

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

C203332

CONTRACT AND
CONTRACT BONDS

FOR CONTRACT NO. C203332

WBS 34416.3.3, 34416.3.4 STATE FUNDED

T.I.P NO. R-2303A, R-2303B

COUNTY OF CUMBERLAND, SAMPSON

THIS IS THE ROADWAY & STRUCTURE CONTRACT

ROUTE NUMBER NC 24 LENGTH 13.506 MILES

LOCATION NC-24 FROM WEST OF SR-1006 (MAXWELL RD/CLINTON RD) TO
SR-1404 (DOWDY RD) IN SAMPSON COUNTY.

CONTRACTOR BARNHILL CONTRACTING COMPANY

ADDRESS P.O. BOX 1529

TARBORO, NC 278861529

BIDS OPENED MAY 21, 2013

CONTRACT EXECUTION JUN 14 2013

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

PROPOSAL

**PROPOSAL NO. 3
CLUSTER**

DATE AND TIME OF BID OPENING: **MAY 21, 2013 AT 2:00 PM**

CONTRACT ID C203332
WBS 34416.3.3, 34416.3.4

FEDERAL-AID NO. STATE FUNDED
COUNTY CUMBERLAND, SAMPSON
T.I.P. NO. R-2303A, R-2303B
MILES 13.506
ROUTE NO. NC 24
LOCATION NC-24 FROM WEST OF SR-1006 (MAXWELL RD/CLINTON RD) TO
SR-1404 (DOWDY RD) IN SAMPSON COUNTY.
TYPE OF WORK GRADING, DRAINAGE, PAVING, SIGNALS, AND STRUCTURE.

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. NOT WITHSTANDING THESE LIMITATIONS ON BIDDING, THE BIDDER WHO IS AWARDED ANY PROJECT SHALL COMPLY WITH CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA FOR LICENSING REQUIREMENTS WITHIN 60 CALENDAR DAYS OF BID OPENING, REGARDLESS OF FUNDING SOURCES.

BIDS WILL BE RECEIVED AS SHOWN BELOW:

THIS IS A ROADWAY & STRUCTURE PROPOSAL

5% BID BOND OR BID DEPOSIT REQUIRED

**PROPOSAL FOR THE CONSTRUCTION OF
CONTRACT No. C203332 IN CUMBERLAND AND SAMPSON COUNTIES, 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. C203332; has carefully examined the plans and specifications, which are acknowledged to be part of the proposal, the special provisions, the proposal, the form of contract, and the forms of contract payment bond and contract performance bond; and thoroughly understands the stipulations, requirements and provisions. The undersigned bidder agrees to bound upon his execution of the bid and subsequent award to him by the Board of Transportation in accordance with this proposal to provide the necessary contract payment bond and contract performance bond within fourteen days after the written notice of award is received by him. The undersigned Bidder further agrees to provide all necessary machinery, tools, labor, and other means of construction; and to do all the work and to furnish all materials, except as otherwise noted, necessary to perform and complete the said contract in accordance with the *2012 Standard Specifications for Roads and Structures* by the dates(s) specified in the Project Special Provisions and in accordance with the requirements of the Engineer, and at the unit or lump sum prices, as the case may be, for the various items given on the sheets contained herein.

The Bidder shall provide and furnish all the materials, machinery, implements, appliances and tools, and perform the work and required labor to construct and complete State Highway Contract No. C203332 in Cumberland and Sampson Counties, for the unit or lump sum prices, as the case may be, bid by the Bidder in his bid and according to the proposal, plans, and specifications prepared by said Department, which proposal, plans, and specifications show the details covering this project, and hereby become a part of this contract.

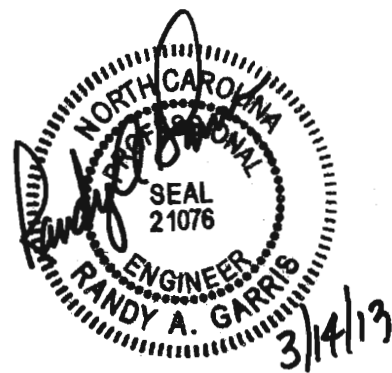
The published volume entitled *North Carolina Department of Transportation, Raleigh, Standard Specifications for Roads and Structures, January 2012* with all amendments and supplements thereto, is by reference incorporated into and made a part of this contract; that, except as herein modified, all the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

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

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

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

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



State Contract Officer

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PROJECT SPECIAL PROVISIONS**GENERAL****NOTICE TO BIDDERS (2 projects):**

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

103

SP1 G03 A

TIP R-2303A Cumberland County

Project Description: NC 24 from West of SR 1006 (Maxwell Road/Clinton Road) in Cumberland County to SR 1853 (John Nunnery Road).

TIP R-2303B Cumberland and Sampson Counties

Project Description: NC 24 from SR 1853 (John Nunnery Road) in Cumberland County to SR 1404 (Dowdy Road) in Sampson County.

On the above projects, the following Proposals are available.

Proposal No. 1

TIP R-2303A

Proposal No. 2

TIP R-2303B

Combined Proposal No. 3

TIP R-2303A and R-2303B

Contractors may submit bids on Proposal No. 1, Proposal No. 2, the Combined Proposal No. 3, (which includes the 2 projects), or on any combination of Proposals No. 1, 2, or 3. The selection of the low bidder will be made as described below:

In determining the low bidder on these projects, the lowest bid received on Proposal No. 1 and Proposal No. 2, will be added together and the resulting total will be compared with the lowest bid received on the Combined Proposal No. 3. In the event the lowest bid on the Combined Proposal No. 3 is equal to or less than the total of the lowest bids on Proposal No. 1 and Proposal No. 2, the Contractor submitting the lowest bid on the Combined Proposal No. 3 will be considered the low bidder. In the event the lowest bid on the Combined Proposal No. 3 is higher than the total of the lowest bids on Proposal No. 1 and Proposal No. 2; or if no bid has been received on the Combined Proposal No. 3, the Contractors who have submitted the lowest bid on Proposal No. 1 and Proposal No. 2, will be considered the low bidders.

If a bid is received for the Combined Proposal No. 3 and acceptable bids are not received on each of Proposal No. 1 and Proposal No. 2, the evaluation of bids for determining the low bidder(s) will be made so as to result in the best advantage to the Department.

These procedures are for the determination of the low bidder only and should not be confused with the award of the contract that will be by the Department as usual. Nothing in this provision shall be construed as invalidating any right reserved to the Department in Article 103-1 of the *2012 Standard Specifications*.

CONTRACT TIME AND LIQUIDATED DAMAGES:

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

108

SP1 G07 A

The date of availability for this contract is **July 1, 2013**, except that work in jurisdictional waters and wetlands shall not begin until a meeting between the DOT, Regulatory Agencies, and the Contractor is held as stipulated in the permits contained elsewhere in this proposal. This delay in availability has been considered in determining the contract time for this project.

The completion date for this contract is **March 14, 2017**.

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

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

INTERMEDIATE CONTRACT TIME NUMBER 1 AND LIQUIDATED DAMAGES:

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

108

SP1 G13 A

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

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

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

The liquidated damages for this intermediate contract time are **Four Thousand Dollars (\$4,000.00)** per calendar day.

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

INTERMEDIATE CONTRACT TIME NUMBER 2 AND LIQUIDATED DAMAGES:

(2-20-07)

108

SPI G14 A

The Contractor shall complete the required work of installing, maintaining, and removing the traffic control devices for lane closures and restoring traffic to the **2-lane, 2-way** traffic pattern. The Contractor shall not close or narrow a lane of traffic on **NC 24** during the following time restrictions:

DAY AND TIME RESTRICTIONS

**Monday through Friday
from 7:00 A.M. to 9:00 A.M. and 4:00 P.M. to 6:00 P.M.**

In addition, the Contractor shall not close or narrow a lane of traffic on **NC 24**, detain and/or alter the traffic flow on or during holidays, holiday weekends, special events, or any other time when traffic is unusually heavy, including the following schedules:

HOLIDAY AND HOLIDAY WEEKEND LANE CLOSURE RESTRICTIONS

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

If **Independence Day** is on a Friday, Saturday, Sunday or Monday, then between the hours of **7:00 a.m.** the Thursday before Independence Day and **6:00 p.m.** the Tuesday after Independence Day.
6. For **Labor Day**, between the hours of **7:00 a.m.** Friday and **6:00 p.m.** Tuesday.
7. For **Thanksgiving Day**, between the hours of **7:00 a.m.** Tuesday and **6:00 p.m.** Monday.
8. For **Christmas**, between the hours of **7:00 a.m.** the Friday before the week of Christmas Day and **6:00 p.m.** the following Tuesday after the week of Christmas Day.

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

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

The completion time for this intermediate contract work shall be the time the Contractor is required to complete the removal of all traffic control devices for lane closures according to the time restrictions stated above and place traffic in the **2-lane, 2-way** traffic pattern.

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

INTERMEDIATE CONTRACT TIME NUMBER 3 AND LIQUIDATED DAMAGES:

(2-20-07)

108

SP1 G14 H

The Contractor shall complete the work required **on Project R-2303B of Phase I, Step 3 (-Y15-)** as shown on Sheet **TCP-3** and shall place and maintain traffic on same.

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

The completion date for this intermediate contract time is the date which is **thirty five (35)** consecutive calendar days after and including the date the Contractor begins this work.

The liquidated damages are **One Thousand Five Hundred Dollars (\$1,500.00)** per calendar day.

INTERMEDIATE CONTRACT TIME NUMBER 4 AND LIQUIDATED DAMAGES:

(2-20-07)

108

SP1 G14 H

The Contractor shall complete the work required **on Project R-2303B of Phase III, Steps 1 and 2 (-Y13-)** as shown on Sheet **TMP-3A** and shall place and maintain traffic on same.

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

The completion date for this intermediate contract time is the date which is **thirty five (35)** consecutive calendar days after and including the date the Contractor begins this work.

The liquidated damages are **One Thousand Five Hundred Dollars (\$1,500.00)** per calendar day.

PERMANENT VEGETATION ESTABLISHMENT:

(2-16-12)

104

SP1 G16

Establish a permanent stand of the vegetation mixture shown in the contract. During the period between initial vegetation planting and final project acceptance, perform all work necessary to establish 80% coverage of permanent vegetation within the project limits, as well as, in borrow and waste pits. This work shall include erosion control device maintenance and installation, repair seeding and mulching, supplemental seeding and mulching, mowing, and fertilizer topdressing, as directed. All work shall be performed in accordance with the applicable section of the *2012 Standard Specifications*.

Once the Engineer has determined that 80% coverage of permanent vegetation has been established, the Contractor will be notified to remove the remaining erosion control devices that are no longer needed. The Contractor will be responsible for, and shall correct any areas disturbed by operations performed in permanent vegetation establishment and the removal of temporary erosion control measures, whether occurring prior to or after placing traffic on the project.

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

MAJOR CONTRACT ITEMS:

(2-19-02)

104

SP1 G28

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

Line #	Description
12	Borrow Excavation
61	Aggregate Base Course
67	Asphalt Concrete Intermediate Course, Type I19.0C
69	Asphalt Concrete Surface Course, Type S9.5C

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
99 thru 109, 127	Guardrail
110 thru 126	Fencing
133 thru 138	Signing
154 thru 161	Long-Life Pavement Markings
162	Removable Tape
172	Permanent Pavement Markers
173 thru 222	Utility Construction
223 thru 257	Erosion Control
258 thru 259	Reforestation
260 thru 281	Signals/ITS System

FUEL PRICE ADJUSTMENT:

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

109-8

SP1 G43

Revise the 2012 *Standard Specifications* as follows:

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

The base index price for DIESEL #2 FUEL is **\$3.1631** per gallon. Where any of the following are included as pay items in the contract, they will be eligible for fuel price adjustment.

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

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

PAYOUT SCHEDULE:

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

108

SP1 G57

Submit an Anticipated Monthly Payout Schedule prior to beginning construction. The Anticipated Monthly Payout Schedule will be used by the Department to monitor funding levels for this project. Include a monthly percentage breakdown (in terms of the total contract amount) of the work anticipated to be completed. The schedule should begin with the date the Contractor plans to begin construction and end with the anticipated completion date. Submit updates of the Anticipated Monthly Payout Schedule on March 15, June 15, September 15, and December 15 of each calendar year until project acceptance. Submit the original Anticipated Monthly Payout Schedule and all subsequent updates to the Resident Engineer with a copy to the State Construction Engineer at 1 South Wilmington Street, 1543 Mail Service Center, Raleigh, NC 27699-1543.

SCHEDULE OF ESTIMATED COMPLETION PROGRESS:

(7-15-08) (Rev. 6-19-12)

108-2

SP1 G58

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

	<u>Fiscal Year</u>	<u>Progress (% of Dollar Value)</u>
2014	(7/01/13 - 6/30/14)	43% of Total Amount Bid
2015	(7/01/14 - 6/30/15)	33% of Total Amount Bid
2016	(7/01/15 - 6/30/16)	21% of Total Amount Bid
2017	(7/01/16 - 6/30/17)	3% of Total Amount Bid

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

MINORITY BUSINESS ENTERPRISE AND WOMEN BUSINESS ENTERPRISE:

(10-16-07)(Rev. 1-17-12)

102-15(J)

SP1 G66

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, unless the additional participation is used for banking purposes.

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

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

JC-1 Joint Check Notification Form - Form and procedures for joint check notification. The form acts as a written joint check agreement among the parties providing full and prompt disclosure of the expected use of joint checks.
https://apps.dot.state.nc.us/_includes/download/external.html?pdf=http%3A/www.ncdot.gov/doh/forms/files/JC-1.pdf

Letter of Intent - Form signed by the Contractor and the 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://www.ncdot.org/doh/preconstruct/ps/contracts/letterofintent.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://www.ncdot.gov/doh/preconstruct/ps/word/MISC3.doc>

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

http://www.ncdot.gov/business/ocs/goodfaith/excel/Ex_Subcontractor_Quote_Comparison.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 7.0 %

- (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 7.0 %

- (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 above the goal for which letters of intent are received will follow the banking guidelines found elsewhere in this provision. All other additional MBE/WBE subcontractor participation submitted at the time of bid will be used toward the Department's overall race-neutral goals. Only those firms with current MBE and WBE certification at the time of bid opening will be acceptable for listing in the bidder's submittal of MBE and WBE participation. The Contractor shall indicate the following required information:

(A) Electronic Bids

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

- (1) Submit the names and addresses of MBE and WBE firms identified to participate in the contract. If the bidder uses the updated listing of MBE and WBE firms shown in Expedite, the bidder may use the dropdown menu to access the name and address of the firms.
- (2) Submit the contract line numbers of work to be performed by each MBE and WBE firm. When no figures or firms are entered, the bidder will be considered to have no MBE or WBE participation.
- (3) The bidder shall be responsible for ensuring that the MBE and WBE are certified at the time of bid by checking the Directory of Transportation Firms. If the firm is not certified at the time of the bid-letting, that MBE's or WBE's participation will not count towards achieving either the MBE or WBE goal.

(B) Paper Bids

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.

- (1) *If either the MBE or WBE goal is more than zero,*
 - (a) Bidders, at the time the bid proposal is submitted, shall submit a listing of MBE/WBE participation, including the names and addresses on *Listing of MBE and WBE Subcontractors* contained elsewhere in the contract documents in order for the bid to be considered responsive. Bidders shall indicate the total dollar value of the MBE and WBE participation for the contract.
 - (b) If bidders have no MBE or WBE participation, they shall indicate this on the *Listing of MBE and WBE Subcontractors* by entering the word "None" or the number "0." This form shall be completed in its entirety.

- (c) The bidder shall be responsible for ensuring that the MBE/WBE is certified at the time of bid by checking the Directory of Transportation Firms. If the firm is not certified at the time of the bid-letting, that MBE's or WBE's participation will not count towards achieving the corresponding goal.
- (2) *If either the MBE or WBE goal is zero*, bidders, at the time the bid proposal is submitted, shall enter the word "None"; or the number "0"; or if there is participation, add the value on the *Listing of MBE and WBE Subcontractors* contained elsewhere in the contract documents.

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 and B listed under *Listing of MBE and WBE Subcontractor* 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 State Contractor Utilization Engineer or at DBE@ncdot.gov no later than 12:00 noon of the sixth calendar day following opening of bids, unless the sixth day falls on an official state holiday. In that situation, it is due in the office of the State Contractor Utilization Engineer no later than 12:00 noon on the next official state business day.

If the bidder fails to submit the Letter of Intent from each committed 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 State Contractor Utilization Engineer or DBE@ncdot.gov no later than 12:00 noon on the eighth calendar day following opening of bids, unless the eighth day falls on an official state holiday. In that situation, it is due in the office of the State Contractor Utilization Engineer no later than 12:00 noon on the next official state business day.

Submission of Good Faith Effort

If the bidder fails to meet or exceed 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).

A hard copy and an electronic copy of this information shall be received in the office of the State Contractor Utilization Engineer or at DBE@ncdot.gov no later than 12:00 noon of the sixth calendar day following opening of bids unless the sixth day falls on an official state holiday. In that situation, it would be due in the office of the State Contractor Utilization Engineer the next official state business day. If the contractor cannot send the information electronically, then one complete set and 9 copies of this information shall be received under the same time constraints above.

Note: Where the information submitted includes repetitious solicitation letters, it will be acceptable to submit a representative letter along with a distribution list of the firms that were solicited. Documentation of 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 and/or written notices 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. This includes, where appropriate, breaking 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.
- (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 the 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 State Contractor Utilization Engineer will notify the contractor verbally and in writing of non-good faith. A contractor may appeal a determination of non-good faith made by the Goal Compliance Committee. If a contractor wishes to appeal the determination made by the Committee, they shall provide written notification to the State Contractual Services Engineer or at DBE@ncdot.gov. The appeal shall be made within 2 business days of notification of the determination of non-good faith.

Counting 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.

Banking MBE/WBE Credit

If the bid of the lowest responsive bidder exceeds \$500,000 and if the committed MBE/WBE participation submitted by Letter of Intent exceeds the algebraic sum of the MBE or WBE goal by \$1,000 or more, the excess will be placed on deposit by the Department for future use by the bidder. Separate accounts will be maintained for MBE and WBE participation and these may accumulate for a period not to exceed 24 months.

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

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

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 work on future DOT 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.

- (A) Electronic Bids Reporting

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

(B) Paper Bids Reporting

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

Failure to Meet Contract Requirements

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

CONTRACTOR'S LICENSE REQUIREMENTS:

(7-1-95)

102-14

SP1 G88

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

SUBSURFACE INFORMATION:

(7-1-95)

450

SP1 G112 D

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

LOCATING EXISTING UNDERGROUND UTILITIES:

(3-20-12)

105

SP1 G115

Revise the *2012 Standard Specifications* as follows:

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

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

DOMESTIC STEEL:

(4-16-13)

106

SP1 G120

Revise the *2012 Standard Specifications* as follows:

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

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

REMOVABLE PAVEMENT MARKINGS - (Partial Payments for Materials):

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

1205-10

SP1 G124

When so authorized by the Engineer, partial materials payments will be made up to 95 percent of the delivered cost of pavement marking tape, provided that these materials have been delivered on or in the vicinity of the project, stored in an acceptable manner, not to exceed the shelf life recommended by the manufacturer, and further provided the documents listed in Subarticle 109-5(C) of the *2012 Standard Specifications* have been furnished to the Engineer.

The Contractor shall be responsible for the material and the satisfactory performance of the material when used in the work.

The provisions of Article 109-6 of the *2012 Standard Specifications* will not apply to removable pavement marking materials.

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.

EROSION AND SEDIMENT CONTROL/STORMWATER CERTIFICATION:

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

105-16, 225-2, 16

SP1 G180

General

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

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

- (A) *Certified Supervisor* - Provide a certified Erosion and Sediment Control/Stormwater Supervisor to manage the Contractor and subcontractor operations, insure compliance with Federal, State and Local ordinances and regulations, and manage the Quality Control Program.
- (B) *Certified Foreman* - Provide a certified, trained foreman for each construction operation that increases the potential for soil erosion or the possible sedimentation and turbidity of surface waters.
- (C) *Certified Installer* - Provide a certified installer to install or direct the installation for erosion or sediment/stormwater control practices.

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

Roles and Responsibilities

- (A) *Certified Erosion and Sediment Control/Stormwater Supervisor* - The Certified Supervisor shall be Level II and responsible for ensuring the erosion and sediment control/stormwater plan is adequately implemented and maintained on the project and for conducting the quality control program. The Certified Supervisor shall be on the project within 24 hours notice from initial exposure of an erodible surface to the project's final acceptance. Perform the following duties:
- (1) *Manage Operations* - Coordinate and schedule the work of subcontractors so that erosion and sediment control/stormwater measures are fully executed for each operation and in a timely manner over the duration of the contract.
 - (a) Oversee the work of subcontractors so that appropriate erosion and sediment control/stormwater preventive measures are conformed to at each stage of the work.
 - (b) Prepare the required National Pollutant Discharge Elimination System (NPDES) Inspection Record and submit to the Engineer.
 - (c) Attend all weekly or monthly construction meetings to discuss the findings of the NPDES inspection and other related issues.
 - (d) Implement the erosion and sediment control/stormwater site plans requested.
 - (e) Provide any needed erosion and sediment control/stormwater practices for the Contractor's temporary work not shown on the plans, such as, but not limited to work platforms, temporary construction, pumping operations, plant and storage yards, and cofferdams.
 - (f) Acquire applicable permits and comply with requirements for borrow pits, dewatering, and any temporary work conducted by the Contractor in jurisdictional areas.
 - (g) Conduct all erosion and sediment control/stormwater work in a timely and workmanlike manner.
 - (h) Fully perform and install erosion and sediment control/stormwater work prior to any suspension of the work.
 - (i) Coordinate with Department, Federal, State and Local Regulatory agencies on resolution of erosion and sediment control/stormwater issues due to the Contractor's operations.
 - (j) Ensure that proper cleanup occurs from vehicle tracking on paved surfaces or any location where sediment leaves the Right-of-Way.
 - (k) Have available a set of erosion and sediment control/stormwater plans that are initialed and include the installation date of Best Management Practices. These practices shall include temporary and permanent groundcover and be properly updated to reflect necessary plan and field changes for use and review by Department personnel as well as regulatory agencies.

- (2) Requirements set forth under the NPDES Permit - The Department's NPDES Stormwater permit (NCS000250) outlines certain objectives and management measures pertaining to construction activities. The permit references *NCG010000, General Permit to Discharge Stormwater* under the NPDES, and states that the Department shall incorporate the applicable requirements into its delegated Erosion and Sediment Control Program for construction activities disturbing one or more acres of land. The Department further incorporates these requirements on all contracted bridge and culvert work at jurisdictional waters, regardless of size. Some of the requirements are, but are not limited to:
- (a) Control project site waste to prevent contamination of surface or ground waters of the state, i.e. from equipment operation/maintenance, construction materials, concrete washout, chemicals, litter, fuels, lubricants, coolants, hydraulic fluids, any other petroleum products, and sanitary waste.
 - (b) Inspect erosion and sediment control/stormwater devices and stormwater discharge outfalls at least once every 7 calendar days, twice weekly for construction related *Federal Clean Water Act, Section 303(d)* impaired streams with turbidity violations, and within 24 hours after a significant rainfall event of 0.5 inch that occurs within a 24 hour period.
 - (c) Maintain an onsite rain gauge or use the Department's Multi-Sensor Precipitation Estimate website to maintain a daily record of rainfall amounts and dates.
 - (d) Maintain erosion and sediment control/stormwater inspection records for review by Department and Regulatory personnel upon request.
 - (e) Implement approved reclamation plans on all borrow pits, waste sites and staging areas.
 - (f) Maintain a log of turbidity test results as outlined in the Department's Procedure for Monitoring Borrow Pit Discharge.
 - (g) Provide secondary containment for bulk storage of liquid materials.
 - (h) Provide training for employees concerning general erosion and sediment control/stormwater awareness, the Department's NPDES Stormwater Permit NCS000250 requirements, and the applicable requirements of the *General Permit, NCG010000*.
 - (i) Report violations of the NPDES permit to the Engineer immediately who will notify the Division of Water Quality Regional Office within 24 hours of becoming aware of the violation.
- (3) Quality Control Program - Maintain a quality control program to control erosion, prevent sedimentation and follow provisions/conditions of permits. The quality control program shall:
- (a) Follow permit requirements related to the Contractor and subcontractors' construction activities.
 - (b) Ensure that all operators and subcontractors on site have the proper erosion and sediment control/stormwater certification.

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

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

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

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

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

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

- (1) Seeding and Mulching
- (2) Temporary Seeding
- (3) Temporary Mulching
- (4) Sodding
- (5) Silt fence or other perimeter erosion/sediment control device installations
- (6) Erosion control blanket installation
- (7) Hydraulic tackifier installation
- (8) Turbidity curtain installation
- (9) Rock ditch check/sediment dam installation

- (10) Ditch liner/matting installation
- (11) Inlet protection
- (12) Riprap placement
- (13) Stormwater BMP installations (such as but not limited to level spreaders, retention/detention devices)
- (14) Pipe installations within jurisdictional areas

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

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

Preconstruction Meeting

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

Ethical Responsibility

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

Revocation or Suspension of Certification

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

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

- (A) Failure to adequately perform the duties as defined within this certification provision.
- (B) Issuance of an ICA, NOV, or Cease and Desist Order.
- (C) Failure to fully perform environmental commitments as detailed within the permit conditions and specifications.
- (D) Demonstration of erroneous documentation or reporting techniques.
- (E) Cheating or copying another candidate's work on an examination.
- (F) Intentional falsification of records.

- (G) Directing a subordinate under direct or indirect supervision to perform any of the above actions.
- (H) Dismissal from a company for any of the above reasons.
- (I) Suspension or revocation of one's certification by another entity.

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

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

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

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

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

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

Measurement and Payment

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

PROCEDURE FOR MONITORING BORROW PIT DISCHARGE:

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

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".

DELAY IN RIGHT OF ENTRY:

(7-1-95)

108

SP1 G22 A

The Contractor will not be allowed right of entry to the parcels listed below before May 15, 2013 unless otherwise permitted by the Engineer.

<u>Parcel No.</u>	<u>Property Owner</u>
158	City of Fayetteville

FIELD OFFICE (Lump Sum):

(6-1-07)

SP1 8-1

Description

This work consists of furnishing, erecting, equipping, and maintaining a field office for the exclusive use of Department Engineers and Inspectors at a location on the project approved by the Engineer. Provide a field office that complies with the current ADA Design and Accessibility Standards, the National Electric Code, local, state, and federal regulations, and the following requirements.

Procedures

The field office and equipment will remain the property of the Contractor upon completion of the contract. The field office shall be separated from buildings and trailers used by the Contractor and shall be erected and functional as an initial operation. Failure to have the field office

functional when work first begins on the project will result in withholding payment of the Contractor's monthly progress estimate. The field office shall be operational throughout the duration of the project and shall be removed upon completion and final acceptance of the project.

Provide a field office that is weatherproof, tightly floored and roofed, constructed with an air space above the ceiling for ventilation, supported above the ground, has a width of at least 10 feet, and the floor-to-ceiling height that is at least 7 feet 6 inches. Provide inside walls and a ceiling constructed of plywood, masonite, gypsum board, or other suitable materials. Have the exterior walls, ceiling, and floor insulated.

Provide a field office with at least 500 square feet of floor space and that is equipped with the following:

<u>Number</u>	<u>Item</u>
1	Double-pedestal desk (approximately 60 by 34 inches, at least 2,000 square inches).
1	Plan and drafting table (approximately 30 by 96 inches) with adjustable stool.
1	Computer table at least 48 by 30 by 29 inches.
1	Plan rack for 24 by 36 inch drawings with 6 plan clamps.
1	Printing calculator.
2	2-drawer fire protection file, 15 inch drawer width, minimum UL rating of Class 350.
6	Office chairs with at least two chairs having casters.
2	Wastebaskets.
1	Pencil sharpener.
1	Copy machine (8 inch x 11 inch copies)
1	Telephone.
1	Fax Machine.
1	Answering machine.

Windows and Doors

Provide a field office with at least three windows with blinds, each having an area of at least 540 square inches, capable of being easily opened and secured from the inside and having at least two exterior passage doors. Provide doors at least 30 inches in width and 78 inches in height. Provide screens for windows and doors. Equip exterior passage doors with locks, and furnish at least two keys to the Engineer.

Steps

Provide accessibility in compliance with the current ADA Design and Accessibility Standards, and the State Building Code and maintain them free from obstructions.

Storage Facility For Nuclear Gage

Furnish the field office with an outside storage facility for the Department's nuclear gage. The storage facility shall not be located within 10 feet of any other structure including the field office.

Lighting, Heating, and Air Conditioning

The field office shall have satisfactory lighting, electrical outlets, heating equipment, an exhaust fan, and an air conditioner connected to an operational power source. Provide at least one of the light fixtures that is a fluorescent light situated over the plan and drafting table. Furnish electrical current and fuel for heating equipment.

Fire Extinguishers

Furnish and maintain one fire extinguisher for each required exterior passage door. Fire extinguisher may be chemical or dry powder. UL Classification 10-B:C (minimum), suitable for Type A:B:C: fires. Mount and maintain fire extinguishers in accordance with OSHA Safety and Health Standards.

Toilets

Provide a toilet conforming to the requirements of the state and local boards of health or other bodies or courts having jurisdiction in the area. When separate facilities for men and women are not available, place a sign with the words "Rest Room" (with letters at least 1 inch in height) over the doorway, and provide an adequate positive locking system on the inside of the doorway. Maintain responsibility for the water and sewer connections or the installation and connection of a water well and septic tank and drain field. These facilities shall conform to all local and state permits.

Utilities

Except for telephone service, make necessary utility connections, maintain utilities, pay utility service fees and bills, and handle final disconnection of utilities. Furnish a telephone in each field office and permit the work necessary to install it.

Storage Facility for Test Equipment

Provide the field office with a storage facility, separate from the office for storage of test equipment, other than the nuclear gage. Provide a facility that has at least 64 square feet of floor space, is weatherproof, tightly floored and roofed, and has a tamper resistant key operated lock.

Miscellaneous Items

The field office shall also include the following:

1. A certification that the office is free of asbestos and other hazardous materials.
2. A broom, dust pan, mop and bucket, and general cleaning supplies.
3. Provide and maintain an all weather parking area for six vehicles, including graveled access to the paved surface.

Measurement and Payment

Payment at the contract lump sum bid price for *Field Office* will be full compensation for all work covered by this provision including but not limited to furnishing, erecting, maintaining, and removing the field office as outlined in this provision.

Installation and service fees for the telephone will be paid for by the Department.

Payment will be made under:

Pay Item

Field Office

Pay Unit

Lump Sum

STATE OWNED BORROW SOURCE:

The Contractor's attention is called to the fact that a state owned potential borrow source is available approximately 1 mile from this project located on SR 1006 (Maxwell Road) (see map located on the DOT website). The property is approximately 20 to 25 acres in size. The material will be made available upon request and at no cost to the Contractor.

The Contractor will be responsible for determining the suitability of the material prior to placing his bid and shall have no claims regarding the amount or suitability of the material at the site. The Contractor shall provide his own labor and loading equipment at the state furnished source.

Leave the State Furnished borrow sources in a neat and presentable condition after use. The perimeter shall be secured with a 6 ft. chain link fence with extension arms and 3 strand barbed wire. Payment for the fence will be by supplemental agreement. Smooth, round and construct all slopes no steeper than 3:1. Seed and mulch the area in accordance with the *Standard Specifications*. The Contractor shall be responsible for the maintenance of the existing haul road and shall leave the haul road in an acceptable condition.

A reclamation plan **will** be required for this state furnished borrow source. Comply with Article 230-4 of the Specifications concerning Reclamation Plan, Buffer Zones, Evaluation of Wetlands and Endangered Species, and approvals.

Measurement and Payment

Borrow Excavation will be measured in accordance with Article 230-5(A) of the Specifications, and will be paid for in cubic yards.

Pay Item

Borrow Excavation

Pay Unit

Cubic Yard

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

(4-6-06) (Rev. 1-17-12)

200

SP2 R02B

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

BURNING RESTRICTIONS:

(7-1-95)

200, 210, 215

SP2 R05

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

BUILDING REMOVAL:

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

215

SP2 R15 C

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

For Project R-2303A:**Building Removal**

**Parcel 907 – Left of Approximate Survey Station 171+20, Survey Line L
1 Shed Inside Right of Way**

Building Removal

**Parcel 907 – Left of Approximate Survey Station 171+60, Survey Line L
1 Business Inside Right of Way**

Building Removal

**Parcel 057 – Left of Approximate Survey Station 183+30, Survey Line L
1 SFD Inside Right of Way**

Building Removal

**Parcel 077 – Right of Approximate Survey Station 201+70, Survey Line L
1 Shed Inside Right of Way**

Building Removal

**Parcel 091 – Left of Approximate Survey Station 255+40, Survey Line L
1 Mobile Home Inside Right of Way**

Building Removal

**Parcel 091 – Right of Approximate Survey Station 255+90, Survey Line L
1 Shed/Pool Inside Right of Way**

Building Removal

**Parcel 091 – Right of Approximate Survey Station 256+80, Survey Line L
1 SFD Inside Right of Way**

Building Removal

**Parcel 094 – Right of Approximate Survey Station 258+00, Survey Line L
1 Mobile Home Inside Right of Way**

Building Removal

**Parcel 094 – Right of Approximate Survey Station 259+00, Survey Line L
1 SFD Inside Right of Way**

Building Removal

**Parcel 094 – Right and Left of Approximate Survey Station 259+40, Survey Line L
1 Detached Garage Inside Right of Way**

Building Removal

**Parcel 117 – Left of Approximate Survey Station 324+40, Survey Line L
1 SFD Partially Inside/Outside Right of Way**

Building Removal

**Parcel 129 – Left of Approximate Survey Station 334+80, Survey Line L
1 Mobile Home Inside Right of Way**

Building Removal

**Parcel 133 – Left of Approximate Survey Station 337+50, Survey Line L
1 SFD Partially Inside/Outside Right of Way**

Building Removal

**Parcel 140 – Left of Approximate Survey Station 348+00, Survey Line L
1 Business Partially Inside/Outside Right of Way**

Building Removal

Parcel 159 – Left of Approximate Survey Station 359+20, Survey Line L
1 Mobile Home Inside Right of Way

Building Removal

Parcel 159 – Left of Approximate Survey Station 360+00, Survey Line L
1 SFD Partially Inside/Outside Right of Way

Building Removal

Parcel 166 – Left of Approximate Survey Station 372+60, Survey Line L
1 SFD Partially Inside/Outside Right of Way

Building Removal

Parcel 168 – Right/Left of Approximate Survey Station 375+00, Survey Line L
1 Business Inside Right of Way

For Project R2303B:**Building Removal**

Parcel 431
Mobile Home

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

TEMPORARY DETOURS:

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

1101

SP2 R30 A

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

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

Aggregate base course and earth material that is removed will be measured and will be paid at the contract unit price per cubic yard for *Unclassified Excavation*. Pavement that is removed will be measured and will be paid at the contract unit price per square yard for *Removal of Existing Pavement*. Pipe culverts removed from the detours remain the property of the

Contractor. Pipe culverts that are removed will be measured and will be paid at the contract unit price per linear foot for *Pipe Removal*. Payment for the construction of the detours will be made at the contract unit prices for the various items involved.

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

SHOULDER AND FILL SLOPE MATERIAL:

(5-21-02)

235, 560

SP2 R45 B

Description

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

Measurement and Payment

When the Contractor elects to obtain material from an area located beneath a proposed fill sections which does not require excavation for any reason other than to generate acceptable shoulder and fill slope material, the work of performing the excavation will be considered incidental to the item of *Borrow Excavation* or *Shoulder Borrow*. If there is no pay item for *Borrow* or *Shoulder Borrow* in the contract, this work will be considered incidental to *Unclassified Excavation*. Stockpile the excavated material in a manner to facilitate measurement by the Engineer. Fill the void created by the excavation of the shoulder and fill slope material with suitable material. Payment for material used from the stockpile will be made at the contract unit price for *Borrow Excavation* or *Shoulder Borrow*. If there is no pay item for *Borrow Excavation* or *Shoulder Borrow*, then the material will be paid for at the contract unit price for *Unclassified Excavation*. The material used to fill the void created by the excavation of the shoulder and fill slope material will be made at the contract unit price for *Unclassified Excavation*, *Borrow Excavation*, or *Shoulder Borrow*, depending on the source of the material.

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

When undercut excavation is performed at the direction of the Engineer and the material excavated is found to be suitable for use as shoulder and fill slope material, and there is no area on the project currently prepared to receive the material generated by the undercut operation, the Contractor may construct a stockpile for use as borrow at a later date. Payment for the material

used from the stockpile will be made at the contract unit price for *Borrow Excavation* or *Shoulder Borrow*.

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

SELECT GRANULAR MATERIAL:

(3-16-10) (Rev. 1-17-12)

265

SP2 R80

Revise the *2012 Standard Specifications* as follows:

Page 2-28, Article 265-2 MATERIALS, add the following:

Use only Class III select material for select granular material.

Page 2-28, Article 265-4 MEASUREMENT AND PAYMENT, lines 13-30, replace all occurrences of *Select Granular Material* with *Select Granular Material, Class III*.

Page 2-28, Article 265-4 MEASUREMENT AND PAYMENT, after line 31, delete the pay item and replace with the following:

Payment will be made under:

Pay Item

Select Granular Material, Class III

Pay Unit

Cubic Yard

PIPE INSTALLATION:

(11-20-12)

300

SP3 R01

Revise the *2012 Standard Specifications* as follows:

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

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

FLOWABLE FILL:

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

300, 340, 450, 1000, 1530, 1540, 1550

SP3 R30

Description

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

Materials

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

Item

Flowable Fill

Section

1000-6

Construction Methods

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

Measurement and Payment

At locations where flowable fill is called for on the plans and a pay item for flowable fill is included in the contract, *Flowable Fill* will be measured in cubic yards and paid as the actual number of cubic yards that have been satisfactorily placed and accepted. Such price and payment will be full compensation for all work covered by this provision including, but not limited to, the mix design, furnishing, hauling, placing and containing the flowable fill.

Payment will be made under:

Pay Item

Flowable Fill

Pay Unit

Cubic Yard

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

Anchor Pins

Geotextiles

Portland Cement Concrete

Select Material

Subsurface Drainage Materials

Wire Staples

Section

1056-2

1056

1000

1016

1044

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

Reinforced Bridge Approach Fill, Station ____
Bridge Approach Fill - Sub Regional Tier, Station ____

Pay Unit

Lump Sum
Lump Sum

PREPARATION OF SUBGRADE AND BASE:

(1-16-96)

610

SP5 R05

On mainline portions and ramps of this project, prepare the subgrade and base beneath the pavement structure in accordance with the applicable sections of the *2012 Standard Specifications* except use an automatically controlled fine grading machine using string lines, laser controls or other approved methods to produce final subgrade and base surfaces meeting the lines, grades and cross sections required by the plans or established by the Engineer.

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

ASPHALT PAVEMENTS - SUPERPAVE:

(6-19-12) (Rev. 4-16-13)

605, 609, 610

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/WMA%20Approved%20Lists.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	300°F	225 - 275°F
PG 70-22	315°F	240 - 290°F
PG 76-22	335°F	260 - 310°F

A. The mix temperature, when checked in the truck at the roadway, shall be within plus 15° and minus 25° 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 “275°F” with “275°F 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
S9.5C, S12.5C	45°F
S9.5D, S12.5D	50°F

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

ASPHALT BINDER CONTENT OF ASPHALT PLANT MIXES:

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

609

SP6 R15

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

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

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

ASPHALT PLANT MIXTURES:

(7-1-95)

609

SP6 R20

Place asphalt concrete base course material in trench sections with asphalt pavement spreaders made for the purpose or with other equipment approved by the Engineer.

PRICE ADJUSTMENT - ASPHALT BINDER FOR PLANT MIX:

(11-21-00)

620

SP6 R25

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

The base price index for asphalt binder for plant mix is **\$553.75** per ton.

This base price index represents an average of F.O.B. selling prices of asphalt binder at supplier's terminals on **March 1, 2013**.

MATERIAL TRANSFER VEHICLE:

(5-27-09)

SPI 6-07A

Revise the *2012 Standard Specifications* as follows:

Page 6-26, Article 610-8 SPREADING AND FINISHING, delete the third paragraph and replace with the following:

Use a Materials Transfer Vehicle (MTV) when placing all asphalt concrete plant mix pavements unless otherwise approved by the Engineer. Utilize the MTV when placing all full width travel lanes, including shoulders, collector lanes, ramps, and loops.

JOINT REPAIR:**Description**

The Contractor's attention is directed to the Joint Repair Detail in the plans. Joint repair is required at various locations throughout the project limits as directed by the Engineer. This work shall consist of sawing or milling the joint, removal of existing asphalt and concrete, cleaning the joint, and placing Asphalt Concrete Base Course, Type B25.0C in the cleaned joint. Work shall be done in accordance with the Joint Repair Detail in the plans and the applicable requirements of the *Standard Specifications*.

Method of Measurement

Joint Repair will be based on the actual tonnage required of Asphalt Concrete Base Course, Type B25.0C to fill each joint.

Basis of Payment

Joint Repair will be paid for at the contract unit price per ton for *Joint Repair*.

Payment for joint repair will be made only in areas that have been examined and approved by the Engineer or his designated representative.

The unit price shown in the contract shall be full compensation for all material, labor, tools, equipment, maintenance of traffic, and all other incidentals necessary to complete the work.

Payment will be made under:

Pay Item

Joint Repair

Pay Unit

Ton

GUARDRAIL ANCHOR UNITS, TYPE M-350:

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

862

SP8 R60

Description

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

Materials

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

The guardrail anchor unit (SRT-350) as manufactured by:

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

The guardrail anchor unit (FLEAT) as manufactured by:

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

The guardrail anchor unit (REGENT) as manufactured by:

Energy Absorption Systems, Inc.
One East Wacker Drive
Chicago, Illinois 60601-2076
Telephone: 888-32-ENERGY

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 shall be 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 M-350	Each

GUARDRAIL ANCHOR UNITS, TYPE 350:

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

862

SP8 R65

Description

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

Materials

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

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

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

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

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

Prior to installation the Contractor shall submit to the Engineer:

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

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

Construction Methods

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

Measurement and Payment

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

Payment will be made under:

Pay Item
Guardrail Anchor Units, Type 350

Pay Unit
Each

METAL GATE POSTS:**Description**

Metal Gate Posts for 47" Woven Wire Fence, Double Gate shall meet the applicable requirements of Section 866 and Subarticle 1050-3(B) of the *Standard Specifications*.

Measurement and Payment

Metal Gate Posts for 47" Woven Wire Fence, Double Gate will be measured and paid in units of each for gateposts installed on the project.

Payment will be made under:

Pay Item	Pay Unit
Metal Gate Posts for 47" Woven Wire Fence, Double Gate	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 %

Property	Test Method	Value Unit
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

STREET SIGNS AND MARKERS AND ROUTE MARKERS:

(7-1-95)

900

SP9 R02(Rev)

On the R-2303A project move any existing street signs, markers, and route markers out of the construction limits of the project and install the street signs and markers and route markers so that they will be visible to the traveling public if there is sufficient right of way for these signs and markers outside of the construction limits.

Near the completion of the project and when so directed by the Engineer, move the signs and markers and install them in their proper location in regard to the finished pavement of the project.

Stockpile any signs or markers that cannot be relocated due to lack of right of way, or any signs and markers that will no longer be applicable after the construction of the project, at locations directed by the Engineer for removal by others.

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

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

FOUNDATIONS AND ANCHOR ROD ASSEMBLIES FOR METAL POLES:

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

9, 14, 17

SP9 R05

Description

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

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

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

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

Materials

Refer to the *2012 Standard Specifications*.

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

Provide Type 3 material certifications in accordance with Article 106-3 of the *2012 Standard Specifications* for conduit, rollers, chairs and anchor rod assemblies. Store steel materials on blocking at least 12" above the ground and protect it at all times from damage; and when placing in the work make sure it is free from dirt, dust, loose mill scale, loose rust, paint, oil or other foreign materials. Load, transport, unload and store foundation and anchor rod assembly materials so materials are kept clean and free of damage. Damaged or deformed materials will be rejected.

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

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

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

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

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

Construction Methods

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

(A) Drilled Piers

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(B) Footings, Pedestals, Grade Beams and Wings

Excavate as necessary for footings, grade beams and wings in accordance with the plans, accepted submittals and Section 410 of the *2012 Standard Specifications*. If unstable, caving or sloughing materials are anticipated or encountered, shore foundation

excavations as needed with an approved method. Notify the Engineer when foundation excavation is complete. Do not place concrete or reinforcing steel until excavation dimensions and foundation material are approved.

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

(C) Anchor Rod Assemblies

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

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

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

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

- (1) Turn leveling nuts onto anchor rods to a distance of one nut thickness between the top of foundation and bottom of leveling nuts. Place washers over anchor rods on top of leveling nuts.
- (2) Determine if nuts are level using a flat rigid template on top of washers. If necessary, lower leveling nuts to level the template in all directions or if applicable, lower nuts to tilt the template so the metal pole or upright truss will lean as shown in the plans. If leveling nuts and washers are not in full contact with the template, replace washers with galvanized beveled washers.
- (3) Verify the distance between the foundation and leveling nuts is no more than one nut thickness.

- (4) Place base plate with metal pole or upright truss over anchor rods on top of washers. High mount luminaires may be attached before erecting metal poles but do not attach cables, mast arms or trusses to metal poles or upright trusses at this time.
- (5) Place washers over anchor rods on top of base plate. Lubricate top nut bearing surfaces and exposed anchor rod threads above washers with beeswax, paraffin or other approved lubricant.
- (6) Turn top nuts onto anchor rods. If nuts are not in full contact with washers or washers are not in full contact with the base plate, replace washers with galvanized beveled washers.
- (7) Tighten top nuts to snug-tight with the full effort of one workman using a 12" wrench. Do not tighten any nut all at once. Turn top nuts in increments. Follow a star pattern cycling through each nut at least twice.
- (8) Repeat (7) for leveling nuts.
- (9) Replace washers above and below the base plate with galvanized beveled washers if the slope of any base plate face exceeds 1:20 (5%), any washer is not in firm contact with the base plate or any nut is not in firm contact with a washer. If any washers are replaced, repeat (7) and (8).
- (10) With top and leveling nuts snug-tight, mark each top nut on a corner at the intersection of 2 flats and a corresponding reference mark on the base plate. Mark top nuts and base plate with ink or paint that is not water-soluble. Use the turn-of-nut method for pretensioning. Do not pretension any nut all at once. Turn top nuts in increments for a total turn that meets the following nut rotation requirements:

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

- Follow a star pattern cycling through each top nut at least twice.
- (11) Ensure nuts, washers and base plate are in firm contact with each other for each anchor rod. Cables, mast arms and trusses may now be attached to metal poles and upright trusses.

- (12) Between 4 and 14 days after pretensioning top nuts, use a torque wrench calibrated within the last 12 months to check nuts in the presence of the Engineer. Completely erect mast arm poles and cantilever signs and attach any hardware before checking top nuts for these structures. Check that top nuts meet the following torque requirements:

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

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

- (13) Do not grout under base plate.

Measurement and Payment

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

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

MATERIALS:

(2-21-12) (Rev. 3-19-13)

1000, 1005, 1078, 1080, 1081, 1087, 1092

SP10 R01

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

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

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

TABLE 1000-1 REQUIREMENTS FOR CONCRETE											
Class of Concrete	Min. Comp. Strength at 28 days	Maximum Water-Cement Ratio				Consistency Max. Slump		Cement Content			
		Air-Entrained Concrete		Non Air- Entrained Concrete		Vibrated	Non- Vibrated	Vibrated		Non- Vibrated	
		Rounded Aggregate	Angular Aggre- gate	Rounded Aggregate	Angular Aggre- gate			Min.	Max.	Min.	Max.
<i>Units</i>	<i>psi</i>					<i>inch</i>	<i>inch</i>	<i>lb/cy</i>	<i>lb/cy</i>	<i>lb/cy</i>	<i>lb/cy</i>
AA	4,500	0.381	0.426	-	-	3.5	-	639	715	-	-
AA Slip Form	4,500	0.381	0.426	-	-	1.5	-	639	715	-	-
Drilled Pier	4,500	-	-	0.450	0.450	-	5-7 dry 7-9 wet	-	-	640	800
A	3,000	0.488	0.532	0.550	0.594	3.5	4	564	-	602	-
B	2,500	0.488	0.567	0.559	0.630	2.5	4	508	-	545	-
B Slip Formed	2,500	0.488	0.567	-	-	1.5	-	508	-	-	-
Sand Light- weight	4,500	-	0.420	-	-	4	-	715	-	-	-
Latex Modified	3,000 7 day	0.400	0.400	-	-	6	-	658	-	-	-
Flowable Fill excavatable	150 max. at 56 days	as needed	as needed	as needed	as needed	-	Flow- able	-	-	40	100
Flowable Fill non-excavatable	125	as needed	as needed	as needed	as needed	-	Flow- able	-	-	100	as needed
Pavement	4,500 design, field 650 flexural, design only	0.559	0.559	-	-	1.5 slip form 3.0 hand place	-	526	-	-	-
Precast	See Table 1077-1	as needed	as needed	-	-	6	as needed	as needed	as needed	as needed	as needed
Prestress	per contract	See Table 1078-1	See Table 1078-1	-	-	8	-	564	as needed	-	-

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

TABLE 1005-1 AGGREGATE GRADATION - COARSE AGGREGATE													
Percentage of Total by Weight Passing													
Std. Size #	2"	1 1/2"	1"	3/4"	1/2"	3/8"	#4	#8	#10	#16	#40	#200	Remarks
4	100	90-100	20-55	0-15	-	0-5	-	-	-	-	-	A	Asphalt Plant Mix
46/7M	100	95-100	-	35-70	-	0-30	0-5	-	-	-	-	A	Asphalt Plant Mix
5	-	100	90-100	20-55	0-10	0-5	-	-	-	-	-	A	AST, Sediment Control Stone
57	-	100	95-100	-	25-60	-	0-10	0-5	-	-	-	A	AST, Str. Concrete, Shoulder Drain, Sediment Control Stone
57M	-	100	95-100	-	25-45	-	0-10	0-5	-	-	-	A	AST, Concrete Pavement
6M	-	-	100	90-100	20-55	0-20	0-8	-	-	-	-	A	AST
67	-	-	100	90-100	-	20-55	0-10	0-5	-	-	-	A	AST, Str. Concrete, Asphalt Plant Mix
78M	-	-	-	100	98-100	75-100	20-45	0-15	-	-	-	A	Asphalt Plant Mix, AST, Str. Conc. Weep Hole Drains
14M	-	-	-	-	-	100	35-70	5-20	-	0-8	-	A	Asphalt Plant Mix, AST, Weep Hole Drains, Str. Concrete
9	-	-	-	-	-	100	85-100	10-40	-	0-10	-	A	AST
ABC	-	100	75-97	-	55-80	-	35-55	-	25-45	-	14-30	4-12 ^B	Aggregate Base Course, Aggregate Stabilization
ABC (M)	-	100	75-100	-	45-79	-	20-40	-	0-25	-	-	0-12 ^B	Maintenance Stabilization
Light- weight C	-	-	-	-	100	80-100	5-40	0-20	-	0-10	-	0-2.5	AST

A. See Subarticle 1005-4(A).

B. See Subarticle 1005-4(B).

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

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

TABLE 1078-1 REQUIREMENTS FOR CONCRETE		
Property	28 Day Design Compressive Strength 6,000 psi or less	28 Day Design Compressive Strength greater than 6,000 psi
Maximum Water/Cementitious Material Ratio	0.45	0.40
Maximum Slump without HRWR	3.5"	3.5"
Maximum Slump with HRWR	8"	8"
Air Content (upon discharge into forms)	5 + 2%	5 + 2%

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

HIGH STRENGTH CONCRETE FOR DRIVEWAYS:

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

848

SP10 R02

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

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

SELECT MATERIAL, CLASS III, TYPE 3:

(1-17-12)

1016, 1044

SP10 R05

Revise the *2012 Standard Specifications* as follows:

Page 10-39, Article 1016-3, CLASS III, add the following after line 14:

Type 3 Select Material

Type 3 select material is a natural or manufactured fine aggregate material meeting the following gradation requirements and as described in Sections 1005 and 1006:

Percentage of Total by Weight Passing							
3/8"	#4	#8	#16	#30	#50	#100	#200
100	95-100	65-100	35-95	15-75	5-35	0-25	0-8

Page 10-39, Article 1016-3, CLASS III, line 15, replace "either type" with "Type 1, Type 2 or Type 3".

Page 10-62, Article 1044-1, line 36, delete the sentence and replace with the following:

Subdrain fine aggregate shall meet Class III select material, Type 1 or Type 3.

Page 10-63, Article 1044-2, line 2, delete the sentence and replace with the following:

Subdrain coarse aggregate shall meet Class V select material.

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.

TEMPORARY SHORING:

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

SP11 R02

Description

Temporary shoring includes cantilever, braced and anchored shoring and temporary mechanically stabilized earth (MSE) walls. Temporary shoring does not include trench boxes. At the Contractor's option, use any type of temporary shoring unless noted otherwise in the plans or as directed. Design and construct temporary shoring based on actual elevations and shoring dimensions in accordance with the contract and accepted submittals. Construct temporary shoring at locations shown in the plans and as directed. Temporary shoring is required to maintain traffic when a 2:1 (H:V) slope from the top of an embankment or bottom of an excavation will intersect the existing ground line less than 5 ft from the edge of pavement of an open travelway. This provision does not apply to pipe, inlet or utility installation unless noted otherwise in the plans.

Positive protection includes concrete barrier and temporary guardrail. Provide positive protection for temporary shoring at locations shown in the plans and as directed. Positive protection is required if temporary shoring is located in the clear zone in accordance with the *AASHTO Roadside Design Guide*.

(A) Cantilever and Braced Shoring

Cantilever shoring consists of steel sheet piles or H-piles with timber lagging. Braced shoring consists of sheet piles or H-piles with timber lagging and bracing such as beams, plates, walers, struts, rakers, etc. Define "piles" as sheet piles or H-piles.

(B) Anchored Shoring

Anchored shoring consists of sheet piles with walers or H-piles with timber lagging anchored with ground or helical anchors. Driven anchors may be accepted at the discretion of the Engineer. A ground anchor consists of a grouted steel bar or multi-strand tendon with an anchorage. A helical anchor consists of a lead section with a central steel shaft and at least one helix steel plate followed by extensions with only central shafts (no helixes) and an anchorage. Anchorages consist of steel bearing plates with washers and hex nuts for bars or steel wedge plates and wedges for strands. Use a prequalified Anchored Wall Contractor to install ground anchors. Define “anchors” as ground, helical or driven anchors.

(C) Temporary MSE Walls

Temporary MSE walls include temporary geosynthetic and wire walls. Define “temporary wall” as a temporary MSE wall. Define “reinforcement” as geotextile, geogrid, welded wire grid or metallic strip reinforcement.

Temporary geosynthetic walls consist of geotextile or geogrid reinforcement wrapped behind welded wire facing. Define “temporary geotextile wall” as a temporary geosynthetic wall with geotextile reinforcement and “temporary geogrid wall” as a temporary geosynthetic wall with geogrid reinforcement.

Temporary wire walls consist of welded wire grid or metallic strip reinforcement connected to welded wire facing. Define “Wire Wall Vendor” as the vendor supplying the temporary wire wall.

(D) Embedment

Define “embedment” for cantilever, braced and anchored shoring as the pile depth below the grade in front of shoring. Define “embedment” for temporary walls as the wall height below the grade in front of walls.

(E) Positive Protection

Define “unanchored or anchored portable concrete barrier” as portable concrete barrier (PCB) that meets Standard Drawing No. 1170.01 of the *2012 Roadway Standard Drawings*. Define “concrete barrier” as unanchored or anchored PCB or an approved equal. Define “temporary guardrail” as temporary steel beam guardrail that meets Standard Drawing No. 862.02 of the *2012 Roadway Standard Drawings*.

Materials

Refer to the *2012 Standard Specifications*.

Item	Section
Anchor Pins	1056-2
Concrete Barrier Materials	1170-2
Flowable Fill, Excavatable	1000-6
Geotextiles	1056
Neat Cement Grout	1003
Portland Cement Concrete	1000
Select Material	1016
Steel Beam Guardrail Materials	862-2
Steel Plates	1072-2
Steel Sheet Piles and H-Piles	1084
Untreated Timber	1082-2
Welded Wire Reinforcement	1070-3
Wire Staples	1060-8(D)

Provide Type 6 material certifications for shoring materials in accordance with Article 106-3 of the *2012 Standard Specifications*. Use Class IV select material (standard size No. ABC) for temporary guardrail. Use nonshrink neat cement grout or Class A concrete that meets Article 450-2 of the *2012 Standard Specifications* for drilled-in piles. Use untreated timber with a thickness of at least 3" and a bending stress of at least 1,000 psi for timber lagging. Provide steel bracing that meets ASTM A36.

(A) Shoring Backfill

Use Class II, Type 1, Class III, Class V or Class VI select material or material that meets AASHTO M 145 for soil classification A-2-4 with a maximum PI of 6 for shoring backfill except do not use A-2-4 soil for backfill around culverts.

(B) Anchors

Store anchor materials on blocking a minimum of 12" above the ground and protect it at all times from damage; and when placing in the work make sure it is free from dirt, dust, loose mill scale, loose rust, paint, oil or other foreign materials. Load, transport, unload and store anchor materials so materials are kept clean and free of damage. Damaged or deformed materials will be rejected.

(1) Ground Anchors

Use high-strength deformed steel bars that meet AASHTO M 275 or seven-wire strands that meet ASTM A886 or Article 1070-5 of the *2012 Standard Specifications*. Splice bars in accordance with Article 1070-9 of the *2012 Standard Specifications*. Do not splice strands. Use bondbreakers, spacers and centralizers that meet Article 6.3.5 of the *AASHTO LRFD Bridge Construction Specifications*.

(2) Helical Anchors

Use helical anchors with an ICC Evaluation Service, Inc. (ICC-ES) report. Helical anchors without an ICC-ES report may be approved at the discretion of the Engineer. Provide couplers, thread bar adapters and bolts recommended by the Anchor Manufacturer to connect helical anchors together and to piles.

(3) Anchorages

Provide steel plates for bearing plates and steel washers, hex nuts, wedge plates and wedges recommended by the Anchor Manufacturer.

(C) Temporary Walls

(1) Welded Wire Facing

Use welded wire reinforcement for welded wire facing, struts and wires. For temporary wire walls, provide welded wire facing supplied by the Wire Wall Vendor or a manufacturer approved or licensed by the vendor. For temporary wire walls with separate reinforcement and facing components, provide connectors (e.g., bars, clamps, plates, etc.) and fasteners (e.g., bolts, nuts, washers, etc.) required by the Wire Wall Vendor.

(2) Geotextiles

Provide Type 2 geotextile for separation and retention geotextiles. Provide Type 5 geotextile for geotextile reinforcement with wide width tensile strengths at ultimate in accordance with the accepted submittals.

(3) Geogrid Reinforcement

Handle and store geogrids in accordance with Article 1056-2 of the *2012 Standard Specifications*. Define “machine direction” (MD) and “cross-machine direction” (CD) for geogrids in accordance with ASTM D4439. Provide geogrids for geogrid reinforcement with short-term design strengths in accordance with the accepted submittals.

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

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

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

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

(4) Welded Wire Grid and Metallic Strip Reinforcement

Provide welded wire grid and metallic strip reinforcement supplied by the Wire Wall Vendor or a manufacturer approved or licensed by the vendor. Use welded wire grid reinforcement ("mesh", "mats" and "ladders") that meet Article 1070-3 of the *2012 Standard Specifications* and metallic strip reinforcement ("straps") that meet ASTM A572 or A1011.

Preconstruction Requirements

(A) Concrete Barrier

Define "clear distance" behind concrete barrier as the horizontal distance between the barrier and edge of pavement. The minimum required clear distance for concrete barrier is shown in the plans. At the Contractor's option or if the minimum required clear distance is not available, set concrete barrier next to and up against traffic side of temporary shoring except for barrier above temporary walls. Concrete barrier with the minimum required clear distance is required above temporary walls.

(B) Temporary Guardrail

Define "clear distance" behind temporary guardrail as the horizontal distance between guardrail posts and temporary shoring. At the Contractor's option or if clear distance for cantilever, braced and anchored shoring is less than 4 ft, attach guardrail to traffic side of shoring as shown in the plans. Place ABC in clear distance and around guardrail posts instead of pavement. Do not use temporary guardrail above temporary walls.

(C) Temporary Shoring Designs

Before beginning temporary shoring design, survey existing ground elevations in the vicinity of shoring locations to determine actual design heights (H). Submit 8 copies of working drawings and 3 copies of design calculations and a PDF copy of each for temporary shoring designs in accordance with Article 105-2 of the *2012 Standard*

Specifications. Submit working drawings showing plan views, shoring profiles, typical sections and details of temporary shoring design and construction sequence. Do not begin shoring construction until a design submittal is accepted.

Have cantilever and braced shoring designed, detailed and sealed by an engineer licensed in the state of North Carolina. Use a prequalified Anchored Wall Design Consultant to design anchored shoring. Provide anchored shoring designs sealed by a Design Engineer approved as a Geotechnical Engineer (key person) for an Anchored Wall Design Consultant. Include details in anchored shoring working drawings of anchor locations and lock-off loads, unit grout/ground bond strengths for ground anchors or minimum installation torque and torsional strength rating for helical anchors and if necessary, obstructions extending through shoring or interfering with anchors. Include details in the anchored shoring construction sequence of pile and anchor installation, excavation and anchor testing.

Use a prequalified MSE Wall Design Consultant to design temporary walls. Provide temporary wall designs sealed by a Design Engineer approved as a Geotechnical Engineer (key person) for the MSE Wall Design Consultant. Include details in temporary wall working drawings of geotextile and reinforcement types, locations and directions and obstructions extending through walls or interfering with reinforcement.

(1) Soil Parameters

Design temporary shoring for the assumed soil parameters and groundwater elevations shown in the plans. Assume the following soil parameters for shoring backfill:

(a) Unit weight (γ) = 120 lb/cf;

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

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

(2) Traffic Surcharge

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

(3) Cantilever, Braced and Anchored Shoring Designs

Use shoring backfill for fill sections and voids between cantilever, braced and anchored shoring and the critical failure surface. Use concrete or grout for embedded portions of drilled-in H-piles. Do not use drilled-in sheet piles.

Define "top of shoring" for cantilever, braced and anchored shoring as where the grade intersects the back of sheet piles or H-piles and timber lagging. Design cantilever, braced and anchored shoring for a traffic impact load of 2,000 lb/ft applied 18" above top of shoring if concrete barrier is above and next to shoring or temporary guardrail is above and attached to shoring. For anchored shoring designs, apply traffic impact load as horizontal load (P_{HI}) in accordance with Figure 3.11.6.3-2(a) of the AASHTO LRFD specifications.

Extend cantilever, braced and anchored shoring at least 32" above top of shoring if shoring is designed for traffic impact. Otherwise, extend shoring at least 6" above top of shoring.

Design cantilever, braced and anchored shoring for a maximum deflection of 3" if the horizontal distance to the closest edge of pavement or structure is less than H. Otherwise, design shoring for a maximum deflection of 6". Design cantilever and braced shoring in accordance with the plans and *AASHTO Guide Design Specifications for Bridge Temporary Works*.

Design anchored shoring in accordance with the plans and Article 11.9 of the *AASHTO LRFD Bridge Design Specifications*. Use a resistance factor of 0.80 for tensile resistance of anchors with bars, strands or shafts. Extend the unbonded length for ground anchors and the shallowest helix for helical anchors at least 5 ft behind the critical failure surface. Do not extend anchors beyond right-of-way or easement limits. If existing or future obstructions such as foundations, guardrail posts, pavements, pipes, inlets or utilities will interfere with anchors, maintain a clearance of at least 6" between obstructions and anchors.

(4) Temporary Wall Designs

Use shoring backfill in the reinforced zone of temporary walls. Separation geotextiles are required between shoring backfill and backfill, natural ground or culverts along the sides of the reinforced zone perpendicular to the wall face. For Class V or VI select material in the reinforced zone, separation geotextiles are also required between shoring backfill and backfill or natural ground on top of and at the back of the reinforced zone.

Design temporary walls in accordance with the plans and Article 11.10 of the *AASHTO LRFD Bridge Design Specifications*. Embed temporary walls at least 18" except for walls on structures or rock as determined by the Engineer. Use a uniform reinforcement length throughout the wall height of at least 0.7H or 6 ft, whichever is greater. Extend the reinforced zone at least 6" beyond end of reinforcement. Do not locate the reinforced zone outside right-of-way or easement limits.

Use the simplified method for determining maximum reinforcement loads in accordance with the AASHTO LRFD specifications. For geotextile reinforcement, use geotextile properties approved by the Department or default values in accordance with the AASHTO LRFD specifications. For geogrid

reinforcement, use approved geogrid properties available from the website shown elsewhere in this provision. Use geosynthetic properties for the direction reinforcement will be installed, a 3-year design life and the shoring backfill type in the reinforced zone.

Do not use more than 4 different reinforcement strengths for each temporary geosynthetic wall. Design temporary geotextile walls for a reinforcement coverage ratio (R_c) of 1.0 and temporary geogrid walls for an R_c of at least 0.8. For geogrid reinforcement with an R_c of less than 1.0, use a maximum horizontal clearance between geogrids of 3 ft and stagger reinforcement so geogrids are centered over gaps in the reinforcement layer below.

For temporary geosynthetic walls, use "L" shaped welded wire facing with 18" to 24" long legs. Locate geotextile or geogrid reinforcement so reinforcement layers are at the same level as the horizontal legs of welded wire facing. Use vertical reinforcement spacing equal to facing height. Wrap geotextile or geogrid reinforcement behind welded wire facing and extend reinforcement at least 3 ft back behind facing into shoring backfill.

For temporary wire walls with separate reinforcement and facing components, attach welded wire grid or metallic strip reinforcement to welded wire facing with a connection approved by the Department. For temporary geogrid and wire walls, retain shoring backfill at welded wire facing with retention geotextiles and extend geotextiles at least 3 ft back behind facing into backfill.

(D) Preconstruction Meeting

The Engineer may require a shoring preconstruction meeting to discuss the construction, inspection and testing of the temporary shoring. If required, schedule this meeting after all shoring submittals have been accepted. The Resident, District or Bridge Maintenance Engineer, Bridge or Roadway Construction Engineer, Geotechnical Operations Engineer, Contractor and Shoring Contractor Superintendent will attend this preconstruction meeting.

Construction Methods

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

Install positive protection in accordance with the contract and accepted submittals. Use PCB in accordance with Section 1170 of the *2012 Standard Specifications* and Standard Drawing No. 1170.01 of the *2012 Roadway Standard Drawings*. Use temporary guardrail in accordance with Section 862 of the *2012 Standard Specifications* and Standard Drawing No. 862.01, 862.02 and 862.03 of the *2012 Roadway Standard Drawings*.

(A) Tolerances

Construct shoring with the following tolerances:

- (1) Horizontal wires of welded wire facing are level in all directions,

- (2) Shoring location is within 6" of horizontal and vertical alignment shown in the accepted submittals, and
- (3) Shoring plumbness (batter) is within 2° of vertical.

(B) Cantilever, Braced and Anchored Shoring Installation

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

(1) Pile Installation

Install piles with the minimum required embedment and extension in accordance with Subarticles 450-3(D) and 450-3(E) of the *2012 Standard Specifications* except that a pile driving equipment data form is not required. Piles may be installed with a vibratory hammer as approved by the Engineer.

Do not splice sheet piles. Use pile excavation to install drilled-in H-piles. After filling holes with concrete or grout to the elevations shown in the accepted submittals, remove any fluids and fill remaining portions of holes with flowable fill. Cure concrete or grout at least 7 days before excavating.

Notify the Engineer if refusal is reached before pile excavation or driven piles attain the minimum required embedment. When this occurs, a revised design submittal may be required.

(2) Excavation

Excavate in front of piles from the top down in accordance with the accepted submittals. For H-piles with timber lagging and braced and anchored shoring, excavate in staged horizontal lifts with a maximum height of 5 ft. Remove flowable fill and material in between H-piles as needed to install timber lagging. Position lagging with at least 3" of contact in the horizontal direction between the lagging and pile flanges. Do not excavate the next lift until timber lagging for the current lift is installed and if applicable, bracing and anchors for the current lift are accepted. Backfill behind cantilever, braced or anchored shoring with shoring backfill.

(3) Anchor Installation

If applicable, install foundations located behind anchored shoring before installing anchors. Fabricate and install ground anchors in accordance with the accepted submittals, Articles 6.4 and 6.5 of the *AASHTO LRFD Bridge Construction Specifications* and the following unless otherwise approved:

- (a) Materials in accordance with this provision are required instead of materials conforming to Articles 6.4 and 6.5.3 of the *AASHTO LRFD Specifications*,

- (b) Encapsulation-protected ground anchors in accordance with Article 6.4.1.2 of the AASHTO LRFD specifications are not required, and
- (c) Corrosion protection for unbonded lengths of ground anchors and anchorage covers are not required.

Install helical anchors in accordance with the accepted submittals and Anchor Manufacturer's instructions. Measure torque during installation and do not exceed the torsional strength rating of the helical anchor. Attain the minimum required installation torque and penetration before terminating anchor installation. When replacing a helical anchor, embed last helix of the replacement anchor at least 3 helix plate diameters past the location of the first helix of the previous anchor.

(4) Anchor Testing

Proof test and lock-off anchors in accordance with the accepted submittals and Article 6.5.5 of the *AASHTO LRFD Bridge Construction Specifications* except for the acceptance criteria in Article 6.5.5.5. For the AASHTO LRFD specifications, "ground anchor" refers to a ground or helical anchor and "tendon" refers to a bar, strand or shaft.

(a) Anchor Acceptance

Anchor acceptance is based in part on the following criteria.

- (i) For ground and helical anchors, total movement is less than 0.04" between the 1 and 10 minute readings or less than 0.08" between the 6 and 60 minute readings.
- (ii) For ground anchors, total movement at maximum test load exceeds 80% of the theoretical elastic elongation of the unbonded length.

(b) Anchor Test Results

Submit 2 copies of anchor test records including movement versus load plots for each load increment within 24 hours of completing each row of anchors. The Engineer will review the test records to determine if the anchors are acceptable.

If the Engineer determines an anchor is unacceptable, revise the anchor design or installation methods. Submit a revised anchored shoring design for acceptance and provide an acceptable anchor with the revised design or installation methods. If required, replace the anchor or provide additional anchors with the revised design or installation methods.

(C) Temporary Wall Installation

Excavate as necessary for temporary walls in accordance with the plans and accepted submittals. If applicable, install foundations located in the reinforced zone before placing shoring backfill or reinforcement unless otherwise approved. Notify the Engineer when

foundation excavation is complete. Do not place shoring backfill or reinforcement until excavation dimensions and foundation material are approved.

Erect welded wire facing with no negative batter (wall face leaning forward) so the wall position is as shown in the plans and accepted submittals. Set welded wire facing adjacent to each other in the horizontal and vertical direction to completely cover the wall face with facing. Stagger welded wire facing to create a running bond by centering facing over joints in the row below.

Wrap geotextile reinforcement and retention geotextiles behind welded wire facing as shown in the plans and accepted submittals and cover geotextiles with at least 3" of shoring backfill. Overlap adjacent geotextile reinforcement and retention and separation geotextiles at least 18" with seams oriented perpendicular to the wall face. Hold geotextiles in place with wire staples or anchor pins as needed.

Place reinforcement within 3" of locations shown in the plans and accepted submittals and in slight tension free of kinks, folds, wrinkles or creases. Install reinforcement with the direction shown in the plans and accepted submittals. For temporary wire walls with separate reinforcement and facing components, attach welded wire grid or metallic strip reinforcement to welded wire facing as shown in the accepted submittals. Do not splice or overlap reinforcement so seams are parallel to the wall face. Contact the Engineer when unanticipated existing or future obstructions such as foundations, pavements, pipes, inlets or utilities will interfere with reinforcement.

Place shoring backfill in the reinforced zone in 8" to 10" thick lifts. Compact A-2-4 soil and Class II, Type 1 and Class III select material in accordance with Subarticle 235-3(C) of the *2012 Standard Specifications*. Use only hand operated compaction equipment to compact backfill within 3 ft of welded wire facing. At a distance greater than 3 ft, compact shoring backfill with at least 4 passes of an 8 ton to 10 ton vibratory roller in a direction parallel to the wall face. Smooth wheeled or rubber tired rollers are also acceptable for compacting backfill. Do not use sheepsfoot, grid rollers or other types of compaction equipment with feet. Do not displace or damage reinforcement when placing and compacting shoring backfill. End dumping directly on geotextile or geogrid reinforcement is not permitted. Do not operate heavy equipment on reinforcement until it is covered with at least 8" of shoring backfill. Replace any damaged reinforcement to the satisfaction of the Engineer.

Backfill for temporary walls outside the reinforced zone in accordance with Article 410-8 of the *2012 Standard Specifications*. Bench temporary walls into the sides of excavations where applicable. For temporary geosynthetic walls with top of wall within 5 ft of finished grade, remove top facing and incorporate top reinforcement layer into fill when placing fill in front of wall. Temporary walls remain in place permanently unless otherwise required.

Measurement and Payment

Temporary Shoring will be measured and paid in square feet. Temporary walls will be measured as the square feet of exposed wall face area. Cantilever, braced or anchored shoring will be measured as the square feet of exposed shoring face area with the shoring height equal to the

difference between the top and bottom of shoring elevations. Define "top of shoring" as where the grade intersects the back of sheet piles or H-piles and timber lagging. Define "bottom of shoring" as where the grade intersects front of sheet piles or H-piles and timber lagging. No measurement will be made for any embedment, shoring extension above top of shoring or pavement thickness above temporary walls.

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

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

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

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

Payment will be made under:

Pay Item
Temporary Shoring

Pay Unit
Square Foot

TRUCK MOUNTED CHANGEABLE MESSAGE SIGNS:

(8-21-12)

1101.02

SP11 R10

Revise the *2012 Roadway Standard Drawings* as follows:

Drawing No. 1101.02, Sheet 12, TEMPORARY LANE CLOSURES, replace General Note #11 with the following:

11- TRUCK MOUNTED CHANGEABLE MESSAGE SIGNS (TMCMS) USED ON SHADOW VEHICLES FOR "IN LANE" ACTIVITIES SHALL BE A MINIMUM OF 43" X 73". THE DISPLAY PANEL SHALL HAVE FULL MATRIX CAPABILITY WITH THE CAPABILITY TO PROVIDE 2 MESSAGE LINES WITH 7 CHARACTERS PER LINE WITH A MINIMUM CHARACTER HEIGHT OF 18". FOR ADDITIONAL MESSAGING, CONTACT THE WORK ZONE TRAFFIC CONTROL SECTION.

12- TMCMS USED FOR ADVANCED WARNING ON VEHICLES LOCATED ON THE SHOULDER MAY BE SMALLER THAN 43" X 73". THE DISPLAY PANEL SHALL HAVE THE CAPABILITY TO PROVIDE 2 MESSAGE LINES WITH 7 CHARACTERS PER LINE WITH A MINIMUM CHARACTER HEIGHT OF 18". FOR ADDITIONAL MESSAGING, CONTACT THE WORK ZONE TRAFFIC CONTROL SECTION.

Drawing No. 1101.02, Sheet 13, TEMPORARY LANE CLOSURES, replace General Note #12 with the following:

12- TRUCK MOUNTED CHANGEABLE MESSAGE SIGNS (TMCMS) USED ON SHADOW VEHICLES FOR "IN LANE" ACTIVITIES SHALL BE A MINIMUM OF 43" X 73". THE DISPLAY PANEL SHALL HAVE FULL MATRIX CAPABILITY WITH THE CAPABILITY TO PROVIDE 2 MESSAGE LINES WITH 7 CHARACTERS PER LINE WITH A MINIMUM CHARACTER HEIGHT OF 18". FOR ADDITIONAL MESSAGING, CONTACT THE WORK ZONE TRAFFIC CONTROL SECTION.

13- TMCMS USED FOR ADVANCED WARNING ON VEHICLES LOCATED ON THE SHOULDER MAY BE SMALLER THAN 43" X 73". THE DISPLAY PANEL SHALL HAVE THE CAPABILITY TO PROVIDE 2 MESSAGE LINES WITH 7 CHARACTERS PER LINE WITH A MINIMUM CHARACTER HEIGHT OF 18". FOR ADDITIONAL MESSAGING, CONTACT THE WORK ZONE TRAFFIC CONTROL SECTION.

PERMANENT SEEDING AND MULCHING:

(7-1-95)

1660

SP16 R02

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

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

Percentage of Elapsed Contract Time	Percentage Additive
0% - 30%	30%
30.01% - 50%	15%

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

PROJECT SPECIAL PROVISIONS**GEOTECHNICAL****ROCK EMBANKMENTS:****(1-17-12)****Description**

Construct rock embankments in accordance with the contract. Use core material as necessary or required where piles will be driven through rock embankments and as shown in the plans. Rock embankments are required to construct embankments in water at locations shown in the plans and as directed.

Materials

Refer to Division 10 of the *Standard Specifications*.

Item	Section
Geotextile for Rock Embankments, Type 2	1056
Select Material	1016

Provide Type 2 geotextile for filtration geotextiles. Use Class VII select material for rock embankments. Use Class VI select material (standard size No. 57) for core material and over Class VII.

Construction Methods

Construct rock embankments in accordance with the slopes, dimensions and elevations shown in the plans and Section 235 of the *Standard Specifications*. If piles will be installed through rock embankments, place Class VII so there will be at least 5 ft between rock and piles. Place Class VII so smaller rocks are uniformly distributed throughout rock embankments. Provide a uniform surface free of obstructions, debris and groups of large rocks that could cause voids in embankments. When placing Class VII in lifts, place core material to top of the current lift before placing the next lift of Class VII.

Place and compact a layer of No. 57 stone at least 12" thick over rock embankments and core material. Install filtration geotextiles on top of No. 57 stone in accordance with Article 270-3 of the *Standard Specifications* before placing embankment fill material.

Measurement and Payment

Rock Embankments and #57 Stone will be measured and paid in tons. Select material will be measured by weighing material in trucks in accordance with Article 106-7 of the *Standard Specifications*. The contract unit prices for *Rock Embankments* and #57 Stone will be full compensation for providing, hauling, handling, placing, compacting and maintaining select material.

Geotextile for Rock Embankments will be measured and paid in square yards. Geotextiles will be measured along the top of the No. 57 stone layer as the square yards of exposed geotextiles before placing embankment fill. No measurement will be made for overlapping geotextiles. The contract unit price for *Geotextile for Rock Embankments* will be full compensation for providing, transporting and placing geotextiles.

Payment will be made under:

R-2303A

76

Cumberland County

Pay Item

Rock Embankments

#57 Stone

Geotextile for Rock Embankments

Pay Unit

Ton

Ton

Square Yard

GEOTEXTILE FOR PAVEMENT STABILIZATION:

(1-17-12)

Description

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

Materials

Refer to Division 10 of the *Standard Specifications*.

Item

Geotextiles

Section

1056

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

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

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

Construction Methods

Construct embankments to subgrade elevations in accordance with the contract. The Engineer will determine if geotextile for pavement stabilization is required at locations shown in the plans and other locations as directed based on testing subgrade soils for quality. For subgrades without stabilization, allow 24 days to determine if geotextile for pavement stabilization is required. For stabilized subgrades with geotextile for pavement stabilization, stabilize subgrade soils to 12" beyond the base course as shown in the plans.

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

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

Do not damage geotextile for pavement stabilization when constructing base courses. Place and compact base course in accordance with the *Standard Specifications*. Do not operate heavy

equipment on geotextiles any more than necessary to construct pavement sections. Replace any damaged geotextiles to the satisfaction of the Engineer.

Measurement and Payment

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

Payment will be made under:

Pay Item

Geotextile for Pavement Stabilization

Pay Unit

Square Yard

PILE DRIVING CRITERIA

(9-18-12)

Revise the 2012 *Standard Specifications* as follows:

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

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

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

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

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

(4) Pile Driving Criteria

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

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

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

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

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

STANDARD SHORING:

(1-17-12)

Description

Standard shoring includes standard temporary shoring and standard temporary mechanically stabilized earth (MSE) walls. At the Contractor's option, use standard shoring as noted in the plans or as directed. When using standard shoring, a temporary shoring design submittal is not required. Construct standard shoring based on actual elevations and shoring dimensions in accordance with the contract and Standard Drawing No. 1801.01 or 1801.02.

Define "standard temporary shoring" as cantilever shoring that meets the standard temporary shoring drawing (Standard Drawing No. 1801.01). Define "standard temporary wall" as a temporary MSE wall with geotextile or geogrid reinforcement that meets the standard temporary wall drawing (Standard Drawing No. 1801.02). Define "standard temporary geotextile wall" as a standard temporary wall with geotextile reinforcement and "standard temporary geogrid wall" as a standard temporary wall with geogrid reinforcement. Define "geosynthetics" as geotextiles or geogrids.

Provide positive protection for standard shoring at locations shown in the plans and as directed. See *Temporary Shoring* provision for positive protection types and definitions.

Materials

Refer to the *Standard Specifications*.

Item	Section
Anchor Pins	1056-2
Concrete Barrier Materials	1170-2
Flowable Fill, Excavatable	1000-6
Geotextiles	1056
Neat Cement Grout	1003
Portland Cement Concrete	1000
Select Material	1016
Steel Beam Guardrail Materials	862-2
Steel Sheet Piles and H-Piles	1084
Untreated Timber	1082-2
Welded Wire Reinforcement	1070-3
Wire Staples	1060-8(D)

Provide Type 6 material certifications for shoring materials. Use Class IV select material (standard size No. ABC) for temporary guardrail.

For drilled-in H-piles, use nonshrink neat cement grout or Class A concrete that meets Article 1000-4 of the *Standard Specifications* except as modified herein. Provide concrete with a slump of 6" to 8". Use an approved high-range water reducer to achieve this slump.

Based on actual shoring height, positive protection, groundwater elevation, slope or surcharge case and traffic impact at each standard temporary shoring location, use sheet piles with the minimum required section modulus or H-piles with the sizes shown in Standard Drawing No. 1801.01. Use untreated timber with a thickness of at least 3" and a bending stress of at least 1,000 psi for timber lagging.

(A) Shoring Backfill

Use Class II, Type 1, Class III, Class V or Class VI select material or material that meets AASHTO M 145 for soil classification A-2-4 with a maximum PI of 6 for shoring backfill except do not use the following:

- (1) A-2-4 soil for backfill around culverts,
- (2) A-2-4 soil in the reinforced zone of standard temporary walls with a back slope and
- (3) Class VI select material in the reinforced zone of standard temporary geotextile walls.

(B) Standard Temporary Walls

Use welded wire reinforcement for welded wire facing, struts and wires with the dimensions and minimum wire sizes shown in Standard Drawing No. 1801.02. Provide Type 2 geotextile for separation and retention geotextiles. Define “machine direction” (MD) and “cross-machine direction” (CD) for geosynthetics in accordance with ASTM D4439. Do not use more than 4 different reinforcement strengths for each standard temporary wall.

(1) Geotextile Reinforcement

Provide Type 5 geotextile for geotextile reinforcement with a mass per unit area of at least 8 oz/sy in accordance with ASTM D5261. Based on actual wall height, groundwater elevation, slope or surcharge case and shoring backfill type in the reinforced zone at each standard temporary geotextile wall location, provide geotextile reinforcement with wide width tensile strengths at ultimate in the MD as shown in Standard Drawing No. 1801.02. Also provide geotextile reinforcement with wide width tensile strengths at ultimate in the CD as shown in Standard Drawing No. 1801.02 if reinforcement is installed with the MD parallel to the wall face.

(2) Geogrid Reinforcement

Handle and store geogrids in accordance with Article 1056-2 of the *Standard Specifications*. Based on actual wall height, groundwater elevation, slope or surcharge case and shoring backfill type in the reinforced zone at each standard temporary geogrid wall location, provide geogrids for geogrid reinforcement with short-term design strengths in the MD as shown in Standard Drawing No. 1801.02. Also provide geogrids for geogrid reinforcement with short-term design strengths in the CD as shown in Standard Drawing No. 1801.02 if reinforcement is installed with the MD parallel to the wall face.

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

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

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

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

Preconstruction Requirements

(A) Concrete Barrier

Define “clear distance” behind concrete barrier as the horizontal distance between the barrier and edge of pavement. The minimum required clear distance for concrete barrier is shown in the plans. At the Contractor’s option or if the minimum required clear distance is not available, set concrete barrier next to and up against traffic side of standard shoring except for barrier above standard temporary walls. Concrete barrier with the minimum required clear distance is required above standard temporary walls.

(B) Temporary Guardrail

Define “clear distance” behind temporary guardrail as the horizontal distance between guardrail posts and standard shoring. At the Contractor’s option or if clear distance for standard temporary shoring is less than 4 ft, attach guardrail to traffic side of shoring as shown in the plans. Place ABC in clear distance and around guardrail posts instead of pavement. Do not use temporary guardrail above standard temporary walls.

(C) Standard Shoring Selection Forms

Before beginning standard shoring construction, survey existing ground elevations in the vicinity of standard shoring locations to determine actual shoring or wall heights (H). Submit a standard shoring selection form for each location at least 7 days before starting standard shoring construction. Standard shoring selection forms are available from:
www.ncdot.org/doh/preconstruct/highway/geotech/formdet/

(D) Preconstruction Meeting

The Engineer may require a shoring preconstruction meeting to discuss the construction and inspection of the standard shoring. If required, schedule this meeting after all standard shoring selection forms have been submitted. The Resident, District or Bridge Maintenance Engineer, Bridge or Roadway Construction Engineer, Geotechnical Operations Engineer, Contractor and Shoring Contractor Superintendent will attend this preconstruction meeting.

Construction Methods

Construct standard shoring in accordance with the *Temporary Shoring* provision.

(A) Standard Temporary Shoring Installation

Based on actual shoring height, positive protection, groundwater elevation, slope or surcharge case and traffic impact at each standard temporary shoring location, install piles with the minimum required embedment and extension for each shoring section in accordance with Standard Drawing No. 1801.01. For concrete barrier above and next to standard temporary shoring and temporary guardrail above and attached to standard temporary shoring, use "surcharge case with traffic impact" in accordance with Standard Drawing No. 1801.01. Otherwise, use "slope or surcharge case with no traffic impact" in accordance with Standard Drawing No. 1801.01. If refusal is reached before driven piles attain the minimum required embedment, use drilled-in H-piles with timber lagging for standard temporary shoring.

(B) Standard Temporary Walls Installation

Based on actual wall height, groundwater elevation, slope or surcharge case, geotextile or geogrid reinforcement and shoring backfill type in the reinforced zone at each standard temporary wall location, construct walls with the minimum required reinforcement length and number of reinforcement layers for each wall section in accordance with Standard Drawing No. 1801.02. For standard temporary walls with pile foundations in the reinforced zone, drive piles through reinforcement after constructing temporary walls.

For standard temporary walls with interior angles less than 90°, wrap geosynthetics at acute corners as directed by the Engineer. Place geosynthetics as shown in Standard Drawing No. 1801.02. Place separation geotextiles between shoring backfill and backfill, natural ground or culverts along the sides of the reinforced zone perpendicular to the wall face. For Class V or VI select material in the reinforced zone, place separation geotextiles between shoring backfill and backfill or natural ground on top of and at the back of the reinforced zone.

Measurement and Payment

Standard shoring will be measured and paid in accordance with the *Temporary Shoring* provision.

CONTAMINATED SOIL (8-14-2012)

The Contractor's attention is directed to the fact that soil contaminated with petroleum hydrocarbon compounds exists within the project area. The known areas of contamination are indicated on corresponding plan sheets. Information relating to these contaminated areas, sample locations, and investigation reports are available at the web address below:

Navigate to the correct letting year and month then select, "Plans and Proposals", "Cumberland R-2303A", "GeoEnvironmental":

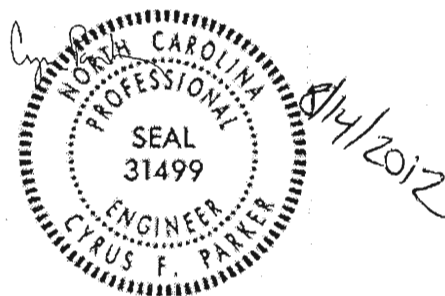
<http://dotw-xfer01.dot.state.nc.us/dsplan/>

The Contractor shall notify the Geotechnical Engineering Unit two weeks prior to excavating in areas of known contamination. The Engineer will determine if soil is contaminated based on petroleum odors and unusual soil staining.

The Contractor shall excavate only those soils that the Engineer designates necessary to complete a particular task. Contaminated soil not required to be excavated is to remain in place and undisturbed. The Contractor shall be responsible for excavating and loading the contaminated soil into trucks provided by the Department.

Excavation of contaminated soil will be paid either as *Unclassified Excavation* or as *Undercut Excavation* depending on the location from which it is removed. No additional payment will be made for loading the material on trucks for disposal by the Department as the cost will be considered incidental to the excavation item.

The Department will be responsible for the hauling and disposal of contaminated soil.



CONTAMINATED SOIL (1-25-2013)

The Contractor's attention is directed to the fact that soil contaminated with petroleum hydrocarbon compounds exists within the project area. The known areas of contamination are indicated on corresponding plan sheets. Information relating to these contaminated areas, sample locations, and investigation reports are available at the web address below:

Navigate to the correct letting year and month then select, "Plans and Proposals", "Cumberland Sampson R-2303B", "GeoEnvironmental":

<http://dotw-xfer01.dot.state.nc.us/dsplan/>

The Contractor shall notify the GeoEnvironmental Section two weeks prior to excavating in areas of known contamination. The Engineer will determine if soil is contaminated based on petroleum odors and unusual soil staining.

The Contractor shall excavate only those soils that the Engineer designates necessary to complete a particular task. Contaminated soil not required to be excavated is to remain in place and undisturbed. The Contractor shall be responsible for excavating and loading the contaminated soil into trucks provided by the Department.

Excavation of contaminated soil will be paid either as *Unclassified Excavation* or as *Undercut Excavation* depending on the location from which it is removed. No additional payment will be made for loading the material on trucks for disposal by the Department as the cost will be considered incidental to the excavation item.

The Department will be responsible for the hauling and disposal of contaminated soil.



Cyrus Parker

1/25/2013

Law Enforcement:

2-19-09

SPI

Description

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

Construction Methods

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

Measurement and Payment

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

Payment will be made under:

Pay Item

Law Enforcement

Pay Unit

Hour



John B. Kite, Jr.
7/3/12

**NC 24 FROM WEST OF SR 1006
(MAXWELL RD. / CLINTON RD.)
TO SR 1853 (JOHN NUNNERY RD.)**

**CUMBERLAND COUNTY, NORTH CAROLINA
NCDOT PROJECT: R-2303A, WBS 34416.1.1**

**UTILITY CONSTRUCTION
PROJECT SPECIAL PROVISIONS**



**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES AND ENCROACHMENTS ENGINEERING UNIT
1555 MAIL SERVICE CENTER
RALEIGH, NC 27699-1555**

February 19, 2013

Prepared By:

AECOM

**Technical Services of North Carolina, Inc.
701 Corporate Center Drive, Suite 475
Raleigh, NC 27607-5238
PROJECT NO. 60185480**



PROJECT SPECIAL PROVISIONS
Utility Construction**I. GENERAL CONSTRUCTION REQUIREMENTS:****Specifications:**

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

Revise the 2012 *Standard Specifications* as follows:

Page 15-6, Subarticle 1510-3-(A) Construction Requirements, change the allowable leakage formula and use continuous feed method for chlorination of water lines:

$$W = LD(P)^{1/2} / 148,000$$

Flush the water line prior to sterilization to remove all debris and dirt. Use the continuous feed method for chlorinating the water line in accordance to AWWA C651, Section 4.4.3.

Owner and Owner's Requirements:

The existing water and sewer mains to be relocated are owned by the Town of Stedman. The water pump station and discharge water main supplying Autryville are owned by the Town of Autryville. The existing 12" water main and 8" sanitary sewer main on Maxwell Road are owned by the Fayetteville PWC. The improvements to these PWC mains are considered betterments. The Contractor shall provide access for the owners' representatives to all phases of construction. The owners shall be notified two weeks prior to commencement of any work and one week prior to service interruption. Only authorized personnel of the owners shall operate valves in the existing water distribution or sewer collection systems.

Nitrile Gaskets:

Proposed water main pipe to be installed in the vicinity of contaminated soil identified on the utility construction plans shall include nitrile gaskets in lieu of standard gaskets.

Water Pump Station:**Demolition of Existing Water Pump Station:**

Work shall include the demolition and removal, but not be limited to, the following:

1. Chain link fence and gate.
2. Asphalt driveway.
3. Exterior 6-inch DI pipe, fittings, valves and meter vault.
4. Electrical service.
5. Interior pumps, piping, valves, and fittings.
6. Brick building and foundation approximately 15 feet x 11 feet.

Proposed Water Pump Station:

Proposed water pump station shall include, but not be limited to, the following:

1. Duplex water pumps with a flow rate of 125 gpm at a Total Dynamic Head (TDH) of 50 feet and a 5 Hp motor.
2. 6-inch ductile iron (DI) piping, fittings, and valves to and from the building with meter vault.
3. 4-inch DI internal to the station with associated gate and check valves for proper operation and maintenance.
4. Electrical controls for pumps.
5. Electrical service.
6. Building approximately 15 feet x 11 feet with a brick exterior and a flat roof.
7. Chain link fence and gate.
8. Asphalt drive.

II. MEASUREMENT AND PAYMENT:

Nitrile Gaskets: will be measured and paid for per each gasket installed and shall include one gasket per bell end of pipe, two gaskets per valve, one gasket per fire hydrant, and three gaskets per tee. Payment is limited to material only.

Water Pump Station: will be measured and paid for lump sum. Payment will be inclusive of all work, materials, and equipment to include, but not limited to, site grading, building structure, pumps and appurtenances complete as shown on the plans.

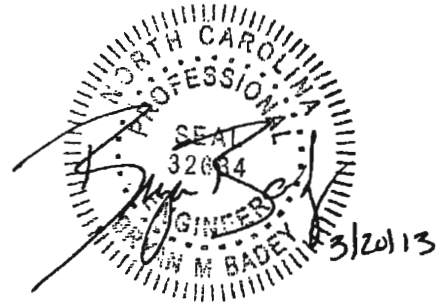
Revised 5-1-13

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Project: R-2303B
County: Sampson

Prepared by:

Rummel, Klepper & Kahl, LLP
Consulting Engineers
900 Ridgefield Drive, Suite 350
Raleigh, NC 27609
Phone: (919) 878-9560
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FINAL PROJECT SPECIAL PROVISIONS

Sampson County; Water Line Construction
February 27,2013 - Revised March 20,2013.

GENERAL CONSTRUCTION REQUIREMENTS:

Specifications:

The proposed utility construction shall meet the applicable requirements of the NC Department of Transportation "Standard Specifications for Roads and Structures" dated January 2012, Sampson County standard specifications and the provisions outlined below.

Contractor shall meet the installation standards of the AWWA or ASTM for water line construction.

Owner and Owner's Requirements:

The existing water mains are owned by Sampson County. The primary contact person for the County is Mr. Lee Cannady; office phone: (910) 592-0188. The contractor shall provide access for the owner's representatives to all phases of construction. The owner shall also be notified two (2) weeks prior to commencement of any work and one (1) week prior to service interruption. Interruption of water service on main lines shall be limited to a maximum of 4 hours during regular working hours unless approved otherwise by Sampson County Water Department.

It shall be the Contractor's responsibility to notify customers affected by necessary shut downs of the existing water system at least 24 hours in advance.

Only Sampson County Water Department personnel shall operate valves and hydrants except in the case of an emergency. Notify the County immediately of an emergency requiring valve or hydrant operation.

All removed water meters and fire hydrants shall be stockpiled by the Contractor in one area accessible for the owner to pick up.

Any cracked, damaged, or defective pipe, fittings, or other attachments discovered as a result of the pressure test, shall be removed and replaced with sound material. The tests shall be repeated until test results are satisfactory.

Revise the NCDOT 2012 "Standard Specifications for Roads and Structures" as follows:

Page 15-6, Sub article 1510-3 (A) Construction Requirements:

Follow the allowable leakage formula from the most current versions of AWWA C600 (for ductile iron pipe) or AWWA C605 (for PVC pipe). The allowable leakage formula is:

$$W = LD(P)Y^2 / 148,000$$

For disinfection, use the "Continuous-Feed Method" as described in the most current version of AWWA C651, Section 4.4.3 and as directed in NCDENR "The Rules of Governing Public Water Systems", Section .1003. This method requires a solution of at least 50ppm chlorine to be introduced into the new pipe line and held for at least 24 hours. During this time, the residual concentration of chlorine shall remain at least 10ppm. If the chlorine concentration drops below 10ppm, the test shall be repeated. Collected samples shall be analyzed at a state approved laboratory and the result provided to the utility owner.

The testing, cleaning and sterilization shall be performed consecutively.

Utility Locations Shown on the Plans:

The locations, sizes, and type material of the existing utilities shown on the plans are from the best available information. The contractor will be responsible for determining the exact location, size, and type of material of the existing facilities necessary for the construction of the proposed utilities and to avoid damage to existing facilities. All water and sanitary sewer services disturbed during construction shall be reconnected, even if not shown on the plans. Contractor is to make the Engineer aware of any plan discrepancies.

Water line location in relation to sewers shall conform to NCDOT's 2012 "Standard Specifications for Roads and Structures" Section 1500-5 and NCDENR's "The Rules of Governing Public Water Systems" Section .0906.

Open Cut Installation:

All water line construction performed using open cut installation within or adjacent to traffic shall have the final approved traffic control measures in place prior to beginning any open cut installation.

Material Specifications:

When brand names of materials have been determined, the Contractor shall obtain approval, through the engineer and the owner prior to their use and/or installation.

Then Contractor shall furnish, but is not limited to furnishing, catalog cuts and/or shop drawings of the materials. Thirty days shall be allowed for the Engineer's review of each submittal. Eight copies of each catalog cut and/or shop drawing (signed and sealed) shall be submitted.

COMPENSATION:

No direct payment will be made for utility construction work required by the preceding provisions which are general requirements applying to utility construction, and all of the requirements stated will be considered incidental work, paid for at the previously agreed upon lump sum price.

1. Relocation of Water Booster Pump Station:

Contractor shall relocate the existing water booster pump station, portable generator and above ground propane storage tank. Prior to relocating the booster pump station the contractor shall clear and grub the new site then grade the site allowing a level area to place the relocated water booster pump station. The contractor shall construct a new concrete pad at least 4 inches thick with 4 inch of No. 67 stone as a base. The concrete pad shall match the dimension of the existing pad in length and width. The concrete shall be 3,000 psi concrete and the openings for the water line connections shall be formed prior to pouring the concrete. All water line connections to the booster pump station shall be preliminarily fitted together, making sure all connections are sizes properly and aligned to match up with the booster pump station pipes and fittings. All electrical work shall be performed by a licensed electrician in the State of North Carolina. Contractor shall coordinate with the power company to provide a new service pole with area light and a connection to the relocated meter box. Contractor shall reconnect all require electrical connection to the booster pump station and generator. Finally the contractor shall fence the new boost pump station site with galvanized chain link fence and a gate for access which matches the existing fence around the water booster pump station site.

Relocation of Water Booster Pump Station installed in accordance with the plans and provisions herein and accepted, will be measured and paid for at the contract lump sum price for "Relocation of Water Booster Pump Station". Such prices and payments will be full compensation for all materials, labor, equipment, excavation and incidentals necessary to complete the work as required.

**NC 24 FROM WEST OF
SR 1006 (MAXWELL RD. / CLINTON RD.) TO
SR 1853 (JOHN NUNNERY RD.)**

**CUMBERLAND COUNTY, NORTH CAROLINA
NCDOT PROJECT: R-2303A, WBS 34416.1.1**

**UTILITIES BY OTHERS
PROJECT SPECIAL PROVISIONS**



**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES AND ENCROACHMENTS ENGINEERING UNIT
1555 MAIL SERVICE CENTER
RALEIGH, NC 27699-1555**

March 4, 2013

Prepared By:

AECOM

**Technical Services of North Carolina, Inc.
701 Corporate Center Drive, Suite 475
Raleigh, NC 27607-5238
PROJECT NO. 60185480**

PROJECT SPECIAL PROVISIONS

UTILITIES BY OTHERS:

General:

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

- A) CenturyLink and Fayetteville PWC – Telecommunications
- B) South River EMC and Progress Energy – Power Distribution and Transmission
- C) Time Warner Cable - Cable Television

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 owner or his Contractor. 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) CenturyLink – Telecommunications

- See Utilities by Others Plans for details.
All work to be completed by Date of Availability.
- Contact Mr. Kevin Godwin @ 910-366-2142

A) Fayetteville PWC - Telecommunications

- See Utilities by Others Plans for details.
All work to be completed by Date of Availability.
- Contact Ms. Darlene Goodheart @ 910-223-4526

B) South River EMC – Power Distribution and Transmission

- See Utilities by Others Plans for details.
All work to be completed by Date of Availability.
- Contact Mr. Scott Byrd @ 910-892-8071

B) Progress Energy – Power Distribution and Transmission

- See Utilities by Others Plans for details.
All work to be completed by Date of Availability.
- Contact Ms. Sheila Talton @ 919-481-6126

C) Time Warner Cable – Cable Television

- See Utilities by Others Plans for details.
All work to be completed by Date of Availability.
- Contact Mr. Tony Mlynski @ 910-401-5088

December 5, 2012

PROJECT: R-2303B
COUNTY: Cumberland/Sampson

PROJECT SPECIAL PROVISIONS
Utilities

UTILITIES BY OTHERS

General:

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

- A. Progress Energy (Distribution)
- B. Progress Energy (Transmission)
- C. CenturyLink
- D. Star Telephone
- E. Piedmont Natural Gas
- F. Time Warner

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. Progress Energy (Distribution)
 - 1. See "Utility by Others Plans" for utility conflicts and new pole locations.
 - 2. Installation of new power facilities will **not** be completed prior to the availability date of the contract. The completion date for Progress Energy's relocation work will be September 15, 2013 except in the area of the proposed bridge. After the contractor has completed construction of the bridge along the south side of NC 24, Progress Energy will install new poles back of proposed guardrail prior to traffic being

shifted onto the new bridge. Progress Energy will require a 2 week notice in order to schedule the work. It will take 4 weeks to perform all necessary work once notified to do so.

3. Contact person is Mr. Don Spence with UC Synergetic. He can be reached at 919-882-5001 Ext. 5045.

B. Progress Energy (Transmission)

1. See "Utility by Others Plans" for existing and proposed utility locations.
2. Progress Energy will complete all transmission relocation work prior to the availability date.
3. Contact person is Mr. Jamie Loy, Transmission Engineer. He can be reached at 919-546-6034.

C. CenturyLink

1. See "Utility by Others Plans" for existing and proposed utility locations.
2. CenturyLink will install new buried facilities along the length of the project. Once the new facilities have been activated, CenturyLink will abandon its existing facilities. All work will be completed by November 15, 2013.
3. Contact person for CenturyLink for the work in Cumberland County is Mr. Richard Clark, Supervisor Plant Facilities. He can be reached at 910-423-6912. Contact person for CenturyLink for the work in Sampson County is Mr. Milton Russell, Supervisor Plant Facilities. He can be reached at 252-726-9114.

D. Star Telephone

1. See "Utility by Others Plans" for existing and proposed utility locations
2. Star Telephone will install new buried facilities along NC 24 and crossing SR 1414. Once the new facilities are activated, Star Telephone will abandon its existing facilities. All work will be completed prior to the availability date.
3. Contact person will be Mr. Kenneth Medlin and he can be reached at 910-564-7832.

E. Piedmont Natural Gas

1. See "Utility by Others Plans" for existing and proposed utility locations.

2. Piedmont Gas will install a new gas line along NC 24 beginning at Station 690+00 to end of project limits. All work will be completed by September 30, 2013. After the new line has been activated the existing gas line will be abandoned.
3. The contact person for Piedmont is Mr. Edward Sykes, Operations Supervisor-Construction. He can be reached at 919-705-5050.

F. Time Warner

1. See "Utility by Others Plans" for existing and proposed utility locations.
2. Time Warner will be reattaching to Progress Energy's new poles in several areas with the project limits. All work will be completed by September 15, 2013.
3. Contact person for Time Warner is Mr. Tony Mlynski, Construction Coordinator and he can be reached at 910-401-5088.

R-2303A & R-2303B**Project Special Provisions
Erosion Control****Cumberland & Sampson County****STABILIZATION REQUIREMENTS:**

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

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

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

SEEDING AND MULCHING:**(East)**

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.

All Roadway Areas**March 1 - August 31**

50# Tall Fescue
10# Centipede
25# Bermudagrass (hulled)
500# Fertilizer
4000# Limestone

September 1 - February 28

50# Tall Fescue
10# Centipede
35# Bermudagrass (unhulled)
500# Fertilizer
4000# Limestone

Waste and Borrow Locations**March 1 - August 31**

75# Tall Fescue
25# Bermudagrass (hulled)
500# Fertilizer
4000# Limestone

September 1 - February 28

75# Tall Fescue
35# Bermudagrass (unhulled)
500# Fertilizer
4000# Limestone

Note: 50# of Bahiagrass may be substituted for either Centipede or Bermudagrass only upon Engineer's request.

Approved Tall Fescue Cultivars

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

On cut and fill slopes 2:1 or steeper Centipede shall be applied at the rate of 5 pounds per acre and add 20# of Sericea Lespedeza from 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**(East)**

Native Grass Seeding and Mulching shall be performed on the disturbed areas of wetlands and riparian areas, and adjacent to Stream Relocation 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.

March 1 - August 31

18#	Creeping Red Fescue
6#	Indiangrass
8#	Little Bluestem

September 1 - February 28

18#	Creeping Red Fescue
6#	Indiangrass
8#	Little Bluestem

4#	Switchgrass	4#	Switchgrass
25#	Browntop Millet	35#	Rye Grain
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.

Native Grass Seeding and Mulching shall be performed in accordance with Section 1660 of the *Standard Specifications* and vegetative cover sufficient to restrain erosion shall be installed immediately following grade establishment.

Measurement and Payment

Native Grass *Seeding and Mulching* will be measured and paid for in accordance with Article 1660-8 of the *Standard Specifications*.

All areas seeded and mulched shall be tacked with asphalt. Crimping of straw in lieu of asphalt tack shall not be allowed on this project.

CRIMPING STRAW MULCH:

Crimping shall be required on this project adjacent to any section of roadway where traffic is to be maintained or allowed during construction. In areas within six feet of the edge of pavement, straw is to be applied and then crimped. After the crimping operation is complete, an additional application of straw shall be applied and immediately tacked with a sufficient amount of undiluted emulsified asphalt.

Straw mulch shall be of sufficient length and quality to withstand the crimping operation.

Crimping equipment including power source shall be subject to the approval of the Engineer providing that maximum spacing of crimper blades shall not exceed 8".

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. Sweet Sudan Grass, 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 on all roadway areas except slopes 2:1 and steeper shall be 10-20-20 grade and shall be applied at the rate of 500 pounds per acre. 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 10-20-20 analysis and as directed.

Fertilizer used for topdressing on slopes 2:1 and steeper and waste and borrow areas 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*, with the exception that no centipede seed will be used in the seed mix for supplemental seeding. The rate of application for supplemental seeding 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 4 inches.

LAWN TYPE APPEARANCE:

All areas adjacent to lawns must be hand finished as directed to give a lawn type appearance. Remove all trash, debris, and stones $\frac{3}{4}$ " and larger in diameter or other obstructions that could interfere with providing a smooth lawn type appearance. These areas shall be reseeded to match their original vegetative conditions, unless directed otherwise by the Field Operations Engineer.

REFORESTATION:**Description**

Reforestation will be planted along the outside borders of the road, in areas of pavement removal, and in other areas as directed. *Reforestation* is not shown on the plan sheets. See the Reforestation Detail Sheet.

All non-maintained riparian buffers impacted by the placement of temporary fill or clearing activities shall be restored to the preconstruction contours and revegetated with native woody species.

The entire *Reforestation* operation shall comply with the requirements of Section 1670 of the *Standard Specifications*.

Materials

Reforestation shall be bare root seedlings 12"-18" tall.

Construction Methods

Reforestation shall be planted as soon as practical following permanent *Seeding and Mulching*. The seedlings shall be planted in a 16-foot wide swath adjacent to mowing pattern line, or as directed.

Root dip: The roots of reforestation seedlings shall be coated with a slurry of water, and either a fine clay (kaolin) or a superabsorbent that is designated as a bare root dip. The type, mixture ratio, method of application, and the time of application shall be submitted to the Engineer for approval.

With the approval of the Engineer, seedlings may be coated before delivery to the job or at the time of planting, but at no time shall the roots of the seedlings be allowed to dry out. The roots shall be moistened immediately prior to planting.

Seasonal Limitations: *Reforestation* shall be planted from November 15 through March 15.

Measurement and Payment

Reforestation will be measured and paid for in accordance with Article 1670-17 of the *Standard Specifications*.

RESPONSE FOR EROSION CONTROL:

Description

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

Section	Erosion Control Item	Unit
1605	Temporary Silt Fence	LF
1606	Special Sediment Control Fence	LF/TON
1615	Temporary Mulching	ACR
1620	Seed - Temporary Seeding	LB
1620	Fertilizer - Temporary Seeding	TN
1631	Matting for Erosion Control	SY

SP	Coir Fiber Mat	SY
1640	Coir Fiber Baffles	LF
SP	Permanent Soil Reinforcement Mat	SY
1660	Seeding and Mulching	ACR
1661	Seed - Repair Seeding	LB
1661	Fertilizer - Repair Seeding	TON
1662	Seed - Supplemental Seeding	LB
1665	Fertilizer Topdressing	TON
SP	Safety/Highly Visible Fencing	LF
SP	Response for Erosion Control	EA

Construction Methods

Provide an approved subcontractor who performs an erosion control action as described in the NPDES Inspection Form SPPP30. Each erosion control action may include one or more of the above work items.

Measurement and Payment

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

Payment will be made under:

Pay Item

Response for Erosion Control

Pay Unit

Each

MINIMIZE REMOVAL OF VEGETATION:

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

STOCKPILE AREAS:

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

ACCESS AND HAUL ROADS:

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

WASTE AND BORROW SOURCES:

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

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

TEMPORARY DIVERSION:

This work consists of installation, maintenance, and cleanout of *Temporary Diversions* in accordance with Section 1630 of the *Standard Specifications*. The quantity of excavation for installation and cleanout will be measured and paid for as *Silt Excavation* in accordance with Article 1630-4 of the *Standard Specifications*.

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

PERMANENT SOIL REINFORCEMENT MAT:

Description

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

Materials

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

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

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

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

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

Construction Methods

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

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

Measurement and Payment

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

Payment will be made under:

Pay Item	Pay Unit
Permanent Soil Reinforcement Mat	Square Yard

SKIMMER BASIN WITH BAFFLES:**Description**

Provide a skimmer basin to remove sediment from construction site runoff at locations shown in the erosion control plans. See the Skimmer Basin with Baffles Detail sheet provided in the erosion control plans. Work includes constructing sediment basin, installation of temporary slope drain pipe and coir fiber baffles, furnishing, installation and cleanout of Faircloth Skimmers or other approved equivalent device, providing and placing stone pad on bottom of basin underneath skimmer device, providing and placing a geotextile emergency spillway liner, providing coir fiber mat stabilization for the skimmer outlet, disposing of excess materials, removing temporary slope drain, coir fiber baffles, geotextile liner and skimmer device, backfilling basin area with suitable material and providing proper drainage when basin area is abandoned.

Materials

Item	Section
Stone for Erosion Control, Class B	1042
Geotextile for Soil Stabilization, Type 4	1056
Fertilizer for Temporary Seeding	1060-2
Seed for Temporary Seeding	1060-4
Seeding and Mulching	1060-4
Matting for Erosion Control	1060-8
Staples	1060-8
Coir Fiber Mat	1060-14
Temporary Slope Drain	1622-2
Coir Fiber Baffle	1640

Provide appropriately sized Faircloth skimmer or other approved equivalent device.

Provide Schedule 40 PVC pipe with a length of 6 ft. to attach to the skimmer and the coupling connection to serve as the arm pipe. For skimmer sizes of 2.5 in. and smaller, the arm pipe diameter shall be 1.5 inches. For skimmer sizes of 3 in. and larger, refer to manufacturer recommendation.

Provide 4" diameter Schedule 40 PVC pipe to attach to coupling connection of Faircloth skimmer to serve as the barrel pipe through the earthen dam.

Anchors: Staples, stakes, or reinforcement bars shall be used as anchors.

Wooden Stakes:

Provide hardwood stakes 12"- 24" long with a 2" x 2" nominal square cross section. One end of the stake must be sharpened or beveled to facilitate driving through the coir fiber mat and down into the underlying soil. The other end of the stake needs to have a 1"- 2" long head at the top with a 1"- 2" notch following to catch and secure the coir fiber mat.

Steel Reinforcement Bars:

Provide uncoated #10 steel reinforcement bars 24" nominal length. The bars shall have a 4" diameter bend at one end with a 4" straight section at the tip to catch and secure the coir fiber mat.

Staples:

Provide staples made of 0.125" diameter new steel wire formed into a *u* shape not less than 12" in length with a throat of 1" in width.

Construction Methods

Excavate basin according to the erosion control plans with basin surface free of obstructions, debris, and pockets of low-density material. Install temporary slope drain pipe and construct the emergency spillway according to the Skimmer Basin with Baffles Detail sheet in the erosion control plans. Temporary slope drain pipe at inlet of basin may be replaced by geotextile as directed. Construct the coir fiber baffles according to *Roadway Standard Drawings* No. 1640.01 and Section 1640 of the *Standard Specifications*.

Install Faircloth skimmer or other approved equivalent device according to manufacturer recommendations. Install 4" Schedule 40 PVC pipe into dam on the lower side of basin 1 ft. from the bottom of the basin and according to the detail, and attach the 6 ft. arm pipe to the coupling connection and Faircloth skimmer according to manufacturer recommendations. Attach the rope included with the skimmer to the tee between the vent socket and the tube inlet, and the other end to a wooden stake or metal post. Clean out skimmer device when it becomes clogged with sediment and/or debris and is unable to float at the top of water in skimmer basin. Take appropriate measures to avoid ice accumulation in the skimmer device. Construct a stone pad of Class B stone directly underneath the skimmer device at bottom of basin. The pad shall be a minimum of 12" in height, and shall have a minimum cross sectional area of 4 ft. by 4 ft.

Line emergency spillway with geotextile unrolled in the direction of flow and lay smoothly but loosely on soil surface without creases. Bury edges of geotextile in a trench at least 5" deep and tamp firmly. If geotextile for the emergency spillway is not one continuous piece of material, make horizontal overlaps a minimum of 18" with upstream geotextile overlapping the downstream geotextile. Secure geotextile with eleven gauge wire staples shaped into a *u* shape with a length of not less than 12" and a throat not less than 1" in width. Place staples along outer edges and throughout the geotextile a maximum of 3 ft. horizontally and vertically. Geotextile shall be placed to the bottom and across the entire width of the basin according to the Skimmer Basin with Baffles detail.

At the skimmer outlet, provide a smooth soil surface free from stones, clods, or debris that will prevent contact of the coir fiber matting with the soil. Unroll the matting and apply without stretching such that it will lie smoothly but loosely on the soil surface. Wooden stakes, reinforcement bars, or staples may be used as anchors in accordance with the details in the plans

and as directed. Place anchors across the matting at the ends approximately 1 ft. apart. Place anchors along the outer edges and down the center of the matting 3 ft. apart.

All bare side slope sections of the skimmer basin shall be seeded with a temporary or permanent seed mix as directed and in accordance with Articles 1620-3, 1620-4, 1620-5, 1660-4, 1660-5 and 1660-7 of the *Standard Specifications*. Straw or excelsior matting shall be installed on all bare side slope sections immediately upon the completion of seeding and in accordance with Article 1631-3 of the *Standard Specifications*.

Measurement and Payment

Silt Excavation will be measured and paid for in accordance with Article 1630-4 of the *Standard Specifications*, as calculated from the typical section throughout the length of the basin as shown on the final approved plans.

Geotextile for Soil Stabilization will be measured and paid for in accordance with Article 270-4 of the *Standard Specifications*.

Coir Fiber Baffles will be measured and paid for in accordance with Article 1640-4 of the *Standard Specifications*.

___" *Skimmer* will be measured in units of each. ___" *Skimmer* will be measured and paid for as the maximum number of each size skimmer acceptably installed and in use at any one time during the life of the project. Barrel and arm pipe, cleanout, relocation and reinstallation of ___" *Skimmer* is considered incidental to the measurement of the quantity of ___" *Skimmer* and no separate payment will be made. No separate payment shall be made if ___" *Skimmer*, barrel and/or arm pipe(s) are damaged by ice accumulation.

Coir Fiber Mat will be measured and paid for as the actual number of square yards measured along the surface of the ground over which coir fiber mat is installed and accepted.

Temporary Slope Drain will be measured and paid for in accordance with Article 1622-4 of the *Standard Specifications*.

Stone for Erosion Control, Class ___ will be measured and paid for in accordance with Article 1610-4 of the *Standard Specifications*.

Seeding and Mulching will be measured and paid for in accordance with Article 1660-8 of the *Standard Specifications*.

Seed for Temporary Seeding will be measured and paid for in accordance with Article 1620-6 of the *Standard Specifications*.

Fertilizer for Temporary Seeding will be measured and paid for in accordance with Article 1620-6 of the *Standard Specifications*.

Matting for Erosion Control will be measured and paid for in accordance with Article 1631-4 of the *Standard Specifications*.

No measurement will be made for other items or for over excavation or stockpiling.

Payment will be made under:

Pay Item	Pay Unit
___" Skimmer	Each
Coir Fiber Mat	Square Yard

TIERED SKIMMER BASIN WITH BAFFLES:

Description

Provide a tiered skimmer basin to remove sediment from construction site runoff at locations shown in the erosion control plans. See the Tiered Skimmer Basin Detail sheet provided in the erosion control plans. Tiered Skimmer Basins shall be installed in areas where topography creates a large elevation difference between the inlet and outlet of a single skimmer basin. Work includes constructing sediment basins, installation of coir fiber baffles, installation of temporary slope drains, furnishing, installation and cleanout of Faircloth Skimmers or other approved equivalent device, providing and placing stone pad on bottom of basin underneath skimmer device, providing and placing geotextile emergency spillway liners, providing coir fiber mat stabilization for the skimmer outlet, disposing of excess materials, removing temporary slope drains, coir fiber baffles, geotextile liner and skimmer device, backfilling basin area with suitable material and providing proper drainage when basin area is abandoned.

Materials

Item	Section
Stone for Erosion Control, Class B	1042
Geotextile for Soil Stabilization, Type 4	1056
Fertilizer for Temporary Seeding	1060-2
Seed for Temporary Seeding	1060-4
Seeding and Mulching	1060-4
Matting for Erosion Control	1060-8
Staples	1060-8
Coir Fiber Mat	1060-14
Temporary Slope Drain	1622-2
Coir Fiber Baffle	1640

Provide appropriately sized Faircloth skimmer or other approved equivalent device.

Provide Schedule 40 PVC pipe with a length of 6 ft. to attach to the skimmer and the coupling connection to serve as the arm pipe. For skimmer sizes of 2.5 in. and smaller, the arm pipe diameter shall be 1.5 inches. For skimmer sizes of 3 in. and larger, refer to manufacturer recommendation.

Provide 4" diameter Schedule 40 PVC pipe to attach to coupling connection of Faircloth skimmer to serve as the barrel pipe through the earthen dam.

Anchors: Staples, stakes, or reinforcement bars shall be used as anchors.

Wooden Stakes:

Provide hardwood stakes 12"- 24" long with a 2" x 2" nominal square cross section. One end of the stake must be sharpened or beveled to facilitate driving through the coir fiber mat and down into the underlying soil. The other end of the stake needs to have a 1"- 2" long head at the top with a 1"- 2" notch following to catch and secure the coir fiber mat.

Steel Reinforcement Bars:

Provide uncoated #10 steel reinforcement bars 24" nominal length. The bars shall have a 4" diameter bend at one end with a 4" straight section at the tip to catch and secure the coir fiber mat.

Staples:

Provide staples made of 0.125" diameter new steel wire formed into a *u* shape not less than 12" in length with a throat of 1" in width.

Construction Methods

Excavate basins according to the erosion control plans with basin surface free of obstructions, debris, and pockets of low-density material. Install temporary slope drains and construct the emergency spillways according to the Tiered Skimmer Basin Detail sheet in the erosion control plans. Construct the coir fiber baffles according to *Roadway Standard Drawings* No. 1640.01 and Section 1640 of the *Standard Specifications*. Multiple upper basins, or Modified Silt Basins Type 'B' as labeled on the detail, may be required based on site conditions and as directed.

Install Faircloth skimmer or other approved equivalent device according to manufacturer recommendations. Install 4" Schedule 40 PVC pipe into dam on the lower side of basin 1 ft. from the bottom of the basin and according to the detail, and extend the pipe so the basin will drain. Attach a 6 ft. arm pipe to the coupling connection and Faircloth skimmer according to manufacturer recommendations. Attach the rope included with the skimmer to the tee between the vent socket and the tube inlet, and the other end to a wooden stake or metal post. Clean out skimmer device when it becomes clogged with sediment and/or debris and is unable to float at the top of water in skimmer basin. Take appropriate measures to avoid ice accumulation in the skimmer device. Construct a stone pad of Class B stone directly underneath the skimmer device at bottom of basin. The pad shall be a minimum of 12" in height, and shall have a minimum cross sectional area of 4 ft. by 4 ft.

Install a minimum of 2 (two) temporary slope drains to dewater the upper basin to the lower basin. The slope drains shall be installed a minimum of 6 inches, or one radius width of the

temporary slope drain pipe, below the base of the emergency spillway section of the upper basin. The outlet of the slope drains shall be placed on the bottom elevation of the lower basin.

Line emergency spillways with geotextile unrolled in the direction of flow and lay smoothly but loosely on soil surface without creases. Bury edges of geotextile in a trench at least 5" deep and tamp firmly. If geotextile for emergency spillways is not one continuous piece of material, make horizontal overlaps a minimum of 18" with upstream geotextile overlapping the downstream geotextile. Secure geotextile with eleven gauge wire staples shaped into a *u* shape with a length of not less than 12" and a throat not less than 1" in width. Place staples along outer edges and throughout the geotextile a maximum of 3 ft. horizontally and vertically. Geotextile shall be placed to the bottom and across the entire width of the basin according to the Tiered Skimmer Basin with Baffles detail.

At the skimmer outlet, provide a smooth soil surface free from stones, clods, or debris that will prevent contact of the coir fiber matting with the soil. Unroll the matting and apply without stretching such that it will lie smoothly but loosely on the soil surface. Wooden stakes, reinforcement bars, or staples may be used as anchors in accordance with the details in the plans and as directed. Place anchors across the matting at the ends approximately 1 ft. apart. Place anchors along the outer edges and down the center of the matting 3 ft. apart. Place sealant inside basin around barrel pipe on top of geotextile with a minimum width of 6 in.

All bare side slope sections of the skimmer basin shall be seeded with a temporary or permanent seed mix as directed and in accordance with Articles 1620-3, 1620-4, 1620-5, 1660-4, 1660-5 and 1660-7 of the *Standard Specifications*. Straw or excelsior matting shall be installed on all bare side slope sections immediately upon the completion of seeding and in accordance with Article 1631-3 of the *Standard Specifications*.

Measurement and Payment

Silt Excavation will be measured and paid for in accordance with Article 1630-4 of the *Standard Specifications*, as calculated from the typical section throughout the length of the basin as shown on the final approved plans.

Geotextile for Soil Stabilization will be measured and paid for in accordance with Article 270-4 of the *Standard Specifications*.

Coir Fiber Baffles will be measured and paid for in accordance with Article 1640-4 of the *Standard Specifications*.

___" *Skimmer* will be measured in units of each. ___" *Skimmer* will be measured and paid for as the maximum number of each size skimmer acceptably installed and in use at any one time during the life of the project. Barrel and arm pipe, cleanout, relocation and reinstallation of ___" *Skimmer* is considered incidental to the measurement of the quantity of ___" *Skimmer* and no separate payment will be made. No separate payment shall be made if ___" *Skimmer*, barrel and/or arm pipe(s) are damaged by ice accumulation.

Coir Fiber Mat will be measured and paid for as the actual number of square yards measured along the surface of the ground over which coir fiber mat is installed and accepted.

Temporary Slope Drain will be measured and paid for in accordance with Article 1622-4 of the *Standard Specifications*.

Stone for Erosion Control, Class __ will be measured and paid for in accordance with Article 1610-4 of the *Standard Specifications*.

Seeding and Mulching will be measured and paid for in accordance with Article 1660-8 of the *Standard Specifications*.

Seed for Temporary Seeding will be measured and paid for in accordance with Article 1620-6 of the *Standard Specifications*.

Fertilizer for Temporary Seeding will be measured and paid for in accordance with Article 1620-6 of the *Standard Specifications*.

Matting for Erosion Control will be measured and paid for in accordance with Article 1631-4 of the *Standard Specifications*.

No measurement will be made for other items or for over excavation or stockpiling.

Payment will be made under:

Pay Item	Pay Unit
__ " Skimmer	Each
Coir Fiber Mat	Square Yard

INFILTRATION BASIN WITH BAFFLES:

Description

Provide an infiltration basin to remove sediment from construction site runoff at locations shown in the erosion control plans. See the Infiltration Basin with Baffles Detail sheet provided in the erosion control plans. Work includes constructing sediment basin, installation of coir fiber baffles, providing and placing geotextile emergency spillway liner, providing coir fiber mat stabilization for the emergency spillway outlet, disposing of excess materials, removing geotextile liner and coir fiber mat, backfilling basin area with suitable material and providing proper drainage when basin area is abandoned.

Materials

Item	Section
Geotextile for Soil Stabilization, Type 4	1056
Staples	1060-8
Coir Fiber Mat	1060-14

Coir Fiber Baffle

1640

Anchors: Staples, stakes, or reinforcement bars shall be used as anchors.

Wooden Stakes:

Provide hardwood stakes 12"- 24" long with a 2" x 2" nominal square cross section. One end of the stake must be sharpened or beveled to facilitate driving through the coir fiber mat and down into the underlying soil. The other end of the stake needs to have a 1"- 2" long head at the top with a 1"- 2" notch following to catch and secure the coir fiber mat.

Steel Reinforcement Bars:

Provide uncoated #10 steel reinforcement bars 24" nominal length. The bars shall have a 4" diameter bend at one end with a 4" straight section at the tip to catch and secure the coir fiber mat.

Staples:

Provide staples made of 0.125" diameter new steel wire formed into a *u* shape not less than 12" in length with a throat of 1" in width.

Construction Methods

Excavate basin according to the erosion control plans with basin surface free of obstructions, debris, and pockets of low-density material. Excavation into or below the water table shall not occur, and avoid compacting the bottom of the basin with equipment tires, excavation bucket, etc. Construct the coir fiber baffles according to *Roadway Standard Drawings* No. 1640.01 and Section 1640 of the *Standard Specifications*. Construct earth berm around perimeter of infiltration basin as shown in the detail and the earth berm height shall be limited to 3 ft.

Construct the emergency spillway according to the Infiltration Basin with Baffles Detail sheet in the erosion control plans. Line emergency spillway with geotextile unrolled in the direction of flow and lay smoothly but loosely on soil surface without creases. Bury edges of geotextile in a trench at least 5" deep and tamp firmly. Make vertical overlaps a minimum of 18" with upstream geotextile overlapping the downstream geotextile. Secure geotextile with eleven gauge wire staples shaped into a *u* shape with a length of not less than 12" and a throat not less than 1" in width. Place staples along outer edges and throughout the geotextile a maximum of 3 ft. horizontally and vertically. Geotextile shall be placed to the bottom and across the entire width of the basin according to the Infiltration Basin with Baffles detail.

At the emergency spillway outlet, provide a smooth soil surface free from stones, clods, or debris that will prevent contact of the coir fiber matting with the soil. Unroll the matting and apply without stretching such that it will lie smoothly but loosely on the soil surface. Wooden stakes, reinforcement bars, or staples may be used as anchors in accordance with the details in the plans and as directed. Place anchors across the matting at the ends approximately 1 ft. apart. Place anchors along the outer edges and down the center of the matting 3 ft. apart.

Measurement and Payment

Silt Excavation will be measured and paid for in accordance with Article 1630-4 of the *Standard Specifications*, as calculated from the typical section throughout the length of the basin as shown on the final approved plans.

Geotextile for Soil Stabilization will be measured and paid for in accordance with Article 270-4 of the *Standard Specifications*.

Coir Fiber Baffles will be measured and paid for in accordance with Article 1640-4 of the *Standard Specifications*.

Coir Fiber Mat will be measured and paid for as the actual number of square yards measured along the surface of the ground over which coir fiber mat is installed and accepted.

No measurement will be made for other items or for over excavation or stockpiling.

Payment will be made under:

Pay Item	Pay Unit
Coir Fiber Mat	Square Yard

EARTHEN DAM WITH SKIMMER:

Description

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

Materials

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

Provide appropriately sized Faircloth skimmer or other approved equivalent device.

Provide Schedule 40 PVC pipe with a length of 6 ft. to attach to the skimmer and the coupling connection to serve as the arm pipe. For skimmer sizes of 2.5 in. and smaller, the arm pipe diameter shall be 1.5 inches. For skimmer sizes of 3 in. and larger, refer to manufacturer recommendation.

Provide 4" diameter Schedule 40 PVC pipe to attach to coupling connection of Faircloth skimmer to serve as the barrel pipe through the earthen dam.

Anchors: Staples, stakes, or reinforcement bars shall be used as anchors.

Wooden Stakes:

Provide hardwood stakes 12"- 24" long with a 2" x 2" nominal square cross section. One end of the stake must be sharpened or beveled to facilitate driving through the coir fiber mat and down into the underlying soil. The other end of the stake needs to have a 1"- 2" long head at the top with a 1"- 2" notch following to catch and secure the coir fiber mat.

Steel Reinforcement Bars:

Provide uncoated #10 steel reinforcement bars 24" nominal length. The bars shall have a 4" diameter bend at one end with a 4" straight section at the tip to catch and secure the coir fiber mat.

Staples:

Provide staples made of 0.125" diameter new steel wire formed into a *u* shape not less than 12" in length with a throat of 1" in width.

Construction Methods

Excavate proposed ditch according to the roadway plans and cross sections with ditch surface free of obstructions, debris, and pockets of low-density material. Construct earthen dam and install the emergency spillway according to the Earthen Dam with Skimmer Detail sheet in the erosion control plans. Construct the coir fiber baffles according to *Roadway Standard Drawings* No. 1640.01 and Section 1640 of the *Standard Specifications*. Accumulated silt behind the earthen dam and baffles shall be removed regularly and as directed.

Install Faircloth skimmer or other approved equivalent device according to manufacturer recommendations. Install 4" Schedule 40 PVC pipe into dam on the lower side of basin 1 ft. from the bottom of the basin and according to the detail, and attach the 6 ft. arm pipe to the coupling connection and Faircloth skimmer according to manufacturer recommendations. Attach the rope included with the skimmer to the tee between the vent socket and the tube inlet, and the other end to a wooden stake or metal post. Clean out skimmer device when it becomes clogged with sediment and/or debris and is unable to float at the top of water impounded in the ditch. Take appropriate measures to avoid ice accumulation in the skimmer device. Construct a stone pad of Class B stone directly underneath the skimmer device at bottom of ditch. The pad

shall be a minimum of 12" in height, and shall have a minimum cross sectional area of 4 ft. by 4 ft.

Line emergency spillway with geotextile unrolled in the direction of flow and lay smoothly but loosely on soil surface without creases. Bury edges of geotextile in a trench at least 5" deep and tamp firmly. If geotextile for the emergency spillway is not one continuous piece of material, make horizontal overlaps a minimum of 18" with upstream geotextile overlapping the downstream geotextile. Secure geotextile with eleven gauge wire staples shaped into a *u* shape with a length of not less than 12" and a throat not less than 1" in width. Place staples along outer edges and throughout the geotextile a maximum of 3 ft. horizontally and vertically. Geotextile shall be placed to the bottom and across the entire width of the ditch according to the Earthen Dam with Skimmer Detail.

At the skimmer outlet, provide a smooth soil surface free from stones, clods, or debris that will prevent contact of the coir fiber matting with the soil. Unroll the matting and apply without stretching such that it will lie smoothly but loosely on the soil surface. Wooden stakes, reinforcement bars, or staples may be used as anchors in accordance with the details in the plans and as directed. Place anchors across the matting at the ends approximately 1 ft. apart. Place anchors along the outer edges and down the center of the matting 3 ft. apart.

Measurement and Payment

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

Silt Excavation will be measured and paid for in accordance with Article 1630-4 of the *Standard Specifications*, as calculated from the typical section throughout the length of the ditch as shown on the final approved plans.

Geotextile for Soil Stabilization will be measured and paid for in accordance with Article 270-4 of the *Standard Specifications*.

Coir Fiber Baffles will be measured and paid for in accordance with Article 1640-4 of the *Standard Specifications*.

___" *Skimmer* will be measured in units of each. ___" *Skimmer* will be measured and paid for as the maximum number of each size skimmer acceptably installed and in use at any one time during the life of the project. Barrel and arm pipe, cleanout, relocation and reinstallation of ___" *Skimmer* is considered incidental to the measurement of the quantity of ___" *Skimmer* and no separate payment will be made. No separate payment shall be made if ___" *Skimmer*, barrel and/or arm pipe(s) are damaged by ice accumulation.

Coir Fiber Mat will be measured and paid for as the actual number of square yards measured along the surface of the ground over which coir fiber mat is installed and accepted.

Stone for Erosion Control, Class ___ will be measured and paid for in accordance with Article 1610-4 of the *Standard Specifications*.

No measurement will be made for other items or for over excavation or stockpiling.

Payment will be made under:

Pay Item	Pay Unit
___" Skimmer	Each
Coir Fiber Mat	Square Yard

WATTLES WITH POLYACRYLAMIDE (PAM):

Description

Wattles are tubular products consisting of excelsior fibers encased in synthetic netting. Wattles are used on slopes or channels to intercept runoff and act as a velocity break. Wattles are to be placed at locations shown on the plans or as directed. Installation shall follow the detail provided in the plans and as directed. Work includes furnishing materials, installation of wattles, matting installation, PAM application, and removing wattles. Wattles shall be used on the R-2303A portion of this project from project limits Sta. 16+90 to Sta. 376+28.96.

Materials

Wattle shall meet the following specifications:

100% Curled Wood (Excelsior) Fibers	
Minimum Diameter	12 in.
Minimum Density	2.5 lb/ft ³ +/- 10%
Net Material	Synthetic
Net Openings	1 in. x 1 in.
Net Configuration	Totally Encased
Minimum Weight	20 lb. +/- 10% per 10 ft. length

Anchors: Stakes shall be used as anchors.

Wooden Stakes:

Provide hardwood stakes a minimum of 2-ft. long with a 2 in. x 2 in. nominal square cross section. One end of the stake must be sharpened or beveled to facilitate driving down into the underlying soil.

Matting shall meet the requirements of Article 1060-8 of the *Standard Specifications*, or shall meet specifications provided elsewhere in this contract.

Provide staples made of 0.125" diameter new steel wire formed into a *u* shape not less than 12" in length with a throat of 1" in width.

Polyacrylamide (PAM) shall be applied in powder form and shall be anionic or neutrally charged. Soil samples shall be obtained in areas where the wattles will be placed, and from

offsite material used to construct the roadway, and analyzed for the appropriate PAM flocculant to be utilized with each wattle. The PAM product used shall be listed on the North Carolina Department of Environment and Natural Resources (NCDENR) Division of Water Quality (DWQ) web site as an approved PAM product for use in North Carolina.

Construction Methods

Wattles shall be secured to the soil by wire staples approximately every 1 linear foot and at the end of each section of wattle. A minimum of 4 stakes shall be installed on the downstream side of the wattle with a maximum spacing of 2 linear feet along the wattle, and according to the detail. Install a minimum of 2 stakes on the upstream side of the wattle according to the detail provided in the plans. Stakes shall be driven into the ground a minimum of 10 in. with no more than 2 in. projecting from the top of the wattle. Drive stakes at an angle according to the detail provided in the plans.

Only install wattle(s) to a height in ditch so flow will not wash around wattle and scour ditch slopes and according to the detail provided in the plans and as directed. Overlap adjoining sections of wattles a minimum of 6 in.

Installation of matting shall be in accordance with the detail provided in the plans, and in accordance with Article 1631-3 of the *Standard Specifications*, or in accordance with specifications provided elsewhere in this contract.

Apply PAM over the lower center portion of the wattle where the water is going to flow over at a rate of 2 ounces per wattle, and 1 ounce of PAM on matting on each side of the wattle. PAM applications shall be done during construction activities after every rainfall event that is equal to or exceeds 0.50 in.

The Contractor shall maintain the wattles until the project is accepted or until the wattles are removed, and shall remove and dispose of silt accumulations at the wattles when so directed in accordance with the requirements of Section 1630 of the *Standard Specifications*.

Measurement and Payment

Wattles will be measured and paid for by the actual number of linear feet of wattles which are installed and accepted. Such price and payment will be full compensation for all work covered by this section, including, but not limited to, furnishing all materials, labor, equipment and incidentals necessary to install the *Wattles*.

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

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

Payment will be made under:

Pay Item

Polyacrylamide(PAM)
Wattle

Pay Unit

Pound
Linear Foot

COIR FIBER WATTLES with Polyacrylamide (PAM):**Description**

Coir Fiber Wattles are tubular products consisting of coir fibers (coconut fibers) encased in coir fiber netting. Coir Fiber Wattles are used on slopes or channels to intercept runoff and act as a velocity break. Coir Fiber Wattles are to be placed at locations shown on the plans or as directed. Installation shall follow the detail provided in the plans and as directed. Work includes furnishing materials, installation of coir fiber wattles, matting installation, PAM application, and removing wattles. Coir Fiber Wattles shall be used on the R-2303B portion of this project from project limits Sta. 366+20 to Sta. 730+10.

Materials

Coir Fiber Wattle shall meet the following specifications:

100% Coir (Coconut) Fibers	
Minimum Diameter	12 in.
Minimum Density	3.5 lb/ft ³ +/- 10%
Net Material	Coir Fiber
Net Openings	2 in. x 2 in.
Net Strength	90 lbs.
Minimum Weight	2.6 lbs./ft. +/- 10%

Anchors: Stakes shall be used as anchors.

Wooden Stakes:

Provide hardwood stakes a minimum of 2-ft. long with a 2 in. x 2 in. nominal square cross section. One end of the stake must be sharpened or beveled to facilitate driving down into the underlying soil.

Matting shall meet the requirements of Article 1060-8 of the *Standard Specifications*, or shall meet specifications provided elsewhere in this contract.

Provide staples made of 0.125" diameter new steel wire formed into a *u* shape not less than 12" in length with a throat of 1" in width.

Polyacrylamide (PAM) shall be applied in powder form and shall be anionic or neutrally charged. Soil samples shall be obtained in areas where the wattles will be placed, and from offsite material used to construct the roadway, and analyzed for the appropriate PAM flocculant

to be utilized with each wattle. The PAM product used shall be listed on the North Carolina Department of Environment and Natural Resources (NCDENR) Division of Water Quality (DWQ) web site as an approved PAM product for use in North Carolina.

Construction Methods

Coir Fiber Wattles shall be secured to the soil by wire staples approximately every 1 linear foot and at the end of each section of wattle. A minimum of 4 stakes shall be installed on the downstream side of the wattle with a maximum spacing of 2 linear feet along the wattle, and according to the detail. Install a minimum of 2 stakes on the upstream side of the wattle according to the detail provided in the plans. Stakes shall be driven into the ground a minimum of 10 in. with no more than 2 in. projecting from the top of the wattle. Drive stakes at an angle according to the detail provided in the plans.

Only install coir fiber wattle(s) to a height in ditch so flow will not wash around wattle and scour ditch slopes and according to the detail provided in the plans and as directed. Overlap adjoining sections of wattles a minimum of 6 in.

Installation of matting shall be in accordance with the detail provided in the plans, and in accordance with Article 1631-3 of the *Standard Specifications*, or in accordance with specifications provided elsewhere in this contract.

Apply PAM over the lower center portion of the coir fiber wattle where the water is going to flow over at a rate of 2 ounces per wattle, and 1 ounce of PAM on matting on each side of the wattle. PAM applications shall be done during construction activities after every rainfall event that is equal to or exceeds 0.50 in.

The Contractor shall maintain the coir fiber wattles until the project is accepted or until the wattles are removed, and shall remove and dispose of silt accumulations at the wattles when so directed in accordance with the requirements of Section 1630 of the *Standard Specifications*.

Measurement and Payment

Coir Fiber Wattles will be measured and paid for by the actual number of linear feet of wattles which are installed and accepted. Such price and payment will be full compensation for all work covered by this section, including, but not limited to, furnishing all materials, labor, equipment and incidentals necessary to install the *Coir Fiber Wattles*.

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

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

Payment will be made under:

Pay Item

Polyacrylamide(PAM)
Coir Fiber Wattle

Pay Unit

Pound
Linear Foot

SILT FENCE COIR FIBER WATTLE BREAK:

(8-21-12)

1605,1630

Description

Silt fence coir fiber wattle breaks are tubular products consisting of coir fibers (coconut fibers) encased in coir fiber netting and used in conjunction with temporary silt fence at the toe of fills to intercept runoff. Silt fence coir fiber wattle breaks 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, maintenance and removing Silt fence coir fiber wattle breaks.

Materials

Coir fiber wattle shall meet the following specifications:

100% Coir (Coconut) Fibers	
Minimum Diameter	12"
Minimum Length	10 ft
Minimum Density	3.5 lb/cf \pm 10%
Net Material	Coir Fiber
Net Openings	2" x 2"
Net Strength	90 lb.
Minimum Weight	2.6 lb/ft \pm 10%

Stakes shall be used as anchors. Provide hardwood stakes a minimum of 2-ft long with a 2" x 2" nominal square cross section. One end of the stake shall be sharpened or beveled to facilitate driving down into the underlying soil.

Provide staples made of 0.125" diameter new steel wire formed into a U-shape not less than 12" in length with a throat of 1" in width.

Construction Methods

Excavate a trench the entire length of each wattle with a depth of 1" to 2" for the wattle to be placed. Secure silt fence coir fiber wattle breaks to the soil by wire staples approximately every linear foot and at the end of each wattle. Install at least 4 stakes on the downslope side of the wattle with a maximum spacing of 2 linear feet and according to the detail. Install at least 2 stakes on the upslope side of the silt fence coir fiber wattle break according to the detail provided in the plans. Drive stakes into the ground at least 10" with no more than 2" projecting from the top of the wattle. Drive stakes at an angle according to the detail provided in the plans.

Install temporary silt fence in accordance with Section 1605 of the *2012 Standard Specifications* and overlap each downslope side of silt fence wattle break by 6".

Maintain the silt fence coir fiber wattle breaks until the project is accepted or until the silt fence coir fiber wattle breaks are removed, and remove and dispose of silt accumulations at the silt fence coir fiber wattle breaks when so directed in accordance with Section 1630 of the *2012 Standard Specifications*.

Measurement and Payment

Coir Fiber Wattle will be measured and paid as the actual number of linear feet of wattles installed and accepted. Such price and payment will be full compensation for all work covered by this provision, including, but not limited to, furnishing all materials, labor, equipment and incidentals necessary to install the silt fence coir fiber wattle break.

Payment will be made under:

Pay Item	Pay Unit
Coir Fiber Wattle	Linear Foot

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

Description

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

Materials

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

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

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

Polyacrylamide (PAM) shall be applied in powder form and shall be anionic or neutrally charged. Soil samples shall be obtained in areas where the Temporary Rock Silt Checks Type A with Excelsior Matting and PAM will be placed, and from offsite material used to construct the

roadway, and analyzed for the appropriate PAM flocculant to be utilized with each Temporary Rock Silt Check Type A. The PAM product used shall be listed on the North Carolina Department of Environment and Natural Resources (NCDENR) Division of Water Quality (DWQ) web site as an approved PAM product for use in North Carolina.

Construction Methods

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

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

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

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

Measurement and Payment

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

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

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

Payment will be made under:

Pay Item	Pay Unit
Polyacrylamide(PAM)	Pound

CULVERT DIVERSION CHANNEL:**Description**

This work consists of providing a *Culvert Diversion Channel* to detour the existing stream around the culvert construction site at locations shown on the plans. Work includes constructing the diversion channel, disposing of excess materials, providing and placing geotextile liner, maintaining the diversion area in an acceptable condition, removing geotextile liner, backfilling diversion channel area with suitable material, and providing proper drainage when diversion channel area is abandoned.

Materials

Refer to Division 10

Item	Section
Geotextile for Soil Stabilization, Type 4	1056

Construction Methods

Grade channel according to the plans with channel surface free of obstructions, debris, and pockets of low-density material. Utilize suitable material and provide disposal area for unsuitable material.

Line channel with geotextile unrolled in the direction of flow and lay smoothly but loosely on soil surface without creases. Bury top of slope geotextile edge in a trench at least 5" deep and tamp securely. Make vertical overlaps a minimum of 18" with upstream geotextile overlapping the downstream geotextile.

Secure geotextile with eleven gauge wire staples shaped into a *u* shape with a length of not less than 6" and a throat not less than 1" in width. Place staples along outer edges and throughout the geotextile a maximum of 3 ft. horizontally and vertically.

Measurement and Payment

Culvert Diversion Channel will be measured and paid for as the actual number of cubic yards excavated, as calculated from the typical section throughout the length of the diversion channel as shown on the final approved plans.

Geotextile for Soil Stabilization will be measured and paid for in accordance with Article 270-4 of the *Standard Specifications*.

Such price and payment shall be considered full compensation for all work covered by this section including all materials, construction, maintenance, and removal of *Culvert Diversion Channel*.

Payment will be made under:

Pay Item

Culvert Diversion Channel

Pay Unit

Cubic Yard

IMPERVIOUS DIKE:**Description**

This work consists of furnishing, installing, maintaining, and removing an *Impervious Dike* for the purpose of diverting normal stream flow around the construction site. The Contractor shall construct an impervious dike in such a manner approved by the Engineer. The impervious dike shall not permit seepage of water into the construction site or contribute to siltation of the stream. The impervious dike shall be constructed of an acceptable material in the locations noted on the plans or as directed.

Materials

Acceptable materials shall include but not be limited to sheet piles, sandbags, and/or the placement of an acceptable size stone lined with polypropylene or other impervious geotextile.

Earth material shall not be used to construct an impervious dike when it is in direct contact with the stream unless vegetation can be established before contact with the stream takes place.

Measurement and Payment

Impervious Dike will be measured and paid as the actual number of linear feet of impervious dike(s) constructed, measured in place from end to end of each separate installation that has been completed and accepted. Such price and payment will be full compensation for all work including but not limited to furnishing materials, construction, maintenance, and removal of the impervious dike.

Payment will be made under:

Pay Item

Impervious Dike

Pay Unit

Linear Foot

TEMPORARY PIPE FOR CULVERT CONSTRUCTION:**Description**

This work consists of furnishing, installing, maintaining and removing any and all temporary pipe used on this project in conjunction with the culvert construction.

Construction Methods

The Contractor shall install temporary pipe in locations shown on the plans in such a manner approved by the Engineer. The temporary pipe shall provide a passageway for the stream through the work-site. The minimum size requirements will be as stated on the erosion control plans.

Measurement and Payment

___" *Temporary Pipe* will be measured and paid for at the contract unit price per linear foot of temporary pipe approved by the Engineer and measured in place from end to end. Such price and payment will be full compensation for all work covered by this section including but not limited to furnishing all materials required for installation, construction, maintenance, and removal of temporary pipe.

Payment will be made under:

Pay Item

___" Temporary Pipe

Pay Unit

Linear Foot

COIR FIBER MAT:**Description**

Furnish material, install and maintain coir fiber mat in locations shown on the plans or in locations as directed. Work includes providing all materials, excavating and backfilling, and placing and securing coir fiber mat with stakes, steel reinforcement bars or staples as directed.

Materials**Item**

Coir Fiber Mat

Section

1060-14

Anchors: Stakes, reinforcement bars, or staples shall be used as anchors.

Wooden Stakes:

Provide hardwood stakes 12"- 24" long with a 2" x 2" nominal square cross section. One end of the stake must be sharpened or beveled to facilitate driving through the coir fiber mat and down into the underlying soil. The other end of the stake needs to have a 1"- 2" long head at the top with a 1"- 2" notch following to catch and secure the coir fiber mat.

Steel Reinforcement Bars:

Provide uncoated #10 steel reinforcement bars 24" nominal length. The bars shall have a 4" diameter bend at one end with a 4" straight section at the tip to catch and secure the coir fiber mat.

Staples:

Provide staples made of 0.125" diameter new steel wire formed into a *u* shape not less than 12" in length with a throat of 1" in width.

Construction Methods

Place the coir fiber mat immediately upon final grading. Provide a smooth soil surface free from stones, clods, or debris that will prevent the contact of the mat with the soil. Unroll the mat and apply without stretching such that it will lie smoothly but loosely on the soil surface.

For stream relocation applications, take care to preserve the required line, grade, and cross section of the area covered. Bury the top slope end of each piece of mat in a narrow trench at least 6 in. deep and tamp firmly. Where one roll of matting ends and a second roll begins, overlap the end of the upper roll over the buried end of the second roll so there is a 6 in. overlap. Construct check trenches at least 12 in. deep every 50 ft. longitudinally along the edges of the mat or as directed. Fold over and bury mat to the full depth of the trench, close and tamp firmly. Overlap mat at least 6 in. where 2 or more widths of mat are installed side by side.

Place anchors across the mat at the ends approximately 1 ft. apart. Place anchors along the outer edges and down the center of the mat 3 ft. apart.

Adjustments in the trenching or anchoring requirements to fit individual site conditions may be required.

Measurement and Payment

Coir Fiber Mat will be measured and paid for as the actual number of square yards measured along the surface of the ground over which coir fiber mat is installed and accepted.

No measurement will be made for anchor items.

Payment will be made under:

Pay Item	Pay Unit
Coir Fiber Mat	Square Yard

FLOATING TURBIDITY CURTAIN:**Description**

This work consists of furnishing a *Floating Turbidity Curtain* to deter silt suspension and movement of silt particles during construction. The floating turbidity curtain shall be constructed at locations as directed.

Materials

The curtain material shall be made of a tightly woven nylon, plastic or other non-deteriorating material meeting the following specifications:

Property	Value
Grab tensile strength	*md-370 lbs *cd-250 lbs
Mullen burst strength	480 psi
Trapezoid tear strength	*md-100 lbs *cd-60 lbs
Apparent opening size	70 US standard sieve
Percent open area	4% permittivity 0.28 sec-1

*md - machine direction

*cd - cross machine direction

In the event that more than one width of fabric is required, a 6" overlap of the material shall also be required.

The curtain material shall be supported by a flotation material having over 29 lbs/ft buoyancy. The floating curtain shall have a 5/16" galvanized chain as ballast and dual 5/16" galvanized wire ropes with a heavy vinyl coating as load lines.

Construction Methods

The Contractor shall maintain the *Floating Turbidity Curtain* in a satisfactory condition until its removal is requested by the Engineer. The curtain shall extend to the bottom of the jurisdictional resource. Anchor the curtain according to manufacturer recommendations.

Measurement and Payment

Floating Turbidity Curtain will be measured and paid for as the actual number of square yards of curtain furnished as specified and accepted. Such price and payment will be full compensation for the work as described in this section including but not limited to furnishing all materials, tools, equipment, and all incidentals necessary to complete the work.

Payment will be made under:

Pay Item	Pay Unit
Floating Turbidity Curtain	Square Yard

STREAMBANK REFORESTATION:**Description**

Streambank Reforestation will be planted in areas designated on the plans and as directed. See the Streambank Reforestation Detail Sheets.

The entire *Streambank Reforestation* operation shall comply with the requirements of Section 1670 of the *Standard Specifications*.

Materials

Item

Coir Fiber Mat

Section

1060-14

Live Stakes:

Type I Streambank Reforestation shall be live stakes, planted along both streambanks. Live stakes shall be ½"- 2" in diameter. Stakes shall also be 2 ft. - 3 ft. in length.

Live staking plant material shall consist of a random mix made up of 50% Black Willow (*Salix nigra*) and 50% Silky Dogwood (*Cornus amomum*). Other species may be substituted upon approval of the Engineer. All plant material shall be harvested locally (within the same physiographic ecoregion and plant hardiness zone) or purchased from a local nursery, with the approval of the Engineer. All live stakes shall be dormant at time of acquisition and planting.

Staples, stakes, or reinforcement bars shall be used as anchors and shall meet the following requirements:

Wooden Stakes:

Provide hardwood stakes 12"- 24" long with a 2" x 2" nominal square cross section. One end of the stake must be sharpened or beveled to facilitate driving through the coir fiber mat and down into the underlying soil. The other end of the stake needs to have a 1"- 2" long head at the top with a 1"- 2" notch following to catch and secure the coir fiber mat.

Steel Reinforcement Bars:

Provide uncoated #10 steel reinforcement bars 24" nominal length. The bars shall have a 4" diameter bend at one end with a 4" straight section at the tip to catch and secure the coir fiber mat.

Staples:

Provide staples made of 0.125" diameter new steel wire formed into a *u* shape not less than 12" in length with a throat of 1" in width.

Bare Root Seedlings:

Type II Streambank Reforestation shall be bare root seedlings 12"-18" tall.

Construction Methods

Coir fiber matting shall be installed on the streambanks where live staking is to be planted as shown on the Streambank Reforestation Detail Sheets and in locations as directed. Work includes providing all materials, excavating and backfilling, and placing and securing coir fiber mat.

Provide a smooth soil surface free from stones, clods, or debris that will prevent the contact of the matting with the soil. Place the matting immediately upon final grading and permanent seeding. Take care to preserve the required line, grade, and cross section of the area covered.

Unroll the matting and apply without stretching such that it will lie smoothly but loosely on the soil surface. Bury the top slope end of each piece of matting in a narrow trench at least 6" deep and tamp firmly. Where one roll of matting ends and a second roll begins, overlap the end of the upper roll over the buried end of the second roll so there is a 6" overlap. Construct check trenches at least 12" deep every 50 ft. longitudinally along the edges of the matting, or as directed. Fold over and bury matting to the full depth of the trench, close and tamp firmly. Overlap matting at least 6" where 2 or more widths of matting are installed side by side.

Wooden stakes, reinforcement bars, or staples may be used as anchors in accordance with the Streambank Reforestation Detail Sheets and as directed. Place anchors across the matting at ends, junctions, and check trenches approximately 1 ft. apart. Place anchors down the center of each strip of matting 3 ft. apart. Place anchors along all lapped edges 1 ft. apart. Refer to the Streambank Reforestation Detail Sheets for anchoring pattern. The Engineer may require adjustments in the trenching or anchoring requirements to fit individual site conditions.

During preparation of the live stakes, the basal ends shall be cleanly cut at an angle to facilitate easy insertion into the soil, while the tops shall be cut square or blunt for tamping. All limbs shall be removed from the sides of the live cutting prior to installation.

Live stakes shall be installed within 48 hours of cutting. Outside storage locations should be continually shaded and protected from wind and direct sunlight. Live cut plant material shall remain moist at all times before planting.

Stakes shall be spaced approximately 4 ft. on center. Live stakes shall be installed according to the configuration presented on the Streambank Reforestation Detail Sheets.

Tamp live stakes perpendicularly into the finished bank slope with a dead blow hammer, with buds oriented in an upward direction. Stakes should be tamped until approximately $\frac{3}{4}$ of the stake length is within the ground. The area around each live stake shall be compacted by foot after the live stake has been installed.

1"- 2" shall be cut cleanly off of the top of each live stake with loppers at an angle of approximately 15 degrees following installation. Any stakes that are split or damaged during installation shall be removed and replaced.

The bare root seedlings shall be planted as soon as practical following permanent *Seeding and Mulching*. The seedlings shall be planted from top of bank out, along both sides of the stream, as designated on the plans.

Root dip: The roots of reforestation seedlings shall be coated with a slurry of water, and either a fine clay (kaolin) or a superabsorbent that is designated as a bare root dip. The type, mixture ratio, method of application, and the time of application shall be submitted to the Engineer for approval.

With the approval of the Engineer, seedlings may be coated before delivery to the job or at the time of planting, but at no time shall the roots of the seedlings be allowed to dry out. The roots shall be moistened immediately prior to planting.

Seasonal Limitations: Streambank reforestation shall be planted from November 15 through March 15.

Measurement and Payment

Streambank Reforestation will be measured and paid for as the actual number of acres of land measured along the surface of the ground, which has been acceptably planted in accordance with this section.

Payment will be made under:

Pay Item	Pay Unit
Streambank Reforestation	Acre

BORROW PIT DEWATERING BASIN:

(3-17-09) (Rev 3-2-11)

Description

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.

Construct, maintain and remove earth embankments used to reduce turbidity from dewatering borrow sites. Work includes providing porous coir fiber baffle, filtration geotextile, stone and outlet structures; cleaning out, maintaining, removing and disposing of the borrow pit dewatering basin and all components; and reshaping, dressing, seeding and mulching the area.

Materials

Refer to Division 10

Item	Section
Riprap, Class A, B, 1, and 2	1042
Geotextile for Drainage, Type 2	1056
Coir Fiber Baffle	1640-2

Use suitable excavated materials, as specified in Sections 225, 230 and 240 of the *Standard Specifications* in the construction of earth embankments for borrow pit dewatering basins, except where otherwise specified.

Construction Methods

Construct borrow pit dewatering basins according to the detail in the erosion control plans, and at locations shown on Reclamation Plans or in areas as directed.

The volume of the borrow pit dewatering basin will be based on a 2 hour retention time. The pump rate shall not exceed 1,000 GPM. The Contractor, at his option, may use a greater retention time for managing turbidity.

The straight line distance between the inlet and outlet shall be divided to include a forebay chamber in the upper quarter cell. Install one porous coir fiber baffle across the full width of the basin to delineate the forebay chamber. Do not use earthen or rock baffle. Install filtration geotextile on the interior side slopes and the floor of the forebay.

The water pumped from the borrow pit into the dewatering basin shall be obtained from the top of the water column and shall be discharged into the forebay in a non-erodible manner.

The borrow pit dewatering basin outlet shall be a vertical non-perforated riser pipe or flash board riser attached with a watertight connection to a barrel that carries the water through the embankment.

Maintenance and Removal

Maintain the borrow pit dewatering basin, coir fiber baffle, and remove and dispose of silt accumulations in accordance with Article 1630-3 of the *Standard Specifications*. The Contractor may include a drain device for maintenance and removal at his discretion.

Remove the borrow pit dewatering basin once dewatering operations are completed. Grade, seed, and mulch the area after removal of the borrow pit dewatering basin in accordance with Section 1660 of the *Standard Specifications*. The area shall be stabilized with an approved groundcover before final acceptance of the site.

Measurement and Payment

No direct payment will be made for borrow pit dewatering basins with the exception of the work of silt removal during dewatering basin operation and the work of seeding and mulching after removal of the dewatering basin. All other work and materials required for installation, maintenance and removal of borrow pit dewatering basins shall be incidental to *Borrow Excavation*. Such price and payments will be full compensation for the work of constructing, maintaining and removing the borrow pit dewatering basin including, but not limited to, the construction and removal of the borrow pit dewatering basin; furnishing of the outlet structure, baffle, filtration geotextile, stone and optional drain devices; and removal of all such items once dewatering operations are completed.

Removal and disposal of silt accumulations during dewatering operations will be measured and paid at the contract unit price per cubic yard for *Silt Excavation* in accordance with Article 1630-4 of the *Standard Specifications*.

Grading, seeding, and mulching the area after removal of the borrow pit dewatering basin will be measured and paid at the contract unit price per acre for *Seeding and Mulching* in accordance with Section 1660-8 of the *Standard Specifications*.

POND DRAINAGE PLAN REQUIREMENT:

The Contractor shall develop a Pond Drainage Plan for all ponds that are required to be drained for the construction of this project and submit the plan to the Engineer at the preconstruction conference for approval. The Pond Drainage Plan shall include but not be limited to procedures and rate of water drawdown, sediment control measures, water quality monitoring, fish and wildlife relocation plan, shall address procedures avoiding the inundation of a receiving body of water with deoxygenated or nutrient rich water resulting in impacts to aquatic life or algae bloom and procedures for maintaining downstream channel stability. If such ponds to be drained are on the DENR Dam Safety Inventory List, all NC DENR Dam Safety procedures must be followed.

Any erosion control devices or permanent seeding and mulching in areas where ponds have been drained will be paid for at the contract unit price for the item required. All additional erosion and sediment control practices not included in the contract documents that may be required on a pond drainage site will be done at the Contractor's expense.

No direct payment will be made for developing or implementing the Pond Drainage Plan as the cost of such shall be included in the lump sum price bid for *Clearing and Grubbing*.

STRUCTURE STONE:**Description**

This work consists of furnishing, stockpiling, placing and maintaining approved stone used to construct rock cross-vanes, rock vanes, j-hook vanes, w-rock cross vanes, log vanes, root wad/log vanes, log cross vanes, root wad structures, rock cross vanes for step pools, channel

blocks, double wing deflectors, single wing deflectors, stream crossings, rock energy dissipaters, constructed riffles, and for use in other locations as directed.

The quantity of stone to be installed will be affected by the actual conditions that occur during the construction of the project. The quantity of stone may be increased, decreased, or eliminated entirely as directed. Such variations in quantity will not be considered as alterations in the details of construction or a change in the character of the work.

Materials

Refer to Division 10

Item	Section
No. 57 Stone	1005
Riprap, Class A, B, 1, and 2	1042
Geotextile for Drainage, Type 2	1056

Boulders shall meet the requirements of Section 1042 of the *Standard Specifications*. Boulders of minimum dimension 48" x 36" x 24" shall be individually picked for use in the structures. Boulders shall be relatively flat on either side in the same dimension, preferably the long dimension.

Construction Methods

The Contractor shall place geotextile and stone in locations and to the thickness, widths, and lengths as shown on the plans or as directed. All stone shall be placed to form a sediment and erosion control device, an in-stream structure, or a channel lining neatly and uniformly with an even surface in accordance with the contract and shall meet the approval of the Engineer.

Measurement and Payment

No. 57 Stone will be measured and paid as the actual number of tons that have been incorporated into the work, or have been delivered to and stockpiled on the project as directed. No. 57 stone that has been stockpiled will not be measured a second time.

Riprap, Class __ will be measured and paid for in accordance with Article 876-4 of the *Standard Specifications*.

Geotextile for Drainage will be measured and paid for in accordance with Article 876-4 of the *Standard Specifications*.

Boulders will be measured and paid for as the actual number of tons that have been incorporated into the work, or have been delivered to and stockpiled on the project as directed. Stone that has been stockpiled will not be measured a second time.

Such price and payment will be full compensation for all work covered by this section, including but not limited to furnishing, weighing, stockpiling, re-handling, placing, and maintaining the stone and disposal of any materials not incorporated into the project.

Payment will be made under:

Pay Item	Pay Unit
No. 57 Stone	Ton
Boulder	Ton

ROCK CROSS VANE:

Description

This work consists of the construction and maintenance of physical barriers placed in and along the stream at locations designated on the plans to direct the stream flow (thalweg) toward the center of the channel and to provide grade control.

The quantity of rock cross vanes to be installed will be affected by the actual conditions that occur during the construction of the project. The quantity of rock cross vanes may be increased, decreased, or eliminated entirely as directed. Such variations in quantity will not be considered as alterations in the details of construction or a change in the character of the work.

Materials

Refer to Division 10

Item	Section
Boulder	1042 and SP for Structure Stone
No. 57 Stone	1005
Riprap, Class A	1042-1
Geotextile for Drainage, Type 2	1056

Boulders shall be used as header and footer rocks for this device.

Construction Methods

Rock cross vanes shall be constructed in accordance with the Rock Cross Vane Detail shown in the plans or as directed. Two vanes, each approximately 1/3 of the stream channel's bankfull width, will form a 20°– 30° angle out from the streambank toward upstream. The top elevation of both vanes will decrease from bankfull elevation toward the center of the channel at a slope of 4 to 20 percent. A vane running perpendicular to the stream's flow will connect the two outside vanes on the upstream end. Install header and footer rocks according to the detail and plate the upstream side with Type 2 geotextile and No. 57 stone. Voids between the header and footer rocks can be filled with hand-placed Class A riprap as directed. Footer rocks shall be placed such that the header rock is at streambed elevation. The rock cross vane shall be keyed into the bank at the downstream end as shown on the Rock Cross Vane Detail.

Measurement and Payment

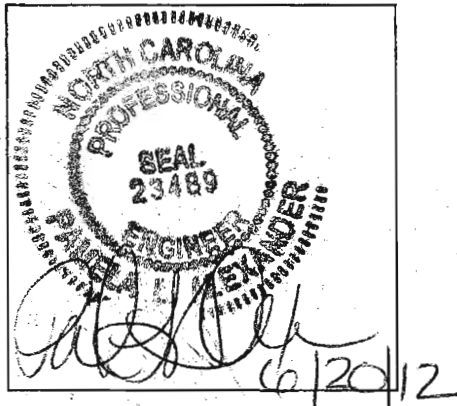
Boulders will be measured and paid for as provided elsewhere in this contract.

No. 57 Stone will be measured and paid for as provided elsewhere in this contract.

Riprap, Class ___ will be measured and paid for in accordance with Article 876-4 of the *Standard Specifications*.

Geotextile for Drainage will be measured and paid for in accordance with Article 876-4 of the *Standard Specifications*.

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 construct the rock cross vanes.



Project Special Provisions (Version 12.1) Signals and Intelligent Transportation Systems

Prepared By: EMM
20-Jun-12

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1. SIGNAL HEADS

1.1. MATERIALS

A. General:

Fabricate vehicle signal head housings and end caps from die-cast aluminum. Fabricate 12-inch and 16-inch pedestrian signal head housings and end caps from die-cast aluminum. Fabricate 9-inch pedestrian signal head housings, end caps, and visors from virgin polycarbonate material. Provide visor mounting screws, door latches, and hinge pins fabricated from stainless steel. Provide interior screws, fasteners, and metal parts fabricated from stainless steel or corrosion resistant material.

Fabricate tunnel and traditional visors from sheet aluminum.

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

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

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

For pedestal mounting, provide a post-top slipfitter mounting assembly that matches the positive locking device on the signal head with serrations integrally cast into the slipfitter. Provide stainless steel hardware, screws, washers, etc. Provide a minimum of six 3/8 X 3/4-inch long square head bolts for attachment to pedestal. Provide a center post for multi-way slipfitters.

For light emitting diode (LED) traffic signal modules, provide the following requirements for inclusion on the Department's Qualified Products List for traffic signal equipment.

1. Sample submittal,
2. Third-party independent laboratory testing results for each submitted module with evidence of testing and conformance with all of the Design Qualification Testing specified in section 6.4 of each of the following Institute of Transportation Engineers (ITE) specifications:
 - Vehicle Traffic Control Signal Heads – Light Emitting Diode (LED) Circular Signal Supplement
 - Vehicle Traffic Control Signal Heads – Light Emitting Diode (LED) Vehicle Arrow Traffic Signal Supplement
 - Pedestrian Traffic Control Signal Indications –Light Emitting Diode (LED) Signal Modules.

(Note: The Department currently recognizes two approved independent testing laboratories. They are Intertek ETL Semko and Light Metrics, Incorporated with Garwood Laboratories. Independent laboratory tests from other laboratories may be considered as part of the QPL submittal at the discretion of the Department,

3. Evidence of conformance with the requirements of these specifications,
4. A manufacturer's warranty statement in accordance with the required warranty, and
5. Submittal of manufacturer's design and production documentation for the model, including but not limited to, electrical schematics, electronic component values, proprietary part numbers, bill of materials, and production electrical and photometric test parameters.
6. Evidence of approval of the product to bear the Intertek ETL Verified product label for LED traffic signal modules.

In addition to meeting the performance requirements for the minimum period of 60 months, provide a written warranty against defects in materials and workmanship for the modules for a period of 60 months after installation of the modules. During the warranty period, the manufacturer must provide new replacement modules within 45 days of receipt of modules that have failed at no cost to the State. Repaired or refurbished modules may not be used to fulfill the manufacturer's warranty obligations. Provide manufacturer's warranty documentation to the Department during evaluation of product for inclusion on Qualified Products List (QPL).

B. Vehicle Signal Heads:

Comply with the ITE standard "Vehicle Traffic Control Signal Heads". Provide housings with provisions for attaching backplates.

Provide visors that are 8 inches in length for 8-inch vehicle signal head sections. Provide visors that are 10 inches in length for 12-inch vehicle signal heads.

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

Mount termination blocks in the yellow signal head sections on all in-line vehicle signal heads. Mount the termination block in the red section on five-section vehicle signal heads.

Furnish vehicle signal head interconnecting brackets. Provide one-piece aluminum brackets less than 4.5 inches in height and with no threaded pipe connections. Provide hand holes on the bottom of the brackets to aid in installing wires to the signal heads. Lower brackets that carry no wires and are used only for connecting the bottom signal sections together may be flat in construction.

For messenger cable mounting, provide messenger cable hangers, wire outlet bodies, balance adjusters, bottom caps, wire entrance fitting brackets, and all other hardware necessary to make complete, watertight connections of the vehicle signal heads to the messenger cable. Fabricate mounting assemblies from malleable iron or steel and provide serrated rings made of aluminum. Provide messenger cable hangers and balance adjusters that are galvanized before being painted. Fabricate balance adjuster eyebolt and eyebolt nut from stainless steel or galvanized malleable iron. Provide messenger cable hangers with U-bolt clamps. Fabricate washers, screws, bolts, clevis pins, cotter pins, nuts, and U-bolt clamps from stainless steel.

For mast-arm mounting, provide rigid vehicle signal head mounting brackets and all other hardware necessary to make complete, watertight connections of the vehicle signal heads to the mast arms and to provide a means for vertically adjusting the vehicle signal heads to proper alignment. Fabricate the mounting assemblies from aluminum, and provide serrated rings made of aluminum.

Provide stainless steel cable attachment assemblies to secure the brackets to the mast arms. Ensure all fastening hardware and fasteners are fabricated from stainless steel.

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

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

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

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

1. LED Circular Signal Modules:

Provide modules in the following configurations: 12-inch circular sections, and 8-inch circular sections. All makes and models of LED modules purchased for use on the State Highway System shall appear on the current NCDOT Traffic Signal Qualified Products List (QPL).

Provide the manufacturer's model number and the product number (assigned by the Department) for each module that appears on the 2012 or most recent Qualified Products List. In addition, provide manufacturer's certification in accordance with Article 106-3 of the *Standard Specifications*, that each module meets or exceeds the ITE "Vehicle Traffic Control Signal Heads – Light Emitting Diode (LED) Circular Signal Supplement" dated June 27, 2005 (hereafter referred to as VTCSH Circular Supplement) and other requirements stated in this specification.

Provide modules that meet the following requirements when tested under the procedures outlined in the VTCSH Circular Supplement:

Module Type	Max. Wattage at 165° F	Nominal Wattage at 77° F
12-inch red circular	17	11
8-inch red circular	13	8
12-inch green circular	15	15
8-inch green circular	12	12

For yellow circular signal modules, provide modules tested under the procedures outlined in the VTCSH Circular Supplement to insure power required at 77° F is 22 Watts or less for the 12-inch circular module and 13 Watts or less for the 8-inch circular module.

Note: Use a wattmeter having an accuracy of $\pm 1\%$ to measure the nominal wattage and maximum wattage of a circular traffic signal module. Power may also be derived from voltage, current and power factor measurements.

2. LED Arrow Signal Modules

Provide 12-inch omnidirectional arrow signal modules. All makes and models of LED modules purchased for use on the State Highway System shall appear on the current NCDOT Traffic Signal Qualified Products List (QPL).

Provide the manufacturer's model number and the product number (assigned by the Department) for each module that appears on the 2012 or most recent Qualified Products List. In addition, provide manufacturer's certification in accordance with Article 106-3 of the *Standard Specifications*, that each module meets or exceeds the requirements for 12-inch omnidirectional modules specified in the ITE "Vehicle Traffic Control Signal Heads – Light Emitting Diode (LED) Vehicle Arrow Traffic Signal Supplement" dated July 1, 2007 (hereafter referred to as VTCSH Arrow Supplement) and other requirements stated in this specification.

Provide modules that meet the following requirements when tested under the procedures outlined in the VTCSH Arrow Supplement:

Module Type	Max. Wattage at 165° F	Nominal Wattage at 77° F
12-inch red arrow	12	9
12-inch green arrow	11	11

For yellow arrow signal modules, provide modules tested under the procedures outlined in the VTCSH Arrow Supplement to insure power required at 77° F is 12 Watts or less.

Note: Use a wattmeter having an accuracy of $\pm 1\%$ to measure the nominal wattage and maximum wattage of an arrow traffic signal module. Power may also be derived from voltage, current and power factor measurements.

C. Signal Cable:

Furnish 16-4 and 16-7 signal cable that complies with IMSA specification 20-1 except provide the following conductor insulation colors:

- For 16-4 cable: white, yellow, red, and green
- For 16-7 cable: white, yellow, red, green, yellow with black stripe tracer, red with black stripe tracer, and green with black stripe tracer. Apply continuous stripe tracer on conductor insulation with a longitudinal or spiral pattern.

Provide a ripcord to allow the cable jacket to be opened without using a cutter. IMSA specification 19-1 will not be acceptable. Provide a cable jacket labeled with the IMSA specification number and provide conductors constructed of stranded copper.

2. COMMUNICATIONS SYSTEM SUPPORT EQUIPMENT

2.1. DESCRIPTION

Furnish communications system support equipment with all necessary hardware in accordance with the plans and specifications.

2.2. MATERIALS

A. General:

Furnish equipment with test probes/leads, batteries (for battery-operated units), line cords (for AC-operated units), and carrying cases. Provide operating instructions and maintenance manuals with each item.

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

B. Wireless Radio Support Equipment

B.1 Lightning Arrestor

Furnish wireless radio lightning arrestors identical to the type installed in the traffic signal controller cabinets to be used for emergency restoration of the transient voltage suppression equipment.

2.3. MEASUREMENT AND PAYMENT

Actual number of wireless radio lightning arrestors furnished and accepted.

Payment will be made under:

Furnish Wireless Lightning ArrestorEach

3. TRAFFIC SIGNAL SUPPORTS

3.1. METAL TRAFFIC SIGNAL SUPPORTS – ALL POLES

A. General:

Furnish and install metal strain poles, grounding systems, and all necessary hardware. The work covered by this special provision includes requirements for the design, fabrication, and installation of both standard and custom/site specifically designed metal traffic signal supports and associated foundations.

Provide metal traffic signal support systems that contain no guy assemblies, struts, or stay braces. Provide designs of completed assemblies with hardware that equals or exceeds AASHTO *Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals* 4th Edition, 2001 (hereafter called 4th Edition AASHTO), including the latest interim specifications. Provide assemblies with a round or near-round (18 sides or more) cross-section, or a multi sided cross section with no less than six sides. The sides may be straight, convex, or concave.

Pole heights shown on signal plans are estimated from available data for bid purposes. Prior to furnishing metal signal poles, use field measurements and adjusted cross-sections to determine whether pole heights are sufficient to obtain required clearances. If pole heights are not sufficient, the Contractor should immediately notify the Engineer of the required revised pole heights.

Ensure that metal signal poles permit cables to be installed inside poles and any required mast arms. For holes in the poles and arms used to accommodate cables, provide full-circumference grommets. Arm flange plate wire access holes should be deburred, non grommited, and oversized to fit around the 2" diameter grommited shaft flange plate wire access hole.

After fabrication, have steel poles, required mast arms, and all parts used in the assembly hot-dip galvanized per section 1076. Design structural assemblies with weep holes large enough and properly located to drain molten zinc during galvanization process. Provide hot-dip galvanizing on structures that meets or exceeds ASTM Standard A-123. Provide galvanizing on hardware that meets or exceeds ASTM Standard A-153. Ensure that threaded material is brushed and retapped as necessary after galvanizing. Perform repair of damaged galvanizing that complies with the following:

Repair of GalvanizingArticle 1076-6

Standard Drawings for Metal Poles are available that supplement these project special provisions. These drawings are located on the Department's website:

<http://www.ncdot.gov/doh/preconstruct/traffic/ITSS/ws/mpoles/poles.html>

Comply with article 1098-1B "General Requirements" of the 2012 *STANDARD SPECIFICATIONS FOR ROADS & STRUCTURES*, hereinafter referred to as the *Standard Specifications* for submittal requirements. Furnish shop drawings for approval. Provide the copies of detailed shop drawings for each type of structure as summarized below. Ensure that shop drawings include material specifications for each component and identify welds by type and size on the drawing details, not in table format. Do not release structures for fabrication until shop drawings have been approved by NCDOT. Provide an itemized bill of materials for all structural components and associated connecting hardware on the drawings.

Comply with article 1098-1A "General Requirements" of the *Standard Specifications* for Qualified Products List (QPL) submittals. All shop drawings must include project location description, signal inventory number(s) and a project number or work order number on the drawings.

Summary of information required for metal pole review submittal:

Item	Hardcopy Submittal	Electronic Submittal	Comments / Special Instructions
Sealed, Approved Signal Plan/Loading Diagram	1	1	All structure design information needs to reflect the latest approved signal plans
Standard Pole Shop Drawings (from the QPL)	4 sets	1 set	Submit drawings on 11" x 17" format media Show NCDOT inventory number(s) in or above the title block
Structure Calculations	1 set	1 set	Not required for Standard QPL Poles
Standard Pole Foundation Drawings	1 set	1 set	Submit drawings on 11" x 17" format media. Submit a completed Standard Foundation Selection form for each pole using foundation table on Metal Pole Drawing M-8.
Foundation Calculations	1	1	Not required for Standard QPL Poles
Soil Boring Logs and Report	1	1	Report should include a location plan and a soil classification report including soil capacity, water level, hammer efficiency, soil bearing pressure, soil density, etc. for each pole.

NOTE – All shop drawings and custom foundation design drawings must be sealed by a professional Engineer licensed in the state of North Carolina. All geotechnical information must be sealed by either a Professional Engineer or geologist licensed in the state of North Carolina. Include a title block and revision block on the shop drawings and foundation designs showing the NCDOT inventory number.

Shop drawings and foundation drawings may be submitted together or separately for approval. However, shop drawings must be approved before foundations can be reviewed. Foundation designs will be returned without review if the associated shop drawing has not been approved. Incomplete submittals will be returned without review.

B. Materials:

Fabricate metal pole and from coil or plate steel to meet the requirements of ASTM A 595 Grade A tubes. For structural steel shapes, plates and bars use A572 Gr 50 min or ASTM A709 Gr 50 min.. Provide pole and arm shafts that are round in cross section or multisided tubular shapes and

have a uniform linear taper of 0.14 in/ft. Construct shafts from one piece of single ply plate or coil so there are no circumferential weld splices. Galvanize in accordance with AASHTO M 111 and/or ASTM A 123 or an approved equivalent.

Use the submerged arc process or other NCDOT previously approved process suitable for pole shaft and arms to continuously weld pole shafts and arm shafts along their entire length. The longitudinal seam weld will be finished flush to the outside contour of the base metal. Ensure shafts have no circumferential welds except at the lower end joining the shaft to the pole base and arm base. Provide welding that conforms to Article 1072-20 of the *Standard Specifications*, except that no field welding on any part of the pole will be permitted unless approved by a qualified engineer.

Refer to Metal Pole Standard Drawing Sheets M2 through M5 for fabrication details. Fabricate anchor bases from plate steel meeting, as a minimum, the requirements of ASTM A 36M or cast steel meeting the requirements of ASTM A 27M Grade 485-250, AASHTO M270 Gr 36 or an approved equivalent. Conform to the applicable bolt pattern and orientation as shown on Metal Pole Standard Drawing Sheet M2.

Ensure all hardware is galvanized steel or stainless steel. The Contractor is responsible for ensuring that the designer/fabricator specifies connecting hardware and/or materials that do not create a dissimilar metal corrosive reaction.

Unless otherwise required by the design, ensure each anchor rod is 2" diameter and 60" length. Provide 10" minimum thread projection at the top of the rod, and 8" minimum at the bottom of the rod. Use anchor rod assembly and drilled pier foundation materials that meet the *Foundations and Anchor Rod Assemblies for Metal Poles* provision.

For each structural bolt and other steel hardware, hot dip galvanizing shall conform to the requirements of AASHTO M 232 (ASTM A 153). Ensure end caps for poles or mast arms are constructed of cast aluminum conforming to Aluminum Alloy 356.0F.

Provide a circular anchor bolt lock plate that will be secured to the anchor bolts at the embedded end with 2 washers and 2 nuts. Provide a base plate template that matches the bolt circle diameter of the anchor bolt lock plate. Construct plates and templates from 1/4" minimum thick steel with a minimum width of 4". Galvanizing is not required.

Provide 4 heavy hex nuts and 4 flat washers for each anchor bolt. For nuts, use AASHTO M291 grade 2H, DH, or DH3 or equivalent material. For flat washers, use AASHTO M293 or equivalent material.

C. Construction Methods:

Erect signal support poles only after concrete has attained a minimum allowable compressive strength of 3000 psi. Install anchor rod assemblies in accordance with the *Foundations and Anchor Rod Assemblies for Metal Poles* provision.

For further construction methods, see construction methods for Metal Strain Pole, or Metal Pole with Mast Arm.

Connect poles to grounding electrodes and bond them to the electrical service grounding electrodes.

For holes in the poles used to accommodate cables, install grommets before wiring pole or arm. Do not cut or split grommets.

Attach the terminal compartment cover to the pole by a sturdy chain or cable. Ensure the chain or cable is long enough to permit the cover to hang clear of the compartment opening when the cover is

removed, and is strong enough to prevent vandalism. Ensure the chain or cable will not interfere with service to the cables in the pole base.

Attach cap to pole with a sturdy chain or cable. Ensure the chain or cable is long enough to permit the cap to hang clear of the opening when the cap is removed.

Perform repair of damaged galvanizing that complies with the *Standard Specifications*, Article 1076-6 "Repair of Galvanizing."

Install galvanized wire mesh around the perimeter of the base plate to cover the gap between the base plate and top of foundation for debris and pest control.

Install a 1/4" thick plate for concrete foundation tag to include: concrete grade, depth, diameter, and reinforcement sizes of the installed foundation.

3.2. METAL STRAIN POLE

A. Materials:

Provide either steel or aluminum poles as indicated on the plans.

Comply with the following for Aluminum Poles:

- Have poles fabricated from Aluminum Association Alloy 6061-T6, 6063-T6, or approved equivalent. The structural requirement does not pertain to castings that are decorative only.
- Have shafts tapered by spinning and cold-working a seamless extruded tube of the aluminum alloy.
- Have shafts with no circumferential welds except at the lower end joining the shaft to the base.
- Ensure aluminum poles are properly protected from damage prior to shipment.
- Have bases of the shaft fabricated in accordance with the Aluminum Association Alloy 356.0-T6, and of adequate strength, shape and size, and capable of withstanding the design load of the shaft.
- Have aluminum surfaces in contact with concrete or dissimilar metal coated with bituminous paint.

Comply with the following for Steel Poles:

- Have shafts of the tapered tubular type and fabricated of steel conforming to ASTM A-595 Grade A or an approved equivalent.
- Have galvanization in accordance with AASHTO M 111 (ASTM A 123).
- Have shafts that are continuously welded for the entire length by the submerged arc process, and with exposed welds ground or rolled smooth and flush with the base metal. Provide welding that conforms to Article 1072-20 per *Standard Specification* except that no field welding on any part of the pole will be permitted.
- Have anchor bases for steel poles fabricated from plate steel meeting as a minimum the requirements of ASTM A 36M or cast steel meeting the requirements of ASTM A 27M Grade 485-250 or an approved equivalent.

For each strain pole, provide 2 messenger cable (span wire) clamps and associated hardware for attachment of support cable of the messenger cable suspension. Ensure that diameter of the clamp is appropriate to its location on the pole and that the diameter of the clamps is appropriately designed to be adjustable from 1'-6" below the top, down to 6'-6" below the top of the pole. Do not attach more than one support cable to a messenger cable clamp.

For strain poles, provide a minimum of three (3) 2 inch (50 mm) holes equipped with an associated coupling and weatherhead on the messenger cable load side of the pole to accommodate passage of signal cables from inside the pole to the suspension. Provide galvanized threaded plugs for all unused couplings at pole entrance points. Refer to Metal Pole Standard Drawing Sheet M3 for fabrication details.

Provide a grounding lug(s) in the approximate vicinity of the messenger cable clamp for bonding and grounding messenger cable. Lugs must accept #4 or #6 AWG wire to bond messenger cables to the pole in order to provide an effective ground fault circuit path. Refer to Metal Pole Standard Drawing Sheet M6 for construction details.

Have poles permanently stamped above the hand holes with the identification tag details as shown on Metal Pole Standard Drawing Sheet M2.

Provide liquid tight flexible metal conduit (Type LFMC), liquid tight flexible nonmetallic conduit (Type LFNC), high density polyethylene conduit (Type HDPE), or approved equivalent to isolate conductors feeding luminaires.

Fabricate poles from a single piece of steel or aluminum with single line seam weld with no transverse butt welds. Fabrication of two ply pole shafts is unacceptable with the exception of fluted shafts. Provide tapers for all shafts that begin at base and that have diameters which decrease uniformly at the rate of not more than 0.14 inch per foot (11.7 millimeters per meter) of length.

Ensure that allowable pole deflection does not exceed that allowed per 4th Edition AASHTO. For messenger cable poles (with primarily transverse loads), ensure that maximum deflection at the top of the pole does not exceed 2.5 percent of the pole height. For mast arm poles (with primarily moment loads), ensure that maximum angular rotation of the top of the pole does not exceed 1° 40'.

Provide four anchor nuts and four washers for each anchor bolt. Ensure that anchor bolts have required diameters, lengths, and positions, and will develop strengths comparable to their respective poles.

Provide a terminal compartment with cover and screws in each pole that encompasses the hand hole and contains a 12-terminal barrier type terminal block. Provide two terminal screws with a removable shorting bar between them for each termination. Furnish terminal compartment covers attached to the pole by a sturdy chain or cable approved by the Engineer. Ensure that the chain or cable is long enough to permit the cover to hang clear of the compartment opening when the cover is removed, and is strong enough to prevent vandals from being able to disconnect the cover from the pole. Ensure that the chain or cable will not interfere with service to the cables in the pole base.

Install grounding lugs that will accept #4 or #6 AWG wire to electrically bond messenger cables to the pole. Refer to Metal Pole Standard Drawing Sheet M6 for construction details.

For each pole, provide a 1/2 inch minimum thread diameter, coarse thread stud and nut for grounding which will accommodate #6 AWG ground wire. Ensure that the lug is electrically bonded to the pole and is conveniently located inside the pole at the hand hole.

Provide a removable pole cap with stainless steel attachment screws for the top of each pole. Ensure that the cap is cast aluminum conforming to Aluminum Association Alloy 356.0F. Furnish cap attached to the pole with a sturdy chain or cable approved by the Engineer. Ensure that the chain or cable is long enough to permit the cap to hang clear of the pole-top opening when the cap is removed.

When required by the plans, furnish couplings 42 inches above the bottom of the base for mounting of pedestrian pushbuttons. Provide mounting points consisting of 1-1/2 inch internally threaded half-couplings that comply with the NEC and that are mounted within the poles. Ensure that couplings are essentially flush with the outside surfaces of the poles and are installed before any required galvanizing. Provide a threaded plug in each mounting point. Ensure that the surface of the plug is essentially flush with the outer end of the mounting point when installed and has a recessed hole to accommodate a standard wrench.

B. Construction Methods:

Install metal poles, hardware, and fittings as shown on the manufacturer's installation drawings. Install metal poles so that when the pole is fully loaded it is within 2 degrees of vertical. Install poles with the manufacturer's recommended "rake." Use threaded leveling nuts to establish rake if required.

3.3. DRILLED PIER FOUNDATIONS FOR METAL TRAFFIC SIGNAL POLES

Analysis procedures and formulas shall be based on AASHTO, ACI code and per FHWA manuals. Design methods based on engineering publications or research papers needs to have prior approval from NCDOT. The Department reserves the right to accept or disapprove any method used for the analysis.

Use a Factor of Safety of 1.33 for torsion and 2.0 for bending for the foundation design.

Foundation design for lateral load shall not exceed 1" lateral deflection at top of foundation.

Design all custom foundations to carry the maximum capacity of each metal pole. For standard case strain poles only, if a custom foundation is designed, use the actual moment reactions from the Standard Foundation Selection Table shown on Standard Drawing No. M8.

When poor soil conditions are encountered which could create an excessively large foundation design, consideration may be given to allowing an exemption to the maximum capacity design. The contractor must gain approval from the engineer before reducing a foundation's capacity. On projects where poor soil is known to be present, it is advisable that the contractor consider getting foundations approved before releasing poles for fabrication.

A. Description:

Furnish and install foundations for NCDOT metal poles with all necessary hardware in accordance with the plans and specifications.

Metal Pole Standards have been developed and implemented by NCDOT for use at signalized intersections in North Carolina. If the plans call for a standard pole, then a standard foundation may be selected from the plans. However, the Contractor is not required to use a standard foundation. If

the Contractor chooses to design a non-standard site-specific foundation for a standard pole or if the plans call for a non-standard site-specific pole, design the foundation to conform to the applicable provisions in the NCDOT Metal Pole Standards and Section B4 (Non-Standard Foundation Design) below. If non-standard site specific foundations are designed for standard QPL approved strain poles, the foundation designer must use the design moment specified by load case on Metal Pole Standard Drawing Sheet M8. Failure to conform to this requirement will be grounds for rejection of the design.

If the Contractor chooses to design a non-standard foundation for a standard pole and the soil test results indicate a standard foundation is feasible for the site, the Contractor will be paid the cost of the standard foundation (drilled pier and wing wall, if applicable). Any additional costs associated with a non-standard site-specific foundation including additional materials, labor and equipment will be considered incidental to the cost of the standard foundation. All costs for the non-standard foundation design will also be considered incidental to the cost of the standard foundation.

B. Soil Test and Foundation Determination:

1. General:

Drilled piers are reinforced concrete sections, cast-in-place against in situ, undisturbed material. Drilled piers are of straight shaft type and vertical.

Some standard drilled piers for supporting poles with mast arms may require wing walls to resist torsional rotation. Based upon this provision and the results of the required soil test, a drilled pier length and wing wall requirement may be determined and constructed in accordance with the plans.

For non-standard site-specific poles, the contractor-selected pole fabricator will determine if the addition of wing walls is necessary for the supporting foundations.

2. Soil Test:

Perform a soil test at each proposed metal pole location. Complete all required fill placement and excavation at each signal pole location to finished grade before drilling each boring. Soil tests performed that are not in compliance with this requirement may be rejected and will not be paid. Drill one boring to a depth of 26 feet within a 25 foot radius of each proposed foundation.

Perform standard penetration tests (SPT) in accordance with ASTM D 1586 at depths of 1, 2.5, 5, 7.5, 10, 15, 20 and 26 feet. Discontinue the boring if one of the following occurs:

- A total of 100 blows have been applied in any 2 consecutive 6-in. intervals.
- A total of 50 blows have been applied with < 3-in. penetration.

Describe each intersection as the “Intersection of (Route or SR #), (Street Name) and (Route or SR #), (Street Name), _____ County, Signal Inventory No. _____”. Label borings with “B- N, S, E, W, NE, NW, SE or SW” corresponding to the quadrant location within the intersection. Pole numbers should be made available to the Drill Contractor. Include pole numbers in the boring label if they are available. If they are not available, ensure the boring labels can be cross-referenced to corresponding pole numbers. For each boring, submit a legible (hand written or typed) boring log signed and sealed by a licensed Geologist or Professional Engineer registered in North Carolina. Include on each boring the SPT blow counts and N-values at each depth, depth of the boring, and a general description of the soil types encountered.

3. Standard Foundation Determination:

Use the following method for determining the Design N-value:

$$N_{AVG} = \frac{(N@1' + N@2.5' + \dots + N@Deepest \text{ Boring Depth})}{\text{Total Number of N-values}}$$

$$Y = (N@1')^2 + (N@2.5')^2 + \dots (N@Deepest \text{ Boring Depth})^2$$

$$Z = (N@1' + N@2.5' + \dots N@Deepest \text{ Boring Depth})$$

$$N_{STD \text{ DEV}} = \left[\frac{(\text{Total Number of N-values} \times Y) - Z^2}{(\text{Total Number of N-values}) \times (\text{Total Number of N-values} - 1)} \right]^{0.5}$$

Design N-value equals lesser of the following two conditions:

$$N_{AVG} - (N_{STD \text{ DEV}} \times 0.45)$$

Or

$$\text{Average of First Four N-Values} = \frac{(N@1' + N@2.5' + N@5' + N@7.5')}{4}$$

Note: If less than 4 N-values are obtained because of criteria listed in Section 2 above, use average of N-values collected for second condition. Do not include the N-value at the deepest boring depth for above calculations if the boring is discontinued at or before the required boring depth because of criteria listed in Section 2 above. Use N-value of zero for weight of hammer or weight of rod. If N-value is greater than 50, reduce N-value to 50 for calculations.

If standard NCDOT strain poles are shown on the plans and the Contractor chooses to use standard foundations, determine a drilled pier length, "L," for each signal pole from the Standard Foundations Chart (sheet M 8) based on the Design N-value and the predominant soil type. For each standard pole location, submit a completed "Metal Pole Standard Foundation Selection Form" signed by the Contractor's representative. Signature on form is for verification purposes only. Include the Design N-value calculation and resulting drilled pier length, "L," on each form.

If non-standard site-specific poles are shown on the plans, submit completed boring logs collected in accordance with Section 2 (Soil Test) above along with pole loading diagrams from the plans to the contractor-selected pole fabricator to assist in the pole and foundation design.

If one of the following occurs, the Standard Foundations Chart shown on the plans may not be used and a non-standard foundation may be required. In such case, contact the Engineer.

- The Design N-value is less than 4.
- The drilled pier length, "L", determined from the Standard Foundations Chart, is greater than the depth of the corresponding boring.

In the case where a standard foundation cannot be used, the Department will be responsible for the additional cost of the non-standard foundation.

Foundation designs are based on level ground around the traffic signal pole. If the slope around the edge of the drilled pier is steeper than 8:1 (H:V) or the proposed foundation will be less than 10 feet from the top of an embankment slope, the Contractor is responsible for providing slope information to the foundation designer and to the Engineer so it can be considered in the design.

The "Metal Pole Standard Foundation Selection Form" may be found at:

<http://www.ncdot.gov/doh/preconstruct/highway/geotech/formdet/misc/MetalPole.pdf>

If assistance is needed, contact the Engineer.

4. Non-Standard Foundation Design:

Design non-standard foundations based upon site-specific soil test information collected in accordance with Section 2 (Soil Test) above. Design drilled piers for side resistance only in

accordance with Section 4.6 of the *AASHTO Standard Specifications for Highway Bridges*. Use the computer software LPILE version 5.0 or later manufactured by Ensoft, Inc. to analyze drilled piers. Use the computer software gINT version 8.0 or later manufactured by Bentley Systems, Inc. with the current NCDOT gINT library and data template to produce SPT boring logs. Provide a drilled pier foundation for each pole with a length and diameter that result in a horizontal lateral movement of less than 1 inch at the top of the pier and a horizontal rotational movement of less than 1 inch at the edge of the pier. Contact the Engineer for pole loading diagrams for standard poles to be used for non-standard foundation designs. Submit any non-standard foundation designs including drawings, calculations, and soil boring logs to the Engineer for review and approval before construction.

C. Drilled Pier Construction:

Construct drilled pier foundations in accordance with the *Foundations and Anchor Rod Assemblies for Metal Poles* provision.

3.4. POLE NUMBERING SYSTEM

A. New Poles

Attach an identification tag to each pole shaft and mast arm section as shown on Metal Pole Standard Drawing Sheet M2 "Typical Fabrication Details Common to All Metal Poles".

B. Reused Poles

Do not remove the original identification tag(s) from the pole shaft and/or mast arm sections. Add a new identification tag based on the new location for any reused poles and/or mast arms.

3.5. MEASUREMENT AND PAYMENT

Actual number of metal strain signal poles (without regard to height or load capacity) furnished, installed and accepted.

Actual number of soil tests with SPT borings drilled furnished and accepted.

Actual volume of concrete poured in cubic yards of drilled pier foundation furnished, installed and accepted.

No measurement will be made for foundation designs prepared with metal pole designs, as these will be considered incidental to designing signal support structures.

Payment will be made under:

Metal Strain Signal Pole	Each
Soil Test	Each
Drilled Pier Foundation.....	Cubic Yard

4. CONTROLLERS WITH CABINETS

4.1. MATERIALS – TYPE 2070L CONTROLLERS

Conform to CALTRANS *Transportation Electrical Equipment Specifications* (TEES) (dated August 16, 2002, plus Errata 1 dated October 27, 2003 and Errata 2 dated June 08, 2004) except as required herein.

Furnish Model 2070L controllers. Ensure that removal of the CPU module from the controller will place the intersection into flash.

The Department will provide software at the beginning of the burning-in period. Contractor shall give 5 working days notice before needing software. Program software provided by the Department.

Provide model 2070L controllers with the latest version of OS9 operating software and device drivers, composed of the unit chassis and at a minimum the following modules and assemblies:

- MODEL 2070 1B, CPU Module, Single Board
- MODEL 2070-2A, Field I/O Module (FI/O)
- MODEL 2070-3B, Front Panel Module (FP), Display B (8x40)
- MODEL 2070-4A, Power Supply Module, 10 AMP
- MODEL 2070-7A, Async Serial Com Module (9-pin RS-232)

Furnish one additional MODEL 2070-7A, Async Serial Com Module (9-pin RS-232) for all master controller locations.

For each master location and central control center, furnish a U.S. Robotics V.92 or approved equivalent auto-dial/auto-answer external modem to accomplish the interface to the Department-furnished microcomputers. Include all necessary hardware to ensure telecommunications.

4.2. MATERIALS – GENERAL CABINETS

Provide a moisture resistant coating on all circuit boards.

Provide one 20 mm diameter radial lead UL-recognized metal oxide varistor (MOV) between each load switch field terminal and equipment ground. Electrical performance is outlined below.

PROPERTIES OF MOV SURGE PROTECTOR	
Maximum Continuous Applied Voltage at 185° F	150 VAC (RMS) 200 VDC
Maximum Peak 8x20µs Current at 185° F	6500 A
Maximum Energy Rating at 185° F	80 J
Voltage Range 1 mA DC Test at 77° F	212-268 V
Max. Clamping Voltage 8x20µs, 100A at 77° F	395 V
Typical Capacitance (1 MHz) at 77° F	1600 pF

Provide a power line surge protector that is a two-stage device that will allow connection of the radio frequency interference filter between the stages of the device. Ensure that a maximum continuous current is at least 10A at 120V. Ensure that the device can withstand a minimum of 20 peak surge current occurrences at 20,000A for an 8x20 microsecond waveform. Provide a maximum clamp voltage of 395V at 20,000A with a nominal series inductance of 200µh. Ensure that the voltage does not exceed 395V. Provide devices that comply with the following:

Frequency (Hz)	Minimum Insertion Loss (dB)
60	0
10,000	30
50,000	55
100,000	50
500,000	50
2,000,000	60
5,000,000	40
10,000,000	20
20,000,000	25

4.3. MATERIALS – TYPE 170E CABINETS

A. Type 170 E Cabinets General:

Conform to the city of Los Angeles' Specification No. 54-053-08, *Traffic Signal Cabinet Assembly Specification* (dated July 2008), except as required herein.

Furnish model 336S pole mounted cabinets configured for 8 vehicle phases, 4 pedestrian phases, and 6 overlaps. When overlaps are required, provide auxiliary output files for the overlaps. Do not reassign load switches to accommodate overlaps unless shown on electrical details. Provide 336S pole mounted cabinets that are 46" high with 40" high internal rack assemblies.

Furnish model 332 base mounted cabinets configured for 8 vehicle phases, 4 pedestrian phases, and 6 overlaps. When overlaps are required, provide auxiliary output files for the overlaps. Do not reassign load switches to accommodate overlaps unless shown on electrical details.

Provide model 200 load switches, model 222 loop detector sensors, model 252 AC isolators, and model 242 DC isolators according to the electrical details. As a minimum, provide one (1) model 2018 conflict monitor, one (1) model 206L power supply unit, two (2) model 204 flashers, one (1) DC isolator (located in slot I14), and four (4) model 430 flash transfer relays (provide seven (7) model 430 flash transfer relays if auxiliary output file is installed) with each cabinet.

B. Type 170 E Cabinet Electrical Requirements:

Provide a cabinet assembly designed to ensure that upon leaving any cabinet switch or conflict monitor initiated flashing operation, the controller starts up in the programmed start up phases and start up interval.

Furnish two sets of non-fading cabinet wiring diagrams and schematics in a paper envelope or container and placed in the cabinet drawer.

All AC+ power is subject to radio frequency signal suppression.

Provide surge suppression in the cabinet for each type of cabinet device. Provide surge protection for the full capacity of the cabinet input file. Provide surge suppression devices that operate properly over a temperature range of -40° F to +185° F. Ensure the surge suppression devices provide both common and differential modes of protection.

Provide a pluggable power line surge protector that is installed on the back of the PDA (power distribution assembly) chassis to filter and absorb power line noise and switching transients. Ensure the device incorporates LEDs for failure indication and provides a dry relay contact closure for the purpose of remote sensing. Ensure the device meets the following specifications:

Peak Surge Current (Single pulse, 8x20μs).....	20,000A
Occurrences (8x20μs waveform).....	10 minimum @ 20,000A
Maximum Clamp Voltage.....	395VAC
Operating Current.....	15 amps
Response Time.....	< 5 nanoseconds

Provide a loop surge suppressor for each set of loop terminals in the cabinet. Ensure the device meets the following specifications:

Peak Surge Current (6 times, 8x20μs)	
(Differential Mode).....	400A
(Common Mode).....	1,000A
Occurrences (8x20μs waveform).....	500 min @ 200A
Maximum Clamp Voltage	
(Differential Mode @400A).....	35V
(Common Mode @1,000A).....	35V
Response Time.....	< 5 nanoseconds
Maximum Capacitance.....	35 pF

Provide a data communications surge suppressor for each communications line entering or leaving the cabinet. Ensure the device meets the following specifications:

Peak Surge Current (Single pulse, 8x20μs).....	10,000A
Occurrences (8x20μs waveform).....	100 min @ 2,000A
Maximum Clamp Voltage.....	Rated for equipment protected
Response Time.....	< 1 nanosecond
Maximum Capacitance.....	1,500 pF
Maximum Series Resistance.....	15Ω

Provide a DC signal surge suppressor for each DC input channel in the cabinet. Ensure the device meets the following specifications:

Peak Surge Current (Single pulse, 8x20μs).....	10,000A
Occurrences (8x20μs waveform).....	100 @ 2,000A
Maximum Clamp Voltage.....	30V
Response Time.....	< 1 nanosecond

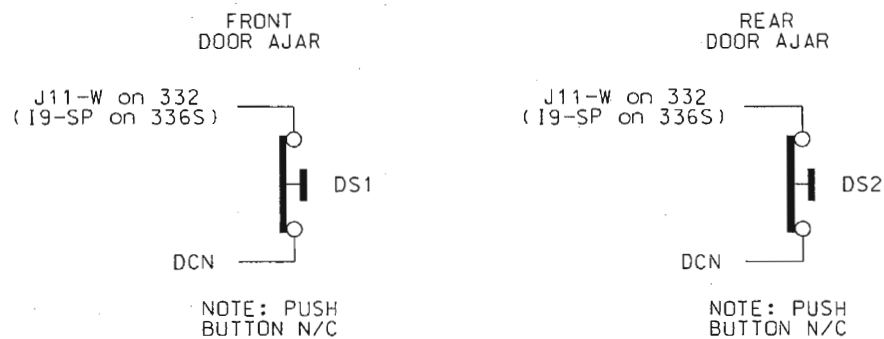
Provide a 120 VAC signal surge suppressor for each AC+ interconnect signal input. Ensure the device meets the following specifications:

Peak Surge Current (Single pulse, 8x20μs).....	20,000A
Maximum Clamp Voltage.....	350VAC
Response Time.....	< 200 nanoseconds
Discharge Voltage.....	<200 Volts @ 1,000A
Insulation Resistance.....	≥100 MΩ

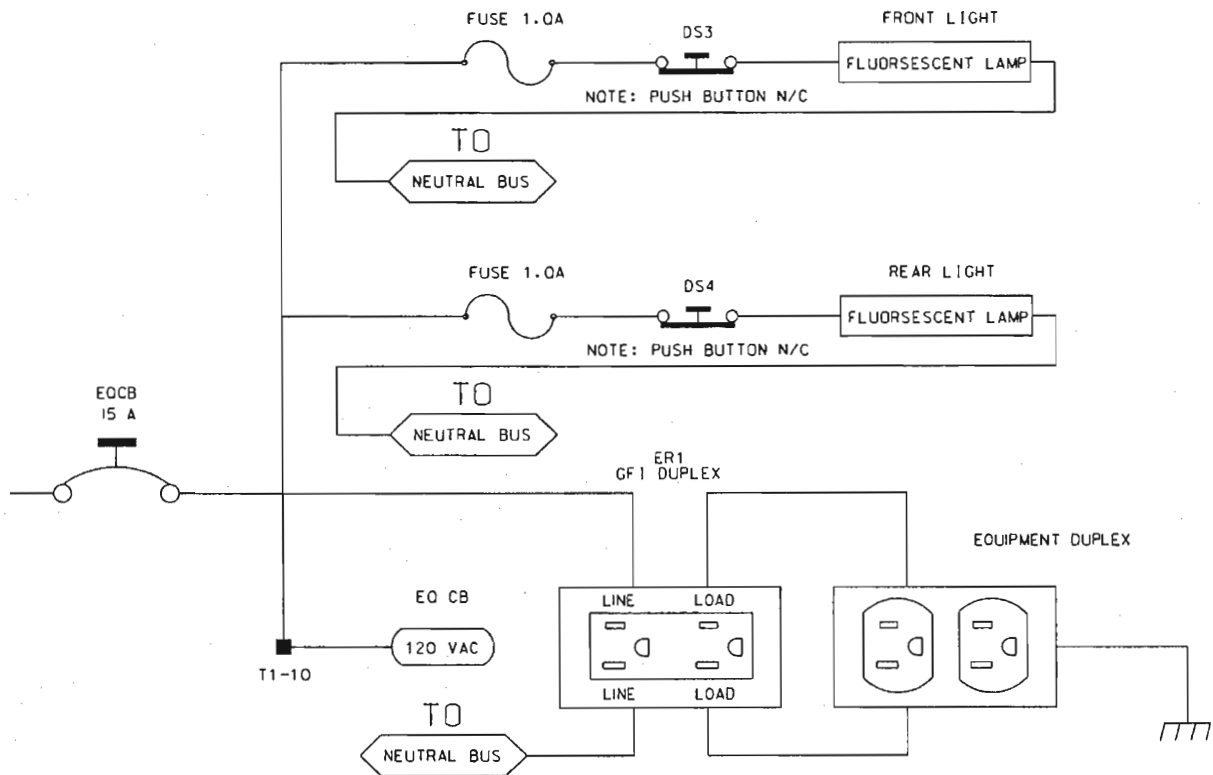
Provide conductors for surge protection wiring that are of sufficient size (ampacity) to withstand maximum overcurrents which could occur before protective device thresholds are attained and current flow is interrupted.

If additional surge protected power outlets are needed to accommodate fiber transceivers, modems, etc., install a UL listed, industrial, heavy-duty type power outlet strip with a minimum rating of 15 A / 125 VAC, 60 Hz. Provide a strip that has a minimum of 3 grounded outlets. Ensure the power outlet strip plugs into one of the controller unit receptacles located on the rear of the PDA. Ensure power outlet strip is mounted securely; provide strain relief if necessary.

Provide a door switch in the front and a door switch in the rear of the cabinet that will provide the controller unit with a Door Ajar alarm when either the front or the rear door is open. Ensure the door switches apply DC ground to the Input File when either the front door or the rear door is open.



Furnish a fluorescent fixture in the rear across the top of the cabinet and another fluorescent fixture in the front across the top of the cabinet at a minimum. Ensure that the fixtures provide sufficient light to illuminate all terminals, labels, switches, and devices in the cabinet. Conveniently locate the fixtures so as not to interfere with a technician's ability to perform work on any devices or terminals in the cabinet. Provide a protective diffuser to cover exposed bulbs. Install 16 watt T-4 lamps in the fluorescent fixtures. Provide a door switch to provide power to each fixture when the respective door is open. Wire the fluorescent fixtures to the 15 amp ECB (equipment circuit breaker).



Furnish a police panel with a police panel door. For model 336S cabinets, mount the police panel on the rear door. Ensure that the police panel door permits access to the police panel when the main door is closed. Ensure that no rainwater can enter the cabinet even with the police panel door open. Provide a police panel door hinged on the right side as viewed from the front. Provide a police panel door lock that is keyed to a standard police/fire call box key. In addition to the requirements of LA Specification No. 54-053-08, provide the police panel with a toggle switch connected to switch the intersection operation between normal stop-and-go operation (AUTO) and manual operation (MANUAL). Ensure that manual control can be implemented using inputs and software such that the controller provides full programmed clearance times for the yellow clearance and red clearance for each phase while under manual control.

Provide a 1/4-inch locking phone jack in the police panel for a hand control to manually control the intersection. Provide sufficient room in the police panel for storage of a hand control and cord.

Ensure the 336S cabinet Input File is wired as follows:

336S Cabinet Port-Bit/C-1 Pin Assignment														
Slot #	1	2	3	4	5	6	7	8	9	10	11	12	13	14
C-1 (Spares)	59	60	61	62	63	64	65	66	75	76	77	78	79	80
Port	3-2	1-1	3-4	1-3	3-1	1-2	3-3	1-4	2-5	5-5	5-6	5-1	5-2	6-7
C-1	56	39	58	41	55	40	57	42	51	71	72	67	68	81
Port	2-1	1-5	2-3	1-7	2-2	1-6	2-4	1-8	2-6	5-7	5-8	5-3	5-4	6-8
C-1	47	43	49	45	48	44	50	46	52	73	74	69	70	82

For model 332 base mounted cabinets, ensure terminals J14-E and J14-K are wired together on the rear of the Input File. Connect TB9-12 (J14 Common) on the Input Panel to T1-2 (AC-) on the rear of the PDA.

Provide detector test switches mounted at the top of the cabinet rack or other convenient location which may be used to place a call on each of eight phases based on the chart below. Provide three positions for each switch: On (place call), Off (normal detector operation), and Momentary On (place momentary call and return to normal detector operation after switch is released). Ensure that the switches are located such that the technician can read the controller display and observe the intersection.

Connect detector test switches for cabinets as follows:

336S Cabinet		332 Cabinet	
Detector Call Switches	Terminals	Detector Call Switches	Terminals
Phase 1	I1-F	Phase 1	I1-W
Phase 2	I2-F	Phase 2	I4-W
Phase 3	I3-F	Phase 3	I5-W
Phase 4	I4-F	Phase 4	I8-W
Phase 5	I5-F	Phase 5	J1-W
Phase 6	I6-F	Phase 6	J4-W
Phase 7	I7-F	Phase 7	J5-W
Phase 8	I8-F	Phase 8	J8-W

Provide the PCB 28/56 connector for the conflict monitor unit (CMU) with 28 independent contacts per side, dual-sided with 0.156 inch contact centers. Provide the PCB 28/56 connector contacts with solder eyelet terminations. Ensure all connections to the PCB 28/56 connector are soldered to the solder eyelet terminations.

Ensure that all cabinets have the CMU connector wired according to the 332 cabinet connector pin assignments (include all wires for auxiliary output file connection). Wire pins 13, 16, R, and U of the CMU connector to a separate 4 pin plug, P1, as shown below. Provide a second plug, P2, which will mate with P1 and is wired to the auxiliary output file as shown below. Provide an additional plug, P3, which will mate with P1 and is wired to the pedestrian yellow circuits as shown below. When no auxiliary output file is installed in the cabinet, provide wires for the green and yellow inputs for channels 11, 12, 17, and 18, the red inputs for channels 17 and 18, and the wires for the P2 plug. Terminate the two-foot wires with ring type lugs, insulated, and bundled for optional use.

P1			P2		P3	
PIN	FUNCTION	CONN TO	FUNCTION	CONN TO	FUNCTION	CONN TO
1	CH-9G	CMU-13	OLA-GRN	A123	2P-YEL	114
2	CH-9Y	CMU-16	OLA-YEL	A122	4P-YEL	105
3	CH-10G	CMU-R	OLB-GRN	A126	6P-YEL	120
4	CH-10Y	CMU-U	OLB-YEL	A125	8P-YEL	111

Connect the P20 terminal assembly (red monitor board) to a connector installed on the front of the type 2018 enhanced conflict monitor through a 3-1/2 foot 20-wire ribbon cable. Ensure that the ribbon cable connector and the connector on the conflict monitor are keyed to ensure proper connection. Ensure that removal of the P20 ribbon cable will cause the conflict monitor to recognize a latching fault condition and place the cabinet into flashing operation.

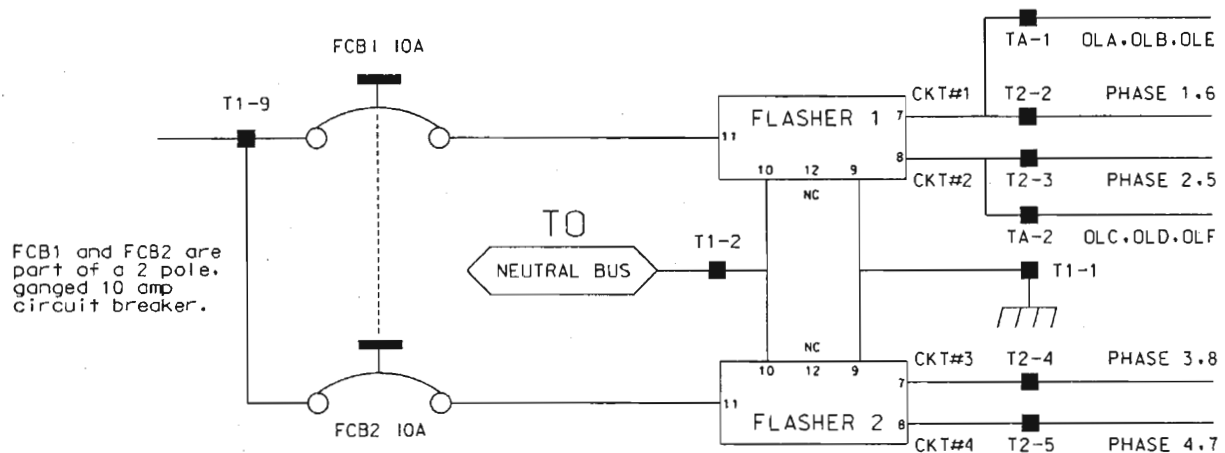
Wire the P20 connector to the traffic signal red displays to provide inputs to the conflict monitor as shown below. Ensure the pedestrian Don't Walk circuits are wired to channels 13 through 16 of the P20 connector. When no auxiliary output file is installed in the cabinet, provide wires for channels 9 through 12 reds. Terminate the two-foot wires with ring type lugs, insulated, and bundled for optional use.

Pin #	Function	Pin #	Function
1	Channel 15 Red	11	Channel 9 Red
2	Channel 16 Red	12	Channel 8 Red
3	Channel 14 Red	13	Channel 7 Red
4	GND	14	Channel 6 Red
5	Channel 13 Red	15	Channel 5 Red
6	Special Function 2	16	Channel 4 Red
7	Channel 12 Red	17	Channel 3 Red
8	Special Function 1	18	Channel 2 Red
9	Channel 10 Red	19	Channel 1 Red
10	Channel 11 Red	20	Red Enable

Ensure the controller unit outputs to the auxiliary output file are pre-wired to the C5 connector. When no auxiliary output file is installed in the cabinet, connect the C5 connector to a storage socket located on the Input Panel or on the rear of the PDA.

In addition to the requirements of LA Specification No. 54-053-08, ensure relay K1 on the Power Distribution Assembly (PDA) is a four pole relay and K2 on the PDA is a two pole relay.

Provide a two pole, ganged circuit breaker for the flash bus circuit. Ensure the flash bus circuit breaker is an inverse time circuit breaker rated for 10 amps at 120 VAC with a minimum of 10,000 RMS symmetrical amperes short circuit current rating. Do not provide the auxiliary switch feature on the flash bus circuit breaker. Ensure the ganged flash bus circuit breaker is certified by the circuit breaker manufacturer to provide gang tripping operation.



Ensure auxiliary output files are wired as follows:

AUXILIARY OUTPUT FILE TERMINAL BLOCK TA ASSIGNMENTS	
POSITION	FUNCTION
1	Flasher Unit #1, Circuit 1/FTR1 (OLA, OLB)/FTR3 (OLE)
2	Flasher Unit #1, Circuit 2/FTR2 (OLC, OLD)/FTR3 (OLF)
3	Flash Transfer Relay Coils
4	AC -
5	Power Circuit 5
6	Power Circuit 5
7	Equipment Ground Bus
8	NC

Provide four spare load resistors mounted in each cabinet. Ensure each load resistor is rated as shown in the table below. Wire one side of each load resistor to AC-. Connect the other side of each resistor to a separate terminal on a four (4) position terminal block. Mount the load resistors and terminal block either inside the back of Output File No. 1 or on the upper area of the Service Panel.

ACCEPTABLE LOAD RESISTOR VALUES	
VALUE (ohms)	WATTAGE
1.5K – 1.9 K	25W (min)
2.0K – 3.0K	10W (min)

Provide Model 200 load switches, Model 204 flashers, Model 242 DC isolators, Model 252 AC isolators, and Model 206L power supply units that conform to CALTRANS' "Transportation Electrical Equipment Specifications" dated March 12, 2009 with Erratum 1.

C. Type 170 E Cabinet Physical Requirements:

Do not mold, cast, or scribe the name "City of Los Angeles" on the outside of the cabinet door as specified in LA Specification No. 54-053-08. Do not provide a Communications Terminal Panel as specified in LA Specification No. 54-053-08. Do not provide terminal block TBB on the Service

Panel. Do not provide Cabinet Verification Test Program software or associated test jigs as specified in LA Specification No. 54-053-08.

Furnish unpainted, natural, aluminum cabinet shells. Ensure that all non-aluminum hardware on the cabinet is stainless steel or a Department approved non-corrosive alternate.

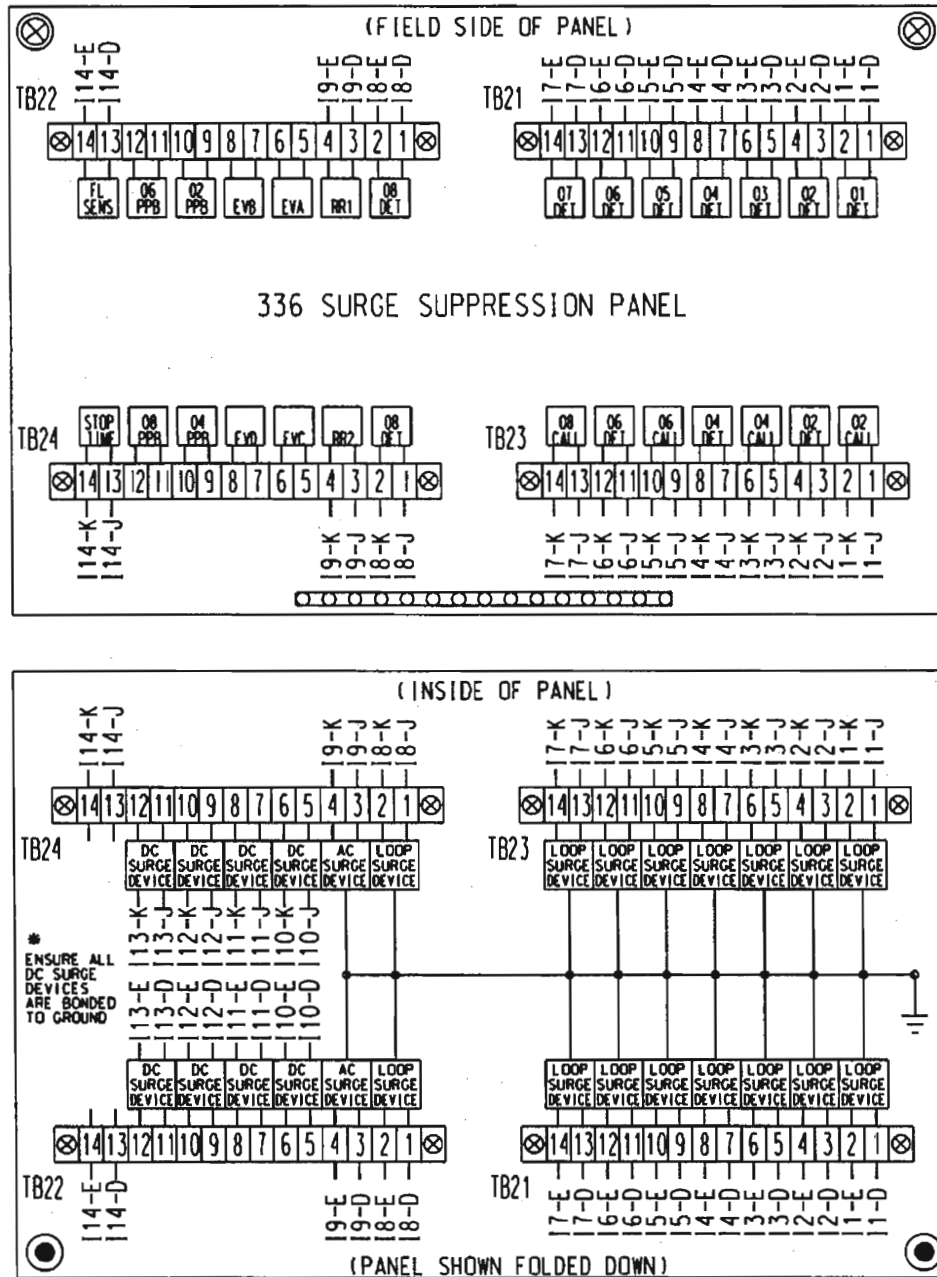
Ensure the lifting eyes, gasket channels, police panel, and all supports welded to the enclosure and doors are fabricated from 0.125 inch minimum thickness aluminum sheet and meet the same standards as the cabinet and doors.

Provide front and rear doors with latching handles that allow padlocking in the closed position. Furnish 0.75 inch minimum diameter stainless steel handles with a minimum 0.5 inch shank. Place the padlocking attachment at 4.0 inches from the handle shank center to clear the lock and key. Provide an additional 4.0 inches minimum gripping length.

Provide Corbin #2 locks on the front and rear doors. Provide one (1) Corbin #2 and one (1) police master key with each cabinet. Ensure main door locks allow removal of keys in the locked position only.

Provide a surge protection panel with 16 loop surge protection devices and designed to allow sufficient free space for wire connection/disconnection and surge protection device replacement. For model 332 cabinets, provide an additional 20 loop surge protection devices. Provide an additional two AC+ interconnect surge devices to protect one slot and eight DC surge protection devices to protect four slots. Provide no protection devices on slot I14.

For pole mounted cabinets, mount surge protection devices for the AC+ interconnect inputs, inductive loop detector inputs, and low voltage DC inputs on a swing down panel assembly fabricated from sturdy aluminum. Attach the swing down panel to the bottom rear cabinet rack assembly using thumb screws. Ensure the swing down panel allows for easy removal of the input file without removing the surge protection panel assembly or its parts. Have the surge protection devices mounted horizontally on the panel and soldered to the feed through terminals of four 14 position terminal blocks with #8 screws mounted on the other side. Ensure the top row of terminals is connected to the upper slots and the bottom row of terminals is connected to the bottom slots. Provide a 15 position copper equipment ground bus attached to the field terminal side (outside) of the swing down panel for termination of loop lead-in shield grounds. Ensure that a Number 4 AWG green wire connects the surge protection panel assembly ground bus to the main cabinet equipment ground.



For base mounted cabinets, mount surge protection panels on the left side of the cabinet as viewed from the rear. Attach each panel to the cabinet rack assembly using bolts and make it easily removable. Mount the surge protection devices in vertical rows on each panel and connect the devices to one side of 12 position, double row terminal blocks with #8 screws. For each surge protection panel, terminate all grounds from the surge protection devices on a copper equipment ground bus attached to the surge protection panel. Wire the terminals to the rear of a standard input file using spade lugs for input file protection.

Provide permanent labels that indicate the slot and the pins connected to each terminal that may be viewed from the rear cabinet door. Label and orient terminals so that each pair of inputs is next to each other. Indicate on the labeling the input file (I or J), the slot number (1-14) and the terminal pins of the input slots (either D & E for upper or J & K for lower).

Provide a minimum 14 x 16 inch pull out, hinged top shelf located immediately below controller mounting section of the cabinet. Ensure the shelf is designed to fully expose the table surface outside the controller at a height approximately even with the bottom of the controller. Ensure the shelf has a storage bin interior which is a minimum of 1 inch deep and approximately the same dimensions as the shelf. Provide an access to the storage area by lifting the hinged top of the shelf. Fabricate the shelf and slide from aluminum or stainless steel and ensure the assembly can support the 2070L controller plus 15 pounds of additional weight. Ensure shelf has a locking mechanism to secure it in the fully extended position and does not inhibit the removal of the 2070L controller or removal of cards inside the controller when fully extended. Provide a locking mechanism that is easily released when the shelf is to be returned to its non-use position directly under the controller.

D. Model 2018 Enhanced Conflict Monitor:

Furnish Model 2018 Enhanced Conflict Monitors that provide monitoring of 18 channels. Ensure each channel consists of a green, yellow, and red field signal input. Ensure that the conflict monitor meets or exceeds CALTRANS' Transportation Electrical Equipment Specifications dated March 12, 2009 with Erratum 1 (hereafter referred to as CALTRANS' 2009 TEES) for a model 210 monitor unit and other requirements stated in this specification.

Ensure the conflict monitor is provided with an 18 channel conflict programming card. Pin EE and Pin T of the conflict programming card shall be connected together. Pin 16 of the conflict programming card shall be floating. Ensure that the absence of the conflict programming card will cause the conflict monitor to trigger (enter into fault mode), and remain in the triggered state until the programming card is properly inserted and the conflict monitor is reset.

Provide a conflict monitor that incorporates LED indicators into the front panel to dynamically display the status of the monitor under normal conditions and to provide a comprehensive review of field inputs with monitor status under fault conditions. Ensure that the monitor indicates the channels that were active during a conflict condition and the channels that experienced a failure for all other per channel fault conditions detected. Ensure that these indications and the status of each channel are retained until the Conflict Monitor is reset. Furnish LED indicators for the following:

- AC Power (Green LED indicator)
- VDC Failed (Red LED indicator)
- WDT Error (Red LED indicator)
- Conflict (Red LED indicator)
- Red Fail (Red LED indicator)
- Dual Indication (Red LED indicator)
- Yellow/Clearance Failure (Red LED indicator)
- PCA/PC Ajar (Red LED indicator)
- Monitor Fail/Diagnostic Failure (Red LED indicator)
- 54 Channel Status Indicators (1 Red, 1 Yellow, and 1 Green LED indicator for each of the 18 channels)

Provide a switch to set the Red Fail fault timing. Ensure that when the switch is in the ON position the Red Fail fault timing value is set to 1350 +/- 150ms (2018 mode). Ensure that when the switch is in the OFF position the Red Fail fault timing value is set to 850 +/- 150ms (210 mode).

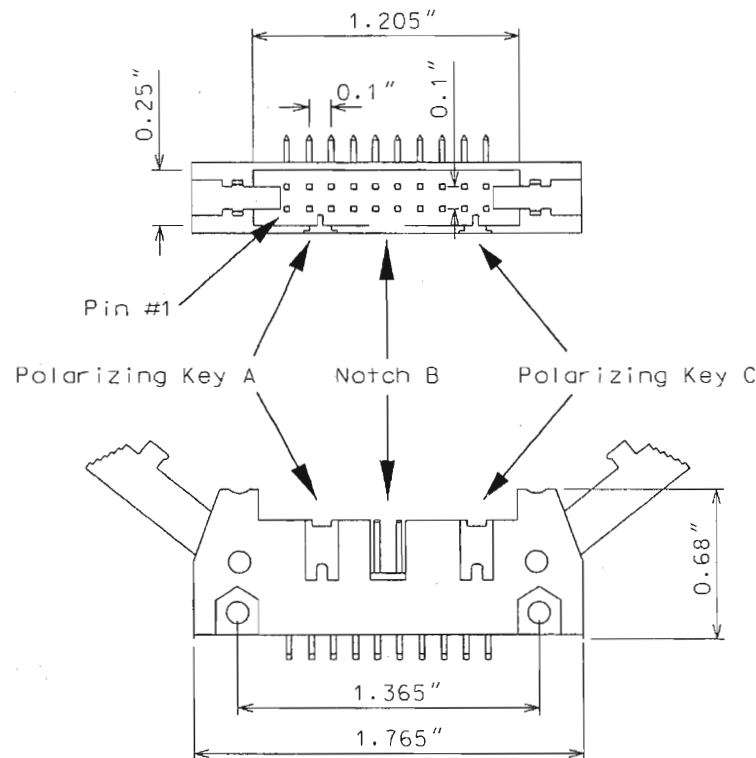
Provide a switch to set the Watchdog fault timing. Ensure that when the switch is in the ON position the Watchdog fault timing value is set to 1.0 +/- 0.1s (2018 mode). Ensure that when the switch is in the OFF position the Watchdog fault timing value is set to 1.5 +/- 0.1s (210 mode).

Provide a jumper or switch to set the AC line brown-out levels. Ensure that when the jumper is present or the switch is in the ON position the AC line dropout voltage threshold is 98 +/- 2 Vrms, the AC line restore voltage threshold is 103 +/- 2 Vrms, and the AC line brown-out timing value is set to 400 +/- 50ms (2018 mode). Ensure that when the jumper is not present or the switch is in the OFF position the AC line dropout voltage threshold is 92 +/- 2 Vrms, the AC line restore voltage threshold is 98 +/- 2 Vrms, and the AC line brown-out timing value is set to 80 +/- 17ms (210 mode).

Provide a jumper or switch that will enable and disable the Watchdog Latch function. Ensure that when the jumper is not present or the switch is in the OFF position the Watchdog Latch function is disabled. In this mode of operation, a Watchdog fault will be reset following a power loss, brownout, or power interruption. Ensure that when the jumper is present or the switch is in the ON position the Watchdog Latch function is enabled. In this mode of operation, a Watchdog fault will be retained until a Reset command is issued.

Provide a jumper that will reverse the active polarity for pin #EE (output relay common). Ensure that when the jumper is not present pin #EE (output relay common) will be considered 'Active' at a voltage greater than 70 Vrms and 'Not Active' at a voltage less than 50 Vrms (Caltrans mode). Ensure that when the jumper is present pin #EE (output relay common) will be considered 'Active' at a voltage less than 50 Vrms and 'Not Active' at a voltage greater than 70 Vrms (Failsafe mode).

In addition to the connectors required by CALTRANS' 2009 TEES, provide the conflict monitor with a red interface connector mounted on the front of the monitor. Ensure the connector is a 20 pin, right angle, male connector with latching clip locks and polarizing keys. Ensure the right angle solder tails are designed for a 0.062" thick printed circuit board. Keying of the connector shall be between pins 3 and 5, and between 17 and 19. Ensure the connector has two rows of pins with the odd numbered pins on one row and the even pins on the other row. Ensure the connector pin row spacing is 0.10" and pitch is 0.10". Ensure the mating length of the connector pins is 0.24". Ensure the pins are finished with gold plating 30μ" thick.



Ensure the red interface connector pins on the monitor have the following functions:

Pin #	Function	Pin #	Function
1	Channel 15 Red	2	Channel 16 Red
3	Channel 14 Red	4	Chassis Ground
5	Channel 13 Red	6	Special Function 2
7	Channel 12 Red	8	Special Function 1
9	Channel 10 Red	10	Channel 11 Red
11	Channel 9 Red	12	Channel 8 Red
13	Channel 7 Red	14	Channel 6 Red
15	Channel 5 Red	16	Channel 4 Red
17	Channel 3 Red	18	Channel 2 Red
19	Channel 1 Red	20	Red Enable

Ensure that the removal of the P-20 red interface ribbon cable will cause the monitor to recognize a latching fault condition and place the cabinet into flashing operation.

Provide Special Function 1 and Special Function 2 inputs to the unit which shall disable only Red Fail Monitoring when either input is sensed active. A Special Function input shall be sensed active when the input voltage exceeds 70 Vrms with a minimum duration of 550 ms. A Special Function input shall be sensed not active when the input voltage is less than 50 Vrms or the duration is less than 250 ms. A Special Function input is undefined by these specifications and may or may not be sensed active when the input voltage is between 50 Vrms and 70 Vrms or the duration is between 250 ms and 550 ms.

Ensure the conflict monitor recognizes field signal inputs for each channel that meet the following requirements:

- consider a Red input greater than 70 Vrms and with a duration of at least 500 ms as an “on” condition;
- consider a Red input less than 50 Vrms or with a duration of less than 200 ms as an “off” condition (no valid signal);
- consider a Red input between 50 Vrms and 70 Vrms or with a duration between 200 ms and 500 ms to be undefined by these specifications;
- consider a Green or Yellow input greater than 25 Vrms and with a duration of at least 500 ms as an “on” condition;
- consider a Green or Yellow input less than 15 Vrms or with a duration of less than 200 ms as an “off” condition; and
- consider a Green or Yellow input between 15 Vrms and 25 Vrms or with a duration between 200 ms and 500 ms to be undefined by these specifications.

Provide a conflict monitor that recognizes the faults specified by CALTRANS’ 2009 TEES and the following additional faults. Ensure the conflict monitor will trigger upon detection of a fault and will remain in the triggered (in fault mode) state until the unit is reset at the front panel or through the external remote reset input for the following failures:

1. **Red Monitoring or Absence of Any Indication (Red Failure):** A condition in which no “on” voltage signal is detected on any of the green, yellow, or red inputs to a given monitor channel. If a signal is not detected on at least one input (R, Y, or G) of a conflict monitor channel for a period greater than 1000 ms when used with a 170 controller and 1500 ms when used with a 2070L controller, ensure monitor will trigger and put the intersection into flash. If the absence of any indication condition lasts less than 750 ms when used with a 170 controller and 1200 ms when used with a 2070L controller, ensure conflict monitor will not trigger. Red fail monitoring shall be enabled on a per channel basis by the use of switches located on the conflict monitor. Have red monitoring occur when all of the following input conditions are in effect:
 - a) Red Enable input to monitor is active (Red Enable voltages are “on” at greater than 70 Vrms, off at less than 50 Vrms, undefined between 50 and 70 Vrms), and
 - b) Neither Special Function 1 nor Special Function 2 inputs are active.
 - c) Pin #EE (output relay common) is not active
2. **Short/Missing Yellow Indication Fault (Clearance Error):** Yellow indication following a green is missing or shorter than 2.7 seconds (with ± 0.1 -second accuracy). If a channel fails to detect an “on” signal at the Yellow input for a minimum of 2.7 seconds (± 0.1 second) following the detection of an “on” signal at a Green input for that channel, ensure that the monitor triggers and generates a clearance/short yellow error fault indication. Short/missing yellow (clearance) monitoring shall be enabled on a per channel basis by the use of switches located on the conflict monitor. This fault shall not occur when the channel is programmed for Yellow Inhibit, when the Red Enable signal is inactive or pin #EE (output relay common) is active.
3. **Dual Indications on the Same Channel:** In this condition, more than one indication (R,Y,G) is detected as “on” at the same time on the same channel. If dual indications are detected for a period greater than 500 ms, ensure that the conflict monitor triggers and displays the proper failure indication (Dual Ind fault). If this condition is detected for less

than 200 ms, ensure that the monitor does not trigger. G-Y-R dual indication monitoring shall be enabled on a per channel basis by the use of switches located on the conflict monitor. G-Y dual indication monitoring shall be enabled for all channels by use of a switch located on the conflict monitor. This fault shall not occur when the Red Enable signal is inactive or pin #EE (output relay common) is active.

4. **Configuration Settings Change:** The configuration settings are comprised of (as a minimum) the permissive diode matrix, dual indication switches, yellow disable jumpers, any option switches, any option jumpers, and the Watchdog Enable switch. Ensure the conflict monitor compares the current configuration settings with the previous stored configuration settings on power-up, on reset, and periodically during operation. If any of the configuration settings are changed, ensure that the conflict monitor triggers and causes the program card indicator to flash. Ensure that configuration change faults are only reset by depressing and holding the front panel reset button for a minimum of three seconds. Ensure the external remote reset input does not reset configuration change faults.

Ensure the conflict monitor will trigger and the AC Power indicator will flash at a rate of $2 \text{ Hz} \pm 20\%$ with a 50% duty cycle when the AC Line voltage falls below the “drop-out” level. Ensure the conflict monitor will resume normal operation when the AC Line voltage returns above the “restore” level. Ensure the AC Power indicator will remain illuminated when the AC voltage returns above the “restore” level. Should an AC Line power interruption occur while the monitor is in the fault mode, then upon restoration of AC Line power, the monitor will remain in the fault mode and the correct fault and channel indicators will be displayed.

Provide a flash interval of at least 6 seconds and at most 10 seconds in duration following a power-up, an AC Line interruption, or a brownout restore. Ensure the conflict monitor will suspend all fault monitoring functions, close the Output relay contacts, and flash the AC indicator at a rate of $4 \text{ Hz} \pm 20\%$ with a 50% duty cycle during this interval. Ensure the termination of the flash interval after at least 6 seconds if the Watchdog input has made 5 transitions between the True and False state and the AC Line voltage is greater than the “restore” level. If the watchdog input has not made 5 transitions between the True and False state within 10 ± 0.5 seconds, the monitor shall enter a WDT error fault condition.

Ensure the conflict monitor will monitor an intersection with a minimum of four approaches using the four-section Flashing Yellow Arrow (FYA) vehicle traffic signal as outlined by the NCHRP 3-54 research project for protected-permissive left turn signal displays. Ensure the conflict monitor will operate in the FYA mode and FYAc (Compact) mode as specified below to monitor each channel for the following fault conditions: Conflict, Red Fail, Dual Indication, and Clearance. Provide a switch to select between the FYA mode and FYAc mode. Provide a switch to select each FYA phase movement for monitoring.

FYA mode

FYA Signal Head	Phase 1	Phase 3	Phase 5	Phase 7
Red Arrow	Channel 9 Red	Channel 10 Red	Channel 11 Red	Channel 12 Red
Yellow Arrow	Channel 9 Yellow	Channel 10 Yellow	Channel 11 Yellow	Channel 12 Yellow

Flashing Yellow Arrow	Channel 9 Green	Channel 10 Green	Channel 11 Green	Channel 12 Green
Green Arrow	Channel 1 Green	Channel 3 Green	Channel 5 Green	Channel 7 Green

FYAc mode

FYA Signal Head	Phase 1	Phase 3	Phase 5	Phase 7
Red Arrow	Channel 1 Red	Channel 3 Red	Channel 5 Red	Channel 7 Red
Yellow Arrow	Channel 1 Yellow	Channel 3 Yellow	Channel 5 Yellow	Channel 7 Yellow
Flashing Yellow Arrow	Channel 1 Green	Channel 3 Green	Channel 5 Green	Channel 7 Green
Green Arrow	Channel 9 Green	Channel 9 Yellow	Channel 10 Green	Channel 10 Yellow

Ensure that the conflict monitor will log at least nine of the most recent events detected by the monitor in non-volatile EEPROM memory (or equivalent). For each event, record at a minimum the time, date, type of event, status of each field signal indication with RMS voltage, and specific channels involved with the event. Ensure the conflict monitor will log the following events: monitor reset, configuration, previous fault, and AC line. Furnish the signal sequence log that shows all channel states (Greens, Yellows, and Reds) and the Red Enable State for a minimum of 2 seconds prior to the current fault trigger point. Ensure the display resolution of the inputs for the signal sequence log is not greater than 50 ms.

Provide a RS-232C/D compliant port (DB-9 female connector) on the front panel of the conflict monitor in order to provide communications from the conflict monitor to the 170/2070L controller or to a Department-furnished laptop computer. Electrically isolate the port interface electronics from all monitor electronics, excluding Chassis Ground. Ensure that the controller can receive all event log information through a controller Asynchronous Communications Interface Adapter (Type 170E) or Async Serial Comm Module (2070L). Provide a Windows based graphic user interface software to communicate directly through the same monitor RS-232C/D compliant port to retrieve and view all event log information to a Department-furnished laptop computer. The RS-232C/D compliant port on the monitor shall allow the monitor to function as a DCE device with pin connections as follows:

Conflict Monitor RS-232C/D (DB-9 Female) Pinout		
Pin Number	Function	I/O
1	DCD	O
2	TX Data	O
3	RX Data	I
4	DTR	I
5	Ground	-
6	DSR	O
7	CTS	I
8	RTS	O
9	NC	-

MONITOR BOARD EDGE CONNECTOR

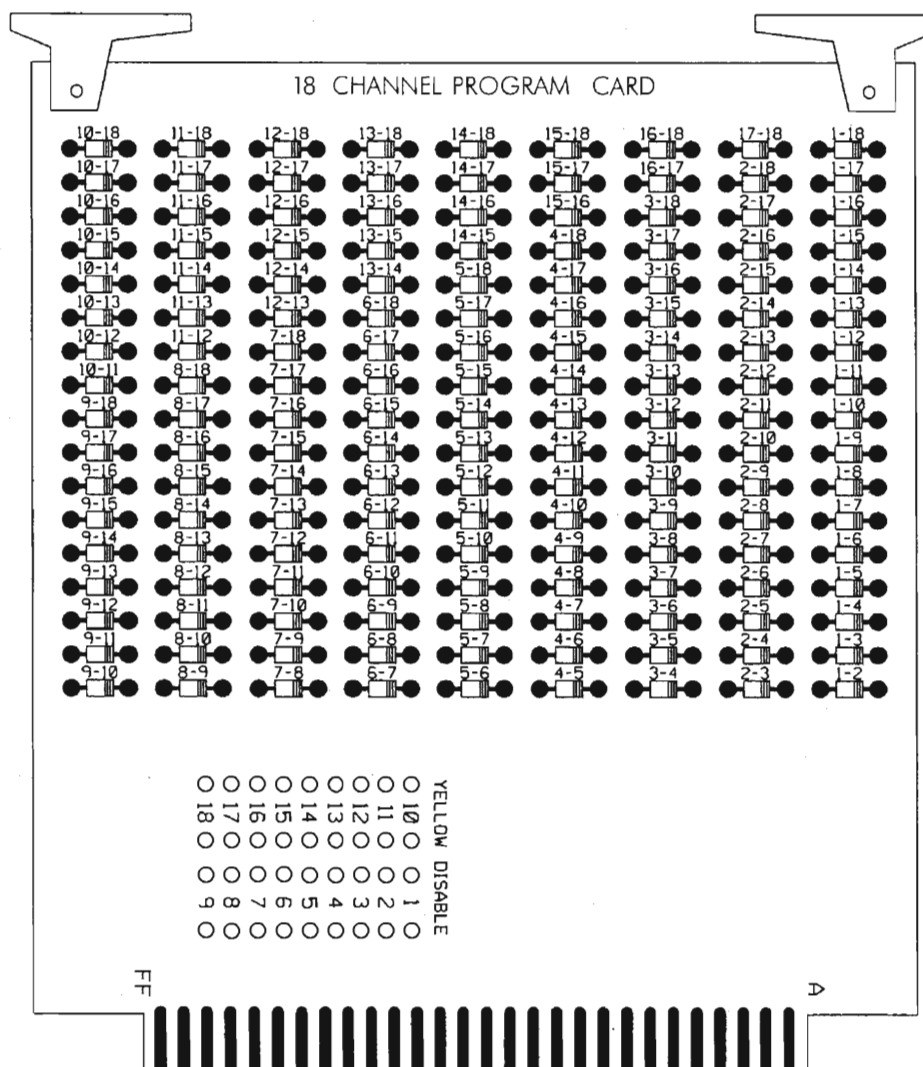
Pin #	Function (Back Side)	Pin #	Function (Component Side)
1	Channel 2 Green	A	Channel 2 Yellow
2	Channel 13 Green	B	Channel 6 Green
3	Channel 6 Yellow	C	Channel 15 Green
4	Channel 4 Green	D	Channel 4 Yellow
5	Channel 14 Green	E	Channel 8 Green
6	Channel 8 Yellow	F	Channel 16 Green
7	Channel 5 Green	H	Channel 5 Yellow
8	Channel 13 Yellow	J	Channel 1 Green
9	Channel 1 Yellow	K	Channel 15 Yellow
10	Channel 7 Green	L	Channel 7 Yellow
11	Channel 14 Yellow	M	Channel 3 Green
12	Channel 3 Yellow	N	Channel 16 Yellow
13	Channel 9 Green	P	Channel 17 Yellow
14	Channel 17 Green	R	Channel 10 Green
15	Channel 11 Yellow	S	Channel 11 Green
16	Channel 9 Yellow	T	Channel 18 Yellow
17	Channel 18 Green	U	Channel 10 Yellow
--		--	
18	Channel 12 Yellow	V	Channel 12 Green
19	Channel 17 Red	W	Channel 18 Red
20	Chassis Ground	X	Not Assigned
21	AC-	Y	DC Common
22	Watchdog Timer	Z	External Test Reset
23	+24VDC	AA	+24VDC
24	Tied to Pin 25	BB	Stop Time (Output)
25	Tied to Pin 24	CC	Not Assigned
26	Not Assigned	DD	Not Assigned
27	Relay Output, Side #3, N.O.	EE	Relay Output, Side #2, Common
28	Relay Output, Side #1, N.C.	FF	AC+

-- Slotted for keying between Pins 17/U and 18/V

CONFLICT PROGRAM CARD PIN ASSIGNMENTS

Pin #	Function (Back Side)	Pin #	Function (Component Side)
1	Channel 2 Green	A	Channel 1 Green
2	Channel 3 Green	B	Channel 2 Green
3	Channel 4 Green	C	Channel 3 Green
4	Channel 5 Green	D	Channel 4 Green
5	Channel 6 Green	E	Channel 5 Green
6	Channel 7 Green	F	Channel 6 Green
7	Channel 8 Green	H	Channel 7 Green
8	Channel 9 Green	J	Channel 8 Green
9	Channel 10 Green	K	Channel 9 Green
10	Channel 11 Green	L	Channel 10 Green
11	Channel 12 Green	M	Channel 11 Green
12	Channel 13 Green	N	Channel 12 Green
13	Channel 14 Green	P	Channel 13 Green
14	Channel 15 Green	R	Channel 14 Green
15	Channel 16 Green	S	Channel 15 Green
16	N/C	T	PC AJAR
17	Channel 1 Yellow	U	Channel 9 Yellow
18	Channel 2 Yellow	V	Channel 10 Yellow
19	Channel 3 Yellow	W	Channel 11 Yellow
20	Channel 4 Yellow	X	Channel 12 Yellow
21	Channel 5 Yellow	Y	Channel 13 Yellow
22	Channel 6 Yellow	Z	Channel 14 Yellow
23	Channel 7 Yellow	AA	Channel 15 Yellow
24	Channel 8 Yellow	BB	Channel 16 Yellow
--		--	
25	Channel 17 Green	CC	Channel 17 Yellow
26	Channel 18 Green	DD	Channel 18 Yellow
27	Channel 16 Green	EE	PC AJAR (Program Card)
28	Yellow Inhibit Common	FF	Channel 17 Green

-- Slotted for keying between Pins 24/BB and 25/CC



4.4. MATERIALS – TYPE 170 DETECTOR SENSOR UNITS

Furnish detector sensor units that comply with Chapter 5 Section 1, “General Requirements,” and Chapter 5 Section 2, “Model 222 & 224 Loop Detector Sensor Unit Requirements,” of the CALTRANS “Transportation Electrical Equipment Specifications” dated March 12, 2009 with Erratum 1.

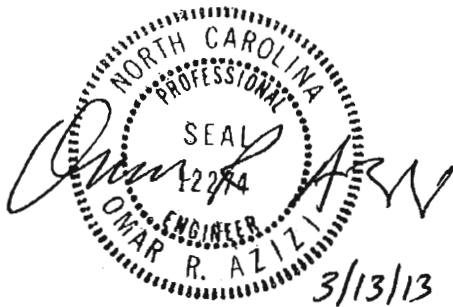
Project R-2303A / R-2303B
CLUSTER

Cumberland/Sampson

Project Special Provisions
Structures and Culvert

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PROJECT SPECIAL PROVISIONS
STRUCTURES AND CULVERT

**PROJECT: R-2303A / R-2303B
CLUSTER**

CUMBERLAND/SAMPSON COUNTIES

CONSTRUCTION, MAINTENANCE AND REMOVAL (11-17-06)
OF TEMPORARY ACCESS AT STATIONS 397+87.00 -LREV-, 660+21.00 -L-

1.0 GENERAL

Construct, maintain, and remove the temporary access required to provide the working area necessary for construction of the new bridge, construction of the temporary detour structure, or for the removal of an existing bridge, as applicable. Temporary access may include other methods than those outlined in this Special Provision; however, all types of temporary access are required to meet the requirements of all permits, the Standard Specifications, and this Special Provision.

2.0 TEMPORARY WORK BRIDGE

Construction of a temporary work bridge is permitted as shown on the plans. The temporary work bridge shall have a minimum span length of 20 feet. Submit details of the temporary work bridge to the Engineer prior to constructing the work bridge to ensure conformance with the plans and all permits. Completely remove the temporary bridge prior to final acceptance or as otherwise required by the permits.

3.0 BASIS OF PAYMENT

The lump sum price bid for "Construction, Maintenance and Removal of Temporary Access at Station _____" will be full compensation for the above work, or other methods of access, including all material, work bridge components, equipment, tools, labor, disposal, and incidentals necessary to complete the work.

BRIDGE DECK RIDEABILITY AND GROOVING AT (9-30-11)
STATION 397+87.00 -LREV-

1.0 GENERAL

This Special Provision shall govern the testing, diamond grinding, transverse grooving and all other related work associated with obtaining satisfactory rideability and surface texture of the bridge deck surface. Provide a surface finish in accordance with Article 420-14(B) of the Standard Specifications.

2.0 TESTING REQUIREMENTS

Perform acceptance testing of the longitudinal profile of the finished bridge deck in each wheel path of each lane in the presence of the Engineer. It is the Contractor's responsibility to submit a proposed plan of action and schedule for profilograph testing. Use a certified independent provider, approved by the Engineer, to perform the profilograph test.

Prior to profilograph testing, placement of the bridge deck and barrier rail within the section to be tested shall be complete, with the exception of blockouts required for the installation of joints. Do not install joints until the Engineer determines that the rideability requirements herein have been met. Joint locations should be temporarily bridged sufficiently to facilitate operation of the profilograph and corrective equipment across the joint. Remove all obstructions from the bridge deck and sweep the surface clean of debris prior to testing. If automated profilograph equipment is used, there shall be no radio transmissions or other activities that might disrupt the automated profilograph equipment during the testing.

Ensure that the profilograph is in good operating condition per the manufacturer's recommendations. Maintain tires free of debris and buildup during each test run. Operate the profilograph at a maximum speed of 2 miles per hour. If a propulsion vehicle is used, it shall be approved, and the gross vehicle weight shall not exceed 1,000 pounds.

At the beginning and end of each day's testing, and at other times determined to be necessary by the Engineer, operate the profilograph over a calibration strip so the Engineer can verify correct operation of the profilograph. The calibration strip shall be a 100 foot section of pavement that is reasonably level and smooth. Submit each day's calibration graphs with that day's test section graphs to the Engineer. Calibrate the profilograph in accordance with the current NCDOT procedure entitled "Determination of Profile Index". Copies of this procedure may be obtained from the NCDOT Construction Unit.

Plot each profilogram on a continuous graph at a horizontal scale of 25 feet per inch with the vertical scale plotted at a true scale. Station numbers shall be recorded on the profilogram at distances not to exceed 200 feet. Note joint locations on the profilogram.

Take profiles with the recording wheel in each wheel path of each lane. The wheel paths of a lane are considered parallel to and approximately 3.5 feet inside both edges of the travel lane. Take profiles over the entire length of the travel lanes on the bridge deck including approach slabs. Upon completion of testing, submit the profilograms for each wheel path to the Engineer for analysis. The Engineer will retain the profilograms.

The Engineer will determine the Profile Index for each wheel path in accordance with the procedure entitled "Determination of Profile Index".

A test section is defined as a 600 foot length of each travel lane. The maximum allowable Profile Index per lane shall not exceed 25" per mile as determined with a 0.0" blanking band over any 600 foot test section. The Contractor will correct individual deviations in excess of 0.3" over any 25 foot length on the line tested by diamond grinding.

Additionally, the entire deck surface shall meet a 0.125" in 10 feet straightedge check made atop the deck either transversely or longitudinally as deemed necessary by the Engineer.

3.0 DIAMOND GRINDING

If the deck does not meet the testing requirements, diamond grinding is required to make corrections. Diamond grind the full width of all lanes and shoulders in the direction of travel.

Diamond grinding shall be performed using a Boart Longyear PC 5000, a Target 3804 or an approved equal. Submit grinding equipment specifications to the Engineer for approval before any grinding is performed. Use a grinding machine capable of removing a minimum of 3 feet of width with each pass. Multiple passes may be needed to achieve the required depth of removal. In addition, hand grinding may be required to remove vertical steps between passes.

The ground surface shall consist of between 50 and 60 grooves per foot of width. The grooves shall be between 0.09" and 0.15" in width and 0.0625" in depth. The area between the grooves shall be between 0.06" and 0.13" in width. The final concrete texture shall be uniform.

Construct and operate the grinding machine such that it will not cause strain or damage to the deck surface, excessive ravels, aggregate fractures, spalls, or disturbance of transverse joints. Longitudinally grind the deck parallel to the roadway centerline.

Continuously remove all slurry or other debris resulting from the grinding operations by vacuum pick-up or other approved methods. Prevent the slurry from flowing into floor drains, onto the ground or into the body of water under the bridge. Dispose of all residues off the project.

In completing all corrective work on the deck surface to satisfy the rideability criteria stated herein, limit grinding such that the final reinforcement cover is not less than the plan cover minus ½ inch. In cases where this cannot be achieved, other corrective work may be required as directed by the Engineer.

Provide additional profilograph testing as necessary following grinding until the rideability requirements above are satisfied.

4.0 GROOVING BRIDGE FLOORS

After the concrete surface profile has been accepted by the Engineer, the concrete blockouts poured, and the joints installed, groove the bridge deck in accordance with Article 420-14(B) of the Standard Specifications. If a substantial amount of bridge deck surface has been diamond ground and/or the concrete cover over the slab reinforcement has been reduced to the minimum, the Engineer may delete all or a portion of the requirement of grooving in that area. In this instance, no additional compensation shall be made for underruns in grooving.

5.0 BASIS OF PAYMENT

No separate payment will be made for profilograph testing or diamond grinding of the bridge deck. The cost of the testing procedure, equipment, grinding operation, and removal and disposal of slurry resulting from the grinding operation is considered incidental to the contract bid price for "Reinforced Concrete Deck Slab".

PLACING LOAD ON STRUCTURE MEMBERS

(11-27-12)

The 2012 Standard Specifications shall be revised as follows:

In **Section 420-20 – Placing Load on Structure Members** replace the first sentence of the fifth paragraph with the following:

Do not place vehicles or construction equipment on a bridge deck until the deck concrete develops the minimum specified 28 day compressive strength and attains an age of at least 7 curing days.

STEEL REINFORCED ELASTOMERIC BEARINGS

(11-27-12)

The 2012 Standard Specifications shall be revised as follows:

In **Section 1079-1 – Preformed Bearing Pads** add the following after the second paragraph:

Internal holding pins are required for all shim plates when the contract plans indicate the structure contains the necessary corrosion protection for a corrosive site.

Repair laminated (reinforced) bearing pads utilizing external holding pins via vulcanization. Submit product data for repair material and a detailed application procedure to the Materials and Tests Unit for approval before use and annually thereafter.

THERMAL SPRAYED COATINGS (METALLIZATION)

(9-30-11)

1.0 DESCRIPTION

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

2.0 QUALIFICATIONS

Only use NCDOT approved TSC Contractors meeting the following requirements:

1. The capability of blast cleaning steel surfaces to SSPC SP-5 and SP-10 Finishes.

2. Employ Spray Operator(s) qualified in accordance with AWS C.16/C2.16M2002 and Quality Control Inspector(s) who have documented training in the applicable test procedures of ASTM D-3276 and SSPC-CS 23.00.

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

3.0 MATERIALS

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

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

4.0 SURFACE PREPARATION AND TSC APPLICATION

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

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

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

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

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

5.0 INSPECTION FREQUENCY

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

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

6.0 REPAIRS

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

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

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

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

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

7.0 TWELVE MONTH OBSERVATION PERIOD

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

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

8.0 BASIS OF PAYMENT

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

EXPANSION JOINT SEALS

(9-30-11)

1.0 GENERAL

The work covered by this Special Provision consists of furnishing and installing the expansion joint seals as shown on the contract drawings. All materials, labor, equipment and incidentals necessary for the proper installation of the expansion joint seals are included.

2.0 MATERIAL

Provide expansion joint seals capable of accommodating a total movement measured parallel to the centerline of the roadway as shown on plans.

Provide an elastomeric component for each expansion joint seal that is a continuous unit for the entire length of the joint. Do not field splice the elastomeric component. Only vulcanized shop splicing of the elastomeric component is permitted. The minimum length of an elastomeric component before shop splicing is 20 feet. However, one piece shorter than 20 feet is permitted. Provide an elastomeric component that is clearly shop marked to indicate the top side and joint location of the elastomeric component. On skewed bridges, or under unsymmetrical conditions, clearly mark the left side of the elastomeric component. Left is defined as being on the left when facing in the direction of increasing station. Inspect the seals upon receipt to ensure that the marks are clearly visible upon installation.

Make sure the convolution of the gland does not project above the top of the hold-down plates when the joint opening is in the most compressed condition. Use either elastic polychloroprene (neoprene) or ethyl propylene diene monomer (EPDM) for the elastomer that meets the following minimum properties:

	ASTM TEST METHOD	REQUIREMENTS
Hardness, Durometer - Shore A	D2240	60 \pm 5, Neoprene (upward corrugated shape - fabric reinforced) 75 \pm 5, EPDM and Neoprene (upward non-corrugated shape) 80 \pm 5, EPDM (upward corrugated shape-fabric reinforced)
Tensile Strength	D412	2000 psi (min.)
Elongation at Break	D412	250% (min.)
Width of Gland in Relaxed Condition	N/A	10" \pm 0.25"

Thickness of Uprturned portion of gland	N/A	0.25" non-corrugated shape, -0.032" to +0.032"
Thickness of Uprturned portion of gland	N/A	0.1875" corrugated shape, -0.032" to +0.032"
Thickness of Flat portion of gland	N/A	0.1563", -0.032" to +0.032"

For fabric reinforced glands, submit one unreinforced sample per lot number, up to 500 feet of Expansion Joint Seal, to the Engineer for testing.

Only field splice hold-down plates at crown points, at abrupt changes in the deck slab cross slope, and on lane lines. Splicing within travel lanes is not permitted and splicing on edge lines is not required. Field splice hold-down plates between the edge line and gutter upturn and where necessary for proper installation and alignment is permitted. Show all splice locations on the working drawings for approval. For the location of lane markings at the expansion joint seal, see the Structure plans. At the splice locations, locate the hold-down bolts 3 inches from the end of the hold-down plate. At splice locations where changes in deck slab cross slope occur, cut the ends of hold-down plates parallel to the bridge centerline for skews less than 80° and greater than 100°.

Do not use welded shop splices in hold-down plates.

3.0 SHOP DRAWINGS

Submit nine sets of working drawings to the Engineer for review, comments and acceptance. Show complete details drawn to scale and include:

- The proposed template details including the makeup of the template
- The proposed method of holding the base angle assembly in place while concrete is cast around it
- The proposed procedure to correct for the effects of beam movement and rotation when setting width of joint opening
- The proposed chronology of installation including the sequence and direction of the concrete casting
- The details of cross connectors between base angles, such as steel bars with slots bolted to angles, to maintain evenness between the adjacent base angles while accommodating movement that occurs when concrete is cast. Indicate when bolts are loosened to allow movement.
- The proposed method for removing the hold-down plate
- A section detail through the joint showing horizontal offset dimensions of the base angles from the centerline joint. This detail is required when the vertical face of the joint opening is not perpendicular to the roadway surface (e.g. when the roadway grade is significant).

Have someone other than the one who prepares the drawing check all detailed drawings and include the signatures of both the drafter and checker on each sheet of the drawings. The Engineer returns unchecked drawings to the Contractor. Provide all completed drawings well in advance of the scheduled installation time for the expansion joint seal.

4.0 INSTALLATION

Provide supports for the base angle assembly at a maximum spacing of 9 feet. Place supports near field splices of base angles to ensure that field splices are straight and even. Provide base angles with ½" diameter weep holes at 12 inch centers to allow bleeding of trapped air and/or water. Do not obstruct the weep holes with falsework. Make the bottom of the trough parallel to grade and the sides parallel to the sides of the expansion joint seal.

For damaged areas, depressions, spalls, cracks, or irregularities of curbs or decks adjacent to the expansion joint, submit a proposed method of repair and repair material specifications for approval.

If the Engineer deems any aspects of the expansion joint seals unacceptable, make necessary corrections.

5.0 INSPECTION

When concrete is cast, use a non-aluminum, 10 foot, true to line straight edge to check and grade the top of the slab on each side of the joint to ensure smooth transition between spans.

Watertight Integrity Test

- Upon completion of an expansion joint seal, perform a water test on the top surface to detect any leakage. Cover the roadway section of the joint from curb to curb, or barrier rail to barrier rail, with water, either ponded or flowing, not less than 1 inch above the roadway surface at all points. Block sidewalk sections and secure an unnozzled water hose delivering approximately 1 gallon of water per minute to the inside face of the bridge railing, trained in a downward position about 6 inches above the sidewalks, such that there is continuous flow of water across the sidewalk and down the curb face of the joint.
- Maintain the ponding or flowing of water on the roadway and continuous flow across sidewalks and curbs for a period of 5 hours. At the conclusion of the test, the underside of the joint is closely examined for leakage. The expansion joint seal is considered watertight if no obvious wetness is visible on the Engineer's finger after touching a number of underdeck areas. Damp concrete that does not impart wetness to the finger is not a sign of leakage.
- If the joint system leaks, locate the place(s) of leakage and take any repair measures necessary to stop the leakage at no additional cost to the Department. Use repair measures recommended by the manufacturer and approved by the Engineer prior to beginning corrective work.
- If measures to eliminate leakage are taken, perform a subsequent water integrity test subject to the same conditions as the original test. Subsequent tests carry the same responsibility as the original test and are performed at no extra cost to the Department.

6.0 BASIS OF PAYMENT

Basis of payment for all expansion joint seals will be at the lump sum contract price for "Expansion Joint Seals" which price and payment will be full compensation for furnishing all material, including any steel accessory plates for sidewalks, medians and rails, labor, tools, and incidentals necessary for installing the expansion joint seal in place and including all materials, labor, tools and incidentals for performing the original watertight integrity test.

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. Wheel Weight, (lbs.)	Screed Weight, (lbs.)	Bracket Vertical Extension, (inches)	Min. Leg
II	36	39	14	2000		26	
III	45	42	14	2000		35	
IV	54	45	14	2000		44	
MBT	63	51	12	2000		50	
MBT	72	55	12	1700		48	

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

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

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

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

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

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

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

When staged construction of the bridge deck is required, detail falsework and forms for screed and fluid concrete loads to be independent of any previous deck pour components when the mid-span girder deflection due to deck weight is greater than $\frac{3}{4}$ ".

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

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

1. Wind Loads

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

Table 2.2 - Wind Pressure Values

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

B. Review and Approval

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

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

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

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

4.0 CONSTRUCTION REQUIREMENTS

All requirements of Section 420 of the Standard Specifications apply.

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

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

A. Maintenance and Inspection

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

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

B. Foundations

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

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

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

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

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

5.0 REMOVAL

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

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

6.0 METHOD OF MEASUREMENT

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

7.0 BASIS OF PAYMENT

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

SUBMITTAL OF WORKING DRAWINGS

(2-10-12)

1.0 GENERAL

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

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

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

2.0 ADDRESSES AND CONTACTS

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

Via US mail:

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

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

Via other delivery service:

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

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

Submittals may also be made via email.

Send submittals to:

plambert@ncdot.gov (Paul Lambert)

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

jgaither@ncdot.gov (James Gaither)

jlbolden@ncdot.gov (James Bolden)

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

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

Via US mail:

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

Via other delivery service:

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

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

Via US mail:

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

Via other delivery service:

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

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

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

Primary Structures Contact:	Paul Lambert	(919) 707 – 6407 (919) 250 – 4082 facsimile plambert@ncdot.gov
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Secondary Structures Contacts:	James Gaither	(919) 707 – 6409
	James Bolden	(919) 707 – 6408

Eastern Regional Geotechnical Contact (Divisions 1-7):

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

John Pilipchuk

(704) 455 – 8902

(704) 455 – 8912 facsimile

jpilipchuk@ncdot.gov

3.0 SUBMITTAL COPIES

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

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

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

STRUCTURE SUBMITTALS

Submittal	Copies Required by Structure Design Unit	Copies Required by Geotechnical Engineering Unit	Contract Requiring Submittal ¹	Reference
Arch Culvert Falsework	5	0	Plan Note, SN Sheet & "Falsework and Formwork"	
Box Culvert Falsework ⁷	5	0	Plan Note, SN Sheet & "Falsework and Formwork"	
Cofferdams	6	2	Article 410-4	
Foam Joint Seals ⁶	9	0	"Foam Joint Seals"	
Expansion Joint Seals (hold down plate type with base angle)	9	0	"Expansion Joint Seals"	
Expansion Joint Seals (modular)	2, then 9	0	"Modular Expansion Joint Seals"	
Expansion Joint Seals (strip seals)	9	0	"Strip Seals"	

Falsework & Forms ² (substructure)	8	0	Article 420-3 & "Falsework and Formwork"
Falsework & Forms (superstructure)	8	0	Article 420-3 & "Falsework and Formwork"
Girder Erection over Railroad	5	0	Railroad Provisions
Maintenance and Protection of Traffic Beneath Proposed Structure	8	0	"Maintenance and Protection of Traffic Beneath Proposed Structure at Station ____"
Metal Bridge Railing	8	0	Plan Note
Metal Stay-in-Place Forms	8	0	Article 420-3
Metalwork for Elastomeric Bearings ^{4,5}	7	0	Article 1072-8
Miscellaneous Metalwork ^{4,5}	7	0	Article 1072-8
Optional Disc Bearings ⁴	8	0	"Optional Disc Bearings"
Overhead and Digital Message Signs (DMS) (metalwork and foundations)	13	0	Applicable Provisions
Placement of Equipment on Structures (cranes, etc.)	7	0	Article 420-20
Pot Bearings ⁴	8	0	"Pot Bearings"
Precast Concrete Box Culverts	2, then 1 reproducible	0	"Optional Precast Reinforced Concrete Box Culvert at Station ____"
Prestressed Concrete Cored Slab (detensioning sequences) ³	6	0	Article 1078-11
Prestressed Concrete Deck Panels	6 and 1 reproducible	0	Article 420-3
Prestressed Concrete Girder (strand elongation and detensioning sequences)	6	0	Articles 1078-8 and 1078-11
Removal of Existing Structure over Railroad	5	0	Railroad Provisions
Revised Bridge Deck Plans (adaptation to prestressed deck panels)	2, then 1 reproducible	0	Article 420-3

Revised Bridge Deck Plans (adaptation to modular expansion joint seals)	2, 1 reproducible	then 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 Requiring Submittal	Reference Submittal¹
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 PROVISION

(10-18-95)

Z-1

PERMITS

The Contractor's attention is directed to the following permits, which have been issued to the Department of Transportation by the authority granting the permit.

<u>PERMIT</u>	<u>AUTHORITY GRANTING THE PERMIT</u>
Dredge and Fill and/or Work in Navigable Waters (404)	U. S. Army Corps of Engineers
Water Quality (401)	Division of Environmental Management, DENR State of North Carolina

The Contractor shall comply with all applicable permit conditions during construction of this project. Those conditions marked by * are the responsibility of the department and the Contractor has no responsibility in accomplishing those conditions.

Agents of the permitting authority will periodically inspect the project for adherence to the permits.

The Contractor's attention is also directed to Articles 107-10 and 107-13 of the *2012 Standard Specifications* and the following:

Should the Contractor propose to utilize construction methods (such as temporary structures or fill in waters and/or wetlands for haul roads, work platforms, cofferdams, etc.) not specifically identified in the permit (individual, general, or nationwide) authorizing the project it shall be the Contractor's responsibility to coordinate with the Engineer to determine what, if any, additional permit action is required. The Contractor shall also be responsible for initiating the request for the authorization of such construction method by the permitting agency. The request shall be submitted through the Engineer. The Contractor shall not utilize the construction method until it is approved by the permitting agency. The request normally takes approximately 60 days to process; however, no extensions of time or additional compensation will be granted for delays resulting from the Contractor's request for approval of construction methods not specifically identified in the permit.

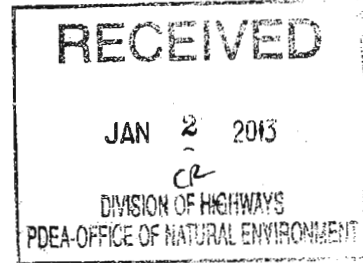
Where construction moratoriums are contained in a permit condition which restricts the Contractor's activities to certain times of the year, those moratoriums will apply only to the portions of the work taking place in the waters or wetlands provided that activities outside those areas is done in such a manner as to not affect the waters or wetlands.



REPLY TO
ATTENTION OF:

DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

December 12, 2012



Regulatory Division

Action ID No. SAW-1992-03237; TIP Project No. R-2303 Cumberland, Sampson, and Duplin Counties, North Carolina

Dr. Gregory J. Thorpe, Ph.D.
North Carolina Department of Transportation
Project Development and Environmental Analysis
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Dr. Thorpe:

In accordance with your complete written request of August 1, 2012 and the ensuing administrative record, enclosed is one copy of a Department of the Army permit to directly discharge fill material into waters and wetlands adjacent to various Creeks, and their tributaries in order to construct Section A of TIP# R-2303 (Hwy 24), Cumberland County, North Carolina. Section A improvements begins 2.8 miles east of I-95 (west of SR 1006) and ends at SR 1853 (John Nunnery Road) and totals 6.8 miles.

Any deviation in the authorized work will likely require modification of this permit. If a change in the authorized work is necessary, you should promptly submit revised plans to the Corps showing the proposed changes. You may not undertake the proposed changes until the Corps notifies you that your permit has been modified.

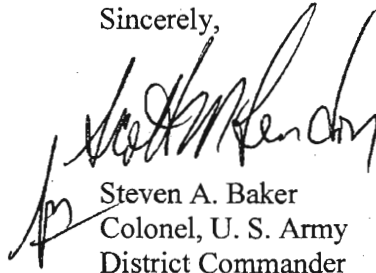
Carefully read your permit. The general and special conditions are important. Your failure to comply with these conditions could result in a violation of Federal law. Certain significant general conditions require that:

- a. You must complete construction before December 31, 2017.
- b. You must notify this office in advance as to when you intend to commence and complete work.
- c. You must allow representatives from this office to make periodic visits to your worksite as deemed necessary to assure compliance with permit plans and conditions.

-2-

You should address all questions regarding this authorization to Mr. Brad Shaver in the Wilmington Regulatory Field Office, telephone number (910) 251-4611.

Sincerely,



Steven A. Baker
Colonel, U. S. Army
District Commander

Enclosures

Copies Furnished (with enclosures):

Chief, Source Data Unit
NOAA/National Ocean Service
1315 East-West Highway, Room 3716
Silver Spring, Maryland 20910-3282

Copies Furnished (with Special Conditions and plans):

U.S. Fish and Wildlife Service
Fish and Wildlife Enhancement
Post Office Box 33726
Raleigh, North Carolina 27636-3726

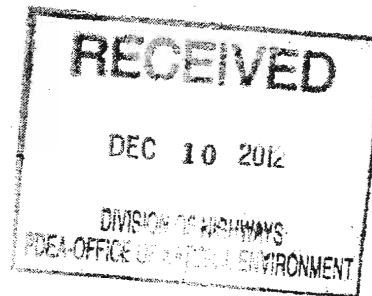
Mr. Ron Sechler
National Marine Fisheries Service
Pivers Island
Beaufort, North Carolina 28516

Ms. Jennifer Derby, Chief
Wetlands Protection Section – Region IV
Water Management Division
U.S. Environmental Protection Agency
61 Forsyth Street, SW
Atlanta, Georgia 30303-8931

Mr. Jeffrey Garnett
Wetlands and Marine Regulatory Section
Water Protection Division – Region IV
U.S. Environmental Protection Agency
61 Forsyth Street, SW
Atlanta, Georgia 30303-8931

Mr. Doug Huggett
Division of Coastal Management
North Carolina Department of
Environment and Natural Resources
400 Commerce Avenue
Morehead City, North Carolina 28557

Mr. Pace Wilber
National Marine Fisheries Service
2191 Fort Johnson Road
Charleston, South Carolina 29412-9110



DEPARTMENT OF THE ARMY PERMIT

Permittee: North Carolina Department of Transportation (NCDOT)

Permit No.: SAW-1992-03237

R-2303 A-F

Issuing Office: CESA-W-RG-L

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description: Widening, new location segments, and other improvements to the existing NC 24 roadway from 2.8 miles east of I-95 to I-40 to create a four-lane divided facility.

Project Location: 2.8 miles eastward of Interstate 95 (I-95) in Cumberland County and progresses with both on location improvements and bypass improvements eastward through Sampson County until Interstate 40 (I-40) in Duplin County. The project can be generally located at Latitude 35.0024 N and Longitude -78.6549 W. The project area crosses South River, Big Swamp, Little Coharie Creek, Bearskin Swamp, Great Coharie Creek, Six Runs Creek, and their tributaries.

General Conditions:

1. The time limit for completing the work authorized ends on December 31, 2017. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.
2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.
3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.
4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.
5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit,

Special Conditions:

SEE ATTACHED SPECIAL CONDITIONS

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

- ☐ **Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).**
- ☒ **Section 404 of the Clean Water Act (33 U.S.C. 1344).**
- ☐ **Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).**

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. **Reliance on Applicant's Data:** The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. **Reevaluation of Permit Decision.** This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

- a. You fail to comply with the terms and conditions of this permit.
- b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).
- c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. **Extensions.** General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

E. L. Lusk for Gregory J. Thorne, PhD
(PERMITTEE) North Carolina Department of Transportation (NCDOT)

Oct 10, 2012
(DATE)

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

Steven A. Baker
(DISTRICT ENGINEER) STEVEN A. BAKER
Colonel, U.S. Army
District Commander

20 DEC 2012
(DATE)

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

(TRANSFeree)

(DATE)

*U.S. GOVERNMENT PRINTING OFFICE: 1986 - 717-425

SPECIAL CONDITIONS (Action ID SAW 1992-03237)

In accordance with 33 U.S.C. 1341(d), all conditions of the North Carolina Division of Water Quality 401 Water Quality Certification #3942 is incorporated as part of the Department of the Army permit.

1. Phased Permit

This permit only authorizes work on Section A of TIP R-2303. Construction on Sections B-F of TIP R-2303 shall not commence until final design has been completed for those sections, the permittee has minimized impacts to waters and wetlands to the maximum extent practicable, any modifications to the plans, and a compensatory mitigation plan, have been approved by the US Army Corps of Engineers (the Corps).

2. Plans

A. The permittee will ensure that the construction design plans for this project do not deviate from the permit plans attached to this authorization. Written verification shall be provided that the final construction drawings comply with the attached permit drawings prior to any active construction in waters of the United States, including wetlands. Any deviation in the construction design plans will be brought to the attention of the Corps of Engineers, Wilmington Regulatory Field Office prior to any active construction in waters or wetlands.

B. The permittee shall require its contractors and/or agents to comply with the terms and conditions of this permit in the construction and maintenance of this project, and shall provide each of its contractors and/or agents associated with the construction or maintenance of this project with a copy of this permit. A copy of this permit, including all conditions, shall be available at the project site during construction and maintenance of this project.

3. Pre Construction Meeting

The permittee shall schedule and attend a preconstruction meeting between its representatives, the contractors representatives, and the Corps of Engineers, Wilmington Field Office, NCDOT Regulatory Project Manager, prior to any work within jurisdictional waters and wetlands to ensure that there is a mutual understanding of all the terms and conditions contained with this Department of Army Permit. The permittee shall provide the USACE, Wilmington Field Office, NCDOT Project Manager, with a copy of the final permit plans at least two weeks prior to the preconstruction meeting along with a description of any changes that have been made to the project's design, construction methodology or construction timeframe. The permittee shall schedule the preconstruction meeting for a time frame when the USACE, NCDCM, and NCDWQ Project Managers can attend. The permittee shall invite the Corps, NCDCM, and NCDWQ Project Managers a minimum of thirty (30) days in advance of the scheduled meeting in order to provide those individuals with ample opportunity to schedules and participate in the required meeting.

4. Culverts

A. Unless otherwise requested in the applicant's application and depicted on the approved work plans, culverts greater than 48 inches in diameter will be buried at least one foot below the bed of the stream. Culverts 48 inches in diameter and less shall be buried or placed on the stream bed as practicable and appropriate to maintain aquatic passage, and every effort shall be made to maintain existing channel slope. The bottom of the culvert must be placed at a depth below the natural stream bottom to provide for passage during drought or low flow conditions. Destabilizing the channel and head cutting upstream should be considered in the placement of the culvert. The excavation required, typically noted as temporary stream impact, should be restored to its original elevation at the completion of the culvert installation.

B. Measures will be included in the construction/installation that will promote the safe passage of fish and other aquatic organisms. The dimension, pattern, and profile of the stream above and below a pipe or culvert should not be modified by widening the stream channel or by reducing the depth of the stream in connection with the construction activity. The width, height, and gradient of a proposed opening should be such as to pass the average historical low flow and spring flow without adversely altering flow velocity. Spring flow should be determined from gauge data, if available. In the absence of such data, bankfull flow can be used as a comparable level.

C. Except as specified in the plans attached to this permit, no excavation, fill or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, in such a manner as to impair normal flows and circulation patterns within waters or wetlands or to reduce the reach of waters or wetlands. Culverts placed across wetland fills purely for the purposes of equalizing surface water do not have to be buried.

5. Sediment Erosion Control

A. During the clearing phase of the project, heavy equipment must not be operated in surface waters or stream channels. Temporary stream crossings will be used to access the opposite sides of stream channels. All temporary diversion channels and stream crossings will be constructed of non-erodible materials. Grubbing of riparian vegetation will not occur until immediately before construction begins on a given segment of stream channel.

B. No fill or excavation impacts for the purposes of sedimentation and erosion control shall occur within jurisdictional waters, including wetlands, unless the impacts are included on the plan drawings and specifically authorized by this permit. This permit does not authorize temporary placement or double handling of excavated or fill material within waters or wetlands outside the permitted area.

C. The permittee shall remove all sediment and erosion control measures placed in

wetlands or waters, and shall restore natural grades on those areas, prior to project completion.

D. The permittee shall use appropriate sediment and erosion control practices which equal or exceed those outlined in the most recent version of the "North Carolina Sediment and Erosion Control Planning and Design Manual" to assure compliance with the appropriate turbidity water quality standard. Erosion and sediment control practices must be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to assure compliance with the appropriate turbidity water quality standards. This shall include, but is not limited to, the immediate installation of silt fencing or similar appropriate devices around all areas subject to soil disturbance or the movement of earthen fill, and the immediate stabilization of all disturbed areas. Additionally, the project must remain in full compliance with all aspects of the Sedimentation Pollution Control Act of 1973 (North Carolina General Statutes Chapter 113A Article 4). Adequate sedimentation and erosion control measures must be implemented prior to any ground disturbing activities to minimize impacts to downstream aquatic resources. These measures must be inspected and maintained regularly, especially following rainfall events. All fill material must be adequately stabilized at the earliest practicable date to prevent sediment from entering into adjacent waters or wetlands.

E. The permittee shall install barrier fencing around all wetlands that are not to be disturbed to make them readily visible and prevent construction equipment from inadvertently entering or disturbing these areas.

6. 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.

7. Borrow and Waste

A. To ensure that all borrow and waste activities occur on high ground and do not result in the degradation of adjacent wetlands and streams, except as authorized by this permit, the permittee shall require its contractors and/or agents to identify all areas to be used to borrow material, or to dispose of dredged, fill, or waste material. The permittee shall provide the USACE with appropriate maps indicating the locations of proposed borrow or waste sites as soon as the permittee has that information. The permittee will coordinate with the USACE before approving any borrow or waste sites that are within 400 feet of any streams or wetlands. The evaluation of impacts to jurisdictional resources (waters and wetlands) associated with borrow/waste sites should include any haul roads or other access points.

8. Mitigation

A. The permittee, NCDOT, is the party responsible for the implementation and performance and long term management of the compensatory mitigation project.

B. The permittee shall maintain the entire mitigation site in its natural condition, as altered by the work in the mitigation plan, in perpetuity. Prohibited activities within the mitigation site specifically include, but are not limited to: Filling; grading; excavating; earth movement of any kind; construction of roads, walkways, buildings, signs, or any other structure; any activity that may alter the drainage patterns on the property; the destruction, cutting, removal, mowing, or other alteration of vegetation on the property; disposal or storage of any garbage, trash, debris or other waste material; graze or water animals, or use for any agricultural or horticultural purpose; or any other activity which will result in the property being adversely impacted or destroyed, except as specifically authorized by this permit.

C. The permittee shall not sell or otherwise convey any interest in the mitigation property used to satisfy the mitigation requirements for this permit to any third party, without written approval from the Wilmington District Corps of Engineers.

D. The permittee shall contact the Corps of Engineers, Wilmington Regulatory Field Office NCDOT Regulatory Project Manager for the project, to provide that individual with the opportunity to attend the annual mitigation monitoring efforts.

E. In order to compensate for impacts associated with this permit, mitigation shall be provided in accordance with the provisions outlined on the most recent version of the attached Compensatory Mitigation Responsibility Transfer Form. The requirements of this form, including any special conditions listed on this form, are hereby incorporated as special conditions of this permit authorization.

** Note, breakdown of impacts to required mitigation for Section A:

- 2.46 acres of riparian impacts will be mitigated by debiting Privateer Farms mitigation site at 3:1, resulting in a 7.38 acre debit
- 5.22 acres of non-riparian impacts will be mitigated through EEP at 2:1, resulting in a 10.44 acre debit
- 572 linear feet of stream impact minus 41 linear feet of stream bank stabilization which will not require compensatory mitigation leaves 531 linear feet subject to mitigation. 294 linear feet of stream relocation (Site #8) will serve as on-site mitigation with the remaining balance of 237 linear feet of impact mitigated at 2:1 from EEP, resulting in a 474 linear feet debit.

F. Prior to the introduction of stream flow, the restored channel will be allowed to stabilize for one growing season or until such time as the permittee can demonstrate to the Corps satisfaction that the channel has adequately stabilized.

G. The NCDOT should continue to pursue and investigate on-site mitigation opportunities as plans are finalized for Sections E and F of TIP R-2303.

9. Cultural Resources

A. NCDOT shall abide by all stipulations identified in the Memorandum of Agreement between the Federal Highway Administration and the North Carolina State Historic Preservation

Officer, concurred by NCDOT and executed August 27, 2010, **copy attached**.

B. NCDOT shall comply with its commitments regarding the following historic property: the Maxwell House (CD 0133). Specifically, NCDOT shall implement the landscaping plan approved by the North Carolina State Historic Preservation Officer, reference the July 27, 2012 NCDOT correspondence to the Deputy State Historic Preservation Officer, **copy attached**.

10. Enforcement

A. The permittee, upon receipt of a notice of revocation of this permit or upon its expiration before completion of the work will, without expense to the United States and in such time and manner as the Secretary of the Army or his authorized representative may direct, restore the water or wetland to its pre-project condition.

B. Violations of these conditions or violations of Section 404 of the Clean Water Act must be reported in writing to the Wilmington District U.S. Army Corps of Engineers within 24 hours of the permittee's discovery of the violation.

C. If the permittee discovers any previously unknown historic or archaeological sites while accomplishing the authorized work, he shall immediately stop work and notify the Wilmington District Commander who will initiate the required State/Federal coordination.

11. Jurisdiction Note

The project has been field reviewed but only Section A to date has been processed through as a final Jurisdictional Determination. Section A appeals information was forwarded to property owners whose land contained waters of the U.S. within the approved corridor. The Notification of Appeal letter was dated August 16, 2012 and the affected parties were given 60 days to appeal any jurisdictional determinations. No appeals were received within the 60 days timeframe. Sections B-F are currently viewed as a Preliminary Jurisdictional Determination.

U.S. ARMY CORPS OF ENGINEERS
Wilmington District
Compensatory Mitigation Responsibility Transfer Form

Permittee: North Carolina Department of Transportation
 Project Name: R-2303 Section A

Action ID: SAW-1992-03237
 County: Cumberland

Instructions to Permittee: The Permittee must provide a copy of this form to the Mitigation Sponsor, either an approved Mitigation Bank or the North Carolina Ecosystem Enhancement Program (NCEEP), who will then sign the form to verify the transfer of the mitigation responsibility. Once the Sponsor has signed this form, it is the Permittee's responsibility to ensure that to the U.S. Army Corps of Engineers (USACE) Project Manager identified on page two is in receipt of a signed copy of this form before conducting authorized impacts, unless otherwise specified below. If more than one mitigation Sponsor will be used to provide the mitigation associated with the permit, or if the impacts and/or the mitigation will occur in more than one 8-digit Hydrologic Unit Code (HUC), multiple forms will be attached to the permit, and the separate forms for each Sponsor and/or HUC must be provided to the appropriate mitigation Sponsors.

Instructions to Sponsor: The Sponsor should verify that the mitigation requirements shown below are available and ensure that they have received payment before signing this form. By signing below, the Sponsor is accepting responsibility for the identified mitigation. Once the form is signed, the Sponsor must update the appropriate ledger and provide a copy of the signed form to the Permittee and to the USACE Bank/ILF Manager. The Sponsor must also comply with all reporting requirements established in their authorizing instrument.

Permitted Impacts and Compensatory Mitigation Requirements:

Permitted Impacts Requiring Mitigation*

8-digit HUC and Basin: 03030004, Cape Fear River Basin

Stream Impacts (linear feet)			Wetland Impacts (acres)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-riverine	Non-Riparian	Coastal
237					5.22	

*If more than one mitigation sponsor will be used for the permit, only include impacts to be mitigated by this sponsor.

Compensatory Mitigation Requirements:

8-digit HUC and Basin: 03030004, Cape Fear River Basin

Stream (credits)			Wetland (credits)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-riverine	Non-Riparian	Coastal
474					10.44	

Mitigation Site Debited: NCEEP

(For banks, list the name of the bank to be debited, and the specific site if an umbrella bank. For NCEEP, list "NCEEP" and "Advance Credits", "Unassigned", or the name of the site name if specified in the acceptance letter from NCEEP.)

Section to be completed by the Mitigation Bank or ILF Sponsor

Statement of Mitigation Liability Acceptance: I, the undersigned, verify that I am authorized to approve mitigation transactions for the Mitigation Bank/ILF Sponsor shown below, and certify that the Sponsor agrees to accept full responsibility for providing the mitigation identified in this document (see table above), associated with the USACE Permittee and Action ID number shown. I also verify that released credits (and/or advance credits for ILF programs), as approved by the USACE, are currently available at the bank/ILF site identified below. Further, I understand that if the Sponsor fails to provide the required compensatory mitigation, the USACE Wilmington District Engineer may pursue measures against the Sponsor to ensure compliance associated with the mitigation requirements.

Mitigation Bank/ILF Sponsor Name: _____

Name of Sponsor's Authorized Representative: _____

 Signature of Sponsor's Authorized Representative

 Date of Signature

**USACE Wilmington District
Compensatory Mitigation Responsibility Transfer Form, Page 2**

Conditions for Transfer of Compensatory Mitigation Credit:

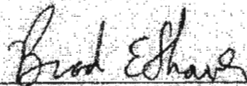
- Once this document has been signed by the Mitigation Sponsor and the USACE is in receipt of the signed form, the Permittee is no longer responsible for providing the mitigation identified in this form, though the Permittee remains responsible for any other mitigation requirements stated in the permit conditions.
- Construction within jurisdictional areas authorized by the permit identified on page one of this form can begin only after the USACE is in receipt of a copy of this document signed by the Sponsor, confirming that the Sponsor has accepted responsibility for providing the mitigation requirements listed herein. For authorized impacts conducted by the North Carolina Department of Transportation (NCDOT), construction within jurisdictional areas may proceed upon permit issuance; however, a copy of this form signed by the Sponsor must be provided to the USACE within 30 days of permit issuance. NCDOT remains fully responsible for the mitigation until the USACE has received this form, confirming that the Sponsor has accepted responsibility for providing the mitigation requirements listed herein.
- Signed copies of this document must be retained by the Permittee, Mitigation Bank/ILF Sponsor, and in the USACE administrative records for both the permit and the Bank/ILF Instrument. It is the Permittee's responsibility to provide a signed copy of this form to the USACE Project Manager at the address below.
- If changes are proposed to the type, amount or location of mitigation after this form has been signed and returned to the USACE, the Sponsor must obtain case-by-case approval from the USACE Project Manager and/or North Carolina Interagency Review Team (NCIRT). If approved, higher mitigation ratios may be applied, as per current District guidance and a new version of this form must be completed and included in the USACE administrative records for both the permit and the Bank/ILF Instrument.

Comments/Additional Conditions:

This form is not valid unless signed by the mitigation Sponsor and USACE Project Manager. For questions regarding this form or any of the conditions of the permit authorization, contact the Project Manager at the address below.

USACE Project Manager: Brad Shaver
USACE Field Office: Wilmington Regulatory Field Office
US Army Corps of Engineers
69 Darlington Avenue
Wilmington, NC 28403

Email:



USACE Project Manager Signature

November 26, 2012

Date of Signature

Current Wilmington District mitigation guidance, including information on mitigation ratios, functional assessments, and mitigation bank location and availability, and credit classifications (including stream temperature and wetland groupings) is available at <http://ribits.usace.army.mil>.

U.S. ARMY CORPS OF ENGINEERS

Wilmington District

Compensatory Mitigation Responsibility Transfer Form

Permittee: North Carolina Department of Transportation
Project Name: R-2303 Section A

Action ID: SAW-1992-03237
County: Cumberland

Instructions to Permittee: The Permittee must provide a copy of this form to the Mitigation Sponsor, either an approved Mitigation Bank or the North Carolina Ecosystem Enhancement Program (NCEEP), who will then sign the form to verify the transfer of the mitigation responsibility. Once the Sponsor has signed this form, it is the Permittee's responsibility to ensure that to the U.S. Army Corps of Engineers (USACE) Project Manager identified on page two is in receipt of a signed copy of this form before conducting authorized impacts, unless otherwise specified below. If more than one mitigation Sponsor will be used to provide the mitigation associated with the permit, or if the impacts and/or the mitigation will occur in more than one 8-digit Hydrologic Unit Code (HUC), multiple forms will be attached to the permit, and the separate forms for each Sponsor and/or HUC must be provided to the appropriate mitigation Sponsors.

Instructions to Sponsor: The Sponsor should verify that the mitigation requirements shown below are available and ensure that they have received payment before signing this form. By signing below, the Sponsor is accepting responsibility for the identified mitigation. Once the form is signed, the Sponsor must update the appropriate ledger and provide a copy of the signed form to the Permittee and to the USACE Bank/ILF Manager. The Sponsor must also comply with all reporting requirements established in their authorizing instrument.

Permitted Impacts and Compensatory Mitigation Requirements:**Permitted Impacts Requiring Mitigation***

8-digit HUC and Basin: 03030004, Cape Fear River Basin

Stream Impacts (linear feet)			Wetland Impacts (acres)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-riverine	Non-Riparian	Coastal
			2.46			

*If more than one mitigation sponsor will be used for the permit, only include impacts to be mitigated by this sponsor.

Compensatory Mitigation Requirements:

8-digit HUC and Basin: 03030005, Cape Fear River Basin

Stream (credits)			Wetland (credits)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-riverine	Non-Riparian	Coastal
			7.38			

Mitigation Site Debited: NCDOT UMBI Site, Privateer Farm

(For banks, list the name of the bank to be debited, and the specific site if an umbrella bank. For NCEEP, list "NCEEP" and "Advance Credits", "Unassigned", or the name of the site name if specified in the acceptance letter from NCEEP.)

Section to be completed by the Mitigation Bank or ILF Sponsor

Statement of Mitigation Liability Acceptance: I, the undersigned, verify that I am authorized to approve mitigation transactions for the Mitigation Bank/ILF Sponsor shown below, and certify that the Sponsor agrees to accept full responsibility for providing the mitigation identified in this document (see table above), associated with the USACE Permittee and Action ID number shown. I also verify that released credits (and/or advance credits for ILF programs), as approved by the USACE, are currently available at the bank/ILF site identified below. Further, I understand that if the Sponsor fails to provide the required compensatory mitigation, the USACE Wilmington District Engineer may pursue measures against the Sponsor to ensure compliance associated with the mitigation requirements.

Mitigation Bank/ILF Sponsor Name: PRIVATEER FARM / NCDOT

Name of Sponsor's Authorized Representative: PHILIP S. HARRIS III

[Signature]
Signature of Sponsor's Authorized Representative

12/13/2012
Date of Signature

**USACE Wilmington District
Compensatory Mitigation Responsibility Transfer Form, Page 2**

Conditions for Transfer of Compensatory Mitigation Credit:

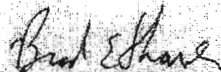
- Once this document has been signed by the Mitigation Sponsor and the USACE is in receipt of the signed form, the Permittee is no longer responsible for providing the mitigation identified in this form, though the Permittee remains responsible for any other mitigation requirements stated in the permit conditions.
- Construction within jurisdictional areas authorized by the permit identified on page one of this form can begin only after the USACE is in receipt of a copy of this document signed by the Sponsor, confirming that the Sponsor has accepted responsibility for providing the mitigation requirements listed herein. For authorized impacts conducted by the North Carolina Department of Transportation (NCDOT), construction within jurisdictional areas may proceed upon permit issuance; however, a copy of this form signed by the Sponsor must be provided to the USACE within 30 days of permit issuance. NCDOT remains fully responsible for the mitigation until the USACE has received this form, confirming that the Sponsor has accepted responsibility for providing the mitigation requirements listed herein.
- Signed copies of this document must be retained by the Permittee, Mitigation Bank/ILF Sponsor, and in the USACE administrative records for both the permit and the Bank/ILF Instrument. It is the Permittee's responsibility to provide a signed copy of this form to the USACE Project Manager at the address below.
- If changes are proposed to the type, amount or location of mitigation after this form has been signed and returned to the USACE, the Sponsor must obtain case-by-case approval from the USACE Project Manager and/or North Carolina Interagency Review Team (NCIRT). If approved, higher mitigation ratios may be applied, as per current District guidance and a new version of this form must be completed and included in the USACE administrative records for both the permit and the Bank/ILF Instrument.

Comments/Additional Conditions:

This form is not valid unless signed by the mitigation Sponsor and USACE Project Manager. For questions regarding this form or any of the conditions of the permit authorization, contact the Project Manager at the address below.

USACE Project Manager: Brad Shaver
USACE Field Office: Wilmington Regulatory Field Office
 US Army Corps of Engineers
 69 Darlington Avenue
 Wilmington, NC 28403

Email:



USACE Project Manager Signature

November 26, 2012

Date of Signature

Current Wilmington District mitigation guidance, including information on mitigation ratios, functional assessments, and mitigation bank location and availability, and credit classifications (including stream temperature and wetland groupings) is available at <http://ribits.usace.army.mil>.



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

July 27, 2012

Ramona Bartos
Deputy State Historic Preservation Officer
North Carolina Department of Cultural Resources
4617 Mail Service Center
Raleigh, North Carolina 27699-4617

Dear Ms. Bartos:

RE: R-2303A, Cumberland and Sampson Counties, Widen NC 24/27 at the Maxwell House (CD 0133), WBS# 34416, Federal Aid# STPNHF-F-8-2(17)

The North Carolina Department of Transportation (NCDOT) is concluding planning studies for the above-referenced project. Please find attached one (1) set of the landscape design plans for the Maxwell House (National Register-listed property). These plans were developed to meet the conditions of the finding of no adverse effect as discussed during the effects assessment meeting in January 1999. Please review the plans and provide any comments to me by August 31, 2012.

Thank you for your consideration and cooperation. If you have any questions concerning the accompanying information please feel free to contact me at mfurr@ncdot.gov or 919-707-6068.

Sincerely,

A handwritten signature in black ink that reads "Mary Pope Furr".

Mary Pope Furr
Historic Architecture Section

Attachment

Cc: Mark Pierce, P.E., Project Engineer, PDEA

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
HUMAN ENVIRONMENT SECTION
1598 MAIL SERVICE CENTER
RALEIGH NC, 27699-1598

TELEPHONE: 919-707-6000
FAX: 919-212-5785

WEBSITE: WWW.NCDOT.ORG

LOCATION:
PROJECT DEVELOPMENT &
ENVIRONMENTAL ANALYSIS BRANCH -
CENTURY CENTER BUILDING B
1020 BIRCH RIDGE DRIVE
RALEIGH NC, 27610

Federal Aid # SIPNH-F-8-2(17) ID # R-2303County Cumberland, Sampson,
Duplin Cos.CONCURRENCE FORM
FOR
ASSESSMENT OF EFFECTS

Project Description

NC 24 from 2.8 miles East of I-95 to I-40 - Upgrade Existing Alternative w. m. shallow BypassesOn 1/21/1999, representatives of the

- ☒ North Carolina Department of Transportation (NCDOT)
☒ Federal Highway Administration (FHWA)
☒ North Carolina State Historic Preservation Office (SHPO)
☐ Other _____

Reviewed the subject project and agreed

- ☐ there are no effects on the National Register-listed property within the project area of potential effect and listed on the reverse.
- ☒ there are no effects on the National Register-eligible properties located within the project's area of potential effect and listed on the reverse.
- ☒ there is an effect on the National Register-listed property/properties within the project's area of potential effect. The property-properties and the effect(s) are listed on the reverse.
- ☒ there is an effect on the National Register-eligible property/properties within the project's area of potential effect. The property/properties and effect(s) are listed on the reverse.

Signed:

Mary Pope
representative, NCDOT, Historic Architectural Resources Section1/21/1999
DateWally D. Travis
FHWA, for the Division Administrator, or other Federal Agency1/19/99
DateDebra B. Bevin
representative, SHPO1/22/99
DateWally D. Travis
State Historic Preservation Officer2/19/99
Date

Federal Aid # STPNHF-F-8-2(17) TIP # R 2303 County Cumberland, Sampson,
Duplin

Properties within area of potential effect for which there is no effect. Indicate if property is National Register-listed (NR) or determined eligible (DE).

Autyville School (DE)

George Washington Bullard House (DE)

Properties within area of potential effect for which there is an effect. Indicate property status (NR or DE) and describe effect.

Maxwell House (NR) - conditional no adverse effect

JT Kennedy House (DE) - conditional no adverse effect

Reason(s) why effect is not adverse (if applicable).

Maxwell House - NCDOT plans to widen away from house
3 will develop a landscaping plan ^{along new road} to be reviewed
by SHPO.

J.T. Kennedy House - NCDOT will develop a landscaping
plan to be reviewed by SHPO
^{along new road}

Initialed:

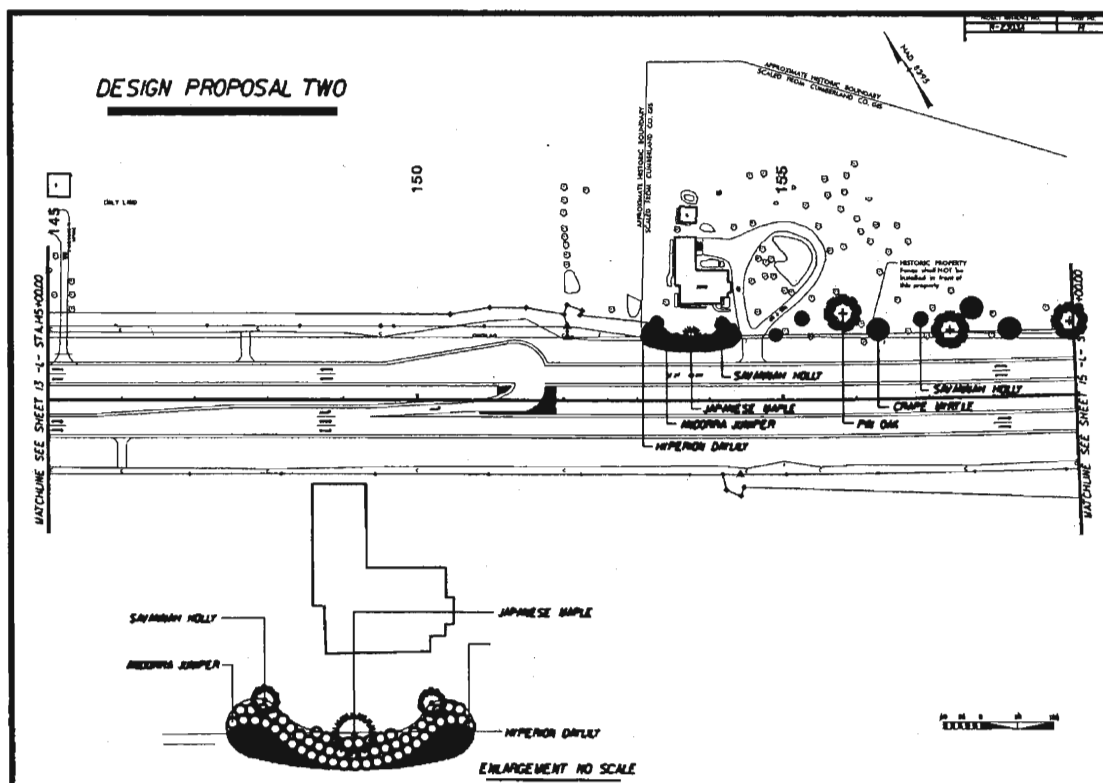
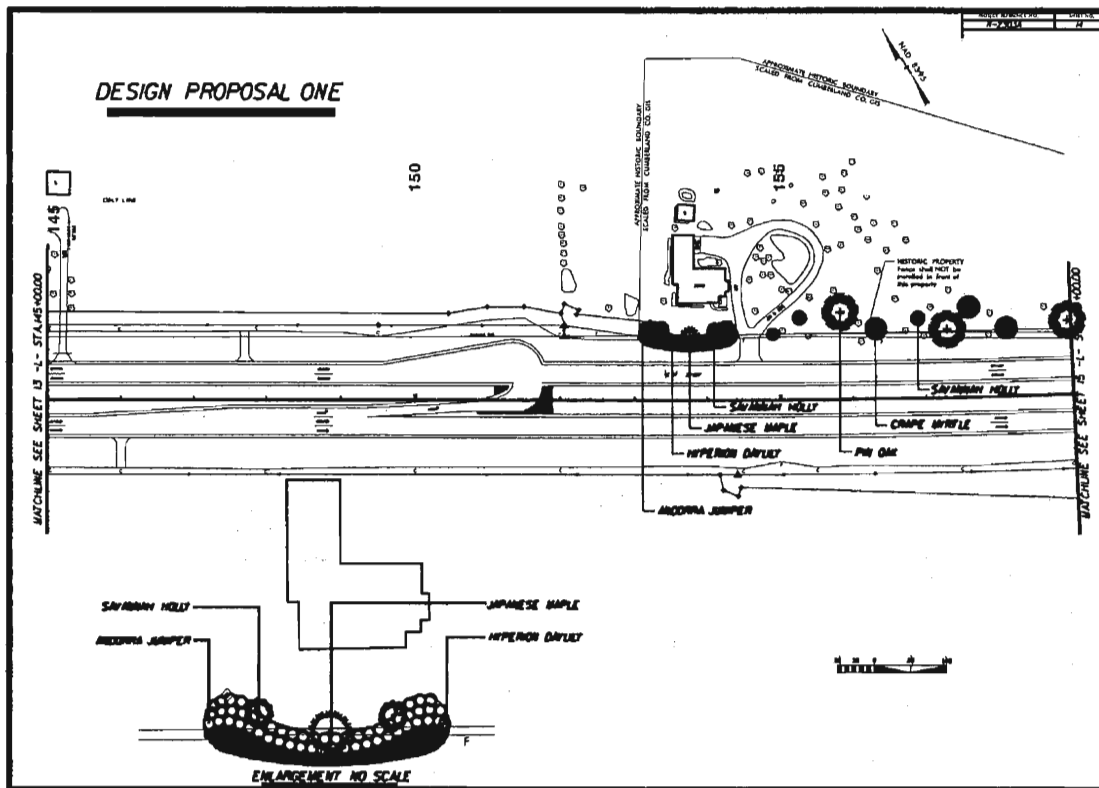
NCDOT MPH

FEWA

WAT

SHPO

WVS



Memorandum of Agreement
Between the Federal Highway Administration
and
State Historic Preservation Officer
for
NC 24 Widening from East of Fayetteville to Warsaw,
Cumberland, Sampson and Duplin counties, North Carolina
TIP Project R-2303
Federal Aid Project F-8-2(17)

Whereas, the Federal Highway Administration (FHWA) has determined that the widening of NC 24 from east of Fayetteville to Warsaw in Cumberland, Sampson and Duplin Counties (the Undertaking) will have an adverse effect upon archaeological sites 31SP331 and 31DP226/226**, properties determined eligible for listing on the National Register of Historic Places; and

Whereas, FHWA has consulted with the North Carolina State Historic Preservation Office (HPO) pursuant to 36CFR Part 800, regulations implementing Section 106 of the National Historic Preservation Act (16 U.S.C. 470f); and

Whereas, in accordance with 36 CFR Part 800, FHWA acknowledges and accepts the advice and conditions outlined in the Advisory Council on Historic Preservation's (Council) "Recommended Approach for Consultation on the Recovery of Significant Information from Archaeological Sites," published in the Federal Register (DF Doc. 99-12055) on May 17, 1999; and

Whereas, the North Carolina Department of Transportation (NCDOT) has participated in the consultation and been invited to concur in the Memorandum of Agreement (MOA) as a consulting party in the development of this MOA; and

Whereas, the signatories and concurring parties agree that the recovery of significant information from the archaeological sites listed above may be done in accordance with the published guidance; and

Whereas, the signatories and concurring parties agree that it is in the public interest to expend funds for the recovery of significant information from these archaeological sites to mitigate the adverse effects of the project;

Now, therefore, the FHWA and HPO agree that the undertaking shall be implemented in accordance with the following stipulations in order to take in to account the effect of the undertaking on the historic properties.

*** Stipulations:**

FHwA will ensure that the following measures are carried out:

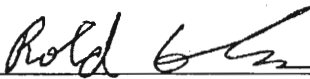
- I. The NCDOT will develop separate Data Recovery Plans (DRP) for sites 31SP331 and 31DP226/226**, the sites that will be affected by the subject Undertaking, in consultation with the HPO.
- II. The NCDOT will ensure that the DRP will be implemented after Right of Way is acquired or once Right of Entry is secured from the property owners and prior to construction activities within the site locations as shown in the DRP.
- III. Upon completion of each Data Recovery effort, the NCDOT will prepare and forward a Management Summary to HPO detailing the results of the Data Recovery field investigations. The Management Summaries will contain sufficient information to demonstrate that the field investigation portions of the DRP have been implemented.
- IV. Upon receipt of each Management Summary HPO will respond within ten (10) days to the recommendations contained within the document.
- V. Upon acceptance of the recommendations contained in each Management Summary HPO will issue the NCDOT documentation that the Data Recovery field investigations have been completed.
- VI. The analyses and reports detailing sites 31SP331 and 31SP226/226** will be completed by the NCDOT or their consultants within twelve (12) months after completion of the fieldwork.
- VII. If historic properties are discovered or unanticipated effects on historic properties are found after FHwA approves the Undertaking and construction has commenced, FHwA will consult with HPO and the property owner(s) in accordance with 36 CFR 800.13(b). Inadvertent or accidental discovery of human remains will be handled in accordance with North Carolina General Statutes 65 and 70.
- VIII. Any Signatory may terminate this MOA by providing notice to the other party(ies) provided that the party(ies) will consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination. Termination of this MOA will require compliance with 36 CFR 800. This MOA may be terminated by the execution of a subsequent MOA that explicitly terminates or supersedes its terms.

Other Terms and Conditions


This agreement shall be null and void if its terms are not carried out within five (5) years from the date of its execution, unless the signatories agree in writing to an extension for carrying out its terms.

Execution of this MOA by the FHWA and HPO, its subsequent acceptance by the Council, and implementation of its terms are evidence that the FHWA has afforded the Council an opportunity to comment on the Undertaking, and that the FHWA has taken into account the effects of the Undertaking on historic properties.

AGREE:

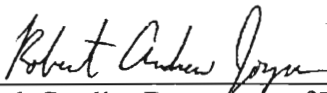

Federal Highway Administration

Date: 8-27-10


Deputy State Historic Preservation Officer

Date: 8-25-10

CONCUR:


North Carolina Department of Transportation

Date: 8/13/10



REPLY TO
ATTENTION OF:

DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

March 5, 2013

Regulatory Division

Action ID No. SAW-1992-03237

R-2303B

Gregory J. Thorpe, Ph.D.
Environmental Management Director, PDEA
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Mr. Thorpe:

Reference the Department of the Army (DA) permit issued on December 12, 2012, for the discharge of fill material into waters and wetlands adjacent to various Creeks, and their tributaries in order to construct Section A of TIP# R-2303 (NC 24), Cumberland County, North Carolina. Reference is also made to your permit modification dated January 29, 2013 with revision dated February 25, 2013. Additional information was submitted on February 22 and 25, 2013. This information was submitted to request authorization to construct Section B of TIP# R-2303 starting east of Stedman in Cumberland County and ending west of Roseboro in Sampson County, a total of 6.891 miles. Specifically, the request is to impact an additional 5.76 acres of wetlands and 296 linear feet of stream channel necessary for the construction of Section B.

I have determined that the proposed project modifications described above are not contrary to the public interest and consistent with the 404 (B)(1) and therefore, the DA permit is hereby modified. The following conditions specific to Section B have been added:

All original conditions in the December 12, 2012 permit remain valid and are enforceable with Section B authorization. Special Conditions for the permit modification are the following:

1. This permit modification only authorizes work on Section B of TIP R-2303. Construction on Sections C-F of TIP R-2303 shall not commence until final design has been completed for those sections, the permittee has minimized impacts to waters and wetlands to the maximum extent practicable, any modifications to the plans, and a compensatory mitigation plan, have been approved by the US Army Corps of Engineers (COE). Approved permit plans for section B are attached.
2. The Permittee shall fully implement the compensatory mitigation plan (Section B only), entitled Mitigation Plan, dated February 22, 2013 for the unavoidable impacts

to 5.76 acres of wetlands. Activities prescribed by this plan shall be initiated prior to, or concurrently with, commencement of any construction activities within jurisdictional areas authorized by this permit. The permittee shall re-establish, enhance, and preserve 5.13 acres of wetlands in accordance with the plan, with the following conditions:

- A) Any changes or modifications to your mitigation plan shall be approved by the Corps.
- B) All mitigation areas shall be monitored for a minimum of 5 years or until deemed successful by the Corps in accordance with the monitoring requirements included in the mitigation plan.

3. **REMEDIAL MITIGATION PLAN:** If the compensatory mitigation fails to meet the performance standards 5 years after completion of the compensatory mitigation objectives, the compensatory mitigation will be deemed unsuccessful. Within 60 days of notification by the Corps that the compensatory mitigation is unsuccessful, the Permittee shall submit to the Corps an alternate compensatory mitigation proposal to fully offset the functional loss that occurred as a result of the project. The alternate compensatory mitigation proposal may be required to include additional mitigation to compensate for the temporal loss of wetland function associated with the unsuccessful compensatory mitigation activities. The Corps reserves the right to fully evaluate, amend, and approve or reject the alternate compensatory mitigation proposal. Within 120 days of Corps approval, the Permittee will complete the alternate compensatory mitigation proposal.
4. In order to compensate for impacts associated with this permit, mitigation shall be provided in accordance with the provisions outlined on the most recent version of the attached Compensatory Mitigation Responsibility Transfer Form. The requirements of this form, including any special conditions listed on this form, are hereby incorporated as special conditions of this permit modification authorization.

**** Note, breakdown of impacts to required mitigation for Section B:**

- 4.58 acres of riparian impacts will be mitigated through on-site mitigation of 5.31 acres of riparian mitigation comprised of restoration, enhancement, and preservation.
- 1.18 acres of non-riparian impacts will be mitigated through EEP at 2:1, resulting in a 2.36 acre debit.
- 296 linear feet of stream impact will be mitigated at 2:1 from EEP, resulting in a 592 linear feet debit.

-3-

This modification approval will be utilized for future compliance of the project. If you have questions, please contact Brad Shaver of the Wilmington Regulatory Field Office, at telephone (910) 251-4611.

Sincerely,



for

Steven A. Baker
Colonel, U. S. Army
District Commander

Copies Furnished (electronic w/o attachments):

Mr. Mason Herndon, NCDWQ
Mr. Stoney Mathis, NCDOT
Mr. Chris Rivenbark, NCDOT
Mr. Chris Manly, NCDOT
Mr. Chris Militscher, USEPA
Mr. Gary Jordan, USFWS
Mr. Travis Wilson, NCWRC
Ms. Beth Harmon, NCEP
Mr. Todd Tugwell, USACE

U.S. ARMY CORPS OF ENGINEERS

Wilmington District

Compensatory Mitigation Responsibility Transfer Form

Permittee: North Carolina Department of Transportation
 Project Name: R-2303 Section B

Action ID: SAW-1992-03237
 County: Sampson

Instructions to Permittee: The Permittee must provide a copy of this form to the Mitigation Sponsor, either an approved Mitigation Bank or the North Carolina Ecosystem Enhancement Program (NCEEP), who will then sign the form to verify the transfer of the mitigation responsibility. Once the Sponsor has signed this form, it is the Permittee's responsibility to ensure that to the U.S. Army Corps of Engineers (USACE) Project Manager identified on page two is in receipt of a signed copy of this form before conducting authorized impacts, unless otherwise specified below. If more than one mitigation Sponsor will be used to provide the mitigation associated with the permit, or if the impacts and/or the mitigation will occur in more than one 8-digit Hydrologic Unit Code (HUC), multiple forms will be attached to the permit, and the separate forms for each Sponsor and/or HUC must be provided to the appropriate mitigation Sponsors.

Instructions to Sponsor: The Sponsor should verify that the mitigation requirements shown below are available and ensure that they have received payment before signing this form. By signing below, the Sponsor is accepting responsibility for the identified mitigation. Once the form is signed, the Sponsor must update the appropriate ledger and provide a copy of the signed form to the Permittee and to the USACE Bank/ILF Manager. The Sponsor must also comply with all reporting requirements established in their authorizing instrument.

Permitted Impacts and Compensatory Mitigation Requirements:**Permitted Impacts Requiring Mitigation***

8-digit HUC and Basin: 03030006, Cape Fear River Basin

Stream Impacts (linear feet)			Wetland Impacts (acres)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-riverine	Non-Riparian	Coastal
296					1.18	

*If more than one mitigation sponsor will be used for the permit, only include impacts to be mitigated by this sponsor.

Compensatory Mitigation Requirements:

8-digit HUC and Basin: 03030004, Cape Fear River Basin

Stream (credits)			Wetland (credits)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-riverine	Non-Riparian	Coastal
592					2.36	

Mitigation Site Debited: NCEEP

(For banks, list the name of the bank to be debited, and the specific site if an umbrella bank. For NCEEP, list "NCEEP" and "Advance Credits", "Unassigned", or the name of the site name if specified in the acceptance letter from NCEEP.)

Section to be completed by the Mitigation Bank or ILF Sponsor

Statement of Mitigation Liability Acceptance: I, the undersigned, verify that I am authorized to approve mitigation transactions for the Mitigation Bank/ILF Sponsor shown below, and certify that the Sponsor agrees to accept full responsibility for providing the mitigation identified in this document (see table above), associated with the USACE Permittee and Action ID number shown. I also verify that released credits (and/or advance credits for ILF programs), as approved by the USACE, are currently available at the bank/ILF site identified below. Further, I understand that if the Sponsor fails to provide the required compensatory mitigation, the USACE Wilmington District Engineer may pursue measures against the Sponsor to ensure compliance associated with the mitigation requirements.

Mitigation Bank/ILF Sponsor Name: _____

Name of Sponsor's Authorized Representative: _____

 Signature of Sponsor's Authorized Representative

 Date of Signature

**USACE Wilmington District
Compensatory Mitigation Responsibility Transfer Form, Page 2**

Conditions for Transfer of Compensatory Mitigation Credit:

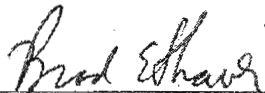
- Once this document has been signed by the Mitigation Sponsor and the USACE is in receipt of the signed form, the Permittee is no longer responsible for providing the mitigation identified in this form, though the Permittee remains responsible for any other mitigation requirements stated in the permit conditions.
- Construction within jurisdictional areas authorized by the permit identified on page one of this form can begin only after the USACE is in receipt of a copy of this document signed by the Sponsor, confirming that the Sponsor has accepted responsibility for providing the mitigation requirements listed herein. For authorized impacts conducted by the North Carolina Department of Transportation (NCDOT), construction within jurisdictional areas may proceed upon permit issuance; however, a copy of this form signed by the Sponsor must be provided to the USACE within 30 days of permit issuance. NCDOT remains fully responsible for the mitigation until the USACE has received this form, confirming that the Sponsor has accepted responsibility for providing the mitigation requirements listed herein.
- Signed copies of this document must be retained by the Permittee, Mitigation Bank/ILF Sponsor, and in the USACE administrative records for both the permit and the Bank/ILF Instrument. It is the Permittee's responsibility to provide a signed copy of this form to the USACE Project Manager at the address below.
- If changes are proposed to the type, amount or location of mitigation after this form has been signed and returned to the USACE, the Sponsor must obtain case-by-case approval from the USACE Project Manager and/or North Carolina Interagency Review Team (NCIRT). If approved, higher mitigation ratios may be applied, as per current District guidance and a new version of this form must be completed and included in the USACE administrative records for both the permit and the Bank/ILF Instrument.

Comments/Additional Conditions:

This form is not valid unless signed by the mitigation Sponsor and USACE Project Manager. For questions regarding this form or any of the conditions of the permit authorization, contact the Project Manager at the address below.

USACE Project Manager: Brad Shaver
USACE Field Office: Wilmington Regulatory Field Office
US Army Corps of Engineers
69 Darlington Avenue
Wilmington, NC 28403

Email:



USACE Project Manager Signature

March 5, 2013

Date of Signature

Current Wilmington District mitigation guidance, including information on mitigation ratios, functional assessments, and mitigation bank location and availability, and credit classifications (including stream temperature and wetland groupings) is available at <http://ribits.usace.army.mil>.

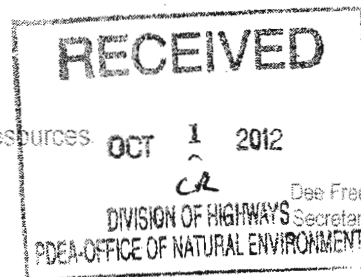


North Carolina Department of Environment and Natural Resources

Division of Water Quality

Charles Wakild, P.E.

Director

Beverly Eaves Perdue
Governor

September 24, 2012

Dr. Greg Thorpe, PhD., Manager
Project Development and Environmental Analysis
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina, 27699-1598

Subject: 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water with ADDITIONAL CONDITIONS for Proposed improvements to NC 24 from 2.8 miles east of I-95 to I-40 in Cumberland, Sampson and Counties, Federal Aid Project No. STPNHF-F-8-2(17), WBS No. 34416.1.1, TIP R-2303. NCDWQ Project No. 20120240

Dear Dr. Thorpe:

Attached hereto is a copy of Certification No. 3942 issued to The North Carolina Department of Transportation (NCDOT) dated September 24, 2012.

If we can be of further assistance, do not hesitate to contact us.

Sincerely,

Charles Wakild
Director

Attachments

cc: Brad Shaver, US Army Corps of Engineers, Wilmington Field Office (electronic copy only)
Greg Burns, PE, Division 8 Engineer
Jim Kerko, Division 8 Environmental Officer
Chris Militscher, Environmental Protection Agency (electronic copy only)
Gary Jordan, US Fish and Wildlife Service (electronic copy only)
Travis Wilson, NC Wildlife Resources Commission
Jason Elliott, NCDOT, Roadside Environmental Unit
Jim Stanfill, Ecosystem Enhancement Program
Sonia Carrillo, NCDWQ Central Office
File Copy

Transportation and Permitting Unit
1650 Mail Service Center, Raleigh, North Carolina 27699-1617
Location: 512 N. Salisbury St./Raleigh, North Carolina 27604
Phone: 919-807-6300 | FAX: 919-807-6492
Internet: www.ncwaterquality.org

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401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act with ADDITIONAL CONDITIONS

THIS CERTIFICATION is issued in conformity with the requirements of Section 401 Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Quality (NCDWQ) Regulations in 15 NCAC 2H .0500. This certification authorizes the NCDOT to impact 7.68 acres of jurisdictional wetlands, 0.72 acres of waters and 599 linear feet of jurisdictional streams in Cumberland and Sampson Counties. The project shall be constructed pursuant to the application dated received August 2, 2012. **No impacts to Sections B, C, D or F are being authorized at this time.** The authorized impacts are as described below:

Stream Impacts in the Cape Fear River Basin

Site	Station	Permanent Fill in Intermittent Stream (linear ft)	Temporary Fill in Intermittent Stream (linear ft)	Permanent Fill in Perennial Stream (linear ft)	Temporary Fill in Perennial Stream (linear ft)	Total Stream Impact (linear ft)	Stream Impacts Requiring Mitigation (linear ft)
R-2303A							
8	300+06 to 305+40-L-	0	0	531	0	531**	237
8	304+40 to 304+51-L-LT	0	0	41*	27	68	41
Total		0	0	572	27	599	278
R-2303B***							
Total		-	-	296	113	409	-
R-2303C***							
Total		-	-	2,990	301	3,291	-
R-2303D***							
Total		-	-	1,792	77	1,869	-
R-2303E***							
Total		-	-	1,336	155	1,491	-
R-2303F***							
Total		-	-	3,859	294	4,153	-
Project Total							
Project Total		-	-	10,845	967	11,812	-

*Bank stabilization; **294 lf of stream will be relocated.

***Sections B through F stream impacts are projected based on preliminary design and include perennial and intermittent systems.

Total Stream Impact for Project: 11,812 linear feet (599 linear feet for Section A)

Wetland Impacts in the Cape Fear River Basin

Site	Station	Wetland Type*	Fill (ac)	Fill (temporary) (ac)	Excavation (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Total Wetland Impact (ac)
R-2303A								
2	73+00 to 85+00-L-	NR	4.44	0	0	0.53	0	4.97
5	167+09 to 168+51-L-	NR	0.04	0	0	0.03	0	0.07
8	296+63 to 304+66-L-	R	2.03	0	0.02	0.20	0	2.25
9	321+92 to 322+64-L-RT	R	0.07	0	<0.01	0.02	0	0.09
9	321+58 to 322+98-L-LT	R	0.07	0	0.02	0.03	0	0.12
10	344+83 to 349+01-L-Rt	NR	0.08	0	0	0.10	0	0.18
Total			6.73	0	0.04	0.91	0	7.68
R-2303B**								
Total			5.70	0.12	-	-	-	5.82
R-2303C**								
Total			12.13	0	-	-	-	12.13
R-2303D**								
Total			8.38	0	-	-	-	8.38
R-2303E**								
Total			1.58	0	-	-	-	1.58
R-2303F**								
Total			21.80	0	-	-	-	21.80

Project Total						
Project Total	56.32	0.12	0.04	0.91	0	57.39

*Wetland Type: R = Riparian; NR=Non-Riparian

** Sections B through F wetland impacts are projected based on preliminary design.

Total Wetland Impact for Project: 57.39 (7.68 acres for Section A)

Open Water (Ponds/Tributary) Impacts in the Cape Fear River Basin

Site	Station	Permanent Fill in Open Waters (ac)	Temporary Fill in Open Waters (ac)	Total Fill in Open Waters (ac)
1	69+45 to 70+63 -L-RT	0.16	0	0.16
1	70+93 to 72+81-L-RT	0.11	0	0.11
4	131+57 to 133+50-L-RT	0.18	0	0.18
6	178+97 to 179+07-L-RT	0.02	0	0.02
7	200+65 to 202+44-L-	0.24	0	0.24
9	322+10-L-Rt	0.01	0	0.01
9	322+10-L-Rt (Bank Stabilization)	<0.01	0	<0.01
Total*		0.72	0	0.72

*Open Water Impacts for Sections B through F have not been projected based on preliminary design.

Total Open Water Impact for Section A: 0.72 acres.

The application provides adequate assurance that the discharge of fill material into the waters of the Cape Fear River Basin in conjunction with the proposed development will not result in a violation of applicable Water Quality Standards and discharge guidelines. Therefore, the State of North Carolina certifies that this activity will not violate the applicable portions of Sections 301, 302, 303, 306, 307 of PL 92-500 and PL 95-217 if conducted in accordance with the application and conditions hereinafter set forth.

This approval is only valid for the purpose and design that you submitted in your application dated received August 2, 2012. Should your project change, you are required to notify the NCDWQ and submit a new application. If the property is sold, the new owner must be given a copy of this Certification and approval letter, and is thereby responsible for complying with all the conditions. If any additional wetland impacts, or stream impacts, for this project (now or in the future) exceed one acre or 150 linear feet, respectively, additional compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7). For this approval to remain valid, you are required to comply with all the conditions listed below. In addition, you should obtain all other federal, state or local permits before proceeding with your project including (but not limited to) Sediment and Erosion control; Coastal Stormwater, Non-discharge and Water Supply watershed regulations. This Certification shall expire on the same day as the expiration date of the corresponding Corps of Engineers Permit.

Condition(s) of Certification:

Project Specific Conditions

1. The NCDOT Division Environmental Officer or Environmental Assistant will conduct a pre-construction meeting with all appropriate staff to ensure that the project supervisor and essential staff understand the potential issues with stream and pipe alignment at the permitted site. NCDWQ staff shall be invited to the pre-construction meeting.
2. At locations where ponds will be drained, proper measures will be taken to drain the pond with limited impact to upstream and downstream channel stability as well as to native aquatic species. Proper measures will be taken to avoid sediment release and/or sediment accumulation downstream as a result of pond draining. If typical pond draining techniques will create significant disturbance to native aquatic species, additional measures such as collection and relocation may be necessary to prevent a significant fish kill. NCDOT shall consult with NC Wildlife Resources staff to determine if there are any sensitive species, and the most appropriate measures to limit impacts to these species. The permittee shall observe any natural channel re-establishment, or utilize natural channel construction techniques, to ensure that the jurisdictional stream channel above and below the drained pond remain stable, and that no additional impacts occur within the natural stream channel as a result of draining the pond.

3. All channel relocations will be constructed in a dry work area and stabilized before stream flows are diverted. Channel relocations will be completed and stabilized, and must be approved on site by NCDWQ staff, prior to diverting water into the new channel. Whenever possible, channel relocations shall be allowed to stabilize for an entire growing season. Vegetation used for bank stabilization shall be limited to native woody species, and should include establishment of a 30 foot wide wooded and an adjacent 20 foot wide vegetated buffer on both sides of the relocated channel to the maximum extent practical. All stream banks shall be matted with coir fiber matting. Also, rip-rap may be allowed if it is necessary to maintain the physical integrity of the stream, but the applicant must provide written justification and any calculations used to determine the extent of rip-rap coverage requested. Once the stream has been turned into the new channel, it may be necessary to relocate stranded fish to the new channel to prevent fish kills.
4. Riprap shall not be placed in the active thalweg channel or placed in the streambed in a manner that precludes aquatic life passage. Bioengineering boulders or structures should be properly designed, sized and installed.
5. For streams being impacted due to site dewatering activities, the site shall be graded to its preconstruction contours and revegetated with appropriate native species.
6. The stream channel shall be excavated no deeper than the natural bed material of the stream, to the maximum extent practicable. Efforts must be made to minimize impacts to the stream banks, as well as to vegetation responsible for maintaining the stream bank stability. Any applicable riparian buffer impact for access to stream channel shall be temporary and be revegetated with native riparian species.
7. Pipes and culverts used exclusively to maintain equilibrium in wetlands, where aquatic life passage is not a concern, shall not be buried. These pipes shall be installed at natural ground elevation.
- * 8. Compensatory mitigation for 278 linear feet of impact to streams is required. We understand that you have chosen to perform compensatory mitigation for impacts to streams through the North Carolina Ecosystem Enhancement Program (EEP), and that the EEP has agreed to implement the mitigation for the project. EEP has indicated in a letter dated July 26, 2012 that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with the EEP Mitigation Banking Instrument signed July 28, 2010.
- * 9. Compensatory mitigation for impacts to 5.22 acres of non-riparian wetlands is required. We understand that you have chosen to perform compensatory mitigation for impacts to non-riparian wetlands through the North Carolina Ecosystem Enhancement Program (EEP), and that the EEP has agreed to implement the mitigation for the project. EEP has indicated in a letter dated July 26, 2012 that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with the EEP Mitigation Banking Instrument signed July 28, 2010.
- * 10. Compensatory mitigation for the 2.46 acres of riparian wetland impacts is required. We understand that you have chosen to debit mitigation from Privateer Farm Mitigation Bank. Privateer Farm Mitigation Bank is located in Cumberland and Bladen County in HUC 03030005; adjacent to Section A of the project HUC (03030006). Since there are no available credits existing in HUC 03030006, it is DWQ's policy to debit adjacent HUCs at a 3:1 ratio. This certification gives you approval to debit 7.38 acres of riparian wetland mitigation from the Privateer Farm Mitigation Bank to satisfy the mitigation requirements of this permit.
11. When final design plans are completed for R-2303 Section(s) B through F, a modification to the 401 Water Quality Certification shall be submitted with five copies and fees to the NC Division of Water Quality. Final designs shall reflect all appropriate avoidance, minimization, and mitigation for impacts to wetlands, streams, and other surface waters, and buffers. No construction activities that impact any wetlands, streams, surface waters, or buffers located in R-2303 Section(s) B through F shall begin until after the permittee applies for, and receives a written modification of the 401 Water Quality Certification and the from the NC Division of Water Quality.

General Conditions

12. Unless otherwise approved in this certification, placement of culverts and other structures in open waters and streams shall be placed below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow passage of water and aquatic life. Design and placement of culverts and other

R-33

structures including temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or streambeds or banks, adjacent to or upstream and downstream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by NCDWQ. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact NCDWQ for guidance on how to proceed and to determine whether or not a permit modification will be required.

13. If concrete is used during construction, a dry work area shall be maintained to prevent direct contact between curing concrete and stream water. Water that inadvertently contacts uncured concrete shall not be discharged to surface waters due to the potential for elevated pH and possible aquatic life and fish kills.
14. During the construction of the project, no staging of equipment of any kind is permitted in waters of the U.S., or protected riparian buffers.
15. The dimension, pattern and profile of the stream above and below the crossing shall not be modified. Disturbed floodplains and streams shall be restored to natural geomorphic conditions.
16. The use of rip-rap above the Normal High Water Mark shall be minimized. Any rip-rap placed for stream stabilization shall be placed in stream channels in such a manner that it does not impede aquatic life passage.
- * 17. The Permittee shall ensure that the final design drawings adhere to the permit and to the permit drawings submitted for approval.
18. All work in or adjacent to stream waters shall be conducted in a dry work area. Approved BMP measures from the most current version of NCDOT Construction and Maintenance Activities manual such as sandbags, rock berms, cofferdams and other diversion structures shall be used to prevent excavation in flowing water.
19. Heavy equipment shall be operated from the banks rather than in the stream channel in order to minimize sedimentation and reduce the introduction of other pollutants into the stream.
20. All mechanized equipment operated near surface waters must be regularly inspected and maintained to prevent contamination of stream waters from fuels, lubricants, hydraulic fluids, or other toxic materials.
21. No rock, sand or other materials shall be dredged from the stream channel except where authorized by this certification.
22. Discharging hydroseed mixtures and washing out hydroseeders and other equipment in or adjacent to surface waters is prohibited.
23. The permittee and its authorized agents shall conduct its activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with §303(d) of the Clean Water Act) and any other appropriate requirements of State and Federal law. If NCDWQ determines that such standards or laws are not being met (including the failure to sustain a designated or achieved use) or that State or federal law is being violated, or that further conditions are necessary to assure compliance, NCDWQ may reevaluate and modify this certification.
24. All fill slopes located in jurisdictional wetlands shall be placed at slopes no flatter than 3:1, unless otherwise authorized by this certification..
25. A copy of this Water Quality Certification shall be maintained on the construction site at all times. In addition, the Water Quality Certification and all subsequent modifications, if any, shall be maintained with the Division Engineer and the on-site project manager.
26. The outside buffer, wetland or water boundary located within the construction corridor approved by this authorization shall be clearly marked by highly visible fencing prior to any land disturbing activities. Impacts to areas within the fencing are prohibited unless otherwise authorized by this certification.
27. The issuance of this certification does not exempt the Permittee from complying with any and all statutes, rules, regulations, or ordinances that may be imposed by other government agencies (i.e. local, state, and

federal) having jurisdiction, including but not limited to applicable buffer rules, stormwater management rules, soil erosion and sedimentation control requirements, etc.

28. The Permittee shall report any violations of this certification to the Division of Water Quality within 24 hours of discovery.
- * 29. Upon completion of the project (including any impacts at associated borrow or waste sites), the NCDOT Division Engineer shall complete and return the enclosed "Certification of Completion Form" to notify NCDWQ when all work included in the 401 Certification has been completed.
30. Native riparian vegetation must be reestablished in the riparian areas within the construction limits of the project by the end of the growing season following completion of construction.
31. There shall be no excavation from, or waste disposal into, jurisdictional wetlands or waters associated with this permit without appropriate modification. Should waste or borrow sites, or access roads to waste or borrow sites, be located in wetlands or streams, compensatory mitigation will be required since that is a direct impact from road construction activities.
32. Erosion and sediment control practices must be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to protect surface waters standards:
 - a. The erosion and sediment control measures for the project must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Sediment and Erosion Control Planning and Design Manual*.
 - b. The design, installation, operation, and maintenance of the sediment and erosion control measures must be such that they equal, or exceed, the requirements specified in the most recent version of the *North Carolina Sediment and Erosion Control Manual*. The devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) projects, including contractor-owned or leased borrow pits associated with the project.
 - c. For borrow pit sites, the erosion and sediment control measures must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Surface Mining Manual*.
 - d. The reclamation measures and implementation must comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act.
33. Sediment and erosion control measures shall not be placed in wetlands or waters unless otherwise approved by this Certification.

Violations of any condition herein set forth may result in revocation of this Certification and may result in criminal and/or civil penalties. This Certification shall become null and void unless the above conditions are made conditions of the Federal 404 and/or Coastal Area Management Act Permit. This Certification shall expire upon the expiration of the 404 or CAMA permit.

If you wish to contest any statement in the attached Certification you must file a petition for an administrative hearing. You may obtain the petition form from the office of Administrative hearings. You must file the petition with the office of Administrative Hearings within sixty (60) days of receipt of this notice. A petition is considered filed when it is received in the office of Administrative Hearings during normal office hours. The Office of Administrative Hearings accepts filings Monday through Friday between the hours of 8:00am and 5:00pm, except for official state holidays. The original and one (1) copy of the petition must be filed with the Office of Administrative Hearings.

The petition may be faxed-provided the original and one copy of the document is received by the Office of Administrative Hearings within five (5) business days following the faxed transmission. The mailing address for the Office of Administrative Hearings is:

Office of Administrative Hearings
6714 Mail Service Center
Raleigh, NC 27699-6714
Telephone: (919)-431-3000, Facsimile: (919)-431-3100

A copy of the petition must also be served on DENR as follows:

Mr. William Cary, General Counsel
Department of Environment and Natural Resources
1601 Mail Service Center
Raleigh, NC 27699-1601

This the 24th day of September 2012

DIVISION OF WATER QUALITY

A handwritten signature in dark ink, appearing to read "Chas Wakild", followed by a small "for:".

Charles Wakild
Director

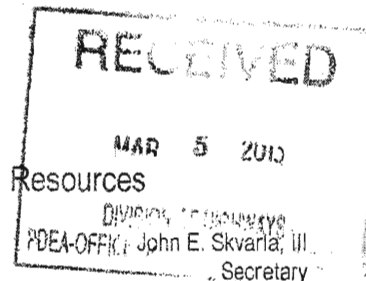
WQC No. 3942



North Carolina Department of Environment and Natural Resources

Division of Water Quality
Charles Wakild, P. E.
Director

Pat McCrory
Governor



February 25, 2013

Dr. Greg Thorpe, PhD., Manager
Project Development and Environmental Analysis
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina, 27699-1598

Subject: Modification of 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water with
ADDITIONAL CONDITIONS for Proposed improvements to NC 24 from SR 1853 (John Nunnery Rd.)
in Cumberland County to US 421-701/SR 1296 (Sunset Avenue) in Sampson County, Federal Aid Project
No. STPNHF-F-8-2(17), WBS No. 34416. **TIP R-2303B.**

NCDWQ Project No. 20120240v.2

Dear Dr. Thorpe:

Attached hereto is a modification of Certification No. 3942 issued to The North Carolina Department of
Transportation (NCDOT) dated September 24, 2012.

If we can be of further assistance, do not hesitate to contact us.

Sincerely,

Charles Wakild
Director

Attachments

cc: Brad Shaver, US Army Corps of Engineers, Wilmington Field Office (electronic copy only)
Greg Burns, PE, Division 6 Engineer
Jim Rerko, Division 6 Environmental Officer
Chris Militscher, Environmental Protection Agency (electronic copy only)
Gary Jordan, US Fish and Wildlife Service (electronic copy only)
Travis Wilson, NC Wildlife Resources Commission
Jason Elliott, NCDOT, Roadside Environmental Unit
Jim Stanfill, Ecosystem Enhancement Program
Sonia Carrillo, NCDWQ Central Office
File Copy

Transportation and Permitting Unit
1650 Mail Service Center, Raleigh, North Carolina 27699-1617
Location: 512 N. Salisbury St. Raleigh, North Carolina 27604
Phone: 919-807-6300 \ FAX: 919-807-6492
Internet: www.ncwaterquality.org

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**Modification to the 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act
with ADDITIONAL CONDITIONS**

THIS CERTIFICATION is issued in conformity with the requirements of Section 401 Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Quality (NCDWQ) Regulations in 15 NCAC 2H .0500. This certification authorizes the NCDOT to impact an additional 10.35 acres of jurisdictional wetlands, 1.65 acres of waters and 439 linear feet of jurisdictional streams in Cumberland and Sampson Counties for the construction of **R-2303B** only. The project shall be constructed pursuant to the revised application dated received February 15, 2013 and revisions received electronically on February 25, 2012. **No impacts to Sections C, D or F are being authorized with this certification.** The authorized impacts are as described below:

Stream Impacts in the Cape Fear River Basin

Site	Station	Permanent Fill in Intermittent Stream (linear ft)	Temporary Fill in Intermittent Stream (linear ft)	Permanent Fill in Perennial Stream (linear ft)	Temporary Fill in Perennial Stream (linear ft)	Total Stream Impact (linear ft)	Stream Impacts Requiring Mitigation (linear ft)
R-2303A⁽¹⁾							
Total		0	0	572	27	599	278
R-2303B							
7A	431+78 to 434+23-L-	158	0	0	0	158	158
21	712+14 to 714+41-L-	0	0	193 ⁽²⁾	88	281	241
Total		158	0	193⁽²⁾	88	439	351
R-2303C⁽³⁾							
Total		-	-	2,990	301	3,291	-
R-2303D⁽³⁾							
Total		-	-	1,792	77	1,869	-
R-2303E⁽³⁾							
Total		-	-	1,336	155	1,491	-
R-2303F⁽³⁾							
Total		-	-	3,859	294	4,153	-
Project Total							
Project Total		158	-	10,742	942	11,842	-

⁽¹⁾ Impacts authorized in the original 401 certification dated September 24, 2012. ⁽²⁾ Includes 55 linear feet of bank stabilization.

⁽³⁾ Sections C through F stream impacts are projected based on preliminary design and include perennial and intermittent systems.

Total Stream Impact for Project: 11,842 linear feet (439 linear feet for Section B)

Wetland Impacts in the Cape Fear River Basin

Site	Station	Wetland Type ⁽¹⁾	Fill (ac)	Fill (temporary) (ac)	Excavation (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Total Wetland Impact (ac)	Impacts Requiring Mitigation (ac)
R-2303A⁽²⁾									
Total			6.73	0	0.04	0.91	0	7.68	7.68
R-2303B									
1	388+00 to 391+28-L-	R	1.26	0	0	0.14	0	1.40	1.40
2	391+28 to 402+13-L-	R	0	0	0.09	<0.01	3.53	3.62	0.09
3	14+18 to 15+09-Y13-RT	NR	0.01	0	0	0.02	0	0.03	0.03
5	425+57 to 426+51-L-LT	R	0.02	0	0	0.02	0	0.04	0.04
7B	431+78 to 434+23-L-	R	0.23	0	0.01	0.03	0	0.27	0.27
8	437+97 to 439+15-L-RT	NR	0.07	0	0	0.02	0	0.09	0.09
10 ⁽³⁾	542+45 to 545+21-L-LT	NR	0.09	0	0	0.06	0	0.15	0.15
11	554+06 to 558+53-L-LT	NR	0.01	0	0	0.10	0	0.11	0.11
12	554+38 to 557+27-L-RT	NR	0.28	0	0	0.03	0	0.31	0.31
14	623+20 to 624+12-L-RT	NR	0.10	0	0.03	<0.01	0	0.13	0.13
15	654+75 to 663+38-L-	R	2.13	0	0	0.41	0.17	2.71	2.54

16	669+18 to 670+85-L-LT	NR	0.26	0	0	0.06	0	0.32	0.32
17	670+13 to 672+92-L-RT	NR	0.05	0	0	0.02	0	0.07	0.07
21	712+14 to 714+41-L-	R	0.13	0.12	0.01	0.06	0	0.32	0.20
R-2303B UTILITIES									
1	472+00-L-	NR	0	0	0	0	0.6	0.6	0
3	545+00-L-	NR	0	0	0.01	0	0	0.01	0.01
4	584+00-L-	NR	0	0	0.10	0	0	0.10	0.10
6	670+00-L-	NR	0	0	0.01	0	0.02	0.03	0.01
7	713+00-L-	R	0	0	0.04	0	0	0.04	0.04
Total			4.64	0.12	0.30	0.97	4.32	10.35	5.91
R-2303C⁽⁴⁾									
Total			12.13	0	-	-	-	12.13	-
R-2303D⁽⁴⁾									
Total			8.38	0	-	-	-	8.38	-
R-2303E⁽⁴⁾									
Total			1.58	0	-	-	-	1.58	-
R-2303F⁽⁴⁾									
Total			21.80	0	-	-	-	21.80	-
Project Total									
Project Total			55.26	0.12	0.34	1.88	4.32	61.92	-

⁽¹⁾ Wetland Type: R = Riparian; NR=Non-Riparian, ⁽²⁾ Impacts authorized in the original 401 certification dated September 24, 2012.

⁽³⁾ Resource is regulated by DWQ only, ⁽⁴⁾ Sections C through F wetland impacts projected based on preliminary design.

Total Wetland Impact for Project: 61.92 (10.35 acres for Section B)

Open Water (Ponds/Tributary) Impacts in the Cape Fear River Basin

Site	Station	Permanent Fill in Open Waters (ac)	Temporary Fill in Open Waters (ac)	Total Fill in Open Waters (ac)
R-2303A⁽¹⁾				
Total		0.72	0	0.72
R-2303B				
4	424+51 to 426+05-L-LT	0.25	0	0.25
6	430+34 to 432+25-L-RT	0.19	0	0.19
9	438+58 to 441+68-L-LT	0.73	0	0.73
13	576+76 to 576+89-L-RT	<0.01	<0.01	<0.01
18	674+45 to 674+81-L-RT	<0.01	<0.01	<0.01
19	680+56 to 684+21-L-LT	0.44	0	0.44
20	681+95 to 682+15-L-RT	<0.01	<0.01	<0.01
Total		1.63	0.02	1.65
Section A & B Total		2.35	0.02	2.37

*Open Water Impacts for Sections C through F have not been projected based on preliminary design.

⁽¹⁾ Impacts authorized in the original 401 certification dated September 24, 2012.

Total Open Water Impact for Sections A & B: 0.72 acres. (1.65 acres for Section B)

The application provides adequate assurance that the discharge of fill material into the waters of the Cape Fear River Basin in conjunction with the proposed development will not result in a violation of applicable Water Quality Standards and discharge guidelines. Therefore, the State of North Carolina certifies that this activity will not violate the applicable portions of Sections 301, 302, 303, 306, 307 of PL 92-500 and PL 95-217 if conducted in accordance with the application and conditions hereinafter set forth.

This approval is only valid for the purpose and design that you submitted in your modified application dated received February 15, 2013 and revisions received electronically on February 25, 2012. All the authorized activities and conditions of certification associated with the original Water Quality Certification dated September 24, 2012 still apply except where superceded by this certification. Should your project change, you are required to notify NCDWQ and submit a new application. If the property is sold, the new owner must be given a copy of this Certification and approval letter, and is thereby responsible for complying with all the conditions. If any additional wetland impacts, or stream impacts, for this project (now or in the future) exceed one acre or 150 linear feet, respectively, additional compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7). For this approval to remain valid, you are required to comply with all the conditions listed below. In addition, you should obtain all other federal, state or local permits before proceeding with your project including (but not

limited to) Sediment and Erosion control, Coastal Stormwater, Non-discharge and Water Supply watershed regulations. This Certification shall expire on the same day as the expiration date of the corresponding Corps of Engineers Permit.

Condition(s) of Certification:

Project Specific Conditions

1. This modification is applicable only to the additional proposed activities. All of the authorized activities and conditions of certification associated with the original Water Quality Certification dated September 24, 2012 still apply except where superseded by this certification
2. The post-construction removal of any temporary bridge structures must return the project site to its preconstruction contours and elevations. The impacted areas shall be revegetated with appropriate native species.
3. Strict adherence to the most recent version of NCDOT's Best Management Practices For Bridge Demolition and Removal approved by the US Army Corps of Engineers is a condition of the 401 Water Quality Certification.
4. Bridge piles and bents shall be constructed using driven piles (hammer or vibratory) or drilled shaft construction methods. More specifically, jetting or other methods of pile driving are prohibited without prior written approval from NCDWQ first.
5. 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*.
6. The project must be constructed in accordance with the Stormwater Management Plan submitted in the application and dated September 27, 2011.
7. Native material shall be placed inside of the reinforced concrete box culverts at Permit Site 21 to provide a natural streambed in the low flow channel and floodplain benches between the sills in the overflow barrels. If possible, the material placed inside of the culvert should be the same native material that is excavated from the streambed and/or floodplain during the construction of these structures. Rip rap is not permissible in the low flow channel; however it may be used to supplement the natural material in the overflow barrels.
- * 8. Compensatory mitigation for 351 linear feet of impact to streams is required. We understand that you have chosen to perform compensatory mitigation for impacts to streams through the North Carolina Ecosystem Enhancement Program (EEP), and that the EEP has agreed to implement the mitigation for the project. EEP has indicated in a letter dated February 19, 2013 that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with the EEP Mitigation Banking Instrument signed July 28, 2010.
- * 9. Compensatory mitigation for impacts to 1.33 acres of non-riparian wetlands is required. We understand that you have chosen to perform compensatory mitigation for impacts to non-riparian wetlands through the North Carolina Ecosystem Enhancement Program (EEP), and that the EEP has agreed to implement the mitigation for the project. EEP has indicated in a letter dated February 19, 2013 that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with the EEP Mitigation Banking Instrument signed July 28, 2010.
10. Compensatory mitigation for impacts to 4.58 acres of riparian wetlands is required. The permittee shall comply with the revised on-site wetland mitigation plan Sites B-1 and B-2 submitted on February 22, 2013. All on-site mitigation sites shall be protected in perpetuity by a conservation easement or through NCDOT fee simple acquisition and recorded in the NCDOT Natural Environment Unit mitigation geodatabase.
11. For the forested wetland restoration mitigation sites B-1 and B-2, the permittee shall plant 680 stems/acre. Vegetation success shall be measured by survivability over a 5-year monitoring period. Survivability will be based on 320 stems/acre after three (3) years and 260 stems after five (5) years. A survey of vegetation during the growing season shall be conducted annually over the five-year monitoring period and submitted

to the NC Division of Water Quality. If the surviving vegetation densities are below the required thresholds after the five-year monitoring period, the site may still be declared successful at the discretion of and with written approval from the NC Division of Water Quality.

12. For the wetland mitigation sites located from B-1 and B-2, hydrologic success of the sites will be attained by restoration of a hydrologic regime that results in inundation or saturation of the soils within 12 inches of the ground surface for at least 12.5 percent of the growing season. The hydrologic monitoring shall persist for a total of five (5) years. At the end of the monitoring period, NCDWQ will review the monitoring results for the mitigation site. Based on the results of the monitoring, NCDWQ will determine if the mitigation site is successful or if additional maintenance and monitoring is necessary to demonstrate site success.
13. Success of the mitigation site shall be determined by NCDWQ during an on-site visit at or near the end of the monitoring period.
14. When final design plans are completed for R-2303 Section(s) E through F, a modification to the 401 Water Quality Certification shall be submitted with five copies and fees to the NC Division of Water Quality. Final designs shall reflect all appropriate avoidance, minimization, and mitigation for impacts to wetlands, streams, and other surface waters, and buffers. No construction activities that impact any wetlands, streams, surface waters, or buffers located in R-2303 Section(s) C through F shall begin until after the permittee applies for, and receives a written modification of the 401 Water Quality Certification and the from the NC Division of Water Quality.

Violations of any condition herein set forth may result in revocation of this Certification and may result in criminal and/or civil penalties. This Certification shall become null and void unless the above conditions are made conditions of the Federal 404 and/or Coastal Area Management Act Permit. This Certification shall expire upon the expiration of the 404 or CAMA permit.

If you wish to contest any statement in the attached Certification you must file a petition for an administrative hearing. You may obtain the petition form from the office of Administrative hearings. You must file the petition with the office of Administrative Hearings within sixty (60) days of receipt of this notice. A petition is considered filed when it is received in the office of Administrative Hearings during normal office hours. The Office of Administrative Hearings accepts filings Monday through Friday between the hours of 8:00am and 5:00pm, except for official state holidays. The original and one (1) copy of the petition must be filed with the Office of Administrative Hearings.

The petition may be faxed-provided the original and one copy of the document is received by the Office of Administrative Hearings within five (5) business days following the faxed transmission.
The mailing address for the Office of Administrative Hearings is:

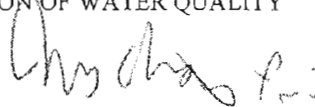
Office of Administrative Hearings
6714 Mail Service Center
Raleigh, NC 27699-6714
Telephone: (919)-431-3000, Facsimile: (919)-431-3100

A copy of the petition must also be served on DENR as follows:

Mr. Lacy Presnell, General Counsel
Department of Environment and Natural Resources
1601 Mail Service Center
Raleigh, NC 27699-1601

This the 25th day of February 2013

DIVISION OF WATER QUALITY



Charles Wakild
Director

Mitigation Plan

NC Highway 24 Improvements

Sampson County, North Carolina

T.I.P. Number R-2303

WBS No. 34416

February 22, 2013

Transportation Improvement Project (TIP) R-2303 involves improvements to existing NC Highway 24 from 2.8 miles eastward of Interstate 95 (I-95) in Cumberland County to Interstate 40 (I-40) in Duplin County. The project is located within USGS Hydrologic Cataloging Unit (HUC) 03030006, and NC Division of Water Quality (NCDWQ) sub-basins 03-06-18 and 03-06-19 within the Cape Fear River Basin. NCDOT proposes to mitigate for permanent impacts to jurisdictional areas requiring mitigation through the following sources: NCDOT Umbrella Mitigation Banking Instrument (UMBI), onsite mitigation, and the Ecosystem Enhancement Program (EEP).

NCDOT UMBI SITE – PRIVATEER FARM (ONE ID #026-005)

The Privateer Farm stream and wetlands restoration site is located in USGS HUC 03030005 and NCDWQ Cape Fear River sub-basins 15 and 16 along Little Alligator Swamp and Harrison Creek. It is located in the Southeastern Plains Level III Ecoregion (Southeastern Floodplains and Low terraces Level IV Ecoregion) and includes portions of Cumberland and Bladen counties, approximately 6 miles from the southern boundary of CU 03030004. The Site has been closed out for monitoring and was incorporated into NCDOT's UMBI.

The NCDOT debit ledger below (as of July 24, 2012) includes the debit of 7.38 acres of riparian wetland restoration to mitigate for 2.46 acres of riparian impact for R-2303A at a 3:1 ratio.

Site Name	River Basin	HUC	Mitigation Type	Transfer from EEP	Available	TIP Debit	TIP Debit	TIP Debit
Privateer Site	Cape Fear	3030005				U-2519**	U-2519 MOD**	R-2303A**
**Out of service area ratios: 1.5:1 ratio for stream impacts 3:1 for wetland impacts			Warm Stream Restoration	25,676	7,157	18,519		
			Riverine Wetland Restoration	185.58	32.22	145.29	0.69	7.38

ON-SITE MITIGATION

1.0 BASELINE INFORMATION

TIP R-2303 involves improvements to existing NC Highway 24 from 2.8 miles eastward of Interstate 95 (I-95) in Cumberland County to Interstate 40 (I-40) in Duplin County. The study corridor for this project ranges from 400 feet wide for widening sections to 1000 feet wide for bypass areas and is situated within the inner Coastal Plain physiographic province. Topography within the study area is described as nearly level to sloping with the majority of the topographic breaks found near the larger wetland systems. Land use within the project study area between towns is mostly rural in nature and includes a mixture of agricultural, residential, silvicultural, and industrial uses.

The project is located within USGS Hydrologic Cataloging Unit 03030006, and NC Division of Water Quality (NCDWQ) sub-basins 03-06-18 and 03-06-19 within the Cape Fear River Basin. Sub-basin 03-06-18 includes the South River and its tributaries as well as Big Swamp and its tributaries while sub-basin 03-06-19 includes Little Coharie Creek, Bearskin Swamp, Moccasin Branch, Great Coharie Creek, Six Runs Creek, and Buckhall Creek along with all their tributaries.

The R-2303 Natural Resources Technical Report (NRTR) dated January 2004 provides further details concerning existing roadway/project study area conditions and jurisdictional resources. The mitigation site selection and mitigation work plan sections of this plan will refer to the identification labels given the affected jurisdictional resources in that document as well as the Final Environmental Impact Statement (FEIS) dated 3-31-2010.

2.0 SITE SELECTION

R-2303B Mitigation Site 1 (ONE ID #082-007)

This site begins on plan sheet 8 south of Station 423+50 Rt. at the existing intersection of Gray Street and Old Stage Road and ends south of Station 439 Rt. on plan sheet 9. It is part of the South River watershed and involves a series of ponds (43 and 45) as well as three jurisdictional wetlands (42, 44 and 46), and one intermittent stream (SR4) that flows out of pond 43. Lynn Haven sand, a hydric soil in Sampson County, is the soil type found within this area.

R-2303B Mitigation Site 2 (ONE ID #082-008)

This site begins on plan sheet 26 at Sta. 680+20 Lt. at the ROW line and ends on plan sheet 27 at Sta. 685+50.38 Lt. at Boren Brick Road. The pond (88) will be drained as part of the construction of R-2303B. Currently, the pond connects a jurisdictional wetland area upstream to jurisdictional wetlands and a UT to Big Swamp downstream through a series of pipes under Boren Brick Road and existing NC Hwy 24. The existing wetland system above Boren Brick Road, wetland 88A, will

be used as the reference wetland system.

R-2303C Mitigation Site 1 (ONE ID #082-009)

This site is located on plan sheet 23 from approximately Sta. 1000 to 1005 Lt. The pond (133) will be drained as part of the construction of R-2303B. The pond is surrounded by Wagram loamy sand soils. It has a headwater wetland system located adjacent to its northeastern corner and outflows into a UT to Little Coharie (LC11) through a 36" pipe under existing NC Hwy 24.

R-2303D Mitigation Site 1 (ONE ID #082-010)

This site is located on plan sheet 18 northwest of approximate Sta. 1290 to 1295 Lt. Wetland 161 located adjacent to NC Hwy 24 is a riparian wetland that is bisected by the existing causeway of NC 24. A portion of Wetland 161 has been clear cut. This wetland also includes an excavated pond and side cast spoil. Soils within this mitigation area are either Johns fine sandy loam or Kalmia sandy loam. Both are non-hydric with hydric inclusions in Sampson County.

R-2303D Mitigation Site 2 (ONE ID #082-011)

This site is located on plan sheet 20 from approximately Sta. 1321+50 Lt. to Sta. 1325+50 Lt. on plan sheet 21. It is bordered on the north and west by wetland 165 and on the east by wetland 167. The soils in this area are mapped as Paxville fine loamy sand, a hydric soil in Sampson County. Wetland 165 is part of a 4600 acre NCEEP high quality wetland mitigation site known as the Great Coharie Tract (GCT). An old abandoned causeway extends into the wetland from NC Hwy 24.

3.0 SITE PROTECTION INSTRUMENT

The mitigation areas are presently located within or will be located within the NCDOT Right-of-Way for the project. They will be managed to prohibit all use inconsistent with its use as mitigation property, including any activity that would materially alter the biological integrity or functional and educational value of the site, consistent with the mitigation plan.

The site is designated on the plan sheets as a mitigation area and will be placed on the Natural Environment Section's Mitigation GeoDatabase. This database is provided to all NCDOT personnel as a record of mitigation sites and their attributes, including prohibited activities. NCDOT is held by virtue of the permit associated with this mitigation site and the associated roadway impacts to protect the site in perpetuity.

4.0 OBJECTIVES

The goal of the proposed onsite mitigation is to mitigate for impacts due to R-2303 by restoring adjacent wetland and stream systems to their natural conditions through the removal of the degrading factors of ponding, fill, and disturbance. This will be achieved on seven individual sites

described below for a total of 15.89 acres of wetland and 900 feet of stream.

5.0 MITIGATION WORK PLAN

Each mitigation site will be constructed along with the construction of its associated section of the roadway project. Following the successful completion of site grading and stabilization, each site will be replanted with appropriate native tree species. Wetland restoration areas will be planted with a mix of bare-root tree species at a density of 680 stems per acre. The stream restoration areas will be stabilized by planting a mix of live stakes on three foot centers and matting with coir fiber on the banks as necessary. Reforestation plans for each can be found in Appendix B.

Native wetland seed and mulch will be applied on all disturbed areas within the mitigation sites for stabilization purposes according to guidance and standard procedures of NCDOT's Roadside Environmental Unit. An as-built report will be submitted within 60 days of completion of the project.

The Natural Environment Section shall be contacted to provide construction assistance to ensure that each mitigation area is constructed appropriately.

R-2303B Mitigation Site 1

NCDOT will drain P43 and P45 in conjunction with the construction of R-2303B. Based on topography and soils, the draining of these two features will result in restoration of a total of 1.84 acres of riparian wetlands. It will also result in the enhancement of 5.41 acres of wetlands (wetlands 42 and 44) and the preservation of 0.23 acres at wetland 46.

R-2303B Mitigation Site 2

NCDOT will restore 2.19 acres of riparian wetlands at Site 2. The pond associated with this mitigation area, identified as 88 in the NRTR, will be drained as part of the construction of R-2303B. The existing 30" pipe under NC Hwy 24 will be replaced and the invert of the new structure will be adjusted to assist in the wetland restoration within the drained pond 88.

Wetland 88a is a riparian wetland located on the east side of Boren Brick Road. It will be used as a reference for the reforestation plan of wetland restoration within pond 88. Soils within this wetland as well as adjacent to the pond are mapped as Aycock silt loam, a non-hydric soil in Sampson County, as well as Nahunta loam, a non-hydric soil with hydric inclusions.

R-2303C Mitigation Site 1

The pond associated with this mitigation area, identified as 133 in the NRTR, will be drained as part of the construction of R-2303C. The existing pipe under NC Hwy 24 will be replaced and the invert of the new structure will be adjusted to assist in the wetland and stream restoration within the drained pond 133. This new structure will outfall into LC11, a UT to Little Coharie. LC11 has a C Sw classification and is a Rosgen E type channel. Based on valley length and topography, NCDOT will restore 550 ft. of the stream system within this drained pond area as well as restore 2.5 acres of riparian wetlands.

R-2303D Mitigation Site 1

This site involves removing a portion of pavement and causeway along existing NC 24 and grading to match elevations within the adjacent Wetland 161. It also involves backfilling the existing pond with material side cast to match the existing, adjacent wetland elevation. The clear cut portion of Wetland 161 within the ROW will be revegetated. This work will result in the restoration of 1.55 acres and enhancement of 1.3 acres of riparian wetland.

R-2303D Mitigation Site 2

This site involves the removal of an old roadway causeway and grading to match elevations within the adjacent Wetlands 165 and 167. NCDOT will restore 0.87 acres of riparian wetland in this area.

6.0 PERFORMANCE STANDARDS

The hydrologic success criteria requires that the site demonstrate saturation or inundation within 12 inches of the soil surface for a consecutive 12.5% of the growing season during years of normal rainfall. Groundwater monitoring gauge will be installed in existing, adjacent reference wetlands where practical and feasible for comparison to groundwater gauges throughout the restoration and enhancement (B site 1) areas.

Success for vegetation monitoring within the riparian buffer and wetland areas are based on the survival of at least 260 stems of five year old trees at year five. Assessment of channel stability will be based on the survival of riparian vegetation and lack of significant bank erosion, channel widening or down-cutting.

7.0 MONITORING REQUIREMENTS

Groundwater gauges will be installed within the wetland enhancement (on B Site 1) and restoration areas as for hydrologic monitoring. Gauges will be placed within the enhancement areas pre-construction to collect baseline data for comparison, analysis, and determination of enhancement area boundaries. Number and placement of gauges will be site specific and determined based on contour intervals.

The following components of Level 1 stream restoration monitoring will be performed each year of the 5-year monitoring period: reference photos, visual inspection of channel stability, and plant survival. Specific problem areas and proposed/required remedial action will be identified.

Vegetation monitoring will consist of counts of planted stems within 50 x 50 foot plots established within the restoration and enhancement (D site 1) areas. Plot locations will be randomly selected.

These monitoring activities will be conducted for five years and documented in an annual report distributed to the regulatory agencies.

8.0 OTHER INFORMATION

N/A

9.0 DETERMINATION OF CREDITS

Based on field and meeting discussions with agency representatives and per the NCDOT plans and 401/404 permit application for R-2303; NCDOT proposes the following types of mitigation and ratios for each site.

Roadway Section Site Number	Wetland Restoration Acres (1:1)	Wetland Enhancement Acres (5:1)	Wetland Preservation Acres (10:1)	Stream Restoration Feet (1:1)	Stream Preservation Feet (10:1)
B Site1	1.84	5.41	0.23		
B Site 2	2.19	-	-	-	-
C Site 1	2.5	-	-	550	-
D Site 1	1.55	1.3	-	-	-
D Site 2	0.87	-	-	-	-

An as-built report will be submitted within 60 days of completion of the each mitigation site to verify actual mitigation areas constructed and planted. The success of the mitigation areas and determination of final credits will be based upon successful completion and closeout of the monitoring period.

9.1 CREDIT RELEASE SCHEDULE

NCDOT proposes immediate, full release of the proposed mitigation as on-site mitigation for unavoidable impacts associated with R-2303.

10.0 GEOGRAPHIC SERVICE AREA

The proposed Geographic Service Area (GSA) for the mitigation sites is composed of the 8-digit Hydrologic Cataloging Unit (HUC) 03030006.

11.0 MAINTENANCE PLAN

The mitigation site will be held by NCDOT and placed on the NES mitigation geodatabase. Once monitoring is completed and the site is closed out, it will be placed in the NCDOT Stewardship Program for long term maintenance and protection.

If an appropriate third party recipient is identified in the future, then the transfer of the property will include a conservation easement or other measure to protect the natural features and mitigation value of the site in perpetuity.

12.0 LONG TERM ADAPTIVE MANAGEMENT PLAN

The sites will be managed by the NCDOT according to the mitigation plan. Beaver management will be instituted during the monitoring period if necessary. Encroachments into the mitigation areas will be investigated and appropriate measures taken to minimize any negative effects. In the event that unforeseen issues arise that affect the management of the site, any remediation will be addressed by NCDOT in coordination with the Interagency Review Team.

13.0 FINANCIAL ASSURANCES

NCDOT is held by permit conditions associated with R-2303 to preserve the mitigation areas. NCDOT has established funds for each project and within each Division to monitor mitigation sites and to protect them in perpetuity.

ECOSYSTEM ENHANCEMENT PROGRAM

Mitigation Total for Sections A-F*

Cape Fear 03030006 SICP	Stream			Wetland			Buffer (sq. ft.)	
	Cold	Cool	Warm	Riparian	Non- Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts (feet/acres)	0	0	9186**	31.68	15.11	0	0	0

*See Appendix A for individual EEP Mitigation Acceptance Letters

APPENDIX A – EEP letters

R-44 B



February 19, 2013

Mr. Gregory J. Thorpe, Ph.D.
Manager, Project Development and Environmental Analysis Unit
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Dr. Thorpe:

Subject: EEP Mitigation Acceptance Letter:

R-2303B, NC 24 from SR 1853 (John Nunnery Road) to SR 1404 (Dowdy Road),
Cumberland and Sampson Counties

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the compensatory stream and non-riparian wetland mitigation for the subject project. Based on the information supplied by you on February 13, 2013, the impacts are located in CU 03030006 of the Cape Fear River basin in the Southern Inner Coastal Plain (SICP) Eco-Region, and are as follows:

Cape Fear 03030006 SICP	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts* (feet/acres)	0	0	296	0	1.33	0	0	0

*Some of the stream and wetland impacts may be proposed to be mitigated at a 1:1 mitigation ratio. See permit application for details.

This mitigation acceptance letter replaces the mitigation acceptance letters issued on February 28, 2012 and January 29, 2013. EEP commits to implementing sufficient compensatory non-riparian wetland mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies in accordance with the N.C. Department of Environment and Natural Resources' Ecosystem Enhancement Program In-Lieu Fee Instrument dated July 28, 2010. The stream impact and associated mitigation need were under projected by the NCDOT in the 2013 impact data. EEP will commit to implement sufficient compensatory stream mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies using the delivery timeline listed in Section F.3.c.iii of the N.C. Department of Environment and Natural Resources' Ecosystem Enhancement Program In-Lieu Fee Instrument dated July 28, 2010. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from EEP.

If you have any questions or need additional information, please contact Ms. Beth Harmon at 919-707-8420.

Sincerely,

Michael Ellison
EEP Acting Director

cc: Mr. Brad Shaver, USACE – Wilmington Regulatory Field Office
Ms. Amy Chapman, Division of Water Quality, Wetlands/401 Unit
File: R-2303 B Revised

Restoring... Enhancing... Protecting Our State



R-44 C



MITIGATION REQUEST FORM TRI-PARTY MOA (NCDOT)

Revised 3/24/2008



Fill in requested information, print out the form, sign and date, and either mail to EEP, 1652 Mail Service Center, Raleigh, NC 27699-1652, or fax to 919-715-2219. Attachments are acceptable for clarification purposes.

Electronic submissions are permissible; however, an acceptance letter cannot be sent until the original signed form has been received.

NCDOT CONTACT INFORMATION		REGULATORY CONTACT INFORMATION	
Agency/Division	NCDOT-Highways	USACE Office	Regulatory Field Office
Branch	PDEA-NEU	USACE Contact	Mr. Brad Shaver
Mailing Address	1598 Mail Service Center	Mailing Address	Post Office Box 1890
City, State, Zip	Raleigh, NC 27699-1598	City, State, Zip	Wilmington, NC 28402-1890
Project Manager	Chris Manley	USACE Fax Number	(910) 251-4025
Telephone Number	(919) 707-6000	NCDWQ Contact	
E-Mail Address	cdmanley@dot.state.nc.us	Mailing Address	
Supervisor	Chris Rivenbark	City, State, Zip	
Telephone Number	(919) 707-6000	NCDWQ Fax Number	

PROJECT LOCATION INFORMATION AND IMPACTS			
TIP Number(s)		R-2303 C	
TIP Description		NC 24 FROM SR 1404 (DOWDY RD) TO SR 1303 (MITCHELL LOOP RD)	
Current Let Date		7/16/13	
NCDOT Highway Division		Division 3	
County(ies)		Sampson	
EEP Ecoregion(s)		Southern Inner Coastal Plain	
River Basin(s)		Cape Fear	
Cataloging Unit(s) (8-digit)		03030006	
Total Stream (feet)	Warm	1,649	
	Cool		
	Cold		
	TOTAL	1,649	
Total Riparian Wetland Impact (acres)		7.29	
Total Non-Riparian Wetland Impact (acres)		3.69	
Total Coastal Marsh Impact (acres)			
Total Buffer Impact	Zone 1 (square feet)		
	Zone 2 (square feet)		

OTHER INFORMATION	
USACE Action ID Number (if known)	
NCDWQ Project Number (if known)	
NCDOT Project Number (if known)	
Comments:	

IMPORTANT		Signature of Applicant or Agent:
Check below if this request is a:		
<input type="checkbox"/>	New Mitigation Request	
<input checked="" type="checkbox"/>	Revision to a current acceptance	
		Date: _____



R-44D

MITIGATION REQUEST FORM
TRI-PARTY MOA (NCDOT)

Revised 3/24/2008



Fill in requested information, print out the form, sign and date, and either mail to EEP, 1652 Mail Service Center, Raleigh, NC 27699-1652, or fax to 919-715-2219. Attachments are acceptable for clarification purposes.

Electronic submissions are permissible; however, an acceptance letter cannot be sent until the original signed form has been received.

NCDOT CONTACT INFORMATION		REGULATORY CONTACT INFORMATION	
Agency/Division	NCDOT-Highways	USACE Office	Regulatory Field Office
Branch	PDEA-NEU	USACE Contact	Mr. Brad Shaver
Mailing Address	1598 Mail Service Center	Mailing Address	Post Office Box 1890
City, State, Zip	Raleigh, NC 27699-1598	City, State, Zip	Wilmington, NC 28402-1890
Project Manager	Chris Manley	USACE Fax Number	(910) 251-4025
Telephone Number	(919) 707-6000	NCDWQ Contact	
E-Mail Address	cdmanley@dot.state.nc.us	Mailing Address	
Supervisor	Chris Rivenbark	City, State, Zip	
Telephone Number	(919) 707-6000	NCDWQ Fax Number	

PROJECT LOCATION INFORMATION AND IMPACTS			
TIP Number(s)		R-2303 D	
TIP Description		NC 24 FROM SR 1303 (MITCHELL LOOP RD) TO US 421-701/SR 1296	
Current Let Date		7/16/13	
NCDOT Highway Division		Division 3	
County(ies)		Sampson	
EEP Ecoregion(s)		Southern Inner Coastal Plain	
River Basin(s)		Cape Fear	
Cataloging Unit(s) (8-digit)		03030006	
Total Stream (feet)	Warm	1,809	
	Cool		
	Cold		
	TOTAL	1,809	
Total Riparian Wetland Impact (acres)		3.35	
Total Non-Riparian Wetland Impact (acres)		2.53	
Total Coastal Marsh Impact (acres)			
Total Buffer Impact	Zone 1 (square feet)		
	Zone 2 (square feet)		

OTHER INFORMATION	
USACE Action ID Number (if known)	
NCDWQ Project Number (if known)	
NCDCM Project Number (if known)	
Comments:	

IMPORTANT		Signature of Applicant or Agent:
Check below if this request is a:		
<input type="checkbox"/>	New Mitigation Request	
<input checked="" type="checkbox"/>	Revision to a current acceptance	
		Date: _____

R-44 E

APPENDIX B – Reforestation Details

<p>PROJECT INFORMATION</p> <p>PROJECT NO. 22438</p> <p>DATE 10/1/77</p> <p>BY W. J. H. / J. H. H.</p> <p>FOR U.S. ARMY CORPS OF ENGINEERS</p> <p>LOCATION REFORESTATION</p>	<div style="text-align: center;"> <h2 style="margin: 0;">PLANTING DETAILS</h2> <h3 style="margin: 0;">SEEDLING / LINER BARERoot PLANTING DETAIL</h3> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="width: 45%;"> <p style="text-align: center;">HEALING IN</p> <ol style="list-style-type: none"> 1. Excavate a trench 12 inches deep and 12 inches wide. 2. Remove a 12 inch layer of soil from the trench. 3. Break up the trench with 2 inches of soil and place a 2 inch layer of soil in the trench. 4. Place a 12 inch layer of soil in the trench. 5. Place a 2 inch layer of soil in the trench. 6. Break down the trench and remove the soil. </div> <div style="width: 45%;"> <p style="text-align: center;">DIBBLE PLANTING METHOD USING THE REC PLANTING BAR</p> <ol style="list-style-type: none"> 1. Insert planting bar into the ground and pull handle. 2. Remove planting bar and pull handle. 3. Insert planting bar into the ground and pull handle. 4. Remove planting bar and pull handle. 5. Insert planting bar into the ground and pull handle. 6. Remove planting bar and pull handle. </div> </div> <div style="margin-top: 20px;"> <p style="text-align: center;">PLANTING NOTES:</p> <p>PLANTING BAG During planting, seedlings should be kept in the bag until they are ready to be planted. The bag should be kept in the ground until the seedling is ready to be planted.</p> <p>REC PLANTING BAR The REC planting bar is a tool used for planting seedlings. It is made of metal and has a handle. The bar is used to create a hole in the ground and then the seedling is placed in the hole.</p> <p>ROOT PRUNING The roots of the seedling should be pruned before planting. This is done by cutting the roots with a pair of scissors. The roots should be cut to a length of 12 inches.</p> </div>
---	--

REFORESTATION

□ TREE REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

REFORESTATION

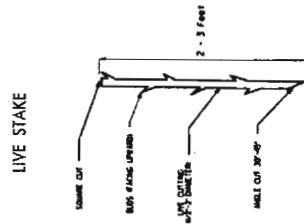
MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING.

25% QUERCUS PHELLOS	WILLOW OAK	12 in - 18 in BR
25% QUERCUS NIGRA	WATER OAK	12 in - 18 in BR
25% BETULA NIGRA	RIVER BIRCH	12 in - 18 in BR
25% FRAXINUS PENNSYLVANICA	GREEN ASH	12 in - 18 in BR

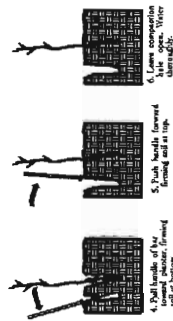
REFORESTATION DETAIL SHEET

MCDARY-ROBINSON ENVIRONMENTAL UNIT

LIVE STAKES PLANTING DETAIL



1. Leaves planted low
2. Branches showing low
3. Branches showing low
4. Branches showing low



PLANTING BAG
During planting, seedlings should be kept in a moist canvas bag or similar container to prevent the root system from drying.



WIRE PLANTING BAR
Planting bar shall have a
blade with a triangular
cross section, and shall
be 12 inches long,
4 inches wide and
3/8 inch thick at center.

ROOT PRUNING

DETAIL SHEET 1 OF 2

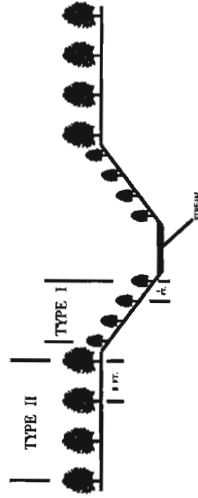
N.C.D.A.T.- NORTHERN ENVIRONMENTAL UNIT

☐ TYPE 1 STREAMBANK REFORESTATION SHALL BE PLANTED 3 FT. TO 5 FT. ON CENTER, RANDOM SPACING, AVERAGING 4 FT. ON CENTER, APPROXIMATELY 2724 PLANTS PER ACRE.

☐ TYPE 2 STREAMBANK REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

☐ NOTE: TYPE 1 AND TYPE 2 STREAMBANK REFORESTATION SHALL BE PAID FOR AS "STREAMBANK REFORESTATION"

STREAMBANK REFORESTATION TYPICAL



STREAMBANK REFORESTATION

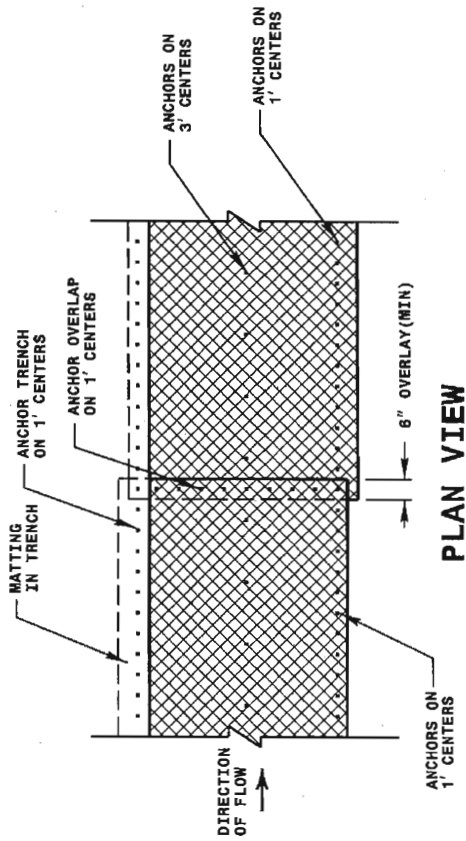
MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

TYPE 1		TYPE 2	
50% <i>SALIX NIGRA</i>	BLACK WILLOW	2 ft - 3 ft LIVE STAKES	
50% <i>CORNUS AMOMIUM</i>	SILKY DOGWOOD	2 ft - 3 ft LIVE STAKES	
25% <i>QUERCUS PHELLOS</i>	WILLOW OAK	12 in - 18 in BR	
25% <i>QUERCUS NIGRA</i>	WATER OAK	12 in - 18 in BR	
25% <i>BETULA NIGRA</i>	RIVER BIRCH	12 in - 18 in BR	
25% <i>FRAXINUS PENNSYLVANICA</i>	GREEN ASH	12 in - 18 in BR	

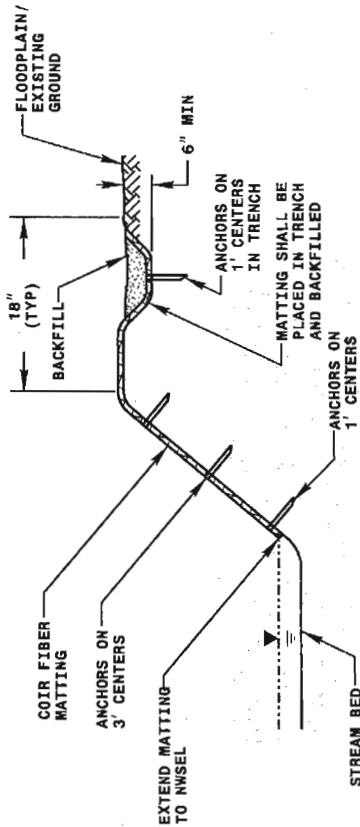
☐ SEE PLAN SHEETS FOR AREAS TO BE PLANTED

R-44H

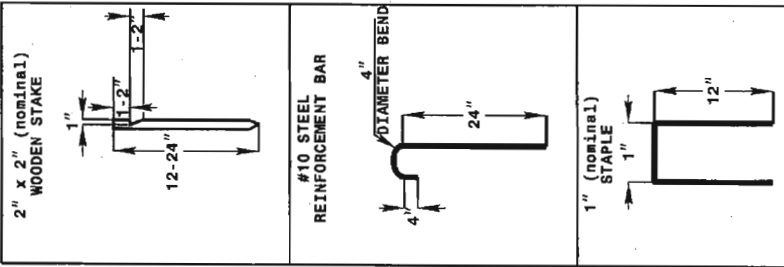
PROJECT SHEET NO.	1-2-20
SHEET NO.	2 OF 2
DATE	10/1/00
DESIGNED BY	W. J. HARRIS
CHECKED BY	W. J. HARRIS
INCHES	



PLAN VIEW



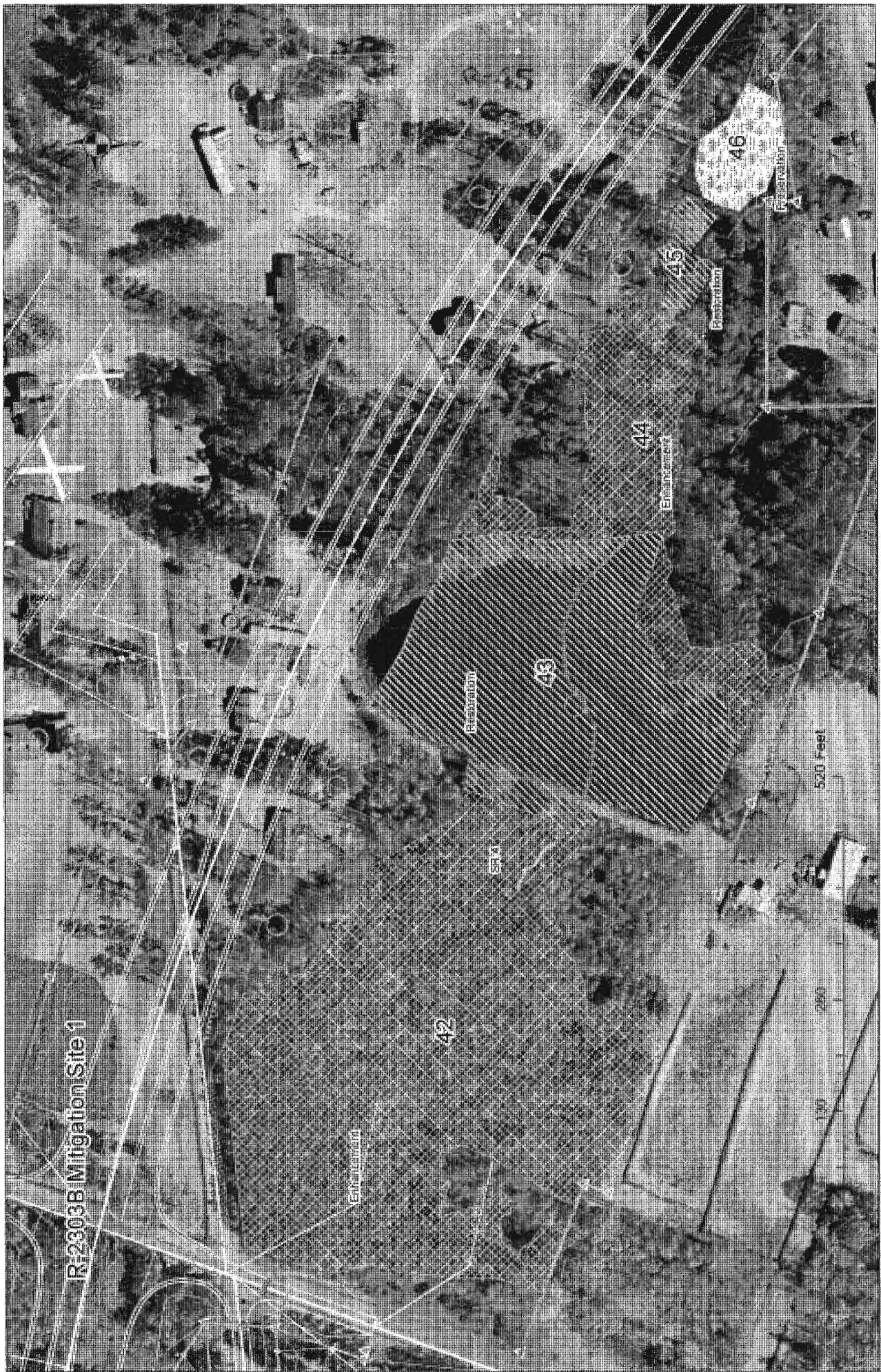
TYPICAL CROSS SECTION



ANCHOR OPTIONS

STREAMBANK REFORESTATION
DETAIL SHEET 2 OF 2
NORRAT - NATURES ENVIRONMENTAL UNIT

COIR FIBER MATTING DETAIL
NOT TO SCALE



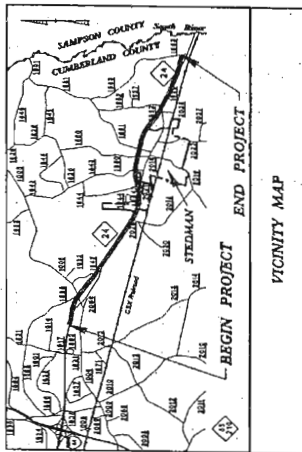








See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

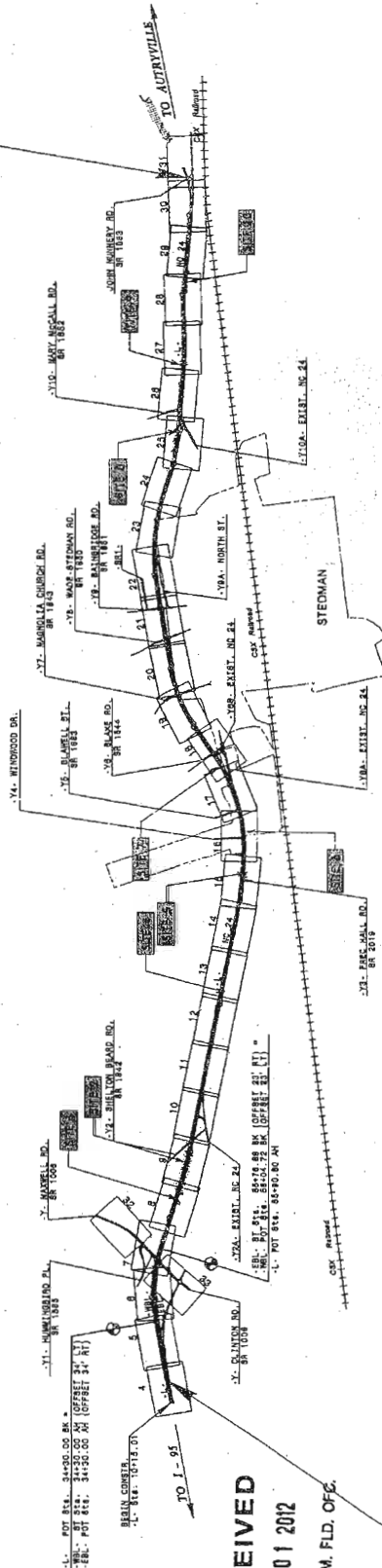
CUMBERLAND COUNTY

LOCATION: NC 24 FROM WEST OF SR 1006 (MAXWELL RD.)
CLINTON RD.) TO SR 1853 (JOHN NUNNERY RD.)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND SIGNALS

Permit Drawing
Sheet 1 of 40
Revised 7/23/12

STA. 376 + 28.96 - L- END TIP PROJECT R-2303A

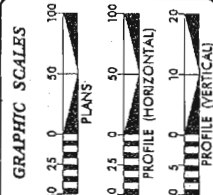


STA. 16 + 90.00 - L- BEGIN TIP PROJECT R-2303A

RECEIVED
AUG 01 2012
REG. WLM. FLD. OFF.

A PORTION OF THIS PROJECT IS WITHIN
THE MUNICIPAL BOUNDARIES OF STEADMAN
THIS IS A LIMITED AND PARTIAL CONTROL OF
TRAFFIC PROJECT BEING LIMITED TO POINTS AS SHOWN ON THE
PLANS.

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.



DESIGN DATA	
ADT 2011	= 19,264
ADT 2031	= 30,144
DHV	= 11 %
D	= 65 %
T	= 8 %
V	= 60 MPH
FUNC CLASS	= EXFY TYPE II
* TST	= 5% DUAL 3%
STATEWIDE TIER	

PROJECT LENGTH	
LENGTH ROADWAY TIP PROJECT R-2303A	= 6.807 MILES
TOTAL LENGTH TIP PROJECT R-2303A	= 6.807 MILES

DIVISION OF HIGHWAYS 1008 Birch Ridge Dr., Raleigh, NC, 27610	
RIGHT OF WAY DATE:	GARY LOVERING, PE PROJECT ENGINEER
LETTING DATE:	RICK DECOLA, PE PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER	
DESIGNER:	PE
ROADWAY DESIGN ENGINEER	

PRELIMINARY PLANS
NO PART MAY BE CONSTRUCTED

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

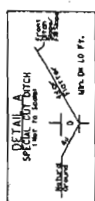
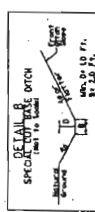
STATE HIGHWAY DESIGN ENGINEER

TIP PROJECT: R-2303A

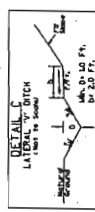
CONTRACT:

DITCH DETAILS

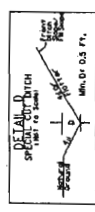
Permit Drawing
Sheet 2 of 40
Revised 7/23/12

[illegible]

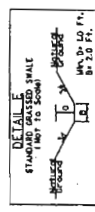
FROM STA 195+50 TO STA 209+00 - L.T.
FROM STA 203+50 TO STA 214+50 - R.T.



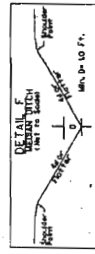
FROM STA. 167 + 50 TO STA. 174 + 00	-	LT.
FROM STA. 236 + 00 TO STA. 240 + 50	-	RT.
FROM STA. 252 + 00 TO STA. 258 + 00	-	RT.
FROM STA. 276 + 50 TO STA. 284 + 00	-	RT.



FROM STA 365+50 TO STA 367+00 L-RT



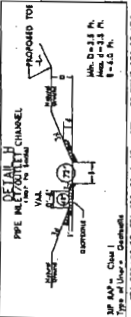
STA 124+46 -L- LT.
STA 147+98 -L- LT.
STA 190+39 -L- LT.
STA 215+02 -L- LT.
STA 96+70 -L- RT.
STA 304+93 -L- RT



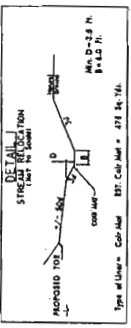
FROM STA 161+00 TO STA 162+00 L- MED.
FROM STA 196+00 TO STA 199+00 L- MED.
FROM STA 211+00 TO STA 214+00 L- MED.



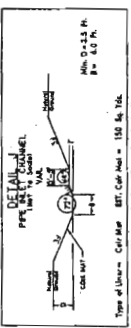
Type of Linear Class 9 810-R00



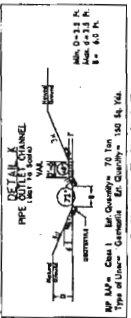
Type of Unsat. = Conjugated



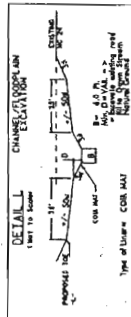
Type of Linear =	Color Mod	ES7, Color Mod =	476 Sq. Yds.
STA, 309 + 92 TO	STA, 309 + 88	-L-	RT



Type of Unit =	Cable Mod	EST. Cable Mod =	150 Sq Yds
		STA. 302 + 88 TO STA. 303 + 23	4-6



Type of Uncor.	Gravelite	Gr. Quantity	= 150 Sq. Yds.
STA. 304+15 TO STA. 304+50	4	RT	



EST. COIL MAT = 350 SQ YDS
FROM STA. 304+50 TO STA. 305+41 -L- RT

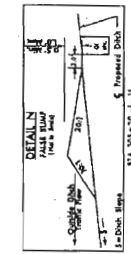
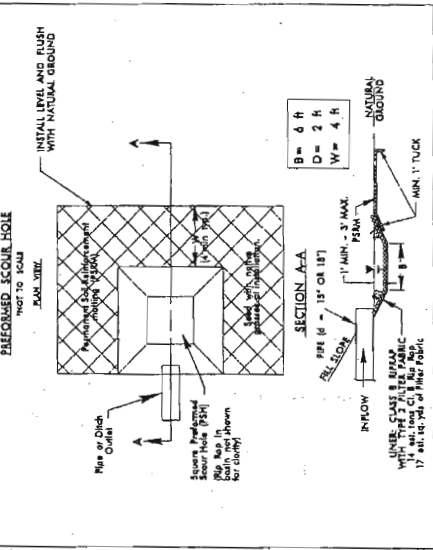


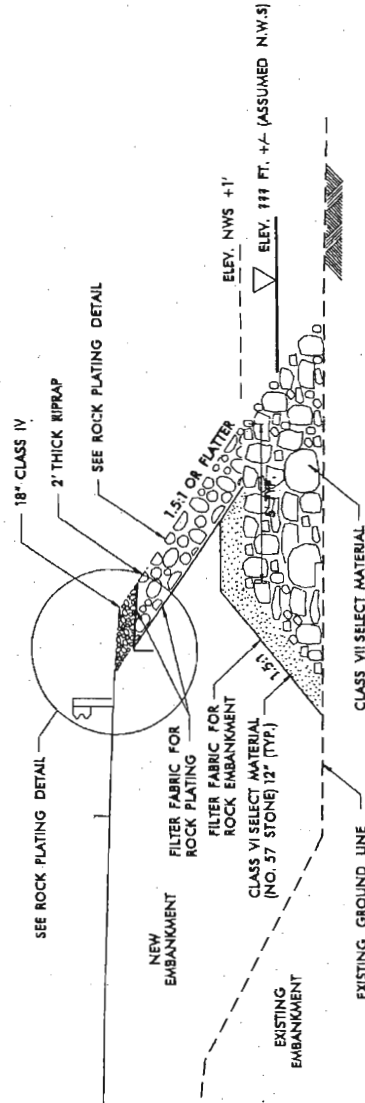
Figure 1



STA 73+23 -L- LT
STA 172+00 -L- RT

HYDRAULIC ENGINEER	NO. 10
DESIGNED BY	NO. 10
CHECKED BY	NO. 10
DATE	NO. 10
PROJECT NO.	NO. 10
SHEET NO.	NO. 10
INCOMPLETE PLANS	NO. 10
PRELIMINARY PLANS	NO. 10
FOR INFO USE FOR CONSTRUCTION	NO. 10

Permit Drawing
Sheet 3 of 40



TYPICAL ROCK EMBANKMENT/ROCK PLATING DETAIL

N.T.S

17-2302A MY SHEET NO.	KODAK SAFETY FILM BROWN	KODAK SAFETY FILM BROWN	PRELIMINARY PLANS 30 WEST 104th ST CONSTRUCTION
--------------------------	----------------------------	----------------------------	---

NAD 8395

Permit Drawing
Sheet 4 of 40

NEW FAMILY LLC

SITE 1




02

75

PROGRAM STANDARD FARMERS

MATCHLINE SEE SHEET 9-L-STA75+00.00

MATCHLINE SEE SHEET 7 -L- STA 62+00.00

 DENOTES IMPACTS IN SURFACE WATER (POND)
 DENOTES FILL IN WETLAND
 DENOTES MECHANIZED CLEARING

GRAPHIC SCALE 1" = 50'

NOTES ON CONTRIBUTORS

12

JOSEPH P. MOOLE ■

14

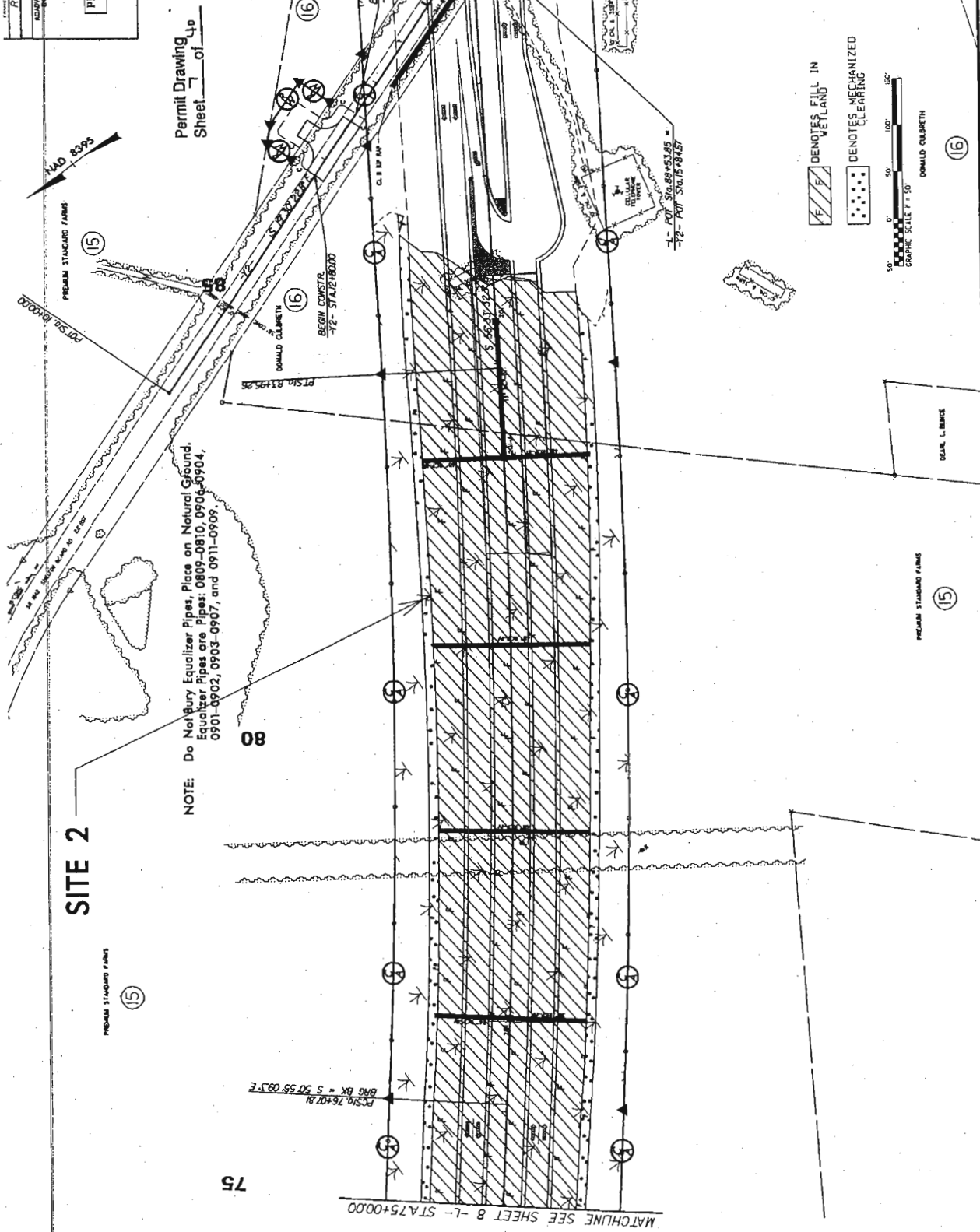
SPRING GARDENS FARM
15

15

Rock Fall
See Contacts for Details
See 49440 16 73 + 93 -L- B

TV

PROJECT NO.	R-2303A
SHEET NO.	9
DESIGNED BY	WILLIAMS
CHECKED BY	WILLIAMS
DATE	08/11/09
PRELIMINARY PLANS	NO NOT FOR CONSTRUCTION



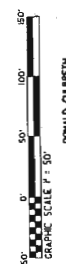
Permit Drawing
Sheet 7 of 40

NOTE: Do Not Bury Equalizer Pipes, Place on Natural Ground.
Equalizer Pipes are Pipes: 0809-0810, 0906-0904,
0901-0902, 0903-0907, and 0911-0909.

SITE 2

DENOTES FILL IN
WETLAND

DENOTES MECHANIZED
CLEARING



DONALD CULVERT

(16)

PRELIM STAGNANT FLOOD

(15)

SEAL, L. RENCE

MATCHLINE SEE SHEET 8 - L- STA 75+00.00

MATCHLINE SEE SHEET 10 - L- STA 89+00.00

Permit Drawing
Sheet 9 of 40

99+50.00
140.84
139.54
137.88

99+00.00
137.27

98+50.00
136.94

98+00.00
136.45

97+50.00

Permit Drawing
Sheet 9 of 40

99+50.00
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137.88

99+00.00
137.27

98+50.00
136.94

98+00.00
136.45

97+50.00

R-56

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Permit Drawing
Sheet 9 of 40

99+50.00
140.84
D.P. 40.579
139.54

99+00.00
D.P. 40.579
139.54

98+50.00
D.P. 40.579
139.54

98+00.00
D.P. 40.579
139.54

97+50.00
D.P. 40.579
139.54

97+00.00
D.P. 40.579
139.54

R-56

Permit Drawing
Sheet 9 of 40

Diagram 1: 99+50.00
Diagram 2: 99+00.00
Diagram 3: 98+50.00
Diagram 4: 98+00.00
Diagram 5: 97+50.00

Permit Drawing
Sheet 9 of 40

R-58

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139.54

99+00.00
D.P. 40.587
139.03

98+50.00
D.P. 40.587
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D.P. 40.587
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D.P. 40.587
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D.P. 40.587
138.45

Permit Drawing
Sheet 9 of 40

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D.P. 40.579
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99+00.00
D.P. 40.579
139.54

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D.P. 40.579
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D.P. 40.579
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97+00.00
D.P. 40.579
139.54

Permit Drawing
Sheet 9 of 40

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98+00.00

97+50.00
D.P. 40.587
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D.P. 40.587
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99+00.00

99+00.00
D.P. 40.587
139.54
99+50.00

140 145 150

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

PROJECT NO.	10
DATE	NOV 1995
BY	W. J. BROWN
FOR	W. J. BROWN
REVISIONS	
NO.	DESCRIPTION
1	PRELIMINARY PLANS
2	FOR PERMITTING
3	FOR CONSTRUCTION

Permit Drawing
Sheet II of L-10

W. J. BROWN

JAMES HODGES JACKSON

MATTHEW CARTER

REVISIONS

DATE

BY

FOR

REVISIONS

DATE

BY

FOR

REVISIONS

DATE

BY

FOR

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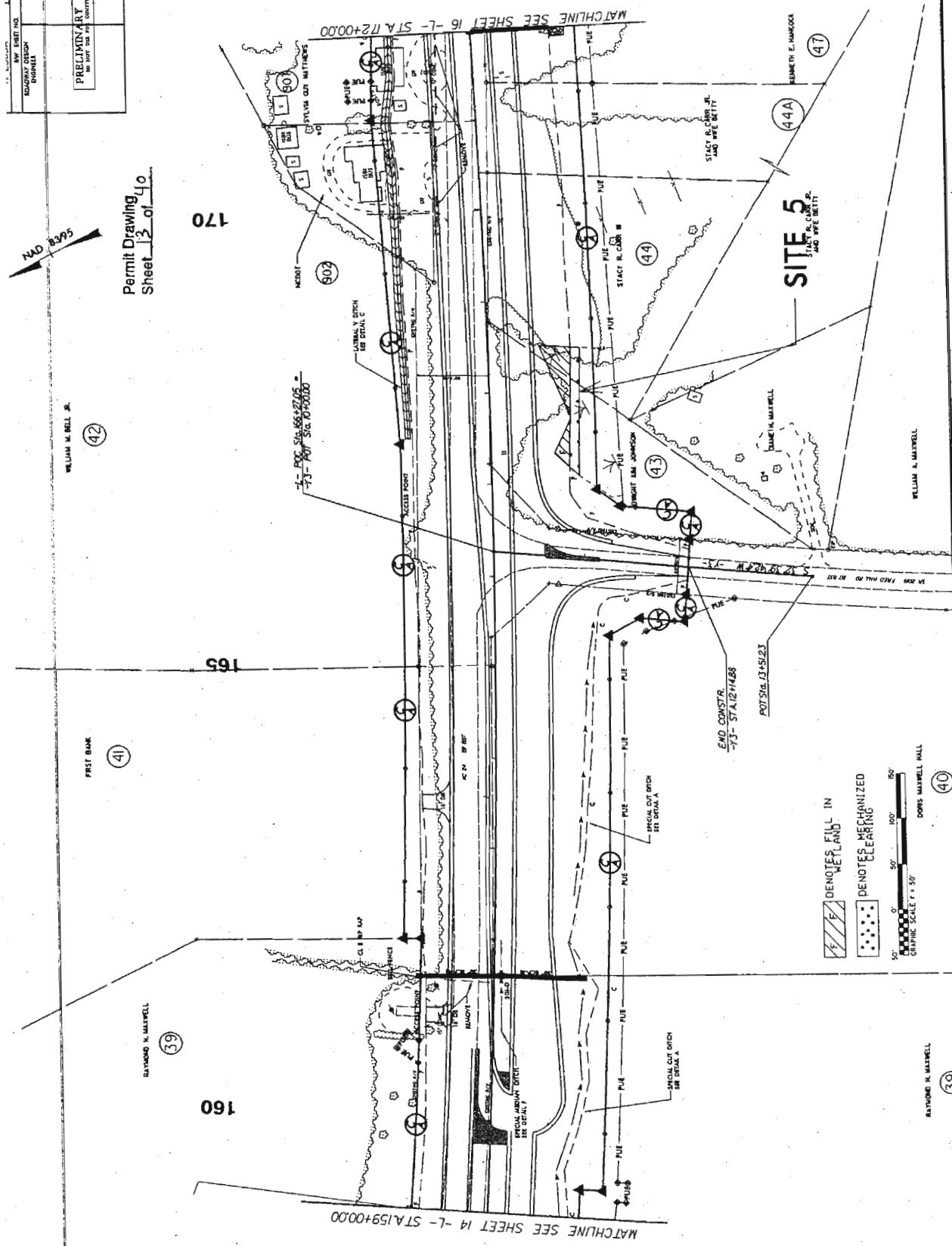
FOR

REVISIONS

DATE

BY


FOR


Permit Drawing
Sheet 13 of 40

SITE 5

MATCHLINE SEE SHEET 14-L-STA159+00.00

MATCHLINE SEE SHEET 16-L-STA 72+00.00

 DENOTES FILL IN WETLAND.

 DENOTES MECHANIZED CLEARING

0' 50' 100' 150'

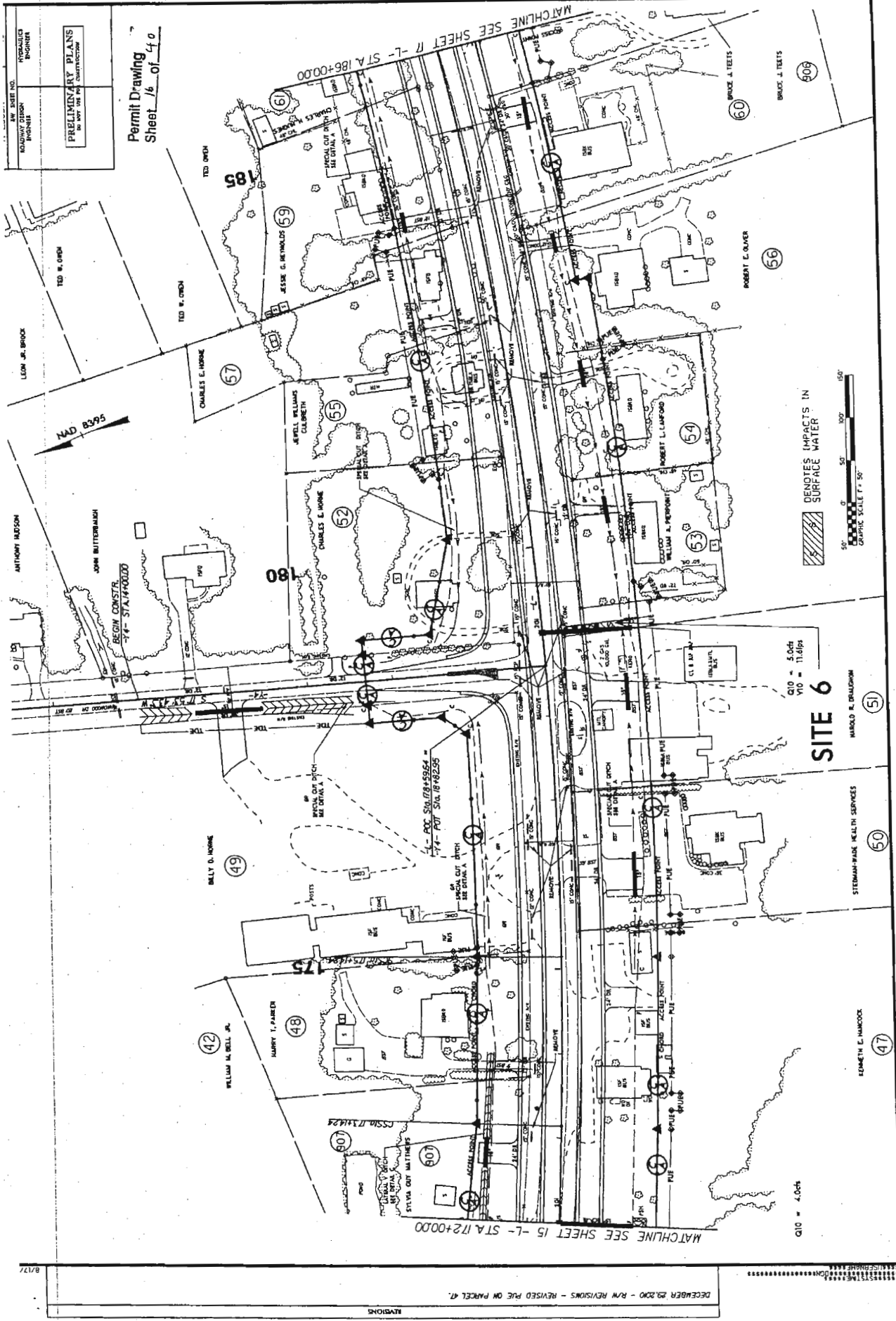
GRAPHIC SCALE 1" = 50'

DOUGLAS, MAYNARD & MILLER

40

39

40



NEW DIST. NO. ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
---	------------------------

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 16 of 40

DENOTES IMPACTS IN SURFACE WATER

SITE 6

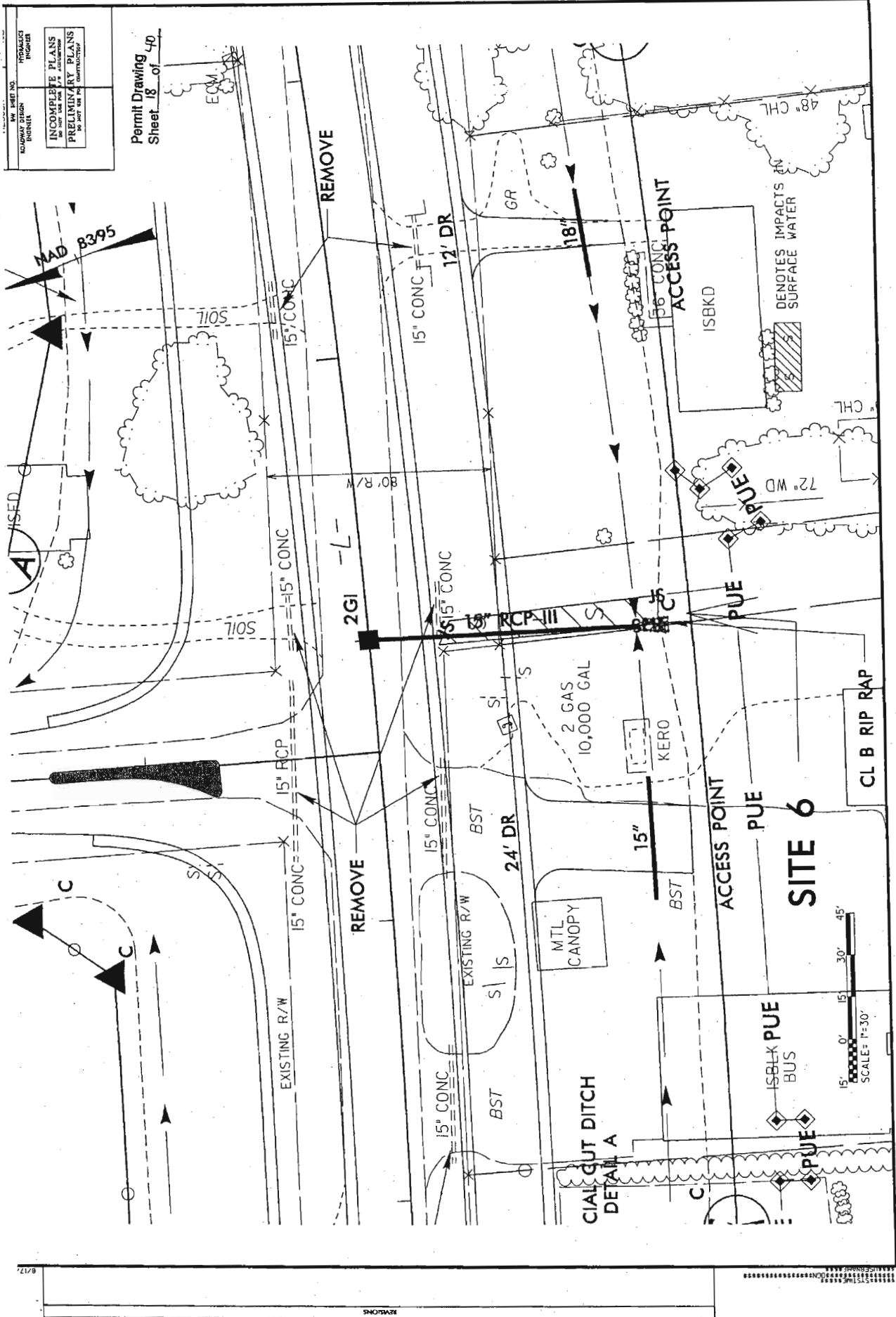
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Q10 = 4.044

MATCHLINE SEE SHEET 15 - L- STA 172+00.00

DECEMBER 29, 2010 - R/W REVISIONS - REVISED PUE ON PARCEL 47.

27/5/2012
omg4dows
RlyVhYdRdUdC4\PE\H4L15\Envr\cmh4n1gr\Bp\w4r104\Nr23030.mhYdRdR.w4r.D.mh4dgn



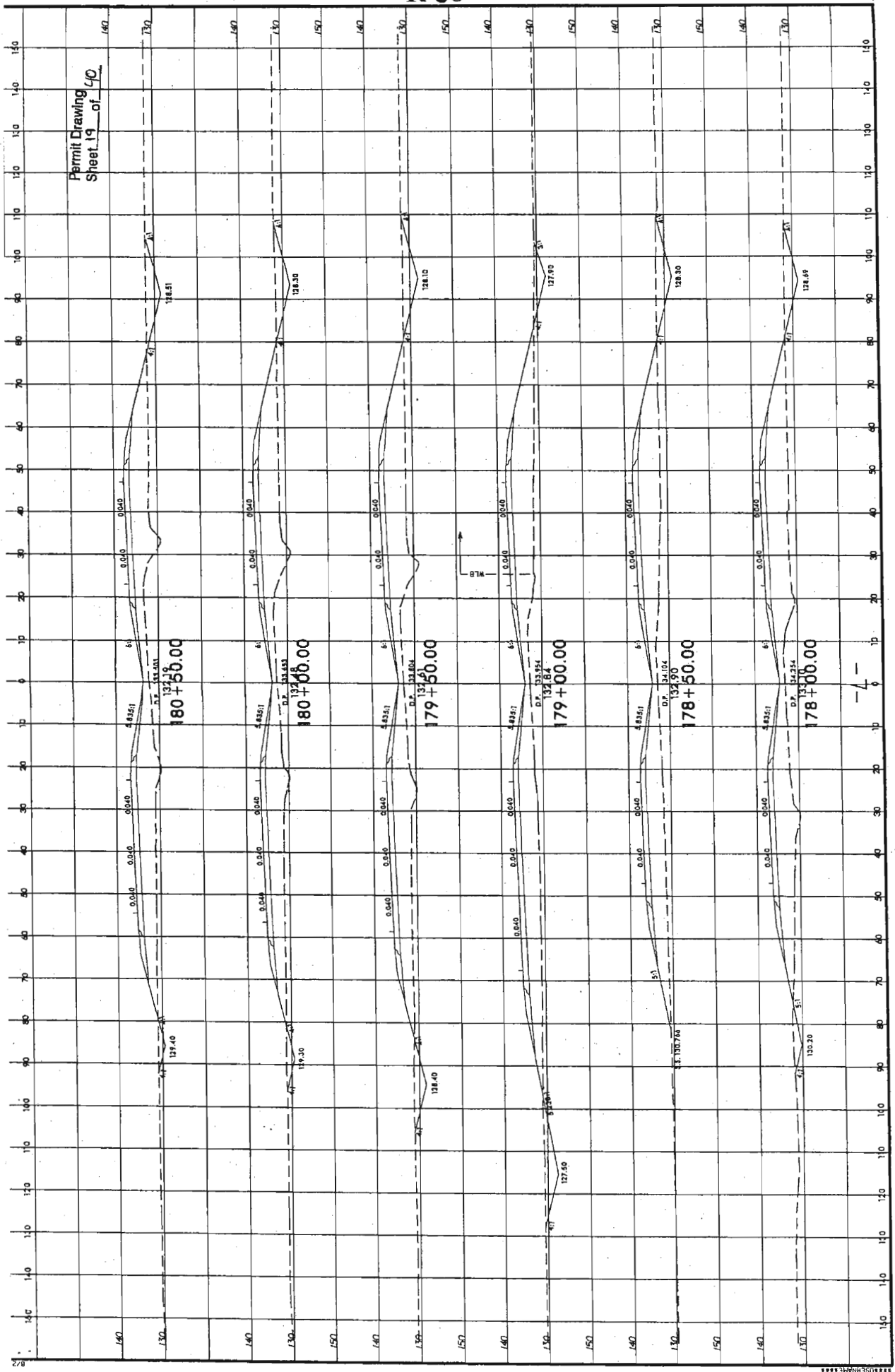
SW SHEET NO.	HYDRAULICS ENGINEER
ALUMINUM DESIGN	INCOMPLETE PLANS
	PRELIMINARY PLANS
	NO POST MAP FOR CONSTRUCTION

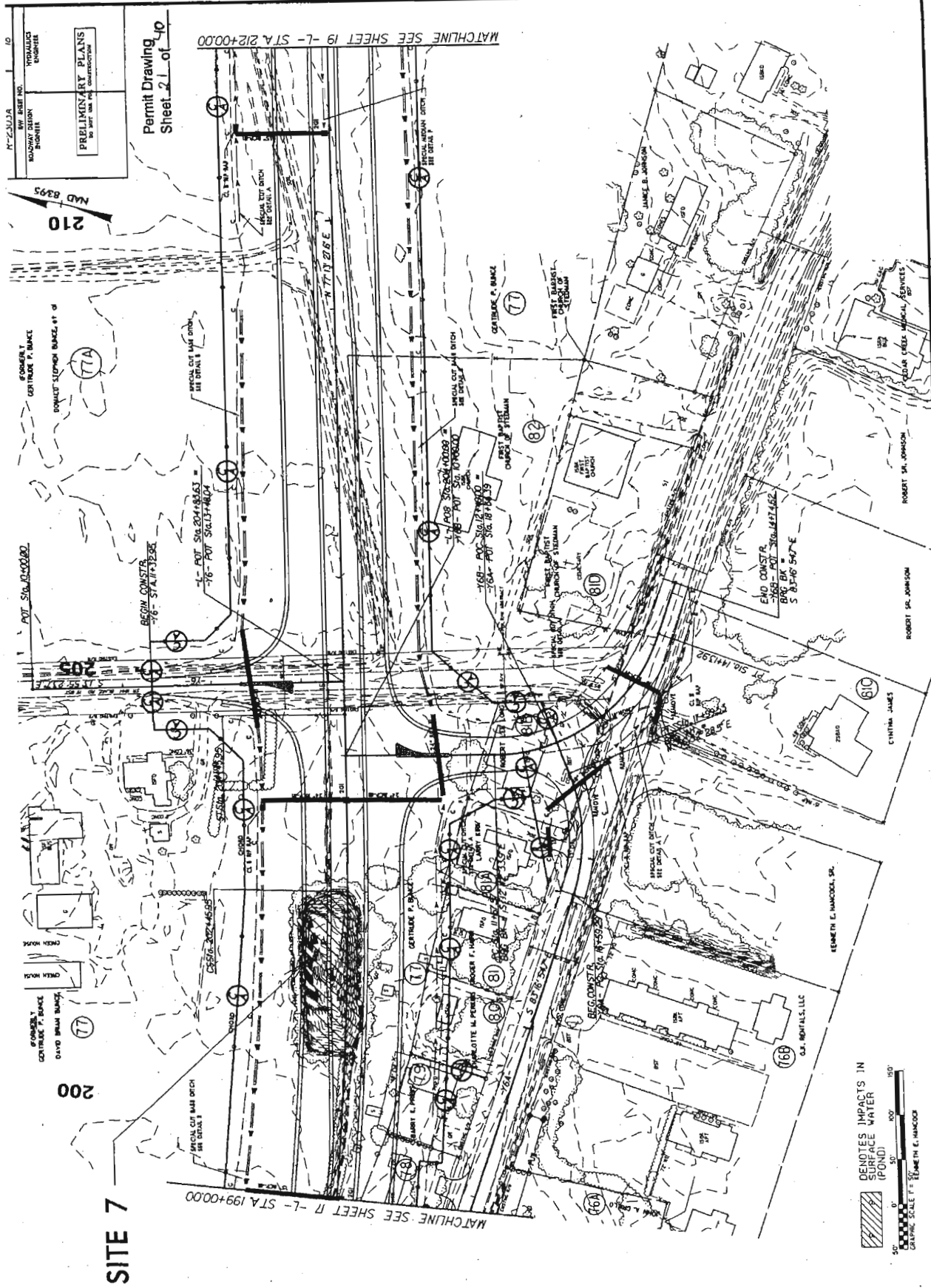
Permit Drawing
Sheet 18 of 40



SITE 6

Permit Drawing
Sheet 19 of 40





Permit Drawing
Sheet 2 of 10

PRELIMINARY PLANS
FOR THE
CONSTRUCTION

CONTRACT NO.
ROADWAY DESIGN
ENGINEER

CONTRACT NO.
ROADWAY DESIGN
ENGINEER

CONTRACT NO.
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ROADWAY DESIGN
ENGINEER

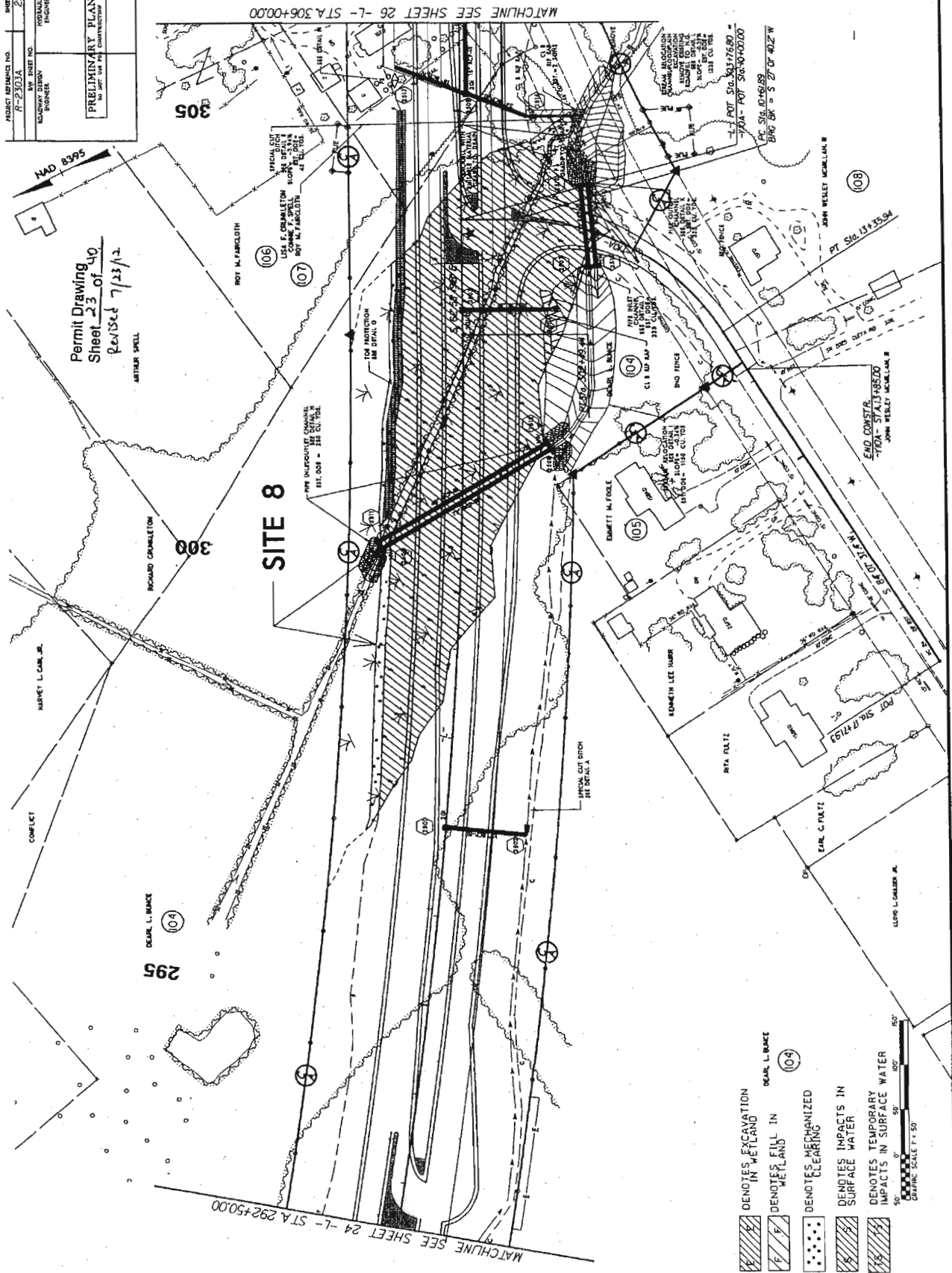
CONTRACT NO.
ROADWAY DESIGN
ENGINEER

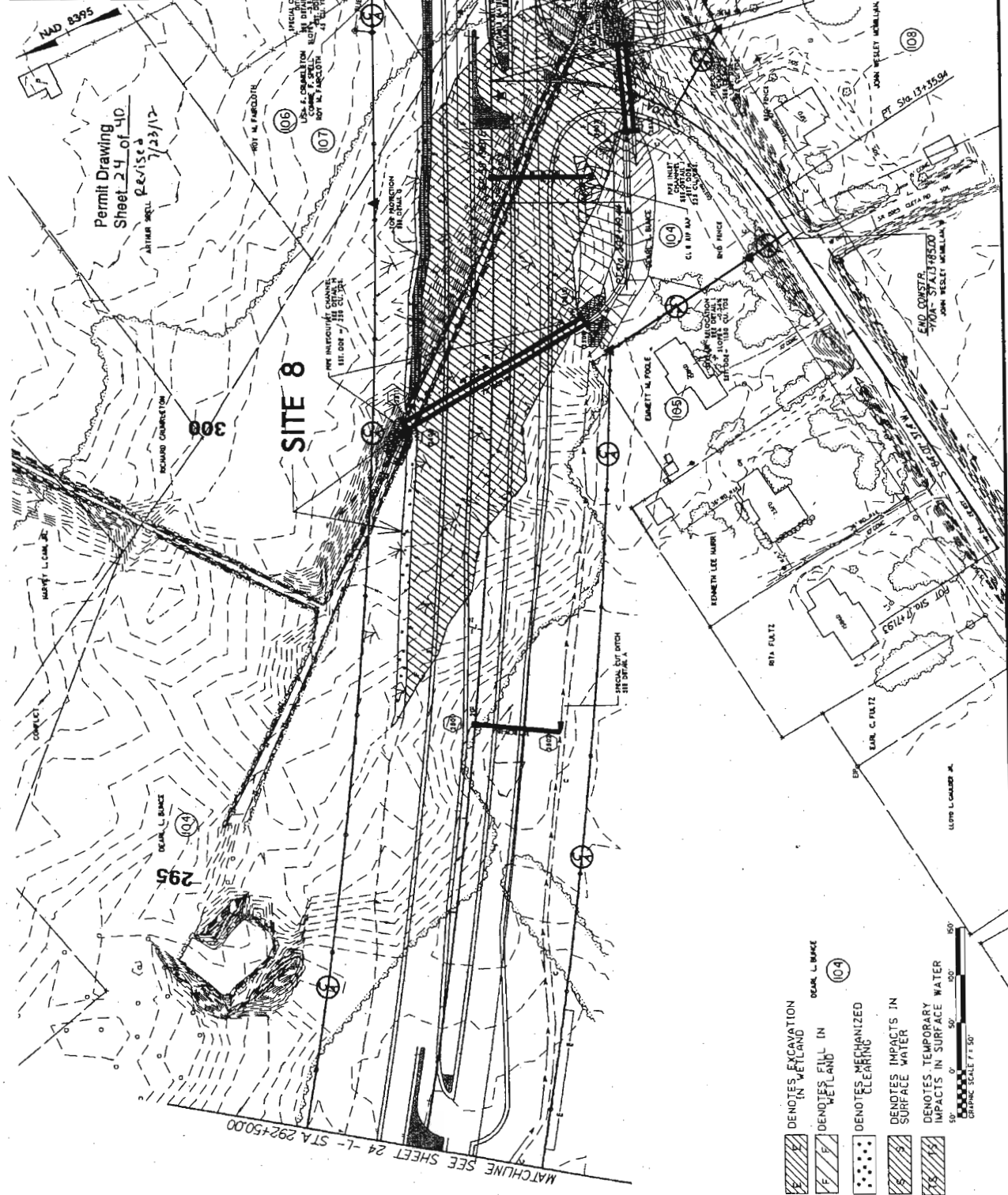
REMOVES IMPACTS IN
SURFACE WATER
(POND)
GRAPHIC SCALE 1" = 20' 0"

RIGHT OF WAY REVISION - JANUARY 18, 2011 - ADD PARCELS NOS. 76A AND 76B.
REVISIONS
8/1/12

	UNDERCUT EXCAVATION
---	------------------------

99 127 98.00





REVISIONS

PROJECT REFERENCE NO.	258
DATE	7/23/12
BY	W. J. H. H.
CHECKED BY	W. J. H. H.
DESIGNED BY	W. J. H. H.
INCOMPLETE PLANS	NO NOT FOR CONSTRUCTION
PRELIMINARY PLANS	NO NOT FOR CONSTRUCTION

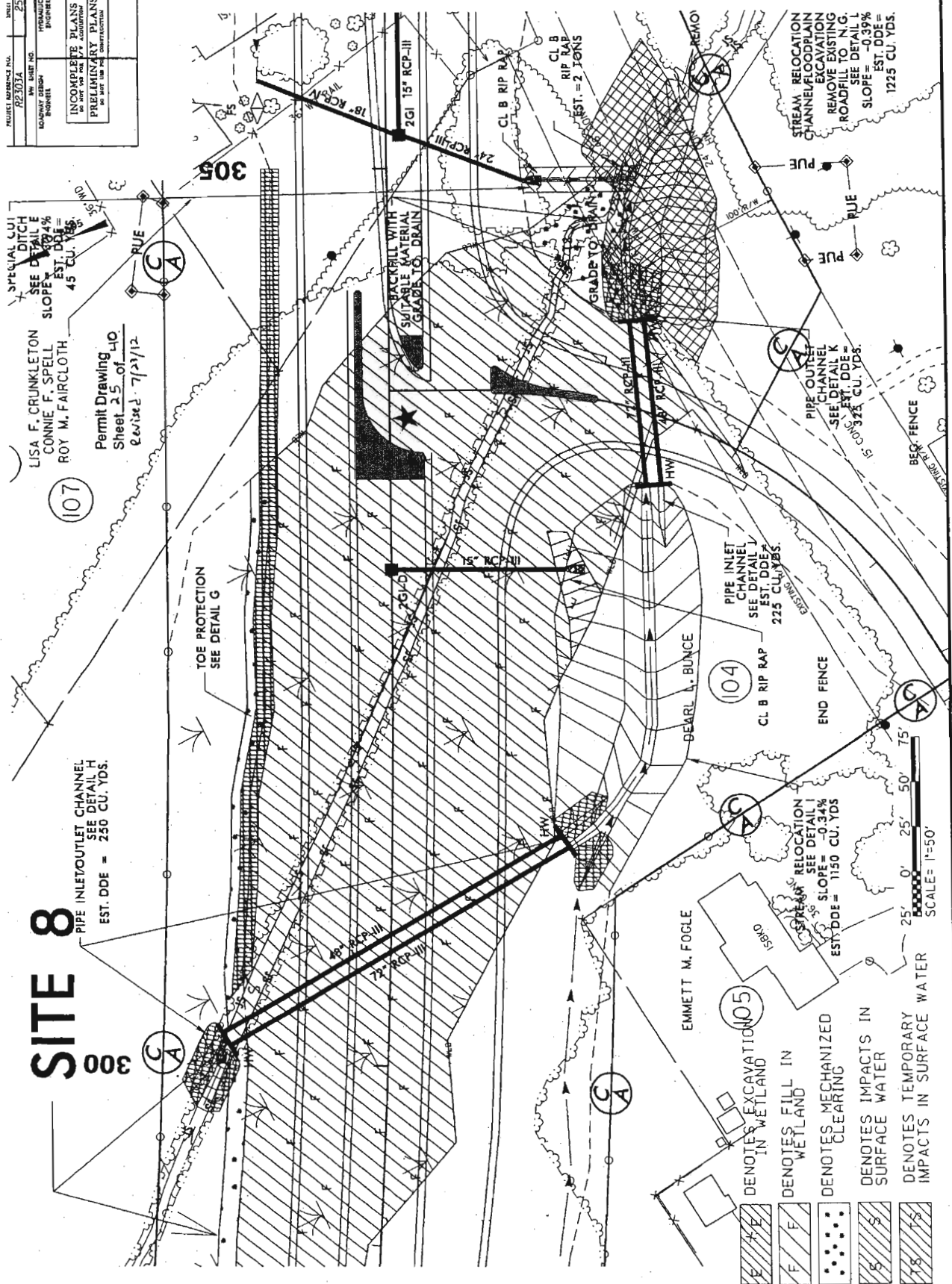
LISA F. CRUNKLETON
CONNIE F. SPELL
ROY M. FAIRCLOTH

Permit Drawing 40
Sheet 25 of 25
Revised 7/23/12

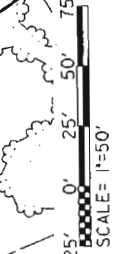
SPECIAL CUT
DITCH
SEE DETAIL E
SLOPE = 4%
EST. DDE = 45 CU. YDS.

SITE 8

PIPE INLET/OUTLET CHANNEL
SEE DETAIL H
EST. DDE = 250 CU. YDS.

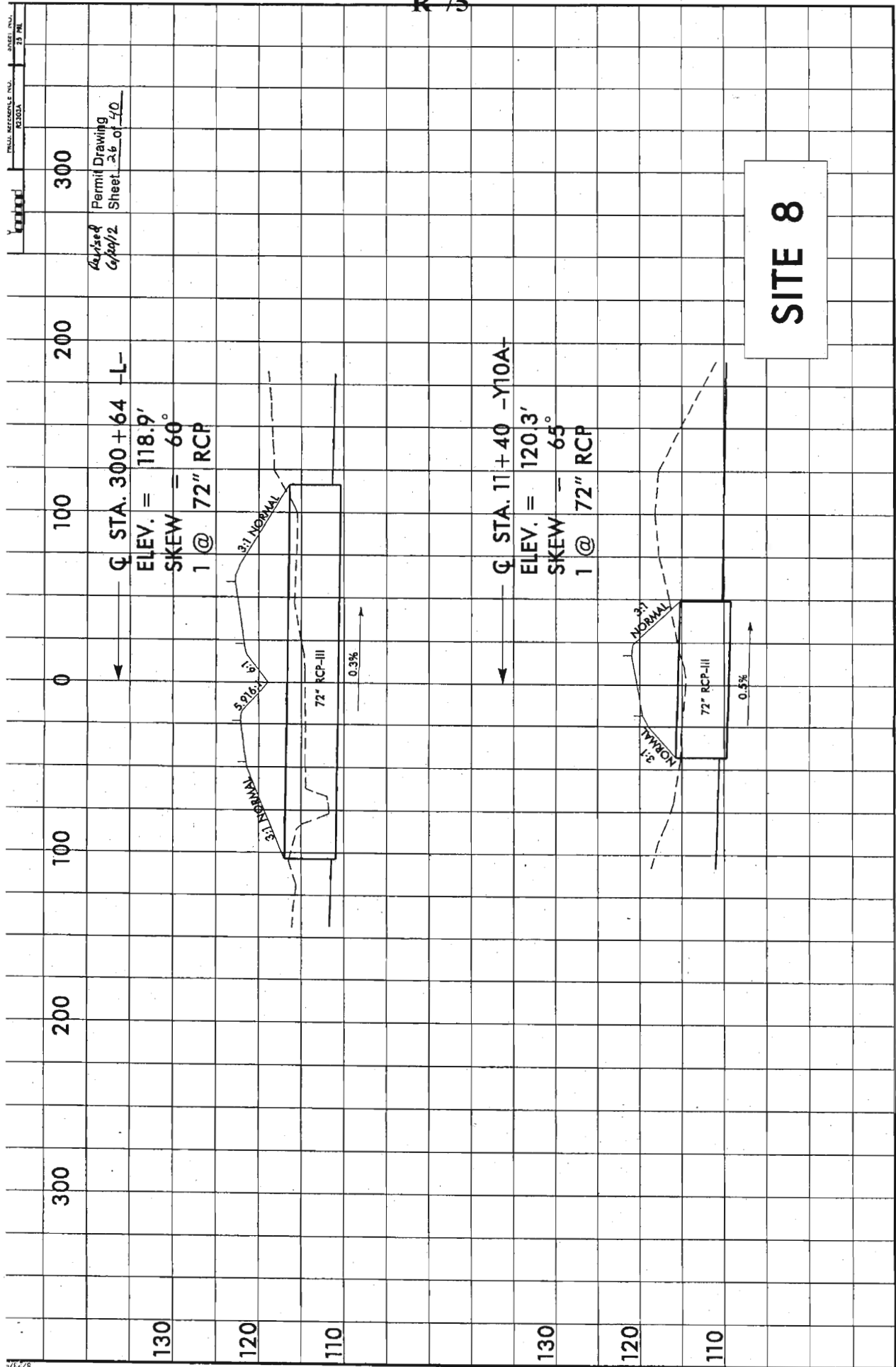


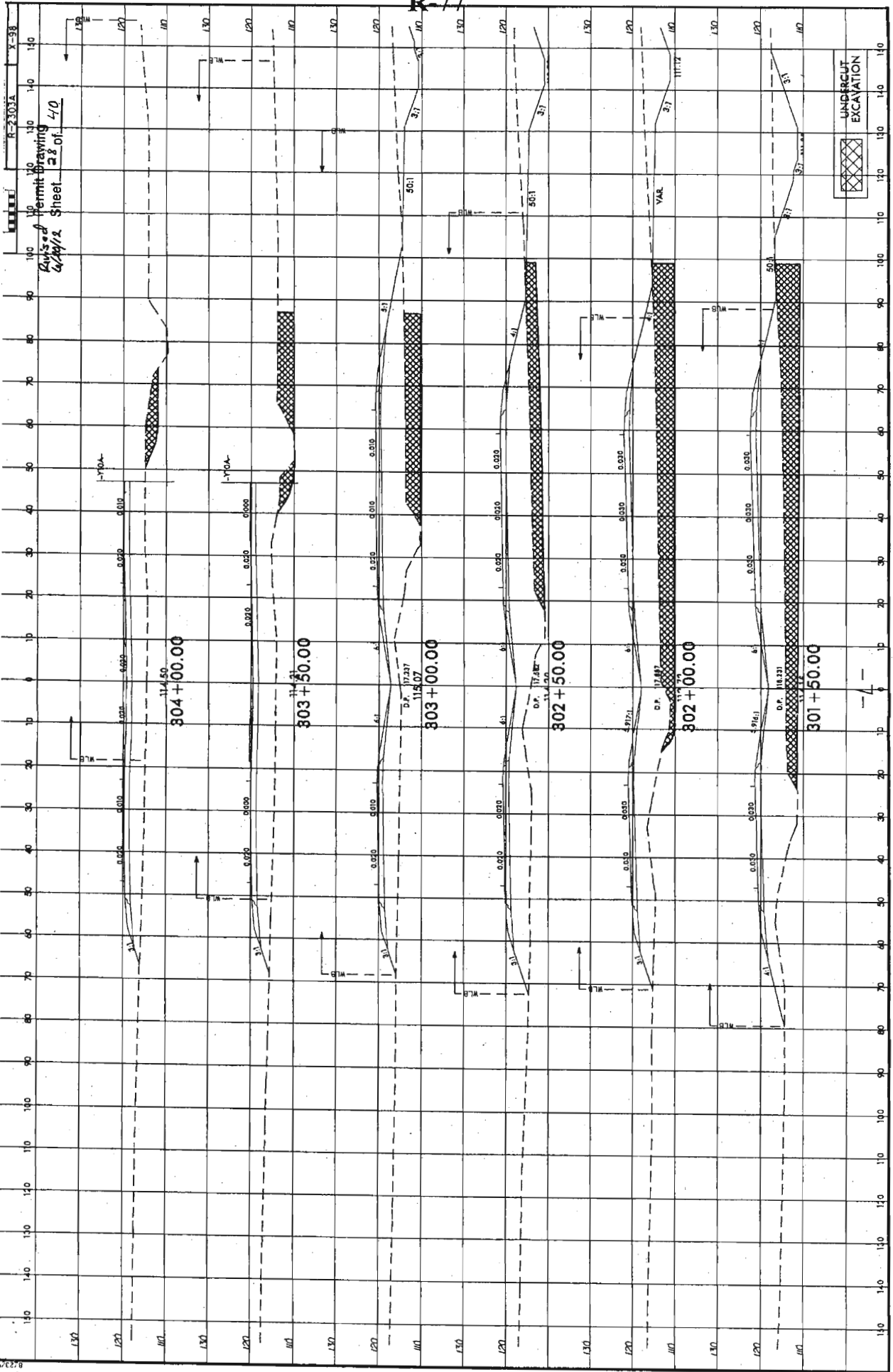
- DENOTES EXCAVATION IN WETLAND
- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER



B-17/95

REVISIONS





R-2303A X-38
4/23/02 Permit Drawing
6/14/02 Sheet 28 of 40

R-77

R-2303A

27

HYDRAULICS
ENGINEER

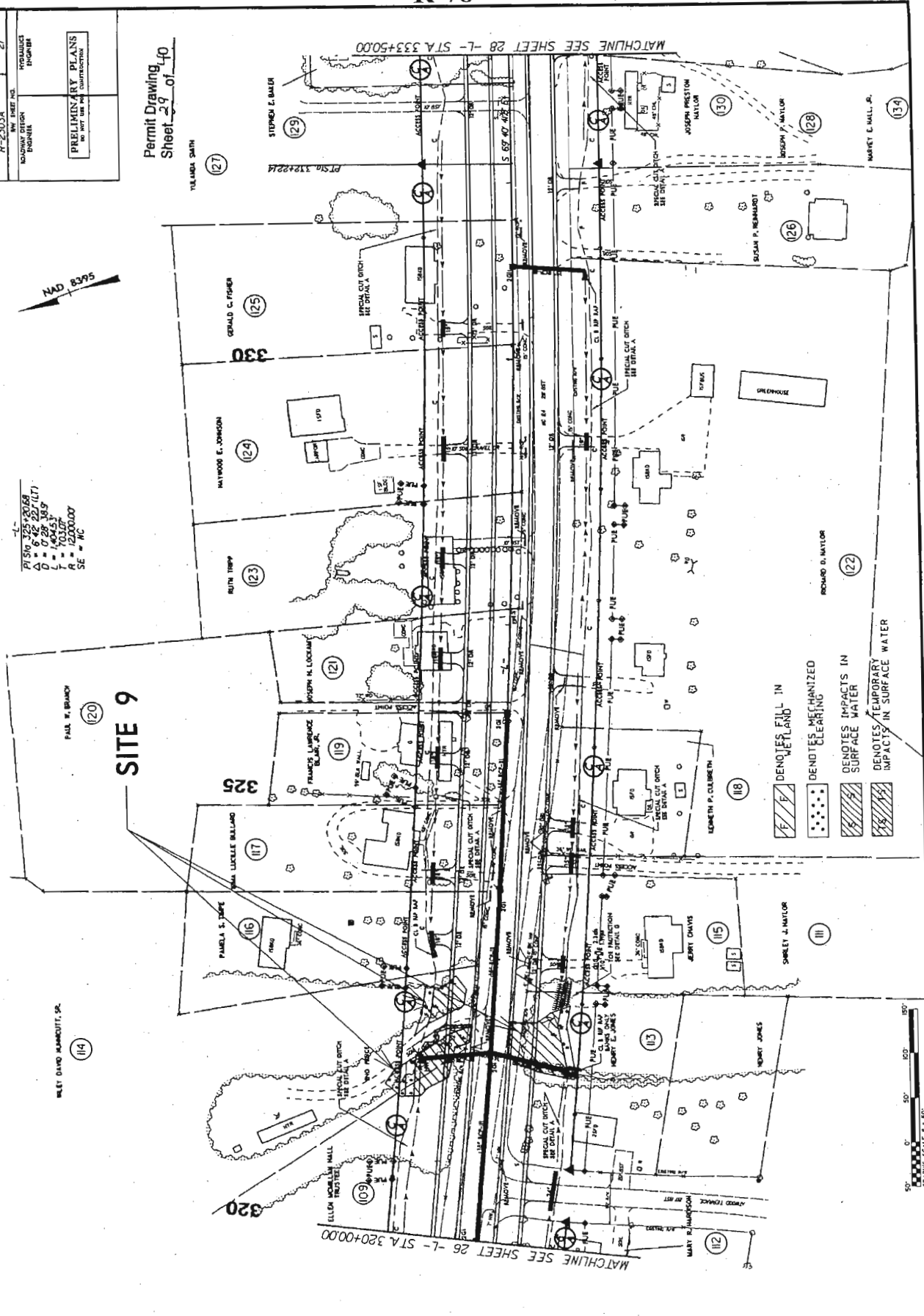
PRELIMINARY PLANS
NO NOT FOR CONSTRUCTION

Permit Drawing
Sheet 29 of 40

YELANDIA DAM

PROJ. 325-2303A
D = 6.42 227 (LT)
L = 0.28 38.9
T = 1.00 100
R = 12000.00
SE = NC

NAD 83/95



WILET DAVID MAMMOTT, SR.

(114)

PAUL W. BRADY

(120)

SITE 9

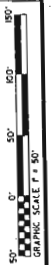
325

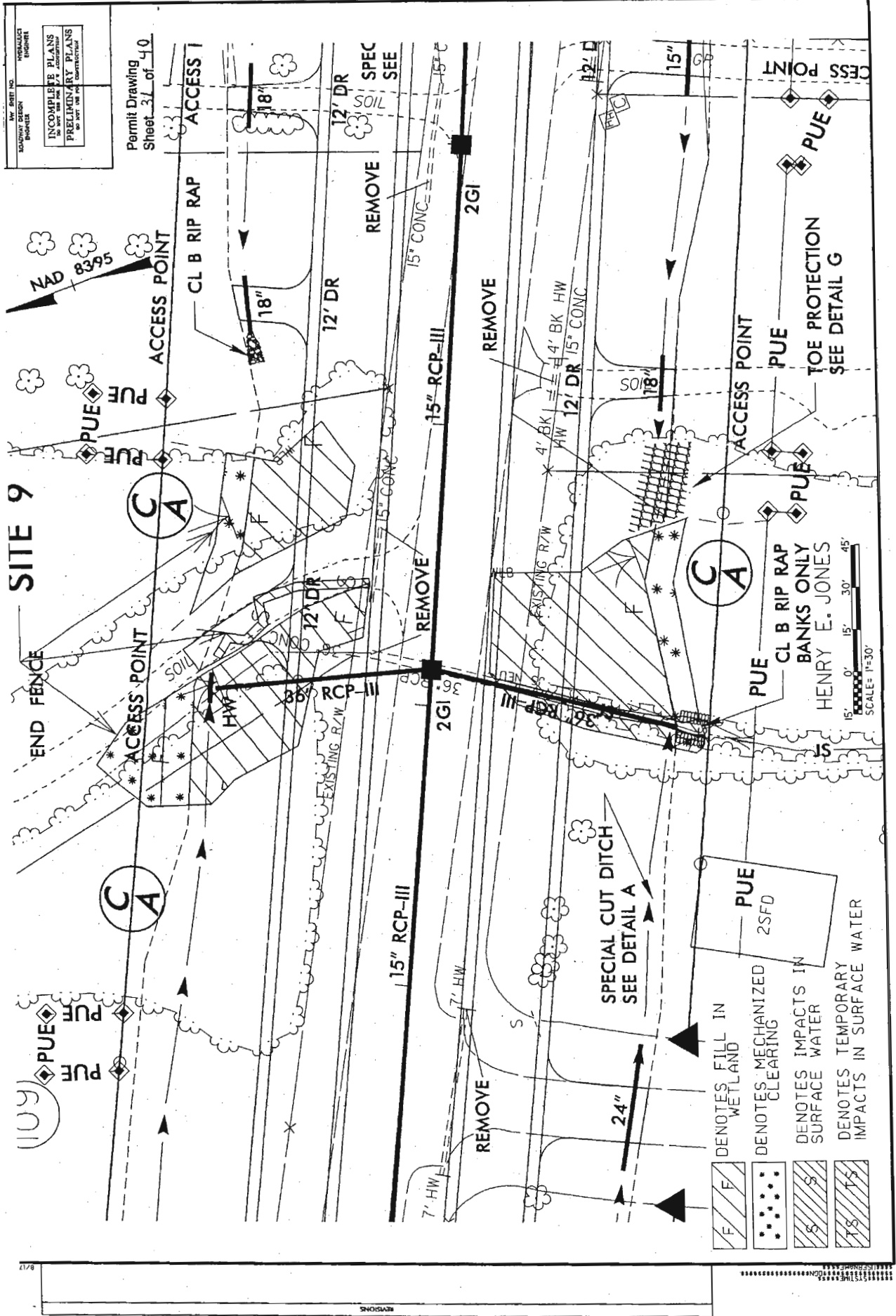
330

MATCHLINE SEE SHEET 26 - L - STA 320+00.00

MATCHLINE SEE SHEET 28 - L - STA 333+50.00

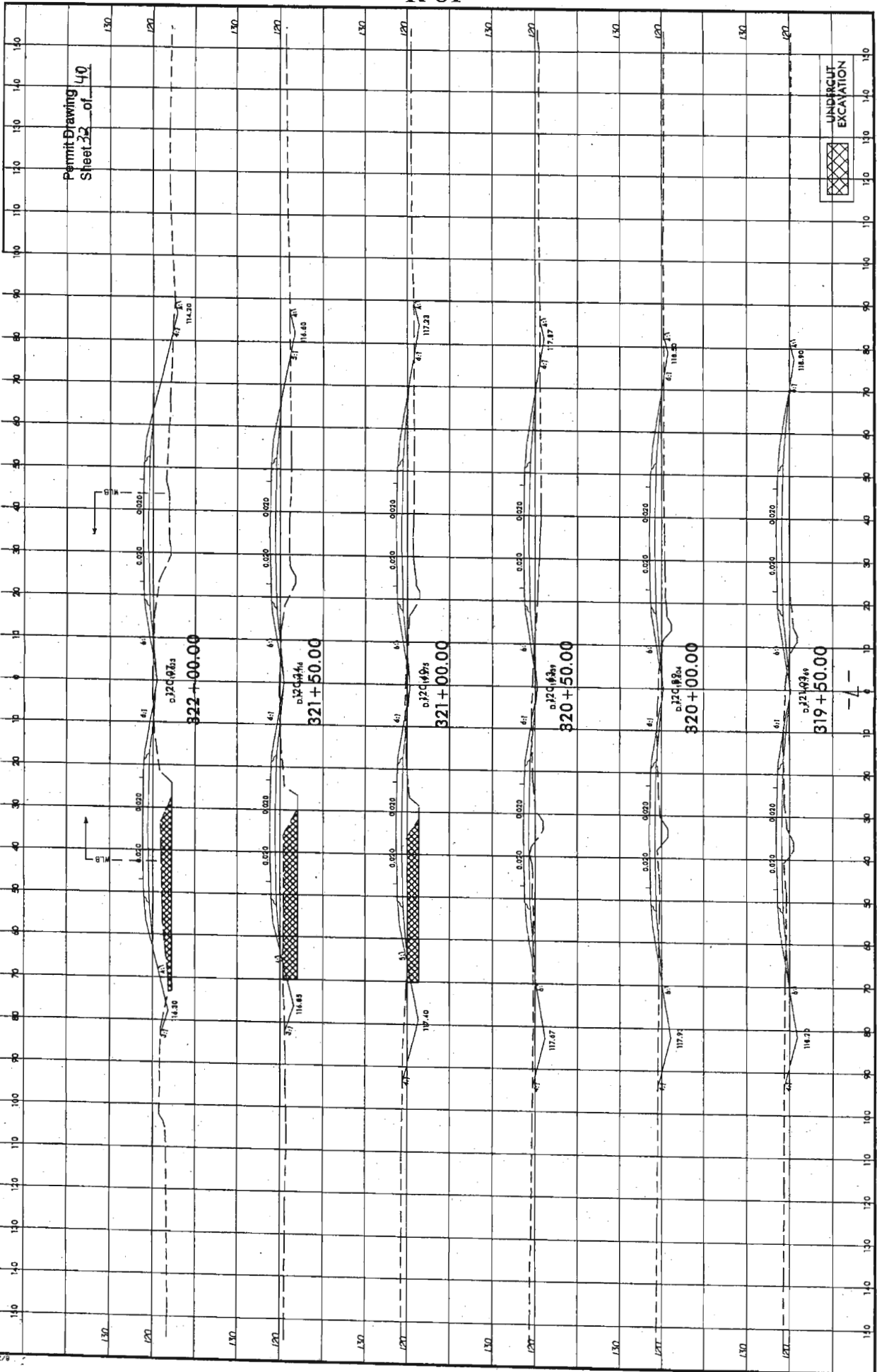
- Denotes Fill in Wetland
- Denotes Mechanized Clearing
- Denotes Impacts in Surface Water
- Denotes Temporary Impacts in Surface Water





BY: SHEET NO.	HYDRAULIC ENGINEER
DATE: 08/17/2012	DESIGNER
PROJECT: SITE 9	CONTRACT NO.
INCOMPLETE PLANS	NO PART OF THIS DRAWING
PRELIMINARY PLANS	SHOULD BE USED FOR CONSTRUCTION

Permit Drawing
Sheet 37 of 40



NAD 8395

$-L =$

Pt Std	340+8.55
Δ	= 6' 45" 54.7" (RT)
D	= 0' 57" 17.7"
L	= 708.36'
T	= 354.59'
R	= 6,000.00'
SE	= .03

HILBOURNE · HOOVER · MURRAY

KIMBERLY SMITH

335

1

138

345

SITE 10

DENDOTES MECHANIZED
CLEARING

HARVEY E. HALL, JR.

MATCHLINE SEE SHEET 27 -L- STA. 333+50.00

MATCHLINE SEE SHEET 29 - L - STA 347+50.00

NOVEMBER 30, 2010 - R/W REVISIONS - REVISED PUE ON PARCELS 131 THROUGH 139, ADDED TCE TO PARCEL 139, ELIMINATED TCE FROM PARCEL 138.

2/13/2012
H:\Kyd\outlook\PC\BNA\15.Environmen\Browns\23030.ny.d.PRM.wel\BNA28.dgn

BY SHEET NO.	HYDRAULICS
MADE BY	INCHES
PRELIMINARY PLANS	
DO NOT USE FOR CONSTRUCTION	

Permit Drawing
Sheet 36 of 46

LEVEE E. JOHNSON

BARBARA JOHNSON

THOMAS JOHNSON COURT
OF CLAMART AND COURT

RENEE C. JOHNSON

TERESA JOHNSON ALITY

RONNE EUGENE JOHNSON

BARBARA JOHNSON LATION

G. SCOTT SATEL

F. JOSEPH GOSMAN

BARBARA JOHNSON LATION

G. SCOTT SATEL

F. JOSEPH GOSMAN

BARBARA JOHNSON LATION

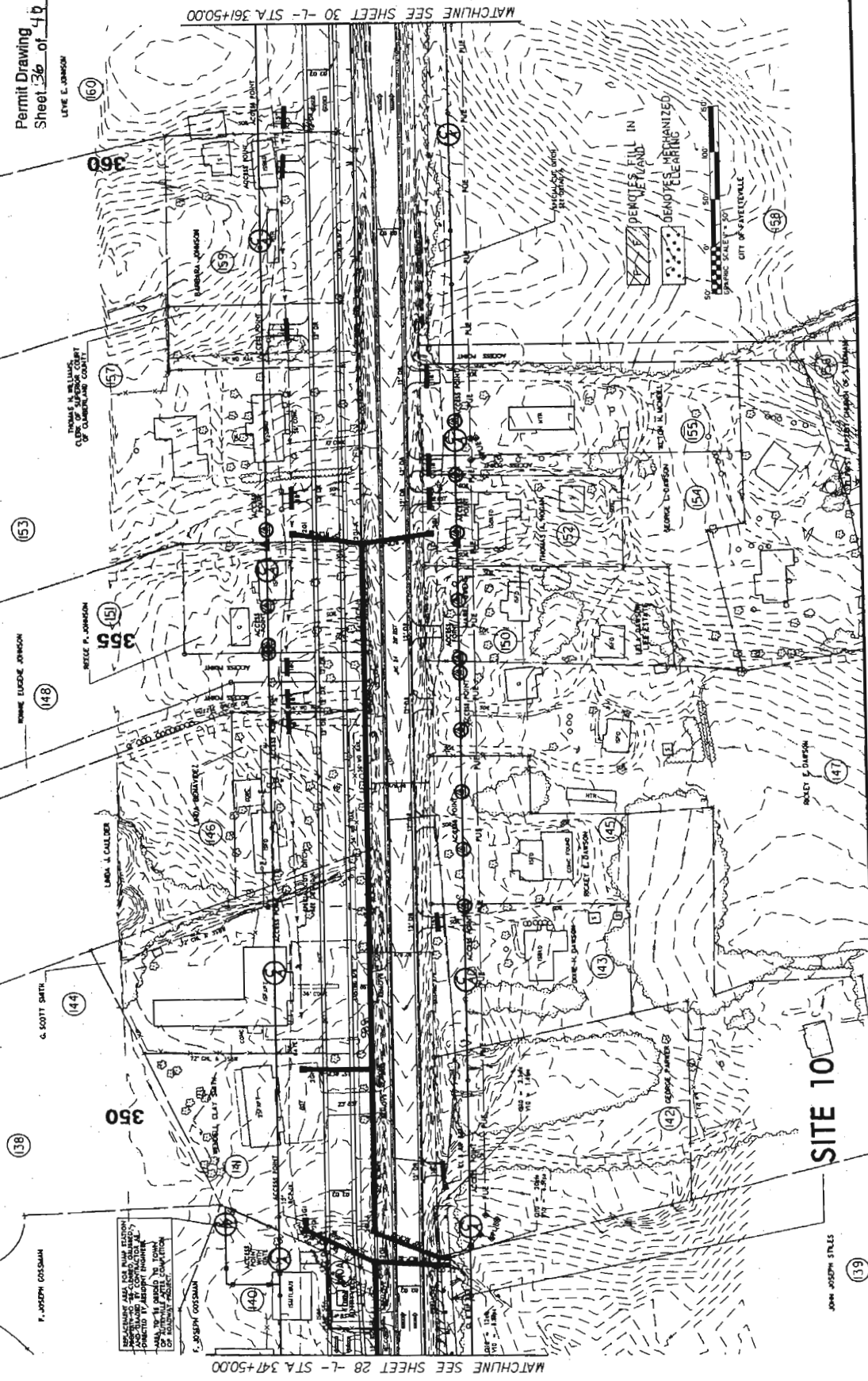
G. SCOTT SATEL

F. JOSEPH GOSMAN

BARBARA JOHNSON LATION

G. SCOTT SATEL

F. JOSEPH GOSMAN



SITE 10

JOHN JOSEPH STILES

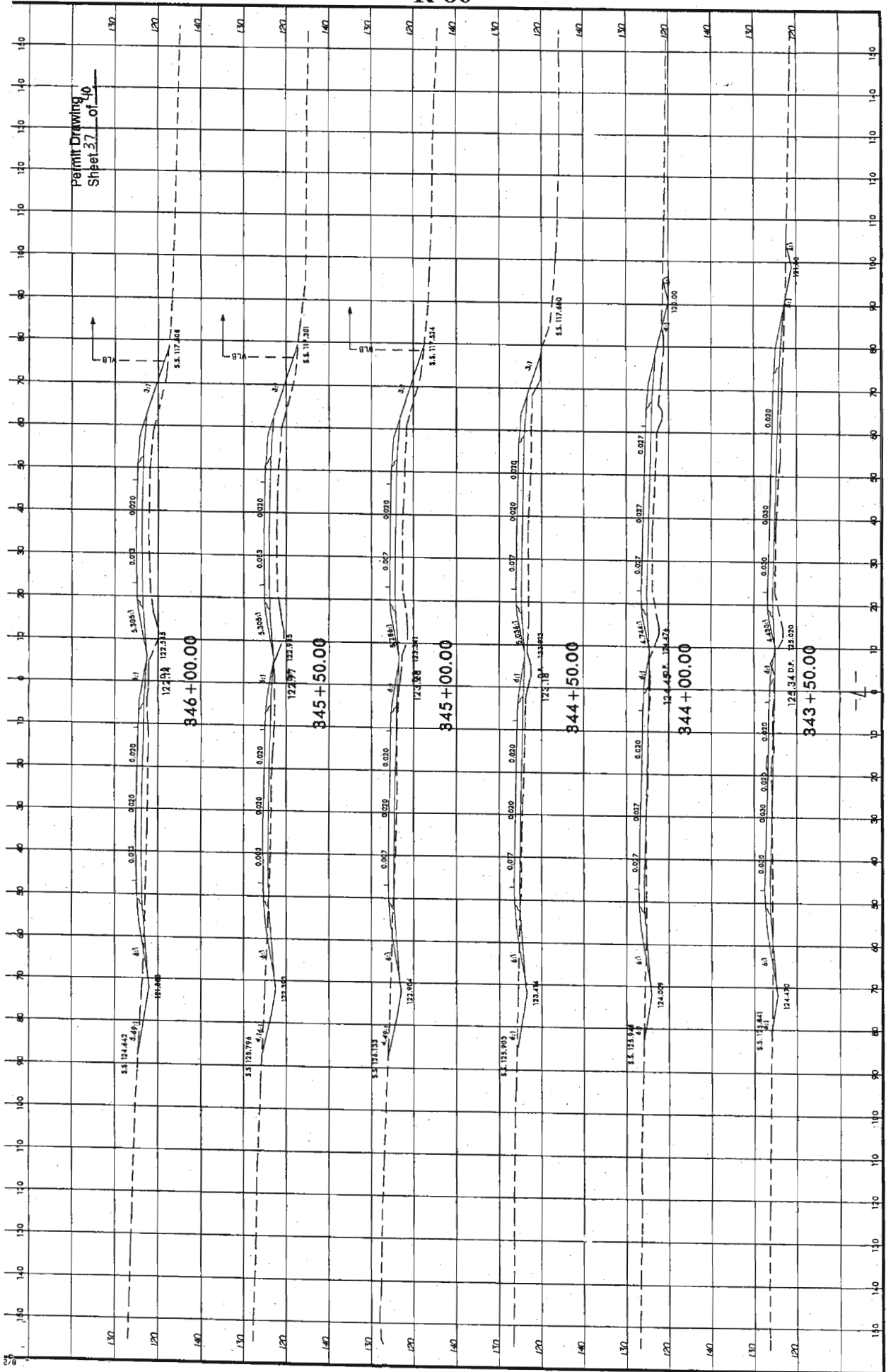
MATCHLINE SEE SHEET 28 - L - STA 347+50.00

MATCHLINE SEE SHEET 30 - L - STA 361+50.00

NOVEMBER 30, 2000 - R/W REVISIONS - REVISED PUE ON PARCEL 142 ELIMINATED PUE FROM PARCEL 139.

REVISIONS

Permit Drawing
Sheet 37 of 40



DATE: 11/16/11	BY: [Signature]
PROJECT NO. 1004	PROJECT NAME: STEDMAN
INCOMPLETE PLANS PRELIMINARY PLANS NO CONSTRUCTION	

 Permit Drawing
 Sheet 3 of 46

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
86	DOUGLAS BRYANT	P.O. BOX 513 STEDMAN, NC 28391
104	DEARL L. BUNCE	414 GLENWOOD DR. LEXINGTON, NC 27292
113	HENRY E. JONES	8321 CLINTON RD. STEDMAN, NC 28391
114	WILEY DAVID HUNNICUTT, Sr.	8321 CLINTON RD. STEDMAN, NC 28391
139	JOHN JOSEPH STILES	102 COHARIE DR. CLINTON, NC 28328

NCDOT
 DIVISION OF HIGHWAYS
 CUMBERLAND COUNTY
 PROJECT: 141111 (R-2004A)
 STEDMAN
 NC 14 FROM SR 1004
 TO SR 1003

SHEET 3 OF 46

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
14	JOSEPH P. RIDDLE, III	P.O. BOX 53729 FAYETTEVILLE, NC 28305
15	PREMIUM STANDARD FARMS	623 SOUTHEAST Blvd. CLINTON, NC 28328
16	DONALD CULBRETH	427 HILLSBORO St. STEDMAN, NC 28391
	PROGRESS ENERGY (EASEMENT) (CAROLINA POWER & LIGHT)	P.O. BOX 1551 CPB-4C4 RALEIGH, NC 27602
20	CANDACE JO CARTER	4160 PLEASANT VIEW DR. FAYETTEVILLE, NC 28301
31	RICHARD R. ALLEN, Jr.	6044 CLINTON RD. STEDMAN, NC 28391
43	DWIGHT KIM JOHNSON	3102 AUDUBON PLACE WILSON, NC 27896
44	STACY R. CARR, III	211 OLD STAGE RD. AUTRYVILLE, NC 28318
56	ROBERT E. OLIVER	6644 CLINTON RD. STEDMAN, NC 28391

NCDOT
 DIVISION OF HIGHWAYS
 CUMBERLAND COUNTY
 PROJECT: 141111 (R-2004A)
 STEDMAN
 NC 14 FROM SR 1004
 TO SR 1003

SHEET 3 OF 46

WETLAND PERMIT IMPACT SUMMARY

			WETLAND IMPACTS				SURFACE WATER IMPACTS					
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW Impacts (ac)	Temp. SW Impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	69+45 to 70+63-L-RT. 70+93 to 72+81-L-RT	Fill						0.16				
		Fill						0.11				
2	73+00 to 85+00-L-	Fill	4.44			0.53						
3	ELIMINATED											
4	131+57 to 133+50-L-RT	Fill						0.18				
5	167+09 to 168+51-L-RT	Fill	0.04			0.03						
6	178+97 to 179+07-L-RT	Fill						0.02				
7	200+65 to 202+44-L-	Fill						0.24				
8	* 296+63 to 304+66-L- 300+06 to 305+40-L- 2*(1@72"&1@48")	Fill	2.03		0.02	0.20		0.08		531.00		
	304+40 to 304+51-L- LT	Bank Stabilization						<0.01	<0.01	41.00	27.00	
TOTALS:			6.51		0.02	0.76		0.79	<0.01	572	27	

Permit Drawing
Sheet 39 of 40
Revised 7/23/12

Site 1, 4 and 7 are Pond surface water impacts.

*Site 8 Wetland sta. 296+63 -L- impact shown as a total take due to ditch.
Additional impact outside of ditch is 0.02acres. Also, there will be 294 ft of stream relocation.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

CUMBERLAND COUNTY
WBS - 34416.1.1 (R-2303A)

[illegible]

* Site 9 Wetland sta. 321+80 -L-LT. impact shown as total take due to ditch. Additional impact outside of ditch is 0.01 acres.

Permit Drawing
Sheet 40 of 40
Revised 7/23/12

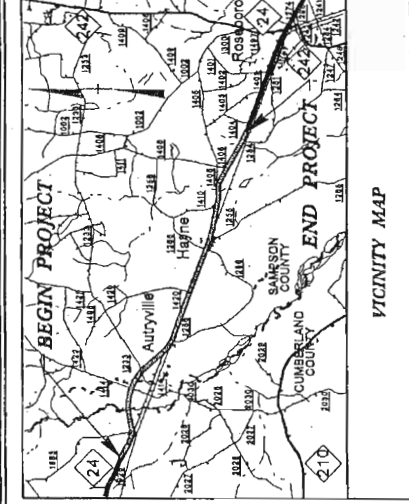
NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
CUMBERLAND COUNTY
WBS - 34416.1.1 [R-2303A]

ATN Revised 3/31/05.

SHEET

7/23/2012

CONTRACT: TIP PROJECT: R-2303B



STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS CUMBERLAND & SAMPSON COUNTIES

LOCATION: NC 24 FROM WEST OF SR 1853 (JOHN NUNNERY ROAD)
 TO WEST OF SR 1404 (DOWDY ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURES

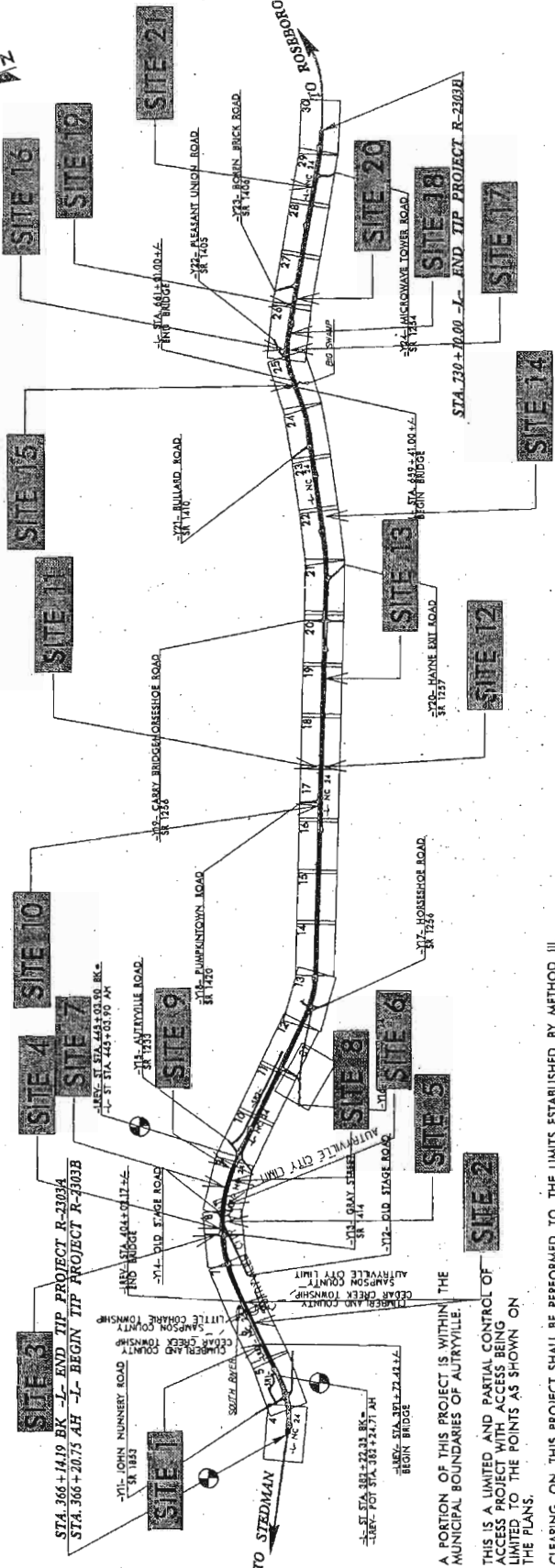
WETLAND AND SURFACE WATER IMPACTS PERMIT

PROJECT NUMBER	R-2303B
DATE	3/4/11
DESIGNED BY	STP/ML-E-8-207
CHECKED BY	PE
DATE	
DESIGNED BY	
CHECKED BY	
DATE	
DESIGNED BY	
CHECKED BY	
DATE	

Permit Drawing 54
 Sheet 1 of 54

RECEIVED
 JAN 31 2013

REG. WILM. FILED. 8/10/09



A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF AURIVILLE. THIS IS A LIMITED AND PARTIAL CONTROL OF ACCESS PROJECT WITH ACCESS BEING LIMITED TO THE POINTS AS SHOWN ON THE PLANS.

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

GRAPHIC SCALES	DESIGN DATA	PROJECT LENGTH
<p>PLAN: 1" = 40'</p> <p>PROFILE (HORIZONTAL): 1" = 40'</p> <p>PROFILE (VERTICAL): 1" = 20'</p>	<p>ADT 2010 = 13520</p> <p>ADT 2030 = 22000</p> <p>DHY = 11 %</p> <p>D = 65 %</p> <p>T = 9 %</p> <p>V = 60 MPH</p> <p>* TST 6% DUAL 3% FUNC. CLASS - ARTERIAL</p>	<p>LENGTH ROADWAY TIP PROJECT R-2303B = 6.628 MILES</p> <p>LENGTH STRUCTURES TIP PROJECT R-2303B = 0.263 MILES</p> <p>TOTAL LENGTH TIP PROJECT R-2303B = 6.891 MILES</p>

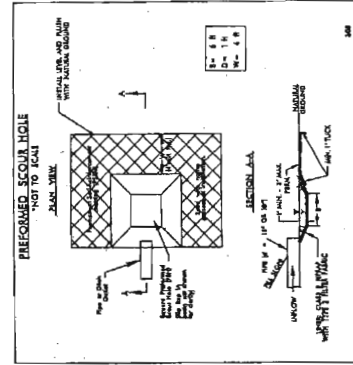
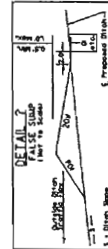
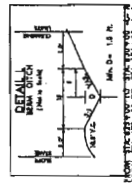
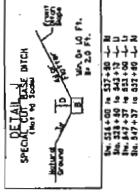
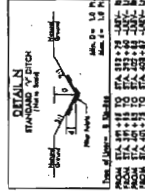
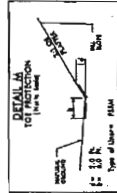
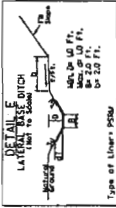
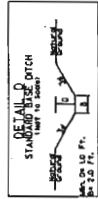
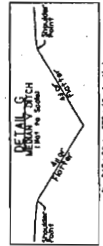
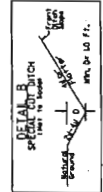
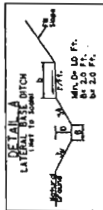
<p>RIGHT OF WAY DATE: MARCH 22, 2011</p> <p>LETTING DATE: JUNE 18, 2013</p>	<p>GARY LOVERING, PE PROJECT ENGINEER</p> <p>KEVIN E. MOORE, PE PROJECT DESIGN ENGINEER</p>
---	---

<p>HYDRAULICS ENGINEER</p> <p>ROADWAY DESIGN ENGINEER</p>	<p>STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS</p>
---	--



PROJECT NUMBER NO.	2-6
DATE	2-20-78
DESIGNED BY	HYDRAULIC ENGINEER
CHECKED BY	
APPROVED BY	

Permit Drawing
Sheet 2 of 56



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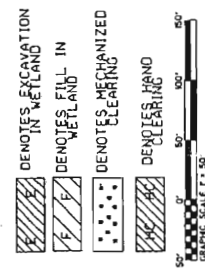
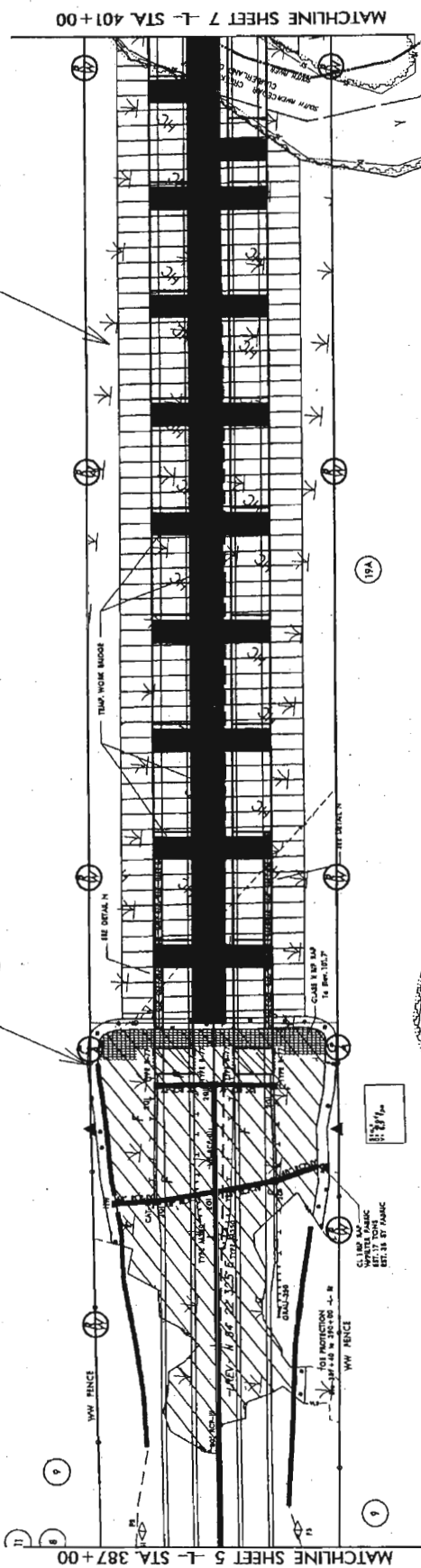
PROJECT REFERENCE NO.	SHEET NO.
R-2303B	6
HYDRAULIC DESIGN	
PRELIMINARY PLANS	
DO NOT USE FOR CONSTRUCTION	



Permit Drawing
Sheet 3 of 54

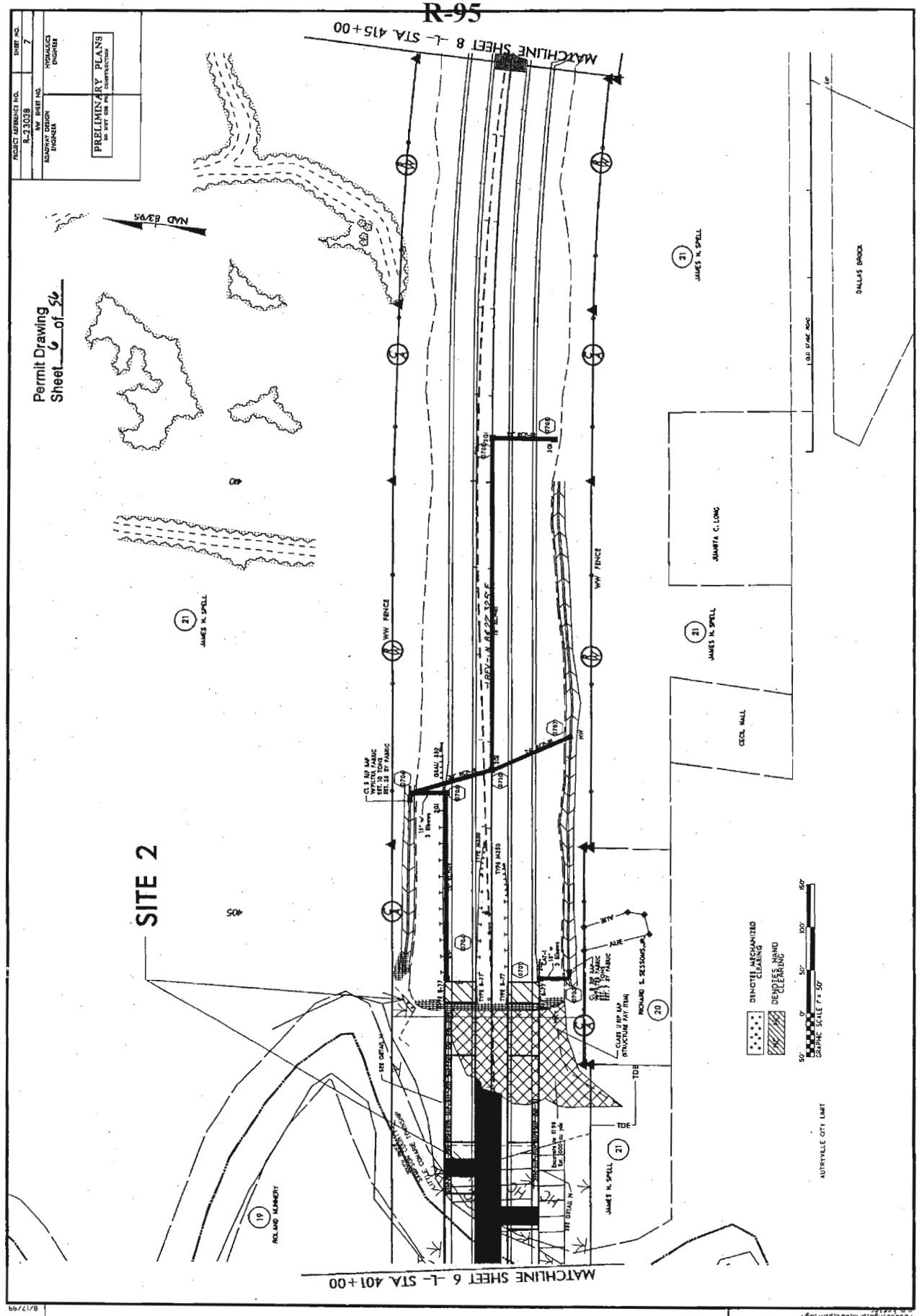
SITE 1

SITE 2



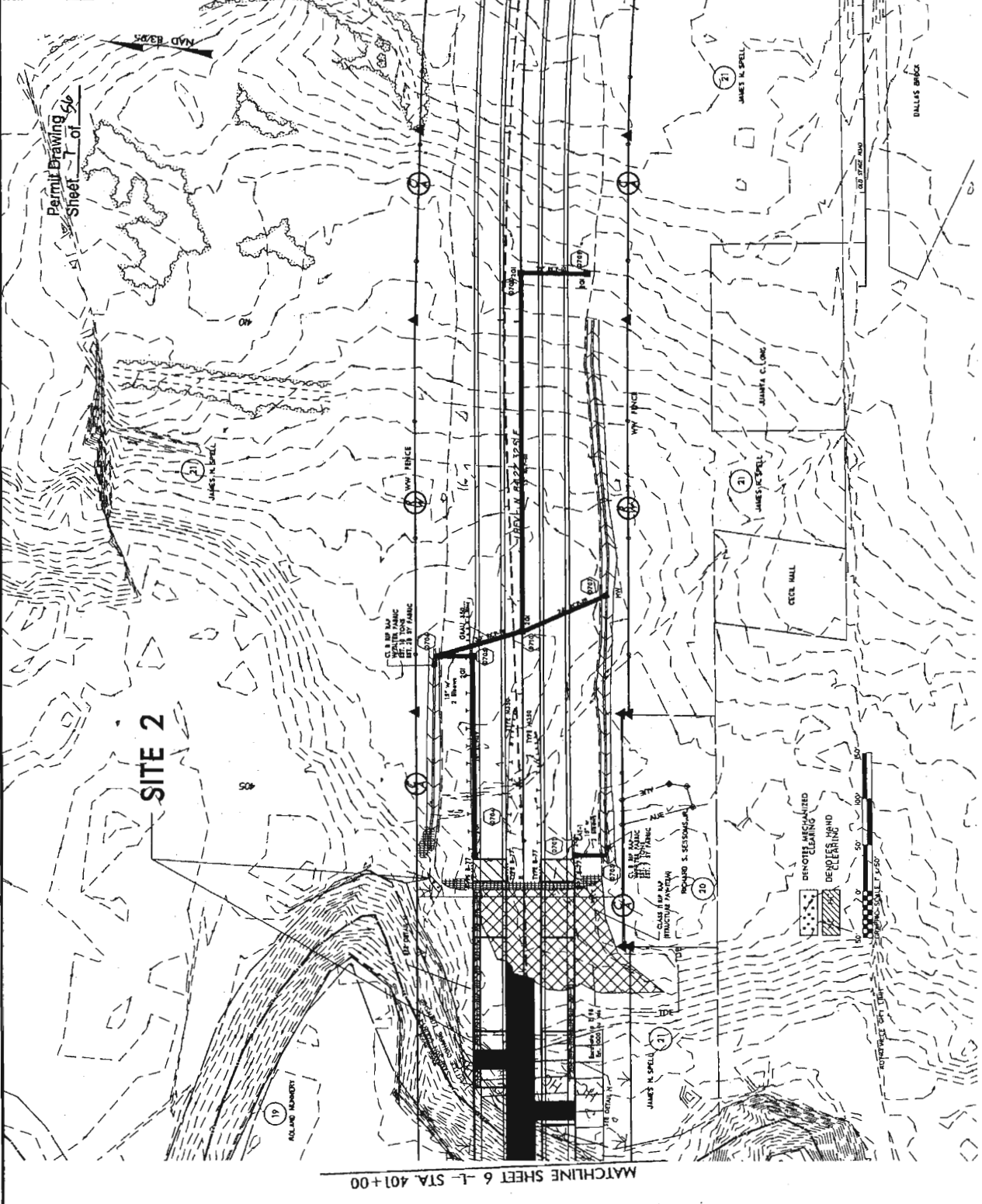
PROJECT NUMBER NO.	8-1009	SHEET NO.	7
DESIGNER	ADRIAN CHEN	HYDRAULICS ENGINEER	
<div> <div>PRELIMINARY PLANS</div> <div>DO NOT SCALE</div> </div>			

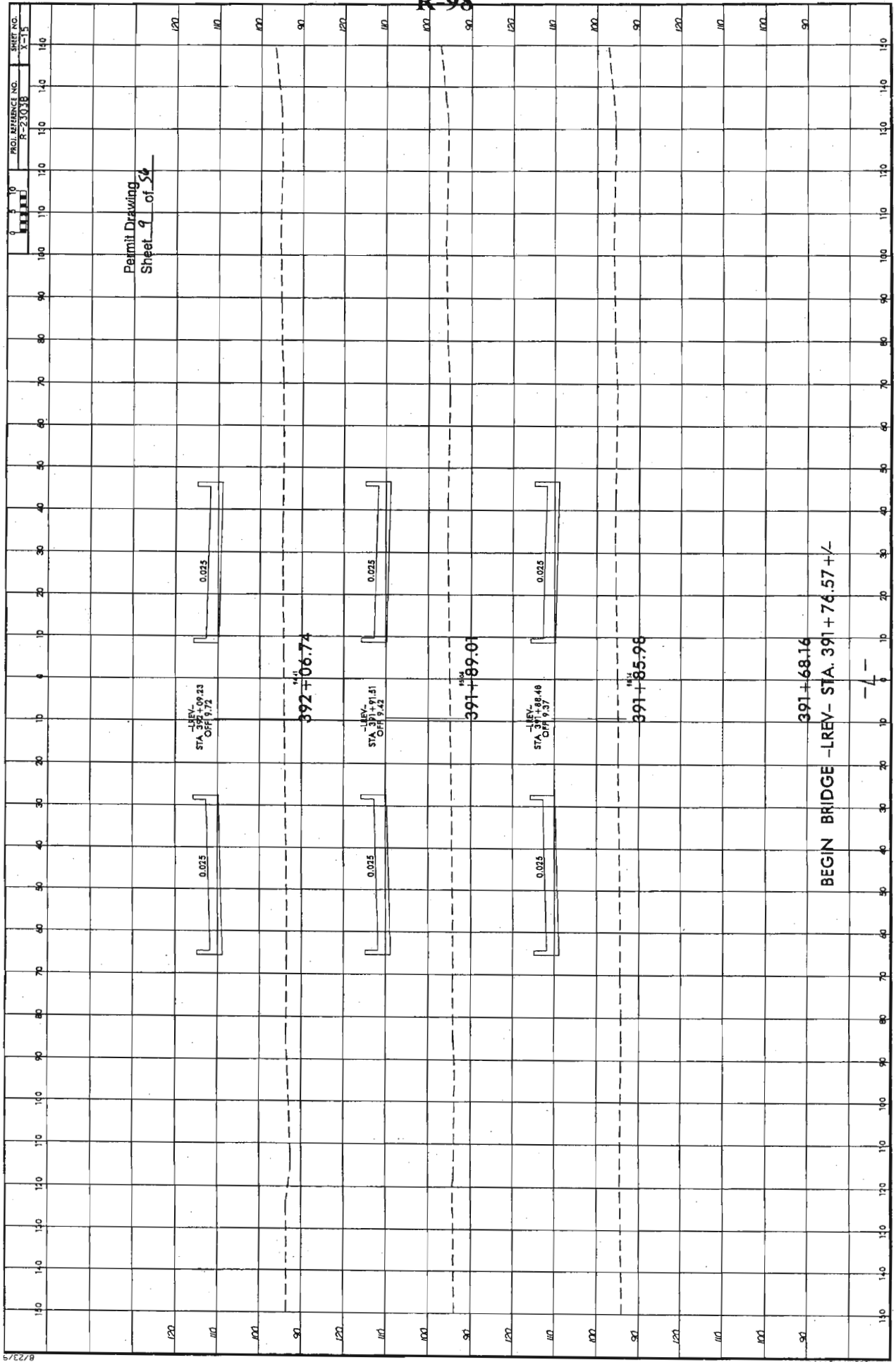
Permit Drawing
Sheet 6 of 56

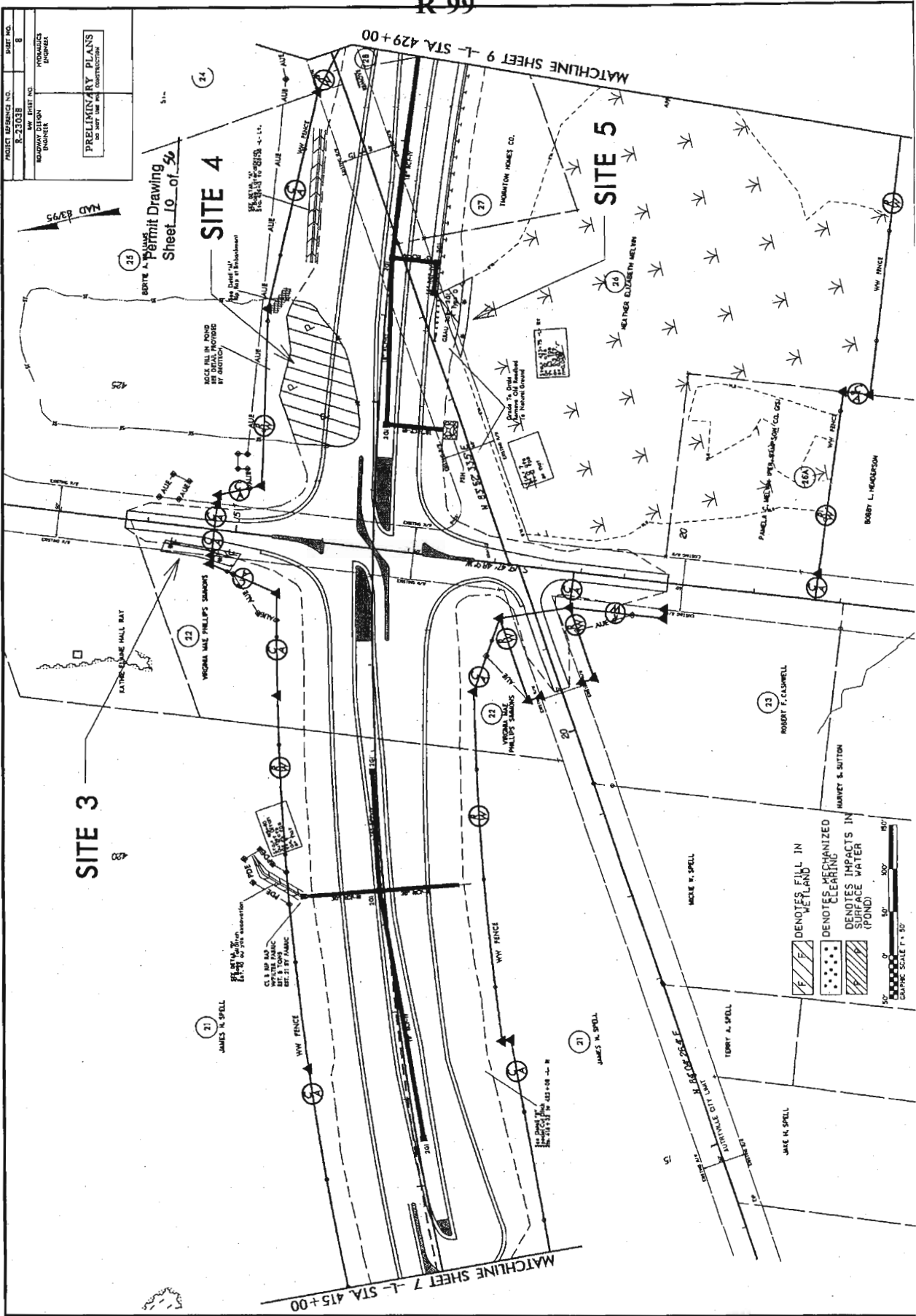


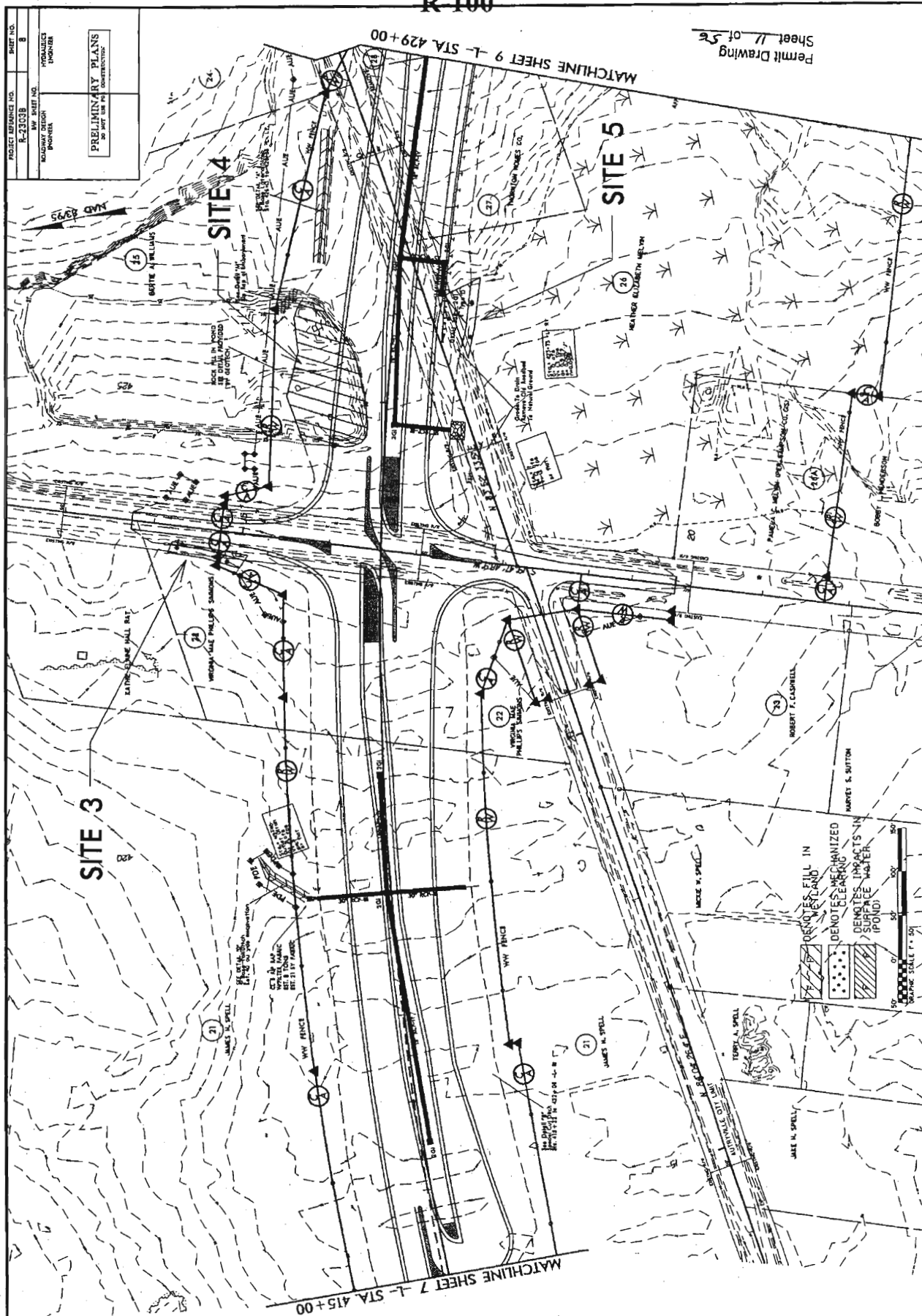
PROJECT REFERENCE NO.	SHEET NO.
K-13038	7
DESIGNER	CHECKED BY
ROADWAY DESIGN	HYDRAULIC ENGINEER
BRUNDA	

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION







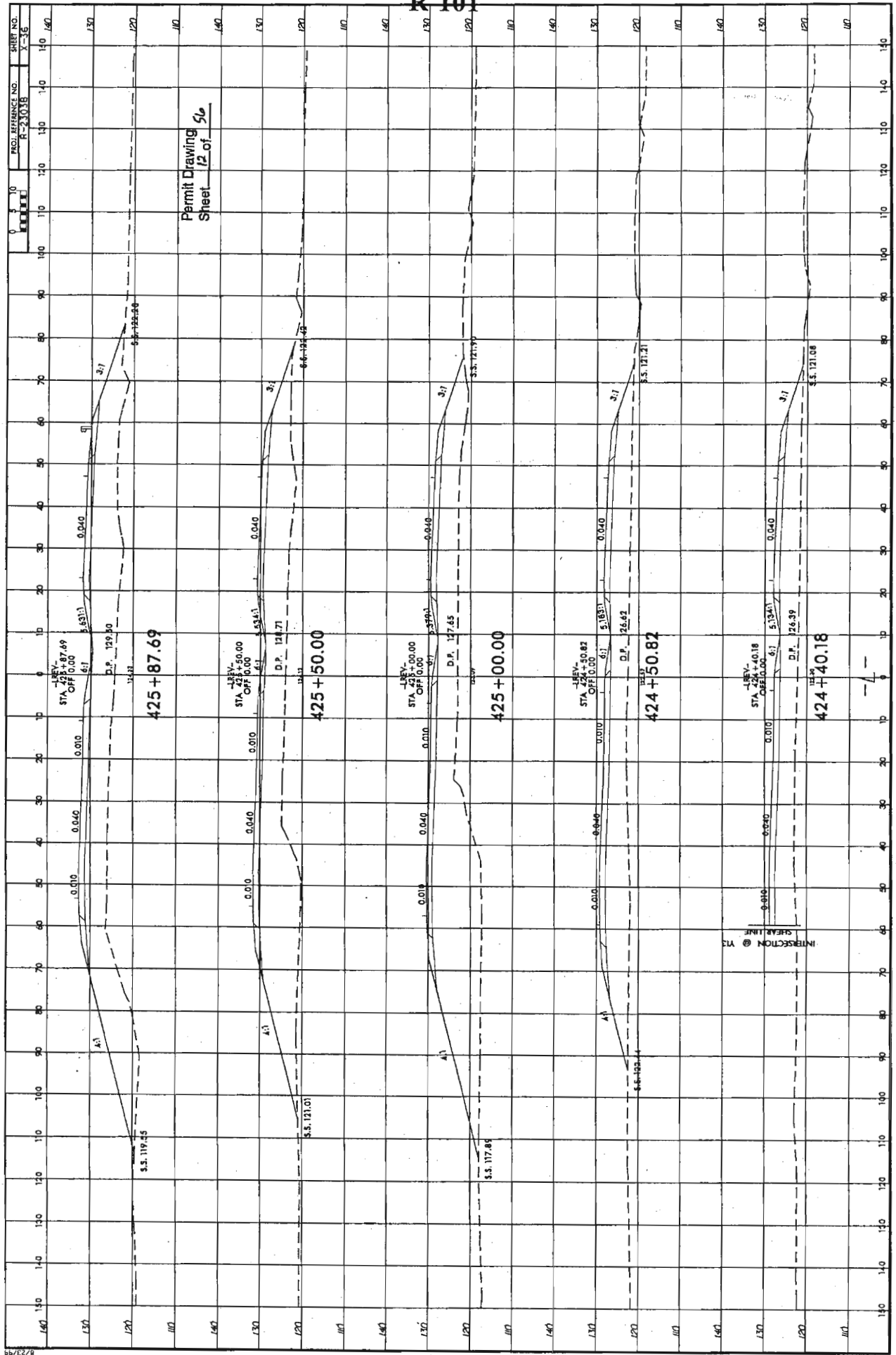


09/16/11 R/W REVISION (P.15) - THE R/W LINE WAS ADJUSTED TO THE EXISTING PROPERTY LINE ON PARCEL 26A (PAMELA C. MEYNI) AND PARCEL 26 (HEATHER EUZABETH MEYNI)

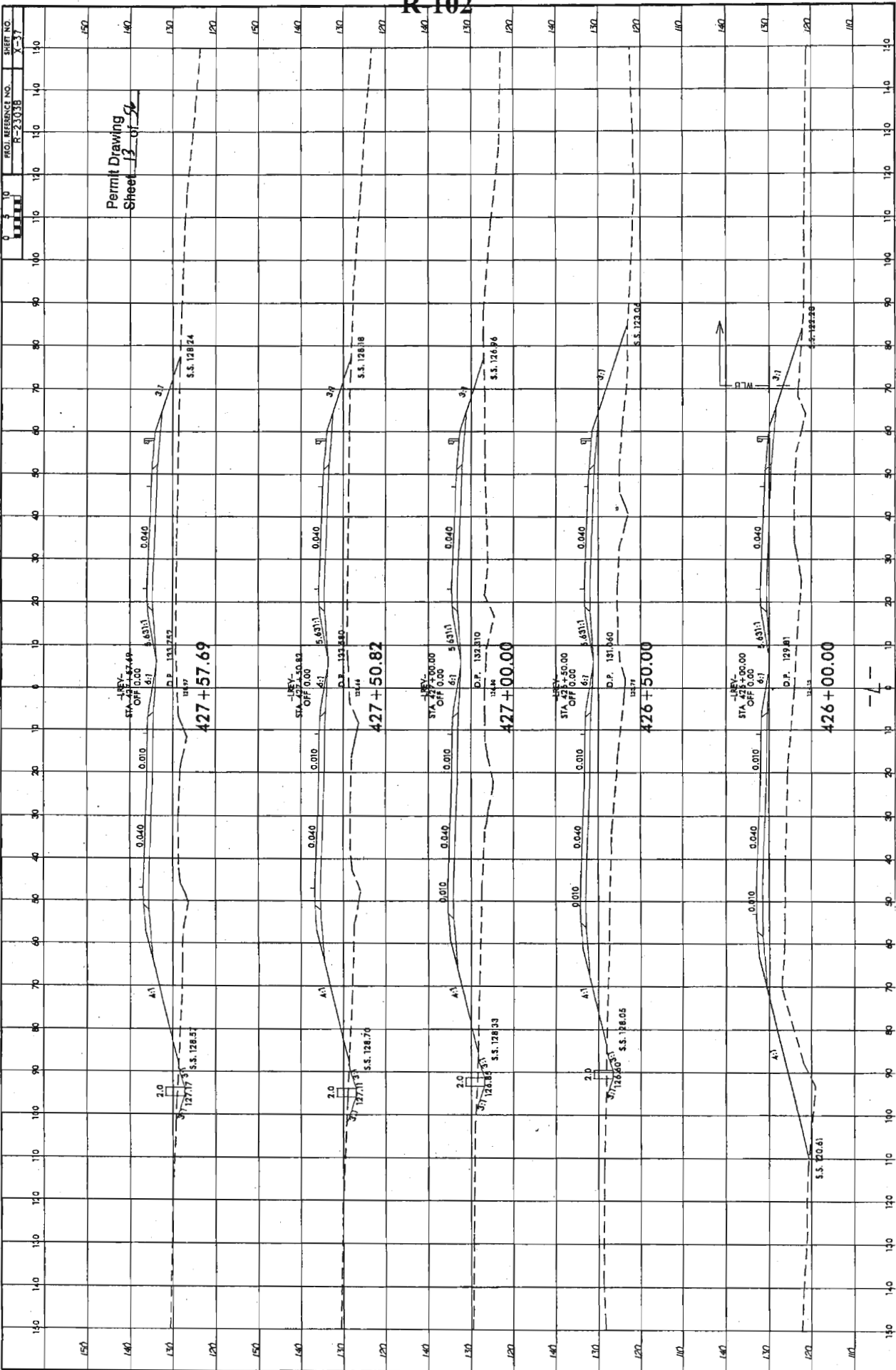
08/26/11 R/W REVISION (PJS) - THE OFFSETS WERE CORRECTED ON PARCEL 25 (BERTIE A WILLIAMS).

66721/8

6/27/2012
amk:er
R:\HydroQual\ES\Environment\Drawings\2303b-hyd-prm-wet-psh.dgn

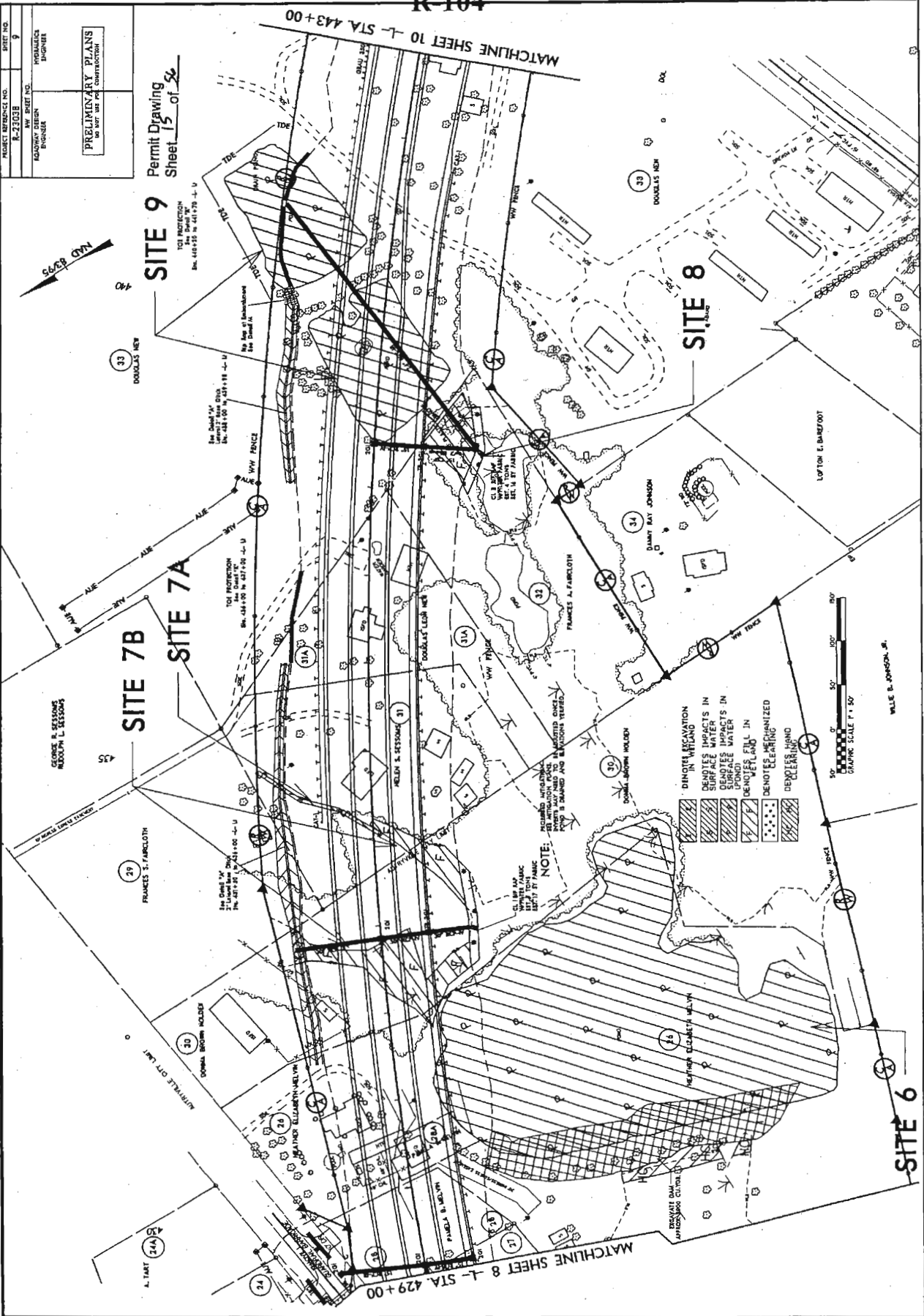


Permit Drawing
Sheet 12 of 56



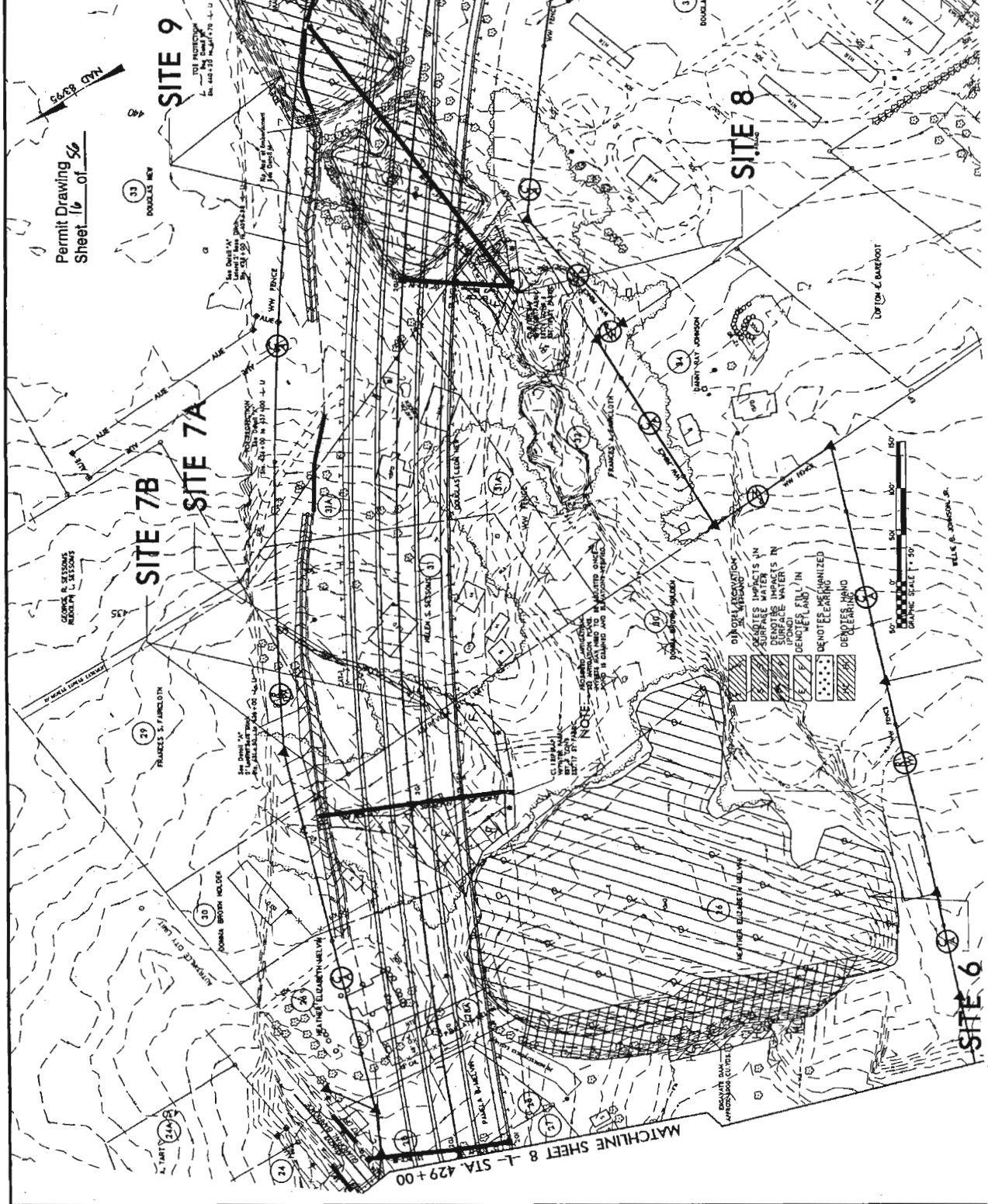
PROJECT REFERENCE NO.	8-2303B
SHEET NO.	9
DESIGNER	HYDRA-MATICS ENGINEER
PRELIMINARY PLANS NOT FOR CONSTRUCTION	

SITE 9 Permit Drawing
Sheet 15 of 24



09/16/11 R/W REVISION (P/S) - THE R/W LINE WAS ADJUSTED TO THE EXISTING PROPERTY LINE ON PARCEL 26 (HEATHER ELIZABETH WELYN, PARCEL 30 (DANNA BROWN) 08/25/11 R/W REVISION (P/S) - THE OFFSETS WERE CORRECTED ON PARCEL 26 (HEATHER ELIZABETH WELYN, PARCEL 30 (DANNA BROWN) 08/25/11 R/W REVISION (P/S) - THE OFFSETS WERE CORRECTED ON PARCEL 26 (HEATHER ELIZABETH WELYN, PARCEL 30 (DANNA BROWN)

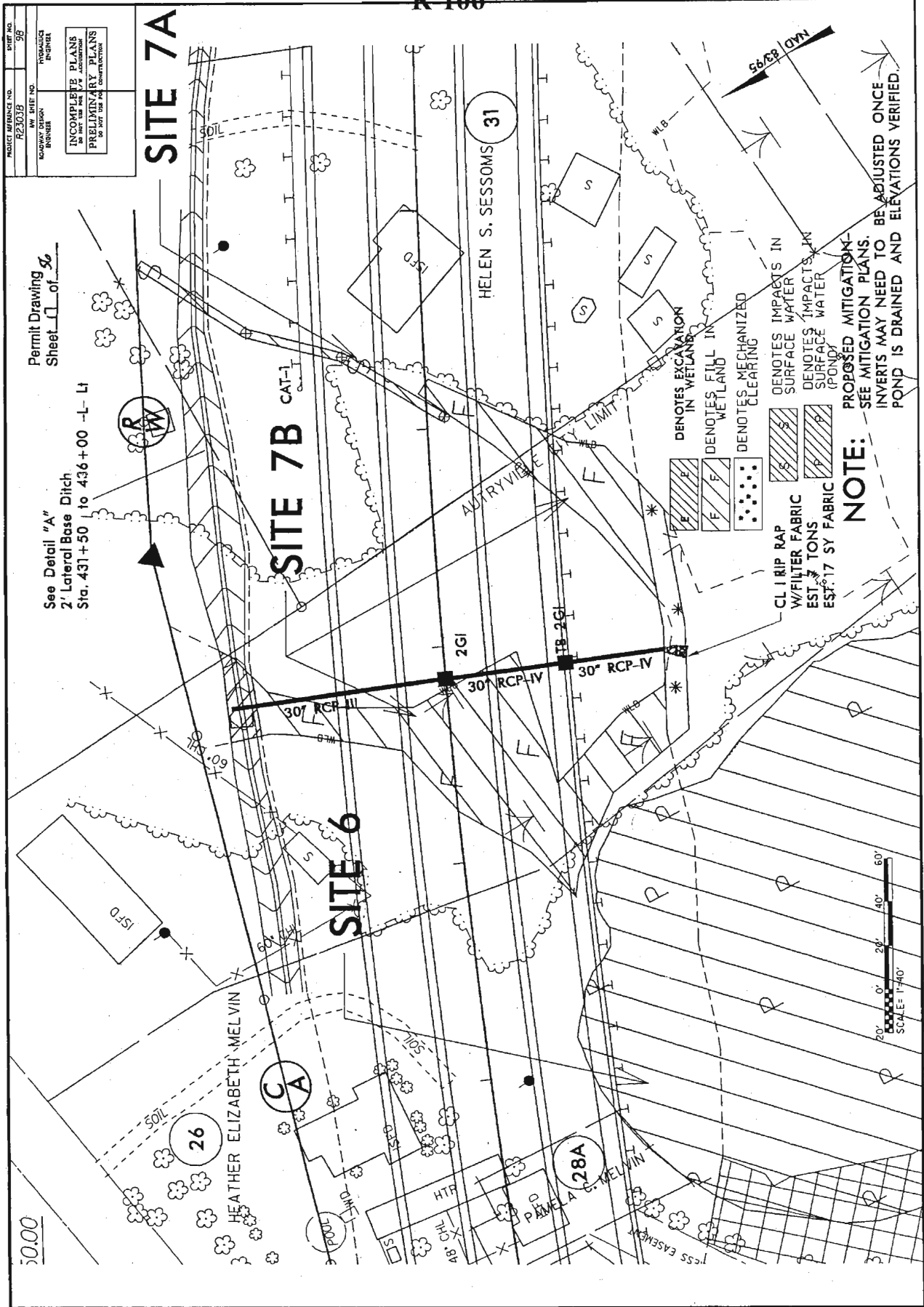
PROJECT NO.	2012-0001
PROJECT NAME	WATER TREATMENT PLANT
DESIGNER	HYDRAULICS ENGINEERS
DATE	08/17/2012
BY	HYDRAULICS ENGINEERS
CHECKED BY	HYDRAULICS ENGINEERS
APPROVED BY	HYDRAULICS ENGINEERS

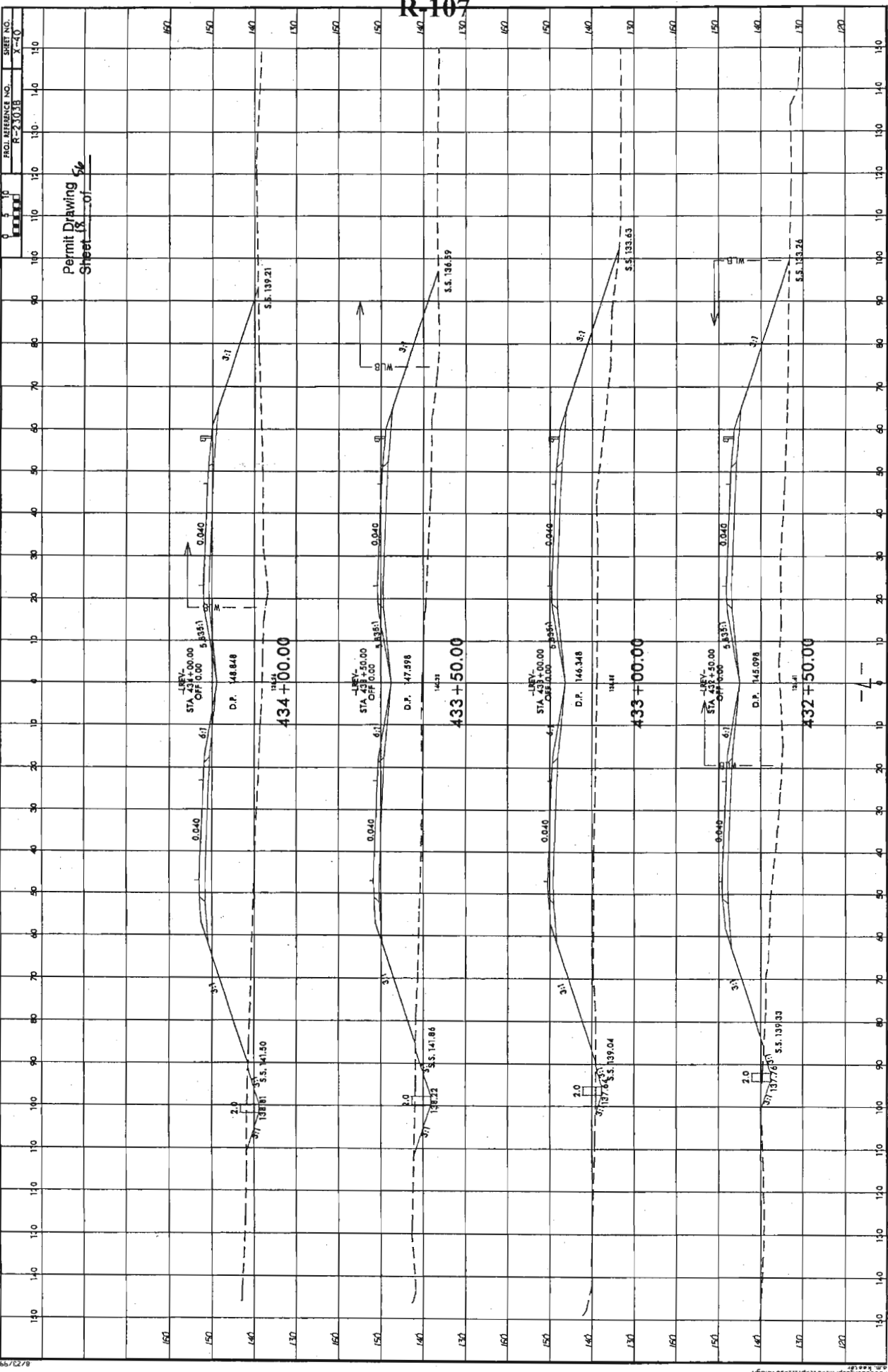


09/16/11 R/W REVISION (PJS) - THE R/W LINE WAS ADJUSTED TO THE EXISTING PROPERTY LINE ON PARCEL 30 (DOKKA BROWN HOLDING) PARCEL 32 (BROWN D. SASSON) AND PARCEL 34 (OLGA C. JOHNSON).
 08/26/11 R/W REVISION (PJS) - THE OFFSETS WERE CORRECTED ON PARCEL 36 (HEATHER ELIZABETH METWAL).

20' 0' 20' 40' 60'

SCALE 1"=40'





Permit Drawing
Sheet 18 of 56

R-107

Permit Drawing
Sheet 20 of 56

56/8 QYN



SITE 11

SITE 12

SITE 10

MATCHLINE SHEET 16 - STA. 541+00

MATCHLINE SHEET 18 -L- STA. 555+00

 DENOTES FILL IN
 DENOTES MECHANIZED CLEARING

•••••
DENOTES MECHANIZED
CLEARING

SALMON COUNTY
WATER & SEWER DISTRICT I

PERRY M. SISSON

WILLIAM V. BROWN

JAMES A. STARR, JR.

JAMES R. STARK INC.



BUREAU OF LAND MANAGEMENT
DEPARTMENT OF THE INTERIOR

⑤

53

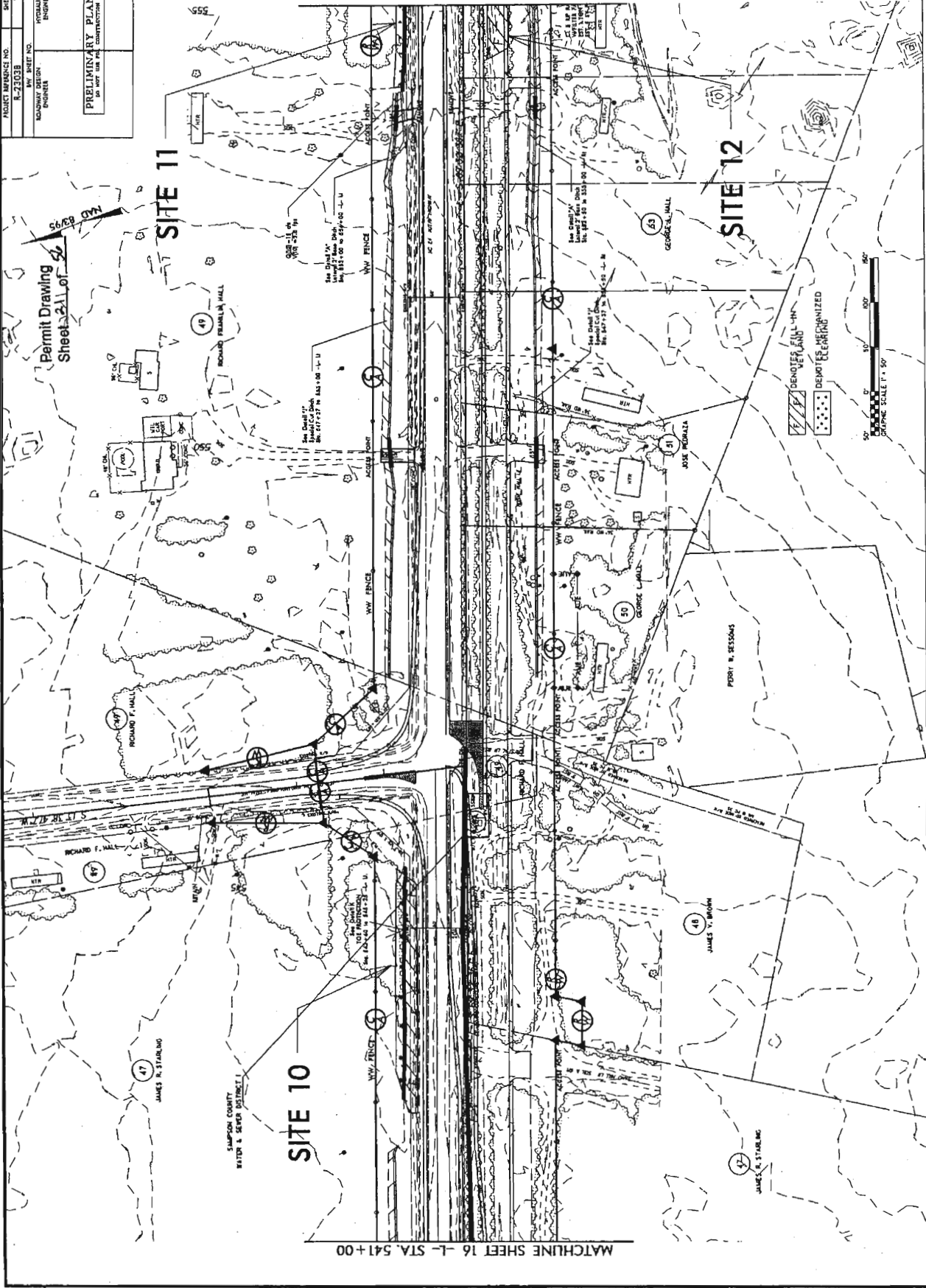


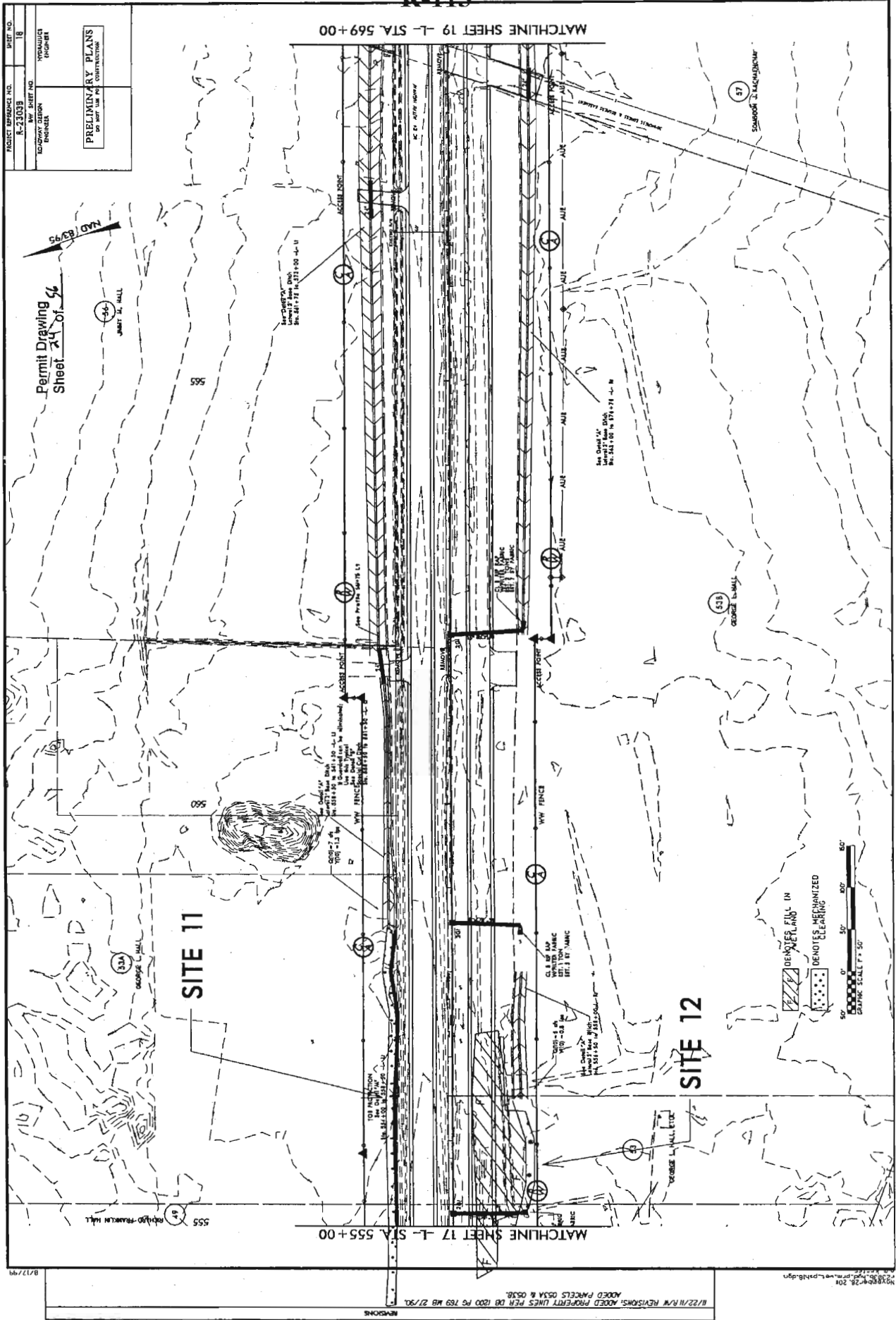
2014年12月

DOES AT TIME

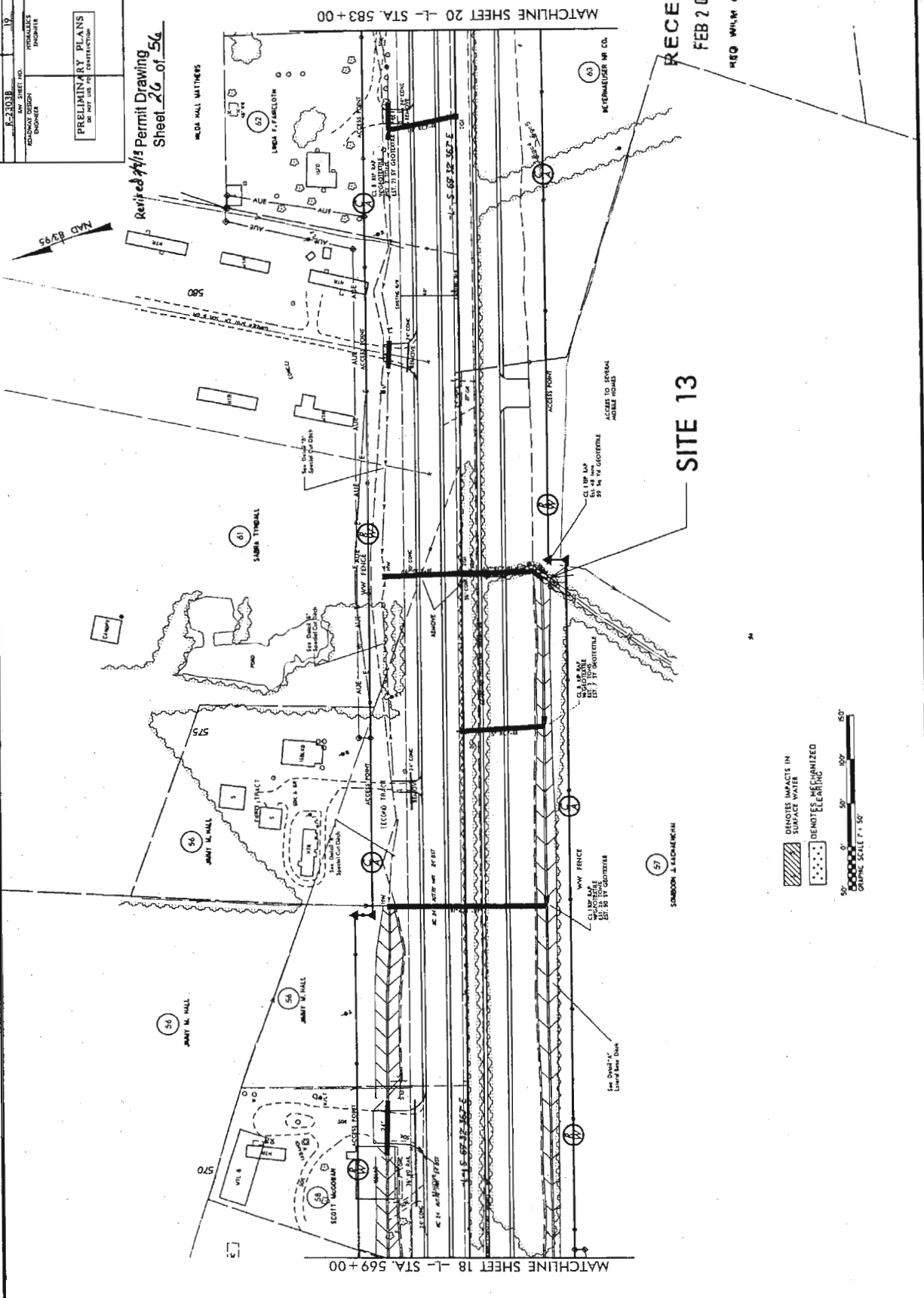
$$f^{-1} \circ \theta \circ \alpha^{-1} = \text{id}$$

MATCHLINE SHEET 16 -L- STA. 541+00

[illegible]

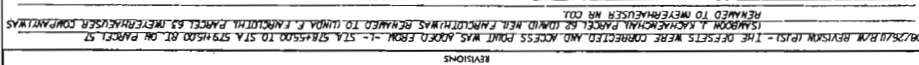


PROJECT REFERENCE NO.	PROJECT NO.	HYDRAULICS ENGINEER
8-23038	19	
BY SHEET NO.		<div style="border: 1px solid black; padding: 5px; text-align: center;"> PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION </div>
ROADWAY DESIGN ENGINEER		

Revised 7/15 Permit Drawing
Sheet 26 of 56

08/26/94 BLM REVISION IP/SI - THE OBJECTS WERE CORRECTED AND ACCESS POINT WAS ADDED FROM STA 57A+55.0 TO STA 57B+55.0 RT ON PARCEL 37
RENAMEO J. KACHCHAKIAN PARCEL 37 (DAVID NEIL FARM) IT WAS REMOVED TO LUMDA FJ. FUNCTIONAL PARCEL 63 METEORUS USER COMPARTMENT
RENAMEO J. KACHCHAKIAN PARCEL 37 (DAVID NEIL FARM) IT WAS REMOVED TO LUMDA FJ. FUNCTIONAL PARCEL 63 METEORUS USER COMPARTMENT

E-mail: jacob@permut.com
E-mail: jacob@permut.com

Permit Drawing
Sheet 27 of 56

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DECEMBER 1971

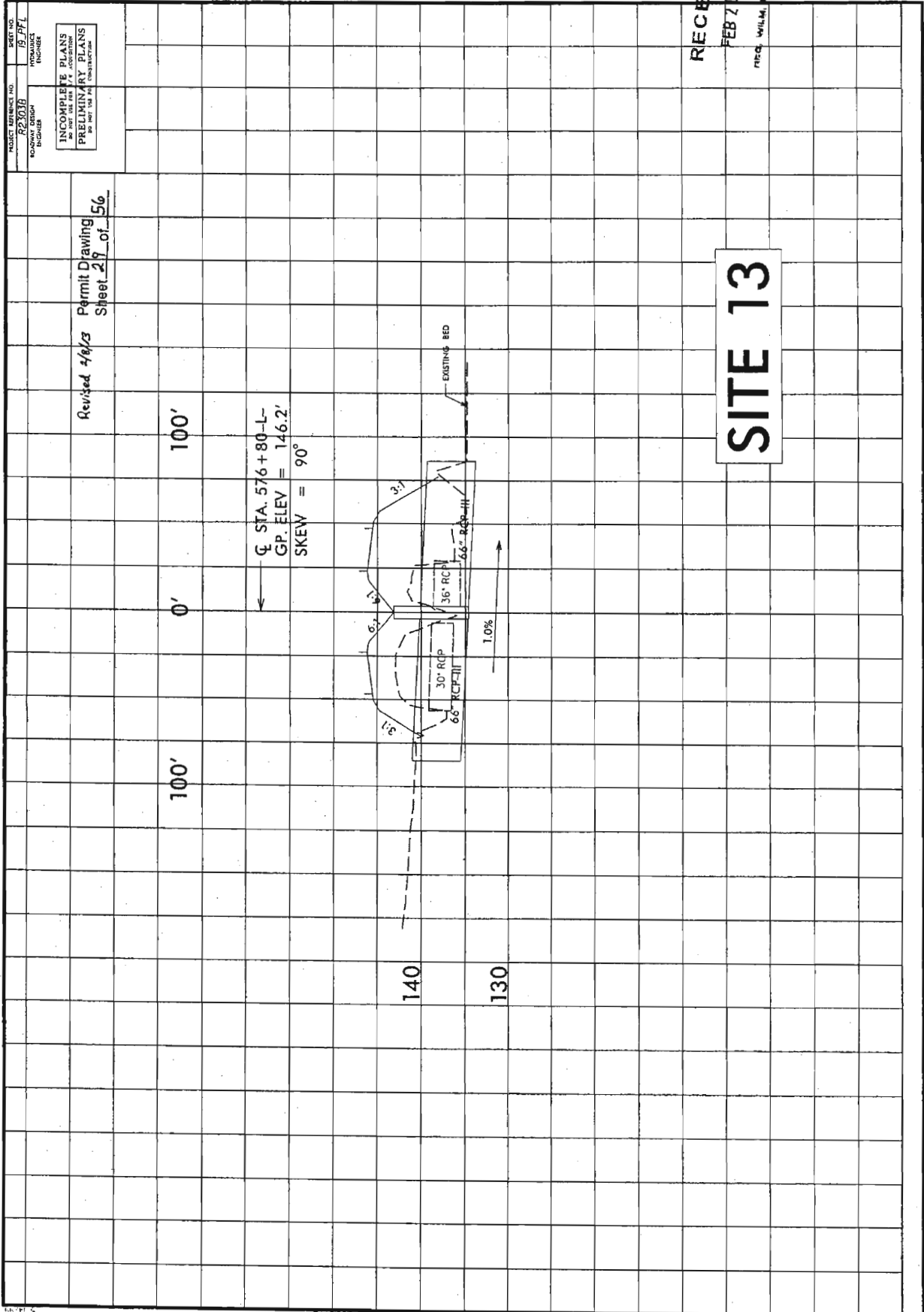


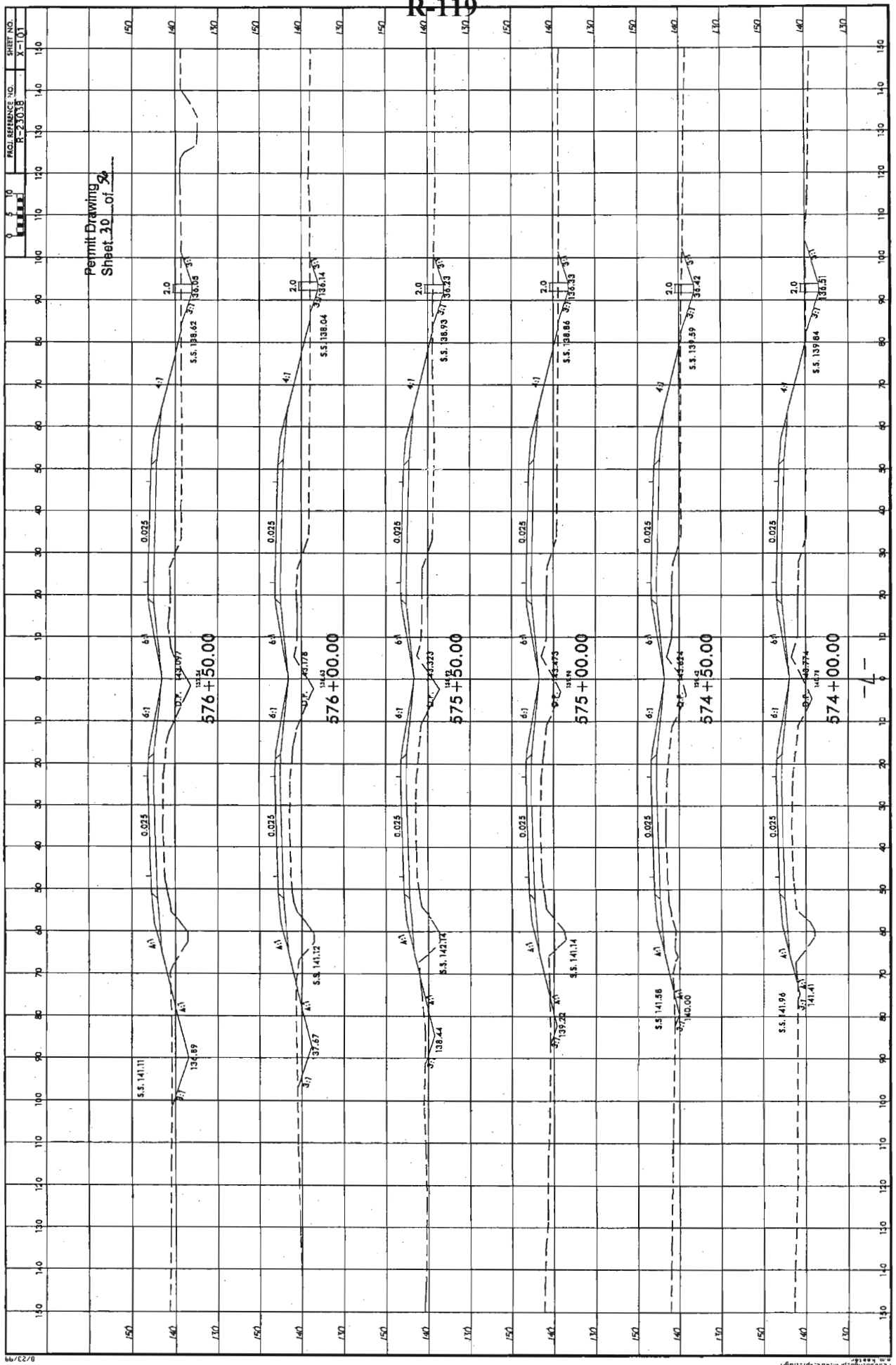
Author's address: Department of Mathematics, University of California, San Diego, La Jolla, CA 92037, USA.
E-mail: jgk@ucsd.edu

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FEB 20 2013

REC. WILLIAM, P.L.D., C.P.C.





R-119

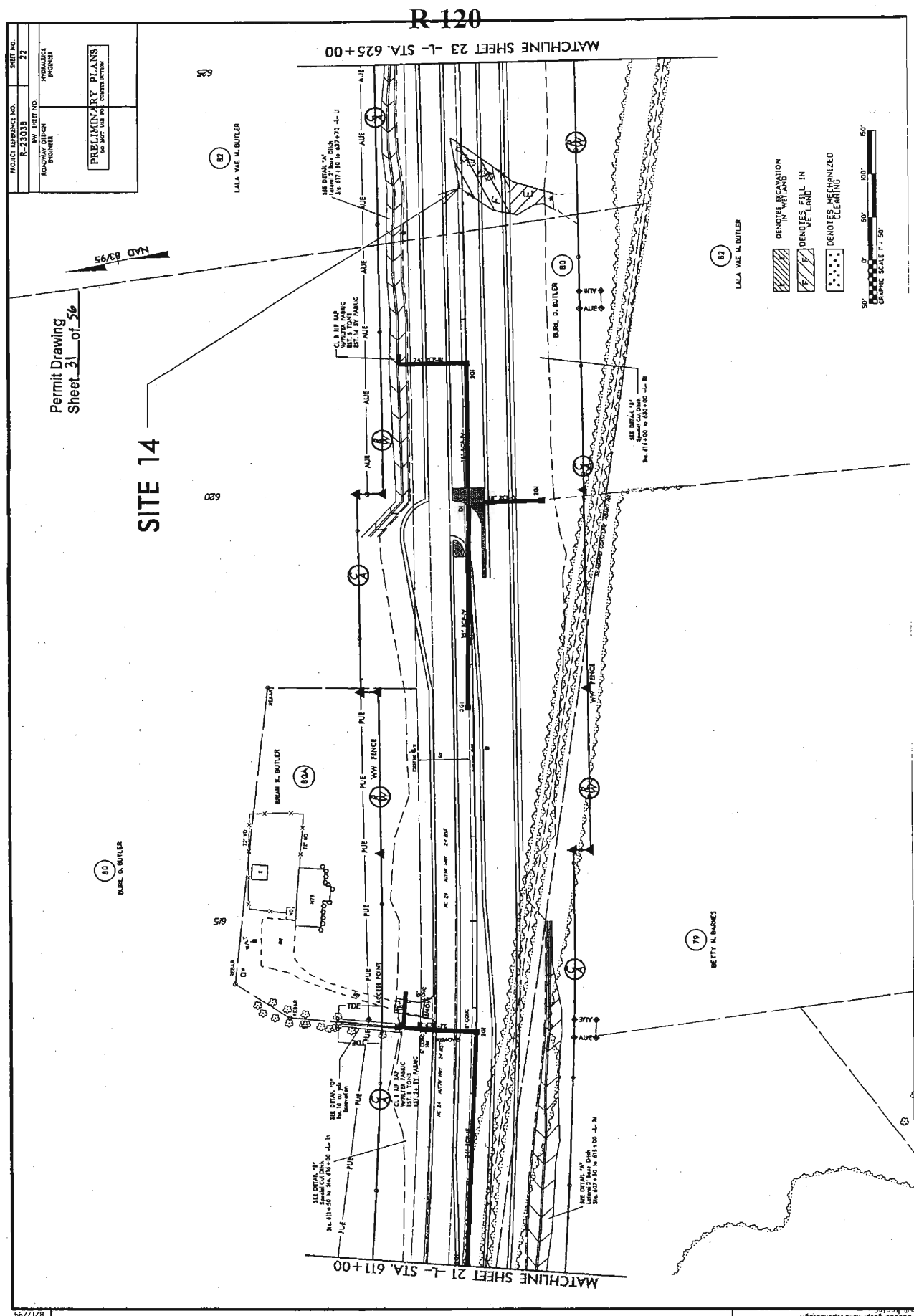
Permit Drawing
Sheet 30 of 32

PROJECT NO.
R-23038
SHEET NO.
X-101

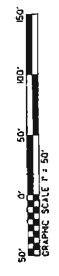
PROJECT REFERENCE NO.	SHEET NO.
R-23038	22
BY: STREET NO.	HYDRAULIC ENGINEER
ROADWAY DESIGN	ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Permit Drawing
Sheet 31 of 56

SITE 14

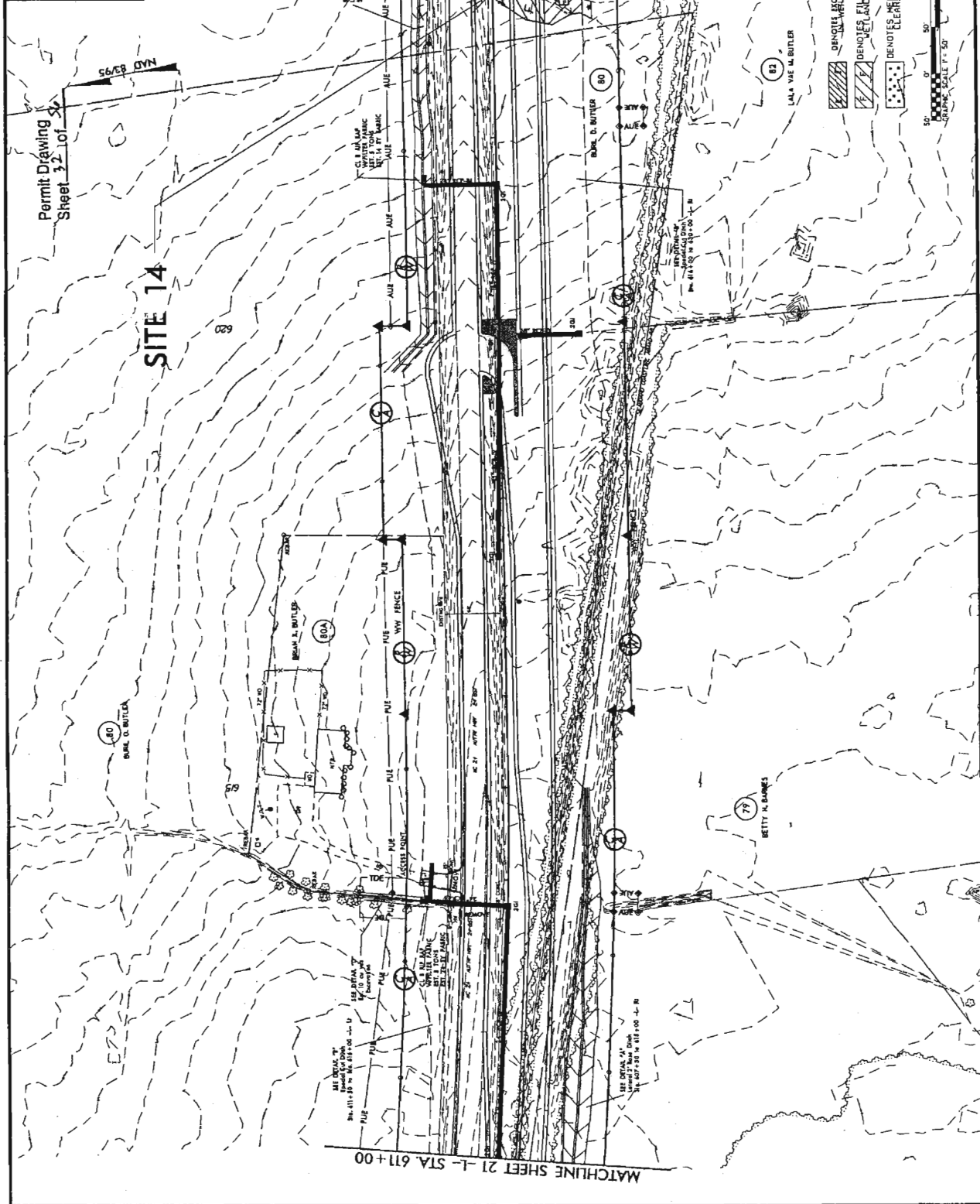


- DEMOLITION EXCAVATION IN WETLANDS
- DEMOLITION FILL IN WETLAND
- DEMOTES MECHANIZED CLEARING



REVISIONS
08/25/11 R/W REVISION (PFS) - PARCEL 79 (JAMES C. BARKES) WAS RENAMED TO (BETTY A. BARKES) PARCEL 80 (BRIAN A. BUTLER) WAS SPLIT INTO PARCEL 80 (BRIAN A. BUTLER) AND PARCEL 80A (BRIAN A. BUTLER)

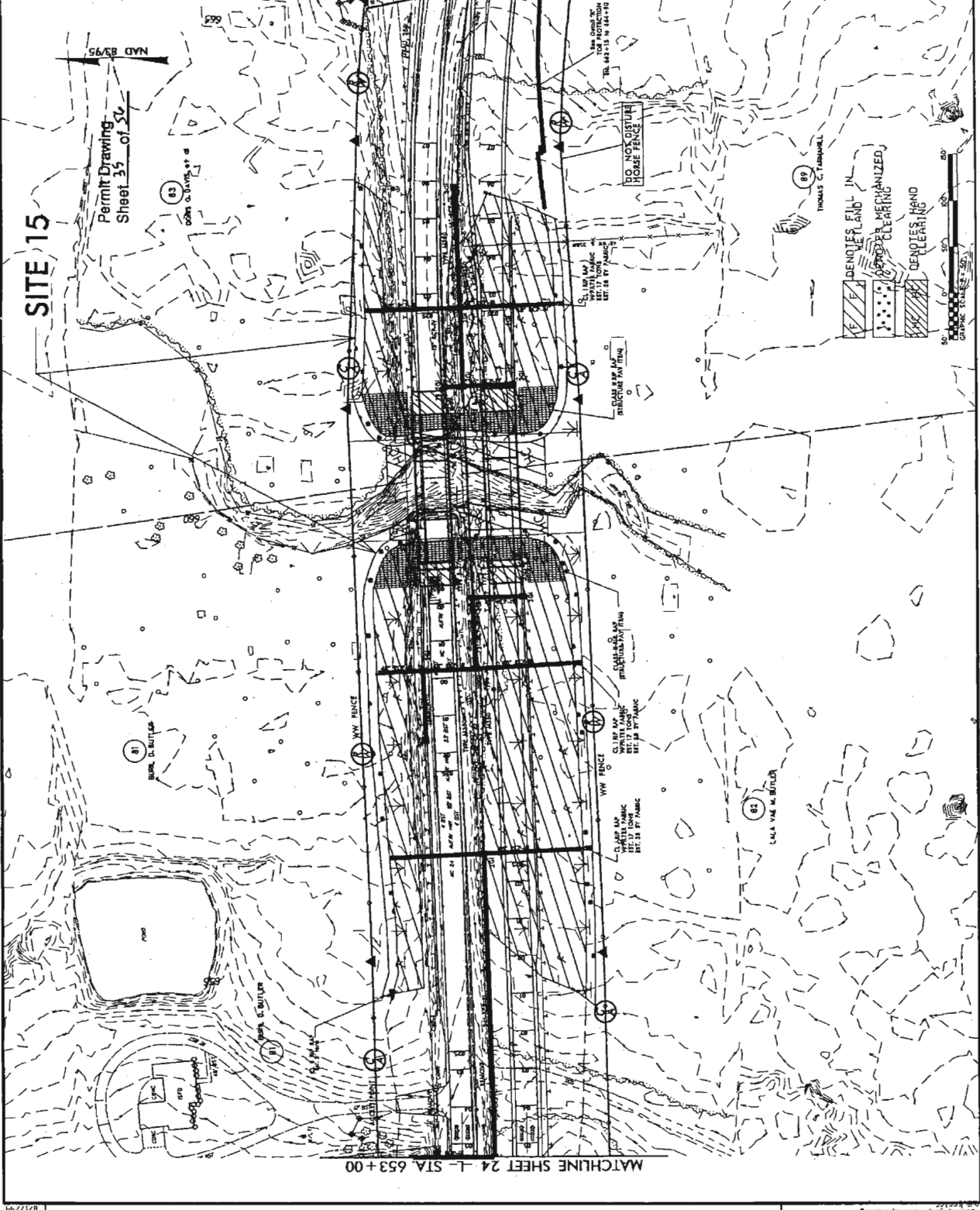
8/21/2012
08/25/11
R:\projects\23038\Drawings\23038\hyd.prm\wet-psht22.dgn



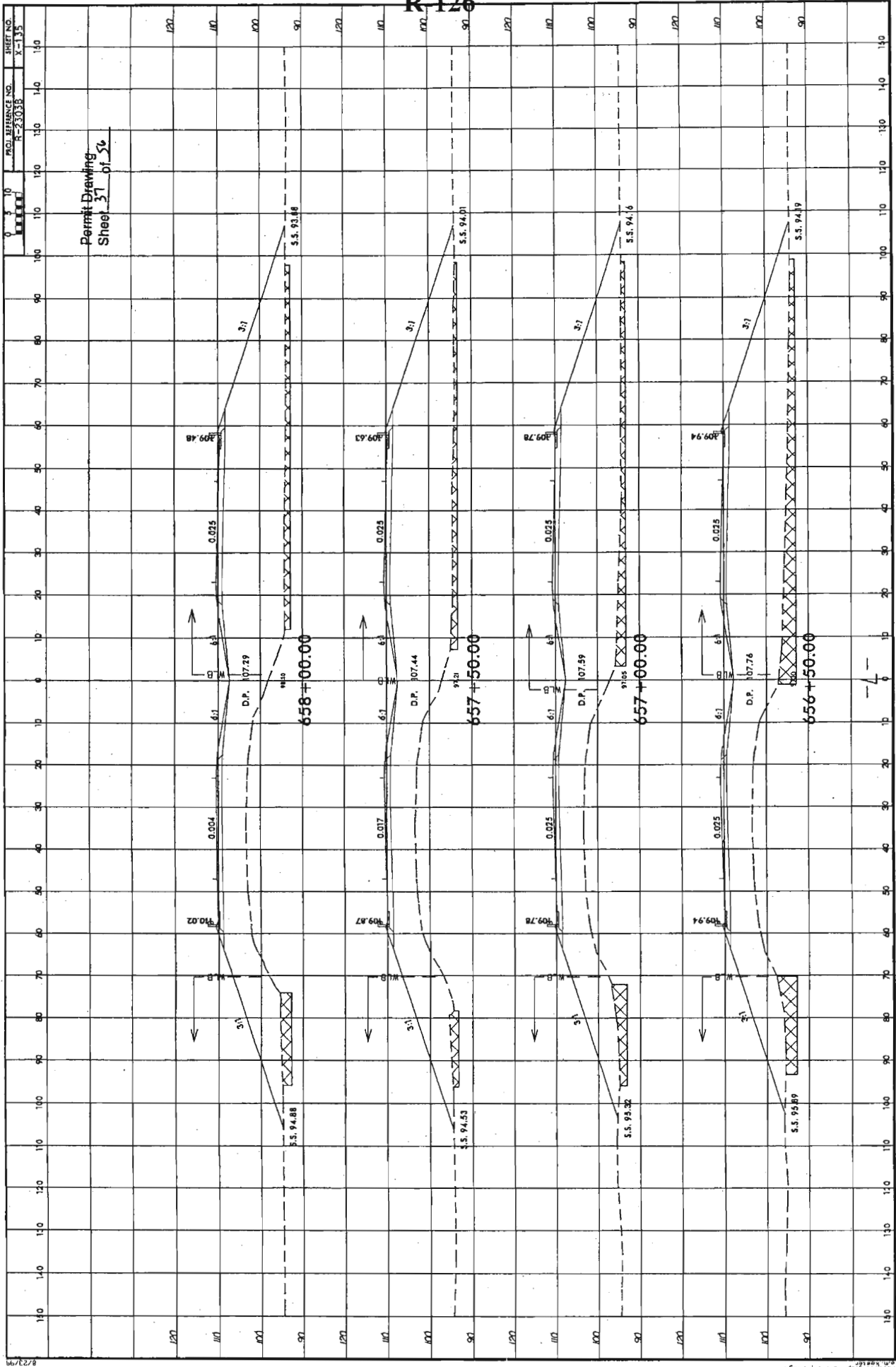
08/26/11 R/W REVISION (PJS) - PARCEL 79 (JAMES C. BARNES) WAS REMAIND TO (BETTY H. BARNES), PARCEL 80 (BRIAN K. BUTLER) WAS SPLIT INTO PARCEL 80 (BURL D. BUTLER) AND PARCEL 80A (BRIAN K. BUTLER)

6/27/2012
omk@er
R:\HydroQuilcs\PEH\ITS_Environment\Drawings\2303b-hyd-prm-wet-psh22.dgn

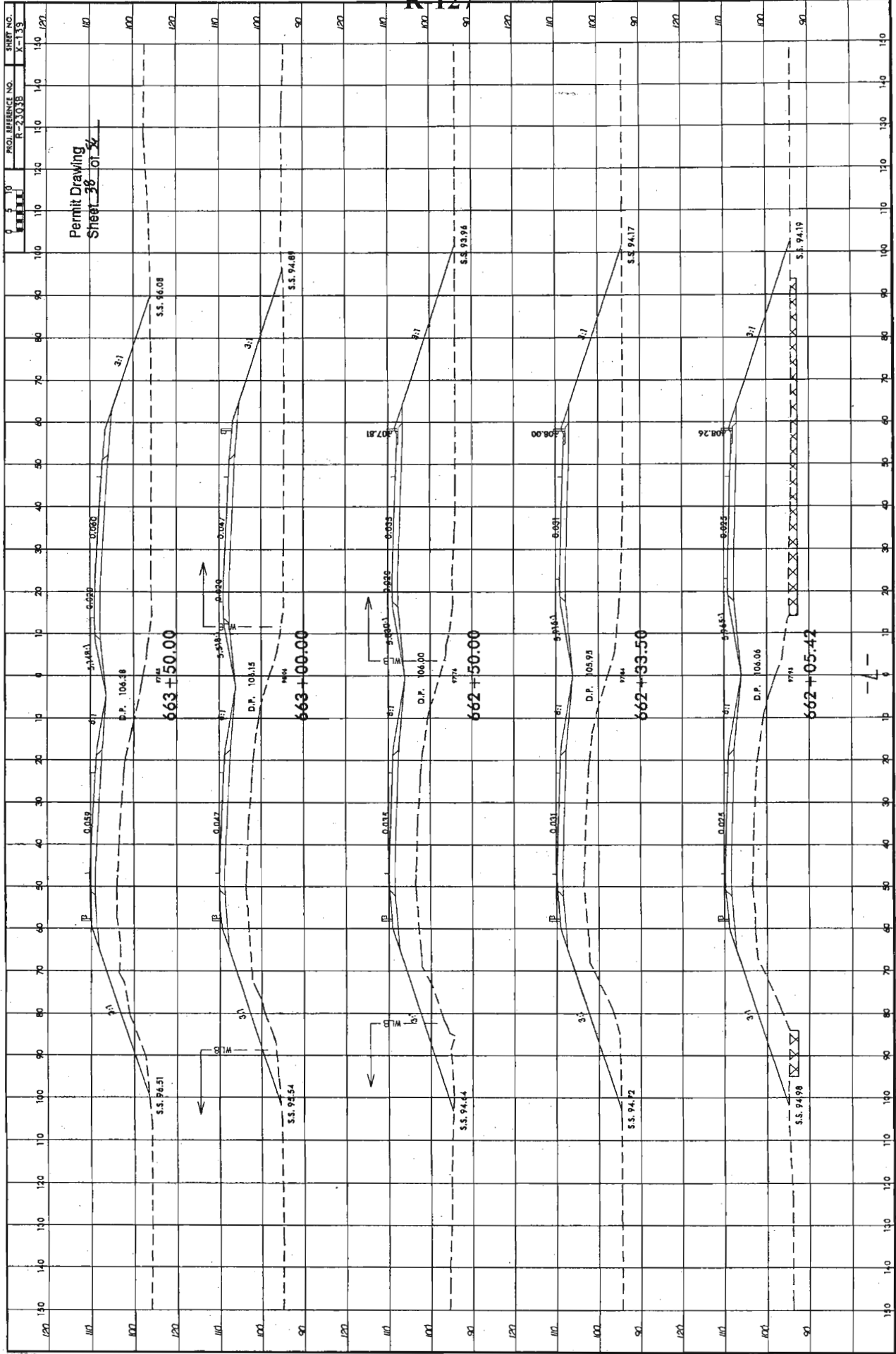
PROJECT NUMBER NO.	25
PROJECT NAME	R-2039
DESIGNED BY	ENGINEER
CHECKED BY	ENGINEER
DATE	10/1/09
SCALE	AS SHOWN
PRELIMINARY PLANS	NO NOT FOR CONSTRUCTION

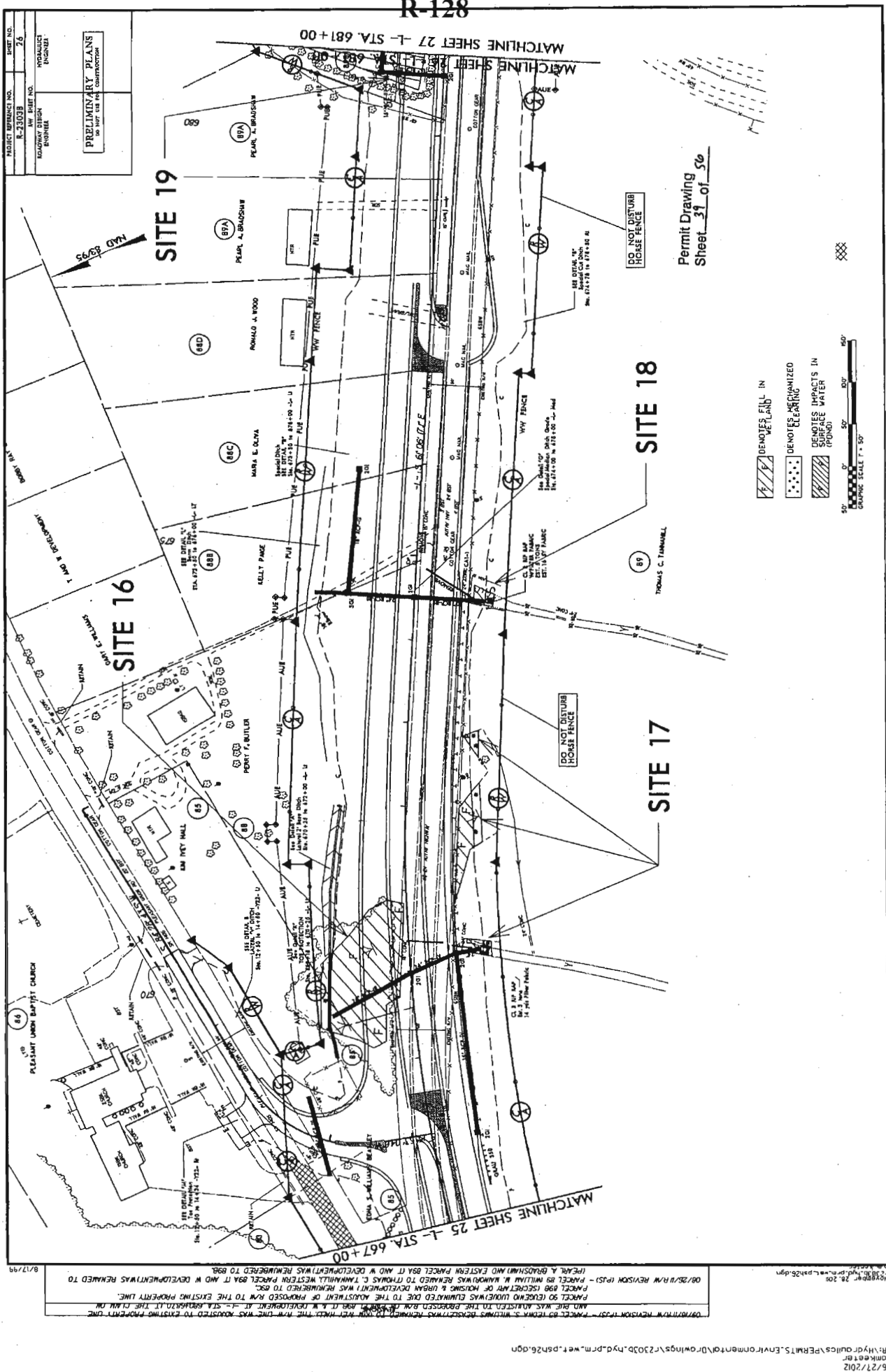


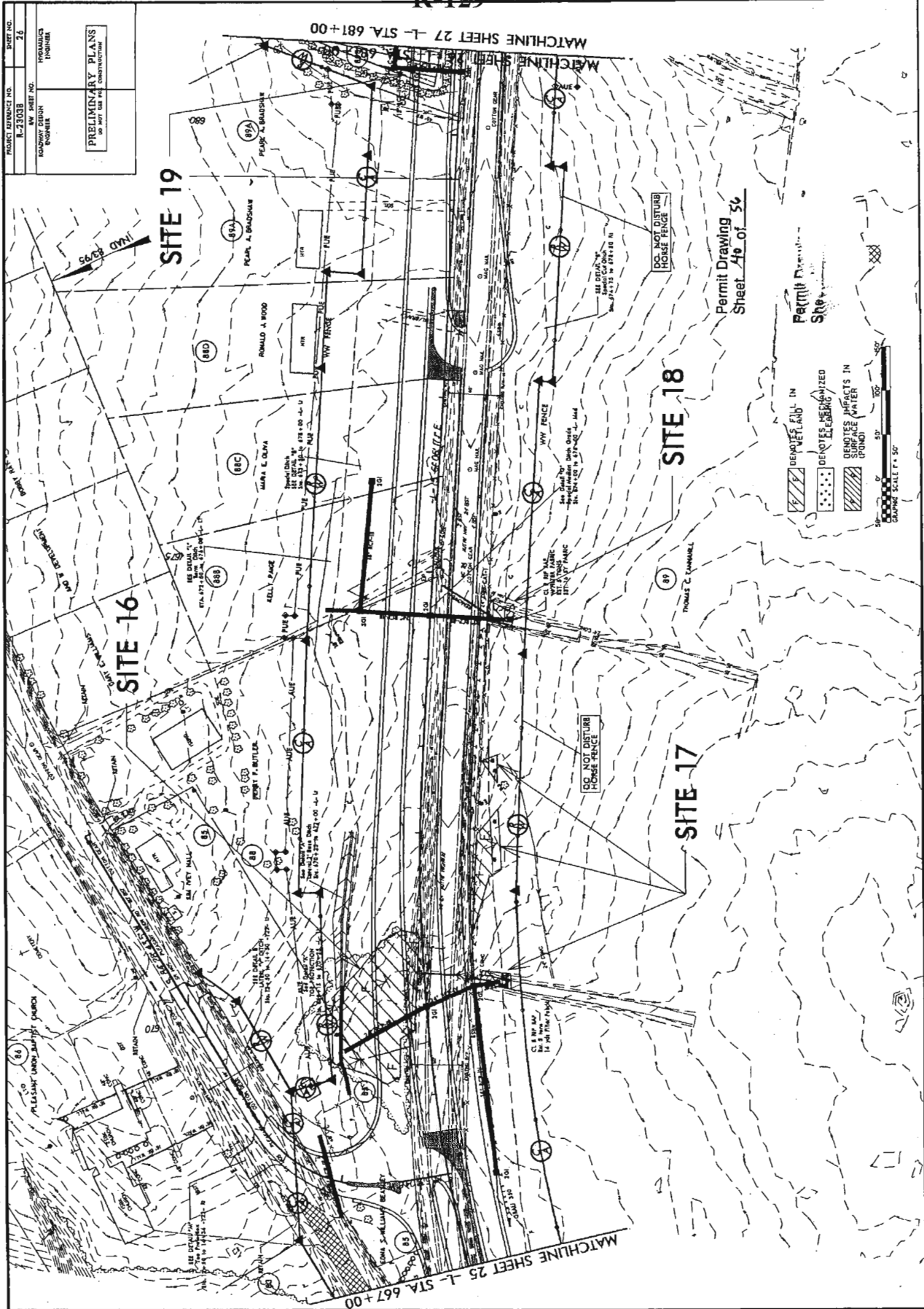
08/25/10 R/W REVISION (P/S) - PARCEL 89 MILLIAM N. WAINWRIGHT WAS REPAIRED TO THOMAS C. T. WAINWRIGHT
 08/25/10 R/W REVISION (P/S) - PARCEL 89 MILLIAM N. WAINWRIGHT WAS REPAIRED TO THOMAS C. T. WAINWRIGHT
 08/25/10 R/W REVISION (P/S) - PARCEL 89 MILLIAM N. WAINWRIGHT WAS REPAIRED TO THOMAS C. T. WAINWRIGHT



Permit Drawing
Sheet 37 of 50





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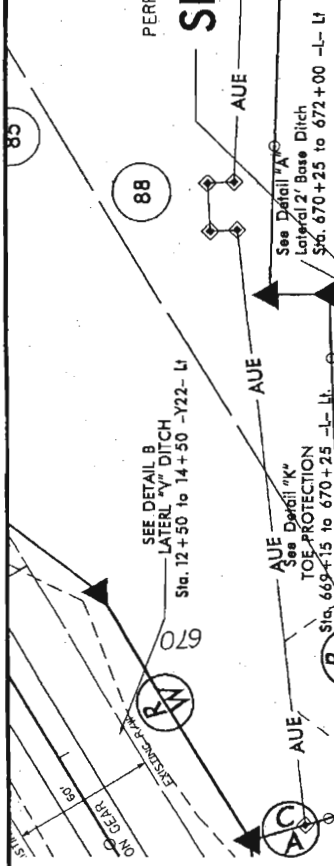
PROJECT REFERENCE NO.	25038
REV SHEET NO.	25038
DESIGNED BY	INTEGRAL ENGINEERS
CHECKED BY	INTEGRAL ENGINEERS
INCOMPLETE PLANS NO NOT FOR CONSTRUCTION PRELIMINARY PLANS NO NOT FOR CONSTRUCTION	

88B

Permit Drawing
Sheet 41 of 50

PERRY F. BUTLER

SITE 16



KELLY PA

18" RCP-III

24" RCP-III

3GI

2GI

REMOVE

REMOVE

REMOVE

REMOVE

REMOVE

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REMOVE

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8/17/99

REVISIONS

- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES IMPACTS IN SURFACE WATER (POND)

25' 0' 25' 50' 75'
SCALE= 1"=50'

SITE 18

NC 24 RUTTY HIGHWAY

15" RCP-IV

2GI

24" RCP-IV

2GI

CL B RIP RAP

Est. 5 tons

14 yds Filter Fabric

CL B RIP RAP

W/FILTER FABRIC

EST. 5 TONS

EST. 16 SY FABRIC

See D

Specio

Sta. 61

85

86

87

88

89

90

91

Permit Drawing
Sheet 44 of 56

MATCHLINE SHEET 28 -L- STA. 695+00

MATCHLINE SHEET 20 = STA. 681+00

NOTE:

SITE 19*

SITE 20

 DENOTES IMPACTS IN SURFACE WATER
 DENOTES TEMPORARY IMPACTS IN SURFACE WATER
 DENOTES IMPACTS IN SURFACE WATER (POND)

INTRODUCTION AND DEVELOPMENT

Abstract

SEE DETAIL "A"

W/ FILTER FABRIC
EST. 1 TONS

—

100%

	201	Total D

[illegible]

any further

2010 11 20

AUE — AUE — AUE

11

—

173

1

1

4

—

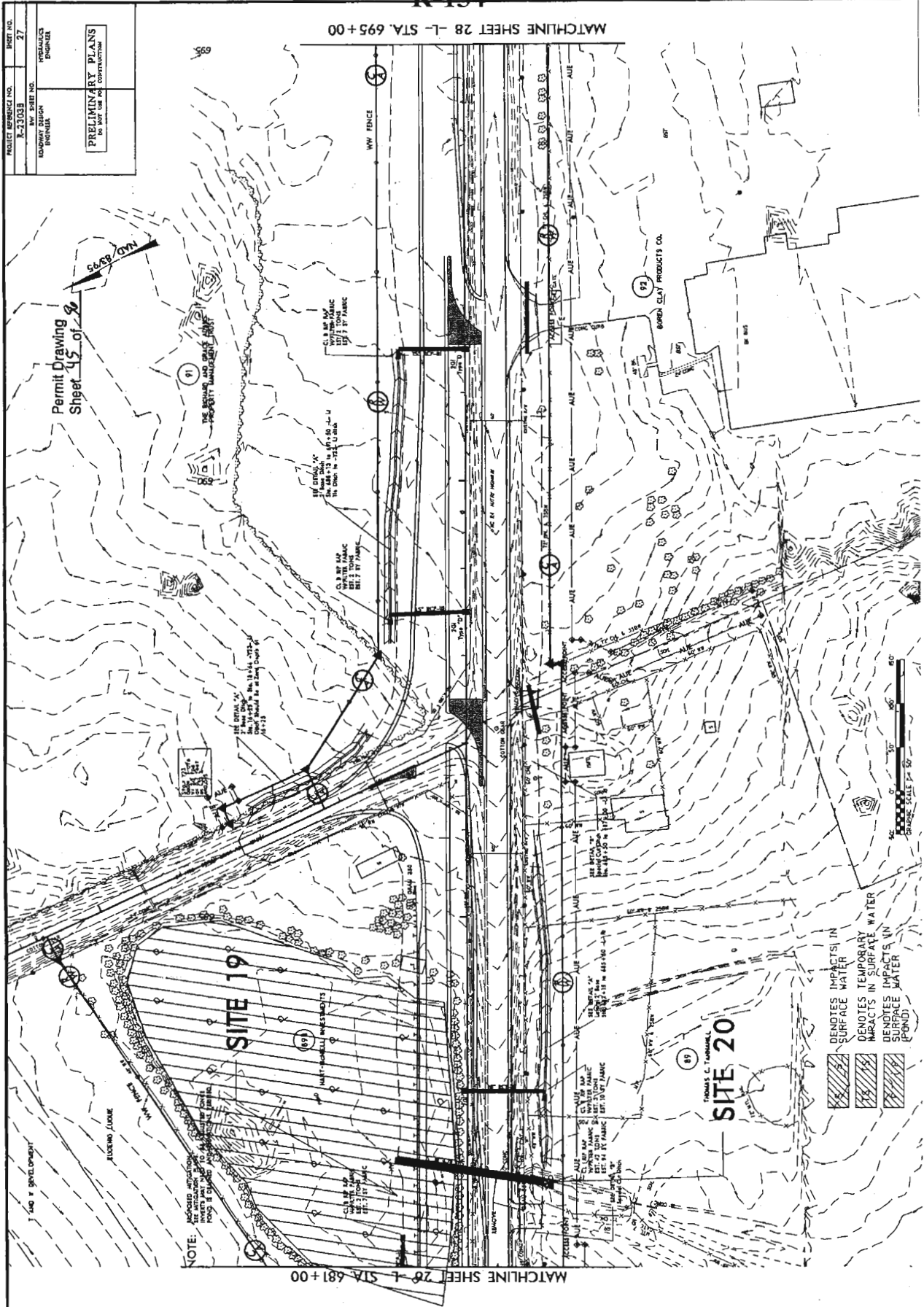
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—

MATCHLINE SHEET 28 -L- STA. 695+00

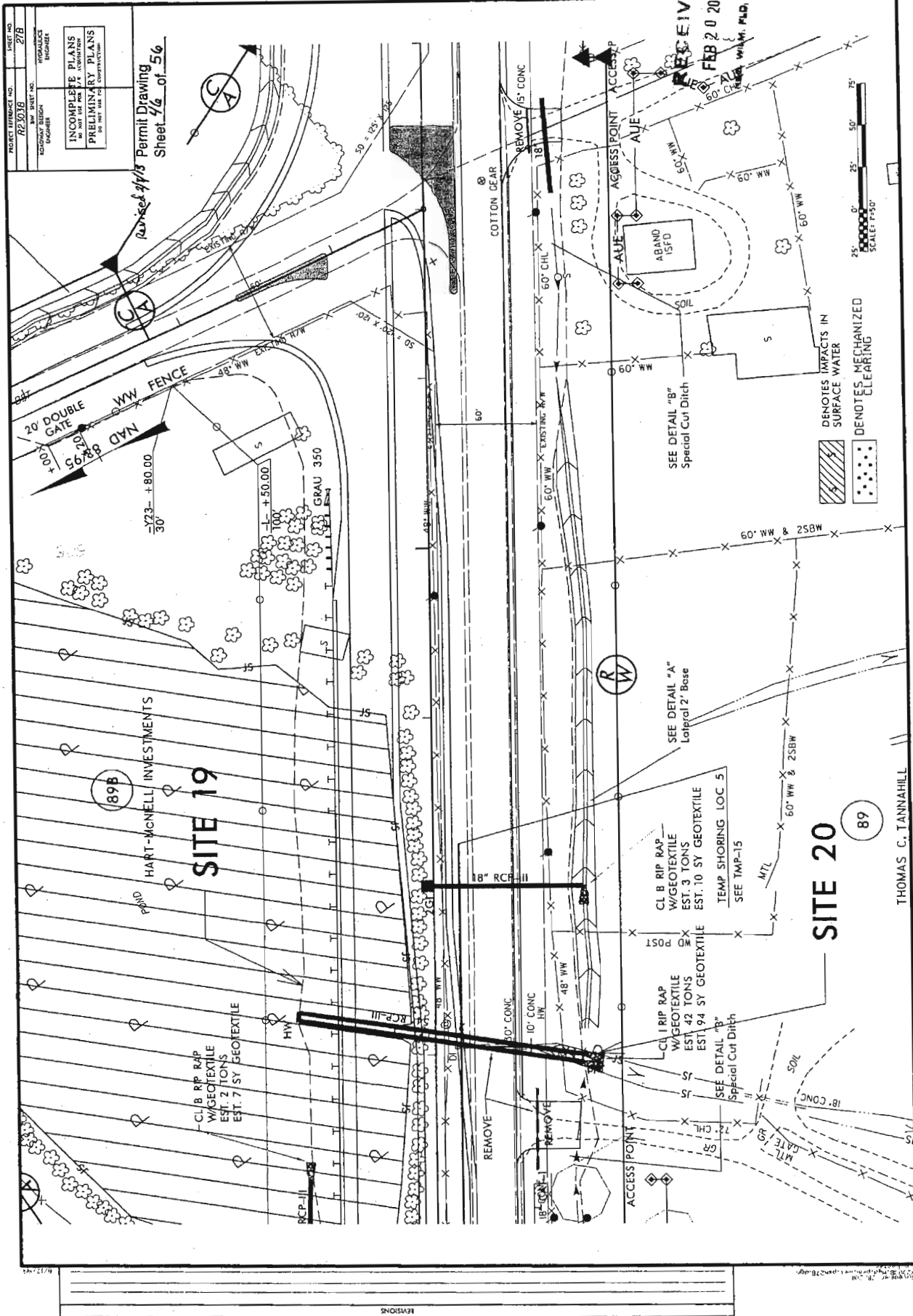
PROJECT NUMBER NO.	27
DATE	1-2-2003
DESIGNER	HYDRAULIC ENGINEER
CONTRACTOR	PRELIMINARY PLANS
NO. OF SHEETS	27

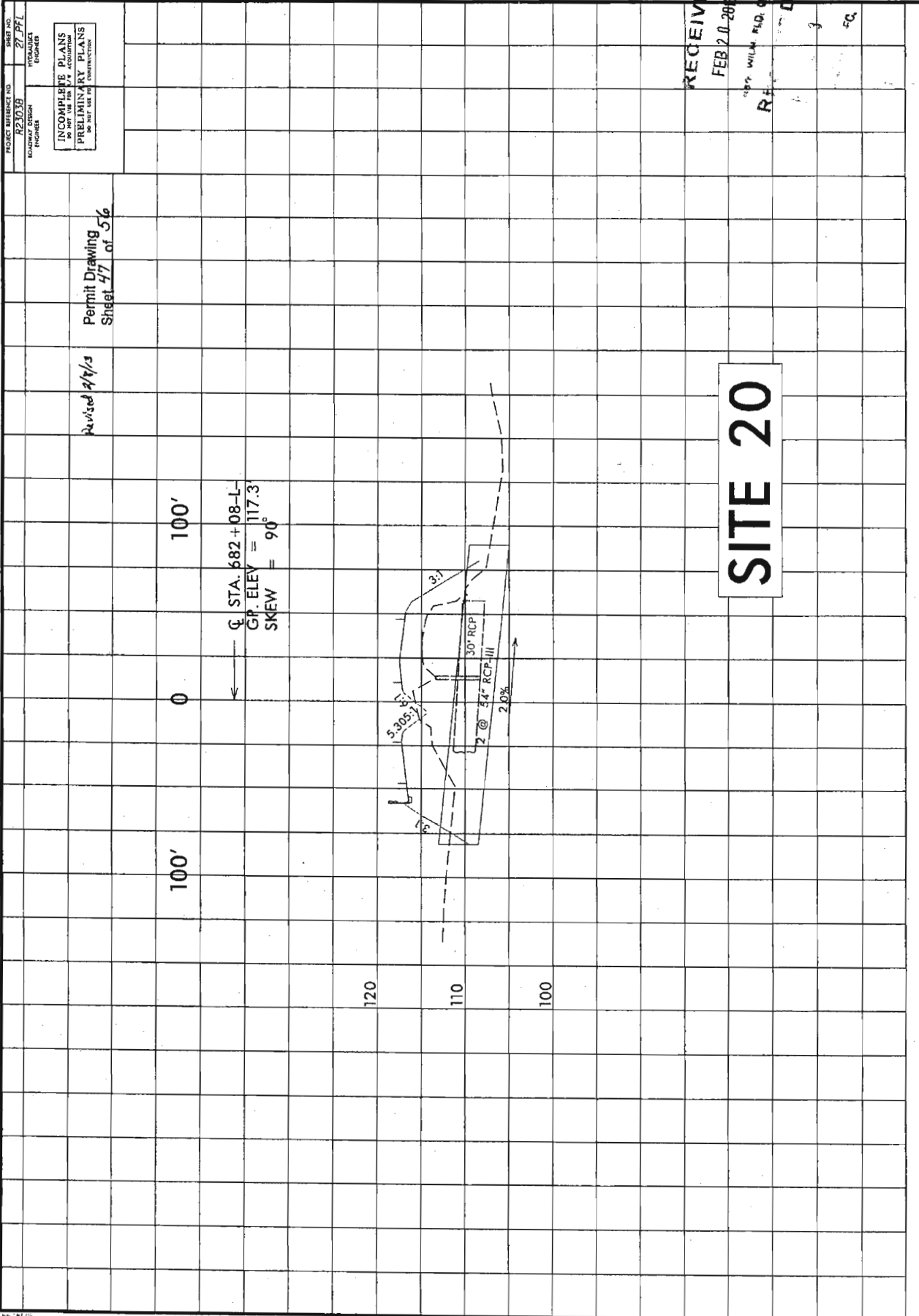
Permit Drawing
Sheet 45 of 46



REVISIONS

11/22/11 R/W REVISION: ADDED 2-60 ACCESS POINT AT PROPERTY LINE PARCELS 089 AND 092





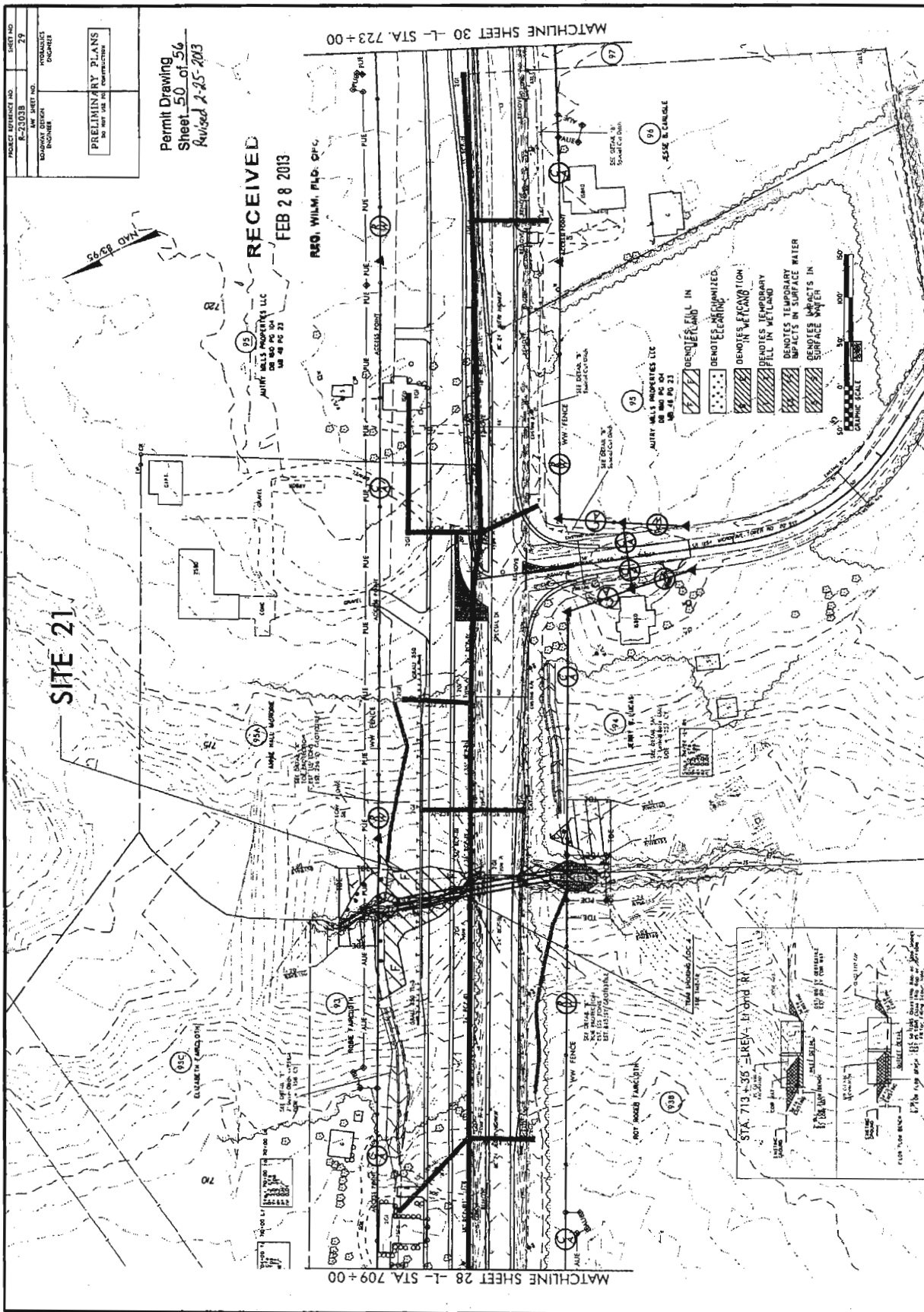
PROJECT REFERENCE NO. R23038
SHEET NO. 27 PFL
HYDRAULIC DESIGN
PERMIT
INCOMPLETE PLANS
DO NOT USE FOR CONSTRUCTION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Revised 4/4/13
Permit Drawing
Sheet 47 of 56

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FEB 20 2013

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FEB 20 2013

RECEIVED
FEB 20 2013



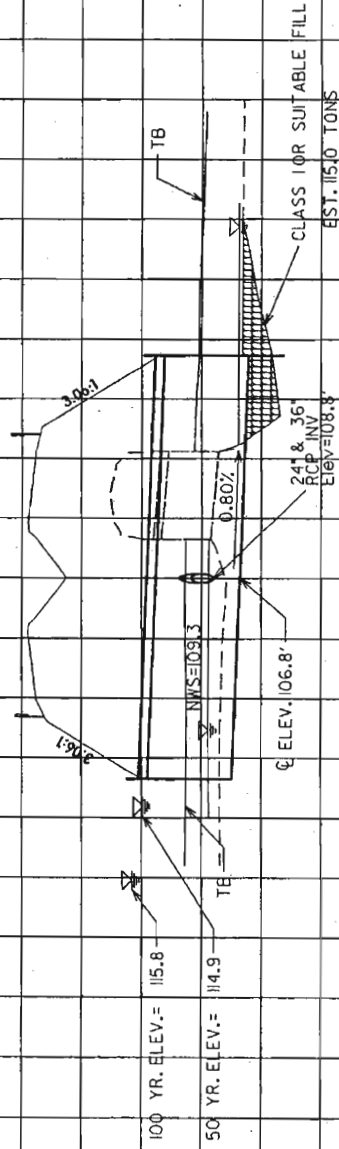
Permit Drawing
 Sheet 21 of 36

R-141

SITE 21

100' 0' 100'

STA. 113+35.01-
 CROWN PT. RCP
 SKEN = 79
 ELEV = 124.5



120 110 100

100 YR. ELEV. = 115.8

50 YR. ELEV. = 114.9

Q ELEV. 106.8'

24" x 36" RCP INV. ELEV. = 108.8'

CLASS 10R SUITABLE FILL
EST. 115.0 TONS

3.00:1

3.00:1

3.00:1

3.00:1

3.00:1

3.00:1

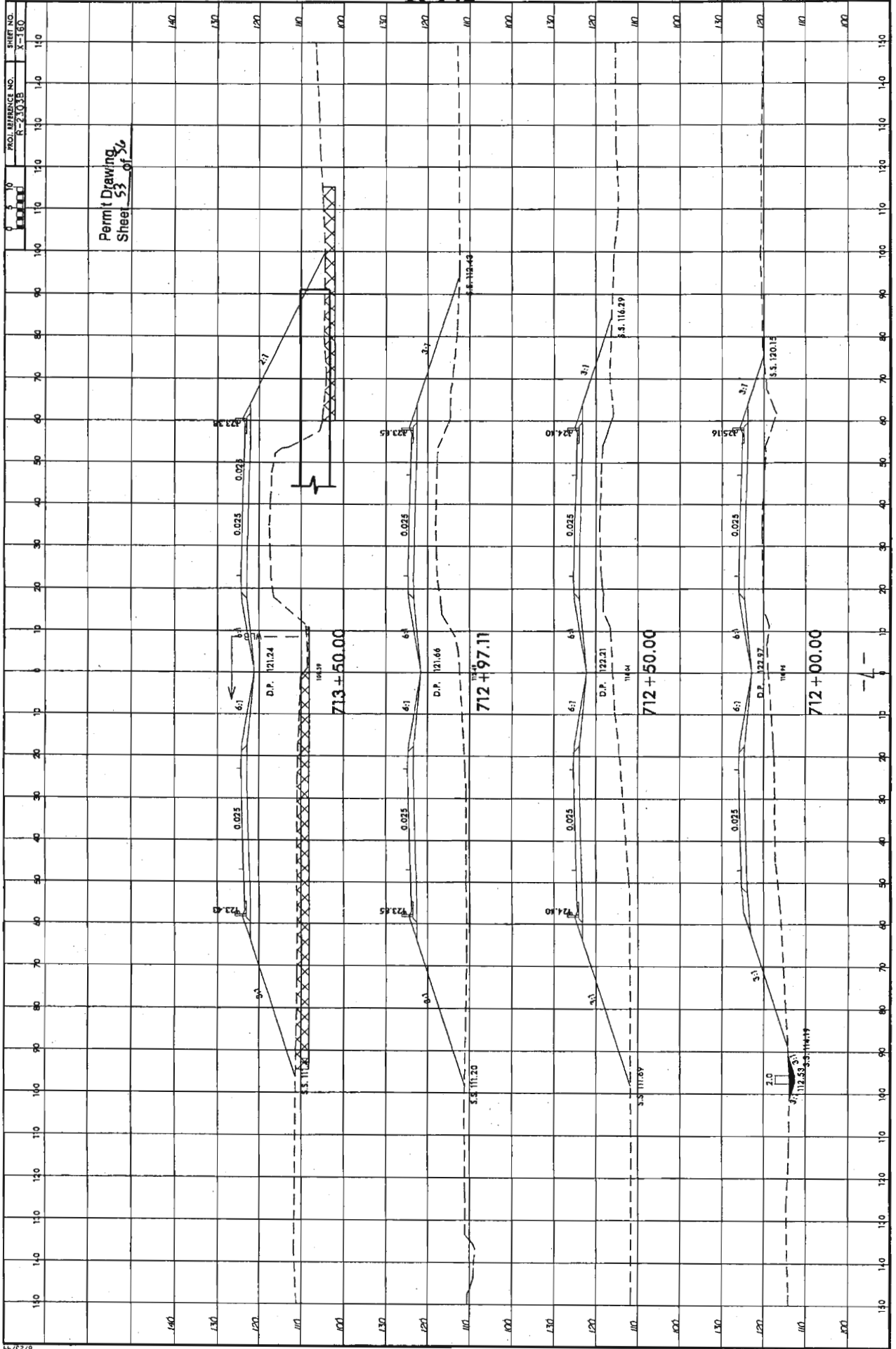
3.00:1

3.00:1

3.00:1

3.00:1

3.00:1



PROJECT REFERENCE NO. R23038	SHEET NO. 54
ROUTE NO. 100	PROJECT NO. 100
ROUTE NO. 100	PROJECT NO. 100

Revised 4/6/13 Permit Drawing
Sheet 54 of 56

PROPERTY OWNERS NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
83	DONIS O. DAVIS	P.O. BOX 3331 BURLINGTON, NC 27217
85	EDNA S. WILLIAMS BEASLEY	2241 PLEASANT UNION RD. ROSEBORO, NC 28382
88	PERRY F. BUTLER	2227 PLEASANT UNION RD. ROSEBORO, NC 28382
89	WILLIAM M. MAINOR	P.O. BOX 1809 ROSEBORO, NC 28382
89B	SECRETARY OF HOUSING & URBAN DEVELOPMENT	40 MARETTA ST. ATLANTA, GA 30303
93	ROBIE D. FAIRCLOTH	4412 DUNN RD. ROSEBORO, NC 28382
94	JERRY W. LUCAS	2106 SAMPSON RD. FAYETTEVILLE, NC 28301
95A	CHARLES S. LUCAS	2106 SAMPSON RD. FAYETTEVILLE, NC 28301

NCDOT

DIVISION OF HIGHWAYS
CUMBERLAND & SAMPSON COUNTY
PROJECT: 1416.11 (R-2003B)

NC 14 FROM WEST OF SR 1853
TO WEST OF SR 1404

SHEET 54 OF 56 10/16/11

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FEB 20 2013
MAG, WILLIAM, PLO, OFC

PROPERTY OWNERS NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
19	ROLAND NUNNERY	394 JOHN NUNNERY RD. STEDMAN, NC 28391
21	JAMES H. SPELL	P.O. BOX 98 ROSEBORO, NC 28382
26	HEATHER ELIZABETH MELVIN	124 EAST OLD STAGE RD. AUTRYVILLE, NC 28318
30	DONNA BROWN HOLDEN	182 OLD STAGE RD. AUTRYVILLE, NC 28318
31	HELEN S. SESSOMS	P.O. BOX 14 AUTRYVILLE, NC 28318
33	DOUGLAS NEW	P.O. BOX 53501 FAYETTEVILLE, NC 28305
46	EDDIE I. HALL	4510 AUTRY HWY. AUTRYVILLE, NC 28318
47	JAMES R. STARLING	P.O. BOX 31 AUTRYVILLE, NC 28318
49	RICHARD FRANKLIN HALL	5650 AUTRY HWY. AUTRYVILLE, NC 28318
50, 53	GEORGE L. HALL	5440 AUTRY HWY. AUTRYVILLE, NC 28318
56	JIMMY M. HALL	567 LUBBE RD. AUTRYVILLE, NC 28318
81	BURIL D. BUTLER	3700 AUTRY HWY. AUTRYVILLE, NC 28318
82	LALA YAE M. BUTLER	3970 AUTRY HWY. AUTRYVILLE, NC 28318

NCDOT

DIVISION OF HIGHWAYS
CUMBERLAND & SAMPSON COUNTY
PROJECT: 1416.11 (R-2003B)

NC 14 FROM WEST OF SR 1853
TO WEST OF SR 1404

SHEET 54 OF 56 10/16/11

RECEIVED

FEB 28 2013

APP. WITH R-B, REC.

WETLAND PERMIT IMPACT SUMMARY										
Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS				SURFACE WATER IMPACTS			
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Cleaning in Wetlands (ac)	Permanent SW Impacts (ac)	Temp. SW Impacts (ac)	Existing Channel Impacts Permanent (ft)
1	388+00 to 391+28-L-	Fill	1.26			0.14				
*2	391+28 to 402+13-L-	Bridge			0.09	<0.01	3.53			
3	14+18 to 15+09-Y13-RT	Fill	0.01			0.02				
4	424+51 to 426+05-L-LT	Fill						0.25		
5	425+57 to 426+51-L-LT	Fill	0.02			0.02				
**6	430+34 to 432+25-L-RT	Fill/Pond						0.19		
7A	431+78 to 434+23-L-	Fill								
7B	431+78 to 434+23-L-	Fill	0.23		0.01	0.03		0.02	158.00	
8	437+97 to 439+15-L-RT	Fill	0.07			0.02				
9	438+58 to 441+68-L-LT	Fill						0.73		
***10	542+45 to 545+21-L-LT	Fill	0.09			0.06				
11	554+06 to 558+53-L-LT	Fill	0.01			0.10				
TOTALS:			1.69		0.10	0.39	3.53	1.19		158.00

* Site 2: Impacts from piles are Str. # 1 148sf, Str. # 2 148sf.

** Site 6: Wetland Sta. 430+34-L-RT impact shown as total take due to Mitigation site. Additional impact outside of s.s. is 2.13 ac.

*** Site 10: This is a resource that is regulated by the NCDWQ but not by the USACE.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYSCUMBERLAND/SAMPSON COUNTY
WBS - 34416.1.1 (R-2303B)

SHEET 2/25/2013

Permit Drawing
Sheet 55 of 56
Revised 2-25-2013

WETLAND PERMIT IMPACT SUMMARY										
Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS				SURFACE WATER IMPACTS			
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW Impacts (ac)	Temp. SW Impacts (ac)	Existing Channel Impacts Permanent (ft)
12	554+38 to 557+27-L-RT	Fill	0.28			0.03				
13	576+76 to 576+89-L-RT	Fill						<0.01		
14	623+20 to 624+12-L-RT	Fill	0.10		0.03	<0.01				
15	654+75 to 663+38-L-	Fill / Bridge	2.13			0.41	0.17			
16	669+18 to 670+85-L-LT	Fill	0.26			0.06				
17	670+13 to 672+92-L-RT	Fill	0.05			0.02				
18	674+45 to 674+81-L-RT	Fill								
19	680+56 to 684+21-L-LT	Fill / Pond						<0.01		
20	681+95 to 682+15-L-RT	Fill						0.44		
21	712+14 to 714+41-L-	Fill / RCBC	0.13	0.12	0.01	0.06		<0.01		
		Bank Stabilization						0.03		138.00
								0.02	0.01	55.00
										88.00
TOTALS:			2.95	0.12	0.04	0.58	0.17	0.51	0.02	193.00
							3.70	1.70	0.02	351.00
										88.00

GRAND TOTAL: 4.64 0.12 0.14 0.97 3.70 1.70 0.02 351.00 88.00

* Site 14 Wetland sta. 623+20-L-RT impact shown as total take.
Additional impact outside slope stake is 0.04 ac.

* Site 15: Impacts from piles are Str. # 3 25sf, Str. # 4 25sf.

* Site 16 Wetland sta. 669+18-L-LT impact shown as total take due to ditch.
Additional impact outside of ditch is 0.04 ac.

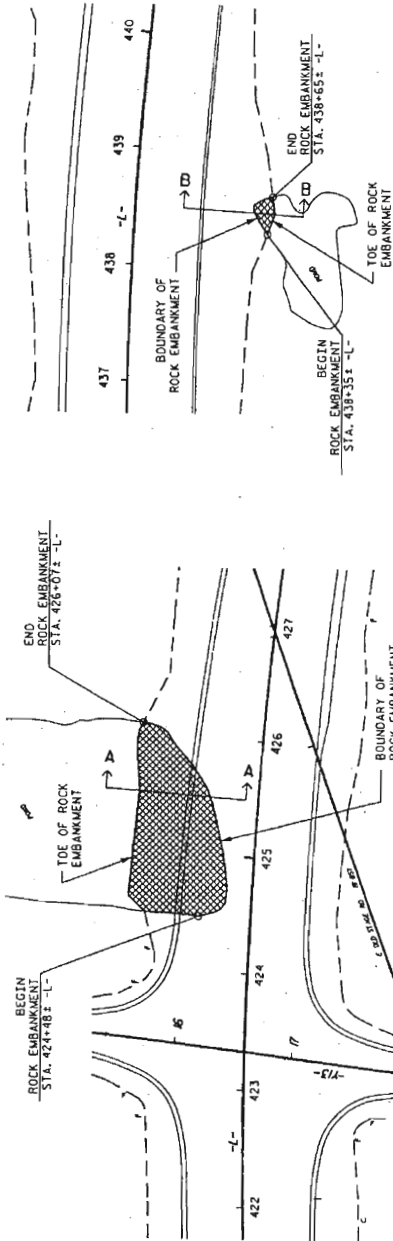
* Site 19 Wetland sta. 680+56-L-LT impact shown as total take due to Mitigation site.
Additional impact outside of s.s. is 1.99 ac.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
CUMBERLAND/SAMPSON COUNTY
WBS - 34416 1.1 (R-2303B)
SHEET 2/27/2013

Permit Drawing
Sheet 56 of 56
Revised 2-27-2013



ROCK EMBANKMENT
AREA



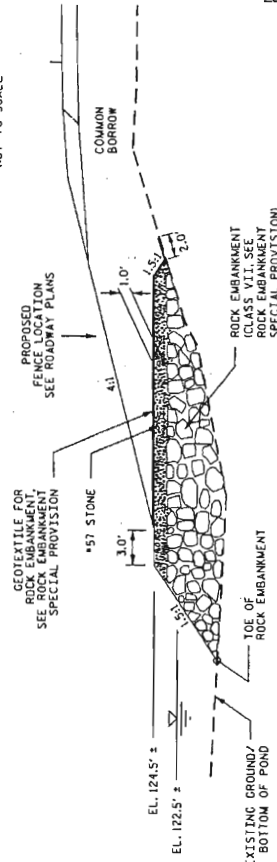
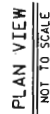
ESTIMATED QUANTITIES	
ROCK EMBANKMENTS	1,800 TONS
*57 STONE	950 TONS
GEOTEXTILE FOR ROCK EMBANKMENTS	1,050 SY

THE ESTIMATED QUANTITIES OF ROCK EMBANKMENTS INCLUDE ADDITIONAL TONNAGE FOR THE ANTICIPATED SETTLEMENT OF ROCK EMBANKMENTS.

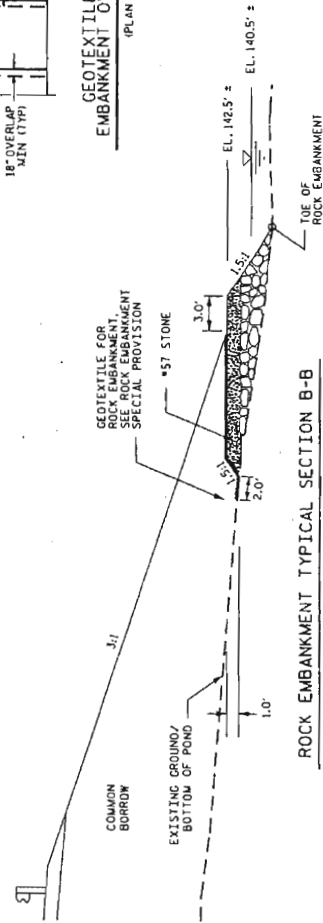
THE ESTIMATED QUANTITIES OF #57 STONE
INCLUDE ADDITIONAL TONNAGE FOR FILLING OF GAPS BETWEEN CLASS VII AND
EXCAVATION FOR FENCE POST, IF NECESSARY.



GEOTEXTILE FOR ROCK
EMBANKMENT OVERLAP DETAIL
(PLAN VIEW)



ROCK EMBANKMENT TYPICAL SECTION A-A



ROCK EMBANKMENT TYPICAL SECTION B-B

GEOTECHNICAL ENGINEERING UNIT
☐ EASTERN REGIONAL OFFICE
☐ WESTERN REGIONAL OFFICE
☐ CONTRACT OFFICE

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

REVISIONS				
NO.	BY	DATE	NO.	DATE
1			3	
2			4	

PREPARED BY: J. PARK	DATE: 06/20/12
REVIEWED BY: J. BATTIS	DATE: 06/20/12

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITY WETLAND IMPACT PLAN
CUMBERLAND & SAMPSON COUNTIES

RECEIVED

JAN 31 2013

REG. WILLIAM FLD. OFC.

TITLE NO.
R-2303B

SHEET NO.
UEP-0

Utility Permit Drawing
Sheet 1 of 9

SITE-2 UEP-2 (ROADWAY SHEET UC-17)

IMPACTS: NONE

NOTE: PLAN MODIFICATION REQUIRED TO MINIMIZE DISTURBANCE IN WETLAND
(1) USE TRENCHLESS INSTALLATION FOR U/G TEL & FO LINES

ROADWAY PLAN
SHEET NUMBERS

STA 366+20
R-2303B
MCDOT PROJECT

SITE-7 UEP-7 (ROADWAY SHEET UC-29)

IMPACTS: EXCAVATION IN WETLAND = 0.041 ACRE (1795 SQFT)
PURPOSE: EXCAVATE TRENCH FOR WATER LINE INSTALLATION

SITE-5 UEP-5 (ROADWAY SHEET UC-25)

IMPACTS: NONE

NOTE: PLAN MODIFICATION REQUIRED TO MINIMIZE DISTURBANCE IN WETLAND
(1) USE TRENCHLESS INSTALLATION FOR U/G TEL & FO LINES

SITE-1 UEP-1 (ROADWAY SHEET UC-12)

IMPACTS: HAND CLEARING IN WETLAND = 0.058 ACRE (2520 SQFT)
PURPOSE: HAND CLEAR 15' EACH SIDE OF POWER LINES

NOTE: PLAN MODIFICATION REQUIRED TO MINIMIZE DISTURBANCE IN WETLAND
(1) RELOCATE (MOVE IN-LINE) PROPOSED POWER POLE OUT OF WETLAND
(2) USE TRENCHLESS INSTALLATION FOR U/G TEL & FO LINES

SITE-3 UEP-3 (ROADWAY SHEETS UC-17 AND UC-18)

IMPACTS: EXCAVATION IN WETLAND = 0.014 ACRE (625 SQFT)
PURPOSE: EXCAVATE TRENCH FOR WATER LINE INSTALLATION

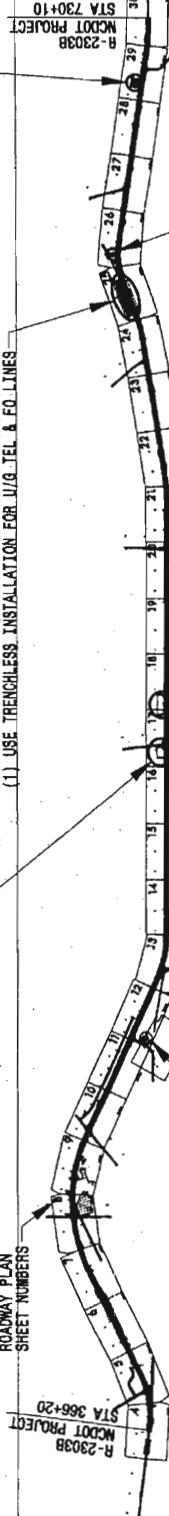
NOTE: PLAN MODIFICATION REQUIRED TO MINIMIZE DISTURBANCE IN WETLAND
(1) USE TRENCHLESS INSTALLATION FOR U/G TEL & FO LINES

SITE-4 UEP-4 (ROADWAY SHEETS UC-19 AND UC-20)

IMPACTS: EXCAVATION IN WETLAND = 0.095 ACRE (4150 SQFT)
PURPOSE: EXCAVATE TRENCH FOR WATER LINE INSTALLATION

SITE-6 UEP-6 (ROADWAY SHEET UC-26)

IMPACTS: EXCAVATION IN WETLAND = 0.010 ACRE (405 SQFT)
PURPOSE: HAND CLEARING IN WETLAND = 0.022 ACRE (965 SQFT)
PURPOSE: EXCAVATE TRENCH FOR WATER LINE INSTALLATION
PURPOSE: HAND CLEAR 15' EACH SIDE OF POWER LINES



INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UEP-0	UC-12
UEP-1	UC-12
UEP-2	UC-16
UEP-3	UC-17, UC-18
UEP-4	UC-19, UC-20
UEP-5	UC-25
UEP-6	UC-26
UEP-7	UC-29

TOTAL PROJECT ENVIRONMENTAL IMPACTS DUE TO UTILITY RELOCATIONS:

- (1) EXCAVATION IN WETLAND = 0.16 ACRE (6975 SQFT)
(2) HAND CLEARING IN WETLAND = 0.08 ACRE (3485 SQFT)



DESIGNED BY THE OFFICE OF
DIVISION OF HIGHWAYS
UTILITIES UNIT
UTILITIES ENGINEERING
IN THE OFFICE OF
ADMINISTRATIVE SERVICES
FOR THE DIVISION

PROJECT MANAGER
R. W. WILSON, P.E.
PROJECT ENGINEER
R. W. WILSON, P.E.
PROJECT ENGINEER
R. W. WILSON, P.E.

JANUARY 22, 2013

TIP PROJECT: R-2303B

SITE-2

Utility Permit Drawing
Sheet 3 of 9

PLAN SCALE:

FULL-SIZE: 1"=100'
HALF-SIZE: 1"=50'

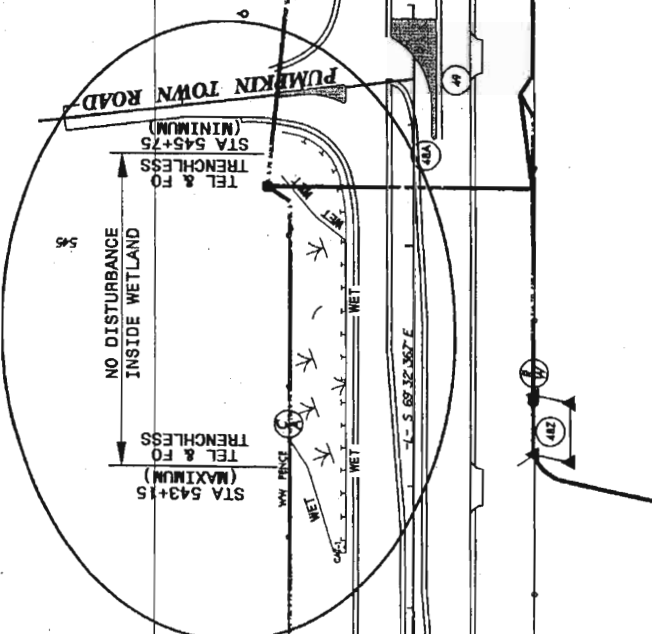
NOTES TO CONTRACTOR:

(1) DISTURBANCE TO EXISTING GROUND INSIDE WETLAND IS NOT ALLOWED
(NO POLE INSTALLATION OR TRENCH EXCAVATION PERMITTED INSIDE WETLAND)

(2) HAND CLEARING INSIDE WETLAND IS NOT PERMITTED INSIDE IMPACT SITE-2

NOTES TO PLAN DESIGNER:

(1) USE TRENCHLESS INSTALLATION FOR U/G TELEPHONE & FIBER OPTICS LINES THROUGH WETLAND AREA (BETWEEN STATION LIMITS SHOWN)



DESIGNED BY: EWH	R-2303B	UEP-2
DRAWN BY: EWH		
CHECKED BY: RBW		
APPROVED BY: RBW		
REVISED:		
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		
UTILITIES AND INSULATION AC- CORDING TO THE FOLLOWING PHONE: (919) 707-5690 FAX: (919) 250-4151		

UTILITY CONSTRUCTION

R-2303B	UTP-3
DESIGNED BY: EWH	
DRAWN BY: EWH	
CHECKED BY: EWH	
REVIEWED BY: EWH	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS 1111 SOUTH TRYON STREET RALEIGH, NC 27601	
UTILITY CONSTRUCTION PLANS ONLY	

NCDOT PROJECT R-2303B UTILITY ENVIRONMENTAL PERMIT DRAWING IMPACT SITE-3

UTILITY CONSTRUCTION

PLAN SCALE:
FULL-SIZE: 1"=100'
HALF-SIZE: 1"=60'

Utility Permit Drawing
Sheet 4 of 9

SITE-3

NO DISTURBANCE ALLOWED
INSIDE WETLAND

STA 553+75
TRENCHLESS
TEL & FO

STA 553+75
TRENCHLESS
TEL & FO

HYDRO PERMITTED AREA,
"MECHANIZED CLEARING"

HYDRO PERMITTED AREA
"FILL IN WETLAND"

HYDRO PERMITTED AREA,
"MECHANIZED CLEARING"

WETLAND IMPACTED BY EXCAVATION
FOR WATER LINE INSTALLATION
(OPEN-TRENCH METHOD)

IMPACT AREA
"EXCAVATION IN WETLANDS"
0.014 ACRE (825 SQFT)

NOTES TO CONTRACTOR:

- (1) DISTURBANCE TO EXISTING GROUND INSIDE WETLAND IS NOT ALLOWED
(NO POLE INSTALLATION OR TRENCH EXCAVATION PERMITTED INSIDE WETLAND)
- (2) HAND CLEARING INSIDE WETLAND IS NOT PERMITTED INSIDE IMPACT SITE-3

NOTES TO PLAN DESIGNER:

- (1) USE TRENCHLESS INSTALLATION FOR U/G TELEPHONE & FIBER OPTICS LINES
THROUGH WETLAND AREA (BETWEEN STATION LIMITS SHOWN ABOVE)

R-2309B		UPP-4	
DESIGNED BY: EWH	DRAWN BY: EWH	WILLIAMS CONSTRUCTION PLANS ONLY	
CHECKED BY: RBW	APPROVED BY: RBW		
REVISED:			
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION			
PROJECT NO. 442 PHONE 1(717)701-4450 FAX 1(717)250-1151			

UTILITY CONSTRUCTION

UTILITY CONSTRUCTION

PLAN SCALE:

FULL-SIZE: 1"=100'
HALF-SIZE: 1"=50'

Utility Permit Drawing
Sheet 5 of 9

SITE 4

NC-24

NC-24

WETLAND IMPACTED BY EXCAVATION-
FOR WATER LINE INSTALLATION
(OPEN-TRENCH METHOD)

IMPACT AREA

"EXCAVATION IN WETLANDS"
0.006 ACRE (250 SQFT)

IMPACT AREA

"EXCAVATION IN WETLANDS"
0.090 ACRE (3900 SQFT)

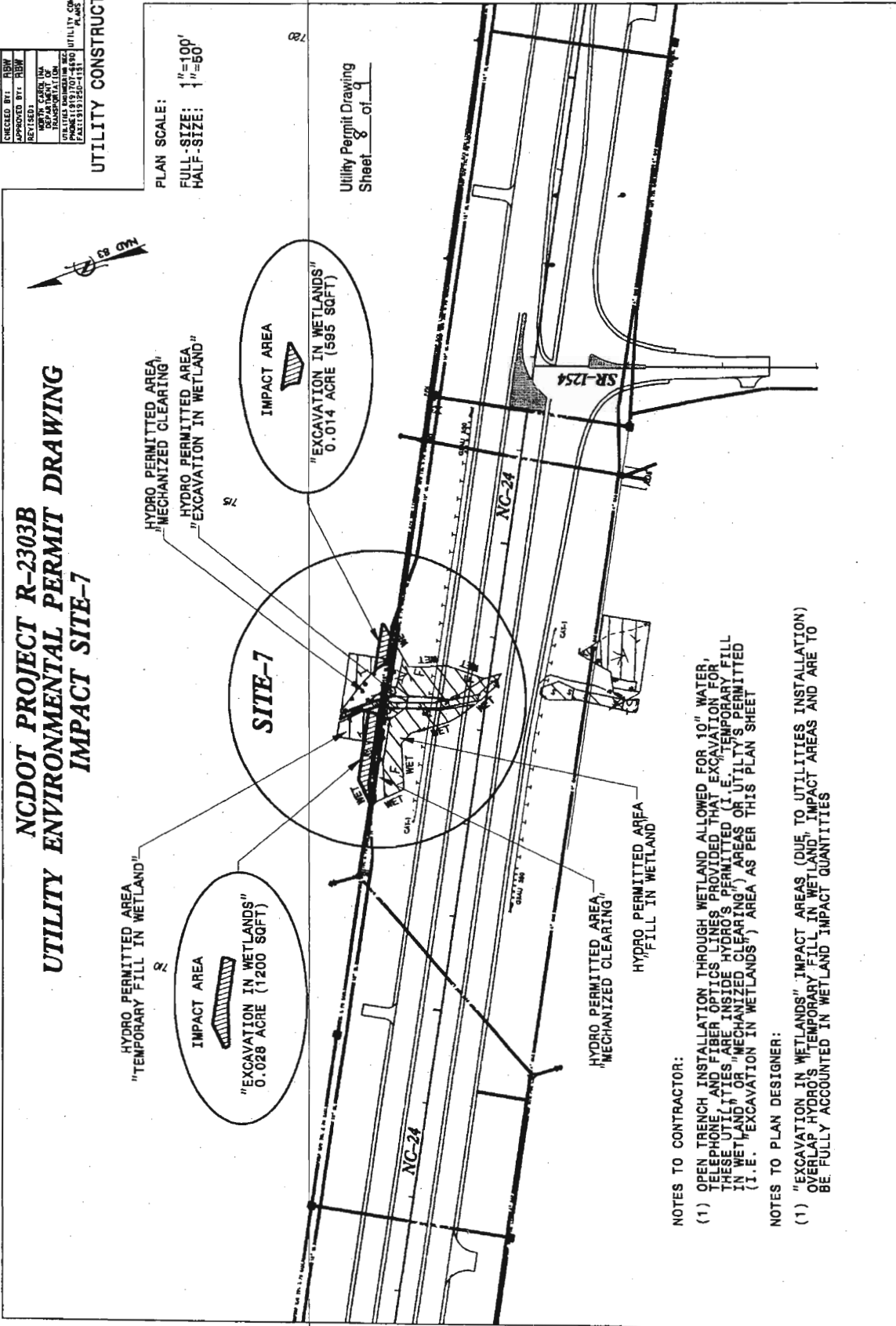
R-2303B	UEP-7
DESIGNED BY: EMT	
CHECKED BY: EMT	
APPROVED BY: EMT	
REVISED BY: EMT	
DATE: 08/14/03	
PROJECT: NCDOT PROJECT R-2303B	
UTILITY CONSTRUCTION	
PLANS ONLY	

NCDOT PROJECT R-2303B UTILITY ENVIRONMENTAL PERMIT DRAWING IMPACT SITE-7

UTILITY CONSTRUCTION

PLAN SCALE:
FULL-SIZE: 1"=100'
HALF-SIZE: 1"=50'

Utility Permit Drawing
Sheet 8 of 9



NOTES TO CONTRACTOR:

- (1) OPEN TRENCH INSTALLATION THROUGH WETLAND ALLOWED FOR 10" WATER, TELEPHONE, AND FIBER OPTICS LINES PROVIDED THAT EXCAVATION FOR THESE UTILITIES ARE INSIDE HYDRO'S PERMITTED (I.E., TEMPORARY FILL IN WETLAND OR "MECHANIZED CLEARING") AREAS OR UTILITY'S PERMITTED (I.E., "EXCAVATION IN WETLANDS") AREA AS PER THIS PLAN SHEET

NOTES TO PLAN DESIGNER:

- (1) "EXCAVATION IN WETLANDS" IMPACT AREAS (DUE TO UTILITIES INSTALLATION) OVERLAP HYDRO'S "TEMPORARY FILL IN WETLAND" IMPACT AREAS AND ARE TO BE FULLY ACCOUNTED IN WETLAND IMPACT QUANTITIES

[illegible]

Addendum No. 1



REPLY TO
ATTENTION OF:

R-156

DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

NEW 5-1-13

RECEIVED

MAR 27 2013

DIVISION OF HIGHWAYS
PDEA-OFFICE OF NATURAL ENVIRONMENT

March 22, 2013

Regulatory Division

Action ID No. SAW-1992-03237

Note - Pages 156-165 are
modifications applicable
to R-2303A Permit.

Dr. Gregory J. Thorpe, Ph.D.
Environmental Management Director, PDEA
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Dr. Thorpe:

Reference the Department of the Army (DA) permit issued on December 12, 2012, for the discharge of fill material into waters and wetlands adjacent to various Creeks, and their tributaries in order to construct Section A of TIP# R-2303 (NC 24), Cumberland County, North Carolina. Reference is also made to your Section A permit modification request dated March 13, 2013 with revision to work plan drawings dated March 18, 2013. This information was submitted to request authorization to complete utility installation which will result in hand clearing within jurisdictional areas. Specifically, the request is to impact an additional 0.19 acre of wetland that will be cut and maintained in a different vegetative state under overhead power lines.

I have determined that the proposed project modifications described above are not contrary to the public interest and consistent with the 404 (B)(1) and therefore, the DA permit is hereby modified.

This modification approval will be utilized for future compliance of the project. If you have questions, please contact Brad Shaver of the Wilmington Regulatory Field Office, at telephone (910) 251-4611.

Sincerely,

A handwritten signature in black ink, appearing to read "SAB", written over a horizontal line.

FR Steven A. Baker
Colonel, U. S. Army
District Commander

-2-

Copies Furnished (electronic):

Mr. Mason Herndon, NCDWQ
Mr. Stoney Mathis, NCDOT
Mr. Chris Rivenbark, NCDOT
Mr. Chris Manley, NCDOT



North Carolina Department of Environment and Natural Resources

Pat McCrory
Governor

Division of Water Quality
Charles Wakild, P. E.
Director

John E. Skvarla, III
Secretary

March 18, 2013

Dr. Greg Thorpe, PhD., Manager
Project Development and Environmental Analysis
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina, 27699-1598

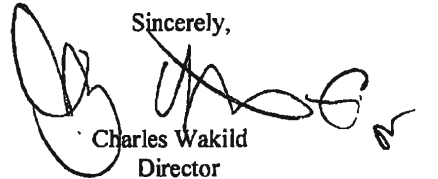
Subject: Modification to the 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act with ADDITIONAL CONDITIONS for Proposed improvements to NC 24 from 2.8 miles east of I-95 in Cumberland County to I-40 in Sampson County, Federal Aid Project No. STPNHF-F-8-2(17), WBS No. 34416.1.1, TIP R-2303A

NCDWQ Project No. 20120240 v.4

Dear Dr. Thorpe:

Attached hereto is a modification of Certification No. 3942 issued to The North Carolina Department of Transportation (NCDOT) dated September 24, 2012 and modification issued February 25, 2013.

If we can be of further assistance, do not hesitate to contact us.

Sincerely,

Charles Wakild
Director

Attachments

cc: Brad Shaver, US Army Corps of Engineers, Wilmington Field Office (electronic copy only)
Greg Burns, PE, Division 6 Engineer
Jim Rerko, Division 6 Environmental Officer
Chris Militscher, Environmental Protection Agency (electronic copy only)
Gary Jordan, US Fish and Wildlife Service (electronic copy only)
Travis Wilson, NC Wildlife Resources Commission
Jason Elliott, NCDOT, Roadside Environmental Unit
Jim Stanfill, Ecosystem Enhancement Program
Sonia Carrillo, NCDWQ Central Office
File Copy

Transportation and Permitting Unit
1650 Mail Service Center, Raleigh, North Carolina 27699-1617
Location: 512 N. Salisbury St. Raleigh, North Carolina 27604
Phone: 919-807-6300 \ FAX: 919-807-6488
Internet: www.ncwaterquality.org

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One
North Carolina
Naturally

**Modification to the 401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act
with ADDITIONAL CONDITIONS**

THIS CERTIFICATION is issued in conformity with the requirements of Section 401 Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Quality (NCDWQ) Regulations in 15 NCAC 2H .0500. This certification authorizes the NCDOT to impact an additional 0.19 acres of jurisdictional wetlands in Cumberland County. The project shall be constructed pursuant to the modification dated received March 13, 2013 and revisions received on March 18, 2013. The authorized impacts are as described below:

Wetland Impacts in the Cape Fear River Basin

Site	Station	Wetland Type*	Fill (ac)	Fill (temporary) (ac)	Excavation (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)	Total Wetland Impact (ac)
R-2303A Utilities								
U-21	168+00-L-RT	NR	0	0	0	0	0.11	0.11
U-34	322+00-L-LT	R	0	0	0	0	0.01	0.01
U-35	322+50-L-RT	R	0	0	0	0	0.05	0.05
U-36	348+75-L-RT	NR	0	0	0	0	0.02	0.02
Total			0	0	0	0	0.19	0.19

The application provides adequate assurance that the discharge of fill material into the waters of the Cape Fear River Basin in conjunction with the proposed development will not result in a violation of applicable Water Quality Standards and discharge guidelines. Therefore, the State of North Carolina certifies that this activity will not violate the applicable portions of Sections 301, 302, 303, 306, 307 of PL 92-500 and PL 95-217 if conducted in accordance with the application and conditions hereinafter set forth.

This approval is only valid for the purpose and design that you submitted in your modified application dated received March 13, 2013 and revisions received on March 18, 2013. All the authorized activities and conditions of certification associated with the original Water Quality Certification dated September 24, 2012 and modification issued February 25, 2013 still apply except where superceded by this certification. Should your project change, you are required to notify NCDWQ and submit a new application. If the property is sold, the new owner must be given a copy of this Certification and approval letter, and is thereby responsible for complying with all the conditions. If any additional wetland impacts, or stream impacts, for this project (now or in the future) exceed one acre or 150 linear feet, respectively, additional compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7). For this approval to remain valid, you are required to comply with all the conditions listed below. In addition, you should obtain all other federal, state or local permits before proceeding with your project including (but not limited to) Sediment and Erosion control, Coastal Stormwater, Non-discharge and Water Supply watershed regulations. This Certification shall expire on the same day as the expiration date of the corresponding Corps of Engineers Permit.

Condition(s) of Certification:

1. This modification is applicable only to the additional proposed utility relocation activities. All of the authorized activities and conditions of certification associated with the original Water Quality Certification dated September, 24, 2012 and subsequent modification dated February 15, 2013 still apply except where superceded by this certification.

Violations of any condition herein set forth may result in revocation of this Certification and may result in criminal and/or civil penalties. This Certification shall become null and void unless the above conditions are made conditions of the Federal 404 and/or Coastal Area Management Act Permit. This Certification shall expire upon the expiration of the 404 or CAMA permit.

If you wish to contest any statement in the attached Certification you must file a petition for an administrative hearing. You may obtain the petition form from the office of Administrative hearings. You must file the petition with the office of Administrative Hearings within sixty (60) days of receipt of this notice. A petition is considered filed when it is received in the office of Administrative Hearings during normal office hours. The Office of

Addendum No. 1**R-160****NEW 5-1-13**

Administrative Hearings accepts filings Monday through Friday between the hours of 8:00am and 5:00pm, except for official state holidays. The original and one (1) copy of the petition must be filed with the Office of Administrative Hearings.

The petition may be faxed-provided the original and one copy of the document is received by the Office of Administrative Hearings within five (5) business days following the faxed transmission.
The mailing address for the Office of Administrative Hearings is:

Office of Administrative Hearings
6714 Mail Service Center
Raleigh, NC 27699-6714
Telephone: (919)-431-3000, Facsimile: (919)-431-3100

A copy of the petition must also be served on DENR as follows:

Mr. Lacy Presnell, General Counsel
Department of Environment and Natural Resources
1601 Mail Service Center

This the 18th day of March 2013

DIVISION OF WATER QUALITY



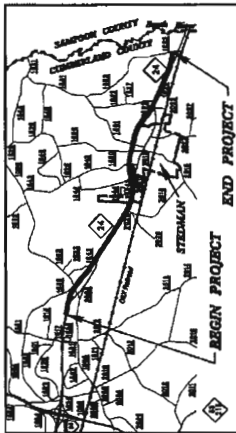
Charles Wakild
Director

WQC No. 3942

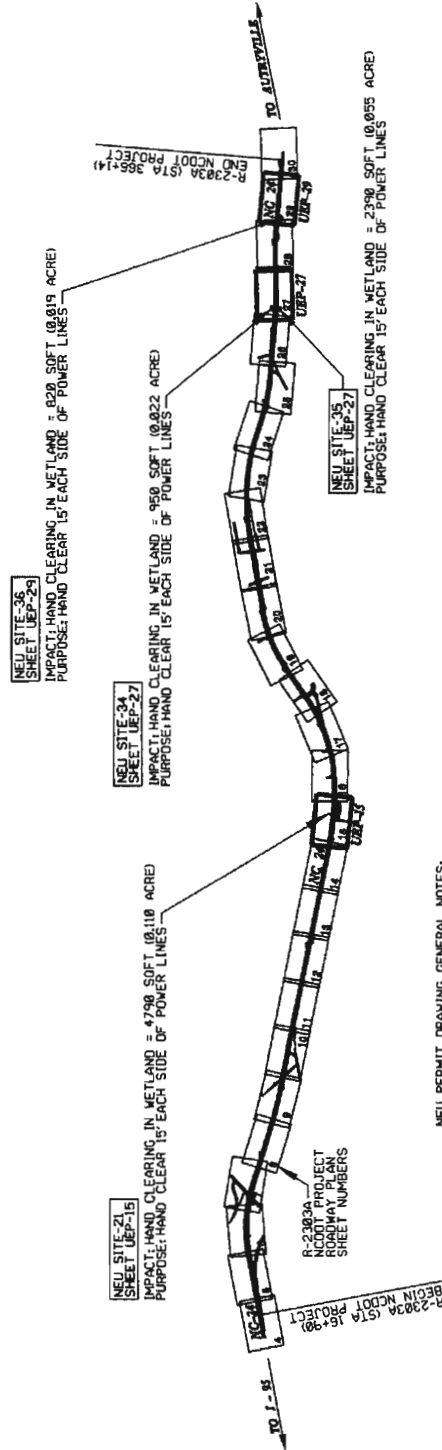
TITLE NO.	R-2303A
SHEET NO.	UEP-1

Utility Permit Drawing
Sheet 1 of 5

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS UTILITY ENVIRONMENTAL PERMIT PLAN CUMBERLAND COUNTY



UTILITY ENVIRONMENTAL PERMIT MARCH 12, 2013



- NEU PERMIT DRAWING GENERAL NOTES:
- (1) WETLAND CLEARING IN WETLANDS IMPACT IS DELINEATED FOR INSTALLATION OF AERIAL POWER LINES WITH BOUNDARY SET AT 15' EACH SIDE OF POWER LINE
 - (2) ALL UNDERGROUND WATER, SEWER, TELEPHONE, FIBER OPTICS, AND CABLE LINES SHALL BE IDENTIFIED PRIOR TO CONSTRUCTION. ANY UNIDENTIFIED LINES SHALL BE IDENTIFIED PRIOR TO CONSTRUCTION. ANY UNIDENTIFIED LINES SHALL BE IDENTIFIED PRIOR TO CONSTRUCTION. ANY UNIDENTIFIED LINES SHALL BE IDENTIFIED PRIOR TO CONSTRUCTION.



PLAN SHEET NUMBERING NOTE:
UTILITY ENVIRONMENTAL PERMIT PLAN SHEET NUMBERS
MATCH ROADWAY CONSTRUCTION PLAN SHEET NUMBERS
(I.E. UTILITY SHEET "UEP-10" = ROADWAY SHEET "10")

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UEP-1	TITLE SHEET
UEP-15	NEU SITE-21
UEP-17	NEU SITE-24, SITE-25
UEP-20	NEU SITE-26

TIP PROJECT: R-2303A

03/08/13

2-MAR-2013 14:05
R:\Utilities\Bldg\Proj\R2303A\enu\neu_permit.drawing, TITLE, SHEET_FINAL.dgn
*****RENAME*****

NCDOT PROJECT R-2303A UTILITY ENVIRONMENTAL PERMIT DRAWING NEU SITE-21



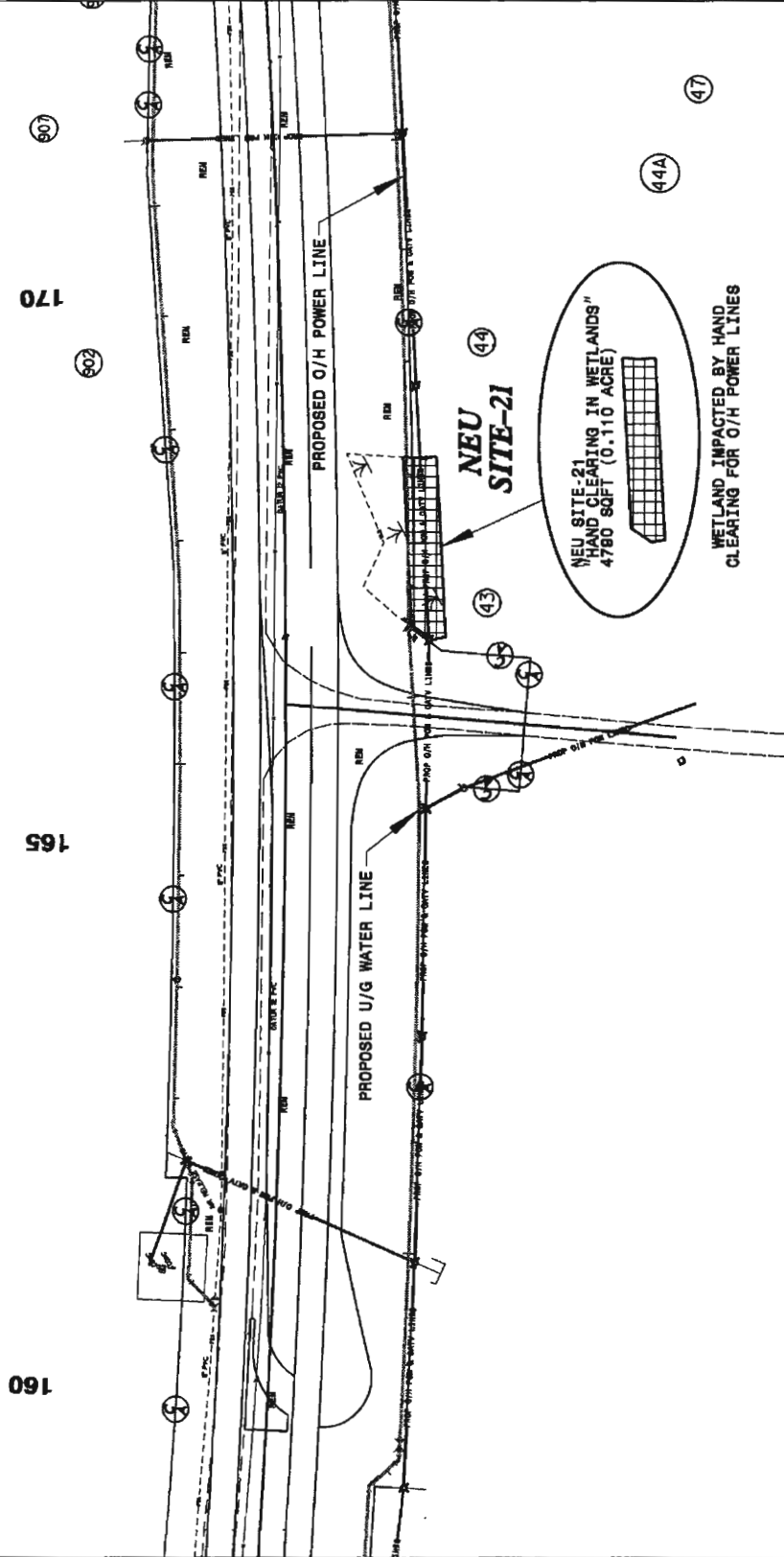
Utility Permit Drawing
Sheet 2 of 5

PLAN SCALE:

FULL-SIZE: 1"=50'
HALF-SIZE: 1"=100'

UTILITY CONSTRUCTION

PROJECT NUMBER	R-2303A
DESIGNED BY	ENR
DRAWN BY	ENR
CHECKED BY	ENR
APPROVED BY	ENR
REVIEWED	ENR
DATE	05/01/13
PROJECT LOCATION	TRANSPORTATION
PROJECT DESCRIPTION	UTILITY CONSTRUCTION
PROJECT NUMBER	R-2303A



PROJECT REFERENCE NO.	R-2303A	SHEET NO.	USP-29
DESIGNED BY	ENH	CHECKED BY	ENH
DRAWN BY	ENH	APPROVED BY	ENH
REVISED	CONSTRUCTION	DEPARTMENT OF	TRANSPORTATION
DATE	11/15/07	PROJECT NO.	1115107-440
PROJECT LOCATION	1115107-440	UTILITY CONSTRUCTION	UTILITY CONSTRUCTION

NCDOT PROJECT R-2303A
UTILITY ENVIRONMENTAL PERMIT DRAWING Sheet 4 of 5
NEU SITE-36

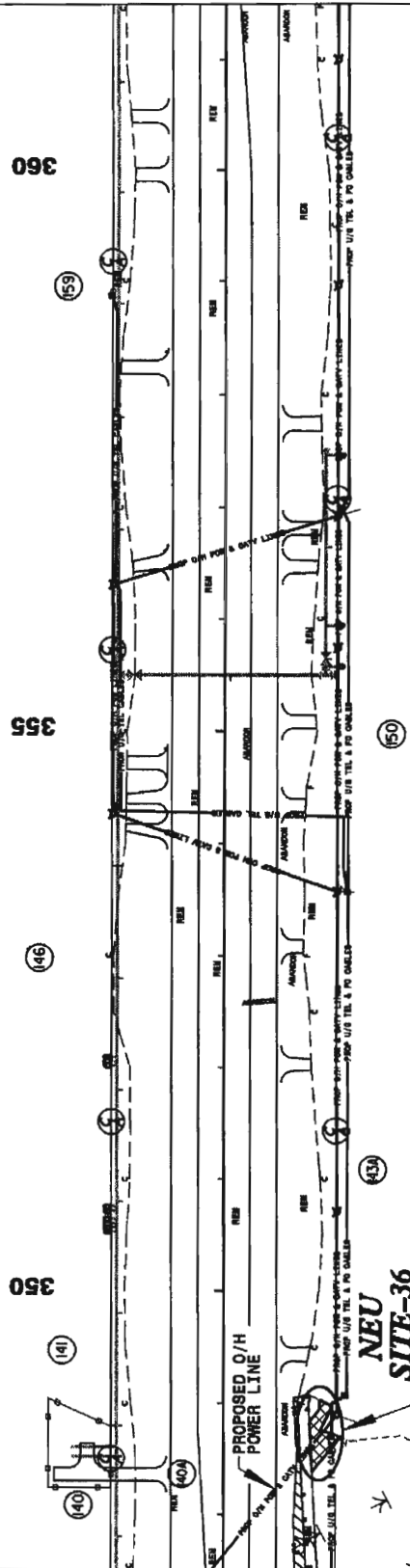
Utility Permit Drawing
 Sheet 4 of 5



PLAN SCALE:

FULL-SIZE: 1"=60'
 HALF-SIZE: 1"=100'

UTILITY CONSTRUCTION



NEU SITE-36
 HAND CLEARING IN WETLANDS
 820 SQFT (0.018 ACRE)
 WETLAND IMPACTED BY HAND
 CLEARING FOR O/H POWER LINES

WETLAND PERMIT IMPACT SUMMARY												
WETLAND IMPACTS				SURFACE WATER IMPACTS								
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
21	168+00 -R-	O/H POWER					0.11					
34	322+50 -L-	O/H POWER					0.02					
35	322+50 -R-	O/H POWER					0.06					
36	348+75 -R-	O/H POWER					0.02					
TOTALS:								0.21				

ATN Revised 3/1/05

SHEET

3/12/2013

NC DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 CUMBERLAND/SAMPSON COUNTY
 WBS - 34416.1.1 (R-2303A)

 Utility Permit Drawing
 Sheet 5 of 5

STANDARD SPECIAL PROVISION
AVAILABILITY OF FUNDS – TERMINATION OF CONTRACTS

(5-20-08)

Z-2

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

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

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

STANDARD SPECIAL PROVISION
NCDOT GENERAL SEED SPECIFICATION FOR SEED QUALITY

(5-17-11)

Z-3

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

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

Seed shall be free from seeds of the noxious weeds Johnsongrass, Balloonvine, Jimsonweed, Witchweed, Itchgrass, Serrated Tussock, Showy Crotalaria, Smooth Crotalaria, 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:

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

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

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

FURTHER SPECIFICATIONS FOR EACH SEED GROUP ARE GIVEN BELOW:

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

Sericea Lespedeza
Oats (seeds)

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

Tall Fescue (all approved varieties)
Kobe Lespedeza
Korean Lespedeza
Weeping Lovegrass
Carpetgrass

Bermudagrass
Browntop Millet
German Millet – Strain R
Clover – Red/White/Crimson

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

Common or Sweet Sundangrass

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

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

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

Centipedegrass
Crownvetch
Pensacola Bahiagrass
Creeping Red Fescue

Japanese Millet
Reed Canary Grass
Zoysia

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

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

STANDARD SPECIAL PROVISION**ERRATA**

(1-17-12) (Rev. 9-18-12)

Z-4

Revise the *2012 Standard Specifications* as follows:

Division 2

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

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

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

Division 4

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

Division 6

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

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

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

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

Division 10

Page 10-74, Table 1056-1 Geotextile Requirements, replace “50%” for the UV Stability (Retained Strength) of Type 5 geotextiles with “70%”.

Division 12

Page 12-7, Table 1205-3, add “FOR THERMOPLASTIC” to the end of the title.

Page 12-8, Subarticle 1205-5(B), line 13, replace “Table 1205-2” with “Table 1205-4”.

Page 12-8, Table 1205-4 and 1205-5, replace “THERMOPLASTIC” in the title of these tables with “POLYUREA”.

Page 12-9, Subarticle 1205-6(B), line 21, replace “Table 1205-4” with “Table 1205-6”.

Page 12-11, Subarticle 1205-8(C), line 25, replace “Table 1205-5” with “Table 1205-7”.

Division 15

Page 15-6, Subarticle 1510-3(B), after line 21, replace the allowable leakage formula with the following: $W = LD\sqrt{P} \div 148,000$

Page 15-6, Subarticle 1510-3(B), line 32, delete “may be performed concurrently or” and replace with “shall be performed”.

Page 15-17, Subarticle 1540-3(E), line 27, delete “Type 1”.

Division 17

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

Revise the *2012 Roadway Standard Drawings* as follows:

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

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

(3-18-03)

Z-04a

Within Quarantined Area

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

Originating in a Quarantined County

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

Contact

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

Regulated Articles Include

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

STANDARD SPECIAL PROVISION**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. 7-21-09)

Z-10

Description

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

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

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

Minorities and Women

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

Assigning Training Goals

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

Training Classifications

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

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

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

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

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

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

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

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

Records and Reports

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

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

Trainee Interviews

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

Trainee Wages

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

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

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

Achieving or Failing to Meet Training Goals

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

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

Measurement and Payment

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

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Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
ROADWAY ITEMS						
0001	0000100000-N	800	MOBILIZATION	Lump Sum	L.S.	
0002	0000400000-N	801	CONSTRUCTION SURVEYING	Lump Sum	L.S.	
0003	0001000000-E	200	CLEARING & GRUBBING .. ACRE(S)	Lump Sum	L.S.	
0004	0008000000-E	200	SUPPLEMENTARY CLEARING & GRUB- BING	6 ACR		
0005	0015000000-N	205	SEALING ABANDONED WELLS	31 EA		
0006	0022000000-E	225	UNCLASSIFIED EXCAVATION	91,050 CY		
0007	0029000000-N	SP	REINFORCED BRIDGE APPROACH FILL, STATION ***** (397+87.00 LEFT LANE)	Lump Sum	L.S.	
0008	0029000000-N	SP	REINFORCED BRIDGE APPROACH FILL, STATION ***** (397+87.00 RIGHT LANE)	Lump Sum	L.S.	
0009	0029000000-N	SP	REINFORCED BRIDGE APPROACH FILL, STATION ***** (660+21.00 LEFT LANE)	Lump Sum	L.S.	
0010	0029000000-N	SP	REINFORCED BRIDGE APPROACH FILL, STATION ***** (660+21.00 RIGHT LANE)	Lump Sum	L.S.	
0011	0036000000-E	225	UNDERCUT EXCAVATION	73,600 CY		
0012	0106000000-E	230	BORROW EXCAVATION	1,983,100 CY		
0013	0134000000-E	240	DRAINAGE DITCH EXCAVATION	28,800 CY		
0014	0141000000-E	240	BERM DITCH CONSTRUCTION	850 LF		
0015	0156000000-E	250	REMOVAL OF EXISTING ASPHALT PAVEMENT	106,140 SY		
0016	0177000000-E	250	BREAKING OF EXISTING ASPHALT PAVEMENT	33,120 SY		
0017	0192000000-N	260	PROOF ROLLING	140 HR		

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Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0018	0194000000-E	SP	SELECT GRANULAR MATERIAL, CLASS III	82,500 CY		
0019	0196000000-E	270	GEOTEXTILE FOR SOIL STABILIZATION	85,100 SY		
0020	0199000000-E	SP	TEMPORARY SHORING	2,473.3 SF		
0021	0220000000-E	SP	ROCK EMBANKMENTS	6,300 TON		
0022	0222000000-E	SP	GEOTEXTILE FOR ROCK EMBANKMENTS	2,550 SY		
0023	0318000000-E	300	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES	6,394 TON		
0024	0320000000-E	300	FOUNDATION CONDITIONING GEOTEXTILE	14,160 SY		
0025	0342000000-E	310	*** SIDE DRAIN PIPE (30")	72 LF		
0026	0343000000-E	310	15" SIDE DRAIN PIPE	1,840 LF		
0027	0344000000-E	310	18" SIDE DRAIN PIPE	1,639 LF		
0028	0345000000-E	310	24" SIDE DRAIN PIPE	892 LF		
0029	0348000000-E	310	*** SIDE DRAIN PIPE ELBOWS (15")	4 EA		
0030	0348000000-E	310	*** SIDE DRAIN PIPE ELBOWS (18")	3 EA		
0031	0366000000-E	310	15" RC PIPE CULVERTS, CLASS III	9,360 LF		
0032	0372000000-E	310	18" RC PIPE CULVERTS, CLASS III	4,728 LF		
0033	0378000000-E	310	24" RC PIPE CULVERTS, CLASS III	5,332 LF		
0034	0384000000-E	310	30" RC PIPE CULVERTS, CLASS III	2,324 LF		

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Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0035	0390000000-E	310	36" RC PIPE CULVERTS, CLASS III	592 LF		
0036	0396000000-E	310	42" RC PIPE CULVERTS, CLASS III	804 LF		
0037	0402000000-E	310	48" RC PIPE CULVERTS, CLASS III	1,872 LF		
0038	0408000000-E	310	54" RC PIPE CULVERTS, CLASS III	344 LF		
0039	0420000000-E	310	66" RC PIPE CULVERTS, CLASS III	176 LF		
0040	0426000000-E	310	72" RC PIPE CULVERTS, CLASS III	312 LF		
0041	0448000000-E	310	***** RC PIPE CULVERTS, CLASS IV (48")	528 LF		
0042	0448200000-E	310	15" RC PIPE CULVERTS, CLASS IV	6,140 LF		
0043	0448300000-E	310	18" RC PIPE CULVERTS, CLASS IV	2,376 LF		
0044	0448400000-E	310	24" RC PIPE CULVERTS, CLASS IV	740 LF		
0045	0448500000-E	310	30" RC PIPE CULVERTS, CLASS IV	1,432 LF		
0046	0448600000-E	310	36" RC PIPE CULVERTS, CLASS IV	440 LF		
0047	0453000000-E	310	**" PIPE END SECTION (15")	10 EA		
0048	0453000000-E	310	**" PIPE END SECTION (18")	26 EA		
0049	0453000000-E	310	**" PIPE END SECTION (24")	2 EA		
0050	0582000000-E	310	15" CS PIPE CULVERTS, 0.064" THICK	292 LF		
0051	0588000000-E	310	18" CS PIPE CULVERTS, 0.064" THICK	200 LF		

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Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0052	0636000000-E	310	*** CS PIPE ELBOWS, ***** THICK (15", 0.064")	10 EA		
0053	0995000000-E	340	PIPE REMOVAL	6,520 LF		
0054	0996000000-N	350	PIPE CLEAN-OUT	1 EA		
0055	1011000000-N	500	FINE GRADING	Lump Sum	L.S.	
0056	1077000000-E	SP	#57 STONE	3,880 TON		
0057	1099500000-E	505	SHALLOW UNDERCUT	600 CY		
0058	1099700000-E	505	CLASS IV SUBGRADE STABILIZA- TION	1,100 TON		
0059	1110000000-E	510	STABILIZER AGGREGATE	2,000 TON		
0060	1115000000-E	SP	GEOTEXTILE FOR PAVEMENT STA- BILIZATION	12,900 SY		
0061	1121000000-E	520	AGGREGATE BASE COURSE	332,210 TON		
0062	1220000000-E	545	INCIDENTAL STONE BASE	9,125 TON		
0063	1275000000-E	600	PRIME COAT	129,433 GAL		
0064	1330000000-E	607	INCIDENTAL MILLING	1,980 SY		
0065	1489000000-E	610	ASPHALT CONC BASE COURSE, TYPE B25.0B	6,300 TON		
0066	1491000000-E	610	ASPHALT CONC BASE COURSE, TYPE B25.0C	8,340 TON		
0067	1503000000-E	610	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0C	125,950 TON		
0068	1519000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	3,410 TON		
0069	1523000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE S9.5C	110,170 TON		

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Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0070	1525000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A	3,270 TON		
0071	1575000000-E	620	ASPHALT BINDER FOR PLANT MIX	13,620 TON		
0072	1693000000-E	654	ASPHALT PLANT MIX, PAVEMENT REPAIR	2,717 TON		
0073	1880000000-E	SP	GENERIC PAVING ITEM JOINT REPAIR	500 TON		
0074	2020000000-N	806	CONTROL OF ACCESS MARKERS	155 EA		
0075	2022000000-E	815	SUBDRAIN EXCAVATION	1,243.2 CY		
0076	2026000000-E	815	GEOTEXTILE FOR SUBSURFACE DRAINS	3,700 SY		
0077	2036000000-E	815	SUBDRAIN COARSE AGGREGATE	621.6 CY		
0078	2044000000-E	815	6" PERFORATED SUBDRAIN PIPE	3,700 LF		
0079	2070000000-N	815	SUBDRAIN PIPE OUTLET	8 EA		
0080	2077000000-E	815	6" OUTLET PIPE	48 LF		
0081	2209000000-E	838	ENDWALLS	45.3 CY		
0082	2220000000-E	838	REINFORCED ENDWALLS	46.8 CY		
0083	2253000000-E	840	PIPE COLLARS	0.846 CY		
0084	2275000000-E	SP	FLOWABLE FILL	20 CY		
0085	2286000000-N	840	MASONRY DRAINAGE STRUCTURES	252 EA		
0086	2297000000-E	840	MASONRY DRAINAGE STRUCTURES	7 CY		
0087	2308000000-E	840	MASONRY DRAINAGE STRUCTURES	191 LF		
0088	2354200000-N	840	FRAME WITH GRATE, STD 840.24	2 EA		

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Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0089	2364000000-N	840	FRAME WITH TWO GRATES, STD 840.16	45 EA		
0090	2366000000-N	840	FRAME WITH TWO GRATES, STD 840.24	176 EA		
0091	2367000000-N	840	FRAME WITH TWO GRATES, STD 840.29	28 EA		
0092	2451000000-N	852	CONCRETE TRANSITIONAL SECTION FOR DROP INLET	44 EA		
0093	2542000000-E	846	1'-6" CONCRETE CURB & GUTTER	4,450 LF		
0094	2556000000-E	846	SHOULDER BERM GUTTER	7,760 LF		
0095	2612000000-E	848	6" CONCRETE DRIVEWAY	690 SY		
0096	2619000000-E	850	4" CONCRETE PAVED DITCH	30 SY		
0097	2647000000-E	852	5" MONOLITHIC CONCRETE ISLANDS (SURFACE MOUNTED)	5,880 SY		
0098	2655000000-E	852	5" MONOLITHIC CONCRETE ISLANDS (KEYED IN)	4,620 SY		
0099	3030000000-E	862	STEEL BM GUARDRAIL	10,912.5 LF		
0100	3045000000-E	862	STEEL BM GUARDRAIL, SHOP CURVED	100 LF		
0101	3105000000-N	862	STEEL BM GUARDRAIL TERMINAL SECTIONS	2 EA		
0102	3150000000-N	862	ADDITIONAL GUARDRAIL POSTS	15 EA		
0103	3210000000-N	862	GUARDRAIL ANCHOR UNITS, TYPE CAT-1	9 EA		
0104	3270000000-N	SP	GUARDRAIL ANCHOR UNITS, TYPE 350	23 EA		
0105	3285000000-N	SP	GUARDRAIL ANCHOR UNITS, TYPE M-350	8 EA		
0106	3317000000-N	862	GUARDRAIL ANCHOR UNITS, TYPE B-77	16 EA		

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Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0107	3360000000-E	863	REMOVE EXISTING GUARDRAIL	825 LF		
0108	3380000000-E	862	TEMPORARY STEEL BM GUARDRAIL	2,150 LF		
0109	3389100000-N	SP	TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE 350	7 EA		
0110	3503000000-E	866	WOVEN WIRE FENCE, 47" FABRIC	124,750 LF		
0111	3509000000-E	866	4" TIMBER FENCE POSTS, 7'-6" LONG	7,772 EA		
0112	3515000000-E	866	5" TIMBER FENCE POSTS, 8'-0" LONG	2,116 EA		
0113	3533000000-E	866	CHAIN LINK FENCE, *** FABRIC (72")	240 LF		
0114	3536000000-E	866	CHAIN LINK FENCE, 48" FABRIC	2,080 LF		
0115	3539000000-E	866	METAL LINE POSTS FOR *** CHAIN LINK FENCE (72")	30 EA		
0116	3542000000-E	866	METAL LINE POSTS FOR 48" CHAIN LINK FENCE	190 EA		
0117	3545000000-E	866	METAL TERMINAL POSTS FOR *** CHAIN LINK FENCE (72")	6 EA		
0118	3548000000-E	866	METAL TERMINAL POSTS FOR 48" CHAIN LINK FENCE	11 EA		
0119	3554000000-E	866	METAL GATE POSTS FOR *** CHAIN LINK FENCE, DOUBLE GATE (72")	2 EA		
0120	3557000000-E	866	ADDITIONAL BARBED WIRE	12,800 LF		
0121	3565000000-E	866	DOUBLE GATES, *** HIGH, *** WIDE, *** OPENING (47" HIGH, 10' WIDE, 20' OPEN- ING)	3 EA		
0122	3565000000-E	866	DOUBLE GATES, *** HIGH, *** WIDE, *** OPENING (47" HIGH, 6' WIDE, 12' OPEN- ING)	1 EA		

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Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0123	3565000000-E	866	DOUBLE GATES, *** HIGH, *** WIDE, *** OPENING (47" HIGH, 8' WIDE, 16' OPENING)	2 EA		
0124	3578000000-N	SP	GENERIC FENCING ITEM METAL GATE POSTS FOR 47" WOVEN WIRE FENCE, DOUBLE GATE	16 EA		
0125	3579000000-N	866	GENERIC FENCING ITEM DOUBLE GATES, 47" HIGH, 6' WIDE, 12' OPENING (WOVEN WIRE)	2 EA		
0126	3579000000-N	866	GENERIC FENCING ITEM DOUBLE GATES, 72" HIGH, 6' WIDE, 12' OPENING (CHAIN LINK)	1 EA		
0127	3595000000-E	869	RELAPPING GUARDRAIL	725 LF		
0128	3628000000-E	876	RIP RAP, CLASS I	1,030 TON		
0129	3649000000-E	876	RIP RAP, CLASS B	2,220 TON		
0130	3651000000-E	SP	BOULDERS	20 TON		
0131	3656000000-E	876	GEOTEXTILE FOR DRAINAGE	16,625 SY		
0132	3659000000-N	SP	PREFORMED SCOUR HOLES WITH LEVEL SPREADER APRON	5 EA		
0133	4072000000-E	903	SUPPORTS, 3-LB STEEL U-CHANNEL	7,884 LF		
0134	4096000000-N	904	SIGN ERECTION, TYPE D	32 EA		
0135	4102000000-N	904	SIGN ERECTION, TYPE E	307 EA		
0136	4108000000-N	904	SIGN ERECTION, TYPE F	93 EA		
0137	4155000000-N	907	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	100 EA		
0138	4158000000-N	907	DISPOSAL OF SIGN SYSTEM, WOOD	6 EA		
0139	4400000000-E	1110	WORK ZONE SIGNS (STATIONARY)	4,406 SF		
0140	4405000000-E	1110	WORK ZONE SIGNS (PORTABLE)	640 SF		

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Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0141	4410000000-E	1110	WORK ZONE SIGNS (BARRICADE MOUNTED)	731 SF		
0142	4415000000-N	1115	FLASHING ARROW BOARD	4 EA		
0143	4420000000-N	1120	PORTABLE CHANGEABLE MESSAGE SIGN	8 EA		
0144	4422000000-N	1120	PORTABLE CHANGEABLE MESSAGE SIGN (SHORT TERM)	338 DAY		
0145	4430000000-N	1130	DRUMS	1,150 EA		
0146	4435000000-N	1135	CONES	150 EA		
0147	4445000000-E	1145	BARRICADES (TYPE III)	1,995 LF		
0148	4455000000-N	1150	FLAGGER	1,040 DAY		
0149	4465000000-N	1160	TEMPORARY CRASH CUSHIONS	2 EA		
0150	4480000000-N	1165	TMA	4 EA		
0151	4485000000-E	1170	PORTABLE CONCRETE BARRIER	480 LF		
0152	4510000000-N	SP	LAW ENFORCEMENT	208 HR		
0153	4650000000-N	1251	TEMPORARY RAISED PAVEMENT MARKERS	3,088 EA		
0154	4685000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)	393,566 LF		
0155	4686000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)	84,759 LF		
0156	4690000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (6", 120 MILS)	114 LF		
0157	4695000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)	25,173 LF		
0158	4697000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (8", 120 MILS)	3,165 LF		

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Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0159	4710000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)	1,850 LF		
0160	4721000000-E	1205	THERMOPLASTIC PAVEMENT MARKING CHARACTER (120 MILS)	80 EA		
0161	4725000000-E	1205	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)	612 EA		
0162	4770000000-E	1205	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (IV)	9,244 LF		
0163	4810000000-E	1205	PAINT PAVEMENT MARKING LINES (4")	1,076,432 LF		
0164	4820000000-E	1205	PAINT PAVEMENT MARKING LINES (8")	952 LF		
0165	4825000000-E	1205	PAINT PAVEMENT MARKING LINES (12")	94 LF		
0166	4835000000-E	1205	PAINT PAVEMENT MARKING LINES (24")	2,024 LF		
0167	4840000000-N	1205	PAINT PAVEMENT MARKING CHARACTER	114 EA		
0168	4845000000-N	1205	PAINT PAVEMENT MARKING SYMBOL	370 EA		
0169	4850000000-E	1205	REMOVAL OF PAVEMENT MARKING LINES (4")	47,252 LF		
0170	4870000000-E	1205	REMOVAL OF PAVEMENT MARKING LINES (24")	108 LF		
0171	4875000000-N	1205	REMOVAL OF PAVEMENT MARKING SYMBOLS & CHARACTERS	20 EA		
0172	4905000000-N	1253	SNOWPLOWABLE PAVEMENT MARKERS	4,367 EA		
0173	5325000000-E	1510	*** WATER LINE (2")	1,255 LF		
0174	5325300000-E	1510	3" WATER LINE	112 LF		
0175	5325400000-E	1510	4" WATER LINE	223 LF		

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Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0176	5325600000-E	1510	6" WATER LINE	4,752 LF		
0177	5325800000-E	1510	8" WATER LINE	25,096 LF		
0178	5326000000-E	1510	10" WATER LINE	4,550 LF		
0179	5326200000-E	1510	12" WATER LINE	11,386 LF		
0180	5326600000-E	1510	16" WATER LINE	440 LF		
0181	5536000000-E	1515	2" VALVE	5 EA		
0182	5540000000-E	1515	6" VALVE	14 EA		
0183	5546000000-E	1515	8" VALVE	32 EA		
0184	5552000000-E	1515	10" VALVE	5 EA		
0185	5558000000-E	1515	12" VALVE	8 EA		
0186	5571800000-E	1515	8" TAPPING VALVE	1 EA		
0187	5572200000-E	1515	12" TAPPING VALVE	1 EA		
0188	5589200000-E	1515	2" AIR RELEASE VALVE	8 EA		
0189	5606000000-E	1515	2" BLOW OFF	6 EA		
0190	5643100000-E	1515	3/4" WATER METER	11 EA		
0191	5648000000-N	1515	RELOCATE WATER METER	61 EA		
0192	5649000000-N	1515	RECONNECT WATER METER	3 EA		
0193	5666000000-E	1515	FIRE HYDRANT	15 EA		
0194	5672000000-N	1515	RELOCATE FIRE HYDRANT	10 EA		
0195	5691300000-E	1520	8" SANITARY GRAVITY SEWER	298 LF		
0196	5691400000-E	1520	10" SANITARY GRAVITY SEWER	783 LF		

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Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0197	5691500000-E	1520	12" SANITARY GRAVITY SEWER	3,025 LF		
0198	5709500000-E	1520	10" FORCE MAIN SEWER	10,045 LF		
0199	5775000000-E	1525	4' DIA UTILITY MANHOLE	17 EA		
0200	5776000000-E	1525	5' DIA UTILITY MANHOLE	8 EA		
0201	5781000000-E	1525	UTILITY MANHOLE WALL, 4' DIA	32 LF		
0202	5801000000-E	1530	ABANDON 8" UTILITY PIPE	25,959 LF		
0203	5802000000-E	1530	ABANDON 10" UTILITY PIPE	14,816 LF		
0204	5804000000-E	1530	ABANDON 12" UTILITY PIPE	12,427 LF		
0205	5815000000-N	1530	REMOVE WATER METER	17 EA		
0206	5815500000-N	1530	REMOVE FIRE HYDRANT	5 EA		
0207	5816000000-N	1530	ABANDON UTILITY MANHOLE	17 EA		
0208	5835600000-E	1540	12" ENCASEMENT PIPE	399 LF		
0209	5835700000-E	1540	16" ENCASEMENT PIPE	898 LF		
0210	5836000000-E	1540	24" ENCASEMENT PIPE	476 LF		
0211	5871100000-E	1550	TRENCHLESS INSTALLATION OF 2" IN SOIL	75 LF		
0212	5871110000-E	1550	TRENCHLESS INSTALLATION OF 2" NOT IN SOIL	75 LF		
0213	5871600000-E	1550	TRENCHLESS INSTALLATION OF 10" IN SOIL	1,897 LF		
0214	5871610000-E	1550	TRENCHLESS INSTALLATION OF 10" NOT IN SOIL	75 LF		
0215	5871900000-E	1550	TRENCHLESS INSTALLATION OF 16" IN SOIL	220 LF		

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Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0216	5871910000-E	1550	TRENCHLESS INSTALLATION OF 16" NOT IN SOIL	220 LF		
0217	5872200000-E	1550	TRENCHLESS INSTALLATION OF 24" IN SOIL	53 LF		
0218	5872210000-E	1550	TRENCHLESS INSTALLATION OF 24" NOT IN SOIL	53 LF		
0219	5878000000-N	SP	WATER PUMP STATION	Lump Sum	L.S.	
0220	5882000000-N	SP	GENERIC UTILITY ITEM 12" NITRILE GASKETS	17 EA		
0221	5882000000-N	SP	GENERIC UTILITY ITEM 6" NITRILE GASKETS	11 EA		
0222	5912000000-N	SP	GENERIC UTILITY ITEM RELOCATION OF WATER BOOSTER PUMP STATION	Lump Sum	L.S.	
0223	6000000000-E	1605	TEMPORARY SILT FENCE	290,000 LF		
0224	6006000000-E	1610	STONE FOR EROSION CONTROL, CLASS A	13,120 TON		
0225	6009000000-E	1610	STONE FOR EROSION CONTROL, CLASS B	32,125 TON		
0226	6012000000-E	1610	SEDIMENT CONTROL STONE	19,400 TON		
0227	6015000000-E	1615	TEMPORARY MULCHING	500 ACR		
0228	6018000000-E	1620	SEED FOR TEMPORARY SEEDING	13,800 LB		
0229	6021000000-E	1620	FERTILIZER FOR TEMPORARY SEED- ING	57.5 TON		
0230	6024000000-E	1622	TEMPORARY SLOPE DRAINS	20,100 LF		
0231	6029000000-E	SP	SAFETY FENCE	21,600 LF		
0232	6030000000-E	1630	SILT EXCAVATION	81,200 CY		
0233	6036000000-E	1631	MATTING FOR EROSION CONTROL	270,000 SY		

County : Cumberland, Sampson

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0234	6037000000-E	SP	COIR FIBER MAT	13,475 SY		
0235	6038000000-E	SP	PERMANENT SOIL REINFORCEMENT MAT	1,850 SY		
0236	6042000000-E	1632	1/4" HARDWARE CLOTH	8,350 LF		
0237	6045000000-E	SP	*** TEMPORARY PIPE (18")	120 LF		
0238	6046000000-E	1636	TEMPORARY PIPE FOR STREAM CROSSING	60 LF		
0239	6048000000-E	SP	FLOATING TURBIDITY CURTAIN	1,250 SY		
0240	6070000000-N	1639	SPECIAL STILLING BASINS	20 EA		
0241	6071010000-E	SP	WATTLE	16,700 LF		
0242	6071012000-E	SP	COIR FIBER WATTLE	23,600 LF		
0243	6071020000-E	SP	POLYACRYLAMIDE (PAM)	29,700 LB		
0244	6071030000-E	1640	COIR FIBER BAFFLE	31,450 LF		
0245	6071050000-E	SP	*** SKIMMER (1-1/2")	69 EA		
0246	6071050000-E	SP	*** SKIMMER (2")	5 EA		
0247	6071050000-E	SP	*** SKIMMER (2-1/2")	2 EA		
0248	6084000000-E	1660	SEEDING & MULCHING	425 ACR		
0249	6087000000-E	1660	MOWING	250 ACR		
0250	6090000000-E	1661	SEED FOR REPAIR SEEDING	5,950 LB		
0251	6093000000-E	1661	FERTILIZER FOR REPAIR SEEDING	21.75 TON		
0252	6096000000-E	1662	SEED FOR SUPPLEMENTAL SEEDING	11,875 LB		

County : Cumberland, Sampson

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0253	6108000000-E	1665	FERTILIZER TOPDRESSING	356.25 TON		
0254	6111000000-E	SP	IMPERVIOUS DIKE	100 LF		
0255	6114500000-N	1667	SPECIALIZED HAND MOWING	150 MHR		
0256	6117000000-N	SP	RESPONSE FOR EROSION CONTROL	350 EA		
0257	6120000000-E	SP	CULVERT DIVERSION CHANNEL	180 CY		
0258	6123000000-E	1670	REFORESTATION	12.5 ACR		
0259	6126000000-E	SP	STREAMBANK REFORESTATION	1.53 ACR		
0260	7060000000-E	1705	SIGNAL CABLE	3,020 LF		
0261	7120000000-E	1705	VEHICLE SIGNAL HEAD (12", 3 SECTION)	27 EA		
0262	7132000000-E	1705	VEHICLE SIGNAL HEAD (12", 4 SECTION)	1 EA		
0263	7264000000-E	1710	MESSENGER CABLE (3/8")	1,540 LF		
0264	7300000000-E	1715	UNPAVED TRENCHING (***** (1, 2")	3,040 LF		
0265	7301000000-E	1715	DIRECTIONAL DRILL (***** (1, 2")	135 LF		
0266	7301000000-E	1715	DIRECTIONAL DRILL (***** (2, 2")	150 LF		
0267	7324000000-N	1716	JUNCTION BOX (STANDARD SIZE)	31 EA		
0268	7444000000-E	1725	INDUCTIVE LOOP SAWCUT	3,300 LF		
0269	7456000000-E	1726	LEAD-IN CABLE (***** (14-2)	11,650 LF		
0270	7574550000-N	SP	FURNISH WIRELESS LIGHTNING ARRESTOR	3 EA		
0271	7575142000-N	1736	900MHZ RADIO	3 EA		

County : Cumberland, Sampson

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0272	7576000000-N	SP	METAL STRAIN SIGNAL POLE	12 EA		
0273	7613000000-N	SP	SOIL TEST	12 EA		
0274	7614100000-E	SP	DRILLED PIER FOUNDATION	84 CY		
0275	7636000000-N	1745	SIGN FOR SIGNALS	7 EA		
0276	7642200000-N	1743	TYPE II PEDESTAL WITH FOUNDATION	7 EA		
0277	7684000000-N	1750	SIGNAL CABINET FOUNDATION	6 EA		
0278	7756000000-N	1751	CONTROLLER WITH CABINET (TYPE 2070L, BASE MOUNTED)	6 EA		
0279	7780000000-N	1751	DETECTOR CARD (TYPE 2070L)	16 EA		
0280	7901000000-N	1753	CABINET BASE EXTENDER	6 EA		
0281	7948000000-N	1757	TRAFFIC SIGNAL REMOVAL	1 EA		
0317	0000700000-N	SP	FIELD OFFICE	Lump Sum	L.S.	
CULVERT ITEMS						
0282	8056000000-N	402	REMOVAL OF EXISTING STRUCTURE AT STATION ***** (713+35.00-L-)	Lump Sum	L.S.	
0283	8126000000-N	414	CULVERT EXCAVATION, STA ***** (713+35.00-L-)	Lump Sum	L.S.	
0284	8133000000-E	414	FOUNDATION CONDITIONING MATERIAL, BOX CULVERT	245 TON		
0285	8196000000-E	420	CLASS A CONCRETE (CULVERT)	284.5 CY		
0286	8245000000-E	425	REINFORCING STEEL (CULVERT)	34,438 LB		

County : Cumberland, Sampson

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
STRUCTURE ITEMS						
0287	8017000000-N	SP	CONSTRUCTION, MAINTENANCE, & REMOVAL OF TEMP ACCESS AT STA ***** (397+87.00-LREV-LTLN)	Lump Sum	L.S.	
0288	8017000000-N	SP	CONSTRUCTION, MAINTENANCE, & REMOVAL OF TEMP ACCESS AT STA ***** (397+87.00-LREV-RTLN)	Lump Sum	L.S.	
0289	8017000000-N	SP	CONSTRUCTION, MAINTENANCE, & REMOVAL OF TEMP ACCESS AT STA ***** (660+21.00-L-LTLN)	Lump Sum	L.S.	
0290	8017000000-N	SP	CONSTRUCTION, MAINTENANCE, & REMOVAL OF TEMP ACCESS AT STA ***** (660+21.00-L-RTLN)	Lump Sum	L.S.	
0291	8035000000-N	402	REMOVAL OF EXISTING STRUCTURE AT STATION ***** (660+21.00-L-LTLN)	Lump Sum	L.S.	
0292	8112730000-N	450	PDA TESTING	6 EA		
0293	8121000000-N	412	UNCLASSIFIED STRUCTURE EXCAVA- TION AT STATION ***** (397+87.00-LREV-LTLN)	Lump Sum	L.S.	
0294	8121000000-N	412	UNCLASSIFIED STRUCTURE EXCAVA- TION AT STATION ***** (397+87.00-LREV-RTLN)	Lump Sum	L.S.	
0295	8121000000-N	412	UNCLASSIFIED STRUCTURE EXCAVA- TION AT STATION ***** (660+21.00-L-LTLN)	Lump Sum	L.S.	
0296	8147000000-E	420	REINFORCED CONCRETE DECK SLAB	108,356 SF		
0297	8161000000-E	420	GROOVING BRIDGE FLOORS	97,012 SF		
0298	8182000000-E	420	CLASS A CONCRETE (BRIDGE)	798.8 CY		
0299	8210000000-N	422	BRIDGE APPROACH SLABS, STATION ***** (397+87.00-LREV-LTLN)	Lump Sum	L.S.	
0300	8210000000-N	422	BRIDGE APPROACH SLABS, STATION ***** (397+87.00-LREV-RTLN)	Lump Sum	L.S.	

County : Cumberland, Sampson

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0301	8210000000-N	422	BRIDGE APPROACH SLABS, STATION ***** (660+21.00-L-LTLN)	Lump Sum	L.S.	
0302	8210000000-N	422	BRIDGE APPROACH SLABS, STATION ***** (660+21.00-L-RTLN)	Lump Sum	L.S.	
0303	8217000000-E	425	REINFORCING STEEL (BRIDGE)	119,855 LB		
0304	8262000000-E	430	45" PRESTRESSED CONCRETE GIR- DERS	1,255.66 LF		
0305	8274000000-E	430	MODIFIED 63" PRESTRESSED CONC GIRDERS	9,673.34 LF		
0306	8364000000-E	450	HP12X53 STEEL PILES	3,270 LF		
0307	8384200000-E	450	HP14X73 GALVANIZED STEEL PILES	14,990 LF		
0308	8385200000-E	450	PP ** X **** GALVANIZED STEEL PILES (24X0.50)	300 LF		
0309	8387000000-E	450	PP 18 X 0.50 GALVANIZED STEEL PILES	1,125 LF		
0310	8392000000-N	450	PIPE PILE PLATES	19 EA		
0311	8393000000-N	450	PILE REDRIVES	131 EA		
0312	8503000000-E	460	CONCRETE BARRIER RAIL	5,594.7 LF		
0313	8608000000-E	876	RIP RAP CLASS II (2'-0" THICK)	1,528 TON		
0314	8622000000-E	876	GEOTEXTILE FOR DRAINAGE	1,697 SY		
0315	8657000000-N	430	ELASTOMERIC BEARINGS	Lump Sum	L.S.	
0316	8706000000-N	SP	EXPANSION JOINT SEALS	Lump Sum	L.S.	

Vendor 1 of 12: BARNHILL CONTRACTING COMPANY (3516)
Call Order 003 (Proposal: C203332)

Bid Information

County: SAMPSON
Address: 2311 North Main Street, PO Box 1529
Tarboro , NC , 27886
Signature Check: Drew_M._Johnson_3516
Time Bid Received: May 21, 2013 01:39 PM
Amendment Count: 1

Bid Checksum: 8AA44247
Bid Total: \$61,587,384.40
Items Total: \$61,587,384.40 ✓
Time Total: \$0.00

Bidding Errors:

DBE Warning : MBE Warning: MBE Commitment Goal not met

MBE GOAL SET 7.0

MBE GOAL OBT 6.1

WBE GOAL SET 7.0

WBE GOAL MET 7.0

Vendor 1 of 12: BARNHILL CONTRACTING COMPANY (3516)
Call Order 003 (Proposal: C203332)

Bid Bond Information

Projects:	Bond Maximum:
Counties:	State of Incorporation:
Bond ID: SNC13909552	Agency Execution Date: 5/16/2013 9
Paid by Check: No	Surety Name: surety2000
Bond Percent: 5%	Bond Agency Name: Travelers Casualty and Surety Company of America

Vendor 3516's Bid Information for Call 003, Letting L130521, 05/21/13

Barnhill Contracting Company (3516)
Call Order 003 (Proposal ID C203332)

LIST OF MBE PARTICIPANTS

VENDOR NUMBER	DBE NAME ADDRESS	WORK CODE TYPE OF WORK	CERT TYPE AMOUNT	
11468 MB	HINES TRUCKING INC 241 STALLINGS MILL ROAD , LOUISBURG, NC 27549		Sub 2,807,174.50	Committed
2676 MB	PAUL D. WILLIAMS DBA PAUL D. WI POST OFFICE BOX 1385 , DUNN, NC 28335		Sub 435,000.00	Committed
10502 MB	AL'S MASONRY 120 HICKORY DRIVE , CLAYTON, NC 27520		Sub 471,115.31	Committed
2676 MB	PAUL D. WILLIAMS DBA PAUL D. WI POST OFFICE BOX 1385 , DUNN, NC 28335		Sub 22,920.00	Committed
			TOTAL: \$3,736,209.81	
			6.07%	

Vendor 3516's Bid Information for Call 003, Letting L130521, 05/21/13

Barnhill Contracting Company (3516)
Call Order 003 (Proposal ID C203332)

LIST OF WBE PARTICIPANTS

VENDOR NUMBER	DBE NAME ADDRESS	WORK CODE TYPE OF WORK	CERT TYPE AMOUNT	
4247 WB	SEAL BROTHERS CONTRACTING LLC 131 W. CLEVE STREET , MOUNT AIRY, NC 27030		Sub 458,939.72	Committed
12278 WB	CLIFTON CONSTRUCTION CO., INC. 1435 GIDDENSVILLE ROAD , FAISON, NC 28341		Sub 88,380.00	Committed
7466 WB	BEAR & CO SIGNS & LIGHTING, INC 2201 WEST LEE STREET , GREENSBORO, NC 27403		Sub 54,838.80	Committed
3765 WB	STAY ALERT SAFETY SERVICES INC POST OFFICE BOX 467 , KERNERSVILLE, NC 27285		Sub 89,131.45	Committed
3346 WB	LINEBERRY, INC. POST OFFICE BOX 307 , CLIMAX, NC 27233		Sub 2,456,129.65	Committed
3080 WB	CURTIN TRUCKING & DRAINAGE, INC POST OFFICE BOX 38220 , CHARLOTTE, NC 282781003		Sub 22,976.00	Committed
5059 WB	GARRETT TRUCKING INC 1701 ELLIOT FARM ROAD , FAYETTEVILLE, NC 28311		Sub 852,795.00	Committed
12802 WB	NICKELSTON INDUSTRIES, INC. POST OFFICE BOX 133 , LAWSONVILLE, NC 27022		Sub 245,243.20	Committed
10650 WB	DJP TRUCKING INC P. O. BOX 65574 , FAYETTEVILLE, NC 28306		Sub 304,500.00	Committed
12485 WB	WOODELL TRANSPORT INC. P. O. BOX 978 , GARNER, NC 27529		Sub 72,000.00	Committed
12485 WB	WOODELL TRANSPORT INC. P. O. BOX 978 , GARNER, NC 27529		Sub 190,000.00	Committed
12485 WB	WOODELL TRANSPORT INC. P. O. BOX 978 , GARNER, NC 27529		Sub 150,000.00	Committed
12485 WB	WOODELL TRANSPORT INC. P. O. BOX 978 , GARNER, NC 27529		Sub 45,000.00	Committed
12485 WB	WOODELL TRANSPORT INC. P. O. BOX 978 , GARNER, NC 27529		Sub 40,000.00	Committed

12485 WB WOODDELL TRANSPORT INC. P. O. BOX 978 , GARNER, NC 27529	Sub	150,000.00	Committed
12485 WB WOODDELL TRANSPORT INC. P. O. BOX 978 , GARNER, NC 27529	Sub	120,000.00	Committed
12485 WB WOODDELL TRANSPORT INC. P. O. BOX 978 , GARNER, NC 27529	Sub	12,000.00	Committed
12485 WB WOODDELL TRANSPORT INC. P. O. BOX 978 , GARNER, NC 27529	Sub	45,000.00	Committed
12485 WB WOODDELL TRANSPORT INC. P. O. BOX 978 , GARNER, NC 27529	Sub	45,000.00	Committed
12485 WB WOODDELL TRANSPORT INC. P. O. BOX 978 , GARNER, NC 27529	Sub	133,000.00	Committed
12485 WB WOODDELL TRANSPORT INC. P. O. BOX 978 , GARNER, NC 27529	Sub	9,000.00	Committed
12485 WB WOODDELL TRANSPORT INC. P. O. BOX 978 , GARNER, NC 27529	Sub	59,500.00	Committed
3230 WB HIATT & MASON ENTERPRISES, INC POST OFFICE BOX 1378 , MOUNT AIRY, NC 27030	Sub	152,781.96	Committed
2855 WB BOSS CONSTRUCTION CO., INC. 229 BOXWOOD CHURCH ROAD , MOCKSVILLE, NC 27028	Sub	148,776.00	Committed
3145 WB WATTS BARRIER WALLS 55 MUSCADINE LANE , MOUNTVILLE, SC 29370	Sub	26,373.25	Committed
		TOTAL: \$5,971,365.03	
		9.70%	

Vendor 3516's Bid Information for Call 003, Letting L130521, 05/21/13

Barnhill Contracting Company (3516)
Call Order 003 (Proposal ID C203332)

Miscellaneous Data Info - Contractor Responses:

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NON-COLLUSION AND DEBARMENT CERTIFICATION

Explanation of the prospective bidder that is unable to certify to any of the statements in this certification:

Explanation:

NOT ANSWERED

NOT ANSWERED

NOT ANSWERED

NOT ANSWERED

AWARD LIMITS ON MULTIPLE PROJECTS

By answering YES to this statement, the bidder acknowledges that they are using the award limits on multiple projects. No

It is the desire of the Bidder to be awarded contracts, the value of which will not exceed a total of NOT ANSWERED for those projects indicated herein, for which bids will be opened on (MM/DD/YY)

The Award Limits shall apply to the following projects:

Contract Number	County
NOT ANSWERED	
NOT ANSWERED	
NOT ANSWERED	
NOT ANSWERED	
NOT ANSWERED	

NOT ANSWERED

Bid Bond Data Info - Contractor Responses:

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BondID: SNC13909552
Surety Registry Agency: surety2000
Verified?: Yes
Surety Agency: Travelers Casualty and Surety Company of America
Bond Execution Date: 5/16/2013 9
Bond Amount: \$3,079,369.22 (Five Percent of Bid)

State of NC
Dept of Transportation

Date: 03-18-13
Revised: 05-01-13

Contract ID: C203332 Project(s): STATE FUNDED
Letting Date: 05-21-13 Call Order: 003
Bidder: 3516 - Barnhill Contracting Company

Line No.	Item Description	Approx. Quantity and Units	Unit Price Dollars Cts	Bid Amount Dollars Cts
Section 0001 ROADWAY ITEMS				
Alt Group				
0001	0000100000-N MOBILIZATIO N	LUMP	LUMP	3,000,000.00
0002	0000400000-N CONSTRUCTIO N SURVEYING	LUMP	LUMP	252,000.00
0003	0001000000-E CLEARING & GRUBBING .. ACRE(S)	LUMP	LUMP	4,000,000.00
0004	0008000000-E SUPPLEMENTA RY CLEARING & GRUB-BING	6.000 ACR	10,000.00000	60,000.00
0005	0015000000-N SEALING ABANDONED WELLS	31.000 EA	800.00000	24,800.00
0006	0022000000-E UNCLASSIFIE D EXCAVATION	91,050.000 CY	10.00000	910,500.00
0007	0029000000-N REINFORCED BRIDGE APPROACH FILL, STATION ***** (397+87.00 LEFT LANE)	LUMP	LUMP	14,000.00
0008	0029000000-N REINFORCED BRIDGE APPROACH FILL, STATION ***** (397+87.00 RIGHT LANE)	LUMP	LUMP	14,000.00
0009	0029000000-N REINFORCED BRIDGE APPROACH FILL, STATION ***** (660+21.00 LEFT LANE)	LUMP	LUMP	6,200.00
0010	0029000000-N REINFORCED BRIDGE APPROACH FILL, STATION ***** (660+21.00 RIGHT LANE)	LUMP	LUMP	6,200.00

State of NC
Dept of Transportation

Date: 03-18-13
Revised: 05-01-13

Contract ID: C203332 Project(s): STATE FUNDED
Letting Date: 05-21-13 Call Order: 003
Bidder: 3516 - Barnhill Contracting Company

Line No.	Item Description	Approx. Quantity and Units	Unit Price Dollars Cts	Bid Amount Dollars Cts
0011	0036000000-E UNDERCUT EXCAVATION	73,600.000 CY	2.75000	202,400.00
0012	0106000000-E BORROW EXCAVATION	1,983,100.000 CY	3.20000	6,345,920.00
0013	0134000000-E DRAINAGE DITCH EXCAVATION	28,800.000 CY	1.70000	48,960.00
0014	0141000000-E BERM DITCH CONSTRUCTION	850.000 LF	1.50000	1,275.00
0015	0156000000-E REMOVAL OF EXISTING ASPHALT PAVEMENT	106,140.000 SY	0.01000	1,061.40
0016	0177000000-E BREAKING OF EXISTING ASPHALT PAVEMENT	33,120.000 SY	0.01000	331.20
0017	0192000000-N PROOF ROLLING	140.000 HR	200.00000	28,000.00
0018	0194000000-E SELECT GRANULAR MATERIAL, CLASS III	82,500.000 CY	3.21000	264,825.00
0019	0196000000-E GEOTEXTILE FOR SOIL STABILIZA-TION	85,100.000 SY	1.00000	85,100.00
0020	0199000000-E TEMPORARY SHORING	2,473.300 SF	37.76000	93,391.81
0021	0220000000-E ROCK EMBANKMENTS	6,300.000 TON	45.50000	286,650.00
0022	0222000000-E GEOTEXTILE FOR ROCK EMBANK- MENTS	2,550.000 SY	1.50000	3,825.00

State of NC
Dept of Transportation

Date: 03-18-13
Revised: 05-01-13

Contract ID: C203332 Project(s): STATE FUNDED
Letting Date: 05-21-13 Call Order: 003
Bidder: 3516 - Barnhill Contracting Company

Line No.	Item Description	Approx. Quantity and Units	Unit Price Dollars Cts	Bid Amount Dollars Cts
0023	0318000000-E FOUNDATION CONDITIONING MATE- RIAL, MINOR STRUCTURES	6,394.000 TON	22.45000	143,545.30
0024	0320000000-E FOUNDATION CONDITIONING GEO- TEXTILE	14,160.000 SY	2.00000	28,320.00
0025	0342000000-E *** SIDE DRAIN PIPE (30")	72.000 LF	39.00000	2,808.00
0026	0343000000-E 15" SIDE DRAIN PIPE	1,840.000 LF	20.00000	36,800.00
0027	0344000000-E 18" SIDE DRAIN PIPE	1,639.000 LF	22.00000	36,058.00
0028	0345000000-E 24" SIDE DRAIN PIPE	892.000 LF	29.00000	25,868.00
0029	0348000000-E *** SIDE DRAIN PIPE ELBOWS (15")	4.000 EA	175.00000	700.00
0030	0348000000-E *** SIDE DRAIN PIPE ELBOWS (18")	3.000 EA	225.00000	675.00
0031	0366000000-E 15" RC PIPE CULVERTS, CLASS III	9,360.000 LF	20.00000	187,200.00
0032	0372000000-E 18" RC PIPE CULVERTS, CLASS III	4,728.000 LF	23.00000	108,744.00
0033	0378000000-E 24" RC PIPE CULVERTS, CLASS III	5,332.000 LF	29.00000	154,628.00
0034	0384000000-E 30" RC PIPE CULVERTS, CLASS III	2,324.000 LF	39.00000	90,636.00

State of NC
Dept of Transportation

Date: 03-18-13
Revised: 05-01-13

Contract ID: C203332 Project(s): STATE FUNDED
Letting Date: 05-21-13 Call Order: 003
Bidder: 3516 - Barnhill Contracting Company

Line No.	Item Description	Approx. Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cts	Dollars	Ct
0035	0390000000-E 36" RC PIPE CULVERTS, CLASS III LF	592.000	49.00000		29,008.00	
0036	0396000000-E 42" RC PIPE CULVERTS, CLASS III LF	804.000	66.00000		53,064.00	
0037	0402000000-E 48" RC PIPE CULVERTS, CLASS III LF	1,872.000	85.00000		159,120.00	
0038	0408000000-E 54" RC PIPE CULVERTS, CLASS III LF	344.000	125.00000		43,000.00	
0039	0420000000-E 66" RC PIPE CULVERTS, CLASS III LF	176.000	175.00000		30,800.00	
0040	0426000000-E 72" RC PIPE CULVERTS, CLASS III LF	312.000	250.00000		78,000.00	
0041	0448000000-E ***** RC PIPE CULVERTS, CLASS IV (48") LF	528.000	91.00000		48,048.00	
0042	0448200000-E 15" RC PIPE CULVERTS, CLASS IV LF	6,140.000	21.00000		128,940.00	
0043	0448300000-E 18" RC PIPE CULVERTS, CLASS IV LF	2,376.000	25.00000		59,400.00	
0044	0448400000-E 24" RC PIPE CULVERTS, CLASS IV LF	740.000	33.00000		24,420.00	
0045	0448500000-E 30" RC PIPE CULVERTS, CLASS IV LF	1,432.000	47.00000		67,304.00	
0046	0448600000-E 36" RC PIPE CULVERTS, CLASS IV LF	440.000	59.00000		25,960.00	

State of NC
Dept of Transportation

Date: 03-18-13
Revised: 05-01-13

Contract ID: C203332 Project(s): STATE FUNDED
Letting Date: 05-21-13 Call Order: 003
Bidder: 3516 - Barnhill Contracting Company

Line No.	Item Description	Approx. Quantity and Units	Unit Price Dollars Cts	Bid Amount Dollars Cts
0047	0453000000-E *** PIPE END SECTION (15")	10.000 EA	765.00000	7,650.00
0048	0453000000-E *** PIPE END SECTION (18")	26.000 EA	845.00000	21,970.00
0049	0453000000-E *** PIPE END SECTION (24")	2.000 EA	900.00000	1,800.00
0050	0582000000-E 15" CS PIPE CULVERTS, 0.064" THICK	292.000 LF	22.50000	6,570.00
0051	0588000000-E 18" CS PIPE CULVERTS, 0.064" THICK	200.000 LF	26.00000	5,200.00
0052	0636000000-E *** CS PIPE ELBOWS, ***** THICK (15", 0.064")	10.000 EA	175.00000	1,750.00
0053	0995000000-E PIPE REMOVAL	6,520.000 LF	9.00000	58,680.00
0054	0996000000-N PIPE CLEAN-OUT	1.000 EA	2,000.00000	2,000.00
0055	1011000000-N FINE GRADING	LUMP	LUMP	2,689,000.00
0056	1077000000-E #57 STONE	3,880.000 TON	32.00000	124,160.00
0057	1099500000-E SHALLOW UNDERCUT	600.000 CY	6.00000	3,600.00
0058	1099700000-E CLASS IV SUBGRADE STABILIZA- TION	1,100.000 TON	20.00000	22,000.00

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Line No.	Item Description	Approx. Quantity and Units	Unit Price Dollars Cts	Bid Amount Dollars Cts
0059	1110000000-E STABILIZER AGGREGATE	2,000.000 TON	0.01000	20.00
0060	1115000000-E GEOTEXTILE FOR PAVEMENT STA- BILIZATION	12,900.000 SY	3.00000	38,700.00
0061	1121000000-E AGGREGATE BASE COURSE	332,210.000 TON	20.15000	6,694,031.50
0062	1220000000-E INCIDENTAL STONE BASE	9,125.000 TON	23.00000	209,875.00
0063	1275000000-E PRIME COAT	129,433.000 GAL	2.25000	291,224.25
0064	1330000000-E INCIDENTAL MILLING	1,980.000 SY	15.00000	29,700.00
0065	1489000000-E ASPHALT CONC BASE COURSE, TYPE B25.0B	6,300.000 TON	34.15000	215,145.00
0066	1491000000-E ASPHALT CONC BASE COURSE, TYPE B25.0C	8,340.000 TON	32.50000	271,050.00
0067	1503000000-E ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0C	125,950.000 TON	28.40000	3,576,980.00
0068	1519000000-E ASPHALT CONC SURFACE COURSE, TYPE S9.5B	3,410.000 TON	37.65000	128,386.50
0069	1523000000-E ASPHALT CONC SURFACE COURSE, TYPE S9.5C	110,170.000 TON	29.50000	3,250,015.00
0070	1525000000-E ASPHALT CONC SURFACE COURSE, TYPE SF9.5A	3,270.000 TON	38.85000	127,039.50

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0071	1575000000-E ASPHALT BINDER FOR PLANT MIX	13,620.000 TON	596.31000	8,121,742.20
0072	1693000000-E ASPHALT PLANT MIX, PAVEMENT REPAIR	2,717.000 TON	145.00000	393,965.00
0073	1880000000-E GENERIC PAVING ITEM JOINT REPAIR	500.000 TON	295.00000	147,500.00
0074	2020000000-N CONTROL OF ACCESS MARKERS	155.000 EA	100.00000	15,500.00
0075	2022000000-E SUBDRAIN EXCAVATION	1,243.200 CY	15.00000	18,648.00
0076	2026000000-E GEOTEXTILE FOR SUBSURFACE DRAINS	3,700.000 SY	3.50000	12,950.00
0077	2036000000-E SUBDRAIN COARSE AGGREGATE	621.600 CY	45.00000	27,972.00
0078	2044000000-E 6" PERFORATED SUBDRAIN PIPE	3,700.000 LF	6.50000	24,050.00
0079	2070000000-N SUBDRAIN PIPE OUTLET	8.000 EA	350.00000	2,800.00
0080	2077000000-E 6" OUTLET PIPE	48.000 LF	20.00000	960.00
0081	2209000000-E ENDWALLS	45.300 CY	750.00000	33,975.00
0082	2220000000-E REINFORCED ENDWALLS	46.800 CY	800.00000	37,440.00

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0083	2253000000-E PIPE COLLARS	0.846 CY	800.00000	676.80
0084	2275000000-E FLOWABLE FILL	20.000 CY	225.00000	4,500.00
0085	2286000000-N MASONRY DRAINAGE STRUCTURES	252.000 EA	875.00000	220,500.00
0086	2297000000-E MASONRY DRAINAGE STRUCTURES	7.000 CY	775.00000	5,425.00
0087	2308000000-E MASONRY DRAINAGE STRUCTURES	191.000 LF	185.00000	35,335.00
0088	2354200000-N FRAME WITH GRATE, STD 840.24	2.000 EA	450.00000	900.00
0089	2364000000-N FRAME WITH TWO GRATES, STD 840.16	45.000 EA	450.00000	20,250.00
0090	2366000000-N FRAME WITH TWO GRATES, STD 840.24	176.000 EA	450.00000	79,200.00
0091	2367000000-N FRAME WITH TWO GRATES, STD 840.29	28.000 EA	550.00000	15,400.00
0092	2451000000-N CONCRETE TRANSITIONAL SECTION FOR DROP INLET	44.000 EA	300.00000	13,200.00
0093	2542000000-E 1'-6" CONCRETE CURB & GUTTER	4,450.000 LF	9.75000	43,387.50
0094	2556000000-E SHOULDER BERM GUTTER	7,760.000 LF	10.84000	84,118.40

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Line No.	Item Description	Approx. Quantity and Units	Unit Price Dollars Cts	Bid Amount Dollars Ct
0095	2612000000-E 6" CONCRETE DRIVEWAY	690.000 SY	36.25000	25,012.50
0096	2619000000-E 4" CONCRETE PAVED DITCH	30.000 SY	55.00000	1,650.00
0097	2647000000-E 5" MONOLITHIC CONCRETE ISLANDS (SURFACE MOUNTED)	5,880.000 SY	36.25000	213,150.00
0098	2655000000-E 5" MONOLITHIC CONCRETE ISLANDS (KEYED IN)	4,620.000 SY	36.25000	167,475.00
0099	3030000000-E STEEL BM GUARDRAIL	10,912.500 LF	13.80000	150,592.50
0100	3045000000-E STEEL BM GUARDRAIL, SHOP CURVED	100.000 LF	13.80000	1,380.00
0101	3105000000-N STEEL BM GUARDRAIL TERMINAL SECTIONS	2.000 EA	25.00000	50.00
0102	3150000000-N ADDITIONAL GUARDRAIL POSTS	15.000 EA	1.00000	15.00
0103	3210000000-N GUARDRAIL ANCHOR UNITS, TYPE CAT-1	9.000 EA	350.00000	3,150.00
0104	3270000000-N GUARDRAIL ANCHOR UNITS, TYPE 350	23.000 EA	1,625.00000	37,375.00
0105	3285000000-N GUARDRAIL ANCHOR UNITS, TYPE M-350	8.000 EA	1,575.00000	12,600.00
0106	3317000000-N GUARDRAIL ANCHOR UNITS, TYPE B-77	16.000 EA	1,425.00000	22,800.00

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0107	3360000000-E REMOVE EXISTING GUARDRAIL	825.000 LF	0.10000	82.50
0108	3380000000-E TEMPORARY STEEL BM GUARDRAIL	2,150.000 LF	4.00000	8,600.00
0109	3389100000-N TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE 350	7.000 EA	500.00000	3,500.00
0110	3503000000-E WOVEN WIRE FENCE, 47" FABRIC	124,750.000 LF	2.05000	255,737.50
0111	3509000000-E 4" TIMBER FENCE POSTS, 7'-6" LONG	7,772.000 EA	13.00000	101,036.00
0112	3515000000-E 5" TIMBER FENCE POSTS, 8'-0" LONG	2,116.000 EA	20.00000	42,320.00
0113	3533000000-E CHAIN LINK FENCE, **" FABRIC (72")	240.000 LF	7.50000	1,800.00
0114	3536000000-E CHAIN LINK FENCE, 48" FABRIC	2,080.000 LF	4.18000	8,694.40
0115	3539000000-E METAL LINE POSTS FOR **" CHAINLINK FENCE (72")	30.000 EA	51.00000	1,530.00
0116	3542000000-E METAL LINE POSTS FOR 48" CHAINLINK FENCE	190.000 EA	30.00000	5,700.00
0117	3545000000-E METAL TERMINAL POSTS FOR **" CHAIN LINK FENCE (72")	6.000 EA	110.00000	660.00
0118	3548000000-E METAL TERMINAL POSTS FOR 48" CHAIN LINK FENCE	11.000 EA	85.00000	935.00

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0119	3554000000-E METAL GATE POSTS FOR *** CHAINLINK FENCE, DOUBLE GATE (72")	2.000 EA	250.00000	500.00
0120	3557000000-E ADDITIONAL BARBED WIRE	12,800.000 LF	0.01000	128.00
0121	3565000000-E DOUBLE GATES, *** HIGH, *** WIDE, *** OPENING (47" HIGH, 10' WIDE, 20' OPEN-ING)	3.000 EA	1,500.00000	4,500.00
0122	3565000000-E DOUBLE GATES, *** HIGH, *** WIDE, *** OPENING (47" HIGH, 6' WIDE, 12' OPEN- ING)	1.000 EA	1,000.00000	1,000.00
0123	3565000000-E DOUBLE GATES, *** HIGH, *** WIDE, *** OPENING (47" HIGH, 8' WIDE, 16' OPEN- ING)	2.000 EA	1,250.00000	2,500.00
0124	3578000000-N GENERIC FENCING ITEM METAL GATE POSTS FOR 47" WOVEN WIRE FENCE, DOUBLE GATE	16.000 EA	100.00000	1,600.00
0125	3579000000-N GENERIC FENCING ITEM DOUBLE GATES, 47" HIGH, 6' WIDE, 12' OPENING (WOVEN WIRE)	2.000 EA	1,000.00000	2,000.00
0126	3579000000-N GENERIC FENCING ITEM DOUBLE GATES, 72" HIGH, 6' WIDE, 12' OPENING (CHAIN LINK)	1.000 EA	3,800.00000	3,800.00
0127	3595000000-E RELAPPING GUARDRAIL	725.000 LF	3.00000	2,175.00

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0128	3628000000-E RIP RAP, CLASS I	1,030.000 TON	42.00000	43,260.00
0129	3649000000-E RIP RAP, CLASS B	2,220.000 TON	41.00000	91,020.00
0130	3651000000-E BOULDERS	20.000 TON	150.00000	3,000.00
0131	3656000000-E GEOTEXTILE FOR DRAINAGE	16,625.000 SY	1.50000	24,937.50
0132	3659000000-N PREFORMED SCOUR HOLES WITH LEVEL SPREADER APRON	5.000 EA	4,000.00000	20,000.00
0133	4072000000-E SUPPORTS, 3-LB STEEL U-CHANNEL	7,884.000 LF	4.20000	33,112.80
0134	4096000000-N SIGN ERECTION, TYPE D	32.000 EA	55.00000	1,760.00
0135	4102000000-N SIGN ERECTION, TYPE E	307.000 EA	45.00000	13,815.00
0136	4108000000-N SIGN ERECTION, TYPE F	93.000 EA	65.00000	6,045.00
0137	4155000000-N DISPOSAL OF SIGN SYSTEM, U-CHANNEL	100.000 EA	1.00000	100.00
0138	4158000000-N DISPOSAL OF SIGN SYSTEM, WOOD	6.000 EA	1.00000	6.00
0139	4400000000-E WORK ZONE SIGNS (STATIONARY)	4,406.000 SF	4.00000	17,624.00

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0140	4405000000-E WORK ZONE SIGNS (PORTABLE)	640.000 SF	21.00000	13,440.00
0141	4410000000-E WORK ZONE SIGNS (BARRICADE MOUNTED)	731.000 SF	5.50000	4,020.50
0142	4415000000-N FLASHING ARROW BOARD	4.000 EA	2,500.00000	10,000.00
0143	4420000000-N PORTABLE CHANGEABLE MESSAGE SIGN	8.000 EA	2,500.00000	20,000.00
0144	4422000000-N PORTABLE CHANGEABLE MESSAGE SIGN (SHORT TERM)	338.000 DAY	15.00000	5,070.00
0145	4430000000-N DRUMS	1,150.000 EA	46.50000	53,475.00
0146	4435000000-N CONES	150.000 EA	18.00000	2,700.00
0147	4445000000-E BARRICADES (TYPE III)	1,995.000 LF	16.00000	31,920.00
0148	4455000000-N FLAGGER	1,040.000 DAY	150.00000	156,000.00
0149	4465000000-N TEMPORARY CRASH CUSHIONS	2.000 EA	5,500.00000	11,000.00
0150	4480000000-N TMA	4.000 EA	3,500.00000	14,000.00
0151	4485000000-E PORTABLE CONCRETE BARRIER	480.000 LF	24.95000	11,976.00

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			Dollars	Cts	Dollars	Ct
0152	4510000000-N LAW ENFORCEMENT	208.000 HR	35.00000		7,280.00	
0153	4650000000-N TEMPORARY RAISED PAVEMENT MARKERS	3,088.000 EA	2.75000		8,492.00	
0154	4685000000-E THERMOPLAST IC PAVEMENT MARKING LINES (4", 90 MILS)	393,566.000 LF	0.49000		192,847.34	
0155	4686000000-E THERMOPLAST IC PAVEMENT MARKING LINES (4", 120 MILS)	84,759.000 LF	0.54000		45,769.86	
0156	4690000000-E THERMOPLAST IC PAVEMENT MARKING LINES (6", 120 MILS)	114.000 LF	0.75000		85.50	
0157	4695000000-E THERMOPLAST IC PAVEMENT MARKING LINES (8", 90 MILS)	25,173.000 LF	1.50000		37,759.50	
0158	4697000000-E THERMOPLAST IC PAVEMENT MARKING LINES (8", 120 MILS)	3,165.000 LF	2.40000		7,596.00	
0159	4710000000-E THERMOPLAST IC PAVEMENT MARKING LINES (24", 120 MILS)	1,850.000 LF	7.00000		12,950.00	
0160	4721000000-E THERMOPLAST IC PAVEMENT MARKING CHARACTER (120 MILS)	80.000 EA	70.00000		5,600.00	
0161	4725000000-E THERMOPLAST IC PAVEMENT MARKING SYMBOL (90 MILS)	612.000 EA	90.00000		55,080.00	
0162	4770000000-E COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (IV)	9,244.000 LF	1.30000		12,017.20	

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0163	4810000000-E PAINT PAVEMENT MARKING LINES (4")	1,076,432.000 LF	0.09000	96,878.88
0164	4820000000-E PAINT PAVEMENT MARKING LINES (8")	952.000 LF	0.50000	476.00
0165	4825000000-E PAINT PAVEMENT MARKING LINES (12")	94.000 LF	1.00000	94.00
0166	4835000000-E PAINT PAVEMENT MARKING LINES (24")	2,024.000 LF	3.00000	6,072.00
0167	4840000000-N PAINT PAVEMENT MARKING CHARAC-TER	114.000 EA	20.00000	2,280.00
0168	4845000000-N PAINT PAVEMENT MARKING SYMBOL	370.000 EA	20.00000	7,400.00
0169	4850000000-E REMOVAL OF PAVEMENT MARKING LINES (4")	47,252.000 LF	0.15000	7,087.80
0170	4870000000-E REMOVAL OF PAVEMENT MARKING LINES (24")	108.000 LF	3.00000	324.00
0171	4875000000-N REMOVAL OF PAVEMENT MARKING SYMBOLS & CHARACTERS	20.000 EA	25.00000	500.00
0172	4905000000-N SNOWPLOWABL E PAVEMENT MARKERS	4,367.000 EA	24.00000	104,808.00
0173	5325000000-E *** WATER LINE (2")	1,255.000 LF	10.00000	12,550.00
0174	5325300000-E 3" WATER LINE	112.000 LF	25.00000	2,800.00

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Line	Item	Approx.	Unit Price		Bid Amount	
No.	Description	Quantity	-----		-----	
		and Units	Dollars	Cts	Dollars	Ct
+-----+-----+-----+-----+-----+-----+-----+						
0175	5325400000-E 4" WATER LINE	223.000 LF	30.00000		6,690.00	
0176	5325600000-E 6" WATER LINE	4,752.000 LF	17.00000		80,784.00	
0177	5325800000-E 8" WATER LINE	25,096.000 LF	19.00000		476,824.00	
0178	5326000000-E 10" WATER LINE	4,550.000 LF	25.00000		113,750.00	
0179	5326200000-E 12" WATER LINE	11,386.000 LF	35.00000		398,510.00	
0180	5326600000-E 16" WATER LINE	440.000 LF	95.00000		41,800.00	
0181	5536000000-E 2" VALVE EA	5.000 EA	525.00000		2,625.00	
0182	5540000000-E 6" VALVE EA	14.000 EA	800.00000		11,200.00	
0183	5546000000-E 8" VALVE EA	32.000 EA	1,075.00000		34,400.00	
0184	5552000000-E 10" VALVE EA	5.000 EA	1,550.00000		7,750.00	
0185	5558000000-E 12" VALVE EA	8.000 EA	1,925.00000		15,400.00	
0186	5571800000-E 8" TAPPING VALVE	1.000 EA	3,300.00000		3,300.00	
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0187	5572200000-E 12" TAPPING VALVE	1.000 EA	5,700.00000	5,700.00
0188	5589200000-E 2" AIR RELEASE VALVE	8.000 EA	3,500.00000	28,000.00
0189	5606000000-E 2" BLOW OFF	6.000 EA	2,000.00000	12,000.00
0190	5643100000-E 3/4" WATER METER	11.000 EA	750.00000	8,250.00
0191	5648000000-N RELOCATE WATER METER	61.000 EA	775.00000	47,275.00
0192	5649000000-N RECONNECT WATER METER	3.000 EA	725.00000	2,175.00
0193	5666000000-E FIRE HYDRANT	15.000 EA	3,500.00000	52,500.00
0194	5672000000-N RELOCATE FIRE HYDRANT	10.000 EA	2,500.00000	25,000.00
0195	5691300000-E 8" SANITARY GRAVITY SEWER	298.000 LF	35.00000	10,430.00
0196	5691400000-E 10" SANITARY GRAVITY SEWER	783.000 LF	50.00000	39,150.00
0197	5691500000-E 12" SANITARY GRAVITY SEWER	3,025.000 LF	65.00000	196,625.00
0198	5709500000-E 10" FORCE MAIN SEWER	10,045.000 LF	25.00000	251,125.00

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0199	5775000000-E 4' DIA UTILITY MANHOLE	17.000 EA	1,750.00000	29,750.00
0200	5776000000-E 5' DIA UTILITY MANHOLE	8.000 EA	2,250.00000	18,000.00
0201	5781000000-E UTILITY MANHOLE WALL, 4' DIA	32.000 LF	200.00000	6,400.00
0202	5801000000-E ABANDON 8" UTILITY PIPE	25,959.000 LF	5.00000	129,795.00
0203	5802000000-E ABANDON 10" UTILITY PIPE	14,816.000 LF	6.50000	96,304.00
0204	5804000000-E ABANDON 12" UTILITY PIPE	12,427.000 LF	8.50000	105,629.50
0205	5815000000-N REMOVE WATER METER	17.000 EA	150.00000	2,550.00
0206	5815500000-N REMOVE FIRE HYDRANT	5.000 EA	300.00000	1,500.00
0207	5816000000-N ABANDON UTILITY MANHOLE	17.000 EA	1,000.00000	17,000.00
0208	5835600000-E 12" ENCASEMENT PIPE	399.000 LF	41.00000	16,359.00
0209	5835700000-E 16" ENCASEMENT PIPE	898.000 LF	52.00000	46,696.00
0210	5836000000-E 24" ENCASEMENT PIPE	476.000 LF	71.00000	33,796.00

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Line	Item	Approx.	Unit Price	Bid Amount
No.	Description	Quantity and Units	Dollars Cts	Dollars Cts
0211	5871100000-E TRENCHLESS INSTALLATION OF 2" IN SOIL	75.000 LF	0.01000	0.75
0212	5871110000-E TRENCHLESS INSTALLATION OF 2" NOT IN SOIL	75.000 LF	0.01000	0.75
0213	5871600000-E TRENCHLESS INSTALLATION OF 10" IN SOIL	1,897.000 LF	75.00000	142,275.00
0214	5871610000-E TRENCHLESS INSTALLATION OF 10" NOT IN SOIL	75.000 LF	75.00000	5,625.00
0215	5871900000-E TRENCHLESS INSTALLATION OF 16" IN SOIL	220.000 LF	0.01000	2.20
0216	5871910000-E TRENCHLESS INSTALLATION OF 16" NOT IN SOIL	220.000 LF	0.01000	2.20
0217	5872200000-E TRENCHLESS INSTALLATION OF 24" IN SOIL	53.000 LF	0.01000	0.53
0218	5872210000-E TRENCHLESS INSTALLATION OF 24" NOT IN SOIL	53.000 LF	0.01000	0.53
0219	5878000000-N WATER PUMP STATION	LUMP	LUMP	128,000.00
0220	5882000000-N GENERIC UTILITY ITEM 12" NITRILE GASKETS	17.000 EA	35.00000	595.00
0221	5882000000-N GENERIC UTILITY ITEM 6" NITRILE GASKETS	11.000 EA	15.00000	165.00

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No.	Description	Quantity and Units	Dollars Cts	Dollars Ct
0222	5912000000-N GENERIC UTILITY ITEM RELOCATION OF WATER BOOSTER PUMP STATION	LUMP	LUMP	44,000.00
0223	6000000000-E TEMPORARY SILT FENCE	290,000.000 LF	0.00160	464.00
0224	6006000000-E STONE FOR EROSION CONTROL, CLASS A	13,120.000 TON	41.00000	537,920.00
0225	6009000000-E STONE FOR EROSION CONTROL, CLASS B	32,125.000 TON	0.01000	321.25
0226	6012000000-E SEDIMENT CONTROL STONE	19,400.000 TON	0.01000	194.00
0227	6015000000-E TEMPORARY MULCHING	500.000 ACR	400.00000	200,000.00
0228	6018000000-E SEED FOR TEMPORARY SEEDING	13,800.000 LB	3.00000	41,400.00
0229	6021000000-E FERTILIZER FOR TEMPORARY SEED-ING	57.500 TON	1,200.00000	69,000.00
0230	6024000000-E TEMPORARY SLOPE DRAINS	20,100.000 LF	0.01000	201.00
0231	6029000000-E SAFETY FENCE	21,600.000 LF	1.68000	36,288.00
0232	6030000000-E SILT EXCAVATION	81,200.000 CY	0.01000	812.00

State of NC
Dept of Transportation

Date: 03-18-13
Revised: 05-01-13

Contract ID: C203332 Project(s): STATE FUNDED
Letting Date: 05-21-13 Call Order: 003
Bidder: 3516 - Barnhill Contracting Company

Line No.	Item Description	Approx. Quantity and Units	Unit Price Dollars Cts	Bid Amount Dollars Cts
0233	6036000000-E MATTING FOR EROSION CONTROL	270,000.000 SY	1.24000	334,800.00
0234	6037000000-E COIR FIBER MAT	13,475.000 SY	4.50000	60,637.50
0235	6038000000-E PERMANENT SOIL REINFORCEMENT MAT	1,850.000 SY	5.40000	9,990.00
0236	6042000000-E 1/4" HARDWARE CLOTH	8,350.000 LF	3.50000	29,225.00
0237	6045000000-E *** TEMPORARY PIPE (18")	120.000 LF	45.00000	5,400.00
0238	6046000000-E TEMPORARY PIPE FOR STREAM CROSSING	60.000 LF	30.00000	1,800.00
0239	6048000000-E FLOATING TURBIDITY CURTAIN	1,250.000 SY	33.00000	41,250.00
0240	6070000000-N SPECIAL STILLING BASINS	20.000 EA	500.00000	10,000.00
0241	6071010000-E WATTLE	16,700.000 LF	3.15000	52,605.00
0242	6071012000-E COIR FIBER WATTLE	23,600.000 LF	5.00000	118,000.00
0243	6071020000-E POLYACRYLAM IDE (PAM)	29,700.000 LB	4.80000	142,560.00
0244	6071030000-E COIR FIBER BAFFLE	31,450.000 LF	3.62000	113,849.00

State of NC
Dept of Transportation

Date: 03-18-13
Revised: 05-01-13

Contract ID: C203332 Project(s): STATE FUNDED
Letting Date: 05-21-13 Call Order: 003
Bidder: 3516 - Barnhill Contracting Company

Line No.	Item Description	Approx. Quantity and Units	Unit Price Dollars Cts	Bid Amount Dollars Cts
0245	6071050000-E *** SKIMMER (1-1/2")	69.000 EA	550.00000	37,950.00
0246	6071050000-E *** SKIMMER (2")	5.000 EA	650.00000	3,250.00
0247	6071050000-E *** SKIMMER (2-1/2")	2.000 EA	650.00000	1,300.00
0248	6084000000-E SEEDING & MULCHING	425.000 ACR	1,600.00000	680,000.00
0249	6087000000-E MOWING	250.000 ACR	48.00000	12,000.00
0250	6090000000-E SEED FOR REPAIR SEEDING	5,950.000 LB	10.00000	59,500.00
0251	6093000000-E FERTILIZER FOR REPAIR SEEDING	21.750 TON	1,400.00000	30,450.00
0252	6096000000-E SEED FOR SUPPLEMENTAL SEEDING	11,875.000 LB	1.42000	16,862.50
0253	6108000000-E FERTILIZER TOPDRESSING	356.250 TON	705.00000	251,156.25
0254	6111000000-E IMPERVIOUS DIKE	100.000 LF	55.00000	5,500.00
0255	6114500000-N SPECIALIZED HAND MOWING	150.000 MHR	30.00000	4,500.00
0256	6117000000-N RESPONSE FOR EROSION CONTROL	350.000 EA	50.00000	17,500.00

State of NC
Dept of Transportation

Date: 03-18-13
Revised: 05-01-13

Contract ID: C203332 Project(s): STATE FUNDED
Letting Date: 05-21-13 Call Order: 003
Bidder: 3516 - Barnhill Contracting Company

Line No.	Item Description	Approx. Quantity and Units	Unit Price Dollars Cts	Bid Amount Dollars Cts
0257	6120000000-E CULVERT DIVERSION CHANNEL	180.000 CY	35.00000	6,300.00
0258	6123000000-E REFORESTATION	12.500 ACR	700.00000	8,750.00
0259	6126000000-E STREAMBANK REFORESTATION	1.530 ACR	2,500.00000	3,825.00
0260	7060000000-E SIGNAL CABLE	3,020.000 LF	2.65000	8,003.00
0261	7120000000-E VEHICLE SIGNAL HEAD (12", 3 SECTION)	27.000 EA	650.00000	17,550.00
0262	7132000000-E VEHICLE SIGNAL HEAD (12", 4 SECTION)	1.000 EA	845.00000	845.00
0263	7264000000-E MESSENGER CABLE (3/8")	1,540.000 LF	2.95000	4,543.00
0264	7300000000-E UNPAVED TRENCHING (***** (1, 2")	3,040.000 LF	5.95000	18,088.00
0265	7301000000-E DIRECTIONAL DRILL (***** (1, 2")	135.000 LF	18.50000	2,497.50
0266	7301000000-E DIRECTIONAL DRILL (***** (2, 2")	150.000 LF	18.50000	2,775.00
0267	7324000000-N JUNCTION BOX (STANDARD SIZE)	31.000 EA	175.00000	5,425.00
0268	7444000000-E INDUCTIVE LOOP SAWCUT	3,300.000 LF	5.25000	17,325.00

State of NC
Dept of Transportation

Date: 03-18-13
Revised: 05-01-13

Contract ID: C203332 Project(s): STATE FUNDED
Letting Date: 05-21-13 Call Order: 003
Bidder: 3516 - Barnhill Contracting Company

Line No.	Item Description	Approx. Quantity and Units	Unit Price Dollars Cts	Bid Amount Dollars Cts
0269	7456000000-E LEAD-IN CABLE (***** (14-2)	11,650.000 LF	1.35000	15,727.50
0270	7574550000-N FURNISH WIRELESS LIGHTNING ARRESTOR	3.000 EA	175.00000	525.00
0271	7575142000-N 900MHZ RADIO	3.000 EA	3,100.00000	9,300.00
0272	7576000000-N METAL STRAIN SIGNAL POLE	12.000 EA	7,000.00000	84,000.00
0273	7613000000-N SOIL TEST	12.000 EA	650.00000	7,800.00
0274	7614100000-E DRILLED PIER FOUNDATION	84.000 CY	725.00000	60,900.00
0275	7636000000-N SIGN FOR SIGNALS	7.000 EA	225.00000	1,575.00
0276	7642200000-N TYPE II PEDESTAL WITH FOUND- ATION	7.000 EA	1,250.00000	8,750.00
0277	7684000000-N SIGNAL CABINET FOUNDATION	6.000 EA	850.00000	5,100.00
0278	7756000000-N CONTROLLER WITH CABINET (TYPE 2070L, BASE MOUNTED)	6.000 EA	11,250.00000	67,500.00
0279	7780000000-N DETECTOR CARD (TYPE 2070L)	16.000 EA	90.00000	1,440.00
0280	7901000000-N CABINET BASE EXTENDER	6.000 EA	300.00000	1,800.00

State of NC
Dept of Transportation

Date: 03-18-13
Revised: 05-01-13

Contract ID: C203332 Project(s): STATE FUNDED
Letting Date: 05-21-13 Call Order: 003
Bidder: 3516 - Barnhill Contracting Company

Line No.	Item Description	Approx. Quantity and Units	Unit Price Dollars Cts	Bid Amount Dollars Ct
0281	7948000000-N TRAFFIC SIGNAL REMOVAL	1.000 EA	1,500.00000	1,500.00
0317	0000700000-N FIELD OFFICE	LUMP	LUMP	35,000.00
Section 0001 Total				52,667,744.60

Section 0002 CULVERT ITEMS

Alt Group

0282	8056000000-N REMOVAL OF EXISTING STRUCTURE AT STATION ***** (713+35.00-L-)	LUMP	LUMP	5,000.00
0283	8126000000-N CULVERT EXCAVATION, STA ***** (713+35.00-L-)	LUMP	LUMP	25,000.00
0284	8133000000-E FOUNDATION CONDITIONING MATER-IAL, BOX CULVERT	245.000 TON	50.00000	12,250.00
0285	8196000000-E CLASS A CONCRETE (CULVERT)	284.500 CY	600.00000	170,700.00
0286	8245000000-E REINFORCING STEEL (CULVERT)	34,438.000 LB	1.00000	34,438.00
Section 0002 Total				247,388.00

Section 0004 STRUCTURE ITEMS

Alt Group

State of NC
Dept of Transportation

Date: 03-18-13
Revised: 05-01-13

Contract ID: C203332 Project(s): STATE FUNDED
Letting Date: 05-21-13 Call Order: 003
Bidder: 3516 - Barnhill Contracting Company

Line No.	Item Description	Approx. Quantity and Units	Unit Price Dollars Cts	Bid Amount Dollars Cts
0287	8017000000-N CONSTRUCTION, MAINTENANCE, & REMOVAL OF TEMP ACCESS AT STA ***** (397+87.00-LREV-LTLN)	LUMP	LUMP	700,000.00
0288	8017000000-N CONSTRUCTION, MAINTENANCE, & REMOVAL OF TEMP ACCESS AT STA ***** (397+87.00-LREV-RTLN)	LUMP	LUMP	700,000.00
0289	8017000000-N CONSTRUCTION, MAINTENANCE, & REMOVAL OF TEMP ACCESS AT STA ***** (660+21.00-L-LTLN)	LUMP	LUMP	1.00
0290	8017000000-N CONSTRUCTION, MAINTENANCE, & REMOVAL OF TEMP ACCESS AT STA ***** (660+21.00-L-RTLN)	LUMP	LUMP	1.00
0291	8035000000-N REMOVAL OF EXISTING STRUCTURE AT STATION ***** (660+21.00-L-LTLN)	LUMP	LUMP	100,000.00
0292	8112730000-N PDA TESTING	6.000 EA	3,628.00000	21,768.00
0293	8121000000-N UNCLASSIFIED STRUCTURE EXCAVATION AT STATION ***** (397+87.00-LREV-LTLN)	LUMP	LUMP	6,500.00
0294	8121000000-N UNCLASSIFIED STRUCTURE EXCAVATION AT STATION ***** (397+87.00-LREV-RTLN)	LUMP	LUMP	10,000.00
0295	8121000000-N UNCLASSIFIED STRUCTURE EXCAVATION AT STATION ***** (660+21.00-L-LTLN)	LUMP	LUMP	10,500.00

State of NC
Dept of Transportation

Date: 03-18-13
Revised: 05-01-13

Contract ID: C203332 Project(s): STATE FUNDED
Letting Date: 05-21-13 Call Order: 003
Bidder: 3516 - Barnhill Contracting Company

Line No.	Item Description	Approx. Quantity and Units	Unit Price Dollars Cts	Bid Amount Dollars Ct
0296	8147000000-E REINFORCED CONCRETE DECK SLAB	108,356.000 SF	25.50000	2,763,078.00
0297	8161000000-E GROOVING BRIDGE FLOORS	97,012.000 SF	0.36000	34,924.32
0298	8182000000-E CLASS A CONCRETE (BRIDGE)	798.800 CY	720.00000	575,136.00
0299	8210000000-N BRIDGE APPROACH SLABS, STATION***** (397+87.00-LREV-LTLN)	LUMP	LUMP	45,000.00
0300	8210000000-N BRIDGE APPROACH SLABS, STATION***** (397+87.00-LREV-RTLN)	LUMP	LUMP	45,000.00
0301	8210000000-N BRIDGE APPROACH SLABS, STATION***** (660+21.00-L-LTLN)	LUMP	LUMP	35,775.90
0302	8210000000-N BRIDGE APPROACH SLABS, STATION***** (660+21.00-L-RTLN)	LUMP	LUMP	35,775.90
0303	8217000000-E REINFORCING STEEL (BRIDGE)	119,855.000 LB	0.97000	116,259.35
0304	8262000000-E 45" PRESTRESSED CONCRETE GIR- DERS	1,255.660 LF	199.74000	250,805.53
0305	8274000000-E MODIFIED 63" PRESTRESSED CONC GIRDERS	9,673.340 LF	179.00000	1,731,527.86
0306	8364000000-E HP12X53 STEEL PILES	3,270.000 LF	32.44000	106,078.80

State of NC
Dept of Transportation

Date: 03-18-13
Revised: 05-01-13

Contract ID: C203332 Project(s): STATE FUNDED
Letting Date: 05-21-13 Call Order: 003
Bidder: 3516 - Barnhill Contracting Company

Line No.	Item Description	Approx. Quantity and Units	Unit Price Dollars Cts	Bid Amount Dollars Cts
0307	8384200000-E HP14X73 GALVANIZED STEEL PILES	14,990.000 LF	30.50000	457,195.00
0308	8385200000-E PP ** X **** GALVANIZED STEEL PILES (24X0.50)	300.000 LF	156.12000	46,836.00
0309	8387000000-E PP 18 X 0.50 GALVANIZED STEEL PILES	1,125.000 LF	102.74000	115,582.50
0310	8392000000-N PIPE PILE PLATES	19.000 EA	340.00000	6,460.00
0311	8393000000-N PILE REDRIVES	131.000 EA	59.43000	7,785.33
0312	8503000000-E CONCRETE BARRIER RAIL	5,594.700 LF	62.32000	348,661.70
0313	8608000000-E RIP RAP CLASS II (2'-0" THICK)	1,528.000 TON	41.43000	63,305.04
0314	8622000000-E GEOTEXTILE FOR DRAINAGE	1,697.000 SY	2.60000	4,412.20
0315	8657000000-N ELASTOMERIC BEARINGS	LUMP	LUMP	57,500.00
0316	8706000000-N EXPANSION JOINT SEALS	LUMP	LUMP	276,382.37
	Section 0004 Total			8,672,251.80
	Bid Total			61,587,384.40 ✓

NON-COLLUSION AND DEBARMENT CERTIFICATION

The bidder certifies that neither he, nor any official, agent or employee of the bidder has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with this bid, and that the bidder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor. In addition, submitting this electronic bid constitutes the bidder's certification of Status under penalty of perjury under the laws of the United States and in accordance with the Debarment Certification on file with the Department.

By submitting this bid, the bidder certifies to the best of his knowledge and belief that he and his principals:

- a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
- b. Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records; making false statements; or receiving stolen property;
- c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph b. of this certification; and
- d. Have not within a three-year period preceding this proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

Where the prospective bidder is unable to certify to any of the statements in this certification, the bidder shall submit an explanation in the blanks provided herein. The explanation will not necessarily result in denial of participation in a contract.

Explanation:

NOT ANSWERED

NOT ANSWERED

NOT ANSWERED

NOT ANSWERED

If the prequalified bidder's status changes, he shall immediately submit a new fully executed non-collusion affidavit and debarment certification with an explanation of the change to the Contract Office prior to submitting the bid.

Failure to furnish a certification or an explanation will be grounds for rejection of a bid

AWARD LIMITS ON MULTIPLE PROJECTS

By answering YES to this statement, the bidder acknowledges that they are using the award limits on multiple projects. No

A bidder who desires to bid on more than one project on which bids are to be opened on the same date, and who also desires to avoid receiving an award of more projects than he is equipped to handle, may bid on any number of projects but may limit the total amount of work awarded to him on selected projects by completing the AWARD LIMITS ON MULTIPLE PROJECTS.

The Award Limits on Multiple Projects must be filled in on each project bid for which the Bidder desires protection.

It is the desire of the Bidder to be awarded contracts, the value of which will not exceed a total of NOT ANSWERED for those projects indicated herein, for which bids will be opened on (MM/DD/YY)

The Award Limits shall apply to the following projects:

Contract Number	County
NOT ANSWERED	
NOT ANSWERED	
NOT ANSWERED	
NOT ANSWERED	
NOT ANSWERED	
NOT ANSWERED	

It is agreed that if I am (we are) the low Bidder(s) on indicated projects, the total value of which is more than the above stipulated award limits, the Board of Transportation will award me (us) projects from among those indicated that have a total value not to exceed the award limit and will result in the lowest total bids to the Department of Transportation.

NORTH CAROLINA STATE DEPARTMENT OF TRANSPORTATION
MBE COMMITMENT ITEMS

DATE:03-18-13
PAGE: 31

PROPOSAL: C203332
LETTING: L130521 CALL: 003
VENDOR: 3516 Barnhill Contracting Company

LINE NO.	ITEM NO.	ITEM DESC.	UNIT TYPE	SUBCONTRACTOR QUANTITY	SUBCONTRACTOR UNIT PRICE	EXTENDED AMOUNT
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MBE SUBCONTRACTOR: 11468 HINES TRUCKING INC
Will Use Quote: Yes

0061	1121000000-E	AGGREGATE BA TON		332210.000	8.45000	2807174.50
		Haul Only				

MBE COMMITMENT TOTAL FOR SUBCONTRACTOR: 2,807,174.50 Committed

MBE SUBCONTRACTOR: 2676 PAUL D. WILLIAMS DBA PAUL D. WILLIAMS HAULING
Will Use Quote: Yes

0067	1503000000-E	ASP CONC INT TON		31000.000	7.50000	232500.00
		Haul Only				
0069	1523000000-E	ASP CONC SUR TON		27000.000	7.50000	202500.00
		Haul Only				

MBE COMMITMENT TOTAL FOR SUBCONTRACTOR: 435,000.00 Committed

MBE SUBCONTRACTOR: 10502 AL'S MASONRY
Will Use Quote: Yes

0081	2209000000-E	ENDWALLS	CY	45.300	750.00000	33975.00
0082	2220000000-E	REINFORCED E	CY	46.800	800.00000	37440.00
0085	2286000000-N	MASNRY DRAIN	EA	252.000	875.00000	220500.00
0086	2297000000-E	MASNRY DRAIN	CY	7.000	775.00000	5425.00
0087	2308000000-E	MASNRY DRAIN	LF	191.000	185.00000	35335.00
0088	2354200000-N	FRAME W/GRAT	EA	2.000	450.00000	900.00
0089	2364000000-N	FRAME W/2GRT	EA	45.000	450.00000	20250.00
0090	2366000000-N	FRAME W/2GRT	EA	176.000	450.00000	79200.00
0091	2367000000-N	FRAME W/2GRT	EA	28.000	550.00000	15400.00
0001	0000100000-N	MOBILIZATION	LS	1.000	22690.31000	22690.31

MBE COMMITMENT TOTAL FOR SUBCONTRACTOR: 471,115.31 Committed

MBE SUBCONTRACTOR: 2676 PAUL D. WILLIAMS DBA PAUL D. WILLIAMS HAULING
Will Use Quote: Yes

0313	8608000000-E	RIP RAP II (TON	1528.000	15.00000	22920.00
		Haul Only				

MBE COMMITMENT TOTAL FOR SUBCONTRACTOR: 22,920.00 Committed

TOTAL MBE COMMITMENT FOR VENDOR: Entered: 6.07% or 3736209.81
Required: 7.00% or 4311116.91
<GOAL NOT MET>

NORTH CAROLINA STATE DEPARTMENT OF TRANSPORTATION
WBE COMMITMENT ITEMS

DATE:03-18-13
PAGE: 32

PROPOSAL: C203332
LETTING: L130521 CALL: 003
VENDOR: 3516 Barnhill Contracting Company

LINE NO.	ITEM NO.	ITEM DESC.	UNIT TYPE	SUBCONTRACTOR QUANTITY	SUBCONTRACTOR UNIT PRICE	EXTENDED AMOUNT
WBE SUBCONTRACTOR: 4247 SEAL BROTHERS CONTRACTING LLC						
Will Use Quote: Yes						
0074	2020000000-N	CONTROL OF A	EA	155.000	100.00000	15500.00
0110	3503000000-E	WOVEN WIRE F	LF	124750.000	2.05000	255737.50
0111	3509000000-E	4" TIMBER PO	EA	7772.000	13.00000	101036.00
0112	3515000000-E	5" TIMBER PO	EA	2116.000	20.00000	42320.00
0113	3533000000-E	CHN LK FENCE	LF	240.000	7.50000	1800.00
0114	3536000000-E	CHN LK FENCE	LF	2080.000	4.18000	8694.40
0115	3539000000-E	MET LINE PST	EA	30.000	51.00000	1530.00
0116	3542000000-E	MET LINE PST	EA	190.000	30.00000	5700.00
0117	3545000000-E	MET TERM PST	EA	6.000	110.00000	660.00
0118	3548000000-E	MET TERM PST	EA	11.000	85.00000	935.00
0119	3554000000-E	MET GATE PST	EA	2.000	250.00000	500.00
0120	3557000000-E	ADDITIONAL B	LF	12800.000	0.01000	128.00
0121	3565000000-E	DBL GATE **H	EA	3.000	1500.00000	4500.00
0122	3565000000-E	DBL GATE **H	EA	1.000	1000.00000	1000.00
0123	3565000000-E	DBL GATE **H	EA	2.000	1250.00000	2500.00
0124	3578000000-N	GENERIC FENC	EA	16.000	100.00000	1600.00
0125	3579000000-N	GENERIC FENC	EA	2.000	1000.00000	2000.00
0126	3579000000-N	GENERIC FENC	EA	1.000	3800.00000	3800.00
0001	0000100000-N	MOBILIZATION	LS	1.000	8998.82000	8998.82

WBE COMMITMENT TOTAL FOR SUBCONTRACTOR:

458,939.72 Committed

WBE SUBCONTRACTOR: 12278 CLIFTON CONSTRUCTION CO., INC.
Will Use Quote: Yes

0075	2022000000-E	SUBDRAIN EXC	CY	1243.200	15.00000	18648.00
0076	2026000000-E	GEOTEXTILE F	SY	3700.000	3.50000	12950.00
0077	2036000000-E	SUBDRAIN COA	CY	621.600	45.00000	27972.00
0078	2044000000-E	6" PERF SUBD	LF	3700.000	6.50000	24050.00
0079	2070000000-N	SUBDRN PIPE	EA	8.000	350.00000	2800.00
0080	2077000000-E	6" OUTLET PI	LF	48.000	20.00000	960.00
0001	0000100000-N	MOBILIZATION	LS	1.000	1000.00000	1000.00

WBE COMMITMENT TOTAL FOR SUBCONTRACTOR:

88,380.00 Committed

WBE SUBCONTRACTOR: 7466 BEAR & CO SIGNS & LIGHTING, INC.
Will Use Quote: Yes

0133	4072000000-E	SUPPORT, 3-L	LF	7884.000	4.20000	33112.80
0134	4096000000-N	SIGN ERECTIO	EA	32.000	55.00000	1760.00
0135	4102000000-N	SIGN ERECTIO	EA	307.000	45.00000	13815.00
0136	4108000000-N	SIGN ERECTIO	EA	93.000	65.00000	6045.00
0137	4155000000-N	DISPOSE SIGN	EA	100.000	1.00000	100.00
0138	4158000000-N	DISPOSE SIGN	EA	6.000	1.00000	6.00

NORTH CAROLINA STATE DEPARTMENT OF TRANSPORTATION
WBE COMMITMENT ITEMS

DATE:03-18-13
PAGE: 33

LINE NO.	ITEM NO.	ITEM DESC.	UNIT TYPE	SUBCONTRACTOR QUANTITY	SUBCONTRACTOR UNIT PRICE	EXTENDED AMOUNT
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WBE COMMITMENT TOTAL FOR SUBCONTRACTOR:

54,838.80

Committed

WBE SUBCONTRACTOR: 3765 STAY ALERT SAFETY SERVICES INC
Will Use Quote: Yes

0139	4400000000-E	WORK ZONE SI SF		4406.000	4.00000	17624.00
0140	4405000000-E	WORK ZONE SI SF		640.000	5.70000	3648.00
		Materials				
0145	4430000000-N	DRUMS EA		1150.000	27.09000	31153.50
		Materials				
0146	4435000000-N	CONES EA		150.000	10.22000	1533.00
		Materials				
0141	4410000000-E	WORK ZONE SI SF		731.000	4.45000	3252.95
0147	4445000000-E	BARRICADES (LF		1995.000	16.00000	31920.00

WBE COMMITMENT TOTAL FOR SUBCONTRACTOR:

89,131.45

Committed

WBE SUBCONTRACTOR: 3346 LINEBERRY, INC.
Will Use Quote: Yes

0227	6015000000-E	TEMPORARY MU ACR		500.000	400.00000	200000.00
0228	6018000000-E	SEED FOR TEM LB		13800.000	3.00000	41400.00
0229	6021000000-E	FERT FOR TEM TON		57.500	1200.00000	69000.00
0233	6036000000-E	MATTING FOR SY		270000.000	1.24000	334800.00
0234	6037000000-E	COIR FIBER M SY		13475.000	4.50000	60637.50
0235	6038000000-E	PERM SOIL RE SY		1850.000	5.40000	9990.00
0248	6084000000-E	SEEDING AND ACR		425.000	1600.00000	680000.00
0249	6087000000-E	MOWING ACR		250.000	48.00000	12000.00
0250	6090000000-E	SEED FOR REP LB		5950.000	10.00000	59500.00
0251	6093000000-E	FERT FOR REP TON		21.750	1400.00000	30450.00
0252	6096000000-E	SEED FOR SUP LB		11875.000	1.42000	16862.50
0253	6108000000-E	FERTILIZER T TON		356.250	705.00000	251156.25
0258	6123000000-E	REFORESTATIO ACR		12.500	700.00000	8750.00
0259	6126000000-E	STREAMBANK R ACR		1.530	2500.00000	3825.00
0001	0000100000-N	MOBILIZATION LS		1.000	22921.40000	22921.40
0223	6000000000-E	TEMPORARY SI LF		290000.000	1.68000	487200.00
0231	6029000000-E	SAFETY FENCE LF		21600.000	1.68000	36288.00
0244	6071030000-E	COIR FIBER B LF		31450.000	3.62000	113849.00
0256	6117000000-N	RESPONSE FOR EA		350.000	50.00000	17500.00

WBE COMMITMENT TOTAL FOR SUBCONTRACTOR:

2,456,129.65

Committed

WBE SUBCONTRACTOR: 3080 CURTIN TRUCKING & DRAINAGE, INC.
Will Use Quote: Yes

0149	4465000000-N	TEMPORARY CR EA		2.000	5500.00000	11000.00
0151	4485000000-E	PORT CONC BA LF		480.000	24.95000	11976.00

WBE COMMITMENT TOTAL FOR SUBCONTRACTOR:

22,976.00

Committed

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LINE NO.	ITEM NO.	ITEM DESC.	UNIT TYPE	SUBCONTRACTOR QUANTITY	SUBCONTRACTOR UNIT PRICE	EXTENDED AMOUNT
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WBE SUBCONTRACTOR: 5059 GARRETT TRUCKING INC
Will Use Quote: Yes

0021	0220000000-E	ROCK EMBANKM	TON	6300.000	15.00000	94500.00
		Haul Only				
0056	1077000000-E	#57 STONE	TON	3880.000	8.45000	32786.00
		Haul Only				
0058	1099700000-E	CLASS IV SUB	TON	1100.000	8.45000	9295.00
		Haul Only				
0059	1110000000-E	STABILIZER A	TON	2000.000	8.45000	16900.00
		Haul Only				
0062	1220000000-E	INCIDENTAL S	TON	9125.000	8.45000	77106.25
		Haul Only				
0128	3628000000-E	RIP RAP, CLA	TON	1030.000	9.45000	9733.50
		Haul Only				
0129	3649000000-E	RIP RAP, CLA	TON	2220.000	9.45000	20979.00
		Haul Only				
0224	6006000000-E	EROS CONTRL	TON	13120.000	9.45000	123984.00
		Haul Only				
0225	6009000000-E	EROS CONTRL	TON	32125.000	9.45000	303581.25
		Haul Only				
0226	6012000000-E	SEDIMENT CON	TON	19400.000	8.45000	163930.00
		Haul Only				

WBE COMMITMENT TOTAL FOR SUBCONTRACTOR:

852,795.00 Committed

WBE SUBCONTRACTOR: 12802 NICKELSTON INDUSTRIES, INC.
Will Use Quote: Yes

0099	3030000000-E	STL BM GUARD	LF	10912.500	13.80000	150592.50
0100	3045000000-E	SBGR SHOP CU	LF	100.000	13.80000	1380.00
0101	3105000000-N	SBGR TERM SE	EA	2.000	25.00000	50.00
0102	3150000000-N	ADDIT GUARDR	EA	15.000	1.00000	15.00
0103	3210000000-N	GR ANCHOR TY	EA	9.000	350.00000	3150.00
0104	3270000000-N	GR ANCHOR TY	EA	23.000	1625.00000	37375.00
0105	3285000000-N	GR ANCHOR TY	EA	8.000	1575.00000	12600.00
0106	3317000000-N	GR ANCHOR TY	EA	16.000	1425.00000	22800.00
0107	3360000000-E	REMOVE EXIST	LF	825.000	0.10000	82.50
0108	3380000000-E	TEMP STL BM	LF	2150.000	4.00000	8600.00
0109	3389100000-N	TEMP GDRL AN	EA	7.000	500.00000	3500.00
0127	3595000000-E	RELAPPING GU	LF	725.000	3.00000	2175.00
0001	0000100000-N	MOBILIZATION	LS	1.000	2923.20000	2923.20

WBE COMMITMENT TOTAL FOR SUBCONTRACTOR:

245,243.20 Committed

WBE SUBCONTRACTOR: 10650 DJP TRUCKING INC
Will Use Quote: Yes

0067	1503000000-E	ASP CONC INT	TON	31000.000	5.25000	162750.00
		Haul Only				

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0069	1523000000-E	ASP CONC SUR	TON	27000.000	5.25000	141750.00
	Haul Only					

WBE COMMITMENT TOTAL FOR SUBCONTRACTOR:

304,500.00 Committed

WBE SUBCONTRACTOR: 12485 WOODSELL TRANSPORT INC.
Will Use Quote: Yes

0012	0106000000-E	BORROW EXCAV	CY	90000.000	0.80000	72000.00
	Haul Only					

WBE COMMITMENT TOTAL FOR SUBCONTRACTOR:

72,000.00 Committed

WBE SUBCONTRACTOR: 12485 WOODSELL TRANSPORT INC.
Will Use Quote: Yes

0012	0106000000-E	BORROW EXCAV	CY	100000.000	1.90000	190000.00
	Haul Only					

WBE COMMITMENT TOTAL FOR SUBCONTRACTOR:

190,000.00 Committed

WBE SUBCONTRACTOR: 12485 WOODSELL TRANSPORT INC.
Will Use Quote: Yes

0012	0106000000-E	BORROW EXCAV	CY	75000.000	2.00000	150000.00
	Haul Only					

WBE COMMITMENT TOTAL FOR SUBCONTRACTOR:

150,000.00 Committed

WBE SUBCONTRACTOR: 12485 WOODSELL TRANSPORT INC.
Will Use Quote: Yes

0012	0106000000-E	BORROW EXCAV	CY	30000.000	1.50000	45000.00
	Haul Only					

WBE COMMITMENT TOTAL FOR SUBCONTRACTOR:

45,000.00 Committed

WBE SUBCONTRACTOR: 12485 WOODSELL TRANSPORT INC.
Will Use Quote: Yes

0012	0106000000-E	BORROW EXCAV	CY	40000.000	1.00000	40000.00
	Haul Only					

WBE COMMITMENT TOTAL FOR SUBCONTRACTOR:

40,000.00 Committed

WBE SUBCONTRACTOR: 12485 WOODSELL TRANSPORT INC.
Will Use Quote: Yes

0012	0106000000-E	BORROW EXCAV	CY	75000.000	2.00000	150000.00
	Haul Only					

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WBE COMMITMENT TOTAL FOR SUBCONTRACTOR: 150,000.00 Committed

WBE SUBCONTRACTOR: 12485 WOODSELL TRANSPORT INC.
Will Use Quote: Yes

0012	0106000000-E	BORROW EXCAV CY		60000.000	2.00000	120000.00
		Haul Only				

WBE COMMITMENT TOTAL FOR SUBCONTRACTOR: 120,000.00 Committed

WBE SUBCONTRACTOR: 12485 WOODSELL TRANSPORT INC.
Will Use Quote: Yes

0012	0106000000-E	BORROW EXCAV CY		8000.000	1.50000	12000.00
		Haul Only				

WBE COMMITMENT TOTAL FOR SUBCONTRACTOR: 12,000.00 Committed

WBE SUBCONTRACTOR: 12485 WOODSELL TRANSPORT INC.
Will Use Quote: Yes

0012	0106000000-E	BORROW EXCAV CY		50000.000	0.90000	45000.00
		Haul Only				

WBE COMMITMENT TOTAL FOR SUBCONTRACTOR: 45,000.00 Committed

WBE SUBCONTRACTOR: 12485 WOODSELL TRANSPORT INC.
Will Use Quote: Yes

0012	0106000000-E	BORROW EXCAV CY		45000.000	1.00000	45000.00
		Haul Only				

WBE COMMITMENT TOTAL FOR SUBCONTRACTOR: 45,000.00 Committed

WBE SUBCONTRACTOR: 12485 WOODSELL TRANSPORT INC.
Will Use Quote: Yes

0012	0106000000-E	BORROW EXCAV CY		95000.000	1.40000	133000.00
		Haul Only				

WBE COMMITMENT TOTAL FOR SUBCONTRACTOR: 133,000.00 Committed

WBE SUBCONTRACTOR: 12485 WOODSELL TRANSPORT INC.
Will Use Quote: Yes

0012	0106000000-E	BORROW EXCAV CY		6000.000	1.50000	9000.00
		Haul Only				

WBE COMMITMENT TOTAL FOR SUBCONTRACTOR: 9,000.00 Committed

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WBE SUBCONTRACTOR: 12485 WOODELL TRANSPORT INC.
Will Use Quote: Yes

0012	0106000000-E	BORROW EXCAV CY		35000.000	1.70000	59500.00
		Haul Only				

WBE COMMITMENT TOTAL FOR SUBCONTRACTOR:	59,500.00	Committed
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WBE SUBCONTRACTOR: 3230 HIATT & MASON ENTERPRISES, INC
Will Use Quote: Yes

0296	8147000000-E	REINF CONCRE SF		108356.000	1.41000	152781.96
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WBE COMMITMENT TOTAL FOR SUBCONTRACTOR:	152,781.96	Committed
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WBE SUBCONTRACTOR: 2855 BOSS CONSTRUCTION CO., INC.
Will Use Quote: Yes

0312	8503000000-E	CONCRETE BAR LF		4959.200	30.00000	148776.00
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WBE COMMITMENT TOTAL FOR SUBCONTRACTOR:	148,776.00	Committed
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WBE SUBCONTRACTOR: 3145 WATTS BARRIER WALLS
Will Use Quote: Yes

0312	8503000000-E	CONCRETE BAR LF		635.500	41.50000	26373.25
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WBE COMMITMENT TOTAL FOR SUBCONTRACTOR:	26,373.25	Committed
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TOTAL WBE COMMITMENT FOR VENDOR:	Entered:	9.70% or	5971365.03
	Required:	7.00% or	4311116.91
			<GOAL MET>

Contract Item Sheets For C203332

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
ROADWAY ITEMS						
0001	0000100000-N	800	MOBILIZATION	Lump Sum LS	3,000,000.00	3,000,000.00
0002	0000400000-N	801	CONSTRUCTION SURVEYING	Lump Sum LS	252,000.00	252,000.00
0003	0001000000-E	200	CLEARING & GRUBBING .. ACRE(S)	Lump Sum LS	4,000,000.00	4,000,000.00
0004	0008000000-E	200	SUPPLEMENTARY CLEARING & GRUB- BING	6 ACR	10,000.00	60,000.00
0005	0015000000-N	205	SEALING ABANDONED WELLS	31 EA	800.00	24,800.00
0006	0022000000-E	225	UNCLASSIFIED EXCAVATION	91,050 CY	10.00	910,500.00
0007	0029000000-N	SP	REINFORCED BRIDGE APPROACH FILL, STATION ***** (397+87.00 LEFT LANE)	Lump Sum LS	14,000.00	14,000.00
0008	0029000000-N	SP	REINFORCED BRIDGE APPROACH FILL, STATION ***** (397+87.00 RIGHT LANE)	Lump Sum LS	14,000.00	14,000.00
0009	0029000000-N	SP	REINFORCED BRIDGE APPROACH FILL, STATION ***** (660+21.00 LEFT LANE)	Lump Sum LS	6,200.00	6,200.00
0010	0029000000-N	SP	REINFORCED BRIDGE APPROACH FILL, STATION ***** (660+21.00 RIGHT LANE)	Lump Sum LS	6,200.00	6,200.00
0011	0036000000-E	225	UNDERCUT EXCAVATION	73,600 CY	2.75	202,400.00
0012	0106000000-E	230	BORROW EXCAVATION	1,983,100 CY	3.20	6,345,920.00
0013	0134000000-E	240	DRAINAGE DITCH EXCAVATION	28,800 CY	1.70	48,960.00
0014	0141000000-E	240	BERM DITCH CONSTRUCTION	850 LF	1.50	1,275.00
0015	0156000000-E	250	REMOVAL OF EXISTING ASPHALT PAVEMENT	106,140 SY	0.01	1,061.40
0016	0177000000-E	250	BREAKING OF EXISTING ASPHALT PAVEMENT	33,120 SY	0.01	331.20
0017	0192000000-N	260	PROOF ROLLING	140 HR	200.00	28,000.00
0018	0194000000-E	SP	SELECT GRANULAR MATERIAL, CLASS III	82,500 CY	3.21	264,825.00

Contract Item Sheets For C203332

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0019	0196000000-E	270	GEOTEXTILE FOR SOIL STABILIZATION	85,100 SY	1.00	85,100.00
0020	0199000000-E	SP	TEMPORARY SHORING	2,473.3 SF	37.76	93,391.81
0021	0220000000-E	SP	ROCK EMBANKMENTS	6,300 TON	45.50	286,650.00
0022	0222000000-E	SP	GEOTEXTILE FOR ROCK EMBANKMENTS	2,550 SY	1.50	3,825.00
0023	0318000000-E	300	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES	6,394 TON	22.45	143,545.30
0024	0320000000-E	300	FOUNDATION CONDITIONING GEOTEXTILE	14,160 SY	2.00	28,320.00
0025	0342000000-E	310	*** SIDE DRAIN PIPE (30")	72 LF	39.00	2,808.00
0026	0343000000-E	310	15" SIDE DRAIN PIPE	1,840 LF	20.00	36,800.00
0027	0344000000-E	310	18" SIDE DRAIN PIPE	1,639 LF	22.00	36,058.00
0028	0345000000-E	310	24" SIDE DRAIN PIPE	892 LF	29.00	25,868.00
0029	0348000000-E	310	*** SIDE DRAIN PIPE ELBOWS (15")	4 EA	175.00	700.00
0030	0348000000-E	310	*** SIDE DRAIN PIPE ELBOWS (18")	3 EA	225.00	675.00
0031	0366000000-E	310	15" RC PIPE CULVERTS, CLASS III	9,360 LF	20.00	187,200.00
0032	0372000000-E	310	18" RC PIPE CULVERTS, CLASS III	4,728 LF	23.00	108,744.00
0033	0378000000-E	310	24" RC PIPE CULVERTS, CLASS III	5,332 LF	29.00	154,628.00
0034	0384000000-E	310	30" RC PIPE CULVERTS, CLASS III	2,324 LF	39.00	90,636.00
0035	0390000000-E	310	36" RC PIPE CULVERTS, CLASS III	592 LF	49.00	29,008.00
0036	0396000000-E	310	42" RC PIPE CULVERTS, CLASS III	804 LF	66.00	53,064.00

Contract Item Sheets For C203332

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0037	0402000000-E	310	48" RC PIPE CULVERTS, CLASS III	1,872 LF	85.00	159,120.00
0038	0408000000-E	310	54" RC PIPE CULVERTS, CLASS III	344 LF	125.00	43,000.00
0039	0420000000-E	310	66" RC PIPE CULVERTS, CLASS III	176 LF	175.00	30,800.00
0040	0426000000-E	310	72" RC PIPE CULVERTS, CLASS III	312 LF	250.00	78,000.00
0041	0448000000-E	310	***** RC PIPE CULVERTS, CLASS IV (48")	528 LF	91.00	48,048.00
0042	0448200000-E	310	15" RC PIPE CULVERTS, CLASS IV	6,140 LF	21.00	128,940.00
0043	0448300000-E	310	18" RC PIPE CULVERTS, CLASS IV	2,376 LF	25.00	59,400.00
0044	0448400000-E	310	24" RC PIPE CULVERTS, CLASS IV	740 LF	33.00	24,420.00
0045	0448500000-E	310	30" RC PIPE CULVERTS, CLASS IV	1,432 LF	47.00	67,304.00
0046	0448600000-E	310	36" RC PIPE CULVERTS, CLASS IV	440 LF	59.00	25,960.00
0047	0453000000-E	310	*** PIPE END SECTION (15")	10 EA	765.00	7,650.00
0048	0453000000-E	310	*** PIPE END SECTION (18")	26 EA	845.00	21,970.00
0049	0453000000-E	310	*** PIPE END SECTION (24")	2 EA	900.00	1,800.00
0050	0582000000-E	310	15" CS PIPE CULVERTS, 0.064" THICK	292 LF	22.50	6,570.00
0051	0588000000-E	310	18" CS PIPE CULVERTS, 0.064" THICK	200 LF	26.00	5,200.00
0052	0636000000-E	310	*** CS PIPE ELBOWS, ***** THICK (15", 0.064")	10 EA	175.00	1,750.00
0053	0995000000-E	340	PIPE REMOVAL	6,520 LF	9.00	58,680.00
0054	0996000000-N	350	PIPE CLEAN-OUT	1 EA	2,000.00	2,000.00

Contract Item Sheets For C203332

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0055	1011000000-N	500	FINE GRADING	Lump Sum LS	2,689,000.00	2,689,000.00
0056	1077000000-E	SP	#57 STONE	3,880 TON	32.00	124,160.00
0057	1099500000-E	505	SHALLOW UNDERCUT	600 CY	6.00	3,600.00
0058	1099700000-E	505	CLASS IV SUBGRADE STABILIZATION	1,100 TON	20.00	22,000.00
0059	1110000000-E	510	STABILIZER AGGREGATE	2,000 TON	0.01	20.00
0060	1115000000-E	SP	GEOTEXTILE FOR PAVEMENT STABILIZATION	12,900 SY	3.00	38,700.00
0061	1121000000-E	520	AGGREGATE BASE COURSE	332,210 TON	20.15	6,694,031.50
0062	1220000000-E	545	INCIDENTAL STONE BASE	9,125 TON	23.00	209,875.00
0063	1275000000-E	600	PRIME COAT	129,433 GAL	2.25	291,224.25
0064	1330000000-E	607	INCIDENTAL MILLING	1,980 SY	15.00	29,700.00
0065	1489000000-E	610	ASPHALT CONC BASE COURSE, TYPE B25.0B	6,300 TON	34.15	215,145.00
0066	1491000000-E	610	ASPHALT CONC BASE COURSE, TYPE B25.0C	8,340 TON	32.50	271,050.00
0067	1503000000-E	610	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0C	125,950 TON	28.40	3,576,980.00
0068	1519000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	3,410 TON	37.65	128,386.50
0069	1523000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE S9.5C	110,170 TON	29.50	3,250,015.00
0070	1525000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A	3,270 TON	38.85	127,039.50
0071	1575000000-E	620	ASPHALT BINDER FOR PLANT MIX	13,620 TON	596.31	8,121,742.20
0072	1693000000-E	654	ASPHALT PLANT MIX, PAVEMENT REPAIR	2,717 TON	145.00	393,965.00

Contract Item Sheets For C203332

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0073	1880000000-E	SP	GENERIC PAVING ITEM JOINT REPAIR	500 TON	295.00	147,500.00
0074	2020000000-N	806	CONTROL OF ACCESS MARKERS	155 EA	100.00	15,500.00
0075	2022000000-E	815	SUBDRAIN EXCAVATION	1,243.2 CY	15.00	18,648.00
0076	2026000000-E	815	GEOTEXTILE FOR SUBSURFACE DRAINS	3,700 SY	3.50	12,950.00
0077	2036000000-E	815	SUBDRAIN COARSE AGGREGATE	621.6 CY	45.00	27,972.00
0078	2044000000-E	815	6" PERFORATED SUBDRAIN PIPE	3,700 LF	6.50	24,050.00
0079	2070000000-N	815	SUBDRAIN PIPE OUTLET	8 EA	350.00	2,800.00
0080	2077000000-E	815	6" OUTLET PIPE	48 LF	20.00	960.00
0081	2209000000-E	838	ENDWALLS	45.3 CY	750.00	33,975.00
0082	2220000000-E	838	REINFORCED ENDWALLS	46.8 CY	800.00	37,440.00
0083	2253000000-E	840	PIPE COLLARS	0.846 CY	800.00	676.80
0084	2275000000-E	SP	FLOWABLE FILL	20 CY	225.00	4,500.00
0085	2286000000-N	840	MASONRY DRAINAGE STRUCTURES	252 EA	875.00	220,500.00
0086	2297000000-E	840	MASONRY DRAINAGE STRUCTURES	7 CY	775.00	5,425.00
0087	2308000000-E	840	MASONRY DRAINAGE STRUCTURES	191 LF	185.00	35,335.00
0088	2354200000-N	840	FRAME WITH GRATE, STD 840.24	2 EA	450.00	900.00
0089	2364000000-N	840	FRAME WITH TWO GRATES, STD 840.16	45 EA	450.00	20,250.00
0090	2366000000-N	840	FRAME WITH TWO GRATES, STD 840.24	176 EA	450.00	79,200.00
0091	2367000000-N	840	FRAME WITH TWO GRATES, STD 840.29	28 EA	550.00	15,400.00

Contract Item Sheets For C203332

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0092	2451000000-N	852	CONCRETE TRANSITIONAL SECTION FOR DROP INLET	44 EA	300.00	13,200.00
0093	2542000000-E	846	1'-6" CONCRETE CURB & GUTTER	4,450 LF	9.75	43,387.50
0094	2556000000-E	846	SHOULDER BERM GUTTER	7,760 LF	10.84	84,118.40
0095	2612000000-E	848	6" CONCRETE DRIVEWAY	690 SY	36.25	25,012.50
0096	2619000000-E	850	4" CONCRETE PAVED DITCH	30 SY	55.00	1,650.00
0097	2647000000-E	852	5" MONOLITHIC CONCRETE ISLANDS (SURFACE MOUNTED)	5,880 SY	36.25	213,150.00
0098	2655000000-E	852	5" MONOLITHIC CONCRETE ISLANDS (KEYED IN)	4,620 SY	36.25	167,475.00
0099	3030000000-E	862	STEEL BM GUARDRAIL	10,912.5 LF	13.80	150,592.50
0100	3045000000-E	862	STEEL BM GUARDRAIL, SHOP CURVED	100 LF	13.80	1,380.00
0101	3105000000-N	862	STEEL BM GUARDRAIL TERMINAL SECTIONS	2 EA	25.00	50.00
0102	3150000000-N	862	ADDITIONAL GUARDRAIL POSTS	15 EA	1.00	15.00
0103	3210000000-N	862	GUARDRAIL ANCHOR UNITS, TYPE CAT-1	9 EA	350.00	3,150.00
0104	3270000000-N	SP	GUARDRAIL ANCHOR UNITS, TYPE 350	23 EA	1,625.00	37,375.00
0105	3285000000-N	SP	GUARDRAIL ANCHOR UNITS, TYPE M-350	8 EA	1,575.00	12,600.00
0106	3317000000-N	862	GUARDRAIL ANCHOR UNITS, TYPE B-77	16 EA	1,425.00	22,800.00
0107	3360000000-E	863	REMOVE EXISTING GUARDRAIL	825 LF	0.10	82.50
0108	3380000000-E	862	TEMPORARY STEEL BM GUARDRAIL	2,150 LF	4.00	8,600.00
0109	3389100000-N	SP	TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE 350	7 EA	500.00	3,500.00

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Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0110	3503000000-E	866	WOVEN WIRE FENCE, 47" FABRIC	124,750 LF	2.05	255,737.50
0111	3509000000-E	866	4" TIMBER FENCE POSTS, 7'-6" LONG	7,772 EA	13.00	101,036.00
0112	3515000000-E	866	5" TIMBER FENCE POSTS, 8'-0" LONG	2,116 EA	20.00	42,320.00
0113	3533000000-E	866	CHAIN LINK FENCE, *** FABRIC (72")	240 LF	7.50	1,800.00
0114	3536000000-E	866	CHAIN LINK FENCE, 48" FABRIC	2,080 LF	4.18	8,694.40
0115	3539000000-E	866	METAL LINE POSTS FOR *** CHAIN LINK FENCE (72")	30 EA	51.00	1,530.00
0116	3542000000-E	866	METAL LINE POSTS FOR 48" CHAIN LINK FENCE	190 EA	30.00	5,700.00
0117	3545000000-E	866	METAL TERMINAL POSTS FOR *** CHAIN LINK FENCE (72")	6 EA	110.00	660.00
0118	3548000000-E	866	METAL TERMINAL POSTS FOR 48" CHAIN LINK FENCE	11 EA	85.00	935.00
0119	3554000000-E	866	METAL GATE POSTS FOR *** CHAIN LINK FENCE, DOUBLE GATE (72")	2 EA	250.00	500.00
0120	3557000000-E	866	ADDITIONAL BARBED WIRE	12,800 LF	0.01	128.00
0121	3565000000-E	866	DOUBLE GATES, *** HIGH, *** WIDE, *** OPENING (47" HIGH, 10' WIDE, 20' OPENING)	3 EA	1,500.00	4,500.00
0122	3565000000-E	866	DOUBLE GATES, *** HIGH, *** WIDE, *** OPENING (47" HIGH, 6' WIDE, 12' OPENING)	1 EA	1,000.00	1,000.00
0123	3565000000-E	866	DOUBLE GATES, *** HIGH, *** WIDE, *** OPENING (47" HIGH, 8' WIDE, 16' OPENING)	2 EA	1,250.00	2,500.00
0124	3578000000-N	SP	GENERIC FENCING ITEM METAL GATE POSTS FOR 47" WOVEN WIRE FENCE, DOUBLE GATE	16 EA	100.00	1,600.00

Contract Item Sheets For C203332

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0125	3579000000-N	866	GENERIC FENCING ITEM DOUBLE GATES, 47" HIGH, 6' WIDE, 12' OPENING (WOVEN WIRE)	2 EA	1,000.00	2,000.00
0126	3579000000-N	866	GENERIC FENCING ITEM DOUBLE GATES, 72" HIGH, 6' WIDE, 12' OPENING (CHAIN LINK)	1 EA	3,800.00	3,800.00
0127	3595000000-E	869	RELAPPING GUARDRAIL	725 LF	3.00	2,175.00
0128	3628000000-E	876	RIP RAP, CLASS I	1,030 TON	42.00	43,260.00
0129	3649000000-E	876	RIP RAP, CLASS B	2,220 TON	41.00	91,020.00
0130	3651000000-E	SP	BOULDERS	20 TON	150.00	3,000.00
0131	3656000000-E	876	GEOTEXTILE FOR DRAINAGE	16,625 SY	1.50	24,937.50
0132	3659000000-N	SP	PREFORMED SCOUR HOLES WITH LEVEL SPREADER APRON	5 EA	4,000.00	20,000.00
0133	4072000000-E	903	SUPPORTS, 3-LB STEEL U-CHANNEL	7,884 LF	4.20	33,112.80
0134	4096000000-N	904	SIGN ERECTION, TYPE D	32 EA	55.00	1,760.00
0135	4102000000-N	904	SIGN ERECTION, TYPE E	307 EA	45.00	13,815.00
0136	4108000000-N	904	SIGN ERECTION, TYPE F	93 EA	65.00	6,045.00
0137	4155000000-N	907	DISPOSAL OF SIGN SYSTEM, U- CHANNEL	100 EA	1.00	100.00
0138	4158000000-N	907	DISPOSAL OF SIGN SYSTEM, WOOD	6 EA	1.00	6.00
0139	4400000000-E	1110	WORK ZONE SIGNS (STATIONARY)	4,406 SF	4.00	17,624.00
0140	4405000000-E	1110	WORK ZONE SIGNS (PORTABLE)	640 SF	21.00	13,440.00
0141	4410000000-E	1110	WORK ZONE SIGNS (BARRICADE MOUNTED)	731 SF	5.50	4,020.50
0142	4415000000-N	1115	FLASHING ARROW BOARD	4 EA	2,500.00	10,000.00
0143	4420000000-N	1120	PORTABLE CHANGEABLE MESSAGE SIGN	8 EA	2,500.00	20,000.00

Contract Item Sheets For C203332

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0144	4422000000-N	1120	PORTABLE CHANGEABLE MESSAGE SIGN (SHORT TERM)	338 DAY	15.00	5,070.00
0145	4430000000-N	1130	DRUMS	1,150 EA	46.50	53,475.00
0146	4435000000-N	1135	CONES	150 EA	18.00	2,700.00
0147	4445000000-E	1145	BARRICADES (TYPE III)	1,995 LF	16.00	31,920.00
0148	4455000000-N	1150	FLAGGER	1,040 DAY	150.00	156,000.00
0149	4465000000-N	1160	TEMPORARY CRASH CUSHIONS	2 EA	5,500.00	11,000.00
0150	4480000000-N	1165	TMA	4 EA	3,500.00	14,000.00
0151	4485000000-E	1170	PORTABLE CONCRETE BARRIER	480 LF	24.95	11,976.00
0152	4510000000-N	SP	LAW ENFORCEMENT	208 HR	35.00	7,280.00
0153	4650000000-N	1251	TEMPORARY RAISED PAVEMENT MARKERS	3,088 EA	2.75	8,492.00
0154	4685000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)	393,566 LF	0.49	192,847.34
0155	4686000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)	84,759 LF	0.54	45,769.86
0156	4690000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (6", 120 MILS)	114 LF	0.75	85.50
0157	4695000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)	25,173 LF	1.50	37,759.50
0158	4697000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (8", 120 MILS)	3,165 LF	2.40	7,596.00
0159	4710000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)	1,850 LF	7.00	12,950.00
0160	4721000000-E	1205	THERMOPLASTIC PAVEMENT MARKING CHARACTER (120 MILS)	80 EA	70.00	5,600.00
0161	4725000000-E	1205	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)	612 EA	90.00	55,080.00

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Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0162	4770000000-E	1205	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (IV)	9,244 LF	1.30	12,017.20
0163	4810000000-E	1205	PAINT PAVEMENT MARKING LINES (4")	1,076,432 LF	0.09	96,878.88
0164	4820000000-E	1205	PAINT PAVEMENT MARKING LINES (8")	952 LF	0.50	476.00
0165	4825000000-E	1205	PAINT PAVEMENT MARKING LINES (12")	94 LF	1.00	94.00
0166	4835000000-E	1205	PAINT PAVEMENT MARKING LINES (24")	2,024 LF	3.00	6,072.00
0167	4840000000-N	1205	PAINT PAVEMENT MARKING CHARACTER	114 EA	20.00	2,280.00
0168	4845000000-N	1205	PAINT PAVEMENT MARKING SYMBOL	370 EA	20.00	7,400.00
0169	4850000000-E	1205	REMOVAL OF PAVEMENT MARKING LINES (4")	47,252 LF	0.15	7,087.80
0170	4870000000-E	1205	REMOVAL OF PAVEMENT MARKING LINES (24")	108 LF	3.00	324.00
0171	4875000000-N	1205	REMOVAL OF PAVEMENT MARKING SYMBOLS & CHARACTERS	20 EA	25.00	500.00
0172	4905000000-N	1253	SNOWPLOWABLE PAVEMENT MARKERS	4,367 EA	24.00	104,808.00
0173	5325000000-E	1510	***" WATER LINE (2")	1,255 LF	10.00	12,550.00
0174	5325300000-E	1510	3" WATER LINE	112 LF	25.00	2,800.00
0175	5325400000-E	1510	4" WATER LINE	223 LF	30.00	6,690.00
0176	5325600000-E	1510	6" WATER LINE	4,752 LF	17.00	80,784.00
0177	5325800000-E	1510	8" WATER LINE	25,096 LF	19.00	476,824.00
0178	5326000000-E	1510	10" WATER LINE	4,550 LF	25.00	113,750.00
0179	5326200000-E	1510	12" WATER LINE	11,386 LF	35.00	398,510.00

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Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0180	5326600000-E	1510	16" WATER LINE	440 LF	95.00	41,800.00
0181	5536000000-E	1515	2" VALVE	5 EA	525.00	2,625.00
0182	5540000000-E	1515	6" VALVE	14 EA	800.00	11,200.00
0183	5546000000-E	1515	8" VALVE	32 EA	1,075.00	34,400.00
0184	5552000000-E	1515	10" VALVE	5 EA	1,550.00	7,750.00
0185	5558000000-E	1515	12" VALVE	8 EA	1,925.00	15,400.00
0186	5571800000-E	1515	8" TAPPING VALVE	1 EA	3,300.00	3,300.00
0187	5572200000-E	1515	12" TAPPING VALVE	1 EA	5,700.00	5,700.00
0188	5589200000-E	1515	2" AIR RELEASE VALVE	8 EA	3,500.00	28,000.00
0189	5606000000-E	1515	2" BLOW OFF	6 EA	2,000.00	12,000.00
0190	5643100000-E	1515	3/4" WATER METER	11 EA	750.00	8,250.00
0191	5648000000-N	1515	RELOCATE WATER METER	61 EA	775.00	47,275.00
0192	5649000000-N	1515	RECONNECT WATER METER	3 EA	725.00	2,175.00
0193	5666000000-E	1515	FIRE HYDRANT	15 EA	3,500.00	52,500.00
0194	5672000000-N	1515	RELOCATE FIRE HYDRANT	10 EA	2,500.00	25,000.00
0195	5691300000-E	1520	8" SANITARY GRAVITY SEWER	298 LF	35.00	10,430.00
0196	5691400000-E	1520	10" SANITARY GRAVITY SEWER	783 LF	50.00	39,150.00
0197	5691500000-E	1520	12" SANITARY GRAVITY SEWER	3,025 LF	65.00	196,625.00
0198	5709500000-E	1520	10" FORCE MAIN SEWER	10,045 LF	25.00	251,125.00
0199	5775000000-E	1525	4' DIA UTILITY MANHOLE	17 EA	1,750.00	29,750.00
0200	5776000000-E	1525	5' DIA UTILITY MANHOLE	8 EA	2,250.00	18,000.00

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Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0201	5781000000-E	1525	UTILITY MANHOLE WALL, 4' DIA	32 LF	200.00	6,400.00
0202	5801000000-E	1530	ABANDON 8" UTILITY PIPE	25,959 LF	5.00	129,795.00
0203	5802000000-E	1530	ABANDON 10" UTILITY PIPE	14,816 LF	6.50	96,304.00
0204	5804000000-E	1530	ABANDON 12" UTILITY PIPE	12,427 LF	8.50	105,629.50
0205	5815000000-N	1530	REMOVE WATER METER	17 EA	150.00	2,550.00
0206	5815500000-N	1530	REMOVE FIRE HYDRANT	5 EA	300.00	1,500.00
0207	5816000000-N	1530	ABANDON UTILITY MANHOLE	17 EA	1,000.00	17,000.00
0208	5835600000-E	1540	12" ENCASEMENT PIPE	399 LF	41.00	16,359.00
0209	5835700000-E	1540	16" ENCASEMENT PIPE	898 LF	52.00	46,696.00
0210	5836000000-E	1540	24" ENCASEMENT PIPE	476 LF	71.00	33,796.00
0211	5871100000-E	1550	TRENCHLESS INSTALLATION OF 2" IN SOIL	75 LF	0.01	0.75
0212	5871110000-E	1550	TRENCHLESS INSTALLATION OF 2" NOT IN SOIL	75 LF	0.01	0.75
0213	5871600000-E	1550	TRENCHLESS INSTALLATION OF 10" IN SOIL	1,897 LF	75.00	142,275.00
0214	5871610000-E	1550	TRENCHLESS INSTALLATION OF 10" NOT IN SOIL	75 LF	75.00	5,625.00
0215	5871900000-E	1550	TRENCHLESS INSTALLATION OF 16" IN SOIL	220 LF	0.01	2.20
0216	5871910000-E	1550	TRENCHLESS INSTALLATION OF 16" NOT IN SOIL	220 LF	0.01	2.20
0217	5872200000-E	1550	TRENCHLESS INSTALLATION OF 24" IN SOIL	53 LF	0.01	0.53
0218	5872210000-E	1550	TRENCHLESS INSTALLATION OF 24" NOT IN SOIL	53 LF	0.01	0.53
0219	5878000000-N	SP	WATER PUMP STATION	Lump Sum LS	128,000.00	128,000.00

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Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0220	5882000000-N	SP	GENERIC UTILITY ITEM 12" NITRILE GASKETS	17 EA	35.00	595.00
0221	5882000000-N	SP	GENERIC UTILITY ITEM 6" NITRILE GASKETS	11 EA	15.00	165.00
0222	5912000000-N	SP	GENERIC UTILITY ITEM RELOCATION OF WATER BOOSTER PUMP STATION	Lump Sum LS	44,000.00	44,000.00
0223	6000000000-E	1605	TEMPORARY SILT FENCE	290,000 LF	0.00	464.00
0224	6006000000-E	1610	STONE FOR EROSION CONTROL, CLASS A	13,120 TON	41.00	537,920.00
0225	6009000000-E	1610	STONE FOR EROSION CONTROL, CLASS B	32,125 TON	0.01	321.25
0226	6012000000-E	1610	SEDIMENT CONTROL STONE	19,400 TON	0.01	194.00
0227	6015000000-E	1615	TEMPORARY MULCHING	500 ACR	400.00	200,000.00
0228	6018000000-E	1620	SEED FOR TEMPORARY SEEDING	13,800 LB	3.00	41,400.00
0229	6021000000-E	1620	FERTILIZER FOR TEMPORARY SEED- ING	57.5 TON	1,200.00	69,000.00
0230	6024000000-E	1622	TEMPORARY SLOPE DRAINS	20,100 LF	0.01	201.00
0231	6029000000-E	SP	SAFETY FENCE	21,600 LF	1.68	36,288.00
0232	6030000000-E	1630	SILT EXCAVATION	81,200 CY	0.01	812.00
0233	6036000000-E	1631	MATting FOR EROSION CONTROL	270,000 SY	1.24	334,800.00
0234	6037000000-E	SP	COIR FIBER MAT	13,475 SY	4.50	60,637.50
0235	6038000000-E	SP	PERMANENT SOIL REINFORCEMENT MAT	1,850 SY	5.40	9,990.00
0236	6042000000-E	1632	1/4" HARDWARE CLOTH	8,350 LF	3.50	29,225.00
0237	6045000000-E	SP	*** TEMPORARY PIPE (18")	120 LF	45.00	5,400.00

Contract Item Sheets For C203332

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0238	6046000000-E	1636	TEMPORARY PIPE FOR STREAM CROSSING	60 LF	30.00	1,800.00
0239	6048000000-E	SP	FLOATING TURBIDITY CURTAIN	1,250 SY	33.00	41,250.00
0240	6070000000-N	1639	SPECIAL STILLING BASINS	20 EA	500.00	10,000.00
0241	6071010000-E	SP	WATTLE	16,700 LF	3.15	52,605.00
0242	6071012000-E	SP	COIR FIBER WATTLE	23,600 LF	5.00	118,000.00
0243	6071020000-E	SP	POLYACRYLAMIDE (PAM)	29,700 LB	4.80	142,560.00
0244	6071030000-E	1640	COIR FIBER BAFFLE	31,450 LF	3.62	113,849.00
0245	6071050000-E	SP	*** SKIMMER (1-1/2")	69 EA	550.00	37,950.00
0246	6071050000-E	SP	*** SKIMMER (2")	5 EA	650.00	3,250.00
0247	6071050000-E	SP	*** SKIMMER (2-1/2")	2 EA	650.00	1,300.00
0248	6084000000-E	1660	SEEDING & MULCHING	425 ACR	1,600.00	680,000.00
0249	6087000000-E	1660	MOWING	250 ACR	48.00	12,000.00
0250	6090000000-E	1661	SEED FOR REPAIR SEEDING	5,950 LB	10.00	59,500.00
0251	6093000000-E	1661	FERTILIZER FOR REPAIR SEEDING	21.75 TON	1,400.00	30,450.00
0252	6096000000-E	1662	SEED FOR SUPPLEMENTAL SEEDING	11,875 LB	1.42	16,862.50
0253	6108000000-E	1665	FERTILIZER TOPDRESSING	356.25 TON	705.00	251,156.25
0254	6111000000-E	SP	IMPERVIOUS DIKE	100 LF	55.00	5,500.00
0255	6114500000-N	1667	SPECIALIZED HAND MOWING	150 MHR	30.00	4,500.00
0256	6117000000-N	SP	RESPONSE FOR EROSION CONTROL	350 EA	50.00	17,500.00
0257	6120000000-E	SP	CULVERT DIVERSION CHANNEL	180 CY	35.00	6,300.00

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Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0258	6123000000-E	1670	REFORESTATION	12.5 ACR	700.00	8,750.00
0259	6126000000-E	SP	STREAMBANK REFORESTATION	1.53 ACR	2,500.00	3,825.00
0260	7060000000-E	1705	SIGNAL CABLE	3,020 LF	2.65	8,003.00
0261	7120000000-E	1705	VEHICLE SIGNAL HEAD (12", 3 SECTION)	27 EA	650.00	17,550.00
0262	7132000000-E	1705	VEHICLE SIGNAL HEAD (12", 4 SECTION)	1 EA	845.00	845.00
0263	7264000000-E	1710	MESSENGER CABLE (3/8")	1,540 LF	2.95	4,543.00
0264	7300000000-E	1715	UNPAVED TRENCHING (*****) (1, 2")	3,040 LF	5.95	18,088.00
0265	7301000000-E	1715	DIRECTIONAL DRILL (*****) (1, 2")	135 LF	18.50	2,497.50
0266	7301000000-E	1715	DIRECTIONAL DRILL (*****) (2, 2")	150 LF	18.50	2,775.00
0267	7324000000-N	1716	JUNCTION BOX (STANDARD SIZE)	31 EA	175.00	5,425.00
0268	7444000000-E	1725	INDUCTIVE LOOP SAWCUT	3,300 LF	5.25	17,325.00
0269	7456000000-E	1726	LEAD-IN CABLE (*****) (14-2)	11,650 LF	1.35	15,727.50
0270	7574550000-N	SP	FURNISH WIRELESS LIGHTNING ARRESTOR	3 EA	175.00	525.00
0271	7575142000-N	1736	900MHZ RADIO	3 EA	3,100.00	9,300.00
0272	7576000000-N	SP	METAL STRAIN SIGNAL POLE	12 EA	7,000.00	84,000.00
0273	7613000000-N	SP	SOIL TEST	12 EA	650.00	7,800.00
0274	7614100000-E	SP	DRILLED PIER FOUNDATION	84 CY	725.00	60,900.00
0275	7636000000-N	1745	SIGN FOR SIGNALS	7 EA	225.00	1,575.00
0276	7642200000-N	1743	TYPE II PEDESTAL WITH FOUNDATION	7 EA	1,250.00	8,750.00

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Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0277	7684000000-N	1750	SIGNAL CABINET FOUNDATION	6 EA	850.00	5,100.00
0278	7756000000-N	1751	CONTROLLER WITH CABINET (TYPE 2070L, BASE MOUNTED)	6 EA	11,250.00	67,500.00
0279	7780000000-N	1751	DETECTOR CARD (TYPE 2070L)	16 EA	90.00	1,440.00
0280	7901000000-N	1753	CABINET BASE EXTENDER	6 EA	300.00	1,800.00
0281	7948000000-N	1757	TRAFFIC SIGNAL REMOVAL	1 EA	1,500.00	1,500.00
0317	0000700000-N	SP	FIELD OFFICE	Lump Sum LS	35,000.00	35,000.00

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Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0282	8056000000-N	402	REMOVAL OF EXISTING STRUCTURE AT STATION ***** (713+35.00-L-)	Lump Sum LS	5,000.00	5,000.00
0283	8126000000-N	414	CULVERT EXCAVATION, STA ***** (713+35.00-L-)	Lump Sum LS	25,000.00	25,000.00
0284	8133000000-E	414	FOUNDATION CONDITIONING MATERIAL, BOX CULVERT	245 TON	50.00	12,250.00
0285	8196000000-E	420	CLASS A CONCRETE (CULVERT)	284.5 CY	600.00	170,700.00
0286	8245000000-E	425	REINFORCING STEEL (CULVERT)	34,438 LB	1.00	34,438.00

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Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0287	8017000000-N	SP	CONSTRUCTION, MAINTENANCE, & REMOVAL OF TEMP ACCESS AT STA ***** (397+87.00-LREV-LTLN)	Lump Sum LS	700,000.00	700,000.00
0288	8017000000-N	SP	CONSTRUCTION, MAINTENANCE, & REMOVAL OF TEMP ACCESS AT STA ***** (397+87.00-LREV-RTLN)	Lump Sum LS	700,000.00	700,000.00
0289	8017000000-N	SP	CONSTRUCTION, MAINTENANCE, & REMOVAL OF TEMP ACCESS AT STA ***** (660+21.00-L-LTLN)	Lump Sum LS	1.00	1.00
0290	8017000000-N	SP	CONSTRUCTION, MAINTENANCE, & REMOVAL OF TEMP ACCESS AT STA ***** (660+21.00-L-RTLN)	Lump Sum LS	1.00	1.00
0291	8035000000-N	402	REMOVAL OF EXISTING STRUCTURE AT STATION ***** (660+21.00-L-LTLN)	Lump Sum LS	100,000.00	100,000.00
0292	8112730000-N	450	PDA TESTING	6 EA	3,628.00	21,768.00
0293	8121000000-N	412	UNCLASSIFIED STRUCTURE EXCAVA- TION AT STATION ***** (397+87.00-LREV-LTLN)	Lump Sum LS	6,500.00	6,500.00
0294	8121000000-N	412	UNCLASSIFIED STRUCTURE EXCAVA- TION AT STATION ***** (397+87.00-LREV-RTLN)	Lump Sum LS	10,000.00	10,000.00
0295	8121000000-N	412	UNCLASSIFIED STRUCTURE EXCAVA- TION AT STATION ***** (660+21.00-L-LTLN)	Lump Sum LS	10,500.00	10,500.00
0296	8147000000-E	420	REINFORCED CONCRETE DECK SLAB	108,356 SF	25.50	2,763,078.00
0297	8161000000-E	420	GROOVING BRIDGE FLOORS	97,012 SF	0.36	34,924.32
0298	8182000000-E	420	CLASS A CONCRETE (BRIDGE)	798.8 CY	720.00	575,136.00
0299	8210000000-N	422	BRIDGE APPROACH SLABS, STATION ***** (397+87.00-LREV-LTLN)	Lump Sum LS	45,000.00	45,000.00
0300	8210000000-N	422	BRIDGE APPROACH SLABS, STATION ***** (397+87.00-LREV-RTLN)	Lump Sum LS	45,000.00	45,000.00

Contract Item Sheets For C203332

Line #	ItemNumber	Sec #	Description	Quantity Unit	Unit Bid Price	Amount Bid
0301	8210000000-N	422	BRIDGE APPROACH SLABS, STATION ***** (660+21.00-L-LTLN)	Lump Sum LS	35,775.90	35,775.90
0302	8210000000-N	422	BRIDGE APPROACH SLABS, STATION ***** (660+21.00-L-RTLN)	Lump Sum LS	35,775.90	35,775.90
0303	8217000000-E	425	REINFORCING STEEL (BRIDGE)	119,855 LB	0.97	116,259.35
0304	8262000000-E	430	45" PRESTRESSED CONCRETE GIR- DERS	1,255.66 LF	199.74	250,805.53
0305	8274000000-E	430	MODIFIED 63" PRESTRESSED CONC GIRDERS	9,673.34 LF	179.00	1,731,527.86
0306	8364000000-E	450	HP12X53 STEEL PILES	3,270 LF	32.44	106,078.80
0307	8384200000-E	450	HP14X73 GALVANIZED STEEL PILES	14,990 LF	30.50	457,195.00
0308	8385200000-E	450	PP ** X **** GALVANIZED STEEL PILES (24X0.50)	300 LF	156.12	46,836.00
0309	8387000000-E	450	PP 18 X 0.50 GALVANIZED STEEL PILES	1,125 LF	102.74	115,582.50
0310	8392000000-N	450	PIPE PILE PLATES	19 EA	340.00	6,460.00
0311	8393000000-N	450	PILE REDRIVES	131 EA	59.43	7,785.33
0312	8503000000-E	460	CONCRETE BARRIER RAIL	5,594.7 LF	62.32	348,661.70
0313	8608000000-E	876	RIP RAP CLASS II (2'-0" THICK)	1,528 TON	41.43	63,305.04
0314	8622000000-E	876	GEOTEXTILE FOR DRAINAGE	1,697 SY	2.60	4,412.20
0315	8657000000-N	430	ELASTOMERIC BEARINGS	Lump Sum LS	57,500.00	57,500.00
0316	8706000000-N	SP	EXPANSION JOINT SEALS	Lump Sum LS	276,382.37	276,382.37

TOTAL AMOUNT OF BID FOR ENTIRE PROJECT

\$61,587,384.40

Contract No. C203332

Rev. 5-19-11

County Cumberland, Sampson

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

CORPORATION

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

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

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

SIGNATURE OF CONTRACTOR

Barnhill Contracting Company

Full name of Corporation

P. O. Box 1529, 2311 N. Main St., Tarboro, N. C. 27886

Address as Prequalified

Attest

Helen W. Spain
~~Secretary~~ / Assistant Secretary
Select appropriate title

By

Drew M. Johnson
~~President~~ Vice President / ~~Assistant Vice President~~
Select appropriate title

Helen W. Spain

Print or type Signer's name

Drew M. Johnson, P. E.

Print or type Signer's name

CORPORATE SEAL

AFFIDAVIT MUST BE NOTARIZED

Subscribed and sworn to before me this the

7 th day of June 2013.

Judith Sessoms
Signature of Notary Public

Judith Sessoms

of Edgecombe County

State of North Carolina

My Commission Expires: 8-9-2015

NOTARY SEAL

DEBARMENT CERTIFICATION

Conditions for certification:

1. The prequalified bidder shall provide immediate written notice to the Department if at any time the bidder learns that his certification was erroneous when he submitted his debarment certification or explanation filed with the Department, or has become erroneous because of changed circumstances.
2. The terms *covered transaction, debarred, suspended, ineligible, lower tier covered transaction, participant, person, primary covered transaction, principal, proposal, and voluntarily excluded*, as used in this provision, have the meanings set out in the Definitions and Coverage sections of the rules implementing Executive Order 12549. A copy of the Federal Rules requiring this certification and detailing the definitions and coverages may be obtained from the Contract Officer of the Department.
3. The prequalified bidder agrees by submitting this form, that he will not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in NCDOT contracts, unless authorized by the Department.
4. For Federal Aid projects, the prequalified bidder further agrees that by submitting this form he will include the Federal-Aid Provision titled *Required Contract Provisions Federal-Aid Construction Contract (Form FHWA PR 1273)* provided by the Department, without subsequent modification, in all lower tier covered transactions.
5. The prequalified bidder may rely upon a certification of a participant in a lower tier covered transaction that he is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless he knows that the certification is erroneous. The bidder may decide the method and frequency by which he will determine the eligibility of his subcontractors.
6. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this provision. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
7. Except as authorized in paragraph 6 herein, the Department may terminate any contract if the bidder knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available by the Federal Government.

DEBARMENT CERTIFICATION

The prequalified bidder certifies to the best of his knowledge and belief, that he and his principals:

- a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
- b. Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records; making false statements; or receiving stolen property;
- c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph b. of this certification; and
- d. Have not within a three-year period preceding this proposal had one or more public transactions (Federal, State or local) terminated for cause or default.
- e. Will submit a revised Debarment Certification immediately if his status changes and will show in his bid proposal an explanation for the change in status.

If the prequalified bidder cannot certify that he is not debarred, he shall provide an explanation with this submittal. An explanation will not necessarily result in denial of participation in a contract.

Failure to submit a non-collusion affidavit and debarment certification will result in the prequalified bidder's bid being considered non-responsive.

☐

Check here if an explanation is attached to this certification.

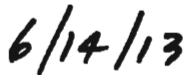
Contract No. C203332

County (ies): Cumberland and Sampson

ACCEPTED BY THE
DEPARTMENT OF TRANSPORTATION




Contract Officer



Date

Execution of Contract and Bonds
Approved as to Form:



Attorney General

CONTRACT PAYMENT BOND

Date of Payment Bond Execution 6/4/2013

Name of Principal Contractor Barnhill Contracting Company

Name of Surety: Travelers Casualty and Surety Company of America

Name of Contracting Body: North Carolina Department of Transportation
Raleigh, North Carolina

Amount of Bond: SIXTY-ONE MILLION FIVE HUNDRED EIGHTY-SEVEN THOUSAND THREE HUNDRED EIGHTY-FOUR AND 40/100THS

Contract ID No.: C203332

County Name: Cumberland and Sampson

KNOW ALL MEN BY THESE PRESENTS, That we, the PRINCIPAL CONTRACTOR (hereafter, PRINCIPAL) and SURETY above named, are held and firmly bound unto the above named Contracting Body, hereinafter called the Contracting Body, in the penal sum of the amount stated above for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the principal entered into a certain contract with the Contracting Body, numbered as shown above and hereto attached:

NOW THEREFORE, if the principal shall promptly make payment to all persons supplying labor and material in the prosecution of the work provided for in said contract, and any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the surety being hereby waived, then this obligation to be void; otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bound parties have executed this instrument under their several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

Contract No. **C203332**
County **Cumberland and Sampson**

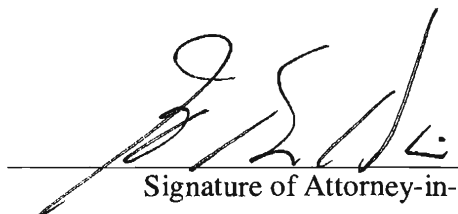
Rev 2-1-10


CONTRACT PAYMENT BOND

Affix Seal of Surety Company

Travelers Casualty and Surety Company of America
Print or type Surety Company Name

By **H. Thomas Dawkins**
Print, stamp or type name of Attorney-in-Fact


Signature of Attorney-in-Fact


Signature of Witness

Jenny Peterson
Print or type Signer's name

2820 Selwyn Avenue, Suite 375
Charlotte, NC 28209

Address of Attorney-in-Fact

Contract No.
County

C203332
Cumberland and Sampson

Rev 2-1-10

CONTRACT PAYMENT BOND
CORPORATION

SIGNATURE OF CONTRACTOR (Principal)

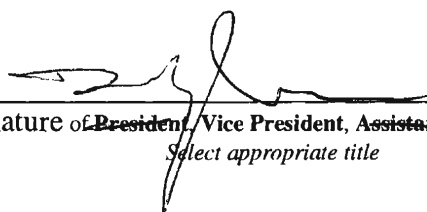
Barnhill Contracting Company

Full name of Corporation

P.O. Box 1529, Tarboro, NC 27886

Address as prequalified

By

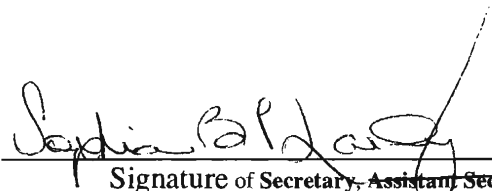

Signature of ~~President, Vice President, Assistant Vice President~~
Select appropriate title

Drew M. Johnson, P. E.

Print or type Signer's name

Affix Corporate Seal

Attest


Signature of ~~Secretary, Assistant Secretary~~
Select appropriate title

Sophia B. Hardy

Print or type Signer's name

Contract No.
County

C203332
Cumberland and Sampson

Rev 2-1-10

105906232

CONTRACT PERFORMANCE BOND

Date of Performance Bond Execution: 6/4/2013

Name of Principal Contractor: Barnhill Contracting Company

Name of Surety: Travelers Casualty and Surety Company of America

Name of Contracting Body: North Carolina Department of Transportation

Amount of Bond: Raleigh, North Carolina
SIXTY-ONE MILLION FIVE HUNDRED EIGHTY-SEVEN THOUSAND THREE
HUNDRED EIGHTY-FOUR AND 40/100THS

Contract ID No.: C203332

County Name: Cumberland and Sampson

KNOW ALL MEN BY THESE PRESENTS, That we, the PRINCIPAL CONTRACTOR (hereafter, PRINCIPAL) and SURETY above named, are held and firmly bound unto the above named Contracting Body, hereinafter called the Contracting Body, in the penal sum of the amount stated above for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the principal entered into a certain contract with the Contracting Body, numbered as shown above and hereto attached:

NOW THEREFORE, if the principal shall well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term of said contract and any extensions thereof that may be granted by the Contracting Body, with or without notice to the Surety, and during the life of any guaranty required under the contract, and shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the surety being hereby waived, then this obligation to be void; otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bound parties have executed this instrument under their several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

Contract No.
County

C203332
Cumberland and Sampson

Rev 2-1-10

CONTRACT PERFORMANCE BOND

Affix Seal of Surety Company

Travelers Casualty and Surety Company of America
Print or type Surety Company Name

By **H. Thomas Dawkins**

Print, stamp or type name of Attorney-in-Fact



Signature of Attorney-in-Fact


Signature of Witness

Jenny Peterson

Print or type Signer's name

2820 Selwyn Avenue, Suite 375
Charlotte, NC 28209

Address of Attorney-in-Fact

Contract No.
County

C203332
Cumberland and Sampson

Rev 2-1-10

CONTRACT PERFORMANCE BOND
CORPORATION

SIGNATURE OF CONTRACTOR (Principal)

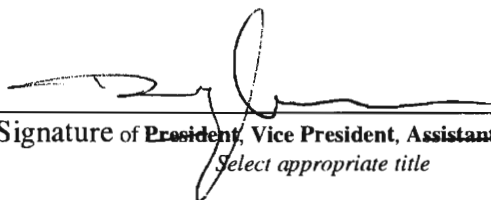
Barnhill Contracting Company

Full name of Corporation

P.O. Box 1529, Tarboro, NC 27886

Address as prequalified

By

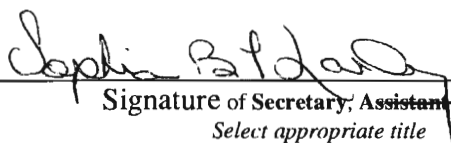

Signature of ~~President, Vice President, Assistant Vice President~~
Select appropriate title

Drew M. Johnson, P. E.

Print or type Signer's name

Affix Corporate Seal

Attest


Signature of ~~Secretary, Assistant Secretary~~
Select appropriate title

Sophia B. Hardy

Print or type Signer's name



POWER OF ATTORNEY

Farmington Casualty Company
Fidelity and Guaranty Insurance Company
Fidelity and Guaranty Insurance Underwriters, Inc.
St. Paul Fire and Marine Insurance Company
St. Paul Guardian Insurance Company

St. Paul Mercury Insurance Company
Travelers Casualty and Surety Company
Travelers Casualty and Surety Company of America
United States Fidelity and Guaranty Company

Attorney-In Fact No. 223862

Certificate No. 005397856

KNOW ALL MEN BY THESE PRESENTS: That Farmington Casualty Company, St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company, St. Paul Mercury Insurance Company, Travelers Casualty and Surety Company, Travelers Casualty and Surety Company of America, and United States Fidelity and Guaranty Company are corporations duly organized under the laws of the State of Connecticut, that Fidelity and Guaranty Insurance Company is a corporation duly organized under the laws of the State of Iowa, and that Fidelity and Guaranty Insurance Underwriters, Inc., is a corporation duly organized under the laws of the State of Wisconsin (herein collectively called the "Companies"), and that the Companies do hereby make, constitute and appoint

H. Thomas Dawkins, and Hunter T. Dawkins

of the City of Charlotte, State of North Carolina, their true and lawful Attorney(s)-in-Fact, each in their separate capacity if more than one is named above, to sign, execute, seal and acknowledge any and all bonds, recognizances, conditional undertakings and other writings obligatory in the nature thereof on behalf of the Companies in their business of guaranteeing the fidelity of persons, guaranteeing the performance of contracts and executing or guaranteeing bonds and undertakings required or permitted in any actions or proceedings allowed by law.

IN WITNESS WHEREOF, the Companies have caused this instrument to be signed and their corporate seals to be hereto affixed, this 7th day of March, 2013.

Farmington Casualty Company
Fidelity and Guaranty Insurance Company
Fidelity and Guaranty Insurance Underwriters, Inc.
St. Paul Fire and Marine Insurance Company
St. Paul Guardian Insurance Company

St. Paul Mercury Insurance Company
Travelers Casualty and Surety Company
Travelers Casualty and Surety Company of America
United States Fidelity and Guaranty Company



State of Connecticut
City of Hartford ss.

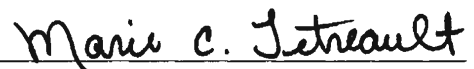
By: 

Robert L. Raney, Senior Vice President

On this the 7th day of March, 2013, before me personally appeared Robert L. Raney, who acknowledged himself to be the Senior Vice President of Farmington Casualty Company, Fidelity and Guaranty Insurance Company, Fidelity and Guaranty Insurance Underwriters, Inc., St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company, St. Paul Mercury Insurance Company, Travelers Casualty and Surety Company, Travelers Casualty and Surety Company of America, and United States Fidelity and Guaranty Company, and that he, as such, being authorized so to do, executed the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

In Witness Whereof, I hereunto set my hand and official seal.
My Commission expires the 30th day of June, 2016.




Marie C. Tetreault, Notary Public

This Power of Attorney is granted under and by the authority of the following resolutions adopted by the Boards of Directors of Farmington Casualty Company, Fidelity and Guaranty Insurance Company, Fidelity and Guaranty Insurance Underwriters, Inc., St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company, St. Paul Mercury Insurance Company, Travelers Casualty and Surety Company, Travelers Casualty and Surety Company of America, and United States Fidelity and Guaranty Company, which resolutions are now in full force and effect, reading as follows:

RESOLVED, that the Chairman, the President, any Vice Chairman, any Executive Vice President, any Senior Vice President, any Vice President, any Second Vice President, the Treasurer, any Assistant Treasurer, the Corporate Secretary or any Assistant Secretary may appoint Attorneys-in-Fact and Agents to act for and on behalf of the Company and may give such appointee such authority as his or her certificate of authority may prescribe to sign with the Company's name and seal with the Company's seal bonds, recognizances, contracts of indemnity, and other writings obligatory in the nature of a bond, recognizance, or conditional undertaking, and any of said officers or the Board of Directors at any time may remove any such appointee and revoke the power given him or her; and it is

FURTHER RESOLVED, that the Chairman, the President, any Vice Chairman, any Executive Vice President, any Senior Vice President or any Vice President may delegate all or any part of the foregoing authority to one or more officers or employees of this Company, provided that each such delegation is in writing and a copy thereof is filed in the office of the Secretary; and it is

FURTHER RESOLVED, that any bond, recognizance, contract of indemnity, or writing obligatory in the nature of a bond, recognizance, or conditional undertaking shall be valid and binding upon the Company when (a) signed by the President, any Vice Chairman, any Executive Vice President, any Senior Vice President or any Vice President, any Second Vice President, the Treasurer, any Assistant Treasurer, the Corporate Secretary or any Assistant Secretary and duly attested and sealed with the Company's seal by a Secretary or Assistant Secretary; or (b) duly executed (under seal, if required) by one or more Attorneys-in-Fact and Agents pursuant to the power prescribed in his or her certificate or their certificates of authority or by one or more Company officers pursuant to a written delegation of authority; and it is

FURTHER RESOLVED, that the signature of each of the following officers: President, any Executive Vice President, any Senior Vice President, any Vice President, any Assistant Vice President, any Secretary, any Assistant Secretary, and the seal of the Company may be affixed by facsimile to any Power of Attorney or to any certificate relating thereto appointing Resident Vice Presidents, Resident Assistant Secretaries or Attorneys-in-Fact for purposes only of executing and attesting bonds and undertakings and other writings obligatory in the nature thereof, and any such Power of Attorney or certificate bearing such facsimile signature or facsimile seal shall be valid and binding upon the Company and any such power so executed and certified by such facsimile signature and facsimile seal shall be valid and binding on the Company in the future with respect to any bond or understanding to which it is attached.

I, Kevin E. Hughes, the undersigned, Assistant Secretary, of Farmington Casualty Company, Fidelity and Guaranty Insurance Company, Fidelity and Guaranty Insurance Underwriters, Inc., St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company, St. Paul Mercury Insurance Company, Travelers Casualty and Surety Company, Travelers Casualty and Surety Company of America, and United States Fidelity and Guaranty Company do hereby certify that the above and foregoing is a true and correct copy of the Power of Attorney executed by said Companies, which is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 4th day of June, 2013


Kevin E. Hughes, Assistant Secretary



To verify the authenticity of this Power of Attorney, call 1-800-421-3880 or contact us at www.travelersbond.com. Please refer to the Attorney-In-Fact number, the above-named individuals and the details of the bond to which the power is attached.