

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

C202824

CONTRACT AND
CONTRACT BONDS

FOR CONTRACT NO. C202824

WBS 34749.3.GV4 NHFSTP-0074(137)

T.I.P NO. U-0209B

COUNTY OF MECKLENBURG

THIS IS THE ROADWAY & STRUCTURE CONTRACT

ROUTE NUMBER US 74 LENGTH 2.030 MILES

LOCATION US-74 (INDEPENDENCE BLVD) FROM NC-24/27 (ALBEMARLE RD)
TO EAST OF WALLACE LANE.

CONTRACTOR DEVERE CONSTRUCTION COMPANY, INC

ADDRESS 1030 DEVERE DRIVE
ALPENA, MI 49707

BIDS OPENED FEBRUARY 19, 2013

CONTRACT EXECUTION MAR 19 2013 MAR 21 2013
21

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

PROPOSAL

DATE AND TIME OF BID OPENING: **FEBRUARY 19, 2013 AT 2:00 PM**

CONTRACT ID C202824
WBS 34749.3.GV4

FEDERAL AID NO. NHFSTP-0074(137)

COUNTY MECKLENBURG

T.I.P. NO. U-0209B

MILES 2.030

ROUTE NO. US 74

LOCATION US-74 (INDEPENDENCE BLVD) FROM NC-24/27 (ALBEMARLE RD)
TO EAST OF WALLACE LANE.

TYPE OF WORK WIDENING, GRADING, DRAINAGE, PAVING, SIGNALS, AND STRS.

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 PROJECT SHALL COMPLY WITH CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA FOR LICENSING REQUIREMENTS WITHIN 60 CALENDAR DAYS OF BID OPENING, REGARDLESS OF FUNDING SOURCES.

BIDS WILL BE RECEIVED AS SHOWN BELOW:

THIS IS A ROADWAY & STRUCTURE PROPOSAL

5% BID BOND OR BID DEPOSIT REQUIRED

**PROPOSAL FOR THE CONSTRUCTION OF
CONTRACT No. C202824 IN MECKLENBURG 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. **C202824**; 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 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. **C202824** in Mecklenburg 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.

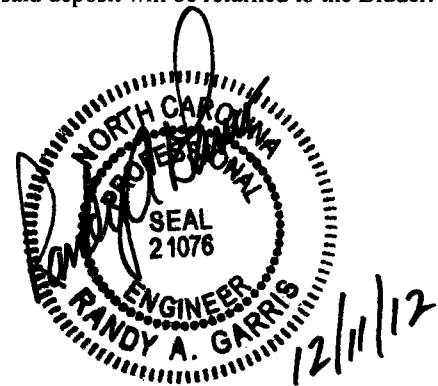
The published volume entitled *North Carolina Department of Transportation, Raleigh, Standard Specifications for Roads and Structures, January 2012* with all amendments and supplements thereto, is by reference incorporated into and made a part of this contract; that, except as herein modified, all the 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

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

(4-17-12)

108

SP1 G07 C

The date of availability for this contract is **April 1, 2013**.

The completion date for this contract is **April 13, 2017**.

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:

(7-1-95) (Rev. 2-21-12)

108

SP1 G13 A

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

The date of availability for this intermediate contract time is **April 1, 2013**.

The completion date for this intermediate contract time is **October 15, 2016**.

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

Upon apparent completion of all the work required to be completed by this intermediate date, a final inspection will be held in accordance with Article 105-17 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 shall 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.

INTERMEDIATE CONTRACT TIME NUMBER 2 AND LIQUIDATED DAMAGES:

(2-20-07)

108

SPI 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 **Independence Boulevard (-L-)** during the following time restrictions:

DAY AND TIME RESTRICTIONS**Monday through Sunday from 6:00 A.M. to 8:00 P.M.**

In addition, the Contractor shall not close or narrow a lane of traffic on **Independence Boulevard (-L-)**, 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 **6:00 a.m.** December 31st and **8:00 p.m.** January 2nd. If New Year's Day is on a Friday, Saturday, Sunday or Monday, then until **8:00 p.m.** the following Tuesday.
3. For **Easter**, between the hours of **6:00 a.m.** Thursday and **8:00 p.m.** Monday.
4. For **Memorial Day**, between the hours of **6:00 a.m.** Friday and **8:00 p.m.** Tuesday.
5. For **Independence Day**, between the hours of **6:00 a.m.** the day before Independence Day and **8:00 p.m.** the day after Independence Day.
6. If **Independence Day** is on a Friday, Saturday, Sunday or Monday, then between the hours of **6:00 a.m.** the Thursday before Independence Day and **8:00 p.m.** the Tuesday after Independence Day.
7. For **Labor Day**, between the hours of **6:00 a.m.** Friday and **8:00 p.m.** Tuesday.
8. For **Thanksgiving Day**, between the hours of **6:00 a.m.** Tuesday and **8:00 p.m.** Monday.
9. For **Christmas**, between the hours of **6:00 a.m.** the Friday before the week of Christmas Day and **8:00 p.m.** the following Tuesday after the week of Christmas Day.
10. For **Carolina Panthers Home Football Games**, between the hours of **6:00 a.m.** the day of the game and four (4) hours after the end of the football game.
11. For **Charlotte Bobcats Home Basketball Games**, between two (2) hours before the start and two (2) hours after the end of the basketball game.
12. For **Performances at Owen's Auditorium and Bojangles' Coliseum** between two (2) hours before the start of the event and two (2) hours after end of the event.

13. For **Local High School Graduations** between **two (2) hours before the start of the event and two (2) hours after the end of the event.**
14. For **NASCAR Speed Street 600 Festival**, between **four (4) hours before the start of each day's scheduled activities and four (4) hours after the end of each day's scheduled activities.**

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 **Two Thousand Five Hundred Dollars (\$2,500.00)** per **fifteen (15) minute time period.**

INTERMEDIATE CONTRACT TIME NUMBER 3 AND LIQUIDATED DAMAGES:

(2-20-07)

108

SPI G14 C

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 **Sharon Amity Road (-Y1-) or Idlewild Road (-Y15-)** during the following time restrictions:

DAY AND TIME RESTRICTIONS

Monday through Sunday from 6:00 A.M. to 8:00 P.M.

In addition, the Contractor shall not close or narrow a lane of traffic on **Sharon Amity Road (-Y1-) or Idlewild Road (-Y15-)**, 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 **6:00 a.m.** December 31st and **8:00 p.m.** January 2nd. If New Year's Day is on a Friday, Saturday, Sunday or Monday, then until **8:00 p.m.** the following Tuesday.
3. For **Easter**, between the hours of **6:00 a.m.** Thursday and **8:00 p.m.** Monday.

4. For **Memorial Day**, between the hours of **6:00 a.m.** Friday and **8:00 p.m.** Tuesday.
5. For **Independence Day**, between the hours of **6:00 a.m.** the day before Independence Day and **8:00 p.m.** the day after Independence Day.
6. If **Independence Day** is on a Friday, Saturday, Sunday or Monday, then between the hours of **6:00 a.m.** the Thursday before Independence Day and **8:00 p.m.** the Tuesday after Independence Day.
7. For **Labor Day**, between the hours of **6:00 a.m.** Friday and **8:00 p.m.** Tuesday.
8. For **Thanksgiving Day**, between the hours of **6:00 a.m.** Tuesday and **8:00 p.m.** Monday.
9. For **Christmas**, between the hours of **6:00 a.m.** the Friday before the week of Christmas Day and **8:00 p.m.** the following Tuesday after the week of Christmas Day.
10. For **Carolina Panthers Home Football Games**, between the hours of **6:00 a.m.** the day of the game and four (4) hours after the end of the football game.
11. For **Charlotte Bobcats Home Basketball Games**, between two (2) hours before the start and two (2) hours after end of the basketball game.
12. For **Performance at Owen's Auditorium and Bojangles' Coliseum** between two (2) hours before the start of the event and two (2) hours after end of the event.
13. For **Local High School Graduations** between two (2) hours before the start of the event and two (2) hours after end of the event.
14. For **NASCAR Speed Street 600 Festival**, between four (4) hours before the start of each day's scheduled activities and four (4) hours after end of each day's scheduled activities.

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 **Five Hundred Dollars (\$500.00)** per **fifteen (15) minute time period**.

INTERMEDIATE CONTRACT TIME NUMBER 4 AND LIQUIDATED DAMAGES:

(2-20-07)

SP1 G14 D

The Contractor shall complete the required work of installing, maintaining and removing the traffic control devices for road closures and restoring traffic to the existing traffic pattern. The Contractor shall not close **Independence Boulevard (-L-)** for the purpose of installing bridge girders during the following time restrictions:

DAY AND TIME RESTRICTIONS**Monday through Thursday from 5:00 A.M. to 10:00 P.M.****and****Friday 5:00 A.M. to Sunday 10:00 P.M.**

The time of availability for this intermediate contract time will be the time the Contractor begins to install traffic control devices required for road closures 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 road closures according to the time restrictions stated herein and restore traffic to the existing traffic pattern

The liquidated damages are **Three Thousand Dollars (\$3,000.00)** per **fifteen (15) minute time period.**

INTERMEDIATE CONTRACT TIME NUMBER 5 AND LIQUIDATED DAMAGES:

(2-20-07)

108

SP1 G14 E

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 Independence Boulevard (-L-)** for the purpose of **overhead sign installation** during the following time restrictions:

DAY AND TIME RESTRICTIONS**Monday through Sunday****6:00 A.M. to 10:00 P.M.**

The maximum allowable time for **stopping Independence Boulevard (-L-)** for the purpose of **overhead sign installation THIRTY (30) minutes** for **Independence Boulevard (-L-)**. The Contractor shall reopen the travel lanes to traffic until the existing 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 road closures 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 **stopping traffic** according to the time restrictions stated herein and restore traffic to the existing traffic pattern.

The liquidated damages are **One Thousand Dollars (\$1,000.00)** per **fifteen (15) minute time period.**

INTERMEDIATE CONTRACT TIME NUMBER 6 AND LIQUIDATED DAMAGES:

(2-20-07)

108

SP1 G14 H

The Contractor shall complete the work required of **PHASE II, STEP 2B** as shown on **Sheet TMP-3A** and shall place and maintain traffic on same.

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

The completion date for this intermediate contract time **will be** the date which is **twenty-one (21)** 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)

108

SP1 G14 H

The Contractor shall complete the work required of **PHASE II, STEP 2C** as shown on **Sheet TMP-3A** and shall place and maintain traffic on same.

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

The completion date for this intermediate contract time **will be** the date which is **twenty-one (21)** 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 8 AND LIQUIDATED DAMAGES:

(2-20-07)

108

SP1 G14 H

The Contractor shall complete the work required of **PHASE III, STEP 3** as shown on **Sheet TMP-3B** and shall place and maintain traffic on same.

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

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

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

PERMANENT VEGETATION ESTABLISHMENT:

(2-16-12)

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 80% coverage of permanent vegetation 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*.

Once the Engineer has determined that 80% coverage of permanent vegetation has been established, 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.

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*):

Line #	Description
7	Borrow Excavation
49	Asphalt Concrete Base Course, Type B25.0C
299	Reinforced Concrete Deck Slab

SPECIALTY ITEMS:

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

108-6

SP1 G37

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

Line #	Description
104 thru 112	Guardrail
113 thru 116	Fencing
118 thru 137	Signing
161 thru 170	Long-Life Pavement Markings
178	Permanent Pavement Markers
181 thru 207, 209 thru 210	Lighting
211 thru 254	Utility Construction
255 thru 279	Erosion Control
280 thru 287	Signals/ITS System

FUEL PRICE ADJUSTMENT:

(11-15-05) (Rev. 1-17-12)

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 **\$3.3899** 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
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
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. 6-19-12)

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:

	<u>Fiscal Year</u>	<u>Progress (% of Dollar Value)</u>
2013	(7/01/12 - 6/30/13)	10% of Total Amount Bid
2014	(7/01/13 - 6/30/14)	38% of Total Amount Bid
2015	(7/01/14 - 6/30/15)	29% of Total Amount Bid
2016	(7/01/15 - 6/30/16)	19% of Total Amount Bid
2017	(7/01/16 - 6/30/17)	4% 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. 1-17-12)

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.
https://apps.dot.state.nc.us/_includes/download/external.html?pdf=http%3A//www.ncdot.gov/doh/forms/files/RF-1.pdf

SAF Subcontract Approval Form - Form required for approval to sublet the contract.
http://www.ncdot.org/doh/operations/dp_chief_eng/constructionunit/saf.xls

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.
https://apps.dot.state.nc.us/_includes/download/external.html?pdf=http%3A//www.ncdot.gov/doh/forms/files/JC-1.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://www.ncdot.org/doh/preconstruct/ps/contracts/letterofintent.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://www.ncdot.gov/doh/preconstruct/ps/word/MISC2.doc>

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

http://www.ncdot.gov/business/ocs/goodfaith/excel/Ex_Subcontractor_Quote_Comparison.xls

DBE Goal

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

Disadvantaged Business Enterprises **12.0%**

- (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

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.

- (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.
 - (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 DBE goal.
- (2) *If the DBE goal is zero,* bidders, at the time the bid proposal is submitted, shall enter the word "None"; or the number "0"; or if there is participation, add the value on the *Listing of DBE Subcontractors* contained elsewhere in the contract documents.

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 and/or written notices 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. This includes, where appropriate, breaking 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.
- (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 Contractor Utilization 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.

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.

(A) Electronic Bids Reporting

The Contractor shall report the accounting of payments through the Department's DBE Payment Tracking System.

(B) Paper Bids Reporting

The Contractor shall report the accounting of payments on the Department's DBE-IS (*Subcontractor Payment Information*) with each invoice. Invoices will not be processed for payment until the DBE-IS is received.

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.

CONTRACTOR'S LICENSE REQUIREMENTS:

(7-1-95)

102-14

SP1 G88

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

U.S. DEPARTMENT OF TRANSPORTATION HOTLINE:

(11-22-94)

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.

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.

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.

BID DOCUMENTATION:

(1-1-02) (Rev. 9-18-12)

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.

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 copy of the Escrow Agreement will be mailed to the Bidder with 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 by him 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 or call 919.707.6900 to schedule an appointment.
- (B) Delivery - A representative of the Bidder shall deliver the original, unaltered bid documentation or a certified copy of the original, unaltered bid documentation to the Department, in a container suitable for sealing, within 10 days after the notice of award is received by him. Bid documentation will be considered a certified copy if the Bidder includes a letter to the Department from a chief officer of the company stating that the enclosed documentation is an *EXACT* copy of the original documentation. The letter shall be signed by a chief officer of the company, have the person's name and title typed below the signature, and the signature shall be notarized at the bottom of the letter.
- (C) Packaging – The container shall be no larger than 15.5 inches in length by 12 inches wide by 11 inches high and shall be water resistant. The container shall be clearly marked on the face and the back of the container with the following information: Bid Documentation, Bidder's Name, Bidder's Address, Date of Escrow Submittal, Contract Number, TIP Number if applicable, and County.

Affidavit

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

Verification

Upon delivery of the bid documentation, the Department's Contract Officer and the 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 dispersion 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.

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.

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

Preconstruction Meeting

Furnish the names of the *Certified Erosion and Sediment Control/Stormwater Supervisor*, *Certified Foremen*, *Certified Installers* and *Certified 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)

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.org/doh/preconstruct/ps/contracts/letting.html> 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".

PROJECT SPECIAL PROVISIONS**ROADWAY****CLEARING AND GRUBBING METHODS:**

Perform clearing on this project to the limits established by Method "II" shown on Standard Drawing No. 200.02 of the *2012 Roadway Standard Drawings* except at interchange locations.

Perform clearing at interchange locations on this project to the limits established by Method "III" shown on Standard Drawing No. 200.03 of the *2012 Roadway Standard Drawings*.

BURNING RESTRICTIONS:

(7-1-95)

200, 210, 215

SP2 R05

Open burning is not permitted on any portion of the right-of-way limits established for this project. Do not burn the clearing, grubbing or demolition debris designated for disposal and generated from the project at locations within the project limits, off the project limits or at any waste or borrow sites in this county. Dispose of the clearing, grubbing and demolition debris by means other than burning, according to state or local rules and regulations.

BUILDING AND UNDERGROUND STORAGE TANK REMOVAL:

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

215

SP2 R15 B

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

Building Removal

**Parcel 132 – Left of Survey Station 100+20, Survey Line -LLT-
Canopy**

Building Removal

**Parcel 017 – Survey Station 35+12 thru Survey Station 40+35, Survey Line -L Right
B. Belk Inv.: One (1) Two-Story Block Business, 6 Private Lights, 3 Electrical Signs,
1 Light Pole**

Building Removal

**Parcel 018 – Survey Station 41+00 thru Survey Station 43+00, Survey Line -L Right
LP National Prop.: One-Story Concrete Business, 3 Tanks, Carwash, Metal Canopy,
Metal Bars, Fencing**

Building Removal

**Parcel 019 – Survey Station 29+70 thru Survey Station 30+75, Right and Left of
Survey Line -Y1; Survey Station 40+90 thru Survey Station 44+50, Right of Survey -L-;
Survey Station 10+20 thru Survey Station 15+10 Right of Survey Line -Y10-
Sharon Amity's LLC: Portion of Two (2) One-Story Brick Businesses, 2 Monopole Signs,
One (1) 2-Wood Poles Sign with 2 Signs on It and 4 Private Lights, 1 Metal Sign,
One (1) 2-Pole Sign, 1 Pole Sign, 1 Guardrail, 4 Private Lights**

Building Removal

**Parcel 073 – Survey Station 15+37 thru Survey Station 16+17, Survey Line -Y1RPAA
Right and Left
A. Polonyfis: Shed**

Building Removal

**Parcel 074 – Survey Station 14+41 thru Survey Station 15+85, Survey Line SL-Y1RPAA
Right and Left
D. Gillespie – Shed**

Building Removal

**Parcel 107 – Survey Station 80+00 to Survey Station 85+65, Survey Line -L,
Right and Survey Station 21+50 to Survey Station 27+25, Survey Line -Y-15
R. Tull: Portion of One-Story Block Business (Pet Smart)**

Building Removal

**Parcel 107A – Survey Station 85+65 to Survey Station 88+25, Survey Line -L Right
and Survey Station 27+50 to Survey Station 31+00, Survey Line -Y-15
R. Tull: Portion of Metal Canopy**

Building Removal

**Parcel 108 – Survey Station 87+55 thru Survey Station 88+95, Survey Line -L Left
GE Cap: One-Story Brick Business**

When the description of the work for an item requires a portion of the building to be cut off, that portion of the buildings and appurtenances located within the right of way and/or construction area shall be cut off by the Contractor and disposed of by him. The Engineer will denote on the building, the line where the building is to be cut off. The Contractor will be required to cut the building off on a neat line along the construction line or right of way boundary designated by the Engineer. The Contractor will not be required to do any repairing to that portion of the building located outside the right of way or construction area or to shore it up in any respect. All of the Contractor's work shall be confined to the right of way and construction area designated by the Engineer.

TEMPORARY DETOURS:

(7-1-95) (Rev. 4-15-08)

1101

SP2 R30 A

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*.

EMBANKMENT MONITORING (Settlement Gauges):

(7-1-95) (Rev. 11-17-09)

235

SP2 R75

Description

This work consists of furnishing and installing settlement gauges as shown in the plans.

Materials

Provide threaded pipe with a black finish in accordance with ASTM A53 Type F of the diameter shown in the plans.

Construction Methods

Furnish and install Settlement Gauges as shown in the plans at locations designated in the plans. Place the base on a level surface near the natural ground as shown in the plans. Extend the metal pipe by adding pipe sections at threaded couplings as the embankment is progressed. Make sure that the top of the extension section is no less than one foot above the embankment surface and no higher than 6 ft. Make the exposed length of pipe conspicuous to avoid chance of damage.

Conduct operations in such a manner that the gauges are not damaged. Compact fill around the gauge pipes and plates to the same density as the surrounding material. Restore or replace any settlement gauge pipe damaged or destroyed due to fault or negligence on the part of the Contractor at no additional cost. No additional payment will be made for compaction of fill around and over the settlement gauges or for interference with the Contractor's operations resulting from settlement gauge installations. Perform installation operations such that the pipe remains plumb.

Measurement and Payment

Embankment Settlement Gauges will be measured as the actual number that have been incorporated into the completed and accepted work and will be paid at the contract unit price per each. Such price and payment will be full compensation for all materials, labor, equipment and other incidentals necessary to complete the work satisfactorily.

Payment will be made under:

Pay Item	Pay Unit
Embankment Settlement Gauge	Each

PIPE INSTALLATION:

(11-20-12)

300

SP3 R01

Revise the *2012 Standard Specifications* as follows:

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

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

FLOWABLE FILL:

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

300, 340, 450, 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	Section
Flowable Fill	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

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.

ASPHALT PAVEMENTS - SUPERPAVE:

(6-19-12)

605

SP6 R01

Revise the *2012 Standard Specifications* as follows:

Page 6-3, Article 605-7 APPLICATION RATES AND TEMPERATURES, replace this article, including Table 601-1, with the following:

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

**TABLE 605-1
APPLICATION RATES FOR TACK COAT**

Existing Surface	Target Rate (gal/sy)
	Emulsified Asphalt
New Asphalt	0.04 ± 0.01
Oxidized or Milled Asphalt	0.06 ± 0.01
Concrete	0.08 ± 0.01

Apply tack coat at a temperature within the ranges shown in Table 605-2. Tack coat shall not be overheated during storage, transport or at application.

**TABLE 605-2
APPLICATION TEMPERATURE FOR TACK COAT**

Asphalt Material	Temperature Range
Asphalt Binder, Grade PG 64-22	350 - 400°F
Emulsified Asphalt, Grade RS-1H	130 - 160°F
Emulsified Asphalt, Grade CRS-1	130 - 160°F
Emulsified Asphalt, Grade CRS-1H	130 - 160°F
Emulsified Asphalt, Grade HFMS-1	130 - 160°F
Emulsified Asphalt, Grade CRS-2	130 - 160°F

Page 6-18, 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:

<http://www.ncdot.org/doh/operations/materials/pdf/wma.pdf>.

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 **\$557.33** per ton.

This base price index represents an average of F.O.B. selling prices of asphalt binder at supplier's terminals on **December 1, 2012**.

C.S. SLOTTED DRAIN:

Description

Furnish and install ___" C. S. Slotted Drain, ___" Thick, that has been fabricated in accordance with the requirements of Section 310 of the *Standard Specifications* and the details in the plans. Install the slotted drain in accordance with the requirements of Section 300 of the *Standard*

Specifications except as noted in this provision. Embed the slotted drain in a bedding of lean grout, consisting of a mixture of 1 part portland cement to 6 parts of mortar sand with no more water added than is necessary to make a workable mixture.

Measurement and Payment

___ " C. S. Slotted Drain, ___ " will be measured and paid for as the actual number of linear feet of slotted drain which have been incorporated into the completed and accepted work. Measurement will be made in accordance with Article 310-6. Such price and payment will be full compensation for all work, including but not limited to furnishing, hauling, placing the slotted drain, bedding the drain in grout, making all joint connections, all excavation and backfill.

Payment will be made under:

Pay Item

___ " C. S. Slotted Drain, ___ " Thick

Pay Unit

Linear Foot

FRAME WITH GRATE (Driveway Drop Inlet):

(3-21-00) (Rev.7-18-06)

SPI 8-35

Description

Provide grates for driveway drop inlets that are fabricated steel or cast iron. Provide grates that are of a design and weight that is recommended by the manufacturer as being adequate for HS-20 loadings. Furnish a manufacturer's certification stating that the grates and frame furnished on the project have been designed and manufactured to be adequate for an HS-20 loading. Provide grates with a minimum clear waterway opening of 50 in² per 1'-0" length of grate.

If the frame and grate is made from fabricated steel, the requirements of Article 1074-9 of the *2012 Standard Specifications* will be applicable. If the grate and frame is made from iron castings, the requirements of Article 1074-7 of the *2012 Standard Specifications* will be applicable.

Measurement and Payment

Frame with Grate, Driveway Drop Inlet will be measured and paid for as the actual number of linear feet that have been incorporated into the completed and accepted work. Such price and payment will be full compensation for furnishing the grates and frame, and all labor and incidentals necessary to complete the work.

Payment will be made under:

Pay Item

Frame with Grate, Driveway Drop Inlet

Pay Unit

Linear Foot

**CONVERT EXISTING TRAFFIC BEARING
JUNCTION BOX TO CATCH BASIN:**

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

840, 859

SP8 R50

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

Convert Existing Traffic Bearing Junction Box to Catch Basin 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 Traffic Bearing Junction Box to Catch Basin

Pay Unit

Each

**CONVERT EXISTING TRAFFIC BEARING DROP INLET
TO TRAFFIC BEARING JUNCTION BOX:**

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

840, 859

SP8 R50

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

Convert Existing Traffic Bearing Drop Inlet to Traffic Bearing Junction Box 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 Traffic Bearing Drop Inlet to
Traffic Bearing Junction Box

Pay Unit

Each

**CONVERT EXISTING CATCH BASIN TO TRAFFIC
BEARING JUNCTION BOX WITH MANHOLE:**

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

840, 859

SP8 R50

At the proper phase of construction, convert the existing catch basin at locations indicated in the plans or where directed, to traffic bearing junction box with manhole in accordance with the details in the plans and the applicable requirements of Sections 840 and 859 of the *2012 Standard Specifications*.

Convert Existing Catch Basin to Traffic Bearing Junction Box with Manhole 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	Pay Unit
Convert Existing Catch Basin to Traffic Bearing Junction Box with Manhole	Each

PEDESTRIAN SAFETY RAIL:

Description

Furnish and install pedestrian safety rail at the locations shown in the plans, in accordance with the detail in the plans and as directed by the Engineer.

Measurement and Payment

Pedestrian Safety Rail will be measured and paid for as the actual number of linear feet of safety rail measured along the top of the rail to the nearest 0.1 of a foot. Such price and payment shall be full compensation for fabricating, furnishing, installing, painting and all incidentals necessary to satisfactorily install the safety rail.

Payment will be made under:

Pay Item	Pay Unit
Pedestrian Safety Rail	Linear Foot

GUARDRAIL ANCHOR UNITS, TYPE 350:

(4-20-04) (Rev. 8-16-11)

862

SP8 R65

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

The Contractor may at his option, furnish any one of the guardrail anchor units or approved equal.

Guardrail anchor unit (ET-Plus) as manufactured by:

Trinity Industries, Inc.
2525 N. Stemmons Freeway
Dallas, Texas 75207
Telephone: 800-644-7976

The guardrail anchor unit (SKT 350) as manufactured by:

Road Systems, Inc.
3616 Old Howard County Airport
Big Spring, Texas 79720
Telephone: 915-263-2435

Prior to installation the 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	Pay Unit
Guardrail Anchor Units, Type 350	Each

IMPACT ATTENUATOR UNITS, TYPE 350:

(4-20-04) (Rev. 1-17-12)

SP8 R75

Description

Furnish and install impact attenuator units and any components necessary to connect the impact attenuator units in accordance with the manufacturer's requirement, the details in the plans and at locations shown in the plans.

Materials

The Contractor may at his option, furnish any one of the **NON-GATING** impact attenuator units or approved equal:

The impact attenuator unit (QUADGUARD) as manufactured by:

Energy Absorption Systems, Inc.
One East Wacker Drive
Chicago, Illinois 60601-2076
Telephone: 312-467-6750

The impact attenuator unit (TRACC) as manufactured by:

Trinity Industries, Inc.
2525 N. Stemmons Freeway
Dallas, Texas 75207
Telephone: 800-644-7976

The Contractor may at his option, furnish any one of the **GATING** impact attenuator units or approved equal:

The impact attenuator unit (BRAKEMASTER) as manufactured by:

Energy Absorption Systems, Inc.
One East Wacker Drive
Chicago, Illinois 60601-2076
Telephone: 312-467-6750

The impact attenuator unit (CAT) as manufactured by:

Trinity Industries, Inc.
2525 N. Stemmons Freeway
Dallas, Texas 75207
Telephone: 800-644-7976

Prior to installation the Contractor shall submit to the Engineer:

- (A) FHWA acceptance letter for each impact attenuator 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 impact attenuator unit in accordance with Article 105-2 of the *2012 Standard Specifications*.

No modifications shall be made to the impact attenuator 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

If the median width is 40 feet or less, the Contractor shall supply one of the NON-GATING Impact Attenuator Units listed in the Materials Section herein.

If the median width is greater than 40 feet, the Contractor may use any of the GATING or NON-GATING Impact Attenuator Units listed in the Materials Section herein.

Measurement and Payment

Impact Attenuator Unit, Type 350 will be measured and paid at the contract unit price per each. Such prices and payment will be full compensation for all work covered by this provision including, but not limited to, furnishing, installing and all incidentals necessary to complete the work.

Payment will be made under:

Pay Item	Pay Unit
Impact Attenuator Units, Type 350	Each

TEMPORARY 4" CONCRETE SIDEWALK:**Description**

Construct temporary 4" concrete sidewalk in accordance with the plans, Section 848 of the *Standard Specifications* and as directed by the Engineer.

Materials

Refer to Article 848-2 of the *Standard Specifications*.

Construction Methods

Construct the temporary 4" concrete sidewalk in accordance with Section 848 of the *Standard Specifications*. When temporary 4" concrete sidewalk is no longer needed, remove and properly dispose of.

Measurement and Payment

Temporary 4" Concrete Sidewalk will be measured and paid in square yards, measured along the surface of the completed and accepted work. Such price includes, but is not limited to, excavating and backfilling, sawing the existing sidewalk, furnishing and placing concrete, constructing and sealing joints and removing and properly disposing of temporary 4" concrete sidewalk.

Payment will be made under:

Pay Item	Pay Unit
Temporary 4" Concrete Sidewalk	Square Yard

TEMPORARY CONCRETE CURB RAMPS:**Description**

Construct temporary concrete curb ramps in accordance with the plans, Section 848 of the *Standard Specifications* and as directed by the Engineer.

Materials

Refer to Article 848-2 of the *Standard Specifications*.

Construction Methods

Construct the temporary concrete curb ramps in accordance with Section 848 of the *Standard Specifications*. When temporary concrete curb ramps are no longer needed, remove and properly dispose of.

Measurement and Payment

Temporary Concrete Curb Ramps will be measured and paid in units of each. Such price includes, but is not limited to, excavating and backfilling, sawing the existing sidewalk or driveway, furnishing and placing concrete, curb and gutter, constructing and sealing joints and furnishing, installing truncated domes shown in the *Roadway Standard Drawings* and removing and properly disposing of temporary concrete curb ramps.

Payment will be made under:

Pay Item	Pay Unit
Temporary Concrete Curb Ramps	Each

DETECTABLE WARNINGS FOR PROPOSED CURB RAMPS:

(6-15-10) (Rev. 8-16-11)

848

SP8 R126(Revised)

Description

Construct detectable warnings consisting of integrated raised truncated domes on proposed concrete curb ramps (permanent and temporary) in accordance with the *2012 Standard Specifications*, plan details, the requirements of the *28 CFR Part 36 ADA Standards for Accessible Design* and this provision.

Materials

Detectable warning for proposed curb ramps shall consist of integrated raised truncated domes. The description, size and spacing shall conform to Section 848 of the *2012 Standard Specifications*.

Use material for detectable warning systems as shown herein. Material and coating specifications must be stated in the Manufacturers Type 3 Certification and all Detectable Warning systems must be on the NCDOT Approved Products List.

Install detectable warnings created from one of the following materials: precast concrete blocks or bricks, clay paving brick, gray or ductile iron castings, mild steel, stainless steel, and engineered plastics, rubber or composite tile. Only one material type for detectable warning will be permitted per project, unless otherwise approved by the Engineer.

- (A) Detectable Warnings shall consist of a base with integrated raised truncated domes, and when constructed of precast concrete they shall conform to the material requirements of Article 848-2 of the *2012 Standard Specifications*.
- (B) Detectable Warnings shall consist of a base with integrated raised truncated domes, and may be comprised of other materials including, but not limited, to clay paving brick, gray iron or ductile iron castings, mild steel, stainless steel, and engineered plastics, rubber or composite tile, which are cast into the concrete of the curb ramps. The material shall have an integral color throughout the thickness of the material. The detectable warning shall include fasteners or anchors for attachment in the concrete and shall be furnished as a system from the manufacturer.

Prior to installation, the Contractor shall submit to the Engineer assembling instructions from the manufacturer for each type of system used in accordance with Article 105-2 of the *2012 Standard Specifications*. The system shall be furnished as a kit containing all consumable materials and consumable tools, required for the application. They shall be capable of being affixed to or anchored in the concrete curb ramp, including green concrete (concrete that has set but not appreciably hardened). The system shall be solvent free and contain no volatile organic compounds (VOC). The static coefficient of friction shall be 0.8 or greater when measured on top of the truncated domes and when measured between the domes in accordance with ASTM C1028 (dry and wet). The system shall be resistant to deterioration due to exposure to sunlight, water, salt or adverse weather conditions and impervious to degradation by motor fuels, lubricants and antifreeze.

- (C) When steel or gray iron or ductile iron casting products are provided, only products that meet the requirements of Subarticle 106-1(B) of the *2012 Standard Specifications* may be used. Submit to the Engineer a Type 6 Certification, catalog cuts and installation procedures at least 30 days prior to installation for all.

Construction Methods

- (A) Prior to placing detectable warnings in proposed concrete curb ramps, adjust the existing subgrade to the proper grade and in accordance with Article 848-3 of the *2012 Standard Specifications*.
- (B) Install all detectable warning in proposed concrete curb ramps in accordance with the manufacturer's recommendations.

Measurement and Payment

Detectable Warnings installed for construction of proposed curb ramps will not be paid for separately. Such payment will be included in the price bid for *Concrete Curb Ramps* or *Temporary Concrete Curb Ramps*.

MEDIAN HAZARD PROTECTION:**Description**

Construct Median Hazard Protection at the concrete barrier transition sections as shown in the detail in the plans, in accordance with the detail in the plans and as directed by the Engineer.

Measurement and Payment

Median Hazard Protection will be measured and paid for per each that are completed and accepted. Such price and payment will be full compensation for all labor, materials (including, but not limited to earth material, #57 stone, concrete cover, galvanized bar and grout) and incidentals necessary construct the Median Hazard Protection.

Concrete Barrier Transition Sections will be measured and paid for as provided elsewhere in the contract.

Payment will be made under:

Pay Item

Median Hazard Protection

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.

FOUNDATIONS AND ANCHOR ROD ASSEMBLIES FOR METAL POLES:

(1-17-12) (Rev. 8-21-12)

9, 14, 17

SP9 R05

Description

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

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

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

This provision does not apply to foundations for signal pedestals; see Section 1743 of the *2012 Standard Specifications* and Standard Drawing No. 1743.01 of the *2012 Roadway Standard Drawings*.

Materials

Refer to the *2012 Standard Specifications*.

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

Provide Type 3 material certifications in accordance with Article 106-3 of the *2012 Standard Specifications* for conduit, rollers, chairs and anchor rod assemblies. Store steel materials on blocking at least 12" above the ground and protect it at all times from damage; and when placing

in the work make sure it is free from dirt, dust, loose mill scale, loose rust, paint, oil or other foreign materials. Load, transport, unload and store foundation and anchor rod assembly materials so materials are kept clean and free of damage. Damaged or deformed materials will be rejected.

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

www.ncdot.org/doh/preconstruct/highway/geotech/leftmenu/Polymer.html

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

- (A) Straight anchor rods,
- (B) Heavy hex top and leveling nuts and flat washers on exposed ends of rods, and
- (C) Nuts and either flat plates or washers on the other ends of anchor rods embedded in foundations.

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

Construction Methods

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

(A) Drilled Piers

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

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

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

Construct drilled piers with the minimum required diameters shown in the plans. Install piers with tip elevations no higher than shown in the plans or approved by the Engineer.

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

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

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

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

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

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

Remove soft and loose material from bottom of holes using augers to the satisfaction of the Engineer. Assemble rebar cages and place cages and Drilled Pier concrete in accordance with Subarticle 411-4(E) of the *2012 Standard Specifications* except for the following:

- (1) Inspections for tip resistance and bottom cleanliness are not required,
- (2) Temporary casings may remain in place if approved, and
- (3) Concrete placement may be paused near the top of pier elevations for anchor rod assembly installation and conduit placement or
- (4) If applicable, concrete placement may be stopped at bottom of grade beam or wings elevations for grade beam or wing construction.

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

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

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

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

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

(B) Footings, Pedestals, Grade Beams and Wings

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

Construct cast-in-place reinforced concrete footings, pedestals, grade beams and wings with the dimensions shown in the plans and in accordance with Section 825 of the *2012 Standard Specifications*. Use forms to construct portions of pedestals and grade beams protruding above finished grade. Provide a chamfer with a 3/4" horizontal width for pedestal and grade beam edges exposed above finished grade. Backfill and fill in accordance with Article 410-8 of the *2012 Standard Specifications*. Proper compaction around footings and wings is critical for foundations to resist uplift and torsion forces. Place concrete against undisturbed soil and do not use forms for standard foundations for low level light standards.

(C) Anchor Rod Assemblies

Size anchor rods for design and the required projection above top of foundations. Determine required anchor rod projections from nut, washer and base plate thicknesses, the protrusion of 3 to 5 anchor rod threads above top nuts after tightening and the distance of one nut thickness between top of foundations and bottom of leveling nuts.

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

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

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

- (1) Turn leveling nuts onto anchor rods to a distance of one nut thickness between the top of foundation and bottom of leveling nuts. Place washers over anchor rods on top of leveling nuts.
- (2) Determine if nuts are level using a flat rigid template on top of washers. If necessary, lower leveling nuts to level the template in all directions or if applicable, lower nuts to tilt the template so the metal pole or upright truss will lean as shown in the plans. If leveling nuts and washers are not in full contact with the template, replace washers with galvanized beveled washers.
- (3) Verify the distance between the foundation and leveling nuts is no more than one nut thickness.
- (4) Place base plate with metal pole or upright truss over anchor rods on top of washers. High mount luminaires may be attached before erecting metal poles but do not attach cables, mast arms or trusses to metal poles or upright trusses at this time.
- (5) Place washers over anchor rods on top of base plate. Lubricate top nut bearing surfaces and exposed anchor rod threads above washers with beeswax, paraffin or other approved lubricant.

- (6) Turn top nuts onto anchor rods. If nuts are not in full contact with washers or washers are not in full contact with the base plate, replace washers with galvanized beveled washers.
- (7) Tighten top nuts to snug-tight with the full effort of one workman using a 12" wrench. Do not tighten any nut all at once. Turn top nuts in increments. Follow a star pattern cycling through each nut at least twice.
- (8) Repeat (7) for leveling nuts.
- (9) Replace washers above and below the base plate with galvanized beveled washers if the slope of any base plate face exceeds 1:20 (5%), any washer is not in firm contact with the base plate or any nut is not in firm contact with a washer. If any washers are replaced, repeat (7) and (8).
- (10) With top and leveling nuts snug-tight, mark each top nut on a corner at the intersection of 2 flats and a corresponding reference mark on the base plate. Mark top nuts and base plate with ink or paint that is not water-soluble. Use the turn-of-nut method for pretensioning. Do not pretension any nut all at once. Turn top nuts in increments for a total turn that meets the following nut rotation requirements:

NUT ROTATION REQUIREMENTS (Turn-of-Nut Pretensioning Method)	
Anchor Rod Diameter, inch	Requirement
$\leq 1 \frac{1}{2}$	1/3 turn (2 flats)
$> 1 \frac{1}{2}$	1/6 turn (1 flat)

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

- (11) Ensure nuts, washers and base plate are in firm contact with each other for each anchor rod. Cables, mast arms and trusses may now be attached to metal poles and upright trusses.
- (12) Between 4 and 14 days after pretensioning top nuts, use a torque wrench calibrated within the last 12 months to check nuts in the presence of the Engineer. Completely erect mast arm poles and cantilever signs and attach any hardware before checking top nuts for these structures. Check that top nuts meet the following torque requirements:

TORQUE REQUIREMENTS	
Anchor Rod Diameter, inch	Requirement, ft-lb
7/8	180
1	270
1 1/8	380
1 1/4	420
$\geq 1 \frac{1}{2}$	600

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

- (13) Do not grout under base plate.

Measurement and Payment

Foundations and anchor rod assemblies for metal poles and upright trusses will be measured and paid for elsewhere in the contract.

No payment will be made for temporary casings that remain in drilled pier excavations. No payment will be made for PIT. No payment will be made for further investigation of defective piers. Further investigation of piers that are not defective will be paid as extra work in accordance with Article 104-7 of the *2012 Standard Specifications*. No payment will be made for remediation of unacceptable drilled piers or post repair testing.

MATERIALS:

(2-21-12) (Rev. 12-18-12)

1000, 1005, 1080, 1081, 1092

SP10 R01

Revise the 2012 *Standard Specifications* as follows:**Page 10-1, Article 1000-1, DESCRIPTION, line 14, add the following:**

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

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

Class of Concrete	Min. Comp. Strength at 28 days	Maximum Water-Cement Ratio				Consistency Max. Slump		Cement Content			
		Air-Entrained Concrete		Non Air-Entrained Concrete		Vibrated	Non-Vibrated	Vibrated		Non-Vibrated	
		Rounded Aggregate	Angular Aggregate	Rounded Aggregate	Angular Aggregate			Min.	Max.	Min.	Max.
<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	2.5	4	508	-	545	-
B Slip Formed	2,500	0.488	0.567	-	-	1.5	-	508	-	-	-
Sand Light-weight	4,500	-	0.420	-	-	4	-	715	-	-	-
Latex Modified	3,000 7 day	0.400	0.400	-	-	6	-	658	-	-	-
Flowable Fill excavatable	150 max. at 56 days	as needed	as needed	as needed	as needed	-	Flow-able	-	-	40	100
Flowable Fill non-excavatable	125	as needed	as needed	as needed	as needed	-	Flow-able	-	-	100	as needed
Pavement	4,500 design, field 650 flexural, design only	0.559	0.559	-	-	1.5 slip form 3.0 hand place	-	526	-	-	-
Precast	See Table 1077-1	as needed	as needed	-	-	6	as needed	as needed	as needed	as needed	as needed
Prestress	per contract	See Table 1078-1	See Table 1078-1	-	-	8	-	564	as needed	-	-

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

**TABLE 1005-1
AGGREGATE GRADATION - COARSE AGGREGATE**

Percentage of Total by Weight Passing													Remarks
Std. Size #	2"	1 1/2"	1"	3/4"	1/2"	3/8"	#4	#8	#10	#16	#40	#200	
4	100	90-100	20-55	0-15	-	0-5	-	-	-	-	-	A	Asphalt Plant Mix
467M	100	95-100	-	35-70	-	0-30	0-5	-	-	-	-	A	Asphalt Plant Mix
5	-	100	90-100	20-55	0-10	0-5	-	-	-	-	-	A	AST, Sediment Control Stone
57	-	100	95-100	-	25-60	-	0-10	0-5	-	-	-	A	AST, Str. Concrete, Shoulder Drain, Sediment Control Stone
57M	-	100	95-100	-	25-45	-	0-10	0-5	-	-	-	A	AST, Concrete Pavement
6M	-	-	100	90-100	20-55	0-20	0-8	-	-	-	-	A	AST
67	-	-	100	90-100	-	20-55	0-10	0-5	-	-	-	A	AST, Str. Concrete, Asphalt Plant Mix
78M	-	-	-	100	98-100	75-100	20-45	0-15	-	-	-	A	Asphalt Plant Mix, AST, Str. Conc, Weep Hole Drains
14M	-	-	-	-	-	100	35-70	5-20	-	0-8	-	A	Asphalt Plant Mix, AST, Weep Hole Drains, Str. Concrete
9	-	-	-	-	-	100	85-100	10-40	-	0-10	-	A	AST
ABC	-	100	75-97	-	55-80	-	35-55	-	25-45	-	14-30	4-12 ^B	Aggregate Base Course, Aggregate Stabilization
ABC (M)	-	100	75-100	-	45-79	-	20-40	-	0-25	-	-	0-12 ^B	Maintenance Stabilization
Light-weight C	-	-	-	-	100	80-100	5-40	0-20	-	0-10	-	0-2.5	AST

A. See Subarticle 1005-4(A).

B. See Subarticle 1005-4(B).

C. For Lightweight Aggregate used in Structural Concrete, see Subarticle 1014-2(E)(6).

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

**TABLE 1078-1
REQUIREMENTS FOR CONCRETE**

Property	28 Day Design Compressive Strength 6,000 psi or less	28 Day Design Compressive Strength greater than 6,000 psi
Maximum Water/Cementitious Material Ratio	0.45	0.40
Maximum Slump without HRWR	3.5"	3.5"
Maximum Slump with HRWR	8"	8"
Air Content (upon discharge into forms)	5 + 2%	5 + 2%

Page 10-151, Article 1080-4 Inspection and Sampling, lines 18-22, replace (B), (C) and (D) with the following:

- (B) At least 3 panels prepared as specified in 5.5.10 of AASHTO M 300, Bullet Hole Immersion Test.
- (C) At least 3 panels of 4"x6"x1/4" for the Elcometer Adhesion Pull Off Test, ASTM D4541.
- (D) A certified test report from an approved independent testing laboratory for the Salt Fog Resistance Test, Cyclic Weathering Resistance Test, and Bullet Hole Immersion Test as specified in AASHTO M 300.
- (E) A certified test report from an approved independent testing laboratory that the product has been tested for slip coefficient and meets AASHTO M253, Class B.

Page 10-162, Subarticle 1081-1(A) Classifications, lines 4-7, delete the second and third sentences of the description for Type 3A.

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 10-169, Subarticle 1081-3(G) Anchor Bolt Adhesives, delete this subarticle.

Page 10-204, Subarticle 1092-2(A) Performance and Test Requirements, replace **Table 1092-3 Minimum Coefficient of Retroreflection for NC Grade A** with the following:

TABLE 1092-3 MINIMUM COEFFICIENT OF RETROREFLECTION FOR NC GRADE A (Candelas Per Lux Per Square Meter)								
Observation Angle, degrees	Entrance Angle, degrees	White	Yellow	Green	Red	Blue	Fluorescent Yellow Green	Fluorescent Yellow
0.2	-4.0	525	395	52	95	30	420	315
0.2	30.0	215	162	22	43	10	170	130
0.5	-4.0	310	230	31	56	18	245	185
0.5	30.0	135	100	14	27	6	110	81
1.0	-4.0	120	60	8	16	3.6	64	48
1.0	30.0	45	34	4.5	9	2	36	27

HIGH STRENGTH CONCRETE FOR DRIVEWAYS:

(11-21-00) (Rev. 1-17-12)

848

SP10 R02

Use high early strength concrete for all driveways shown in the plans and as directed by the Engineer. Provide high early strength concrete that meets the requirements of Article 1000-5 of the *2012 Standard Specifications*.

Measurement and payment will be in accordance with Section 848 of the *2012 Standard Specifications*.

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.

TEMPORARY SHORING:

(2-20-07) (Rev. 7-17-12)

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*.

Item	Section
Anchor Pins	1056-2
Concrete Barrier Materials	1170-2
Flowable Fill, Excavatable	1000-6
Geotextiles	1056
Neat Cement Grout	1003
Portland Cement Concrete	1000
Select Material	1016
Steel 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 nonshrink neat cement grout or Class A concrete that meets Article 450-2 of the *2012 Standard Specifications* for drilled-in piles. Use untreated timber with a thickness of at least 3" and a bending stress of at least 1,000 psi for timber lagging. Provide steel bracing that meets ASTM A36.

(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. Damaged or deformed 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 wide width tensile strengths at ultimate 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. Provide geogrids for geogrid reinforcement with short-term design strengths in accordance with the accepted submittals.

Use geogrids with a roll width of at least 4 ft and an “approved” or “approved for provisional use” status code. Geogrids are approved for short-term design strengths for a 3-year design life in the MD and CD based on material type. The list of approved geogrids with short-term design strengths is available from: www.ncdot.org/doh/operations/materials/soils/gep.html

Define material type from the website above for shoring backfill as follows:

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

If an approved geogrid does not list a short-term design strength in the MD for the shoring backfill used, do not use the geogrid for geogrid reinforcement. If an approved geogrid does not list a short-term design strength in the CD for the shoring backfill used, do not install the geogrid with the MD parallel to the wall face.

(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) Unit weight (γ) = 120 lb/cf;

(b)	Friction Angle (ϕ)	Shoring Backfill
	30°	A-2-4 Soil
	34°	Class II, Type 1 or Class III Select Material
	38°	Class V or VI Select Material

(c) Cohesion (c) = 0 lb/sf.

(2) Traffic Surcharge

Design temporary shoring for a traffic surcharge of 250 lb/sf if traffic will be above and within H of shoring. This traffic surcharge does not apply to construction traffic. Design temporary shoring for any construction surcharge if construction traffic will be above and within H of shoring. For LRFD shoring designs, apply traffic (live load) surcharge in accordance with Figure C11.5.5-3 of the *AASHTO LRFD Bridge Design Specifications*.

(3) Cantilever, Braced and Anchored Shoring Designs

Use shoring backfill for fill sections and voids between cantilever, braced and anchored shoring and the critical failure surface. Use 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 greater. Extend the reinforced zone at least 6" beyond end of reinforcement. Do not locate the reinforced zone outside right-of-way or easement limits.

Use the simplified method for determining maximum reinforcement loads in accordance with the AASHTO LRFD specifications. For geotextile reinforcement, use geotextile properties approved by the Department or default values in accordance with the AASHTO LRFD specifications. For geogrid reinforcement, use approved geogrid properties available from the website shown elsewhere in this provision. Use geosynthetic properties for the direction reinforcement will be installed, a 3-year design life and the shoring backfill type 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, schedule this meeting after all shoring submittals have been accepted. The Resident, District or Bridge Maintenance Engineer, Bridge or Roadway Construction Engineer, Geotechnical Operations Engineer, Contractor and Shoring Contractor Superintendent will attend this preconstruction meeting.

Construction Methods

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

Install positive protection in accordance with the contract and accepted submittals. Use PCB in accordance with Section 1170 of the *2012 Standard Specifications* 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 within 2° of vertical.

(B) Cantilever, Braced and Anchored Shoring Installation

If overexcavation behind cantilever, braced or anchored shoring is shown in the accepted submittals, excavate before installing piles. Otherwise, install piles before excavating for shoring. Install cantilever, braced or anchored shoring in accordance with the construction sequence shown in the accepted submittals. Remove piles and if applicable, timber lagging when shoring is no longer needed.

(1) Pile Installation

Install piles with the minimum required embedment and extension in accordance with Subarticles 450-3(D) and 450-3(E) of the *2012 Standard Specifications* 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.

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 with no negative batter (wall face leaning forward) 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.

COORDINATION OF EXISTING LIGHTING WORK:

(7-1-95) (Rev. 8-21-12)

105

SP14 R02

Maintain operation of the existing lighting systems until such time that it becomes in conflict with the actual construction work, or it becomes a hazard to traffic as determined by the Engineer.

Use care in working around the lights and circuitry and phase operations so that the disruption of existing lighting systems will be minimized. Make repairs or replacements in conformance with the contract. Should the Contractor fail to make such repairs within the time allowed, the Department will cause the necessary repairs to be made by others. The costs of such repairs will be deducted from any monies due the Contractor on the next subsequent monthly or final payment.

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.

Percentage of Elapsed Contract Time	Percentage Additive
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.



(1-17-12)

GEOTEXTILE FOR PAVEMENT STABILIZATION:

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:

GEOTEXTILE FOR PAVEMENT STABILIZATION REQUIREMENTS

Property	Requirement (MARV^A)	Test Method
Wide Width Tensile Strength @ 5% Strain (MD & CD ^A)	1,900 lb/ft	ASTM D4595
Wide Width Tensile Strength @ Ultimate (MD & CD ^A)	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

Construct embankments to subgrade elevations in accordance with the contract. The Engineer will determine if geotextile for pavement stabilization is required at locations shown in the plans and other locations as directed based on testing subgrade soils for quality. 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.

Do not damage geotextile for pavement stabilization when constructing base courses. Place and compact base course 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 course. 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

**PROJECT SPECIAL PROVISIONS
GEOENVIRONMENTAL**

CONTAMINATED SOIL (11-19-2012)

The Contractor's attention is directed to the fact that soil contaminated with petroleum hydrocarbon compounds exist within the project area. The known areas of contamination are indicated on corresponding plans sheets. Information relating to these contaminated areas, sample locations, and investigation reports are available at the following web address by navigating to the correct letting year and month then selecting, "Plans and Proposals", "Mecklenburg U-0209B", "GeoEnvironmental":

<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 transport all contaminated soil excavated from the project to a facility licensed to accept contaminated soil.

In the event that the Contractor chooses to stockpile the soil temporarily, 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 Mooresville Office for off-site temporary storage. Stockpiling contaminated soil will be incidental to the project. The Contractor shall provide disposal manifests and weigh tickets to the Engineer for review and approval. The Engineer will in turn provide the Geotechnical Engineering Unit with a copy of the disposal manifests and weigh tickets for their records.

Measurement and Payment:

The quantity of contaminated soil hauled, and disposed of shall be the actual number of tons of material, which has been acceptably transported and weighed with certified scales as documented by disposal manifests and weigh tickets. The quantity of contaminated soil, measured as provided above, shall be paid for at the contract unit price per ton for "Hauling, and Disposal of Petroleum Contaminated Soil".

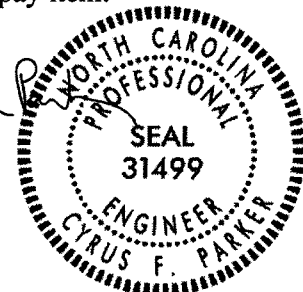
The above price and payment shall be full compensation for all work covered by this section, including, but not limited to loading, transportation, weighing, laboratory testing, disposal, equipment, decontamination of equipment, labor, and personal protective equipment. Excavation of petroleum contaminated soil will be paid under the lump sum grading pay item.

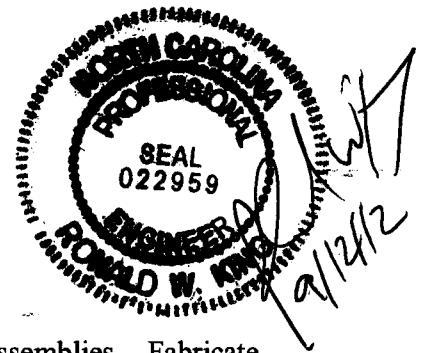
Payment shall be made under:

Pay Item

Hauling and Disposal of Petroleum Contaminated Soil

Pay Unit
Ton



OVERHEAD SIGN SUPPORTS**Description**

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

Materials

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

Construction Methods**A. General**

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

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

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

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

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

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

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

B. Shop Drawings

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

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

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

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

Allow 40 days for initial working drawing review after the Engineer receives them. If revisions to working drawings are required, an additional 40 days shall be required for review and approval of the final working drawings.

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

C. Design and Fabrication

The following criteria govern the design of overhead sign assemblies:

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

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

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

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

- For design of supporting upright posts or columns, the effective length factor for columns “K”, as provided for in Appendix B, Section B.5, shall be taken as the following, unless otherwise approved by the Engineer:
 - Case 1 For a single upright post of cantilever or span type overhead sign structure, the effective column length factor, “K”, shall be taken as 2.0.
 - Case 2 For twin post truss-type upright post with the post connected to one chord of a horizontal truss, the effective column length factor for that column shall be taken as 2.0.
 - Case 3 For twin post truss-type upright post with the post connected to two truss chords of a horizontal tri-chord or box truss, the effective column length factor for that column shall be taken as 1.65
- For twin post truss-type uprights, the unbraced length of the post shall be from the chord to post connection to the top of base plate.
- For twin post truss-type uprights when the post is subject to axial compression, bending moment, shear, and torsion, the post shall satisfy Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals

Equations 5-17, 5-18 and 5-19. To reduce the effects of secondary bending, in lieu of Equation 5-18, the following equation may be used:

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

Where f_a = Computed axial compression stress at base of post

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

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

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

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

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

– M - bending moment at the critical section of the base plate induced by one anchor bolt

– P - anchoring force of each anchor bolt

– D_1 - horizontal distance between the center of the anchor bolt and the outer face of the upright, or the difference between the radius of the bolt circle and the outside radius of the upright

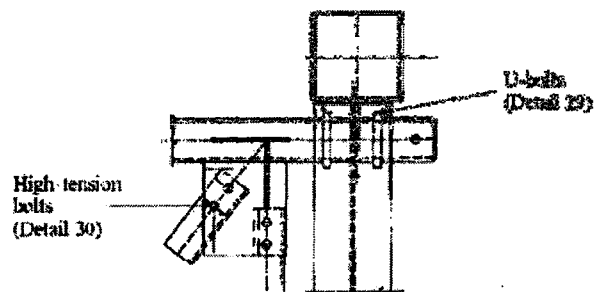
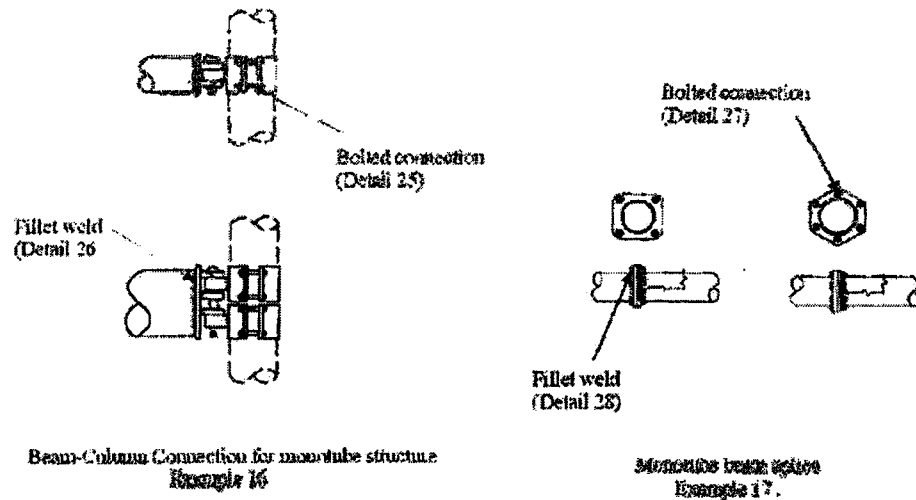
– D_2 - horizontal distance between the face of the upright and the face of the anchor bolt nut

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

- The thickness of Case 1 base plate shall not be less than that calculated based on formula for Case 2.
- Uprights, foundations, and trusses that support overhead signs shall be designed in accordance with the Overhead and Dynamic Message Sign Foundations Project Special Provision for the effects of torsion. Torsion shall be considered from dead load eccentricity of these attachments, as well as for attachments such as walkways, supporting brackets, lights, etc., that add to the torsion in the assembly. Truss vertical and horizontal truss diagonals in particular and any other assembly members shall be appropriately sized for these loads.
- Uprights, foundations, and trusses that support overhead mounted signs shall be designed for the proposed sign wind area and future wind areas. The design shall consider the effect of torsion induced by the eccentric force location of the center of wind force above (or below) the center of the supporting truss. Truss vertical and horizontal truss diagonals in particular and any other assembly members shall be appropriately sized for these loads.

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

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

Add to the Specifications, Figure 11-1:

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

Fabricate the span and cantilever supporting structures using tubular members of either aluminum or steel, using only one type of material throughout the project. Sign support structures that are to be attached to bridges shall be fabricated using other structural shapes.

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

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

Provide permanent camber in addition to dead load camber in accordance with the *Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals*. Indicate on the shop drawings the amount of camber provided and the method employed in the fabrication of the support to obtain the camber.

Use cantilever sign structures that meet the following design criteria:

- a. Do not exceed an $L / 150$ vertical dead load deflection at the end of the arm due to distortions in the arm and vertical support, where L is the length of the arm from the center of the vertical support to the outer edge of the sign.
- b. Do not exceed an $L / 40$ horizontal deflection at the end of the arm due to distortions in the arm and vertical support, as a result of design wind load.

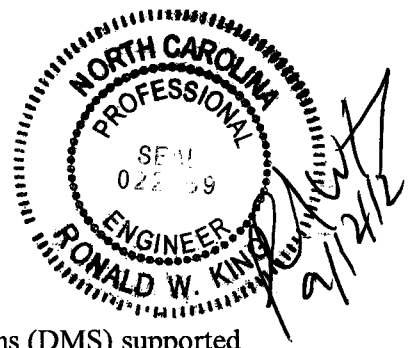
Fabricate attachment assemblies for mounting signs in a manner that allows easy removal of sign panels for repair.

Compensation

The work covered by this section will be paid for at the contract lump sum for each Overhead Structure “_____”. Such price will be full compensation for all work covered by this specification includes all design, fabrication, construction, transportation, and erection of the complete overhead sign structure, supporting structure, hardware, lighting support brackets, preparing and furnishing shop drawings, and attaching the signs to the overhead assembly.

Payment will be made under:

Supports, Overhead Sign Structure @ -LRT- 23+00	Lump Sum
Supports, Overhead Sign Structure @ -LRT- 35+80	Lump Sum
Supports, Overhead Sign Structure @ -LRT- 61+00	Lump Sum
Supports, Overhead Sign Structure @ -LRT- 87+50	Lump Sum
Supports, Overhead Sign Structure @ -LLT-116+30	Lump Sum
Supports, Overhead Sign Structure @ -LLT- 92+00	Lump Sum
Supports, Overhead Sign Structure @ -LLT- 75+90	Lump Sum
Supports, Overhead Sign Structure @ -LLT- 49+10	Lump Sum

**OVERHEAD AND DYNAMIC MESSAGE SIGN FOUNDATIONS:****Description**

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

Materials

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

Assumed Subsurface Conditions

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

- (A) Unit weight (γ) = 120 lb/cf,
- (B) Friction angle (ϕ) = 30°,
- (C) Cohesion (c) = 0 lb/sf, and
- (D) Groundwater 7 ft below finished grade.

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

Subsurface Investigations

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

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

Sign Foundation Designs

Design sign foundations for the wind zone and clearances shown in the plans and the slope of finished grade at each sign location. Use the assumed soil parameters and groundwater elevation above for sign foundation designs unless a subsurface investigation is required. For sign locations requiring a subsurface investigation, design sign foundations for the subsurface conditions at each sign location. Design footings, pedestals, drilled piers, grade beams and wings in accordance with the 4th Edition of the *AASHTO Standard Specifications for Structural*

Supports for Highway Signs, Luminaires and Traffic Signals. In some instances, conflicts with drainage structures may dictate sign foundation types.

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

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

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

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

Construction Methods

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

Measurement and Payment

Overhead Footings will be measured and paid in cubic yards. Sign foundations will be measured as the cubic yards of foundation concrete for footings, pedestals, drilled piers, grade beams and wings shown on the accepted submittals. The contract unit price for *Overhead Footings* will be full compensation for providing labor, tools, equipment and foundation materials, stabilizing or shoring excavations and supplying concrete, reinforcing steel, conduit, anchor rod assemblies and any incidentals necessary to construct sign foundations. Subsurface investigations required by the Engineer will be paid as extra work in accordance with Article 104-7 of the *2012 Standard Specifications*.

Payment will be made under:

Pay Item
Overhead Footings

Pay Unit
Cubic Yard

Law Enforcement:

2-19-09

SPI

Description

Furnish Law Enforcement Officers and marked Law Enforcement vehicles to direct traffic in accordance with the contract.

Construction Methods

Use uniformed Law Enforcement Officers and marked Law Enforcement vehicles equipped with blue lights mounted on top of the vehicle, and Law Enforcement vehicle emblems to direct or control traffic as required by the plans or by the Engineer.

Measurement and Payment

Law Enforcement will be measured and paid for in the actual number of hours that each Law Enforcement Officer is provided during the life of the project as approved by the Engineer. There will be no direct payment for marked Law Enforcement vehicles as they are considered incidental to the pay item.

Payment will be made under:

Pay Item

Law Enforcement

Pay Unit

Hour



John S. Kite, Jr.
8/28/12

Temporary Sidewalk Protective Canopy:

Description

The Contractor shall provide 6 (six) protective canopies (two per proposed bridge) to protect pedestrians from falling debris along both proposed sidewalks on Independence Blvd. (-L-) beneath the proposed Sharon Amity (-Y1-), proposed Idlewild Rd. (-Y15-) and the proposed Conference Dr. (-Y18-) bridge at all times during construction of the bridge.

Construction Methods

Each protective canopy shall be constructed in accordance with local governing building codes and requirements of the Americans with Disabilities Act (ADA). Each protective canopy shall be adequately lit for nighttime use. At no time shall materials or equipment be stored on a canopy roof. All waste or falling debris is to be removed from canopy roofs on a daily basis or as directed by the engineer.

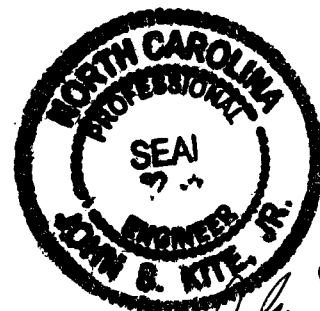
Measurement and Payment

The measurement and payment for the Temporary Sidewalk Protective Canopies shall be Lump Sum. The Lump Sum price shall include any costs associated with the installation, maintenance and removal.

Pay Item

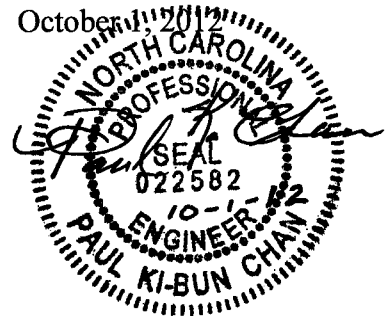
Pay Unit

Protective Canopy.....Lump Sum



John B. Kite, Jr.
9/28/12

PROJECT SPECIAL PROVISIONS
LIGHTING



1.00 DESCRIPTION

The work covered by this Section consists of furnishing, installing, connecting, and placing into satisfactory operating condition roadway lighting at locations shown on the plans. Perform all work in accordance with these Special Provisions, the Plans, the National Electrical Code, and North Carolina Department of Transportation "Standard Specifications for Roads and Structures" (Standard Specifications).

Perform all work in conformance with Division 14 of the Standard Specifications except as modified or added to by these Special Provisions. Install all bore pits outside the clear zone, as defined in the AASHTO Roadside Design Guide or as directed by the Engineer.

In addition to the requirements of Division 1400, other specific Sections of the Standard Specifications applicable to the work on this project are listed below.

Section 1401	High Mount Standard and Portable Drive Unit
Section 1403	High Mount Luminaires
Section 1404	Light Standards
Section 1405	Standard Foundation
Section 1406	Light Standard Luminaires
Section 1407	Electric Service Pole and Lateral
Section 1408	Light Control System
Section 1409	Electrical Duct
Section 1410	Feeder Circuits
Section 1411	Electrical Junction Boxes

2.00 HIGH MOUNT FOUNDATIONS

2.10 DESCRIPTION

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

2.20 MATERIALS

Use high mount foundation materials that meet the *Foundations and Anchor Rod Assemblies for Metal Poles* provision found in the Roadway Project Special Provisions.

2.30 HIGH MOUNT STANDARD FOUNDATIONS

Construct high mount standard foundations for the wind zone and high mount heights shown in the plans unless the following assumed site conditions are not applicable to high mount locations:

- A. Soil with unit weight (γ) \geq 120 lb/cf and friction angle (ϕ) \geq 30°,
- B. Groundwater at least 7 ft below finished grade and
- C. Slope of finished grade 6:1 (H:V) or flatter.

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

2.40 SUBSURFACE INVESTIGATIONS

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

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

2.50 HIGH MOUNT FOUNDATION DESIGNS

Design high mount foundations for the wind zone and high mount heights shown in the plans and the slope of finished grade and subsurface conditions at each high mount location. Design drilled piers, footings and pedestals in accordance with the 4th Edition of the *AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals*.

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

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

Submit boring logs, working drawings and design calculations for acceptance in accordance with Article 105-2 of the *Standard Specifications*. Submit working drawings showing plan views, required foundation dimensions and elevations and typical sections with reinforcement, conduit

and anchor rod assembly details. Include all boring logs, design calculations and LPILE output for high mount foundation design submittals. Have high mount foundations designed, detailed and sealed by an engineer licensed in the state of North Carolina.

2.60 CONSTRUCTION METHODS

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

2.70 MEASUREMENT AND PAYMENT

High Mount Foundations will be measured and paid in cubic yards. High mount standard foundations will be measured as the cubic yards of concrete shown on Standard Drawing No. 1402.01 for the high mount height and wind zone shown in the plans. All other high mount foundations will be measured as the cubic yards of foundation concrete for drilled piers, footings and pedestals shown on the accepted submittals. The contract unit price for *High Mount Foundations* will be full compensation for providing labor, tools, equipment and foundation materials, stabilizing or shoring excavations and supplying concrete, reinforcing steel, conduit, anchor rod assemblies and any incidentals necessary to construct high mount foundations. Subsurface investigations and high mount foundation designs required by the Engineer will be paid as extra work in accordance with Article 104-7 of the *Standard Specifications*.

Payment will be made under:

High Mount Foundations.....Cubic Yard

3.00 RELOCATE SINGLE ARM LIGHT STANDARDS

3.10 DESCRIPTION

The work covered by this section consists of providing all equipment, labor and materials necessary to remove, relocate and reinstall an existing light standard to a new foundation at locations shown on the plans. This section also includes storage of materials to be reused, complete removal of the existing foundation and installation of a PC18 junction box at previous foundation locations for continuity of existing circuitry. Construction of a new foundation is not included in this section.

3.20 MATERIALS

Reuse existing materials, including the light standard, breakaway base and arm. Shims and washers may be reused, but new connecting bolts are required. Materials to be reused which are damaged during relocation will be replaced with new materials at no additional cost to the Department.

The Contractor is responsible for the storage and protection of the reused materials against loss or damage.

Provide a PC18 junction box, conduit stubs and set screw type connectors to splice existing conductors after foundation is removed.

3.30 CONSTRUCTION METHODS

Maintain operation of the existing lighting system until such time that it becomes in conflict with the actual construction work, or it becomes a hazard to traffic as determined by the Engineer. Coordinate work with the NC DOT Traffic Services Supervisor to assure that circuits can be de-energized where and when necessary.

Dismount the light standard from the existing standard foundation. Reassemble and reinstall light standards on a new foundation and reuse the existing breakaway base. Replace the connecting bolts joining the standard to the breakaway base and attachment hardware for the standard-to-arm connection. Use rope or web slings when hoisting or lifting the light standard to prevent damage or marking. If the light standards are to be stored between dismounting and reinstalling, provide proper transportation and supports to prevent warping. Provide protection against the elements.

Remove luminaire from bracket arms and deliver the luminaire in good condition to the NCDOT Maintenance Yard. Install new luminaire on bracket arm and new conductors inside the relocated standard as detailed and paid for in Section 1406 of the Roadway Standard Specifications.

Completely remove concrete light standard foundations from relocated locations. Dispose of the removed concrete, reinforcing steel and anchor bolts in a manner acceptable to the Engineer. Backfill the holes with suitable material and compact backfill as required.

Provide and install PC18 junction box meeting Section 1411 of the Roadway Standard Specifications after removal of foundation and proper compaction of backfill material. Intercept existing conduit and conductors and turn up into new junction box. Splice conductors using a set screw type connector as detailed in Section 1400-4(F) of the Roadway Standard Specifications.

3.40 MEASUREMENT AND PAYMENT

The quantity of relocated light standards to be paid for will be the actual number which have been removed from existing locations, installed at proposed locations in a satisfactory manner and have been accepted by the Engineer.

Relocated light standards measured as provided above will be paid for at the contract unit bid price per each "Relocate Light Standard". Such price and payment will be considered full compensation for disconnecting circuitry, disassembly, transportation, storage, reassembly, installing new connecting bolts, connection of new circuitry, removal of foundation, disposing of

concrete, backfilling, compaction, installation of junction box and tapping of conduit and circuitry at former location and all incidentals necessary to complete the work.

Payment will be made under:

Relocate Light Standard.....Each

4.00 INSTALL TWIN ARM LIGHT STANDARDS

4.10 DESCRIPTION

Install twin arm light standards provided by the Department. Also install new luminaires, new wiring inside the standard and new breakaway fuseholders. Twin arm standards are located at the NCDOT warehouse at the address below:

County Maintenance Yard
7703 District Drive
Charlotte, NC 28213

Coordinate access of twin arm standards with Division 10 Signals Supervisor, Dave Davis (704-982-1998).

4.20 MATERIALS

Use twin arm standards and bracket arms provided by the Department. Provide all new connecting hardware to attach standard to new barrier rail foundation. Provide new luminaires, new type SO wiring inside the standard and new breakaway fuseholders (see standard pay item list). Standards that are to be reused which are damaged by the Contractor prior to installation will be replaced with new materials at no cost to the Department.

4.30 CONSTRUCTION METHODS

Same as Section 1404-3 of the Roadway Standard Specifications.

Install new luminaires on bracket arms and new conductors inside the standard as detailed and paid for in Section 1406 of the Roadway Standard Specifications.

4.40 MEASUREMENT AND PAYMENT

The quantity of twin arm light standards to be paid for will be the actual number which have been transported from the County Maintenance Yard, installed at proposed locations in a satisfactory manner and have been accepted by the Engineer.

Twin arm light standards measured as provided above will be paid for at the contract unit bid price per each "Twin Arm Light Standard". Such price and payment will be considered full compensation for transportation of standard from County Maintenance Yard, storage (if

required), reassembly, installation of twin arm standard on new barrier rail foundation and all incidentals necessary to complete the work.

Payment will be made under:

Install Twin Arm Light Standard Each

5.00 PORTABLE CONSTRUCTION LIGHTING

5.10 DESCRIPTION

Work covered by this section shall be in accordance with Section 1413 of the Standard Specifications except as modified below.

5.20 MATERIALS

Use materials as specified in Section 1413-2.

5.30 TOWER LIGHT

Use tower lights as specified in Section 1413-3.

5.40 MACHINE LIGHTS

Amend Section 1413-4 to include the following:

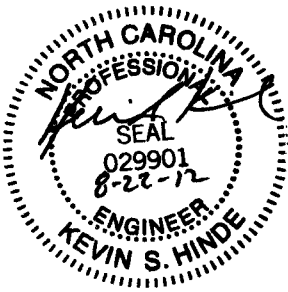
Balloon lights are an acceptable alternate luminaire for machine lights.

5.50 CONSTRUCTION METHODS

Use construction methods as specified in Section 1413-5.

5.60 MEASUREMENT AND PAYMENT

Measurement and payment for Portable Construction Lighting shall be in accordance with Section 1413-6 of the Standard Specifications.



PROJECT SPECIAL PROVISIONS
Water and Sanitary Sewer Construction

I. DESCRIPTION

The work covered by these provisions only applies to Charlotte-Mecklenburg Utilities (CMU) facilities and consists of constructing various utilities as required by the plans and provisions herein or as directed by the Engineer. The Contractor shall furnish any and all materials, labor, equipment, and incidentals necessary to complete the proposed utility work.

Apply the applicable provisions of the Rules and Regulations of the North Carolina Department of Environment and Natural Resources, Division of Environmental Health to the construction of water lines. Apply the Rules and Regulations of the North Carolina Department of Environment and Natural Resources, Division of Water Quality to the construction of sanitary sewer lines except as otherwise provided. Perform all work in accordance with the applicable plumbing codes.

II. GENERAL CONSTRUCTION REQUIREMENTS

Specifications:

The proposed utility construction shall meet the applicable requirements of the **NC Department of Transportation's "Standard Specifications for Roads and Structures" dated January 2012**, all applicable permits, and CMU standard details as shown on the plans, as outlined in the following provisions, or as directed by the Engineer.

Existing Utilities:

The Contractor will be required to excavate to determine the precise location of utilities, or other underground obstructions, which are shown on the Construction Plans. Such location and excavation shall be at least 500 feet ahead of construction or as noted in the Special Provision Section of this document.

All utility owners will be notified prior to excavation as required by the 1985 Underground Damage Prevention Act. Owners who are members of NC One-Call may be notified in accordance with current NC One-Call procedures. The Contractor will be fully responsible for damage to any utilities if the owners have not been properly notified as required by the Underground Damage Prevention Act.

Utility owners may, at their option, have representatives present to supervise excavation in the vicinity of their utilities. The cost of such supervision, if any, shall be borne by the Contractor.

Conflicts with underground utilities may necessitate changes in alignment and/or grade of this construction. All such changes will be approved by the Engineer before construction proceeds.

When underground obstructions not shown on the Construction Plans are encountered, the Contractor shall promptly report the conflict to the Engineer and shall not proceed with construction until the conflict is resolved by the Engineer.

Repairs to Existing Facilities:

If repair or replacement of existing utilities (public/private) is required due to damage, obsolescence or other reasons not due to the negligence of the Contractor, the repairs shall be performed by the Contractor when so directed.

Any repair or replacement is necessary due to the negligence of the Contractor, shall be performed by the Contractor at his expense, under the Engineer's direction.

Interruption of Water Service:

The Contractor will be required to have all materials and equipment on the job site seventy-two (72) hours prior to any planned service interruption. Existing water mains may be taken out of service for a maximum of 8 hours for each relocation, abandonment and/or re-connection unless otherwise directed by the Engineer. Coordination with CMU is required to cut and plug the line at various locations shown on the plans. The Contractor will provide adequate work force during this time to complete the required connection and refill and return the existing water main to service. The Charlotte Fire Department shall be notified of any interruptions of water mains 72 hours prior to interruption.

The Contractor will be required to dispose of any water from the isolated main and to dispose of air during the filling operation. The Contractor shall operate all valves required to isolate the existing mains as directed by the Inspector. CMU will not be responsible for delays, rescheduling, etc., resulting from incomplete isolation of the mains.

The CMU Inspector in conjunction with the Contractor will be responsible for notifications of all customers affected by the interruption of service. Service interruptions shall be scheduled by CMU at a time most convenient to the public. Customers shall be notified at least 72 hours (not including weekends/holidays) prior to any interruption of service.

Utility Connections:

Make connections between existing and proposed utilities at times most convenient to the public, without endangering the utility service, and in accordance with the owner's requirements. Make connections on weekends, at night, and on holidays if necessary.

Should the position of any pole, pipe, conduit, or other structure require removal or adjustment, the Engineer will coordinate the change with the owner of the obstructions or a representative of the owner.

Excavation and Backfill for Utility Pipeline Construction:

All excavations for pipe laying, manholes, piers, drainage ditches, grading and any other for the proper completion of this contract shall be included herein.

Excavation within street rights-of-way shall be backfilled when left unattended for more than 1 hour unless otherwise approved by the controlling agency. Excavations within sewer/water rights-of-way shall be backfilled, fenced or otherwise protected when left unattended for more than 1-hour. Fencing or other protection methods shall be designed to reasonably prevent people and large animals from entering the excavation.

Trench Excavation:

No more than 100 feet of trench shall be opened in advance of the pipe laying than is necessary to expedite the work unless prior approval is given by the Engineer. Ground conditions and/or location requirements shall govern the amount of trench open at any one time as determined by the Engineer. The maximum trench width shall be as indicated for each type of pipe specified. If the actual trench width exceeds the specified width, due to shoring methods, the contractor must obtain approval from the Engineer.

Trench Width for Water Line:

Maximum trench width for pipe shall be equal to the outside diameter (as measured at the pipe barrel) of the pipe plus 16".

Trench width shall be measured between faces of cut at the top of the pipe bell. If the Contractor varies from this requirement without approval of the Engineer, he shall at his own expense install Type II or Type III bedding defined in this specification.

Trench Width for Sewer Line:

The maximum trench width shall be measured between faces of cut at the top of the pipe bell.

The trench width for 8" – 30" pipe shall be limited to the nominal pipe size plus 3 feet. If the Contractor varies from this requirement without prior approval of the Engineer, or if specified trench widths cannot be maintained, improved bedding and/or improved pipe material shall be installed as directed by the Engineer.

Trench Bottom Conformation:

The excavation shall be made to the elevations, grades, and lines shown on the Construction Plans. The trench bottom shall be excavated slightly above grade and cut down to the pipe grade by hand in the fine grading operation. The trench bottom shall be true and even with bell holes at each joint to provide the barrel of the pipe with soil or granular bedding support for its full length. This should prevent point loading at the bells. If the trench bottom is inadvertently cut below grade, the Contractor shall (at his own expense) fill it to grade with approved material thoroughly tamped, or with #67 bedding stone. Pipe depth and/or soil conditions may require Type II or Type III granular embedment. This bedding shall also be shaped to allow adequate support of the pipe. If the trench passes either under or over another pipeline or previous excavation, the trench bottom in this area shall be tamped, if necessary, so the disturbed soil has approximately the same supportive strength as the native soil.

Piling Excavated Material:

All excavated material shall be piled in a manner that will not endanger the work. Excavated material will be piled a safe distance away from the edge of the excavation allowing room for an adequate angle of repose and if shoring, sheeting, and bracing is used to protect the excavation, no material will be piled within 3 feet of the nearest edge. Sidewalks, driveways, hydrants, valve pit covers, valve boxes, curb stop boxes, existing manholes, fire and police call boxes, or other utility controls shall be unobstructed and accessible until the work is completed. Gutters, catch basins, and natural watercourses shall not be obstructed or silted.

Dewatering:

The Contractor shall at all times provide and maintain ample means and equipment with which to remove and properly dispose of water entering the excavation or other parts of the work and shall keep all excavations dry until such time as pipe laying and grading is completed. Water shall not be allowed to rise around the pipe in unbackfilled trenches nor shall it be allowed to rise over masonry until the concrete or mortar has set (minimum 24 hours). All water pumped or drained from the work shall be disposed of in such a manner as to minimize siltation and erosion on adjacent property or other construction.

OSHA – Trench/Excavation:

The Contractor shall comply with OSHA trenching and excavation regulations as revised in Subpart P of Part 1926 in the Federal Register. Shoring and/or shielding systems shall be used as specified in Subpart P to prevent caving of trench banks and to provide a safe excavation. The Contractor will be responsible for excavation safety and shall designate his “competent person” (as defined in Subpart P) for the determination of proper shielding/shoring systems. If, in the opinion of the Engineer, the trench/excavation is not in compliance with OSHA regulations, the Contractor may be directed to stop work. Continued unsafe conditions will be reported to the appropriate regulatory agency. The Contractor will be responsible for paying all fines resulting from safety violations.

Pipe Laying:

All bedding compaction shall be approx. 95% density in accordance with AASHTO T-99 as modified by NCDOT.

When granular material embedment is required, the Contractor will backfill above the granular bedding as specified for Type I bedding to an elevation 1 foot above the top of the pipe bell.

Type I - Shaped Bottom Bedding:

Shaped bottom bedding shall be such that the pipe bears uniformly upon undisturbed native earth. Soil is then backfilled by hand around the pipe and completely under the pipe haunches in uniform layers not exceeding 6” in depth to an elevation 1 foot above the top of the pipe bell. Each layer shall be placed then carefully and uniformly tamped so that the pipe is not damaged nor the alignment disturbed.

Type II - Granular Material Embedment:

For Type II bedding, the trench bottom shall be undercut a minimum of 6” below the pipe barrel grade and filled with an approved stone to an elevation such that the pipe will be completely and uniformly bedded to a vertical height of one-third the outside diameter of the pipe for the pipe’s entire length and the entire width of the ditch. Type II embedment shall be used as directed by the Engineer.

Type III - Granular Material Embedment:

For Type III bedding, the trench bottom shall be undercut a minimum of 6” below the pipe barrel grade and filled with an approved stone to an elevation such that the pipe will be completely and uniformly bedded to vertical height of one-half the outside diameter of the pipe for the pipe’s entire length and width of the ditch. Type III Granular material embedment shall be used as directed by the Engineer.

Depth of Pipe Installation:

Unless otherwise indicated on Plans, or required by existing utility location, all pipe will be installed with the top of the pipe at least 3 feet below the edge of adjacent roadway pavement or 3 feet below the ground at the pipe, whichever is greatest. The Contractor is instructed to check the construction plans and blow-up views for additional requirements.

Unless otherwise shown on the plans, the maximum depth of cover shall be as follows:

Type I Bedding	10 feet
Type II Bedding	15 feet
Type III Bedding	20 feet

The Contractor may be required to vary the depth of pipe to achieve minimum clearance from existing utilities while maintaining the minimum cover specified whether or not the existing pipelines, conduits, cables, mains, etc. are shown on the Plans.

Sewer Line Clearance:

Whenever a sewer main crosses under other utility lines (gas, telephone conduit, storm drain, etc.) there shall be 2 foot clearance between the top of the sewer and the bottom of the affected utility. Stone bedding shall be used from 6" below the sewer to 12" above the sewer from 1 foot outside the utility trench. If this clearance is not possible, the sewer line shall be Ductile Iron Pipe from 1 foot outside the utility trench with a minimum length of 10 feet.

Concrete:**Portland Cement Concrete:**

All concrete shall conform to the Standard Specifications for READY MIXED CONCRETE, ASTM C-94. An air-entraining admixture, conforming to ASTM C-260, shall be added to either Type I, Type II, or Type III Portland Cement. Fly Ash conforming to ASTM C-618 for Class C Fly Ash may be added to the concrete mix but shall not be considered as replacement for more than 10% of the cement therein (strengths shall not be less than hereinafter required).

Types I, IA, III and IIIA Portland Cement shall only be used for manhole inverts, concrete encasement, concrete blocking, and/or as directed by the ENGINEER, and shall conform to ASTM C-150.

Types II and IIA Portland Cement shall be used in precast manholes, cast in place manhole structures, reinforced concrete pipe, reinforced concrete piers and concrete or reinforced concrete rip-rap as directed by the Engineer, and shall conform to ASTM C-150 except that Tricalcium Aluminate ($3\text{CaO}\cdot\text{Al}_2\text{O}_3$) content shall not exceed 8%.

Aggregates:

All aggregates used for concreting shall conform to ASTM C-33 and shall be checked daily for any variances in moisture content. Said variances shall be corrected and/or taken into consideration for each batch.

Coarse Aggregates shall be uniformly and evenly graded for each application in accordance with A.C.I. Standard 318. Unless otherwise approved, aggregate shall be sound, crushed, angular granitic stone. Smooth or rounded stone (river rock) shall not be acceptable.

Fine Aggregates shall consist of natural sand, manufactured sand or a combination thereof. Fine aggregates shall conform to the sieve analysis as specified in paragraph 4.1 of the standard except that the percent passing a No. 50 sieve shall not exceed 5% and the percent passing a No. 100 sieve shall be 0% as provided for in paragraph 4.2 of the standard.

Mix Design:

Concrete shall be watertight, resistant to freeze-thaw cycles and moderate sulfate attack, abrasion resistant, workable, and/or finishable. These qualities may be met through the use of admixtures (if and only if approved in the mix design as hereinafter specified) conforming to the appropriate ASTM with the exception of the use of calcium chloride, which shall be limited to no more than 1% by cement weight - thoroughly mixed to insure uniform distribution within the mix. If the concrete is used with reinforcing steel, no calcium chloride will be allowed.

The Contractor shall assume responsibility for concrete mixture. The concrete shall be proportioned to meet the following requirements: (Note: This mix does not apply "in total" to precast manhole or reinforced concrete pipe).

Compressive Strength	Minimum 3,600 PSI
Water-Cement Ratio by Weight	0.40-0.50 (as required by the application)
Slump	Min. 3" Max. 5"
Air Content (Entrained & Entrapped)	Min. 4% Max. 6%
Coarse Aggregate	.75" - 1.5" (as required by the application)

When required by the Engineer, and prior to beginning construction, the Contractor, at his expense, shall obtain from an approved commercial testing laboratory a design for a suitable concrete mix and submit same with his list of materials and material suppliers for approval.

Curing Compound:

All concrete curing compounds shall conform to the standard specifications for LIQUID MEMBRANE - FORMING COMPOUNDS FOR CURING CONCRETE, ASTM C-309, Type 2.

Curing compounds shall be applied as forms are stripped.

Grouts:

All grouts shall be of a non-shrink nature (as may be achieved through additives or proportioning) and depending upon application range from plastic to flowable cement water paste. Testing as specified above for concrete may be required for acceptance of grouts to include frequent checks for consistency by a time-of-flow measurement.

Acceptable range of testing requirements:

Compressive Strength	10,500 PSI to 12,500 PSI
Bond Strength	1,350 PSI to 1,700 PSI
% Expansion	+0.025% to +0.75%

Expansion grouts shall be used only as directed by the Engineer. Grouts shall be mixed (if applicable) and placed in accordance with the manufacturer's current recommendations, for each specific application.

Mortar:

Mortar used in sanitary sewer manholes shall be hydraulic cement mortar in accordance with ASTM C-398. Mortar used in water meter vaults and water valve vaults shall be Type M mortar in accordance with ASTM C-270.

Stone and Brick:**Granular Bedding Material:**

All bedding material shall be angular, clean washed crushed stone graded in accordance with Size #67 in ASTM D-448 for "Standard Sizes of Coarse Aggregate" (NCDOT Standard size #67). Bedding material will be used only as instructed in the Specifications and/or as specifically directed by the Engineer.

Brick:

All brick used to construct manhole inverts or adjust frames shall be made from clay or shale, shall be solid only and shall be of standard building size. All brick shall meet or exceed the compressive strength and water absorption properties specified in ASTM C-32 for Grade MS brick or in-ASTM C-216 and ASTM C-62 for Grade SW brick.

Installing Valves and Fittings:

Valves and fittings shall be installed in the manner specified for installation and assembly of pipe. Valves and hydrants shall be installed at locations shown on the plans and/or as directed by the Engineer.

Valve Boxes:

A valve box conforming to the Standard Details shall be installed for every gate valve. The valve box shall not transmit shock or stress to the valve and shall be centered and plumb over the operating nut, with the box cover flush with the surface of the pavement or other existing surface.

Where the box is not set in pavement, the top section shall be anchored by an 18" x 18" x 6" concrete pad, or an approved pre-cast concrete pad, set flush with the existing terrain. The top section will be grouted into the pre-cast concrete pad. The location of valves will be identified by the letter "V" imprinted into the curb adjacent to mainline or hydrant valve.

All butterfly valves shall be installed with operating nuts plumb and centered beneath a manhole frame and cover, valve box top section and riser pipe as shown in the standard details. Extension stems as shown on the standard detail will be required on valves where the operating nut is more than 4' below the top of the frame and cover.

Valve Blocking:

All end of line valves 12" and smaller installed on PVC or DIP water mains and all 12" valves installed along PVC water mains shall be securely wedge blocked with concrete bearing against, and cut into the excavated sides of the trench. Care shall be taken in forming and pouring the "wedge" blocking so the fitting joints will be accessible for repair and/or valve extraction.

Blocking Fittings:

All plugs, caps, tees, and bends deflecting 11-1/4 degree or more on pressure mains 6" in diameter or larger shall be provided with thrust blocking, placed as shown on the Plans and/or directed by the Engineer, and consisting of ready mix concrete having compressive strength of not less than 3,600 PSI at 28 days.

Bagged mix concrete may be used for blocking, anchorage, concrete valve pads, etc. on water mains and valves 12" or smaller, when less than 1/2 yard is required.

Blocking shall be placed between solid ground and the fittings to be anchored. The area of bearing on the pipe and on the ground in each instance shall be that shown or directed by the Engineer. The blocking shall be so placed that the pipe and fittings will be accessible for repair.

Restrained joints shall be installed where shown on the plans, standard details or when approved by the Engineer, and may be installed in lieu of blocking. Installation shall be per manufacturer's recommendations, as shown on the plans, special provisions, and/or as directed by the Engineer. Restrained joints will not be allowed on PVC pipe.

Utility Relocations:**Water:**

Install existing water meters and meter boxes that are to be relocated adjacent to the right of way, as shown on the utility plans, or as directed.

Relocation of water meters consists of the removal and installation at the appropriate location of the water meter, meter yoke, meter valve, and meter box. This work also includes all pipe, corporation stops and tapping saddles necessary for this relocation. Perform all work in accordance with the applicable plumbing codes, as shown on the plans, and as directed. Place relocated meter boxes with the top of the meter box flush with finish grade of the project. All pipe, fittings, tapping saddles, corporation stops, meter yokes, meter valves, meter boxes, and appurtenances associated with the relocation of water meters shall be considered incidental.

Locate and install fire hydrants as shown on the utility plans.

Relocate all existing fire hydrants in the road construction area, and others that will be a hazard to the motorist, adjacent to the right of way, as shown on the plans, and/or as directed. Separate existing fire hydrants to be relocated at the hydrant base from the existing pipe and place in the new location. Where necessary, remove the hydrant shoe and replace with the appropriate type to connect the relocated hydrant to the new pipe. Furnish, install or remove hydrant extension pieces to provide the proper bury of the pipe and hydrant. Provide all necessary pipe, valves, and fittings necessary for this relocation. Handle pipe and appurtenances in such a manner as to ensure delivery to the site and installation in a sound, undamaged condition. Store plastic pipe out of direct sunlight until placement. All plastic pipes showing discoloration, or deterioration will be rejected for use and replaced with suitable pipe, at no additional cost. Carefully examine all pipe, fittings, and appurtenances for defects before placing, rejecting any found defective. If, at any time before completion of the contract, any broken pipe or any defects are found in the lines or in any of their fittings or appurtenances, replace them. All pipe, fittings, valves, extension pieces, and appurtenances associated with the relocation of fire hydrants shall be considered incidental.

On tie-in sections, the Contractor may be required to anchor pipe bends, tees, etc. with precast concrete blocking, timbers, rodding, or other approved method to allow the water line to be placed back into service as soon as possible. Make final connections to existing mains where indicated on the drawings, as required to fit the actual conditions, or as directed. Order materials, install the new line, provide thrust restraint, and perform sterilization and pressure tests on the new line prior to installation and tie-in of the new line into service to the satisfaction of the Engineer. Notify owners in advance of any interruptions of water service with ample time to make arrangements. Limit interruption of water service on main lines to a maximum of 8 hours unless otherwise approved.

Sewer:

Make final connections of the proposed sewer work to the existing system where indicated on the drawings, as required to fit the actual conditions, or as directed. Notify the owner at least 24 hours in advance of all arrangements for temporary service and for agreement with the owner as to the time that service may be interrupted.

Do everything necessary, including temporary pumping, in order to keep all existing sewers active for either the duration of this contract or until the Engineer authorizes connections.

All pipe, fittings, saddles, and appurtenances associated with the connection of service lines to the sewer main shall be considered incidental.

Connection to Existing Sewers:

Tie-ins to existing activated sewer lines will be allowed when proper precautions are taken to protect the existing main. Tie-ins to existing unactivated sewer lines not installed under the same contract will not be allowed without written approval from all parties involved (CMU, contractors, contract holders, etc.). The Contractor will be required to install watertight masonry plugs in the proposed pipeline at the existing manhole and at the first proposed manhole until all construction is complete and testing begun. If the proposed sewer does not begin at an existing manhole, a straddle type manhole as shown on the Standard Details will be constructed over (and around) the undisturbed existing pipeline and the proposed pipeline plugged as specified. The existing pipeline will not be broken-out and the new invert formed until all testing has been successfully completed. Any connection with 18-inch and smaller pipe at an existing precast or cast-in-place manhole will require the Contractor to core the necessary opening through the manhole wall. Connections to existing manholes with 21-inch and larger pipe may be cored or sawed as approved by the Engineer.

Temporary Watertight Plugs:

The contractor shall install temporary watertight plugs in the proposed sewer line at any manhole that is incomplete, at the open end of the pipeline prior to leaving the job site daily and elsewhere as dictated by good engineering and construction practices. All installed pipe shall be backfilled or otherwise securely tied down to prevent flotation in the event water enters or rises in the trench.

The plugs as installed shall prevent infiltration or the introduction of any foreign material into either the existing or proposed systems.

CMU will not accept any pipeline or manhole which contains any silt, sedimentation or other foreign material, within. The Contractor shall at his own expense flush, or otherwise cause the line (and manholes) to be cleaned out without any discharge into the existing system.

Upon completion of all construction, the Contractor will be responsible for the complete removal of all watertight plugs, in the sequence necessary to allow testing and subsequent activation, all under the direction of the Engineer.

Scheduling:

When the flow of an existing sewer must be interrupted and/or bypassed, the Contractor shall, before beginning any construction, submit a work schedule which will minimize the interruption and/or bypassing of wastewater flow during construction. This schedule must be approved by the appropriate controlling agencies and Engineer and may require night, holiday, and/or weekend work.

Bypass Pumping:

If pumping is required, an identical standby pump shall be on site in the event of failure of the primary pump. If, at any time during construction, effluent from the existing sewer is not full contained by the bypass system, gravity service will be restored by a temporary tie to the new construction and work shall be suspended until the problem is resolved to the satisfaction of the Engineer. The Contractor shall be responsible for any fines levied as a result of effluent reaching the creek. *The Contractor will be required to verify his method of handling sewer flows during construction by pumping at peak flows for 1 hour as approved by the Engineer.*

Sewer Manhole Construction:

All manholes outside street rights-of-way or landscaped areas shall be constructed to a height of 2 feet above the adjacent ground unless otherwise indicated on the Plans or by the Special Provisions.

Manholes within street rights-of-way or landscaped areas shall have finished rim elevations flush with the pavement or adjacent finished grade. After final inspection is complete and all deficiencies have been corrected, the Contractor shall seal all manholes (rings to covers) with penetration type asphaltic cement No. AC-20.

All sewer manholes shall be constructed of precast concrete sections only in conformance with the following specifications and CMU Standard Detail Drawings. Special cast in place manhole structures shall be as shown on the plans and shall comply with the various other applicable sections in these specifications.

Manholes will be furnished with the following clear inside diameters according to the sewer main diameter unless amended by the Plans or Special Provisions:

8" to 18" pipe	4' Manhole (precast)
21" to 36" pipe	5' Manhole (precast)
39" to 54" pipe	6' Manhole (precast)
54" and larger	8' Manhole (precast)

The manhole diameter for a given pipe size may be increased from that shown above for applications where the angle between the influent and effluent pipes installation of the pipe connections in the standard size manhole. Manholes shall be furnished with precast bottom slabs and flexible watertight boots for 15-inch and smaller pipe. The boots shall be cast in as integral parts of the base or installed in cored openings with stainless steel compression bands, and shall conform to ASTM C-923. Manholes for 18-inch and larger pipe may be furnished with precast bottom slabs and flexible boots, flexible seals, or concrete collars. Flexible connectors shall conform to ASTM C-923. The concrete collars shall be

according to the applicable Standard Detail. Manholes to be placed over existing pipelines shall be furnished with "doghouse" openings cast in the bottom section allowing it to be set over the existing pipe. A concrete base and invert shall be poured around the bottom section and the pipe according to the applicable Standard Detail.

Catalog cuts and/or shop drawings, which show dimensions, openings for pipe, reinforcing steel dimensions and layout and other essential details shall be submitted for approval.

Precast Reinforced Concrete Manhole Sections:

All precast reinforced concrete manholes shall conform to CMU Standard Detail drawings and to ASTM C-478.

The following minimum standards shall also apply:

Wall thickness shall be $1/12^{\text{th}}$ of the inside diameter with a minimum thickness of 5".

Base sections shall be cast monolithically or have a water stop cast in the cold joint between the walls and the base slab.

Cone sections shall normally be eccentric with the inside face of one side vertical and flush with the inside face of the barrel section. Eccentric cones with bolt down frame and cover shall have a minimum vertical height, as measured from the top of the cone to the bottom of the bell, of 32". Eccentric cones without bolt down frame and cover to be installed flush to finish grade may have a minimum vertical height of 24". Concentric cones with a vertical height of 20" may be used on manholes less than 5 feet deep (4 foot diameter manhole only). Transition cone sections may be provided for an eccentric transition from a 60" riser to a 48" cone section to be placed directly beneath the 48" cone.

Transition slabs may be placed a minimum of 5 feet above the invert shelf for 6 feet and larger diameter manholes where the slab will be buried. Flat top slabs may be used for 6 feet and larger diameter manholes, unless the manhole is located within pavement or maintained lawns.

Joints between sections shall be manufactured in accordance with ASTM C-443. Joints may be sealed with rubber gaskets in accordance with ASTM C-443 or with butyl rubber sealant conforming to Federal Specification SS-S-210A and AASHTO M-198, Type B.

All markings required by ASTM C-478 shall be clearly stamped on the inside of each section.

Aggregate shall be sound, crushed, angular granitic stone only, substantially in accordance with ASTM C-33, except that the requirement for gradation in that standard shall not apply. Smooth or rounded stone (river rock) shall not be acceptable.

The cement shall be Type II with a maximum tricalcium aluminate ($3\text{CaO} \cdot \text{Al}_2\text{O}_3$) content 8%.

In lieu of Type II cement and granitic aggregate, precast manhole sections may be furnished of Type III cement with calcareous (limestone) aggregate. The manufacturer will submit lab tests certifying the amount of Alkalinity (minimum 78 %) present in the complete mix.

Manhole riser sections, transition slabs, flat top slabs, and cone sections shall be designed for H-20 loading.

The manufacturer shall furnish the Engineer with test results on compression and absorption for one section in every twenty-five sections poured, and certification from cement manufacturer and aggregate

supplier certifying chemical content. The Engineer reserves the right to pick random sections for the required testing.

Outside Drops:

When design considerations dictate a large elevation change across a manhole, an outside drop shall be constructed in accordance with the CMU Standard Details. Depending on the particular fittings used, elevation differences of 2.0 to 2.5 feet are required to accommodate an outside drop. When there is not sufficient elevation difference to permit construction of an outside drop, the grade of the influent pipe shall be lowered such that the vertical separation of the influent and effluent pipes is 0.2 feet, as measured at the center of the manhole when the grades of both pipes are projected to that point. Outside drops shall not enter the cone section of precast manholes.

Installation Of Frames And Covers:

The frame shall be installed on the manhole with anchor bolts on all manholes that are not flush with the ground. 8" tall or 4" tall frames may be used for manholes with bolt down frames. These frames shall have 4 holes in the support flange to permit installation on the cone with anchor bolts. Holes shall be equally spaced in the flange. Complete anchor bolt assemblies shall be zinc plated steel and shall consist of a drive in type anchor sleeve, a threaded stud and two nuts. Anchors shall be installed in field drilled holes in the cone. Minimum diameter of the threaded stud shall be 1/2 inch. The Contractor shall seal the frame to the manhole by installing a length of butyl rubber joint sealant to form a gasket between frame and manhole. The butyl rubber joint sealant shall have a one inch cross section, and shall make two full circles when placed on the cone section, and shall be compressed by the frame with the anchor bolts. Cement mortar grouting of the frame shall be required. Brick may not be used to adjust rim elevations of above grade manholes.

Manholes that are installed flush with pavement or grade shall have frames attached to the manhole with a bed of cement mortar grout. 8" tall frames are required for all manholes that are flush with pavement or finished grade unless otherwise approved. Standard size brick or reinforced concrete grade rings may be used to adjust the finished rim elevation of such manholes. This adjustment may not exceed 21" in height.

Steps:

Manhole steps will be furnished in accordance with Standard Detail Drawings ASTM C-478 and current OSHA regulations. In addition to the testing requirements of ASTM C-478 each step installed in pre-cast manholes will be tested to resist a 1000 lb. pullout. The manhole manufacturer will furnish certification of each test with each shipment showing manhole location, date of test, and results.

Manhole Step Testing:

The Contractor will furnish a hydraulic driven system consisting of cylinder, connecting hose and above ground pump with gauge to test manhole steps to exceed 1000 lbs of resistance of pullout. All field installed steps will be tested in lieu of field testing steps installed at the plant, certified shop reports by the manufacturer showing that each step passed the required 1000 lb. pullout will be accepted. The certificates will be furnished to the Inspector prior to field installation.

Unless the Contractor can furnish the manufacturer's certification on step tests, the Contractor will be required to test 10% of the plant installed steps. An additional 10% will be tested for each failure.

Testing and Inspection for Water Lines:

Required testing of pipelines and valves shall be done under the direct supervision of the Project Inspector. Field testing shall not negate the requirements for material certifications as contained in the material specification section of this contract. Unless otherwise directed by the Engineer, all testing and disinfecting will be completed prior to connection to any existing line. The Contractor shall provide open ventilation of confined spaces. The Contractor shall be responsible for providing all equipment and personnel necessary to comply with OSHA confined spaces regulations.

Hydrostatic and Leakage Tests:

All sections of water mains greater than 100 linear feet shall be tested and disinfected in accordance with the Standard Specifications. All relocated services must be tested prior to re-connection and transfer of service.

The Contractor shall furnish equipment, labor and new materials including caps, plugs, sleeves, jumpers, valves, check valves and corporation stops required to make temporary connections to water mains for testing and disinfection. All materials, such as sleeves and corporation stops that are to remain as permanent fixtures, will be new materials. The Contractor will, if required by the Engineer, complete the testing and disinfection required by these specifications prior to connection to existing mains.

Sections of water mains less than 100 linear feet shall be tested and disinfected in a manner approved by the Engineer. Where formal disinfection and leakage tests are not required, extreme cleanliness shall be required. Leakage tests will be limited to that which can be observed. No visible evidence of leakage will be allowed. All pipe, caps, plugs, etc., will be disinfected and flushed thoroughly prior to installation. Open ends of pipe will be sealed or protected in a manner approved by the Engineer to protect the existing system during this work.

On completion of the line or sections of the lines, connections and appurtenances, the line shall be filled and hydrostatically tested. The water for this purpose can be taken from existing lines under the supervision of the Inspector and leakage will be measured by the Inspector with a meter furnished by CMU. All leaks and any defective material shall be repaired or replaced to the satisfaction of the Engineer and the tests repeated until the requirements of this specification are met. Any special equipment, pumps, etc. required to make the test shall be furnished and operated by the contractor as directed by the Inspector.

The Contractor shall use great care to be sure that all air is expelled from each section under test. If fire hydrants or other openings are not available for the purpose of expelling air, the Contractor shall provide air releases of sufficient size (as determined by the Engineer) in accordance with City Standard Drawings, at his expense.

Specific procedures for testing mains are as follows:

Test pressure will be 200 PSI at the low point of the section under test. When testing against butterfly valves, the differential pressure at the valve must not exceed 150 PSI for valves rated at 150 PSI. If the test cannot be made with differential pressure of 150 PSI, 250 PSI valves will be specified. Differential pressures across gate valves may be up to 200 PSI.

Allowable leakage for 16" nominal diameter pipe will be 1.7 gal/hour per Table 6, AWWA C-600.

Pressure and leakage tests will be run concurrently and for a duration of four hours except as modified below.

The Contractor will pressurize the line and verify that it is within allowable leakage before the official test is started.

The Inspector will begin the test and remain at the job for the first hour, making sure that the test pressure is maintained within ± 5 PSI. The Contractor is to maintain the pressure within ± 5 PSI for the duration of the test period. At the end of the first hour, with the line pumped to full test pressure, he will read the meter and record the first hour leakage. If the first hour leakage is within allowable, he will return at the end of the fourth hour and again read the meter. If the total leakage for the four hour period does not exceed four times the first hour leakage, the test will be terminated. If the total leakage exceeds four times the first hour leakage, but is still within allowable, the test will be held an additional hour. If the fifth hour leakage does not exceed the average hourly leakage for the first four hours, the test will be terminated at the end of the fifth hour. Otherwise, the test will be held until the leakage is non-increasing and within allowable for two consecutive hours.

If leakage exceeds allowable for the four hour test, the test will be terminated and re-scheduled after the Contractor has verified that actual leakage is within the allowable leakage, but no earlier than the next work day. If the first hour leakage does not exceed 10% of the allowable, or if the allowable leakage rate does not exceed 0.4 gal/hour, the test may be terminated at the end of two hours provided the second hour leakage does not exceed the first hour leakage. If the second hour leakage exceeds the first hour leakage, the test will be held for an additional period as described in the paragraph above.

The maximum length of pipe tested in one test shall be 5,000' or as close to 5,000' as possible depending on valve spacing.

During the last stages of the test and without any reduction in pressure, first the hydrant guard valves will be closed, then progressing in an orderly manner from the end opposite the test pump, each main line valve will be closed and pressure released to determine if it is holding pressure (minimum 10 minutes per valve closing).

Testing and Internal Inspection for Sewer Lines:

The Contractor shall provide proper ventilation of sewer lines and manholes during any test or inspection procedure. The Contractor shall be responsible for providing all equipment and personnel necessary to comply with OSHA confined spaces regulations.

Gravity Sewer Pipe Leakage Testing:

No sooner than 10 days following completion of backfill, the Contractor along with the project inspector will be required to determine the level of the ground water table. If the level of ground water table is above the top of the pipe, the sewer line shall be tested for infiltration. If there is no ground water above the top of the pipe the sewer line shall be low pressure air tested.

Each test shall be performed as follows:

Infiltration:

Weirs are to be furnished by CMU and installed by the Contractor. The infiltration shall not exceed 100 gallons per day per inch diameter per mile as measured for a reach of pipe the same diameter up to one mile long. However, when excessive infiltration can be isolated to a particular section (manhole-

manhole) the limit will be applied to that section. There shall be no visible points of infiltration. Any section (manhole-manhole) must be isolated and tested separately if so directed by the Engineer. CMU reserves the right to TV any sewer line to detect sources of infiltration.

Low Pressure Air Test:

Tests shall be performed in accordance with ASTM C-828 and C-924 on sewer lines 42-inches in diameter and smaller. Test pressure will be measured by gauges furnished by CMU and installed by the Contractor above ground at the manhole opposite the air supply. The Contractor shall furnish all other test equipment required including connecting hoses at the CMU supplied gauge.

Sewer lines larger than 42-inches in diameter shall be tested for infiltration as specified above and each joint shall be visually inspected by a CMU representative.

Manhole Leakage Testing:

Manholes shall be tested by plugging the inlet and outlet pipes with airtight plugs and using one of the following procedures:

Exfiltration:

Fill the manhole to the rim with water and allow the level to equalize due to saturation. Refill the manhole and mark the level to begin the test. The test shall last at least 2 hours and allowable leakage shall be 3 gallons per hour. The Engineer will select 25% of the manholes on the project to be tested. If any manhole fails, an additional manhole will be tested. Manholes that fail the test shall be repaired as specified and retested until they pass.

Vacuum Air:

Manhole vacuum air testing shall be performed in accordance with ASTM C-1 244. The Engineer will select 25% of the manholes on the project to be tested. Manholes that fail the test shall be repaired as specified and retested until they pass. Manholes that show leaks and are repaired prior to testing shall be tested as specified.

Sanitary Sewer Repairs:

All leaks shall be repaired by identifying and exposing the defective section of pipe and completing repairs as follows:

PVC, VC or Ductile Iron Pipe:

Defective or damaged pipe including leaking joints shall be removed and replaced with sound new pipe. The pipe shall be re-connected with approved couplings.

Manholes:

Any damage to the interior wall of the manhole resulting from penetration of the lift holes shall be repaired with non-shrink cement grout.

Leaks through manhole joints or walls or around pipe collars, may be repaired from inside the manhole with non-shrink cement grout. If the size of the leak, or the external water pressure, prevents such repairs, the manhole shall be excavated and repaired from outside.

Leaks around boots or gaskets used to join pipe to manholes shall be repaired by external concrete collars or as approved by the Engineer.

Adjust, Abandon, or Remove Utilities:

Adjust, abandon, or remove utility facilities. Provide all material, labor, equipment, pumping flowable fill or placing grout, removal and disposal of pipe, plugging pipe openings, breaking down manhole, rebuilding new manhole, pargeing, steps, excavation, backfill, and incidentals necessary to complete the proposed utility work unless indicated otherwise in the proposal.

Pipe:

Fill abandoned pipe, designated on the plans or by the Engineer, with flowable fill or remove, at the discretion of the Contractor. Excavate, remove, and dispose of properly any abandoned pipe to be removed. Backfill the resulting trench and properly compact using local excavated material or select backfill as required. Fill all abandoned utility pipe located in the roadway, which is twelve inches in diameter and larger and has a cover of less than twenty feet below finished grade with flowable fill or remove pipe to the satisfaction of the Engineer.

Remove any abandoned utility pipe exposed by grading operations to a minimum depth of twelve inches below subgrade elevation of the proposed roadbed or completed grading template. Plug all abandoned utility pipes. Use portland cement grout to plug all abandoned sewer pipes at the entrance to all manholes whether the manhole is to be abandoned or not. Use portland cement grout to plug all abandoned water mains after new mains are placed in service.

The removal and abandonment of existing water vaults, services, valves and appurtenances located on abandoned portions of existing water lines shall be considered incidental to the abandonment of the existing water lines.

Manholes:

For all utility manholes in the construction area that will be abandoned, plug all connecting utility pipes. Remove the top of the manhole to an elevation of 2 feet below subgrade or below the spring line, and fill the manhole barrel with select earth material properly tamped. For any abandoned manhole that will have the connecting pipes filled with flowable fill, fill the manhole with cement grout to the top of main pipe. Plug connecting utility pipes that do not require filling with cement grout in an acceptable manner before the manhole is filled with earth material. Remove the frame and cover, manhole taper, wall, and base on all manholes that are required to be removed. Maintain ownership and properly dispose of the frame and cover. Remove the frame, cover, the manhole taper, and necessary manhole wall on manholes, which require rebuilding. Include in reconstruction of the manhole, the rebuilding of the manhole wall, manhole taper, steps, and replacing the frame and cover.

Bring all adjusted utility manhole covers to an elevation slightly higher than the surrounding terrain so that surface water will not enter the manhole after the adjustment.

Construct manholes located in paved areas flush with the surrounding pavement.

III. COMPENSATION

No direct payment will be made for utility construction work required by the preceding provisions, which are general requirements applying to utility construction, and all of the requirements stated will be considered incidental work, paid for at the contract unit prices of the various utility items included in the contract. Measurement and payments for items shall be in accordance with the **NC Department of Transportation's "Standard Specifications for Roads and Structures" dated January 2012**, unless otherwise specified herein.

IV. SPECIAL PAY ITEM DESCRIPTIONS

All materials, apparatus, supplies, methods of manufacture, or construction shall conform to the specifications for same contained in this section.

SP-1 GASOLINE RESISTANT GASKETS

This item includes furnishing all new materials, equipment, and labor required to substitute Nitrile (NBR) Rubber (Acrylonitrile Butadiene) gaskets for use with ductile iron pipe, as specified, as shown on the plans, and as directed by the Engineer.

The quantity of gasoline resistant gaskets installed in accordance with the plans and utility provisions herein and accepted, will be measured and paid for at the contract unit price per each for "Gasoline Resistant Gasket". Such price and payments will be full compensation for all materials necessary to complete the work as required.

SP-2 RELOCATION OF EXISTING WATER METER

This special provision applies to water meters smaller than 1-1/2".

The existing water meter to be relocated shall be installed in accordance with the applicable utility provisions herein, as shown on the utility plans, and/or as directed by the Engineer.

Install existing water meters and meter boxes that are to be relocated adjacent to the right of way, as shown on the utility plans, or as directed by the Engineer.

Relocation of water meters consists of the removal and installation at the appropriate location of the water meter, meter yoke, meter valve, and meter box. This work also includes all pipe, corporation stops and tapping saddles necessary for this relocation. Perform all work in accordance with the applicable plumbing codes, as shown on the plans, and as directed. Place relocated meter boxes with the top of the meter box flush with finish grade of the project.

The quantity of water meters relocated in accordance with the plans and utility provisions herein and accepted, will be measured and paid for at the contract unit price per each for "Relocate Water Meter". Such price and payments will be full compensation for all materials including pipe, fittings, tapping saddles, corporation stops, meter yokes, meter valves, meter boxes, equipment, excavation, labor, removal and relocating water meter assembly, reconnecting the water meter, backfilling, and incidentals necessary to complete the work as required.

SP-3 RELOCATION OF EXISTING WATER METER WITH NEW VAULT

This special provision applies to water meters 1-1/2" and larger.

The existing water meter to be relocated and a new vault shall be installed in accordance with the applicable utility provisions herein, as shown on the utility plans, and/or as directed by the Engineer.

The relocation of the water meters shall consist of the removal and installation at the appropriate location of the water meter inside a new vault. Any pipe and fittings necessary to reconnect the relocated water meter to the water line will be considered incidental. The abandoned vault shall be excavated, removed and will become the property of the Contractor.

The vault shall be precast concrete and shall meet the requirements of Section 1077 of the Standard Specifications. The vault shall be HS20 traffic bearing. Plans shall be submitted as required by Section 1077 with all calculations and drawings signed by a Professional Engineer registered in the State of North Carolina. The vault shall be designed to allow for its relocation in the future. The vault shall be provided with a double access door. The access door shall be painted or galvanized steel with anchor flange, hinge, drain channel, and neoprene gasket. The hinge pins shall be stainless steel. The door leaf shall be ¼ " thick diamond plate. The door shall be HS20 load rated. Doors shall open to 90° and lock automatically in this position. The doors shall be equipped with a cylinder lock or bolt lock. The vault and access doors shall be approved by the Engineer shall be placed as shown on the utility plans or as directed by the Engineer.

Any electrical service connections and relocations, in addition to all permits, licenses and inspections shall be the responsibility of the Contractor and considered incidental to this relocation.

The quantity of water meters relocated and new vaults installed in accordance with the plans and utility provisions herein and accepted, will be measured and paid for at the contract unit price per each for "Relocate XX" Water Meter with New Vault". Such price and payments will be full compensation for all materials including vault and access door, pipe, fittings, equipment, excavation, labor, removal and relocating water meter assembly, removal of existing vault, reconnecting the water meter, backfilling, and incidentals necessary to complete the work as required.

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. **Duke Energy** – Distribution
- B. **Time Warner Cable** – Cable TV/Fiber Optic
- C. **AT&T Distribution** - Telephone
- D. **Piedmont Natural Gas** – Gas

The conflicting facilities of these concerns will be adjusted prior to the date of availability unless otherwise noted and are therefore listed in these special provisions for the benefit of the Contractor. All utilities listed herein will be done 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 Standard Specifications.

Utilities Requiring Adjustment:

- A. **Duke Energy** – Distribution

Duke Energy has relocated their facilities from Sharon Amity Road to Farmingdale Drive. Duke Energy will relocate the remainder of their facilities on the project by January 1, 2013.

See Utilities by Others Plans for details.

Contact: Stephen Schrapp at (704) 382-5601

- B. **Time Warner Cable** – Cable TV/Fiber Optic

Time Warner Cable will complete relocation of their facilities on this project by April 1, 2013.

See Utilities by Others Plans for details.

Contact: Mr. Gregg Brown at (980) 721-7631

C. AT&T Distribution - Telephone

AT&T Distribution has underground cables throughout the project limits. In addition, AT&T Distribution has aerial cables attached to existing Duke Energy poles. AT&T Distribution will begin relocation of the underground cables March 2013. AT&T Distribution will also relocate their aerial cables to the new relocated Duke Energy poles beginning March 2013 and will complete relocation of their facilities by January 2014.

AT&T has an existing fiber optic line at the Sharon Amity intersection that will remain in place during construction of the proposed bridge at that location. Foundation installation for the proposed bridge will not impact this fiber optic line and any relocation work will be accomplished with the timeframe stated above.

See Utilities by Others Plans for details.

Contact: Mr. Danny Mounts at (704) 424-1522

D. Piedmont Natural Gas - Gas

Piedmont Natural Gas has gas lines throughout the project limits. Piedmont Natural Gas will relocate their lines in six phases during construction.

- a) Phase 1: PNC will install 4" steel main on the westbound side of Independence Blvd. beginning at Sharon Amity and proceeding inbound to the beginning of the project. This work will also include the 10" bore under Independence Blvd. near Lanier Avenue. This work will begin November 2012 and be completed December 31, 2012.
- b) Phase 2: PNG will deactivate the existing gas main along eastbound side of Independence Blvd. between Lanier Avenue and Charleston Drive. PNG has requested that they be allowed to delay beginning work in this area until existing building slabs are removed and work can be initiated. Work in this area will be complete by February 15, 2013.
- c) Phase 3: PNG will install a new main on both sides of Independence Blvd. between Charleston Drive and Glendora Drive including service tie-ins and abandoning the existing main. This work will begin January 2013 and be completed March 1, 2013
- d) Phase 4: PNG will install a new main on the eastbound side of Independence Blvd. between Glendora Drive and Idlewild Road. Services will be connected on the eastbound side but the existing main will have to remain active to serve customers on the westbound side. This work will be performed between March 1, 2013 and April 30, 2013. PNG will also complete the remaining lines from Phase 2 on the eastbound side of Sharon Amity during this time. This schedule is predicated on the Contractor removing the existing building slabs.
- e) Phase 5: PNG will install the 4" main from Idlewild Road to Farmingdale Drive on the westbound side. Concurrently, PNG will install a new 12" steel

main around Conference Drive and install the bore under Independence Blvd. just west of Idlewild Road. This work will also include tie-ins to customers on the westbound side and the abandonment of the existing main on the eastbound side between Glendora Drive and Idlewild Road. This work will begin May 1, 2013 and be completed by July 31, 2013.

- f) Phase 6: PGN will install the new 8" line from Idlewild Road to Wallace Drive, complete service tie-ins and abandon all remaining lines. This work will be complete by October 31, 2013.

It was agreed that the Department will provide staking of PNG's planned route. The Department also agreed that staking required for Phase 1 work (above) would be completed by November 21, 2012.

See Utilities by Others Plans for details.

Contact: Mr. Joe Latimer at (704) 587-6844

U-0209B

**Project Special Provisions
Erosion Control**

Mecklenburg County

STABILIZATION REQUIREMENTS:

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
4000#	Limestone

May 1 - September 1

100#	Tall Fescue
15#	Kentucky Bluegrass
30#	Hard Fescue
10#	German or Browntop Millet
500#	Fertilizer
4000#	Limestone

Approved Tall Fescue Cultivars

2 nd Millennium	Duster	Magellan	Rendition
Avenger	Endeavor	Masterpiece	Scorpion
Barlexas	Escalade	Matador	Shelby
Barlexas II	Falcon II, III, IV & V	Matador GT	Signia
Barrera	Fidelity	Millennium	Silverstar
Barrington	Finesse II	Montauk	Southern Choice II
Biltmore	Firebird	Mustang 3	Stetson
Bingo	Focus	Olympic Gold	Tarheel
Bravo	Grande II	Padre	Titan Ltd
Cayenne	Greenkeeper	Paraiso	Titanium
Chapel Hill	Greystone	Picasso	Tomahawk
Chesapeake	Inferno	Piedmont	Tacer
Constitution	Justice	Pure Gold	Trooper
Chipper	Jaguar 3	Prospect	Turbo
Coronado	Kalahari	Quest	Ultimate
Coyote	Kentucky 31	Rebel Exeda	Watchdog
Davinci	Kitty Hawk	Rebel Sentry	Wolfpack
Dynasty	Kitty Hawk 2000	Regiment II	
Dominion	Lexington	Rembrandt	

Approved Kentucky Bluegrass Cultivars:

Alpine	Bariris	Envicta	Rugby
Apollo	Bedazzled	Impact	Rugby II
Arcadia	Bordeaux	Kenblue	Showcase
Arrow	Champagne	Midnight	Sonoma
Award	Chicago II	Midnight II	

Approved Hard Fescue Cultivars:

Chariot	Nordic	Rhino	Warwick
Firefly	Oxford	Scaldis II	
Heron	Reliant II	Spartan II	
Minotaur	Reliant IV	Stonehenge	

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.

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.

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.

Section	Erosion Control Item	Unit
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

MINIMIZE REMOVAL OF VEGETATION:

The Contractor shall minimize removal of vegetation at stream banks and disturbed areas within the project limits as directed.

STOCKPILE AREAS:

The Contractor shall install and maintain erosion control devices sufficient to contain sediment around any erodible material stockpile areas as directed.

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.

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 1630-4 of the *Standard Specifications*.

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 ²
Maximum Allowable Velocity (Vegetated)	Performance Bench Test	≥16.0	ft/s

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

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

- (A) the chemical and physical properties of the mat used, and
- (B) conformance of the mat with this specification.

Construction Methods

Matting shall be installed in accordance with Subarticle 1631-3(B) of the *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	Pay Unit
Permanent Soil Reinforcement Mat	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 Faircloth Skimmers or other approved equivalent device, providing and placing stone pad on bottom of basin underneath skimmer device, providing and placing a geotextile emergency 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

Item	Section
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 Faircloth skimmer or other approved equivalent 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 Faircloth 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: **127**

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 emergency 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 Faircloth skimmer or other approved equivalent 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 Faircloth skimmer according to manufacturer recommendations. 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 emergency 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 emergency 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 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	Pay Unit
" Skimmer	Each
Coir Fiber Mat	Square Yard

EARTHEN DAM WITH SKIMMER:

Description

Provide an earthen dam with a skimmer attached to a barrel pipe at the outlet of a proposed roadway ditch to remove sediment from construction site runoff at locations shown in the erosion control plans. See the Earthen Dam with Skimmer Detail sheet provided in the erosion control plans. Work includes constructing earthen dam, installation of coir fiber baffles, furnishing, installation and cleanout of Faircloth Skimmer or other approved equivalent device, providing and placing stone pad on bottom of ditch underneath skimmer device, providing and placing geotextile emergency spillway liner, providing coir fiber mat stabilization for the skimmer outlet, removing earthen dam, coir fiber baffles, geotextile liner and skimmer device, and disposing of excess materials.

Materials

Item	Section
Stone for Erosion Control, Class B	1042
Geotextile for Soil Stabilization, Type 4	1056
Staples	1060-8
Coir Fiber Mat	1060-14
Coir Fiber Baffle	1640

Provide appropriately sized Faircloth skimmer or other approved equivalent 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 Faircloth 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 proposed ditch according to the roadway plans and cross sections with ditch surface free of obstructions, debris, and pockets of low-density material. Construct earthen dam and install the emergency spillway according to the Earthen Dam with Skimmer 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*. Accumulated silt behind the earthen dam and baffles shall be removed regularly and as directed.

Install Faircloth skimmer or other approved equivalent 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 Faircloth skimmer according to manufacturer recommendations. 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 impounded in the ditch. 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 ditch. 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 emergency 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 emergency 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 ditch according to the Earthen Dam with Skimmer Detail. Place sealant 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.

Measurement and Payment

The construction of the earthen dam will be paid for as *Borrow Excavation* as provided in Section 230 of the *Standard Specifications* or included in the lump sum price for grading.

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 ditch 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.

Stone for Erosion Control, Class ___ will be measured and paid for in accordance with Article 1610-4 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

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 ³ +/- 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:

Pay Item	Pay Unit
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 3.5 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

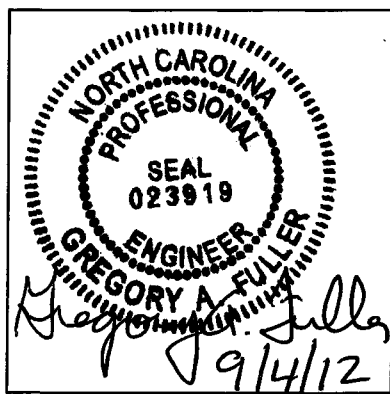
Temporary Rock Silt Checks Type A will be measured and paid for in accordance with Article 1633-5 of the *Standard Specifications*, or in accordance with specifications provided elsewhere in this contract.

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	Pay Unit
Polyacrylamide(PAM)	Pound



Project Special Provisions (Version 12.0) Signals and Intelligent Transportation Systems

Prepared By: I.N. Avery
31-Aug-12

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1. EXTRA LARGE OVERSIZED HEAVY-DUTY JUNCTION BOX

1.1. DESCRIPTION

Furnish and install Extra Large Oversized Heavy-Duty Junction Boxes (pull boxes) with all necessary hardware in accordance with the Plans and these Project Special Provisions.

Furnish junction boxes with covers, graded stone, grounding systems, and all necessary hardware.

1.2. MATERIALS

A. Junction Boxes:

Comply with Article 1098-5 and 1091-5 of the NCDOT Standard Specifications.

B. Graded Stone:

Comply with Articles 545 of the NCDOT Standard Specifications.

C. Extra Large Oversized Heavy-Duty Junction Boxes:

Append the following section to Article 1098-5 of the NCDOT Standard Specifications:

Provide Extra Large Oversized Heavy-Duty Junction Boxes with a minimum inside dimension of 36"(l) x 24"(w) x 30"(d) inches.

1.3. CONSTRUCTION METHODS

A. General:

Comply with Article 1716-3 of the NCDOT Standard Specifications except as noted herein:

Install the junction boxes flush with finished grade. Do not install sealant compound between junction boxes and covers.

Provide real world coordinates for all junction boxes installed or used under this project as specified in Article 1716-3 of the NCDOT Standard Specifications. Provide the coordinates in feet units using the North Carolina State Plane coordinate system (1983 North America Datum also known as NAD '83). Furnish coordinates that do not deviate more than 1.7 ft. in the horizontal plane and 3.3 ft. in the vertical plane. Global positioning system (GPS) equipment able to obtain the coordinate data within these tolerances may be used.

1.4. MEASUREMENT AND PAYMENT

The actual number of "Junction Box (Extra Large Over-sized, Heavy-Duty)" of each size and type furnished, installed and accepted.

No measurement will be made of covers, graded stone, or obtaining real world coordinates as these items will be considered incidental to furnishing and installing Extra Large Oversized Heavy-Duty Junction Boxes.

U-0209B

Intelligent Transportation Systems



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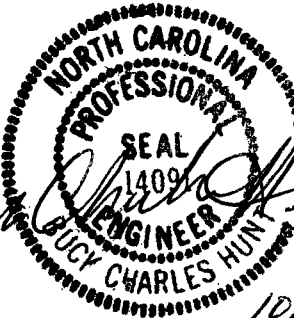
Payment will be made under:

Junction Box (Extra Large Over-Sized, Heavy Duty).....Each

**Project Special Provisions
Structures**

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 10/3/12

PROJECT SPECIAL PROVISIONS
STRUCTURES

PROJECT U-0209B

MECKLENBURG COUNTY

MAINTENANCE AND PROTECTION OF TRAFFIC BENEATH **(8-13-04)**
PROPOSED STRUCTURE AT STATIONS 41+57.69 -L-, 89+79.05 -L-,
103+73.08 -L-

1.0 GENERAL

Maintain traffic on **-L- (Independence Boulevard)** as shown in Traffic Control Plans and as directed by the Engineer.

Provide a minimum temporary vertical clearance of **17'-0"** at all times during construction.

Submit plans and calculations for review and approval for protecting traffic and bracing girders, as described herein, at the above station before beginning work at this location. Have the drawings and design calculations prepared, signed, and sealed by a North Carolina Registered Professional Engineer. The approval of the Engineer will not relieve the Contractor of the responsibility for the safety of the method or equipment.

2.0 PROTECTION OF TRAFFIC

Protect traffic from any operation that affords the opportunity for construction materials, equipment, tools, etc. to be dropped into the path of traffic beneath the structure. Based on Contractor means and methods determine and clearly define all dead and live loads for this system, which, at a minimum, shall be installed between beams or girders over any travelway or shoulder area where traffic is maintained. Install the protective system before beginning any construction operations over traffic. In addition, for these same areas, keep the overhang falsework in place until after the rails have been poured.

3.0 BRACING GIRDERS

Brace girders to resist wind forces, weight of forms and other temporary loads, especially those eccentric to the vertical axis of the member during all stages of erection and construction. Before casting of intermediate diaphragms, decks, or connecting steel diaphragms do not allow the horizontal movement of girders to exceed ½ inch.

4.0 BASIS OF PAYMENT

Payment at the contract unit prices for the various pay items will be full compensation for the above work.

TEMPORARY BENTS**(9-30-11)**

When girder erection requires the use of temporary bents, design, construct, maintain and afterwards remove the temporary bents in accordance with the Standard Specifications and this Special Provision. For the purpose of this Special Provision, the term "temporary bents" includes girder erection temporary bents, vertical shoring and proprietary shoring systems.

Temporary bents for structures over railroads shall maintain a minimum horizontal clearance of 25' from center of track.

Design temporary bents in accordance with the 1995 AASHTO Guide Design Specification for Bridge Temporary Works (including the 2008 Interim Revisions) and the Project Special Provision entitled "Falsework and Formwork". The design calculations and detailed drawings of the structural components shall be signed and sealed by a North Carolina Registered Professional Engineer.

Submit design calculations and detailed drawings of temporary bents to the Engineer for review and approval. The detailed drawings shall show the position of the temporary bents in relationship to the existing travel way, the location of the temporary bents with respect to the ends of the girders, the top of support elevations for setting girders in the cambered position, and a girder erection procedure. For stream crossings, determine the bent stability assuming a scour depth equal to 250% of the pile diameter or width below the existing bed elevation. The Engineer may require a more detailed analysis of scour depth for temporary bents containing more than a single row of piles.

Include all material specifications for new and used materials in the detail drawings. In addition, show the location of the used materials indicating condition of the material, the location and geometry of existing but unused holes, attachments left over from previous use and any other irregularities in the material. Account for the condition of all used materials in the design calculations.

For all manufactured components, provide engineering data supplied by the manufacturer. For proprietary shoring systems, evaluate differential leg loading.

Provide access to all new and used materials for inspection prior to assembly.

Before the temporary bent is loaded, the contractor shall inspect the bent in the presence of the Engineer, and submit a written statement certifying that the erected bent complies with the approved detailed drawings. Any condition or material that does not comply with the accepted drawings, or any other condition deemed unsatisfactory by the Engineer, is cause for rejection until corrections are made.

Remove temporary bents in such a manner as to permit the structure to uniformly and gradually take the stresses due to its own weight. During removal do not disturb or otherwise damage the finished work.

Unless otherwise specified, temporary bents will not be directly measured. Payment will be full compensation at the contract unit prices for the various pay items requiring temporary bents.

THERMAL SPRAYED COATINGS (METALLIZATION)**(9-30-11)****1.0 DESCRIPTION**

Apply a thermal sprayed coating (TSC) and sealer to metal surfaces as specified herein when called for on the plans or by other Special Provisions, or when otherwise approved by the Engineer in accordance with the SSPC-CS 23.00/AWS C2.23/NACE No. 12 Specification. Only Arc Sprayed application methods are used to apply TSC coatings, the Engineer must approve other methods of application.

2.0 QUALIFICATIONS

Only use NCDOT approved TSC Contractors meeting the following requirements:

1. The capability of blast cleaning steel surfaces to SSPC SP-5 and SP-10 Finishes.
2. Employ Spray Operator(s) qualified in accordance with AWS C.16/C2.16M2002 and Quality Control Inspector(s) who have documented training in the applicable test procedures of ASTM D-3276 and SSPC-CS 23.00.

A summary of the contractor's related work experience and the documents verifying each Spray Operator's and Quality Control Inspector's qualifications are submitted to the Engineer before any work is performed.

3.0 MATERIALS

Provide wire in accordance with the metallizing equipment manufacturer's recommendations. Use the wire alloy specified on the plans which meets the requirements in Annex C of the SSPC-CS 23.00 Specification. Have the contractor provide a certified analysis (NCDOT Type 2 Certification) for each lot of wire material.

Apply an approved sealer to all metallized surfaces in accordance with Section 9 of SSPC- CS 23. The sealer must either meet SSPC Paint 27 or is an alternate approved by the Engineer.

4.0 SURFACE PREPARATION AND TSC APPLICATION

Grind flame cut edges to remove the carbonized surface prior to blasting. Bevel all flame cut edges in accordance with Article 442-10(D) regardless of included angle. Blast clean surfaces to be metallized with grit or mineral abrasive in accordance with Steel Structures Painting Council SSPC SP-5/10(as specified) to impart an angular surface profile of 2.5 - 4.0 mils. Surface preparation hold times are in accordance with Section 7.32 of SSPC-CS 23. If flash rusting occurs prior to metallizing, blast clean the metal surface again. Apply the thermal sprayed coating only when the surface temperature of the steel is at least 5°F above the dew point.

At the beginning of each work period or shift, conduct bend tests in accordance with Section 6.5 of SSPC-CS 23.00. Any disbonding or delamination of the coating that exposes the substrate requires corrective action, additional testing, and the Engineer's approval before resuming the metallizing process.

Apply TSC with the alloy to the thickness specified on the plans or as provided in the table below. All spot results (the average of 3 to 5 readings) must meet the minimum requirement. No additional tolerance (as allowed by SSPC PA-2) is permitted. (For Steel Beams: For pieces with less than 200 ft² measure 2 spots/surface per piece and for pieces greater than 200 ft² add 1 additional spots/surface for each 500 ft²).

Application	Thickness	Alloy	Seal Coat
Pot Bearings	8 mil	85/15 Zinc (W-Zn-Al-2)	0.5 mil
Armored Joint Angles	8 mil	85/15 Zinc (W-Zn-Al-2)	0.5 mil
Modular Joints	8 mil	99.99% Zn (W-Zn-1)	0.5 mil
Expansion Joint Seals	8 mil	99.99% Zn (W-Zn-1)	0.5 mil
Optional Disc Bearings	8 mil	85/15 Zinc (W-Zn-Al-2)	0.5 mil

When noted on the plans or as specified in the above chart, apply the sealer to all metallized surfaces in accordance with the manufacturer's recommendations and these provisions. Apply the seal coat only when the air temperature is above 40°F and the surface temperature of the steel is at least 5°F above the dew point. If the sealer is not applied within eight hours after the final application of TSC, the applicator verifies acceptable TSC surfaces and obtains approval from the Engineer before applying the sealer.

5.0 INSPECTION FREQUENCY

The TSC Contractor must conduct the following tests at the specified frequency and the results documented in a format approved by the Engineer.

Test/Standard	Location	Frequency	Specification
Ambient Conditions	Site	Each Process	5°F above the dew point
Abrasive Properties	Site	Each Day	Size, angularity, cleanliness
Surface Cleanliness SSPC Vis 1	All Surfaces	Visual All Surfaces	SSPC-SP-10 Atmospheric Service SSPC-SP - 5 Immersion Service
Surface Profile ASTM D-4417 Method C	Random Surfaces	3 per 500 ft ²	2.5 - 4.0 mils
Bend Test SSPC-CS 23.00	Site	5 per shift	Pass Visual
Thickness SSPC PA-2R SSPC-CS 23.00	Each Surface	Use the method in PA-2 Appendix 3 for Girders and Appendix 4 for frames and miscellaneous steel. See Note 1.	Zn - 8 mils minimum Al - 8 mils minimum Zn Al - 8 mils minimum Areas with more than twice the minimum thickness are inspected for compliance to the adhesion and cut testing requirements of this specification.
Adhesion ASTM 4541	Random Surfaces Splice Areas	1 set of 3 per 500 ft ²	Zn > 500 psi Al > 1000 psi Zn Al > 750 psi
Cut Test - SSPC-CS 23.00	Random Surfaces	3 sets of 3 per 500 ft ²	No peeling or delamination
Job Reference Std. SSPC-CS 23.00	Site	1 per job	Meets all the above requirements

6.0 REPAIRS

All Repairs are to be performed in accordance with the procedures below, depending on whether the repair surface is hidden or exposed. As an exception to the following, field welded splices on joint angles and field welding bearing plates to girders may be repaired in accordance with the procedures for hidden surfaces.

For hidden surfaces (including but not limited to interior girders, interior faces of exterior girders, and below-grade sections of piles):

1. Welding of metallized surfaces may be performed only if specifically permitted by the Engineer. Remove metallizing at the location of field welds by blast cleaning (SSPC SP-6 finish), or hand (SSPC SP-2 finish) or power tool cleaning (SSPC SP-3 finish) just prior to welding. Clean sufficiently to prevent contamination of the weld. All repairs to welded connections are metallized in accordance with SSPC CS 23.00.
2. Minor areas less than or equal to 0.1 ft^2 exposing the substrate are metallized in accordance with SSPC CS 23.00 or painted in accordance with ASTM A780, "Repair of Damaged and Uncoated Areas of Hot Dip Galvanized Coatings."
3. Large areas greater than 0.1 ft^2 exposing the substrate are metallized in accordance with SSPC CS 23.00.
4. Damaged (burnished) areas not exposing the substrate with less than the specified coating thickness are metallized in accordance with SSPC CS 23.00 or painted in accordance with ASTM A780, "Repair of Damaged and Uncoated Areas of Hot Dip Galvanized Coatings."
5. Damaged (burnished) areas not exposing the substrate with more than the specified coating thickness are not repaired.
6. Defective coating is repaired by either method 2 or 3 depending on the area of the defect.

For Exposed Surfaces (including but not limited to exterior faces of exterior girders and above-grade sections of piles):

1. Welding of metallized surfaces may be performed only if specifically permitted by the Engineer. Remove metallization at the location of field welds by blast cleaning (SSPC SP-6 finish), or hand (SSPC SP-2 finish) or power tool cleaning (SSPC SP-3 finish) just prior to welding. Clean sufficiently to prevent contamination of the weld. All repairs to welded connections are metallized in accordance with SSPC CS 23.00.
2. All areas exposing the substrate are metallized in accordance with SSPC CS 23.00
3. Defective coating is repaired by either method 2 or 3 depending on the area of the defect.

7.0 TWELVE MONTH OBSERVATION PERIOD

The contractor maintains responsibility for the coating system for a twelve (12) month observation period beginning upon the satisfactory completion of all the work required in the plans or as directed by the engineer. The contractor must guarantee the coating system under the payment and performance bond (refer to Article 109-10). To successfully complete the observation period, the coating system must meet the following requirements after twelve(12) months service:

- No visible rust, contamination or application defect is observed in any coated area.
- Painted surfaces have a uniform color and gloss.
- Surfaces have an adhesion of no less than 500 psi when tested in accordance with ASTM D-4541.

8.0 BASIS OF PAYMENT

The contract price bid for the bridge component to which the coating is applied will be full compensation for the thermal sprayed coating.

ELASTOMERIC CONCRETE

(9-27-12)

1.0 DESCRIPTION

Elastomeric concrete is a mixture of a two-part polymer consisting of polyurethane and/or epoxy and kiln-dried aggregate. Provide an elastomeric concrete and binder system that is preapproved. Use the concrete in the blocked out areas on both sides of the bridge deck joints as indicated on the plans.

2.0 MATERIALS

Provide materials that comply with the following minimum requirements at 14 days (or at the end of the specified curing time).

ELASTOMERIC CONCRETE PROPERTIES	TEST METHOD	MINIMUM REQUIREMENT
Compressive Strength, psi	ASTM D695	2000
5% Deflection Resilience	ASTM D695	95
Splitting Tensile Strength, psi	ASTM D3967	625
Bond Strength to Concrete, psi	ASTM D882 (D882M)	450
Durometer Hardness	ASTM D2240	50

BINDER PROPERTIES (without aggregate)	TEST METHOD	MINIMUM REQUIREMENT
Tensile Strength, psi	ASTM D638	1000
Ultimate Elongation	ASTM D638	150%
Tear Resistance, lb/in	ASTM D624	200

In addition to the requirements above, the elastomeric concrete must be resistant to water, chemical, UV and ozone exposure and withstand temperature extremes. Elastomeric concrete systems requiring preheated aggregates are not allowed.

3.0 PREQUALIFICATION

Manufacturers of elastomeric concrete materials shall submit samples (including aggregate, primer and binder materials) and a Type 3 certification in accordance with Article 106-3 of the Standard Specifications for prequalification to:

North Carolina Department of Transportation
Materials and Tests Unit
1801 Blue Ridge Road
Raleigh, NC 27607

Prequalification will be determined for the system. Individual components will not be evaluated, nor will individual components of previously evaluated systems be deemed prequalified for use.

The submitted binder (a minimum volume of 1 gallon) and corresponding aggregate samples will be evaluated for compliance with the Materials requirements specified above. Systems satisfying all of the Materials requirements will be prequalified for a one year period. Before the end of this period new product samples shall be resubmitted for prequalification evaluation.

If, at any time, any formulation or component modifications are made to a prequalified system that system will no longer be approved for use.

4.0 INSTALLATION

The elastomeric concrete shall not be placed until the reinforced concrete deck slab has cured for seven full days and reached a minimum strength of 3000 psi.

Provide a manufacturer's representative at the bridge site during the installation of the elastomeric concrete to ensure that all steps being performed comply with all manufacturer installation requirements including, but not limited to weather conditions (ambient temperature, relative humidity, precipitation, wind, etc), concrete deck surface preparation, binder and aggregate mixing, primer application, elastomeric concrete placement, curing

conditions and minimum curing time before joint exposure to traffic. Do not place elastomeric concrete if the ambient air or surface temperature is below 45°F.

Prepare the concrete surface within 48 hours prior to placing the elastomeric concrete. Before placing the elastomeric concrete, all concrete surfaces shall be thoroughly cleaned and dry. Sandblast the concrete surface in the blockout and clear the surface of all loose debris. Do not place the elastomeric concrete until the surface preparation is completed and approved.

Prepare and apply a primer, as per manufacturer's recommendations, to all concrete faces to be in contact with elastomeric concrete, and to areas specified by the manufacturer.

Prepare, batch, and place the elastomeric concrete in accordance with the manufacturer's instructions. Place the elastomeric concrete in the areas specified on the plans while the primer is still tacky and within 2 hours after applying the primer. Trowel the elastomeric concrete to a smooth finish.

The joint opening in the elastomeric concrete shall match the formed opening in the concrete deck prior to sawing the joint.

5.0 FIELD SAMPLING

Provide additional production material to allow freshly mixed elastomeric concrete to be sampled for acceptance. A minimum of six 2 inch cube molds and three 3x6 inch cylinders will be taken by the Department for each day's production. Compression, splitting tensile, and durometer hardness testing will be performed by the Department to determine acceptance. Materials failing to meet the requirements listed above are subject to removal and replacement at no cost to the Department.

6.0 BASIS OF PAYMENT

No separate payment will be made for elastomeric concrete. The lump sum contract price bid for "Foam Joint Seals" will be full compensation for furnishing and placing the Elastomeric Concrete.

FOAM JOINT SEALS

(9-27-12)

1.0 SEALS

Use preformed seals compatible with concrete and resistant to abrasion, oxidation, oils, gasoline, salt and other materials that are spilled on or applied to the surface. Use a resilient, UV stable, preformed, impermeable, flexible, expansion joint seal. The joint seal shall consist of low-density, closed cell, cross-linked polyethylene non-extrudable, foam. The joint seal shall contain no EVA (Ethylene Vinyl Acetate). Cell generation shall be achieved by being physically blown using nitrogen. No chemical blowing agents shall be used in the cell generation process.

Use seals manufactured with grooves $1/8'' \pm$ wide by $1/8'' \pm$ deep and spaced between $1/4''$ and $1/2''$ apart along the bond surface running the length of the joint. Use seals with a depth that meets the manufacturer's recommendation, but is not less than 70% of the uncompressed width. Provide a seal designed so that, when compressed, the center portion of the top does not extend upward above the original height of the seal by more than $1/4''$. Provide a seal that has a working range of 30% tension and 60% compression and meets the requirements given below.

TEST	TEST METHOD	REQUIREMENT
Tensile strength	ASTM D3575-08, Suffix T	110 – 130 psi
Compression Set	ASTM D1056 Suffix B, 2 hr recovery	10% - 16%
Water Absorption	ASTM D3575	$< 0.03 \text{ lb/ft}^2$
Elongation at Break	ASTM D3575	180% - 210%
Tear Strength	ASTM D624 (D3575-08, Suffix G)	14 – 20 pli
Density	ASTM D3575-08, Suffix W, Method A	$1.8 - 2.2 \text{ lb/ft}^3$
Toxicity	ISO-10993.5	Pass (not cytotoxic)

Have the top of the joint seal clearly shop marked. Inspect the joint seals upon receipt to ensure that the marks are clearly visible before installation.

2.0 BONDING ADHESIVE

Use a two component, 100% solid, modified epoxy adhesive supplied by the joint seal manufacturer that meets the requirements given below.

TEST	TEST METHOD	REQUIREMENT
Tensile strength	ASTM D638	3000 psi (min.)
Compressive strength	ASTM D695	7000 psi (min.)
Hardness	Shore D Scale	75-85 psi
Water Absorption	ASTM D570	0.25% by weight max.
Elongation to Break	ASTM D638	5% (max.)
Bond Strength	ASTM C882	2000 psi (min.)

Use an adhesive that is workable to 40°F. When installing in ambient air or surface temperatures below 40°F or for application on moist, difficult to dry concrete surfaces, use an adhesive specified by the manufacturer of the joint seal.

3.0 SAWING THE JOINT

The joint opening shall be initially formed to the width shown on the plans including the blockout for the elastomeric concrete.

The elastomeric concrete shall have sufficient time to cure such that no damage can occur to the elastomeric concrete prior to sawing to the final width and depth as specified in the plans.

When sawing the joint to receive the foam seal, always use a rigid guide to control the saw in the desired direction. To control the saw and to produce a straight line as indicated on the plans, anchor and positively connect a template or a track to the bridge deck. Do not saw the joint by visual means such as a chalk line. Fill the holes used for holding the template or track to the deck with an approved, flowable non-shrink, non-metallic grout.

Saw cut to the desired width and depth in one or two passes of the saw by placing and spacing two metal blades on the saw shaft to the desired width for the joint opening.

The desired depth is the depth of the seal plus 1/4" above the top of the seal plus approximately 1" below the bottom of the seal. An irregular bottom of sawed joint is permitted as indicated on the plans. Grind exposed corners on saw cut edges to a 1/4" chamfer.

Saw cut a straight joint, centered over the formed opening and to the desired width specified in the plans. Prevent any chipping or damage to the sawed edges of the joint.

Remove any staining or deposited material resulting from sawing with a wet blade to the satisfaction of the Engineer.

4.0 PREPARATION OF SAWED JOINT FOR SEAL INSTALLATION

The elastomeric concrete shall cure a minimum of 24 hours prior to seal installation.

After sawing the joint, the Engineer will thoroughly inspect the sawed joint opening for spalls, popouts, cracks, etc. All necessary repairs will be made by the Contractor prior to blast cleaning and installing the seal.

Clean the joints by sandblasting with clean dry sand immediately before placing the bonding agent. Sandblast the joint opening to provide a firm, clean joint surface free of curing compound, loose material and any foreign matter. Sandblast the joint opening without causing pitting or uneven surfaces. The aggregate in the elastomeric concrete may be exposed after sandblasting.

After blasting, either brush the surface with clean brushes made of hair, bristle or fiber, blow the surface with compressed air, or vacuum the surface until all traces of blast products and abrasives are removed from the surface, pockets, and corners.

If nozzle blasting is used to clean the joint opening, use compressed air that does not contain detrimental amounts of water or oil.

Examine the blast cleaned surface and remove any traces of oil, grease or smudge deposited in the cleaning operations.

Bond the seal to the blast cleaned surface on the same day the surface is blast cleaned.

5.0 SEAL INSTALLATION

Install the joint seal according to the manufacturer's procedures and recommendations and as recommended below. Do not install the joint seal if the ambient air or surface temperature is below 45°F. Have a manufacturer's certified trained factory representative present during the installation of the first seal of the project.

Before installing the joint seal, check the uninstalled seal length to insure the seal is the same length as the deck opening. When the joint seal requires splicing, use the heat welding method by placing the joint material ends against a teflon heating iron of 425-475°F for 7 - 10 seconds, then pressing the ends together tightly. Do not test the welding until the material has completely cooled.

Begin installation by protecting the top edges of the concrete deck adjacent to the vertical walls of the joint as a means to minimize clean up. After opening both cans of the bonding agent, stir each can using separate stirring rods for each component to prevent premature curing of the bonding agent. Pour the two components, at the specified mixing ratio, into a clean mixing bucket. Mix the components with a low speed drill (400 rpm max.) until a uniform gray color is achieved without visible marbling. Apply bonding agent to both sides of the elastomeric concrete as well as both sides of the joint seal, making certain to completely fill the grooves with epoxy. With gloved hands, compress the joint seal and with the help of a blunt probe, push the seal into the joint opening until the seal is recessed approximately 1/4" below the surface. When pushing down on the joint seal, apply pressure only in a downward direction. Do not push the joint seal into the joint opening at an angle that would stretch the material. Seals that are stretched during installation shall be removed and rejected. Once work on placing a seal begins, do not stop until it is completed. Clean the excess epoxy from the top of the joint seal immediately with a trowel. Do not use solvents or any cleaners to remove the excess epoxy from the top of the seal. Remove the protective cover at the joint edges and check for any excess epoxy on the surface. Remove excess epoxy with a trowel, the use of solvents or any cleaners will not be allowed.

The installed system shall be watertight and will be monitored until final inspection and approval. Do not place pavement markings on top of foam joint seals.

6.0 BASIS OF PAYMENT

Payment for all foam joint seals will be at the lump sum contract price bid for "Foam Joint Seals". Prices and payment will be full compensation for furnishing all material, including elastomeric concrete, labor, tools and equipment necessary for installing these units in place and accepted.

ELECTRICAL CONDUIT SYSTEM FOR SIGNALS

(9-30-11)

1.0 GENERAL

The work covered by this section consists of furnishing and installing a conduit system suspended beneath structures and buried. Perform all work in accordance with these special provisions, the plans, and the National Electrical Code (NEC). Install the conduit system in accordance with NEC requirements as an approved raceway for electrical circuits.

The Contractor actually performing the work described in these special provisions is required to have a license of the proper classification from the North Carolina State Board of Examiners of Electrical Contractors.

The licensed Electrical Contractor is required to be available on the job site when the work is being performed or when requested by the Engineer. The licensed Electrical Contractor is required to have a set of plans and special provisions in his possession on the job site, and must maintain accurate "as built" plans.

2.0 MATERIALS

Submit eight (8) copies of catalog cuts and/or drawings for all proposed materials for the Engineer's review and approval. Include the brand name, stock number, description, size, rating, manufacturing specification, and applicable contract item number(s) on each submittal. Allow forty (40) days for submittal review. The Engineer will advise the Contractor of reasons for rejected submittals and will return approved submittals to the Contractor. Do not deliver material to the project prior to submittal approval.

For the work covered by this section, the term conduit applies to a system of components consisting of an outer duct, 4 inner ducts, internal spacers, special-purpose spin couplings and all necessary components, referred to as a multi-cell raceway system.

For the outer duct of RGC multi-cell raceway, use rigid galvanized conduit per UL 6 "Rigid Metallic Conduit" with rigid full weight galvanized threaded fittings. Provide factory installed reverse-spin couplings with 3 set screws, to allow assembly without turning the outer duct, and prevent the coupling from backing off before and after installation. Provide an O-ring gasket in the coupling body to resist pullout and to create a watertight seal. Provide pre-installed, smooth walled, pre-lubricated PVC inner ducts, with one white "tracer" duct and internal spacers to maintain alignment throughout the raceway system. Do not use materials provided by more than one manufacturer.

When deflection couplers are detailed on the plans, use deflection couplers that are designed for use with RGC multi-cell raceway, and meet all the requirements for RGC outer duct stated above. Provide deflection couplers that allow a 30 degree bend in any direction and $\frac{3}{4}$ inch mis-alignment in all axis. Provide factory installed reverse-spin couplings with 3 set screws, to allow assembly without turning the outer duct, and prevent the coupling from backing off before and after installation. Provide deflection couplers with a middle section consisting of a rubber boot attached by spin couplings and galvanized straps, with inner ducts that bend in unison with the rubber boot.

Use expansion joints that are designed for use with RGC multi-cell raceway, and meet the requirements for RGC outer duct stated above. Provide expansion joints that allow 8 inches of longitudinal movement. Use expansion joints consisting of a female end with a lead-in coupling body and spin coupling, an exterior sliding joint, and a fixed inner duct with an internal sliding joint. Provide expansion joints that have factory installed reverse-spin couplings with 3 set screws, to allow assembly without turning the outer duct and prevent the coupling from backing off before and after installation.

Use transition adapters that allow RGC raceway and PVC raceway to be coupled together while maintaining the same inner duct alignment. Provide adapters consisting of a threaded female adapter, an outer duct adapter, and a modified coupling body with a sleeve, thin wall couplings and an end spacer.

For the outer duct of PVC multi-cell raceway use schedule 40 PVC per UL 651 "Rigid Nonmetallic Conduit." Use PVC raceway with 6 inch bell ends and an O-ring gasket to resist pullout and provide a watertight seal. Provide PVC raceway having a print line that states "Install Print Line Up" to help facilitate correct installation. Use PVC raceway with pre-lubricated PVC inner ducts, with one white "tracer" duct and internal spacers to maintain alignment throughout the raceway system. Do not use material provided by more than one manufacturer.

Use terminations designed for PVC raceway, to seal each inner duct and the outer duct, and to provide watertight protection.

Use schedule 40 PVC for sleeves in accordance with UL 651 "Rigid Nonmetallic Conduit."

Provide concrete inserts made of galvanized malleable iron, with internal threads for suspending loads from a fixed point beneath a concrete ceiling or deck where no lateral adjustment is required. Use inserts that can be secured to the concrete forms, preventing movement during concrete placement.

For stabilizers and hangers, use galvanized rods that conform to ASTM-A36 or A-575. Galvanized rods may be threaded on both ends or threaded continuously. Use steel stabilizer clamps and attachment brackets, sized as noted in the plans and hot dipped galvanized per ASTM-A123. Provide high strength bolts, nuts and washers that are galvanized in accordance with Article 1072-5 of the Standard Specifications.

Use adjustable clevis-type pipe hangers that allow for vertical adjustment and limited movement of the pipe. Use galvanized pipe hangers that are listed with

Underwriters Laboratories, or are Factory Mutual approved for the size conduit shown in the plans. Use hangers that comply with Federal Specification WW-H-171E Type 1 and Manufacturers Standardization Society SP-69 Type 1. Plastic-coat the saddle area of the hanger.

Provide pull lines specifically designed for pulling rope through conduit. Use pull lines made of 2-ply line, with a tensile strength of 240 pounds minimum. Use rot and mildew resistant pull lines that are resistant to tangling when being dispensed.

Use mastic that is a permanent, non-hardening, water sealing compound that adheres to metal, plastic, and concrete.

Provide jute that is a burlap-like material used for filling voids and protecting components from waterproofing and adhesive compounds.

Provide zinc rich paint conforming to Section 1080-9 of the Standard Specifications.

3.0 INSTALLATION

To ensure against corrosion in the area where hot dipped galvanizing has been damaged, cover all raw metal surfaces with a cold galvanized, zinc rich paint.

Stub the raceway out at an accessible location and seal with termination kits designed specifically for that purpose. Use termination kits of the same material as the raceway.

Install Stabilizers as shown on the plans to assure proper movement of the conduit expansion joints. Securely fasten the clamps with attachment brackets and stabilizer rods to the conduit at the indicated locations to assure these locations remain stationary. Install the stabilizer rods parallel to the alignment of the conduit, and tilt rod upward at an orientation of 45 degrees to the bottom of the bridge deck.

Insert a pull line in each inner duct with sufficient slack for future use.

Securely fasten all components to prevent movement during concrete placement.

Smooth all sleeve ends and make them flush with surrounding concrete surfaces. Remove burrs and rough edges by filing or grinding. A torch may be used to cut the ends of metal sleeves. Use shields to protect all surfaces during torch-cutting operations.

Place backfill in accordance with Section 300-7 of the Standard Specifications.

Fill the space between the raceway and the sleeve with mastic and jute. Install the mastic with a minimum distance of 2 inches at each end of the sleeve and the remaining interior space filled with jute. Finish the mastic by making it smooth and flush with the concrete.

Coordinate electrical conduit system work with work by others, and allow installation of circuitry or fiber optic cables during the construction process as directed by the Engineer.

Ensure that the concrete inserts are in the proper position and installed correctly, including when they are located in prestressed concrete deck panels.

Keep the raceway system clean of all debris during construction, with the completed system clean and ready for installation of circuitry or fiber optic cables.

The Engineer must inspect and approve all work before concealment.

4.0 BASIS OF PAYMENT

No direct measurement will be made for the conduit system, since it will be paid for on a lump sum basis.

Payment for the conduit system will be made at the contract lump sum price for “Electrical Conduit System for Signals at station _____”.

Such price and payment for the conduit system as provided above will be considered full compensation for all materials, equipment, and labor necessary to complete the work in accordance with the plans and these special provisions.

Payment will be made under:

Electrical Conduit System for Signals at station _____ Lump Sum

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.

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'-2 1/2" 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 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 ² 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**(2-10-12)****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 Resident Engineer. Either the Structure Design 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 Resident 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 Resident Engineer, Structure Design 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 Structure Design Unit, use the following addresses:

Via US mail:

Mr. G. R. Perfetti, P. E.
State Bridge Design Engineer
North Carolina Department
of Transportation
Structure Design Unit
1581 Mail Service Center
Raleigh, NC 27699-1581

Attention: Mr. P. D. Lambert, P. E.

Via other delivery service:

Mr. G. R. Perfetti, P. E.
State Bridge Design Engineer
North Carolina Department
of Transportation
Structure Design Unit
1000 Birch Ridge Drive
Raleigh, NC 27610

Attention: Mr. P. D. Lambert, P. E.

Submittals may also be made via email.

Send submittals to:

plambert@ncdot.gov (Paul Lambert)

Send an additional e-copy of the submittal to the following address:

jgaither@ncdot.gov (James Gaither)

jlbolden@ncdot.gov (James Bolden)



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. John Pilipchuk, L. G., 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. John Pilipchuk, L. G., P. E.
Western Region 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 Structure Design Unit can be viewed from the Unit's web site, via the "Contractor Submittal" 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 plambert@ncdot.gov
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Secondary Structures Contacts:	James Gaither	(919) 707 – 6409
	James Bolden	(919) 707 – 6408

Eastern Regional Geotechnical Contact (Divisions 1-7):

K. J. Kim	(919) 662 – 4710 (919) 662 – 3095 facsimile kkim@ncdot.gov
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Western Regional Geotechnical Contact (Divisions 8-14):

John Pilipchuk (704) 455 – 8902
 (704) 455 – 8912 facsimile
 jpilipchuk@ncdot.gov

3.0 SUBMITTAL COPIES

Furnish one complete copy of each submittal, including all attachments, to the Resident Engineer. At the same time, submit the number of hard copies shown below of the same complete submittal directly to the Structure Design Unit and/or the Geotechnical Engineering Unit.

The first table below covers “Structure Submittals”. The Resident Engineer will receive review comments and drawing markups for these submittals from the Structure Design Unit. The second table in this section covers “Geotechnical Submittals”. The Resident 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 Structure Design 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

Submittal	Copies Required by Structure Design Unit	Copies Required by Geotechnical Engineering Unit	Contract Reference Requiring Submittal ¹
Arch Culvert Falsework	5	0	Plan Note, SN Sheet & “Falsework and Formwork”
Box Culvert Falsework ⁷	5	0	Plan Note, SN Sheet & “Falsework and Formwork”
Cofferdams	6	2	Article 410-4
Foam Joint Seals ⁶	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”
Expansion Joint Seals (strip seals)	9	0	“Strip Seals”

Falsework & Forms ² (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 ^{4,5}	7	0	Article 1072-8
Miscellaneous Metalwork ^{4,5}	7	0	Article 1072-8
Optional Disc Bearings ⁴	8	0	“Optional 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
Pot Bearings ⁴	8	0	“Pot Bearings”
Precast Concrete Box Culverts	2, then 1 reproducible	0	“Optional Precast Reinforced Concrete Box Culvert at Station ____”
Prestressed Concrete Cored Slab (detensioning sequences) ³	6	0	Article 1078-11
Prestressed Concrete Deck Panels	6 and 1 reproducible	0	Article 420-3
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 ⁵	7	0	Article 1072-8 & “Sound Barrier Wall”
Structural Steel ⁴	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 ⁴	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 Structure Design 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

Submittal	Copies Required by Geotechnical Engineering Unit	Copies Required by Structure Design Unit	Contract Reference Requiring Submittal ¹
Drilled Pier Construction Plans ²	1	0	Subarticle 411-3(A)
Crosshole Sonic Logging (CSL) Reports ²	1	0	Subarticle 411-5(A)(2)
Pile Driving Equipment Data Forms ^{2,3}	1	0	Subarticle 450-3(D)(2)
Pile Driving Analyzer (PDA) Reports ²	1	0	Subarticle 450-3(F)(3)
Retaining Walls ⁴	8 drawings, 2 calculations	2 drawings	Applicable Provisions
Temporary Shoring ⁴	5 drawings, 2 calculations	2 drawings	“Temporary Shoring” & “Temporary Soil Nail Walls”

FOOTNOTES

- 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*.
- Submit one hard copy of submittal to the Resident or Bridge Maintenance 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.
- The Pile Driving Equipment Data Form is available from:
www.ncdot.org/doh/preconstruct/highway/geotech/formdet/
See second page of form for submittal instructions.
- 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.

DISC BEARINGS

(SPECIAL)

1.0 GENERAL

This item consists of furnishing and installation of disc bearings in accordance with AASHTO LRFD Bridge Design Specifications, the Standard Specifications, the recommendations of the manufacturer, the details shown on the plans, and as specified herein. Disc Bearings consist of a polyether urethane structural element (elastomer disc) confined by upper and lower steel bearing plates. Equip disc bearings with a shear restriction mechanism (shear pin) to prevent movement of the disc. Supply disc bearings as fixed bearings and guided expansion bearings as designated by the Contract Documents.

Fixed disc bearings allow rotation in any direction but no translation. Fixed bearings consist of a sole plate, upper bearing plate, an elastomer disc, shear pin, lower bearing plate, masonry plate, anchor bolts, nuts and washers.

Guided expansion disc bearings allow rotation in any direction and translation in the direction shown on the plans. Guided expansion disc bearings consist of a sole plate, a top steel plate with a polished stainless steel sheet facing, guide bars or keyway system with a polished stainless steel facing on the sliding surfaces, an upper bearing plate with polytetrafluoroethylene (PTFE) bonded to its top and sides to align with the stainless steel sheet on the top plate and guide bars or keyway system, an elastomer disc, shear pin, lower bearing plate, masonry plate, anchor bolt assembly which includes anchor bolts, nuts,

washers, pipe sleeves, a closure plate, grout and various sizes of standard pipe and any other necessary material as detailed on the plans.

2.0 MATERIALS

Use disc bearings produced by the same manufacturer.

Polytetrafluoroethylene (PTFE):

For the PTFE sheet, used as a mating surface for the stainless sheet, provide an unfilled virgin PTFE Sheet (Recessed) or a glass-fiber filled PTFE sheet, resulting from skiving billets formed under hydraulic pressure and heat. Provide resin that conforms to the requirements of ASTM D4894 or D4895.

To bond the PTFE and the bearing plate, use heat cured high temperature epoxy capable of withstanding temperature of -320°F to 500°F (-195 °C to 260 °C).

Polyether Urethane Structural Element:

Mold the polyether urethane structural element from a polyether urethane compound. Conform the physical properties of the polyether urethane to the following requirements:

Physical Property	ASTM Test Method	Requirements	
		Min.	Max.
Hardness, Type D Durometer	D2240	60	64
Tensile Stress psi (Mpa) At 100% elongation At 200% elongation	D412	2000 (13.8) 3700 (25.5)	----
Tensile Strength psi (Mpa)	D412	5000 (34.5)	----
Ultimate Elongation %	D412	220	----
Compression Set % 22 hrs. at 158°F (70°C)	D395	----	40

Structural Steel:

Use AASHTO M270 Grade 50W (345W) for all structural steel in the disc bearings. Clean, coat, and seal the plates in the disc bearing assemblies except for the areas with special facings and the areas that come in contact with the elastomer disc, in accordance with the Special Provision for "Thermal Sprayed Coatings (Metallization)". Coat surfaces to a thickness of 8 mils (0.200 mm) minimum on all external parts. Repair surfaces that are abraded or damaged after the application of metallizing in accordance with the Special Provision for "Thermal Sprayed Coatings (Metallization)".

Stainless Steel Sheets:

When the maximum plan dimension of the stainless steel sheet in expansion bearings is 12" (300 mm) or less, provide a sheet that is at least 16 gage or 1/16" (1.6 mm). When the maximum plan dimension is greater than 12" (300 mm), provide a stainless steel sheet that is at least 11 gage or 1/8" (3 mm). Ensure that all stainless steel sheets are in conformance with ASTM A240/A167 Type 304 and polished to a minimum #8 mirror surface finish.

Blast clean the surface of the plate that will be attached to the stainless sheet to a near white condition in accordance with the Standard Specifications. Position and clamp the back of the stainless sheet that is to be in contact with the steel plate on the steel plate. Apply the stainless steel to the blast cleaned surface of the steel plate as soon as possible after blasting and before any visible oxidation of the blast cleaned surface occurs. Weld the stainless sheet continuously around its perimeter using a tungsten inert gas, wire-fed welder.

Anchor Bolts:

Provide anchor bolts and nuts in accordance with the Standard Specifications.

3.0 DESIGN

Design the disc bearings for the loads and movements shown on the contract plans. However, use the anchor bolt size, length, spacing and masonry plate thickness as shown on the contract plans and provide an overall height of the bearing assembly that is at least the height shown on the contract plans, but no more than 1/2 inch (13 mm) greater than this height. Either combine and cast the sole plate and top plate/upper bearing plate and the lower bearing plate and masonry plate as a single unit or weld together prior to the installation of the disc.

When designing the bearings, use the following allowable bearing stresses:

- On polyether urethane structural element: 5000 psi (34.5 MPa)
- On PTFE Sliding Surface, filled or unfilled PTFE (recessed): 3500 psi (24.1 MPa)

Submit eight sets of shop drawings and one set of design calculations for review, comments and acceptance. Have a North Carolina Registered Professional Engineer check and seal the shop drawings and design calculations.

After the Engineer reviews the drawings and, if necessary, corrections are made, submit one 22" x 34" reproducible set of the working drawings.

4.0 SAMPLING AND TESTING

A. Sampling

The manufacturer is responsible for randomly selecting and testing sample bearings from completed lots of bearings. The manufacturer is also responsible for certifying that the completed bearings and their components have been tested and are in compliance with the requirements of this Special Provision. The manufacturer shall furnish the results of the tests to the Materials and Tests Engineer.

B. Testing

1. Proof Load Test

Load a test bearing to 150% of the bearing's rated design capacity and simultaneously subject it to a rotational range of 0.02 radians (1.146°) for a period of 1 hour.

Have the bearing visually examined both during the test and upon disassembly after the test. Any resultant visual defects, such as extruded or deformed elastomer or PTFE, damaged seals or rings, or cracked steel is cause for rejection.

Keep continuous and uniform contact between the polyether urethane element and the bearing plates and between the sliding steel top plate and the upper bearing plate for the duration of the test. Any observed lift-off is cause for rejection.

2. Sliding Coefficient of Friction

For all guided type bearings, measure the sliding coefficient of friction at the bearing's design capacity in accordance with the test method described below, and on the fifth and fiftieth cycles, at a sliding speed of 1 in/min (25 mm/min).

Calculate the sliding coefficient of friction as the horizontal load required to maintain continuous sliding of one bearing, divided by the bearing's vertical design capacity.

The test results are evaluated as follows:

- A maximum measured sliding coefficient of friction of 3%.
- A visual examination both during and after the test. Any resultant visual defects, such as bond failure, physical destruction, cold flow of PTFE to the point of debonding, or damaged components is cause for rejection of the lot.

Using undamaged test bearings in the work is permitted.

3. Test Method

The test method and equipment shall meet the following requirements:

- a. Arrange the test to determine the coefficient of friction on the first movement of the manufactured bearing.
- b. Clean the bearing surface prior to testing.
- c. Conduct the test at maximum working stress for the PTFE surface with the test load applied continuously for 12 hours prior to measuring friction.
- d. Determine the first movement static and dynamic coefficient of friction of the test bearing at a sliding speed of less than 1 in/min (25 mm/min), not to exceed:

0.04	unfilled PTFE
0.08	filled PTFE
- e. Subject the bearing specimen to 100 movements of at least 1 inch (25 mm) of relative movement and, if the test facility permits, the full design movement at a speed of less than 1 ft/min (300 mm/min). Following this test determine the static and kinetic coefficient of friction again. The specimen is considered a failure if it exceeds the values measured in (d) above or if it shows any signs of bond failure or other defects.

Bearings represented by test specimens passing the above requirements are approved for use in the structure subject to on-site inspection for visible defects.

5.0 INSTALLATION

Store disc bearings delivered to the bridge site under cover on a platform above the ground surface. Protect the bearings from injury at all times and, before placing the bearings, dry and clean all dirt, oil, grease or other foreign substances from the bearing. Do not disassemble the bearings during installation, except at the manufacturer's direction. Place the bearings in accordance with the recommendations of the manufacturer, Contract Drawings, and as directed by the Engineer. If there is any discrepancy between the recommendations of the manufacturer, Special Provisions, and Contract Drawings, the Engineer is the sole judge in reconciling any such discrepancy.

Provide preformed bearing pads under the masonry plates in accordance with Article 1079-1 of the Standard Specifications.

Do not install any bearing before the Engineer approves it.

6.0 BASIS OF PAYMENT

Payment for all disc bearings will be at the lump sum contract price bid for "Disc Bearings" which includes full compensation for furnishing all disc bearings, labor,

materials, tools, equipment, testing and incidentals required to complete the work in accordance with the Standard Specifications, this Special Provision, the manufacturer's requirements and as directed by the Engineer.

MECHANICALLY STABILIZED EARTH RETAINING WALLS

(7-17-12)

1.0 GENERAL

Construct mechanically stabilized earth (MSE) retaining walls consisting of steel or geogrid reinforcement in the reinforced zone connected to vertical facing elements. The facing elements may be precast concrete panels or segmental retaining wall (SRW) units unless required otherwise in the plans or the *NCDOT Policy for Mechanically Stabilized Earth Retaining Walls* prohibits the use of SRW units. At the Contractor's option, use coarse or fine aggregate in the reinforced zone of MSE retaining walls except do not use fine aggregate for walls subject to scour, walls that support or are adjacent to railroads or walls with design heights greater than 35 ft or internal acute corners less than 45°. 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 "MSE wall" as a mechanically stabilized earth retaining wall and "MSE Wall Vendor" as the vendor supplying the chosen MSE wall system. Define a "segmental retaining wall" as an MSE wall with SRW units and an "abutment wall" as an MSE wall with bridge foundations in the reinforced zone. Define "reinforcement" as steel or geogrid reinforcement and "aggregate" as coarse or fine aggregate. Define "panel" as a precast concrete panel and "coping" as precast or cast-in-place concrete coping.

Use an approved MSE wall system in accordance with the plans, NCDOT MSE wall policy and any NCDOT restrictions for the chosen system. Value engineering proposals for other MSE wall systems will not be considered. Do not use segmental retaining walls or MSE wall systems with an "approved for provisional use" status code for critical walls or MSE walls connected to critical walls. Critical walls are defined in the NCDOT MSE wall policy. The list of approved MSE wall systems and NCDOT MSE wall policy are available from:

www.ncdot.org/doh/preconstruct/highway/geotech/msewalls

2.0 MATERIALS

Refer to the *Standard Specifications*.

Item	Section
Aggregate	1014
Anchor Pins	1056-2
Curing Agents	1026
Geotextiles, Type 2	1056
Joint Materials	1028
Portland Cement Concrete, Class A	1000
Precast Retaining Wall Coping	1077

Fine aggregate is exempt from mortar strength and siliceous particle content referenced in Subarticles 1014-1(E) and 1014-1(H) of the *Standard Specifications*. Provide fine aggregate that meets the following requirements:

FINE AGGREGATE REQUIREMENTS

Reinforcement or Connector Material	pH	Resistivity	Chlorides	Sulfates	Organics
Steel	5-10	$\geq 3,000 \Omega \cdot \text{cm}$	$\leq 100 \text{ ppm}$	$\leq 200 \text{ ppm}$	$\leq 1\%$
Polyester Type (PET) Geogrid	5-8	N/A*	N/A*	N/A*	$\leq 1\%$
Polyolefin Geogrid	4.5-9	N/A*	N/A*	N/A*	$\leq 1\%$

* Resistivity, chlorides and sulfates are not applicable to geogrid.

Use fine aggregate from a source that meets the *Mechanically Stabilized Earth Wall Fine Aggregate Sampling and Testing Manual*. Perform organic content tests in accordance with AASHTO T 267 instead of Subarticle 1014-1(D) of the *Standard Specifications*. Perform electrochemical tests 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 geogrid reinforcement supplied by the MSE Wall Vendor or a manufacturer approved or licensed by the vendor. Use approved reinforcement 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.

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*.

Geogrid Reinforcement

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

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.

Provide panels and SRW units produced by a manufacturer approved or 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 geogrids 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.

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 geogrid reinforcement. 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*.

C. Bearing Pads

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).

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 approved miscellaneous components 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.

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. 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

Submit 11 copies of working drawings and 3 copies of design calculations and a PDF copy of each for MSE wall designs at least 30 days before the preconstruction meeting. 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 defined for the embedment requirements in this provision or 6 ft, whichever is greater, unless shown 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 approved design parameters 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:

CARBON STEEL CORROSION RATES

Aggregate Type (in the reinforced zone)	Corrosion Loss Rate (after zinc depletion)
Coarse	0.47 mil/year
Fine (except abutment walls)	0.58 mil/year
Fine (abutment walls)	0.70 mil/year

For geogrid reinforcement and connectors, use approved geogrid 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 C11.5.5-3(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 geogrid reinforcement rupture:

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

Where,

- ϕ = resistance factor for tensile resistance in accordance with Section 7.2.1 of the FHWA MSE wall manual,
- T_{al} = long-term geogrid design strength approved for chosen MSE wall system,
- R_c = reinforcement coverage ratio = 1 for continuous geogrid 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:

EMBEDMENT REQUIREMENTS		
Front Slope¹ (H:V)	Minimum Embedment Depth² (whichever is greater)	
6:1 or flatter (except abutment walls)	H/20	1 ft for $H \leq 10$ 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 base of reinforced zone behind 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 walls with panels, place at least 2 bearing pads in each horizontal panel joint so the final horizontal joint opening is between 5/8" and 7/8". Additional bearing pads may be required for panels wider than 5 ft as determined by the Engineer. Cover joints at back of panels with filtration geotextiles at least 12" wide.

For segmental retaining walls, fill SRW unit core spaces with coarse aggregate and between and behind SRW units with coarse aggregate for a horizontal distance of at least 18".

Separation geotextiles are required between aggregate and overlying fill or pavement sections except when concrete pavement, full depth asphalt or cement treated base is placed directly on aggregate. Separation geotextiles may also be required between coarse aggregate and backfill or natural ground as determined by the Engineer.

Unless required otherwise in the plans, use reinforced concrete coping at top of walls. Extend coping at least 6" above where the grade intersects back of coping unless required otherwise in the plans. Use coping dimensions shown in the plans and cast-in-place concrete coping for segmental retaining walls and when noted in the plans. At the Contractor's option, connect cast-in-place concrete coping to panels and SRW units with dowels or extend coping down back of MSE walls. Also, connect cast-in-place leveling concrete for precast concrete coping to panels with dowels. 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 required resistances, 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 14.2 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 MSEW 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. Schedule this meeting after all MSE wall submittals have been accepted. The Resident or Bridge Maintenance Engineer, Bridge Construction Engineer, Geotechnical Operations Engineer, Contractor and MSE Wall Installer Superintendent will attend this preconstruction meeting.

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 the Materials and Tests (M&T) Unit 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. 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 with no negative batter (wall face leaning forward) so the final wall position is as shown in the accepted submittals. Place SRW units with a maximum vertical joint width of 3/8".

Set panels with a vertical joint width of 3/4". Place bearing pads in horizontal panel joints 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.

Stagger panels and SRW units to create a running bond by centering panels or SRW units over joints in the row below as shown in the accepted submittals. Construct MSE walls with the following tolerances:

- A. SRW units are level from front to back and between units when checked with a 3 ft long level,
- B. 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
- C. Final wall plumbness (batter) is 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 geogrids 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*.

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 ditches or concrete slope protection with silicone sealant.

7.0 MEASUREMENT AND PAYMENT

MSE Retaining Wall No. ____ will be measured and paid in square feet. MSE walls will be measured as the square feet of exposed wall face area with the height equal to the difference between top and bottom of wall elevations. Define "top of wall" as top of coping or top of panels or SRW units for MSE walls without coping. Define "bottom of wall" as shown in the plans and no measurement will be made for portions of MSE walls embedded below bottom of wall elevations.

The contract unit price for *MSE Retaining Wall No. ____* 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 No. ____* 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 No. ____*.

The contract unit price for *MSE Retaining Wall No. ____* 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 No. ____

Pay Unit

Square Foot

SEGMENTAL GRAVITY RETAINING WALLS

(1-17-12)

1.0 GENERAL

- Construct segmental gravity retaining walls consisting of segmental retaining wall (SRW) units supported by aggregate footings. If the plans do not include Standard Drawing No. 453.02 or 453.03, design and construct segmental gravity retaining walls based on actual elevations, wall dimensions and batter in accordance with the contract and accepted submittals. Otherwise, construct segmental gravity retaining walls based on actual elevations, wall dimensions and batter in accordance with the contract, accepted submittals and Standard Drawing No. 453.02 or 453.03.
- Define “block wall” as a segmental gravity retaining wall and “standard block wall” as a block wall that meets a standard segmental gravity retaining wall drawing (Standard Drawing No. 453.02 or 453.03). Define “blocks” as SRW units, “cap blocks” as SRW cap units and “Block Vendor” as the vendor licensing the block producer.

2.0 MATERIALS

Refer to the *Standard Specifications*.

Item	Section
Anchor Pins	1056-2
Geotextiles, Type 2	1056
Segmental Retaining Wall Units	1040-4
Select Material, Class VI	1016
Silicone Sealant	1028-3
Subsurface Drainage Materials	815-2
Wire Staples	1060-8(D)

Provide Type 2 geotextile for separation geotextiles. Use Class VI select material for No. 57 stone. Provide PVC pipes, fittings, outlet pipes and concrete pads for subsurface drainage materials. For PVC pipes behind block walls, use pipes with perforations that meet AASHTO M 278.

Provide blocks produced by a manufacturer approved or licensed by the Block Vendor. Unless required otherwise in the plans, use blocks with a depth (front to back) of at least 12" and cap blocks with a depth of at least 8".

Use approved SRW units for standard block walls. Blocks for standard block walls are approved for either 2 ft or 4 ft maximum design heights with the design height as shown in Standard Drawing No. 453.02 or 453.03. The list of approved SRW units with maximum design heights is available from:

www.ncdot.org/doh/preconstruct/highway/geotech/seggravwalls

Do not mix blocks from different Block Vendors on the same block wall. Damaged blocks with excessive discoloration, chips or cracks as determined by the Engineer will be rejected.

Provide adhesives recommended by the Block Vendor. Store adhesives in accordance with the manufacturer's instructions. Load, transport, unload and store block wall materials so materials are kept clean and free of damage.

3.0 PRECONSTRUCTION REQUIREMENTS

A. Block Wall Surveys

The plans typically show a plan view, typical sections, details, notes and an elevation or profile view (wall envelope) for each block wall. Before beginning block wall design or construction, survey existing ground elevations along wall face locations and other elevations in the vicinity of block wall locations as needed. Based on these elevations, finished grades and actual block wall dimensions, details and batter, submit wall envelopes for acceptance. Use accepted wall envelopes for design, if required, and construction.

B. Block Wall Designs

If the plans do not include Standard Drawing No. 453.02 or 453.03, submit 11 copies of working drawings and 3 copies of design calculations and a PDF copy of each for block wall designs at least 30 days before starting block wall construction. Do not begin block wall construction until a design submittal is accepted.

Design block walls in accordance with the plans and Article 11.11 of the *AASHTO LRFD Bridge Design Specifications* unless otherwise required. Design block walls for the wall batter required by the Block Vendor and clearances shown in the plans. Do not locate blocks or footings outside right-of-way or easement limits.

Use No. 57 stone for aggregate footings beneath blocks. Use 10" thick footings that are continuous at steps and extend at least 6" in front of and at least 9" behind bottom row of blocks. Unless required otherwise in the plans, embed bottom of footings at least 18" below bottom of walls shown in the plans. When noted in the plans, locate a 4" diameter continuous perforated PVC drain pipe in the No. 57 stone in back of footings.

Fill block core spaces with No. 57 stone and between and behind blocks with No. 57 stone for a horizontal distance of at least 12" so stone is continuous in all directions. Assume a unit weight of 100 lb/cf for No. 57 stone. Separation geotextiles are required between No. 57 stone and backfill or natural ground and between stone and overlying fill or pavement section except when concrete pavement, full depth asphalt or cement treated base is placed directly on stone.

Use cap blocks at top of walls. Step top of walls as shown in the plans and double stack cap blocks at steps so cap blocks are continuous at steps. Extend top of walls 4" to 12" above where finished grade intersects back of blocks or cap blocks. When single faced precast concrete barrier is required in front of and against block walls, fill voids between barrier and wall faces with No. 57 stone.

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 required resistances, typical sections, No. 57 stone and geotextile locations and details of footings, blocks, cap blocks, etc. If necessary, include details on working drawings for obstructions extending through walls or interfering with footings. Submit design calculations for each wall section with different geometry or material parameters. When designing block walls with computer software, a hand calculation is required for the tallest wall section. Provide block wall designs sealed by an engineer licensed in the state of North Carolina.

4.0 CONSTRUCTION METHODS

Control drainage during construction in the vicinity of block walls. Direct run off away from block walls, No. 57 stone and backfill. Contain and maintain stone and backfill and protect material from erosion.

Excavate as necessary for block walls in accordance with the plans and accepted submittals. Notify the Engineer when foundation excavation is complete. Do not place No. 57 stone for footings until excavation dimensions and foundation material are approved.

Construct aggregate footings at elevations and with dimensions shown in the plans and accepted submittals. If a drain is required, install wall drainage systems consisting of drains and outlet components as shown in the plans and accepted submittals and in accordance with Section 815 of the *Standard Specifications*. Compact No. 57 stone for footings with a vibratory compactor to the satisfaction of the Engineer.

Stack blocks with no negative wall batter (wall face leaning forward) so the final wall position is as shown in the plans and accepted submittals. Place blocks with a maximum vertical joint width of 3/8". Stagger blocks to create a running bond by centering blocks over joints in the row below as shown in the plans and accepted submittals. Construct block walls with the following tolerances:

- A. Blocks are level from front to back and between blocks when checked with a 3 ft long level,

- B. Final wall face is within 2" of horizontal and vertical alignment shown in the plans and accepted submittals, and
- C. Wall batter is within 2° of batter required by the Block Vendor.

Overlap adjacent separation geotextiles at least 18" at seams and hold geotextiles in place with wire staples or anchor pins as needed. Place No. 57 stone between and behind blocks in 8" to 10" thick lifts. Compact stone with hand operated compaction equipment to the satisfaction of the Engineer. Backfill for block walls behind No. 57 stone in accordance with Article 410-8 of the *Standard Specifications*.

Set cap blocks with a 1/2" to 1-1/2" overhang as shown in the plans and accepted submittals. Place cap blocks using adhesive in accordance with the manufacturer's instructions. Do not place cap blocks if surfaces caps will be attached to are wet or frozen or the air temperature measured at the wall location in the shade away from artificial heat is below 40°F. Before applying adhesive, clean surfaces cap blocks will adhere to and ensure surfaces are dry and free of oil, grease, dust and debris. Seal joints above and behind block walls between blocks and ditches with silicone sealant.

5.0 MEASUREMENT AND PAYMENT

Segmental Gravity Retaining Walls will be measured and paid in square feet. Block walls will be measured as the square feet of exposed wall face area with the height equal to the difference between top and bottom of wall elevations. Define "top of wall" as top of cap blocks. Define "bottom of wall" as shown in the plans and no measurement will be made for portions of block walls embedded below bottom of wall elevations.

The contract unit price for *Segmental Gravity Retaining Walls* will be full compensation for providing designs, if required, submittals, labor, tools, equipment and block wall materials, excavating, backfilling, hauling and removing excavated materials and supplying footings, blocks, No. 57 stone, wall drainage systems, geotextiles, cap blocks and any incidentals necessary to construct block walls.

The contract unit price for *Segmental Gravity Retaining Walls* does not include the cost for ditches, fences, handrails, barrier or guardrail associated with block walls as these items will be paid for elsewhere in the contract.

Where it is necessary to provide backfill material behind No. 57 stone 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
Segmental Gravity Retaining Walls

Pay Unit
Square Foot

PILE DRIVING CRITERIA**(9-18-12)**

Revise the *2012 Standard Specifications* as follows:

Page 4-72, Subarticle 450-3(D)(3) Required Driving Resistance, lines 26-30, delete first paragraph and replace with the following:

The Engineer will determine if the proposed pile driving methods and equipment are acceptable and provide the blows/ft and equivalent set for the required driving resistance noted in the plans, i.e., "pile driving criteria" except for structures with pile driving analyzer (PDA) testing. For structures with PDA testing, provide pile driving criteria for any bents and end bents with piles in accordance with Subarticle 450-3(F)(4).

Page 4-73, Subarticle 450-3(F) Pile Driving Analyzer, lines 45-48, delete third paragraph and replace with the following:

The Engineer will complete the review of the proposed pile driving methods and equipment within 7 days of receiving PDA reports and pile driving criteria. Do not place concrete for caps or footings on piles until PDA reports and pile driving criteria have been accepted.

Page 4-75, Subarticle 450-3(F) Pile Driving Analyzer, add the following:

(4) Pile Driving Criteria

Analyze pile driving with the GRL Wave Equation Analysis Program (GRLWEAP) manufactured by Pile Dynamics, Inc. Use the same PDA Consultant that provides PDA reports to perform GRLWEAP analyses and develop pile driving criteria. Provide driving criteria sealed by an engineer approved as a Project Engineer (key person) for the same PDA Consultant.

Analyze pile driving so driving stresses, energy transfer, ram stroke and blows/ft from PDA testing and resistances from CAPWAP analyses correlate to GRLWEAP models. Provide pile driving criteria for each combination of required driving resistance and pile length installed for all pile types and sizes. Submit 2 copies of pile driving criteria with PDA reports. Include the following for driving criteria:

- (a) Project information in accordance with Subarticle 450-3(F)(3)(a)
- (b) Table showing blows/ft and equivalent set vs. either stroke for multiple strokes in increments of 6" or bounce chamber pressure for multiple pressures in increments of 1 psi
- (c) Maximum stroke or blows/ft or pile cushion requirements to prevent overstressing piles as needed
- (d) GRLWEAP software version information
- (e) PDF copy of all pile driving criteria and executable GRLWEAP input and output files

Page 4-76, Article 450-4 MEASUREMENT AND PAYMENT, add the following:

The contract unit price for *PDA Testing* will also be full compensation for performing GRLWEAP analysis and developing and providing pile driving criteria.

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, Sickledrop, 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:

<u>Restricted Noxious Weed</u>	<u>Limitations per Lb. Of Seed</u>	<u>Restricted Noxious Weed</u>	<u>Limitations per Lb. of Seed</u>
Blessed Thistle	4 seeds	Cornflower (Ragged Robin)	27 seeds
Cocklebur	4 seeds	Texas Panicum	27 seeds
Spurred Anoda	4 seeds	Bracted Plantain	54 seeds
Velvetleaf	4 seeds	Buckhorn Plantain	54 seeds
Morning-glory	8 seeds	Broadleaf Dock	54 seeds
Corn Cockle	10 seeds	Curly Dock	54 seeds
Wild Radish	12 seeds	Dodder	54 seeds
Purple Nutsedge	27 seeds	Giant Foxtail	54 seeds
Yellow Nutsedge	27 seeds	Horsenettle	54 seeds
Canada Thistle	27 seeds	Quackgrass	54 seeds
Field Bindweed	27 seeds	Wild Mustard	54 seeds
Hedge Bindweed	27 seeds		

Seed of Pensacola Bahiagrass shall not contain more than 7% inert matter, Kentucky Bluegrass, Centipede and Fine or Hard Fescue shall not contain more than 5% inert matter whereas a maximum of 2% inert matter will be allowed on all other kinds of seed. In addition, all seed shall not contain more than 2% other crop seed nor more than 1% total weed seed. The germination rate as tested by the North Carolina Department of Agriculture shall not fall below 70%, which includes both dormant and hard seed. Seed shall be labeled with not more than 7%, 5% or 2% inert matter (according to above specifications), 2% other crop seed and 1% total weed seed.

Exceptions may be made for minimum pure live seed allowances when cases of seed variety shortages are verified. Pure live seed percentages will be applied in a verified shortage situation. Those purchase orders of deficient seed lots will be credited with the percentage that the seed is deficient.

FURTHER SPECIFICATIONS FOR EACH SEED GROUP ARE GIVEN BELOW:

Minimum 85% pure live seed; maximum 1% total weed seed; maximum 2% total other crop seed; maximum 144 restricted noxious weed seed per pound. Seed less than 83% pure live seed will not be approved.

Sericea Lespedeza
Oats (seeds)

Minimum 80% pure live seed; maximum 1% total weed seed; maximum 2% total other crop; maximum 144 restricted noxious weed seed per pound. Seed less than 78% pure live seed will not be approved.

Tall Fescue (all approved varieties)
Kobe Lespedeza
Korean Lespedeza
Weeping Lovegrass
Carpetgrass

Bermudagrass
Browntop Millet
German Millet – Strain R
Clover – Red/White/Crimson

Minimum 78% pure live seed; maximum 1% total weed seed; maximum 2% total other crop seed; maximum 144 restricted noxious weed seed per pound. Seed less than 76% pure live seed will not be approved.

Common or Sweet Sundangrass

Minimum 76% pure live seed; maximum 1% total weed seed; maximum 2% total other crop seed; maximum 144 restricted noxious weed seed per pound. Seed less than 74% pure live seed will not be approved.

Rye (grain; all varieties)
Kentucky Bluegrass (all approved varieties)
Hard Fescue (all approved varieties)
Shrub (bicolor) Lespedeza

Minimum 70% pure live seed; maximum 1% total weed seed; maximum 2% total other crop seed; maximum 144 noxious weed seed per pound. Seed less than 70% pure live seed will not be approved.

Centipedegrass

Crownvetch

Pensacola Bahiagrass

Creeping Red Fescue

Japanese Millet

Reed Canary Grass

Zoysia

Minimum 70% pure live seed; maximum 1% total weed seed; maximum 2% total other crop seed; maximum 5% inert matter; maximum 144 restricted noxious weed seed per pound.

Barnyard Grass

Big Bluestem

Little Bluestem

Bristly Locust

Birdsfoot Trefoil

Indiangrass

Orchardgrass

Switchgrass

Yellow Blossom Sweet Clover

STANDARD SPECIAL PROVISION**ERRATA**

(1-17-12) (Rev. 9-18-12)

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 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 10

Page 10-74, Table 1056-1 Geotextile Requirements, replace “50%” for the UV Stability (Retained Strength) of Type 5 geotextiles with “70%”.

Division 12

Page 12-7, Table 1205-3, add “FOR THERMOPLASTIC” to the end of the title.

Page 12-8, Subarticle 1205-5(B), line 13, replace “Table 1205-2” with “Table 1205-4”.

Page 12-8, Table 1205-4 and 1205-5, replace “THERMOPLASTIC” in the title of these tables with “POLYUREA”.

Page 12-9, Subarticle 1205-6(B), line 21, replace “Table 1205-4” with “Table 1205-6”.

Page 12-11, Subarticle 1205-8(C), line 25, replace “Table 1205-5” with “Table 1205-7”.

Division 15

Page 15-6, 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)

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.com/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)

Z-6

“The North Carolina Department of Transportation, in accordance with the provisions of *Title VI of the Civil Rights Act of 1964* (78 Stat. 252) and the Regulations of the Department of Transportation (*49 C.F.R., Part 21*), issued pursuant to such act, hereby notifies all bidders that it will affirmatively insure that the contract entered into pursuant to this advertisement will be awarded to the lowest responsible bidder without discrimination on the ground of race, color, or national origin”.

STANDARD SPECIAL 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 AreasArea 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 FemaleParticipation in Each Trade

(Statewide) 6.9%

STANDARD SPECIAL PROVISION**REQUIRED CONTRACT PROVISIONS FEDERAL - AID CONSTRUCTION CONTRACTS**

FHWA - 1273 Electronic Version - May 1, 2012

Z-8

- I. General
- II. Nondiscrimination
- III. Nonsegregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
- X. Compliance with Governmentwide Suspension and Debarment Requirements
- XI. Certification Regarding Use of Contract Funds for Lobbying

ATTACHMENTS

- A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).
The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.
Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.
Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).
2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.
3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.
4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. **Equal Employment Opportunity:** Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are

incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

- a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.
- b. The contractor will accept as its operating policy the following statement:
"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."
2. **EEO Officer:** The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.
3. **Dissemination of Policy:** All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:
 - a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.
 - b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.
 - c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.
 - d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.
 - e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.
4. **Recruitment:** When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.
 - a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.
 - b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.
 - c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.
5. **Personnel Actions:** Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:
 - a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.
 - b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.
 - c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.
 - d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.
6. **Training and Promotion:**
 - a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.
 - b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).
 - c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.
 - d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. **Unions:** If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:
 - a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.
 - b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.
 - c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.
 - d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.
8. **Reasonable Accommodation for Applicants / Employees with Disabilities:** The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.
9. **Selection of Subcontractors, Procurement of Materials and Leasing of Equipment:** The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.
 - a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.
 - b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.
10. **Assurance Required by 49 CFR 26.13(b):**
 - a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.
 - b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.
11. **Records and Reports:** The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.
 - a. The records kept by the contractor shall document the following:
 - (1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;
 - (2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and
 - (3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;
 - b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages

- a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the

Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

- b. (1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:
 - (i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and
 - (ii) The classification is utilized in the area by the construction industry; and
 - (iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.
- (2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.
- (3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.
- (4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.
- c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.
- d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program. Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.
2. **Withholding.** The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.
3. **Payrolls and basic records**
 - a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.
 - b. (1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the

payrolls shall only need to include an individually identifying number for each employee (e.g. , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at [http://www.dol.gov/esa/whd/forms/ wh347instr.htm](http://www.dol.gov/esa/whd/forms/wh347instr.htm) or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency.

- (2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:
 - (i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;
 - (ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;
 - (iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.
- (3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.
- (4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.
- c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees

- a. Apprentices (programs of the USDOL). Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

- b. Trainees (programs of the USDOL). Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

- c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.
- d. Apprentices and Trainees (programs of the U.S. DOT). Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.
5. **Compliance with Copeland Act requirements.** The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.
6. **Subcontracts.** The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.
7. **Contract termination; debarment.** A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.
8. **Compliance with Davis-Bacon and Related Act requirements.** All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.
9. **Disputes concerning labor standards.** Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.
10. **Certification of eligibility.**
 - a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).
 - b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).
 - c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. **Overtime requirements.** No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.
2. **Violation; liability for unpaid wages; liquidated damages.** In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.
3. **Withholding for unpaid wages and liquidated damages.** The FHWA or the 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.

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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.

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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.

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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. 7-21-09)

Z-10

Description

The North Carolina Department of Transportation will administer a custom version of the Federal On-the-Job Training (OJT) Program, commonly referred to as the Alternate OJT Program. All contractors (existing and newcomers) will be automatically placed in the Alternate Program. Standard OJT requirements typically associated with individual projects will no longer be applied at the project level. Instead, these requirements will be applicable on an annual basis for each contractor administered by the OJT Program Manager.

On the Job Training shall meet the requirements of 23 CFR 230.107 (b), 23 USC – Section 140, this provision and the On-the-Job Training Program Manual.

The Alternate OJT Program will allow a contractor to train employees on Federal, State and privately funded projects located in North Carolina. However, priority shall be given to training employees on NCDOT Federal-Aid funded projects.

Minorities and Women

Developing, training and upgrading of minorities and women toward journeyman level status is a primary objective of this special training provision. Accordingly, the Contractor shall make every effort to enroll minority and women as trainees to the extent that such persons are available within a reasonable area of recruitment. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

Assigning Training Goals

The Department, through the OJT Program Manager, will assign training goals for a calendar year based on the contractors' past three years' activity and the contractors' anticipated upcoming year's activity with the Department. At the beginning of each year, all contractors eligible will be contacted by the Department to determine the number of trainees that will be assigned for the upcoming calendar year. At that time the Contractor shall enter into an agreement with the Department to provide a self-imposed on-the-job training program for the calendar year. This agreement will include a specific number of annual training goals agreed to by both parties. The number of training assignments may range from 1 to 15 per contractor per calendar year. The Contractor shall sign an agreement to fulfill their annual goal for the year. A sample agreement is available at www.ncdot.org/business/ocs/ojt/.

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
MINIMUM WAGES
GENERAL DECISION NC120090 01/06/2012 NC90

Z-90

Date: January 6, 2012

General Decision Number: NC120090 01/06/2012 NC90

Superseded General Decision Numbers: NC20100127

State: North Carolina

Construction Type: HIGHWAY

COUNTIES:

Anson
Cabarrus
Gaston
Mecklenburg
Union

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

Modification Number
0

Publication Date
01/06/2012

SUNC2011-071 09/16/2011

	Rates	Fringes
CARPENTER (Form Work Only)	14.70	
CEMENT MASON/CONCRETE FINISHER		
Anson, Cabarrus, and Gaston Counties	12.87	
Mecklenburg County	12.62	
Union County	12.75	
INSTALLER (Guardrail) (includes Guardrail/Post Driver Work)	11.16	
IRONWORKER (Reinforcing)	14.88	
LABORER		
Asphalt, Asphalt Distributor, Raker, and Spreader	11.78	
Common or General		
Anson and Cabarrus Counties	11.14	
Gaston County	10.63	
Mecklenburg County	11.55	
Union County	10.32	
Concrete Saw	14.26	
Landscape	10.35	
Luteman	12.88	
Mason Tender (Cement/Concrete)	11.25	
Pipelayer	12.93	
Traffic Control (Cone Setter)	12.53	
Traffic Control (Flagger)	9.99	

	Rates	Fringes
POWER EQUIPMENT OPERATORS		
Backhoe/Excavator/Trackhoe		
Anson, Cabarrus, and Gaston Counties	14.21	
Mecklenburg County	13.79	
Union County	14.53	
Broom/Sweeper	13.97	
Bulldozer		
Anson, Cabarrus, and Gaston Counties	15.46	
Mecklenburg County	15.90	
Union County	14.96	
Crane	19.11	
Curb Machine	14.43	
Distributor	14.99	
Drill	16.68	
Grader/Blade		
Anson, Cabarrus, Gaston, and Union Counties	17.99	
Mecklenburg County	18.65	
Loader		
Anson, Cabarrus, Gaston, and Union Counties	14.46	
Mecklenburg County	14.43	
Mechanic	17.13	
Milling Machine	15.80	
Oiler	14.36	
Paver	16.65	
Roller		
Anson, Cabarrus, Gaston, and Union Counties	13.22	
Mecklenburg County	13.29	
Scraper	15.85	
Screed	15.23	
Tractor	14.47	
TRUCK DRIVER		
4 Axle Truck	11.90	
Distributor	16.75	
Dump Truck		
Anson, Cabarrus, and Gaston Counties	13.46	
Mecklenburg County	13.79	
Union County	13.49	
Flatbed Truck	15.02	
Lowboy Truck		
Anson, Cabarrus, Gaston, and Mecklenburg Counties	15.26	
Union County	15.23	
Off the Road Truck	15.00	
Single Axle Truck	12.13	
Tack Truck	16.52	
Water Truck	13.16	

Welders – Receive rate prescribed for craft performing operation to which welding is incidental.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR 5.5(a)(1)(ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is union or non-union.

Union Identifiers

An identifier enclosed in dotted lines beginning with characters other than "SU" denotes that the union classification and rate have found to be prevailing for that classification. Example: PLUM0198-005 07/01/2011. The first four letters, PLUM, indicate the international union and the four-digit number, 0198, that follows indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2011, following these characters is the effective date of the most current negotiated rate/collective bargaining agreement which would be July 1, 2011 in the above example.

Union prevailing wage rates will be updated to reflect any changes in the collective bargaining agreements governing the rate.

Non-Union Identifiers

Classifications listed under an "SU" identifier were derived from survey data by computing average rates and are not union rates; however, the data used in computing these rates may include both union and non-union data. Example: SULA2004-007 5/13/2010. SU indicates the rates are not union rates, LA indicates the State of Louisiana; 2004 is the year of the survey; and 007 is an internal number used in producing the wage determination. A 1993 or later date, 5/13/2010, indicates the classifications and rates under that identifier were issued as a General Wage Determination on that date.

Survey wage rates will remain in effect and will not change until a new survey is conducted.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U. S. Department of Labor
200 Constitution Avenue, N.W.
Washington, D.C. 20210

- 2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, D.C. 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

- 3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, D.C. 20210

- 4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
ROADWAY ITEMS						
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	1 ACR		
0005	0022000000-E	225	UNCLASSIFIED EXCAVATION	59,000 CY		
0006	0036000000-E	225	UNDERCUT EXCAVATION	40,500 CY		
0007	0106000000-E	230	BORROW EXCAVATION	315,900 CY		
0008	0127000000-N	SP	EMBANKMENT SETTLEMENT GAUGES	10 EA		
0009	0134000000-E	240	DRAINAGE DITCH EXCAVATION	1,120 CY		
0010	0141000000-E	240	BERM DITCH CONSTRUCTION	850 LF		
0011	0156000000-E	250	REMOVAL OF EXISTING ASPHALT PAVEMENT	73,840 SY		
0012	0177000000-E	250	BREAKING OF EXISTING ASPHALT PAVEMENT	10,280 SY		
0013	0192000000-N	260	PROOF ROLLING	15 HR		
0014	0195000000-E	265	SELECT GRANULAR MATERIAL	10,000 CY		
0015	0196000000-E	270	GEOTEXTILE FOR SOIL STABILIZA-TION	60,200 SY		
0016	0199000000-E	SP	TEMPORARY SHORING	663 SF		
0017	0241000000-E	SP	GENERIC GRADING ITEM GEOTEXTILE FOR PAVEMENT STABI-LIZATION	24,000 SY		
0018	0255000000-E	SP	GENERIC GRADING ITEM HAULING & DISPOSAL OF PETROLE-UM CONTAMINATED SOIL	450 TON		

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0019	0318000000-E	300	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES	12,883 TON		
0020	0320000000-E	300	FOUNDATION CONDITIONING GEOTEXTILE	12,610 SY		
0021	0366000000-E	310	15" RC PIPE CULVERTS, CLASS III	2,512 LF		
0022	0372000000-E	310	18" RC PIPE CULVERTS, CLASS III	856 LF		
0023	0378000000-E	310	24" RC PIPE CULVERTS, CLASS III	756 LF		
0024	0384000000-E	310	30" RC PIPE CULVERTS, CLASS III	180 LF		
0025	0390000000-E	310	36" RC PIPE CULVERTS, CLASS III	636 LF		
0026	0448200000-E	310	15" RC PIPE CULVERTS, CLASS IV	19,692 LF		
0027	0448300000-E	310	18" RC PIPE CULVERTS, CLASS IV	4,916 LF		
0028	0448400000-E	310	24" RC PIPE CULVERTS, CLASS IV	4,328 LF		
0029	0448500000-E	310	30" RC PIPE CULVERTS, CLASS IV	2,340 LF		
0030	0448600000-E	310	36" RC PIPE CULVERTS, CLASS IV	812 LF		
0031	0576000000-E	310	*** CS PIPE CULVERTS, ***** THICK (36", 0.079")	40 LF		
0032	0582000000-E	310	15" CS PIPE CULVERTS, 0.064" THICK	724 LF		
0033	0588000000-E	310	18" CS PIPE CULVERTS, 0.064" THICK	272 LF		
0034	0636000000-E	310	*** CS PIPE ELBOWS, ***** THICK (15", 0.064")	2 EA		
0035	0636000000-E	310	*** CS PIPE ELBOWS, ***** THICK (36", 0.079")	2 EA		

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0036	0986000000-E	SP	GENERIC PIPE ITEM 18" CS SLOTTED DRAIN, 0.064" THICK	84 LF		
0037	0995000000-E	340	PIPE REMOVAL	17,356 LF		
0038	1011000000-N	500	FINE GRADING	Lump Sum	L.S.	
0039	1099500000-E	505	SHALLOW UNDERCUT	20,000 CY		
0040	1099700000-E	505	CLASS IV SUBGRADE STABILIZA- TION	40,000 TON		
0041	1110000000-E	510	STABILIZER AGGREGATE	1,500 TON		
0042	1220000000-E	545	INCIDENTAL STONE BASE	7,000 TON		
0043	1297000000-E	607	MILLING ASPHALT PAVEMENT, ****" DEPTH (1-1/2")	4,730 SY		
0044	1297000000-E	607	MILLING ASPHALT PAVEMENT, ****" DEPTH (3")	78,290 SY		
0045	1297000000-E	607	MILLING ASPHALT PAVEMENT, ****" DEPTH (4")	200 SY		
0046	1297000000-E	607	MILLING ASPHALT PAVEMENT, ****" DEPTH (4-1/2")	2,700 SY		
0047	1330000000-E	607	INCIDENTAL MILLING	8,540 SY		
0048	1489000000-E	610	ASPHALT CONC BASE COURSE, TYPE B25.0B	19,170 TON		
0049	1491000000-E	610	ASPHALT CONC BASE COURSE, TYPE B25.0C	42,620 TON		
0050	1498000000-E	610	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B	15,090 TON		
0051	1503000000-E	610	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0C	28,690 TON		

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0052	1519000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	15,190 TON		
0053	1523000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE S9.5C	27,370 TON		
0054	1575000000-E	620	ASPHALT BINDER FOR PLANT MIX	7,347 TON		
0055	1693000000-E	654	ASPHALT PLANT MIX, PAVEMENT REPAIR	3,300 TON		
0056	2022000000-E	815	SUBDRAIN EXCAVATION	224 CY		
0057	2033000000-E	815	SUBDRAIN FINE AGGREGATE	168 CY		
0058	2044000000-E	815	6" PERFORATED SUBDRAIN PIPE	1,000 LF		
0059	2070000000-N	815	SUBDRAIN PIPE OUTLET	2 EA		
0060	2077000000-E	815	6" OUTLET PIPE	12 LF		
0061	2190000000-N	828	TEMPORARY STEEL PLATE COVERS FOR MASONRY DRAINAGE STRUCTURE	27 EA		
0062	2209000000-E	838	ENDWALLS	2 CY		
0063	2253000000-E	840	PIPE COLLARS	8.91 CY		
0064	2264000000-E	840	PIPE PLUGS	3.27 CY		
0065	2275000000-E	SP	FLOWABLE FILL	40 CY		
0066	2286000000-N	840	MASONRY DRAINAGE STRUCTURES	548 EA		
0067	2308000000-E	840	MASONRY DRAINAGE STRUCTURES	218.2 LF		
0068	2355000000-N	840	FRAME WITH GRATE, STD 840.29	2 EA		
0069	2364000000-N	840	FRAME WITH TWO GRATES, STD 840.16	125 EA		
0070	2366000000-N	840	FRAME WITH TWO GRATES, STD 840.24	12 EA		

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0071	2367000000-N	840	FRAME WITH TWO GRATES, STD 840.29	119 EA		
0072	2374000000-N	840	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E)	28 EA		
0073	2374000000-N	840	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F)	111 EA		
0074	2374000000-N	840	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G)	115 EA		
0075	2396000000-N	840	FRAME WITH COVER, STD 840.54	38 EA		
0076	2418000000-E	SP	FRAME WITH GRATES, DRIVEWAY DROP INLET	96 LF		
0077	2451000000-N	852	CONCRETE TRANSITIONAL SECTION FOR DROP INLET	37 EA		
0078	2535000000-E	846	***X *** CONCRETE CURB (8" X 12")	10,690 LF		
0079	2542000000-E	846	1'-6" CONCRETE CURB & GUTTER	700 LF		
0080	2549000000-E	846	2'-6" CONCRETE CURB & GUTTER	46,630 LF		
0081	2580000000-E	846	CONCRETE VALLEY GUTTER	690 LF		
0082	2591000000-E	848	4" CONCRETE SIDEWALK	28,130 SY		
0083	2605000000-N	848	CONCRETE CURB RAMP	120 EA		
0084	2612000000-E	848	6" CONCRETE DRIVEWAY	5,610 SY		
0085	2619000000-E	850	4" CONCRETE PAVED DITCH	11 SY		
0086	2655000000-E	852	5" MONOLITHIC CONCRETE ISLANDS (KEYED IN)	9,400 SY		
0087	2703000000-E	854	CONCRETE BARRIER, TYPE ***** (T)	5,950 LF		

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0088	2703000000-E	854	CONCRETE BARRIER, TYPE ***** (T1)	2,620 LF		
0089	2703000000-E	854	CONCRETE BARRIER, TYPE ***** (T2)	200 LF		
0090	2710000000-N	854	CONCRETE BARRIER TRANSITION SECTION	6 EA		
0091	2724000000-E	857	PRECAST REINFORCED CONCRETE BARRIER, SINGLE FACED	860 LF		
0092	2738000000-E	SP	GENERIC PAVING ITEM TEMPORARY 4" CONCRETE SIDEWALK	630 SY		
0093	2759000000-N	SP	GENERIC PAVING ITEM MEDIAN HAZARD PROTECTION	3 EA		
0094	2759000000-N	SP	GENERIC PAVING ITEM TEMPORARY CONCRETE CURB RAMP	6 EA		
0095	2830000000-N	858	ADJUSTMENT OF MANHOLES	4 EA		
0096	2850000000-N	858	GENERIC DRAINAGE ITEM ADJUSTMENT OF JUNCTION BOXES	1 EA		
0097	2875000000-N	859	CONVERT EXISTING CATCH BASIN TO DROP INLET	1 EA		
0098	2893000000-N	859	CONVERT EXISTING CATCH BASIN TO JUNCTION BOX WITH MANHOLE	1 EA		
0099	2905000000-N	859	CONVERT EXISTING DROP INLET TO JUNCTION BOX	1 EA		
0100	2938000000-N	859	CONVERT EXISTING DROP INLET TO JUNCTION BOX WITH MANHOLE	4 EA		
0101	2995000000-N	SP	GENERIC DRAINAGE ITEM CONVERT EXT CATCH BASIN TO TRAFFIC BEARING JUNCTION BOX W/ MANHOLE	5 EA		
0102	2995000000-N	SP	GENERIC DRAINAGE ITEM CONVERT EXT TRAFFIC BEARING JUNCTION BOX TO CATCH BASIN	7 EA		

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0103	2995000000-N	SP	GENERIC DRAINAGE ITEM CONVERT EXT TRAFFIC BEARING DI TO TRAFFIC BEARING JUNCTION BOX	7 EA		
0104	3000000000-N	SP	IMPACT ATTENUATOR UNIT, TYPE 350	5 EA		
0105	3030000000-E	862	STEEL BM GUARDRAIL	3,662.5 LF		
0106	3060000000-E	862	STEEL BM GUARDRAIL, DOUBLE FACED	875 LF		
0107	3105000000-N	862	STEEL BM GUARDRAIL TERMINAL SECTIONS	2 EA		
0108	3150000000-N	862	ADDITIONAL GUARDRAIL POSTS	10 EA		
0109	3180000000-N	862	GUARDRAIL ANCHOR UNITS, TYPE ***** (NJ-25)	1 EA		
0110	3210000000-N	862	GUARDRAIL ANCHOR UNITS, TYPE CAT-1	6 EA		
0111	3215000000-N	862	GUARDRAIL ANCHOR UNITS, TYPE III	12 EA		
0112	3270000000-N	SP	GUARDRAIL ANCHOR UNITS, TYPE 350	10 EA		
0113	3536000000-E	866	CHAIN LINK FENCE, 48" FABRIC	7,826 LF		
0114	3542000000-E	866	METAL LINE POSTS FOR 48" CHAIN LINK FENCE	658 EA		
0115	3548000000-E	866	METAL TERMINAL POSTS FOR 48" CHAIN LINK FENCE	63 EA		
0116	3575000000-E	SP	GENERIC FENCING ITEM PEDESTRIAN SAFETY RAIL	40 LF		
0117	3656000000-E	876	GEOTEXTILE FOR DRAINAGE	4,700 SY		
0118	4054000000-E	902	PLAIN CONCRETE SIGN FOUNDA- TIONS	1 CY		
0119	4057000000-E	SP	OVERHEAD FOOTING	70 CY		

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0120	4060000000-E	903	SUPPORTS, BREAKAWAY STEEL BEAM	872 LB		
0121	4072000000-E	903	SUPPORTS, 3-LB STEEL U-CHANNEL	5,166 LF		
0122	4079000000-N	903	SUPPORTS, BARRIER (SMALL)	25 EA		
0123	4082100000-N	SP	SUPPORTS, OVERHEAD SIGN STRUCTURE AT STA ***** (116+30-LLT-)	Lump Sum	L.S.	
0124	4082100000-N	SP	SUPPORTS, OVERHEAD SIGN STRUCTURE AT STA ***** (23+00-LRT-)	Lump Sum	L.S.	
0125	4082100000-N	SP	SUPPORTS, OVERHEAD SIGN STRUCTURE AT STA ***** (35+80-LRT-)	Lump Sum	L.S.	
0126	4082100000-N	SP	SUPPORTS, OVERHEAD SIGN STRUCTURE AT STA ***** (49+10-LLT-)	Lump Sum	L.S.	
0127	4082100000-N	SP	SUPPORTS, OVERHEAD SIGN STRUCTURE AT STA ***** (61+00-LRT-)	Lump Sum	L.S.	
0128	4082100000-N	SP	SUPPORTS, OVERHEAD SIGN STRUCTURE AT STA ***** (75+90-LLT-)	Lump Sum	L.S.	
0129	4082100000-N	SP	SUPPORTS, OVERHEAD SIGN STRUCTURE AT STA ***** (87+50-LRT-)	Lump Sum	L.S.	
0130	4082100000-N	SP	SUPPORTS, OVERHEAD SIGN STRUCTURE AT STA ***** (92+00-LLT-)	Lump Sum	L.S.	
0131	4096000000-N	904	SIGN ERECTION, TYPE D	4 EA		
0132	4102000000-N	904	SIGN ERECTION, TYPE E	209 EA		
0133	4108000000-N	904	SIGN ERECTION, TYPE F	19 EA		
0134	4110000000-N	904	SIGN ERECTION, TYPE *** (GROUND MOUNTED) (A)	4 EA		
0135	4114000000-N	904	SIGN ERECTION, MILEMARKERS	10 EA		

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0136	4155000000-N	907	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	113 EA		
0137	4238000000-N	907	DISPOSAL OF SIGN, D, E OR F	19 EA		
0138	4400000000-E	1110	WORK ZONE SIGNS (STATIONARY)	2,410 SF		
0139	4405000000-E	1110	WORK ZONE SIGNS (PORTABLE)	960 SF		
0140	4410000000-E	1110	WORK ZONE SIGNS (BARRICADE MOUNTED)	430 SF		
0141	4415000000-N	1115	FLASHING ARROW BOARD	6 EA		
0142	4420000000-N	1120	PORTABLE CHANGEABLE MESSAGE SIGN	8 EA		
0143	4422000000-N	1120	PORTABLE CHANGEABLE MESSAGE SIGN (SHORT TERM)	100 DAY		
0144	4430000000-N	1130	DRUMS	945 EA		
0145	4435000000-N	1135	CONES	100 EA		
0146	4445000000-E	1145	BARRICADES (TYPE III)	660 LF		
0147	4455000000-N	1150	FLAGGER	124 DAY		
0148	4465000000-N	1160	TEMPORARY CRASH CUSHIONS	9 EA		
0149	4470000000-N	1160	RESET TEMPORARY CRASH CUSHION	25 EA		
0150	4480000000-N	1165	TMA	4 EA		
0151	4485000000-E	1170	PORTABLE CONCRETE BARRIER	18,530 LF		
0152	4490000000-E	1170	PORTABLE CONCRETE BARRIER (ANCHORED)	200 LF		
0153	4500000000-E	1170	RESET PORTABLE CONCRETE BARRIER	42,240 LF		
0154	4507000000-E	1170	WATER FILLED BARRIER	12,510 LF		

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0155	4508000000-E	1170	RESET WATER FILLED BARRIER	5,500 LF		
0156	4510000000-N	SP	LAW ENFORCEMENT	600 HR		
0157	4516000000-N	1180	SKINNY DRUM	710 EA		
0158	4520000000-N	1266	TUBULAR MARKERS (FIXED)	57 EA		
0159	4589000000-N	SP	GENERIC TRAFFIC CONTROL ITEM PROTECTIVE CANOPY	Lump Sum	L.S.	
0160	4650000000-N	1251	TEMPORARY RAISED PAVEMENT MARKERS	5,990 EA		
0161	4685000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)	22,884 LF		
0162	4686000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)	34,589 LF		
0163	4695000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)	5,951 LF		
0164	4697000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (8", 120 MILS)	45,946 LF		
0165	4710000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)	1,384 LF		
0166	4721000000-E	1205	THERMOPLASTIC PAVEMENT MARKING CHARACTER (120 MILS)	69 EA		
0167	4725000000-E	1205	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)	242 EA		
0168	4770000000-E	1205	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (III)	3,280 LF		
0169	4780000000-E	1205	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (8") (III)	50 LF		
0170	4805000000-N	1205	COLD APPLIED PLASTIC PAVEMENT MARKING SYMBOL, TYPE ** (III)	5 EA		

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0171	4810000000-E	1205	PAINT PAVEMENT MARKING LINES (4")	256,849 LF		
0172	4820000000-E	1205	PAINT PAVEMENT MARKING LINES (8")	4,340 LF		
0173	4835000000-E	1205	PAINT PAVEMENT MARKING LINES (24")	12,602 LF		
0174	4840000000-N	1205	PAINT PAVEMENT MARKING CHARACTER	76 EA		
0175	4845000000-N	1205	PAINT PAVEMENT MARKING SYMBOL	185 EA		
0176	4850000000-E	1205	REMOVAL OF PAVEMENT MARKING LINES (4")	80,600 LF		
0177	4870000000-E	1205	REMOVAL OF PAVEMENT MARKING LINES (24")	5,955 LF		
0178	4905000000-N	1253	SNOWPLOWABLE PAVEMENT MARKERS	4,907 EA		
0179	4915000000-E	1264	7' U-CHANNEL POSTS	9 EA		
0180	4955000000-N	1264	OBJECT MARKERS (END OF ROAD)	9 EA		
0181	5005000000-E	1401	80' HIGH MOUNT STANDARD	2 EA		
0182	5010000000-E	1401	100' HIGH MOUNT STANDARD	4 EA		
0183	5020000000-N	1401	PORTABLE DRIVE UNIT	1 EA		
0184	5025000000-E	SP	HIGH MOUNT FOUNDATIONS	38 CY		
0185	5030000000-N	1403	HIGH MOUNT LUMINAIRES ***** (400W HPS)	16 EA		
0186	5030000000-N	1403	HIGH MOUNT LUMINAIRES ***** (750W HPS)	24 EA		
0187	5050000000-N	1404	LIGHT STANDARD, TYPE MTLT ***** (45' SA, 15' ARM)	8 EA		
0188	5070000000-N	1405	STANDARD FOUNDATION ***** (M2)	3 EA		

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0189	5070000000-N	1405	STANDARD FOUNDATION ***** (R1)	8 EA		
0190	5070000000-N	1405	STANDARD FOUNDATION ***** (R2)	2 EA		
0191	5090000000-N	1406	LIGHT STANDARD LUMINAIRES, TYPE RDW 400W HPS	16 EA		
0192	5120000000-N	1407	ELECTRIC SERVICE POLE ***** (30', CLASS 4)	2 EA		
0193	5125000000-E	1407	ELECTRIC SERVICE LATERAL ***** (3 #1/0 USE)	150 LF		
0194	5145000000-N	1408	LIGHT CONTROL EQUIPMENT, TYPE RW ***** (240/480 VOLT)	2 EA		
0195	5155000000-E	1409	ELECTRICAL DUCT, TYPE BD, SIZE ***** (2")	955 LF		
0196	5155000000-E	1409	ELECTRICAL DUCT, TYPE BD, SIZE ***** (3")	110 LF		
0197	5155000000-E	1409	ELECTRICAL DUCT, TYPE BD, SIZE ***** (4")	230 LF		
0198	5160000000-E	1409	ELECTRICAL DUCT, TYPE JA, SIZE ***** (4")	175 LF		
0199	5170000000-E	1410	** #8 W/G FEEDER CIRCUIT (2)	480 LF		
0200	5175000000-E	1410	** #6 W/G FEEDER CIRCUIT (2)	1,225 LF		
0201	5180000000-E	1410	** #4 W/G FEEDER CIRCUIT (2)	360 LF		
0202	5205000000-E	1410	** #8 W/G FEEDER CIRCUIT IN ***** CONDUIT (2, 1.5)	4,880 LF		

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0203	5210000000-E	1410	** #6 W/G FEEDER CIRCUIT IN ***** CONDUIT (2, 1.5)	1,540 LF		
0204	5215000000-E	1410	** #4 W/G FEEDER CIRCUIT IN ***** CONDUIT (2, 1.5)	565 LF		
0205	5240000000-N	1411	ELECTRICAL JUNCTION BOXES ***** (BR)	1 EA		
0206	5240000000-N	1411	ELECTRICAL JUNCTION BOXES ***** (PC18)	12 EA		
0207	5240000000-N	1411	ELECTRICAL JUNCTION BOXES ***** (PC30)	4 EA		
0208	5255000000-N	1413	PORTABLE LIGHTING	Lump Sum	L.S.	
0209	5270000000-N	SP	GENERIC LIGHTING ITEM INSTALL TWIN ARM LIGHT STANDARDS	3 EA		
0210	5270000000-N	SP	GENERIC LIGHTING ITEM RELOCATE LIGHT STANDARDS	2 EA		
0211	5325200000-E	1510	2" WATER LINE	33 LF		
0212	5325600000-E	1510	6" WATER LINE	553 LF		
0213	5325800000-E	1510	8" WATER LINE	3,793 LF		
0214	5326200000-E	1510	12" WATER LINE	16,620 LF		
0215	5327000000-E	1510	20" WATER LINE	110 LF		
0216	5327400000-E	1510	24" WATER LINE	6,642 LF		
0217	5328000000-E	1510	30" WATER LINE	2,385 LF		
0218	5540000000-E	1515	6" VALVE	7 EA		
0219	5546000000-E	1515	8" VALVE	14 EA		

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0220	5558000000-E	1515	12" VALVE	22 EA		
0221	5559400000-E	1515	24" VALVE	12 EA		
0222	5560000000-E	1515	30" VALVE	1 EA		
0223	5571000000-E	1515	*** TAPPING VALVE (2")	1 EA		
0224	5589100000-E	1515	1" AIR RELEASE VALVE	5 EA		
0225	5589200000-E	1515	2" AIR RELEASE VALVE	3 EA		
0226	5606000000-E	1515	2" BLOW OFF	2 EA		
0227	5649000000-N	1515	RECONNECT WATER METER	4 EA		
0228	5666000000-E	1515	FIRE HYDRANT	13 EA		
0229	5672000000-N	1515	RELOCATE FIRE HYDRANT	14 EA		
0230	5691300000-E	1520	8" SANITARY GRAVITY SEWER	11,717 LF		
0231	5775000000-E	1525	4' DIA UTILITY MANHOLE	66 EA		
0232	5781000000-E	1525	UTILITY MANHOLE WALL, 4' DIA	359 LF		
0233	5801000000-E	1530	ABANDON 8" UTILITY PIPE	19,152 LF		
0234	5804000000-E	1530	ABANDON 12" UTILITY PIPE	11,265 LF		
0235	5812000000-E	1530	ABANDON 20" UTILITY PIPE	3,173 LF		
0236	5813000000-E	1530	ABANDON 24" UTILITY PIPE	3,679 LF		
0237	5814000000-E	1530	ABANDON 30" UTILITY PIPE	2,318 LF		
0238	5815500000-N	1530	REMOVE FIRE HYDRANT	7 EA		
0239	5828000000-N	1530	REMOVE UTILITY MANHOLE	61 EA		

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0240	5835000000-E	1540	*** ENCASEMENT PIPE (48")	322 LF		
0241	5835800000-E	1540	18" ENCASEMENT PIPE	365 LF		
0242	5835900000-E	1540	20" ENCASEMENT PIPE	794 LF		
0243	5836400000-E	1540	36" ENCASEMENT PIPE	520 LF		
0244	5871500000-E	1550	TRENCHLESS INSTALLATION OF 8" IN SOIL	183 LF		
0245	5871510000-E	1550	TRENCHLESS INSTALLATION OF 8" NOT IN SOIL	183 LF		
0246	5871700000-E	1550	TRENCHLESS INSTALLATION OF 12" IN SOIL	187 LF		
0247	5871710000-E	1550	TRENCHLESS INSTALLATION OF 12" NOT IN SOIL	187 LF		
0248	5872200000-E	1550	TRENCHLESS INSTALLATION OF 24" IN SOIL	154 LF		
0249	5872210000-E	1550	TRENCHLESS INSTALLATION OF 24" NOT IN SOIL	154 LF		
0250	5872300000-E	1550	TRENCHLESS INSTALLATION OF 30" IN SOIL	95 LF		
0251	5872310000-E	1550	TRENCHLESS INSTALLATION OF 30" NOT IN SOIL	95 LF		
0252	5882000000-N	SP	GENERIC UTILITY ITEM GASOLINE RESISTANT GASKETS	41 EA		
0253	5882000000-N	SP	GENERIC UTILITY ITEM RELOCATE WATER METER (SMALLER THAN 1-1/2)	94 EA		
0254	5882000000-N	SP	GENERIC UTILITY ITEM RELOCATE WATER METER WITH NEW VAULT (1-1/2" AND LARGER)	30 EA		
0255	6000000000-E	1605	TEMPORARY SILT FENCE	29,100 LF		
0256	6006000000-E	1610	STONE FOR EROSION CONTROL, CLASS A	7,700 TON		

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0257	6009000000-E	1610	STONE FOR EROSION CONTROL, CLASS B	6,700 TON		
0258	6012000000-E	1610	SEDIMENT CONTROL STONE	11,500 TON		
0259	6015000000-E	1615	TEMPORARY MULCHING	100 ACR		
0260	6018000000-E	1620	SEED FOR TEMPORARY SEEDING	2,700 LB		
0261	6021000000-E	1620	FERTILIZER FOR TEMPORARY SEED- ING	11.75 TON		
0262	6024000000-E	1622	TEMPORARY SLOPE DRAINS	4,000 LF		
0263	6030000000-E	1630	SILT EXCAVATION	12,210 CY		
0264	6036000000-E	1631	MATTING FOR EROSION CONTROL	36,700 SY		
0265	6037000000-E	SP	COIR FIBER MAT	70 SY		
0266	6038000000-E	SP	PERMANENT SOIL REINFORCEMENT MAT	200 SY		
0267	6042000000-E	1632	1/4" HARDWARE CLOTH	30,000 LF		
0268	6071012000-E	SP	COIR FIBER WATTLE	1,300 LF		
0269	6071020000-E	SP	POLYACRYLAMIDE (PAM)	1,020 LB		
0270	6071030000-E	1640	COIR FIBER BAFFLE	2,000 LF		
0271	6071050000-E	SP	*** SKIMMER (1-1/2")	5 EA		
0272	6084000000-E	1660	SEEDING & MULCHING	130 ACR		
0273	6087000000-E	1660	MOWING	96 ACR		
0274	6090000000-E	1661	SEED FOR REPAIR SEEDING	1,300 LB		
0275	6093000000-E	1661	FERTILIZER FOR REPAIR SEEDING	4.25 TON		
0276	6096000000-E	1662	SEED FOR SUPPLEMENTAL SEEDING	2,275 LB		

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0277	6108000000-E	1665	FERTILIZER TOPDRESSING	68.25 TON		
0278	6114500000-N	1667	SPECIALIZED HAND MOWING	25 MHR		
0279	6117000000-N	SP	RESPONSE FOR EROSION CONTROL	125 EA		
0280	7279000000-E	1715	TRACER WIRE	21,760 LF		
0281	7300000000-E	1715	UNPAVED TRENCHING (*****) (2, 1-1/2")	5,570 LF		
0282	7300000000-E	1715	UNPAVED TRENCHING (*****) (3, 1-1/2")	3,370 LF		
0283	7301000000-E	1715	DIRECTIONAL DRILL (*****) (2, 1-1/2")	10,280 LF		
0284	7301000000-E	1715	DIRECTIONAL DRILL (*****) (3, 1-1/2")	2,550 LF		
0285	7348000000-N	1716	JUNCTION BOX (OVER-SIZED, HEAVY DUTY)	37 EA		
0286	7566000000-N	1733	DELINEATOR MARKER	42 EA		
0287	7980000000-N	SP	GENERIC SIGNAL ITEM JUNCTION BOX (EXTRA LARGE OVERSIZED, HEAVY DUTY)	26 EA		
WALL ITEMS						
0288	8802030000-E	SP	SEGMENTAL GRAVITY RETAINING WALLS	480 SF		
0289	8847000000-E	SP	GENERIC RETAINING WALL ITEM MSE RETAINING WALL NO 1	2,300 SF		
0290	8847000000-E	SP	GENERIC RETAINING WALL ITEM MSE RETAINING WALL NO 2	2,800 SF		
0291	8847000000-E	SP	GENERIC RETAINING WALL ITEM MSE RETAINING WALL NO 3	3,700 SF		

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0292	8847000000-E	SP	GENERIC RETAINING WALL ITEM MSE RETAINING WALL NO 4	3,900 SF		
0293	8847000000-E	SP	GENERIC RETAINING WALL ITEM MSE RETAINING WALL NO 5	3,200 SF		
0294	8847000000-E	SP	GENERIC RETAINING WALL ITEM MSE RETAINING WALL NO 6	2,700 SF		
STRUCTURE ITEMS						
0295	8091000000-N	410	FOUNDATION EXCAVATION FOR BENT ** AT STATION ***** (1, 103+73.08-L-)	Lump Sum	L.S.	
0296	8091000000-N	410	FOUNDATION EXCAVATION FOR BENT ** AT STATION ***** (1, 41+57.69-L-)	Lump Sum	L.S.	
0297	8091000000-N	410	FOUNDATION EXCAVATION FOR BENT ** AT STATION ***** (1, 89+79.05-L-)	Lump Sum	L.S.	
0298	8112730000-N	450	PDA TESTING	3 EA		
0299	8147000000-E	420	REINFORCED CONCRETE DECK SLAB	84,983 SF		
0300	8161000000-E	420	GROOVING BRIDGE FLOORS	68,915 SF		
0301	8182000000-E	420	CLASS A CONCRETE (BRIDGE)	924.4 CY		
0302	8210000000-N	422	BRIDGE APPROACH SLABS, STATION ***** (103+73.08-L-)	Lump Sum	L.S.	
0303	8210000000-N	422	BRIDGE APPROACH SLABS, STATION ***** (41+57.69-L-)	Lump Sum	L.S.	
0304	8210000000-N	422	BRIDGE APPROACH SLABS, STATION ***** (89+79.05-L-)	Lump Sum	L.S.	
0305	8217000000-E	425	REINFORCING STEEL (BRIDGE)	143,225 LB		

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0306	8238000000-E	425	SPIRAL COLUMN REINFORCING STEEL (BRIDGE)	6,095 LB		
0307	8280000000-E	440	APPROX LBS STRUCTURAL STEEL	3,435,800 LS		
0308	8364000000-E	450	HP12X53 STEEL PILES	15,755 LF		
0309	8393000000-N	450	PILE REDRIVES	102 EA		
0310	8482000000-E	460	THREE BAR METAL RAIL	1,733.28 LF		
0311	8531000000-E	462	4" SLOPE PROTECTION	156 SY		
0312	8657000000-N	430	ELASTOMERIC BEARINGS	Lump Sum	L.S.	
0313	8692000000-N	SP	FOAM JOINT SEALS	Lump Sum	L.S.	
0314	8727000000-N	SP	ELECTRICAL CONDUIT SYSTEM FOR SIGNALS AT STA***** (103+73.08-L-)	Lump Sum	L.S.	
0315	8727000000-N	SP	ELECTRICAL CONDUIT SYSTEM FOR SIGNALS AT STA***** (41+57.69-L-)	Lump Sum	L.S.	
0316	8727000000-N	SP	ELECTRICAL CONDUIT SYSTEM FOR SIGNALS AT STA***** (89+79.05-L-)	Lump Sum	L.S.	
0317	8860000000-N	SP	GENERIC STRUCTURE ITEM DISC BEARINGS	Lump Sum	L.S.	

**Vendor 1 of 8: DEVERE CONSTRUCTION COMPANY, INC
(9122)
Call Order 001 (Proposal: C202824)**

Bid Information

County: MECKLENBURG**Address:** 1030 DeVere Drive
Alpena , MI , 49707**Signature Check:** Cheryl_J._Lumsden_9122**Time Bid Received:** February 19, 2013 01:56 PM**Amendment Count:** 1**Bid Checksum:** 467C7A7E**Bid Total:** \$51,669,284.58**Items Total:** \$51,669,284.58 ✓**Time Total:** \$0.00**Bidding Errors:**

None.

DBE GOAL SET 12.0

DBE GOAL MET 12.0

Vendor 1 of 8: DEVERE CONSTRUCTION COMPANY, INC
(9122)
Call Order 001 (Proposal: C202824)

Bid Bond Information

Projects:	Bond Maximum:
Counties:	State of Incorporation:
Bond ID: SNC13831466	Agency Execution Date: 2/15/2013 3
Paid by Check: No	Surety Name: surety2000
Bond Percent: 5%	Bond Agency Name: Liberty Mutual Insurance Company

Vendor 9122's Bid Information for Call 001, Letting L130219, 02/19/13

DeVere Construction Company Inc (9122)
Call Order 001 (Proposal ID C202824)

LIST OF DBE PARTICIPANTS

VENDOR NUMBER	DBE NAME ADDRESS	WORK CODE TYPE OF WORK	CERT TYPE AMOUNT
11572 MB	CRUZ BROTHERS CONCRETE, INC. 1572 PAYNE ROAD/LOT 75 LOT 75 , GRAHAM, NC 27253		Sub 2,133,618.50 Committed
3376 WB	REYNOLDS FENCE & GUARDRAIL INC 9320 MACHADO DRIVE , INDIAN TRAIL, NC 28079		Sub 184,726.25 Committed
3765 WB	STAY ALERT SAFETY SERVICES INC POST OFFICE BOX 467 , KERNERSVILLE, NC 27285		Sub 38,648.50 Committed
3080 WB	CURTIN TRUCKING & DRAINAGE, INC POST OFFICE BOX 38220 , CHARLOTTE, NC 282781003		Sub 1,612,381.50 Committed
7138 MB	EXPRESS LOGISTICS SERVICES, INC P.O. BOX 19761 , CHARLOTTE, NC 28219		Sub 602,656.55 Committed
3230 WB	HIATT & MASON ENTERPRISES, INC POST OFFICE BOX 1378 , MOUNT AIRY, NC 27030		Sub 503,285.92 Committed
4880 WB	TRICOR CONSTRUCTION, INC. 625 POPLAR STREET , SPARTANBURG, SC 29302		Sub 1,168,080.00 Committed
			TOTAL: \$6,243,397.22 12.08%

Vendor 9122's Bid Information for Call 001, Letting L130219, 02/19/13

DeVere Construction Company Inc (9122)
Call Order 001 (Proposal ID C202824)

Miscellaneous Data Info - Contractor Responses:

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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	

NOT ANSWERED
NOT ANSWERED
NOT ANSWERED
NOT ANSWERED

Bid Bond Data Info - Contractor Responses:

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BondID: SNC13831466
Surety Registry Agency: surety2000
Verified?: Yes
Surety Agency: Liberty Mutual Insurance Company
Bond Execution Date: 2/15/2013 3
Bond Amount: \$2,583,464.23 (Five Percent of Bid)

Contract ID: C202824 Project(s): NHFSTP-0074(137)
Letting Date: 02-19-13 Call Order: 001
Bidder: 9122 - DeVere Construction Company Inc

Line No.	Item Description	Approx. Quantity and Units	Unit Price Dollars Cts	Bid Amount Dollars Cts
Section 0001 ROADWAY ITEMS				
Alt Group				
0001	0000100000-N MOBILIZATION	LUMP	LUMP	2,550,000.00
0002	0000400000-N CONSTRUCTION SURVEYING	LUMP	LUMP	150,000.00
0003	0001000000-E CLEARING & GRUBBING .. ACRE(S)	LUMP	LUMP	2,700,000.00
0004	0008000000-E SUPPLEMENTARY CLEARING & GRUB-BING	1.000 ACR	6,000.00000	6,000.00
0005	0022000000-E UNCLASSIFIED EXCAVATION	59,000.000 CY	18.00000	1,062,000.00
0006	0036000000-E UNDERCUT EXCAVATION	40,500.000 CY	11.50000	465,750.00
0007	0106000000-E BORROW EXCAVATION	315,900.000 CY	8.00000	2,527,200.00
0008	0127000000-N EMBANKMENT SETTLEMENT GAUGES	10.000 EA	2,000.00000	20,000.00
0009	0134000000-E DRAINAGE DITCH EXCAVATION	1,120.000 CY	10.00000	11,200.00
0010	0141000000-E BERM DITCH CONSTRUCTION	850.000 LF	5.00000	4,250.00
0011	0156000000-E REMOVAL OF EXISTING ASPHALT PAVEMENT	73,840.000 SY	3.56000	262,870.40

State of NC
Dept of Transportation

Date: 12-18-12
Revised: 02-07-13

Contract ID: C202824

Project(s): NHFSTP-0074(137)

Letting Date: 02-19-13 Call Order: 001

Bidder: 9122 - DeVere Construction Company Inc

Line No.	Item Description	Approx. Quantity and Units	Unit Price Dollars Cts	Bid Amount Dollars Cts
0012	0177000000-E BREAKING OF EXISTING ASPHALT PAVEMENT	10,280.000 SY	2.50000	25,700.00
0013	0192000000-N PROOF ROLLING	15.000 HR	250.00000	3,750.00
0014	0195000000-E SELECT GRANULAR MATERIAL	10,000.000 CY	28.00000	280,000.00
0015	0196000000-E GEOTEXTILE FOR SOIL STABILIZA-TION	60,200.000 SY	2.32000	139,664.00
0016	0199000000-E TEMPORARY SHORING	663.000 SF	80.00000	53,040.00
0017	0241000000-E GENERIC GRADING ITEM GEOTEXTILE FOR PAVEMENT STABI-LIZATION	24,000.000 SY	2.75000	66,000.00
0018	0255000000-E GENERIC GRADING ITEM HAULING & DISPOSAL OF PETROLE- UM CONTAMINATED SOIL	450.000 TON	100.00000	45,000.00
0019	0318000000-E FOUNDATION CONDITIONING MATE- RIAL, MINOR STRUCTURES	12,883.000 TON	34.00000	438,022.00
0020	0320000000-E FOUNDATION CONDITIONING GEO- TEXTILE	12,610.000 SY	3.00000	37,830.00
0021	0366000000-E 15" RC PIPE CULVERTS, CLASS III	2,512.000 LF	35.00000	87,920.00
0022	0372000000-E 18" RC PIPE CULVERTS, CLASS III	856.000 LF	35.00000	29,960.00

State of NC
Dept of Transportation

Date: 12-18-12
Revised: 02-07-13

Contract ID: C202824

Project(s): NHFSTP-0074(137)

Letting Date: 02-19-13 Call Order: 001

Bidder: 9122 - DeVere Construction Company Inc

Line No.	Item Description	Approx. Quantity and Units	Unit Price Dollars Cts	Bid Amount Dollars Cts
0023	0378000000-E 24" RC PIPE CULVERTS, CLASS III LF	756.000	38.00000	28,728.00
0024	0384000000-E 30" RC PIPE CULVERTS, CLASS III LF	180.000	58.00000	10,440.00
0025	0390000000-E 36" RC PIPE CULVERTS, CLASS III LF	636.000	62.00000	39,432.00
0026	0448200000-E 15" RC PIPE CULVERTS, CLASS IV LF	19,692.000	42.00000	827,064.00
0027	0448300000-E 18" RC PIPE CULVERTS, CLASS IV LF	4,916.000	42.00000	206,472.00
0028	0448400000-E 24" RC PIPE CULVERTS, CLASS IV LF	4,328.000	45.00000	194,760.00
0029	0448500000-E 30" RC PIPE CULVERTS, CLASS IV LF	2,340.000	65.00000	152,100.00
0030	0448600000-E 36" RC PIPE CULVERTS, CLASS IV LF	812.000	70.00000	56,840.00
0031	0576000000-E **" CS PIPE CULVERTS, ***** THICK (36", 0.079") LF	40.000	100.00000	4,000.00
0032	0582000000-E 15" CS PIPE CULVERTS, 0.064" THICK LF	724.000	48.00000	34,752.00
0033	0588000000-E 18" CS PIPE CULVERTS, 0.064" THICK LF	272.000	48.00000	13,056.00
0034	0636000000-E **" CS PIPE ELBOWS, ***** THICK (15", 0.064") EA	2.000	500.00000	1,000.00

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Line No.	Item Description	Approx. Quantity and Units	Unit Price Dollars Cts	Bid Amount Dollars Cts
0035	0636000000-E *** CS PIPE ELBOWS, ***** THICK (36", 0.079")	2.000 EA	1,250.00000	2,500.00
0036	0986000000-E GENERIC PIPE ITEM 18" CS SLOTTED DRAIN, 0.064" THICK	84.000 LF	150.00000	12,600.00
0037	0995000000-E PIPE REMOVAL	17,356.000 LF	9.00000	156,204.00
0038	1011000000-N FINE GRADING	LUMP	LUMP	650,000.00
0039	1099500000-E SHALLOW UNDERCUT	20,000.000 CY	11.50000	230,000.00
0040	1099700000-E CLASS IV SUBGRADE STABILIZA- TION	40,000.000 TON	21.00000	840,000.00
0041	1110000000-E STABILIZER AGGREGATE	1,500.000 TON	22.00000	33,000.00
0042	1220000000-E INCIDENTAL STONE BASE	7,000.000 TON	32.00000	224,000.00
0043	1297000000-E MILLING ASPHALT PAVEMENT, ***"DEPTH (1-1/2")	4,730.000 SY	2.00000	9,460.00
0044	1297000000-E MILLING ASPHALT PAVEMENT, ***"DEPTH (3")	78,290.000 SY	2.50000	195,725.00
0045	1297000000-E MILLING ASPHALT PAVEMENT, ***"DEPTH (4")	200.000 SY	10.00000	2,000.00
0046	1297000000-E MILLING ASPHALT PAVEMENT, ***"DEPTH (4-1/2")	2,700.000 SY	3.25000	8,775.00

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0047	1330000000-E INCIDENTAL MILLING SY	8,540.000	4.00000	34,160.00
0048	1489000000-E ASPHALT CONC BASE COURSE, TYPE B25.0B TON	19,170.000	38.40000	736,128.00
0049	1491000000-E ASPHALT CONC BASE COURSE, TYPE B25.0C TON	42,620.000	35.15000	1,498,093.00
0050	1498000000-E ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B TON	15,090.000	36.75000	554,557.50
0051	1503000000-E ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0C TON	28,690.000	34.35000	985,501.50
0052	1519000000-E ASPHALT CONC SURFACE COURSE, TYPE S9.5B TON	15,190.000	37.60000	571,144.00
0053	1523000000-E ASPHALT CONC SURFACE COURSE, TYPE S9.5C TON	27,370.000	35.40000	968,898.00
0054	1575000000-E ASPHALT BINDER FOR PLANT MIX TON	7,347.000	710.00000	5,216,370.00
0055	1693000000-E ASPHALT PLANT MIX, PAVEMENT REPAIR TON	3,300.000	110.00000	363,000.00
0056	2022000000-E SUBDRAIN EXCAVATION CY	224.000	15.00000	3,360.00
0057	2033000000-E SUBDRAIN FINE AGGREGATE CY	168.000	65.00000	10,920.00
0058	2044000000-E 6" PERFORATED SUBDRAIN PIPE LF	1,000.000	8.00000	8,000.00

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			Dollars	Cts	Dollars	Cts
0059	2070000000-N SUBDRAIN PIPE OUTLET	2.000 EA	350.00000		700.00	
0060	2077000000-E 6" OUTLET PIPE	12.000 LF	40.00000		480.00	
0061	2190000000-N TEMPORARY STEEL PLATE COVERS FOR MASONRY DRAINAGE STRUCTURE	27.000 EA	1,000.00000		27,000.00	
0062	2209000000-E ENDWALLS	2.000 CY	1,080.38000		2,160.76	
0063	2253000000-E PIPE COLLARS	8.910 CY	1,264.26000		11,264.56	
0064	2264000000-E PIPE PLUGS	3.270 CY	1,044.24000		3,414.66	
0065	2275000000-E FLOWABLE FILL	40.000 CY	219.03000		8,761.20	
0066	2286000000-N MASONRY DRAINAGE STRUCTURES	548.000 EA	1,250.00000		685,000.00	
0067	2308000000-E MASONRY DRAINAGE STRUCTURES	218.200 LF	225.00000		49,095.00	
0068	2355000000-N FRAME WITH GRATE, STD 840.29	2.000 EA	450.00000		900.00	
0069	2364000000-N FRAME WITH TWO GRATES, STD 840.16	125.000 EA	450.00000		56,250.00	

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			Dollars	Cts	Dollars	Cts
0070	2366000000-N FRAME WITH TWO GRATES, STD 840.24	12.000	450.00000		5,400.00	
		EA				
0071	2367000000-N FRAME WITH TWO GRATES, STD 840.29	119.000	450.00000		53,550.00	
		EA				
0072	2374000000-N FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E)	28.000	500.00000		14,000.00	
		EA				
0073	2374000000-N FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F)	111.000	500.00000		55,500.00	
		EA				
0074	2374000000-N FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G)	115.000	500.00000		57,500.00	
		EA				
0075	2396000000-N FRAME WITH COVER, STD 840.54	38.000	350.00000		13,300.00	
		EA				
0076	2418000000-E FRAME WITH GRATES, DRIVEWAY DROP INLET	96.000	200.00000		19,200.00	
		LF				
0077	2451000000-N CONCRETE TRANSITIONAL SECTION FOR DROP INLET	37.000	500.00000		18,500.00	
		EA				
0078	2535000000-E **"X **" CONCRETE CURB (8" X 12")	10,690.000	10.35000		110,641.50	
		LF				
0079	2542000000-E 1'-6" CONCRETE CURB & GUTTER	700.000	10.35000		7,245.00	
		LF				
0080	2549000000-E 2'-6" CONCRETE CURB & GUTTER	46,630.000	12.75000		594,532.50	
		LF				
0081	2580000000-E CONCRETE VALLEY GUTTER	690.000	12.00000		8,280.00	
		LF				

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0082	2591000000-E 4" CONCRETE SIDEWALK SY	28,130.000	22.25000	625,892.50
0083	2605000000-N CONCRETE CURB RAMP EA	120.000	965.00000	115,800.00
0084	2612000000-E 6" CONCRETE DRIVEWAY SY	5,610.000	40.00000	224,400.00
0085	2619000000-E 4" CONCRETE PAVED DITCH SY	11.000	57.00000	627.00
0086	2655000000-E 5" MONOLITHIC CONCRETE ISLANDS (KEYED IN) SY	9,400.000	44.50000	418,300.00
0087	2703000000-E CONCRETE BARRIER, TYPE ***** (T) LF	5,950.000	79.63000	473,798.50
0088	2703000000-E CONCRETE BARRIER, TYPE ***** (T1) LF	2,620.000	85.50000	224,010.00
0089	2703000000-E CONCRETE BARRIER, TYPE ***** (T2) LF	200.000	161.71000	32,342.00
0090	2710000000-N CONCRETE BARRIER TRANSITION SECTION EA	6.000	12,500.00000	75,000.00
0091	2724000000-E PRECAST REINFORCED CONCRETE BARRIER, SINGLE FACED LF	860.000	85.00000	73,100.00
0092	2738000000-E GENERIC PAVING ITEM TEMPORARY 4" CONCRETE SIDEWALK SY	630.000	30.00000	18,900.00
0093	2759000000-N GENERIC PAVING ITEM MEDIAN HAZARD PROTECTION EA	3.000	10,000.00000	30,000.00

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0094	2759000000-N GENERIC PAVING ITEM TEMPORARY CONCRETE CURB RAMP	6.000 EA	1,500.00000	9,000.00
0095	2830000000-N ADJUSTMENT OF MANHOLES	4.000 EA	1,000.00000	4,000.00
0096	2850000000-N GENERIC DRAINAGE ITEM ADJUSTMENT OF JUNCTION BOXES	1.000 EA	1,000.00000	1,000.00
0097	2875000000-N CONVERT EXISTING CATCH BASIN TO DROP INLET	1.000 EA	2,000.00000	2,000.00
0098	2893000000-N CONVERT EXISTING CATCH BASIN TO JUNCTION BOX WITH MANHOLE	1.000 EA	2,000.00000	2,000.00
0099	2905000000-N CONVERT EXISTING DROP INLET TO JUNCTION BOX	1.000 EA	2,000.00000	2,000.00
0100	2938000000-N CONVERT EXISTING DROP INLET TO JUNCTION BOX WITH MANHOLE	4.000 EA	2,000.00000	8,000.00
0101	2995000000-N GENERIC DRAINAGE ITEM CONVERT EXT CATCH BASIN TO TRAFFIC BEARING JUNCTION BOX W/ MANHOLE	5.000 EA	2,000.00000	10,000.00
0102	2995000000-N GENERIC DRAINAGE ITEM CONVERT EXT TRAFFIC BEARING JUNCTION BOX TO CATCH BASIN	7.000 EA	2,000.00000	14,000.00
0103	2995000000-N GENERIC DRAINAGE ITEM CONVERT EXT TRAFFIC BEARING DI TO TRAFFIC BEARING JUNCTION BOX	7.000 EA	2,000.00000	14,000.00

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			Dollars	Cts	Dollars	Ct
0104	3000000000-N IMPACT ATTENUATOR UNIT, TYPE 350	5.000 EA	14,500.00000		72,500.00	
0105	3030000000-E STEEL BM GUARDRAIL	3,662.500 LF	14.90000		54,571.25	
0106	3060000000-E STEEL BM GUARDRAIL, DOUBLE FACED	875.000 LF	21.00000		18,375.00	
0107	3105000000-N STEEL BM GUARDRAIL TERMINAL SECTIONS	2.000 EA	90.00000		180.00	
0108	3150000000-N ADDITIONAL GUARDRAIL POSTS	10.000 EA	15.00000		150.00	
0109	3180000000-N GUARDRAIL ANCHOR UNITS, TYPE ***** (NJ-25)	1.000 EA	2,100.00000		2,100.00	
0110	3210000000-N GUARDRAIL ANCHOR UNITS, TYPE CAT-1	6.000 EA	485.00000		2,910.00	
0111	3215000000-N GUARDRAIL ANCHOR UNITS, TYPE III	12.000 EA	1,295.00000		15,540.00	
0112	3270000000-N GUARDRAIL ANCHOR UNITS, TYPE 350	10.000 EA	1,840.00000		18,400.00	
0113	3536000000-E CHAIN LINK FENCE, 48" FABRIC	7,826.000 LF	4.00000		31,304.00	
0114	3542000000-E METAL LINE POSTS FOR 48" CHAINLINK FENCE	658.000 EA	20.00000		13,160.00	
0115	3548000000-E METAL TERMINAL POSTS FOR 48" CHAIN LINK FENCE	63.000 EA	30.00000		1,890.00	

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			Dollars	Cts	Dollars	Cts
0116	3575000000-E GENERIC FENCING ITEM PEDESTRIAN SAFETY RAIL	40.000 LF	60.00000		2,400.00	
0117	3656000000-E GEOTEXTILE FOR DRAINAGE	4,700.000 SY	2.50000		11,750.00	
0118	4054000000-E PLAIN CONCRETE SIGN FOUNDA- TIONS	1.000 CY	110.00000		110.00	
0119	4057000000-E OVERHEAD FOOTING	70.000 CY	800.00000		56,000.00	
0120	4060000000-E SUPPORTS, BREAKAWAY STEEL BEAM	872.000 LB	3.60000		3,139.20	
0121	4072000000-E SUPPORTS, 3-LB STEEL U-CHANNEL	5,166.000 LF	5.20000		26,863.20	
0122	4079000000-N SUPPORTS, BARRIER (SMALL)	25.000 EA	75.00000		1,875.00	
0123	4082100000-N SUPPORTS, OVERHEAD SIGN STRUC-TURE AT STA ***** (116+30-LLT-)	LUMP	LUMP		21,300.00	
0124	4082100000-N SUPPORTS, OVERHEAD SIGN STRUC-TURE AT STA ***** (23+00-LRT-)	LUMP	LUMP		23,050.00	
0125	4082100000-N SUPPORTS, OVERHEAD SIGN STRUC-TURE AT STA ***** (35+80-LRT-)	LUMP	LUMP		23,265.00	
0126	4082100000-N SUPPORTS, OVERHEAD SIGN STRUC-TURE AT STA ***** (49+10-LLT-)	LUMP	LUMP		26,185.00	

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0127	4082100000-N SUPPORTS, OVERHEAD SIGN STRUC-TURE AT STA ***** (61+00-LRT-)	LUMP	LUMP	21,235.00
0128	4082100000-N SUPPORTS, OVERHEAD SIGN STRUC-TURE AT STA ***** (75+90-LLT-)	LUMP	LUMP	26,565.00
0129	4082100000-N SUPPORTS, OVERHEAD SIGN STRUC-TURE AT STA ***** (87+50-LRT-)	LUMP	LUMP	21,230.00
0130	4082100000-N SUPPORTS, OVERHEAD SIGN STRUC-TURE AT STA ***** (92+00-LLT-)	LUMP	LUMP	21,310.00
0131	4096000000-N SIGN ERECTION, TYPE D	4.000 EA	90.45000	361.80
0132	4102000000-N SIGN ERECTION, TYPE E	209.000 EA	57.50000	12,017.50
0133	4108000000-N SIGN ERECTION, TYPE F	19.000 EA	93.00000	1,767.00
0134	4110000000-N SIGN ERECTION, TYPE *** (GROUND MOUNTED) (A)	4.000 EA	300.00000	1,200.00
0135	4114000000-N SIGN ERECTION, MILEMARKERS	10.000 EA	110.00000	1,100.00
0136	4155000000-N DISPOSAL OF SIGN SYSTEM, U- CHANNEL	113.000 EA	8.50000	960.50
0137	4238000000-N DISPOSAL OF SIGN, D, E OR F	19.000 EA	15.00000	285.00

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0138	4400000000-E WORK ZONE SIGNS (STATIONARY)	2,410.000 SF	4.25000	10,242.50
0139	4405000000-E WORK ZONE SIGNS (PORTABLE)	960.000 SF	8.85000	8,496.00
0140	4410000000-E WORK ZONE SIGNS (BARRICADE MOUNTED)	430.000 SF	4.40000	1,892.00
0141	4415000000-N FLASHING ARROW BOARD	6.000 EA	4,969.05000	29,814.30
0142	4420000000-N PORTABLE CHANGEABLE MESSAGE SIGN	8.000 EA	10,850.00000	86,800.00
0143	4422000000-N PORTABLE CHANGEABLE MESSAGE SIGN (SHORT TERM)	100.000 DAY	23.00000	2,300.00
0144	4430000000-N DRUMS	945.000 EA	70.90000	67,000.50
0145	4435000000-N CONES	100.000 EA	28.60000	2,860.00
0146	4445000000-E BARRICADES (TYPE III)	660.000 LF	23.00000	15,180.00
0147	4455000000-N FLAGGER	124.000 DAY	172.41000	21,378.84
0148	4465000000-N TEMPORARY CRASH CUSHIONS	9.000 EA	5,500.00000	49,500.00
0149	4470000000-N RESET TEMPORARY CRASH CUSHION	25.000 EA	2,500.00000	62,500.00

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0150	4480000000-N TMA	4.000 EA	10,000.00000	40,000.00
0151	4485000000-E PORTABLE CONCRETE BARRIER	18,530.000 LF	21.55000	399,321.50
0152	4490000000-E PORTABLE CONCRETE BARRIER (ANCHORED)	200.000 LF	31.00000	6,200.00
0153	4500000000-E RESET PORTABLE CONCRETE BARRIER	42,240.000 LF	3.50000	147,840.00
0154	4507000000-E WATER FILLED BARRIER	12,510.000 LF	67.00000	838,170.00
0155	4508000000-E RESET WATER FILLED BARRIER	5,500.000 LF	6.50000	35,750.00
0156	4510000000-N LAW ENFORCEMENT	600.000 HR	40.00000	24,000.00
0157	4516000000-N SKINNY DRUM	710.000 EA	60.00000	42,600.00
0158	4520000000-N TUBULAR MARKERS (FIXED)	57.000 EA	34.00000	1,938.00
0159	4589000000-N GENERIC TRAFFIC CONTROL ITEM PROTECTIVE CANOPY	LUMP	LUMP	30,000.00
0160	4650000000-N TEMPORARY RAISED PAVEMENT MARKERS	5,990.000 EA	4.25000	25,457.50
0161	4685000000-E THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)	22,884.000 LF	0.46000	10,526.64

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0162	4686000000-E THERMOPLAST IC PAVEMENT MARKING LINES (4", 120 MILS)	34,589.000 LF	0.57000	19,715.73
0163	4695000000-E THERMOPLAST IC PAVEMENT MARKING LINES (8", 90 MILS)	5,951.000 LF	0.84000	4,998.84
0164	4697000000-E THERMOPLAST IC PAVEMENT MARKING LINES (8", 120 MILS)	45,946.000 LF	1.07000	49,162.22
0165	4710000000-E THERMOPLAST IC PAVEMENT MARKING LINES (24", 120 MILS)	1,384.000 LF	5.50000	7,612.00
0166	4721000000-E THERMOPLAST IC PAVEMENT MARKING CHARACTER (120 MILS)	69.000 EA	60.00000	4,140.00
0167	4725000000-E THERMOPLAST IC PAVEMENT MARKING SYMBOL (90 MILS)	242.000 EA	100.00000	24,200.00
0168	4770000000-E COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (III)	3,280.000 LF	1.87000	6,133.60
0169	4780000000-E COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (8") (III)	50.000 LF	3.74000	187.00
0170	4805000000-N COLD APPLIED PLASTIC PAVEMENT MARKING SYMBOL, TYPE ** (III)	5.000 EA	150.00000	750.00
0171	4810000000-E PAINT PAVEMENT MARKING LINES (4")	256,849.000 LF	0.17000	43,664.33
0172	4820000000-E PAINT PAVEMENT MARKING LINES (8")	4,340.000 LF	0.43000	1,866.20

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0173	4835000000-E PAINT PAVEMENT MARKING LINES (24")	12,602.000 LF	1.00000	12,602.00
0174	4840000000-N PAINT PAVEMENT MARKING CHARAC-TER	76.000 EA	25.00000	1,900.00
0175	4845000000-N PAINT PAVEMENT MARKING SYMBOL	185.000 EA	45.00000	8,325.00
0176	4850000000-E REMOVAL OF PAVEMENT MARKING LINES (4")	80,600.000 LF	0.50000	40,300.00
0177	4870000000-E REMOVAL OF PAVEMENT MARKING LINES (24")	5,955.000 LF	2.91000	17,329.05
0178	4905000000-N SNOWPLOWABL E PAVEMENT MARKERS	4,907.000 EA	25.95000	127,336.65
0179	4915000000-E 7' U-CHANNEL POSTS	9.000 EA	25.00000	225.00
0180	4955000000-N OBJECT MARKERS (END OF ROAD)	9.000 EA	75.00000	675.00
0181	5005000000-E 80' HIGH MOUNT STANDARD	2.000 EA	16,500.00000	33,000.00
0182	5010000000-E 100' HIGH MOUNT STANDARD	4.000 EA	19,500.00000	78,000.00
0183	5020000000-N PORTABLE DRIVE UNIT	1.000 EA	4,500.00000	4,500.00
0184	5025000000-E HIGH MOUNT FOUNDATIONS	38.000 CY	300.00000	11,400.00

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Date: 12-18-12
Revised: 02-07-13

Contract ID: C202824

Project(s): NHFSTP-0074(137)

Letting Date: 02-19-13 Call Order: 001

Bidder: 9122 - DeVere Construction Company Inc

Line No.	Item Description	Approx. Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cts	Dollars	Ct
0185	5030000000-N HIGH MOUNT LUMINAIRES ***** (400W HPS)	16.000 EA	750.00000		12,000.00	
0186	5030000000-N HIGH MOUNT LUMINAIRES ***** (750W HPS)	24.000 EA	1,000.00000		24,000.00	
0187	5050000000-N LIGHT STANDARD, TYPE MTLT ***** (45' SA, 15' ARM)	8.000 EA	3,500.00000		28,000.00	
0188	5070000000-N STANDARD FOUNDATION ***** (M2)	3.000 EA	1,000.00000		3,000.00	
0189	5070000000-N STANDARD FOUNDATION ***** (R1)	8.000 EA	750.00000		6,000.00	
0190	5070000000-N STANDARD FOUNDATION ***** (R2)	2.000 EA	800.00000		1,600.00	
0191	5090000000-N LIGHT STANDARD LUMINAIRES, TYPE RDW 400W HPS	16.000 EA	450.00000		7,200.00	
0192	5120000000-N ELECTRIC SERVICE POLE ***** (30', CLASS 4)	2.000 EA	1,000.00000		2,000.00	
0193	5125000000-E ELECTRIC SERVICE LATERAL ***** (3 #1/0 USE)	150.000 LF	8.00000		1,200.00	
0194	5145000000-N LIGHT CONTROL EQUIPMENT, TYPE RW ***** (240/480 VOLT)	2.000 EA	8,500.00000		17,000.00	
0195	5155000000-E ELECTRICAL DUCT, TYPE BD, SIZE ***** (2")	955.000 LF	5.00000		4,775.00	

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0196	5155000000-E ELECTRICAL DUCT, TYPE BD, SIZE ***** (3")	110.000 LF	6.00000	660.00
0197	5155000000-E ELECTRICAL DUCT, TYPE BD, SIZE ***** (4")	230.000 LF	7.00000	1,610.00
0198	5160000000-E ELECTRICAL DUCT, TYPE JA, SIZE ***** (4")	175.000 LF	15.00000	2,625.00
0199	5170000000-E ** #8 W/G FEEDER CIRCUIT (2)	480.000 LF	2.00000	960.00
0200	5175000000-E ** #6 W/G FEEDER CIRCUIT (2)	1,225.000 LF	4.00000	4,900.00
0201	5180000000-E ** #4 W/G FEEDER CIRCUIT (2)	360.000 LF	7.00000	2,520.00
0202	5205000000-E ** #8 W/G FEEDER CIRCUIT IN *****" CONDUIT (2, 1.5)	4,880.000 LF	6.00000	29,280.00
0203	5210000000-E ** #6 W/G FEEDER CIRCUIT IN *****" CONDUIT (2, 1.5)	1,540.000 LF	7.00000	10,780.00
0204	5215000000-E ** #4 W/G FEEDER CIRCUIT IN *****" CONDUIT (2, 1.5)	565.000 LF	8.00000	4,520.00
0205	5240000000-N ELECTRICAL JUNCTION BOXES ***** (BR)	1.000 EA	800.00000	800.00
0206	5240000000-N ELECTRICAL JUNCTION BOXES ***** (PC18)	12.000 EA	500.00000	6,000.00
0207	5240000000-N ELECTRICAL JUNCTION BOXES ***** (PC30)	4.000 EA	600.00000	2,400.00

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Line No.	Item Description	Approx. Quantity and Units	Unit Price Dollars Cts	Bid Amount Dollars Cts
0208	5255000000-N PORTABLE LIGHTING	LUMP	LUMP	300,000.00
0209	5270000000-N GENERIC LIGHTING ITEM INSTALL TWIN ARM LIGHT STAN- DARDS	3.000 EA	1,000.00000	3,000.00
0210	5270000000-N GENERIC LIGHTING ITEM RELOCATE LIGHT STANDARDS	2.000 EA	1,500.00000	3,000.00
0211	5325200000-E 2" WATER LINE	33.000 LF	100.00000	3,300.00
0212	5325600000-E 6" WATER LINE	553.000 LF	132.00000	72,996.00
0213	5325800000-E 8" WATER LINE	3,793.000 LF	57.00000	216,201.00
0214	5326200000-E 12" WATER LINE	16,620.000 LF	61.00000	1,013,820.00
0215	5327000000-E 20" WATER LINE	110.000 LF	574.00000	63,140.00
0216	5327400000-E 24" WATER LINE	6,642.000 LF	171.00000	1,135,782.00
0217	5328000000-E 30" WATER LINE	2,385.000 LF	211.00000	503,235.00
0218	5540000000-E 6" VALVE	7.000 EA	945.00000	6,615.00

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Line No.	Item Description	Approx. Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cts	Dollars	Cts
0219	5546000000-E 8" VALVE	14.000	1,227.00000		17,178.00	
		EA				
0220	5558000000-E 12" VALVE	22.000	2,050.00000		45,100.00	
		EA				
0221	5559400000-E 24" VALVE	12.000	7,700.00000		92,400.00	
		EA				
0222	5560000000-E 30" VALVE	1.000	13,600.00000		13,600.00	
		EA				
0223	5571000000-E **" TAPPING VALVE (2")	1.000	1,900.00000		1,900.00	
		EA				
0224	5589100000-E 1" AIR RELEASE VALVE	5.000	1,100.00000		5,500.00	
		EA				
0225	5589200000-E 2" AIR RELEASE VALVE	3.000	2,100.00000		6,300.00	
		EA				
0226	5606000000-E 2" BLOW OFF	2.000	2,200.00000		4,400.00	
		EA				
0227	5649000000-N RECONNECT WATER METER	4.000	1,000.00000		4,000.00	
		EA				
0228	5666000000-E FIRE HYDRANT	13.000	4,500.00000		58,500.00	
		EA				
0229	5672000000-N RELOCATE FIRE HYDRANT	14.000	4,000.00000		56,000.00	
		EA				
0230	5691300000-E 8" SANITARY GRAVITY SEWER	11,717.000	70.00000		820,190.00	
		LF				

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Line No.	Item Description	Approx. Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cts	Dollars	Ct
0231	5775000000-E 4' DIA UTILITY MANHOLE	66.000 EA	2,000.00000		132,000.00	
0232	5781000000-E UTILITY MANHOLE WALL, 4' DIA	359.000 LF	155.00000		55,645.00	
0233	5801000000-E ABANDON 8" UTILITY PIPE	19,152.000 LF	7.00000		134,064.00	
0234	5804000000-E ABANDON 12" UTILITY PIPE	11,265.000 LF	10.00000		112,650.00	
0235	5812000000-E ABANDON 20" UTILITY PIPE	3,173.000 LF	20.00000		63,460.00	
0236	5813000000-E ABANDON 24" UTILITY PIPE	3,679.000 LF	22.00000		80,938.00	
0237	5814000000-E ABANDON 30" UTILITY PIPE	2,318.000 LF	34.00000		78,812.00	
0238	5815500000-N REMOVE FIRE HYDRANT	7.000 EA	700.00000		4,900.00	
0239	5828000000-N REMOVE UTILITY MANHOLE	61.000 EA	1,000.00000		61,000.00	
0240	5835000000-E *** ENCASEMENT PIPE (48")	322.000 LF	300.00000		96,600.00	
0241	5835800000-E 18" ENCASEMENT PIPE	365.000 LF	60.00000		21,900.00	
0242	5835900000-E 20" ENCASEMENT PIPE	794.000 LF	100.00000		79,400.00	

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Line	Item	Approx.	Unit Price	Bid Amount
No.	Description	Quantity and Units	Dollars Cts	Dollars Cts
0243	5836400000-E 36" ENCASEMENT PIPE	520.000 LF	175.00000	91,000.00
0244	5871500000-E TRENCHLESS INSTALLATION OF 8" IN SOIL	183.000 LF	468.00000	85,644.00
0245	5871510000-E TRENCHLESS INSTALLATION OF 8" NOT IN SOIL	183.000 LF	1,250.00000	228,750.00
0246	5871700000-E TRENCHLESS INSTALLATION OF 12" IN SOIL	187.000 LF	369.00000	69,003.00
0247	5871710000-E TRENCHLESS INSTALLATION OF 12" NOT IN SOIL	187.000 LF	1,250.00000	233,750.00
0248	5872200000-E TRENCHLESS INSTALLATION OF 24" IN SOIL	154.000 LF	489.00000	75,306.00
0249	5872210000-E TRENCHLESS INSTALLATION OF 24" NOT IN SOIL	154.000 LF	1,250.00000	192,500.00
0250	5872300000-E TRENCHLESS INSTALLATION OF 30" IN SOIL	95.000 LF	596.00000	56,620.00
0251	5872310000-E TRENCHLESS INSTALLATION OF 30" NOT IN SOIL	95.000 LF	1,250.00000	118,750.00
0252	5882000000-N GENERIC UTILITY ITEM GASOLINE RESISTANT GASKETS	41.000 EA	80.00000	3,280.00
0253	5882000000-N GENERIC UTILITY ITEM RELOCATE WATER METER (SMALLER THAN 1-1/2)	94.000 EA	1,100.00000	103,400.00

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Line No.	Item Description	Approx. Quantity and Units	Unit Price Dollars Cts	Bid Amount Dollars Cts
0254	5882000000-N GENERIC UTILITY ITEM RELOCATE WATER METER WITH NEW VAULT (1-1/2" AND LARGER) EA	30.000	7,500.00000	225,000.00
0255	6000000000-E TEMPORARY SILT FENCE LF	29,100.000	1.45000	42,195.00
0256	6006000000-E STONE FOR EROSION CONTROL, CLASS A TON	7,700.000	38.00000	292,600.00
0257	6009000000-E STONE FOR EROSION CONTROL, CLASS B TON	6,700.000	38.00000	254,600.00
0258	6012000000-E SEDIMENT CONTROL STONE TON	11,500.000	36.00000	414,000.00
0259	6015000000-E TEMPORARY MULCHING ACR	100.000	600.00000	60,000.00
0260	6018000000-E SEED FOR TEMPORARY SEEDING LB	2,700.000	2.00000	5,400.00
0261	6021000000-E FERTILIZER FOR TEMPORARY SEED-ING TON	11.750	1,700.00000	19,975.00
0262	6024000000-E TEMPORARY SLOPE DRAINS LF	4,000.000	15.00000	60,000.00
0263	6030000000-E SILT EXCAVATION CY	12,210.000	9.50000	115,995.00
0264	6036000000-E MATTING FOR EROSION CONTROL SY	36,700.000	1.00000	36,700.00

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			Dollars	Cts	Dollars	Ct
0265	6037000000-E COIR FIBER MAT	70.000 SY	2.50000		175.00	
0266	6038000000-E PERMANENT SOIL REINFORCEMENT MAT	200.000 SY	4.00000		800.00	
0267	6042000000-E 1/4" HARDWARE CLOTH	30,000.000 LF	2.50000		75,000.00	
0268	6071012000-E COIR FIBER WATTLE	1,300.000 LF	4.00000		5,200.00	
0269	6071020000-E POLYACRYLAM IDE (PAM)	1,020.000 LB	15.00000		15,300.00	
0270	6071030000-E COIR FIBER BAFFLE	2,000.000 LF	3.50000		7,000.00	
0271	6071050000-E *** SKIMMER (1-1/2")	5.000 EA	1,000.00000		5,000.00	
0272	6084000000-E SEEDING & MULCHING	130.000 ACR	1,600.00000		208,000.00	
0273	6087000000-E MOWING	96.000 ACR	35.00000		3,360.00	
0274	6090000000-E SEED FOR REPAIR SEEDING	1,300.000 LB	2.00000		2,600.00	
0275	6093000000-E FERTILIZER FOR REPAIR SEEDING	4.250 TON	1,700.00000		7,225.00	
0276	6096000000-E SEED FOR SUPPLEMENTAL SEEDING	2,275.000 LB	2.00000		4,550.00	

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0277	6108000000-E FERTILIZER TOPDRESSING TON	68.250	1,700.00000	116,025.00
0278	6114500000-N SPECIALIZED HAND MOWING MHR	25.000	35.00000	875.00
0279	6117000000-N RESPONSE FOR EROSION CONTROL EA	125.000	5.00000	625.00
0280	7279000000-E TRACER WIRE LF	21,760.000	0.25000	5,440.00
0281	7300000000-E UNPAVED TRENCHING (*****) (2, 1-1/2") LF	5,570.000	5.00000	27,850.00
0282	7300000000-E UNPAVED TRENCHING (*****) (3, 1-1/2") LF	3,370.000	6.00000	20,220.00
0283	7301000000-E DIRECTIONAL DRILL (***** (2, 1-1/2") LF	10,280.000	8.00000	82,240.00
0284	7301000000-E DIRECTIONAL DRILL (***** (3, 1-1/2") LF	2,550.000	8.50000	21,675.00
0285	7348000000-N JUNCTION BOX (OVER-SIZED, HEA-VY DUTY) EA	37.000	400.00000	14,800.00
0286	7566000000-N DELINEATOR MARKER EA	42.000	125.00000	5,250.00
0287	7980000000-N GENERIC SIGNAL ITEM JUNCTION BOX (EXTRA LARGE OVERSIZED, HEAVY DUTY) EA	26.000	600.00000	15,600.00
	Section 0001 Total			41,993,515.43

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Line	Item	Approx.	Unit Price		Bid Amount	
No.	Description	Quantity and Units	-----		-----	
			Dollars	Cts	Dollars	Ct
+-----						

Section 0004 STRUCTURE ITEMS

Alt Group							
0295		8091000000-N FOUNDATION EXCAVATION FOR BENT** AT STATION ***** (1, 103+73.08-L-)	LUMP	LUMP		10,000.00	

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Line No.	Item Description	Approx. Quantity and Units	Unit Price Dollars Cts	Bid Amount Dollars Cts
0296	8091000000-N FOUNDATION EXCAVATION FOR BENT** AT STATION ***** (1, 41+57.69-L-)	LUMP	LUMP	10,000.00
0297	8091000000-N FOUNDATION EXCAVATION FOR BENT** AT STATION ***** (1, 89+79.05-L-)	LUMP	LUMP	10,000.00
0298	8112730000-N PDA TESTING	3.000 EA	2,500.00000	7,500.00
0299	8147000000-E REINFORCED CONCRETE DECK SLAB	84,983.000 SF	23.50000	1,997,100.50
0300	8161000000-E GROOVING BRIDGE FLOORS	68,915.000 SF	0.35000	24,120.25
0301	8182000000-E CLASS A CONCRETE (BRIDGE)	924.400 CY	585.00000	540,774.00
0302	8210000000-N BRIDGE APPROACH SLABS, STATION***** (103+73.08-L-)	LUMP	LUMP	95,000.00
0303	8210000000-N BRIDGE APPROACH SLABS, STATION***** (41+57.69-L-)	LUMP	LUMP	105,000.00
0304	8210000000-N BRIDGE APPROACH SLABS, STATION***** (89+79.05-L-)	LUMP	LUMP	105,000.00
0305	8217000000-E REINFORCING STEEL (BRIDGE)	143,225.000 LB	0.80000	114,580.00

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			Dollars	Cts	Dollars	Cts
0306	8238000000-E SPIRAL COLUMN REINFORCING STEEL (BRIDGE)	6,095.000 LB	1.60000		9,752.00	
0307	8280000000-E APPROX LBS STRUCTURALSTEEL	LUMP	LUMP		4,000,000.00	
0308	8364000000-E HP12X53 STEEL PILES	15,755.000 LF	35.00000		551,425.00	
0309	8393000000-N PILE REDRIVES	102.000 EA	300.00000		30,600.00	
0310	8482000000-E THREE BAR METAL RAIL	1,733.280 LF	180.00000		311,990.40	
0311	8531000000-E 4" SLOPE PROTECTION	156.000 SY	92.00000		14,352.00	
0312	8657000000-N ELASTOMERIC BEARINGS	LUMP	LUMP		35,000.00	
0313	8692000000-N FOAM JOINT SEALS	LUMP	LUMP		80,000.00	
0314	8727000000-N ELECTRICAL CONDUIT SYSTEM FOR SIGNALS AT STA***** (103+73.08-L-)	LUMP	LUMP		33,000.00	
0315	8727000000-N ELECTRICAL CONDUIT SYSTEM FOR SIGNALS AT STA***** (41+57.69-L-)	LUMP	LUMP		35,000.00	

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			Dollars	Cts	Dollars	Cts
0316	8727000000-N ELECTRICAL CONDUIT SYSTEM FOR SIGNALS AT STA***** (89+79.05-L-)	LUMP	LUMP		30,675.00	
0317	8860000000-N GENERIC STRUCTURE ITEM DISC BEARINGS	LUMP	LUMP		125,000.00	
	Section 0004 Total				8,275,869.15	
	Bid Total				51,669,284.58	✓

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.

PROPOSAL: C202824
LETTING: L130219 CALL: 001
VENDOR: 9122 DeVere Construction Company Inc

LINE NO.	ITEM NO.	ITEM DESC.	UNIT TYPE	SUBCONTRACTOR QUANTITY	SUBCONTRACTOR UNIT PRICE	EXTENDED AMOUNT	
DBE SUBCONTRACTOR: 11572 CRUZ BROTHERS CONCRETE, INC.							
Will Use Quote: Yes							
0079	2542000000-E	1'-6" CONC C LF		700.000	10.35000	7245.00	
0078	2535000000-E	***X**" CONC LF		10690.000	10.35000	110641.50	
0080	2549000000-E	2'-6" CONC C LF		46630.000	12.75000	594532.50	
0081	2580000000-E	CONCRETE VAL LF		690.000	12.00000	8280.00	
0082	2591000000-E	4" CONCRETE SY		28130.000	22.25000	625892.50	
0083	2605000000-N	CONCRETE CUR EA		120.000	965.00000	115800.00	
0084	2612000000-E	6" CONCRETE SY		5610.000	40.00000	224400.00	
0085	2619000000-E	4" CONCRETE SY		11.000	57.00000	627.00	
0086	2655000000-E	5" MONO CONC SY		9400.000	44.50000	418300.00	
0092	2738000000-E	GENERIC PAVI SY		630.000	30.00000	18900.00	
0094	2759000000-N	GENERIC PAVI EA		6.000	1500.00000	9000.00	
DBE COMMITMENT TOTAL FOR SUBCONTRACTOR:						2,133,618.50	Commitment
DBE COMMITMENT TOTAL FOR VENDOR (SubContractor)						2,133,6	

DBE SUBCONTRACTOR: 3376 REYNOLDS FENCE & GUARDRAIL INC
Will Use Quote: Yes

0104	3000000000-N	IMPACT ATTEN EA		5.000	14500.00000	72500.00	
0105	3030000000-E	STL BM GUARD LF		3662.500	14.90000	54571.25	
0106	3060000000-E	SBGR DOUBLE LF		875.000	21.00000	18375.00	
0107	3105000000-N	SBGR TERM SE EA		2.000	90.00000	180.00	
0108	3150000000-N	ADDIT GUARDR EA		10.000	15.00000	150.00	
0109	3180000000-N	GR ANCHOR TY EA		1.000	2100.00000	2100.00	
0110	3210000000-N	GR ANCHOR TY EA		6.000	485.00000	2910.00	
0111	3215000000-N	GR ANCHOR TY EA		12.000	1295.00000	15540.00	
0112	3270000000-N	GR ANCHOR TY EA		10.000	1840.00000	18400.00	
DBE COMMITMENT TOTAL FOR SUBCONTRACTOR:						184,726.25	Commitment
DBE COMMITMENT TOTAL FOR VENDOR (SubContractor)						184,726	

DBE SUBCONTRACTOR: 3765 STAY ALERT SAFETY SERVICES INC
Will Use Quote: Yes

0138	4400000000-E	WORK ZONE SI SF		2410.000	4.25000	10242.50	
0139	4405000000-E	WORK ZONE SI SF		960.000	8.85000	8496.00	
0140	4410000000-E	WORK ZONE SI SF		430.000	4.40000	1892.00	
0146	4445000000-E	BARRICADES (LF		660.000	23.00000	15180.00	
0158	4520000000-N	TUBULAR MARK EA		57.000	34.00000	1938.00	
0179	4915000000-E	7' U-CHANNEL EA		9.000	25.00000	225.00	
0180	4955000000-N	OBJECT MARKE EA		9.000	75.00000	675.00	

LINE NO.	ITEM NO.	ITEM DESC.	UNIT TYPE	SUBCONTRACTOR QUANTITY	SUBCONTRACTOR UNIT PRICE	EXTENDED AMOUNT	
DBE COMMITMENT TOTAL FOR SUBCONTRACTOR:						38,648.50	Committ
DBE COMMITMENT TOTAL FOR VENDOR (SubContractor)						38,648.	

DBE SUBCONTRACTOR: 3080 CURTIN TRUCKING & DRAINAGE, INC.
Will Use Quote: Yes

0148	4465000000-N	TEMPORARY CR	EA	9.000	5500.00000	49500.00	
0149	4470000000-N	RESET CRASH	EA	25.000	2500.00000	62500.00	
0151	4485000000-E	PORT CONC BA	LF	18530.000	21.55000	399321.50	
0152	4490000000-E	PORT CONC BA	LF	200.000	31.00000	6200.00	
0153	4500000000-E	RESET PORT C	LF	42240.000	3.50000	147840.00	
0154	4507000000-E	WATER FILLED	LF	12510.000	67.00000	838170.00	
0155	4508000000-E	RESET WATER	LF	5500.000	6.50000	35750.00	
0091	2724000000-E	PC REINF BAR	LF	860.000	85.00000	73100.00	
DBE COMMITMENT TOTAL FOR SUBCONTRACTOR:						1,612,381.50	Committe
DBE COMMITMENT TOTAL FOR VENDOR (SubContractor)						1,612,3	

DBE SUBCONTRACTOR: 7138 EXPRESS LOGISTICS SERVICES, INC.
Will Use Quote: Yes

0019	0318000000-E	FND CONDIT M	TON	12883.000	2.85000	36716.55	
		Haul stone by the ton					
0040	1099700000-E	CLASS IV SUB	TON	40000.000	2.85000	114000.00	
		Haul stone by the ton					
0041	1110000000-E	STABILIZER A	TON	1500.000	2.85000	4275.00	
		Haul stone by the ton					
0042	1220000000-E	INCIDENTAL S	TON	7000.000	2.85000	19950.00	
		Haul stone by the ton					
0256	6006000000-E	EROS CONTRL	TON	7700.000	3.85000	29645.00	
		Haul stone by the ton					
0257	6009000000-E	EROS CONTRL	TON	6700.000	3.85000	25795.00	
		Haul stone by the ton					
0258	6012000000-E	SEDIMENT CON	TON	11500.000	2.85000	32775.00	
		Haul stone by the ton					
0007	0106000000-E	BORROW EXCAV	CY	70000.000	4.85000	339500.00	
		Haul borrow by the load					
DBE COMMITMENT TOTAL FOR SUBCONTRACTOR:						602,656.55	Committe
DBE COMMITMENT TOTAL FOR VENDOR (SubContractor)						602,656	

DBE SUBCONTRACTOR: 3230 HIATT & MASON ENTERPRISES, INC
Will Use Quote: Yes

0299	8147000000-E	REINF CONCRE SF		84983.000	4.24000	360327.92	
		Furnish and install reinforcing steel and metal deck pans					
0302	8210000000-N	BRG APPR SLA LS		1.000	19943.00000	19943.00	
		Furnish and install Reinforcing Steel					
0303	8210000000-N	BRG APPR SLA LS		1.000	22298.00000	22298.00	
		Furnish and install Reinforcing Steel					

LINE NO.	ITEM NO.	ITEM DESC.	UNIT TYPE	SUBCONTRACTOR QUANTITY	SUBCONTRACTOR UNIT PRICE	EXTENDED AMOUNT	
0304	8210000000-N	BRG APPR SLA	LS	1.000	21784.00000	21784.00	
		Furnish and Install Reinforcing Steel					
0305	8217000000-E	REINF STEEL	LB	110000.000	0.64000	70400.00	
		Furnish and install reinforcing steel					
0306	8238000000-E	SPIRAL COL R	LB	6095.000	1.40000	8533.00	
		Furnish and install Reinforcing Steel					
DBE COMMITMENT TOTAL FOR SUBCONTRACTOR:						503,285.92	Committe
DBE COMMITMENT TOTAL FOR VENDOR (SubContractor)						503,285	

DBE SUBCONTRACTOR: 4880 TRICOR CONSTRUCTION, INC.
Will Use Quote: Yes

0289	8847000000-E	GENERIC RET	SF	2300.000	62.80000	144440.00	
		Furnish and install MSE wall					
0290	8847000000-E	GENERIC RET	SF	2800.000	62.80000	175840.00	
		Furnish and Install MSE wall					
0291	8847000000-E	GENERIC RET	SF	3700.000	62.80000	232360.00	
		Furnish and Install MSE Wall					
0292	8847000000-E	GENERIC RET	SF	3900.000	62.80000	244920.00	
		Furnish and Install MSE Wall					
0293	8847000000-E	GENERIC RET	SF	3200.000	62.80000	200960.00	
		Furnish and Install MSE Wall					
0294	8847000000-E	GENERIC RET	SF	2700.000	62.80000	169560.00	
		Furnish and Install MSE Wall					
DBE COMMITMENT TOTAL FOR SUBCONTRACTOR:						1,168,080.00	Committ
DBE COMMITMENT TOTAL FOR VENDOR (SubContractor)						1,168,0	

TOTAL DBE COMMITMENT FOR VENDOR: Entered: 12.08% or 6243397.22
Required: 12.00% or 6200314.15
<GOAL MET>

Contract Item Sheets For C202824

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
ROADWAY ITEMS						
0001	0000100000-N	800	MOBILIZATION	Lump Sum LS	2,550,000.00	2,550,000.00
0002	0000400000-N	801	CONSTRUCTION SURVEYING	Lump Sum LS	150,000.00	150,000.00
0003	0001000000-E	200	CLEARING & GRUBBING .. ACRE(S)	Lump Sum LS	2,700,000.00	2,700,000.00
0004	0008000000-E	200	SUPPLEMENTARY CLEARING & GRUB- BING	1 ACR	6,000.00	6,000.00
0005	0022000000-E	225	UNCLASSIFIED EXCAVATION	59,000 CY	18.00	1,062,000.00
0006	0036000000-E	225	UNDERCUT EXCAVATION	40,500 CY	11.50	465,750.00
0007	0106000000-E	230	BORROW EXCAVATION	315,900 CY	8.00	2,527,200.00
0008	0127000000-N	SP	EMBANKMENT SETTLEMENT GAUGES	10 EA	2,000.00	20,000.00
0009	0134000000-E	240	DRAINAGE DITCH EXCAVATION	1,120 CY	10.00	11,200.00
0010	0141000000-E	240	BERM DITCH CONSTRUCTION	850 LF	5.00	4,250.00
0011	0156000000-E	250	REMOVAL OF EXISTING ASPHALT PAVEMENT	73,840 SY	3.56	262,870.40
0012	0177000000-E	250	BREAKING OF EXISTING ASPHALT PAVEMENT	10,280 SY	2.50	25,700.00
0013	0192000000-N	260	PROOF ROLLING	15 HR	250.00	3,750.00
0014	0195000000-E	265	SELECT GRANULAR MATERIAL	10,000 CY	28.00	280,000.00
0015	0196000000-E	270	GEOTEXTILE FOR SOIL STABILIZA- TION	60,200 SY	2.32	139,664.00
0016	0199000000-E	SP	TEMPORARY SHORING	663 SF	80.00	53,040.00
0017	0241000000-E	SP	GENERIC GRADING ITEM GEOTEXTILE FOR PAVEMENT STABI- LIZATION	24,000 SY	2.75	66,000.00
0018	0255000000-E	SP	GENERIC GRADING ITEM HAULING & DISPOSAL OF PETROLE- UM CONTAMINATED SOIL	450 TON	100.00	45,000.00
0019	0318000000-E	300	FOUNDATION CONDITIONING MATE- RIAL, MINOR STRUCTURES	12,883 TON	34.00	438,022.00

Contract Item Sheets For C202824

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0020	0320000000-E	300	FOUNDATION CONDITIONING GEO-TEXTILE	12,610 SY	3.00	37,830.00
0021	0366000000-E	310	15" RC PIPE CULVERTS, CLASS III	2,512 LF	35.00	87,920.00
0022	0372000000-E	310	18" RC PIPE CULVERTS, CLASS III	856 LF	35.00	29,960.00
0023	0378000000-E	310	24" RC PIPE CULVERTS, CLASS III	756 LF	38.00	28,728.00
0024	0384000000-E	310	30" RC PIPE CULVERTS, CLASS III	180 LF	58.00	10,440.00
0025	0390000000-E	310	36" RC PIPE CULVERTS, CLASS III	636 LF	62.00	39,432.00
0026	0448200000-E	310	15" RC PIPE CULVERTS, CLASS IV	19,692 LF	42.00	827,064.00
0027	0448300000-E	310	18" RC PIPE CULVERTS, CLASS IV	4,916 LF	42.00	206,472.00
0028	0448400000-E	310	24" RC PIPE CULVERTS, CLASS IV	4,328 LF	45.00	194,760.00
0029	0448500000-E	310	30" RC PIPE CULVERTS, CLASS IV	2,340 LF	65.00	152,100.00
0030	0448600000-E	310	36" RC PIPE CULVERTS, CLASS IV	812 LF	70.00	56,840.00
0031	0576000000-E	310	*** CS PIPE CULVERTS, ***** THICK (36", 0.079")	40 LF	100.00	4,000.00
0032	0582000000-E	310	15" CS PIPE CULVERTS, 0.064" THICK	724 LF	48.00	34,752.00
0033	0588000000-E	310	18" CS PIPE CULVERTS, 0.064" THICK	272 LF	48.00	13,056.00
0034	0636000000-E	310	*** CS PIPE ELBOWS, ***** THICK (15", 0.064")	2 EA	500.00	1,000.00
0035	0636000000-E	310	*** CS PIPE ELBOWS, ***** THICK (36", 0.079")	2 EA	1,250.00	2,500.00
0036	0986000000-E	SP	GENERIC PIPE ITEM 18" CS SLOTTED DRAIN, 0.064" THICK	84 LF	150.00	12,600.00

Contract Item Sheets For C202824

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0037	0995000000-E	340	PIPE REMOVAL	17,356 LF	9.00	156,204.00
0038	1011000000-N	500	FINE GRADING	Lump Sum LS	650,000.00	650,000.00
0039	1099500000-E	505	SHALLOW UNDERCUT	20,000 CY	11.50	230,000.00
0040	1099700000-E	505	CLASS IV SUBGRADE STABILIZATION	40,000 TON	21.00	840,000.00
0041	1110000000-E	510	STABILIZER AGGREGATE	1,500 TON	22.00	33,000.00
0042	1220000000-E	545	INCIDENTAL STONE BASE	7,000 TON	32.00	224,000.00
0043	1297000000-E	607	MILLING ASPHALT PAVEMENT, **** DEPTH (1-1/2")	4,730 SY	2.00	9,460.00
0044	1297000000-E	607	MILLING ASPHALT PAVEMENT, **** DEPTH (3")	78,290 SY	2.50	195,725.00
0045	1297000000-E	607	MILLING ASPHALT PAVEMENT, **** DEPTH (4")	200 SY	10.00	2,000.00
0046	1297000000-E	607	MILLING ASPHALT PAVEMENT, **** DEPTH (4-1/2")	2,700 SY	3.25	8,775.00
0047	1330000000-E	607	INCIDENTAL MILLING	8,540 SY	4.00	34,160.00
0048	1489000000-E	610	ASPHALT CONC BASE COURSE, TYPE B25.0B	19,170 TON	38.40	736,128.00
0049	1491000000-E	610	ASPHALT CONC BASE COURSE, TYPE B25.0C	42,620 TON	35.15	1,498,093.00
0050	1498000000-E	610	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B	15,090 TON	36.75	554,557.50
0051	1503000000-E	610	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0C	28,690 TON	34.35	985,501.50
0052	1519000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	15,190 TON	37.60	571,144.00
0053	1523000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE S9.5C	27,370 TON	35.40	968,898.00

Contract Item Sheets For C202824

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0054	1575000000-E	620	ASPHALT BINDER FOR PLANT MIX	7,347 TON	710.00	5,216,370.00
0055	1693000000-E	654	ASPHALT PLANT MIX, PAVEMENT REPAIR	3,300 TON	110.00	363,000.00
0056	2022000000-E	815	SUBDRAIN EXCAVATION	224 CY	15.00	3,360.00
0057	2033000000-E	815	SUBDRAIN FINE AGGREGATE	168 CY	65.00	10,920.00
0058	2044000000-E	815	6" PERFORATED SUBDRAIN PIPE	1,000 LF	8.00	8,000.00
0059	2070000000-N	815	SUBDRAIN PIPE OUTLET	2 EA	350.00	700.00
0060	2077000000-E	815	6" OUTLET PIPE	12 LF	40.00	480.00
0061	2190000000-N	828	TEMPORARY STEEL PLATE COVERS FOR MASONRY DRAINAGE STRUCTURE	27 EA	1,000.00	27,000.00
0062	2209000000-E	838	ENDWALLS	2 CY	1,080.38	2,160.76
0063	2253000000-E	840	PIPE COLLARS	8.91 CY	1,264.26	11,264.56
0064	2264000000-E	840	PIPE PLUGS	3.27 CY	1,044.24	3,414.66
0065	2275000000-E	SP	FLOWABLE FILL	40 CY	219.03	8,761.20
0066	2286000000-N	840	MASONRY DRAINAGE STRUCTURES	548 EA	1,250.00	685,000.00
0067	2308000000-E	840	MASONRY DRAINAGE STRUCTURES	218.2 LF	225.00	49,095.00
0068	2355000000-N	840	FRAME WITH GRATE, STD 840.29	2 EA	450.00	900.00
0069	2364000000-N	840	FRAME WITH TWO GRATES, STD 840.16	125 EA	450.00	56,250.00
0070	2366000000-N	840	FRAME WITH TWO GRATES, STD 840.24	12 EA	450.00	5,400.00
0071	2367000000-N	840	FRAME WITH TWO GRATES, STD 840.29	119 EA	450.00	53,550.00
0072	2374000000-N	840	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E)	28 EA	500.00	14,000.00

Contract Item Sheets For C202824

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0073	2374000000-N	840	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F)	111 EA	500.00	55,500.00
0074	2374000000-N	840	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G)	115 EA	500.00	57,500.00
0075	2396000000-N	840	FRAME WITH COVER, STD 840.54	38 EA	350.00	13,300.00
0076	2418000000-E	SP	FRAME WITH GRATES, DRIVEWAY DROP INLET	96 LF	200.00	19,200.00
0077	2451000000-N	852	CONCRETE TRANSITIONAL SECTION FOR DROP INLET	37 EA	500.00	18,500.00
0078	2535000000-E	846	***X *** CONCRETE CURB (8" X 12")	10,690 LF	10.35	110,641.50
0079	2542000000-E	846	1'-6" CONCRETE CURB & GUTTER	700 LF	10.35	7,245.00
0080	2549000000-E	846	2'-6" CONCRETE CURB & GUTTER	46,630 LF	12.75	594,532.50
0081	2580000000-E	846	CONCRETE VALLEY GUTTER	690 LF	12.00	8,280.00
0082	2591000000-E	848	4" CONCRETE SIDEWALK	28,130 SY	22.25	625,892.50
0083	2605000000-N	848	CONCRETE CURB RAMP	120 EA	965.00	115,800.00
0084	2612000000-E	848	6" CONCRETE DRIVEWAY	5,610 SY	40.00	224,400.00
0085	2619000000-E	850	4" CONCRETE PAVED DITCH	11 SY	57.00	627.00
0086	2655000000-E	852	5" MONOLITHIC CONCRETE ISLANDS (KEYED IN)	9,400 SY	44.50	418,300.00
0087	2703000000-E	854	CONCRETE BARRIER, TYPE ***** (T)	5,950 LF	79.63	473,798.50
0088	2703000000-E	854	CONCRETE BARRIER, TYPE ***** (T1)	2,620 LF	85.50	224,010.00
0089	2703000000-E	854	CONCRETE BARRIER, TYPE ***** (T2)	200 LF	161.71	32,342.00
0090	2710000000-N	854	CONCRETE BARRIER TRANSITION SECTION	6 EA	12,500.00	75,000.00

Contract Item Sheets For C202824

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0091	2724000000-E	857	PRECAST REINFORCED CONCRETE BARRIER, SINGLE FACED	860 LF	85.00	73,100.00
0092	2738000000-E	SP	GENERIC PAVING ITEM TEMPORARY 4" CONCRETE SIDEWALK	630 SY	30.00	18,900.00
0093	2759000000-N	SP	GENERIC PAVING ITEM MEDIAN HAZARD PROTECTION	3 EA	10,000.00	30,000.00
0094	2759000000-N	SP	GENERIC PAVING ITEM TEMPORARY CONCRETE CURB RAMP	6 EA	1,500.00	9,000.00
0095	2830000000-N	858	ADJUSTMENT OF MANHOLES	4 EA	1,000.00	4,000.00
0096	2850000000-N	858	GENERIC DRAINAGE ITEM ADJUSTMENT OF JUNCTION BOXES	1 EA	1,000.00	1,000.00
0097	2875000000-N	859	CONVERT EXISTING CATCH BASIN TO DROP INLET	1 EA	2,000.00	2,000.00
0098	2893000000-N	859	CONVERT EXISTING CATCH BASIN TO JUNCTION BOX WITH MANHOLE	1 EA	2,000.00	2,000.00
0099	2905000000-N	859	CONVERT EXISTING DROP INLET TO JUNCTION BOX	1 EA	2,000.00	2,000.00
0100	2938000000-N	859	CONVERT EXISTING DROP INLET TO JUNCTION BOX WITH MANHOLE	4 EA	2,000.00	8,000.00
0101	2995000000-N	SP	GENERIC DRAINAGE ITEM CONVERT EXT CATCH BASIN TO TRAFFIC BEARING JUNCTION BOX W/ MANHOLE	5 EA	2,000.00	10,000.00
0102	2995000000-N	SP	GENERIC DRAINAGE ITEM CONVERT EXT TRAFFIC BEARING JUNCTION BOX TO CATCH BASIN	7 EA	2,000.00	14,000.00
0103	2995000000-N	SP	GENERIC DRAINAGE ITEM CONVERT EXT TRAFFIC BEARING DI TO TRAFFIC BEARING JUNCTION BOX	7 EA	2,000.00	14,000.00
0104	3000000000-N	SP	IMPACT ATTENUATOR UNIT, TYPE 350	5 EA	14,500.00	72,500.00
0105	3030000000-E	862	STEEL BM GUARDRAIL	3,662.5 LF	14.90	54,571.25
0106	3060000000-E	862	STEEL BM GUARDRAIL, DOUBLE FACED	875 LF	21.00	18,375.00

Contract Item Sheets For C202824

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0107	3105000000-N	862	STEEL BM GUARDRAIL TERMINAL SECTIONS	2 EA	90.00	180.00
0108	3150000000-N	862	ADDITIONAL GUARDRAIL POSTS	10 EA	15.00	150.00
0109	3180000000-N	862	GUARDRAIL ANCHOR UNITS, TYPE ***** (NJ-25)	1 EA	2,100.00	2,100.00
0110	3210000000-N	862	GUARDRAIL ANCHOR UNITS, TYPE CAT-1	6 EA	485.00	2,910.00
0111	3215000000-N	862	GUARDRAIL ANCHOR UNITS, TYPE III	12 EA	1,295.00	15,540.00
0112	3270000000-N	SP	GUARDRAIL ANCHOR UNITS, TYPE 350	10 EA	1,840.00	18,400.00
0113	3536000000-E	866	CHAIN LINK FENCE, 48" FABRIC	7,826 LF	4.00	31,304.00
0114	3542000000-E	866	METAL LINE POSTS FOR 48" CHAIN LINK FENCE	658 EA	20.00	13,160.00
0115	3548000000-E	866	METAL TERMINAL POSTS FOR 48" CHAIN LINK FENCE	63 EA	30.00	1,890.00
0116	3575000000-E	SP	GENERIC FENCING ITEM PEDESTRIAN SAFETY RAIL	40 LF	60.00	2,400.00
0117	3656000000-E	876	GEOTEXTILE FOR DRAINAGE	4,700 SY	2.50	11,750.00
0118	4054000000-E	902	PLAIN CONCRETE SIGN FOUNDATIONS	1 CY	110.00	110.00
0119	4057000000-E	SP	OVERHEAD FOOTING	70 CY	800.00	56,000.00
0120	4060000000-E	903	SUPPORTS, BREAKAWAY STEEL BEAM	872 LB	3.60	3,139.20
0121	4072000000-E	903	SUPPORTS, 3-LB STEEL U-CHANNEL	5,166 LF	5.20	26,863.20
0122	4079000000-N	903	SUPPORTS, BARRIER (SMALL)	25 EA	75.00	1,875.00
0123	4082100000-N	SP	SUPPORTS, OVERHEAD SIGN STRUCTURE AT STA ***** (116+30-LLT-)	Lump Sum LS	21,300.00	21,300.00

Contract Item Sheets For C202824

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0124	4082100000-N	SP	SUPPORTS, OVERHEAD SIGN STRUCTURE AT STA ***** (23+00-LRT-)	Lump Sum LS	23,050.00	23,050.00
0125	4082100000-N	SP	SUPPORTS, OVERHEAD SIGN STRUCTURE AT STA ***** (35+80-LRT-)	Lump Sum LS	23,265.00	23,265.00
0126	4082100000-N	SP	SUPPORTS, OVERHEAD SIGN STRUCTURE AT STA ***** (49+10-LLT-)	Lump Sum LS	26,185.00	26,185.00
0127	4082100000-N	SP	SUPPORTS, OVERHEAD SIGN STRUCTURE AT STA ***** (61+00-LRT-)	Lump Sum LS	21,235.00	21,235.00
0128	4082100000-N	SP	SUPPORTS, OVERHEAD SIGN STRUCTURE AT STA ***** (75+90-LLT-)	Lump Sum LS	26,565.00	26,565.00
0129	4082100000-N	SP	SUPPORTS, OVERHEAD SIGN STRUCTURE AT STA ***** (87+50-LRT-)	Lump Sum LS	21,230.00	21,230.00
0130	4082100000-N	SP	SUPPORTS, OVERHEAD SIGN STRUCTURE AT STA ***** (92+00-LLT-)	Lump Sum LS	21,310.00	21,310.00
0131	4096000000-N	904	SIGN ERECTION, TYPE D	4 EA	90.45	361.80
0132	4102000000-N	904	SIGN ERECTION, TYPE E	209 EA	57.50	12,017.50
0133	4108000000-N	904	SIGN ERECTION, TYPE F	19 EA	93.00	1,767.00
0134	4110000000-N	904	SIGN ERECTION, TYPE *** (GROUND MOUNTED) (A)	4 EA	300.00	1,200.00
0135	4114000000-N	904	SIGN ERECTION, MILEMARKERS	10 EA	110.00	1,100.00
0136	4155000000-N	907	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	113 EA	8.50	960.50
0137	4238000000-N	907	DISPOSAL OF SIGN, D, E OR F	19 EA	15.00	285.00
0138	4400000000-E	1110	WORK ZONE SIGNS (STATIONARY)	2,410 SF	4.25	10,242.50
0139	4405000000-E	1110	WORK ZONE SIGNS (PORTABLE)	960 SF	8.85	8,496.00

Contract Item Sheets For C202824

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0140	4410000000-E	1110	WORK ZONE SIGNS (BARRICADE MOUNTED)	430 SF	4.40	1,892.00
0141	4415000000-N	1115	FLASHING ARROW BOARD	6 EA	4,969.05	29,814.30
0142	4420000000-N	1120	PORTABLE CHANGEABLE MESSAGE SIGN	8 EA	10,850.00	86,800.00
0143	4422000000-N	1120	PORTABLE CHANGEABLE MESSAGE SIGN (SHORT TERM)	100 DAY	23.00	2,300.00
0144	4430000000-N	1130	DRUMS	945 EA	70.90	67,000.50
0145	4435000000-N	1135	CONES	100 EA	28.60	2,860.00
0146	4445000000-E	1145	BARRICADES (TYPE III)	660 LF	23.00	15,180.00
0147	4455000000-N	1150	FLAGGER	124 DAY	172.41	21,378.84
0148	4465000000-N	1160	TEMPORARY CRASH CUSHIONS	9 EA	5,500.00	49,500.00
0149	4470000000-N	1160	RESET TEMPORARY CRASH CUSHION	25 EA	2,500.00	62,500.00
0150	4480000000-N	1165	TMA	4 EA	10,000.00	40,000.00
0151	4485000000-E	1170	PORTABLE CONCRETE BARRIER	18,530 LF	21.55	399,321.50
0152	4490000000-E	1170	PORTABLE CONCRETE BARRIER (ANCHORED)	200 LF	31.00	6,200.00
0153	4500000000-E	1170	RESET PORTABLE CONCRETE BARRIER	42,240 LF	3.50	147,840.00
0154	4507000000-E	1170	WATER FILLED BARRIER	12,510 LF	67.00	838,170.00
0155	4508000000-E	1170	RESET WATER FILLED BARRIER	5,500 LF	6.50	35,750.00
0156	4510000000-N	SP	LAW ENFORCEMENT	600 HR	40.00	24,000.00
0157	4516000000-N	1180	SKINNY DRUM	710 EA	60.00	42,600.00
0158	4520000000-N	1266	TUBULAR MARKERS (FIXED)	57 EA	34.00	1,938.00

Contract Item Sheets For C202824

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0159	4589000000-N	SP	GENERIC TRAFFIC CONTROL ITEM PROTECTIVE CANOPY	Lump Sum LS	30,000.00	30,000.00
0160	4650000000-N	1251	TEMPORARY RAISED PAVEMENT MARKERS	5,990 EA	4.25	25,457.50
0161	4685000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)	22,884 LF	0.46	10,526.64
0162	4686000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)	34,589 LF	0.57	19,715.73
0163	4695000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)	5,951 LF	0.84	4,998.84
0164	4697000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (8", 120 MILS)	45,946 LF	1.07	49,162.22
0165	4710000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)	1,384 LF	5.50	7,612.00
0166	4721000000-E	1205	THERMOPLASTIC PAVEMENT MARKING CHARACTER (120 MILS)	69 EA	60.00	4,140.00
0167	4725000000-E	1205	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)	242 EA	100.00	24,200.00
0168	4770000000-E	1205	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (III)	3,280 LF	1.87	6,133.60
0169	4780000000-E	1205	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (8") (III)	50 LF	3.74	187.00
0170	4805000000-N	1205	COLD APPLIED PLASTIC PAVEMENT MARKING SYMBOL, TYPE ** (III)	5 EA	150.00	750.00
0171	4810000000-E	1205	PAINT PAVEMENT MARKING LINES (4")	256,849 LF	0.17	43,664.33
0172	4820000000-E	1205	PAINT PAVEMENT MARKING LINES (8")	4,340 LF	0.43	1,866.20
0173	4835000000-E	1205	PAINT PAVEMENT MARKING LINES (24")	12,602 LF	1.00	12,602.00
0174	4840000000-N	1205	PAINT PAVEMENT MARKING CHARACTER	76 EA	25.00	1,900.00

Contract Item Sheets For C202824

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0175	4845000000-N	1205	PAINT PAVEMENT MARKING SYMBOL	185 EA	45.00	8,325.00
0176	4850000000-E	1205	REMOVAL OF PAVEMENT MARKING LINES (4")	80,600 LF	0.50	40,300.00
0177	4870000000-E	1205	REMOVAL OF PAVEMENT MARKING LINES (24")	5,955 LF	2.91	17,329.05
0178	4905000000-N	1253	SNOWPLOWABLE PAVEMENT MARKERS	4,907 EA	25.95	127,336.65
0179	4915000000-E	1264	7' U-CHANNEL POSTS	9 EA	25.00	225.00
0180	4955000000-N	1264	OBJECT MARKERS (END OF ROAD)	9 EA	75.00	675.00
0181	5005000000-E	1401	80' HIGH MOUNT STANDARD	2 EA	16,500.00	33,000.00
0182	5010000000-E	1401	100' HIGH MOUNT STANDARD	4 EA	19,500.00	78,000.00
0183	5020000000-N	1401	PORTABLE DRIVE UNIT	1 EA	4,500.00	4,500.00
0184	5025000000-E	SP	HIGH MOUNT FOUNDATIONS	38 CY	300.00	11,400.00
0185	5030000000-N	1403	HIGH MOUNT LUMINAIRES ***** (400W HPS)	16 EA	750.00	12,000.00
0186	5030000000-N	1403	HIGH MOUNT LUMINAIRES ***** (750W HPS)	24 EA	1,000.00	24,000.00
0187	5050000000-N	1404	LIGHT STANDARD, TYPE MTLT ***** (45' SA, 15' ARM)	8 EA	3,500.00	28,000.00
0188	5070000000-N	1405	STANDARD FOUNDATION ***** (M2)	3 EA	1,000.00	3,000.00
0189	5070000000-N	1405	STANDARD FOUNDATION ***** (R1)	8 EA	750.00	6,000.00
0190	5070000000-N	1405	STANDARD FOUNDATION ***** (R2)	2 EA	800.00	1,600.00
0191	5090000000-N	1406	LIGHT STANDARD LUMINAIRES, TYPE RDW 400W HPS	16 EA	450.00	7,200.00
0192	5120000000-N	1407	ELECTRIC SERVICE POLE ***** (30', CLASS 4)	2 EA	1,000.00	2,000.00

Contract Item Sheets For C202824

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0193	5125000000-E	1407	ELECTRIC SERVICE LATERAL ***** (3 #1/0 USE)	150 LF	8.00	1,200.00
0194	5145000000-N	1408	LIGHT CONTROL EQUIPMENT, TYPE RW ***** (240/480 VOLT)	2 EA	8,500.00	17,000.00
0195	5155000000-E	1409	ELECTRICAL DUCT, TYPE BD, SIZE ***** (2")	955 LF	5.00	4,775.00
0196	5155000000-E	1409	ELECTRICAL DUCT, TYPE BD, SIZE ***** (3")	110 LF	6.00	660.00
0197	5155000000-E	1409	ELECTRICAL DUCT, TYPE BD, SIZE ***** (4")	230 LF	7.00	1,610.00
0198	5160000000-E	1409	ELECTRICAL DUCT, TYPE JA, SIZE ***** (4")	175 LF	15.00	2,625.00
0199	5170000000-E	1410	** #8 W/G FEEDER CIRCUIT (2)	480 LF	2.00	960.00
0200	5175000000-E	1410	** #6 W/G FEEDER CIRCUIT (2)	1,225 LF	4.00	4,900.00
0201	5180000000-E	1410	** #4 W/G FEEDER CIRCUIT (2)	360 LF	7.00	2,520.00
0202	5205000000-E	1410	** #8 W/G FEEDER CIRCUIT IN *****" CONDUIT (2, 1.5)	4,880 LF	6.00	29,280.00
0203	5210000000-E	1410	** #6 W/G FEEDER CIRCUIT IN *****" CONDUIT (2, 1.5)	1,540 LF	7.00	10,780.00
0204	5215000000-E	1410	** #4 W/G FEEDER CIRCUIT IN *****" CONDUIT (2, 1.5)	565 LF	8.00	4,520.00
0205	5240000000-N	1411	ELECTRICAL JUNCTION BOXES ***** (BR)	1 EA	800.00	800.00
0206	5240000000-N	1411	ELECTRICAL JUNCTION BOXES ***** (PC18)	12 EA	500.00	6,000.00

Contract Item Sheets For C202824

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0207	5240000000-N	1411	ELECTRICAL JUNCTION BOXES ***** (PC30)	4 EA	600.00	2,400.00
0208	5255000000-N	1413	PORTABLE LIGHTING	Lump Sum LS	300,000.00	300,000.00
0209	5270000000-N	SP	GENERIC LIGHTING ITEM INSTALL TWIN ARM LIGHT STANDARDS	3 EA	1,000.00	3,000.00
0210	5270000000-N	SP	GENERIC LIGHTING ITEM RELOCATE LIGHT STANDARDS	2 EA	1,500.00	3,000.00
0211	5325200000-E	1510	2" WATER LINE	33 LF	100.00	3,300.00
0212	5325600000-E	1510	6" WATER LINE	553 LF	132.00	72,996.00
0213	5325800000-E	1510	8" WATER LINE	3,793 LF	57.00	216,201.00
0214	5326200000-E	1510	12" WATER LINE	16,620 LF	61.00	1,013,820.00
0215	5327000000-E	1510	20" WATER LINE	110 LF	574.00	63,140.00
0216	5327400000-E	1510	24" WATER LINE	6,642 LF	171.00	1,135,782.00
0217	5328000000-E	1510	30" WATER LINE	2,385 LF	211.00	503,235.00
0218	5540000000-E	1515	6" VALVE	7 EA	945.00	6,615.00
0219	5546000000-E	1515	8" VALVE	14 EA	1,227.00	17,178.00
0220	5558000000-E	1515	12" VALVE	22 EA	2,050.00	45,100.00
0221	5559400000-E	1515	24" VALVE	12 EA	7,700.00	92,400.00
0222	5560000000-E	1515	30" VALVE	1 EA	13,600.00	13,600.00
0223	5571000000-E	1515	*** TAPPING VALVE (2")	1 EA	1,900.00	1,900.00
0224	5589100000-E	1515	1" AIR RELEASE VALVE	5 EA	1,100.00	5,500.00
0225	5589200000-E	1515	2" AIR RELEASE VALVE	3 EA	2,100.00	6,300.00

Contract Item Sheets For C202824

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0226	5606000000-E	1515	2" BLOW OFF	2 EA	2,200.00	4,400.00
0227	5649000000-N	1515	RECONNECT WATER METER	4 EA	1,000.00	4,000.00
0228	5666000000-E	1515	FIRE HYDRANT	13 EA	4,500.00	58,500.00
0229	5672000000-N	1515	RELOCATE FIRE HYDRANT	14 EA	4,000.00	56,000.00
0230	5691300000-E	1520	8" SANITARY GRAVITY SEWER	11,717 LF	70.00	820,190.00
0231	5775000000-E	1525	4' DIA UTILITY MANHOLE	66 EA	2,000.00	132,000.00
0232	5781000000-E	1525	UTILITY MANHOLE WALL, 4' DIA	359 LF	155.00	55,645.00
0233	5801000000-E	1530	ABANDON 8" UTILITY PIPE	19,152 LF	7.00	134,064.00
0234	5804000000-E	1530	ABANDON 12" UTILITY PIPE	11,265 LF	10.00	112,650.00
0235	5812000000-E	1530	ABANDON 20" UTILITY PIPE	3,173 LF	20.00	63,460.00
0236	5813000000-E	1530	ABANDON 24" UTILITY PIPE	3,679 LF	22.00	80,938.00
0237	5814000000-E	1530	ABANDON 30" UTILITY PIPE	2,318 LF	34.00	78,812.00
0238	5815500000-N	1530	REMOVE FIRE HYDRANT	7 EA	700.00	4,900.00
0239	5828000000-N	1530	REMOVE UTILITY MANHOLE	61 EA	1,000.00	61,000.00
0240	5835000000-E	1540	*** ENCASEMENT PIPE (48")	322 LF	300.00	96,600.00
0241	5835800000-E	1540	18" ENCASEMENT PIPE	365 LF	60.00	21,900.00
0242	5835900000-E	1540	20" ENCASEMENT PIPE	794 LF	100.00	79,400.00
0243	5836400000-E	1540	36" ENCASEMENT PIPE	520 LF	175.00	91,000.00
0244	5871500000-E	1550	TRENCHLESS INSTALLATION OF 8" IN SOIL	183 LF	468.00	85,644.00
0245	5871510000-E	1550	TRENCHLESS INSTALLATION OF 8" NOT IN SOIL	183 LF	1,250.00	228,750.00

Contract Item Sheets For C202824

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0246	5871700000-E	1550	TRENCHLESS INSTALLATION OF 12" IN SOIL	187 LF	369.00	69,003.00
0247	5871710000-E	1550	TRENCHLESS INSTALLATION OF 12" NOT IN SOIL	187 LF	1,250.00	233,750.00
0248	5872200000-E	1550	TRENCHLESS INSTALLATION OF 24" IN SOIL	154 LF	489.00	75,306.00
0249	5872210000-E	1550	TRENCHLESS INSTALLATION OF 24" NOT IN SOIL	154 LF	1,250.00	192,500.00
0250	5872300000-E	1550	TRENCHLESS INSTALLATION OF 30" IN SOIL	95 LF	596.00	56,620.00
0251	5872310000-E	1550	TRENCHLESS INSTALLATION OF 30" NOT IN SOIL	95 LF	1,250.00	118,750.00
0252	5882000000-N	SP	GENERIC UTILITY ITEM GASOLINE RESISTANT GASKETS	41 EA	80.00	3,280.00
0253	5882000000-N	SP	GENERIC UTILITY ITEM RELOCATE WATER METER (SMALLER THAN 1-1/2)	94 EA	1,100.00	103,400.00
0254	5882000000-N	SP	GENERIC UTILITY ITEM RELOCATE WATER METER WITH NEW VAULT (1-1/2" AND LARGER)	30 EA	7,500.00	225,000.00
0255	6000000000-E	1605	TEMPORARY SILT FENCE	29,100 LF	1.45	42,195.00
0256	6006000000-E	1610	STONE FOR EROSION CONTROL, CLASS A	7,700 TON	38.00	292,600.00
0257	6009000000-E	1610	STONE FOR EROSION CONTROL, CLASS B	6,700 TON	38.00	254,600.00
0258	6012000000-E	1610	SEDIMENT CONTROL STONE	11,500 TON	36.00	414,000.00
0259	6015000000-E	1615	TEMPORARY MULCHING	100 ACR	600.00	60,000.00
0260	6018000000-E	1620	SEED FOR TEMPORARY SEEDING	2,700 LB	2.00	5,400.00
0261	6021000000-E	1620	FERTILIZER FOR TEMPORARY SEEDING	11.75 TON	1,700.00	19,975.00
0262	6024000000-E	1622	TEMPORARY SLOPE DRAINS	4,000 LF	15.00	60,000.00

Contract Item Sheets For C202824

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0263	6030000000-E	1630	SILT EXCAVATION	12,210 CY	9.50	115,995.00
0264	6036000000-E	1631	MATTING FOR EROSION CONTROL	36,700 SY	1.00	36,700.00
0265	6037000000-E	SP	COIR FIBER MAT	70 SY	2.50	175.00
0266	6038000000-E	SP	PERMANENT SOIL REINFORCEMENT MAT	200 SY	4.00	800.00
0267	6042000000-E	1632	1/4" HARDWARE CLOTH	30,000 LF	2.50	75,000.00
0268	6071012000-E	SP	COIR FIBER WATTLE	1,300 LF	4.00	5,200.00
0269	6071020000-E	SP	POLYACRYLAMIDE (PAM)	1,020 LB	15.00	15,300.00
0270	6071030000-E	1640	COIR FIBER BAFFLE	2,000 LF	3.50	7,000.00
0271	6071050000-E	SP	*** SKIMMER (1-1/2")	5 EA	1,000.00	5,000.00
0272	6084000000-E	1660	SEEDING & MULCHING	130 ACR	1,600.00	208,000.00
0273	6087000000-E	1660	MOWING	96 ACR	35.00	3,360.00
0274	6090000000-E	1661	SEED FOR REPAIR SEEDING	1,300 LB	2.00	2,600.00
0275	6093000000-E	1661	FERTILIZER FOR REPAIR SEEDING	4.25 TON	1,700.00	7,225.00
0276	6096000000-E	1662	SEED FOR SUPPLEMENTAL SEEDING	2,275 LB	2.00	4,550.00
0277	6108000000-E	1665	FERTILIZER TOPDRESSING	68.25 TON	1,700.00	116,025.00
0278	6114500000-N	1667	SPECIALIZED HAND MOWING	25 MHR	35.00	875.00
0279	6117000000-N	SP	RESPONSE FOR EROSION CONTROL	125 EA	5.00	625.00
0280	7279000000-E	1715	TRACER WIRE	21,760 LF	0.25	5,440.00
0281	7300000000-E	1715	UNPAVED TRENCHING (***** (2, 1-1/2")	5,570 LF	5.00	27,850.00
0282	7300000000-E	1715	UNPAVED TRENCHING (***** (3, 1-1/2")	3,370 LF	6.00	20,220.00

Contract Item Sheets For C202824

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0283	7301000000-E	1715	DIRECTIONAL DRILL (*****) (2, 1-1/2")	10,280 LF	8.00	82,240.00
0284	7301000000-E	1715	DIRECTIONAL DRILL (*****) (3, 1-1/2")	2,550 LF	8.50	21,675.00
0285	7348000000-N	1716	JUNCTION BOX (OVER-SIZED, HEA- VY DUTY)	37 EA	400.00	14,800.00
0286	7566000000-N	1733	DELINEATOR MARKER	42 EA	125.00	5,250.00
0287	7980000000-N	SP	GENERIC SIGNAL ITEM JUNCTION BOX (EXTRA LARGE OVERSIZED, HEAVY DUTY)	26 EA	600.00	15,600.00

Contract Item Sheets For C202824

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0288	8802030000-E	SP	SEGMENTAL GRAVITY RETAINING WALLS	480 SF	40.00	19,200.00
0289	8847000000-E	SP	GENERIC RETAINING WALL ITEM MSE RETAINING WALL NO 1	2,300 SF	78.00	179,400.00
0290	8847000000-E	SP	GENERIC RETAINING WALL ITEM MSE RETAINING WALL NO 2	2,800 SF	76.00	212,800.00
0291	8847000000-E	SP	GENERIC RETAINING WALL ITEM MSE RETAINING WALL NO 3	3,700 SF	75.00	277,500.00
0292	8847000000-E	SP	GENERIC RETAINING WALL ITEM MSE RETAINING WALL NO 4	3,900 SF	72.00	280,800.00
0293	8847000000-E	SP	GENERIC RETAINING WALL ITEM MSE RETAINING WALL NO 5	3,200 SF	72.00	230,400.00
0294	8847000000-E	SP	GENERIC RETAINING WALL ITEM MSE RETAINING WALL NO 6	2,700 SF	74.00	199,800.00

Contract Item Sheets For C202824

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0295	8091000000-N	410	FOUNDATION EXCAVATION FOR BENT ** AT STATION ***** (1, 103+73.08-L-)	Lump Sum LS	10,000.00	10,000.00
0296	8091000000-N	410	FOUNDATION EXCAVATION FOR BENT ** AT STATION ***** (1, 41+57.69-L-)	Lump Sum LS	10,000.00	10,000.00
0297	8091000000-N	410	FOUNDATION EXCAVATION FOR BENT ** AT STATION ***** (1, 89+79.05-L-)	Lump Sum LS	10,000.00	10,000.00
0298	8112730000-N	450	PDA TESTING	3 EA	2,500.00	7,500.00
0299	8147000000-E	420	REINFORCED CONCRETE DECK SLAB	84,983 SF	23.50	1,997,100.50
0300	8161000000-E	420	GROOVING BRIDGE FLOORS	68,915 SF	0.35	24,120.25
0301	8182000000-E	420	CLASS A CONCRETE (BRIDGE)	924.4 CY	585.00	540,774.00
0302	8210000000-N	422	BRIDGE APPROACH SLABS, STATION ***** (103+73.08-L-)	Lump Sum LS	95,000.00	95,000.00
0303	8210000000-N	422	BRIDGE APPROACH SLABS, STATION ***** (41+57.69-L-)	Lump Sum LS	105,000.00	105,000.00
0304	8210000000-N	422	BRIDGE APPROACH SLABS, STATION ***** (89+79.05-L-)	Lump Sum LS	105,000.00	105,000.00
0305	8217000000-E	425	REINFORCING STEEL (BRIDGE)	143,225 LB	0.80	114,580.00
0306	8238000000-E	425	SPIRAL COLUMN REINFORCING STEEL (BRIDGE)	6,095 LB	1.60	9,752.00
0307	8280000000-E	440	APPROX LBS STRUCTURAL STEEL	3,435,800 LS	4,000,000.00	4,000,000.00
0308	8364000000-E	450	HP12X53 STEEL PILES	15,755 LF	35.00	551,425.00
0309	8393000000-N	450	PILE REDRIVES	102 EA	300.00	30,600.00
0310	8482000000-E	460	THREE BAR METAL RAIL	1,733.28 LF	180.00	311,990.40
0311	8531000000-E	462	4" SLOPE PROTECTION	156 SY	92.00	14,352.00

Contract Item Sheets For C202824

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0312	8657000000-N	430	ELASTOMERIC BEARINGS	Lump Sum LS	35,000.00	35,000.00
0313	8692000000-N	SP	FOAM JOINT SEALS	Lump Sum LS	80,000.00	80,000.00
0314	8727000000-N	SP	ELECTRICAL CONDUIT SYSTEM FOR SIGNALS AT STA***** (103+73.08-L-)	Lump Sum LS	33,000.00	33,000.00
0315	8727000000-N	SP	ELECTRICAL CONDUIT SYSTEM FOR SIGNALS AT STA***** (41+57.69-L-)	Lump Sum LS	35,000.00	35,000.00
0316	8727000000-N	SP	ELECTRICAL CONDUIT SYSTEM FOR SIGNALS AT STA***** (89+79.05-L-)	Lump Sum LS	30,675.00	30,675.00
0317	8860000000-N	SP	GENERIC STRUCTURE ITEM DISC BEARINGS	Lump Sum LS	125,000.00	125,000.00

TOTAL AMOUNT OF BID FOR ENTIRE PROJECT

\$51,669,284.58

0941/Mar08/Q5777250.31/D1353829112000/E317

**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

DeVere Construction Company, Inc.

Full name of Corporation

1030 DeVere Drive, Alpena, MI 49707

Address as Prequalified

Attest

Cynthia Gabara
Secretary/Assistant Secretary
Select appropriate title

By

Richard D. Crittenden
President/Vice President/Assistant Vice President
Select appropriate title

Cynthia Gabara

Print or type Signer's name

Richard Crittenden

Print or type Signer's name

CORPORATE SEAL

AFFIDAVIT MUST BE NOTARIZED

Subscribed and sworn to before me this the

13 day of March 2013

Jenna Oliver
Signature of Notary Public

NOTARY SEAL

of Alpena County

State of Michigan

My Commission Expires: 3-10-2015

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. C202824

County (ies): Mecklenburg

ACCEPTED BY THE
DEPARTMENT OF TRANSPORTATION

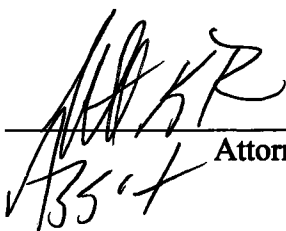


Contract Officer

3/21/13

Date

Execution of Contract and Bonds
Approved as to Form:



Attorney General

Contract No.
County

C202824

Mecklenburg

Rev 5-17-11

Bond No. 013125523

CONTRACT PAYMENT BOND

Date of Payment Bond Execution	<u>March 13, 2013</u>
Name of Principal Contractor	<u>DeVere Construction Company, Inc.</u>
Name of Surety:	<u>Liberty Mutual Insurance Company</u>
Name of Contracting Body:	<u>North Carolina Department of Transportation</u>
	<u>Raleigh, North Carolina</u>
Amount of Bond:	<u>\$51,669,284.58</u>
Contract ID No.:	<u>C202824</u>
County Name:	<u>Mecklenburg</u>

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

C202824

Mecklenburg

Rev 5-17-11

CONTRACT PAYMENT BOND

Affix Seal of Surety Company

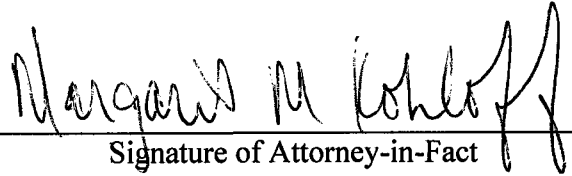
Liberty Mutual Insurance Company

Print or type Surety Company Name

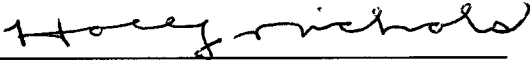
Margaret M. Kohloff

By

Print, stamp or type name of Attorney-in-Fact



Signature of Attorney-in-Fact



Signature of Witness

Holly Nichols

Print or type Signer's name

1080 Kirts Blvd., Suite 500, Troy, MI 48084

Address of Attorney-in-Fact

Contract No.
County

C202824

Mecklenburg

Rev 5-17-11

CONTRACT PAYMENT BOND

CORPORATION

SIGNATURE OF CONTRACTOR (Principal)

DeVere Construction Company, Inc.

Full name of Corporation

1030 DeVere Drive, Alpena, MI 49707

Address as prequalified

By



Signature of President, Vice President, Assistant Vice President

Select appropriate title

Richard Crittenden

Print or type Signer's name

Affix Corporate Seal

Attest



Signature of Secretary, Assistant Secretary

Select appropriate title

Cynthia Gabara

Print or type Signer's name

THIS POWER OF ATTORNEY IS NOT VALID UNLESS IT IS PRINTED ON RED BACKGROUND.

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

Certificate No. 5617224

American Fire and Casualty Company
The Ohio Casualty Insurance Company
West American Insurance Company

Liberty Mutual Insurance Company
Peerless Insurance Company

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That American Fire & Casualty Company and The Ohio Casualty Insurance Company are corporations duly organized under the laws of the State of Ohio, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, that Peerless Insurance Company is a corporation duly organized under the laws of the State of New Hampshire, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Anne Barick; C. A. Johnson; Kristyn M.

Langbeen; Linda L. Austin; Margaret M. Kohloff; Michael D. Lechner; Michelle Buechel; Paul M. Hurley; Richard S. McGregor; Robert D. Heuer; T. R. Guy

all of the city of Troy, state of MI each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 16th day of October, 2012.



American Fire and Casualty Company
The Ohio Casualty Insurance Company
Liberty Mutual Insurance Company
Peerless Insurance Company
West American Insurance Company

By: Gregory W. Davenport
Gregory W. Davenport, Assistant Secretary

STATE OF WASHINGTON ss
COUNTY OF KING

On this 16th day of October, 2012, before me personally appeared Gregory W. Davenport, who acknowledged himself to be the Assistant Secretary of American Fire and Casualty Company, Liberty Mutual Insurance Company, The Ohio Casualty Company, Peerless Insurance Company and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at Seattle, Washington, on the day and year first above written.



By: KD Riley
KD Riley, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of American Fire and Casualty Company, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, West American Insurance Company and Peerless Insurance Company, which resolutions are now in full force and effect reading as follows:

ARTICLE IV - OFFICERS - Section 12. Power of Attorney. Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

ARTICLE XIII - Execution of Contracts - SECTION 5. Surety Bonds and Undertakings. Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation - The President of the Company, acting pursuant to the Bylaws of the Company, authorizes Gregory W. Davenport, Assistant Secretary to appoint such attorney-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization - By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, David M. Carey, the undersigned, Assistant Secretary, of American Fire and Casualty Company, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, West American Insurance Company and Peerless Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 13th day of MARCH, 20 13.



By: David M. Carey
David M. Carey, Assistant Secretary

To confirm the validity of this Power of Attorney call
1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day.

Not valid for mortgage, note, loan, letter of credit, bank deposit,
currency rate, interest rate or residual value guarantees.

Contract No.
County

C202824

Mecklenburg

Rev 5-17-11

Bond No. 013125523

CONTRACT PERFORMANCE BOND

Date of Performance Bond Execution: March 13, 2013

Name of Principal Contractor: DeVere Construction Company, Inc.

Name of Surety: Liberty Mutual Insurance Company

Name of Contracting Body: North Carolina Department of Transportation

Raleigh, North Carolina

Amount of Bond: \$51,669,284.58

Contract ID No.: C202824

County Name: Mecklenburg

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

C202824

Mecklenburg

Rev 5-17-11

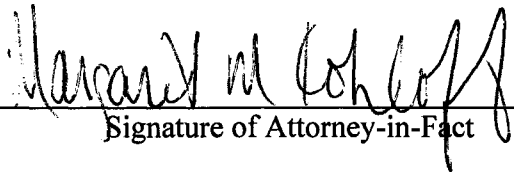
CONTRACT PERFORMANCE BOND

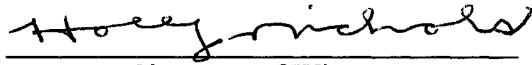
Affix Seal of Surety Company

Liberty Mutual Insurance Company

Print or type Surety Company Name

By Margaret M. Kohloff
Print, stamp or type name of Attorney-in-Fact


Signature of Attorney-in-Fact


Signature of Witness

Holly Nichols

Print or type Signer's name

1080 Kirts Blvd., Suite 500, Troy, MI 48084

Address of Attorney-in-Fact

Contract No.
County

C202824

Mecklenburg

Rev 5-17-11

CONTRACT PERFORMANCE BOND

CORPORATION


SIGNATURE OF CONTRACTOR (Principal)

DeVere Construction Company, Inc.

Full name of Corporation

1030 DeVere Drive, Alpena, MI 49707

Address as prequalified


By 
Signature of President, ~~Vice President, Assistant Vice President~~
Select appropriate title

Richard Crittenden

Print or type Signer's name

Affix Corporate Seal

Attest


Signature of Secretary, ~~Assistant Secretary~~
Select appropriate title

Cynthia Gabara

Print or type Signer's name

THIS POWER OF ATTORNEY IS NOT VALID UNLESS IT IS PRINTED ON RED BACKGROUND.

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

Certificate No. 5617223

American Fire and Casualty Company
The Ohio Casualty Insurance Company
West American Insurance Company

Liberty Mutual Insurance Company
Peerless Insurance Company

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That American Fire & Casualty Company and The Ohio Casualty Insurance Company are corporations duly organized under the laws of the State of Ohio, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, that Peerless Insurance Company is a corporation duly organized under the laws of the State of New Hampshire, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Anne Barick; C. A. Johnson; Kristyn M. Langbeen; Linda L. Austin; Margaret M. Kohloff; Michael D. Lechner; Michelle Buechel; Paul M. Hurley; Richard S. McGregor; Robert D. Heuer; T. R. Guy

all of the city of Troy, state of MI each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 16th day of October, 2012.



American Fire and Casualty Company
The Ohio Casualty Insurance Company
Liberty Mutual Insurance Company
Peerless Insurance Company
West American Insurance Company

By: Gregory W. Davenport
Gregory W. Davenport, Assistant Secretary

STATE OF WASHINGTON ss
COUNTY OF KING

On this 16th day of October, 2012, before me personally appeared Gregory W. Davenport, who acknowledged himself to be the Assistant Secretary of American Fire and Casualty Company, Liberty Mutual Insurance Company, The Ohio Casualty Company, Peerless Insurance Company and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at Seattle, Washington, on the day and year first above written.



By: KD Riley
KD Riley, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of American Fire and Casualty Company, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, West American Insurance Company and Peerless Insurance Company, which resolutions are now in full force and effect reading as follows:

ARTICLE IV - OFFICERS - Section 12. Power of Attorney. Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

ARTICLE XIII - Execution of Contracts - SECTION 5. Surety Bonds and Undertakings. Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation - The President of the Company, acting pursuant to the Bylaws of the Company, authorizes Gregory W. Davenport, Assistant Secretary to appoint such attorney-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization - By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, David M. Carey, the undersigned, Assistant Secretary, of American Fire and Casualty Company, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, West American Insurance Company and Peerless Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 13th day of MARCH, 20 13.



By: David M. Carey
David M. Carey, Assistant Secretary

To confirm the validity of this Power of Attorney call
1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day.

Not valid for mortgage, note, loan, letter of credit, bank deposit,
currency rate, interest rate or residual value guarantees.