STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

May 10, 2005

Addendum No. 1

RE: Contract ID: C201466
WBS# 34459.3.4, 34459.3.5
Combined Proposal No. 3
Johnston-Wake Counties (R-2552AA, R-2552AB, R2552C, R-2552B)
US-70 Bypass (Clayton Bypass) From I-40 To US-70 West of SR-1560.

May 17, 2005 Letting

To Whom It May Concern:

Please note that the permit drawings for the Clayton Bypass have been posted on the Department's Website under "Doing Business With NCDOT" (see the "Project Letting" link). These drawings have been posted in an 11" X 17" format for easier viewing.

Reference is made to the proposal form recently furnished to you on the above-mentioned project.

The following revisions have been made to the proposal form:

On Page No. 4 of the proposal the ending time for morning peak hour time restrictions has been revised in 'Intermediate Contract Time Number 2." Please void Page No. 4 in your proposal and staple the revised Page No. 4 thereto.

On Page No. 9 a revision has been made to the second paragraph of "Intermediate Contract Time Number10." Please void Page No. 9 in your proposal and staple the revised Page No. 9 thereto.

On Page No. 32, notes #3 and #4 were added to "Notes to Contractor." Also on Page No. 32, the project special provision entitled "Disposal of Suitable Waste" has been added. Please void Page No. 32 in your proposal and staple the revised Page No. 32 thereto.

On Page No. 36 and New Page No. 36-A, Building Removal item Nos. 11 thru 18 have been added. Please void Page No. 36 in your proposal and staple the revised Page No. 36 and New Page No. 36-A thereto.

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
CONTRACTS & PROPOSALS
1591 MAIL SERVICE CENTER
RALEIGH NC 27699-1595

TELEPHONE: 919-250-4124
FAX: 919-250-4127
WEBSITE: WWW.DOH.DOT.STATE.NC.US

LOCATION:
CENTURY CENTER COMPLEX
BUILDING B - ENTRANCE B15
1020 BIRCH RIDGE DRIVE
RALEIGH NC

On Page No. 108, the project special provision "Hazardous Waste Retention Basin" has been added. Please void Page No. 108 in your proposal and staple the revised Page No. 108 thereto.

On Page Nos. 118, 119, 131 and 132, the project special provision "Luminaire Retrieval System (LRS) Lighting for Overhead Sign Assembly" has been revised. Please void Page Nos. 118, 119, 131 and 132 in your proposal and staple the revised Page Nos. 118, 119, 131 and 132 thereto.

On Page Nos. 188 and 189, revisions were made to the project special entitled "Smart Zone Work Zone System." Please void Page Nos. 188 and 189 in your proposal and staple the revised Page Nos. 188 and 189 thereto.

On Page No. 273, a revision was made in the first paragraph of "Subsection 8.3 Construction Methods" of the project special provision "Temporary Signal for Haul Road." Please void Page No. 273 in your proposal and staple the revised Page No. 273 thereto.

On Page No. 274, the Structures Table of Contents has been revised. Please void Page No. 274 in your proposal and staple the revised Page No. 274 thereto.

On Page Nos. 350 and 351, the project special provision 'Construction, Maintenance and Removal of Temporary Access" has been revised to add the reference to "Station 14 + 38.000-L-Rev. and Station 109 + 56.000-L2LT-." Please void Page Nos. 350 and 351 in your proposal and staple the revised Page Nos. 350 and 351 thereto.

New Page Nos. 592 thru 730 have been added to include the "Buffer Permit Drawings." Please staple New Page Nos. 592 thru 730 after Page Nos. 591 in your proposal.

On Page No. 2 of the item sheets two pay items are being deleted. By copy of this addendum the following two pay items are hereby deleted: "25-0029000000-N-SP Reinforced Bridge Approach Fill, Station 97 + 46.928-L-LT" and "26-0029000000-N-SP Reinforced Bridge Approach Fill, Station 97 + 46.928-L-RT." The Contractor's bid price should include these two pay items. The Contract will be prepared accordingly.

On Page No. 3 of the original item sheets, the quantity for line item "30-0134000000-M-240 Drainage Ditch Excavation" has been revised. By copy of this addendum the quantity is hereby reduced from 74,156 M3 to 71,556 M3. The Contractor's bid price should be based on this revised pay item quantity. The Contract will be prepared accordingly.

On Page Nos. 17 and 18 of the original item sheets, by copy of this addendum, the following item description and quantity changes are hereby made:

Item Number & Description	Old Quantity	New Quantity
249-4360000000-N-SP Install LRS Lighting System for Overhead Sign Assembly D @ 150 + 80	Lump Sum	1 EA
250-4360000000-N-SP Install LRS Lighting System for Overhead Sign Assembly A @ 16 + 80.00-I1 Y1-	Lump Sum	1 EA
252-4360000000-N-SP Install LRS Lighting System for Overhead Sign Assembly D @ I-40/US-70 EBL	Lump Sum	1 EA
253-4360000000-N-SP Install LRS Lighting System for Overhead Sign Assembly E @ I-40/US-70 EBL	Lump Sum	1 EA
254-4360000000-N-SP Install LRS Lighting System for Overhead Sign Assembly F @I-40/US-70 I-40 EBL	Lump Sum	1 EA
256-4360000000-N-SP Install LRS Lighting System for Overhead Sign Assembly H @ I-40/US-70, US-70 EBL	Lump Sum	1 EA
257-4360000000-N-SP Install LRS Lighting System for Overhead Sign Assembly I @ I-40/US-70, US-70 EBL	Lump Sum	1 EA
258-436000000-N-SP-Install LRS Lighting System for Overhead Sign Assembly J @ I-40/US-70 I-40 WBL	Lump Sum	1 EA
259-4360000000-N-SP Install LRS Lighting System for Ovehead Sign Assembly K @ I-40/US-70 I-40 WBL	Lump Sum	1 EA
262-4360000000-N-SP Install LRS Lighting System for Overhead Sign Assembly O @ I-40/US-70 US-70 WBL	Lump Sum	1 EA

The Contractor's bid price must be based on these revised pay item descriptions and quantities. The Contract will be prepared accordingly

On Page No. 29 of the new item sheets, a new pay item is being added. By copy of this addendum, the following line item is hereby added: "563-2474000000-N-SP Hazardous Waste Retention Basin" (Quantity=Lump Sum)." On Page No. 36 of the item sheets, two new pay items are being added. By copy of this addendum, the following line items are hereby added: "564-8017000000-N-SP Construction, Maintenance and Removal of Temporary Access @ Station 14 + 38.000-L Rev-(Quantity=Lump Sum)" and "565-8017000000-N-SP Construction, Maintenance and Removal of Temporary Access at Station 109 + 56.000-L2LT-(Quantity=Lump Sum)." The Contractor's bid price must include these new pay items. The Contract will be prepared accordingly.

The Table of Contents has been revised to reflect the above mentioned changes. Please void the Table of Contents in your proposal and staple the revised Table of Contents thereto.

The Expedite file has been updated to reflect these revisions. Please download the Expedite addendum file and follow the instructions for applying the addendum. Bid Express will not accept your bid unless the addendum has been applied.

Sincerely,

R. A. Garris, PE.
Contract Officer

RAG/jag/pa
Attachments

cc:
Mr. W. S. Varnedoe, PE
Mr. S. D. DeWitt, PE
Mr. E. C. Powell, PE
Mr. J. H. Trogdon, PE
Ms. D. M. Barbour, PE
Mr. Art McMillan, PE
Mr. J. V. Barbour, PE
Mr. G. R. Perfetti, PE
Mr. Paul Garrett, PE
Mr. Ron King, PE
Mr. Mark Staley (2)
Mr. Aydren Flowers
Mr. R. E. Davenport, Jr., PE
Ms. Marsha Byrd
Ms. Taylor Mishoe
Project File (2)

Revised 5-10-05

CONTRACT: C201466
(R-2552AA & AB, R-2552B & C)

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INTERMEDIATE CONTRACT TIME NUMBER #2 AND LIQUIDATED DAMAGES: (FOR PROJECT R-2552AA & AB)

The Contractor shall complete the required work of installing, maintaining, and removing the traffic control devices for lane closures and restoring traffic to **the existing traffic pattern**. The Contractor shall not close or narrow a lane of traffic on **NC 42** during the following time restrictions:

Monday thru Friday
From 6:00 a.m. to 9:00 a.m.
And
From 3:00 p.m. to 8:00 p.m.

In addition, the Contractor shall not close or narrow a lane of traffic on **NC 42**, 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 any event that creates unusually high traffic volumes, as directed by the Engineer.

2. For **New Year's Day**, between the hours of **12:00 p.m. (noon)** December 31st and **10:00 a.m.** January 2nd. If New Year's Day is on Saturday or Sunday, then until **10:00 a.m.** the following Tuesday.

3. For **Easter**, between the hours of **12:00 p.m. (noon)** Thursday and **10:00 a.m.** Monday.

4. For **Memorial Day**, between the hours of **12:00 p.m. (noon)** Friday and **10:00 a.m.** Tuesday.

5. For **Independence Day**, between the hours of **12:00 p.m. (noon)** the day before Independence Day and **10:00 a.m.** the day after Independence Day.

   If **Independence Day** is on a Saturday or Sunday, then between the hours of **12:00 p.m. (noon)** the Thursday before Independence Day and **10:00 a.m.** the Tuesday after Independence Day.

6. For **Labor Day**, between the hours of **12:00 p.m. (noon)** Friday and **10:00 a.m.** Tuesday.

7. For **Thanksgiving Day**, between the hours of **12:00 p.m. (noon)** Tuesday and **10:00 a.m.** Monday.

8. For **Christmas**, between the hours of **12:00 p.m. (noon)** the Friday **before the week of Christmas Day** and **10:00 a.m.** the following Monday **after the week of Christmas Day**.

INTERMEDIATE CONTRACT TIME NUMBER 9 AND LIQUIDATED DAMAGES:
(FOR PROJECT R-2552B & C)

The Contractor shall complete the required work of installing, maintaining, and removing the traffic control devices for road closures and restoring traffic to the existing traffic pattern on **US 70 Business.**

The maximum allowable time for the road closure is **30 minutes.** The Contractor shall reopen the travel lanes to traffic until the existing traffic queue is depleted.

The time of availability for this intermediate contract time will be the time the Contractor begins to install traffic control devices required for the road closures according to the time restrictions stated above.

The completion time for this intermediate contract work will be the time the Contractor is required to complete the removal of traffic control devices required for the road closure and restore traffic to the existing traffic pattern on **US 70 Business.**

The liquidated damages are **One Thousand Dollars ($1,000.00)** per 30 minute time period.

INTERMEDIATE CONTRACT TIME NUMBER 10 AND LIQUIDATED DAMAGES:
(FOR PROJECT R-2552B & C)

The Contractor shall complete the work required of **Area IV Phase I Step 3A** as shown on Sheets **TCP-15, TCP-16 & TCP-19** and shall place and maintain traffic on same.

The time of availability for this intermediate contract time will be the **Friday at 6:00 p.m.** that the Contractor elects to begin the work excluding the period of time between Memorial Day and Labor Day.

The completion time for this intermediate contract time will be the following **Monday at 6:00 a.m.** after the **Friday** the Contractor begins work.

The completion date for this intermediate contract time shall be before Memorial Day and/or after Labor Day.

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

INTERMEDIATE CONTRACT TIME NUMBER 11 AND LIQUIDATED DAMAGES:
(FOR PROJECT R-2552B & C)

The Contractor shall complete the work required of **Area IV Phase III Step 2 and Step 3** as shown on Sheets **TCP-35 to TCP-40** and shall place and maintain traffic on same.

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

NOTES TO THE CONTRACTOR:

1. "Borrow material consisting of A-2-5 and –A-5 soils with a plasticity index less than 8 shall not be used in the top 0.3 meters of embankments nor as backfill in undercut areas unless waived in writing by the Engineer".

2. As an exception to the requirements of Article 1018-2. II(a), Coastal Plain criteria shall be used for all borrow material on the R-2552B and C portion of this project. This criteria will apply to embankments which may be constructed on this portion of the project using borrow materials in lieu of unclassified excavation as allowed by Section 230. Embankment materials excavated from within the limits of this project will not have to meet coastal plain criteria.

3. The Contractor shall submit temporary drainage plans for the excavation required for the structure at Station 14+25 -Y7- to the Engineer for approval.

   The Contractor shall install any needed temporary drainage under the proposed detour, and shall perform the Line –L- grading to either a temporary grade or to the final grade in order to drain the proposed bridge construction site. Other than the permanent excavation needed, no direct payment will be made for furnishing temporary drainage plans, or for furnishing and installing temporary drainage pipe, or other dewatering methods, as the cost of same shall be included in the unit price bid per cubic meter "Unclassified Excavation".

4. The Contractor's attention is directed to the fact that there are tires stockpiled on Parcel #38 (Carl Dean) on R-2552C . The tires are being removed by the Department. Tire removal is expected to be completed by July 15, 2005.

DISPOSAL OF SUITABLE WASTE:

Potential areas are available for disposal of a portion of the suitable waste material within the right of way of the future interchange on the I-40 end of the project. These areas are located left of Fly LE rev. Station 20+00, right of Fly LE rev. Station 12+00, and left of Fly LE rev. Station 15+00. Other areas may be available. The excavation and subsequent placement of suitable waste material in these areas shall be performed in accordance with the applicable provisions of Sections 225 and 802 of the Specifications.

Building Removal (Item No. 6)
Parcel 903
Right of approximate Survey Station 16+20, Survey Line FLYLW Rev
One Story Frame Dwelling

Building Removal (Item No. 7)
Parcel 903
Right of approximate Survey Station 16+30, Survey Line FLYLW Rev
Shed

Building Removal (Item No. 8)
Parcel 14
Right of approximate Survey Station 11+30, Survey Line FLYLW Rev
One Story Frame Dwelling

Building Removal (Item No. 9)
Parcel 14
Right of approximate Survey Station 10+95, Survey Line FLYLW Rev
Barn

Building Removal (Item No. 10)
Parcel 901
Left of approximate Survey Station 10+25, Survey Line FLYLW Rev
Barn

Building Removal (Item No. 11)
Parcel 008
Right of Survey Station 18+65, Survey Line –Y2-
Barn

Building Removal (Item No. 12)
Parcel 008
Right of Survey Station 18+80, Survey Line –Y2-
One Story Brick Dwelling

Building Removal (Item No. 13)
Parcel 008
Right of Survey Station 19+25, Survey Line –Y2-
Double Wide Mobile Home

Building Removal (Item No. 14)
Parcel 010
Right of Survey Station 141+36, Survey Line –Y2-
Shed

Building Removal (Item No. 15)
Parcel 010
Right of Survey Station 20+20, Survey Line –Y2-
One Story Brick Dwelling

Building Removal (Item No. 16)
Parcel 010
Right of Survey Station 20+40, Survey Line –Y2-
Garage with Shelter

Building Removal (Item No. 17)
Parcel 010
Left of Survey Station 17+60, Survey Line –Y2-
Pool House

Building Removal (Item No. 18)
Parcel 016
Left of Survey Station 19+30, Survey Line –Y2-
Single Wide Mobile Home

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

When the description of the work for an item requires a portion of the building to be cut off, that portion of the buildings and appurtenances located within the right of way and/or construction area shall be cut off by the Contractor and disposed of by him. The Engineer will denote on the building the line where the building is to be cut off. The Contractor will be required to cut the building off on a neat line along the construction line or right of way boundary designated by the Engineer. The Contractor will not be required to do any repairing to that portion of the building located outside the right of way or construction area or to shore it up in any respect. All of the Contractor's work shall be confined to the right of way and construction area designated by the Engineer.

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.

SP16R01

HAZARDOUS WASTE RETENTION BASIN: **05-18-04**

The Contractor shall construct a hazardous waste retention basin in accordance with the detail in the plans, at the location shown in the plans and as directed by the Engineer.

Retention basin shall be constructed to provide the capacity and freeboard shown in the detail.

Payment for the work of constructing the hazardous waste retention basin will be made at the contract lump sum price for "Hazardous Waste Retention Basin." Such price and payment will be full compensation for all excavation, hauling and satisfactory disposal of earth material and all incidentals necessary to complete the work.

SPI

R-2552 AA/AB
05/02/05

Revised 5-10-05

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Luminaire Retrieval System (LRS) Lighting For Overhead Sign Assembly

General:

Performance of this work shall comply with the requirements of sections 905, 1097, and other applicable sections of the North Carolina Department of Transportation's Standard Specifications for Roads and Structures.

Luminaire Retrieval System (LRS) Lighting Design and/or installation:

The lighting design shall be engineered to meet the requirements of section 905 and 1097 of the 2002 NC *Standard Specifications for Roads and Structures* in an energy efficient and cost effective manner.

LRS manufacturer shall design the lighting for all structures requiring LRS. The following provisions shall be provided to the LRS manufacturer:

a) section 905 and 1097 of the 2002 NC *Standard Specifications for Roads and Structures*
b) structure line drawings for all structures requiring LRS.
c) The Contractor shall ensure that coordination is established between the OHS assembly and Luminaire Retrieval System Fabricators so that a fully functional sign and lighting system is installed. The Contractor shall be fully responsible for any OHS assembly and Luminaire Retrieval System incompatibilities, or installation of a lighting system not functioning to its intended purpose.

A point-by-point lighting analysis of each overhead assembly lighting system shall be submitted for approval.

Catalog Cut Submittals:

Catalog cut transmittals shall be generated using the NCDOT Signing Section's online qualified products list (SQPL). The online SQPL is located at:

http://www.doh.dot.state.nc.us/preconstruct/traffic/congestion/SIGN/qpl/qpl.html

If a product complies with the requirements of the NCDOT Standard Specifications for Roads and Structures and isn't contained in the online SQPL, the submittal process guidelines are online at:

http://www.doh.dot.state.nc.us/preconstruct/traffic/congestion/SIGN/qpl/equipment_submittal.html

Luminaire retrieval system shop drawings shall be submitted directly to the NCDOT signing section for review and approval.

Luminaire Retrieval System:

Overhead sign structure luminaires are to be installed on a luminaire retrieval system with supports and electrical system designed for track mounted luminaires. The retrieval system must be capable of securely holding all sign luminaires at their designed positions and to allow all luminaires and electrical connections to be maintained from the roadway shoulder without lane closures. Electrical connections for the luminaires are to be arranged to allow each luminaire to be energized while over the shoulder for testing purposes. The system shall be capable of utilizing more than one circuit if required by the plans. A service pole for mounting electric meter, Walkways, handrails and associated equipment will not be required with the luminaire retrieval system.

A possible source of this product is:

Lumi Trak Inc.
P.O. Box 158
Shrewsbury, PA 17361
(717) 235-2863

Compensation for Lighting on Assemblies "C","G","L", and "M":

Luminaire Retrieval System (LRS) is part of the Sign Lighting System and shall not be paid for separately. The work performed as described above shall be paid for at the contract lump sum price for each LRS Lighting System for Overhead Sign Assembly.

Luminaire Retrieval System for overhead Assemblies "C","G","L", and "M" shall be furnished and installed by the contractor.

Payment will be made under:

LRS LIGHTING SYSTEM FOR OVERHEAD SIGN ASSEMBLY "C" ..... Lump Sum
LRS LIGHTING SYSTEM FOR OVERHEAD SIGN ASSEMBLY "G" ..... Lump Sum
LRS LIGTHIHG SYSTEM FOR OVERHEAD SIGN ASSEMBLY "L" ..... Lump Sum
LRS LIGHTIHG SYSTEM FOR OVERHEAD SIGN ASSEMBLY "M" ..... Lump Sum

Compensation for Lighting on Assemblies "A","D","E","F","H","I","J","K", and "O":

Luminaire Retrieval System (LRS) for overhead Assemblies "A","D","E","F","H","I","J","K", and "O" shall be furnished by NCDOT and installed by the contractor. The Contractor shall notify the Resident Engineer in writing of the date he requires any Departmental furnished Luminaire Retrieval Systems (LRS) to be made available. This notification should be made in writing a minimum of 30 days prior to the date the Contractor desires the Department furnished LRS's. The Resident Engineer shall notify the Traffic Engineering Signing Unit as soon as the Contractor has given this notification. The preceding LRS's are stocked at LumiTrak (at the above address) and the Contractor is responsible for delivery.

After notification that the requested Luminaire Retrieval Systems are available, the Contractor shall have a maximum of 90 calendar days to pick up the Department furnished Luminaire Retrieval Systems.

Payment will be made under:

INSTALL LRS ON OVERHEAD SIGN ASSEMBLY "A" ..... Each
INSTALL LRS ON OVERHEAD SIGN ASSEMBLY "D" ..... Each
INSTALL LRS ON OVERHEAD SIGN ASSEMBLY "E" ..... Each
INSTALL LRS ON OVERHEAD SIGN ASSEMBLY "F" ..... Each
INSTALL LRS ON OVERHEAD SIGN ASSEMBLY "H" ..... Each
INSTALL LRS ON OVERHEAD SIGN ASSEMBLY "I" ..... Each
INSTALL LRS ON OVERHEAD SIGN ASSEMBLY "J" ..... Each
INSTALL LRS ON OVERHEAD SIGN ASSEMBLY "K" ..... Each
INSTALL LRS ON OVERHEAD SIGN ASSEMBLY "O" ..... Each

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Revised 5-16-05

Luminaire Retrieval System (LRS) Lighting For Overhead Sign Assembly

General:

Performance of this work shall comply with the requirements of sections 905, 1097, and other applicable sections of the North Carolina Department of Transportation's Standard Specifications for Roads and Structures.

Luminaire Retrieval System(LRS) Lighting Design and/or installation:

The lighting design shall be engineered to meet the requirements of section 905 and 1097 of the 2002 NC *Standard Specifications for Roads and Structures* in an energy efficient and cost effective manner.

LRS manufacturer shall design the lighting for all structures requiring LRS. The following provisions shall be provided to the LRS manufacturer:

a) section 905 and 1097 of the 2002 NC *Standard Specifications for Roads and Structures*
b) structure line drawings for all structures requiring LRS
c) The Contractor shall ensure that coordination is established between the OHS assembly and Luminaire Retrieval System Fabricators so that a fully functional sign and lighting system is installed. The Contractor shall be fully responsible for any OHS assembly and Luminaire Retrieval System incompatibilities, or installation of a lighting system not functioning to its intended purpose.

A point-by-point lighting analysis of each overhead assembly lighting system shall be submitted for approval.

Catalog Cut Submittals:

Catalog cut transmittals shall be generated using the NCDOT Signing Section's online qualified products list (SQPL). The online SQPL is located at:

http://www.doh.dot.state.nc.us/preconstruct/traffic/congestion/SIGN/qpl/qpl.html

If a product complies with the requirements of the NCDOT Standard Specifications for Roads and Structures and isn't contained in the online SQPL, the submittal process guidelines are online at:

http://www.doh.dot.state.nc.us/preconstruct/traffic/congestion/SIGN/qpl/equipment_submittal.html

Luminaire retrieval system shop drawings shall be submitted directly to the NCDOT signing section for review and approval.

Luminaire Retrieval System:

Overhead sign structure luminaires are to be installed on a luminaire retrieval system with supports and electrical system designed for track mounted luminaires. The retrieval system must be capable of securely holding all sign luminaires at their designed positions and to allow all luminaires and electrical connections to be maintained from the roadway shoulder without lane closures. Electrical connections for the luminaires are to be arranged to allow each luminaire to

be energized while over the shoulder for testing purposes. The system shall be capable of utilizing more than one circuit if required by the plans. A service pole for mounting electric meter, Walkways, handrails and associated equipment will not be required with the luminaire retrieval system.

A possible source of this product is:

Lumi Trak Inc.
P.O. Box 158
Shrewsbury, PA 17361
(717) 235-2863

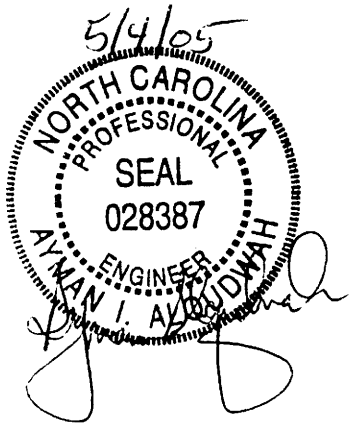
Compensation for Lighting on Assembly "D":

Luminaire Retrieval System (LRS) for overhead Assembly "D" shall be furnished by NCDOT and installed by the contractor. The Contractor shall notify the Resident Engineer in writing of the date he requires any Departmental furnished Luminaire Retrieval System (LRS) to be made available. This notification should be made in writing a minimum of 30 days prior to the date the Contractor desires the Department furnished LRS. The Resident Engineer shall notify the Traffic Engineering Signing Unit as soon as the Contractor has given this notification. The preceding LRS's are stocked at LumiTrak (at the above address) and the Contractor is responsible for delivery.

After notification that the requested Luminaire Retrieval System is available , the Contractor shall have a maximum of 90 calendar days to pick up the Department furnished Luminaire Retrieval System.

Payment will be made under:

INSTALL LRS ON OVERHEAD SIGN ASSEMBLY "D" ..... Each



This project will require the "SMART ZONE" work zone system to notify the Incident Management Staff in Division 4 and 5, Resident Engineer's office, and Traveler Information Management System (TIMS) once the delay along I-40 exceeds 25 minutes or a mutually agreed upon delay. The contact Incident Management contact in Division 4 is Brian Purvis at 252 296-3543 and in Division 5 is Archie Wells at 919 233-9331. The contact person at the Resident Engineer's office in Selma is Mike McKeel (MMcKeel@dot.state.nc.us) at 919 934-5863. Contact JoAnn Oerter at 919 233-9331 ext. 233 for integration of SMARTZONE data with the Traveler Information Management System (TIMS).

B. 'SMART ZONE' Work Zone system Requirements

The 'SMART ZONE' work zone system shall consist of but, not limited to the following (as a minimum): (See Traffic Control Plans, sheet TCP-45 – TCP-47).

The exact locations of all devices shall be submitted to the Resident's Office for approval prior to installing the system.

- 7 portable changeable message signs remotely controlled via a computer station.

- 10 portable traffic sensors linked to a computer station.

- 4 temporary Closed Circuit Television Cameras (CCTV) be link to the computer station and to the Triangle Regional Traffic Management Center (TRTMC) in Raleigh and the website. These cameras shall provide continuous streaming video imaging at a minimum rate of 10 frames/sec. The DEPARTMENT's authorized staff shall be able to control the cameras through a full function of pan/tilt/zoom via the projects dedicated website.

-1 computer station equipped with appropriate software and either wireless or dedicated phone line communications to "link" with the 'SMART ZONE' work system.

-12 pagers to provide notification to designated personnel in the Selma Resident Engineer's Office (3), Contractors Office (2), SMART ZONE Contractor (1), TRTMC (2), Incident Management Offices in Division 4 and 5 (2), and Traveler Information Management System (TIMS) (2). If personnel prefers, connect to an existing pager.

- Provide a database of accurate real-time data that is accessible to the DEPARTMENT by a secure connection for integration into the www.ncsmartlink.org traveler information website. The database should include, but is not limited to, messages being displayed on portable Changeable Message Signs (CMS), images from the temporary Closed Circuit Television Cameras (CCTV), average travel speed and lane occupancy from the portable detector stations. Coordinate for the integration into www.ncsmartlink.org with Jeffery Dale at 919 715-8628 and David Alford at 919 250-4177.

- Provide a project specific, secure web site for the DEPARTMENT that allows for operation of the equipment included in the SMART WORK ZONE. This web site will provide tiered access that allows the user functions that include, but are not limited to,

pan-tilt-zoom control of the portable CCTV, full messaging control of the portable CMS, and monitoring capabilities of the detection equipment.

- For quality assurance purposes, the 'SMART ZONE' work zone system shall be capable of providing current operational status (i.e. current traffic data and messages, communications system, signs and sensors) via the internet to a dedicated password protected project web-site established for the purpose of monitoring the corridor and the 'SMART ZONE' work zone system equipment.

- The web-site shall have the capability of providing a password protected "link" for approved personnel to have access to retrieve the volume and speed data the system is collecting.

- The website for the monitoring of the 'SMART ZONE' work zone system shall be capable of verifying and validating the real-time messages on the Changeable Message Boards for password approved personnel.

- The 'SMART ZONE' work zone system software shall be configured so that appropriate personnel are notified by pager and email once a malfunction has occurred in the system. The software shall be configured to assess any type of malfunction that has occurred. This assessment includes communication disruption between any device in the system configuration, changeable message board malfunctioning, speed sensor malfunction, etc. The 'SMART ZONE' work zone system shall be capable of notifying the Resident Engineer's office and both the Contractor and SMART ZONE representative about any system malfunction.

C. Materials

All materials used shall meet the manufacturer's specifications and recommendations.

D. Construction Methods

The provisions of Article 1105-3 in the North Carolina Standard Specifications for Roads and Structures (2002) will be applicable to the work covered by this section. In addition, the below requirements are to be met.

- The 'SMART ZONE' work zone system shall utilize North Carolina approved portable Changeable Message Signs (CMS) to convey real-time traffic condition information to motorists.
- The 'SMART ZONE' work zone system shall operate continuously (24 hours, 7 days a week) when deployed on the project. It shall be in the "data collection" mode when the queue sensors aren't activated.
- The "real time" delay information displayed on the CMS's is to be updated every minute.
- To support incident management, the 'SMART ZONE' work zone system shall allow the Division 4 and 5 Incident Management staff to manually override motorists information messages for a user-specified duration, after which automatic operation will resume with display of messages appropriate to the prevailing traffic conditions.

All traffic signal equipment must be in compliance with the plans provided by NCDOT (plans will be provided upon request from the contractor), the project special provisions, and the 2002 Standard Specifications for Roads and Structures.

Assume ownership of all signal equipment upon removal of temporary haul road traffic signal.

8.3. CONSTRUCTION METHODS

NCDOT will provide required temporary traffic signal plans 30 days after written request is submitted to the Engineer. Plan request shall consist of the following: map showing exact location of the haul road intersection on SR 1560 (Ranch Road), speed limit to be posted during operation, grade of each approach, times haul road will be in operation and estimated duration of hauling activities.

Ensure that the signal meets the physical display and operational requirements of conventional traffic signals as specified in PART IV of the *Manual on Uniform Traffic Control Devices (MUTCD)* and the *North Carolina Supplement to the MUTCD* in effect on the date of advertisement.

Allow only trained operators to install and operate the signal. Provide for an experienced operator at all times during periods of manual operation. Do not violate yellow change and red clearance intervals during periods of manual operation. During manual operation, ensure the operator has an unobstructed view of the motorists and all signal head units. Locate the operator as close to the center of the operation as possible.

Perform all maintenance operations required by the manufacturer. Have properly skilled and trained maintenance personnel available to maintain the system in good working order and to perform all emergency and preventive maintenance as recommended by the equipment manufacturer.

Furnish the Engineer with the name, office telephone number, cellular (mobile) telephone number, and pager number of the supervisory employee who will be responsible for maintenance and repair of equipment during all hours.

In the event that the signal becomes inoperative be prepared at all times to revert to a flagging operation or suspend all construction activities requiring the use of the temporary traffic signal until the signal is restored to proper operation.

Place signal in flash mode when haul road is not in operation. All inappropriate signs shall also be removed, covered, folded or turned so that they are not readable by oncoming traffic.

Remove signal within two weeks of completion of work requiring haul road crossing.

8.4. BASIS OF PAYMENT

There will be no direct payment for the work covered in this section. Payment at the contract unit prices for various items in the contract will be full compensation for all work covered by this section.

Revised 5-10-05

Project Special Provisions
Structures & Culverts

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CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STATIONS 14+38.000 -LREV- 40+80.000 -L-, & 109+56.000 -L2LT- (2-14-04)

1.0 GENERAL

Construct, maintain, and remove the temporary access required to provide the working area necessary to construct the bridge and, if applicable, remove an existing bridge. Temporary access may include other methods than those outlined in this Special Provision; however, all types of temporary access are required to meet the requirements of all permits, the Standard Specifications, and this Special Provision.

2.0 TEMPORARY ROCK CAUSEWAY [WORKPAD]

If detailed on the plans, construction of a temporary rock causeway [workpad] within the limits shown on the plans is permitted. Build the causeway [workpad] with Class II riprap topped by a layer of Class A riprap or as otherwise designated on the plans or approved by the Engineer. If desired, recycle the Class II riprap used in the causeway [workpad] for placement in the final riprap slope protection as directed by the Engineer. No payment will be made for recycled riprap as this material is considered incidental to the causeway [workpad] placement and removal. If this option is exercised, no adjustment in contract bid price will be allowed due to an underrun in the quantity of "Plain Rip Rap Class II (2'-0" (600 mm) Thick)".

Completely remove all causeway [workpad] material including pipes and return the entire causeway [workpad] footprint to the original contours and elevations within 90 days of the completion of the deck slab or as otherwise required by permits.

For sites affected by moratoriums of restrictions on in-stream work: Do not construct or remove causeway [workpad] during the moratorium period shown on the permit. If the completion of the deck slab falls within the prohibitive dates for causeway [workpad] construction or removal, begin causeway [workpad] removal immediately following the prohibitive dates.

3.0 TEMPORARY WORK BRIDGE

If noted on the plans, the construction of a temporary work bridge is permitted. Submit details of the temporary work bridge to the Engineer prior to constructing the work bridge to ensure conformance with the plans and all permits. Make certain that the temporary work bridge satisfies all permits. Completely remove the temporary bridge prior to final acceptance or as otherwise required by the permits.

If a causeway [workpad] is detailed on the plans, the construction of a temporary work bridge in lieu of the causeway [workpad] is permitted. If this option is exercised, prepare all necessary documents required for permit modifications, if any.

4.0 BASIS OF PAYMENT

Payment for the temporary work bridge and haul road of the right lane bridge at Station 110+37.000 –L2RT- shall be included in the Lump Price For Construction Maintenance and Removal of Temporary Access at Station 109+56.000 –L2LT-.

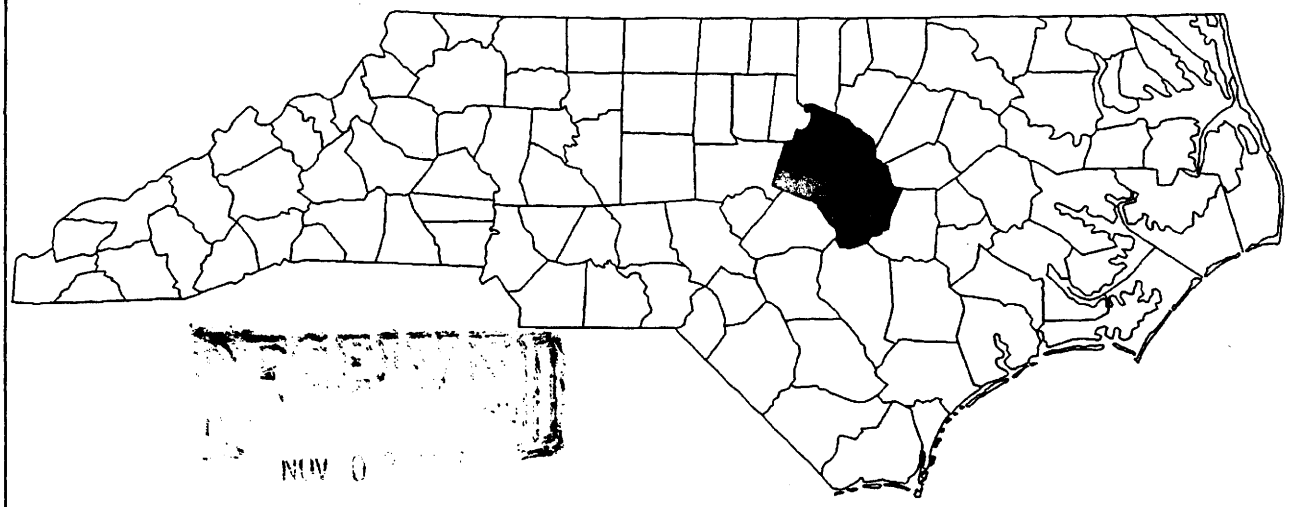
The lump sum price bid for "Construction, Maintenance and Removal of Temporary Access at Station _____" will be full compensation for the above work, or other methods of access, including all material, pipes, work bridge components, equipment, tools, labor, disposal, and incidentals necessary to complete the work.

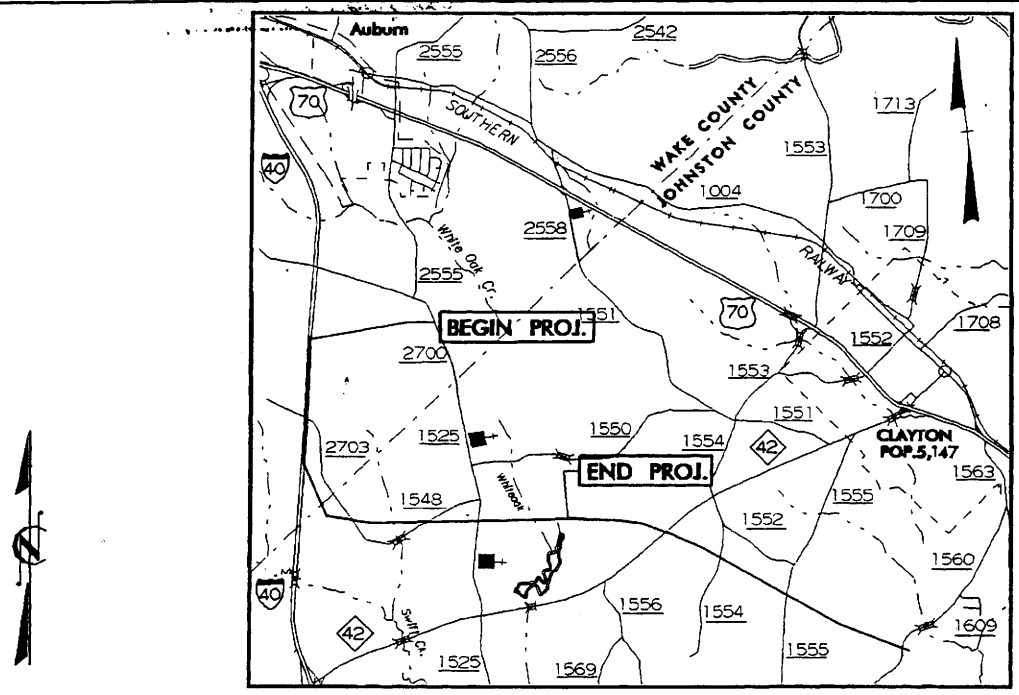
METRIC STRUCTURAL STEEL **(10-12-01)**

The structural steel for this project is specified in SI (Metric) units with plate thickness designated in millimeters in accordance with AASHTO M160M.

The substitution of structural steel in US Customary nominal thickness is permitted for primary and secondary members defined as follows:

- Primary members - members such as webs and flanges of plate girders, transverse and bearing stiffeners, girder field splice plates, and connector plates for curved girders.
- Secondary members - members such as connector plates for straight girders, bearing plates and miscellaneous hardware.





NEUSE RIVER BUFFER

VICINITY MAP

NCDOT

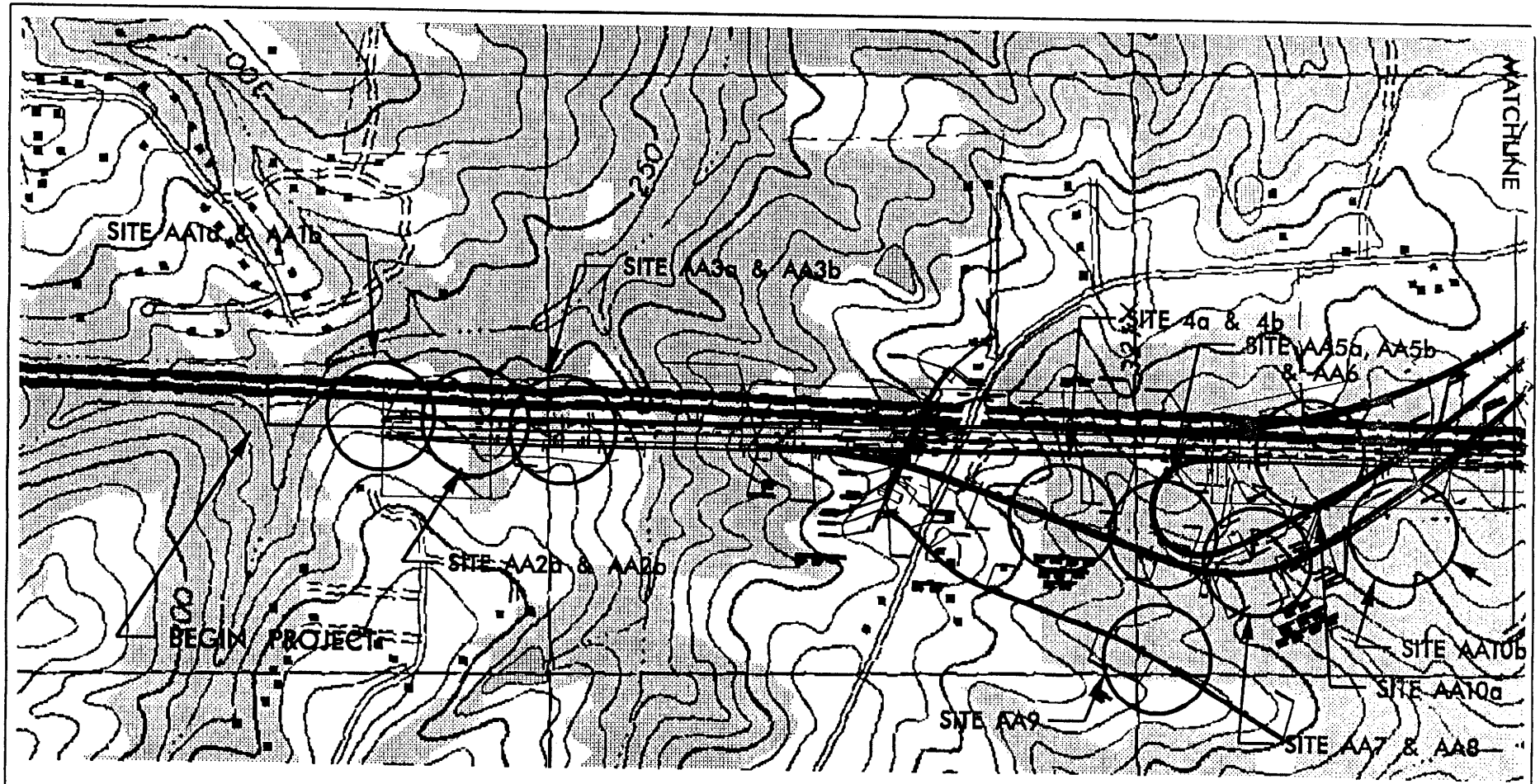
DIVISION OF HIGHWAYS

JOHNSTON COUNTY

PROJECT: WBS 34459.1.1 (R-2552AA)

US 70 CLAYTON BYPASS

SHEET 1 OF 15 **10/01/04**



SITE MAP

NCDOT

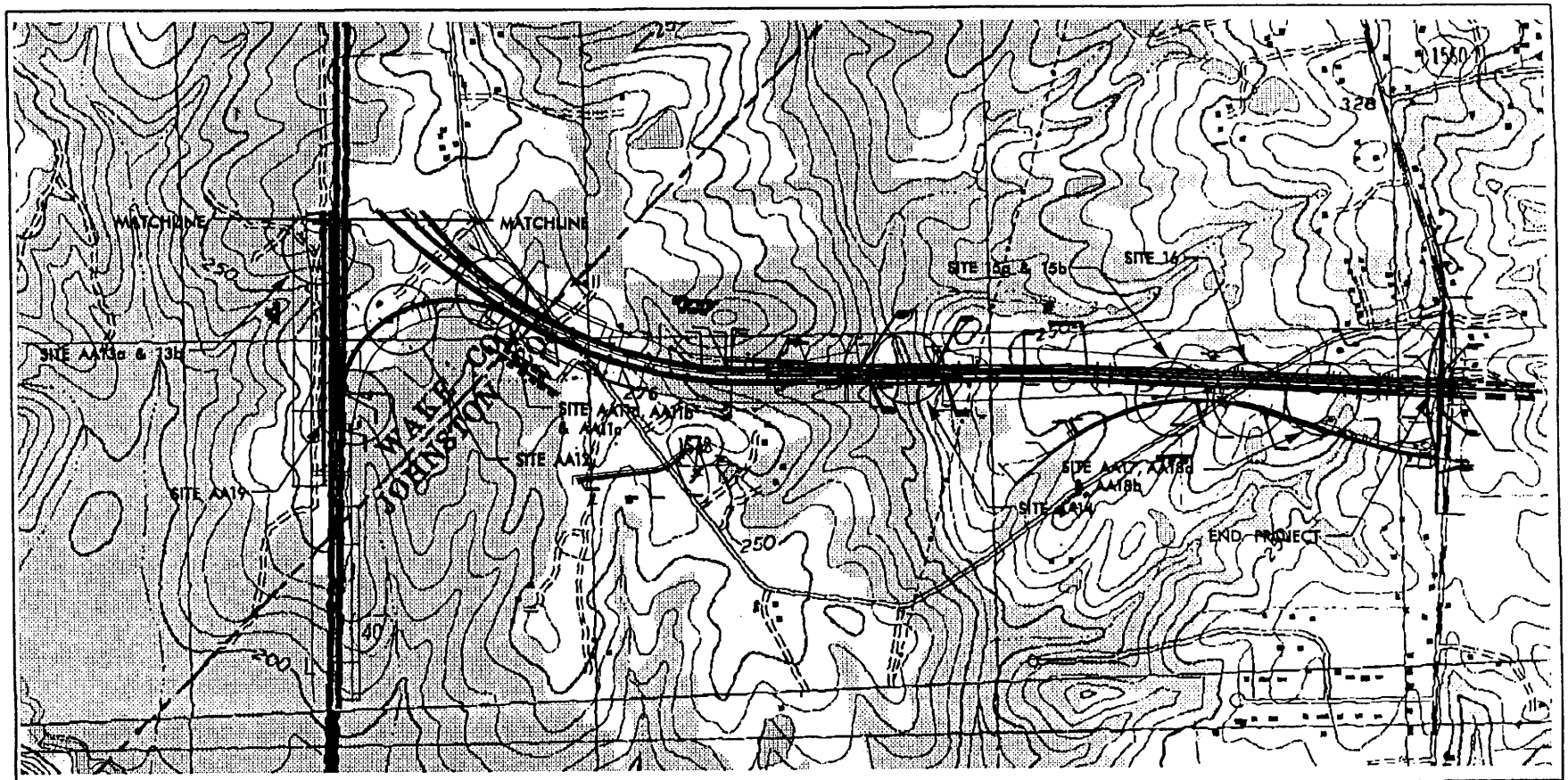
DIVISION OF HIGHWAYS

WAKE / JOHNSTON COUNTY

PROJECT: 34459.1.1 (R-252AA)

US 70 CLAYTON BYPASS

SHEET ~ OF 18 10/01/04



SITE MAP

NCDOT

DIVISION OF HIGHWAYS

WAKE / JOHNSTON COUNTY

PROJECT: 34459.1.1 (R-252AA)

US 70 CLAYTON BYPASS

SHEET 3 OF 18 **10/01/04**

BUFFER IMPACTS SUMMARY

SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	IMPACT TYPE: ROAD CROSSING	IMPACT TYPE: PARALLEL IMPACT	ALLOWABLE: ZONE 1 (ft^2)	ALLOWABLE: ZONE 2 (ft^2)	ALLOWABLE: TOTAL (ft^2)	MITIGABLE: ZONE 1 (ft^2)	MITIGABLE: ZONE 2 (ft^2)	MITIGABLE: TOTAL (ft^2)	BUFFER REPLACEMENT: ZONE 1 (ft^2)	BUFFER REPLACEMENT: ZONE 2 (ft^2)
AA1a	600 RCP	I1Y1 10+90	X		430.56	2611.00	3041.56					
AA1b	600 RCP	I1Y1 10+90	X		2124.80	1765.28	3890.08					
AA3a	1350 CSP	I1Y1 13+70	X		3717.85	4049.38	7767.23					
AA3b	1350 CSP	I1Y1 13+70	X		4111.81	4391.68	8503.49					
AA4a	750 RCP	I1Y1 20+90	X					11348.39	8144.73	19493.12		
AA4b	900 RCP	FLYLEREV 29+50	X					8830.17	6469.65	15299.82		
AA5a	750 RCP	LPB 21+90	X					41580.88	32338.05	73918.93		
AA5b	900 RCP	FLYLEREV 28+20	X					0.00	10.76	10.76		
AA10a	800 CSP	FLYLWREV 23+20	X					11797.25	9601.41	21398.66		
AA10b	BRIDGE	FLYLEREV 24+45	X				—	18155.59	14593.60	32749.19		
TOTAL:					10385.02	12817.34	23202.36	91712.28	71158.20	162870.48		

NOTE : WETLAND IMPACT IN BUFFER ZONES

SITE	1	2
1b	107.60	0.00
4b	107.60	0.00
5b	193.68	107.60
6	107.60	322.80
10a	215.20	0.00
10b	538.00	107.60

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

WAKE / JOHNSTON COUNTY
PROJECT # - WBS 34459.1.1 (R2552AA)
US 70 - CLAYTON BYPASS

38278
SHEET 7 OF 18

595

BUFFER IMPACTS SUMMARY

SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	IMPACT TYPE: ROAD CROSSING	IMPACT TYPE: PARALLEL IMPACT	ALLOWABLE: ZONE 1 (ft^2)	ALLOWABLE: ZONE 2 (ft^2)	ALLOWABLE: TOTAL (ft^2)	MITIGABLE: ZONE 1 (ft^2)	MITIGABLE: ZONE 2 (ft^2)	MITIGABLE: TOTAL (ft^2)	BUFFER REPLACEMENT: ZONE 1 (ft^2)	BUFFER REPLACEMENT: ZONE 2 (ft^2)
AA11b	1500 RCP	FLYLEREV 18+00	X					46633.03	32446.41	79079.44		
AA11c	450 RCP	FLYLEREV 18+40 LT	X					SEE AA11b FOR SITE TOTAL				
AA13	600 RCP	I1Y1 30+80	X		3719.82	5908.53	9628.35					
AA14	BRIDGE	LREV 14+50	X					18513.82	15333.94	33847.76		
AA15a	1050 RCP\	L 21+10	X		5571.94	4047.45	9619.39					
AA15b	1050 RCP	Y2B 12+70	X					6284.08	8147.74	14431.82		
AA16	750 RCP	L 23+00	X					27648.93	19748.98	47397.91		
AA18a	1200 RCP	L 25+80	X					28645.56	18336.32	46981.88		
AA18b	1350 RCP	Y2B 16+00	X					8818.38	6898.70	15717.08		
AA19	750 RCP	I1Y1 33+90 LT	X		2164.73	1921.68	4086.41					
TOTAL:					11456.49	11877.66	23334.15	136543.80	100912.09	237455.89		
PROJECT TOTALS					21841.51	24695.00	46536.51	228256.08	172070.29	400326.37		

NOTE : WETLAND IMPACT IN BUFFER ZONES

		1	2
SITE	11	39338.56	15193.12
	14	17775.52	11975.88
	16	2690.00	0.00

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

WAKE / JOHNSTON COUNTY
PROJECT # - WBS 34459.1.1 (R2552AA)
US 70 - CLAYTON BYPASS

10/18/04
SHEET 5 OF 18

MATCHLINE TO SHEET 5 -ITI- STA 13+60.000

PROJECT REFERENCE NO. R-2524A | SHEET NO. 4
E/W SHEET NO. | 45
ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER
PRELIMINARY PLANS
Do Not Use For Construction
METRIC
CONSTR. E/W NO.

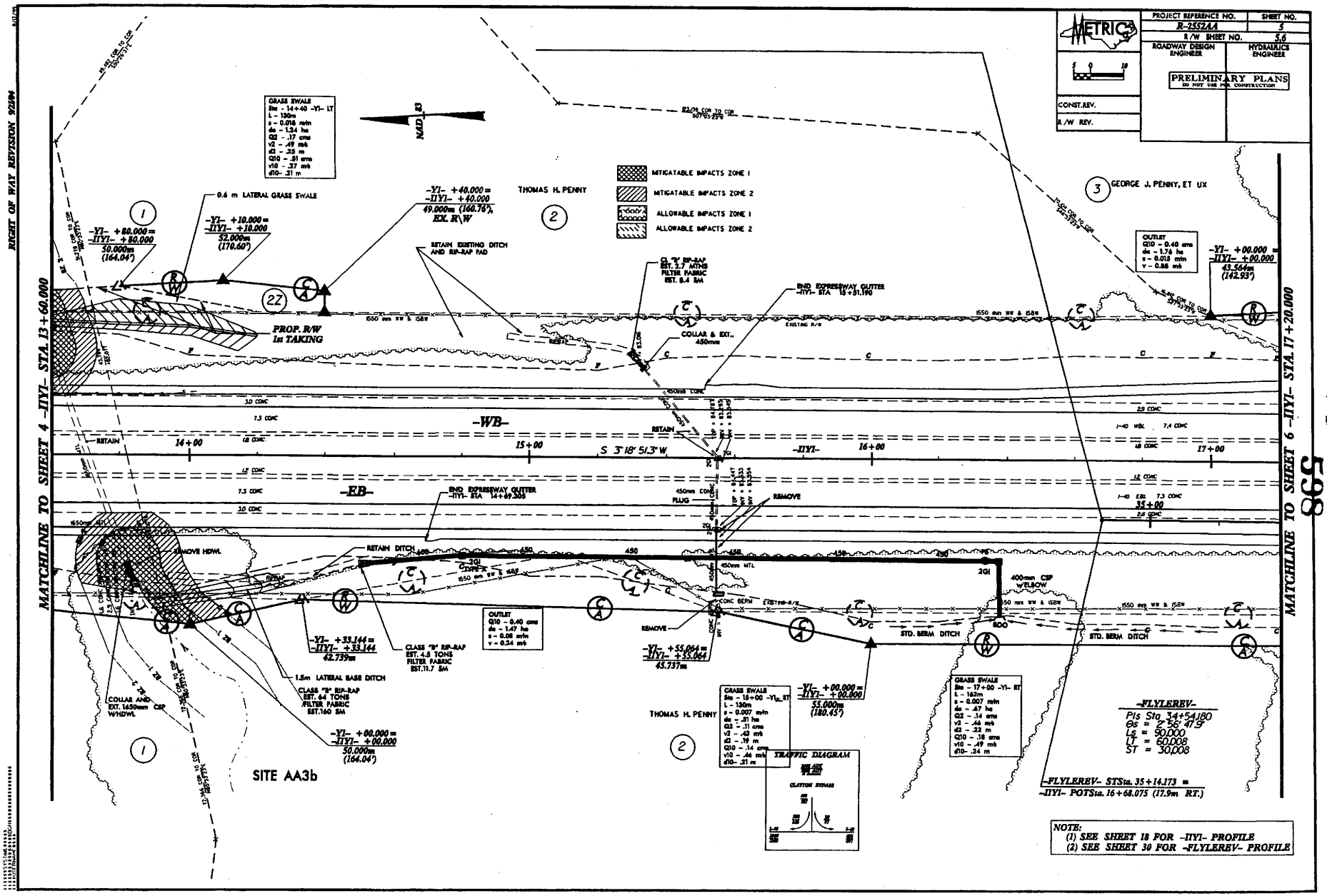
SITE AA3a
SITE AA2a
SITE AA2b
SITE AA1a
SITE AA1b

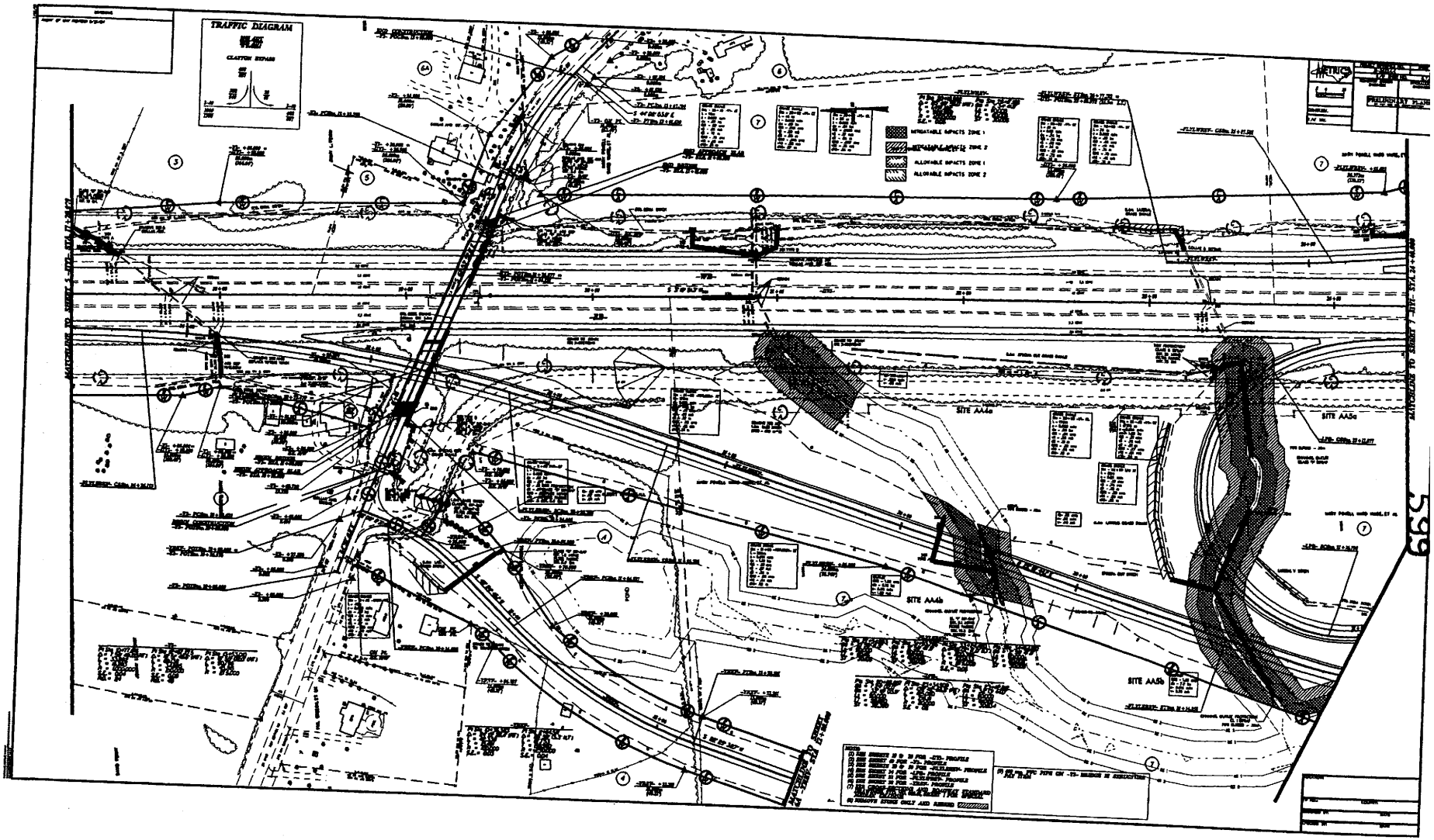
EVA M. WALTERS

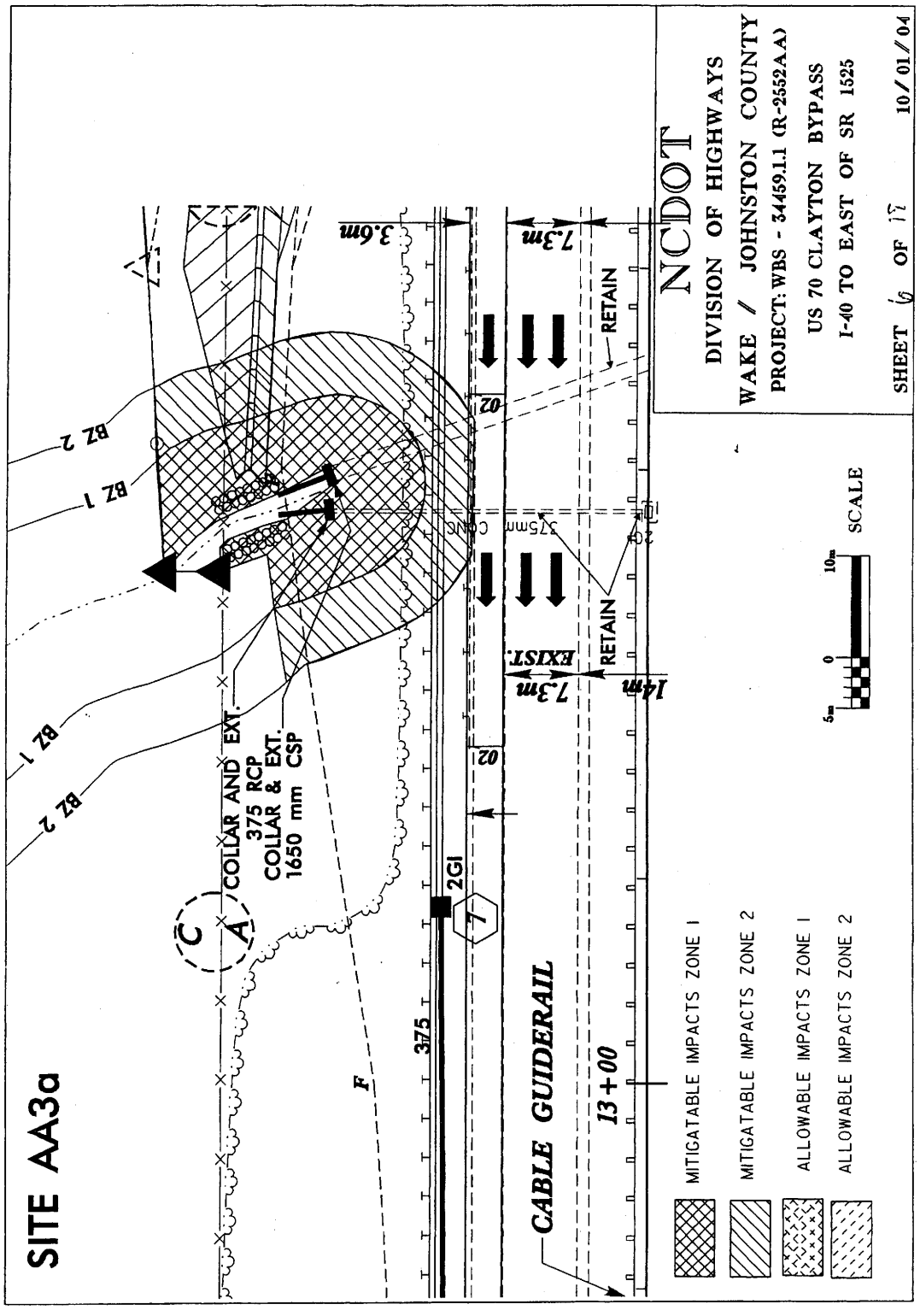
MITIGATABLE IMPACTS ZONE 1
MITIGATABLE IMPACTS ZONE 2
ALLOWABLE IMPACTS ZONE 1
ALLOWABLE IMPACTS ZONE 2

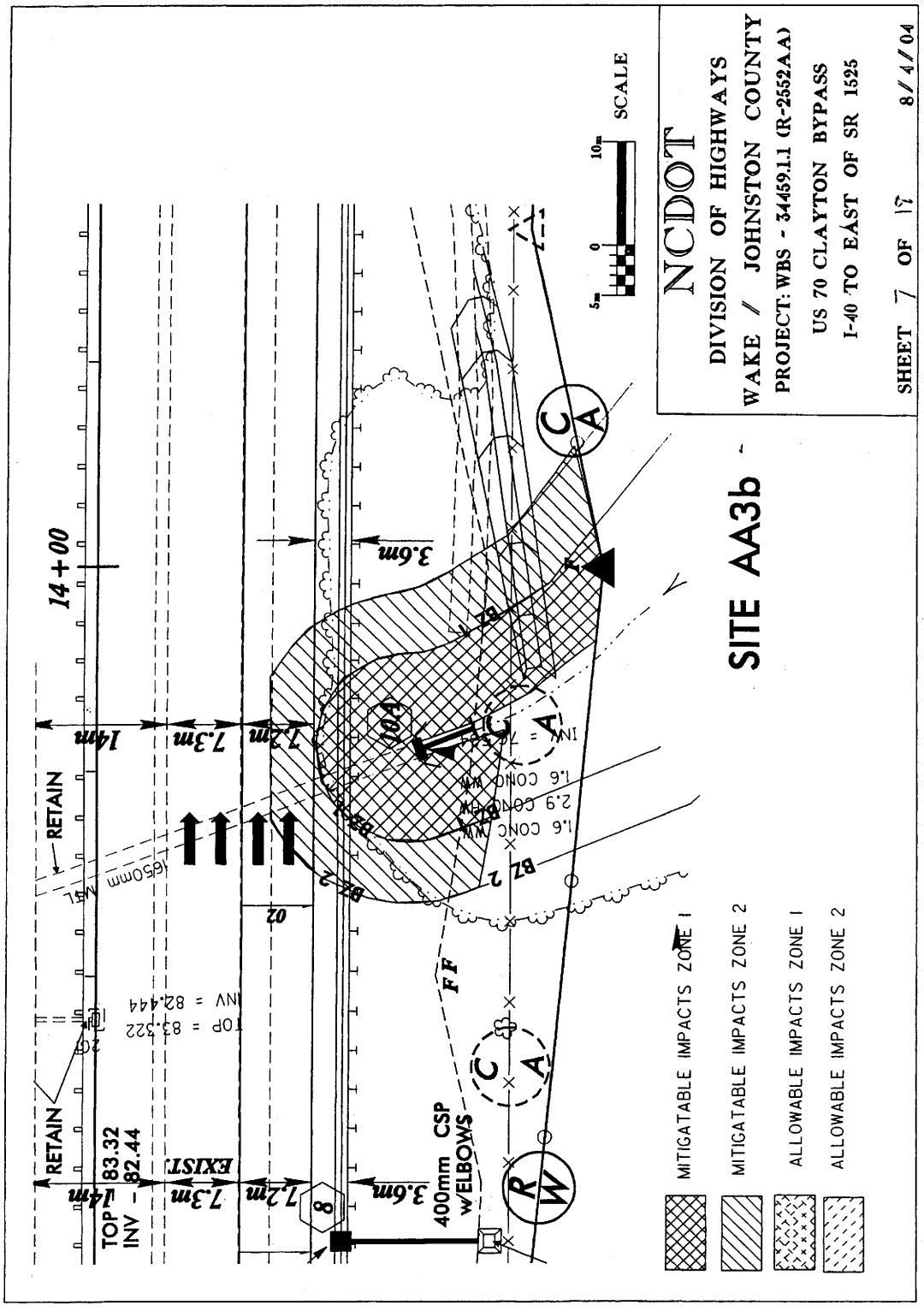
-ITI- +58.000
42.706m
(140.11')
48.000m
(157.48')
CLASS "B" RIP-RAP
CLASS "A" RIP-RAP
CLASS "B" RIP-RAP
FILTER FABRIC
-ITI- +11.544 =
-IT1- +11.544
41.550m
(136.32')
-YI- +04.544 =
-IY1- +04.544
41.550m
(136.32')
-WB-
-EB-
S 3°18' 54.3" W
12+00
13+00
RETAIN
RETAIN HOW
BEGIN CONSTRUCTION
-ITI- POT STA. 11+41.00
BEGIN DRIVEWAY CUTTING
-IRT- STA. 11+41.00
GRADE TO DRAIN
GRASS SWALES
Sta. 11+60 -YI- RT
L = 90m
i = 0.006 m/m
Q2 = .29 cms
Q10 = .34 cms
Q25 = .38 cms
V2 = .15 m/s
V10 = .16 m/s
V25 = .17 m/s
PSH - 1.2 X 1.2m
PSH - 1.2 X 1.5m
400mm CIP
1650 mm CIP
CONCRETE OUTLET PROTECTION
BEGIN DRIVEWAY CUTTING
-IRT- STA. 13+30.00
NOTE:
(1) SEE SHEET 17 FOR -ITI- PROFILE

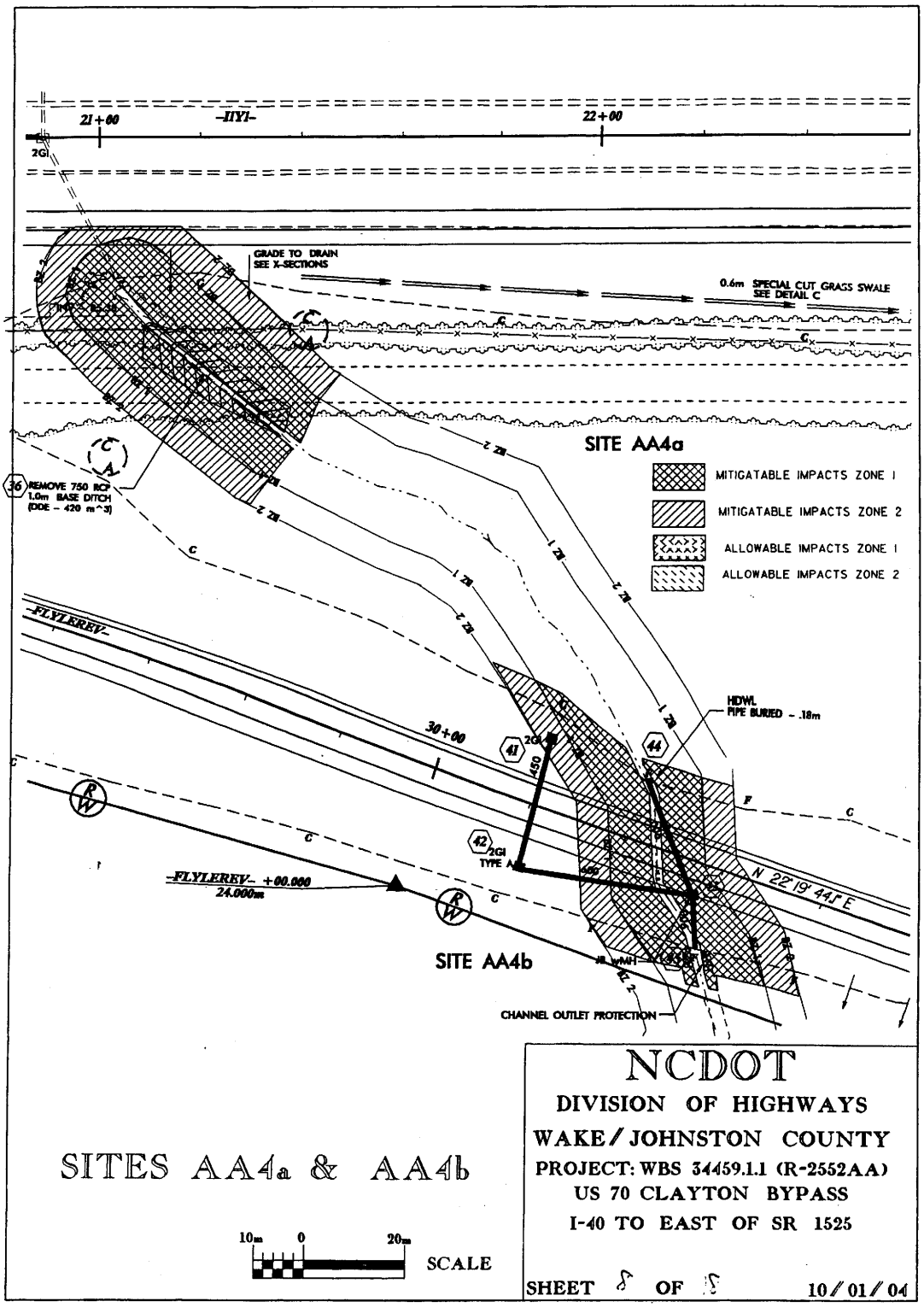
MARKET CUT WAY REVISION 9/2/04


METRIC
PROJECT REFERENCE NO.
R-2552AA
SHEET NO.
5
R/W SHEET NO.
5.6
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
CONST.REV.
R/W REV.
RIGHT OF WAY REVISION 9/2/99
MATCHLINE TO SHEET 4 -IIYI- STA. 13+60.000
MATCHLINE TO SHEET 6 -IIYI- STA. 17+20.000
598
NAD 83
GRASS SWALE
Sta - 14+40 -Y1- LT
L - 130m
s - 0.016 m/m
da - 1.34 ha
Q2 - .17 cms
v2 - .49 m/s
d2 - .25 m
Q10 - .51 cms
v10 - .27 m/s
d10- .21 m
MITIGATABLE IMPACTS ZONE 1
MITIGATABLE IMPACTS ZONE 2
ALLOWABLE IMPACTS ZONE 1
ALLOWABLE IMPACTS ZONE 2
THOMAS H. PENNY
GEORGE J. PENNY, ET UX
0.6 m LATERAL GRASS SWALE
-Y1- +80.000 =
-IIY1- +80.000
50.000m
(164.04')
-Y1- +10.000 =
-IIY1- +10.000
52.000m
(170.60')
-Y1- +40.000 =
-IIY1- +40.000
49.000m (160.76'),
EX. R/W
RETAIN EXISTING DITCH AND RIP-RAP PAD
CL "B" RIP-RAP EST. 3.7 TONS FILTER FABRIC EST. 6.4 SM
END EXPRESSWAY GUTTER
-IIY1- STA 15+51.190
PROP. R/W
1st TAKING
1550 mm WW & ISBW
EXISTING R/W
COLLAR & EXT., 450mm
450mm CONC
3.0 CONC
7.3 CONC
-WB-
RETAIN
14+00
15+00
16+00
17+00
S 3°18' 51.3" W
-IIY1-
-EB-
END EXPRESSWAY GUTTER
-IIY1- STA 14+69.309
450mm CONC PLUG
REMOVE
REMOVE HDWL
RETAIN DITCH
2GI
450
450mm MTL
400mm CSP w/ELBOW
CONC BERM
EXISTING R/W
OUTLET
Q10 - 0.40 cms
da - 1.47 ha
s - 0.08 m/m
v - 0.24 m/s
-Y1- +33.144 =
-IIY1- +33.144
42.739m
CLASS "B" RIP-RAP EST. 4.5 TONS FILTER FABRIC EST.11.7 SM
1.5m LATERAL BASE DITCH
CLASS "B" RIP-RAP EST. 6.4 TONS FILTER FABRIC EST.160 SM
COLLAR AND EXT. 1650mm CSP W/HDWL
-Y1- +00.000 =
-IIY1- +00.000
50.000m
(164.04')
SITE AA3b
-Y1- +55.064 =
-IIY1- +55.064
45.737m
STD. BERM DITCH
-Y1- +00.000 =
-IIY1- +00.000
55.000m
(180.45')
GRASS SWALE
Sta - 16+00 -Y1- RT
L - 130m
s - 0.007 m/m
da - .51 ha
Q2 - .11 cms
v2 - .43 m/s
d2 - .19 m
Q10 - .14 cms
v10 - .46 m/s
d10- .31 m
GRASS SWALE
Sta - 17+00 -Y1- RT
L - 160m
s - 0.007 m/m
da - .67 ha
Q2 - .14 cms
v2 - .46 m/s
d2 - .22 m
Q10 - .18 cms
v10 - .49 m/s
d10- .24 m
TRAFFIC DIAGRAM
CLAYTON BYPASS
-FLYLEREV-
Pls Sta. 34+54.180
θs = 2°56' 47.9"
Ls = 90.000
LT = 60.008
ST = 30.008
-FLYLEREV- STSta. 35+14.173 =
-IIY1- POTSta. 16+68.075 (17.9m RT.)
NOTE:
(1) SEE SHEET 18 FOR -IIY1- PROFILE
(2) SEE SHEET 30 FOR -FLYLEREV- PROFILE


TRAFFIC DIAGRAM
SITE AA4a
SITE AA5a
SITE AA4b
SITE AA5b


SITE AA3a
NCDOT
DIVISION OF HIGHWAYS
WAKE / JOHNSTON COUNTY
PROJECT: WBS - 34459.1.1 (R-2552AA)
US 70 CLAYTON BYPASS
I-40 TO EAST OF SR 1525
SHEET 6 OF 17
10/01/04
SCALE
MITIGATABLE IMPACTS ZONE 1
MITIGATABLE IMPACTS ZONE 2
ALLOWABLE IMPACTS ZONE 1
ALLOWABLE IMPACTS ZONE 2
CABLE GUIDERAIL
13+00
RETAIN
EXIST.
7.3m
3.6m
14m
375
2GI
COLLAR AND EXT.
375 RCP
COLLAR & EXT.
1650 mm CSP
BZ 1
BZ 2
F


NCDOT
DIVISION OF HIGHWAYS
WAKE / JOHNSTON COUNTY
PROJECT: WBS - 34459.1.1 (R-2552AA)
US 70 CLAYTON BYPASS
I-40 TO EAST OF SR 1525
SHEET 7 OF 17
8/4/04
SCALE
SITE AA3b
MITIGATABLE IMPACTS ZONE 1
MITIGATABLE IMPACTS ZONE 2
ALLOWABLE IMPACTS ZONE 1
ALLOWABLE IMPACTS ZONE 2
14+00
RETAIN
RETAIN
TOP = 83.32
INV = 82.44
EXIST.
14m
7.3m
7.2m
3.6m
400mm CSP
w/ELBOWS
FF
BZ 1
BZ 2
BZ 3
BZ 4
1.6 CONC MH
2.9 CONC MH
1.6 CONC MH
INV = 82.444
TOP = 83.322
650mm MSL



SITES AA4a & AA4b

NCDOT

DIVISION OF HIGHWAYS

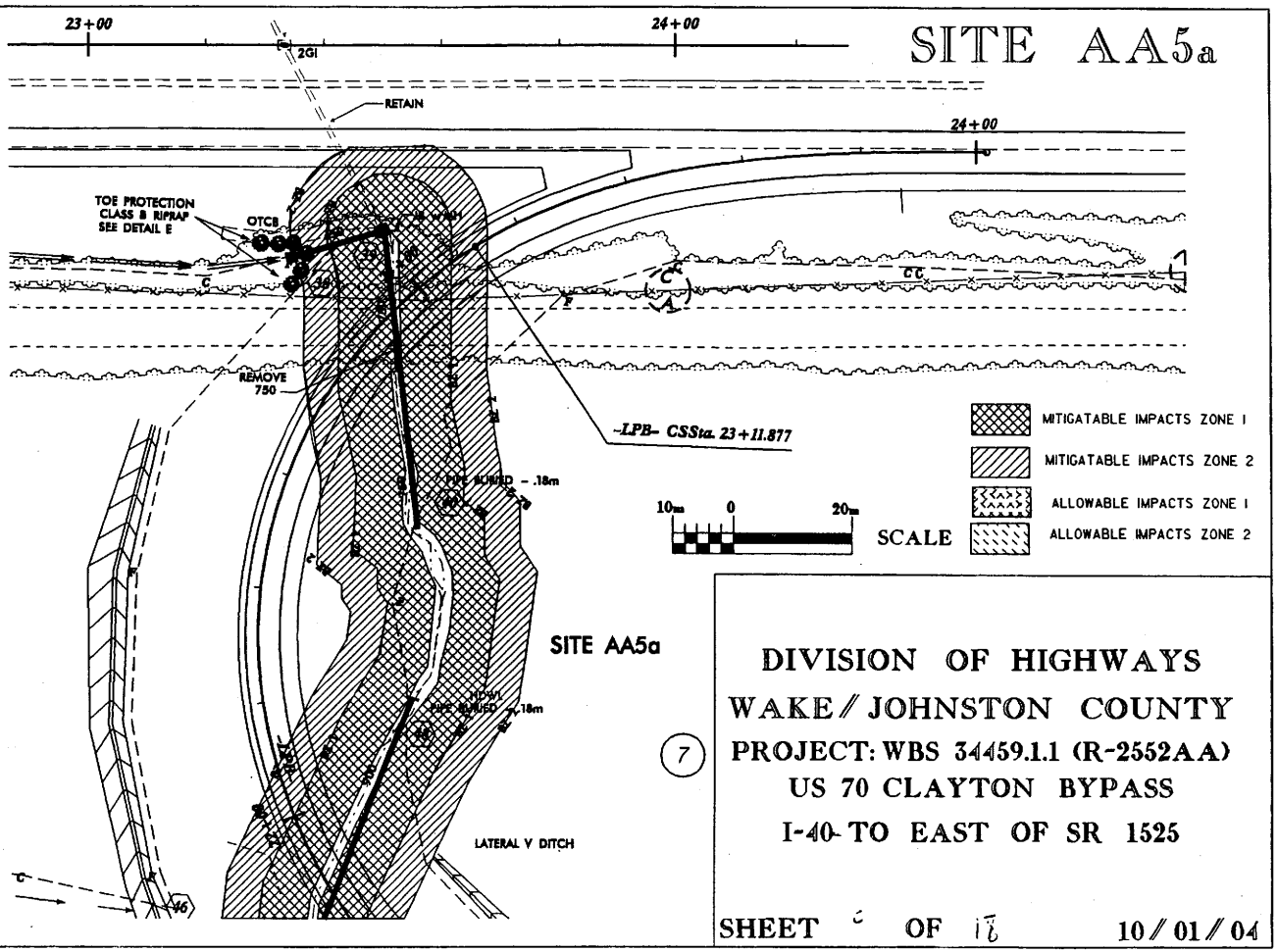
WAKE / JOHNSTON COUNTY

PROJECT: WBS 34459.1.1 (R-2552AA)

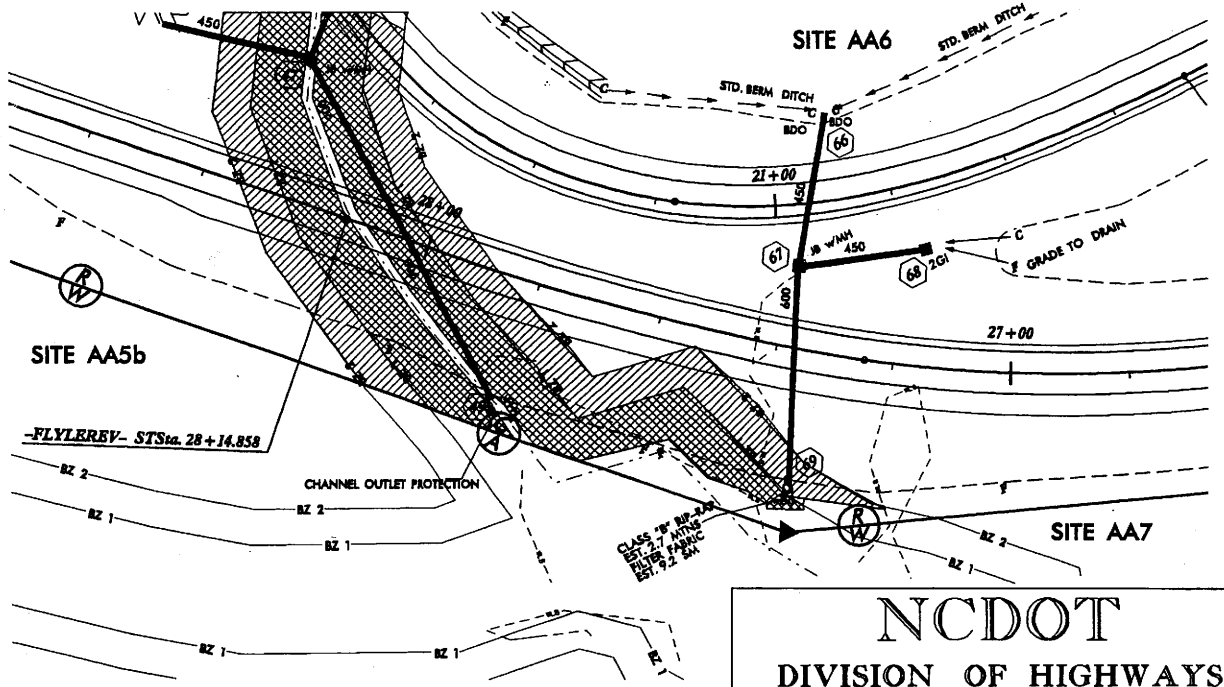
US 70 CLAYTON BYPASS

I-40 TO EAST OF SR 1525

SHEET 8 OF 12 10/01/04


SITE AA5a
23+00
24+00
2GI
RETAIN
24+00
TOE PROTECTION
CLASS B RIPRAP
SEE DETAIL E
OTCB
REMOVE
750
-LPB- CSSta. 23+11.877
MITIGATABLE IMPACTS ZONE 1
MITIGATABLE IMPACTS ZONE 2
ALLOWABLE IMPACTS ZONE 1
ALLOWABLE IMPACTS ZONE 2
10m 0 20m
SCALE
SITE AA5a
LATERAL V DITCH
DIVISION OF HIGHWAYS
WAKE / JOHNSTON COUNTY
7
PROJECT: WBS 34459.1.1 (R-2552AA)
US 70 CLAYTON BYPASS
I-40 TO EAST OF SR 1525
SHEET c OF 11
10 / 01 / 04

603



SITES AA5b, AA6 & AA7

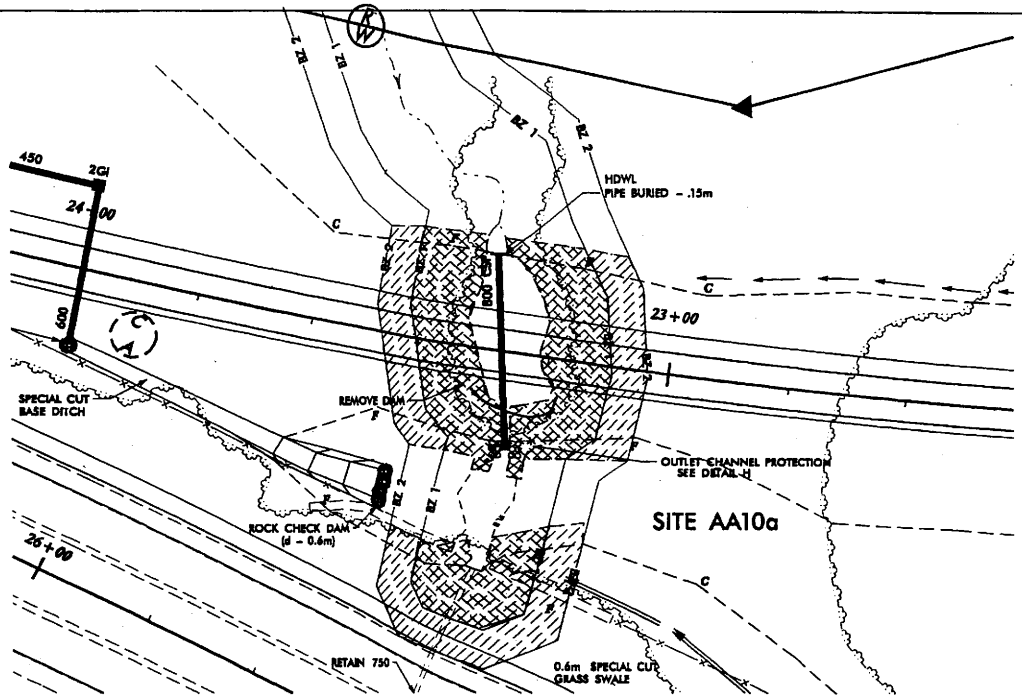
NCDOT

DIVISION OF HIGHWAYS

WAKE / JOHNSTON COUNTY

PROJECT: WBS 34459.1.1 (R-2552AA)
US 70 CLAYTON BYPASS
I-40 TO EAST OF SR 1525

SHEET 10 OF 17 10/01/04



SITE AA10a

MITIGATABLE IMPACTS ZONE 1

MITIGATABLE IMPACTS ZONE 2

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

10m 0 20m SCALE

NCDOT

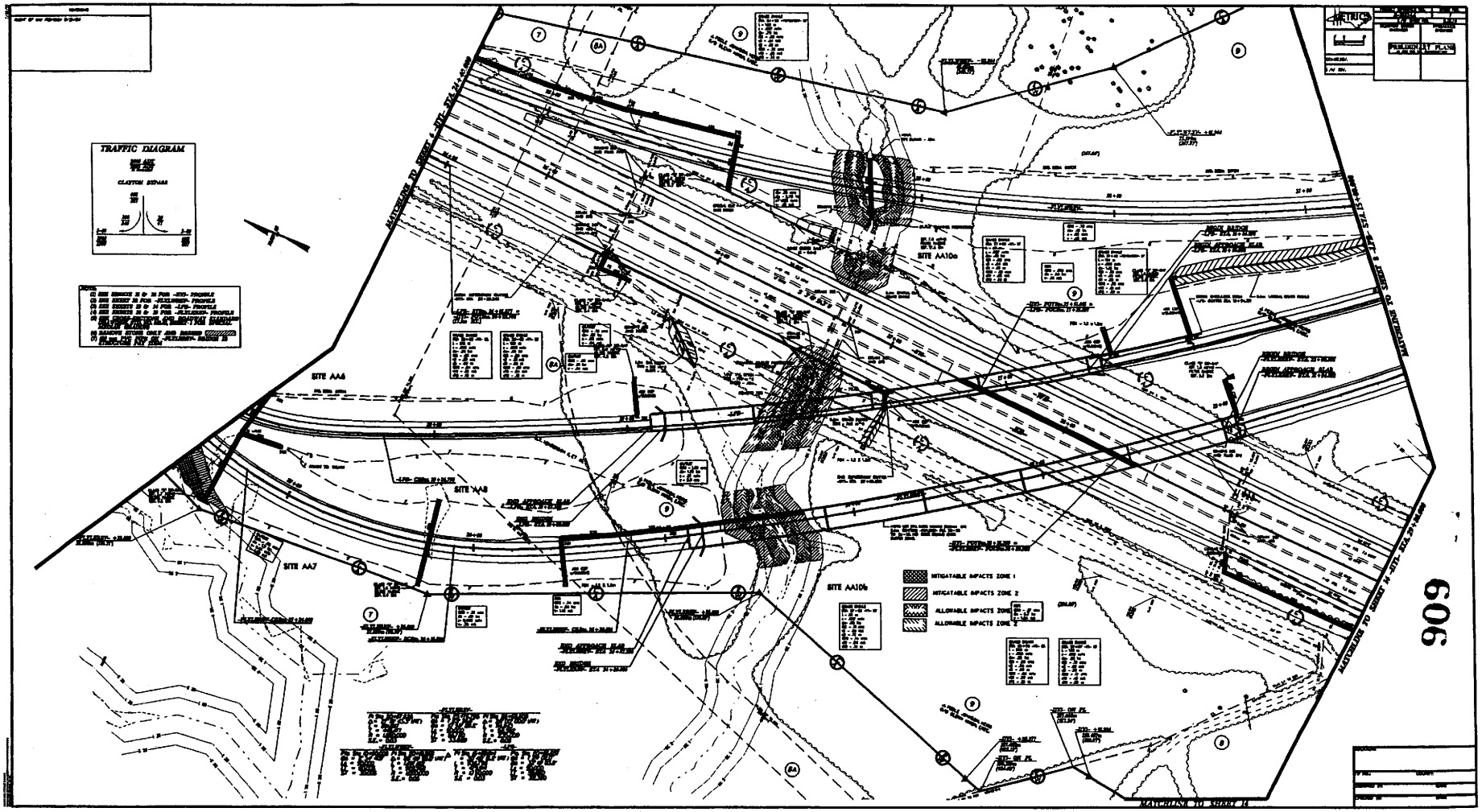
DIVISION OF HIGHWAYS

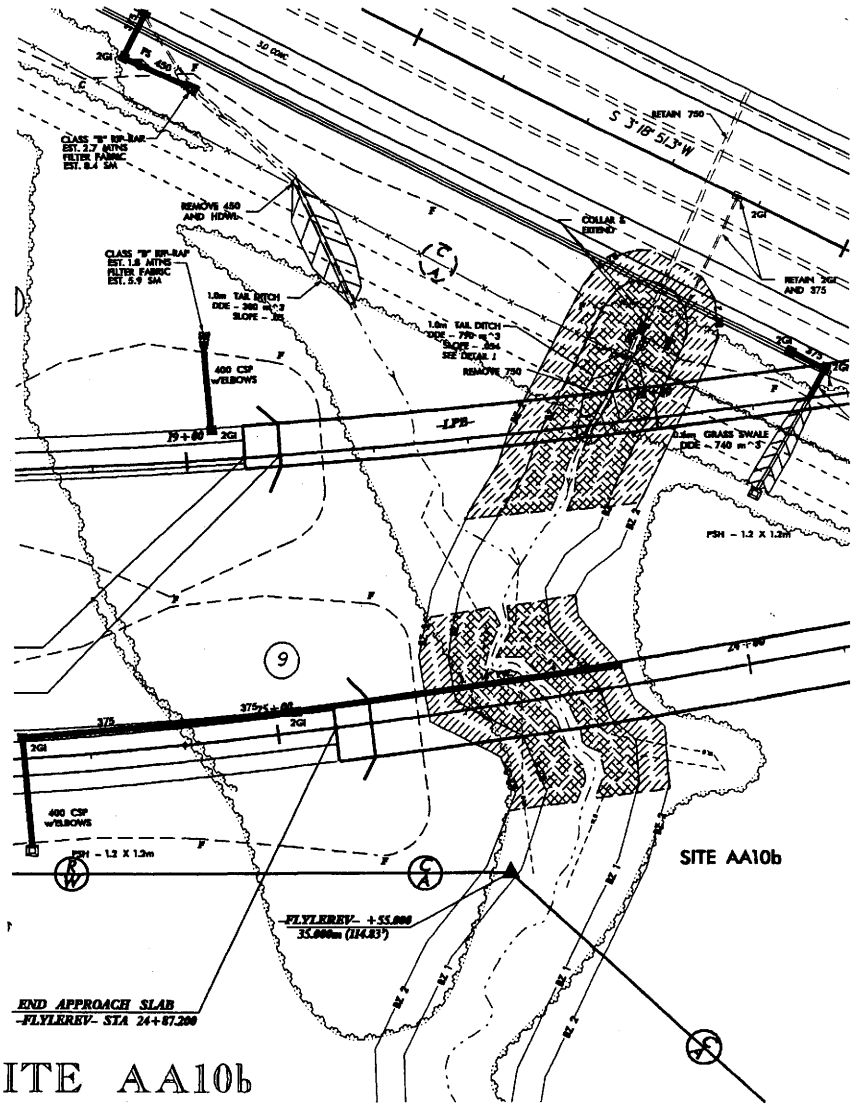
WAKE / JOHNSTON COUNTY

PROJECT: WBS 34459.1.1 (R-2552AA)

US 70 CLAYTON BYPASS

SHEET 11 OF 18 **10 / 01 / 04**


TRAFFIC DIAGRAM
SITE AA6
SITE AA7
SITE AA8
SITE AA10a
SITE AA10b
MITIGATABLE IMPACTS ZONE 1
MITIGATABLE IMPACTS ZONE 2
ALLOWABLE IMPACTS ZONE
ALLOWABLE IMPACTS ZONE
909



SITE AA10b

MITIGATABLE IMPACTS ZONE 1

MITIGATABLE IMPACTS ZONE 2

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

10m 0 20m SCALE

NCDOT

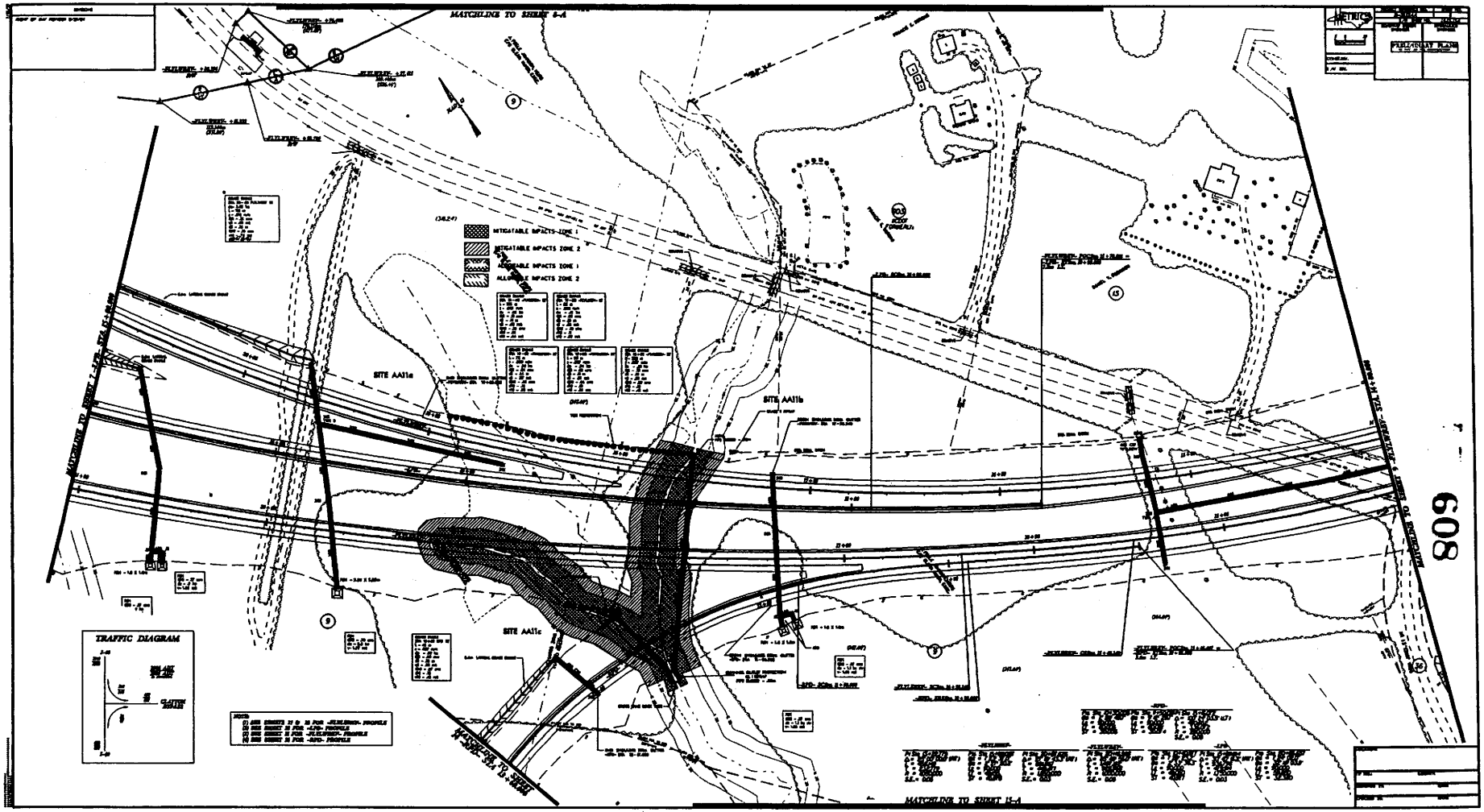
DIVISION OF HIGHWAYS

WAKE / JOHNSTON COUNTY

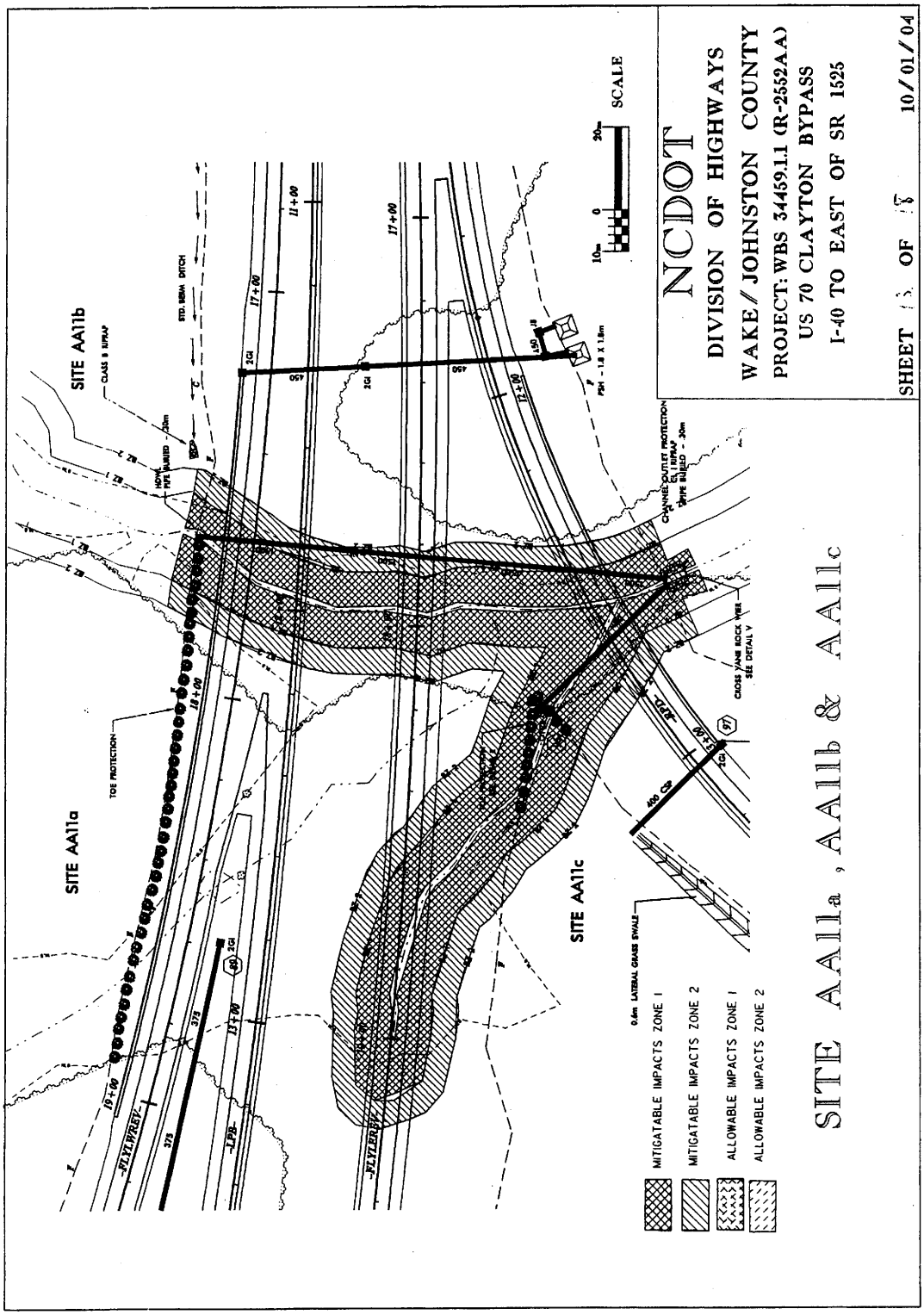
PROJECT: WBS 34459.1.1 (R-2552AA)

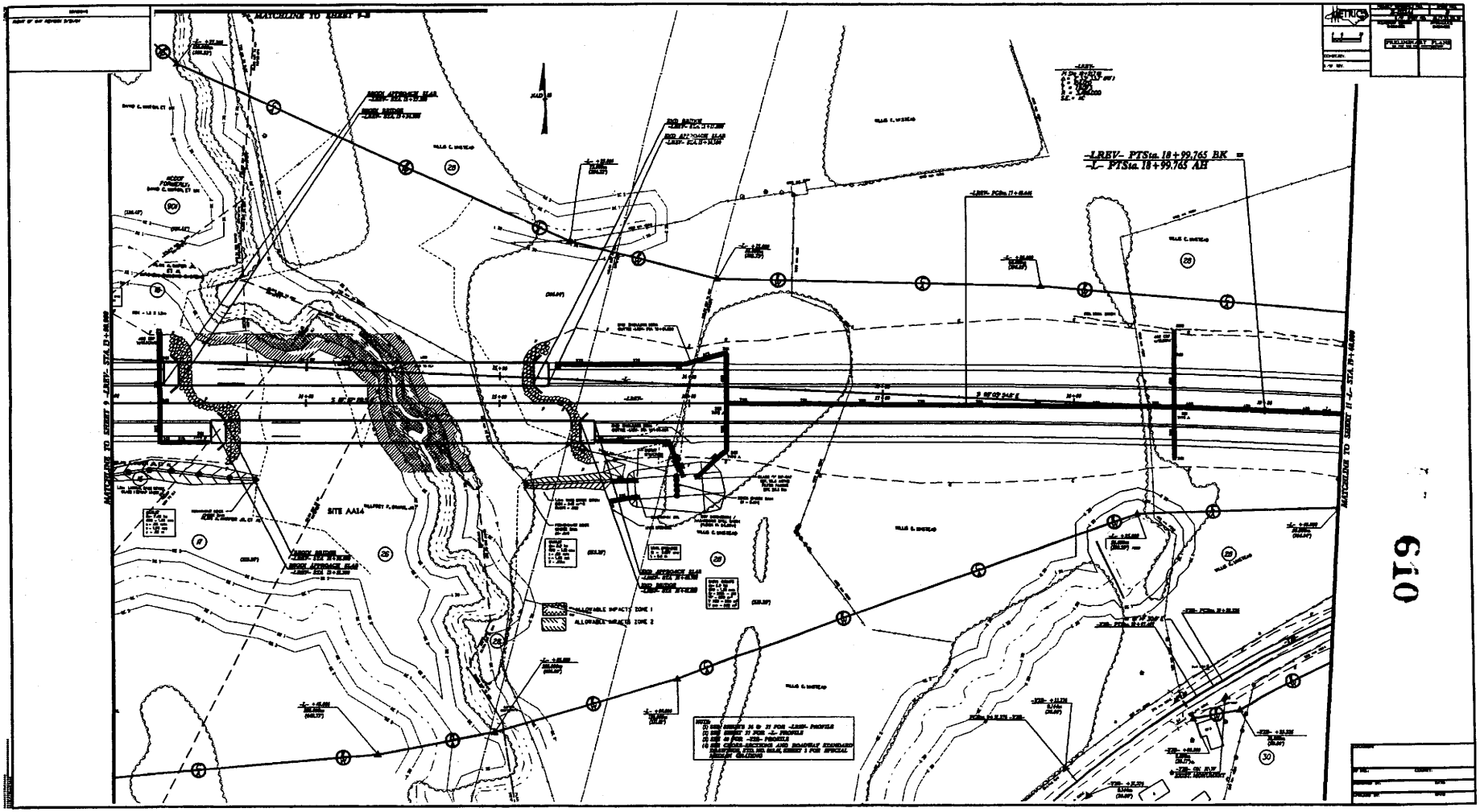
US 70 CLAYTON BYPASS

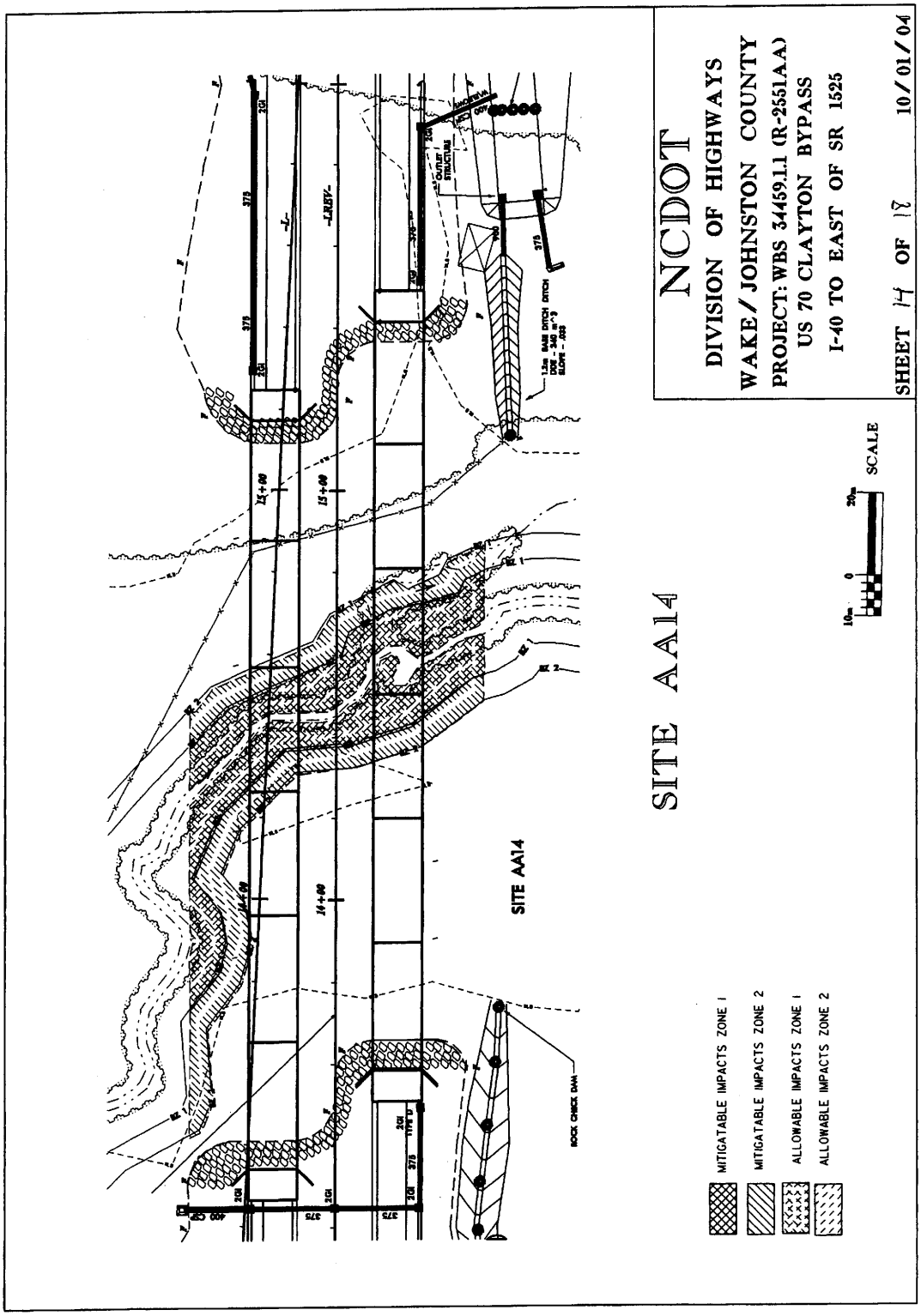
SHEET 12 OF 18 10/01/04

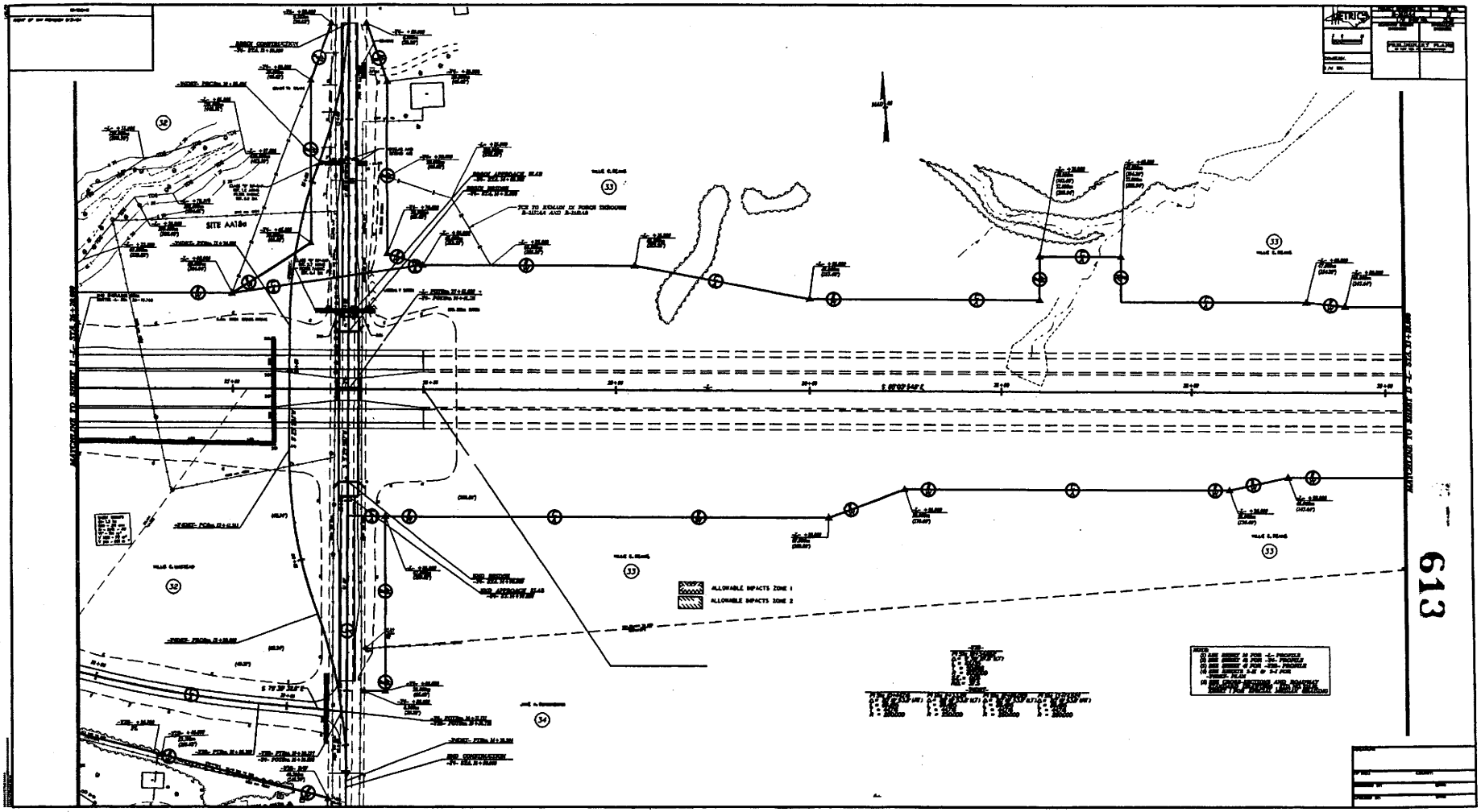

MATCHLINE TO SHEET 6-A
MITIGATABLE IMPACTS ZONE 1
MITIGATABLE IMPACTS ZONE 2
SITE AA11a
SITE AA11b
SITE AA11c
TRAFFIC DIAGRAM
MATCHLINE TO SHEET 11-A

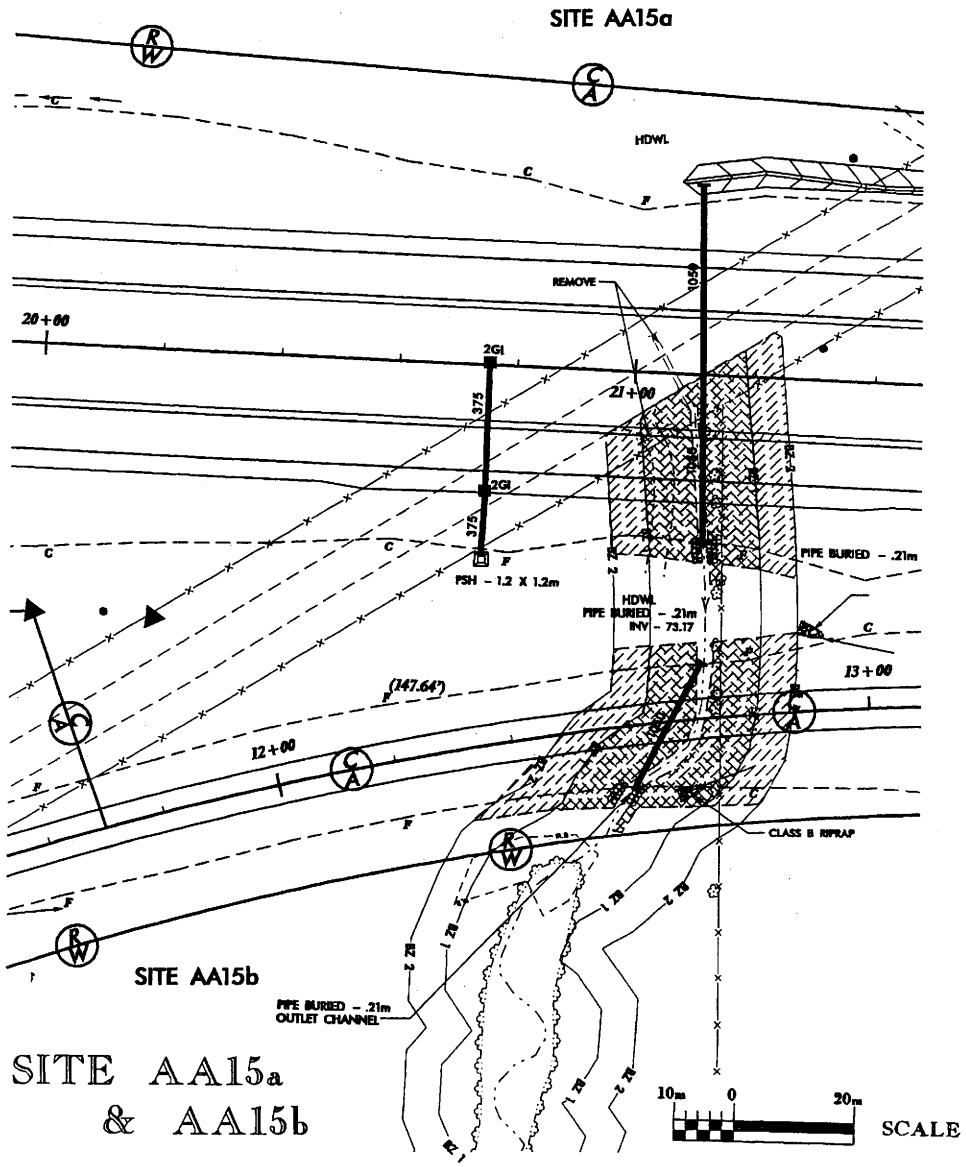
608


NCDOT
DIVISION OF HIGHWAYS
WAKE / JOHNSTON COUNTY
PROJECT: WBS 34459.1.1 (R-2552AA)
US 70 CLAYTON BYPASS
I-40 TO EAST OF SR 1525
SHEET 13 OF 15
10/01/04
SCALE
SITE AA11a
SITE AA11b
SITE AA11c
TOE PROTECTION
CLASS B RIPRAP
STD. BERM DITCH
CHANNEL OUTLET PROTECTION
CL I RIPRAP
DRIVE BURIED - 30m
CROSS VANE ROCK WEIR
SEE DETAIL V
0.6m LATERAL GRASS SWALE
MITIGATABLE IMPACTS ZONE 1
MITIGATABLE IMPACTS ZONE 2
ALLOWABLE IMPACTS ZONE 1
ALLOWABLE IMPACTS ZONE 2
SITE AA11a, AA11b & AA11c


MATCHLINE TO SHEET 9-8
MATCHLINE TO SHEET 9-10
SITE AA34
610


NCDOT
DIVISION OF HIGHWAYS
WAKE / JOHNSTON COUNTY
PROJECT: WBS 34459.1.1 (R-2551AA)
US 70 CLAYTON BYPASS
I-40 TO EAST OF SR 1525
SHEET 14 OF 18
10/01/04
SITE AA14
SCALE
MITIGATABLE IMPACTS ZONE 1
MITIGATABLE IMPACTS ZONE 2
ALLOWABLE IMPACTS ZONE 1
ALLOWABLE IMPACTS ZONE 2
SITE AA14
ROCK CHECK DAM


SITE AA18d
ALLOWABLE IMPACTS ZONE 1
ALLOWABLE IMPACTS ZONE 2
613



SITE AA15a & AA15b

MITIGATABLE IMPACTS ZONE 1

MITIGATABLE IMPACTS ZONE 2

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

NCDOT

DIVISION OF HIGHWAYS

WAKE / JOHNSTON COUNTY

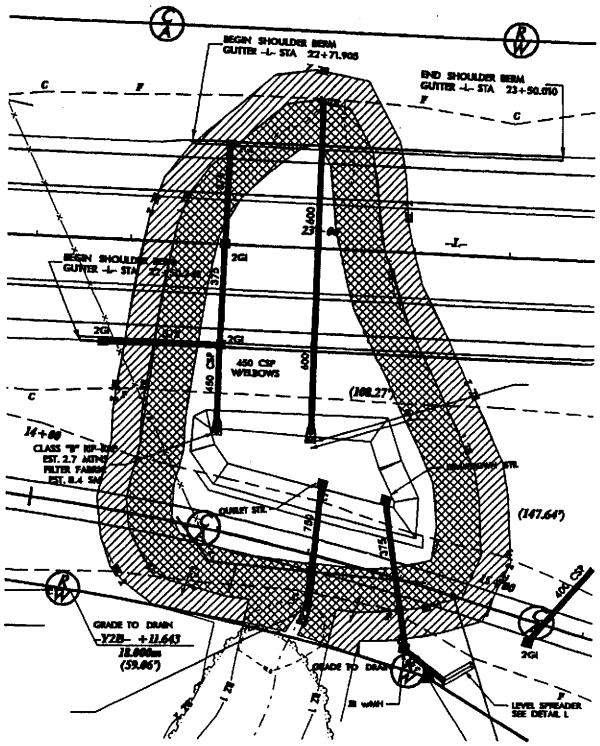
PROJECT: WBS 34459.1.1 (R-2552AA)

US 70 CLAYTON BYPASS

I-40 TO EAST OF SR 1525

SHEET 15 **OF** 18 **10/01/04**

SITE AA16



SITE AA16

MITIGATABLE IMPACTS ZONE 1

MITIGATABLE IMPACTS ZONE 2

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

10m 0 20m SCALE

NCDOT

DIVISION OF HIGHWAYS

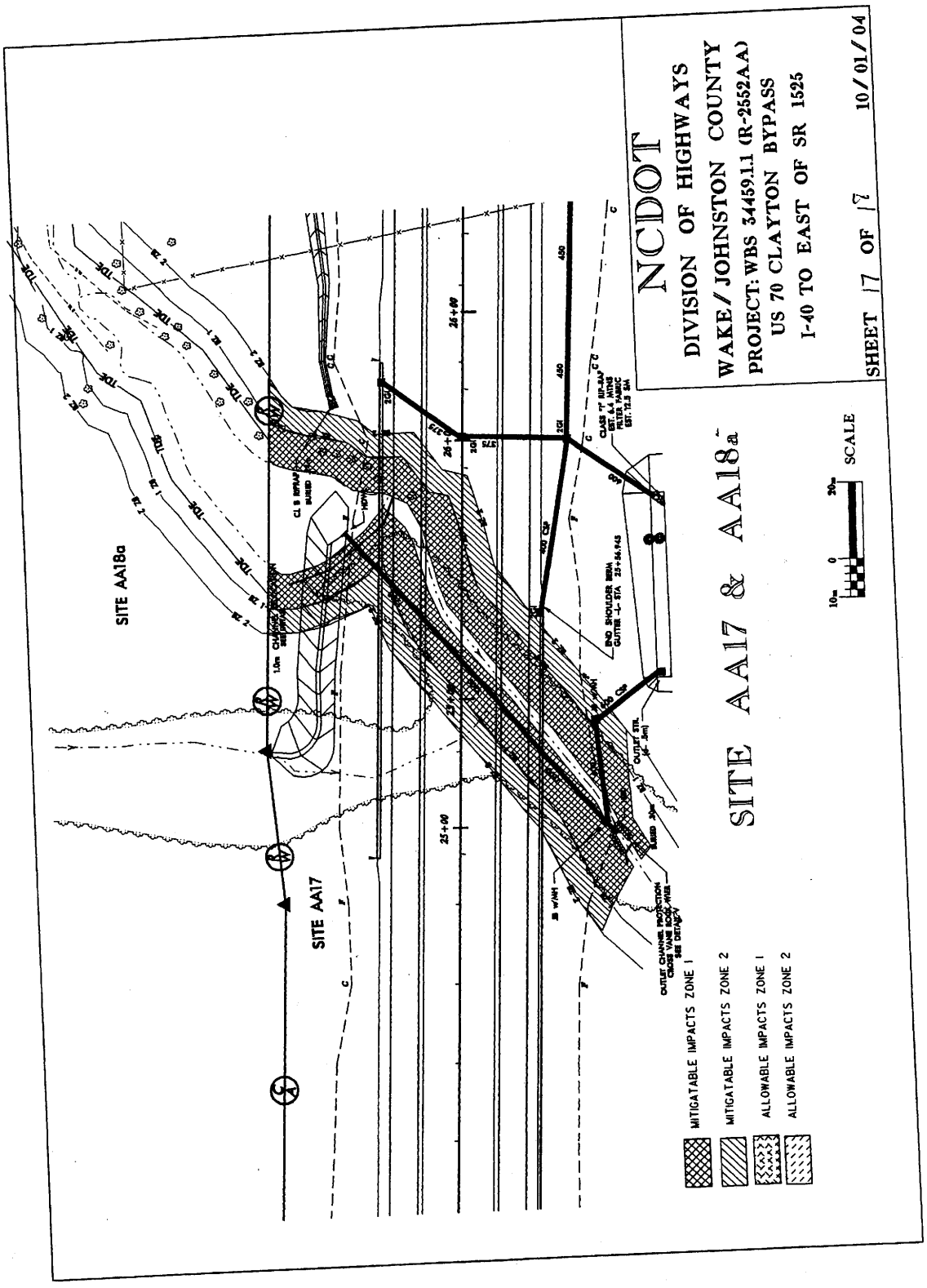
WAKE / JOHNSTON COUNTY

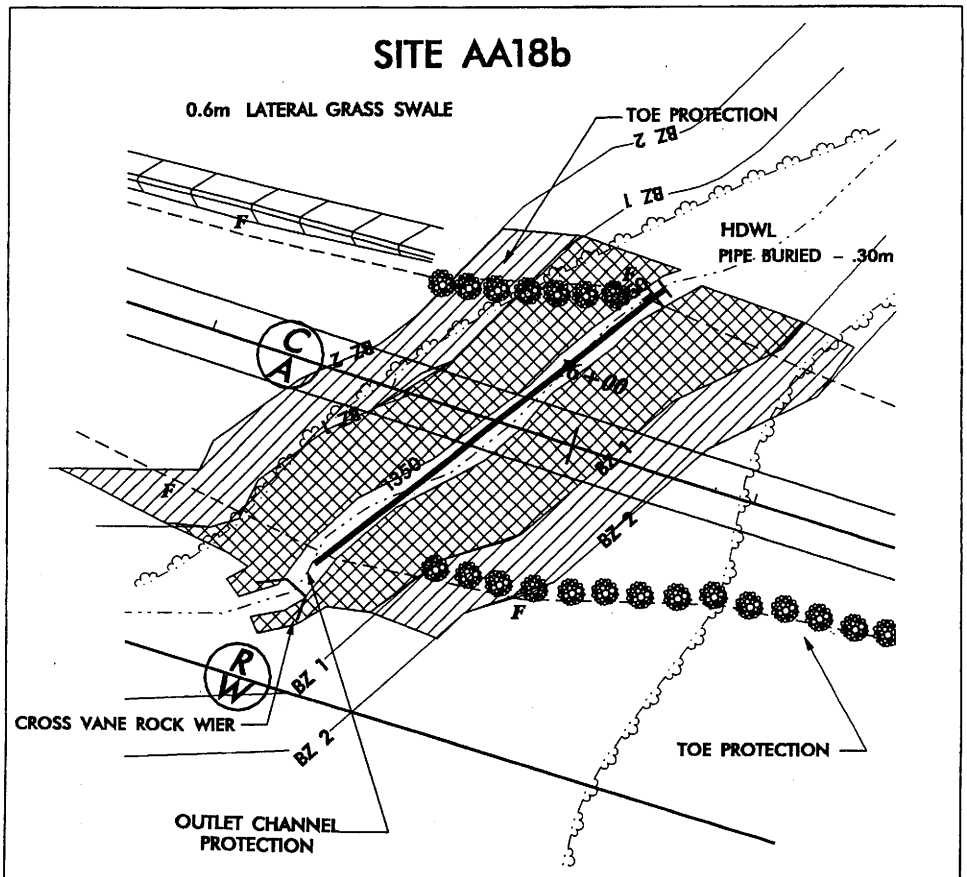
PROJECT: WBS 34459.1.1 (R-2552AA)

US 70 CLAYTON BYPASS

I-40 TO EAST OF SR 1525

SHEET 16 OF 18 10/01/04


NCDOT
DIVISION OF HIGHWAYS
WAKE / JOHNSTON COUNTY
PROJECT: WBS 34459.1.1 (R-2552AA)
US 70 CLAYTON BYPASS
I-40 TO EAST OF SR 1525
SHEET 17 OF 17
10/01/04
SITE AA17 & AA18a
SITE AA18a
SITE AA17
SCALE
10m 0 20m
MITIGATABLE IMPACTS ZONE 1
MITIGATABLE IMPACTS ZONE 2
ALLOWABLE IMPACTS ZONE 1
ALLOWABLE IMPACTS ZONE 2



SITE AA18b

MITIGATABLE IMPACTS ZONE 1

MITIGATABLE IMPACTS ZONE 2

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

10m 0 20m

SCALE

NCDOT

DIVISION OF HIGHWAYS

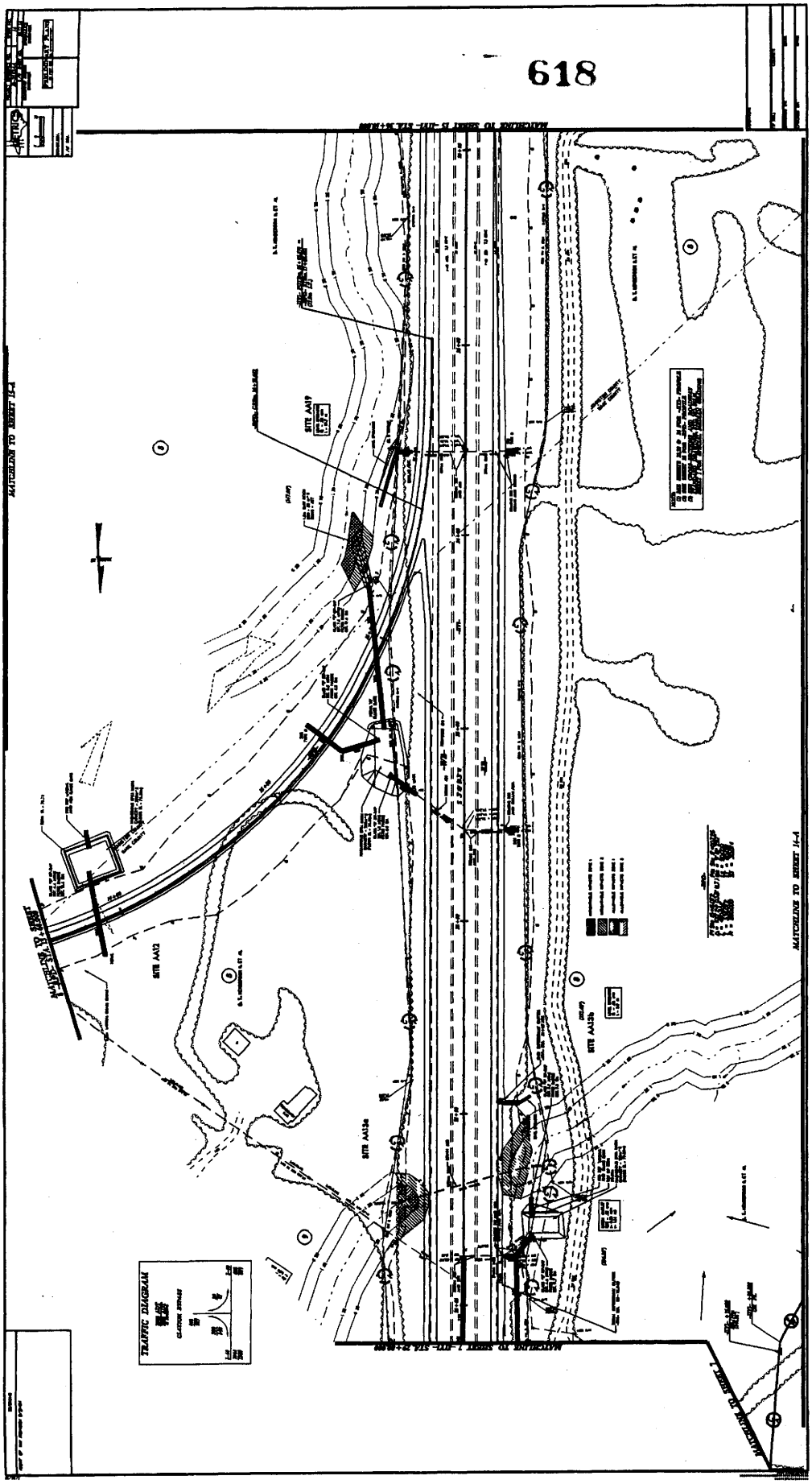
WAKE / JOHNSTON COUNTY

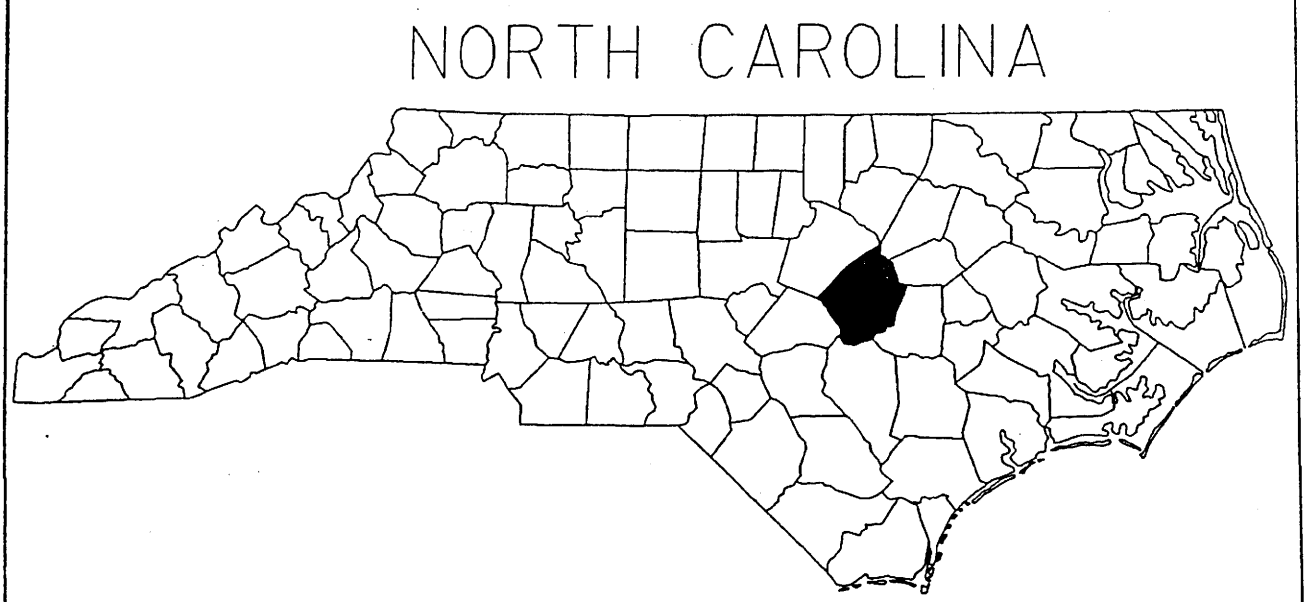
PROJECT: 8.2661601 (R-2246C)

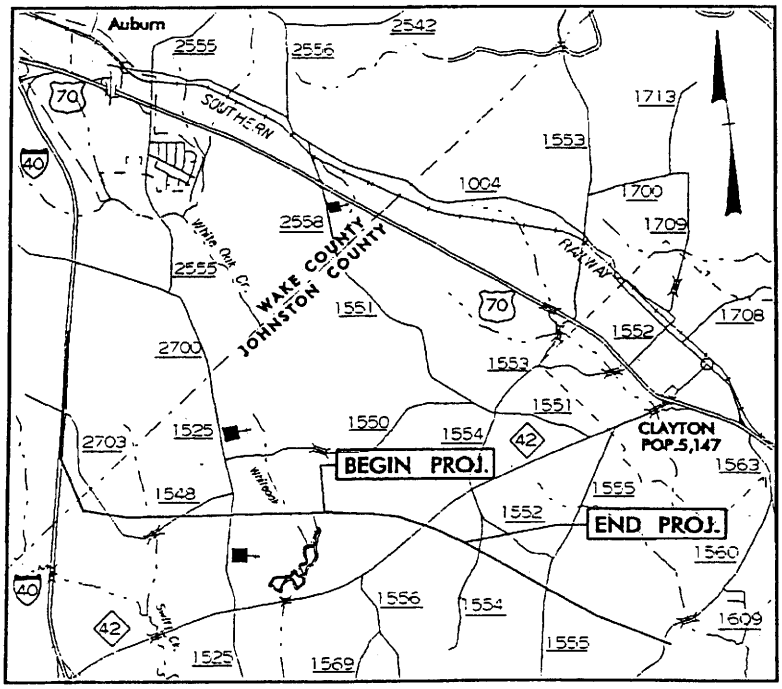
US 70 CLAYTON BYPASS

I-40 TO EAST OF SR 1525

SHEET 18 OF 18 10/01/04


TRAFFIC DIAGRAM
SITE AA19
SITE AA12
SITE AA13a
SITE AA13b
MATCHLINE TO SHEET 1-4
MATCHLINE TO SHEET 1-3
MATCHLINE TO SHEET 1-5





NEUSE RIVER BUFFER

VICINITY MAP

NCDOT

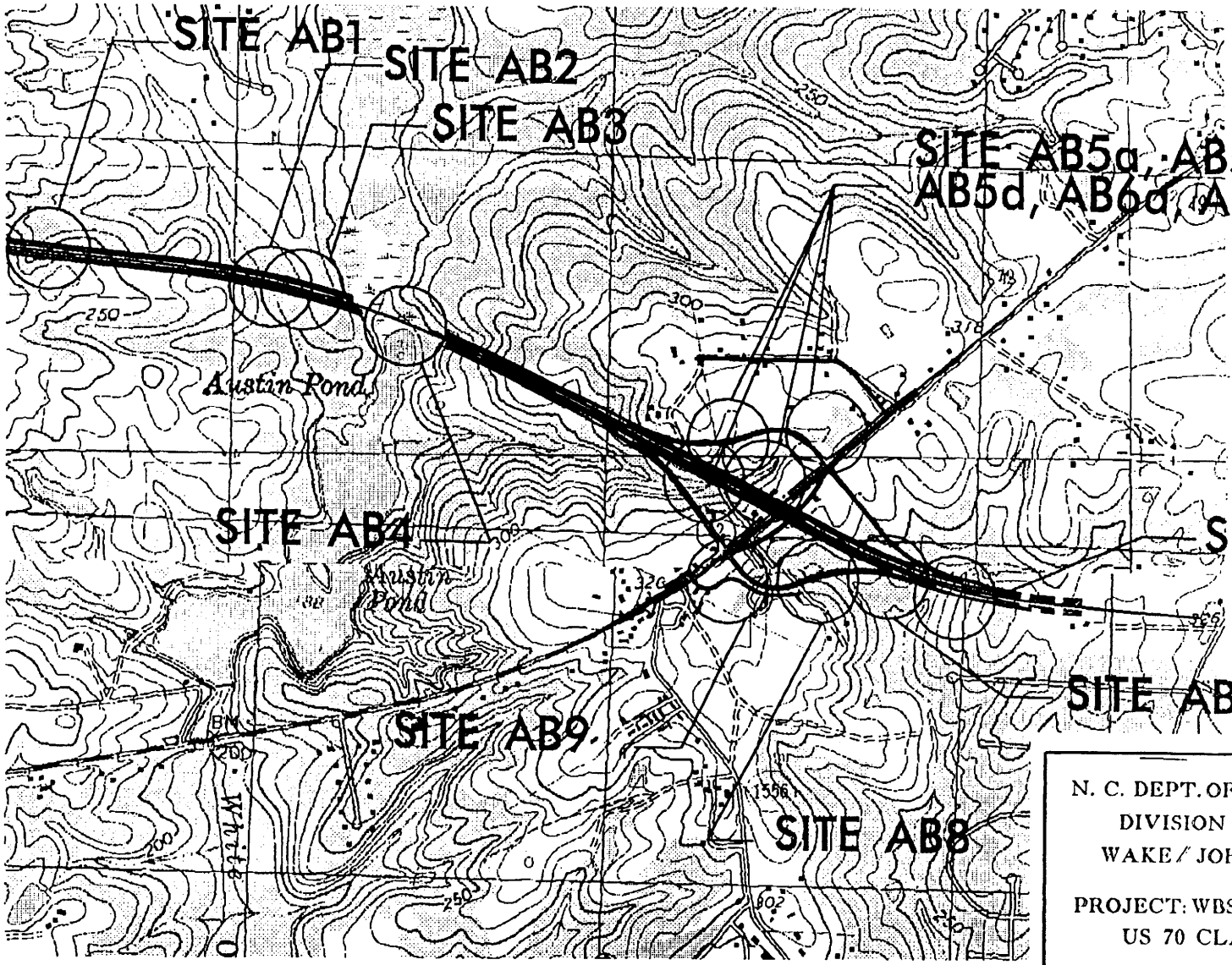
DIVISION OF HIGHWAYS

JOHNSTON COUNTY

PROJECT: WBS 34459.1.1 (R-2552AB)

US 70 CLAYTON BYPASS

SHEET 1 OF 6 10/01/04



SITE MAP

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
WAKE / JOHNSTON COUNTY

PROJECT: WBS 34459.1.1 (R-2552AB)
US 70 CLAYTON BYPASS

SHEET 2 OF 6 10/01/04

BUFFER IMPACTS SUMMARY

SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	IMPACT								BUFFER REPLACEMENT	
			TYPE		ALLOWABLE			MITIGABLE				
			ROAD CROSSING	PARALLEL IMPACT	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)
AB2	RCBC	L 37+10	X					24211.05	15173.35	39384.40		
AB4	BRIDGE	L	X					18477.87	13015.94	31493.81		
AB5c	1050 RCP	I1Y1 13+70	X					58508.96	44229.66	102738.62		
AB5d	1350 CSP	I1Y1 13+70	X					SEE AB5c FOR SITE TOTAL				
AB8	1350 RCP	I1Y1 20+90	X		7294.38	4831.17	12125.55					
AB11	RCBC	FLYLEREV 29+50	X					20325.60	13774.79	34100.39		
PROJECT TOTAL:					7294.38	4831.17	12125.55	121523.48	86193.74	207717.22		

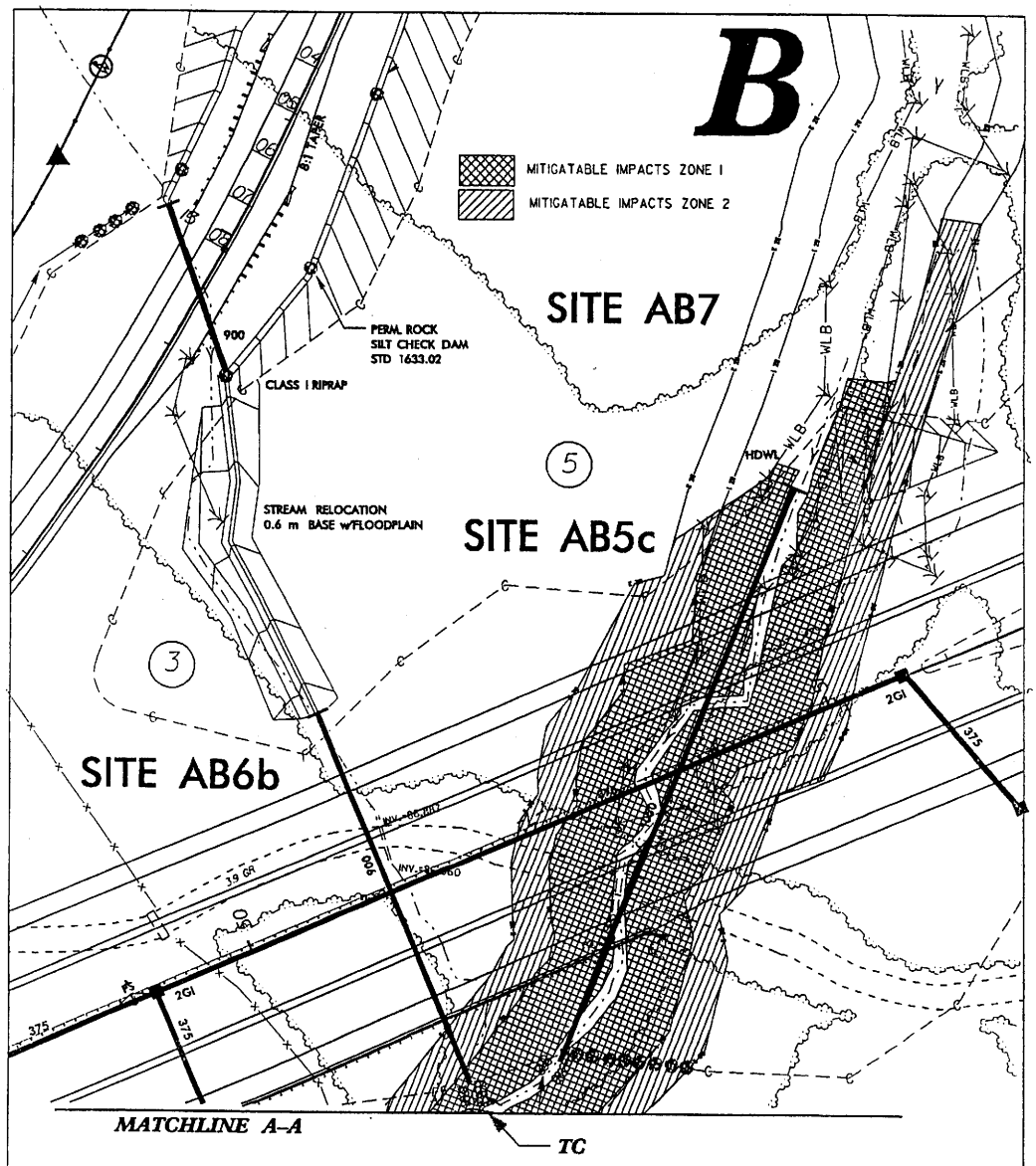
NOTE : WETLAND IMPACT IN BUFFER ZONES

	1	2
- SITE AB4	8179.27	0.00
SITE AB7	9272.26	0.00
- SITE AB11	14760.87	0.00

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

WAKE / JOHNSTON COUNTY
PROJECT # - WBS 34459.1.1 (R2552AB)
US 70 - CLAYTON BYPASS

38278
SHEET 3 OF 6



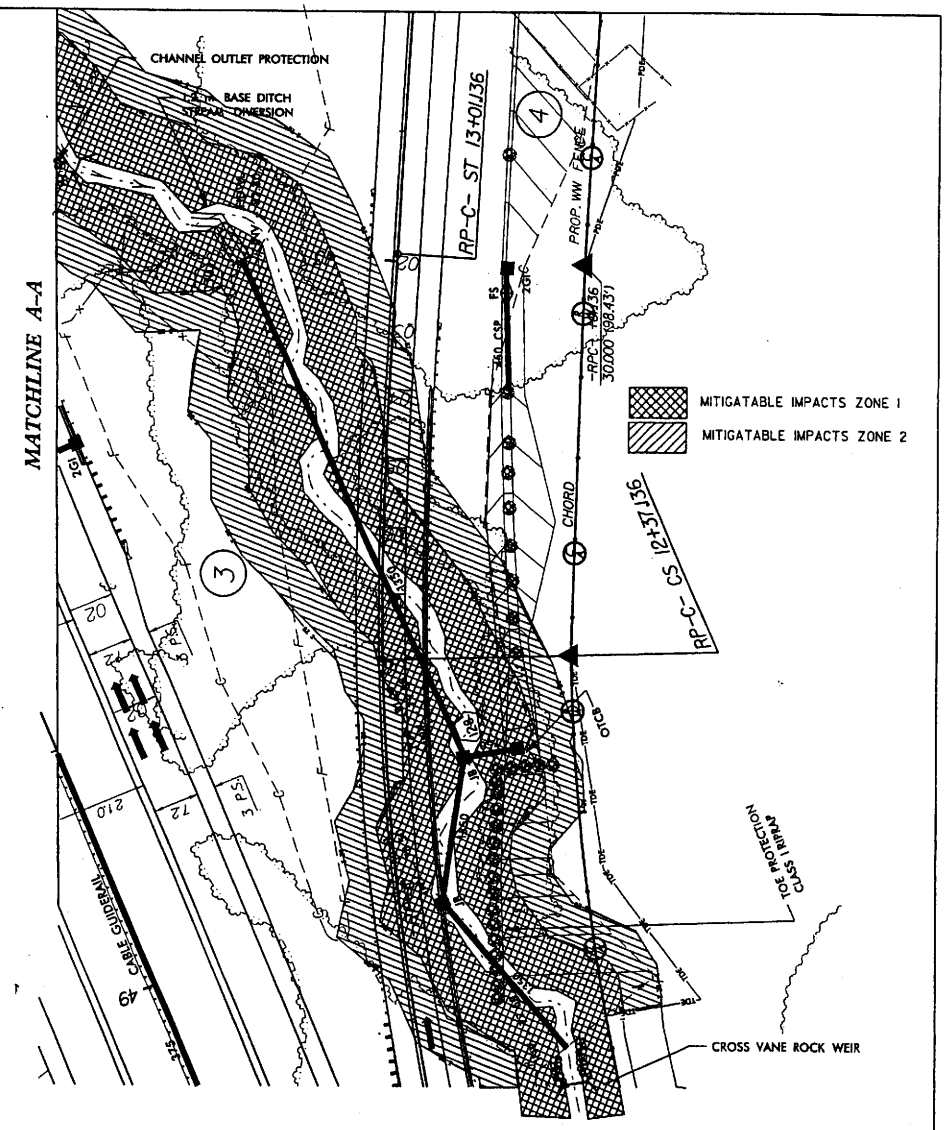
NCDOT

DIVISION OF HIGHWAYS
JOHNSTON COUNTY
PROJECT: WBS 34459.1.1 (R-2552AB)
US 70 CLAYTON BYPASS

SITES AB5c, AB6a, AB6b & AB7

10m 0 20m SCALE

SHEET 4 OF 6 10/01/04



SITES AB5d

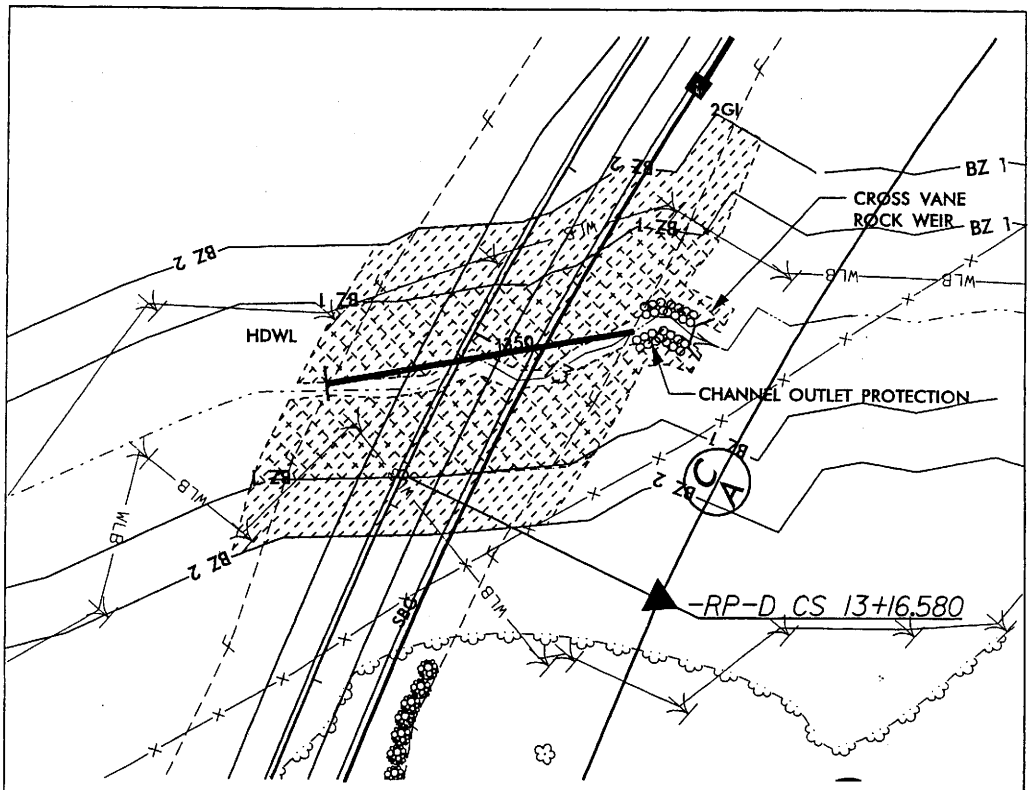
10 0 20m

SCALE

NCDOT

DIVISION OF HIGHWAYS
JOHNSTON COUNTY
PROJECT: WBS 34459.1.1 (R-2552AB)
US 70 CLAYTON BYPASS

SHEET 5 OF 6 10/01/04



SITE AB8

ALLOWABLE IMPACTS ZONE 1

ALLOWABLE IMPACTS ZONE 2

5m 0 10m SCALE

NCDOT

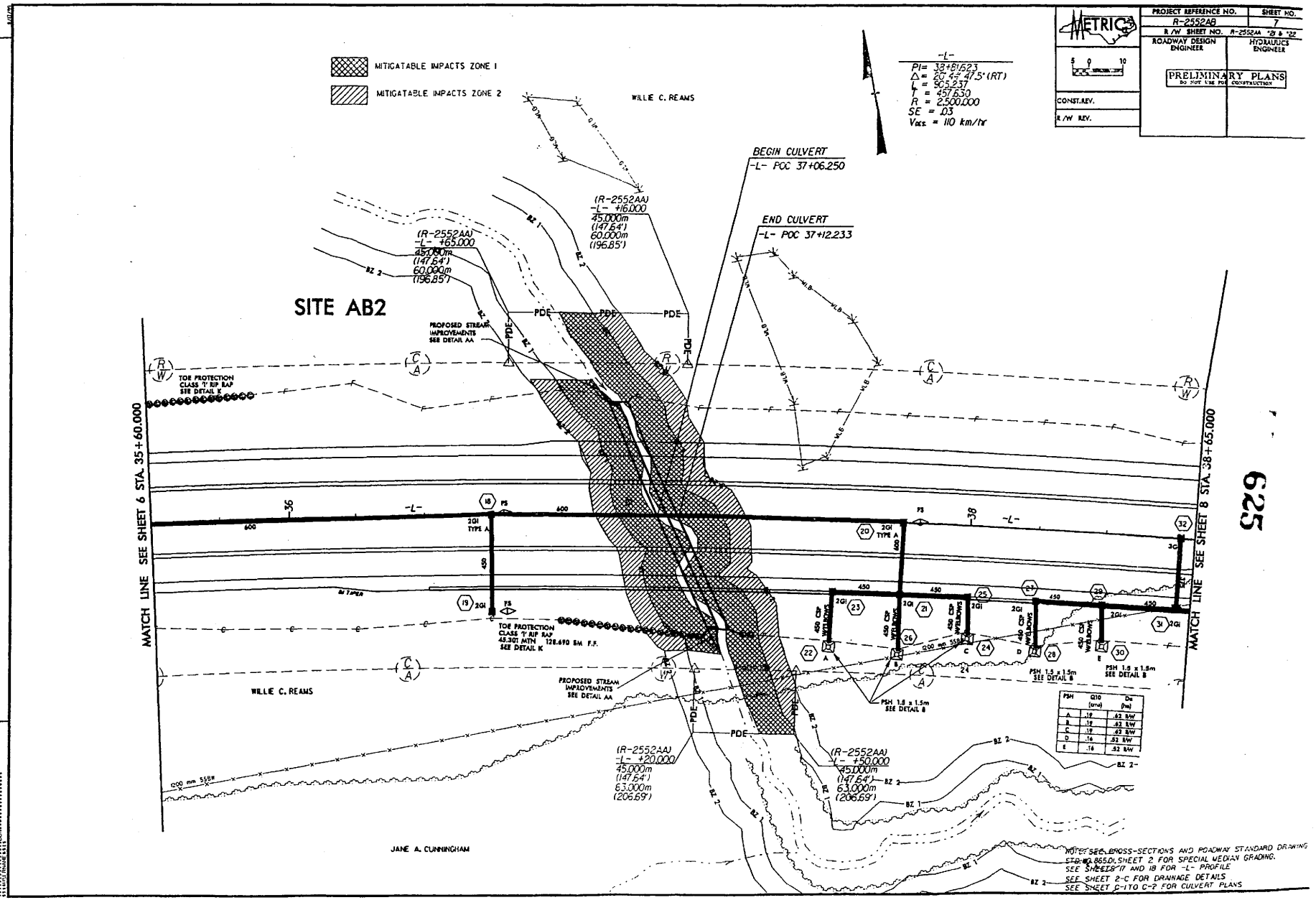
DIVISION OF HIGHWAYS

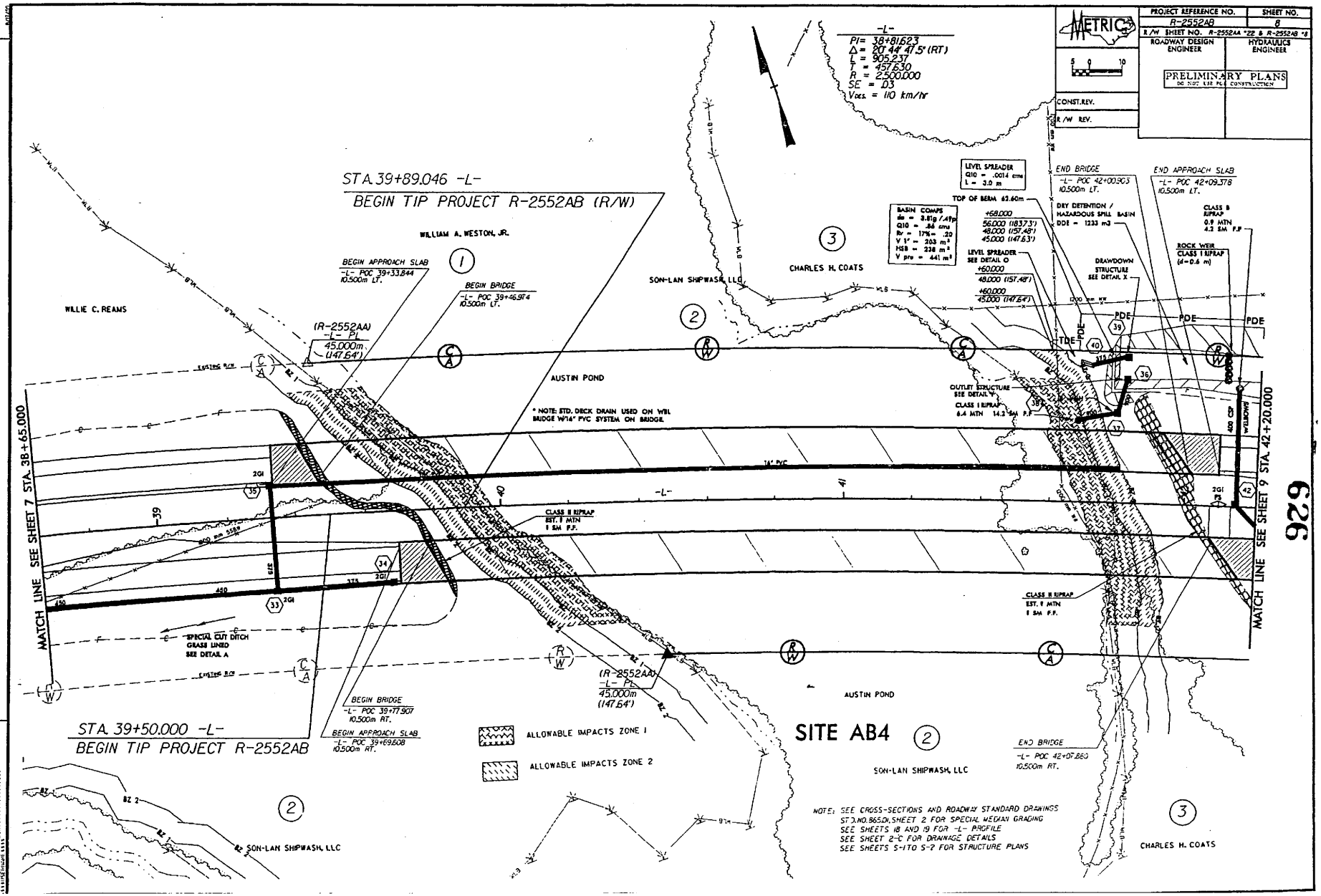
JOHNSTON COUNTY

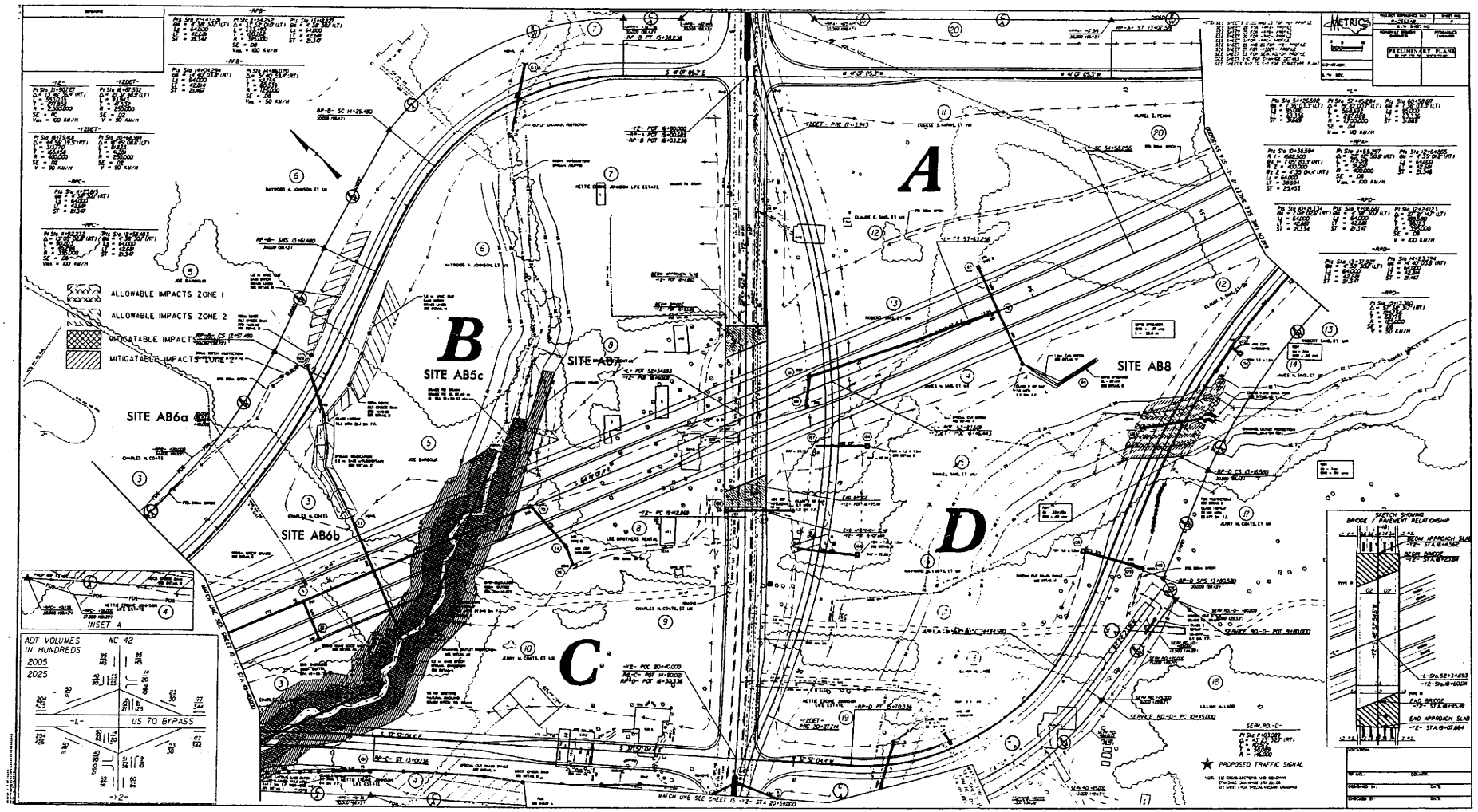
PROJECT: WBS 34459.1.1 (R-2552AB)

US 70 CLAYTON BYPASS

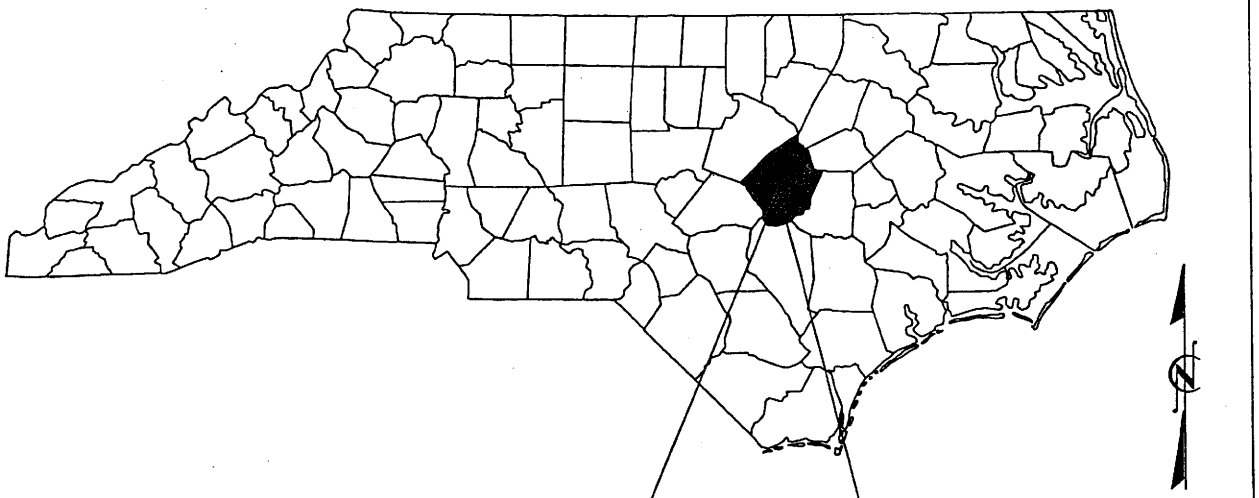
SHEET 6 OF 6 **10/01/04**

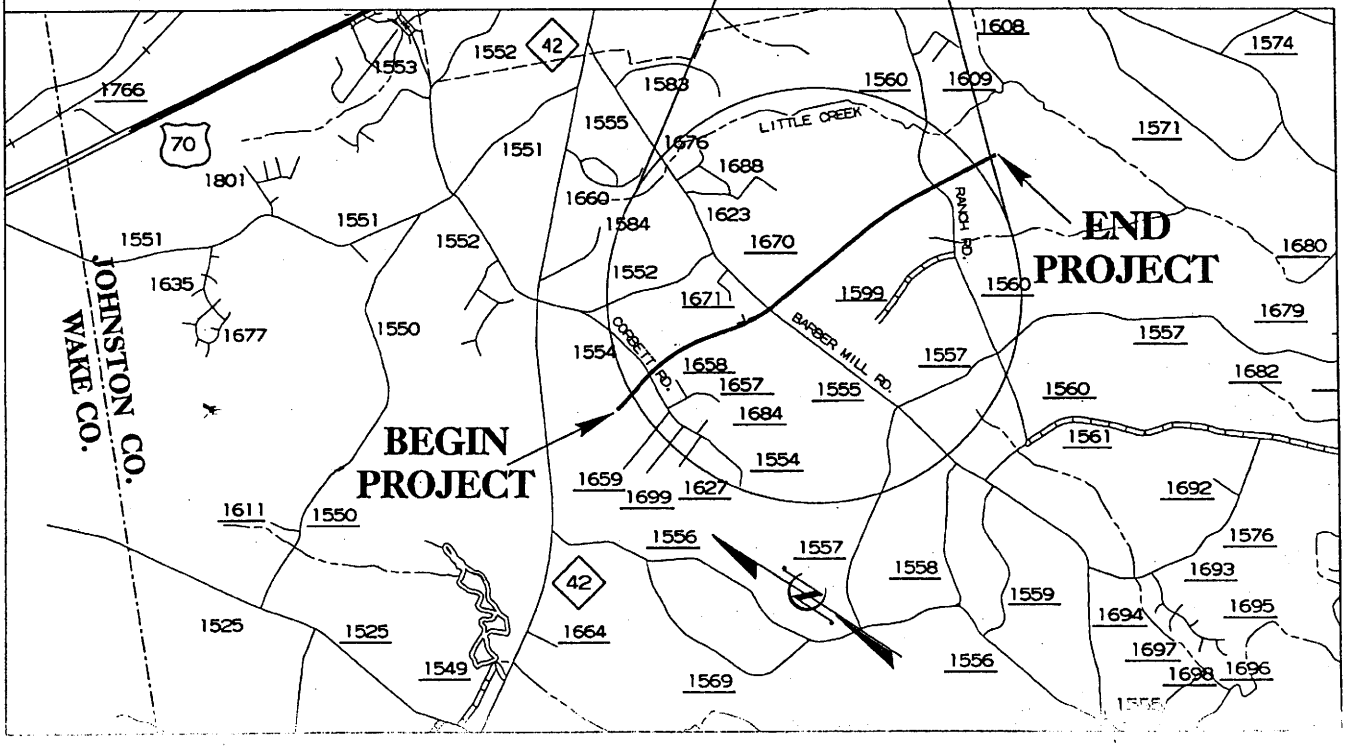

MITIGATABLE IMPACTS ZONE 1
MITIGATABLE IMPACTS ZONE 2
WILLIE C. REAMS
-L-
PI= 38+81.523
Δ= 20° 42' 47.5" (RT)
Lc= 903.237
T= 457.630
R= 2,500.000
SE= .03
VDES = 110 km/hr
BEGIN CULVERT
-L- POC 37+06.250
END CULVERT
-L- POC 37+12.233
(R-2552AA)
-L- +16.000
45.000m
(147.64')
60.000m
(196.85')
(R-2552AA)
-L- +65.000
45.000m
(147.64')
60.000m
(196.85')
SITE AB2
PDE
PROPOSED STREAM IMPROVEMENTS SEE DETAIL AA
TOE PROTECTION CLASS 'I' RIP RAP SEE DETAIL K
MATCH LINE SEE SHEET 6 STA. 35+60.000
MATCH LINE SEE SHEET 8 STA. 38+65.000
2GI TYPE A
450 CIP WELDONS
PSH 1.5 x 1.5m SEE DETAIL B
TOE PROTECTION CLASS 'I' RIP RAP 45.301 MTN 128.690 SM F.F. SEE DETAIL K
PROPOSED STREAM IMPROVEMENTS SEE DETAIL AA
WILLIE C. REAMS
(R-2552AA)
-L- +20.000
45.000m
(147.64')
63.000m
(206.69')
(R-2552AA)
-L- +50.000
45.000m
(147.64')
63.000m
(206.69')
JANE A. CUNNINGHAM
BZ 1
BZ 2
PSH | Q10 (cms) | Dx (m)
A | .19 | .62 RW
B | .19 | .62 RW
C | .19 | .62 RW
D | .16 | .52 RW
E | .16 | .52 RW
NOTE: SEE CROSS-SECTIONS AND ROADWAY STANDARD DRAWING STD. NO. 865.01, SHEET 2 FOR SPECIAL MEDIAN GRADING.
SEE SHEETS 17 AND 18 FOR -L- PROFILE
SEE SHEET 2-C FOR DRAINAGE DETAILS
SEE SHEET C-1 TO C-7 FOR CULVERT PLANS
METRIC
PROJECT REFERENCE NO. R-2552AB
SHEET NO. 7
R/W SHEET NO. R-2552AA 21 & 22
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
CONST. REV.
R/W REV.
REVISIONS
625


PROJECT REFERENCE NO. R-2552AB
SHEET NO. 8
R/W SHEET NO. R-2552AA *22 & R-2552AB *8
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
METRIC
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
CONST.REV.
R/W REV.
-L-
PI= 38+81.623
Δ= 20°44'41.5" (RT)
L = 905.237
T = 457.630
R = 2,500.000
SE = .03
Vdes. = 110 km/hr
STA. 39+89.046 -L-
BEGIN TIP PROJECT R-2552AB (R/W)
STA. 39+50.000 -L-
BEGIN TIP PROJECT R-2552AB
WILLIAM A. WESTON, JR.
WILLIE C. REAMS
SON-LAN SHIPWASH, LLC
CHARLES H. COATS
AUSTIN POND
SITE AB4
BEGIN APPROACH SLAB -L- POC 39+33.844 10.500m LT.
BEGIN BRIDGE -L- POC 39+46.974 10.500m LT.
BEGIN BRIDGE -L- POC 39+77.907 10.500m RT.
BEGIN APPROACH SLAB -L- POC 39+69.608 10.500m RT.
END BRIDGE -L- POC 42+00.903 10.500m LT.
END APPROACH SLAB -L- POC 42+09.378 10.500m LT.
END BRIDGE -L- POC 42+07.860 10.500m RT.
(R-2552AA) -L- PI 45.000m (147.64')
LEVEL SPREADER Q10 = .0014 cms L = 3.0 m
TOP OF BERM 62.60m
BASIN COMPS
DRY DETENTION / HAZARDOUS SPILL BASIN
DDE = 1233 m3
DRAWDOWN STRUCTURE SEE DETAIL X
ROCK WEIR CLASS I RIPRAP (d=0.6 m)
OUTLET STRUCTURE SEE DETAIL Y
CLASS I RIPRAP 6.4 MTN 14.2 SM P.F.
CLASS II RIPRAP EST. 9 MTN 9 SM P.F.
SPECIAL CUT DITCH GRASS LINED SEE DETAIL A
* NOTE: STD. DECK DRAIN USED ON WBL BRIDGE W/14" PVC SYSTEM ON BRIDGE
14" PVC
400 CSP
ALLOWABLE IMPACTS ZONE 1
ALLOWABLE IMPACTS ZONE 2
NOTE: SEE CROSS-SECTIONS AND ROADWAY STANDARD DRAWINGS STD.NO.865.01, SHEET 2 FOR SPECIAL MEDIAN GRADING
SEE SHEETS 18 AND 19 FOR -L- PROFILE
SEE SHEET 2-C FOR DRAINAGE DETAILS
SEE SHEETS S-1 TO S-7 FOR STRUCTURE PLANS
MATCH LINE SEE SHEET 7 STA. 38+65.000
MATCH LINE SEE SHEET 9 STA. 42+20.000
REVISIONS
929


A
B
C
D
SITE AB5c
SITE AB6a
SITE AB6b
SITE AB7
SITE AB8
ALLOWABLE IMPACTS ZONE 1
ALLOWABLE IMPACTS ZONE 2
MITIGATABLE IMPACTS
MITIGATABLE IMPACTS - ZONE 2
INSET A
ADT VOLUMES IN HUNDREDS
2005
2025
NC 42
US 70 BYPASS
PROPOSED TRAFFIC SIGNAL
SKETCH SHOWING BRIDGE / PAVEMENT RELATIONSHIP
METRICS
PRELIMINARY PLANS

NORTH CAROLINA





BUFFER PERMIT DRAWING
VICINITY MAP
R-2552B

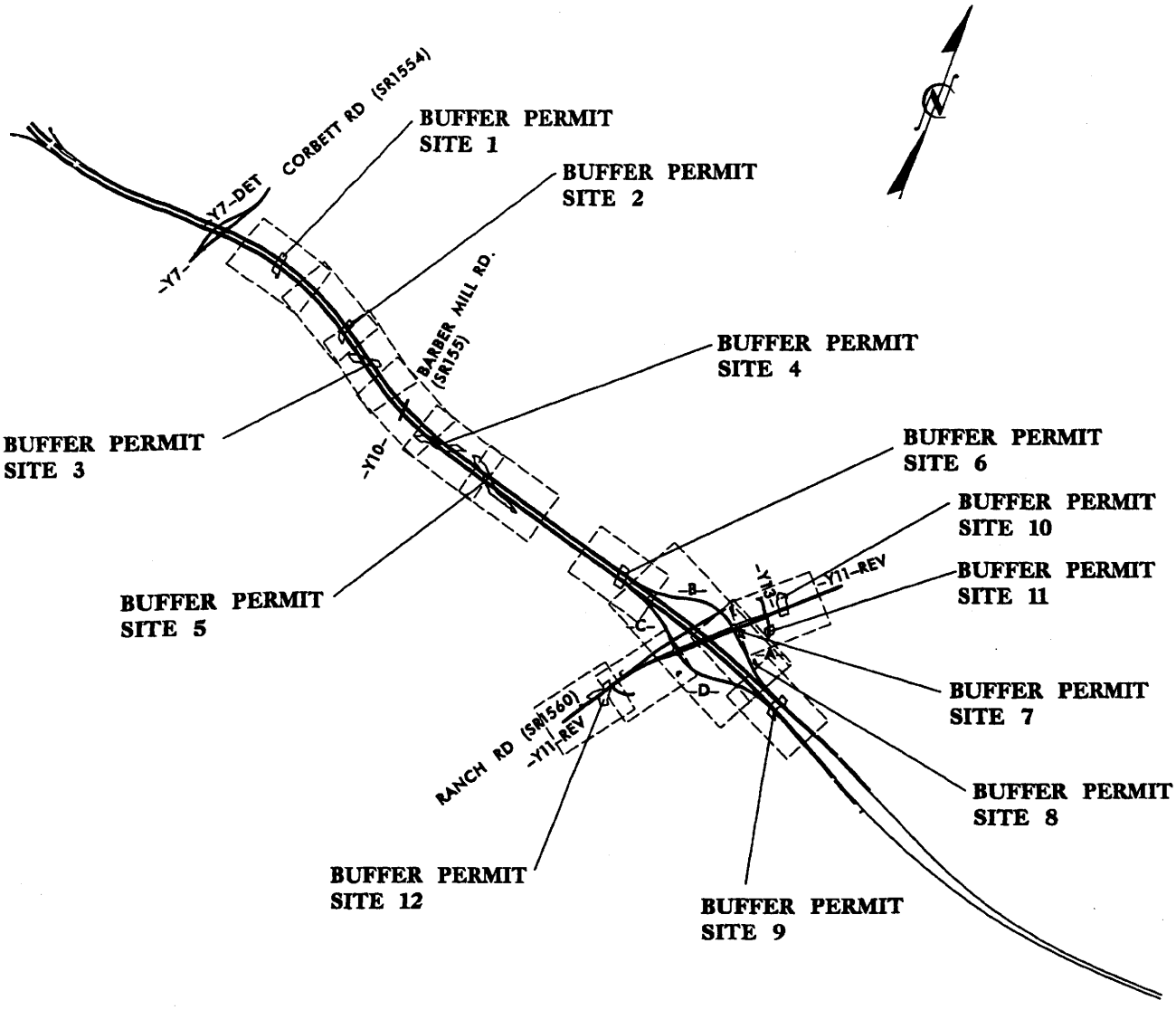
NCDOT
DIVISION OF HIGHWAYS
JOHNSTON COUNTY

PROJECT: 8.T311002 (R-2552B)
US 70 CLAYTON BYPASS FROM EAST OF NC 42 TO EAST OF SR 1560 (RANCH ROAD)

SHEET OF *9/23/2004*

9/23/2004 R:\0\I055065\Plan\...\its\buffer\BUFFVicinitymapdgN

SITE MAP



BUFFER PERMIT DRAWING
VICINITY MAP

DIVISION OF HIGHWAYS
JOHNSTON COUNTY

PROJECT: 8.T311002 (R-2552B)
US 70 CLAYTON BYPASS FROM EAST OF NC 42 TO EAST OF SR 1560 (RANCH ROAD)

SHEET 1 OF 11 *9/23/2004*

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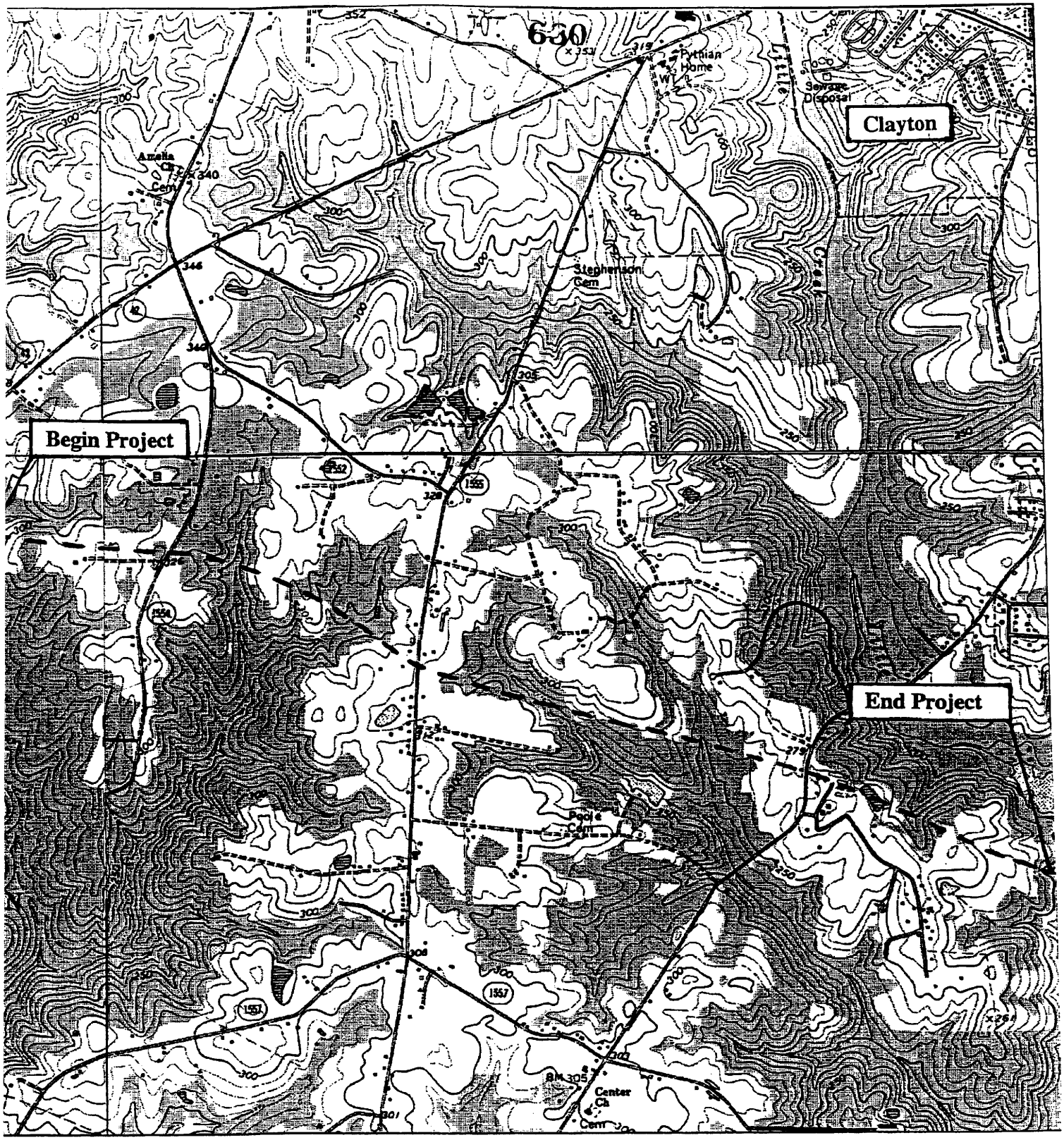
9/23/2004



BUFFER PERMIT DRAWING LOCATION R–2552B

SCALE: 1" = 2000'

NCDOT

DIVISION OF HIGHWAYS
JOHNSTON COUNTY

PROJECT: 8.T311002 (R–2552B)
US 70 CLAYTON BYPASS FROM EAST OF NC 42 TO EAST OF SR 1560 (RANCH ROAD)

SHEET 3 OF 11 8/4/04

LEGEND

WLB WETLAND BOUNDARY

WETLAND

DENOTES FILL IN WETLAND

DENOTES FILL IN SURFACE WATER

DENOTES FILL IN SURFACE WATER (POND)

DENOTES TEMPORARY WETLAND IMPACTS (HAND CLEARING ONLY)

DENOTES EXCAVATION IN WETLAND

DENOTES TEMPORARY SURFACE WATER IMPACTS

DENOTES MECHANIZED CLEARING

DENOTES MITIGABLE BUFFER IMPACTS ZONE 1

DENOTES MITIGABLE BUFFER IMPACTS ZONE 2

DENOTES ALLOWABLE BUFFER IMPACTS ZONE 1

DENOTES ALLOWABLE BUFFER IMPACTS ZONE 2

FLOW DIRECTION

TB TOP OF BANK

WE EDGE OF WATER

C PROP. LIMIT OF CUT

F PROP. LIMIT OF FILL

PROP. RIGHT OF WAY

NG NATURAL GROUND

PL PROPERTY LINE

TDE TEMP. DRAINAGE EASEMENT

PDE PERMANENT DRAINAGE EASEMENT

EAB EXIST. ENDANGERED ANIMAL BOUNDARY

EPB EXIST. ENDANGERED PLANT BOUNDARY

WATER SURFACE

LIVE STAKES

BOULDER

CORE FIBER ROLLS

PROPOSED BRIDGE

PROPOSED BOX CULVERT

PROPOSED PIPE CULVERT

(DASHED LINES DENOTE EXISTNG STRUCTURES)

SINGLE TREE

WOODS LINE

DRAINAGE INLET

ROOTWAD

RIP RAP

5 ADJACENT PROPERTY OWNER OR PARCEL NUMBER IF AVAILABLE

BUFFER PERMIT DRAWING
VICINITY MAP

DIVISION OF HIGHWAYS
JOHNSTON COUNTY

PROJECT: 8.T311002 (R-2552B)
US 70 CLAYTON BYPASS FROM EAST OF NC 42 TO EAST OF SR 1560 (RANCH ROAD)

SHEET 4 OF 11 ***9/16/2004***

9/16/2004 R:\01\056065\Plan\permits\buffer\BUFFlegend.dgn

	OWNER'S NAME	ADDRESS
(14)	Romero, Rubel	2012 Scott Court Clayton, NC 27520
(15)	Stephenson, Clennis	5524 Rolling Field Dr. Garner, NC 27529
(16)	Harris, Joseph L.	514 N. East St. Raleigh, NC 27604
(17)	Gilbert, Jennifer P.	273-C Blue Pond Rd. Clayton, NC 27520
(18)	Parrish, Samuel Clarence	377 Short Johnson Rd. Clayton, NC 27520
(19)	Lane, Angela Yopp	606 S. 5th St. Mebane, NC 27302
(20)	Poole, Reginald M., Sr.	3907 Barber Mill Rd. Clayton, NC 27520
(26)	Delaine, Blanche Jean	3960 Barber Mill Rd. Clayton, NC 27520
(29)	Johnson, Roland H.	2433 Tweedmore Ct. High Point, NC 27625
(30)	Bolyard, Gypsy Rochelle	3047 Jack Rd. Clayton, NC 27520
(31)	Edwards, Honey H.	216 E. Horne St. Clayton, NC 27520
(32)	Canady, Kenneth R.	203 Blanche St. Clayton, NC 27520
(34)	Langford, Taylor Morton, Jr.	2100 Twin Acres Rd. Clayton, NC 27520
(35)	Haden, James Sullivan	1120 Ranch Rd. Clayton, NC 27520
(36)	Whitley, Joseph M.	740 Ranch Rd. Clayton, NC 27520
(39)	Carolina Packers, Inc.	P.O. Drawer 1109 Smithfield, N.C. 27577
(40)	Ontiveros, Lynda Triplett	411 Pleasant Hill Ave. North Sebestopol, CA 95472
(58)	Shand, Annie	PO Box 32 Clayton, NC 27520
(59)	Whittemore, Joseph Franklin, Jr.	140 Canyon Rd. Clayton, NC 27520
(64)	Jones, John A., Jr.	1357 Ranch Rd. Clayton, NC 27520
(68)	Langford, Phillip E.	2130 Twin Acres Rd. Clayton, NC 27520
(69)	Rethemeyer, J.W.	1521 Ranch Rd. Clayton, NC 27520
(902)	Carolina Packers, Inc.	P.O. Drawer 1109 Smithfield, N.C. 27577

PROPERTY OWNER NAME AND ADDRESS

DIVISION OF HIGHWAYS
JOHNSTON COUNTY

PROJECT: 8.T311002 (R-2552B)
US 70 CLAYTON BYPASS FROM EAST OF NC 42 TO EAST OF SR 1560 (RANCH ROAD)

SHEET 7 OF 11 **9/17/2004**

9/17/2004 R:\01\D56065\Plan\permits\buffer\V-2552_prop.dgn

BUFFER IMPACTS SUMMARY

			IMPACT								BUFFER REPLACEMENT	
			TYPE		ALLOWABLE			MITIGABLE				
SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	ROAD CROSSING	PARALLEL IMPACT	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)
1	66 in RCP	-L- Sta 68+60+/-	X					11249.7	12195.9	23445.6		
2	54 in RCP	-L- Sta 73+30+/-	X					14866.2	11954.1	26820.3		
3	60 in RCP	-L- Sta 74+50-75+80	X					24801.0	19088.2	43889.2		
4	42 in RCP	-L- Sta 79+60-82+00	X					36510.9	30222.6	66733.5		
5	10' x 7' RCBC	-L- Sta 82+30-86+00	X					37785.0	37688.1	75473.1	9671.3	7493.9
6	10' x 7' RCBC	-L- Sta 92+20+/-	X					25888.5	12147.8	38036.3		
7	48 in RCP	-RPA- Sta 4+00	X		4845.3	5625.8	10471.1					
8	24 in RCP	-RPA- Sta 2+40	X		1146.5	2137.9	3284.4					
9	48 in RCP	-L- Sta 102+30+/-	X					20306.2	18380.4	38686.6		
10	Bridge	-Y11- REV Sta 14+80	X					14885.8	11322.6	26208.4	5565.5	4911.0
11	48 in RCP	-Y13- REV Sta 9+20	X					11070.7	5718.3	16789.0		
12	10' x 7' RCBC &	-Y11- REV	X					36490.6	12864.5	49355.1	5770.0	3111.1
	8' x 8' RCBC	Sta 24+10 - 25+60	X									
TOTAL:					5991.8	7763.7	13755.5	233854.6	171582.5	405437.1	21006.8	15516.0

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

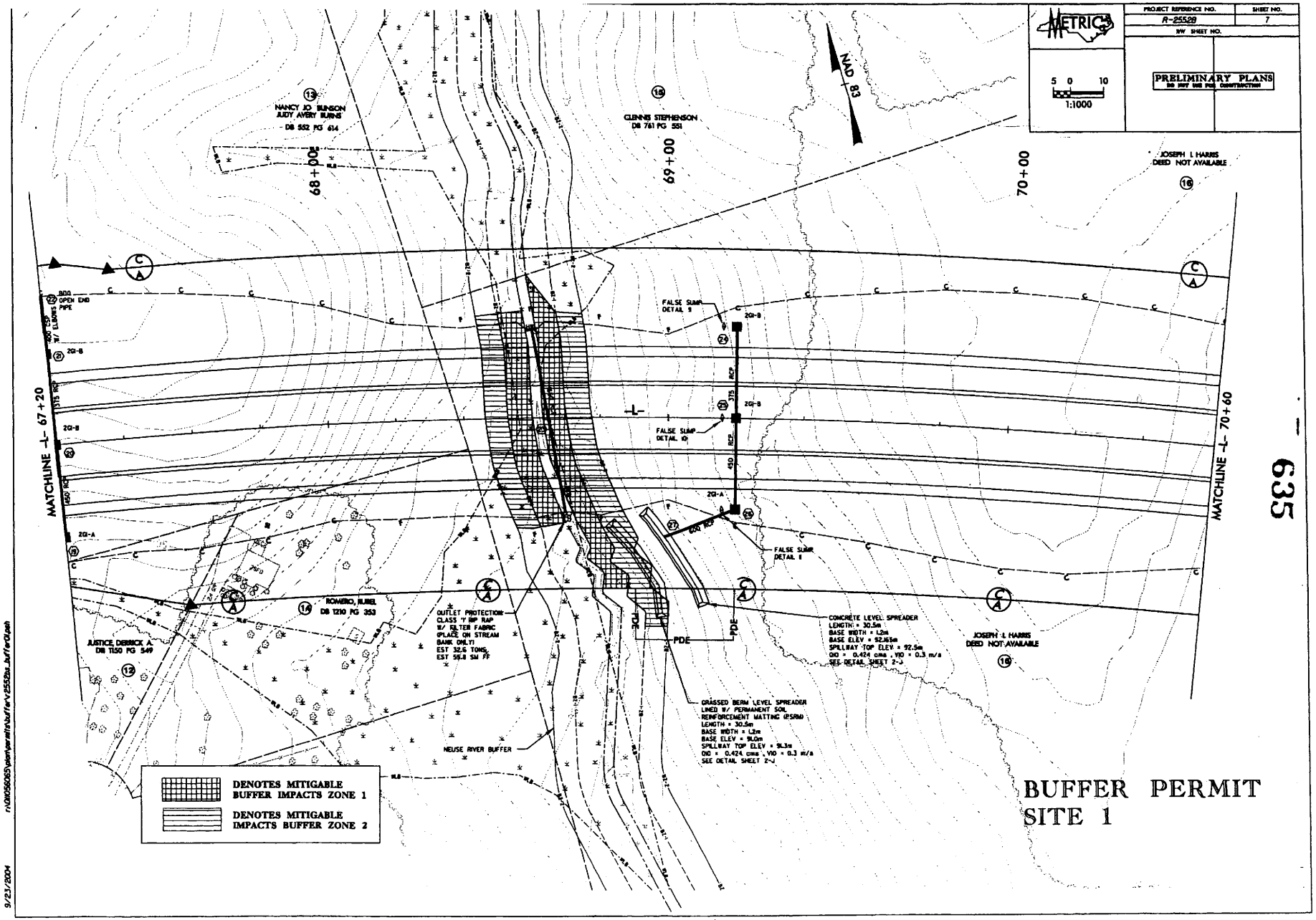
JOHNSTON COUNTY
PROJECT: 8.T311002 (R-2552B)
US-70 CLAYTON BYPASS
EAST OF NC 42 TO EAST OF SR 1560
10/14/04
SHEET 5 OF 11

BUFFER IMPACTS SUMMARY (within wetlands)

		WETLANDS IN BUFFER	
Site	Station	ZONE 1 (ft^2)	ZONE 2 (ft^2)
1	-L- Sta 68+60+/-	5984.7	1715.1
2	-L- Sta 73+30+/-	10382.3	4527.1
3	-L- Sta 74+50-75+80	19247.0	10620.0
4	-L- Sta 79+60-82+00	27400.0	11569.0
5	-L- Sta 82+30-86+00	21033.7	17608.7
12	-Y11- REV	3497.8	1787.0
	Sta 24+10 - 25+60		
		87545.7	47826.9

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

JOHNSTON COUNTY
PROJECT: 8.T311002 (R-2552B)
US-70 CLAYTON BYPASS
EAST OF NC 42 TO EAST OF SR 1560
9/23/2004
SHEET OF



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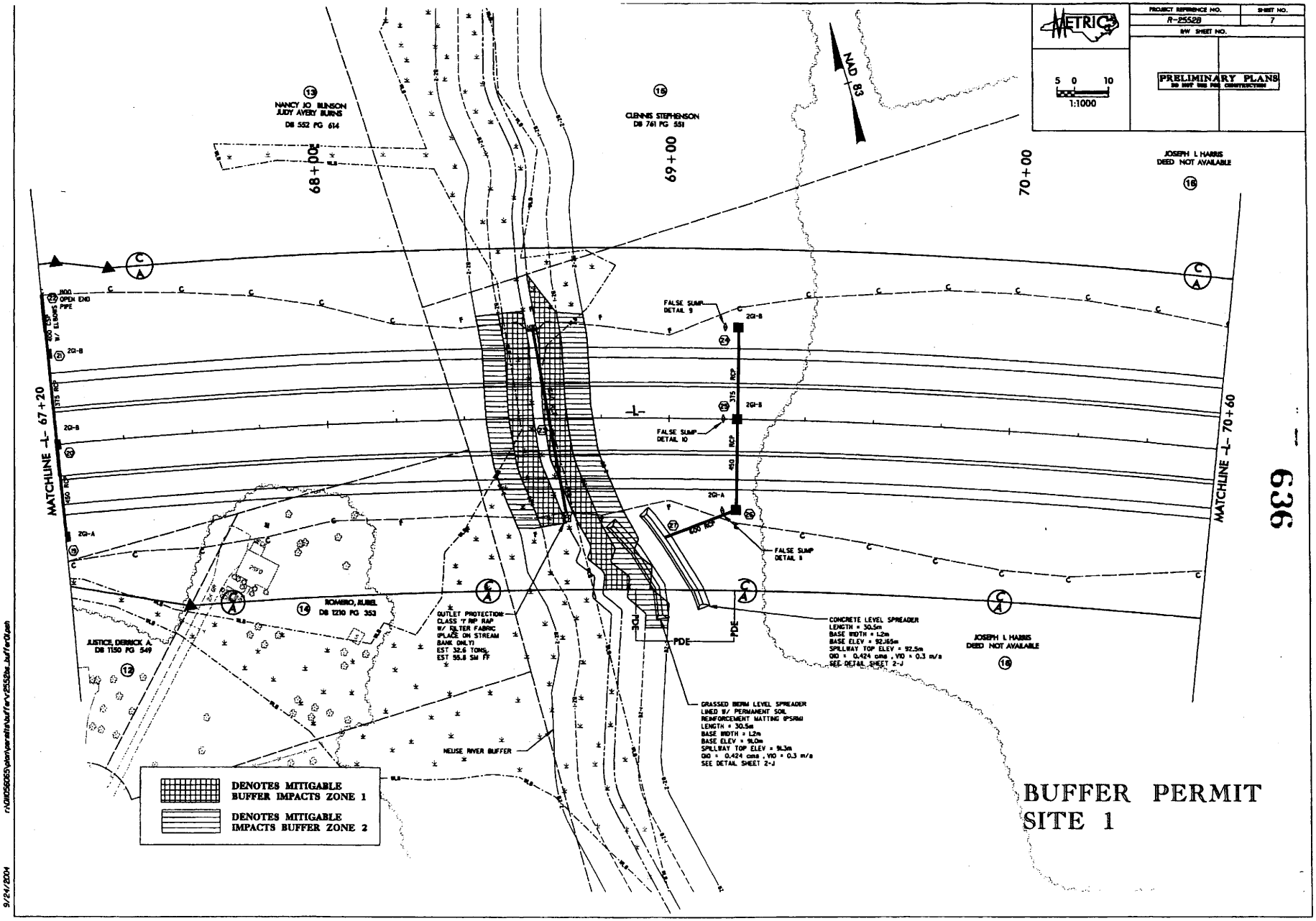
METRIC
PROJECT REFERENCE NO.
R-2552B
SHEET NO.
7
RW SHEET NO.
5 0 10
1:1000
PRELIMINARY PLANS
NAD 83
NANCY JO BUNSON
JUDY AVERY BURNS
DB 552 PG 614
CLENNIS STEPHENSON
DB 761 PG 551
JOSEPH L HARRIS
DEED NOT AVAILABLE
68+00
69+00
70+00
MATCHLINE -L- 67+20
MATCHLINE -L- 70+60
FALSE SUMP DETAIL 9
FALSE SUMP DETAIL 10
FALSE SUMP DETAIL 11
ROMERO, RUBEL
DB 1210 PG 353
JUSTICE, DERRICK A
DB 1150 PG 549
OUTLET PROTECTION CLASS 'I' RIP RAP W/ FILTER FABRIC PLACE ON STREAM BANK ONLY) EST 32.6 TONS, EST 55.8 SM FF
CONCRETE LEVEL SPREADER
LENGTH = 30.5m
BASE WIDTH = 1.2m
BASE ELEV = 92.165m
SPILLWAY TOP ELEV = 92.5m
QIO = 0.424 cms , VIO = 0.3 m/s
SEE DETAIL SHEET 2-J
GRASSED BERM LEVEL SPREADER LINED W/ PERMANENT SOIL REINFORCEMENT MATTING (PSRM)
LENGTH = 30.5m
BASE WIDTH = 1.2m
BASE ELEV = 91.0m
SPILLWAY TOP ELEV = 91.3m
QIO = 0.424 cms , VIO = 0.3 m/s
SEE DETAIL SHEET 2-J
NEUSE RIVER BUFFER
DENOTES MITIGABLE BUFFER IMPACTS ZONE 1
DENOTES MITIGABLE IMPACTS BUFFER ZONE 2
BUFFER PERMIT
SITE 1
939
9/24/2004
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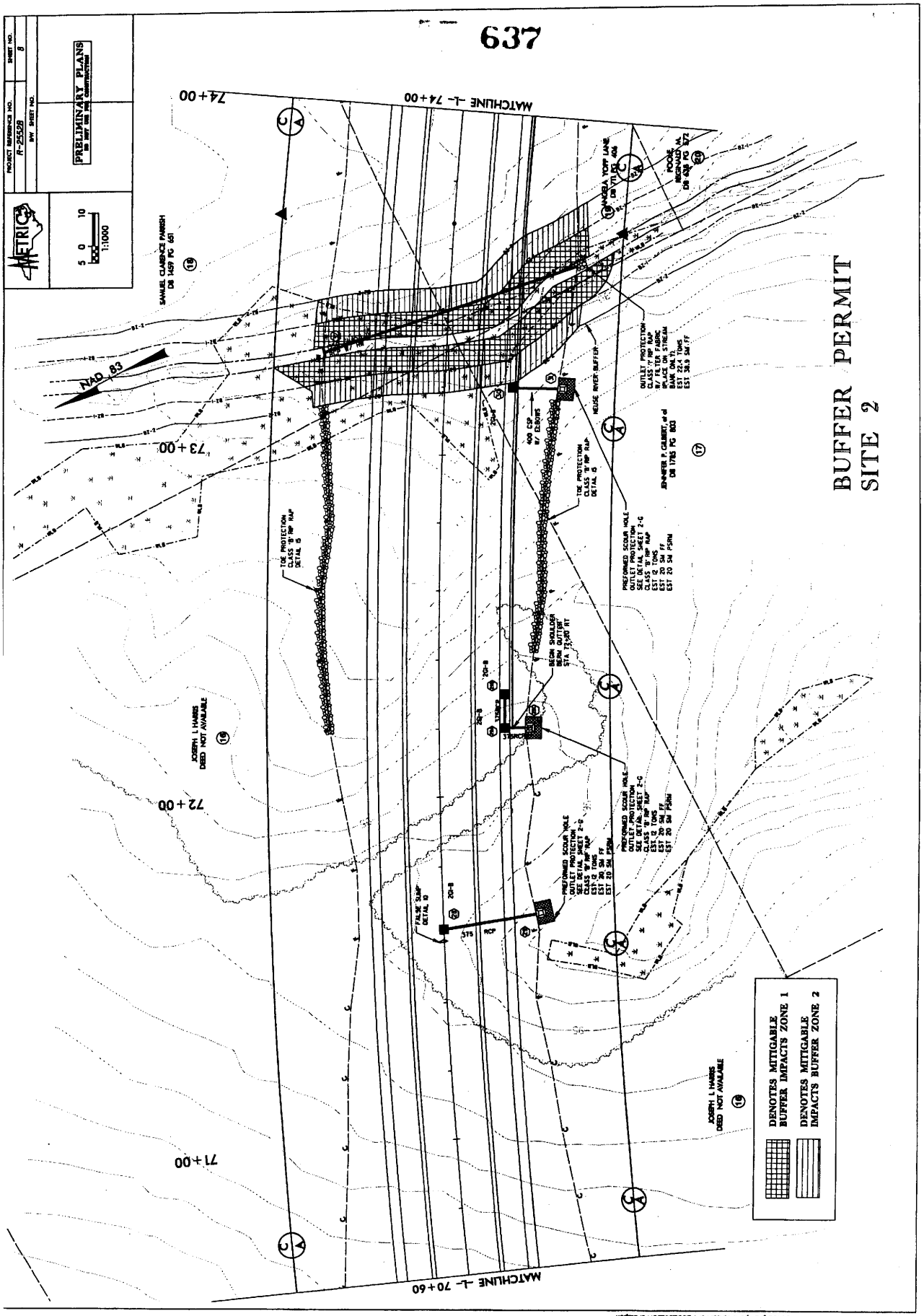

BUFFER PERMIT
SITE 2

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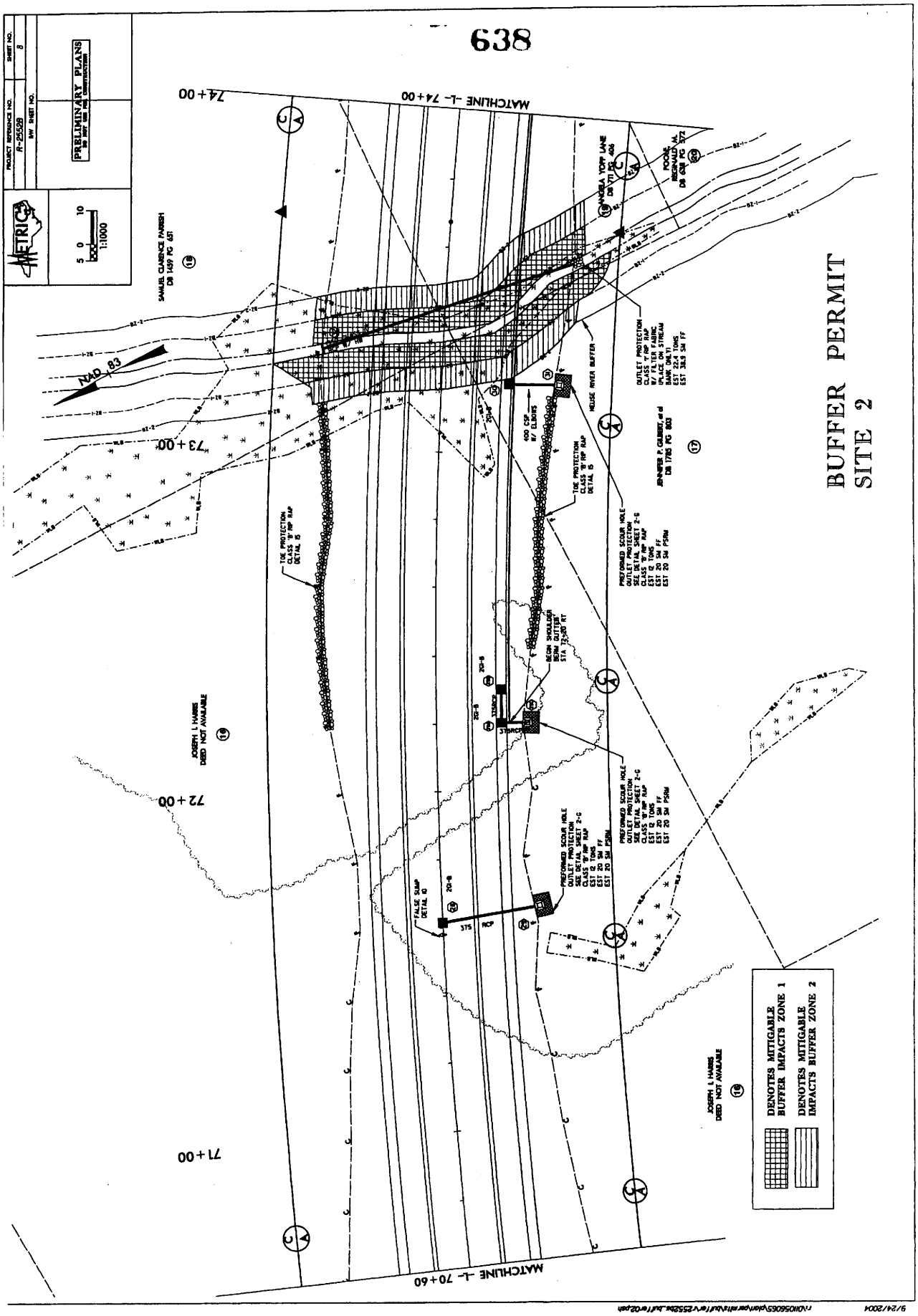
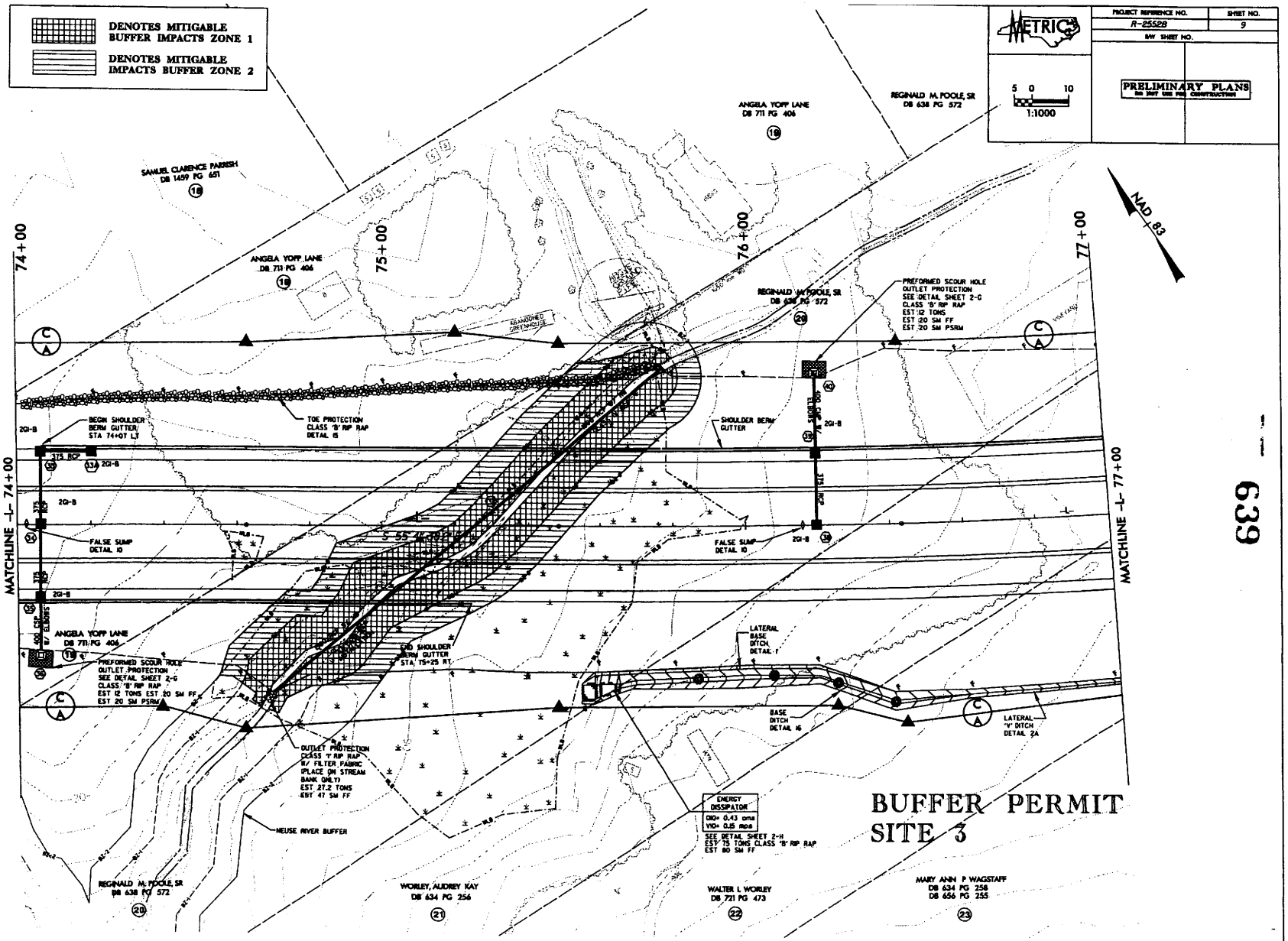

BUFFER PERMIT
SITE 2
PRELIMINARY PLANS
NOT FOR CONSTRUCTION
PROJECT REFERENCE NO. R-2559B
SHEET NO. 8
NW SHEET NO.
METRIC
1:1000
NAD 83
MATCHLINE -L- 74+00
MATCHLINE -L- 70+60
74+00
73+00
72+00
71+00
SAMUEL CLARENCE PARRISH DB 1459 PG 651
ANDREA YORP LANE DB 1771 PG 486
POONE REGINALD VIL DB 636 PG 572
JENNIFER P. GILBERT et al DB 1785 PG 803
JOSEPH L HARRIS DEED NOT AVAILABLE
HOUSE RIVER BUFFER
OUTLET PROTECTION CLASS 'I' RIP RAP W/ FILTER FABRIC (PLACE ON SLOPES) BANK DIA.(1) EST 22.4 TONS EST 38.5 SM FF
PREFORMED SCOUR HOLE OUTLET PROTECTION SEE DETAIL SHEET 2-G CLASS 'B' RIP RAP EST 15 TONS EST 20 SM FF EST 20 SM PSRM
TOE PROTECTION CLASS 'B' RIP RAP DETAIL B
TOE PROTECTION CLASS 'B' RIP RAP DETAIL B
400 CSP W/ ELBOWS
BEGIN SHOULDER BERM DITCH STA 73+20 RT
STRUCT #1
STRUCT #2
FALSE SUMP DETAIL G
375 RCP
DENOTES MITIGABLE BUFFER IMPACTS ZONE 1
DENOTES MITIGABLE IMPACTS BUFFER ZONE 2
9/24/2004



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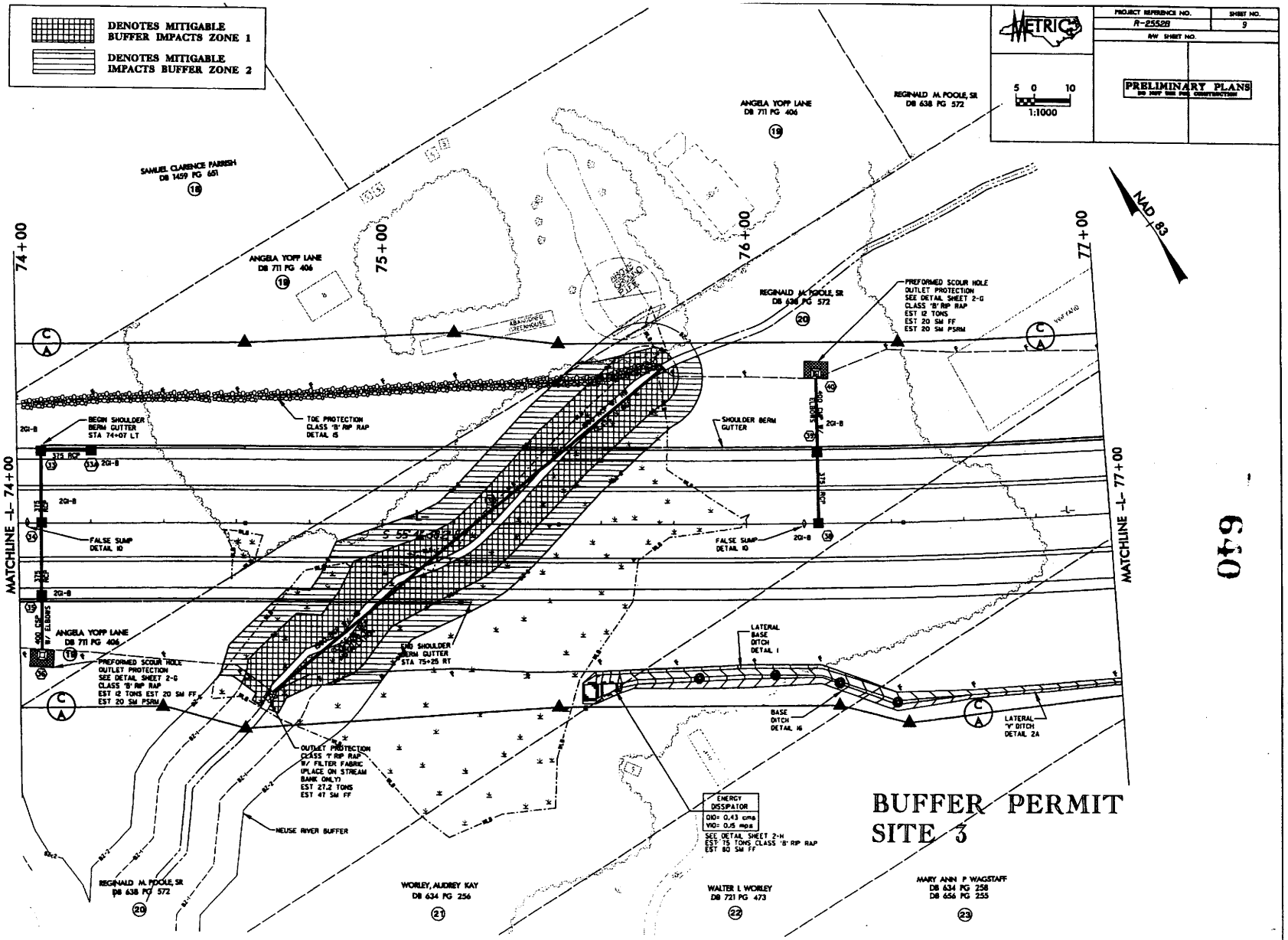
639



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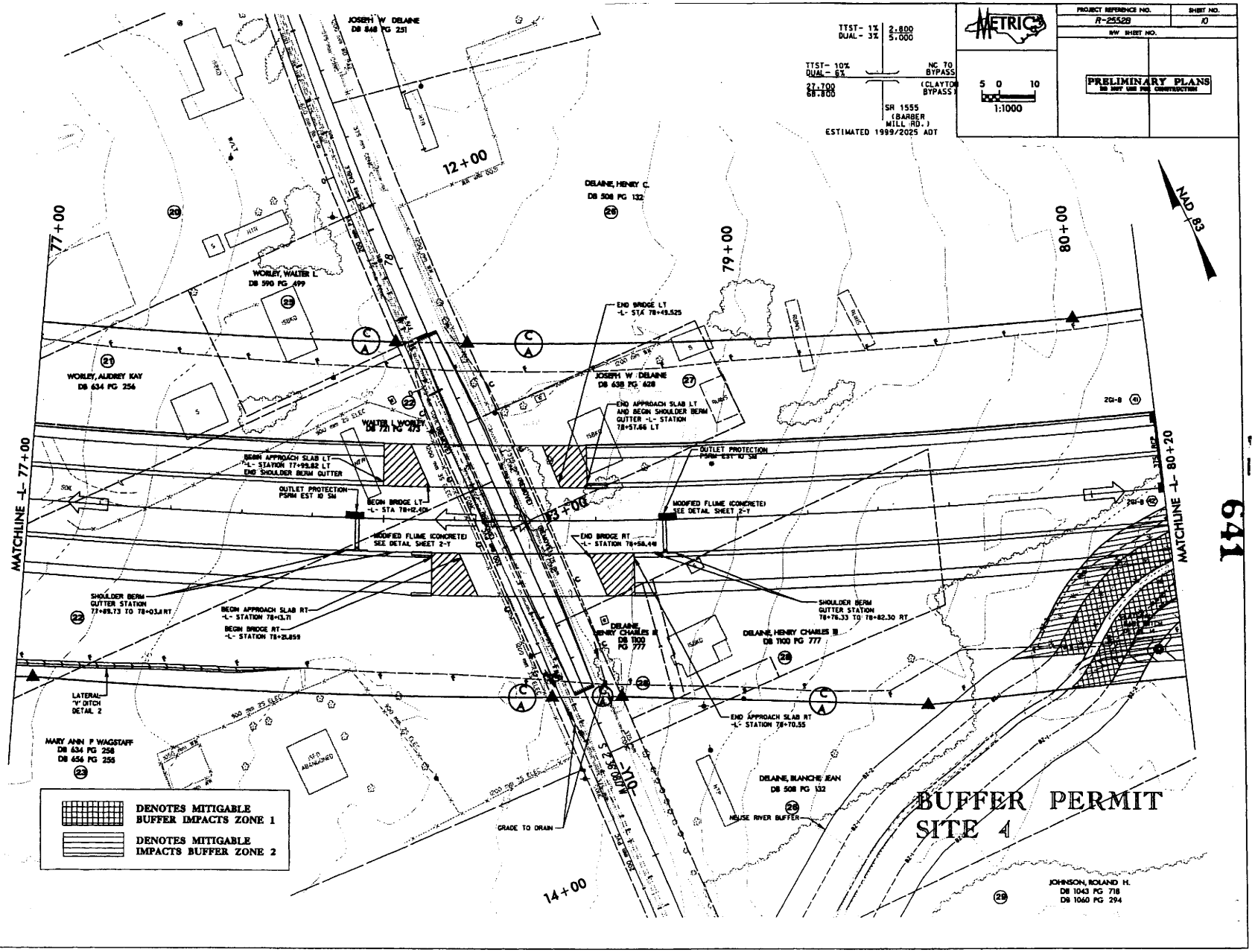

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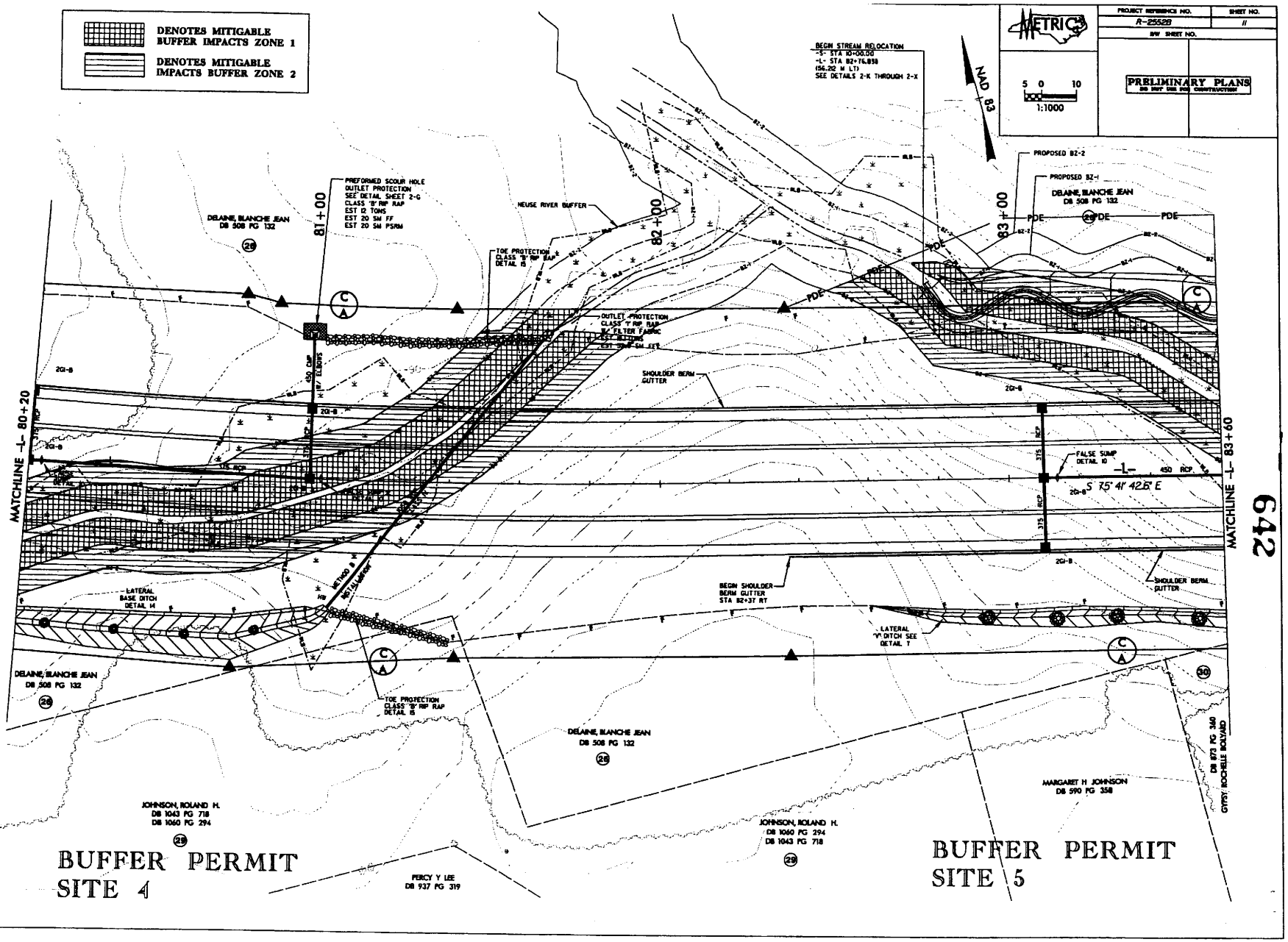

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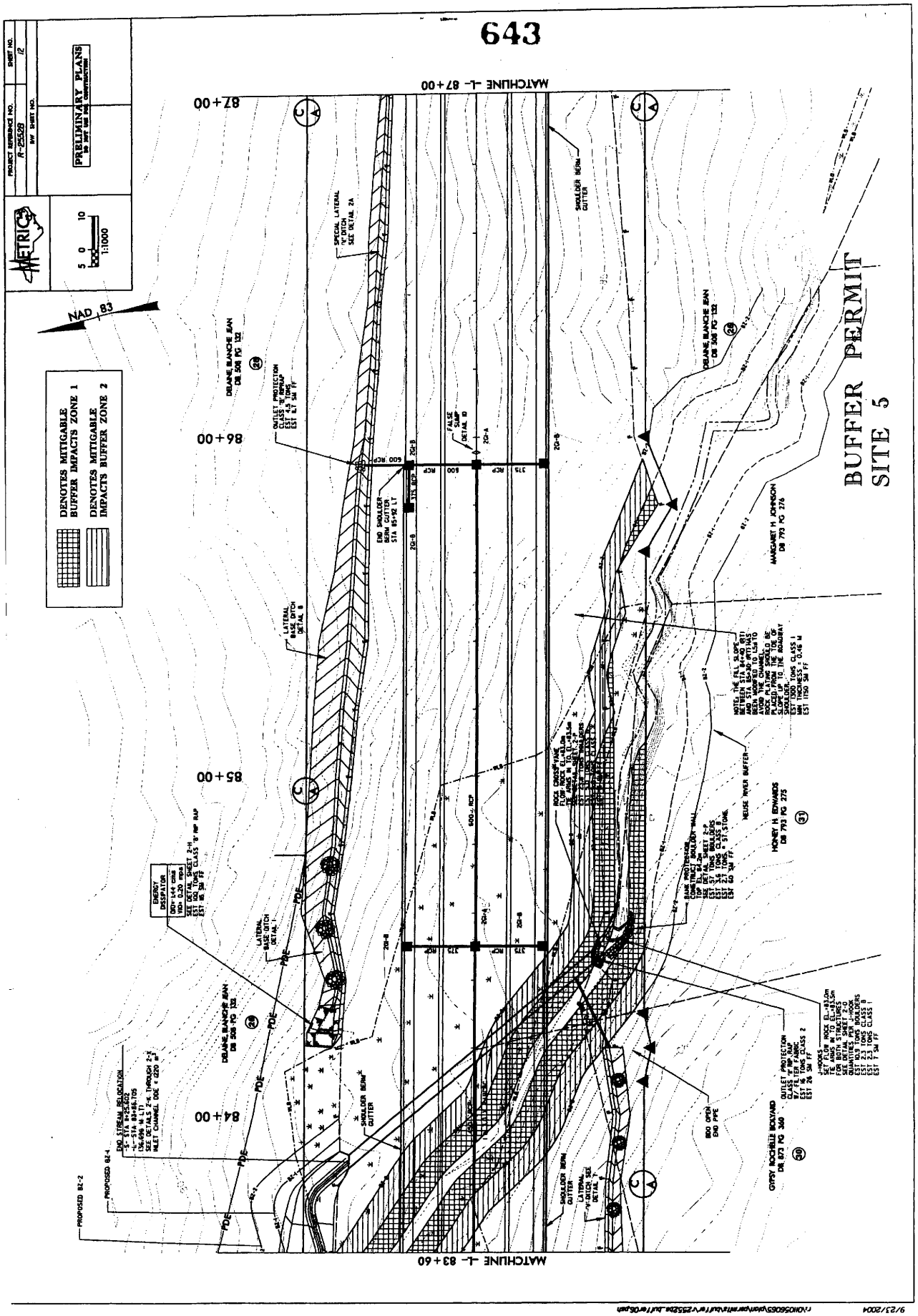
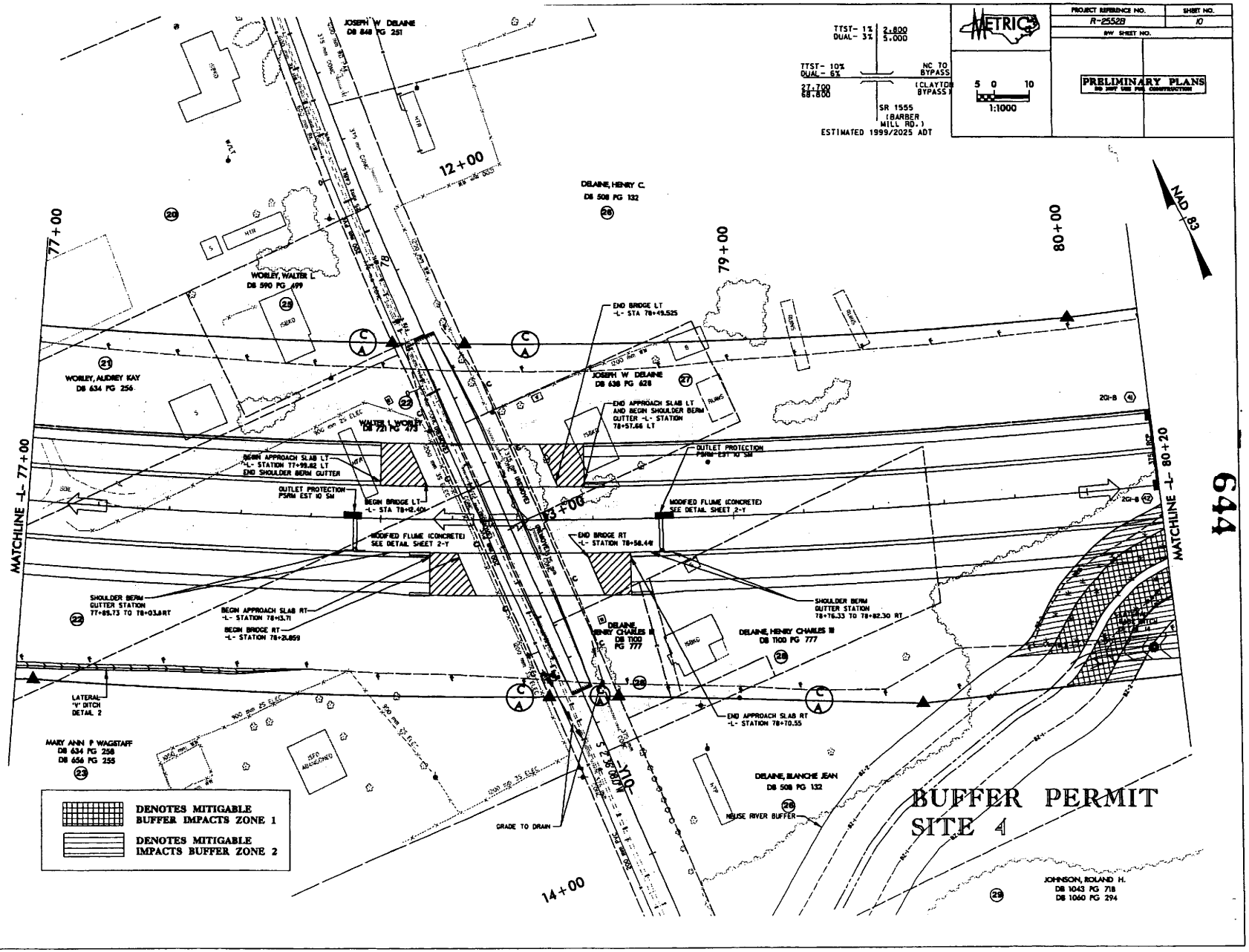

PRELIMINARY PLANS
NOT FOR CONSTRUCTION
PROJECT REFERENCE NO. R-2553B
SHEET NO. 12
METRIC
5 0 10
1:1000
NAD 83
DENOTES MITIGABLE BUFFER IMPACTS ZONE 1
DENOTES MITIGABLE IMPACTS BUFFER ZONE 2
MATCHLINE -L- 87+00
MATCHLINE -L- 83+60
87+00
86+00
85+00
84+00
PROPOSED B2-2
PROPOSED B2-4
END STREAM RELOCATION
-L- STA. 83+56.705
TO STA. 84+17.72
SEE DETAILS 2-K THROUGH 2-J
INLET CHANNEL DOE = 220 m³
ENERGY DISSIPATOR
SEE DETAIL SHEET 2-H
EST 100 TONS CLASS "B" RIP RAP
EST 16 SM FF
LATERAL BASE DITCH DETAIL A
LATERAL BASE DITCH DETAIL B
SPECIAL LATERAL "A" DITCH SEE DETAIL 2A
OUTLET PROTECTION
SEE DETAIL SHEET 2-H
EST 45 TONS
EST 4.5 SM FF
END SHOULDER BERM GUTTER STA 85+92 LT
FALSE SUMP DETAIL B
SHOULDER BERM GUTTER
DEANE BANCIE JEAN
DB 308 PG 132
MARGARET H JOHNSON
DB 793 PG 276
HONEY H EDWARDS
DB 793 PG 275
GYPSY ROCHELLE BOYKIN
DB 673 PG 588
NEUSE RIVER BUFFER
ROCK CROSS PIPE
SEE DETAIL SHEET 2-F
EST 34 TONS CLASS B
EST 23 TONS "ST" STONE
EST 68 SM FF
BANK PROTECTION
SEE DETAIL SHEET 2-F
TOP EL=84.2m
EST 16 TONS CLASS B
EST 34 TONS CLASS B
EST 23 TONS "ST" STONE
EST 68 SM FF
NOTES THE FILL SLOPE BEHIND THE L-A-D-D-I-T AND STA 85+92 WILL HAS BEEN MODIFIED TO 1.5:1
ROCK PLATING SHOULD BE PLACED FROM THE TOE OF SLOPE TO THE ROADWAY
SHOULDER
EST 1400 TONS CLASS I
EST 1150 SM FF
800 OPEN END PIPE
OUTLET PROTECTION
SEE DETAIL SHEET 2-H
EST 1 RIP RAP
W/ FILTER FABRIC
EST 100 TONS CLASS 2
EST 26 SM FF
J-HOOKS
SET FLOW HOOK EL.=83.0m
SET HIGH HOOK EL.=84.5m
FOR BOTH STRUCTURES
SEE DETAIL SHEET 2-D
EST 10.3 TONS BOULDERS
EST 2.3 TONS CLASS B
EST 7 SM FF
BUFFER PERMIT
SITE 5


METRIC
PROJECT REFERENCE NO.
R-2552B
SHEET NO.
10
RW SHEET NO.
PRELIMINARY PLANS
NOT FOR CONSTRUCTION
TTST- 1%
DUAL- 3%
2+800
5+000
TTST- 10%
DUAL- 6%
NC 70 BYPASS
(CLAYTON BYPASS)
27+700
68+800
SR 1555
(BARBER MILL RD.)
ESTIMATED 1999/2025 ADT
5 0 10
1:1000
NAD 83
JOSEPH W DELAINE
DB 848 PG 251
DELAINE, HENRY C.
DB 508 PG 132
WORLEY, WALTER L
DB 590 PG 499
WORLEY, AUDREY KAY
DB 634 PG 256
WALTER L WORLEY
DB 721 PG 473
JOSEPH W DELAINE
DB 638 PG 628
DELAINE, HENRY CHARLES III
DB 1100 PG 777
DELAINE, BLANCHE JEAN
DB 508 PG 132
MARY ANN P WAGGSTAFF
DB 634 PG 258
DB 656 PG 255
JOHNSON, ROLAND H.
DB 1043 PG 718
DB 1060 PG 294
12+00
77+00
79+00
80+00
MATCHLINE -L- 77+00
MATCHLINE -L- 80+20
END BRIDGE LT
-L- STA 78+49.525
END APPROACH SLAB LT
AND BEGIN SHOULDER BERM
GUTTER -L- STATION
78+57.66 LT
BEGIN APPROACH SLAB LT
-L- STATION 77+98.82 LT
END SHOULDER BERM GUTTER
OUTLET PROTECTION
PSRM EST 10 SM
BEGIN BRIDGE LT
-L- STA 78+42.40
MODIFIED FLUME (CONCRETE)
SEE DETAIL SHEET 2-Y
END BRIDGE RT
-L- STATION 78+58.48
SHOULDER BERM
GUTTER STATION
77+89.73 TO 78+03.81 RT
BEGIN APPROACH SLAB RT
-L- STATION 78+13.71
BEGIN BRIDGE RT
-L- STATION 78+26.859
SHOULDER BERM
GUTTER STATION
78+76.33 TO 78+82.30 RT
END APPROACH SLAB RT
-L- STATION 78+70.55
LATERAL
"V" DITCH
DETAIL 2
GRADE TO DRAIN
NEUSE RIVER BUFFER
DENOTES MITIGABLE
BUFFER IMPACTS ZONE 1
DENOTES MITIGABLE
IMPACTS BUFFER ZONE 2
BUFFER PERMIT
SITE 4
14+00
644
9/24/2004
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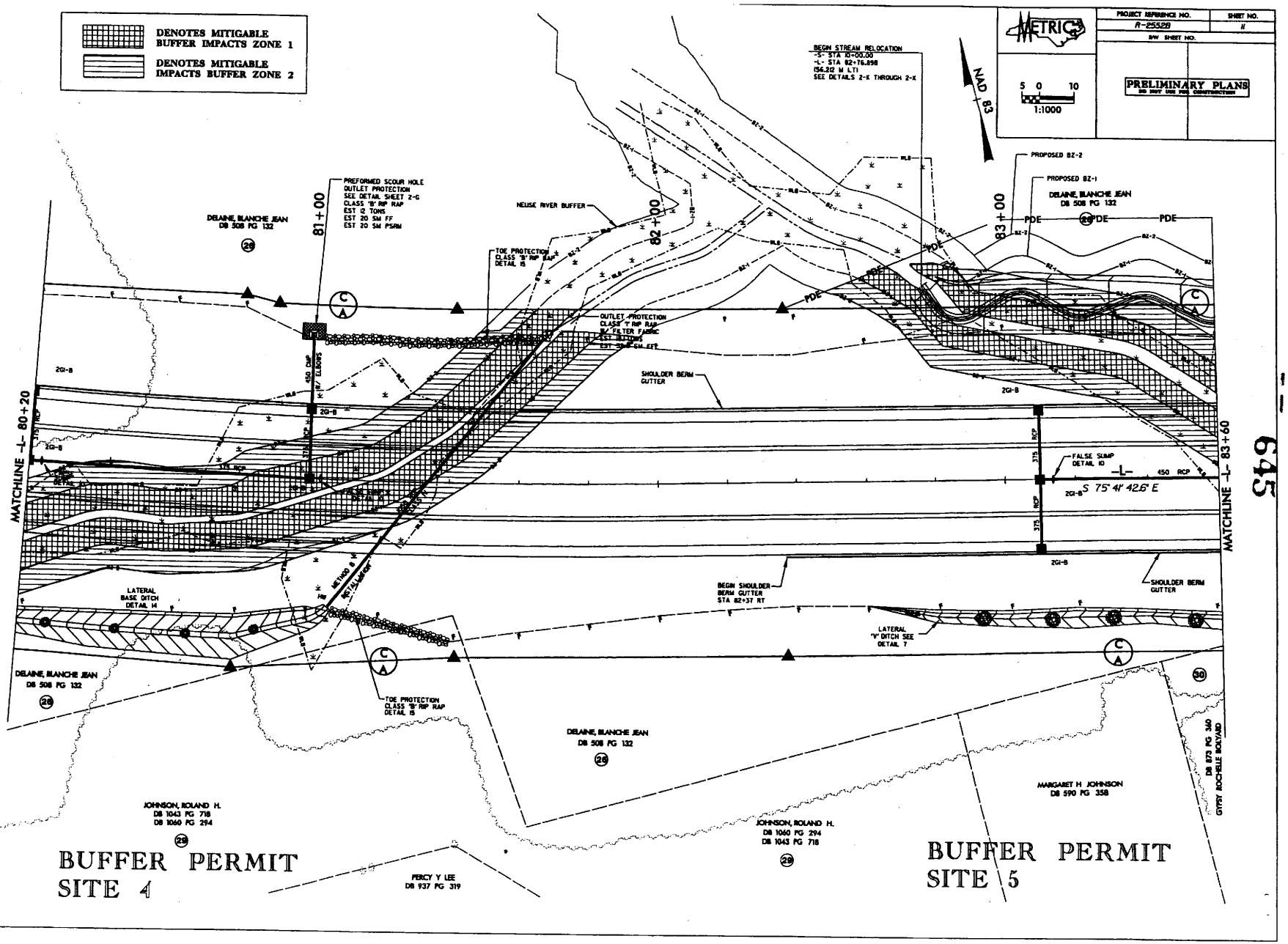

9/24/2004

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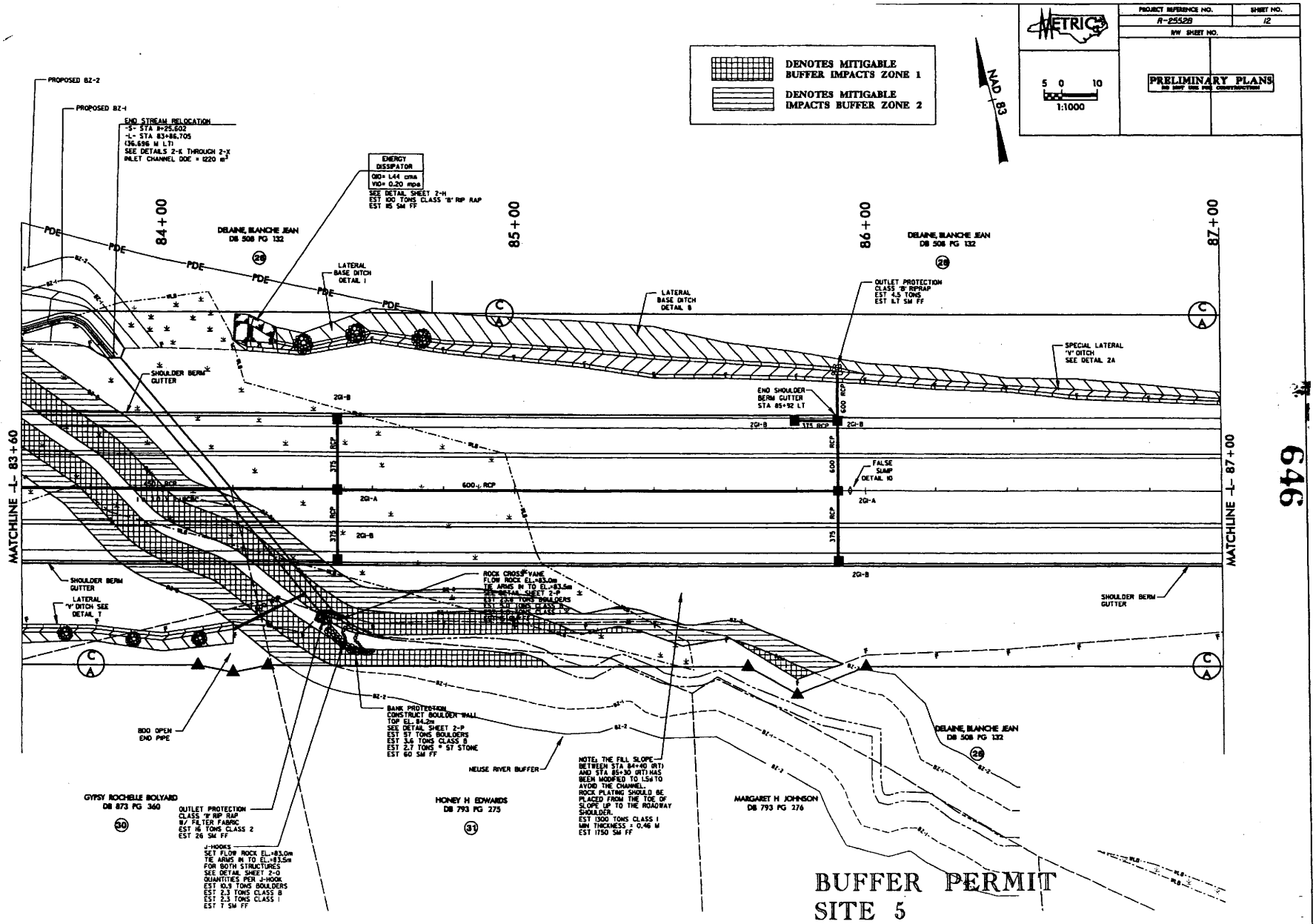
645



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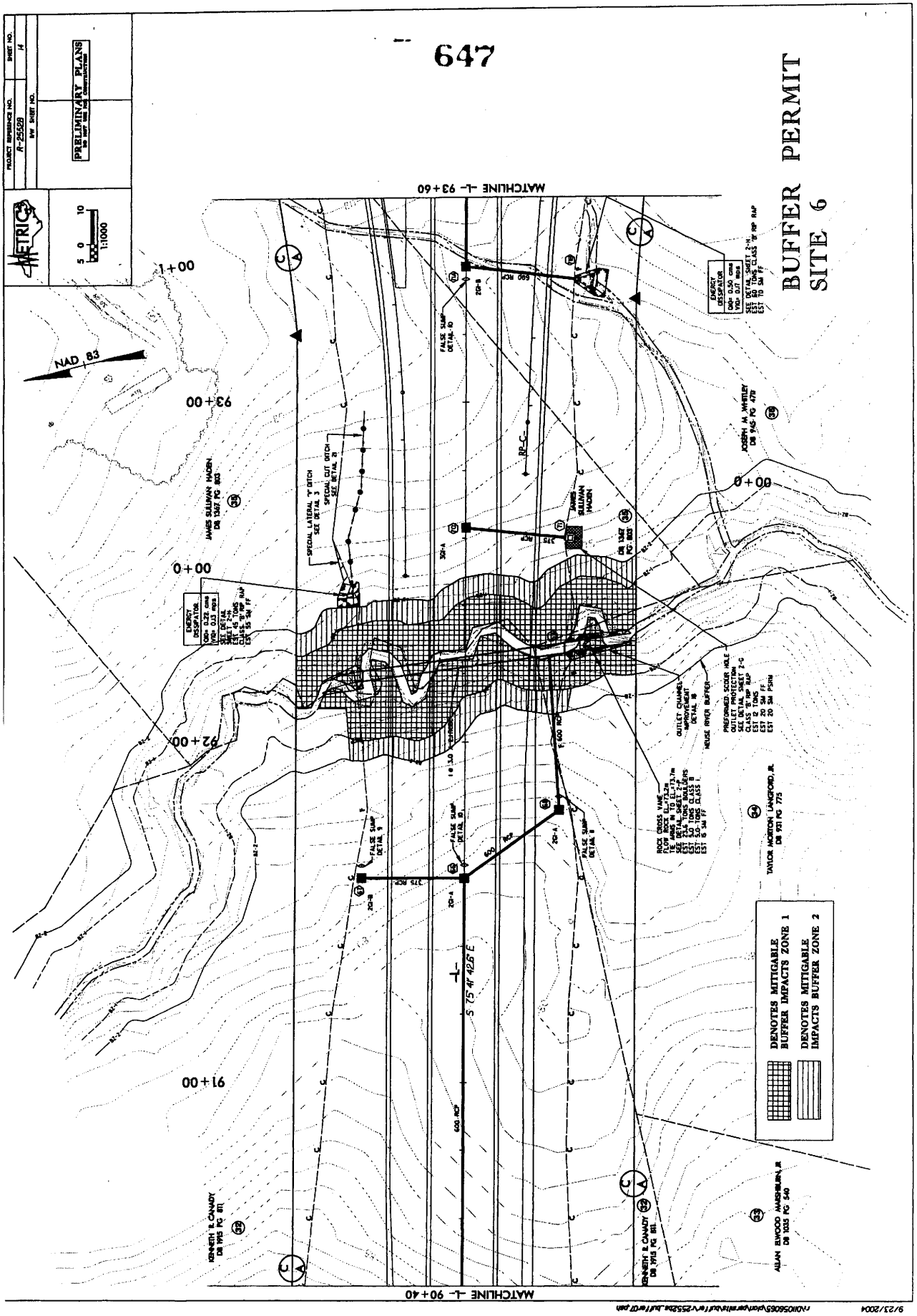
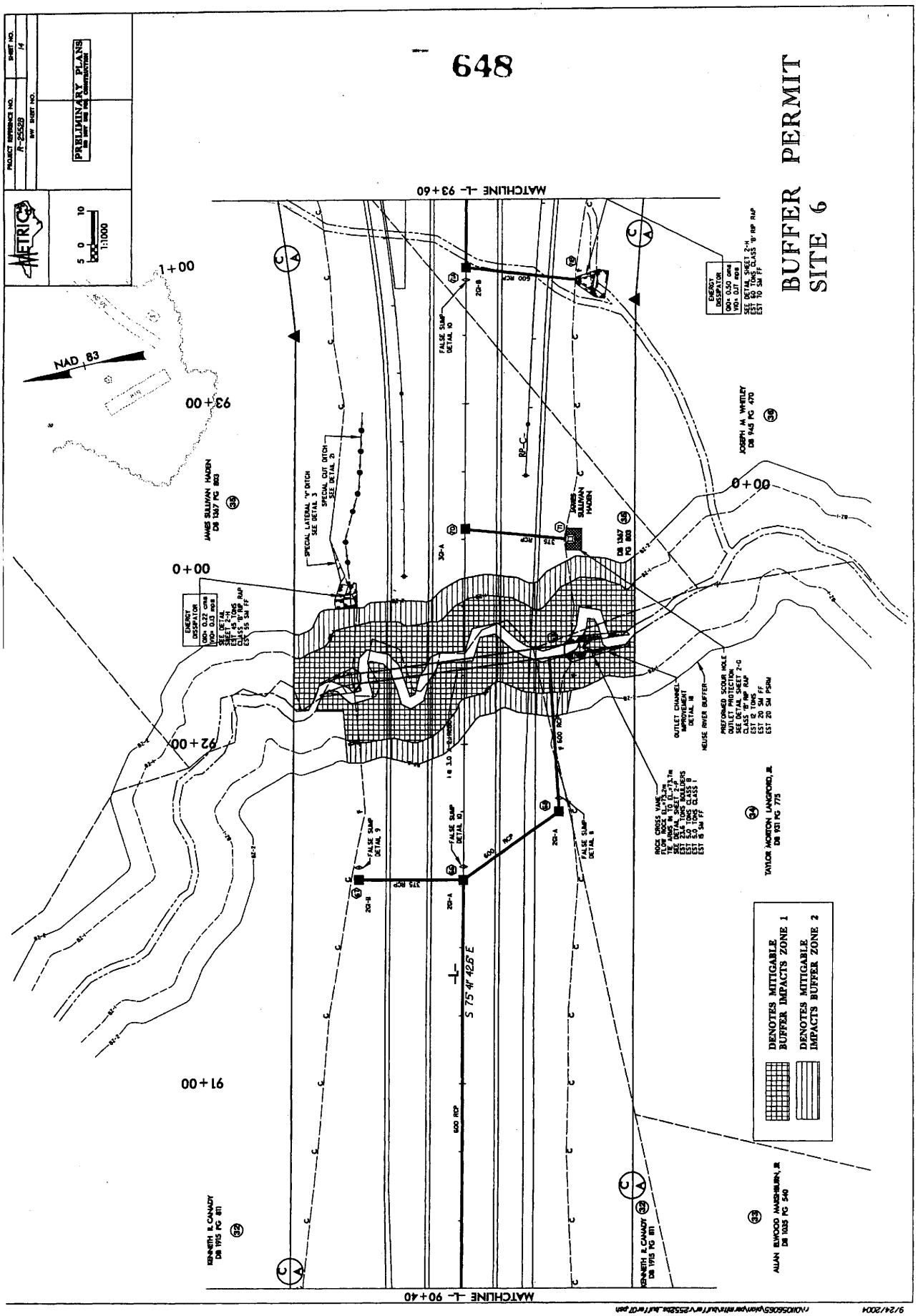
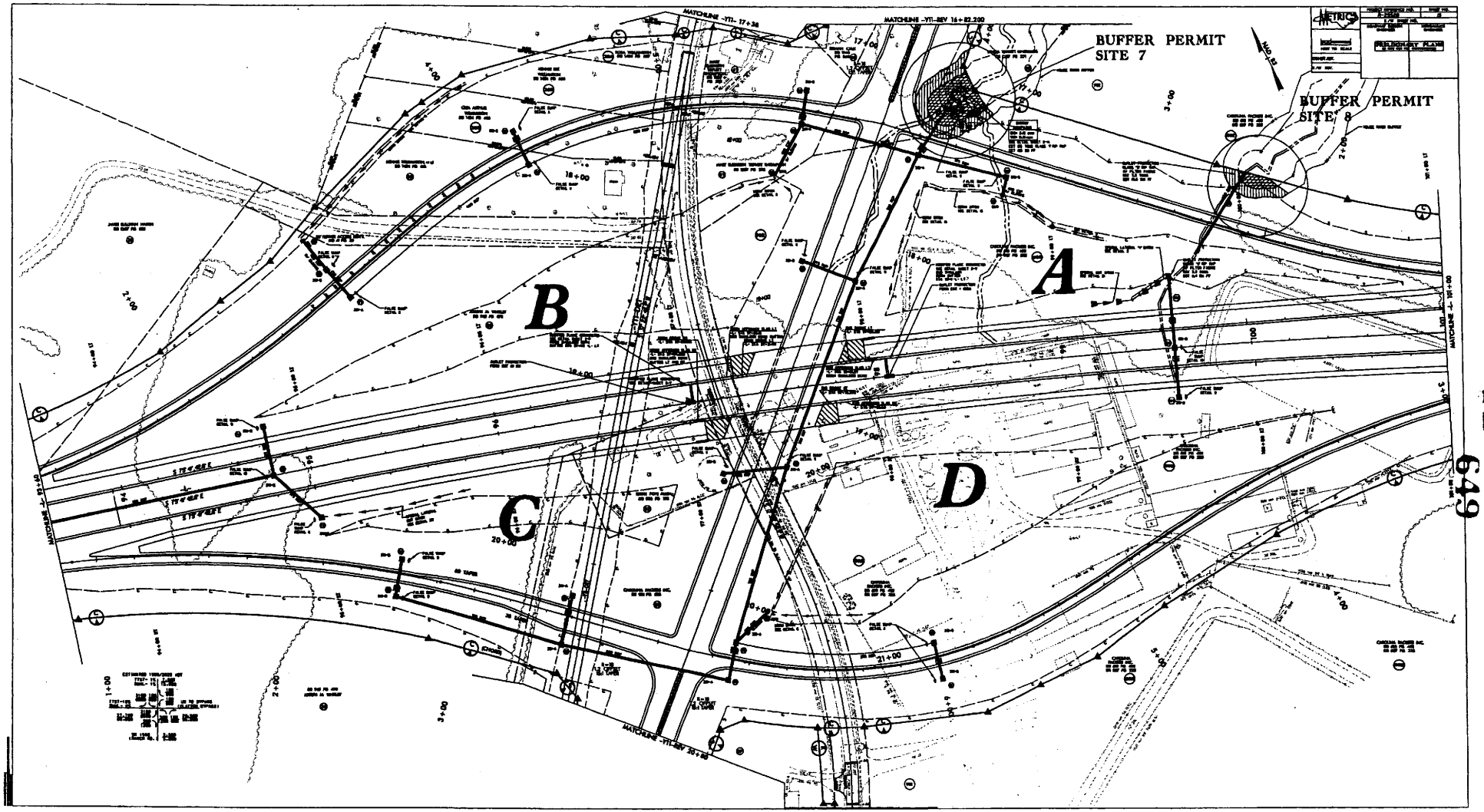
9/24/2004

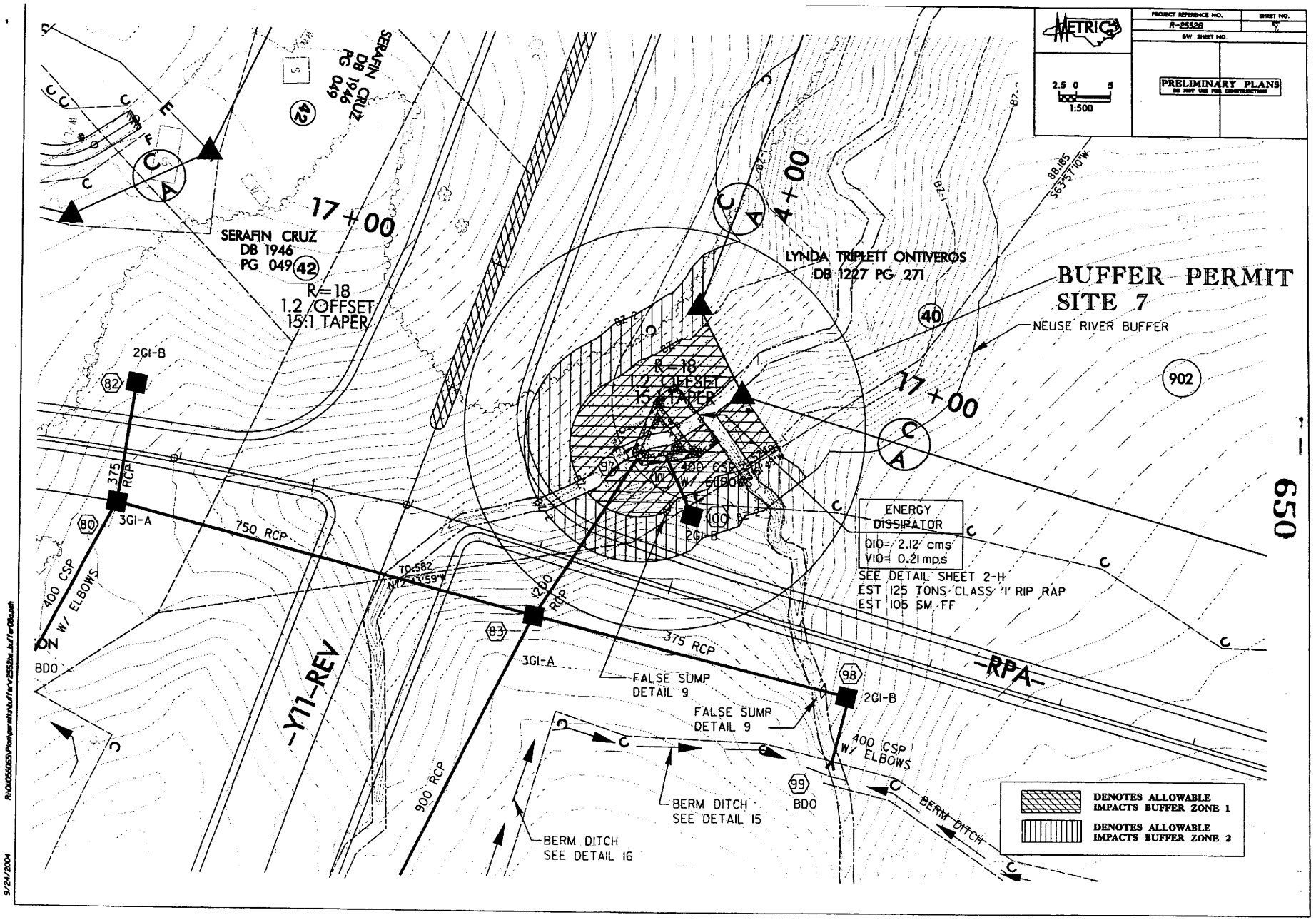
BUFFER PERMIT
SITE 6

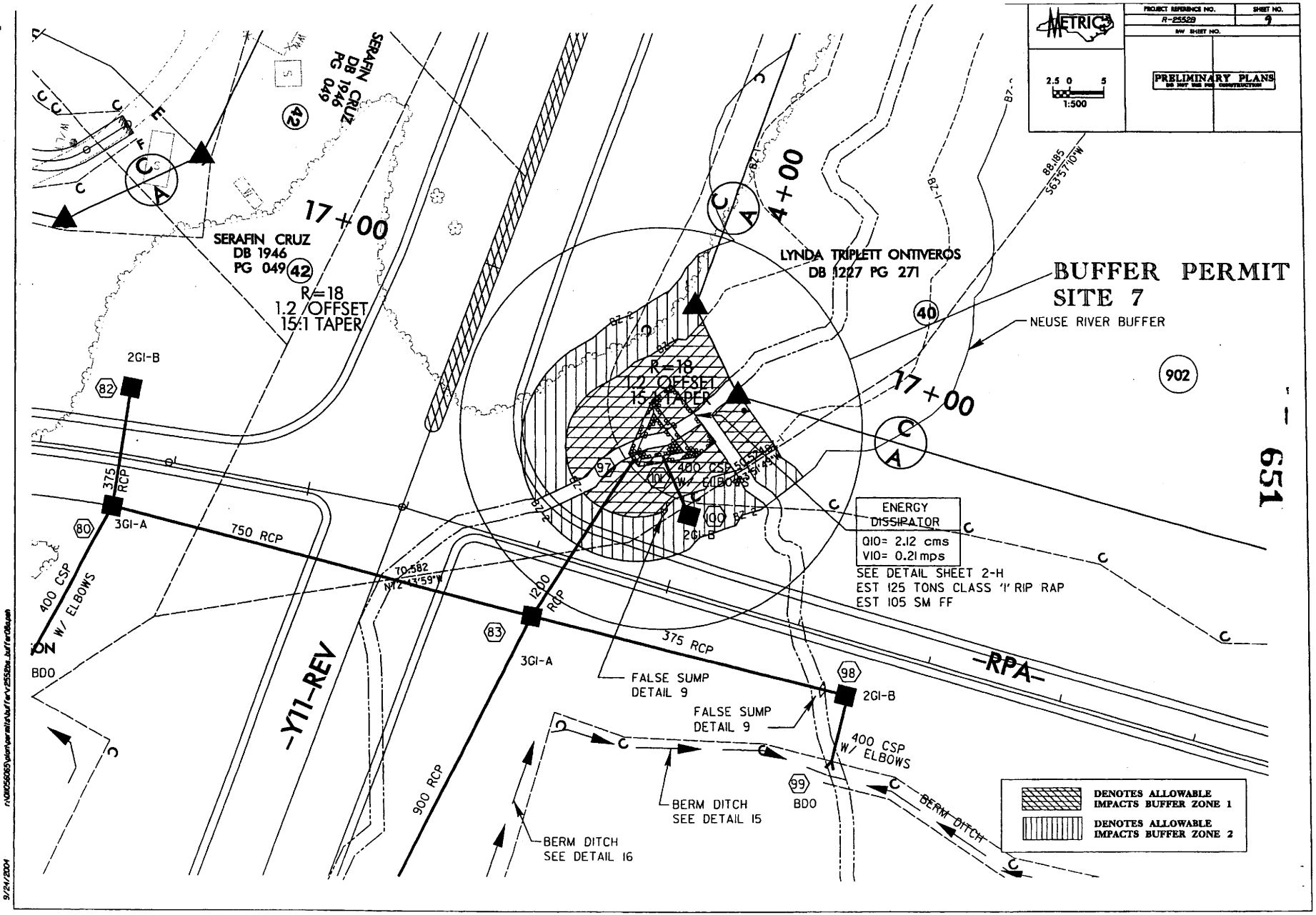


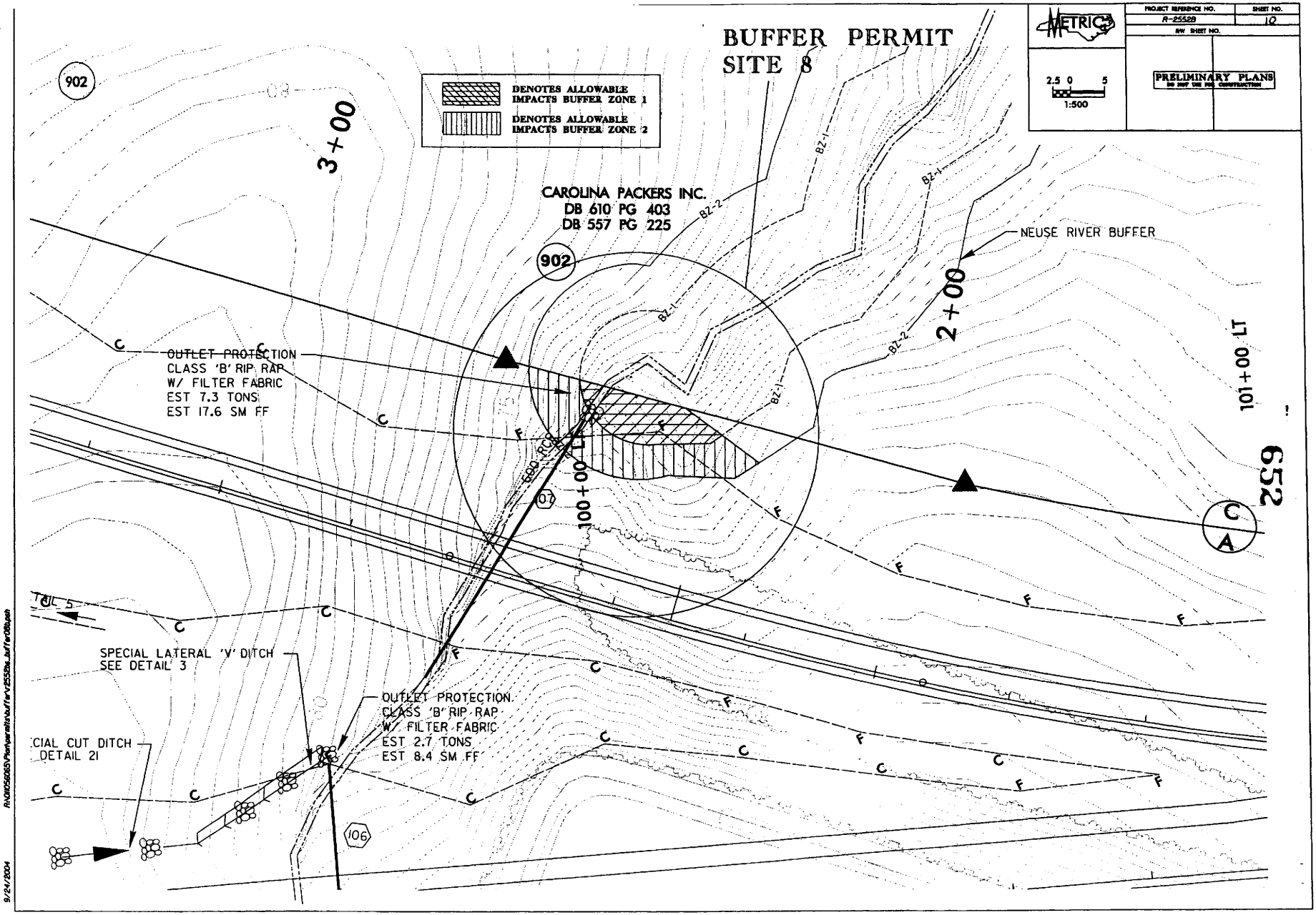

BUFFER PERMIT
SITE 6
PRELIMINARY PLANS
NOT FOR CONSTRUCTION
PROJECT REFERENCE NO. R-2552B
SHEET NO. 14
METRIC
1:1000
NAD 83
MATCHLINE -L- 93+60
MATCHLINE -L- 90+40
00+00
91+00
92+00
93+00
94+00
DENOTES MITIGABLE BUFFER IMPACTS ZONE 1
DENOTES MITIGABLE IMPACTS BUFFER ZONE 2
S 75°41'42.6" E
JAMES SULLIVAN HADEN DB 1367 PG 883
JOSEPH M. WHITLEY DB 1145 PG 270
TAYLOR MORTON LANGFORD, JR. DB 931 PG 775
ALLAN ELWOOD MARSHBURN, JR. DB 1035 PG 540
KENNETH R. CANADY DB 1915 PG 611
ENERGY DISSIPATOR
FALSE SUMP DETAIL 9
FALSE SUMP DETAIL 10
FALSE SUMP DETAIL 6
SPECIAL LATERAL 'V' DITCH SEE DETAIL 3
SPECIAL CUT DITCH SEE DETAIL 2
OUTLET CHANNEL IMPROVEMENT DETAIL 18
PREFORMED SCOUR HOLE OUTLET PROTECTION SEE PLAN SHEET 2-G CLASS 'B' RIP RAP EST 12 TONS EST 20 SM FF EST 20 SM FSRM
ROCK CROSS VANE FLOW ROCK SIZE D50=1.3m TYP WIDTH AT TOP=13.7m SEE DETAIL SHEET 2-F EST 23.6 TONS BOULDERS EST 5.0 TONS CLASS I EST 5.0 TONS CLASS I EST 6 SM FF
SEE DETAIL SHEET 2-H EST 60 TONS CLASS 'B' RIP RAP EST 10 SM FF
RP-C
600 RCP
375 RCP
2G-A
2G-B
2G-1
1 @ 3.0
9/24/2004

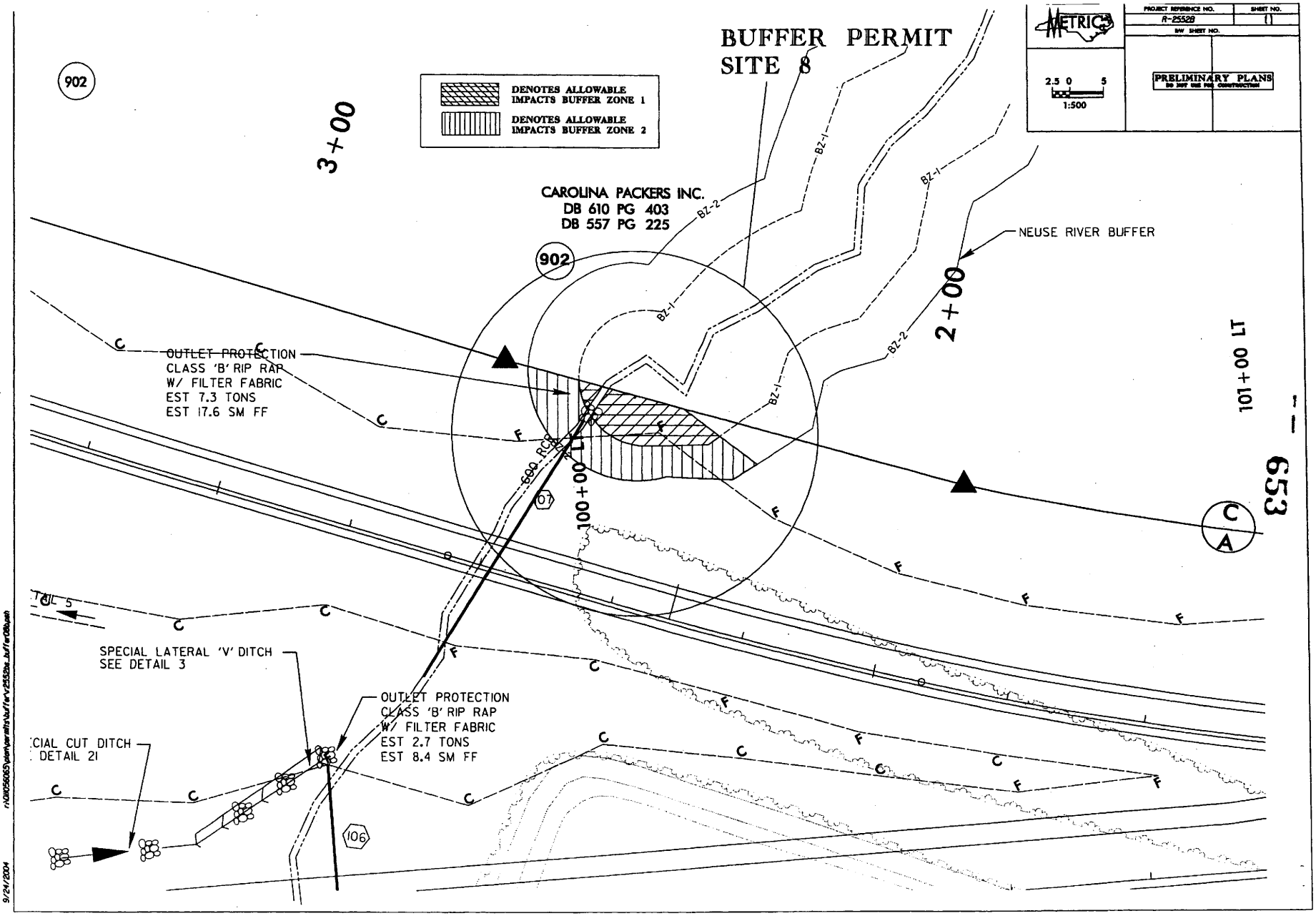


SEE NEXT 2 SHEETS FOR BUFFER PERMIT SITES 7 AND 8


METRIC
PROJECT REFERENCE NO.
R-2552B
SHEET NO.
5
RW SHEET NO.
2.5 0 5
1:500
PRELIMINARY PLANS
NOT FOR CONSTRUCTION
BUFFER PERMIT
SITE 7
NEUSE RIVER BUFFER
650
SERAFIN CRUZ
DB 1946
PG 049
42
17+00
R=18
1.2 OFFSET
15:1 TAPER
LYNDA TRIPLETT ONTIVEROS
DB 1227 PG 271
4+00
40
902
88.185
S65°57'10"W
2GI-B
82
375 RCP
3GI-A
80
400 CSP
W/ ELBOWS
750 RCP
TO 582
N12°43'59"W
1200 RCP
83
375 RCP
3GI-A
FALSE SUMP
DETAIL 9
98
2GI-B
FALSE SUMP
DETAIL 9
400 CSP
W/ ELBOWS
99
BDO
BERM DITCH
SEE DETAIL 15
BERM DITCH
900 RCP
BERM DITCH
SEE DETAIL 16
BDO
-Y11-REV
-RPA-
ENERGY
DISSIPATOR
DIO= 2.12 cms
VIO= 0.21 mps
SEE DETAIL SHEET 2-H
EST 125 TONS CLASS 'I' RIP RAP
EST 105 SM. FF
DENOTES ALLOWABLE
IMPACTS BUFFER ZONE 1
DENOTES ALLOWABLE
IMPACTS BUFFER ZONE 2
9/24/2004
R-2552B

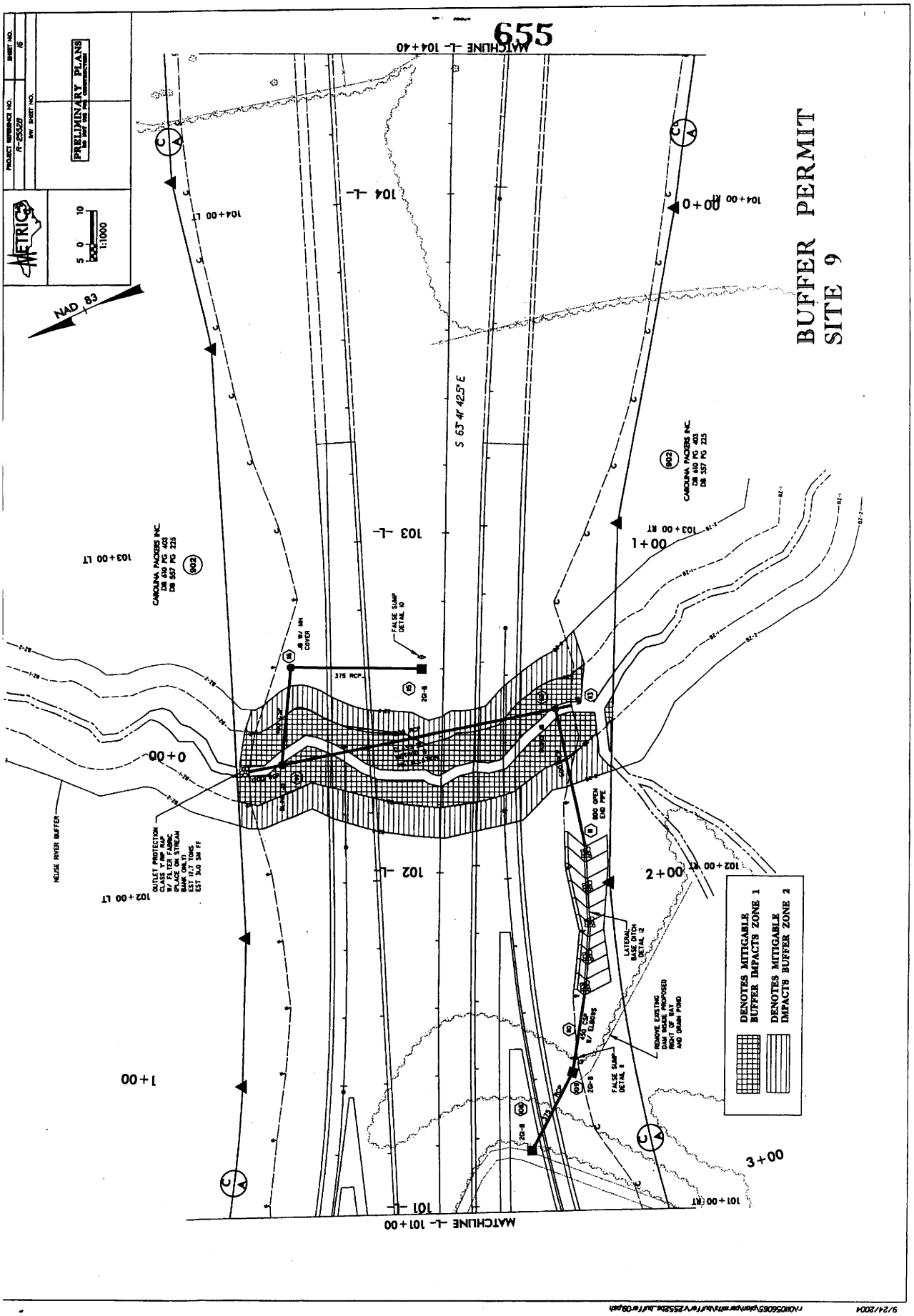

METRIC
PROJECT REFERENCE NO. R-2552B
SHEET NO. 9
NW SHEET NO.
2.5 0 5
1:500
PRELIMINARY PLANS
NOT FOR BIDDING OR CONSTRUCTION
BUFFER PERMIT
SITE 7
NEUSE RIVER BUFFER
SERAFIN CRUZ
DB 1946
PG 049
42
R=18
1.2 /OFFSET
15:1 TAPER
17+00
4+00
LYNDA TRIPLETT ONTIVEROS
DB 1227 PG 271
40
902
2GI-B
82
375 RCP
3GI-A
80
400 CSP W/ ELBOWS
750 RCP
N12°13'59"W
70.582
1200 RCP
83
375 RCP
3GI-A
BDO
-Y11-REV
900 RCP
-RPA-
FALSE SUMP
DETAIL 9
98
2GI-B
FALSE SUMP
DETAIL 9
400 CSP W/ ELBOWS
99
BDO
BERM DITCH
SEE DETAIL 15
BERM DITCH
SEE DETAIL 16
BERM DITCH
ENERGY DISSIPATOR
QI0= 2.12 cms
VI0= 0.21mps
SEE DETAIL SHEET 2-H
EST 125 TONS CLASS 'I' RIP RAP
EST 105 SM FF
DENOTES ALLOWABLE IMPACTS BUFFER ZONE 1
DENOTES ALLOWABLE IMPACTS BUFFER ZONE 2
88.185
S63°57'10"W
- 651
9/24/2004
r\0005605\plan\permits\buffer\r2552bs_buffer08a.pwb


BUFFER PERMIT
SITE 8
METRIC
2.5 0 5
1:500
PROJECT REFERENCE NO.
A-25529
SHEET NO.
10
RW SHEET NO.
PRELIMINARY PLANS
DENOTES ALLOWABLE IMPACTS BUFFER ZONE 1
DENOTES ALLOWABLE IMPACTS BUFFER ZONE 2
CAROLINA PACKERS INC.
DB 610 PG 403
DB 557 PG 225
NEUSE RIVER BUFFER
902
3+00
2+00
1+00
101+00 LT
652
OUTLET PROTECTION
CLASS 'B' RIP RAP
W/ FILTER FABRIC
EST 7.3 TONS
EST 17.6 SM FF
SPECIAL LATERAL 'V' DITCH
SEE DETAIL 3
OUTLET PROTECTION
CLASS 'B' RIP RAP
W/ FILTER FABRIC
EST 2.7 TONS
EST 8.4 SM FF
DETAIL 21
BZ-1
BZ-2
106
9/24/2004

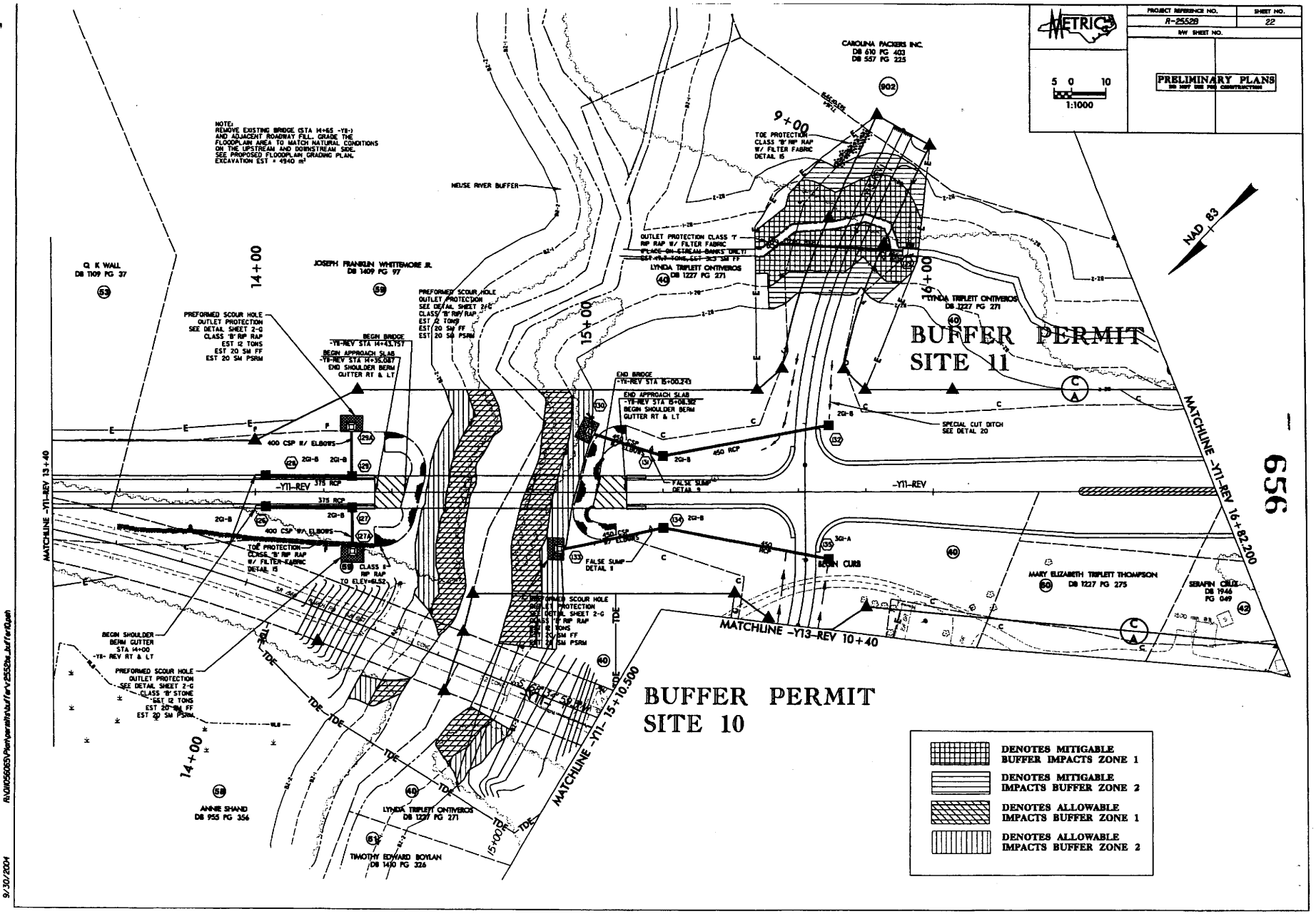

BUFFER PERMIT
SITE 8
DENOTES ALLOWABLE IMPACTS BUFFER ZONE 1
DENOTES ALLOWABLE IMPACTS BUFFER ZONE 2
CAROLINA PACKERS INC.
DB 610 PG 403
DB 557 PG 225
NEUSE RIVER BUFFER
3+00
2+00
100+00 LT
101+00 LT
902
OUTLET PROTECTION
CLASS 'B' RIP RAP
W/ FILTER FABRIC
EST 7.3 TONS
EST 17.6 SM FF
SPECIAL LATERAL 'V' DITCH
SEE DETAIL 3
OUTLET PROTECTION
CLASS 'B' RIP RAP
W/ FILTER FABRIC
EST 2.7 TONS
EST 8.4 SM FF
CIAL CUT DITCH
DETAIL 21
BZ-1
BZ-2
600 RCP
653
PRELIMINARY PLANS
2.5 0 5
1:500

BUFFER PERMIT
SITE 9

BUFFER PERMIT
SITE 9



9/24/2004



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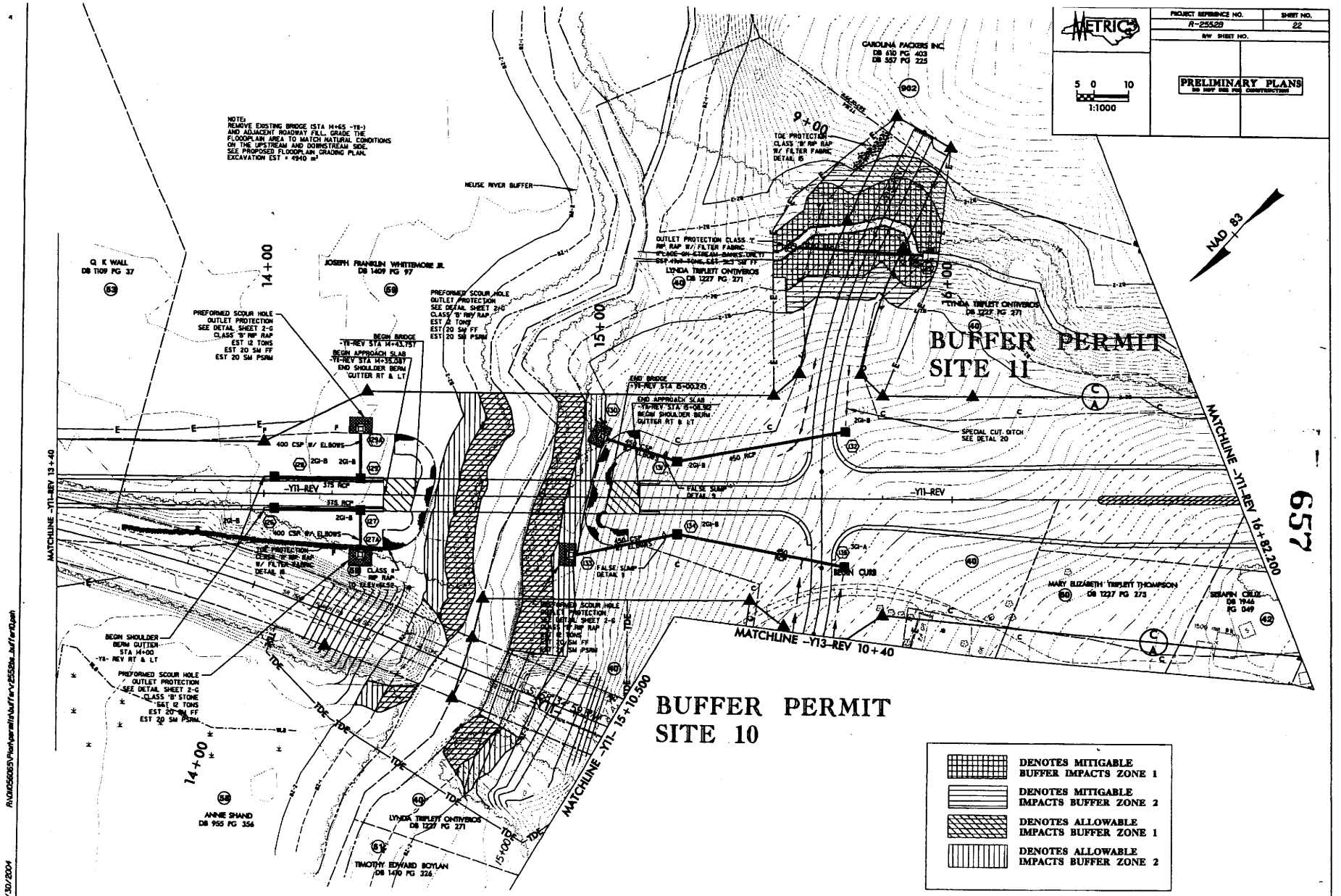
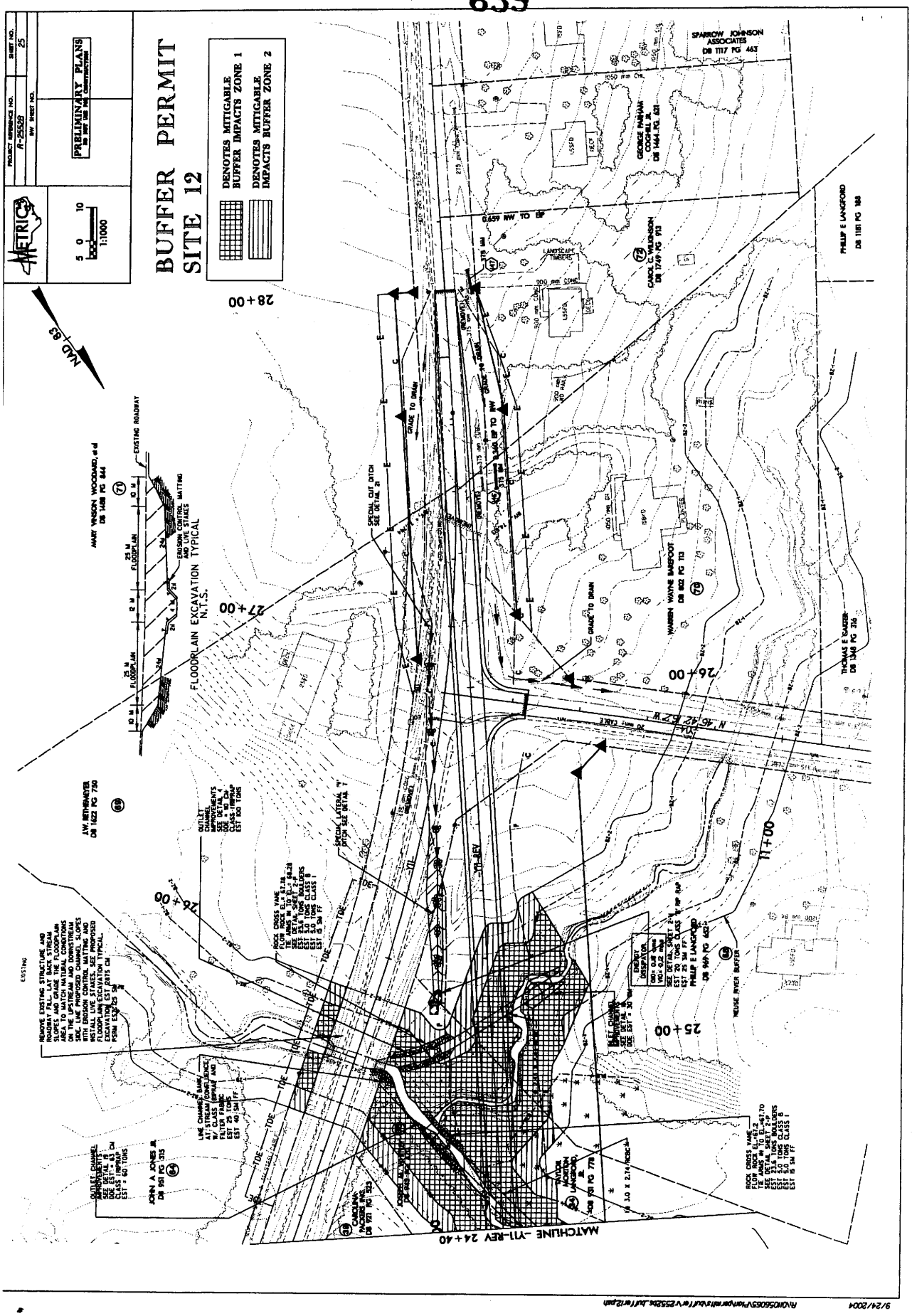
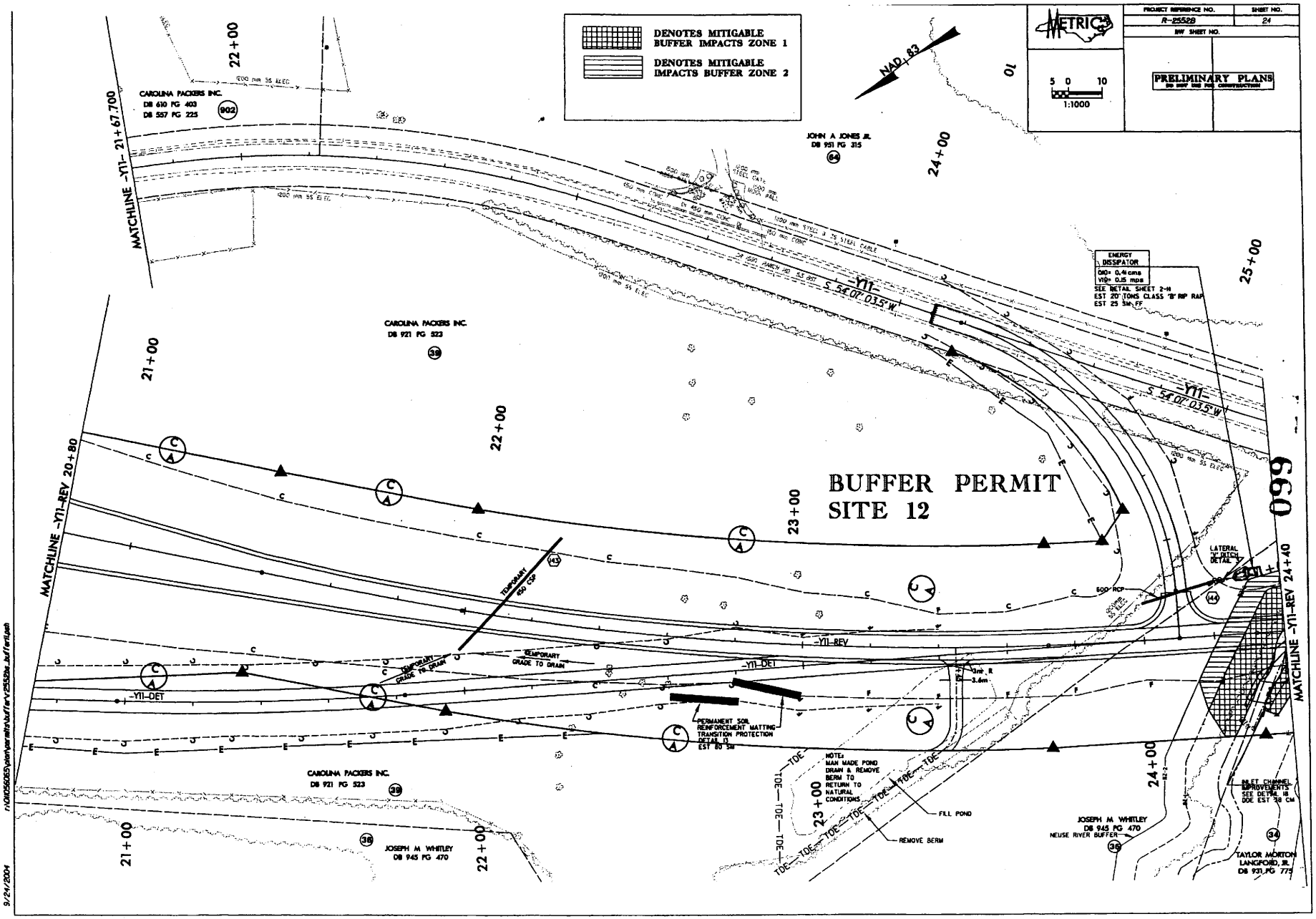


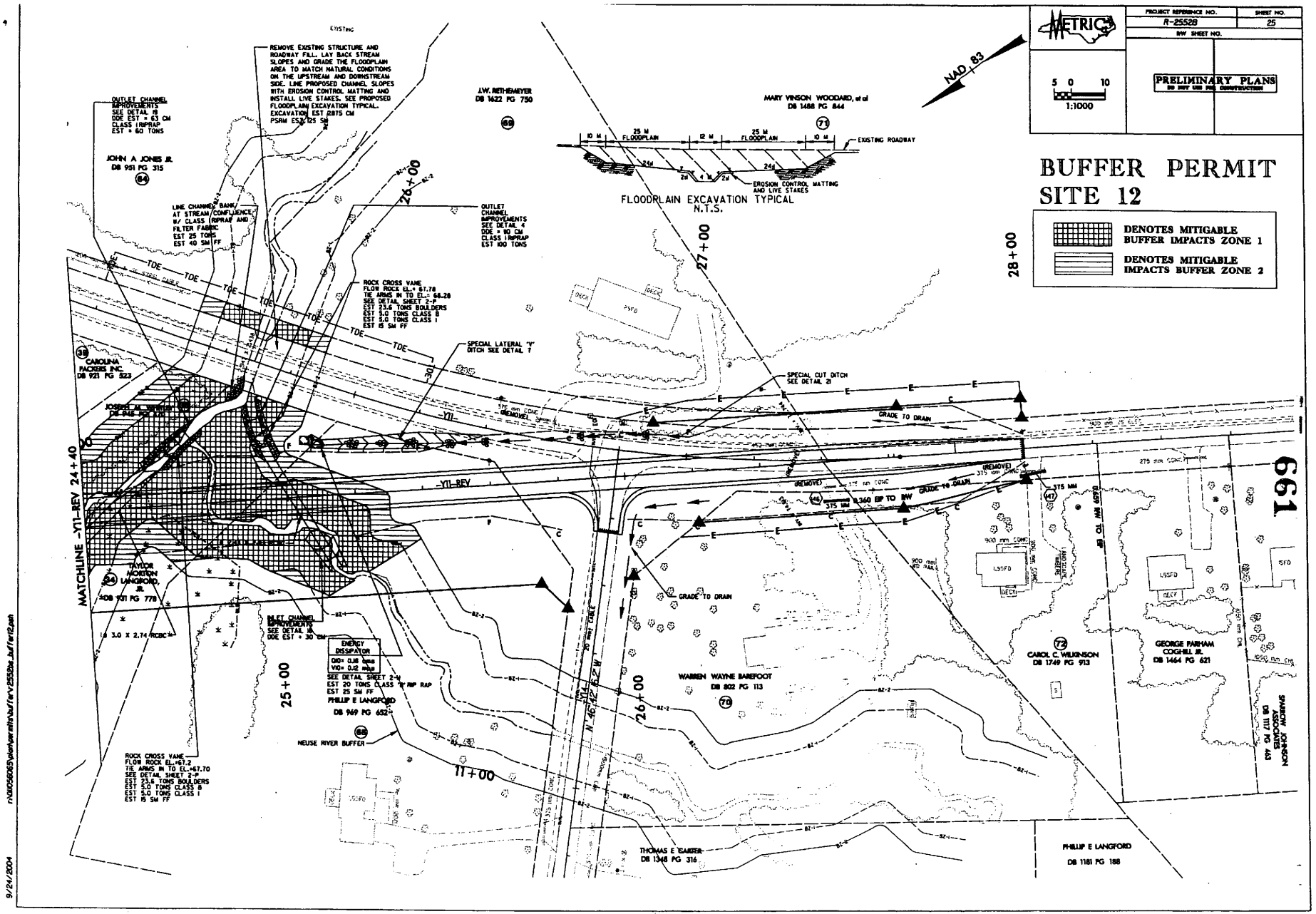
657

9/30/2004 R:\2552B\Plans\Permits\buffer\r2552bx_buffer0ush

BUFFER PERMIT
SITE 12
PRELIMINARY PLANS
NOT FOR CONSTRUCTION
PROJECT REFERENCE NO.
R-2553B
SHEET NO.
24
NW SHEET NO.
METRIC
5 0 10
1:1000
DENOTES MITIGABLE BUFFER IMPACTS ZONE 1
DENOTES MITIGABLE IMPACTS BUFFER ZONE 2
MATCHLINE -Y11- 21+67.700
MATCHLINE -Y11-REV 20+80
MATCHLINE -Y11-REV 24+40
-Y11-
-Y11-REV
-Y11-DET
S 54°07'03"W
N40°-83
JOHN A JONES JR.
DB 931 PG 315
CAROLINA PACKERS INC.
DB 630 PG 403
DB 557 PG 223
DB 921 PG 523
JOSEPH M WHITLEY
DB 945 PG 470
NEUSE RIVER BUFFER
TAYLOR MORTON LANGFORD JR.
DB 931 PG 775
ENERGY DISSIPATOR
SEE DETAIL SHEET 24
EST 30 LF CLASS B RIP RAP
EST 25 SQ YD
LATERAL DETAIL SHEET 24
EST 80 LF
EST 90 CU YD
FILL POND
REMOVE BERM
NOTE: MAN MADE POND DRAIN & REMOVE BERM TO NATURAL CONDITIONS
TDE
TEMPORARY SEDIMENT BASIN TO DRAIN
PERMANENT SOIL REINFORCEMENT MATTING FOR EROSION PROTECTION
EST 80 SQ YD
TEMPORARY SED BASIN
EST 1 EA
22+00
23+00
24+00
25+00
21+00


BUFFER PERMIT
SITE 12
DENOTES MITIGABLE BUFFER IMPACTS ZONE 1
DENOTES MITIGABLE IMPACTS BUFFER ZONE 2
PRELIMINARY PLANS
PROJECT REFERENCE NO. A-25559
SHEET NO. 25
METRIC
5 0 10
1:1000
NAD 83
28+00
27+00
26+00
25+00
24+00
11+00
MATCHLINE -T11-REV 24+40
FLOODPLAIN EXCAVATION TYPICAL
N.T.S.
EXISTING ROADWAY
EROSION CONTROL MATTING AND LIVE STAKES
25 M FLOODPLAIN
10 M
2 M
2:1
MARY WILSON WOODARD, et al DB 1488 PG 844
J.W. REYNOLDS DB 1622 PG 750
JOHN A JONES JR. DB 951 PG 315
CAROLINA POWER & LIGHT CO. DB 720 PG 553
SPARROW JOHNSON ASSOCIATES DB 1117 PG 463
GEORGE ENGLISH COOLEY JR. DB 1464, PG. 621
CAROL C. WILKINSON DB 1729 PG 193
PHILLIP E LANGFORD DB 1181 PG 168
WARREN WAYNE BAGFOOT DB 802 PG 113
THOMAS E BAKER DB 1348 PG 316
PHILLIP E LANGFORD DB 969 PG 432
NEUSE RIVER BUFFER
N 46°42' E 2'W
GRADE TO DRAIN
SPECIAL CUT DITCH SEE DETAIL 2
SPECIAL LATERAL "F" DITCH SEE DETAIL 7
OUTLET CHANNEL IMPROVEMENTS SEE DETAIL 1
ROCK CROSS VANE
ENERGY DISSIPATOR
LANDSCAPE TIMBERS
TOE
REMOVE EXISTING STRUCTURE AND ROADWAY FILL. LAY BACK STREAM SLOPES AND GRADE THE FLOODPLAIN AREA TO MATCH NATURAL CONDITIONS AND RE-ESTABLISH NATURAL CHANNEL SIDE. LINE PROPOSED CHANNEL SLOPES WITH EROSION CONTROL MATTING AND INSTALL LIVE STAKES AS DETAILED.
FLOODPLAIN EXCAVATION EST 2875 CM
RSRM EST 25 SM
EXISTING
9/24/2004


DENOTES MITIGABLE BUFFER IMPACTS ZONE 1
DENOTES MITIGABLE IMPACTS BUFFER ZONE 2
NAD 83
METRIC
5 0 10
1:1000
PROJECT REFERENCE NO.
R-2552B
SHEET NO.
24
RW SHEET NO.
PRELIMINARY PLANS
BUFFER PERMIT
SITE 12
099
CAROLINA PACKERS INC.
DB 610 PG 403
DB 557 PG 225
902
JOHN A JONES JR.
DB 931 PG 315
84
CAROLINA PACKERS INC.
DB 921 PG 523
39
CAROLINA PACKERS INC.
DB 921 PG 523
38
JOSEPH M WHITLEY
DB 945 PG 470
JOSEPH M WHITLEY
DB 945 PG 470
NEUSE RIVER BUFFER
36
TAYLOR MORTON LANGFORD, JR.
DB 931 PG 775
34
MATCHLINE -Y11- 21+67.700
MATCHLINE -Y11-REV 20+80
MATCHLINE -Y11-REV 24+40
-Y11-
S 54°07'03.5"W
-Y11-REV
-Y11-DET
21+00
22+00
23+00
24+00
25+00
ENERGY DISSIPATOR
DIO= 0.4 cms
V10= 0.15 mps
SEE DETAIL SHEET 2-H
EST 20 TONS CLASS "B" RIP RAP
EST 25 SM FF
TEMPORARY 450 CSP
TEMPORARY GRADE TO DRAIN
PERMANENT SOIL REINFORCEMENT MATTING TRANSITION PROTECTION DETAIL D
EST 80 SM
NOTE: MAN MADE POND DRAIN & REMOVE BERM TO RETURN TO NATURAL CONDITIONS
FILL POND
REMOVE BERM
TOE
LATERAL DITCH DETAIL
INLET CHANNEL IMPROVEMENTS SEE DETAIL IS DOE EST 38 CM
500 RCP
600 RCP
200 mm SS ELEC
r:\0R0506\Sysplan\shuffler\r2552bs_buffer.dgn
9/24/2004


METRIC
PROJECT REFERENCE NO. R-2552B
SHEET NO. 25
RW SHEET NO.
5 0 10
1:1000
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
NAD 83
BUFFER PERMIT
SITE 12
DENOTES MITIGABLE BUFFER IMPACTS ZONE 1
DENOTES MITIGABLE IMPACTS BUFFER ZONE 2
FLOODPLAIN EXCAVATION TYPICAL
N.T.S.
MATCHLINE -Y11-REV 24+40
-Y11-REV
25+00
26+00
27+00
28+00
11+00
JOHN A JONES JR. DB 951 PG 315
J.W. RETHEMEYER DB 1622 PG 750
MARY VINSON WOODARD, et al DB 1488 PG 844
CAROLINA PACKERS INC. DB 921 PG 323
TAYLOR MORTON LANGFORD, JR. DB 931 PG 778
PHILLIP E LANGFORD DB 969 PG 652
WARREN WAYNE BAREFOOT DB 802 PG 113
CAROL C. WILKINSON DB 1749 PG 913
GEORGE PARHAM COGHILL JR. DB 1464 PG 621
SPARROW JOHNSON ASSOCIATES DB 1117 PG 69
THOMAS E EARLEY DB 1348 PG 316
PHILLIP E LANGFORD DB 1181 PG 188
NEUSE RIVER BUFFER
EXISTING
REMOVE EXISTING STRUCTURE AND ROADWAY FILL. LAY BACK STREAM SLOPES AND GRADE THE FLOODPLAIN AREA TO MATCH NATURAL CONDITIONS ON THE UPSTREAM AND DOWNSTREAM SIDE. LINE PROPOSED CHANNEL SLOPES WITH EROSION CONTROL MATTING AND INSTALL LIVE STAKES. SEE PROPOSED FLOODPLAIN EXCAVATION TYPICAL. EXCAVATION EST 2875 CM PSRM EST 125 SM
OUTLET CHANNEL IMPROVEMENTS SEE DETAIL 1B DDE EST = 63 CM CLASS I RIPRAP EST = 60 TONS
LINE CHANNEL BANK AT STREAM CONFLUENCE W/ CLASS I RIPRAP AND FILTER FABRIC EST 25 TONS EST 40 SM FF
OUTLET CHANNEL IMPROVEMENTS SEE DETAIL 4 DDE = 90 CM CLASS I RIPRAP EST 100 TONS
ROCK CROSS VANE FLOW ROCK EL.= 67.78 TIE ARMS IN TO EL.= 68.28 SEE DETAIL SHEET 2-P EST 23.6 TONS BOULDERS EST 5.0 TONS CLASS B EST 5.0 TONS CLASS I EST 15 SM FF
SPECIAL LATERAL "H" DITCH SEE DETAIL 7
SPECIAL CUT DITCH SEE DETAIL 2I
GRADE TO DRAIN
375 mm CONC (REMOVED)
375 mm CONC
375 MM
360 RCP TO RW
900 mm CONC
1800 mm CONC
1500 mm CONC
1350 mm CONC
1650 mm CONC
1200 mm CONC
L55FD
ISFD
DECK
3 0 x 2.74 RCBC
ENERGY DISSIPATOR DIO= 0.18 tons V10= 0.12 m/s
SEE DETAIL SHEET 2-N EST 20 TONS CLASS "I" RIP RAP EST 25 SM FF
OUTLET CHANNEL IMPROVEMENTS SEE DETAIL 1B DDE EST = 30 CM
ROCK CROSS VANE FLOW ROCK EL.=61.2 TIE ARMS IN TO EL.=67.70 SEE DETAIL SHEET 2-P EST 23.6 TONS BOULDERS EST 5.0 TONS CLASS B EST 5.0 TONS CLASS I EST 15 SM FF
N 46°42'42" W
10 M
25 M FLOODPLAIN
12 M
25 M FLOODPLAIN
10 M
EXISTING ROADWAY
24H
2H
4 M
2H
24H
EROSION CONTROL MATTING AND LIVE STAKES
661
9/24/2004
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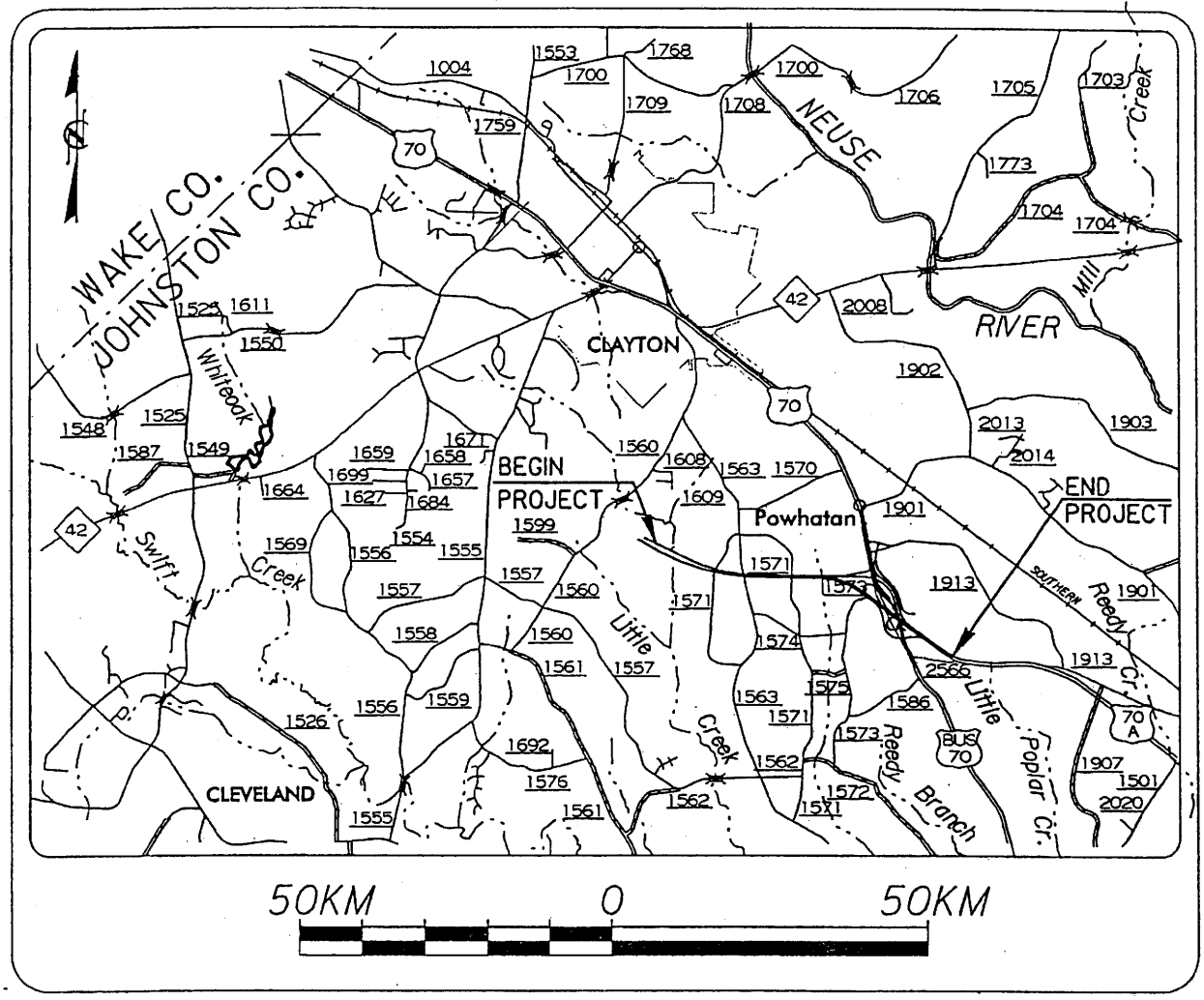
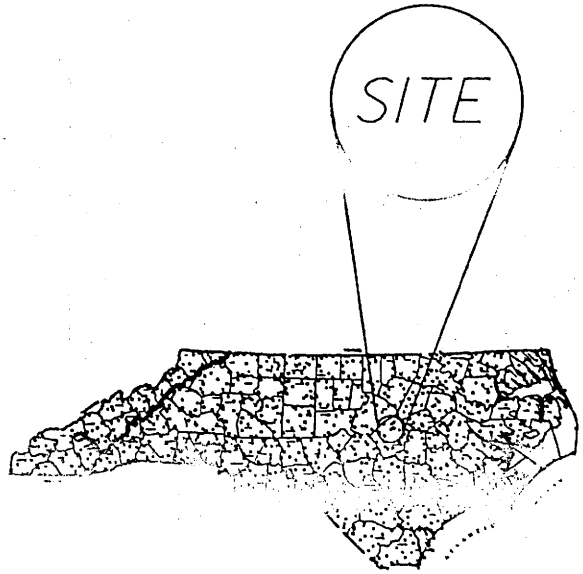


VICINITY MAP



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

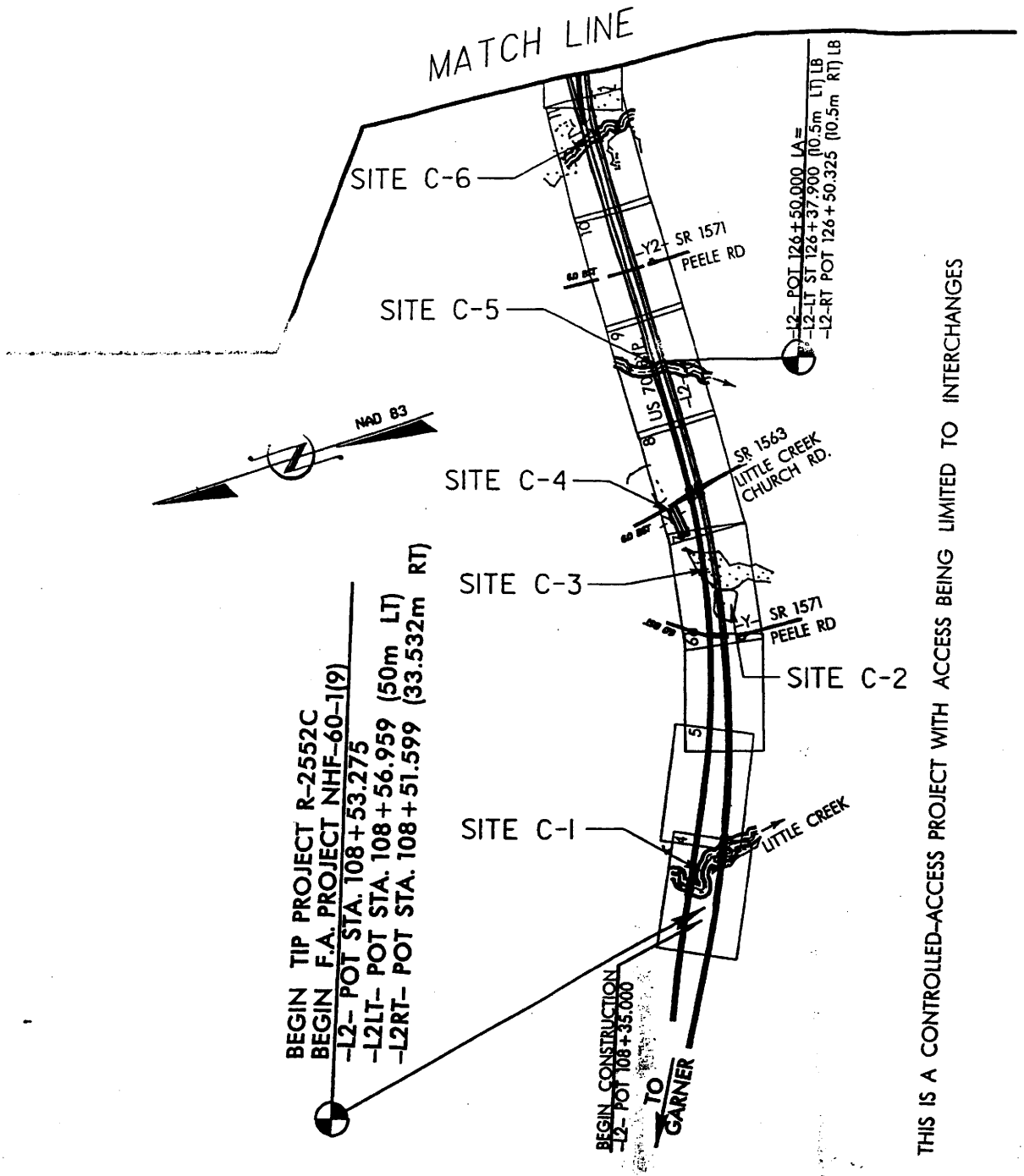
JOHNSTON COUNTY

8.T311002 R-2552C

US-70 CLAYTON BYPASS
FROM EAST OF SR-1560
TO US-70 EAST OF CLAYTON

SCALE AS SHOWN

SHEET 1 OF 23 SEPT. 15, 2004



SITE MAP

0 500M 1000M

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

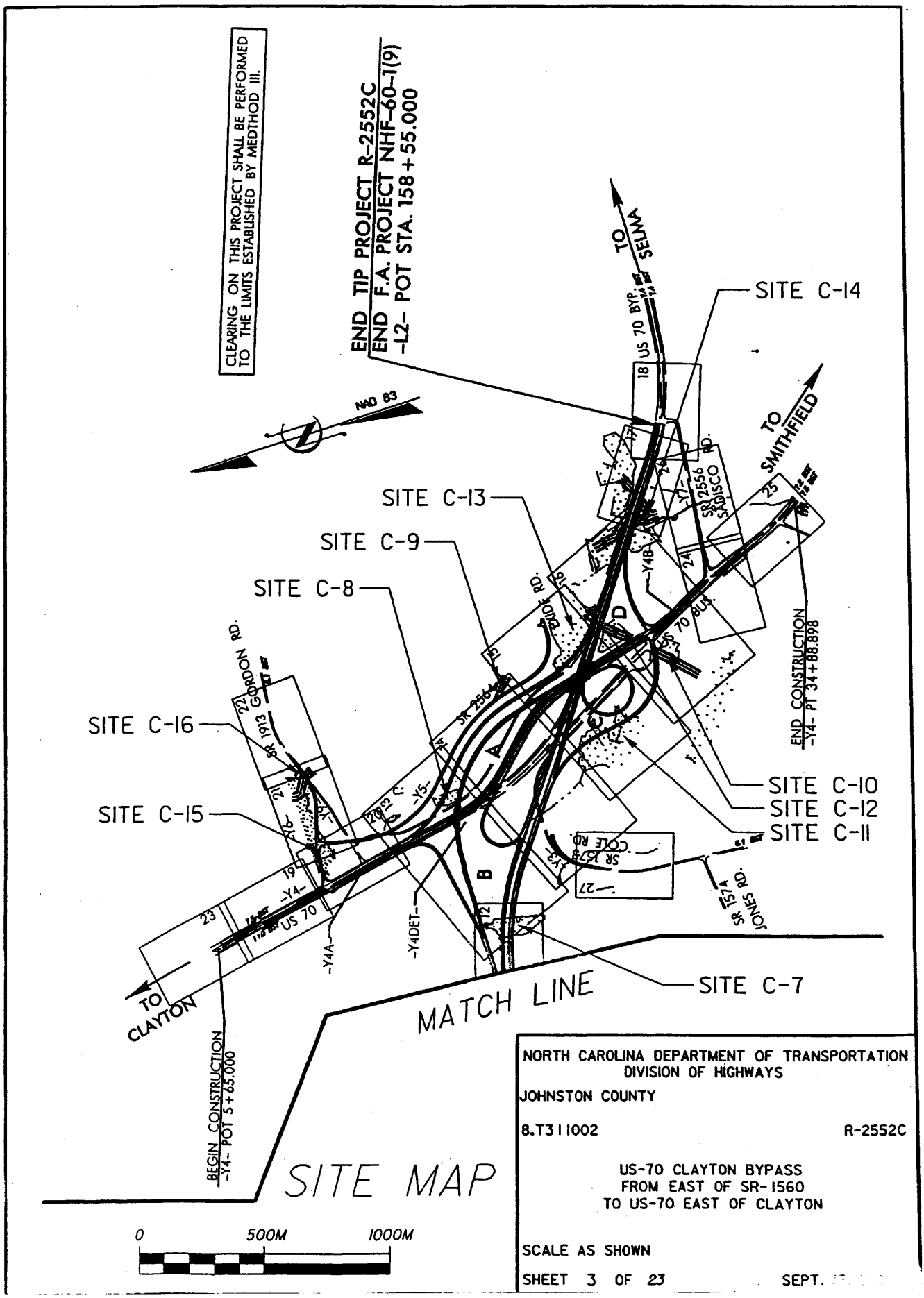
JOHNSTON COUNTY

8.T311002 R-2552C

US-70 CLAYTON BYPASS
FROM EAST OF SR-1560
TO US-70 EAST OF CLAYTON

SCALE AS SHOWN

SHEET 2 OF 23 SEPT. 15, 2004



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

JOHNSTON COUNTY

8.T31 1002 R-2552C

US-70 CLAYTON BYPASS
FROM EAST OF SR-1560
TO US-70 EAST OF CLAYTON

SCALE AS SHOWN

SHEET 3 OF 23 SEPT.

PROPERTY OWNERS
NAME AND ADDRESS

PARCEL No.	OWNER'S NAME	ADRESS
902	Carolina Packers, Inc.	P. O. Drawer 1109 Smithfield, NC 27577
2	Luther Shelby Durham	4483 Litle Creek Church Road Clayton, NC 27520
14	Teresa Montgomery	3731 Peele Road Clayton, NC 27520
15	TAP Properties, LLC	273-D Blue Pond Road Clayton, NC 27520
16	Brenda C. Holt & Connie M. Boykin	3687 Peele Road Clayton, NC 27520
20	John Jennings Williams, Heirs	4335 Litle Creek Church Road Clayton, NC 27520
21	Robert Hatcher, Jr.	2498 Peele Road Clayton, NC 27520
26	Scott D. Overbee	P. O. Box 1051 Clayton, NCD LK27520
30	W. J. C. Blinson	7595F US 70W Clayton, NC 27520
31	Vergie B. Wood	616 Barbour St. Clayton, NC 27520
32	Lola's Beauty Shop Limited Partnership	3307 Little Creek Church Road Clayton, NC 27520
35	Norwood Godwin Jones, Jr., et. al.	804 Chestnut Drive Smithfield, NC 27577
38	Carl B. Dean	2000 Neuse Colony Drive Clayton, NC 27520
39	Donald H. Williamson	P. O. Box 605 1546 Piney Grove Church Road Kenly, NC 27542

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
JOHNSTON COUNTY
PROJECT: 8.T311002 R-2552C

US-70 CLAYTON BYPASS
FROM EAST OF SR-1560 TO US-70 EAST OF CLAYTON

PROPERTY OWNERS

NAME AND ADDRESS

PARCEL No.	OWNER'S NAME	ADRESS
43	William R. Jones	P. O. Box 393 Pine Level, NC 27568
45	Daniel L. Heavner	P. O. Box 2346 Smithfield, NC 27577
47	W. E. Lancaster	31 Sadisco Road Clayton, NC 27520
34	Worth Gurley	318 S. McDowell St. Raleigh, NC 27601
52	Theodore James Cihos	7744 U.S. Hwy. 70 West Clayton, NC 27520
56	Elbert D. Mitchell	2367 Gordon Road Clayton, NC 27520

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
JOHNSTON COUNTY
PROJECT: 8.T311002 R-2552C

US-70 CLAYTON BYPASS
FROM EAST OF SR-1560 TO US-70 EAST OF CLAYTON

R-2552C Johnston Co. Affected Buffer Areas **Site #1**

Date: September 15, 2004
Dsn. By: RNS

Discharge is considered to be treated if it meets the following criteria:
100 ft. of grass swale for every 1 acre of drainage area. AND
2 yr. velocity is less than or equal to 2 ft./sec.

ASSUMPTIONS FOR ROADWAY CUT DITCHES:
"V" BOTTOM DITCH
MINIMUM GRADE AT SAGS = 0.2%

SHT. No.	Structure No.	Line	Station	STR. Type	Total D.A. ha	Total D.A. (ac)	Required length for treatment (ft.)	Required length for treatment (m.)	PROVIDED Length (m)	Channel Slope (%)	BASE WID (m)	SIDE SLOPES * Z1	SIDE SLOPES * Z2	Treated Discharge?	Q2 cfs	V 2 fps	Q10 cfs	V 10 fps	Treatment Provided	Remarks
	115	L2 RT	104+80 RT	2-GI	0.84	2.1	207.6	63	199	2.34	0.0	6	6	YES	6.9	1.8	8.6	2.0	G.S.	
	114	L2 RT	104+77 LT	2-GI	0.48	1.2	118.6	36	199	2.34	0.0	6	6	YES	3.1	1.2	3.8	1.3	G.S.	
	113	L2 LT	104+83 RT	2-GI	0.67	1.7	165.6	50	199	2.34	0.0	6	6	YES	5.3	1.6	6.6	1.7	G.S.	
	112	L2 LT	104+85 LT	2-GI	0.75	1.9	185.3	56	179	2.34	0.0	6	6	YES	4.6	1.5	5.7	1.6	G.S.	
	116	L2 LT	106+84 LT	2-GI	0.81	2.0	200.2	61	199	3.82	0.0	6	6	YES	4.7	1.8	5.9	2.1	G.S.	
	117	L2 LT	106+84 RT	2-GI	0.75	1.9	185.3	56	199	3.82	0.0	6	6	YES	5.8	2.0	7.3	2.3	G.S.	
	120	L2 LT	107+81 LT	2-GI	0.50	1.2	123.6	38	99	1.10	0.0	6	6	YES	2.8	0.8	3.5	0.9	G.S.	
	121	L2 LT	107+81 RT	2-GI	0.47	1.2	116.1	35	99	1.10	0.0	6	6	YES	3.4	0.9	4.3	1.0	G.S.	
4		L2 LT	108+56 LT	2-GI	0.58	1.4	143.3	44	92	SAG	0.0	6	6	YES	6.0	0.5	7.5	0.6	G.S.	
4		L2 LT	108+51 RT	2-GI	0.84	2.1	207.6	63	85	SAG	0.0	6	6	YES	5.1	0.5	6.5	0.6	G.S.	
4		L2 LT	109+06 RT	OPEN	6.69	16.5	1653.1	504	1549	N/A	N/A	N/A	N/A	N/A	38.7	N/A	49.7	N/A	N/A	1
4	119	L2 RT	106+79 RT	2-GI	0.90	2.2	222.4	68	198	2.34	0.0	6	6	YES	6.6	1.7	8.2	2.0	G.S.	
4	118	L2 RT	106+78 LT	2-GI	0.62	1.5	153.2	47	200	2.34	0.0	6	6	YES	4.3	1.4	5.4	1.6	G.S.	
4		L2 RT	108+65 LT	2-GI	0.65	1.6	160.6	49	186	0.20	0.0	6	6	YES	5.9	0.5	7.4	0.6	G.S.	
4		L2 RT	108+77.5 RT	2-GI	0.59	1.5	145.8	44	234	SAG	0.0	6	6	YES	4.8	0.5	6.1	0.5	G.S.	
4		L2 RT	109+15 RT	2-GI	0.00	0.0	0.0	0	0	0.58	0.0	6	6	N/A	N/A	N/A	N/A	N/A	N/A	
4		L2 RT	109+97 RT	DITCH	3.00	7.4	741.3	226	848	0.61	3.0	3	3	YES	19.0	1.7	24.2	2.0	G.S.	1
4		L2 RT	108+77.5 LT	2-GI	0.12	0.3	29.7	9	0	N/A	N/A	N/A	N/A	NO	1.7	N/A	2.1	N/A	N/A	
4		L2 RT	109+54 LT	2-GI	0.04	0.1	10.4	3	0	N/A	N/A	N/A	N/A	NO	0.6	N/A	0.7	N/A	N/A	
4		L2 RT	109+79 LT	OPEN	0.16	0.4	40.0	12	0	N/A	N/A	N/A	N/A	NO	2.3	N/A	2.9	N/A	PSH	1
4		L2 LT	110+37 LT	2-GI	0.12	0.3	29.7	9	0	N/A	N/A	N/A	N/A	NO	1.6	N/A	1.9	N/A	N/A	
4		L2 LT	109+95 LT	OPEN	0.12	0.3	29.7	9	0	N/A	N/A	N/A	N/A	NO	1.6	N/A	1.9	N/A	PSH	1
5		L2 RT	111+12 LT	2-GI	0.11	0.3	27.2	8	0	N/A	N/A	N/A	N/A	N/A	1.6	N/A	1.9	N/A	N/A	3
5		L2 RT	112+77 LT	OTCB	0.47	1.2	116.1	35	102	3.98	9.0	4	4	YES	3.4	0.8	4.2	0.9	G.S.	
5		L2 LT	112+70 LT	2-GI	0.53	1.3	131.0	40	129	3.85	0.0	6	6	YES	4.1	1.8	5.1	1.9	G.S.	
5		L2 LT	112+70 RT	2-GI	0.31	0.8	76.6	23	129	3.85	0.0	6	6	YES	2.0	1.2	2.5	1.3	G.S.	
5		L2 LT	111+16 LT	2-GI	0.47	1.2	116.1	35	153	3.34	0.0	6	6	YES	4.5	1.7	5.6	1.9	G.S.	
4		L2 RT	110+30 LT	DITCH	3.20	7.9	790.7	241	644	2.00	6.0	3	3	YES	15.2	1.7	20.4	2.0	G.S.	1, 2

2GI = 2 GRATED INLET
SBG = SHOULDER BERM GUTTER
CB = CATCH BASIN
DDB = DRY DETENTION BASIN
B = BASIN
GS = GRASS SWALE

BDOS = BERM DRAINAGE OUTLET STRUCTURE
OTCB = OPEN THROAT CATCH BASIN
OPEN = OPEN END PIPE
PSH = PRE FORMED SCOUR HOLE
LS = LEVEL SPREADER
* SIDE SLOPES TAKEN FROM CROSS SECTIONS

NOTE 1: TOTAL FOR THIS SYSTEM

NOTE 2: NO CREDIT IS CLAIMED FOR THE DITCH FROM L2 RT STA. 111+71 TO STA. 112+45 LT

NOTE 3: TREATMENT IS PROVIDED DOWNSTREAM

R-2552C Johnston Co. Affected Buffer Areas **Site # 4**

Discharge is considered to be treated if it meets the following criteria:
100 ft. of grass swale for every 1 acre of drainage area. AND
2 yr. velocity is less than or equal to 2 ft./sec.

ASSUMPTIONS FOR ROADWAY CUT DITCHES:
"V" BOTTOM DITCH
MINIMUM GRADE AT SAGS = 0.2%

Date: September 15, 2004
Dsn. By: RNS

SHT. No.	Structure No.	Line	Station	STR. Type	Total D.A. ha	Total D.A. (ac)	Required length for treatment (ft.)	Required length for treatment (m.)	PROVIDED Length (m)	Channel Slope (%)	BASE WID (m)	SIDE SLOPES * Z1	SIDE SLOPES * Z2	Treated Discharge?	Q2 cfs	V 2 fps	Q10 cfs	V 10 fps	Treatment Provided	Remarks
8		L2 LT	120+80 LT	2-GI	0.14	0.3	34.6	11	0	N/A	N/A	N/A	N/A	NO	2.0	N/A	2.5	N/A	PSH	1
8		Y1	11+16 RT	DITCH	0.30	0.7	74.1	23	26	3.33	0.00	4.00	3.00	YES	1.8	1.3	2.4	1.5	G.S.	1
8		Y1	11+17 RT	DITCH	0.12	0.3	29.7	9	43	2.70	0.00	4.00	3.00	YES	1.1	1.0	1.3	1.1	G.S.	1

2GI = 2 GRATED INLET
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OTCB = OPEN THROAT CATCH BASIN
OPEN = OPEN END PIPE
PSH = PRE FORMED SCOUR HOLE
LS = LEVEL SPREADER
* SIDE SLOPES TAKEN FROM CROSS SECTIONS

NOTE 1: TOTAL FOR THIS SYSTEM

R-2552C Johnston Co. Affected Buffer Areas **Site # 5**

Date: September 15, 2004

Dsn. By: RNS

Discharge is considered to be treated if it meets the following criteria:
100 ft. of grass swale for every 1 acre of drainage area. AND
2 yr. velocity is less than or equal to 2 ft./sec.

ASSUMPTIONS FOR ROADWAY CUT DITCHES:
"V" BOTTOM DITCH
MINIMUM GRADE AT SAGS = 0.2%

SHT. No.	Structure No.	Line	Station	STR. Type	Total D.A. ha	Total D.A. (ac)	Required length for treatment (ft.)	Required length for treatment (m.)	PROVIDED Length (m)	Channel Slope (%)	BASE WID (m)	SIDE SLOPES * Z1	SIDE SLOPES * Z2	Treated Discharge?	Q2 cfs	V 2 fps	Q10 cfs	V 10 fps	Treatment Provided	Remarks
9		L2	126+10 LT	2-GI	0.18	0.4	44.5	14	0	1.50	N/A	N/A	N/A	NO	2.5	N/A	3.2	N/A	N/A	
9		L2	126+10 M	2-GI	0.27	0.7	66.7	20	129	1.50	0.0	8	8	YES	1.8	0.8	2.2	0.8	G.S.	
9		L2	126+10 RT	2-GI	0.04	0.1	9.9	3	0	1.50	N/A	N/A	N/A	NO	0.6	N/A	0.7	N/A	N/A	
9		L2	125+88 RT	2-GI	0.20	0.5	49.4	15	0	1.50	N/A	N/A	N/A	NO	2.8	N/A	3.5	N/A	N/A	
9		L2	125+88 RT	OPEN	0.69	1.7	170.5	52	129		N/A	N/A	N/A	NO	6.2	N/A	8.0	N/A	PSH	1
9		L2	126+00 LT	DITCH	3.30	8.2	815.4	249	N/A	N/A	N/A	N/A	N/A	NO	12.1	N/A	16.5	N/A	L.S.	1
9		L2	126+40 RT	DITCH	3.10	7.7	766.0	233	N/A	N/A	N/A	N/A	N/A	NO	10.6	N/A	14.6	N/A	L.S.	1

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LS = LEVEL SPREADER
* SIDE SLOPES TAKEN FROM CROSS SECTIONS

NOTE 1: TOTAL FOR THIS SYSTEM

R-2552C Johnston Co. Affected Buffer Areas **Site # 6**

Discharge is considered to be treated if it meets the following criteria:
100 ft. of grass swale for every 1 acre of drainage area. AND
2 yr. velocity is less than or equal to 2 ft./sec.

ASSUMPTIONS FOR ROADWAY CUT DITCHES:
"V" BOTTOM DITCH
MINIMUM GRADE AT SAGS = 0.2%

Date: September 15, 2004
Dsn. By: RNS

SHT. No.	Structure No.	Line	Station	STR. Type	Total D.A. ha	Total D.A. (ac)	Required length for treatment (ft.)	Required length for treatment (m.)	PROVIDED Length (m)	Channel Slope (%)	BASE WID (m)	SIDE SLOPES * Z1	SIDE SLOPES * Z2	Treated Discharge?	Q2 cfs	V 2 fps	Q10 cfs	V 10 fps	Treatment Provided	Remarks
10		L2	129+68 RT	2-GI	0.38	0.9	93.9	29	239	0.77	0.0	6	6	YES	3.7	0.8	4.6	0.9	G.S.	
10		L2	129+68 M	2-GI	0.50	1.2	123.6	38	239	0.77	0.0	8	8	YES	2.9	0.7	3.6	0.7	G.S.	
10		L2	129+68 LT	2-GI	0.54	1.3	133.4	41	239	0.85	0.0	6	6	YES	4.8	1.0	6.1	1.1	G.S.	
10		L2	130+20 LT	2-GI	0.15	0.4	37.1	11	51	0.85	0.0	6	6	YES	1.5	0.6	1.9	0.7	G.S.	
10		L2	131+49 RT	2-GI	0.47	1.2	116.1	35	179	1.34	0.0	6	6	YES	4.5	1.1	5.7	1.3	G.S.	
10		L2	131+49 M	2-GI	0.38	0.9	93.9	29	179	1.34	0.0	8	8	YES	2.4	0.8	3.0	0.8	G.S.	
10		L2	131+47 LT	DITCH	3.17	7.8	783.3	239	881	1.34	4.0	3	3	YES	17.6	1.9	23.3	2.3	G.S.	
11		L2	133+60 LT	DITCH	4.70	11.6	1161.4	354	1218	0.33	4.0	3	3	YES	23.0	1.4	31.2	1.6	G.S.	1, 2
11		L2	132+60 M	2-GI	0.23	0.6	56.8	17	110	1.34	0.0	8	8	YES	1.6	0.7	2.0	0.7	G.S.	
11		L2	132+60 RT	2-GI	0.60	1.5	148.3	45	110	1.34	0.0	6	6	YES	3.2	0.9	8.1	1.6	G.S.	
11		L2	133+05 RT	DITCH	3.40	8.4	840.1	256	245	1.00	1.2	3	3	NO	10.8	1.2	14.8	2.2	G.S.	1
11		L2	133+86 M	2-GI	0.43	1.1	106.3	32	169	SAG	0.0	8	8	YES	3.6	0.4	4.6	0.5	G.S.	
11		L2	133+86 RT	2-GI	0.07	0.2	17.3	5	0	N/A	N/A	N/A	N/A	NO	1.0	N/A	1.2	N/A	N/A	
11		L2	133+36 RT	2-GI	0.09	0.2	22.2	7	0	N/A	N/A	N/A	N/A	NO	1.3	N/A	1.6	N/A	N/A	
11		L2	133+36 RT	OPEN	0.59	1.5	145.8	44	N/A	N/A	N/A	N/A	N/A	NO	5.6	N/A	7.1	N/A	PSH	
11		L2	134+55 M	2-GI	0.45	1.1	111.2	34	157	SAG	0.0	6	6	YES	3.8	0.5	4.8	0.5	G.S.	
11		L2	134+55 RT	2-GI	0.20	0.5	49.4	15	0	N/A	N/A	N/A	N/A	NO	2.8	N/A	3.5	N/A	N/A	
11		L2	134+55 RT	OPEN	0.65	1.6	160.6	49	N/A	N/A	N/A	N/A	N/A	NO	6.4	N/A	8.0	N/A	RIP RAP PAD	1, 3
12		FLYOVER	2+68 RT	2-GI	0.80	2.0	197.7	60	425	SAG	0.0	6	6	YES	3.9	0.5	5.0	0.5	G.S.	
12		FLYOVER	2+68 LT	2-GI	0.75	1.9	185.3	56	239	0.69	0.0	6	6	YES	6.2	0.8	7.9	0.9	G.S.	
12		FLYOVER	2+06 LT	2-GI	0.15	0.4	37.1	11	61	0.69	0.0	6	6	YES	1.6	0.6	2.0	0.6	G.S.	
11		FLYOVER	1+00 LT	DITCH	3.25	8.0	803.1	245	802	0.81	4.0	3	3	YES	18.9	1.2	25.0	1.3	G.S.	1
11		FLYOVER	0+70 LT	2-GI	0.13	0.3	32.1	10	N/A	0.22	N/A	N/A	N/A	NO	1.8	N/A	2.3	N/A	G.S.	
11		FLYOVER	1+16.4 LT	2-GI	0.14	0.3	34.6	11	N/A	SAG	N/A	N/A	N/A	NO	2.0	N/A	2.5	N/A	G.S.	
11		FLYOVER	1+16.4 LT	OPEN	0.27	0.7	66.7	20	N/A	0.90	N/A	N/A	N/A	NO	3.8	N/A	4.8	N/A	PSH	1

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LS = LEVEL SPREADER
* SIDE SLOPES TAKEN FROM CROSS SECTIONS

NOTE 1: TOTAL FOR THIS SYSTEM
NOTE 2: No credit is claimed for 4M Base Ditch from -12- Sta. 132+00 to Sta. 133+30 LT.
NOTE 3: OUTLETS INTO WETLAND

R-2552C Johnston Co. Affected Buffer Areas **Site # 9**

Discharge is considered to be treated if it meets the following criteria:
100 ft. of grass swale for every 1 acre of drainage area. AND
2 yr. velocity is less than or equal to 2 ft./sec.

ASSUMPTIONS FOR ROADWAY CUT DITCHES:
"V" BOTTOM DITCH
MINIMUM GRADE AT SAGS = 0.2%

Date: September 15, 2004
Dsn. By: RNS

SHT. No.	Structure No.	Line	Station	STR. Type	Total D.A. ha	Total D.A. (ac)	Required length for treatment (ft.)	Required length for treatment (m.)	PROVIDED Length (m)	Channel Slope (%)	BASE WID (m)	SIDE SLOPES * Z1	SIDE SLOPES * Z2	Treated Discharge?	Q2 cfs	V 2 fps	Q10 cfs	V 10 fps	Treatment Provided	Remarks
14		FLYOVER	12+46 RT	2-GI	0.12	0.3	29.7	9	N/A	N/A	N/A	N/A	N/A	N/A	1.7	N/A	2.1	N/A	N/A	3
14		FLYOVER	13+60 RT	2-GI	0.13	0.3	32.1	10	N/A	N/A	N/A	N/A	N/A	N/A	1.8	N/A	2.3	N/A	N/A	3
14		FLYOVER	12+86 RT	DITCH	1.10	2.7	271.8	83	118	0.83	0.0	3	3	YES	5.0	1.3	6.7	1.5	G.S.	
14		RAMP A	6+55.5 LT	DITCH	0.25	0.6	61.8	19	55	0.88	0.0	6	3	YES	2.0	0.7	2.6	0.8	G.S.	
14		RAMP A	6+56.5 LT	DITCH	0.75	1.9	185.3	56	148	2.40	0.0	6	3	YES	5.4	1.9	6.8	2.1	G.S.	
14		RAMP A	6+37.5 RT	DITCH	0.20	0.5	49.4	15	72	0.75	0.0	5	4	YES	0.9	0.6	1.1	0.6	G.S.	
14		RAMP A	6+38.5 RT	DITCH	0.70	1.7	173.0	53	131	2.00	0.0	6	4	YES	4.5	1.5	5.6	1.6	G.S.	
14		Y-5-	18+80 LT	DITCH	0.55	1.4	135.9	41	165	2.90	0.0	4	4	YES	4.3	1.9	5.4	2.1	G.S.	
14		Y-5-	19+93 LT	DITCH	3.80	9.4	939.0	286	777	0.35	0.6	3	3	YES	15.6	1.5	21.5	1.7	G.S.	1
14		FLYOVER	14+26 RT	2-GI	0.08	0.2	19.8	6	N/A	N/A	N/A	N/A	N/A	N/A	1.1	N/A	1.4	N/A	N/A	3
14		FLYOVER	13+92 RT	DITCH	0.66	1.6	163.1	50	55	0.91	0.0	3	3	YES	4.8	1.3	6.1	1.5	G.S.	
14		RAMP A	5+40 LT	2-GI	0.28	0.7	69.2	21	59	1.01	0.0	6	6	YES	2.3	0.7	2.9	0.8	G.S.	
14		Y-5-	19+95 RT	DITCH	0.26	0.6	64.2	20	85	1.60	0.0	4	4	YES	2.0	0.9	2.4	1.1	G.S.	
14		Y-5-	19+96 LT	OPEN	1.20	3.0	296.5	90	199	N/A	N/A	N/A	N/A	NO	8.1	N/A	10.3	N/A	N/A	1

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LS = LEVEL SPREADER
* SIDE SLOPES TAKEN FROM CROSS SECTIONS

NOTE 1: TOTAL FOR THIS SYSTEM

NOTE 3: TREATMENT IS PROVIDED DOWNSTREAM

R-2552C Johnston Co. Affected Buffer Areas **Site # 10**

Discharge is considered to be treated if it meets the following criteria:
100 ft. of grass swale for every 1 acre of drainage area. AND
2 yr. velocity is less than or equal to 2 ft./sec.

ASSUMPTIONS FOR ROADWAY CUT DITCHES:
"V" BOTTOM DITCH
MINIMUM GRADE AT SAGS = 0.2%

Date: September 15, 2004
Dsn. By: RNS

SHT. No.	Structure No.	Line	Station	STR. Type	Total D.A. ha	Total D.A. (ac)	Required length for treatment (ft.)	Required length for treatment (m.)	PROVIDED Length (m)	Channel Slope (%)	BASE WID (m)	SIDE SLOPES * Z1	SIDE SLOPES * Z2	Treated Discharge?	Q2 cfs	V 2 fps	Q10 cfs	V 10 fps	Treatment Provided	Remarks
16		Y-4	27+40 RT	DITCH	0.31	0.8	76.6	23	150	2.00	0.0	5	4	YES	1.6	0.9	2.0	1.0	G.S.	1

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OPEN = OPEN END PIPE
PSH = PRE FORMED SCOUR HOLE
LS = LEVEL SPREADER
* SIDE SLOPES TAKEN FROM CROSS SECTIONS

NOTE 1: TOTAL FOR THIS SYSTEM

R-2552C Johnston Co. Affected Buffer Areas **Site # 12**

Discharge is considered to be treated if it meets the following criteria:
100 ft. of grass swale for every 1 acre of drainage area. AND
2 yr. velocity is less than or equal to 2 ft./sec.

ASSUMPTIONS FOR ROADWAY CUT DITCHES:
"V" BOTTOM DITCH
MINIMUM GRADE AT SAGS = 0.2%

Date: September 15, 2004
Dsn. By: RNS

SHT. No.	Structure No.	Line	Station	STR. Type	Total D.A. ha	Total D.A. (ac)	Required length for treatment (ft.)	Required length for treatment (m.)	PROVIDED Length (m)	Channel Slope (%)	BASE WID (m)	SIDE SLOPES * Z1	SIDE SLOPES * Z2	Treated Discharge?	Q2 cfs	V 2 fps	Q10 cfs	V 10 fps	Treatment Provided	Remarks
16		Y-4	26+88 M	2-GI	0.32	0.8	79.1	24	240	0.74	0.0	6	6	YES	2.3	0.7	2.9	0.7	G.S.	
16		Y-4	26+88 LT	2-GI	0.26	0.6	64.2	20	0	0.74	N/A	N/A	N/A	N/A	3.7	N/A	4.6	N/A	G.S.	3
16		Y-4	28+86 LT	2-GI	0.04	0.1	9.9	3	4	SAG	0.0	6	6	YES	0.4	0.3	0.5	0.3	G.S.	
16		Y-4	28+72 LT	2-GI	0.05	0.1	12.4	4	6	SAG	0.0	6	6	YES	0.5	0.3	0.7	0.3	G.S.	
16		Y-4	27+50 LT	2-GI	0.52	1.3	128.5	39	105	0.55	0.0	6	6	YES	5.5	0.8	6.8	0.9	G.S.	
16		Y-4	27+40 M	2-GI	0.36	0.9	89.0	27	170	0.34	0.0	6	4	YES	3.2	0.6	4.0	0.6	G.S.	
16		Y-4	26+59 LT	DITCH	1.76	4.3	434.9	133	571	0.70	1.0	3	3	YES	14.1	1.9	18.1	2.1	G.S.	1
15		Y-4	25+04 LT	2-GI	0.20	0.5	49.4	15	0	N/A	N/A	N/A	N/A	N/A	2.8	N/A	3.5	N/A	PSH	
15		L2-	149+41 M	2-GI	0.23	0.6	56.8	17	150	SAG	0.0	5	5	YES	1.8	0.4	2.3	0.4	G.S.	
16		L2-	150+19 RT	DITCH	1.15	2.8	284.2	87	269	1.00	0.00	4.00	4.00	YES	5.8	1.3	7.5	1.5	G.S.	1, 4
																		0.0		
16		L2-	151+63 RT	2-GI	0.11	0.3	27.2	8	74	0.40	0.0	6	6	YES	0.8	0.4	1.0	0.4	G.S.	
16		L2-	150+25 RT	DITCH	1.31	3.2	323.7	99	225	1.30	0.0	6	4	YES	3.3	1.0	4.5	1.2	G.S.	1, 4

2GI = 2 GRATED INLET
SBG = SHOULDER BERM GUTTER
CB = CATCH BASIN
DDB = DRY DETENTION BASIN
B = BASIN
GS = GRASS SWALE

BDOS = BERM DRAINAGE OUTLET STRUCTURE
OTCB = OPEN THROAT CATCH BASIN
OPEN = OPEN END PIPE
PSH = PRE FORMED SCOUR HOLE
LS = LEVEL SPREADER
* SIDE SLOPES TAKEN FROM CROSS SECTIONS

NOTE 1: TOTAL FOR THIS SYSTEM

NOTE 3: TREATMENT IS PROVIDED DOWNSTREAM

NOTE 4: EXISTING DITCH

R-2552C Johnston Co. Affected Buffer Areas **Site # 13**

Discharge is considered to be treated if it meets the following criteria:
100 ft. of grass swale for every 1 acre of drainage area. AND
2 yr. velocity is less than or equal to 2 ft./sec.

ASSUMPTIONS FOR ROADWAY CUT DITCHES:
"V" BOTTOM DITCH
MINIMUM GRADE AT SAGS = 0.2%

Date: September 15, 2004
Dsn. By: RNS

SHT. No.	Structure No.	Line	Station	STR. Type	Total D.A. ha	Total D.A. (ac)	Required length for treatment (ft.)	Required length for treatment (m.)	PROVIDED Length (m)	Channel Slope (%)	BASE WID (m)	SIDE SLOPES * Z1	SIDE SLOPES * Z2	Treated Discharge?	Q2 cfs	V 2 fps	Q10 cfs	V 10 fps	Treatment Provided	Remarks
16		L2	150+55 LT	THERE ARE NO ROADWAY DITCHES ENTERING THE BUFFERED AREA IN THIS VICINITY - SHEET FLOW ONLY																

2GI = 2 GRATED INLET
SBG = SHOULDER BERM GUTTER
CB = CATCH BASIN
DDB = DRY DETENTION BASIN
B = BASIN
GS = GRASS SWALE

BDOS = BERM DRAINAGE OUTLET STRUCTURE
OTCB = OPEN THROAT CATCH BASIN
OPEN = OPEN END PIPE
PSH = PRE FORMED SCOUR HOLE
LS = LEVEL SPREADER
* SIDE SLOPES TAKEN FROM CROSS SECTIONS

NOTE 1: TOTAL FOR THIS SYSTEM

R-2552C Johnston Co. Affected Buffer Areas **Site # 14**

Discharge is considered to be treated if it meets the following criteria:
100 ft. of grass swale for every 1 acre of drainage area. AND
2 yr. velocity is less than or equal to 2 ft./sec.

ASSUMPTIONS FOR ROADWAY CUT DITCHES:
"V" BOTTOM DITCH
MINIMUM GRADE AT SAGS = 0.2%

Date: September 15, 2004
Dsn. By: RNS

SHT. No.	Structure No.	Line	Station	STR. Type	Total D.A. ha	Total D.A. (ac)	Required length for treatment (ft.)	Required length for treatment (m.)	PROVIDED Length (m)	Channel Slope (%)	BASE WID (m)	SIDE SLOPES * Z1	SIDE SLOPES * Z2	Treated Discharge?	Q2 cfs	V 2 fps	Q10 cfs	V 10 fps	Treatment Provided	Remarks
16		L2	152+62 LT	DITCH	0.22	0.5	54.4	17	92	3.50	0.0	4	3	YES	2.0	1.5	2.5	1.7	G.S.	1, 4
16		L2	152+64 RT	2-GI	0.59	1.5	145.8	44	307	2.09	0.0	6	6	YES	3.7	1.3	4.7	1.4	G.S.	
16		RAMP D	2+40 LT	2-GI	2.20	5.4	543.6	166	284	0.32	0.0	6	6	YES	12.2	1.0	16.4	1.1	G.S.	
16		L2	153+33 M	2-GI	0.24	0.6	59.3	18	165	0.44	0.0	6	6	YES	1.6	0.5	2.0	0.5	G.S.	
16		L2	153+80 RT	DITCH	3.70	9.1	914.3	279	796	0.24	1.0	3	3	YES	17.5	1.3	23.7	1.5	G.S.	1
17		L2	154+64.5	2-GI	0.40	1.0	98.8	30	283	SAG	0.0	5	5	YES	2.8	0.4	3.5	0.5	G.S.	1
17		L2	156+20 M	2-GI	0.22	0.5	54.4	17	117	0.90	0.0	6	6	YES	2.0	0.7	2.5	0.7	G.S.	
17		L2	157+38.5	2-GI	0.32	0.8	79.1	24	101	0.80	0.0	6	4	YES	3.8	0.9	4.7	1.0	G.S.	
17		L2	156+25 RT	DITCH	1.70	4.2	420.1	128	207	1.63	3.0	3	3	YES	12.0	1.9	15.5	2.2	G.S.	2
17		L2	155+30 RT	DITCH	2.20	5.4	543.6	166	409	0.75	2.0	3	3	YES	14.4	1.8	19.0	2.0	G.S.	1

4-625

2GI = 2 GRATED INLET
SBG = SHOULDER BERM GUTTER
CB = CATCH BASIN
DDB = DRY DETENTION BASIN
B = BASIN
GS = GRASS SWALE

BDOS = BERM DRAINAGE OUTLET STRUCTURE
OTCB = OPEN THROAT CATCH BASIN
OPEN = OPEN END PIPE
PSH = PRE FORMED SCOUR HOLE
LS = LEVEL SPREADER
* SIDE SLOPES TAKEN FROM CROSS SECTIONS

NOTE 1: TOTAL FOR THIS SYSTEM

NOTE 2: NO CREDIT IS CLAIMED FOR THE DITCH FROM L2 STA. 156+15 TO STA. 156+25 RT AND FROM STA. 157+20 RT AHEAD

NOTE 4: EXISTING DITCH

R-2552C Johnston Co. Affected Buffer Areas **Site # 16**

Discharge is considered to be treated if it meets the following criteria:
100 ft. of grass swale for every 1 acre of drainage area. AND
2 yr. velocity is less than or equal to 2 ft./sec.

ASSUMPTIONS FOR ROADWAY CUT DITCHES:
"V" BOTTOM DITCH
MINIMUM GRADE AT SAGS = 0.2%

Date: September 15, 2004
Dsn. By: RNS

SHT. No.	Structure No.	Line	Station	STR. Type	Total D.A. ha	Total D.A. (ac)	Required length for treatment (ft.)	Required length for treatment (m.)	PROVIDED Length (m)	Channel Slope (%)	BASE WID (m)	SIDE SLOPES * Z1	SIDE SLOPES * Z2	Treated Discharge?	Q2 cfs	V 2 fps	Q10 cfs	V 10 fps	Treatment Provided	Remarks
21		Y-6	14+30 LT	DITCH	0.07	0.2	17.8	5	30	1.06	0.0	6	4	YES	0.7	0.6	0.9	0.6	G.S.	1
																0.0		0.0		
21		Y-6	14+40 RT	DITCH	1.50	3.7	370.7	113	140	3.50	0.0	4	3	N/A	7.2	2.8	9.7	3.1	PSH	1, 5
																0.0		0.0		
22		Y-6	14+90 LT	DITCH	0.19	0.5	46.9	14	59	0.33	0.0	3	4	YES	1.7	0.5	2.1	0.5	G.S.	1

2GI = 2 GRATED INLET
SBG = SHOULDER BERM GUTTER
CB = CATCH BASIN
DDB = DRY DETENTION BASIN
B = BASIN
GS = GRASS SWALE

BDOS = BERM DRAINAGE OUTLET STRUCTURE
OTCB = OPEN THROAT CATCH BASIN
OPEN = OPEN END PIPE
PSH = PRE FORMED SCOUR HOLE
LS = LEVEL SPREADER
* SIDE SLOPES TAKEN FROM CROSS SECTIONS

NOTE 1: TOTAL FOR THIS SYSTEM

NOTE 5: NO HIGHWAY PAVEMENT DRAINS TO THIS SITE

BUFFER IMPACTS SUMMARY (English)

SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	IMPACT								BUFFER REPLACEMENT	
			TYPE		ALLOWABLE			MITIGABLE				
			ROAD CROSSING	PARALLEL IMPACT	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)	TOTAL (ft^2)	ZONE 1 (ft^2)	ZONE 2 (ft^2)
1	DUAL BRIDGES	L2 LT LN 108+84 / 110+28	X		25272	13712	38985					
		L2 RT LN 109+72 / 111+02										
4	750 RCP	Y1 11+06 / 11+35 RT	X		2097	861	2958					
5	1500 RCP	L2 126+12 / 126+49	X					19889	13157	33046		
6	DBL 2.7x1.8 RCBC	L2 133+87 / 134+23	X					19472	13196	32668		
	1200 RCP											
	3.7x2.4 RCBC											
9	750 RCP	Y5 20+10 / 20+30		X				549	958	1507		
10	2.7x1.8 RCBC	Rp C 7+68 / 8+16	X		5479	2099	7578					
	1800 RCP											
12	1200 RCP	L2 150+05 / 150+42 RT	X		2712	1087	3800					
13	1050 RCP	L2 150+27 / 150+68 LT	X		1937	850	2788					
14	2.44x1.83 RCBC	L2 153+64 LT / 155+54 RT	X		4801	2390	7190					
	1500 STEEL PIPE											
	900 RCP & 600 RCP											
16	DBL 1500 RCP	Y6 14+24 / 14+76	X		4176	2153	6329					
TOTAL:					**46475**	**23152**	**69628**	**39910**	**27311**	**67221**		

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

JOHNSTON COUNTY
PROJECT: 8.T311002 (R-2552C)

US-70 CLAYTON BYPASS
FROM EAST OF SR-1560
TO US-70 EAST OF CLAYTON

SHEET 21 OF 23 January 7, 2005

BUFFER IMPACTS SUMMARY (Metric)

SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	IMPACT								BUFFER REPLACEMENT	
			TYPE		ALLOWABLE			MITIGABLE				
			ROAD CROSSING	PARALLEL IMPACT	ZONE 1 (m^2)	ZONE 2 (m^2)	TOTAL (m^2)	ZONE 1 (m^2)	ZONE 2 (m^2)	TOTAL (m^2)	ZONE 1 (m^2)	ZONE 2 (m^2)
1	DUAL BRIDGES	L2 LT LN 108+84 / 110+28	X		2348	1274	3622					
		L2 RT LN 109+72 / 111+02										
4	750 RCP	Y1 11+06 / 11+35 RT	X		195	80	275					
5	1500 RCP	L2 126+12 / 126+49	X					1848	1222	3070		
6	DBL 2.7x1.8 RCBC	L2 133+87 / 134+23	X					1809	1226	3035		
	1200 RCP											
	3.7x2.4 RCBC											
9	750 RCP	Y5 20+10 / 20+30		X				51	89	140		
10	2.7x1.8 RCBC	Rp C 7+68 / 8+16	X		509	195	704					
	1800 RCP											
12	1200 RCP	L2 150+05 / 150+42 RT	X		252	101	353					
13	1050 RCP	L2 150+27 / 150+68 LT	X		180	79	259					
14	2.44x1.83 RCBC	L2 153+64 LT / 155+54 RT	X		446	222	668					
	1500 STEEL PIPE											
	900 RCP & 600 RCP											
16	DBL 1500 RCP	Y6 14+24 / 14+76	X		388	200	588					
TOTAL:					4318	2151	6469	3708	2537	6245		

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

JOHNSTON COUNTY
PROJECT: 8.T311002 (R-2552C)

US-70 CLAYTON BYPASS
FROM EAST OF SR-1560
TO US-70 EAST OF CLAYTON

SHEET 20 OF 23 January 7, 2005

BUFFER IMPACTS SUMMARY (METRIC)

		WETLANDS IN BUFFER		MECH. CLEARING IN BUFFER		TOTAL	
Site	Station (FROM/TO)	ZONE 1 (M^2)	ZONE 2 (M^2)	ZONE 1 (M^2)	ZONE 2 (M^2)	ZONE 1 (M^2)	ZONE 2 (M^2)
C-1	L2 LT LN 108+84 / 110+28	0	0	0	8	0	8
	L2 RT LN 109+72 / 111+02						0
C-4	Y1 11+06 / 11+35 RT	0	0	0	0	0	0
C-5	L2 126+12 / 126+49	0	0	0	0	0	0
C-6	L2 133+87 / 134+23	1407	910	402	247	1809	1157
C-9	Y5 20+10 / 20+30	0	0	0	0	0	0
C-10	Rp C 7+68 / 8+16	51	0	128	7	179	7
C-12	L2 150+05 / 150+42 RT	0	0	104	7	104	7
C-13	L2 150+27 / 150+68 LT	94	39	62	38	156	77
C-14	L2 153+64 LT / 155+54 RT	131	61	135	74	266	135
C-16	Y6 14+24 / 14+76	1	0	54	30	55	30
TOTAL:		1684	1010	885	411	2569	1421

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

JOHNSTON COUNTY
PROJECT 8.T311002 (R-2552C)

US-70 CLAYTON BYPASS
FROM EAST OF SR-1560
TO US-70 EAST OF CLAYTON

SHEET 22 OF 23 SEPT. 15, 2004

BUFFER IMPACTS SUMMARY (ENGLISH)

		WETLANDS IN BUFFER		MECH. CLEARING IN BUFFER		TOTAL	
Site	Station (FROM/TO)	ZONE 1 (FT^2)	ZONE 2 (FT^2)	ZONE 1 (FT^2)	ZONE 2 (FT^2)	ZONE 1 (FT^2)	ZONE 2 (FT^2)
C-1	L2 LT LN 108+84 / 110+28	0	0	0	86	0	86
	L2 RT LN 109+72 / 111+02						0
C-4	Y1 11+06 / 11+35 RT	0	0	0	0	0	0
C-5	L2 126+12 / 126+49	0	0	0	0	0	0
C-6	L2 133+87 / 134+23	15145	9795	4327	2659	19472	12454
C-9	Y5 20+10 / 20+30	0	0	0	0	0	0
C-10	Rp C 7+68 / 8+16	550	0	1379	75	1929	75
C-12	L2 150+05 / 150+42 RT	0	0	1119	75	1119	75
C-13	L2 150+27 / 150+68 LT	1014	419	662	410	1676	829
C-14	L2 153+64 LT / 155+54 RT	1410	657	1453	797	2863	1453
C-16	Y6 14+24 / 14+76	12	0	581	321	593	321
TOTAL:		18131	10870	9522	4423	27652	15293

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

JOHNSTON COUNTY
PROJECT 8.T311002 (R-2552C)

US-70 CLAYTON BYPASS
FROM EAST OF SR-1560
TO US-70 EAST OF CLAYTON

SHEET 23 OF 23 SEPT. 15, 2004

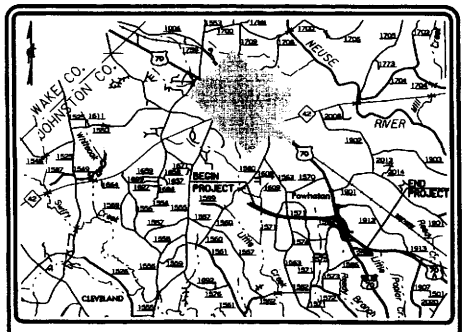
CONTRACT:

TIP PROJECT: R-2552C

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

JOHNSTON COUNTY

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



VICINITY MAP

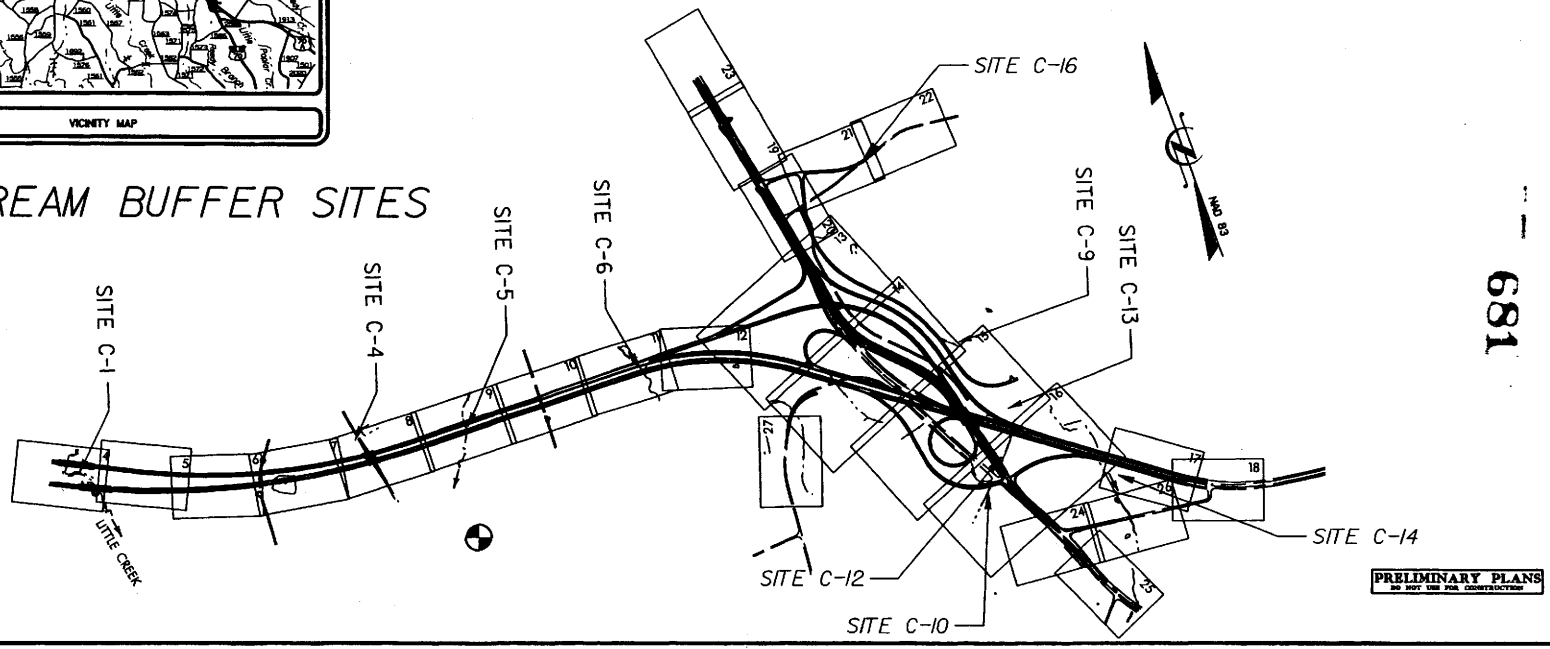
METRIC

ALL DIMENSIONS IN THESE PLANS ARE IN METERS AND/OR MILLIMETERS UNLESS OTHERWISE SHOWN

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2552C	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34459.1.6	NHF-60-1(9)	P.E.	
34459.2.7		R.W. & UTIL.	

LOCATION: US 70 (CLAYTON BYPASS) FROM EAST OF SR 1560 TO US 70 EAST OF CLAYTON

TYPE OF WORK: GRADING, DRAINAGE, PAVING, GUARDRAIL, SIGNALS, STRUCTURES AND CULVERTS



681

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALE

PLANS (5 m 0 10 m)

PROFILE (HORIZONTAL) (5 m 0 10 m)

PROFILE (VERTICAL) (1 m 0 2 m)

DESIGN DATA

ADT 2005 = 29,500
ADT 2025 = 55,800
DHV = 10 %
D = 65 %
T = 16 % *
V = 110 km/h

* TTST 10% + DUAL 6%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-2552C	=	4.842 km
LENGTH STRUCTURE TIP PROJECT R-2552C	=	0.160 km
TOTAL LENGTH TIP PROJECT R-2552C	=	5.002 km

-L2-RT WAS USED TO DETERMINE STRUCTURE LENGTH

Prepared in the Office of:
LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612
FOR THE NORTH CAROLINA DIVISION OF HIGHWAYS

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: May 16, 2003

LETTING DATE: May 17, 2005

Stephen C. Browde, P.E.
PROJECT ENGINEER

Thomas A. McCloskey, P.E.
PROJECT DESIGN ENGINEER

N.C.D.O.T. CONTACT:
Teresa Bruton, P.E.
PROJECT ENGINEER - DESIGN SERVICES

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

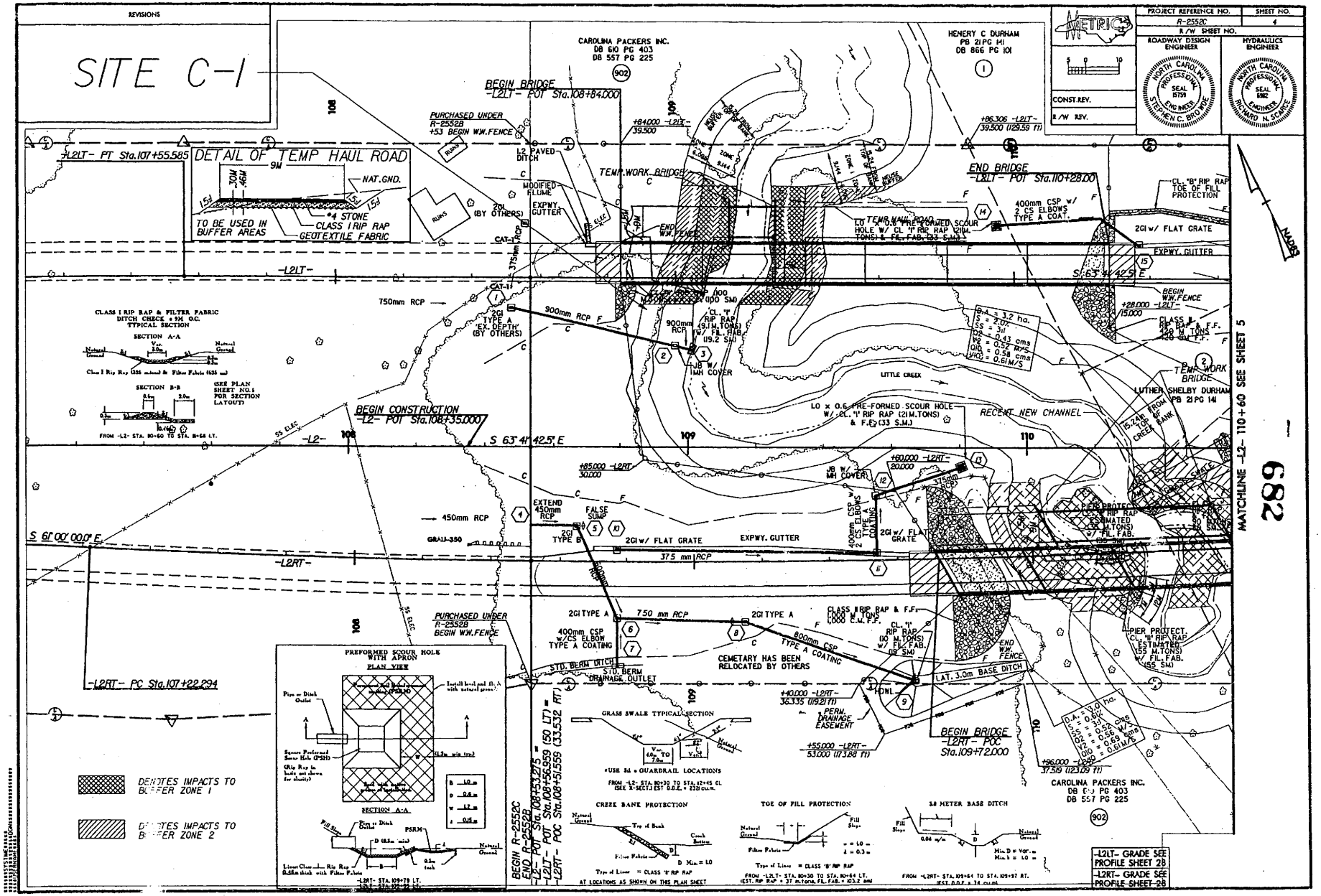
SIGNATURE: P.E.

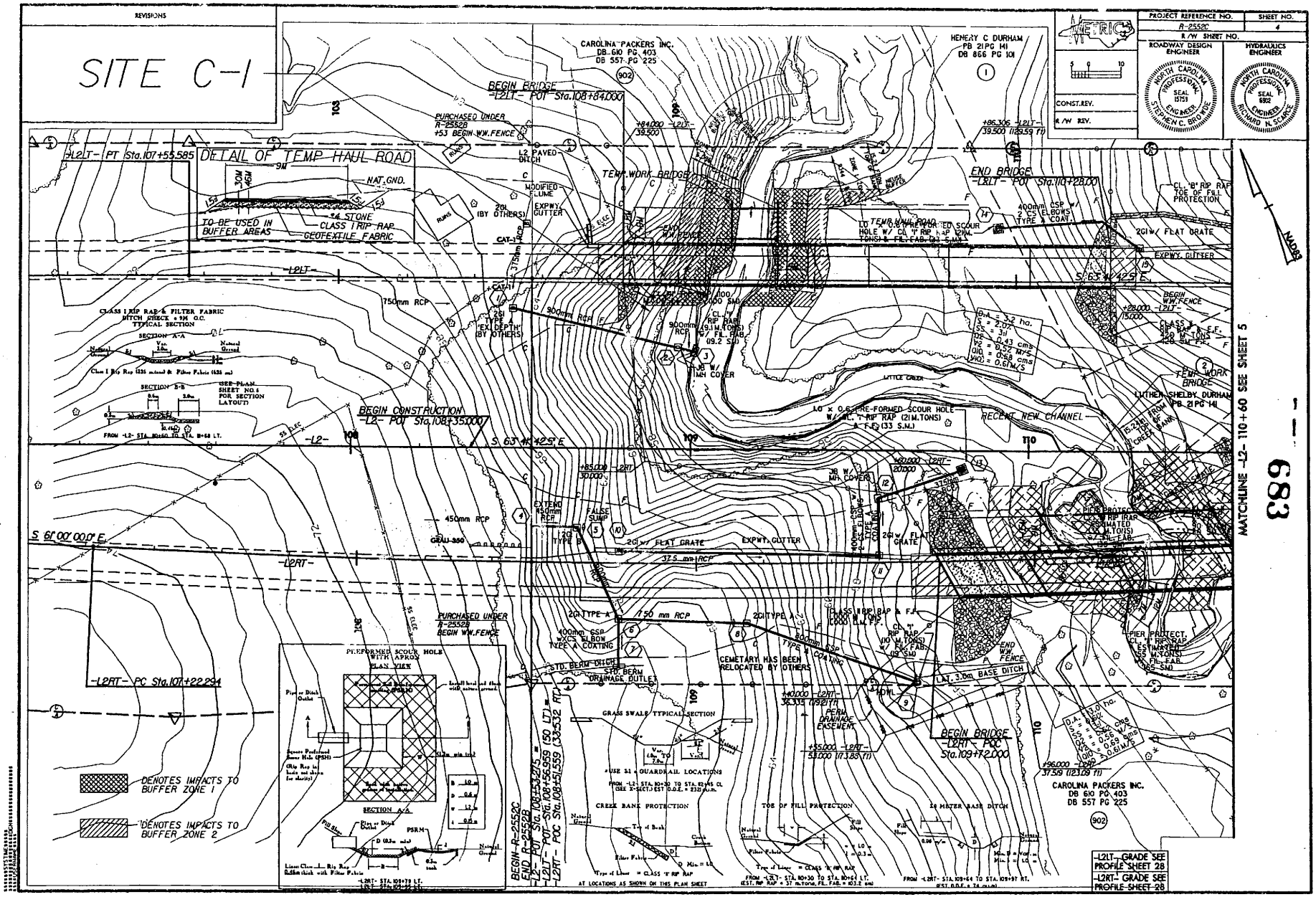
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

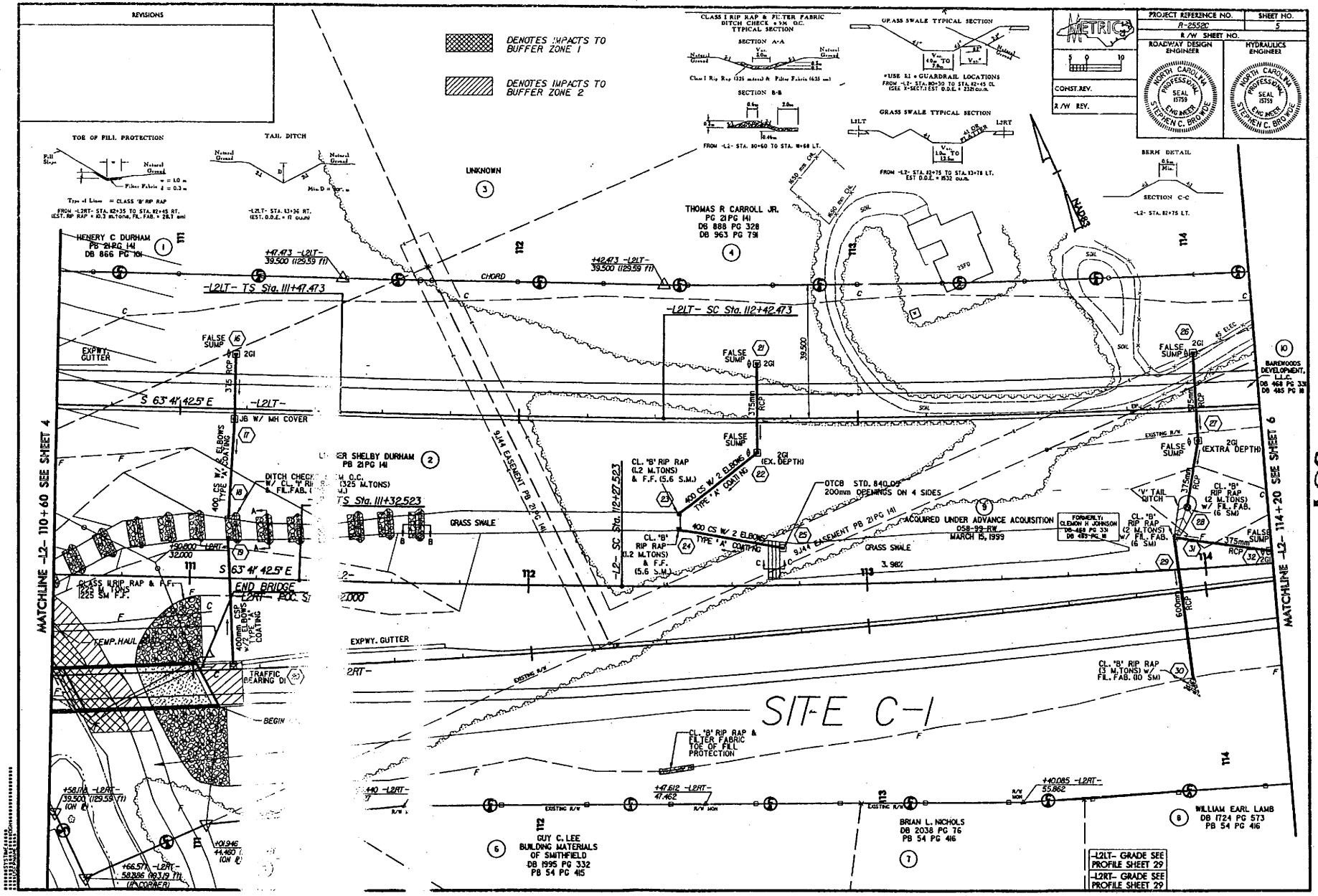
STATE DESIGN ENGINEER P.E.

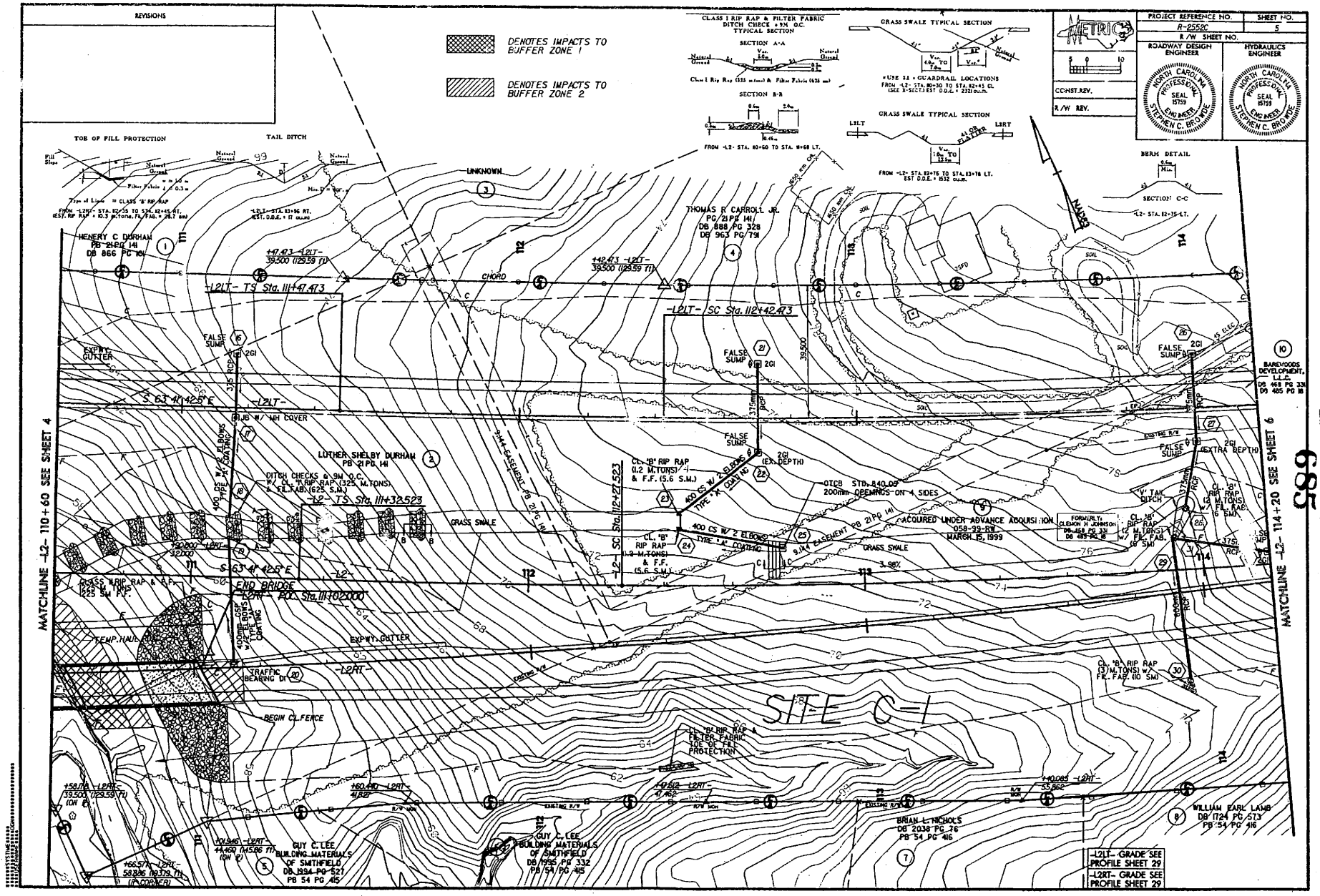
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

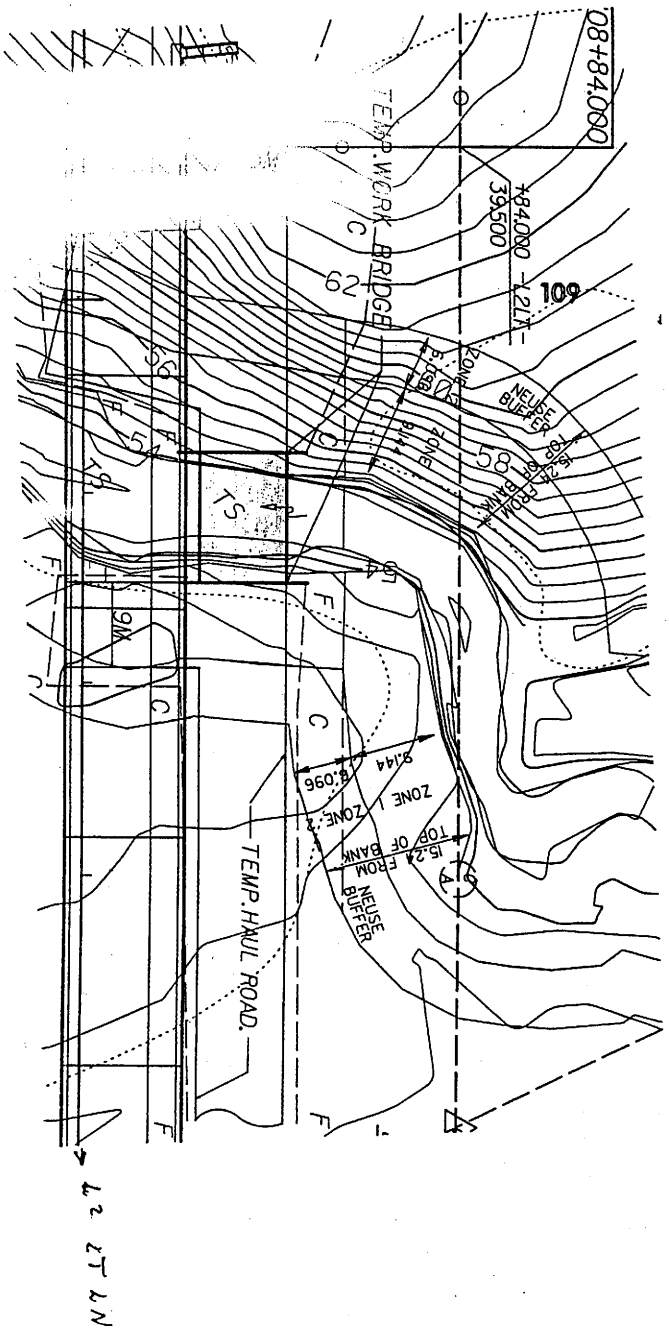
APPROVED
DIVISION ADMINISTRATOR DATE

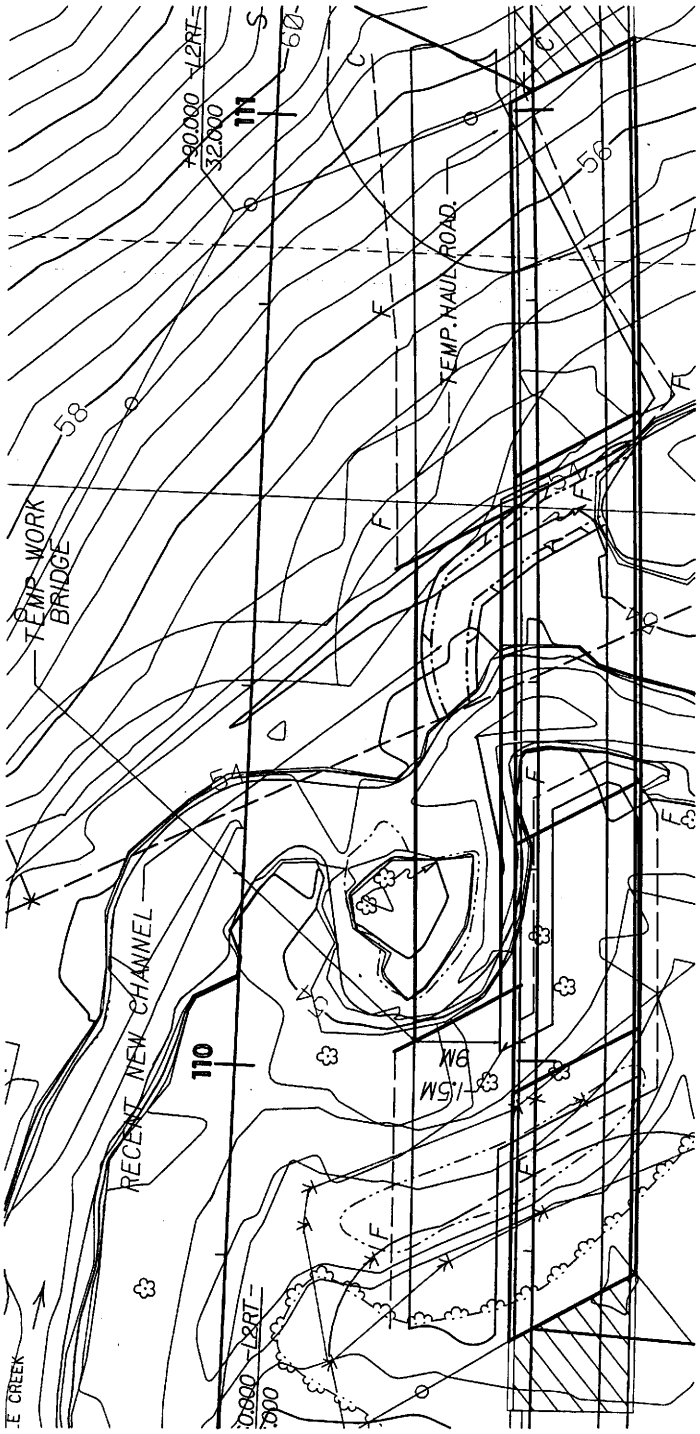

SITE C-1
REVISIONS
METRIC
PROJECT REFERENCE NO. R-2552C
SHEET NO. 4
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
CONST. REV.
R/W REV.
CAROLINA PACKERS INC. DB 60 PG 403 DB 557 PG 225
HENERY C DURHAM PB 21 PG 141 DB 866 PG 101
BEGIN BRIDGE -L2LT- POT Sta.108+84.000
PURCHASED UNDER R-2552B +53 BEGIN WW.FENCE
+84.000 -L2LT- 39.500
+86.306 -L2LT- 39.500 (129.59 FT)
-L2LT- PT Sta.107+55.585
DETAIL OF TEMP HAUL ROAD
9M
NAT.GND.
*4 STONE
CLASS I RIP RAP
GEOTEXTILE FABRIC
TO BE USED IN BUFFER AREAS
L2 PAVED DITCH
MODIFIED FLUME
EXPWY GUTTER
TEMP. WORK BRIDGE
END WW. FENCE
END BRIDGE -L2LT- POT Sta.110+28.00
400mm CSP w/ 2 CS ELBOWS TYPE A COAT.
CL "B" RIP RAP TOE OF FILL PROTECTION
2GI w/ FLAT GRATE
EXPWY. GUTTER
-L2LT-
S 63° 41' 42.5" E
BEGIN WW.FENCE
+28.000 -L2LT- 15.000
CLASS II RIP RAP & F.F.
750mm RCP
900mm RCP
2GI TYPE A EX. DEPTH (BY OTHERS)
CL "I" RIP RAP (9.1 M.TONS) W/ FIL. FAB. (19.2 SM)
JB W/ MH COVER
LITTLE CREEK
LO x 0.6 PRE-FORMED SCOUR HOLE W/ CL "I" RIP RAP (21 M.TONS) & F.F. (33 S.M.)
RECENT NEW CHANNEL
TEMP. WORK BRIDGE LUTHER SHELBY DURHAM PB 21 PG 141
BEGIN CONSTRUCTION -L2- POT Sta.108+35.000
-L2-
+65.000 -L2RT- 30.000
+60.000 -L2RT- 20.000
EXTEND 450mm RCP
FALSE SUMP
450mm RCP
GRAU-350
2GI TYPE B
2GI w/ FLAT GRATE
EXPWY. GUTTER
375 mm RCP
400mm CSP w/CS ELBOW TYPE A COATING
CL "I" RIP RAP ESTIMATED (55 M.TONS) W/ FIL. FAB. (55 SM)
PIER PROTECT.
S 61° 00' 00.0" E
-L2RT-
PURCHASED UNDER R-2552B BEGIN WW.FENCE
2GI TYPE A
750 mm RCP
400mm CSP w/CS ELBOW TYPE A COATING
600mm CSP TYPE A COATING
CLASS II RIP RAP & F.F. (1000 M.TONS) (1000 C.M. F.F.)
CL "I" RIP RAP (10 M.TONS) W/ FIL. FAB. (10 SM)
END W.W. FENCE
CEMETARY HAS BEEN RELOCATED BY OTHERS
STD. BERM DITCH
STD. BERM DRAINAGE OUTLET
LAT. 3.0m BASE DITCH
-L2RT- PC Sta.107+22.294
+40.000 -L2RT- 36.335 (119.21 FT)
PERM. DRAINAGE EASEMENT
+55.000 -L2RT- 53.000 (173.88 FT)
BEGIN BRIDGE -L2RT- POC Sta.109+72.000
+96.000 -L2RT- 37.59 (123.09 FT)
CAROLINA PACKERS INC. DB 60 PG 403 DB 557 PG 225
MATCHLINE -L2- 110+60 SEE SHEET 5
682
CLASS I RIP RAP & FILTER FABRIC DITCH CHECK @ 9M O.C. TYPICAL SECTION
SECTION A-A
SECTION B-B
Class I Rip Rap (535 metric) & Filter Fabric (535 sm)
ISEE PLAN SHEET NO.1 FOR SECTION LAYOUT
FROM -L2- STA. 80+60 TO STA. 84+66 LT.
PREFORMED SCOUR HOLE WITH APRON
PLAN VIEW
SECTION A-A
Square Perforated Sewer Hole (PSH)
PSRM
Natural Ground
Limit of Clear
Rip Rap to limits and above for stability
Fill Slope
Ditch
Filter Fabric
DENOTES IMPACTS TO BUFFER ZONE 1
DENOTES IMPACTS TO BUFFER ZONE 2
BEGIN R-2552C END R-2552B -L2LT- POT Sta.108+53.275 (50 LT) -L2LT- POC Sta.108+55.959 (33.532 RT)
GRASS SWALE TYPICAL SECTION
*USE 84 = GUARDRAIL LOCATIONS
FROM -L2- STA. 80+30 TO STA. 82+45 CL (EST. D.O.E. = 232 cu.m.)
CREEK BANK PROTECTION
TOE OF FILL PROTECTION
3.0 METER BASE DITCH
Type of Liner = CLASS 'B' RIP RAP AT LOCATIONS AS SHOWN ON THIS PLAN SHEET
FROM -L2LT- STA. 80+30 TO STA. 80+44 LT. (EST. RIP RAP = 37 M.TONS, FIL. FAB. = 103.2 SM)
FROM -L2RT- STA. 109+61 TO STA. 109+97 RT. (EST. D.O.E. = 34 cu.m.)
-L2LT- GRADE SEE PROFILE SHEET 28
-L2RT- GRADE SEE PROFILE SHEET 28

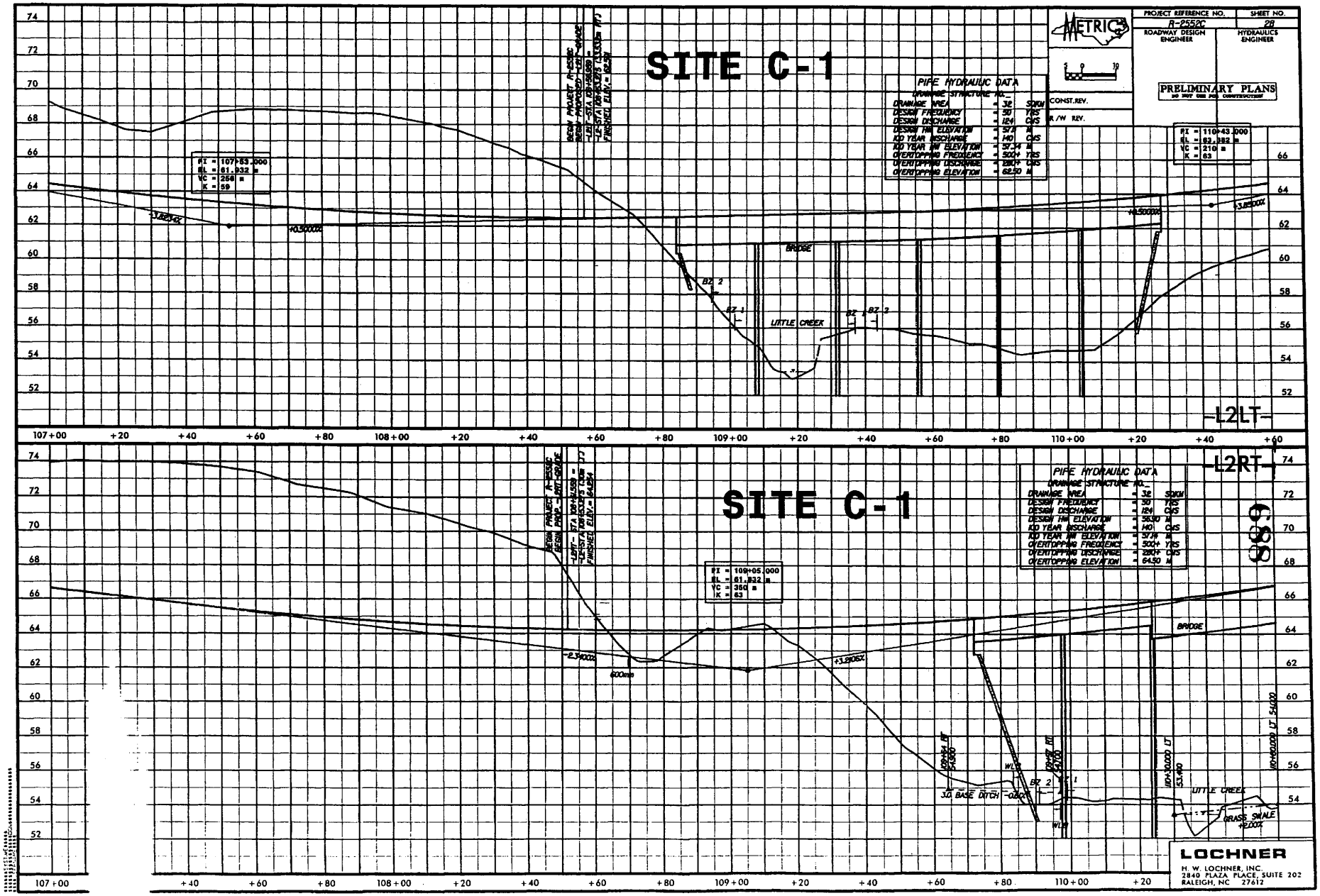

SITE C-1
REVISIONS
METRIC
PROJECT REFERENCE NO. R-2552C
SHEET NO. 4
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
CONST. REV.
R/W REV.
NORTH CAROLINA PROFESSIONAL SEAL 15751 ENGINEER STEPHEN C. BROOKS
NORTH CAROLINA PROFESSIONAL SEAL 6902 ENGINEER RICHARD N. SEARCY
-L2LT- PT Sta.107+55.585
DETAIL OF TEMP. HAUL ROAD
TO BE USED IN BUFFER AREAS
#4 STONE
CLASS I RIP-RAP
GEOFEXTILE FABRIC
NAT. GND.
CLASS I RIP RAP & FILTER FABRIC DITCH CHECK @ 9M O.C. TYPICAL SECTION
SECTION A-A
SECTION B-B
SEE PLAN SHEET NO. 6 FOR SECTION LAYOUT
FROM -L2- STA. 80+60 TO STA. 81+68 LT.
BEGIN CONSTRUCTION -L2- POT Sta.108+35.000
S 63°41'42.5" E
S 61°00'00" E
-L2RT- PC Sta.107+22.254
-L2RT-
-L2-
-L2LT-
CAROLINA PACKERS INC. DB 610 PG 403 DB 557 PG 225
HENRY C DURHAM PB 21 PG 141 DB 866 PG 101
BEGIN BRIDGE -L2LT- POT Sta.108+84.000
PURCHASED UNDER R-2552B +53 BEGIN WW FENCE
L2 PAVED DITCH
MODIFIED FLUME
EXPWY GUTTER
TEMP. WORK BRIDGE
END W.W. FENCE
END BRIDGE -L2LT- POT Sta.110+28.00
LG x 0.6 m PRE-FORMED SCOUR HOLE W/ CL 'I' RIP RAP (21 M. TONS) & F.F. (33 S.M.)
CL 'B' RIP RAP TOE OF FILL PROTECTION
400mm CSP W/ 2 CS ELBOWS TYPE A COAT.
2GI W/ FLAT GRATE
EXPWY. GUTTER
S 63°41'42.5" E
BEGIN W.W. FENCE -L2LT-
CLASS V F.F. 420 M. TONS 420 SM F.F.
F.E.W. WORK BRIDGE
LITTHER-SHELBY DURHAM PB 21 PG 141
RECENT NEW CHANNEL
LITTLE CREEK
DA = 3.2 ha. Q2 = 2.0 m³/s Q10 = 3.1 m³/s Q25 = 0.43 cms V2 = 0.93 m/s V10 = 0.58 cms V25 = 0.67 m/s
JB W/ MH COVER
750mm RCP
900mm RCP
450mm RCP
CAT-1
CAT-2
CAT-3
CAT-4
CAT-5
CAT-6
CAT-7
CAT-8
CAT-9
CAT-10
CAT-11
CAT-12
CAT-13
CAT-14
CAT-15
CAT-16
CAT-17
CAT-18
2GI TYPE 'EXT. DEPTH' (BY OTHERS)
2GI TYPE B
2GI TYPE A
2GI W/ FLAT GRATE
EXTEND 450mm RCP
FALSE SUMP
GRAU-350
37.5 cm RCP
400mm CSP 2 CS ELBOW TYPE A COATING
CL 'I' RIP RAP (10 M. TONS) W/ FL. FAB. (9 SM)
CLASS I RIP RAP & F.F. (1000 M. TONS) (1000 SM F.F.)
CL 'I' RIP RAP (ESTIMATED 50 M. TONS) W/ FL. FAB. (50 SM)
CLASS I RIP RAP & F.F. (1000 M. TONS) (1000 SM F.F.)
CL 'I' RIP RAP (ESTIMATED 50 M. TONS) W/ FL. FAB. (50 SM)
END W.W. FENCE
LAY 3.0m BASE DITCH
CEMETARY HAS BEEN RELOCATED BY OTHERS
PURCHASED UNDER R-2552B BEGIN W.W. FENCE
PIEDMONT SCOUR HOLE WITH APRON
PLAN VIEW
SECTION A-A
PSRM
STD. BERM DITCH
STD. BERM DRAINAGE OUTLET
GRASS SWALE TYPICAL SECTION
USE 31 ± GUARDRAIL LOCATIONS
FROM -L2- STA. 80+30 TO STA. 81+45 CL (SEE X-SECT.) EST. D.O.F. = 2130 M.M.
CREEK BANK PROTECTION
TOE OF FILL PROTECTION
FROM -L2LT- STA. 80+30 TO STA. 80+61 LT. (EST. RIP RAP = 37 m. TONS, FL. FAB. = 103.2 SM)
FROM -L2RT- STA. 109+64 TO STA. 109+97 RT. (EST. D.O.F. = 74 m.M.)
AT LOCATIONS AS SHOWN ON THIS PLAN SHEET
DENOTES IMPACTS TO BUFFER ZONE 1
DENOTES IMPACTS TO BUFFER ZONE 2
BEGIN R-2552C -L2- POT Sta.108+53.275 (50 LT) END R-2552B -L2LT- POT Sta.108+56.955 (50 LT) -L2RT- POC Sta.108+51.559 (38.532 RT)
BEGIN BRIDGE -L2RT- POC Sta.109+72.000
+96.000 -L2RT- 37.59 (123.09 FT)
CAROLINA PACKERS INC. DB 610 PG 403 DB 557 PG 225
-L2LT- GRADE SEE PROFILE SHEET 28
-L2RT- GRADE SEE PROFILE SHEET 28
MATCHLINE -L2- 110+60 SEE SHEET 5
NADB3
683

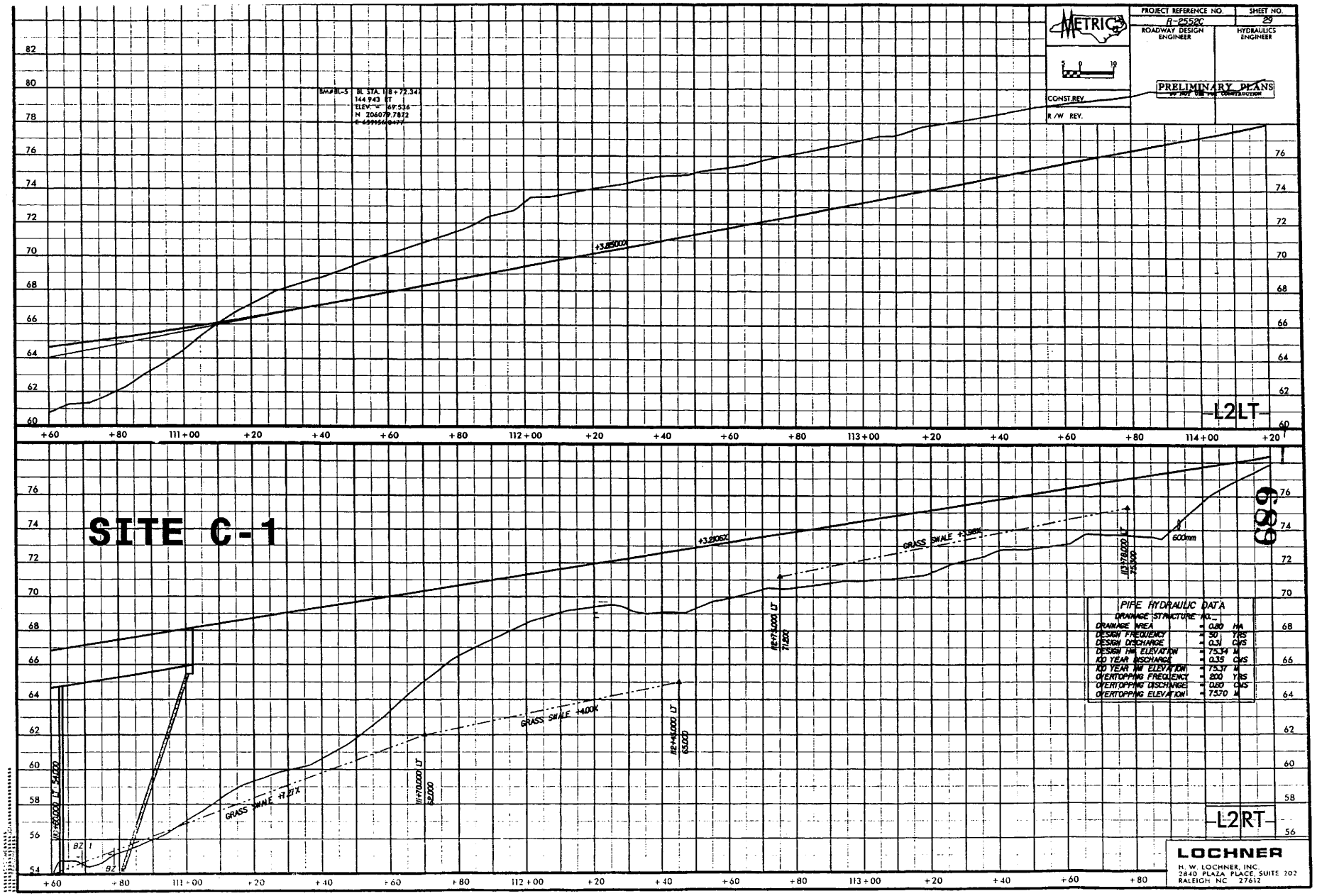

REVISIONS
DENOTES IMPACTS TO BUFFER ZONE 1
DENOTES IMPACTS TO BUFFER ZONE 2
CLASS I RIP RAP & FILTER FABRIC DITCH CHECK @ 9M O.C. TYPICAL SECTION
SECTION A-A
SECTION B-B
UP PASS SWALE TYPICAL SECTION
*USE 82 GUARDRAIL LOCATIONS
GRASS SWALE TYPICAL SECTION
METRIC
CONST. REV.
R/W REV.
PROJECT REFERENCE NO. R-2552C
SHEET NO. 5
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 15759 ENGINEER STEPHEN C. BROOKS
TOE OF FILL PROTECTION
TAIL DITCH
BERM DETAIL
SECTION C-C
UNKNOWN
THOMAS R CARROLL JR. PG 21PG 141 DB 888 PG 328 DB 963 PG 791
HENERY C DURHAM PB 21PG 141 DB 866 PG 101
-L2LT- TS Sta. 111+47.473
-L2LT- SC Sta. 112+42.473
CHORD
+42.473 -L2LT- 39.500 (129.59 FT)
+47.473 -L2LT- 39.500 (129.59 FT)
EXPWY. GUTTER
FALSE SUMP
2GI
S 63° 41' 42.5" E
-L2LT-
JB W/ MH COVER
375 RCP
400 CS W/ 2 ELBOWS TYPE 'A' COATING
DITCH CHECK W/ CL. 'A' RIP RAP & FIL. FAB.
GRASS SWALE
9.144 EASEMENT PB 21PG 141
CL. 'B' RIP RAP (L2 M.TONS) & F.F. (5.6 S.M.)
OTCB STD. 840.09 200mm OPENINGS ON 4 SIDES
ACQUIRED UNDER ADVANCE ACQUISITION 058-99-RW MARCH 15, 1999
FORMERLY: CLEMON H JOHNSON DB 488 PG 33 DB 489 PG 81
'V' TAIL DITCH
CL. 'B' RIP RAP (2 M.TONS) W/ FIL. FAB. (6 SM)
CL. 'B' RIP RAP (3 M.TONS) W/ FIL. FAB. (10 SM)
BAREWOODS DEVELOPMENT, L.L.C. DB 468 PG 332 DB 485 PG 81
MATCHLINE -L2- 110+60 SEE SHEET 4
MATCHLINE -L2- 114+20 SEE SHEET 6
SITE C-1
CL. 'B' RIP RAP & FILTER FABRIC TOE OF FILL PROTECTION
GUY C. LEE BUILDING MATERIALS OF SMITHFIELD DB 1995 PG 332 PB 54 PG 415
BRIAN L. NICHOLS DB 2038 PG 76 PB 54 PG 416
WILLIAM EARL LAMB DB 1724 PG 573 PB 54 PG 416
-L2LT- GRADE SEE PROFILE SHEET 29
-L2RT- GRADE SEE PROFILE SHEET 29

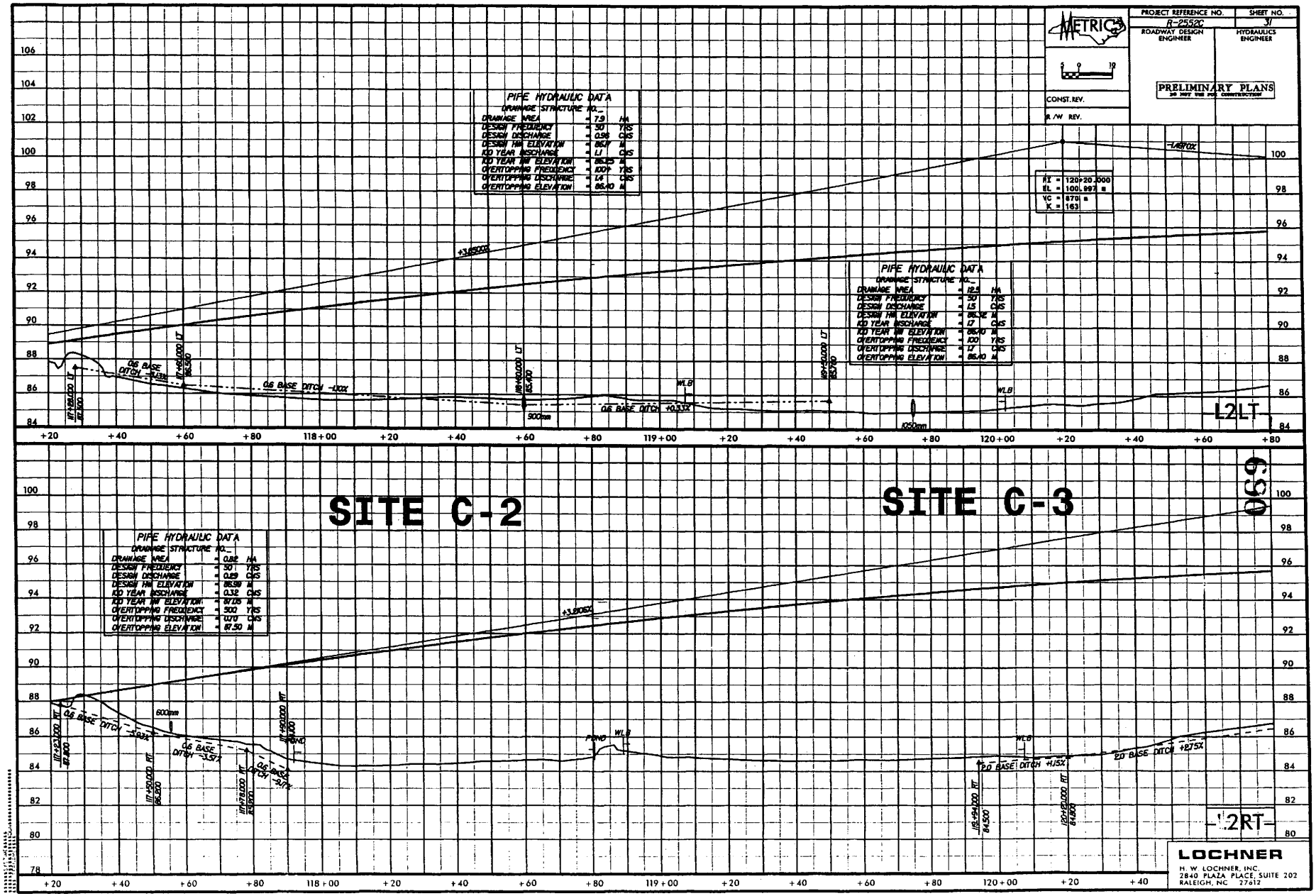

REVISIONS
DENOTES IMPACTS TO BUFFER ZONE 1
DENOTES IMPACTS TO BUFFER ZONE 2
CLASS I RIP RAP & FILTER FABRIC DITCH CHECK @ 9M O.C. TYPICAL SECTION
SECTION A-A
SECTION B-B
GRASS SWALE TYPICAL SECTION
USE 32 m GUARDRAIL LOCATIONS
GRASS SWALE TYPICAL SECTION
METRIC
CONST.REV.
R/W REV.
PROJECT REFERENCE NO. A-2552C
SHEET NO. 5
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 15759 ENGINEER STEPHEN C. BROOKS
TOE OF FILL PROTECTION
TAIL DITCH
BERM DETAIL
SECTION C-C
HENERY C DURHAM PB 21 PG 141 DB 866 PG 101
LUTHER SHELBY DURHAM PB 21 PG 141
THOMAS R CARROLL JR. PG 21 PB 141 DB 888 PG 328 DB 963 PG 736
UNKNOWN
BAREWOODS DEVELOPMENT, L.L.C. DB 468 PG 339 DB 485 PG 18
WILLIAM EARL LAMB DB 1724 PG 573 PB 54 PG 416
BRIAN L. NICHOLS DB 2038 PG 76 PB 54 PG 416
GUY C. LEE BUILDING MATERIALS OF SMITHFIELD DB 1934 PG 521 PB 54 PG 415
GUY C. LEE BUILDING MATERIALS OF SMITHFIELD DB 1995 PG 332 PB 54 PG 415
-L2LT- TS Sta. 111+47.473
-L2LT- SC Sta. 112+42.473
-L2- TS Sta. 111+32.523
-L2- SC Sta. 112+27.523
-L2- BOL Sta. 111+02.000
-L2- EOL Sta. 114+20.000
-L2LT-
-L2RT-
S 63° 41' 42.5" E
CHORD
+41.473 -L2LT- 39.500 (129.59 ft)
+42.473 -L2LT- 39.500 (129.59 ft)
+58.178 -L2RT- 39.500 (129.59 ft) (ON ℄)
+66.574 -L2RT- 58.236 (191.19 ft) (RT. CORNER)
+70.946 -L2RT- 44.460 (145.86 ft) (ON ℄)
+160.410 -L2RT- 41.462
+160.462 -L2RT- 41.462
+400.065 -L2RT- 55.862
FALSE SUMP
2GI
EXPWY. GUTTER
DITCH CHECKS @ 9M O.C. W/ CL. "A" RIP RAP (325 M. TONS) & FIL. FAB. (625 S.M.)
CL. "B" RIP RAP (1.2 M. TONS) & F.F. (5.6 S.M.)
CL. "B" RIP RAP (3 M. TONS) W/ FIL. FAB. (10 SM)
CL. "B" RIP RAP (3 M. TONS) W/ FIL. FAB. (6 SM)
CL. "B" RIP RAP & FILTER FABRIC TOE OF FILL PROTECTION
CLASS II RIP RAP & F.F. 525 M. TONS 525 SM F.F.
400 CS W/ 2 ELBOWS TYPE "A" COATING
OTCB STD. 840.09 200mm OPENINGS ON 4 SIDES
ACQUIRED UNDER ADVANCE ACQUISITION 058-99-RW MARCH 15, 1999
FORMERLY CLEMON H JOHNSON DB 458 PG 339 DB 485 PG 18
GRASS SWALE
"V" TAIL DITCH
EXISTING R/W
TRAFFIC BEARING DI
BEGIN CL. FENCE
TEMP. HAUL ROAD
END BRIDGE
3.98%
SITE C-1
-L2LT- GRADE SEE PROFILE SHEET 29
-L2RT- GRADE SEE PROFILE SHEET 29
MATCHLINE -L2- 110+60 SEE SHEET 4
MATCHLINE -L2- 114+20 SEE SHEET 6

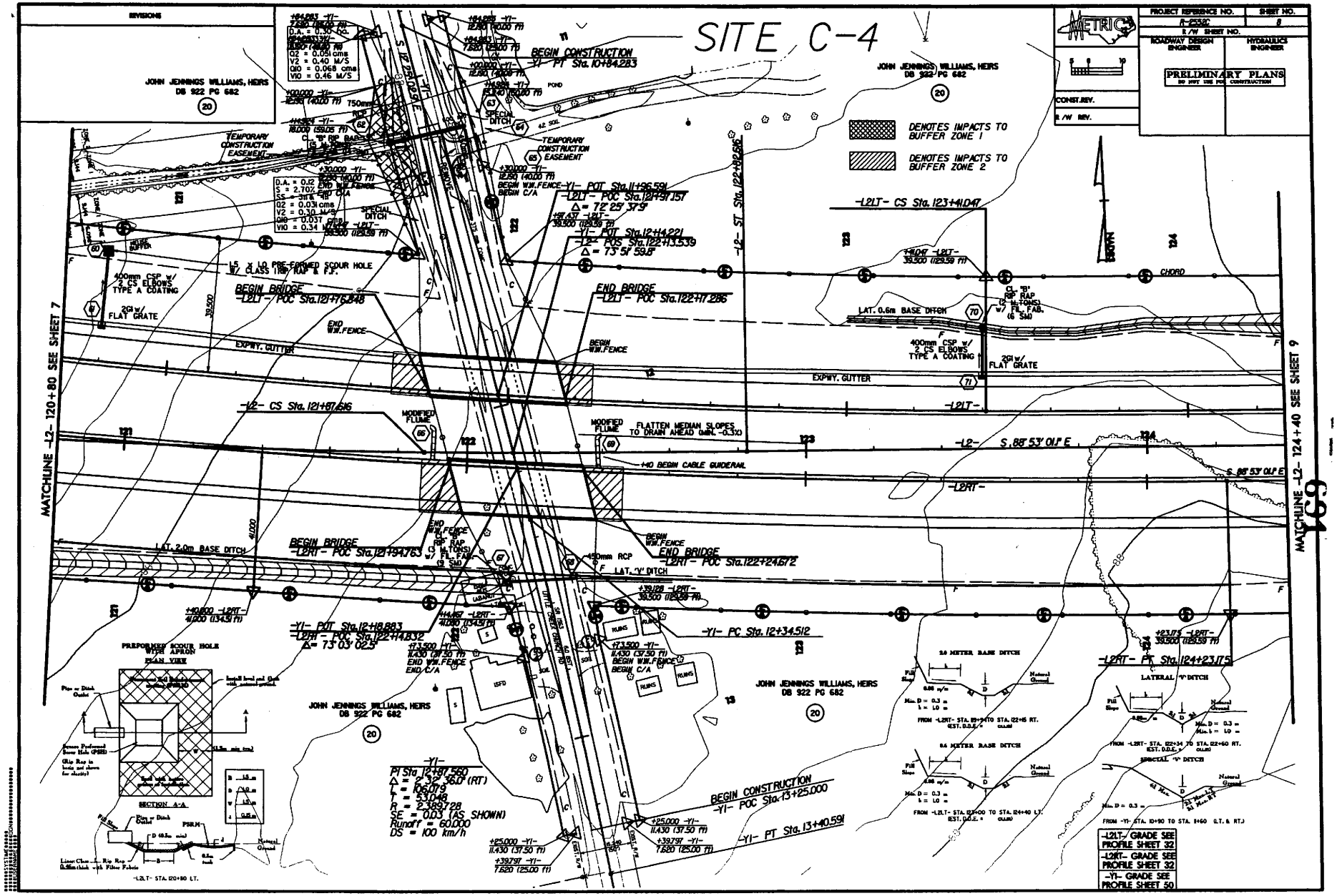

08+84.000
+84.000 -12LT-
39.500
109
TEMP. WORK BRIDGE
62
ZONE 1
ZONE 2
NEUSE BUFFER
TOP OF BANK
FROM
TEMP. HAUL ROAD.
ZONE 1
ZONE 2
NEUSE BUFFER
TOP OF BANK
FROM
42 LT LN

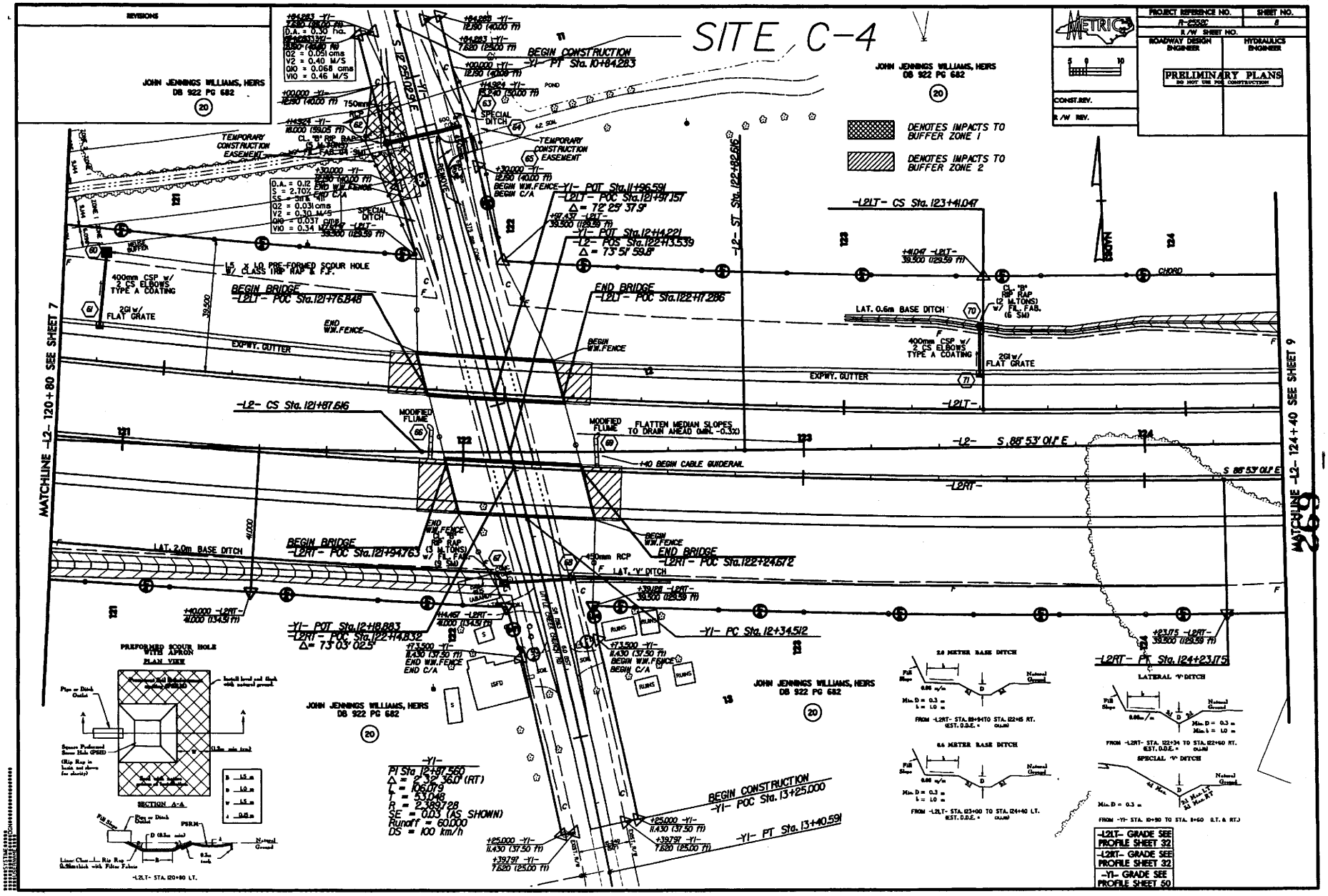

+90.000 L2RT=
32.000
111
60
56
58
TEMP. HAUL ROAD
TEMP. WORK BRIDGE
RECENT NEW CHANNEL
110
15M
8M
L2RT=
0.000
000
E CREEK

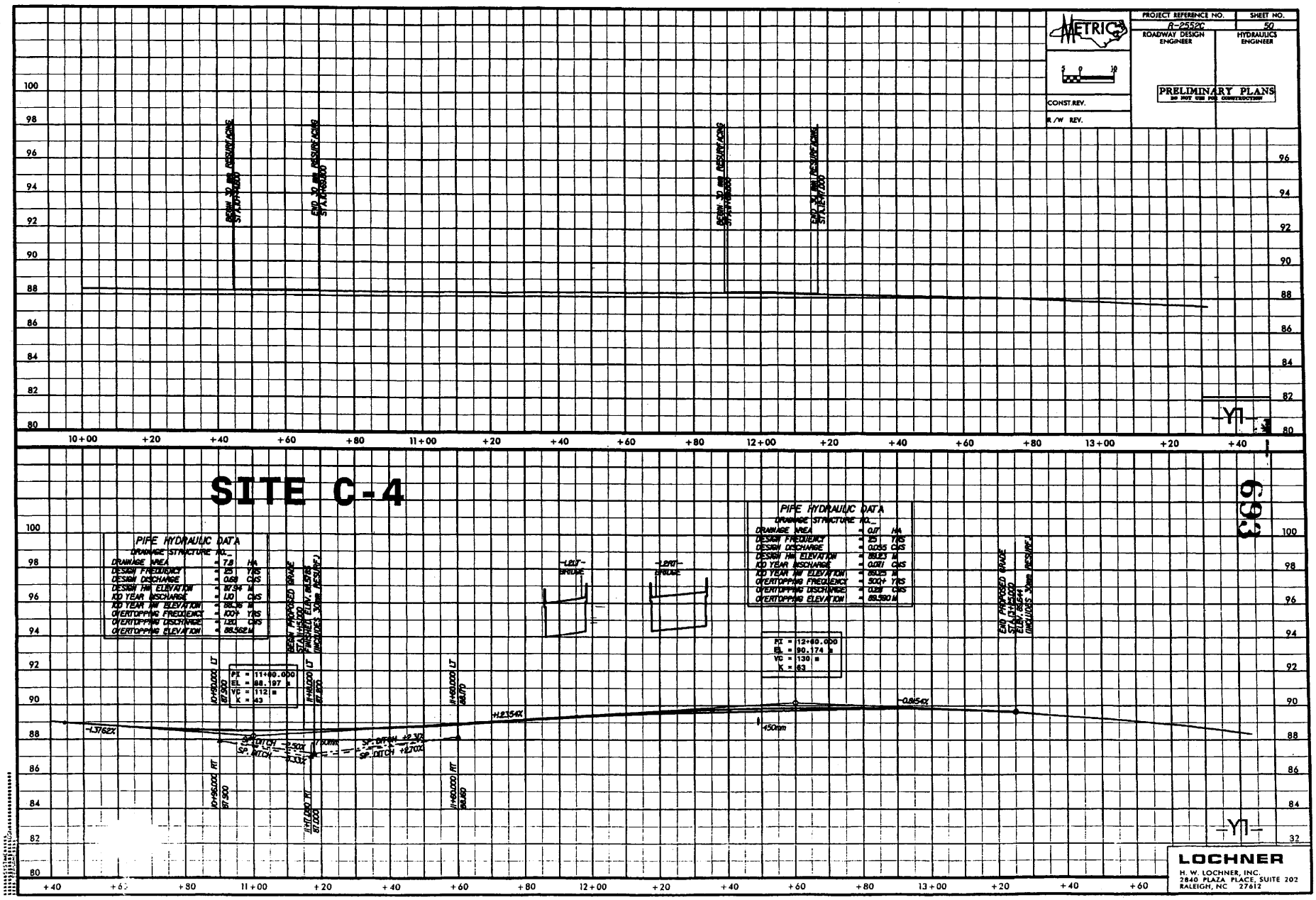

SITE C-1
PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO. 1
DRAINAGE AREA = 36 SQKM
DESIGN FREQUENCY = 50 YRS
DESIGN DISCHARGE = 124 CMS
DESIGN HW ELEVATION = 57.14 M
100 YEAR DISCHARGE = 140 CMS
100 YEAR HW ELEVATION = 57.34 M
OVERTOPPING FREQUENCY = 500+ YRS
OVERTOPPING DISCHARGE = 280+ CMS
OVERTOPPING ELEVATION = 62.50 M
PI = 107+53.000
BL = 61.932 m
VC = 256 m
K = 59
PI = 110+43.000
BL = 63.382 m
VC = 210 m
K = 63
-3.882%
+0.500%
+3.850%
BRIDGE
BZ 2
BZ 1
LITTLE CREEK
-L2LT-
-L2RT-
SITE C-1
PI = 109+05.000
BL = 61.832 m
VC = 350 m
K = 63
-2.940%
+3.810%
600mm
BRIDGE
J.D. BASE DITCH -0.82%
WL
LITTLE CREEK
GRASS SWALE +2.00%
PROJECT REFERENCE NO. R-2552C
SHEET NO. 28
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
NO RIGHT OF WAY OR CONSTRUCTION
CONST.REV.
R/W REV.
LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612

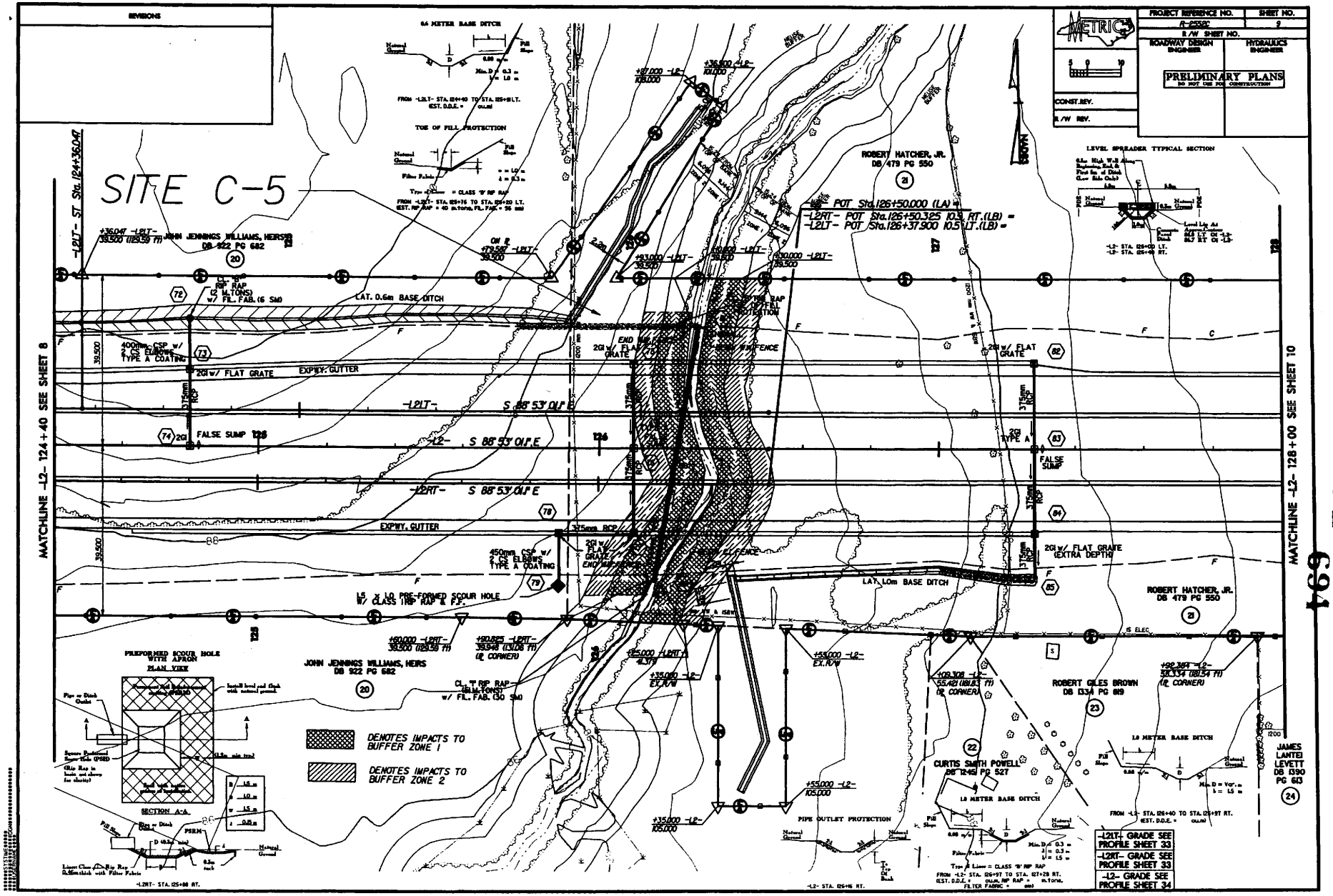

METRIC
PROJECT REFERENCE NO.
R-2552C
SHEET NO.
29
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
CONST REV.
R/W REV.
BM#BL-5 BL STA. 118+72.342
144 943 ET
ELEV. = 69.536
N 206079.7872
E 659566.0477
+3.85000
-L2LT-
SITE C-1
+3.21062
GRASS SWALE +1.21%
GRASS SWALE +4.00%
GRASS SWALE +3.38%
111+70.000 LT
82.000
111+85.000 LT
54.000
112+45.000 LT
65.000
112+73.000 LT
71.200
113+78.000 LT
75.000
600mm
C96
PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.
DRAINAGE AREA 0.80 HA
DESIGN FREQUENCY 50 YRS
DESIGN DISCHARGE 0.31 CMS
DESIGN HW ELEVATION 75.34 M
100 YEAR DISCHARGE 0.35 CMS
100 YEAR HW ELEVATION 75.37 M
OVERTOPPING FREQUENCY 200 YRS
OVERTOPPING DISCHARGE 0.60 CMS
OVERTOPPING ELEVATION 75.70 M
-L2RT-
LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH NC 27612

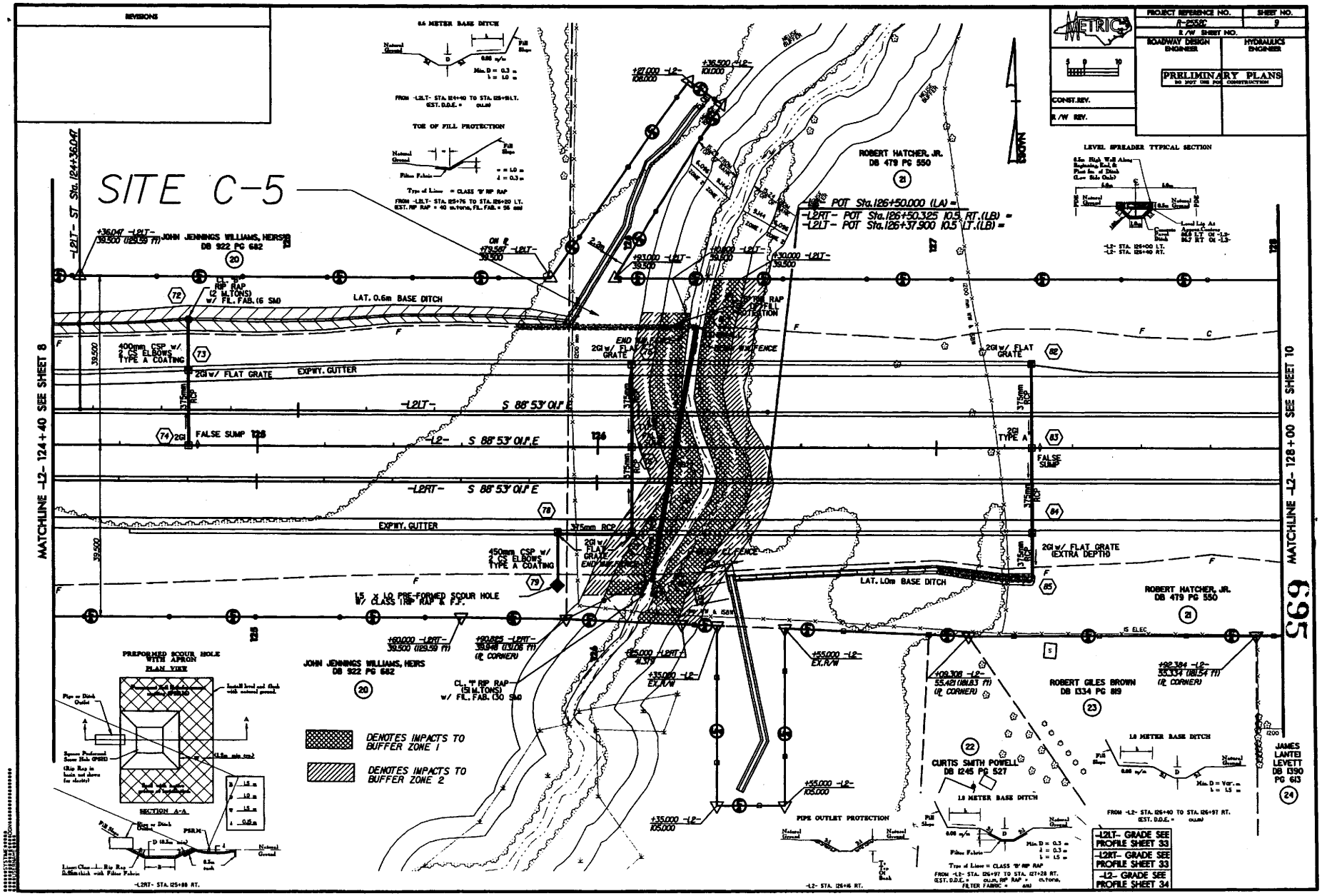

METRIC
PROJECT REFERENCE NO.
R-2552C
SHEET NO.
31
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
NOT FOR CONSTRUCTION
CONST. REV.
R/W REV.
PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO._
DRAINAGE AREA = 7.9 HA
DESIGN FREQUENCY = 50 YRS
DESIGN DISCHARGE = 0.98 CMS
DESIGN HW ELEVATION = 86.19 M
100 YEAR DISCHARGE = 1.1 CMS
100 YEAR HW ELEVATION = 86.25 M
OVERTOPPING FREQUENCY = 100+ YRS
OVERTOPPING DISCHARGE = 1.4 CMS
OVERTOPPING ELEVATION = 86.40 M
PI = 120+20.000
EL = 100.997 M
VC = 870 M
K = 163
-1.497%
+3.450%
PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO._
DRAINAGE AREA = 12.5 HA
DESIGN FREQUENCY = 50 YRS
DESIGN DISCHARGE = 1.5 CMS
DESIGN HW ELEVATION = 86.12 M
100 YEAR DISCHARGE = 1.7 CMS
100 YEAR HW ELEVATION = 86.40 M
OVERTOPPING FREQUENCY = 100 YRS
OVERTOPPING DISCHARGE = 1.7 CMS
OVERTOPPING ELEVATION = 86.40 M
LT+84.000
86.300
Q6 BASE DITCH -1.03%
LT+60.000
85.400
Q6 BASE DITCH -1.00%
LT+40.000
85.700
Q6 BASE DITCH +0.33%
900mm
1050mm
WLB
WLB
L2LT
SITE C-2
SITE C-3
PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO._
DRAINAGE AREA = 0.82 HA
DESIGN FREQUENCY = 50 YRS
DESIGN DISCHARGE = 0.09 CMS
DESIGN HW ELEVATION = 86.38 M
100 YEAR DISCHARGE = 0.12 CMS
100 YEAR HW ELEVATION = 87.05 M
OVERTOPPING FREQUENCY = 500 YRS
OVERTOPPING DISCHARGE = 0.70 CMS
OVERTOPPING ELEVATION = 87.50 M
+3.805%
LT+123.000
87.600
Q6 BASE DITCH -3.93%
600mm
LT+50.000
86.200
Q6 BASE DITCH -3.57%
LT+28.000
85.900
Q6 DITCH -3.57%
LT+20.000
86.000
POND
WLB
WLB
RT+94.000
84.500
RT+68.000
84.800
20 BASE DITCH +1.5%
20 BASE DITCH +2.75%
L2RT
LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612

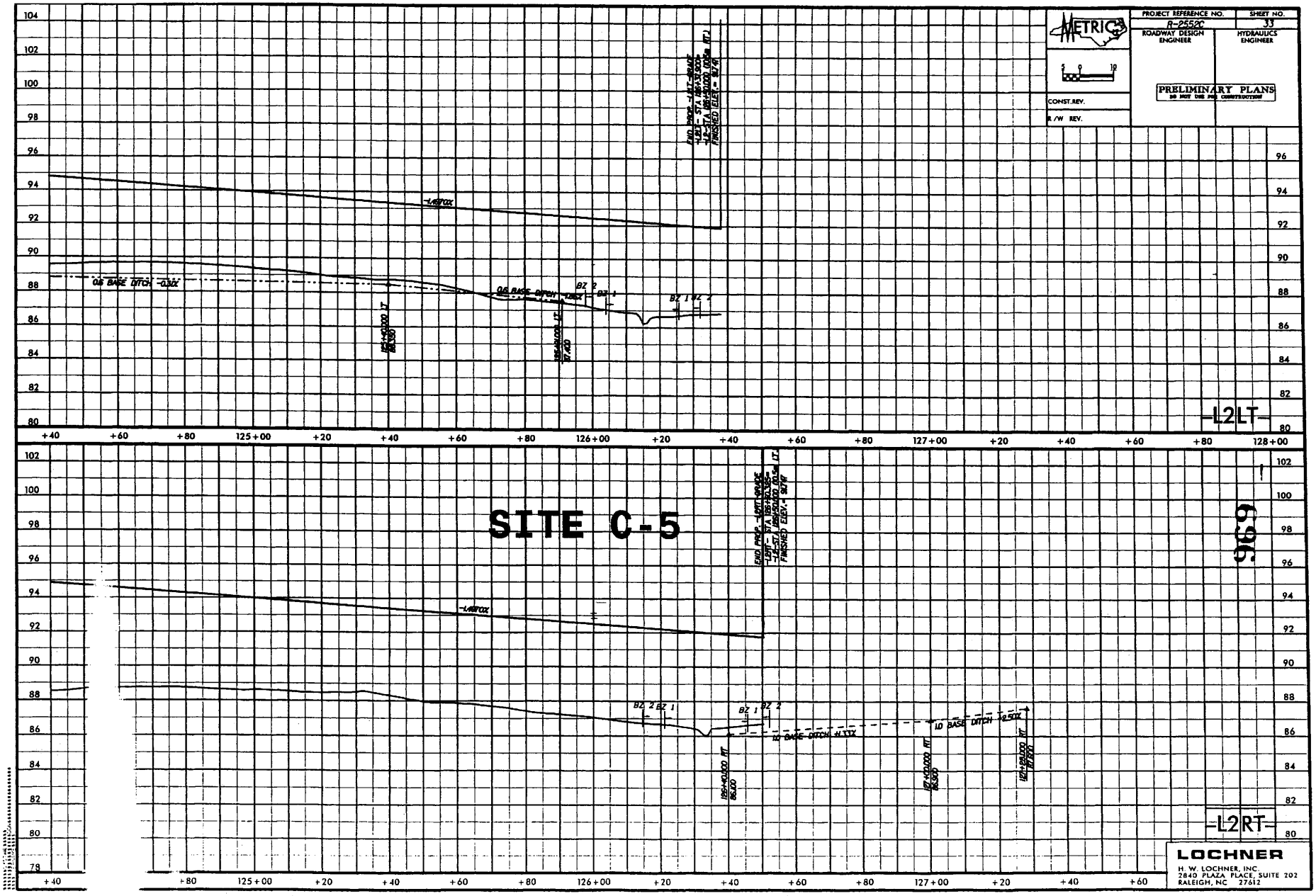

SITE C-4
REVISIONS
PROJECT REFERENCE NO.
R-2552C
SHEET NO.
8
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
NOT FOR CONSTRUCTION
CONST. REV.
R/W REV.
DENOTES IMPACTS TO BUFFER ZONE 1
DENOTES IMPACTS TO BUFFER ZONE 2
JOHN JENNINGS WILLIAMS, HEIRS
DB 922 PG 682
BEGIN CONSTRUCTION
-Y1- PT Sta. 10+84.283
-L2- ST Sta. 122+82.686
-L2LT- CS Sta. 123+41.047
-L2- CS Sta. 121+87.646
-L2- S. 88° 53' 01" E.
MATCHLINE -L2- 120+80 SEE SHEET 7
MATCHLINE -L2- 124+40 SEE SHEET 9
BEGIN BRIDGE -L2LT- POC Sta.121+76.848
END BRIDGE -L2LT- POC Sta.122+17.286
BEGIN BRIDGE -L2RT- POC Sta.121+94.763
END BRIDGE -L2RT- POC Sta.122+24.672
-Y1- POT Sta.12+18.883
-L2RT- POC Sta.122+14.832
Δ= 73° 03' 02.5"
-Y1- PC Sta.12+34.512
-L2RT- PT Sta.124+23.175
-Y1- PT Sta.12+97.560
Δ = 2° 37' 36.0" (RT)
L = 105.079
T = 52.548
R = 2,389.728
SE = 0.03 (AS SHOWN)
Runoff = 60.000
DS = 100 km/h
BEGIN CONSTRUCTION
-Y1- POC Sta.13+25.000
-Y1- PT Sta.13+40.591
-L2LT- GRADE SEE PROFILE SHEET 32
-L2RT- GRADE SEE PROFILE SHEET 32
-Y1- GRADE SEE PROFILE SHEET 50
400mm CSP w/ 2 CS ELBOWS TYPE A COATING
2GI w/ FLAT GRATE
EXPWY. GUTTER
MODIFIED FLUME
FLATTEN MEDIAN SLOPES TO DRAIN AHEAD (MIN. -0.3%)
140 BEGIN CABLE GUIDERAIL
LAT. 2.0m BASE DITCH
LAT. 0.6m BASE DITCH
LAT. 'Y' DITCH
450mm RCP
PREFORMED SCOUR HOLE WITH APRON
PLAN VIEW
SECTION A-A
2.0 METER BASE DITCH
1.6 METER BASE DITCH
LATERAL 'Y' DITCH
SPECIAL 'Y' DITCH
JOHN JENNINGS WILLIAMS, HEIRS
DB 922 PG 682


SITE C-4
REVISIONS
PROJECT REFERENCE NO.
R-2530C
SHEET NO.
8
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
CONST.REV.
R/W REV.
DENOTES IMPACTS TO BUFFER ZONE 1
DENOTES IMPACTS TO BUFFER ZONE 2
JOHN JENNINGS WILLIAMS, HEIRS
DB 922 PG 682
20
BEGIN CONSTRUCTION
-Y1- PT Sta. 10+84.283
-L2- ST Sta. 122+82.86
-L2LT- CS Sta. 123+41.047
-L2- CS Sta. 121+87.616
-L2- S 86°53'01.1" E
-L2RT-
-L2LT-
-L2- POS Sta. 122+13.539
Δ = 73°51'59.8"
-L2LT- POC Sta. 121+97.157
Δ = 72°29'37.9"
-L2LT- POT Sta. 121+96.591
-L2LT- POC Sta. 122+11.286
-L2LT- POT Sta. 121+14.221
-L2RT- POC Sta. 121+94.763
-L2RT- POT Sta. 121+18.883
Δ = 73°03'02.5"
-L2RT- POC Sta. 122+14.832
-L2RT- POC Sta. 122+24.672
-L2RT- PT Sta. 124+23.175
-Y1- PC Sta. 12+34.512
-Y1- POT Sta. 12+87.560
Δ = 2°32'36.0" (RT)
L = 106.079
T = 53.048
R = 2389.728
SE = 0.03 (AS SHOWN)
Runoff = 60.000
DS = 100 km/h
BEGIN CONSTRUCTION
-Y1- POC Sta. 13+25.000
-Y1- PT Sta. 13+40.591
MATCHLINE -L2- 120+80 SEE SHEET 7
MATCHLINE -L2- 124+40 SEE SHEET 9
400mm CSP w/ 2 CS ELBOWS TYPE A COATING
2GI w/ FLAT GRATE
BEGIN BRIDGE
END BRIDGE
END WW.FENCE
BEGIN WW.FENCE
EXPWY. GUTTER
LAT. 0.6m BASE DITCH
LAT. 2.0m BASE DITCH
LAT. 'Y' DITCH
MODIFIED FLUME
FLATTEN MEDIAN SLOPES TO DRAIN AHEAD (MIN. -0.3%)
CHORD
SPECIAL DITCH
TEMPORARY CONSTRUCTION EASEMENT
CL. 'B' RIP RAP (2 LAYERS) w/ FIL. FAB. (6 SM)
LS & LO PRE-FORMED SCOUR HOLE W/ CLASS 'B' RIP RAP & F.F.
450mm RCP
+40 BEGIN CABLE GUIDERAIL
PREFORMED SCOUR HOLE WITH APRON
PLAN VIEW
SECTION A-A
-L2LT- STA. 120+80 LT.
2.0 METER BASE DITCH
0.6 METER BASE DITCH
LATERAL 'Y' DITCH
SPECIAL 'Y' DITCH
FROM -L2RT- STA. 88+94.70 TO STA. 122+15 RT.
FROM -L2RT- STA. 122+34 TO STA. 122+60 RT.
FROM -L2LT- STA. 123+00 TO STA. 124+40 LT.
FROM -Y1- STA. 10+50 TO STA. 11+60 LT. & RT.
-L2LT- GRADE SEE PROFILE SHEET 32
-L2RT- GRADE SEE PROFILE SHEET 32
-Y1- GRADE SEE PROFILE SHEET 50


METRIC
PROJECT REFERENCE NO.
R-2552C
SHEET NO.
50
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
CONST.REV.
R/W REV.
SITE C-4
PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.
DRAINAGE AREA = 7.8 HA
DESIGN FREQUENCY = 25 YRS
DESIGN DISCHARGE = 0.68 CMS
DESIGN HW ELEVATION = 87.54 M
100 YEAR DISCHARGE = 1.10 CMS
100 YEAR HW ELEVATION = 88.06 M
OVERTOPPING FREQUENCY = 100+ YRS
OVERTOPPING DISCHARGE = 1.81 CMS
OVERTOPPING ELEVATION = 88.362 M
PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.
DRAINAGE AREA = 0.17 HA
DESIGN FREQUENCY = 25 YRS
DESIGN DISCHARGE = 0.055 CMS
DESIGN HW ELEVATION = 88.23 M
100 YEAR DISCHARGE = 0.071 CMS
100 YEAR HW ELEVATION = 88.25 M
OVERTOPPING FREQUENCY = 100+ YRS
OVERTOPPING DISCHARGE = 0.071 CMS
OVERTOPPING ELEVATION = 88.590 M
PI = 11+60.000
EL = 88.197 M
VC = 112 M
K = 43
PI = 12+60.000
EL = 90.174 M
VC = 130 M
K = 63
-L3762X
+L2354X
-0.85+X
-L-
-L-
693
LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612


SITE C-5
REVISIONS
PROJECT REFERENCE NO.
R-2552C
SHEET NO.
9
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
CONST. REV.
R/W REV.
METRIC
MATCHLINE -L2- 124+40 SEE SHEET 8
MATCHLINE -L2- 128+00 SEE SHEET 10
-L2LT- ST. Sta. 124+36.047
+36.047 -L2LT- 39.500 (129.59 FT)
JOHN JENNINGS WILLIAMS, HEIRS DB 922 PG 682
ROBERT HATCHER, JR. DB 479 PG 550
ROBERT GILES BROWN DB 1334 PG 819
CURTIS SMITH POWELL DB 1245 PG 527
JAMES LANTEI LEVETT DB 1390 PG 603
0.6 METER BASE DITCH
TOE OF FILL PROTECTION
LEVEL SPREADER TYPICAL SECTION
POT Sta.126+50.000 (LA)
-L2RT- POT Sta.126+50.325 10.5 RT.(LB)
-L2LT- POT Sta.126+37.900 10.5 LT.(LB)
CL. B RIP RAP (2 METONS) w/ FIL. FAB. (6 SM)
LAT. 0.6m BASE DITCH
400mm CSP w/ 2 - 22.5 ELBOWS TYPE A COATING
2GI w/ FLAT GRATE
EXPWY. GUTTER
FALSE SUMP
-L2LT- S 88°53'01"E
-L2- S 88°53'01"E
-L2RT- S 88°53'01"E
375mm RCP
END WALL
WIRE FENCE
450mm CSP w/ 22.5 ELBOWS TYPE A COATING
LS X 1.0 PRE-FORMED SCOUR HOLE W/ CLASS I RIP RAP & F.F.
CL. 'I' RIP RAP (150 METONS) w/ FIL. FAB. (30 SM)
LAT. 1.0m BASE DITCH
1.5 METER BASE DITCH
PIPE OUTLET PROTECTION
PREFORMED SCOUR HOLE WITH APRON
PLAN VIEW
SECTION A-A
DENOTES IMPACTS TO BUFFER ZONE 1
DENOTES IMPACTS TO BUFFER ZONE 2
-L2LT- GRADE SEE PROFILE SHEET 33
-L2RT- GRADE SEE PROFILE SHEET 33
-L2- GRADE SEE PROFILE SHEET 34


SITE C-5
REVISIONS
METRIC
PROJECT REFERENCE NO.
R-2530
SHEET NO.
9
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
NOT FOR CONSTRUCTION
CONST. REV.
R/W REV.
NORTH
MATCHLINE -L2- 124+40 SEE SHEET 8
MATCHLINE -L2- 128+00 SEE SHEET 10
-L2LT- ST Sta. 124+36.047
+36.047 -L2LT- 39.500 (129.59 FT)
JOHN JENNINGS WILLIAMS, HEIRS DB 922 PG 682
20
72
CL "B" RIP RAP (2 M.TONS) w/ FL. FAB. (6 SM)
LAT. 0.6m BASE DITCH
400mm CSP w/ 2 CS ELBOWS TYPE A COATING
73
2GI w/ FLAT GRATE
EXPWY. GUTTER
375mm RCP
-L2LT- S 88°53'01"E
74
2GI
FALSE SUMP
126
-L2- S 88°53'01"E
-L2RT- S 88°53'01"E
78
EXPWY. GUTTER
375mm RCP
450mm CSP w/ 2 CS ELBOWS TYPE A COATING
2GI w/ FLAT GRATE
END WALL
79
CL FENCE
L5 & L0 PRE-FORMED SCOUR HOLE W/ CLASS I RIP RAP & F.F.
+60.000 -L2RT- 39.500 (129.59 FT)
+90.865 -L2RT- 39.948 (131.06 FT) (R. CORNER)
JOHN JENNINGS WILLIAMS, HEIRS DB 922 PG 682
20
CL "I" RIP RAP (5 M.TONS) w/ FL. FAB. (30 SM)
+35.000 -L2RT- 41.70
+35.000 -L2- EX.R/W
+35.000 -L2RT- 105.000
PREFORMED SCOUR HOLE WITH APRON
PLAN VIEW
SECTION A-A
DENOTES IMPACTS TO BUFFER ZONE 1
DENOTES IMPACTS TO BUFFER ZONE 2
-L2RT- STA. 125+88 RT.
+27.000 -L2- 101.000
+35.500 -L2- 101.000
ROBERT HATCHER, JR. DB 479 PG 550
21
POT Sta.126+50.000 (LA) =
-L2RT- POT Sta.126+50.325 10.5 RT.(LB) =
-L2LT- POT Sta.126+37.900 10.5 LT.(LB) =
+93.000 -L2LT- 39.500
+90.000 -L2LT- 39.500
+30.000 -L2LT- 39.500
CL "B" RIP RAP w/ FILL APRON
END WALL
CL FENCE
2GI w/ FLAT GRATE
82
2GI TYPE A
83
FALSE SUMP
84
2GI w/ FLAT GRATE (EXTRA DEPTH)
85
LAT. L0m BASE DITCH
ROBERT HATCHER, JR. DB 479 PG 550
21
+55.000 -L2- EX.R/W
+55.000 -L2- 105.000
PIPE OUTLET PROTECTION
-L2- STA. 126+16 RT.
+109.308 -L2- 55.421 (181.83 FT) (R. CORNER)
+92.364 -L2- 55.334 (181.54 FT) (R. CORNER)
ROBERT GILES BROWN DB 1334 PG 819
23
CURTIS SMITH POWELL DB 1245 PG 527
22
L8 METER BASE DITCH
FROM -L2- STA. 125+10 TO STA. 126+97 RT. (EST. D.O.E. = cu.m)
JAMES LANTEI LEVETT DB 1390 PG 613
24
-L2LT- GRADE SEE PROFILE SHEET 33
-L2RT- GRADE SEE PROFILE SHEET 33
-L2- GRADE SEE PROFILE SHEET 34
6.5 METER BASE DITCH
TOE OF FILL PROTECTION
LEVEL SPREADER TYPICAL SECTION
693


METRIC
PROJECT REFERENCE NO.
R-2552C
SHEET NO.
33
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
CONST. REV.
R/W REV.
-L2LT-
-L2RT-
SITE C-5
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H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
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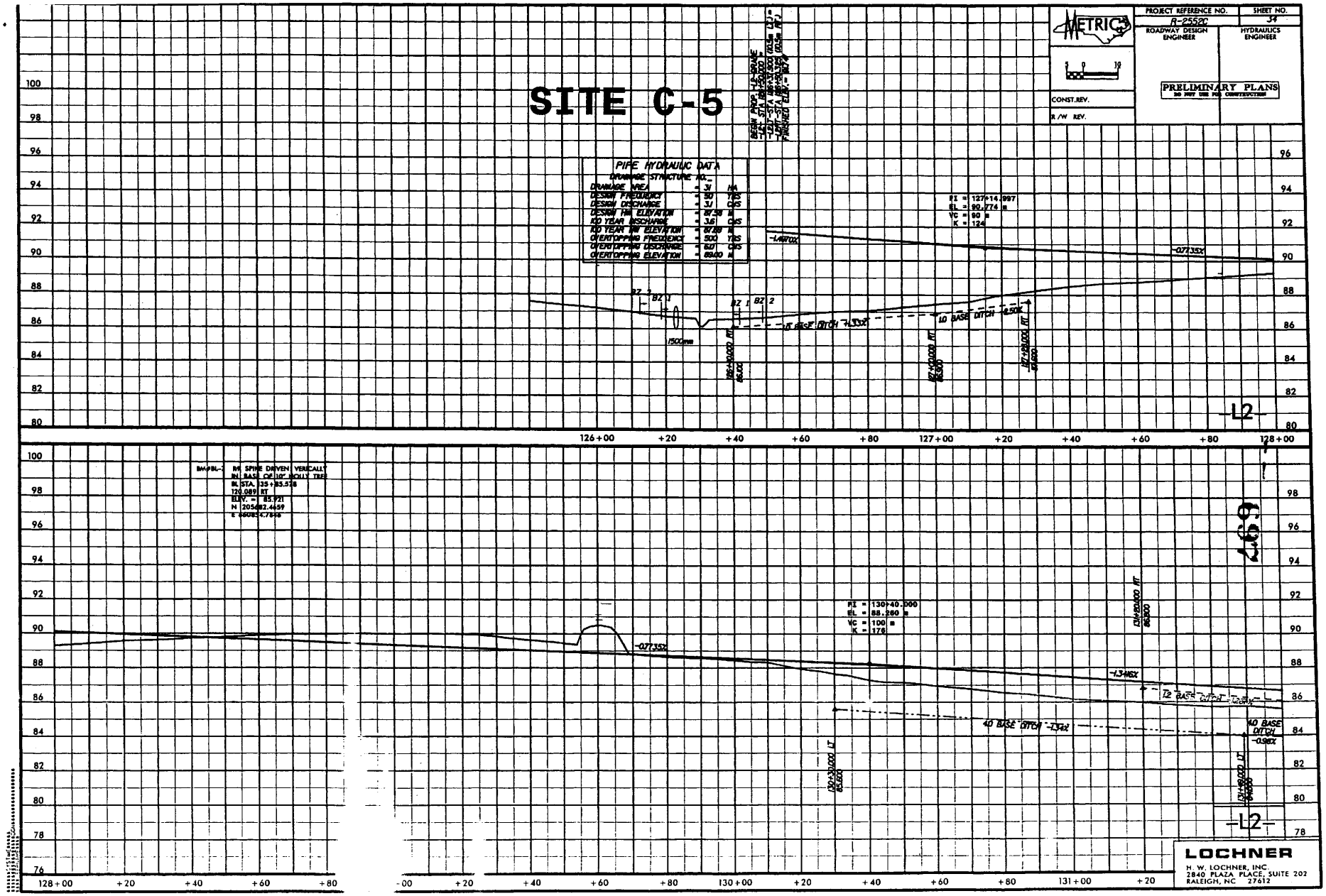
SITE C-5
PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.
DRAINAGE AREA = 31 HA
DESIGN FREQUENCY = 50 YRS
DESIGN DISCHARGE = 31 CMS
DESIGN HW ELEVATION = 87.58 M
100 YEAR DISCHARGE = 36 CMS
100 YEAR HW ELEVATION = 87.89 M
OVERTOPPING FREQUENCY = 500 YRS
OVERTOPPING DISCHARGE = 60? CMS
OVERTOPPING ELEVATION = 89.00 M
PROJECT REFERENCE NO. R-2552C
SHEET NO. 34
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
CONST.REV.
R/W REV.
PI = 127+14.997
EL = 90.774 m
VC = 90 m
K = 124
-1.497%
-.077%
-.735%
6.5%
-L2-
PI = 130+40.000
EL = 88.260 m
VC = 100 m
K = 178
-.077%
-1.345%
-.735%
-.098%
-L2-
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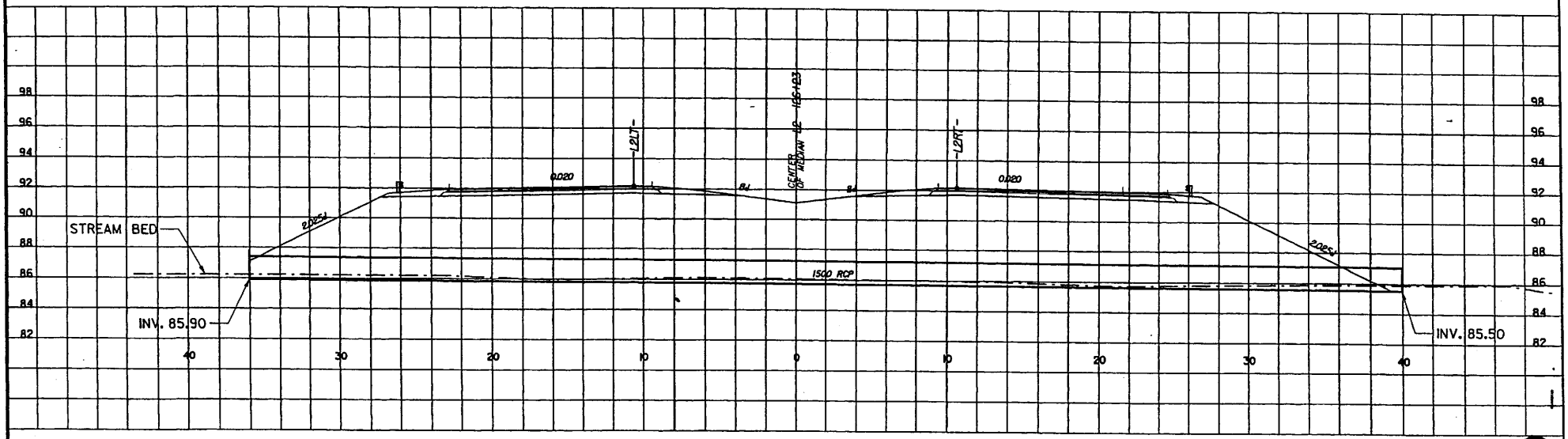
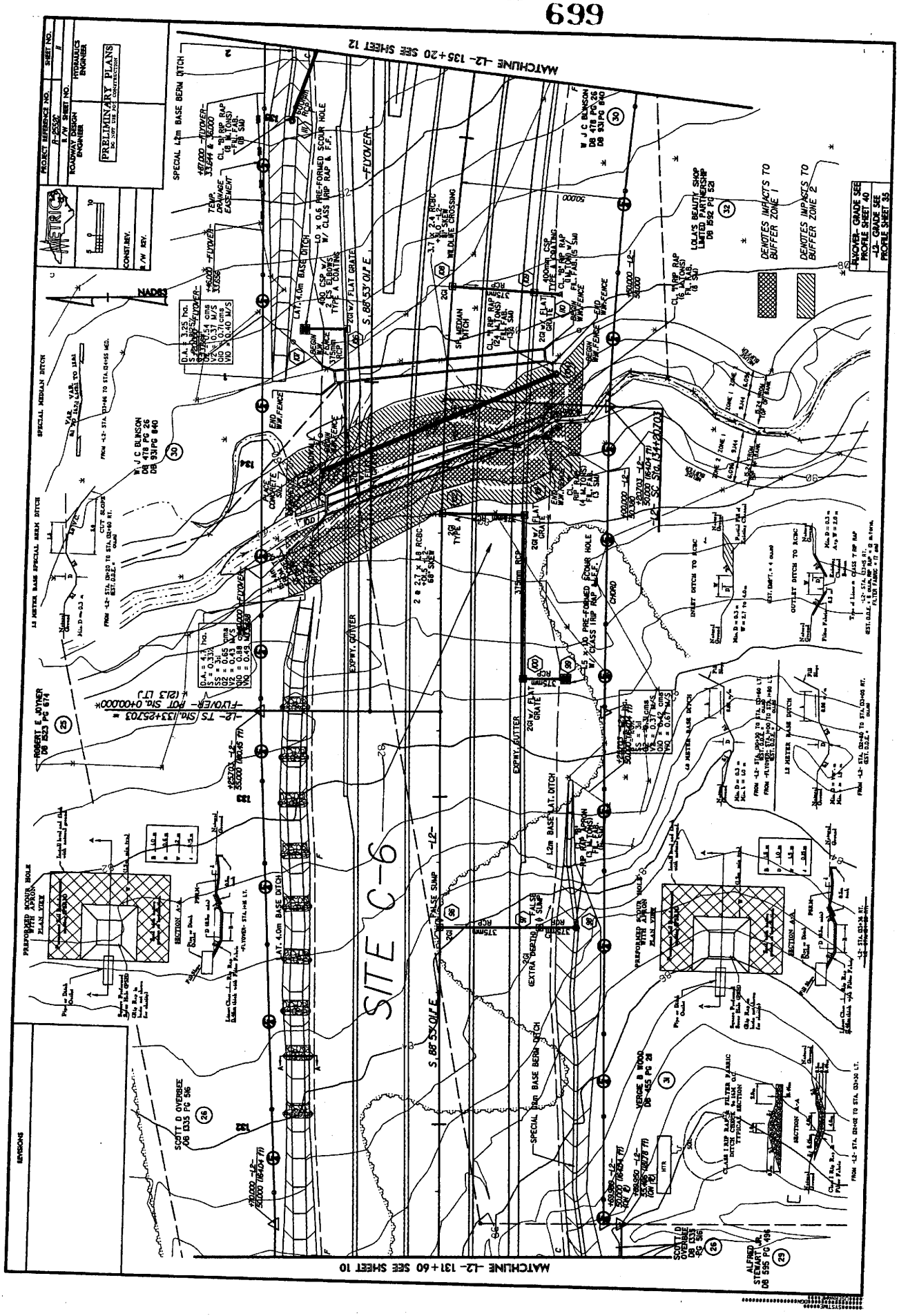
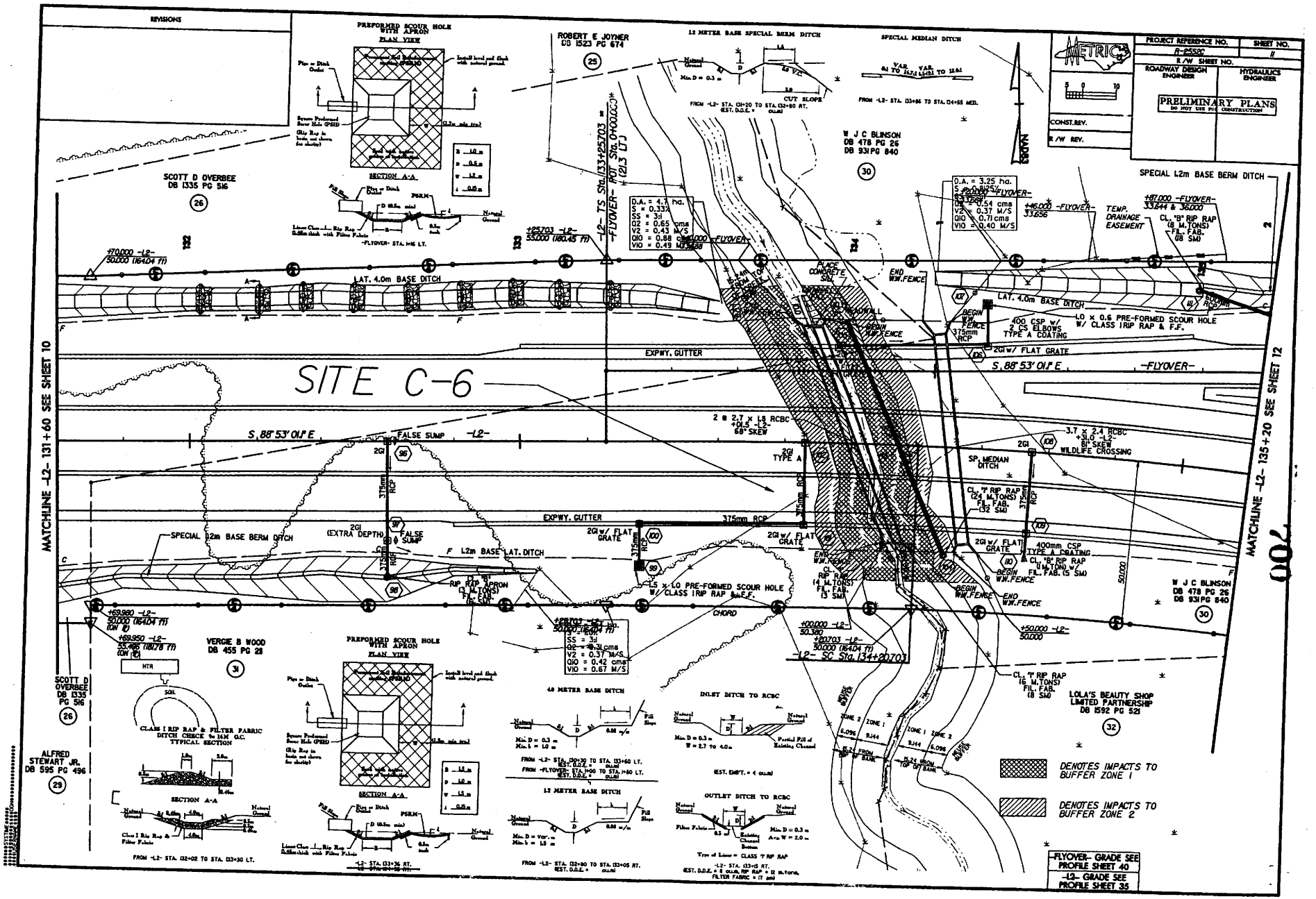
2.0 0 2.0 4	METRIC	PROJECT REFERENCE NO.	SHEET NO.
		R-2552C	PP 1

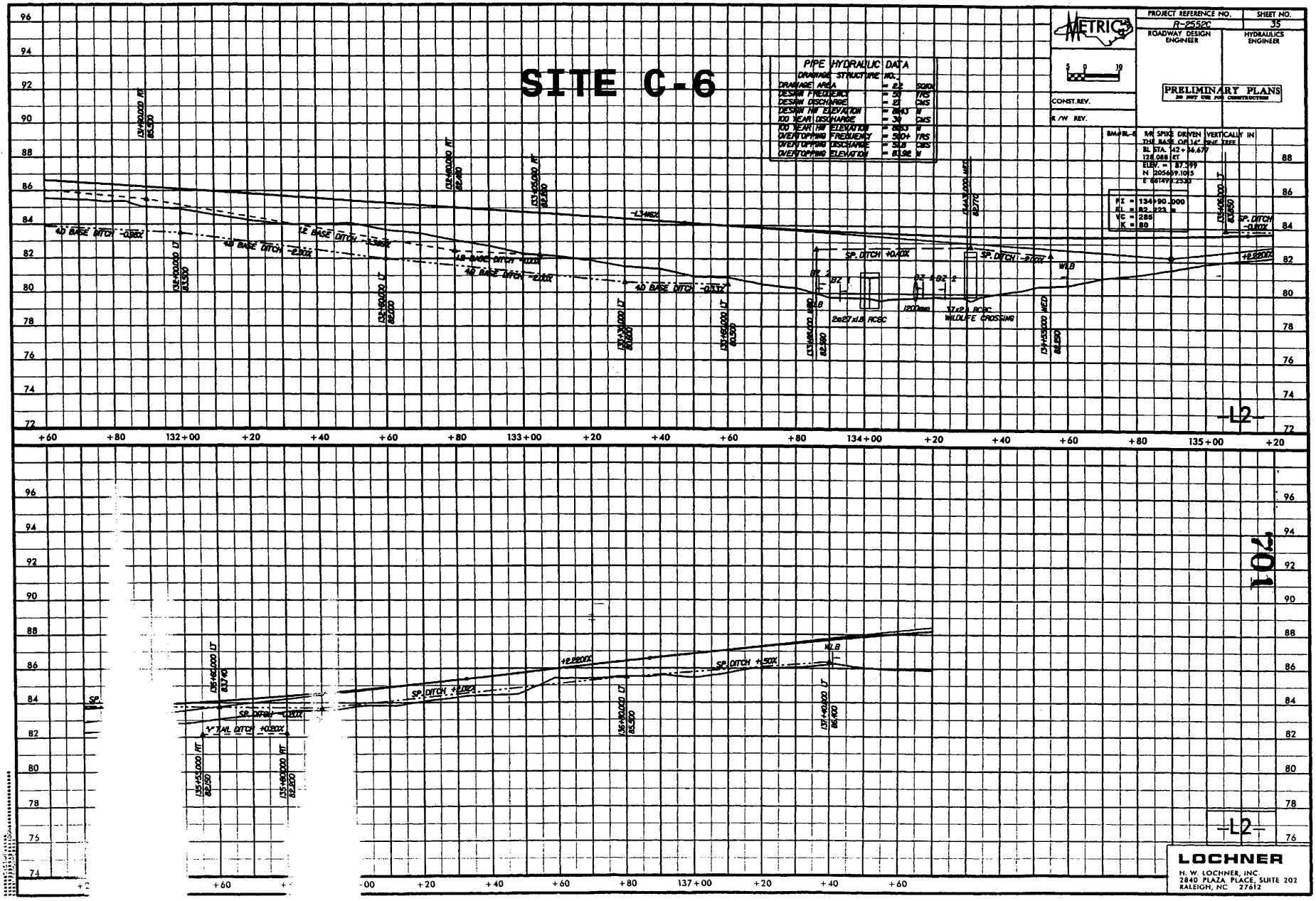
SITE C-5



PROFILE OF 1500 RCP
-L2- STA. 126+23
PLAN SHEET 9


PROJECT REFERENCE NO.
R-2552C
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
NOT FOR CONSTRUCTION
CONSTR/EV.
R/W REV.
REVISIONS
NADB3
MATCHLINE -L2- 135+20 SEE SHEET 12
MATCHLINE -L2- 131+60 SEE SHEET 10
SITE C-6
-FLYOVER-
-L2-
-L3-
SPECIAL 12m BASE BERM DITCH
SPECIAL 10m BASE BERM DITCH
LAT. 4.0m BASE DITCH
EXPWY. GUTTER
FALSE SUMP
PREFORMED SCOUR HOLE WITH APRON
PLAN VIEW
SECTION A-A
SECTION B-B
CLASS I RIP RAP FILTER FABRIC
TYPICAL SECTION
DENOTES IMPACTS TO BUFFER ZONE 1
DENOTES IMPACTS TO BUFFER ZONE 2
-FLYOVER- GRADE SEE PROFILE SHEET 40
-L3- GRADE SEE PROFILE SHEET 35
W J C BUNSON DB 478 PG 26 DB 931 PG 640
ROBERT E. RYNER DB 852 PG 674
SCOTT D OVERBEE DB 1335 PG 596
VERGIE B WOOD DB 485 PG 28
LOLA'S BEAUTY SHOP LIMITED PARTNERSHIP DB 852 PG 521
ALFRED STEWART JR. DB 595 PG 496
SCOTTIE D DB 1232 PG 596
SPECIAL MEDIAN DITCH
SF MEDIAN DITCH
WILDLIFE CROSSING
CLASS I RIP RAP FILTER FABRIC
CLASS I RIP RAP TO INSIDE FILTER FABRIC
PRE-FORMED SCOUR HOLE W/ CLASS I RIP RAP & F.F.
PRE-FORMED SCOUR HOLE CHORD
END WALL/FENCE
CONCRETE SLAB
CUT SLOPE
INLET DITCH TO RCBC
OUTLET DITCH TO RCBC
TEMP. DRAINAGE EASEMENT
SEE SHEET 10
SEE SHEET 12


REVISIONS
PREFORMED SCOUR HOLE WITH APRON
PLAN VIEW
SECTION A-A
ROBERT E JOYNER
DB 1523 PG 674
12 METER BASE SPECIAL BERM DITCH
SPECIAL MEDIAN DITCH
CUT SLOPE
W J C BLINSON
DB 478 PG 26
DB 931 PG 840
PROJECT REFERENCE NO.
R-2552C
SHEET NO.
11
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
NO RIGHT OF WAY OR CONSTRUCTION
CONST. REV.
R/W REV.
SCOTT D OVERBEE
DB 1335 PG 516
SPECIAL L2m BASE BERM DITCH
-FLYOVER- STA. 1+16 LT.
-L2- TS Sta.133+25703
(21.3 LT)
LAT. 4.0m BASE DITCH
PLACE CONCRETE SILL
END W.W. FENCE
BEGIN W.W. FENCE
400 CSP w/ 2 CS ELBOWS TYPE A COATING
375mm RCP
2GI w/ FLAT GRATE
EXPWY. GUTTER
SITE C-6
S.88°53'01"E
-FLYOVER-
2 @ 2.7 x 1.8 RCBC
+01.5 -L2-
68° SKEW
FALSE SUMP
-L2-
2GI
TYPE A
3.7 x 2.4 RCBC
+31.0 -L2-
81° SKEW
WILDLIFE CROSSING
SP. MEDIAN DITCH
CL. "I" RIP RAP
(24 M. TONS)
FIL. FAB.
(32 SM)
2GI (EXTRA DEPTH)
FALSE SUMP
SPECIAL L2m BASE BERM DITCH
F L2m BASE LAT. DITCH
RIP RAP APRON
(3 M. TONS)
FIL. FAB.
(5 SM)
L5 x L0 PRE-FORMED SCOUR HOLE
W/ CLASS I RIP RAP & F.F.
CHORD
400mm CSP
TYPE A COATING
CL. "B" RIP RAP
(4 M. TONS)
FIL. FAB.
(5 SM)
-L2- SC Sta.134+20703
CL. "I" RIP RAP
(16 M. TONS)
FIL. FAB.
(8 SM)
LOLA'S BEAUTY SHOP
LIMITED PARTNERSHIP
DB 1592 PG 521
VERGIE B WOOD
DB 455 PG 28
ALFRED STEWART JR.
DB 595 PG 496
CLASS I RIP RAP & FILTER FABRIC DITCH CHECK @ 16M O.C.
TYPICAL SECTION
FROM -L2- STA. 132+02 TO STA. 133+30 LT.
48 METER BASE DITCH
12 METER BASE DITCH
INLET DITCH TO RCBC
OUTLET DITCH TO RCBC
FROM -L2- STA. 132+80 TO STA. 133+05 RT.
EST. D.D.E. = 0 cms
-L2- STA. 133+26 RT.
EST. D.D.E. = 0 cms
-L2- STA. 133+15 RT.
EST. D.D.E. = 8 cms
RIP RAP = 12 m tons
FILTER FABRIC = 17 sm
DENOTES IMPACTS TO BUFFER ZONE 1
DENOTES IMPACTS TO BUFFER ZONE 2
-FLYOVER- GRADE SEE PROFILE SHEET 40
-L2- GRADE SEE PROFILE SHEET 35
MATCHLINE -L2- 131+60 SEE SHEET 10
MATCHLINE -L2- 135+20 SEE SHEET 12
700



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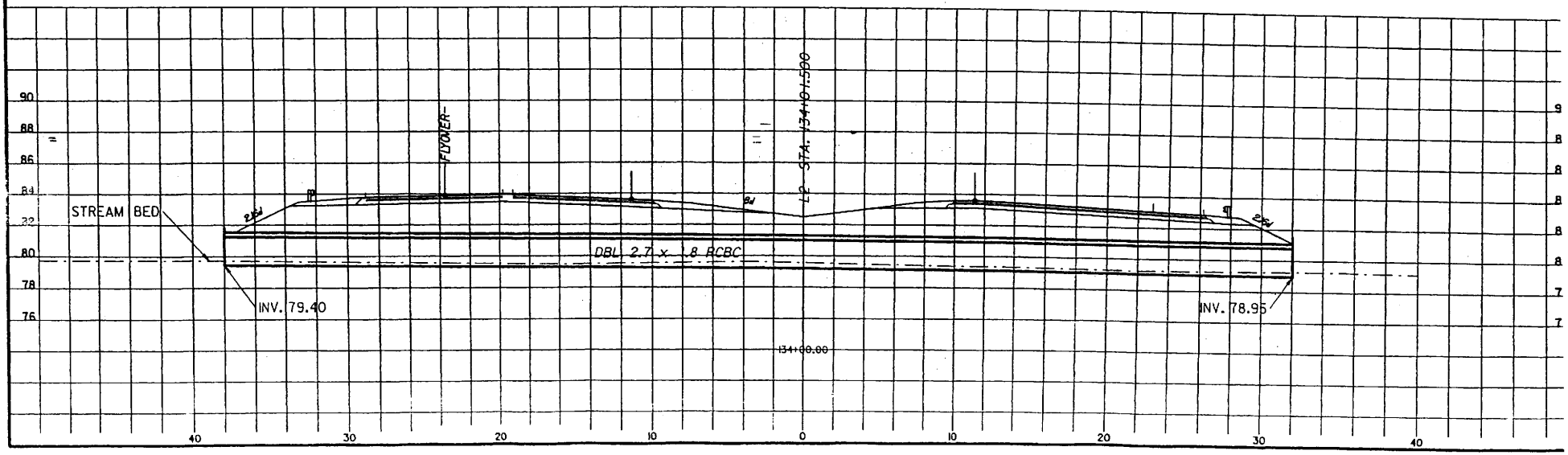
2.0 0 2.0 4

METRIC

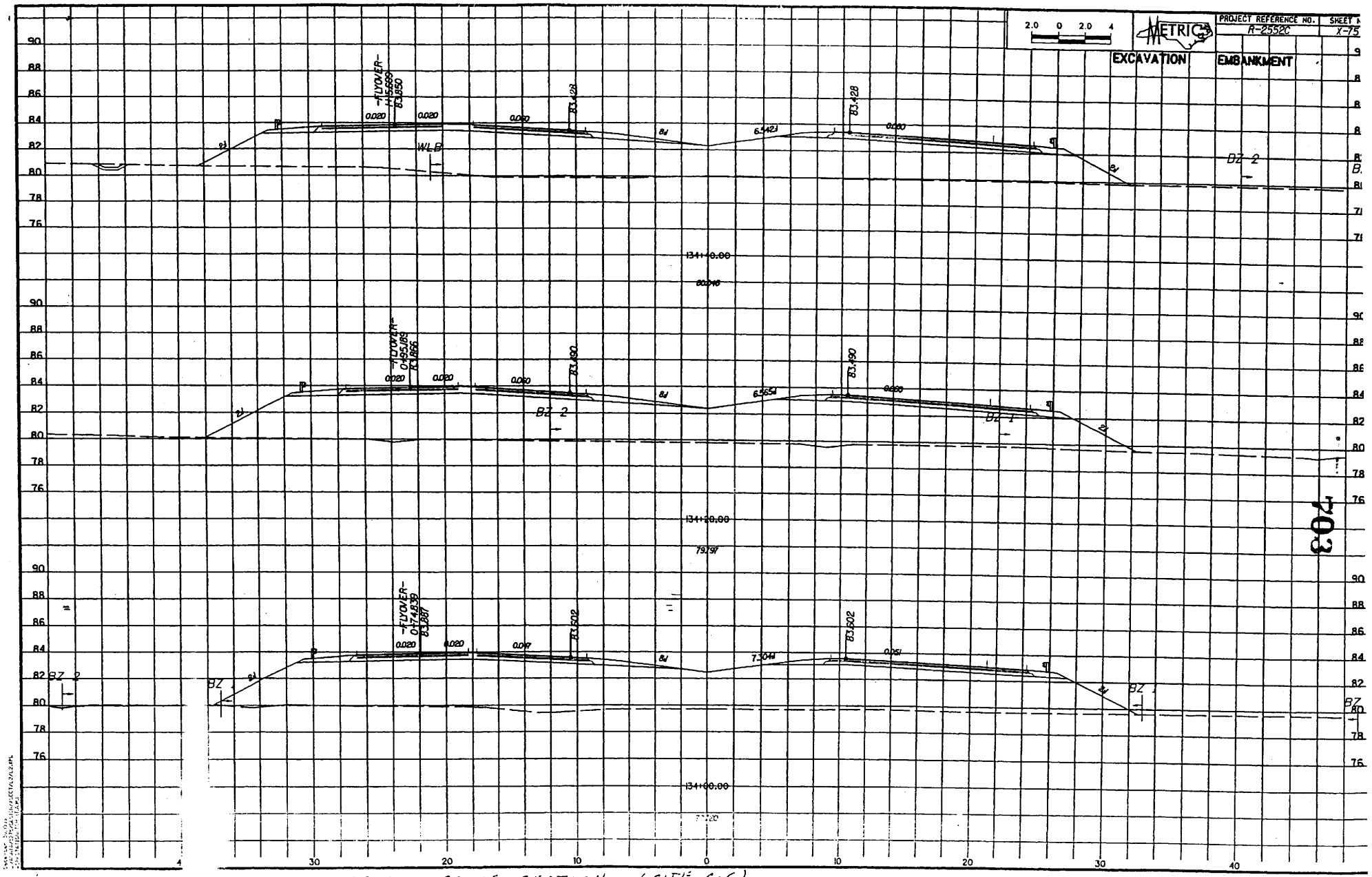
PROJECT REFERENCE NO.	SHEET
A-2552C	PP-

SITE C-6

PROFILE ALONG DBL 2.4 x 1.8 RCBC -L2- STA. 134+01.500 PLAN SHEET 11

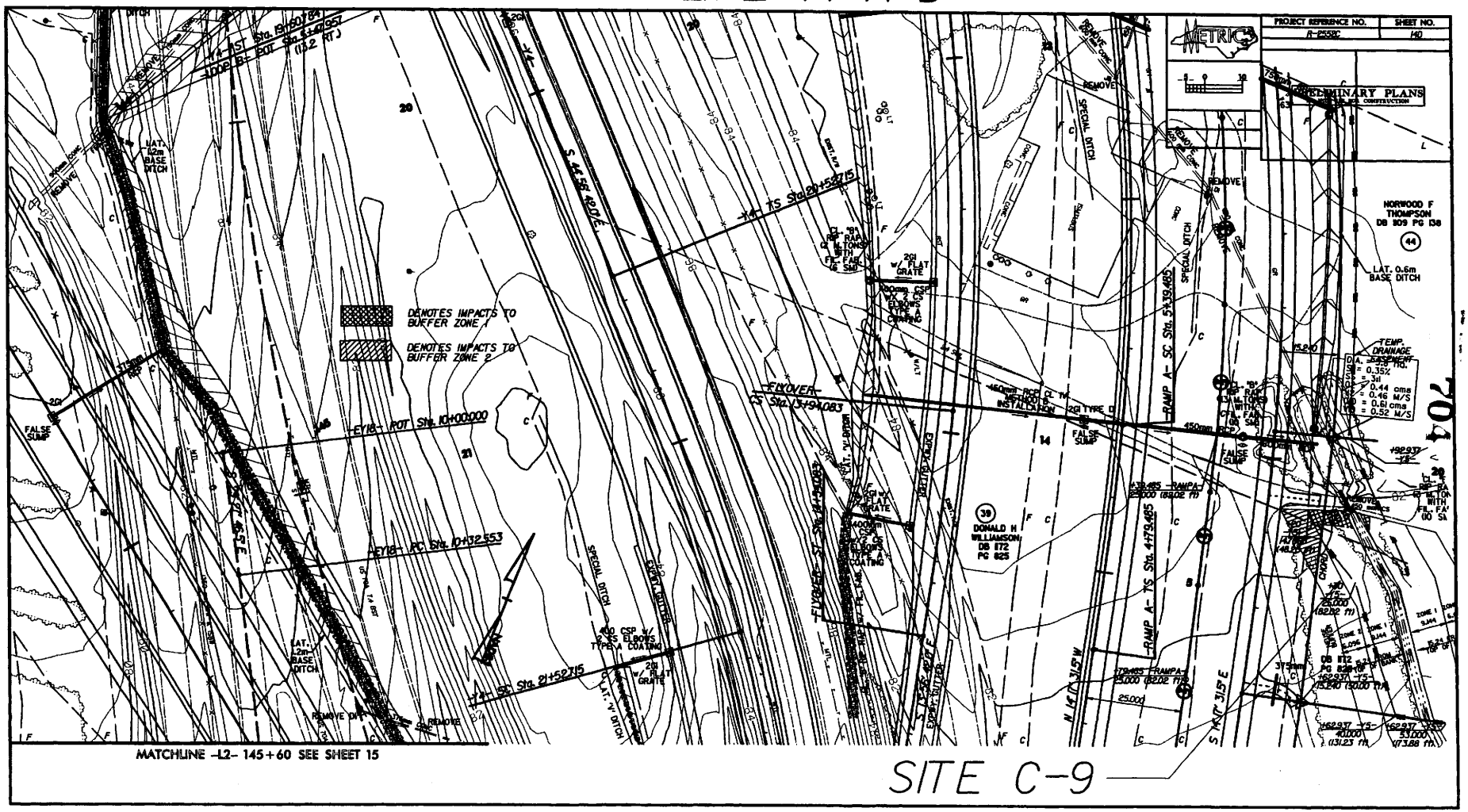


202

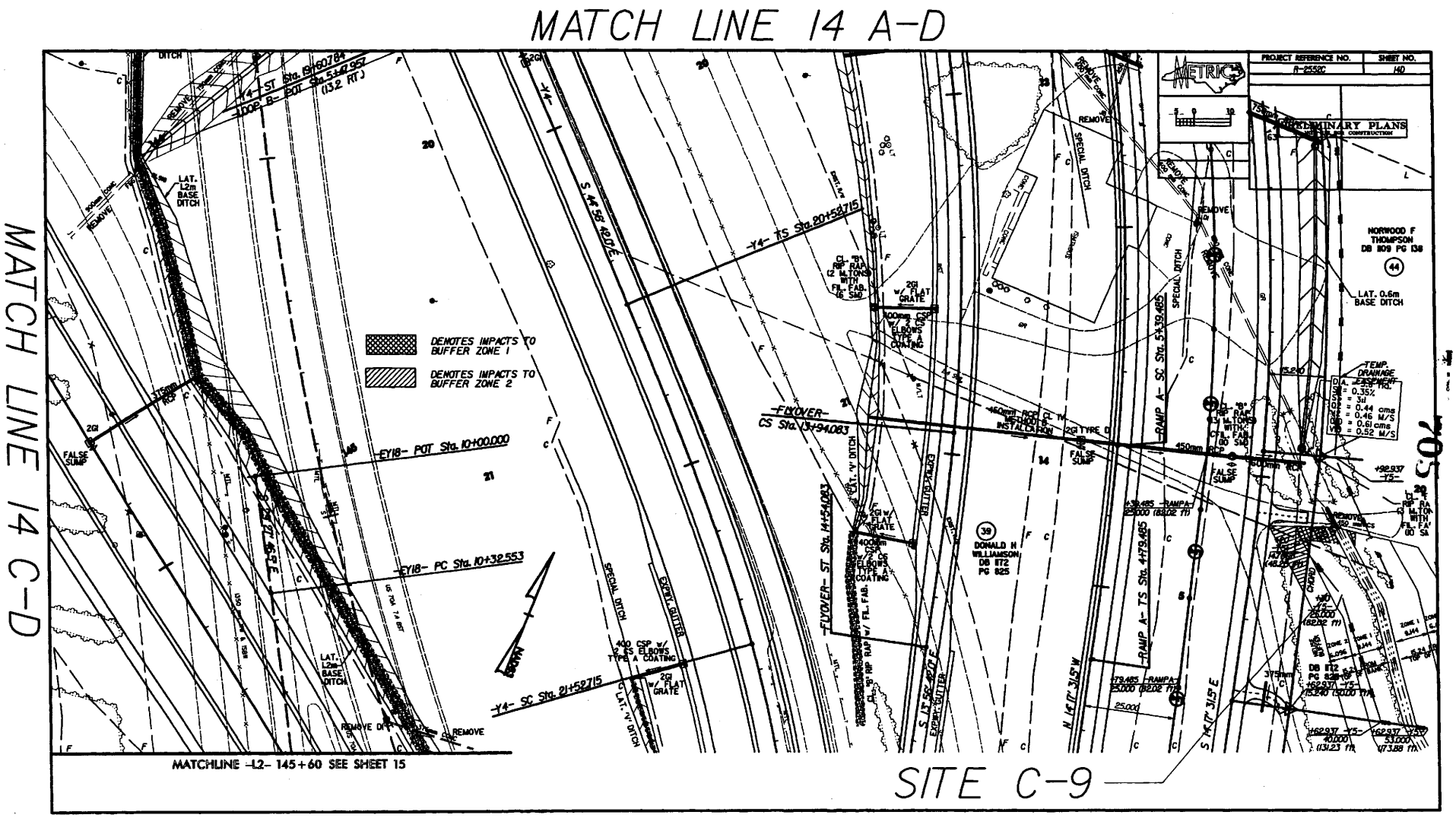


TYPICAL CROSS SECTION (SITE C-6)

MATCH LINE 14 A-D



MATCH LINE 14 C-D


MATCH LINE 14 A-D
MATCH LINE 14 C-D
PROJECT REFERENCE NO. R-2552C
SHEET NO. 14D
METRIC
PRELIMINARY PLANS NOT FOR CONSTRUCTION
DENOTES IMPACTS TO BUFFER ZONE 1
DENOTES IMPACTS TO BUFFER ZONE 2
-Y4- ST Sta. 15+60.784
-L00B- BOT Sta. 5+47.957 (13.2 RT)
-Y4- TS Sta. 20+52.715
-Y4- SC Sta. 21+52.715
-EY18- POT Sta. 10+00.000
-EY18- PC Sta. 10+32.553
-FLYOVER- CS Sta. 13+94.083
-FLYOVER- ST Sta. 14+54.083
-RAMP A- SC Sta. 5+39.485
-RAMP A- TS Sta. 4+79.485
S 46° 58' 40" E
S 14° 58' 40" E
N 14° 13' 45" W
S 14° 13' 45" E
DONALD H WILLIAMSON DB 1172 PG 825
NORWOOD F THOMPSON DB 1109 PG 138
LAT. L2m BASE DITCH
LAT. 0.6m BASE DITCH
SPECIAL DITCH
EXPRY GUTTER
TEMP. DRAINAGE EASEMENT
MATCHLINE -L2- 145+60 SEE SHEET 15
SITE C-9
205

SITE C-9

METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2552C	59
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST. REV.

R /W REV.

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.-

DRAINAGE AREA	= 3.0	HA
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 0.65	CMS
DESIGN HW ELEVATION	= 88.56	M
100 YEAR DISCHARGE	= 0.88	CMS
100 YEAR HW ELEVATION	= 88.71	M
OVERTOPPING FREQUENCY	= 100	YRS
OVERTOPPING DISCHARGE	= 0.82	CMS
OVERTOPPING ELEVATION	= 88.70	M

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.-

DRAINAGE AREA	= 1.2	HA
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 0.36	CMS
DESIGN HW ELEVATION	= 87.7	M
100 YEAR DISCHARGE	= 0.48	CMS
100 YEAR HW ELEVATION	= 88.29	M
OVERTOPPING FREQUENCY	= 100	YRS
OVERTOPPING DISCHARGE	= 0.42	CMS
OVERTOPPING ELEVATION	= 88.90	M

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.-

DRAINAGE AREA	= 2.1	HA
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 0.68	CMS
DESIGN HW ELEVATION	= 79.88	M
100 YEAR DISCHARGE	= 0.83	CMS
100 YEAR HW ELEVATION	= 79.93	M
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 1.01	CMS
OVERTOPPING ELEVATION	= 80.15	M

PI = 20+70.000
DL = 81.164 m
VC = 70 m
K = 54

Y5

Y5

Y5

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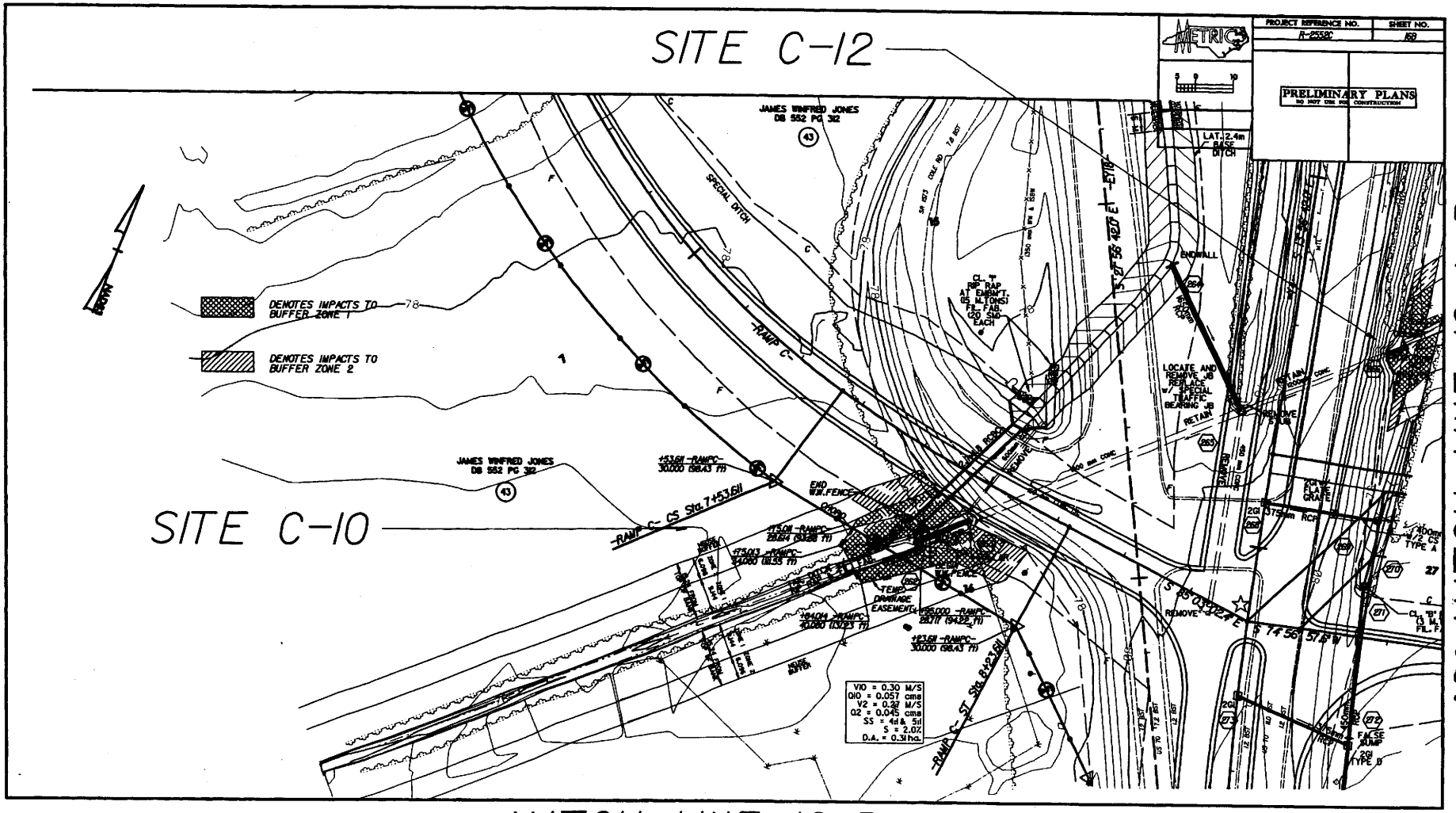
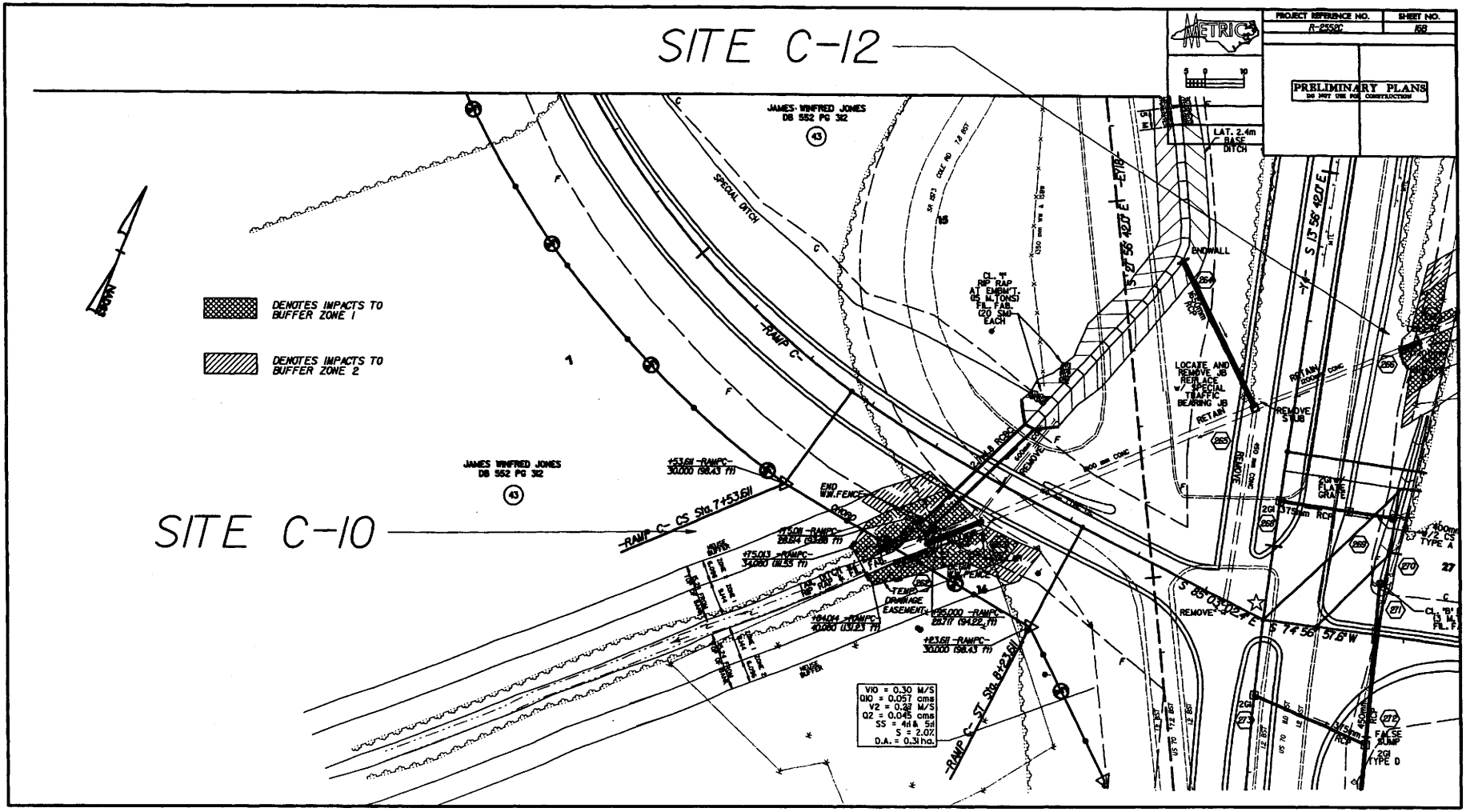
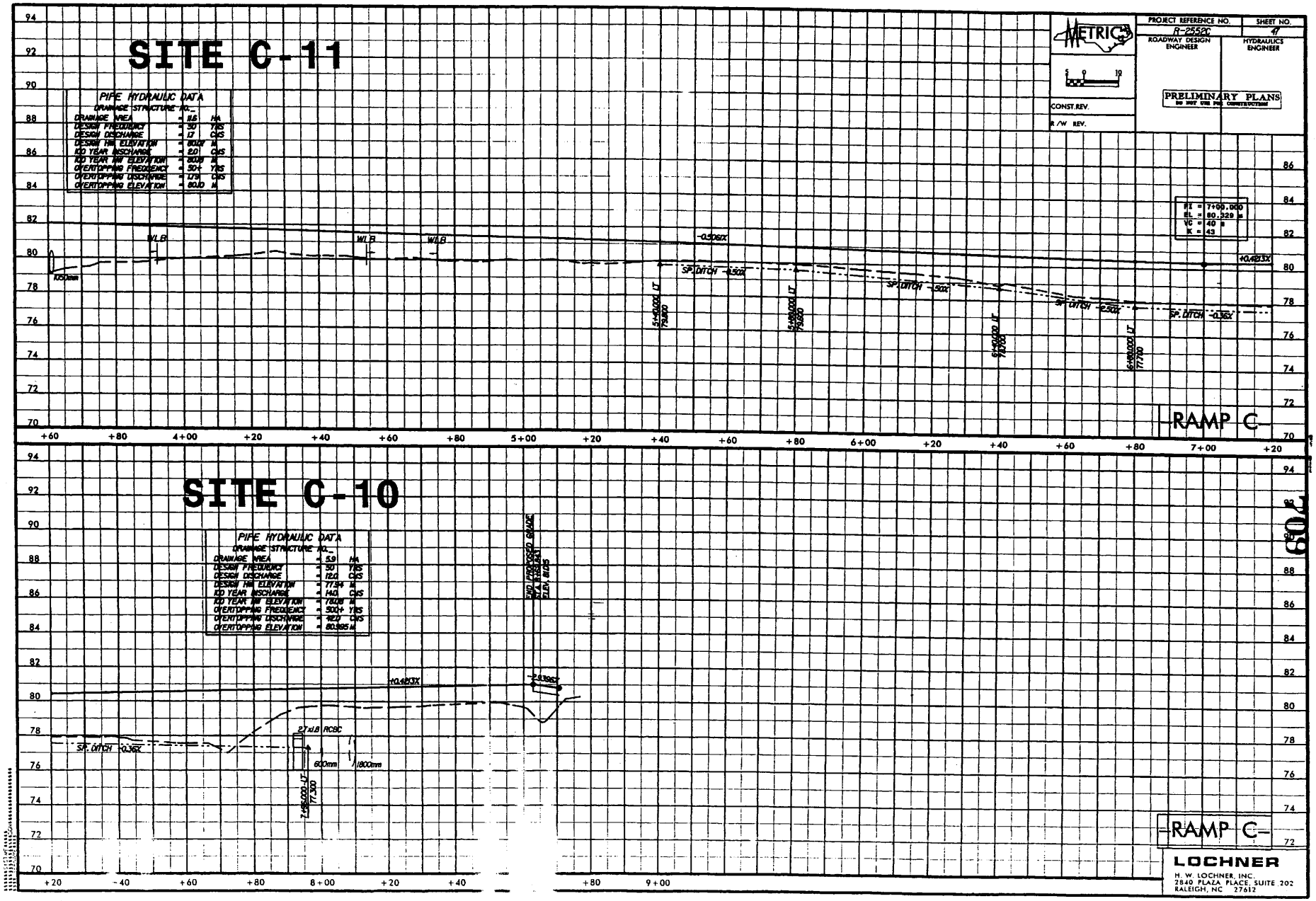
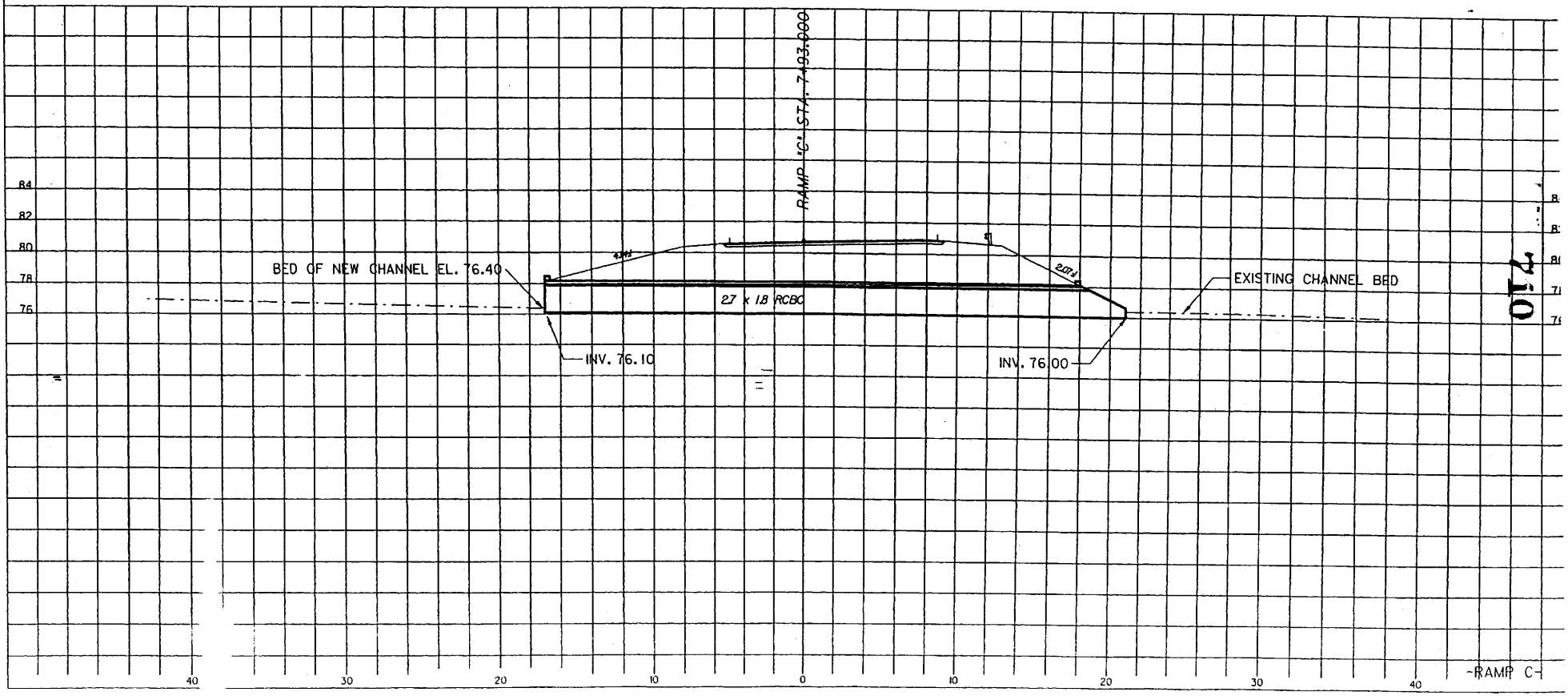

SITE C-12
SITE C-10
PROJECT REFERENCE NO.
R-2552C
SHEET NO.
A59
METRIC
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
JAMES WINFRED JONES
DB 552 PG 312
DENOTES IMPACTS TO BUFFER ZONE 1
DENOTES IMPACTS TO BUFFER ZONE 2
SPECIAL DITCH
RAMP C
RAMP C~ CS Sta. 7+53.61
RAMP C~ ST Sta. 8+23.61
END W.M. FENCE
TEMP. DRAINAGE EASEMENT
LAT. 2.4m BASE DITCH
ENDWALL
LOCATE AND REMOVE JB REPLACE W/ SPECIAL TRAFFIC BEARING JB
RETAIN
REMOVE
REMOVE PIPE
CLASS A CRADLE
TYPE A
TYPE B
FALSE SUMP
S 14°56'40"E 405.61'
S 14°56'37.8"W
V10 = 0.30 M/S
Q10 = 0.057 cms
V2 = 0.32 M/S
Q2 = 0.045 cms
SS = 4st & 5it
S = 2.0%
D.A. = 0.31 ha.
202 MATCH LINE 16 A-B
MATCH LINE 16 B-C


SITE C-12
SITE C-10
PROJECT REFERENCE NO.
R-2552C
SHEET NO.
8B
METRIC
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
DENOTES IMPACTS TO BUFFER ZONE 1
DENOTES IMPACTS TO BUFFER ZONE 2
JAMES WINFRED JONES DB 552 PG 32
SPECIAL DITCH
RAMP C
SNOWALL
LOCATE AND REMOVE JB REPLACE W/ SPECIAL TRAFFIC BEARING JB
RETAIN
REMOVE STUB
REMOVE
END WW. FENCE
TEMP. DRAINAGE EASEMENT
VIO = 0.30 M/S
QIO = 0.057 cms
V2 = 0.32 M/S
Q2 = 0.045 cms
SS = 4H & 5H
S = 2.0%
D.A. = 0.3 ha.
LAT. 2.4m BASE DITCH
FALSE SUMP
MATCH LINE 16 A-B
MATCH LINE 16 B-C


SITE C-11
PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO._
DRAINAGE AREA = 8.6 HA
DESIGN FREQUENCY = 50 YRS
DESIGN DISCHARGE = 17 CMS
DESIGN HW ELEVATION = 80.07 M
100 YEAR DISCHARGE = 20 CMS
100 YEAR HW ELEVATION = 80.08 M
OVERTOPPING FREQUENCY = 50+ YRS
OVERTOPPING DISCHARGE = 17.9 CMS
OVERTOPPING ELEVATION = 80.10 M
PROJECT REFERENCE NO.
R-2552C
SHEET NO.
47
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
METRIC
CONST.REV.
R /W REV.
PRELIMINARY PLANS
PI = 7+00.000
EL = 80.329 M
VC = 40 M
K = 43
-0.50%
+0.42%
SP. DITCH -0.50%
SP. DITCH -0.36%
-RAMP C-
SITE C-10
PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO._
DRAINAGE AREA = 5.9 HA
DESIGN FREQUENCY = 50 YRS
DESIGN DISCHARGE = 12.0 CMS
DESIGN HW ELEVATION = 77.54 M
100 YEAR DISCHARGE = 14.0 CMS
100 YEAR HW ELEVATION = 78.08 M
OVERTOPPING FREQUENCY = 500+ YRS
OVERTOPPING DISCHARGE = 12.7 CMS
OVERTOPPING ELEVATION = 80.195 M
+0.42%
-2.39%
SP. DITCH -0.36%
2.7 x1.8 RCBC
600mm
1800mm
-RAMP C-
LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE SUITE 202
RALEIGH, NC 27612

SITE C-10

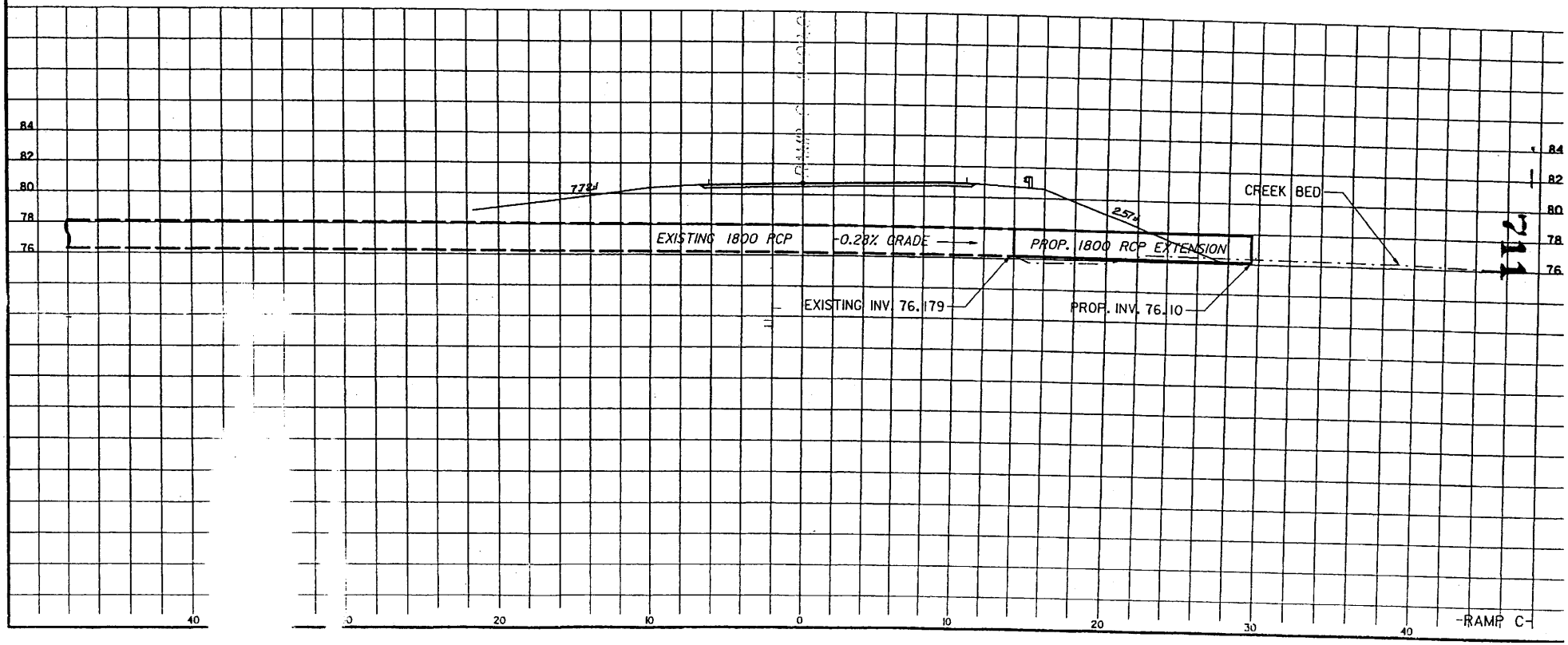
PROFILE OF 2.7 x 1.8 RCBC
RAMP C - STA. 7+93.000
PLAN SHEET 16

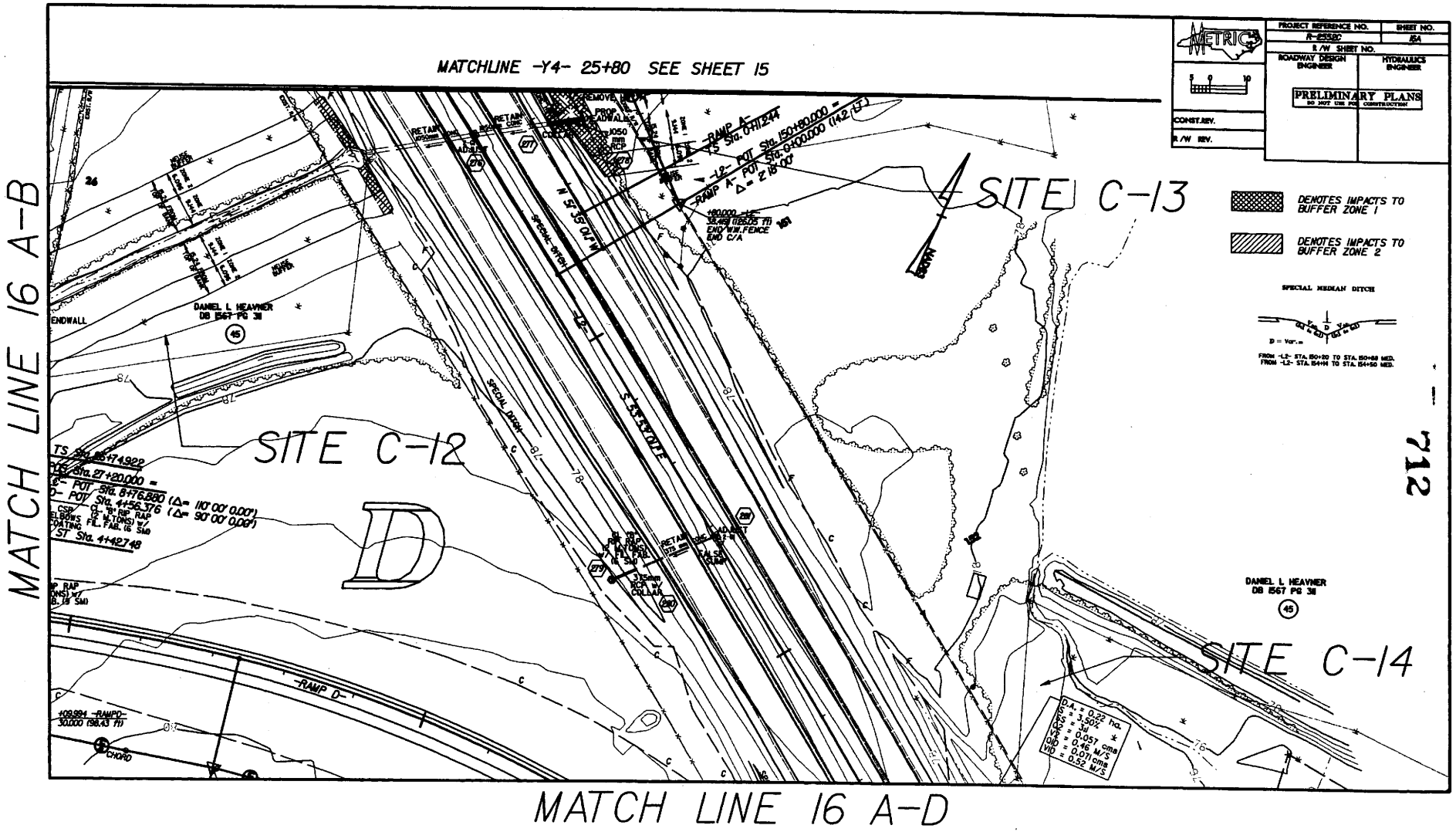


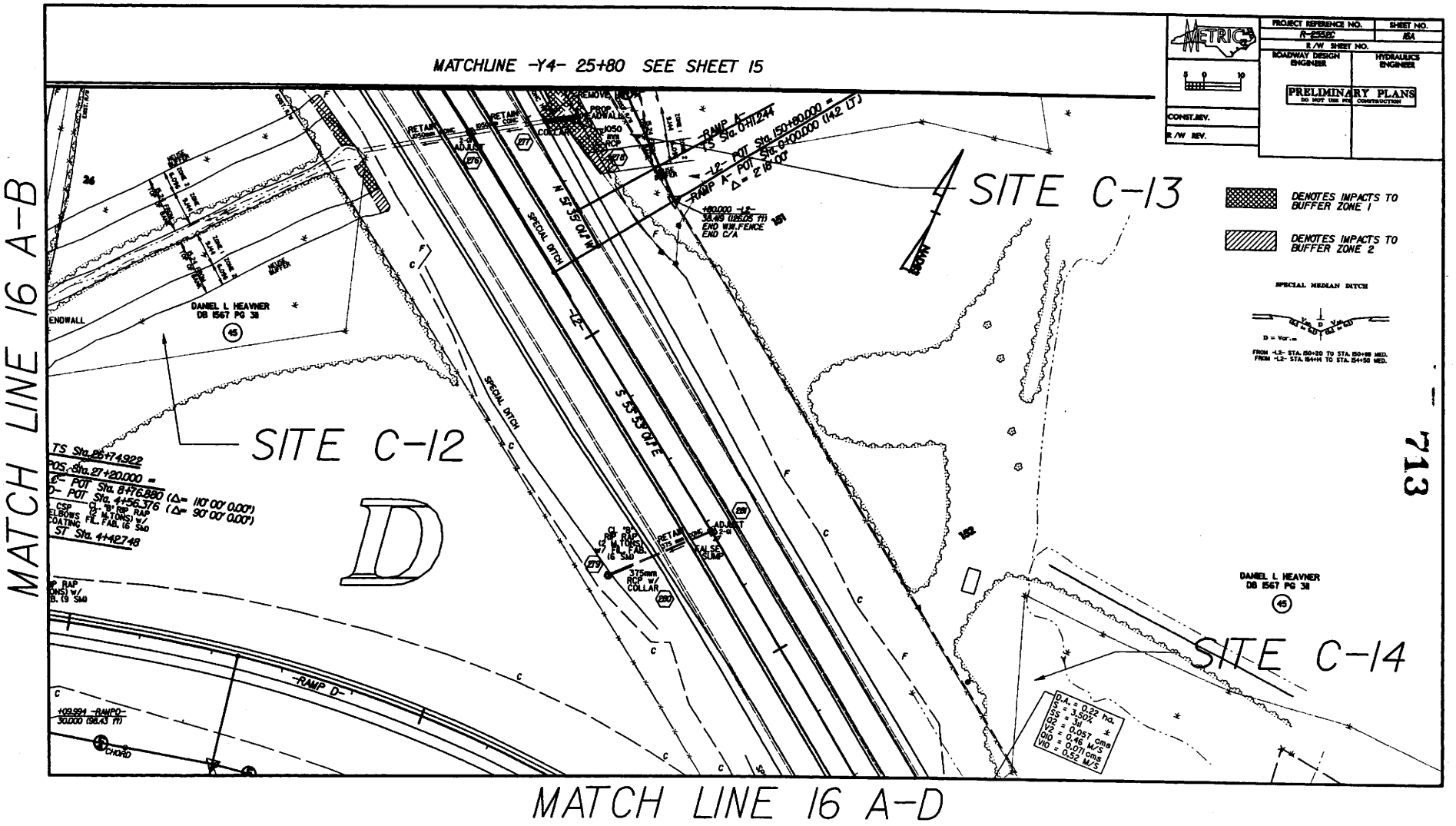
2.0 0 2.0 4 METRIC | PROJECT REFERENCE NO. R-2552C | SHEET PP-

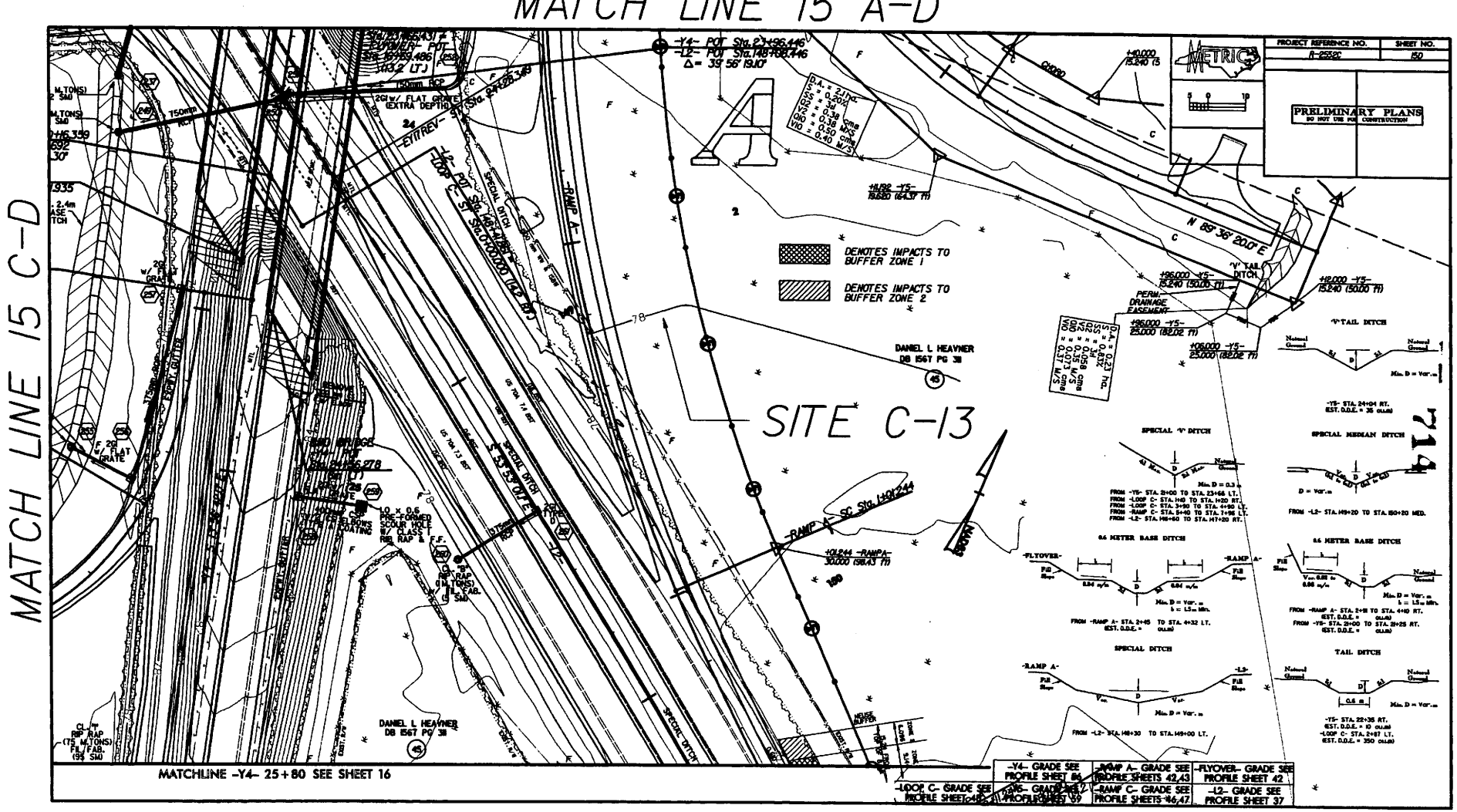
SITE C-10

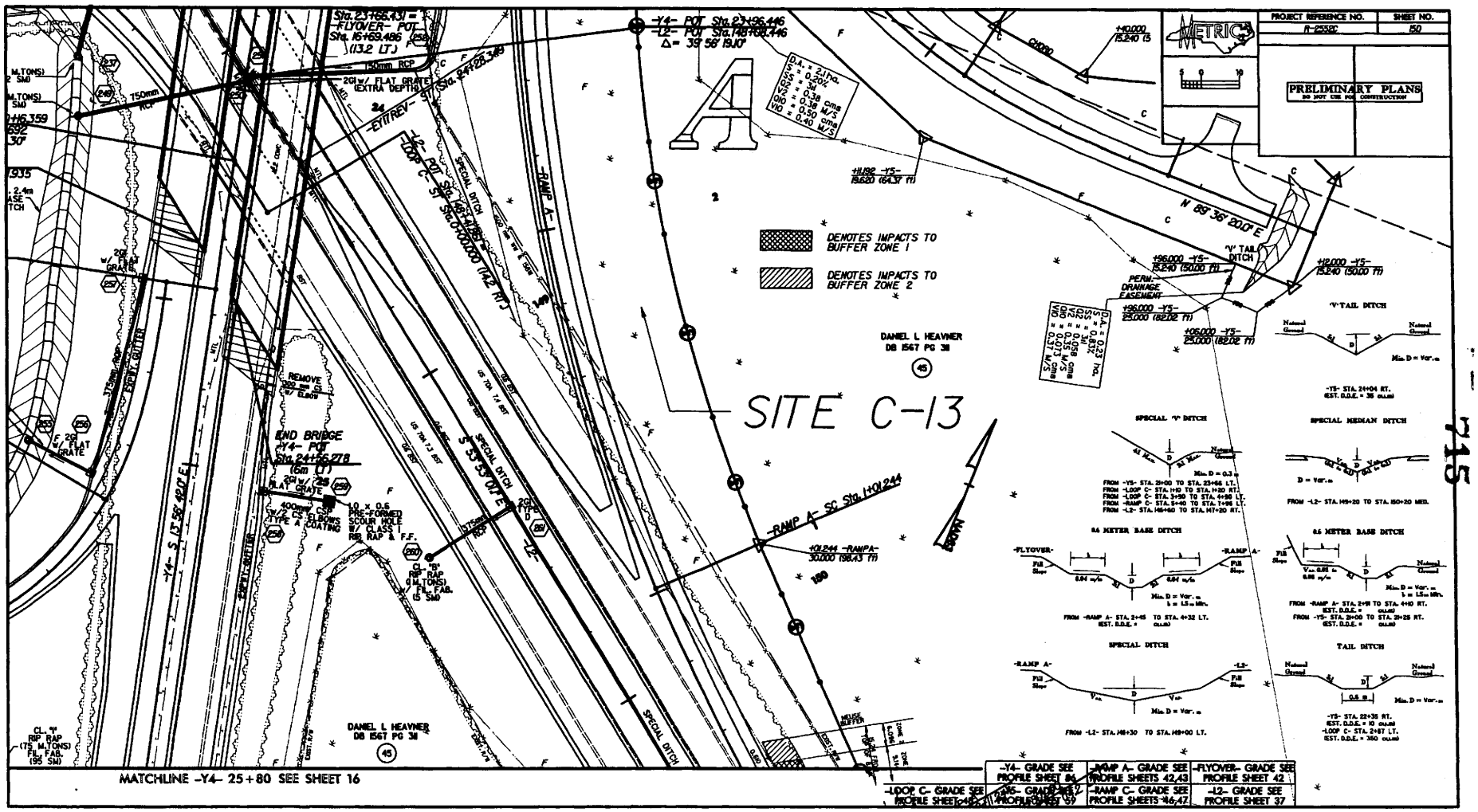
PIPE PROFILE OF 1800 RCP
RAMP C STA. 8+09.0

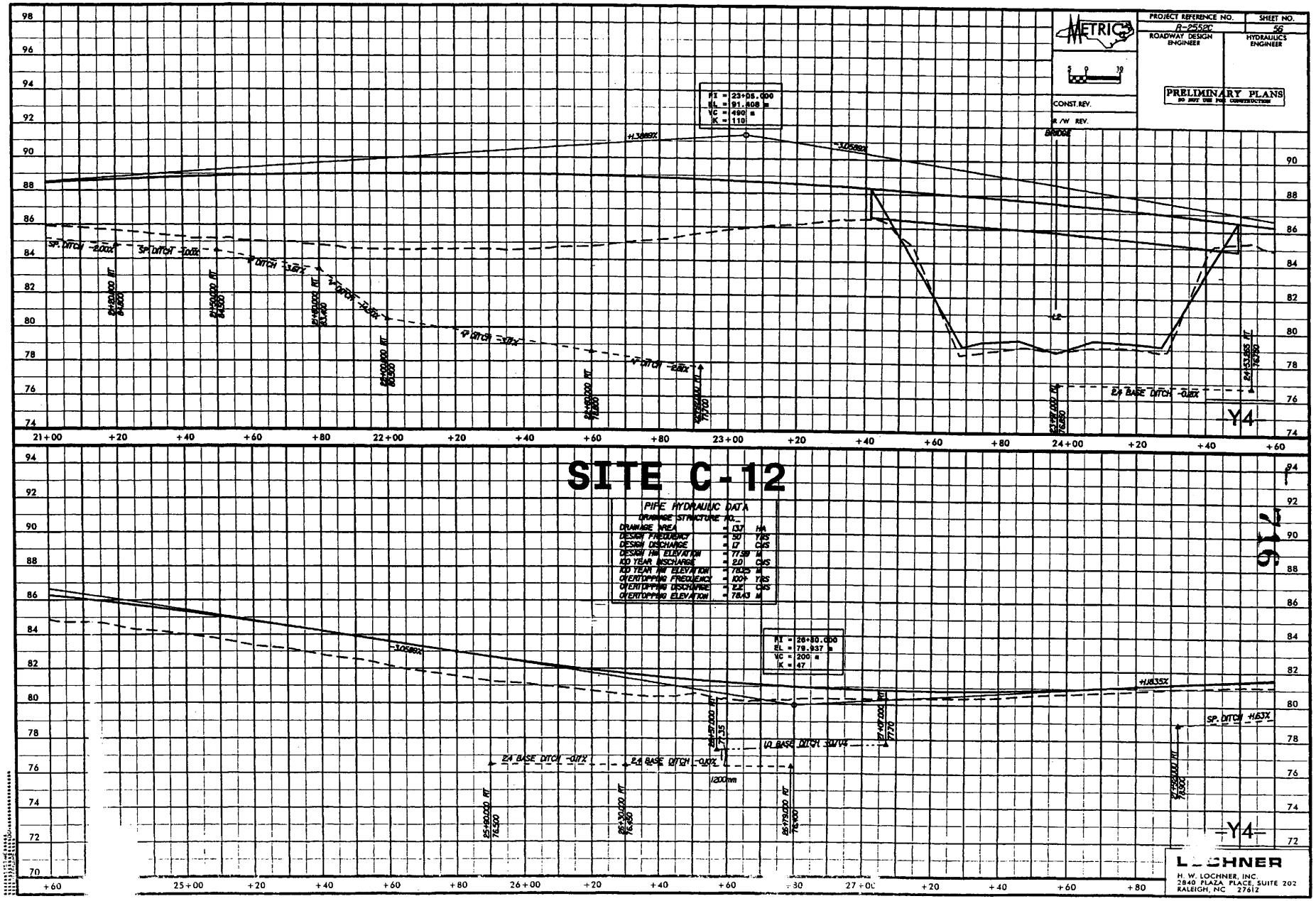


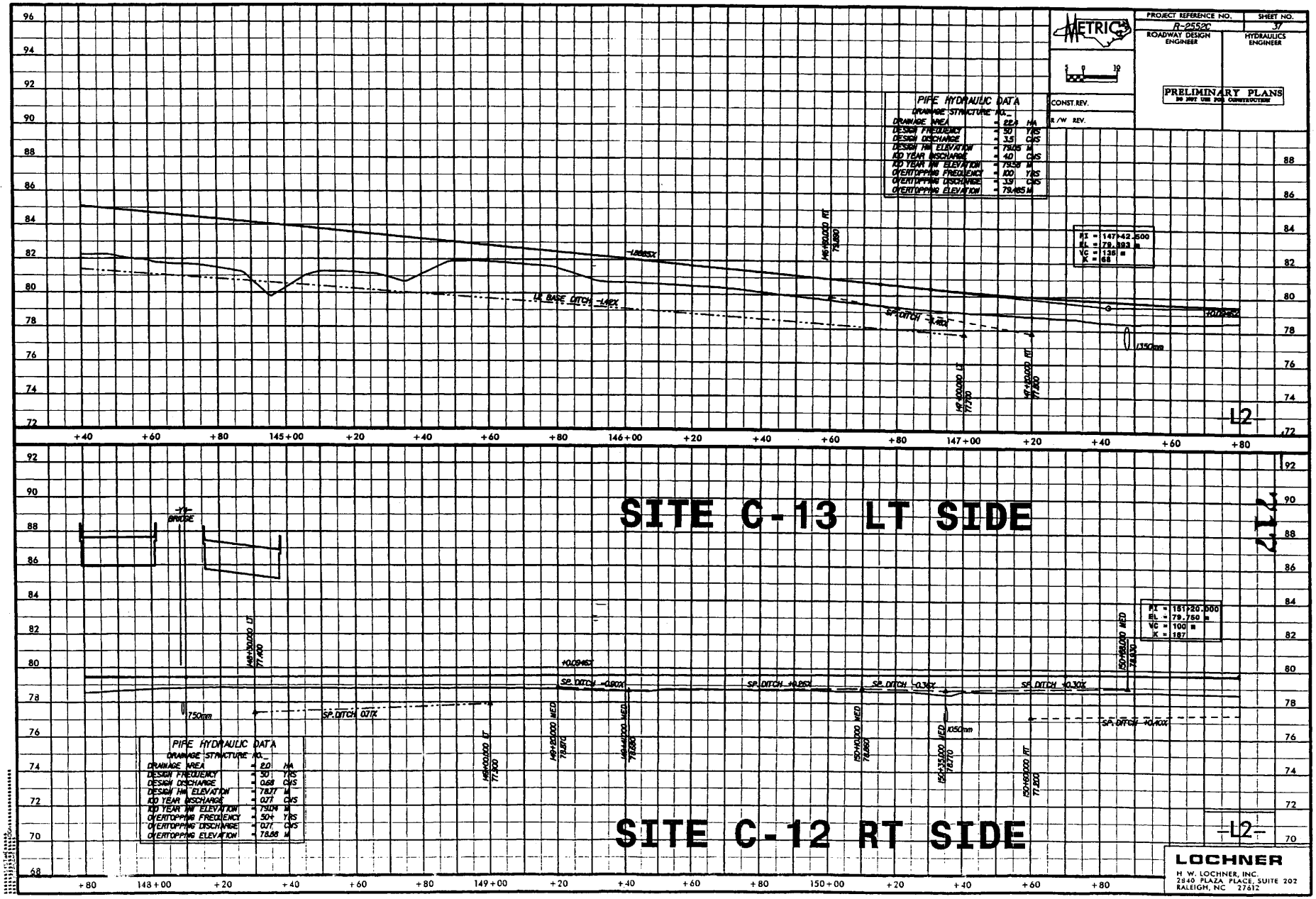

MATCHLINE -Y4- 25+80 SEE SHEET 15
MATCH LINE 16 A-B
MATCH LINE 16 A-D
SITE C-12
SITE C-13
SITE C-14
D
METRIC
PROJECT REFERENCE NO.
R-2552C
SHEET NO.
15A
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
CONST. REV.
R/W REV.
DENOTES IMPACTS TO BUFFER ZONE 1
DENOTES IMPACTS TO BUFFER ZONE 2
SPECIAL MEDIAN DITCH
DANIEL L HEAVNER
DB 1567 PG 31
45
-L-
-L2-
-RAMP D-
-RAMP A-
SPECIAL DITCH
N 57°35'07"W
ENDWALL
CHORD
712

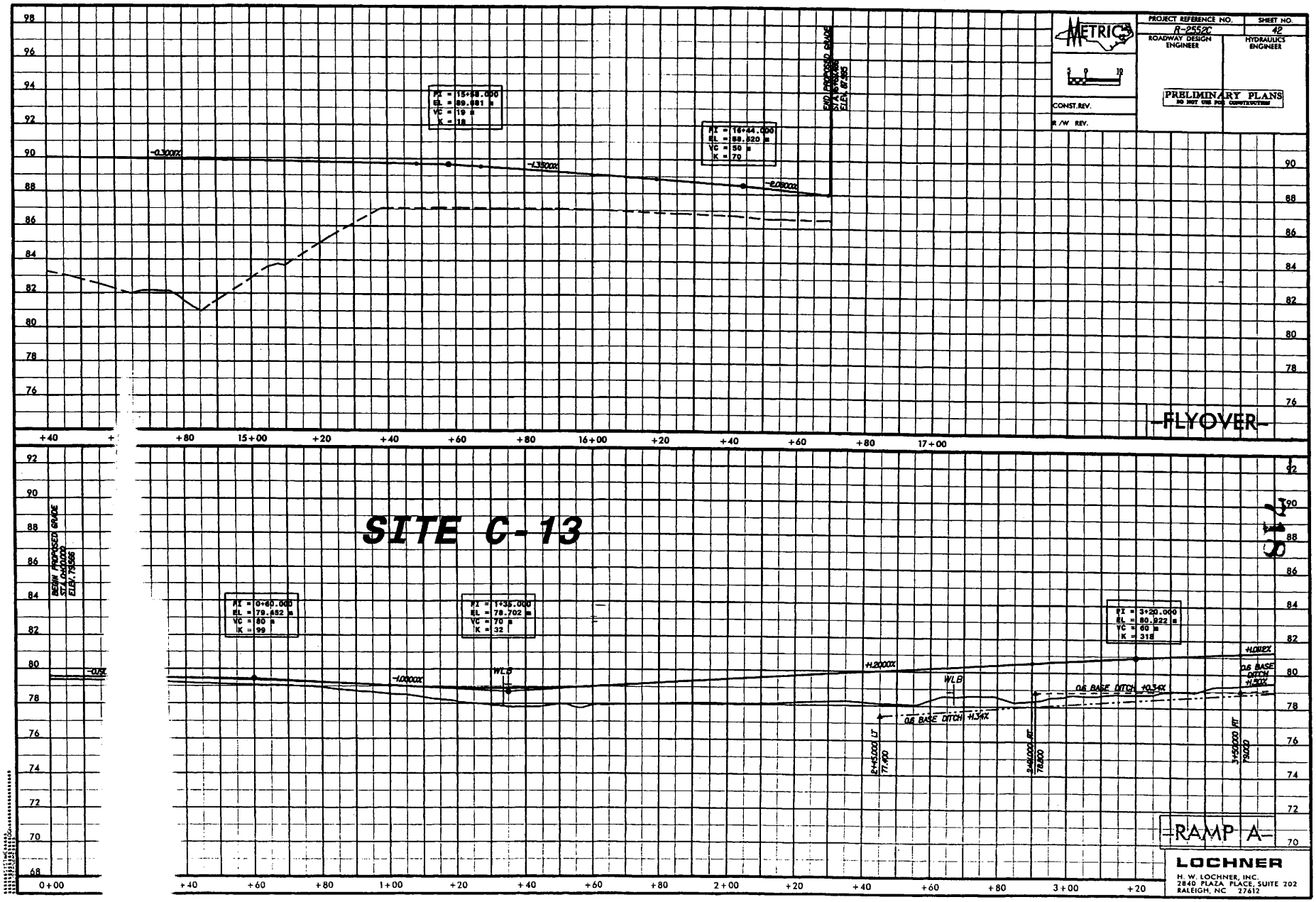

MATCHLINE -Y4- 25+80 SEE SHEET 15
MATCH LINE 16 A-B
MATCH LINE 16 A-D
SITE C-12
SITE C-13
SITE C-14
D
PROJECT REFERENCE NO.
R-2552C
SHEET NO.
15A
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
CONST. REV.
R/W REV.
DENOTES IMPACTS TO BUFFER ZONE 1
DENOTES IMPACTS TO BUFFER ZONE 2
SPECIAL MEDIAN DITCH
DANIEL L HEAVNER
DB 1567 PG 38
SPECIAL DITCH
-RAMP D-
-RAMP A-
-L2-
-L-
N 57°35'07"W
S 57°35'07"E
TS Sta. 25+74.922
POS Sta. 27+20.000
PC POT Sta. 8+76.880 (Δ= 110° 00' 0.00")
PT POT Sta. 4+56.376 (Δ= 90° 00' 0.00")
ST Sta. 4+42.748
RAMP A POT Sta. 150+60.000 (142 LT)
Δ = 2°18'00"
Sta. 0+11.244
180.000 -L2-
38.48 (126.05 FT)
END WM. FENCE
END C/A
375MM RCP w/ COLLAR
1050 MM RCP
RETAIN
ENDWALL
HOUSE
CHORD
D.A. = 0.22 sq. mi.
Qdesign = 4.50 cfs
Vdesign = 3.8 fps
Q100 = 0.057 cms
V100 = 0.91 M/S
Q50 = 0.46 cms
V50 = 0.52 M/S

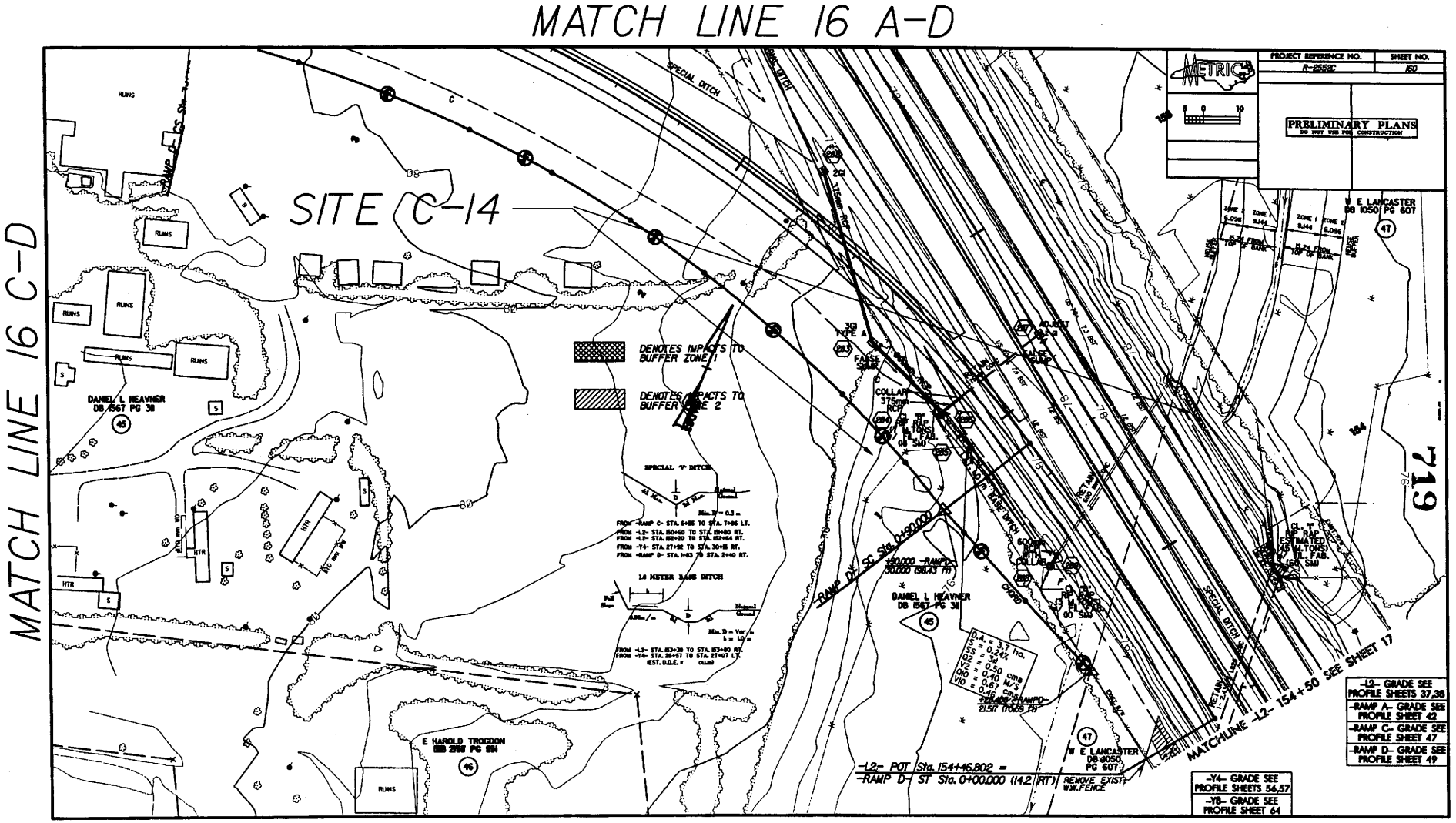

MATCH LINE 15 A-D
MATCH LINE 15 C-D
SITE C-13
DENOTES IMPACTS TO BUFFER ZONE 1
DENOTES IMPACTS TO BUFFER ZONE 2
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
PROJECT REFERENCE NO. R-2552C
SHEET NO. 150
DANIEL L HEAVNER DB 1567 PG 38
MATCHLINE -Y4- 25+80 SEE SHEET 16
-Y4- GRADE SEE PROFILE SHEET 84
-RAMP A- GRADE SEE PROFILE SHEETS 42,43
-FLYOVER- GRADE SEE PROFILE SHEET 42
-LOOP C- GRADE SEE PROFILE SHEET 46
-Y5- GRADE SEE PROFILE SHEET 59
-RAMP C- GRADE SEE PROFILE SHEETS 46,47
-L2- GRADE SEE PROFILE SHEET 37
SPECIAL 'V' DITCH
SPECIAL MEDIAN DITCH
0.6 METER BASE DITCH
SPECIAL DITCH
TAIL DITCH
'V' TAIL DITCH
PERM. DRAINAGE EASEMENT
714

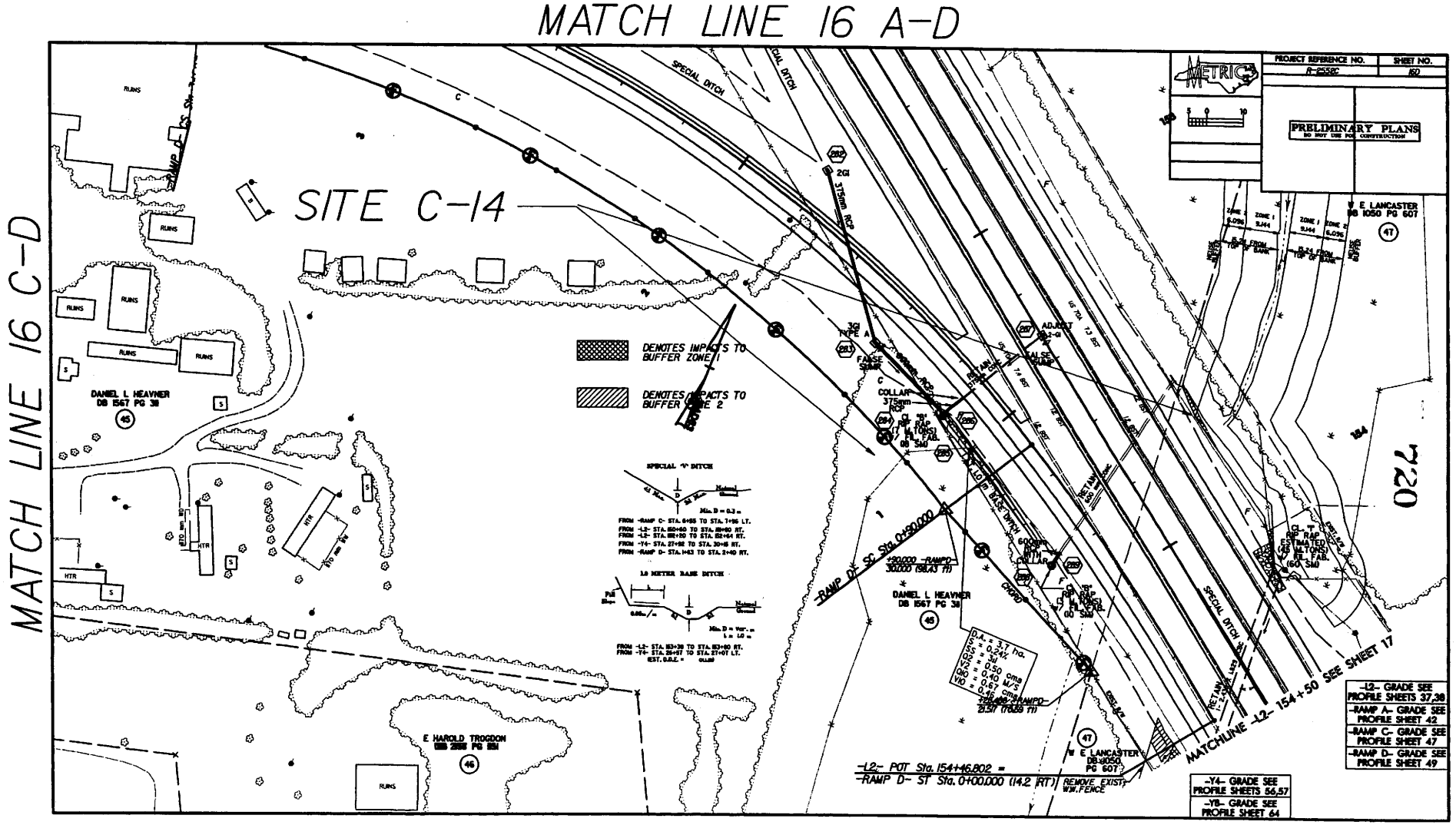

MATCH LINE 15 A-D
MATCH LINE 15 C-D
MATCHLINE -Y4- 25+80 SEE SHEET 16
PROJECT REFERENCE NO.
R-2552C
SHEET NO.
150
METRIC
5 0 10
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
SITE C-13
DENOTES IMPACTS TO BUFFER ZONE 1
DENOTES IMPACTS TO BUFFER ZONE 2
DANIEL L HEAVNER
DB 1567 PG 31
45
-Y4- POT Sta. 23+96.446 =
-L2- POT Sta. 148+08.446
Δ = 39° 56' 19.0"
D.A. = 2.1 ha.
S = 0.20%
SS = 3:1
Q2 = 0.38 cms
V2 = 0.38 M/S
Q10 = 0.50 cms
V10 = 0.40 M/S
D.A. = 0.23 ha.
S = 0.83%
SS = 3:1
Q2 = 0.058 cms
V2 = 0.35 M/S
Q10 = 0.073 cms
V10 = 0.37 M/S
N 89° 36' 20.0" E
'V' TAIL DITCH
PERM. DRAINAGE EASEMENT
+12.000 -Y5- 15.240 (50.00 ft)
+96.000 -Y5- 15.240 (50.00 ft)
+96.000 -Y5- 25.000 (82.02 ft)
+06.000 -Y5- 25.000 (82.02 ft)
+11.192 -Y5- 19.620 (64.37 ft)
+40.000 15.240
-RAMP A- SC Sta. 1+01.244
+01.244 -RAMPA- 30.000 (98.43 ft)
NAD83
-RAMP A-
-L2- POT Sta. 148+41.867 =
-LOOP C- ST Sta. 0+000.000 (14.2 RT)
-EXTREV- ST Sta. 24+28.349
SPECIAL DITCH
US 70A 7.4 BST
US 70A 7.3 BST
S 53° 53' 01.7" E
-L2-
2GI TYPE D
CL "B" RIP RAP (6 M.TONS) W/ FIL. FAB. (5 SM)
1.0 x 0.6 PRE-FORMED SCOUR HOLE W/ CLASS 1 RIP RAP & F.F.
400mm CSP W/2 CS ELBOWS TYPE A COATING
END BRIDGE -Y4- POT Sta. 24+56.278 (6m LT)
2GI w/ 2GI FLAT GRATE
REMOVE
Sta. 23+66.431 = -FLYOVER- POT Sta. 16+69.486 (13.2 LT)
150mm RCP
2GI w/ FLAT GRATE (EXTRA DEPTH)
750mm RCP
375mm RCP
EXPY. GUTTER
-Y4- S 13° 56' 42.0" E
F 2GI w/ FLAT GRATE
CL "I" RIP RAP (75 M.TONS) FIL. FAB. (95 SM)
NEUSE BUFFER
ZONE 2
ZONE 1
'V' TAIL DITCH
Natural Ground
Min. D = Var. m
-Y5- STA. 24+04 RT.
(EST. D.D.E. = 36 cu.m)
SPECIAL MEDIAN DITCH
D = Var. m
FROM -L2- STA. 149+20 TO STA. 150+20 MED.
SPECIAL 'V' DITCH
4:1 Max.
3:1 Max.
Min. D = 0.3 m
FROM -Y5- STA. 21+00 TO STA. 23+66 LT.
FROM -LOOP C- STA. 1+10 TO STA. 1+20 RT.
FROM -LOOP C- STA. 3+50 TO STA. 4+90 LT.
FROM -RAMP C- STA. 5+40 TO STA. 7+96 LT.
FROM -L2- STA. 146+60 TO STA. 147+20 RT.
0.6 METER BASE DITCH
-FLYOVER-
-RAMP A-
Fill Slope
0.04 m/m
Min. D = Var. m
b = 1.5 m Min.
FROM -RAMP A- STA. 2+45 TO STA. 4+32 LT.
(EST. D.D.E. = cu.m)
0.6 METER BASE DITCH
Var. 0.02 to 0.08 m/m
FROM -RAMP A- STA. 2+91 TO STA. 4+10 RT.
(EST. D.D.E. = cu.m)
FROM -Y5- STA. 21+00 TO STA. 21+25 RT.
(EST. D.D.E. = cu.m)
SPECIAL DITCH
-RAMP A-
-L2-
FROM -L2- STA. 148+30 TO STA. 149+00 LT.
TAIL DITCH
0.6 m
-Y5- STA. 22+35 RT.
(EST. D.D.E. = 10 cu.m)
-LOOP C- STA. 2+87 LT.
(EST. D.D.E. = 350 cu.m)
-Y4- GRADE SEE PROFILE SHEET 86
-RAMP A- GRADE SEE PROFILE SHEETS 42,43
-FLYOVER- GRADE SEE PROFILE SHEET 42
-LOOP C- GRADE SEE PROFILE SHEET 45
-Y5- GRADE SEE PROFILE SHEET 59
-RAMP C- GRADE SEE PROFILE SHEETS 46,47
-L2- GRADE SEE PROFILE SHEET 37

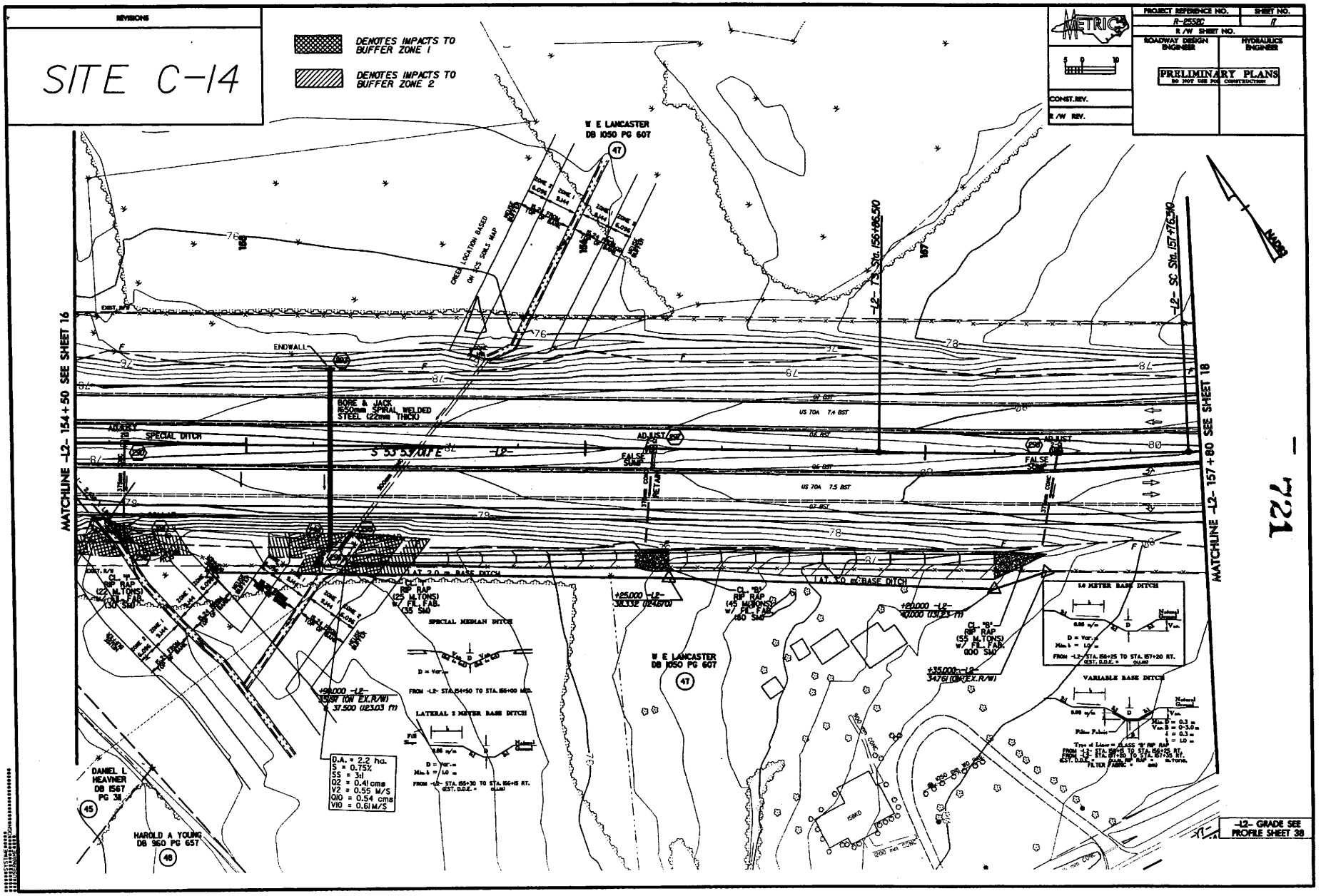

METRIC
PROJECT REFERENCE NO.
R-2552C
SHEET NO.
56
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
NOT FOR CONSTRUCTION
CONST. REV.
R/W REV.
SITE C-12
PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.
DRAINAGE AREA = 13.1 HA
DESIGN FREQUENCY = 50 YRS
DESIGN DISCHARGE = 17 CMS
DESIGN HW ELEVATION = 77.59 M
100 YEAR DISCHARGE = 20 CMS
100 YEAR HW ELEVATION = 78.25 M
OVERTOPPING FREQUENCY = 100+ YRS
OVERTOPPING DISCHARGE = 24+ CMS
OVERTOPPING ELEVATION = 78.43 M
PI = 23+05.000
EL = 91.808 m
VC = 490 m
K = 110
PI = 26+30.000
EL = 79.937 m
VC = 200 m
K = 47
-Y4-
-Y4-
LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612

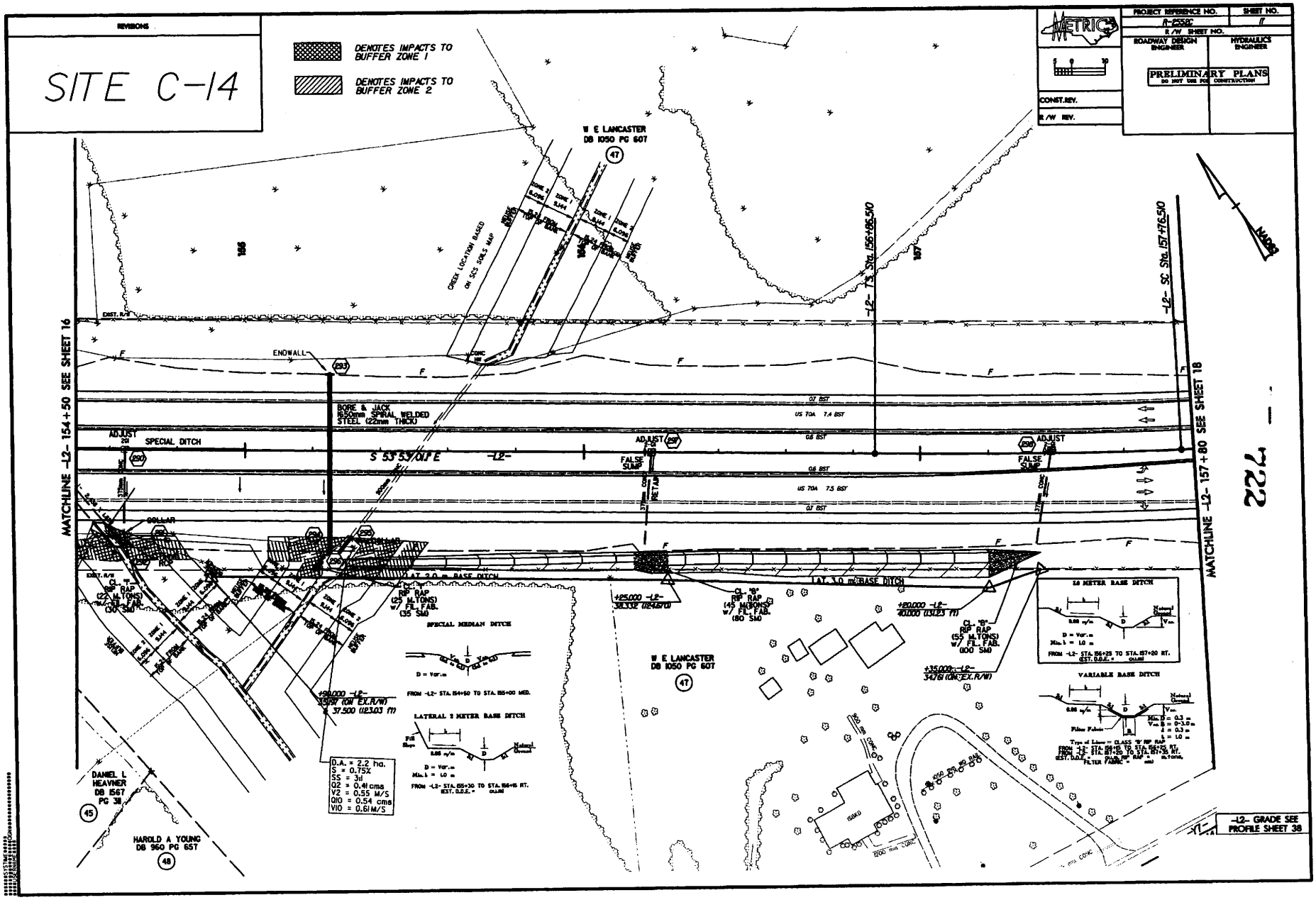

METRIC
PROJECT REFERENCE NO. R-2552C
SHEET NO. 37
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
CONST. REV.
R/W REV.
PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO._
DRAINAGE AREA = 82.9 HA
DESIGN FREQUENCY = 50 YRS
DESIGN DISCHARGE = 3.5 CMS
DESIGN HW ELEVATION = 79.05 M
100 YEAR DISCHARGE = 4.0 CMS
100 YEAR HW ELEVATION = 79.58 M
OVERTOPPING FREQUENCY = 100 YRS
OVERTOPPING DISCHARGE = 3.9 CMS
OVERTOPPING ELEVATION = 79.485 M
PI = 147+42.500
EL = 79.383 m
VC = 135 m
K = 68
L2
SITE C-13 LT SIDE
PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO._
DRAINAGE AREA = 8.0 HA
DESIGN FREQUENCY = 50 YRS
DESIGN DISCHARGE = 0.68 CMS
DESIGN HW ELEVATION = 78.27 M
100 YEAR DISCHARGE = 0.77 CMS
100 YEAR HW ELEVATION = 79.04 M
OVERTOPPING FREQUENCY = 50+ YRS
OVERTOPPING DISCHARGE = 0.71 CMS
OVERTOPPING ELEVATION = 78.66 M
PI = 151+20.000
EL = 79.750 m
VC = 100 m
K = 187
L2
SITE C-12 RT SIDE
LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612

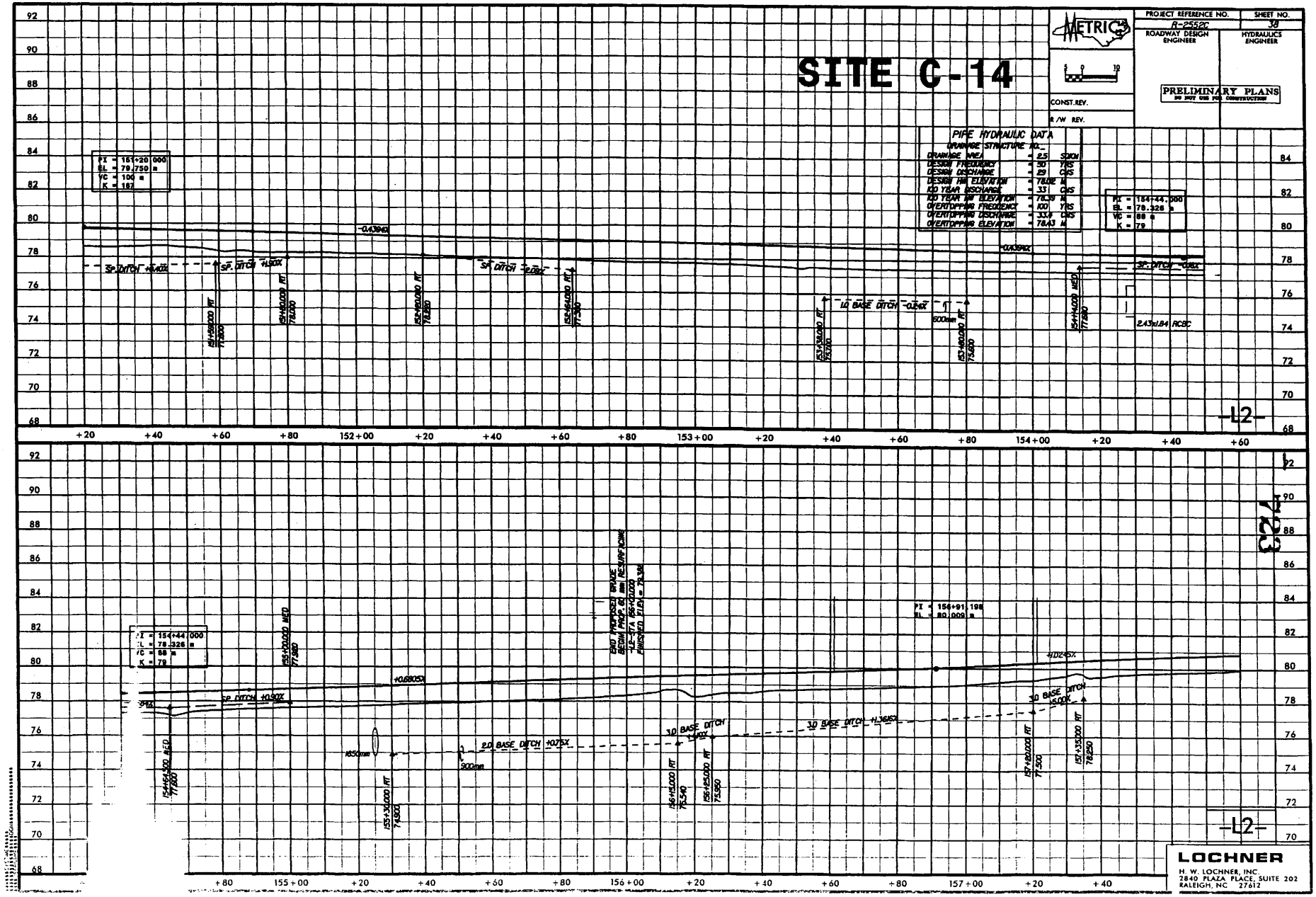

METRIC
PROJECT REFERENCE NO.
R-2552C
SHEET NO.
42
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
CONST. REV.
R/W REV.
PI = 15+58.000
EL = 89.681 m
VC = 19 m
K = 18
PI = 16+64.000
EL = 89.520 m
VC = 50 m
K = 70
-0.300%
-1.390%
-2.060%
END PROPOSED GRADE
STA. 17+00.000
ELEV. 87.505
-FLYOVER-
SITE C-13
BEGIN PROPOSED GRADE
STA. 0+00.000
ELEV. 79.566
PI = 0+60.000
EL = 79.452 m
VC = 80 m
K = 99
PI = 1+35.000
EL = 78.702 m
VC = 70 m
K = 32
PI = 3+20.000
EL = 80.922 m
VC = 60 m
K = 318
-0.5%
-1.000%
+1.200%
+1.061%
WLB
06 BASE DITCH +1.34%
06 BASE DITCH +0.34%
06 BASE DITCH +1.20%
2+45.000 LT
77.400
2+60.000 RT
78.800
3+50.000 RT
79.000
-RAMP A-
LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612


MATCH LINE 16 A-D
MATCH LINE 16 C-D
SITE C-14
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
PROJECT REFERENCE NO.
R-2552C
SHEET NO.
160
DENOTES IMPACTS TO BUFFER ZONE 1
DENOTES IMPACTS TO BUFFER ZONE 2
SPECIAL "V" DITCH
12 METER BASE DITCH
DANIEL L HEAVNER DB 1567 PG 38
E HAROLD TROGDON DB 2918 PG 851
W E LANCASTER DB 1050 PG 607
SPECIAL DITCH
BASE DITCH
-RAMP D- SC Sta. 0+00.000
-L2- POT Sta. 154+16.802 = -RAMP D- ST Sta. 0+00.000 (114.2 RT)
REMOVE EXIST. WW FENCE
MATCHLINE -L2- 154+50 SEE SHEET 17
-L2- GRADE SEE PROFILE SHEETS 37,38
-RAMP A- GRADE SEE PROFILE SHEET 42
-RAMP C- GRADE SEE PROFILE SHEET 47
-RAMP D- GRADE SEE PROFILE SHEET 49
-Y4- GRADE SEE PROFILE SHEETS 56,57
-Y8- GRADE SEE PROFILE SHEET 64
719


MATCH LINE 16 A-D
MATCH LINE 16 C-D
SITE C-14
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
PROJECT REFERENCE NO.
R-2558C
SHEET NO.
160
METRIC
DENOTES IMPACTS TO BUFFER ZONE 1
DENOTES IMPACTS TO BUFFER ZONE 2
SPECIAL "V" DITCH
1.0 METER BASE DITCH
DANIEL L HEAVNER DB 1567 PG 38
E HAROLD TROGDON
W E LANCASTER DB 1050 PG 607
-L2- POT Sta. 154+16.802 = -RAMP D- ST Sta. 0+00.000 (14.2 RT)
REMOVE EXIST. WW FENCE
MATCHLINE -L2- 154+50 SEE SHEET 17
-L2- GRADE SEE PROFILE SHEETS 37,38
-RAMP A- GRADE SEE PROFILE SHEET 42
-RAMP C- GRADE SEE PROFILE SHEET 47
-RAMP D- GRADE SEE PROFILE SHEET 49
-Y4- GRADE SEE PROFILE SHEETS 56,57
-Y8- GRADE SEE PROFILE SHEET 64
720

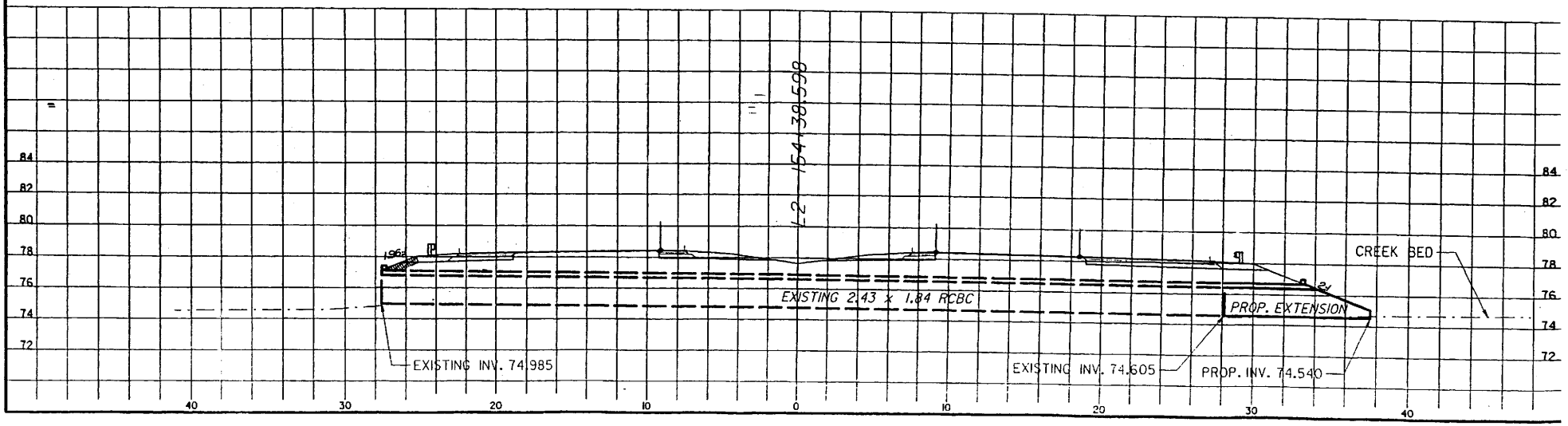

REVISIONS
SITE C-14
DENOTES IMPACTS TO BUFFER ZONE 1
DENOTES IMPACTS TO BUFFER ZONE 2
METRIC
PROJECT REFERENCE NO.
R-2552C
SHEET NO.
11
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
CONST. REV.
R/W REV.
W E LANCASTER DB 1050 PG 607
MATCHLINE -L2- 154+50 SEE SHEET 16
MATCHLINE -L2- 157+80 SEE SHEET 18
-L2- PI Sta. 156+96.50
-L2- SC Sta. 157+76.50
ENDWALL
BORE & JACK 600mm SPIRAL WELDED STEEL (22mm THICK)
SPECIAL DITCH
S 53 53'01" E
FALSE SUMP
ADJUST
AT 2.0 m BASE DITCH
AT 4.0 m BASE DITCH
SPECIAL MEDIAN DITCH
LATERAL 2 METER BASE DITCH
4.0 METER BASE DITCH
VARIABLE BASE DITCH
D.A. = 2.2 ha.
S = 0.75%
SS = 3:1
Q2 = 0.41 cms
V2 = 0.55 M/S
Q10 = 0.54 cms
V10 = 0.61 M/S
DANIEL L HEAVNER DB 1567 PG 31
HAROLD A YOUNG DB 960 PG 657
-L2- GRADE SEE PROFILE SHEET 38
721


SITE C-14
DENOTES IMPACTS TO BUFFER ZONE 1
DENOTES IMPACTS TO BUFFER ZONE 2
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
W E LANCASTER DB 1050 PG 607
DANIEL L HEAVNER DB 1567 PG 38
HAROLD A YOUNG DB 960 PG 657
MATCHLINE -L2- 154+50 SEE SHEET 16
MATCHLINE -L2- 157+80 SEE SHEET 18
-L2- TS Sta. 156+86.540
-L2- SC Sta. 157+76.540
S 53°59'01"E -L2-
BORE & JACK 1500mm SPIRAL WELDED STEEL (22mm THICK)
SPECIAL DITCH
FALSE SUMP
LAT. 2.0 m BASE DITCH
LAT. 3.0 m BASE DITCH
SPECIAL MEDIAN DITCH
LATERAL 2 METER BASE DITCH
2.6 METER BASE DITCH
VARIABLE BASE DITCH
D.A. = 2.2 ha.
S = 0.75%
SS = 3:1
Q2 = 0.41 cms
V2 = 0.55 M/S
Q10 = 0.54 cms
V10 = 0.61 M/S
-L2- GRADE SEE PROFILE SHEET 38
722


SITE C-14
METRIC
PROJECT REFERENCE NO.
R-2552C
SHEET NO.
38
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
CONST. REV.
R/W REV.
PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.
DRAINAGE AREA = 2.5 SQKM
DESIGN FREQUENCY = 50 YRS
DESIGN DISCHARGE = 29 CMS
DESIGN HW ELEVATION = 78.08 M
100 YEAR DISCHARGE = 33 CMS
100 YEAR HW ELEVATION = 78.39 M
OVERTOPPING FREQUENCY = 100 YRS
OVERTOPPING DISCHARGE = 33.8 CMS
OVERTOPPING ELEVATION = 78.43 M
PI = 151+20.000
EL = 79.750 m
VC = 100 m
K = 182
PI = 154+44.000
EL = 78.328 m
VC = 88 m
K = 79
PI = 154+91.198
EL = 80.009 m
Sp DITCH +0.40%
Sp DITCH +0.90%
Sp DITCH -0.43%
Sp DITCH -0.28%
Sp DITCH -0.28%
Sp DITCH -0.28%
10 BASE DITCH -0.28%
2.43x1.84 RCBC
600mm
900mm
1650mm
2.0 BASE DITCH +0.75%
3.0 BASE DITCH +1.36%
3.0 BASE DITCH -1.00%
3.0 BASE DITCH -1.50%
+0.68%
+4.02%
END PROPOSED BRADE BEGIN PROP. 4.0 RETAINING WALL
152+00
153+00
154+00
155+00
156+00
157+00
L2
LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612

SITE C-14

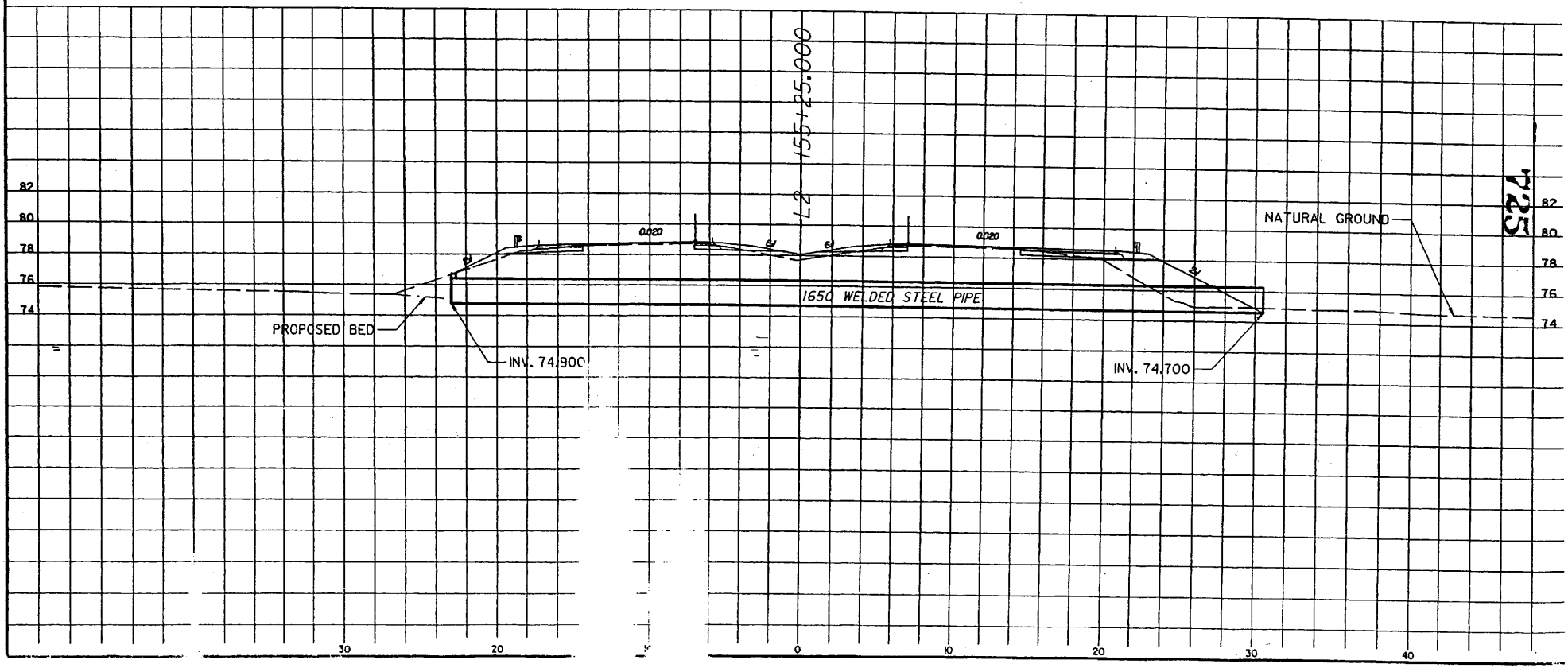
PROFILE OF 2.43 x 1.84 RCBC
-L2- STA. 154+38.598
PLAN SHEETS 16 & 17

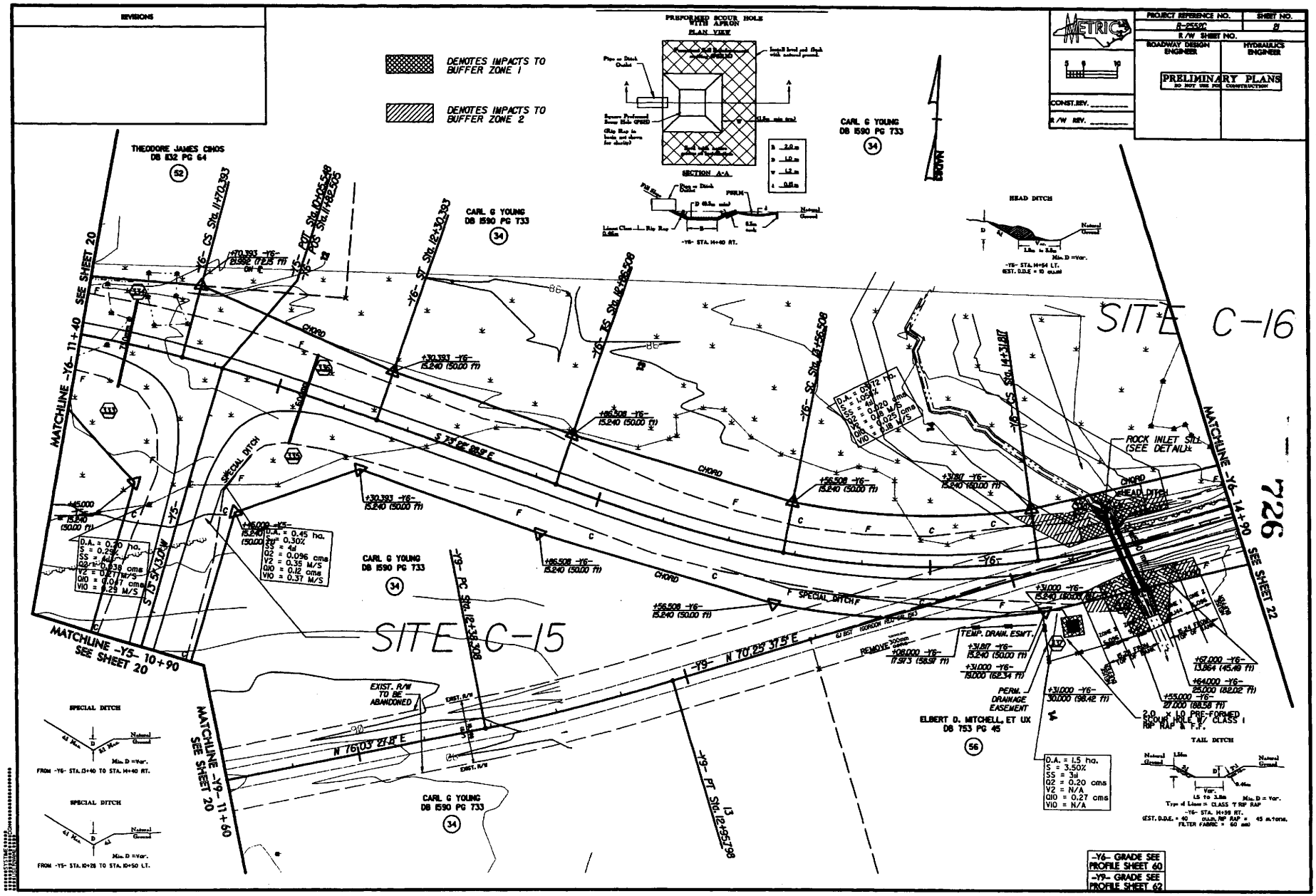


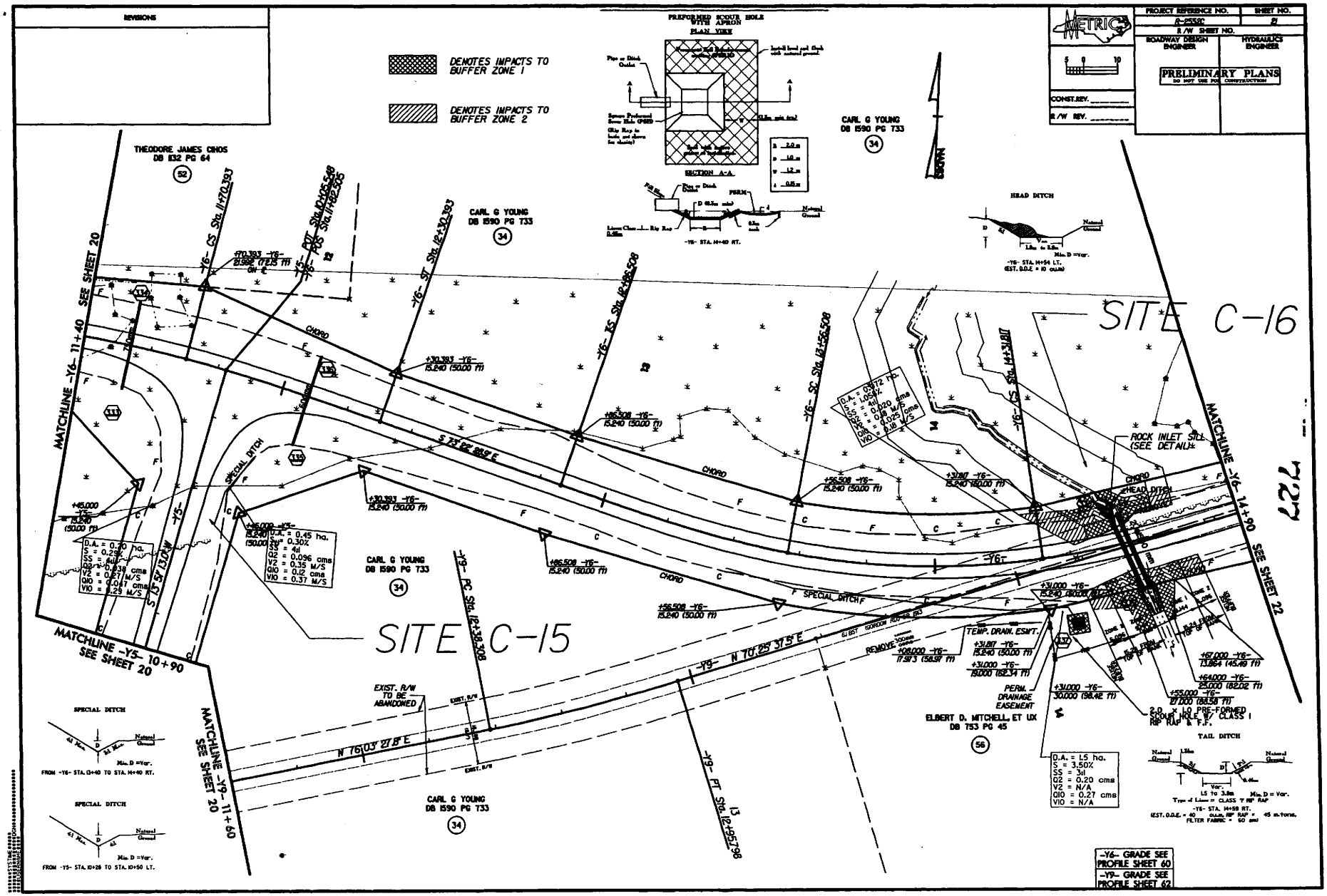
2.0 0 2.0 4	METRIC	PROJECT REFERENCE NO.	SHEET NO.
		R-2552C	PP-4

SITE C-14

PROFILE OF 1650 WELDED STEEL PIPE -L2- STA. 155+25.000 PLAN SHEET 17




REVISIONS
DENOTES IMPACTS TO BUFFER ZONE 1
DENOTES IMPACTS TO BUFFER ZONE 2
PREFORMED SCOUR HOLE WITH APRON
PLAN VIEW
SECTION A-A
PROJECT REFERENCE NO.
R-2559C
SHEET NO.
B
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
NOT TO BE USED FOR CONSTRUCTION
CONST. REV.
R/W REV.
THEODORE JAMES CIMOS
DB 832 PG 64
CARL G YOUNG
DB 1590 PG 733
ELBERT D. MITCHELL, ET UX
DB 753 PG 45
BROWN
HEAD DITCH
SITE C-16
SITE C-15
ROCK INLET SI1
(SEE DETAIL)
TEMP. DRAIN. ESMT.
PERM. DRAINAGE EASEMENT
EXIST. R/W TO BE ABANDONED
REMOVE 300mm RCP
SPECIAL DITCH
TAIL DITCH
MATCHLINE -Y6- 11+40 SEE SHEET 20
MATCHLINE -Y5- 10+90 SEE SHEET 20
MATCHLINE -Y9- 11+60 SEE SHEET 20
MATCHLINE -Y6- 14+90 SEE SHEET 22
-Y6- GRADE SEE PROFILE SHEET 60
-Y9- GRADE SEE PROFILE SHEET 62
726


REVISIONS
DENOTES IMPACTS TO BUFFER ZONE 1
DENOTES IMPACTS TO BUFFER ZONE 2
PREFORMED SCOUR HOLE WITH APRON
PLAN VIEW
SECTION A-A
PROJECT REFERENCE NO.
R-2536C
SHEET NO.
21
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
CONST.REV.
R/W REV.
THEODORE JAMES CIMOS
DB 1132 PG 64
CARL G YOUNG
DB 1590 PG 733
ELBERT D. MITCHELL, ET UX
DB 753 PG 45
MATCHLINE -Y6- 11+40 SEE SHEET 20
MATCHLINE -Y5- 10+90 SEE SHEET 20
MATCHLINE -Y9- 11+60 SEE SHEET 20
MATCHLINE -Y6- 14+90 SEE SHEET 22
-Y6- CS Sta.11+70.393
-Y6- PT Sta.12+05.548
-Y6- PC Sta.11+82.305
-Y6- ST Sta.12+30.393
-Y6- TS Sta.12+56.508
-Y6- SC Sta.14+31.817
-Y6- CS Sta.14+31.817
-Y5- PC Sta.12+38.308
-Y9- PT Sta.12+95.798
S 73°56'38.9" E
N 70°29'31.5" E
N 76°03'21.8" E
S 15°57'50.4" W
CHORD
SPECIAL DITCH
HEAD DITCH
TAIL DITCH
TEMP. DRAIN. ESMT.
PERM. DRAINAGE EASEMENT
EXIST. R/W TO BE ABANDONED
REMOVE EXIST. GUARDRAIL
ROCK INLET STL. (SEE DETAIL)
2.0 x 1.0 PRE-FORMED SCOUR HOLE W/ CLASS I RIP RAP & F.F.
SITE C-15
SITE C-16
-Y6- GRADE SEE PROFILE SHEET 60
-Y9- GRADE SEE PROFILE SHEET 62
727

PROJECT REFERENCE NO. R-2552C | SHEET NO. 60

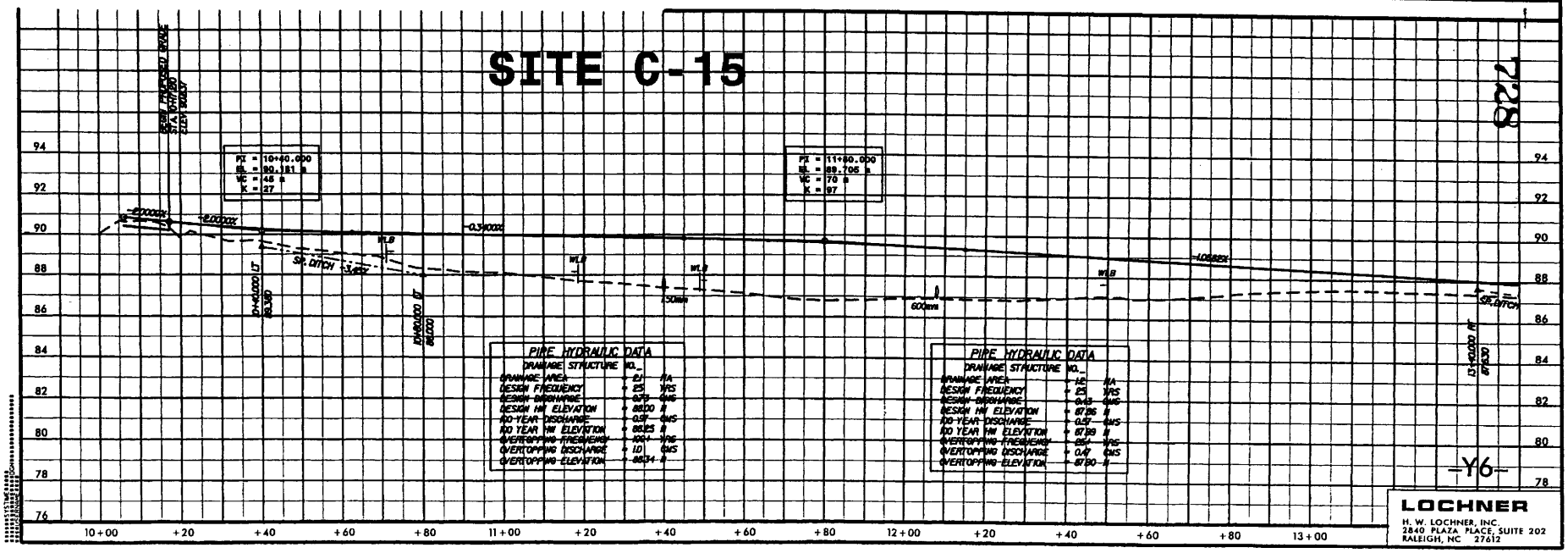
ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST. REV.

R/W REV.

SITE C-15

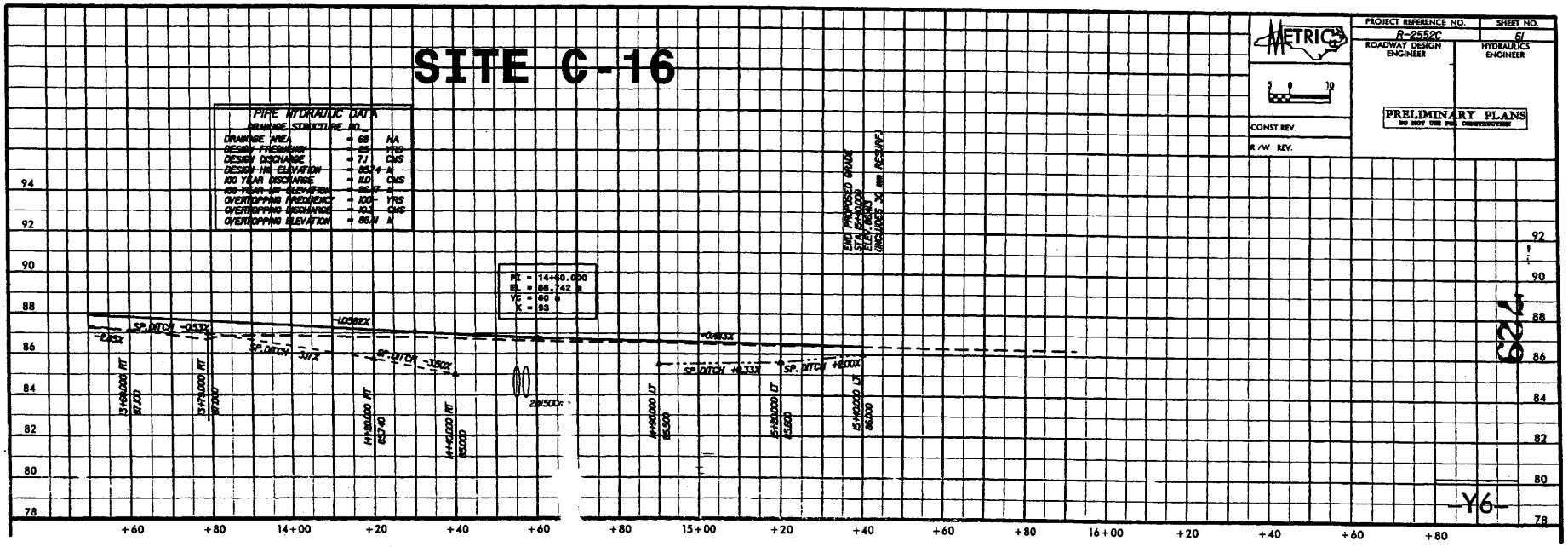


228

-Y6-

LOCHNER
H. W. LOCHNER, INC.
2840 PLAZA PLACE, SUITE 202
RALEIGH, NC 27612

SITE C-16



METRIC

5 0 10

CONST.REV.

R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2552C	61
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

624

-Y6-

2.0 0 2.0 4	METRIC	PROJECT REFERENCE NO.	SHEET NO.
		R-2552C	PP-7

SITE C-16

PROFILE OF DOUBLE 1500 RCP -Y6- STA. 14+56.200 PLAN SHEET 21