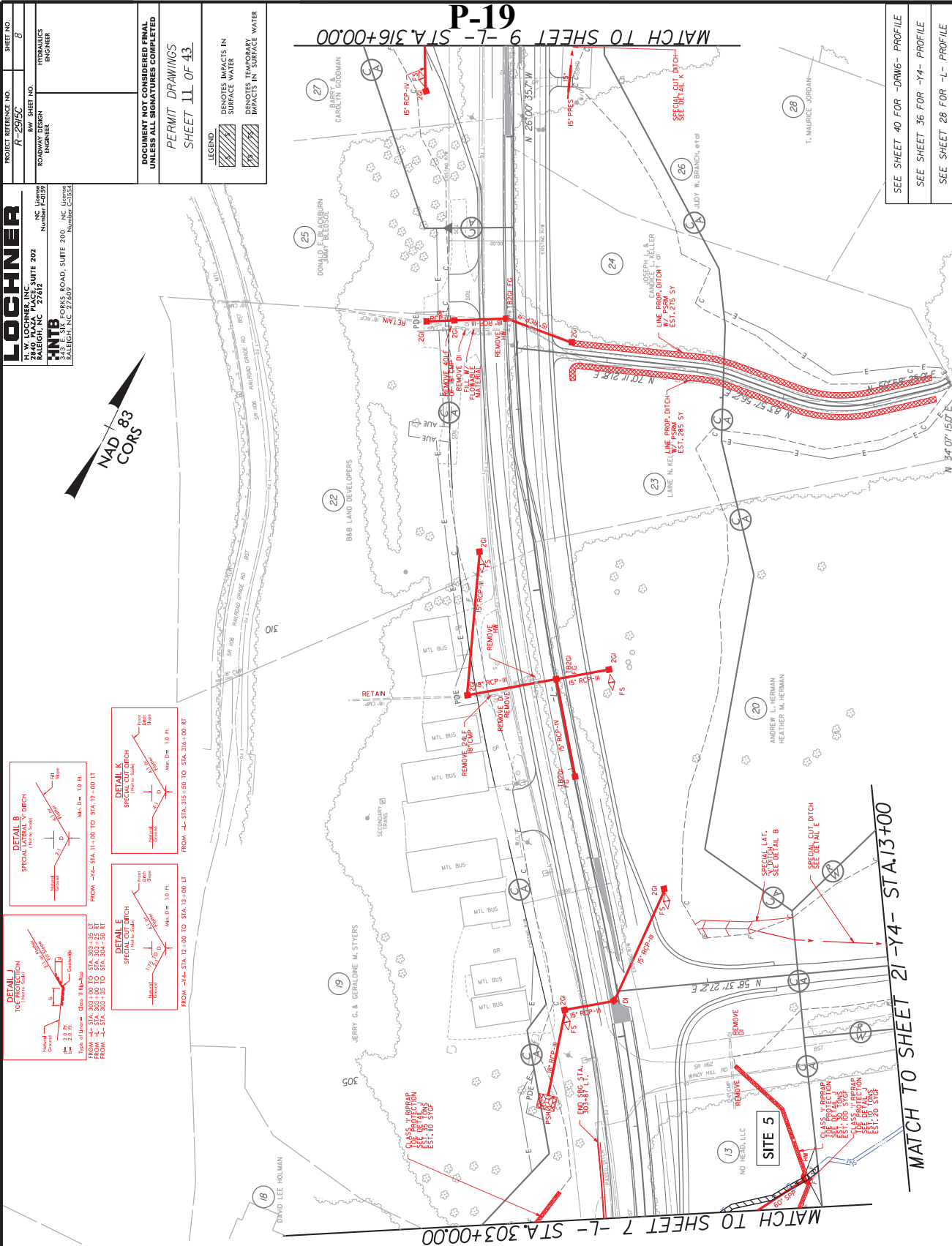
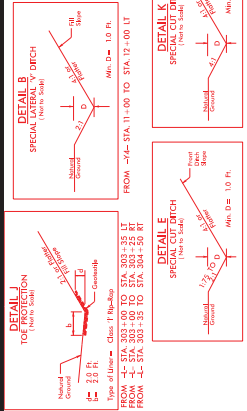
P-16

WETLAND CROSS SECTION  
SITE 2A







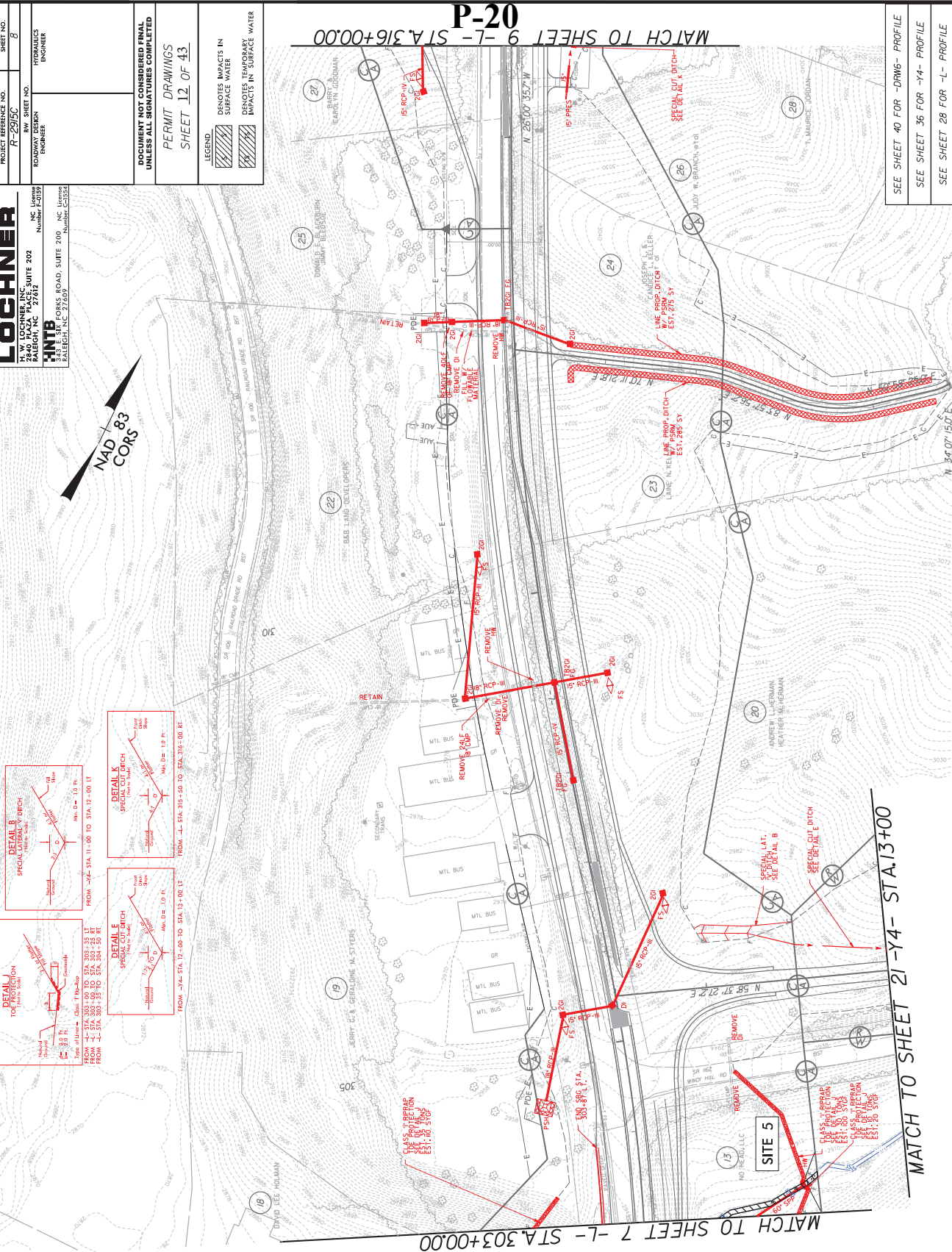
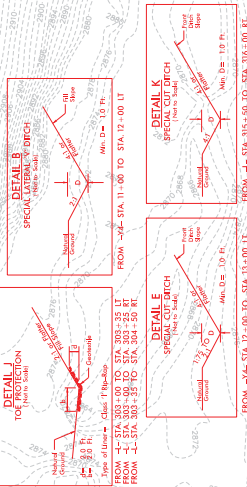
REVISIONS

SEE SHEET 40 FOR -DRW6- PROFILE
SEE SHEET 36 FOR -Y4- PROFILE
SEE SHEET 28 FOR -L- PROFILE

PROJECT REFERENCE NO. <b>R-2915C</b>	SHEET NO. <b>8</b>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
PERMIT DRAWINGS SHEET 12 OF 43	
LEGEND	
DROPPED MARKETS IN SURFACE WATER	
DROPPED TEMPORARY MARKETS IN SURFACE WATER	

**LOCHNER**  
H. W. LOCHNER, INC. SUITE 200  
RALEIGH, NC 27611  
N.C. License  
Number CC551

**INTB**  
343 E. SAN FORKS ROAD, SUITE 200  
RALEIGH, NC 27605



SEE SHEET 40 FOR -DRWG- PROFILE  
SEE SHEET 36 FOR -Y4- PROFILE  
SEE SHEET 28 FOR -L- PROFILE

P-20

MATCH TO SHEET 9 -L- STA.316+00.00

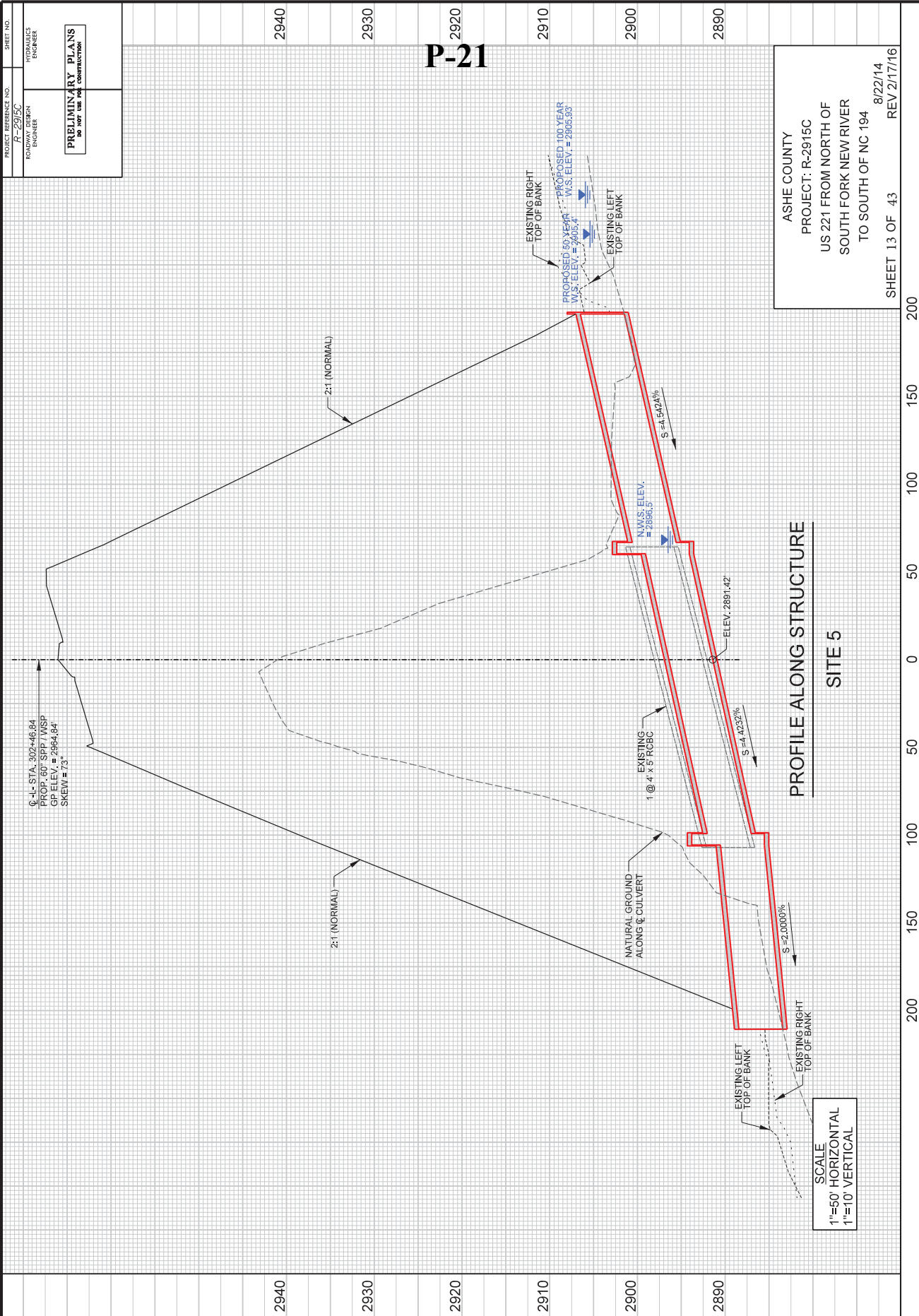
MATCH TO SHEET 7 -L- STA.303+00.00

MATCH TO SHEET 21-Y4- STA.13+00

C-L- STA. 302+46.84  
 PROP. 60" SPP / WSP  
 GP ELEV. = 2964.84'  
 SKEW = 73°

**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION

P-21



ASHE COUNTY  
PROJECT: R-2915C  
US 221 FROM NORTH OF  
SOUTH FORK NEW RIVER  
TO SOUTH OF NC 194  
8/22/14  
SHEET 13 OF 43 REV 2/17/16

SHEET 13 OF 43

PROFILE ALONG STRUCTURE

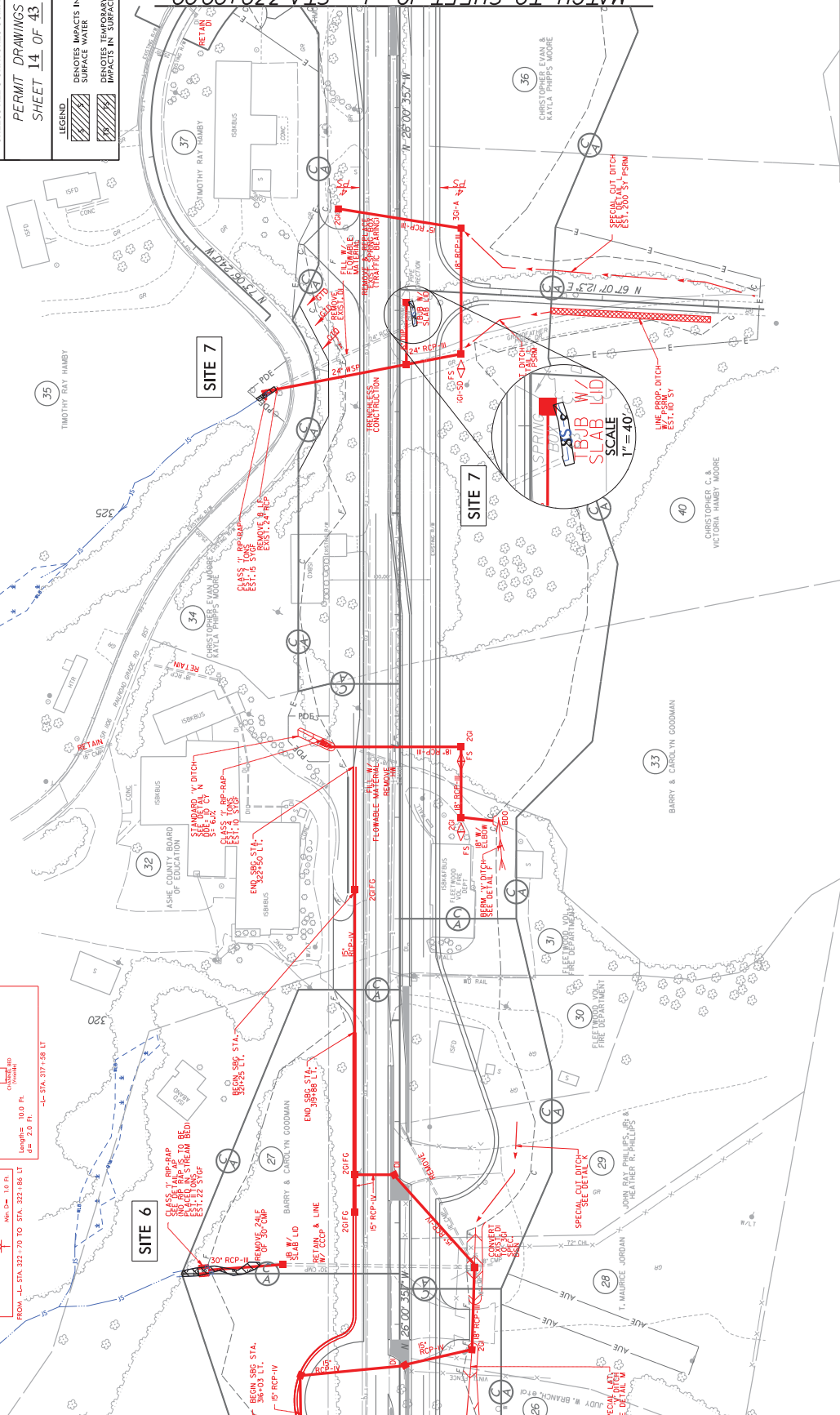
---

SITE 5

SCALE  
1"=50' HORIZONTAL  
1"=10' VERTICAL

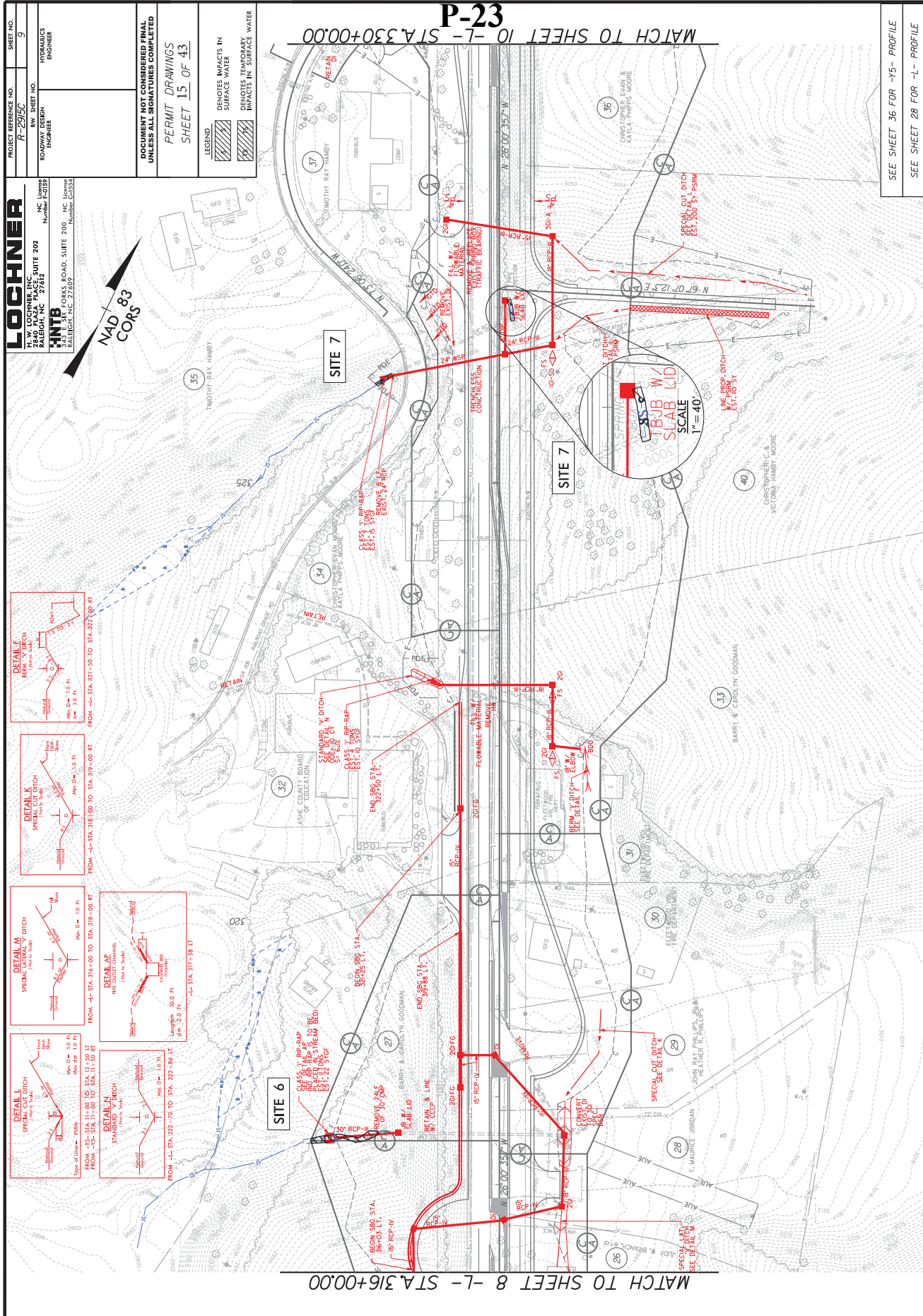
NAD 83  
COR.

MATCH TO SHEET 8 -L- STA. 316+00.00



SEE SHEET 36 FOR -Y5- PROFILE
SEE SHEET 28 FOR -L- PROFILE

SEE SHEET 36 FOR -Y5- PROFILE
SEE SHEET 28 FOR -L- PROFILE

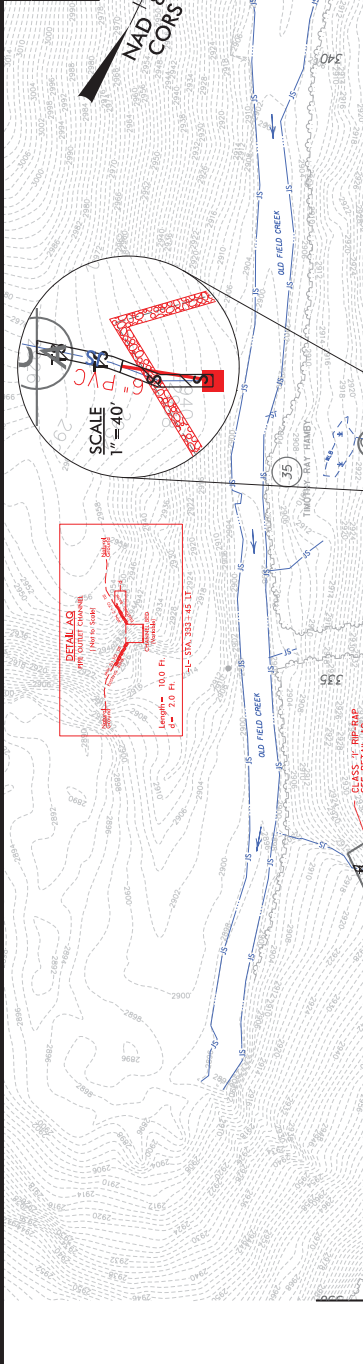




PROJECT REFERENCE NO.	SHEET NO.
R-2915C	10
RDW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
PERMIT DRAWINGS SHEET 17 OF 43	
LEGEND	
DISPOSED MATERIALS IN SURFACE WATER	
DISPOSED MATERIALS IN SURFACE WATER	
DISPOSED MATERIALS IN SURFACE WATER	

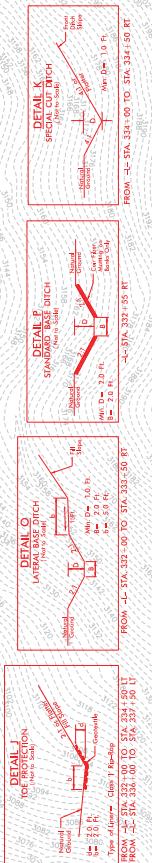
**LOCHNER**  
H. W. LOCHNER, INC. SUITE 200  
343 E. SAN FORTS ROAD, SUITE 200  
RALEIGH, NC 27603  
N.C. License  
Professional Engineer  
No. 27603

DATE: 12/17/2019  
PROJECT: 17-0000



MATCH TO SHEET 9 - L - STA. 330+00.00

MATCH TO SHEET 11 - L - STA. 344+00.00



SEE SHEET 41 FOR -DRWGA- PROFILE  
SEE SHEET 36 FOR -Y6- PROFILE  
SEE SHEET 29 FOR -L- PROFILE



8/17/99

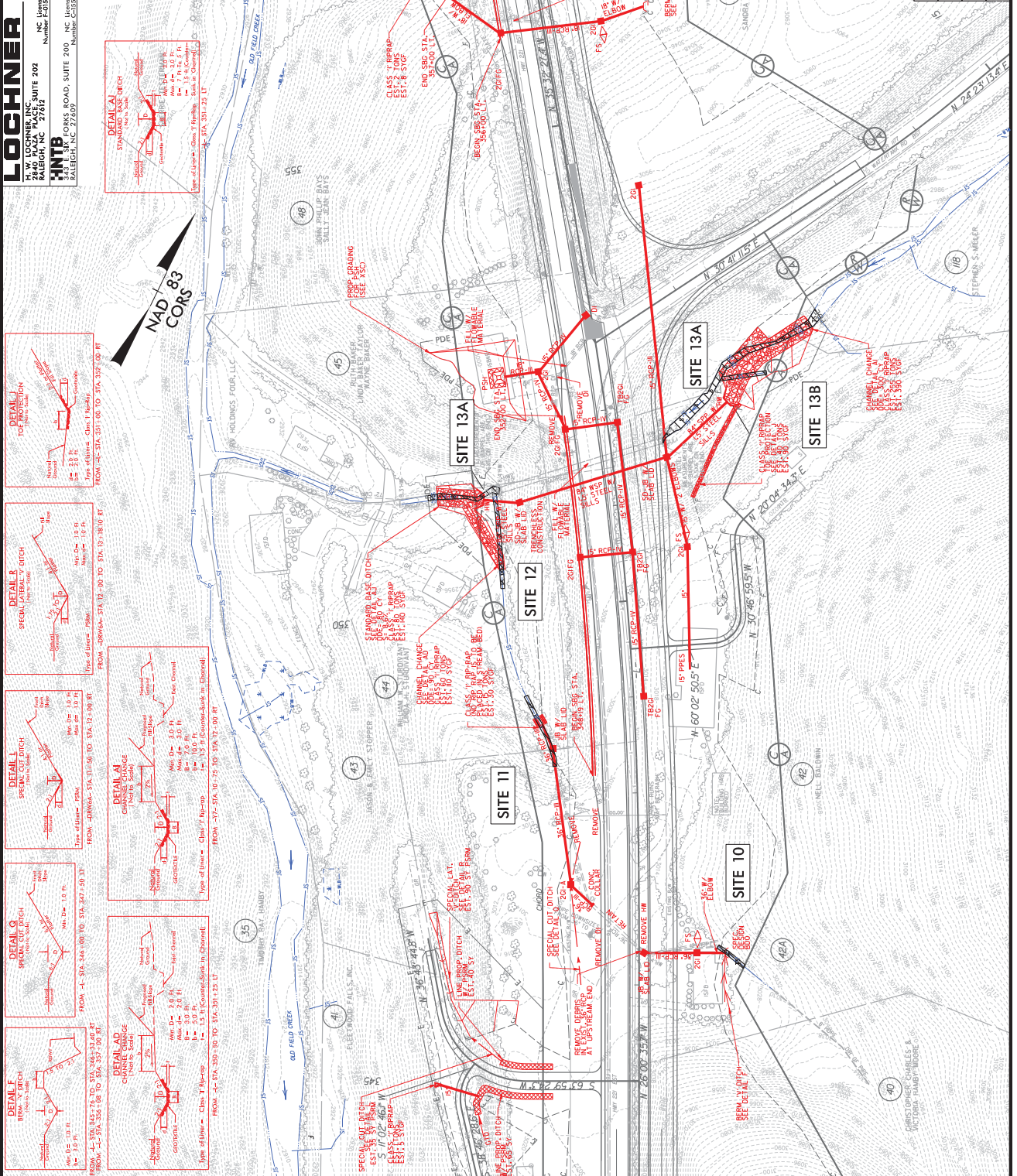
REVISIONS

4:13:30 PM  
17-0000.DWG  
PSH10.Cadp



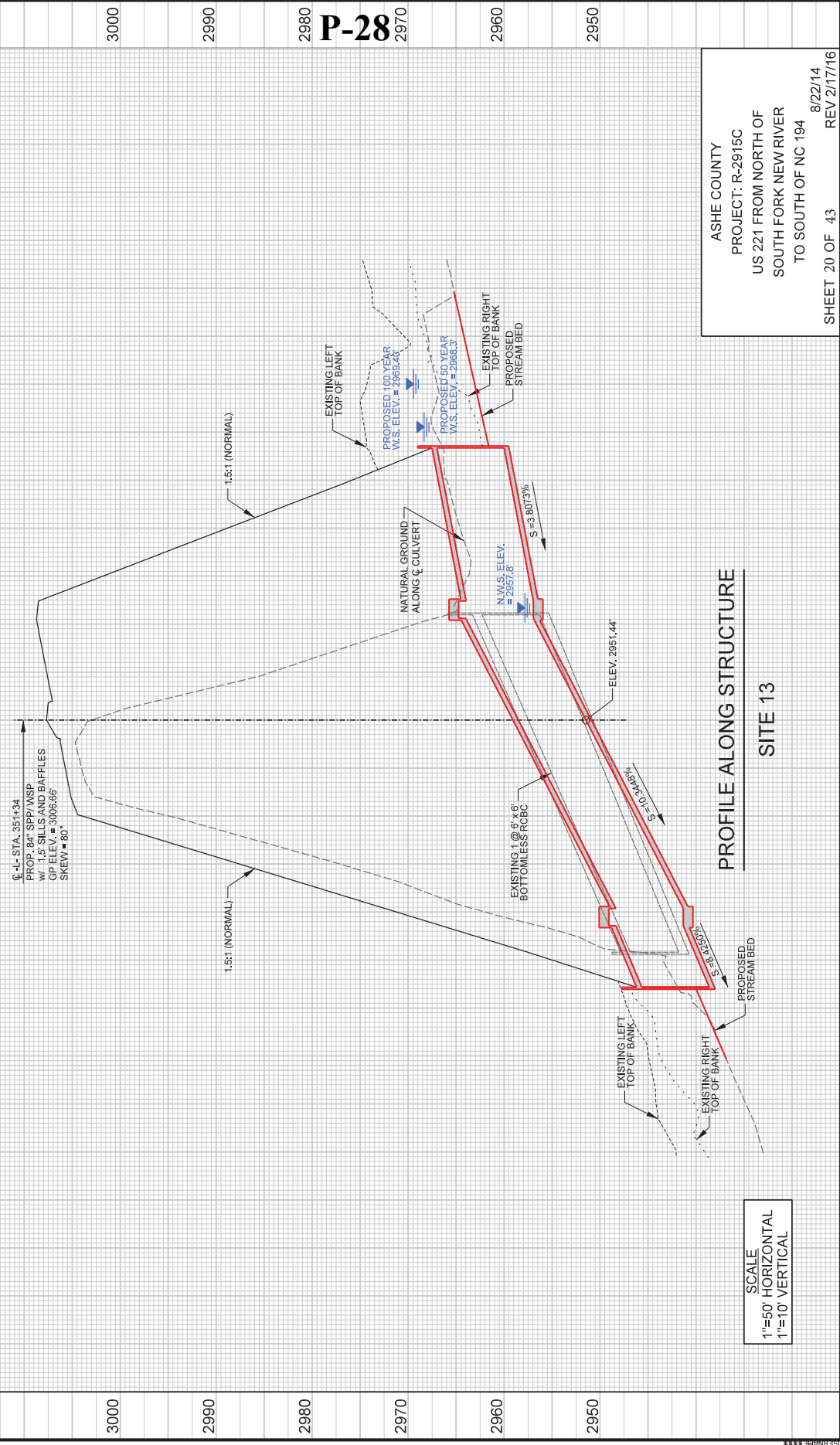
66/71/8

PROJECT REFERENCE NO. <b>R-295C</b>	BW SHEET NO. <b>II</b>	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER		
<p align="center">DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p> <p align="center"><i>PERMIT DRAWINGS</i> <i>SHEET 19 OF 43</i></p>		
<p align="center">LEGEND</p> <div style="display: flex; justify-content: space-around;"> <div>  <p>Denotes Impacts in Surface Water</p> </div> <div>  <p>Denotes Temporary Impacts in Surface Water</p> </div> </div>		



PROJECT REFERENCE NO. <b>R-2915C</b>	SHEET NO. <b>43</b>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**PRELIMINARY PLANS**  
 DO NOT USE FOR CONSTRUCTION



SCALE  
1"=50' HORIZONTAL  
1"=10' VERTICAL

**PROFILE ALONG STRUCTURE**  
**SITE 13**

ASHE COUNTY  
PROJECT: R-2915C  
US 221 FROM NORTH OF  
SOUTH FORK NEW RIVER  
TO SOUTH OF NC 194  
8/22/14  
REV 2/17/16

SHEET 20 OF 43

**DETAIL L**  
**SPECIAL CUT DITCH**  
(Not to Scale)

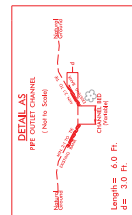
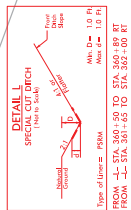
10' 20' 10'

2:1 1:1 1:0.5





Front Ditch Slope

Type of Liner = P5504

Min. D =	1.0 Ft
Max. d =	1.0 Ft
FROM STA 360+50 to STA 360+89 RT	
FROM STA 361+65 to STA 362+00 RT	

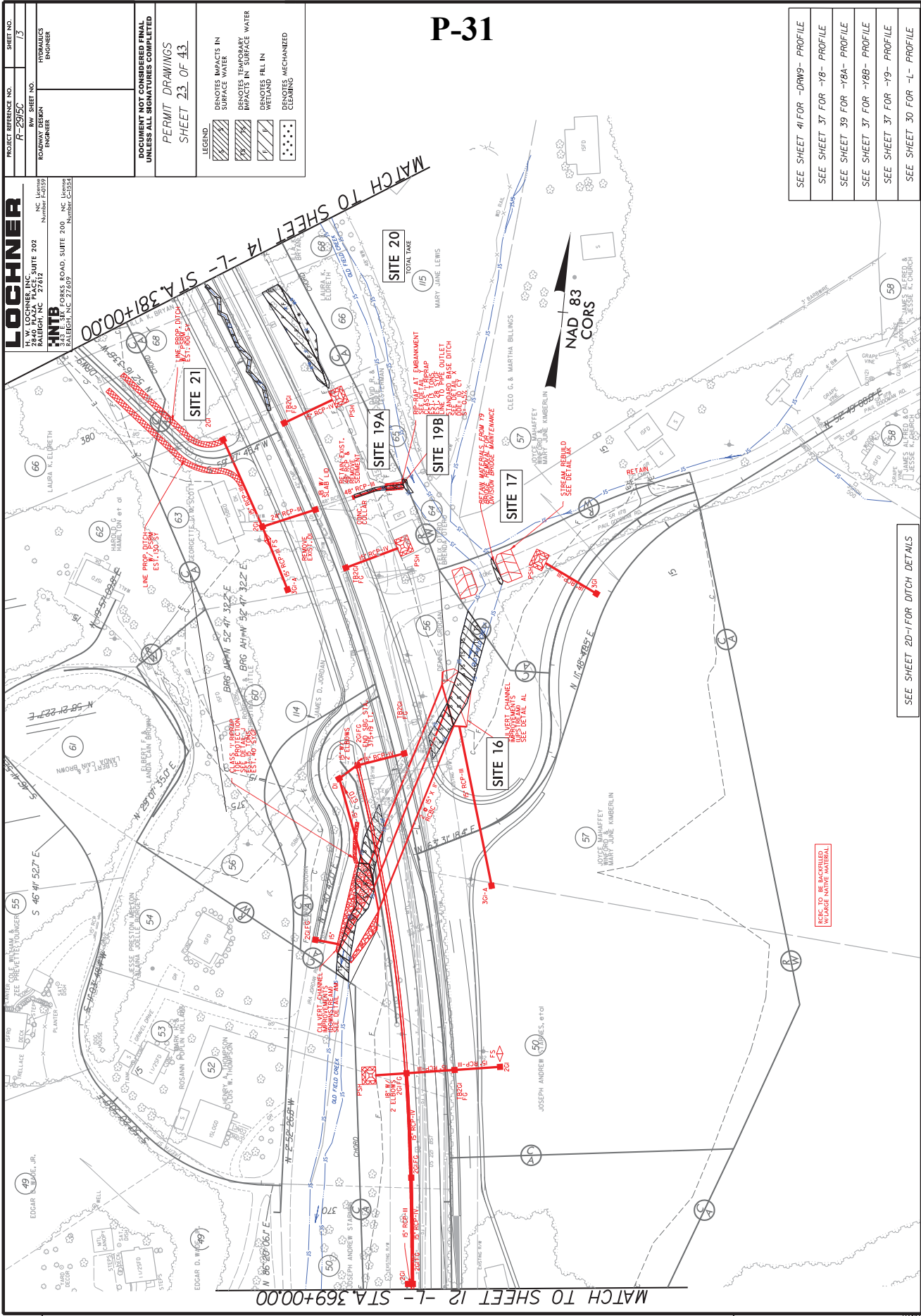




PROJECT REFERENCE NO.	R-2915C	SHEET NO.	13
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
PERMIT DRAWINGS SHEET 23 OF 43			
LEGEND			
		DENOTES IMPACTS IN SURFACE WATER	
		DENOTES TEMPORARY IMPACTS IN SURFACE WATER	
		DENOTES FILL IN WETLAND	
		DENOTES MECHANIZED CLEANING	

P-31

SEE SHEET 41 FOR -DRW9- PROFILE
SEE SHEET 37 FOR -Y8- PROFILE
SEE SHEET 39 FOR -Y8A- PROFILE
SEE SHEET 37 FOR -Y8B- PROFILE
SEE SHEET 37 FOR -Y9- PROFILE
SEE SHEET 30 FOR -L- PROFILE

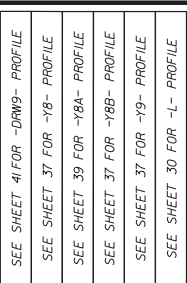


SEE SHEET 20-I FOR DITCH DETAILS

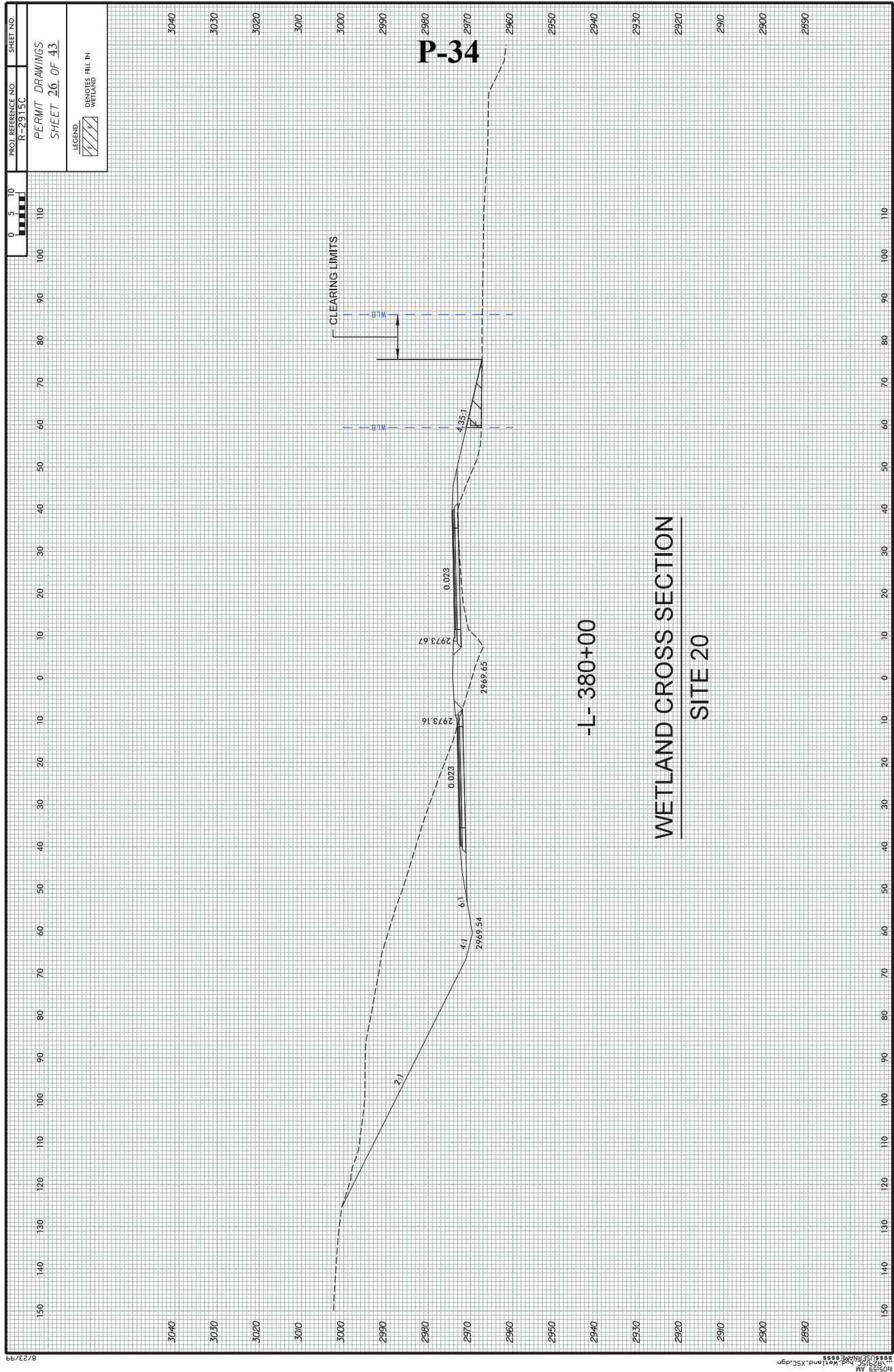
AS TO BE BACKFILLED  
W/ GRADE NATIVE MATERIAL

11/4/2019 11:48:21 AM H:\2019\2915C-P-31\H13.dgn

REVISIONS

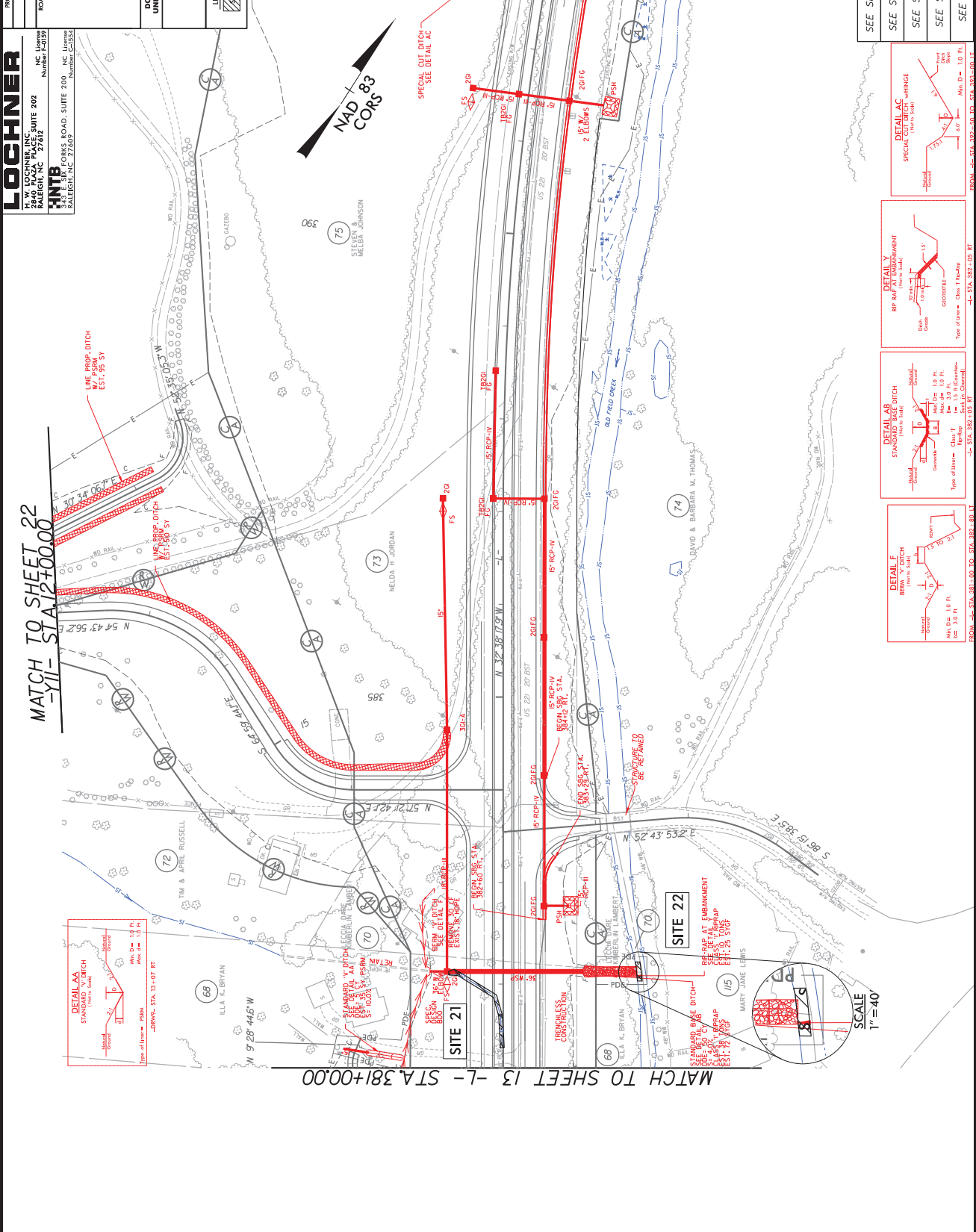






12:19:46 PM  
...\\Dorings\R2915C-prm-PSH14.dgn  
\$\$\$\$\$ISEBNAME\$\$\$\$\$

MATCH TO SHEET 15 - 7 - STA. 393+00.00



**DETAIL Y**  
**RIP RAP AT EMBANKMENT**  
 (Not to Scale)

10% slope  
 1.0 m  
 1.5%  
 Ditch  
 Gravel  
 GIOTEXTE

Type of Unwr. = Class 1 Rip-Rap

— STA. 382 + 05 RT

**DETAIL AB**  
STANDARD BASE DITCH  
(Not to Scale)

2:1

3:1

Natural Ground

Natural Ground

Grass

Gravel

1.0 Ft.

3.0 Ft.

1.0 Ft.

1.5 ft (Counter-Slope)

Type of Liner = Class 1  
Rip-Rap

— STA. 382 + 05 RT

**DETAIL F**  
**BERM "V" DITCH**  
 (Not to Scale)

1.5 TO 2.1

DITCH

b

1.5 TO 2.1

D

Natural Ground

Min. D = 1.0 Ft.  
 b = 3.0 Ft.

SCALE  
1" = 40'  
1/8" = 10'





PROJECT REFERENCE NO.

R-2915C

SHEET NO.

15

LOCHNER

H. W. LOCHNER, INC.

SUITE 202

1000 E. 34th ST.

RALEIGH, NC 27617

NC License

Professional Engineer

27617

ROADWAY DESIGN

ENGINEER

HYDRAULICS

ENGINEER

DOCUMENT NOT CONSIDERED FINAL

UNLESS ALL SIGNATURES COMPLETED

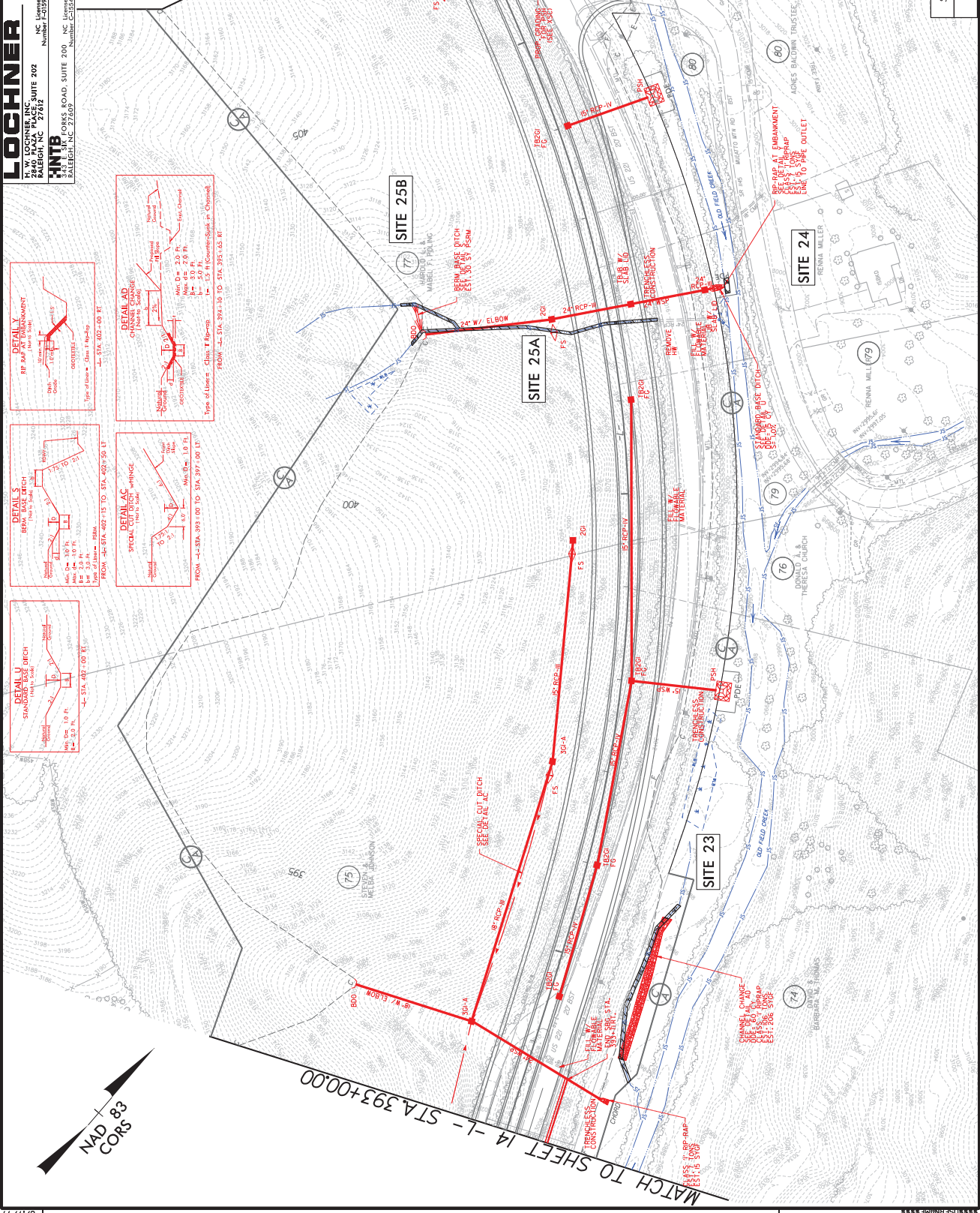
PERMIT DRAWINGS

SHEET 30 OF 43

LEGEND

DRAINAGE MANHOLE IN SURFACE WATER

DRAINAGE MANHOLE IN SURFACE WATER



— 417.450 @ 625.00' LT.

**H. W. LOCHNER, INC.**  
2840 PLAZA PLACE, SUITE 202  
RALEIGH, NC 27612

**HNTB**  
343 E. SIX FORKS ROAD, SUITE 200 NC L  
RALEIGH, NC 27609 Number C

R-2915C  
R/W SHEET NO.  
ROADWAY DESIGN

## ENGINEER

NAVAD 83  
CORP

**DETAIL U**  
STANDARD BASE DITCH  
(Perio Soils)

Min. D = 1.0 Ft.  
B = 2.0 Ft.

**DETAIL Y**

**R/P RAP at SUBAQUEOUS**

(Not to Scale)

10'

1.0'

1.5'

Ditch Grade

GEOTEXTILE

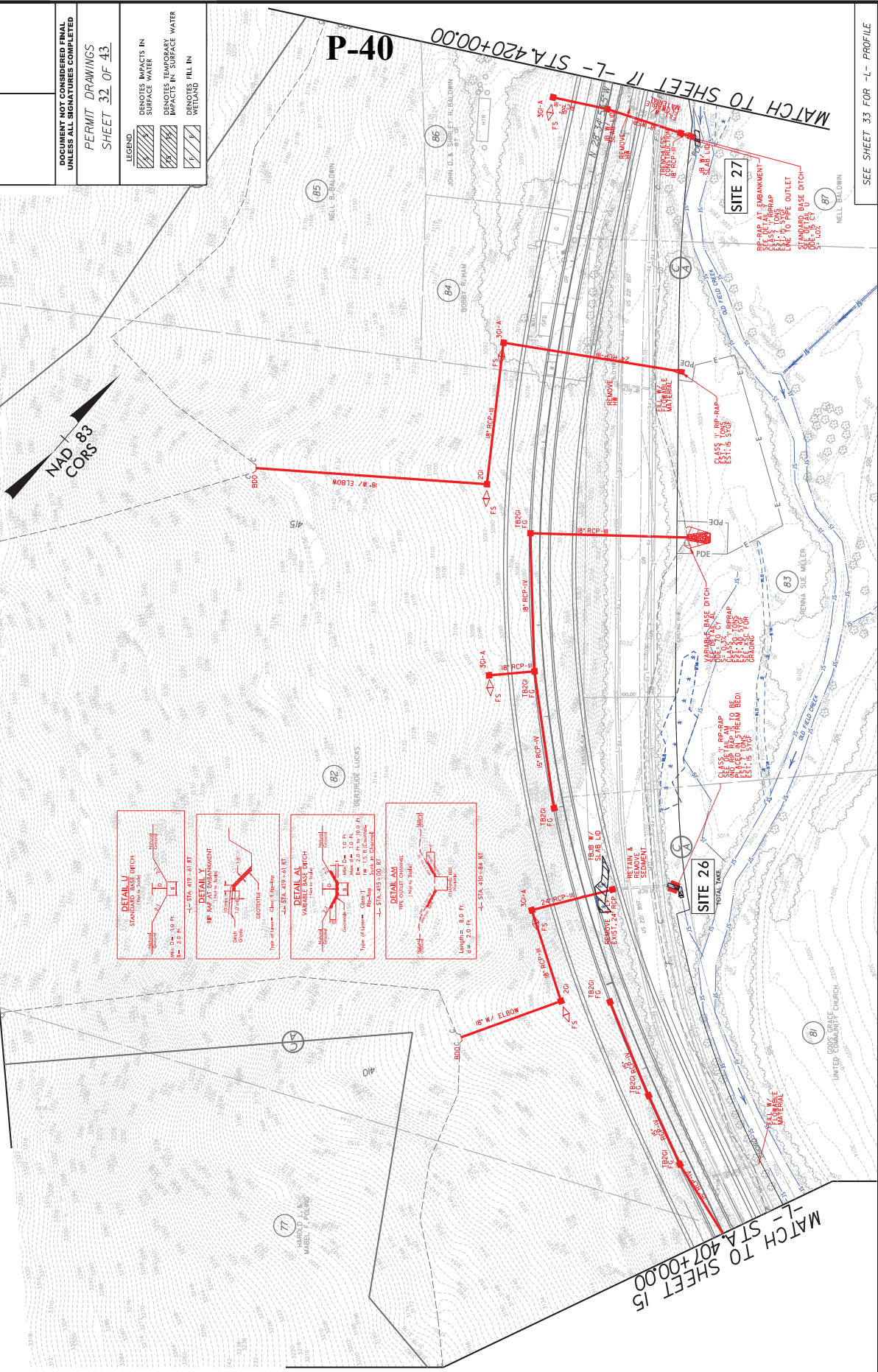
Type of Rap - Class II Rip-Rap

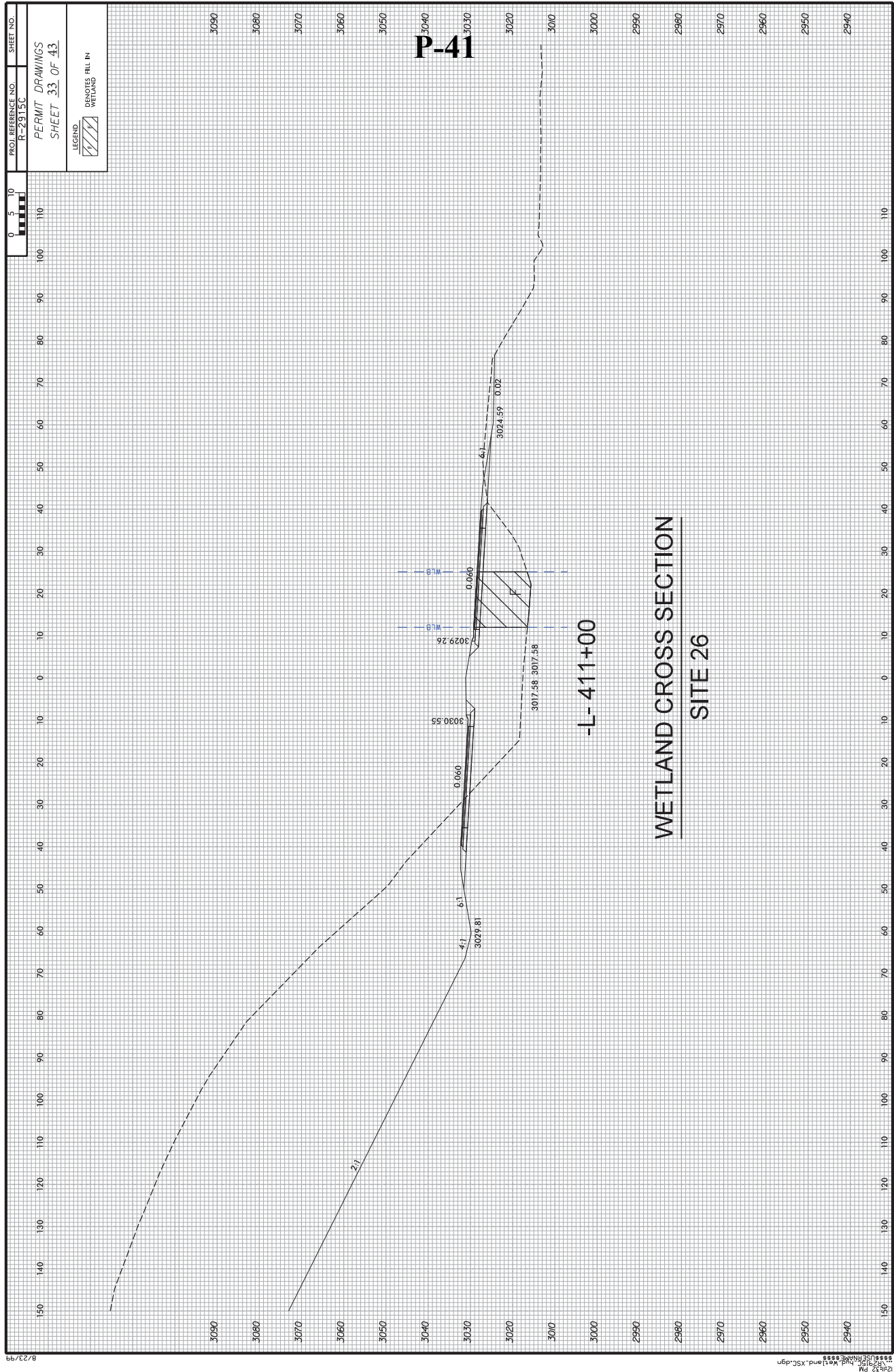
P-39

MATCH TO SHEET 19  
-L- STA. 407+00.00

SEE SHEET 33 FOR -L- PROFILE

	REVISIONS





66/82/8

```
12:11:32 PM
...\\R2915C-hyd-wetland-XSC.dgn
$$$$$USERNAME$$$$$
```





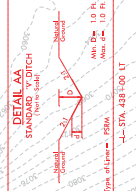
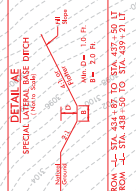
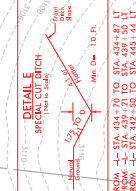
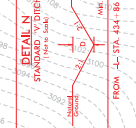
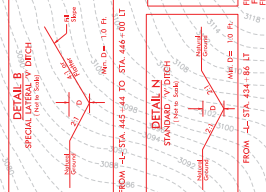
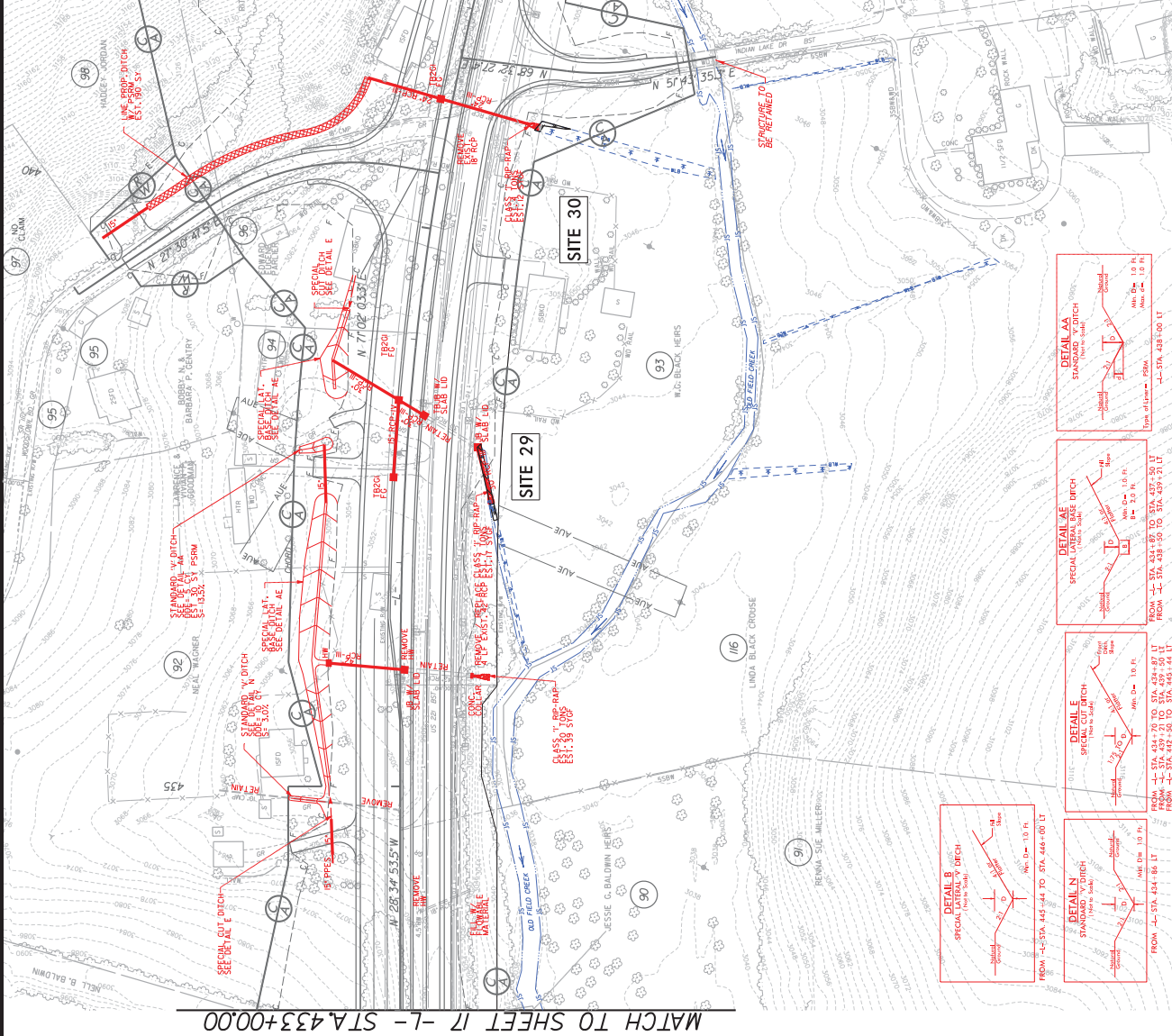


PROJECT REFERENCE NO.	SHEET NO.
R-2915C	18
SW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
PERMIT DRAWINGS	
SHEET 37 OF 43	
LEGEND	
OPENING FILL IN	
OPENING MECHANIZED	
OPENING CLEANING	

**LOCHNER**  
H. W. LOCHNER, INC. SUITE 200  
943 E. SINK FORKS ROAD, SUITE 200  
RALEIGH, NC 27605  
N.C. LICENSE  
NUMBER 120399  
N.C. LICENSE  
NUMBER 27617

**INTB**  
NAD 83  
COR 83

P-45

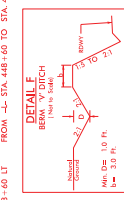
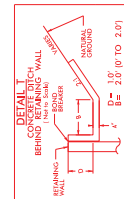
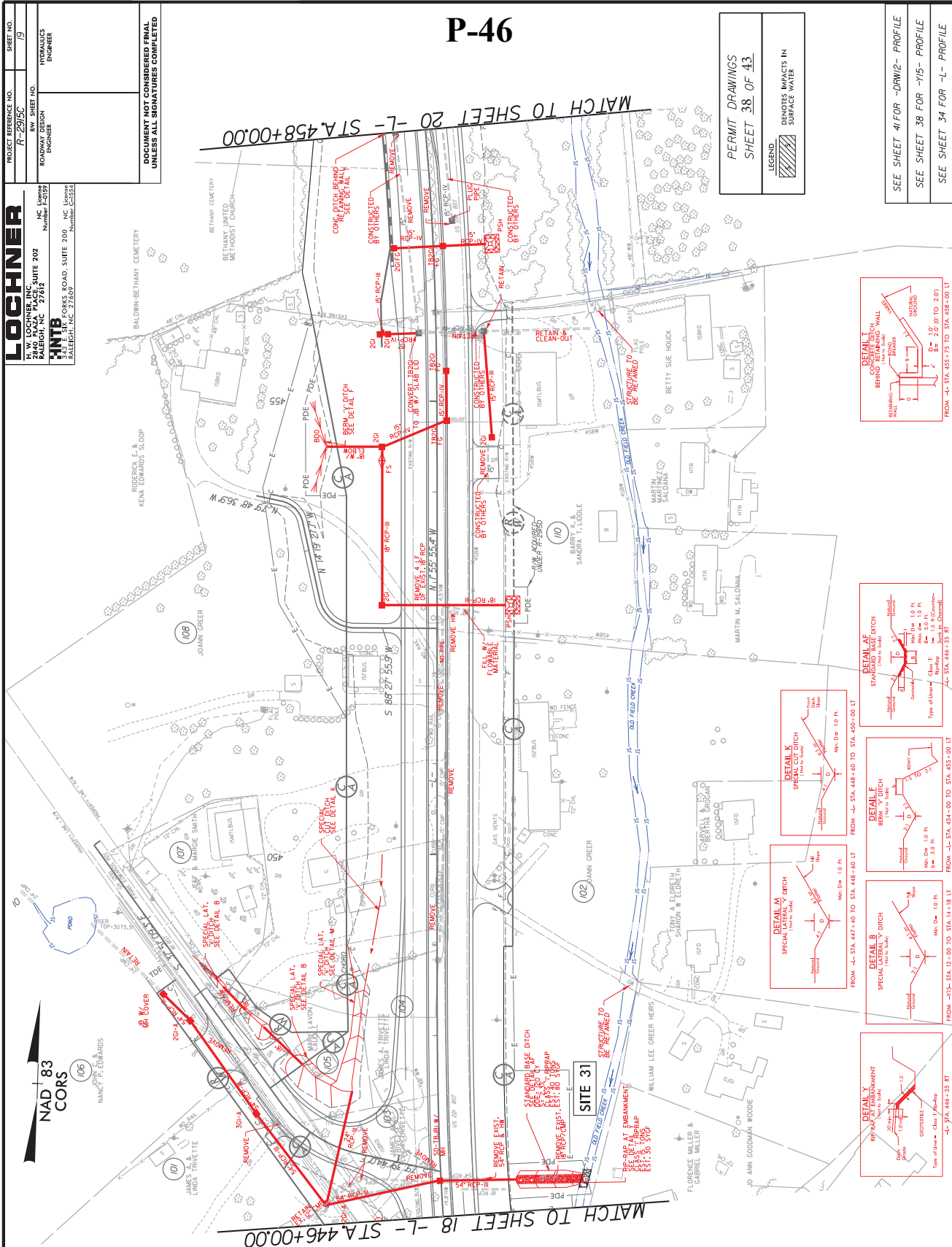


SEE SHEET 38 FOR -Y13- PROFILE  
SEE SHEET 38 FOR -Y14- PROFILE  
SEE SHEET 34 FOR -L- PROFILE

8/17/99

REVISIONS

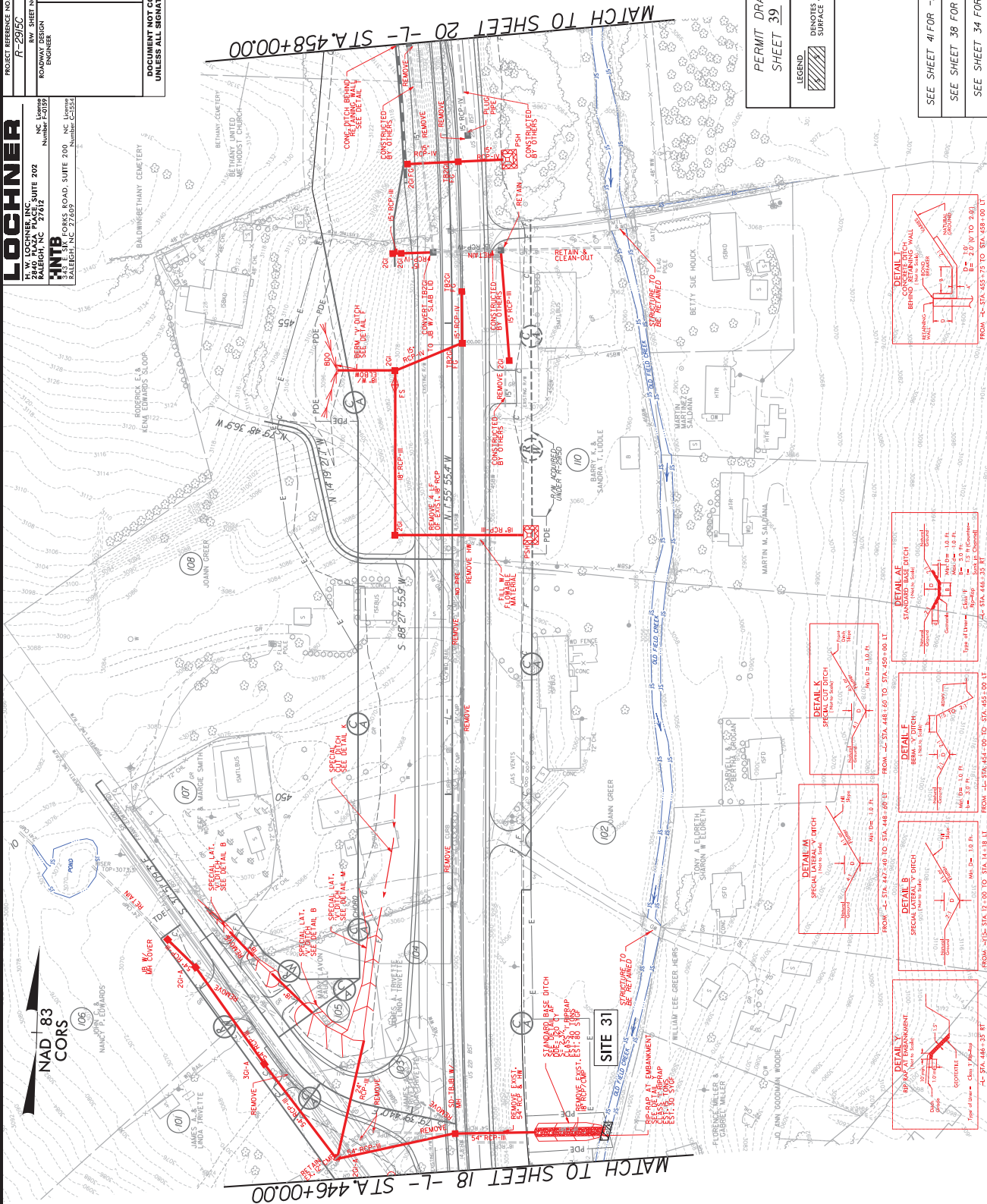
12:25:49 PM  
\\sbs\cadd\p\psh18.cadd



SEE SHEET 41 FOR -DRAW2- PROFILE

SEE SHEET 38 FOR -Y15- PROFILE

SEE SHEET 34 FOR -L- PROFILE







WETLAND PERMIT IMPACT SUMMARY (SHEET 1)												
			WETLAND IMPACTS				SURFACE WATER IMPACTS					
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	-L- 263+91 - 265+17 (L.T)	ROAD FILL / 6" PVC	0.14			0.02			< 0.01	71	34	
2A	-L- 265+62 - 266+07 (L.T)	ROAD FILL	0.01			< 0.01		< 0.01	< 0.01	19	49	
2B	-L- 265+74 - 266+21 (L.T)	BANK STABILIZATION							< 0.01		10	
3	-L- 272+17 - 272+34 (L.T)	DITCH						0.02	< 0.01	210	35	
4	-L- 298+19 - 299+46	48" CSP						< 0.01		16		
		BANK STABILIZATION						0.03	< 0.01	236	21	
5	-L- 302+01 - 303+41	60" SPP & WSP						< 0.01	< 0.01	20		
		BANK STABILIZATION						< 0.01	< 0.01	53	17	
6	-L- 317+47 - 317+61 (L.T)	30" RCP						< 0.01	< 0.01	10		
		BANK STABILIZATION						< 0.01	< 0.01	37	6	
7	-L- 326+84 - 327+09 (RT)	ROAD FILL						0.01	< 0.01	134	29	
8	-L- 332+30 - 333+52	30" CSP						< 0.01	< 0.01	10		
		BANK STABILIZATION						< 0.01	< 0.01	31	28	
9	-L- 336+79 - 336+94 (L.T)	6" PVC						< 0.01	< 0.01	14	21	
10	-L- 346+17 - 346+42 (RT)	36" RCP						< 0.01	< 0.01	45	23	
11	-L- 348+30 - 349+08 (L.T)	36" RCP						< 0.01	< 0.01	12		
		BANK STABILIZATION						< 0.01	< 0.01	78	20	
12	-L- 350+35 - 351+29 (L.T)	DITCH / ROAD FILL						0.04	< 0.01	270	23	
13A	-L- 351+21 - 352+70	84" SPP / WSP						< 0.01	< 0.01	48		
13B	-L- 352+15 (RT)	CHANNEL CHANGE						< 0.01	< 0.01	4	10	
14	-L- 358+63 - 358+73 (L.T)	BANK STABILIZATION						< 0.01	< 0.01	13		
14B	-L- 367+73 - 367+79	BANK STABILIZATION						0.05		100		
16	-L- 373+71 - 375+47	2 @ 15' x 11' RCBC						0.06	0.04	156	84	
16	-L- 372+94 - 375+80	CHANNEL CHANGE						0.25	0.08	1587	410	0
SHEET 1 TOTALS*:			0.16			0.03						

NOTES:

(1) WETLAND TOTAL TAKES: SITE 1, 2A      (2) SITE 15 REMOVED DURING Y8 REDESIGN.

NC DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
08/22/14 (REV. 07/21/16)  
ASHE COUNTY

US 221 FROM NORTH OF SOUTH FORK  
NEW RIVER TO SOUTH OF US 194  
SHEET 42 OF 43

ATN Revised 3/12/13

NC DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
08/22/14 (REV. 07/21/16)  
ASHE COUNTY  
US 221 FROM NORTH OF SOUTH FORK  
NEW RIVER TO SOUTH OF US 194  
SHEET 42 OF 43

WETLAND PERMIT IMPACT SUMMARY (SHEET 2)												
Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS				SURFACE WATER IMPACTS					
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
17	-L- 376+62 - 376+92 (RT)	BRIDGE REMOVAL / STREAM REBUILD							< 0.01		30	
19A	-L- 377+95 - 378+10 (RT)	48" RCP						< 0.01		58		
19B	-L- 377+87 - 378+05 (RT)	BANK STABILIZATION						< 0.01		18		
20	-L- 379+29 - 380+60 (RT)	ROADWAY FILL	0.04			0.02						
21	-L- 379+35 - 382+07 (LT)	ROADWAY FILL						0.03		283		
22	-L- 381+94 - 382+14 (RT)	BANK STABILIZATION						< 0.01		21		
23	-L- 393+88 - 395+82 (RT)	ROADWAY FILL / DITCH						0.01	< 0.01	163	45	
24	-L- 401+93 - 402+07 (RT)	BANK STABILIZATION						< 0.01		16		
25A	-L- 401+78 - 402+54 (LT)	24" SIDE DRAIN & RCP						0.02	< 0.01	262	10	
25B	-L- 402+11 - 402+54 (LT)	BERM BASE DITCH						< 0.01	< 0.01	60	10	
26	-L- 410+74 - 411+37 (RT)	ROADWAY FILL	0.01									
26	-L- 410+66 - 410+87 (RT)	BANK STABILIZATION						< 0.01	< 0.01	13	12	
27	-L- 419+51 - 419+68 (RT)	BANK STABILIZATION						< 0.01		17		
28	-L- 426+42 - 426+59 (RT)	BANK STABILIZATION						< 0.01		17		
29	-L- 437+41 - 438+11 (RT)	30" RCP	< 0.01			< 0.01						
30	-L- 441+00 - 441+13 (RT)	24" RCP				< 0.01						
31	-L- 446+23 - 446+44 (RT)	BANK STABILIZATION						< 0.01	< 0.01	20		
32	-Y4- 16+00 -16+17 (RT)	24" RCP						< 0.01	< 0.01	30	12	
		BANK STABILIZATION						< 0.01		8		
	SHEET 1 TOTALS		0.16			0.03		0.25	0.08	1587	410	
	PROJECT TOTALS*		0.22			0.05		0.34	0.09	2573	529	0

\*Rounded totals are sum of actual impacts

NOTES:

(1) WETLAND TOTAL TAKES: SITE 20, 26 (2) SITE 18 REMOVED DURING Y9 REDESIGN.

NC DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
08/22/14 (REV. 07/21/16)  
ASHE COUNTY  
US 221 FROM NORTH OF SOUTH FORK  
NEW RIVER TO SOUTH OF US 194



PAT MCCRORY

*Governor*

DONALD R. VAN DER VAART

*Secretary*

TRACY DAVIS

*Director*

September 6, 2016

Jeremy Goodwin, PE, CPESC, CPSWQ  
 Soil and Water Engineering Supervisor  
 Roadside Environmental Unit  
 North Carolina Department of Transportation  
 1 South Wilmington Street  
 1557 Mail Service Center  
 Raleigh, NC 27699-1615

Subject: Trout Buffer Zone Waiver  
 R-2915C, US 221 from North of South Fork of New River to South of NC 194  
 TIP Project R-2915C  
 TB-ASHE-2017-002  
 Ashe County

Dear Mr. Goodwin:

This office has received your plan for US 221 from North of South Fork of New River to South of NC 194 in Ashe County, North Carolina. Your plan was submitted to this office for approval because of the proposed encroachments into the buffer zone of designated trout waters. In accordance with NCGS 113A-57(1) and Title 15A NCAC 4B .0125(c), this letter will serve as written approval to encroach on the buffer zones of Old Fields Creek (DWQ Class:C;Tr,ORW and DWQ Class:C,Tr) in Ashe County. This authority has been delegated to me by Tracy E. Davis, Director, Division of Energy, Mineral, and Land Resources, in accordance with NCGS 143B-10. The following conditions will apply to this approval:

1. This approval is based on the plan and supplemental information received via electronic mail on August 8, 2016.
2. This approval is conditional upon compliance with your 401 and 404 approvals. (G.S. 113A-54.1 (a))
3. No instream work (in streams with trout classifications) or land disturbing within the 25-foot trout zone may take place between October 15 and April 15 of each year. (G.S. 113A-54.1 (a))
4. Submit two (2) complete sets of the final plans to the Winston-Salem Regional Office for our files (15 NCAC 04B .0120)

Mr. Jeremy Goodwin

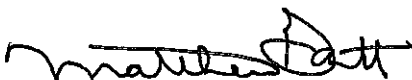
September 6, 2016

Page 2

5. This approval does not absolve the permittee from compliance with the surface water quality turbidity standard. More protective erosion and sedimentation control measures may be required in order to comply with this water quality standard. (G.S. 113A-54.1(a))
6. The Contractor shall install and maintain erosion control devices sufficient to contain sediment around any erodible material stockpile areas as directed. No earthen-material stockpile shall be located within the 25-foot buffer zone of any surface water classified as trout waters by the Environmental Management Commission.

Your cooperation in protecting our environment is most appreciated. If you have any questions about this approval, please contact me at [Matt.Gantt@ncdenr.gov](mailto:Matt.Gantt@ncdenr.gov) or (336) 776-9654.

Sincerely,



Matthew E. Gantt, PE  
Regional Engineer  
Land Quality Section

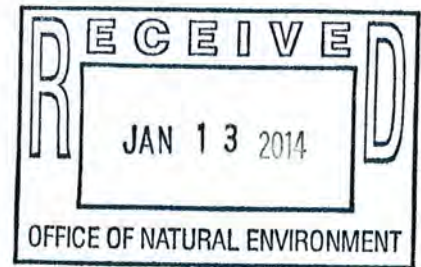
cc: Toby Vinson, PE, DEMLR Section Chief (via email)  
Brad Cole, PE, DEMLR Chief Engineer (via email)  
Evangelyn Lowery-Jacobs, DEMLR Sediment Program (via email)



REPLY TO  
ATTENTION OF

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

07 January 2015



Regulatory Division/1200A

Action ID: SAW-2012-00882

RECEIVED  
Division of Highways  
JAN 13 2015  
Preconstruction  
Project Development and  
Environmental Analysis Branch

Mr. Richard Hancock, P.E.  
Project Development and Environmental  
Analysis Unit  
NC Department of Transportation  
1598 Mail Service Center  
Raleigh, North Carolina 27699-1598

Dear Mr. Hancock:

In accordance with the written request of July 22, 2014, and the ensuing administrative record, enclosed is a Department of the Army (DA) Permit to authorize the following:

1) Permanent placement of fill material into 7,886 linear feet of jurisdictional stream channel, 3.04 acres of adjacent riparian wetlands, and, 2) Temporary placement of fill material into 0.31 acres of waters of the US, associated with the proposed project (R-2915).

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

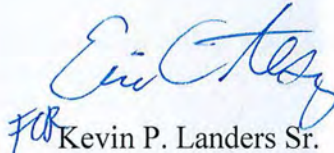
Carefully read your permit. The general and special conditions are important. Your failure to comply with these conditions could result in a violation of Federal law. Certain significant general conditions require that:

- a. You must complete construction before December 31, 2019.
- b. You must notify this office in advance as to when you intend to commence and complete work.
- c. You must allow representatives from this office to make periodic visits to your worksite as deemed necessary to assure compliance with permit plans and conditions.

You should address all questions regarding this authorization to Mrs. Jean B. Gibby in the Raleigh Regulatory Field Office, telephone number (919) 554-4884, extension 24.

Thank you in advance for completing our Customer Survey Form. This can be accomplished by visiting our web-site at <http://regulatory.usacesurvey.com> and completing the survey on-line. We value your comments and appreciate your taking the time to complete a survey each time you interact with our office.

Sincerely,

  
Kevin P. Landers Sr.  
Colonel, U.S. Army  
District Commander

Enclosures

Copy Furnished (with enclosures):

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

Copies Furnished with special conditions and plans:

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

Mr. Fritz Rohde  
Habitat Conservation Division – Atlantic Branch  
101 Pivers Island Road  
Beaufort, North Carolina 28516

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

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

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

Mr. Tony Able  
Wetlands Regulatory Section  
U.S. Environmental Protection Agency – Region 4  
Sam Nunn Atlanta Federal Center  
61 Forsyth Street, SW  
Atlanta, Georgia 30303

## DEPARTMENT OF THE ARMY PERMIT

Permittee: NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
ATTN: MR. RICHARD W. HANCOCK

Permit No: SAW-2012-00882

Issuing Office: USAED, WILMINGTON

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

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

**Project Description:** The project, identified as R-2915, consists of the widening of US 221 to a four-lane, median-divided facility from US 421 in the Deep Gap Community of Watauga County, North Carolina to the US 221 Business/NC88 intersection in the town of Jefferson, in Ashe County, North Carolina. R-2915 is divided into 5 sections for construction purposes, identified as Sections R-2915A, R-2915B, R-2915C, R-2915D, and R-2915E. Total permanent impacts for the construction of this project are 7,886 linear feet of jurisdictional stream channel and 3.04 acres of adjacent riparian wetlands. Temporary impacts total 0.31 acre of jurisdictional stream channel associated with the road’s construction. All impacts are within the New River basin (Hydrologic Categorical Unit 05050001). **THIS IS A PHASED PERMIT AUTHORIZATION: This permit only authorizes work on Sections A, B, and D of TIP R-2915.** Construction on Sections C and E of TIP R-2915 shall not commence until final design has been completed for these sections, the permittee has minimized impacts to waters and wetlands to the maximum extent practicable, any modifications to the plans, and a compensatory mitigation plan, have been approved by the US Army Corps of Engineers (the Corps).

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.

**Project Location:** The project, identified as R-2915, involves 16.1 miles of widening US 221 from its intersection with US 421 in the Deep Gap Community, in Watauga County, North Carolina and extends to the US 221 Business/NC88 intersection in Jefferson, Ashe County, North Carolina. R-2915A begins at US 421 in Watauga County to SR 1003 (Idlewild Road) for 2.8 miles. The next section, R-2915B, runs 1.77 miles from SR 1003 (Idlewild Road) to the north of the South Fork New River. R-2915C extends from the South Fork New River 3.98 miles to south of NC 94. From south of NC 94, R-2915D extends 4.3 miles to US 211 Bypass. From US 221 Bypass, R-2915E extends 3.3 miles to the project’s terminus at the US 221/NC88 intersection, in Jefferson, North Carolina. Coordinates (in latitude and longitude) for the site are 36.3475° N, -81.5320° W. The project will impact Gap Creek in twelve (12) different locations, along with impacting twenty-four (24) of its unnamed tributaries, South Fork of New River three (3) times, along with Old Field Creek and nine (9) of its unnamed tributaries, four (4) unnamed tributaries to South Beaver Creek, and Beaver Creek and fourteen (14) of its unnamed tributaries. The project also contains forty-six (46) adjacent riparian wetlands sites. All jurisdictional waters are located within the New River Basin (8-Digit Cataloging Unit 05050001).

#### Permit Conditions:

##### General Conditions:

1. The time Limit for completing the work authorized ends on December 31, 2019. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Conditions 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.
3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site eligible for listing in the National Register of Historic Places.
4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.
5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions (Appendix B).
6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

### Special Conditions:

\*SEE ATTACHED SPECIAL CONDITIONS

### Further Information:

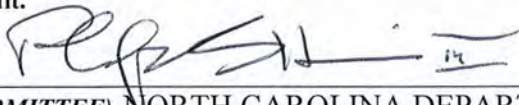
1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:
  - ( ) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S. C. 403).
  - (X) Section 404 of the clean Water Act (33 U.S.C. 1344).
  - ( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).
2. Limits of this authorization.
  - a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.
  - b. This permit does not grant any property rights or exclusive privileges.
  - c. This permit does not authorize any injury to the property or rights of others.
  - d. This permit does not authorize interference with any existing or proposed Federal project.
3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:
  - a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.
  - b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United states in the public interest.
  - c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

- d. Design or construction deficiencies associated with the permitted work.
  - e. Damage claims associated with any future modification, suspension, or revocation of this permit.
4. **Reliance on Applicant's Data:** The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.
5. **Reevaluation of Permit Decision.** This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:
- a. You fail to comply with the terms and conditions of this permit.
  - b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (see 4 above).
  - c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

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

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

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

  
 (PERMITTEE) NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
 ATTN: RICHARD HANCOCK

12/29/2014  
 (DATE)

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

  
 (DISTRICT Engineer) KEVIN P. LANDERS SR., COLONEL

1/7/2015  
 (DATE)

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

\_\_\_\_\_  
 (Transferee)

\_\_\_\_\_  
 (Date)

**SPECIAL CONDITIONS  
ACTION ID: SAW-2012-00882**

**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION R-2915 A, B AND D**

Failure to institute and carry out the details of the following special conditions below (listed as 1 - 27) will result in a directive to cease all ongoing and permitted work within waters of the United States, including wetlands, associated with the permitted project, or such other remedies and/or fines as the U.S. Army Corps of Engineers District Commander or his authorized representatives may seek.

**WORK LIMITS**

**1. CONSTRUCTION PLANS:** All work authorized by this permit must be performed in strict compliance with the attached application and plans for R-2915, which were received on July 22, 2014. These plans are a part of this permit and identified as Exhibit A. Any modification to these plans must be approved by the US Army Corps of Engineers (USACE) prior to implementation.

**2. PHASED PERMIT:** This permit only authorizes work on Sections A, B, and D of TIP R-2915. Construction on Sections C and E shall not commence until final design has been completed for this section, the permittee has minimized impacts to waters and wetlands to the maximum extent practicable, any modifications to the plans, and a compensatory mitigation plan, have been approved by the U.S. Army Corps of Engineers (Corps). Preliminary plans for R-2915 C and E were provided with the July 22, 2014; application (sheets 1-33 and sheets 1-16, respectively). However, these plans are not to be used for construction purposes.

**3. PLANS:** The permittee will ensure that the construction design plans for this project do not deviate from the permit plans attached to this authorization. Written verification shall be provided that the final construction drawings comply with the attached permit drawings prior to any active construction in waters of the United States, including wetlands. Any deviation in the construction design plans will be brought to the attention of the Corps of Engineers, Raleigh Regulatory Field Office prior to any active construction in waters or wetlands.

**4. UNAUTHORIZED DREDGE OR FILL:** Except as authorized by this permit or any USACE approved modification to this permit, no excavation, fill or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, within waters or wetlands. This permit does not authorize temporary placement or double handling of excavated or fill material within waters or wetlands outside the permitted area. This prohibition applies to all borrow and fill activities connected with this project.

**SPECIAL CONDITIONS**  
**ACTION ID: SAW-2012-00882**

**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION R-2915 A, B AND D**

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

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

\* **7. PRECONSTRUCTION MEETING:** The permittee shall schedule a preconstruction meeting between its representatives, the contractor's representatives, and the Corps of Engineers, Raleigh Regulatory Field Office, NCDOT Regulatory Project Manager, prior to any work within jurisdictional waters and wetlands to ensure that there is a mutual understanding of all of the terms and conditions contained within this Department of the Army Permit. The permittee shall provide the USACE, Raleigh Regulatory Field Office, NCDOT Regulatory Project Manager, with a copy of the final plans at least two weeks prior to the preconstruction meeting along with a description of any changes that have been made to the project's design, construction methodology or construction timeframe. The permittee shall schedule the preconstruction meeting for a time when the USACE and North Carolina Division of Water Resources (NCDWR) Project Managers can attend. The permittee shall invite the Corps and NCDWR Project Managers a minimum of thirty (30) days in advance of the scheduled meeting in order to provide those individuals with ample opportunity to schedule and participate in the required meeting.

**SPECIAL CONDITIONS**

**ACTION ID: SAW-2012-00882**

**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION R-2915 A, B AND D**

**8. MORATORIA:** To avoid adverse impacts to spawning populations of trout at this project site, no in-stream work and land disturbance within the 25-foot trout buffer from October 15 to April 15 for all streams supporting wild trout with the project area. This includes Cole Branch, Gap Creek, Old Field Creek, Beaver Creek and their unnamed tributaries. Little Buffalo Creek, South Beaver Creek and Naked Creek, along with their unnamed tributaries, are not subject to any construction moratoria.

**RELATED LAWS**

**9. WATER CONTAMINATION:** All mechanized equipment will be regularly inspected and maintained to prevent contamination of waters and wetlands from fuels, lubricants, hydraulic fluids, or other toxic materials. In the event of a spill of petroleum products or any other hazardous waste, the permittee shall immediately report it to the N.C. Division of Water Resources at 1 (800) 858-0368 and provisions of the North Carolina Oil Pollution and Hazardous Substances Control Act will be followed.

**PROJECT MAINTENANCE**

**10. NOTIFICATION OF CONSTRUCTION COMMENCEMENT AND COMPLETION:**

The permittee shall advise the Corps in writing prior to beginning the work authorized by this permit and again upon completion of the work authorized by this permit.

**11. CLEAN FILL:** Unless otherwise authorized by this permit, all fill material placed in waters or wetlands shall be generated from an upland source and will be clean and free of any pollutants except in trace quantities. Metal products, organic materials (including debris from land clearing activities), or unsightly debris will not be used.

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

**SPECIAL CONDITIONS**

**ACTION ID: SAW-2012-00882**

**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION R-2915 A, B AND D**

**13. SILT-FENCING:** The permittee shall employ all sedimentation and erosion control measures necessary to prevent an increase in sedimentation or turbidity within waters and wetlands outside the permit area. This shall include, but is not limited to, the immediate installation of silt fencing or similar appropriate devices around all areas subject to soil disturbance or the movement of earthen fill, and the immediate stabilization of all disturbed areas. Additionally, the project must remain in full compliance with all aspects of the Sedimentation Pollution Control Act of 1973 (North Carolina General Statutes Chapter 113A Article 4).

**14. PERMIT REVOCATION:** The permittee, upon receipt of a notice of revocation of this permit or upon its expiration before completion of the work will, without expense to the United States and in such time and manner as the Secretary of the Army or his authorized representative may direct, restore the water or wetland to its pre-project condition.

**15. EROSION CONTROL MEASURES IN WETLANDS:** The permittee shall remove all sediment and erosion control measures placed in wetlands or waters, and shall restore natural grades in those areas, prior to project completion.

**ENFORCEMENT**

**16. REPORTING ADDRESS:** All reports, documentation and correspondence required by the conditions of this permit shall be submitted to the following address: U.S. Army Corps of Engineers, Regulatory Division, Raleigh Regulatory Field Office, c/o Mr. Andrew Williams, 3331 Heritage Trade Drive, Suite 105, Wake Forest, NC 27587, and by telephone at (919) 554-4884, Ext. 26. The Permittee shall reference the following permit number, SAW-2012-00882, on all submittals.

**17. REPORTING VIOLATIONS OF THE CLEAN WATER ACT AND THE RIVERS AND HARBORS ACT:** Violations of these conditions or violations of Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act must be reported in writing to the Wilmington District U.S. Army Corps of Engineers within 24 hours of the permittee's discovery of the violation.

**18. COMPLIANCE INSPECTION:** A representative of the Corps of Engineers will periodically and randomly inspect the work for compliance with these conditions. Deviations from these procedures may result in an administrative financial penalty and/or directive to cease work until the problem is resolved to the satisfaction of the Corps.

**SPECIAL CONDITIONS  
ACTION ID: SAW-2012-00882  
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION R-2915 A, B AND D**

**19. CULVERTS**

A. Unless otherwise requested in the applicant's application and depicted on the approved work plans, culverts greater than 48 inches in diameter will be buried at least one foot below the bed of the stream. Culverts 48 inches in diameter and less shall be buried or placed on the stream bed as practicable and appropriate to maintain aquatic passage, and every effort shall be made to maintain existing channel slope. The bottom of the culvert must be placed at a depth below the natural stream bottom to provide for passage during drought or low flow conditions. Destabilizing the stream channel and head cutting upstream should be considered in the placement of the culvert.

B. Measures will be included in the construction/installation that will promote the safe passage of fish and other aquatic organisms. The dimension, pattern, and profile of the stream above and below a pipe or culvert should not be modified by widening the stream channel or by reducing the depth of the stream in connection with the construction activity. The width, height, and gradient of a proposed opening should be such as to pass the average historical low flow and spring flow without adversely altering flow velocity. Spring flow should be determined from gauge data, if available. In the absence of such data, bankfull flow can be used as a comparable level.

**20. SEDIMENT EROSION CONTROL**

A. During the clearing phase of the project, heavy equipment must not be operated in surface waters or stream channels. Temporary stream crossings will be used to access the opposite sides of stream channels. All temporary diversion channels and stream crossings will be constructed of non-erodible materials. Grubbing of riparian vegetation will not occur until immediately before construction begins on a given segment of stream channel.

B. No fill or excavation for the purposes of sedimentation and erosion control shall occur within jurisdictional waters, including wetlands, unless it is included on the plan drawings and specifically authorized by this permit.

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

**SPECIAL CONDITIONS**

**ACTION ID: SAW-2012-00882**

**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION R-2915 A, B AND D**

D. The permittee shall use appropriate sediment and erosion control practices which equal or exceed those outlined in the most recent version of the "North Carolina Sediment and Erosion Control Planning and Design Manual" to assure compliance with the appropriate turbidity water quality standard. 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 assure compliance with the appropriate turbidity water quality standards. This shall include, but it not limited to, the immediate installation of silt fencing or similar appropriate devices around all areas subject to soil disturbance or the movement of earthen fill, and the immediate stabilization of disturbed areas. Additionally, the project must remain in full compliance with all aspects of the Sedimentation Pollution Control Act of 1973 (North Carolina General Statutes Chapter 113A Article 4). Adequate sedimentation and erosion control measures must be implemented prior to any ground disturbing activities to minimize impacts to downstream aquatic resources. These measures must be inspected and maintained regularly, especially following rainfall events. All fill material must be adequately stabilized at the earliest practicable date to prevent sediment from entering into adjacent waters or wetlands

**21. TEMPORARY FILLS:** Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated.

**22. BORROW AND WASTE**

A. To ensure that all borrow and waste activities occur on high ground and do not result in the degradation of adjacent wetlands and streams, except as authorized by this permit, the permittee shall require its contractors and/or agents to identify all areas to be used to borrow material, or to dispose of dredged, fill, or waste material. The permittee shall provide the USACE with appropriate maps indicating the locations of proposed borrow or waste sites as soon as the permittee has that information. The permittee will coordinate with the USACE before approving any borrow or waste sites that are within 400 feet of any streams or wetlands.

B. All jurisdictional wetland delineations on borrow or waste areas shall be verified by the Corps of Engineers and shown on the approved reclamation plans. The permittee shall ensure that all such areas comply with Special Condition e of this permit. All information will be available to the Corps of Engineers upon request. The permittee shall require its contractors to complete and execute reclamation plans for each waste and borrow site and provide written documentation that the reclamation plans have been implemented and all work is completed. This documentation will be provided to the Corps of Engineers within 30 days of the completion of the reclamation work.

**SPECIAL CONDITIONS  
ACTION ID: SAW-2012-00882**

**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION R-2915 A, B AND D**

- 23. MITIGATION: In Lieu Fee:** 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.
- 24.** The final designs will be coordinated with the appropriate state and local officials and the Federal Emergency Management Agency (FEMA) to assure compliance with FEMA, state, and local floodway and floodplain regulations.
- 25.** Geodetic survey control monuments will be located during the design, and the U.S. Coast and Geodetic Survey and North Carolina Geodetic Survey will be notified of their location.
- 26.** NCDOT's "Best Management Practices for Protection of Surface Waters" will be implemented, where applicable, including hazardous spill catch basins in water supply watershed critical areas where the roadway crosses a water supply.
- 27.** Any underground storage tanks discovered during construction will be reported to the North Carolina Division of Environmental Management.

**NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND  
REQUEST FOR APPEAL**

Applicant: <b>NCDOT-RICHARD W. HANCOCK, P.E. / R-2915</b>	File Number: <b>SAW-2012-0082</b>	Date: <b>12/29/2014</b>
---	-----------------------------------	-------------------------

Attached is:	See Section below
--------------	-------------------

X	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
	APPROVED JURISDICTIONAL DETERMINATION	D
	PRELIMINARY JURISDICTIONAL DETERMINATION	E

**SECTION I -** The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at or <http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits.aspx> or the Corps regulations at 33 CFR Part 331.

**A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.**

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **OBJECT:** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

**B: PROFFERED PERMIT: You may accept or appeal the permit**

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

**C: PERMIT DENIAL:** You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

**D: APPROVED JURISDICTIONAL DETERMINATION:** You may accept or appeal the approved JD or provide new information.

- **ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the district engineer. This form must be received by the division engineer within 60 days of the date of this notice.

**E: PRELIMINARY JURISDICTIONAL DETERMINATION:** You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

## SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

**REASONS FOR APPEAL OR OBJECTIONS:** (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

**ADDITIONAL INFORMATION:** The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

### POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:

**District Engineer, Wilmington Regulatory Division,  
Attn: Jean B. Gibby  
3331 Heritage Trade Drive, Suite 105  
Wake Forest, North Carolina 27587**

If you only have questions regarding the appeal process you may also contact:

**Mr. Jason Steele, Administrative Appeal  
Review Officer  
CESAD-PDO  
U.S. Army Corps of Engineers, South Atlantic  
Division  
60 Forsyth Street, Room 10M15  
Atlanta, Georgia 30303-8801  
Phone: (404) 562-5137**

**RIGHT OF ENTRY:** Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

_____ Signature of appellant or agent.	Date:	Telephone number:
---	-------	-------------------

**For Permit denials, Proffered Permits and approved Jurisdictional Determinations send this form to:**

**District Engineer, Wilmington Regulatory Division, Attn: Mrs. Jean B. Gibby, Chief, Raleigh  
Regulatory Field Office, 3331 Heritage Trade Drive, Suite 105, Wake Forest, North Carolina, 27587  
Phone: (919) 554-4884 ex.24**



North Carolina Department of Environment and Natural Resources

Pat McCrory  
Governor

John E. Skvarla, III  
Secretary

September 8, 2014

Mr. Richard W. Hancock, P.E., Manager  
Project Development and Environmental Analysis  
North Carolina Department of Transportation  
1598 Mail Service Center  
Raleigh, North Carolina, 27699-1598

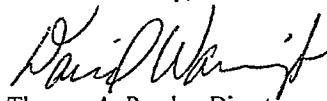
Subject: 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act with  
ADDITIONAL CONDITIONS for US 221 Widening from US 421 to US 221 Business/NC 88 in  
Jefferson located in Watauga and Ashe Counties. Federal Aid Project No. STP-0221(13), TIP No. R-  
2915. WBS 34518.1.1. NCDWR Project No. 20140762.

Dear Mr. Hancock:

Attached hereto is a copy of Certification No. 004001 issued to The North Carolina Department of Transportation (NCDOT) dated September 8, 2014.

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

Sincerely,

  
For Thomas A. Reeder, Director  
Division of Water Resources

Attachments

cc: Andy Williams, US Army Corps of Engineers, Raleigh Field Office (electronic copy only)  
Heath Slaughter, Division II Environmental Officer (electronic copy only)  
Dr. Cynthia Van Der Wiele, Environmental Protection Agency (electronic copy only)  
Marla Chambers, NC Wildlife Resources Commission (electronic copy only)  
Beth Harmon, Ecosystem Enhancement Program (electronic copy only)  
Dave Wanucha, NCDWR Winston Salem Regional Office (electronic copy only)  
File Copy

*8/10/14*

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

**THIS CERTIFICATION** is issued in conformity with the requirements of Section 401 Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Resources (NCDWR) Regulations in 15 NCAC 2H. This certification authorizes the NCDOT to permanently impact 3.04 acres of jurisdictional wetlands and 7,886 linear feet of jurisdictional streams as described in Tables 1 and 2 below. The project shall be constructed pursuant to the application dated July 21, 2014. Stream and wetland impacts associated with Sections C and E are preliminary as shown in Tables 1 and 2 below. As such, details of the impacts will be forthcoming in a revision to this permit in the future. The authorized impacts for Sections A, B and D are as described below in Tables 4 through 8.

**Table 1. Summary of Stream Impacts for all Sections of R-2915.**

Section	Design Stage	Stream Impact Type	Impact Length (lf)	Temporary Impacts (ac)	Stream Impacts Requiring Mitigation (lf)
R-2915A	Final	Permanent Fill	1,119	--	1,119
		Bank Stabilization	402	--	
		Temporary	--	0.05	
R-2915B	Final	Permanent Fill	533	--	533
		Bank Stabilization	411	--	
		Temporary	--	0.15	
R-2915C	Preliminary	Permanent Fill	2,263	--	2,263
		Temporary	--	0.06	
R-2915D	Final	Permanent Fill	2,627	--	2,627
		Bank Stabilization	126	--	
		Temporary	--	0.05	
R-2915E	Preliminary	Permanent Fill	405	--	405
		Temporary	--	<0.01	
Total			7,886	0.31	6,947

**Table 2. Summary of Wetland Impacts for all Sections of R-2915.**

Section	Design Stage	Wetland Impact Type	Wetland Impact Area (ac)	Wetland Impacts Requiring Mitigation (ac)**
R-2915A	Final	Perm. Wetland Fill	0.48	0.57
		Excavation in Wetlands	0.01	
		Mechanized Clearing in Wetlands	0.08	
		Hand Clearing in Wetlands	0.05†	
R-2915B	Final	Perm. Wetland Fill	0.32	0.43
		Excavation in Wetlands	0.04	
		Mechanized Clearing in Wetlands	0.06	
R-2915C	Preliminary	Perm. Wetland Fill	0.16	0.20
		Excavation in Wetlands	--	
		Mechanized Clearing in Wetlands	0.04	
R-2915D	Final	Perm. Wetland Fill	1.01	1.32
		Excavation in Wetlands	0.01	
		Mechanized Clearing in Wetlands	0.30	
R-2915E	Preliminary	Perm. Wetland Fill	0.43	0.52
		Excavation in Wetlands	--	
		Mechanized Clearing in Wetlands	0.09	
Total				3.04

\*\*Values are rounded.

Table 3. Stream Impacts in the New River Basin for Section R-2915A.

Site	Permanent Fill in Stream (linear ft.)	Temporary Fill in Stream (linear ft.)	Total Stream Impact (linear ft.)	Stream Impacts Requiring Mitigation (linear ft.)	
				USACE	NCDWR
1 n/a (wetland)	-	-	-	-	-
1A n/a (wetland)	-	-	-	-	-
1B n/a (wetland)	-	-	-	-	-
2	158	78	236	98	158
3	245	67	312	198	245
3A	57	10	67	57	57
4	19	-	19	-	19
5	9	10	19	-	9
6	15	-	15	-	15
7 *	250	10	260	250	250
8	12	-	12	-	12
9	10	-	10	-	10
10	90	10	100	74	-
11	140	20	160	80	-
12	65	20	85	55	-
12A	-	10	10	-	-
12B	-	10	10	-	-
13	79	25	104	66	-
13A	-	10	10	-	-
13B	-	10	10	-	-
14	13	-	13	-	13
15 *	110	20	130	84	-
16	9	-	9	-	9
17	47	20	67	26	-
18	-	-	-	-	-
19	136	20	156	113	-
20	9	-	9	-	-
21	-	-	-	-	-
22	-	-	-	-	-
23	27	10	37	18	-
23A	-	10	10	-	-
24	21	-	236	-	21
<b>Totals</b>	<b>1,521</b>	<b>370</b>	<b>2,106</b>	<b>1,119</b>	<b>818</b>

\*Indicates that stream is intermittent.

Table 4. Riparian Wetland Impacts in the New River Basin for Section R-2915A.

Site	Permanent Fill (ac)	Temporary Fill (ac)	Excavation (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Total Wetland Impact (ac)	Wetland Impacts Requiring Mitigation (ac)**	
							USACE	NCDWR
1	0.25	-	-	-	0.03	0.28	0.25	-
1A	0.03	-	-	-	<0.01	0.03	0.03	-
1B	0.07	-	-	0.02	<0.01	0.09	0.10	-
5	<0.01	-	-	-	<0.01	0.01	<0.01	-
18	0.09	-	<0.01	0.05	-	0.15	0.15	-
21	0.01	-	<0.01	-	<0.01	0.01	0.02	-
22	0.03	-	-	-	<0.01	0.03	0.03	-
<b>Total</b>	<b>0.48</b>	<b>-</b>	<b>0.01</b>	<b>0.08</b>	<b>0.05</b>	<b>0.59</b>	<b>0.57</b>	<b>-</b>

\*\*Values are rounded.

Table 5. Stream Impacts in the New River Basin for Section R-2915B.

Site	Permanent Fill in Stream (linear ft.)	Temporary Fill in Stream (linear ft.)	Total Stream Impact (linear ft.)	Stream Impacts Requiring Mitigation (linear ft.)	
				USACE	NCDWR
1A	214	21	235	170	214
1B	50	6	56	15	50
2	34	-	34	34	-
3	111	-	111	111	-
4 n/a (wetland)	-	-	-	-	-
5 n/a (wetland)	-	-	-	-	-
6 n/a (wetland)	-	-	-	-	-
7 n/a (wetland)	-	-	-	-	-
8 n/a (wetland)	-	-	-	-	-
9	147	-	147	124	-
10	154	57	211	-	154
11 n/a (wetland)	-	-	-	-	-
12 n/a (wetland)	-	-	-	-	-
13	52	8	60	52	-
14 n/a (wetland)	-	-	-	-	-
15 n/a (wetland)	-	-	-	-	-
16	36	-	36	27	-
17	54	-	54	-	54
18	53	-	53	-	53
19	-	115	115	-	-
20	19	-	19	-	-
21	20	-	20	-	-
<b>Totals</b>	<b>944</b>	<b>207</b>	<b>1,151</b>	<b>533</b>	<b>525</b>

Note: All sites are perennial streams except where indicated.

Table 6. Riparian Wetland Impacts in the New River Basin for Section R-2915B.

Site	Permanent Fill (ac)	Temporary Fill (ac)	Excavation (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Total Wetland Impact (ac)	Wetland Impacts Requiring Mitigation (ac)**	
							USACE	NCDWR
4	<0.01	-	-	<0.01	-	0.28	<0.01	-
5	<0.01	-	-	-	-	0.03	<0.01	-
6	<0.01	-	-	-	-	0.09	<0.01	-
7	0.05	-	0.03	-	-	0.01	0.08	-
8	<0.01	-	-	<0.01	-	0.15	<0.01	-
11	<0.01	-	-	<0.01	-	0.01	<0.01	-
12	0.12	-	-	<0.01	-	0.03	0.12	-
14	-	-	0.01	<0.01	-	-	0.02	-
15	0.14	-	-	0.05	-	-	0.19	-
<b>Total</b>	<b>0.32</b>	<b>-</b>	<b>0.04</b>	<b>0.06</b>	<b>-</b>	<b>0.59</b>	<b>0.43</b>	<b>-</b>

\*\*Values are rounded.

Table 7. Stream Impacts in the New River Basin for Section R-2915D.

Site	Permanent Fill in Stream (linear ft.)	Temporary Fill in Stream (linear ft.)	Total Stream Impact (linear ft.)	Stream Impacts Requiring Mitigation (linear ft.)	
				USACE	NCDWR
1*	312	46	358	312	312
2 n/a (wetland)	-	-	-	-	-
3A	60	-	60	60	-
3B	56	73	129	56	-
4	-	19	19	-	-
5	76	-	76	57	-
6	168	25	193	120	168
7 n/a (wetland)	-	-	-	-	-
8	15	-	15	-	-
9	126	22	148	126	-
10	396	-	396	396	396
11	11	-	11	-	-
12	51	11	62	51	-
13 n/a (wetland)	-	-	-	-	-
14	162	14	176	162	162
15	12	-	12	12	12
16 n/a (wetland)	-	-	-	-	-
17A	28	23	51	28	-
17B	12	-	12	12	-
18	491	-	491	491	491
19	100	12	112	100	-
20A	55	18	73	55	-
20B	57	11	68	57	-
21	49	17	66	49	-
22	61	-	61	61	-
23A	19	-	19	19	-
23B	66	15	81	66	-
24*	22	10	32	22	-
25	12	-	12	12	-
26	108	48	156	75	-
27	134	-	134	134	134
28 n/a (wetland)	-	-	-	-	-
29	69	-	69	69	69
30 n/a (wetland)	-	-	-	-	-
31 n/a (wetland)	-	-	-	-	-
32	25	19	44	25	-
<b>Totals</b>	<b>2753</b>	<b>383</b>	<b>3136</b>	<b>2627</b>	<b>1744</b>

\*Indicates that stream is intermittent.

Table 8. Riparian Wetland Impacts in the New River Basin for Section R-2915D.

Site	Permanent Fill (ac)	Temporary Fill (ac)	Excavation (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Total Wetland Impact (ac)	Wetland Impacts Requiring Mitigation (ac)**	
							USACE	NCDWR
2	<0.01	-	-	-	-	<0.01	<0.01	-
3B	<0.01	-	<0.01	0.02	-	0.03	0.03	-
4	0.10	-	-	0.04	-	0.14	0.14	-
7	0.25	-	-	0.05	-	0.30	0.30	-
13	<0.01	-	<0.01	-	-	<0.01	0.01	-
14	0.03	-	<0.01	0.01	-	0.05	0.05	-
15	<0.01	-	-	0.02	-	0.02	0.02	-
16	-	-	-	<0.01	-	<0.01	<0.01	-
17A	0.06	-	-	0.01	-	0.07	0.07	-
19	0.07	-	-	<0.01	-	0.07	0.07	-
20B	<0.01	-	-	<0.01	-	<0.01	0.01	-
21	0.17	-	<0.01	-	-	0.18	0.18	-
22	<0.01	-	-	<0.01	-	<0.01	<0.01	-
24	<0.01	-	-	0.01	-	0.02	0.02	-
25	0.11	-	-	0.05	-	0.15	0.15	-
27	0.04	-	-	<0.01	-	0.04	0.04	-
28	<0.01	-	-	0.02	-	0.02	0.02	-
30	0.04	-	-	0.06	-	0.10	0.10	-
31	0.06	-	-	<0.01	-	0.07	0.07	-
32	0.02	-	-	<0.01	-	0.02	0.02	-
<b>Total</b>	<b>1.01</b>	<b>-</b>	<b>&lt;0.01</b>	<b>0.3</b>	<b>-</b>	<b>1.32</b>	<b>1.32</b>	<b>-</b>

\*\*Values are rounded.

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

This approval is only valid for the purpose and design that you submitted in your application dated July 21, 2014. Should your project change, you are required to notify the NCDWR and submit a new application. If the property is sold, the new owner must be given a copy of this Certification and approval letter, and is thereby responsible for complying with all the conditions. If any additional wetland impacts, or stream impacts, for this project (now or in the future) exceed one acre or 150 linear feet, respectively, additional compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7). For this approval to remain valid, you are required to comply with all the conditions listed below. In addition, you should obtain all other federal, state or local permits before proceeding with your project including (but not limited to) Sediment and Erosion control, Coastal Stormwater, Non-discharge and Water Supply watershed regulations. This Certification shall expire on the same day as the expiration date of the corresponding Corps of Engineers Permit.

#### Condition(s) of Certification:

##### Project Specific Conditions

- \* 1. When final design plans are completed for R-2915 Sections C and E, a modification to the 401 Water Quality Certification shall be submitted with five copies and fees to the NC Division of Water Resources. Final designs shall reflect all appropriate avoidance, minimization, and mitigation for impacts to wetlands, streams, and other surface waters, and buffers. No construction activities that impact any wetlands, streams or surface waters located in R-2915 Sections C and E shall begin until after the permittee applies for, and receives a written modification of the 401 Water Quality Certification from the NC Division of Water Resources.

2. The NCDOT Division Environmental Officer or Environmental Assistant will conduct a pre-construction meeting with all appropriate staff to ensure that the project supervisor and essential staff understand permit conditions and avoidance and minimization measures. NCDWR staff shall be invited to the pre-construction meeting.
3. Where streams within the project area carry supplemental classifications as Trout (Tr), High Quality Waters (HQW) or Outstanding Resource Waters (ORW), stormwater shall be directed to vegetated buffer areas, grass-lined ditches or other means appropriate to the site for the purpose of pre-treating storm water runoff prior to discharging directly into streams. Mowing of existing vegetated buffers is strongly discouraged. Grassed swales should also be utilized throughout the project to reduce water velocity, promote infiltration and provide treatment for discharge before runoff enters streams. The permittee shall use Design Standards in Sensitive Watersheds per 15A NCAC 4B.0124(a)-(e) in areas draining to ORW, HQW waters. However, due to the size of the project, the NCDOT shall not be required to meet 15A NCAC 4B .0124(a) regarding the maximum amount of uncovered acres. Temporary cover (wheat, millet, or similar annual grain) or permanent herbaceous cover shall be planted on all bare soil within 15 business days of ground disturbing activities to provide erosion control.
4. Streams with Trout classifications require that in-stream work and land disturbance within the 25-foot buffer zone are prohibited during the trout-spawning season of October 15 through April 15 to protect the egg and fry stages of trout.
5. Where possible, hand clearing in wetlands should be used in Section R-2915A rather than mechanized clearing.
6. The relocated portion of a wetland at Permit Site 7 for Section R-2915B should be a grassed swale that has been designed to match the grade and shape of the existing wetland as much as possible.
7. Ensure that the planned installation of a cross vane structure at the downstream end of Old Field Creek at Permit Site 6 for Section R-2915D is constructed in such manner that alleviates scour and erosion to the maximum extent practical.
8. Channel relocations shall be completed and stabilized, and approved on site by NCDWR staff, prior to diverting water into the new channel. Stream banks shall be matted with coir-fiber matting. Vegetation used for bank stabilization shall be limited to native riparian vegetation, and should include establishment of a vegetated buffer on both sides of the relocated channel to the maximum extent practical. Also, additional rip-rap, above which was approved in final approved design drawings, may be allowed if it is necessary to maintain the physical integrity of the stream, but the applicant must provide written justification and any calculations used to determine the extent of rip-rap coverage requested. Once the stream has been turned into the new channel, it may be necessary to relocate stranded fish to the new channel to prevent fish kills.
9. All portions of the proposed project draining to 303(d) listed streams that are impaired due to biological criteria exceedances (i.e. Little Buffalo Creek) 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.
10. 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.
11. 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.
12. Bridge deck drains shall not discharge directly into the stream. Stormwater shall be directed across the bridge and pre-treated through site-appropriate means (grassed swales, pre-formed scour holes, vegetated buffers, etc.) before entering the stream. To meet the requirements of NCDOT's NPDES permit NCS000250, please refer to the most recent version of the North Carolina Department of Transportation Stormwater Best Management Practices Toolbox manual for approved measures.
13. Bridge piles and bents shall be constructed using driven piles (hammer or vibratory) or drilled shaft construction methods. More specifically, jetting or other methods of pile driving are prohibited without prior written

approval from the NCDWR first.

14. No drill slurry or water that has been in contact with uncured concrete shall be allowed to enter surface waters. This water shall be captured, treated, and disposed of properly.
15. If multiple pipes or barrels are required, they shall be designed to mimic natural stream cross section as closely as possible including pipes or barrels at flood plain elevation and/or sills where appropriate. Widening the stream channel should be avoided. Stream channel widening at the inlet or outlet end of structures typically decreases water velocity causing sediment deposition that requires increased maintenance and disrupts aquatic life passage.
16. Riprap shall not be placed in the active thalweg channel or placed in the streambed in a manner that precludes aquatic life passage. Bioengineering boulders or structures should be properly designed, sized and installed.
17. Sites where streams are impacted due to site dewatering activities shall be graded to their preconstruction contours and revegetated with appropriate native species.
18. The stream channel shall be excavated no deeper than the natural bed material of the stream, to the maximum extent practicable. Efforts must be made to minimize impacts to the stream banks, as well as to vegetation responsible for maintaining the stream bank stability. Any applicable riparian buffer impact for access to stream channel shall be temporary and be revegetated with native riparian species.
19. Due to site conditions at Permit Site 9 for Section R-2915B, NCDWR will not require the burial of the culvert inlet in this location. However, design and placement of the culvert and other structures shall be installed in such a manner that the original stream profiles are not altered (i.e., the depth of the channel must not be reduced by a widening of the streambed). Existing stream dimensions (including pattern and profile) are to be maintained above and below locations of each culvert. The structures shall be designed and installed to allow for fish and other wildlife movement as well as prevent headcutting of the stream. The applicant may be required to provide evidence that the equilibrium has been maintained if requested in writing by the NCDWR.
- \* 20. Compensatory mitigation is required for stream impacts that include: 1,119 linear feet of impacts in Section R-2915A, 533 linear feet of impacts in Section R-2915B and 2,627 linear feet of impacts in Section R-2915D. We understand that you have chosen to perform compensatory mitigation for impacts to streams through the North Carolina Ecosystem Enhancement Program (EEP), and that the EEP has agreed to implement the mitigation for the project. EEP has indicated in letters dated July 7, 2014 for R-2915A; June 18, 2014 for R-2915B; and, June 3, 2014 for R-2915D that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with the EEP Mitigation Banking Instrument signed July 28, 2010.
- \* 21. Compensatory mitigation is required for impacts to riparian wetlands that include: 0.57 acres of impacts in Section R-2915A, 0.43 acres of impacts in Section R-2915B and 1.32 acres of impacts in Section R-2915D. We understand that you have chosen to perform compensatory mitigation for impacts to wetlands through the North Carolina Ecosystem Enhancement Program (EEP), and that the EEP has agreed to implement the mitigation for the project. EEP has indicated in a letters dated July 7, 2014 for R-2915A; June 18, 2014 for R-2915B; and, June 3, 2014 for R-2915D that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with EEP's Mitigation Banking Instrument signed July 28, 2010.

#### General Conditions

1. 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 disequilibrium of wetlands or streambeds or banks, adjacent to or upstream and downstream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by NCDWR. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact NCDWR for guidance on how to proceed and to determine whether or not a permit modification will be required.

2. NCDOT shall be in compliance with the NCS000250 issued to the NCDOT, including the applicable requirements of the NCG010000. Please note the extra protections for sensitive watersheds.
3. Tall fescue shall not be used in the establishment of temporary or permanent groundcover within riparian areas. For the establishment of permanent herbaceous cover, erosion control matting shall be used in conjunction with an appropriate native seed mix on disturbed soils within the riparian area and on disturbed steep slopes with the following exception. Erosion control matting is not necessary if the area is contained by perimeter erosion control devices such as silt fence, temporary sediment ditches, basins, etc. Matting should be secured in place with staples, stakes, or wherever possible, live stakes of native trees. Erosion control matting placed in riparian areas shall not contain a nylon mesh grid, which can impinge and entrap small animals. For the establishment of temporary groundcover within riparian areas, hydroseeding along with wood or cellulose based hydro mulch applied from a fertilizer- and limestone-free tank is allowable at the appropriate rate in conjunction with the erosion control measures. Riparian areas are defined as a distance 25 feet landward from top of stream bank.
4. Discharging hydroseed mixtures and washing out hydroseeders and other equipment in or adjacent to surface waters is prohibited.
5. 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.
6. 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.
7. 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.
8. 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.
- \* 9. The Permittee shall ensure that the final design drawings adhere to the permit and to the permit drawings submitted for approval.
10. 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.
11. 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.
12. 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.
13. No rock, sand or other materials shall be dredged from the stream channel except where authorized by this certification.
14. The permittee and its authorized agents shall conduct its activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with §303(d) of the Clean Water Act) and any other appropriate requirements of State and Federal law. If the NCDWR determines that such standards or laws are not being met (including the failure to sustain a designated or achieved use) or that State or federal law is being violated, or that further conditions are necessary to assure compliance, the NCDWR may reevaluate and modify this certification.
15. All fill slopes located in jurisdictional wetlands shall be placed at slopes no flatter than 3:1, unless otherwise authorized by this certification.

16. 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.
17. 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.
18. 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.
19. The Permittee shall report any violations of this certification to the Division of Water Resources within 24 hours of discovery.
- \* 20. Upon completion of the project (including any impacts at associated borrow or waste sites), the NCDOT Division Engineer or appointee shall complete and return the enclosed "Certification of Completion Form" to notify NCDWR when all work included in the 401 Certification has been completed.
21. 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.
22. 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.
23. 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.
24. Sediment and erosion control measures shall not be placed in wetlands or waters unless otherwise approved by this Certification.

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

If you wish to contest any statement in the attached Certification you must file a petition for an administrative hearing. You may obtain the petition form from the office of Administrative hearings. You must file the petition with the office of Administrative Hearings within sixty (60) days of receipt of this notice. A petition is considered filed when it is received in the office of Administrative Hearings during normal office hours. The Office of Administrative Hearings accepts filings Monday through Friday between the hours of 8:00am and 5:00pm, except for official state holidays. The original and one (1) copy of the petition must be filed with the Office of

Administrative Hearings.

The petition may be faxed-provided the original and one copy of the document is received by the Office of Administrative Hearings within five (5) business days following the faxed transmission.  
The mailing address for the Office of Administrative Hearings is:

Office of Administrative Hearings  
6714 Mail Service Center  
Raleigh, NC 27699-6714  
Telephone: (919)-431-3000, Facsimile: (919)-431-3100

A copy of the petition must also be served on DENR as follows:

Mr. John Evans, General Counsel  
Department of Environment and Natural Resources  
1601 Mail Service Center

This the 8th day of September 2014

DIVISION OF WATER RESOURCES



for Thomas A. Reeder, Director  
Division of Water Resources

WQC No. 004001

County : Ashe

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
<b>ROADWAY ITEMS</b>						
0001	0000100000-N	800	MOBILIZATION	Lump Sum	L.S.	
0002	0000400000-N	801	CONSTRUCTION SURVEYING	Lump Sum	L.S.	
0003	0001000000-E	200	CLEARING & GRUBBING .. ACRE(S)	Lump Sum	L.S.	
0004	0008000000-E	200	SUPPLEMENTARY CLEARING & GRUB-BING	5 ACR		
0005	0015000000-N	205	SEALING ABANDONED WELLS	26 EA		
0006	0022000000-E	225	UNCLASSIFIED EXCAVATION	3,391,000 CY		
0007	0036000000-E	225	UNDERCUT EXCAVATION	1,000 CY		
0008	0134000000-E	240	DRAINAGE DITCH EXCAVATION	1,080 CY		
0009	0141000000-E	240	BERM DITCH CONSTRUCTION	1,400 LF		
0010	0156000000-E	250	REMOVAL OF EXISTING ASPHALT PAVEMENT	43,580 SY		
0011	0177000000-E	250	BREAKING OF EXISTING ASPHALT PAVEMENT	5,020 SY		
0012	0192000000-N	260	PROOF ROLLING	50 HR		
0013	0195000000-E	265	SELECT GRANULAR MATERIAL	1,000 CY		
0014	0196000000-E	270	GEOTEXTILE FOR SOIL STABILIZA-TION	9,400 SY		
0015	0199000000-E	SP	TEMPORARY SHORING	22,500 SF		
0016	0223000000-E	275	ROCK PLATING	4,040 SY		
0017	0234000000-E	SP	GENERIC GRADING ITEM TOE BENCHING EXCAVATION	3,900 CY		
0018	0255000000-E	SP	GENERIC GRADING ITEM STOCKPILING CONTAMINATED SOIL	100 TON		
0019	0314000000-E	SP	SELECT MATERIAL, CLASS ***** (IV)	240 TON		

County : Ashe

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0020	0314000000-E	SP	SELECT MATERIAL, CLASS ***** (VII)	35,000 TON		
0021	0318000000-E	300	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES	2,360 TON		
0022	0320000000-E	300	FOUNDATION CONDITIONING GEOTEXTILE	7,400 SY		
0023	0342000000-E	310	*** SIDE DRAIN PIPE (30")	92 LF		
0024	0342000000-E	310	*** SIDE DRAIN PIPE (36")	46 LF		
0025	0343000000-E	310	15" SIDE DRAIN PIPE	1,450 LF		
0026	0344000000-E	310	18" SIDE DRAIN PIPE	1,405 LF		
0027	0345000000-E	310	24" SIDE DRAIN PIPE	303 LF		
0028	0348000000-E	310	*** SIDE DRAIN PIPE ELBOWS (15")	11 EA		
0029	0348000000-E	310	*** SIDE DRAIN PIPE ELBOWS (18")	15 EA		
0030	0348000000-E	310	*** SIDE DRAIN PIPE ELBOWS (24")	5 EA		
0031	0348000000-E	310	*** SIDE DRAIN PIPE ELBOWS (36")	2 EA		
0032	0366000000-E	310	15" RC PIPE CULVERTS, CLASS III	2,432 LF		
0033	0372000000-E	310	18" RC PIPE CULVERTS, CLASS III	3,428 LF		
0034	0378000000-E	310	24" RC PIPE CULVERTS, CLASS III	1,628 LF		
0035	0384000000-E	310	30" RC PIPE CULVERTS, CLASS III	528 LF		
0036	0390000000-E	310	36" RC PIPE CULVERTS, CLASS III	252 LF		

County : Ashe

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0037	0396000000-E	310	42" RC PIPE CULVERTS, CLASS III	72 LF		
0038	0402000000-E	310	48" RC PIPE CULVERTS, CLASS III	40 LF		
0039	0408000000-E	310	54" RC PIPE CULVERTS, CLASS III	496 LF		
0040	0448200000-E	310	15" RC PIPE CULVERTS, CLASS IV	6,832 LF		
0041	0448300000-E	310	18" RC PIPE CULVERTS, CLASS IV	436 LF		
0042	0448400000-E	310	24" RC PIPE CULVERTS, CLASS IV	376 LF		
0043	0453000000-E	310	*** PIPE END SECTION (15")	3 EA		
0044	0576000000-E	310	*** CS PIPE CULVERTS, ***** THICK (48", 1.09")	208 LF		
0045	0588000000-E	310	18" CS PIPE CULVERTS, 0.064" THICK	94 LF		
0046	0594000000-E	310	24" CS PIPE CULVERTS, 0.064" THICK	16 LF		
0047	0600000000-E	310	30" CS PIPE CULVERTS, 0.079" THICK	124 LF		
0048	0636000000-E	310	*** CS PIPE ELBOWS, ***** THICK (18", 0.064")	2 EA		
0049	0636000000-E	310	*** CS PIPE ELBOWS, ***** THICK (30", 0.079")	1 EA		
0050	0926000000-E	SP	*** CS STRUCTURAL PLATE PIPE, ** GAUGE (60", 8)	244 LF		
0051	0926000000-E	SP	*** CS STRUCTURAL PLATE PIPE, ** GAUGE (84", 1)	120 LF		
0052	0973100000-E	330	*** WELDED STEEL PIPE, ***** THICK, GRADE B IN SOIL (15", 0.28")	46 LF		

County : Ashe

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0053	0973100000-E	330	*** WELDED STEEL PIPE, ***** THICK, GRADE B IN SOIL (18", 0.31")	42 LF		
0054	0973100000-E	330	*** WELDED STEEL PIPE, ***** THICK, GRADE B IN SOIL (24", 0.38")	327 LF		
0055	0973100000-E	330	*** WELDED STEEL PIPE, ***** THICK, GRADE B IN SOIL (30", 0.47")	121 LF		
0056	0973100000-E	330	*** WELDED STEEL PIPE, ***** THICK, GRADE B IN SOIL (36", 0.47")	74 LF		
0057	0973100000-E	330	*** WELDED STEEL PIPE, ***** THICK, GRADE B IN SOIL (60", 0.875")	82 LF		
0058	0973100000-E	330	*** WELDED STEEL PIPE, ***** THICK, GRADE B IN SOIL (84", 1.0")	80 LF		
0059	0973300000-E	330	*** WELDED STEEL PIPE, ***** THICK, GRADE B NOT IN SOIL (15", 0.28")	46 LF		
0060	0973300000-E	330	*** WELDED STEEL PIPE, ***** THICK, GRADE B NOT IN SOIL (18", 0.31")	41 LF		
0061	0973300000-E	330	*** WELDED STEEL PIPE, ***** THICK, GRADE B NOT IN SOIL (24", 0.38")	326 LF		
0062	0973300000-E	330	*** WELDED STEEL PIPE, ***** THICK, GRADE B NOT IN SOIL (30", 0.47")	121 LF		
0063	0973300000-E	330	*** WELDED STEEL PIPE, ***** THICK, GRADE B NOT IN SOIL (36", 0.47")	74 LF		
0064	0973300000-E	330	*** WELDED STEEL PIPE, ***** THICK, GRADE B NOT IN SOIL (60", 0.875")	82 LF		
0065	0973300000-E	330	*** WELDED STEEL PIPE, ***** THICK, GRADE B NOT IN SOIL (84", 1.0")	80 LF		

County : Ashe

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0066	0986000000-E	SP	GENERIC PIPE ITEM 6" DI PIPE (SPRING BOX)	110 LF		
0067	0986000000-E	SP	GENERIC PIPE ITEM 6" PVC PIPE CULVERTS (SPRING BOX)	225 LF		
0068	0986000000-E	SP	GENERIC PIPE ITEM CENTRIFUGALLY CAST CONCRETE PIPE LINER (30" PIPE)	188 LF		
0069	0986000000-E	SP	GENERIC PIPE ITEM CENTRIFUGALLY CAST CONCRETE PIPE LINER (48" PIPE)	160 LF		
0070	0995000000-E	340	PIPE REMOVAL	2,758 LF		
0071	1011000000-N	500	FINE GRADING	Lump Sum	L.S.	
0072	1044000000-E	501	LIME TREATED SOIL (SLURRY METHOD)	35,470 SY		
0073	1066000000-E	501	LIME FOR LIME TREATED SOIL	360 TON		
0074	1099500000-E	505	SHALLOW UNDERCUT	500 CY		
0075	1099700000-E	505	CLASS IV SUBGRADE STABILIZA- TION	200 TON		
0076	1110000000-E	510	STABILIZER AGGREGATE	250 TON		
0077	1115000000-E	SP	GEOTEXTILE FOR PAVEMENT STA- BILIZATION	12,419 SY		
0078	1121000000-E	520	AGGREGATE BASE COURSE	77,200 TON		
0079	1176000000-E	542	SOIL CEMENT BASE	53,200 SY		
0080	1187000000-E	542	PORTLAND CEMENT FOR SOIL CE- MENT BASE	1,463 TON		
0081	1220000000-E	545	INCIDENTAL STONE BASE	4,910 TON		
0082	1231000000-E	560	SHOULDER BORROW	16,820 CY		
0083	1275000000-E	600	PRIME COAT	1,070 GAL		

County : Ashe

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0084	1297000000-E	607	MILLING ASPHALT PAVEMENT, **** DEPTH (1-1/2")	24,520 SY		
0085	1330000000-E	607	INCIDENTAL MILLING	1,670 SY		
0086	1489000000-E	610	ASPHALT CONC BASE COURSE, TYPE B25.0B	22,730 TON		
0087	1498000000-E	610	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B	37,440 TON		
0088	1519000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	31,440 TON		
0089	1525000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A	3,180 TON		
0090	1575000000-E	620	ASPHALT BINDER FOR PLANT MIX	4,900 TON		
0091	1693000000-E	654	ASPHALT PLANT MIX, PAVEMENT REPAIR	1,250 TON		
0092	2022000000-E	815	SUBDRAIN EXCAVATION	840 CY		
0093	2026000000-E	815	GEOTEXTILE FOR SUBSURFACE DRAINS	2,500 SY		
0094	2036000000-E	815	SUBDRAIN COARSE AGGREGATE	420 CY		
0095	2044000000-E	815	6" PERFORATED SUBDRAIN PIPE	2,500 LF		
0096	2070000000-N	815	SUBDRAIN PIPE OUTLET	5 EA		
0097	2077000000-E	815	6" OUTLET PIPE	30 LF		
0098	2143000000-E	818	BLOTTING SAND	15 TON		
0099	2190000000-N	828	TEMPORARY STEEL PLATE COVERS FOR MASONRY DRAINAGE STRUCTURE	4 EA		
0100	2209000000-E	838	ENDWALLS	8.7 CY		
0101	2220000000-E	838	REINFORCED ENDWALLS	24.1 CY		

County : Ashe

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0102	2253000000-E	840	PIPE COLLARS	4.554 CY		
0103	2264000000-E	840	PIPE PLUGS	0.09 CY		
0104	2275000000-E	SP	FLOWABLE FILL	496 CY		
0105	2286000000-N	840	MASONRY DRAINAGE STRUCTURES	197 EA		
0106	2297000000-E	840	MASONRY DRAINAGE STRUCTURES	48.8 CY		
0107	2308000000-E	840	MASONRY DRAINAGE STRUCTURES	189.4 LF		
0108	2354000000-N	840	FRAME WITH GRATE, STD 840.22	19 EA		
0109	2364000000-N	840	FRAME WITH TWO GRATES, STD 840.16	11 EA		
0110	2364200000-N	840	FRAME WITH TWO GRATES, STD 840.20	74 EA		
0111	2365000000-N	840	FRAME WITH TWO GRATES, STD 840.22	76 EA		
0112	2367000000-N	840	FRAME WITH TWO GRATES, STD 840.29	2 EA		
0113	2396000000-N	840	FRAME WITH COVER, STD 840.54	2 EA		
0114	2451000000-N	852	CONCRETE TRANSITIONAL SECTION FOR DROP INLET	54 EA		
0115	2556000000-E	846	SHOULDER BERM GUTTER	5,040 LF		
0116	2563000000-E	846	*** CONCRETE GUTTER (2'-9")	37,930 LF		
0117	2577000000-E	846	CONCRETE EXPRESSWAY GUTTER	470 LF		
0118	2619000000-E	850	4" CONCRETE PAVED DITCH	300 SY		
0119	2655000000-E	852	5" MONOLITHIC CONCRETE ISLANDS (KEYED IN)	1,400 SY		
0120	2724000000-E	857	PRECAST REINFORCED CONCRETE BARRIER, SINGLE FACED	356.3 LF		

County : Ashe

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0121	2905000000-N	859	CONVERT EXISTING DROP INLET TO JUNCTION BOX	1 EA		
0122	2995000000-N	SP	GENERIC DRAINAGE ITEM CONVERT EXISTING DI TO 3GI	1 EA		
0123	2995000000-N	SP	GENERIC DRAINAGE ITEM CONVERT EXISTING JB TO DI	1 EA		
0124	2995000000-N	SP	GENERIC DRAINAGE ITEM CONVERT EXISTING TB2GI TO TBJB/SLAB	3 EA		
0125	2995000000-N	SP	GENERIC DRAINAGE ITEM CONVERT EXISTING TBJB TO TB2GI	1 EA		
0126	3030000000-E	862	STEEL BM GUARDRAIL	12,825 LF		
0127	3045000000-E	862	STEEL BM GUARDRAIL, SHOP CURVED	1,550 LF		
0128	3105000000-N	862	STEEL BM GUARDRAIL TERMINAL SECTIONS	1 EA		
0129	3150000000-N	862	ADDITIONAL GUARDRAIL POSTS	10 EA		
0130	3195000000-N	862	GUARDRAIL ANCHOR UNITS, TYPE AT-1	6 EA		
0131	3210000000-N	862	GUARDRAIL ANCHOR UNITS, TYPE CAT-1	17 EA		
0132	3270000000-N	SP	GUARDRAIL ANCHOR UNITS, TYPE 350	25 EA		
0133	3317000000-N	862	GUARDRAIL ANCHOR UNITS, TYPE B-77	1 EA		
0134	3345000000-E	864	REMOVE & RESET EXISTING GUARDRAIL	512.5 LF		
0135	3360000000-E	863	REMOVE EXISTING GUARDRAIL	4,012.5 LF		
0136	3380000000-E	862	TEMPORARY STEEL BM GUARDRAIL	4,200 LF		
0137	3382000000-E	862	TEMPORARY STEEL BM GUARDRAIL (SHOP CURVED)	137.5 LF		

County : Ashe

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0138	3387000000-N	862	TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE ***** (AT-1)	2 EA		
0139	3387000000-N	862	TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE ***** (B-77)	3 EA		
0140	3389100000-N	SP	TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE 350	20 EA		
0141	3435000000-N	SP	GENERIC GUARDRAIL ITEM EXTRA LENGTH GUARDRAIL POST (8' STEEL)	121 EA		
0142	3503000000-E	866	WOVEN WIRE FENCE, 47" FABRIC	38,380 LF		
0143	3509000000-E	866	4" TIMBER FENCE POSTS, 7'-6" LONG	2,330 EA		
0144	3515000000-E	866	5" TIMBER FENCE POSTS, 8'-0" LONG	770 EA		
0145	3539000000-E	866	METAL LINE POSTS FOR *** CHAIN LINK FENCE (96")	25 EA		
0146	3545000000-E	866	METAL TERMINAL POSTS FOR *** CHAIN LINK FENCE (96")	20 EA		
0147	3557000000-E	866	ADDITIONAL BARBED WIRE	500 LF		
0148	3574000000-E	867	GENERIC FENCING ITEM CHAIN LINK FENCE, 96" FABRIC	500 LF		
0149	3575000000-E	SP	GENERIC FENCING ITEM TEMPORARY 4 STRAND BARBED WIRE FENCE WITH POSTS	2,000 LF		
0150	3628000000-E	876	RIP RAP, CLASS I	1,937 TON		
0151	3656000000-E	876	GEOTEXTILE FOR DRAINAGE	20,820 SY		
0152	3659000000-N	SP	PREFORMED SCOUR HOLES WITH LEVEL SPREADER APRON	15 EA		
0153	4072000000-E	903	SUPPORTS, 3-LB STEEL U-CHANNEL	2,598 LF		

County : Ashe

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0154	4102000000-N	904	SIGN ERECTION, TYPE E	133 EA		
0155	4108000000-N	904	SIGN ERECTION, TYPE F	14 EA		
0156	4116100000-N	904	SIGN ERECTION, RELOCATE, TYPE **** (GROUND MOUNTED) (E)	1 EA		
0157	4116100000-N	904	SIGN ERECTION, RELOCATE, TYPE **** (GROUND MOUNTED) (F)	1 EA		
0158	4155000000-N	907	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	31 EA		
0159	4192000000-N	907	DISPOSAL OF SUPPORT, U-CHANNEL	2 EA		
0160	4400000000-E	1110	WORK ZONE SIGNS (STATIONARY)	2,860 SF		
0161	4405000000-E	1110	WORK ZONE SIGNS (PORTABLE)	720 SF		
0162	4410000000-E	1110	WORK ZONE SIGNS (BARRICADE MOUNTED)	620 SF		
0163	4415000000-N	1115	FLASHING ARROW BOARD	2 EA		
0164	4420000000-N	1120	PORTABLE CHANGEABLE MESSAGE SIGN	4 EA		
0165	4430000000-N	1130	DRUMS	650 EA		
0166	4435000000-N	1135	CONES	200 EA		
0167	4445000000-E	1145	BARRICADES (TYPE III)	1,200 LF		
0168	4450000000-N	1150	FLAGGER	5,800 HR		
0169	4465000000-N	1160	TEMPORARY CRASH CUSHIONS	5 EA		
0170	4470000000-N	1160	RESET TEMPORARY CRASH CUSHION	6 EA		
0171	4480000000-N	1165	TMA	3 EA		
0172	4485000000-E	1170	PORTABLE CONCRETE BARRIER	1,800 LF		

County : Ashe

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0173	4490000000-E	1170	PORTABLE CONCRETE BARRIER (ANCHORED)	330 LF		
0174	4500000000-E	1170	RESET PORTABLE CONCRETE BAR- RIER	800 LF		
0175	4516000000-N	1180	SKINNY DRUM	110 EA		
0176	4650000000-N	1251	TEMPORARY RAISED PAVEMENT MARKERS	1,500 EA		
0177	4687000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (4", 240 MILS)	1,650 LF		
0178	4700000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (12", 90 MILS)	306 LF		
0179	4710000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)	202 LF		
0180	4721000000-E	1205	THERMOPLASTIC PAVEMENT MARKING CHARACTER (120 MILS)	8 EA		
0181	4725000000-E	1205	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)	52 EA		
0182	4810000000-E	1205	PAINT PAVEMENT MARKING LINES (4")	408,000 LF		
0183	4820000000-E	1205	PAINT PAVEMENT MARKING LINES (8")	7,600 LF		
0184	4835000000-E	1205	PAINT PAVEMENT MARKING LINES (24")	2,300 LF		
0185	4845000000-N	1205	PAINT PAVEMENT MARKING SYMBOL	80 EA		
0186	4847000000-E	1205	POLYUREA PAVEMENT MARKING LINES (4", *****) (HIGHLY REFLECTIVE ELEMENTS)	114,403 LF		
0187	4847110000-E	1205	POLYUREA PAVEMENT MARKING LINES (8", *****) (HIGHLY REFLECTIVE ELEMENTS)	5,036 LF		
0188	4850000000-E	1205	REMOVAL OF PAVEMENT MARKING LINES (4")	40,200 LF		

County : Ashe

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0189	4860000000-E	1205	REMOVAL OF PAVEMENT MARKING LINES (8")	1,200 LF		
0190	4870000000-E	1205	REMOVAL OF PAVEMENT MARKING LINES (24")	250 LF		
0191	4875000000-N	1205	REMOVAL OF PAVEMENT MARKING SYMBOLS & CHARACTERS	30 EA		
0192	4905000000-N	1253	SNOWPLOWABLE PAVEMENT MARKERS	902 EA		
0193	6000000000-E	1605	TEMPORARY SILT FENCE	80,000 LF		
0194	6006000000-E	1610	STONE FOR EROSION CONTROL, CLASS A	6,700 TON		
0195	6009000000-E	1610	STONE FOR EROSION CONTROL, CLASS B	16,000 TON		
0196	6012000000-E	1610	SEDIMENT CONTROL STONE	10,600 TON		
0197	6015000000-E	1615	TEMPORARY MULCHING	300 ACR		
0198	6018000000-E	1620	SEED FOR TEMPORARY SEEDING	13,700 LB		
0199	6021000000-E	1620	FERTILIZER FOR TEMPORARY SEED-ING	69.5 TON		
0200	6024000000-E	1622	TEMPORARY SLOPE DRAINS	9,500 LF		
0201	6029000000-E	SP	SAFETY FENCE	2,000 LF		
0202	6030000000-E	1630	SILT EXCAVATION	80,350 CY		
0203	6036000000-E	1631	MATTING FOR EROSION CONTROL	477,765 SY		
0204	6037000000-E	SP	COIR FIBER MAT	900 SY		
0205	6038000000-E	SP	PERMANENT SOIL REINFORCEMENT MAT	3,750 SY		
0206	6042000000-E	1632	1/4" HARDWARE CLOTH	9,900 LF		
0207	6045000000-E	SP	*** TEMPORARY PIPE (15")	280 LF		

County : Ashe

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0208	6045000000-E	SP	*** TEMPORARY PIPE (18")	2,780 LF		
0209	6045000000-E	SP	*** TEMPORARY PIPE (24")	1,630 LF		
0210	6045000000-E	SP	*** TEMPORARY PIPE (48")	600 LF		
0211	6070000000-N	1639	SPECIAL STILLING BASINS	32 EA		
0212	6071012000-E	SP	COIR FIBER WATTLE	200 LF		
0213	6071020000-E	SP	POLYACRYLAMIDE (PAM)	3,000 LB		
0214	6071030000-E	1640	COIR FIBER BAFFLE	15,500 LF		
0215	6071050000-E	SP	*** SKIMMER (1-1/2")	30 EA		
0216	6071050000-E	SP	*** SKIMMER (2")	10 EA		
0217	6071050000-E	SP	*** SKIMMER (2-1/2")	1 EA		
0218	6071050000-E	SP	*** SKIMMER (3")	1 EA		
0219	6084000000-E	1660	SEEDING & MULCHING	230 ACR		
0220	6087000000-E	1660	MOWING	120 ACR		
0221	6090000000-E	1661	SEED FOR REPAIR SEEDING	2,900 LB		
0222	6093000000-E	1661	FERTILIZER FOR REPAIR SEEDING	15.5 TON		
0223	6096000000-E	1662	SEED FOR SUPPLEMENTAL SEEDING	5,500 LB		
0224	6108000000-E	1665	FERTILIZER TOPDRESSING	155 TON		
0225	6111000000-E	SP	IMPERVIOUS DIKE	600 LF		
0226	6114500000-N	1667	SPECIALIZED HAND MOWING	50 MHR		

County : Ashe

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0227	6117000000-N	SP	RESPONSE FOR EROSION CONTROL	160 EA		
0228	6123000000-E	1670	REFORESTATION	0.5 ACR		
0229	6126000000-E	SP	STREAMBANK REFORESTATION	0.1 ACR		
0230	6132000000-N	SP	GENERIC EROSION CONTROL ITEM CONCRETE WASHOUT STRUCTURE	24 EA		
0231	6132000000-N	SP	GENERIC EROSION CONTROL ITEM FABRIC INSERT INLET PROTECTION DEVICE CLEANOUT	120 EA		
0232	6132000000-N	SP	GENERIC EROSION CONTROL ITEM FABRIC INSERT INLET PROTECTION DEVICE	30 EA		
0233	6147000000-E	SP	GENERIC EROSION CONTROL ITEM REINSTALLATION OF TEMPORARY PIPE FOR CLEAN WATER DIVERSION	23,420 LF		
<b>CULVERT ITEMS</b>						
0234	8007000000-N	SP	CONSTRUCTION, MAINTENANCE, & REMOVAL OF TEMP STRUCTURE AT STA ***** (374+56.00 -L-)	Lump Sum	L.S.	
0235	8028000000-N	SP	REMOVAL OF EXISTING STRUCTURES AT STATION ***** (374+56.00 -L-)	Lump Sum	L.S.	
0236	8126000000-N	414	CULVERT EXCAVATION, STA ***** (374+56.00 -L-)	Lump Sum	L.S.	
0237	8133000000-E	414	FOUNDATION CONDITIONING MATER- IAL, BOX CULVERT	592 TON		
0238	8196000000-E	420	CLASS A CONCRETE (CULVERT)	1,354.3 CY		
0239	8245000000-E	425	REINFORCING STEEL (CULVERT)	173,180 LB		

County : Ashe

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0240	8804000000-N	SP	GENERIC CULVERT ITEM ASBESTOS ASSESSMENT	Lump Sum	L.S.	

**WALL ITEMS**

0241	8801000000-E	SP	MSE RETAINING WALL NO **** (1)	935 SF		
0242	8801000000-E	SP	MSE RETAINING WALL NO **** (2)	14,365 SF		
0243	8801000000-E	SP	MSE RETAINING WALL NO **** (3)	4,870 SF		
0244	8802010000-E	SP	SOIL NAIL RETAINING WALLS	3,325 SF		
0245	8802015100-N	SP	SOIL NAIL VERIFICATION TESTS	2 EA		
0246	8802015110-N	SP	SOIL NAIL PROOF TESTS	14 EA		
0247	8990000000-N	SP	CONTRACT TIME	4,500 DOL		

1325/Sep14/Q5603262.344/D785515812210/E247

Total Amount Of Bid For Entire Project :

GFE  
DBE GOAL SET: 9.0%  
DBE GOAL OBT: 5.8%

Vendor 1 of 5: VECCELLIO & GROGAN INC (3613)  
Call Order 001 (Proposal: C203801)

### Bid Information

---

<b>Proposal County:</b> ASHE	<b>Bid Checksum:</b> 695B1F67
<b>Vendor Address:</b> 2251 Robert C. Byrd Beckley , WV , 25801	<b>Bid Total:</b> \$57,986,044.51
<b>Signature Check:</b> NCDOT_L.L._Gwinn_3613	<b>Items Total:</b> \$57,986,044.51
<b>Time Bid Received:</b> November 15, 2016 01:58 PM	<b>Time Total:</b> \$0.00
<b>Amendment Count:</b> 0	

**Bidding Errors:**

DBE Warning : DBE Warning: DBE Commitment Goal not met

Vendor 1 of 5: VECCELLIO & GROGAN INC (3613)  
Call Order 001 (Proposal: C203801)

Bid Bond Information

---

<b>Projects:</b>	<b>Bond Maximum:</b>
<b>Counties:</b>	<b>State of Incorporation:</b>
<b>Bond ID:</b> SNC16925084	<b>Agency Execution Date:</b> 10/22/2016 2
<b>Paid by Check:</b> No	<b>Surety Name:</b> surety2000
<b>Bond Percent:</b> 5%	<b>Bond Agency Name:</b> Travelers Casualty and Surety Company of America

Bidder 1 of 5

Vendor 3613's Bid Information for Call 001, Letting L161115, 11/15/16

Vecellio & Grogan, Inc. (3613)  
 Call Order 001 (Proposal ID C203801)

## LIST OF DBE PARTICIPANTS

VENDOR NUMBER	DBE NAME ADDRESS	WORK CODE TYPE OF WORK	CERT TYPE AMOUNT	
WB 3765	STAY ALERT SAFETY SERVICES INC POST OFFICE BOX 467 , KERNERSVILLE, NC 27285		Sub 209,549.64	COMMITTED
WB 4898	BULLINGTON CONSTRUCTION INC 417 FOXGLOVE LANE , INDIAN TRAIL, NC 28079		Sub 369,682.50	COMMITTED
MB 7294	STRATCON CONTRACTING CORP OLD WILLIAMS ROAD , RALEIGH, NC 27610		Sub 607,376.47	COMMITTED
MB 2052	JAMES L TURNER MASONRY 512 MONCLAIR DRIVE , BURLINGTON, NC 27217		Sub 80,030.00	COMMITTED
MB 12836	SKYROCK CONCRETE FINISHING INC P. O. BOX 2278 , SHELBY, NC 28151		Sub 1,285,289.10	COMMITTED
WB 4417	POZZOLANIC CONTRACTING & SUPPLY 2401 ASBURY ROAD , KNOXVILLE, TN 379146408		Sub 580,680.00	COMMITTED
WB 7876	EMERY SEALCO, INC. P.O. BOX 814 , ARDEN, NC 28704		Sub 210,194.81	COMMITTED
			TOTAL: \$3,342,802.52	
			5.76%	

Vendor 3613's Bid Information for Call 001, Letting L161115, 11/15/16

Vecellio & Grogan, Inc. (3613)  
 Call Order 001 (Proposal ID C203801)

Miscellaneous Data Info - Contractor Responses:  
 =====

## NON-COLLUSION AND DEBARMENT CERTIFICATION

Explanation of the prospective bidder that is unable to certify to any of the  
 statements in this certification:

Explanation:

NOT ANSWERED  
 NOT ANSWERED  
 NOT ANSWERED  
 NOT ANSWERED

## AWARD LIMITS ON MULTIPLE PROJECTS

By answering YES to this statement, the bidder acknowledges that they are using  
 the award limits on multiple projects. No

It is the desire of the Bidder to be awarded contracts, the value of which  
 will not exceed a total of NOT ANSWERED for those  
 projects indicated herein, for which bids will be opened on (MM/DD/YY)

The Award Limits shall apply to the following projects:

Contract Number	County
NOT ANSWERED	
NOT ANSWERED	

Bidder 1 of 5

NOT ANSWERED  
NOT ANSWERED  
NOT ANSWERED  
NOT ANSWERED

Bid Bond Data Info - Contractor Responses:

=====

BondID: SNC16925084  
Surety Registry Agency: surety2000  
Verified?: Yes  
Surety Agency: Travelers Casualty and Surety Company of America  
Bond Execution Date: 10/22/2016 2  
Bond Amount: \$2,899,302.23 (Five Percent of Bid)

Contract ID: C203801

Project(s): STP-0221(41)

Letting Date: 11-15-16 Call Order: 001

Bidder: 3613 - Vecellio &amp; Grogan, Inc.

Line	Item	Approx.	Unit Price	Bid Amount
No.	Description	Quantity	Dollars   Cts	Dollars   Ct
		and Units		
Section 0001 ROADWAY ITEMS				
Alt Group				
0001	0000100000-N MOBILIZATION	LUMP	LUMP	2,794,000.00
0002	0000400000-N CONSTRUCTION SURVEYING	LUMP	LUMP	690,000.00
0003	0001000000-E CLEARING & GRUBBING .. ACRE(S)	LUMP	LUMP	1,650,000.00
0004	0008000000-E SUPPLEMENTARY CLEARING & GRUBBING	5.000	6,500.00000	32,500.00
		ACR		
0005	0015000000-N SEALING ABANDONED WELLS	26.000	2,000.00000	52,000.00
		EA		
0006	0022000000-E UNCLASSIFIED EXCAVATION	3,391,000.000	5.50000	18,650,500.00
		CY		
0007	0036000000-E UNDERCUT EXCAVATION	1,000.000	4.75000	4,750.00
		CY		
0008	0134000000-E DRAINAGE DITCH EXCAVATION	1,080.000	4.00000	4,320.00
		CY		
0009	0141000000-E BERM DITCH CONSTRUCTION	1,400.000	2.00000	2,800.00
		LF		
0010	0156000000-E REMOVAL OF EXISTING ASPHALT PAVEMENT	43,580.000	2.55000	111,129.00
		SY		
0011	0177000000-E BREAKING OF EXISTING ASPHALT PAVEMENT	5,020.000	1.15000	5,773.00
		SY		

Contract ID: C203801

Project(s): STP-0221(41)

Letting Date: 11-15-16 Call Order: 001

Bidder: 3613 - Vecellio &amp; Grogan, Inc.

Line	Item	Approx.	Unit Price	Bid Amount
No.	Description	Quantity	Dollars   Cts	Dollars   Ct
		and Units		
0012	0192000000-N PROOF ROLLING	50.000	150.00000	7,500.00
	HR			
0013	0195000000-E SELECT GRANULAR MATERIAL	1,000.000	41.00000	41,000.00
	CY			
0014	0196000000-E GEOTEXTILE FOR SOIL STABILIZA-TION	9,400.000	1.65000	15,510.00
	SY			
0015	0199000000-E TEMPORARY SHORING	22,500.000	61.00000	1,372,500.00
	SF			
0016	0223000000-E ROCK PLATING	4,040.000	50.00000	202,000.00
	SY			
0017	0234000000-E GENERIC GRADING ITEM TOE BENCHING	3,900.000	10.00000	39,000.00
	EXCAVATION	CY		
0018	0255000000-E GENERIC GRADING ITEM STOCKPILING	100.000	325.00000	32,500.00
	CONTAMINATED SOIL	TON		
0019	0314000000-E SELECT MATERIAL, CLASS *****	240.000	70.00000	16,800.00
	(IV)	TON		
0020	0314000000-E SELECT MATERIAL, CLASS *****	35,000.000	46.00000	1,610,000.00
	(VII)	TON		
0021	0318000000-E FOUNDATION CONDITIONING MATE- RIAL,	2,360.000	25.50000	60,180.00
	MINOR STRUCTURES	TON		
0022	0320000000-E FOUNDATION CONDITIONING GEO-	7,400.000	1.00000	7,400.00
	TEXTILE	SY		
0023	0342000000-E ***" SIDE DRAIN PIPE (30")	92.000	58.00000	5,336.00
		LF		

Contract ID: C203801

Project(s): STP-0221(41)

Letting Date: 11-15-16 Call Order: 001

Bidder: 3613 - Vecellio &amp; Grogan, Inc.

Line	Item	Approx.	Unit Price	Bid Amount
No.	Description	Quantity	Dollars   Cts	Dollars   Ct
		and Units		
0024	0342000000-E *** SIDE DRAIN PIPE (36")	46.000	79.00000	3,634.00
	LF			
0025	0343000000-E 15" SIDE DRAIN PIPE	1,450.000	36.00000	52,200.00
	LF			
0026	0344000000-E 18" SIDE DRAIN PIPE	1,405.000	38.00000	53,390.00
	LF			
0027	0345000000-E 24" SIDE DRAIN PIPE	303.000	49.00000	14,847.00
	LF			
0028	0348000000-E *** SIDE DRAIN PIPE ELBOWS (15")	11.000	313.00000	3,443.00
	EA			
0029	0348000000-E *** SIDE DRAIN PIPE ELBOWS (18")	15.000	350.00000	5,250.00
	EA			
0030	0348000000-E *** SIDE DRAIN PIPE ELBOWS (24")	5.000	439.00000	2,195.00
	EA			
0031	0348000000-E *** SIDE DRAIN PIPE ELBOWS (36")	2.000	633.00000	1,266.00
	EA			
0032	0366000000-E 15" RC PIPE CULVERTS, CLASS III	2,432.000	51.00000	124,032.00
	LF			
0033	0372000000-E 18" RC PIPE CULVERTS, CLASS III	3,428.000	58.00000	198,824.00
	LF			
0034	0378000000-E 24" RC PIPE CULVERTS, CLASS III	1,628.000	77.00000	125,356.00
	LF			
0035	0384000000-E 30" RC PIPE CULVERTS, CLASS III	528.000	93.00000	49,104.00
	LF			

Contract ID: C203801

Project(s): STP-0221(41)

Letting Date: 11-15-16 Call Order: 001

Bidder: 3613 - Vecellio &amp; Grogan, Inc.

Line	Item	Approx.	Unit Price	Bid Amount
No.	Description	Quantity	Dollars   Cts	Dollars   Ct
		and Units		
0036	0390000000-E 36" RC PIPE CULVERTS, CLASS III	252.000	122.00000	30,744.00
	LF			
0037	0396000000-E 42" RC PIPE CULVERTS, CLASS III	72.000	141.00000	10,152.00
	LF			
0038	0402000000-E 48" RC PIPE CULVERTS, CLASS III	40.000	171.00000	6,840.00
	LF			
0039	0408000000-E 54" RC PIPE CULVERTS, CLASS III	496.000	203.00000	100,688.00
	LF			
0040	0448200000-E 15" RC PIPE CULVERTS, CLASS IV	6,832.000	53.00000	362,096.00
	LF			
0041	0448300000-E 18" RC PIPE CULVERTS, CLASS IV	436.000	62.00000	27,032.00
	LF			
0042	0448400000-E 24" RC PIPE CULVERTS, CLASS IV	376.000	85.00000	31,960.00
	LF			
0043	0453000000-E **" PIPE END SECTION (15")	3.000	988.00000	2,964.00
	EA			
0044	0576000000-E **" CS PIPE CULVERTS, ***** THICK	208.000	117.00000	24,336.00
	(48", 1.09") LF			
0045	0588000000-E 18" CS PIPE CULVERTS, 0.064" THICK	94.000	41.00000	3,854.00
	LF			
0046	0594000000-E 24" CS PIPE CULVERTS, 0.064" THICK	16.000	52.00000	832.00
	LF			
0047	0600000000-E 30" CS PIPE CULVERTS, 0.079" THICK	124.000	67.00000	8,308.00
	LF			

Contract ID: C203801

Project(s): STP-0221(41)

Letting Date: 11-15-16 Call Order: 001

Bidder: 3613 - Vecellio &amp; Grogan, Inc.

Line	Item	Approx.	Unit Price	Bid Amount
No.	Description	Quantity	Dollars   Cts	Dollars   Ct
		and Units		
0048	0636000000-E *** CS PIPE ELBOWS, ***** THICK (18", 0.064")	2.000 EA	247.00000	494.00
0049	0636000000-E *** CS PIPE ELBOWS, ***** THICK (30', 0.079")	1.000 EA	430.00000	430.00
0050	0926000000-E **** CS STRUCTURAL PLATE PIPE, ** GAUGE (60", 8)	244.000 LF	1,025.00000	250,100.00
0051	0926000000-E **** CS STRUCTURAL PLATE PIPE, ** GAUGE (84", 1)	120.000 LF	2,050.00000	246,000.00
0052	0973100000-E *** WELDED STEEL PIPE, ***** THICK, GRADE B IN SOIL (15", 0.28")	46.000 LF	312.00000	14,352.00
0053	0973100000-E *** WELDED STEEL PIPE, ***** THICK, GRADE B IN SOIL (18", 0.31")	42.000 LF	320.00000	13,440.00
0054	0973100000-E *** WELDED STEEL PIPE, ***** THICK, GRADE B IN SOIL (24", 0.38")	327.000 LF	340.00000	111,180.00
0055	0973100000-E *** WELDED STEEL PIPE, ***** THICK, GRADE B IN SOIL (30", 0.47")	121.000 LF	425.00000	51,425.00
0056	0973100000-E *** WELDED STEEL PIPE, ***** THICK, GRADE B IN SOIL (36", 0.47")	74.000 LF	500.00000	37,000.00
0057	0973100000-E *** WELDED STEEL PIPE, ***** THICK, GRADE B IN SOIL (60", 0.875")	82.000 LF	1,000.00000	82,000.00

Contract ID: C203801

Project(s): STP-0221(41)

Letting Date: 11-15-16 Call Order: 001

Bidder: 3613 - Vecellio &amp; Grogan, Inc.

Line	Item	Approx.	Unit Price	Bid Amount
No.	Description	Quantity	Dollars   Cts	Dollars   Ct
		and Units		
0058	0973100000-E *** WELDED STEEL PIPE, ***** THICK, GRADE B IN SOIL (84", 1.0")	80.000	3,000.00000	240,000.00
		LF		
0059	0973300000-E *** WELDED STEEL PIPE, ***** THICK, GRADE B NOT IN SOIL (15", 0.28")	46.000	870.00000	40,020.00
		LF		
0060	0973300000-E *** WELDED STEEL PIPE, ***** THICK, GRADE B NOT IN SOIL (18", 0.31")	41.000	900.00000	36,900.00
		LF		
0061	0973300000-E *** WELDED STEEL PIPE, ***** THICK, GRADE B NOT IN SOIL (24", 0.38")	326.000	925.00000	301,550.00
		LF		
0062	0973300000-E *** WELDED STEEL PIPE, ***** THICK, GRADE B NOT IN SOIL (30", 0.47")	121.000	1,050.00000	127,050.00
		LF		
0063	0973300000-E *** WELDED STEEL PIPE, ***** THICK, GRADE B NOT IN SOIL (36", 0.47")	74.000	1,375.00000	101,750.00
		LF		
0064	0973300000-E *** WELDED STEEL PIPE, ***** THICK, GRADE B NOT IN SOIL (60", 0.875")	82.000	1,850.00000	151,700.00
		LF		
0065	0973300000-E *** WELDED STEEL PIPE, ***** THICK, GRADE B NOT IN SOIL (84", 1.0")	80.000	4,500.00000	360,000.00
		LF		
0066	0986000000-E GENERIC PIPE ITEM 6" DI PIPE (SPRING BOX)	110.000	43.00000	4,730.00
		LF		
0067	0986000000-E GENERIC PIPE ITEM 6" PVC PIPE (CULVERTS (SPRING BOX)	225.000	23.00000	5,175.00
		LF		

Contract ID: C203801

Project(s): STP-0221(41)

Letting Date: 11-15-16 Call Order: 001

Bidder: 3613 - Vecellio &amp; Grogan, Inc.

Line	Item	Approx.	Unit Price	Bid Amount
No.	Description	Quantity	Dollars   Cts	Dollars   Ct
		and Units		
0068	0986000000-E GENERIC PIPE ITEM CENTRIFUGALLY CAST CONCRETE PIPE LINER (30" PIPE)	188.000 LF	307.00000	57,716.00
0069	0986000000-E GENERIC PIPE ITEM CENTRIFUGALLY CAST CONCRETE PIPE LINER (48" PIPE)	160.000 LF	465.00000	74,400.00
0070	0995000000-E PIPE REMOVAL	2,758.000 LF	6.35000	17,513.30
0071	1011000000-N FINE GRADING	LUMP	LUMP	450,000.00
0072	1044000000-E LIME TREATED SOIL (SLURRY METHOD)	35,470.000 SY	3.25000	115,277.50
0073	1066000000-E LIME FOR LIME TREATED SOIL	360.000 TON	217.00000	78,120.00
0074	1099500000-E SHALLOW UNDERCUT	500.000 CY	6.00000	3,000.00
0075	1099700000-E CLASS IV SUBGRADE STABILIZA- TION	200.000 TON	22.50000	4,500.00
0076	1110000000-E STABILIZER AGGREGATE	250.000 TON	26.00000	6,500.00
0077	1115000000-E GEOTEXTILE FOR PAVEMENT STA- BILIZATION	12,419.000 SY	3.30000	40,982.70
0078	1121000000-E AGGREGATE BASE COURSE	77,200.000 TON	25.00000	1,930,000.00

Contract ID: C203801

Project(s): STP-0221(41)

Letting Date: 11-15-16 Call Order: 001

Bidder: 3613 - Vecellio &amp; Grogan, Inc.

Line No.	Item Description	Approx. Quantity and Units	Unit Price Dollars   Cts	Bid Amount Dollars   Ct
0079	1176000000-E SOIL CEMENT BASE	53,200.000 SY	3.20000	170,240.00
0080	1187000000-E PORTLAND CEMENT FOR SOIL CE- MENT BASE	1,463.000 TON	185.00000	270,655.00
0081	1220000000-E INCIDENTAL STONE BASE	4,910.000 TON	26.00000	127,660.00
0082	1231000000-E SHOULDER BORROW	16,820.000 CY	6.00000	100,920.00
0083	1275000000-E PRIME COAT	1,070.000 GAL	5.47000	5,852.90
0084	1297000000-E MILLING ASPHALT PAVEMENT, ***"DEPTH (1-1/2")	24,520.000 SY	2.74000	67,184.80
0085	1330000000-E INCIDENTAL MILLING	1,670.000 SY	16.42000	27,421.40
0086	1489000000-E ASPHALT CONC BASE COURSE, TYPE B25.0B	22,730.000 TON	50.37000	1,144,910.10
0087	1498000000-E ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B	37,440.000 TON	50.37000	1,885,852.80
0088	1519000000-E ASPHALT CONC SURFACE COURSE, TYPE S9.5B	31,440.000 TON	50.37000	1,583,632.80
0089	1525000000-E ASPHALT CONC SURFACE COURSE, TYPE SF9.5A	3,180.000 TON	50.37000	160,176.60
0090	1575000000-E ASPHALT BINDER FOR PLANT MIX	4,900.000 TON	498.19000	2,441,131.00

Contract ID: C203801

Project(s): STP-0221(41)

Letting Date: 11-15-16 Call Order: 001

Bidder: 3613 - Vecellio &amp; Grogan, Inc.

Line	Item	Approx.	Unit Price	Bid Amount
No.	Description	Quantity	Dollars   Cts	Dollars   Ct
		and Units		
0091	1693000000-E ASPHALT PLANT MIX, PAVEMENT REPAIR	1,250.000 TON	76.65000	95,812.50
0092	2022000000-E SUBDRAIN EXCAVATION	840.000 CY	4.00000	3,360.00
0093	2026000000-E GEOTEXTILE FOR SUBSURFACE DRAINS	2,500.000 SY	1.70000	4,250.00
0094	2036000000-E SUBDRAIN COARSE AGGREGATE	420.000 CY	45.00000	18,900.00
0095	2044000000-E 6" PERFORATED SUBDRAIN PIPE	2,500.000 LF	6.00000	15,000.00
0096	2070000000-N SUBDRAIN PIPE OUTLET	5.000 EA	222.00000	1,110.00
0097	2077000000-E 6" OUTLET PIPE	30.000 LF	11.00000	330.00
0098	2143000000-E BLOTTING SAND	15.000 TON	86.00000	1,290.00
0099	2190000000-N TEMPORARY STEEL PLATE COVERS FOR MASONRY DRAINAGE STRUCTURE	4.000 EA	1,000.00000	4,000.00
0100	2209000000-E ENDWALLS	8.700 CY	1,100.00000	9,570.00
0101	2220000000-E REINFORCED ENDWALLS	24.100 CY	1,400.00000	33,740.00

Contract ID: C203801

Project(s): STP-0221(41)

Letting Date: 11-15-16 Call Order: 001

Bidder: 3613 - Vecellio &amp; Grogan, Inc.

Line	Item	Approx.	Unit Price	Bid Amount
No.	Description	Quantity	-----	-----
		and Units	Dollars   Cts	Dollars  Ct
0102	2253000000-E PIPE COLLARS	4.554	1,000.00000	4,554.00
		CY		
0103	2264000000-E PIPE PLUGS	0.090	1,000.00000	90.00
		CY		
0104	2275000000-E FLOWABLE FILL	496.000	395.00000	195,920.00
		CY		
0105	2286000000-N MASONRY DRAINAGE STRUCTURES	197.000	1,750.00000	344,750.00
		EA		
0106	2297000000-E MASONRY DRAINAGE STRUCTURES	48.800	1,490.00000	72,712.00
		CY		
0107	2308000000-E MASONRY DRAINAGE STRUCTURES	189.400	350.00000	66,290.00
		LF		
0108	2354000000-N FRAME WITH GRATE, STD 840.22	19.000	312.00000	5,928.00
		EA		
0109	2364000000-N FRAME WITH TWO GRATES, STD 840.16	11.000	312.00000	3,432.00
		EA		
0110	2364200000-N FRAME WITH TWO GRATES, STD 840.20	74.000	312.00000	23,088.00
		EA		
0111	2365000000-N FRAME WITH TWO GRATES, STD 840.22	76.000	312.00000	23,712.00
		EA		
0112	2367000000-N FRAME WITH TWO GRATES, STD 840.29	2.000	312.00000	624.00
		EA		
0113	2396000000-N FRAME WITH COVER, STD 840.54	2.000	312.00000	624.00
		EA		

Contract ID: C203801

Project(s): STP-0221(41)

Letting Date: 11-15-16 Call Order: 001

Bidder: 3613 - Vecellio &amp; Grogan, Inc.

Line	Item	Approx.	Unit Price	Bid Amount
No.	Description	Quantity	Dollars   Cts	Dollars   Ct
		and Units		
0114	2451000000-N CONCRETE TRANSITIONAL SECTION FOR DROP INLET	54.000 EA	1,080.00000	58,320.00
0115	2556000000-E SHOULDER BERM GUTTER	5,040.000 LF	30.00000	151,200.00
0116	2563000000-E **' CONCRETE GUTTER (2'-9")	37,930.000 LF	27.00000	1,024,110.00
0117	2577000000-E CONCRETE EXPRESSWAY GUTTER	470.000 LF	38.00000	17,860.00
0118	2619000000-E 4" CONCRETE PAVED DITCH	300.000 SY	135.00000	40,500.00
0119	2655000000-E 5" MONOLITHIC CONCRETE ISLANDS (KEYED IN)	1,400.000 SY	78.00000	109,200.00
0120	2724000000-E PRECAST REINFORCED CONCRETE BARRIER, SINGLE FACED	356.300 LF	74.00000	26,366.20
0121	2905000000-N CONVERT EXISTING DROP INLET TO JUNCTION BOX	1.000 EA	2,400.00000	2,400.00
0122	2995000000-N GENERIC DRAINAGE ITEM CONVERT EXISTING DI TO 3GI	1.000 EA	3,300.00000	3,300.00
0123	2995000000-N GENERIC DRAINAGE ITEM CONVERT EXISTING JB TO DI	1.000 EA	3,300.00000	3,300.00
0124	2995000000-N GENERIC DRAINAGE ITEM CONVERT EXISTING TB2GI TO TBJB/SLAB	3.000 EA	3,900.00000	11,700.00

Contract ID: C203801

Project(s): STP-0221(41)

Letting Date: 11-15-16 Call Order: 001

Bidder: 3613 - Vecellio &amp; Grogan, Inc.

Line	Item	Approx.	Unit Price	Bid Amount
No.	Description	Quantity	Dollars   Cts	Dollars   Ct
		and Units		
0125	2995000000-N GENERIC DRAINAGE ITEM CONVERT EXISTING TBJB TO TB2GI	1.000	3,300.00000	3,300.00
		EA		
0126	3030000000-E STEEL BM GUARDRAIL	12,825.000	17.20000	220,590.00
		LF		
0127	3045000000-E STEEL BM GUARDRAIL, SHOP CURVED	1,550.000	19.00000	29,450.00
		LF		
0128	3105000000-N STEEL BM GUARDRAIL TERMINAL SECTIONS	1.000	105.00000	105.00
		EA		
0129	3150000000-N ADDITIONAL GUARDRAIL POSTS	10.000	60.00000	600.00
		EA		
0130	3195000000-N GUARDRAIL ANCHOR UNITS, TYPE AT-1	6.000	552.00000	3,312.00
		EA		
0131	3210000000-N GUARDRAIL ANCHOR UNITS, TYPE CAT-1	17.000	552.00000	9,384.00
		EA		
0132	3270000000-N GUARDRAIL ANCHOR UNITS, TYPE 350	25.000	2,150.00000	53,750.00
		EA		
0133	3317000000-N GUARDRAIL ANCHOR UNITS, TYPE B-77	1.000	1,650.00000	1,650.00
		EA		
0134	3345000000-E REMOVE & RESET EXISTING GUARD-RAIL	512.500	10.50000	5,381.25
		LF		
0135	3360000000-E REMOVE EXISTING GUARDRAIL	4,012.500	1.10000	4,413.75
		LF		
0136	3380000000-E TEMPORARY STEEL BM GUARDRAIL	4,200.000	8.80000	36,960.00
		LF		

Contract ID: C203801

Project(s): STP-0221(41)

Letting Date: 11-15-16 Call Order: 001

Bidder: 3613 - Vecellio &amp; Grogan, Inc.

Line	Item	Approx.	Unit Price	Bid Amount
No.	Description	Quantity	Dollars   Cts	Dollars   Ct
		and Units		
0137	3382000000-E TEMPORARY STEEL BM GUARDRAIL (SHOP CURVED)	137.500 LF	13.20000	1,815.00
0138	3387000000-N TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE ***** (AT-1)	2.000 EA	276.00000	552.00
0139	3387000000-N TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE ***** (B-77)	3.000 EA	1,050.00000	3,150.00
0140	3389100000-N TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE 350	20.000 EA	1,200.00000	24,000.00
0141	3435000000-N GENERIC GUARDRAIL ITEM EXTRA LENGTH GUARDRAIL POST (8' STEEL)	121.000 EA	82.50000	9,982.50
0142	3503000000-E WOVEN WIRE FENCE, 47" FABRIC	38,380.000 LF	2.65000	101,707.00
0143	3509000000-E 4" TIMBER FENCE POSTS, 7'-6" LONG	2,330.000 EA	22.00000	51,260.00
0144	3515000000-E 5" TIMBER FENCE POSTS, 8'-0" LONG	770.000 EA	35.00000	26,950.00
0145	3539000000-E METAL LINE POSTS FOR *** CHAINLINK FENCE (96")	25.000 EA	111.00000	2,775.00
0146	3545000000-E METAL TERMINAL POSTS FOR *** CHAIN LINK FENCE (96")	20.000 EA	166.00000	3,320.00
0147	3557000000-E ADDITIONAL BARBED WIRE	500.000 LF	1.10000	550.00

Contract ID: C203801

Project(s): STP-0221(41)

Letting Date: 11-15-16 Call Order: 001

Bidder: 3613 - Vecellio &amp; Grogan, Inc.

Line	Item	Approx.	Unit Price	Bid Amount
No.	Description	Quantity	-----	-----
		and Units	Dollars   Cts	Dollars  Ct
0148	3574000000-E GENERIC FENCING ITEM CHAIN LINK FENCE, 96" FABRIC	500.000 LF	6.60000	3,300.00
0149	3575000000-E GENERIC FENCING ITEM TEMPORARY 4 STRAND BARBED WIRE FENCE WITH POSTS	2,000.000 LF	3.30000	6,600.00
0150	3628000000-E RIP RAP, CLASS I	1,937.000 TON	47.00000	91,039.00
0151	3656000000-E GEOTEXTILE FOR DRAINAGE	20,820.000 SY	1.25000	26,025.00
0152	3659000000-N PREFORMED SCOUR HOLES WITH LEVEL SPREADER APRON	15.000 EA	2,900.00000	43,500.00
0153	4072000000-E SUPPORTS, 3-LB STEEL U-CHANNEL	2,598.000 LF	5.60000	14,548.80
0154	4102000000-N SIGN ERECTION, TYPE E	133.000 EA	61.00000	8,113.00
0155	4108000000-N SIGN ERECTION, TYPE F	14.000 EA	100.00000	1,400.00
0156	4116100000-N SIGN ERECTION, RELOCATE, TYPE **** (GROUND MOUNTED) (E)	1.000 EA	279.00000	279.00
0157	4116100000-N SIGN ERECTION, RELOCATE, TYPE **** (GROUND MOUNTED) (F)	1.000 EA	318.00000	318.00
0158	4155000000-N DISPOSAL OF SIGN SYSTEM, U- CHANNEL	31.000 EA	5.50000	170.50

Contract ID: C203801

Project(s): STP-0221(41)

Letting Date: 11-15-16 Call Order: 001

Bidder: 3613 - Vecellio &amp; Grogan, Inc.

Line	Item	Approx.	Unit Price	Bid Amount
No.	Description	Quantity	Dollars   Cts	Dollars   Ct
		and Units		
0159	4192000000-N DISPOSAL OF SUPPORT, U-CHANNEL	2.000	5.50000	11.00
	EA			
0160	4400000000-E WORK ZONE SIGNS (STATIONARY)	2,860.000	7.00000	20,020.00
	SF			
0161	4405000000-E WORK ZONE SIGNS (PORTABLE)	720.000	13.00000	9,360.00
	SF			
0162	4410000000-E WORK ZONE SIGNS (BARRICADE MOUNTED)	620.000	11.50000	7,130.00
	SF			
0163	4415000000-N FLASHING ARROW BOARD	2.000	2,000.00000	4,000.00
	EA			
0164	4420000000-N PORTABLE CHANGEABLE MESSAGE SIGN	4.000	15,000.00000	60,000.00
	EA			
0165	4430000000-N DRUMS	650.000	45.00000	29,250.00
	EA			
0166	4435000000-N CONES	200.000	25.00000	5,000.00
	EA			
0167	4445000000-E BARRICADES (TYPE III)	1,200.000	32.00000	38,400.00
	LF			
0168	4450000000-N FLAGGER	5,800.000	34.00000	197,200.00
	HR			
0169	4465000000-N TEMPORARY CRASH CUSHIONS	5.000	5,200.00000	26,000.00
	EA			
0170	4470000000-N RESET TEMPORARY CRASH CUSHION	6.000	2,700.00000	16,200.00
	EA			

Contract ID: C203801

Project(s): STP-0221(41)

Letting Date: 11-15-16 Call Order: 001

Bidder: 3613 - Vecellio &amp; Grogan, Inc.

Line	Item	Approx.	Unit Price	Bid Amount
No.	Description	Quantity	-----	-----
		and Units	Dollars   Cts	Dollars  Ct
0171	4480000000-N TMA	3.000	29,000.00000	87,000.00
	EA			
0172	4485000000-E PORTABLE CONCRETE BARRIER	1,800.000	33.00000	59,400.00
	LF			
0173	4490000000-E PORTABLE CONCRETE BARRIER	330.000	38.00000	12,540.00
	(ANCHORED) LF			
0174	4500000000-E RESET PORTABLE CONCRETE BAR-RIER	800.000	8.00000	6,400.00
	LF			
0175	4516000000-N SKINNY DRUM	110.000	39.00000	4,290.00
	EA			
0176	4650000000-N TEMPORARY RAISED PAVEMENT MARKERS	1,500.000	7.20000	10,800.00
	EA			
0177	4687000000-E THERMOPLASTIC PAVEMENT MARKING LINES	1,650.000	1.10000	1,815.00
	(4", 240 MILS) LF			
0178	4700000000-E THERMOPLASTIC PAVEMENT MARKING LINES	306.000	3.30000	1,009.80
	(12", 90 MILS) LF			
0179	4710000000-E THERMOPLASTIC PAVEMENT MARKING LINES	202.000	8.80000	1,777.60
	(24", 120 MILS) LF			
0180	4721000000-E THERMOPLASTIC PAVEMENT MARKING CHARACTER (120 MILS)	8.000	220.10000	1,760.80
	EA			
0181	4725000000-E THERMOPLASTIC PAVEMENT MARKING SYMBOL	52.000	148.57000	7,725.64
	(90 MILS) EA			

Contract ID: C203801

Project(s): STP-0221(41)

Letting Date: 11-15-16 Call Order: 001

Bidder: 3613 - Vecellio &amp; Grogan, Inc.

Line No.	Item Description	Approx. Quantity and Units	Unit Price Dollars   Cts	Bid Amount Dollars   Ct
0182	4810000000-E PAINT PAVEMENT MARKING LINES (4")	408,000.000 LF	0.12000	48,960.00
0183	4820000000-E PAINT PAVEMENT MARKING LINES (8")	7,600.000 LF	0.72000	5,472.00
0184	4835000000-E PAINT PAVEMENT MARKING LINES (24")	2,300.000 LF	2.75000	6,325.00
0185	4845000000-N PAINT PAVEMENT MARKING SYMBOL	80.000 EA	71.53000	5,722.40
0186	4847000000-E POLYUREA PAVEMENT MARKING LINES (4", *****) (HIGHLY REFLECTIVE ELEMENTS)	114,403.000 LF	0.79000	90,378.37
0187	4847110000-E POLYUREA PAVEMENT MARKING LINES (8", *****) (HIGHLY REFLECTIVE ELEMENTS)	5,036.000 LF	1.65000	8,309.40
0188	4850000000-E REMOVAL OF PAVEMENT MARKING LINES (4")	40,200.000 LF	0.66000	26,532.00
0189	4860000000-E REMOVAL OF PAVEMENT MARKING LINES (8")	1,200.000 LF	1.10000	1,320.00
0190	4870000000-E REMOVAL OF PAVEMENT MARKING LINES (24")	250.000 LF	3.30000	825.00
0191	4875000000-N REMOVAL OF PAVEMENT MARKING SYMBOLS & CHARACTERS	30.000 EA	55.02000	1,650.60
0192	4905000000-N SNOWPLOWABL E PAVEMENT MARKERS	902.000 EA	29.71000	26,798.42

Contract ID: C203801

Project(s): STP-0221(41)

Letting Date: 11-15-16 Call Order: 001

Bidder: 3613 - Vecellio &amp; Grogan, Inc.

Line	Item	Approx.	Unit Price	Bid Amount
No.	Description	Quantity	Dollars   Cts	Dollars   Ct
		and Units		
0193	6000000000-E TEMPORARY SILT FENCE	80,000.000 LF	2.30000	184,000.00
0194	6006000000-E STONE FOR EROSION CONTROL, CLASS A	6,700.000 TON	27.50000	184,250.00
0195	6009000000-E STONE FOR EROSION CONTROL, CLASS B	16,000.000 TON	27.50000	440,000.00
0196	6012000000-E SEDIMENT CONTROL STONE	10,600.000 TON	24.50000	259,700.00
0197	6015000000-E TEMPORARY MULCHING	300.000 ACR	1,330.00000	399,000.00
0198	6018000000-E SEED FOR TEMPORARY SEEDING	13,700.000 LB	0.60000	8,220.00
0199	6021000000-E FERTILIZER FOR TEMPORARY SEED-ING	69.500 TON	221.00000	15,359.50
0200	6024000000-E TEMPORARY SLOPE DRAINS	9,500.000 LF	15.00000	142,500.00
0201	6029000000-E SAFETY FENCE	2,000.000 LF	2.20000	4,400.00
0202	6030000000-E SILT EXCAVATION	80,350.000 CY	3.90000	313,365.00
0203	6036000000-E MATTING FOR EROSION CONTROL	477,765.000 SY	1.50000	716,647.50
0204	6037000000-E COIR FIBER MAT	900.000 SY	3.85000	3,465.00

Contract ID: C203801

Project(s): STP-0221(41)

Letting Date: 11-15-16 Call Order: 001

Bidder: 3613 - Vecellio &amp; Grogan, Inc.

Line	Item	Approx.	Unit Price	Bid Amount
No.	Description	Quantity	Dollars   Cts	Dollars   Ct
		and Units		
0205	6038000000-E PERMANENT SOIL REINFORCEMENT MAT	3,750.000	3.85000	14,437.50
	SY			
0206	6042000000-E 1/4" HARDWARE CLOTH	9,900.000	3.30000	32,670.00
	LF			
0207	6045000000-E **" TEMPORARY PIPE (15")	280.000	36.50000	10,220.00
	LF			
0208	6045000000-E **" TEMPORARY PIPE (18")	2,780.000	41.00000	113,980.00
	LF			
0209	6045000000-E **" TEMPORARY PIPE (24")	1,630.000	48.00000	78,240.00
	LF			
0210	6045000000-E **" TEMPORARY PIPE (48")	600.000	114.00000	68,400.00
	LF			
0211	6070000000-N SPECIAL STILLING BASINS	32.000	308.00000	9,856.00
	EA			
0212	6071012000-E COIR FIBER WATTLE	200.000	8.80000	1,760.00
	LF			
0213	6071020000-E POLYACRYLAM IDE (PAM)	3,000.000	3.30000	9,900.00
	LB			
0214	6071030000-E COIR FIBER BAFFLE	15,500.000	4.40000	68,200.00
	LF			
0215	6071050000-E **" SKIMMER (1-1/2")	30.000	655.00000	19,650.00
	EA			
0216	6071050000-E **" SKIMMER (2")	10.000	743.00000	7,430.00
	EA			

Contract ID: C203801

Project(s): STP-0221(41)

Letting Date: 11-15-16 Call Order: 001

Bidder: 3613 - Vecellio &amp; Grogan, Inc.

Line	Item	Approx.	Unit Price	Bid Amount
No.	Description	Quantity	Dollars   Cts	Dollars   Ct
		and Units		
0217	6071050000-E *** SKIMMER (2-1/2")	1.000	830.00000	830.00
	EA			
0218	6071050000-E *** SKIMMER (3")	1.000	946.00000	946.00
	EA			
0219	6084000000-E SEEDING & MULCHING	230.000	1,660.00000	381,800.00
	ACR			
0220	6087000000-E MOWING	120.000	110.00000	13,200.00
	ACR			
0221	6090000000-E SEED FOR REPAIR SEEDING	2,900.000	4.40000	12,760.00
	LB			
0222	6093000000-E FERTILIZER FOR REPAIR SEEDING	15.500	663.00000	10,276.50
	TON			
0223	6096000000-E SEED FOR SUPPLEMENTAL SEEDING	5,500.000	3.30000	18,150.00
	LB			
0224	6108000000-E FERTILIZER TOPDRESSING	155.000	774.00000	119,970.00
	TON			
0225	6111000000-E IMPERVIOUS DIKE	600.000	43.00000	25,800.00
	LF			
0226	6114500000-N SPECIALIZED HAND MOWING	50.000	55.00000	2,750.00
	MHR			
0227	6117000000-N RESPONSE FOR EROSION CONTROL	160.000	55.00000	8,800.00
	EA			
0228	6123000000-E REFORESTATI ON	0.500	3,300.00000	1,650.00
	ACR			

Contract ID: C203801

Project(s): STP-0221(41)

Letting Date: 11-15-16 Call Order: 001

Bidder: 3613 - Vecellio &amp; Grogan, Inc.

Line No.	Item Description	Approx. Quantity and Units	Unit Price Dollars   Cts	Bid Amount Dollars   Ct
0229	6126000000-E STREAMBANK REFORESTATION	0.100	11,000.00000	1,100.00
	ACR			
0230	6132000000-N GENERIC EROSION CONTROL ITEM	24.000	2,100.00000	50,400.00
	CONCRETE WASHOUT STRUCTURE	EA		
0231	6132000000-N GENERIC EROSION CONTROL ITEM	120.000	91.00000	10,920.00
	FABRIC INSERT INLET PROTECTION DEVICE			
	CLEANOUT	EA		
0232	6132000000-N GENERIC EROSION CONTROL ITEM	30.000	140.00000	4,200.00
	FABRIC INSERT INLET PROTECTIONDEVICE	EA		
0233	6147000000-E GENERIC EROSION CONTROL ITEM	23,420.000	27.00000	632,340.00
	REINSTALLATION OF TEMPORARY PIPE FOR CLEAN WATER DIVERSION	LF		
	Section 0001 Total			49,988,307.43
Section 0002 CULVERT ITEMS				
Alt Group				
0234	8007000000-N CONSTRUCTIO N, MAINTENANCE, & REMOVAL OF TEMP STRUCTURE AT STA ***** (374+56.00 -L-)	LUMP	LUMP	233,000.00
0235	8028000000-N REMOVAL OF EXISTING STRUCTURESAT STATION ***** (374+56.00 -L-)	LUMP	LUMP	49,500.00
0236	8126000000-N CULVERT EXCAVATION, STA ***** (374+56.00 -L-)	LUMP	LUMP	113,818.02

Contract ID: C203801

Project(s): STP-0221(41)

Letting Date: 11-15-16 Call Order: 001

Bidder: 3613 - Vecellio &amp; Grogan, Inc.

Line No.	Item Description	Approx. Quantity and Units	Unit Price Dollars   Cts	Bid Amount Dollars   Ct
0237	8133000000-E FOUNDATION CONDITIONING MATERIAL, BOX CULVERT	592.000 TON	54.20000	32,086.40
0238	8196000000-E CLASS A CONCRETE (CULVERT)	1,354.300 CY	667.19000	903,575.42
0239	8245000000-E REINFORCING STEEL (CULVERT)	173,180.000 LB	1.08000	187,034.40
0240	8804000000-N GENERIC CULVERT ITEM ASBESTOS ASSESSMENT	LUMP	LUMP	10,839.81
Section 0002 Total				1,529,854.05

## Section 0003 WALL ITEMS

## Alt Group

0241	8801000000-E MSE RETAINING WALL NO **** (1)	935.000 SF	68.23000	63,795.05
0242	8801000000-E MSE RETAINING WALL NO **** (2)	14,365.000 SF	58.71000	843,369.15
0243	8801000000-E MSE RETAINING WALL NO **** (3)	4,870.000 SF	57.25000	278,807.50
0244	8802010000-E SOIL NAIL RETAINING WALLS	3,325.000 SF	103.27000	343,372.75
0245	8802015100-N SOIL NAIL VERIFICATION TESTS	2.000 EA	1,655.78000	3,311.56
0246	8802015110-N SOIL NAIL PROOF TESTS	14.000 EA	551.93000	7,727.02

Contract ID: C203801

Project(s): STP-0221(41)

Letting Date: 11-15-16 Call Order: 001

Bidder: 3613 - Vecellio &amp; Grogan, Inc.

+-----+						
Line	Item		Approx.		Unit Price	
No.	Description		Quantity		-----	-----
			and Units		Dollars   Cts	Dollars  Ct
+-----+						
	8990000000-N CONTRACT					
0247	TIME		4,500.000		1,095.00000	4,927,500.00
			DOL			
+-----+						
	Section 0003 Total					6,467,883.03
+-----+						
	Bid Total					57,986,044.51
+-----+						

NON-COLLUSION AND DEBARMENT CERTIFICATION

The bidder certifies 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 this bid, 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, submitting this electronic bid constitutes the bidder's certification of Status under penalty of perjury under the laws of the United States and in accordance with the Debarment Certification on file with the Department.

By submitting this bid, the 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.

Where the prospective bidder is unable to certify to any of the statements in this certification, the bidder shall submit an explanation in the blanks provided herein. The explanation will not necessarily result in denial of participation in a contract.

Explanation:  
NOT ANSWERED  
NOT ANSWERED  
NOT ANSWERED  
NOT ANSWERED

If the prequalified bidder's status changes, he shall immediately submit a new fully executed non-collusion affidavit and debarment certification with an explanation of the change to the Contract Office prior to submitting the bid.

Failure to furnish a certification or an explanation will be grounds for rejection of a bid

AWARD LIMITS ON MULTIPLE PROJECTS

By answering YES to this statement, the bidder acknowledges that they are using the award limits on multiple projects. No

A bidder who desires to bid on more than one project on which bids are to be opened on the same date, and who also desires to avoid receiving an award of more projects than he is equipped to handle, may bid on any number of projects but may limit the total amount of work awarded to him on selected projects by completing the AWARD LIMITS ON MULTIPLE PROJECTS.

The Award Limits on Multiple Projects must be filled in on each project bid for which the Bidder desires protection.

It is the desire of the Bidder to be awarded contracts, the value of which will not exceed a total of NOT ANSWERED for those projects indicated herein, for which bids will be opened on (MM/DD/YY)

The Award Limits shall apply to the following projects:

Contract Number	County
NOT ANSWERED	
NOT ANSWERED	
NOT ANSWERED	
NOT ANSWERED	
NOT ANSWERED	
NOT ANSWERED	

It is agreed that if I am (we are) the low Bidder(s) on indicated projects, the total value of which is more than the above stipulated award limits, the Board of Transportation will award me (us) projects from among those indicated that have a total value not to exceed the award limit and will result in the lowest total bids to the Department of Transportation.

## DBE COMMITMENT ITEMS

PAGE: 26

PROPOSAL: C203801  
 LETTING: L161115 CALL: 001  
 VENDOR: 3613 Vecellio & Grogan, Inc.

LINE NO.	ITEM NO.	ITEM DESC.	UNIT TYPE	SUBCONTRACTOR QUANTITY	SUBCONTRACTOR UNIT PRICE	EXTENDED AMOUNT
----------	----------	------------	-----------	------------------------	--------------------------	-----------------

DBE SUBCONTRACTOR: 3765 STAY ALERT SAFETY SERVICES INC

Will Use Quote: Yes

0153	4072000000-E	SUPPORT, 3-L LF		2598.000	5.10000	13249.80
0154	4102000000-N	SIGN ERECTIO EA		133.000	54.80000	7288.40
0155	4108000000-N	SIGN ERECTIO EA		14.000	90.00000	1260.00
0156	4116100000-N	SIGN ERECT, EA		1.000	250.00000	250.00
0157	4116100000-N	SIGN ERECT, EA		1.000	285.00000	285.00
0158	4155000000-N	DISPOSE SIGN EA		31.000	5.00000	155.00
0159	4192000000-N	DISPOSE SUPP EA		2.000	5.00000	10.00
0160	4400000000-E	WORK ZONE SI SF		2860.000	6.28000	17960.80
0161	4405000000-E	WORK ZONE SI SF		720.000	4.99200	3594.24
0162	4410000000-E	WORK ZONE SI SF		620.000	6.55000	4061.00
0163	4415000000-N	FLASHING ARR EA		2.000	1017.00000	2034.00
0164	4420000000-N	PORTABLE CHA EA		4.000	5796.00000	23184.00
0165	4430000000-N	DRUMS EA		650.000	23.98800	15592.20
0166	4435000000-N	CONES EA		200.000	9.60000	1920.00
0167	4445000000-E	BARRICADES ( LF		1200.000	28.00000	33600.00
0169	4465000000-N	TEMPORARY CR EA		5.000	4650.00000	23250.00
0170	4470000000-N	RESET CRASH EA		6.000	2400.00000	14400.00
0171	4480000000-N	TMA EA		3.000	15231.00000	45693.00
0175	4516000000-N	SKINNY DRUM EA		110.000	16.02000	1762.20

DBE COMMITMENT TOTAL FOR SUBCONTRACTOR:

209,549.64

DBE COMMITMENT TOTAL FOR VENDOR (SubContractor )

209,549

DBE SUBCONTRACTOR: 4898 BULLINGTON CONSTRUCTION INC

Will Use Quote: Yes

0126	3030000000-E	STL BM GUARD LF		12825.000	15.75000	201993.75
0127	3045000000-E	SBGR SHOP CU LF		1550.000	17.25000	26737.50
0128	3105000000-N	SBGR TERM SE EA		1.000	95.00000	95.00
0129	3150000000-N	ADDIT GUARDR EA		10.000	55.00000	550.00
0130	3195000000-N	GR ANCHOR TY EA		6.000	500.00000	3000.00
0131	3210000000-N	GR ANCHOR TY EA		17.000	500.00000	8500.00
0132	3270000000-N	GR ANCHOR TY EA		25.000	1950.00000	48750.00
0133	3317000000-N	GR ANCHOR TY EA		1.000	1500.00000	1500.00
0134	3345000000-E	REMOVE & RES LF		512.500	9.50000	4868.75
0135	3360000000-E	REMOVE EXIST LF		4012.500	1.00000	4012.50
0136	3380000000-E	TEMP STL BM LF		4200.000	8.00000	33600.00
0137	3382000000-E	TEMP STL BM LF		137.500	12.00000	1650.00
0138	3387000000-N	TEMP GDRL AN EA		2.000	250.00000	500.00
0139	3387000000-N	TEMP GDRL AN EA		3.000	950.00000	2850.00
0140	3389100000-N	TEMP GDRL AN EA		20.000	1100.00000	22000.00
0141	3435000000-N	GENERIC GUAR EA		121.000	75.00000	9075.00

LINE NO.	ITEM NO.	ITEM DESC.	UNIT TYPE	SUBCONTRACTOR QUANTITY	SUBCONTRACTOR UNIT PRICE	EXTENDED AMOUNT
DBE COMMITMENT TOTAL FOR SUBCONTRACTOR:						369,682.50
DBE COMMITMENT TOTAL FOR VENDOR (SubContractor )						369,682
DBE SUBCONTRACTOR: 7294 STRATCON CONTRACTING CORP						
Will Use Quote: Yes						
0006	0022000000-E	UNCLASSIFIED	CY	3391000.000	0.13950	473044.50
0010	0156000000-E	REMOVAL OF E	SY	43580.000	1.40000	61012.00
0017	0234000000-E	GENERIC GRAD	CY	3900.000	1.84870	7209.93
0018	0255000000-E	GENERIC GRAD	TON	100.000	8.00100	800.10
0071	1011000000-N	FINE GRADING	LS	1.000	11200.00000	11200.00
0082	1231000000-E	SHOULDER BOR	CY	16820.000	3.21700	54109.94
DBE COMMITMENT TOTAL FOR SUBCONTRACTOR:						607,376.47
DBE COMMITMENT TOTAL FOR VENDOR (SubContractor )						607,376
DBE SUBCONTRACTOR: 2052 JAMES L TURNER MASONRY						
Will Use Quote: Yes						
0001	0000100000-N	MOBILIZATION	LS	1.000	40000.00000	40000.00
0100	2209000000-E	ENDWALLS	CY	8.700	1000.00000	8700.00
0101	2220000000-E	REINFORCED E	CY	24.100	1300.00000	31330.00
DBE COMMITMENT TOTAL FOR SUBCONTRACTOR:						80,030.00
DBE COMMITMENT TOTAL FOR VENDOR (SubContractor )						80,030.
DBE SUBCONTRACTOR: 12836 SKYROCK CONCRETE FINISHING INC						
Will Use Quote: Yes						
0001	0000100000-N	MOBILIZATION	LS	0.000	135000.00000	0.00
0114	2451000000-N	CONC TRANS S	EA	54.000	1000.00000	54000.00
0115	2556000000-E	SHOULDER BER	LF	5040.000	27.89000	140565.60
0116	2563000000-E	**' CONCRETE	LF	37930.000	24.95000	946353.50
0117	2577000000-E	CONC EXPRESS	LF	470.000	31.00000	14570.00
0118	2619000000-E	4" CONCRETE	SY	300.000	120.00000	36000.00
0119	2655000000-E	5" MONO CONC	SY	1400.000	67.00000	93800.00
DBE COMMITMENT TOTAL FOR SUBCONTRACTOR:						1,285,289.10
DBE COMMITMENT TOTAL FOR VENDOR (SubContractor )						1,285,2
DBE SUBCONTRACTOR: 4417 POZZOLANIC CONTRACTING & SUPPLY COMPANY, INC.						
Will Use Quote: Yes						
0001	0000100000-N	MOBILIZATION	LS	0.000	15000.00000	0.00
0072	1044000000-E	LIME TRTD SO	SY	35470.000	3.00000	106410.00
0073	1066000000-E	LIME FOR LIM	TON	360.000	198.00000	71280.00
0079	1176000000-E	SOIL CEMENT	SY	53200.000	2.90000	154280.00
0080	1187000000-E	PC FOR SOIL	TON	1463.000	170.00000	248710.00

## DBE COMMITMENT ITEMS

PAGE: 28

LINE NO.	ITEM NO.	ITEM DESC.	UNIT TYPE	SUBCONTRACTOR QUANTITY	SUBCONTRACTOR UNIT PRICE	EXTENDED AMOUNT
----------	----------	------------	-----------	------------------------	--------------------------	-----------------

DBE COMMITMENT TOTAL FOR SUBCONTRACTOR:

580,680.00

DBE COMMITMENT TOTAL FOR VENDOR (SubContractor )

580,680

DBE SUBCONTRACTOR: 7876 EMERY SEALCO, INC.

Will Use Quote: Yes

0090	1575000000-E	ASP FOR PLAN TON		4900.000	42.89690	210194.81
------	--------------	------------------	--	----------	----------	-----------

DBE COMMITMENT TOTAL FOR SUBCONTRACTOR:

210,194.81

DBE COMMITMENT TOTAL FOR VENDOR (SubContractor )

210,194

TOTAL DBE COMMITMENT FOR VENDOR:

Entered: 5.76% or 3342802.52

Required: 9.00% or 5218744.01

&lt;GOAL NOT MET&gt;

THIS PROPOSAL CONTAINS THE FOLLOWING ERRORS/WARNINGS (IF ANY)

DBE Warning : DBE Warning: DBE Commitment Goal not met

This Bid contains 0 amendment files

#### Electronic Bid Submission

By submitting this bid electronically, I hereby acknowledge that all requirements included in the hard copy proposal, addendum, amendments, plans, standard specifications, supplemental specifications and special provisions are part of the bid and contract. Further, I acknowledge that I have read, understand, accept, acknowledge and agree to comply with all statements in this electronic bid.

I Hereby certify that I have the authority to submit this bid.

Signature

Agency

Date

-----  
-----  
-----

## Contract Item Sheets For C203801

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
<b>ROADWAY ITEMS</b>						
0001	0000100000-N	800	MOBILIZATION	Lump Sum LS	2,794,000.00	2,794,000.00
0002	0000400000-N	801	CONSTRUCTION SURVEYING	Lump Sum LS	690,000.00	690,000.00
0003	0001000000-E	200	CLEARING & GRUBBING .. ACRE(S)	Lump Sum LS	1,650,000.00	1,650,000.00
0004	0008000000-E	200	SUPPLEMENTARY CLEARING & GRUB- BING	5 ACR	6,500.00	32,500.00
0005	0015000000-N	205	SEALING ABANDONED WELLS	26 EA	2,000.00	52,000.00
0006	0022000000-E	225	UNCLASSIFIED EXCAVATION	3,391,000 CY	5.50	18,650,500.00
0007	0036000000-E	225	UNDERCUT EXCAVATION	1,000 CY	4.75	4,750.00
0008	0134000000-E	240	DRAINAGE DITCH EXCAVATION	1,080 CY	4.00	4,320.00
0009	0141000000-E	240	BERM DITCH CONSTRUCTION	1,400 LF	2.00	2,800.00
0010	0156000000-E	250	REMOVAL OF EXISTING ASPHALT PAVEMENT	43,580 SY	2.55	111,129.00
0011	0177000000-E	250	BREAKING OF EXISTING ASPHALT PAVEMENT	5,020 SY	1.15	5,773.00
0012	0192000000-N	260	PROOF ROLLING	50 HR	150.00	7,500.00
0013	0195000000-E	265	SELECT GRANULAR MATERIAL	1,000 CY	41.00	41,000.00
0014	0196000000-E	270	GEOTEXTILE FOR SOIL STABILIZA- TION	9,400 SY	1.65	15,510.00
0015	0199000000-E	SP	TEMPORARY SHORING	22,500 SF	61.00	1,372,500.00
0016	0223000000-E	275	ROCK PLATING	4,040 SY	50.00	202,000.00
0017	0234000000-E	SP	GENERIC GRADING ITEM TOE BENCHING EXCAVATION	3,900 CY	10.00	39,000.00
0018	0255000000-E	SP	GENERIC GRADING ITEM STOCKPILING CONTAMINATED SOIL	100 TON	325.00	32,500.00
0019	0314000000-E	SP	SELECT MATERIAL, CLASS ***** (IV)	240 TON	70.00	16,800.00

## Contract Item Sheets For C203801

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0020	0314000000-E	SP	SELECT MATERIAL, CLASS ***** (VII)	35,000 TON	46.00	1,610,000.00
0021	0318000000-E	300	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES	2,360 TON	25.50	60,180.00
0022	0320000000-E	300	FOUNDATION CONDITIONING GEOTEXTILE	7,400 SY	1.00	7,400.00
0023	0342000000-E	310	*** SIDE DRAIN PIPE (30")	92 LF	58.00	5,336.00
0024	0342000000-E	310	*** SIDE DRAIN PIPE (36")	46 LF	79.00	3,634.00
0025	0343000000-E	310	15" SIDE DRAIN PIPE	1,450 LF	36.00	52,200.00
0026	0344000000-E	310	18" SIDE DRAIN PIPE	1,405 LF	38.00	53,390.00
0027	0345000000-E	310	24" SIDE DRAIN PIPE	303 LF	49.00	14,847.00
0028	0348000000-E	310	*** SIDE DRAIN PIPE ELBOWS (15")	11 EA	313.00	3,443.00
0029	0348000000-E	310	*** SIDE DRAIN PIPE ELBOWS (18")	15 EA	350.00	5,250.00
0030	0348000000-E	310	*** SIDE DRAIN PIPE ELBOWS (24")	5 EA	439.00	2,195.00
0031	0348000000-E	310	*** SIDE DRAIN PIPE ELBOWS (36")	2 EA	633.00	1,266.00
0032	0366000000-E	310	15" RC PIPE CULVERTS, CLASS III	2,432 LF	51.00	124,032.00
0033	0372000000-E	310	18" RC PIPE CULVERTS, CLASS III	3,428 LF	58.00	198,824.00
0034	0378000000-E	310	24" RC PIPE CULVERTS, CLASS III	1,628 LF	77.00	125,356.00
0035	0384000000-E	310	30" RC PIPE CULVERTS, CLASS III	528 LF	93.00	49,104.00
0036	0390000000-E	310	36" RC PIPE CULVERTS, CLASS III	252 LF	122.00	30,744.00

## Contract Item Sheets For C203801

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0037	0396000000-E	310	42" RC PIPE CULVERTS, CLASS III	72 LF	141.00	10,152.00
0038	0402000000-E	310	48" RC PIPE CULVERTS, CLASS III	40 LF	171.00	6,840.00
0039	0408000000-E	310	54" RC PIPE CULVERTS, CLASS III	496 LF	203.00	100,688.00
0040	0448200000-E	310	15" RC PIPE CULVERTS, CLASS IV	6,832 LF	53.00	362,096.00
0041	0448300000-E	310	18" RC PIPE CULVERTS, CLASS IV	436 LF	62.00	27,032.00
0042	0448400000-E	310	24" RC PIPE CULVERTS, CLASS IV	376 LF	85.00	31,960.00
0043	0453000000-E	310	*** PIPE END SECTION (15")	3 EA	988.00	2,964.00
0044	0576000000-E	310	*** CS PIPE CULVERTS, ***** THICK (48", 1.09")	208 LF	117.00	24,336.00
0045	0588000000-E	310	18" CS PIPE CULVERTS, 0.064" THICK	94 LF	41.00	3,854.00
0046	0594000000-E	310	24" CS PIPE CULVERTS, 0.064" THICK	16 LF	52.00	832.00
0047	0600000000-E	310	30" CS PIPE CULVERTS, 0.079" THICK	124 LF	67.00	8,308.00
0048	0636000000-E	310	*** CS PIPE ELBOWS, ***** THICK (18", 0.064")	2 EA	247.00	494.00
0049	0636000000-E	310	*** CS PIPE ELBOWS, ***** THICK (30", 0.079")	1 EA	430.00	430.00
0050	0926000000-E	SP	**** CS STRUCTURAL PLATE PIPE, ** GAUGE (60", 8)	244 LF	1,025.00	250,100.00
0051	0926000000-E	SP	**** CS STRUCTURAL PLATE PIPE, ** GAUGE (84", 1)	120 LF	2,050.00	246,000.00
0052	0973100000-E	330	*** WELDED STEEL PIPE, ***** THICK, GRADE B IN SOIL (15", 0.28")	46 LF	312.00	14,352.00

## Contract Item Sheets For C203801

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0053	0973100000-E	330	*** WELDED STEEL PIPE, ***** THICK, GRADE B IN SOIL (18", 0.31")	42 LF	320.00	13,440.00
0054	0973100000-E	330	*** WELDED STEEL PIPE, ***** THICK, GRADE B IN SOIL (24", 0.38")	327 LF	340.00	111,180.00
0055	0973100000-E	330	*** WELDED STEEL PIPE, ***** THICK, GRADE B IN SOIL (30", 0.47")	121 LF	425.00	51,425.00
0056	0973100000-E	330	*** WELDED STEEL PIPE, ***** THICK, GRADE B IN SOIL (36", 0.47")	74 LF	500.00	37,000.00
0057	0973100000-E	330	*** WELDED STEEL PIPE, ***** THICK, GRADE B IN SOIL (60", 0.875")	82 LF	1,000.00	82,000.00
0058	0973100000-E	330	*** WELDED STEEL PIPE, ***** THICK, GRADE B IN SOIL (84", 1.0")	80 LF	3,000.00	240,000.00
0059	0973300000-E	330	*** WELDED STEEL PIPE, ***** THICK, GRADE B NOT IN SOIL (15", 0.28")	46 LF	870.00	40,020.00
0060	0973300000-E	330	*** WELDED STEEL PIPE, ***** THICK, GRADE B NOT IN SOIL (18", 0.31")	41 LF	900.00	36,900.00
0061	0973300000-E	330	*** WELDED STEEL PIPE, ***** THICK, GRADE B NOT IN SOIL (24", 0.38")	326 LF	925.00	301,550.00
0062	0973300000-E	330	*** WELDED STEEL PIPE, ***** THICK, GRADE B NOT IN SOIL (30", 0.47")	121 LF	1,050.00	127,050.00
0063	0973300000-E	330	*** WELDED STEEL PIPE, ***** THICK, GRADE B NOT IN SOIL (36", 0.47")	74 LF	1,375.00	101,750.00
0064	0973300000-E	330	*** WELDED STEEL PIPE, ***** THICK, GRADE B NOT IN SOIL (60", 0.875")	82 LF	1,850.00	151,700.00
0065	0973300000-E	330	*** WELDED STEEL PIPE, ***** THICK, GRADE B NOT IN SOIL (84", 1.0")	80 LF	4,500.00	360,000.00
0066	0986000000-E	SP	GENERIC PIPE ITEM 6" DI PIPE (SPRING BOX)	110 LF	43.00	4,730.00

## Contract Item Sheets For C203801

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0067	0986000000-E	SP	GENERIC PIPE ITEM 6" PVC PIPE CULVERTS (SPRING BOX)	225 LF	23.00	5,175.00
0068	0986000000-E	SP	GENERIC PIPE ITEM CENTRIFUGALLY CAST CONCRETE PIPE LINER (30" PIPE)	188 LF	307.00	57,716.00
0069	0986000000-E	SP	GENERIC PIPE ITEM CENTRIFUGALLY CAST CONCRETE PIPE LINER (48" PIPE)	160 LF	465.00	74,400.00
0070	0995000000-E	340	PIPE REMOVAL	2,758 LF	6.35	17,513.30
0071	1011000000-N	500	FINE GRADING	Lump Sum LS	450,000.00	450,000.00
0072	1044000000-E	501	LIME TREATED SOIL (SLURRY METHOD)	35,470 SY	3.25	115,277.50
0073	1066000000-E	501	LIME FOR LIME TREATED SOIL	360 TON	217.00	78,120.00
0074	1099500000-E	505	SHALLOW UNDERCUT	500 CY	6.00	3,000.00
0075	1099700000-E	505	CLASS IV SUBGRADE STABILIZA- TION	200 TON	22.50	4,500.00
0076	1110000000-E	510	STABILIZER AGGREGATE	250 TON	26.00	6,500.00
0077	1115000000-E	SP	GEOTEXTILE FOR PAVEMENT STA- BILIZATION	12,419 SY	3.30	40,982.70
0078	1121000000-E	520	AGGREGATE BASE COURSE	77,200 TON	25.00	1,930,000.00
0079	1176000000-E	542	SOIL CEMENT BASE	53,200 SY	3.20	170,240.00
0080	1187000000-E	542	PORTLAND CEMENT FOR SOIL CE- MENT BASE	1,463 TON	185.00	270,655.00
0081	1220000000-E	545	INCIDENTAL STONE BASE	4,910 TON	26.00	127,660.00
0082	1231000000-E	560	SHOULDER BORROW	16,820 CY	6.00	100,920.00
0083	1275000000-E	600	PRIME COAT	1,070 GAL	5.47	5,852.90
0084	1297000000-E	607	MILLING ASPHALT PAVEMENT, **** DEPTH (1-1/2")	24,520 SY	2.74	67,184.80

## Contract Item Sheets For C203801

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0085	1330000000-E	607	INCIDENTAL MILLING	1,670 SY	16.42	27,421.40
0086	1489000000-E	610	ASPHALT CONC BASE COURSE, TYPE B25.0B	22,730 TON	50.37	1,144,910.10
0087	1498000000-E	610	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B	37,440 TON	50.37	1,885,852.80
0088	1519000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	31,440 TON	50.37	1,583,632.80
0089	1525000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A	3,180 TON	50.37	160,176.60
0090	1575000000-E	620	ASPHALT BINDER FOR PLANT MIX	4,900 TON	498.19	2,441,131.00
0091	1693000000-E	654	ASPHALT PLANT MIX, PAVEMENT REPAIR	1,250 TON	76.65	95,812.50
0092	2022000000-E	815	SUBDRAIN EXCAVATION	840 CY	4.00	3,360.00
0093	2026000000-E	815	GEOTEXTILE FOR SUBSURFACE DRAINS	2,500 SY	1.70	4,250.00
0094	2036000000-E	815	SUBDRAIN COARSE AGGREGATE	420 CY	45.00	18,900.00
0095	2044000000-E	815	6" PERFORATED SUBDRAIN PIPE	2,500 LF	6.00	15,000.00
0096	2070000000-N	815	SUBDRAIN PIPE OUTLET	5 EA	222.00	1,110.00
0097	2077000000-E	815	6" OUTLET PIPE	30 LF	11.00	330.00
0098	2143000000-E	818	BLOTTING SAND	15 TON	86.00	1,290.00
0099	2190000000-N	828	TEMPORARY STEEL PLATE COVERS FOR MASONRY DRAINAGE STRUCTURE	4 EA	1,000.00	4,000.00
0100	2209000000-E	838	ENDWALLS	8.7 CY	1,100.00	9,570.00
0101	2220000000-E	838	REINFORCED ENDWALLS	24.1 CY	1,400.00	33,740.00
0102	2253000000-E	840	PIPE COLLARS	4.554 CY	1,000.00	4,554.00
0103	2264000000-E	840	PIPE PLUGS	0.09 CY	1,000.00	90.00

## Contract Item Sheets For C203801

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0104	2275000000-E	SP	FLOWABLE FILL	496 CY	395.00	195,920.00
0105	2286000000-N	840	MASONRY DRAINAGE STRUCTURES	197 EA	1,750.00	344,750.00
0106	2297000000-E	840	MASONRY DRAINAGE STRUCTURES	48.8 CY	1,490.00	72,712.00
0107	2308000000-E	840	MASONRY DRAINAGE STRUCTURES	189.4 LF	350.00	66,290.00
0108	2354000000-N	840	FRAME WITH GRATE, STD 840.22	19 EA	312.00	5,928.00
0109	2364000000-N	840	FRAME WITH TWO GRATES, STD 840.16	11 EA	312.00	3,432.00
0110	2364200000-N	840	FRAME WITH TWO GRATES, STD 840.20	74 EA	312.00	23,088.00
0111	2365000000-N	840	FRAME WITH TWO GRATES, STD 840.22	76 EA	312.00	23,712.00
0112	2367000000-N	840	FRAME WITH TWO GRATES, STD 840.29	2 EA	312.00	624.00
0113	2396000000-N	840	FRAME WITH COVER, STD 840.54	2 EA	312.00	624.00
0114	2451000000-N	852	CONCRETE TRANSITIONAL SECTION FOR DROP INLET	54 EA	1,080.00	58,320.00
0115	2556000000-E	846	SHOULDER BERM GUTTER	5,040 LF	30.00	151,200.00
0116	2563000000-E	846	*** CONCRETE GUTTER (2'-9")	37,930 LF	27.00	1,024,110.00
0117	2577000000-E	846	CONCRETE EXPRESSWAY GUTTER	470 LF	38.00	17,860.00
0118	2619000000-E	850	4" CONCRETE PAVED DITCH	300 SY	135.00	40,500.00
0119	2655000000-E	852	5" MONOLITHIC CONCRETE ISLANDS (KEYED IN)	1,400 SY	78.00	109,200.00
0120	2724000000-E	857	PRECAST REINFORCED CONCRETE BARRIER, SINGLE FACED	356.3 LF	74.00	26,366.20
0121	2905000000-N	859	CONVERT EXISTING DROP INLET TO JUNCTION BOX	1 EA	2,400.00	2,400.00

## Contract Item Sheets For C203801

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0122	2995000000-N	SP	GENERIC DRAINAGE ITEM CONVERT EXISTING DI TO 3GI	1 EA	3,300.00	3,300.00
0123	2995000000-N	SP	GENERIC DRAINAGE ITEM CONVERT EXISTING JB TO DI	1 EA	3,300.00	3,300.00
0124	2995000000-N	SP	GENERIC DRAINAGE ITEM CONVERT EXISTING TB2GI TO TBJB/SLAB	3 EA	3,900.00	11,700.00
0125	2995000000-N	SP	GENERIC DRAINAGE ITEM CONVERT EXISTING TBJB TO TB2GI	1 EA	3,300.00	3,300.00
0126	3030000000-E	862	STEEL BM GUARDRAIL	12,825 LF	17.20	220,590.00
0127	3045000000-E	862	STEEL BM GUARDRAIL, SHOP CURVED	1,550 LF	19.00	29,450.00
0128	3105000000-N	862	STEEL BM GUARDRAIL TERMINAL SECTIONS	1 EA	105.00	105.00
0129	3150000000-N	862	ADDITIONAL GUARDRAIL POSTS	10 EA	60.00	600.00
0130	3195000000-N	862	GUARDRAIL ANCHOR UNITS, TYPE AT-1	6 EA	552.00	3,312.00
0131	3210000000-N	862	GUARDRAIL ANCHOR UNITS, TYPE CAT-1	17 EA	552.00	9,384.00
0132	3270000000-N	SP	GUARDRAIL ANCHOR UNITS, TYPE 350	25 EA	2,150.00	53,750.00
0133	3317000000-N	862	GUARDRAIL ANCHOR UNITS, TYPE B-77	1 EA	1,650.00	1,650.00
0134	3345000000-E	864	REMOVE & RESET EXISTING GUARD- RAIL	512.5 LF	10.50	5,381.25
0135	3360000000-E	863	REMOVE EXISTING GUARDRAIL	4,012.5 LF	1.10	4,413.75
0136	3380000000-E	862	TEMPORARY STEEL BM GUARDRAIL	4,200 LF	8.80	36,960.00
0137	3382000000-E	862	TEMPORARY STEEL BM GUARDRAIL (SHOP CURVED)	137.5 LF	13.20	1,815.00
0138	3387000000-N	862	TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE ***** (AT-1)	2 EA	276.00	552.00

## Contract Item Sheets For C203801

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0139	3387000000-N	862	TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE ***** (B-77)	3 EA	1,050.00	3,150.00
0140	3389100000-N	SP	TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE 350	20 EA	1,200.00	24,000.00
0141	3435000000-N	SP	GENERIC GUARDRAIL ITEM EXTRA LENGTH GUARDRAIL POST (8' STEEL)	121 EA	82.50	9,982.50
0142	3503000000-E	866	WOVEN WIRE FENCE, 47" FABRIC	38,380 LF	2.65	101,707.00
0143	3509000000-E	866	4" TIMBER FENCE POSTS, 7'-6" LONG	2,330 EA	22.00	51,260.00
0144	3515000000-E	866	5" TIMBER FENCE POSTS, 8'-0" LONG	770 EA	35.00	26,950.00
0145	3539000000-E	866	METAL LINE POSTS FOR *** CHAIN LINK FENCE (96")	25 EA	111.00	2,775.00
0146	3545000000-E	866	METAL TERMINAL POSTS FOR *** CHAIN LINK FENCE (96")	20 EA	166.00	3,320.00
0147	3557000000-E	866	ADDITIONAL BARBED WIRE	500 LF	1.10	550.00
0148	3574000000-E	867	GENERIC FENCING ITEM CHAIN LINK FENCE, 96" FABRIC	500 LF	6.60	3,300.00
0149	3575000000-E	SP	GENERIC FENCING ITEM TEMPORARY 4 STRAND BARBED WIRE FENCE WITH POSTS	2,000 LF	3.30	6,600.00
0150	3628000000-E	876	RIP RAP, CLASS I	1,937 TON	47.00	91,039.00
0151	3656000000-E	876	GEOTEXTILE FOR DRAINAGE	20,820 SY	1.25	26,025.00
0152	3659000000-N	SP	PREFORMED SCOUR HOLES WITH LEVEL SPREADER APRON	15 EA	2,900.00	43,500.00
0153	4072000000-E	903	SUPPORTS, 3-LB STEEL U-CHANNEL	2,598 LF	5.60	14,548.80
0154	4102000000-N	904	SIGN ERECTION, TYPE E	133 EA	61.00	8,113.00
0155	4108000000-N	904	SIGN ERECTION, TYPE F	14 EA	100.00	1,400.00

## Contract Item Sheets For C203801

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0156	4116100000-N	904	SIGN ERECTION, RELOCATE, TYPE **** (GROUND MOUNTED) (E)	1 EA	279.00	279.00
0157	4116100000-N	904	SIGN ERECTION, RELOCATE, TYPE **** (GROUND MOUNTED) (F)	1 EA	318.00	318.00
0158	4155000000-N	907	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	31 EA	5.50	170.50
0159	4192000000-N	907	DISPOSAL OF SUPPORT, U-CHANNEL	2 EA	5.50	11.00
0160	4400000000-E	1110	WORK ZONE SIGNS (STATIONARY)	2,860 SF	7.00	20,020.00
0161	4405000000-E	1110	WORK ZONE SIGNS (PORTABLE)	720 SF	13.00	9,360.00
0162	4410000000-E	1110	WORK ZONE SIGNS (BARRICADE MOUNTED)	620 SF	11.50	7,130.00
0163	4415000000-N	1115	FLASHING ARROW BOARD	2 EA	2,000.00	4,000.00
0164	4420000000-N	1120	PORTABLE CHANGEABLE MESSAGE SIGN	4 EA	15,000.00	60,000.00
0165	4430000000-N	1130	DRUMS	650 EA	45.00	29,250.00
0166	4435000000-N	1135	CONES	200 EA	25.00	5,000.00
0167	4445000000-E	1145	BARRICADES (TYPE III)	1,200 LF	32.00	38,400.00
0168	4450000000-N	1150	FLAGGER	5,800 HR	34.00	197,200.00
0169	4465000000-N	1160	TEMPORARY CRASH CUSHIONS	5 EA	5,200.00	26,000.00
0170	4470000000-N	1160	RESET TEMPORARY CRASH CUSHION	6 EA	2,700.00	16,200.00
0171	4480000000-N	1165	TMA	3 EA	29,000.00	87,000.00
0172	4485000000-E	1170	PORTABLE CONCRETE BARRIER	1,800 LF	33.00	59,400.00
0173	4490000000-E	1170	PORTABLE CONCRETE BARRIER (ANCHORED)	330 LF	38.00	12,540.00
0174	4500000000-E	1170	RESET PORTABLE CONCRETE BARRIER	800 LF	8.00	6,400.00

## Contract Item Sheets For C203801

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0175	4516000000-N	1180	SKINNY DRUM	110 EA	39.00	4,290.00
0176	4650000000-N	1251	TEMPORARY RAISED PAVEMENT MARKERS	1,500 EA	7.20	10,800.00
0177	4687000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (4", 240 MILS)	1,650 LF	1.10	1,815.00
0178	4700000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (12", 90 MILS)	306 LF	3.30	1,009.80
0179	4710000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)	202 LF	8.80	1,777.60
0180	4721000000-E	1205	THERMOPLASTIC PAVEMENT MARKING CHARACTER (120 MILS)	8 EA	220.10	1,760.80
0181	4725000000-E	1205	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)	52 EA	148.57	7,725.64
0182	4810000000-E	1205	PAINT PAVEMENT MARKING LINES (4")	408,000 LF	0.12	48,960.00
0183	4820000000-E	1205	PAINT PAVEMENT MARKING LINES (8")	7,600 LF	0.72	5,472.00
0184	4835000000-E	1205	PAINT PAVEMENT MARKING LINES (24")	2,300 LF	2.75	6,325.00
0185	4845000000-N	1205	PAINT PAVEMENT MARKING SYMBOL	80 EA	71.53	5,722.40
0186	4847000000-E	1205	POLYUREA PAVEMENT MARKING LINES (4", *****) (HIGHLY REFLECTIVE ELEMENTS)	114,403 LF	0.79	90,378.37
0187	4847110000-E	1205	POLYUREA PAVEMENT MARKING LINES (8", *****) (HIGHLY REFLECTIVE ELEMENTS)	5,036 LF	1.65	8,309.40
0188	4850000000-E	1205	REMOVAL OF PAVEMENT MARKING LINES (4")	40,200 LF	0.66	26,532.00
0189	4860000000-E	1205	REMOVAL OF PAVEMENT MARKING LINES (8")	1,200 LF	1.10	1,320.00
0190	4870000000-E	1205	REMOVAL OF PAVEMENT MARKING LINES (24")	250 LF	3.30	825.00

## Contract Item Sheets For C203801

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0191	4875000000-N	1205	REMOVAL OF PAVEMENT MARKING SYMBOLS & CHARACTERS	30 EA	55.02	1,650.60
0192	4905000000-N	1253	SNOWPLOWABLE PAVEMENT MARKERS	902 EA	29.71	26,798.42
0193	6000000000-E	1605	TEMPORARY SILT FENCE	80,000 LF	2.30	184,000.00
0194	6006000000-E	1610	STONE FOR EROSION CONTROL, CLASS A	6,700 TON	27.50	184,250.00
0195	6009000000-E	1610	STONE FOR EROSION CONTROL, CLASS B	16,000 TON	27.50	440,000.00
0196	6012000000-E	1610	SEDIMENT CONTROL STONE	10,600 TON	24.50	259,700.00
0197	6015000000-E	1615	TEMPORARY MULCHING	300 ACR	1,330.00	399,000.00
0198	6018000000-E	1620	SEED FOR TEMPORARY SEEDING	13,700 LB	0.60	8,220.00
0199	6021000000-E	1620	FERTILIZER FOR TEMPORARY SEEDING	69.5 TON	221.00	15,359.50
0200	6024000000-E	1622	TEMPORARY SLOPE DRAINS	9,500 LF	15.00	142,500.00
0201	6029000000-E	SP	SAFETY FENCE	2,000 LF	2.20	4,400.00
0202	6030000000-E	1630	SILT EXCAVATION	80,350 CY	3.90	313,365.00
0203	6036000000-E	1631	MATTING FOR EROSION CONTROL	477,765 SY	1.50	716,647.50
0204	6037000000-E	SP	COIR FIBER MAT	900 SY	3.85	3,465.00
0205	6038000000-E	SP	PERMANENT SOIL REINFORCEMENT MAT	3,750 SY	3.85	14,437.50
0206	6042000000-E	1632	1/4" HARDWARE CLOTH	9,900 LF	3.30	32,670.00
0207	6045000000-E	SP	*** TEMPORARY PIPE (15")	280 LF	36.50	10,220.00
0208	6045000000-E	SP	*** TEMPORARY PIPE (18")	2,780 LF	41.00	113,980.00
0209	6045000000-E	SP	*** TEMPORARY PIPE (24")	1,630 LF	48.00	78,240.00

## Contract Item Sheets For C203801

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0210	6045000000-E	SP	*** TEMPORARY PIPE (48")	600 LF	114.00	68,400.00
0211	6070000000-N	1639	SPECIAL STILLING BASINS	32 EA	308.00	9,856.00
0212	6071012000-E	SP	COIR FIBER WATTLE	200 LF	8.80	1,760.00
0213	6071020000-E	SP	POLYACRYLAMIDE (PAM)	3,000 LB	3.30	9,900.00
0214	6071030000-E	1640	COIR FIBER BAFFLE	15,500 LF	4.40	68,200.00
0215	6071050000-E	SP	*** SKIMMER (1-1/2")	30 EA	655.00	19,650.00
0216	6071050000-E	SP	*** SKIMMER (2")	10 EA	743.00	7,430.00
0217	6071050000-E	SP	*** SKIMMER (2-1/2")	1 EA	830.00	830.00
0218	6071050000-E	SP	*** SKIMMER (3")	1 EA	946.00	946.00
0219	6084000000-E	1660	SEEDING & MULCHING	230 ACR	1,660.00	381,800.00
0220	6087000000-E	1660	MOWING	120 ACR	110.00	13,200.00
0221	6090000000-E	1661	SEED FOR REPAIR SEEDING	2,900 LB	4.40	12,760.00
0222	6093000000-E	1661	FERTILIZER FOR REPAIR SEEDING	15.5 TON	663.00	10,276.50
0223	6096000000-E	1662	SEED FOR SUPPLEMENTAL SEEDING	5,500 LB	3.30	18,150.00
0224	6108000000-E	1665	FERTILIZER TOPDRESSING	155 TON	774.00	119,970.00
0225	6111000000-E	SP	IMPERVIOUS DIKE	600 LF	43.00	25,800.00
0226	6114500000-N	1667	SPECIALIZED HAND MOWING	50 MHR	55.00	2,750.00
0227	6117000000-N	SP	RESPONSE FOR EROSION CONTROL	160 EA	55.00	8,800.00
0228	6123000000-E	1670	REFORESTATION	0.5 ACR	3,300.00	1,650.00
0229	6126000000-E	SP	STREAMBANK REFORESTATION	0.1 ACR	11,000.00	1,100.00

## Contract Item Sheets For C203801

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0230	6132000000-N	SP	GENERIC EROSION CONTROL ITEM CONCRETE WASHOUT STRUCTURE	24 EA	2,100.00	50,400.00
0231	6132000000-N	SP	GENERIC EROSION CONTROL ITEM FABRIC INSERT INLET PROTECTION DEVICE CLEANOUT	120 EA	91.00	10,920.00
0232	6132000000-N	SP	GENERIC EROSION CONTROL ITEM FABRIC INSERT INLET PROTECTION DEVICE	30 EA	140.00	4,200.00
0233	6147000000-E	SP	GENERIC EROSION CONTROL ITEM REINSTALLATION OF TEMPORARY PIPE FOR CLEAN WATER DIVERSION	23,420 LF	27.00	632,340.00

## Contract Item Sheets For C203801

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0234	8007000000-N	SP	CONSTRUCTION, MAINTENANCE, & REMOVAL OF TEMP STRUCTURE AT STA ***** (374+56.00 -L-)	Lump Sum LS	233,000.00	233,000.00
0235	8028000000-N	SP	REMOVAL OF EXISTING STRUCTURES AT STATION ***** (374+56.00 -L-)	Lump Sum LS	49,500.00	49,500.00
0236	8126000000-N	414	CULVERT EXCAVATION, STA ***** (374+56.00 -L-)	Lump Sum LS	113,818.02	113,818.02
0237	8133000000-E	414	FOUNDATION CONDITIONING MATERIAL, BOX CULVERT	592 TON	54.20	32,086.40
0238	8196000000-E	420	CLASS A CONCRETE (CULVERT)	1,354.3 CY	667.19	903,575.42
0239	8245000000-E	425	REINFORCING STEEL (CULVERT)	173,180 LB	1.08	187,034.40
0240	8804000000-N	SP	GENERIC CULVERT ITEM ASBESTOS ASSESSMENT	Lump Sum LS	10,839.81	10,839.81

## Contract Item Sheets For C203801

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0241	8801000000-E	SP	MSE RETAINING WALL NO **** (1)	935 SF	68.23	63,795.05
0242	8801000000-E	SP	MSE RETAINING WALL NO **** (2)	14,365 SF	58.71	843,369.15
0243	8801000000-E	SP	MSE RETAINING WALL NO **** (3)	4,870 SF	57.25	278,807.50
0244	8802010000-E	SP	SOIL NAIL RETAINING WALLS	3,325 SF	103.27	343,372.75
0245	8802015100-N	SP	SOIL NAIL VERIFICATION TESTS	2 EA	1,655.78	3,311.56
0246	8802015110-N	SP	SOIL NAIL PROOF TESTS	14 EA	551.93	7,727.02

Contract Item Sheets For C203801

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
WALL ITEMS						

0247	8990000000-N	SP	CONTRACT TIME	1095 DAY(S)		
------	--------------	----	---------------	----------------	--	--

-----

TOTAL AMOUNT OF BID FOR ENTIRE PROJECT						\$53,058,544.51
--	--	--	--	--	--	-----------------

Contract No. C203801  
County Ashe

Rev. 5-19-11

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

**CORPORATION**

The Contractor being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee 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 this Contract, that the Contractor has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Contractor intends to do the work with its own bonafide employees or subcontractors and did not bid for the benefit of another contractor.

By submitting this Execution of Contract, Non-Collusion Affidavit and Debarment Certification, the Contractor is certifying his 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**

Vecellio & Grogan, Inc.

Full name of Corporation

PO Box 2438, Beckley, WV 25802

Address as Prequalified

Attest

*L.L. Gwinn*

Secretary/Assistant Secretary  
Select appropriate title

By

*Matthew A. Farley*

President/Vice President/Assistant Vice President  
Select appropriate title

L.L. Gwinn

Print or type Signer's name

Matthew A. Farley

Print or type Signer's name

**CORPORATE SEAL**

**AFFIDAVIT MUST BE NOTARIZED**

Subscribed and sworn to before me this the

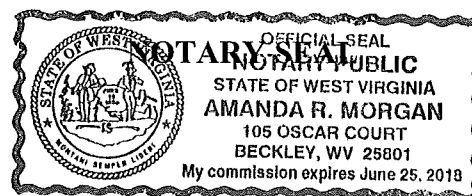
1st day of December 2016.

*A. R. Morgan*  
Signature of Notary Public

of Raleigh County

State of West Virginia

My Commission Expires: June 25, 2018



## 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 filed 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.

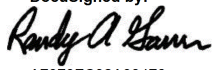
☐

Check here if an explanation is attached to this certification.

Contract No. C203801

County (ies): Ashe

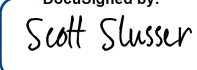
ACCEPTED BY THE  
DEPARTMENT OF TRANSPORTATION

DocuSigned by:  
  
A7079FC32A09478...  
Contract Officer

12/6/2016

Date

Execution of Contract and Bonds  
Approved as to Form:

DocuSigned by:  
  
00A01E7CB374498...  
Attorney General

12/6/2016

Date

Signature Sheet (Bid - Acceptance by Department)

Contract No.  
County

C203801

Ashe

Rev 5-17-11

### CONTRACT PAYMENT BOND

Date of Payment Bond Execution	December 1, 2016
Name of Principal Contractor	Vecellio & Grogan, Inc
Name of Surety:	Travelers Casualty and Surety Company of America
Name of Contracting Body:	North Carolina Department of Transportation
	Raleigh, North Carolina
Amount of Bond:	\$53,058,544.51
Contract ID No.:	C203801
County Name:	Ashe

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.

Contract No.  
County

C203801

Ashe

Rev 5-17-11

**CONTRACT PAYMENT BOND**

*Affix Seal of Surety Company*

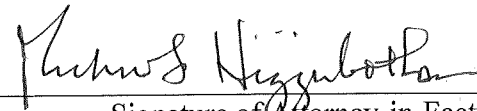
Travelers Casualty and Surety Company of America

Print or type Surety Company Name

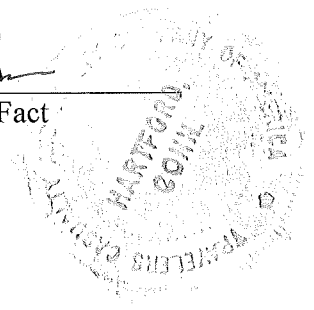
By

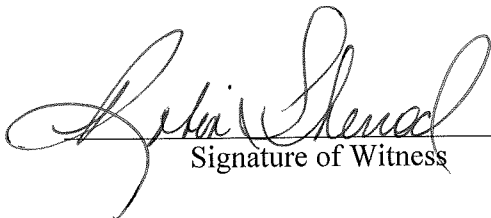
Richard L Higginbotham

Print, stamp or type name of Attorney-in-Fact



Signature of Attorney-in-Fact





Signature of Witness

Robin Sherrod

Print or type Signer's name

1566 Kanawha Blvd E Charleston, WV 25311

Address of Attorney-in-Fact

Contract No.  
County

C203801

Ashie

Rev 5-17-11

**CONTRACT PAYMENT BOND**

**CORPORATION**

SIGNATURE OF CONTRACTOR (Principal)

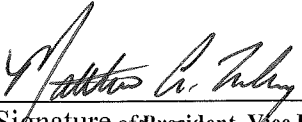
**Vecellio & Grogan, Inc**

Full name of Corporation

**PO Box 2438 Beckley, WV 25802-2438**

Address as prequalified

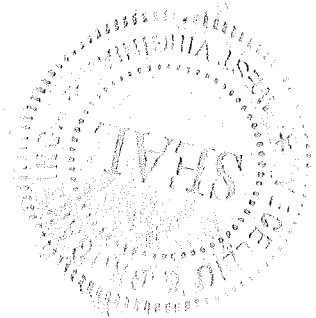
By

  
Signature of ~~President~~, Vice President, ~~Assistant Vice President~~  
Select appropriate title


**Matthew A Farley**

Print or type Signer's name

*Affix Corporate Seal*



Attest

  
Signature of ~~Secretary~~, ~~Assistant Secretary~~  
Select appropriate title

**L.L. Gwinn**

Print or type Signer's name



## POWER OF ATTORNEY

Farmington Casualty Company  
Fidelity and Guaranty Insurance Company  
Fidelity and Guaranty Insurance Underwriters, Inc.  
St. Paul Fire and Marine Insurance Company  
St. Paul Guardian Insurance Company

St. Paul Mercury Insurance Company  
Travelers Casualty and Surety Company  
Travelers Casualty and Surety Company of America  
United States Fidelity and Guaranty Company

Attorney-In Fact No. 218346

Certificate No. 006969777

**KNOW ALL MEN BY THESE PRESENTS:** That Farmington Casualty Company, St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company, St. Paul Mercury Insurance Company, Travelers Casualty and Surety Company, Travelers Casualty and Surety Company of America, and United States Fidelity and Guaranty Company are corporations duly organized under the laws of the State of Connecticut, that Fidelity and Guaranty Insurance Company is a corporation duly organized under the laws of the State of Iowa, and that Fidelity and Guaranty Insurance Underwriters, Inc., is a corporation duly organized under the laws of the State of Wisconsin (herein collectively called the "Companies"), and that the Companies do hereby make, constitute and appoint

C. David Thomas, Richard L. Higginbotham, Bunnie Marie Perrine, Jeffery O'Dell, and Robin Hubbard-Sherrod

of the City of Charleston, State of West Virginia, their true and lawful Attorney(s)-in-Fact, each in their separate capacity if more than one is named above, to sign, execute, seal and acknowledge any and all bonds, recognizances, conditional undertakings and other writings obligatory in the nature thereof on behalf of the Companies in their business of guaranteeing the fidelity of persons, guaranteeing the performance of contracts and executing or guaranteeing bonds and undertakings required or permitted in any actions or proceedings allowed by law.

IN WITNESS WHEREOF, the Companies have caused this instrument to be signed and their corporate seals to be hereto affixed, this 9th day of September, 2016.

Farmington Casualty Company  
Fidelity and Guaranty Insurance Company  
Fidelity and Guaranty Insurance Underwriters, Inc.  
St. Paul Fire and Marine Insurance Company  
St. Paul Guardian Insurance Company

St. Paul Mercury Insurance Company  
Travelers Casualty and Surety Company  
Travelers Casualty and Surety Company of America  
United States Fidelity and Guaranty Company



State of Connecticut  
City of Hartford ss.

By: Robert L. Raney  
Robert L. Raney, Senior Vice President

On this the 9th day of September, 2016, before me personally appeared Robert L. Raney, who acknowledged himself to be the Senior Vice President of Farmington Casualty Company, Fidelity and Guaranty Insurance Company, Fidelity and Guaranty Insurance Underwriters, Inc., St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company, St. Paul Mercury Insurance Company, Travelers Casualty and Surety Company, Travelers Casualty and Surety Company of America, and United States Fidelity and Guaranty Company, and that he, as such, being authorized so to do, executed 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 hereunto set my hand and official seal.  
My Commission expires the 30th day of June, 2021.



Marie C. Tetreault  
Marie C. Tetreault, Notary Public

This Power of Attorney is granted under and by the authority of the following resolutions adopted by the Boards of Directors of Farmington Casualty Company, Fidelity and Guaranty Insurance Company, Fidelity and Guaranty Insurance Underwriters, Inc., St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company, St. Paul Mercury Insurance Company, Travelers Casualty and Surety Company, Travelers Casualty and Surety Company of America, and United States Fidelity and Guaranty Company, which resolutions are now in full force and effect, reading as follows:

**RESOLVED**, that the Chairman, the President, any Vice Chairman, any Executive Vice President, any Senior Vice President, any Vice President, any Second Vice President, the Treasurer, any Assistant Treasurer, the Corporate Secretary or any Assistant Secretary may appoint Attorneys-in-Fact and Agents to act for and on behalf of the Company and may give such appointee such authority as his or her certificate of authority may prescribe to sign with the Company's name and seal with the Company's seal bonds, recognizances, contracts of indemnity, and other writings obligatory in the nature of a bond, recognizance, or conditional undertaking, and any of said officers or the Board of Directors at any time may remove any such appointee and revoke the power given him or her; and it is

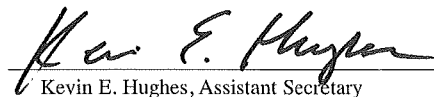
**FURTHER RESOLVED**, that the Chairman, the President, any Vice Chairman, any Executive Vice President, any Senior Vice President or any Vice President may delegate all or any part of the foregoing authority to one or more officers or employees of this Company, provided that each such delegation is in writing and a copy thereof is filed in the office of the Secretary; and it is

**FURTHER RESOLVED**, that any bond, recognizance, contract of indemnity, or writing obligatory in the nature of a bond, recognizance, or conditional undertaking shall be valid and binding upon the Company when (a) signed by the President, any Vice Chairman, any Executive Vice President, any Senior Vice President or any Vice President, any Second Vice President, the Treasurer, any Assistant Treasurer, the Corporate Secretary or any Assistant Secretary and duly attested and sealed with the Company's seal by a Secretary or Assistant Secretary; or (b) duly executed (under seal, if required) by one or more Attorneys-in-Fact and Agents pursuant to the power prescribed in his or her certificate or their certificates of authority or by one or more Company officers pursuant to a written delegation of authority; and it is

**FURTHER RESOLVED**, that the signature of each of the following officers: President, any Executive Vice President, any Senior Vice President, any Vice President, any Assistant Vice President, any Secretary, any Assistant Secretary, and the seal of the Company may be affixed by facsimile to any Power of Attorney or to any certificate relating thereto appointing Resident Vice Presidents, Resident Assistant Secretaries or Attorneys-in-Fact for purposes only of executing and attesting bonds and undertakings and other writings obligatory in the nature thereof, and any such Power of Attorney or certificate bearing such facsimile signature or facsimile seal shall be valid and binding upon the Company and any such power so executed and certified by such facsimile signature and facsimile seal shall be valid and binding on the Company in the future with respect to any bond or understanding to which it is attached.

I, Kevin E. Hughes, the undersigned, Assistant Secretary, of Farmington Casualty Company, Fidelity and Guaranty Insurance Company, Fidelity and Guaranty Insurance Underwriters, Inc., St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company, St. Paul Mercury Insurance Company, Travelers Casualty and Surety Company, Travelers Casualty and Surety Company of America, and United States Fidelity and Guaranty Company do hereby certify that the above and foregoing is a true and correct copy of the Power of Attorney executed by said Companies, which 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 1st day of December, 20 14.

  
Kevin E. Hughes, Assistant Secretary



To verify the authenticity of this Power of Attorney, call 1-800-421-3880 or contact us at [www.travelersbond.com](http://www.travelersbond.com). Please refer to the Attorney-In-Fact number, the above-named individuals and the details of the bond to which the power is attached.

Contract No.  
County

C203801

Ashe

Rev 5-17-11

### CONTRACT PERFORMANCE BOND

Date of Performance Bond Execution: December 1, 2016

Name of Principal Contractor: Vecellio & Grogan, Inc

Name of Surety: Travelers Casualty and Surety Company of America

Name of Contracting Body: North Carolina Department of Transportation  
Raleigh, North Carolina

Amount of Bond: \$53,058,544.51

Contract ID No.: C203801

County Name: Ashe

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 its undersigned representative, pursuant to authority of its governing body.

Contract No.  
County

C203801

Ashe

Rev 5-17-11

**CONTRACT PERFORMANCE BOND**

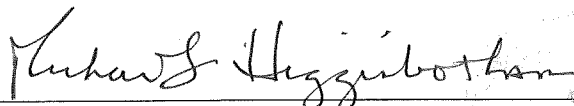
*Affix Seal of Surety Company*

Travelers Casualty and Surety Company of America

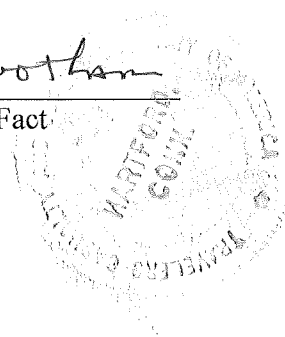
Print or type Surety Company Name

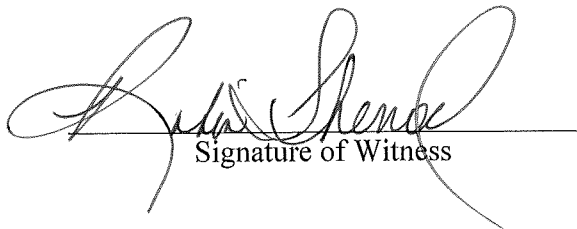
By Richard L Higginbotham

Print, stamp or type name of Attorney-in-Fact



Signature of Attorney-in-Fact



  
Signature of Witness

Robin Sherrod

Print or type Signer's name

1566 Kanawha Blvd E Charleston, WV 25311

Address of Attorney-in-Fact

Contract No.  
County

C203801

Ashe

Rev 5-17-11

**CONTRACT PERFORMANCE BOND**

**CORPORATION**

SIGNATURE OF CONTRACTOR (Principal)


**Vecellio & Grogan, Inc**

Full name of Corporation

**PO Box 2438 Beckley, WV 25802-2438**

Address as prequalified

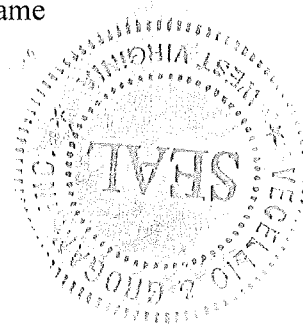
By

  
Signature of ~~President, Vice President, Assistant Vice President~~  
Select appropriate title

**Matthew A Farley**

Print or type Signer's name

*Affix Corporate Seal*



Attest

  
Signature of ~~Secretary, Assistant Secretary~~  
Select appropriate title

**L.L. Gwinn**

Print or type Signer's name



## POWER OF ATTORNEY

Farmington Casualty Company  
 Fidelity and Guaranty Insurance Company  
 Fidelity and Guaranty Insurance Underwriters, Inc.  
 St. Paul Fire and Marine Insurance Company  
 St. Paul Guardian Insurance Company

St. Paul Mercury Insurance Company  
 Travelers Casualty and Surety Company  
 Travelers Casualty and Surety Company of America  
 United States Fidelity and Guaranty Company

Attorney-In Fact No. 218346

Certificate No. 006969776

**KNOW ALL MEN BY THESE PRESENTS:** That Farmington Casualty Company, St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company, St. Paul Mercury Insurance Company, Travelers Casualty and Surety Company, Travelers Casualty and Surety Company of America, and United States Fidelity and Guaranty Company are corporations duly organized under the laws of the State of Connecticut, that Fidelity and Guaranty Insurance Company is a corporation duly organized under the laws of the State of Iowa, and that Fidelity and Guaranty Insurance Underwriters, Inc., is a corporation duly organized under the laws of the State of Wisconsin (herein collectively called the "Companies"), and that the Companies do hereby make, constitute and appoint

C. David Thomas, Richard L. Higginbotham, Bunnie Marie Perrine, Jeffery O'Dell, and Robin Hubbard-Sherrod

of the City of Charleston, State of West Virginia, their true and lawful Attorney(s)-in-Fact, each in their separate capacity if more than one is named above, to sign, execute, seal and acknowledge any and all bonds, recognizances, conditional undertakings and other writings obligatory in the nature thereof on behalf of the Companies in their business of guaranteeing the fidelity of persons, guaranteeing the performance of contracts and executing or guaranteeing bonds and undertakings required or permitted in any actions or proceedings allowed by law.

IN WITNESS WHEREOF, the Companies have caused this instrument to be signed and their corporate seals to be hereto affixed, this 9th day of September, 2016.

Farmington Casualty Company  
 Fidelity and Guaranty Insurance Company  
 Fidelity and Guaranty Insurance Underwriters, Inc.  
 St. Paul Fire and Marine Insurance Company  
 St. Paul Guardian Insurance Company

St. Paul Mercury Insurance Company  
 Travelers Casualty and Surety Company  
 Travelers Casualty and Surety Company of America  
 United States Fidelity and Guaranty Company



State of Connecticut  
 City of Hartford ss.

By: \_\_\_\_\_

Robert L. Raney, Senior Vice President

On this the 9th day of September, 2016, before me personally appeared Robert L. Raney, who acknowledged himself to be the Senior Vice President of Farmington Casualty Company, Fidelity and Guaranty Insurance Company, Fidelity and Guaranty Insurance Underwriters, Inc., St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company, St. Paul Mercury Insurance Company, Travelers Casualty and Surety Company, Travelers Casualty and Surety Company of America, and United States Fidelity and Guaranty Company, and that he, as such, being authorized so to do, executed 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 hereunto set my hand and official seal.  
 My Commission expires the 30th day of June, 2021.



Marie C. Tetreault  
 Marie C. Tetreault, Notary Public

This Power of Attorney is granted under and by the authority of the following resolutions adopted by the Boards of Directors of Farmington Casualty Company, Fidelity and Guaranty Insurance Company, Fidelity and Guaranty Insurance Underwriters, Inc., St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company, St. Paul Mercury Insurance Company, Travelers Casualty and Surety Company, Travelers Casualty and Surety Company of America, and United States Fidelity and Guaranty Company, which resolutions are now in full force and effect, reading as follows:

**RESOLVED**, that the Chairman, the President, any Vice Chairman, any Executive Vice President, any Senior Vice President, any Vice President, any Second Vice President, the Treasurer, any Assistant Treasurer, the Corporate Secretary or any Assistant Secretary may appoint Attorneys-in-Fact and Agents to act for and on behalf of the Company and may give such appointee such authority as his or her certificate of authority may prescribe to sign with the Company's name and seal with the Company's seal bonds, recognizances, contracts of indemnity, and other writings obligatory in the nature of a bond, recognizance, or conditional undertaking, and any of said officers or the Board of Directors at any time may remove any such appointee and revoke the power given him or her; and it is

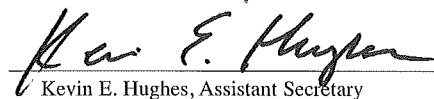
**FURTHER RESOLVED**, that the Chairman, the President, any Vice Chairman, any Executive Vice President, any Senior Vice President or any Vice President may delegate all or any part of the foregoing authority to one or more officers or employees of this Company, provided that each such delegation is in writing and a copy thereof is filed in the office of the Secretary; and it is

**FURTHER RESOLVED**, that any bond, recognizance, contract of indemnity, or writing obligatory in the nature of a bond, recognizance, or conditional undertaking shall be valid and binding upon the Company when (a) signed by the President, any Vice Chairman, any Executive Vice President, any Senior Vice President or any Vice President, any Second Vice President, the Treasurer, any Assistant Treasurer, the Corporate Secretary or any Assistant Secretary and duly attested and sealed with the Company's seal by a Secretary or Assistant Secretary; or (b) duly executed (under seal, if required) by one or more Attorneys-in-Fact and Agents pursuant to the power prescribed in his or her certificate or their certificates of authority or by one or more Company officers pursuant to a written delegation of authority; and it is

**FURTHER RESOLVED**, that the signature of each of the following officers: President, any Executive Vice President, any Senior Vice President, any Vice President, any Assistant Vice President, any Secretary, any Assistant Secretary, and the seal of the Company may be affixed by facsimile to any Power of Attorney or to any certificate relating thereto appointing Resident Vice Presidents, Resident Assistant Secretaries or Attorneys-in-Fact for purposes only of executing and attesting bonds and undertakings and other writings obligatory in the nature thereof, and any such Power of Attorney or certificate bearing such facsimile signature or facsimile seal shall be valid and binding upon the Company and any such power so executed and certified by such facsimile signature and facsimile seal shall be valid and binding on the Company in the future with respect to any bond or understanding to which it is attached.

I, Kevin E. Hughes, the undersigned, Assistant Secretary, of Farmington Casualty Company, Fidelity and Guaranty Insurance Company, Fidelity and Guaranty Insurance Underwriters, Inc., St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company, St. Paul Mercury Insurance Company, Travelers Casualty and Surety Company, Travelers Casualty and Surety Company of America, and United States Fidelity and Guaranty Company do hereby certify that the above and foregoing is a true and correct copy of the Power of Attorney executed by said Companies, which 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 1st day of December, 20 16

  
Kevin E. Hughes, Assistant Secretary



To verify the authenticity of this Power of Attorney, call 1-800-421-3880 or contact us at [www.travelersbond.com](http://www.travelersbond.com). Please refer to the Attorney-In-Fact number, the above-named individuals and the details of the bond to which the power is attached.