STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

Division 14 **Division-Wide**

ID/IQ Contract

CONTRACT:	**DN12200754**
TIP Number:	**N/A**
FEDERAL:	**State Funded**
WBS Element:	**GMR14.HEN.1P; GMR14.HEN.2P: GMR14.POL.1P; GMR14.POL.2P; GMR14.TRA.1P; GMR14.TRA.2P; GMR14.HAY.1P; GMR14.HAY.2P; GMR14.JAC.1P; GMR14.JAC.2P; GMR14.SWA.1P; GMR14.SWA.2P; GMR14.CHE.1P; GMR14.CHE.2P; GMR14.CLA.1P; GMR14.CLA.2U; GMR14.GRA.1P; GMR14.GRA.2P; GMR14.MAC.1P; GMR14.MAC.2P**
LOCATION:	**AT VARIOUS LOCATIONS THROUGHOUT CHEROKEE, CLAY, GRAHAM, HAYWOOD, HENDERSON, JACKSON, MACON, POLK, SWAIN AND TRANSYLVANIA COUNTIES**
COUNTY:	**CHEROKEE, CLAY, GRAHAM, HAYWOOD, HENDERSON, JACKSON, MACON, POLK, SWAIN, AND TRANSYLVANIA**
DESCRIPTION:	**ID/IQ SLOPE STABILIZATION AT VARIOUS LOCATIONS THROUGHOUT CHEROKEE, CLAY, GRAHAM, HAYWOOD, HENDERSON, JACKSON, MACON, POLK, SWAIN AND TRANSYLVANIA COUNTIES**
Contractor:	**GeoStabilization International LLC**
Address:	**PO Box 7410931** **Chicago, IL 60674**
Division Engineer:	**Wesley Grindstaff, P.E.**
District Engineer:	**W. Cody Weddle, P.E.**
Letting Date:	**12/9/2025**
Contract Execution:	01/20/2026

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION 14

ID/IQ PROPOSAL

DATE AND TIME OF BID OPENING: December 9, 2025 AT 2:00 PM

CONTRACT ID: DN12200754

WBS ELEMENT NO.: GMR14.HEN.1P, GMR14.HEN.2P, GMR14.POL.1P, ETC

FEDERAL AID NO.: STATE FUNDED

COUNTY: CHEROKEE, CLAY, GRAHAM, HAYWOOD, HENDERSON, JACKSON, MACON, POLK, SWAIN, AND TRANSYLVANIA

TIP NO.: N/A

MILES: VARIES

ROUTE NO.: VARIES

LOCATION: AT VARIOUS LOCATIONS THROUGHOUT CHEROKEE, CLAY, GRAHAM, HAYWOOD,HENDERSON, JACKSON, MACON, POLK, SWAIN, AND TRANSYLVANIA COUNTIES

TYPE OF WORK: ID/IQ SLOPE STABILIZATION

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 IS NOT REQUIRED.**

GeoStabilization International LLC

NAME OF BIDDER

PO Box 7410931, Chicago, IL 60674

ADDRESS OF BIDDER

PROPOSAL FOR THE CONSTRUCTION OF

CONTRACT No. DN12200754 IN Cherokee, Clay, Graham, Haywood, Henderson, Jackson, Macon, Polk, Swain and Transylvania Counties, NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION,

RALEIGH, NORTH CAROLINA

The Bidder has carefully examined the location of the proposed work to be known as Contract No. **DN12200754**; 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 agrees to be bound upon his execution of the bid and subsequent award to him by the Department of Transportation in accordance with this proposal. Payment and performance bonds are not required on this project. 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 *2024 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.

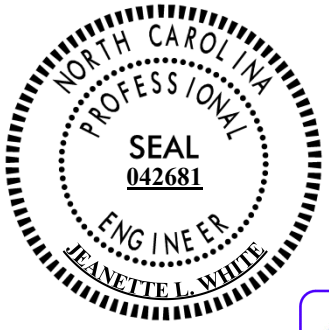
The Bidder shall provide and furnish all the materials, machinery, implements, appliances and tools, and perform the work and required labor to construct and complete Contract No. **DN12200754** in **Cherokee, Clay, Graham, Haywood, Henderson, Jackson, Macon, Polk, Swain and Transylvania Counties**, 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 2024* 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.



Signed by:
29BD93927CF24F6...
11/17/2025

TABLE OF CONTENTS

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. Failure to comply with any requirement may cause the bid to be considered irregular and may be grounds for rejection of the bid.

TRADITIONAL PAPER BIDS:

1. Download the entire proposal from the Connect NCDOT website and return the entire proposal with your bid.
2. In accordance with Article 102-3 of the *Standard Specifications*, registration on the Interested Parties List is required unless SP1 G02 Interested Parties List Not Required provision is included in the proposal.
3. All entries on the itemized proposal sheet (bid form) shall be written in ink or typed.
4. The Bidder shall submit a unit price for every item on the itemized proposal sheet. 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.
5. An amount bid shall be entered on the itemized proposal 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" column of the form.
6. The total amount bid shall be written in figures in the proper place on the bid form. The total amount bid shall be determined by adding the amounts bid for each item.
7. Changes to 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. Do not use correction fluid, correction tape or similar product to make corrections.
8. The bid shall be properly executed on the included **Execution of Bid – Non-collusion, Debarment and Gift Ban Certification** form. All bids shall show the following information:
   a. Name of corporation, partnership, Limited Liability Company, joint venture, individual or firm, submitting bid.
      Corporations that have a corporate seal shall include it on the bid, otherwise write your corporations name in the seal location.
   b. Name of individual or representative submitting bid and position or title held on behalf of the bidder.
   c. Name, signature, and position or title of witness.
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 ITEMIZED PROPOSAL SHEET ATTACHED SHALL BE PLACED IN A SEALED ENVELOPE AND SHALL BE DELIVERED TO AND RECEIVED IN THE NCDOT DIVISION OFFICE, LOCATED AT 253 Webster Road Sylva, NC 28779, BY 2:00 PM ON, December 9, 2025.**
12. The sealed bid must display the following statement on the front of the sealed envelope:

QUOTATION FOR – CONTRACT ID DN12200754 – ID/IQ SLOPE STABILIZATION AT AT VARIOUS LOCATIONS THROUGHOUT CHEROKEE, CLAY, GRAHAM, HAYWOOD,HENDERSON, JACKSON, MACON, POLK, SWAIN, AND TRANSYLVANIA COUNTIES TO BE OPENED AT 2:00 PM ON, December 9, 2025.

As well as the following information:

a. Name of corporation, partnership, Limited Liability Company, joint venture, individual or firm, submitting bid.

b. Name of individual or representative submitting bid and position or title held on behalf of the bidder.

c. Address of corporation, partnership, Limited Liability Company, joint venture, individual or firm, submitting bid.

d. SAP Vendor Number of corporation, partnership, Limited Liability Company, joint venture, individual or firm, submitting bid.

e. Contractor License Number, if available, of corporation, partnership, Limited Liability Company, joint venture, individual or firm, submitting bid.

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: Jeffrey E. Alspaugh, EI
253 Webster Road
Sylva, NC 28779

14. Questions should be emailed 7 calendar days prior to the bid opening to **Jeffrey E. Alspaugh, EI** at **d14contracts@ncdot.gov**. Contact with any other NCDOT personnel concerning this project is strictly prohibited, unless otherwise noted, and may result in bids being considered non-responsive.

PROJECT SPECIAL PROVISIONS

GENERAL

INTERESTED PARTIES LIST NOT REQUIRED:

(6-21-22)(Rev. 2-20-24) 102 SP1 G02

Revise the *Standard Specifications* as follows:

The *Interested Parties List* sign up process is not applicable to this contract.

Page 1-13, Article 102-3 PROPOSALS AND INTERESTED PARTIES LIST, lines 12-15, delete the first paragraph.

Page 1-14, Article 102-8 PREPARATION AND SUBMISSION OF BIDS, lines 43-44, delete the first sentence of the first paragraph.

HAUL ROADS:

(7-16-24) 105 SP1 G04

Revise the *Standard Specifications* as follows:

Page 1-45, Article 105-15 RESTRICTION OF LOAD LIMITS, line 31, add the following after second sentence of the second paragraph:

At least 30 days prior to use, the Contractor shall notify the Engineer of any public road proposed for use as a haul road for the project.

CONTRACT TIME FOR ID/IQ:

(2-15-22)(Rev. 4-15-25) 108 SP1 G11

The date of availability for this contract is **January 5, 2026**.

The completion date for this contract is **January 4, 2027**.

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.

Work shall be accomplished in a continuous manner once the contractor begins.

The liquidated damages for this contract will be assessed per the Mobilization and Liquidated Damages for ID/IQ provision located elsewhere in this contract.

WORK ORDER ASSIGNMENT (SINGLE AWARDS) FOR ID/IQ:
(2-15-22)(Rev. 4-19-22) SPD 01-800A

Work orders will be assigned by the Engineer. The Contractor shall respond to the work order assignments with the anticipated start date, within three working days of notification unless noted otherwise. Failure to complete work in accordance with contract provisions and completion date may result in liquidated damages.

For federal ID/IQ contracts, all work orders will be assigned via the Work Order Assignment Form (Form IDIQ-1SA), and the Contractor is required to formally respond in writing for federal work orders within three working days, unless noted otherwise. The Work Order Assignment Form will also be used for any state ID/IQ contract in which the estimated work order cost meets the threshold for Performance and Payment Bonds in accordance with the Bonding Requirements for ID/IQ provision found elsewhere in this contract. For state ID/IQ contracts in which the work order assignment doesn't meet the threshold for bonds, the Department has the option to use the Work Order Assignment Form or other methods for work order assignments as agreed upon by the Engineer and Contractor.

The Contractor shall be required to prosecute the work in a continuous and uninterrupted manner from the time they begin the work until completion and final acceptance of the work order. Multiple failures of the Contractor to mobilize and begin work on the work order within the agreed upon time frame or failure to complete the work within the given time frame may result in the Contractor being excluded from future work on this contract in accordance with the *Standard Specifications*.

BONDING REQUIREMENTS FOR ID/IQ:
(2-15-22) SPD 01-810

For purposes of this ID/IQ contract, the following definitions apply:

Project Agreement: A transportation improvement with a defined scope of work; a written agreement between NCDOT and the Federal Government defining the extent of construction work to be undertaken in accordance with the submitted plans, specifications and estimates. Execution of the agreement prompts the authorization to proceed (construction funding).

Project: An undertaking issued to a contractor through a Work Order Assignment. The construction under a Project Agreement may be accomplished by one or more work order assignments, from one or more ID/IQ contracts. Note that for ID/IQ contracts this definition supersedes the definition in the Standard Specifications.

Award: The issuance of a signed Work Order Assignment by NCDOT shall constitute the notice of award of a project.

In accordance with North Carolina General Statute 44A-26, bonds are required on contracts awarded for any one project that exceeds $500,000. Beyond statutory requirements, NCDOT policy requires payment and performance bonds on all projects where the engineer's estimate is $450,000 or greater, all Asphalt Surface Treatment projects, and projects containing the 12-month guarantee provision. The limit for waiving bonds for all bridge replacement and major bridge rehabilitation projects (latex overlays, etc.) is $300,000 based on the engineer's estimate.

The decision of bonding of a work order assignment below the dollar amounts listed shall be at the discretion of the Division's evaluation of the risks associated with the project.

The need for contract payment and performance bonds will be determined at the Work Order Assignment level. The Work Order Assignment will notify the Contractor of an award of a project and if required, to provide contract payment and performance bonds per Article 103-7 of the *Standard Specifications*. The Work Order Assignment replaces the Notification of Award Letter mentioned in Article 103-4(A) of the *Standard Specifications*.

MOBILIZATION AND LIQUIDATED DAMAGES FOR ID/IQ:
(2-15-22) SPD 01-820

The Contractor shall mobilize to each location he is required to perform work. There will be no direct pay for Mobilization as it will be incidental to the other bid items. The only exception is if there is an Emergency Mobilization provision within the contract.

The Contractor will be provided a Work Order Assignment for each project with location(s), estimated quantities, and liquidated damages unless waived by the Engineer. Notification will be verbal followed by a faxed or emailed signed Work Order Assignment. There will be no minimum quantities for any line item associated with a particular mobilization. The Contractor shall complete the work identified on each Work Order Assignment.

The Contractor shall mobilize and complete the work within the time specified on the Work Order Assignment. Failure to complete the work by the completion date may result in the application of liquidated damages. Liquidated damage amounts will be based on the work order estimate and the liquidated damage table below.

Work Order Value	Liquidated Damages (per calendar day)
$0 - $100K	$100.00
$100K - $200K	$250.00
$200K - $300K	$500.00
$300K - $500K	$600.00
$500K - $1M	$700.00
$1M - $2M	$850.00

EMERGENCY MOBILIZATION FOR ID/IQ:
(2-15-22) SPD 01-830

The Contractor shall arrive on site within **Twenty Four (24)** hours of notification. Compensation will be in addition to the specific line items in the contract. *Emergency Mobilization* will be paid for at the contract unit price per each. Failure to respond within the time frame will result in nonpayment of this item.

Payment will be made under:

Pay Item	Pay Unit
Emergency Mobilization	Each

RENEWAL OF CONTRACT (CPI PRICE ADJUSTMENT) FOR ID/IQ:
(2-15-22)(Rev. 9-19-23) SPD 01-840

The Contractor shall submit a bid for one year. At the option of the Department, this contract may be extended for **Two (2)** additional periods of one year each (maximum (3) three years total). Each year shall have a limit of **Five Million Dollars** ($**5,000,000.00**).

The compensation payable to the contractor shall be fixed for the first twelve months of this contract. However, upon an application of renewal of the contract, or thirty days prior to the end of each contract period, the renewal contract may be adjusted to reflect the adjustment in the Consumer Price Index over the latest twelve month period as published by the US Bureau of Labor and Statistics at http://www.bls.gov/cpi to be applied to new work order assignments. The Consumer Price Index for All Urban Consumers (CPI-U), US City Average, All Items, 1982-84=100, not seasonally adjusted will be used. If the amount of the requested adjustment is more than ten percent, the Department of Transportation reserves the right to cancel this contract.

CPI adjustment values can be determined using the calculator on the NCDOT Construction website.

This price escalation method will not be applied to items of work that are separately covered under commodity price escalation clauses. No other changes in the terms, conditions, etc. of this contract will be made when an extension to the contract is implemented. The Engineer will notify the Contractor in writing by **60** if the contract may be extended. The Contractor must notify the Engineer in writing by **30** of his acceptance or rejection of this offer. Failure on the part of the Contractor to reply will be received as a rejection of contract extension.

DISPUTE RESOLUTION PROCESS FOR ID/IQ:
(2-15-22)(Rev. 1-16-24) SPD 01-850

If a question should arise on the contract or assignment of a work order, the contractor should notify the Engineer noted on the assignment documentation or the Division Engineer within 48 hours after the scheduled time of bid opening or work order assignment. The following should be included in the notification if applicable:

(A) the contract for which bids were solicited;
(B) the particular law, regulation, or contract specification violated;
(C) a detailed description of the alleged violation; and
(D) any other information deemed to be relevant.

Once the initial evaluation has been completed, the contractor may be asked to attend a meeting for further discussion and clarification.

Once a determination has been made, the contractor will be notified of the decision by the Division Engineer. If the decision does not meet the satisfaction of the contractor, they have 24 hours from the Division Engineer's notification to elevate the dispute to the Chief Engineer. The Chief Engineer will make the final decision and will not be subject to further review by NCDOT.

INTERMEDIATE CONTRACT TIME NUMBER 1 AND LIQUIDATED DAMAGES:
(3-04-16) SP1 G14 B

The Contractor shall complete the required work of installing, maintaining, and removing the traffic control devices for lane closures and restoring traffic to a multi-lane two-way traffic pattern.

The Contractor shall not close or narrow a lane of traffic on **I-26 from Buncombe County to Milepost 56.5 in Henderson County and I-40 from Exit 27 (US 74) to Buncombe County Line in Haywood County** during the following time restrictions:

DAY AND TIME RESTRICTIONS

Dates	Monday through Thursday	Friday	Saturday	Sunday
October 1, 2026 through November 2, 2026 (Leaf Season)	from 6:00A.M. to 7:00 P.M	from 6:00A.M. to 9:00 P.M	from 9:00A.M. to 9:00 P.M	from Noon. to 8:00 P.M
May 21, 2026 through September 8, 2026 (Summer)	from 6:00A.M. to 7:00 P.M	from 6:00A.M. to 9:00 P.M	from 9:00A.M. to 9:00 P.M	from Noon. to 8:00 P.M
November 20, 2026 through January 6, 2027 (Christmas Retail)	from 6:00A.M. to 9:00 P.M	All Times	All Times	All Times
December 16, 2026 through January 6, 2027 (Christmas)	All Times	All Times	All Times	All Times
April 2, 2026 through April 6, 2026 (Easter)	All Times	All Times	All Times	All Times
May 22, 2026 through May 26, 2026 (Memorial Day)	All Times	All Times	All Times	All Times
12:00 Noon July 2, 2026 through 8:00 AM July 7, 2026 (Independence Day)	All Times	All Times	All Times	All Times
August 27, 2026 through September 1, 2026 (Labor Day)	All Times	All Times	All Times	All Times
November 24, 2026 through November 30, 2026 (Thanksgiving)	All Times	All Times	All Times	All Times

The Contractor shall not close or narrow a lane of traffic on **I-26 from Mile Marker 56.5 in Henderson County to South Carolina State Line in Polk County; I-40 from Exit 27 (US 74) to Tennessee State Line in Haywood County; US 23-74 from Exit 98 to I-40 (Waynesville Bypass) in Haywood County; US 23-74 from Exit 81 to Exit 85 (Sylva Bypass) in Jackson County; US 74 from Exit 64 to Exit 74 (Bryson City Bypass) in Swain County; US 25 from South Carolina Line to I-26 in Henderson County; and US 74 from I-26 to Rutherford County Line in Polk County** during the following time restrictions:

DAY AND TIME RESTRICTIONS

Dates	Monday through Thursday	Friday	Saturday	Sunday
December 16, 2026 through January 6, 2027 (Christmas)	All Times	All Times	All Times	All Times
April 2, 2026 through April 6, 2026 (Easter)	All Times	All Times	All Times	All Times
May 22, 2026 through May 26, 2026 (Memorial Day)	All Times	All Times	All Times	All Times
12:00 Noon July 2, 2026 through 8:00 AM July 7, 2026 (Independence Day)	All Times	All Times	All Times	All Times
August 27, 2026 through September 1, 2026 (Labor Day)	All Times	All Times	All Times	All Times
November 24, 2026 through November 30, 2026 (Thanksgiving)	All Times	All Times	All Times	All Times
October 1, 2026 through November 2, 2026 (Leaf Season)	from 6:00A.M. to 7:00 P.M	from 6:00A.M. to 9:00 P.M	from 9:00A.M. to 9:00 P.M	from Noon. to 8:00 P.M

In addition, the Contractor shall not close or narrow a lane of traffic on Non-Freeway Routes, 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 4:00 p.m. December 31st and 7:00 a.m. January 2nd. If New Year's Day is on a Friday, Saturday, Sunday or Monday, then until 7:00 a.m. the following Tuesday.

3. For **Easter**, between the hours of 4:00 p.m. Thursday and 7:00 a.m. Monday.

4. For **Memorial Day**, between the hours of 4:00 p.m. Friday and 7:00 a.m. Tuesday.

5. For **Independence Day**, between the hours of 4:00 p.m. the day before Independence Day and 7:00 a.m. the day after Independence Day.

If **Independence Day** is on a Friday, Saturday, Sunday or Monday, then between the hours of 4:00 p.m. the Thursday before Independence Day and 7:00 a.m. the Tuesday after Independence Day.

6. For **Labor Day**, between the hours of 4:00 p.m. Friday and 7:00 a.m. Tuesday.

7. For **Thanksgiving Day**, between the hours of 4:00 p.m. Tuesday and 7:00 a.m. Monday.

8. For **Christmas**, between the hours of 4:00 p.m. the Friday before the week of Christmas Day and 7:00 a.m. the following Tuesday after the week of Christmas Day.

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 are not 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 herein and place traffic in a normal traffic pattern.

The liquidated damages are **Two Hundred Fifty Dollars ($250.00**) per hour.

NO MAJOR CONTRACT ITEMS:

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

NO SPECIALTY ITEMS:
(7-1-95)(Rev. 1-16-24) 108-6 SP1 G34

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

SCHEDULE OF ESTIMATED COMPLETION PROGRESS:
(7-15-08)(Rev. 6-17-25) 108-2 SP1 G58

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

	Fiscal Year	Progress (% of Dollar Value)
2026	(7/01/25 - 6/30/26)	**49**% of Total Amount Bid
2027	(7/01/26 - 6/30/27)	**51**% of Total Amount Bid

The Contractor shall also furnish his own progress schedule in accordance with Article 108-2 of the *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. 10-21-25) 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 the Combined MBE/WBE goal. No submittal of a Letter of Intent is required.

Combined MBE/WBE Goal: A portion of the total contract, expressed as a percentage that is to be performed by committed MBE/WBE subcontractors.

Committed MBE/WBE Subcontractor - Any MBE/WBE submitted at the time of bid that is being used to meet the Combined MBE / 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 Goal Requirement - The approved participation at time of award, but not greater than the advertised Combined MBE/WBE contract goal.

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

Manufacturer - A firm that owns (or leases) and operates or maintains a factory or establishment that produces on the premises, the materials or supplies obtained by the Contractor. A firm that makes minor modifications to the materials, supplies, articles, or equipment is not a manufacturer.

MBE Participation (Anticipated) - A portion of the total contract, expressed as a percentage that is anticipated 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 (or leases), and operates a store, warehouse, or other establishment in which the materials or supplies required for the performance of the contract are bought, kept in sufficient quantities, 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, concrete or concrete products, gravel, stone, asphalt and petroleum products need not keep such products in stock, if it owns and operates distribution equipment for the products. Any supplement of regular dealers' own distribution equipment shall be by a long-term operating lease and not on an ad hoc or contract-by-contract basis.

Distributor – A firm that engages in the regular sale or lease of the items specified by the contract. A distributor assumes responsibility for the items it purchases once they leave the point of origin (e.g., a manufacturer's facility), making it liable for any loss or damage not covered by the carrier's insurance.

Replacement / Substitution – A full or partial reduction in the amount of work subcontracted to a committed (or an approved substitute) MBE/WBE firm.

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 Participation (Anticipated) - A portion of the total contract, expressed as a percentage that is anticipated 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. https://connect.ncdot.gov/business/Turnpike/Documents/Form%20DBE-IS%20Subcontractor%20Payment%20Information.pdf

RF-1 *MBE/WBE Replacement Request Form* - Form for replacing a committed MBE or WBE. https://connect.ncdot.gov/projects/construction/Construction%20Forms/DBE%20MBE%20WBE%20Replacement%20Form%20and%20Instructions.pdf

SAF *Subcontract Approval Form* - Form required for approval to sublet the contract. https://connect.ncdot.gov/projects/construction/Construction%20Forms/SAF%20Form%20-%20Subcontract%20Approval%20Form%20Revised%2004-19.xlsm

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 estimated amount (based on quantities and unit prices) 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 the Combined MBE/WBE goal. This form is for paper bids only. http://connect.ncdot.gov/municipalities/Bid%20Proposals%20for%20LGA%20Content/09%20MBE-WBE%20Subcontractors%20(State).docx

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

DBE Regular Dealer/Distributor Affirmation Form – Form is used to make a preliminary counting determination for each DBE listed as a regular dealer or distributor to assess its eligibility for 60 or 40 percent credit, respectively of the cost of materials or supplies based on its demonstrated capacity and intent to perform as a regular dealer or distributor, as defined in section 49 CFR 26.55 under the contract at issue. A Contractor will submit the completed form with the Letter of Intent.
https://connect.ncdot.gov/projects/construction/Construction%20Forms/DBE%20Regular%20Dealer-Distributor%20Affirmation%20Form%20-%20USDOT%202024.pdf

Combined MBE/WBE Goal

There is NO MBE/WBE Goal for this project.

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 Combined MBE / WBE goal. The Directory can be found at the following link.
https://www.ebs.nc.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 Combined MBE/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 above the goal will follow the banking guidelines found elsewhere in this provision. All other additional MBE/WBE subcontractor participation submitted at the time of bid will be used toward the Department's 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) Electronic Bids

Bidders shall submit a listing of MBE and WBE participation in the appropriate section of the electronic submittal file.

(1) Submit the names and addresses of MBE and WBE firms identified to participate in the contract. If the bidder uses the updated listing of MBE and WBE firms shown in the electronic submittal file, the bidder may use the dropdown menu to access the name and address of the firms.

(2) Submit the contract line numbers of work to be performed by each MBE and WBE firm. When no figures or firms are entered, the bidder will be considered to have no MBE or WBE participation.

(3) The bidder shall be responsible for ensuring that the MBE and WBE are 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 Combined MBE/WBE goal.

(B) Paper Bids

(1) *If the Combined MBE/ WBE goal is more than zero,*

(a) 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.

(b) 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.

(c) 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 Combined MBE/WBE goal.

(2) *If the Combined MBE/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 a Combined MBE/WBE Goal, the firm is responsible for meeting the goal or making good faith efforts to meet the goal, just like any other bidder. In most cases, a MBE or WBE bidder on a contract will meet the Combined MBE/WBE goal 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.

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 Combined MBE/WBE goal 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 2:00 p.m. of the fifth calendar day following opening of bids, unless the fifth 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 10:00 a.m. 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 Combined MBE/WBE goal, or if the form is incomplete (i.e. both signatures are not present), the MBE/WBE participation will not count toward meeting the Combined MBE/WBE goal. If the lack of this participation drops the commitment below the Combined MBE/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 2:00 p.m. 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 10:00 a.m. on the next official state business day.

Banking MBE/WBE Credit

If the committed MBE/WBE participation submitted exceeds the algebraic sum of the Combined MBE/WBE goal by $1,000 or more, the excess will be placed on deposit by the Department for future use by the bidder. Separate accounts will be maintained for MBE and WBE participation and these may accumulate for a period not to exceed 24 months.

When the apparent lowest responsive bidder fails to submit sufficient participation by MBE and WBE firms to meet the advertised goal, as part of the good faith effort, the Department will consider allowing the bidder to withdraw funds to meet the Combined MBE/WBE goal as long as there are adequate funds available from the bidder's MBE and WBE bank accounts.

Submission of Good Faith Effort

If the bidder fails to meet or exceed the Combined MBE/WBE goal, the apparent lowest responsive bidder shall submit to the Department documentation of adequate good faith efforts made to reach that specific goal.

One complete set and **#Copies** copies of this information shall be received in the office of the Engineer no later than 2:00 p.m. of the fifth calendar day following opening of bids, unless the

fifth 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 10:00 a.m. 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 a Combined MBE/WBE Goal 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 that are also prequalified subcontractors. 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 Combined MBE/WBE goal 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 advertised goal when the work to be sublet includes potential for MBE/WBE participation (2nd and 3rd tier subcontractors).

(C) Providing interested certified MBEs/WBEs that are also prequalified subcontractors 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 the advertised goal 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 advertised goal, as long as such costs are reasonable. Also, the ability or desire of a prime contractor to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Bidding contractors are not, however, required to accept higher quotes from 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 the Business Opportunity and Work Force Development Unit at BOWD@ncdot.gov 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 advertised 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 Combined MBE/WBE goal.

(2) The bidders' past performance in meeting the contract goal.

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

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 the Combined MBE/WBE Goal

(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 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 anticipated MBE participation. The same holds

for work that a WBE subcontracts to another WBE firm. Work that a MBE/WBE subcontracts to a non-MBE/WBE firm does not count toward the contract goal requirement. 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 MBE or WBE participation breakdown. 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 firms and there is no interest or availability, and they can get assistance from other certified firms, the Engineer will not hold the prime responsible for meeting the individual MBE or WBE breakdown. 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.

(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) Manufacturer, Regular Dealer, Distributor

A Contractor may count toward its MBE/WBE requirement 40 percent of its expenditures for materials or supplies (including transportation costs) from a MBE/WBE distributor, 60 percent of its expenditures for materials or supplies (including transportation costs) from a MBE/WBE regular dealer and 100 percent of such expenditures obtained from a MBE/WBE manufacturer.

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

(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, regular dealer, nor a distributor count the entire amount of fees or commissions charged that the Department deems to be reasonable, including transportation charges for the delivery of materials or supplies. Do not count any portion of the cost of the materials and supplies themselves.

A Contractor will submit a completed *DBE Regular Dealer/Distributor Affirmation Form* with the Letter of Intent to the Engineer. The Engineer will forward to the State Contractor Utilization Engineer or DBE@ncdot.gov. The State Contractor Utilization Engineer will make a preliminary assessment as to whether a MBE/WBE supplier has the demonstrated capacity to perform a commercially useful function (CUF) on a contract-by-contract basis *prior* to its participation.

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 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 performing and the MBE/WBE credit claimed for its performance of the work, and any other relevant factors. If it is determined that a MBE or WBE is not performing a Commercially Useful Function, the contractor may present evidence to rebut this presumption to the Department.

(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 Combined MBE/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 participation breakdown. 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 responsible for meeting the individual MBE or WBE participation breakdown.

(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 subcontractor (or an approved substitute MBE or WBE subcontractor) to meet all or part of a contract goal requirement, the contractor shall not terminate the MBE/WBE subcontractor or any portion of its work 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.

The Contractor must give notice in writing both by certified mail and email to the MBE/WBE subcontractor, with a copy to the Engineer of its intent to request to terminate a MBE/WBE subcontractor or any portion of its work, and the reason for the request. The Contractor must give the MBE/WBE subcontractor five (5) business days to respond to the Contractor's Notice of Intent to Request Termination and/or Substitution. If the MBE/WBE subcontractor objects to the

intended termination/substitution, the MBE/WBE, within five (5) business days must advise the Contractor and the Department of the reasons why the action should not be approved. The five-day notice period shall begin on the next business day after written notice is provided to the MBE/WBE subcontractor.

A committed MBE/WBE subcontractor may only be terminated or any portion of its work after receiving the Department's written approval based upon a finding of good cause for the proposed termination and/or substitution. Good cause does not exist if the Contractor seeks to terminate a MBE/WBE or any portion of its work that it relied upon to obtain the contract so that the Contractor can self-perform the work for which the MBE/WBE was engaged, or so that the Contractor can substitute another MBE/WBE or non- MBE/WBE contractor after contract award. For purposes of this section, good cause shall include the following circumstances:

(a) The listed MBE/WBE subcontractor fails or refuses to execute a written contract;
(b) The listed MBE/WBE subcontractor fails or refuses to perform the work of its subcontract in a way consistent with normal industry standards. Provided, however, that good cause does not exist if the failure or refusal of the MBE/WBE subcontractor to perform its work on the subcontract results from the bad faith or discriminatory action of the prime contractor;
(c) The listed MBE/WBE subcontractor fails or refuses to meet the prime contractor's reasonable, nondiscriminatory bond requirements;
(d) The listed MBE/WBE subcontractor becomes bankrupt, insolvent, or exhibits credit unworthiness;
(e) The listed MBE/WBE subcontractor is ineligible to work on public works projects because of suspension and debarment proceedings pursuant to 2 CFR parts 180, 215 and 1200 or applicable State law;
(f) The listed MBE/WBE subcontractor is not a responsible contractor;
(g) The listed MBE/WBE voluntarily withdraws from the project and provides written notice of withdrawal;
(h) The listed MBE/WBE is ineligible to receive MBE/WBE credit for the type of work required;
(i) A MBE/WBE owner dies or becomes disabled with the result that the listed MBE/WBE contractor is unable to complete its work on the contract; and
(j) Other documented good cause that compels the termination of the MBE/WBE subcontractor.

The Contractor shall comply with the following for replacement of a committed MBE/WBE:

(A) Performance Related Replacement

When a committed MBE/WBE is terminated for good cause as stated above, an additional MBE/WBE that was submitted at the time of bid may be used to fulfill the MBE/WBE commitment to meet the Combined MBE/WBE Goal. A good faith effort will only be required for removing a committed MBE/WBE if there were no additional MBE/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 MBE/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 MBE/WBEs for specific subbids including, at a minimum:

(a) The names, addresses, and telephone numbers of MBE/WBEs who were contacted.
(b) A description of the information provided to MBE/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 MBE/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 but not the overall goal.

(i) If the MBE/WBE's ineligibility is caused solely by its having exceeded the size standard during the performance of the contract. The Department may continue to count participation equal to the remaining work performed by the decertified firm which will count toward the contract goal requirement and overall goal.

(ii) If the MBE/WBE's ineligibility is caused solely by its acquisition by or merger with a non- MBE/WBE during the performance of the contract. The Department may not continue to count the portion of the decertified firm's performance on the contract remaining toward either the contract goal or the overall goal, even if the Contractor has executed a subcontract with the firm or the Department has executed a prime contract with the MBE/WBE that was later decertified.

(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 MBE/WBE subcontractor to perform at least the same amount of work to meet the Combined 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).

All requests for replacement of a committed MBE/WBE firm shall be submitted to the Engineer for approval on Form RF-1 *(DBE Replacement Request).* If the Contractor fails to follow this procedure, the Contractor may be disqualified from further bidding for a period of up to 6 months.

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 through the Department's DBE Payment Tracking System.

Failure to Meet Contract Requirements

Failure to meet contract requirements in accordance with Subarticle 102-15(J) of the *Standard Specifications* may be cause to disqualify the Contractor.

MULTI-YEAR MAINTENANCE CONTRACTS (ID/IQ):
(4-20-21) (Rev. 4-19-22) SP1 G75

This contract is a multi-year maintenance contract let pursuant to the provisions of N.C. General Statute §136-28.1(b). No minimum quantity of services is guaranteed to be awarded bidders under this contract. In accordance with N.C. General Statute §136-28.1(b), an award in a maintenance contract may be for an amount less but shall not exceed $5,000,000 per year. No payments in excess of this amount will be disbursed, in accordance with the Statute.

RESTRICTIONS ON ITS EQUIPMENT AND SERVICES:
(11-17-20) SP01 G090

All telecommunications, video or other ITS equipment or services installed or utilized on this project must be in conformance with UNIFORM ADMINISTRATIVE REQUIREMENTS, COST PRINCIPLES, AND AUDIT REQUIREMENTS FOR FEDERAL AWARDS **2 CFR, § 200.216 Prohibition on certain telecommunications and video surveillance services or equipment.**

USE OF UNMANNED AIRCRAFT SYSTEM (UAS):
(8-20-19)(Rev. 8-19-25) SP1 G092

The Contractor shall adhere to all Federal, State and Local regulations and guidelines for the use of Unmanned Aircraft Systems (UAS). This includes but is not limited to US 14 CFR Part 107, NC GS 15A-300, all FAA rules, regulations and policies and all NCDOT UAS Policies. The required operator certifications include possessing a current Federal Aviation Administration (FAA) Remote Pilot Certificate, as well as operating a UAS registered with the FAA.

All UAS operations shall be approved by the Engineer prior to beginning the operations.

All contractors or subcontractors operating UAS shall have UAS specific general liability insurance to cover all operations under this contract.

The use of UAS is at the Contractor's discretion. No measurement or payment will be made for the use of UAS. In the event that the Department directs the Contractor to utilize UAS, payment will be in accordance with Article 104-7 Extra Work.

EQUIPMENT IDLING GUIDELINES:
(1-19-21) 107 SP1 G096

Exercise reduced fuel consumption and reduced equipment emissions during the construction of all work associated with this contract. Employees engaged in the construction of this project should turn off vehicles when stopped for more than thirty (30) minutes and off-highway equipment should idle no longer than fifteen (15) consecutive minutes.

These guidelines for turning off vehicles and equipment when idling do not apply to:

1. Idling when queuing.
2. Idling to verify the vehicle is in safe operating condition.
3. Idling for testing, servicing, repairing or diagnostic purposes.
4. Idling necessary to accomplish work for which the vehicle was designed (such as operating a crane, mixing concrete, etc.).
5. Idling required to bring the machine system to operating temperature.
6. Emergency vehicles, utility company, construction, and maintenance vehicles where the engines must run to perform needed work.
7. Idling to ensure safe operation of the vehicle.
8. Idling when the propulsion engine is providing auxiliary power for other than heating or air conditioning. (such as hydraulic systems for pavers)

9. When specific traffic, safety, or emergency situations arise.
10. If the ambient temperature is less than 32 degrees Fahrenheit. Limited idling to provide for the safety of vehicle occupants (e.g. to run the heater).
11. If the ambient temperature is greater than 90 degrees Fahrenheit. Limited idling to provide for the safety of vehicle occupants of off-highway equipment (e.g. to run the air conditioning) no more than 30 minutes.
12. Diesel powered vehicles may idle for up to 30 minutes to minimize restart problems.

Any vehicle, truck, or equipment in which the primary source of fuel is natural gas or electricity is exempt from the idling limitations set forth in this special provision.

COOPERATION BETWEEN CONTRACTORS:

(7-1-95)(Rev. 1-16-24) 105-7 SP1 G133

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

Locations shall be determined by the Engineer.

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.

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.

GUARANTEES:

(7-15-03)(Rev. 10-14-25) 108 SP1 G145R

The Contractor shall guarantee materials and workmanship against latent and patent defects arising from
faulty materials, faulty workmanship or negligence for a period of **5 years** following the date of final acceptance of the work for maintenance and shall replace such defective materials and workmanship without cost to the Department. The Contractor will not be responsible for damage due to normal wear and tear, for negligence on the part of the Department, or for use in excess of the design.

This guarantee shall be invoked only for major components of work in which the Contractor would be wholly responsible under the terms of the contract; examples would include but not be limited to soil nail wall components. This provision will not be used as a mechanism to force the Contractor to return to the project to make repairs or perform additional for which the

Department would normally compensate the Contractor. In addition, routine maintenance activities (i.e., mowing grass, debris removal, ruts in earth shoulders,) are not parts of this guarantee.

Appropriate provisions of the payment bonds (for **1 year**) and performance bonds (for **5 years**) shall cover this guarantee for the project.

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

DN12200754 Division Wide

PROJECT SPECIAL PROVISIONS

ROADWAY

10/21/2025

DN12200754 Division Wide

HORIZONTAL DRAINS:

(12-17-19)(Rev. 1-16-24) SP8 R17 Rev.

Description

Construct horizontal drains for slopes, rock cuts and retaining walls in accordance with the contract and Geotechnical Standard Detail No. 817.01. A horizontal drain typically consists of a slotted PVC pipe placed in a drilled hole inclined at an angle above horizontal but in some holes, the pipe may be omitted. Horizontal drains are required to drain water from slopes and rock cuts and from behind retaining walls at locations and elevations shown in the plans and as directed.

Materials

Refer to Division 10 of the *Standard Specifications*.

Item	Section
PVC Pipe	1044-6

Use solid and slotted PVC Schedule 40 or 80 pipes as shown in the plans for drain pipe. Provide slotted PVC pipes with 0.01" wide horizontal slots in the direction perpendicular to the pipe length and evenly spaced around and along pipe so that open area is at least 1 sq in per linear ft of pipe.

Construction Methods

The Engineer will determine the number, locations, elevations, inclination and lengths of horizontal drains required. The approximate known drain locations, elevations, inclination and lengths are shown in the plans. Drain pipe requirements including those drains without pipes will also be determined by the Engineer and known pipe information is shown in the plans.

Use drill rigs of the sizes necessary to install horizontal drains and with sufficient capacity to drill through whatever materials are encountered. Drilling through boulders, cobbles and rock lenses may be required but drilling in continuous intact weathered or hard rock as determined by the Engineer is not required unless drain pipe is omitted. Drill straight and clean holes with the dimensions and orientation shown in the plans or as directed. Drill holes within 6" of planned locations and elevations and 2° of required inclination.

For horizontal drains with drain pipes, do not insert PVC pipes into drill holes until hole locations, elevations, dimensions, inclination and cleanliness are approved. Insert drain pipes through hollow stem augers or into open clean drill holes. Do not vibrate, drive or otherwise force pipes into holes. If a drain pipe cannot be completely and easily inserted into a drill hole, remove the pipe and clean or redrill the hole.

Extend solid PVC sections of drain pipes out past slope face far enough to connect pipe to a drainage system or discharge water as directed. Seal all around drain pipe at collar of drill hole with a method acceptable to the Engineer. Record horizontal drain number, location, elevation and installation date, description of drilling conditions and completed drain pipe, if applicable, and

drill hole diameter, length and inclination for each horizontal drain and provide this information to the Engineer.

Measurement and Payment

Horizontal Drains (___) and *Horizontal Drains Without Pipes (___)* will be measured and paid in linear feet. Horizontal drains will be measured as the linear feet of hole drilled and no measurement will be made for any pipes installed in or extending out from drill holes.

The contract unit price for *Horizontal Drains (___)* will be full compensation for providing labor, tools, equipment and drain materials, drilling and removing cuttings, installing, connecting and sealing around drain pipes and supplying PVC pipes, pipe fittings, sealing materials and any incidentals necessary to construct horizontal drains. The contract unit price for *Horizontal Drains Without Pipes (___)* will be full compensation for the same except for pipe and sealing items.

Payment will be made under:

Pay Item	**Pay Unit**
Horizontal Drains (___)	Linear Foot
Horizontal Drains Without Pipes (___)	Linear Foot

PROJECT SPECIAL PROVISIONS

ROADWAY

CONES:

(3-19-24) 1135 SP11 R35

Revise the *Standard Specifications* as follows:

Page 11-11, Article 1135-3 CONSTRUCTION METHODS, lines 19-20, delete the third sentence of the first paragraph, "Do not use cones in the upstream taper of lane or shoulder closures for multi-lane roadways.".

FLAGGERS:

(12-17-24)(Rev. 12-23-25) 1150 SP11 R50

Revise Section 1150 of the *Standard Specification* as follows:

Page 11-13, Article 1150-1, DESCRIPTION, add the following after line 31:

Alternatively, at the discretion of the Contractor, the Contractor may furnish, install, place in operation, repair, maintain, relocate, and remove remotely controlled Automated Flagging Assistance Devices (AFAD) or Temporary Portable Traffic Signal units (PTS units) to assist, supplement, or replace human flaggers for one-lane, two-way traffic maintenance during construction in accordance with this provision and the *Standard Specifications*.

For the purpose of this provision, an "approach" refers to a single lane of traffic moving in one direction toward a point of control or work zone. Flaggers, AFAD and PTS units are only used to control one lane of approaching traffic in a specific direction.

Page 11-13, Article 1150-2, MATERIALS, add the following after line 34:

Provide documentation to the Engineer that the AFAD or PTS units meets or exceeds the requirements of this special provision and is on the NCDOT APL or ITS and Signals QPL.

(A) Automated Flagging Assistance Devices (AFAD)

(1) AFAD General

Cover the automated gate arm with Department approved Type VII, VIII or IX retroreflective sheeting of vertical alternating red and white stripes at 16 inch intervals measured horizontally. When the gate arm is in the down position the minimum vertical aspect of the arm and sheeting shall be 4 inches. The retroreflectorized sheeting shall be on both sides of the gate arm. With the AFAD parked or positioned 2 feet outside or in a location deemed acceptable for the lane being controlled, the gate arm shall reach at least to the center of the lane but shall not exceed the width of the lane being controlled.

Design the system to be fail-safe. Provide a conflict monitor, malfunction monitoring unit, or similar device that monitors for malfunctions and prevents the display of conflicting indications. This system shall be electronic and operated by remote control.

(2) AFAD Type I System: RED/YELLOW

Provide a Red/Yellow AFAD with at least one set of CIRCULAR RED and CIRCULAR YELLOW lenses in a vertical configuration that are 12 inches in diameter. The bottom of the housing (including brackets) shall be at least 7 feet (2.1 meters) above the pavement.

This system is required to have yellow 12 inch aluminum or polycarbonate vehicle signal heads with 10 inch tunnel visors, backplates, and Light Emitting Diode (LED) modules. Provide signal heads, backplates, and LED modules listed on the ITS and Signals QPL available on the Department's website.

Provide an automated gate arm on the AFAD that descends to a down position across the approaching lane of traffic when the **s**teady CIRCULAR RED lens is illuminated and then ascends to an upright position when the flashing CIRCULAR YELLOW lens is illuminated. The automated gate arm is to be designed such that if a motorist pulls underneath the gate arm while lowering, no damage to the vehicle occurs.

A STOP HERE ON RED (R10-6 or R10-6a) sign shall be installed on the right-hand side of the approach at the point at which drivers are expected to stop when the steady CIRCULAR RED lens is illuminated.

To stop traffic, the AFAD shall transition from the flashing CIRCULAR YELLOW lens by initiating a minimum 5 second steadily illuminated CIRCULAR YELLOW lens followed by the CIRCULAR RED lens.

Once the CIRCULAR RED lens is displayed, the system is to have a minimum 2 second delay between the time the steady CIRCULAR RED is displayed and the time the gate arm begins to lower. The maximum delay between CIRCULAR RED and the time the gate arm lowers is 4 seconds. To permit stopped road users to proceed, the AFAD shall display the flashing CIRCULAR YELLOW lens and the gate arm shall be placed in the upright position.

Ensure the system monitors for a lack of yellow or red signal voltage, total loss of indication in any direction, presence of multiple indications on any approach and low power conditions.

Additional sets of CIRCULAR RED and CIRCULAR YELLOW lenses located over the roadway or on the left side of the approach and operated in unison with the primary set, may be used to improve visibility of the AFAD. If the set of lenses is located over any portion of the roadway that can be used by motor vehicles, the bottom of the housing (including brackets) shall be at least 15 feet (4.6 meters) above the pavement.

(3) AFAD Type II System: STOP/SLOW

Provide STOP/SLOW signs that are octagonal in shape, made of rigid material, and at least 36 inch x 36 inch in size. Letters shall be a minimum of 8 inches high. The STOP face shall have a red background with white letters and border.

The SLOW face shall be diamond shaped, orange, or yellow background with black letters and border. Cover both faces in a Department approved Type VII, VIII or IX retroreflective sheeting. The minimum mounting height for the sign faces shall be 7 feet above the pavement to the bottom of the sign.

The AFAD's STOP/SLOW signs shall be supplemented with active conspicuity devices by incorporating a stop beacon (red lens) and a warning beacon (yellow lens). The stop beacon shall be no more than 24 inches above the STOP face. Mount the warning beacon no more than 24 inches above or beside of the SLOW face. Except for the mounting locations, the beacons shall conform to the provisions of Chapter 4L of the MUTCD and have 12 inch signal lenses.

Strobe/flashing lights are an acceptable alternative to flashing beacons. If utilized, they shall be either white or red flashing lights located within the STOP face and white or yellow flashing lights within the SLOW face and conform to the provisions of Chapter 6D of the MUTCD. If used, the lens diameter shall be a minimum of 5 inches with a minimum height of 6 inches. Equip strobes/flashing lights for both dual and quad flash patterns.

Type B warning lights shall not be used in lieu of the beacons or the strobe lights.

The faces of the AFADs STOP/SLOW sign may include louvers. If louvers are used, design the louvers such that the aspect of the sign face to approaching traffic is a full sign face at a distance of 50 feet or greater.

A WAIT ON STOP (R1-7) sign and a GO ON SLOW (R1-8) sign shall be displayed to traffic approaching the AFAD. Position signs on the same support structure as the AFAD. Both signs shall have black legends and borders on white Type III sheeting backgrounds. Each of these signs shall be rectangular in shape and be at least 24 inch x 30 inch size with letters at least 6 inches high.

Provide an automated gate arm on the AFAD that descends to a down position across the approaching lane of traffic when the STOP face is displayed and then ascends to an upright position when the SLOW face is displayed.

The automated gate arm is to be designed such that if a motorist pulls underneath the gate arm while lowering, no damage to the vehicle occurs.

A STOP HERE ON RED (R10-6 or R10-6a) sign shall be installed on the right-hand side of the approach at the point at which drivers are expected to stop when the STOP face is displayed.

When approaching motorists are to proceed, display the SLOW face and the warning beacon or strobes are to flash on the AFAD. When approaching motorists are will be stopped, display the STOP face and the stop beacon or strobes are to flash on the AFAD.

To stop traffic, the AFAD will transition from the SLOW face to the STOP face by initiating a minimum 5 second change cycle. First, the warning beacon is to be steadily illuminated for the change cycle. If strobes are used in lieu of a warning beacon, they are to be placed in the quad flash pattern. At the end of the change cycle, the STOP face is to be displayed with the stop beacon flashing and the warning beacon or strobes are to stop flashing. Once the STOP face is displayed, the system is to have a minimum 2 second delay between the time the STOP face is displayed and the time the gate arm begins to lower. The maximum delay between the time the STOP face is displayed and the time the gate arm lowers is 4 seconds.

To permit stopped road users to proceed, the gate arm shall be placed in the upright position and the AFAD shall display the SLOW face and the warning beacon or strobes are to flash in the dual flash pattern.

Do not flash the stop beacon when the SLOW face is displayed, and do not flash the warning beacon when the STOP face is displayed.

(B) Portable Traffic Signals (PTS) Units

Provide PTS units with at least one set of CIRCULAR RED, CIRCULAR YELLOW, and CIRCULAR GREEN lenses in a vertical configuration that are 12 inch diameter aluminum or polycarbonate vehicle signal heads with 10 inch tunnel visors, backplates, and Light Emitting Diode (LED) modules. All signal heads, tunnel visors, and backplates shall be yellow in color.

The bottom of the housing (including brackets) shall be at least 7 feet above the pavement for single set units. Additional signal heads on units with more than one signal head shall be capable of extending over the travel lane.

Communication Requirements

All PTS units within the signal set up systems shall maintain communication at all times by either hardwire cable or wireless radio link communication. If the hardwire cable communication is utilized the communication cable shall be deployed in a manner that will not intrude in the direct work area of the project or obstruct vehicular and pedestrian traffic. Utilize radio communication with 900MHz frequency band and frequency hopping capability. The radio link communication system shall have a minimum range of 1 mile.

Fault Mode Requirements

Revert PTS units to a flashing red mode upon system default unless otherwise specified by the Engineer. Equip the PTS units with a remote monitoring system. Where cell

communication availability exists, the remote monitoring system shall adhere to the remote monitoring system section of this provision.

Remote Monitoring System

The remote monitoring system (RMS) shall be capable of reporting signal location, battery voltage / battery history and system default. Provide a password protected website viewable from any computer with internet capability for the RMS. In the event of a system default, the RMS shall provide specific information concerning the cause of the system default (i.e. red lamp on signal number 1). Equip the RMS with a mechanism capable of immediately contacting a minimum of three previously designated individuals via text messaging and/or email upon a default.

The running program operating the PTS units shall be always available and viewable through the RMS website. Maintain a history of the RMS operating system in each signal including operating hours and events and the location of the PTS units.

Trailer / Cart

The AFAD and PTS units may be mounted on either a trailer or a moveable cart system.

Finish all exterior metal surfaces with Federal orange enamel per AMS-STD-595, color chip ID# 13538 or 12473 respectively with a minimum paint thickness of 2.5 mils (64 microns).

Design and test the AFAD or PTS units trailer / cart to withstand an 80 MPH wind load while in the operational position. Provide independent certification that the assembly meets the design wind load.

Equip the AFAD or PTS units with leveling jacks capable of stabilizing the unit in a horizontal position when located on slopes 6:1 or flatter.

Equip trailers in compliance with North Carolina Law governing motor vehicles and include a 12-volt trailer lighting system complying *with Federal Motor Carrier Safety Regulations 393*, safety chains and a minimum 2 inch ball hitch.

Provide a minimum 4 inch wide strip of fluorescent conspicuity sheeting retroreflective sheeting to the frame of the trailer. Apply the sheeting to all sides of the trailer. The sheeting shall meet the ASTM requirements of Type VII, VIII or IX.

Power System

Design the systems to operate both with and without an external power source. Furnish transmitters, generators, batteries, controls and all other components necessary to operate the device.

Provide equipment that is solar powered and supplemented with a battery backup system that includes a minimum 110/120 VAC powered on-board charging system capable of powering the

unit for 7 continuous days with no solar power. Each unit shall also be capable of being powered by standard 110/120 VAC power sources, if applicable.

Locate batteries and electronic controls in a locked, weather and vandal resistant housings.

Page 11-14, Article 1150-3, CONSTRUCTION METHODS, add the following after line 11:

Flaggers shall have a path to escape an errant approaching vehicle at all times, unimpeded by barrier, guardrail, guiderail, parked vehicles, construction materials, slopes steeper than 2:1, or any other obstruction at all times. If an unimpeded path cannot be maintained, the Contractor shall use AFAD or PTS units in lieu of a flagger.

Provide documentation to the Engineer prior to deploying the device that the AFAD or PTS units operator(s) are qualified flagger(s) that have been properly trained through an NCDOT approved training agency or other NCDOT approved training provider and that the qualified flagger(s) have received manufacturer training to operate that specific device. This training shall include proper installation, remote control operation, central control systems and maintenance of the AFAD or PTS units. The training shall take place off the project site where training conditions are removed from live traffic. The documentation shall include the names of the authorized trainer, the trainees, the device on which they have been trained and the date of the training. Provide updated documentation to the Engineer prior to deploying any additional operators.

Install advance warning signs and operate AFADs in accordance with the attached detail drawings in this provision.

Install advance warning signs and operate PTS units in accordance with *NCDOT Roadway Standard Drawings* No. 1101.02, Sheet 17.

AFAD and PTS units shall only be used in situations where there is only one lane of approaching traffic in the direction to be controlled. **At no time shall an AFAD unit controlling traffic through the work area be placed in an autonomous mode and/or left unattended.**

Signal timing and operation of PTS units shall be field verified and accepted by the Engineer before use.

Do not use AFAD or PTS units in locations where queueing from the AFAD or PTS units will extend to within 150 feet of a signalized intersection or railroad crossing. Do not use AFAD and PTS units as a substitute for or a replacement for a continuously operating temporary traffic control signal as described in Section 6F.84 of the MUTCD.

If used at night, illuminate each AFAD or PTS units as described in Section 6D of the MUTCD.

Provide a complete AFAD or PTS units that is capable of being relocated as traffic conditions demand.

If AFADs or PTS units become inoperative, be prepared at all times to replace the unit with the same type and model of AFAD or PTS units, revert to human flagging operations or terminate all

construction activities requiring the use of the AFAD or PTS units until the AFAD or PTS units become operative or qualified human flaggers are available.

When the work requiring the AFAD or PTS units is not pursued for 30 minutes or longer, power off each AFAD or PTS units. Removed the AFAD or PTS units from the travel lane and relocated to a minimum of 5 feet from the edge line. AFAD gate arms shall be in the upright position. Remove all traffic control devices from the road, place two cones by each AFAD or PTS units and all signs associated with the lane closure operation shall be removed or laid down. At the end of each workday, remove all AFADs or PTS units from the roadway and shoulder areas.

Ensure the system's wireless communication links continuously monitor and verify proper transmission and reception of data used to monitor and control each AFAD or PTS units. Ensure ambient mobile or other radio transmissions or adverse weather conditions do not affect the system.

In the event of a loss of communications, immediately display the flashing RED or STOP indication on all AFAD or PTS units.

AFAD Specific Construction Methods

The flagger/operator controlling the AFAD units shall be on the project site at all times. If multiple AFAD units are used, one AFAD unit shall be the Main AFAD unit and all other units shall be remote AFAD units. Ensure that each device meets the physical display and operational characteristics as specified in the MUTCD.

Multiple AFAD units may be controlled with **one** flagger/operator when the AFAD units meet each of the following requirements:

(1) AFAD units are spaced no greater than the manufacturer's recommendations.

(2) Both AFAD units can be seen at the same time from the flagger/operator's position, or the AFAD is operating on its own secure network with malfunction detection and notification to the flagger/operator.

(3) The flagger/operator has an unobstructed view of approaching traffic in both directions from the flagger/operator position or the AFAD is operating on its own secure network, with cameras that provide the flagger/operator an unobstructed view of approaching traffic from both directions. The flagger/operator may control the AFAD units from a pilot vehicle.

If any of the above requirements are not met, flagger/operator control each AFAD unit.

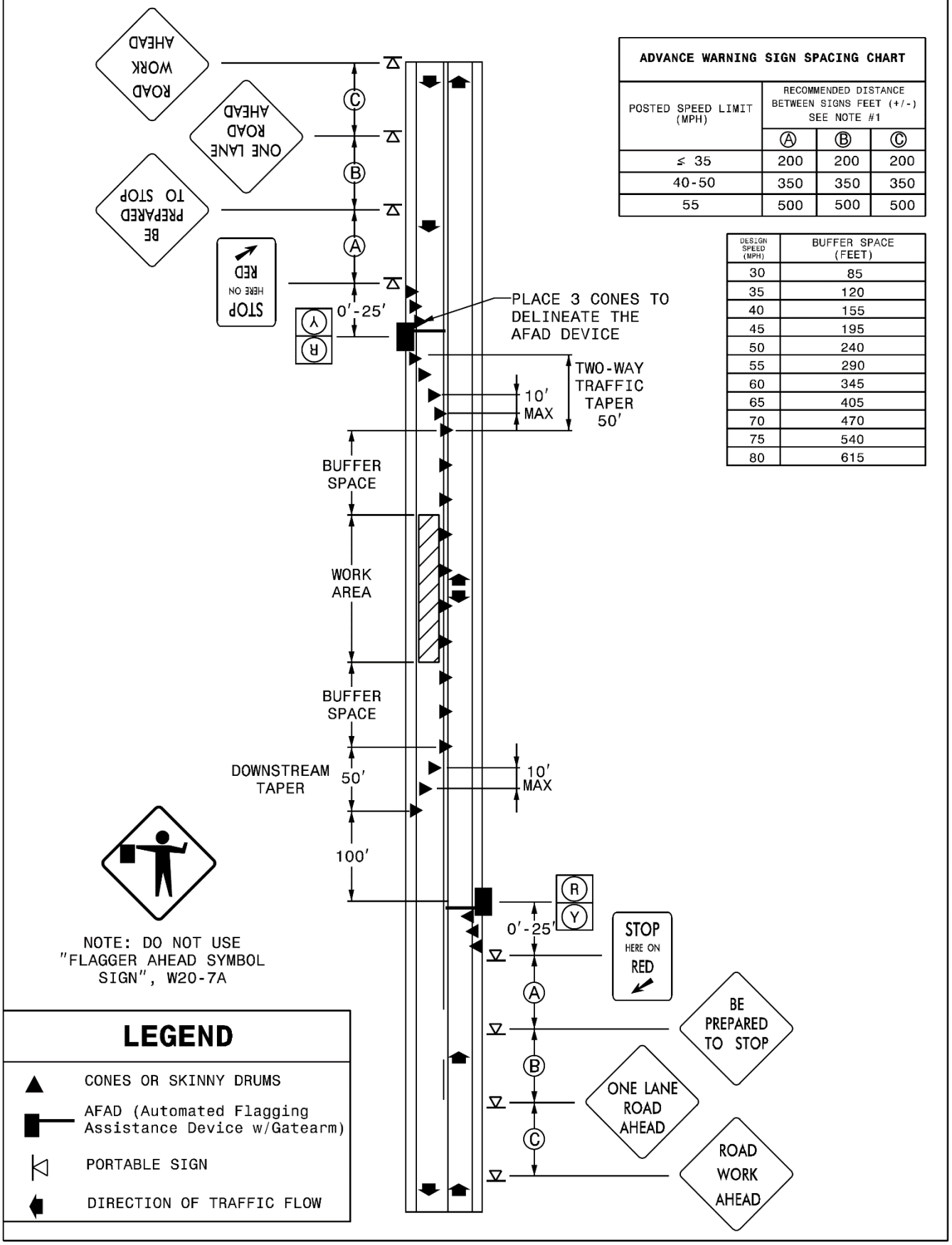
AFAD operators may either control traffic at side streets or driveways between the AFAD units or operate the pilot car while operating the AFAD system if approved by the Engineer. AFAD units must continue to be within clear sight of the operator during these work activities.

Page 11-14, Article 1150-4, MEASUREMENT AND PAYMENT, add the following after line 24:

Each AFAD or PTS unit will be measured and paid for as *Flaggers* paid by day in accordance with Article 1150-4 of the *Standard Specifications*. Where the pay item for *Flaggers* is not included in the original contract then no separate payment will be made for this item and payment will be included in the lump sum price bid for *Temporary Traffic Control* found elsewhere in this contract. Each approach controlled by AFAD or PTS units will be measured and paid as one flagger, irrespective of the number of devices used. If multiple PTS units are required to control a single approach, these units will collectively be considered as replacing one flagger.

No separate measurement or payment will be made for AFAD or PTS unit operators, as the cost of such including their training and operational costs shall be included in the unit or lump sum price for *Flaggers* or *Temporary Traffic Control*. Such price and payment also includes the relocation, maintenance, and removal during repair periods of AFAD or PTS units as well as the signal controller, communication, vehicle detection system, traffic signal software of PTS units and any other incidentals necessary to complete the work.

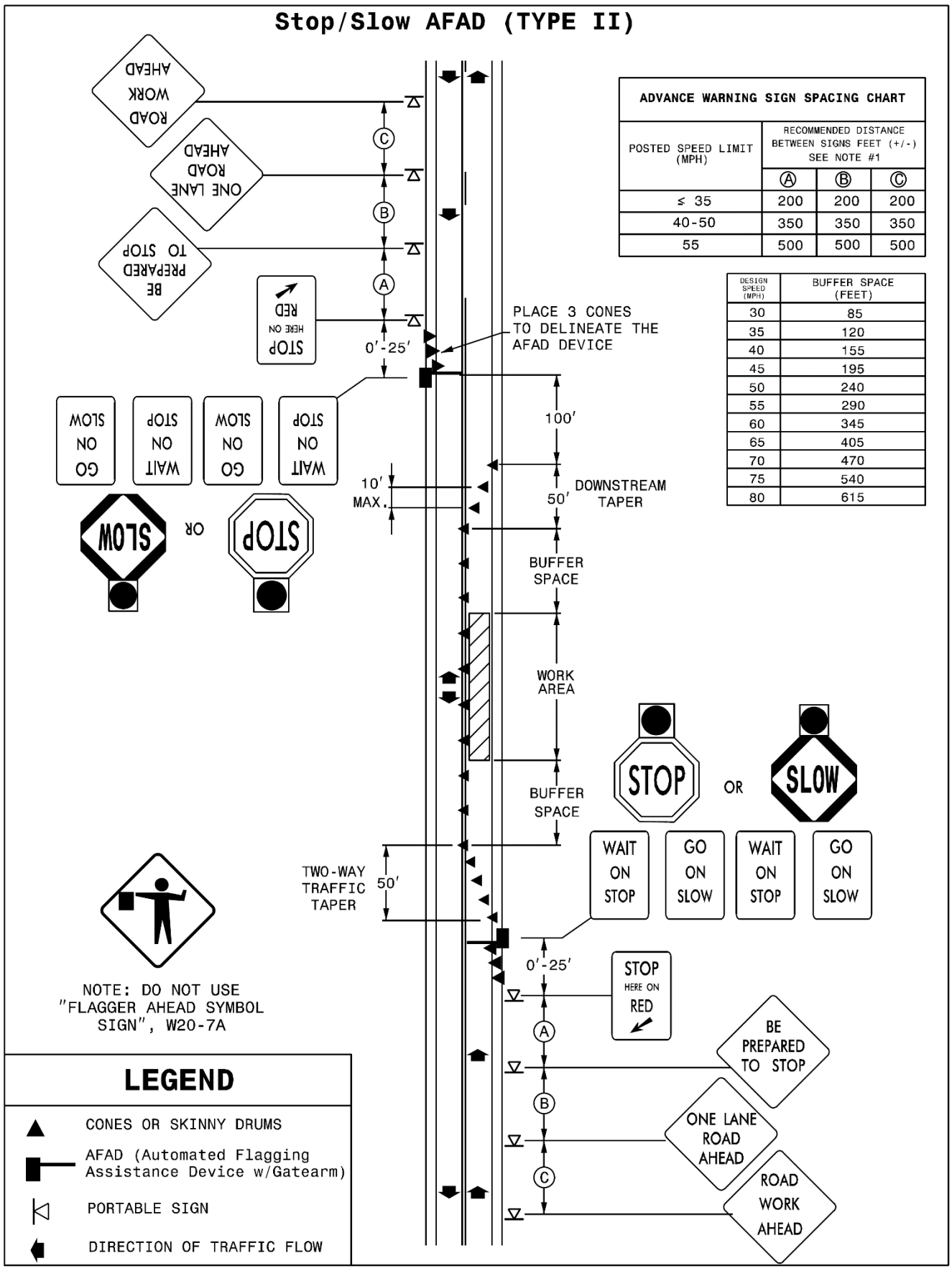
Red/Yellow Lens AFAD (TYPE I)



ADVANCE WARNING SIGN SPACING CHART			
POSTED SPEED LIMIT (MPH)	RECOMMENDED DISTANCE BETWEEN SIGNS FEET (+/-) SEE NOTE #1		
	Ⓐ	Ⓑ	Ⓒ
≤ 35	200	200	200
40-50	350	350	350
55	500	500	500

DESIGN SPEED (MPH)	BUFFER SPACE (FEET)
30	85
35	120
40	155
45	195
50	240
55	290
60	345
65	405
70	470
75	540
80	615

Stop/Slow AFAD (TYPE II)



ADVANCE WARNING SIGN SPACING CHART

POSTED SPEED LIMIT (MPH)	RECOMMENDED DISTANCE BETWEEN SIGNS FEET (+/-) SEE NOTE #1		
	Ⓐ	Ⓑ	Ⓒ
≤ 35	200	200	200
40-50	350	350	350
55	500	500	500

DESIGN SPEED (MPH)	BUFFER SPACE (FEET)
30	85
35	120
40	155
45	195
50	240
55	290
60	345
65	405
70	470
75	540
80	615

NOTE: DO NOT USE "FLAGGER AHEAD SYMBOL SIGN", W20-7A

LEGEND

- ▲ CONES OR SKINNY DRUMS
- AFAD (Automated Flagging Assistance Device w/Gatearm)
- PORTABLE SIGN
- DIRECTION OF TRAFFIC FLOW

STANDARD SPECIAL PROVISION
AVAILABILITY OF FUNDS – TERMINATION OF CONTRACTS

(5-20-08)(Rev. 1-16-24) 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(D) of the *Standard Specifications*.

STANDARD SPECIAL PROVISION
ERRATA

(1-16-24)(Rev. 12-23-25) Z-4

Revise the *2024 Standard Specifications* as follows:

Division 1

Page 1-36, Subarticle 104-12(B) Evaluation of Proposals, line 21, replace "Design-Build Unit" with "Alternative Delivery Unit".

Page 1-36, Subarticle 104-12(D) Preliminary Review, line 37, replace "Design-Build Unit" with "Alternative Delivery Unit".

Page 1-37, Subarticle 104-12(E) Final Proposal, line 3, replace "Design-Build Unit" with "Alternative Delivery Unit".

Page 1-37, Subarticle 104-12(F) Design-Build VEPs, line 36, replace "Design-Build Unit" with "Alternative Delivery Unit".

Page 1-38, Subarticle 104-12(G) Modifications, line 1, replace "Design-Build Unit" with "Alternative Delivery Unit".

Division 3

Page 3-5, Article 305-2 MATERIALS, after line 16, replace " 1032-3(A)(7)" with "1032-3" and add the item "Galvanized Corrugated Steel Pipe" with Section "1032-3".

Page 3-6, Article 310-2 MATERIALS, after line 9, add the item "Galvanized Corrugated Steel Pipe" with Section "1032-3".

Division 6

Page 6-15, Article 610-1 DESCRIPTION, line 20, replace "The work includes" with "The work includes, but is not limited to,".

Page 6-15, Article 610-1 DESCRIPTION, line 22, replace "applying the tack coat as specified." with "applying the tack coat in accordance with Section 605.".

Page 6-30, Article 610-14 DENSITY ACCEPTANCE, line 39, replace "QC process." with "QC process in accordance with Section 609.".

Page 6-31, Article 610-16 MEASUREMENT AND PAYMENT, line 13, replace "*Hot Mix Asphalt Pavement*" with "*Asphalt Concrete* _____ *Course, Type* _____".

Page 6-50, Subarticle 661-4(A) Equipment, lines 4-7, replace the first two sentences of the seventh paragraph with the following:

When an erected fixed stringline is utilized for longitudinal profile and cross slope control furnish and erect the necessary guide line for the equipment.

Division 8

Page 8-27, Article 846-1 DESCRIPTION, line 8, delete “4 inch” from the first paragraph.

Division 9

Page 9-17, Article 904-4 MEASUREMENT AND PAYMENT, prior to line 1, replace " Sign Erection, Relocate Type (Ground Mounted)” with “Sign Erection, Relocate Type ___ (Ground Mounted)”.

Division 10

Page 10-51, Article 1024-4 WATER, prior to line 1, delete the “unpopulated blank row” in Table 1024-2 between “Time of set, deviation from control” and “Chloride Ion Content, Max.”.

Page 10-170, Subarticle 1081-1(C) Requirements, line 4, replace "maximum” with “minimum”.

Division 11

Page 11-15, Article 1160-4 MEASUREMENT AND PAYMENT, line 24, replace “Where barrier units are moved more than one” with “Where barrier units are moved more than once”.

Division 15

Page 15-10, Article 1515-4 MEASUREMENT AND PAYMENT, lines 11, replace " All piping” with “All labor, the manhole, other materials, excavation, backfilling, piping”.

Division 16

Page 16-14, Article 1633-5 MEASUREMENT AND PAYMENT, line 20-24 and prior to line 25, delete and replace with the following " *Flocculant* will be measured and paid in accordance with Article 1642-5 applied to the temporary rock silt checks.”

Page 16-3, Article 1609-2 MATERIALS, after line 26, replace "Type 4” with “Type 4a”.

Page 16-25, Article 1644-2 MATERIALS, after line 22, replace "Type 4” with “Type 4a”.

Division 17

Page 17-15, Article 1715-4 MEASUREMENT AND PAYMENT, line 23, delete and replace "1.25" with "1-1/4".

Page 17-15, Article 1715-4 MEASUREMENT AND PAYMENT, line 24, delete and replace ")(1.25" with ", 1-1/4".

PLANT AND PEST QUARANTINES

(Imported Fire Ant, Guava Root Knot Nematode, Spongy Moth (formerly known as gypsy moth), Witchweed, Cogon Grass, And Any Other Regulated Noxious Weed or Plant Pest)

(3-18-03)(Rev. 3-18-25) 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, 919-707-3730, or *https://www.ncagr.gov/divisions/plant-industry/plant-protection/plant-industry-plant-pest-quarantines* 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 present a hazard of spreading imported fire ant, guava root knot nematode, spongy moth (formerly known as gypsy moth), witchweed, cogon grass, or other regulated noxious weed or plant pest.

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

TITLE VI AND NONDISCRIMINATION:

(6-28-77)(Rev 1/16/2024) Z-6

The North Carolina Department of Transportation is committed to carrying out the U.S. Department of Transportation's policy of ensuring nondiscrimination in the award and administration of contracts.

The provisions of this section related to United States Department of Transportation (US DOT) Order 1050.2A, Title 49 Code of Federal Regulations (CFR) part 21, 23 United States Code (U.S.C.) 140 and 23 CFR part 200 (or 49 CFR 303, 49 U.S.C. 5332 or 49 U.S.C. 47123) are applicable to all North Carolina Department of Transportation (NCDOT) contracts and to all related subcontracts, material supply, engineering, architectural and other service contracts, regardless of dollar amount. Any Federal provision that is specifically required not specifically set forth is hereby incorporated by reference.

(1) **Title VI Assurances (USDOT Order 1050.2A, Appendix A)**

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

(a) Compliance with Regulations

The contractor (hereinafter includes consultants) shall comply with the Acts and the Regulations relative to Nondiscrimination in Federally-assisted programs of the U.S. Department of Transportation, Federal Highway Administration (FHWA), as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.

(b) Nondiscrimination

The contractor, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor shall not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.

(c) Solicitations for Subcontractors, Including Procurements of Materials and Equipment

In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier shall be notified by the contractor of the contractor's obligations under this contract and the Acts and the Regulations relative to Nondiscrimination on the grounds of race, color, or national origin.

(d) Information and Reports

The contractor shall provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be

determined by the Recipient or the FHWA to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the contractor shall so certify to the Recipient or the FHWA, as appropriate, and shall set forth what efforts it has made to obtain the information.

(e) Sanctions for Noncompliance:

In the event of a contractor's noncompliance with the Non-discrimination provisions of this contract, the Recipient will impose such contract sanctions as it and/or the FHWA may determine to be appropriate, including, but not limited to:

(i) Withholding payments to the contractor under the contract until the contractor complies; and/or

(ii) Cancelling, terminating, or suspending a contract, in whole or in part.

(f) Incorporation of Provisions

The contractor shall include the provisions of paragraphs (a) through (f) in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor shall take action with respect to any subcontract or procurement as the Recipient or the FHWA may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

(2) **Title VI Nondiscrimination Program (23 CFR 200.5(p))**

The North Carolina Department of Transportation (NCDOT) has assured the USDOT that, as a condition to receiving federal financial assistance, NCDOT will comply with Title VI of the Civil Rights Act of 1964 and all requirements imposed by Title 49 CFR part 21 and related nondiscrimination authorities to ensure that no person shall, on the ground of race, color, national origin, limited English proficiency, sex, age, or disability (including religion/creed or income-level, where applicable), be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any programs, activities, or services conducted or funded by NCDOT. Contractors and other organizations under contract or agreement with NCDOT must also comply with Title VI and related authorities, therefore:

(a) During the performance of this contract or agreement, contractors (e.g., subcontractors, consultants, vendors, prime contractors) are responsible for complying with NCDOT’s Title VI Program. Contractors are not required to prepare or submit Title VI Programs. To comply with this section, the prime contractor shall:

1. Post NCDOT’s Notice of Nondiscrimination and the Contractor’s own Equal Employment Opportunity (EEO) Policy in conspicuous locations accessible to all employees, applicants and subcontractors on the jobsite.

2. Physically incorporate the required Title VI clauses into all subcontracts on federally-assisted and state-funded NCDOT projects, and ensure inclusion by subcontractors into all lower-tier subcontracts.

3. Required Solicitation Language. The Contractor shall include the following notification in all solicitations for bids and requests for work or material, regardless of funding source:

   "The North Carolina Department of Transportation, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 US.C. §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders that it will affirmatively ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award. In accordance with other related nondiscrimination authorities, bidders and contractors will also not be discriminated against on the grounds of sex, age, disability, low-income level, creed/religion, or limited English proficiency in consideration for an award."

4. Physically incorporate the FHWA-1273, in its entirety, into all subcontracts and subsequent lower tier subcontracts on Federal-aid highway construction contracts only.

5. Provide language assistance services (i.e., written translation and oral interpretation), free of charge, to LEP employees and applicants. Contact NCDOT OCR for further assistance, if needed.

6. For assistance with these Title VI requirements, contact the NCDOT Title VI Nondiscrimination Program at 1-800-522-0453.

(b) Subrecipients (e.g. cities, counties, LGAs, planning organizations) may be required to prepare and submit a Title VI Plan to NCDOT, including Title VI Assurances and/or agreements. Subrecipients must also ensure compliance by their contractors and subrecipients with Title VI. (23 CFR 200.9(b)(7))

(c) If reviewed or investigated by NCDOT, the contractor or subrecipient agrees to take affirmative action to correct any deficiencies found within a reasonable time period, not to exceed 90 calendar days, unless additional time is granted by NCDOT. (23 CFR 200.9(b)(15))

(d) The Contractor is responsible for notifying subcontractors of NCDOT's External Discrimination Complaints Process.

1. Applicability

   Title VI and related laws protect participants and beneficiaries (e.g., members of the public and contractors) from discrimination by NCDOT employees, subrecipients and contractors, regardless of funding source.

2. Eligibility

   Any person—or class of persons—who believes he/she has been subjected to discrimination based on race, color, national origin, Limited English Proficiency (LEP), sex, age, or disability (and religion in the context of employment, aviation, or transit) may file a written complaint. The law also prohibits intimidation or retaliation of any sort.

3. Time Limits and Filing Options

   Complaints may be filed by the affected individual(s) or a representative and must be filed no later than 180 calendar days after the following:

   (i) The date of the alleged act of discrimination; or

   (ii) The date when the person(s) became aware of the alleged discrimination; or

   (iii) Where there has been a continuing course of conduct, the date on which that conduct was discontinued or the latest instance of the conduct.

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

   - North Carolina Department of Transportation, Office of Civil Rights, Title VI Program, 1511 Mail Service Center, Raleigh, NC 27699-1511; toll free 1-800-522-0453
   - Federal Highway Administration, North Carolina Division Office, 310 New Bern Avenue, Suite 410, Raleigh, NC 27601, 919-747-7010
   - US Department of Transportation, Departmental Office of Civil Rights, External Civil Rights Programs Division, 1200 New Jersey Avenue, SE, Washington, DC 20590; 202-366-4070

4. Format for Complaints

   Complaints must be in writing and signed by the complainant(s) or a representative, and include the complainant's name, address, and telephone number. Complaints received by fax or e-mail will be acknowledged and processed. Allegations received by telephone will be reduced to writing and provided to the complainant for confirmation or revision before processing. Complaints will be accepted in other languages, including Braille.

5. Discrimination Complaint Form

   Contact NCDOT Civil Rights to receive a full copy of the Discrimination Complaint Form and procedures.

6. Complaint Basis

   Allegations must be based on issues involving race, color, national origin (LEP), sex, age, disability, or religion (in the context of employment, aviation or transit). "Basis" refers to the complainant's membership in a protected group category.

TABLE 103-1
COMPLAINT BASIS

Protected Categories	Definition	Examples	Applicable Nondiscrimination Authorities
Race and Ethnicity	An individual belonging to one of the accepted racial groups; or the perception, based usually on physical characteristics that a person is a member of a racial group	Black/African American, Hispanic/Latino, Asian, American Indian/Alaska Native, Native Hawaiian/Pacific Islander, White	Title VI of the Civil Rights Act of 1964; 49 CFR Part 21; 23 CFR 200; 49 U.S.C. 5332(b); 49 U.S.C. 47123. *(Executive Order 13166)*
Color	Color of skin, including shade of skin within a racial group	Black, White, brown, yellow, etc.	
National Origin *(Limited English Proficiency)*	Place of birth. Citizenship is not a factor. (*Discrimination based on language or a person's accent is also covered)*	Mexican, Cuban, Japanese, Vietnamese, Chinese	
Sex	Gender. The sex of an individual. *Note:* Sex under this program does not include sexual orientation.	Women and Men	1973 Federal-Aid Highway Act; 49 U.S.C. 5332(b); 49 U.S.C. 47123.
Age	Persons of any age	21-year-old person	Age Discrimination Act of 1975 49 U.S.C. 5332(b); 49 U.S.C. 47123.
Disability	Physical or mental impairment, permanent or temporary, or perceived.	Blind, alcoholic, para-amputee, epileptic, diabetic, arthritic	Section 504 of the Rehabilitation Act of 1973; Americans with Disabilities Act of 1990
Religion (in the context of employment) *(Religion/ Creed in all aspects of any aviation or transit-related construction)*	An individual belonging to a religious group; or the perception, based on distinguishable characteristics that a person is a member of a religious group. In practice, actions taken as a result of the moral and ethical beliefs as to what is right and wrong, which are sincerely held with the strength of traditional religious views. ***Note:*** Does not have to be associated with a recognized religious group or church; if an individual sincerely holds to the belief, it is a protected religious practice.	Muslim, Christian, Sikh, Hindu, etc.	Title VII of the Civil Rights Act of 1964; 23 CFR 230; FHWA-1273 Required Contract Provisions. *(49 U.S.C. 5332(b);* *49 U.S.C. 47123)*

(3) **Pertinent Nondiscrimination Authorities**

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

(a) Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d et seq., 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin); and 49 CFR Part 21.

(b) The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);

(c) Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 et seq.), (prohibits discrimination on the basis of sex);

(d) Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 et seq.), as amended, (prohibits discrimination on the basis of disability) and 49 CFR Part 27;

(e) The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 et seq.), (prohibits discrimination on the basis of age);

(f) Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);

(g) The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);

(h) Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131-12189) as implemented by Department of Transportation regulations at 49 C.F.R. parts 37 and 38;

(i) The Federal Aviation Administration's Nondiscrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);

(j) Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures Nondiscrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;

(k) Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of Limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);

(l) Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 et seq).

(m) Title VII of the Civil Rights Act of 1964 (42 U.S.C. § 2000e et seq., Pub. L. 88-352), (prohibits employment discrimination on the basis of race, color, religion, sex, or national origin).

(4) **Additional Title VI Assurances**

***The following Title VI Assurances (Appendices B, C and D) shall apply, as applicable*

(a) Clauses for Deeds Transferring United States Property (1050.2A, Appendix B)

The following clauses will be included in deeds effecting or recording the transfer of real property, structures, or improvements thereon, or granting interest therein from the United States pursuant to the provisions of Assurance 4.

NOW, THEREFORE, the U.S. Department of Transportation as authorized by law and upon the condition that the North Carolina Department of Transportation (NCDOT) will accept title to the lands and maintain the project constructed thereon in accordance with the North Carolina General Assembly, the Regulations for the Administration of the Federal-Aid Highway Program, and the policies and procedures prescribed by the Federal Highway Administration of the U.S. Department of Transportation in accordance and in compliance with all requirements imposed by Title 49, Code of Federal Regulations, U.S. Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Nondiscrimination in Federally-assisted programs of the U.S Department of Transportation pertaining to and effectuating the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252; 42 U.S.C. § 2000d to 2000d-4), does hereby remise, release, quitclaim and convey unto the NCDOT all the right, title and interest of the U.S. Department of Transportation in and to said lands described in Exhibit A attached hereto and made a part hereof.

(HABENDUM CLAUSE)

TO HAVE AND TO HOLD said lands and interests therein unto the North Carolina Department of Transportation (NCDOT) and its successors forever, subject, however, to the covenants, conditions, restrictions and reservations herein contained as follows, which will remain in effect for the period during which the real property or structures are used for a purpose for which Federal financial assistance is extended or for another purpose involving the provision of similar services or benefits and will be binding on the NCDOT, its successors and assigns.
The NCDOT, in consideration of the conveyance of said lands and interests in lands, does hereby covenant and agree as a covenant running with the land for itself, its successors and assigns, that (1) no person will on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination with regard to any facility located wholly or in part on, over, or under such lands hereby conveyed [,] [and]* (2) that the NCDOT will use the lands and interests in lands and interests in lands so conveyed, in compliance with all requirements imposed by or pursuant to Title 49, Code of Federal Regulations, U.S. Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation, Effectuation of Title VI of the Civil Rights Act of 1964, and as said Regulations and Acts may be amended [, and (3) that in the event of breach of any of the above-mentioned nondiscrimination conditions, the Department will have a right to enter or re-enter said lands and facilities on said land, and that above described land and facilities will thereon revert to and vest in and become the absolute property of the U.S. Department of Transportation and its assigns as such interest existed prior to this instruction].*

(*Reverter clause and related language to be used only when it is determined that such a clause is necessary in order to make clear the purpose of Title VI.)

(b) Clauses for Transfer of Real Property Acquired or Improved Under the Activity, Facility, or Program (1050.2A, Appendix C)

The following clauses will be included in deeds, licenses, leases, permits, or similar instruments entered into by the North Carolina Department of Transportation (NCDOT) pursuant to the provisions of Assurance 7(a):

1. The (grantee, lessee, permittee, etc. as appropriate) for himself/herself, his/her heirs, personal representatives, successors in interest, and assigns, as a part of the consideration hereof, does hereby covenant and agree [in the case of deeds and leases add "as a covenant running with the land"] that:

   (i.) In the event facilities are constructed, maintained, or otherwise operated on the property described in this (deed, license, lease, permit, etc.) for a purpose for which a U.S. Department of Transportation activity, facility, or program is extended or for another purpose involving the provision of similar services or benefits, the (grantee, licensee, lessee, permittee, etc.) will maintain and operate such facilities and services in compliance with all requirements imposed by the Acts and Regulations (as may be amended) such that no person on the grounds of race, color, or national origin, will be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination in the use of said facilities.

2. With respect to licenses, leases, permits, etc., in the event of breach of any of the above Nondiscrimination covenants, the NCDOT will have the right to terminate the (lease, license, permit, etc.) and to enter, re-enter, and repossess said lands and facilities thereon, and hold the same as if the (lease, license, permit, etc.) had never been made or issued. *

3. With respect to a deed, in the event of breach of any of the above Nondiscrimination covenants, the NCDOT will have the right to enter or re-enter the lands and facilities thereon, and the above described lands and facilities will there upon revert to and vest in and become the absolute property of the NCDOT and its assigns. *

(*Reverter clause and related language to be used only when it is determined that such a clause is necessary to make clear the purpose of Title VI.)

(c) Clauses for Construction/Use/Access to Real Property Acquired Under the Activity, Facility or Program (1050.2A, Appendix D)

The following clauses will be included in deeds, licenses, permits, or similar instruments/ agreements entered into by the North Carolina Department of Transportation (NCDOT) pursuant to the provisions of Assurance 7(b):

1. The (grantee, licensee, permittee, etc., as appropriate) for himself/herself, his/her heirs, personal representatives, successors in interest, and assigns, as a part of the consideration hereof, does hereby covenant and agree (in the case of deeds and leases add, "as a covenant running with the land") that (1) no person on the ground of race, color, or national origin, will be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination in the use of said facilities, (2) that in the construction of any improvements on, over, or under such land, and the furnishing of services thereon, no person on the ground of race, color, or national origin, will be excluded from participation in, denied the benefits of, or otherwise be subjected to discrimination, (3) that the (grantee, licensee, lessee, permittee, etc.) will use the premises in compliance with all other requirements imposed by or pursuant to the Acts and Regulations, as amended, set forth in this Assurance.
2. With respect to (licenses, leases, permits, etc.), in the event of breach of any of the above Non¬ discrimination covenants, the NCDOT will have the right to terminate the (license, permit, etc., as appropriate) and to enter or re-enter and repossess said land and the facilities thereon, and hold the same as if said (license, permit, etc., as appropriate) had never been made or issued. *
3. With respect to deeds, in the event of breach of any of the above Nondiscrimination covenants, the NCDOT will there upon revert to and vest in and become the absolute property of the NCDOT and its assigns. *

(*Reverter clause and related language to be used only when it is determined that such a clause is necessary to make clear the purpose of Title VI.)

STANDARD SPECIAL PROVISION

ON-THE-JOB TRAINING

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

Description

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

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

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

Minorities and Women

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

Assigning Training Goals

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

Training Classifications

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

Equipment Operators	Office Engineers
Truck Drivers	Estimators
Carpenters	Iron / Reinforcing Steel Workers
Concrete Finishers	Mechanics
Pipe Layers	Welders

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

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

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

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

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

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

Records and Reports

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

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

Trainee Interviews

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

Trainee Wages

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

60 percent	of the journeyman wage for the first half of the training period
75 percent	of the journeyman wage for the third quarter of the training period
90 percent	of the journeyman wage for the last quarter of the training period

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

Achieving or Failing to Meet Training Goals

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

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

Measurement and Payment

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

DN12200754 Division Wide

PROJECT SPECIAL PROVISIONS

GEOTECHNICAL

TABLE OF CONTENTS

10/21/2025

GT-2

DN12200754 Division Wide

DESIGN PLAN SUBMITTAL:

Description

The work consists of providing a plan submittal reflecting the design for geotechnical stabilization work.

Submittal Method

The Contractor shall submit an electronic copy in PDF format of plans and calculations to the Engineer for review and approval in accordance with Section 105-2 of the *Standard Specifications*. When a prequalification classification exists, use a NCDOT prequalified design consultant, or prequalified in-house staff, to prepare geotechnical stabilization designs and calculations. Otherwise, prepare and seal the plans and calculations using a North Carolina Registered Professional Engineer.

Measurement and Payment

Design Plan Submittal will be measured and paid for as the complete design, as submitted in working drawings for each site requiring geotechnical stabilization.

Payment will be made under:

Pay Item	Pay Unit
Design Plan Submittal	Each

HIGH REACH DRILLING:

Description

High reach drilling is defined by drilling activities that require reaches in excess of 25 feet above or 15 feet below working platforms (i.e. road grades). High reach drilling for rock bolts, rock anchors, or soil nails will be accomplished by either using limited access drills or a high reach excavator, depending on site conditions, access and availability of equipment.

Measurement and Payment

High Reach Drilling will be measured by per linear foot of drilling within site areas defined in the reach descriptions above. Conditions meeting the *High Reach Drilling* descriptions will be applied in addition to any drilling line item needed for the design.

Ex 1) A Rock Bolt installed using Rope Access =
[High Reach Drilling per linear foot x 20'] + [unit price for Rock Bolts]

Ex 2) A Soil Nail up to 30' installed 30' above roadway =
[High Reach Drilling per linear foot x 30'] + [unit price for Soil Nail up to 30']

Payment at the per linear foot contract unit price shall be full compensation for all labor, equipment, and incidentals to perform high reach drilling. NCDOT will not make payment for materials on site and not installed.

Payment will be made under:

Pay Item	Pay Unit
High Reach Drilling	Linear Foot

LIMITED ACCESS DRILLING:

Description
Limited access drilling is defined by drilling activities that require rope access to install rock bolts, rock anchors, or soil nails.

Measurement and Payment
Limited Access Drilling will be measured by per linear foot of drilling using rope access. Conditions meeting the *Limited Access Drilling* description will be applied in addition to any drilling line item needed for the design.

Ex 1) A Rock Bolt installed using Rope Access =
[Limited Access Drilling per linear foot x 20'] + [unit price for Rock Bolts]

Ex 2) A Soil Nail up to 30' installed 30' above roadway =
[Limited Access Drilling per linear foot x 30'] + [unit price for Soil Nail up to 30']

Payment at the per linear foot contract unit price shall be full compensation for all labor, equipment, and incidentals to perform high reach drilling. NCDOT will not make payment for materials on site and not installed.

Payment will be made under:

Pay Item	Pay Unit
Limited Access Drilling	Linear Foot

GT-4

DN12200754 Division Wide

GEOSYNTHETIC REINFORCED WALL:

Description

The work consists of constructing geosynthetic reinforced walls.

Materials

CMU blocks shall meet the requirements of Article 1040-2 of the Standard Specifications.

Backfill shall meet the requirements of Section 1016 of the Standard Specifications for Class IV Select Material. Compaction shall be at least 95% of AASHTO T-180.

Geotextile shall be per design but in no case shall have less than an ultimate wide width strip tensile strength of 2400 pounds per foot.

Method of Construction

Geosynthetic Reinforced Walls may be used in conjunction with soil nails/micro piles and/or shotcrete to create a wider roadway platform or to construct a small box or abutment wall. This wall shall consist of a standard split faced concrete masonry unit (CMU), Class IV Select Material backfill, and a woven polypropylene geosynthetic fabric placed between each block. Geosynthetic Reinforced Walls will be constructed to lines and grades determined by NCDOT and the Contractor's Engineer.

Measurement and Payment

Geosynthetic Reinforced Walls will be measured and paid for as the number of square feet of wall constructed and accepted. Such price and payment will be full compensation for all labor, materials, equipment, and incidentals to furnish and construct geosynthetic reinforced walls.
Aggregate Backfill will be measured and paid for as the number of tons of aggregate installed and accepted.

Payment will be made under:

Pay Item	Pay Unit
Geosynthetic Reinforced Wall	Square Foot
Aggregate Backfill	Ton

GEOTECHNICAL STABILIZATION:

GT-5

DN12200754 Division Wide

Description

Geotechnical stabilization consists of designing and constructing geotechnical foundations, elements, and features to repair or improve roadways, slopes, and retaining walls.

Scope

North Carolina Department of Transportation (NCDOT) will identify locations of all work to be performed as specified herein. The Contractor may be called out for a site visit prior to issuance of a work request. The purpose of the site visit will be for the Contractor to evaluate and prepare an estimate of the materials and services needed to repair the site to the engineer's specifications. Unless otherwise requested by NCDOT, the Contractor shall schedule the site visit within **24 hours** following notification by NCDOT personnel and shall provide a detailed written estimate of materials and services needed to repair the site to NCDOT's specifications within **24 hours** following the site visit. Any necessary subsurface exploration, site survey, and slope stability modeling, to prepare the estimate, is the responsibility of the Contractor.

Following issuance of a work request, the Contractor will provide all necessary engineering plans and details required to successfully repair or stabilize the affected feature. These plans shall be stamped by a Registered Professional Engineer (PE) licensed in the State of North Carolina, who is knowledgeable and experienced in the design and implementation of geotechnical stabilization with soil nails, micro piles, etc. and related work. Where applicable, the stabilization design engineer shall be a Department-prequalified Key Person for the Work Code elements used for repair and/or stabilization. Changes or deviations from the approved submittals must be resubmitted for approval. No adjustments in project duration will be allowed due to incomplete submittals. The PE stamped submittals shall include at a minimum the following information:

1. A description of the repair or stabilization construction sequence and a schedule of work activities.

2. A description and detail of the size and spacing of geotechnical stabilization elements to be placed in order to meet minimum static/seismic factors of safety for global stability of the repair. The materials and components selected will meet a 75-year design life. Designs will include consideration of appropriate loadings, geometry, and material properties associated with the native soils, backfill, reinforcement connections, facing, and other design elements.

3. All necessary details to successfully complete the work.

The Division Engineer or his duly appointed representative will review the estimate submitted by the Contractor and once those measures needed have been agreed upon, Contractor will be given the approval to commence work.

Unless otherwise approved by NCDOT, repair operations commencement and submittal of stamped plans shall be within **48 hours** after receipt of a work request. Once repair has commenced, it shall continue until completion. The Contractor must also have the ability to design and repair **multiple** sites at the same time, if necessary, in order to efficiently provide maintenance and emergency repairs as required.

Materials

Shotcrete shall be provided in accordance with Section 1002 of the Standard Specifications.

Rock slope materials including, but not limited to, rock bolts, wire mesh and nets, and rockfall barriers shall meet the requirements of the current *Rock Slope Materials* provision.

Materials used for soil nails and micro piles shall be readily available standard geotechnical industry items such as casing, continuous threaded solid bars, and continuous threaded hollow bars with sacrificial bits.

Construction Methods

Soil Nails: Perform soil nail design and construction, including nail installation, grouting, shotcrete, and wall construction, in accordance with the current *Soil Nail Wall* provision, except as modified herein. Soil nail proof testing shall be performed in accordance with the *Soil Nail Wall* provision. Please note that hollow bar soil nails and permanent shotcrete facing may be used to complete work for this contract. Please note that the minimum permanent shotcrete facing thickness is 6” for work for this contract.

Micro piles: Perform micro pile design and construction in accordance with the current *Micro piles* provision, except as modified herein. For bidding purposes, define a micro pile as constructed with a fully grouted 4” outside diameter, ½” wall thickness, 80 ksi casing extending from the top of the micro pile to the top of weathered rock or rock and a #8 Grade 75 all-thread bar extending from the bottom of the bond zone to above the top of micro pile, as necessary. Please note that mill secondary casing may be used to complete work for this contract.

Reinforced Shotcrete: Construct reinforced shotcrete with a minimum thickness shown in acceptable submittals with reinforcement a minimum of 3 inches from the ground surface. Do not

begin reinforced shotcrete construction or incorporate materials into the work until the submittal requirements are satisfied and accepted by the Department. Any changes or deviations from the accepted submittals or re-submittals before proceeding with work are not allowed. No adjustments in contract time will be allowed due to incomplete submittals.

Ensure the minimum thickness of shotcrete using shooting wires, thickness control pins, or other devices acceptable to the Department. Install thickness control devices normal to the surface such that they protrude the required shotcrete thickness outside the surface. Ensure that the front face of the shotcrete does not extend beyond the limits established by the Department. Use either an undisturbed gun finish as applied from the nozzle or a rough screeded finish, as determined by the Department. Remove shotcrete extending into the structural face section beyond the tolerances specified herein.

A clearly defined pattern of continuous horizontal or vertical ridges or depressions at the reinforcing elements after they are covered with shotcrete will be considered an indication of insufficient reinforcement cover or poor nozzle techniques. In this case immediately suspend the application of shotcrete and implement corrective measures before resuming the shotcrete operations. Correct the shotcreting procedure by adjusting the nozzle distance and orientation, by ensuring adequate cover over the reinforcement, or other means.

Repair shotcrete surface defects as soon as possible after placement. Remove and replace shotcrete that exhibits segregation, honeycombing, lamination, voids, or sand pockets. In-place shotcrete not meeting the specified strength requirement will be subject to remediation. Possible remediation options include placement of additional shotcrete thickness or removal and replacement, at no additional cost to the Department.

Do not place shotcrete if the ambient air or ground temperature is below 40° F unless artificial heat and tenting is used to elevate the temperature. Maintain cold weather protection if the temperature after placement is below 40° F until the in-place compressive strength of the shotcrete is greater than 725 psi.

Cold weather protection includes blankets, heating under tents, or other means acceptable to the Department. The shotcrete mix shall have a temperature of not less than 50° F or more than 100° F at the nozzle during placement.

Suspend shotcrete application during high winds and heavy rains unless suitable protective covers, enclosures or wind breaks are installed. Remove and replace newly placed shotcrete exposed to rain that washes out cement or otherwise makes the shotcrete unacceptable. Provide a polyethylene film or equivalent to protect the work from exposure to adverse weather.

Wire Mesh Stabilization: Perform wire mesh stabilization design and construction in accordance with the current *Soil Nail Slope Stabilization, Rock Slope Materials,* or *Rock Slope Stabilization* provisions.

Rock Bolts: Perform rock slope stabilization design and install rock bolts in accordance with the current *Rock Slope Stabilization* provision. For bidding purposes, rock bolts will be #8 Grade 75 all thread bar and have an installed length of up to 20 feet and includes nuts and plates, as needed. Rock bolt proof testing to 120% of the Design Load will be required as determined by the Department.

Rock Slope Scaling: Define scaling as removing loose and/or potentially unstable rock from the rock slope and rock resting on any soil slope above the rock face. Scaling of loose or potentially unstable rock shall be accomplished by manual scaling methods. This work shall include scaling at locations shown on the plans, or as directed by the Department, to the specified degree. This work may also include vegetation removal from slope or excavation of soil/weathered rock. Scaling that creates a rockfall hazard such as overhangs or launching pads shall be remediated as directed by the Department. Erosion channels above the rock slope may require remediation prior to acceptance by the Department.

Care shall be taken to minimize damage by equipment or falling rock to the surface of any adjacent roadways, guardrail, drainage structures, signs, or other facilities. Damage attributable to the Contractor's means and methods shall be repaired at no additional cost to the Department.

Measurement and Payment

Soil Nails will be measured and paid for as the number of soil nails furnished and installed in the following incremental lengths: up 20 feet, up to 30 feet, up to 40 feet, up to 50 feet, up to 60 feet, up to 70 feet, and up to 80 feet in length. Such price and payment will be full compensation for all labor, materials, equipment, and incidentals to furnish, install and proof test required soil nails. No additional payment will be made for soil nail proof testing. No payment will be made for materials which are not installed.

Micro piles will be measured and paid for as the number of micro piles furnished and installed in the following incremental lengths: up 20 feet, up to 30 feet, up to 40 feet, up to 50 feet, up to 60 feet, up to 70 feet, and up to 80 feet in length. Such price and payment will be full compensation for all labor, materials, equipment, and incidentals to furnish and install required micro piles. No payment will be made for materials which are not installed.

Reinforced Shotcrete will be measured and paid for in square feet per that has been completed and accepted in the following incremental thicknesses: up to 6 inches, up to 8 inches, and up to 12 inches. Such price and payment will be full compensation for all labor, materials, equipment, and incidentals to furnish and construct reinforced shotcrete, including but not limited to geocomposite drainage strips, weep holes, reinforcing steel, shotcrete, any preparatory trimming and cleaning of soil/rock surfaces and shotcrete cold joints in preparation for receiving new shotcrete, and all incidentals for placing shotcrete around the soil nails or micro piles. No additional payment will be made for additional shotcrete thickness or area not required by the accepted submittal or as requested by the Department.

Shotcrete Shoulder Build-Up will be paid for in linear feet that has been completed and accepted. Such price and payment will be full compensation for all labor, materials, equipment, and incidentals to furnish and construct reinforced shotcrete, including but not limited to geocomposite drainage strips, weep holes, reinforcing steel, shotcrete, any preparatory trimming and cleaning of soil/rock surfaces and shotcrete cold joints in preparation for receiving new shotcrete, and all incidentals for placing shotcrete around the soil nails or micro piles. No payment will be made for materials which are not installed. No payment will be made for partial deliveries.

Wire Mesh Stabilization will be measured and paid for as the number of square feet of Type 1 or Type 2 wire mesh furnished and installed according to the plans, including plates. Price and payment will be full compensation for all materials, labor, and equipment necessary for the placement of the wire mesh surface treatment.

Rock Bolts will be measured and paid for as the number of rock bolts furnished and installed. Such price and payment will be full compensation for all labor, materials, equipment, and incidentals to furnish, and install required rock bolts. No payment will be made for materials which are not installed.

Rock Bolt Proof Tests will be measured and paid in units of each. Testing will be measured as the number of initial proof tests performed. The contract unit prices for *Rock Bolt Proof Tests* will be full compensation for initial bolt testing. No payment will be made for subsequent testing performed on the same or replacement test bolts.

Rock Slope Scaling will be measured in units per day and will be paid for at the contract unit price and shall be full compensation for all labor, materials, equipment, and incidentals for a four-man crew. Scaling rate does not include resizing, hauling off or disposal of materials brought down during scaling operations.

Payment will be made under:

Pay Item	Pay Unit
Soil Nails up to 20’	Each
Soil Nails up to 30’	Each
Soil Nails up to 40’	Each
Soil Nails up to 50’	Each
Soil Nails up to 60’	Each
Soil Nails up to 70’	Each
Soil Nails up to 80’	Each
Micro piles up to 20’	Each
Micro piles up to 30’	Each
Micro piles up to 40’	Each
Micro piles up to 50’	Each
Micro piles up to 60’	Each
Micro piles up to 70’	Each
Micro piles up to 80’	Each
Reinforced Shotcrete Up To 6” Thickness	Square Foot
Reinforced Shotcrete Up To 8” Thickness	Square Foot
Reinforced Shotcrete Up To 12” Thickness	Square Foot
Shotcrete Shoulder Build-Up	Linear Foot
Type 1 Pinned Wire Mesh Stabilization	Square Foot
Type 1 Draped Wire Mesh Stabilization	Square Foot
Type 2 Pinned Wire Mesh Stabilization	Square Foot
Type 2 Draped Wire Mesh Stabilization	Square Foot
Rock Bolts	Each
Rock Bolt Proof Testing	Each
Rock Slope Scaling	Day

GEOTEXTILE FOR SOIL STABILIZATION:

DESCRIPTION

Supply and install geotextile for soil stabilization in accordance with the contract and as directed by the Engineer.

MATERIALS

Refer to Division 10.

GT-11

DN12200754 Division Wide

Item	Section
Geotextile for Soil Stabilization, Type 5	1056

CONSTRUCTION METHODS

Grubbing may not be required in areas where geotextile for soil stabilization will be used. Minimize the use of heavy equipment in these areas to limit rutting. Cut trees flush with the ground surface and place geotextiles on relatively undisturbed ground as directed by the Engineer.

Do not leave geotextiles exposed for more than 7 days before covering geotextiles with backfill material except geotextiles for erosion control devices. Place geotextiles on surfaces free of obstructions, debris and soft pockets. Install geotextiles with the long dimension parallel to the roadway centerline. Overlap adjacent geotextiles at least 18 inches. Overlap geotextiles in the direction that material will be placed to prevent lifting the edge of the top geotextile.

Pull geotextiles taut so that they are in tension and free of kinks, folds, wrinkles or creases. Hold geotextiles in place as needed with wire staples or anchor pins. Provide backfill material in accordance with the contract. Do not operate equipment on geotextiles until covered with material as directed by the Engineer. Do not use vibratory compaction equipment on initial lifts of backfill.

MEASUREMENT AND PAYMENT

Geotextile for Soil Stabilization will be measured and paid in square yards. Geotextiles will be measured along the ground surface as the square yards of exposed geotextiles before placing backfill material. No measurement will be made for overlapping geotextiles. The contract unit price for *Geotextile for Soil Stabilization* will be full compensation for providing, transporting and installing geotextiles, wire staples and anchor pins.

Payment will be made under:

Pay Item	Pay Unit
Geotextile for Soil Stabilization	Square Foot

GEOTECHNICAL APPENDICES

FOR REFERENCE ONLY

GEOTECHNICAL APPENDIX A

SOIL NAIL SLOPE STABILIZATION: (SPECIAL)

GENERAL

A soil nail is defined as a steel bar grouted in a drilled hole inclined at an angle below horizontal. Soil nail slope stabilization consists of soil nails spaced at a regular pattern and connected to a flexible, steel wire mesh facing. Construct soil nail slope stabilization based on actual elevations and dimensions in accordance with this provision, the accepted submittals and the plans. For this provision, "Soil Nail Slope Stabilization Contractor" refers to the contractor installing the soil nails and applying the facing.

SUBMITTALS

Submit a soil nail slope stabilization installation and testing plan. Provide an electronic copy of the plan in PDF format. Allow 10 working days for the review of the Soil Nail Slope Stabilization submittal. Do not begin soil nail slope stabilization construction including sacrificial soil nails for verification tests until the installation and testing plan is accepted.

Submit detailed project specific information including the following.

Excavation methods and equipment.

List and sizes of proposed drilling rigs and tools, tremies and grouting equipment.

Sequence and step-by-step description of soil nail slope stabilization construction including details of drilling and grouting methods, soil nail installation and facing construction.

Examples of construction and test nail records to be provided in accordance with Sections 6.0 and 7.0, Item F, respectively.

Grout mix design including laboratory test results in accordance with the Grout for Structures Special Provision and acceptable ranges for grout flow and density.

Soil nail testing details, procedures and plan sealed by a Professional Engineer registered in North Carolina with calibration certificates within one year of submittal date in accordance with Section 7.0.

Other information shown on the plans or requested by the Engineer.

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

MATERIALS

Provide Type 3 Manufacturer's Certifications in accordance with Article 106-3 of the *Standard Specifications* for soil nail materials.

A. Soil Nails

Store steel materials on blocking a minimum of 12" (300 mm) above the ground and protect it at all times from damage; and when placing in the work make sure it is free from dirt, dust, loose mill scale, loose rust, paint, oil or other foreign materials. Do not crack, fracture or otherwise damage grout inside sheathing of shop grouted encapsulated soil nails.

A soil nail consists of a grouted steel bar with corrosion protection and a nail head assembly. Use epoxy coated or galvanized deformed steel bars meeting the requirements of AASHTO M275 or M31, Grade 60 or 75 (420 or 520). Splice bars in accordance with Article 1070-10 of the *Standard Specifications*.

For epoxy coated bars, provide epoxy coated reinforcing steel meeting the requirements of Article 1070-8 of the *Standard Specifications*. For galvanized bars, provide galvanized steel meeting the requirements of Section 1076 of the *Standard Specifications*.

Fabricate bar centralizers from schedule 40 polyvinyl chloride (PVC) plastic pipe or tube, steel or other material not detrimental to steel bars (no wood). Size centralizers to position the bar within 1" (25 mm) of the drill hole center and allow a tremie to be inserted to the bottom of the hole. Use centralizers that do not interfere with grout placement or flow around soil nail bars. For encapsulated bars, centralizers are required both inside and outside of encapsulation.

Use grout meeting the requirements of Article 1003-3 of the *Standard Specifications*.

Wire Mesh, Wire Ropes, Connectors and Anchor Plates

Wire mesh, wire ropes, hardware, anchor plates and other items for soil nail stabilization shall meet the requirements of the Rock Slope Materials provision. Provide any wire mesh and net components or hardware not addressed in Rock Slope Materials provision in accordance with the Wire Mesh/Net Manufacturer's recommendations. Galvanize steel components not addressed in this provision in accordance with Section 1076 of the *Standard Specifications*.

At the Contractor's option, use galvanized steel plates recommended by the Wire Mesh/Net Manufacturer instead of anchor plates required above to anchor wire mesh or nets to excavation or slope faces.

Provide support ropes to suspend wire mesh or nets from rock anchors. At the Contractor's option and when noted in the plans, suspend wire mesh or nets from grouted rope anchors instead of rock anchors and connect rope anchors to support ropes with shackles.

SOIL NAIL SLOPE STABILIZATION PRECONSTRUCTION MEETING

Before starting soil nail slope stabilization construction, conduct a preconstruction meeting to discuss the construction and inspection of the soil nail slope stabilizations. Schedule this meeting after all soil nail slope stabilization submittals have been accepted. The Resident or Bridge Maintenance Engineer, Bridge Construction Engineer, Geotechnical Operations Engineer, General Contractor and the Soil Nail Slope Stabilization Contractor Superintendent, and Project Manager will attend this preconstruction meeting.

CONSTRUCTION METHODS

Perform all necessary clearing and grubbing in accordance with Section 200 of the *Standard Specifications*. Perform any blasting in accordance with the contract special provisions. Do not excavate beyond the face of the soil nail slope stabilization.

Use equipment and methods reviewed and accepted in the installation and testing plan or approved by the Engineer. Inform the Engineer of any deviations from the accepted plan.

A. Excavation

Construct the soil nail slope stabilization from the top down. Excavate in staged horizontal lifts with heights not to exceed the vertical soil nail spacing. The excavated surface must be to the grades of the project drawings for the slope. Do not excavate the slope more than 3 feet (1 m) below the level of the row of nails to be installed in that lift. Do not excavate a lift until nail installation and nail testing for the preceding lift are complete and acceptable to the Engineer. After a lift is excavated, clean the cut surface of all loose materials, mud, and other foreign material. The excavated face cannot be unprotected for more than 24 hours for any reason. Prior to advancing the excavation, allow nail grout on the preceding lift to achieve the required 3 day compressive strength.

If the excavation face becomes unstable at any time, suspend soil nail slope stabilization construction and temporarily stabilize the face by immediately placing an earth berm against the unstable face. Soil nail slope stabilization construction may not proceed until the conditions have been reviewed by the Engineer. A revised soil nail slope stabilization installation and testing plan submittal may be required after the slope conditions have been reviewed.

Take all necessary measures to ensure that installed nails are not damaged during excavation. Repair or replace to the satisfaction of the Engineer and at no cost to the Department nails that are damaged or disturbed during excavation.

Installation of Wire Mesh and Bearing Plates

Prior to installing wire mesh, excavate depression around each nail location as shown in plans. Install wire mesh in accordance with the drawings and manufacturer’s specifications, including any required overlapping.

Following soil installation, connect the bearing plates to the nails as shown on the plans and as directed by the Engineer. Replace bearing plates, nuts or washers that are damaged or defective as determined by the Engineer at no additional cost to the Department. Once the bearing plates and nuts have been attached to the nails, tighten each nut until they have reached a torque reading of 265 ft-lbs.

Soil Nail Installation

Install soil nails to the depth indicated on the plans and in the same way as acceptable verification test nails. Drill and grout soil nails the same day and do not leave drill holes open overnight. Install supplemental soil nails, as directed by the Engineer, to the depth indicated on the plans beyond the slope face through the wire mesh to improve contact with the slope face.

Control drilling and grouting to prevent excessive ground movements, damaging structures and fracturing rock and soil formations. If ground heave or subsidence occurs, suspend soil nail slope stabilization construction and take action to minimize movement. If structures are damaged, suspend construction and repair structures at no additional cost to the Department with a method proposed by the Contractor and accepted by the Engineer. The Engineer may require a revised soil nail slope stabilization installation and testing plan when corrective action is necessary.

Drilling

Use drilling rigs capable of drilling through whatever materials are encountered to the dimensions and orientations required for the soil nail slope stabilization design. Drill straight and clean holes at the locations shown in the accepted submittals. Drill hole locations and inclinations are required to be within 6” (150 mm) and 2 degrees, respectively, of that shown in the accepted submittals unless approved otherwise by the Engineer.

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

Using manufacturer approved methods, increase the opening in the wire mesh to allow installation of the soil nail through the mesh.

Soil Nail Bars

Use centralizers to center steel bars in drill holes. Securely attach centralizers at maximum 8 ft (2.4 m) intervals along bars. Attach upper and lowermost centralizers 24” (450 mm) from the top and bottom of the bars.

Before placing soil nail bars, allow the Engineer to check location, orientation and cleanliness of drill holes. Provide steel bars as shown in the accepted submittals and insert bars without difficulty or forcing insertion. Do not vibrate or drive soil nail

bars. If a bar can not be completely inserted easily, remove the bar and clean or redrill the hole.

Grouting

Remove all oil, rust inhibitors, residual drilling fluids and similar foreign materials from holding tanks/hoppers, stirring devices, pumps, lines, tremie pipes and all other equipment in contact with grout before use.

Place grout with a tremie in accordance with the contract and accepted submittals. Inject grout at the lowest point of drill holes through a tremie pipe, e.g., grout tube, casing, hollow-stem auger or drill rod, in one continuous operation. Fill drill holes progressively from the bottom to top and withdraw tremie at a slow even rate as the hole is filled to prevent voids in the grout. Extend tremie pipe into grout a minimum of 5 ft (1.5 m) at all times except when grout is initially placed in a drill hole.

Provide grout free of segregation, intrusions, contamination, structural damage or inadequate consolidation (honeycombing). Cold joints in grout are not allowed except for soil nails that are tested. Extract temporary casings as grout is placed. Monitor and record grout volumes during placement.

Bar threads should be kept clean to allow tightening of the anchor plate and nut.

CONSTRUCTION RECORDS

Provide an electronic copy in PDF format of soil nail slope stabilization construction records including the following within 24 hours of completing each lift.

1. Names of Soil Nail Slope Stabilization Contractor, Superintendent, Nozzleman, Drill Rig Operator, and Project Manager.
2. Description, county, NCDOT contract, TIP and WBS element number
3. Stations and lift location, dimensions, elevations and description
4. Soil nail locations, diameters, lengths and inclinations, bar types, sizes and grades, corrosion protection and temporary casing information
5. Date and time drilling begins and ends, soil nail bar is placed, grout is mixed and/or arrives on-site, grout placement begins and ends
6. Grout volume, temperature, flow and density records
7. Ground and surface water conditions and elevations, if applicable
8. Weather conditions including air temperature at time of grout placement
9. All other pertinent details related to soil nail slope stabilization construction

After completing all lifts for a soil nail slope stabilization or a stage of a soil nail slope stabilization, submit electronic copies (pdf or jpg format on CD or DVD) of all corresponding construction records.

SOIL NAIL TESTING

For this provision, "verification tests" are performed on test nails not incorporated into the work, i.e., sacrificial soil nails "Verification test nails" refer to soil nails on which verification tests are performed and "proof test nails" refer to soil nails on which proof tests are performed.

One verification test is required at each soil nail slope stabilization location, or as directed by the Engineer. The Engineer will select the test location in the field. Proof tests on 5 percent of production soil nails with a minimum of 1 test per nail row are required. More or less soil nail testing may be required depending on the subsurface conditions encountered. The Engineer will decide the actual number and specific locations of each verification and proof test required.

Do not test soil nails until grout achieves the required 3 day compressive strength. Do not begin construction of any production soil nails until verification tests are satisfactorily completed.

A. Testing Equipment

Use testing equipment that includes the following.

- 2 dial gauges
- dial gauges rigid supports
- hydraulic jack and pressure gauge
- electronic load cell
- jacking block or reaction frame

Provide pressure gauges graduated in 100 psi (690 kPa) increments or less. Use dial gauges capable of measuring to 0.001" (0.025 mm) and accommodating the maximum anticipated movement. Submit identification number and calibration records for each load cell, jack and pressure gauge with the soil nail slope stabilization installation and testing plan. Calibrate the jack and pressure gauge as a unit.

Align testing equipment to ensure uniform loading. Use a jacking block or reaction frame that does not damage the slope or contact the slope face within 3 ft (1 m) of test nails. Align dial gauges within 5 degrees of the test nail axis. Place dial gauges opposite each other on either side of the test nail. Set up test equipment and measuring devices such that resetting or repositioning the components before completing testing is not required. A load cell is not required for proof tests if the same jack and pressure gauge are used for verification tests.

B. Test Nails

Test nails have both bonded and unbonded lengths. Grout only the bonded length before testing. Minimum bonded and unbonded lengths of 10 ft (3 m) and 5 ft (1 m), respectively, are required.

Soil nail bars for production soil nails may be overstressed under higher test nail loads. Use larger or higher grade steel bars to allow for higher loads instead of shortening bond lengths to less than the minimum. Any costs associated with higher capacity bars will be considered incidental to the soil nail testing pay items.

Verification Tests

Install sacrificial soil nails in accordance with the accepted submittals and this provision. Use the same equipment, methods and drill hole diameter for sacrificial soil nails as will be used for production soil nails.

Use the following equation to determine maximum bond length for verification test nails, L_{BVT} (ft or m).

$$L_{BVT} \leq \frac{C_{RT} \times A_t \times f_y}{Q_{ALL} \times 3}$$

Where,

C_{RT} = reduction coefficient, 0.9 for Grade 60 and 75 (420 and 520) bars or 0.8 for Grade 150 (1035) bars,
A_t = bar area (in^2 or m^2),
f_y = bar yield stress (ksi or kPa) and
Q_{ALL} = allowable unit grout/ground bond strength (kips/ft or kN/m).

Use the following equation to determine design verification test load, DTL (kips or kN).

$$DTL = L_{BVT} \times Q_{ALL}$$

Calculate DTL based on as-built bond lengths. Perform verification tests by incrementally loading test nails to failure or a maximum test load of 300 percent of DTL according to the following schedule.

Load	Hold Time
AL*	1 minute
0.25 DTL	10 minutes
0.50 DTL	10 minutes
0.75 DTL	10 minutes
1.00 DTL	10 minutes
1.25 DTL	10 minutes
1.50 DTL	60 minutes (creep test)
1.75 DTL	10 minutes
2.00 DTL	10 minutes
2.50 DTL	10 minutes
3.00 DTL	10 minutes
AL*	1 minute

*Alignment load (AL) is the minimum load required to align testing equipment and should not exceed 0.05 DTL.

Reset dial gauges to zero after applying alignment load. Record test nail movement at each load increment and permanent set after load is reduced to alignment load.

Monitor test nails for creep at the 1.50 DTL load increment. Measure and record test nail movement during the creep portion of the test at 1, 2, 3, 5, 6, 10, 20, 30, 50 and 60 minutes. Repump jack as needed to maintain the intended load during hold times.

Proof Tests

Use the following equation to determine maximum bond length for proof test nails, L_{BPT} (ft or m).

$$L_{BVT} \leq \frac{C_{RT} \times A_t \times f_y}{Q_{ALL} \times 1.5}$$

Where variables are as defined in Item C of this section.

Use the following equation to determine design proof test load, DTL (kips or kN).

$$DTL = L_{BPT} \times Q_{ALL}$$

Calculate DTL based on as-built bond lengths. Perform proof tests by incrementally loading test nails to failure or a maximum test load of 150 percent of DTL according to the following schedule.

Load	Hold Time
AL*	Until movement stabilizes
0.25 DTL	Until movement stabilizes
0.50 DTL	Until movement stabilizes
0.75 DTL	Until movement stabilizes
1.00 DTL	Until movement stabilizes
1.25 DTL	Until movement stabilizes
1.50 DTL	10 or 60 minutes (creep test)
AL*	1 minute

*Alignment load (AL) is the minimum load required to align testing equipment and should not exceed 0.05 DTL.

Reset dial gauges to zero after applying alignment load. Record test nail movement at each load increment and monitor test nails for creep at the 1.50 DTL load increment. Measure and record test nail movement at 1, 2, 3, 5, 6 and 10 minutes. When the test nail movement between 1 minute and 10 minutes exceeds 0.04” (1 mm), maintain the maximum test load for an additional 50 minutes and record movements at 20, 30, 50 and 60 minutes. Repump jack as needed to maintain the intended load during hold times.

Test Nail Acceptance

Test nail acceptance is based on the following criteria.

For verification tests, total creep movement is less than 0.08" (2 mm) between the 6 and 60 minute readings and creep rate is linear or decreasing throughout the creep test load hold time.

For proof tests, total creep movement is less than 0.04" (1 mm) between the 1 and 10 minute readings or less than 0.08" (2 mm) between the 6 and 60 minute readings and creep rate is linear or decreasing throughout the creep test load hold time.

Total test nail movement at maximum test load exceeds 80 percent of the theoretical elastic elongation of the test nail unbonded length.

Pullout failure does not occur at the 1.5 DTL load increment or before. Pullout failure is defined as the inability to increase the load while test nail movement continues. Record the pullout failure load as part of the test data.

Maintain stability of test nail unbonded lengths for subsequent grouting. If the test nail unbonded length of a proof test nail can not be satisfactorily grouted after testing, do not incorporate the test nail into the work and replace the nail with another production soil nail at no additional cost to the Department.

Test Nail Results

Submit an electronic copy in PDF format of test nail records including load versus movement curves within 24 hours of completing each test. The Engineer will review the test nail records and associated construction records to determine if the test nail is acceptable.

If the Engineer determines a verification test nail is unacceptable, the Engineer may revise the soil nail slope stabilization design and/or installation methods. The Engineer will have up to 10 working days to revise the soil nail slope stabilization design and/or installation and testing plan at no additional cost to the Department.

If the Engineer determines a proof test nail is unacceptable as a result of the contractor's activities, then either additional proof tests on adjacent production soil nails or a revision to the soil nail slope stabilization design and/or installation methods for the production soil nails represented by the unacceptable proof test nail may be required at no additional cost to the Department. If required, remove representative production soil nails and provide new production soil nails with the revised design and/or installation methods at no additional cost to the Department.

After completing all soil nail testing, submit an electronic copy in PDF format of all corresponding testing records.

GEOTECHNICAL APPENDIX B

MICROPILES: (10-19-21)

GENERAL

A micropile is a small diameter, drilled and grouted non-displacement pile with a reinforcing casing and typically a center reinforcing bar. Load testing is required when noted in the plans. Design and construct micropiles with the required resistance in accordance with the contract and accepted submittals. Use a prequalified Micropile Contractor for micropile work. Define "pile" as a micropile, "casing" as reinforcing casing and "bar" as a center reinforcing bar.

MATERIALS

Refer to the *Standard Specifications*.

Item	Section
Portland Cement	1024-1
Water	1024-4

Use neat cement grout that only contains cement and water with a water cement ratio of 0.4 to 0.5 which is approximately 5.5 gallons of water per 94 lb of Portland cement. Provide grout with a compressive strength at 3 and 28 days of at least 1,500 psi and 4,000 psi, respectively.

C. Reinforcement

Provide Type 1 material certifications in accordance with Article 106-3 of the *Standard Specifications* for steel casings and bars. Store casings and bars on blocking at least 12" above the ground and protect it at all times from damage; and when placing in the work make sure it is free from dirt, dust, loose mill scale, loose rust, paint, oil or other foreign materials. Load, transport, unload and store micropile materials so materials are kept clean and free of damage.

1. Reinforcing Casings

Use steel pipes that meet American Petroleum Institute (API) 5CT, Grade N80 or ASTM A252 with a yield strength of 80 ksi for reinforcing casings. Provide prime mill certified steel pipes that meet Subarticle 106-1(B) of the *Standard Specifications* for casings. Do not use "New or Mill Secondary", "Structural" or "Limited Service" steel pipes as described by the *National Association of Steel Pipe Distributors Tubular Products Manual*. Use casings with the nominal wall thickness shown in the plans and outside diameters ranging from the minimum shown in the plans to 3" larger.

2. Center Reinforcing Bars

Use deformed steel bars that meet AASHTO M 275 or M 31, Grade 60 or 75 for center reinforcing bars. Splice bars in accordance with Article 1070-9 of the *Standard Specifications*. Locate casing joints at least 2 ft from bar splices.

D. Centralizers

Use bar centralizers that meet Article 6.3.5 of the *AASHTO LRFD Bridge Construction Specifications*. Size centralizers to position bars within 1" of drill hole centers and allow tremies to be inserted to bottom of holes. Use centralizers that do not interfere with grout placement or flow around bars.

Corrosion Protection

Provide epoxy coated bars that meet Article 1070-7 of the *Standard Specifications*. Galvanize exposed casings in accordance with Section 1076 of the *Standard Specifications*. After installing piles, clean exposed galvanized surfaces of casings with a 2,500 psi pressure washer. Apply organic zinc repair paint to exposed casing joints and repair damaged galvanized surfaces that are exposed in accordance with Article 1076-7 of the *Standard Specifications*.

PRECONSTRUCTION REQUIREMENTS

Micropile Designs

For micropile designs, submit PDF files of working drawings and design calculations at least 30 days before the preconstruction meeting. Do not begin micropile construction until a design submittal is accepted.

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

The pile layout and inclination, casing dimensions and tip elevations, pile to cap/footing connection, top of pile elevations and pile resistances are shown in the plans. Verify existing site conditions and survey information before designing piles.

Design piles in accordance with the *AASHTO LRFD Bridge Design Specifications* unless otherwise required. Define “bond length” as the pile length below the casing tip elevation noted in the plans. Determine the bond length and reinforcement for the factored resistance noted in the plans. Assume a design casing wall thickness of 12.5% less than nominal plus an additional 0.125" less due to corrosion. A bond length of at least 10 ft is required for each pile. If verification load testing is required, use a resistance factor of 0.70 for axial compression and uplift resistance. Otherwise, use a resistance factor of 0.55. When using tension load tests to determine nominal grout-to-ground bond resistances for axial compression resistance, neglect pile tip resistance.

Either extend casings below required tip elevations or use bars for reinforcement. Extend bars or casings full length of piles and provide at least 0.50" of grout cover outside

casings. Design and locate casing joints as shown in the plans.

Submit working drawings and design calculations including estimated unit nominal resistances for acceptance in accordance with Article 105-2 of the *Standard Specifications*. Submit working drawings showing all micropile details including any dimensions, quantities, elevations and cross-sections necessary to construct the piles.

Micropile Construction Plan

Submit a PDF file of a micropile construction plan at least 30 days before the preconstruction meeting. Do not begin micropile construction until the construction plan submittal is accepted. Provide detailed project specific information in the micropile construction plan that includes the following:

1. List and sizes of proposed equipment including micropile drilling rigs and tools, tremies and grouting equipment;
2. Sequence of pile construction and step-by-step description of pile installation including details of casing installation, drilling methods and flushing;
3. List of reinforcement including grades or yield strength and sizes;
4. Methods for placing reinforcement with procedures for supporting and positioning the reinforcement including centralizers;
5. Procedures for placing grout including how the grout will be initially placed in drill holes and acceptable ranges for grout pressures and volumes;
6. Equipment and procedures for monitoring and recording grout levels, pressures and volumes with calibration certificates dated within 90 days of the submittal date;
7. Examples of construction records to be provided that meet Section 4.0(C) of this provision;
8. Procedures for containment and disposal of drilling spoils, drill flush and waste grout;
9. Grout mix design with acceptable ranges for grout flow and density;
10. If load testing is required, load testing details, procedures and plan sealed by the Design Engineer or Project Engineer for the Load Test Supplier with calibration certificates dated within 90 days of the submittal date;
11. Load Test Supplier, when applicable, including Project Engineer; and
12. Other information shown in the plans or requested by the Engineer.

If alternate installation and testing procedures are proposed or necessary, a revised micropile construction plan submittal may be required. If the work deviates from the accepted submittal without prior approval, the Engineer may suspend pile construction until a revised plan is accepted.

Demonstration Micropiles

When shown in the plans or as directed, construct demonstration piles in accordance with

the accepted submittals and this provision. The pile inclination, minimum reinforcement and locations of demonstration piles are shown in the plans. Install demonstration piles to the depth of the longest pile on the project or the length required for verification load tests.

The purpose of demonstration piles is to demonstrate the Micropile Contractor's ability to successfully install micropiles. The demonstration pile results will be used to evaluate the grouting operation and possibly revise acceptable grouting ranges established with the micropile construction plan. If load testing is required for a demonstration pile, the results will be used to evaluate the pile design including estimated unit nominal resistances.

If the Engineer determines a demonstration pile is unsatisfactory, a replacement pile is required. Do not begin construction of any production piles until all demonstration piles are accepted.

Preconstruction Meeting

Before starting micropile construction, hold a preconstruction meeting to discuss the construction, monitoring and testing of the piles. If this meeting occurs before all pile submittals have been accepted, additional preconstruction meetings may be required before beginning pile construction without accepted submittals. The Resident or Bridge Maintenance Engineer, Area Construction Engineer, Geotechnical Operations Engineer, Contractor and Micropile Contractor Superintendent will attend preconstruction meetings.

CONSTRUCTION METHODS

Use equipment and methods accepted in the micropile construction plan or approved by the Engineer. Inform the Engineer of any deviations from the accepted plan. Install production piles in the same way as satisfactory demonstration piles, if applicable.

Dispose of drilling spoils, drill flush and waste grout as directed and in accordance with Section 802 of the *Standard Specifications*. Drilling spoils consist of all excavated material and fluids removed from drill holes.

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

Drilling and Reinforcement

Use micropile drilling rigs capable of drilling through whatever materials are encountered to the dimensions and elevations required for the pile design. Install piles with tip elevations no higher than shown in the accepted submittals or approved by the Engineer.

Do not install casings or begin drilling within 6 pile diameters, center to center, or 5 ft, whichever is greater, of completed piles until grout in piles reaches initial set. More clearance may be necessary if pile construction affects adjacent piles.

Install casings to a tip elevation no higher than that noted in the plans. Also, when noted in the plans, install casings with a penetration of at least 5 ft into rock as determined by the Engineer. Locate casing joints in accordance with the accepted submittals. If any welding is required for casings, comply with Article 33.3.6 of the *AASHTO LRFD Bridge Construction Specifications*. Submit welding procedures for approval before welding casings.

Use drilling methods that result in the annulus between casings and the ground filled with grout. Check for correct pile location and plumbness or proper inclination before beginning drilling. Stabilize drill holes with casings from beginning of drilling through grouting if unstable material is anticipated or encountered. After drilling, flush drill holes with water or air to remove drill cuttings and other loose materials.

Use centralizers to center bars in drill holes. Securely attach bar centralizers at maximum 10 ft intervals along bars. Attach upper and lowermost centralizers 5 ft from the top and bottom of piles.

Place bars before grouting or after while grout is still fluid. Do not vibrate or drive reinforcement. Bars may be gently pushed into grout. If bars can only be partially inserted, redrill or clean drill holes to permit complete insertion.

Grouting

Remove oil, rust inhibitors, residual drilling fluids and similar foreign materials from holding tanks/hoppers, stirring devices, pumps, lines, tremie pipes and all other equipment in contact with grout before use. Size grouting equipment to grout each pile in one continuous operation. Field calibrate grout pumps at the beginning of construction.

Mix and place grout in accordance with Subarticles 1003-5, 1003-6 and 1003-7 of the *Standard Specifications*. Measure grout temperature, density and flow during grouting with at least the same frequency grout cubes are made for compressive strength. Perform density and flow field tests in the presence of the Engineer in accordance with American National Standards Institute/API Recommended Practice 13B-1 (Section 4, Mud Balance) and ASTM C939 (Flow Cone), respectively.

Grout piles the same day the bond length is drilled and do not leave drill holes open overnight. Place grout with a tremie in accordance with the contract and accepted submittals until uncontaminated grout flows from the top of the pile. Extend tremie pipe into grout at least 5 ft at all times except when grout is initially placed in drill holes. Provide grout free of segregation, intrusions, contamination, structural damage or inadequate consolidation (honeycombing).

Monitor and record grout levels, pressures and volumes during placement. To monitor

grout pressure, use pumps equipped with a pressure gauge and locate a second pressure gauge at the point of injection into the drill hole. Use pressure gauges that can measure pressures of at least 150 psi or twice the actual grout pressures, whichever is greater.

Construction Records

Provide 2 copies of pile construction records within 24 hours of completing each pile. Include the following in construction records:

1. Names of Micropile Contractor, Superintendent, Drill Rig Operator, Project Manager and Design Engineer;
2. Bridge description, county, Department's contract, TIP and WBS element number;
3. Bent station and number, pile location and identifier and required resistance;
4. Pile diameters, length and tip elevation and top of pile and ground surface elevations;
5. Reinforcement types, grades or yield strength, sizes and elevations;
6. Date and time drilling begins and ends, reinforcement is placed, grout is mixed and arrives on-site and grout placement begins and ends;
7. Grout level, pressure, volume, temperature, flow and density records;
8. Ground and surface water conditions and elevations;
9. Weather conditions including air temperature at time of grout placement; and
10. All other pertinent details related to pile construction.

After completing piles for each structure or stage of a structure, provide a PDF file of all corresponding construction records.

LOAD TESTING

When noted in the plans, load test piles in accordance with the accepted submittals, this provision and the plans. The piles to be tested are shown in the plans or as directed. "Verification tests" are performed on demonstration piles and "proof tests" are performed on piles incorporated into the structure, i.e., production piles based on test piles acceptable in accordance with Section 6.0 of this provision.

When using a Load Test Supplier, use a prequalified Load Test Supplier for foundation testing work. Provide load test reports sealed by an engineer approved as a Project Engineer (key person) for the Load Test Supplier.

Do not load test piles until grout attains the required 28 day compressive strength. Do not begin construction of any production piles until verification tests are satisfactorily completed. For proof tests, install only the test piles and those piles needed to anchor the reaction frame, if applicable. Do not install the remaining piles for the bent until the corresponding test piles are satisfactory.

Design test piles so that applied loads do not exceed 80% of the pile's structural resistance

including steel yielding or buckling or grout failing. It may be necessary to design test piles with additional reinforcement to allow for higher applied loads. Use a center reinforcing bar for tension load tests when the reinforcement design for production piles does not include one.

If reinforcement design for production piles does not include a center reinforcing bar, tension load tests are required. Otherwise, test piles in either compression or tension at the Contractor's option.

Do not apply loads with known weights; a reaction frame and a hydraulic jack are required. Use reaction piles or cribbing and a frame with sufficient strength to prevent excessive deformation, misalignment or racking under peak loading. Do not use existing structures as part of the reaction frame.

Load test piles in accordance with the accepted submittals and Article 33.5 of the *AASHTO LRFD Bridge Construction Specifications*. For demonstration piles, cut off piles 2 ft below the ground surface when testing is complete.

Submit a PDF file of each load test report within 7 days of completing load testing. Submit reports sealed by the same engineer that sealed the load testing details, procedures and plan in the accepted micropile construction plan. Provide load test reports that meet ASTM D1143, D3689 or the Load Test Supplier's recommendations. Also, include load versus movement curves for the top of pile and pile tip.

MICROPILE ACCEPTANCE

The Engineer will review the load test reports, if applicable and construction records to determine if piles are acceptable. Micropile acceptance is based in part on the following criteria.

11. Grout pressures, volumes, flow and densities are within acceptable ranges. Grout is properly placed and does not have any evidence of segregation, intrusions, contamination, structural damage or inadequate consolidation (honeycombing).
12. Pile is within maximum tolerances per Article 33.4.4 of the *AASHTO LRFD Bridge Construction Specifications*.
13. Reinforcement is properly placed and inclination and top of reinforcement is within tolerances for the pile. Tip of casing is no higher than that noted in the plans and casing penetrates rock at least 5 ft when noted in the plans.
14. Pile is satisfactory based on results of load testing, when applicable. Creep and failure acceptance criteria for verification and proof tests is per Articles 33.5.2 and 33.5.3, respectively, of the AASHTO LRFD specifications. Movement acceptance criteria for verification and proof tests is per Articles 33.5.2 and 33.5.3, respectively, of the AASHTO LRFD specifications when the permissible total vertical movement at top of pile is noted in the plans.

If the Engineer determines a pile is unacceptable, remedial measures or replacement piles are required. Do not begin remediation work until remediation plans are approved. No extension

of completion date or time will be allowed for remedial work or replacement piles.

GEOTECHNICAL APPENDIX C

SOIL NAIL RETAINING WALLS: (10-19-21)

GENERAL

Construct soil nail retaining walls consisting of soil nails spaced at a regular pattern and connected to a CIP reinforced concrete face. A soil nail consists of a solid steel bar grouted in a drilled hole inclined at an angle below horizontal. Use shotcrete for temporary support of excavations during construction. Design and construct soil nail retaining walls based on actual elevations and wall dimensions in accordance with the contract and accepted submittals. Use a prequalified Anchored Wall Contractor to construct soil nail retaining walls. Define "soil nail wall" as a soil nail retaining wall and "Soil Nail Wall Contractor" as the Anchored Wall Contractor installing soil nails and applying shotcrete. Define "nail" as a soil nail and "concrete facing" as a CIP reinforced concrete face. An abutment wall is defined as a soil nail wall with nails that extend under a bridge end bent or a soil nail wall connected to an abutment wall. Even if only one nail extends under a bridge end bent, the entire soil nail wall is considered an abutment wall.

MATERIALS

Refer to the *Standard Specifications*.

Item	Section
Geosynthetics	1056
Joint Materials	1028
Masonry	1040
Portland Cement	1024-1
Portland Cement Concrete, Class A	1000
Reinforcing Steel	1070
Select Material, Class VI	1016
Shotcrete	1002
Shoulder Drain Materials	816-2
Steel Plates	1072-2
Water	1024-4
Welded Stud Shear Connectors	1072-6

Provide Class VI select material (standard size No. 57 stone) for leveling pads. Use neat cement grout that only contains cement and water with a water cement ratio of 0.4 to 0.5 which is approximately 5.5 gallons of water per 94 lb of Portland cement. Provide grout with a compressive strength at 3 and 28 days of at least 1,500 psi and 4,000 psi, respectively.

Provide soil nails consisting of grouted steel bars and nail head assemblies. Use deformed solid steel bars that meet AASHTO M 275 or M 31, Grade 60, 75 or 80. Splice bars in accordance with Article 1070-9 of the *Standard Specifications*.

Provide epoxy coated bars that meet Article 1070-7 of the *Standard Specifications*. Provide Class A corrosion protection (encapsulated bar) or Class B corrosion protection (epoxy coated bar only, no galvanized bar) for soil nails in accordance with Article 34.3.3 of the *AASHTO LRFD Bridge Construction Specifications*. Use centralizers that meet Article 34.3.4 of the AASHTO LRFD specifications.

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

Provide Type 3 material certifications for soil nail materials in accordance with Article 106-3 of the *Standard Specifications*. Store steel materials on blocking at least 12" above the ground and protect it at all times from damage; and when placing in the work make sure it is free from dirt, dust, loose mill scale, loose rust, paint, oil or other foreign materials. Load, transport, unload and store soil nail wall materials so materials are kept clean and free of damage. Do not crack, fracture or otherwise damage grout inside sheaths of encapsulated nails. Bent, damaged or defective materials will be rejected.

PRECONSTRUCTION REQUIREMENTS

Soil Nail Wall Surveys

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

Soil Nail Wall Designs

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

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

Design soil nail walls in accordance with the plans and the *AASHTO LRFD Bridge Design Specifications* unless otherwise required. For abutment walls only, design soil nail walls for seismic if wall sites meet either or both of the following:

- Wall site is in seismic zone 2 based on Figure 2-1 of the *Structure Design Manual*,
- Wall site is classified as AASHTO Site Class E, as noted in the plans, and is in or west of Pender, Duplin, Wayne, Johnston, Wake, Durham or Person County.

Design soil nails that meet the following unless otherwise approved:

1. Horizontal and vertical spacing of at least 3 ft,
2. Inclination of at least 12° below horizontal,
3. Clearance between ends of bars and drill holes of at least 6",
4. Grout cover between epoxy coated bars and drill hole walls of at least 1" or in accordance with Article 11.12.8 of the AASHTO LRFD specifications for encapsulated bars and
5. Diameter of 6" to 10".

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

When noted in the plans, design soil nail walls for a live load (traffic) surcharge of 250 psf. For steel beam guardrail with 8 ft posts above soil nail walls, analyze facing and top row of nails for a nominal horizontal load (P_{H1}) of 300 lb/ft of wall in accordance with Figure 3.11.6.3-2(a) of the AASHTO LRFD specifications. For concrete barrier rail above soil nail walls, analyze facing and top row of nails for a nominal P_{H1} of 500 lb/ft of wall in accordance with Figure 3.11.6.3-2(a).

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

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

Design shotcrete and concrete facing in accordance with the plans and Article 11.12.6.2 of the *AASHTO LRFD Bridge Design Specifications*. Use shotcrete and concrete facing with the dimensions shown in the plans and attach facing to nail heads with welded stud shear connectors. When concrete barrier rail is required above soil nail walls, use concrete barrier rail with moment slab as shown in the plans.

Submit working drawings and design calculations including unit grout/ground bond strengths for acceptance in accordance with Article 105-2 of the *Standard Specifications*. Submit working drawings showing plan views, wall profiles with nail locations including known test nail locations, typical sections and details of nails, drainage, shotcrete, leveling pads and concrete facing. If necessary, include details on working drawings for

concrete barrier rail with moment slab and obstructions extending through walls or interfering with nails, barriers or moment slabs. Submit design calculations for each wall section with different surcharge loads, geometry or material parameters. Include analysis of temporary conditions in design calculations. At least one analysis is required for each wall section with different nail lengths. Analyze internal and compound stability with a computer software program that uses limit equilibrium methods and submit all PDF output files from the program with the design calculations. See Article C11.12.2 of the AASHTO LRFD specifications for determining the maximum soil nail force, T_{maxsn}. Once T_{maxsn} and pullout length behind slip surface, L_P, are determined from limit equilibrium methods at the target soil failure resistance factor (1 over factor of safety output from computer software), use these values for soil nail (pullout and tensile resistance) and wall facing (flexure, punching shear and headed-stud tensile resistance) design in accordance with Articles 11.12.5.2, 11.12.6.1 and 11.12.6.2 of the AASHTO LRFD specifications.

When designing soil nail walls with computer software Snail manufactured by the California Department of Transportation (CALTRANS), use Snail, version 2.2.0 or later, to calculate factors of safety and T_{maxsn} and L_P values in accordance with the following:

1. Allowable Stress Design for Analysis Method with no load factors applied except those applied to factored surcharge loads from structures or traffic,

2. Perform Below Toe Search option selected when any soil layer has a friction angle less than 30° and

3. Default value of 0.33 for Interface Friction Reduction Factor.

When designing soil nail walls with computer software other than Snail, use bi-linear (or tri-linear, as applicable) search surfaces intended to reproduce Snail results. Factors of safety and T_{maxsn} and L_P values are acceptable if they are within 5% of the factors of safety and T_{maxsn} and L_P values calculated by the Engineer using the computer software Slide2 manufactured by Rocscience, Inc.

Soil Nail Wall Construction Plan

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

1. Overall description and sequence of soil nail wall construction;
2. List and sizes of excavation equipment, drill rigs and tools, tremies and grouting equipment;
3. Procedures for excavations, drilling and grouting, soil nail and wall drainage system installation and facing construction;
4. Details of shotcrete equipment and application including mix process, test panels, thickness gauges and shooting methods;

5. Shotcrete nozzleman with certification in accordance with Article 1002-1 of the *Standard Specifications*;
6. Plan and methods for nail testing with calibration certificates dated within 90 days of the submittal date;
7. Examples of construction records to be provided that meet Section 4.0(F) and test nail records to be used in accordance with Section 5.0(D) of this provision;
8. Grout mix design with acceptable ranges for grout flow and density;
9. Shotcrete mix design that meets Section 1002 of the *Standard Specifications*; and
10. Other information shown in the plans or requested by the Engineer.

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

Preconstruction Meeting

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

CONSTRUCTION METHODS

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

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

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

E. Excavation

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

1. Heights not to exceed vertical nail spacing,
2. Bottom of lifts no more than 3 ft below nail locations for current lift and

3. Horizontal and vertical alignment within 2" of location shown in the accepted submittals.

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

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

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

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

F. Soil Nails

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

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

Drilling

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

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

Steel Bars

Center steel bars in drill holes with centralizers. Securely attach centralizers along

bars at no more than 8 ft centers. Attach uppermost and lowermost centralizers 18" from excavation faces and ends of holes.

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

Grouting

Mix and place grout in accordance with Subarticles 1003-5, 1003-6 and 1003-7 of the *Standard Specifications*. Remove oil, rust inhibitors, residual drilling fluids and similar foreign materials from holding tanks/hoppers, stirring devices, pumps, lines, tremie pipes and any other equipment in contact with grout before use. Measure grout temperature, density and flow during grouting with at least the same frequency grout cubes are made for compressive strength. Perform density and flow field tests in the presence of the Engineer in accordance with American National Standards Institute/American Petroleum Institute Recommended Practice 13B-1 (Section 4, Mud Balance) and ASTM C939 (Flow Cone), respectively.

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

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

Nail Heads

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

G. Wall Drainage Systems

Install wall drainage systems as shown in the accepted submittals and in accordance with Section 816 of the *Standard Specifications*. Before installing shotcrete reinforcement, place geocomposite sheet drains with the geotextile side against excavation faces. For highly irregular faces and at the discretion of the Engineer, sheet drains may be placed after shotcreting over weep holes through the shotcrete. Hold sheet drains in place with anchor pins so drains are in continuous contact with surfaces to which they are attached and allow for full flow the entire height of soil nail walls. Discontinuous sheet drains are

not allowed. If splices are needed, overlap sheet drains at least 12" so flow is not impeded. Connect sheet drains to aggregate leveling pads by embedding drain ends at least 4" into No. 57 stone.

H. Shotcrete

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

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

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

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

I. Leveling Pads and Concrete Facing

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

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

If a brick veneer is required, construct brick masonry in accordance with Section 830 of the *Standard Specifications*. Anchor brick veneers to soil nail walls in accordance with

Subarticle 453-4 of the *Standard Specifications*. Seal joints above and behind soil nail walls between concrete facing and slope protection with silicone sealant.

Construction Records

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

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

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

2.0 NAIL TESTING

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

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

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

A. Test Equipment

Use the following equipment to test nails:

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

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

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

B. Test Nails

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

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

C. Nail Tests

Install verification test nails with the same equipment, installation methods and drill hole diameter and inclination as production nails. Test verification and proof test nails in accordance with the accepted submittals and Articles 34.5.5.2 and 34.5.5.3, respectively of the *AASHTO LRFD Bridge Construction Specifications* except correct Eq. 34.5.5.2-2 to $VTL = L_{BVT} \times r_{po}$ (kips/ft).

D. Test Nail Acceptance

Submit 2 copies of test nail records including load versus movement and time versus creep movement plots within 24 hours of completing each verification or proof test. The Engineer will review the test nail records to determine if test nails are acceptable. Test nail acceptance is based in part on the acceptance criteria in Article 34.5.5.4 of the *AASHTO LRFD Bridge Construction Specifications*.

For proof test nails, maintain stability of unbonded lengths for subsequent grouting. If a proof test nail is accepted but the unbonded length cannot be satisfactorily grouted, do not incorporate the proof test nail into the soil nail wall and add another production nail

to replace the test nail.

If the Engineer determines a verification test nail is unacceptable, revise the soil nail design or installation methods. Submit a revised soil nail wall design or construction plan for acceptance and provide acceptable verification test nails with the revised design or installation methods.

If the Engineer determines a proof test nail is unacceptable, either perform additional proof tests on adjacent production nails or revise the soil nail design or installation methods for the production nails represented by the unacceptable proof test nail as determined by the Engineer. Submit a revised soil nail wall design or construction plan for acceptance, provide an acceptable proof test nail with the revised design or installation methods and install additional production nails for the nails represented by the unacceptable proof test nail.

After completing nail testing for each soil nail wall or stage of a wall, provide a PDF file of all corresponding test nail records.

GEOTECHNICAL APPENDIX D

ROCK SLOPE STABILIZATION (SPECIAL)

Description

A rock bolt is defined as a steel bar grouted in a drilled hole inclined at an angle below horizontal. Rock slope stabilization consists of individual rock bolts passively or actively stabilizing a boulder or rock mass or several rock bolts spaced at a regular pattern and connected to a flexible, steel wire mesh facing. The mesh may be installed in a draped or pinned condition. Construct rock slope stabilization based on actual elevations and dimensions in accordance with this provision, the accepted submittals and the plans. For this provision, "Rock Slope Stabilization Contractor" refers to the contractor installing the rock bolts and/or applying the facing.

This provision addresses anchors for wire mesh and wire mesh to be used for rock slope stabilization, rockfall protection and other applications in accordance with the contract. Provide rock slope materials as shown in the plans and as directed.

Materials

Rock slope materials including, but not limited to, rock bolts, wire mesh and nets, and rockfall barriers shall meet the requirements of the current *Rock Slope Materials* provision.

Use grout meeting the requirements of Section 1003 of the *Standard Specifications*.

Submittals

Submit a rock slope stabilization design. Perform the analysis and design in accordance with current industry standards and FHWA guidelines. Provide an electronic copy of the plan in PDF format. Allow 10 working days for the review of the submittal.

Submit a rock slope stabilization installation and testing plan. Provide an electronic copy of the plan in PDF format. Allow 10 working days for the review of the submittal. Do not begin rock slope stabilization construction until the installation and testing plan is accepted.

Submit detailed project specific information including the following.

1. Excavation methods and equipment.
2. List of proposed drilling equipment and tools, tremies and grouting equipment.
3. Description of rock slope stabilization construction including details of drilling and grouting methods, and rock bolt installation.
4. Examples of construction and test records to be provided.
5. Other information shown on the plans or requested by the Engineer.

If alternate installation and testing procedures are proposed or necessary, a revised installation and testing plan submittal may be required. If the work deviates from the accepted submittal without prior approval, the Engineer may suspend rock slope stabilization construction until a revised plan is submitted and accepted.

Construction Methods

Perform any blasting in accordance with the *Standard Specifications*.

Use drilling equipment capable of drilling through whatever materials are encountered to the dimensions and orientations required for the rock slope stabilization design. Drill straight and clean holes at the locations shown in the accepted submittals. Drill hole locations and inclinations are required to be within 6" and 2 degrees, respectively, of that shown in the accepted submittals unless approved otherwise by the Engineer. Use equipment and methods reviewed and accepted in the installation and testing plan or approved by the Engineer. Inform the Engineer of any deviations from the accepted plan. Stabilize drill holes with temporary casings if unstable, caving or sloughing material is encountered. Do not use drilling fluids to stabilize drill holes or remove cuttings. Control drilling and grouting to prevent excessive slope movement. The Engineer may require a revised rock slope stabilization installation and testing plan when corrective action is necessary.

For post-tensioned rock bolts, smooth an area ½" larger on all sides of the bearing plate using a facing bit to achieve uniform bearing behind the plate prior to installing the rock bolt. Install rock bolts to the depth indicated on the plans. Do not vibrate or drive bars. If a bar cannot be completely inserted easily, remove the bar and clean or redrill the hole.

Remove all oil, rust inhibitors, residual drilling fluids and similar foreign materials from holding tanks/hoppers, stirring devices, pumps, lines, tremie pipes and all other equipment in contact with grout before use.

Place grout with a tremie in accordance with the contract and accepted submittals. Inject grout at the lowest point of drill holes through a tremie in one continuous operation. Fill drill holes progressively from the bottom to top and withdraw tremie at a slow even rate as the hole is filled to prevent voids in the grout. Extend tremie pipe into grout a minimum of 5 ft at all times except when grout is initially placed in a drill hole. Bar threads should be kept clean to allow tightening of the bearing plate and nut.

Provide grout free of segregation, intrusions, contamination, structural damage or inadequate consolidation (honeycombing). Cold joints in grout are not allowed except for rock bolts that are tested. Extract temporary casings as grout is placed. Monitor and record grout volumes during placement.

Allow the grout to achieve the required 3-day strength prior to testing and the required 28-day strength prior to post-tensioning. Install the bearing plate, washer and nut and tension active rock bolts to the design requirements using a jack and stressing chair. Tighten the nut flush with the bearing plate and slowly reduce the jack pressure.

Install wire mesh in accordance with the drawings and manufacturer's specifications, including any required overlapping. Connect the bearing plates to the bolts as shown on the plans and as directed by the Engineer.

Cut off rock bolts 1" above the nut or rock face. Rock dowels (passive bolts) may be cut 2" shorter than the drill hole depth prior to installation to allow the bolt to finish below the rock face and be covered by grout. Apply an epoxy repair or zinc-rich paint for corrosion protection to each cut end of all rock bolts.

Replace rock bolts, bearing plates, nuts or washers that are damaged or defective as determined by the Engineer at no additional cost to the Department.

Construction Records

Provide an electronic copy in PDF format of rock slope stabilization construction records including the following within 24 hours of completing each lift.

1. Names of Rock Slope Stabilization Contractor, Superintendent, Drill Rig Operator, and Project Manager.
2. Description, county, NCDOT contract, TIP and WBS element number
3. Stations and lift location, dimensions, elevations and description
4. Rock bolt locations, diameters, lengths and inclinations, bar types, sizes and grades, corrosion protection and temporary casing information
5. Date and time drilling begins and ends, rock bolt bar is placed, grout is mixed and/or arrives on-site, grout placement begins and ends
6. Grout volume, temperature, flow and density records
7. Ground and surface water conditions and elevations, if applicable
8. Weather conditions including air temperature at time of grout placement
9. All other pertinent details related to rock slope stabilization construction

After completing all lifts for a rock slope stabilization or a stage of a rock slope stabilization, submit electronic copies in PDF format of all corresponding construction records.

Rock Bolt Testing

For this provision, "verification tests" are performed on test bolts not incorporated into the work, i.e., sacrificial rock bolts "Verification test bolts" refer to rock bolts on which verification tests are performed and "proof test bolts" refer to rock bolts on which proof tests are performed.

One verification test is required at each rock slope stabilization location, or as directed by the Engineer. The Engineer will select the test location in the field. Proof tests on 5 percent of production rock bolts with a minimum of 1 test per bolt row are required. More or less rock bolt testing may be required depending on the subsurface conditions encountered. The Engineer will decide the actual number and specific locations of each verification and proof test required.

Do not test rock bolts until grout achieves the required 3 day compressive strength. Do not begin construction of any production rock bolts until verification tests are satisfactorily completed.

E. Testing Equipment

Use testing equipment that includes the following.

- 2 dial gauges
- dial gauges rigid supports
- hydraulic jack and pressure gauge
- jacking block

Provide pressure gauges graduated in 100 psi increments or less. Use dial gauges capable of measuring to 0.001" and accommodating the maximum anticipated movement. Submit identification number and calibration records for each jack and pressure gauge with the rock slope stabilization installation and testing plan. Calibrate the jack and pressure gauge as a unit.

Align testing equipment to ensure uniform loading. Use a jacking block that does not damage the slope. Align dial gauges within 5 degrees of the test bolt axis. Place dial gauges opposite each other on either side of the test bolt. Set up test equipment and measuring devices such that resetting or repositioning the components before completing testing is not required.

F. Test Bolts

Test bolts have both bonded and unbonded lengths. Grout only the bonded length before testing. Minimum bonded and unbonded lengths of 10 ft and 5 ft, respectively, are required.

Rock bolt bars for production rock bolts may be overstressed under higher test bolt loads. Use larger or higher grade steel bars to allow for higher loads instead of shortening bond lengths to less than the minimum. Any costs associated with higher capacity bars will be considered incidental to the rock bolt testing pay items.

G. Verification Tests

Install sacrificial rock bolts in accordance with the accepted submittals and this provision. Use the same equipment, methods and drill hole diameter for sacrificial rock bolts as will be used for production rock bolts.

Use the following equation to determine maximum bond length for verification test bolts, L_{BVT} (ft).

$$L_{BVT} \leq \frac{C_{RT} \times A_t \times f_y}{Q_{ALL} \times 3}$$

Where,

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

A_t = bar area (in^2),

f_y = bar yield stress (ksi) and

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

Use the following equation to determine design verification test load, DTL (kips).

$$DTL = L_{BVT} \times Q_{ALL}$$

Calculate DTL based on as-built bond lengths. Perform verification tests by incrementally loading test bolts to failure or a maximum test load of 300 percent of DTL according to the following schedule.

Load	Hold Time
AL*	1 minute
0.25 DTL	10 minutes
0.50 DTL	10 minutes
0.75 DTL	10 minutes
1.00 DTL	10 minutes
1.20 DTL	60 minutes (creep test)
1.50 DTL	10 minutes

AL*	1 minute

*Alignment load (AL) is the minimum load required to align testing equipment and should not exceed 0.05 DTL.

Reset dial gauges to zero after applying alignment load. Record test bolt movement at each load increment and permanent set after load is reduced to alignment load.

Monitor test bolts for creep at the 1.20 DTL load increment. Measure and record test bolt movement during the creep portion of the test at 1, 2, 3, 5, 6, 10, 20, 30, 50 and 60 minutes. Repump jack as needed to maintain the intended load during hold times.

H. Proof Tests

Use the following equation to determine maximum bond length for proof test bolts, L_{BPT} (ft).

$$L_{BVT} \leq \frac{C_{RT} \times A_t \times f_y}{Q_{ALL} \times 1.5}$$

Where variables are as defined in Item C of this section.

Use the following equation to determine design proof test load, DTL (kips).

$$DTL = L_{BPT} \times Q_{ALL}$$

Calculate DTL based on as-built bond lengths. Perform proof tests by incrementally loading test bolts to failure or a maximum test load of 150 percent of DTL according to the following schedule.

Load	Hold Time
AL*	Until movement stabilizes
0.25 DTL	Until movement stabilizes
0.50 DTL	Until movement stabilizes
0.75 DTL	Until movement stabilizes
1.00 DTL	Until movement stabilizes
1.20 DTL	10 or 60 minutes (creep test)
AL*	1 minute

*Alignment load (AL) is the minimum load required to align testing equipment and should not exceed 0.05 DTL.

Reset dial gauges to zero after applying alignment load. Record test bolt movement at each load increment and monitor test bolts for creep at the 1.20 DTL load increment. Measure and record test bolt movement at 1, 2, 3, 5, 6 and 10 minutes. When the test bolt movement between 1 minute and 10 minutes exceeds 0.04”, maintain the maximum test load for an additional 50 minutes and record movements at 20, 30, 50 and 60 minutes. Repump jack as needed to maintain the intended load during hold times.

I. Test Bolt Acceptance

Test bolt acceptance is based on the following criteria.

For verification tests, total creep movement is less than 0.08” between the 6 and 60 minute

readings and creep rate is linear or decreasing throughout the creep test load hold time.

For proof tests, total creep movement is less than 0.04" between the 1 and 10 minute readings or less than 0.08" between the 6 and 60 minute readings and creep rate is linear or decreasing throughout the creep test load hold time.

Total test bolt movement at maximum test load exceeds 80 percent of the theoretical elastic elongation of the test bolt unbonded length.

Pullout failure does not occur at the 1.5 DTL load increment or before. Pullout failure is defined as the inability to increase the load while test bolt movement continues. Record the pullout failure load as part of the test data.

Maintain stability of test bolt unbonded lengths for subsequent grouting. If the test bolt unbonded length of a proof test bolt cannot be satisfactorily grouted after testing, do not incorporate the test bolt into the work and replace the bolt with another production rock bolt at no additional cost to the Department.

J. Test Bolt Results

Submit an electronic copy in PDF format of test bolt records including load versus movement curves within 24 hours of completing each test. The Engineer will review the test bolt records and associated construction records to determine if the test bolt is acceptable.

If the Engineer determines a verification test bolt is unacceptable, the Engineer may revise the rock slope stabilization design and/or installation methods. The Engineer will have up to 10 working days to revise the rock slope stabilization design and/or installation and testing plan at no additional cost to the Department.

If the Engineer determines a proof test bolt is unacceptable as a result of the contractor's activities, then either additional proof tests on adjacent production rock bolts or a revision to the rock slope stabilization design and/or installation methods for the production rock bolts represented by the unacceptable proof test bolt may be required at no additional cost to the Department. If required, remove representative production rock bolts and provide new production rock bolts with the revised design and/or installation methods at no additional cost to the Department.

After completing all rock bolt testing, submit an electronic copy in PDF format of all corresponding testing records.

TC-1

DN12200754 Division Wide

WORK ZONE TRAFFIC CONTROL

Project Special Provisions

Table of Contents

10/21/2025

TC-2

DN12200754 Division Wide

TEMPORARY TRAFFIC CONTROL

(9/1/2021) (10/13/2023) (Rev. 12/17/2024)

General Requirements

Maintain traffic on all roads in accordance with Divisions 10, 11 and 12 of the *NCDOT Standard Specifications* and the following provisions:

Install Work Zone Advance Warning Signs when work is within 40 feet from the edge of the travel lane in accordance with Standard Drawing No. 1101.01 of the *NCDOT Roadway Standard Drawings* prior to beginning any other work. If signs are installed more than 3 calendar days prior to the beginning of work, cover the signs until the work begins. Install each work zone advance warning sign separately and not on the same post or stand with any other sign.

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

When personnel and/or equipment are working within 5 feet of an open travel lane of an undivided facility, close the nearest open travel lane using Standard Drawing No. 1101.02 of the *NCDOT Roadway Standard Drawings* unless the work area is protected by barrier or guardrail.

When personnel and/or equipment are working within 10 feet of an open travel lane of a divided facility, close the nearest open travel lane using Standard Drawing No. 1101.02 of the *NCDOT Roadway Standard Drawings*, unless the work area is protected by barrier or guardrail.

When personnel and/or equipment are working within a lane of travel of an undivided or divided facility, close the lane using Standard Drawing No. 1101.02 of the *NCDOT 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. Perform work only when weather and visibility conditions allow safe operations as directed by the Engineer.

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

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

TC-3

DN12200754 Division Wide

At the discretion of the Contractor, automated flagging assistance devices (AFAD) or portable traffic signals (PTS) may be used to assist, supplement, or replace human flaggers in accordance with the *Flaggers* provision found elsewhere in this contract.

Temporary Traffic Control (TTC)

Refer to Standard Drawing No. 1101.02, 1101.03, 1101.04, 1101.11, 1110.01, 1110.02, 1115.01, 1130.01, 1135.01, 1145.01, 1150.01, 1165.01, and 1180.01 of the *NCDOT Roadway Standard Drawings* when closing a lane of travel or shoulder in the work zone.

Notify the Engineer 30 calendar days prior to any traffic pattern alteration.

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

When lane closures are not in effect, space channelizing devices in 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 *NCDOT Standard Specifications* Sections 1130 (Drums), 1135 (Cones), and 1180 (Skinny Drums) for additional requirements.

Place additional sets of three channelizing devices (Drums, Cones, or Skinny Drums) perpendicular to the edge of travelway on 100 to 500 feet centers, as directed by the Engineer, when unopened lanes are closed to traffic.

Place Type III Barricades with “ROAD CLOSED” sign R11-2 attached, of sufficient length to close the entire roadway.

Install black on orange “DIP” (W8-2) and/or “BUMP” (W8-1) signs in advance of the uneven area in accordance with Standard Drawing 1101.11, or as directed by the Engineer.

Pavement Edge Drop Off Requirements

Backfill at a 6:1 slope up to the edge and elevation of existing pavement in areas adjacent to an opened travel lane that has an edge of pavement drop-off as follows:

- Backfill drop-offs that exceed 2 inches on roadways with posted speed limits of 45 mph or greater.
- Backfill drop-offs that exceed 3 inches on roadways with posted speed limits less than 45 mph.
- Backfill with suitable compacted material, as approved by the Engineer, at no expense to the department.

Do not exceed a difference of 2 inches in elevation between open lanes of traffic for nominal lifts of 1.5 inches. Install advance warning “Uneven Lanes" signs (W8-11) 500 feet in advance and a minimum of every half mile throughout the uneven area.

The following options are available during milling operations on two-way, two-lane facilities when the entire roadway or entire lane is to be milled:

- Mill a single lane and pave back by the end of each work day.
- Mill the entire width of roadway and pave back within 72 hours.

The following options are available during milling operations on multi-lane facilities when all lanes or a single lane in one direction are to be milled:

- Mill a single lane and pave back by the end of each work day.
- Mill the entire width of pavement for all lanes to be milled in any direction daily and pave back within 72 hours.

If milled areas are not paved back within the same work period the Contractor is to furnish and install portable “Grooved Pavement” (W8-15) w/ Motorcycle Plaque mounted below signs. These are to be dual indicated where lateral clearance can be obtained within the median areas. Install the “Grooved Pavement” (W8-15) w/ Motorcycle Plaque 1500’ in advance of the milled area. Once mitigated, all portable signs are to be removed.

Measurement and Payment

Signs (portable, stationary, and/or *barricade mounted), Barricades, Truck Mounted Attenuators (TMA), Portable Changeable Message Signs (PCMS), Flashing Arrow Boards (FAB), Pilot Vehicle, Flaggers (including AFAD and PTS units), Cones, Skinny Drums* and *Drums* will be measured and paid in accordance with the item’s specific Section in the NCDOT Standard Specifications, Section 1105 of the NCDOT Standard Specifications, or the item’s Special Provision, as determined by the Engineer.

Payment will be made under:

Pay Item	Pay Unit
Two Lane Work Zone Traffic Control	Day
Multi-Lane Work Zone Traffic Control	Day
Shoulder Closure Work Zone Traffic Control	Day

PROJECT SPECIAL PROVISIONS

EROSION CONTROL

CONSTRUCTION MATERIALS MANAGEMENT

(3-19-19) (rev. 04-27-20)

Description

The requirements set forth shall be adhered to in order to meet the applicable materials handling requirements of the NCG010000 permit. Structural controls installed to manage construction materials stored or used on site shall be shown on the E&SC Plan. Requirements for handling materials on construction sites shall be as follows:

Polyacrylamides (PAMS) and Flocculants

Polyacrylamides (PAMS) and flocculants shall be stored in leak-proof containers that are kept under storm-resistant cover or surrounded by secondary containment structures designed to protect adjacent surface waters. PAMS or other flocculants used shall be selected from the NC DWR List of Approved PAMS/Flocculants The concentration of PAMS and other flocculants used shall not exceed those specified in the NC DWR List of Approved PAMS/Flocculants and in accordance with the manufacturer's instructions. The NC DWR List of Approved PAMS/Flocculants is available at:

https://files.nc.gov/ncdeq/Water+Quality/Environmental+Sciences/ATU/PAM8_30_18.pdf

Equipment Fluids

Fuels, lubricants, coolants, and hydraulic fluids, and other petroleum products shall be handled and disposed of in a manner so as not to enter surface or ground waters and in accordance with applicable state and federal regulations. Equipment used on the site must be operated and maintained properly to prevent discharge of fluids. Equipment, vehicle, and other wash waters shall not be discharged into E&SC basins or other E&SC devices. Alternative controls should be provided such that there is no discharge of soaps, solvents, or detergents.

Waste Materials

Construction materials and land clearing waste shall be disposed of in accordance with North Carolina General Statutes, Chapter 130A, Article 9 - Solid Waste Management, and rules governing the disposal of solid waste (15A NCAC 13B). Areas dedicated for managing construction material and land clearing waste shall be at least 50 feet away from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available. Paint and other liquid construction material waste shall not be dumped into storm drains. Paint and other liquid construction waste washouts should be located at least 50 away from storm drain inlets unless there is no alternative. Other options are to install lined washouts or use portable, removable bags or bins. Hazardous or toxic waste shall be managed in accordance with the federal Resource

Conservation and Recovery Act (RCRA) and NC Hazardous Waste Rules at 15A NCAC, Subchapter 13A. Litter and sanitary waste shall be managed in a manner to prevent it from entering jurisdictional waters and shall be disposed of offsite.

Herbicide, Pesticide, and Rodenticides

Herbicide, pesticide, and rodenticides shall be stored and applied in accordance with the Federal Insecticide, Fungicide, and Rodenticide Act, North Carolina Pesticide Law of 1971 and labeling restrictions.

Concrete Materials

Concrete materials onsite, including excess concrete, must be controlled and managed to avoid contact with surface waters, wetlands or buffers. No concrete or cement slurry shall be discharged from the site. (Note that discharges from onsite concrete plants require coverage under a separate NPDES permit – NCG140000.) Concrete wash water shall be managed in accordance with the *Concrete Washout Structure* provision. Concrete slurry shall be managed and disposed of in accordance with *NCDOT DGS and HOS DCAR Distribution of Class A Residuals Statewide* (Permit No. WQ0035749). Any hardened concrete residue will be disposed of, or recycled on site, in accordance with state solid waste regulations.

Earthen Material Stock Piles

Earthen material stock piles shall be located at least 50 feet away from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available.

Measurement and Payment

Conditions set within the *Construction Materials Management* provision are incidental to the project for which no direct compensation will be made.

WASTE AND BORROW SOURCES:
(2-16-11) (Rev. 3-17-22)

Payment for temporary erosion control measures, except those made necessary by the Contractor's own negligence or for his own convenience, will be paid for at the appropriate contract unit price for the devices or measures utilized in borrow sources and waste areas.

No additional payment will be made for erosion control devices or permanent seeding and mulching in any commercial borrow or waste pit. All erosion and sediment control practices that may be required on a commercial borrow or waste site will be done at the Contractor's expense.

All offsite Staging Areas, Borrow and Waste sites shall be in accordance with "Borrow and Waste Site Reclamation Procedures for Contracted Projects" located at:

https://connect.ncdot.gov/resources/roadside/FieldOperationsDocuments/Contract%20Reclamation%20Procedures.pdf

All forms and documents referenced in the "Borrow and Waste Site Reclamation Procedures for Contracted Projects" shall be included with the reclamation plans for offsite staging areas, and borrow and waste sites.

Contract No. DN12200754

Rev. 10-31-24

County Cherokee, Clay, Graham, Haywood, Henderson, Jackson, Macon, Polk, Swain and Transylvania

EXECUTION OF CONTRACT
NON-COLLUSION, DEBARMENT AND GIFT BAN CERTIFICATION

LIMITED LIABILITY COMPANY

The Contractor declares (or certifies, verifies, or states) under penalty of perjury under the laws of the United States that neither he, nor any official, agent or employee has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with this Contract, that the Contractor has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Contractor intends to do the work with its own bona fide employees or subcontractors and did not bid for the benefit of another contractor.

By submitting this Execution of Contract, non-collusion, debarment and gift ban certification, the Contractor is certifying his status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

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

SIGNATURE OF CONTRACTOR

GeoStabilization International LLC

Full Name of Firm

10225 Westmoor Drive, Suite 205, Westminster CO, 80021

Address as prequalified

Kaitlyn Dittmer

Signature of Witness

Signature of **Member, Manager, Authorized Agent**
Select appropriate title

Kaitlyn Dittmer

Print or type Signer's name

DIEGO TISERA

Print or type Signer's Name

Contract No. DN12200754

County Cherokee, Clay, Graham, Haywood, He

Rev. 10-31-24

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.

Contract No. DN12200754

County Cherokee, Clay, Graham, Haywood, Ha

Rev. 10-31-24

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 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.

	ITEMIZED PROPOSAL FOR CONTRACT NO. DN12200754						
Line #	Item Number	Sec #	Description	Qty	Units	Unit Cost	Extended Amount
			ROADWAY ITEMS				
0001	0000820000-N	SP	Generic Miscellaneous Item Rock Slope Scaling	30	DAY	$ 9,967.00	$ 299,010.00
0002	0000915000-N	SP	Generic Miscellaneous Item Emergency Mobilization	4	EA	$ 0.01	$ 0.04
0003	0000915000-N	SP	Generic Miscellaneous Item Design Plan Submittal	4	EA	$ 13,439.48	$ 53,757.92
0004	0255000000-E	SP	Generic Grading Item Aggregate Backfill	800	TON	$ 61.53	$ 49,224.00
0005	0257000000-E	SP	Generic Grading Item High Reach Drilling	400	LF	$ 95.00	$ 38,000.00
0006	0257000000-E	SP	Generic Grading Item Limited Access Drilling	400	LF	$ 120.00	$ 48,000.00
0007	2484000000-E	SP	Generic Drainage Item Horizontal Drains (</= 30 LF)	200	LF	$ 21.40	$ 4,280.00
0008	2484000000-E	SP	Generic Drainage Item Horizontal Drains (> 30 LF)	200	LF	$ 75.00	$ 15,000.00
0009	2484000000-E	SP	Generic Drainage Item Horizontal Drains Without Pipes (</= 30 LF)	400	LF	$ 28.00	$ 11,200.00
0010	2484000000-E	SP	Generic Drainage Item Horizontal Drains Without Pipes (> 30 LF)	400	LF	$ 28.00	$ 11,200.00
0011	2529000000-E	SP	Generic Grading Item Geotextile For Soil Stabilization	1000	SF	$ 6.00	$ 6,000.00
0012	3984000000-E	SP	Generic Wall Item Geosynthetic Reinforced Wall	7000	SF	$ 6.25	$ 43,750.00
0013	4455000000-N	1150	Flagger	24	DAY	$ 1,265.00	$ 30,360.00
0014	4609000000-N	SP	Generic Traffic Control Item Two Lane Work Zone Traffic Control	4	DAY	$ 1,955.00	$ 7,820.00
0015	4609000000-N	SP	Generic Traffic Control Item Multilane Work Zone Traffic Control	4	DAY	$ 2,530.00	$ 10,120.00
0016	4609000000-N	SP	Generic Traffic Control Item Shoulder Closure Work Zone Traffic Control	4	DAY	$ 1,955.00	$ 7,820.00
0017	8834000000-N	SP	Generic Retaining Wall Item Soil Nails Up To 20'	48	EA	$ 1,975.00	$ 94,800.00
0018	8834000000-N	SP	Generic Retaining Wall Item Soil Nails Up To 30'	32	EA	$ 2,667.00	$ 85,344.00
0019	8834000000-N	SP	Generic Retaining Wall Item Soil Nails Up To 40'	32	EA	$ 3,200.00	$ 102,400.00
0020	8834000000-N	SP	Generic Retaining Wall Item Soil Nails Up To 50'	16	EA	$ 3,600.00	$ 57,600.00
0021	8834000000-N	SP	Generic Retaining Wall Item Soil Nails Up To 60'	16	EA	$ 3,888.00	$ 62,208.00
0022	8834000000-N	SP	Generic Retaining Wall Item Soil Nails Up To 70'	16	EA	$ 4,082.00	$ 65,312.00

0023	8834000000-N	SP	Generic Retaining Wall Item Soil Nails Up To 80'	16	EA	$ 4,198.40	$ 67,174.40
0024	8834000000-N	SP	Generic Retaining Wall Item Micro Piles Up To 20'	48	EA	$ 1,678.00	$ 80,544.00
0025	8834000000-N	SP	Generic Retaining Wall Item Micro Piles Up To 30'	32	EA	$ 2,512.00	$ 80,384.00
0026	8834000000-N	SP	Generic Retaining Wall Item Micro Piles Up To 40'	32	EA	$ 3,336.00	$ 106,752.00
0027	8834000000-N	SP	Generic Retaining Wall Item Micro Piles Up To 50'	16	EA	$ 4,170.00	$ 66,720.00
0028	8834000000-N	SP	Generic Retaining Wall Item Micro Piles Up To 60'	16	EA	$ 4,994.00	$ 79,904.00
0029	8834000000-N	SP	Generic Retaining Wall Item Micro Piles Up To 70'	16	EA	$ 5,854.00	$ 93,664.00
0030	8834000000-N	SP	Generic Retaining Wall Item Micro Piles Up To 80'	16	EA	$ 7,110.00	$ 113,760.00
0031	8834000000-N	SP	Generic Retaining Wall Item Rock Bolts	400	EA	$ 90.00	$ 36,000.00
0032	8834000000-N	SP	Generic Retaining Wall Item Rock Bolt Proof Testing	80	EA	$ 750.00	$ 60,000.00
0033	8839000000-N	SP	Generic Retaining Wall Item Shotcrete Shoulder Build-Up	400	LF	$ 225.00	$ 90,000.00
0034	8847000000-E	SP	Generic Retaining Wall Item Reinforced Shotcrete Up To 6" Thickness	4000	SF	$ 17.00	$ 68,000.00
0035	8847000000-E	SP	Generic Retaining Wall Item Reinforced Shotcrete Up To 8" Thickness	4000	SF	$ 18.14	$ 72,560.00
0036	8847000000-E	SP	Generic Retaining Wall Item Reinforced Shotcrete Up To 12" Thickness	3000	SF	$ 25.84	$ 77,520.00
0037	8847000000-E	SP	Generic Retaining Wall Item Type 1 Pinned Wire Mesh Stabilization	1200	SF	$ 11.50	$ 13,800.00
0038	8847000000-E	SP	Generic Retaining Wall Item Type 1 Draped Wire Mesh Stabilization	1200	SF	$ 13.50	$ 16,200.00
0039	8847000000-E	SP	Generic Retaining Wall Item Type 2 Pinned Wire Mesh Stabilization	1200	SF	$ 15.25	$ 18,300.00
0040	8847000000-E	SP	Generic Retaining Wall Item Type 2 Draped Wire Mesh Stabilization	1200	SF	$ 16.00	$ 19,200.00
						Total Amount Of Bid For Entire Project:	**$ 2,263,688.36**

ITEMIZED PROPOSAL FOR CONTRACT NO DN12200754

Contractor: Geostabilization International, LLC

Address: 10225 Westmoor Drive, Suite 205 Westminster, CO 80021

Phone: 601.527.4927 Federal ID: 52-2379754

Contractor License Number (If Available): 61067

Authorized Agent: Matthew Berry Title: Corporate Secretary

Signature: [signature] Date: 12/2/25

Execution of Contract

Contract No: DN12200754

County: Cherokee, Clay, Graham, Haywood, Henderson, Jackson, Macon, Polk, Swain and Transylvania

ACCEPTED BY THE DEPARTMENT

DocuSigned by:
Jeffrey E. Alspaugh
160545FF87834E1...

Proposals Engineer

01/15/2026

Date

EXECUTION OF CONTRACT AND BONDS
APPROVED AS TO FORM:

DocuSigned by:
Wesley Grindstaff P.E.
5D4EEBB3C704DC...

Division Engineer

01/20/2026

Date

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 12/23/2025

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Alliant Insurance Services, Inc. 6400 S. Fiddlers Green Circle, Ste 2000 Greenwood Village CO 80111	**CONTACT NAME:** Natalie Rodriguez **PHONE (A/C, No, Ext):** 720-617-4825 **FAX (A/C, No):** **E-MAIL ADDRESS:** Natalie.Rodriguez@alliant.com
INSURED GEOSINT-01 Geostabilization International, LLC 10225 Westmoor Drive, Suite 205 Westminster, CO 80021	**INSURER(S) AFFORDING COVERAGE** / **NAIC #** INSURER A : Executive Risk Indemnity Inc — 35181 INSURER B : Federal Insurance Company — 20281 INSURER C : Chubb Indemnity Insurance Comp — 12777 INSURER D : Indian Harbor Insurance Compan — 36940 INSURER E : Chubb National Insurance Compa — 10052 INSURER F : Starr Indemnity & Liability Co — 38318

COVERAGES **CERTIFICATE NUMBER:** 345699269 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A E	X **COMMERCIAL GENERAL LIABILITY** [ ] CLAIMS-MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: [ ] POLICY [X] PRO-JECT [ ] LOC [ ] OTHER:	Y		54310162-05 54310163-05	5/1/2025 5/1/2025	5/1/2026 5/1/2026	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG Deductible	$ 2,000,000 $ 300,000 $ 10,000 $ 2,000,000 $ 4,000,000 $ 4,000,000 $ 25,000
B B	**AUTOMOBILE LIABILITY** X ANY AUTO X OWNED AUTOS ONLY [ ] SCHEDULED AUTOS [ ] HIRED AUTOS ONLY [ ] NON-OWNED AUTOS ONLY			(25)5431-01-61 (25)5431-04-01	5/1/2025 5/1/2025	5/1/2026 5/1/2026	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident) 	$ 2,000,000 $ $ $ $
B F	[ ] **UMBRELLA LIAB** [X] OCCUR X **EXCESS LIAB** [ ] CLAIMS-MADE [ ] DED [ ] RETENTION $	Y		5671-73-32 1001261233251	5/1/2025 5/1/2025	5/1/2026 5/1/2026	EACH OCCURRENCE AGGREGATE 2nd Layer Limit	$ 5,000,000 $ 5,000,000 $ 5,000,000
C B	**WORKERS COMPENSATION AND EMPLOYERS' LIABILITY** Y / N ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? [N] **(Mandatory in NH)** If yes, describe under DESCRIPTION OF OPERATIONS below	N / A		54310164 54310379	5/1/2025 5/1/2025	5/1/2026 5/1/2026	X PER STATUTE [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $ 1,000,000 $ 1,000,000 $ 1,000,000
D	Professional Pollution			CEO744667108	5/1/2025	5/1/2026	Each Claim/Aggregate Each Claim/Aggregate Retention	$10M/$10M $10M/$10M $100,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

INSURER G: Property: Policy #ITC100065471325, Carrier Name: Starr Indemnity & Liability Co; Term: 5/1/2025-5/1/2026; Limit: Leased/Rented Equipment $1M, Installation Floater $1M. DEDUCTIBLE - Flat Deductible Amount: $25,000 per occurrence except; Equipment valued at or over $100,000: $35,000 per occurrence; Claims involving Theft or Overturn: $75,000 per occurrence.

INSURER C: WORKERS COMPENSATION: Policy #54310164, Carrier Name: Chubb Indemnity Insurance Company; Term: 5/1/2025-5/1/2026; Limit: Stop-Gap Coverage (for ND, OH, WA, WY): Bodily Injury By Accident - $1,000,000 each accident; Bodily Injury By Disease - $1,000,000 policy limit; Bodily Injury By Disease - $1,000,000 each employee.

See Attached...

CERTIFICATE HOLDER

NC Department of Transportation
HIGHWAY DIVISION 14
253 WEBSTER ROAD
SYLVA NC 28779

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

© 1988-2015 ACORD CORPORATION. All rights reserved.

AGENCY CUSTOMER ID: GEOSINT-01

LOC #: _____

ADDITIONAL REMARKS SCHEDULE

AGENCY		NAMED INSURED
Alliant Insurance Services, Inc.		Geostabilization International, LLC 10225 Westmoor Drive, Suite 205 Westminster, CO 80021
POLICY NUMBER		
CARRIER	NAIC CODE	EFFECTIVE DATE:

ADDITIONAL REMARKS

THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,

FORM NUMBER: 25 FORM TITLE: CERTIFICATE OF LIABILITY INSURANCE

Re: Contract: DN12200754: ID/IQ Slope Stabilization At Various Locations Throughout Cherokee, Clay, Graham, Haywood, Henderson, Jackson, Macon, Polk, Swain And Transylvania Counties.

The State of North Carolina Department of Transportation is named as Additional Insured with respect to General Liability, and Umbrella/Excess Liability if required by written contract. Umbrella policy follows form.

© 2008 ACORD CORPORATION. All rights reserved.

The ACORD name and logo are registered marks of ACORD

CHUBB® **Chubb Commercial Excess Follow-Form Insurance**

Table Of Contents

THIS PAGE INTENTIONALLY LEFT BLANK

Contract

Please read the entire policy carefully. The terms and conditions of this insurance include the various sections of this contract: Coverage; Investigation, Defense And Settlements; Supplementary Payments; Coverage Territory; Who Is An Insured; Limits Of Insurance; When This Excess Follow-Form Insurance Applies; Exclusions; Conditions and Definitions, as well as the Declarations and any Endorsements made a part of this insurance.

Throughout this contract the words "you" and "your" refer to the named **insured** shown in the Declarations. The words "we," "us" and "our" refer to the Company providing this insurance.

Words and phrases that appear in **bold** print have special meanings and are defined in the Definitions section of this contract.

Coverage/Excess Follow-Form

Subject to all of the terms and conditions applicable to this insurance, we will pay, on behalf of the **insured,** that part of **loss,** to which this insurance applies, which exceeds the applicable **underlying limits**.

This insurance applies only if the triggering event that must happen during the policy period of the applicable **controlling underlying insurance** happens during the policy period of this insurance.

This insurance will follow the terms and conditions of **controlling underlying insurance,** unless a term or condition contained in this insurance:

- differs from any term or condition contained in the applicable **controlling underlying insurance;** or
- is not contained in the applicable **controlling underlying insurance**.

With respect to such exceptions described above, the terms and conditions contained in this insurance will apply, to the extent that such terms and conditions provide less coverage than the terms and conditions of the applicable **controlling underlying insurance**.

This insurance does not apply to any part of **loss** within **underlying limits,** or any related costs or expenses.

We have no obligation under this insurance with respect to any claim or suit settled without our consent.

The most we will pay hereunder is fixed as set forth in the Limits Of Insurance section of this contract.

Our obligations hereunder end when we have used up the applicable Limits Of Insurance.

Other than as provided under the Investigation, Defense And Settlements and Supplementary Payments sections of this contract, we have no other obligation or liability to pay sums or perform acts or services under this insurance.

Investigation, Defense And Settlements

We have no duty to defend any person or organization against any claim or suit.

We may at our discretion participate in the defense, investigation and settlement of any occurrence, offense, claim or suit.

If we choose to participate in the defense of any claim or suit, we will not be obligated to participate in the defense of any person or organization when we have used up the applicable Limits Of Insurance.

The most we will pay hereunder is fixed as set forth in the Limits Of Insurance section of this contract.

Supplementary Payments

Subject to all of the terms and conditions of this insurance, with respect to a claim or suit we investigate or settle, we will pay:

- expenses incurred directly by us and at our sole discretion;
- prejudgment interest awarded against the insured on that part of a judgment we pay. If we make an offer to pay the applicable Limits Of Insurance, we will not pay any prejudgment interest based on that period of time after the offer.
- interest on that part of a judgment, to which this insurance applies, that accrues after entry of the judgment and before we have paid, offered to pay or deposited in court the part of the judgment that is within the applicable Limits Of Insurance.

Supplementary Payments does not include any fine or other penalty.

The most we will pay hereunder is fixed as set forth in the Limits Of Insurance section of this contract.

Our obligations hereunder end when we have used up the applicable Limits Of Insurance.

Coverage Territory

This insurance applies anywhere that the applicable **controlling underlying insurance** applies.

Who Is An Insured

The following persons or organizations qualify as **insureds:**

- the named **insured** shown in the Declarations; and
- other persons or organizations qualifying as an **insured** in **controlling underlying insurance,** but not beyond the extent of any limitations imposed under any contract or agreement.

Limits Of Insurance

The Limits Of Insurance shown in the Declarations and the rules below fix the most we will pay, regardless of the number of:

- **insureds;**
- claims made or suits brought;
- persons or organizations making claims or bringing suits;
- vehicles involved; or
- coverages provided in this contract.

The aggregate limits apply separately to each consecutive annual period and to any remaining period of less than twelve (12) months (starting with the beginning of the policy period shown in the Declarations), provided the applicable aggregate limits in all **underlying insurance** apply in such manner. If the aggregate limits in any **underlying insurance** do not so apply, then the applicable aggregate limits of this insurance will apply to the entire policy period and not separately to any portion (whether annual or otherwise) thereof.

If the policy period is extended after issuance, the additional period will be deemed part of the last preceding period for purposes of determining the Limits Of Insurance.

Other Aggregate Limit

Subject to the Each Occurrence Limit, the Other Aggregate Limit is the most we will pay for the sum of amounts described as reducing Limits Of Insurance of this insurance (see Payments That Reduce The Limits Of Insurance section), except amounts included in the products-completed operations hazard.

Limits Of Insurance

Other Aggregate Limit (continued)

However, the Other Aggregate Limit of this policy will:

- not apply when all **underlying insurance** does not apply an aggregate limit; or
- apply in the same manner as the aggregate limit in controlling underlying insurance applies, provided all other **underlying insurance** also applies an aggregate limit in the same manner as **controlling underlying insurance**.

Products-Completed Operations Aggregate Limit

Subject to the Each Occurrence Limit, the Products-Completed Operations Aggregate Limit is the most we will pay for the sum of amounts described as reducing Limits Of Insurance of this insurance (see Payments That Reduce The Limits Of Insurance section) included in the products-completed operations hazard as defined in **controlling underlying insurance**.

Each Occurrence Limit

The Each Occurrence Limit is the most we will pay for the sum of amounts described as reducing Limits Of Insurance of this insurance (see Payments That Reduce The Limits Of Insurance section) arising out of any one occurrence, even if such loss is or otherwise would be covered in whole or in part under more than one **underlying insurance** policy.

Any such amounts we pay will reduce the amount of the applicable aggregate limit available for any other payment.

If the applicable aggregate limit has been reduced to an amount that is less than the Each Occurrence Limit, then the remaining amount of such aggregate limit is the most that will be available for any other payment.

Payments That Reduce The Limits Of Insurance

Any amounts we pay for **loss** will reduce the Limits Of Insurance of this insurance.

Payments that we make under the Supplementary Payments and Investigation, Defense And Settlement sections of this insurance will not reduce the Limits Of Insurance, unless payments for investigation, defense and settlement and supplementary payments reduce the limits of insurance of any applicable **underlying insurance**.

If costs or expenses for supplementary payments and investigation, defense and settlement reduce the limits of insurance of any applicable **underlying insurance,** then any such cost or expenses including supplementary payments to which this insurance applies will reduce the applicable Limits Of Insurance of this insurance.

When This Excess Follow-Form Insurance Applies

Subject to all of the terms and conditions of this insurance, if the applicable **underlying limits** are:

- reduced by payment of judgments, settlements or related costs or expenses (if such costs or expenses reduce such limits) for triggering events that happen during the policy period of this insurance and provided all **underlying limits** also applies to **loss** and also drops down, then this insurance will drop down to apply in excess of the remaining amount of the applicable **underlying limits**.
- exhausted by payment of judgments, settlements or related costs or expenses (if such costs or expenses reduce such limits) for triggering events that happen during the policy period of this insurance, then this insurance will apply in the same manner as the applicable **controlling underlying insurance** would have applied but for such exhaustion.

Exclusions

The use of the words damages, loss, cost or expense in any exclusion does not expand any coverage under this contract.

Asbestos

A. This insurance does not apply to any damages, loss, cost or expense arising out of the actual, alleged or threatened contaminative, pathogenic, toxic or other hazardous properties of **asbestos**.

B. This insurance does not apply to any damages, loss, cost or expense arising out of any:

1. request, demand, order or regulatory or statutory requirement that any **insured** or others test for, monitor, clean up, remove, contain, treat, detoxify or neutralize, or in any way respond to, or assess the effects of **asbestos;** or

2. claim or proceeding by or on behalf of a governmental authority or others for any damages, loss, cost or expense because of testing for, monitoring, cleaning up, removing, containing, treating, detoxifying or neutralizing, or in any way responding to, or assessing the effects of **asbestos**.

Controlling Underlying Insurance

This insurance does not apply to any damages, loss, cost or expense to which the terms and conditions of **controlling underlying insurance** do not apply.

Coverages/ Laws, Various

This insurance does not apply to any damages, loss, cost or expense or obligation of any **insured** under any:

- medical expenses or payments coverage or law;
- no-fault coverage or law;
- personal injury protection coverage or law;
- underinsured or uninsured financial responsibility coverage or law;
- workers' compensation, disability benefits or unemployment compensation coverage or law; or
- similar coverage or law.

Employee Retirement Income Security Laws

This insurance does not apply to any damages, loss, cost or expense or obligation of any **insured** under the United States of America Employees' Retirement Income Security Act (E.R.I.S.A.) of 1974 or any similar law, as now constituted or hereafter amended.

Employment-Related Practices

A. This insurance does not apply to any damages, loss, cost or expense arising out of any injury or damage sustained at any time by any:

1. person, whether or not sustained in the course of employment by any **insured,** arising out of any employment-related act, omission, policy, practice or representation directed at such person, occurring in whole or in part at any time.

2. brother, child, parent, sister or spouse of any person at whom any act, omission, policy, practice or representation is directed, as described in subparagraph A.1. above.

B. As used in this exclusion, such acts, omissions, policies, practices or representations described above include any:

1. arrest, detention or imprisonment;

2. breach of any express or implied covenant;

3. coercion, criticism, humiliation, prosecution or retaliation;

4. defamation or disparagement;

Exclusions

Employment-Related Practices
(continued)

5. demotion, discipline, evaluation or reassignment;
6. discrimination, harassment or segregation;
7. a. eviction; or
   b. invasion or other violation of any right of occupancy;
8. failure or refusal to advance, compensate, employ or promote;
9. invasion or other violation of any right of privacy or publicity;
10. termination of employment; or
11. other employment-related act, omission, policy, practice, representation or relationship in connection with any **insured** at any time.

C. This exclusion applies:

1. regardless of the capacity in which the **insured** may be liable; and
2. to any obligation to share any damages, loss, cost or expense with or repay someone else who must pay any damages, loss, cost or expense because of any of the foregoing.

Nuclear Energy

A. This insurance does not apply to any damages, loss, cost or expense:

1. with respect to which any **insured** under this policy also has status as an insured under a nuclear energy liability policy issued by Nuclear Energy Liability Insurance Association, Mutual Atomic Energy Liability Underwriters, Nuclear Insurance Association of Canada or any of their successors, or would have had status as an insured under any such policy but for its termination upon exhaustion of its limit of insurance; or
2. arising out of the **nuclear hazardous properties** of **nuclear material** and with respect to which:
   a. any person or organization is required to maintain financial protection pursuant to the United States of America Atomic Energy Act of 1954, or any law amendatory thereof; or
   b. the **insured** is, or had this policy not been issued would be, entitled to indemnity from the United States of America, or any agency thereof, under any agreement entered into by the United States of America, or any agency thereof, with any person or organization.

B. This insurance does not apply to any damages, loss, cost or expense arising out of the **nuclear hazardous properties** of **nuclear material:**

1. if the **nuclear material:**
   a. is at any **nuclear facility** owned by, or operated by or on behalf of, any **insured**;
   b. has been discharged or dispersed there from; or
   c. is contained in **nuclear spent fuel** or **nuclear waste** at any time transported, handled, stored, disposed of, processed, treated, possessed or used by or on behalf of any **insured;** or

Exclusions

Nuclear Energy (continued)

2. in any way related to the furnishing by any **insured** of services, materials, parts or equipment in connection with the planning, construction, maintenance, operation or use of any **nuclear facility**. But if such facility is located within the United States of America (including its possessions or territories) or Canada, this subparagraph 2. applies only to **nuclear property damage** to such **nuclear facility** and any property thereat.

Obligations Of Underlying Insurance

This insurance does not apply to any damages, loss, cost or expense for which the liability or obligation under **underlying insurance** is by law unlimited.

Pollution

A. 1. This insurance does not apply to any damages, loss, cost or expense arising out of the actual, alleged or threatened discharge, dispersal, seepage, migration, release or escape of **pollutants,** other than as described in paragraph B. below.

2. Subparagraph A.1. above does not apply to:

a. bodily injury or property damage included in the products-completed operations hazard;

b. bodily injury or property damage:

i. caused by the escape of operating fluids which are needed to perform the normal electrical, hydraulic or mechanical functions necessary for the operation of mobile equipment or its parts;

ii. if sustained within a building and caused by the release of gaseous irritants or contaminants from materials brought into that building, in connection with operations being performed by you or on your behalf by a contractor or subcontractor; or

iii. resulting from your other ongoing contracting operations;

c. bodily injury if sustained within a building and caused by the escape of gaseous irritants or contaminants from equipment used to heat that building;

d. bodily injury or property damage caused by heat, smoke or fumes from a **hostile fire;** or

e. bodily injury or property damage resulting from the ownership, maintenance or use of an auto.

B. This insurance does not apply to any damages, loss, cost or expense arising out of the actual, alleged or threatened discharge, dispersal, seepage, migration, release or escape of **pollutants**:

1. which are or were at any time transported, handled, stored, disposed of, processed or treated as waste by or for any:

a. **insured;** or

b. person or organization for whom any **insured** may be legally responsible.

2. at or from any premises, site or location:

a. which is or was at any time used by or for any **insured** or others for the handling, storage, disposal, processing or treatment of waste; or

b. on which any insured or any contractor or subcontractor working directly or indirectly on any **insured**'s behalf is performing operations, if the operations are to test for, monitor, clean up, remove, contain, treat, detoxify or neutralize, or in any way respond to, or assess the effects of pollutants.

Exclusions

Pollution (continued)

C. This insurance does not apply to any damages, loss, cost or expense arising out of any:

1. request, demand, order, or regulatory or statutory requirement that any **insured** or others test for, monitor, clean up, remove, contain, treat, detoxify or neutralize, or in any way respond to, or assess the effects of **pollutants;** or
2. claim or proceeding by or on behalf of any governmental authority or others for any damages, loss, cost or expense because of testing for, monitoring, cleaning up, removing, containing, treating, detoxifying or neutralizing, or in any way responding to, or assessing the effects of **pollutants**.
3. Subparagraphs C.1. and C.2. above do not apply to the liability for damages, for property damage, that the **insured** would have in the absence of such request, demand, order or regulatory or statutory requirement, or such claim or proceeding by or on behalf of a governmental authority.

This exclusion applies regardless of whether or not the pollution was accidental, expected, gradual, intended, preventable or sudden.

With respect to this insurance, the following conditions apply.

Conditions

Appeals

We may, at our discretion, initiate or participate in an appeal of a judgment, if such judgment may result in a payment under this insurance.

If we initiate or participate in an appeal, we will pay our costs of the appeal. But in no case will the amount we pay for **loss** exceed the Limits Of Insurance.

Bankruptcy

Bankruptcy or insolvency of the **insured** or of the **insured**'s estate will not relieve us of our obligations under this insurance.

Cancellation

The first named **insured** may cancel this policy at any time by sending us a written request or by returning the policy and stating when thereafter cancellation is to take effect.

We may cancel this policy at any time by sending to the first named **insured** a notice sixty (60) days, twenty (20) days in the event of non-payment of premium, in advance of the cancellation date. Our notice of cancellation will be mailed to the first named **insured's** last known address and will indicate the date on which coverage is terminated. If notice of cancellation is mailed, proof of mailing will be sufficient proof of notice.

The earned premium will be computed on a pro rata basis. Any unearned premium will be returned as soon as practicable.

Changes

This policy can only be changed by a written endorsement that becomes part of this policy. The endorsement must be signed by one of our authorized representatives.

Compliance By Insureds

We have no duty to provide coverage under this policy unless you and any other involved **insured** have fully complied with all of the terms and conditions of the policy.

Conditions
(continued)

Compliance With Applicable Trade Sanctions

This insurance does not apply to the extent that trade or economic sanctions or other laws or regulations prohibit us from providing insurance.

Conformance

Any terms of this insurance which are in conflict with the applicable statutes of the State or jurisdiction in which this policy is issued are amended to conform to such statutes.

Disclosures And Representations

We have issued this insurance:

- based upon representations you made to us; and
- in reliance upon your representations.

Unintentional failure of an employee of the **insured** to disclose a hazard or other material information will not violate this condition, unless an officer (whether or not an employee) of any **insured** or an officer's designee knows about such hazard or other material information.

Duties In The Event Of Occurrence, Offense, Claim Or Suit

A. You must see to it that we and any insurers of **underlying insurance** are notified as soon as practicable of any occurrence or offense that may result in a claim, if the claim may involve us or other insurers. To the extent possible, notice should include:

1. how, when and where the occurrence or offense happened;
2. the names and addresses of any injured persons and witnesses; and
3. the nature and location of any injury or damage arising out of the occurrence or offense.

Notice of an occurrence or offense is not notice of a claim.

B. If a claim is made or suit is brought against any **insured,** you must:

1. immediately record the specifics of the claim or suit and the date received;
2. notify us and any other insurers as soon as practicable; and
3. see to it that we receive written notice of the claim or suit as soon as practicable.

C. You and any other involved **insured** must:

1. immediately send us copies of any demands, notices, summonses or legal papers received in connection with the claim or suit;
2. authorize us to obtain records and other information;
3. cooperate with us and any other insurers in the:
   a. investigation or settlement of the claim; or
   b. defense against the suit; and
4. assist us, upon our request, in the enforcement of any right against any person or organization which may be liable to the **insured** because of loss to which this insurance may also apply.

D. No **insured** will, except at the **insured**'s own cost, make any payment, assume any obligation or incur any expense without our consent.

Conditions

Duties In The Event Of Occurrence, Offense, Claim Or Suit (continued)

E. Notice given by or on behalf of:

1. the **insured;**
2. the injured person; or
3. any other claimant;

to a licensed agent of ours with particulars sufficient to identify the insured shall be deemed notice to us.

F. Knowledge of an occurrence or offense by an agent or employee of the insured will not constitute knowledge by the **insured,** unless an officer (whether or not an employee) of any **insured** or an officer's designee knows about such occurrence or offense.

G. Failure of an agent or employee of the **insured,** other than an officer (whether or not an employee) of any **insured** or an officer's designee, to notify us of an occurrence or offense which such person knows about will not affect the insurance afforded to you.

H. If a claim or loss does not reasonably appear to involve either this insurance or any **underlying insurance**, but it later develops into a claim or loss to which this insurance applies, the failure to report it to us will not violate this condition, provided the **insured** gives us immediate notice as soon as the **insured** is aware that this insurance may apply to such claim or loss.

First Named Insured

The person or organization first named in the Declarations is primarily responsible for payment of all premiums. The first named **insured** will act on behalf of all other named **insureds** for the giving and receiving of notice of cancellation or nonrenewal and the receiving of any return premiums that become payable under this policy.

Inspections And Surveys

We may:

- make inspections and surveys at any time;
- give you reports on the conditions we find; and
- recommend changes.

Any inspections, surveys, reports or recommendations relate only to insurability and the premiums to be charged. We do not make safety inspections. We do not undertake to perform the duty of any person or organization to provide for the health or safety of workers or the public. We do not warrant that conditions:

- are safe or healthful; or
- comply with laws, regulations, codes or standards.

This condition applies not only to us, but also to any rating, advisory, rate service or similar organization, which makes insurance inspections, surveys, reports or recommendations for us.

Legal Action Against Us

No person or organization has a right under this insurance to:

- join us as a party or otherwise bring us into a suit seeking damages from an **insured;** or
- sue us on this insurance unless all of the terms and conditions of this insurance have been fully complied with.

Conditions

Legal Action Against Us (continued)

A person or organization may sue us to recover on an **agreed settlement** or on a final judgment against an **insured** obtained after an actual:

- trial in a civil proceeding; or
- arbitration or other alternative dispute resolution proceeding;

but we will not be liable for any damages, loss, cost or expense that are not payable under the terms and conditions of this insurance, or that are in excess of the applicable Limits Of Insurance.

Maintenance Of Underlying Insurance And Underlying Limits

We have issued this insurance in reliance upon representations made by you about **underlying insurance** and **underlying limits**. You must see to it that:

- **underlying insurance** is and remains valid and in full force and effect.
- **underlying insurance** will not be cancelled, non-renewed or rescinded without replacement by coverage to which we agree.
- the terms and conditions of **underlying insurance** will not materially change, unless we agree otherwise.
- the terms and conditions of renewals or replacements of **underlying insurance** will be materially the same as the prior coverage, unless we agree otherwise.
- **underlying limits** are and remain available, regardless of any bankruptcy, insolvency or other financial impairment of any insurer or any other person or organization.
- the **underlying limits** will not be reduced or exhausted, except for the reduction or exhaustion by payment of judgments, settlements or related costs or expenses (if such costs or expenses reduce such limits).

Failure to comply with this condition will not invalidate this insurance. But in the case of any such failure, our obligation or liability will not exceed that which would have applied absent any failure to comply with this condition.

You must notify us as soon as practicable if any **underlying insurance** is no longer valid or in full force or effect.

Other Insurance

If other valid and collectible insurance is available to the **insured** for loss that we would otherwise cover under this insurance, our obligations are limited as follows.

A. This insurance is excess over any insurance affording coverage that this insurance would also afford, whether primary, excess, contingent or on any other basis.

B. We will pay only our share of the amount of **loss,** if any, that exceeds the sum of the total of:

1. amounts that all other insurance would pay for loss in the absence of this insurance; and
2. all self insured retentions, self insurance, deductible or other mechanisms (including contractual obligations of any person or organization to the **insured**) arranged for the funding of loss.

The insurance or other mechanisms described in subparagraphs A. or B. above does not include **underlying insurance** or insurance negotiated specifically to apply in excess of this insurance.

Conditions
(continued)

Titles Of Paragraphs

The titles of the various paragraphs of this policy and endorsements, if any, attached to this policy are inserted solely for convenience or reference and are not to be deemed in any way to limit or affect the provisions to which they relate.

Transfer Of Rights And Duties

Your rights and duties under this insurance may not be transferred without our written consent. However, if you die, then your rights and duties will be transferred to your legal representative, but only while acting within the scope of duties as your legal representative, or to anyone having temporary custody of your property until your legal representative has been appointed.

Transfer Or Waiver Of Rights Of Recovery Against Others

We will waive the right of recovery we would otherwise have had against another person or organization for loss to which this insurance applies, provided the **insured** has waived their rights of recovery against such person or organization in a contract or agreement that is executed before loss.

To the extent that the **insured**'s rights to recover all or part of any payment made under this insurance have not been waived, those rights are transferred to us. The **insured** must do nothing after **loss** to impair them. At our request, the **insured** will bring suit or transfer those rights to us and help us enforce them.

Any amount recovered will be apportioned as follows:

- first, we shall receive all amounts recovered until we have been fully reimbursed for all amounts we have incurred, including costs or expenses of such recovery proceedings.
- then, you are entitled to claim for any further amount recovered.

When Loss Is Payable

Our obligation to make payment of **loss**, which is covered under the terms and conditions of this insurance, does not apply unless and until there has been payment of the full amounts of **underlying limits** and other insurance.

When We Do Not Renew

If we decide not to renew this policy, we will mail or deliver to the first named insured stated in the Declarations written notice of the nonrenewal not less than sixty (60) days before the expiration date. If notice of nonrenewal is mailed, proof of mailing will be sufficient proof of notice.

Definitions

WITH RESPECT TO THIS INSURANCE, WORDS AND PHRASES THAT APPEAR IN BOLD PRINT HAVE THE SPECIAL MEANINGS DESCRIBED BELOW.

Agreed Settlement

Agreed settlement means a settlement and release of liability signed by us, the **insured** and the claimant or the claimant's legal representative.

Asbestos

Asbestos means asbestos in any form, including its presence or use in any alloy, by-product, compound or other material or waste. Waste includes material to be recycled, reconditioned or reclaimed.

Controlling Underlying Insurance

Controlling underlying insurance means the policy or policies of insurance shown as Controlling Underlying Insurance(s) in the Declarations.

Hostile Fire

Hostile fire means one which becomes uncontrollable or breaks out from where it was intended to be.

Insured

Insured means a person or an organization qualifying as an **insured** in the Who Is An Insured section of this contract.

Loss

Loss means damages that the **insured** becomes legally obligated to pay because of injury or damage.

Nuclear Facility

Nuclear facility means any:

A. **nuclear reactor;**

B. equipment or device designed or used for:

1. separating the isotopes of plutonium or uranium;
2. processing or utilizing **nuclear spent fuel;** or
3. handling, processing or packaging **nuclear waste;**

C. equipment or device used for the processing, fabricating or alloying of **nuclear material** if at any time the total amount of such material in the custody of the **insured** at the premises where such equipment or device is located consists of or contains more than:

1. twenty-five (25) grams of plutonium or uranium 233, or any combination thereof; or
2. two-hundred-fifty (250) grams of uranium 235; or

D. structure, basin, excavation, premises or place prepared or used for the storage or disposal of **nuclear waste**;

and includes the site on which any of the foregoing is located, all operations conducted on such site and all premises used for such operations.

Nuclear Hazardous Properties

Nuclear hazardous properties include radioactive, toxic or explosive properties.

Definitions *(continued)*

WITH RESPECT TO THIS INSURANCE, WORDS AND PHRASES THAT APPEAR IN BOLD PRINT HAVE THE SPECIAL MEANINGS DESCRIBED BELOW.

Nuclear Material

Nuclear material means **by-product material, source material** or **special nuclear material.**

By-product material, **source material** and **special nuclear material** have the meanings given them in the United States of America Atomic Energy Act of 1954 or in any law amendatory thereof.

Nuclear Property Damage

Nuclear property damage includes all forms of radioactive contamination of property.

Nuclear Reactor

Nuclear reactor means any apparatus designed or used to sustain nuclear fission in a self-supporting chain reaction or to contain a critical mass of fissionable material.

Nuclear Spent Fuel

Nuclear spent fuel means any fuel element or fuel component, solid or liquid, which has been used or exposed to radiation in a **nuclear reactor**.

Nuclear Waste

Nuclear waste means any waste material:

- containing **nuclear material**, other than the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its **source material** content; and
- resulting from the operation by any person or organization of any **nuclear facility** described in subparagraphs A. or B. of the definition of **nuclear facility**.

Pollutants

Pollutants means any solid, liquid, gaseous or thermal irritant or contaminant, including smoke, vapor, soot, fumes, acids, alkalis, chemicals and waste. Waste includes materials to be recycled, reconditioned or reclaimed.

Underlying Insurance

Underlying insurance means the coverages described in:

- **controlling underlying insurance;** and
- the Underlying Limits Of Insurance shown in the Declarations.

Underlying Limits

Underlying limits means the sum of amounts:

A. shown in the Underlying Limits Of Insurance section of the Declarations, consisting of amounts:

1. available under applicable **underlying insurance**; and
2. any **insured** must pay because **underlying insurance**, as represented by you, is not available, regardless of the reason;

B. available under any applicable antecedent, renewal or replacement of **underlying insurance**;

C. of any allocation, deductible, participation, retention or other self-insurance applicable to the insurance described in subparagraphs A. and B. above; and

WITH RESPECT TO THIS INSURANCE, WORDS AND PHRASES THAT APPEAR IN BOLD PRINT HAVE THE SPECIAL MEANINGS DESCRIBED BELOW.

D. of any reinstatement of limits or supplemental or other limits available under the insurance described in subparagraphs A. and B. above.

If amounts available under the applicable **underlying insurance**, shown in the Underlying Limits Of Insurance section of the Declarations, are greater or less than the amount shown in the Declarations, then the greater of such amounts shall apply in the computation of **underlying limits**.

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ADDITIONAL INSURED – OWNERS, LESSEES OR CONTRACTORS – SCHEDULED PERSON OR ORGANIZATION

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

Name Of Additional Insured Person(s) Or Organization(s)	Location(s) Of Covered Operations
WHERE REQUIRED BY WRITTEN CONTRACT.	*ALL LOCATIONS WHERE REQUIRED BY WRITTEN CONTRACT*
Information required to complete this Schedule, if not shown above, will be shown in the Declarations.	

A. **Section II – Who Is An Insured** is amended to include as an additional insured the person(s) or organization(s) shown in the Schedule, but only with respect to liability for "bodily injury", "property damage" or "personal and advertising injury" caused, in whole or in part, by:

1. Your acts or omissions; or
2. The acts or omissions of those acting on your behalf;

in the performance of your ongoing operations for the additional insured(s) at the location(s) designated above.

However:

1. The insurance afforded to such additional insured only applies to the extent permitted by law; and
2. If coverage provided to the additional insured is required by a contract or agreement, the insurance afforded to such additional insured will not be broader than that which you are required by the contract or agreement to provide for such additional insured.

B. With respect to the insurance afforded to these additional insureds, the following additional exclusions apply:

This insurance does not apply to "bodily injury" or "property damage" occurring after:

1. All work, including materials, parts or equipment furnished in connection with such work, on the project (other than service, maintenance or repairs) to be performed by or on behalf of the additional insured(s) at the location of the covered operations has been completed; or
2. That portion of "your work" out of which the injury or damage arises has been put to its intended use by any person or organization other than another contractor or subcontractor engaged in performing operations for a principal as a part of the same project.

 © Insurance Services Office, Inc., 2018

C. With respect to the insurance afforded to these additional insureds, the following is added to **Section III – Limits Of Insurance:**

If coverage provided to the additional insured is required by a contract or agreement, the most we will pay on behalf of the additional insured is the amount of insurance:

1. Required by the contract or agreement; or

2. Available under the applicable limits of insurance;

whichever is less.

This endorsement shall not increase the applicable limits of insurance.

© Insurance Services Office, Inc., 2018

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ADDITIONAL INSURED – OWNERS, LESSEES OR CONTRACTORS – COMPLETED OPERATIONS

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART
PRODUCTS/COMPLETED OPERATIONS LIABILITY COVERAGE PART

SCHEDULE

Name Of Additional Insured Person(s) Or Organization(s)	Location And Description Of Completed Operations
WHERE REQUIRED BY WRITTEN CONTRACT, BUT ONLY WHEN THE CONTRACT SPECIFIES COVERAGE FOR COMPLETED OPERATIONS	***ALL LOCATIONS WHERE REQUIRED BY WRITTEN CONTRACT***
Information required to complete this Schedule, if not shown above, will be shown in the Declarations.	

A. **Section II – Who Is An Insured** is amended to include as an additional insured the person(s) or organization(s) shown in the Schedule, but only with respect to liability for "bodily injury" or "property damage" caused, in whole or in part, by "your work" at the location designated and described in the Schedule of this endorsement performed for that additional insured and included in the "products-completed operations hazard".

However:

1. The insurance afforded to such additional insured only applies to the extent permitted by law; and
2. If coverage provided to the additional insured is required by a contract or agreement, the insurance afforded to such additional insured will not be broader than that which you are required by the contract or agreement to provide for such additional insured.

B. With respect to the insurance afforded to these additional insureds, the following is added to **Section III – Limits Of Insurance:**

If coverage provided to the additional insured is required by a contract or agreement, the most we will pay on behalf of the additional insured is the amount of insurance:

1. Required by the contract or agreement; or
2. Available under the applicable Limits of Insurance shown in the Declarations;

whichever is less.

This endorsement shall not increase the applicable Limits of Insurance shown in the Declarations.

© Insurance Services Office, Inc., 2012

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

PRIMARY INSURANCE FOR SCHEDULED ADDITIONAL INSURED

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

Additional Insured:	Location Of Covered Operations:
WHERE REQUIRED BY WRITTEN CONTRACT	ALL LOCATIONS

(If no entry appears above, information required to complete this endorsement will be shown in the Declarations as applicable to this endorsement.)

With respect only to the Additional Insured and at the Location Of Covered Operations shown in the Schedule, the following is added to **SECTION IV – COMMERCIAL GENERAL LIABILITY CONDITIONS**, Paragraph **4.Other Insurance** and supersedes any provision to the contrary:

Primary And Noncontributory Insurance

This insurance is primary to and will not seek contribution from any other insurance available to the Additional Insured with respect to the Location Of Covered Operations shown in the Schedule under this policy provided that:

(1) The Additional Insured is a named insured under such other insurance; and

(2) You have agreed in writing in a contract or agreement that this insurance would be primary and would not seek contribution from any other insurance available to the Additional Insured.

 Includes copyrighted material of Insurance Services Office, Inc., with its permission.

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

TRANSFER OR WAIVER OF RIGHTS OF RECOVERY AGAINST OTHERS TO US – SCHEDULED PERSON(S) OR ORGANIZATION(S)

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE FORM

SCHEDULE

Name Of Person(s) or Organization(s):
WHERE REQUIRED BY WRITTEN CONTRACT.
Information required to complete this Schedule, if not shown above, will be shown in the Declarations.

The policy is amended at **SECTION IV – COMMERCIAL GENERAL LIABILITY CONDITIONS**, **Condition 8. Transfer Or Waiver Of Rights Of Recovery Against Other To Us** by deleting the first paragraph and replacing it with the following:

We waive any right of recovery against the person(s) or organization(s) shown in the Schedule above because of payments we make under this Coverage Part. Such waiver by us applies only to the extent that the insured has waived its right of recovery against such person(s) or organization(s) prior to loss. This endorsement applies only to the person(s) or organization(s) shown in the Schedule above.

Includes copyrighted material of Insurance Services Office, Inc., with its permission.