

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

PROPOSAL

PROPOSAL NO. 1

DATE AND TIME OF BID OPENING: **SEPTEMBER 17, 2013 AT 2:00 PM**

CONTRACT ID C203161
WBS 34416.3.S1

FEDERAL-AID NO. STATE FUNDED
COUNTY SAMPSON
T.I.P. NO. R-2303C
MILES 6.949
ROUTE NO. NC 24
LOCATION NC-24 FROM SR-1404 (DOWDY RD) TO SR-1303 (MITCHELL LOOP RD).

TYPE OF WORK GRADING, DRAINAGE, PAVING, AND STRUCTURES.

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 PROPOSAL

5% BID BOND OR BID DEPOSIT REQUIRED

**PROPOSAL FOR THE CONSTRUCTION OF
CONTRACT No. C203161 IN SAMPSON COUNTY, NORTH CAROLINA**

Date _____ 20_____

**DEPARTMENT OF TRANSPORTATION,
RALEIGH, NORTH CAROLINA**

The Bidder has carefully examined the location of the proposed work to be known as Contract No. **C203161**; 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 date(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. **C203161** in **Sampson County**, for the unit or lump sum prices, as the case may be, bid by the Bidder in his bid and according to the proposal, plans, and specifications prepared by said Department, which proposal, plans, and specifications show the details covering this project, and hereby become a part of this contract.

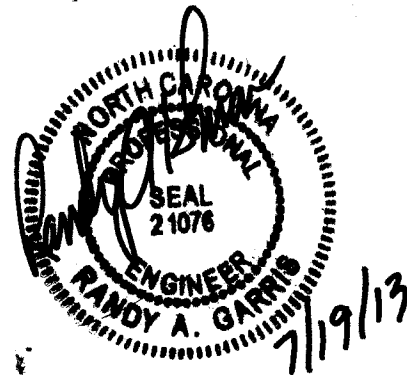
The published volume entitled *North Carolina Department of Transportation, Raleigh, Standard Specifications for Roads and Structures, January 2012* with all amendments and supplements thereto, is by reference incorporated into and made a part of this contract; that, except as herein modified, all the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

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

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

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

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



State Contract Officer

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

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

103

SP1 G03 A

TIP R-2303C

Sampson County

Project Description: Turnkey Construction on NC 24 from SR 1404 (Dowdy Road) to SR 1303 (Mitchell Loop Road)

TIP R-2303D

Sampson County

Project Description: Turnkey Construction on NC 24 from SR 1303 (Mitchell Loop Road) to US 421 – 701/SR 1296 (Sunset Avenue)

On the above projects, the following Proposals are available.

Proposal No. 1

TIP R-2303C

Proposal No. 2

TIP R-2303D

Combined Proposal No. 3

TIP R-2303C & D

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

SPI G07 A

The date of availability for this contract is **October 28, 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, 2018**.

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

SPI 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 **October 28, 2013**.

The completion date for this intermediate contract time is **September 15, 2017**.

The liquidated damages for this intermediate contract time are **Two Thousand Eight Hundred Dollars (\$ 2,800.00)** 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) (3-15-13)

SP1 G14 A

The Contractor shall complete the required work of installing, maintaining, and removing the traffic control devices for lane closures and restoring traffic to a **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 a **2-lane, 2-way** pattern.

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

INTERMEDIATE CONTRACT TIME NUMBER 3 AND LIQUIDATED DAMAGES:

(2-20-07) (6-24-13)

108

SPI G14 H

The Contractor shall complete the work required of **Phase 2, Step 1 (-Y31-)** 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 work, but no earlier than June 15th and no later than July 1st of any year.

The completion date for this intermediate contract time is **45 (forty five)** consecutive calendar days after and including the date the Contractor begins this work.

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

INTERMEDIATE CONTRACT TIME NUMBER 4 AND LIQUIDATED DAMAGES:

(2-20-07) (3-15-13)

108

SPI G14 H

The Contractor shall complete the work required of **Phase 2, Step 6 (-Y37-)** 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 **45 (forty five)** consecutive calendar days after and including the date the Contractor begins this work.

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

PERMANENT VEGETATION ESTABLISHMENT:

(2-16-12)

104

SPI 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
231	Borrow Excavation
232	Aggregate Base Course
	OR
238	Borrow Excavation
241	Asphalt Concrete Base Course, Type B25.0C

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
84 thru 95, and 106	Guardrail
96 thru 105	Fencing
111 thru 118	Signing
133 thru 137	Long-Life Pavement Markings
138	Removable Tape
146	Permanent Pavement Markers
147 thru 192	Utility Construction
193 thru 226	Erosion Control
227 thru 228	Reforestation

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 \$ **2.9570** 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. 5-21-13)

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)	25% of Total Amount Bid
2015	(7/01/14 - 6/30/15)	32% of Total Amount Bid
2016	(7/01/15- 6/30/16)	24% of Total Amount Bid
2017	(7/01/16 - 6/30/17)	17% of Total Amount Bid
2018	(7/01/17 - 6/30/18)	2% 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. 5-21-13)

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.
<http://connect.ncdot.gov/projects/construction/Construction%20Forms/DBE%20MBE%20WBE%20Replacement%20Request%20Form.pdf>

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

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

Letter of Intent - Form signed by the Contractor and the MBE/WBE subcontractor, manufacturer or regular dealer that affirms that a portion of said contract is going to be performed by the signed MBE/WBE for the amount listed at the time of bid.

<http://connect.ncdot.gov/letting/LetCentral/Letter%20of%20Intent%20to%20Perform%20as%20a%20Subcontractor.pdf>

Listing of MBE and WBE Subcontractors Form - Form for entering MBE/WBE subcontractors on a project that will meet this MBE and WBE goals. This form is for paper bids only.

[http://connect.ncdot.gov/municipalities/Bid%20Proposals%20for%20LGA%20Content/09%20M BE-WBE%20Subcontractors%20\(State\).doc](http://connect.ncdot.gov/municipalities/Bid%20Proposals%20for%20LGA%20Content/09%20MBE-WBE%20Subcontractors%20(State).doc)

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

<http://connect.ncdot.gov/business/SmallBusiness/Documents/DBE%20Subcontractor%20Quote%20Comparison%20Example.xls>

MBE and WBE Goal

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

(A) Minority Business Enterprises **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, written notices, use of verifiable electronic means through the use of the NCDOT Directory of Transportation Firms) the interest of all certified MBEs/WBEs who have the capability to perform the work of the contract. The bidder must solicit this interest within at least 10 days prior to bid opening to allow the MBEs/WBEs to respond to the solicitation. Solicitation shall provide the opportunity to

MBEs/WBEs within the Division and surrounding Divisions where the project is located. The bidder must determine with certainty if the MBEs/WBEs are interested by taking appropriate steps to follow up initial solicitations.

- (B) Selecting portions of the work to be performed by MBEs/WBEs in order to increase the likelihood that the MBE and WBE goals will be achieved.
 - (1) Where appropriate, break out contract work items into economically feasible units to facilitate MBE/WBE participation, even when the prime contractor might otherwise prefer to perform these work items with its own forces.
 - (2) Negotiate with subcontractors to assume part of the responsibility to meet the contract MBE/WBE goals when the work to be sublet includes potential for MBE/WBE participation (2nd and 3rd tier subcontractors).
- (C) Providing interested MBEs/WBEs with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.
- (D)
 - (1) Negotiating in good faith with interested MBEs/WBEs. It is the bidder's responsibility to make a portion of the work available to MBE/WBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available MBE/WBE subcontractors and suppliers, so as to facilitate MBE/WBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of MBEs/WBEs that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for MBEs/WBEs to perform the work.
 - (2) A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including MBE/WBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using MBEs/WBEs is not in itself sufficient reason for a bidder's failure to meet the contract MBE or WBE goals, as long as such costs are reasonable. Also, the ability or desire of a prime contractor to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Bidding contractors are not, however, required to accept higher quotes from MBEs/WBEs if the price difference is excessive or unreasonable.
- (E) Not rejecting MBEs/WBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The bidder's standing within its industry, membership in specific groups, organizations, or associates and political or social affiliations (for example, union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the bidder's efforts to meet the project goal.

- (F) Making efforts to assist interested MBEs/WBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or bidder.
- (G) Making efforts to assist interested MBEs/WBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.
- (H) Effectively using the services of available minority/women community organizations; minority/women contractors' groups; Federal, State, and local minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of MBEs/WBEs. Contact within 7 days from the bid opening 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.

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.

RESOURCE CONSERVATION:

(5-21-13)

104-13

SP1 G118

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

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

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

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

DOMESTIC STEEL:

(4-16-13)

106

SP1 G120

Revise the *2012 Standard Specifications* as follows:

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.

COOPERATION BETWEEN CONTRACTORS:

(7-1-95)

105-7

SP1 G133

The Contractor's attention is directed to Article 105-7 of the *2012 Standard Specifications*.

R-2303A and R-2303B, Cumberland-Sampson County is currently under construction on the west end of this project and will be completed before the completion of R-2303C.

R-2303D Sampson County located on the east end of this project is scheduled to be let and will be under construction during the contract time of this project.

The Contractor on this project shall cooperate with the Contractor working within or adjacent to the limits of this project to the extent that the work can be carried out to the best advantage of all concerned.

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. 3-19-13)

105-16, 230, 801

SP1 G181

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

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

- (A) Either cease discharge or modify the discharge volume or turbidity levels to bring the downstream turbidity levels into compliance, or
- (B) Evaluate the upstream conditions to determine if the exceedance of the standard is due to natural background conditions. If the background turbidity measurements exceed the standard, operation of the pit and discharge can continue as long as the stream turbidity levels are not increased due to the discharge.
- (C) Measure and record the turbidity test results (time, date and sampler) at all defined sampling locations 30 minutes after startup and at a minimum, one additional sampling of all sampling locations during that 24-hour period in which the borrow pit is discharging.
- (D) Notify DWQ within 24 hours of any stream turbidity standard exceedances that are not brought into compliance.

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

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

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

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

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

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

EMPLOYMENT:

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

108, 102

SP1 G184

Revise the *2012 Standard Specifications* as follows:

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

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

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

STATE HIGHWAY ADMINISTRATOR TITLE CHANGE:

(9-18-12)

SP1 G185

Revise the *2012 Standard Specifications* as follows:

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

FIELD OFFICE (Lump Sum):

(6-1-07)

SPI 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	Pay Unit
Field Office	Lump Sum

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 **October 1, 2013** unless otherwise permitted by the Engineer.

<u>Parcel No.</u>	<u>Property Owner</u>
57	State of North Carolina

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*.

TEMPORARY DETOURS:

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

1101

SP2 R30 A

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

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

Aggregate base course and earth material that is removed will be measured and will be paid at the contract unit price per cubic yard for *Unclassified Excavation*. Pavement that is removed will be measured and will be paid at the contract unit price per square yard for *Removal of Existing Pavement*. Pipe culverts removed from the detours remain the property of the Contractor. Pipe culverts that are removed will be measured and will be paid at the contract unit price per linear foot for *Pipe Removal*. Payment for the construction of the detours will be made at the contract unit prices for the various items involved.

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

SHOULDER AND FILL SLOPE MATERIAL:

(5-21-02)

235, 560

SP2 R45 B

Description

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

Measurement and Payment

When the Contractor elects to obtain material from an area located beneath a proposed fill sections which does not require excavation for any reason other than to generate acceptable shoulder and fill slope material, the work of performing the excavation will be considered

incidental to the item of *Borrow Excavation* or *Shoulder Borrow*. If there is no pay item for *Borrow* or *Shoulder Borrow* in the contract, this work will be considered incidental to *Unclassified Excavation*. Stockpile the excavated material in a manner to facilitate measurement by the Engineer. Fill the void created by the excavation of the shoulder and fill slope material with suitable material. Payment for material used from the stockpile will be made at the contract unit price for *Borrow Excavation* or *Shoulder Borrow*. If there is no pay item for *Borrow Excavation* or *Shoulder Borrow*, then the material will be paid for at the contract unit price for *Unclassified Excavation*. The material used to fill the void created by the excavation of the shoulder and fill slope material will be made at the contract unit price for *Unclassified Excavation*, *Borrow Excavation*, or *Shoulder Borrow*, depending on the source of the material.

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

When undercut excavation is performed at the direction of the Engineer and the material excavated is found to be suitable for use as shoulder and fill slope material, and there is no area on the project currently prepared to receive the material generated by the undercut operation, the Contractor may construct a stockpile for use as borrow at a later date. Payment for the material used from the stockpile will be made at the contract unit price for *Borrow Excavation* or *Shoulder Borrow*.

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

EMBANKMENT SETTLEMENT GAUGES:

(7-1-95) (Rev. 2-19-13)

235

SP2 R75

Revise the *2012 Standard Specifications* as follows:

Page 2-22, Article 235-1 DESCRIPTION, add the following:

Surcharges and waiting periods may be required for embankments and retaining walls to minimize and control the effects of settlement on structures, approach slabs, pavements, pipes, utilities, etc. Settlement gauges may be required to monitor settlement at approximate locations shown in the plans and as directed.

Page 2-22, Article 235-2 MATERIALS, add the following:

Provide Schedule 40 black steel pipes and couplers with steel or wood bases for settlement gauges. Use steel plates with yield strength of at least 36 ksi and pressure treated wood boards for bases of settlement gauges.

Page 2-24, Article 235-3 CONSTRUCTION METHODS, add the following:

(E) Surcharges and Waiting Periods

Place surcharges at locations shown in the plans. Unless required otherwise in the contract, surcharge embankments after embankments are constructed to the grade and cross section shown in the plans. Construct surcharges with side slopes as directed, 2:1 (H:V) end slopes outside of surcharge limits and surcharge heights shown in the plans. Place and compact surcharge material in accordance with Subarticles 235-3(B) and 235-3(C). Construct and maintain adequate drainage of surface runoff to prevent erosion of surcharge material.

Waiting period durations are in accordance with the contract and as directed. Surcharge waiting periods apply to surcharge locations shown in the plans and begin after surcharges are constructed to the height shown in the plans.

Unless required otherwise in the contract, bridge waiting periods are required in accordance with the following:

- (1) Apply to bridge embankments and retaining walls within 100 ft of end bent and bent locations shown in the plans and
- (2) Begin after bridge embankments and retaining walls are constructed to the elevations noted in the plans.

Unless required otherwise in the contract, embankment waiting periods are required in accordance with the following:

- (1) Apply to embankment locations shown in the plans and retaining walls for embankments with waiting periods and
- (2) Begin after embankments and retaining walls are constructed to the elevations, grade and cross section shown in the plans.

Except for maintaining embankments, do not perform any work on embankments or structures with waiting periods until waiting periods end unless otherwise approved. Place and compact additional material in accordance with Subarticles 235-3(B) and 235-3(C) to maintain embankment grade elevations during waiting periods. Remove surcharges to the grade and cross section shown in the plans after surcharge waiting periods end.

(F) Embankment Monitoring

Fabricate and install settlement gauges in accordance with the contract. Make settlement gauges highly visible so gauges are not disturbed while monitoring settlement. Use only hand operated compaction equipment to compact fill material around gauges.

Do not damage settlement gauges. Damaged settlement gauges may require replacement or additional gauges and waiting period extensions as determined by the Engineer.

Page 2-24, Article 235-5 MEASUREMENT AND PAYMENT, add the following:

Borrow Excavation for surcharge material and additional material for maintaining embankment grade elevations will be measured and paid in accordance with Article 230-5. *Unclassified*

Excavation for surcharge material, additional material for maintaining embankment grade elevations and removing surcharges will be measured and paid in accordance with Article 225-7. When there is no pay item for *Borrow Excavation* or *Unclassified Excavation* in the contract, surcharge and additional material and removing surcharges will be paid as extra work in accordance with Article 104-7.

Embankment Settlement Gauges will be measured and paid in units of each. Settlement gauges will be measured as one per gauge location. The contract unit price for *Embankment Settlement Gauges* will be full compensation for fabricating and installing settlement gauges including placing and compacting fill material around gauges, adding pipes and couplers until embankment monitoring ends and any incidentals necessary to monitor settlement. No payment will be made for interfering with the Contractor's operations due to embankment monitoring or damaged settlement gauges as determined by the Engineer.

Payment will be made under:

Pay Item	Pay Unit
Embankment Settlement Gauges	Each

PIPE INSTALLATION:

(11-20-12)	300	SP3 R01
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Revise the *2012 Standard Specifications* as follows:

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

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

BRIDGE APPROACH FILLS:

(10-19-10) (Rev. 1-17-12)	422	SP4 R02
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Description

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

Materials

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

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

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

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

Use PVC, HDPE or linear low density polyethylene (LLDPE) geomembranes for reinforced bridge approach fills. For PVC geomembranes, provide grade PVC30 geomembranes that meet ASTM D7176. For HDPE and LLDPE geomembranes, use geomembranes with a nominal thickness of at least 30 mils that meet Geosynthetic Research Institute Standard Specifications GM13 or GM17, respectively. Handle and store geomembranes in accordance with Article 1056-2 of the *2012 Standard Specifications*. Provide material certifications for geomembranes in accordance with Article 1056-3 of the *2012 Standard Specifications*.

Construction Methods

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

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

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

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

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

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

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

Measurement and Payment

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

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

Payment will be made under:

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

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.

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.

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:

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:

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 \$ **593.44** per ton.

This base price index represents an average of F.O.B. selling prices of asphalt binder at supplier's terminals on **July 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 fourth 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	Pay Unit
Joint Repair	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	Pay Unit
Guardrail Anchor Units, Type 350	Each

TEMPORARY EXTRA LENGTH GAURDRAIL POSTS (7' STEEL):

The Contractor shall utilize temporary guardrail posts at the locations indicated in the plans and as directed by the Engineer.

Temporary Extra Length Guardrail Posts shall be in accordance with Section 862 of the Standard Specifications and the Roadway Standard Drawings except the posts shall be 7 ft in length.

Temporary Extra Length Guardrail Posts will be measured and paid for in units of each that have been installed and accepted, and when no longer needed, removed and disposed of by the Contractor.

Pay Item	Pay Unit
Temporary Extra Length Guardrail Posts (7' Steel)	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

RIP RAP ENERGY DISSIPATOR:

(7-23-12)

SPI (Revised)

Description

This work consists of the construction and maintenance of an armored outlet structure located at culvert outlets or ditch termini.

Materials

Refer to Division 10 of the *Standard Specifications*:

Item	Section
Class B Riprap	Section 1042
Geotextile for Drainage, Type 2	Section 1056

Construction Methods

Rip rap Energy Dissipators shall be constructed in accordance with the detail shown in the plans or as directed. From the outlet invert of a culvert or bottom of a ditch excavation will drop to a specified depth. Excavation will continue to widen through the dissipator. Rip rap will be placed along the banks and bottom of the dissipator and along the apron.

Excavate ditch in accordance with Section 240 of the *Standard Specifications*.

The quantity of energy dissipator material may be affected by site conditions during construction of the project. The quantity of materials may be increased, decreased, or eliminated at the direction of the Engineer. Such variations in quantity will not be considered as alterations in the details of construction or a change in the character of the work.

Measurement and Payment

Class B Riprap will be measured and paid for in accordance with Section 876 of the *Standard Specifications*.

Geotextile for Drainage will be measured and paid for in accordance with Section 876 of the *Standard Specifications*.

Drainage Ditch Excavation will be measured and paid for in accordance with Section 240 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 riprap energy dissipator.

PREFORMED SCOUR HOLE WITH LEVEL SPREADER APRON:

(10-15-02) (Rev. 10-20-09)

410

SP8 R105

Description

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

Materials

Item	Section
Plain Rip Rap	1042
Filter Fabric	1056

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

Property	Test Method	Value Unit
Light Penetration	ASTM D6567	9 %
Thickness	ASTM D6525	0.40 in
Mass Per Unit Area	ASTM D6566	0.55 lb/sy
Tensile Strength	ASTM D6818	385 lb/ft
Elongation (Maximum)	ASTM D6818	49 %
Resiliency	ASTM D1777	>70 %
UV Stability *	ASTM 4355	≥80 %
Porosity (Permanent Net)	ECTC Guidelines	≥85 %
Maximum Permissible Shear Stress (Vegetated)	Performance Bench Test	≥8.0 lb/ft ²
Maximum Allowable Velocity (Vegetated)	Performance Bench Test	≥16.0 ft/s

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

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

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

Construction Methods

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

Measurement and Payment

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

Payment will be made under:

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

MATERIALS:

(2-21-12) (Rev. 5-21-13)

1000, 1005, 1050, 1074, 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 Aggregate	Rounded Aggregate	Angular Aggregate			Min.	Max.	Min.	Max.
Units	psi					inch	inch	lb/cy	lb/cy	lb/cy	lb/cy
AA	4,500	0.381	0.426	-	-	3.5	-	639	715	-	-
AA Slip Form	4,500	0.381	0.426	-	-	1.5	-	639	715	-	-
Drilled Pier	4,500	-	-	0.450	0.450	-	5-7 dry 7-9 wet	-	-	640	800
A	3,000	0.488	0.532	0.550	0.594	3.5	4	564	-	602	-
B	2,500	0.488	0.567	0.559	0.630	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 10-65, Article 1050-1, GENERAL, line 41, replace the first sentence with:

All fencing material and accessories shall meet Section 106.

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
467M	100	95-100	-	35-70	-	0-30	0-5	-	-	-	-	A	Asphalt Plant Mix
5	-	100	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	4-12B	Aggregate Base Course, Aggregate Stabilization
ABC (M)	-	100	75-100	-	45-79	-	20-40	-	0-25	-	-	0-12B	Maintenance Stabilization
Light-C weight	-	-	-	-	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 10-115, Subarticle 1074-7(B), Gray Iron Castings, lines 10-11, replace with the first two sentences with the following:

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

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

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:

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.

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.

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:

Pay Item

Rock Embankments

#57 Stone

Geotextile for Rock Embankments

Pay Unit

Ton

Ton

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.

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

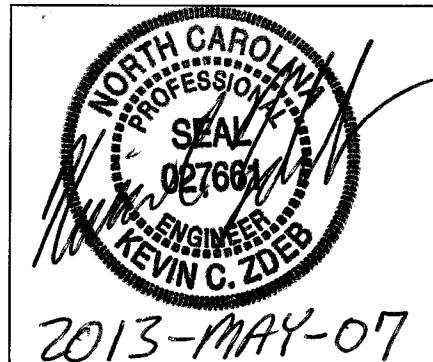


John E. Kite, Jr.
5/2/13

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PROJECT SPECIAL PROVISIONS
Utility Construction

 **M A ENGINEERING CONSULTANTS, INC.**
598 E. Chatham Street, Suite 137, Cary, NC 27511



All proposed utility construction shall meet the applicable requirements (including, but not limited to: Division 15; Section 1034; and Section 1036) of the NC Department of Transportation's "Standard Specifications for Roads and Structures" dated January 2012.

Division 15 of the Standard Specifications is revised as follows:

Page 15-1, Paragraph 2 of Article 1500-2

Provide access for Department personnel and the owner's representatives to all phases of construction. Notify Department personnel and the utility owner two weeks before commencement of any work and one week before service interruption. Keep utility owner's representatives informed of work progress and provide opportunity for inspection of construction and testing. *There is one water line on this project that belongs to the utility company listed below with their contact person.*

1. *Sampson County Public Works. The contact person for Sampson County Public Works is Mr. Lee Cannady, and he can be reached by phone at 910-592-0188.*
2. *Town of Roseboro. The contact person for the Town of Roseboro is Mr. Buck Ammons, and he can be reached by phone at 910-525-4121.*

Any work on these utility lines, especially the operation of any valves, must be coordinated through the Engineer and the utility owner before initiating said work.

Page 15-2, Paragraph 3 of Article 1500-7

Provide As-Built plans of the installed utility. The plans shall include notations of the size and type of material installed, coordinates of utility controls, and horizontal and vertical locations of the piping. Provide 2 copies to the Utility Owner and 2 copies to the Engineer. *Provide the Utility Owner with 2 copies of surveyed As-Builts of the utility system constructed.*

Page 15-6, Article 1510-3 (B), Line 21 and Leakage Formula

than the following amount when pressurized at 200 +/- 5 psi for 2 hours *in accordance with AWWA C605,*

$$W = LD(\sqrt{P}) \div 148,000$$

Page 15-6, Article 1510-3 (B), paragraph beginning with Line 28

Sterilize water lines according to *section .1003 of the Rules Governing Public Water Supply Sections* and AWWA 651. Provide certified bacteriological and contaminant test results from *a state approved or state certified* testing laboratory in accordance with NCDENR requirements. Operate all valves and controls to assure thorough sterilization.

Page 15-6, Article 1510-3 (B), Line 36

according to AWWA C651 Sections 4.6 and 4.7 *and section 4.4.3, the Continuous Feed Method. Chlorine solution shall start at 50 PPM and maintain a level of at least 10 PPM for the 24-hour process. If chlorine level falls below 10 PPM, then the disinfection needs to be repeated for another 24 hours.*

Page 15-9, Paragraph 1 of Article 1515-4 under Measurement and Payment

Sampson County shall provide the contractor with new Water Meters to be installed on the project. Sampson County shall retain ownership of all existing Fire Hydrants and Water Meters that will be removed. Contractor shall deliver the removed appurtenances to a designated drop-off location as agreed upon with Sampson County.

Division 10 of the Standard Specifications is revised as follows:

Page 10-57, Paragraph 1 of Article 1034-2 Plastic Pipe, (A) PVC Gravity Flow Sewer Pipe

Contractor shall use PVC pipe with a minimum SDR of 35 for all gravity sanitary sewer owned by the Town of Roseboro.

Page 10-57, Article 1034-2 Plastic Pipe, (B) PVC Force Main Sewer Pipe(1) Pressure Rated Pipe

Contractor shall use PVC pipe with a minimum SDR of 21 for all force main sanitary sewer owned by Sampson County.

Page 10-57, Article 1034-C Plastic Pipe, (C) Polyethylene (PE) Pipe Force Main Sewer Pipe

Contractor shall use HDPE Pipe with a minimum DR of 9 for all HDD installations of Force Main Sewer owned by Sampson County.

Page 10-58, Article 1036-3 Plastic Pipe, (A) PVC Pipe

(1) Pressure Rated Pipe; Add the following to the first paragraph:

Contractor shall use PVC pipe with a minimum SDR of 21 for all water line owned by Sampson County.

(2) Pressure Class Pipe; Add the following to the first paragraph:

Contractor shall use PVC C900 pipe with a minimum DR of 18 for all water line owned by the Town of Roseboro.

Page 10-58, Article 1036-3 Plastic Pipe, (B) Polyethylene (PE) Pipe

Add the following to the end of paragraph:

Contractor shall use HDPE Pipe with a minimum DR of 9 for all HDD installations of water line owned by Sampson County and the Town of Roseboro.

Page 10-58, Article 1036-3 Plastic Pipe, (B) Polyethylene (PE) Pipe Line 32

Use PE Water Pipe and tubing that is Copper Tube Size (CTS) with a SDR of 7 that conforms to AWWA C901 or AWWA C906 with a minimum pressure class of 200 psi.

Page 10-58, Article 1036-5 Ductile Iron Pipe and Fittings

Add the following to the end of the subsection:

Contractor shall use Ductile Iron Pipe with an integrated restrained joint system for all water line to be installed within steel encasement pipe that is owned by the Town of Roseboro and for water line and force main to be within steel encasement pipe that is owned by Sampson County.

Water Metering Station

The water metering station shown on sheet UC-12, at approximate Station 933+00 -L- (right) shall be replaced as noted on the utility construction plans and as directed by the Engineer. Replacement shall include the vault and all internal components necessary to put the metering station back into proper functioning order.

Water metering stations installed and accepted will be measured and paid for at the contract price per each for "Water Metering Station". Such price and payment will be full compensation for all labor, excavation, new vault, new top, connection to the proposed piping, backfilling, removal and disposal of the old vault and any unusable equipment, and incidentals necessary to complete the work as required.

Sampson County Public Works Preferred Products List

1. Fire Hydrant: Mueller "Centurion" or equal
2. Hydrant Tees: Clow Corporation #F-1217, American Ductile Iron Pipe Company #10180 or approved equal.
3. Valves: Mueller, Clow, or Dresser or approved equal
4. Air Release Valves: Valmatic, CLA-Val, Crispin or approved equal.

PROJECT SPECIAL PROVISIONS
UTILITY

UTILITIES BY OTHERS:

General:

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

- A) Progress Energy – Electric Distribution
- B) South River EMC – Electric Transmission
- C) South River EMC – Electric Distribution
- D) Century Link – Communications
- E) StarVision – Communications
- F) Piedmont Natural Gas – Natural Gas

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

The Contractor's attention is directed to Article 105-8 of the Standard Specifications.

A) Progress Energy – Electric Distribution

- 1) NC 24 (-L-): Progress Energy has an aerial three phase line with a joint-use attachment that will be relocated inside permanent utility easement's (PUE's) paralleling the east side of NC 24 within the improvement portions of this project. Several guying, service and primary spans will perpendicularly cross the main line throughout the project limits.

Dowdy Road (-Y32-): Progress Energy has an aerial service line that will be relocated/adjusted within the proposed right of way and Progress Energy easement on the south side of Dowdy Road.

Old Brick Road (-Y28-): Progress Energy has an aerial three phase line with a joint-use attachment that will be relocated within the proposed right of way and PUE on the north side of Old Brick Road.

Dunn Road (-Y32A-): Progress Energy has an aerial three phase line that will be relocated within the proposed right of way and PUE beginning at North Street (-Y32B-) and crossing the main line then turning west for approximately 285' servicing NC 242 (-Y31-) and Dunn

Road. From station 11+65 to 18+73 Progress Energy's facilities will be relocated to the south side of Dunn Road.

East Roseboro Street (-Y33B-): Progress Energy has an aerial single phase line that will be relocated within the proposed right of way and PUE on the west side of East Roseboro Street.

Marion Amos Road (-Y37-): Progress Energy has an aerial single phase line that will be relocated within the proposed right of way and PUE beginning on the south side of Marion Amos Road diagonally crossing to the north side and continuing across NC 24.

- 2) Progress Energy will relocate their facilities at the locations shown on the Utility by Others Plans prior to project availability.
- 3) Contact for Progress Energy – Distribution is Mr. Don Spencer at telephone (336) 880-2094.

B) South River EMC – Electric Transmission

- 1) NC 24 (-L-): South River EMC will relocate three structures that carry a 115kV transmission line inside proposed right of way and PUE at Station –L- 944+00 (Little Coharie River).
- 2) South River EMC will relocate their facilities at the locations shown on the Utility by Others Plans prior to project availability.
- 3) Contact Person for South River EMC – Transmission is Mr. Scott Byrd at telephone (910) 892-8071 (Ext 4113).

C) South River EMC – Electric Distribution

- 1) NC 24 (-L-): South River EMC has an aerial three phase line that runs cross-country from Station -L- 764+50 – 797+00 that will be relocated outside of the project limits.

South River EMC has an aerial three phase line crossing the main line at Station –L- 838+50 that will be adjusted to provide adequate vertical clearance over the proposed highway. A single phase crossing the main line at Station –L- 890+50 and several services at –L- 900+00 will be removed.

Faircloth Road (-Y29-): South River EMC will install an aerial single phase line, inside proposed right of way and PUE on the south side of Faircloth Road and then cross to the north at –Y29- 18+95 continuing beyond the project limits.

Lucas Road (-Y30-): South River EMC will install an aerial three phase line, inside the proposed right of way, on the south side of Lucas Road and tie into their existing facilities beyond the project limits.

- 2) South River EMC will relocate their facilities at the locations shown on the Utility by Others Plans prior to project availability.

- 3) Contact Person for South River EMC – Distribution is Mr. Scott Byrd at telephone (910) 892-8071 (Ext 4113).

D) CenturyLink – Communications

- 1) NC 24 (-L-): CenturyLink will install buried copper one foot inside the proposed right of way from beginning of project limits, continue along existing NC 24 and end beyond project limits on the east side. New copper and fiber will also be installed one foot inside the proposed right of way from the beginning of the project limits to Dowdy Road on the west side, cross NC 24 by directional bore and continue beyond the project limits on the east side. All existing CenturyLink facilities in this area will be abandoned.

CenturyLink will install buried copper and fiber one foot inside the proposed right of way beginning south of the project limits on the east side and continue east and turn paralleling NC 24 (-Y33-) to 11+00. From that point, buried copper will cross the main line and tie into the proposed facilities at Station -L- 905+21, as well as, turning east on the main line and continuing to -L- 1032+80.

CenturyLink will install buried copper one foot inside the proposed right of way from Marion Amos Road (-L- 976+69 to 983+30, Left). Buried copper will be bored across the main line at Stations -L- 978+65, 999+60, 1069+60, 1086+56 and 1093+18. Buried copper will be installed one foot inside the proposed right of way from Station -L- 999+60 to 1005+73. Buried copper will be bored across the main line at Station L- 1012+74 and turn east continuing one foot inside the right of way to 1020+94. Buried copper and fiber will be installed one foot inside the proposed right of way from L- 1063+86 to the end of the project limits. All existing CenturyLink facilities will be abandoned along NC 24 in the areas mentioned above.

(-L-): CenturyLink will install buried copper one foot inside the proposed right of way beginning at Station -L- 905+21 (East Roseboro Street) and continue to -L- 932+14, right of center.

Dowdy Road (-Y25-): CenturyLink will install buried copper one foot inside the proposed right of way to Station -Y25- 14+57, right. All existing CenturyLink facilities in this area will be abandoned to that point.

Old Brick Mill Road (-Y28-): CenturyLink will install buried copper one foot inside the proposed right of way throughout the project limits on the east side. All existing CenturyLink facilities will be abandoned along Brick Mill Road.

Faircloth Road (-Y29-): CenturyLink will install buried copper one foot inside the proposed right of way throughout the project limits on the east side. All existing CenturyLink facilities will be abandoned along Faircloth Road.

Lucas Road (-Y30-): CenturyLink will install buried copper one foot inside the proposed right of way throughout the project limits on the east side. All existing CenturyLink facilities will be abandoned along Lucas Road.

Dunn Road (-Y32A-): CenturyLink will install buried copper one foot inside the proposed right of way from -Y32A -11+ 48 to 13+23 left and 13+50 to 22+90, right. All existing CenturyLink facilities will be abandoned along Dunn Road.

North Street (-Y32B-): CenturyLink will install buried copper one foot inside the proposed right of way throughout the project limits on the west side (outside of the project limits) until reaching Station -Y23B 10+94 where it will turn west and follow the proposed right of way and tie into the facilities on NC 242 (-Y31-). All existing CenturyLink facilities will be abandoned along North Street.

NC 242/Salemburg Highway (-Y31-): CenturyLink will install buried copper and fiber one foot inside the proposed right of way throughout the project limits on the east side. All existing CenturyLink facilities will be abandoned along NC 242.

East Roseboro Street: CenturyLink will install buried copper one foot inside the proposed right of way on the west side of East Roseboro Street and end at the cul-de-sac on the south side of the main line. New buried copper will be installed one foot inside the proposed right of way on the east side beginning at Station -L- 905+21, right and continue north beyond the project limits. All existing CenturyLink facilities will be abandoned along East Roseboro Street.

- 2) CenturyLink will begin the relocation of their facilities along the -Y- lines as shown on the Utility by Others Plans prior to construction but does not anticipate having the relocations completed prior to availability. CenturyLink requests three weeks' notice prior to the contractor's completion of grading along the main line and twelve weeks to complete the work after rough grade on the main line and for the completion of their work on the -Y-lines.
- 3) Contact Person for Century Link is Mr. Kevin Godwin (910) 366-2142.

E) StarVision, Inc. - Communications

- 1) StarVision's buried facilities will be abandoned in place and new facilities will be attached to Progress Energy's aerial pole line throughout the project limits.
- 2) StarVision will relocate their facilities at the locations shown on the Utility by Others Plans prior to project availability.
- 3) Contact Person for StarVision is Mr. Ron Carter at telephone (910) 564-7863.

D) Piedmont Natural Gas – Natural Gas

- 1) NC 24 (-L-): Piedmont Natural Gas will relocate their City Gate Regulator Station to Station -L- 743+18, right of center. Their buried 4" steel distribution facilities will be relocated from the beginning of the project limits to the Regulator Station seven feet inside the proposed right of way, right of center.
- 2) Piedmont Natural Gas will relocate their Regulator Station at the location shown on the Utilities by Others Plans prior to project availability. Piedmont requests two weeks' notice prior to the contractor's completion of grading along the main line and ten weeks to complete their work.
- 3) Contact Person for Piedmont Natural Gas is Mr. Edward Sykes at telephone (919) 705-5050.

**Project Special Provisions
Erosion Control**

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		September 1 - February 28	
50#	Tall Fescue	50#	Tall Fescue
10#	Centipede	10#	Centipede
25#	Bermudagrass (hulled)	35#	Bermudagrass (unhulled)
500#	Fertilizer	500#	Fertilizer
4000#	Limestone	4000#	Limestone

Waste and Borrow Locations

March 1 - August 31		September 1 - February 28	
75#	Tall Fescue	75#	Tall Fescue
25#	Bermudagrass (hulled)	35#	Bermudagrass (unhulled)
500#	Fertilizer	500#	Fertilizer
4000#	Limestone	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
4#	Switchgrass
25#	Browntop Millet
500#	Fertilizer
4000#	Limestone

September 1 - February 28

18#	Creeping Red Fescue
6#	Indiangrass
8#	Little Bluestem
4#	Switchgrass
35#	Rye Grain
500#	Fertilizer
4000#	Limestone

Approved Creeping Red Fescue Cultivars:

Aberdeen	Boreal	Epic	Cindy Lou
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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 in 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.

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

http://www.ncdot.gov/doh/operations/dp_chief_eng/roadside/fieldops/downloads/Files/ContractedReclamationProcedures.pdf

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

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
Safety Fence

Pay Unit
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 extend the pipe so the basin will drain. Attach a 6 ft. arm pipe to the coupling connection and Faircloth skimmer according to manufacturer recommendations. Attach the rope included with the skimmer to the tee between

the vent socket and the tube inlet, and the other end to a wooden stake or metal post. Clean out skimmer device when it becomes clogged with sediment and/or debris and is unable to float at the top of water in skimmer basin. Take appropriate measures to avoid ice accumulation in the skimmer device. Construct a stone pad of Class B stone directly underneath the skimmer device at bottom of basin. The pad shall be a minimum of 12" in height, and shall have a minimum cross sectional area of 4 ft. by 4 ft.

Line emergency spillway with geotextile unrolled in the direction of flow and lay smoothly but loosely on soil surface without creases. Bury edges of geotextile in a trench at least 5" deep and tamp firmly. If geotextile for the emergency spillway is not one continuous piece of material, make horizontal overlaps a minimum of 18" with upstream geotextile overlapping the downstream geotextile. Secure geotextile with eleven gauge wire staples shaped into a *u* shape with a length of not less than 12" and a throat not less than 1" in width. Place staples along outer edges and throughout the geotextile a maximum of 3 ft. horizontally and vertically. Geotextile shall be placed to the bottom and across the entire width of the basin according to the Skimmer Basin with Baffles detail. Place sealant inside basin around barrel pipe on top of geotextile with a minimum width of 6 in.

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

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

Measurement and Payment

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

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

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

___ " *Skimmer* will be measured in units of each. ___ " *Skimmer* will be measured and paid for as the maximum number of each size skimmer acceptably installed and in use at any one time during the life of the project. Barrel and arm pipe, cleanout, relocation and reinstallation of ___ "

Skimmer is considered incidental to the measurement of the quantity of ___" *Skimmer* and no separate payment will be made. No separate payment shall be made if ___" *Skimmer*, barrel and/or arm pipe(s) are damaged by ice accumulation.

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

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

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

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

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

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

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

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

Payment will be made under:

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

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

Line emergency spillway with geotextile unrolled in the direction of flow and lay smoothly but loosely on soil surface without creases. Bury edges of geotextile in a trench at least 5" deep and tamp firmly. If geotextile for the emergency spillway is not one continuous piece of material, make horizontal overlaps a minimum of 18" with upstream geotextile overlapping the downstream geotextile. Secure geotextile with eleven gauge wire staples shaped into a *u* shape with a length of not less than 12" and a throat not less than 1" in width. Place staples along outer edges and throughout the geotextile a maximum of 3 ft. horizontally and vertically. Geotextile shall be placed to the bottom and across the entire width of the ditch according to the Earthen Dam with Skimmer Detail. Place sealant inside basin around barrel pipe on top of geotextile with a minimum width of 6 in.

At the skimmer outlet, provide a smooth soil surface free from stones, clods, or debris that will prevent contact of the coir fiber matting with the soil. Unroll the matting and apply without stretching such that it will lie smoothly but loosely on the soil surface. Wooden stakes,

reinforcement bars, or staples may be used as anchors in accordance with the details in the plans and as directed. Place anchors across the matting at the ends approximately 1 ft. apart. Place anchors along the outer edges and down the center of the matting 3 ft. apart.

Measurement and Payment

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

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

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

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

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

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

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

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

Payment will be made under:

Pay Item	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.

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	Pay Unit
Polyacrylamide(PAM)	Pound
Wattle	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

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*.

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	Pay Unit
Culvert Diversion Channel	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	Pay Unit
Impervious Dike	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	Section
Coir Fiber Mat	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 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	Section
Coir Fiber Mat	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

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.

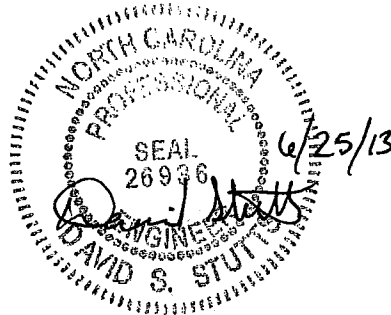
No direct payment will be made for developing or implementing the Pond Drainage Plan as the cost of such shall be included in the lump sum price bid for *Clearing and Grubbing*.

Project Special Provisions
Structures and Culverts

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For Pile Driving Criteria, see Geotechnical special provisions.



PROJECT SPECIAL PROVISIONS
STRUCTURES

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.

OPTIONAL PRECAST REINFORCED CONCRETE BOX CULVERT AT STATION 906+61.00 -L-

(2-10-12)

1.0 GENERAL

This Special Provision covers the design, fabrication and construction of precast reinforced concrete box culverts intended for the conveyance of storm water.

If the option is indicated on the plans, the submittal for a precast reinforced box culvert in lieu of a cast-in-place culvert is permitted. Design the precast culvert sections in accordance with ASTM C1577 or the latest edition of the AASHTO LRFD Bridge Design Specifications. Provide the size and number of barrels as indicated on the plans. Detail the culvert with cast in place wings walls and footings. Precast wing walls and footings will not be allowed. Provide a precast box culvert that meets the requirements of Section 1077 and any other applicable parts of the Standard Specifications.

The design of the precast members is the responsibility of the Contractor and is subject to review, comments and approval. Submit two sets of detailed plans for review. Include all details in the plans, including the size and spacing of the required reinforcement necessary to build the precast box culvert. Have a North Carolina Registered Professional Engineer check and seal the plans and any required design calculations. After the plans and design calculations are reviewed and, if necessary, the corrections made, submit one set of reproducible tracings on 22" x 34" sheets to become part of the contract plans.

If the span, rise and design earth cover for the precast reinforced concrete box culvert are identical to a previously approved submittal, the Contractor may request the previously approved design calculations and plans be considered as the submittal for review and approval.

2.0 PRECAST REINFORCED CONCRETE BOX SECTIONS

Types

Precast reinforced concrete box sections manufactured in accordance with this Special Provision are designated by span, rise, and design earth cover.

Design

1. Design – The box section dimensions and reinforcement details are subject to the provisions of Section F.
2. Placement of Reinforcement – Provide a 1 inch concrete cover over the reinforcement subject to the provisions of Section F. Extend the inside reinforcement into the tongue portion of the joint and the outside reinforcement into the groove portion of the joint. Detail the clear distance of the end wires so it is not less than 1/2 inch nor more than 2 inches from the ends of the box section. Assemble reinforcement per the requirements of ASTM C1577 or the approved design. The exposure of the ends of the wires used to position the reinforcement is not a cause for rejection.
3. Laps and Spacing – Use lap splices for the transverse reinforcement. Detail the transverse wires so that the center to center spacing is not less than 2 inches nor more than 4 inches. Do not detail the longitudinal wires with a center to center spacing of more than 8 inches.
4. The design earth cover is reported on the plans as the elevation difference between the point of maximum fill and the top of the top slab.

Joints

5. Produce the precast reinforced concrete box section with tongue and groove ends. Design and form these ends of the box section so, when the sections are laid together, they make a continuous line of box sections with a smooth interior free of appreciable irregularities in the flowline, all compatible with the permissible variations given in Section F. The internal joint formed at the tongue and groove ends of the precast units shall be sealed with either bitumen/butyl sealant or closed-cell neoprene material. The internal joint material shall be installed in accordance with the manufacturer's recommendations. The material shall be shown on the shop drawings when they are submitted for review.
6. Seal the external joint with an outside sealer wrap conforming to ASTM C877 that is at least 12 inches wide and covers the joint on both the sides and the top of the box section. Use ConWrap CS-212 from Concrete Sealants, Inc., EZ-Wrap from Press-Seal Gasket Corporation, Seal Wrap from Mar-Mac Manufacturing Co., Inc., Cadilloc External Pipe Joint from Cadilloc, or an approved equal for the outside sealer wrap. If the outside sealer wrap is not applied in a continuous strip along the entire joint, a 12 inch minimum lap of the outside sealer wrap is permitted. Before

placing the outside sealer wrap, clean and prime the area receiving the outside sealer wrap in accordance with the sealer wrap manufacturer recommendations. The joint wrap manufacturer installation recommendations shall be included with shop drawings submitted for review. The external joint wrap shall be installed in pieces, as indicated on Figure 1 below:

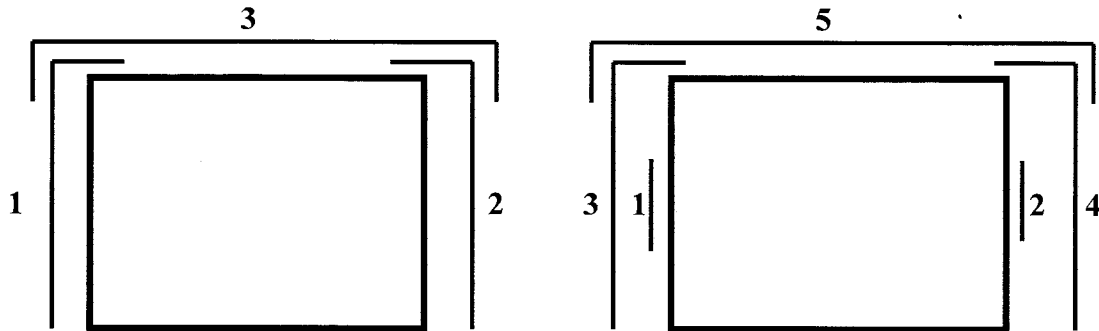


Figure 1

Cover the external joint sealer with a 3 foot strip of filter fabric conforming to Type 4 requirements in Section 1056 of the Standard Specifications.

Place multiple lines of a precast reinforced concrete box culvert such that the longitudinal joint between the sections has a minimum width of 3 inches. Fill the joint between multiple lines of precast box sections with Class A concrete. Use Class A concrete that meets the requirements listed in the Standard Specifications except that Field Compressive Strength Specimens are not required.

Manufacture

Precast box culverts may be manufactured by either the wet cast method or dry cast method.

7. Mixture – In addition to the requirements of Section 1077 of the Standard Specifications, do not proportion the mix with less than 564 lb/yd³ of portland cement.
8. Strength – Make sure that all concrete develops a minimum 28-day compressive strength of 5000 psi. Movement of the precast sections should be minimized during the initial curing period. Any damage caused by moving or handling during the initial curing phase will be grounds for rejection of that precast section.
9. Air Entrainment – Air entrain the concrete in accordance with Section 1077 - 5(A) of the Standard Specifications. For dry cast manufacturing, air entrainment is not required.
10. Testing – Test the concrete in accordance with the requirements of Section 1077 - 5(B).

11. Handling – Handling devices or holes are permitted in each box section for the purpose of handling and laying. Submit details of handling devices or holes for approval and do not cast any concrete until approval is granted. Remove all handling devices flush with concrete surfaces as directed. Fill holes in a neat and workmanlike manner with an approved non-metallic non-shrink grout, concrete, or hole plug.

Physical Requirements

Acceptability of precast culvert sections is based on concrete cylinders made and tested in accordance with AASHTO T22 and AASHTO T23.

Permissible Variations

12. Flatness – All external surfaces shall be flat, true, and plumb. Irregularities, depressions, or high spots on all external surfaces shall not exceed 1/2 inch in 8 feet.
13. Internal Dimensions – Produce sections so that the internal and haunch dimensions do not vary more than 1/4 inch from the plan dimensions.
14. Adjacent Sections - Internal, external, and haunch dimensions for connecting sections shall not vary more than 1/2 inch.
15. Length of Tongue and Groove – The minimum length of the tongue shall be 4 inches. The minimum length of the groove shall be 4 inches. The dimensions of the tongue and groove shall not vary more than 1/4 inch from the plan dimensions.
16. Slab and Wall Thickness – Produce sections so that the slab and wall thickness are not less than that shown on the plans by more than 5% or 3/16 inch, whichever is greater. A thickness more than that required on the plans is not a cause for rejection.
17. Length of Opposite Surfaces – Produce sections so that variations in laying lengths of two opposite surfaces of the box section meet the requirements of ASTM C1577, Section 11.3.
18. Length of Section – Produce sections so that the underrun in length of a section is not more than 1/2 inch in any box section.
19. Position of Reinforcement – Produce sections so that the maximum variation in the position of the reinforcement is $\pm 3/8$ inch for slab and wall thicknesses of 5 inches or less and $\pm 1/2$ inch for slab and wall thicknesses greater than 5 inches. Produce sections so that the concrete cover is never less than 5/8 inch as measured to the internal surface or the external surface. The preceding minimum cover limitations do not apply at the mating surfaces of the joint.

20. Area of Reinforcement – Use the design steel shown on the plans for the steel reinforcement. Steel areas greater than those required are not cause for rejection. The permissible variation in diameter of any wire in finished fabric is prescribed for the wire before fabrication by either AASHTO M32 or M225.

Marking

21. Each section shall be match-marked in order of intended installation as indicated on the approved shop drawings. Ensure that pieces fit together neatly and in a workmanlike manner. In order to ensure a good, neat field fit, the Department will verify assembly of the first five adjacent sections or 20% of the total culvert length, whichever is greater, at the producer's facility and match-mark the pieces. This will require that a minimum of three adjacent sections of the culvert be fitted at the production yard at a time and then match-marked. Once three sections have been match-marked, the first section may be removed for shipment and a fourth section set for marking. Continue in a progressive manner until all sections have been properly match-marked. The producer shall document the GO-NO-GO dimensional measurements of each box culvert section produced through the post-pour inspection process.
22. Clearly mark each section of the box culvert in accordance with ASTM C1577, Section 15.

Construction

23. Pre-installation Meeting – A pre-installation meeting is required prior to installation. Representatives from the Contractor, the precast box manufacturer, and the Department should attend this meeting. The precast box manufacturer representative shall be on site during installation.
24. Foundation – Foundation for precast box culvert shall meet the requirements of Section 414 of the Standard Specifications. In addition, Type VI foundation material shall be encapsulated in filter fabric conforming to Type 4 requirements in Section 1056 of the Standard Specifications. The filter fabric shall be placed perpendicular to the culvert barrel. Provide sufficient overhang beyond the excavation to allow a minimum lap of 3 feet when the foundation material is placed and fabric wrapped on top. Perpendicular sections of fabric shall be continuous. A minimum lap of 2 feet shall be provided between sections of fabric.
25. Installation – Sections shall be placed at the beginning of the outlet end of the culvert with the groove end being laid upgrade. Tongue sections shall be laid into the groove sections. Positive means shall be provided to pull each section firmly into the previously placed section so that the joints are tightly homed. Use a "come-along", box pullers or other approved methods to create a positive means of joining box sections. Construction equipment shall not have direct contact with the box section. The load of the box shall be suspended by lifting device during joining procedure.

26. Backfill – Complete backfill in accordance with Section 414 of the Standard Specifications.

3.0 BASIS OF PAYMENT

Any additional cost of redesigning will be paid for by the Contractor if Precast Reinforced Concrete Culvert is used in lieu of the cast-in-place culvert shown on the plans. Except for Foundation Conditioning Material and Culvert Excavation, payment for the Precast Box Culvert will be a lump sum amount equal to the payment that would be allowed for construction of a Cast-in-Place Box Culvert. Plan quantities and unit bid prices will be used to compute the lump sum amount. Such price and payment will be full compensation for all work covered by this Special Provision, the plans and applicable parts of the Standard Specifications and will include, but not be limited to, furnishing all labor, materials (including all filter fabric), equipment and other incidentals necessary to complete this work. Such price and payment will also be full compensation for concrete, reinforcing steel, labor, equipment and all other related materials necessary for the completion of the barrel section, and the construction of the headwalls, leveling pad, end curtain walls, wings and wing footings.

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. Screenshot Wheel Weight, (lbs.)	Bracket Min. Vertical Leg Extension, (inches)
II	36	39	14	2000	26
III	45	42	14	2000	35
IV	54	45	14	2000	44
MBT	63	51	12	2000	50
MBT	72	55	12	1700	48

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

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

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

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

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

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

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

When staged construction of the bridge deck is required, detail falsework and forms for screed and fluid concrete loads to be independent of any previous deck pour components when the mid-span girder deflection due to deck weight is greater than 3/4".

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

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

1. Wind Loads

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

Table 2.2 - Wind Pressure Values

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

2. Time of Removal

The following requirements replace those of Article 3.4.8.2.

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

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

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

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

B. Review and Approval

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

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

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

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

4.0 CONSTRUCTION REQUIREMENTS

All requirements of Section 420 of the Standard Specifications apply.

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

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

A. Maintenance and Inspection

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

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

B. Foundations

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

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

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

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

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

5.0 REMOVAL

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

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

6.0 METHOD OF MEASUREMENT

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

7.0 BASIS OF PAYMENT

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

SUBMITTAL OF WORKING DRAWINGS**(2-10-12)****1.0 GENERAL**

Submit working drawings in accordance with Article 105-2 of the *Standard Specifications* and this provision. For this provision, "submittals" refers to only those listed in this provision. The list of submittals contained herein does not represent a list of required submittals for the project. Submittals are only necessary for those items as required by the

contract. Make submittals that are not specifically noted in this provision directly to the Resident Engineer. Either the Structure Design Unit or the Geotechnical Engineering Unit or both units will jointly review submittals.

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

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

2.0 ADDRESSES AND CONTACTS

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

Via US mail:

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

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

Via other delivery service:

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

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

Submittals may also be made via email.

Send submittals to:

plambert@ncdot.gov (Paul Lambert)

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

jgaither@ncdot.gov (James Gaither)

jlbolden@ncdot.gov (James Bolden)

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

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

Via US mail:

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

Via other delivery service:

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

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

Via US mail:

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

Via other delivery service:

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

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

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

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

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

Eastern Regional Geotechnical Contact (Divisions 1-7):

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

Western Regional Geotechnical Contact (Divisions 8-14):

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

3.0 SUBMITTAL COPIES

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

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

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

STRUCTURE SUBMITTALS

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

Falsework & Forms ² (substructure)	8	0	Article 420-3 & "Falsework and Formwork"
Falsework & Forms (superstructure)	8	0	Article 420-3 & "Falsework and Formwork"
Girder Erection over Railroad	5	0	Railroad Provisions
Maintenance and Protection of Traffic Beneath Proposed Structure	8	0	"Maintenance and Protection of Traffic Beneath Proposed Structure at Station ____"
Metal Bridge Railing	8	0	Plan Note
Metal Stay-in-Place Forms	8	0	Article 420-3
Metalwork for Elastomeric Bearings ^{4,5}	7	0	Article 1072-8
Miscellaneous Metalwork ^{4,5}	7	0	Article 1072-8
Optional Disc Bearings ⁴	8	0	"Optional Disc Bearings"
Overhead and Digital Message Signs (DMS) (metalwork and foundations)	13	0	Applicable Provisions
Placement of Equipment on Structures (cranes, etc.)	7	0	Article 420-20
Pot Bearings ⁴	8	0	"Pot Bearings"
Precast Concrete Box Culverts	2, then 1 reproducible	0	"Optional Precast Reinforced Concrete Box Culvert at Station ____"
Prestressed Concrete Cored Slab (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

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Revised Bridge Deck Plans (adaptation to modular expansion joint seals)	2, then 1 reproducible	0	“Modular Expansion Joint Seals”
Sound Barrier Wall (precast items)	10	0	Article 1077-2 & “Sound Barrier Wall”
Sound Barrier Wall Steel Fabrication Plans ⁵	7	0	Article 1072-8 & “Sound Barrier Wall”
Structural Steel ⁴	2, then 7	0	Article 1072-8 Article 400-3 & “Construction, Maintenance and Removal of Temporary Structure at Station _____”
Temporary Detour Structures	10	2	
TFE Expansion Bearings ⁴	8	0	Article 1072-8

FOOTNOTES

1. References are provided to help locate the part of the contract where the submittals are required. References in quotes refer to the provision by that name. Articles refer to the *Standard Specifications*.
2. Submittals for these items are necessary only when required by a note on plans.
3. Submittals for these items may not be required. A list of pre-approved sequences is available from the producer or the Materials & Tests Unit.
4. The fabricator may submit these items directly to the Structure Design Unit.
5. The two sets of preliminary submittals required by Article 1072-8 of the *Standard Specifications* are not required for these items.
6. Submittals for Fabrication Drawings are not required. Submittals for Catalogue Cuts of Proposed Material are required. See Section 5.A of the referenced provision.
7. Submittals are necessary only when the top slab thickness is 18” or greater.

GEOTECHNICAL SUBMITTALS

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

FOOTNOTES

- References are provided to help locate the part of the contract where the submittals are required. References in quotes refer to the provision by that name. Subarticles refer to the *Standard Specifications*.
- Submit one hard copy of submittal to the Resident or Bridge Maintenance Engineer. Submit a second copy of submittal electronically (PDF via email) or by facsimile, US mail or other delivery service to the appropriate Geotechnical Engineering Unit regional office. Electronic submission is preferred.
- The Pile Driving Equipment Data Form is available from:
www.ncdot.org/doh/preconstruct/highway/geotech/formdet/
See second page of form for submittal instructions.
- Electronic copy of submittal is required. See referenced provision.

CRANE SAFETY**(8-15-05)**

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

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

CRANE SAFETY SUBMITTAL LIST

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.

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.

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

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.

R-1

C203161 (R-2303C)

Sampson County

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.

PERMIT

AUTHORITY GRANTING THE PERMIT

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

July 8, 2013

Regulatory Division

Action ID No. SAW-1992-03237

Gregory J. Thorpe, Ph.D.
Environmental Management Director, PDEA
N.C. 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. 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 was issued March 5, 2013. With subsequent revisions and updated information received for Section C and D, which totals 13.3 miles starting in north of Roseboro and terminating near Clinton in Sampson County, the existing permit is currently being modified to include the aforementioned sections.

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 C and D have been added:

All original conditions in the December 12, 2012 permit remain valid and are enforceable with Section C and D authorization. The Special Conditions for the permit modification are the following:

1. This permit modification only authorizes work on Section C and D of TIP R-2303. Construction on Sections E-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 C and D are attached.

2. The Permittee shall fully implement the compensatory mitigation plan (Section C and D), 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 will re-establish, enhance, and preserve 4.92 acres of wetlands and 550 linear feet of stream channel in accordance with the plan, with the following conditions:
 - 1) Any changes or modifications to your mitigation plan shall be approved by the Corps.
 - 2) 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. The Department will complete the restoration at site #22 in Section D which will result in the day lighting of 56 linear feet of stream channel. The work should be completed as described on plan sheet 57 and 58 of 75. Additionally, the work is further described in cross section on plan sheet 2 of 75, detail R.
5. 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 C and D:**

Section C

- 3.05 acres of riparian wetland restoration equivalents will come from a combination of left over mitigation in section B as well as new riparian restoration, enhancement, and preservation in section C.

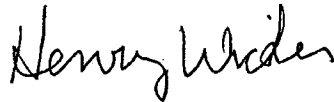
- 7.35 acres of riparian impacts (roadway) will be mitigated through EEP at 2:1, resulting in a 14.70 acre debit.
- 1.38 acres of riparian impacts (utility) will be mitigated through EEP at 1:1, resulting in 1.38 acre debit
- 3.69 acres of non-riparian impacts (roadway) will be mitigated through EEP at 2:1, resulting in a 7.38 acre debit.
- 0.16 acre non riparian impact (utility) will be mitigated through EEP at 1:1, resulting in a 0.16 acre debit.
- 0.44 acre non riparian impact (utility) will be mitigated through EEP at 0.5:1, resulting in a 0.22 acre debit.
- 550 linear feet of stream restoration will occur on site in section C.
- 1,261 linear feet of stream impact (roadway) will be mitigated at 2:1 from EEP, resulting in a 2,522 linear feet debit.

Section D

- 2.68 acres of riparian wetland restoration equivalents will come from a combination of restoration and enhancement in section D.
- 3.06 acres of riparian impacts (roadway) will be mitigated through EEP at 2:1, resulting in a 6.12 acre debit.
- 0.52 acre riparian impact (utility) will be mitigated through EEP at 1:1, resulting in a 0.52 acre debit.
- 2.56 acres of non-riparian impacts (roadway) will be mitigated through EEP at 2:1, resulting in a 5.12 acre debit.
- 0.28 acre non riparian impact (utility) will be mitigated through EEP at 0.5:1, resulting in a 0.14 acre debit.
- 1,539 linear feet of stream impacts (roadway) will be mitigated at 2:1 from EEP, resulting in a 3,078 linear feet debit.

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

Enclosures

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, NCEEP
Mr. Todd Tugwell, USACE

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* U.S. ARMY CORPS OF ENGINEERS

Wilmington District

Compensatory Mitigation Responsibility Transfer Form

Permittee: North Carolina Department of Transportation
Project Name: R-2303, Sections C and D

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 must verify that the mitigation requirements shown below are available at the identified site. By signing below, the Sponsor is accepting full responsibility for the identified mitigation, regardless of whether or not they have received payment from the Permittee. 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/In-Lieu Fee Program 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
2800				12.31	7.13	

*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: 03030006, Cape Fear River Basin**

Stream Mitigation (credits)			Wetland Mitigation (credits)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-riverine	Non-Riparian	Coastal
5600				22.72	13.02	

Mitigation Site Debited: NCEEP

(List the name of the bank to be debited. For umbrella banks, also list the specific site. For NCEEP, list NCEEP. If the NCEEP acceptance letter identifies a specific site, also list the specific site to be debited).

Section to be completed by the Mitigation Sponsor

Statement of Mitigation Liability Acceptance: I, the undersigned, verify that I am authorized to approve mitigation transactions for the Mitigation Sponsor shown below, and I certify that the Sponsor agrees to accept full responsibility for providing the mitigation identified in this document (see the table above), associated with the USACE Permittee and Action ID number shown. I also verify that released credits (and/or advance credits for NCEEP), as approved by the USACE, are currently available at the mitigation site identified above. 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 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 Sponsor, and in the USACE administrative records for both the permit and the Bank/ILF Instrument. It is the Permittee's responsibility to ensure that the USACE Project Manager (address below) is provided with a signed copy of this form.
- 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:

** Note, breakdown of impacts to required mitigation for Section C and D:

Section C

- 3.05 acres of riparian wetland restoration equivalents will come from a combination of left over mitigation in section B as well as new riparian restoration, enhancement, and preservation in section C.
- 7.35 acres of riparian impacts (roadway) will be mitigated through EEP at 2:1, resulting in a 14.70 acre debit.
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Section D

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U.S. ARMY CORPS OF ENGINEERS

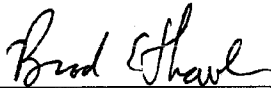
Wilmington District

- 2.56 acres of non-riparian impacts (roadway) will be mitigated through EEP at 2:1, resulting in a 5.12 acre debit.
- 0.28 acre non riparian impact (utility) will be mitigated through EEP at 0.5:1, resulting in a 0.14 acre debit.
- 1,539 linear feet of stream impacts (roadway) will be mitigated at 2:1 from EEP, resulting in a 3,078 linear feet debit.

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

July 8, 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>.

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North Carolina Department of Environment and Natural Resources

Division of Water Quality
Thomas A. Reeder
Acting Director

John E. Skvarla, III
Secretary

Pat McCrory
Governor

July 12, 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-2303C&D.**

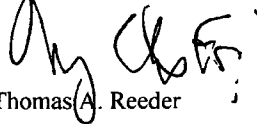
NCDWQ Project No. 20120240v.3

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. **This certification replaces the modification issued on June 26, 2013.**

If we can be of further assistance, do not hesitate to contact us.

Sincerely,



Thomas A. Reeder

Attachments

cc: Brad Shaver, US Army Corps of Engineers, Wilmington Field Office (electronic copy only)
Karen Fussell, PE, Division 3 Engineer
Stoney Mathis, Division 3 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 (electronic copy only)
Jason Elliott, NCDOT, Roadside Environmental Unit (electronic copy only)
Jim Stanfill, Ecosystem Enhancement Program
Chris Manley, NCDOT Natural Environment Section (electronic copy only)
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 28.88 acres of jurisdictional wetlands, 6.10 acres of waters and 4,333 linear feet of jurisdictional streams in Cumberland and Sampson Counties for the construction of **R-2303C&D** only. The project shall be constructed pursuant to the revised application dated received February 15, 2013 and revisions received electronically on April 12, 2013; May 10, 2013; June 4, 2013 and June 7, 2013. **No impacts to Sections E 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)	Bank Stabilization (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⁽²⁾								
Total		158	0	193	88	-	439	351
R-2303C								
1	734+14 to 739+72	74	10	0	0	10	94	0
6	804+86 to 807+86	213	20	0	0	10	243	223
7	860+27 to 865+12	0	0	260	42	39	341	299
9	867+38 to 889+49	0	0	255	28	55	338	310
10	905+77 to 907+41	0	0	262	20	80	362	342
11	912+92 to 913+67	0	0	185	0	10	195	195
15	999+64 to 1005+57	0	0	38	10	10	58	0
18	1035+56 to 1037+40	0	0	271	20	10	301	281
19	1064+16 to 1067+95	0	0	90	10	10	110	0
22	1086+79 to 1087+86	26	20	0	0	10	56	0
23	1091+76 to 1092+23	137	10	0	0	10	157	0
Total		450	60	1,361	130	254	2,255	1,650
* R-2303D								
2	1106+68 to 1110+17	0	0	183	60	19	262	202
6	1197+30 to 1197+97	35	11	0	0	0	46	0
7	1199+32 to 1201+65	33	16	0	0	0	49	0
12	1224+08 to 1224+64	0	0	306	60	42	408	348
13	1278+68 to 1281+53	286	10	0	0	21	317	307
14	1289+68 to 1291+91	283	30	0	0	30	343	313
15	1292+13 to 1299+88	0	0	151	20	32	203	183
20	1391+00	129	0	0	0	10	139	0
22	1444+00	0	0	108	5	46	159	
22	12+22 to 12+69-Y53	0	0	55	20	24	99	177 ⁽³⁾
23	17+40-Y52	9	8	0	0	10	27	0
24	52+66-Y52	17	0	0	0	9	26	0
Total		792	75	803	165	243	2,078	1,530
* R-2303E⁽⁴⁾								
Total		-	-	1,336	155	-	1,491	-
* R-2303F⁽⁴⁾								
Total		-	-	3,859	294	-	4,153	-
Project Total								
Project Total		1,400	135	8,124	859	497	11,015	-

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Total Stream Impact for Project: 11,015 linear feet (4,333 linear feet for Sections C & D)

(1) Impacts authorized in the original 401 certification dated September 24, 2012 and modification dated March 18, 2013.

(2) Authorized in the modification dated February 25, 2013. (3) 56 ft of pipe will be removed and restored to open channel at Site 22-Y53 to offset 56ft of impacts. (4) Sections E and F stream impacts are projected based on preliminary design and include perennial and intermittent systems.

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	0.19	7.87	7.68
* R-2303B⁽³⁾									
Total			4.64	0.12	0.30	0.97	4.32	10.35	5.91
R-2303C									
1	734+14 to 739+72	NR	0.87	0	0.20	0.11	0	1.18	1.18
2	741+85 to 744+50	R	0.26	0	0	0.05	0	0.31	0.31
5	769+44 to 777+78	NR	0.95	0	0.16	0.20	0	1.31	1.31
6	804+86 to 807+86	R	0.10	0	0	0.04	0	0.14	0.14
7	860+27 to 865+12	R	2.34	0	0	0.20	0	2.54	2.54
8	881+97 to 882+31	R	<0.01	0	0	<0.01	0	<0.01	<0.01
9	867+38 to 889+49	R	0.64	0	0	0.05	0	0.69	0.69
10	905+77 to 907+41	R	0.25	0	0	0.01	0	0.26	0.26
12	937+08 to 957+49	R	3.56	0	0.16 ⁽⁴⁾	0.68	0.23	4.63	4.24
13	955+51 to 958+83 (RT)	NR	0.32	0	0	0.06	0	0.38	0.38
14	977+98 to 981+52	NR	0.46	0	0.09	0.11	0	0.66	0.66
16	1005+48 to 1007+04	NR	0.05	0	0	0.03	0	0.08	0.08
18	1035+56 to 1037+40	R	0.60	0	0	0.06	0	0.66	0.66
19	1064+16 to 1067+95	R	0.49	0	0	0.09	0	0.58	0.58
20	1075+74 to 1080+69	R	0.82	0	0	0.13	0	0.95	0.95
21	1082+39 to 1083+15	NR	0.04	0	0	0.02	0	0.06	0.06
24	1091+76 to 1092+23	NR	<0.01	0	0	0.01	0	0.01	0.01
R-2303C UTILITIES									
U1	734+78-L-	NR	0	0	0	0	<0.01	<0.01	0
U2	16+33-Y28-	NR	<0.01	0	0	0	0.14	0.14	0
U3	936+39	R	0	0	0	0	0.02	0.02	0
U4	937+54	R	<0.01	0	0	0	0.26	0.26	0
U5	942+21	R	<0.01	0	0	0	0.82	0.82	0
U6	947+07	R	0	0	0	0	0.02	0.02	0
U7	948+32	R	<0.01	0	0	0	0.16	0.16	0
U8	955+66	R	<0.01	0	0	0	0.12	0.12	0
U9	958+17	NR	0	0	0	0	0.04	0.04	0
U10	978+43	NR	0	0	0	0	0.01	0.01	0
U11	979+24	NR	<0.01	0	0	0	0.13	0.13	0
U12	1005+40	NR	0	0	0	0	0.19	0.19	0
U13	1075+13	R	<0.01	0	0	0	0.16	0.16	0
U14	1076+31	R	<0.01	0	0	0	0.28	0.23	0
U15	1091+70	NR	<0.01	0	0	0	0.04	0.04	0
GS1	887+46 to 888+16	R	0	0	0.03 ⁽⁴⁾	0	0	0.03	0
GS2	889+23 to 889+53	R	0	0	0.01 ⁽⁴⁾	0	0	0.01	0
Total*			11.77	0	0.65	1.87	2.61	16.90	14.09

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* R-2303D									
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)
1	1106+95 to 1110+17	R	0.15	0	0	0.10	0	0.25	0.25
2	1106+68 to 1110+21	R	0.63	0	0	0.10	0	0.73	0.73
3	1163+26 to 1167+43	NR	0.51	0	0	0.09	0	0.60	0.60
4	1169+69 to 1176+07	NR	1.25	0	0	0.12	0	1.37	1.37
5	1169+59 to 1172+52	NR	0.06	0	0.02	0.07	0	0.15	0.15
6	1197+30 to 1197+97	R	0.06	0	0.01	0.03	0	0.10	0.10
7	1199+32 to 1201+65	R	0.06	0	0.01	0.04	0	0.11	0.11
8	1204+71 to 1205+18	R	0.01	0	0	0.01	0	0.02	0.02
10	1222+18 to 1225+09	R	0.32	0	0	0.08	0	0.40	0.40
11	1221+04 to 1225+66	R	0.30	0	0	0.13	0	0.43	0.43
12	1224+08 to 1224+64	R	0	0	0.02	0	0	0.02	0.02
14	1289+68 to 1291+91	R	0.02	0	<0.01	0.03	0	0.05	0.05
15	1292+13 to 1299+88	R	1.30	0	0.01	0.19	0	1.50	1.50
16	1295+68 to 1297+37	R	0.07	0	0.25 ⁽⁴⁾	0.04	0	0.36	0.11
18	1301+67 to 1321+13	R	1.16	0.33	0.01	0.27	2.00	3.77	1.44
19	1321+64 to 1329+01	R	0.41	0	0.01	0.20	0.20	0.82	0.62
19	1324+00 to 1325+65 LT	R	0	0	0.10 ⁽⁴⁾	0	0	0.10	0
21	SR1	NR	0.36	0	0	0.08	0	0.44	0.44
* R-2303D UTILITIES									
1	1106+36	R	<0.01	0	0	0	0.07	0.07	0
2	1107+50	R		0	0	0	0.05	0.05	0
3	1169+12	NR	<0.01	0	0	0	0.28	0.28	0
4	1222+17	R	<0.01	0	0	0	0.16	0.16	0
5	1319+83	R	<0.01	0	0	0	0.06	0.06	0
6	1325+14	R	<0.01	0	0	0	0.18	0.18	0
Total*			6.67	0.33	0.44	1.54	3.00	11.98	8.30
* R-2303E ⁽⁵⁾									
Total			1.58	0	-	-	-	1.58	-
* R-2303F ⁽⁵⁾									
Total			21.80	0	-	-	-	21.80	-
Project Total									
Project Total			53.19	0.45	1.43	5.29	10.07	70.48	-

Total Wetland Impact for Project: 70.48 (28.88 acres for Sections C & D)

(1) Wetland Type R = Riparian; NR=Non-Riparian. (2) Impacts authorized in the original 401 certification dated September 24, 2012 and modification dated March 18, 2013. (3) Authorized in modification dated February 25, 2013. (4) Denotes a temporary impact. (5) Sections E and F wetland impacts projected based on preliminary design. *totals may not match sum of individual impacts due to rounding

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 ⁽²⁾				
Total		1.63	0.02	1.65
R-2303C				
2	741+85 to 744+50	0.01	<0.01	0.01
3	755+00 to 760+34	1.26	0.08	1.34
4	764+28 to 765+07	0.04	0	0.04
5	769+44 to 777+78	0.45	0	0.45

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10	905+77 to 907+41	0.03	<0.01	0.03
11	912+92 to 913+67	0.30	0	0.30
15	999+64 to 1005+57	3.22	0	3.22
17	1007+77 to 1010+99	0.34	0	0.34
Total		5.65	0.08	5.73
* R-2303D				
16 ⁽³⁾	1292+00 to 1294+59	0.35	0	0.35
17	1303+81 to 1304+67	0.02	0	0.02
Total		0.37	0	0.37

Total Open Water Impact for Sections A through D: 8.47 acres (6.10 acres for Sections C & D)

*Open Water Impacts for Sections E & F have not been projected based on preliminary design. ⁽¹⁾ Impacts authorized in the original 401 certification dated September 24, 2012 and modification dated March 18, 2013. ⁽²⁾ Authorized in modification dated February 25, 2013. ⁽³⁾ Mitigation site.

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 on April 17, 2013; May 10, 2013; June 4, 2013 and June 7, 2013. All the authorized activities and conditions of certification associated with the original Water Quality Certification dated September 24, 2012 and subsequent modifications issued on February 25, 2013 and March 18, 2013 still apply except where superseded 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 associated with the construction of Sections C and D. All of the authorized activities and conditions of certification associated with the original Water Quality Certification dated September 24, 2012 and subsequent modifications issued on February 25, 2013 and March 18, 2013 still apply except where superseded by this certification.
2. 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.
3. The project must be constructed in accordance with the Stormwater Management Plan submitted in the revised application dated received April 17, 2013.
4. Native material shall be placed inside of the reinforced concrete box culverts at Permit Site 2 (Sta. 1109+25) and Permit Site 12 (Sta. 1224+46) to create a natural streambed within the culvert that matches the upstream and downstream profile and dimensions. If possible, the material placed inside of the culvert should be the same native material that is excavated from the streambed during the construction of these structures.
5. Due to the possibility that compaction and/or other site alterations might prevent the temporary wetland impact area from re-attaining jurisdictional wetland status; the permittee shall provide an update on the

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wetland areas temporarily impacted at Site 18 (Sta. 1301+67 to 1321+13). This update shall be conducted a minimum of two growing seasons after completion of the work at Site 18 and shall consist of photographs and a brief report on the progress of the areas in re-attaining wetland jurisdictional status. Upon submission of this update to NCDWQ, the permittee shall schedule an agency field meeting with the NCDWQ to determine if the wetland areas temporarily impacted by this project have re-attained jurisdictional wetland status. If the wetland areas temporarily impacted by this project have not re-attained jurisdictional wetland status, NCDWQ shall determine if compensatory wetland mitigation is required.

6. A turbidity curtain will be installed in the stream if driving or drilling activities occur within the stream channel, on the stream bank, or within 5 feet of the top of bank. A turbidity curtain will also be installed in ponds that require the installation of rip rap embankment. This condition can be waived with prior approval from DWQ.

R-2303C Compensatory Mitigation

7. Compensatory mitigation for 1,650 linear feet of impact to streams is required for the construction of R-2303C. Mitigation will be provided through a combination of both onsite and offsite mitigation. Mitigation will be credited as detailed below:
 - a. The NCDOT will provide compensatory mitigation for impacts to 550 linear feet of stream by performing onsite stream restoration at R-2303C Mitigation Site 1 at the required 1:1 ratio. The onsite stream restoration shall be constructed in accordance with the mitigation plan dated February 22, 2013 submitted in your application.
 - b. Proper measures will be taken to drain the pond at this site 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.
 - c. 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. Please be reminded that as-builts for the stream restoration shall be submitted to the North Carolina Division of Water Quality 401 Wetlands Unit with the as-builts for the rest of the project. If the parameters of this condition are not met, then the permittee shall supply additional stream mitigation for the 550 linear feet of restoration.
 - * d. The permittee shall visually monitor the vegetative plantings to assess and ensure complete stabilization of the mitigation stream segments. Riparian area success shall be determined by conducting stem counts to ensure a tree survival rate of 320 stems/acre. The monitoring shall be conducted annually for a minimum of 3 years after final planting. Photo documentation shall be utilized to document the success of the riparian vegetation and submitted to NCDWQ in a final report within sixty (60) days after completing monitoring. After 3 years the NCDOT shall contact NCDWQ to schedule a site visit to "close out" the mitigation site.
 - * e. We understand that you have chosen to perform compensatory mitigation for the remaining 1,100 linear feet of 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 June 25, 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.

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8. Compensatory mitigation for 14.09 acres of wetlands (10.40 acres of riparian wetlands and 3.69 acres of non-riparian wetlands) is required for the construction of R-2303C. Mitigation will be provided through a combination of both onsite and offsite mitigation. Mitigation will be credited as detailed below:
- a. The NCDOT will provide compensatory mitigation for impacts to 2.50 acres of riparian wetlands by performing onsite riparian wetland restoration at R-2303C Mitigation Site 1 at the required 1:1 ratio. The onsite wetland restoration shall be constructed in accordance with the mitigation plan dated February 22, 2013 submitted in your application.
 - * b. 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.
 - * c. 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.
 - d. Compensatory mitigation for 0.55 acres of riparian wetland impacts will be provided from the surplus of mitigation credits to be provided at R-2303B Mitigation Sites 1 and 2.
 - * e. We understand that you have chosen to perform compensatory mitigation for the remaining 7.39 acres of impacts to riparian wetlands and the 3.69 acres of 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 June 25, 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.

Based on the above information, stream and wetland mitigation for R-2303C can be summarized as follows:

Mitigation Source	Stream Type	Mitigation Credits Required	Debit Ratio	Debits required (linear feet)
On Site Restoration	Warm	550 lf	1:1	550 lf
EEP	Warm	1,100 lf	1:1	1,100 lf
STREAM TOTAL:		1,650 lf		1,650 lf

Mitigation Source	Wetland Type	Mitigation Credits Required	Debit Ratio	Credits or Debits (acres) Required
On Site Restoration	Riparian	2.5	1:1	2.5 (acres)
On Site Restoration	Riparian	0.55	1:1	0.55 (acres)
EEP	Riparian	7.35	2:1	14.56 (credits)
EEP	Non Riparian	3.69	2:1	6.84 (credits)

* R-2303D Compensatory Mitigation

- * 9. We understand that you have chosen to perform compensatory mitigation for the 1,530 linear feet of impacts to streams associated with the construction of R-2303D 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 June 25, 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.

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10. Compensatory mitigation for 8.30 acres of wetlands (5.74 acres of riparian wetlands and 2.56 acres of non-riparian wetlands) is required for the construction of R-2303D. Mitigation will be provided through a combination of both onsite and offsite mitigation. Mitigation will be credited as detailed below:
- a. The NCDOT will provide compensatory mitigation for impacts to 2.68 acres (2.42 acres of restoration and 0.26 acre of enhancement onsite at R-2303D Mitigation Site 1 and R-2303D Mitigation Site 2. The onsite wetland restoration shall be constructed in accordance with the mitigation plan dated February 22, 2013 submitted in your application.
 - * b. 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.
 - * c. 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.
 - * d. We understand that you have chosen to perform compensatory mitigation for the remaining 3.06 acres of impacts to riparian wetlands and the 2.56 acres of 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 June 25, 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.

Based on the above information, wetland mitigation for R-2303D can be summarized as follows:

Mitigation Source	Wetland Type	Mitigation Credits Required	Debit Ratio	Credits or Debits (acres) Required
On Site Restoration	Riparian	2.42	1:1	2.68 (acres)
On Site Enhancement	Riparian	0.26	5:1	1.30 (acres)
EEP	Riparian	3.06	2:1	6.18 (credits)
EEP	Non Riparian	2.56	2:1	5.12 (credits)

11. Success of the mitigation site shall be determined by NCDWQ during an on-site visit at or near the end of the monitoring period.
- * 12. When final design plans are completed for R-2303 Section(s) E and 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) E 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

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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 12th day of July 2013

DIVISION OF WATER QUALITY



Thomas A. Reeder

WQC No. 3942

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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

✱ **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.

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



See Sheet 1-A For Index of Sheets

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
SAMPSON COUNTY

LOCATION: NC 24 FROM SR 1404 (DOWDY ROAD) TO SR 1303
(MITCHELLS LOOP ROAD)

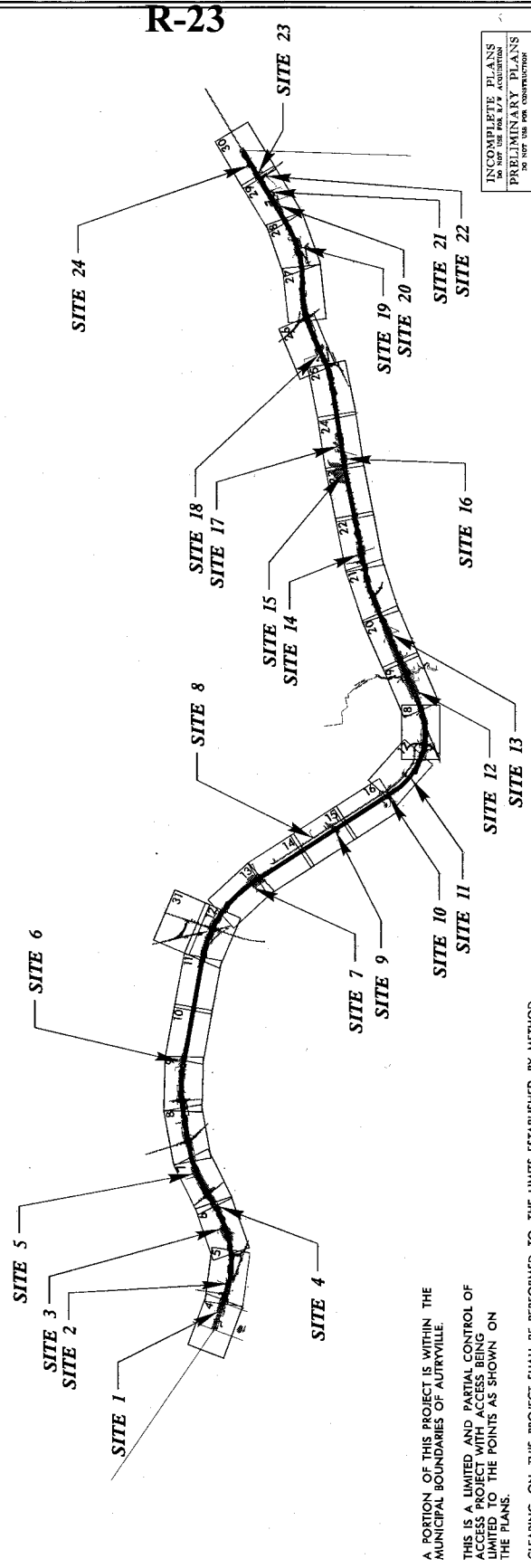
WETLAND / STREAM PERMIT DRAWINGS

STATE PROJECT NUMBER	1
PROJECT NUMBER	R-2302C
DATE	3/4/16
DESIGNER	STPH-F-B-20
PE	PE

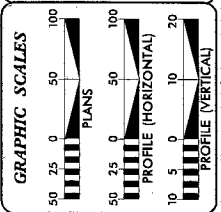
Permit Drawing Sheet 1 of 80

TIP PROJECT: R-2303C

CONTRACT:



A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF AUTRYVILLE.
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 _____



DESIGN DATA

ADT 2010	= 10760
ADT 2030	= 17800
DHV	= 11 %
D	= 55 %
T	= 9 % *
V	= 60 MPH
* TTST 6 DUAL 3	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R- 2303C	=
LENGTH STRUCTURES TIP PROJECT R- 2303C	=
TOTAL LENGTH TIP PROJECT R- 2303C	=

Prepared in the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh, NC, 27609

DESIGNED BY: **BRENDA MOORE, PE**
PROJECT ENGINEER

RIGHT OF WAY DATE: **APRIL 17, 2009**

LETTING DATE: **APRIL 19, 2011**

PROJECT MANAGER: **THAD DUNCAN, PE**
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

DESIGNED BY: _____ P.E.

PROJECT MANAGER: _____ P.E.

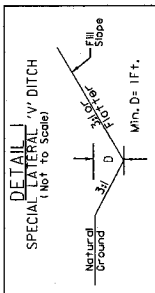
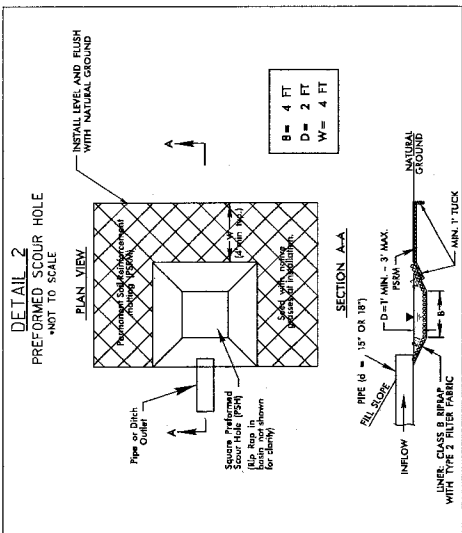
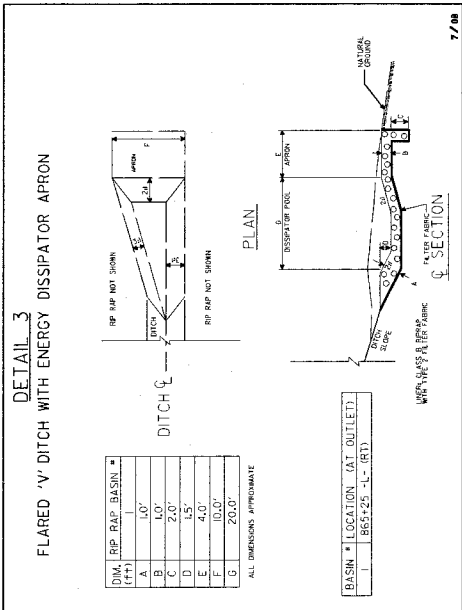
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

INGOARLETTE PLANS
DO NOT USE FOR ANY ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

R-23

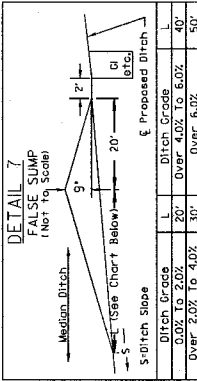
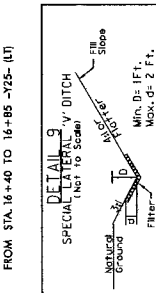
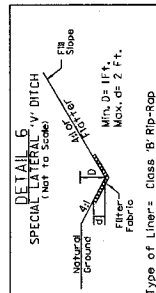
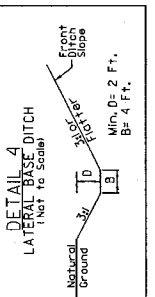
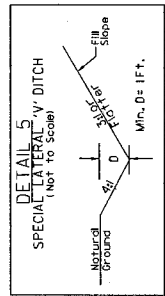
PROJECT REFERENCE NO. R-2433C ROADWAY DESIGN ENGINEER PRELIMINARY PLANS INCOMPLETE PLANS TO NOT BE USED FOR ANY ADJUSTMENTS

Permit Drawing Sheet 2 of 80



FROM STA. 730+10 TO STA. 732+36 -L- (RT) FROM STA. 730+10 TO STA. 734+72 -L- (RT) FROM STA. 734+78 TO STA. 741+00 -L- (RT) -25- (RT) FROM STA. 737+65 -L- (RT) TO STA. 741+00 -L- (RT) FROM STA. 746+50 TO STA. 749+50 -L- (RT) FROM STA. 11+00 TO STA. 16+00 -V26- (LT) FROM STA. 11+98 TO STA. 15+87 -V27- (RT) FROM STA. 16+00 -V26- (LT) TO STA. 17+52+00 -L- (RT) FROM STA. 770+00 TO STA. 774+00 -L- (RT) FROM STA. 774+00 TO STA. 780+00 -L- (RT) FROM STA. 780+00 TO STA. 783+00 -L- (RT) FROM STA. 786+40 TO STA. 790+44 -L- (RT) FROM STA. 790+02 TO STA. 792+02 31'-L- (LT) FROM STA. 790+02 TO STA. 795+89 82'-L- (RT) FROM STA. 797+00 TO STA. 798+00 -L- (RT) FROM STA. 803+50 TO STA. 808+75 -L- (RT) FROM STA. 810+00 TO STA. 820+50 -L- (RT) FROM STA. 820+50 TO STA. 823+00 -L- (RT) FROM STA. 828+00 TO STA. 833+50 -L- (RT) FROM STA. 830+00 TO STA. 835+55 -L- (RT) FROM STA. 841+80 TO STA. 844+00 -L- (RT) FROM STA. 846+50 TO STA. 849+50 -L- (RT) FROM STA. 853+50 TO STA. 856+50 -L- (RT) FROM STA. 867+00 TO STA. 868+50 -L- (RT) FROM STA. 873+50 TO STA. 876+50 -L- (RT) FROM STA. 876+50 TO STA. 884+08 -L- (RT) FROM STA. 879+00 TO STA. 884+55 -L- (RT) FROM STA. 910+00 TO STA. 913+55 -L- (RT) FROM STA. 924+50 TO STA. 928+00 -L- (RT) FROM STA. 933+44 TO STA. 937+00 -L- (RT) FROM STA. 958+50 TO STA. 967+00 -L- (RT) FROM STA. 968+50 TO STA. 976+50 -L- (RT) FROM STA. 978+50 TO STA. 981+00 -L- (RT) FROM STA. 1018+50 TO STA. 1028+40 -L- (RT) FROM STA. 1041+00 TO STA. 1045+50 -L- (RT) FROM STA. 1047+00 TO STA. 1060+00 -L- (RT) FROM STA. 1066+50 TO STA. 1068+00 -L- (RT)

865+25 -L- (RT)



FROM STA. 741+64 TO STA. 742+04 -L- FROM STA. 744+58 TO STA. 744+98 -L- FROM STA. 753+33 TO STA. 753+73 -L- FROM STA. 773+02 TO STA. 773+42 -L- FROM STA. 811+08 TO STA. 811+48 -L- FROM STA. 820+38 TO STA. 820+78 -L- FROM STA. 841+37 TO STA. 841+77 -L- FROM STA. 849+19 TO STA. 849+59 -L- FROM STA. 858+02 TO STA. 858+42 -L- FROM STA. 861+02 TO STA. 861+42 -L- FROM STA. 867+77 TO STA. 868+17 -L- FROM STA. 873+02 TO STA. 873+42 -L- FROM STA. 876+52 TO STA. 876+92 -L- FROM STA. 883+67 TO STA. 883+07 -L- FROM STA. 883+35 TO STA. 883+75 -L- FROM STA. 888+52 TO STA. 888+92 -L- FROM STA. 893+02 TO STA. 893+42 -L- FROM STA. 900+02 TO STA. 900+42 -L- FROM STA. 908+18 TO STA. 908+58 -L- FROM STA. 913+18 TO STA. 913+58 -L- FROM STA. 917+48 TO STA. 917+88 -L- FROM STA. 926+06 TO STA. 926+46 -L- FROM STA. 927+52 TO STA. 928+02 -L- FROM STA. 937+02 TO STA. 937+42 -L- FROM STA. 941+57 TO STA. 941+97 -L- FROM STA. 955+28 TO STA. 955+68 -L- FROM STA. 958+48 TO STA. 958+88 -L- FROM STA. 961+02 TO STA. 961+42 -L- FROM STA. 984+50 TO STA. 984+90 -L- FROM STA. 997+02 TO STA. 997+42 -L- FROM STA. 1004+08 TO STA. 1004+48 -L- FROM STA. 1008+34 TO STA. 1008+74 -L- FROM STA. 1011+04 TO STA. 1011+44 -L- FROM STA. 1026+98 TO STA. 1026+98 -L- FROM STA. 1042+02 TO STA. 1042+42 -L- FROM STA. 1061+02 TO STA. 1061+42 -L- FROM STA. 1067+02 TO STA. 1067+42 -L- FROM STA. 1072+52 TO STA. 1072+92 -L- FROM STA. 1087+52 TO STA. 1087+92 -L- FROM STA. 1089+98 TO STA. 1089+98 -L- FROM STA. 1089+98 TO STA. 1092+98 -L- (RT)

FROM STA. 740+60 TO STA. 742+00 -L- (LT) FROM STA. 16+40 TO STA. 16+80 -V25- (RT) FROM STA. 17+10 TO STA. 17+50 -V25- (RT) FROM STA. 17+10 TO STA. 17+66 -V25- (RT) FROM STA. 12+00 TO STA. 14+10 -V28- (LT) FROM STA. 16+15 TO STA. 17+50 -V28- (LT) FROM STA. 22+50 TO STA. 24+10 -V28- (LT) FROM STA. 24+04 TO STA. 27+50 -V29- (RT) FROM STA. 24+50 TO STA. 27+50 -V30- (RT) FROM STA. 11+00 TO STA. 12+06.81 -V30- (LT) FROM STA. 14+30 TO STA. 15+50 -V30- (LT) FROM STA. 16+30 TO STA. 17+50 -V31- (LT) FROM STA. 20+50 TO STA. 22+29.23 -V32- (RT) FROM STA. 20+50 TO STA. 22+29.23 -V32- (RT) FROM STA. 10+45 TO STA. 12+50 -V32A- (RT) FROM STA. 784+04.6 TO STA. 784+80.22 -L- (RT) FROM STA. 875+00 TO STA. 876+50 -L- (LT) FROM STA. 876+50 TO STA. 876+50 -L- (LT) FROM STA. 908+50 TO STA. 913+00 -L- (LT) FROM STA. 911+58 TO STA. 913+58 -L- (LT) FROM STA. 913+58 TO STA. 915+00 -L- (LT) FROM STA. 11+65 TO STA. 13+80 -V34- (LT) FROM STA. 11+24 TO STA. 13+80 -V34- (LT) FROM STA. 12+35 TO STA. 13+80 -V34- (LT) FROM STA. 12+00 TO STA. 13+00 -V38- (RT) FROM STA. 13+00 TO STA. 16+15 -V38- (RT) FROM STA. 14+50 TO STA. 16+15 -V38- (RT) FROM STA. 10+20 TO STA. 10+94.65 -V36A- (LT) FROM STA. 9+82 TO STA. 10+97 -V36B- (LT) FROM STA. 10+25 TO STA. 10+97 -V36B- (LT) FROM STA. 10+25 TO STA. 10+97 -V36B- (LT) FROM STA. 12+60 TO STA. 16+00 -V37- (RT) FROM STA. 12+60 TO STA. 16+00 -V37- (RT) FROM STA. 21+14.03 TO STA. 22+50 -V37- (RT) FROM STA. 21+33.97 TO STA. 23+00 -V37- (RT) FROM STA. 1094+50 TO STA. 1096+00 -L- (LT)

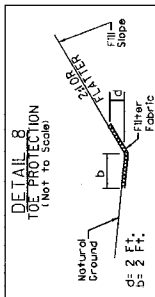
PROJECT REFERENCE NO.
R-2503C

ENGINEER
KAROLYI BERNHARDT

PRELIMINARY PLANS
FOR CONTRACT DOCUMENTS
TO BE USED FOR PERMIT

INCOMPLETE PLANS

Permit Drawing Sheet 3 of 80

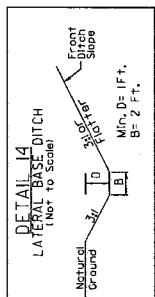


DETAIL 8
TOE PROTECTION
(Not to Scale)

S = 2 FT.

Type of Liner = Class 'B' Rip-Rap

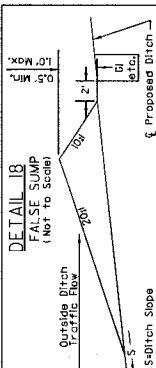
FROM STA. 742+45 TO STA. 744+65 -L- (LT)
FROM STA. 744+65 TO STA. 746+85 -L- (LT)
FROM STA. 746+85 TO STA. 748+05 -L- (LT)
FROM STA. 748+05 TO STA. 750+25 -L- (LT)
FROM STA. 750+25 TO STA. 752+45 -L- (LT)
FROM STA. 752+45 TO STA. 754+65 -L- (LT)
FROM STA. 754+65 TO STA. 756+85 -L- (LT)
FROM STA. 756+85 TO STA. 759+05 -L- (LT)
FROM STA. 759+05 TO STA. 761+25 -L- (LT)
FROM STA. 761+25 TO STA. 763+45 -L- (LT)
FROM STA. 763+45 TO STA. 765+65 -L- (LT)
FROM STA. 765+65 TO STA. 767+85 -L- (LT)
FROM STA. 767+85 TO STA. 770+05 -L- (LT)
FROM STA. 770+05 TO STA. 772+25 -L- (LT)
FROM STA. 772+25 TO STA. 774+45 -L- (LT)
FROM STA. 774+45 TO STA. 776+65 -L- (LT)
FROM STA. 776+65 TO STA. 778+85 -L- (LT)
FROM STA. 778+85 TO STA. 781+05 -L- (LT)
FROM STA. 781+05 TO STA. 783+25 -L- (LT)
FROM STA. 783+25 TO STA. 785+45 -L- (LT)
FROM STA. 785+45 TO STA. 787+65 -L- (LT)
FROM STA. 787+65 TO STA. 789+85 -L- (LT)
FROM STA. 789+85 TO STA. 792+05 -L- (LT)
FROM STA. 792+05 TO STA. 794+25 -L- (LT)
FROM STA. 794+25 TO STA. 796+45 -L- (LT)
FROM STA. 796+45 TO STA. 798+65 -L- (LT)
FROM STA. 798+65 TO STA. 800+85 -L- (LT)
FROM STA. 800+85 TO STA. 803+05 -L- (LT)
FROM STA. 803+05 TO STA. 805+25 -L- (LT)
FROM STA. 805+25 TO STA. 807+45 -L- (LT)
FROM STA. 807+45 TO STA. 809+65 -L- (LT)
FROM STA. 809+65 TO STA. 811+85 -L- (LT)
FROM STA. 811+85 TO STA. 814+05 -L- (LT)



DETAIL 14
LATERAL BASE DITCH
(Not to Scale)

Min. D = 1 FT.
B = 2 FT.

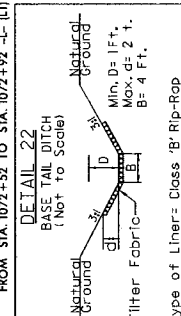
FROM STA. 770+00 TO STA. 775+11 -L- (LT)
FROM STA. 775+11 TO STA. 780+22 -L- (LT)
FROM STA. 780+22 TO STA. 785+33 -L- (LT)
FROM STA. 785+33 TO STA. 790+44 -L- (LT)
FROM STA. 790+44 TO STA. 795+55 -L- (LT)
FROM STA. 795+55 TO STA. 800+66 -L- (LT)
FROM STA. 800+66 TO STA. 805+77 -L- (LT)
FROM STA. 805+77 TO STA. 810+88 -L- (LT)
FROM STA. 810+88 TO STA. 815+99 -L- (LT)
FROM STA. 815+99 TO STA. 820+10 -L- (LT)



DETAIL 18
FALSE SUMP
(Not to Scale)

S = 4 FT.

FROM STA. 798+26 TO STA. 798+66 -L- (RT)
FROM STA. 798+66 TO STA. 800+42 -L- (LT)
FROM STA. 800+42 TO STA. 802+18 -L- (LT)
FROM STA. 802+18 TO STA. 804+42 -L- (LT)
FROM STA. 804+42 TO STA. 806+66 -L- (LT)
FROM STA. 806+66 TO STA. 808+90 -L- (LT)
FROM STA. 808+90 TO STA. 811+14 -L- (LT)
FROM STA. 811+14 TO STA. 813+38 -L- (LT)
FROM STA. 813+38 TO STA. 815+62 -L- (LT)
FROM STA. 815+62 TO STA. 817+86 -L- (LT)
FROM STA. 817+86 TO STA. 819+10 -L- (LT)
FROM STA. 819+10 TO STA. 821+34 -L- (LT)
FROM STA. 821+34 TO STA. 823+58 -L- (LT)
FROM STA. 823+58 TO STA. 825+82 -L- (LT)
FROM STA. 825+82 TO STA. 828+06 -L- (LT)

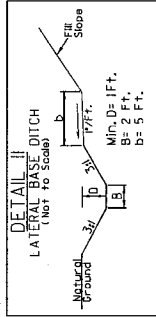


DETAIL 22
BASE TAIL DITCH
(Not to Scale)

Min. D = 1 FT.
Max. d = 2 FT.
B = 4 FT.

Type of Liner = Class 'B' Rip-Rap

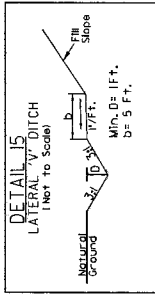
FROM STA. 841+75 -L- (LT)



DETAIL 11
LATERAL BASE DITCH
(Not to Scale)

Min. D = 1 FT.
B = 2 FT.

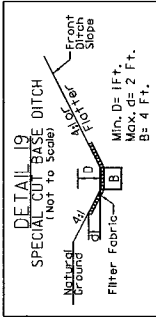
FROM STA. 732+00 TO STA. 734+00 -L- (RT)
FROM STA. 734+00 TO STA. 736+00 -L- (LT)
FROM STA. 736+00 TO STA. 738+00 -L- (LT)
FROM STA. 738+00 TO STA. 740+00 -L- (LT)
FROM STA. 740+00 TO STA. 742+00 -L- (LT)
FROM STA. 742+00 TO STA. 744+00 -L- (LT)
FROM STA. 744+00 TO STA. 746+00 -L- (LT)
FROM STA. 746+00 TO STA. 748+00 -L- (LT)
FROM STA. 748+00 TO STA. 750+00 -L- (LT)
FROM STA. 750+00 TO STA. 752+00 -L- (LT)



DETAIL 15
LATERAL 'V' DITCH
(Not to Scale)

Min. D = 1 FT.
B = 5 FT.

FROM STA. 779+19.42 TO STA. 780+42 -L- (LT)
FROM STA. 780+42 TO STA. 781+62 -L- (LT)
FROM STA. 781+62 TO STA. 782+82 -L- (LT)
FROM STA. 782+82 TO STA. 784+02 -L- (LT)
FROM STA. 784+02 TO STA. 785+22 -L- (LT)
FROM STA. 785+22 TO STA. 786+42 -L- (LT)
FROM STA. 786+42 TO STA. 787+62 -L- (LT)
FROM STA. 787+62 TO STA. 788+82 -L- (LT)
FROM STA. 788+82 TO STA. 790+02 -L- (LT)
FROM STA. 790+02 TO STA. 791+22 -L- (LT)
FROM STA. 791+22 TO STA. 792+42 -L- (LT)
FROM STA. 792+42 TO STA. 793+62 -L- (LT)
FROM STA. 793+62 TO STA. 794+82 -L- (LT)
FROM STA. 794+82 TO STA. 796+02 -L- (LT)
FROM STA. 796+02 TO STA. 797+22 -L- (LT)
FROM STA. 797+22 TO STA. 798+42 -L- (LT)
FROM STA. 798+42 TO STA. 799+62 -L- (LT)

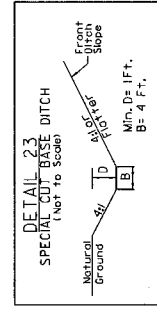


DETAIL 19
SPECIAL CUT-BASE DITCH
(Not to Scale)

Min. D = 1 FT.
Max. d = 2 FT.
B = 4 FT.

Type of Liner = Class 'B' Rip-Rap

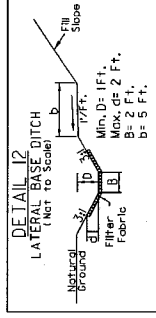
FROM STA. 14+63 TO STA. 16+11 -Y33A- (RT)
FROM STA. 17+18 TO STA. 18+15 -Y31- (RT)



DETAIL 23
SPECIAL CUT-BASE DITCH
(Not to Scale)

Min. D = 1 FT.
B = 4 FT.

FROM STA. 22+29 TO STA. 22+56 -Y32- (LT)

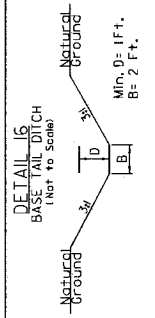


DETAIL 12
LATERAL BASE DITCH
(Not to Scale)

Min. D = 1 FT.
Max. d = 2 FT.
B = 2 FT.
b = 5 FT.

Type of Liner = Class 'B' Rip-Rap

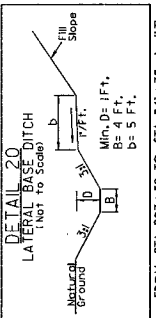
FROM STA. 754+00 TO STA. 757+26.05 -L- (RT)



DETAIL 16
LATERAL 'V' DITCH
(Not to Scale)

Min. D = 1 FT.
B = 2 FT.

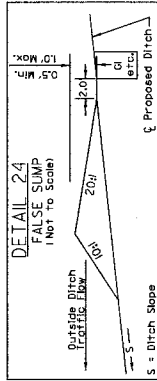
FROM STA. 790+02 -L- (LT)
FROM STA. 791+21 -Y33A- (LT)
FROM STA. 792+40 -Y33A- (LT)
FROM STA. 793+59 -Y33A- (RT)



DETAIL 20
LATERAL BASE DITCH
(Not to Scale)

Min. D = 1 FT.
Max. d = 2 FT.
B = 5 FT.

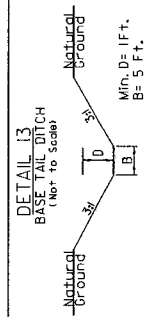
FROM STA. 837+50 TO STA. 841+75 -L- (LT)



DETAIL 24
FALSE SUMP
(Not to Scale)

S = Ditch Slope

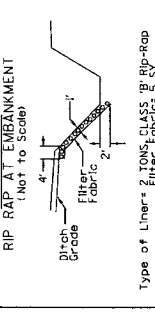
FROM STA. 840+53 TO STA. 840+97 -L- (RT)
FROM STA. 840+97 TO STA. 841+41 -L- (LT)
FROM STA. 841+41 TO STA. 841+85 -L- (LT)
FROM STA. 841+85 TO STA. 842+29 -L- (LT)
FROM STA. 842+29 TO STA. 842+73 -L- (LT)
FROM STA. 842+73 TO STA. 843+17 -L- (LT)
FROM STA. 843+17 TO STA. 843+61 -L- (LT)
FROM STA. 843+61 TO STA. 844+05 -L- (LT)
FROM STA. 844+05 TO STA. 844+49 -L- (LT)
FROM STA. 844+49 TO STA. 844+93 -L- (LT)
FROM STA. 844+93 TO STA. 845+37 -L- (LT)
FROM STA. 845+37 TO STA. 845+81 -L- (LT)
FROM STA. 845+81 TO STA. 846+25 -L- (LT)
FROM STA. 846+25 TO STA. 846+69 -L- (LT)
FROM STA. 846+69 TO STA. 847+13 -L- (LT)
FROM STA. 847+13 TO STA. 847+57 -L- (LT)
FROM STA. 847+57 TO STA. 848+01 -L- (LT)
FROM STA. 848+01 TO STA. 848+45 -L- (LT)
FROM STA. 848+45 TO STA. 848+89 -L- (LT)
FROM STA. 848+89 TO STA. 849+33 -L- (LT)
FROM STA. 849+33 TO STA. 849+77 -L- (LT)
FROM STA. 849+77 TO STA. 850+21 -L- (LT)



DETAIL 13
BASE TAIL DITCH
(Not to Scale)

Min. D = 1 FT.
B = 5 FT.

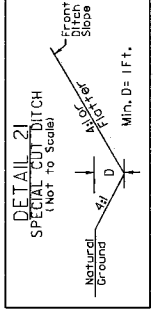
FROM STA. 764+80 -L- (RT)



DETAIL 17
RIP RAP AT EMBANKMENT
(Not to Scale)

Type of Liner = 2 TONS CLASS 'B' RIP-RAP
Filter Fabric = 5 SY

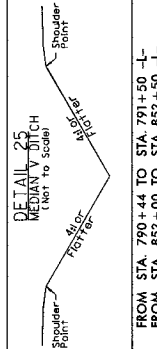
FROM STA. 789+90 (LT)
FROM STA. 913+55 (RT)



DETAIL 21
SPECIAL CUT DITCH
(Not to Scale)

Min. D = 1 FT.

FROM STA. 10+50 TO STA. 11+04.8 -Y31A- (RT)
FROM STA. 12+54.48 TO STA. 13+08.96 -Y31A- (LT)
FROM STA. 841+17.68 TO STA. 841+80 -L- (RT)
FROM STA. 894+00 TO STA. 904+50 -L- (RT)
FROM STA. 929+00 TO STA. 931+50 -L- (RT)

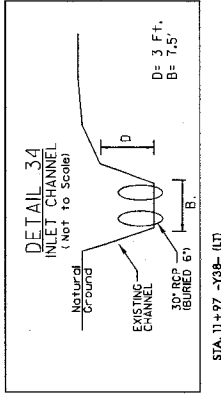
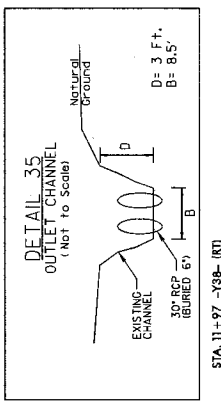
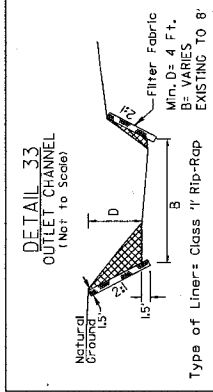
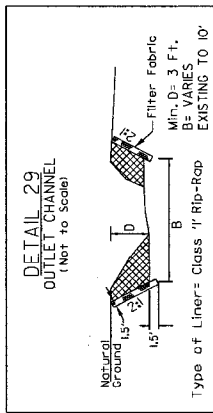
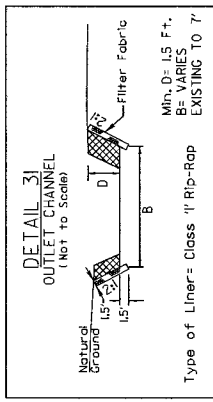
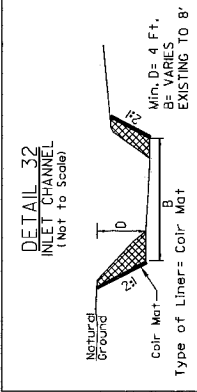
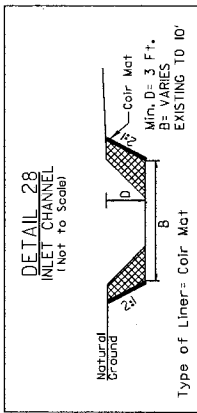
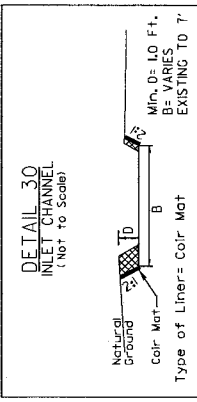
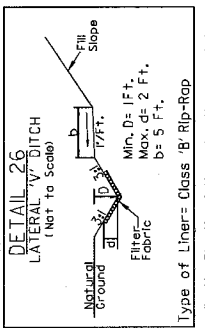
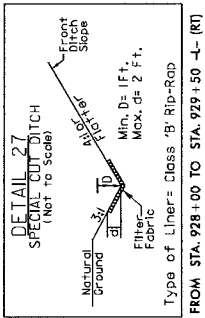


DETAIL 25
MEDIAN V-DITCH
(Not to Scale)

FROM STA. 790+44 TO STA. 791+50 -L-
FROM STA. 824+00 TO STA. 824+50 -L-
FROM STA. 824+50 TO STA. 825+00 -L-
FROM STA. 906+00 TO STA. 906+48.77 -L-
FROM STA. 931+00 TO STA. 931+49.44 -L-
FROM STA. 951+00 TO STA. 951+90 -L-
FROM STA. 1024+50 TO STA. 1025+00 -L-
FROM STA. 1025+00 TO STA. 1029+90 -L-
FROM STA. 1035+00 TO STA. 1036+00 -L-
FROM STA. 1077+50 TO STA. 1078+50 -L-

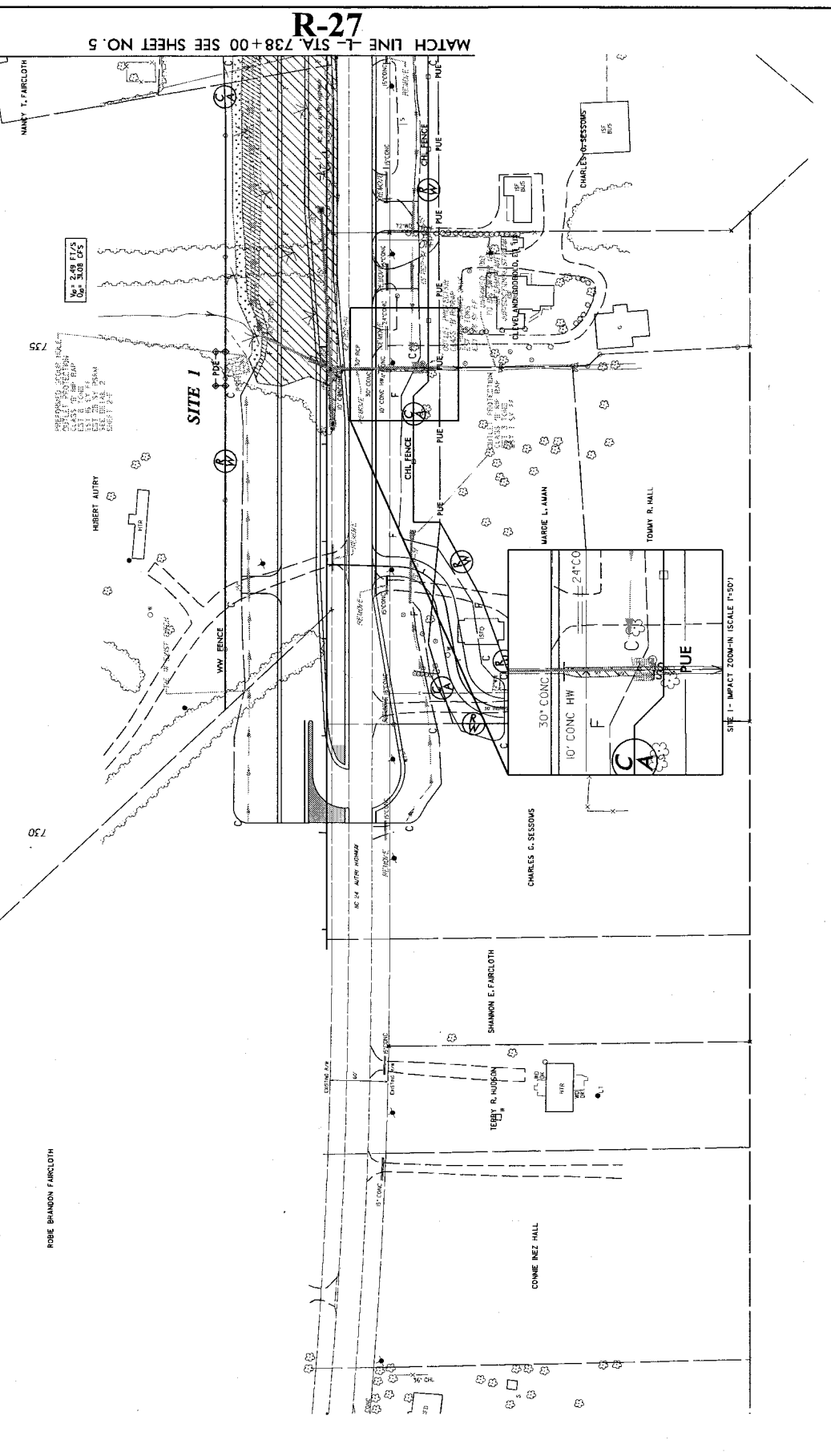
PROJECT REFERENCE NO. R-2303C	SHEET NO. 2-H
ROADWAY DESIGN DIVISION	PAYMENT DESIGN DIVISION
PRELIMINARY PLANS INCOMPLETE PLANS DO NOT USE FOR CONSTRUCTION DO NOT USE FOR PERMIT APPLICATION	

Permit Drawing Sheet 4 of 88

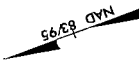


PROJECT REFERENCE NO.	R-2303C
PROJECT SHEET NO.	4
BY	ROADWAY DESIGN ENGINEER
CHECKED BY	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Permit Drawing Sheet 5 of 80



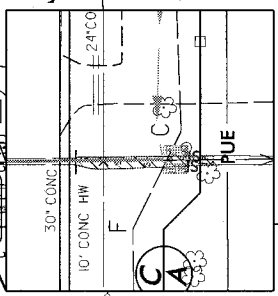
- DENOTES EXCAVATION
- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER



30' CONC. HW
10' CONC. HW

SITE 1

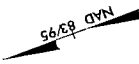
R-27
MATCH LINE L- STA. 738+00 SEE SHEET NO. 5



B/17/94

R/W REV. REVISING THE R/W TO TIE TO R-2303B, 10/20/11 TFD

PROJECT REFERENCE NO.	R-2303C
HWY. SHEET NO.	4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS <small>NO NOT FOR CONSTRUCTION</small>	

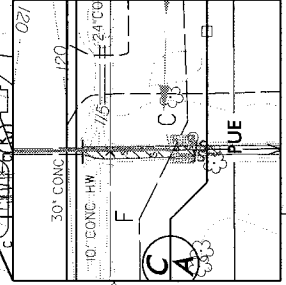
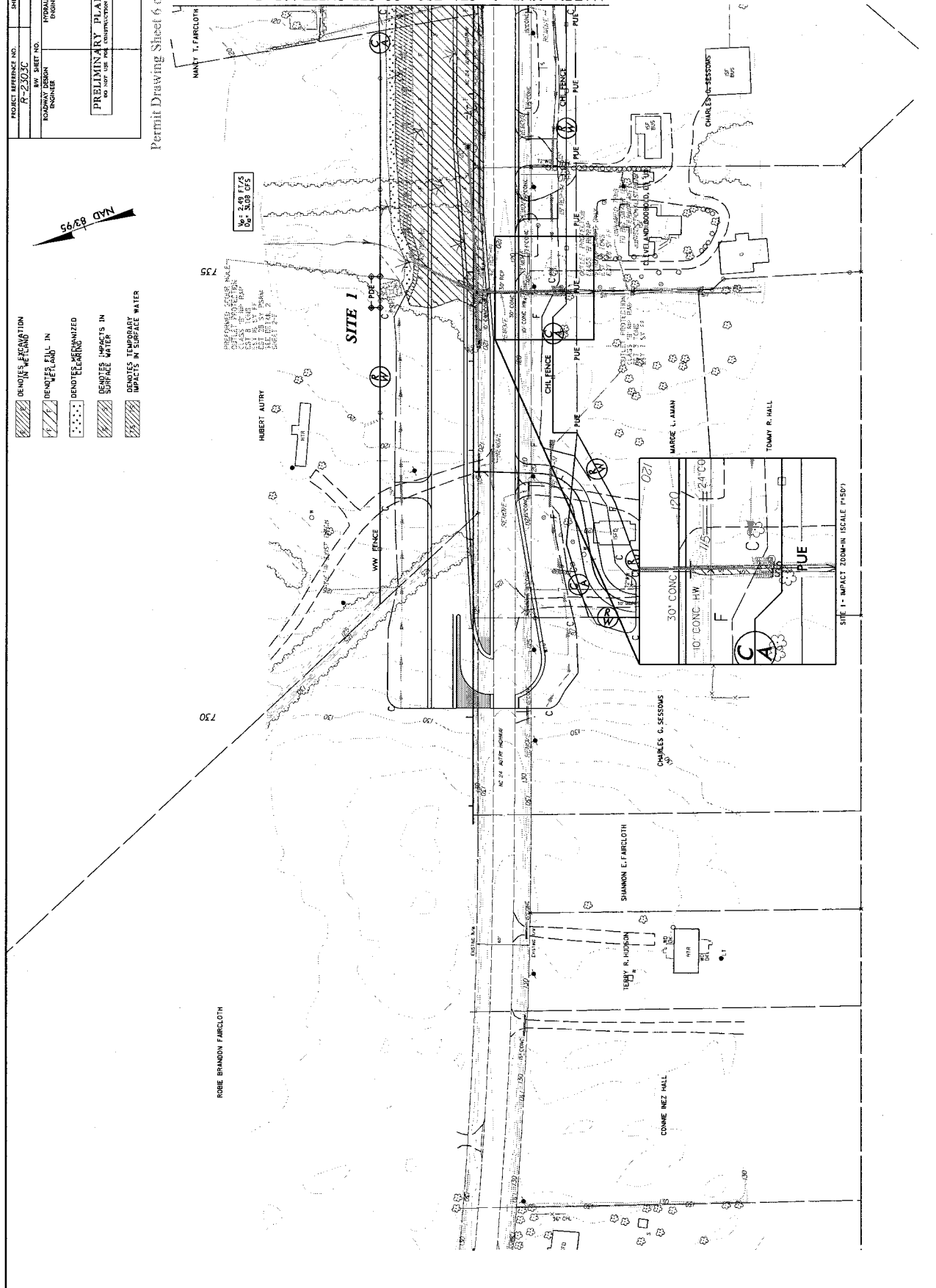


- DEMOTES EXCAVATION IN REGRADING
- DEMOTES FILL IN REGRADING
- DEMOTES MECHANIZED
- DEMOTES IMPACTS IN SURFACE WATER
- DEMOTES TEMPORARY IMPACTS IN SURFACE WATER

Permit Drawing Sheet 6 of 80

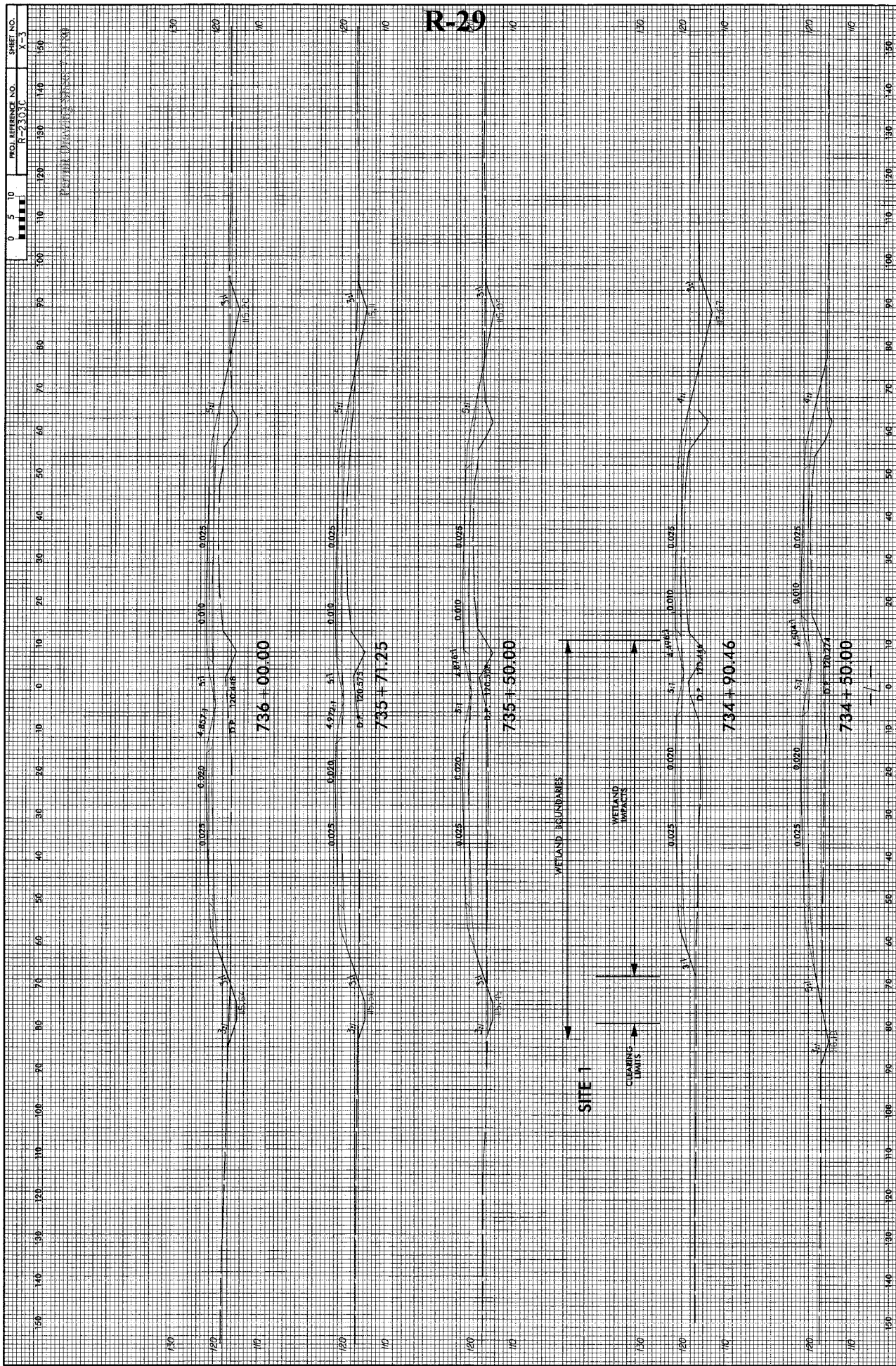
R-28

MATCH LINE L- STA. 738+00 SEE SHEET NO. 5



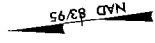
PATRIOT DEVELOPMENT

R-29



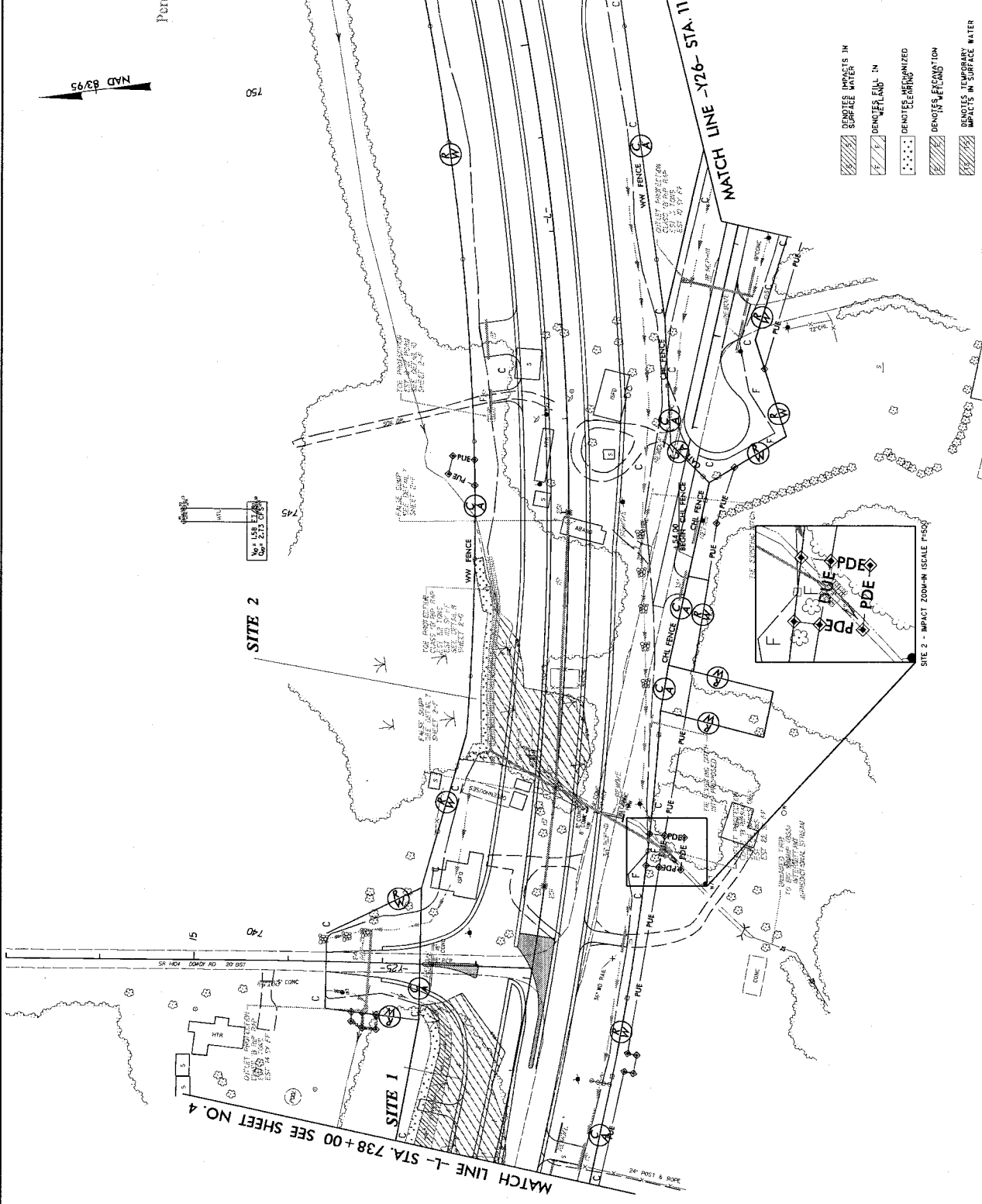
PROJECT REFERENCE NO. R-2303C
 SHEET NO. 5
 HWY. SHEET NO. R-2303C
 ROADWAY DESIGN ENGINEER
 PRELIMINARY PLANS
 NOT FOR CONSTRUCTION

Permit Drawing Sheet 8 of 80

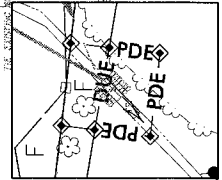


R-30

MATCH LINE L- STA. 752+00 SEE SHEET NO. 6
 MATCH LINE -Y26- STA. 11+50 SEE SHEET NO. 31



- IMPACTS IN SURFACE WATERS
- DENOTES FILL-IN WETLAND
- DENOTES MECHANIZED TRENCHING
- DENOTES FENCING IN RETENTION
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

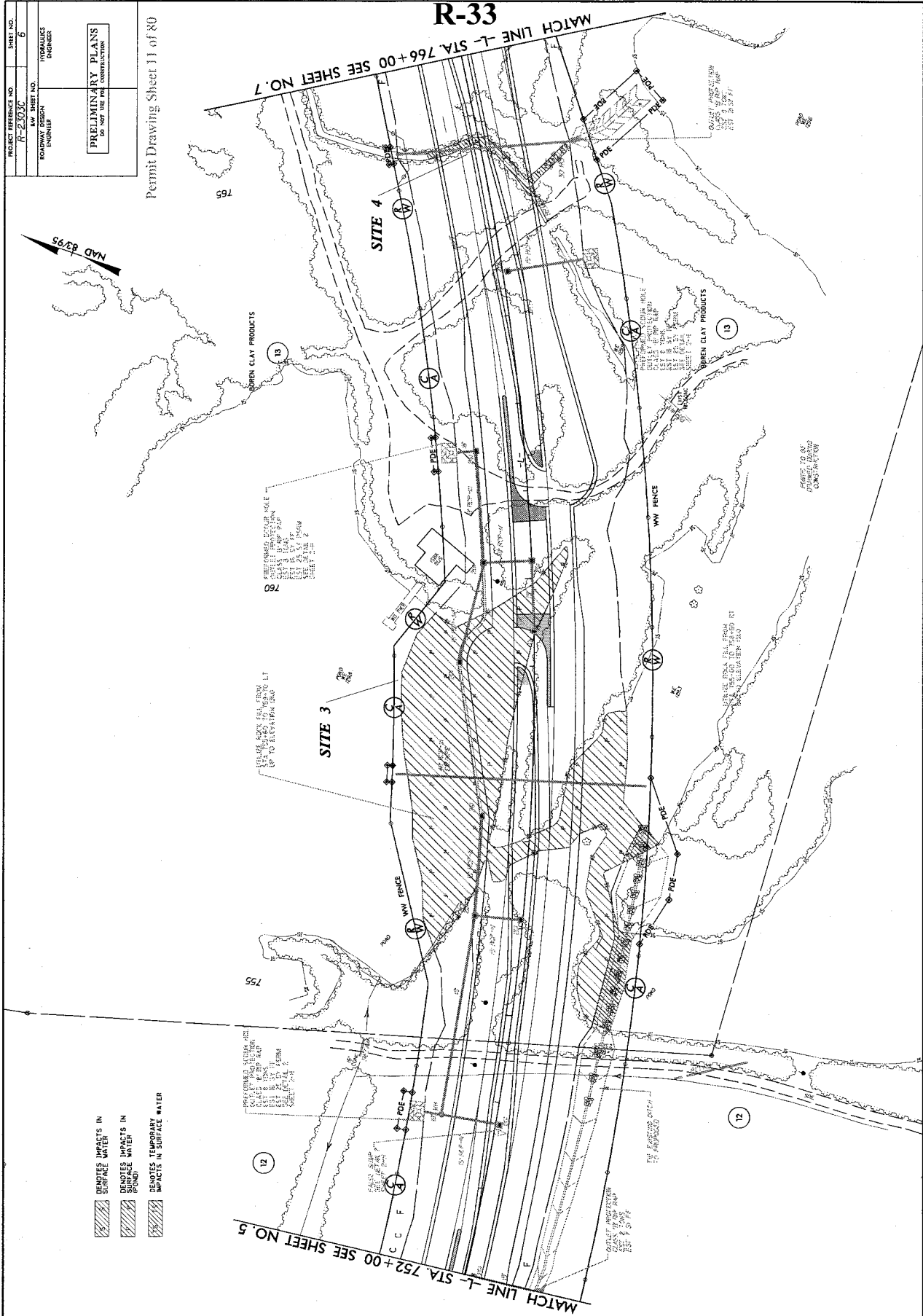


MATCH LINE L- STA. 738+00 SEE SHEET NO. 4

PROJECT REFERENCE NO.	SHEET NO.
R-233C	G
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS	FOR THE PERMITTING AGENCY

Permit Drawing Sheet 11 of 80

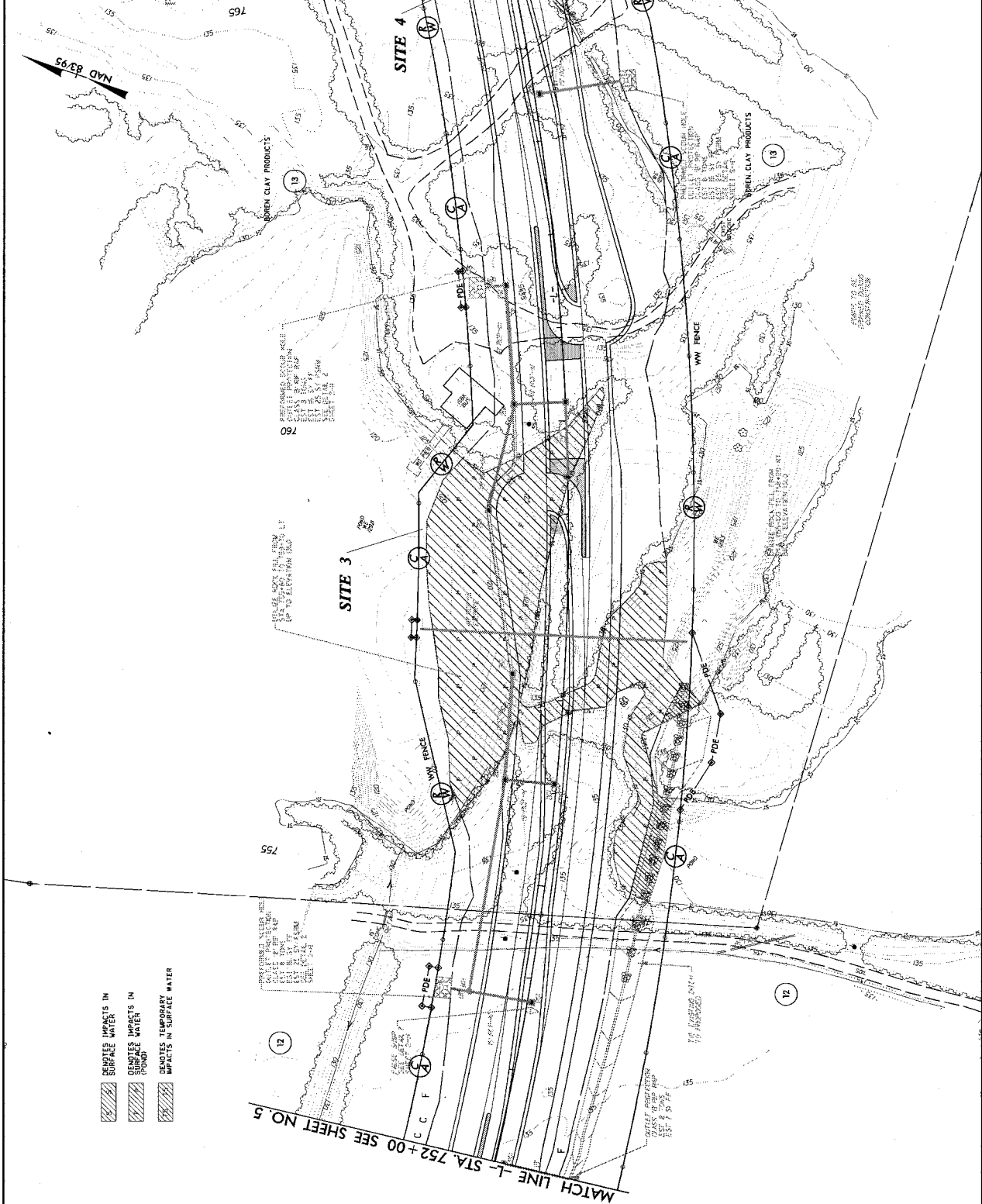
R-33



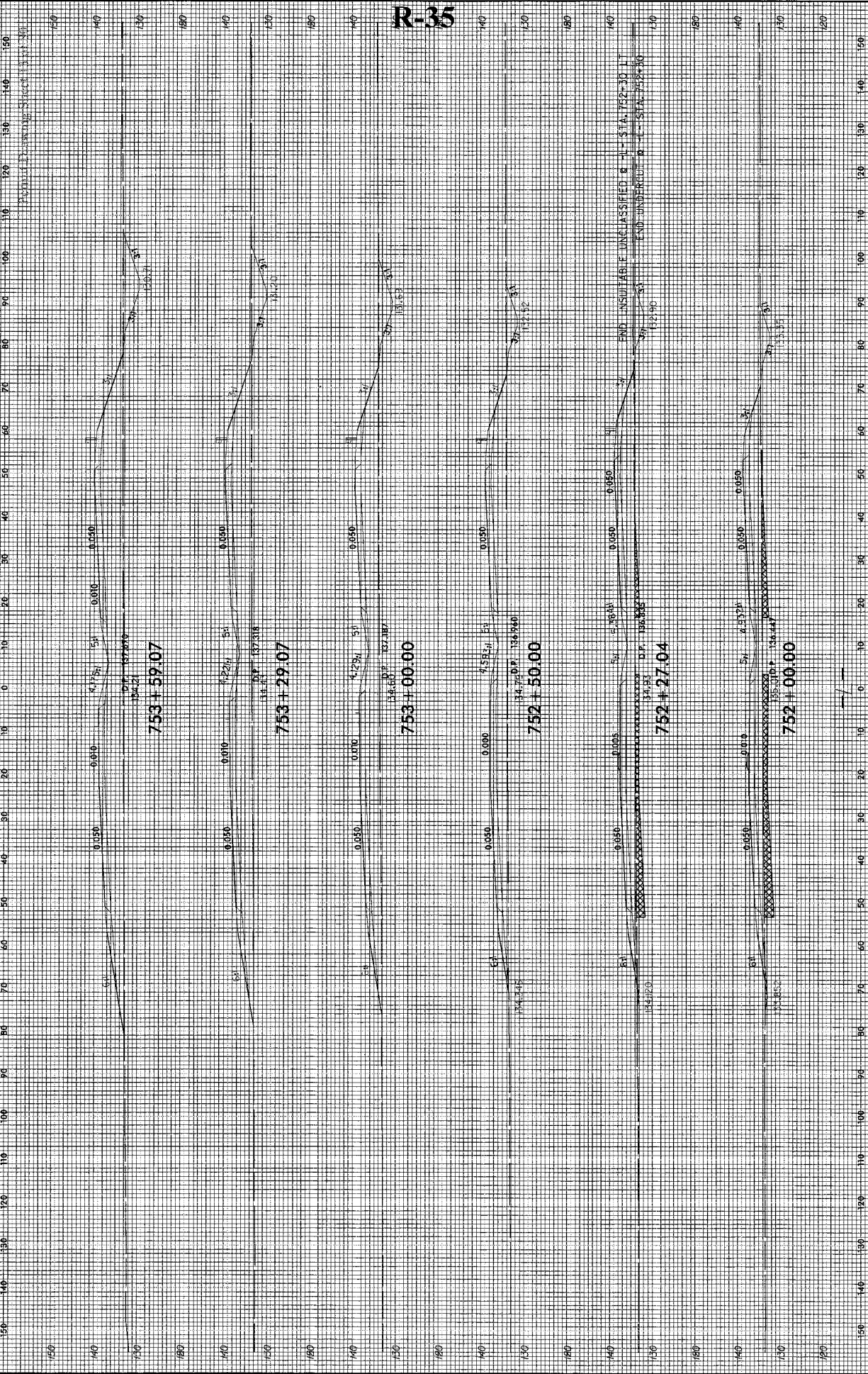
PROJECT REFERENCE NO.	DATE AND
R-2303C	6
PLAN SHEET NO.	
ROADWAY DESIGN ENGINEER	
HIDRAULICS ENGINEER	
PRELIMINARY PLANS FOR PERMITTING AND CONSTRUCTION	

Permit Drawing Sheet 12 of 80

R-34

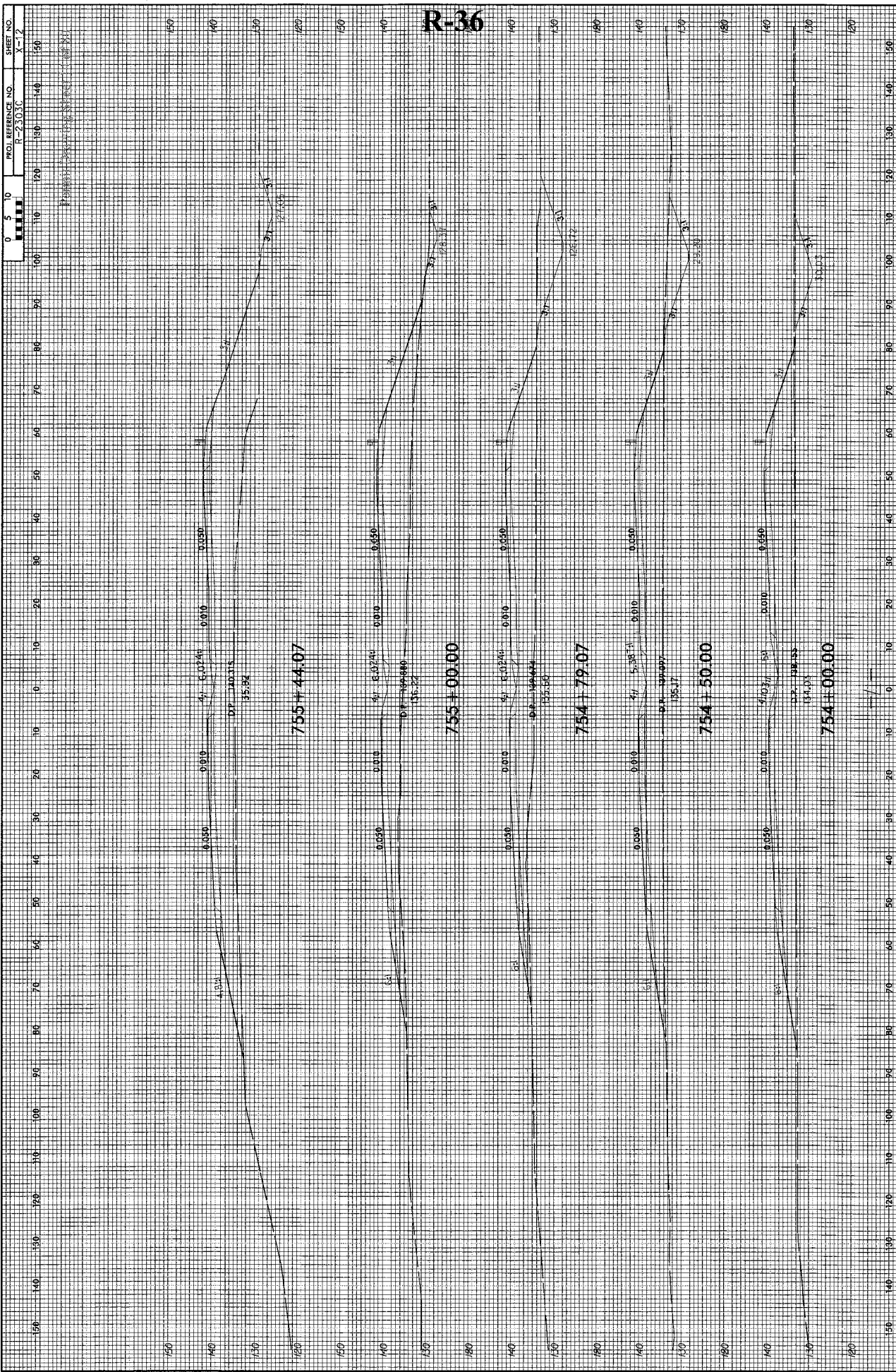


- DENOTES IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SUBSOIL
- DENOTES IMPACTS IN SURFACE WATER



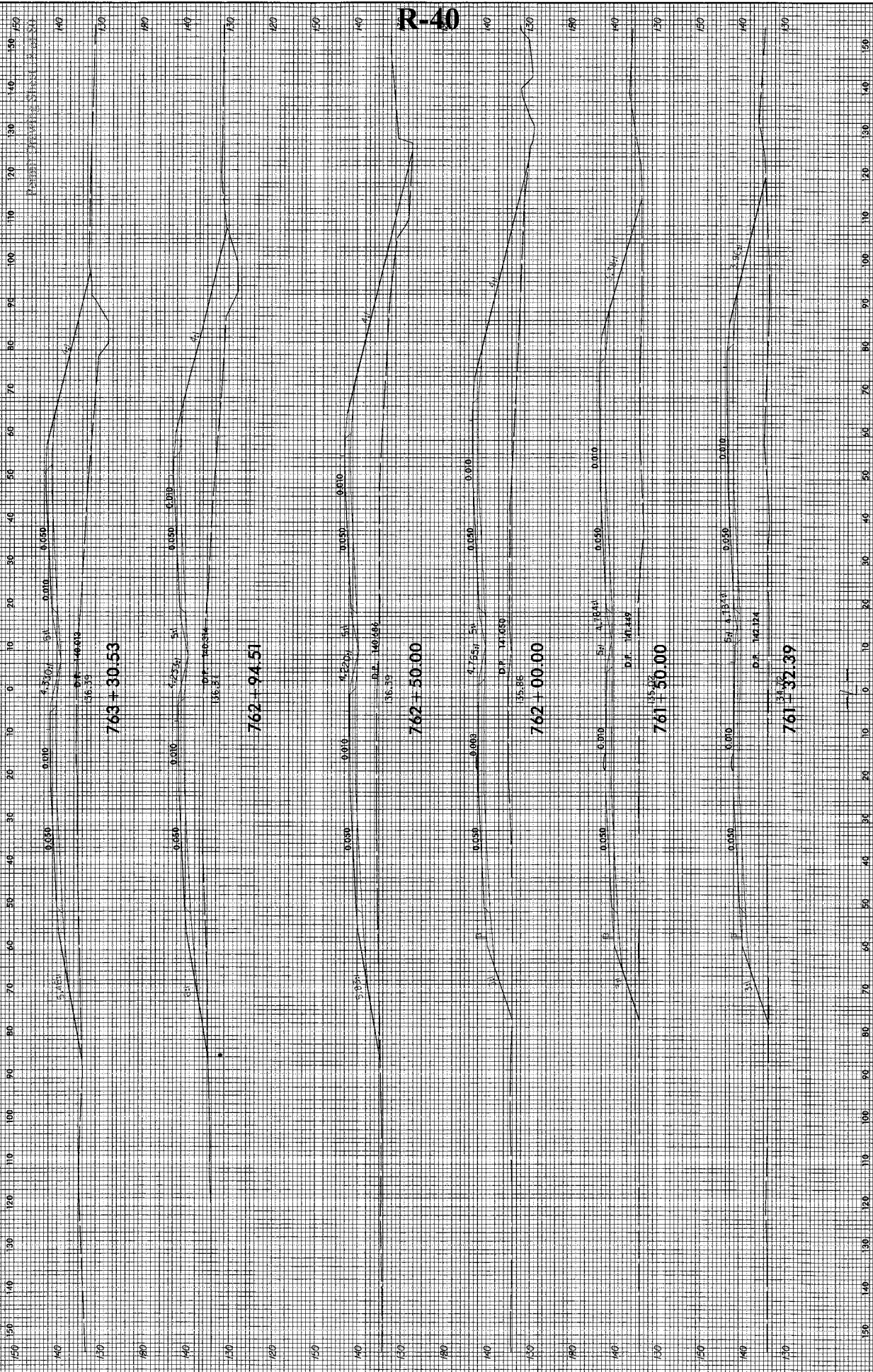
R-35

END UNSUITABLE UNCLASSIFIED & LT STA. 152+30 LT
 END UNDERCUT & LT STA. 152+30

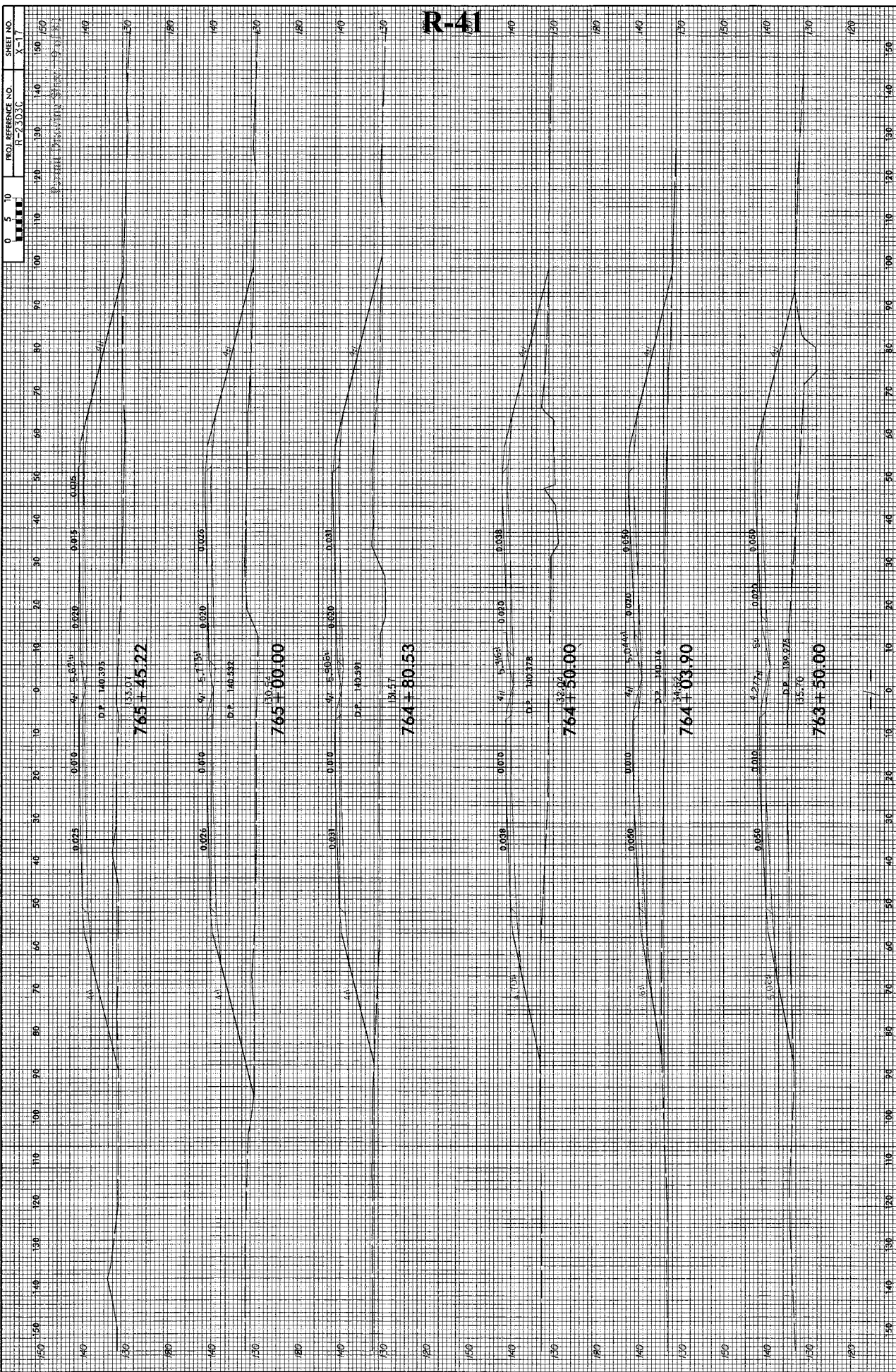


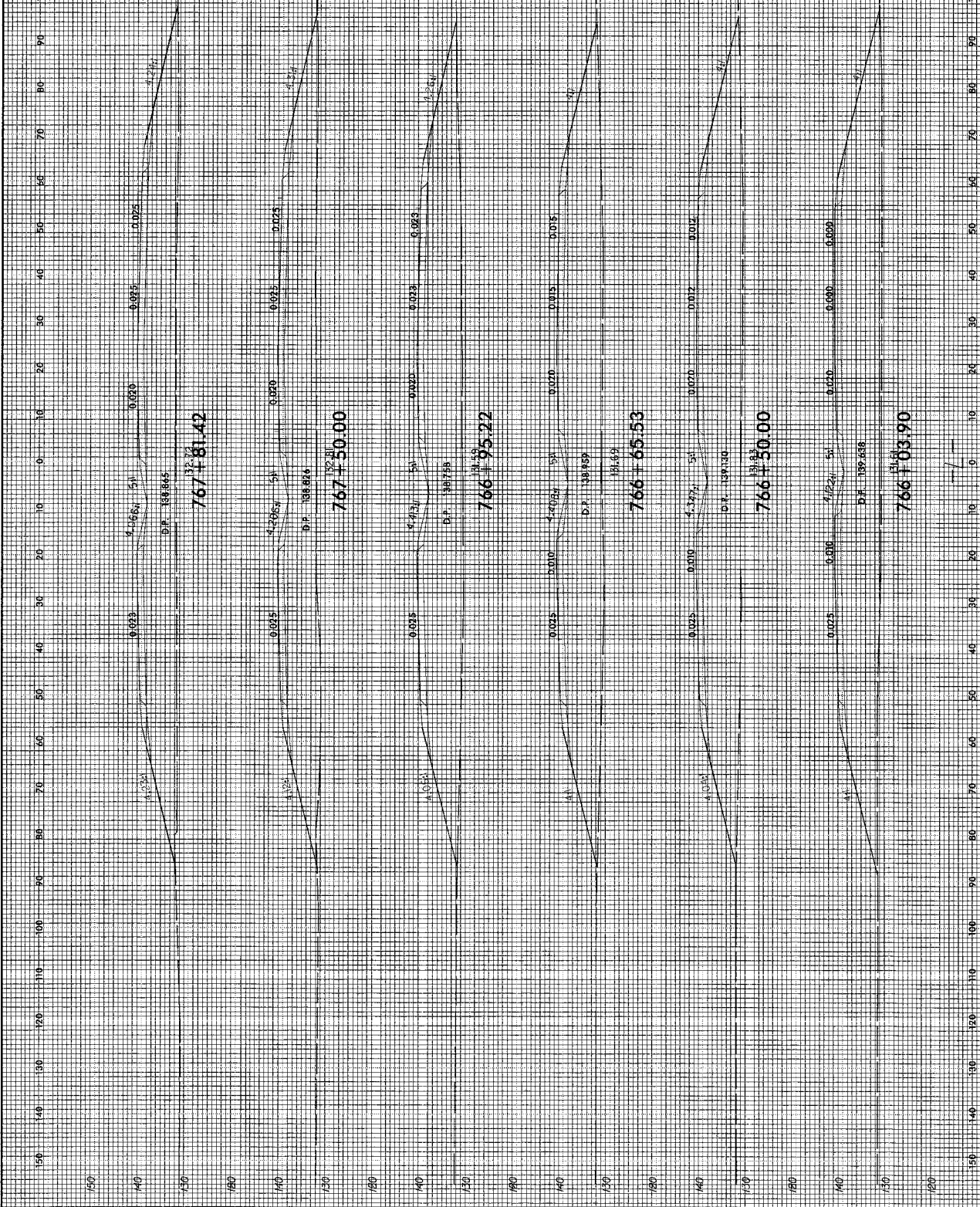
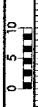
8/23/99

*****37517M/C*****
 1 1/2" x 11" (30x280) Plot Size
 1/8" = 10' (1:80) Scale
 1/8" = 10' (1:80) Scale



R-41





767 ± 81.42

767 ± 50.00

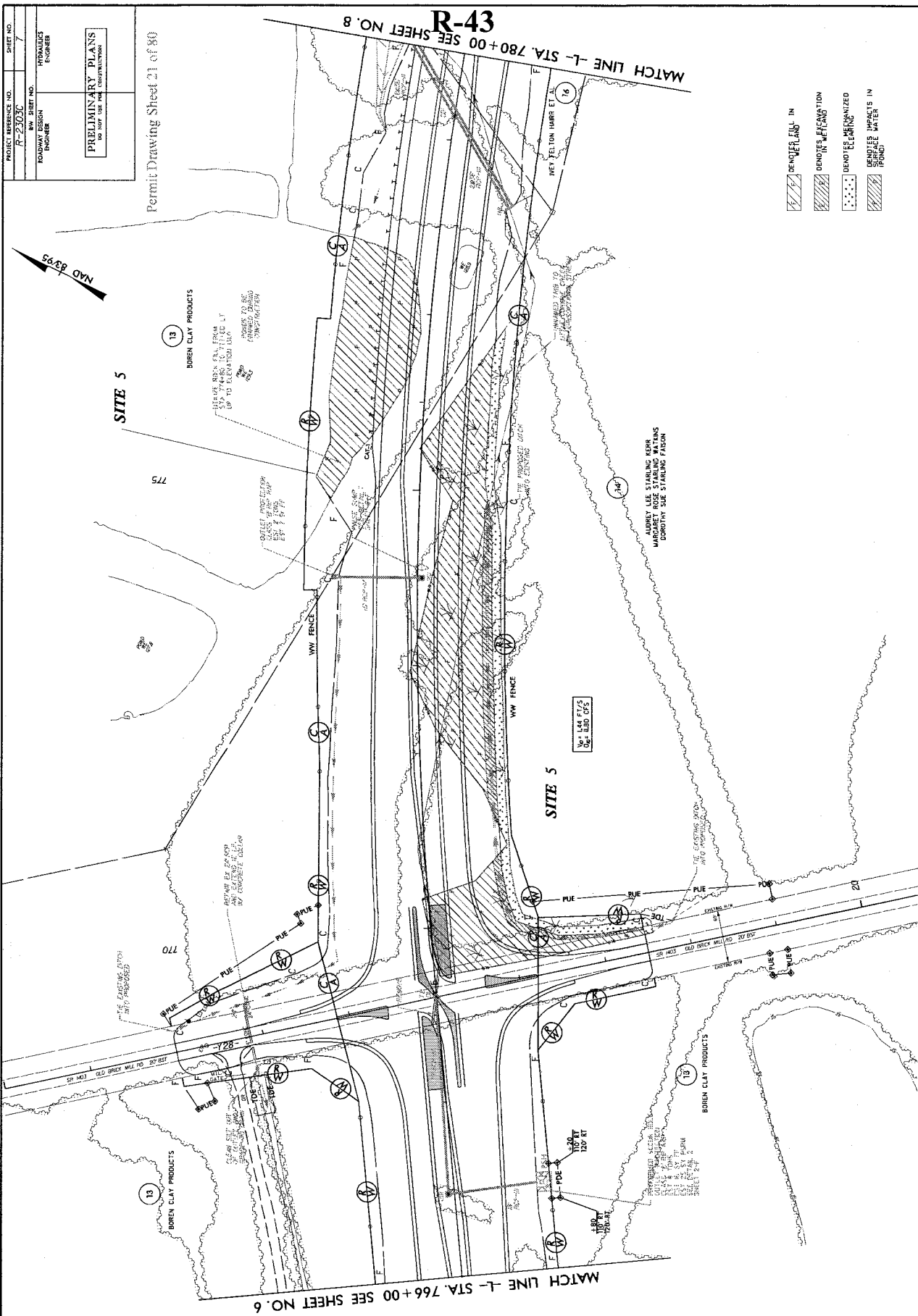
766 ± 95.22

766 ± 65.53

766 ± 50.00

766 ± 03.90

R-42



- DEMOTE FILL IN WETLAND
- DEMOTE EXCAVATION IN WETLAND
- DEMOTE DEMONSTRATED
- DEMOTE MARKS IN SURFACE WATER IN POND

PROJECT REFERENCE NO. R-2303C
 SHEET NO. 7
 ROADWAY DESIGN ENGINEER
 PRELIMINARY PLANS
 NO PART FOR CONSTRUCTION

Permit Drawing Sheet 21 of 80

MATCH LINE L- STA. 780+00 SEE SHEET NO. 8

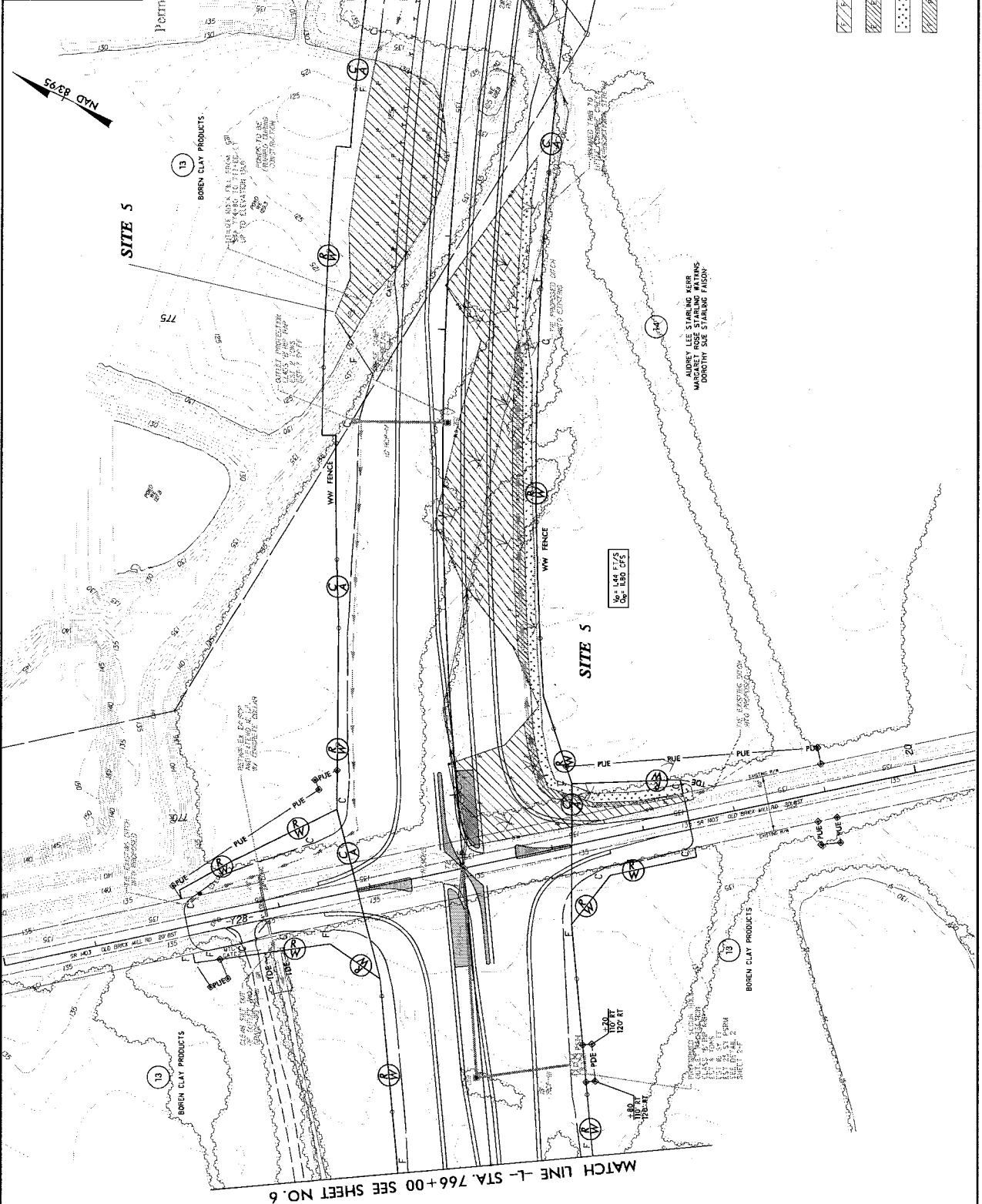
MATCH LINE L- STA. 766+00 SEE SHEET NO. 6

PROJECT REFERENCE NO. R-2303C
 SHEET NO. 7
 ROADWAY DESIGN ENGINEER
 HYDRAULICS ENGINEER
 PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

Permit Drawing Sheet 22 of 80

R-44

MATCH LINE L- STA. 780+00 SEE SHEET NO. 8



- DENOTES ELEVATION IN WETLAND
- DENOTES MECHANIZED ELEVATION
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES ELEVATION IN POND

MATCH LINE L- STA. 766+00 SEE SHEET NO. 6

PROJECT REFERENCE NO.
 P-2303

DATE
 9

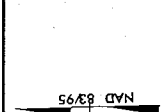
ENGINEER
 ROADWAY DESIGN

PRELIMINARY PLANS

Permit Drawing Sheet 24 of 80

R-46

MATCH LINE L- STA. 808+00 SEE SHEET NO. 10



WILLIAM S. WELLS, JR.

29

795

GRACE TOWN

72 RCP-1/1

22 RCP-1/1

GENERAL BANK AND STA. DIM.

25

RONALD CANNADY

23

795

GRACE TOWN

72 RCP-1/1

22 RCP-1/1

GENERAL BANK AND STA. DIM.

25

RONALD CANNADY

23

795

GRACE TOWN

72 RCP-1/1

22 RCP-1/1

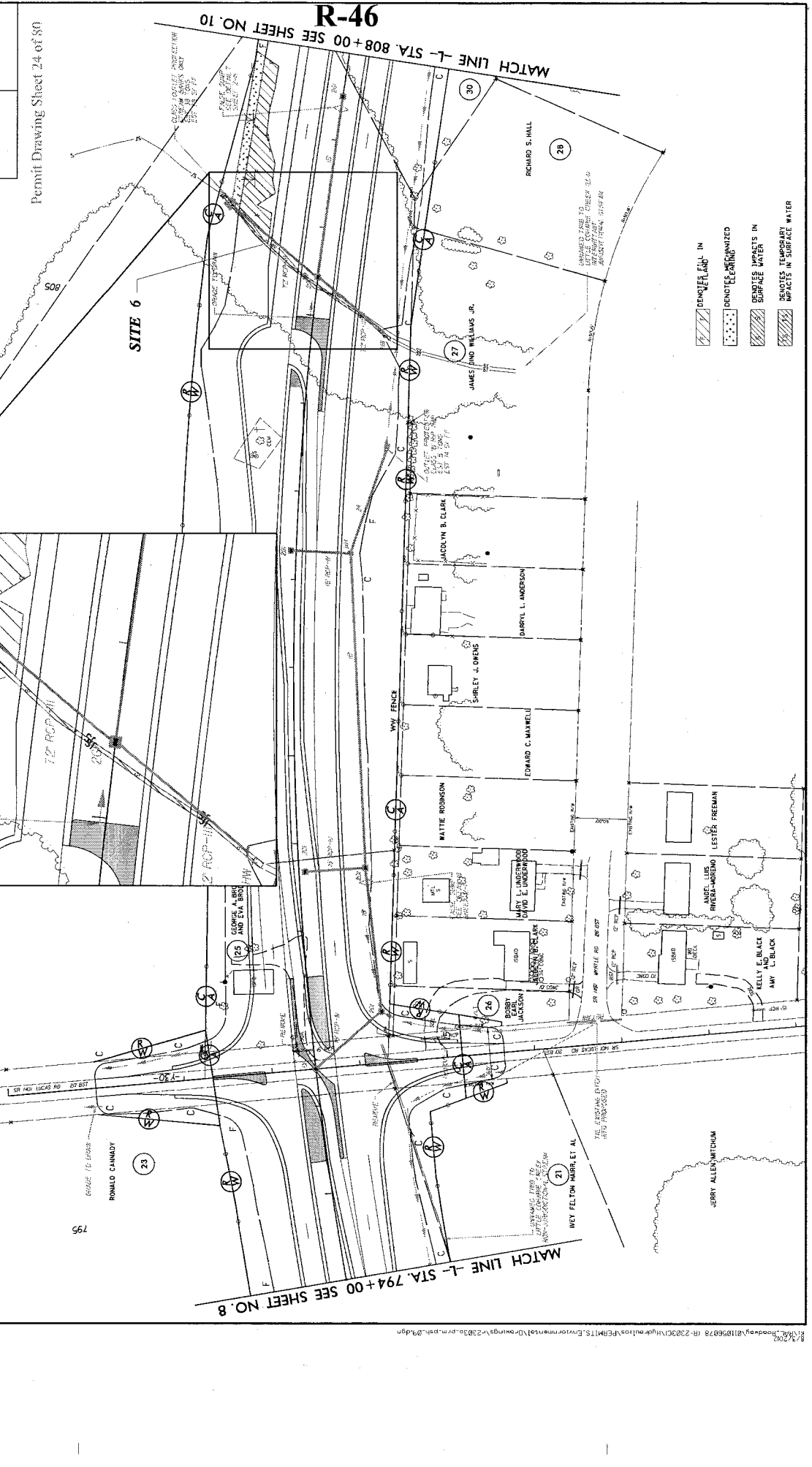
GENERAL BANK AND STA. DIM.

25

RONALD CANNADY

23

795



REMOVE LAND IN
 SHADY HATCHING

DESIGNATED UTILITIES
 WITH DOTTED LINES

DESIGNATED IMPACTS IN
 SURFACE WATER
 WITH SLANTED HATCHING

DESIGNATED IMPACTS IN
 SURFACE WATER
 WITH WAVED HATCHING

8/17/99

\\c:\projects\2303\2303.dwg (P:\2303\2303.dwg) (P:\2303\2303.dwg) (P:\2303\2303.dwg)

PROJECT REFERENCE NO. **R-2303C**
 ROADWAY DESIGN ENGINEER
 HYDRAULICS ENGINEER

DATE NO. **9**

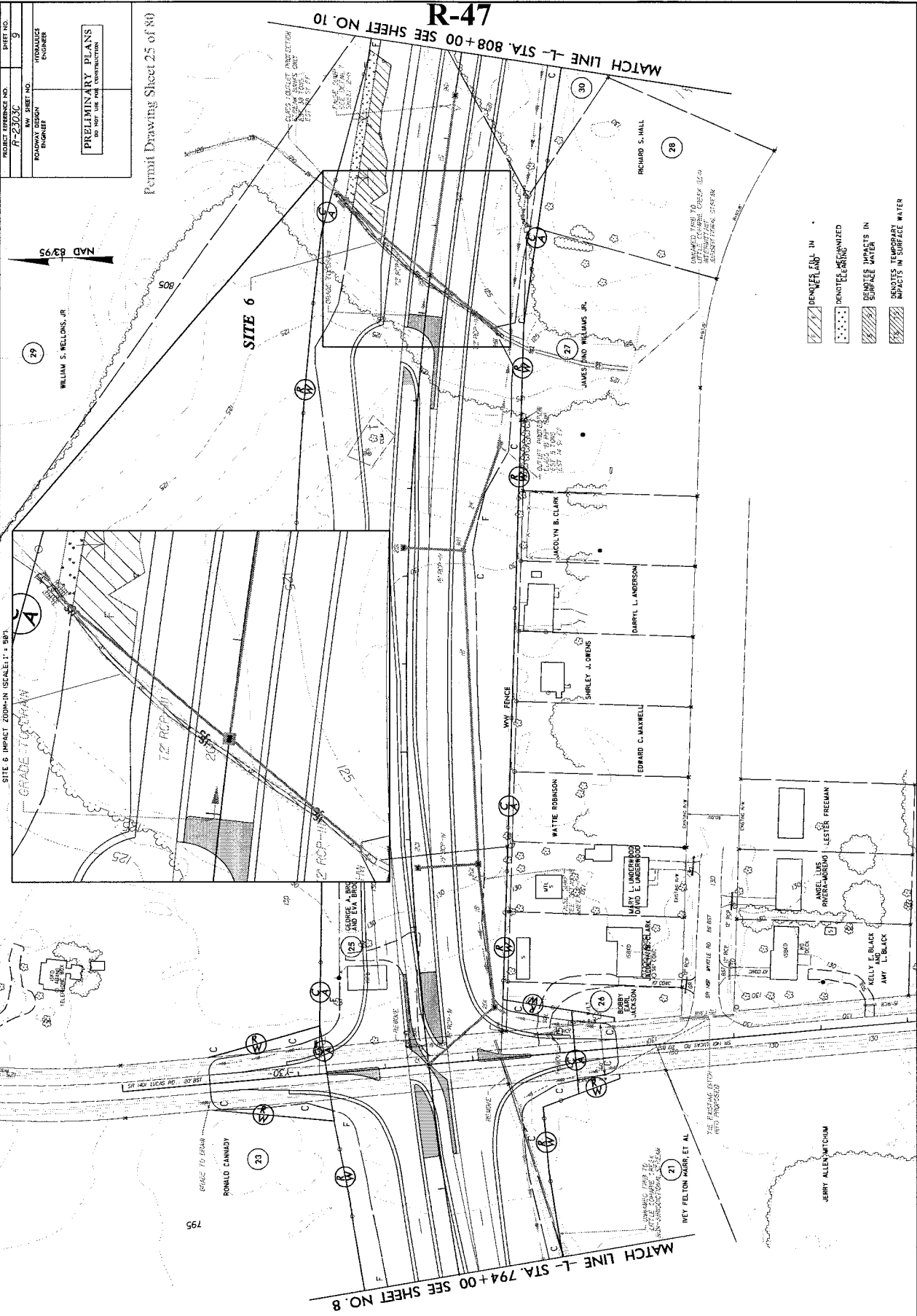
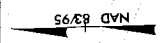
PRELIMINARY PLANS
 FOR THE STATE OF MISSISSIPPI

Permit Drawing Sheet 25 of 80

R-47

MATCH LINE L- STA. 808+00 SEE SHEET NO. 10

MATCH LINE L- STA. 794+00 SEE SHEET NO. 8

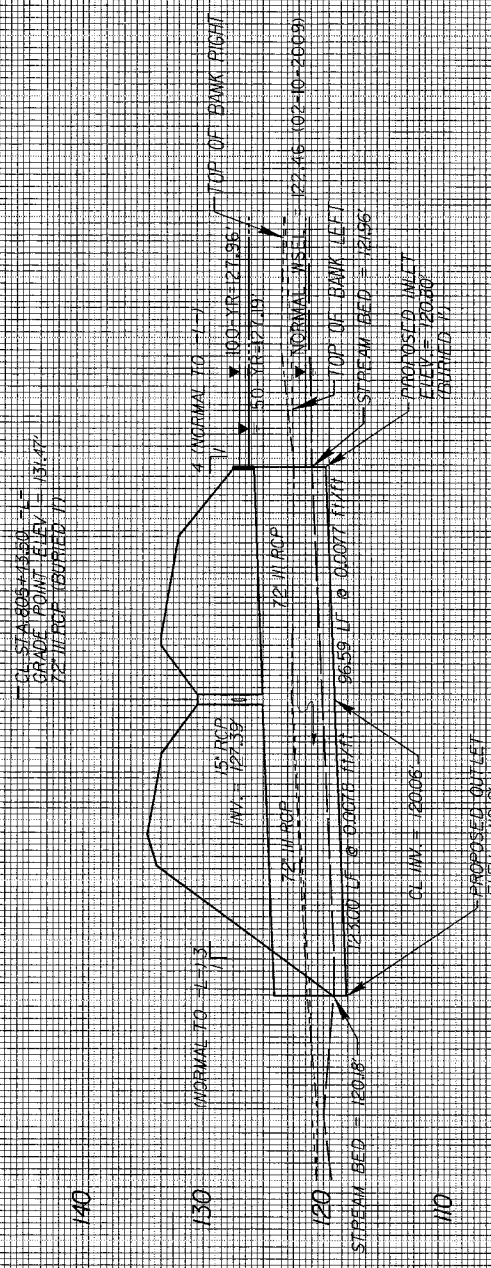


- DENOTES LAND IN
- DENOTES ELECTRIFIED
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER

Proposed Sewerage System

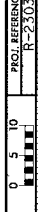
R-48

200 150 100 50 0 50 100 150 200

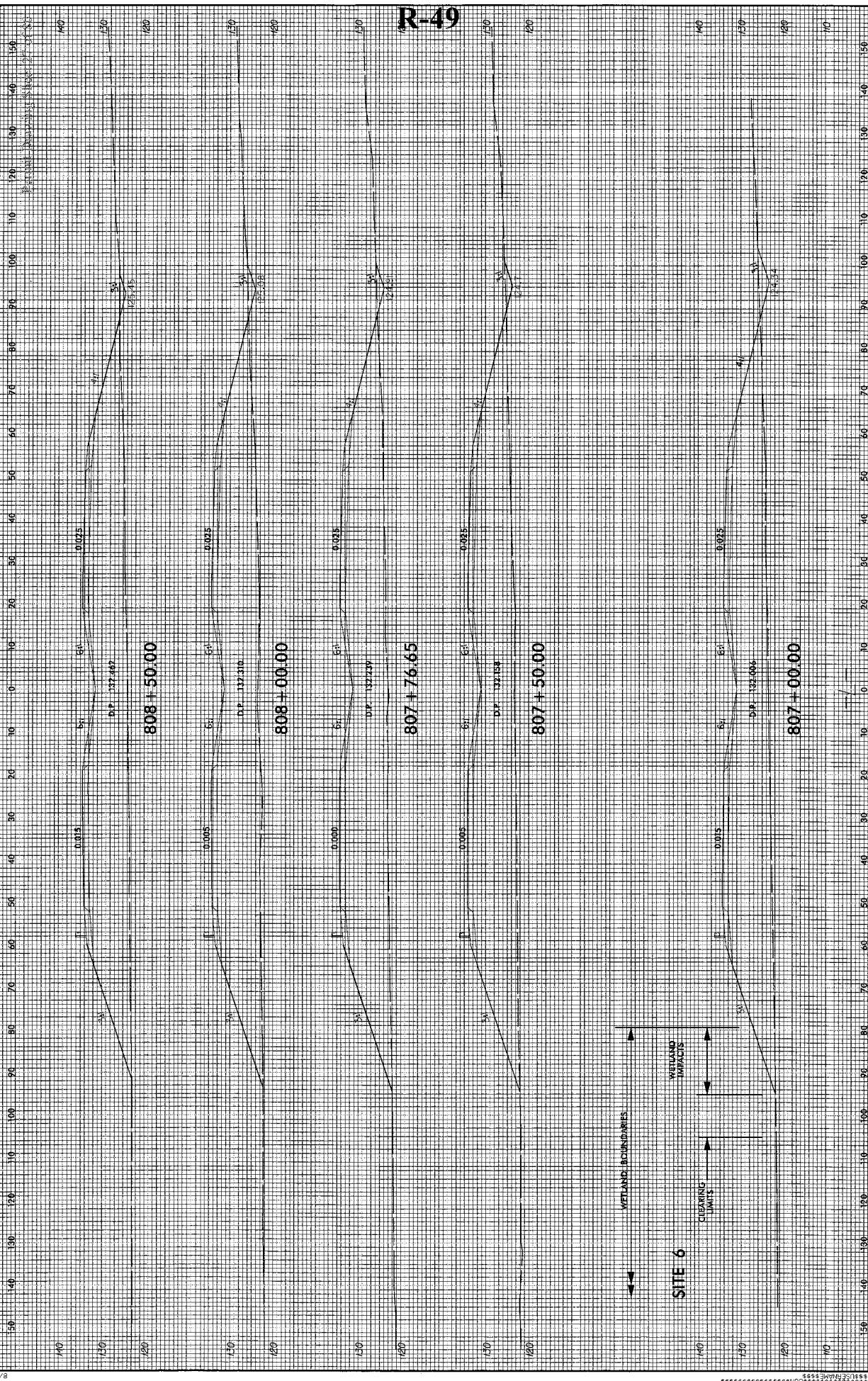


SITE 6

72" CLASS III RCP AT STATION L- 0805+43.50



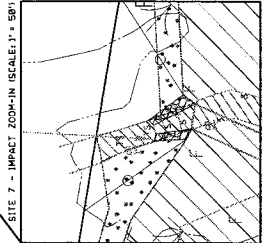
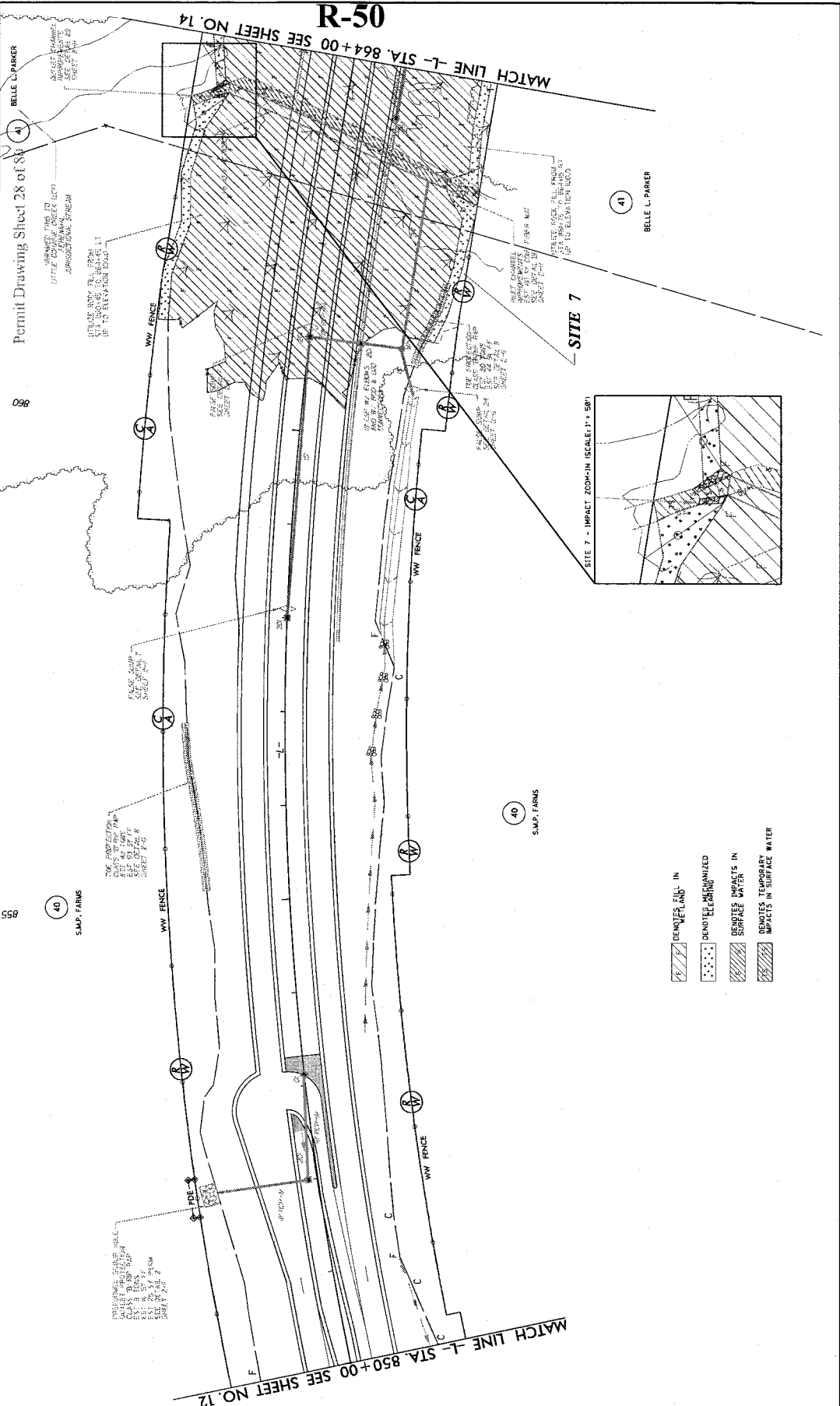
8/23/99



R-49

WETLAND BOUNDARIES
WETLAND IMPACTS
CLEARING LIMITS
SITE 6

PROJECT REFERENCE NO. R-2392
 SHEET NO. 17
 ROADWAY DESIGN ENGINEER
 HYDRAULICS ENGINEER
PRELIMINARY PLANS
 FOR THE PROPOSED CONSTRUCTION



- DENOTES IMPACT IN
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

855
 (40)
 S.M.P. FARMS

(40)
 S.M.P. FARMS

(41)
 BELLE L. PARKER

Permit Drawing Sheet 28 of 84
 BELLE L. PARKER
 1777 LITTLE CONYONG CREEK
 APPROXIMATELY 1/2 MILE
 UP TO ELEVATION 2040'



PROJECT NUMBER NO.	17-2303C	SHEET NO.	13
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER		
PRELIMINARY PLANS NO NOT BE USED FOR CONSTRUCTION			



Permit Drawing Sheet 29

MATCH LINE L- STA. 864+00 SEE SHEET NO. 14

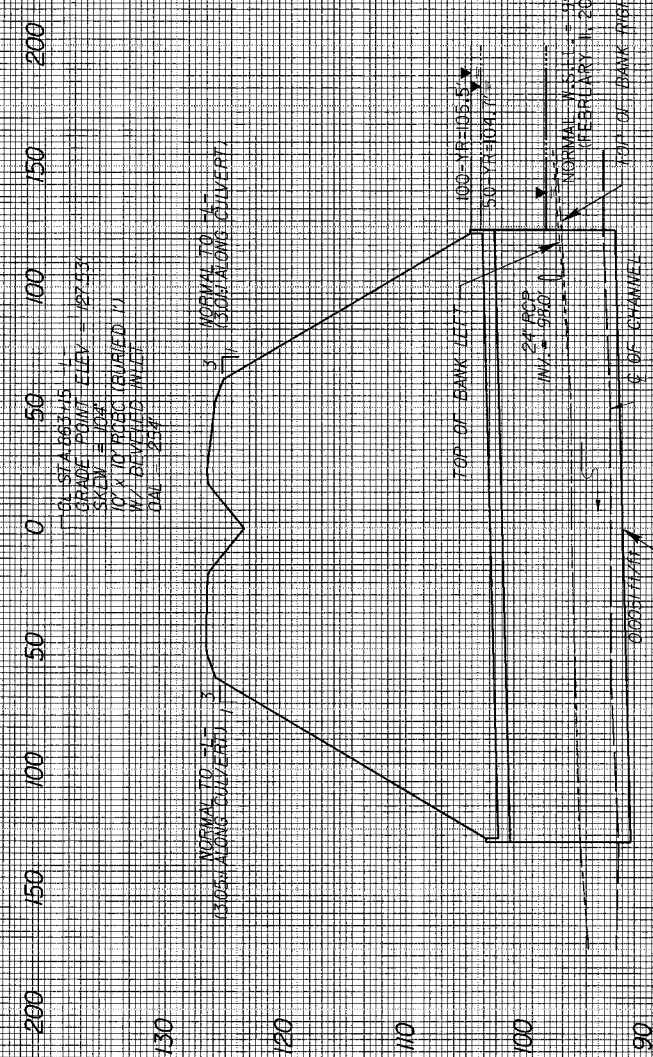
R-51

SITE 7

SITE 7 - IMPACT ZONE IN (SCALE 1" = 50')

- DEMOTES IMPACT IN WATER
- DEMOTES IMPACT IN SURFACE WATER
- DEMOTES TEMPORARY IMPACTS IN SURFACE WATER
- DEMOTES TEMPORARY IMPACTS IN SURFACE WATER

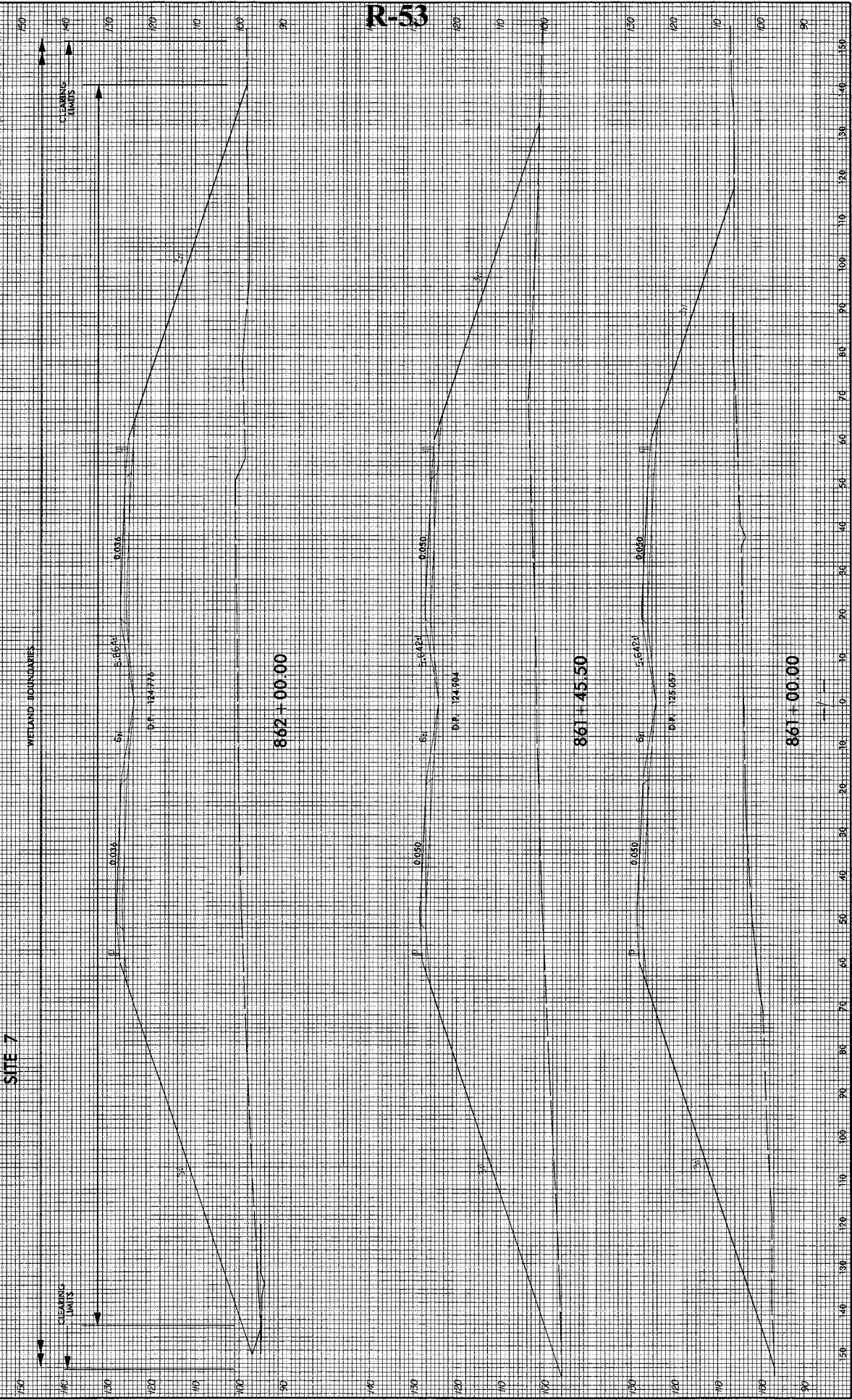
Project: Mississippi River National



SITE 7

10' x 10' RCBC AT STATION -L- 0863+15

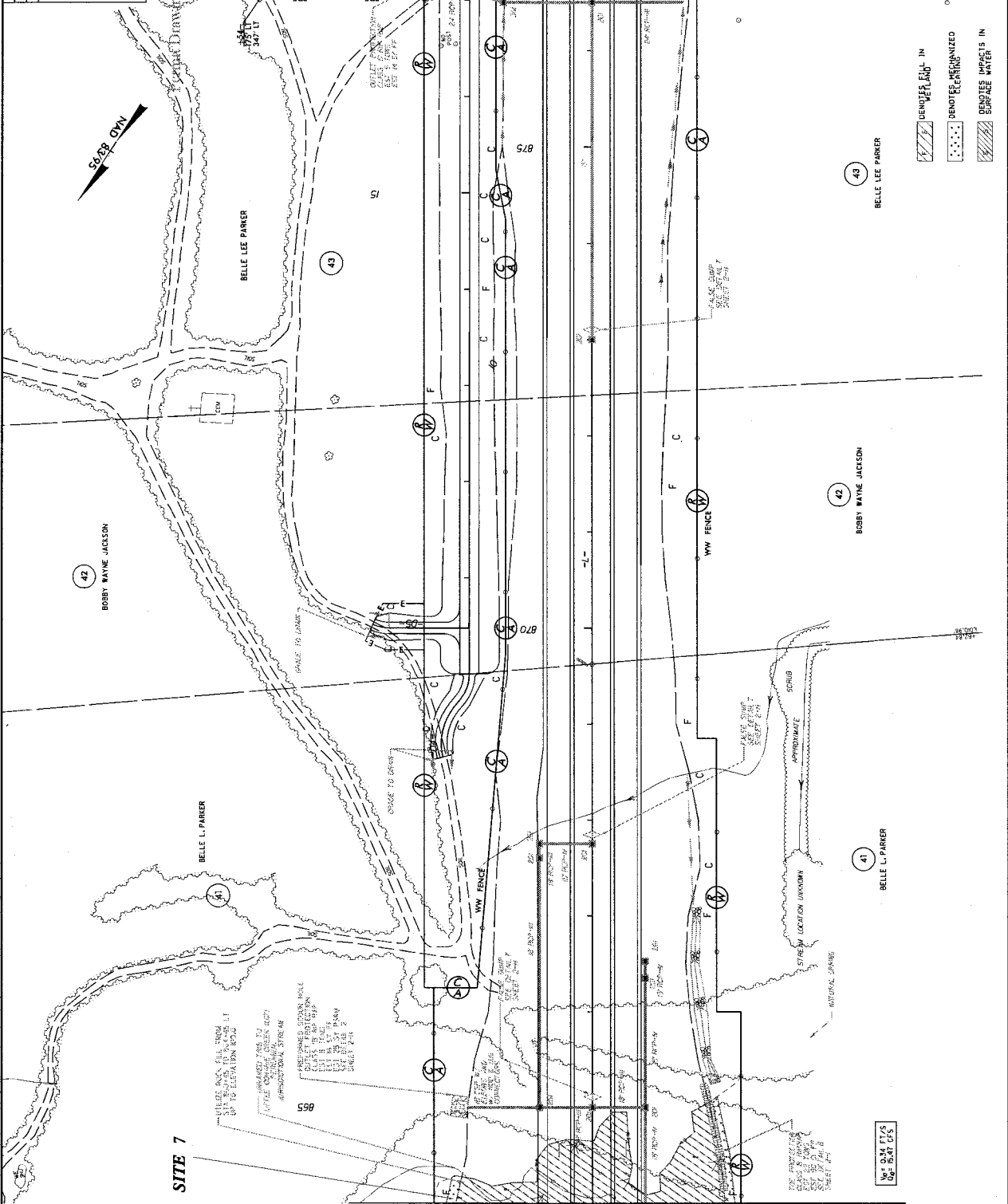
WETLAND BOUNDARIES
 CLEARING LIMITS
 50 60 70 80 90 100 110 120 130 140 150



R-53

PROJECT MESSAGE NO.	14
PROJECT SHEET NO.	R-2303
ENGINEER	ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER	

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



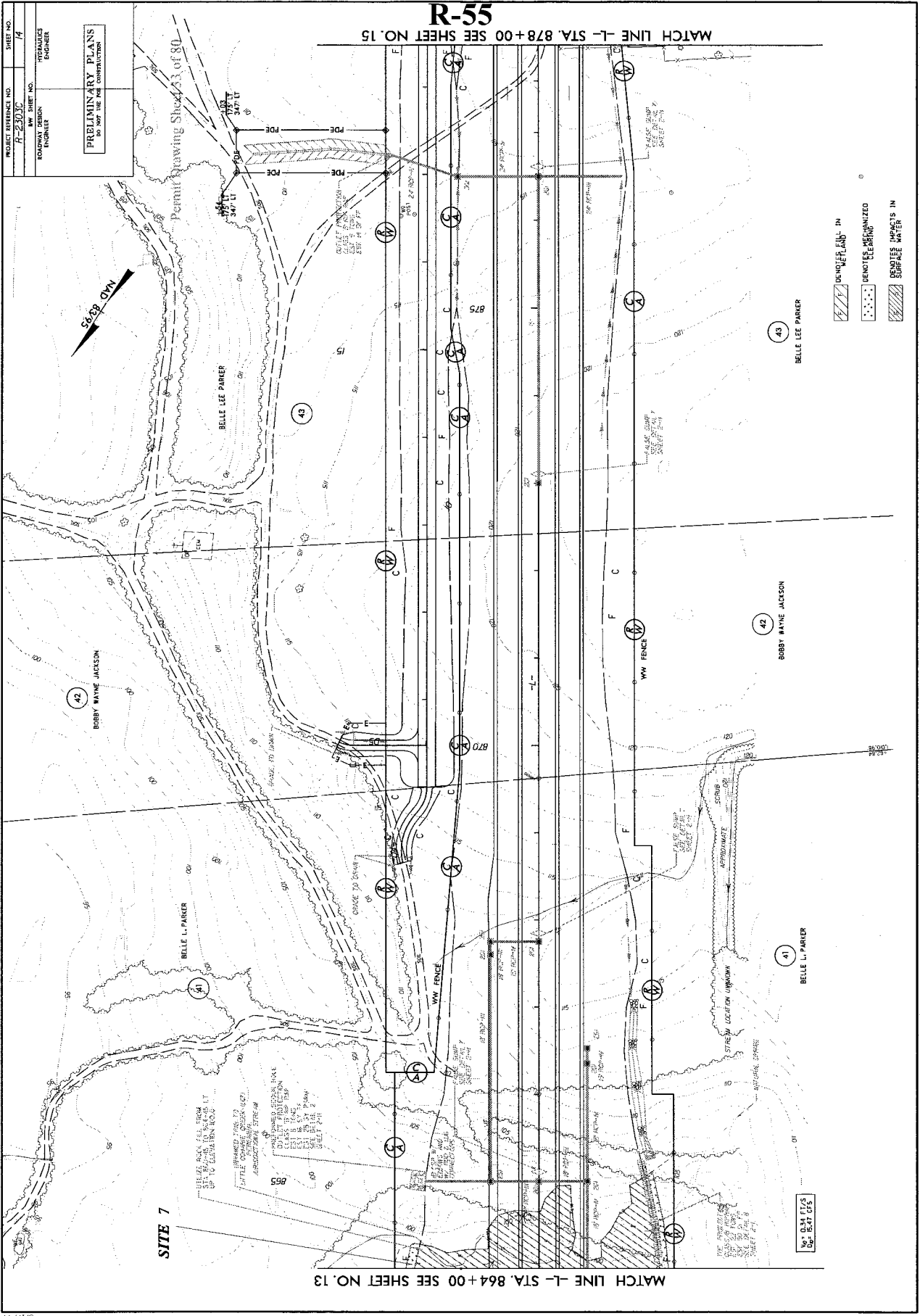
- DENOTES MECHANIZED SAMPLE MATES IN
- DENOTES MECHANIZED SAMPLE MATES IN
- DENOTES MECHANIZED SAMPLE MATES IN

43 BELLE LEE PARKER

42 BOBBY WAYNE JACKSON

41 BELLE L. PARKER

SITE 7



R-55

MATCH LINE L- STA. 878+00 SEE SHEET NO. 15

MATCH LINE L- STA. 864+00 SEE SHEET NO. 13

SITE 7

PROJECT REFERENCE NO. R-55	SHEET NO. 14
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

- DENOYER PAVE IN
- DENOTES MECHANIZED CLEARING
- DENOTES WETLANDS IN

43 BELLE LEE PARKER

42 BOBBY WAYNE JACKSON

41 BELLE L. PARKER

NO. 0.54 FT/S
UP. 0.47 FT/S

UNPAVED ROAD FROM 864+00 TO 868+00
IS A GRADE 20 DRIVEWAY
AS SHOWN ON SHEET NO. 13

UNPAVED ROAD FROM 868+00 TO 872+00
IS A GRADE 20 DRIVEWAY
AS SHOWN ON SHEET NO. 13

UNPAVED ROAD FROM 872+00 TO 876+00
IS A GRADE 20 DRIVEWAY
AS SHOWN ON SHEET NO. 13

UNPAVED ROAD FROM 876+00 TO 878+00
IS A GRADE 20 DRIVEWAY
AS SHOWN ON SHEET NO. 13

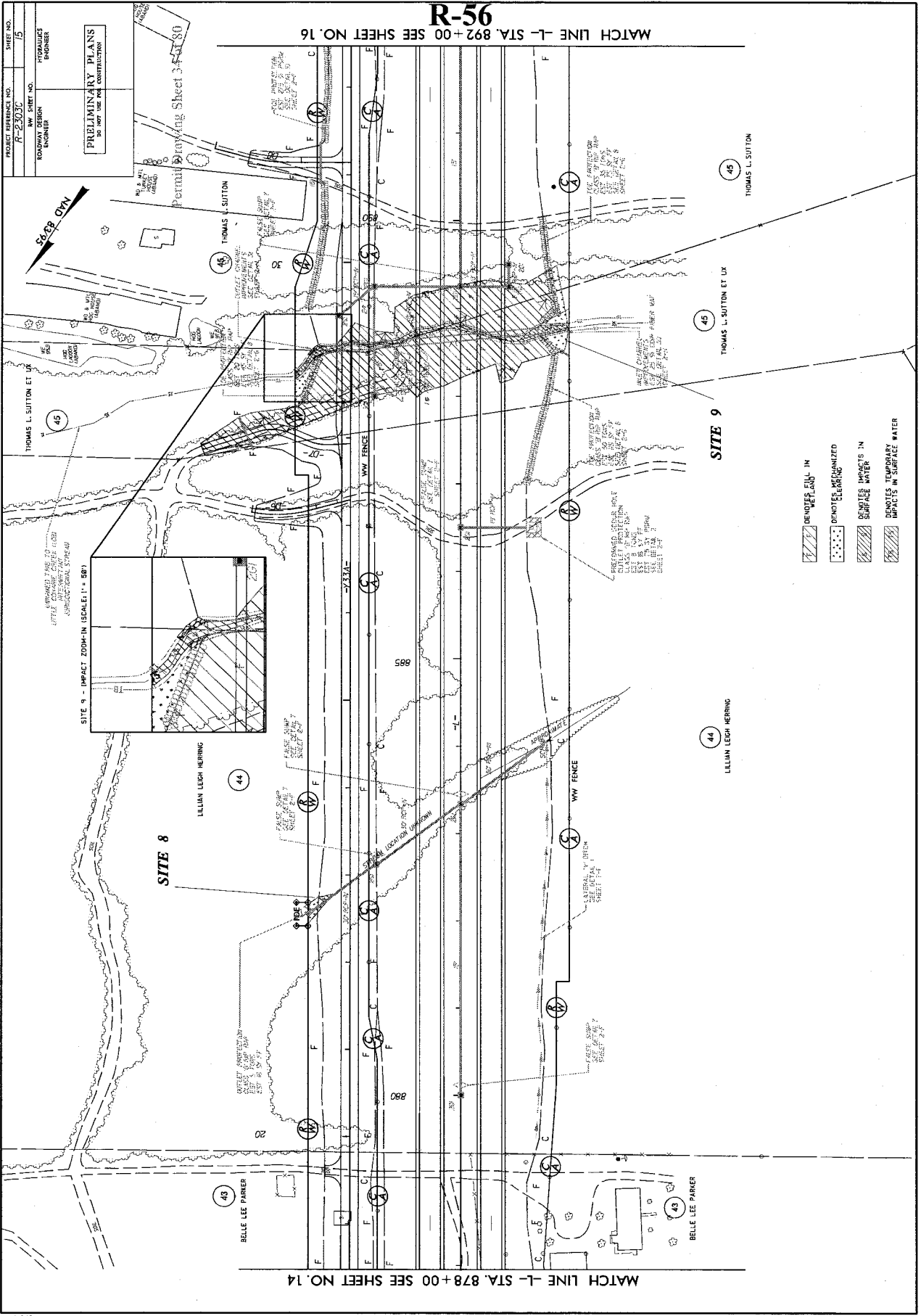
UNPAVED ROAD FROM 878+00 TO 882+00
IS A GRADE 20 DRIVEWAY
AS SHOWN ON SHEET NO. 15

UNPAVED ROAD FROM 882+00 TO 886+00
IS A GRADE 20 DRIVEWAY
AS SHOWN ON SHEET NO. 15

UNPAVED ROAD FROM 886+00 TO 890+00
IS A GRADE 20 DRIVEWAY
AS SHOWN ON SHEET NO. 15

R-56

MATCH LINE L- STA. 892+00 SEE SHEET NO. 16



PROJECT NUMBER: NO. 97-2303C
 ROADWAY DESIGN ENGINEER
 HYDRAULICS ENGINEER
 PRELIMINARY PLANS
 FOR THE IMPROVEMENT OF
 STATE ROUTE 14

DATE: 10/98

SCALE: 1" = 50'

SEE SHEET NO. 14

SEE SHEET NO. 16

SEE SHEET NO. 17

SEE SHEET NO. 18

SEE SHEET NO. 19

SEE SHEET NO. 20

SEE SHEET NO. 21

SEE SHEET NO. 22

SEE SHEET NO. 23

SEE SHEET NO. 24

SEE SHEET NO. 25

SEE SHEET NO. 26

SEE SHEET NO. 27

SEE SHEET NO. 28

SEE SHEET NO. 29

SEE SHEET NO. 30

SEE SHEET NO. 31

SEE SHEET NO. 32

SEE SHEET NO. 33

SEE SHEET NO. 34

SEE SHEET NO. 35

SEE SHEET NO. 36

SEE SHEET NO. 37

SEE SHEET NO. 38

SEE SHEET NO. 39

SEE SHEET NO. 40

SEE SHEET NO. 41

SEE SHEET NO. 42

SEE SHEET NO. 43

SEE SHEET NO. 44

SEE SHEET NO. 45

SEE SHEET NO. 46

SEE SHEET NO. 47

SEE SHEET NO. 48

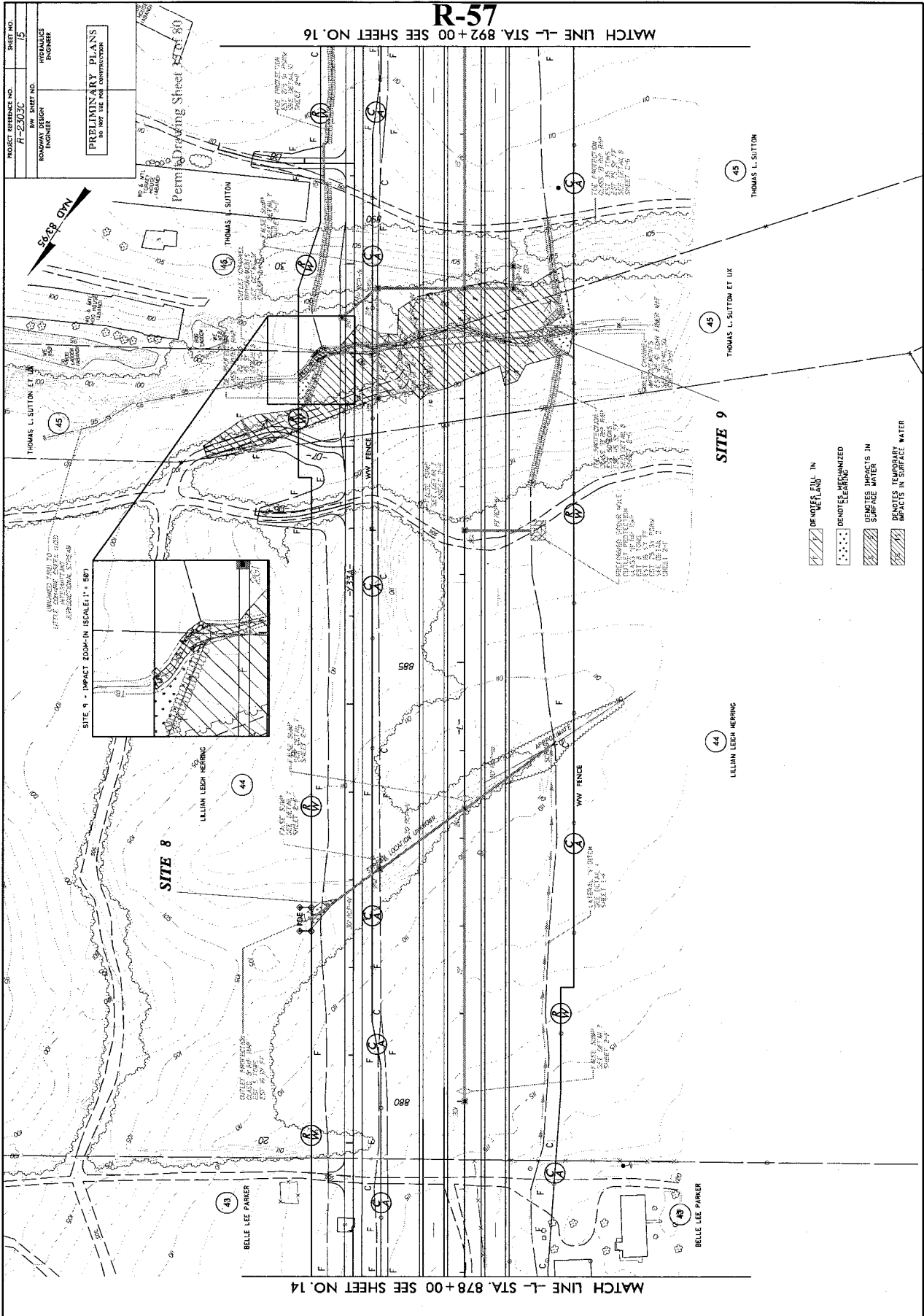
SEE SHEET NO. 49

SEE SHEET NO. 50

R-57

MATCH LINE -L- STA. 892+00 SEE SHEET NO. 16

MATCH LINE -L- STA. 878+00 SEE SHEET NO. 14



PROJECT REFERENCE NO. R-2003C
SHEET NO. 15
HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SCALE
1" = 20' 0"

- DEMOLITION IMPACTS IN SURFACE WATER
- DEMOLITION IMPACTS IN SURFACE WATER
- DEMOLITION IMPACTS IN SURFACE WATER
- DEMOLITION IMPACTS IN SURFACE WATER

PROJ. REFERENCE NO.
R-2303C

SHEET NO.
X-6.0



DATE
1/18/80

DRAWN BY
S. J. ...

CHECKED BY
...

SCALE
1" = 100'

PROJECT
...

SHEET
...

DATE
...

DRAWN BY
...

CHECKED BY
...

SCALE
...

PROJECT
...

SHEET
...

DATE
...

DRAWN BY
...

CHECKED BY
...

SCALE
...

PROJECT
...

SHEET
...

DATE
...

DRAWN BY
...

CHECKED BY
...

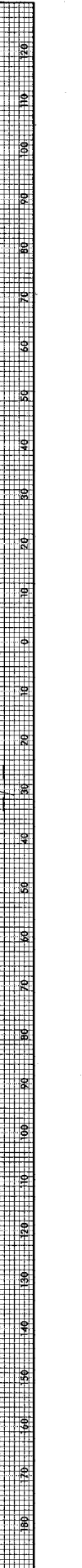
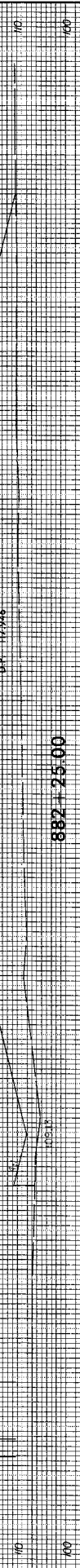
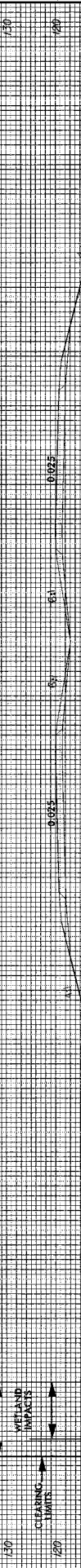
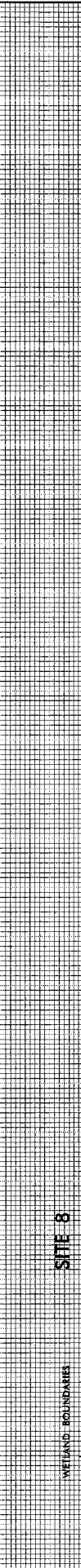
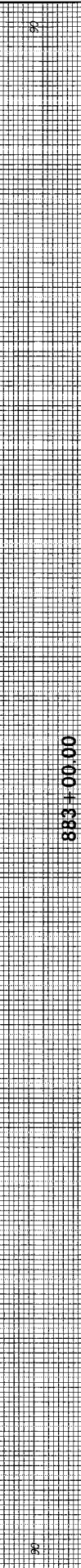
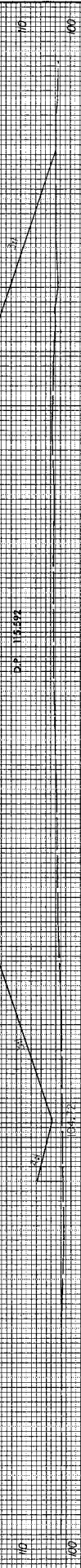
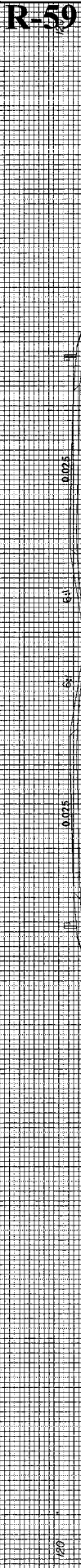
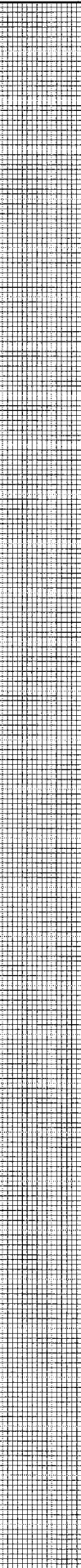
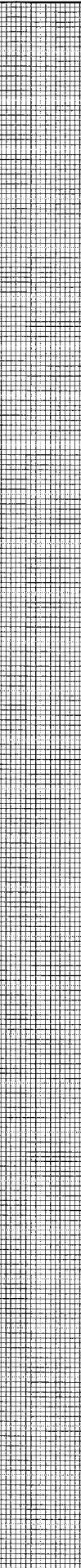
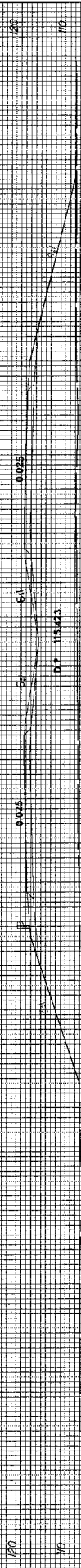
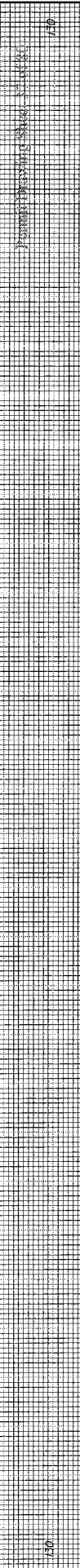
SCALE
...

PROJECT
...

SHEET
...

DATE
...

DRAWN BY
...



8/23/99

883+50.00

883+00.00

882+25.00

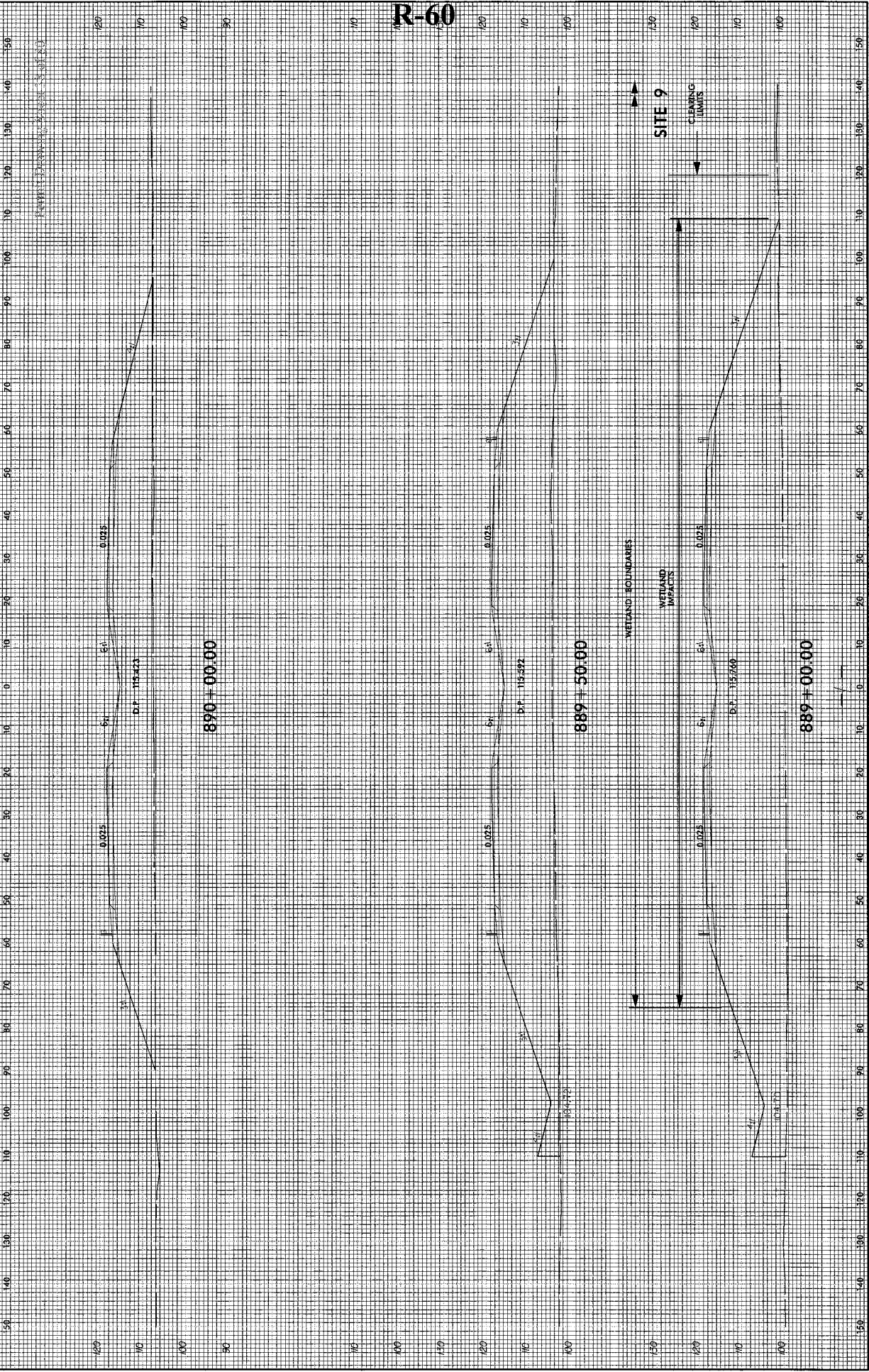
WETLAND BOUNDARIES

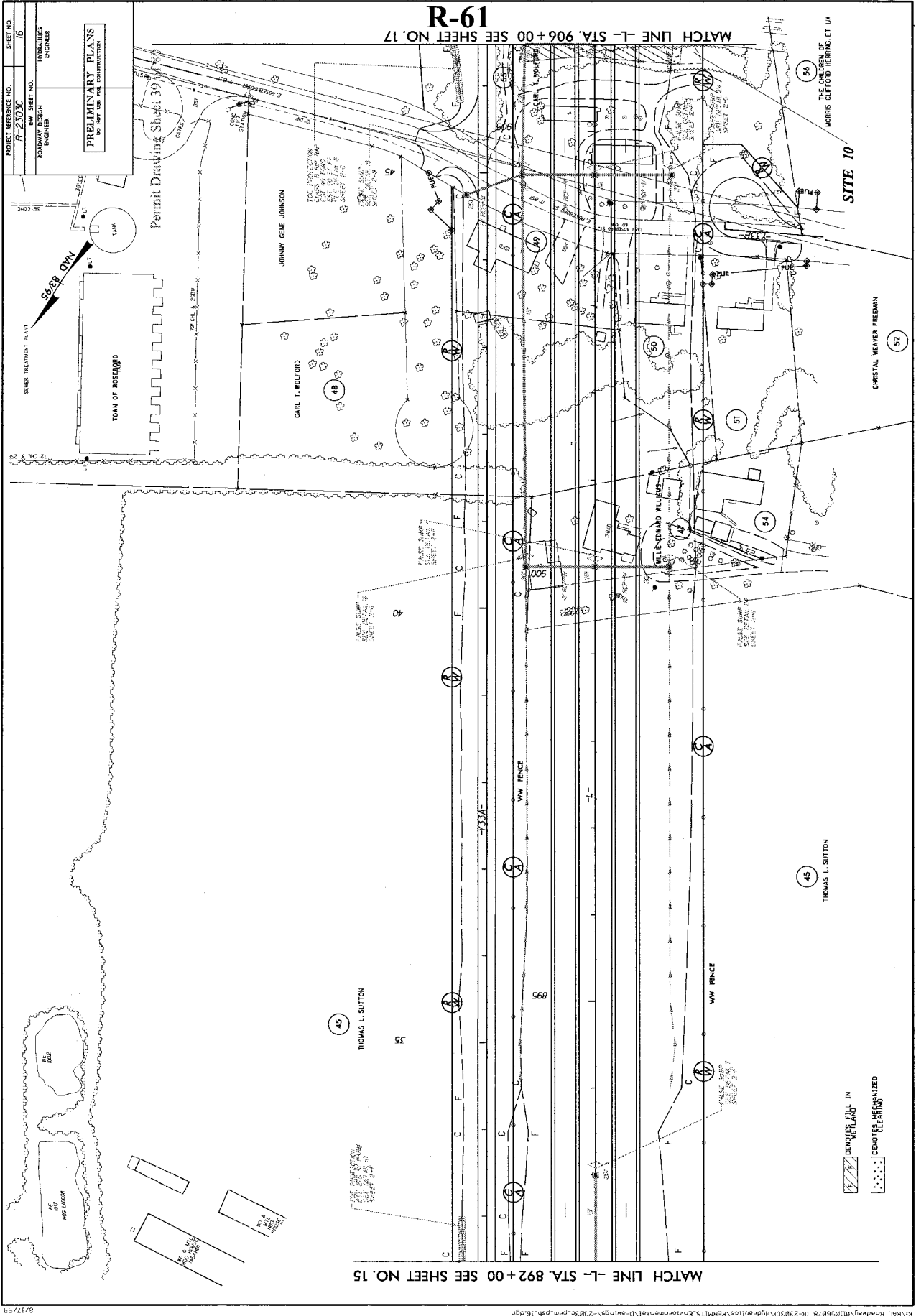
WETLAND IMPACTS

CLEARING LIMITS

SITE 8

R-59





PROJECT REFERENCE NO.	R-2101C
SHEET NO.	16
BY SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULIC ENGINEER
PRELIMINARY PLANS NOT FOR CONSTRUCTION	

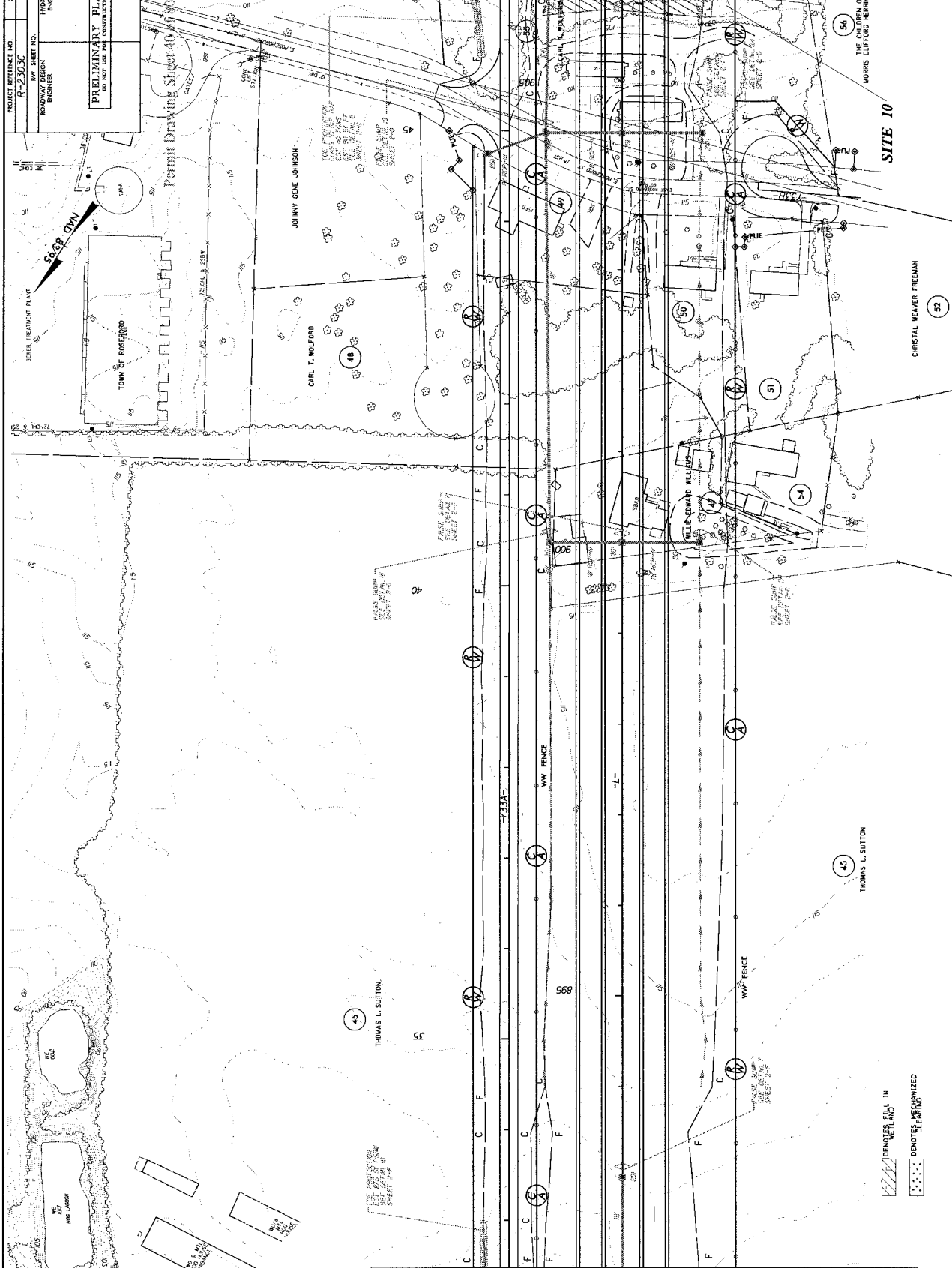
DENOTES ELL IN
 DENOTES PARTIAL

MATCH LINE L- STA. 892 + 00 SEE SHEET NO. 15

SITE 10

PROJECT REFERENCE NO.	R-230C
SHEET NO.	16
BY	HYDRAULICS ENGINEER
CHECKED BY	ROADWAY DESIGN ENGINEER
DATE	
PRELIMINARY PLANS NO NOT FOR CONSTRUCTION	

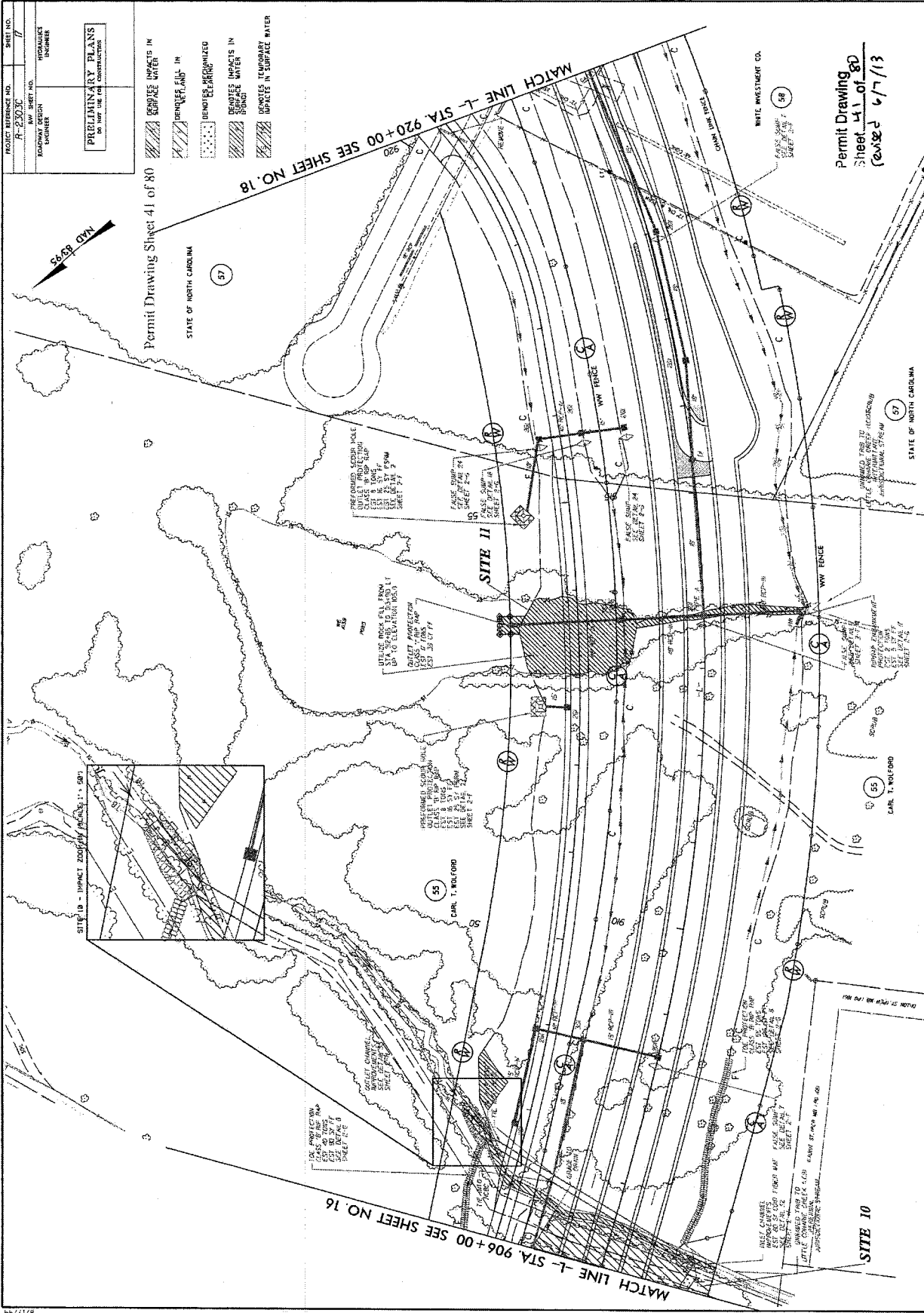
R-62
MATCH LINE L- STA. 906+00 SEE SHEET NO. 17



MATCH LINE L- STA. 892+00 SEE SHEET NO. 15

SEWER LINES IN
UNSATURATED
SLOTTED
PIPE

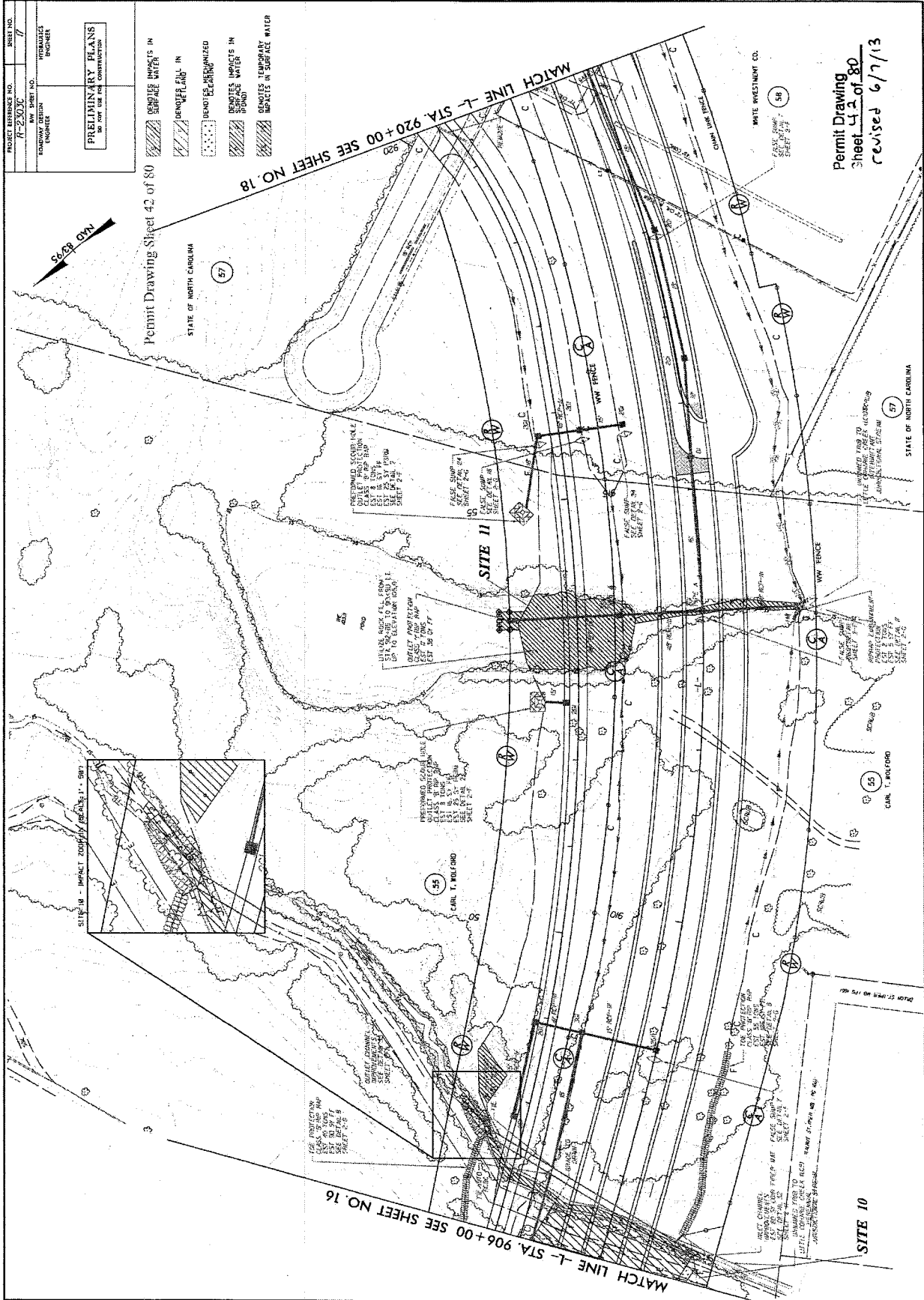
SEWER LINES IN
SATURATED
PIPE



PROJECT REFERENCE NO. R-2203C	SHEET NO. 17
DRAWN BY ENGINEER	CHECKED BY HYDRAULIC ENGINEER
PROBABLY BY PLANS TO BE USED IN CONNECTION WITH PERMIT DRAWING SHEET 41 OF 80	

- REMOVAL IMPACTS IN
- REMOVAL IMPACTS IN
- REMOVAL IMPACTS IN
- REMOVAL IMPACTS IN
- REMOVAL IMPACTS IN
- REMOVAL IMPACTS IN

Permit Drawing
Sheet 41 of 80
Revised 6/7/13



PROJECT REFERENCE NO. R-2303C	SHEET NO. 17
BY ENGINEER	CHECKED BY ENGINEER
PRELIMINARY PLANS NOT TO BE USED FOR CONSTRUCTION	

- IMPACTS IN SURFACE WATER
- IMPACTS IN UNDERGROUND
- DEVELOPED/REHABILITATED
- IMPACTS IN SURFACE WATER
- IMPACTS IN SURFACE WATER
- IMPACTS IN SURFACE WATER

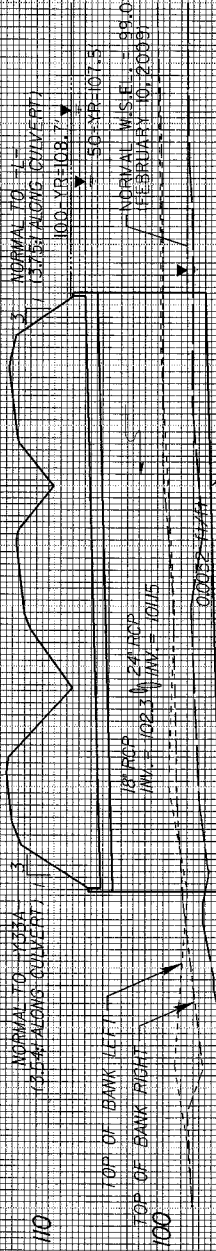
Permit Drawing
Sheet 17 of 80
revised 6/7/13

PROJ. REFERENCE NO. 8-2008 SHEET NO.

R-65

250 200 150 100 50 0 50 100 150 200

OL STA 006+50
GRADE POINT ELEV. = 113.17
SKEW = 106
8' X 9' RCBC (BURIED)
W/ LABELLED INLET
CAL. 24" RCP



SITE 10

8' X 9' RCBC AT STATION -L- 0906+61

PROJ. REFERENCE NO.
R-2103C

SHEET NO.
X-62



DATE: 11/14/80

BY: [Signature]

SCALE: 1" = 20'

DATE: 11/14/80

BY: [Signature]

SCALE: 1" = 20'

DATE: 11/14/80

BY: [Signature]

SCALE: 1" = 20'

DATE: 11/14/80

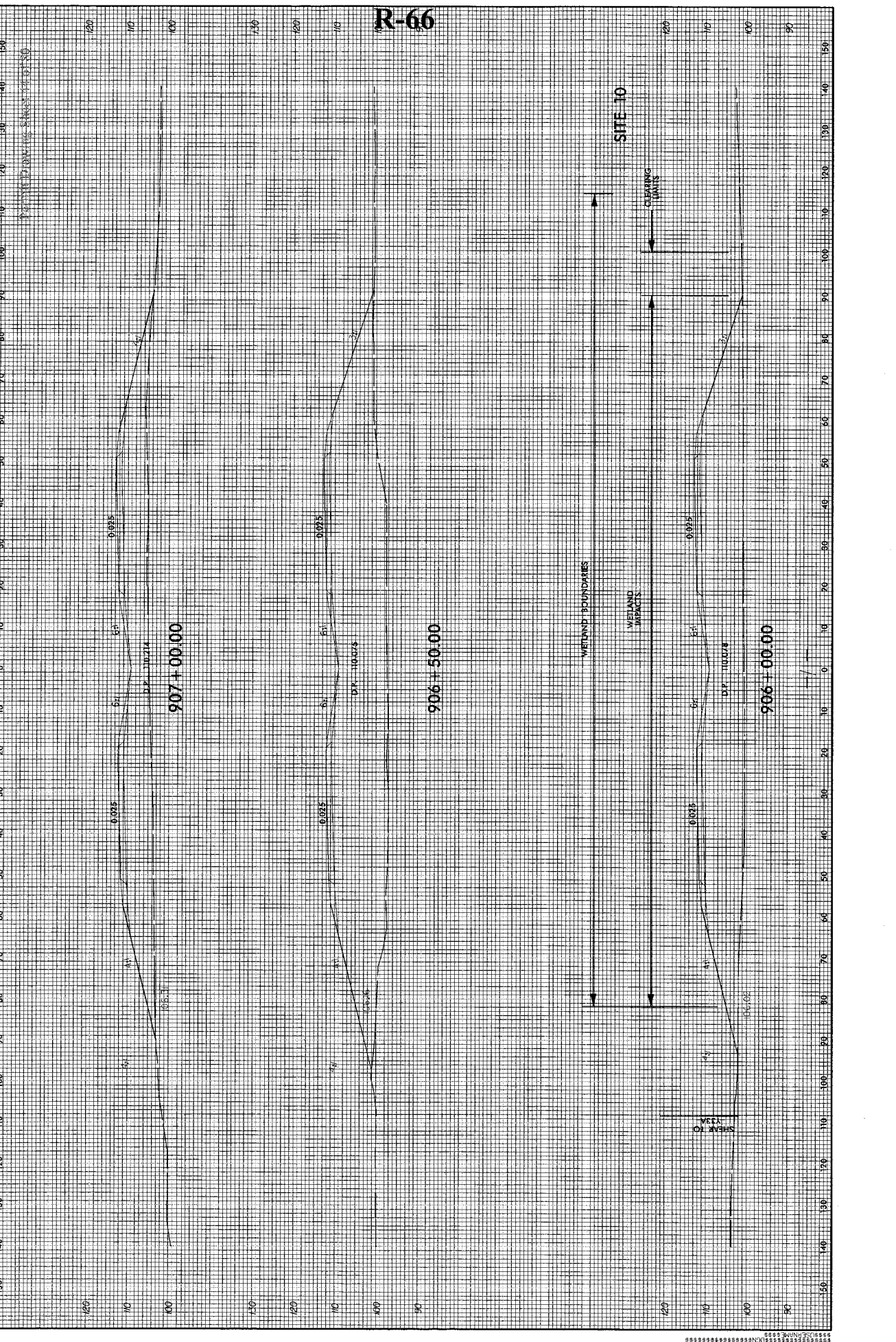
BY: [Signature]

SCALE: 1" = 20'

DATE: 11/14/80

BY: [Signature]

SCALE: 1" = 20'



R-66

SITE 10

WETLAND BOUNDARIES

WETLAND IMPACTS

CLEARING LIMITS

907+00.00

906+50.00

906+00.00

SHEAR TO

WETLAND

IMPACTS

WETLAND

IMPACTS

WETLAND

IMPACTS

WETLAND

IMPACTS

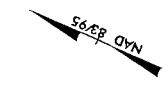
WETLAND

IMPACTS

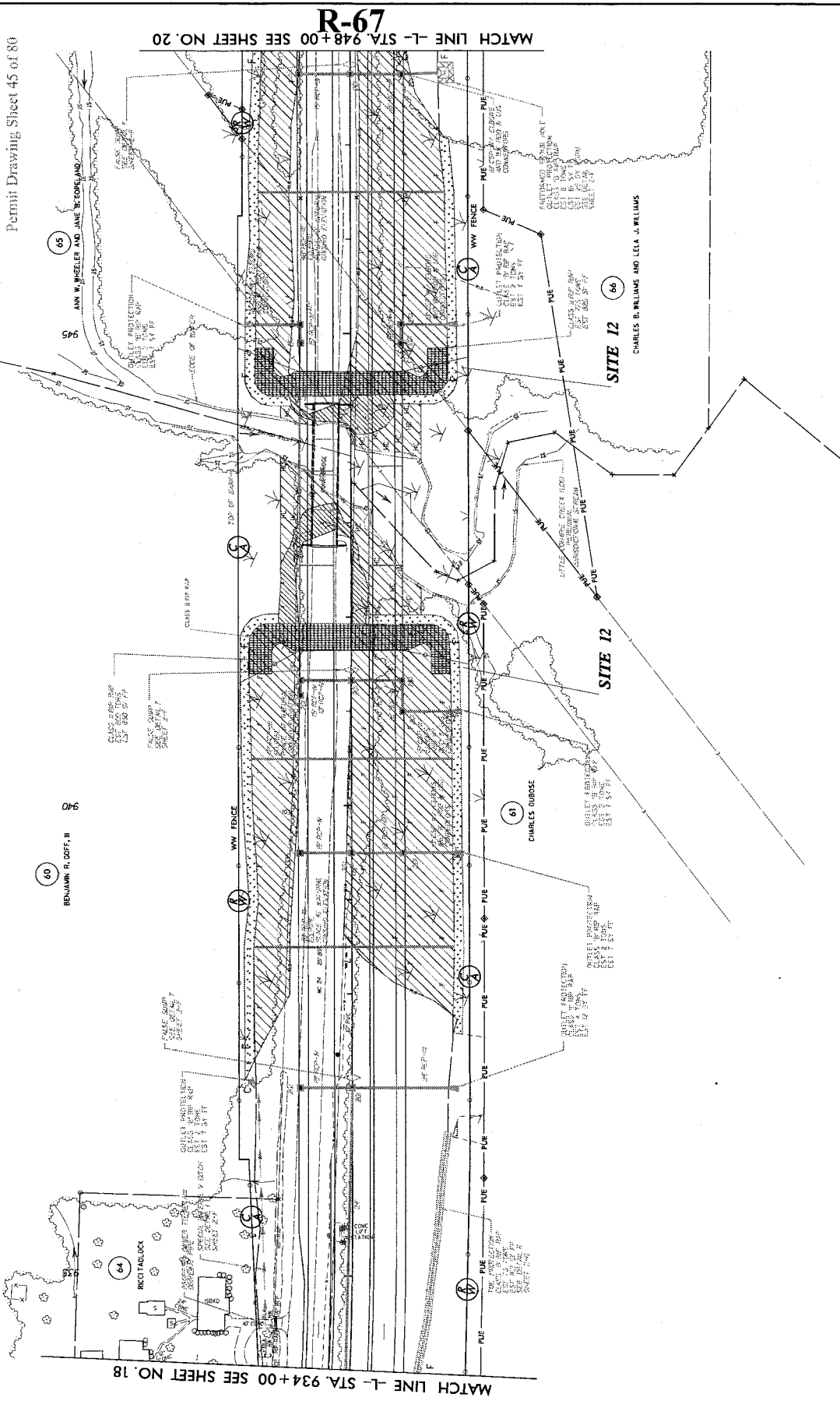
PROJECT REFERENCE NO.	R-2303C
DATE	1/9
DESIGNER	HYDRAULIC ENGINEER
ENGINEER	ROADWAY DESIGN ENGINEER

PRELIMINARY PLANS
NO NOT FOR CONSTRUCTION

Permit Drawing Sheet 45 of 80



- DEMONSTRATED FILL IN
- DEMONSTRATED EXCAVATION
- DEMONSTRATED MECHANIZED
- DEMONSTRATED







R-67

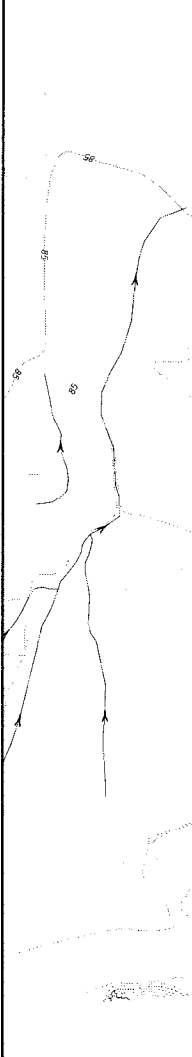
MATCH LINE L- STA. 948+00 SEE SHEET NO. 20

MATCH LINE L- STA. 934+00 SEE SHEET NO. 18

PROJECT REFERENCE NO.	R-2303C
PROJECT SHEET NO.	19
ROWWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

MAD 83.95

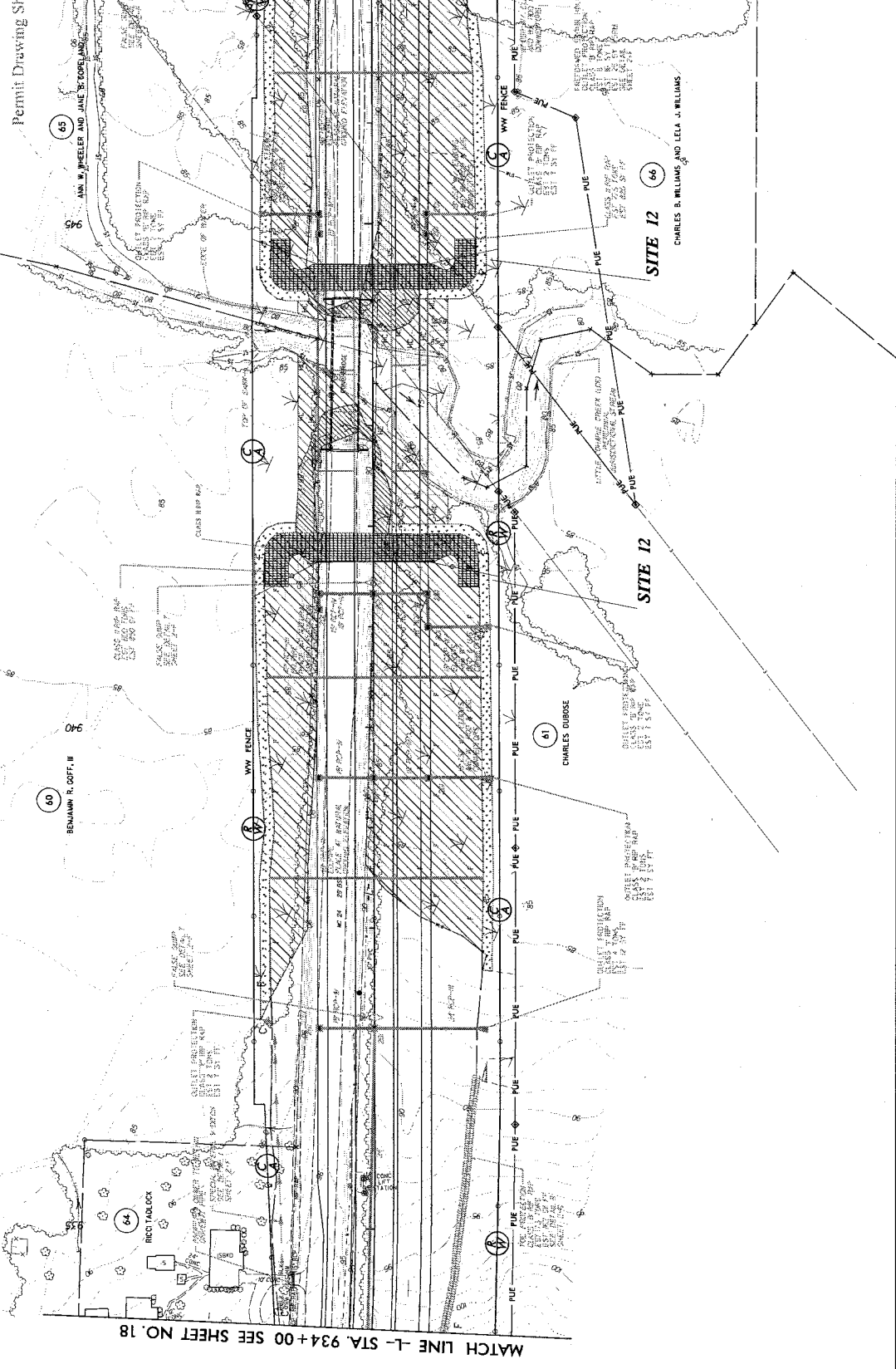
-  DENOTES FILL IN
-  DENOTES EXCAVATION
-  DENOTES MECHANIZED EROSION CONTROL
-  DENOTES REPAIRS



Permit Drawing Sheet 46 of 80

R-68

MATCH LINE L- STA. 948+00 SEE SHEET NO. 20



MATCH LINE L- STA. 934+00 SEE SHEET NO. 18

940+00 941+00 942+00 943+00 944+00 945+00

Revised Drawing Sheet 12 of 81

LOW POINT APPROXIMATE ELEV. = 953.465 APPROXIMATE ELEV. = 947.02

CL STA 943+12.0
EAST BOUND LANE (E91-1)
7.8' 90' TO 16.5' ELEVATION = 225'
6.3' MODIFIED SILE TIE
W/ SPALL THROUGH SIGNS
65' ELEV = 100.77
EXISTING DIVIDER AND ROADWAY

LOW STEEP SLOPE OF 25% SUPERELEVATION

100-YR = 91.4'

CLASS II PIP RAP (TYP)

3.5' (TYP) NATURAL GROUND DOWNSTREAM

NORMAL W.S.E. = 85.4'
EXISTING BRIDGE
(DECEMBER 15, 2008)

100-YR THEORETICAL SCOUR

500-YR THEORETICAL SCOUR

2' (TYP) 2' (TYP) 2' (TYP) NORMAL TO END BENT

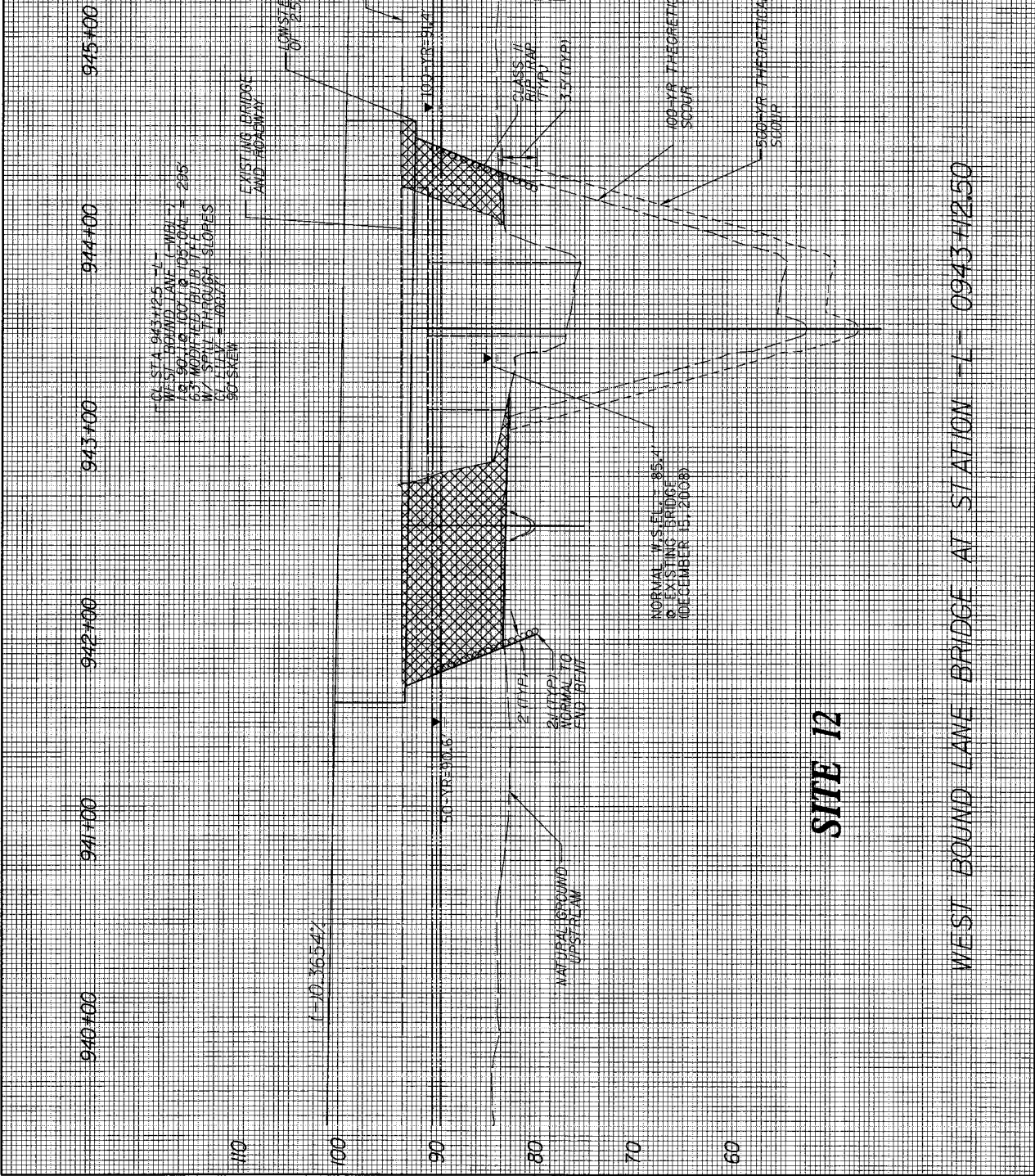
50-YR 90.6'

R-69

SITE 12

EAST BOUND LANE BRIDGE AT STATION L- 0943+12.50

PROJECT REFERENCE NO. SHEET NO.



R-70

SITE 12

WEST BOUND LANE BRIDGE AT STATION -L- 0943+12.50

PROJECT REFERENCE NO. SHEET NO.

CL STA 943+12.5
WEST BOUND LANE - WBL
94.0 TO 100.1 & 105.0 FT - 296'
63' MEAN - 125' RADIUS
17' STAFF THROUGH SLOPES
90' SKIRM
EXISTING BRIDGE
AND ROADWAY

C LOW POINT
MEASUREMENT STA = 943+16.5
APPROX ELEV = 91.02

EXCAVATION = 4.00' OF
BRIDGE APRIL AND
EMBANKMENT

NORMAL WATER LEVEL 85.7'
(OCTOBER 15, 2008)

50-YR 90.6'

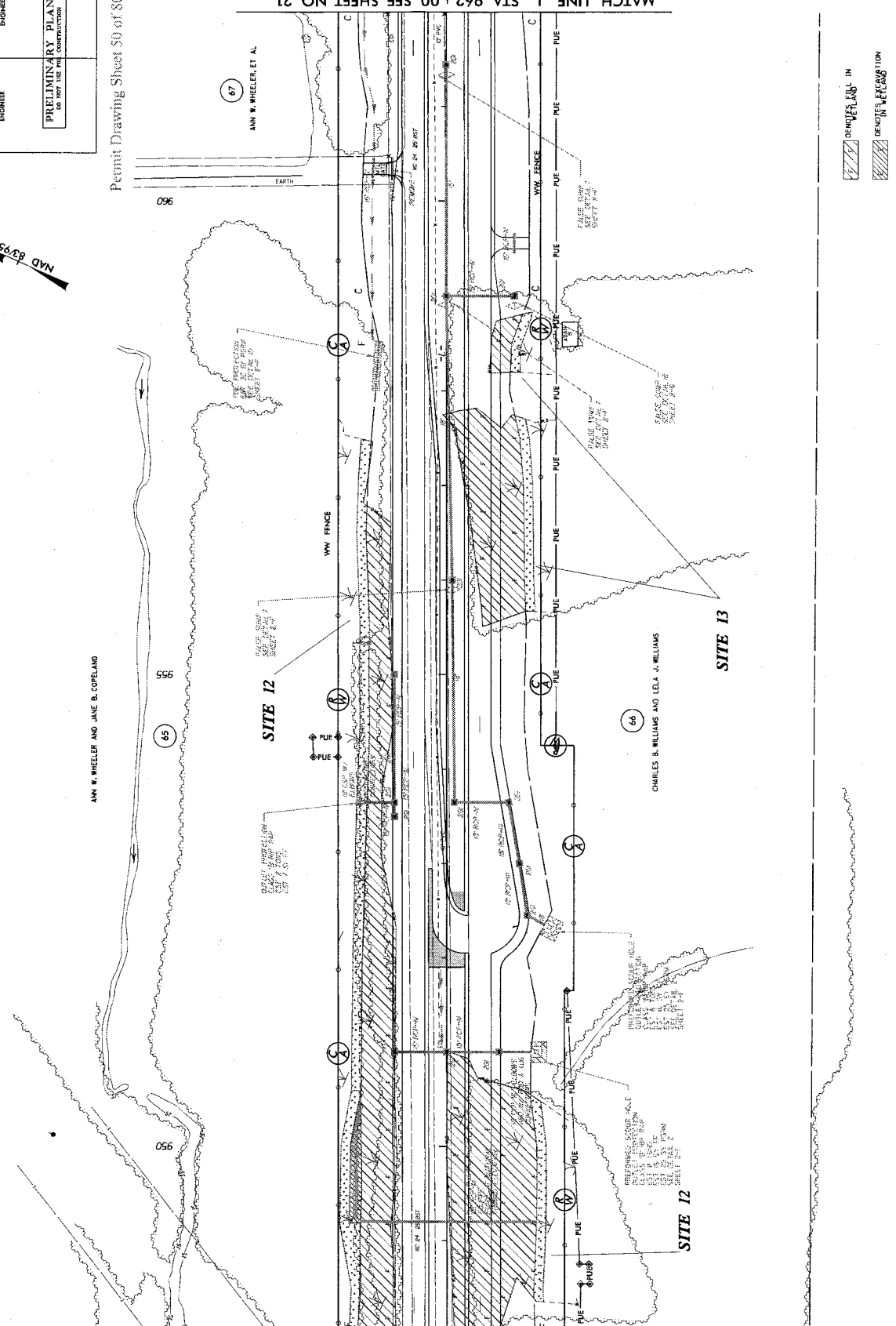
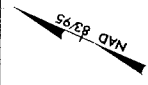
10.3654'

PROJECT NUMBER AND SHEET NO.	R-2303C 20
ROADWAY DESIGN ENGINEER	PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION
OVERALLS ENGINEER	

Permit Drawing Sheet 30 of 80

R-72

MATCH LINE L- STA. 962+00 SEE SHEET NO. 21



- OPEN FIELD IN
- DENOTE WETLAND
- DENOTE MECHANIZED CLEARING

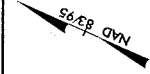
MATCH LINE L- STA. 948+00 SEE SHEET NO. 19

PROJECT NUMBER AND SHEET NO.	R-23037 20
ANN WHEELER AND JANE B. COPELAND ROADWAY DESIGN ENGINEER	PROBABLE ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Permit Drawing Sheet 51 of 80

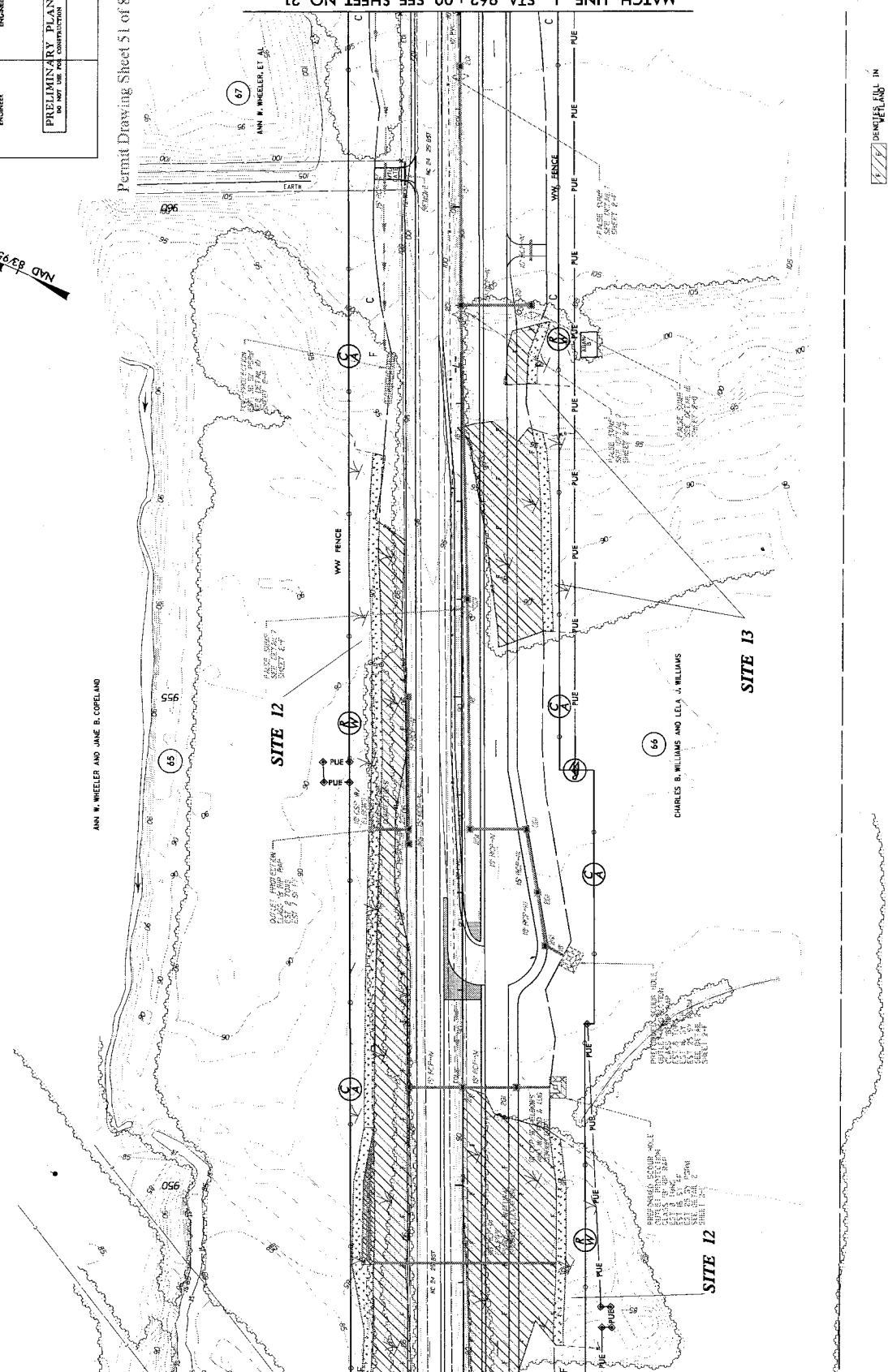
R-73

MATCH LINE L- STA. 962+00 SEE SHEET NO. 21

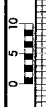


ANN W. WHEELER AND JANE B. COPELAND

MATCH LINE L- STA. 948+00 SEE SHEET NO. 19



- DEMONSTRATED IN
- DEMONSTRATED IN CONSTRUCTION
- DEMONSTRATED IN CONSTRUCTION



WETLAND BOUNDARIES

WETLAND IMPACTS

CLEARING LIMITS

SITE 13

957+00.00

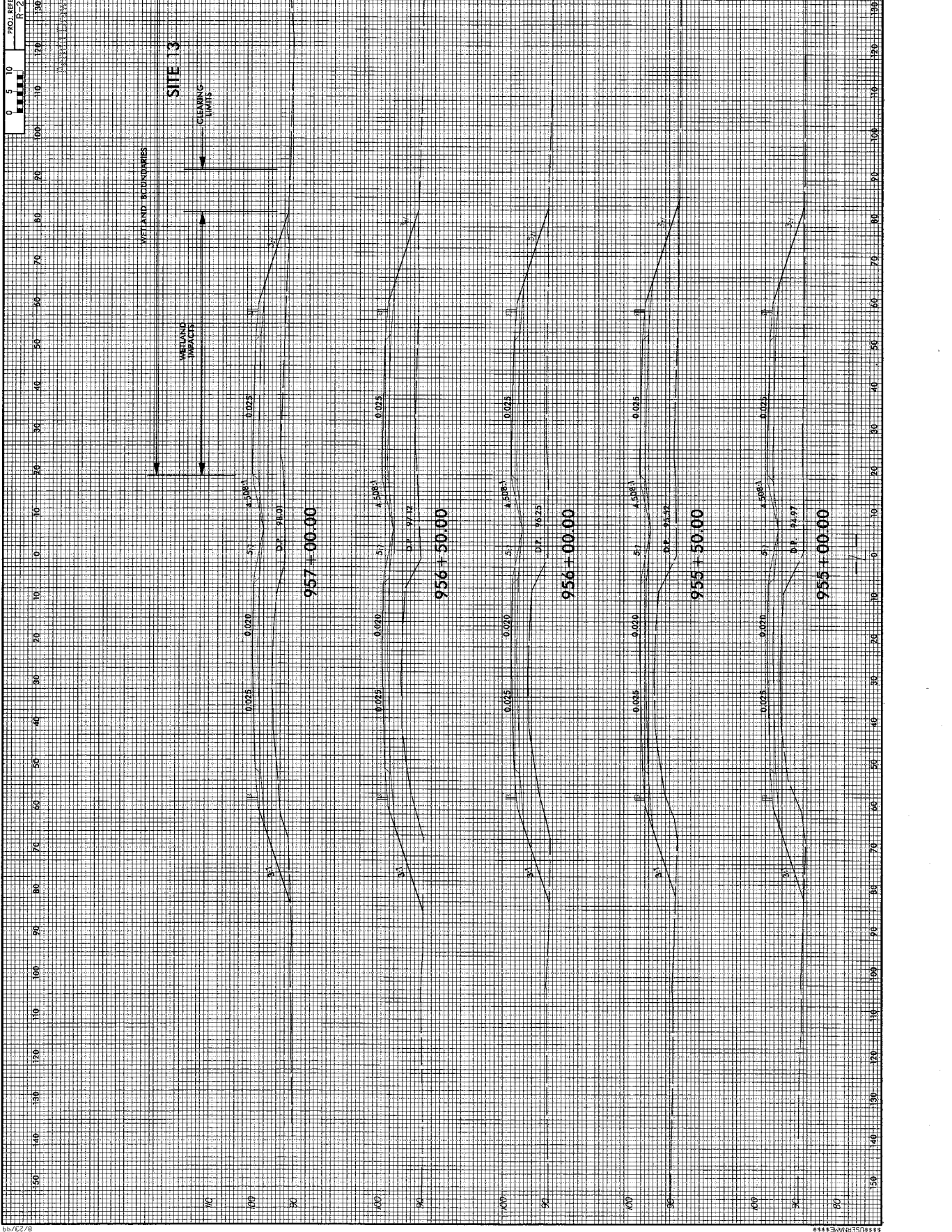
956+50.00

956+00.00

955+50.00

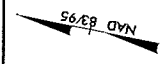
955+00.00

R-74

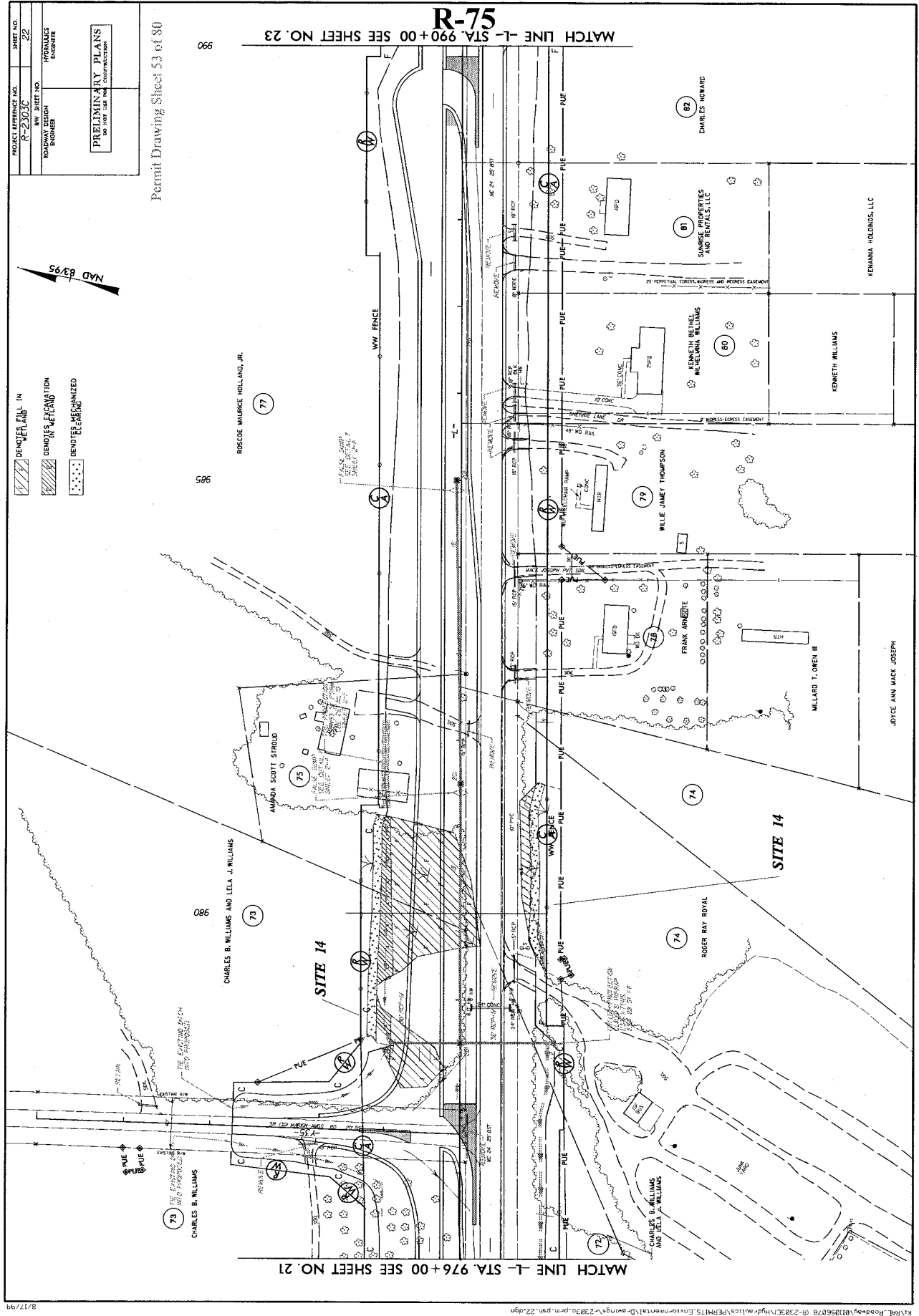


PROJECT REFERENCE NO.	R-2303C
RAW SHEET NO.	22
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Permit Drawing Sheet 53 of 80






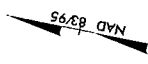
- DEMONSTRATED IN
- DEMONSTRATED IN WETLAND
- DEMONSTRATED



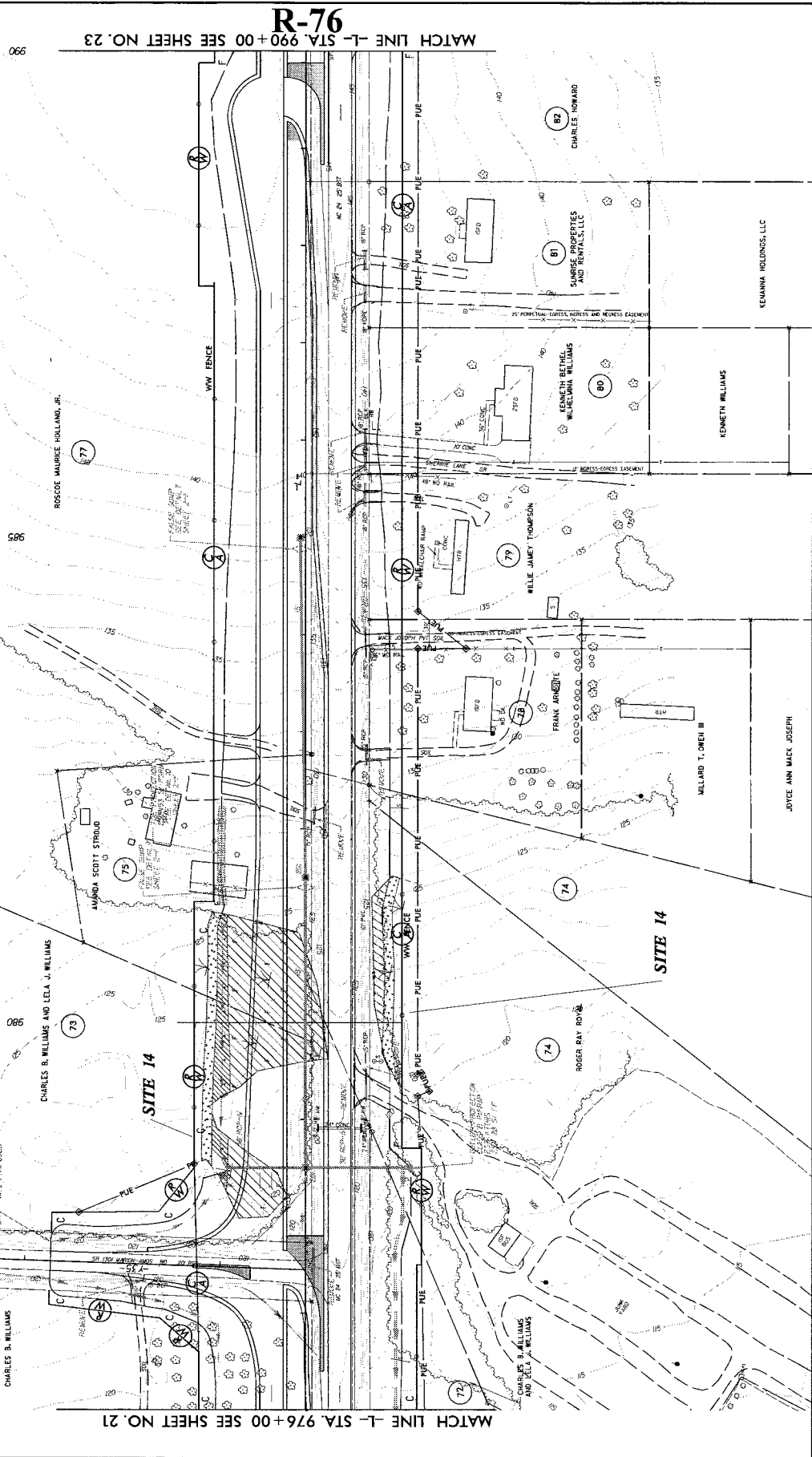
R-75

PROJECT REFERENCE NO.	R-2303C
SHEET NO.	22
BY	HYDRAULICS ENGINEER
CHECKED BY	ROADWAY DESIGN ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

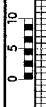
-  DENOTES LAND IN
-  DENOTES EXCAVATION IN WETLAND
-  DENOTES MECHANIZED



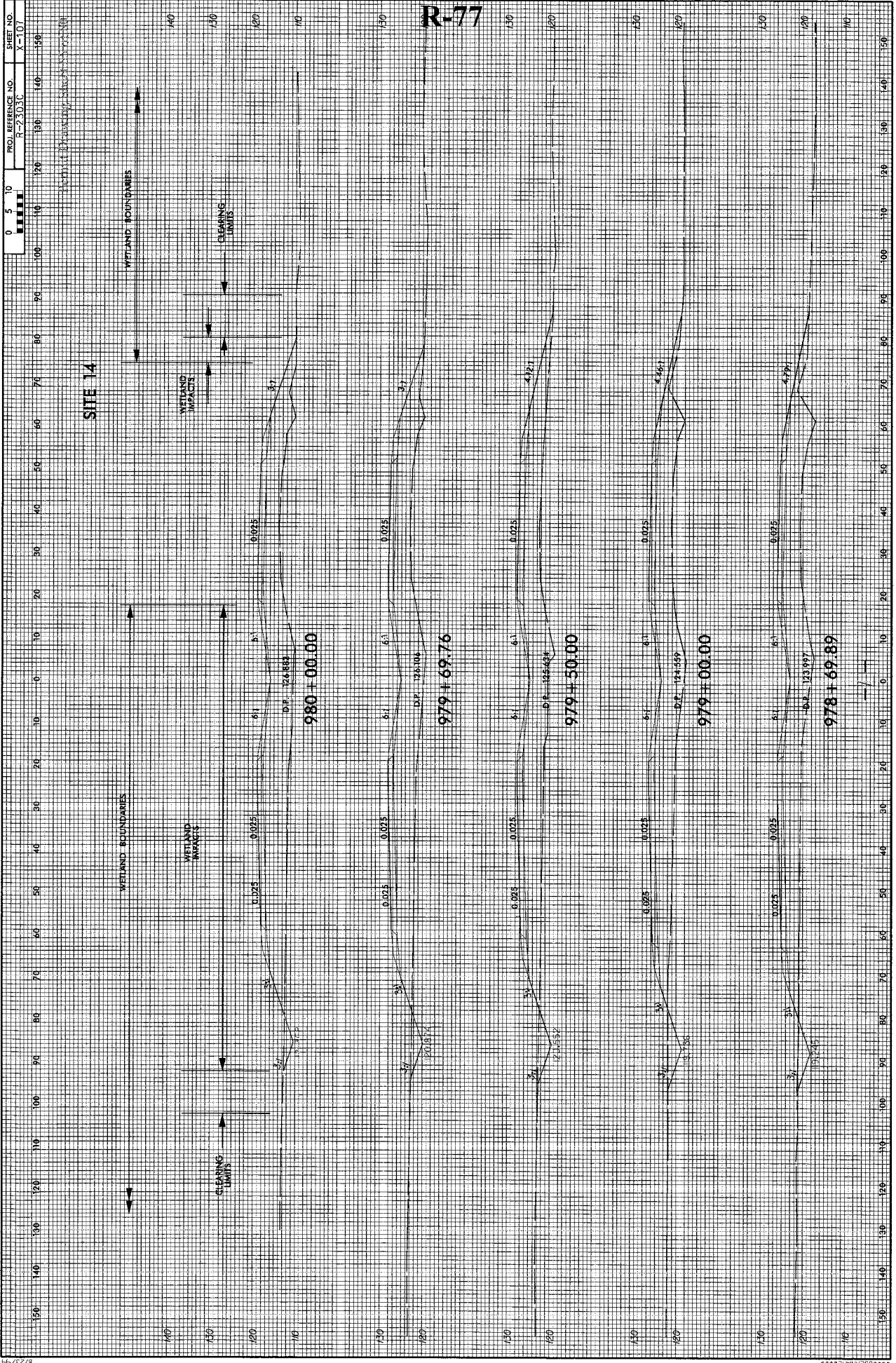
Permit Drawing Sheet 54 of 80



R-76



SITE 14



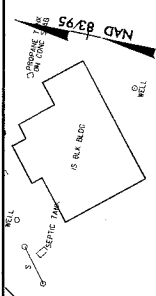
R-77

PROJECT REFERENCE NO. **P-2303C**
SHEET NO. **23**
HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

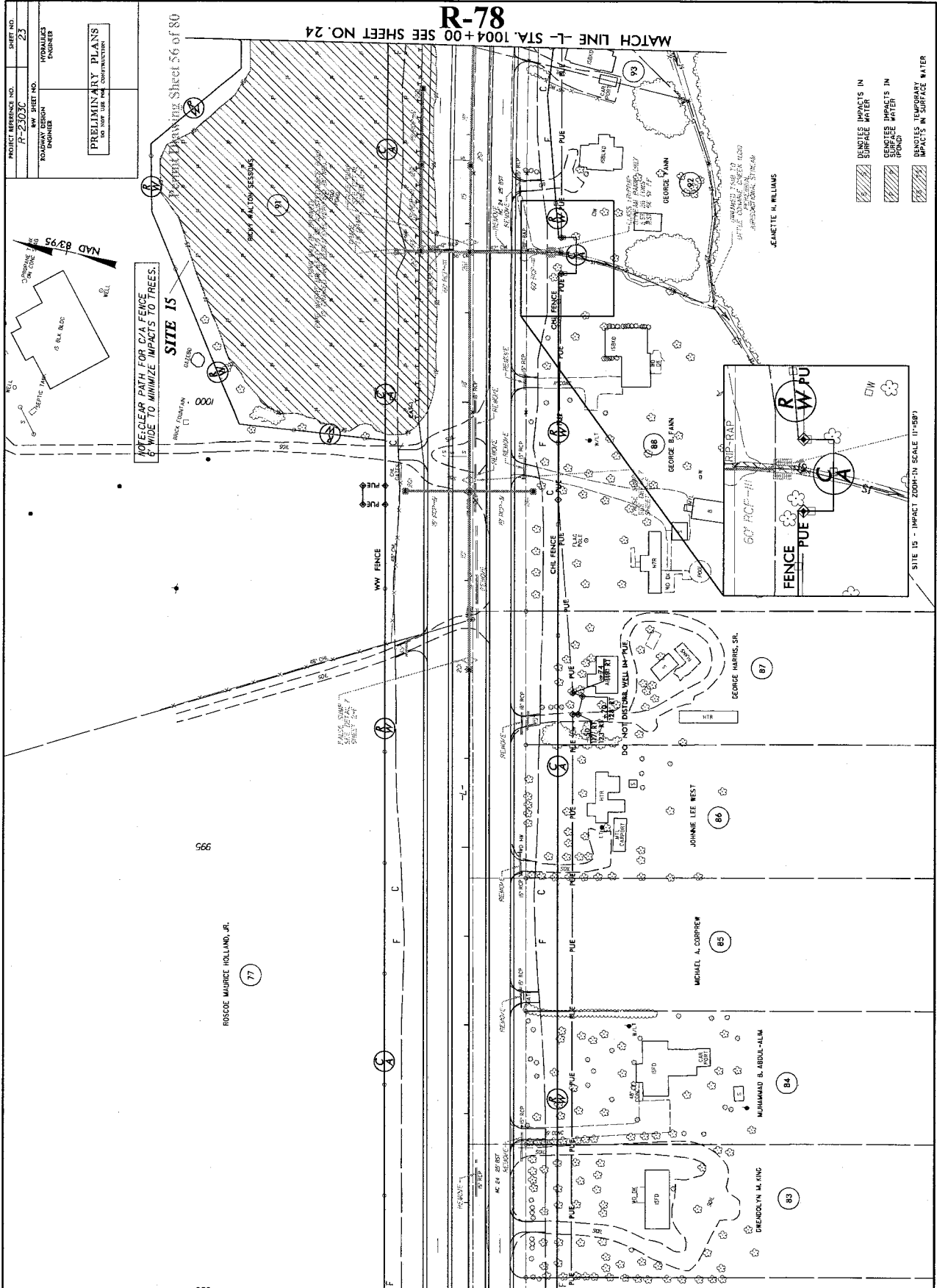
R-78

MATCH LINE - L- STA. 1004+00 SEE SHEET NO. 24

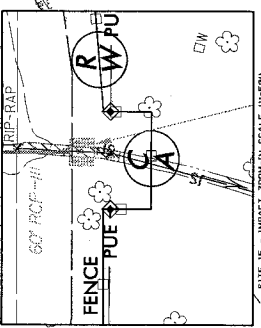


NOTE: CLEAR PATH FOR CVA FENCE 4' WIDE TO MINIMIZE IMPACTS TO TREES.

SITE 15

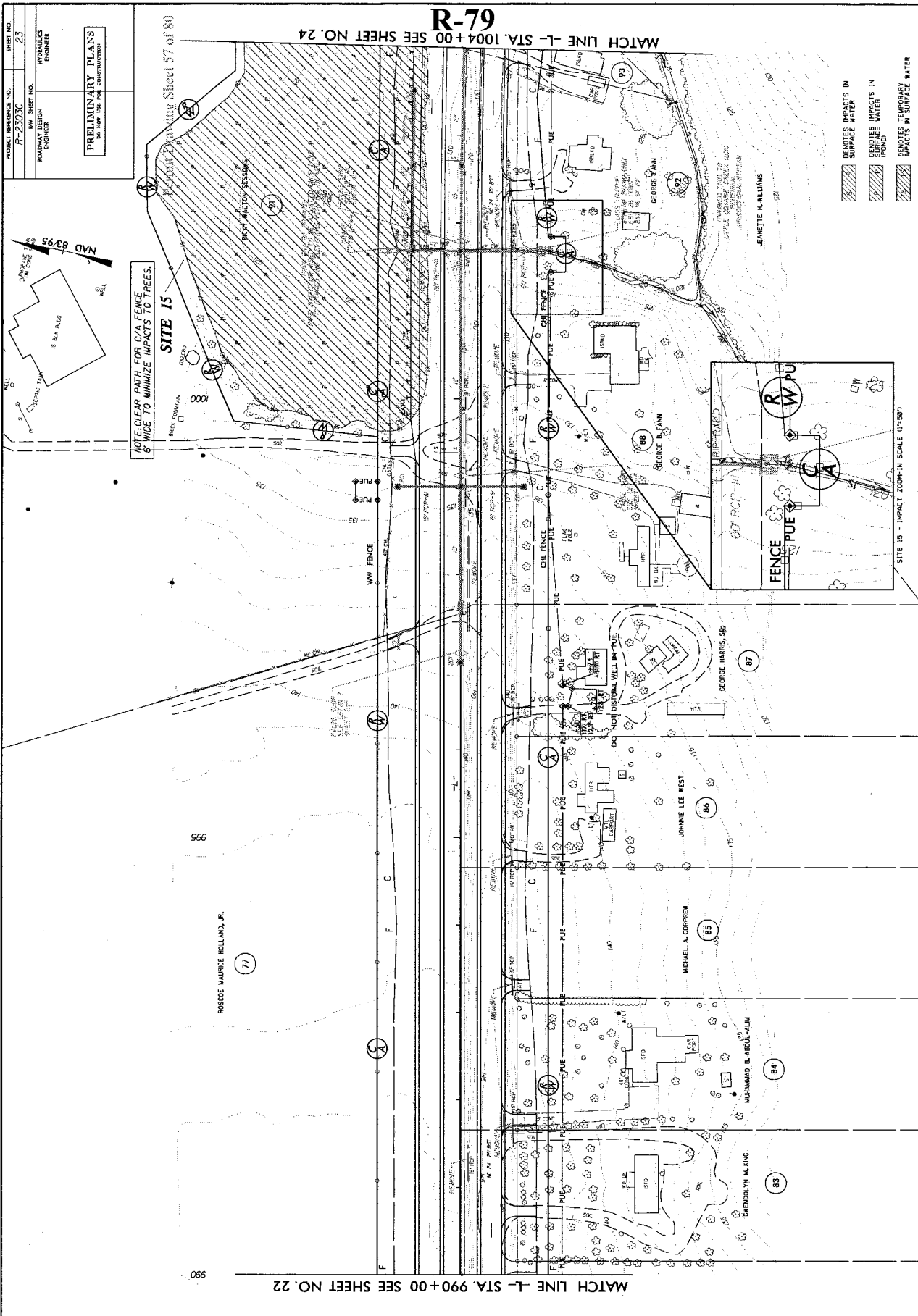


[Hatched Pattern]	DESIGNS IMPACTS IN SURFACE WATER
[Hatched Pattern]	DESIGNS IMPACTS IN OPENINGS
[Hatched Pattern]	DESIGNS TEMPORARY IMPACTS IN SURFACE WATER



MATCH LINE - L- STA. 990+00 SEE SHEET NO. 22

MATCH LINE - L- STA. 1004+00 SEE SHEET NO. 24



PROJECT REFERENCE NO. P-2303C
 SHEET NO. 23
 ROADWAY DESIGN ENGINEER
 HYDRAULICS ENGINEER

PRELIMINARY PLANS
 NOT FOR CONSTRUCTION

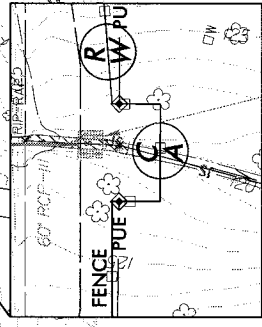
NOTE CLEAR PATH FOR C/A FENCE 5' WIDE TO MINIMIZE IMPACTS TO TREES.

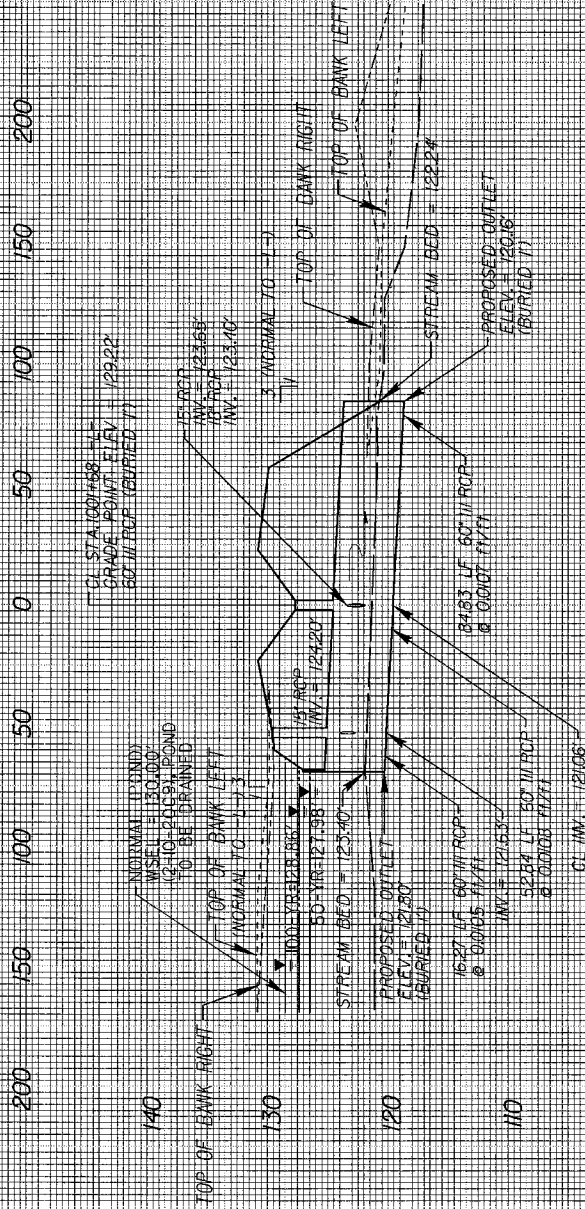
SITE 15

Match Line L-STA. 1004+00 SEE SHEET NO. 24

Match Line L-STA. 990+00 SEE SHEET NO. 22

DIAGONAL HATCHING: DENOTES IMPACTS IN SURFACE WATER
 CROSS-HATCHING: DENOTES IMPACTS IN POND
 DOTTED HATCHING: DENOTES TEMPORARY IMPACTS IN SURFACE WATER





SITE 15

60" CLASS III RCP AT STATION -L- 1001+68

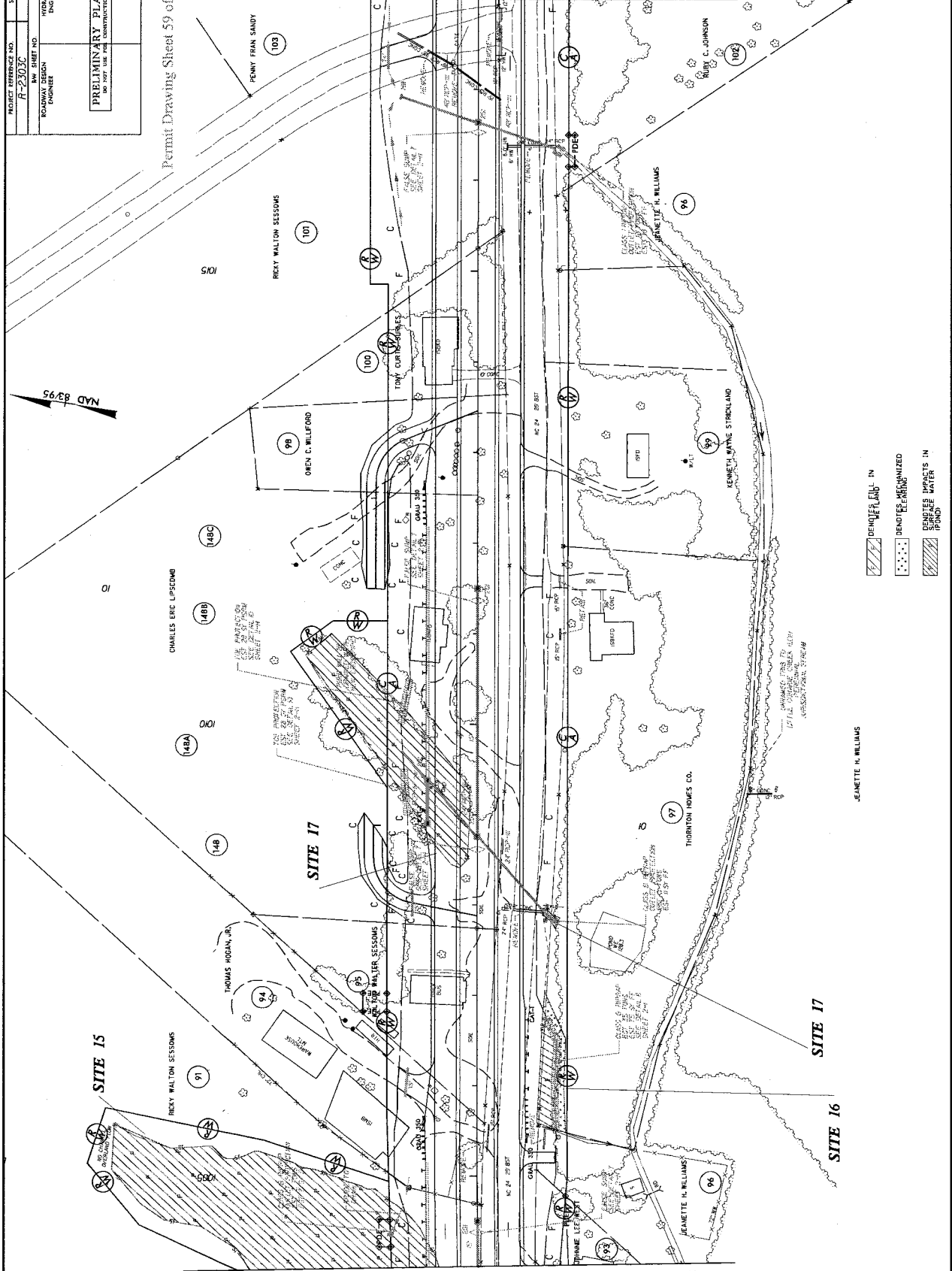
PROJECT NUMBER AND NAME	R-2030C
DATE	2/4
DESIGNER	ROADWAY DESIGN ENGINEER
CHECKER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
FOR THE
CONSTRUCTION





Permit Drawing Sheet 59 of 80

R-81

MATCH LINE -L- STA. 1018+00 SEE SHEET NO. 25



MATCH LINE -L- STA. 1004+00 SEE SHEET NO. 23

-  DRAINAGE CANAL IN
-  DRAINAGE MECHANIZED CLEARING
-  DRAINAGE POND IN
-  DRAINAGE POND

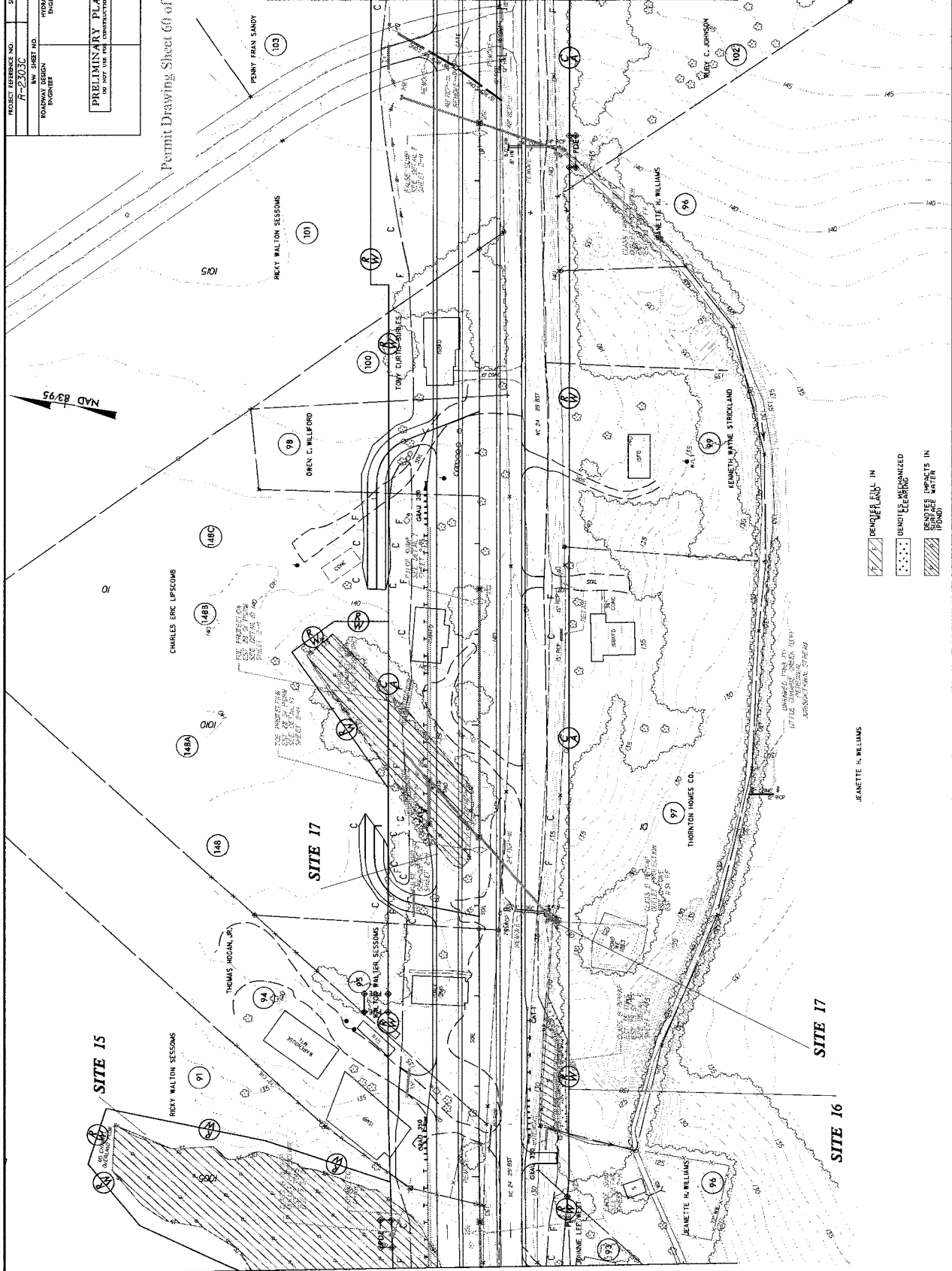
PROJECT RESOURCES NO.	24
PROJECT NO.	24
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS <small>NOT FOR CONSTRUCTION</small>	

Permit Drawing Sheet 60 of 80

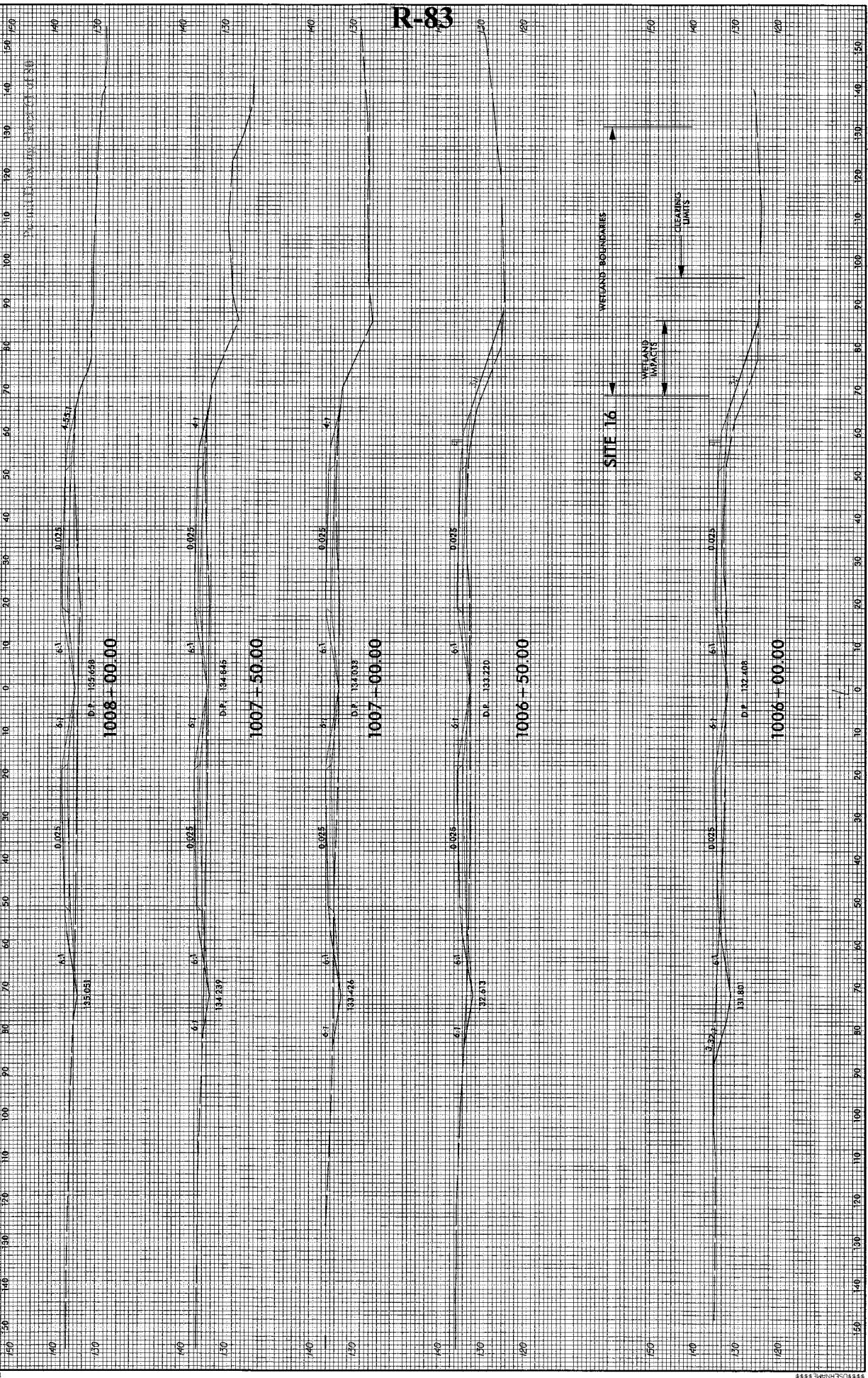
R-82

MATCH LINE -L- STA. 1018+00 SEE SHEET NO. 25

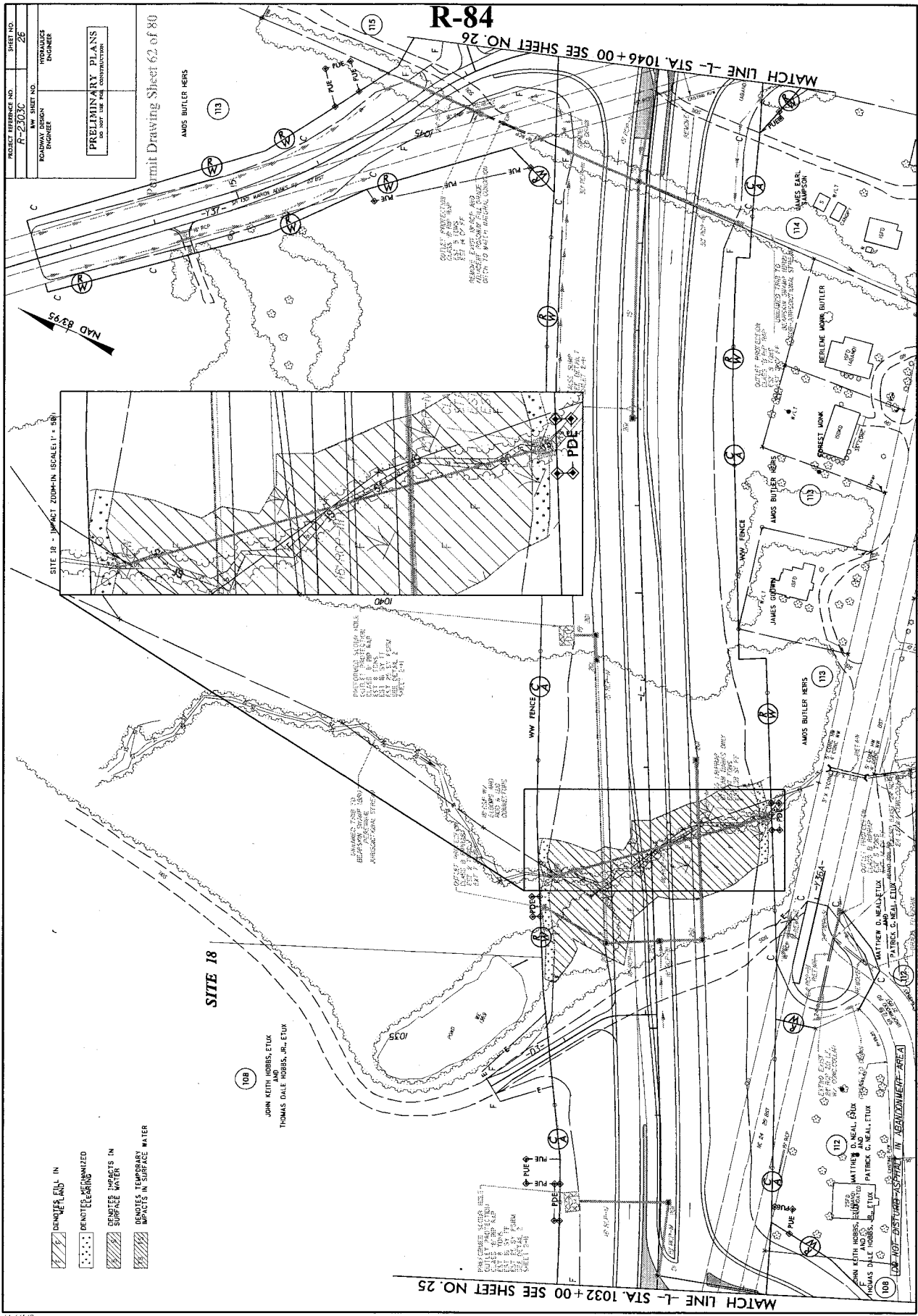
MATCH LINE -L- STA. 1004+00 SEE SHEET NO. 23



- DEMOLISH FILL-IN
- DEMOLISH MECHANIZED CLEARING
- EXISTING PAVEMENT IN POND
- EXISTING WATER IN POND

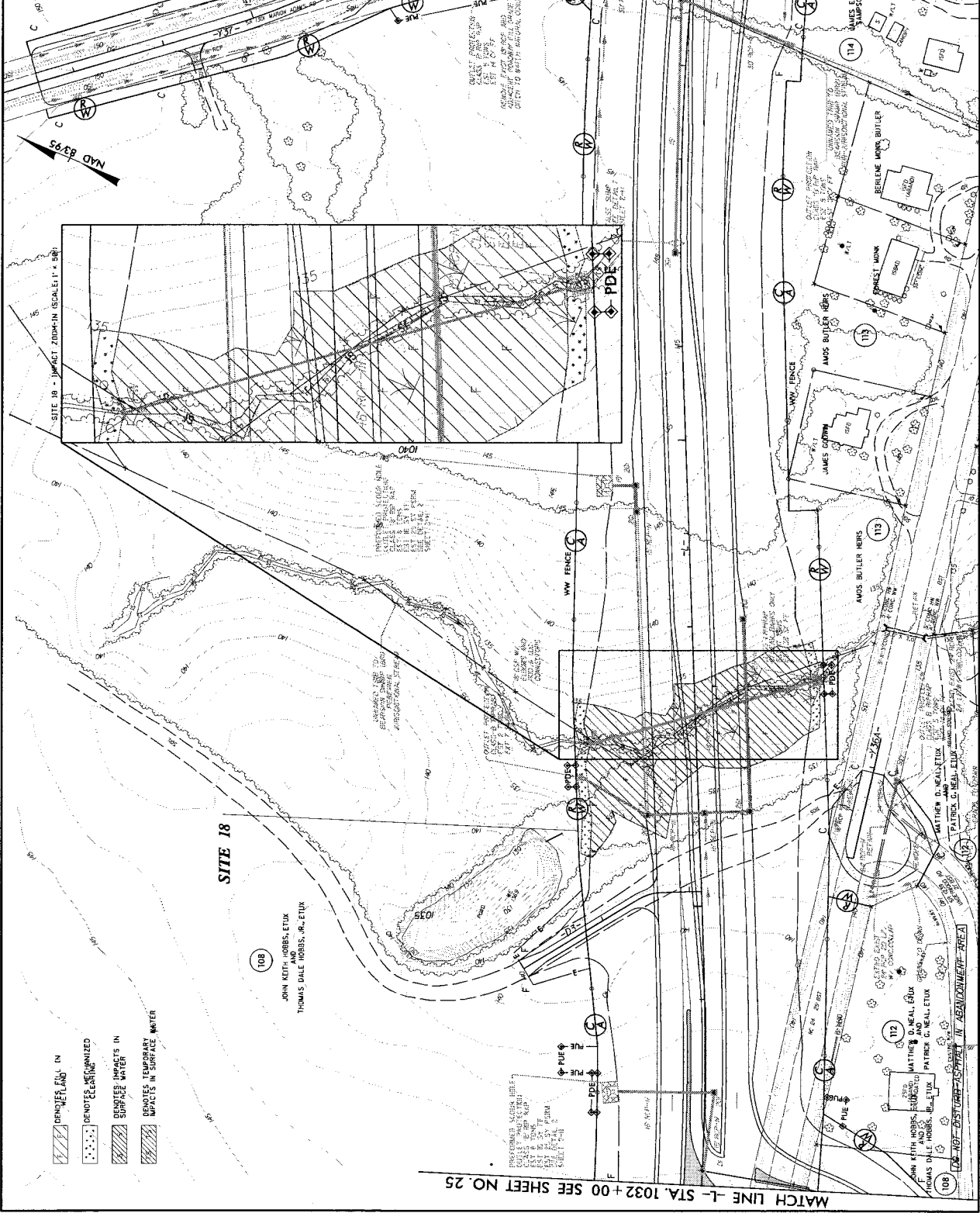


R-83



PROJECT ADDRESS AND SHEET NO.
R-2303C 26
MAP SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULIC ENGINEER
PRELIMINARY PLANS
CITY OF HOUSTON TRANSPORTATION

Permit Drawing Sheet 63 of 80



INDICATES FILL IN WETLAND
INDICATES TEMPORARY IMPACTS IN SURFACE WATER
INDICATES PERMANENT IMPACTS IN SURFACE WATER
INDICATES IMPACTS IN SURFACE WATER

SITE 18

108
JOHN KEITH HOBBS, ETUX
THOMAS DALE HOBBS, JR., ETUX

PROPERTY OF PATRICK G. NEAL, ETUX AND JAMES EARL JAMPPSON
RESIDENTIAL LOTS AND TRAILER HOMES
EXISTING

MATCH LINE -L- STA. 1032 + 00 SEE SHEET NO. 25

R-85
MATCH LINE -L- STA. 1046 + 00 SEE SHEET NO. 26

112
PATRICK G. NEAL, ETUX
JAMES EARL JAMPPSON
RESIDENTIAL LOTS AND TRAILER HOMES
EXISTING

113
AMOS BUTLER HERB
BERLENE MARR BUTLER
RESIDENTIAL LOTS AND TRAILER HOMES
EXISTING

114
JAMES EARL JAMPPSON
RESIDENTIAL LOTS AND TRAILER HOMES
EXISTING

115
AMOS BUTLER HERB
RESIDENTIAL LOTS AND TRAILER HOMES
EXISTING

116
PATRICK G. NEAL, ETUX
AND JAMES EARL JAMPPSON
RESIDENTIAL LOTS AND TRAILER HOMES
EXISTING

117
PATRICK G. NEAL, ETUX
RESIDENTIAL LOTS AND TRAILER HOMES
EXISTING

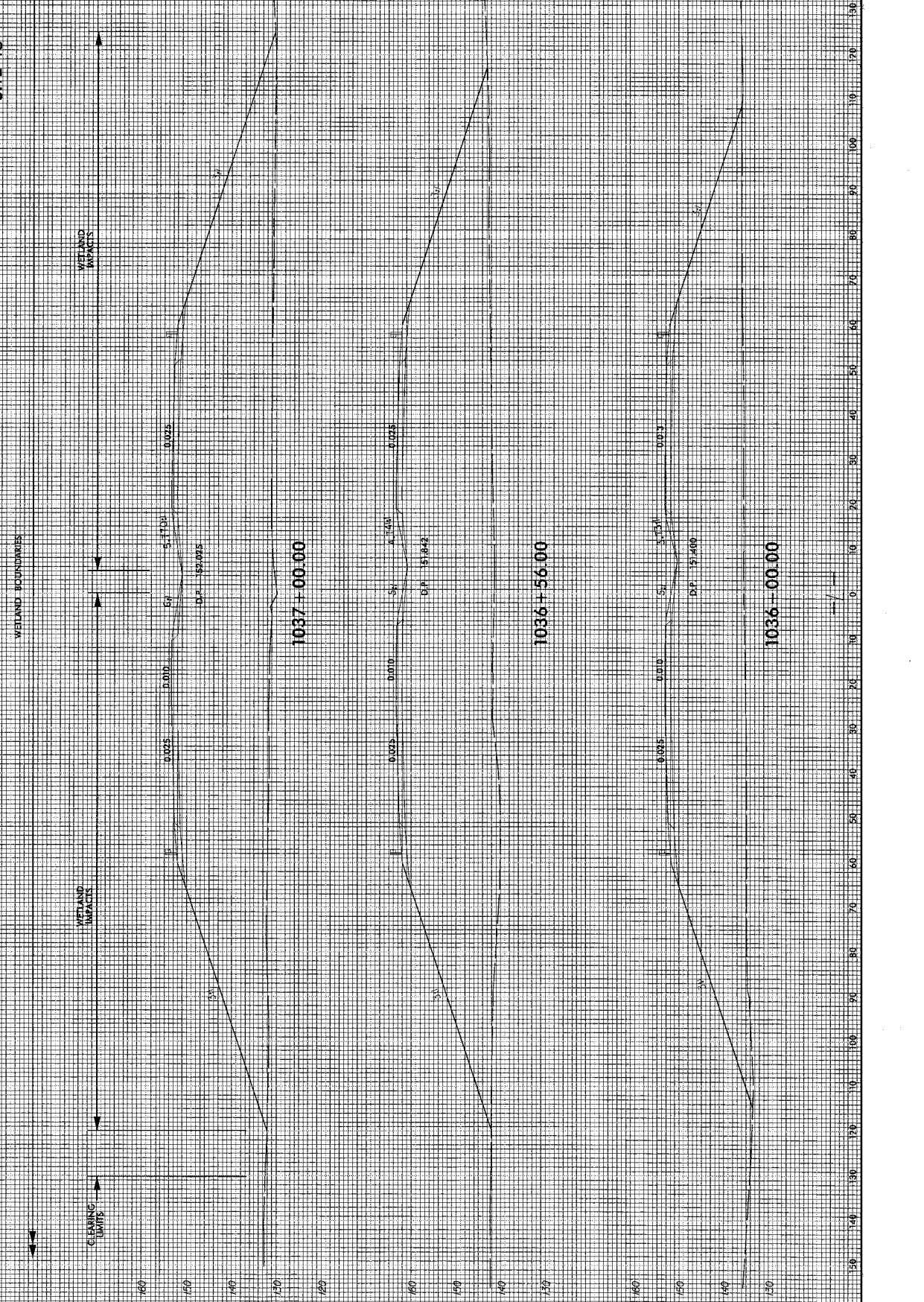
118
AMOS BUTLER HERB
RESIDENTIAL LOTS AND TRAILER HOMES
EXISTING

8/17/95

R:\3\203\011056078 -R-2303C\Check\alkies\FE\PM135\Environment\Drawings\203c.prc.pst\2d.dgn



SITE 18



R-86

PROJECT NUMBER AND NAME	R-2303C
SHEET NO.	80
DATE	12/15/99
DESIGNED BY	ROADWAY DESIGN ENGINEER
CHECKED BY	ROADWAY DESIGN ENGINEER
APPROVED BY	PROBATIONARY CIVIL ENGINEER
DATE OF APPROVAL	12/15/99

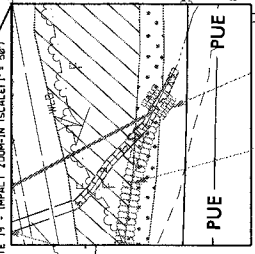
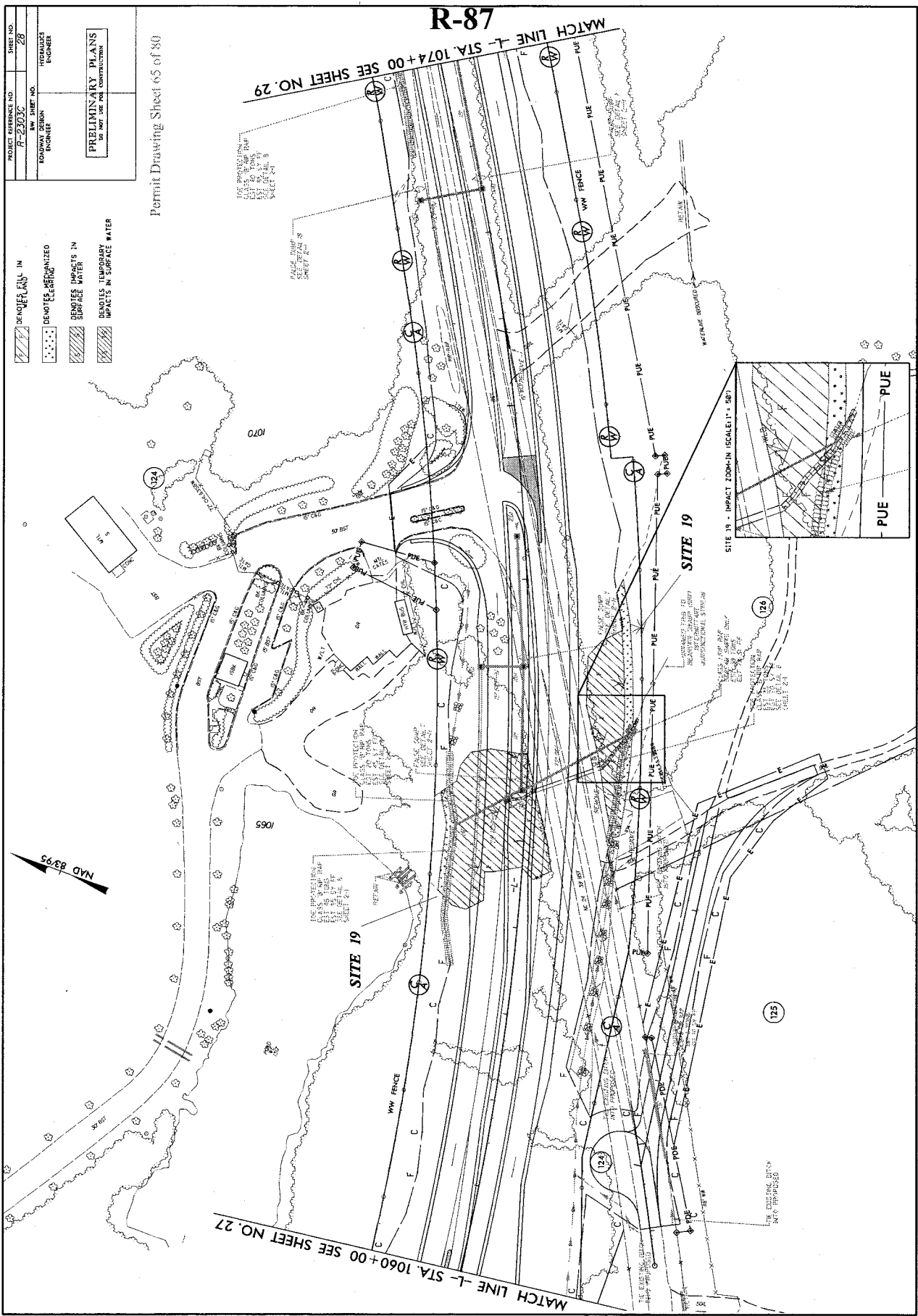
Permit Drawing Sheet 65 of 80

- DIAGONAL HATCHING IN WETLAND
- DOTTED LINE DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- HATCHING DENOTES IMPACTS IN SURFACE WATER
- SOLID LINE DENOTES TEMPORARY IMPACTS IN SURFACE WATER

R-87

MATCH LINE -L- STA. 1060+00 SEE SHEET NO. 27

MATCH LINE -L- STA. 1074+00 SEE SHEET NO. 29

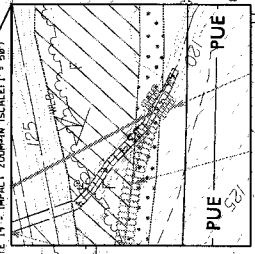
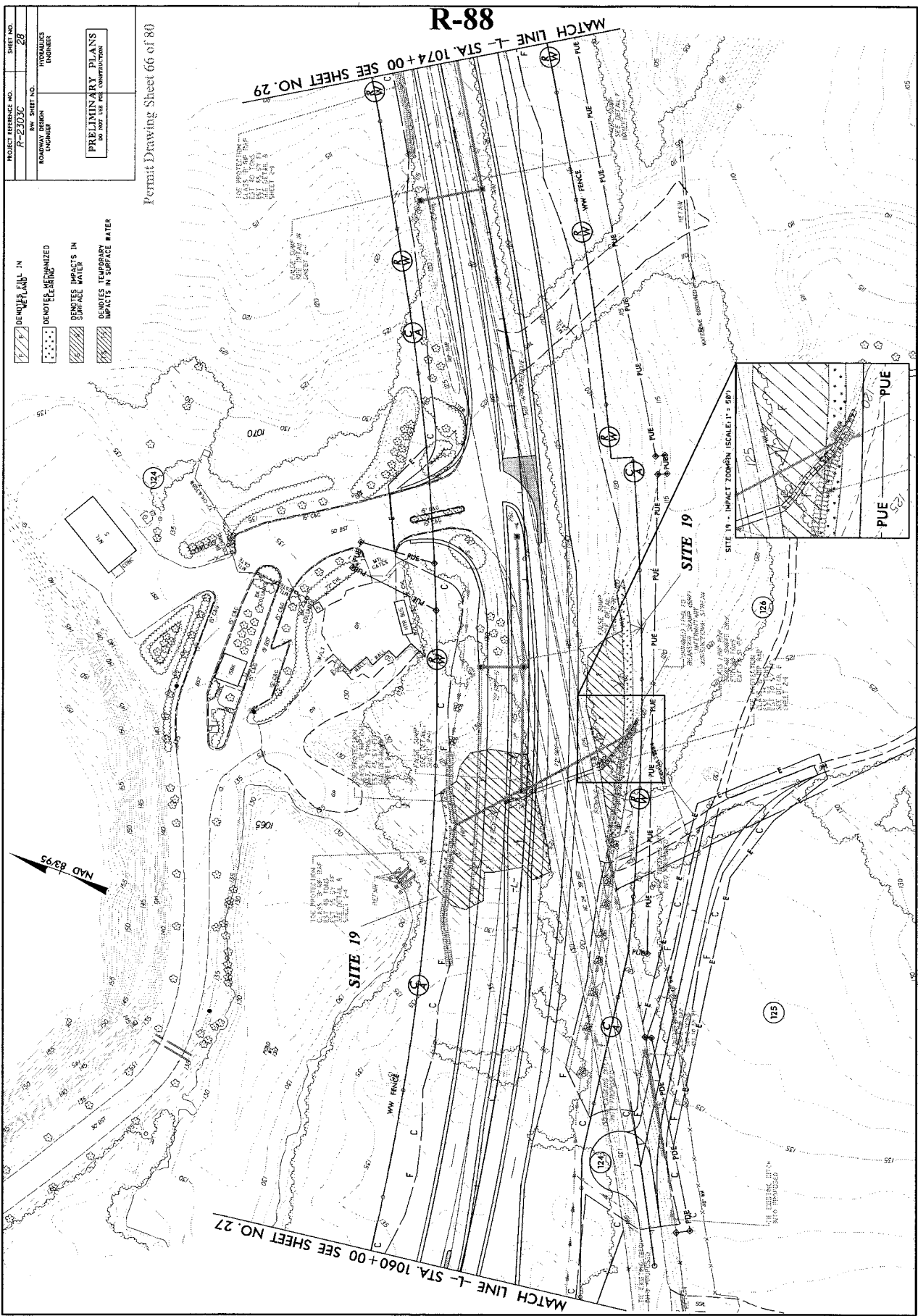


PROJECT NUMBER AND NAME	R-2303C
DATE	08/28
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Permit Drawing Sheet 66 of 80

R-88

- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER



200 150 100 50 0 50 100 150 200

STRUCTURE 2009 STA 1065+60.80 - L
GRADE POINT ELEV = 124.55
72" III RCP BURIED 10'

(NORMAL TO L-1)

S NORMAL TO L-7

18" RCP
INV = 244.2

72" III RCP
BASED UP & GROUND TYP
INV = 101.302

72" III RCP
108.88 LF & 0.027% FTT

WETLANDS
NO TOP OF BANK

100.71+130.28
50' W/3' 125%

STREAM BED = 124.69'

PROPOSED INLET
ELEV = 123.60
BURIED 10'

TOP OF BANK RIGHT

TOP OF BANK LEFT

STREAM BED = 108.51'

PROPOSED OUTLET
ELEV = 117.50'
BURIED 11'

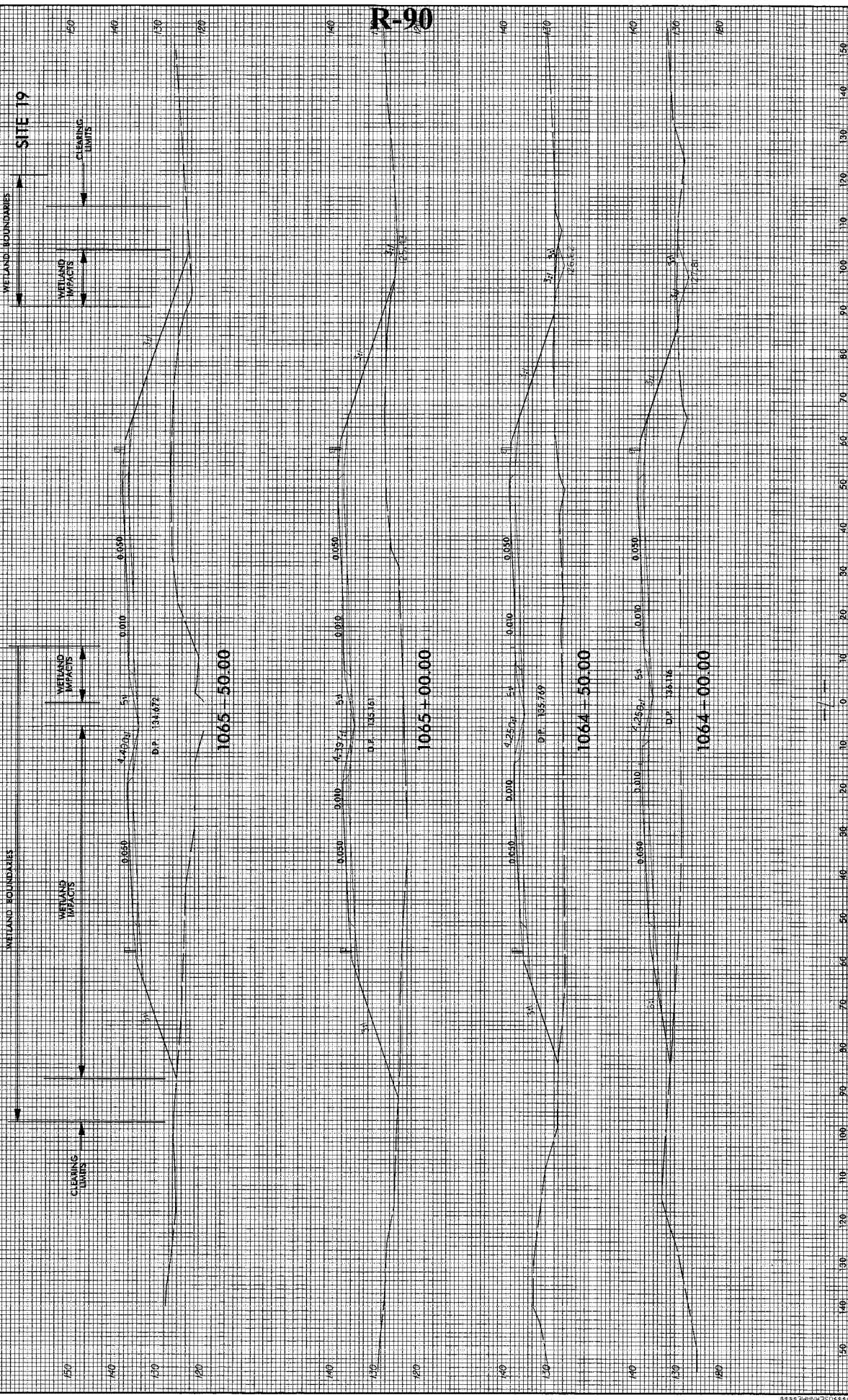
NO NORMAL WATER PRESENT
AT SITE VISIT ON 2/11/2009
PROPOSED PRELIMINARY PLACED
IN WETLANDS WITH DRAINING - REMAIN OF
EXISTING POND OUTLET.

SITE 19

72" CLASS III RCP AT STATION - L - 1065+60.80



150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150



R-90

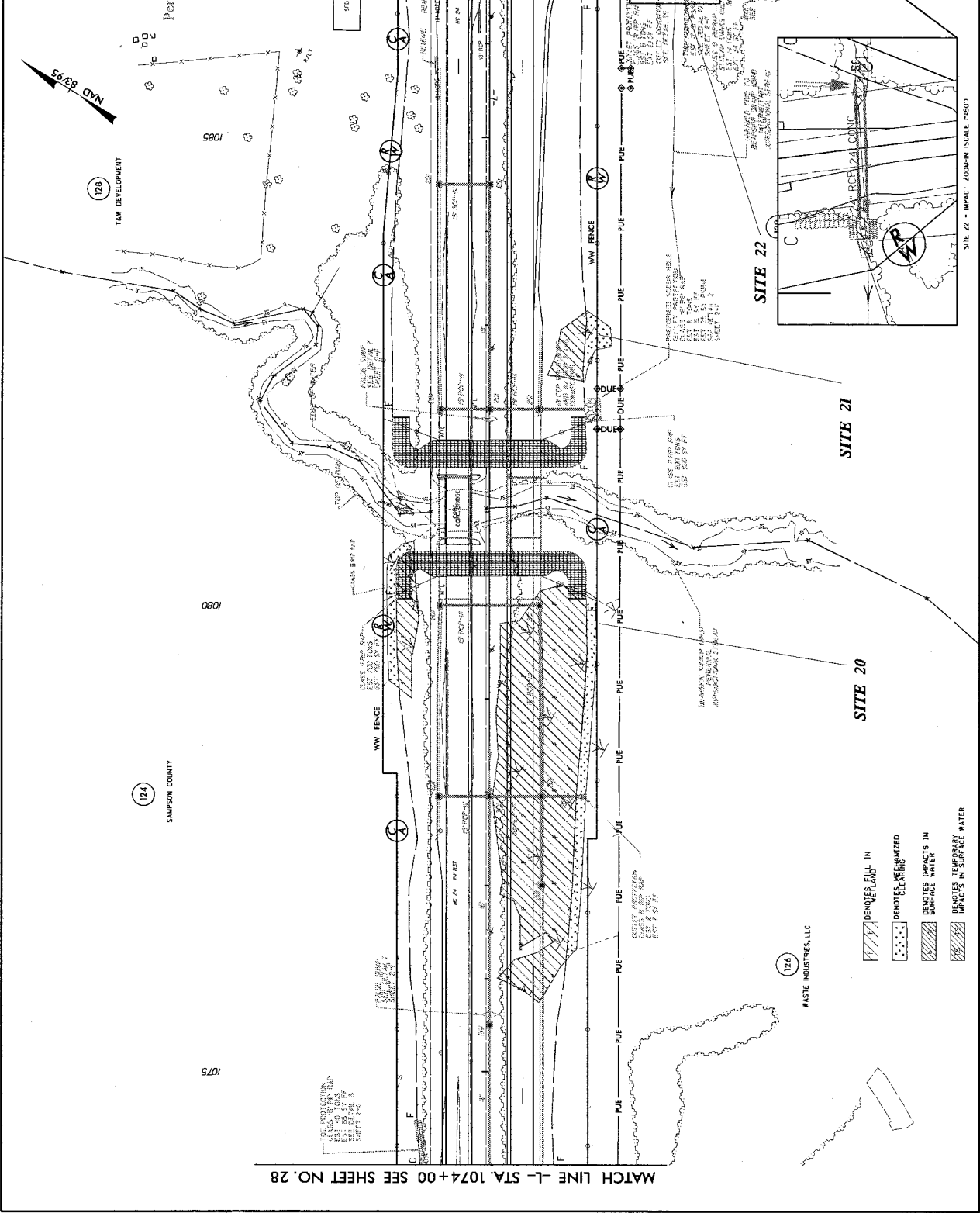
PROJECT REFERENCE NO. **R-2303C**
 SHEET NO. **29**
 ROADWAY DESIGN ENGINEER
 HYDRAULICS ENGINEER

PRELIMINARY PLANS
 FOR THE
ROADWAY IMPROVEMENTS

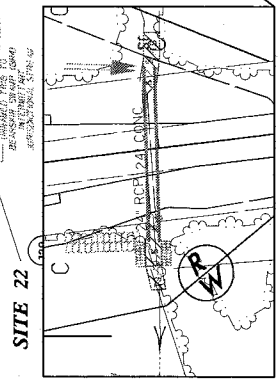
Permit Drawing Sheet 69 of 80

R-91

MATCH LINE L- STA. 1088+00 SEE SHEET NO. 30



MATCH LINE L- STA. 1074+00 SEE SHEET NO. 28



SITE 22 - IMPACT ZOOM SCALE 1"=50'

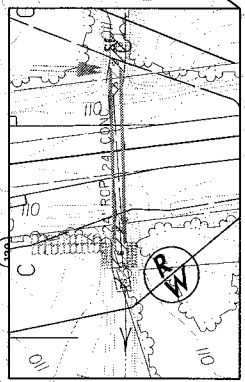
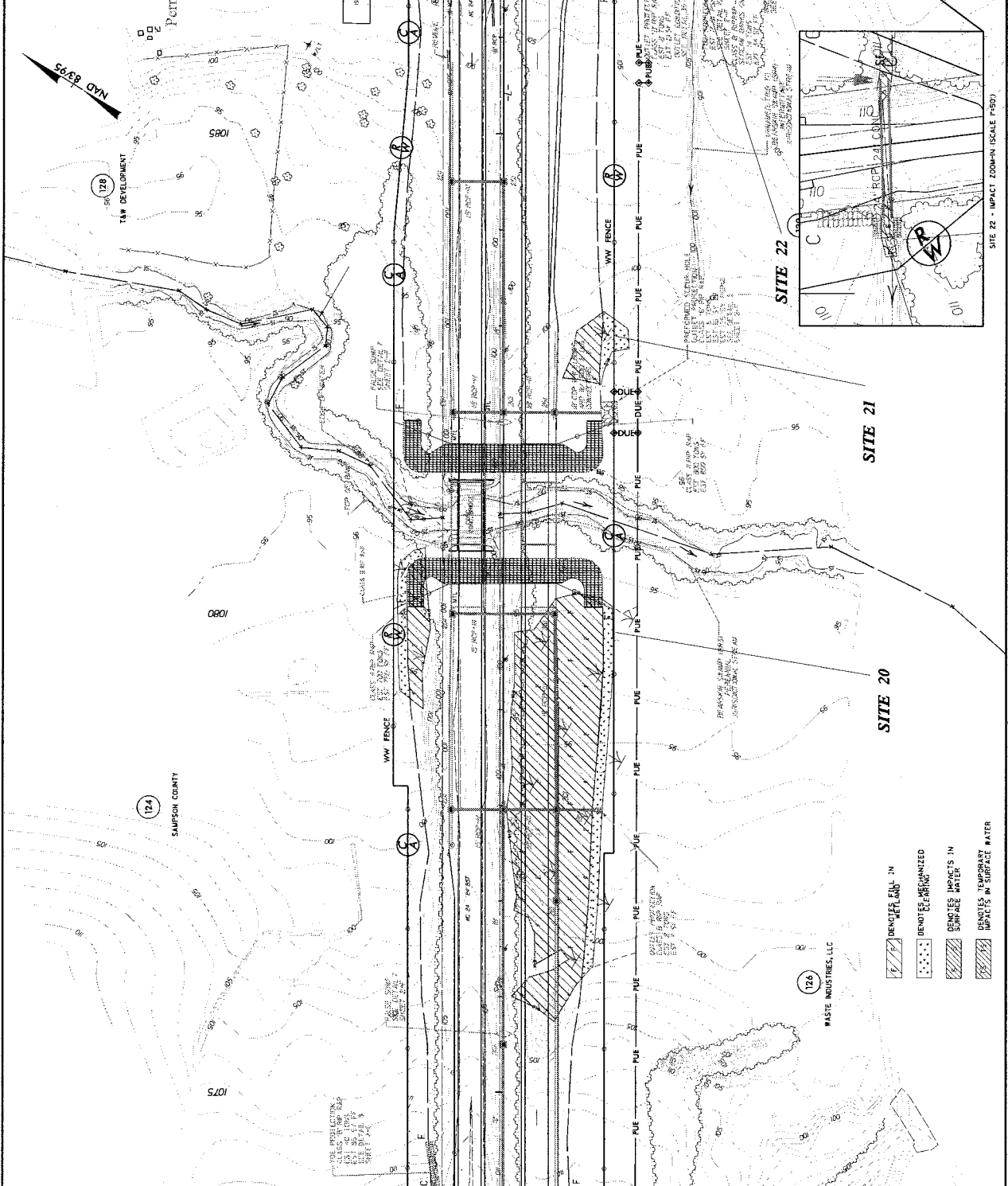
PROJECT REFERENCE NO. SHEET NO.
 P-20307 29

ROADWAY DESIGN ENGINEER
 PRODUCE ENGINEER

PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

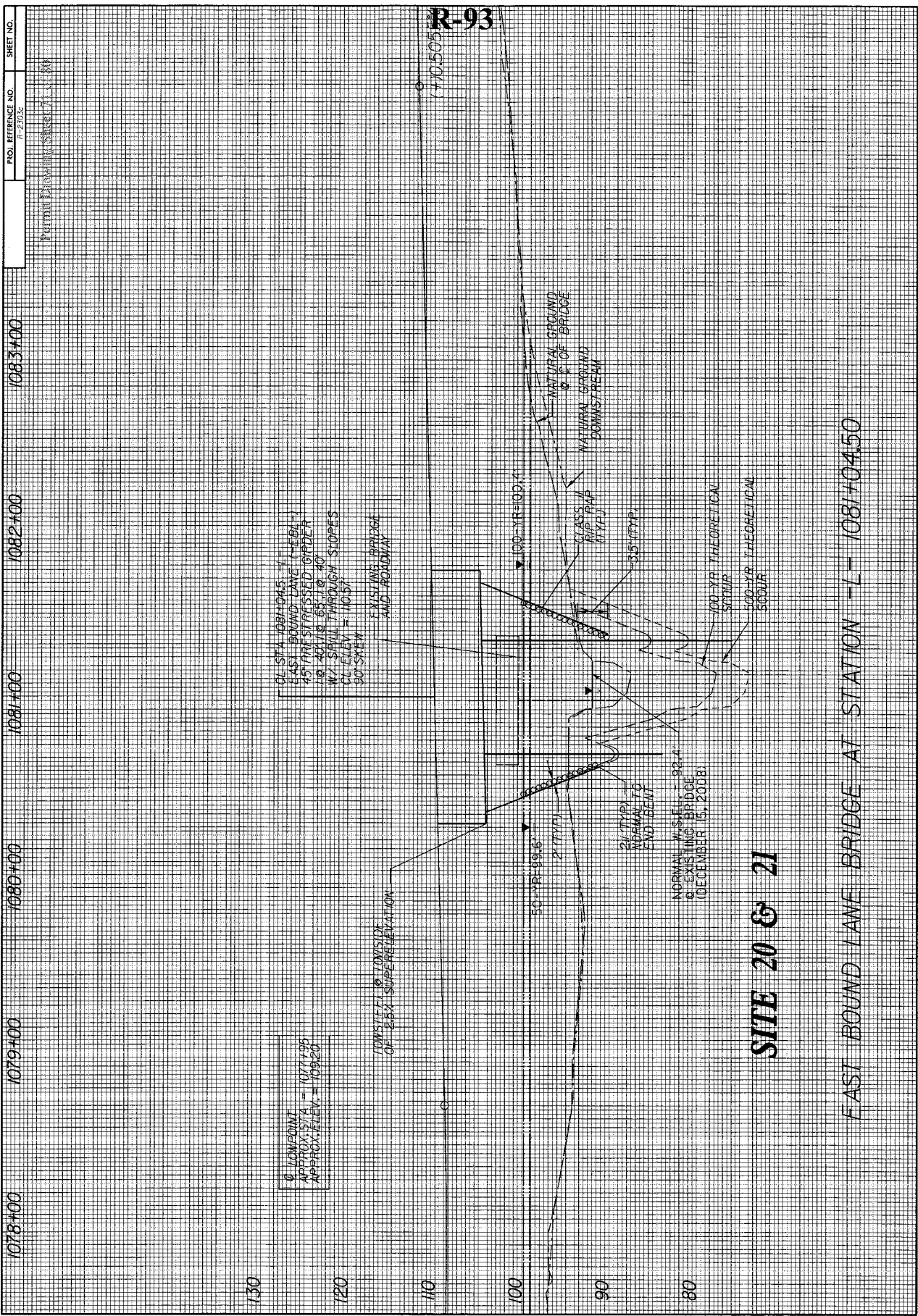
Permit Drawing Sheet 70 of 80

R-92
 MATCH LINE L- STA. 1088+00 SEE SHEET NO. 30



- DENOTES IMPACT IN RIVER
- DENOTES IMPACT IN STREAM
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

MATCH LINE L- STA. 1074+00 SEE SHEET NO. 28



PROJ. REFERENCE NO.
P-2032

SHEET NO.
108

1083+00

1082+00

1081+00

1080+00

1079+00

1078+00

130

120

110

100

90

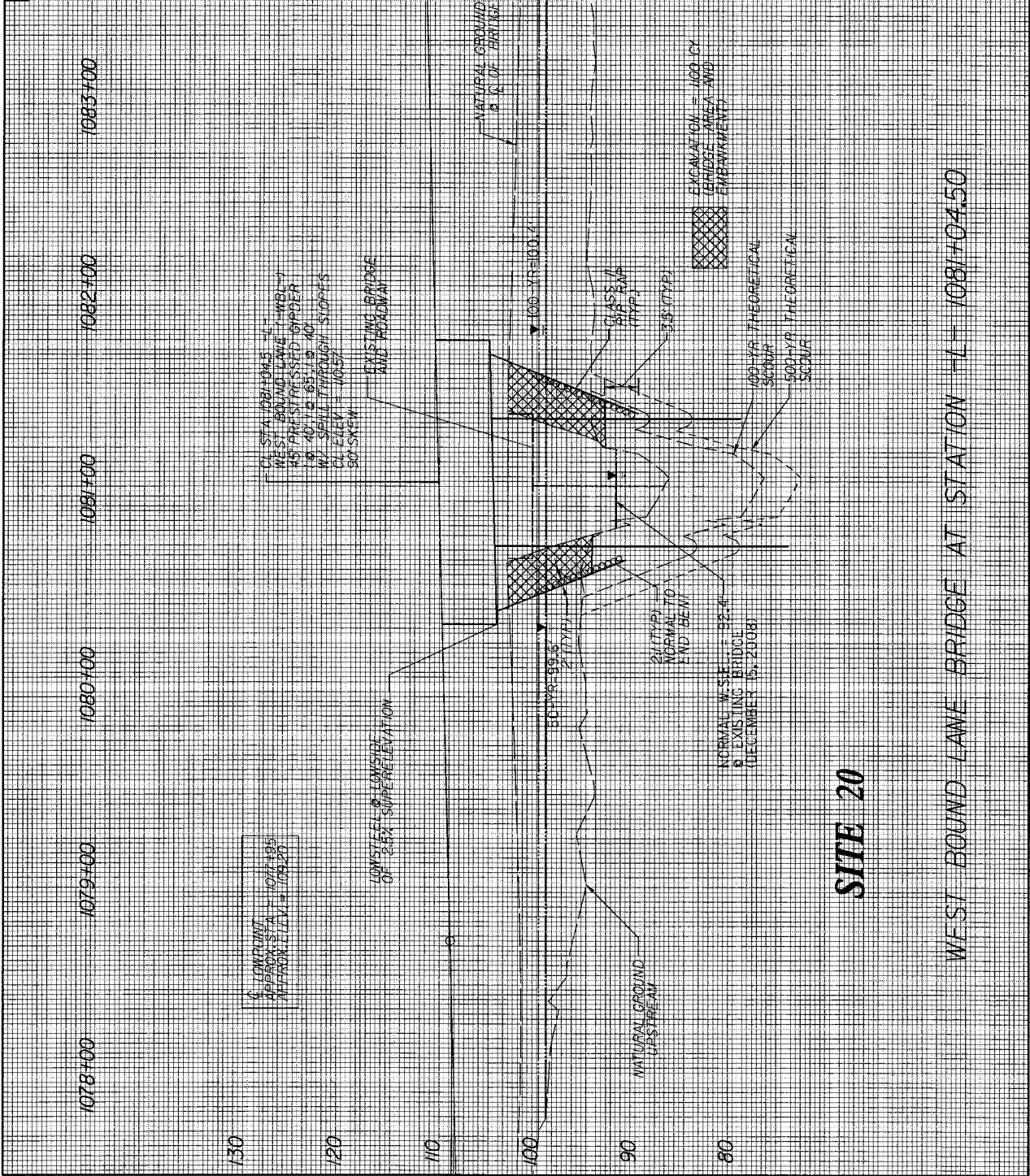
80

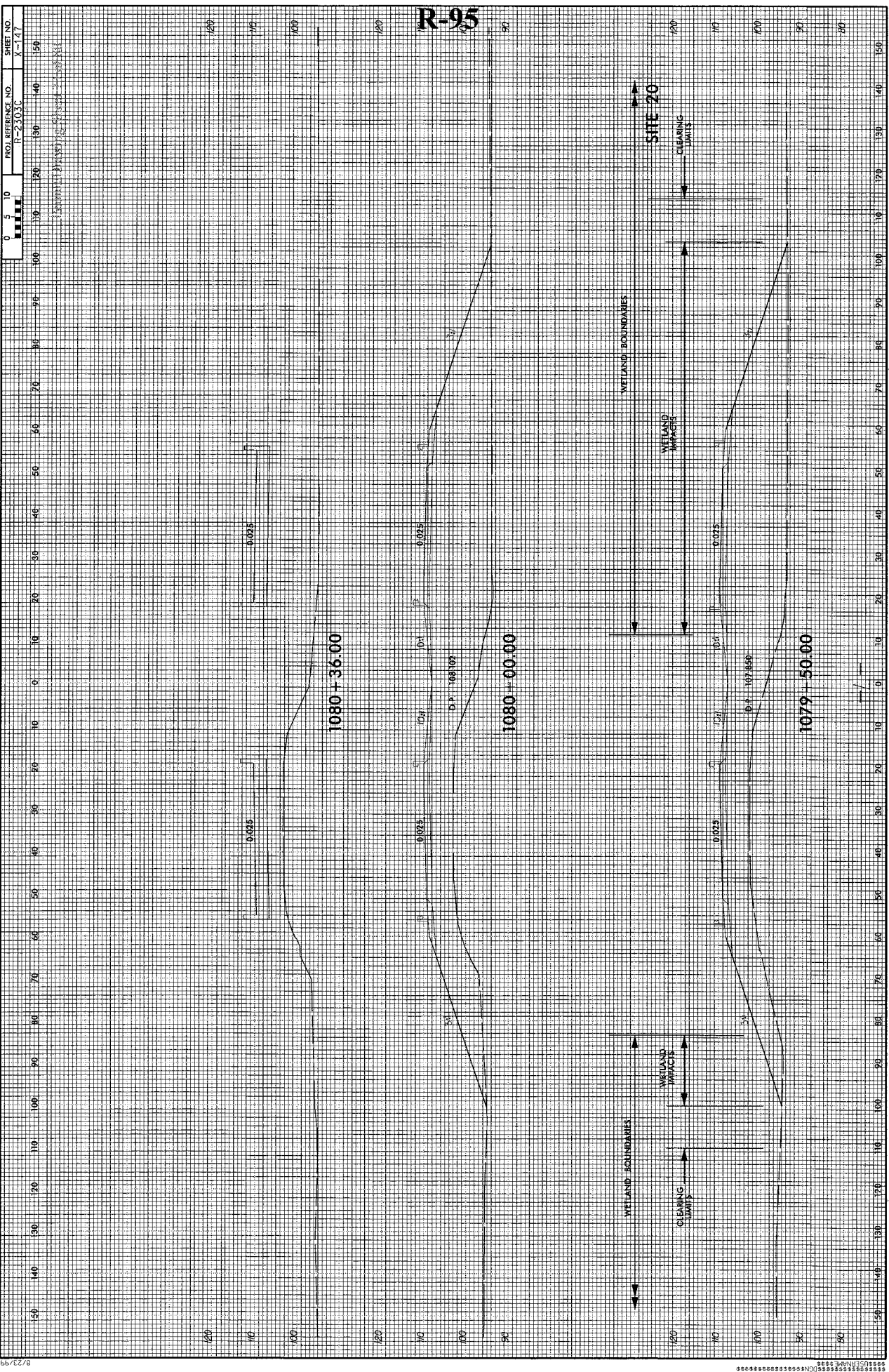
R-93

(+10.505)

SITE 20 & 21

EAST BOUND LANE BRIDGE AT STATION -L- 1081+04.50





R-95

SHEET NO.
X-117

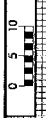
PROJ. REFERENCE NO.
R-2103C



DATE: 11/21/2006

8/23/96

*****30' NAD 83*****
*****RNAME.988*****



DATE: 11/20/02
BY: J. H. ...

PROJECT: ...

SCALE: 1" = 100'

DATE: 11/20/02

BY: J. H. ...

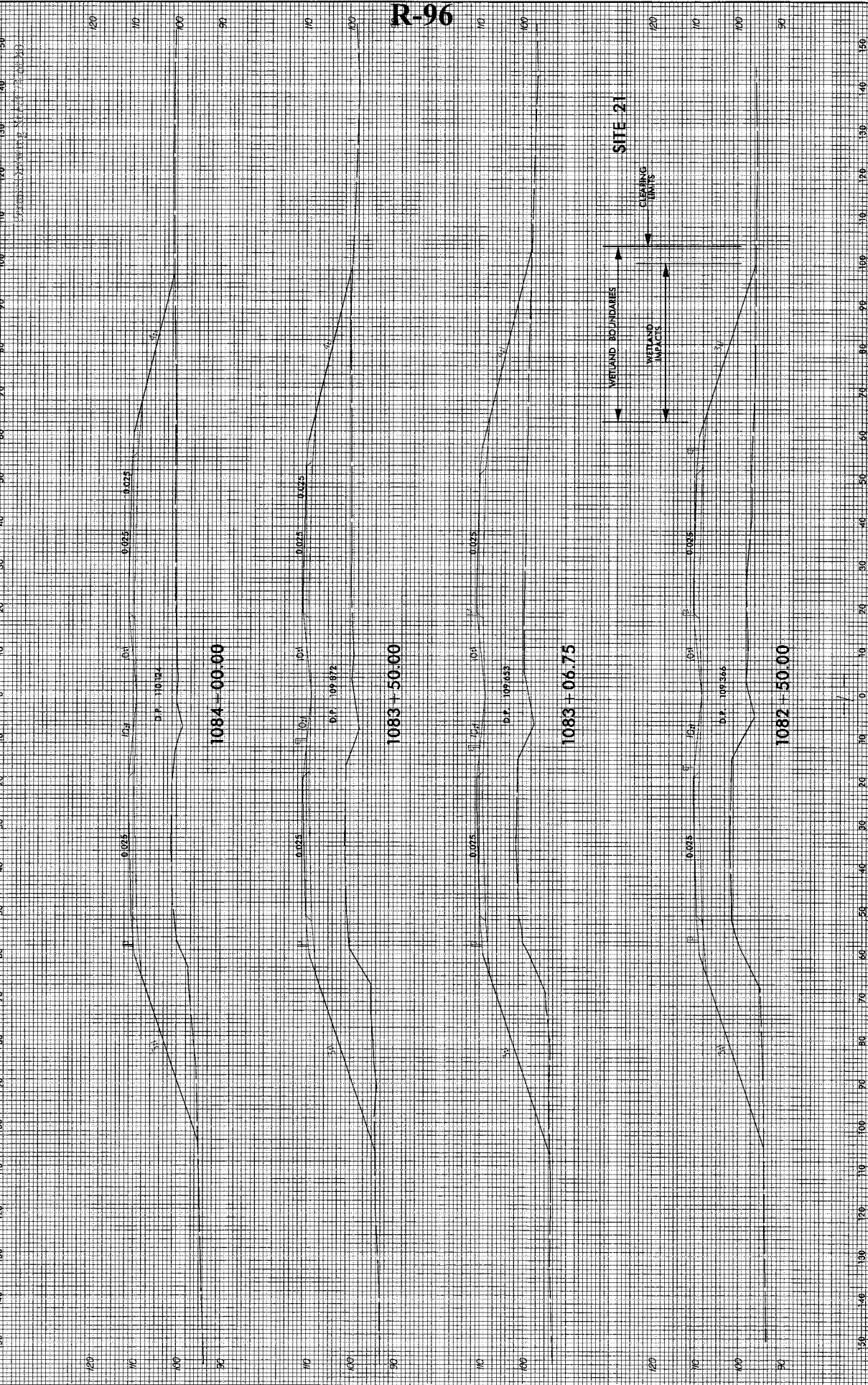
PROJECT: ...

SCALE: 1" = 100'

DATE: 11/20/02

BY: J. H. ...

PROJECT: ...



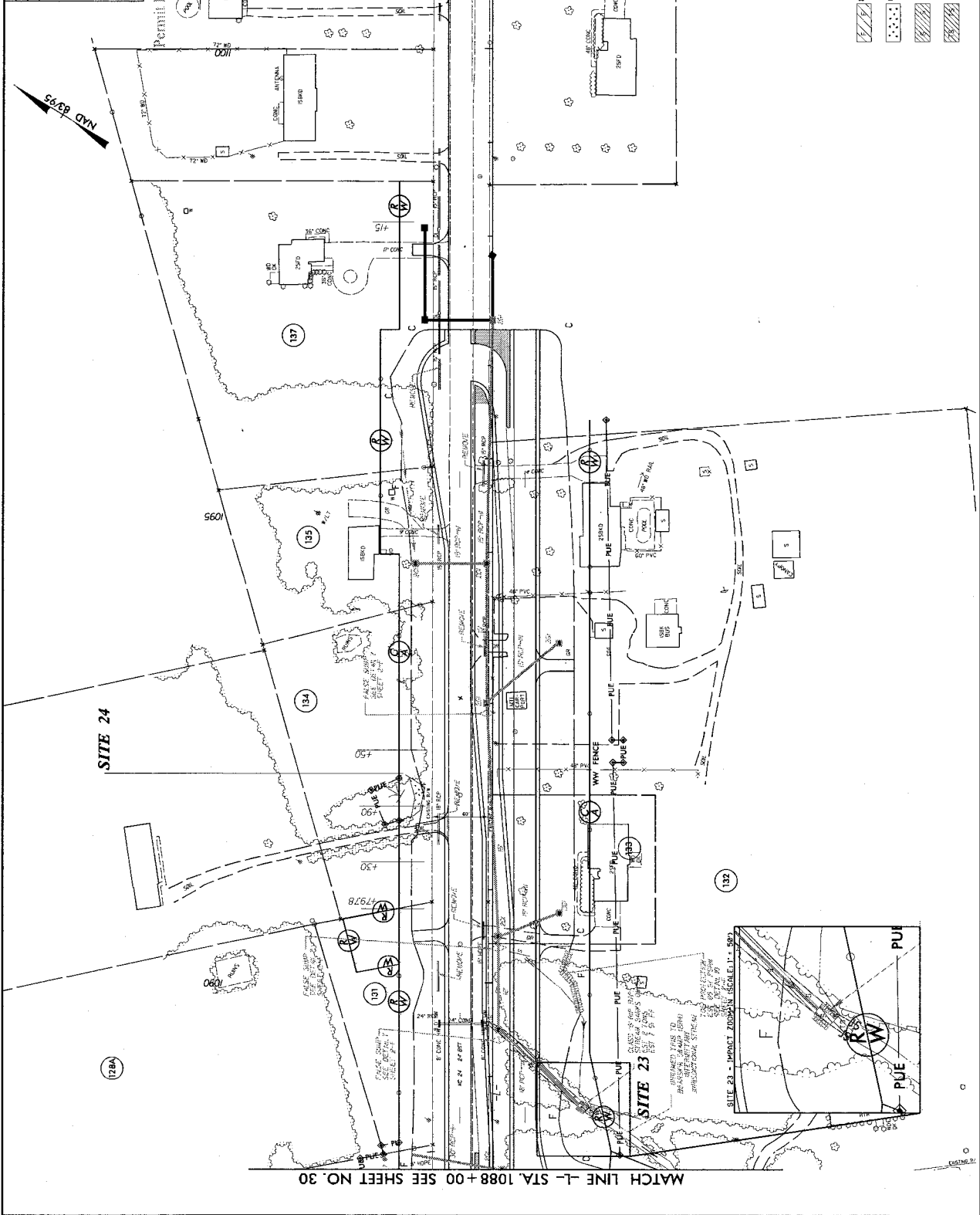
R-96

R-97

PROJECT REFERENCE NO. P-2303C
 SHEET NO. 30
 HYDRAULICS ENGINEER

ROADWAY DESIGN ENGINEER

PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION



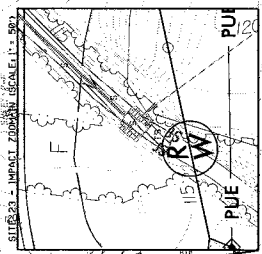
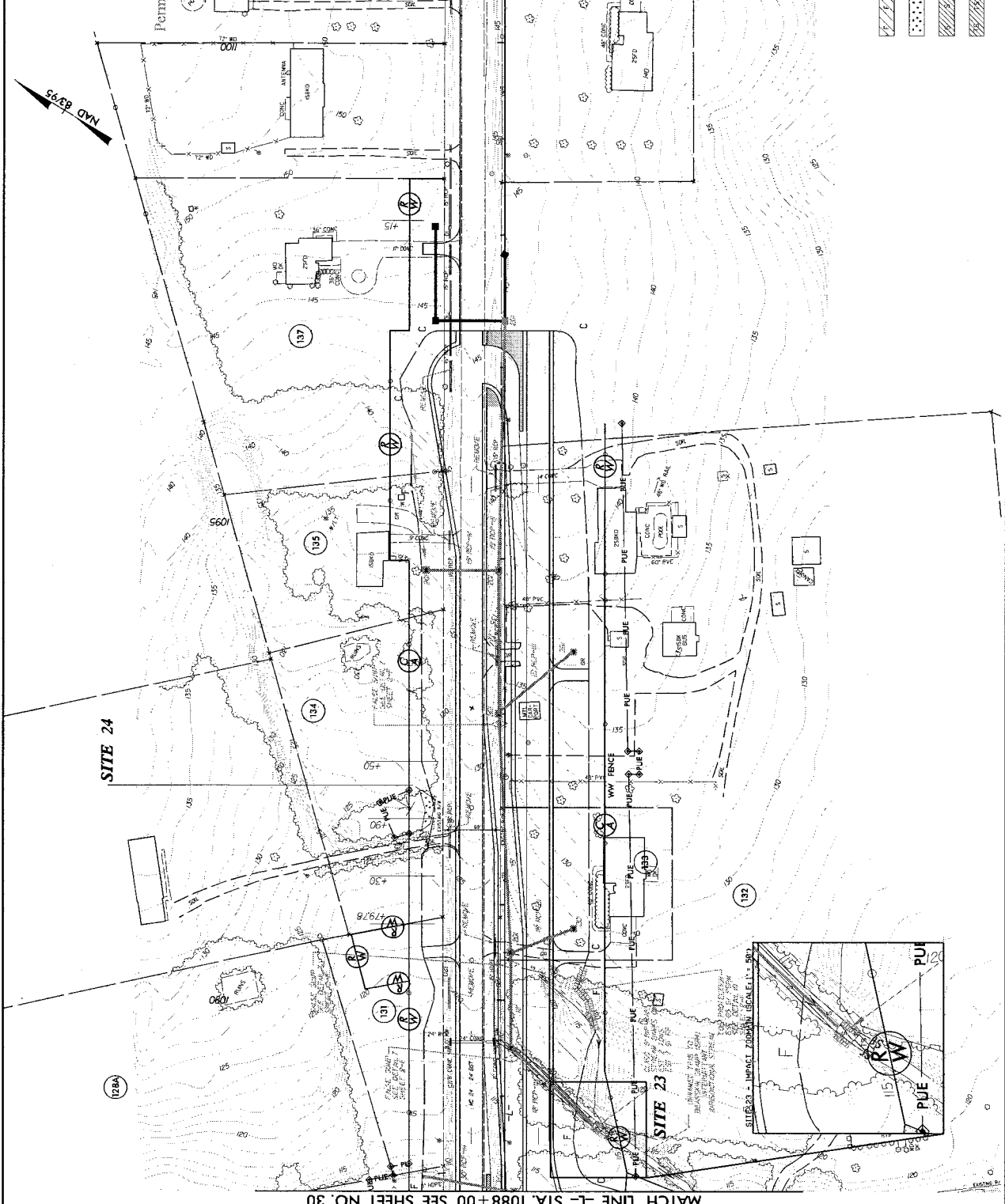
- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED EROSION
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

R-98

PROJECT REFERENCE NO. **R-23030**
 SHEET NO. **30**
 R.W. SHEET NO. **HYDRAULICS ENGINEER**
 ROADWAY DESIGN ENGINEER

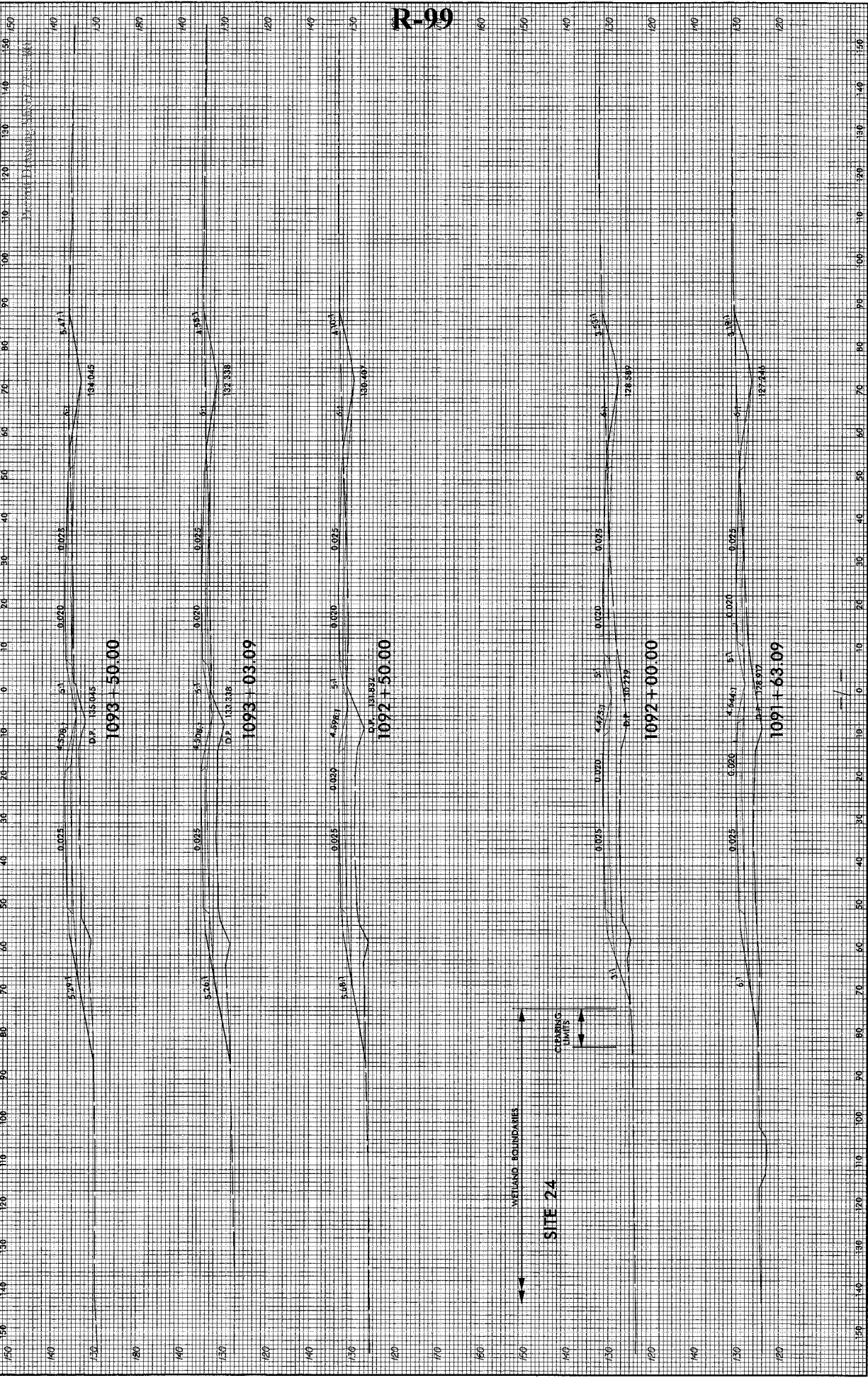
PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

Permit Drawing Sheet 76 of 80





DATE OF THIS DRAWING: 05/23/99



R-99

WETLAND BOUNDARIES
 SITE 24
 CLEARING LIMITS

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)	Existing Channel Impacts Temp. (ft)
1	734+14 to 739+72	42" RCP/WETLAND	0.83	0.17	0.11		0.01	<0.01	74.00		
1	734+14 to 739+73	BANK STABILIZATION					<0.01	<0.01	10.00	10.00	
2	741+85 to 744+50	36" RCP/WETLAND	0.26		0.05		0.01				
2	741+85 to 744+50	BANK STABILIZATION					<0.01	<0.01			
3	755+00 to 760+34	POND					1.26	0.08			
4	764+28 to 765+07	30" RCP					0.04				
5	769+44 to 777+78	WETLAND/POND	0.86	0.12	0.19		0.45				
6	804+86 to 807+86	STREAM	0.10		0.04		0.01		213.00		
6	804+86 to 807+86	BANK STABILIZATION					<0.01	<0.01	10.00	20.00	
7	860+27 to 865+12	WETLAND/STREAM	2.34		0.17		0.08		299.00		
8	881+97 to 882+31	WETLAND	<0.01		<0.01						
9	887+38 to 889+49	WETLAND/STREAM	0.64		0.04		0.04		307.00		
SHEET TOTALS			5.04	0.29	0.60		1.90	0.09	913	71	

NC DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 GUILFORD COUNTY
 STPNHF-F-8-211 (R-2303C)

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)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)	Permanent Non Mitigable Impacts (ac)	Temporary Non Mitigable Impacts (ac)			
10	905+77 to 907+41	WETLAND/STREAM	0.25			0.01					0.04	<0.01	262.00	20.00	0.03		
10	905+77 to 907+41	BANK STABILIZATION									<0.01	<0.01	80.00	20.00	<0.01		
11	912+92 to 913+67	POND									0.26						
11	912+92 to 913+67	48" RCP									0.04		185.00				
11	912+92 to 913+67	BANK STABILIZATION										<0.01	10.00				
12	937+08 to 957+49	WETLAND (BRIDGE)	3.56		0.16*	0.68		0.23									
13	955+51 to 958+83 (RT)	WETLAND	0.32			0.06											
14	977+98 to 981+52	WETLAND	0.46		0.09	0.11											
15	999+64 to 1005+57	POND/STREAM									<0.01	<0.01	38.00			3.22	
15	999+64 to 1005+57	BANK STABILIZATION									<0.01	<0.01	10.00	10.00			
16	1005+48 to 1007+04	WETLAND	0.05			0.03											
17	1007+77 to 1010+99	POND														0.34	
18	1035+56 to 1037+40	WETLAND/STREAM	0.60			0.06					0.02	<0.01	271.00	20.00			
18	1035+56 to 1037+40	BANK STABILIZATION									<0.01	<0.01	10.00	20.00			
19	1064+16 to 1067+96	48" CMP	0.49			0.09					<0.01	<0.01	90.00				
19	1064+16 to 1067+96	BANK STABILIZATION			0.09	1.05		0.23			<0.01	<0.01	10.00	10.00			
SHEET TOTALS			5.73		0.09	1.05		0.23			0.38	0.01	956	70		3.59	0.00

Site 12 contains 216 SF of impacts due to bents in stream
 * Excavation of roadway fill around existing bridge is not required for mitigation and is not added into the total area
 * Rounded totals are sum of actual impacts

Revised 6/7/13
 Permit Drawing
 Sheet 29 of 80

NC DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 SAMPSON COUNTY
 STPNHF-P-8-2(1) (R-2303C)

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)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)	Permanent Non Mitigable Impacts (ac)	Temporary Non Mitigable Impacts (ac)			
20	1075+74 to 1080+69	WETLAND (BRIDGE)	0.82				0.13										
21	1082+39 to 1083+15	WETLAND	0.04				0.02										
22	1086+79 to 1087+86	24" RCP															
22	1086+79 to 1087+86	BANK STABILIZATION											26.00	20.00			
23	1088+55 to 1089+59	18" RCP															
23	1088+55 to 1089+59	BANK STABILIZATION											137.00	10.00			
24	1091+76 to 1092+23	WETLAND	<0.01				0.01										
SHEET TOTALS			0.87				0.16						183.00	30.00			
PROJECT TOTALS			11.77				1.87	0.23					2055.00	200.00		4.90	0.08

revised 6/7/13
 Permit Drawing
 Sheet 80 of 80

*Rounded totals are sum of actual impacts

NC DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 SAMPSON COUNTY
 STPNHF-F-8-2(1) (R-2303C)
 6/7/2013

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

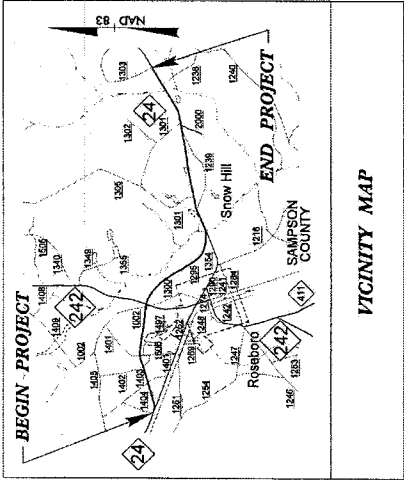
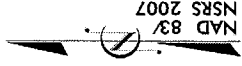
**UTILITY WETLAND IMPACT PLAN
SAMPSON COUNTY**

LOCATION: NC 24 FROM SR 1404 (DOWDY ROAD) TO SR 1303
(MITCHELL LOOP ROAD)

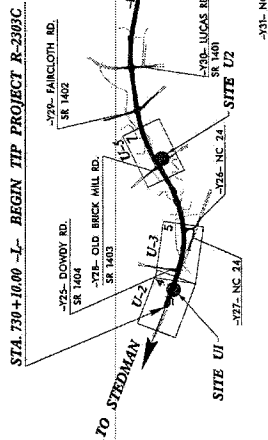
TYPE OF WORK: UTILITY RELOCATION WORK

TIP NO. **R-2303C**
SHEET NO. **U-1**

Utility Permit Drawing
Sheet **1** of **18**



VICINITY MAP

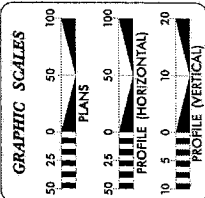


STA. 1097+00.00 - END TIP PROJECT R-2303C

STA. 730+10.00 - BEGIN TIP PROJECT R-2303C

THIS IS A LIMITED AND PARTIAL CONTROL OF ACCESS PROJECT WITH ACCESS BEING LIMITED TO THE POINTS AS SHOWN ON THE PLANS.

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.



UTILITY OWNERS ON PROJECT

- (1) Progress Energy (Power Distribution / Transmission)
- (2) South River EMC (Power Distribution / Transmission)
- (3) Century Link (Telecommunications)
- (4) Star Vision (Cable Telecommunications)
- (5) PNG (Distribution Gas)



PREPARED IN THE OFFICE OF:
DIVISION OF HIGHWAYS
UTILITIES ENGINEERING
SECTION
BY MAIL SERVICES CENTER
101 SOUTH BRIDGE STREET
RALEIGH, NC 27601
PHONE (919) 736-4244
FAX (919) 736-4147

Roger Worthington, P.E. UTILITIES SECTION ENGINEER
Steve McKee, P.E. UTILITIES SQUAD LEADER PROJECT ENGINEER
Brandy Creech UTILITIES COORDINATION CONSULTANT

TIP PROJECT: R-2303C

CONTRACT:

PROJECT REFERENCE NO.	R-2303C	SHEET NO.	4
ROW SHEET NO.	U2	DATE	11/14/07
DESIGNER	HYDRAULICS ENGINEER	APPROVED	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			

Utility Permit Drawing
 Sheet 4 of 18

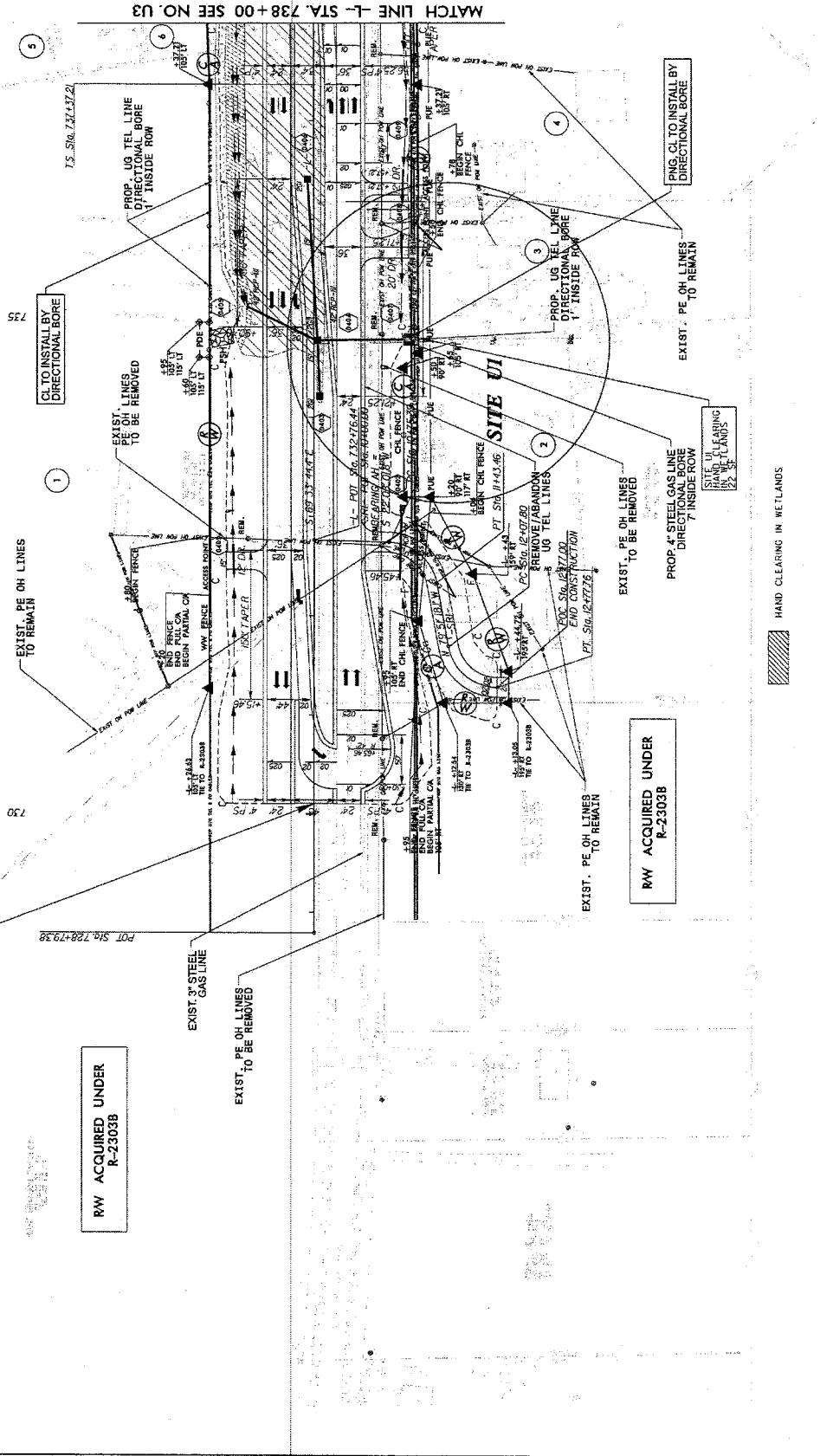
NOTE:
 ALL PROPOSED UTILITY WORK
 SHOWN ON THIS SHEET WILL
 BE DONE BY OTHERS

-SRI-
 P1 S/C 124.88
 Δ = 78°00'40" (RT)
 D = 14'35'29.5"
 L = 69.506'
 R = 50.00'
 SE = SEE PLANS

STA 730+0.00 -L-
 BEGIN STATE PROJECT R-2303C

RAW ACQUIRED UNDER
 R-2303B

RAW ACQUIRED UNDER
 R-2303B



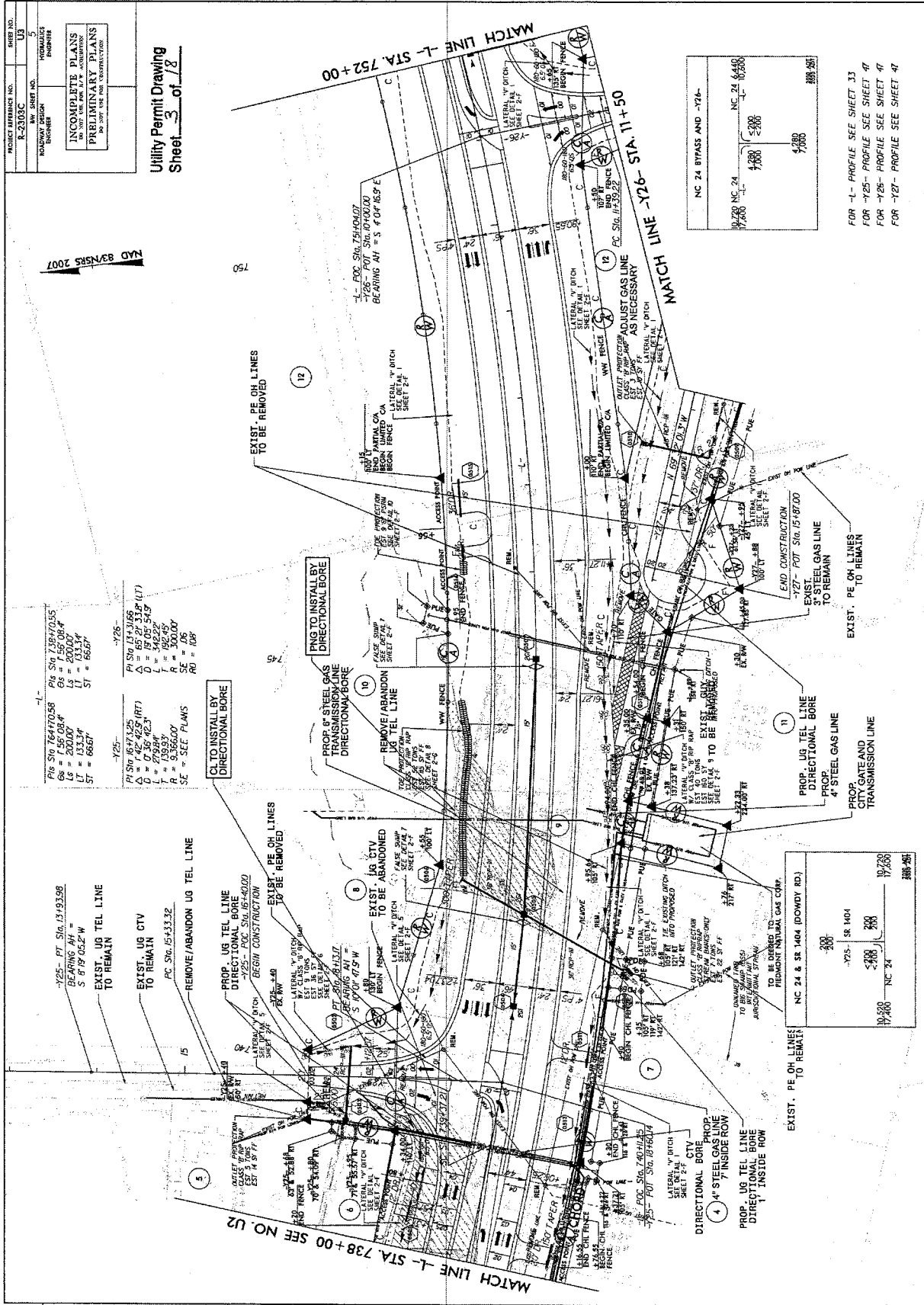
HAND CLEARING IN WETLANDS

PROJECT REFERENCE NO.	R-2303C
SHEET NO.	5
ROWWAY DESIGN	FORMAL
DATE	11/10/07
INCOMPLETE PLANS	NO NOT FOR CONSTRUCTION
PRELIMINARY PLANS	NO NOT FOR CONSTRUCTION

Utility Permit Drawing
Sheet 3 of 18

MAD 8/25/07

<p>-Y25- PT STA 14+93.58 BEARING AH = S 87° 05.2' W 5' 8" UG TEL LINE TO REMAIN</p> <p>EXIST. UG CTV TO REMAIN PC STA 15+33.32 REMOVE/ABANDON UG TEL LINE</p>	<p>-Y26- PT STA 16+17.25 BEARING AH = N 42° 42.5' RT L = 27.98' T = 13.93' R = 53.66' CL = 33.66' RD = 100'</p>
---	---



NC 24 BYPASS AND -Y26-	10+20	10+20	10+20	10+20
	4+800	4+800	4+800	4+800
	4+800	4+800	4+800	4+800
	4+800	4+800	4+800	4+800

FOR -Y1- PROFILE SEE SHEET 33
FOR -Y25- PROFILE SEE SHEET 47
FOR -Y28- PROFILE SEE SHEET 47
FOR -Y29- PROFILE SEE SHEET 47

<p>-Y25- PT STA 14+93.58 BEARING AH = S 87° 05.2' W 5' 8" UG TEL LINE TO REMAIN</p> <p>EXIST. UG CTV TO REMAIN PC STA 15+33.32 REMOVE/ABANDON UG TEL LINE</p>	<p>-Y26- PT STA 16+17.25 BEARING AH = N 42° 42.5' RT L = 27.98' T = 13.93' R = 53.66' CL = 33.66' RD = 100'</p>
---	---

NC 24 & SR 1404 (DOWDY RD.)	10+20	10+20	10+20	10+20
	4+800	4+800	4+800	4+800
	4+800	4+800	4+800	4+800
	4+800	4+800	4+800	4+800

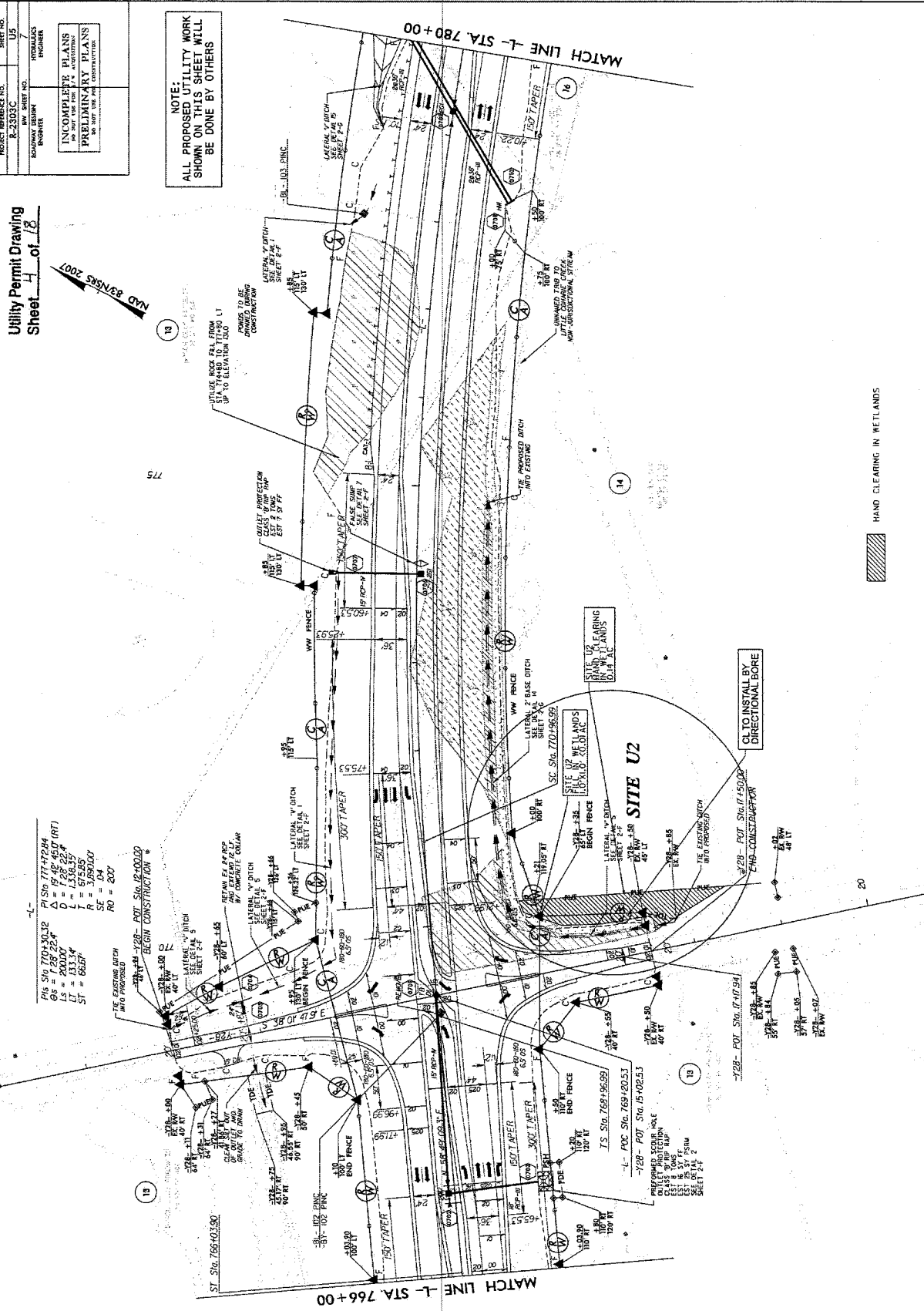
REVISIONS	

PROJECT REFERENCE NO.	8-2303C	SHEET NO.	7
DESIGNER	BRADWAY DESIGN ENGINEER	DATE	7/18/07
CHECKER	HYDRAULIC ENGINEER		
INCOMPLETE PLANS DO NOT USE FOR CONSTRUCTION			
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			

Utility Permit Drawing
 Sheet 4 of 18

MAD REVISIONS 2007

NOTE:
 ALL PROPOSED UTILITY WORK
 SHOWN ON THIS SHEET WILL
 BE DONE BY OTHERS



P.C. STA. 770+30.12 P.I. STA. 777+72.84
 C.S. = 200.0' C.V. = 19.5%
 L = 1,330.35' T = 675.85'
 S.F. = 70.00' ST = 66.67'
 R.O. = 200'

P.C. STA. 728+10.00 P.O.T. STA. 728+10.00
 C.S. = 200.0' C.V. = 19.5%
 L = 1,330.35' T = 675.85'
 S.F. = 70.00' ST = 66.67'
 R.O. = 200'

P.C. STA. 769+20.53 P.O.T. STA. 769+20.53
 C.S. = 200.0' C.V. = 19.5%
 L = 1,330.35' T = 675.85'
 S.F. = 70.00' ST = 66.67'
 R.O. = 200'

P.C. STA. 770+30.12 P.O.T. STA. 770+30.12
 C.S. = 200.0' C.V. = 19.5%
 L = 1,330.35' T = 675.85'
 S.F. = 70.00' ST = 66.67'
 R.O. = 200'

HAND CLEARING IN WETLANDS

20

REVISIONS

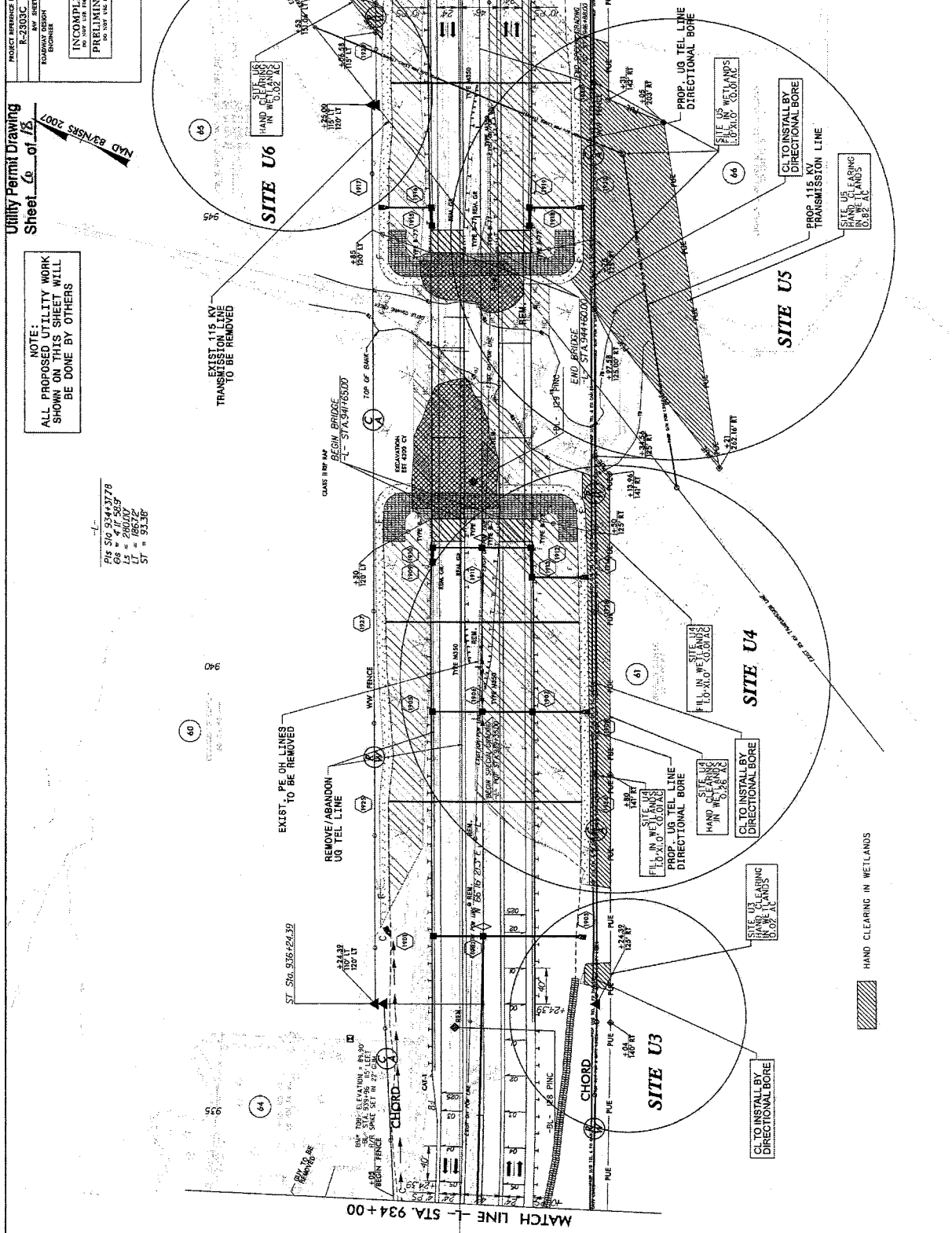
Utility Permit Drawing

Sheet 06 of 16

NOTE:
ALL PROPOSED UTILITY WORK
SHOWN ON THIS SHEET WILL
BE DONE BY OTHERS

PROJECT REFERENCE NO. R-2303C	SHEET NO. U13
RDWAY DESIGN ENGINEER	DATE 1/9
INCOMPLETE PLANS DO NOT USE FOR CONSTRUCTION	

P16 S14.934+37.78
 G8 = 217.565'
 L1 = 186.572'
 S1 = 93.36'



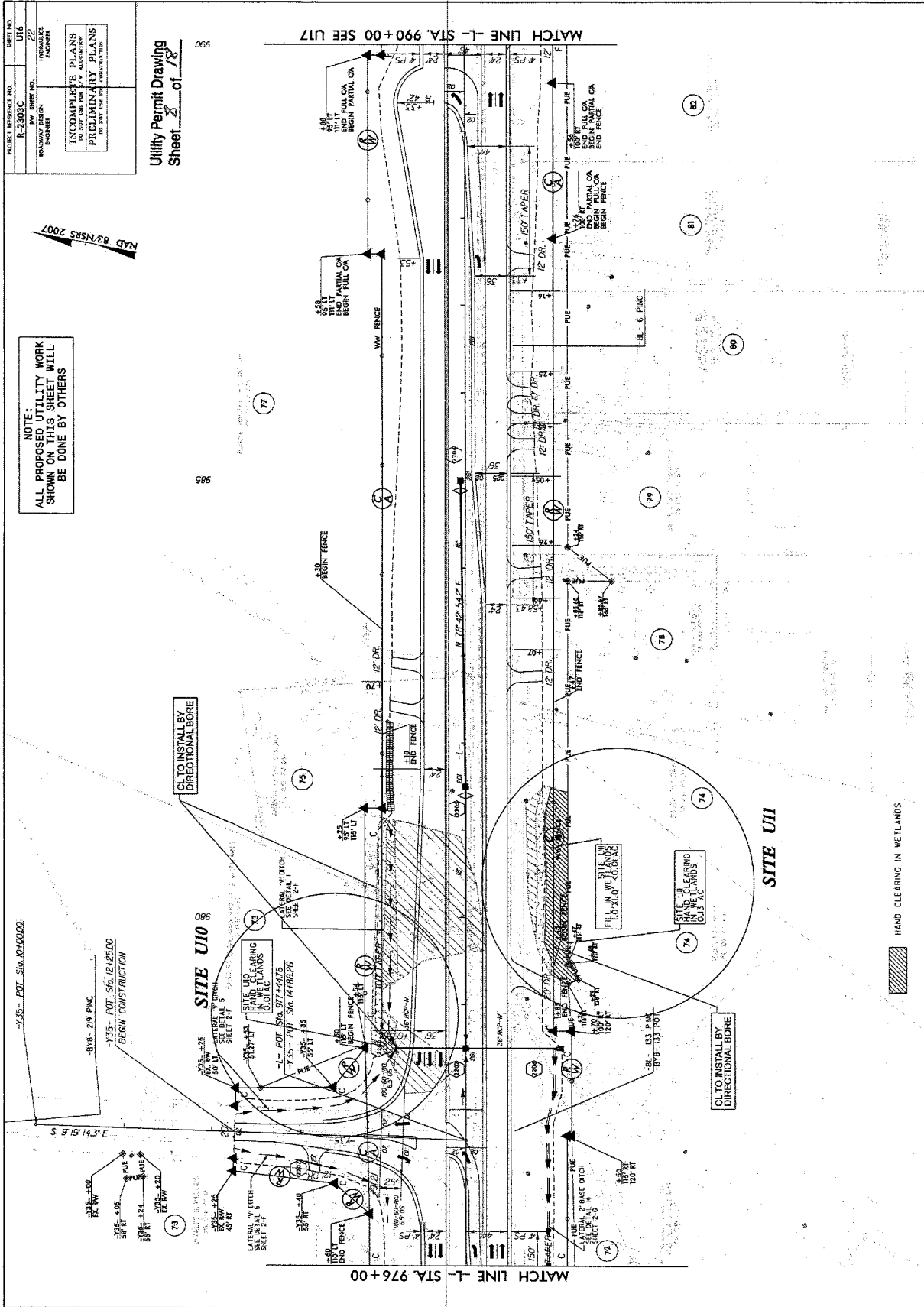
REVISIONS

PROJECT REFERENCE NO. R-2300C	SHEET NO. U16
DESIGNER HYDRAULIC ENGINEER	DATE 11/22
INCOMPLETE PLANS DO NOT USE FOR CONSTRUCTION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

NOTE:
ALL PROPOSED UTILITY WORK
SHOWN ON THIS SHEET WILL
BE DONE BY OTHERS

NAD 83/NSRS 2007

Utility Permit Drawing
Sheet 2 of 7



CL TO INSTALL BY
DIRECTIONAL BORE

CL TO INSTALL BY
DIRECTIONAL BORE

SITE U10

SITE U11

HAND CLEARING IN WETLANDS

MATCH LINE L- STA. 976+00

MATCH LINE L- STA. 990+00 SEE U17

REVISIONS	DATE	DESCRIPTION

PROJECT REFERENCE NO.	R-2303C
SHEET NO.	U7
BOUNDARY SHEET NO.	23
INCOMPLETE PLANS	NO NOT FOR CONSTRUCTION
PRELIMINARY PLANS	NO NOT FOR CONSTRUCTION

Utility Permit Drawing
Sheet 7 of 18

NAD 83/NSRS 2007

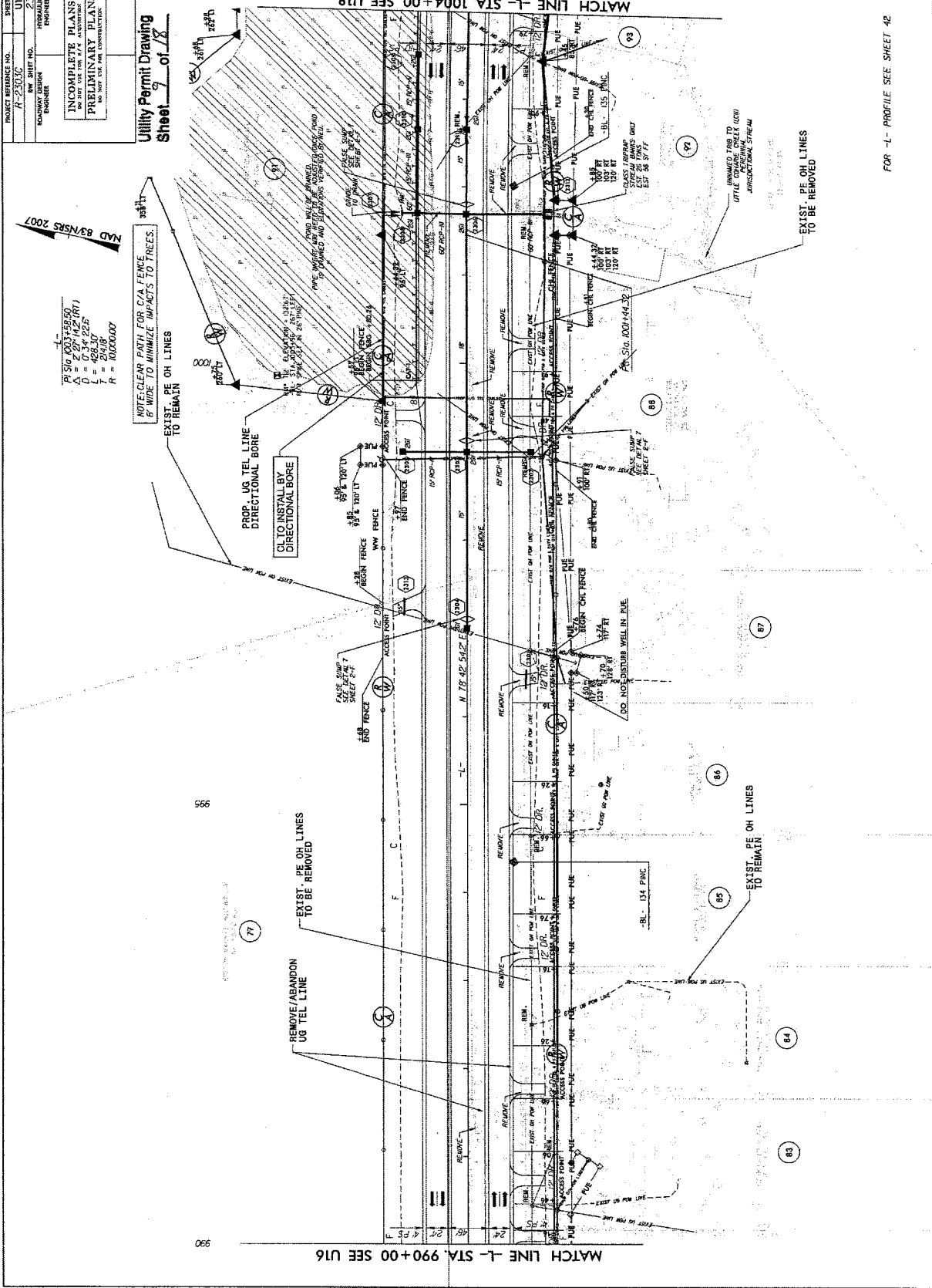
PI Sta 1003+59.50
 Δ = 2.0° (AZP RT)
 L = 428.37'
 T = 214.18'
 R = 10000000'

NOTE: CLEAR PATH FOR C/A FENCE
 16' WIDE TO MINIMIZE IMPACTS TO TREES.
 EXIST. PE OH LINES
 TO REMAIN

PROP. UG TEL LINE
 DIRECTIONAL BORE
 CL TO INSTALL BY
 DIRECTIONAL BORE

MATCH LINE L- STA 1004+00 SEE U18

MATCH LINE L- STA 990+00 SEE U16



FOR -L- PROFILE SEE SHEET 42

NO.	REVISIONS

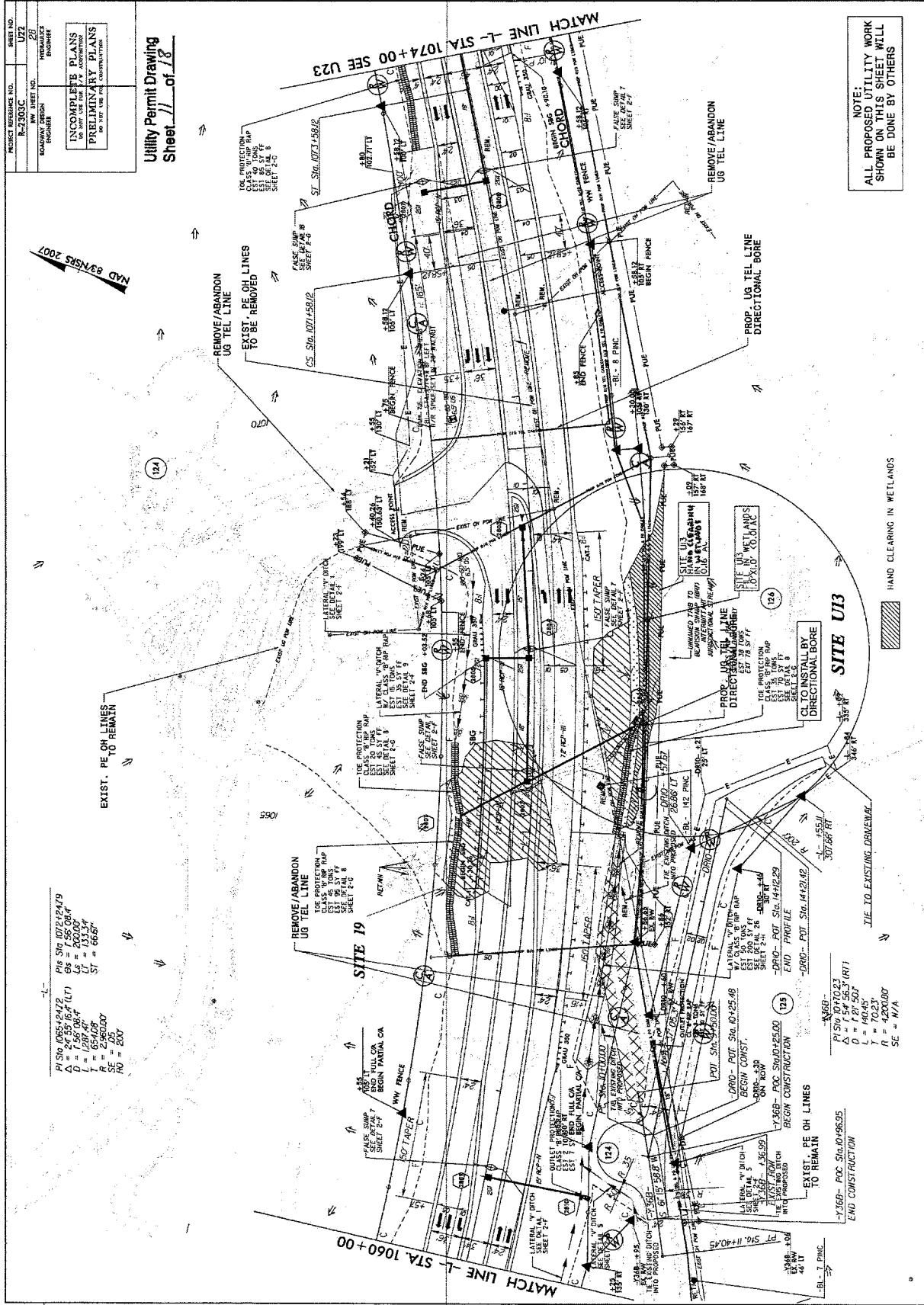
PROJECT REFERENCE NO.	R-2303C
SHEET NO.	U22
ROADWAY DESIGN	HYDRAULIC ENGINEER
INCOMPLETE PLANS	DO NOT USE FOR CONSTRUCTION
PRELIMINARY PLANS	DO NOT USE FOR CONSTRUCTION

Utility Permit Drawing
Sheet 11 of 18

MAD 8/31/05 2007

PI S/C 10542472
 $\Delta = 24'55.16''$ (LT)
 $L = 136'09.4''$
 $T = 65'40.8''$
 $R = 2,560.00'$
 $HO = 200'$

PI S/C 107212419
 $\Delta = 1'56.08''$
 $L = 113.00''$
 $T = 66.57''$
 $R = 2,560.00'$
 $HO = 200'$



NOTE:
ALL PROPOSED UTILITY WORK
SHOWN ON THIS SHEET WILL
BE DONE BY OTHERS

HAND CLEARING IN WETLANDS

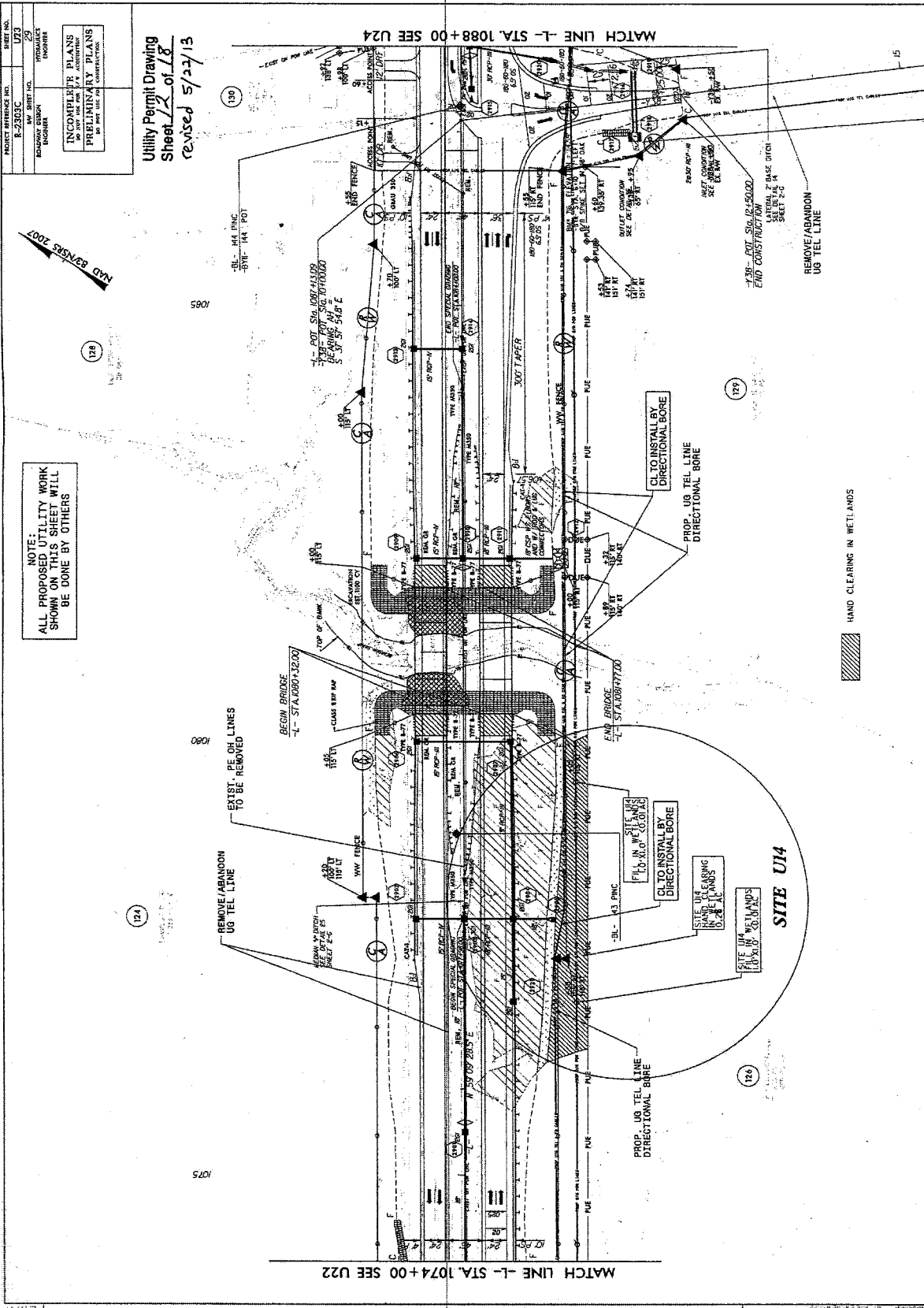
PI S/C 107023
 $\Delta = 1'54'56.3''$ (RT)
 $L = 140.00''$
 $T = 70.23''$
 $R = 4,200.00'$
 $SE = N/A$

PI S/C 1079655
 END CONSTRUCTION

PI S/C 141229
 END PROFILE

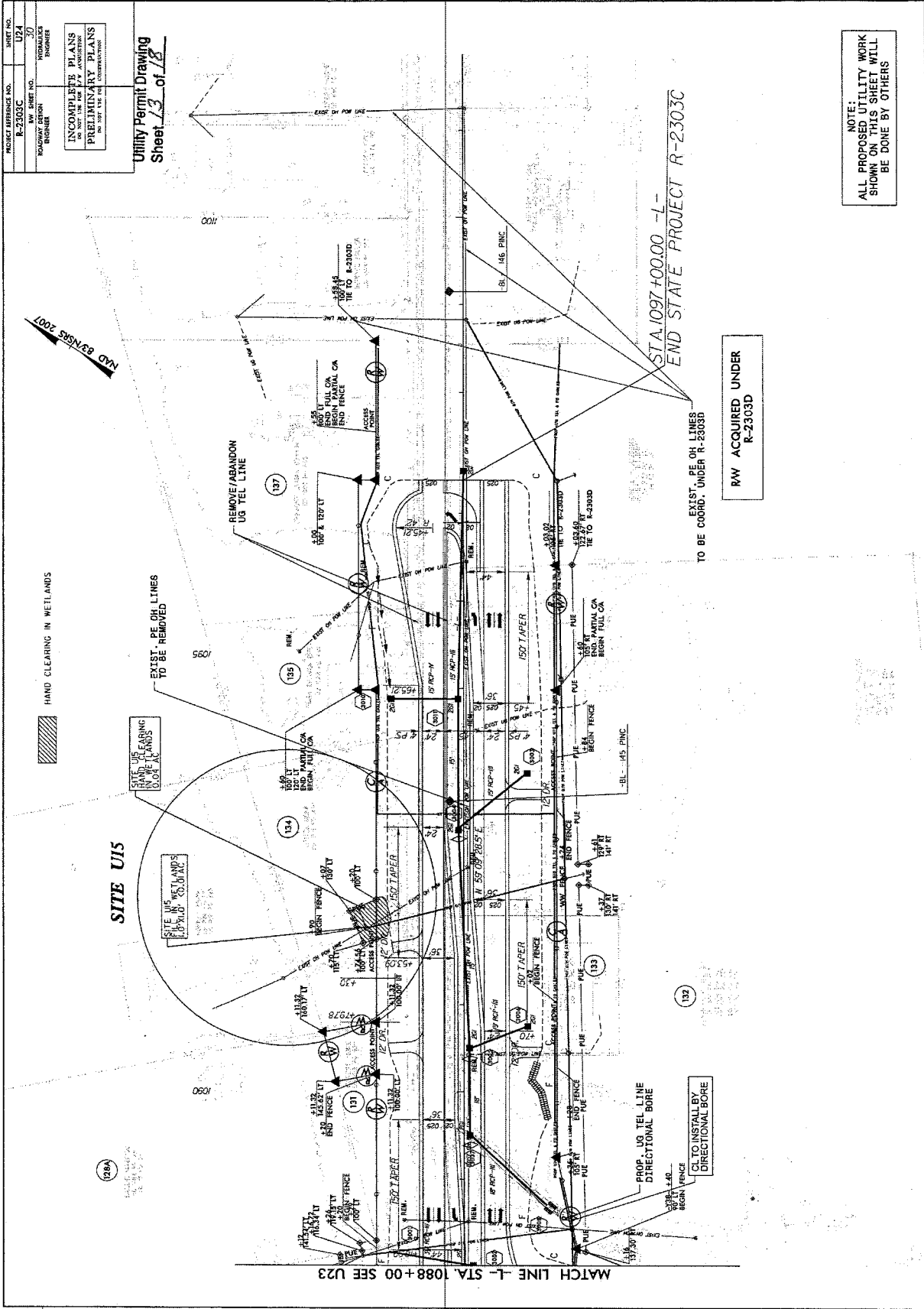
PI S/C 141242

REVISIONS



PROJECT REFERENCE NO.	R-2303C	SHEET NO.	U24
RAW SHEET NO.	100	DATE	10/12/07
DESIGNER	WALSH	CHECKER	WALSH
INCOMPLETE PLANS DO NOT USE FOR CONSTRUCTION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			

Utility Permit Drawing
 Sheet 13 of 18



NOTE:
 ALL PROPOSED UTILITY WORK
 SHOWN ON THIS SHEET WILL
 BE DONE BY OTHERS

RAW ACQUIRED UNDER
 R-2303D

STA 1097+00.00 -L-
 END STATE PROJECT R-2303C

EXIST. PE OR LINES
 TO BE COORD. UNDER R-2303D

PROF. UG TEL LINE
 DIRECTIONAL BORE
 (C) TO INSTALL BY
 DIRECTIONAL BORE

MATCH LINE L- STA 1088+00 SEE U23

HAND CLEARING IN WETLANDS

SITE UIS

HAND CLEARING
 IN WETLANDS

EXIST. PE OR LINES
 TO BE REMOVED

REMOVE/ABANDON
 UG TEL LINE

MATCH LINE L- STA 1088+00 SEE U23

PROF. UG TEL LINE
 DIRECTIONAL BORE
 (C) TO INSTALL BY
 DIRECTIONAL BORE

EXIST. PE OR LINES
 TO BE COORD. UNDER R-2303D

RAW ACQUIRED UNDER
 R-2303D

NOTE:
 ALL PROPOSED UTILITY WORK
 SHOWN ON THIS SHEET WILL
 BE DONE BY OTHERS

STA 1097+00.00 -L-
 END STATE PROJECT R-2303C

Power, Communication, Natural Gas Utility Wetland Impacts

PROP. NO.	PROPERTY OWNER NAME	PROP. OWNER ADDRESS
2	Margie Aman	2223 Autry Highway, Roseboro, NC 28382
14	Audrey Lee, Starling Kerr, etal	980 Boren Brick Road, Roseboro, NC 28382
61	Charles Dubose	Roseboro Hwy, Roseboro, NC 28382
65	Ann Wheeler, Jane Copeland	9406 Roseboro Highway, Roseboro, NC 28382
66	Charles Williams, Lela Williams	1793 Marion-Amos Road, Roseboro, NC 28382
74	Roger Royal	1234 Underwood Road, Roseboro, NC 28382
126	Waste Industries, LLC	7654 Roseboro Hwy, Roseboro, NC 28382
129	Baron Van Liew	G11 O 61C SR 24, Roseboro, NC 28382
134	James Monk	6956 Roseboro Highway, Roseboro, NC 28382
N.C. DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS		SAMPSON COUNTY PROJECT: R-2303C 4/10/2013 2/21/13 REVISED

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)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)								
U1	734+78 -L-	POWER, CTV																		
U2	16+33 -Y28-	POWER	<0.01																	
U3	936+39 -L-	POWER, CTV																		
U4	937+54 -L-	POWER, CTV	<0.01																	
U5	942+21 -L-	POWER, CTV	<0.01																	
U6	947+07 -L-	POWER																		
U7	948+32 -L-	POWER, CTV	<0.01																	
U8	955+66 -L-	POWER, CTV	<0.01																	
U9	958+17 -L-	POWER, CTV																		
U10	978+43 -L-	POWER, CTV																		
U11	979+24 -L-	POWER, CTV	<0.01																	
U12	1005+40 -L-	POWER, CTV	<0.01																	
U13	1075+13 -L-	POWER, CTV	<0.01																	
U14	1076+31 -L-	POWER, CTV	<0.01																	
U15	1091+70 -L-	POWER	<0.01																	
TOTALS:			<0.01 (14sf)		0.0000					2.38					0.0000					0

NOTE: Centurylink Communication and Piedmont Natural Gas to install lines by trenchless directional bore. No wetland or stream impact

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SAMPSON COUNTY
R-2303 C

4/23/2013
2/21/13 REVISED

ATN Revised 3/31/05

Utility Permit Drawing
Sheet 15 of 18

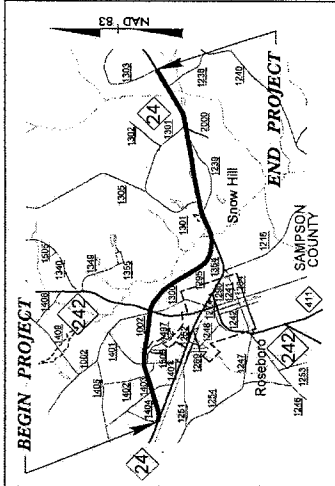
T.I.P. NO. R-2303C
 SHEET NO. UC-1

NEU UTILITY
 RELOCATION PLANS
 Utility Permit Drawing
 Sheet 16 of 18

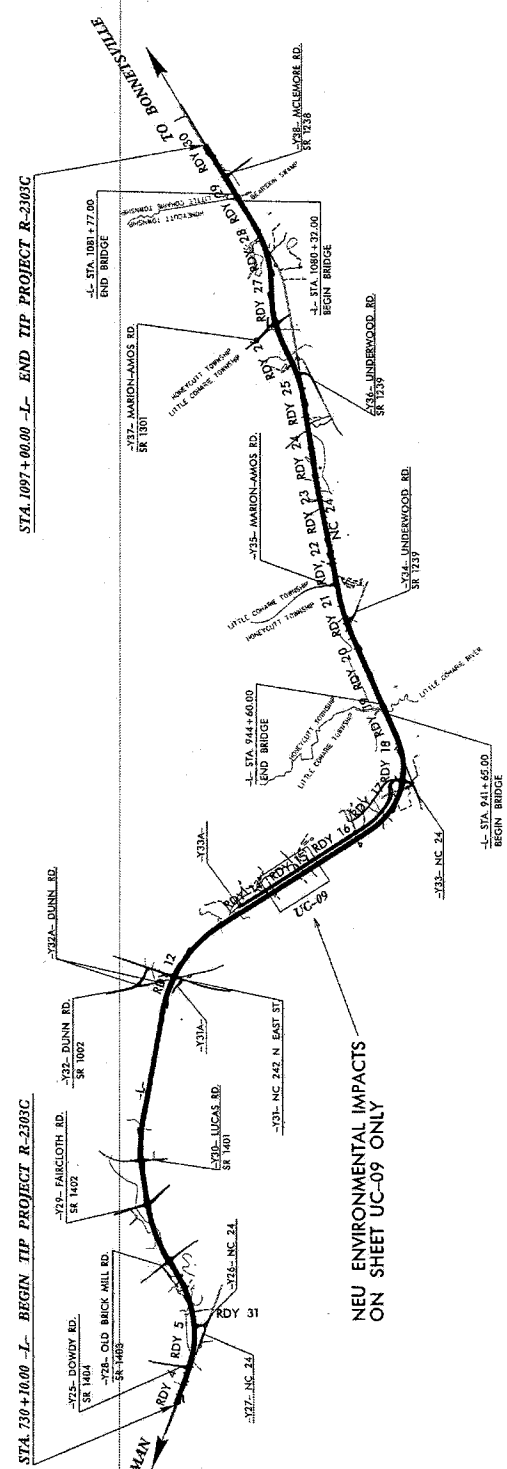
STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS
**UTILITIES CONSTRUCTION
 SAMPSON COUNTY**

LOCATION: NC 24 FROM SR 1404 (DOWDY ROAD) TO SR 1303
 (MITCHELL LOOP ROAD)

TYPE OF WORK: WATER LINE AND SEWER LINE RELOCATION



VICINITY MAP



NEU ENVIRONMENTAL IMPACTS
 ON SHEET UC-09 ONLY

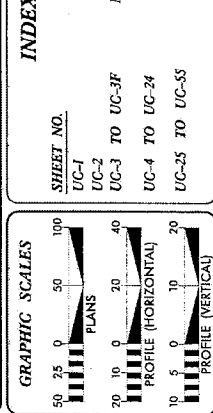
UTILITY DESIGN BY:
MA Engineering
 CONSULTANTS, INC.
 598 East Chatham Street, Suite 137
 Cary, NC 27511
 Phone: 919.397.0220 Fax: 919.397.0221
 NCDOT PROJECT ENGINEER:
 RON WILLIAMS, P.E.
 PREPARED FOR:
 NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 UTILITIES UNIT
 RALEIGH, NC

SEAL

- UTILITY OWNERS ON PROJECT
- (1) SAMPSON COUNTY PUBLIC WORKS - WATER LINE
 - (2) SAMPSON COUNTY PUBLIC WORKS - SEWER LINE
 - (3) TOWN OF ROSEBORO - WATER LINE
 - (4) TOWN OF ROSEBORO - SEWER LINE

INDEX OF SHEETS

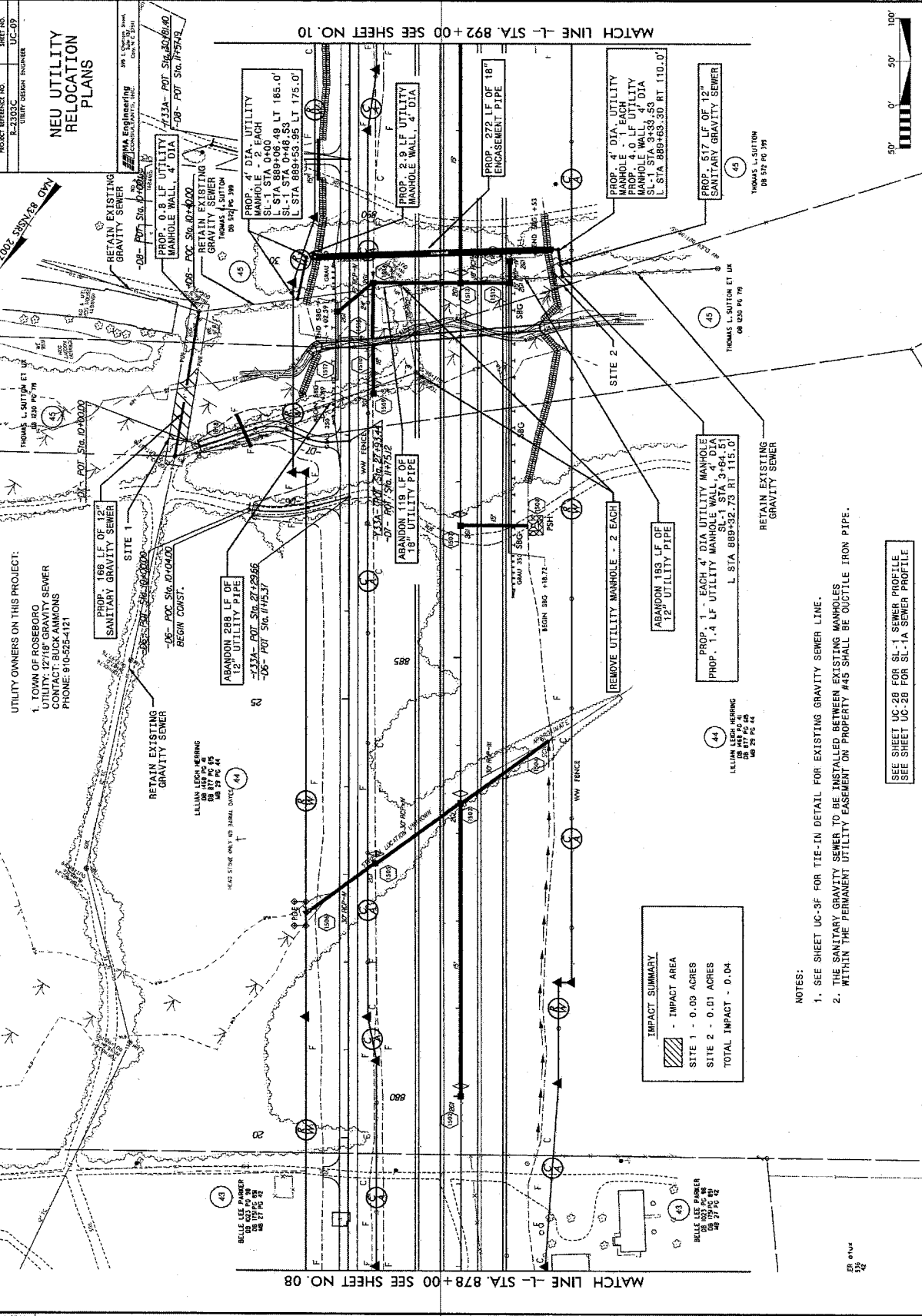
SHEET NO.	DESCRIPTION
UC-1	TITLE SHEET
UC-2	SYMBOLS SHEET
UC-3 TO UC-3F	NOTES SHEETS AND UTILITY DETAIL SHEETS
UC-4 TO UC-24	UTILITIES CONSTRUCTION PLAN SHEETS
UC-25 TO UC-55	UTILITIES CONSTRUCTION PROFILE PLAN SHEETS



TIP PROJECT: R-2303C

CONTRACT:

Utility Permit Drawing Sheet 17 of 18



UTILITY OWNERS ON THIS PROJECT:
 1. TOWN OF ROSEBORO
 UTILITY: 12718 GRAVITY SEWER
 CONTACT: BUCK ANTHONIS
 PHONE: 910-525-4121

RETAIN EXISTING GRAVITY SEWER
 PROPOSED 12\"/>

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 PROPOSED 12\"/>

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REMOVE UTILITY MANHOLE - 2 EACH
 PROPOSED 1.4\"/>

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REMOVE UTILITY MANHOLE - 2 EACH
 PROPOSED 1.4\"/>

REMOVE UTILITY MANHOLE - 2 EACH
 PROPOSED 1.4\"/>

MATCH LINE L- STA. 878 + 00 SEE SHEET NO. 08

MATCH LINE L- STA. 892 + 00 SEE SHEET NO. 10



IMPACT SUMMARY	
[Hatched Box]	IMPACT AREA
[Hatched Box]	SITE 1 - 0.00 ACRES
[Hatched Box]	SITE 2 - 0.01 ACRES
[Hatched Box]	TOTAL IMPACT - 0.04

NOTES:

- SEE SHEET UC-3F FOR TIE-IN DETAIL FOR EXISTING GRAVITY SEWER LINE.
- THE SANITARY GRAVITY SEWER TO BE INSTALLED BETWEEN EXISTING MANHOLES WITHIN THE PERMANENT UTILITY EASEMENT ON PROPERTY #45 SHALL BE OUCTILE IRON PIPE.

SEE SHEET UC-2B FOR SL-1 SEWER PROFILE
 SEE SHEET UC-2B FOR SL-1A SEWER PROFILE

NO.	DATE	REVISIONS

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)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)						
1	887+46 to 888+16	12" Gravity Sewer			0.03													
2	889+23 to 889+53	12" Gravity Sewer			0.01													
TOTALS:					0.04													

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
Sampson County
WBS - 34416.2.4 (R-2303C)
SHEET 1 OF 1 4/17/2013

ATN Revised 3/1/05

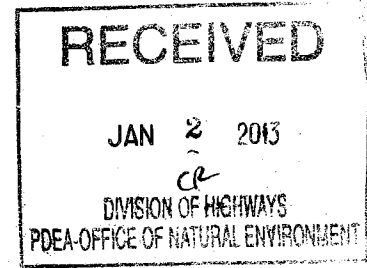
R-121



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.

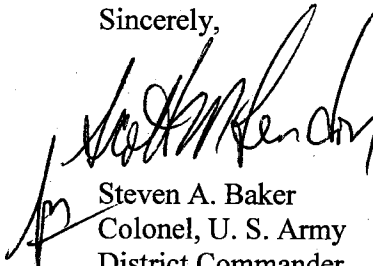
Any deviation in the authorized work will likely require modification of this permit. If a change in the authorized work is necessary, you should promptly submit revised plans to the Corps showing the proposed changes. You may not undertake the proposed changes until the Corps notifies you that your 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.

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

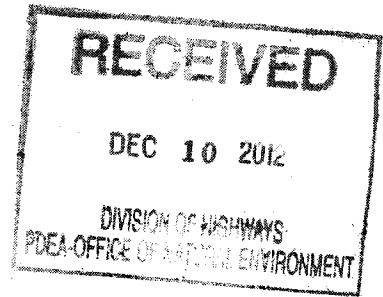
Mr. Ron Sechler
National Marine Fisheries Service
Pivers Island
Beaufort, North Carolina 28516

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-2303A-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. Luok for Gregory J. Thayer, 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)

R-126

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.

(TRANSFEEE)

(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.

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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

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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.

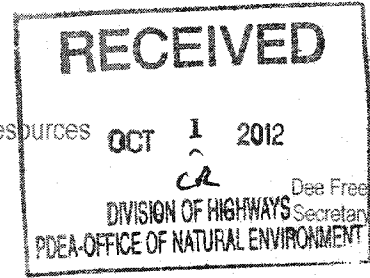
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North Carolina Department of Environment and Natural Resources

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,

A handwritten signature in black ink that appears to read "Charles Wakild".

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 Rerko, 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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North Carolina
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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

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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.

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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

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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

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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

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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 black ink, appearing to read "Charles Wakild" followed by a flourish and the word "for:".

Charles Wakild
Director

WQC No. 3942

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

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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-143

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 Site 1	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



R-146

R-2303C Mitigation Site 1

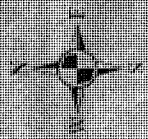
133

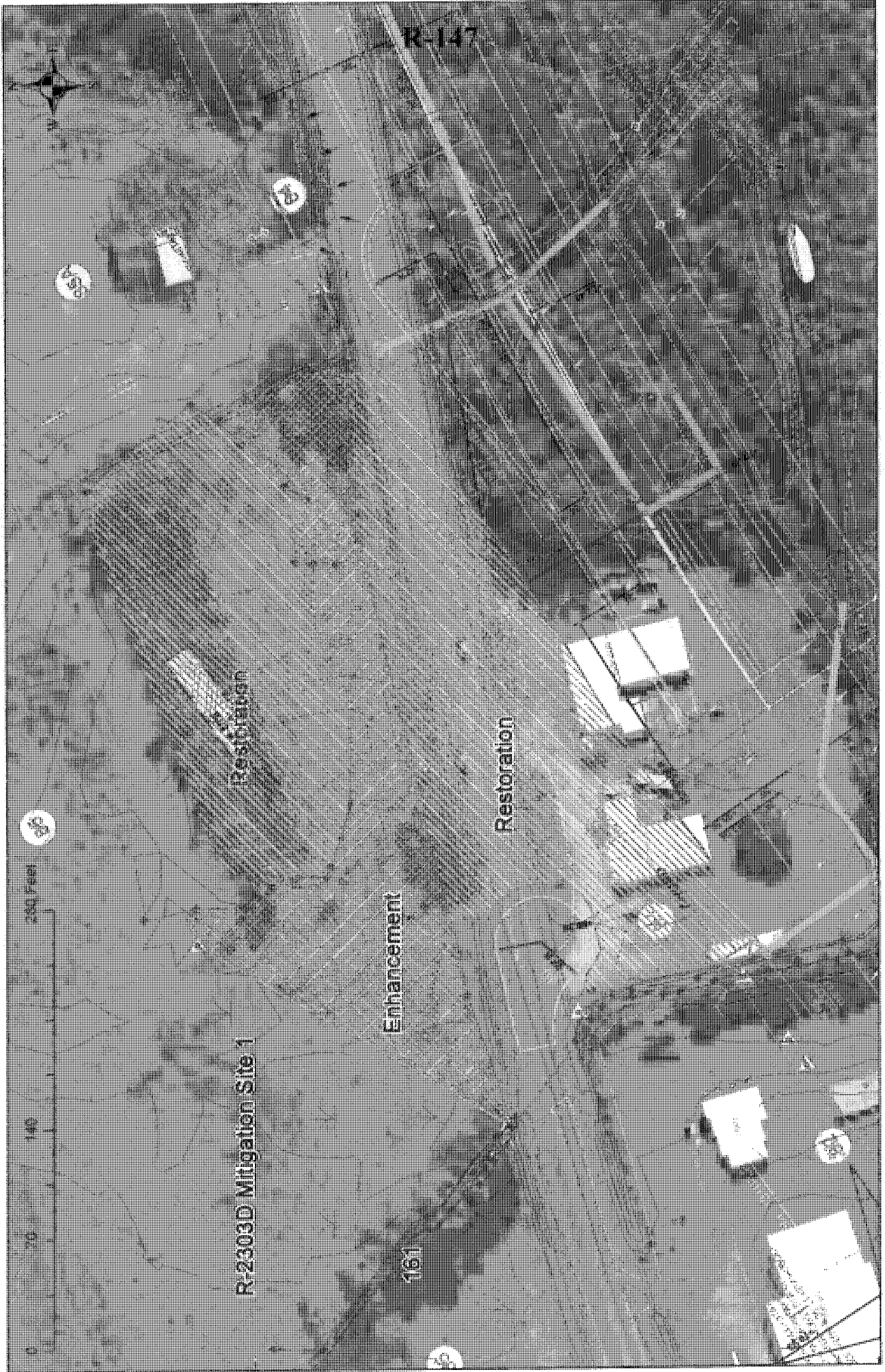
System Restoration

Restoration

140

200 Feet





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)	Bermudagrass
Kobe Lespedeza	Browntop Millet
Korean Lespedeza	German Millet – Strain R
Weeping Lovegrass	Clover – Red/White/Crimson
Carpetgrass	

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. 5-21-13)

Z-10

Description

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

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

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

Minorities and Women

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

Assigning Training Goals

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

Training Classifications

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

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

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

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

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

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

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

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

Records and Reports

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

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

Trainee Interviews

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

Trainee Wages

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

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

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

Achieving or Failing to Meet Training Goals

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

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

Measurement and Payment

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

County : Sampson

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
ROADWAY ITEMS						
0001	0000100000-N	800	MOBILIZATION	Lump Sum	L.S.	
0002	0000700000-N	SP	FIELD OFFICE	Lump Sum	L.S.	
0003	0001000000-E	200	CLEARING & GRUBBING .. ACRE(S)	Lump Sum	L.S.	
0004	0008000000-E	200	SUPPLEMENTARY CLEARING & GRUB- BING	3 ACR		
0005	0015000000-N	205	SEALING ABANDONED WELLS	10 EA		
0006	0029000000-N	SP	REINFORCED BRIDGE APPROACH FILL, STATION ***** (1081+04.5 RT-L-)	Lump Sum	L.S.	
0007	0029000000-N	SP	REINFORCED BRIDGE APPROACH FILL, STATION ***** (1084+04.5 LT-L-)	Lump Sum	L.S.	
0008	0029000000-N	SP	REINFORCED BRIDGE APPROACH FILL, STATION ***** (943+12.5 LT-L-)	Lump Sum	L.S.	
0009	0029000000-N	SP	REINFORCED BRIDGE APPROACH FILL, STATION ***** (943+12.5 RT-L-)	Lump Sum	L.S.	
0010	0127000000-N	SP	EMBANKMENT SETTLEMENT GAUGES	2 EA		
0011	0134000000-E	240	DRAINAGE DITCH EXCAVATION	3,500 CY		
0012	0156000000-E	250	REMOVAL OF EXISTING ASPHALT PAVEMENT	8,100 SY		
0013	0163000000-E	250	REMOVAL OF EXISTING CONCRETE PAVEMENT	23,700 SY		
0014	0177000000-E	250	BREAKING OF EXISTING ASPHALT PAVEMENT	4,500 SY		
0015	0185000000-E	250	BREAKING OF EXISTING CONCRETE PAVEMENT	23,700 SY		
0016	0192000000-N	260	PROOF ROLLING	70 HR		
0017	0195000000-E	265	SELECT GRANULAR MATERIAL	25,500 CY		

County : Sampson

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0018	0196000000-E	270	GEOTEXTILE FOR SOIL STABILIZATION	30,700	SY	
0019	0220000000-E	SP	ROCK EMBANKMENTS	27,860	TON	
0020	0222000000-E	SP	GEOTEXTILE FOR ROCK EMBANKMENTS	15,370	SY	
0021	0318000000-E	300	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES	3,170	TON	
0022	0320000000-E	300	FOUNDATION CONDITIONING GEOTEXTILE	9,950	SY	
0023	0342000000-E	310	*** SIDE DRAIN PIPE (30")	12	LF	
0024	0342000000-E	310	*** SIDE DRAIN PIPE (60")	16	LF	
0025	0343000000-E	310	15" SIDE DRAIN PIPE	5,716	LF	
0026	0344000000-E	310	18" SIDE DRAIN PIPE	5,100	LF	
0027	0345000000-E	310	24" SIDE DRAIN PIPE	1,424	LF	
0028	0366000000-E	310	15" RC PIPE CULVERTS, CLASS III	1,582	LF	
0029	0372000000-E	310	18" RC PIPE CULVERTS, CLASS III	2,052	LF	
0030	0378000000-E	310	24" RC PIPE CULVERTS, CLASS III	568	LF	
0031	0384000000-E	310	30" RC PIPE CULVERTS, CLASS III	1,112	LF	
0032	0390000000-E	310	36" RC PIPE CULVERTS, CLASS III	1,096	LF	
0033	0396000000-E	310	42" RC PIPE CULVERTS, CLASS III	336	LF	
0034	0402000000-E	310	48" RC PIPE CULVERTS, CLASS III	1,972	LF	

County : Sampson

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0035	0414000000-E	310	60" RC PIPE CULVERTS, CLASS III	144 LF		
0036	0426000000-E	310	72" RC PIPE CULVERTS, CLASS III	444 LF		
0037	0448200000-E	310	15" RC PIPE CULVERTS, CLASS IV	4,612 LF		
0038	0448300000-E	310	18" RC PIPE CULVERTS, CLASS IV	1,756 LF		
0039	0448400000-E	310	24" RC PIPE CULVERTS, CLASS IV	308 LF		
0040	0448500000-E	310	30" RC PIPE CULVERTS, CLASS IV	328 LF		
0041	0448600000-E	310	36" RC PIPE CULVERTS, CLASS IV	180 LF		
0042	0448700000-E	310	42" RC PIPE CULVERTS, CLASS IV	104 LF		
0043	0582000000-E	310	15" CS PIPE CULVERTS, 0.064" THICK	36 LF		
0044	0588000000-E	310	18" CS PIPE CULVERTS, 0.064" THICK	592 LF		
0045	0636000000-E	310	***" CS PIPE ELBOWS, *****" THICK (18", 0.064")	22 EA		
0046	0995000000-E	340	PIPE REMOVAL	4,328 LF		
0047	1011000000-N	500	FINE GRADING	Lump Sum	L.S.	
0048	1077000000-E	SP	#57 STONE	15,390 TON		
0049	1099500000-E	505	SHALLOW UNDERCUT	775 CY		
0050	1099700000-E	505	CLASS IV SUBGRADE STABILIZATION	1,460 TON		
0051	1110000000-E	510	STABILIZER AGGREGATE	1,000 TON		
0052	1220000000-E	545	INCIDENTAL STONE BASE	5,000 TON		

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Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0053	1308000000-E	607	MILLING ASPHALT PAVEMENT, **** TO ***** (0" TO 1-1/2")	11,400 SY		
0054	1330000000-E	607	INCIDENTAL MILLING	1,600 SY		
0055	1489000000-E	610	ASPHALT CONC BASE COURSE, TYPE B25.0B	14,425 TON		
0056	1503000000-E	610	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0C	52,925 TON		
0057	1519000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	10,775 TON		
0058	1523000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE S9.5C	51,650 TON		
0059	1525000000-E	610	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A	6,300 TON		
0060	1693000000-E	654	ASPHALT PLANT MIX, PAVEMENT REPAIR	1,000 TON		
0061	1880000000-E	SP	GENERIC PAVING ITEM JOINT REPAIR	1,000 TON		
0062	2020000000-N	806	CONTROL OF ACCESS MARKERS	40 EA		
0063	2022000000-E	815	SUBDRAIN EXCAVATION	1,377.6 CY		
0064	2026000000-E	815	GEOTEXTILE FOR SUBSURFACE DRAINS	4,100 SY		
0065	2036000000-E	815	SUBDRAIN COARSE AGGREGATE	688.8 CY		
0066	2044000000-E	815	6" PERFORATED SUBDRAIN PIPE	4,100 LF		
0067	2070000000-N	815	SUBDRAIN PIPE OUTLET	9 EA		
0068	2077000000-E	815	6" OUTLET PIPE	54 LF		
0069	2190000000-N	828	TEMPORARY STEEL PLATE COVERS FOR MASONRY DRAINAGE STRUCTURE	6 EA		
0070	2209000000-E	838	ENDWALLS	57.1 CY		

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Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0071	2220000000-E	838	REINFORCED ENDWALLS	19.8 CY		
0072	2253000000-E	840	PIPE COLLARS	2,314 CY		
0073	2286000000-N	840	MASONRY DRAINAGE STRUCTURES	199 EA		
0074	2297000000-E	840	MASONRY DRAINAGE STRUCTURES	33.3 CY		
0075	2308000000-E	840	MASONRY DRAINAGE STRUCTURES	105.21 LF		
0076	2354200000-N	840	FRAME WITH GRATE, STD 840.24	5 EA		
0077	2364000000-N	840	FRAME WITH TWO GRATES, STD 840.16	13 EA		
0078	2366000000-N	840	FRAME WITH TWO GRATES, STD 840.24	132 EA		
0079	2367000000-N	840	FRAME WITH TWO GRATES, STD 840.29	55 EA		
0080	2396000000-N	840	FRAME WITH COVER, STD 840.54	3 EA		
0081	2451000000-N	852	CONCRETE TRANSITIONAL SECTION FOR DROP INLET	13 EA		
0082	2556000000-E	846	SHOULDER BERM GUTTER	10,250 LF		
0083	2647000000-E	852	5" MONOLITHIC CONCRETE ISLANDS (SURFACE MOUNTED)	7,150 SY		
0084	3030000000-E	862	STEEL BM GUARDRAIL	15,187.5 LF		
0085	3045000000-E	862	STEEL BM GUARDRAIL, SHOP CURVED	156.25 LF		
0086	3105000000-N	862	STEEL BM GUARDRAIL TERMINAL SECTIONS	2 EA		
0087	3150000000-N	862	ADDITIONAL GUARDRAIL POSTS	10 EA		
0088	3210000000-N	862	GUARDRAIL ANCHOR UNITS, TYPE CAT-1	21 EA		

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Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0089	3270000000-N	SP	GUARDRAIL ANCHOR UNITS, TYPE 350	28 EA		
0090	3285000000-N	SP	GUARDRAIL ANCHOR UNITS, TYPE M-350	8 EA		
0091	3317000000-N	862	GUARDRAIL ANCHOR UNITS, TYPE B-77	16 EA		
0092	3360000000-E	863	REMOVE EXISTING GUARDRAIL	1,400 LF		
0093	3380000000-E	862	TEMPORARY STEEL BM GUARDRAIL	550 LF		
0094	3389100000-N	SP	TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE 350	18 EA		
0095	3435000000-N	SP	GENERIC GUARDRAIL ITEM TEMPORARY EXTRA LENGTH GUARDRAIL POSTS (7' STEEL)	90 EA		
0096	3503000000-E	866	WOVEN WIRE FENCE, 47" FABRIC	57,100 LF		
0097	3509000000-E	866	4" TIMBER FENCE POSTS, 7'-6" LONG	3,525 EA		
0098	3515000000-E	866	5" TIMBER FENCE POSTS, 8'-0" LONG	1,050 EA		
0099	3536000000-E	866	CHAIN LINK FENCE, 48" FABRIC	10,300 LF		
0100	3542000000-E	866	METAL LINE POSTS FOR 48" CHAIN LINK FENCE	875 EA		
0101	3548000000-E	866	METAL TERMINAL POSTS FOR 48" CHAIN LINK FENCE	100 EA		
0102	3554000000-E	866	METAL GATE POSTS FOR *** CHAIN LINK FENCE, DOUBLE GATE (48")	2 EA		
0103	3565000000-E	866	DOUBLE GATES, *** HIGH, *** WIDE, *** OPENING (48", 10', 20')	1 EA		
0104	3578000000-N	SP	GENERIC FENCING ITEM METAL GATE POSTS FOR 47" WOVEN WIRE FENCE, DOUBLE GATE	4 EA		

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Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0105	3579000000-N	866	GENERIC FENCING ITEM DOUBLE GATES 47" HIGH, 10' WIDE, 20' OPENING (WOVEN WIRE)	2 EA		
0106	3595000000-E	869	RELAPPING GUARDRAIL	950 LF		
0107	3628000000-E	876	RIP RAP, CLASS I	255 TON		
0108	3649000000-E	876	RIP RAP, CLASS B	1,250 TON		
0109	3656000000-E	876	GEOTEXTILE FOR DRAINAGE	11,350 SY		
0110	3659000000-N	SP	PREFORMED SCOUR HOLES WITH LEVEL SPREADER APRON	20 EA		
0111	4048000000-E	902	REINFORCED CONCRETE SIGN FOUN- DATIONS	1 CY		
0112	4060000000-E	903	SUPPORTS, BREAKAWAY STEEL BEAM	573 LB		
0113	4072000000-E	903	SUPPORTS, 3-LB STEEL U-CHANNEL	5,221 LF		
0114	4096000000-N	904	SIGN ERECTION, TYPE D	22 EA		
0115	4102000000-N	904	SIGN ERECTION, TYPE E	177 EA		
0116	4108000000-N	904	SIGN ERECTION, TYPE F	72 EA		
0117	4110000000-N	904	SIGN ERECTION, TYPE *** (GROUND MOUNTED) (B)	1 EA		
0118	4155000000-N	907	DISPOSAL OF SIGN SYSTEM, U- CHANNEL	55 EA		
0119	4400000000-E	1110	WORK ZONE SIGNS (STATIONARY)	4,582 SF		
0120	4405000000-E	1110	WORK ZONE SIGNS (PORTABLE)	416 SF		
0121	4410000000-E	1110	WORK ZONE SIGNS (BARRICADE MOUNTED)	457 SF		
0122	4415000000-N	1115	FLASHING ARROW BOARD	2 EA		

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Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0123	4420000000-N	1120	PORTABLE CHANGEABLE MESSAGE SIGN	6	EA	
0124	4422000000-N	1120	PORTABLE CHANGEABLE MESSAGE SIGN (SHORT TERM)	252	DAY	
0125	4430000000-N	1130	DRUMS	1,190	EA	
0126	4435000000-N	1135	CONES	100	EA	
0127	4445000000-E	1145	BARRICADES (TYPE III)	975	LF	
0128	4455000000-N	1150	FLAGGER	520	DAY	
0129	4480000000-N	1165	TMA	2	EA	
0130	4510000000-N	SP	LAW ENFORCEMENT	64	HR	
0131	4516000000-N	1180	SKINNY DRUM	100	EA	
0132	4650000000-N	1251	TEMPORARY RAISED PAVEMENT MARKERS	1,574	EA	
0133	4685000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)	179,224	LF	
0134	4686000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)	51,020	LF	
0135	4695000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)	19,721	LF	
0136	4710000000-E	1205	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)	1,092	LF	
0137	4725000000-E	1205	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)	287	EA	
0138	4770000000-E	1205	COLD APPLIED PLASTIC PAVEMENT MARKING LINES, TYPE ** (4") (IV)	4,320	LF	
0139	4810000000-E	1205	PAINT PAVEMENT MARKING LINES (4")	671,197	LF	
0140	4820000000-E	1205	PAINT PAVEMENT MARKING LINES (8")	400	LF	

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Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0141	4835000000-E	1205	PAINT PAVEMENT MARKING LINES (24")	1,974	LF	
0142	4840000000-N	1205	PAINT PAVEMENT MARKING CHARAC- TER	180	EA	
0143	4845000000-N	1205	PAINT PAVEMENT MARKING SYMBOL	30	EA	
0144	4850000000-E	1205	REMOVAL OF PAVEMENT MARKING LINES (4")	16,235	LF	
0145	4870000000-E	1205	REMOVAL OF PAVEMENT MARKING LINES (24")	337	LF	
0146	4905000000-N	1253	SNOWPLOWABLE PAVEMENT MARKERS	1,945	EA	
0147	5325200000-E	1510	2" WATER LINE	509	LF	
0148	5325400000-E	1510	4" WATER LINE	539	LF	
0149	5325600000-E	1510	6" WATER LINE	392	LF	
0150	5325800000-E	1510	8" WATER LINE	306	LF	
0151	5326000000-E	1510	10" WATER LINE	7,990	LF	
0152	5326200000-E	1510	12" WATER LINE	3,703	LF	
0153	5536000000-E	1515	2" VALVE	1	EA	
0154	5538000000-E	1515	4" VALVE	3	EA	
0155	5552000000-E	1515	10" VALVE	7	EA	
0156	5572000000-E	1515	10" TAPPING VALVE	3	EA	
0157	5589100000-E	1515	1" AIR RELEASE VALVE	6	EA	
0158	5606000000-E	1515	2" BLOW OFF	1	EA	
0159	5648000000-N	1515	RELOCATE WATER METER	27	EA	
0160	5672000000-N	1515	RELOCATE FIRE HYDRANT	3	EA	

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Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0161	5691500000-E	1520	12" SANITARY GRAVITY SEWER	1,213 LF		
0162	5709200000-E	1520	4" FORCE MAIN SEWER	7,730 LF		
0163	5709300000-E	1520	6" FORCE MAIN SEWER	4,177 LF		
0164	5775000000-E	1525	4' DIA UTILITY MANHOLE	9 EA		
0165	5781000000-E	1525	UTILITY MANHOLE WALL, 4' DIA	30 LF		
0166	5801000000-E	1530	ABANDON 8" UTILITY PIPE	279 LF		
0167	5802000000-E	1530	ABANDON 10" UTILITY PIPE	10,681 LF		
0168	5804000000-E	1530	ABANDON 12" UTILITY PIPE	1,370 LF		
0169	5811000000-E	1530	ABANDON 18" UTILITY PIPE	119 LF		
0170	5815000000-N	1530	REMOVE WATER METER	2 EA		
0171	5815500000-N	1530	REMOVE FIRE HYDRANT	1 EA		
0172	5828000000-N	1530	REMOVE UTILITY MANHOLE	3 EA		
0173	5835000000-E	1540	*** ENCASEMENT PIPE (14")	930 LF		
0174	5835700000-E	1540	16" ENCASEMENT PIPE	187 LF		
0175	5835800000-E	1540	18" ENCASEMENT PIPE	746 LF		
0176	5835900000-E	1540	20" ENCASEMENT PIPE	485 LF		
0177	5836000000-E	1540	24" ENCASEMENT PIPE	700 LF		
0178	5871100000-E	1550	TRENCHLESS INSTALLATION OF 2" IN SOIL	130 LF		
0179	5871110000-E	1550	TRENCHLESS INSTALLATION OF 2" NOT IN SOIL	130 LF		
0180	5871400000-E	1550	TRENCHLESS INSTALLATION OF 6" IN SOIL	2,089 LF		

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Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0181	5871410000-E	1550	TRENCHLESS INSTALLATION OF 6" NOT IN SOIL	2,088 LF		
0182	5871700000-E	1550	TRENCHLESS INSTALLATION OF 12" IN SOIL	1,699 LF		
0183	5871710000-E	1550	TRENCHLESS INSTALLATION OF 12" NOT IN SOIL	1,698 LF		
0184	5871800000-E	1550	TRENCHLESS INSTALLATION OF 14" IN SOIL	105 LF		
0185	5871810000-E	1550	TRENCHLESS INSTALLATION OF 14" NOT IN SOIL	105 LF		
0186	5871900000-E	1550	TRENCHLESS INSTALLATION OF 16" IN SOIL	93 LF		
0187	5871910000-E	1550	TRENCHLESS INSTALLATION OF 16" NOT IN SOIL	94 LF		
0188	5872100000-E	1550	TRENCHLESS INSTALLATION OF 20" IN SOIL	127 LF		
0189	5872110000-E	1550	TRENCHLESS INSTALLATION OF 20" NOT IN SOIL	128 LF		
0190	5872200000-E	1550	TRENCHLESS INSTALLATION OF 24" IN SOIL	251 LF		
0191	5872210000-E	1550	TRENCHLESS INSTALLATION OF 24" NOT IN SOIL	251 LF		
0192	5882000000-N	SP	GENERIC UTILITY ITEM WATER METERING STATION	1 EA		
0193	6000000000-E	1605	TEMPORARY SILT FENCE	150,000 LF		
0194	6006000000-E	1610	STONE FOR EROSION CONTROL, CLASS A	5,000 TON		
0195	6009000000-E	1610	STONE FOR EROSION CONTROL, CLASS B	10,000 TON		
0196	6012000000-E	1610	SEDIMENT CONTROL STONE	10,000 TON		
0197	6015000000-E	1615	TEMPORARY MULCHING	230 ACR		

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Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0198	6018000000-E	1620	SEED FOR TEMPORARY SEEDING	8,400 LB		
0199	6021000000-E	1620	FERTILIZER FOR TEMPORARY SEED- ING	35 TON		
0200	6024000000-E	1622	TEMPORARY SLOPE DRAINS	11,500 LF		
0201	6029000000-E	SP	SAFETY FENCE	11,000 LF		
0202	6030000000-E	1630	SILT EXCAVATION	50,000 CY		
0203	6036000000-E	1631	MATTING FOR EROSION CONTROL	135,000 SY		
0204	6037000000-E	SP	COIR FIBER MAT	10,000 SY		
0205	6038000000-E	SP	PERMANENT SOIL REINFORCEMENT MAT	1,650 SY		
0206	6042000000-E	1632	1/4" HARDWARE CLOTH	10,000 LF		
0207	6048000000-E	SP	FLOATING TURBIDITY CURTAIN	1,100 SY		
0208	6069000000-E	1638	STILLING BASINS	900 CY		
0209	6070000000-N	1639	SPECIAL STILLING BASINS	8 EA		
0210	6071010000-E	SP	WATTLE	22,500 LF		
0211	6071012000-E	SP	COIR FIBER WATTLE	600 LF		
0212	6071020000-E	SP	POLYACRYLAMIDE (PAM)	20,500 LB		
0213	6071030000-E	1640	COIR FIBER BAFFLE	18,500 LF		
0214	6071050000-E	SP	*** SKIMMER (1-1/2")	73 EA		
0215	6071050000-E	SP	*** SKIMMER (2")	1 EA		
0216	6071050000-E	SP	*** SKIMMER (2-1/2")	1 EA		

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Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0217	6084000000-E	1660	SEEDING & MULCHING	230 ACR		
0218	6087000000-E	1660	MOWING	115 ACR		
0219	6090000000-E	1661	SEED FOR REPAIR SEEDING	3,450 LB		
0220	6093000000-E	1661	FERTILIZER FOR REPAIR SEEDING	14 TON		
0221	6096000000-E	1662	SEED FOR SUPPLEMENTAL SEEDING	6,925 LB		
0222	6108000000-E	1665	FERTILIZER TOPDRESSING	208 TON		
0223	6111000000-E	SP	IMPERVIOUS DIKE	1,300 LF		
0224	6114500000-N	1667	SPECIALIZED HAND MOWING	100 MHR		
0225	6117000000-N	SP	RESPONSE FOR EROSION CONTROL	200 EA		
0226	6120000000-E	SP	CULVERT DIVERSION CHANNEL	3,200 CY		
0227	6123000000-E	1670	REFORESTATION	5 ACR		
0228	6126000000-E	SP	STREAMBANK REFORESTATION	1.26 ACR		
<p>***** BEGIN SCHEDULE AA ***** ***** (2 ALTERNATES) *****</p>						
0229	0022000000-E	225	UNCLASSIFIED EXCAVATION	77,000 CY		
AA1						
0230	0036000000-E	225	UNDERCUT EXCAVATION	19,000 CY		
AA1						
0231	0106000000-E	230	BORROW EXCAVATION	1,519,500 CY		
AA1						
0232	1121000000-E	520	AGGREGATE BASE COURSE	190,100 TON		
AA1						
0233	1275000000-E	600	PRIME COAT	110,110 GAL		
AA1						
0234	1491000000-E	610	ASPHALT CONC BASE COURSE, TYPE B25.0C	1,850 TON		
AA1						

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Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0235 AA1	1575000000-E	620	ASPHALT BINDER FOR PLANT MIX	7,380 TON		
*** OR ***						
0236 AA2	0022000000-E	225	UNCLASSIFIED EXCAVATION	71,600 CY		
0237 AA2	0036000000-E	225	UNDERCUT EXCAVATION	19,000 CY		
0238 AA2	0106000000-E	230	BORROW EXCAVATION	1,579,500 CY		
0239 AA2	1121000000-E	520	AGGREGATE BASE COURSE	7,800 TON		
0240 AA2	1275000000-E	600	PRIME COAT	4,780 GAL		
0241 AA2	1491000000-E	610	ASPHALT CONC BASE COURSE, TYPE B25.0C	80,900 TON		
0242 AA2	1575000000-E	620	ASPHALT BINDER FOR PLANT MIX	10,860 TON		
***** END SCHEDULE AA *****						
CULVERT ITEMS						
0243	8126000000-N	414	CULVERT EXCAVATION, STA ***** (863+15.00-L-)	Lump Sum	L.S.	
0244	8126000000-N	414	CULVERT EXCAVATION, STA ***** (888+67.00-L-)	Lump Sum	L.S.	
0245	8126000000-N	414	CULVERT EXCAVATION, STA ***** (906+61.00-L-)	Lump Sum	L.S.	
0246	8133000000-E	414	FOUNDATION CONDITIONING MATERIAL, BOX CULVERT	738 TON		
0247	8196000000-E	420	CLASS A CONCRETE (CULVERT)	955.1 CY		
0248	8245000000-E	425	REINFORCING STEEL (CULVERT)	146,701 LB		

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Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
STRUCTURE ITEMS						
0249	8035000000-N	402	REMOVAL OF EXISTING STRUCTURE AT STATION ***** (1081+04.50-L-LT)	Lump Sum	L.S.	
0250	8035000000-N	402	REMOVAL OF EXISTING STRUCTURE AT STATION ***** (943+12.50-L-LT)	Lump Sum	L.S.	
0251	8112730000-N	450	PDA TESTING	2 EA		
0252	8121000000-N	412	UNCLASSIFIED STRUCTURE EXCAVATION AT STATION ***** (1081+04.50-L-LT)	Lump Sum	L.S.	
0253	8121000000-N	412	UNCLASSIFIED STRUCTURE EXCAVATION AT STATION ***** (943+12.50-L-LT)	Lump Sum	L.S.	
0254	8147000000-E	420	REINFORCED CONCRETE DECK SLAB	34,540 SF		
0255	8161000000-E	420	GROOVING BRIDGE FLOORS	35,222 SF		
0256	8182000000-E	420	CLASS A CONCRETE (BRIDGE)	331.2 CY		
0257	8210000000-N	422	BRIDGE APPROACH SLABS, STATION ***** (1081+04.50 -L- RT)	Lump Sum	L.S.	
0258	8210000000-N	422	BRIDGE APPROACH SLABS, STATION ***** (1081+04.50-L-LT)	Lump Sum	L.S.	
0259	8210000000-N	422	BRIDGE APPROACH SLABS, STATION ***** (943+12.50-L-LT)	Lump Sum	L.S.	
0260	8210000000-N	422	BRIDGE APPROACH SLABS, STATION ***** (943+12.50-L-RT)	Lump Sum	L.S.	
0261	8217000000-E	425	REINFORCING STEEL (BRIDGE)	46,602 LB		
0262	8262000000-E	430	45" PRESTRESSED CONCRETE GIRDERS	1,131.34 LF		
0263	8274000000-E	430	MODIFIED 63" PRESTRESSED CONC GIRDERS	2,332 LF		
0264	8364000000-E	450	HP12X53 STEEL PILES	3,270 LF		

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Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
0265	8384200000-E	450	HP14X73 GALVANIZED STEEL PILES	3,170 LF		
0266	8385200000-E	450	PP ** X **** GALVANIZED STEEL PILES (24 X 0.625)	1,160 LF		
0267	8392000000-N	450	PIPE PILE PLATES	16 EA		
0268	8393000000-N	450	PILE REDRIVES	62 EA		
0269	8503000000-E	460	CONCRETE BARRIER RAIL	1,746.68 LF		
0270	8608000000-E	876	RIP RAP CLASS II (2'-0" THICK)	2,924 TON		
0271	8622000000-E	876	GEOTEXTILE FOR DRAINAGE	3,275 SY		
0272	8657000000-N	430	ELASTOMERIC BEARINGS	Lump Sum	L.S.	

1055/Jul19/Q6009195.454/D1078775522000/E272

Total Amount Of Bid For Entire Project :

Contract No. C203161

County (ies): Sampson

ACCEPTED BY THE
DEPARTMENT OF TRANSPORTATION

Contract Officer

Date

Execution of Contract and Bonds
Approved as to Form:

Attorney General

