STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION 12

PROPOSAL

DATE AND TIME OF BID OPENING: November 24, 2015 AT 10:00 A.M 1710 EAST MARION STREET, SHELBY, NC 28152

CONTRACT ID: DL00056

WBS ELEMENT NO.: 17BP.12.R.52

COUNTY: LINCOLN

LOCATION: BRIDGE NO. 70 OVER MILL CREEK ON SR 1168 (JOHNSTOWN ROAD)

TYPE OF WORK: GRADING, PAVING, DRAINAGE, STRUCTURE, AND PAVEMENT MARKINGS

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 STRUCTURE PROJECT. BID BOND ARE REQUIRED.

NAME OF BIDDER

ADDRESS OF BIDDER

PROPOSAL FOR THE CONSTRUCTION OF

CONTRACT No. DL00056 IN LINCOLN, NORTH CAROLINA

Date_____ 20_____

DEPARTMENT OF TRANSPORTATION,

RALEIGH, NORTH CAROLINA

The Bidder has carefully examined the location of the proposed work to be known as Contract No. **DL00056**; has carefully examined the plans and specifications, which are acknowledged to be part of the proposal, the special provisions, the proposal, the form of contract, and the forms of contract payment bond and contract performance bond; and thoroughly understands the stipulations, requirements and provisions. The undersigned bidder agrees to bound upon his execution of the bid and subsequent award to him by the Department of Transportation in accordance with this proposal to provide the necessary contract payment bond and contract performance bond within fourteen days after the written notice of award is received by him. The undersigned Bidder further agrees to provide all necessary machinery, tools, labor, and other means of construction; and to do all the work and to furnish all materials, except as otherwise noted, necessary to perform and complete the said contract in accordance with *the 2012 Standard Specifications for Roads and Structures* by the dates(s) specified in the Project Special Provisions and in accordance with the requirements of the Engineer, and at the unit or lump sum prices, as the case may be, for the various items given on the sheets contained herein.

The Bidder shall provide and furnish all the materials, machinery, implements, appliances and tools, and perform the work and required labor to construct and complete State Highway Contract No. **DL00056** in **LINCOLN COUNTY**, for the unit or lump sum prices, as the case may be, bid by the Bidder in his bid and according to the proposal, plans, and specifications prepared by said Department, which proposal, plans, and specifications show the details covering this project, and hereby become a part of this contract.

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

If the proposal is accepted and the award is made, the contract is valid only when signed either by the Contract Officer or such other person as may be designated by the Secretary to sign for the Department of Transportation. The conditions and provisions herein cannot be changed except over the signature of the said Contract Officer or Division Engineer.

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

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

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

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INSTRUCTIONS TO BIDDERS

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

All bids shall be prepared and submitted in accordance with the following requirements. 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. All entries on the itemized proposal sheet (bid form) shall be written in ink or typed.
3. 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.
4. 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.
5. 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.
6. 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.
7. The bid shall be properly executed on the included **Execution of Bid – Non-collusion Affidavit, Debarment Certification 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 should include it on the bid.
   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.
   d. Completed attestation by Notary Public

   Note: Signer, Witness and Notary Public must be different individuals.
8. The bid shall not contain any unauthorized additions, deletions, or conditional bids.
9. 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.
10. **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 12 OFFICE, LOCATED AT 1710 EAST MARION STREET, SHELBY, NC 28152., BY 10:00 A.M. ON, TUESDAY, NOVEMBER 24 , 2015.**
11. The sealed bid must display the following statement on the front of the sealed envelope:

    QUOTATION FOR DL00056–17BP.12.R.52 LINCOLN COUNTY
    DESCRIPTION: BRIDGE NO. 70 OVER MILL CREEK ON SR 1168 (JOHNSTOWN)
    TO BE OPENED AT: 10:00 A.M., ON TUESDAY, NOVEMBER 24, 2015 AT THE DIVISION 12 OFFICE LOCATED AT 1710 E. MARION ST. IN SHELBY.

12. 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
    ATTN: R. D. Chandler, PE
    P. O. Box 47
    Shelby, NC 28151-0047

OPTIONAL COMPUTER BID PREPARATION:

1. All instructions given above for completing and returning TRADITIONAL PAPER BIDS apply, except as modified by the provision "Computer Bid Preparation (Optional)", if applicable.
2. Expedite software necessary for electronic bid preparation may be downloaded from the Connect NCDOT website at: https://connect.ncdot.gov/letting/Pages/EBS-Information.aspx

PROJECT SPECIAL PROVISIONS

GENERAL

MANDATORY PRE-BID CONFERENCE (Prequalifying To Bid):

(7-18-06) (Rev. 3-25-13) SPD 01-300

In order for all prospective bidders to have an extensive knowledge of the project, all prospective bidders shall attend a mandatory pre-bid conference at at **2:00 pm, on Monday November 16, 2015.**

NCDOT Division 12 Office
1710 E. Marion Street
Shelby, NC 28150
704-480-9020

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

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

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

(A) The individual has signed his name on the official roster no later than thirty (30) minutes after the above noted time for the beginning of the conference.

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

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

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

Attendance at any prior pre-bid conference will not meet the requirement of this provision.

CONTRACT TIME AND LIQUIDATED DAMAGES:
(4-17-12) 108 SP1 G07 C

The date of availability for this contract is **December 15, 2015**.

The completion date for this contract is **November 1, 2016**.

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

The liquidated damages for this contract are **Five Hundred Dollars ($ 500.00)** per calendar day. These liquidated damages will not be cumulative with any liquidated damages which may become chargeable under Intermediate Contract Time Number 1.

INTERMEDIATE CONTRACT TIME NUMBER 1 AND LIQUIDATED DAMAGES:
(7-1-95) (Rev. 2-21-12) 108 SP1 G13 A

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

The date of availability for this intermediate contract time is **December 15, 2015**.

The completion date for this intermediate contract time is **June 1, 2016**.

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

Upon apparent completion of all the work required to be completed by this intermediate date, a final inspection will be held in accordance with Article 105-17 and upon acceptance, the Department will assume responsibility for the maintenance of all work except *Planting, Reforestation* and/or *Permanent Vegetation Establishment*. The Contractor will be responsible for and shall make corrections of all damages to the completed roadway caused by his planting operations, whether occurring prior to or after placing traffic through the project.

PROSECUTION OF WORK:
(7-1-95) (Rev. 8-21-12) 108 SP1 G15R

The Contractor will be required to prosecute the work in a continuous and uninterrupted manner from the time he begins the work until completion and final acceptance of the project. The Contractor will not be permitted to suspend his operations except for reasons beyond his control or except where the Engineer has authorized a suspension of the Contractor's operations in writing.

In the event that the Contractor's operations are suspended in violation of the above provisions, the sum of **$ 500.00** will be charged the Contractor for each and every calendar day that such suspension takes place. The said amount is hereby agreed upon as liquidated damages due to extra engineering and maintenance costs and due to increased public hazard resulting from a suspension of the work. Liquidated damages chargeable due to suspension of the work will be additional to any liquidated damages that may become chargeable due to failure to complete the work on time.

PERMANENT VEGETATION ESTABLISHMENT:
(2-16-12) (Rev. 10-15-13) 104 SP1 G16

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

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

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

MAJOR CONTRACT ITEMS:

(2-19-02) 104 SP1 G28

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

Line #	Description
70	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS
71	3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLABS

SPECIALTY ITEMS:

(7-1-95)(Rev. 1-17-12) 108-6 SP1 G37

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

Line #	Description
20 thru 23	Guardrail
29 thru 50	Erosion Control
52 thru 54, 56, 57	Drilled Piers

FUEL PRICE ADJUSTMENT:

(11-15-05) (Rev. 2-18-14) 109-8 SP1 G43

Revise the *2012 Standard Specifications* as follows:

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

The base index price for DIESEL #2 FUEL is **$1.5065** per gallon. Where any of the following are included as pay items in the contract, they will be eligible for fuel price adjustment.

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

Description	Units	Fuel Usage Factor Diesel
Unclassified Excavation	Gal/CY	0.29
Borrow Excavation	Gal/CY	0.29
Class IV Subgrade Stabilization	Gal/Ton	0.55
Aggregate Base Course	Gal/Ton	0.55
Sub-Ballast	Gal/Ton	0.55
Asphalt Concrete Base Course, Type ____	Gal/Ton	2.90
Asphalt Concrete Intermediate Course, Type ____	Gal/Ton	2.90
Asphalt Concrete Surface Course, Type ____	Gal/Ton	2.90
Open-Graded Asphalt Friction Course	Gal/Ton	2.90
Permeable Asphalt Drainage Course, Type ____	Gal/Ton	2.90
Sand Asphalt Surface Course, Type ____	Gal/Ton	2.90

Aggregate for Cement Treated Base Course	Gal/Ton	0.55
Portland Cement for Cement Treated Base Course	Gal/Ton	0.55
__" Portland Cement Concrete Pavement	Gal/SY	0.245
Concrete Shoulders Adjacent to __" Pavement	Gal/SY	0.245

MINORITY BUSINESS ENTERPRISE AND WOMEN BUSINESS ENTERPRISE (DIVISIONS):

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

Description

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

Definitions

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

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

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

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

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

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

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

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

equipment for the products. Brokers and packagers are not regarded as manufacturers or regular dealers within the meaning of this section.

North Carolina Unified Certification Program (NCUCP) - A program that provides comprehensive services and information to applicants for MBE/WBE certification. The MBE/WBE program follows the same regulations as the federal Disadvantaged Business Enterprise (DBE) program in accordance with 49 CFR Part 26.

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

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

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

Forms and Websites Referenced in this Provision

Payment Tracking System - On-line system in which the Contractor enters the payments made to MBE and WBE subcontractors who have performed work on the project. https://apps.dot.state.nc.us/Vendor/PaymentTracking/

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

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

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

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

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

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

MBE and WBE Goal

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

(A) Minority Business Enterprises **1.0 %**

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

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

(B) Women Business Enterprises **3.0 %**

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

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

Directory of Transportation Firms (Directory)

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

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

Listing of MBE/WBE Subcontractors

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

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

(1) Bidders, at the time the bid proposal is submitted, shall submit a listing of MBE/WBE participation, including the names and addresses on *Listing of MBE and WBE Subcontractors* contained elsewhere in the contract documents in order for the bid to be considered responsive. Bidders shall indicate the total dollar value of the MBE and WBE participation for the contract.

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

(3) The bidder shall be responsible for ensuring that the MBE/WBE is certified at the time of bid by checking the Directory of Transportation Firms. If the firm is not certified at the time of the bid-letting, that MBE's or WBE's participation will not count towards achieving the corresponding goal.

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

MBE or WBE Prime Contractor

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

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

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

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

Written Documentation – Letter of Intent

The bidder shall submit written documentation for each MBE/WBE that will be used to meet the MBE and WBE goals of the contract, indicating the bidder's commitment to use the MBE/WBE in the contract. This documentation shall be submitted on the Department's form titled *Letter of Intent*.

The documentation shall be received in the office of the Engineer no later than 12:00 noon of the sixth calendar day following opening of bids, unless the sixth day falls on Saturday, Sunday or an official state holiday. In that situation, it is due in the office of the Engineer no later than 12:00 noon on the next official state business day.

If the bidder fails to submit the Letter of Intent from each committed MBE and WBE to be used toward the MBE and WBE goals, or if the form is incomplete (i.e. both signatures are not present), the MBE/WBE participation will not count toward meeting the MBE/WBE goal. If the lack of this participation drops the commitment below either the MBE or WBE goal, the Contractor shall submit evidence of good faith efforts for the goal not met, completed in its entirety, to the Engineer no later than 12:00 noon of the eighth calendar day following opening of bids, unless the eighth day falls on Saturday, Sunday or an official state holiday. In that situation, it is due in the office of the Engineer no later than 12:00 noon on the next official state business day.

Submission of Good Faith Effort

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

One complete set and **9** copies of this information shall be received in the office of the Engineer no later than 12:00 noon of the sixth calendar day following opening of bids, unless the sixth day

falls on Saturday, Sunday or an official state holiday. In that situation, it is due in the office of the Engineer no later than 12:00 noon on the next official state business day.

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

Consideration of Good Faith Effort for Projects with MBE/WBE Goals More Than Zero

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

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

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

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

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

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

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

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

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

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

(F) Making efforts to assist interested MBEs/WBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or bidder.

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

(H) Effectively using the services of available minority/women community organizations; minority/women contractors' groups; Federal, State, and local minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of MBEs/WBEs. Contact within 7 days from the bid opening NCDOT's Business Development Manager in the Business Opportunity and Work Force Development Unit to give notification of the bidder's inability to get MBE or WBE quotes.

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

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

(1) Whether the bidder's documentation reflects a clear and realistic plan for achieving the MBE and WBE goals.

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

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

If the Department does not award the contract to the apparent lowest responsive bidder, the Department reserves the right to award the contract to the next lowest responsive bidder that can satisfy to the Department that the MBE and WBE goals can be met or that an adequate good faith effort has been made to meet the MBE and WBE goals.

Non-Good Faith Appeal

The Engineer will notify the contractor verbally and in writing of non-good faith. A contractor may appeal a determination of non-good faith made by the Goal Compliance Committee. If a contractor wishes to appeal the determination made by the Committee, they shall provide written notification to the Engineer. The appeal shall be made within 2 business days of notification of the determination of non-good faith.

Counting MBE/WBE Participation Toward Meeting MBE/WBE Goals

(A) Participation

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

(B) Joint Checks

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

(C) Subcontracts (Non-Trucking)

A MBE/WBE may enter into subcontracts. Work that a MBE subcontracts to another MBE firm may be counted toward the MBE contract goal requirement. The same holds for work that a WBE subcontracts to another WBE firm. Work that a MBE subcontracts to a non-MBE firm does not count toward the MBE contract goal requirement. Again, the same holds true for the work that a WBE subcontracts to a non-WBE firm. If a MBE or WBE contractor or subcontractor subcontracts a significantly greater portion of the work of the contract than would be expected on the basis of standard industry practices, it shall be presumed that the MBE or WBE is not performing a commercially useful function. The MBE/WBE may present evidence to rebut this presumption to the Department. The Department's decision on the rebuttal of this presumption may be subject to review by the Office of Inspector General, NCDOT.

(D) Joint Venture

When a MBE or WBE performs as a participant in a joint venture, the Contractor may count toward its contract goal requirement a portion of the total value of participation with the MBE or WBE in the joint venture, that portion of the total dollar value being a distinct clearly defined portion of work that the MBE or WBE performs with its forces.

(E) Suppliers

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

(F) Manufacturers and Regular Dealers

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

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

(2) With respect to materials or supplies purchased from a MBE/WBE, which is neither a manufacturer nor a regular dealer, count the entire amount of fees or commissions charged for assistance in the procurement of the materials and supplies, or fees or transportation charges for the delivery of materials or supplies required on a job site (but not the cost of the materials and supplies themselves),

provided the fees are determined to be reasonable and not excessive as compared with fees customarily allowed for similar services.

Commercially Useful Function

(A) MBE/WBE Utilization

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

(B) MBE/WBE Utilization in Trucking

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

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

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

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

(4) The MBE may subcontract the work to another MBE firm, including an owner-operator who is certified as a MBE. The same holds true that a WBE may subcontract the work to another WBE firm, including an owner-operator who is certified as a WBE. When this occurs, the MBE or WBE who subcontracts work receives credit for the total value of the transportation services the subcontracted MBE or WBE provides on the contract. It should be noted that every effort shall be made by MBE and WBE contractors to subcontract to the same certification (i.e., MBEs to MBEs and WBEs to WBEs), in order to fulfill

the goal requirement. This, however, may not always be possible due to the limitation of firms in the area. If the MBE or WBE firm shows a good faith effort has been made to reach out to similarly certified transportation service providers and there is no interest or availability, and they can get assistance from other certified providers, the Engineer will not hold the prime liable for meeting the goal.

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

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

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

MBE/WBE Replacement

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

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

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

(A) Performance Related Replacement

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

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

(1) Copies of written notification to MBEs/WBEs that their interest is solicited in contracting the work defaulted by the previous MBE/WBE or in subcontracting other items of work in the contract.

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

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

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

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

(B) Decertification Replacement

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

(2) When a committed MBE/WBE is decertified prior to the Department receiving the SAF (*Subcontract Approval Form*) for the named MBE/WBE firm, the Contractor shall take all necessary and reasonable steps to replace the MBE/WBE

subcontractor with another similarly certified MBE/WBE subcontractor to perform at least the same amount of work to meet the MBE/WBE goal requirement. If a MBE/WBE firm is not found to do the same amount of work, a good faith effort must be submitted to NCDOT (see A herein for required documentation).

Changes in the Work

When the Engineer makes changes that result in the reduction or elimination of work to be performed by a committed MBE/WBE, the Contractor will not be required to seek additional participation. When the Engineer makes changes that result in additional work to be performed by a MBE/WBE based upon the Contractor's commitment, the MBE/WBE shall participate in additional work to the same extent as the MBE/WBE participated in the original contract work.

When the Engineer makes changes that result in extra work, which has more than a minimal impact on the contract amount, the Contractor shall seek additional participation by MBEs/WBEs unless otherwise approved by the Engineer.

When the Engineer makes changes that result in an alteration of plans or details of construction, and a portion or all of the work had been expected to be performed by a committed MBE/WBE, the Contractor shall seek participation by MBEs/WBEs unless otherwise approved by the Engineer.

When the Contractor requests changes in the work that result in the reduction or elimination of work that the Contractor committed to be performed by a MBE/WBE, the Contractor shall seek additional participation by MBEs/WBEs equal to the reduced MBE/WBE participation caused by the changes.

Reports and Documentation

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

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

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

Reporting Minority and Women Business Enterprise Participation

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

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

(B) Removal of an approved contractor from the prequalified bidders' list or the removal of other entities from the approved subcontractors list.

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

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

Failure on the part of any subcontractor to submit the required information in the time frame specified may result in the disqualification of that contractor and any affiliate companies from being approved for further work on future projects until the required information is submitted.

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

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

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

Failure to Meet Contract Requirements

Failure to meet contract requirements in accordance with Subarticle 102-15(J) of the *2012 Standard Specifications* may be cause to disqualify the Contractor.

SUBSURFACE INFORMATION:

(7-1-95) 450 SP1 G112 C

Subsurface information is available on the structure portion of this project only.

LOCATING EXISTING UNDERGROUND UTILITIES:
(3-20-12) 105 SP1 G115

Revise the *2012 Standard Specifications* as follows:

Page 1-43, Article 105-8, line 28, after the first sentence, add the following:

Identify excavation locations by means of pre-marking with white paint, flags, or stakes or provide a specific written description of the location in the locate request.

VALUE ENGINEERING PROPOSAL:
(05-19-15) 104 SP01 G116

Revise the *2012 Standard Specifications* as follows:

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

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

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

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

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

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

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

To facilitate the preparation of revisions to contract drawings, the Contractor may purchase reproducible copies of drawings for his use through the Department's Value Management Unit. The preparation of new design drawings by or for the Contractor shall be coordinated with the appropriate Design Branch through the State Value Management Engineer. The Contractor shall provide, at no charge to the Department, one set of reproducible drawings of the approved design needed to implement the VEP. Drawings (hard copy and electronic) which are sealed by an

engineer licensed in the State of North Carolina shall be submitted to the State Value Management Engineer no later than ten (10) business days after acceptance of a VEP unless otherwise permitted.

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

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

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

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

RESOURCE CONSERVATION AND ENV. SUSTAINABLE PRACTICES:

(5-21-13) (Rev. 5-19-15) 104-13 SP1 G118

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

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

Report the quantities of reused or recycled materials either incorporated in the project or diverted from landfills and any practice that minimizes the environmental impact on the project annually on the Project Construction Reuse and Recycling Reporting Form. The Project Construction Reuse and Recycling Reporting Form and a location tool for local recycling facilities are available at:
http://connect.ncdot.gov/resources/Environmental/Pages/North-Carolina-Recycling-Locations.aspx.

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

DOMESTIC STEEL:
(4-16-13) 106 SP1 G120

Revise the *2012 Standard Specifications* as follows:

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

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

MAINTENANCE OF THE PROJECT:
(11-20-07) (Rev. 1-17-12) 104-10 SP1 G125

Revise the *2012 Standard Specifications* as follows:

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

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

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

The Contractor shall perform weekly inspections of guardrail and guiderail and shall report damages to the Engineer on the same day of the weekly inspection. *Where damaged guardrail or guiderail is repaired or replaced as a result of maintaining the project in* accordance with this article, such repair or replacement shall be performed within 7 consecutive calendar days of such inspection report.

Page 1-35, Article 104-10 Maintenance of the Project, lines 42-44, replace the last sentence of the last paragraph with the following:

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

TWELVE MONTH GUARANTEE:

(7-15-03) 108 SP1 G145

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

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

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

Appropriate provisions of the payment and/or performance bonds shall cover this guarantee for the project.

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

OUTSOURCING OUTSIDE THE USA:

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

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

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

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

GIFTS FROM VENDORS AND CONTRACTORS:

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

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

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

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

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

LIABILITY INSURANCE:

(5-20-14) SP1 G160

Revise the *2012 Standard Specifications* as follows:

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

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

EROSION AND SEDIMENT CONTROL/STORMWATER CERTIFICATION:

(1-16-07) (Rev 9-18-12) 105-16, 225-2, 16 SP1 G180

General

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

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

(A) *Certified Supervisor* - Provide a certified Erosion and Sediment Control/Stormwater Supervisor to manage the Contractor and subcontractor operations, insure compliance with Federal, State and Local ordinances and regulations, and manage the Quality Control Program.

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

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

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

Roles and Responsibilities

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

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

(a) Oversee the work of subcontractors so that appropriate erosion and sediment control/stormwater preventive measures are conformed to at each stage of the work.
(b) Prepare the required National Pollutant Discharge Elimination System (NPDES) Inspection Record and submit to the Engineer.
(c) Attend all weekly or monthly construction meetings to discuss the findings of the NPDES inspection and other related issues.
(d) Implement the erosion and sediment control/stormwater site plans requested.
(e) Provide any needed erosion and sediment control/stormwater practices for the Contractor's temporary work not shown on the plans, such as, but not limited to work platforms, temporary construction, pumping operations, plant and storage yards, and cofferdams.

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

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

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

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

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

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

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

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

(b) Inspect erosion and sediment control/stormwater devices and stormwater discharge outfalls at least once every 7 calendar days, twice weekly for construction related *Federal Clean Water Act, Section 303(d)* impaired streams with turbidity violations, and within 24 hours after a significant rainfall event of 0.5 inch that occurs within a 24 hour period.

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

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

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

(f) Maintain a log of turbidity test results as outlined in the Department's Procedure for Monitoring Borrow Pit Discharge.
(g) Provide secondary containment for bulk storage of liquid materials.
(h) Provide training for employees concerning general erosion and sediment control/stormwater awareness, the Department's NPDES Stormwater Permit NCS000250 requirements, and the applicable requirements of the *General Permit, NCG010000*.
(i) Report violations of the NPDES permit to the Engineer immediately who will notify the Division of Water Quality Regional Office within 24 hours of becoming aware of the violation.

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

(a) Follow permit requirements related to the Contractor and subcontractors' construction activities.
(b) Ensure that all operators and subcontractors on site have the proper erosion and sediment control/stormwater certification.
(c) Notify the Engineer when the required certified erosion and sediment control/stormwater personnel are not available on the job site when needed.
(d) Conduct the inspections required by the NPDES permit.
(e) Take corrective actions in the proper timeframe as required by the NPDES permit for problem areas identified during the NPDES inspections.
(f) Incorporate erosion control into the work in a timely manner and stabilize disturbed areas with mulch/seed or vegetative cover on a section-by-section basis.
(g) Use flocculants approved by state regulatory authorities where appropriate and where required for turbidity and sedimentation reduction.
(h) Ensure proper installation and maintenance of temporary erosion and sediment control devices.
(i) Remove temporary erosion or sediment control devices when they are no longer necessary as agreed upon by the Engineer.
(j) The Contractor's quality control and inspection procedures shall be subject to review by the Engineer. Maintain NPDES inspection records and make records available at all times for verification by the Engineer.

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

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

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

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

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

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

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

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

Preconstruction Meeting

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

Ethical Responsibility

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

Revocation or Suspension of Certification

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

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

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

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

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

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

Failure to appeal within 10 calendar days will result in the proposed adverse action becoming effective on the date specified on the certified notice. Failure to appeal within the time specified will result in a waiver of all future appeal rights regarding the adverse action taken. The certificant will not be allowed to perform duties associated with the certification during the appeal process.

The Chief Engineer will hear the appeal and make a decision within 7 days of hearing the appeal. Decision of the Chief Engineer will be final and will be made in writing to the certificant.

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

Measurement and Payment

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

PROCEDURE FOR MONITORING BORROW PIT DISCHARGE:

(2-20-07) (Rev. 3-19-13) 105-16, 230, 801 SP1 G181

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

If during any operating day, the downstream water quality exceeds the standard, the Contractor shall do all of the following:

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

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

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

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

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

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

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

The Contractor shall use the *NCDOT Turbidity Reduction Options for Borrow Pits Matrix*, available at http://www.ncdot.gov/doh/operations/dp_chief_eng/roadside/fieldops/downloads/Files/TurbidityReductionOptionSheet.pdf to plan, design, construct, and maintain BMPs to address water quality standards. Tier I Methods include stilling basins which are standard compensatory BMPs. Other Tier I methods are noncompensatory and shall be used when needed to meet the stream turbidity standards. Tier II Methods are also noncompensatory and are options that may be needed for protection of rare or unique resources or where special environmental conditions exist at the site which have led to additional requirements being placed in the DWQ's 401 Certifications and approval letters, Isolated Wetland Permits, Riparian Buffer Authorization or a DOT Reclamation Plan's Environmental Assessment for the specific site. Should the Contractor exhaust all Tier I Methods on a site exclusive of rare or unique resources or special environmental conditions, Tier II Methods may be required by regulators on a case by case basis per supplemental agreement.

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

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

EMPLOYMENT:

(11-15-11) (Rev. 1-17-12) 108, 102 SP1 G184

Revise the *2012 Standard Specifications* as follows:

Page 1-20, Subarticle 102-15(O), delete and replace with the following:

(O) Failure to restrict a former Department employee as prohibited by Article 108-5.

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

STATE HIGHWAY ADMINISTRATOR TITLE CHANGE:
(9-18-12) SP1 G185

Revise the *2012 Standard Specifications* as follows:

Replace all references to "State Highway Administrator" with "Chief Engineer".

SUBLETTING OF CONTRACT:
(11-18-2014) 108-6 SP1 G186

Revise the *2012 Standard Specifications* as follows:

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

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

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

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

PROJECT SPECIAL PROVISIONS

ROADWAY

CLEARING AND GRUBBING - METHOD II:

(9-17-02) (Rev. 1-17-12) 200 SP2 R02A

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

BURNING RESTRICTIONS

(7-1-95) 200, 210, 215 SP2 R05

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

LUMP SUM GRADING:

(8-17-10) 226 SP2 R16

Lump sum grading shall be performed in accordance with Section 226 Comprehensive Grading of the *2012 Standard Specifications* except as follows:

SHOULDER AND FILL SLOPE MATERIAL:

(5-21-02) 235, 560 SP2 R45 A

Description

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

Measurement and Payment

Where the material has been obtained from an authorized stockpile or from a borrow source and *Borrow Excavation* is not included in the contract, no direct payment will be made for this work, as the cost of this work will be part of the work being paid at the contract lump sum price for *Grading.* If *Borrow Excavation* is included in this contract and the material has been obtained from an authorized stockpile or from a borrow source, measurement and payment will be as provided in Section 230 of the *2012 Standard Specifications* for *Borrow Excavation*.

PIPE INSTALLATION:
(11-20-12) 300 SP3 R01

Revise the *2012 Standard Specifications* as follows:

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

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

BRIDGE APPROACH FILLS:
(10-19-10) (Rev. 1-17-12) 422 SP4 R02

Description

Bridge approach fills include bridge approach fills for sub regional tier bridges and reinforced bridge approach fills. Construct bridge approach fills in accordance with the contract and Standard Drawing No. 422.10 or 422.11 of the *2012 Roadway Standard Drawings*. Define "geosynthetics" as geotextiles or geomembranes.

Materials

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

Item	**Section**
Anchor Pins	1056-2
Geotextiles	1056
Portland Cement Concrete	1000
Select Material	1016
Subsurface Drainage Materials	1044
Wire Staples	1060-8(D)

For bridge approach fills for sub regional tier bridges, provide Type 1 geotextile for filtration geotextiles. For reinforced bridge approach fills, provide Type 5 geotextile for geotextile reinforcement and Type 1 geotextile and No. 78M stone for drains. Use Class B concrete for concrete pads.

Use Class III or V select material for reinforced bridge approach fills and only Class V select material (standard size No. 78M stone) for bridge approach fills for sub regional tier bridges. Provide PVC pipes, fittings and outlet pipes for subsurface drainage materials. For drains and PVC pipes behind end bents, use pipes with perforations that meet AASHTO M 278.

Use PVC, HDPE or linear low density polyethylene (LLDPE) geomembranes for reinforced bridge approach fills. For PVC geomembranes, provide grade PVC30 geomembranes that meet ASTM D7176. For HDPE and LLDPE geomembranes, use geomembranes with a nominal thickness of at least 30 mils that meet Geosynthetic Research Institute Standard Specifications GM13 or GM17, respectively. Handle and store geomembranes in accordance with Article 1056-2 of the *2012 Standard Specifications*. Provide material certifications for

geomembranes in accordance with Article 1056-3 of the *2012 Standard Specifications*.

Construction Methods

Excavate as necessary for bridge approach fills in accordance with the contract. Notify the Engineer when foundation excavation is complete. Do not place geomembranes or filtration geotextiles until excavation dimensions and foundation material are approved. Attach geomembranes and filtration geotextiles to end bent cap back and wing walls with adhesives, tapes or other approved methods. Glue or weld geomembrane seams to prevent leakage.

For reinforced bridge approach fills, place geotextile reinforcement within 3" of locations shown in Standard Drawing No. 422.10 of the *2012 Roadway Standard Drawings* and in slight tension free of kinks, folds, wrinkles or creases. Install geotextile reinforcement with the orientation, dimensions and number of layers shown in Standard Drawing No. 422.10 of the *2012 Roadway Standard Drawings*. Place first layer of geotextile reinforcement directly on geomembranes with no void or material in between. Install geotextile reinforcement with the machine direction (MD) parallel to the roadway centerline. The MD is the direction of the length or long dimension of the geotextile roll. Do not splice or overlap geotextile reinforcement in the MD so seams are perpendicular to the roadway centerline. Wrap geotextile reinforcement at end bent cap back and wing walls as shown in Standard Drawing No. 422.10 of the *2012 Roadway Standard Drawings* and directed by the Engineer. Extend geotextile reinforcement at least 4 ft back behind end bent cap back and wing walls into select material.

Overlap adjacent geotextiles at least 18" with seams oriented parallel to the roadway centerline. Hold geotextiles in place with wire staples or anchor pins as needed. Contact the Engineer when existing or future obstructions such as foundations, pavements, pipes, inlets or utilities will interfere with geosynthetics.

For reinforced bridge approach fills, construct one foot square drains consisting of 4" diameter continuous perforated PVC pipes surrounded by No. 78M stone wrapped in Type 1 geotextiles. Install drains in accordance with Standard Drawing No. 422.10 of the *2012 Roadway Standard Drawings*. For bridge approach fills for sub regional tier bridges, install 4" diameter continuous perforated PVC drain pipes in accordance with Standard Drawing No. 422.11 of the *2012 Roadway Standard Drawings*.

Use solvent cement to connect PVC pipes so joints do not leak. Connect perforated pipes to outlet pipes just behind wing walls. Provide drain pipes and drains with positive drainage towards outlets. Place pipe sleeves in or under wing walls for outlet pipes so positive drainage is maintained. Use sleeves that can withstand wing wall loads.

Place select material in 8" to 10" thick lifts. Use only hand operated compaction equipment to compact select material for bridge approach fills. Compact Class III select material in accordance with Subarticle 235-3(C) of the *2012 Standard Specifications*. Compact No. 78M stone with a vibratory compactor to the satisfaction of the Engineer. Do not displace or damage geosynthetics, drain pipes or drains when placing and compacting select material. End dumping directly on geosynthetics is not permitted. Do not operate heavy equipment on geosynthetics,

drain pipes or drains until they are covered with at least 8" of select material. Replace any damaged geosynthetics, drain pipes or drains to the satisfaction of the Engineer.

Cover open ends of outlet pipes with rodent screens as shown in Standard Drawing No. 815.03 of the *2012 Roadway Standard Drawings*. Connect ends of outlet pipes to concrete pads or existing drainage structures as directed by the Engineer. Construct concrete pads with an Ordinary surface finish that meets Subarticle 825-6(B) of the *2012 Standard Specifications*.

Measurement and Payment

Reinforced Bridge Approach Fill, Station ____ will be paid at the contract lump sum price. The contract lump sum price for *Reinforced Bridge Approach Fill, Station* ____ will be full compensation for labor, tools, equipment and reinforced bridge approach fill materials, excavating, backfilling, hauling and removing excavated materials, compacting select material, connecting outlet pipes to existing drainage structures and supplying select materials, geosynthetics, drains, pipe sleeves and outlet components and any incidentals necessary to construct all reinforced bridge approach fills at each bridge.

Bridge Approach Fill - Sub Regional Tier, Station ____ will be paid at the contract lump sum price. The contract lump sum price for *Bridge Approach Fill - Sub Regional Tier, Station* ____ will be full compensation for labor, tools, equipment and bridge approach fill materials, excavating, backfilling, hauling and removing excavated materials, compacting No. 78M stone, connecting outlet pipes to existing drainage structures and supplying No. 78M stone, filtration geotextiles, drain pipes, pipe sleeves and outlet components and any incidentals necessary to construct all bridge approach fills at each sub regional tier bridge.

Payment will be made under:

Pay Item	**Pay Unit**
Reinforced Bridge Approach Fill, Station ____	Lump Sum
Bridge Approach Fill - Sub Regional Tier, Station ____	Lump Sum

INCIDENTAL STONE BASE:

(7-1-95) (Rev.8-21-12) 545 SP5 R28R

Description

Place incidental stone base on driveways, mailboxes, etc. immediately after paving and do not have the paving operations exceed stone base placement by more than one week without written permission of the Engineer.

Materials and Construction

Provide and place incidental stone base in accordance with Section 545 of the *2012 Standard Specifications*.

Measurement and Payment

Incidental Stone Base will be measured and paid in accordance with Article 545-6 of the *2012 Standard Specifications*.

ASPHALT PAVEMENTS - SUPERPAVE:
(6-19-12) (Rev. 4-21-15) 605, 609, 610, 650 SP6 R01

Revise the *2012 Standard Specifications* as follows:

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

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

TABLE 605-1
APPLICATION RATES FOR TACK COAT

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

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

TABLE 605-2
APPLICATION TEMPERATURE FOR TACK COAT

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

Page 6-7, Article 609-3 FIELD VERIFICATION OF MIXTURE AND JOB MIX FORMULA ADJUSTMENTS, lines 35-37, delete the second sentence of the second paragraph.

Page 6-18, Article 610-1 DESCRIPTION, lines 40-41, delete the last sentence of the last paragraph.

Page 6-19, Subarticle 610-3(A) Mix Design-General, line 5, add the following as the first paragraph:

Warm mix asphalt (WMA) is allowed for use at the Contractor's option in accordance with the NCDOT Approved Products List for WMA Technologies available at:

https://connect.ncdot.gov/resources/Materials/MaterialsResources/Warm%20Mix%20Asphalt%20Approved%20List.pdf

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

TABLE 610-1
DESIGN MIXING TEMPERATURE AT THE ASPHALT PLANT[A]

Binder Grade	HMA JMF Temperature	WMA JMF Temperature Range
PG 64-22	300ºF	225 - 275ºF
PG 70-22	315ºF	240 - 290ºF
PG 76-22	335ºF	260 - 310ºF

A. The mix temperature, when checked in the truck at the roadway, shall be within plus 15º and minus 25º of the temperature specified on the JMF.

Page 6-21, Subarticle 610-3(C) Job Mix Formula (JMF), lines 4-6, delete first sentence of the second paragraph. Line 7, in the second sentence of the second paragraph, replace "275ºF" with "275ºF or greater."

Page 6-22, Article 610-4 WEATHER, TEMPERATURE AND SEASONAL LIMITATIONS FOR PRODUCING AND PLACING ASPHALT MIXTURES, lines 15-17, replace the second sentence of the first paragraph with the following:

Do not place asphalt material when the air or surface temperatures, measured at the location of the paving operation away from artificial heat, do not meet Table 610-5.

Page 6-23, Article 610-4 WEATHER, TEMPERATURE AND SEASONAL LIMITATIONS FOR PRODUCING AND PLACING ASPHALT MIXTURES, replace Table 610-5 with the following:

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

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

Page 6-26, Article 610-7 HAULING OF ASPHALT MIXTURE, lines 22-23, in the fourth sentence of the first paragraph replace "so as to overlap the top of the truck bed and" with "to".

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

TABLE 650-1 OGAFC GRADATION CRITERIA			
Sieve Size (mm)	*Type FC-1*	*Type FC-1 Modified*	*Type FC-2 Modified*
19.0	-	-	100
12.5	100	100	**80** - 100
9.50	75 - 100	75 - 100	55 - **80**
4.75	25 - 45	25 - 45	15 - **30**
2.36	5 - 15	5 - 15	5 - **15**
0.075	1.0 - 3.0	1.0 - 3.0	2.0 - 4.0

ASPHALT BINDER CONTENT OF ASPHALT PLANT MIXES:
(11-21-00) (Rev. 7-17-12) 609 SP6 R15

The approximate asphalt binder content of the asphalt concrete plant mixtures used on this project will be as follows:

Asphalt Concrete Base Course	Type B 25.0__	4.4%
Asphalt Concrete Intermediate Course	Type I 19.0__	4.8%
Asphalt Concrete Surface Course	Type S 4.75A	6.8%
Asphalt Concrete Surface Course	Type SA-1	6.8%
Asphalt Concrete Surface Course	Type SF 9.5A	6.7%
Asphalt Concrete Surface Course	Type S 9.5__	6.0%
Asphalt Concrete Surface Course	Type S 12.5__	5.6%

The actual asphalt binder content will be established during construction by the Engineer within the limits established in the *2012 Standard Specifications.*

PRICE ADJUSTMENT - ASPHALT BINDER FOR PLANT MIX:
(11-21-00) 620 SP6 R25

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

The base price index for asphalt binder for plant mix is **$**423.21 per ton.

This base price index represents an average of F.O.B. selling prices of asphalt binder at supplier's terminals on **November 1, 2015**.

FINAL SURFACE TESTING NOT REQUIRED:
(5-18-04) (Rev. 5-15-12) 610 SP6 R45

Final surface testing is not required on this project.

GUARDRAIL ANCHOR UNITS, TYPE 350 (TL-3):
(4-20-04) (Rev. 7-21-15) 862 SP08 R065

Description

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

Materials

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

Prior to installation the Contractor shall submit to the Engineer:

(A) FHWA acceptance letter for each guardrail anchor unit certifying it meets the requirements of NCHRP Report 350, Test Level 3, in accordance with Article 106-2 of the *2012 Standard Specifications*.

(B) Certified working drawings and assembling instructions from the manufacturer for each guardrail anchor unit in accordance with Article 105-2 of the *2012 Standard Specifications*.

No modifications shall be made to the guardrail anchor unit without the express written permission from the manufacturer. Perform installation in accordance with the details in the plans, and details and assembling instructions furnished by the manufacturer.

Construction Methods

Guardrail end delineation is required on all approach and trailing end sections for both temporary and permanent installations. Guardrail end delineation consists of yellow reflective sheeting applied to the entire end section of the guardrail in accordance with Article 1088-3 of the *2012 Standard Specifications* and is incidental to the cost of the guardrail anchor unit.

Measurement and Payment

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

Payment will be made under:

Pay Item	Pay Unit
Guardrail Anchor Units, Type 350	Each

PREFORMED SCOUR HOLE WITH LEVEL SPREADER APRON:

(10-15-02) (Rev. 10-20-09) 410 SP8 R105

Description

Construct and maintain preformed scour holes with spreader aprons at the locations shown on the plans and in accordance with the details in the plans. Work includes excavation, shaping and maintaining the hole and apron, furnishing and placing filter fabric, rip rap (class as specified in the plans) and permanent soil reinforcement matting.

Materials

Item	Section
Plain Rip Rap	1042
Filter Fabric	1056

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

Property	Test Method	Value Unit
Light Penetration	ASTM D6567	9 %
Thickness	ASTM D6525	0.40 in
Mass Per Unit Area	ASTM D6566	0.55 lb/sy
Tensile Strength	ASTM D6818	385 lb/ft
Elongation (Maximum)	ASTM D6818	49 %

Resiliency	ASTM D1777	>70 %
UV Stability *	ASTM 4355	≥80 %
Porosity (Permanent Net)	ECTC Guidelines	≥85 %
Maximum Permissible Shear Stress (Vegetated)	Performance Bench Test	≥8.0 lb/ft^2
Maximum Allowable Velocity (Vegetated)	Performance Bench Test	≥16.0 ft/s

*ASTM D1682 Tensile Strength and % strength retention of material after 1,000 hours of exposure.

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

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

Construction Methods

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

Measurement and Payment

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

Payment will be made under:

Pay Item	**Pay Unit**
Preformed Scour Hole with Level Spreader Aprons	Each

MATERIALS:

(2-21-12) (Rev. 5-19-15) 1000, 1002, 1005, 1018, 1024, 1050, 1056, 1074, 1078, 1080, 1081, 1086, 1084, 1087, 1092 SP10 R01

Revise the *2012 Standard Specifications* as follows:

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

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

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

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

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

(1) A source change in coarse aggregate, fine aggregate or cement.

(2) A pozzolan class or type change (e.g. Class F fly ash to Class C fly ash).

(3) A quantitative change in coarse aggregate (applies to an increase or decrease greater than 5%), fine aggregate (applies to an increase or decrease greater than 5%), water (applies to an increase only), cement (applies to a decrease only), or pozzolan (applies to an increase or decrease greater than 5%).

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

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

TABLE 1000-1
REQUIREMENTS FOR CONCRETE

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

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

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

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

(H) Handling and Storing Test Panels

Notify the Area Materials Engineer when preconstruction or production test panels are made within 24 hours of shooting the panels. Field cure and protect test panels from

damage in accordance with ASTM C1140 until the Department transports panels to the Materials and Tests Regional Laboratory for coring.

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

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

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

Page 10-6, Subarticle 1000-4(I), Use of Fly Ash, lines 36-2, replace the first paragraph with the following:

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

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

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

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

TABLE 1005-1
AGGREGATE GRADATION - COARSE AGGREGATE

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

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

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

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

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

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

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

TABLE 1024-1
POZZOLANS FOR USE IN PORTLAND CEMENT CONCRETE

Pozzolan	Rate
Class F Fly Ash	20% - 30% by weight of required cement content with 1.0 lb Class F fly ash per lb of cement replaced
Ground Granulated Blast Furnace Slag	35%-50% by weight of required cement content with 1.0 lb slag per lb of cement replaced
Microsilica	4%-8% by weight of required cement content with 1.0 lb microsilica per lb of cement replaced

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

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

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

All fencing material and accessories shall meet Section 106.

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

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

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

Page 10-73, Article 1056-4, GEOTEXTILES, line 33, add the following after the first sentence in the second paragraph:

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

Page 10-74, Table 1056-1, GEOTEXTILE REQUIREMENTS, replace with the following:

TABLE 1056-1
GEOTEXTILE REQUIREMENTS

Property	**Requirement**					**Test Method**
	Type 1	**Type 2**	**Type 3[A]**	**Type 4**	**Type 5[B]**	
Typical Application	*Shoulder Drains*	*Under Rip Rap*	*Temporary Silt Fence*	*Soil Stabilization*	*Temporary Walls*	
Elongation (MD & CD)	≥ 50%	≥ 50%	≤ 25%	< 50%	< 50%	ASTM D4632
Grab Strength (MD & CD)	Table 1[D], Class 3	Table 1[D], Class 1	100 lb[C]	Table 1[D], Class 3	-	ASTM D4632
Tear Strength (MD & CD)			-			ASTM D4533
Puncture Strength			-			ASTM D6241
Ultimate Tensile Strength (MD & CD)	-	-	-	-	2,400 lb/ft[C] (unless required otherwise in the contract)	ASTM D4595
Permittivity	Table 2[D], 15% to 50% *in Situ* Soil Passing No. 200[E]		Table 7[D]	Table 5[D]	0.20 sec^{-1}[C]	ASTM D4491
Apparent Opening Size					0.60 mm[F]	ASTM D4751
UV Stability (Retained Strength)					70%[C, G]	ASTM D4355

A. Minimum roll width of 36" required.
B. Minimum roll width of 13 ft required.
C. MARV per Article 1056-3.
D. AASHTO M 288.
E. US Sieve No. per AASHTO M 92.
F. Maximum average roll value.
G. After 500 hours of exposure.

Page 10-74, Article 1056-5, GEOCOMPOSITES, lines 7-8, replace the first sentence with the following:

Provide geocomposite drain strips with a width of at least 12" and Type 1 geotextiles attached to drainage cores that meet Table 1056-2.

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

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

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

TABLE 1078-1
REQUIREMENTS FOR CONCRETE

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

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

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

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

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

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

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

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

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

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

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

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

Page 10-163, Table 1081-1, PROPERTIES OF MIXED EPOXY RESIN SYSTEMS, replace with the following:

TABLE 1081-1
PROPERTIES OF MIXED EPOXY RESIN SYSTEMS

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

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

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

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

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

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

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

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

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

Page 10-170, Article 1081-3, HOT BITUMEN, line 9, add the following at the end of Section 1081:

1081-4 EPOXY RESIN ADHESIVE FOR BONDING TRAFFIC MARKINGS

(A) General

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

(B) Classification

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

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

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

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

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

(C) Requirements

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

(D) Prequalification

Refer to Subarticle 1081-1(E).

(E) Acceptance

Refer to Subarticle 1081-1(F).

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

Steel sheet piles detailed for permanent applications shall be hot rolled and meet ASTM A572 or ASTM A690 unless otherwise required by the plans. Steel sheet piles shall be coated as required

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

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

The epoxy shall meet Article 1081-4.

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

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

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

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

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

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

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

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

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

Page 10-204, Table 1092-3 MINIMUM COEFFICIENT OF RETROREFLECTION fOR NC GRADE A, replace with the following:

TABLE 1092-3
MINIMUM COEFFICIENT OF RETROREFLECTION FOR NC GRADE A
(Candelas Per Lux Per Square Meter)

Observation Angle, degrees	Entrance Angle, degrees	White	Yellow	Green	Red	Blue	Fluorescent Yellow Green	Fluorescent Yellow
0.2	-4.0	525	395	52	95	30	420	315
0.2	30.0	215	162	22	43	10	170	130
0.5	-4.0	310	230	31	56	18	245	185
0.5	30.0	135	100	14	27	6	110	81
1.0	-4.0	120	60	8	16	3.6	64	48
1.0	30.0	45	34	4.5	9	2	36	27

SHOULDER AND SLOPE BORROW:
(3-19-13) 1019 SP10 R10

Use soil in accordance with Section 1019 of the *2012 Standard Specifications*. Use soil consisting of loose, friable, sandy material with a PI greater than 6 and less than 25 and a pH ranging from 5.5 to 7.0.

Soil with a pH ranging from 4.0 to 5.5 will be accepted without further testing if additional limestone is provided in accordance with the application rates shown in Table 1019-1A. Soil type is identified during the soil analysis. Soils with a pH above 7.0 require acidic amendments to be added. Submit proposed acidic amendments to the Engineer for review and approval. Soils with a pH below 4.0 or that do not meet the PI requirements shall not be used.

TABLE 1019-1A
ADDITIONAL LIMESTONE APPLICATION RATE TO RAISE pH

pH TEST RESULT	Sandy Soils Additional Rate (lbs. / Acre)	Silt Loam Soils Additional Rate (lbs. / Acre)	Clay Loam Soils Additional Rate (lbs. / Acre)
4.0 - 4.4	1,000	4,000	6,000
4.5 - 4.9	500	3,000	5,000
5.0 - 5.4	NA	2,000	4,000

Note: Limestone application rates shown in this table are in addition to the standard rate of 4000 lbs. / acre required for seeding and mulching.

No direct payment will be made for providing additional lime or acidic amendments for Ph adjustment.

GROUT PRODUCTION AND DELIVERY:
(3-17-15) 1003 SP10 R20

Revise the *2012 Standard Specifications* as follows:

Replace Section 1003 with the following:

SECTION 1003
GROUT PRODUCTION AND DELIVERY

1003-1 DESCRIPTION

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

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

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

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

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

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

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

1003-2 MATERIALS

Refer to Division 10.

Item	**Section**
Chemical Admixtures	1024-3
Fine Aggregate	1014-1
Fly Ash	1024-5
Ground Granulated Blast Furnace Slag	1024-6
Portland Cement	1024-1

Silica Fume	1024-7
Water	1024-4

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

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

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

TABLE 1003-1
AGGREGATE REQUIREMENTS FOR TYPE 5 GROUT

Gradation		**Maximum Liquid Limit**	**Maximum Plasticity Index**
Sieve Designation per AASHTO M 92	**Percentage Passing (% by weight)**		
3/8"	100	N/A	N/A
No. 4	70 – 95		
No. 8	50 – 90		
No. 16	30 – 80		
No. 30	25 – 70		
No. 50	20 – 50		
No. 100	15 – 40		
No. 200	10 – 30	25	10

1003-3 COMPOSITION AND DESIGN

When using an approved packaged grout, a grout mix design submittal is not required. Otherwise, submit proposed grout mix designs for each grout mix to be used in the work. Mixes for all grout shall be designed by a Certified Concrete Mix Design Technician or an Engineer licensed by the State of North Carolina. Mix proportions shall be determined by a testing laboratory approved by the Department. Base grout mix designs on laboratory trial batches that meet Table 1003-2 and this section. With permission, the Contractor may use a quantity of chemical admixture within the range shown on the current list of approved admixtures maintained by the Materials and Tests Unit.

Submit grout mix designs in terms of saturated surface dry weights on Materials and Tests Form 312U at least 35 days before proposed use. Adjust batch proportions to compensate for surface moisture contained in the aggregates at the time of batching.

Changes in the saturated surface dry mix proportions will not be permitted unless revised grout mix designs have been submitted to the Engineer and approved.

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

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

Perform laboratory tests in accordance with the following test procedures:

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

A. Applicable to grout with aggregate.
B. Applicable to Neat Cement Grout.
C. American National Standards Institute/American Petroleum Institute Recommended Practice.
D. Procedure A (Rapid Freezing and Thawing in Water) required.
E. Moist room storage required.

1003-4 GROUT REQUIREMENTS

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

TABLE 1003-2
GROUT REQUIREMENTS

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

A. Applicable to Type 1 through 4 grouts.
B. Applicable to Type 5 grout.
C. ASTM C1107.
D. Use Type 4 grout with proportions by volume of 1 part cement and 3 parts fly ash.

1003-5 TEMPERATURE REQUIREMENTS

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

1003-6 ELAPSED TIME FOR PLACING GROUT

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

TABLE 1003-3
ELAPSED TIME FOR PLACING GROUT
(with continuous agitation)

Air or Grout Temperature, Whichever is Higher	Maximum Elapsed Time	
	No Retarding Admixture Used	Retarding Admixture Used
90°F or above	30 minutes	1 hr. 15 minutes
80°F through 89°F	45 minutes	1 hr. 30 minutes
79°F or below	60 minutes	1 hr. 45 minutes

1003-7 MIXING AND DELIVERY

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

EROSION AND STORMWATER CONTROL FOR SHOULDER CONSTRUCTION AND RECONSTRUCTION:

(11-16-10) (Rev. 8-21-12) 105-16, 225-2, Division 16 SP16 R03R

Land disturbing operations associated with shoulder construction/reconstruction may require erosion and sediment control/stormwater measure installation. National Pollutant Discharge Elimination System (NPDES) inspection and reporting may be required.

Erosion control measures shall be installed per the erosion control detail in any area where the vegetated buffer between the disturbed area and surface waters (streams, wetlands, or open waters) or drainage inlet is less than 10 feet. The Engineer may reduce the vegetated buffer threshold for this requirement to a value between 5 and 10 feet. Erosion control measures shall be spot checked every 14 days until permanent vegetative establishment.

In areas where shoulder construction/reconstruction includes disturbance or grading on the front slope or to the toe of fill, relocating ditch line or backslope, or removing vegetation from the ditch line or swale, NPDES inspection and monitoring are required every 14 days or within 24 hours of a rainfall event of 0.5" or greater. Maintain daily rainfall records. Install erosion control measures per detail.

In areas where the vegetated buffer is less than 10 feet between the disturbed area and waters of the State classified as High Quality Water (HQW), Outstanding Resource Water (ORW), Critical Areas, or Unique Wetlands, NPDES inspection and monitoring are required every 14 days or within 24 hours of a rainfall event of 0.5" or greater. The Engineer may reduce the vegetated buffer threshold for this requirement to a value between 5 and 10 feet. The plans or provisions will indicate the presence of these water classifications. Maintain daily rainfall records. Install erosion control measures per detail.

Land disturbances hardened with aggregate materials receiving sheet flow are considered non-erodible.

Sites that require lengthy sections of silt fence may substitute with rapid permanent seeding and mulching as directed by the Engineer.

NPDES documentation shall be performed by a Level II Erosion and Sediment Control/Stormwater certificate holder.

Materials used for erosion control will be measured and paid as stated in the contract.

UTILITIES BY OTHERS: **(SPECIAL)**

The following utility companies have facilities that will be in conflict with the construction of this project:

A) Power - Rutherford EMC
B) Telecommunications - AT&T

The conflicting facilities of these concerns will be adjusted prior to the date of availability, unless otherwise noted and are therefore listed in these special provisions for the benefit of the Contractor. All utility work listed herein will be done by the utility owners. All utilities are shown on the plans from the best available information.

The Contractor's attention is directed to Article 105.8 of the Standard Specifications.

Utilities Requiring Adjustment:

A) Power - Rutherford EMC

1. Rutherford EMC is on site, but has already relocated their facilities.
2. The contact for Rutherford EMC is Thomas Conner and he may be reached at 828.429.7724 – Email is tconner@remc.com
3. All facilities are already out of conflict for the project.

A) Telecommunications - AT&T

1. See Utilities by Others plans for utility conflicts.
2. The contact for AT&T is Danny Little and he may be reached at 704.764.7343 – Email is dflittle@carolina.rr.com
3. All of AT&T's facilities are scheduled to be relocated by the date of availability.

EROSION CONTROL

STABILIZATION REQUIREMENTS:

(11-4-11) S-3

Stabilization for this project shall comply with the time frame guidelines as specified by the NCG-010000 general construction permit effective August 3, 2011 issued by the North Carolina Department of Environment and Natural Resources Division of Water Quality. Temporary or permanent ground cover stabilization shall occur within 7 calendar days from the last land-disturbing activity, with the following exceptions in which temporary or permanent ground cover shall be provided in 14 calendar days from the last land-disturbing activity:

- Slopes between 2:1 and 3:1, with a slope length of 10 ft. or less
- Slopes 3:1 or flatter, with a slope of length of 50 ft. or less
- Slopes 4:1 or flatter

The stabilization timeframe for High Quality Water (HQW) Zones shall be 7 calendar days with no exceptions for slope grades or lengths. High Quality Water Zones (HQW) Zones are defined by North Carolina Administrative Code 15A NCAC 04A.0105 (25). Temporary and permanent ground cover stabilization shall be achieved in accordance with the provisions in this contract and as directed.

SEEDING AND MULCHING (West)

The kinds of seed and fertilizer, and the rates of application of seed, fertilizer, and limestone, shall be as stated below. During periods of overlapping dates, the kind of seed to be used shall be determined. All rates are in pounds per acre.

Shoulder and Median Areas

August 1 - June 1		**May 1 - September 1**	
20#	Kentucky Bluegrass	20#	Kentucky Bluegrass
75#	Hard Fescue	75#	Hard Fescue
25#	Rye Grain	10#	German or Browntop Millet
500#	Fertilizer	500#	Fertilizer
4000#	Limestone	4000#	Limestone

Areas Beyond the Mowing Pattern, Waste and Borrow Areas:

August 1 - June 1		**May 1 - September 1**	
100#	Tall Fescue	100#	Tall Fescue
15#	Kentucky Bluegrass	15#	Kentucky Bluegrass
30#	Hard Fescue	30#	Hard Fescue
25#	Rye Grain	10#	German or Browntop Millet
500#	Fertilizer	500#	Fertilizer
4000#	Limestone	4000#	Limestone

Approved Tall Fescue Cultivars

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

Approved Kentucky Bluegrass Cultivars:

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

Approved Hard Fescue Cultivars:

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

On cut and fill slopes 2:1 or steeper add 20# Sericea Lespedeza January 1 - December 31.

Fertilizer shall be 10-20-20 analysis. A different analysis of fertilizer may be used provided the 1-2-2 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as a 10-20-20 analysis and as directed.

NATIVE GRASS SEEDING AND MULCHING: **(West)**

Native Grass Seeding and Mulching shall be performed on the disturbed areas of wetlands and riparian areas, and adjacent to Stream Relocation and/or trout stream construction within a 50 foot zone on both sides of the stream or depression, measured from top of stream bank or center of depression. The stream bank of the stream relocation shall be seeded by a method that does not alter the typical cross section of the stream bank. Native Grass Seeding and Mulching shall also be performed in the permanent soil reinforcement mat section of preformed scour holes, and in other areas as directed.

The kinds of seed and fertilizer, and the rates of application of seed, fertilizer, and limestone, shall be as stated below. During periods of overlapping dates, the kind of seed to be used shall be determined. All rates are in pounds per acre.

August 1 - June 1		**May 1 – September 1**	
18#	Creeping Red Fescue	18#	Creeping Red Fescue
8#	Big Bluestem	8#	Big Bluestem
6#	Indiangrass	6#	Indiangrass
4#	Switchgrass	4#	Switchgrass
35#	Rye Grain	25#	German or Browntop Millet
500#	Fertilizer	500#	Fertilizer
4000#	Limestone	4000	Limestone

Approved Creeping Red Fescue Cultivars:

Aberdeen Boreal Epic Cindy Lou

Fertilizer shall be 10-20-20 analysis. A different analysis of fertilizer may be used provided the 1-2-2 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as a 10-20-20 analysis and as directed.

TEMPORARY SEEDING:

Fertilizer shall be the same analysis as specified for *Seeding and Mulching* and applied at the rate of 400 pounds and seeded at the rate of 50 pounds per acre. German Millet, or Browntop Millet shall be used in summer months and rye grain during the remainder of the year. The Engineer will determine the exact dates for using each kind of seed.

FERTILIZER TOPDRESSING:

Fertilizer used for topdressing shall be 16-8-8 grade and shall be applied at the rate of 500 pounds per acre. A different analysis of fertilizer may be used provided the 2-1-1 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as 16-8-8 analysis and as directed.

SUPPLEMENTAL SEEDING:

The kinds of seed and proportions shall be the same as specified for *Seeding and Mulching*, and the rate of application may vary from 25# to 75# per acre. The actual rate per acre will be determined prior to the time of topdressing and the Contractor will be notified in writing of the rate per acre, total quantity needed, and areas on which to apply the supplemental seed. Minimum tillage equipment, consisting of a sod seeder shall be used for incorporating seed into the soil as to prevent disturbance of existing vegetation. A clodbuster (ball and chain) may be used where degree of slope prevents the use of a sod seeder.

MOWING:

The minimum mowing height on this project shall be six inches.

LAWN TYPE APPEARANCE:

All areas adjacent to lawns must be hand finished as directed to give a lawn type appearance. Remove all trash, debris, and stones ¾" and larger in diameter or other obstructions that could interfere with providing a smooth lawn type appearance. These areas shall be reseeded to match their original vegetative conditions, unless directed otherwise by the Field Operations Engineer.

MINIMIZE REMOVAL OF VEGETATION

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

RESPONSE FOR EROSION CONTROL

8-9-06 SPI

Description

Furnish the labor, materials, tools and equipment necessary to move personnel, equipment, and supplies to the project necessary for the pursuit of any or all of the following work as shown herein, by an approved subcontractor.

SECTION	EROSION CONTROL ITEM	UNIT
1605	Temporary Silt Fence	LF
SP	Special Sediment Control Fence	LF/Ton
1615	Temporary Mulching	ACR
1620	Seed-Temporary Seeding	LB
1620	Fertilizer-Temporary Seeding	TN
1631	Matting for Erosion Control	SY
SP	Coir Fiber Mat	SY
SP	Coir Fiber Baffles	LF
SP	Permanent Soil Reinforcement Mat	SY
1660	Seeding and Mulching	ACR

1661	Seed-Repair Seeding	LB
1661	Fertilizer-Repair Seeding	TON
1662	Seed-Supplemental Seeding	LB
1665	Fertilizer Topdressing	TON
SP	Safety/Highly Visible Fencing	LF
SP	Response for Erosion Control	EA

Construction Methods

Provide an approved subcontractor who performs an erosion control action as described in Form 1675. Each erosion control action may include one or more of the above work items.

Measurement and Payment

Response for Erosion Control will be measured and paid for by counting the actual number of times the subcontractor moves onto the project, including borrow and waste sites, and satisfactorily completes an erosion control action described in Form 1675. The provisions of Article 104-5 of the *Standard Specifications* will not apply to this item of work.

The Erosion Control Contractor shall respond with adequate equipment, personnel, and supplies so as to begin work within 54 hours of the Engineer's notification to the prime contractor.

Payment will be made under:

Pay Item	**Pay Unit**
Response for Erosion Control	Each

STOCKPILE AREAS:

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

ACCESS AND HAUL ROADS:

At the end of each working day, the Contractor shall install or re-establish temporary diversions or earth berms across access/haul roads to direct runoff into sediment devices. Silt fence sections that are temporarily removed shall be reinstalled across access/haul roads at the end of each working day.

EROSION, SILTATION, AND POLLUTION CONTROL

The Contractor shall exercise every reasonable precaution and take all necessary measures throughout the life of the project to prevent erosion, siltation, and pollution in accordance with Section 107-12 of the Standard Specifications. Silt fence and erosion control measures shall be

installed in accordance with the plans for this project, Section 1605 of the Standard Specifications, and in locations directed by the Engineer or his representative.

SAFETY FENCE AND JURISDICTIONAL FLAGGING:

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

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

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

Materials
(A) Safety Fencing

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

Either wood posts or steel posts may be used. Wood posts shall be hardwood with a wedge or pencil tip at one end, and shall be at least 5 ft. in length with a minimum nominal 2" x 2” cross section. Steel posts shall be at least 5 ft. in length, and have a minimum weight of 0.85 lb/ft of length.

(B) Boundary Flagging

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

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

(A) Safety Fencing

Posts shall be set at a maximum spacing of 10 ft., maintained in a vertical position and hand set or set with a post driver. If hand set, all backfill material shall be thoroughly tamped. Wood posts may be sharpened to a dull point if power driven. Posts damaged by power driving shall be removed and replaced prior to final acceptance. The tops of all wood posts shall be cut at a 30-

degree angle. The wood posts may, at the option of the Contractor, be cut at this angle either before or after the posts are erected.

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

Place construction stakes to establish the location of the safety fence in accordance with Article 105-9 or Article 801-1 of the *Standard Specifications.* No direct pay will be made for the staking of the safety fence. All stakeouts for safety fence shall be considered incidental to the work being paid for as “Construction Surveying”, except that where there is no pay item for construction surveying, all safety fence stakeout will be performed by state forces.

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

(B) Boundary Flagging

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

Boundary flagging delineation of interior boundaries will be placed in accordance with Article 105-9 or Article 801-1 of the *Standard Specifications*. No direct pay will be made for delineation of the interior boundaries. This delineation will be considered incidental to the work being paid for as *Construction Surveying*, except that where there is no pay item or construction surveying the cost of boundary flagging delineation shall be included in the unit prices bid for the various items in the contract. Installation for delineation of all jurisdictional boundaries at staging areas, waste sites, or borrow pits shall consist of wooden stakes on 25 feet maximum intervals with highly visible orange flagging attached. Stakes shall be installed a minimum of 6” into the ground. Additional flagging may be placed on overhanging vegetation to enhance visibility but does not substitute for installation of stakes.

Installation of boundary flagging for delineation of all jurisdictional boundaries at staging areas, waste sites, or borrow pits shall be performed in accordance with Subarticle 230-4(B)(3)(d) or Subarticle 802-2(F) of the *Standard Specifications*. No direct pay will be made for this delineation, as the cost of same shall be included in the unit prices bid for the various items in the contract.

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

Measurement and Payment

Safety Fence will be measured and paid as the actual number of linear feet of polyethylene or polypropylene fence installed in place and accepted. Such payment will be full compensation including but not limited to furnishing and installing fence geotextile with necessary posts and post bracing, staples, tie wires, tools, equipment and incidentals necessary to complete this work. Payment will be made under:

Pay Item	**Pay Unit**
Safety Fence	Linear Foot

TEMPORARY ROCK SILT CHECK TYPE A WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM):

Description

Temporary Rock Silt Checks Type A with Excelsior Matting and Polyacrylamide (PAM) are devices utilized in temporary and permanent ditches to reduce runoff velocity and incorporate PAM into the construction runoff to increase settling of sediment particles and reduce turbidity of runoff. Temporary Rock Silt Checks Type A with Excelsior Matting and PAM are to be placed at locations shown on the plans or as directed. Installation shall follow the detail provided in the plans and as directed. Work includes furnishing materials, installation of Temporary Rock Silt Checks Type A, matting installation, PAM application, and removing Temporary Rock Silt Checks Type A with Excelsior Matting and PAM.

Materials

Structural stone shall be class B stone that meets the requirements of Section 1042 of the Standard Specifications for Stone for Erosion Control, Class B.

Sediment control stone shall be #5 or #57 stone, which meets the requirements of Section 1005 of the Standard Specifications for these stone sizes.

Matting shall meet the requirements of Excelsior Matting in section 1060-8(B) of the *Standard Specifications*, or shall meet specifications provided elsewhere in this contract.

Polyacrylamide (PAM) shall be applied in powder form and shall be anionic or neutrally charged. Soil samples shall be obtained in areas where the Temporary Rock Silt Checks Type A with Excelsior Matting and PAM will be placed, and from offsite material used to construct the roadway, and analyzed for the appropriate PAM flocculant to be utilized with each Temporary Rock Silt Check Type A. The PAM product used shall be listed on the North Carolina Department of Environment and Natural Resources (NCDENR) Division of Water Quality (DWQ) web site as an approved PAM product for use in North Carolina.

Construction Methods

Temporary Rock Silt Checks Type A shall be installed in accordance with Section 1633-3(A) of the Standard Specifications, Roadway Standard Drawing No. 1633.01 and the detail provided in the plans.

Installation of matting shall be in accordance with the detail provided in the plans, and anchored by placing Class B stone on top of the matting at the upper and lower ends.

Apply PAM at a rate of 3.5 ounces over the center portion of the Temporary Rock Silt Checks Type A and matting where the water is going to flow over. PAM applications shall be done during construction activities and after every rainfall event that is equal to or exceeds 0.50 in.

The Contractor shall maintain the Temporary Rock Silt Checks Type A with Excelsior Matting and PAM until the project is accepted or until the Temporary Rock Silt Checks Type A with Excelsior Matting and PAM are removed, and shall remove and dispose of silt accumulations at the Temporary Rock Silt Checks Type A with Excelsior Matting and PAM when so directed in accordance with the requirements of Section 1630 of the *Standard Specifications*.

Measurement and Payment

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

Matting will be measured and paid for in accordance with section 1631-4 of the *Standard Specifications,* or in accordance with specifications provided elsewhere in this contract.

Polyacrylamide(PAM) will be measured and paid for by the actual weight in pounds of PAM applied to the Temporary Rock Silt Checks Type A. Such price and payment will be full compensation for all work covered by this section, including, but not limited to, furnishing all materials, labor, equipment and incidentals necessary to apply the *Polyacrylamide(PAM).*

Payment will be made under:

Pay Item Pay	**Unit**
Polyacrylamide(PAM)	Pound

PERMANENT SOIL REINFORCEMENT MAT:

Description

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

Materials

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

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

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

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

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

Construction Methods

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

All areas to be protected with the mat shall be brought to final grade and seeded in accordance with Section 1660 of the *Standard Specifications*. The surface of the soil shall be smooth, firm, stable and free of rocks, clods, roots or other obstructions that would prevent the mat from lying

in direct contact with the soil surface. Areas where the mat is to be placed will not need to be mulched.

Measurement and Payment

Permanent Soil Reinforcement Mat will be measured and paid for as the actual number of square yards measured along the surface of the ground over which Permanent Soil Reinforcement Mat is installed and accepted. Overlaps will not be included in the measurement, and will be considered as incidental to the work. Such payment shall be full compensation for furnishing and installing the mat, including overlaps, and for all required maintenance.

Payment will be made under:

Pay Item	**Pay Unit**
Permanent Soil Reinforcement Mat	Square Yard

HIGH QUALITY WATERS:

Description

Mill Creek has been identified as high quality waters. This designation requires special procedures to be used for clearing and grubbing, temporary stream crossings, and grading operations within the High Quality Water Zone and as designated by the Engineer. The High Quality Water Zones are identified on the plans as Environmentally Sensitive Areas. This also requires special procedures to be used for seeding and mulching and staged seeding.

The High Quality Water Zone/Environmentally Sensitive Area shall be defined as a 50- foot buffer zone on both sides of the stream measured from top of streambank.

Construction Methods

(A) Clearing and Grubbing

In areas identified as High Quality Water Zones/Environmentally Sensitive Areas, the Contractor may perform clearing operations, but not grubbing operations until immediately prior to beginning grading operations as described in Article 200-1 of the *Standard Specifications*. Only clearing operations (not grubbing) shall be allowed in this buffer zone until immediately prior to beginning grading operations. Erosion control devices shall be installed immediately following the clearing operation.

(B) Grading

Once grading operations begin in identified High Quality Water Zones/ Environmentally Sensitive Areas, work shall progress in a continuous manner until complete. All construction within these areas shall progress in a continuous manner such that each phase is complete and

areas are permanently stabilized prior to beginning of next phase. Failure on the part of the Contractor to complete any phase of construction in a continuous manner in High Quality Water Zones/Environmentally Sensitive Areas will be just cause for the Engineer to direct the suspension of work in accordance with Article 108-7 of the *Standard Specifications*.

(C) Temporary Stream Crossings

Any crossing of streams within the limits of this project shall be accomplished in accordance with the requirements of Subarticle 107-13(B) of the *Standard Specifications*.

(D) Seeding and Mulching

Seeding and mulching shall be performed in accordance with Section 1660 of the *Standard Specifications* and vegetative cover sufficient to restrain erosion shall be installed immediately following grade establishment. Seeding and mulching shall be performed on the areas disturbed by construction immediately following final grade establishment. No appreciable time shall lapse into the contract time without stabilization of slopes, ditches and other areas within the High Quality Water Zones/Environmentally Sensitive Areas.

(E) Stage Seeding

The work covered by this section shall consist of the establishment of a vegetative cover on cut and fill slopes as grading progresses. Seeding and mulching shall be done in stages on cut and fill slopes that are greater than 20 feet in height measured along the slope, or greater than 2 acres in area. Each stage shall not exceed the limits stated above.

Additional payments will not be made for the requirements of this section, as the cost for this work shall be included in the contract unit prices for the work involved.

STANDARD SPECIAL PROVISIONS

AVAILABILITY OF FUNDS – TERMINATION OF CONTRACTS

(5-20-08) Z-2

General Statute 143C-6-11. (h) Highway Appropriation is hereby incorporated verbatim in this contract as follows:

(h) Amounts Encumbered. – Transportation project appropriations may be encumbered in the amount of allotments made to the Department of Transportation by the Director for the estimated payments for transportation project contract work to be performed in the appropriation fiscal year. The allotments shall be multiyear allotments and shall be based on estimated revenues and shall be subject to the maximum contract authority contained in *General Statute 143C-6-11(c)*. Payment for transportation project work performed pursuant to contract in any fiscal year other than the current fiscal year is subject to appropriations by the General Assembly. Transportation project contracts shall contain a schedule of estimated completion progress, and any acceleration of this progress shall be subject to the approval of the Department of Transportation provided funds are available. The State reserves the right to terminate or suspend any transportation project contract, and any transportation project contract shall be so terminated or suspended if funds will not be available for payment of the work to be performed during that fiscal year pursuant to the contract. In the event of termination of any contract, the contractor shall be given a written notice of termination at least 60 days before completion of scheduled work for which funds are available. In the event of termination, the contractor shall be paid for the work already performed in accordance with the contract specifications.

Payment will be made on any contract terminated pursuant to the special provision in accordance with Subarticle 108-13(E) of the *2012 Standard Specifications*.

NCDOT GENERAL SEED SPECIFICATION FOR SEED QUALITY

(5-17-11) Z-3

Seed shall be sampled and tested by the North Carolina Department of Agriculture and Consumer Services, Seed Testing Laboratory. When said samples are collected, the vendor shall supply an independent laboratory report for each lot to be tested. Results from seed so sampled shall be final. Seed not meeting the specifications shall be rejected by the Department of Transportation and shall not be delivered to North Carolina Department of Transportation warehouses. If seed has been delivered it shall be available for pickup and replacement at the supplier's expense.

Any re-labeling required by the North Carolina Department of Agriculture and Consumer Services, Seed Testing Laboratory, that would cause the label to reflect as otherwise specified herein shall be rejected by the North Carolina Department of Transportation.

Seed shall be free from seeds of the noxious weeds Johnsongrass, Balloonvine, Jimsonweed, Witchweed, Itchgrass, Serrated Tussock, Showy Crotalaria, Smooth Crotalaria, Sicklepod, Sandbur, Wild Onion, and Wild Garlic. Seed shall not be labeled with the above weed species

on the seed analysis label. Tolerances as applied by the Association of Official Seed Analysts will NOT be allowed for the above noxious weeds except for Wild Onion and Wild Garlic.

Tolerances established by the Association of Official Seed Analysts will generally be recognized. However, for the purpose of figuring pure live seed, the found pure seed and found germination percentages as reported by the North Carolina Department of Agriculture and Consumer Services, Seed Testing Laboratory will be used. Allowances, as established by the NCDOT, will be recognized for minimum pure live seed as listed on the following pages.

The specifications for restricted noxious weed seed refers to the number per pound as follows:

Restricted Noxious **Weed**	Limitations per Lb. Of Seed	Restricted Noxious **Weed**	Limitations per Lb. of Seed
Blessed Thistle	4 seeds	Cornflower (Ragged Robin)	27 seeds
Cocklebur	4 seeds	Texas Panicum	27 seeds
Spurred Anoda	4 seeds	Bracted Plantain	54 seeds
Velvetleaf	4 seeds	Buckhorn Plantain	54 seeds
Morning-glory	8 seeds	Broadleaf Dock	54 seeds
Corn Cockle	10 seeds	Curly Dock	54 seeds
Wild Radish	12 seeds	Dodder	54 seeds
Purple Nutsedge	27 seeds	Giant Foxtail	54 seeds
Yellow Nutsedge	27 seeds	Horsenettle	54 seeds
Canada Thistle	27 seeds	Quackgrass	54 seeds
Field Bindweed	27 seeds	Wild Mustard	54 seeds
Hedge Bindweed	27 seeds		

Seed of Pensacola Bahiagrass shall not contain more than 7% inert matter, Kentucky Bluegrass, Centipede and Fine or Hard Fescue shall not contain more than 5% inert matter whereas a maximum of 2% inert matter will be allowed on all other kinds of seed. In addition, all seed shall not contain more than 2% other crop seed nor more than 1% total weed seed. The germination rate as tested by the North Carolina Department of Agriculture shall not fall below 70%, which includes both dormant and hard seed. Seed shall be labeled with not more than 7%, 5% or 2% inert matter (according to above specifications), 2% other crop seed and 1% total weed seed.

Exceptions may be made for minimum pure live seed allowances when cases of seed variety shortages are verified. Pure live seed percentages will be applied in a verified shortage situation. Those purchase orders of deficient seed lots will be credited with the percentage that the seed is deficient.

FURTHER SPECIFICATIONS FOR EACH SEED GROUP ARE GIVEN BELOW:

Minimum 85% pure live seed; maximum 1% total weed seed; maximum 2% total other crop seed; maximum 144 restricted noxious weed seed per pound. Seed less than 83% pure live seed will not be approved.

Sericea Lespedeza

Oats (seeds)

Minimum 80% pure live seed; maximum 1% total weed seed; maximum 2% total other crop; maximum 144 restricted noxious weed seed per pound. Seed less than 78% pure live seed will not be approved.

Tall Fescue (all approved varieties)
Kobe Lespedeza
Korean Lespedeza
Weeping Lovegrass
Carpetgrass
Bermudagrass
Browntop Millet
German Millet – Strain R
Clover – Red/White/Crimson

Minimum 78% pure live seed; maximum 1% total weed seed; maximum 2% total other crop seed; maximum 144 restricted noxious weed seed per pound. Seed less than 76% pure live seed will not be approved.

Common or Sweet Sundangrass

Minimum 76% pure live seed; maximum 1% total weed seed; maximum 2% total other crop seed; maximum 144 restricted noxious weed seed per pound. Seed less than 74% pure live seed will not be approved.

Rye (grain; all varieties)
Kentucky Bluegrass (all approved varieties)
Hard Fescue (all approved varieties)
Shrub (bicolor) Lespedeza

Minimum 70% pure live seed; maximum 1% total weed seed; maximum 2% total other crop seed; maximum 144 noxious weed seed per pound. Seed less than 70% pure live seed will not be approved.

Centipedegrass
Crownvetch
Pensacola Bahiagrass
Creeping Red Fescue
Japanese Millet
Reed Canary Grass
Zoysia

Minimum 70% pure live seed; maximum 1% total weed seed; maximum 2% total other crop seed; maximum 5% inert matter; maximum 144 restricted noxious weed seed per pound.

Barnyard Grass
Big Bluestem
Little Bluestem
Bristly Locust
Birdsfoot Trefoil
Indiangrass
Orchardgrass
Switchgrass
Yellow Blossom Sweet Clover

STANDARD SPECIAL PROVISION

ERRATA

(1-17-12) (Rev. 04-21-15) Z-4

Revise the *2012 Standard Specifications* as follows:

Division 2

Page 2-7, line 31, Article 215-2 Construction Methods, replace "Article 107-26" with "Article 107-25".

Page 2-17, Article 226-3, Measurement and Payment, line 2, delete "pipe culverts,".

Page 2-20, Subarticle 230-4(B), Contractor Furnished Sources, change references as follows: Line 1, replace "(4) Buffer Zone" with "(c) Buffer Zone"; **Line 12,** replace "(5) Evaluation for Potential Wetlands and Endangered Species" with "(d) Evaluation for Potential Wetlands and Endangered Species"; and **Line 33,** replace "(6) Approval" with "(4) Approval".

Division 3

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

Division 4

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

Division 6

Page 6-7, line 31, Article 609-3 Field Verification of Mixture and Job Mix Formula Adjustments, replace "30" with "45".

Page 6-10, line 42, Subarticle 609-6(C)(2), replace "Subarticle 609-6(E)" with "Subarticle 609-6(D)".

Page 6-11, Table 609-1 Control Limits, replace "Max. Spec. Limit" for the Target Source of $P_{0.075}/P_{be}$ Ratio with "1.0".

Page 6-40, Article 650-2 Materials, replace "Subarticle 1012-1(F)" with "Subarticle 1012-1(E)"

Division 7

Page 7-1, Article 700-3, CONCRETE HAULING EQUIPMENT, line 33, replace "competion" with "completion".

Division 8

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

Division 10

Page 10-166, Article 1081-3 Hot Bitumen, replace "Table 1081-16" with "Table 1081-2", replace "Table 1081-17" with "Table 1081-3", and replace "Table 1081-18" with "Table 1081-4".

Division 12

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

Division 15

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

Division 17

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

Revise the *2012 Roadway Standard Drawings* as follows:

1633.01 Sheet 1 of 1, English Standard Drawing for Matting Installation, replace "1633.01" with "1631.01".

STANDARD SPECIAL PROVISION

PLANT AND PEST QUARANTINES

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

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

Within Quarantined Area

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

Originating in a Quarantined County

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

Contact

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

Regulated Articles Include

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

STANDARD SPECIAL PROVISION

MINIMUM WAGES

(7-21-09) Z-5

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

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

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

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

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

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

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

STANDARD SPECIAL PROVISION

ON-THE-JOB TRAINING

(10-16-07) (Rev. 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.

Project BD-5112U **Lincoln County**

Project Special Provisions
Structure

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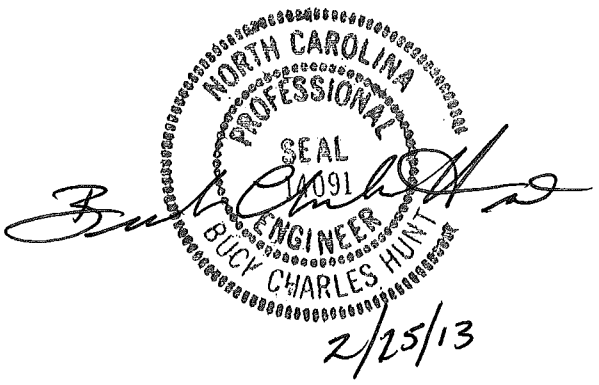


PROJECT SPECIAL PROVISIONS
STRUCTURE

LINCOLN COUNTY

FALSEWORK AND FORMWORK (4-5-12)

1.0 DESCRIPTION

Use this Special Provision as a guide to develop temporary works submittals required by the Standard Specifications or other provisions; no additional submittals are required herein. Such temporary works include, but are not limited to, falsework and formwork.

Falsework is any temporary construction used to support the permanent structure until it becomes self-supporting. Formwork is the temporary structure or mold used to retain plastic or fluid concrete in its designated shape until it hardens. Access scaffolding is a temporary structure that functions as a work platform that supports construction personnel, materials, and tools, but is not intended to support the structure. Scaffolding systems that are used to temporarily support permanent structures (as opposed to functioning as work platforms) are considered to be falsework under the definitions given. Shoring is a component of falsework such as horizontal, vertical, or inclined support members. Where the term "temporary works" is used, it includes all of the temporary facilities used in bridge construction that do not become part of the permanent structure.

Design and construct safe and adequate temporary works that will support all loads imposed and provide the necessary rigidity to achieve the lines and grades shown on the plans in the final structure.

2.0 MATERIALS

Select materials suitable for temporary works; however, select materials that also ensure the safety and quality required by the design assumptions. The Engineer has authority to reject material on the basis of its condition, inappropriate use, safety, or nonconformance with the plans. Clearly identify allowable loads or stresses for all materials or manufactured devices on the plans. Revise the plan and notify the Engineer if any change to materials or material strengths is required.

3.0 DESIGN REQUIREMENTS

A. Working Drawings

Provide working drawings for items as specified in the contract, or as required by the Engineer, with design calculations and supporting data in sufficient detail to permit a structural and safety review of the proposed design of the temporary work.

On the drawings, show all information necessary to allow the design of any component to be checked independently as determined by the Engineer.

When concrete placement is involved, include data such as the drawings of proposed sequence, rate of placement, direction of placement, and location of all construction joints. Submit the number of copies as called for by the contract.

When required, have the drawings and calculations prepared under the guidance of, and sealed by, a North Carolina Registered Professional Engineer who is knowledgeable in temporary works design.

If requested by the Engineer, submit with the working drawings manufacturer's catalog data listing the weight of all construction equipment that will be supported on the temporary work. Show anticipated total settlements and/or deflections of falsework and forms on the working drawings. Include falsework footing settlements, joint take-up, and deflection of beams or girders.

As an option for the Contractor, overhang falsework hangers may be uniformly spaced, at a maximum of 36 inches, provided the following conditions are met:

Member Type (PCG)	Member Depth, (inches)	Max. Overhang Width, (inches)	Max. Slab Edge Thickness, (inches)	Max. Screed Wheel Weight, (lbs.)	Bracket Min. Vertical Leg Extension, (inches)
II	36	39	14	2000	26
III	45	42	14	2000	35
IV	54	45	14	2000	44
MBT	63	51	12	2000	50
MBT	72	55	12	1700	48

Overhang width is measured from the centerline of the girder to the edge of the deck slab.

For Type II, III & IV prestressed concrete girders (PCG), 45-degree cast-in-place half hangers and rods must have a minimum safe working load of 6,000 lbs.

For MBT prestressed concrete girders, 45-degree angle holes for falsework hanger rods shall be cast through the girder top flange and located, measuring along the top of the member, 1'-2 ½" from the edge of the top flange. Hanger hardware and rods must have a minimum safe working load of 6,000 lbs.

The overhang bracket provided for the diagonal leg shall have a minimum safe working load of 3,750 lbs. The vertical leg of the bracket shall extend to the point that the heel bears on the girder bottom flange, no closer than 4 inches from the bottom of the member. However, for 72-inch members, the heel of the bracket shall bear on the web, near the bottom flange transition.

Provide adequate overhang falsework and determine the appropriate adjustments for deck geometry, equipment, casting procedures and casting conditions.

If the optional overhang falsework spacing is used, indicate this on the falsework submittal and advise the girder producer of the proposed details. Failure to notify the Engineer of hanger type and hanger spacing on prestressed concrete girder casting drawings may delay the approval of those drawings.

Falsework hangers that support concentrated loads and are installed at the edge of thin top flange concrete girders (such as bulb tee girders) shall be spaced so as not to exceed 75% of the manufacturer's stated safe working load. Use of dual leg hangers (such as Meadow Burke HF-42 and HF-43) are not allowed on concrete girders with thin top flanges. Design the falsework and forms supporting deck slabs and overhangs on girder bridges so that there will be no differential settlement between the girders and the deck forms during placement of deck concrete.

When staged construction of the bridge deck is required, detail falsework and forms for screed and fluid concrete loads to be independent of any previous deck pour components when the mid-span girder deflection due to deck weight is greater than ¾".

Note on the working drawings any anchorages, connectors, inserts, steel sleeves or other such devices used as part of the falsework or formwork that remains in the permanent structure. If the plan notes indicate that the structure contains the necessary corrosion protection required for a Corrosive Site, epoxy coat, galvanize or metalize these devices. Electroplating will not be allowed. Any coating required by the Engineer will be considered incidental to the various pay items requiring temporary works.

Design falsework and formwork requiring submittals in accordance with the 1995 AASHTO *Guide Design Specifications for Bridge Temporary Works* except as noted herein.

1. Wind Loads

   Table 2.2 of Article 2.2.5.1 is modified to include wind velocities up to 110 mph. In addition, Table 2.2A is included to provide the maximum wind speeds by county in North Carolina.

Table 2.2 - Wind Pressure Values

Height Zone feet above ground	Pressure, lb/ft^2 for Indicated Wind Velocity, mph				
	70	80	90	100	110
0 to 30	15	20	25	30	35
30 to 50	20	25	30	35	40
50 to 100	25	30	35	40	45
over 100	30	35	40	45	50

2. Time of Removal

   The following requirements replace those of Article 3.4.8.2.

   Do not remove forms until the concrete has attained strengths required in Article 420-16 of the Standard Specifications and these Special Provisions.

   Do not remove forms until the concrete has sufficient strength to prevent damage to the surface.

Table 2.2A - Steady State Maximum Wind Speeds by Counties in North Carolina

COUNTY	25 YR (mph)	COUNTY	25 YR (mph)	COUNTY	25 YR (mph)
Alamance	70	Franklin	70	Pamlico	100
Alexander	70	Gaston	70	Pasquotank	100
Alleghany	70	Gates	90	Pender	100
Anson	70	Graham	80	Perquimans	100
Ashe	70	Granville	70	Person	70
Avery	70	Greene	80	Pitt	90
Beaufort	100	Guilford	70	Polk	80
Bertie	90	Halifax	80	Randolph	70
Bladen	90	Harnett	70	Richmond	70
Brunswick	100	Haywood	80	Robeson	80
Buncombe	80	Henderson	80	Rockingham	70
Burke	70	Hertford	90	Rowan	70
Cabarrus	70	Hoke	70	Rutherford	70
Caldwell	70	Hyde	110	Sampson	90
Camden	100	Iredell	70	Scotland	70
Carteret	110	Jackson	80	Stanley	70
Caswell	70	Johnston	80	Stokes	70
Catawba	70	Jones	100	Surry	70
Cherokee	80	Lee	70	Swain	80
Chatham	70	Lenoir	90	Transylvania	80
Chowan	90	Lincoln	70	Tyrell	100
Clay	80	Macon	80	Union	70
Cleveland	70	Madison	80	Vance	70
Columbus	90	Martin	90	Wake	70
Craven	100	McDowell	70	Warren	70
Cumberland	80	Mecklenburg	70	Washington	100
Currituck	100	Mitchell	70	Watauga	70
Dare	110	Montgomery	70	Wayne	80
Davidson	70	Moore	70	Wilkes	70
Davie	70	Nash	80	Wilson	80
Duplin	90	New Hanover	100	Yadkin	70
Durham	70	Northampton	80	Yancey	70
Edgecombe	80	Onslow	100		
Forsyth	70	Orange	70		

B. Review and Approval

The Engineer is responsible for the review and approval of temporary works' drawings.

Submit the working drawings sufficiently in advance of proposed use to allow for their review, revision (if needed), and approval without delay to the work.

The time period for review of the working drawings does not begin until complete drawings and design calculations, when required, are received by the Engineer.

Do not start construction of any temporary work for which working drawings are required until the drawings have been approved. Such approval does not relieve the Contractor of the responsibility for the accuracy and adequacy of the working drawings.

4.0 CONSTRUCTION REQUIREMENTS

All requirements of Section 420 of the Standard Specifications apply.

Construct temporary works in conformance with the approved working drawings. Ensure that the quality of materials and workmanship employed is consistent with that assumed in the design of the temporary works. Do not weld falsework members to any portion of the permanent structure unless approved. Show any welding to the permanent structure on the approved construction drawings.

Provide tell-tales attached to the forms and extending to the ground, or other means, for accurate measurement of falsework settlement. Make sure that the anticipated compressive settlement and/or deflection of falsework does not exceed 1 inch. For cast-in-place concrete structures, make sure that the calculated deflection of falsework flexural members does not exceed 1/240 of their span regardless of whether or not the deflection is compensated by camber strips.

A. Maintenance and Inspection

Inspect and maintain the temporary work in an acceptable condition throughout the period of its use. Certify that the manufactured devices have been maintained in a condition to allow them to safely carry their rated loads. Clearly mark each piece so that its capacity can be readily determined at the job site.

Perform an in-depth inspection of an applicable portion(s) of the temporary works, in the presence of the Engineer, not more than 24 hours prior to the beginning of each concrete placement. Inspect other temporary works at least once a month to ensure that they are functioning properly. Have a North Carolina Registered Professional Engineer inspect the cofferdams, shoring, sheathing, support of excavation structures, and support systems for load tests prior to loading.

B. Foundations

Determine the safe bearing capacity of the foundation material on which the supports for temporary works rest. If required by the Engineer, conduct load tests to verify proposed bearing capacity values that are marginal or in other high-risk situations.

The use of the foundation support values shown on the contract plans of the permanent structure is permitted if the foundations are on the same level and on the same soil as those of the permanent structure.

Allow for adequate site drainage or soil protection to prevent soil saturation and washout of the soil supporting the temporary works supports.

If piles are used, the estimation of capacities and later confirmation during construction using standard procedures based on the driving characteristics of the pile is permitted. If preferred, use load tests to confirm the estimated capacities; or, if required by the Engineer conduct load tests to verify bearing capacity values that are marginal or in other high risk situations.

The Engineer reviews and approves the proposed pile and soil bearing capacities.

5.0 REMOVAL

Unless otherwise permitted, remove and keep all temporary works upon completion of the work. Do not disturb or otherwise damage the finished work.

Remove temporary works in conformance with the contract documents. Remove them in such a manner as to permit the structure to uniformly and gradually take the stresses due to its own weight.

6.0 METHOD OF MEASUREMENT

Unless otherwise specified, temporary works will not be directly measured.

7.0 BASIS OF PAYMENT

Payment at the contract unit prices for the various pay items requiring temporary works will be full compensation for the above falsework and formwork.

SUBMITTAL OF WORKING DRAWINGS (2-10-12)

1.0 GENERAL

Submit working drawings in accordance with Article 105-2 of the *Standard Specifications* and this provision. For this provision, "submittals" refers to only those listed in this provision. The list of submittals contained herein does not represent a list of required submittals for the project. Submittals are only necessary for those items as required by the contract. Make submittals that are not specifically noted in this provision directly to the Resident Engineer. Either the Structure Design Unit or the Geotechnical Engineering Unit or both units will jointly review submittals.

If a submittal contains variations from plan details or specifications or significantly affects project cost, field construction or operations, discuss the submittal with and submit all copies to the Resident Engineer. State the reason for the proposed variation in the submittal. To minimize review time, make sure all submittals are complete when initially submitted. Provide a contact name and information with each submittal. Direct any questions regarding submittal requirements to the Resident Engineer, Structure Design Unit contacts or the Geotechnical Engineering Unit contacts noted below.

In order to facilitate in-plant inspection by NCDOT and approval of working drawings, provide the name, address and telephone number of the facility where fabrication will actually be done if different than shown on the title block of the submitted working drawings. This includes, but is not limited to, precast concrete items, prestressed concrete items and fabricated steel or aluminum items.

2.0 ADDRESSES AND CONTACTS

For submittals to the Structure Design Unit, use the following addresses:

Via US mail:

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

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

Via other delivery service:

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

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

Submittals may also be made via email.

Send submittals to:

plambert@ncdot.gov (Paul Lambert)

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

jgaither@ncdot.gov (James Gaither)

jlbolden@ncdot.gov (James Bolden)

For submittals to the Geotechnical Engineering Unit, use the following addresses:

For projects in Divisions 1-7, use the following Eastern Regional Office address:

Via US mail:

Mr. K. J. Kim, Ph. D., P. E.
Eastern Regional Geotechnical Manager
North Carolina Department of Transportation
Geotechnical Engineering Unit
Eastern Regional Office
1570 Mail Service Center
Raleigh, NC 27699-1570

Via other delivery service:

Mr. K. J. Kim, Ph. D., P. E.
Eastern Regional Geotechnical Manager
North Carolina Department of Transportation
Geotechnical Engineering Unit
Eastern Regional Office
3301 Jones Sausage Road, Suite 100
Garner, NC 27529

For projects in Divisions 8-14, use the following Western Regional Office address:

Via US mail:

Mr. John Pilipchuk, L. G., P. E.
Western Regional Geotechnical Manager
North Carolina Department of Transportation
Geotechnical Engineering Unit
Western Regional Office
5253 Z Max Boulevard
Harrisburg, NC 28075

Via other delivery service:

Mr. John Pilipchuk, L. G., P. E.
Western Region Geotechnical Manager
North Carolina Department of Transportation
Geotechnical Engineering Unit
Western Regional Office
5253 Z Max Boulevard
Harrisburg, NC 28075

The status of the review of structure-related submittals sent to the Structure Design Unit can be viewed from the Unit's web site, via the "Contractor Submittal" link.

Direct any questions concerning submittal review status, review comments or drawing markups to the following contacts:

Primary Structures Contact: Paul Lambert (919) 707 – 6407
(919) 250 – 4082 facsimile
plambert@ncdot.gov

Secondary Structures Contacts: James Gaither (919) 707 – 6409
James Bolden (919) 707 – 6408

Eastern Regional Geotechnical Contact (Divisions 1-7):

K. J. Kim (919) 662 – 4710
(919) 662 – 3095 facsimile
kkim@ncdot.gov

Western Regional Geotechnical Contact (Divisions 8-14):

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

3.0 SUBMITTAL COPIES

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

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

Unless otherwise required, submit one set of supporting calculations to either the Structure Design Unit or the Geotechnical Engineering Unit unless both units require submittal copies in which case submit a set of supporting calculations to each unit. Provide additional copies of any submittal as directed.

STRUCTURE SUBMITTALS

Submittal	Copies Required by Structure Design Unit	Copies Required by Geotechnical Engineering Unit	Contract Reference Requiring Submittal [1]
Arch Culvert Falsework	5	0	Plan Note, SN Sheet & "Falsework and Formwork"
Box Culvert Falsework [7]	5	0	Plan Note, SN Sheet & "Falsework and Formwork"
Cofferdams	6	2	Article 410-4

Foam Joint Seals [6]	9	0	"Foam Joint Seals"
Expansion Joint Seals (hold down plate type with base angle)	9	0	"Expansion Joint Seals"
Expansion Joint Seals (modular)	2, then 9	0	"Modular Expansion Joint Seals"
Expansion Joint Seals (strip seals)	9	0	"Strip Seals"
Falsework & Forms [2] (substructure)	8	0	Article 420-3 & "Falsework and Formwork"
Falsework & Forms (superstructure)	8	0	Article 420-3 & "Falsework and Formwork"
Girder Erection over Railroad	5	0	Railroad Provisions
Maintenance and Protection of Traffic Beneath Proposed Structure	8	0	"Maintenance and Protection of Traffic Beneath Proposed Structure at Station ___"
Metal Bridge Railing	8	0	Plan Note
Metal Stay-in-Place Forms	8	0	Article 420-3
Metalwork for Elastomeric Bearings [4,5]	7	0	Article 1072-8
Miscellaneous Metalwork [4,5]	7	0	Article 1072-8
Optional Disc Bearings [4]	8	0	"Optional Disc Bearings"
Overhead and Digital Message Signs (DMS) (metalwork and foundations)	13	0	Applicable Provisions
Placement of Equipment on Structures (cranes, etc.)	7	0	Article 420-20
Pot Bearings [4]	8	0	"Pot Bearings"
Precast Concrete Box Culverts	2, then 1 reproducible	0	"Optional Precast Reinforced Concrete Box Culvert at Station ___"
Prestressed Concrete Cored Slab	6	0	Article 1078-11

(detensioning sequences) [3]			
Prestressed Concrete Deck Panels	6 and 1 reproducible	0	Article 420-3
Prestressed Concrete Girder (strand elongation and detensioning sequences)	6	0	Articles 1078-8 and 1078-11
Removal of Existing Structure over Railroad	5	0	Railroad Provisions
Revised Bridge Deck Plans (adaptation to prestressed deck panels)	2, then 1 reproducible	0	Article 420-3
Revised Bridge Deck Plans (adaptation to modular expansion joint seals)	2, then 1 reproducible	0	"Modular Expansion Joint Seals"
Sound Barrier Wall (precast items)	10	0	Article 1077-2 & "Sound Barrier Wall"
Sound Barrier Wall Steel Fabrication Plans [5]	7	0	Article 1072-8 & "Sound Barrier Wall"
Structural Steel [4]	2, then 7	0	Article 1072-8
Temporary Detour Structures	10	2	Article 400-3 & "Construction, Maintenance and Removal of Temporary Structure at Station ____"
TFE Expansion Bearings [4]	8	0	Article 1072-8

FOOTNOTES

1. References are provided to help locate the part of the contract where the submittals are required. References in quotes refer to the provision by that name. Articles refer to the *Standard Specifications*.
2. Submittals for these items are necessary only when required by a note on plans.
3. Submittals for these items may not be required. A list of pre-approved sequences is available from the producer or the Materials & Tests Unit.
4. The fabricator may submit these items directly to the Structure Design Unit.
5. The two sets of preliminary submittals required by Article 1072-8 of the *Standard Specifications* are not required for these items.

6. Submittals for Fabrication Drawings are not required. Submittals for Catalogue Cuts of Proposed Material are required. See Section 5.A of the referenced provision.
7. Submittals are necessary only when the top slab thickness is 18" or greater.

GEOTECHNICAL SUBMITTALS

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

FOOTNOTES

1. References are provided to help locate the part of the contract where the submittals are required. References in quotes refer to the provision by that name. Subarticles refer to the *Standard Specifications*.

2. Submit one hard copy of submittal to the Resident or Bridge Maintenance Engineer. Submit a second copy of submittal electronically (PDF via email) or by facsimile, US mail or other delivery service to the appropriate Geotechnical Engineering Unit regional office. Electronic submission is preferred.

3. The Pile Driving Equipment Data Form is available from:
   www.ncdot.org/doh/preconstruct/highway/geotech/formdet/
   See second page of form for submittal instructions.

4. Electronic copy of submittal is required. See referenced provision.

CRANE SAFETY (8-15-05)

Comply with the manufacturer specifications and limitations applicable to the operation of any and all cranes and derricks. Prime contractors, sub-contractors, and fully operated rental companies shall comply with the current Occupational Safety and Health Administration regulations (OSHA).

Submit all items listed below to the Engineer prior to beginning crane operations involving critical lifts. A critical lift is defined as any lift that exceeds 75 percent of the manufacturer's crane chart capacity for the radius at which the load will be lifted or requires the use of more than one crane. Changes in personnel or equipment must be reported to the Engineer and all applicable items listed below must be updated and submitted prior to continuing with crane operations.

CRANE SAFETY SUBMITTAL LIST

A. **Competent Person:** Provide the name and qualifications of the "Competent Person" responsible for crane safety and lifting operations. The named competent person will have the responsibility and authority to stop any work activity due to safety concerns.

B. **Riggers:** Provide the qualifications and experience of the persons responsible for rigging operations. Qualifications and experience should include, but not be limited to, weight calculations, center of gravity determinations, selection and inspection of sling and rigging equipment, and safe rigging practices.

C. **Crane Inspections:** Inspection records for all cranes shall be current and readily accessible for review upon request.

D. **Certifications:** **By July 1, 2006**, crane operators performing critical lifts shall be certified by NC CCO (National Commission for the Certification of Crane Operators), or satisfactorily complete the Carolinas AGC's Professional Crane Operator's Proficiency Program. Other approved nationally accredited programs will be considered upon request. All crane operators shall also have a current CDL medical card. Submit a list of anticipated critical lifts and corresponding crane operator(s). Include current certification for the type of crane operated (small hydraulic, large hydraulic, small lattice, large lattice) and medical evaluations for each operator.

GROUT FOR STRUCTURES 9-30-11

1.0 DESCRIPTION

This special provision addresses grout for use in pile blockouts, grout pockets, shear keys, dowel holes and recesses for structures. This provision does not apply to grout placed in post-tensioning ducts for bridge beams, girders, or decks. Mix and place grout in accordance with the manufacturer's recommendations, the applicable sections of the Standard Specifications and this provision.

2.0 MATERIAL REQUIREMENTS

Use a Department approved pre-packaged, non-shrink, non-metallic grout. Contact the Materials and Tests Unit for a list of approved pre-packaged grouts and consult the manufacturer to determine if the pre-packaged grout selected is suitable for the required application.

When using an approved pre-packaged grout, a grout mix design submittal is not required.

The grout shall be free of soluble chlorides and contain less than one percent soluble sulfate. Supply water in compliance with Article 1024-4 of the Standard Specifications.

Aggregate may be added to the mix only where recommended or permitted by the manufacturer and Engineer. The quantity and gradation of the aggregate shall be in accordance with the manufacturer's recommendations.

Admixtures, if approved by the Department, shall be used in accordance with the manufacturer's recommendations. The manufacture date shall be clearly stamped on each container. Admixtures with an expired shelf life shall not be used.

The Engineer reserves the right to reject material based on unsatisfactory performance.

Initial setting time shall not be less than 10 minutes when tested in accordance with ASTM C266.

Test the expansion and shrinkage of the grout in accordance with ASTM C1090. The grout shall expand no more than 0.2% and shall exhibit no shrinkage. Furnish a Type 4 material certification showing results of tests conducted to determine the properties listed in the Standard Specifications and to assure the material is non-shrink.

Unless required elsewhere in the contract the compressive strength at 3 days shall be at least 5000 psi. Compressive strength in the laboratory shall be determined in accordance with ASTM C109 except the test mix shall contain only water and the dry manufactured material. Compressive strength in the field will be determined by molding and testing 4" x 8" cylinders in accordance with AASHTO T22. Construction loading and traffic loading shall not be allowed until the 3 day compressive strength is achieved.

When tested in accordance with ASTM C666, Procedure A, the durability factor of the grout shall not be less than 80.

3.0 SAMPLING AND PLACEMENT

Place and maintain components in final position until grout placement is complete and accepted. Concrete surfaces to receive grout shall be free of defective concrete, laitance, oil, grease and other foreign matter. Saturate concrete surfaces with clean water and remove excess water prior to placing grout.

Do not place grout if the grout temperature is less than 50°F or more than 90°F or if the air temperature measured at the location of the grouting operation in the shade away from artificial heat is below 45°F.

Provide grout at a rate that permits proper handling, placing and finishing in accordance with the manufacturer's recommendations unless directed otherwise by the Engineer. Use grout free of any lumps and undispersed cement. Agitate grout continuously before placement.

Control grout delivery so the interval between placing batches in the same component does not exceed 20 minutes.

The Engineer will determine the locations to sample grout and the number and type of samples collected for field and laboratory testing. The compressive strength of the grout will be considered the average compressive strength test results of 3 cube or 2 cylinder specimens at 28 days.

4.0 BASIS OF PAYMENT

No separate payment will be made for "Grout for Structures". The cost of the material, equipment, labor, placement, and any incidentals necessary to complete the work shall be considered incidental to the structure item requiring grout.

PROJECT SPECIAL PROVISIONS
GEOENVIRONMENTAL

CONTAMINATED SOIL (2/6/2014)

The Contractor's attention is directed to the fact that soil contaminated with petroleum hydrocarbon compounds exists within the project area. The potential areas of contamination are indicated in the Preliminary Site Assessment Report, BR 70 on Johnstown Road over Mill Creek in Cherryville, NC (June 4, 2013) investigated by Froehling & Robertson, Inc. for the NCDOT GeoEnvironmental Section.

Petroleum contaminated soil may be encountered during any earthwork activities on the project. The Contractor shall only excavate those soils that the Engineer designates necessary to complete a particular task. The Engineer shall determine if soil is contaminated based on petroleum odors and unusual soil staining. Contaminated soil not required to be excavated is to remain in place and undisturbed. Undisturbed soil shall remain in place, whether contaminated or not. The Contractor shall transport all contaminated soil excavated from the project to a facility licensed to accept contaminated soil.

In the event that the Contractor chooses to stockpile the soil temporarily, the stockpile shall be created within the NCDOT Right of Way and in accordance with the Stockpile Detail found in the plans. If the volume of contaminated material exceeds available space on site, the Contractor shall obtain a permit from the NCDENR UST Section's Mooresville Regional Office for off-site temporary storage. Stockpiling contaminated soil will be incidental to the project. The Contractor shall provide disposal manifests and weigh tickets to the Engineer for review and approval. The Engineer will in turn provide the GeoEnvironmental Section with a copy of the disposal manifests and weigh tickets for their records.

Measurement and Payment:

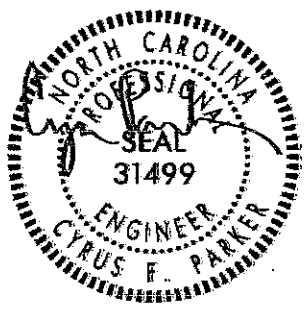
The quantity of contaminated soil hauled, and disposed of shall be the actual number of tons of material, which has been acceptably transported and weighed with certified scales as documented by disposal manifests and weigh tickets. The quantity of contaminated soil, measured as provided above, shall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

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

Payment shall be made under:

Pay Item	Pay Unit
Hauling and Disposal of Petroleum Contaminated Soil	Ton

2-6-2014



REMOVAL OF EXISTING STRUCTURE AT STATION 14+52.94 –L-

The existing bridge shall be removed in accordance with the Standard Specifications with the following exception:

The existing steel girders shall be removed and salvaged for the Division of Highways as directed by the engineer. The steel beams are to be delivered by the Contractor to the Newton Bridge Yard located at 1296 Prison Camp Road in Newton, North Carolina. One week prior to delivery the Contractor shall notify the Bridge Yard at (828) 466-5525. Upon delivery, NCDOT Bridge Maintenance forces will unload the material. The Contractor shall not use any of the items, either temporarily or permanently, which have been removed and are to be salvaged.

No separate payment will be made for this work and the entire cost of this work shall be included in the lump sum contract price bid for “Removal of Existing Structure at Station 14+52.94 –L- ….Lump Sum”.

NATIONWIDE PERMIT 3
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS
FINAL NOTICE OF ISSUANCE AND MODIFICATION OF NATIONWIDE PERMITS
FEDERAL REGISTER
AUTHORIZED MARCH 19, 2012

Maintenance. (a) The repair, rehabilitation, or replacement of any previously authorized, currently serviceable structure, or fill, or of any currently serviceable structure or fill authorized by 33 CFR 330.3, provided that the structure or fill is not to be put to uses differing from those uses specified or contemplated for it in the original permit or the most recently authorized modification. Minor deviations in the structure's configuration or filled area, including those due to changes in materials, construction techniques, requirements of other regulatory agencies, or current construction codes or safety standards that are necessary to make the repair, rehabilitation, or replacement are authorized. Any stream channel modification is limited to the minimum necessary for the repair, rehabilitation, or replacement of the structure or fill; such modifications, including the removal of material from the stream channel, must be immediately adjacent to the project or within the boundaries of the structure or fill. This NWP also authorizes the repair, rehabilitation, or replacement of those structures or fills destroyed or damaged by storms, floods, fire or other discrete events, provided the repair, rehabilitation, or replacement is commenced, or is under contract to commence, within two years of the date of their destruction or damage. In cases of catastrophic events, such as hurricanes or tornadoes, this two-year limit may be waived by the district engineer, provided the permittee can demonstrate funding, contract, or other similar delays.

(b) This NWP also authorizes the removal of accumulated sediments and debris in the vicinity of existing structures (e.g., bridges, culverted road crossings, water intake structures, etc.) and/or the placement of new or additional riprap to protect the structure. The removal of sediment is limited to the minimum necessary to restore the waterway in the vicinity of the structure to the approximate dimensions that existed when the structure was built, but cannot extend farther than 200 feet in any direction from the structure. This 200 foot limit does not apply to maintenance dredging to remove accumulated sediments blocking or restricting outfall and intake structures or to maintenance dredging to remove accumulated sediments from canals associated with outfall and intake structures. All dredged or excavated materials must be deposited and retained in an area that has no waters of the United States unless otherwise specifically approved by the district engineer under separate authorization. The placement of new or additional riprap must be the minimum necessary to protect the structure or to ensure the safety of the structure. Any bank stabilization measures not directly associated with the structure will require a separate authorization from the district engineer.

(c) This NWP also authorizes temporary structures, fills, and work necessary to conduct the maintenance activity. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in

their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

(d) This NWP does not authorize maintenance dredging for the primary purpose of navigation. This NWP does not authorize beach restoration. This NWP does not authorize new stream channelization or stream relocation projects.

Notification: For activities authorized by paragraph (b) of this NWP, the permittee must submit a pre-construction notification to the district engineer prior to commencing the activity (see general condition 31). The pre-construction notification must include information regarding the original design capacities and configurations of the outfalls, intakes, small impoundments, and canals. (Sections 10 and 404)

Note: This NWP authorizes the repair, rehabilitation, or replacement of any previously authorized structure or fill that does not qualify for the Clean Water Act Section 404(f) exemption for maintenance.

NATIONWIDE PERMIT CONDITIONS

The following General Conditions must be followed in order for any authorization by a NWP to be valid:

1. Navigation. (a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species.

3. Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).

7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and storm water management activities, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow.

13. Removal of Temporary Fills. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. Single and Complete Project. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. Wild and Scenic Rivers. No activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service).

17. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

18. Endangered Species. (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed.

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address ESA compliance for the NWP activity, or whether additional ESA consultation is necessary.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that might be affected by the proposed work or that utilize the designated critical habitat that might be affected by the proposed work. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the project, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification the proposed activities will have "no effect" on listed species or critical habitat, or until Section 7 consultation has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species-specific regional endangered species conditions to the NWPs.

(e) Authorization of an activity by a NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the U.S. FWS or the NMFS, The Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the U.S. FWS and NMFS or their world wide web pages at http://www.fws.gov/ or http://www.fws.gov/ipac and http://www.noaa.gov/fisheries.html respectively.

19. Migratory Birds and Bald and Golden Eagles. The permittee is responsible for obtaining any "take" permits required under the U.S. Fish and Wildlife Service's regulations governing compliance with the Migratory Bird Treaty Act or the Bald and Golden Eagle Protection Act. The permittee should contact the appropriate local office of the U.S. Fish and Wildlife Service to determine if such "take" permits are required for a particular activity.

20. Historic Properties. (a) In cases where the district engineer determines that the activity may affect properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of Section 106 of the National Historic Preservation Act. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address section 106 compliance for the NWP activity, or whether additional section 106 consultation is necessary.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the authorized activity may have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties may be affected by the proposed work or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of or potential for the presence of historic resources can be sought from the State Historic Preservation Officer or Tribal Historic Preservation Officer, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of Section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted and these efforts, the district engineer shall determine whether the proposed activity has the potential to cause an effect on the historic properties. Where the non-Federal applicant has identified historic properties on which the activity may have the potential to cause effects and so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects or that consultation under Section 106 of the NHPA has been completed.

(d) The district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA Section 106 consultation is required. Section 106 consultation is not required when the Corps determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR §800.3(a)). If NHPA

section 106 consultation is required and will occur, the district engineer will notify the non-Federal applicant that he or she cannot begin work until Section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. Discovery of Previously Unknown Remains and Artifacts. If you discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by this permit, you must immediately notify the district engineer of what you have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters. Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, and 52 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, and 38, notification is required in accordance with general condition 31, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after it is determined that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that adverse effects on the aquatic environment are minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the adverse effects to the aquatic environment are minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse effects of the proposed activity are minimal, and provides a project-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in minimal adverse effects on the aquatic environment. Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in minimal adverse effects on the aquatic environment.

(2) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, wetland restoration should be the first compensatory mitigation option considered.

(3) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) – (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)).

(4) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan only needs to address the baseline conditions at the impact site and the number of credits to be provided.

(5) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan.

(d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation, such as stream rehabilitation, enhancement, or preservation, to ensure that the activity results in minimal adverse effects on the aquatic environment.

(e) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any project resulting in the loss of greater than 1/2-acre of waters of

the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that a project already meeting the established acreage limits also satisfies the minimal impact requirement associated with the NWPs.

(f) Compensatory mitigation plans for projects in or near streams or other open waters will normally include a requirement for the restoration or establishment, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, riparian areas may be the only compensatory mitigation required. Riparian areas should consist of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to establish a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or establishing a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(g) Permittees may propose the use of mitigation banks, in-lieu fee programs, or separate permittee-responsible mitigation. For activities resulting in the loss of marine or estuarine resources, permittee-responsible compensatory mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(h) Where certain functions and services of waters of the United States are permanently adversely affected, such as the conversion of a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse effects of the project to the minimal level.

24. Safety of Impoundment Structures. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. Water Quality. Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA Section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). The district engineer or a State may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

29. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

"When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."

_____

(Transferee)

_____

(Date)

30. Compliance Certification. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized work was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

(c) The signature of the permittee certifying the completion of the work and mitigation.

31. Pre-Construction Notification. (a) Timing. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or in the vicinity of the project, or to notify the Corps pursuant to general condition 20 that the activity may have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or Section 106 of the National Historic Preservation (see 33 CFR 330.4(g)) has been completed. Also, work cannot begin under NWPs 21, 49, or 50 until the permittee has received written approval from the Corps. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) Contents of Pre-Construction Notification: The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed project;

(3) A description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause, including the anticipated amount of loss of water of the United States expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity. The description should be sufficiently detailed to allow the district engineer to determine that the adverse effects of the project will be minimal and to determine the need for compensatory mitigation. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the project and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(4) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many waters of the United States. Furthermore, the 45 day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(5) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse effects are minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(6) If any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, for non-Federal applicants the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed work or utilize the designated critical habitat that may be affected by the proposed work. Federal applicants must provide documentation demonstrating compliance with the Endangered Species Act; and

(7) For an activity that may affect a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, for non-Federal applicants the PCN must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property. Federal applicants must provide documentation demonstrating compliance with Section 106 of the National Historic Preservation Act.

(c) Form of Pre-Construction Notification: The standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate that it is a PCN and must include all of the information required in paragraphs (b)(1) through (7) of this general condition. A letter containing the required information may also be used.

(d) Agency Coordination: (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the project's adverse environmental effects to a minimal level.

(2) For all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States, for NWP 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52 activities that require pre-construction notification and will result in the loss of greater than 300 linear feet of intermittent and ephemeral stream bed, and for all NWP 48 activities that require pre-construction notification, the district engineer will immediately provide (e.g., via e-mail, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (U.S. FWS, state natural resource or water quality agency, EPA, State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Office (THPO), and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to telephone or fax the district engineer notice that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure the net adverse environmental effects to the aquatic environment of the proposed activity are minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(3) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(4) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

D. District Engineer's Decision

1. In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. For a linear project, this determination will include an evaluation of the individual crossings to determine whether they individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings authorized by NWP. If an applicant requests a waiver of the 300 linear foot limit on impacts to intermittent or ephemeral streams or of an otherwise applicable limit, as provided for in NWPs 13, 21, 29, 36, 39, 40, 42, 43, 44, 50, 51 or 52, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in minimal adverse effects. When making minimal effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. The district engineer will also consider site specific factors, such as the environmental setting in the

vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

2. If the proposed activity requires a PCN and will result in a loss of greater than 1/10-acre of wetlands, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for projects with smaller impacts. The district engineer will consider any proposed compensatory mitigation the applicant has included in the proposal in determining whether the net adverse environmental effects to the aquatic environment of the proposed activity are minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse effects on the aquatic environment are minimal, after considering mitigation, the district engineer will notify the permittee and include any activity-specific conditions in the NWP verification the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR 332.3(k). The district engineer must approve the final mitigation plan before the permittee commences work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure no more than minimal adverse effects on the aquatic environment. If the net adverse effects of the project on the aquatic environment (after consideration of the compensatory mitigation proposal) are determined by the district engineer to be minimal, the district engineer will provide a timely written response to the applicant. The response will state that the project can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

3. If the district engineer determines that the adverse effects of the proposed work are more than minimal, then the district engineer will notify the applicant either: (a) That the project does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) that the project is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level; or (c) that the project is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse effects occur to the aquatic environment, the activity will be authorized within the 45-day PCN period, with activity-specific

conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation or a requirement that the applicant submit a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level. When mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

FURTHER INFORMATION

1. District Engineers have authority to determine if an activity complies with the terms and conditions of an NWP.

2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.

3. NWPs do not grant any property rights or exclusive privileges.

4. NWPs do not authorize any injury to the property or rights of others.

5. NWPs do not authorize interference with any existing or proposed Federal project.

DEFINITIONS

Best management practices (BMPs): Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural.

Compensatory mitigation: The restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Currently serviceable: Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

Direct effects: Effects that are caused by the activity and occur at the same time and place.

Discharge: The term "discharge" means any discharge of dredged or fill material.

Enhancement: The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

Ephemeral stream: An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

Establishment (creation): The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.

High Tide Line: The line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence

of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.

Historic Property: Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR part 60).

Independent utility: A test to determine what constitutes a single and complete non-linear project in the Corps regulatory program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

Indirect effects: Effects that are caused by the activity and are later in time or farther removed in distance, but are still reasonably foreseeable.

Intermittent stream: An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

Loss of waters of the United States: Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters for determining whether a project may qualify for an NWP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. The loss of stream bed includes the linear feet of stream bed that is filled or excavated. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities eligible for exemptions under Section 404(f) of the Clean Water Act are not considered when calculating the loss of waters of the United States.

Non-tidal wetland: A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. The definition of a wetland can be found at 33 CFR 328.3(b). Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).

Open water: For purposes of the NWPs, an open water is any area that in a year with normal patterns of precipitation has water flowing or standing above ground to the extent that an ordinary high water mark can be determined. Aquatic vegetation within the area of standing or

flowing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. Examples of "open waters" include rivers, streams, lakes, and ponds.

Ordinary High Water Mark: An ordinary high water mark is a line on the shore established by the fluctuations of water and indicated by physical characteristics, or by other appropriate means that consider the characteristics of the surrounding areas (see 33 CFR 328.3(e)).

Perennial stream: A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

Practicable: Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Pre-construction notification: A request submitted by the project proponent to the Corps for confirmation that a particular activity is authorized by nationwide permit. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Pre-construction notification may be required by the terms and conditions of a nationwide permit, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where pre-construction notification is not required and the project proponent wants confirmation that the activity is authorized by nationwide permit.

Preservation: The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.

Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation.

Riffle and pool complex: Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a course substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

Riparian areas: Riparian areas are lands adjacent to streams, lakes, and estuarine-marine shorelines. Riparian areas are transitional between terrestrial and aquatic ecosystems, through

which surface and subsurface hydrology connects riverine, lacustrine, estuarine, and marine waters with their adjacent wetlands, non-wetland waters, or uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See general condition 23.)

Shellfish seeding: The placement of shellfish seed and/or suitable substrate to increase shellfish production. Shellfish seed consists of immature individual shellfish or individual shellfish attached to shells or shell fragments (i.e., spat on shell). Suitable substrate may consist of shellfish shells, shell fragments, or other appropriate materials placed into waters for shellfish habitat.

Single and complete linear project: A linear project is a project constructed for the purpose of getting people, goods, or services from a point of origin to a terminal point, which often involves multiple crossings of one or more waterbodies at separate and distant locations. The term "single and complete project" is defined as that portion of the total linear project proposed or accomplished by one owner/developer or partnership or other association of owners/developers that includes all crossings of a single water of the United States (i.e., a single waterbody) at a specific location. For linear projects crossing a single or multiple waterbodies several times at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

Single and complete non-linear project: For non-linear projects, the term "single and complete project" is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete non-linear project must have independent utility (see definition of "independent utility"). Single and complete non-linear projects may not be "piecemealed" to avoid the limits in an NWP authorization.

Stormwater management: Stormwater management is the mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

Stormwater management facilities: Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and best management practices, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.

Stream bed: The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the ordinary high water marks, are not considered part of the stream bed.

Stream channelization: The manipulation of a stream's course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized stream remains a water of the United States.

Structure: An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent

mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

Tidal wetland: A tidal wetland is a wetland (i.e., water of the United States) that is inundated by tidal waters. The definitions of a wetland and tidal waters can be found at 33 CFR 328.3(b) and 33 CFR 328.3(f), respectively. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channelward of the high tide line, which is defined at 33 CFR 328.3(d).

Vegetated shallows: Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

Waterbody: For purposes of the NWPs, a waterbody is a jurisdictional water of the United States. If a jurisdictional wetland is adjacent – meaning bordering, contiguous, or neighboring – to a waterbody determined to be a water of the United States under 33 CFR 328.3(a)(1)-(6), that waterbody and its adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)). Examples of "waterbodies" include streams, rivers, lakes, ponds, and wetlands.

NOTICE ABOUT WEB LINKS IN THIS DOCUMENT:
The web links (both internal to our District and any external links to collaborating agencies) in this document are valid at the time of publication. However, the Wilmington District Regulatory Program web page addresses, as with other agency web sites, may change over the timeframe of the five-year Nationwide Permit renewal cycle, in response to policy mandates or technology advances. While we will make every effort to check on the integrity of our web links and provide re-direct pages whenever possible, we ask that you report any broken links to us so we can keep the page information current and usable. We apologize in advanced for any broken links that you may encounter, and we ask that you navigate from the regulatory home page (wetlands and stream permits) of the Wilmington District Corps of Engineers, to the "Permits" section of our web site to find links for pages that cannot be found by clicking directly on the listed web link in this document.

Final 2012 Regional Conditions for Nationwide Permits (NWP) in the Wilmington District

1.0 Excluded Waters

The Corps has identified waters that will be excluded from the use of all NWP's during certain timeframes. These waters are:

1.1 Anadromous Fish Spawning Areas

Waters of the United States identified by either the North Carolina Division of Marine Fisheries (NCDMF) or the North Carolina Wildlife Resources Commission (NCWRC) as anadromous fish spawning areas are excluded during the period between February 15 and June 30, without prior written approval from NCDMF or NCWRC and the Corps.

1.2 Trout Waters Moratorium

Waters of the United States in the twenty-five designated trout counties of North Carolina are excluded during the period between October 15 and April 15 without prior written approval from the NCWRC. (See Section 2.7 for a list of the twenty-five trout counties).

1.3 Sturgeon Spawning Areas as Designated by the National Marine Fisheries Service (NMFS)

Waters of the United States designated as sturgeon spawning areas are excluded during the period between February 1 and June 30, without prior written approval from the NMFS.

2.0 Waters Requiring Additional Notification

The Corps has identified waters that will be subject to additional notification requirements for activities authorized by all NWP's. These waters are:

2.1 Western NC Counties that Drain to Designated Critical Habitat

For proposed activities within Waters of the U.S. that require a Pre-Construction Notification pursuant to General Condition 31 (PCN) and are located in the sixteen counties listed below, applicants must provide a copy of the PCN to the US Fish and Wildlife Service, 160 Zillicoa Street, Asheville, North Carolina 28801. This PCN must be sent concurrently to the US Fish and Wildlife Service and the Corps Asheville Regulatory Field Office. Please see General Condition 18 for specific notification requirements related to Federally Endangered Species and the following website for information on the location of designated critical habitat.

Counties with tributaries that drain to designated critical habitat that require notification to the Asheville US Fish and Wildlife Service: Avery, Cherokee, Forsyth, Graham, Haywood, Henderson, Jackson, Macon Mecklenburg, Mitchell, Stokes, Surry, Swain, Transylvania, Union and Yancey.

Website and office addresses for Endangered Species Act Information:

The Wilmington District has developed the following website for applicants which provides guidelines on how to review linked websites and maps in order to fulfill NWP general condition 18 requirements: http://www.saw.usace.army.mil/wetlands/ESA

Applicants who do not have internet access may contact the appropriate US Fish and Wildlife Service offices listed below or the US Army Corps of Engineers at (910) 251- 4633:

US Fish and Wildlife Service
Asheville Field Office
160 Zillicoa Street
Asheville, NC 28801
Telephone: (828) 258-3939

Asheville US Fish and Wildlife Service Office counties: All
counties west of and including Anson, Stanly, Davidson, Forsyth and Stokes Counties

US Fish and Wildlife Service
Raleigh Field Office
Post Office Box 33726
Raleigh, NC 27636-3726
Telephone: (919) 856-4520

Raleigh US Fish and Wildlife Service Office counties: all counties east of and including Richmond, Montgomery, Randolph, Guilford, and Rockingham Counties.

2.2 Special Designation Waters

Prior to the use of any NWP in any of the following identified waters and contiguous wetlands in North Carolina, applicants must comply with Nationwide Permit General Condition 31 (PCN). The North Carolina waters and contiguous wetlands that require additional notification requirements are:

"Outstanding Resource Waters" (ORW) or "High Quality Waters" (HQW) as designated by the North Carolina Environmental Management Commission; "Inland Primary Nursery Areas" (IPNA) as designated by the NCWRC; "Contiguous Wetlands" as defined by the North Carolina Environmental Management Commission; or "Primary Nursery Areas" (PNA) as designated by the North Carolina Marine Fisheries Commission.

2.3 Coastal Area Management Act (CAMA) Areas of Environmental Concern

Non-federal applicants for any NWP in a designated "Area of Environmental Concern" (AEC) in the twenty (20) counties of Eastern North Carolina covered by the North Carolina Coastal Area Management Act (CAMA) must also obtain the required CAMA permit. Development activities for non-federal projects may not commence until a copy of the approved CAMA permit is furnished to the appropriate Wilmington District Regulatory Field Office (Wilmington Field Office – 69 Darlington Avenue, Wilmington, NC 28403 or Washington Field Office – 2407 West 5th Street, Washington, NC 27889).

2.4 Barrier Islands

Prior to the use of any NWP on a barrier island of North Carolina, applicants must comply with Nationwide Permit General Condition 31 (PCN).

2.5 Mountain or Piedmont Bogs

Prior to the use of any NWP in a Bog classified by the North Carolina Wetland Assessment Methodology (NCWAM), applicants shall comply with Nationwide Permit General Condition 31 (PCN). The latest version of NCWAM is located on the NC DWQ web site at: http://portal.ncdenr.org/web/wq/swp/ws/pdu/ncwam .

2.6 Animal Waste Facilities

Prior to use of any NWP for construction of animal waste facilities in waters of the US, including wetlands, applicants shall comply with Nationwide Permit General Condition 31 (PCN).

2.7 Trout Waters

Prior to any discharge of dredge or fill material into streams or waterbodies within the twenty-five (25) designated trout counties of North Carolina, the applicant shall comply with Nationwide Permit General Condition 31 (PCN). The applicant shall also provide a copy of the notification to the appropriate NCWRC office to facilitate the determination of any potential

impacts to designated Trout Waters. Notification to the Corps of Engineers will include a statement with the name of the NCWRC biologist contacted, the date of the notification, the location of work, a delineation of wetlands, a discussion of alternatives to working in the mountain trout waters, why alternatives were not selected, and a plan to provide compensatory mitigation for all unavoidable adverse impacts to mountain trout waters.

NCWRC and NC Trout Counties

Western Piedmont Region Coordinator	Alleghany	Caldwell	Watauga
20830 Great Smoky Mtn. Expressway	Ashe	Mitchell	Wilkes
Waynesville, NC 28786	Avery	Stokes	
Telephone: (828) 452-2546	Burke	Surry	

Mountain Region Coordinator	Buncombe	Henderson	Polk
20830 Great Smoky Mtn. Expressway	Cherokee	Jackson	Rutherford
Waynesville, NC 28786	Clay	Macon	Swain
Telephone: (828) 452-2546	Graham	Madison	Transylvania
Fax: (828) 452-7772	Haywood	McDowell	Yancey

3.0 List of Corps Regional Conditions for All Nationwide Permits

The following conditions apply to all Nationwide Permits in the Wilmington District:

3.1 Limitation of Loss of Perennial Stream Bed

NWPs may not be used for activities that may result in the loss or degradation of greater than 300 total linear feet of perennial, intermittent or ephemeral stream, unless the District Commander has waived the 300 linear foot limit for ephemeral and intermittent streams on a case-by-case basis and he determines that the proposed activity will result in minimal individual and cumulative adverse impacts to the aquatic environment. Loss of stream includes the linear feet of stream bed that is filled, excavated, or flooded by the proposed activity. Waivers for the loss of ephemeral and intermittent streams must be in writing and documented by appropriate/accepted stream quality assessments*. This waiver only applies to the 300 linear feet threshold for NWPs.

*NOTE: Applicants should utilize the most current methodology prescribed by Wilmington District to assess stream function and quality. Information can be found at:

http://www.saw.usace.army.mil/wetlands/permits/nwp/nwp2012 (see “Quick Links”)

3.2 Mitigation for Loss of Stream Bed

For any NWP that results in a loss of more than 150 linear feet of perennial and/or ephemeral/intermittent stream, the applicant shall provide a mitigation proposal to compensate for more than minimal individual and cumulative adverse impacts to the aquatic environment. For stream losses less than 150 linear feet, that require a PCN, the District Commander may determine, on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in minimal adverse effect on the aquatic environment.

3.3 Pre-construction Notification for Loss of Streambed Exceeding 150 Feet.

Prior to use of any NWP for any activity which impacts more than 150 total linear feet of perennial stream or ephemeral/ intermittent stream, the applicant must comply with Nationwide Permit General Condition 31 (PCN). This applies to NWPs that do not have specific notification requirements. If a NWP has specific notification requirements, the requirements of the NWP should be followed.

3.4 Restriction on Use of Live Concrete

For all NWPs which allow the use of concrete as a building material, live or fresh concrete, including bags of uncured concrete, may not come into contact with the water in or entering into waters of the US. Water inside coffer dams or casings that has been in contact with wet concrete shall only be returned to waters of the US when it is no longer poses a threat to aquatic organisms.

3.5 Requirements for Using Riprap for Bank Stabilization

For all NWPs that allow for the use of riprap material for bank stabilization, the following measures shall be applied:

3.5.1. Filter cloth must be placed underneath the riprap as an additional requirement of its use in North Carolina waters.

3.5.2. The placement of riprap shall be limited to the areas depicted on submitted work plan drawings.

3.5.3. The riprap material shall be clean and free from loose dirt or any pollutant except in trace quantities that would not have an adverse environmental effect.

3.5.4. It shall be of a size sufficient to prevent its movement from the authorized alignment by natural forces under normal conditions.

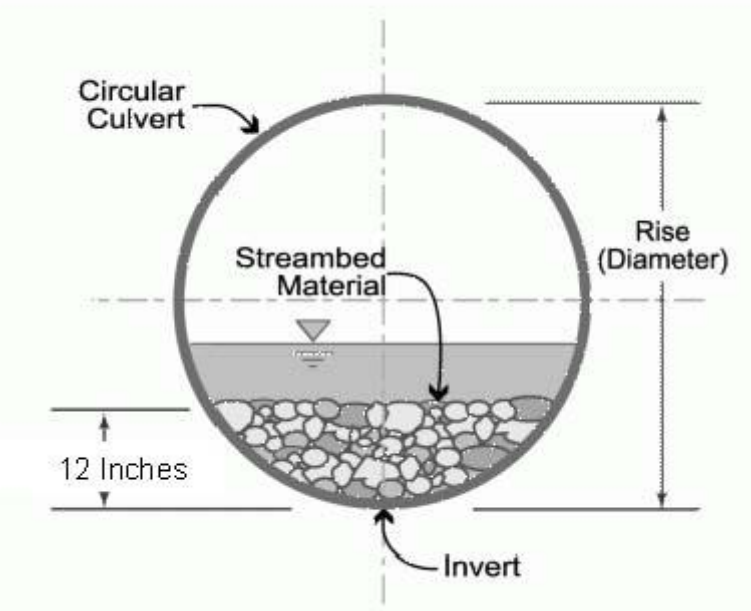
3.5.5. The riprap material shall consist of clean rock or masonry material such as, but not limited to, granite, marl, or broken concrete.

3.5.6. A waiver from the specifications in this Regional Condition may be requested in writing. The waiver will only be issued if it can be demonstrated that the impacts of complying with this Regional condition would result in greater adverse impacts to the aquatic environment.

3.6 Safe Passage Requirements for Culvert Placement

For all NWPs that involve the construction/installation of culverts, measures will be included in the construction/installation that will promote the safe passage of fish and other aquatic organisms. The dimension, pattern, and profile of the stream above and below a pipe or culvert should not be modified by widening the stream channel or by reducing the depth of the stream in connection with the construction activity. The width, height, and gradient of a proposed culvert should be such as to pass the average historical low flow and spring flow without adversely altering flow velocity. Spring flow should be determined from gage data, if available. In the absence of such data, bankfull flow can be used as a comparable level.

In the twenty (20) counties of North Carolina designated as coastal counties by the Coastal Area Management Act (CAMA): All pipes/culverts must be sufficiently sized to allow for the burial of the bottom of the pipe/culvert at least one foot below normal bed elevation when they are placed within the Public Trust Area of Environmental Concern (AEC) and/or the Estuarine Waters AEC as designated by CAMA, and/or all streams appearing as blue lines on United States Geological Survey (USGS) 7.5-minute quadrangle maps.



In all other counties: Culverts greater than 48 inches in diameter will be buried at least one foot below the bed of the stream. Culverts 48 inches in diameter or less shall be buried or placed on the stream bed as practicable and appropriate to maintain aquatic passage, and every effort shall be made to maintain the existing channel slope. The bottom of the culvert must be placed at a

depth below the natural stream bottom to provide for passage during drought or low flow conditions.

Culverts are to be designed and constructed in a manner that minimizes destabilization and head cutting. Destabilizing the channel and head cutting upstream should be considered and appropriate actions incorporated in the design and placement of the culvert.

A waiver from the depth specifications in this condition may be requested in writing. The waiver will be issued if it can be demonstrated that the proposal would result in the least impacts to the aquatic environment.

All counties: Culverts placed within riparian and/or riverine wetlands must be installed in a manner that does not restrict the flow and circulation patterns of waters of the United States. Culverts placed across wetland fills purely for the purposes of equalizing surface water do not have to be buried.

3.7 Notification to NCDENR Shellfish Sanitation Section

Applicants shall notify the NCDENR Shellfish Sanitation Section prior to dredging in or removing sediment from an area closed to shell fishing where the effluent may be released to an area open for shell fishing or swimming in order to avoid contamination from the disposal area and cause a temporary shellfish closure to be made. Such notification shall also be provided to the appropriate Corps of Engineers Regulatory Field Office. Any disposal of sand to the ocean beach should occur between November 1 and April 30 when recreational usage is low. Only clean sand should be used and no dredged sand from closed shell fishing areas may be used. If beach disposal were to occur at times other than stated above or if sand from a closed shell fishing area is to be used, a swimming advisory shall be posted, and a press release shall be issued by the permittee.

3.8 Preservation of Submerged Aquatic Vegetation

Adverse impacts to Submerged Aquatic Vegetation (SAV) are not authorized by any NWP within any of the twenty coastal counties defined by North Carolina's Coastal Area Management Act of 1974 (CAMA).

3.9 Sedimentation and Erosion Control Structures and Measures

3.9.1. All PCNs will identify and describe sedimentation and erosion control structures and measures proposed for placement in waters of the US. The structures and measures should be depicted on maps, surveys or drawings showing location and impacts to jurisdictional wetlands and streams.

Water Quality Certification No. 3883

GENERAL CERTIFICATION FOR PROJECTS ELIGIBLE FOR U.S. ARMY CORPS OF ENGINEERS NATIONWIDE PERMIT NUMBERS: 3 (MAINTENANCE), 4 (FISH AND WILDLIFE HARVESTING, ENHANCEMENT, AND ATTRACTION DEVICES AND ACTIVITIES), 5 (SCIENTIFIC MEASUREMENT DEVICES—25 CUBIC YARDS FOR WEIRS AND FLUMES), 6 (SURVEY ACTIVITIES—25 CUBIC YARDS FOR TEMPORARY PADS), 7 (OUTFALL STRUCTURES AND ASSOCIATED INTAKE STRUCTURES), 19 (MINOR DREDGING), 20 (OIL SPILL CLEANUP), 22 (REMOVAL OF VESSELS), 25 (STRUCTURAL DISCHARGE), 30(MOIST SOIL MANAGEMENT FOR WILDLIFE), 32 (COMPLETED ENFORCEMENT ACTIONS), 36 (BOAT RAMPS [IN NONWETLAND SITES]), AND REGIONAL PERMIT 197800056 (PIERS, DOCKS AND BOATHOUSES), AND REGIONAL PERMIT 197800125 (BOAT RAMPS) AND RIPARIAN AREA PROTECTION RULES (BUFFER RULES)

Water Quality Certification Number 3883 is issued in conformity with the requirements of Section 401, Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Quality (DWQ) Regulations in 15 NCAC 02H .0500 and 15 NCAC 02B .0200 for the discharge of fill material to waters and wetland areas which are waters of the United States as described in 33 CFR 330 Appendix A (B) (3, 4, 5, 6, 7, 19, 20, 22, 25, 30, 32, and 36) and Regional Permits 197800056 and 19780125 and for the Riparian Area Protection Rules (Buffer Rules) in 15A NCAC 02B .0200.

The State of North Carolina certifies that the specified category of activity will not violate applicable portions of Sections 301, 302, 303, 306 and 307 of the Public Laws 92-500 and 95-217 if conducted in accordance with the conditions hereinafter set forth.

Activities meeting any one (1) of the following thresholds or circumstances require *written approval* for a 401 Water Quality Certification from the Division of Water Quality (the "Division"):

a. Impacts equal to or greater than 40 linear feet of additional permanent stream impact (including stream relocations) at an existing stream impact location; or
b. Temporary or permanent impacts equal to or greater than one-tenth (1/10) of an acre of wetlands; or
c. Any impact associated with a Notice of Violation or an enforcement action for violation(s) of DWQ Wetland Rules (15A NCAC 02H .0500), Isolated Wetland Rules (15A NCAC 02H .1300), DWQ Surface Water or Wetland Standards, or Riparian Buffer Rules (15A NCAC 02B .0200); or
d. Any impacts to streams and/or buffers in the Neuse, Tar-Pamlico, or Catawba River Basins or in the Randleman, Jordan or Goose Creek Watersheds (or any other basin or watershed with Riparian Area Protection Rules [Buffer Rules] in effect at the time of application) *unless* the activities are listed as "EXEMPT" from these rules or a Buffer Authorization Certificate is issued through N.C. Division of Coastal Management (DCM) delegation for "ALLOWABLE" activities.

In accordance with North Carolina General Statute 143-215.3D(e), written approval for a 401 Water Quality General Certification must include the appropriate fee. If a project also requires a CAMA Permit, then one payment to both agencies shall be submitted and will be the higher of the two fees.

Activities included in this General Certification that do not meet one of the thresholds listed above do not require written approval from the Division as long as they comply with the Conditions of Certification listed below. If any of these Conditions cannot be met, then written approval from the Division is required.

Conditions of Certification:

1. No Impacts Beyond those Authorized in the Written Approval or Beyond the Threshold of Use of this Certification

   No waste, spoil, solids, or fill of any kind shall occur in wetlands, waters, or riparian areas beyond the footprint of the impacts depicted in the Pre-Construction Notification, as authorized in the written approval from the Division or beyond the thresholds established for use of this Certification without written authorization, including incidental impacts. All construction activities, including the design, installation, operation, and maintenance of sediment and erosion control Best Management Practices shall be performed so that no violations of state water quality standards, statutes, or rules occur. Approved plans and specifications for this project are incorporated by reference and are enforceable parts of this permit.

2. Standard Erosion and Sediment Control Practices

   Erosion and sediment control practices must be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices and if applicable, comply with the specific conditions and requirements of the NPDES Construction Stormwater Permit issued to the site:

   a. Design, installation, operation, and maintenance of the sediment and erosion control measures must be such that they equal or exceed the requirements specified in the most recent version of the *North Carolina Sediment and Erosion Control Manual*. The devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) projects, including contractor-owned or leased borrow pits associated with the project.

   b. For borrow pit sites, the erosion and sediment control measures must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Surface Mining Manual*.

   c. Reclamation measures and implementation must comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act and the Mining Act of 1971.

   d. Sufficient materials required for stabilization and/or repair of erosion control measures and stormwater routing and treatment shall be on site at all times.

   e. If the project occurs in waters or watersheds classified as Primary Nursery Areas (PNAs), SA, WS-I, WS-II, High Quality (HQW), or Outstanding Resource (ORW) waters, then the sedimentation and erosion control designs must comply with the requirements set forth in 15A NCAC 04B .0124, *Design Standards in Sensitive Watersheds*.

3. No Sediment and Erosion Control Measures in Wetlands or Waters

   Sediment and erosion control measures shall not be placed in wetlands or waters. Exceptions to this condition require application submittal to and written approval by the Division. If placement of sediment and erosion control devices in wetlands and waters is unavoidable, then design and placement of temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands, stream beds, or banks, adjacent to or upstream and downstream of the above structures. All sediment and erosion control devices shall be removed and the natural grade restored within two (2) months of the date that the Division of Land Resources (DLR) or locally delegated program has released the specific area within the project.

4. Construction Stormwater Permit NCG010000

An NPDES Construction Stormwater Permit is required for construction projects that disturb one (1) or more acres of land. This Permit allows stormwater to be discharged during land disturbing construction activities as stipulated in the conditions of the permit. If your project is covered by this permit, full compliance with permit conditions including the erosion & sedimentation control plan, inspections and maintenance, self-monitoring, record keeping and reporting requirements is required. A copy of the general permit (NCG010000), inspection log sheets, and other information may be found at http://portal.ncdenr.org/web/wq/ws/su/npdessw#tab-w .

The North Carolina Department of Transportation (NCDOT) shall be required to be in full compliance with the conditions related to construction activities within the most recent version of their individual NPDES (NCS000250) stormwater permit.

5. Work in the Dry

All work in or adjacent to stream waters shall be conducted so that the flowing stream does not come in contact with the disturbed area. Approved best management practices from the most current version of the NC Sediment and Erosion Control Manual, or the NC DOT Construction and Maintenance Activities Manual, such as sandbags, rock berms, cofferdams, and other diversion structures shall be used to minimize excavation in flowing water. Exceptions to this condition require application submittal to and written approval by the Division.

6. Construction Moratoriums and Coordination

If activities must occur during periods of high biological activity (i.e. sea turtle nesting, fish spawning, or bird nesting), then biological monitoring may be required at the request of other state or federal agencies and coordinated with these activities.

All moratoriums on construction activities established by the NC Wildlife Resources Commission (WRC), US Fish and Wildlife Service (USFWS), NC Division of Marine Fisheries (DMF), or National Marine Fisheries Service (NMFS) to lessen impacts on trout, anadromous fish, larval/post-larval fishes and crustaceans, or other aquatic species of concern shall be implemented. Exceptions to this condition require written approval by the resource agency responsible for the given moratorium.

Work within the twenty-five (25) designated trout counties or identified state or federal endangered or threatened species habitat shall be coordinated with the appropriate WRC, USFWS, NMFS, and/or DMF personnel.

7. Riparian Area Protection Rules (Buffer Rules)

Activities located in the protected riparian areas (whether jurisdictional wetlands or not), within the Neuse, Tar-Pamlico, or Catawba River Basins or in the Randleman, Jordan, or Goose Creek Watersheds (or any other basin or watershed with buffer rules) shall be limited to "uses" identified within and constructed in accordance with 15A NCAC 02B .0233, .0259, .0243, .0250, .0267 and .0605, and shall be located, designed, constructed, and maintained to have minimal disturbance to protect water quality to the maximum extent practicable through the use of best management practices. All buffer rule requirements, including diffuse flow requirements, must be met.

8. Placement of Culverts and Other Structures in Waters and Wetlands

   Culverts required for this project shall be designed and installed in such a manner that the original stream profiles are not altered and allow for aquatic life movement during low flows. Existing stream dimensions (including the cross section dimensions, pattern, and longitudinal profile) must be maintained above and below locations of each culvert.

   Placement of culverts and other structures in waters and streams must be below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than or equal to 48 inches, to allow low flow passage of water and aquatic life.

   When topographic constraints indicate culvert slopes of greater than 5%, culvert burial is not required, provided that all alternative options for flattening the slope have been investigated and aquatic life movement/ connectivity has been provided when possible (rock ladders, crossvanes, etc). Notification to the Division including supporting documentation to include a location map of the culvert, culvert profile drawings, and slope calculations shall be provided to the Division 60 days prior to the installation of the culvert.

   When bedrock is present in culvert locations, culvert burial is not required provided that there is sufficient documentation of the presence of bedrock. Notification to the Division including supporting documentation such as, but not limited to, a location map of the culvert, geotechnical reports, photographs, etc shall be provided to the Division a minimum of 60 days prior to the installation of the culvert. If bedrock is discovered during construction, then the Division shall be notified by phone or email within 24 hours of discovery.

   If other site-specific topographic constraints preclude the ability to bury the culverts as described above and/or it can be demonstrated that burying the culvert would result in destabilization of the channel, then exceptions to this condition require application submittal to, and written approval by, the Division of Water Quality, regardless of the total impacts to streams or wetlands from the project.

   Installation of culverts in wetlands must ensure continuity of water movement and be designed to adequately accommodate high water or flood conditions. Additionally, when roadways, causeways, or other fill projects are constructed across FEMA-designated floodways or wetlands, openings such as culverts or bridges must be provided to maintain the natural hydrology of the system as well as prevent constriction of the floodway that may result in destabilization of streams or wetlands.

   The establishment of native, woody vegetation and other soft stream bank stabilization techniques must be used where practicable instead of riprap or other bank hardening methods.

9. If concrete is used during the construction, then all necessary measures shall be taken to prevent direct contact between uncured or curing concrete and waters of the state. Water that inadvertently contacts uncured concrete shall not be discharged to waters of the state due to the potential for elevated pH and possible aquatic life/ fish kills.

10. Applications for riprap groins proposed in accordance with 15A NCAC 07H .1401 (NC Division of Coastal Management General Permit for construction of Wooden and Riprap Groins in Estuarine and Public Trust Waters) must meet all the specific conditions for design and construction specified in 15A NCAC 07H .1405.

11. Bridge deck drains shall not discharge directly into the stream. Stormwater shall be directed across the bridge and pre-treated through site-appropriate means (grassed swales, pre-formed scour holes, vegetated buffers, etc.) before entering the stream. Please refer to the most current version of *Stormwater Best Management Practices*. Exceptions to this condition require written approval by the Division.

12. Compensatory Mitigation

    In accordance with 15A NCAC 02H .0506 (h), compensatory mitigation may be required for losses of equal to or greater than 150 linear feet of streams (intermittent and perennial) and/or equal to or greater than one (1) acre of wetlands. For linear public transportation projects, impacts equal to or exceeding 150 linear feet per stream shall require mitigation.

    Buffer mitigation may be required for any project with Buffer Rules in effect at the time of application for activities classified as "Allowable with Mitigation" or "Prohibited" within the Table of Uses.

    A determination of buffer, wetland, and stream mitigation requirements shall be made for any General Water Quality Certification for this Nationwide and/or Regional General Permit. Design and monitoring protocols shall follow the US Army Corps of Engineers Wilmington District *Stream Mitigation Guidelines* (April 2003) or its subsequent updates. Compensatory mitigation plans shall be submitted to the Division for written approval as required in those protocols. The mitigation plan must be implemented and/or constructed before any impacts occur on site. Alternatively, the Division will accept payment into an in-lieu fee program or a mitigation bank. In these cases, proof of payment shall be provided to the Division before any impacts occur on site.

13. All temporary fill and culverts shall be removed and the impacted area returned to natural conditions within 60 days of the determination that the temporary impact is no longer necessary. The impacted areas shall be restored to original grade, including each stream's original cross sectional dimensions, plan form pattern, and longitudinal bed and bed profile, and the various sites shall be stabilized with natural woody vegetation (except for the approved maintenance areas) and restored to prevent erosion.

14. All temporary pipes/ culverts/ riprap pads etc, shall be installed in all streams as outlined in the most recent edition of the *North Carolina Sediment and Erosion Control Planning and Design Manual* or the *North Carolina Surface Mining Manual* so as not to restrict stream flow or cause dis-equilibrium during use of this General Certification.

15. Any riprap required for proper culvert placement, stream stabilization, or restoration of temporarily disturbed areas shall be restricted to the area directly impacted by the approved construction activity. All rip-rap shall buried and/or "keyed in" such that the original stream elevation and streambank contours are restored and maintained. Placement of rip-rap or other approved materials shall not result in de-stabilization of the stream bed or banks upstream or downstream of the area.

16. Any rip-rap used for stream stabilization shall be of a size and density so as not to be able to be carried off by wave, current action, or stream flows and consist of clean rock or masonry material free of debris or toxic pollutants. Rip-rap shall not be installed in the streambed except in specific areas required for velocity control and to ensure structural integrity of bank stabilization measures.

17. A one-time application of fertilizer to re-establish vegetation is allowed in disturbed areas including riparian buffers, but is restricted to no closer than 10 feet from top of bank of streams. Any fertilizer application must comply with all other Federal, State and Local regulations.

18. If an environmental document is required under the National or State Environmental Policy Act (NEPA or SEPA), then this General Certification is not valid until a Finding of No Significant Impact (FONSI) or Record of Decision (ROD) is issued by the State Clearinghouse.

19. In the twenty (20) coastal counties, the appropriate DWQ Regional Office must be contacted to determine if Coastal Stormwater Regulations will be required.

20. This General Certification does not relieve the applicant of the responsibility to obtain all other required Federal, State, or Local approvals.

21. The applicant/permittee and their authorized agents shall conduct all activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with §303(d) of the Clean Water Act), and any other appropriate requirements of State and Federal Law. If the Division determines that such standards or laws are not being met, including failure to sustain a designated or achieved use, or that State or Federal law is being violated, or that further conditions are necessary to assure compliance, then the Division may reevaluate and modify this General Water Quality Certification.

22. When written authorization is required for use of this certification, upon completion of all permitted impacts included within the approval and any subsequent modifications, the applicant shall be required to return the certificate of completion attached to the approval. One copy of the certificate shall be sent to the DWQ Central Office in Raleigh at 1650 Mail Service Center, Raleigh, NC, 27699-1650.

23. Additional site-specific conditions, including monitoring and/or modeling requirements, may be added to the written approval letter for projects proposed under this Water Quality Certification in order to ensure compliance with all applicable water quality and effluent standards.

24. This certification grants permission to the director, an authorized representative of the Director, or DENR staff, upon the presentation of proper credentials, to enter the property during normal business hours.

This General Certification shall expire on the same day as the expiration date of the corresponding Nationwide and/or Regional General Permit. The conditions in effect on the date of issuance of Certification for a specific project shall remain in effect for the life of the project, regardless of the expiration date of this Certification.

Non-compliance with or violation of the conditions herein set forth by a specific project may result in revocation of this General Certification for the project and may also result in criminal and/or civil penalties.

The Director of the North Carolina Division of Water Quality may require submission of a formal application for Individual Certification for any project in this category of activity if it is determined that the project is likely to have a significant adverse effect upon water quality, including state or federally listed endangered or threatened aquatic species, or degrade the waters so that existing uses of the wetland or downstream waters are precluded.

Public hearings may be held for specific applications or group of applications prior to a Certification decision if deemed in the public's best interest by the Director of the North Carolina Division of Water Quality.

Effective date: March 19, 2012

DIVISION OF WATER QUALITY

By

for

Charles Wakild, P.E.

Director

History Note: Water Quality Certification (WQC) Number 3883 issued March 19, 2012 replaces WQC Number 3687 issued November 1, 2007; WQC Number 3624 issued March 19, 2007; WQC Number 3494 issued December 31, 2004; and WQC Number 3376 issued March 18, 2002. This General Certification is rescinded when the Corps of Engineers reauthorizes any of the corresponding Nationwide and/or Regional General Permits or when deemed appropriate by the Director of the Division of Water Quality.

GEOTECHNICAL ATTACHMENT

The following geotechnical report is for information only and is not a part of this contract. This information is for investigation only and no accuracy is implied or guaranteed. No claim will be allowed as a result of the use of this information.

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	45358.1.21	1	15

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

STRUCTURE SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. *45358.1.21* F.A. PROJ. *BD-5112U*

COUNTY *Lincoln*

PROJECT DESCRIPTION *Bridge No. 70 on SR 1168 (Johnstown Road) over Mill Creek*

CONTENTS

PERSONNEL

M. Brewer

D. Tignor

S. Davis

INVESTIGATED BY *F&R, Inc.*

CHECKED BY *P. Alton, P.E.*

SUBMITTED BY *F&R, Inc.*

DATE *January 2013*

CAUTION NOTICE

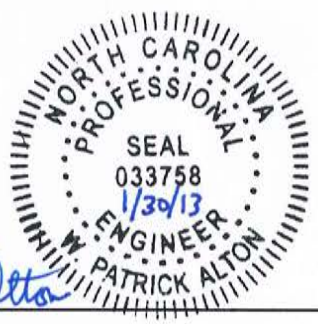
THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING, AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES, AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 707-6850. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA ARE PART OF THE CONTRACT.

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (IN-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION, AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THIS PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IT IS CONSIDERED TO BE PART OF THE PLANS, SPECIFICATIONS, OR CONTRACT FOR THE PROJECT.

NOTE - BY HAVING REQUESTED THIS INFORMATION THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.



DRAWN BY: *M. Brewer*

PROJECT REFERENCE NO.	SHEET NO.
45358.1.21 (BD-5112U)	2

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION

SOIL IS CONSIDERED TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE:

VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6

SOIL LEGEND AND AASHTO CLASSIFICATION

GENERAL CLASS.	GRANULAR MATERIALS (≤ 35% PASSING #200)							SILT-CLAY MATERIALS (> 35% PASSING #200)				ORGANIC MATERIALS		
GROUP CLASS.	A-1		A-3	A-2				A-4	A-5	A-6	A-7	A-1, A-2 A-3	A-4, A-5 A-6, A-7	
	A-1-a	A-1-b		A-2-4	A-2-5	A-2-6	A-2-7				A-7-5 A-7-6			
SYMBOL														
% PASSING #10	50 MX											GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT
#40	30 MX	50 MX	51 MN											
#200	15 MX	25 MX	10 MX	35 MX	35 MX	35 MX	35 MX	36 MN	36 MN	36 MN	36 MN			
LIQUID LIMIT	6 MX		NP	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER		HIGHLY ORGANIC SOILS
PLASTIC INDEX				10 MX	10 MX	11 MN	11 MN	10 MX	10 MX	11 MN	11 MN			
GROUP INDEX	0		0	0		4 MX		8 MX	12 MX	16 MX	No MX			
USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS. GRAVEL, AND SAND		FINE SAND	SILTY OR CLAYEY GRAVEL AND SAND				SILTY SOILS		CLAYEY SOILS				
GEN. RATING AS A SUBGRADE	EXCELLENT TO GOOD							FAIR TO POOR				FAIR TO POOR	POOR	UNSUITABLE

PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30

CONSISTENCY OR DENSENESS

PRIMARY SOIL TYPE	COMPACTNESS OR CONSISTENCY	RANGE OF STANDARD PENETRATION RESISTENCE (N-VALUE)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH ($TONS/FT^2$)
GENERALLY GRANULAR MATERIAL (NON-COHESIVE)	VERY LOOSE	<4	N/A
	LOOSE	4 TO 10	
	MEDIUM DENSE	10 TO 30	
	DENSE	30 TO 50	
	VERY DENSE	>50	
GENERALLY SILT-CLAY MATERIAL (COHESIVE)	VERY SOFT	<2	<0.25
	SOFT	2 TO 4	0.25 TO 0.50
	MEDIUM STIFF	4 TO 8	0.5 TO 1.0
	STIFF	8 TO 15	1 TO 2
	VERY STIFF	15 TO 30	2 TO 4
	HARD	>30	>4

TEXTURE OR GRAIN SIZE

U.S. STD. SIEVE SIZE	4	10	40	60	200	270
OPENING (MM)	4.76	2.00	0.42	0.25	0.075	0.053

BOULDER (BLDR.)	COBBLE (COB.)	GRAVEL (GR.)	COARSE SAND (CSE. SD.)	FINE SAND (F SD.)	SILT (SL.)	CLAY (CL.)

GRAIN SIZE	MM	305	75	2.0	0.25	0.05	0.005
	IN.	12	3				

SOIL MOISTURE - CORRELATION OF TERMS

SOIL MOISTURE SCALE (ATTERBERG LIMITS)	FIELD MOISTURE DESCRIPTION	GUIDE FOR FIELD MOISTURE DESCRIPTION
	- SATURATED - (SAT.)	USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE
LL — LIQUID LIMIT		
PLASTIC RANGE (PI)	- WET - (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE
PL — PLASTIC LIMIT		
OM — OPTIMUM MOISTURE	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
SL — SHRINKAGE LIMIT		
	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

PLASTICITY

	PLASTICITY INDEX (PI)	DRY STRENGTH
NONPLASTIC	0-5	VERY LOW
LOW PLASTICITY	6-15	SLIGHT
MED. PLASTICITY	16-25	MEDIUM
HIGH PLASTICITY	26 OR MORE	HIGH

COLOR

DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.

GRADATION

WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE.
UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED)
GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO OR MORE SIZES.

ANGULARITY OF GRAINS

THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.

MINERALOGICAL COMPOSITION

MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.

COMPRESSIBILITY

SLIGHTLY COMPRESSIBLE	LIQUID LIMIT LESS THAN 31
MODERATELY COMPRESSIBLE	LIQUID LIMIT EQUAL TO 31-50
HIGHLY COMPRESSIBLE	LIQUID LIMIT GREATER THAN 50

PERCENTAGE OF MATERIAL

ORGANIC MATERIAL	GRANULAR SOILS	SILT - CLAY SOILS
TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%
LITTLE ORGANIC MATTER	3 - 5%	5 - 12%
MODERATELY ORGANIC	5 - 10%	12 - 20%
HIGHLY ORGANIC	>10%	>20%

OTHER MATERIAL	
TRACE	1 - 10%
LITTLE	10 - 20%
SOME	20 - 35%
HIGHLY	35% AND ABOVE

GROUND WATER

- WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING
- STATIC WATER LEVEL AFTER 24 HOURS
- PW — PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA
- SPRING OR SEEP

MISCELLANEOUS SYMBOLS

- ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION
- SOIL SYMBOL
- ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT
- INFERRED SOIL BOUNDARY
- INFERRED ROCK LINE
- ALLUVIAL SOIL BOUNDARY
- 25/025 — DIP & DIP DIRECTION OF ROCK STRUCTURES
- SPT / OPT / DMT / VST / PMT — TEST BORING
- AUGER BORING
- CORE BORING
- MW — MONITORING WELL
- PIEZOMETER INSTALLATION
- SLOPE INDICATOR INSTALLATION
- CONE PENETROMETER TEST
- SOUNDING ROD
- TEST BORING W/ CORE
- SPT N-VALUE
- REF — SPT REFUSAL

ABBREVIATIONS

AR - AUGER REFUSAL
BT - BORING TERMINATED
CL. - CLAY
CPT - CONE PENETRATION TEST
CSE. - COARSE
DMT - DILATOMETER TEST
DPT - DYNAMIC PENETRATION TEST
e - VOID RATIO
F - FINE
FOSS. - FOSSILIFEROUS
FRAC. - FRACTURED, FRACTURES
FRAGS. - FRAGMENTS
HI. - HIGHLY
MED. - MEDIUM
MICA. - MICACEOUS
MOD. - MODERATELY
NP - NON PLASTIC
ORG. - ORGANIC
PMT - PRESSUREMETER TEST
SAP. - SAPROLITIC
SD. - SAND, SANDY
SL. - SILT, SILTY
SLI. - SLIGHTLY
TCR - TRICONE REFUSAL
w - MOISTURE CONTENT
V - VERY
VST - VANE SHEAR TEST
WEA. - WEATHERED
γ - UNIT WEIGHT
γ_d - DRY UNIT WEIGHT

SAMPLE ABBREVIATIONS
S - BULK
SS - SPLIT SPOON
ST - SHELBY TUBE
RS - ROCK
RT - RECOMPACTED TRIAXIAL
CBR - CALIFORNIA BEARING RATIO

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [ ] MOBILE B-___
- [ ] BK-51
- [ ] CME-458
- [X] CME-55
- [ ] PORTABLE HOIST
- [ ] _____
- [ ] _____

ADVANCING TOOLS:
- [ ] CLAY BITS
- [ ] 6" CONTINUOUS FLIGHT AUGER
- [X] 8" HOLLOW AUGERS
- [ ] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [X] CASING [ ] W/ ADVANCER
- [ ] TRICONE _____" STEEL TEETH
- [ ] TRICONE _____" TUNG.-CARB.
- [X] CORE BIT
- [ ] _____

HAMMER TYPE:
- [X] AUTOMATIC [ ] MANUAL

CORE SIZE:
- [ ] -B_____
- [X] -N NQ3
- [ ] -H_____

HAND TOOLS:
- [ ] POST HOLE DIGGER
- [ ] HAND AUGER
- [ ] SOUNDING ROD
- [ ] VANE SHEAR TEST
- [ ] _____

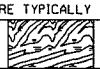
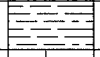
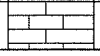
REVISED 09/23/09

PROJECT REFERENCE NO.	SHEET NO.
45358.1.21 (BD-5112U)	2A

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

ROCK DESCRIPTION

HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL. AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK.
ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:

WEATHERED ROCK (WR)		NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.
CRYSTALLINE ROCK (CR)		FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.
NON-CRYSTALLINE ROCK (NCR)		FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YEILD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.
COASTAL PLAIN SEDIMENTARY ROCK (CP)		COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.

WEATHERING

FRESH	ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.
VERY SLIGHT (V SLI.)	ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN, CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.
SLIGHT (SLI.)	ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.
MODERATE (MOD.)	SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK.
MODERATELY SEVERE (MOD. SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. *IF TESTED, WOULD YIELD SPT REFUSAL*
SEVERE (SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. *IF TESTED, YIELDS SPT N VALUES > 100 BPF*
VERY SEVERE (V SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. *IF TESTED, YIELDS SPT N VALUES < 100 BPF*
COMPLETE	ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.

ROCK HARDNESS

VERY HARD	CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.
HARD	CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.
MODERATELY HARD	CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS.
MEDIUM HARD	CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.
SOFT	CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE.
VERY SOFT	CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGERNAIL.

FRACTURE SPACING

TERM	SPACING
VERY WIDE	MORE THAN 10 FEET
WIDE	3 TO 10 FEET
MODERATELY CLOSE	1 TO 3 FEET
CLOSE	0.16 TO 1 FEET
VERY CLOSE	LESS THAN 0.16 FEET

BEDDING

TERM	THICKNESS
VERY THICKLY BEDDED	> 4 FEET
THICKLY BEDDED	1.5 - 4 FEET
THINLY BEDDED	0.16 - 1.5 FEET
VERY THINLY BEDDED	0.03 - 0.16 FEET
THICKLY LAMINATED	0.008 - 0.03 FEET
THINLY LAMINATED	< 0.008 FEET

INDURATION

FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.

FRIABLE	RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.
MODERATELY INDURATED	GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.
INDURATED	GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.
EXTREMELY INDURATED	SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.

TERMS AND DEFINITIONS

ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.

AQUIFER - A WATER BEARING FORMATION OR STRATA.

ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.

ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, AS SHALE, SLATE, ETC.

ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.

CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.

COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.

CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.

DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.

DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.

DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.

FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.

FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.

FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL.

FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.

FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.

JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.

LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.

LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.

MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.

PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.

RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.

ROCK QUALITY DESIGNATION (RQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.

SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.

SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.

SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.

STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.

STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.

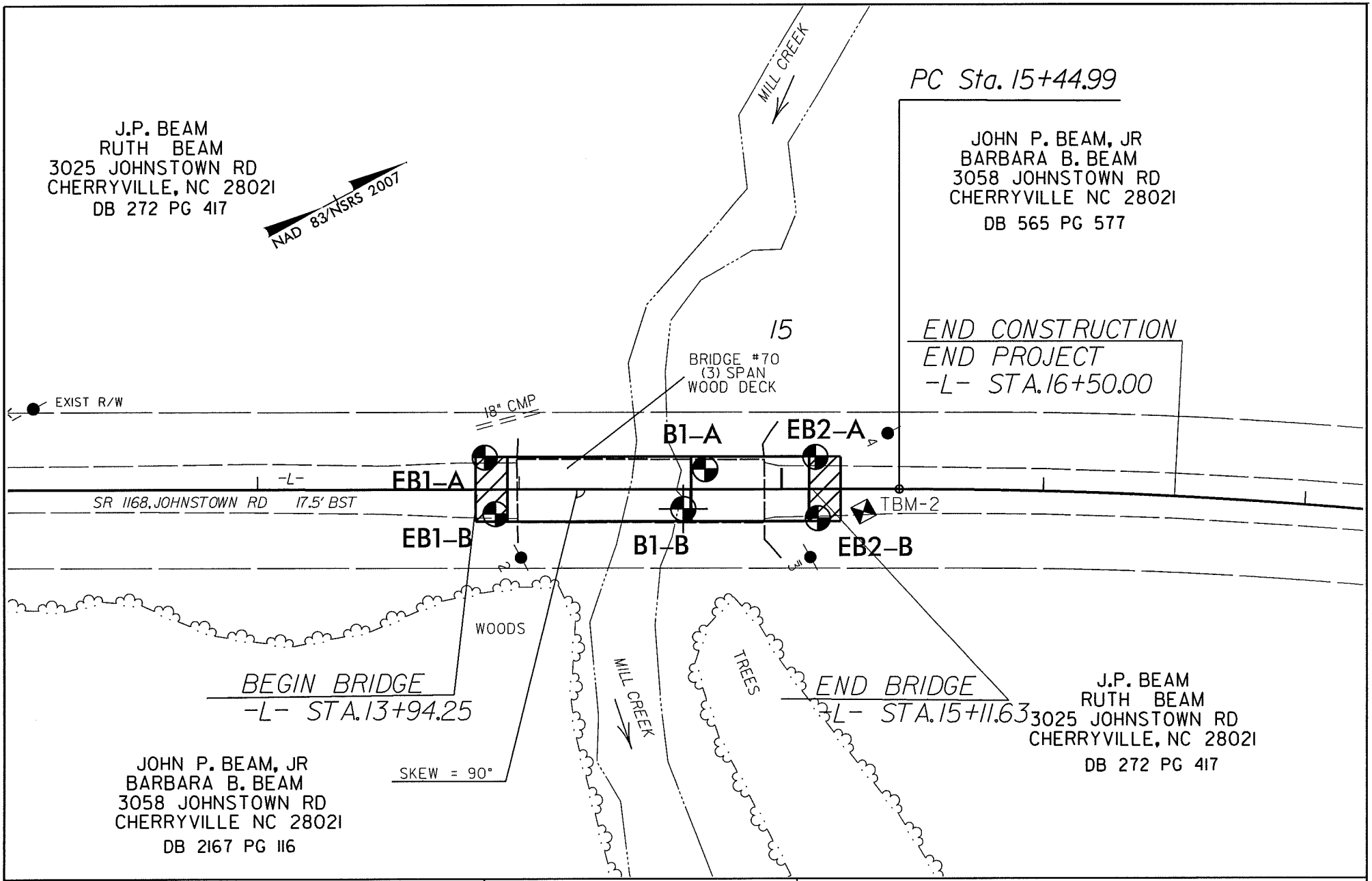
STRATA ROCK QUALITY DESIGNATION (SRQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.

TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.

BENCH MARK: TBM: 2 -L- STA. 13+80.6 12.7' RT.
N: 618,119 E: 1,290,210
ELEVATION: 817.49 FT.

NOTES:
NM: Not Measured

REVISED 09/23/09



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SCALE (FEET)

0 25' 50'
1"=50'

TEST SITE PLAN

PROJECT REFERENCE NO.: 45358.1.21		F&R PROJECT NO.: 66N-0091
I.D. NO.: BD-5112U	F.A. PROJECT NO.: N/A	COUNTY: Lincoln
PROJECT DESCRIPTION: Bridge #70 on SR 1168 (Johnstown Rd.) over Mill Creek		
SITE DESCRIPTION: N/A		SHEET No.: 3
DRAWN BY: M. Brewer	CHECKED BY: P. Alton, P.E.	
DATE: January 2013	SCALE: 1"=50'	

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 45358.1.21	**TIP** BD-5112U	**COUNTY** LINCOLN	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Bridge #70 on SR 1168 (Johnstown Road) over Mill Creek				**GROUND WTR (ft)**
BORING NO. EB1-A	**STATION** 13+86	**OFFSET** 12 ft LT	**ALIGNMENT** -L-	**0 HR.** 24.9
COLLAR ELEV. 817.8 ft	**TOTAL DEPTH** 39.2 ft	**NORTHING** 618,002	**EASTING** 1,290,123	**24 HR.** 17.6
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 76% 12/15/2011		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 12/04/12	**COMP. DATE** 12/04/12	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft) / DEPTH (ft)
820										
	817.8	0.0								817.8 GROUND SURFACE 0.0
			3	7	6	13		M		817.3 **ROADWAY EMBANKMENT** 0.5
815	814.3	3.5								ABC STONE (0.5')
			9	13	11	24		M		Red-brown, fine to coarse sandy SILT (A-4), with trace gravel, mica, & little clay
810	809.3	8.5								810.8 7.0
			35	18	10	28		M		**RESIDUAL** Red-brown & white, coarse to fine sandy SILT (A-4), with trace gravel-sized rock fragments, mica, & clay, saprolitic
805	804.3	13.5								
			10	9	13	22		M		
800	799.3	18.5						▼		800.8 17.0
			16	7	9	16		M		White-yellow-brown, silty coarse to fine SAND (A-2-4), with trace gravel-sized rock fragments, saprolitic
795	794.3	23.5								
			44	18	18	36		M		
790	789.3	28.5								789.3 28.5
			42	58/0.3		100/0.8				**WEATHERED ROCK** Brown-orange-white, (MICA SCHIST)
785	784.3	33.5	100/0.3			100/0.3				
780	779.3	38.5								778.6 39.2
			28	72/0.2		100/0.7				Boring Terminated at Elevation 778.6 ft IN WEATHERED ROCK (MICA SCHIST)

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 45358.1.21	**TIP** BD-5112U	**COUNTY** LINCOLN	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Bridge #70 on SR 1168 (Johnstown Road) over Mill Creek				**GROUND WTR (ft)**
BORING NO. EB1-B	**STATION** 13+91	**OFFSET** 10 ft RT	**ALIGNMENT** -L-	**0 HR.** 15.4
COLLAR ELEV. 817.8 ft	**TOTAL DEPTH** 37.4 ft	**NORTHING** 617,995	**EASTING** 1,290,144	**24 HR.** 16.9
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 76% 12/15/2011		**DRILL METHOD** H.S. Augers		**HAMMER TYPE** Automatic
DRILLER D. Tignor	**START DATE** 12/04/12	**COMP. DATE** 12/04/12	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
										ELEV. (ft) DEPTH (ft)
820										
	817.8	0.0								GROUND SURFACE
	816.9	0.9	7	5	3	8		M		**ROADWAY EMBANKMENT** 816.9 / 0.9 ASPHALT (0.5') & ABC STONE (0.4')
815	814.3	3.5	4	3	2	5		M		Red-brown, fine sandy SILT (A-4), with trace gravel, mica, & trace to little clay
	810.8	7.0								
810	809.3	8.5	3	3	5	8		M		Red-tan, silty fine to coarse SAND (A-2-4), with trace gravel
	805.8	12.0								
805	804.3	13.5	28	23	35	58		M		**RESIDUAL** Brown, black & orange, silty coarse to fine SAND (A-2-4), with trace to little gravel-sized rock fragments & trace mica, saprolitic
800	799.3	18.5	21	23	19	42		W		
795	794.3	23.5	4	4	6	10		M		
790	789.3	28.5	21	19	36	55		M		
785	784.3	33.5	37	63/0.5		100/1.0				784.3 / 33.5 **WEATHERED ROCK** Tan-orange-gray, (MICA SCHIST)
	780.4	37.4	60/0.0			60/0.0				780.4 / 37.4 Boring Terminated with Standard Penetration Test Refusal at Elevation 780.4 ft ON CRYSTALLINE ROCK (MICA SCHIST)

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 45358.1.21	**TIP** BD-5112U	**COUNTY** LINCOLN	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Bridge #70 on SR 1168 (Johnstown Road) over Mill Creek				**GROUND WTR (ft)**
BORING NO. B1-A	**STATION** 14+71	**OFFSET** 8 ft LT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 802.0 ft	**TOTAL DEPTH** 12.2 ft	**NORTHING** 618,074	**EASTING** 1,290,167	**24 HR.** 2.5
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 76% 12/15/2011		**DRILL METHOD** NW Casing w/ SPT		**HAMMER TYPE** Automatic
DRILLER D. Tignor	**START DATE** 12/04/12	**COMP. DATE** 12/04/12	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION
805										
	802.0	0.0								802.0 GROUND SURFACE 0.0
800			1	8	9	17		M		**ARTIFICIAL FILL** Brown, fine sandy SILT (A-4), with trace organics 800.0 2.0
	798.5	3.5	2	8	21	29		Sat.		**ALLUVIAL** Black & brown, coarse to fine sandy SILT (A-4), with trace gravel & petroleum odor 795.0 7.0
795										
	793.5	8.5	WOH	WOH	1	1		Sat.		Black & brown, coarse to fine sandy SILT (A-4), with petroleum odor, & little organics 790.3 11.7
790	789.8	12.2	60/0.0			60/0.0				789.8 **WEATHERED ROCK** (MICA SCHIST) 12.2

Boring Terminated with Standard Penetration Test Refusal at Elevation 789.8 ft ON CRYSTALLINE ROCK (MICA SCHIST)

Note:

1) Boring grouted upon completion

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 45358.1.21	**TIP** BD-5112U	**COUNTY** LINCOLN	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Bridge #70 on SR 1168 (Johnstown Road) over Mill Creek				**GROUND WTR (ft)**
BORING NO. B1-B	**STATION** 14+62	**OFFSET** 8 ft RT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 799.4 ft	**TOTAL DEPTH** 33.0 ft	**NORTHING** 618,059	**EASTING** 1,290,176	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 76% 12/15/2011		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 12/05/12	**COMP. DATE** 12/05/12	**SURFACE WATER DEPTH** 0.6ft	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
800											
	799.4	0.0	2	5	4	9		Sat.		799.4 GROUND SURFACE	0.0
										798.5 **ALLUVIAL**	0.9
	795.9	3.5								796.4 Brown, fine sandy SILT (A-4), with trace wood fragments & gravel	3.0
795			1	0	2	2		Sat.		Brown-orange, silty fine to coarse SAND (A-2-4), with trace gravel	
	790.9	8.5								792.4 Brown, fine sandy SILT (A-4), with little organics	7.0
790			11	5	5	10		Sat.		**RESIDUAL**	
										Tan & white, coarse to fine sandy SILT (A-4) with trace gravel-sized rock fragments	
	786.2	13.2								787.4	12.0
785			60/0.0			60/0.0				786.2 **WEATHERED ROCK** (MICA SCHIST)	13.2
							RS-1			**CRYSTALLINE ROCK** Gray-blue, (MICA SCHIST)	
780							RS-2			781.2	18.2
							RS-3				
775											
770											
										766.4	33.0

Boring Terminated at Elevation 766.4 ft IN CRYSTALLINE ROCK (MICA SCHIST)

Note:

1) Boring grouted upon completion of coring

NCDOT GEOTECHNICAL ENGINEERING UNIT
CORE BORING REPORT

WBS 45358.1.21	**TIP** BD-5112U	**COUNTY** LINCOLN	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Bridge #70 on SR 1168 (Johnstown Road) over Mill Creek				**GROUND WTR (ft)**
BORING NO. B1-B	**STATION** 14+62	**OFFSET** 8 ft RT	**ALIGNMENT** -L-	**0 HR.** N/A
COLLAR ELEV. 799.4 ft	**TOTAL DEPTH** 33.0 ft	**NORTHING** 618,059	**EASTING** 1,290,176	**24 HR.** FIAD
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 76% 12/15/2011		**DRILL METHOD** NW Casing W/SPT & Core	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 12/05/12	**COMP. DATE** 12/05/12	**SURFACE WATER DEPTH** 0.6ft	
CORE SIZE NQ	**TOTAL RUN** 19.8 ft			

ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %	RUN RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %	STRATA RQD (ft) %	LOG	DESCRIPTION AND REMARKS
786.2											Begin Coring @ 13.2 ft
785	786.2	13.2	4.8	*N=60/0.0* 0:33/0.8 3:08/1.0 4:04/1.0 4:00/1.0 4:06/1.0	(4.0) 83%	(0.8) 17%	RS-1	(4.0) 80%	(0.8) 16%		786.2 **CRYSTALLINE ROCK** 13.2 Gray, hard, moderately to severly weathered, (MICA SCHIST), with very close to close fracture spacing
	781.4	18.0									781.2 RS-1: 16.0-16.3', q_u = 7,160 psi 18.2 R_1 = 4, R_2 = 3, R_3 = 5, R_4 = 6, R_5 = 7, RMR = 25
780			5.0	4:01/1.0 3:42/1.0 3:44/1.0 3:41/1.0 6:07/1.0	(5.0) 100%	(4.8) 96%	RS-2 RS-3	(14.6) 99%	(14.0) 95%		Gray, hard, fresh, (MICA SCHIST), with close to moderately close fracture spacing
	776.4	23.0									
775			5.0	4:01/1.0 4:38/1.0 4:42/1.0 3:34/1.0 3:40/1.0	(5.0) 100%	(4.8) 96%					RS-2: 18.5-18.8', q_u = 5,067 psi R_1 = 4, R_2 = 20, R_3 = 20, R_4 = 20, R_5 = 7, RMR = 71
	771.4	28.0									RS-3: 21.5-21.8', q_u = 7,361 psi R_1 = 4, R_2 = 20, R_3 = 20, R_4 = 20, R5 = 7, RMR = 71
770			5.0	5:46/1.0 3:58/1.0 3:18/1.0 3:11/1.0 2:52/1.0	(4.6) 92%	(4.4) 88%					
	766.4	33.0									766.4 33.0 Boring Terminated at Elevation 766.4 ft IN CRYSTALLINE ROCK (MICA SCHIST) Note: 1) Boring grouted upon completion of coring

CORE PHOTOGRAPHS: Bridge No. 70 on SR 1168 (Johnstown Road) over Mill Creek, Boring B1-B

13.2 feet
Begin Run 1

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

21.1 feet

23.0 feet
Begin Run 3

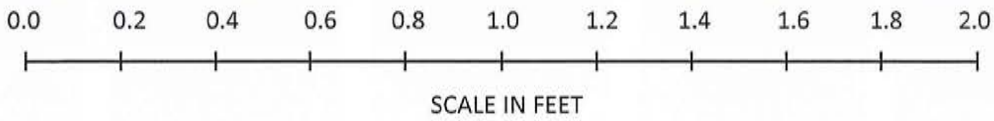
28.8 feet

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

CORE PHOTOGRAPHS: Bridge No. 70 on SR 1168 (Johnstown Road) over Mill Creek, Boring B1-B

28.8 feet



NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 45358.1.21	**TIP** BD-5112U	**COUNTY** LINCOLN	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Bridge #70 on SR 1168 (Johnstown Road) over Mill Creek				**GROUND WTR (ft)**
BORING NO. EB2-A	**STATION** 15+13	**OFFSET** 12 ft LT	**ALIGNMENT** -L-	**0 HR.** 19.6
COLLAR ELEV. 817.4 ft	**TOTAL DEPTH** 24.3 ft	**NORTHING** 618,113	**EASTING** 1,290,183	**24 HR.** 18.1
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 76% 12/15/2011		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 12/03/12	**COMP. DATE** 12/03/12	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
820											
	817.4	0.0								817.4 GROUND SURFACE	0.0
815			4	6	6	12		M		**ROADWAY EMBANKMENT**	
	815.4	2.0								ABC STONE	2.0
	813.9	3.5	2	3	7	10		M		Red-brown, silty CLAY (A-7-5), with little fine sand, trace root fragments & gravel	
810										810.4	7.0
	808.9	8.5								Red-tan, silty fine SAND (A-2-4), with trace gravel	
			3	2	2	4		M			
805										805.4	12.0
	803.9	13.5						M		Red-brown, fine sandy SILT (A-4), with little clay	
			WOH	2	3	5		W		803.2	14.2
800										**ALLUVIAL**	
	798.9	18.5								Red-white, coarse to fine SAND (A-3), with trace rounded gravel	
			4	3	3	6		Sat.		800.4	17.0
795										**RESIDUAL**	
	793.9	23.5								Red-tan, coarse to fine sandy SILT (A-4), with trace gravel-sized rock fragments	
	793.1	24.3	60/0.1			60/0.1				796.9	20.5
			60/0.0			60/0.0				**WEATHERED ROCK** (MICA SCHIST)	
										793.9	23.5
										CRYSTALLINE ROCK Gray-white, (MICA SCHIST)	
										793.1	24.3
										Boring Terminated with Standard Penetration Test Refusal at Elevation 793.1 ft IN CRYSTALLINE ROCK (MICA SCHIST)	

NCDOT GEOTECHNICAL ENGINEERING UNIT
BORELOG REPORT

WBS 45358.1.21	**TIP** BD-5112U	**COUNTY** LINCOLN	**GEOLOGIST** M. Brewer	
SITE DESCRIPTION Bridge #70 on SR 1168 (Johnstown Road) over Mill Creek				**GROUND WTR (ft)**
BORING NO. EB2-B	**STATION** 15+14	**OFFSET** 11 ft RT	**ALIGNMENT** -L-	**0 HR.** 18.4
COLLAR ELEV. 817.3 ft	**TOTAL DEPTH** 29.8 ft	**NORTHING** 618,103	**EASTING** 1,290,204	**24 HR.** 18.0
DRILL RIG/HAMMER EFF./DATE F&R3495 CME-55 76% 12/15/2011		**DRILL METHOD** H.S. Augers	**HAMMER TYPE** Automatic	
DRILLER D. Tignor	**START DATE** 12/03/12	**COMP. DATE** 12/03/12	**SURFACE WATER DEPTH** N/A	

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT 0.5ft	0.5ft	0.5ft	BLOWS PER FOOT 0 25 50 75 100	SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION ELEV. (ft)	DEPTH (ft)
820											
	817.3	0.0								817.3 GROUND SURFACE	0.0
			4	8	8	16		M		816.7 **ROADWAY EMBANKMENT**	0.6
815										815.3 ABC STONE (0.6')	2.0
	813.8	3.5	2	1	2	3		M		Brown-red, fine to coarse sandy SILT (A-4), with trace gravel & little clay	
										Red, silty CLAY (A-7-5), with little fine sand, trace gravel & organics	
810										810.3	7.0
	808.8	8.5	2	3	5	8		M		Dark brown & red-tan, coarse to fine sandy SILT (A-4), with trace gravel from 13.5-14.4'	
805											
	803.8	13.5	2	3	3	6		M W		802.9 **ALLUVIAL**	14.4
800										Red-tan, coarse to fine SAND (A-3) 800.3	17.0
	798.8	18.5	WOH	WOH	1	1	SS-13	27%		Brown-tan, silty, fine sandy CLAY (A-6)	
795										795.3	22.0
	793.8	23.5	23	36	35	71		M		**RESIDUAL** Brown & white, silty coarse to fine SAND (A-2-4), with trace gravel-sized rock fragments	
790										789.8	27.5
	788.8	28.5	60/0.1			60/0.1				788.8 **WEATHERED ROCK** (MICA SCHIST)	28.5
	787.5	29.8	60/0.0			60/0.0				787.5 **CRYSTALLINE ROCK** Gray, (MICA SCHIST)	29.8
										Boring Terminated with Standard Penetration Test Refusal at Elevation 787.5 ft IN CRYSTALLINE ROCK (MICA SCHIST)	

North Carolina Department of Transportation
Division of Highways
Materials and Test Unit
Soils Laboratory

T.I.P. ID NO.: BD-5112U
DESCRIPTION: Bridge No. 70 on SR 1168 (Johnstown Road) over Mill Creek

REPORT ON SAMPLES OF: SOIL FOR QUALITY

PROJECT:	45358.1.21	COUNTY:	Lincoln
DATE SAMPLED:	12/3/12	RECEIVED:	1/10/13
SAMPLED FROM:	-L-	REPORTED:	1/17/13
SUBMITTED BY:	W. Patrick Alton, P.E.	BY:	D. Jenks Cert No. 101-02-0603

TEST RESULTS

PROJ. SAMPLE NO.	SS-13					
BORING NO.	EB2-B					
Retained #4 Sieve %	1.7					
Passing #10 Sieve %	97.6					
Passing #40 Sieve %	84.1					
Passing #200 Sieve %	39.8					

SOIL MORTAR - 100%						
Coarse Sand Ret - #60 %	28.7					
Fine Sand Ret - #270 %	33.3					
Silt 0.053 - 0.010 mm %	7.4					
Clay < 0.010 mm %	30.6					
L.L.	33					
P.L.	21					
P.I.	12					
AASHTO Classification	A-6 (1)					
Station -L-	15+14					
Offset	11' Rt					
Depth (ft)	18.5					
to	20.0					
Moisture Content (%)	27.0					

NP = Not plastic
NT = Not Tested

W. Patrick Alton, P.E.
Geotechnical Engineer

LABORATORY SUMMARY SHEET FOR ROCK CORE SAMPLES

PROJECT NO.: 45358.1.21
TIP NO.: BD-5112U
COUNTY: Lincoln
DESCRIPTION: Bridge No. 70 on SR 1168 (Johnstown Road) over Mill Creek

Sample #	Boring #	Depth (ft)	Rock Type	Geologic Map Unit	Run RQD	Length (in)	Diameter (in)	Unit Weight (pcf)	Unconfined Compressive Strength (psi)	Young's Modulus, E (ksf)	RMR
RS-1	B1-B	16.0 - 16.3	Mica Schist	CZms	17%	4.03	1.77	166.8	7,160	2.1×10^5	25
RS-2	B1-B	18.5 - 18.8	Mica Schist	CZms	96%	4.08	1.77	173.4	5,067	2.2×10^5	71
RS-3	B1-B	21.5 - 21.8	Mica Schist	CZms	96%	3.96	1.77	175.4	7,361	2.6×10^5	71

FROEHLING & ROBERTSON, INC.

PRELIMINARY SITE ASSESSMENT

BR 70 ON JOHNSTOWN ROAD OVER MILL CREEK
Cherryville, NC

State Project: M-0376
WBS Element: 39406.1.2
F&R Project #66R-0027

June 4, 2013

Prepared for:

North Carolina Department of Transportation
Geotechnical Engineering Unit
1020 Birch Ridge Drive
Raleigh, NC 27610

310 Hubert Street Raleigh, North Carolina 27603 919.828.3441

TABLE OF CONTENTS

Preliminary Site Assessment Report
BR 70 on Johnstown Road over Mill Creek
Cherryville, Lincoln County, North Carolina
F&R Project No. 66R-0027

1.0 Introduction

Froehling and Robertson, Inc. (F&R) has prepared this Preliminary Site Assessment Report (PSA) to document soil assessment activities performed at the BR 70 on Johnstown Road over Mill Creek located in Cherryville, Lincoln County, North Carolina. The bridge is located approximately 1,000 feet south of the Stowe-Leonhardt Road intersection with Johnstown Road. (Appendix I, Figure 1). As indicated in the Request for Proposal (RFP), petroleum contaminated soils were encountered during the geotechnical investigation for State Project 12B.205512, which was also managed by F&R.

This work was performed in general accordance with F&R's Proposal No. 1366-292E dated February 15, 2013 with Notice to Proceed issued to F&R by the NCDOT on February 20, 2013. The purpose of this report is to document field activities, present the results of laboratory analysis, and provide recommendations regarding the property.

During F&R's site visit, it appeared the bridge foundation was constructed of creosote treated piles and cross members. The wing wall used to retain the abutment soils was also constructed of creosote treated timbers. Creosote was observed to be leaching from a majority of the timbers used for bridge construction. The western portion of the northern wing wall appeared to have been repaired at some point in time as newer timbers were observed in this area. In addition, isolated asphalt chunks and fragments of asphalt were discovered laying on the ground surface adjacent to the northern end bent.

Based on conversations and information provided by the NCDOT, it has been determined that the proposed bridge replacement and roadway construction will impact the project site (See Figure No.3). As such, the NCDOT requested a Preliminary Site Assessment be performed to assess the presence and extent of contaminated soils at the project site. The work area consists of mostly grass and weed covered areas under the northern portion of the existing bridge. Historically this area was used as a farm road, and also provided a path for farm animals (cows) to move through the site. During our visit, a metal fence was observed to have been installed across the western portion of the work area, and therefore cutting off access the northern bent. F&R was able to partially remove the fence in order to gain access to the work area. Photos detailing existing site features are attached as Appendix III of this report.

2.0 Site Assessment Activities

F&R visited the site on May 15 and 16, 2013 to perform the Preliminary Site Assessment. The assessment consisted of advancing nine hand auger borings into the soils at the project site. All nine of the borings, (HA-1 through HA-9) were advanced at the northern end bent where contaminated material was rumored to have been improperly disposed of in the NCDOT right of way (Appendix I, Figure 3). The borings were advanced using a hand auger to depths of two to four feet below ground surface (bgs). All borings were terminated in saturated soils at the assumed groundwater table and the hand auger bucket was decontaminated between each boring using a scrub brush and soap (Alconox) solution. Boring locations were determined by F&R staff based on the location of previous geotechnical borings, site features, observed soil contamination and proposed construction activities.

Soil samples from the borings (HA-1 through HA-9) were collected from one foot sections of each boring and placed in a re-sealable plastic bag and the vapors were then allowed to equilibrate in the headspace of the bag prior to measurement with the photo-ionization detector (PID). During equilibration, the soil samples were visually/manually classified. After a period of approximately ten minutes had elapsed, the soil samples were screened in the field using the PID for evidence of petroleum hydrocarbons. Evaluation of VOC concentrations were performed using a MiniRae 3000 PID which produces results in parts per million (ppm). The measurements were collected by placing the probe tip into the headspace of the bag. PID measurements can be found in the Hand Auger Logs in Appendix II.

The soil sample which exhibited the highest PID concentration or the sample just above the assumed groundwater table was submitted for laboratory analysis for diesel range organics (DRO) by EPA Method 3510, gasoline range organics (GRO) by EPA Method 5030 both with preparation by EPA Method 8015C and creosols by EPA Method 8270.

In addition to soil samples, F&R collected surface water samples from Mill Creek at locations upstream and downstream of the northern bridge bent. The samples from the upstream and downstream locations were collected using a large stainless steel cup connected to a rigid PVC pole to allow a further reach into the stream where the water was flowing. The stainless steel cup was decontaminated between sampling locations using a scrub brush and soap (Alconox) solution. The surface water samples were placed directly into laboratory supplied bottles and analyzed for volatile organic compounds by EPA Method 8260 and semi-volatile organic compounds EPA Method 8270.

In an attempt to obtain a groundwater sample at the site, F&R advanced HA-1 to a depth of approximately five feet below existing ground surface for the installation of a temporary monitoring well. The temporary monitoring well was installed in the boring and consisted of screened two-inch PVC

piping installed to the base of the boring. Sand was used as a filter medium to a depth of one foot above the screened piping.

Groundwater was recovered from the boring locations through the use of a hand bailer. Prior to groundwater sample collection, three well volumes of water were purged in order to collect fresh groundwater. F&R collected a groundwater sample for subsequent analysis for volatile organic compounds (VOCs) by EPA Method 8260 and semi-volatile organic compounds (SVOCs) by EPA Method 8270.

After the groundwater sample was collected, the PVC piping was removed and the borehole was filled with soil cuttings and bentonite chips.

In addition to laboratory analysis, F&R also performed field analysis using the QED Hydrocarbon Analyser developed by QROS. The QED provides results for BTEX, GRO, DRO, TPH, Total Aromatics, the sum of 16 PAHs and Benzo-a-Pyrene within seconds of sample preparation. For soil and water analysis, an appropriate mass or volume of sample is mixed with a low cost and environmentally benign solvent (Methanol). The solvent extracts PAHs and fuel hydrocarbons from the soil matrix. The extract is diluted, then analyzed in the QED. The QED generates a fingerprint of the hydrocarbon in the sample, which is compared to the on board library of fuel types, oils, creosotes, coal tars or other custom created fingerprints, identifying the hydrocarbon type.

The samples were collected in laboratory-supplied sample containers, placed in a cooler with ice, and delivered by courier to Pace Analytical Services (Pace) in Huntersville, North Carolina following standard chain-of custody procedures.

3.0 Subsurface Conditions

As indicated in the attached Hand Auger Logs (Appendix II), subsurface conditions from existing ground surface to boring termination included moist, orange-brown and brown silty and clayey sands (USCS – SM & SC) to depths of approximately two to three feet below ground surface. Underlying these soils, the subsurface conditions consisted of wet to saturated, dark gray and tan, fine to coarse sand (USCS – SP) and saturated, tan-gray fine to medium sandy clay (USCS – CL) to boring termination. The groundwater table was at depths ranging from two (HA-9) to four (HA-8) feet below ground surface.

It should be noted that petroleum odors and asphalt fragments were encountered in hand augers HA-1 (1 to 3 feet bgs) and HA-3 (2 to 3 feet bgs). Hand auger refusal was encountered at HA-3 (30” bgs) and HA-5 (40” bgs).

4.0 Analytical Results

As shown in the following table, petroleum hydrocarbons identified as DRO were encountered at three of the boring locations (HA-1, HA-2 and HA-3) at depths ranging from one to three feet below ground surface. The laboratory results indicate the soil samples collected from these borings exceed the NC DENR Action level of 10 mg/kg for DRO. The laboratory analytical results can be found in the attached Appendix IV of this report.

Table 1
Soil Sampling Analytical Results
BR 70 on Johnstown Road over Mill Creek
Cherryville, Lincoln County, North Carolina

Sample ID	Sample Date	Sample Depth (ft bgs)	PID Reading (ppm)	EPA Method 8015B		EPA Method 8270	
				DRO (mg/kg)	GRO (mg/kg)	o-Cresol (µg/kg)	m&p Cresol (µg/kg)
HA-1	5-15-13	1-2	8.6	**264**	ND	ND	ND
HA-2	5-15-13	1-2	0.0	**46.2**	ND	ND	ND
HA-3	5-16-13	2-3	16.1	**1060**	ND	ND	ND
HA-4	5-16-13	1-2	0.3	ND	ND	ND	ND
HA-5	5-16-13	3-4	0.0	ND	ND	ND	ND
HA-6	5-16-13	2-3	0.1	ND	ND	ND	ND
HA-7	5-16-13	2-3	0.0	ND	ND	ND	ND
HA-8	5-16-13	1-2	0.5	ND	ND	ND	ND
HA-9	5-16-13	1-2	0.0	ND	ND	ND	ND
NCDENR Action Level (mg/kg)				**10**	**10**	**NA**	**NA**
NCDENR Maximum Soil Contaminant Concentration (MSCC) (µg/kg)						**1000**	**NSE**

Notes:
ft bgs = feet below ground surface
ppm = parts per million = mg/kg
µg/kg = parts per billion
DRO = Diesel Range Organics
GRO = Gasoline Range Organics
ND = Not Detected
NSE = No Standard Exists
Bold indicates soil analytical results above NCDENR Action Levels
NCDENR Action Level and MSCC determined from the North Carolina UST Section Guidelines for Assessment and Corrective Action

As shown in the following tables, volatile and semi-volatile petroleum hydrocarbons identified as Acenaphthene, Anthracene, Dibenzofuran, Bis(2-Ethylhexyl)phthalate, Flouranthene, Flourene, 1-Methylnaphthalene, Naphthalene, Phenanthrene and Pyrene were identified in the groundwater at boring location HA-1 which was converted to a temporary monitoring well (TW-1). The laboratory results for the groundwater sample collected indicate that 1-Methylnaphthalene exists at this location at a concentration (3.4J µg/L) above the NCAC 2L Groundwater Quality Standard of 1 µg/L. The laboratory analytical results can be found in the attached Appendix IV of this report.

Table 2
Surface and Groundwater Sampling Analytical Results (EPA 8270)
BR 70 on Johnstown Road over Mill Creek
Cherryville, Lincoln County, North Carolina

Sample ID	Sample Date	Sample Depth (ft bgs)	EPA Method 8270									
			Acenaphthene	Anthracene	Dibenzofuran	Bis(2-Ethylhexyl)phthalate	Flouranthene	Flourene	1-Methylnaphthalene	Naphthalene	Phenanthrene	Pyrene
Upstream	5-15-13	NA	ND									
Downstream	5-15-13	NA	ND									
TW-1	5-15-13	5	35.7	1.5J	12.3	1.2J	5.5J	14.7	**3.4J**	2.7J	22.9	2.6J
NCAC 2L Groundwater Standard (µg/L)			**80**	**2,000**	**28**	**3**	**300**	**300**	**1**	**6**	**200**	**200**

Table 3
Surface and Groundwater Sampling Analytical Results (EPA 8260)
BR 70 on Johnstown Road over Mill Creek
Cherryville, Lincoln County, North Carolina

Sample ID	Sample Date	Sample Depth (ft bgs)	EPA Method 8260
			Naphthalene
Upstream	5-15-13	NA	ND
Downstream	5-15-13	NA	ND
TW-1	5-15-13	5	5.2
NCAC 2L Groundwater Standard (µg/L)			**6**

Notes:
ft bgs = feet below ground surface
All concentrations are shown in micrograms per liter (µg/L)
ND = Not Detected
J = Estimated Concentration above the adjusted method detection limit and below the adjusted reporting limit
Bold indicates groundwater analytical results above the NCAC 2L Groundwater Quality Standards

5.0 Conclusions and Recommendations

F&R conducted a PSA at BR 70 on Johnstown Road over Mill Creek located in Cherryville, Lincoln County, North Carolina. Nine hand auger borings were advanced in the vicinity of the northern bridge bent, which is within the NCDOT right-of-way. Based on the results of laboratory testing, observed PID readings, and QED testing it has been determined that petroleum impacted soils exist in the vicinity of Borings HA-1, HA-2 and HA-3 at a concentration above the NC DENR Action Level of 10 mg/kg. In addition, petroleum impacted groundwater was encountered at TW-1, as various petroleum compounds were detected at concentrations above the laboratory method detection limits. However, only one compound, (1-Methylnaphthalene) was identified at a concentration greater than the NCAC 2L groundwater quality standard.

Based on the proposed construction, it is anticipated that petroleum impacted soils will be encountered during construction activities at the location shown in Figure 4.

Based on the laboratory and QED analytical results, field observations and PID readings, it is estimated that petroleum impacted soils exist to depths of approximately three feet below existing ground surface beneath the existing bridge and may extend to the extents as shown in Figure 4. Using the dimensions in the below table, it can be approximated that the volume of petroleum impacted soil which may be exist to be 189 tons. Petroleum impacted soils that are removed should be properly managed and disposed of in accordance with all NCDENR rules and regulations.

Table 4
Approximate Volume of Petroleum Impacted Soil
BR 70 on Johnstown Road over Mill Creek
Cherryville, Lincoln County, North Carolina

Excavation Location	L x W x D (feet)	Soil Volume (cubic feet)	Soil Volume (tons)
As shown on Figure 4	30 x 35 x 3	3,150	189
Soil Volume (assuming a soil density of 120 pcf)			

It should be noted that a delineation of the soil contamination was performed based on interpretations of soil analytical results (field and lab), PID readings and our experience with petroleum releases. The amount of impacted soil can only be determined after final excavation.

The following table presents a comparison between the laboratory analytical results and the results obtained using the new QED testing procedures. As shown in the table, the QED results compare very well with laboratory analytical results. It appears the QED detects greater concentrations of contaminant in comparison to the laboratory. This may be attributed to the decrease in hold time associated with performing the analysis on site rather than the transport time associated with sending the samples to the laboratory.

Table 5
Comparison of Laboratory and QED Results
BR 70 on Johnstown Road over Mill Creek
Cherryville, Lincoln County, North Carolina

Sample ID	Sample Date	Sample Depth (ft bgs)	PID Reading (ppm)	Laboratory Results		QED Results	
				DRO (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	GRO (mg/kg)
HA-1	5-15-13	1-2	8.6	264	ND	503	ND
HA-2	5-15-13	1-2	0.0	46.2	ND	68.1	ND
HA-3	5-16-13	2-3	16.1	1060	ND	1322	ND
HA-4	5-16-13	1-2	0.3	ND	ND	ND	ND
HA-5	5-16-13	3-4	0.0	ND	ND	2.4	ND
HA-6	5-16-13	2-3	0.1	ND	ND	ND	ND
HA-7	5-16-13	2-3	0.0	ND	ND	2.5	ND
HA-8	5-16-13	1-2	0.5	ND	ND	3.3	ND
HA-9	5-16-13	1-2	0.0	ND	ND	3.8	ND

6.0 Limitations

These services have been performed, under authorization of the North Carolina Department of Transportation for specific application on this project. These services have been performed in accordance with generally accepted environmental and hydrogeological practices. No other warranty, expressed or implied is made. As with any subsurface investigation, actual conditions exist only at the precise locations from which samples were taken. Certain inferences are based on the results of sampling and related testing to form a professional opinion of conditions in areas beyond those from which samples were taken. Our conclusions and recommendations are based upon information provided to us by others, our sampling and testing results and our site observations. We have not

verified the completeness or accuracy of the information provided by others, unless otherwise noted. Our observations are based upon conditions readily visible at the site at the time of our site visits.

Froehling & Robertson, Inc. by virtue of providing the services described in this report, does not assume the responsibility of the person(s) in charge of the site, or otherwise undertake responsibility for reporting to any local, state or federal public agencies any conditions at the site that may present a potential danger to public health, safety or the environment. In areas that require notification of local, state, or federal public agencies as required by law, it is the Client's responsibility to so notify.

APPENDIX I

Figure No. 1 – SITE VICINITY MAP

Figure No. 2 – TOPOGRAPHIC MAP

Figure No. 3 – HAND AUGER AND SURFACE WATER SAMPLING LOCATIONS

Figure No. 4 – LABORATORY RESULTS & ESTIMATED EXTENTS OF SOIL CONTAMINATION

SITE VICINITY MAP

North

SINCE F&R 1881

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CLIENT: NCDOT	
PROJECT: BR 70 on Johnstown Road over Mill Creek	
LOCATION: Cherryville, Lincoln County, North Carolina	
F&R PROJECT No.: 66R-0027	FIGURE No.: 1
DRAWN BY: M. Sabodish	
DATE: May 2013	SCALE: Not to scale

TOPOGRAPHIC MAP

North

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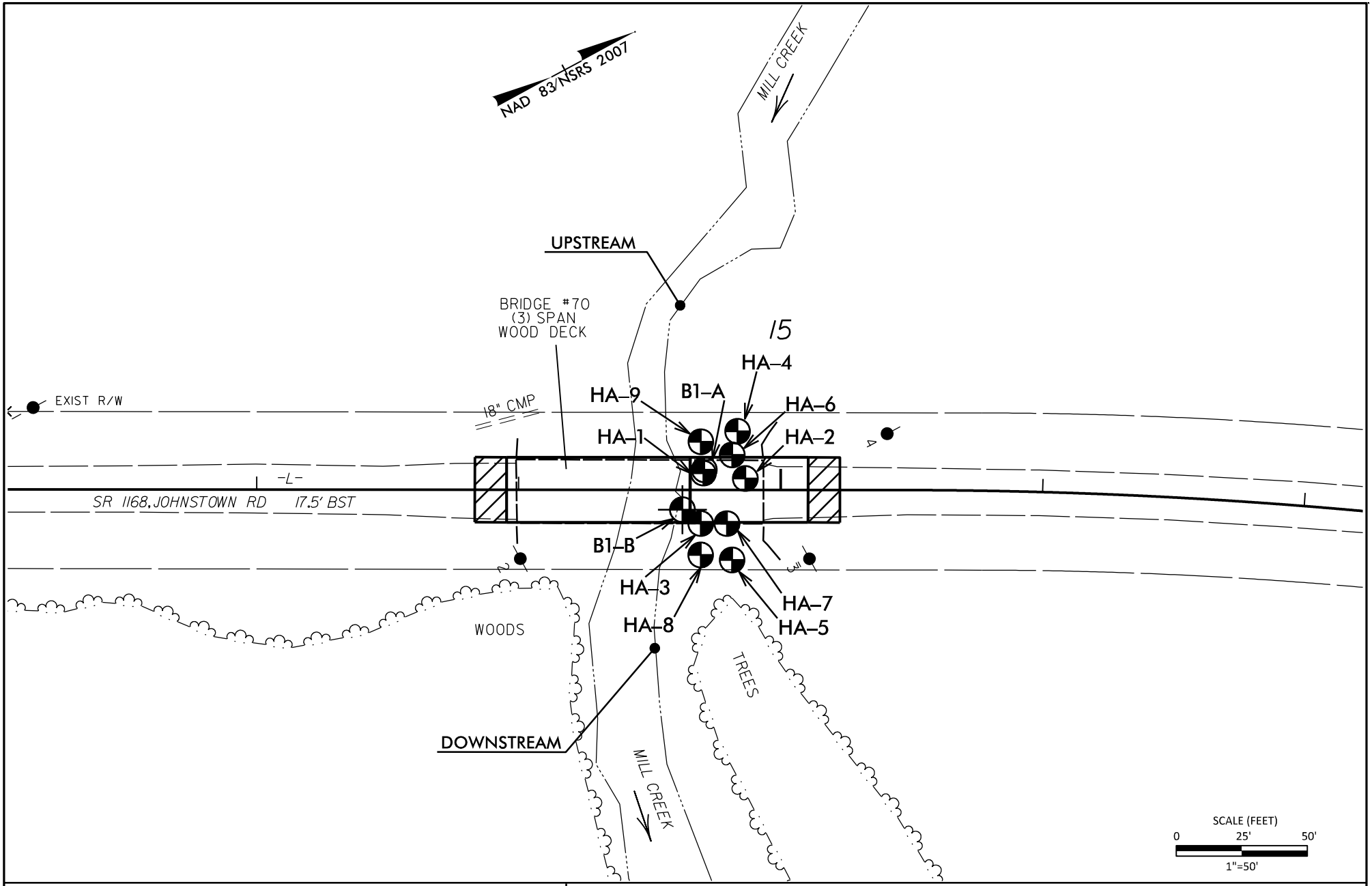
CLIENT: NCDOT	
PROJECT: BR 70 on Johnstown Road over Mill Creek	
LOCATION: Cherryville, Lincoln County, North Carolina	
F&R PROJECT No.:66R-0027	FIGURE No.: 2
DRAWN BY: M. Sabodish	
DATE: May 2013	SCALE: 1:24,000



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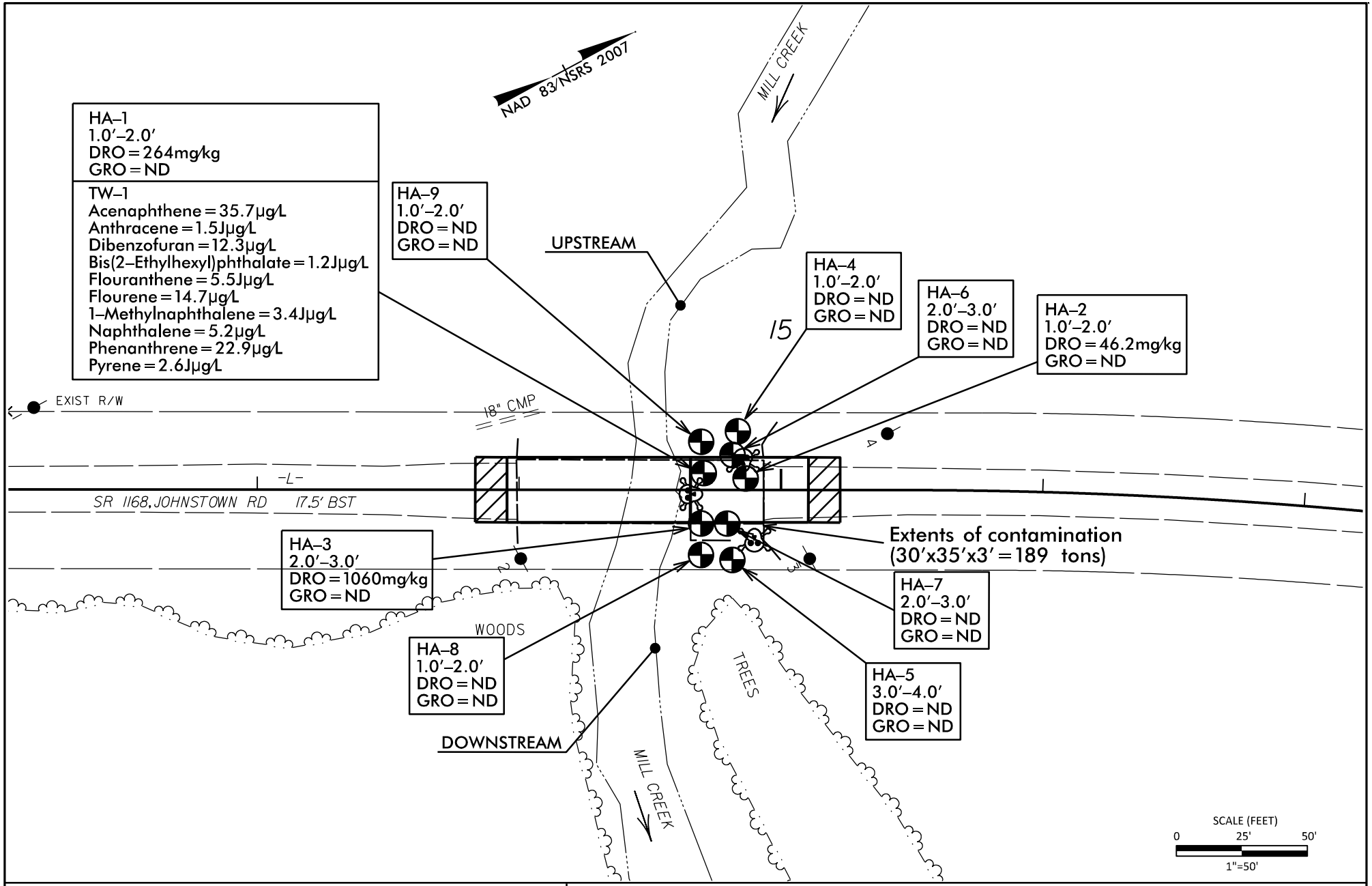
HAND AUGER & SURFACE WATER SAMPLING LOCATIONS

PROJECT REFERENCE NO.: 45358.1.21		F&R PROJECT NO.: 66R-0027
I.D. NO.: BD-5112U	F.A. PROJECT NO.: N/A	COUNTY: Lincoln
PROJECT DESCRIPTION: Bridge #70 on SR 1168 (Johnstown Rd.) over Mill Creek		
SITE DESCRIPTION: N/A		FIGURE No.: 3
DRAWN BY: D. Racey	CHECKED BY: M. Sabodish, P.E.	
DATE: May 2013	SCALE: 1"=50'	



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LAB RESULTS & ESTIMATED EXTENTS OF SOIL CONTAMINATION

PROJECT REFERENCE NO.: 45358.1.21		F&R PROJECT NO.: 66R-0027
I.D. NO.: BD-5112U	F.A. PROJECT NO.: N/A	COUNTY: Lincoln
PROJECT DESCRIPTION: Bridge #70 on SR 1168 (Johnstown Rd.) over Mill Creek		
SITE DESCRIPTION: N/A		FIGURE No.: 4
DRAWN BY: D. Racey	CHECKED BY: M. Sabodish, P.E.	
DATE: May 2013	SCALE: 1"=50'	

APPENDIX II

HAND AUGER LOGS

SINCE 1881

FROEHLING & ROBERTSON, INC.

HAND AUGER LOG

Boring: HA-1 (1 of 1)

Project No: 66R-0027
Client: NCDOT
Project: Lincoln County PSAs
City/State: Lincoln County, NC

Elevation: Existing Ground Surface
Total Depth: 4.0'
Boring Location: See Plan

Drilling Method: Hand Auger
Hammer Type: N/A
Date Drilled: 5/15/13
Driller: M. Sabodish

Elevation	Depth	Description of Materials (Classification)	* Sample Blows	Sample Depth (feet)	PID (ppm)	Remarks
		Moist, dark brown, silty fine to medium SAND (SM).		0.0	0.9	
		Petroleum odor & asphalt fragments encountered at 1'-2'.		1.0	8.6	Sample submitted for laboratory analysis for DRO/GRO and EPA 8270 Creosols
				2.0	1.4	
0.0	3.0	Dark gray, fine to medium SAND (SP).		3.0		
0.0	4.0	Hand Auger Boring Terminated at 4.0 feet due to encountering groundwater.				

HAND_AUGER_LOG 66R-0027 HAND AUGER LOGS.GPJ F&R.GDT 5/31/13

SINCE 1881

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HAND AUGER LOG

Boring: HA-2 (1 of 1)

Project No: 66R-0027
Client: NCDOT
Project: Lincoln County PSAs
City/State: Lincoln County, NC

Elevation: Existing Ground Surface
Total Depth: 3.0'
Boring Location: See Plan

Drilling Method: Hand Auger
Hammer Type: N/A
Date Drilled: 5/15/13
Driller: M. Sabodish

Elevation	Depth	Description of Materials (Classification)	* Sample Blows	Sample Depth (feet)	PID (ppm)	Remarks
		Moist to wet, orange-brown, silty SAND (SM).		0.0	0.0	
				1.0	0.0	Sample submitted for laboratory analysis for DRO/GRO and EPA 8270 Creosols
				2.0	0.0	
0.0	3.0	Hand Auger Boring Terminated at 3.0 feet due to encountering groundwater.		3.0		

SINCE 1881

FROEHLING & ROBERTSON, INC.

HAND AUGER LOG

Boring: HA-3 (1 of 1)

Project No: 66R-0027
Client: NCDOT
Project: Lincoln County PSAs
City/State: Lincoln County, NC

Elevation: Existing Ground Surface
Total Depth: 2.5'
Boring Location: See Plan

Drilling Method: Hand Auger
Hammer Type: N/A
Date Drilled: 5/16/13
Driller: M. Sabodish

Elevation	Depth	Description of Materials (Classification)	* Sample Blows	Sample Depth (feet)	PID (ppm)	Remarks
		Moist, brown, silty fine to coarse SAND (SM), with gravel & asphalt chunks at 2'-2.5'.		0.0	0.4	
				1.0	2.5	
		Heavy petroleum odor from 2'-2.5'.		2.0	16.1	Sample submitted for laboratory analysis for DRO/GRO and EPA 8270 Creosols
0.0	2.5	Hand Auger Boring Terminated at 2.5 feet on Concrete/Asphalt/Rock.		2.5		

SINCE 1881

FROEHLING & ROBERTSON, INC.

HAND AUGER LOG

Boring: HA-4 (1 of 1)

Project No: 66R-0027
Client: NCDOT
Project: Lincoln County PSAs
City/State: Lincoln County, NC

Elevation: Existing Ground Surface
Total Depth: 3.0'
Boring Location: See Plan

Drilling Method: Hand Auger
Hammer Type: N/A
Date Drilled: 5/16/13
Driller: M. Sabodish

Elevation	Depth	Description of Materials (Classification)	* Sample Blows	Sample Depth (feet)	PID (ppm)	Remarks
		Moist to wet, brown to tan, silty fine to coarse SAND (SM).		0.0	0.0	
				1.0	0.3	Sample submitted for laboratory analysis for DRO/GRO and EPA 8270 Creosols
				2.0	0.1	
0.0 ▽	3.0	Hand Auger Boring Terminated at 3.0 feet due to encountering groundwater.		3.0		

SINCE 1881

FROEHLING & ROBERTSON, INC.

HAND AUGER LOG

Boring: HA-5 (1 of 1)

Project No: 66R-0027
Client: NCDOT
Project: Lincoln County PSAs
City/State: Lincoln County, NC

Elevation: Existing Ground Surface
Total Depth: 3.5'
Boring Location: See Plan

Drilling Method: Hand Auger
Hammer Type: N/A
Date Drilled: 5/16/13
Driller: M. Sabodish

Elevation	Depth	Description of Materials (Classification)	* Sample Blows	Sample Depth (feet)	PID (ppm)	Remarks
		Moist, tan, silty fine to medium SAND (SM), with gravel.		0.0	0.0	
				1.0	0.0	
				2.0	0.0	
0.0	3.0	Moist to wet, tan-gray, fine to medium sandy CLAY (CL).		3.0	0.0	Sample submitted for laboratory analysis for DRO/GRO and EPA 8270 Creosols
0.0	3.5	Hand Auger Boring Terminated at 3.5 feet due to encountering rock.		3.5		

SINCE 1881

FROEHLING & ROBERTSON, INC.

HAND AUGER LOG

Boring: HA-6 (1 of 1)

Project No: 66R-0027
Client: NCDOT
Project: Lincoln County PSAs
City/State: Lincoln County, NC

Elevation: Existing Ground Surface
Total Depth: 3.0'
Boring Location: See Plan

Drilling Method: Hand Auger
Hammer Type: N/A
Date Drilled: 5/16/13
Driller: M. Sabodish

Elevation	Depth	Description of Materials (Classification)	* Sample Blows	Sample Depth (feet)	PID (ppm)	Remarks
		Moist, tan-brown, silty fine to medium SAND (SM).		0.0	0.0	
0.0	1.0	Moist, tan, fine to coarse SAND (SP).		1.0	0.0	
				2.0	0.1	Sample submitted for laboratory analysis for DRO/GRO and EPA 8270 Creosols
0.0	3.0	Hand Auger Boring Terminated at 3.0 feet due to encountering groundwater.		3.0		

SINCE 1881

FROEHLING & ROBERTSON, INC.

HAND AUGER LOG

Boring: HA-7 (1 of 1)

Project No: 66R-0027
Client: NCDOT
Project: Lincoln County PSAs
City/State: Lincoln County, NC

Elevation: Existing Ground Surface
Total Depth: 3.0'
Boring Location: See Plan

Drilling Method: Hand Auger
Hammer Type: N/A
Date Drilled: 5/16/13
Driller: M. Sabodish

Elevation	Depth	Description of Materials (Classification)	* Sample Blows	Sample Depth (feet)	PID (ppm)	Remarks
		Moist, tan-brown, silty fine to coarse SAND (SM).		0.0	0.0	
0.0	1.0	Moist to wet, brown-gray, clayey fine to medium SAND (SC).		1.0	0.0	
				2.0	0.0	Sample submitted for laboratory analysis for DRO/GRO and EPA 8270 Creosols
0.0 ▽	3.0	Hand Auger Boring Terminated at 3.0 feet due to encountering groundwater.		3.0		

HAND_AUGER_LOG 66R-0027 HAND AUGER LOGS.GPJ F&R.GDT 5/31/13

SINCE 1881

FROEHLING & ROBERTSON, INC.

HAND AUGER LOG

Boring: HA-8 (1 of 1)

Project No: 66R-0027
Client: NCDOT
Project: Lincoln County PSAs
City/State: Lincoln County, NC

Elevation: Existing Ground Surface
Total Depth: 4.0'
Boring Location: See Plan

Drilling Method: Hand Auger
Hammer Type: N/A
Date Drilled: 5/16/13
Driller: M. Sabodish

Elevation	Depth	Description of Materials (Classification)	* Sample Blows	Sample Depth (feet)	PID (ppm)	Remarks
		Moist to wet, brown, silty fine to medium SAND (SM).		0.0	0.2	
				1.0	0.5	Sample submitted for laboratory analysis for DRO/GRO and EPA 8270 Creosols
				2.0	0.3	
				3.0	0.4	
0.0 ▽	4.0	Hand Auger Boring Terminated at 4.0 feet due to encountering groundwater.		4.0		

HAND_AUGER_LOG 66R-0027 HAND AUGER LOGS.GPJ F&R.GDT 5/31/13

SINCE 1881

FROEHLING & ROBERTSON, INC.

HAND AUGER LOG

Boring: HA-9 (1 of 1)

Project No: 66R-0027
Client: NCDOT
Project: Lincoln County PSAs
City/State: Lincoln County, NC

Elevation: Existing Ground Surface
Total Depth: 2.0'
Boring Location: See Plan

Drilling Method: Hand Auger
Hammer Type: N/A
Date Drilled: 5/15/13
Driller: M. Sabodish

Elevation	Depth	Description of Materials (Classification)	* Sample Blows	Sample Depth (feet)	PID (ppm)	Remarks
		Moist, brown to tan, fine to coarse SAND (SP), with gravel.		0.0	0.0	
				1.0	0.0	Sample submitted for laboratory analysis for DRO/GRO and EPA 8270 Creosols
0.0 ▽	2.0	Hand Auger Boring Terminated at 2.0 feet due to encountering groundwater.		2.0		

APPENDIX III

SITE PHOTOS

Photo #1: Existing bridge at the project site. Photo was taken from the east looking west.

Photo #2: Location of HA-1 which was converted to TW-1. The previously advanced geotechnical boring can also be seen. Photo was taken from the northwest looking southeast.

Photo #3: Location of HA-2 advanced at the northern wing wall. The photo was taken looking northeast from the southwest.

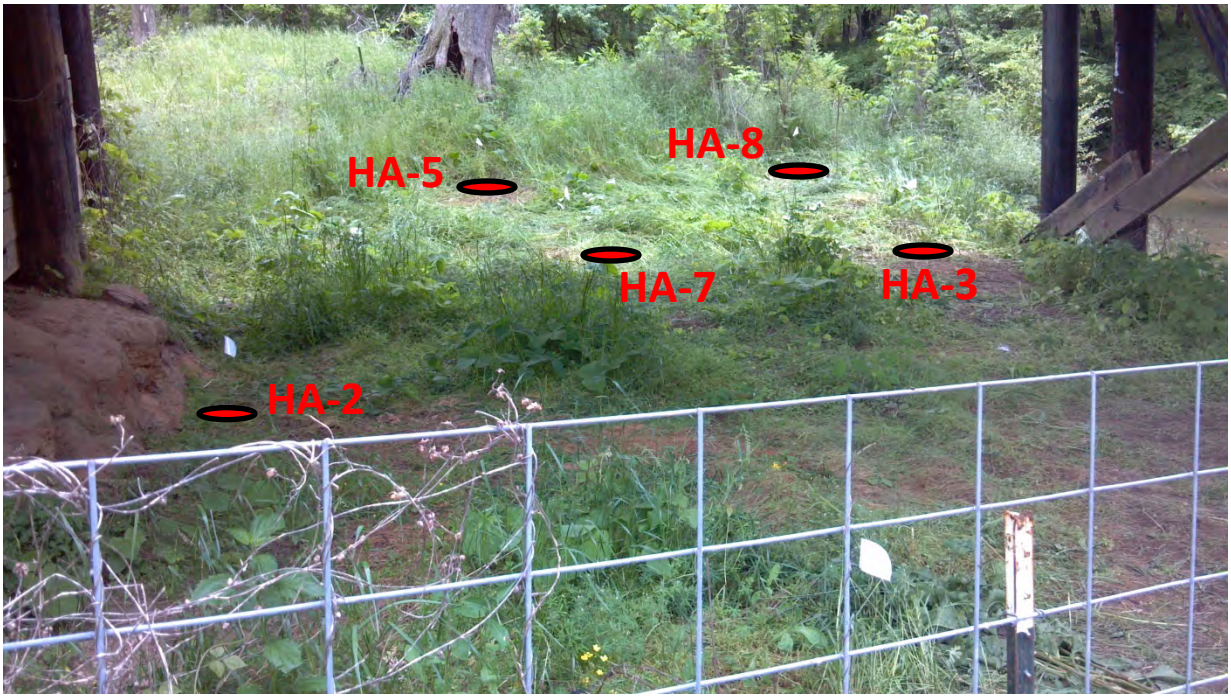

Photo #4: Locations of HA-2, HA-3, HA-5, HA-7 and HA-8. The photo was taken looking west from the east.

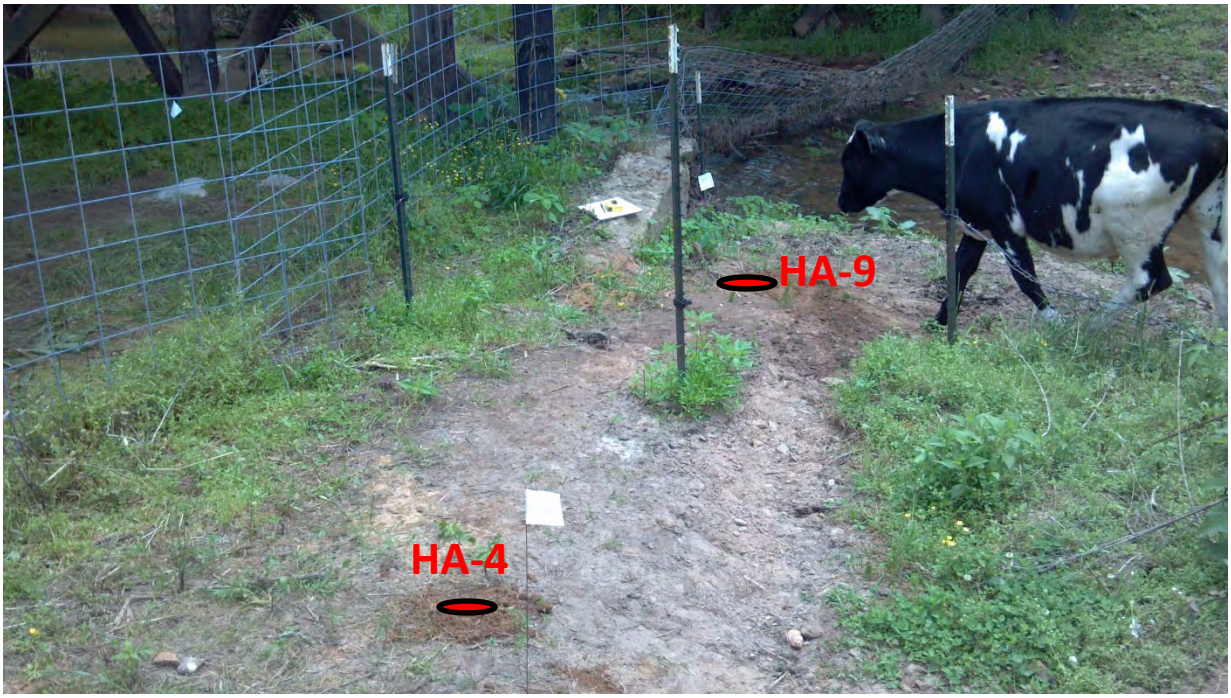

Photo #5: Locations of HA-4 and HA-9 advanced on the eastern side of the northern bent. The photo was taken from the north looking south.

Photo #6: Locations of HA-4 and HA-6 advanced on the eastern side of the northern bent. The photo was taken from the south looking north.

Photo #7: Asphalt pieces observed on the ground surface adjacent to the northern wing wall.

Photo #8: Asphalt pieces observed on the ground surface adjacent to the northern wing wall.

APPENDIX IV

LABORATORY AND QED ANALYTICAL RESULTS

Pace Analytical Services, Inc.
205 East Meadow Road - Suite A
Eden, NC 27288
(336)623-8921

Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

May 24, 2013

Chemical Testing Engineer
NCDOT
Materials & Tests Unit
1801 Blue Ridge Road
Raleigh, NC 27607

RE: Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

Dear Chemical Engineer:
Enclosed are the analytical results for sample(s) received by the laboratory on May 17, 2013. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kevin Herring

kevin.herring@pacelabs.com
Project Manager

Enclosures

cc: Michael Sabodish, F&R

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Pace Analytical Services, Inc.
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Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

Charlotte Certification IDs
9800 Kincey Ave. Ste 100, Huntersville, NC 28078
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12
South Carolina Certification #: 99006001
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
West Virginia Certification #: 357
Virginia/VELAP Certification #: 460221

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92158519001	**UPSTREAM**	Water	05/15/13 14:07	05/17/13 13:55
92158519002	**Downstream**	Water	05/15/13 14:37	05/17/13 13:55
92158519003	**TW-1**	Water	05/15/13 16:37	05/17/13 13:55
92158519004	**HA-1 1-2'**	Solid	05/15/13 13:32	05/17/13 13:55
92158519005	**HA-2 1-2'**	Solid	05/15/13 16:10	05/17/13 13:55
92158519006	**HA-3 2-3'**	Solid	05/16/13 09:17	05/17/13 13:55
92158519007	**HA-4 1-2'**	Solid	05/16/13 09:41	05/17/13 13:55
92158519008	**HA-5 3-4'**	Solid	05/16/13 10:31	05/17/13 13:55
92158519009	**HA-6 2-3'**	Solid	05/16/13 13:24	05/17/13 13:55
92158519010	**HA-7 2-3'**	Solid	05/16/13 11:40	05/17/13 13:55
92158519011	**HA-8 1-2'**	Solid	05/16/13 13:01	05/17/13 13:55
92158519012	**HA-9 1-2'**	Solid	05/16/13 13:07	05/17/13 13:55

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SAMPLE ANALYTE COUNT

Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92158519001	**UPSTREAM**	EPA 8270	BPJ	74	PASI-C
		EPA 8260	MCK	64	PASI-C
92158519002	**Downstream**	EPA 8270	BPJ	74	PASI-C
		EPA 8260	MCK	64	PASI-C
92158519003	**TW-1**	EPA 8270	BPJ	74	PASI-C
		EPA 8260	MCK	64	PASI-C
92158519004	**HA-1 1-2'**	EPA 8015 Modified	RES	2	PASI-C
		EPA 8015 Modified	RGF	2	PASI-C
		EPA 8270	BPJ	5	PASI-C
		ASTM D2974-87	JEA	1	PASI-C
92158519005	**HA-2 1-2'**	EPA 8015 Modified	RES	2	PASI-C
		EPA 8015 Modified	RGF	2	PASI-C
		EPA 8270	BPJ	5	PASI-C
		ASTM D2974-87	JEA	1	PASI-C
92158519006	**HA-3 2-3'**	EPA 8015 Modified	RES	2	PASI-C
		EPA 8015 Modified	RGF	2	PASI-C
		EPA 8270	BPJ	5	PASI-C
		ASTM D2974-87	JEA	1	PASI-C
92158519007	**HA-4 1-2'**	EPA 8015 Modified	RES	2	PASI-C
		EPA 8015 Modified	RGF	2	PASI-C
		EPA 8270	BPJ	5	PASI-C
		ASTM D2974-87	JEA	1	PASI-C
92158519008	**HA-5 3-4'**	EPA 8015 Modified	RES	2	PASI-C
		EPA 8015 Modified	RGF	2	PASI-C
		EPA 8270	BPJ	5	PASI-C
		ASTM D2974-87	JEA	1	PASI-C
92158519009	**HA-6 2-3'**	EPA 8015 Modified	RES	2	PASI-C
		EPA 8015 Modified	RGF	2	PASI-C
		EPA 8270	BPJ	5	PASI-C
		ASTM D2974-87	JEA	1	PASI-C
92158519010	**HA-7 2-3'**	EPA 8015 Modified	RES	2	PASI-C
		EPA 8015 Modified	RGF	2	PASI-C
		EPA 8270	BPJ	5	PASI-C
		ASTM D2974-87	JEA	1	PASI-C
92158519011	**HA-8 1-2'**	EPA 8015 Modified	RES	2	PASI-C
		EPA 8015 Modified	RGF	2	PASI-C
		EPA 8270	BPJ	5	PASI-C

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		ASTM D2974-87	JEA	1	PASI-C
92158519012	**HA-9 1-2'**	EPA 8015 Modified	RES	2	PASI-C
		EPA 8015 Modified	RGF	2	PASI-C
		EPA 8270	BPJ	5	PASI-C
		ASTM D2974-87	JEA	1	PASI-C

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

Sample: UPSTREAM **Lab ID: 92158519001** Collected: 05/15/13 14:07 Received: 05/17/13 13:55 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
Acenaphthene	ND	ug/L	10.0	0.25	1	05/20/13 07:40	05/23/13 07:13	83-32-9	
Acenaphthylene	ND	ug/L	10.0	0.21	1	05/20/13 07:40	05/23/13 07:13	208-96-8	
Aniline	ND	ug/L	10.0	2.0	1	05/20/13 07:40	05/23/13 07:13	62-53-3	
Anthracene	ND	ug/L	10.0	0.14	1	05/20/13 07:40	05/23/13 07:13	120-12-7	
Benzo(a)anthracene	ND	ug/L	10.0	0.33	1	05/20/13 07:40	05/23/13 07:13	56-55-3	
Benzo(a)pyrene	ND	ug/L	10.0	0.30	1	05/20/13 07:40	05/23/13 07:13	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	10.0	0.28	1	05/20/13 07:40	05/23/13 07:13	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	10.0	0.38	1	05/20/13 07:40	05/23/13 07:13	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	10.0	0.43	1	05/20/13 07:40	05/23/13 07:13	207-08-9	
Benzoic Acid	ND	ug/L	50.0	11.5	1	05/20/13 07:40	05/23/13 07:13	65-85-0	
Benzyl alcohol	ND	ug/L	20.0	2.4	1	05/20/13 07:40	05/23/13 07:13	100-51-6	
4-Bromophenylphenyl ether	ND	ug/L	10.0	0.82	1	05/20/13 07:40	05/23/13 07:13	101-55-3	
Butylbenzylphthalate	ND	ug/L	10.0	0.79	1	05/20/13 07:40	05/23/13 07:13	85-68-7	
4-Chloro-3-methylphenol	ND	ug/L	20.0	3.7	1	05/20/13 07:40	05/23/13 07:13	59-50-7	
4-Chloroaniline	ND	ug/L	20.0	2.8	1	05/20/13 07:40	05/23/13 07:13	106-47-8	
bis(2-Chloroethoxy)methane	ND	ug/L	10.0	0.92	1	05/20/13 07:40	05/23/13 07:13	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/L	10.0	1.0	1	05/20/13 07:40	05/23/13 07:13	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/L	10.0	0.95	1	05/20/13 07:40	05/23/13 07:13	108-60-1	
2-Chloronaphthalene	ND	ug/L	10.0	0.98	1	05/20/13 07:40	05/23/13 07:13	91-58-7	
2-Chlorophenol	ND	ug/L	10.0	1.3	1	05/20/13 07:40	05/23/13 07:13	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/L	10.0	0.87	1	05/20/13 07:40	05/23/13 07:13	7005-72-3	
Chrysene	ND	ug/L	10.0	0.21	1	05/20/13 07:40	05/23/13 07:13	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	10.0	0.55	1	05/20/13 07:40	05/23/13 07:13	53-70-3	
Dibenzofuran	ND	ug/L	10.0	0.89	1	05/20/13 07:40	05/23/13 07:13	132-64-9	
1,2-Dichlorobenzene	ND	ug/L	10.0	0.88	1	05/20/13 07:40	05/23/13 07:13	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	10.0	0.81	1	05/20/13 07:40	05/23/13 07:13	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	10.0	0.95	1	05/20/13 07:40	05/23/13 07:13	106-46-7	
3,3'-Dichlorobenzidine	ND	ug/L	20.0	2.1	1	05/20/13 07:40	05/23/13 07:13	91-94-1	
2,4-Dichlorophenol	ND	ug/L	10.0	1.7	1	05/20/13 07:40	05/23/13 07:13	120-83-2	
Diethylphthalate	ND	ug/L	10.0	0.58	1	05/20/13 07:40	05/23/13 07:13	84-66-2	
2,4-Dimethylphenol	ND	ug/L	10.0	1.2	1	05/20/13 07:40	05/23/13 07:13	105-67-9	
Dimethylphthalate	ND	ug/L	10.0	0.76	1	05/20/13 07:40	05/23/13 07:13	131-11-3	
Di-n-butylphthalate	ND	ug/L	10.0	0.75	1	05/20/13 07:40	05/23/13 07:13	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/L	20.0	2.6	1	05/20/13 07:40	05/23/13 07:13	534-52-1	
2,4-Dinitrophenol	ND	ug/L	50.0	9.0	1	05/20/13 07:40	05/23/13 07:13	51-28-5	
2,4-Dinitrotoluene	ND	ug/L	10.0	0.90	1	05/20/13 07:40	05/23/13 07:13	121-14-2	
2,6-Dinitrotoluene	ND	ug/L	10.0	0.98	1	05/20/13 07:40	05/23/13 07:13	606-20-2	
Di-n-octylphthalate	ND	ug/L	10.0	0.66	1	05/20/13 07:40	05/23/13 07:13	117-84-0	
bis(2-Ethylhexyl)phthalate	ND	ug/L	6.0	0.79	1	05/20/13 07:40	05/23/13 07:13	117-81-7	
Fluoranthene	ND	ug/L	10.0	0.21	1	05/20/13 07:40	05/23/13 07:13	206-44-0	
Fluorene	ND	ug/L	10.0	0.21	1	05/20/13 07:40	05/23/13 07:13	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/L	10.0	0.94	1	05/20/13 07:40	05/23/13 07:13	87-68-3	
Hexachlorobenzene	ND	ug/L	10.0	0.72	1	05/20/13 07:40	05/23/13 07:13	118-74-1	
Hexachlorocyclopentadiene	ND	ug/L	10.0	0.88	1	05/20/13 07:40	05/23/13 07:13	77-47-4	
Hexachloroethane	ND	ug/L	10.0	1.1	1	05/20/13 07:40	05/23/13 07:13	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/L	10.0	0.29	1	05/20/13 07:40	05/23/13 07:13	193-39-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

Sample: UPSTREAM **Lab ID: 92158519001** Collected: 05/15/13 14:07 Received: 05/17/13 13:55 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
Isophorone	ND	ug/L	10.0	0.89	1	05/20/13 07:40	05/23/13 07:13	78-59-1	
1-Methylnaphthalene	ND	ug/L	10.0	0.32	1	05/20/13 07:40	05/23/13 07:13	90-12-0	
2-Methylnaphthalene	ND	ug/L	10.0	0.28	1	05/20/13 07:40	05/23/13 07:13	91-57-6	
2-Methylphenol(o-Cresol)	ND	ug/L	10.0	1.6	1	05/20/13 07:40	05/23/13 07:13	95-48-7	
3&4-Methylphenol(m&p Cresol)	ND	ug/L	10.0	2.0	1	05/20/13 07:40	05/23/13 07:13		
Naphthalene	ND	ug/L	10.0	0.34	1	05/20/13 07:40	05/23/13 07:13	91-20-3	
2-Nitroaniline	ND	ug/L	50.0	2.0	1	05/20/13 07:40	05/23/13 07:13	88-74-4	
3-Nitroaniline	ND	ug/L	50.0	2.0	1	05/20/13 07:40	05/23/13 07:13	99-09-2	
4-Nitroaniline	ND	ug/L	20.0	2.1	1	05/20/13 07:40	05/23/13 07:13	100-01-6	
Nitrobenzene	ND	ug/L	10.0	1.1	1	05/20/13 07:40	05/23/13 07:13	98-95-3	
2-Nitrophenol	ND	ug/L	10.0	0.91	1	05/20/13 07:40	05/23/13 07:13	88-75-5	
4-Nitrophenol	ND	ug/L	50.0	4.1	1	05/20/13 07:40	05/23/13 07:13	100-02-7	
N-Nitrosodimethylamine	ND	ug/L	10.0	0.91	1	05/20/13 07:40	05/23/13 07:13	62-75-9	
N-Nitroso-di-n-propylamine	ND	ug/L	10.0	0.99	1	05/20/13 07:40	05/23/13 07:13	621-64-7	
N-Nitrosodiphenylamine	ND	ug/L	10.0	1.0	1	05/20/13 07:40	05/23/13 07:13	86-30-6	
Pentachlorophenol	ND	ug/L	25.0	4.6	1	05/20/13 07:40	05/23/13 07:13	87-86-5	
Phenanthrene	ND	ug/L	10.0	0.22	1	05/20/13 07:40	05/23/13 07:13	85-01-8	
Phenol	ND	ug/L	10.0	1.9	1	05/20/13 07:40	05/23/13 07:13	108-95-2	
Pyrene	ND	ug/L	10.0	0.19	1	05/20/13 07:40	05/23/13 07:13	129-00-0	
1,2,4-Trichlorobenzene	ND	ug/L	10.0	0.98	1	05/20/13 07:40	05/23/13 07:13	120-82-1	
2,4,5-Trichlorophenol	ND	ug/L	10.0	0.92	1	05/20/13 07:40	05/23/13 07:13	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	10.0	1.3	1	05/20/13 07:40	05/23/13 07:13	88-06-2	
Surrogates									
Nitrobenzene-d5 (S)	82	%	21-110		1	05/20/13 07:40	05/23/13 07:13	4165-60-0	
2-Fluorobiphenyl (S)	72	%	27-110		1	05/20/13 07:40	05/23/13 07:13	321-60-8	
Terphenyl-d14 (S)	81	%	31-107		1	05/20/13 07:40	05/23/13 07:13	1718-51-0	
Phenol-d6 (S)	31	%	10-110		1	05/20/13 07:40	05/23/13 07:13	13127-88-3	
2-Fluorophenol (S)	45	%	12-110		1	05/20/13 07:40	05/23/13 07:13	367-12-4	
2,4,6-Tribromophenol (S)	78	%	27-110		1	05/20/13 07:40	05/23/13 07:13	118-79-6	
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	ND	ug/L	25.0	10.0	1		05/21/13 02:15	67-64-1	
Benzene	ND	ug/L	1.0	0.25	1		05/21/13 02:15	71-43-2	
Bromobenzene	ND	ug/L	1.0	0.30	1		05/21/13 02:15	108-86-1	
Bromochloromethane	ND	ug/L	1.0	0.17	1		05/21/13 02:15	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		05/21/13 02:15	75-27-4	
Bromoform	ND	ug/L	1.0	0.26	1		05/21/13 02:15	75-25-2	
Bromomethane	ND	ug/L	2.0	0.29	1		05/21/13 02:15	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	0.96	1		05/21/13 02:15	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		05/21/13 02:15	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.23	1		05/21/13 02:15	108-90-7	
Chloroethane	ND	ug/L	1.0	0.54	1		05/21/13 02:15	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		05/21/13 02:15	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		05/21/13 02:15	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	0.35	1		05/21/13 02:15	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	0.31	1		05/21/13 02:15	106-43-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

Sample: UPSTREAM **Lab ID: 92158519001** Collected: 05/15/13 14:07 Received: 05/17/13 13:55 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	2.5	1		05/21/13 02:15	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		05/21/13 02:15	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	0.27	1		05/21/13 02:15	106-93-4	
Dibromomethane	ND	ug/L	1.0	0.21	1		05/21/13 02:15	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	0.30	1		05/21/13 02:15	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	0.24	1		05/21/13 02:15	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	0.33	1		05/21/13 02:15	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	0.21	1		05/21/13 02:15	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	0.32	1		05/21/13 02:15	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		05/21/13 02:15	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.56	1		05/21/13 02:15	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		05/21/13 02:15	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		05/21/13 02:15	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		05/21/13 02:15	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	0.28	1		05/21/13 02:15	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	0.13	1		05/21/13 02:15	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	0.49	1		05/21/13 02:15	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		05/21/13 02:15	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		05/21/13 02:15	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	0.12	1		05/21/13 02:15	108-20-3	
Ethylbenzene	ND	ug/L	1.0	0.30	1		05/21/13 02:15	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	0.71	1		05/21/13 02:15	87-68-3	
2-Hexanone	ND	ug/L	5.0	0.46	1		05/21/13 02:15	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	0.31	1		05/21/13 02:15	99-87-6	
Methylene Chloride	ND	ug/L	2.0	0.97	1		05/21/13 02:15	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.33	1		05/21/13 02:15	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	0.21	1		05/21/13 02:15	1634-04-4	
Naphthalene	ND	ug/L	1.0	0.24	1		05/21/13 02:15	91-20-3	
Styrene	ND	ug/L	1.0	0.26	1		05/21/13 02:15	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	0.33	1		05/21/13 02:15	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.40	1		05/21/13 02:15	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		05/21/13 02:15	127-18-4	
Toluene	ND	ug/L	1.0	0.26	1		05/21/13 02:15	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	0.33	1		05/21/13 02:15	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	0.35	1		05/21/13 02:15	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		05/21/13 02:15	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		05/21/13 02:15	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		05/21/13 02:15	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	0.20	1		05/21/13 02:15	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	0.41	1		05/21/13 02:15	96-18-4	
Vinyl acetate	ND	ug/L	2.0	0.35	1		05/21/13 02:15	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		05/21/13 02:15	75-01-4	
Xylene (Total)	ND	ug/L	2.0	0.66	1		05/21/13 02:15	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	0.66	1		05/21/13 02:15	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		05/21/13 02:15	95-47-6	

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ANALYTICAL RESULTS

Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

Sample: UPSTREAM **Lab ID: 92158519001** Collected: 05/15/13 14:07 Received: 05/17/13 13:55 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
Surrogates									
4-Bromofluorobenzene (S)	100	%	70-130		1		05/21/13 02:15	460-00-4	
Dibromofluoromethane (S)	101	%	70-130		1		05/21/13 02:15	1868-53-7	
1,2-Dichloroethane-d4 (S)	97	%	70-130		1		05/21/13 02:15	17060-07-0	
Toluene-d8 (S)	99	%	70-130		1		05/21/13 02:15	2037-26-5	

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ANALYTICAL RESULTS

Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

Sample: Downstream **Lab ID: 92158519002** Collected: 05/15/13 14:37 Received: 05/17/13 13:55 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
Acenaphthene	ND	ug/L	10.0	0.25	1	05/20/13 07:40	05/23/13 07:40	83-32-9	
Acenaphthylene	ND	ug/L	10.0	0.21	1	05/20/13 07:40	05/23/13 07:40	208-96-8	
Aniline	ND	ug/L	10.0	2.0	1	05/20/13 07:40	05/23/13 07:40	62-53-3	
Anthracene	ND	ug/L	10.0	0.14	1	05/20/13 07:40	05/23/13 07:40	120-12-7	
Benzo(a)anthracene	ND	ug/L	10.0	0.33	1	05/20/13 07:40	05/23/13 07:40	56-55-3	
Benzo(a)pyrene	ND	ug/L	10.0	0.30	1	05/20/13 07:40	05/23/13 07:40	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	10.0	0.28	1	05/20/13 07:40	05/23/13 07:40	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	10.0	0.38	1	05/20/13 07:40	05/23/13 07:40	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	10.0	0.43	1	05/20/13 07:40	05/23/13 07:40	207-08-9	
Benzoic Acid	ND	ug/L	50.0	11.5	1	05/20/13 07:40	05/23/13 07:40	65-85-0	
Benzyl alcohol	ND	ug/L	20.0	2.4	1	05/20/13 07:40	05/23/13 07:40	100-51-6	
4-Bromophenylphenyl ether	ND	ug/L	10.0	0.82	1	05/20/13 07:40	05/23/13 07:40	101-55-3	
Butylbenzylphthalate	ND	ug/L	10.0	0.79	1	05/20/13 07:40	05/23/13 07:40	85-68-7	
4-Chloro-3-methylphenol	ND	ug/L	20.0	3.7	1	05/20/13 07:40	05/23/13 07:40	59-50-7	
4-Chloroaniline	ND	ug/L	20.0	2.8	1	05/20/13 07:40	05/23/13 07:40	106-47-8	
bis(2-Chloroethoxy)methane	ND	ug/L	10.0	0.92	1	05/20/13 07:40	05/23/13 07:40	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/L	10.0	1.0	1	05/20/13 07:40	05/23/13 07:40	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/L	10.0	0.95	1	05/20/13 07:40	05/23/13 07:40	108-60-1	
2-Chloronaphthalene	ND	ug/L	10.0	0.98	1	05/20/13 07:40	05/23/13 07:40	91-58-7	
2-Chlorophenol	ND	ug/L	10.0	1.3	1	05/20/13 07:40	05/23/13 07:40	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/L	10.0	0.87	1	05/20/13 07:40	05/23/13 07:40	7005-72-3	
Chrysene	ND	ug/L	10.0	0.21	1	05/20/13 07:40	05/23/13 07:40	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	10.0	0.55	1	05/20/13 07:40	05/23/13 07:40	53-70-3	
Dibenzofuran	ND	ug/L	10.0	0.89	1	05/20/13 07:40	05/23/13 07:40	132-64-9	
1,2-Dichlorobenzene	ND	ug/L	10.0	0.88	1	05/20/13 07:40	05/23/13 07:40	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	10.0	0.81	1	05/20/13 07:40	05/23/13 07:40	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	10.0	0.95	1	05/20/13 07:40	05/23/13 07:40	106-46-7	
3,3'-Dichlorobenzidine	ND	ug/L	20.0	2.1	1	05/20/13 07:40	05/23/13 07:40	91-94-1	
2,4-Dichlorophenol	ND	ug/L	10.0	1.7	1	05/20/13 07:40	05/23/13 07:40	120-83-2	
Diethylphthalate	ND	ug/L	10.0	0.58	1	05/20/13 07:40	05/23/13 07:40	84-66-2	
2,4-Dimethylphenol	ND	ug/L	10.0	1.2	1	05/20/13 07:40	05/23/13 07:40	105-67-9	
Dimethylphthalate	ND	ug/L	10.0	0.76	1	05/20/13 07:40	05/23/13 07:40	131-11-3	
Di-n-butylphthalate	ND	ug/L	10.0	0.75	1	05/20/13 07:40	05/23/13 07:40	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/L	20.0	2.6	1	05/20/13 07:40	05/23/13 07:40	534-52-1	
2,4-Dinitrophenol	ND	ug/L	50.0	9.0	1	05/20/13 07:40	05/23/13 07:40	51-28-5	
2,4-Dinitrotoluene	ND	ug/L	10.0	0.90	1	05/20/13 07:40	05/23/13 07:40	121-14-2	
2,6-Dinitrotoluene	ND	ug/L	10.0	0.98	1	05/20/13 07:40	05/23/13 07:40	606-20-2	
Di-n-octylphthalate	ND	ug/L	10.0	0.66	1	05/20/13 07:40	05/23/13 07:40	117-84-0	
bis(2-Ethylhexyl)phthalate	ND	ug/L	6.0	0.79	1	05/20/13 07:40	05/23/13 07:40	117-81-7	
Fluoranthene	ND	ug/L	10.0	0.21	1	05/20/13 07:40	05/23/13 07:40	206-44-0	
Fluorene	ND	ug/L	10.0	0.21	1	05/20/13 07:40	05/23/13 07:40	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/L	10.0	0.94	1	05/20/13 07:40	05/23/13 07:40	87-68-3	
Hexachlorobenzene	ND	ug/L	10.0	0.72	1	05/20/13 07:40	05/23/13 07:40	118-74-1	
Hexachlorocyclopentadiene	ND	ug/L	10.0	0.88	1	05/20/13 07:40	05/23/13 07:40	77-47-4	
Hexachloroethane	ND	ug/L	10.0	1.1	1	05/20/13 07:40	05/23/13 07:40	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/L	10.0	0.29	1	05/20/13 07:40	05/23/13 07:40	193-39-5	

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ANALYTICAL RESULTS

Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

Sample: Downstream **Lab ID: 92158519002** Collected: 05/15/13 14:37 Received: 05/17/13 13:55 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
Isophorone	ND	ug/L	10.0	0.89	1	05/20/13 07:40	05/23/13 07:40	78-59-1	
1-Methylnaphthalene	ND	ug/L	10.0	0.32	1	05/20/13 07:40	05/23/13 07:40	90-12-0	
2-Methylnaphthalene	ND	ug/L	10.0	0.28	1	05/20/13 07:40	05/23/13 07:40	91-57-6	
2-Methylphenol(o-Cresol)	ND	ug/L	10.0	1.6	1	05/20/13 07:40	05/23/13 07:40	95-48-7	
3&4-Methylphenol(m&p Cresol)	ND	ug/L	10.0	2.0	1	05/20/13 07:40	05/23/13 07:40		
Naphthalene	ND	ug/L	10.0	0.34	1	05/20/13 07:40	05/23/13 07:40	91-20-3	
2-Nitroaniline	ND	ug/L	50.0	2.0	1	05/20/13 07:40	05/23/13 07:40	88-74-4	
3-Nitroaniline	ND	ug/L	50.0	2.0	1	05/20/13 07:40	05/23/13 07:40	99-09-2	
4-Nitroaniline	ND	ug/L	20.0	2.1	1	05/20/13 07:40	05/23/13 07:40	100-01-6	
Nitrobenzene	ND	ug/L	10.0	1.1	1	05/20/13 07:40	05/23/13 07:40	98-95-3	
2-Nitrophenol	ND	ug/L	10.0	0.91	1	05/20/13 07:40	05/23/13 07:40	88-75-5	
4-Nitrophenol	ND	ug/L	50.0	4.1	1	05/20/13 07:40	05/23/13 07:40	100-02-7	
N-Nitrosodimethylamine	ND	ug/L	10.0	0.91	1	05/20/13 07:40	05/23/13 07:40	62-75-9	
N-Nitroso-di-n-propylamine	ND	ug/L	10.0	0.99	1	05/20/13 07:40	05/23/13 07:40	621-64-7	
N-Nitrosodiphenylamine	ND	ug/L	10.0	1.0	1	05/20/13 07:40	05/23/13 07:40	86-30-6	
Pentachlorophenol	ND	ug/L	25.0	4.6	1	05/20/13 07:40	05/23/13 07:40	87-86-5	
Phenanthrene	ND	ug/L	10.0	0.22	1	05/20/13 07:40	05/23/13 07:40	85-01-8	
Phenol	ND	ug/L	10.0	1.9	1	05/20/13 07:40	05/23/13 07:40	108-95-2	
Pyrene	ND	ug/L	10.0	0.19	1	05/20/13 07:40	05/23/13 07:40	129-00-0	
1,2,4-Trichlorobenzene	ND	ug/L	10.0	0.98	1	05/20/13 07:40	05/23/13 07:40	120-82-1	
2,4,5-Trichlorophenol	ND	ug/L	10.0	0.92	1	05/20/13 07:40	05/23/13 07:40	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	10.0	1.3	1	05/20/13 07:40	05/23/13 07:40	88-06-2	
Surrogates									
Nitrobenzene-d5 (S)	87	%	21-110		1	05/20/13 07:40	05/23/13 07:40	4165-60-0	
2-Fluorobiphenyl (S)	83	%	27-110		1	05/20/13 07:40	05/23/13 07:40	321-60-8	
Terphenyl-d14 (S)	88	%	31-107		1	05/20/13 07:40	05/23/13 07:40	1718-51-0	
Phenol-d6 (S)	37	%	10-110		1	05/20/13 07:40	05/23/13 07:40	13127-88-3	
2-Fluorophenol (S)	53	%	12-110		1	05/20/13 07:40	05/23/13 07:40	367-12-4	
2,4,6-Tribromophenol (S)	81	%	27-110		1	05/20/13 07:40	05/23/13 07:40	118-79-6	
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	ND	ug/L	25.0	10.0	1		05/21/13 02:30	67-64-1	
Benzene	ND	ug/L	1.0	0.25	1		05/21/13 02:30	71-43-2	
Bromobenzene	ND	ug/L	1.0	0.30	1		05/21/13 02:30	108-86-1	
Bromochloromethane	ND	ug/L	1.0	0.17	1		05/21/13 02:30	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		05/21/13 02:30	75-27-4	
Bromoform	ND	ug/L	1.0	0.26	1		05/21/13 02:30	75-25-2	
Bromomethane	ND	ug/L	2.0	0.29	1		05/21/13 02:30	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	0.96	1		05/21/13 02:30	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		05/21/13 02:30	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.23	1		05/21/13 02:30	108-90-7	
Chloroethane	ND	ug/L	1.0	0.54	1		05/21/13 02:30	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		05/21/13 02:30	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		05/21/13 02:30	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	0.35	1		05/21/13 02:30	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	0.31	1		05/21/13 02:30	106-43-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

Sample: Downstream **Lab ID: 92158519002** Collected: 05/15/13 14:37 Received: 05/17/13 13:55 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	2.5	1		05/21/13 02:30	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		05/21/13 02:30	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	0.27	1		05/21/13 02:30	106-93-4	
Dibromomethane	ND	ug/L	1.0	0.21	1		05/21/13 02:30	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	0.30	1		05/21/13 02:30	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	0.24	1		05/21/13 02:30	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	0.33	1		05/21/13 02:30	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	0.21	1		05/21/13 02:30	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	0.32	1		05/21/13 02:30	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		05/21/13 02:30	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.56	1		05/21/13 02:30	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		05/21/13 02:30	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		05/21/13 02:30	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		05/21/13 02:30	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	0.28	1		05/21/13 02:30	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	0.13	1		05/21/13 02:30	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	0.49	1		05/21/13 02:30	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		05/21/13 02:30	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		05/21/13 02:30	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	0.12	1		05/21/13 02:30	108-20-3	
Ethylbenzene	ND	ug/L	1.0	0.30	1		05/21/13 02:30	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	0.71	1		05/21/13 02:30	87-68-3	
2-Hexanone	ND	ug/L	5.0	0.46	1		05/21/13 02:30	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	0.31	1		05/21/13 02:30	99-87-6	
Methylene Chloride	ND	ug/L	2.0	0.97	1		05/21/13 02:30	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.33	1		05/21/13 02:30	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	0.21	1		05/21/13 02:30	1634-04-4	
Naphthalene	ND	ug/L	1.0	0.24	1		05/21/13 02:30	91-20-3	
Styrene	ND	ug/L	1.0	0.26	1		05/21/13 02:30	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	0.33	1		05/21/13 02:30	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.40	1		05/21/13 02:30	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		05/21/13 02:30	127-18-4	
Toluene	ND	ug/L	1.0	0.26	1		05/21/13 02:30	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	0.33	1		05/21/13 02:30	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	0.35	1		05/21/13 02:30	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		05/21/13 02:30	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		05/21/13 02:30	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		05/21/13 02:30	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	0.20	1		05/21/13 02:30	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	0.41	1		05/21/13 02:30	96-18-4	
Vinyl acetate	ND	ug/L	2.0	0.35	1		05/21/13 02:30	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		05/21/13 02:30	75-01-4	
Xylene (Total)	ND	ug/L	2.0	0.66	1		05/21/13 02:30	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	0.66	1		05/21/13 02:30	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		05/21/13 02:30	95-47-6	

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ANALYTICAL RESULTS

Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

Sample: Downstream **Lab ID: 92158519002** Collected: 05/15/13 14:37 Received: 05/17/13 13:55 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
Surrogates									
4-Bromofluorobenzene (S)	99	%	70-130		1		05/21/13 02:30	460-00-4	
Dibromofluoromethane (S)	110	%	70-130		1		05/21/13 02:30	1868-53-7	
1,2-Dichloroethane-d4 (S)	100	%	70-130		1		05/21/13 02:30	17060-07-0	
Toluene-d8 (S)	97	%	70-130		1		05/21/13 02:30	2037-26-5	

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ANALYTICAL RESULTS

Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

Sample: TW-1 **Lab ID: 92158519003** Collected: 05/15/13 16:37 Received: 05/17/13 13:55 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
Acenaphthene	**35.7**	ug/L	10.0	0.25	1	05/20/13 07:40	05/23/13 08:07	83-32-9	
Acenaphthylene	ND	ug/L	10.0	0.21	1	05/20/13 07:40	05/23/13 08:07	208-96-8	
Aniline	ND	ug/L	10.0	2.0	1	05/20/13 07:40	05/23/13 08:07	62-53-3	
Anthracene	**1.5J**	ug/L	10.0	0.14	1	05/20/13 07:40	05/23/13 08:07	120-12-7	
Benzo(a)anthracene	ND	ug/L	10.0	0.33	1	05/20/13 07:40	05/23/13 08:07	56-55-3	
Benzo(a)pyrene	ND	ug/L	10.0	0.30	1	05/20/13 07:40	05/23/13 08:07	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	10.0	0.28	1	05/20/13 07:40	05/23/13 08:07	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	10.0	0.38	1	05/20/13 07:40	05/23/13 08:07	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	10.0	0.43	1	05/20/13 07:40	05/23/13 08:07	207-08-9	
Benzoic Acid	ND	ug/L	50.0	11.5	1	05/20/13 07:40	05/23/13 08:07	65-85-0	
Benzyl alcohol	ND	ug/L	20.0	2.4	1	05/20/13 07:40	05/23/13 08:07	100-51-6	
4-Bromophenylphenyl ether	ND	ug/L	10.0	0.82	1	05/20/13 07:40	05/23/13 08:07	101-55-3	
Butylbenzylphthalate	ND	ug/L	10.0	0.79	1	05/20/13 07:40	05/23/13 08:07	85-68-7	
4-Chloro-3-methylphenol	ND	ug/L	20.0	3.7	1	05/20/13 07:40	05/23/13 08:07	59-50-7	
4-Chloroaniline	ND	ug/L	20.0	2.8	1	05/20/13 07:40	05/23/13 08:07	106-47-8	
bis(2-Chloroethoxy)methane	ND	ug/L	10.0	0.92	1	05/20/13 07:40	05/23/13 08:07	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/L	10.0	1.0	1	05/20/13 07:40	05/23/13 08:07	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/L	10.0	0.95	1	05/20/13 07:40	05/23/13 08:07	108-60-1	
2-Chloronaphthalene	ND	ug/L	10.0	0.98	1	05/20/13 07:40	05/23/13 08:07	91-58-7	
2-Chlorophenol	ND	ug/L	10.0	1.3	1	05/20/13 07:40	05/23/13 08:07	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/L	10.0	0.87	1	05/20/13 07:40	05/23/13 08:07	7005-72-3	
Chrysene	ND	ug/L	10.0	0.21	1	05/20/13 07:40	05/23/13 08:07	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	10.0	0.55	1	05/20/13 07:40	05/23/13 08:07	53-70-3	
Dibenzofuran	**12.3**	ug/L	10.0	0.89	1	05/20/13 07:40	05/23/13 08:07	132-64-9	
1,2-Dichlorobenzene	ND	ug/L	10.0	0.88	1	05/20/13 07:40	05/23/13 08:07	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	10.0	0.81	1	05/20/13 07:40	05/23/13 08:07	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	10.0	0.95	1	05/20/13 07:40	05/23/13 08:07	106-46-7	
3,3'-Dichlorobenzidine	ND	ug/L	20.0	2.1	1	05/20/13 07:40	05/23/13 08:07	91-94-1	
2,4-Dichlorophenol	ND	ug/L	10.0	1.7	1	05/20/13 07:40	05/23/13 08:07	120-83-2	
Diethylphthalate	ND	ug/L	10.0	0.58	1	05/20/13 07:40	05/23/13 08:07	84-66-2	
2,4-Dimethylphenol	ND	ug/L	10.0	1.2	1	05/20/13 07:40	05/23/13 08:07	105-67-9	
Dimethylphthalate	ND	ug/L	10.0	0.76	1	05/20/13 07:40	05/23/13 08:07	131-11-3	
Di-n-butylphthalate	ND	ug/L	10.0	0.75	1	05/20/13 07:40	05/23/13 08:07	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/L	20.0	2.6	1	05/20/13 07:40	05/23/13 08:07	534-52-1	
2,4-Dinitrophenol	ND	ug/L	50.0	9.0	1	05/20/13 07:40	05/23/13 08:07	51-28-5	
2,4-Dinitrotoluene	ND	ug/L	10.0	0.90	1	05/20/13 07:40	05/23/13 08:07	121-14-2	
2,6-Dinitrotoluene	ND	ug/L	10.0	0.98	1	05/20/13 07:40	05/23/13 08:07	606-20-2	
Di-n-octylphthalate	ND	ug/L	10.0	0.66	1	05/20/13 07:40	05/23/13 08:07	117-84-0	
bis(2-Ethylhexyl)phthalate	**1.2J**	ug/L	6.0	0.79	1	05/20/13 07:40	05/23/13 08:07	117-81-7	
Fluoranthene	**5.5J**	ug/L	10.0	0.21	1	05/20/13 07:40	05/23/13 08:07	206-44-0	
Fluorene	**14.7**	ug/L	10.0	0.21	1	05/20/13 07:40	05/23/13 08:07	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/L	10.0	0.94	1	05/20/13 07:40	05/23/13 08:07	87-68-3	
Hexachlorobenzene	ND	ug/L	10.0	0.72	1	05/20/13 07:40	05/23/13 08:07	118-74-1	
Hexachlorocyclopentadiene	ND	ug/L	10.0	0.88	1	05/20/13 07:40	05/23/13 08:07	77-47-4	
Hexachloroethane	ND	ug/L	10.0	1.1	1	05/20/13 07:40	05/23/13 08:07	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/L	10.0	0.29	1	05/20/13 07:40	05/23/13 08:07	193-39-5	

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ANALYTICAL RESULTS

Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

Sample: TW-1 **Lab ID: 92158519003** Collected: 05/15/13 16:37 Received: 05/17/13 13:55 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
Isophorone	ND	ug/L	10.0	0.89	1	05/20/13 07:40	05/23/13 08:07	78-59-1	
1-Methylnaphthalene	**3.4J**	ug/L	10.0	0.32	1	05/20/13 07:40	05/23/13 08:07	90-12-0	
2-Methylnaphthalene	ND	ug/L	10.0	0.28	1	05/20/13 07:40	05/23/13 08:07	91-57-6	
2-Methylphenol(o-Cresol)	ND	ug/L	10.0	1.6	1	05/20/13 07:40	05/23/13 08:07	95-48-7	
3&4-Methylphenol(m&p Cresol)	ND	ug/L	10.0	2.0	1	05/20/13 07:40	05/23/13 08:07		
Naphthalene	**2.7J**	ug/L	10.0	0.34	1	05/20/13 07:40	05/23/13 08:07	91-20-3	
2-Nitroaniline	ND	ug/L	50.0	2.0	1	05/20/13 07:40	05/23/13 08:07	88-74-4	
3-Nitroaniline	ND	ug/L	50.0	2.0	1	05/20/13 07:40	05/23/13 08:07	99-09-2	
4-Nitroaniline	ND	ug/L	20.0	2.1	1	05/20/13 07:40	05/23/13 08:07	100-01-6	
Nitrobenzene	ND	ug/L	10.0	1.1	1	05/20/13 07:40	05/23/13 08:07	98-95-3	
2-Nitrophenol	ND	ug/L	10.0	0.91	1	05/20/13 07:40	05/23/13 08:07	88-75-5	
4-Nitrophenol	ND	ug/L	50.0	4.1	1	05/20/13 07:40	05/23/13 08:07	100-02-7	
N-Nitrosodimethylamine	ND	ug/L	10.0	0.91	1	05/20/13 07:40	05/23/13 08:07	62-75-9	
N-Nitroso-di-n-propylamine	ND	ug/L	10.0	0.99	1	05/20/13 07:40	05/23/13 08:07	621-64-7	
N-Nitrosodiphenylamine	ND	ug/L	10.0	1.0	1	05/20/13 07:40	05/23/13 08:07	86-30-6	
Pentachlorophenol	ND	ug/L	25.0	4.6	1	05/20/13 07:40	05/23/13 08:07	87-86-5	
Phenanthrene	**22.9**	ug/L	10.0	0.22	1	05/20/13 07:40	05/23/13 08:07	85-01-8	
Phenol	ND	ug/L	10.0	1.9	1	05/20/13 07:40	05/23/13 08:07	108-95-2	
Pyrene	**2.6J**	ug/L	10.0	0.19	1	05/20/13 07:40	05/23/13 08:07	129-00-0	
1,2,4-Trichlorobenzene	ND	ug/L	10.0	0.98	1	05/20/13 07:40	05/23/13 08:07	120-82-1	
2,4,5-Trichlorophenol	ND	ug/L	10.0	0.92	1	05/20/13 07:40	05/23/13 08:07	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	10.0	1.3	1	05/20/13 07:40	05/23/13 08:07	88-06-2	
Surrogates									
Nitrobenzene-d5 (S)	63	%	21-110		1	05/20/13 07:40	05/23/13 08:07	4165-60-0	
2-Fluorobiphenyl (S)	58	%	27-110		1	05/20/13 07:40	05/23/13 08:07	321-60-8	
Terphenyl-d14 (S)	44	%	31-107		1	05/20/13 07:40	05/23/13 08:07	1718-51-0	
Phenol-d6 (S)	25	%	10-110		1	05/20/13 07:40	05/23/13 08:07	13127-88-3	
2-Fluorophenol (S)	37	%	12-110		1	05/20/13 07:40	05/23/13 08:07	367-12-4	
2,4,6-Tribromophenol (S)	63	%	27-110		1	05/20/13 07:40	05/23/13 08:07	118-79-6	
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	ND	ug/L	25.0	10.0	1		05/21/13 02:46	67-64-1	
Benzene	ND	ug/L	1.0	0.25	1		05/21/13 02:46	71-43-2	
Bromobenzene	ND	ug/L	1.0	0.30	1		05/21/13 02:46	108-86-1	
Bromochloromethane	ND	ug/L	1.0	0.17	1		05/21/13 02:46	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		05/21/13 02:46	75-27-4	
Bromoform	ND	ug/L	1.0	0.26	1		05/21/13 02:46	75-25-2	
Bromomethane	ND	ug/L	2.0	0.29	1		05/21/13 02:46	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	0.96	1		05/21/13 02:46	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		05/21/13 02:46	56-23-5	
Chlorobenzene	ND	ug/L	1.0	0.23	1		05/21/13 02:46	108-90-7	
Chloroethane	ND	ug/L	1.0	0.54	1		05/21/13 02:46	75-00-3	
Chloroform	ND	ug/L	1.0	0.14	1		05/21/13 02:46	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		05/21/13 02:46	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	0.35	1		05/21/13 02:46	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	0.31	1		05/21/13 02:46	106-43-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

Sample: TW-1 **Lab ID: 92158519003** Collected: 05/15/13 16:37 Received: 05/17/13 13:55 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0	2.5	1		05/21/13 02:46	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	0.21	1		05/21/13 02:46	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	0.27	1		05/21/13 02:46	106-93-4	
Dibromomethane	ND	ug/L	1.0	0.21	1		05/21/13 02:46	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	0.30	1		05/21/13 02:46	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	0.24	1		05/21/13 02:46	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	0.33	1		05/21/13 02:46	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	0.21	1		05/21/13 02:46	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	0.32	1		05/21/13 02:46	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		05/21/13 02:46	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.56	1		05/21/13 02:46	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		05/21/13 02:46	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		05/21/13 02:46	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		05/21/13 02:46	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	0.28	1		05/21/13 02:46	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	0.13	1		05/21/13 02:46	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	0.49	1		05/21/13 02:46	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		05/21/13 02:46	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		05/21/13 02:46	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	0.12	1		05/21/13 02:46	108-20-3	
Ethylbenzene	ND	ug/L	1.0	0.30	1		05/21/13 02:46	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	0.71	1		05/21/13 02:46	87-68-3	
2-Hexanone	ND	ug/L	5.0	0.46	1		05/21/13 02:46	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	0.31	1		05/21/13 02:46	99-87-6	
Methylene Chloride	ND	ug/L	2.0	0.97	1		05/21/13 02:46	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	0.33	1		05/21/13 02:46	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	0.21	1		05/21/13 02:46	1634-04-4	
Naphthalene	**5.2**	ug/L	1.0	0.24	1		05/21/13 02:46	91-20-3	
Styrene	ND	ug/L	1.0	0.26	1		05/21/13 02:46	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	0.33	1		05/21/13 02:46	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.40	1		05/21/13 02:46	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		05/21/13 02:46	127-18-4	
Toluene	ND	ug/L	1.0	0.26	1		05/21/13 02:46	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	0.33	1		05/21/13 02:46	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	0.35	1		05/21/13 02:46	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		05/21/13 02:46	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		05/21/13 02:46	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		05/21/13 02:46	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	0.20	1		05/21/13 02:46	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	0.41	1		05/21/13 02:46	96-18-4	
Vinyl acetate	ND	ug/L	2.0	0.35	1		05/21/13 02:46	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		05/21/13 02:46	75-01-4	
Xylene (Total)	ND	ug/L	2.0	0.66	1		05/21/13 02:46	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	0.66	1		05/21/13 02:46	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		05/21/13 02:46	95-47-6	

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ANALYTICAL RESULTS

Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

Sample: TW-1 **Lab ID: 92158519003** Collected: 05/15/13 16:37 Received: 05/17/13 13:55 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
Surrogates									
4-Bromofluorobenzene (S)	99	%	70-130		1		05/21/13 02:46	460-00-4	
Dibromofluoromethane (S)	107	%	70-130		1		05/21/13 02:46	1868-53-7	
1,2-Dichloroethane-d4 (S)	106	%	70-130		1		05/21/13 02:46	17060-07-0	
Toluene-d8 (S)	98	%	70-130		1		05/21/13 02:46	2037-26-5	

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ANALYTICAL RESULTS

Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

Sample: HA-1 1-2' **Lab ID: 92158519004** Collected: 05/15/13 13:32 Received: 05/17/13 13:55 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel	Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546								
Diesel Components	**264**	mg/kg	5.6	5.1	1	05/17/13 17:20	05/21/13 15:37	68334-30-5	
Surrogates									
n-Pentacosane (S)	112	%	41-119		1	05/17/13 17:20	05/21/13 15:37	629-99-2	
Gasoline Range Organics	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B								
Gasoline Range Organics	ND	mg/kg	6.0	6.0	1	05/20/13 10:15	05/20/13 15:07	8006-61-9	
Surrogates									
4-Bromofluorobenzene (S)	100	%	70-167		1	05/20/13 10:15	05/20/13 15:07	460-00-4	
8270 MSSV Microwave	Analytical Method: EPA 8270 Preparation Method: EPA 3546								
2-Methylphenol(o-Cresol)	ND	ug/kg	372	113	1	05/19/13 08:50	05/20/13 16:46	95-48-7	
3&4-Methylphenol(m&p Cresol)	ND	ug/kg	372	147	1	05/19/13 08:50	05/20/13 16:46		
Surrogates									
Phenol-d6 (S)	79	%	22-110		1	05/19/13 08:50	05/20/13 16:46	13127-88-3	
2-Fluorophenol (S)	61	%	13-110		1	05/19/13 08:50	05/20/13 16:46	367-12-4	
2,4,6-Tribromophenol (S)	63	%	27-110		1	05/19/13 08:50	05/20/13 16:46	118-79-6	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**11.4**	%	0.10	0.10	1		05/20/13 16:07		

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ANALYTICAL RESULTS

Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

Sample: HA-2 1-2' **Lab ID: 92158519005** Collected: 05/15/13 16:10 Received: 05/17/13 13:55 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel	Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546								
Diesel Components	**46.2**	mg/kg	6.1	5.4	1	05/17/13 17:20	05/21/13 15:37	68334-30-5	
Surrogates									
n-Pentacosane (S)	93	%	41-119		1	05/17/13 17:20	05/21/13 15:37	629-99-2	
Gasoline Range Organics	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B								
Gasoline Range Organics	ND	mg/kg	5.4	5.4	1	05/20/13 10:15	05/20/13 16:24	8006-61-9	
Surrogates									
4-Bromofluorobenzene (S)	99	%	70-167		1	05/20/13 10:15	05/20/13 16:24	460-00-4	
8270 MSSV Microwave	Analytical Method: EPA 8270 Preparation Method: EPA 3546								
2-Methylphenol(o-Cresol)	ND	ug/kg	400	121	1	05/19/13 08:50	05/20/13 17:14	95-48-7	
3&4-Methylphenol(m&p Cresol)	ND	ug/kg	400	157	1	05/19/13 08:50	05/20/13 17:14		
Surrogates									
Phenol-d6 (S)	64	%	22-110		1	05/19/13 08:50	05/20/13 17:14	13127-88-3	
2-Fluorophenol (S)	60	%	13-110		1	05/19/13 08:50	05/20/13 17:14	367-12-4	
2,4,6-Tribromophenol (S)	65	%	27-110		1	05/19/13 08:50	05/20/13 17:14	118-79-6	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**17.4**	%	0.10	0.10	1		05/20/13 16:07		

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ANALYTICAL RESULTS

Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

Sample: HA-3 2-3' **Lab ID: 92158519006** Collected: 05/16/13 09:17 Received: 05/17/13 13:55 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel	Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546								
Diesel Components	**1060**	mg/kg	22.9	20.6	4	05/17/13 17:20	05/21/13 11:00	68334-30-5	
Surrogates									
n-Pentacosane (S)	142	%	41-119		4	05/17/13 17:20	05/21/13 11:00	629-99-2	S5
Gasoline Range Organics	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B								
Gasoline Range Organics	ND	mg/kg	5.5	5.5	1	05/20/13 10:15	05/20/13 16:50	8006-61-9	
Surrogates									
4-Bromofluorobenzene (S)	98	%	70-167		1	05/20/13 10:15	05/20/13 16:50	460-00-4	
8270 MSSV Microwave	Analytical Method: EPA 8270 Preparation Method: EPA 3546								
2-Methylphenol(o-Cresol)	ND	ug/kg	3790	1150	10	05/19/13 08:50	05/21/13 14:41	95-48-7	
3&4-Methylphenol(m&p Cresol)	ND	ug/kg	3790	1490	10	05/19/13 08:50	05/21/13 14:41		
Surrogates									
Phenol-d6 (S)	0	%	22-110		10	05/19/13 08:50	05/21/13 14:41	13127-88-3	D3,S4
2-Fluorophenol (S)	0	%	13-110		10	05/19/13 08:50	05/21/13 14:41	367-12-4	
2,4,6-Tribromophenol (S)	0	%	27-110		10	05/19/13 08:50	05/21/13 14:41	118-79-6	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**12.8**	%	0.10	0.10	1		05/20/13 16:07		

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ANALYTICAL RESULTS

Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

Sample: HA-4 1-2' **Lab ID: 92158519007** Collected: 05/16/13 09:41 Received: 05/17/13 13:55 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel	Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546								
Diesel Components	ND	mg/kg	5.6	5.1	1	05/17/13 17:20	05/21/13 16:00	68334-30-5	
Surrogates									
n-Pentacosane (S)	95	%	41-119		1	05/17/13 17:20	05/21/13 16:00	629-99-2	
Gasoline Range Organics	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B								
Gasoline Range Organics	ND	mg/kg	6.1	6.1	1	05/20/13 10:15	05/20/13 17:16	8006-61-9	
Surrogates									
4-Bromofluorobenzene (S)	98	%	70-167		1	05/20/13 10:15	05/20/13 17:16	460-00-4	
8270 MSSV Microwave	Analytical Method: EPA 8270 Preparation Method: EPA 3546								
2-Methylphenol(o-Cresol)	ND	ug/kg	373	113	1	05/19/13 08:50	05/20/13 18:10	95-48-7	
3&4-Methylphenol(m&p Cresol)	ND	ug/kg	373	147	1	05/19/13 08:50	05/20/13 18:10		
Surrogates									
Phenol-d6 (S)	47	%	22-110		1	05/19/13 08:50	05/20/13 18:10	13127-88-3	
2-Fluorophenol (S)	46	%	13-110		1	05/19/13 08:50	05/20/13 18:10	367-12-4	
2,4,6-Tribromophenol (S)	43	%	27-110		1	05/19/13 08:50	05/20/13 18:10	118-79-6	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**11.4**	%	0.10	0.10	1		05/20/13 16:07		

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ANALYTICAL RESULTS

Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

Sample: HA-5 3-4' **Lab ID: 92158519008** Collected: 05/16/13 10:31 Received: 05/17/13 13:55 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel	Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546								
Diesel Components	ND	mg/kg	6.3	5.7	1	05/17/13 17:20	05/21/13 16:00	68334-30-5	
Surrogates									
n-Pentacosane (S)	90	%	41-119		1	05/17/13 17:20	05/21/13 16:00	629-99-2	
Gasoline Range Organics	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B								
Gasoline Range Organics	ND	mg/kg	5.8	5.8	1	05/20/13 10:15	05/20/13 17:41	8006-61-9	
Surrogates									
4-Bromofluorobenzene (S)	95	%	70-167		1	05/20/13 10:15	05/20/13 17:41	460-00-4	
8270 MSSV Microwave	Analytical Method: EPA 8270 Preparation Method: EPA 3546								
2-Methylphenol(o-Cresol)	ND	ug/kg	419	127	1	05/19/13 08:50	05/20/13 18:38	95-48-7	
3&4-Methylphenol(m&p Cresol)	ND	ug/kg	419	165	1	05/19/13 08:50	05/20/13 18:38		
Surrogates									
Phenol-d6 (S)	61	%	22-110		1	05/19/13 08:50	05/20/13 18:38	13127-88-3	
2-Fluorophenol (S)	59	%	13-110		1	05/19/13 08:50	05/20/13 18:38	367-12-4	
2,4,6-Tribromophenol (S)	62	%	27-110		1	05/19/13 08:50	05/20/13 18:38	118-79-6	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**21.2**	%	0.10	0.10	1		05/20/13 16:07		

REPORT OF LABORATORY ANALYSIS

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(704)875-9092

ANALYTICAL RESULTS

Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

Sample: HA-6 2-3' **Lab ID: 92158519009** Collected: 05/16/13 13:24 Received: 05/17/13 13:55 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel	Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546								
Diesel Components	ND	mg/kg	5.4	4.8	1	05/17/13 17:20	05/21/13 16:24	68334-30-5	
Surrogates									
n-Pentacosane (S)	96	%	41-119		1	05/17/13 17:20	05/21/13 16:24	629-99-2	
Gasoline Range Organics	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B								
Gasoline Range Organics	ND	mg/kg	5.3	5.3	1	05/20/13 10:15	05/20/13 18:06	8006-61-9	
Surrogates									
4-Bromofluorobenzene (S)	105	%	70-167		1	05/20/13 10:15	05/20/13 18:06	460-00-4	
8270 MSSV Microwave	Analytical Method: EPA 8270 Preparation Method: EPA 3546								
2-Methylphenol(o-Cresol)	ND	ug/kg	355	108	1	05/19/13 08:50	05/21/13 15:09	95-48-7	
3&4-Methylphenol(m&p Cresol)	ND	ug/kg	355	140	1	05/19/13 08:50	05/21/13 15:09		
Surrogates									
Phenol-d6 (S)	62	%	22-110		1	05/19/13 08:50	05/21/13 15:09	13127-88-3	
2-Fluorophenol (S)	60	%	13-110		1	05/19/13 08:50	05/21/13 15:09	367-12-4	
2,4,6-Tribromophenol (S)	63	%	27-110		1	05/19/13 08:50	05/21/13 15:09	118-79-6	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**7.1**	%	0.10	0.10	1		05/20/13 16:07		

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ANALYTICAL RESULTS

Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

Sample: HA-7 2-3' **Lab ID: 92158519010** Collected: 05/16/13 11:40 Received: 05/17/13 13:55 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel	Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546								
Diesel Components	ND	mg/kg	5.8	5.2	1	05/17/13 17:20	05/21/13 16:24	68334-30-5	
Surrogates									
n-Pentacosane (S)	88	%	41-119		1	05/17/13 17:20	05/21/13 16:24	629-99-2	
Gasoline Range Organics	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B								
Gasoline Range Organics	ND	mg/kg	5.6	5.6	1	05/20/13 10:15	05/20/13 18:29	8006-61-9	
Surrogates									
4-Bromofluorobenzene (S)	90	%	70-167		1	05/20/13 10:15	05/20/13 18:29	460-00-4	
8270 MSSV Microwave	Analytical Method: EPA 8270 Preparation Method: EPA 3546								
2-Methylphenol(o-Cresol)	ND	ug/kg	381	116	1	05/19/13 08:50	05/20/13 20:15	95-48-7	
3&4-Methylphenol(m&p Cresol)	ND	ug/kg	381	150	1	05/19/13 08:50	05/20/13 20:15		
Surrogates									
Phenol-d6 (S)	63	%	22-110		1	05/19/13 08:50	05/20/13 20:15	13127-88-3	
2-Fluorophenol (S)	62	%	13-110		1	05/19/13 08:50	05/20/13 20:15	367-12-4	
2,4,6-Tribromophenol (S)	55	%	27-110		1	05/19/13 08:50	05/20/13 20:15	118-79-6	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**13.5**	%	0.10	0.10	1		05/20/13 16:08		

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ANALYTICAL RESULTS

Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

Sample: HA-8 1-2' **Lab ID: 92158519011** Collected: 05/16/13 13:01 Received: 05/17/13 13:55 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel	Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546								
Diesel Components	ND	mg/kg	5.8	5.2	1	05/17/13 17:20	05/21/13 16:48	68334-30-5	
Surrogates									
n-Pentacosane (S)	99	%	41-119		1	05/17/13 17:20	05/21/13 16:48	629-99-2	
Gasoline Range Organics	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B								
Gasoline Range Organics	ND	mg/kg	5.8	5.8	1	05/20/13 10:15	05/20/13 18:54	8006-61-9	
Surrogates									
4-Bromofluorobenzene (S)	98	%	70-167		1	05/20/13 10:15	05/20/13 18:54	460-00-4	
8270 MSSV Microwave	Analytical Method: EPA 8270 Preparation Method: EPA 3546								
2-Methylphenol(o-Cresol)	ND	ug/kg	381	116	1	05/19/13 08:50	05/20/13 20:42	95-48-7	
3&4-Methylphenol(m&p Cresol)	ND	ug/kg	381	150	1	05/19/13 08:50	05/20/13 20:42		
Surrogates									
Phenol-d6 (S)	60	%	22-110		1	05/19/13 08:50	05/20/13 20:42	13127-88-3	
2-Fluorophenol (S)	62	%	13-110		1	05/19/13 08:50	05/20/13 20:42	367-12-4	
2,4,6-Tribromophenol (S)	61	%	27-110		1	05/19/13 08:50	05/20/13 20:42	118-79-6	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**13.5**	%	0.10	0.10	1		05/20/13 16:08		

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ANALYTICAL RESULTS

Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

Sample: HA-9 1-2' **Lab ID: 92158519012** Collected: 05/16/13 13:07 Received: 05/17/13 13:55 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel	Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546								
Diesel Components	ND	mg/kg	5.4	4.8	1	05/17/13 17:20	05/21/13 16:48	68334-30-5	
Surrogates									
n-Pentacosane (S)	83	%	41-119		1	05/17/13 17:20	05/21/13 16:48	629-99-2	
Gasoline Range Organics	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B								
Gasoline Range Organics	ND	mg/kg	6.2	6.2	1	05/20/13 10:15	05/20/13 19:17	8006-61-9	
Surrogates									
4-Bromofluorobenzene (S)	96	%	70-167		1	05/20/13 10:15	05/20/13 19:17	460-00-4	
8270 MSSV Microwave	Analytical Method: EPA 8270 Preparation Method: EPA 3546								
2-Methylphenol(o-Cresol)	ND	ug/kg	353	107	1	05/19/13 08:50	05/20/13 21:10	95-48-7	
3&4-Methylphenol(m&p Cresol)	ND	ug/kg	353	139	1	05/19/13 08:50	05/20/13 21:10		
Surrogates									
Phenol-d6 (S)	57	%	22-110		1	05/19/13 08:50	05/20/13 21:10	13127-88-3	
2-Fluorophenol (S)	54	%	13-110		1	05/19/13 08:50	05/20/13 21:10	367-12-4	
2,4,6-Tribromophenol (S)	55	%	27-110		1	05/19/13 08:50	05/20/13 21:10	118-79-6	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**6.6**	%	0.10	0.10	1		05/20/13 16:08		

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QUALITY CONTROL DATA

Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

QC Batch: GCV/6910 Analysis Method: EPA 8015 Modified
QC Batch Method: EPA 5035A/5030B Analysis Description: Gasoline Range Organics
Associated Lab Samples: 92158519004, 92158519005, 92158519006, 92158519007, 92158519008, 92158519009, 92158519010, 92158519011, 92158519012

METHOD BLANK: 977738 Matrix: Solid
Associated Lab Samples: 92158519004, 92158519005, 92158519006, 92158519007, 92158519008, 92158519009, 92158519010, 92158519011, 92158519012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	mg/kg	ND	5.9	05/20/13 10:40	
4-Bromofluorobenzene (S)	%	99	70-167	05/20/13 10:40	

LABORATORY CONTROL SAMPLE: 977739

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	mg/kg	24.8	23.6	95	70-165	
4-Bromofluorobenzene (S)	%			96	70-167	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 977740 977741

Parameter	Units	92158252001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Gasoline Range Organics	mg/kg	ND	31.4	31.4	41.2	36.0	131	114	47-187	14	30	
4-Bromofluorobenzene (S)	%						100	98	70-167			

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

QC Batch: MSV/23033 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV Low Level
Associated Lab Samples: 92158519001, 92158519002, 92158519003

METHOD BLANK: 978005 Matrix: Water
Associated Lab Samples: 92158519001, 92158519002, 92158519003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	05/20/13 17:24	
1,1,1-Trichloroethane	ug/L	ND	1.0	05/20/13 17:24	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	05/20/13 17:24	
1,1,2-Trichloroethane	ug/L	ND	1.0	05/20/13 17:24	
1,1-Dichloroethane	ug/L	ND	1.0	05/20/13 17:24	
1,1-Dichloroethene	ug/L	ND	1.0	05/20/13 17:24	
1,1-Dichloropropene	ug/L	ND	1.0	05/20/13 17:24	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	05/20/13 17:24	
1,2,3-Trichloropropane	ug/L	ND	1.0	05/20/13 17:24	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	05/20/13 17:24	
1,2-Dibromo-3-chloropropane	ug/L	ND	5.0	05/20/13 17:24	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	05/20/13 17:24	
1,2-Dichlorobenzene	ug/L	ND	1.0	05/20/13 17:24	
1,2-Dichloroethane	ug/L	ND	1.0	05/20/13 17:24	
1,2-Dichloropropane	ug/L	ND	1.0	05/20/13 17:24	
1,3-Dichlorobenzene	ug/L	ND	1.0	05/20/13 17:24	
1,3-Dichloropropane	ug/L	ND	1.0	05/20/13 17:24	
1,4-Dichlorobenzene	ug/L	ND	1.0	05/20/13 17:24	
2,2-Dichloropropane	ug/L	ND	1.0	05/20/13 17:24	
2-Butanone (MEK)	ug/L	ND	5.0	05/20/13 17:24	
2-Chlorotoluene	ug/L	ND	1.0	05/20/13 17:24	
2-Hexanone	ug/L	ND	5.0	05/20/13 17:24	
4-Chlorotoluene	ug/L	ND	1.0	05/20/13 17:24	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	05/20/13 17:24	
Acetone	ug/L	ND	25.0	05/20/13 17:24	
Benzene	ug/L	ND	1.0	05/20/13 17:24	
Bromobenzene	ug/L	ND	1.0	05/20/13 17:24	
Bromochloromethane	ug/L	ND	1.0	05/20/13 17:24	
Bromodichloromethane	ug/L	ND	1.0	05/20/13 17:24	
Bromoform	ug/L	ND	1.0	05/20/13 17:24	
Bromomethane	ug/L	ND	2.0	05/20/13 17:24	
Carbon tetrachloride	ug/L	ND	1.0	05/20/13 17:24	
Chlorobenzene	ug/L	ND	1.0	05/20/13 17:24	
Chloroethane	ug/L	ND	1.0	05/20/13 17:24	
Chloroform	ug/L	ND	1.0	05/20/13 17:24	
Chloromethane	ug/L	0.48J	1.0	05/20/13 17:24	
cis-1,2-Dichloroethene	ug/L	ND	1.0	05/20/13 17:24	
cis-1,3-Dichloropropene	ug/L	ND	1.0	05/20/13 17:24	
Dibromochloromethane	ug/L	ND	1.0	05/20/13 17:24	
Dibromomethane	ug/L	ND	1.0	05/20/13 17:24	
Dichlorodifluoromethane	ug/L	ND	1.0	05/20/13 17:24	
Diisopropyl ether	ug/L	ND	1.0	05/20/13 17:24	
Ethylbenzene	ug/L	ND	1.0	05/20/13 17:24	

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QUALITY CONTROL DATA

Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

METHOD BLANK: 978005 Matrix: Water

Associated Lab Samples: 92158519001, 92158519002, 92158519003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Hexachloro-1,3-butadiene	ug/L	1.6	1.0	05/20/13 17:24	
m&p-Xylene	ug/L	ND	2.0	05/20/13 17:24	
Methyl-tert-butyl ether	ug/L	ND	1.0	05/20/13 17:24	
Methylene Chloride	ug/L	ND	2.0	05/20/13 17:24	
Naphthalene	ug/L	ND	1.0	05/20/13 17:24	
o-Xylene	ug/L	ND	1.0	05/20/13 17:24	
p-Isopropyltoluene	ug/L	ND	1.0	05/20/13 17:24	
Styrene	ug/L	ND	1.0	05/20/13 17:24	
Tetrachloroethene	ug/L	ND	1.0	05/20/13 17:24	
Toluene	ug/L	ND	1.0	05/20/13 17:24	
trans-1,2-Dichloroethene	ug/L	ND	1.0	05/20/13 17:24	
trans-1,3-Dichloropropene	ug/L	ND	1.0	05/20/13 17:24	
Trichloroethene	ug/L	ND	1.0	05/20/13 17:24	
Trichlorofluoromethane	ug/L	ND	1.0	05/20/13 17:24	
Vinyl acetate	ug/L	ND	2.0	05/20/13 17:24	
Vinyl chloride	ug/L	ND	1.0	05/20/13 17:24	
Xylene (Total)	ug/L	ND	2.0	05/20/13 17:24	
1,2-Dichloroethane-d4 (S)	%	97	70-130	05/20/13 17:24	
4-Bromofluorobenzene (S)	%	101	70-130	05/20/13 17:24	
Dibromofluoromethane (S)	%	98	70-130	05/20/13 17:24	
Toluene-d8 (S)	%	99	70-130	05/20/13 17:24	

LABORATORY CONTROL SAMPLE: 978006

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	50.1	100	70-130	
1,1,1-Trichloroethane	ug/L	50	52.5	105	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	48.2	96	70-130	
1,1,2-Trichloroethane	ug/L	50	54.5	109	70-130	
1,1-Dichloroethane	ug/L	50	49.5	99	70-130	
1,1-Dichloroethene	ug/L	50	51.5	103	70-132	
1,1-Dichloropropene	ug/L	50	59.8	120	70-130	
1,2,3-Trichlorobenzene	ug/L	50	53.6	107	70-135	
1,2,3-Trichloropropane	ug/L	50	52.6	105	70-130	
1,2,4-Trichlorobenzene	ug/L	50	53.1	106	70-134	
1,2-Dibromo-3-chloropropane	ug/L	50	52.7	105	70-130	
1,2-Dibromoethane (EDB)	ug/L	50	51.8	104	70-130	
1,2-Dichlorobenzene	ug/L	50	52.0	104	70-130	
1,2-Dichloroethane	ug/L	50	48.0	96	70-130	
1,2-Dichloropropane	ug/L	50	53.0	106	70-130	
1,3-Dichlorobenzene	ug/L	50	50.7	101	70-130	
1,3-Dichloropropane	ug/L	50	53.7	107	70-130	
1,4-Dichlorobenzene	ug/L	50	52.3	105	70-130	
2,2-Dichloropropane	ug/L	50	53.6	107	58-145	
2-Butanone (MEK)	ug/L	100	101	101	70-145	

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QUALITY CONTROL DATA

Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

LABORATORY CONTROL SAMPLE: 978006

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2-Chlorotoluene	ug/L	50	51.1	102	70-130	
2-Hexanone	ug/L	100	104	104	70-144	
4-Chlorotoluene	ug/L	50	50.3	101	70-130	
4-Methyl-2-pentanone (MIBK)	ug/L	100	98.2	98	70-140	
Acetone	ug/L	100	118	118	50-175	
Benzene	ug/L	50	47.9	96	70-130	
Bromobenzene	ug/L	50	49.1	98	70-130	
Bromochloromethane	ug/L	50	51.2	102	70-130	
Bromodichloromethane	ug/L	50	49.9	100	70-130	
Bromoform	ug/L	50	44.3	89	70-130	
Bromomethane	ug/L	50	48.6	97	54-130	
Carbon tetrachloride	ug/L	50	54.2	108	70-132	
Chlorobenzene	ug/L	50	50.9	102	70-130	
Chloroethane	ug/L	50	60.2	120	64-134	
Chloroform	ug/L	50	49.0	98	70-130	
Chloromethane	ug/L	50	52.1	104	64-130	
cis-1,2-Dichloroethene	ug/L	50	47.5	95	70-131	
cis-1,3-Dichloropropene	ug/L	50	54.6	109	70-130	
Dibromochloromethane	ug/L	50	50.7	101	70-130	
Dibromomethane	ug/L	50	53.4	107	70-131	
Dichlorodifluoromethane	ug/L	50	50.8	102	56-130	
Diisopropyl ether	ug/L	50	51.3	103	70-130	
Ethylbenzene	ug/L	50	49.5	99	70-130	
Hexachloro-1,3-butadiene	ug/L	50	48.0	96	70-130	
m&p-Xylene	ug/L	100	99.0	99	70-130	
Methyl-tert-butyl ether	ug/L	50	49.2	98	70-130	
Methylene Chloride	ug/L	50	50.5	101	63-130	
Naphthalene	ug/L	50	54.8	110	70-138	
o-Xylene	ug/L	50	48.2	96	70-130	
p-Isopropyltoluene	ug/L	50	52.4	105	70-130	
Styrene	ug/L	50	50.1	100	70-130	
Tetrachloroethene	ug/L	50	52.7	105	70-130	
Toluene	ug/L	50	51.0	102	70-130	
trans-1,2-Dichloroethene	ug/L	50	47.6	95	70-130	
trans-1,3-Dichloropropene	ug/L	50	58.0	116	70-132	
Trichloroethene	ug/L	50	51.5	103	70-130	
Trichlorofluoromethane	ug/L	50	58.2	116	62-133	
Vinyl acetate	ug/L	100	104	104	66-157	
Vinyl chloride	ug/L	50	55.9	112	69-130	
Xylene (Total)	ug/L	150	147	98	70-130	
1,2-Dichloroethane-d4 (S)	%			93	70-130	
4-Bromofluorobenzene (S)	%			100	70-130	
Dibromofluoromethane (S)	%			95	70-130	
Toluene-d8 (S)	%			101	70-130	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 978007 978008

Parameter	Units	92158519001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1-Dichloroethene	ug/L	ND	50	50	49.9	62.7	100	125	70-166	23	30	
Benzene	ug/L	ND	50	50	48.8	55.7	98	111	70-148	13	30	
Chlorobenzene	ug/L	ND	50	50	51.6	55.5	103	111	70-146	7	30	
Toluene	ug/L	ND	50	50	53.9	55.5	108	111	70-155	3	30	
Trichloroethene	ug/L	ND	50	50	60.9	65.7	122	131	69-151	8	30	
1,2-Dichloroethane-d4 (S)	%						104	96	70-130			
4-Bromofluorobenzene (S)	%						90	100	70-130			
Dibromofluoromethane (S)	%						95	97	70-130			
Toluene-d8 (S)	%						100	96	70-130			

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QUALITY CONTROL DATA

Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

QC Batch: OEXT/22175 Analysis Method: EPA 8015 Modified
QC Batch Method: EPA 3546 Analysis Description: 8015 Solid GCSV
Associated Lab Samples: 92158519004, 92158519005, 92158519006, 92158519007, 92158519008, 92158519009, 92158519010, 92158519011, 92158519012

METHOD BLANK: 977426 Matrix: Solid
Associated Lab Samples: 92158519004, 92158519005, 92158519006, 92158519007, 92158519008, 92158519009, 92158519010, 92158519011, 92158519012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Components	mg/kg	ND	5.0	05/21/13 15:14	
n-Pentacosane (S)	%	101	41-119	05/21/13 15:14	

LABORATORY CONTROL SAMPLE: 977427

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Components	mg/kg	66.7	64.8	97	49-113	
n-Pentacosane (S)	%			90	41-119	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 977428 977429

Parameter	Units	92158519012 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Diesel Components	mg/kg	ND	71.4	71.4	65.1	69.8	90	97	10-146	7	30	
n-Pentacosane (S)	%						97	96	41-119			

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

QC Batch: OEXT/22187 Analysis Method: EPA 8270
QC Batch Method: EPA 3546 Analysis Description: 8270 Solid MSSV Microwave
Associated Lab Samples: 92158519004, 92158519005, 92158519006, 92158519007, 92158519008, 92158519009, 92158519010, 92158519011, 92158519012

METHOD BLANK: 977659 Matrix: Solid
Associated Lab Samples: 92158519004, 92158519005, 92158519006, 92158519007, 92158519008, 92158519009, 92158519010, 92158519011, 92158519012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
2-Methylphenol(o-Cresol)	ug/kg	ND	330	05/20/13 16:18	
3&4-Methylphenol(m&p Cresol)	ug/kg	ND	330	05/20/13 16:18	
2,4,6-Tribromophenol (S)	%	56	27-110	05/20/13 16:18	
2-Fluorobiphenyl (S)	%	65	30-110	05/20/13 16:18	
2-Fluorophenol (S)	%	65	13-110	05/20/13 16:18	
Nitrobenzene-d5 (S)	%	64	23-110	05/20/13 16:18	
Phenol-d6 (S)	%	67	22-110	05/20/13 16:18	
Terphenyl-d14 (S)	%	76	28-110	05/20/13 16:18	

LABORATORY CONTROL SAMPLE: 977660

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2-Methylphenol(o-Cresol)	ug/kg	1670	1080	65	39-101	
3&4-Methylphenol(m&p Cresol)	ug/kg	1670	998	60	43-103	
2,4,6-Tribromophenol (S)	%			73	27-110	
2-Fluorobiphenyl (S)	%			60	30-110	
2-Fluorophenol (S)	%			64	13-110	
Nitrobenzene-d5 (S)	%			58	23-110	
Phenol-d6 (S)	%			67	22-110	
Terphenyl-d14 (S)	%			80	28-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 977661 977662

Parameter	Units	92158515001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
2-Methylphenol(o-Cresol)	ug/kg	ND	2140	2140	659	695	31	33	10-124	5	30	
3&4-Methylphenol(m&p Cresol)	ug/kg	ND	2140	2140	652	717	30	34	10-109	10	30	
2,4,6-Tribromophenol (S)	%						59	60	27-110			
2-Fluorobiphenyl (S)	%						54	56	30-110			
2-Fluorophenol (S)	%						36	42	13-110			
Nitrobenzene-d5 (S)	%						62	70	23-110			
Phenol-d6 (S)	%						48	51	22-110			
Terphenyl-d14 (S)	%						64	60	28-110			

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

QC Batch: OEXT/22193 Analysis Method: EPA 8270
QC Batch Method: EPA 3510 Analysis Description: 8270 Water MSSV
Associated Lab Samples: 92158519001, 92158519002, 92158519003

METHOD BLANK: 977724 Matrix: Water
Associated Lab Samples: 92158519001, 92158519002, 92158519003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trichlorobenzene	ug/L	ND	10.0	05/23/13 04:04	
1,2-Dichlorobenzene	ug/L	ND	10.0	05/23/13 04:04	
1,3-Dichlorobenzene	ug/L	ND	10.0	05/23/13 04:04	
1,4-Dichlorobenzene	ug/L	ND	10.0	05/23/13 04:04	
1-Methylnaphthalene	ug/L	ND	10.0	05/23/13 04:04	
2,4,5-Trichlorophenol	ug/L	ND	10.0	05/23/13 04:04	
2,4,6-Trichlorophenol	ug/L	ND	10.0	05/23/13 04:04	
2,4-Dichlorophenol	ug/L	ND	10.0	05/23/13 04:04	
2,4-Dimethylphenol	ug/L	ND	10.0	05/23/13 04:04	
2,4-Dinitrophenol	ug/L	ND	50.0	05/23/13 04:04	
2,4-Dinitrotoluene	ug/L	ND	10.0	05/23/13 04:04	
2,6-Dinitrotoluene	ug/L	ND	10.0	05/23/13 04:04	
2-Chloronaphthalene	ug/L	ND	10.0	05/23/13 04:04	
2-Chlorophenol	ug/L	ND	10.0	05/23/13 04:04	
2-Methylnaphthalene	ug/L	ND	10.0	05/23/13 04:04	
2-Methylphenol(o-Cresol)	ug/L	ND	10.0	05/23/13 04:04	
2-Nitroaniline	ug/L	ND	50.0	05/23/13 04:04	
2-Nitrophenol	ug/L	ND	10.0	05/23/13 04:04	
3&4-Methylphenol(m&p Cresol)	ug/L	ND	10.0	05/23/13 04:04	
3,3'-Dichlorobenzidine	ug/L	ND	20.0	05/23/13 04:04	
3-Nitroaniline	ug/L	ND	50.0	05/23/13 04:04	
4,6-Dinitro-2-methylphenol	ug/L	ND	20.0	05/23/13 04:04	
4-Bromophenylphenyl ether	ug/L	ND	10.0	05/23/13 04:04	
4-Chloro-3-methylphenol	ug/L	ND	20.0	05/23/13 04:04	
4-Chloroaniline	ug/L	ND	20.0	05/23/13 04:04	
4-Chlorophenylphenyl ether	ug/L	ND	10.0	05/23/13 04:04	
4-Nitroaniline	ug/L	ND	20.0	05/23/13 04:04	
4-Nitrophenol	ug/L	ND	50.0	05/23/13 04:04	
Acenaphthene	ug/L	ND	10.0	05/23/13 04:04	
Acenaphthylene	ug/L	ND	10.0	05/23/13 04:04	
Aniline	ug/L	ND	10.0	05/23/13 04:04	
Anthracene	ug/L	ND	10.0	05/23/13 04:04	
Benzo(a)anthracene	ug/L	ND	10.0	05/23/13 04:04	
Benzo(a)pyrene	ug/L	ND	10.0	05/23/13 04:04	
Benzo(b)fluoranthene	ug/L	ND	10.0	05/23/13 04:04	
Benzo(g,h,i)perylene	ug/L	ND	10.0	05/23/13 04:04	
Benzo(k)fluoranthene	ug/L	ND	10.0	05/23/13 04:04	
Benzoic Acid	ug/L	ND	50.0	05/23/13 04:04	
Benzyl alcohol	ug/L	ND	20.0	05/23/13 04:04	
bis(2-Chloroethoxy)methane	ug/L	ND	10.0	05/23/13 04:04	
bis(2-Chloroethyl) ether	ug/L	ND	10.0	05/23/13 04:04	
bis(2-Chloroisopropyl) ether	ug/L	ND	10.0	05/23/13 04:04	
bis(2-Ethylhexyl)phthalate	ug/L	ND	6.0	05/23/13 04:04	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

METHOD BLANK: 977724 Matrix: Water

Associated Lab Samples: 92158519001, 92158519002, 92158519003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Butylbenzylphthalate	ug/L	ND	10.0	05/23/13 04:04	
Chrysene	ug/L	ND	10.0	05/23/13 04:04	
Di-n-butylphthalate	ug/L	ND	10.0	05/23/13 04:04	
Di-n-octylphthalate	ug/L	ND	10.0	05/23/13 04:04	
Dibenz(a,h)anthracene	ug/L	ND	10.0	05/23/13 04:04	
Dibenzofuran	ug/L	ND	10.0	05/23/13 04:04	
Diethylphthalate	ug/L	ND	10.0	05/23/13 04:04	
Dimethylphthalate	ug/L	ND	10.0	05/23/13 04:04	
Fluoranthene	ug/L	ND	10.0	05/23/13 04:04	
Fluorene	ug/L	ND	10.0	05/23/13 04:04	
Hexachloro-1,3-butadiene	ug/L	ND	10.0	05/23/13 04:04	
Hexachlorobenzene	ug/L	ND	10.0	05/23/13 04:04	
Hexachlorocyclopentadiene	ug/L	ND	10.0	05/23/13 04:04	
Hexachloroethane	ug/L	ND	10.0	05/23/13 04:04	
Indeno(1,2,3-cd)pyrene	ug/L	ND	10.0	05/23/13 04:04	
Isophorone	ug/L	ND	10.0	05/23/13 04:04	
N-Nitroso-di-n-propylamine	ug/L	ND	10.0	05/23/13 04:04	
N-Nitrosodimethylamine	ug/L	ND	10.0	05/23/13 04:04	
N-Nitrosodiphenylamine	ug/L	ND	10.0	05/23/13 04:04	
Naphthalene	ug/L	ND	10.0	05/23/13 04:04	
Nitrobenzene	ug/L	ND	10.0	05/23/13 04:04	
Pentachlorophenol	ug/L	ND	25.0	05/23/13 04:04	
Phenanthrene	ug/L	ND	10.0	05/23/13 04:04	
Phenol	ug/L	ND	10.0	05/23/13 04:04	
Pyrene	ug/L	ND	10.0	05/23/13 04:04	
2,4,6-Tribromophenol (S)	%	78	27-110	05/23/13 04:04	
2-Fluorobiphenyl (S)	%	75	27-110	05/23/13 04:04	
2-Fluorophenol (S)	%	48	12-110	05/23/13 04:04	
Nitrobenzene-d5 (S)	%	81	21-110	05/23/13 04:04	
Phenol-d6 (S)	%	34	10-110	05/23/13 04:04	
Terphenyl-d14 (S)	%	79	31-107	05/23/13 04:04	

LABORATORY CONTROL SAMPLE: 977725

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trichlorobenzene	ug/L	50	32.2	64	10-110	
1,2-Dichlorobenzene	ug/L	50	34.9	70	10-110	
1,3-Dichlorobenzene	ug/L	50	34.3	69	10-110	
1,4-Dichlorobenzene	ug/L	50	33.9	68	10-110	
1-Methylnaphthalene	ug/L	50	36.2	72	21-110	
2,4,5-Trichlorophenol	ug/L	50	33.7	67	23-116	
2,4,6-Trichlorophenol	ug/L	50	37.0	74	21-114	
2,4-Dichlorophenol	ug/L	50	35.4	71	22-120	
2,4-Dimethylphenol	ug/L	50	39.5	79	15-109	
2,4-Dinitrophenol	ug/L	250	181	73	10-103	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

LABORATORY CONTROL SAMPLE: 977725

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,4-Dinitrotoluene	ug/L	50	41.0	82	24-119	
2,6-Dinitrotoluene	ug/L	50	40.1	80	25-116	
2-Chloronaphthalene	ug/L	50	37.7	75	18-110	
2-Chlorophenol	ug/L	50	36.6	73	10-104	
2-Methylnaphthalene	ug/L	50	33.6	67	16-110	
2-Methylphenol(o-Cresol)	ug/L	50	34.3	69	13-110	
2-Nitroaniline	ug/L	100	91.3	91	20-117	
2-Nitrophenol	ug/L	50	37.3	75	16-108	
3&4-Methylphenol(m&p Cresol)	ug/L	50	28.7	57	14-110	
3,3'-Dichlorobenzidine	ug/L	100	61.1	61	13-131	
3-Nitroaniline	ug/L	100	69.2	69	15-117	
4,6-Dinitro-2-methylphenol	ug/L	100	86.7	87	13-119	
4-Bromophenylphenyl ether	ug/L	50	31.4	63	23-120	
4-Chloro-3-methylphenol	ug/L	100	72.6	73	21-119	
4-Chloroaniline	ug/L	100	31.1	31	10-122	
4-Chlorophenylphenyl ether	ug/L	50	29.5	59	22-112	
4-Nitroaniline	ug/L	100	77.3	77	14-118	
4-Nitrophenol	ug/L	250	89.6	36	10-110	
Acenaphthene	ug/L	50	39.7	79	20-105	
Acenaphthylene	ug/L	50	38.4	77	23-106	
Aniline	ug/L	50	12.3	25	10-110	
Anthracene	ug/L	50	43.0	86	25-120	
Benzo(a)anthracene	ug/L	50	44.1	88	21-128	
Benzo(a)pyrene	ug/L	50	44.4	89	25-116	
Benzo(b)fluoranthene	ug/L	50	46.3	93	23-117	
Benzo(g,h,i)perylene	ug/L	50	47.3	95	17-128	
Benzo(k)fluoranthene	ug/L	50	40.6	81	25-127	
Benzoic Acid	ug/L	250	69.1	28	10-110	
Benzyl alcohol	ug/L	100	64.8	65	10-101	
bis(2-Chloroethoxy)methane	ug/L	50	32.2	64	19-107	
bis(2-Chloroethyl) ether	ug/L	50	35.7	71	10-108	
bis(2-Chloroisopropyl) ether	ug/L	50	38.1	76	10-108	
bis(2-Ethylhexyl)phthalate	ug/L	50	50.6	101	16-123	
Butylbenzylphthalate	ug/L	50	47.8	96	20-118	
Chrysene	ug/L	50	45.3	91	24-125	
Di-n-butylphthalate	ug/L	50	48.9	98	23-115	
Di-n-octylphthalate	ug/L	50	48.6	97	20-115	
Dibenz(a,h)anthracene	ug/L	50	48.0	96	18-131	
Dibenzofuran	ug/L	50	33.8	68	23-106	
Diethylphthalate	ug/L	50	41.5	83	24-115	
Dimethylphthalate	ug/L	50	40.4	81	22-113	
Fluoranthene	ug/L	50	45.1	90	24-125	
Fluorene	ug/L	50	39.0	78	24-114	
Hexachloro-1,3-butadiene	ug/L	50	29.7	59	10-110	
Hexachlorobenzene	ug/L	50	41.4	83	22-127	
Hexachlorocyclopentadiene	ug/L	50	42.8	86	10-110	
Hexachloroethane	ug/L	50	35.0	70	10-110	
Indeno(1,2,3-cd)pyrene	ug/L	50	46.9	94	18-130	

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QUALITY CONTROL DATA

Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

LABORATORY CONTROL SAMPLE: 977725

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Isophorone	ug/L	50	41.9	84	23-114	
N-Nitroso-di-n-propylamine	ug/L	50	40.7	81	21-114	
N-Nitrosodimethylamine	ug/L	50	27.6	55	10-110	
N-Nitrosodiphenylamine	ug/L	50	36.6	73	24-123	
Naphthalene	ug/L	50	35.7	71	14-110	
Nitrobenzene	ug/L	50	42.9	86	16-106	
Pentachlorophenol	ug/L	100	78.2	78	10-123	
Phenanthrene	ug/L	50	43.4	87	25-119	
Phenol	ug/L	50	18.7	37	10-110	
Pyrene	ug/L	50	42.3	85	22-127	
2,4,6-Tribromophenol (S)	%			83	27-110	
2-Fluorobiphenyl (S)	%			78	27-110	
2-Fluorophenol (S)	%			55	12-110	
Nitrobenzene-d5 (S)	%			85	21-110	
Phenol-d6 (S)	%			39	10-110	
Terphenyl-d14 (S)	%			74	31-107	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 977726 977727

Parameter	Units	92158199004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,2,4-Trichlorobenzene	ug/L	ND	100	100	79.0	78.1	79	78	10-110	1	30	
1,2-Dichlorobenzene	ug/L	ND	100	100	82.4	86.3	82	86	10-110	5	30	
1,3-Dichlorobenzene	ug/L	ND	100	100	83.0	79.6	83	80	10-110	4	30	
1,4-Dichlorobenzene	ug/L	ND	100	100	82.6	79.9	83	80	10-110	3	30	
1-Methylnaphthalene	ug/L	ND	100	100	86.5	82.1	86	82	14-110	5	30	
2,4,5-Trichlorophenol	ug/L	ND	100	100	66.9	70.3	67	70	19-105	5	30	
2,4,6-Trichlorophenol	ug/L	ND	100	100	72.3	79.5	72	80	13-108	9	30	
2,4-Dichlorophenol	ug/L	ND	100	100	87.7	85.9	88	86	29-111	2	30	
2,4-Dimethylphenol	ug/L	ND	100	100	86.6	97.4	87	97	21-103	12	30	
2,4-Dinitrophenol	ug/L	ND	500	500	341	366	68	73	10-109	7	30	
2,4-Dinitrotoluene	ug/L	ND	100	100	86.5	78.8	86	79	27-104	9	30	
2,6-Dinitrotoluene	ug/L	ND	100	100	87.6	81.9	88	82	28-101	7	30	
2-Chloronaphthalene	ug/L	ND	100	100	79.9	84.4	80	84	14-102	5	30	
2-Chlorophenol	ug/L	ND	100	100	82.9	89.2	83	89	16-110	7	30	
2-Methylnaphthalene	ug/L	ND	100	100	80.2	79.4	80	79	13-110	1	30	
2-Methylphenol(o-Cresol)	ug/L	ND	100	100	79.8	90.1	80	90	19-110	12	30	
2-Nitroaniline	ug/L	ND	200	200	175	176	87	88	26-103	1	30	
2-Nitrophenol	ug/L	ND	100	100	78.3	93.1	78	93	20-110	17	30	
3&4-Methylphenol(m&p Cresol)	ug/L	ND	100	100	75.2	86.8	75	87	20-110	14	30	
3,3'-Dichlorobenzidine	ug/L	ND	200	200	180	152	90	76	25-112	17	30	
3-Nitroaniline	ug/L	ND	200	200	162	144	81	72	29-110	12	30	
4,6-Dinitro-2-methylphenol	ug/L	ND	200	200	167	171	83	85	10-117	2	30	
4-Bromophenylphenyl ether	ug/L	ND	100	100	70.4	72.8	70	73	20-105	3	30	
4-Chloro-3-methylphenol	ug/L	ND	200	200	193	169	97	85	22-110	13	30	
4-Chloroaniline	ug/L	ND	200	200	144	107	72	53	20-100	30	30	

REPORT OF LABORATORY ANALYSIS

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(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 977726 977727

Parameter	Units	92158199004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
4-Chlorophenylphenyl ether	ug/L	ND	100	100	65.2	61.8	65	62	19-102	5	30	
4-Nitroaniline	ug/L	ND	200	200	156	137	78	69	29-110	13	30	
4-Nitrophenol	ug/L	ND	500	500	272	273	54	55	10-110	0	30	
Acenaphthene	ug/L	ND	100	100	88.3	89.7	88	90	17-100	2	30	
Acenaphthylene	ug/L	ND	100	100	85.9	79.1	86	79	21-100	8	30	
Aniline	ug/L	ND	100	100	75.6	51.1	76	51	10-110	39	30	M1
Anthracene	ug/L	ND	100	100	92.4	90.9	92	91	24-109	2	30	
Benzo(a)anthracene	ug/L	ND	100	100	88.2	91.9	88	92	22-117	4	30	
Benzo(a)pyrene	ug/L	ND	100	100	90.6	90.1	91	90	23-104	1	30	
Benzo(b)fluoranthene	ug/L	ND	100	100	98.2	91.4	98	91	23-103	7	30	
Benzo(g,h,i)perylene	ug/L	ND	100	100	96.8	94.0	97	94	18-111	3	30	
Benzo(k)fluoranthene	ug/L	ND	100	100	86.8	79.8	87	80	22-113	8	30	
Benzoic Acid	ug/L	ND	500	500	242	279	48	56	10-110	14	30	
Benzyl alcohol	ug/L	ND	200	200	152	181	76	90	19-101	17	30	
bis(2-Chloroethoxy)methane	ug/L	ND	100	100	68.6	82.0	69	82	22-110	18	30	
bis(2-Chloroethyl) ether	ug/L	ND	100	100	80.5	81.5	80	81	16-110	1	30	
bis(2-Chloroisopropyl) ether	ug/L	ND	100	100	80.0	86.7	80	87	14-110	8	30	
bis(2-Ethylhexyl)phthalate	ug/L	ND	100	100	106	110	106	110	23-102	4	30	M0
Butylbenzylphthalate	ug/L	ND	100	100	104	101	104	101	25-110	3	30	
Chrysene	ug/L	ND	100	100	91.5	94.4	91	94	23-115	3	30	
Di-n-butylphthalate	ug/L	ND	100	100	99.3	97.7	99	98	26-110	2	30	
Di-n-octylphthalate	ug/L	ND	100	100	102	98.6	102	99	22-110	3	30	
Dibenz(a,h)anthracene	ug/L	ND	100	100	100	94.8	100	95	21-112	5	30	
Dibenzofuran	ug/L	ND	100	100	73.4	69.2	73	69	19-102	6	30	
Diethylphthalate	ug/L	6.1J	100	100	97.0	85.6	91	80	29-110	12	30	
Dimethylphthalate	ug/L	ND	100	100	78.9	82.3	79	82	27-110	4	30	
Fluoranthene	ug/L	ND	100	100	82.1	83.4	82	83	23-112	2	30	
Fluorene	ug/L	ND	100	100	85.7	79.1	86	79	22-104	8	30	
Hexachloro-1,3-butadiene	ug/L	ND	100	100	71.1	68.3	71	68	10-110	4	30	
Hexachlorobenzene	ug/L	ND	100	100	93.0	94.7	93	95	21-116	2	30	
Hexachlorocyclopentadiene	ug/L	ND	100	100	75.8	95.0	76	95	10-110	23	30	
Hexachloroethane	ug/L	ND	100	100	86.0	92.4	86	92	10-110	7	30	
Indeno(1,2,3-cd)pyrene	ug/L	ND	100	100	99.4	93.6	99	94	20-113	6	30	
Isophorone	ug/L	ND	100	100	98.0	94.4	98	94	50-150	4	30	
N-Nitroso-di-n-propylamine	ug/L	ND	100	100	97.4	113	97	113	21-105	14	30	M1
N-Nitrosodimethylamine	ug/L	ND	100	100	74.5	78.5	74	79	10-110	5	30	
N-Nitrosodiphenylamine	ug/L	ND	100	100	80.8	79.0	81	79	23-107	2	30	
Naphthalene	ug/L	ND	100	100	80.1	82.1	80	82	10-110	2	30	
Nitrobenzene	ug/L	ND	100	100	86.3	90.4	86	90	20-110	5	30	
Pentachlorophenol	ug/L	ND	200	200	164	170	82	85	10-118	4	30	
Phenanthrene	ug/L	ND	100	100	91.8	92.0	92	92	24-106	0	30	
Phenol	ug/L	ND	100	100	55.0	60.8	55	61	12-110	10	30	
Pyrene	ug/L	ND	100	100	94.3	98.8	94	99	24-114	5	30	
2,4,6-Tribromophenol (S)	%						86	73	27-110			
2-Fluorobiphenyl (S)	%						70	76	27-110			
2-Fluorophenol (S)	%						69	79	12-110			
Nitrobenzene-d5 (S)	%						82	86	21-110			

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QUALITY CONTROL DATA

Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 977726 977727

Parameter	Units	92158199004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phenol-d6 (S)	%						51	60	10-110			
Terphenyl-d14 (S)	%						77	70	31-107			

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QUALITY CONTROL DATA

Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

QC Batch: PMST/5543
QC Batch Method: ASTM D2974-87
Analysis Method: ASTM D2974-87
Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 92158519004, 92158519005, 92158519006, 92158519007, 92158519008, 92158519009, 92158519010, 92158519011, 92158519012

SAMPLE DUPLICATE: 977414

Parameter	Units	92158493001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	17.6	18.0	2	25	

SAMPLE DUPLICATE: 977415

Parameter	Units	92158534002 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	19.5	19.7	1	25	

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QUALIFIERS

Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Acid preservation may not be appropriate for 2-Chloroethylvinyl ether, Styrene, and Vinyl chloride.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-C	Pace Analytical Services - Charlotte

ANALYTE QUALIFIERS

D3	Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
S4	Surrogate recovery not evaluated against control limits due to sample dilution.
S5	Surrogate recovery outside control limits due to matrix interferences (not confirmed by re-analysis).

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Lincoln City M-0376 39406.1.2
Pace Project No.: 92158519

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92158519004	**HA-1 1-2'**	EPA 3546	OEXT/22175	EPA 8015 Modified	GCSV/14649
92158519005	**HA-2 1-2'**	EPA 3546	OEXT/22175	EPA 8015 Modified	GCSV/14649
92158519006	**HA-3 2-3'**	EPA 3546	OEXT/22175	EPA 8015 Modified	GCSV/14649
92158519007	**HA-4 1-2'**	EPA 3546	OEXT/22175	EPA 8015 Modified	GCSV/14649
92158519008	**HA-5 3-4'**	EPA 3546	OEXT/22175	EPA 8015 Modified	GCSV/14649
92158519009	**HA-6 2-3'**	EPA 3546	OEXT/22175	EPA 8015 Modified	GCSV/14649
92158519010	**HA-7 2-3'**	EPA 3546	OEXT/22175	EPA 8015 Modified	GCSV/14649
92158519011	**HA-8 1-2'**	EPA 3546	OEXT/22175	EPA 8015 Modified	GCSV/14649
92158519012	**HA-9 1-2'**	EPA 3546	OEXT/22175	EPA 8015 Modified	GCSV/14649
92158519004	**HA-1 1-2'**	EPA 5035A/5030B	GCV/6910	EPA 8015 Modified	GCV/6912
92158519005	**HA-2 1-2'**	EPA 5035A/5030B	GCV/6910	EPA 8015 Modified	GCV/6912
92158519006	**HA-3 2-3'**	EPA 5035A/5030B	GCV/6910	EPA 8015 Modified	GCV/6912
92158519007	**HA-4 1-2'**	EPA 5035A/5030B	GCV/6910	EPA 8015 Modified	GCV/6912
92158519008	**HA-5 3-4'**	EPA 5035A/5030B	GCV/6910	EPA 8015 Modified	GCV/6912
92158519009	**HA-6 2-3'**	EPA 5035A/5030B	GCV/6910	EPA 8015 Modified	GCV/6912
92158519010	**HA-7 2-3'**	EPA 5035A/5030B	GCV/6910	EPA 8015 Modified	GCV/6912
92158519011	**HA-8 1-2'**	EPA 5035A/5030B	GCV/6910	EPA 8015 Modified	GCV/6912
92158519012	**HA-9 1-2'**	EPA 5035A/5030B	GCV/6910	EPA 8015 Modified	GCV/6912
92158519004	**HA-1 1-2'**	EPA 3546	OEXT/22187	EPA 8270	MSSV/7742
92158519005	**HA-2 1-2'**	EPA 3546	OEXT/22187	EPA 8270	MSSV/7742
92158519006	**HA-3 2-3'**	EPA 3546	OEXT/22187	EPA 8270	MSSV/7742
92158519007	**HA-4 1-2'**	EPA 3546	OEXT/22187	EPA 8270	MSSV/7742
92158519008	**HA-5 3-4'**	EPA 3546	OEXT/22187	EPA 8270	MSSV/7742
92158519009	**HA-6 2-3'**	EPA 3546	OEXT/22187	EPA 8270	MSSV/7742
92158519010	**HA-7 2-3'**	EPA 3546	OEXT/22187	EPA 8270	MSSV/7742
92158519011	**HA-8 1-2'**	EPA 3546	OEXT/22187	EPA 8270	MSSV/7742
92158519012	**HA-9 1-2'**	EPA 3546	OEXT/22187	EPA 8270	MSSV/7742
92158519001	**UPSTREAM**	EPA 3510	OEXT/22193	EPA 8270	MSSV/7751
92158519002	**Downstream**	EPA 3510	OEXT/22193	EPA 8270	MSSV/7751
92158519003	**TW-1**	EPA 3510	OEXT/22193	EPA 8270	MSSV/7751
92158519001	**UPSTREAM**	EPA 8260	MSV/23033		
92158519002	**Downstream**	EPA 8260	MSV/23033		
92158519003	**TW-1**	EPA 8260	MSV/23033		
92158519004	**HA-1 1-2'**	ASTM D2974-87	PMST/5543		
92158519005	**HA-2 1-2'**	ASTM D2974-87	PMST/5543		
92158519006	**HA-3 2-3'**	ASTM D2974-87	PMST/5543		
92158519007	**HA-4 1-2'**	ASTM D2974-87	PMST/5543		
92158519008	**HA-5 3-4'**	ASTM D2974-87	PMST/5543		
92158519009	**HA-6 2-3'**	ASTM D2974-87	PMST/5543		
92158519010	**HA-7 2-3'**	ASTM D2974-87	PMST/5543		
92158519011	**HA-8 1-2'**	ASTM D2974-87	PMST/5543		
92158519012	**HA-9 1-2'**	ASTM D2974-87	PMST/5543		

REPORT OF LABORATORY ANALYSIS

Pace Analytical	Sample Condition Upon Receipt (SCUR)	Page 1 of 2
	Document Number: F-CHR-CS-03-rev.10	Issuing Authority: Pace Huntersville Quality Office

Client Name: FER

Where Received: ☑ Huntersville ☐ Asheville ☐ Eden ☐ Raleigh

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☑ Pace Other_____

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no

Optional
Proj. Due Date:
Proj. Name:

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other_____

Thermometer Used: IR Gun T1101 (T1102) **Type of Ice:** (Wet) Blue None ☑ Samples on ice, cooling process has begun

Temp Correction Factor **T1101**: No Correction **T1102**: No Correction

Corrected Cooler Temp.: 1.4 C **Biological Tissue is Frozen:** Yes No (N/A)

Temp should be above freezing to 6°C

Comments:

Date and Initials of person examining contents: 5/16/13

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: WT SL		
All containers needing preservation have been checked.	☐Yes ☐No ☑N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes ☐No ☑N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☑Yes ☐No	
Samples checked for dechlorination:	☑Yes ☐No ☐N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☑No ☐N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased):_____		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted:_____ Date/Time:_____

Comments/ Resolution:_____

SCURF Review: SDM Date: 5/17/13

SRF Review: AMB Date: 5/17/13

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

WO# : 92158519

92158519

Pace Analytical®
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

1664759

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: F+R	Report To: M Saboorish	Attention: Terry Fox
Address: 310 Hubert St Raleigh NC	Copy To: Terry Fox CNCDOT WBS 39406.1.2	Company Name: NCDOT
Email To: MSABOORISH@FANDR.COM	Purchase Order No.: 4300189209	Address:
Phone: 919-828-3441 Fax: 919-828-5771	Project Name: Lincoln Cty M-0376	Pace Quote Reference:
Requested Due Date/TAT:	Project Number: F+R# 66R-0027	Pace Project Manager:
		Pace Profile #:

REGULATORY AGENCY: ☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: Lincolnton NC

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	EPA 8260	EPA 8270	DRO	GRO	8270 (SOS)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	UPSTREAM	WW	G	5/15/13	2:07	5/15/13	2:07		5										X	X					92158519 01
2	DOWNSTREAM	WW	C		2:37		2:37												X	X					02
3	TW-1	WW	C		4:37		4:37												X						03
4	HA-1 1'-2'	SL	C	5/15/13	1:32				5												X	X	X		04
5	HA-2 1'-2'			5/15/13	4:10																				05
6	HA-3 2'-3'			5/16/13	9:17																				06
7	HA-4 1'-2'				9:41																				07
8	HA-5 3'-4'				10:31																				08
9	HA-6 2'-3'				1:24																				09
10	HA-7 2'-3'				11:40																				010
11	HA-8 1'-2'				13:01																				011
12	HA-9 1'-2'				13:01																				012

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	M Saboorish	5-17-13	8:25A	Pace	5-17-13	8:30				
	Pace	5-17-13	13:55	Pace	5-17-13	13:55	1.4	Y	Y	Y

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: M Saboorish

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 5-17-13

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

QED

AQROS

Hydrocarbon Analysis Results

Client: NCDOT
Address:

Samples taken Wednesday, May 15, 2013
Samples extracted Wednesday, May 15, 2013
Samples analysed Wednesday, May 15, 2013

Contact: Mr. Terry Fox

Operator B. Whitley

Project: M-0376 Lincoln County

Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	Ratios			HC Fingerprint Match
										% light	% mid	% heavy	
s	HA-1	1747.3	<44	<44	503	503	175	<9	<2	63.3	30.5	6.1	+ V.Deg.PHC 90%
w	Upstream	1.0	<0.1	<0.1	<0.1	<0.1	< 0.05	< 0.01	< 0.003	0	12	88	Background Organics
w	Downstream	1.0	<0.1	<0.1	<0.1	<0.1	< 0.05	< 0.01	< 0.003	0	8.5	91.5	Background Organics
s	HA-2	492.3	<24.6	<24.6	68.1	68.1	32.6	<2.5	<1.23	50	24.4	25.6	V.Deg.PHC 46.8%
w	TW-1	1.0	<0.1	<0.1	2.9	2.9	1.19	0.02	< 0.003	72.9	23.9	3.2	V.Deg Diesel (est) 76%

Initial Calibrator QC check

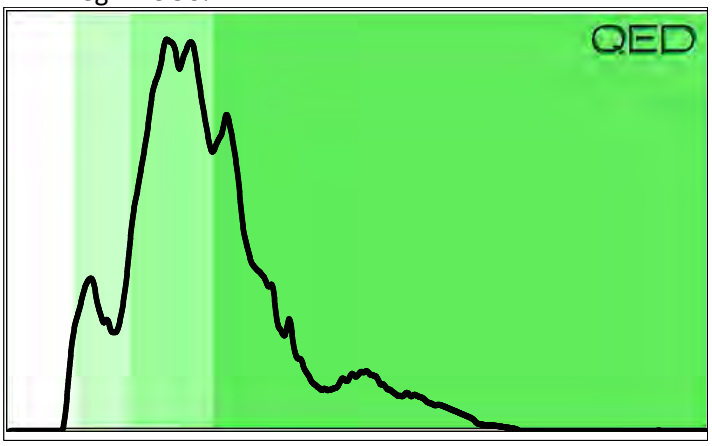
Low Range Calibrator Final check
High Range Calibrator Final check

Results generated by a QED HC-1 analyser
Concentration values in mg/kg for soil samples and mg/L for water samples.
Soil values are not corrected for moisture or stone content

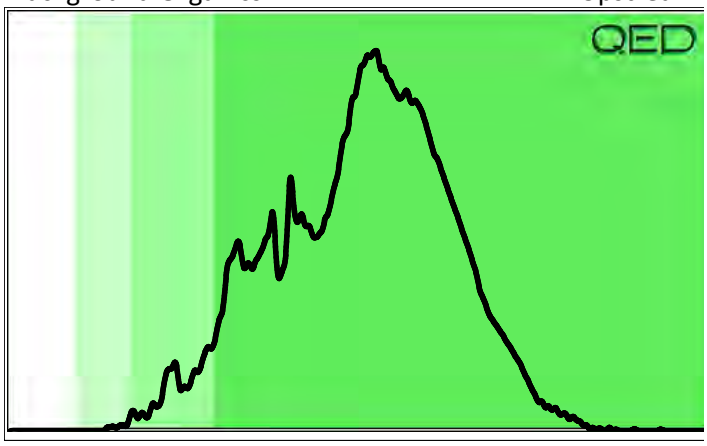
Fingerprints provide a tentative hydrocarbon identification based on operator selected library matches
Fingerprint match abbreviations Est = Specific calibrator not used, result estimated (PFM)= Poor library fingerprint match
(SBS)= site specific background subracted (LBS)= Library background subtracted % = match confidence

Project NCDOT M-0376 Lincoln County **Date** 5/15/2013

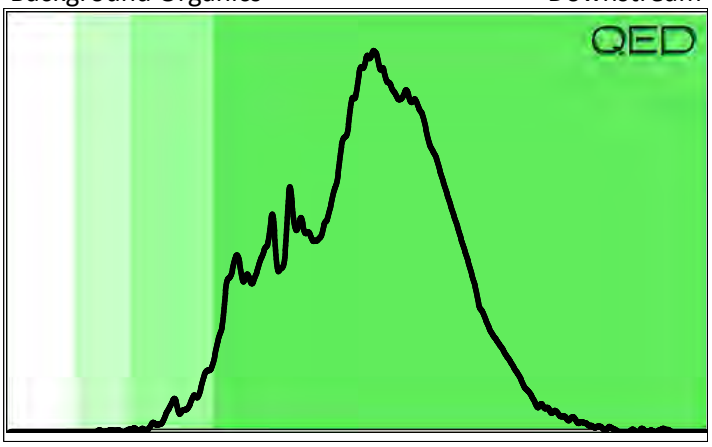
+ V.Deg.PHC 90% HA-1



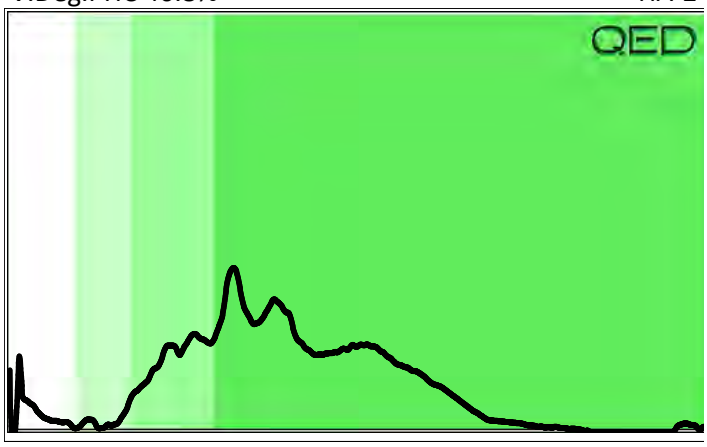
Background Organics Upstream



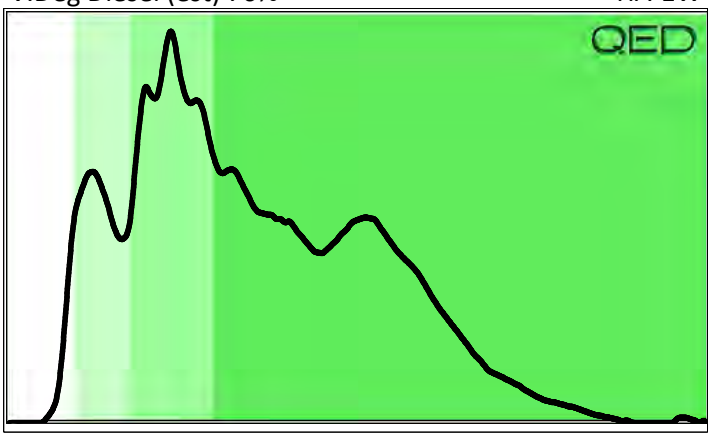
Background Organics Downstream



V.Deg.PHC 46.8% HA-2



V.Deg Diesel (est) 76% HA-1W



QED

AQROS

Hydrocarbon Analysis Results

Client: NCDOT
Address:

Samples taken Thursday, May 16, 2013
Samples extracted Thursday, May 16, 2013
Samples analysed Thursday, May 16, 2013

Contact: Mr. Terry Fox

Operator Ben Whitley

Project: M-0376 Lincoln County

Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	Ratios			HC Fingerprint Match
										% light	% mid	% heavy	
s	HA-3	5724.6	<143	<143	1322	1322	922	67	<6	66.6	27.2	6.2	Creosote (est) 98.3%
s	HA-4	21.0	<1	<1	<1	<1	< 1.05	< 0.1	< 0.052	0	70.7	29.3	PAH
s	HA-5 (3-4')	20.3	<1	<1	2.4	2.4	1.74	< 0.1	< 0.051	64.3	31.6	4.2	V.Deg.PHC 96.5%
s	HA-6 (2-3')	18.2	<0.9	<0.9	<0.9	<0.9	< 0.91	< 0.09	< 0.045	0	100	0	Match not possible
s	HA-7 (2-3')	19.8	<1	<1	2.5	2.5	< 0.99	< 0.1	< 0.05	0	81.6	18.4	V.Deg Fuel (est) 62.1%
s	HA-8 (1-2')	21.8	<1.1	<1.1	3.3	3.3	1.7	0.14	< 0.055	56.2	33.5	10.3	V.Deg.PHC 64.5%
s	HA-9 (1-2')	22.4	<1.1	<1.1	3.8	3.8	2.27	0.14	< 0.056	59.9	28.3	11.8	V.Deg.PHC 58.8%

Initial Calibrator QC check

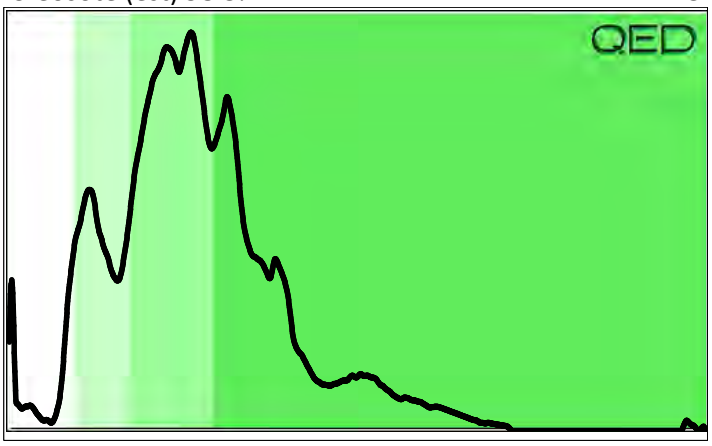
Low Range Calibrator Final check
High Range Calibrator Final check

Results generated by a QED HC-1 analyser
Concentration values in mg/kg for soil samples and mg/L for water samples.
Soil values are not corrected for moisture or stone content

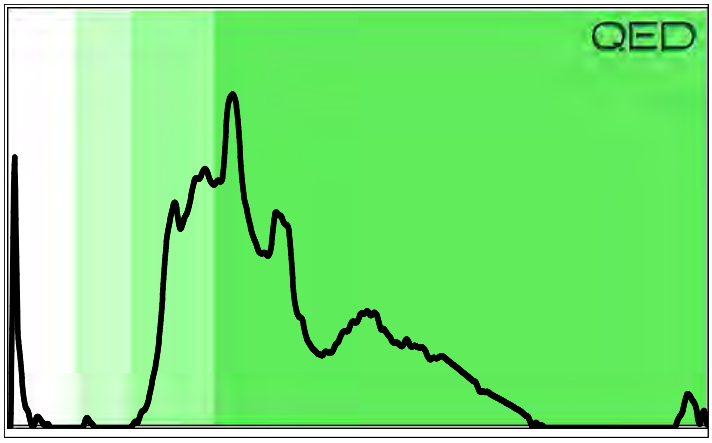
Fingerprints provide a tentative hydrocarbon identification based on operator selected library matches
Fingerprint match abbreviations Est = Specific calibrator not used, result estimated (PFM)= Poor library fingerprint match
(SBS)= site specific background subracted (LBS)= Library background subtracted % = match confidence

Project NCDOT M-0376 Lincoln County **Date** 5/16/2013

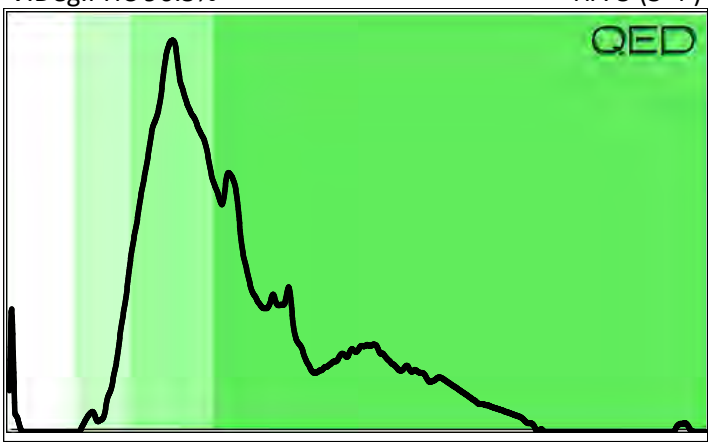
Creosote (est) 98.3% HA-3



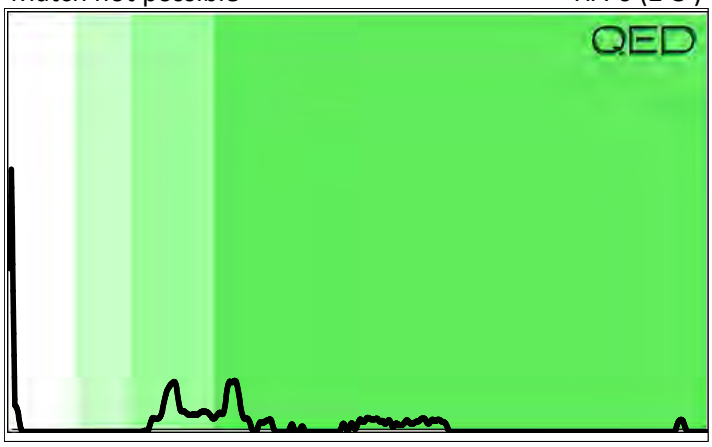
PAH HA-4



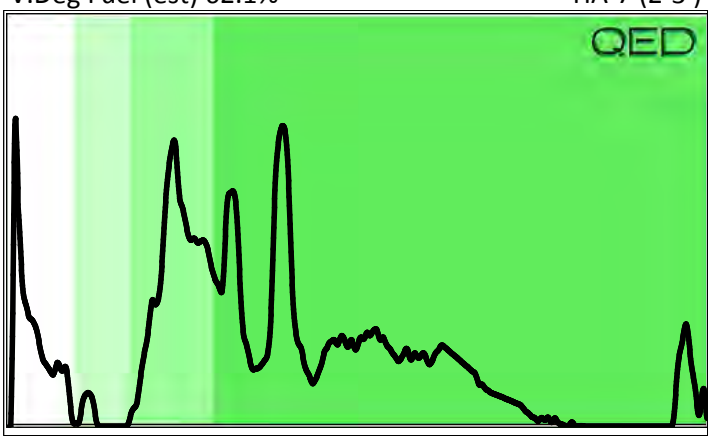
V.Deg.PHC 96.5% HA-5 (3-4')



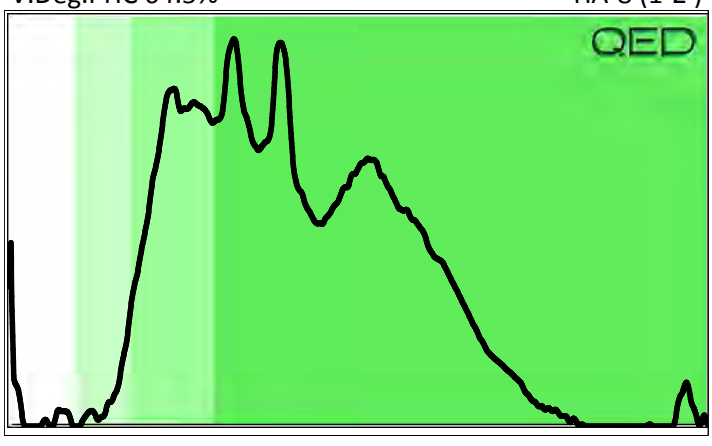
Match not possible HA-6 (2-3')



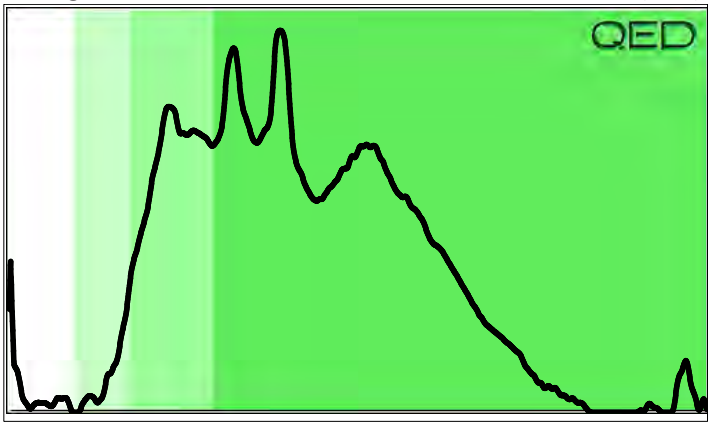
V.Deg Fuel (est) 62.1% HA-7 (2-3')



V.Deg.PHC 64.5% HA-8 (1-2')



V.Deg.PHC 58.8% HA-9 (1-2')



Corporate HQ: 3015 DUMBARTON ROAD RICHMOND, VIRGINIA 23228 T 804.264.2701 F 804.264.1202 www.fandr.com

VIRGINIA • NORTH CAROLINA • SOUTH CAROLINA • MARYLAND • DISTRICT OF COLUMBIA

Form DBE-IS

State of North Carolina
Department of Transportation

Subcontractor Payment Information

Submit with Invoice To: Mr. Steve Rackley, Division Bridge Engineer
North Carolina Department of Transportation
P.O. Box 47
Shelby, NC 28151-0047

Firm Invoice No. Reference _____
NCDOT PO / Contract Number _____
WBS No. (State Project No.) _____
Date of Invoice _____
Signed _____

Invoice Line Item Reference	Payer Name	Payer Federal Tax Id	Subcontractor / Subconsultant / Material Supplier Name	Subcontractor / Subconsultant / Material Supplier Federal Tax Id	Amount Paid To Subcontractor / Subconsultant / Material Supplier This Invoice	Date Paid To Subcontractor / Subconsultant / Material Supplier This Invoice

Total Amount Paid to Subcontractor Firms $ _____

NOTE: - These documents are scanned into our Fiscal program. Please do not highlight or shade the figures.

I certify that this information accurately reflects actual payments made and the dates the payments were made to Subcontractors/Subconsultants/Material Suppliers on the above referenced project.

Signature _____ Title _____

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

LETTER OF INTENT TO PERFORM AS A SUBCONTRACTOR

CONTRACT:	NAME OF BIDDER:

The undersigned intends to perform work in connection with the above contract upon execution of the bid and subsequent award of contract by the Board of Transportation as:

Name of MBE/WBE/DBE Subcontractor_____

Address_____

City_____State_____Zip_____

Please check all that apply:

Minority Business Enterprise (MBE) ☐

Women Business Enterprise (WBE) ☐

Disadvantaged Business Enterprise (DBE) ☐

The MBE /WBE /DBE status of the above named subcontractor is certified by the North Carolina Department of Transportation. The above named subcontractor is prepared to perform the described work listed on the attached MBE/WBE/DBE Commitment Items sheet, in connection with the above contract upon execution of the bid and subsequent award of contract by the Board of Transportation. The above named subcontractor is prepared to perform the described work at the estimated Commitment Total for Subcontractor Price identified on the MBE/WBE/DBE Commitment Items sheet and amount indicated below.

Commitment Total based on estimated Unit Prices and Quantities on the "attached" MBE/WBE/DBE Commitment Items sheet. Amount $ _____

The above named bidder and subcontractor mutually accepts the Commitment Total estimated for the Unit Prices and Quantities. This commitment total is based on estimated quantities only and most likely will vary up or down as the project is completed. Final compensation will be based on actual quantities of work performed and accepted during the pursuance of work. The above listed amount represents the entire dollar amount quoted based on these estimated quantities. No conversations, verbal agreements, and/or other forms of non-written representations shall serve to add, delete, or modify the terms as stated.

This document shall not serve in any manner as an actual subcontract between the two parties. A separate subcontractor agreement will describe in detail the contractual obligations of the bidder and the MBE/WBE/DBE subcontractor.

Affirmation

The above named MBE/ WBE/ DBE subcontractor affirms that it will perform the portion(s) of the contract for the estimated dollar value as stated above.

Name of MBE/ WBE/ DBE Subcontractor	**Name of Bidder**
Signature / Title	**Signature / Title**
Date	**Date**

LISTING OF MBE/WBE SUBCONTRACTORS			Sheet _____ of _____		
Firm Name and Address	Circle One	Item No.	Item Description	* Agreed upon Unit Price	** Dollar Volume of Item
Name Address	MBE WBE				
Name Address	MBE WBE				
Name Address	MBE WBE				
Name Address	MBE WBE				
Name Address	MBE WBE				
Name Address	MBE WBE				
Name Address	MBE WBE				

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

** Dollar Volume of MBE/WBE Subcontractor Percentage of Total Contract Bid Price:
If firm is a Material Supplier Only, show Dollar Volume as 60% of Agreed Upon Amount from Letter of Intent.
If firm is a Manufacturer, show Dollar Volume as 100% of Agreed Upon Amount from Letter of Intent.

LISTING OF MBE/WBE SUBCONTRACTORS

Sheet _____ of _____

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

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

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

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

MBE Percentage of Total Contract Bid Price _____%

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

WBE Percentage of Total Contract Bid Price _____%

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

Contract No. _____ Rev. 7-12-10

County _____

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

CORPORATION

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

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

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

SIGNATURE OF CONTRACTOR

_____

Full name of Corporation

_____

Address as Prequalified

Attest _____ By _____

Secretary/Assistant Secretary
Select appropriate title

President/Vice President/Assistant Vice President
Select appropriate title

_____ _____

Print or type Signer's name

Print or type Signer's name

CORPORATE SEAL

AFFIDAVIT MUST BE NOTARIZED

Subscribed and sworn to before me this the

_____ day of _____ 20__.

NOTARY SEAL

_____

Signature of Notary Public

of _____County

State of _____

My Commission Expires:_____

Contract No. _____ Rev. 7-12-10

County _____

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

PARTNERSHIP

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

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

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

SIGNATURE OF CONTRACTOR

_____
Full Name of Partnership

_____
Address as Prequalified

_____ By _____
Signature of Witness Signature of Partner

_____ _____
Print or type Signer's name Print or type Signer's name

AFFIDAVIT MUST BE NOTARIZED

Subscribed and sworn to before me this the **NOTARY SEAL**

_____ day of _____ 20__.

_____
Signature of Notary Public

of _____County

State of _____

My Commission Expires:_____

Contract No. _____ Rev. 7-12-10

County _____

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

LIMITED LIABILITY COMPANY

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

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

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

SIGNATURE OF CONTRACTOR

_____
Full Name of Firm

_____
Address as Prequalified

_____ Signature of Manager _____
Signature of Witness Individually

_____ _____
Print or type Signer's name Print or type Signer's Name

AFFIDAVIT MUST BE NOTARIZED

Subscribed and sworn to before me this the **NOTARY SEAL**

_____ day of _____ 20__.

_____
Signature of Notary Public

of _____County

State of _____

My Commission Expires:_____

Contract No. _____ Rev. 7-12-10

County _____

EXECUTION OF BID
NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION
JOINT VENTURE (2) or (3)

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

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

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

SIGNATURE OF CONTRACTOR

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

(1) _____
Name of Joint Venture

(2) _____
Name of Contractor

_____
Address as Prequalified

_____ By _____
Signature of Witness or Attest — Signature of Contractor

_____ _____
Print or type Signer's name — Print or type Signer's name

If Corporation, affix Corporate Seal and

(3) _____
Name of Contractor

_____
Address as Prequalified

_____ By _____
Signature of Witness or Attest — Signature of Contractor

_____ _____
Print or type Signer's name — Print or type Signer's name

If Corporation, affix Corporate Seal and

(4) _____
Name of Contractor *(for 3 Joint Venture only)*

_____
Address as Prequalified

_____ By _____
Signature of Witness or Attest — Signature of Contractor

_____ _____
Print or type Signer's name — Print or type Signer's name

If Corporation, affix Corporate Seal

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

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

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

Contract No. _____ Rev. 7-12-10

County _____

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

INDIVIDUAL DOING BUSINESS UNDER A FIRM NAME

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

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

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

SIGNATURE OF CONTRACTOR

Name of Contractor _____
Individual name

Trading and doing business as _____
Full name of Firm

_____
Address as Prequalified

_____ _____
Signature of Witness Signature of Contractor, Individually

_____ _____
Print or type Signer's name Print or type Signer's name

AFFIDAVIT MUST BE NOTARIZED

Subscribed and sworn to before me this the

NOTARY SEAL

_____ day of _____ 20__.

_____
Signature of Notary Public

of _____County

State of _____

My Commission Expires:_____

Contract No. _____ Rev. 7-12-10

County _____

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

INDIVIDUAL DOING BUSINESS IN HIS OWN NAME

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

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

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

SIGNATURE OF CONTRACTOR

Name of Contractor _____

Print or type Individual name

_____

Address as Prequalified

_____

Signature of Contractor, Individually

_____

Print or type Signer's Name

_____

Signature of Witness

_____

Print or type Signer's name

AFFIDAVIT MUST BE NOTARIZED

Subscribed and sworn to before me this the

NOTARY SEAL

_____ day of _____ 20__.

_____

Signature of Notary Public

of _____County

State of _____

My Commission Expires:_____

Contract No. _____ Rev. 7-12-10

County _____

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. _____ Rev. 7-12-10

County _____

DEBARMENT CERTIFICATION

The prequalified bidder certifies to the best of his knowledge and belief, that he and his principals:

a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

b. Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records; making false statements; or receiving stolen property;

c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph b. of this certification; and

d. Have not within a three-year period preceding this proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

e. Will submit a revised Debarment Certification immediately if his status changes and will show in his bid proposal an explanation for the change in status.

If the prequalified bidder cannot certify that he is not debarred, he shall provide an explanation with this submittal. An explanation will not necessarily result in denial of participation in a contract.

Failure to submit a non-collusion affidavit and debarment certification will result in the prequalified bidder's bid being considered non-responsive.

☐ Check here if an explanation is attached to this certification.

County : Lincoln

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
			ROADWAY ITEMS			
0001	0000100000-N	800	MOBILIZATION	Lump Sum	L.S.	
0002	0000400000-N	801	CONSTRUCTION SURVEYING	Lump Sum	L.S.	
0003	0030000000-N	SP	BRIDGE APPROACH FILL - SUB REGIONAL TIER, STATION ******* (STA 14+52.94-L-)	Lump Sum	L.S.	
0004	0043000000-N	226	GRADING	Lump Sum	L.S.	
0005	0255000000-E	SP	GENERIC GRADING ITEM DIPOSAL OF PETROLEUM CONTAMINA TED SOIL	189 TON		
0006	0318000000-E	300	FOUNDATION CONDITIONING MATE-RIAL, MINOR STRUCTURES	10 TON		
0007	0320000000-E	300	FOUNDATION CONDITIONING GEO-TEXTILE	20 SY		
0008	0372000000-E	310	18" RC PIPE CULVERTS, CLASS III	24 LF		
0009	0588000000-E	310	18" CS PIPE CULVERTS, 0.064" THICK	24 LF		
0010	0636000000-E	310	**" CS PIPE ELBOWS, ******" THICK (18", 0.064")	2 EA		
0011	0995000000-E	340	PIPE REMOVAL	25 LF		
0012	1220000000-E	545	INCIDENTAL STONE BASE	1 TON		
0013	1489000000-E	610	ASPHALT CONC BASE COURSE, TYPE B25.0B	203 TON		
0014	1498000000-E	610	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B	124 TON		
0015	1519000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	253 TON		
0016	1575000000-E	620	ASPHALT BINDER FOR PLANT MIX	35 TON		
0017	2286000000-N	840	MASONRY DRAINAGE STRUCTURES	2 EA		

County : Lincoln

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0018	2367000000-N	840	FRAME WITH TWO GRATES, STD 840.29	2 EA		
0019	2556000000-E	846	SHOULDER BERM GUTTER	26 LF		
0020	3030000000-E	862	STEEL BM GUARDRAIL	362.5 LF		
0021	3150000000-N	862	ADDITIONAL GUARDRAIL POSTS	5 EA		
0022	3215000000-N	862	GUARDRAIL ANCHOR UNITS, TYPE III	4 EA		
0023	3270000000-N	SP	GUARDRAIL ANCHOR UNITS, TYPE 350	4 EA		
0024	3659000000-N	SP	PREFORMED SCOUR HOLES WITH LEVEL SPREADER APRON	1 EA		
0025	4400000000-E	1110	WORK ZONE SIGNS (STATIONARY)	366 SF		
0026	4410000000-E	1110	WORK ZONE SIGNS (BARRICADE MOUNTED)	119 SF		
0027	4445000000-E	1145	BARRICADES (TYPE III)	80 LF		
0028	4810000000-E	1205	PAINT PAVEMENT MARKING LINES (4")	3,680 LF		
0029	6000000000-E	1605	TEMPORARY SILT FENCE	795 LF		
0030	6009000000-E	1610	STONE FOR EROSION CONTROL, CLASS B	60 TON		
0031	6012000000-E	1610	SEDIMENT CONTROL STONE	150 TON		
0032	6015000000-E	1615	TEMPORARY MULCHING	0.5 ACR		
0033	6018000000-E	1620	SEED FOR TEMPORARY SEEDING	50 LB		
0034	6021000000-E	1620	FERTILIZER FOR TEMPORARY SEED-ING	0.25 TON		
0035	6024000000-E	1622	TEMPORARY SLOPE DRAINS	200 LF		
0036	6029000000-E	SP	SAFETY FENCE	100 LF		

County : Lincoln

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0037	6030000000-E	1630	SILT EXCAVATION	80 CY		
0038	6036000000-E	1631	MATTING FOR EROSION CONTROL	590 SY		
0039	6038000000-E	SP	PERMANENT SOIL REINFORCEMENT MAT	60 SY		
0040	6042000000-E	1632	1/4" HARDWARE CLOTH	115 LF		
0041	6070000000-N	1639	SPECIAL STILLING BASINS	6 EA		
0042	6071020000-E	SP	POLYACRYLAMIDE (PAM)	15 LB		
0043	6084000000-E	1660	SEEDING & MULCHING	0.5 ACR		
0044	6087000000-E	1660	MOWING	0.5 ACR		
0045	6090000000-E	1661	SEED FOR REPAIR SEEDING	50 LB		
0046	6093000000-E	1661	FERTILIZER FOR REPAIR SEEDING	0.25 TON		
0047	6096000000-E	1662	SEED FOR SUPPLEMENTAL SEEDING	50 LB		
0048	6108000000-E	1665	FERTILIZER TOPDRESSING	0.5 TON		
0049	6114500000-N	1667	SPECIALIZED HAND MOWING	10 MHR		
0050	6117000000-N	SP	RESPONSE FOR EROSION CONTROL	8 EA		
0051	8021000000-N	SP	REMOVAL OF EXISTING STRUCTURE AT STATION ********** (STA 14+52.94-L-)	Lump Sum	L.S.	
0052	8105520000-E	411	3'-0" DIA DRILLED PIERS IN SOIL	36 LF		
0053	8105620000-E	411	3'-0" DIA DRILLED PIERS NOT IN SOIL	33 LF		
0054	8111200000-E	411	PERMANENT STEEL CASING FOR 3'-0" DIA DRILLED PIER	48 LF		
0055	8112730000-N	450	PDA TESTING	1 EA		

County : Lincoln

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0056	8113000000-N	411	SID INSPECTIONS	1 EA		
0057	8115000000-N	411	CSL TESTING	1 EA		
0058	8121000000-N	412	UNCLASSIFIED STRUCTURE EXCAVATION AT STATION ******** (STA 14+52.94-L-)	Lump Sum	L.S.	
0059	8182000000-E	420	CLASS A CONCRETE (BRIDGE)	55.3 CY		
0060	8210000000-N	422	BRIDGE APPROACH SLABS, STATION ********** (STA 14+52.94-L-)	Lump Sum	L.S.	
0061	8217000000-E	425	REINFORCING STEEL (BRIDGE)	14,959 LB		
0062	8238000000-E	425	SPIRAL COLUMN REINFORCING STEEL (BRIDGE)	1,832 LB		
0063	8364000000-E	450	HP12X53 STEEL PILES	280 LF		
0064	8391000000-N	450	STEEL PILE POINTS	10 EA		
0065	8505000000-E	460	VERTICAL CONCRETE BARRIER RAIL	230.5 LF		
0066	8594000000-E	876	RIP RAP, CLASS B	25 TON		
0067	8608000000-E	876	RIP RAP CLASS II (2'-0" THICK)	440 TON		
0068	8622000000-E	876	GEOTEXTILE FOR DRAINAGE	550 SY		
0069	8657000000-N	430	ELASTOMERIC BEARINGS	Lump Sum	L.S.	
0070	8762000000-E	430	3'-0" X 1'-9" PRESTRESSED CONC CORED SLABS	405 LF		
0071	8763000000-E	430	3'-0" X 2'-0" PRESTRESSED CONC CORED SLABS	630 LF		

NOTE: CONTRACT QUANTITIES ARE APPROXIMATE AND USED FOR DETERMINING THE LOWEST RESPONSIBLE BIDDER ONLY. NO MINIMUM OR MAXIMUM AMOUNT OF WORK IS GUARANTEED UNDER THIS CONTRACT.

TOTAL BID FOR PROJECT: _____

CONTRACTOR _____

ADDRESS _____

PHONE NO. _____

Federal Identification Number _____ Contractors License Number _____

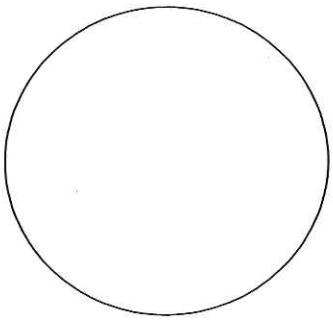
Authorized Agent _____ Title _____

Signature _____ Date _____

Witness _____ Title _____

Signature _____ Date _____

Corporate Seal



Contract No. _____ Rev. 4-19-11
County _____

STATE OF NORTH CAROLINA

BID BOND

Principal: _____
Name of Principal Contractor

Surety: _____
Name of Surety

Contract Number: _____ County: _____

Date of Bid: _____

KNOW ALL MEN BY THESE PRESENTS, That we, the PRINCIPAL CONTRACTOR (hereafter, PRINCIPAL) and SURETY above named, are held and firmly bound unto the Department of Transportation in the full and just sum of five (5) percent of the total amount bid by the Principal for the project stated above, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

NOW, THEREFORE, the condition of this obligation is: the Principal shall not withdraw its bid within sixty (60) days after the opening of the bids, or within such other time period as may be provided in the proposal, and if the Board of Transportation shall award a contract to the Principal, the Principal shall, within fourteen (14) calendar days after written notice of award is received by him, provide bonds with good and sufficient surety, as required for the faithful performance of the contract and for the protection of all persons supplying labor, material, and equipment for the prosecution of the work. In the event the Principal requests permission to withdraw his bid due to mistake in accordance with the provisions of Article 103-3 of the *Standard Specifications for Roads and Structures*, the conditions and obligations of this Bid Bond shall remain in full force and effect until the Department of Transportation makes a final determination to either allow the bid to be withdrawn or to proceed with award of the contract. In the event a determination is made to award the contract, the Principal shall have fourteen (14) calendar days to comply with the requirements set forth above. In the event the Principal withdraws its bid after bids are opened except as provided in Article 103-3, or after award of the contract has been made fails to execute such additional documents as may be required and to provide the required bonds within the time period specified above, then the amount of the bid bond shall be immediately paid to the Department of Transportation as liquidated damages.

IN TESTIMONY WHEREOF, the Principal and Surety have caused these presents to be duly signed and sealed.

This the _____ day of _____, 20 _____

_____
Surety

By _____
General Agent or Attorney-in-Fact Signature

Seal of Surety

_____
Print or type Signer's Name

Contract No. _____ Rev. 4-19-11
County _____

BID BOND

CORPORATION

SIGNATURE OF CONTRACTOR (Principal)

_____

Full name of Corporation

_____

Address as prequalified

By _____

Signature of **President**, **Vice President**, **Assistant Vice President**
Select appropriate title

_____

Print or type Signer's name

Affix Corporate Seal

Attest _____

Signature of **Secretary**, **Assistant Secretary**
Select appropriate title

_____

Print or type Signer's name

BID BOND

LIMITED LIABILITY COMPANY

SIGNATURE OF CONTRACTOR (Principal)

Name of Contractor _____
Full name of Firm

_____
Address as prequalified

Signature of Member/ Manager/Authorized Agent _____
Individually

_____
Print or type Signer's name

Contract No. _____ Rev. 4-19-11
County _____

BID BOND

INDIVIDUAL DOING BUSINESS UNDER A FIRM NAME

SIGNATURE OF CONTRACTOR (Principal)

Name of Contractor _____
Individual Name

Trading and doing business as _____
Full name of Firm

_____
Address as prequalified

Signature of Contractor _____
Individually

_____
Print or type Signer's name

_____
Signature of Witness

_____
Print or type Signer's name

Contract No. _____ Rev. 4-19-11
County _____

BID BOND

INDIVIDUAL DOING BUSINESS IN HIS OWN NAME

SIGNATURE OF CONTRACTOR (Principal)

Name of Contractor _____
Print or type Individual Name

_____
Address as prequalified

Signature of Contractor _____
Individually

_____
Print or type Signer's name

_____
Signature of Witness

_____
Print or type Signer's name

Contract No. _____ Rev. 4-19-11
County _____

BID BOND

PARTNERSHIP

SIGNATURE OF CONTRACTOR (Principal)

_____
Full name of Partnership

_____
Address as prequalified

By _____
Signature of Partner

_____
Print or type Signer's name

_____
Signature of Witness

_____
Print or type Signer's name

Contract No. _____ Rev. 4-19-11
County _____

BID BOND
JOINT VENTURE (2 or 3)
SIGNATURE OF CONTRACTORS (Principal)

Instructions to Bidders: **2 Joint Ventures**, Fill in lines (1), (2) and (3) and execute. **3 Joint Venturers** Fill in lines (1), (2), (3), (4) and execute. Line (1), print or type the name of Joint Venture. On line (2), print or type the name of one of the joint venturers and execute below in the appropriate manner required by Article 102-8 of the *Specifications*. On Line (3), print or type the name of second joint venturer and execute below in the appropriate manner required by said article of the Specifications. On Line (4), print or type the name of the third joint venturer, if applicable and execute below in the appropriate manner required by said article of the Specifications. This form of execution must be strictly followed.

(1) _____
Name of Joint Venture

(2) _____
Name of Contractor

_____
Address as prequalified

_____		_____
Signature of Witness or Attest	By	Signature of Contractor
_____		_____
Print or type Signer's name		Print or type Signer's name

If Corporation, affix Corporate Seal

and

(3) _____
Name of Contractor

_____
Address as prequalified

_____		_____
Signature of Witness or Attest	By	Signature of Contractor
_____		_____
Print or type Signer's name		Print or type Signer's name

If Corporation, affix Corporate Seal

and

(4) _____
Name of Contractor *(for 3 Joint Venture only)*

_____
Address as prequalified

_____		_____
Signature of Witness or Attest	By	Signature of Contractor
_____		_____
Print or type Signer's name		Print or type Signer's name

If Corporation, affix Corporate Seal