STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION 14

# PROPOSAL

**DATE AND TIME OF BID OPENING: July 22, 2014 AT 2:00 PM**

**CONTRACT ID: DN00346**

**WBS ELEMENT NO.: 43796.3.1**

**FEDERAL AID NO.: N/A**

**COUNTY: Henderson County**

**TIP NO.: SS-4914BJ**

**MILES: 0 MILES**

**ROUTE NO.: I-26**

**LOCATION: FROM MILEMARKER 55 TO MILEMARKER 57**

**TYPE OF WORK: ITS, SIGNING, TRAFFIC CONTROL**

**NOTICE:**
**ALL BIDDERS SHALL COMPLY WITH ALL APPLICABLE LAWS REGULATING THE PRACTICE OF GENERAL CONTRACTING AS CONTAINED IN CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA WHICH REQUIRES THE BIDDER TO BE LICENSED BY THE N.C. LICENSING BOARD FOR CONTRACTORS WHEN BIDDING ON ANY NON-FEDERAL AID PROJECT WHERE THE BID IS $30,000 OR MORE, EXCEPT FOR CERTAIN SPECIALTY WORK AS DETERMINED BY THE LICENSING BOARD. BIDDERS SHALL ALSO COMPLY WITH ALL OTHER APPLICABLE LAWS REGULATING THE PRACTICES OF ELECTRICAL, PLUMBING, HEATING AND AIR CONDITIONING AND REFRIGERATION CONTRACTING AS CONTAINED IN CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA. NOTWITHSTANDING THESE LIMITATIONS ON BIDDING, THE BIDDER WHO IS AWARDED ANY FEDERAL - AID FUNDED PROJECT SHALL COMPLY WITH CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA FOR LICENSING REQUIREMENTS WITHIN 60 CALENDAR DAYS OF BID OPENING.**

**THIS IS A ROADWAY PROJECT.** **BID BOND ARE NOT REQUIRED.**

_____
**NAME OF BIDDER**

_____
**ADDRESS OF BIDDER**

**PROPOSAL FOR THE CONSTRUCTION OF**

**CONTRACT No. DN00346 IN HENDERSON COUNTY, NORTH CAROLINA**

**Date** 6/13/2014 **20_____**

**DEPARTMENT OF TRANSPORTATION,**

**RALEIGH, NORTH CAROLINA**

The Bidder has carefully examined the location of the proposed work to be known as Contract No. **DN00346**; 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 thoroughly understands the stipulations, requirements and provisions. 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. **DN00346** in **Henderson 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 or Division Engineer.

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.

A BID BOND IS NOT REQUIRED.

NORTH CAROLINA PROFESSIONAL SEAL 025536 ENGINEER Wanda H. Austin

DocuSigned by: Wanda H. Austin B88118F1E31C4B3...

*Division 14 Proposals Engineer*

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# INSTRUCTIONS TO BIDDERS

**PLEASE READ ALL INSTRUCTIONS CAREFULLY BEFORE PREPARING AND SUBMITTING YOUR BID.**

**All bids shall be prepared and submitted in accordance with the following requirements, except that bids may be prepared by electronic means as described elsewhere in the proposal. Failure to comply with any requirement shall cause the bid to be considered irregular and shall be grounds for rejection of the bid.**

**1.** The bid sheet furnished by NCDOT with the proposal shall be used and shall not be altered in any manner. **DO NOT SEPARATE THE BID SHEET FROM THE PROPOSAL!**

**Proposals may be downloaded from https://connect.ncdot.gov/letting/Pages/Division.aspx or picked up at Division 14 office located at 253 WEBSTER ROAD, SYLVA, NC 28779. Proposals should be printed double-sided. ALL BIDDERS SHALL CONTACT THE DIVISION 14 CONTRACTING OFFICE VIA EMAIL D14CONTRACTS@NCDOT.GOV PRIOR TO NOON THE DAY OF LETTING TO RECEIVE A VALIDATION EMAIL. Proposals submitted without the validation email may be rejected.**

**2.** All entries on the bid sheet, including signatures, shall be written in ink.

**3.** The Bidder shall submit a unit price for every item on the bid form. The unit prices for the various contract items shall be written in figures. *****Unit Prices shall be rounded off by the bidder to contain no more than FOUR decimal places.*****

**4.** An amount bid shall be entered on the bid sheet for every item. The amount bid for each item shall be determined by multiplying each unit bid by the quantity for that item, and shall be written in figures in the "Amount Bid" column of the sheet.

**5.** The total amount bid shall be written in figures in the proper place on the bid sheet. The total amount shall be determined by adding the amounts bid for each item.

**6.** Changes in any entry shall be made by marking through the entry in ink and making the correct entry adjacent thereto in ink. A representative of the Bidder shall initial the change in ink.

**7.** The bid shall be properly executed. All bids shall show the following information:

a. Name of individual, firm, corporation, partnership, or joint venture submitting bid.
b. Name and signature of individual or representative submitting bid and position or title.
c. Name, signature, and position or title of witness.
d. Federal Identification Number (or Social Security Number of Individual)
e. Contractor's License Number (if Applicable)

**8.** Bids submitted by corporations shall bear the seal of the corporation.

**9.** The bid shall not contain any unauthorized additions, deletions, or conditional bids.

**10.** The bidder shall not add any provision reserving the right to accept or reject an award, or to enter into a contract pursuant to an award.

**11.** **THE PROPOSAL WITH THE BID SHEET STILL ATTACHED OR INSERTED AND THE ELECTRONIC MEDIA CONTAINING THE EXPEDITE FILE SHALL BE PLACED IN A SEALED ENVELOPE AND SHALL HAVE BEEN DELIVERED TO AND RECEIVED IN THE DIVISION 14 ENGINEER'S OFFICE AT 253 Webster Road, Sylva, NC 28779 BY 2:00 PM ON Tuesday, July 22, 2014.**

**12.** The sealed bid must display the following statement on the front of the sealed envelope:

**QUOTATION FOR WBS ELEMENT 43796.3.1 DESCRIPTION I-26 IN Henderson County TO BE OPENED AT 2:00 PM ON Tuesday, July 22, 2014.**

**13.** If delivered by mail, the sealed envelope shall be placed in another sealed envelope and the outer envelope shall be addressed as follows:

**N. C. DEPARTMENT OF TRANSPORTATION**
**DIVISION OF HIGHWAYS, DIVISION 14**
**ATTN: Wanda H. Austin, PE**
**253 Webster Road**
**Sylva, NC 28779**

## PROJECT SPECIAL PROVISIONS

## GENERAL

### COMPUTER BID PREPARATION WITH EMAIL (OPTIONAL):

(3-4-14) 102 SPI

The bidder may elect to prepare his bid and MBE/WBE or DBE participation electronically by means of a personal computer. For electronic bid preparation the Contractor shall download the Expedite program from the NCDOT "Project Letting" website. Then download the appropriate .ebs electronic file of line items and quantities unique to each project from the Division's website.

The only entries into the program which will be permitted by the Bidder are the appropriate unit or lump sum prices for those items which must be bid in order to provide a complete bid for the project, and any MBE/WBE or DBE participation in the appropriate section of the Expedite program. When these entries have been made, the program will automatically prepare a complete set of itemized proposal sheets which will include the amount bid for the various items and the total amount bid for the project in addition to the unit or lump sum prices bid. The computer generated itemized proposal sheets shall be printed and signed by a duly authorized representative in accordance with Subarticle 102-8(A)(8). This set of itemized proposal sheets, when submitted together with the appropriate proposal, will constitute the bid and shall be delivered to the appropriate Division Office or location specified in the INSTRUCTIONS TO BIDDERS. If the Bidder submits his bid on computer generated itemized proposal sheets, bid prices shall not be written on the itemized proposal sheets bound in the proposal. The computer generated itemized proposal sheets (.ebs bid file) may also be copied to a compact disk (CD) furnished by the Contractor and shall be submitted to the Department with the bid or emailed to the Division Proposals Engineer at the time of Letting.

In the case of a discrepancy between the unit or lump sum prices submitted on the itemized proposal sheets and those contained on the CD or email attachment furnished by the Contractor, the unit or lump sum prices submitted on the printed and signed itemized proposal sheets shall prevail.

The requirements of the INSTRUCTIONS TO BIDDERS will apply to the preparation of bids except that a bid may be submitted on computer generated itemized proposal sheets in which case the entries on the itemized proposal sheets will not be required to be in ink. Changes to any entry on the computer generated itemized proposal sheets shall be made in accordance with requirement Number (6) of the INSTRUCTIONS TO BIDDERS. When the computer generated itemized proposal sheets are not signed and received with the proposal, the bid will be considered irregular.

### MANDATORY PRE-BID CONFERENCE (Prequalifying To Bid):

(7-18-06) (Rev. 3-25-13) SPD 1-14

In order for all prospective bidders to have an extensive knowledge of the project, all prospective bidders shall attend a mandatory pre-bid conference at Tuesday JULY 8, 2014 AT 10:00 AM.

NCDOT-DIVISION 14
253 WEBSTER ROAD
SYLVA, NC
WANDA AUSTIN (828) 586-2141

The pre-bid conference will include a thorough discussion of the plans, contract pay items, special provisions, etc.

Only bidders who have attended and properly registered at the above scheduled pre-bid conference and who have met all other prequalification requirements will be considered prequalified to bid on this project. A bid received from a bidder who has not attended and properly registered at the above scheduled pre-bid conference will not be accepted and considered for award.

Attendance at the pre-bid conference will not meet the requirements of proper registration unless the individual attending has registered at the pre-bid conference in accordance with the following:

(A) The individual has signed his name on the official roster prior to the above noted time for the beginning of the conference.

(B) The individual has written in the name and address of the company he or she represents.

(C) Only one company has been shown as being represented by the individual attending.

(D) The individual attending is an officer or permanent employee of the company they are representing.

Any individual arriving after the official roster has been received by the Engineer will not be eligible to bid. Attendance at any prior pre-bid conference will not meet the requirement of this provision.

## CONTRACT TIME AND LIQUIDATED DAMAGES:

(7-1-95) (Rev. 12-18-07) 108 SP1 G10 A

The date of availability for this contract is **August 25, 2014**.

The completion date for this contract is **March 31, 2015**.

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 **Five Hundred Dollars ($ 500.00)** per calendar day.

WBS #: 43796.1.1
Date: January 13, 2014
Revised Date: June 5, 2014

## INTERMEDIATE CONTRACT TIME NUMBER 1 AND LIQUIDATED DAMAGES

(2-20-07) SP1 G14 A

The Contractor shall complete the required work of installing, maintaining, and removing the traffic control devices for lane closures and restoring traffic to the existing traffic pattern. The Contractor shall not close or narrow a lane of traffic on I-26 during the following time restrictions:

DAY AND TIME RESTRICTIONS

Monday through Sunday, 6:00 a.m. to 9:00 p.m.

In addition, the Contractor shall not close or narrow a lane of traffic on I-26, 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 9:00 p.m. January 2nd. If New Year's Day is on a Friday, Saturday, Sunday or Monday, then until9:00 p.m. the following Tuesday.

3. For Easter, between the hours of 6:00 a.m. Thursday and 9:00 p.m. Monday.

4. For Memorial Day, between the hours of 6:00 a.m. Friday and 9:00 p.m. Tuesday.

5. For Independence Day, between the hours of 6:00 a.m. the day before Independence Day and 9:00 p.m. the day after Independence Day.

   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 9:00 p.m. the Tuesday after Independence Day.

6. For Labor Day, between the hours of 6:00 a.m. Friday and 9:00 p.m. Tuesday.

7. For Thanksgiving Day, between the hours of 6:00 a.m. Tuesday and 9:00 p.m. Monday.

8. For Christmas, between the hours of 6:00 a.m. the Friday before the week of Christmas Day and 9:00 p.m. the following Tuesday after the week of Christmas Day.

WBS #: 43796.1.1
Date: January 13, 2014
Revised Date: June 5, 2014

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 15 minutes.

WBS #: 43796.1.1
Date: January 13, 2014
Revised Date: June 5, 2014

## INTERMEDIATE CONTRACT TIME NUMBER 2 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 pattern. The Contractor shall not close I-26 and all Ramps & Loops during the following time restrictions:

DAY AND TIME RESTRICTIONS

Monday through Thursday, 6:00 a.m. to Midnight
and
6:00 a.m. Friday through Midnight Sunday

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 existing traffic pattern.

The liquidated damages are Two Thousand, Five Hundred Dollars ($2,500.00) per 15 minutes.

WBS #: 43796.1.1
Date: January 13, 2014
Revised Date: June 5, 2014

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



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 I-26 and all Ramps & Loops during the following time restrictions:

DAY AND TIME RESTRICTIONS

Monday through Thursday, 6:00 a.m. to Midnight
and
6:00 a.m. Friday through Midnight Sunday

The maximum allowable time for installation of structures, signs, DMSs & other operations as directed by the Engineer is 30 minutes for I-26. The Contractor shall reopen the travel lanes to traffic until any resulting traffic queue is depleted.

The time of availability for this intermediate contract time will be the time the Contractor begins to install traffic control devices required for the 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 Two Thousand, Five Hundred Dollars ($2,500.00) per 15 minutes.

## NO MAJOR CONTRACT ITEMS:

(2-19-02) (Rev. 8-21-07) 104 SP1 G31

None of the items included in this contract will be major items.

## NO SPECIALTY ITEMS:

(7-1-95) 108-6 SP1 G34

None of the items included in this contract will be specialty items (see Article 108-6 of the *2012 Standard Specifications*).

## SCHEDULE OF ESTIMATED COMPLETION PROGRESS:

(7-15-08) (Rev. 5-20-14) 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:

| | | |
|---|---|---|
| 2015 | (7/01/14 - 6/30/15) | **100** % 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.

## MINORITY BUSINESS ENTERPRISE AND WOMEN BUSINESS ENTERPRISE (DIVISIONS):

(10-16-07)(Rev. 12-17-13) 102-15(J) SP1 G67

**Description**

The purpose of this Special Provision is to carry out the North Carolina Department of Transportation's policy of ensuring nondiscrimination in the award and administration of contracts financed in whole or in part with State funds.

**Definitions**

*Additional MBE/WBE Subcontractors* - Any MBE/WBE submitted at the time of bid that will not be used to meet either the MBE or WBE goal. No submittal of a Letter of Intent is required.

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

*Contract Goals Requirement* - The approved MBE and WBE participation at time of award, but not greater than the advertised contract goals for each.

*Goal Confirmation Letter* - Written documentation from the Department to the bidder confirming the Contractor's approved, committed MBE and WBE participation along with a listing of the committed MBE and WBE 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.

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

*Minority Business Enterprise (MBE)* - A firm certified as a Disadvantaged Minority-Owned Business Enterprise through the North Carolina Unified Certification Program.

*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 MBE/WBE certification. The MBE/WBE program follows the same regulations as the federal Disadvantaged Business Enterprise (DBE) program 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.

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

*Women Business Enterprise (WBE)* - A firm certified as a Disadvantaged Women-Owned Business Enterprise through the North Carolina Unified Certification Program.

**Forms and Websites Referenced in this Provision**

*Payment Tracking System* - On-line system in which the Contractor enters the payments made to MBE and WBE 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 MBE/WBE 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 *MBE/WBE Replacement Request Form* - Form for replacing a committed MBE or WBE. http://connect.ncdot.gov/projects/construction/Construction%20Forms/DBE%20MBE%20WBE%20Replacement%20Request%20Form.pdf

SAF *Subcontract Approval Form* - Form required for approval to sublet the contract. http://connect.ncdot.gov/projects/construction/Construction%20Forms/Subcontract%20Approval%20Form%20Rev.%202012.zip

JC-1 *Joint Check Notification Form* - Form and procedures for joint check notification. The form acts as a written joint check agreement among the parties providing full and prompt disclosure of the expected use of joint checks.
http://connect.ncdot.gov/projects/construction/Construction%20Forms/Joint%20Check%20Notification%20Form.pdf

*Letter of Intent* - Form signed by the Contractor and the MBE/WBE subcontractor, manufacturer or regular dealer that affirms that a portion of said contract is going to be performed by the signed MBE/WBE for the amount listed at the time of bid.
http://connect.ncdot.gov/letting/LetCentral/Letter%20of%20Intent%20to%20Perform%20as%20a%20Subcontractor.pdf

*Listing of MBE and WBE Subcontractors Form* - Form for entering MBE/WBE subcontractors on a project that will meet this MBE and WBE goals. This form is for paper bids only.
http://connect.ncdot.gov/municipalities/Bid%20Proposals%20for%20LGA%20Content/09%20MBE-WBE%20Subcontractors%20(State).doc

*Subcontractor Quote Comparison Sheet* - Spreadsheet for showing all subcontractor quotes in the work areas where MBEs and WBEs quoted on the project. This sheet is submitted with good faith effort packages.
http://connect.ncdot.gov/business/SmallBusiness/Documents/DBE%20Subcontractor%20Quote%20Comparison%20Example.xls

**MBE and WBE Goal**

The following goals for participation by Minority Business Enterprises and Women Business Enterprises are established for this contract:

(A) Minority Business Enterprises **0.0 %**

(1) *If the MBE goal is more than zero*, the Contractor shall exercise all necessary and reasonable steps to ensure that MBEs participate in at least the percent of the contract as set forth above as the MBE goal.

(2) *If the MBE goal is zero*, the Contractor shall make an effort to recruit and use MBEs during the performance of the contract. Any MBE participation obtained shall be reported to the Department.

(B) Women Business Enterprises **2.0 %**

(1) *If the WBE goal is more than zero*, the Contractor shall exercise all necessary and reasonable steps to ensure that WBEs participate in at least the percent of the contract as set forth above as the WBE goal.

(2) *If the WBE goal is zero*, the Contractor shall make an effort to recruit and use WBEs during the performance of the contract. Any WBE 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 MBE and WBE certified shall be used to meet the MBE and WBE goals respectively. 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 MBE/WBE Subcontractors**

At the time of bid, bidders shall submit all MBE and WBE participation that they anticipate to use during the life of the contract. Only those identified to meet the MBE goal and the WBE goal will be considered committed, even though the listing shall include both committed MBE/WBE subcontractors and additional MBE/WBE subcontractors. Any additional MBE/WBE subcontractor participation submitted at the time of bid will be used toward overall race-neutral goals. Only those firms with current MBE and WBE certification at the time of bid opening will be acceptable for listing in the bidder's submittal of MBE and WBE participation. The Contractor shall indicate the following required information:

(A) *If either the MBE or WBE goal is more than zero,*

(1) Bidders, at the time the bid proposal is submitted, shall submit a listing of MBE/WBE participation, including the names and addresses on *Listing of MBE and WBE 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 MBE and WBE participation for the contract.

(2) If bidders have no MBE or WBE participation, they shall indicate this on the *Listing of MBE and WBE Subcontractors* by entering the word "None" or the number "0." This form shall be completed in its entirety. **Blank forms will not be deemed to represent zero participation.** Bids submitted that do not have MBE and WBE 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.

(3) The bidder shall be responsible for ensuring that the MBE/WBE 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 MBE's or WBE's participation will not count towards achieving the corresponding goal.

(B) *If either the MBE or WBE goal is zero,* entries on the *Listing of MBE and WBE Subcontractors* are not required for the zero goal, however any MBE or WBE participation that is achieved during the project shall be reported in accordance with requirements contained elsewhere in the special provision.

**MBE or WBE Prime Contractor**

When a certified MBE or WBE firm bids on a contract that contains MBE and WBE goals, the firm is responsible for meeting the goals or making good faith efforts to meet the goals, just like any other bidder. In most cases, a MBE or WBE bidder on a contract will meet one of the goals by virtue of the work it performs on the contract with its own forces. However, all the work that is performed by the

MBE or WBE bidder and any other similarly certified subcontractors will count toward the goal. The MBE or WBE bidder shall list itself along with any MBE or WBE subcontractors, if any, in order to receive credit toward the goals.

For example, on a proposed contract, the WBE goal is 10%, and the MBE goal is 8%. A WBE bidder puts in a bid where they will perform 40% of the contract work and have a WBE subcontractor which will perform another 5% of the work. Together the two WBE firms submit on the *Listing of MBE and WBE Subcontractors* a value of 45% of the contract which fulfills the WBE goal. The 8% MBE goal shall be obtained through MBE participation with MBE certified subcontractors or documented through a good faith effort. It should be noted that you cannot combine the two goals to meet an overall value. The two goals shall remain separate.

MBE/WBE prime contractors shall also follow Sections A or B listed under *Listing of MBE/WBE Subcontractors* just as a non-MBE/WBE bidder would.

**Written Documentation – Letter of Intent**

The bidder shall submit written documentation for each MBE/WBE that will be used to meet the MBE and WBE goals of the contract, indicating the bidder's commitment to use the MBE/WBE 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 Engineer no later than 12:00 noon of the sixth calendar day following opening of bids, unless the sixth day falls on Saturday, Sunday or an official state holiday. In that situation, it is due in the office of the 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 MBE and WBE to be used toward the MBE and WBE goals, or if the form is incomplete (i.e. both signatures are not present), the MBE/WBE participation will not count toward meeting the MBE/WBE goal. If the lack of this participation drops the commitment below either the MBE or WBE goal, the Contractor shall submit evidence of good faith efforts for the goal not met, completed in its entirety, to the Engineer no later than 12:00 noon of the eighth calendar day following opening of bids, unless the eighth day falls on Saturday, Sunday or an official state holiday. In that situation, it is due in the office of the 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 either the MBE or the WBE goal, the apparent lowest responsive bidder shall submit to the Department documentation of adequate good faith efforts made to reach that specific goal(s).

One complete set and **2** copies of this information shall be received in the office of the Engineer no later than 12:00 noon of the sixth calendar day following opening of bids, unless the sixth day falls on Saturday, Sunday or an official state holiday. In that situation, it is due in the office of the Engineer no later than 12:00 noon on the next official state business day.

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 MBE/WBE 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 MBE/WBE 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 MBE/WBE participation. Adequate good faith efforts also mean that the bidder actively and aggressively sought MBE/WBE 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 goals and are not intended to be exclusive or exhaustive, nor is it intended to be a mandatory checklist.

(A) Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising, written notices, use of verifiable electronic means through the use of the NCDOT Directory of Transportation Firms) the interest of all certified MBEs/WBEs 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 MBEs/WBEs to respond to the solicitation. Solicitation shall provide the opportunity to MBEs/WBEs within the Division and surrounding Divisions where the project is located. The bidder must determine with certainty if the MBEs/WBEs are interested by taking appropriate steps to follow up initial solicitations.

(B) Selecting portions of the work to be performed by MBEs/WBEs in order to increase the likelihood that the MBE and WBE goals will be achieved.

(1) Where appropriate, break out contract work items into economically feasible units to facilitate MBE/WBE participation, even when the prime contractor might otherwise prefer to perform these work items with its own forces.

(2) Negotiate with subcontractors to assume part of the responsibility to meet the contract MBE/WBE goals when the work to be sublet includes potential for MBE/WBE participation (2nd and 3rd tier subcontractors).

(C) Providing interested MBEs/WBEs 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 MBEs/WBEs. It is the bidder's responsibility to make a portion of the work available to MBE/WBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available MBE/WBE subcontractors and suppliers, so as to facilitate MBE/WBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of MBEs/WBEs 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 MBEs/WBEs to perform the work.

(2) A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including MBE/WBE 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 MBEs/WBEs

is not in itself sufficient reason for a bidder's failure to meet the contract MBE or WBE goals, 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 MBEs/WBEs if the price difference is excessive or unreasonable.

(E) Not rejecting MBEs/WBEs 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 MBEs/WBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or bidder.

(G) Making efforts to assist interested MBEs/WBEs 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 MBEs/WBEs. Contact within 7 days from the bid opening NCDOT's Business Development Manager in the Business Opportunity and Work Force Development Unit to give notification of the bidder's inability to get MBE or WBE quotes.

(I) Any other evidence that the bidder submits which shows that the bidder has made reasonable good faith efforts to meet the MBE and WBE 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 MBE and WBE goals.

(2) The bidders' past performance in meeting the MBE and WBE goals.

(3) The performance of other bidders in meeting the MBE and WBE goals. For example, when the apparent successful bidder fails to meet the goals, but others meet it, you may reasonably raise the question of whether, with additional reasonable efforts the apparent successful bidder could have met the goals. If the apparent successful bidder fails to meet the MBE and WBE goals, but meets or exceeds the average MBE and WBE 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 MBE and WBE goals can be met or that an adequate good faith effort has been made to meet the MBE and WBE goals.

**Non-Good Faith Appeal**

The 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 Engineer. The appeal shall be made within 2 business days of notification of the determination of non-good faith.

**Counting MBE/WBE Participation Toward Meeting MBE/WBE Goals**

(A) Participation

The total dollar value of the participation by a committed MBE/WBE will be counted toward the contract goal requirements. The total dollar value of participation by a committed MBE/WBE will be based upon the value of work actually performed by the MBE/WBE and the actual payments to MBE/WBE firms by the Contractor.

(B) Joint Checks

Prior notification of joint check use shall be required when counting MBE/WBE 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 MBE/WBE may enter into subcontracts. Work that a MBE subcontracts to another MBE firm may be counted toward the MBE contract goal requirement. The same holds for work that a WBE subcontracts to another WBE firm. Work that a MBE subcontracts to a non-MBE firm does <u>not</u> count toward the MBE contract goal requirement. Again, the same holds true for the work that a WBE subcontracts to a non-WBE firm. If a MBE or WBE 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 MBE or WBE is not performing a commercially useful function. The MBE/WBE may present evidence to rebut this presumption to the Department. The Department's decision on the rebuttal of this presumption may be subject to review by the Office of Inspector General, NCDOT.

(D) Joint Venture

When a MBE or WBE 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 MBE or WBE in the joint venture, that portion of the total dollar value being a distinct clearly defined portion of work that the MBE or WBE performs with its forces.

(E) Suppliers

A contractor may count toward its MBE or WBE requirement 60 percent of its expenditures for materials and supplies required to complete the contract and obtained from a MBE or WBE regular dealer and 100 percent of such expenditures from a MBE or WBE manufacturer.

(F) Manufacturers and Regular Dealers

A contractor may count toward its MBE or WBE requirement the following expenditures to MBE/WBE firms that are not manufacturers or regular dealers:

(1) The fees or commissions charged by a MBE/WBE 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 MBE/WBE, 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) MBE/WBE Utilization

The Contractor may count toward its contract goal requirement only expenditures to MBEs and WBEs that perform a commercially useful function in the work of a contract. A MBE/WBE 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 MBE/WBE 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 MBE/WBE 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 MBE/WBE credit claimed for its performance of the work, and any other relevant factors.

(B) MBE/WBE Utilization in Trucking

The following factors will be used to determine if a MBE or WBE trucking firm is performing a commercially useful function:

(1) The MBE/WBE 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 the MBE or WBE goal.

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

(3) The MBE/WBE 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 MBE may subcontract the work to another MBE firm, including an owner-operator who is certified as a MBE. The same holds true that a WBE may subcontract the work to another WBE firm, including an owner-operator who is certified as a WBE. When this occurs, the MBE or WBE who subcontracts work receives credit for the total value of the transportation services the subcontracted MBE or WBE provides on the contract. It should be noted that every effort shall be made by MBE and WBE contractors to subcontract to the same certification (i.e., MBEs to MBEs and WBEs to WBEs), in order to fulfill the goal requirement. This, however, may not always be possible due to the limitation of firms in the area. If the MBE or WBE firm shows a good faith effort has been made to reach out to similarly certified transportation service providers and there is no interest or availability, and they can get assistance from other certified providers, the Engineer will not hold the prime liable for meeting the goal.

(5) The MBE/WBE may also subcontract the work to a non-MBE/WBE firm, including from an owner-operator. The MBE/WBE who subcontracts the work to a non-MBE/WBE is entitled to credit for the total value of transportation services provided by the non-MBE/WBE subcontractor not to exceed the value of transportation services provided by MBE/WBE-owned trucks on the contract. Additional participation by non-MBE/WBE 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 MBE/WBE and the Contractor will not count towards the MBE/WBE contract requirement.

(6) A MBE/WBE may lease truck(s) from an established equipment leasing business open to the general public. The lease must indicate that the MBE/WBE 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 MBE/WBE, so long as the lease gives the MBE/WBE absolute priority for use of the leased truck. This type of lease may count toward the MBE/WBE's credit as long as the driver is under the MBE/WBE's payroll.

(7) Subcontracted/leased trucks shall display clearly on the dashboard the name of the MBE/WBE 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.

**MBE/WBE Replacement**

When a Contractor has relied on a commitment to a MBE or WBE firm (or an approved substitute MBE or WBE firm) to meet all or part of a contract goal requirement, the contractor shall not terminate the MBE/WBE 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 MBE/WBE subcontractor, a non-MBE/WBE subcontractor, or with the Contractor's own forces or those of an affiliate. A MBE/WBE 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 MBE/WBE firm shall be submitted to the Engineer for approval on Form RF-1 *(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 MBE/WBE:

(A) Performance Related Replacement

When a committed MBE is terminated for good cause as stated above, an additional MBE that was submitted at the time of bid may be used to fulfill the MBE commitment. The same holds true if a committed WBE is terminated for good cause, an additional WBE that was submitted at the time of bid may be used to fulfill the WBE goal. A good faith effort will only be required for removing a committed MBE/WBE if there were no additional MBEs/WBEs submitted at the time of bid to cover the same amount of work as the MBE/WBE that was terminated.

If a replacement MBE/WBE is not found that can perform at least the same amount of work as the terminated MBE/WBE, 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 MBEs/WBEs that their interest is solicited in contracting the work defaulted by the previous MBE/WBE or in subcontracting other items of work in the contract.

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

(a) The names, addresses, and telephone numbers of MBEs/WBEs who were contacted.

(b) A description of the information provided to MBEs/WBEs regarding the plans and specifications for portions of the work to be performed.

(3) A list of reasons why MBE/WBE quotes were not accepted.

(4) Efforts made to assist the MBEs/WBEs contacted, if needed, in obtaining bonding or insurance required by the Contractor.

(B) Decertification Replacement

(1) When a committed MBE/WBE 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 MBE/WBE 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 MBE/WBE is decertified prior to the Department receiving the SAF (*Subcontract Approval Form*) for the named MBE/WBE firm, the Contractor shall take all necessary and reasonable steps to replace the MBE/WBE subcontractor with another similarly certified MBE/WBE subcontractor to perform at least the same amount of work to meet the MBE/WBE goal requirement. If a MBE/WBE 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 MBE/WBE, 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 MBE/WBE based upon the Contractor's commitment, the MBE/WBE shall participate in additional work to the same extent as the MBE/WBE 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 MBEs/WBEs 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 MBE/WBE, the Contractor shall seek participation by MBEs/WBEs 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 MBE/WBE, the Contractor shall seek additional participation by MBEs/WBEs equal to the reduced MBE/WBE 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 MBE/WBE subcontractor. The Department reserves the right to require copies of actual subcontract agreements involving MBE/WBE 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 MBE/WBE 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 MBE/WBE credit.

**Reporting Minority and Women Business Enterprise Participation**

The Contractor shall provide the Engineer with an accounting of payments made to all MBE and WBE 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 MBEs/WBEs, 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 further work on future projects until the required information is submitted.

Contractors reporting transportation services provided by non-MBE/WBE lessees shall evaluate the value of services provided during the month of the reporting period only.

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

The Contractor shall report the accounting of payments 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.

## 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).

## SUBSURFACE INFORMATION:

(7-1-95) 450 SP1 G112 A

There is **no** subsurface information available on this project. The Contractor shall make his own investigation of subsurface conditions.

## 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.

## RESOURCE CONSERVATION:

(5-21-13) 104-13 SP1 G118

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

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

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

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

## DOMESTIC STEEL:

(4-16-13) 106 SP1 G120

Revise the *2012 Standard Specifications* as follows:

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

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

## 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.

## OUTSOURCING OUTSIDE THE USA:

(9-21-04) (Rev. 5-16-06) SP1 G150

All work on consultant contracts, services contracts, and construction contracts shall be performed in the United States of America. No work shall be outsourced outside of the United States of America.

*Outsourcing* for the purpose of this provision is defined as the practice of subcontracting labor, work, services, staffing, or personnel to entities located outside of the United States.

The North Carolina Secretary of Transportation shall approve exceptions to this provision in writing.

## GIFTS FROM VENDORS AND CONTRACTORS:

(12-15-09) 107-1 SP1 G152

By Executive Order 24, issued by Governor Perdue, and *N.C.G.S.§ 133-32,* it is unlawful for any vendor or contractor (i.e. architect, bidder, contractor, construction manager, design professional, engineer, landlord, offeror, seller, subcontractor, supplier, or vendor), to make gifts or to give favors to any State employee of the Governor's Cabinet Agencies (i.e. Administration, Commerce, Correction, Crime Control and Public Safety, Cultural Resources, Environment and Natural Resources, Health and Human Services, Juvenile Justice and Delinquency Prevention, Revenue, Transportation, and the Office of the Governor). This prohibition covers those vendors and contractors who:

(A) Have a contract with a governmental agency; or
(B) Have performed under such a contract within the past year; or
(C) Anticipate bidding on such a contract in the future.

For additional information regarding the specific requirements and exemptions, vendors and contractors are encouraged to review Executive Order 24 and *N.C.G.S. § 133-32*.

Executive Order 24 also encouraged and invited other State Agencies to implement the requirements and prohibitions of the Executive Order to their agencies. Vendors and contractors should contact other State Agencies to determine if those agencies have adopted Executive Order 24.

## LIABILITY INSURANCE:

(5-20-14) SP1 G160

Revise the *2012 Standard Specifications* as follows:

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

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

## 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

### MATERIALS:

(2-21-12) (Rev. 5-20-14) 1000, 1002, 1005, 1024, 1050, 1056, 1074, 1078, 1080, 1081, 1086, 1084, 1087, 1092 SP10 R01

Revise the *2012 Standard Specifications* as follows:

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

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

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

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

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

**TABLE 1000-1**
**REQUIREMENTS FOR CONCRETE**

| Class of Concrete | Min. Comp. Strength at 28 days | Maximum Water-Cement Ratio | | | | Consistency Max. Slump | | Cement Content | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Air-Entrained Concrete | | Non Air-Entrained Concrete | | Vibrated | Non-Vibrated | Vibrated | | Non- Vibrated | |
| | | Rounded Aggregate | Angular Aggre-gate | Rounded Aggregate | Angular Aggre-gate | | | Min. | Max. | Min. | Max. |
| *Units* | *psi* | | | | | *inch* | *inch* | *lb/cy* | *lb/cy* | *lb/cy* | *lb/cy* |
| AA | 4,500 | 0.381 | 0.426 | - | - | 3.5 | - | 639 | 715 | - | - |
| AA Slip Form | 4,500 | 0.381 | 0.426 | - | - | 1.5 | - | 639 | 715 | - | - |
| Drilled Pier | 4,500 | - | - | 0.450 | 0.450 | - | 5-7 dry 7-9 wet | - | - | 640 | 800 |
| A | 3,000 | 0.488 | 0.532 | 0.550 | 0.594 | 3.5 | 4 | 564 | - | 602 | - |
| B | 2,500 | 0.488 | 0.567 | 0.559 | 0.630 | 2.5 | 4 | 508 | - | 545 | - |
| B Slip Formed | 2,500 | 0.488 | 0.567 | - | - | 1.5 | - | 508 | - | - | - |
| Sand Light-weight | 4,500 | - | 0.420 | - | - | 4 | - | 715 | - | - | - |
| Latex Modified | 3,000 7 day | 0.400 | 0.400 | - | - | 6 | - | 658 | - | - | - |
| Flowable Fill excavatable | 150 max. at 56 days | as needed | as needed | as needed | as needed | - | Flow-able | - | - | 40 | 100 |
| Flowable Fill non-excavatable | 125 | as needed | as needed | as needed | as needed | - | Flow-able | - | - | 100 | as needed |
| Pavement | 4,500 design, field 650 flexural, design only | 0.559 | 0.559 | - | - | 1.5 slip form 3.0 hand place | - | 526 | - | - | - |
| Precast | See Table 1077-1 | as needed | as needed | - | - | 6 | as needed | as needed | as needed | as needed | as needed |
| Prestress | per contract | See Table 1078-1 | See Table 1078-1 | - | - | 8 | - | 564 | as needed | - | - |

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

| **Item** | **Section** |
|---|---|
| Type IL Blended Cement | 1024-1 |

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

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

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

**A.** See Subarticle 1005-4(A).
**B.** See Subarticle 1005-4(B).
**C.** For Lightweight Aggregate used in Structural Concrete, see Subarticle 1014-2(E)(6).

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

Use Type IL blended cement that meets AASHTO M 240, except that the limestone content is limited to between 5 and 12% by weight and the constituents shall be interground. Class F fly ash can replace a portion of Type IL blended cement and shall be replaced as outlined in Subarticle 1000-4(I) for Portland

cement. For mixes that contain cement with alkali content between 0.6% and 1.0% and for mixes that contain a reactive aggregate documented by the Department, use a pozzolan in the amount shown in Table 1024-1.

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

All fencing material and accessories shall meet Section 106.

**Page 10-73, Article 1056-1 DESCRIPTION, lines 7-8**, delete the first sentence of the second paragraph and replace with the following:

Use geotextile fabrics that are on the NCDOT Approved Products List.

**Page 10-73, Article 1056-2 HANDLING AND STORING, line 17**, replace "mechanically stabilized earth (MSE) wall faces" with "temporary wall faces".

**Page 10-74, TABLE 1056-1 GEOTEXTILE REQUIREMENTS**, replace table with the following:

**TABLE 1056-1**
**GEOTEXTILE REQUIREMENTS**

| **Property** | **Requirement (MARV[A])** | | | | | **Test Method** |
|---|---|---|---|---|---|---|
| | **Type 1** | **Type 2** | **Type 3[B]** | **Type 4** | **Type 5[C]** | |
| *Typical Application* | *Shoulder Drains* | *Under Rip Rap* | *Temporary Silt Fence* | *Soil Stabilization* | *Temporary Walls* | |
| Elongation (MD & CD) | ≥ 50% | ≥ 50% | ≤ 25% | < 50% | < 50% | ASTM D4632 |
| Grab Strength (MD & CD) | Table 1[D], Class 3 | Table 1[D], Class 1 | 100 lb | Table 1[D], Class 3 | - | ASTM D4632 |
| Tear Strength (MD & CD) | | | - | | - | ASTM D4533 |
| Puncture Strength | | | - | | - | ASTM D6241 |
| Ultimate Tensile Strength (MD & CD) | - | - | - | - | 2,400 lb/ft (unless required otherwise in the contract) | ASTM D4595 |
| Permittivity | Table 2[D], 15% to 50% *in Situ* Soil Passing No. 200[E] | | Table 7[D] | Table 5[D] | 0.20 $sec^{-1}$ | ASTM D4491 |
| Apparent Opening Size | | | | | No. 30[E] | ASTM D4751 |
| UV Stability (Retained Strength) | | | | | 70% | ASTM D4355 |

**A.** MARV does not apply to elongation
**B.** Minimum roll width of 36" required
**C.** Minimum roll width of 13 ft required
**D.** AASHTO M 288
**E.** US Sieve No. per AASHTO M 92

**Page 10-115, Subarticle 1074-7(B), Gray Iron Castings, lines 10-11,** replace with the first two sentences with the following:

Supply gray iron castings meeting all facets of AASHTO M 306 excluding proof load. Proof load testing will only be required for new casting designs during the design process, and conformance to M306 loading (40,000 lbs.) will be required only when noted on the design documents.

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

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

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

(B) At least 3 panels prepared as specified in 5.5.10 of AASHTO M 300, Bullet Hole Immersion Test.

(C) At least 3 panels of 4"x6"x1/4" for the Elcometer Adhesion Pull Off Test, ASTM D4541.

(D) A certified test report from an approved independent testing laboratory for the Salt Fog Resistance Test, Cyclic Weathering Resistance Test, and Bullet Hole Immersion Test as specified in AASHTO M 300.

(E) A certified test report from an approved independent testing laboratory that the product has been tested for slip coefficient and meets AASHTO M253, Class B.

**Page 10-161, Subarticle 1081-1(A) Classifications, lines 29-33,** delete first 3 sentences of the description for Type 2 and replace with the following:

**Type 2 -** A low-modulus, general-purpose adhesive used in epoxy mortar repairs. It may be used to patch spalled, cracked or broken concrete where vibration, shock or expansion and contraction are expected.

**Page 10-162, Subarticle 1081-1(A) Classifications, lines 4-7,** delete the second and third sentences of the description for Type 3A. **Lines 16-22,** delete Types 6A, 6B and 6C.

**Page 10-162, Subarticle 1081-1(B) Requirements, lines 26-30,** replace the second paragraph with the following:

For epoxy resin systems used for embedding dowel bars, threaded rods, rebar, anchor bolts and other fixtures in hardened concrete, the manufacturer shall submit test results showing that the bonding system will obtain 125% of the specified required yield strength of the fixture. Furnish certification that, for the particular bolt grade, diameter and embedment depth required, the anchor system will not fail by adhesive failure and that there is no movement of the anchor bolt. For certification and anchorage, use 3,000 psi as the minimum Portland cement concrete compressive strength used in this test. Use adhesives that meet Section 1081.

List the properties of the adhesive on the container and include density, minimum and maximum temperature application, setting time, shelf life, pot life, shear strength and compressive strength.

**Page 10-163, Table 1081-1 Properties of Mixed Epoxy Resin Systems,** replace table with the following:

**Table 1081-1**
**Properties of Mixed Epoxy Resin Systems**

| Property | Type 1 | Type 2 | Type 3 | Type 3A | Type 4A | Type 4B | Type 5 |
|---|---|---|---|---|---|---|---|
| Viscosity-Poises at 77°F ± 2°F | Gel | 10-30 | 25-75 | Gel | 40-150 | 40-150 | 1-6 |
| Spindle No. | - | 3 | 4 | -- | 4 | 4 | 2 |
| Speed (RPM) | - | 20 | 20 | -- | 10 | 10 | 50 |
| Pot Life (Minutes) | 20-50 | 30-60 | 20-50 | 5-50 | 40-80 | 40-80 | 20-60 |
| Minimum Tensile Strength at 7 days (psi) | 1,500 | 2,000 | 4,000 | 4,000 | 1,500 | 1,500 | 4,000 |
| Tensile Elongation at 7 days (%) | 30 min. | 30 min. | 2-5 | 2-5 | 5-15 | 5-15 | 2-5 |
| Min. Compressive Strength of 2". mortar cubes at 24 hours | 3,000 (Neat) | 4,000- | 6,000- | 6,000 (Neat) | 3,000 | 3,000 | 6,000 |
| Min. Compressive Strength of 2" mortar cubes at 7 days | 5,000 (Neat) | - | - | - | - | 5,000 | - |
| Maximum Water Absorption (%) | 1.5 | 1.0 | 1.0 | 1.5 | 1.0 | 1.0 | 1.0 |
| Min. Bond Strength Slant Shear Test at 14 days (psi) | 1,500 | 1,500 | 2,000 | 2,000 | 1,500 | 1,500 | 1,500 |

**Page 10-164, Subarticle 1081-1(E) Prequalification, lines 31-33,** replace the second sentence of the first paragraph with the following:

Manufacturers choosing to supply material for Department jobs must submit an application through the Value Management Unit with the following information for each type and brand name:

**Page 10-164, Subarticle 1081-1(E)(3), line 37,** replace this subarticle with the following:

(3) Type of the material in accordance with Articles 1081-1 and 1081-4,

**Page 10-165, Subarticle 1081-1(E)(6), line 1,** in the first sentence of the first paragraph replace "AASHTO M 237" with "the specifications".

**Page 10-165, Subarticle 1081-1(E) Prequalification, line 9-10,** delete the second sentence of the last paragraph.

**Page 10-165, Subarticle 1081-1(F) Acceptance, line 14,** in the first sentence of the first paragraph replace "Type 1" with "Type 3".

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

**Page 10-170, Article 1081-3 Hot Bitumen, line 9,** add the following at the end of Section 1081:

**1081-4 EPOXY RESIN ADHESIVE FOR BONDING TRAFFIC MARKINGS**

**(A) General**

This section covers epoxy resin adhesive for bonding traffic markers to pavement surfaces.

**(B) Classification**

The types of epoxies and their uses are as shown below:

**Type I –** Rapid Setting, High Viscosity, Epoxy Adhesive. This type of adhesive provides rapid adherence to traffic markers to the surface of pavement.

**Type II –** Standard Setting, High Viscosity, Epoxy Adhesive. This type of adhesive is recommended for adherence of traffic markers to pavement surfaces when rapid set is not required.

**Type III –** Rapid Setting, Low Viscosity, Water Resistant, Epoxy Adhesive. This type of rapid setting adhesive, due to its low viscosity, is appropriate only for use with embedded traffic markers.

**Type IV –** Standard Set Epoxy for Blade Deflecting-Type Plowable Markers.

**(C) Requirements**

Epoxies shall conform to the requirements set forth in AASHTO M 237.

**(D) Prequalification**

Refer to Subarticle 1081-1(E).

**(E) Acceptance**

Refer to Subarticle 1081-1(F).

**Page 10-173, Article 1084-2 STEEL SHEET PILES, lines 37-38,** replace first paragraph with the following:

Steel sheet piles detailed for permanent applications shall be hot rolled and meet ASTM A572 or ASTM A690 unless otherwise required by the plans. Steel sheet piles shall be coated as required by the plans. Galvanized sheet piles shall be coated in accordance with Section 1076. Metallized sheet piles shall be metallized in accordance to the Project Special Provision "Thermal Sprayed Coatings (Metallization)" with an 8 mil, 99.9% aluminum alloy coating and a 0.5 mil seal coating. Any portion of the metallized sheet piling encased in concrete shall receive a barrier coat. The barrier coat shall be an approved waterborne coating with a low-viscosity which readily absorbs into the pores of the aluminum thermal sprayed coating. The waterborne coating shall be applied at a spreading rate that results in a theoretical 1.5 mil dry film thickness. The manufacturer shall issue a letter of certification that the resin chemistry of the waterborne coating is compatible with the 99.9% aluminum thermal sprayed alloy and suitable for tidal water applications.

**Page 10-174, Subarticle 1086-1(B)(1) Epoxy, lines 18-24**, replace this subarticle with the following:

The epoxy shall meet Article 1081-4.

The 2 types of epoxy adhesive which may be used are Type I, Rapid Setting, and Type II, Standard Setting. Use Type II when the pavement temperature is above 60°F or per the manufacturer's recommendations whichever is more stringent. Use Type I when the pavement temperature is between 50°F and 60°F or per the manufacturer's recommendations whichever is more stringent. Epoxy adhesive Type I, Cold Set, may be used to attach temporary pavement markers to the pavement surface when the pavement temperature is between 32°F and 50°F or per the manufacturer's recommendations whichever is more stringent.

**Page 10-175, Subarticle 1086-2(E) Epoxy Adhesives, line 27**, replace "Section 1081" with "Article 1081-4".

**Page 10-177, Subarticle 1086-3(E) Epoxy Adhesives, line 22**, replace "Section 1081" with "Article 1081-4".

**Page 10-179, Subarticle 1087-4(A) Composition, lines 39-41**, replace the third paragraph with the following:

All intermixed and drop-on glass beads shall not contain more than 75 ppm arsenic or 200 ppm lead.

**Page 10-180, Subarticle 1087-4(B) Physical Characteristics, line 8**, replace the second paragraph with the following:

All intermixed and drop-on glass beads shall comply with NCGS § 136-30.2 and 23 USC § 109(r).

**Page 10-181, Subarticle 1087-7(A) Intermixed and Drop-on Glass Beads, line 24**, add the following after the first paragraph:

Use X-ray Fluorescence for the normal sampling procedure for intermixed and drop-on beads, without crushing, to check for any levels of arsenic and lead. If any arsenic or lead is detected, the sample shall be crushed and repeat the test using X-ray Fluorescence. If the X-ray Fluorescence test shows more than a LOD of 5 ppm, test the beads using United States Environmental Protection Agency Method 6010B, 6010C or 3052 for no more than 75 ppm arsenic or 200 ppm lead.

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

| 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 |

**TEMPORARY TRAFFIC CONTROL DEVICES:**
(1-17-12) 1105 SP11 R05

Revise the *2012 Standard Specifications* as follows:

**Page 11-5, Article 1105-6 Measurement and Payment,** add the following paragraph after line 24:

Partial payments will be made on each payment estimate based on the following: 50% of the contract lump sum price bid will be paid on the first monthly estimate and the remaining 50% of the contract lump sum price bid will be paid on each subsequent estimate based on the percent of the project completed.

**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.

## 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

## ERRATA

(1-17-12) (Rev. 1-21-14) Z-4

Revise the *2012 Standard Specifications* as follows:

### Division 2

**Page 2-7, line 31, Article 215-2 Construction Methods,** replace "Article 107-26" with "Article 107-25".
**Page 2-17, Article 226-3, Measurement and Payment, line 2,** delete "pipe culverts,".
**Page 2-20, Subarticle 230-4(B), Contractor Furnished Sources, change references as follows: Line 1,** replace "(4) Buffer Zone" with "(c) Buffer Zone"; **Line 12,** replace "(5) Evaluation for Potential Wetlands and Endangered Species" with "(d) Evaluation for Potential Wetlands and Endangered Species"; and **Line 33,** replace "(6) Approval" with "(4) Approval".

### Division 3

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

### Division 4

**Page 4-77, line 27, Subarticle 452-3(C) Concrete Coping,** replace "sheet pile" with "reinforcement".

### Division 6

**Page 6-7, line 31, Article 609-3 Field Verification of Mixture and Job Mix Formula Adjustments,** replace "30" with "45".
**Page 6-10, line 42, Subarticle 609-6(C)(2),** replace "Subarticle 609-6(E)" with "Subarticle 609-6(D)".
**Page 6-11, Table 609-1 Control Limits,** replace "Max. Spec. Limit" for the Target Source of $P_{0.075}/P_{be}$ Ratio with "1.0".
**Page 6-40, Article 650-2 Materials,** replace "Subarticle 1012-1(F)" with "Subarticle 1012-1(E)"

### Division 8

**Page 8-23, line 10, Article 838-2 Materials,** replace "Portland Cement Concrete, Class B" with "Portland Cement Concrete, Class A".

### Division 12

**Page 12-7, Table 1205-3,** add "FOR THERMOPLASTIC" to the end of the title.
**Page 12-8, Subarticle 1205-5(B), line 13,** replace "Table 1205-2" with "Table 1205-4".
**Page 12-8, Table 1205-4 and 1205-5,** replace "THERMOPLASTIC" in the title of these tables with "POLYUREA".
**Page 12-9, Subarticle 1205-6(B), line 21,** replace "Table 1205-4" with "Table 1205-6".
**Page 12-11, Subarticle 1205-8(C), line 25,** replace "Table 1205-5" with "Table 1205-7".

### Division 15

**Page 15-4, Subarticle 1505-3(F) Backfilling, line 26,** replace "Subarticle 235-4(C)" with "Subarticle 235-3(C)".
**Page 15-6, Subarticle 1510-3(B), after line 21,** replace the allowable leakage formula with the following: $\boldsymbol{W = LD\sqrt{P} \div 148{,}000}$
**Page 15-6, Subarticle 1510-3(B), line 32, delete "may be performed concurrently or" and replace with "shall be performed".**
**Page 15-17, Subarticle 1540-3(E), line 27,** delete "Type 1".

**Division 17**

**Page 17-26, line 42, Subarticle 1731-3(D) Termination and Splicing within Interconnect Center,** delete this subarticle.

Revise the *2012 Roadway Standard Drawings* as follows:

**1633.01 Sheet 1 of 1, English Standard Drawing for Matting Installation,** replace “1633.01” with “1631.01”.

**STANDARD SPECIAL PROVISION**

# PLANT AND PEST QUARANTINES

**(Imported Fire Ant, Gypsy Moth, Witchweed, And Other Noxious Weeds)**

(3-18-03) (Rev. 10-15-13) Z-04a

**Within Quarantined Area**

This project may be within a county regulated for plant and/or pests. If the project or any part of the Contractor's operations is located within a quarantined area, thoroughly clean all equipment prior to moving out of the quarantined area. Comply with federal/state regulations by obtaining a certificate or limited permit for any regulated article moving from the quarantined area.

**Originating in a Quarantined County**

Obtain a certificate or limited permit issued by the N.C. Department of Agriculture/United States Department of Agriculture. Have the certificate or limited permit accompany the article when it arrives at the project site.

**Contact**

Contact the N.C. Department of Agriculture/United States Department of Agriculture at 1-800-206-9333, 919-733-6932, or *http://www.ncagr.gov/plantind/* to determine those specific project sites located in the quarantined area or for any regulated article used on this project originating in a quarantined county.

**Regulated Articles Include**

1. Soil, sand, gravel, compost, peat, humus, muck, and decomposed manure, separately or with other articles. This includes movement of articles listed above that may be associated with cut/waste, ditch pulling, and shoulder cutting.
2. Plants with roots including grass sod.
3. Plant crowns and roots.
4. Bulbs, corms, rhizomes, and tubers of ornamental plants.
5. Hay, straw, fodder, and plant litter of any kind.
6. Clearing and grubbing debris.
7. Used agricultural cultivating and harvesting equipment.
8. Used earth-moving equipment.
9. Any other products, articles, or means of conveyance, of any character, if determined by an inspector to present a hazard of spreading imported fire ant, gypsy moth, witchweed or other noxious weeds.

## STANDARD SPECIAL PROVISION

## MINIMUM WAGES

(7-21-09) Z-5

***FEDERAL:*** The Fair Labor Standards Act provides that with certain exceptions every employer shall pay wages at the rate of not less than SEVEN DOLLARS AND TWENTY FIVE CENTS ($7.25) per hour.

***STATE:*** The North Carolina Minimum Wage Act provides that every employer shall pay to each of his employees, wages at a rate of not less than SEVEN DOLLARS AND TWENTY FIVE CENTS ($7.25) per hour.

The minimum wage paid to all skilled labor employed on this contract shall be SEVEN DOLLARS AND TWENTY FIVE CENTS ($7.25) per hour.

The minimum wage paid to all intermediate labor employed on this contract shall be SEVEN DOLLARS AND TWENTY FIVE CENTS ($7.25) per hour.

The minimum wage paid to all unskilled labor on this contract shall be SEVEN DOLLARS AND TWENTY FIVE CENTS ($7.25) per hour.

This determination of the intent of the application of this act to the contract on this project is the responsibility of the Contractor.

The Contractor shall have no claim against the Department of Transportation for any changes in the minimum wage laws, Federal or State. It is the responsibility of the Contractor to keep fully informed of all Federal and State Laws affecting his contract.

## STANDARD SPECIAL PROVISION

## ON-THE-JOB TRAINING

(10-16-07) (Rev. 5-21-13) Z-10

### Description

The North Carolina Department of Transportation will administer a custom version of the Federal On-the-Job Training (OJT) Program, commonly referred to as the Alternate OJT Program. All contractors (existing and newcomers) will be automatically placed in the Alternate Program. Standard OJT requirements typically associated with individual projects will no longer be applied at the project level. Instead, these requirements will be applicable on an annual basis for each contractor administered by the OJT Program Manager.

On the Job Training shall meet the requirements of 23 CFR 230.107 (b), 23 USC – Section 140, this provision and the On-the-Job Training Program Manual.

The Alternate OJT Program will allow a contractor to train employees on Federal, State and privately funded projects located in North Carolina. However, priority shall be given to training employees on NCDOT Federal-Aid funded projects.

### Minorities and Women

Developing, training and upgrading of minorities and women toward journeyman level status is a primary objective of this special training provision. Accordingly, the Contractor shall make every effort to enroll minority and women as trainees to the extent that such persons are available within a reasonable area of recruitment. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

### Assigning Training Goals

The Department, through the OJT Program Manager, will assign training goals for a calendar year based on the contractors' past three years' activity and the contractors' anticipated upcoming year's activity with the Department. At the beginning of each year, all contractors eligible will be contacted by the Department to determine the number of trainees that will be assigned for the upcoming calendar year. At that time the Contractor shall enter into an agreement with the Department to provide a self-imposed on-the-job training program for the calendar year. This agreement will include a specific number of annual training goals agreed to by both parties. The number of training assignments may range from 1 to 15 per contractor per calendar year. The Contractor shall sign an agreement to fulfill their annual goal for the year. A sample agreement is available at www.ncbowd.com/section/on-the-job-training.

### Training Classifications

The Contractor shall provide on-the-job training aimed at developing full journeyman level workers in the construction craft/operator positions. Preference shall be given to providing training in the following skilled work classifications:

| | |
|---|---|
| Equipment Operators | Office Engineers |
| Truck Drivers | Estimators |
| Carpenters | Iron / Reinforcing Steel Workers |
| Concrete Finishers | Mechanics |

Pipe Layers Welders

The Department has established common training classifications and their respective training requirements that may be used by the contractors. However, the classifications established are not all-inclusive. Where the training is oriented toward construction applications, training will be allowed in lower-level management positions such as office engineers and estimators. Contractors shall submit new classifications for specific job functions that their employees are performing. The Department will review and recommend for acceptance to FHWA the new classifications proposed by contractors, if applicable. New classifications shall meet the following requirements:

Proposed training classifications are reasonable and realistic based on the job skill classification needs, and

The number of training hours specified in the training classification is consistent with common practices and provides enough time for the trainee to obtain journeyman level status.

The Contractor may allow trainees to be trained by a subcontractor provided that the Contractor retains primary responsibility for meeting the training and this provision is made applicable to the subcontract. However, only the Contractor will receive credit towards the annual goal for the trainee.

Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training. The number of trainees shall be distributed among the work classifications on the basis of the contractor's needs and the availability of journeymen in the various classifications within a reasonable area of recruitment.

No employee shall be employed as a trainee in any classification in which they have successfully completed a training course leading to journeyman level status or in which they have been employed as a journeyman.

**Records and Reports**

The Contractor shall maintain enrollment, monthly and completion reports documenting company compliance under these contract documents. These documents and any other information as requested shall be submitted to the OJT Program Manager.

Upon completion and graduation of the program, the Contractor shall provide each trainee with a certification Certificate showing the type and length of training satisfactorily completed.

**Trainee Interviews**

All trainees enrolled in the program will receive an initial and Trainee/Post graduate interview conducted by the OJT program staff.

**Trainee Wages**

Contractors shall compensate trainees on a graduating pay scale based upon a percentage of the prevailing minimum journeyman wages (Davis-Bacon Act). Minimum pay shall be as follows:

| | |
|---|---|
| 60 percent | of the journeyman wage for the first half of the training period |
| 75 percent | of the journeyman wage for the third quarter of the training period |

90 percent of the journeyman wage for the last quarter of the training period

In no instance shall a trainee be paid less than the local minimum wage. The Contractor shall adhere to the minimum hourly wage rate that will satisfy both the NC Department of Labor (NCDOL) and the Department.

**Achieving or Failing to Meet Training Goals**

The Contractor will be credited for each trainee employed by him on the contract work who is currently enrolled or becomes enrolled in an approved program and who receives training for at least 50 percent of the specific program requirement. Trainees will be allowed to be transferred between projects if required by the Contractor's scheduled workload to meet training goals.

If a contractor fails to attain their training assignments for the calendar year, they may be taken off the NCDOT's Bidders List.

**Measurement and Payment**

No compensation will be made for providing required training in accordance with these contract documents.

**TRAFFIC CONTROL**

WBS #: 43796.1.1
Date: January 13, 2014
Revised Date: June 5, 2014

NORTH CAROLINA PROFESSIONAL SEAL 19862 ENGINEER J. W. WOOLARD JR.

J.W. Woolard 6/5/14

**TRAFFIC CONTROL:**

Maintain traffic in accordance with Divisions 10 and 11 of the January 2012 NCDOT Standard Specifications for Roads and Structures & January 2012 Roadway Standard Drawings (RSD) and the following provisions:

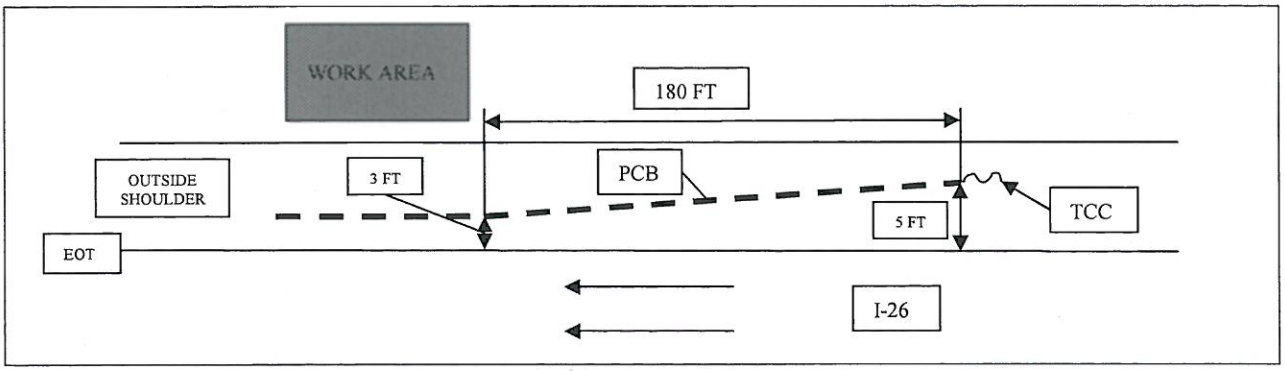
Coordinate with the NCDOT Resident Engineer in charge of any project in the vicinity of this project for any work that may affect the construction and the Traffic Control of this project.

Perform work only when weather and visibility conditions allow safe operations as directed by the Engineer.

Provide appropriate lighting in accordance with Section 105-14, Standard Specifications for Roads and Structures.

Operate equipment and conduct operations in the same direction as the flow of traffic. Do not cross medians with equipment, except at properly designated interchanges.

Proposed signing structure that are within 30 feet of an open travel lane and not protected by either existing guardrail or concrete barrier, the Contractor shall install proposed guardrail prior to beginning construction. If installation of proposed guardrail is not feasible the Contractor shall place Portable Concrete Barrier (PCB), Temporary Crash Cushion (TCC) & Shoulder Closure Signs IAW with this special provision and as shown in the detail below, or as directed by the Engineer.




Use lane closures for either right or left lanes, as required, (refer to Roadway Standard Drawings No. 1101.02, Sheet 3 of 15), or temporary shoulder closures (refer to Roadway Standard Drawings No. 1101.04, sheet 1 of 1). Maintain the existing traffic pattern at all times, except in the immediate work zone where lane closures are allowed per this special provision or as determined by the Engineer.

Use Rolling Road Block, (refer to Roadway Standard Drawing No. 1101.03, sheet 9 of 9) to stop traffic on I-26 as allowed per this special provision or as determined by the Engineer. It is highly recommended the Contractor use Law Enforcement and/or IMAP to assist in safely stopping traffic.

WBS #: 43796.1.1
Date: January 13, 2014
Revised Date: June 5, 2014

I-26 may be closed with approval of the Engineer as allowed per this special provision and IAW the Work Zone Traffic Control "Project Special Provision - Temporary Closure of I-26".

Changes may be required when physical dimensions in the Roadway Standard Drawings are not attainable to meet field conditions, or result in duplicate, or undesired overlapping of devices. Modifications may include: moving, supplementing, covering or removal of devices , as directed by the Engineer.

The following General Notes apply at all time for the duration of the construction project except as directed by the Engineer.

**Time Restrictions**

A) Do not close or narrow travel lanes as follows:

| Road Name | Day and Time Restrictions |
|---|---|
| 1. I-26 | 6:00 A.M. to 9:00 P.M.<br>Monday through Sunday |

B) Do not close or narrow travel lanes during holidays and special events as follows:

Road Name

1. I-26

Holiday

1. For any unexpected occurrence that create unusually high traffic volumes, as directed by the Engineer.

2. For New Year's, between the hours of 6:00 A.M. December 31st to 9:00 P.M. January 2nd. If New Year's Day is on Friday, Saturday, Sunday or Monday then until 9:00 P.M. the following Tuesday.

3. For Easter, between the hours of 6:00 A.M. Thursday and 9:00 P.M. Monday.

4. For Memorial Day, between the hours of 6:00 A.M. Friday to 9:00 P.M. Tuesday.

5. For Independence Day, between the hours of 6:00 A.M. the day before Independence Day and the 9:00 P.M. the day after Independence Day. If Independence Day is on a Friday, Saturday, Sunday, or Monday then between the hours of 6:00 A.M. the Thursday before Independency Day and 9:00 P.M. the Tuesday after Independence Day.

6. For Labor Day, between the hours of 6:00 A.M. Friday and 9:00 P.M. Tuesday.

7. For Thanksgiving Day, between the hours of 6:00 A.M. Tuesday to 9:00 P.M. Monday.

8. For Christmas, between the hours of 6:00 A.M. the Friday before the week of Christmas Day and 9:00 P.M. the following Tuesday after the week of Christmas.

C) Do not close roads as follows:

| Road Name | Day and Time Restrictions |
|---|---|
| 1. I-26 and all Ramps & Loops | Monday through Thursday, 6:00 A.M. to Midnight and 6:00 A.M. Friday through Midnight Sunday |

D) Do not stop traffic as follows:

| Road Name | Day and Time Restrictions | Durations and Operations |
|---|---|---|
| 1. I-26 and all Ramps & Loops | Monday through Thursday, 6:00 A.M. to Midnight and 6:00 A.M. Friday through Midnight Sunday | 30 minutes for installation of structures, signs, DMSs and other operations as directed by the Engineer. |

E) Do not conduct any hauling operations against the flow of traffic of an open travelway unless the hauling operation is protected by barrier or guardrail or as directed by the engineer.

**Lane and Shoulder Closure Requirements**

F) Remove lane closures devices from the lane when work is not being performed behind the lane closures or when the lane closure is no longer needed, or as directed by the Engineer.

G) When personnel and/or equipment are working within 15 feet of an open travel lane, close the nearest open shoulder using Roadway Standard Drawing No. 1101.04 unless the work area is protected by barrier or guardrail or a lane closure is installed.

H) When personnel and/or equipment are working on the shoulder adjacent to a divided facility and within 10 feet of an open travel lane, close the nearest open travel lane using Roadway Standard Drawer No. 1101.02 unless the work area is protected by barrier or guardrail.

I) When personnel and/or equipment are working within a lane of travel of an undivided or divided facility, close the lane according to the traffic control plans, Roadway Standard Drawings or as directed by the Engineer. Conduct the work so that all personnel and/or equipment remain within the closed travel lane.

J) Do not work simultaneously within 15 feet on both sides of an open travelway, ramp or loop within the same location unless protected with guardrail or barrier.

K) Do not install more than one lane closure, in any one direction, on I-26.

L) Provide traffic control for appropriate lane closures for surveying done by the department.

**Traffic Pattern Alterations**

M) Notify the Engineer twenty one (21) calendar days prior to any traffic pattern alteration.

**Signing**

N) Install advance work zone advance warning signs when work is within 40 feet from the edge of travel lane and no more than three (3) days prior to the beginning of construction (see Roadway Standard Drawing No. 1101.01, Sheet 2 of 3).

O) Ensure all necessary signing is in place prior to altering any traffic pattern.

**Traffic Barrier**

P) Install temporary barrier according to this special provision a maximum of two (2) weeks prior to beginning work in any location, proceed in a continuous manner to complete the proposed work in that location unless otherwise directed by the engineer.

Do not place barrier directly on any surface other than asphalt or concrete.

Once temporary barrier is installed at any location and no work is performed behind the temporary barrier for a period longer that two (2) months, remove/reset temporary barrier at no cost to the department unless temporary barrier is protecting a hazard, or as directed by the engineer.

Install temporary barrier with the traffic flow, beginning with the upstream side of traffic and remove the temporary barrier against the flow of traffic beginning with the downstream side of traffic.

Install and space drums no greater than twice the posted speed limit (MPH) to close or keep the section of the roadway closed until the temporary barrier can be placed or after the temporary barrier is removed.

Q) Protect the approach end of Portable Concrete Barrier at all times during the installation and removal of the barrier by either a Truck Mounted Attenuator (maximum of 72 hours) or a Temporary Crash Cushion.

Protect the approach end of Portable Concrete Barrier at all times from oncoming traffic by a Temporary Crash Cushion unless the approach end of the Portable Concrete Barrier is off-set from oncoming traffic as follows:

| Posted Speed Limit | Minimum Offset |
|---|---|
| 40 or Less | 15 feet |
| 45-50 | 20 feet |
| 55 | 25 feet |
| 60 MPH or HIGHER | 30 feet |

**Traffic Control Devices**

R) When lane closures are not in effect space channelizing devices in the work areas no greater in feet than twice the posted speed limit (MPH) except, 10 feet on-center in radii, and 3 feet off the edge of an open travelway. Refer to standard specifications for Roads and Structures Sections 1130 (drums), 1135 (cones) and 1180 (skinny drums) for additional requirements.

S) Place additional sets of three channelizing devices (drums., cones or skinny drums) perpendicular to the edge of travelway on 500 foot centers when unopened lanes are closed to traffic.

**Miscellaneous**

T) Law Enforcement may be used to maintain traffic through the work area and/or intersections, as directed by the Engineer.

WBS #: 43796.1.1
Date: January 13, 2014
Revised Date:

NORTH CAROLINA PROFESSIONAL SEAL 8973 ENGINEER G.L. GETTIER 1/13/2014

**WORK ZONE TRAFFIC CONTROL**
**Project Special Provision - Temporary Closure of I-26**

## Description

This special Provision covers work to be completed using temporary closure of I-26 and on-ramp/loop closures at the following interchanges with I-26 in Henderson County:

- US 25NB on-loop to I-26EB (Exit 54)
- Ozone Drive on-ramp to I-26WB (Exit 59)

Off-site detours are as follows:

Cars: I-26 Exit 54, US 25, US 176, East Main Street/Ozone Drive and I-26 Exit 59 in Saluda, N C.

Trucks: I-26 Exit 54, US 25, SC 11 and I-26 Exit 5 in South Carolina.

The closure of I-26 will take place as directed by the Resident Engineer, and shall be in accordance with **Intermediate Contract Number 2 and Liquidated Damages** as stated elsewhere in this Proposal.

## Construction Methods

The traffic control will utilize temporary road closure (see Roadway Standard Drawing No. 1101.03, sheet 7 of 9) on I-26 along with ramp/loop closures with offsite detours to perform the work. The contractor shall provide the Resident Engineer with a traffic control plan, consisting of applicable Roadway Standard Drawings, traffic control devices and all detour signing for closure of I-26 and the appropriate on-ramp/loop closures necessary to accomplish the work.

The contractor shall complete the required work of installing, maintaining, covering, and removing the traffic control devices for I-26 closure, ramp/loop closures and detour signing. Traffic shall be restored to the existing traffic pattern at the end of each work period.

## Measurement and Payment

The payment for providing temporary traffic control plans for the detours, as well as the labor, devices and signs for the temporary I-26 closure and ramp/loop closures is to be included in the Temporary Traffic Control (Lump Sum) pay item.

WBS#: 43796.1.1
Date: January 13, 2014
Revised Date:

**Law Enforcement:**
2-19-09

SPI

NORTH CAROLINA PROFESSIONAL SEAL 8873 ENGINEER G.L. GETTIER 14 JAN 14

## 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

There will be no direct payment for uniformed Law Enforcement Officers and marked Law Enforcement vehicles as they are included in the Temporary Traffic Control (Lump Sum) pay item.

WBS #: 43796.1.1
Date: January 13, 2014
Revised Date:

NORTH CAROLINA PROFESSIONAL SEAL 8973 ENGINEER G.L. GETTIER 13 JAN 14

**COOPERATION BETWEEN CONTRACTORS:**

The Contractor's attention is directed to Article 105-7 and Article 1101-13 of the 2012 *Standard Specifications for Roads and Structures*.

The Contractor on this project shall cooperate with the Contractor working within or adjacent to the limits of this project to the extent that the work can be carried out to the best advantage of all concerned. Contractors shall provide a minimum of two (2) miles between lane closures installed on adjacent projects, measured from the end of one closures to the first sign of the next lane closure, or as directed by the Engineer. All lane closure restrictions contained in the General/Project Notes and/or the Contract are still applicable for that individual project.

WBS #: 43796.1.1
Date: January 13, 2014
Revised:

NORTH CAROLINA PROFESSIONAL SEAL 8973 ENGINEER G.L. GETTIER 14 JAN 14

## TEMPORARY TRAFFIC CONTROL (LUMP SUM)

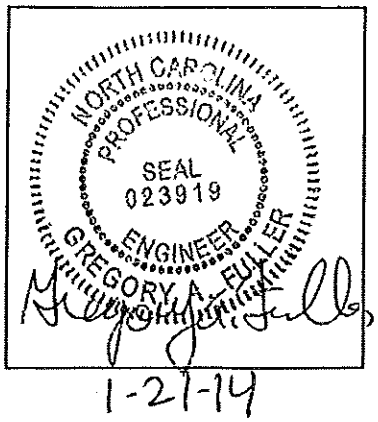
The Contractor shall provide all traffic control for this project in accordance with the January 2012 NCDOT Roadway Standard Drawings (RSD) & Standard Specifications for Roads and Structures. The Contractor shall maintain traffic during construction and furnish, install, remove, secure, and maintain all traffic control devices.

The Lump Sum bid price for Temporary Traffic Control as required in this contract, as shown in the Roadway Standard Drawings or as directed by the Engineer includes, but is not limited to providing Stationary & Portable Work Zone Signs, Barricade Mounted Signs, Flashing Arrow Boards (FAB), Portable Changeable Message Signs (CMS), Drums, Type III Barricades, Temporary Crash Cushion (TCC), Truck Mounted Attenuators (TMA), Skinny Drums, Temporary Guardrail, Temporary GRAU-350, Portable Concrete Barrier (PCB), Law Enforcement and Portable Lighting.

Payment will be made under:

| **Pay Item** | **Pay Unit** |
|---|---|
| Temporary Traffic Control | Lump Sum |

**SIGNALS**




# SPEED DETECTION SYSTEM ALONG I-26 FOR THE GREEN RIVER GORGE BRIDGE

*Prepared By: HEIDI BERGGREN*
*21-Jan-14*

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# 1. GENERAL REQUIREMENTS

## 1.1. DESCRIPTION

### A. Project Overview:

This project includes the installation of two (2) speed detection systems along I-26 in Henderson County in the Green River Gorge Area. System 1 will be for eastbound traffic and System 2 will be for westbound traffic.

Each Speed Detection System will consist of a non-intrusive Radar Vehicle Detector (RVD) that is interfaced with a Control Unit. Information from the RVD will be sent to a Control Unit which will evaluate the speed and length data of the vehicles. If certain predetermined threshold values are met the Control Unit will activate/flash beacons placed on static signs to warn motorist to vacate their lane (inside lane only) or advise that their speed is excessive (outside lane). Each beacon pair (a pair is considered to be those beacons located over a sign) will flash simultaneously when activated.

The initial predetermined threshold values and parameters for proper operation will be as follows:

Inside Lane

> Vehicles over 46 feet in length will trigger the beacons to flash over static signs 1 (System 1, eastbound) & 3 (System 2, westbound).

Outside Lane

> Vehicles over 46 feet in length and traveling greater than 55 MPH will trigger the beacons to flash over static signs 2 (System 1, eastbound) & 4 (System 2, westbound).

Beacons will flash for a minimum of 2 seconds prior to the detected vehicle reaching the static signs and for no more than 1 second after the vehicle has traveled under the sign. All parameters (vehicle length, speed and flash times) are subject to modification and adjustments based on observed system operational performance during testing. The Engineer, or his representative, will make final recommendations regarding operation.

Notify the Division Traffic Engineer at (828) 631-1185 a minimum of seven (7) days before performing any work.

Conform to these Project Special Provisions, Project Plans, and the *2012 Standard Specifications for Roads and Structures* (also referred to hereinafter as the "Standard Specifications"). The current edition of these specifications and publications in effect on the date of advertisement will apply.

In the event of a conflict between these Project Special Provisions and the Standard Specifications, these Project Special Provisions govern.

### B. Qualified Products List:

Furnish new equipment, materials, and hardware unless otherwise required. Inscribe manufacturer's name, model number, serial number, and any additional information needed for proper identification on each piece of equipment housed in a case or housing.

Furnish factory assembled cables without adapters, unless otherwise approved by the Engineer, for all cables required to interconnect any field equipment.

Certain equipment listed in these Project Special Provisions must be pre-approved on the Department's ITS & Signals 2012 Qualified Products List (QPL) by the date of installation. Equipment, material, and hardware not pre-approved when required will not be allowed for use on the project.

The QPL is available on the Department's website. The QPL website is:

http://www.ncdot.org/doh/preconstruct/traffic/ITSS/SMS/qpl/

**C. Real World Coordinates:**

Provide real world coordinates for all major field devices (structures, lane control cabinets, etc.) installed or worked on under this project. Provide the coordinates in feet units using the North Carolina State Plane coordinate system (1983 North American Datum also known as NAD '83). Furnish coordinates that do not deviate more than 1.7 feet (½ meter) in the horizontal plane and 3.3 feet (1 meter) in the vertical plane. Global positioning system (GPS) equipment able to obtain the coordinate data within these tolerances may be used. Submit cut sheets on the GPS unit proposed to collect the data for approval by the Engineer. For equipment cabinets, obtain and provide the location of the cabinet.

Provide both a digital copy and hard copy of all information regarding the location (including to but not limited to manufacturer, model number, and NCDOT inventory number) in the Microsoft spreadsheet provided by the Department, shown by example below.

| NCDOT Inv # | Name | Location | Latitude | Longitude | Manufacturer | Model # | Comm Media | Destination |
|---|---|---|---|---|---|---|---|---|
| 05-7009 | Cam 1 | I-540/I-40 | 35.8625 | -78.8123 | Pelco | Spectravision | 60 SMFO | TRTMC |
| 05-7010 | Cam 2 | NC 54/I-40 | 35.8523 | -78.7631 | Pelco | Spectravision | 60 SMFO | TRTMC |
| 05-7030 | HAR 1 – Johnston Co. | I-40 at NC 42 (mp 312) | 35.2456 | -77.952 | | | Dial-up | TRTMC |
| 05-7001 | DMS # 1 | I-85 N/I-40 E, mp 159.1 | | | Mark IV | | Dial-Up | TRTMC |
| 05-7003 | DMS # 3 | I-40 W, mp 307.7 | | | Mark IV | | Dial-Up | TRTMC |
| 05-7004 | DMS # 4 | I-40 E, mp 286.0 | | | Mark IV | | 60 SMFO | TRTMC |

**D. Warranties:**

Provide manufacturer's warranties on Contractor-furnished equipment for material and workmanship that are customarily issued by the equipment manufacturer and that are at least two years in length from successful completion of the 30-day observation period. Include unconditional coverage for all parts and labor necessary or incidental to repair of defective equipment or workmanship and malfunctions that arise during warranty period.

Ensure all contractor-furnished equipment; including pieces and components of equipment, hardware, firmware, software, middleware, internal components, and subroutines which perform any date or time data recognition function, calculation, or sequencing will support a four digit year format for a period of at least 50 years.

Upon successful completion of the 30-day observation period, transfer manufacturer's warranties with proper validation by the manufacturer to the Department or its designated maintaining agency.

**E. Ground Surface Restoration:**

Upon completion of conduit, junction boxes, wood poles, and Structure foundations, and backfilling of all trenches and other excavations, restore the disturbed ground to its original condition as determined and approved by the Engineer. Backfill excavations with removed material tamp the backfilled material and rake smooth the top 1-1/2 inches. Finish unpaved areas flush with surrounding natural ground and to match the original contour of the ground. Seed with the same type of grass as the surrounding areas and mulch the newly seeded areas. If unpaved area was not grassed, replace the original ground cover in kind as directed by the Engineer.

## 2. MOBILIZATION

### 2.1. DESCRIPTION

This work consists of preparatory work and operations, including but not limited to the movement of personnel, equipment, supplies, and incidentals to the project site, for the establishment of offices, buildings, and other facilities necessary for work on the project; the removal and disbandment of those personnel, equipment, supplies, incidentals, or other facilities that were established for the prosecution of work on the project; and for all other work and operations which must be performed for costs incurred prior to beginning work on the various items on the project site.

### 2.2. MEASUREMENT AND PAYMENT

*Mobilization* will be measured and paid for at the contract lump sum price for *Mobilization*.

Partial payments for *Mobilization* will be made with the first and second partial pay estimates paid on the contract and will be made at the rate of 50% lump sum price on each of these partial pay estimates, provided the amount bid for *Mobilization* does not exceed 5 % of the total amount bid for the contract. Where the amount bid for *Mobilization* exceeds 5 % of the total amount bid for the contract, 2.5 % of the total amount bid will be paid on each of the first 2 partial pay estimates. That portion exceeding 5 % will be paid on the last partial pay estimate.

Such price and payment includes, but is not limited to, the movement of personnel, equipment, supplies and incidentals to the project site, for the establishment of offices, buildings and other facilities necessary for work on the project; the removal and disbandment of those personnel, equipment, supplies, incidentals or other facilities that were established for the prosecution of work on the project; and for all the various items on the project site.

Payment will be made under:

| Pay Item | Pay Unit |
|---|---|
| Mobilization | Lump Sum |

## 3. CONDUIT

### 3.1. DESCRIPTION

Install conduit for underground installation at locations shown in the Plans. Comply with Sections 1091 and 1715 of the Standard Specifications. Furnish and install high-density polyethylene conduit (HDPE) or PVC conduit at locations shown in the Plans and in accordance with these Project Special Provisions.

### 3.2. MATERIALS

Furnish underground PVC or HDPE conduit, as shown in the Plans. All vertical conduits (entrance to electrical service and equipment disconnect and pole mounted cabinet) must be rigid galvanized steel. Comply with the Standard Specifications.

Refer to Division 10

| | |
|---|---|
| Pages 10-199 through 201 | Article 1091-3 – Conduit |
| Pages 10-201, 202 | Article 1091-4 – Duct and Conduit Sealer |
| Pages 10-40, 41 | Article 1018-2 – Approval of Borrow Source (Backfill) |

Provide a pull line rated for 2,500 lb.

### 3.3. CONSTRUCTION METHODS

Comply with Section Standard Specifications:

Pages 17-11 through 15 Article 1715-3.

Use adapters and rigid galvanized steel sweeping elbows to transition from underground runs of PVC or HDPE conduit to rigid conduit that will extend above grade. Install a pull line in unused conduits.

### 3.4. MEASUREMENT AND PAYMENT

*Unpaved Trenching (qty) (size)* will be measured horizontal linear feet of trenching for underground conduit installation of each type furnished, installed, and accepted. Measurement will be along the approximate centerline of the conduit system. Payment will be in linear feet.

No separate measurement will be made for seeding, mulching, excavation of rock, conduit duct plugs, conduit sealing material, mechanical sealing devices, back fill, graded stone, paving materials, pull lines, miscellaneous fittings, nuts and bolts or any other hardware or materials required for installation of underground conduit as these will be considered incidental to the items listed above.

Payment will be made under:

| Pay Item | Pay Unit |
|---|---|
| Unpaved Trenching (1) (1") | Linear Foot |

## 4. RISERS

### 4.1. DESCRIPTION

Furnish and install riser assemblies as shown in the Plans. Comply with Sections 1091, 1098 and 1722 of the Standard Specifications.

### 4.2. MATERIALS

Material, equipment, and hardware furnished under this section shall be pre-approved on the Department's QPL. Comply with Standard Specifications:

Refer to Division 10.

| | |
|---|---|
| Page 10-202 | Article 1091-6 – Grounding Electrodes |
| Page 10-212 | Article 1098-6 – Pole line Hardware |

| | |
|---|---|
| Pages 10-199 to 201 | Article 1091-3 – Rigid Metallic Conduit |
| Page 10-211 | Article 1098-4 – Riser Sealing Devices |
| Page 10-199 | Article 1091-2 – Wire |

## 4.3. CONSTRUCTION METHODS

Comply with Standard Specifications:

Page 17-19, 20 Article 1722-3.

Bond all risers in accordance with the 2012 Standard Specifications for Roads and Structures.

**A. 1" Riser with Weatherhead (Standard Installation):**

Install riser from the bottom of the equipment cabinet using 90° sweeping elbows or type LB conduit bodies to transition to a vertical run of conduit up the exterior of the wood pole. Extend riser to within 12" or less of the RVD unit. Install weatherhead and secure riser assembly to the pole using conduit straps or pole attachment fittings.

**B. 1"Riser with Weatherhead (Overhead Structure Installation):**

Install riser vertically up exterior surface of the overhead structure and use conduit bodies (Type LB, C, and T) to extend the riser assembly horizontally across the structure to provide connections to the LED Beacons mounted over the Static Message Signs. Extend weatherheads to within 12" or less of the LED Beacons. Secure riser assembly to the structure using approved ½" stainless steel banding.

## 4.4. MEASUREMENT AND PAYMENT

*1" Riser with "Weatherhead* will be measured and paid as the actual number of risers of each type and size furnished, installed and accepted. No separate payment will be made for weatherheads or pole attachment fittings as these will be considered incidental to furnishing and installing risers.

*1"Riser with Weatherhead (Overhead Structure Installation)* will be measured and paid as the actual number of riser assemblies of each type and size furnished, installed and accepted. Payment will include Conduit Bodies (Type LB, C, and T) vertical and horizontal segments of conduits, weatherheads and ½ stainless steel banding used to secure the riser assembly to the structure.

Payment will be made under:

| Pay Item | Pay Unit |
|---|---|
| 1" Riser with Weatherhead | Each |
| 1" Riser with Weatherhead (Overhead Structure) | Each |

# 5. JUNCTION BOXES

## 5.1. DESCRIPTION

Furnish and install junction boxes (pull boxes) with covers, graded stone, grounding systems, and all necessary hardware. Comply with Sections 545, 1091, 1098, and 1716 of the Standard Specifications.

## 5.2. MATERIALS

Material, equipment, and hardware furnished under this section shall be pre-approved on the Department's QPL.

Refer to Division 10.

| | |
|---|---|
| Pages 10-211, 212 | Article 1098-5 – Junction Boxes |
| Pages 10-202 | Article 1091-5 – Electrical Junction Boxes |
| Pages 10-21 to 24 | Section 1005 – General Requirements for Aggregate (Backfill) |
| Pages 5-26 | Section 545 – Incidental Stone Base (Backfill) |

Furnish only Standard Size Junction Boxes for this project.

## 5.3. CONSTRUCTION METHODS

Comply with the Standard Specifications:

Page 17-16, Article 1716-3.

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

Install junction boxes where shown on the plans to provide storage of spare cable and where transitioning from below ground to above ground installation or vice-versa.

## 5.4. MEASUREMENT AND PAYMENT

*Junction Box (Standard Size )* will be measured and paid in actual number of junction boxes furnished, installed, and accepted.

No measurement will be made of covers, graded stone, and grounding systems as these will be considered incidental to furnishing and installing junction boxes.

Payment will be made under:

**Pay Item** **Pay Unit**
Junction Box (Standard Size).....Each

# 6. FLASHING BEACONS

## 6.1. DESCRIPTION

Furnish Flashing Beacons mounted to Static Sign locations for Systems #1 and #2 along I-26 in as shown in the plans. The AC Flashing Beacons consists of a 12-inch, 1-section vehicular signal head, with amber LED modules and is powered with120VAC.

Comply with the provisions of Section 1700 of the *Standard Specifications* and the MUTCD.

## 6.2. MATERIALS

Fabricate flashing beacon housings and end caps from die-cast aluminum. Provide visor mounting screws, door latches, and hinge pins fabricated from stainless steel. Provide interior screws, fasteners, and metal parts fabricated from stainless steel or corrosion resistant material.

Fabricate tunnel and traditional visors from sheet aluminum.

Paint all surfaces inside and outside of signal housings and doors. Paint outside surfaces of tunnel and traditional visors having electrostatically-applied, fused-polyester paint in highway yellow (Federal Standard 595C, Color Chip Number 13538) a minimum of 2.5 to 3.5 mils thick. Do not apply paint to the latching hardware or rigid flashing beacon mounting brackets for mast-arm attachments.

Have the interior surfaces of tunnel and traditional visors painted with an alkyd urea black synthetic baking enamel with a minimum gloss reflectance and meeting the requirements of MIL-E-10169, "Enamel Heat Resisting, Instrument Black."

Provide mounting assemblies with framework and all other hardware necessary to make complete, watertight connections of the flashing beacons to the static sign structure. Fabricate the mounting assemblies and frames from aluminum with all necessary hardware, screws, washers, etc. to be stainless steel. Provide mounting fittings that match the positive locking device on the flashing beacon with the serrations integrally cast into the brackets. Provide upper and/or lower pole plates that have 1 ¼-inch vertical conduit entrance hubs with the hubs capped on the lower plate and 1 ½-inch horizontal hubs. Ensure that the assemblies provide rigid attachments to allow no twisting or swaying of the flashing beacons. Ensure that all raceways are free of sharp edges and protrusions, and can accommodate a minimum of ten Number 14 AWG conductors.

Comply with the ITE standard "Vehicle Traffic Control Signal Heads." Provide housings with provisions for attaching visors. Provide 10-inch visors for 12-inch flashing beacons.

Provide a termination block with one empty terminal for field wiring for the yellow indication plus one empty terminal for the neutral conductor. Wire the signal section to the termination block. Provide barriers between the terminals that have terminal screws with a minimum Number 8 thread size and that will accommodate and secure spade lugs sized for a Number 10 terminal screw.

Provide LED vehicular traffic signal modules (hereafter referred to as modules) that consist of an assembly that uses LEDs as the light source in lieu of an incandescent lamp for use in traffic signal sections. Use LEDs that are aluminum indium gallium phosphorus (AlInGaP) technology for yellow indications. Install the ultra-bright type LEDs that are rated for 100,000 hours of continuous operation from -40°F to +165°F. Design modules to have a minimum useful life of 60 months and to meet all parameters of this specification during this period of useful life.

For the modules, provide spade terminals crimped to the lead wires and sized for a #10 screw connection to the existing terminal block in a standard flashing beacon head. Do not provide other types of crimped terminals with a spade adapter.

Ensure power supply is integral to the module assembly. On the back of the module, permanently mark the date of manufacture (month & year) or some other method of identifying date of manufacture.

On the back of the module, permanently mark the date of manufacture (month & year) or some other method of identifying date of manufacture.

Tint yellow is to correspond with the wavelength (chromaticity) of the LED. Transparent tinting films are unacceptable. Provide a lens that is integral to the unit with a smooth outer surface.

**A. LED Amber Circular Signal Modules:**

Provide modules in the following configuration: 12-inch amber circular section.

For amber circular signal modules, provide modules tested under the procedures outlined in the VTCSH Circular Supplement to insure power required at 77° F is 22 Watts or less for the 12-inch amber circular module. Note: Use a wattmeter having an accuracy of ±1% to measure the nominal wattage and maximum wattage of a circular traffic signal module. Power may also be derived from voltage, current and power factor measurements.

### 6.3. CONSTRUCTION METHODS

Mount the flashing beacons to the prefabricated static sign structure at locations shown on the plans and integrate with the supplemental equipment disconnect. Mount the beacons using rigid vehicle signal head mounting brackets and hardware. Adjust each flashing beacon vertically and horizontally so that light output will be of maximum effectiveness for traffic. Ensure the beacons when mounted shall be between a minimum of 15 feet and a maximum of 19 feet above grade.

Make electrical connections inside each flashing beacons. Do not splice connections at any point between the flashing beacon and the equipment cabinet.

### 6.4. MEASUREMENT AND PAYMENT

*12-inch, 1-section amber flashing beacon* will be measured and paid as the actual number of *12-inch, 1- section amber flashing beacon* furnished, installed and accepted.

No separate payment will be made for mounting assemblies, wire entrance fittings, painting, integration in the cabinet and all associated hardware, as these will be considered incidental to furnishing and installing the 12-inch 1-section amber flashing beacon.

Payment will be made under:

**Pay Item**
12-inch, 1-Section Amber Flashing Beacon.....Each

## 7. WOOD POLES

### 7.1. DESCRIPTION

Furnish and install wood poles at locations shown in the plans and in accordance with these Project Special Provisions. Comply with Section 1082 "Structural Timber and Lumber" and Section 1720 "Wood Poles".

Furnish and install wood posts at locations shown in the plans. Furnish wood posts in accordance with the Standard Specifications and these Project Special Provisions. Comply with Section 1082 for "Structural Timber and Lumber".

## 7.2. MATERIALS

Material, equipment, and hardware furnished under this section shall be pre-approved on the Department's QPL.

Refer to Division 10.

| | |
|---|---|
| Pages 10-202 | Article 1091-6 – Grounding Electrodes |
| Pages 10-170 | Article 1082 – Inspection Requirements |
| Pages 10-199 | Article 1091-2 – Wire and Cable |

Furnish Class IV wood poles. **The Contractor is responsible for determining the length of the Class IV pole. Furnish pole of sufficient length to ensure the RVD can be mounted to provide proper operation of the system as designed.** Comply with the Standard Specifications:

Pages 10-170 Section 1082-3 (F), "Structural Timber and Lumber."

Page 10-172 Section 1082-4(G), "Poles'.

Furnish wood posts that are 6" (wide) x 6" (wide) x 10' (long). Comply with the Standard Specifications:

Page 10-170, Section 1082-3(E), "Sign Posts and Battens". Exception, post shall be 6" by 6".

Page 10-171, Section 1082-4, "Preservative Treatment"

## 7.3. CONSTRUCTION METHODS

Install wood poles as shown in the Plans. Comply with the Standard Specifications:

Page 17-17, Article 1720-3.

Install wood posts where shown in the Plans. Drill or auger a hole for placement of the post and to allow for compacting. Set the post a minimum of 5 feet deep. Ensure the pole is within 2° of vertical when fully loaded. Back fill around the post and tamp backfill at 6 inch lifts with a mechanical tamp until compacted density is at least 95% of original density.

## 7.4. MEASURMENT AND PAYMENT

*Wood Pole, Class IV* will be measured and paid as the actual number of Class IV wood poles furnished, installed and accepted. **The Contractor is responsible for determining the length of the Class IV pole. Furnish pole of sufficient length to ensure the RVD can be mounted to provide proper operation of the system as designed.** No measurement will be made for installing grounding system, as it will be incidental to furnishing and installing wood poles, Class IV.

*Wood Post* will be measured and paid as the actual number of 6" (wide) x 6" (wide) x 10' (long) wood posts furnished, installed and accepted. No measurement will be made for installing grounding system, as it will be incidental to furnishing and installing wood posts.

Payment will be made under:

**Pay Item**

Wood Pole, Class IV ..... Each
Wood Post (6" x 6" x 10' long) ..... Each

## 8. ELECTRICAL SERVICE

### 8.1. DESCRIPTION

Install new electrical service equipment as shown in the Plans. Comply with the National Electrical Code (NEC), the National Electrical Safety Code (NESC), the Standard Specifications, the Project Special Provisions, and all local ordinances. All work involving electrical service shall be coordinated with the appropriate utility company and the Engineer.

### 8.2. MATERIALS

**A. Meter Base/Disconnect Combination Panel:**

Furnish and install new meter base/disconnect combination panels as shown in the Plans. Provide meter base/disconnect combination panel rated for a minimum of 200 Amps that have a minimum of eight (8) spaces for equipment disconnects. Furnish each meter base/disconnect combination panels with a 200 Amp double pole circuit breaker to serve as the service disconnect with a minimum of 10,000 RMS symmetrical amperes short circuit current rating in a lockable NEMA 3R enclosure. Ensure meter base/ disconnect combination panel is listed as meeting UL-67 and marked as being suitable for use as service equipment. Ensure circuit breakers are listed as meeting UL-489. Fabricate enclosure from galvanized steel and electrostatically apply dry powder paint finish, light gray in color, to yield a minimum thickness of 2.4 mils. All exterior surfaces must be powder coated steel. Provide ground bus and neutral bus with a minimum of four terminals and a minimum wire capacity range of number 8 through number 1/0 AWG.

Furnish NEMA Type 3R combinational panel rated 200 Ampere minimum that meets the requirements of the local utility. Provide meter base with sockets' ampere rating based on sockets being wired with a minimum of 167 degrees F insulated wire. Furnish 4 terminal, 600 volt, single phase, 3-wire meter bases that comply with the following:

- Line, Load, and Neutral Terminals accept 4/0 AWG and smaller Copper/Aluminum wire
- With or without horn bypass
- Made of galvanized steel
- Listed as meeting UL-414
- Overhead or underground service entrance specified.

At the main service disconnect, furnish and install UL-approved lightning arresters that meet the following requirements:

| | |
|---|---|
| Type of design | Silicon Oxide Varistor |

| | |
|---|---|
| Voltage | 120/240 Single phase, 3 wire |
| Maximum current | 100,000 amps |
| Maximum energy | 3000 joules per pole |
| Maximum number of surges | Unlimited |
| Response time one milliamp test | 5 nanoseconds |
| Response time to clamp 10,000 amps | 10 nanoseconds |
| Response time to clamp 50,000 amps | 25 nanoseconds |
| Leak current at double the rated voltage | None |
| Ground wire | Separate |

Furnish a single pole 20 ampere circuit breaker for a feeder circuit to power the field equipment cabinet and speed detection system. Ensure the circuit breaker is rated for a minimum of 10,000 RMS symmetrical amperes short circuit current rating.

Furnish #4 AWG solid bare copper conductor, and exothermic welding kits for connecting to 5/8"x10' copper clad steel grounding electrodes (ground rods) to form a grounding system. Comply with the NEC, Standard Specifications, these Project Special Provisions, and the Plans.

**B. 3-Wire Copper Feeder Conductors:**

Furnish 3 #12 AWG stranded copper feeder conductors with THWN rating for supplying power to the field equipment cabinet. Provide conductors with black, white, and green insulation that are intended for power circuits at 600 Volts or less and comply with the following:

Listed as meeting UL Standard UL-83
Meets ASTM B-3 and B-8 or B-787 standards.

**C. 2" Conduit Stub-out for Underground Service:**

Furnish a 2 inch rigid galvanized steel conduit stub-out for the underground service entrance conductors as shown on the Plans.

**D. 4-Wire Copper Branch Circuit Conductors:**

Furnish 4 #12 AWG stranded copper feeder conductors with THWN rating for supplying power between the field equipment cabinet and the beacons. Provide conductors with black, red, white, and green insulation that are intended for power circuits at 600 Volts or less and comply with the following:

Listed as meeting UL Standard UL-83
Meets ASTM B-3 and B-8 or B-787 standards.

**E. Supplemental Equipment Disconnect:**

Provide new supplemental equipment disconnect at locations shown in the Plans. Ensure the supplemental equipment disconnect is listed as meeting UL Standard UL-489 and has a minimum of 4 spaces for disconnects. Fabricate enclosure from galvanized steel and electrostatically apply dry powder paint finish, light gray in color, to yield a minimum thickness of 2.4 mils. Provide ground bus and neutral bus with a minimum of four (4) terminals with minimum wire capacity range of number 14 through number 4 AWG.

Furnish two (2) single pole 15 ampere circuit breakers (one breaker for each flashing beacon pair) with a minimum of 10,000 RMS symmetrical amperes short circuit current rating in a lockable NEMA 3R enclosure

## 8.3. CONSTRUCTION METHODS

Coordinate with the Engineer and the utility company to provide an electrical service drop.

Permanently label cables at all access points using nylon tags labeled with permanent ink. Ensure each cable has a unique identifier. Label cables immediately upon installation. Use component name and labeling scheme approved by the Engineer.

**A. Meter Base/Disconnect Combination Panel:**

Install meter base/disconnect combination panels on the 6'x6" wood post as shown in the Plans. Install a new conduit system between the new service disconnect and the new Field Equipment Cabinet as shown in the Plans. All above ground conduits, conduit bodies and fittings must be rigid galvanized steel. Underground conduits and fittings can be PVC. Use rigid galvanized steel sweeping elbows or a junction box to transition from rigid from galvanized steel to PVC conduits/fitting. Install stranded copper feeder conductors from the new service disconnect to the new cabinet disconnect sized as shown in the Plans.

Install a grounding system in accordance with the 2012 Standard Specifications for Roads and Structures. Connect the #4 AWG grounding conductor to ground rods using an exothermic welding process. Test the system to ensure a ground resistance of 20-ohms or less is achieved. Drive additional ground rods as necessary or as directed by the Engineer to achieve the proper ground resistance.

**B. 3-Wire Copper Feeder Conductors:**

At locations shown in the Plans, install 3-wire THWN stranded copper feeder conductors to supply 120 VAC to the field equipment cabinet. Comply with the Standard Specifications and Standard Drawings and all applicable electrical codes.

**C. 2" Conduit Stub-out for Underground Service:**

At locations where a 2 inch conduit stub-out for electrical service entrance is to be installed, furnish and install a 2 inch rigid galvanized steel conduit stub-out for the underground service entrance conductors. The 2 inch stub out will extend from the meter base to 18 inches below the ground surface. Provide a rigid metallic sweeping 90 degree elbow to transition from the vertical segment to a horizontal position. Cap the end of the 90 degree sweeping elbow with a plastic

cap. Bond the conduit to the ground bus inside the meter base/disconnect combination panel in accordance with the NEC.

**D. 4-Wire Copper Branch Circuit Conductors:**

At locations shown in the Plans, install 4-wire THWN stranded copper feeder conductors to supply 120 VAC between the field equipment cabinet and the supplemental equipment disconnect and the beacons. Comply with the Standard Specifications and Standard Drawings and all applicable electrical codes

**E. Supplemental Equipment Disconnect:**

Install the Supplemental Equipment Disconnect on the vertical support member of the static sign structure using ½" stainless steel banding to provide a safety mechanism that would allow a service technician to safely disconnect power to the flashing beacons to perform service and maintenance. Label each circuit ("Inside Lane" or "Outside Lane") to identify which pair of Beacons it is associated with.

## 8.4. MEASUREMENT AND PAYMENT

*Meter Base/Disconnect Combination Panel* will be measured and paid as the actual number of complete and functional meter base/disconnect combination panel service locations furnished, installed and accepted. Breakers (main and branch circuits), lightning arresters, exposed vertical conduit runs (2" conduit stub-out) for the electrical service entrance wires, and any remaining hardware, fittings, and conduit bodies to connect the electrical service to the equipment cabinet will be considered incidental to meter base/disconnect combination panels. No separate payment will be made for grounding electrodes, #4 AWG grounding conductors and exothermic welding kits and testing of the grounding system as they will be considered incidental to the installation of the Meter Base/Disconnect Combination panel.

*Supplemental Equipment Disconnect* will be measured and paid as the actual number of complete and functional supplemental equipment disconnects furnished, installed and accepted. Circuit breakers and exposed vertical conduit runs to the disconnect enclosure will be considered incidental to the installation of the Supplemental Equipment Disconnect.

*3-Wire Copper Feeder Conductors* will be measured and paid as the actual linear feet of 3-wire THWN stranded copper feeder conductors furnished, installed and accepted. Payment is for all three conductors. Measurement will be for the actual linear footage of combined conductors after all terminations are complete. No separate payment will be made for each individual conductor. No separate payment will be made for different wire sizes. No payment will be made for excess wire in the cabinets.

*4-Wire Copper Branch Circuit Conductors* will be measured and paid as the actual linear feet of 4-wire THWN stranded copper branch circuit conductors furnished, installed and accepted. Payment is for all four conductors. Measurement will be for the actual linear footage of combined conductors after all terminations are complete. No separate payment will be made for each individual conductor. No separate payment will be made for different wire sizes. No payment will be made for excess wire in the cabinets.

Payment for wood posts will be covered elsewhere in these Project Special Provisions.

Payment will be made under:

| Pay Item | Pay Unit |
|---|---|
| Meter Base/ Disconnect Combination Panel | Each |
| Supplemental Equipment Disconnect | Each |
| 3-Wire Copper Feeder Conductors | Linear Foot |
| 4-Wire Copper Branch Circuit Conductors | Linear Foot |

## 9. BEACON CONTROLLER ASSEMBLY

### 9.1. DESCRIPTION

Furnish and install a Beacon Controller Assembly with equipment cabinet. Furnish all pole mounting hardware, a Corbin Number 2 cabinet key, surge protection, breakers, flashing equipment, lights, fans and thermostats, wiring, grounding systems and all necessary hardware. Furnish a solid state flasher that meets NEMA TS-2-2003 requirements.

Comply with Sections 1098-17and Section 1755, "Beacon Controller Assembly" of the Standard Specifications.

### 9.2. MATERIALS

**A. General:**

Material, equipment, and hardware furnished under this section shall be pre-approved on the Department's QPL.

**B. Type F3 Cabinet:**

Furnish an F3 type equipment cabinet meeting the requirements of Section 1098-17 Sections.

Refer to Division 10

Page 10-223 Sub-Articles 1098-17 (A, D &E)

### 9.3. CONSTRUCTION

Install new Beacon Controller Assembly equipment cabinet on the Class IV wood pole. Install cabinet so height to middle of equipment cabinet is approximately 4 feet above grade.

Install through the bottom of the equipment cabinet the feeder conduit and branch circuit conduit. Additionally route the riser conduit carrying the hybrid cable up to the RVD through the use of either 90° sweeping elbows, or a combination of condulets and LB's to facilitate entrance into the bottom of the cabinet. Bond all conduits and risers to the cabinet's equipment ground bus.

Stencil signal inventory number on equipment cabinet side facing the roadway. Use 3" black characters. Provide serial number and cabinet model number for each new Beacon Controller Assembly and equipment cabinet installed.

Ensure the flasher output circuit flashes at a rate of not less than 50 or more than 60 times per second as specified in the NEMA TS-2-2003 requirements.

### 9.4. MEASUREMENT AND PAYMENT

Actual number of *Beacon Controller Assembly and Equipment Cabinet*, furnished, installed, tested and accepted.

No additional measurements will be made for surge protectors, breakers, flashing equipment, lights, fans and thermostats, wiring, and any additional work required to integrate the RVD, Control Unit into the cabinet as this will be considered incidental to providing a beacon controller assembly and cabinet.

Vertical segments of conduits leaving the bottom of the cabinet will be considered incidental.

Payment for risers will be covered elsewhere in the Project Special Provisions.

Payment will be made under:

| Pay Item | Pay Unit |
|---|---|
| Beacon Controller Assembly and Equipment Cabinet | Each |

## 10. RADAR VEHICLE DETECTOR (RVD)

### 10.1. DESCRIPTION

Furnish an RVD Unit at both System #1 and System #2 Speed Detection locations along I-26 in Henderson County. Furnish new non-intrusive pole-mounted radar vehicle detectors (RVD) with mounting hardware in accordance with these Project Special Provisions.

### 10.2. MATERIALS

**A. Radar Vehicle Detection (RVD):**

Furnish new non-intrusive radar vehicle detector (RVD) that transmit electromagnetic radar signals through the air. The signals bounce off vehicles in their paths and part of the signal is returned to the RVD. The returned signals are then processed by a Control Unit against user defined parameters as discussed in Section 1 – "Project Overview".

Ensure the RVD deploys a dual radar design to aid in accuracy with regards to determining speed and volume data.

**B. Measured Qualities:**

Ensure the RVD provides volume, average speed, occupancy, classification counts, 85th percentile speed, average headway, average gap, speed bin counts and direction counts for user-configurable time intervals for a minimum of 12 lanes of traffic.

Ensure the RVD can provide a minimum of 8 vehicle length-based classification bins and a minimum of 15 speed classification bins. Ensure the RVD can provide speed, length, class, lane assignment, and range data for each vehicle detected. Additionally, ensure the unit can provide presence date for each detectible lane of traffic.

**C. Detection Area:**

Ensure the RVD can detect and report information for a minimum of 12 lanes of traffic. Furnish RVD that can report vehicle information when the lanes are located as close as 6 ft. to as far as 250 ft. away from the base of the supporting structure and with traffic traveling in opposite directions. Ensure the RVD will function with any spacing of traffic lanes positioned from the minimum offset to the maximum range. Gore and unequally sized or spaced lanes shall be handled so that detections from the lanes meet all performance specifications. Ensure the RVD can detect vehicles with the specified accuracy in lanes that are adjacent to a barrier when 50% of a sedan is visible over the barrier from the point of view of the RVD.

**D. Accuracy:**

Ensure the overall Volume Data is accurate to within 5% for all lanes associated with a direction of travel during nominal conditions and that each individual lane's volume data is within 10% during nominal conditions. The percentage of missed detection and the percentage of false detections for each lane shall not exceed 15% during nominal conditions. Nominal conditions exist when average speeds are greater than 10 mph (16 kph) in every lane; when there is less than 20% truck traffic per lane; and when at least 50 cars per lane are counted in the interval.

The RVD shall detect a minimum separation of 5.5 ft. (1.67 m) between two vehicles depending on vehicle speed and range.

Ensure Average Speed Data is accurate to within 3 mph for any direction of travel when there are more than five cars per lane in an interval. Average speed data for any individual lane shall be accurate to within 3 mph when there are more than five cars per lane in an interval.

Ensure the RVD provides Per-Vehicle Speed measurements on 95% of vehicles that are not occluded by other vehicles or by barriers.

Ensure the RVD measures speed using a dual-radar speed trap that calculates the time delay between two different radar beams.

Ensure the RVD provides Occupancy Data that is accurate within 10% for any direction of travel on a roadway during nominal conditions.

Ensure the RVD correctly determines classification for 80% of detected vehicles when the classification bins.

**E. Communications:**

Furnish an RVD with both an RS-485 port and an RS-232 port, and ensure both ports can communicate independently and simultaneously. Ensure the RS-232 port supports full-duplex communications and supports True RTS/CTS hardware handshaking for interfacing with various communications devices.

Ensure the RVD supports the upload of new firmware into the RVD's non-volatile memory over either communication port.

The RVD supports the user configuration of the following:

- Baud rate
- Response delay
- Data push
- RS-232 flow control (RTS/CTS or none)

Ensure both communications ports support all of the following baud rates: 9600, 19200, 38400, 57600 and 115200 bps.

**F. Data Protocols:**

Ensure the RVD supports three different data protocols for all lanes being monitored: interval (bin) data, event (per vehicle) data, and real-time true presence data.

The interval (bin) data packet protocol shall support:

- Sensor ID
- A timestamp that records the year, month, day, hour, minute, and second of the end of time interval
- Total volumes of more than 65536
- Average speed values in mph
- Occupancy in 0.1% increments
- Volume in up to eight length-based user-defined vehicle classification bins
- Volume in up to 15 user-defined speed bins (bin by speed)
- Volume for both directions of traffic (bin by direction)
- Average headway in seconds
- Average gap in seconds
- 85th percentile speed in mph

The event (per vehicle) data packet protocol shall support:

- Sensor ID
- A timestamp that records the year, month, day, hour, minute, second and millisecond of the time the vehicle left the detection zone
- Lane assignment
- Speed values in mph
- Vehicle length
- Classification using up to eight user-defined classes
- Range

The real-time true presence data packet protocol shall support:

- Sensor ID
- True presence information for each lane being monitored

Ensure the RVD stores, in non-volatile memory, at least 9,000 interval data packets with the maximum number of lanes and approaches configured and all interval fields enabled. Ensure the RVD can timestamp interval data using a real-time clock that maintains accurate time even when power is disconnected from the sensor for extended periods of time.

**G. Radar Design:**

Two ensure accuracy in obtaining vehicle speed measurements ensure the system deploys a dual radar design with two receiver channels. Ensure the circuitry does not require any manual tuning and that all transmit modulated signals are generated by means of digital circuitry that is referenced to a frequency source that is at least 50 parts per million (ppm) stable over the specified temperature range, and ages less than 6 ppm per year. Ensure the RVD does not rely of temperature compensation circuitry to maintain transmit frequency stability and that the bandwidth of the transmit signal does not vary by more than 1%.

**H. Antenna Design and Resolution:**

Ensure the antenna associated with the RVD meets the following minimum requirements;

1) Uses Printed Circuit Boards manufactured using automated surface mount technology and is compliant with the requirements set forth in IPC-A-610C Class 2, Acceptability of Electronic Assemblies.
2) Can transmit a signal with a minimum bandwidth of at least 240 MHz.
3) Vertical beam width at the 6 dB points of the two-way pattern shall be 65 degrees or greater.
4) Horizontal beam width at the 6 dB points of the two-way pattern shall be 7 degrees or less.
5) Side-lobes in the two-way antenna pattern shall be -40 dB or less

**I. System Configuration:**

Provide RVD units with auto-configuration capability that will allow the unit to define traffic lanes or detection zones without requiring used intervention. Ensure the auto-configuration process resides on a processor internal to the RVD and does not require an external PC to function.

The auto-configuration process shall automatically define traffic lanes or detection zones by detecting the relative position of vehicles within the RVD's field of view.

The RVD shall include a transceiver capable of detecting multiple vehicles present within its field of view. The RVD shall also include a processor or computer with executable instructions that estimates the position of each of the vehicles, records the position of the vehicles, generates probability density function estimation from each position of the vehicles, and defines traffic lanes from that probability density function estimation. The probability density function estimation represents the probability that a vehicle will be located at any range.

The RVD auto-configuration process shall define all lanes within the detectable area of the RVD, up to the maximum number of lanes, during free-flow conditions; when at least 50% of a sedan is visible above any barriers; when at least 10 cars pass in each lane during configuration time; and there are less than 10% lane-changing vehicles.

Additionally ensure the user can manually make configuration changes to the auto-configuration on an as needed bases through a PC connect to the RVD's communications port. Ensure the manual changes can be saved to the RVD.

**J. Operations Software:**

Provide the RVD with graphical user interface (GUI) software that displays all configured lanes and the current traffic pattern using a graphical traffic history representing at least the last 1.5 seconds of detected traffic. This graphical traffic history shall also allow the option of displaying the measured speed or length of a detected vehicle.

Ensure the GUI software operates on the following:

- Windows® Mobile (Socket Mobile 650-M)
- Windows XP
- Windows Vista
- Windows 7

Ensure the software-supported the following functionality:

- Auto-find baud rate
- Auto-find serial port
- TCP/IP connectivity
- Sensor configuration back-up and restore
- Virtual sensor connections

**K. Operating Conditions:**

Provide an RVD that maintains precise performance and continuous operation in all weather conditions including rain, freezing rain, ice, snow, wind, and fog. Ensure that the RVD maintains accurate and continuous performance in all temperatures ranges between -40°F to 165°F (-40°C to74°C) and at non-condensing relative humidity ranges of 5% to 95% . Ensure RVD can operate accurately in direct sun light, at dawn, at dusk, and at night time.

**L. Mounting Hardware:**

Provide mounting assemblies that can be used to directly mount the RVD to a pole or other solid structure. Ensure that the mounting assembly provides the necessary degrees of rotation to ensure proper installation. Ensure that the mounting assembly is constructed of weather-resistant materials and shall be able to support a 20-lb. (9.1-kg) load. Ensure that the mounting assembly can withstand wind loads of 90MPH.

**M. Mechanical:**

Ensure the RVD enclosure meets the following minimum Requirements:

- Enclosure is NEMA 250 compliant for type RX enclosures that is tested and meets criteria for external icing, hose-down, 4X corrosion protection, and Gasket requirements.
- Mounting bracket with locking mechanism to accommodate tilting in both axes. Ensure the mounting assembly is manufactured from either stainless steel, or aluminum, and a support a load of 15 pounds and powder coated for oxidization resistance, allowing mount to withstand all weather conditions.
- Weight, not including mounting hardware, not to exceed 4.2 lbs.
- Able to withstand 5-ft. drop and function with accuracy.

- Connector meets MIL-C-26482 specification. The MIL-C-26482 connector shall provide contacts for all data and power connections.

**N. Power:**

Ensure the RVD meets the following minimum power requirements:

- Operates at 9VDC or 28VDC
- Consuming less than 9.5W
- Supplied with surge protection that meet or exceed the EN 61000-4-5 Class 4 Specifications on all communications and power lines.

**O. Hybrid Cable:**

Furnish a hybrid type cable (serial communications and power) for connection between the Control Unit and the RVD. Ensure the cable contains all necessary serial communications and power conductors in the same cable jacket. Ensure the cable is rated to meet outdoor temperature, water blocking, and ultraviolet protection. Furnish cable that prevents cross-talk and RFI/EFI between conductors. Furnish cable that uses standard connections on both ends that are compatible with the equipment to which it will be connected. Furnish serial connections and power connections of the conductor size that operate with voltage drop and signal loss characteristics required for the equipment being connected.

## 10.3. CONSTRUCTION METHODS

Install the RVD on the wood pole with a furnished mounting assembly at the height recommended by the manufacturer to minimize double detection and masking of vehicles and to ensure accurate vehicle speed and class detection. Mount and align the RVD as recommend by the manufacturer to ensure optimal performance. Ensure that the project intended detection zones are contained within the specified elevation angle suggested by the manufacturer. Ensure the RVD and its mounting structure (wood pole) are installed such that the RVD is outside of the minimum offset distance required by the RVD to functionally properly with regards to reading the nearest lane of travel.

Using the hybrid power and communications cable connect the service ends of the cable to the Power Supply and connect the serial communications ports of the RVD to the Control Unit.

Set up program parameters as required for a system that is functional and operational in accordance with these Project Special Provisions and the Plans.

Test and verify the mounting height and location of each RVD unit to ensure proper/accurate detection of vehicles in each lane for Systems #1, eastbound along I-26, and System #2, westbound along I-26.

Perform "Data Integrity" testing of the RVD unit (at Systems #1 and #2) to ensure the RVD unit is integrated with other devices in the equipment cabinet and provides accurate volume, lane occupancy, average speed, classification counts, 85$^{th}$ percentile speed, average headway, average gap, speed bin counts, and direction counts for various user-defined detection parameters. "Data Integrity" testing should include testing for accurate activations of flashing beacons for various user-defined parameters. Design and provide to the Engineer documentation for approval of the "Data Integrity" testing procedures forty (40) days prior to beginning of testing.

### 10.4. MEASURMENT AND PAYMENT

*Radar Vehicle Detector Unit* will be measured and paid as the actual number of *Radar Vehicle Detector Unit(s)* furnished, installed and accepted.

This item includes RVD attachment hardware, interface and connection cables, hybrid power and communications cable, connectors, operation manuals, site testing, manufacturer's documentation, user manuals, and quick-reference manuals for installation and maintenance, "Data Integrity" testing procedure documentation, mounting assemblies, mounting installation alignment tool, surge protection, and all other items, equipment, and labor required to furnish and completed assembly with complete detection accuracy. No separate payment will be made for software configuration required to set up the RVD unit and integrate with the system.

Risers and conduits associated with installing the Hybrid cable will be covered elsewhere in the Project Special Provisions.

Payment will be made under:

**Pay Item**

Radar Vehicle Detector .....Each

## 11. CONTROL UNIT

### 11.1. DESCRIPTION

A Control Unit shall consist of a Power Supply module, Surge Protection module, Electronic Processor module, and Contact Closure module. The individual components shall be designed for DIN-rail mounting and utilize a terminal bus configuration for sharing of power and information to form a complete and operational system.

### 11.2. MATERIALS

**A. Power Supply Module:**

Furnish a power supply module rated at 15 W or greater at 77°F and 10 W or greater at 165.2°F. Ensure the power supply module can operate in the temperature range of -29°F to 165°F with a relative humidity of 5% to 95% at 77°F non-condensing. Ensure the power supply module will accept 120VAC as the source power with a 60Hz input frequency. Ensure the load side of the power supply module output voltage is rated for 24VDC ± 4%.

Ensure the power supply module has a hold-up time of greater than 20 ms at 120 VAC and can withstand a voltage across its input and output terminals of 2 kV for an 8*20μ second surge. Additionally ensure the power supply module can withstand a voltage surge across its input and ground terminals of 1.5kV for an 8*20 μ second surge.

Ensure the power supply module conforms to safety standards UL 60950 and conforms to EMC standards EN 55022 Class B and EN 61000-3-2, 3.

In brown-out conditions (i.e. < 85 VAC input), the output voltage of the power converter shall be less than 1 VDC.

**B. Surge Protection Module:**

Furnish a surge protection module to provide protection from power surges over DC power and serial communications lines. Ensure the surge protection module suppress electrical surges up to 4 kV on DC power lines, RS-485 and RS-232 with CTS/RTS communications lines to any other connected device.

Furnish as surge protection module having a two-stage power surge suppression design. The 1st stage shall be gas tubes followed by a 2nd stage utilizing inductors and TVS diodes for power.

Additionally ensure the surge protection module has a three-stage communications surge suppression design consisting of gas tubes followed by a second stage using resistors and TVS diodes and a third stage consisting of resistors and MOVs. Ensure the surge protection module complies with applicable standards as stated in the IEC 61000-4-5 Standard for DC power lines and communication lines (RS-485 and RS-232).

For RS-485 communications ensure the device has clamping voltage capabilities of 8VDC and a 12 VDC differential clamping voltage with an 8*20μ second waveform. For RS-232 communications ensure the device has clamping voltage capabilities of 11 VDC differential clamping voltage with an 8*20μ second waveform.

Ensure the surge protection module can operate in the temperature range of -29°F to 165°F with a relative humidity of 5% to 95% at 77°F non-condensing.

**C. Electronic Processor Module:**

Furnish a programmable Electronic Processor to perform data collection and logic processing of the detection data received from the RVD. Furnish an Electronic Processor that is Din-rail mounted in the equipment cabinet. Furnish an Electronic Processor that monitors lane, speed, length and class information detected by the RVD and then compares the detected data to a set of predetermined and user-defined threshold values, and upon processing that the detected vehicle data exceeds these predetermined and user-define threshold values will activate a contact closure output to the beacons on the warning sign installed as part of System #1 and System #2 over I-26 in Henderson County. Ensure that the Electronic Processor has a Contact Closure delay of less than ¼ second. Ensure the Electronic Processor is provided with upgradeable firmware and that the Electronic Processor with its installed firmware will meet the requirement set forth in the Plans and these Project Special Provisions. Ensure the Electronic Processor is fully programmable to support multiple applications using simple intuitive software on a Pocket PC, Windows desktop or Notebook PC.

Provide an Electronic Processor module with a minimum of four (4) independent physical serial ports as follows:

- RS-232 front port: DB-9 female DCE connector with DIP switch override to select programming and run mode operations
- RS-485 back port: 5-position connector for connecting from the terminal bus.
- RS-232 top port: Pluggable screw terminal.

- RS-485 top port: Pluggable screw terminal and an RJ-11 jack

Provide an Electronic Processor module with two (2) multi-functional digital input ports with the following features:

- Low-level AC input monitoring via a clamp-on split-core current transformers with a 1W, 120VAC load threshold suitable for monitoring LED signal indication status
- Contact Closure input monitoring circuit that also serves to monitor low-level DC logic with a threshold of 2.5V
- DC voltage input monitoring with selectable threshold of 9, 11.7 and 23.4 VDC.
- Maximum input event frequency of 250 Hz.

Furnish an Electronic Processor that features a minimum of two (2) solid state contact closure output ports with 250 Hz of output signaling capability.

Furnish the Electronic Processor with the ability to communicate with any serial device that has a serial connection by converting 3-wire half-duplex RS-485 to half-duplex RS-232 communications and vice versa. Ensure the Electronic Processor can communicate with the RVD over a Terminal Bus using RS-485 communications protocols. Additionally, ensure the Electronic Processor can communicate with a PC over the RS-232 front port when operating in device set-up mode and the RS-232 top port when operating in Run Mode. The Electronic Processor shall perform data forwarding activities over the RS-232 front port in Run Mode operation.

Furnish an Electronic Processor that uses push button features on the front cover plate to set the device in 1 of 4 operational states as follows:

- Run mode
- Setup mode
- Serial convert mode
- Resets the device back to factory defaults

Furnish the Electronic Processor with easy to read colored LEDs to indicate power (red), data transmit (green) and data received (yellow).

In addition the LEDs listed above provide a blue LED next to them to serve as operation mode indicators for operation modes selected with the push-button.

The Electronic Processor shall also include two banks of user-programmable LEDs, one yellow and one red, to display submenu selections and application information.

Ensure the Electronic Processor is supported by a user-friendly graphical user interface that will control the program parameters. Additionally, ensure the Electronic Processor has the ability

to use DIP switches that will allow the user to select run mode versus programming mode, multi-function inputs and supply voltage monitor thresholds.

Ensure the Electronic Processor can operate in the temperature range of -29°F to 165°F with a relative humidity of 5% to 95% at 77°F non-condensing.

**D. Contact Closure Module:**

Furnish a Contact Closure module to provide the interface between the RVD, Electronic Processor and the LED flashers. Ensure the contact closure module can collect real-time serial data from the RVD and output the collected date in the form of a contact closure upon meeting certain pre-determined conditions. Ensure the contact closure has a five position screw terminal to allow for power to the module and RS-485 communications to and from the terminal bus. Ensure the contact closure can establish communications over the RS-485 terminals at the following baud rates (9600 bps, 19200 bps, 38400 bps and 57600 bps). Furnish a contact closure module that can receive data from the RVD and Electronic Processor via the terminal bus including emulated loop spacing distance for further processing in determining when to place an active output. Ensure the contact closure has individual LED indicators for a minimum of 16 separate contact closure outputs.

Furnish a contact closure module that can dissipate a minimum of 600 W power surge received on any of the 16 individual output terminals. Ensure the contact closure module can operate in the temperature range of -29°F to 165°F with a relative humidity of 5% to 95% at 77°F non-condensing.

## 11.3. CONSTRUCTION METHODS

Install and connect the individual Control Unit modules (Power Supply module, Surge Protection module, Electronic Processor module, and Contact Closure module) to the RVD and program the Electronic Processor to form a complete and operational system in accordance with the Plans and these Project Special Provisions. Wire the outputs of the contact closure such that the downstream beacons will be activated when the user defined parameters as discussed in Section 1 – "Project Overview", warrants a flashing condition.

Set up the Electronic Processor module software and RVD software configurations for the Speed Detection Warning System outlined in these Plans and Project Special Provisions. Program the Electronic Processor module with the user defined parameters once approved by the Engineer.

**Upon installing all devices permanently mark all cables with cable number and information designating from/to units and associated connectors.**

Perform diagnostic testing to ensure that all communications channels are functional between the Control Unit, the RVD, and the Static Signs.

Develop and submit a testing procedure to the Engineer for review and approval as described elsewhere in these Project Special Provisions. Perform testing to ensure detection accuracy and data integrity. Also, perform system wide testing of the flashers is activated when parameters are met as identified in these Project Special Provision and the Plans.

### 11.4. MEASUREMENT AND PAYMENT

Actual number of Control Units furnished, installed, tested, and accepted. A Control Unit will consist of a Power Supply module, Surge Protection module, Electronic Processor module and Contact Closure module and all wiring and cabling including that which is required for providing 120 VAC to the power supply module and connection of the field wiring internal to the equipment cabinet to the LED Flashing Beacons. Additionally this item will include any other equipment, hardware, and materials necessary to form a complete an operational Control Unit.

Providing software, operation manuals and testing (as required elsewhere in these Project Special Provisions) will be considered incidental to furnishing and installing the Control Unit.

Final payment will be made when work is accepted by the Engineer.

The quantity of Control Units, measured as provided above, will be paid for at the contract unit price each for *"Control Unit."*

Payment will be made under:

| Pay Item | Unit |
|---|---|
| Control Unit | Each |

## 12. SYSTEM SUPPORT EQUIPMENT

### 12.1. DESCRIPTION

Furnish System Support Equipment with all necessary hardware in accordance with the plans and specifications.

### 12.2. MATERIALS

**A. General:**

Furnish the following equipment as described elsewhere in these Project Special Provisions:

1) Radar Vehicle Detection Unit.
2) Control Unit, consisting of a Power Supply module, Surge Protection module, Electronic Processor module, and Contact Closure module. Provide operating instructions and maintenance manuals with each item.

Before starting any system testing or training, furnish all communications system support equipment.

### 12.3. MEASUREMENT AND PAYMENT

Actual number of "F*urnish Radar Vehicle Detection Unit*" furnished and accepted.

Actual number of "*Furnish Control Unit*" furnished and accepted.

Payment will be made under:

| Pay Item | Unit |
|---|---|
| Furnish Radar Vehicle Detection Unit | Each |
| Furnish Control Unit | Each |

# 13. SYSTEM OPERATIONAL TESTING AND OBSERVATION

## 13.1. DESCRIPTION

Perform testing the at the static sign flashing beacons and the RVD for Systems #1 and #2 along I-26 to ensure the completed systems function in accordance with the Plans and Project Special Provisions.

Perform testing of each RVD to ensure that they are installed and functioning in accordance with these Project Special Provisions and the Plans. Perform testing to ensure communications from the RVD to the Static sign is function properly. Perform testing to ensure that the LED flashing beacons flash in accordance with the requirements set forth in the *Standard Specifications* and the MUTCD.

Testing requirements set forth in this section do not supersede any other testing requirements described in any other section of these Project Special Provisions.

Submit to the Engineer for review a test plan for the system testing. The test plan shall include all the necessary documentation and tests to satisfy the following: RVD testing, Control Unit testing of the Flashing Beacons. The Engineer will either approve or indicate changes that are required for approval within forty (40) calendar days of receipt of the test plan. Submit a revised test plan to the Engineer for review within forty (40) calendar days following receipt of the review of the initial plan. The review and re-submittal process described above will continue until the Engineer approves a final test plan. Multiple submittals of the test plan, if required, will be supplied at no additional cost. Ensure that each individual component of the system is working prior to conducting the final System Operational Test.

Testing will commence at a time mutually agreed by the Contractor and the Engineer. The Contractor is to provide a Laptop or PDA for loading various user defined parameters for test use during the test. Laptop or PDA is not an item to be provided by the Engineer but is only supplied for testing by the Contractor.

The Testing will be executed on the basis of the approved test plan only. The Engineer or his representative will witness all tests. If any component has been modified due to system testing performance failure, a report must be prepared by the Contractor and delivered to the Engineer prior re-testing.

Demonstrate that the RVD and Control Unit setup software has been set up successfully.

Perform individual diagnostic tests of the following items:

- RVDs capability to detect lanes of travel and send data to the Control Unit. This must include but shall not be limited to Speed and Classification Data.
- Power outage at Electronic Processor "normally closed" contact closure fail safe condition
- RVD detection capability
- Communication between RVD and Control Module
- Communications between the Control Module and the Flashing Beacons

In addition, the field tests will include inspection of all cabinets, electrical service, grounding system, wire & cabling, labeling, and all other components installed for the Speed Detection System.

The Contractor is fully responsible for documenting the results of each test and for furnishing the documented testing results to the Engineer.

### 13.2. HALT OF SYSTEMS OPERATIONAL TEST

In the event that any component of the system malfunctions or operates below the level specified by the approved test plan the System Operational Test must be halted. The Contractor will determine and correct the problems, including repair or replacement of equipment, at no cost to the Department. Upon correction of the problems to the satisfaction of the Engineer, testing will resume.

### 13.3. 30-DAY OBSERVATION PERIOD

Upon completion of all project work, the successful completion of the System Operational Test and the correction of all known deficiencies, including minor installation items, a 30-day Observation Period will commence. This Observation Period will consist of a 30-day period of normal operation without any failures. The 30-day Observation Period will be warranted by the payment and performance bond. The purpose of this period is to ensure that all components of the system function in accordance with these Project Special Provisions over an extended length of time.

Respond to system or component failures (or reported failures) that occur during the 30-day Observation Period within 48 hours. Correct said failures within 72 hours. Failures that cannot be corrected within 72 hours will suspend the timing of the 30-day Observation Period beginning at the time when the failure occurred. After the cause of such failures has been corrected, timing of the 30-day Observation Period will resume. Failures that necessitate a redesign of any major component will terminate the Observation Period. Once the components have been redesigned or replaced, the 30-Day Observation Period will be restarted from zero. Failures in any of the components exceeding a total of three (3) occurrences will terminate the 30-day Observation Period. Once the failures have been corrected, the 30-day Observation Period will be restarted from zero.

All documentation must be completed prior to the end of the 30-day Observation Period. The 30-day Observation Period will be considered part of the contract time. Final acceptance will occur upon the successful completion of the 30-day Observation Period and after all documentation, requirements have been fully satisfied.

### 13.4. MEASUREMENT AND PAYMENT

There will be no direct payment for the work covered by this section.

Payment for this work will be covered in the applicable sections of these Project Special Provisions at the contract unit price, and will be full compensation for all work listed above.

## 14. TRAINING

### 14.1. DESCRIPTION

Provide training courses covering the operation and maintenance of the equipment being supplied as part of this project.

## 14.2. MATERIALS

### A. General

Provide training to properly install, operate, maintain, diagnose and repair each piece of equipment and the software associated with each piece of equipment. Provide approved manufacturer's representatives or other qualified personnel to conduct training courses. Provide training for a total of (15) individual.

Prior to commencement of the training course, submit detailed course curricula, draft manuals, and handouts, and resumes of the instructors for review and approval. The Engineer may request modification of the material and request courses desired by the Department.

For all training programs, a staff of engineers, technicians, and maintenance personnel familiar with the system will be the training participants. A "day" of training shall consist of training conducted between the hours of 8:30 am and 4:30 pm.

For each session, provide training materials (manuals, notebooks, hand-outs, etc.) as specified in the Documentation Section of these Project Special Provisions.

Furnish only qualified instructors to present all training courses, lectures, and demonstrations in person. The Engineer shall approve all instructors.

Conduct all training courses at a location provided by the Division at a time mutually agreed upon, but not later than the start of system acceptance testing. Provide training material, manuals, and other handouts to serve not only as subject guidance, but also as quick reference for use by the students. Deliver course material in reproducible form immediately following the course.

### B. Subject Area

Provide the training sessions at the required durations as listed in the Table below. A more detailed description of the required content of each training session is provided in the following sections.

- RVD Unit
- Control Unit
  - Power Supply
  - Surge Protection Module
  - Electronic Processor Module
  - Contact Closure Module

Provide (1) one training session addressing each item listed above. Ensure this session addresses the theory and operation of the individual equipment components. Ensure the training addresses the following: setup, operation, preventative maintenance, equipment diagnostics and trouble shooting. Additionally, ensure the training addresses software setup and programming parameters associated with setting up each component thus forming a complete and operational system.

## 14.3. MEASUREMENT AND PAYMENT

Training will be paid for on a Lump Sum basis.

Payment will be full compensation for fees associated with lecturers, travel and lodging, hosting facilities, handouts, demonstration and training aids, etc.

Payment will be made under:

| Pay Item | Unit |
|---|---|
| Training | Lump Sum |

County : Henderson

| Line # | Item Number | Sec # | Description | Quantity | Unit Cost | Amount |
|---|---|---|---|---|---|---|
| | | | **ROADWAY ITEMS** | | | |
| 0001 | 0000100000-N | 800 | MOBILIZATION | Lump Sum | L.S. | |
| 0002 | 3030000000-E | 862 | STEEL BM GUARDRAIL | 1,600 LF | | |
| 0003 | 3270000000-N | SP | GUARDRAIL ANCHOR UNITS, TYPE 350 | 3 EA | | |
| 0004 | 4057000000-E | SP | OVERHEAD FOOTING | 60 CY | | |
| 0005 | 4082100000-N | SP | SUPPORTS, OVERHEAD SIGN STRUC-TURE AT STA ****** (EASTBOUND) | Lump Sum | L.S. | |
| 0006 | 4082100000-N | SP | SUPPORTS, OVERHEAD SIGN STRUC-TURE AT STA ****** (WESTBOUND) | Lump Sum | L.S. | |
| 0007 | 4109000000-N | 904 | SIGN ERECTION, TYPE *** (OVER-HEAD) (A) | 4 EA | | |
| 0008 | 4399000000-N | 1105 | TEMPORARY TRAFFIC CONTROL | Lump Sum | L.S. | |
| 0009 | 4892000000-N | 1205 | GENERIC PAVEMENT MARKING ITEM (THERMOPLASTIC PAVEMENT MARKIN G CHARACTER 125 MILS "NO TRUCK T HIS LANE" | 64 EA | | |
| 0010 | 7300000000-E | 1715 | UNPAVED TRENCHING (**********) (1,1") | 80 LF | | |
| 0011 | 7324000000-N | 1716 | JUNCTION BOX (STANDARD SIZE) | 4 EA | | |
| 0012 | 7360000000-N | 1720 | WOOD POLE | 2 EA | | |
| 0013 | 7384000000-E | 1722 | ***" RISER WITH ********** (1", WEATHERHEAD_OVERHEAD STRU CTURE) | 2 EA | | |
| 0014 | 7408000000-E | 1722 | 1" RISER WITH WEATHERHEAD | 2 EA | | |
| 0015 | 7912000000-N | 1755 | BEACON CONTROLLER ASSEMBLY & CABINET (********) (POLE MOUNTED) | 2 EA | | |
| 0016 | 7980000000-N | SP | GENERIC SIGNAL ITEM (12", 1 SECTION AMBER FLASHING BEACON) | 8 EA | | |

County : Henderson

| Line # | Item Number | Sec # | Description | Quantity | Unit Cost | Amount |
|---|---|---|---|---|---|---|
| 0017 | 7980000000-N | SP | GENERIC SIGNAL ITEM (CONTROL UNIT) | 2 EA | | |
| 0018 | 7980000000-N | SP | GENERIC SIGNAL ITEM (FURNISH CONTROL UNIT) | 1 EA | | |
| 0019 | 7980000000-N | SP | GENERIC SIGNAL ITEM (FURNISH RADAR VEHICLE DETECTI ON UNIT) | 1 EA | | |
| 0020 | 7980000000-N | SP | GENERIC SIGNAL ITEM (METER BASE/DISCONNECT COMINAT ION PANEL) | 2 EA | | |
| 0021 | 7980000000-N | SP | GENERIC SIGNAL ITEM (RADAR VEHICLE DETECTOR) | 2 EA | | |
| 0022 | 7980000000-N | SP | GENERIC SIGNAL ITEM (SUPPLEMENTAL EQUIPMENT DISCON NECT) | 3 EA | | |
| 0023 | 7980000000-N | SP | GENERIC SIGNAL ITEM (WOOD POST 6"X6"X10') | 3 EA | | |
| 0024 | 7985000000-N | SP | GENERIC SIGNAL ITEM (TRAINING) | Lump Sum | L.S. | |
| 0025 | 7990000000-E | SP | GENERIC SIGNAL ITEM (3-WIRE COPPER FEEDER CONDUCTO RS) | 560 LF | | |
| 0026 | 7990000000-E | SP | GENERIC SIGNAL ITEM (4-WIRE COPPER BRANCH CIRCUIT CONDUCTORS | 1,000 LF | | |

| Firm Name and Address | Circle One | Item No. | Item Description | * Agreed upon Unit Price | ** Dollar Volume of Item |
|---|---|---|---|---|---|
| **Name**<br><br>Address | MBE<br><br>WBE | | | | |
| **Name**<br><br>Address | MBE<br><br>WBE | | | | |
| **Name**<br><br>Address | MBE<br><br>WBE | | | | |
| **Name**<br><br>Address | MBE<br><br>WBE | | | | |
| **Name**<br><br>Address | MBE<br><br>WBE | | | | |
| **Name**<br><br>Address | MBE<br><br>WBE | | | | |
| **Name**<br><br>Address | MBE<br><br>WBE | | | | |

***** The Dollar Volume shown in this column shall be the Actual Price Agreed Upon by the Prime Contractor and the MBE/WBE subcontractor, and these prices will be used to determine the percentage of the MBE/WBE participation in the contract.
** Dollar Volume of MBE/WBE Subcontractor Percentage of Total Contract Bid Price:
*If firm is a Material Supplier Only, show Dollar Volume as 60% of Agreed Upon Amount from Letter of Intent.*
*If firm is a Manufacturer, show Dollar Volume as 100% of Agreed Upon Amount from Letter of Intent.*

| Firm Name and Address | Circle One | Item No. | Item Description | * Agreed upon Unit Price | ** Dollar Volume of Item |
|---|---|---|---|---|---|
| **Name**<br><br>Address | MBE<br><br>WBE | | | | |
| **Name**<br><br>Address | MBE<br><br>WBE | | | | |
| **Name**<br><br>Address | MBE<br><br>WBE | | | | |
| **Name**<br><br>Address | MBE<br><br>WBE | | | | |
| **Name**<br><br>Address | MBE<br><br>WBE | | | | |
| **Name**<br><br>Address | MBE<br><br>WBE | | | | |

***** The Dollar Volume shown in this column shall be the Actual Price Agreed Upon by the Prime Contractor and the MBE/WBE subcontractor, and these prices will be used to determine the percentage of the MBE/WBE participation in the contract.

** Dollar Volume of MBE/WBE Subcontractor Percentage of Total Contract Bid Price:

**** Dollar Volume of MBE Subcontractor $ _____**

**MBE Percentage of Total Contract Bid Price _____%**

**** Dollar Volume of WBE Subcontractor $ _____**

**WBE Percentage of Total Contract Bid Price _____%**

*If firm is a Material Supplier Only, show Dollar Volume as 60% of Agreed Upon Amount from Letter of Intent.*
*If firm is a Manufacturer, show Dollar Volume as 100% of Agreed Upon Amount from Letter of Intent.*

## ADDENDUM(S)

ADDENDUM #1

I, _____ representing _____
(SIGNATURE)

Acknowledge receipt of Addendum #1.

ADDENDUM #2

I, _____ representing _____
(SIGNATURE)

Acknowledge receipt of Addendum #2.

ADDENDUM #3

I, _____ representing _____
(SIGNATURE)

Acknowledge receipt of Addendum #3.

***AWARD LIMITS ON MULTIPLE PROJECTS***

It is the desire of the Proposer to be awarded contracts, the value of which will not exceed a total of $_____, for those projects indicated below on which bids are being opened on the same date as shown in the Proposal Form. Individual projects shall be indicated by placing the project number and county in the appropriate place below. Projects not selected will not be subject to an award limit.

| | |
|---|---|
| _____ | _____ |
| (Project Number) | (County) |
| _____ | _____ |
| (Project Number) | (County) |
| _____ | _____ |
| (Project Number) | (County) |
| _____ | _____ |
| (Project Number) | (County) |

*If a Proposer desires to limit the total amount of work awarded to him in this letting, he shall state such limit in the space provided above in the second line of this form.

It is agreed that in the event that I am (we are) the successful bidder on indicated projects, the total value of which is more that the above stipulated award limits, the Board of Transportation will award me (us) projects from among those indicated which have a total value not exceeding the award limit and which will result in the best advantage to the Department of Transportation.

_____
**Signature of Authorized Person

**Only those persons authorized to sign bids under the provisions of Article 102-8, Item 7, shall be authorized to sign this form.

# EXECUTION OF BID

## NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION

## CORPORATION

The person executing the bid, on behalf of the Bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the bidder has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Bidder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this bid in the proper manner also constitutes the Bidder's certification of status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

*N.C.G.S. § 133-32* and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

## SIGNATURE OF CONTRACTOR

_____
Full name of Corporation

_____
Address as Prequalified

Attest _____ By _____

Secretary/Assistant Secretary
*Select appropriate title*

President/Vice President/Assistant Vice President
*Select appropriate title*

_____
Print or type Signer's name

_____
Print or type Signer's name

**CORPORATE SEAL**

**AFFIDAVIT MUST BE NOTARIZED**

Subscribed and sworn to before me this the

_____ day of _____ 20__.

**NOTARY SEAL**

_____
Signature of Notary Public

of _____County

State of _____

My Commission Expires:_____

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

### PARTNERSHIP

The person executing the bid, on behalf of the Bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the bidder has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Bidder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this bid in the proper manner also constitutes the Bidder's certification of status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

*N.C.G.S. § 133-32* and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

### SIGNATURE OF CONTRACTOR

| | | |
|---|---|---|
| _____ | By | _____ |
| Signature of Witness | | Signature of Partner |
| _____ | | _____ |
| Print or type Signer's name | | Print or type Signer's name |

### AFFIDAVIT MUST BE NOTARIZED

Subscribed and sworn to before me this the

_____ day of _____ 20__.

**NOTARY SEAL**

_____
Signature of Notary Public

of _____County

State of _____

My Commission Expires:_____

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

### LIMITED LIABILITY COMPANY

The person executing the bid, on behalf of the Bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the bidder has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Bidder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this bid in the proper manner also constitutes the Bidder's certification of status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

*N.C.G.S. § 133-32* and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

### SIGNATURE OF CONTRACTOR

_____
Full Name of Firm

_____
Address as Prequalified

| | |
|---|---|
| _____<br>Signature of Witness | _____<br>Signature of Member/Manager/Authorized Agent<br>*Select appropriate title* |
| _____<br>Print or type Signer's name | _____<br>Print or type Signer's Name |

### AFFIDAVIT MUST BE NOTARIZED

Subscribed and sworn to before me this the

_____ day of _____ 20__.

**NOTARY SEAL**

_____
Signature of Notary Public

of _____County

State of _____

My Commission Expires:_____

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

## JOINT VENTURE (2) or (3)

The person executing the bid, on behalf of the Bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the bidder has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Bidder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this bid in the proper manner also constitutes the Bidder's certification of status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

*N.C.G.S. § 133-32* and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

## SIGNATURE OF CONTRACTOR

Instructions: **2 Joint Venturers** Fill in lines (1), (2) and (3) and execute. **3 Joint Venturers** Fill in lines (1), (2), (3) and (4) and execute. On Line (1), fill in the name of the Joint Venture Company. On Line (2), fill in the name of one of the joint venturers and execute below in the appropriate manner. On Line (3), print or type the name of the other joint venturer and execute below in the appropriate manner. On Line (4), fill in the name of the third joint venturer, if applicable and execute below in the appropriate manner.

| | | |
|---|---|---|
| Signature of Witness or Attest | By | Signature of Contractor |
| Print or type Signer's name | | Print or type Signer's name |
| *If Corporation, affix Corporate Seal* | and | |
| Signature of Witness or Attest | By | Signature of Contractor |
| Print or type Signer's name | | Print or type Signer's name |
| *If Corporation, affix Corporate Seal* | and | |
| Signature of Witness or Attest | By | Signature of Contractor |
| Print or type Signer's name | | Print or type Signer's name |
| *If Corporation, affix Corporate Seal* | | |

*NOTARY SEAL*
*Affidavit must be notarized for Line (2)*
Subscribed and sworn to before me this
_____day of_____ 20___
_____
Signature of Notary Public
of _____County
State of _____
My Commission Expires:_____

*NOTARY SEAL*
*Affidavit must be notarized for Line (3)*
Subscribed and sworn to before me this
_____day of _____ 20___
_____
Signature of Notary Public
of _____County
State of _____
My Commission Expires:_____

*NOTARY SEAL*
*Affidavit must be notarized for Line (4)*
Subscribed and sworn to before me this
____day of _____ 20_____
_____
Signature of Notary Public
of _____County
State of _____
My Commission Expires:_____

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

### INDIVIDUAL DOING BUSINESS UNDER A FIRM NAME

The person executing the bid, on behalf of the Bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the bidder has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Bidder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this bid in the proper manner also constitutes the Bidder's certification of status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

*N.C.G.S. § 133-32* and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

### SIGNATURE OF CONTRACTOR

Name of Contractor _____
Individual name

Trading and doing business as _____
Full name of Firm

| | |
|---|---|
| _____ | _____ |
| Signature of Witness | Signature of Contractor, Individually |
| _____ | _____ |
| Print or type Signer's name | Print or type Signer's name |

### AFFIDAVIT MUST BE NOTARIZED

Subscribed and sworn to before me this the

_____ day of _____ 20__.

**NOTARY SEAL**

_____
Signature of Notary Public

of _____County

State of _____

My Commission Expires:_____

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

### INDIVIDUAL DOING BUSINESS IN HIS OWN NAME

The person executing the bid, on behalf of the Bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the bidder has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Bidder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this bid in the proper manner also constitutes the Bidder's certification of status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

*N.C.G.S. § 133-32* and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

### SIGNATURE OF CONTRACTOR

Name of Contractor _____

Print or type Individual name

_____

Address as Prequalified

_____

Signature of Contractor, Individually

_____

Print or type Signer's Name

_____

Signature of Witness

_____

Print or type Signer's name

### AFFIDAVIT MUST BE NOTARIZED

Subscribed and sworn to before me this the

**NOTARY SEAL**

_____ day of _____ 20__.

_____

Signature of Notary Public

of _____County

State of _____

My Commission Expires:_____

## 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.

# ***Execution of Contract***

**Contract No: DN00346**

**County: Henderson County**

ACCEPTED BY THE DEPARTMENT

_____

**Proposals Engineer**

_____

Date

EXECUTION OF CONTRACT AND BONDS
APPROVED AS TO FORM:

_____

**Division Engineer**

_____

Date

Signature Sheet (Bid) - ACCEPTANCE SHEET