STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY PERDUE
GOVERNOR

EUGENE CONTI
SECRETARY

February 3, 2009

MEMORANDUM TO: Mr. Jerry Jennings, PE
Acting Division One Engineer

FROM: Philip S. Harris, III, P.E., Unit Head
Natural Environment Unit
Project Development and Environmental Analysis Branch

SUBJECT: Camden County, Widenig of US 158 from Elizabeth City to the separation of US 158 and NC 34; T.I.P. Number R-2414; Federal Aid Project No. STP-158(2)

Attached are the U.S. Army Corps of Engineers Section 404 Individual Permit, N.C. Division of Water Quality Section 401 Individual Water Quality Certification and N.C. Division Coastal Management CAMA Permit for the above referenced project. All environmental permits have been received for the construction of this project.

A copy of this permit package will be posted on the NCDOT website at: http://www.ncdot.gov/doh/preconstruct/pe/neu/permit.html

PSH/gyb

Attachment

Cc: W/attachment
Mr. Randy Garris, P.E. State Contract Officer
Ms. Beth Harmon, EEP
Mr. Clay Willis, Division Environmental Officer

Cc: W/o attachment (see website for attachments)
Mr. Majed Alghandour, P. E., Programming and TIP
Mr. Jay Bennett, P.E., Roadway Design
Dr. David Chang, P.E., Hydraulics
Mr. Art McMillan, P.E., Highway Design
Mr. Tom Koch, P.E., Structure Design
Mr. Mark Staley, Roadside Environmental
Mr. John F. Sullivan, FHWA
Mr. Ron Hancock, P.E., State Roadway Construction Engineer
Mr. Mike Robinson, P.E., State Bridge Construction Engineer
Mr. Rob Hanson, P.E., PDEA Eastern Region Unit Head

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

TELEPHONE: 919-733-3141
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WEBSITE: WWW.DOH.DOT.STATE.NC.US

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

PROJECT COMMITMENTS:

R-2414, Widening of US 158 from Elizabeth City to the separation of US 158 and NC 34 in Camden County
W.B.S. No. 34430.1.1, Federal Aid Project No. STP-158(2)

Commitments Developed Through Project Development and Design

Roadside Environmental Unit

NCDOT best management practices will be adhered to during construction to minimize negative environmental impacts.

This is a standard NCDOT practice.

Cleared areas will be revegetated as quickly as possible during construction.

This is a standard NCDOT practice.

Special attention will be given to proper installation and maintenance of all erosion and sedimentation control devices.

This is a standard NCDOT practice.

Project Development and Environmental Analysis Branch/ Right of Way/ Division 1

NCDOT has agreed to move the Creekmore Store during the ROW phase of the project and enlisting the help of a moving contractor specializing in historic structures to the rear of its property for mitigation purposes. NCDOT will coordinate with the SHPO prior to construction so that measures will be taken to preserve the historic character of the Creekmore Store.

This work is currently underway by the Right of Way Branch.

Division 1

There will be an in-water work moratorium for both anadromous and resident fisheries for this project from February 15 to June 15.

This environmental commitment will be implemented during construction phase of the project.

Neither waste sites nor borrow sites will be allowed in wetlands.

This environmental commitment will be implemented during construction phase of the project.

To ensure all borrow and waste activities occur on high ground, NCDOT shall require its contractors and/or agents to identify all areas to be used to borrow material, or to dispose of dredged, fill, or waste material. Documentation of the location and characteristics of all borrow and disposal sites associated with the project shall be available to the Corps upon request.

This environmental commitment will be implemented during construction phase of the project.

Roadway Design Unit/ Division 1/ Right of Way Branch

NCDOT will avoid impacting the Sawyer Graveyard.

The Sawyer Graveyard will not be impacted during construction – construction limits have been placed adjacent to the graveyard. NCDOT will mark the graveyard prior to beginning construction activities with orange protective fencing.

NCDOT will avoid impacting the Graveyard located at the intersection of US 158 and SR 1145 (Belcross Road) behind the H & R Block building.

This graveyard is actually located near the intersection of US 158 and NC 343 and is part of R-2414B. NCDOT will move the graveyard prior to beginning construction activities.

Project Development and Environmental Analysis Branch/ Hydraulics Unit/ Structure Design Unit

NCDOT acknowledges the importance of anadromous fish and recognizes the importance of protecting spawning areas. Consequently, NCDOT will coordinate closely with the Division of Marine Fisheries during the design of hydraulic crossings and will adhere to appropriate construction moratoria in these areas.

NCDOT will coordinate with corresponding resource agencies during the design process to identify acceptable types of hydraulics crossings and mitigation.

The NCDOT has coordinated with the environmental agencies to obtain the required concurrence level for this project as set forth in the NEPA/404 merger process. Appropriate hydraulics crossings have been agreed to during approval of design plans. The construction moratorium will be adhered to during construction phase of this project.

Project Development and Environmental Analysis Branch/ Right of Way Branch/ Roadway Design Unit/ Division 1

In accordance with section 4(f) of the National Environmental Policy Act: construction activities in the vicinity of the George Wood Park and the Causeway Park will not permanently affect the functionality, or recreational activities associated with either of the parks. This includes the parking facilities associated with each of the properties.

The current designs have minimized impacts to the two parks. Access to the parks will be maintained during construction.

Commitments Developed During Project Permitting:

Division One Construction Unit:

In accordance with commitments made in your application, mechanized clearing shall not be used for the purpose of clearing vegetation in relocating overhead power lines within jurisdictional wetlands.

Except as noted in Condition #3, the placement of culverts and other structures in waters, streams, and wetlands shall be placed below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow passage of water and aquatic life. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or streambeds or banks, adjacent to or upstream and down stream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by DWQ. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact the NC DWQ for guidance on how to proceed and to determine whether or not a modification to this certification will be required.

The permittee will need to adhere to all appropriate in-water work moratoriums (including the use of pile driving or vibration techniques) prescribed by the NC Wildlife Resources Commission, the US Fish and Wildlife Service, and National Marine Fisheries Service. No in-water work is permitted between February 15 and June 15 of any year, without prior approval from the NC Division of Water Quality and the NC Wildlife Resources Commission. In addition, the permittee shall conform to the NCDOT policy entitled "Stream Crossing Guidelines for Anadromous Fish Passage (May 12, 1997) at all times.

Where the existing culvert at Site 11 on Section A of the project will be removed, the banks shall be graded to match existing bank slopes. Additionally, any open areas shall be planted within two weeks after culvert removal with appropriate vegetation in order to stabilize the banks and surrounding areas.

Bridge piles and bents shall be constructed using driven piles (hammer or vibratory) or drilled shaft construction methods. More specifically, jetting or other methods of pile driving are prohibited unless prior written approval is given by DWQ first.

All pile driving or drilling activities shall be enclosed in turbidity curtains unless otherwise approved by DWQ in this certification.

Turbidity curtains shall be used to isolate all work areas from the stream at UT to Pasquotank River at Site 11, including pile or casement installation, placement of riprap, excavation or filling. Strict adherence to the Construction and Maintenance Best Management Practices will be required.

No utilities shall be relocated into jurisdictional wetland areas.

All fill slopes located in jurisdictional wetlands shall be placed at slopes no flatter than 3:1, unless otherwise authorized by this certification.

The outside buffer, wetland or water boundary located within the construction corridor approved by this certification shall be clearly marked by highly visible fencing prior to any land disturbing activities. Impacts to areas within the fencing are prohibited unless otherwise authorized by this certification.

All pipe and culvert bottoms shall be buried at least one foot below normal bed elevation when they are placed within the Public Trust Area of Environmental Concern (AEC) as designated by the Coastal Area Management Act (CAMA). Culverts placed in wetlands are not subject to this burial requirement.

In accordance with commitments made by the permittee, all clearing within wetlands shall be accomplished by hand clearing only. Any other method of clearing within wetlands shall require additional approval from the Division.

Construction or removal of the temporary construction sheeting is prohibited while the moratorium referenced in Condition No. 2 of the CAMA permit is in effect without prior approval of the Division, in consultation with WRC.

The bridge shall be constructed using staged construction or top down construction methodologies. Any other construction method shall require additional authorization from the Division.

The installation practice for the bridge piles and temporary construction sheeting shall be accomplished by driving and/or vibratory hammer. Should the permittee and/or its contractor determine that another type of installation, such as jetting or drilled shaft construction, is preferred, additional authorization from DCM shall be required.

Turbidity curtains and silt fences shall be used to isolate all work areas from the tributary to the Pasquotank River at Site 11 on R-2414A, including installation of bridge piles and temporary construction sheeting, placement of riprap, excavation or filling. The turbidity curtains shall be installed parallel to the banks on each side of the tributary. The turbidity curtains shall extend past the construction limits and be attached to the silt fences containing the work site. The turbidity curtains shall be of sufficient length and effectiveness to prevent a visible increase in the amount of suspended sediments in adjacent waters. The turbidity curtains shall not fully encircle the work area or extend across the tributary. The turbidity curtains shall be properly maintained and retained in the water until construction is complete and all of the work area contained by the turbidity curtains has been stabilized by vegetation or other means. The turbidity curtains shall be removed when turbidity within the curtains reaches ambient levels.

The 10" water line at Site 11 on R-2414 A shall be relocated by directional boring. All utilities shall be relocated aerially. Entry and exit points of the directional boring activity, including

disposal of material from the drilling activity, shall be outside of all wetlands and Waters of the State.

No attempt shall be made by the permittee to prevent the full and free use by the public of Causeway Park, George M. Wood Memorial Park and all navigable waters at or adjacent to the authorized work following completion of construction activities.

During project construction, the permittee shall make every attempt to maintain use by the public of Causeway Park, George M. Wood Memorial Park and all navigable waters at or adjacent to the authorized work. If this is not possible, then adequate notice shall be provided to the public that use of Causeway Park, George M. Wood Memorial Park and/or all navigable waters at or adjacent to the authorized work will be limited during construction. The notice shall include an estimate of the amount of time that the limited use will occur.

Natural Environment Unit

Compensatory mitigation for impacts to 4.36 acres of wetlands is required. We understand that you have chosen to perform compensatory mitigation for impacts to wetlands through the North Carolina Ecosystem Enhancement Program (EEP), and that the EEP has agreed to implement the mitigation for the project. EEP has indicated in a letter dated July 14, 2008 that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with the Tri-Party MOA signed on July 22, 2003 and the Dual-Party MOA signed on April 12, 2004.

Impacts to wetlands and Waters of the State due to this project are as follows:
CAMA Coastal Wetlands: Permanent impacts of approximately 0.06 acres due to fill; temporary impacts of approximately 0.07 acres due to hand clearing for the roadway work; and temporary impacts of approximately 0.18 acres due to hand clearing for utility work. (Within the hand clearing areas, approximately 0.02 acres will also be temporarily impacted by erosion control measures for the roadway work.) NDCOT shall debit 0.6 acres of CAMA Coastal Wetland restoration credits from the Balance Farm Mitigation Site in Currituck County.
Riparian wetlands: Permanent impacts of approximately 4.29 acres (4.19 acres due to fill and 0.10 acres due to excavation); temporary impacts of approximately 3.73 acres due to hand clearing for the roadway work; and temporary impacts of approximately 6.43 acres due to hand clearing for utility work. (Within the hand clearing areas, approximately 0.77 acres will also be temporarily impacted by erosion control measures for the roadway work.)
Streams: Permanent impacts of approximately 297 linear feet; and temporary impacts of approximately 174 linear feet.
Surface waters: Permanent impacts of approximately 0.11 acres; and temporary impacts of approximately 0.11 acres.

In accordance with the Ecosystem Enhancement Program (EEP) letter dated 7/14/08, compensatory mitigation for permanent impacts of 4.35 acres of riparian wetlands and 247 linear feet of stream associated with the authorized project shall be provided by the EEP. In accordance with the permit application, compensatory mitigation for permanent stream impacts

associated with the authorized project also includes on-site mitigation for 50 linear feet of stream impacts at the culvert-to-bridge replacement location at Site 11 within TIP No. R-2414A.

Due to the possibility that compaction, mechanized clearing and/or other site alterations might prevent the temporary Coastal Wetland impact areas from re-attaining pre-project wetland functions, the permittee shall provide an annual update on the Coastal Wetland areas temporarily impacted by this project. This annual update shall consist of photographs and a brief written report on the progress of these temporarily impacted areas in re-attaining their pre-project wetland functions. Within three years after project completion, the permittee shall hold an agency field meeting with DCM to determine if the Coastal Wetland areas temporarily impacted by this project have re-attained pre-project wetland functions. If at the end of three years DCM determines that the Coastal Wetland areas temporarily impacted by the project have not re-attained pre-project wetland functions, DCM will determine whether compensatory wetland mitigation shall be required.

Human Environment Unit/ Division One Construction Unit

Project construction shall not commence for section B of the project until NCDOT has completed all the requirements and implemented the stipulations agreed to by NCDOT, State Historic Preservation Office (SHPO) and the Federal Highway Administration (FHWA) regarding the relocation of the Creekmore Store which is to be relocated to the rear of the property away from US 158/NC 34.

NCDOT will avoid impacting the Sawyer Graveyard. NCDOT will mark the graveyard prior to beginning construction activities with orange protective fencing.

In accordance with Environmental Commitments contained within the Finding of No Significant Impact and Programmatic Section 4(f) Evaluations dated 7/13/98, the permittee shall move the Creekmore Store to the rear of its property for mitigation purposes. The permittee shall coordinate with the State Historic Preservation Officer prior to construction so that measures are taken to preserve the historic character of the Creekmore Store.

In accordance with Environmental Commitments contained within the Finding of No Significant Impact and Programmatic Section 4(f) Evaluations dated 7/13/98, the permittee shall avoid impacting the Sawyer Graveyard.

Permit Class
NEW

Permit Number
03-09

STATE OF NORTH CAROLINA
Department of Environment and Natural Resources
and
Coastal Resources Commission

Permit

for

X Major Development in an Area of Environmental Concern pursuant to NCGS 113A-118

X Excavation and/or filling pursuant to NCGS 113-229

Issued to **N.C. Department of Transportation, 1598 Mail Service Center, Raleigh, NC 27699-1598**

Authorizing development in Camden County at unnamed tributary to the Pasquotank River, US 158 widening , as requested in the permittee's application dated 10/14/08 (MP-1 and MP-2) and 10/24/08 (MP-5), including the attached workplan drawings (121) as referenced in Condition No. 1 of this permit.

This permit, issued on **1/12/09** , is subject to compliance with the application (where consistent with the permit), all applicable regulations, special conditions and notes set forth below. Any violation of these terms may be subject to fines, imprisonment or civil action; or may cause the permit to be null and void.

TIP No. R-2414, Roadway Widening

1) All work authorized by this permit shall be carried out in accordance with the following attached workplan drawing(s), except as modified herein.

Permit drawings (R-2414A): 22 sheets dated 6/18/08; 6 sheets dated 3/3/08; 3 sheets undated
Permit drawings (R-2414B): 2 sheets dated 6/20/08; 3 sheets dated 4/21/08; 18 sheets dated 6/18/08; 3 sheets undated; 5 sheets dated 6/16/08
Utility drawings (R-2414A): 12 sheets dated 4/7/08; 1 sheet dated 7/3/08
Utility drawings (R-2414B): 12 sheets dated 5/14/08; 2 sheets dated 7/3/08
Roadway Design drawings (R-2414A): 17 sheets dated 2/22/08; 1 sheet dated 3/4/08
Roadway Design drawings (R-2414B): 13 sheets dated 5/13/08; 1 sheet dated 5/14/08

(See attached sheets for Additional Conditions)

This permit action may be appealed by the permittee or other qualified persons within twenty (20) days of the issuing date. An appeal requires resolution prior to work initiation or continuance as the case may be.

This permit must be accessible on-site to Department personnel when the project is inspected for compliance.

Any maintenance work or project modification not covered hereunder requires further Division approval.

All work must cease when the permit expires on

No expiration date, pursuant to GS 136-44.7B

In issuing this permit, the State of North Carolina agrees that your project is consistent with the North Carolina Coastal Management Program.

Signed by the authority of the Secretary of DENR and the Chairman of the Coastal Resources Commission.

Douglas V Huggett for

James H. Gregson, Director
Division of Coastal Management

This permit and its conditions are hereby accepted.

E. L. Lusk

Signature of Permittee

ADDITIONAL CONDITIONS

2) In accordance with commitments made by the permittee, no in-water work shall be conducted between February 15th to June 15th of any year without prior approval of the N.C. Division of Coastal Management (DCM), in consultation with the N.C. Wildlife Resources Commission (WRC).

3) All pipe and culvert bottoms shall be buried at least one foot below normal bed elevation when they are placed within the Public Trust Area of Environmental Concern (AEC) as designated by the Coastal Area Management Act (CAMA). Culverts placed in wetlands are not subject to this burial requirement.

4) Wetlands shall not be crossed in transporting equipment to the project site, without prior approval from DCM.

5) Fill slopes in wetlands and Waters of the State shall be 3:1 or steeper.

6) In accordance with commitments made by the permittee, all clearing within wetlands shall be accomplished by hand clearing only. Any other method of clearing within wetlands shall require additional approval from the Division.

7) There shall be no clearing of wetlands outside of the areas indicated on the attached workplan drawings, without prior approval from the Division.

8) No excavation shall take place at any time in any vegetated wetlands or surrounding waters outside of the alignment of the areas indicated on the attached workplan drawings, without permit modification.

9) Material excavated may be used in fill areas associated with the project once properly dewatered or shall be removed from the site and taken to a high ground location.

10) The temporary placement or double handling of excavated and/or fill materials within waters or vegetated wetlands is not authorized.

11) No excavated or fill material shall be placed at any time in any vegetated wetlands or surrounding waters outside of the alignment of the fill area indicated on the attached workplan drawings.

12) All excavated materials shall be confined above normal water level and landward of regularly or irregularly flooded wetlands behind adequate dikes or other retaining structures to prevent spillover of solids into any wetlands or surrounding waters.

13) All fill material shall be clean and free of any pollutants, except in trace quantities.

14) Placement of riprap shall be limited to the areas as depicted on the attached workplan drawings. The riprap material shall be free from loose dirt or any pollutant. The riprap material shall consist of clean rock or masonry materials such as but not limited to granite or broken concrete.

15) Live concrete shall not be allowed to contact the water in or entering into tributaries of the Pasquotank River, or the adjacent wetlands.

16) Construction staging areas shall be located only in upland areas, and not in wetlands or Waters of the State.

ADDITIONAL CONDITIONS

17) All materials and debris associated with the removal and/or construction of the existing and/or new bridge (including deck components), culverts, roadway asphalt, other existing structures within the Right-of-Way as authorized by this permit and associated materials shall not enter wetlands or Waters of the State, even temporarily. Any such material shall be disposed of at an approved upland site or shall be recycled in an environmentally appropriate manner provided appropriate authorizations from any relevant state, federal, or local authorities are obtained.

18) Unless specifically altered herein, any mitigative measures or environmental commitments specifically made by the permittee in the CAMA permit application and/or the Environmental Assessment and Programmatic Section 4(f) Evaluations dated 8/29/97, shall be implemented, regardless of whether or not such commitments are addressed by individual conditions of this permit.

Bridge Construction

19) Construction or removal of the temporary construction sheeting is prohibited while the moratorium referenced in Condition No. 2 of this permit is in effect without prior approval of the Division, in consultation with WRC.

20) The bridge shall be constructed using top down construction methodologies. Any other construction method shall require additional authorization from the Division.

21) The installation practice for the bridge piles and temporary construction sheeting shall be accomplished by driving and/or vibratory hammer. Should the permittee and/or its contractor determine that another type of installation, such as jetting or drilled shaft construction, is preferred, additional authorization from DCM shall be required.

22) The permittee did not propose the use of deck drains in the permit application package. Any future proposal to utilize deck drains shall require additional authorization from DCM.

Compensatory Mitigation

NOTE: Impacts to wetlands and Waters of the State due to this project are as follows:

- **CAMA Coastal Wetlands**: Permanent impacts of approximately 0.06 acres due to fill; temporary impacts of approximately 0.07 acres due to hand clearing for the roadway work; and temporary impacts of approximately 0.18 acres due to hand clearing for utility work. (Within the hand clearing areas, approximately 0.02 acres will also be temporarily impacted by erosion control measures for the roadway work.)
- **Riparian wetlands**: Permanent impacts of approximately 4.29 acres (4.19 acres due to fill and 0.10 acres due to excavation); temporary impacts of approximately 3.73 acres due to hand clearing for the roadway work; and temporary impacts of approximately 6.43 acres due to hand clearing for utility work. (Within the hand clearing areas, approximately 0.77 acres will also be temporarily impacted by erosion control measures for the roadway work.)
- **Streams:** Permanent impacts of approximately 297 linear feet; and temporary impacts of approximately 174 linear feet.
- **Surface waters:** Permanent impacts of approximately 0.11 acres; and temporary impacts of approximately 0.11 acres.

ADDITIONAL CONDITIONS

NOTE: In accordance with the Ecosystem Enhancement Program (EEP) letter dated 7/14/08, compensatory mitigation for permanent impacts of 4.35 acres of riparian wetlands and 247 linear feet of stream associated with the authorized project shall be provided by the EEP. In accordance with the permit application, compensatory mitigation for permanent stream impacts associated with the authorized project also includes on-site mitigation for 50 linear feet of stream impacts at the culvert-to-bridge replacement location at Site 11 within TIP No. R-2414A.

23) The permittee shall develop a compensatory mitigation plan for permanent impacts to 0.06 acres (approximately 2,614 square feet) of CAMA Coastal Wetlands as defined by 15A NCAC 07H .0205. The compensatory mitigation plan shall include a minimum of 1:1 restoration of CAMA Coastal Wetlands as defined by 15A NCAC 07H .0205. The mitigation shall be in-kind, i.e. the targeted species composition of the restored wetlands shall approximate the species composition of the impacted wetlands. The mitigation shall be implemented and in place within 3 years of the issuance of this permit. The CAMA coastal wetland species impacted by this project are *Scirpus* and *Typha*.

24) Due to the possibility that compaction, mechanized clearing and/or other site alterations might prevent the temporary Coastal Wetland impact areas from re-attaining pre-project wetland functions, the permittee shall provide an annual update on the Coastal Wetland areas temporarily impacted by this project. This annual update shall consist of photographs and a brief written report on the progress of these temporarily impacted areas in re-attaining their pre-project wetland functions. Within three years after project completion, the permittee shall hold an agency field meeting with DCM to determine if the Coastal Wetland areas temporarily impacted by this project have re-attained pre-project wetland functions. If at the end of three years DCM determines that the Coastal Wetland areas temporarily impacted by the project have not re-attained pre-project wetland functions, DCM will determine whether compensatory wetland mitigation shall be required.

Sedimentation and Erosion Control

25) Turbidity curtains and silt fences shall be used to isolate all work areas from the tributary to the Pasquotank River at Site 11 on R-2414A, including installation of bridge piles and temporary construction sheeting, placement of riprap, excavation or filling. The turbidity curtains shall be installed parallel to the banks on each side of the tributary. The turbidity curtains shall extend past the construction limits and be attached to the silt fences containing the work site. The turbidity curtains shall be of sufficient length and effectiveness to prevent a visible increase in the amount of suspended sediments in adjacent waters. The turbidity curtains shall not fully encircle the work area or extend across the tributary. The turbidity curtains shall be properly maintained and retained in the water until construction is complete and all of the work area contained by the turbidity curtains has been stabilized by vegetation or other means. The turbidity curtains shall be removed when turbidity within the curtains reaches ambient levels.

26) The permittee shall follow "Best Management Practices for the Protection of Surface Waters".

27) This project shall conform to all requirements of the NC Sedimentation Pollution Control Act and NC DOT's Memorandum of Agreement with the Division of Land Resources.

28) In order to protect water quality, runoff from construction shall not visibly increase the amount of suspended sediments in adjacent waters.

ADDITIONAL CONDITIONS

29) Appropriate sedimentation and erosion control devices, measures or structures shall be implemented to ensure that eroded materials do not enter adjacent wetlands, watercourses and property (e.g. silt fence, diversion swales or berms, etc.).

Stormwater Management

30) The N.C. Division of Water Quality (DWQ) confirmed in a letter dated 11/21/08 that the subject project is excluded from State Stormwater permitting requirements as set forth in Section 2(d)(1) of Session Law 2008-211, effective October 1, 2008, and the stormwater rules under Title 15A NCAC 2H .1000, as amended.

Historical and Cultural Resource Protection

31) In accordance with Environmental Commitments contained within the Finding of No Significant Impact and Programmatic Section 4(f) Evaluations dated 7/13/98, the permittee shall move the Creekmore Store to the rear of its property for mitigation purposes. The permittee shall coordinate with the State Historic Preservation Officer prior to construction so that measures are taken to preserve the historic character of the Creekmore Store.

32) In accordance with Environmental Commitments contained within the Finding of No Significant Impact and Programmatic Section 4(f) Evaluations dated 7/13/98, the permittee shall avoid impacting the Sawyer Graveyard.

General

33) Any relocation of utility lines that is not specifically depicted on the attached workplan drawing(s), or specifically described within the attached permit application, shall require approval from DCM, either under the authority of this permit, or by the utility company obtaining separate authorization.

34) Directional boring shall not be used for utility relocations. All utilities shall be relocated aerially.

35) No attempt shall be made by the permittee to prevent the full and free use by the public of Causeway Park, George M. Wood Memorial Park and all navigable waters at or adjacent to the authorized work following completion of construction activities.

36) During project construction, the permittee shall make every attempt to maintain use by the public of Causeway Park, George M. Wood Memorial Park and all navigable waters at or adjacent to the authorized work. If this is not possible, then adequate notice shall be provided to the public that use of Causeway Park, George M. Wood Memorial Park and/or all navigable waters at or adjacent to the authorized work will be limited during construction. The notice shall include an estimate of the amount of time that the limited use will occur.

37) The permittee shall exercise all available precautions in the day-to-day operation of the facility to prevent waste from entering the adjacent wetlands and Waters of the State.

ADDITIONAL CONDITIONS

38) If it is determined that additional permanent and/or temporary impacts (such as but not limited to temporary access roads or detours) are necessary that are not shown on the attached workplan drawings or described in the authorized permit application, a permit modification and/or additional authorization from DCM shall be required. In addition, any changes in the approved plan, such as the removal of Underground Storage Tanks, may also require a permit modification and/or additional authorization from DCM. The permittee shall contact a representative of DCM prior to commencement of any such activity for this determination and any permit modification.

39) Development authorized by this permit shall only be conducted within NCDOT Right-of-Ways and/or easements.

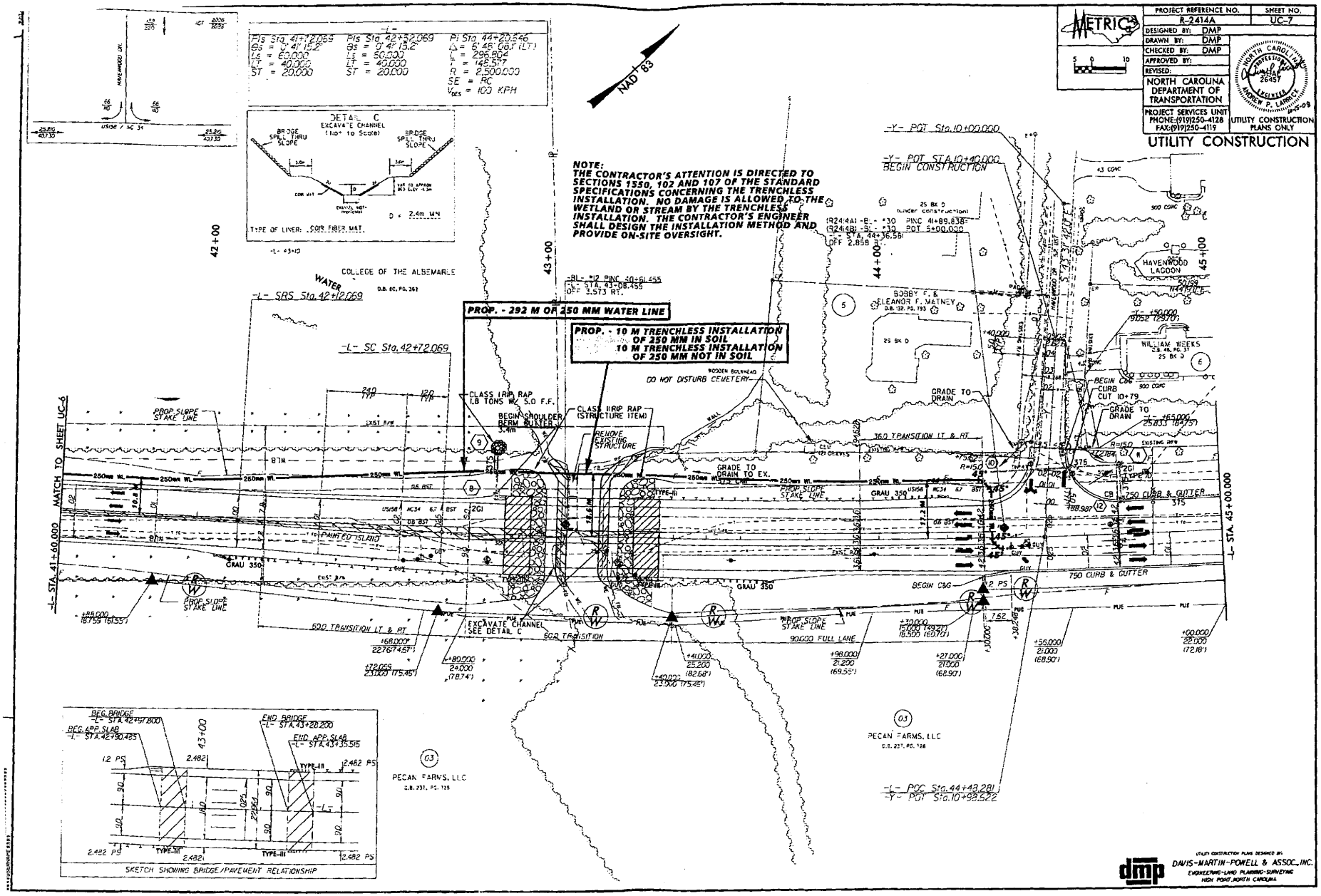
40) The permittee and/or his contractor shall contact the DCM Transportation Project Coordinator in Elizabeth City at (252) 264-3901 to request a preconstruction conference prior to project initiation.

41) The N.C. Division of Water Quality has authorized the proposed project under Water Quality Certification No. 003774 (DWQ Project No. 20081602), which was issued on 12/18/08. Any violation of the Certification approved by DWQ shall be considered a violation of this CAMA permit.

42) Approval from the N.C. Division of Environmental Health Public Water Supply Plan Review Section is required for the relocation/modification of existing water mains prior to construction. If NCDOT specifications are to be used, only plan submittal and approval is required.

NOTE: The U.S. Army Corps of Engineers has assigned the proposed project COE Action ID. No. 199402124.

NOTE: This permit does not eliminate the need to obtain any additional state, federal or local permits, approvals or authorizations that may be required.


METRIC
PROJECT REFERENCE NO. R-2414A
SHEET NO. UC-7
DESIGNED BY: DMP
DRAWN BY: DMP
CHECKED BY: DMP
APPROVED BY:
REVISED:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
PROJECT SERVICES UNIT
PHONE:(919)250-4128
FAX:(919)250-4119
UTILITY CONSTRUCTION PLANS ONLY
UTILITY CONSTRUCTION
NAD 83
-L- PI Sta 41+20.089 Ds = 0°41'15.2" Lc = 60.000 Lt = 40.000 ST = 20.000
-L- PI Sta 42+52.069 Ds = 0°41'15.2" Lc = 50.000 Lt = 40.000 ST = 20.000
-L- PI Sta 44+20.546 Δ = 6°48'08.1" (LT) L = 296.604 T = 148.517 R = 2,500.000 SE = RC V_DES = 100 KPH
DETAIL C EXCAVATE CHANNEL (Not To Scale)
BRIDGE SPILL THRU SLOPE
TYPE OF LINER: COIR FIBER MAT.
NOTE: THE CONTRACTOR'S ATTENTION IS DIRECTED TO SECTIONS 1550, 102 AND 107 OF THE STANDARD SPECIFICATIONS CONCERNING THE TRENCHLESS INSTALLATION. NO DAMAGE IS ALLOWED TO THE WETLAND OR STREAM BY THE TRENCHLESS INSTALLATION. THE CONTRACTOR'S ENGINEER SHALL DESIGN THE INSTALLATION METHOD AND PROVIDE ON-SITE OVERSIGHT.
PROP. - 292 M OF 250 MM WATER LINE
PROP. - 10 M TRENCHLESS INSTALLATION OF 250 MM IN SOIL
10 M TRENCHLESS INSTALLATION OF 250 MM NOT IN SOIL
-L- POT Sta.10+00.000
-Y- POT STA.10+40.000 BEGIN CONSTRUCTION
-L- STA. 44+36.581 OFF 2.858
-L- SRS Sta.42+12.069
-L- SC Sta.42+72.069
-L- POC Sta.44+43.281
-Y- POT Sta.10+98.522
-L- STA. 41+60.000 MATCH TO SHEET UC-6
-L- STA. 45+00.000
COLLEGE OF THE ALBEMARLE D.B. 80, PG. 362
BOBBY C. & ELEANOR F. MATNEY D.B. 132, PG. 793
WILLIAM WEEKS D.B. 48, PG. 37
HAVENWOOD LAGOON
PECAN FARMS, LLC D.B. 237, PG. 125
CLASS I RIP RAP 18 TONS W. 5.0 F.F.
CLASS II RIP RAP (STRUCTURE ITEM)
BEGIN SHOULDER BERM GUTTER
REMOVE EXISTING STRUCTURE
DO NOT DISTURB CEMETERY
WOODEN BULKHEAD
GRADE TO DRAIN
GRADE TO DRAIN TO EX.
PROP SLOPE STAKE LINE
EXCAVATE CHANNEL SEE DETAIL C
50D TRANSITION LT & RT
36.0 TRANSITION LT & RT
90.000 FULL LANE
750 CURB & GUTTER
BEGIN C&G
PAINTED ISLAND
GRAU 350
SKETCH SHOWING BRIDGE/PAVEMENT RELATIONSHIP
BEG. BRIDGE -L- STA. 42+97.800
BEG. APP SLAB -L- STA. 42+90.485
END BRIDGE -L- STA. 43+28.200
END APP SLAB -L- STA. 43+35.515
UTILITY CONSTRUCTION PLANS DESIGNED BY:
DAVIS-MARTIN-POWELL & ASSOC., INC.
ENGINEERING-LAND PLANNING-SURVEYING
HIGH POINT, NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
R-2414A	UC-8

DESIGNED BY: DMP
DRAWN BY: DMP
CHECKED BY: DMP
APPROVED BY:
REVISED:

HORIZONTAL 5 0 10
VERTICAL 1 0 2

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
PROJECT SERVICES UNIT
PHONE-(919)250-4128
FAX:(919)250-4119

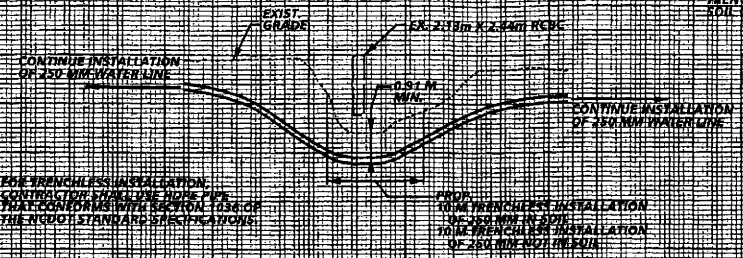
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 26457 ANDREW P. LARKEY 10-14-04

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

NOTES:
1) THE CONTRACTOR'S ATTENTION IS DIRECTED TO SECTIONS 1550, 703 AND 107 OF THE STANDARD SPECIFICATIONS CONCERNING THE TRENCHLESS INSTALLATION. NO DAMAGE IS ALLOWED TO THE WETLAND OR STREAM BY THE TRENCHLESS INSTALLATION. THE CONTRACTOR'S ENGINEER SHALL DESIGN THE INSTALLATION METHOD AND PROVIDE ON SITE OVERSIGHT.

2) THIS PROFILE IS INTENDED TO SERVE AS A GENERAL GUIDE ONLY. ACTUAL DEPTH AND GRADE OF TRENCHLESS INSTALLATION MAY VARY BASED ON SOIL CONDITIONS.



TRENCHLESS WATER MAIN INSTALLATION NEAR PROPOSED BRIDGE AT -L- STA 43+00

42 +20 +40 +60 +80 43 +20 +40 +60 +80 44

UTILITY CONSTRUCTION PLANS DESIGNED BY:
dmp DAVIS-MARTIN-POWELL & ASSOC., INC.
ENGINEERING-LAND PLANNING-SURVEYING
HIGH POINT, NORTH CAROLINA

NCDENR
North Carolina Department of Environment and Natural Resources
Division of Coastal Management
Beverly Eaves Perdue, Governor
James H. Gregson, Director
Dee Freeman, Secretary

January 21, 2009

Gregory J. Thorpe, Ph.D.
Project Development and Environmental Analysis
N.C. Department of Transportation
1598 Mail Service Center
Raleigh, NC 27699-1548

RE: Letter of Refinement, CAMA Major Development Permit No. 03-09, Widening of US 158/NC 34 from East of Pasquotank River to the US 158/NC 34 split, Camden County, TIP No. R-2414.

Dear Dr. Thorpe:

This letter is in response to the N.C. Department of Transportation's (NCDOT's) attached e-mail dated 1/14/09 and attached memorandum dated 1/16/09, including the attached workplan drawings (2): 1 dated 10/14/08; and 1 dated 10/15/08.

Please be advised that through this **Letter of Refinement,** DCM conveys its determination that the above referenced request is consistent with existing State rules and regulations and is in keeping with the original purpose and intent of CAMA Permit No. 03-09 with the following conditions:

1. Condition Number 34 is hereby modified as follows: "34) The 10" water line at Site 11 on R-2414A shall be relocated by directional boring. All other utilities shall be relocated aerially."

2. Entry and exit points of the directional boring activity, including disposal of material from the drilling activity, shall be outside of all wetlands and Waters of the State.

3. NCDOT shall debit 0.6 acres of CAMA Coastal Wetland restoration credits from the Ballance Farm Mitigation Site in Currituck County.

4. Condition Number 20 is hereby modified as follows: "The bridge shall be constructed using staged construction or top down construction methodologies. Any other construction method shall require additional authorization from the Division."

5. This Letter of Refinement does not eliminate the need to obtain any additional state, federal or local permits, approvals or authorizations that may be required.

6. This Letter of Refinement shall be attached to the original of CAMA Permit No. 03-09, which was issued on 1/12/09, and both documents shall be readily available on site when a N.C. Division of Coastal Management (DCM) representative inspects the project for compliance.

7. All conditions and stipulations of the active permit remain in force under this Letter of Refinement unless altered herein.

Please contact Jim Hoadley or Cathy Brittingham if you have any questions or concerns. Jim can be reached at (252) 264-3901 or via e-mail at Jim.Hoadley@ncmail.net. Cathy can be reached at (919) 733-2293 x238 or via e-mail at Cathy.brittingham@ncmail.net.

Sincerely,

Doug Huggett

Doug Huggett
Major Permits and Consistency Coordinator

Cc: Michael Turchy, NCDOT
Bill Biddlecome, USACE
David Wainwright, NCDWQ
Garcy Ward, DWQ
Beth Harmon, EEP
Jim Hoadley, DCM
Cathy Brittingham, DCM

COPY

DEPARTMENT OF THE ARMY PERMIT

Permittee **North Carolina Department of Transportation, Dr. Gregory Thorpe**

Permit No. **SAW 1994-02124**

Issuing Office **CESAW-RG-W**

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description: **The proposed TIP project R-2414 A & B involves the widening of an existing two lane road facility to a multi-lane facility for approximately 5.5 miles. The project would permanently impact 4.35 acres of wetlands, 0.11 acres of surface waters and 296 linear feet of stream. The project would temporarily impact 10.41 acres of wetlands and 174 linear feet of stream.**

Project Location: **This project is located along US 158/NC 34 just east of the Pasquotank River to the US 158/NC 34 split in Belcross, adjacent to the Pasquotank River and unnamed tributaries to the Pasquotank River and Sawyers Creek in Camden County, North Carolina.**

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on **December 31, 2013.** If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit,

Special Conditions:

SEE ATTACHED SPECIAL CONDITIONS

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

( ) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

(X) Section 404 of the Clean Water Act (33 U.S.C. 1344).

( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit, unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

E. L. Lusk — Jan 15, 2009

(PERMITTEE) **North Carolina Department of Transportation,** *(DATE)*

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

(DISTRICT ENGINEER) **JEFFERSON M. RYSCAVAGE, COLONEL** *(DATE)*

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

(TRANSFEREE) *(DATE)*

*U.S. GOVERNMENT PRINTING OFFICE: 1986 - 717-425

SPECIAL CONDITIONS (Action ID. 199402124; NCDOT/TIP R-2414A&B)

COMPLIANCE WITH PLANS

a) All work must be performed in strict compliance with the attached plans, which are a part of this permit. Any modification to the permit plans must be approved by the USACE prior to implementation.

ACTIVITIES NOT AUTHORIZED

b) Except as authorized by this permit or any USACE approved modification to this permit, no excavation, fill, or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, within waters or wetlands, nor shall any activities take place that cause the degradation of waters or wetlands. In addition, except as specified in the plans attached to this permit, no excavation, fill or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, in such a manner as to impair normal flows and circulation patterns within, into, or out of waters or wetlands or to reduce the reach of waters or wetlands.

This permit does not authorize temporary placement or double handling of excavated or fill material within jurisdictional waters, including wetlands, outside the permitted area. Additionally, no construction materials or equipment will be placed or stored within jurisdictional waters, including wetlands.

CONSTRUCTION PLANS

c) The permittee will ensure that the construction design plans for this project do not deviate from the permit plans attached to this authorization. Written verification shall be provided that the final construction drawings comply with the attached permit drawings prior to any active construction in waters of the United States, including wetlands. Any deviation in the construction design plans will be brought to the attention of the Corps of Engineers, Washington Regulatory Field Office prior to any active construction in waters or wetlands.

d) Prior to commencing construction within jurisdictional waters of the United States for any portion of the proposed project, the permittee shall forward the latest version of project construction drawings to the Corps of Engineers, Washington Regulatory Field Office NCDOT Regulatory Project Manager. Half-size drawings will be acceptable.

POLLUTION SPILLS

e) All mechanized equipment will be regularly inspected and maintained to prevent contamination of waters and wetlands from fuels, lubricants, hydraulic fluids, or other toxic materials. No equipment staging or storage of construction material will occur in

wetlands. Hydro-seeding equipment will not be discharged or washed out into any surface waters or wetlands. In the event of a spill of petroleum products or any other hazardous waste, the permittee shall immediately report it to the N.C. Division of Water Quality at (919) 733-5083 or (800) 662-7956 and provisions of the North Carolina Oil Pollution and Hazardous Substances Control Act will be followed.

NOTIFICATION

f) The permittee shall advise the Corps in writing at least two weeks prior to beginning the work authorized by this permit and again upon completion of the work authorized by this permit.

CLEAN FILL MATERIAL

g) Unless otherwise authorized by this permit, all fill material placed in waters or wetlands shall be generated from an upland source and will be clean and free of any pollutants except in trace quantities. Metal products, organic materials (including debris from land clearing activities), or unsightly debris will not be used.

IN-WATER MORATORIUM

h) A construction moratorium for anadromous and resident fisheries from February 15 through June 15 of any year will be adhered to for in-water work.

i) The permittee will follow NCDOT adopted anadromous fish stream crossing guidelines.

CONTRACTOR COMPLIANCE

j) The permittee shall require its contractors and/or agents to comply with the terms and conditions of this permit in the construction and maintenance of this project, and shall provide each of its contractors and/or agents associated with the construction or maintenance of this project with a copy of this permit, and any authorized modifications. A copy of this permit, and any authorized modifications, including all conditions, shall be available at the project site during construction and maintenance of this project.

SEDIMENTATION AND EROSION CONTROL MEASURES

k) The permittee shall use appropriate sediment and erosion control practices which equal or exceed those outlined in the most recent version of the "North Carolina Sediment and Erosion Control Planning and Design Manual" to assure compliance with the appropriate turbidity water quality standard. Erosion and sediment control practices must be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to assure compliance with the appropriate turbidity water quality standards. Additionally, the project must remain

in full compliance with all aspects of the Sedimentation Pollution Control Act of 1973 (North Carolina General Statutes Chapter 113A Article 4).

Adequate sedimentation and erosion control measures must be implemented prior to any ground disturbing activities to minimize impacts to downstream aquatic resources. These measures must be inspected and maintained regularly, especially following rainfall events. All fill material must be adequately stabilized at the earliest practicable date to prevent sediment from entering into adjacent waters or wetlands.

The permittee shall remove all sediment and erosion control measures placed in wetlands or waters, and shall restore natural grades in those areas, prior to project completion.

During the clearing phase of the project, heavy equipment must not be operated in surface waters or stream channels. Temporary stream crossings will be used to access the opposite sides of stream channels. All temporary diversion channels and stream crossings will be constructed of nonerodable materials. Grubbing of riparian vegetation will not occur until immediately before construction begins on a given segment of stream channel.

No fill or excavation for the purposes of sedimentation and erosion control shall occur within jurisdictional waters, including wetlands, unless it is included on the plan drawings and specifically authorized by this permit.

REPORTING OF VIOLATIONS

l) The permittee will report any violation of these conditions or violations of Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act in writing to the Corps of Engineers, Washington Regulatory Field Office NCDOT Regulatory Project Manager, within 24 hours of the permittee's discovery of the violation.

COMPLIANCE WITH SPECIAL CONDITIONS

m) Failure to institute and carry out the details of these special conditions, will result in a directive to cease all ongoing and permitted work within waters and/or wetlands associated with the permitted project, or such other remedies and/or fines as the District Engineer or his authorized representatives may seek.

WET CONCRETE

n) The permittee shall take measures to prevent live or fresh concrete from coming into contact with any surface waters until the concrete has hardened.

CULVERTS

o) All authorized culverts will be installed to allow the passage of low stream flows and the continued movement of fish and other aquatic life as well as to prevent headcutting of

the streambed. For all box culverts and for pipes greater than 48 inches in diameter, the bottom of the pipe will be buried at least one foot below the bed of the stream unless burial would be impractical and the Corps of Engineers has waived this requirement. For culverts 48 inches in diameter or smaller, the bottom of the pipe must be buried below the bed of the stream to a depth equal to or greater than 20 percent of the diameter of the culvert. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in disequilibrium of wetlands or streambeds or banks, adjacent to, upstream or downstream of the structures. In order to allow for the continued movement of bed load and aquatic organisms, existing stream channel widths and depths will be maintained at the inlet and outlet ends of culverts. Riprap armoring of streams at culvert inlets and outlets shall be minimized above the ordinary high water elevation in favor of bioengineering techniques such as bank sloping, erosion control matting and revegetation with deep-rooted, woody plants.

PRECONSTRUCTION MEETING

p) The permittee shall schedule a preconstruction meeting between its representatives, the contractor's representatives, and the Corps of Engineers, Washington Regulatory Field Office, NCDOT Regulatory Project Manager, prior to any work within jurisdictional waters and wetlands to ensure that there is a mutual understanding of all of the terms and conditions contained within this Department of the Army Permit. The permittee shall provide the Corps of Engineers, Washington Regulatory Field Office, NCDOT Regulatory Project Manager, with a copy of the final plans at least two weeks prior to the preconstruction meeting along with a description of any changes that have been made to the project's design, construction methodology or construction timeframe. The permittee shall schedule the preconstruction meeting for a time when the Corps of Engineers and North Carolina Division of Water Quality (NCDWQ) Project Managers can attend. The permittee shall invite the Corps and NCDWQ Project Managers a minimum of thirty (30) days in advance of the scheduled meeting in order to provide those individuals with ample opportunity to schedule and participate in the required meeting.

BORROW AND WASTE

q) To ensure that all borrow and waste activities occur on high ground and do not result in the degradation of adjacent wetlands and streams, except as authorized by this permit, the permittee shall require its contractors and/or agents to identify all areas to be used to borrow material, or to dispose of dredged, fill, or waste material. The permittee shall provide the Corps of Engineers with appropriate maps indicating the locations of proposed borrow or waste sites as soon as the permittee has that information. The permittee will coordinate with the Corps of Engineers before approving any borrow or waste sites that are within 400 feet of any streams or wetlands. All jurisdictional wetland boundaries on borrow and waste sites shall be verified by the Corps of Engineers and shown on the approved reclamation plans. The permittee shall ensure that all such areas comply with Special Condition b) of this permit, and shall require and maintain documentation of the location and characteristics of all borrow and disposal sites

associated with this project. This information will include data regarding soils, vegetation and hydrology sufficient to clearly demonstrate compliance with the Special Condition b). All information will be available to the Corps of Engineers upon request. NCDOT shall require its contractors to complete and execute reclamation plans for each waste and borrow site and provide written documentation that the reclamation plans have been implemented and all work is completed. This documentation will be provided to the Corps of Engineers within 30 days of the completion of the reclamation work.

SECTION 106 (NATIONAL HISTORIC PRESERVATION ACT)

r) Project construction shall not commence for section B of the project until NCDOT has completed all the requirements and implemented the stipulations agreed to by NCDOT, State Historic Preservation Office (SHPO) and the Federal Highway Administration (FHWA) regarding the relocation of the Creekmore Store which is to be relocated to the rear of the property away from US 158/NC 34.

s) NCDOT will avoid impacting the Sawyer Graveyard. NCDOT will mark the graveyard prior to beginning construction activities with orange protective fencing.

EEP MITIGATION

t) Compensatory mitigation for the unavoidable impacts to 4.35 acres of riverine wetlands and 246 linear feet of stream associated with the proposed project shall be provided by the Ecosystem Enhancement Program (EEP), as outlined in the letter dated July 14, 2008 from William D. Gilmore, EEP Director. Pursuant to the EEP Memorandum of Agreement (MOA) between the State of North Carolina and the US Army Corps of Engineers signed on July 22, 2003, the EEP will provide 8.7 acres of restoration equivalent riverine wetlands and 492 linear feet of restoration equivalent warm water stream channel in the Pasquotank River basin (Hydrologic Cataloging Unit 03010205) by one year of the date of this permit. For wetlands, a minimum of 1:1 (impact to mitigation) must be in the form of wetland restoration. The NCDOT shall, within 30 days of the issue date of this permit, certify that sufficient funds have been provided to EEP to complete the required mitigation, pursuant to Paragraph V. of the MOA.

William G. Ross Jr., Secretary
North Carolina Department of Environment and Natural Resources

Coleen Sullins, Director
Division of Water Quality

401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act with ADDITIONAL CONDITIONS

THIS CERTIFICATION is issued in conformity with the requirements of Section 401 Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Quality (DWQ) Regulations in 15 NCAC 2H .0500. This certification authorizes the NCDOT to impact 14.79 acres of jurisdictional wetlands, and 545 linear feet of jurisdictional streams in Camden County. The project shall be constructed pursuant to the application dated received October 21, 2008. The authorized impacts are as described below:

Stream Impacts in the Pasquotank River Basin

Site	Permanent Fill in Intermittent Stream (linear ft.)	Temporary Fill in Intermittent Stream (linear ft)	Permanent Fill in Perennial Stream (linear ft)	Temporary Fill in Perennial Stream (linear ft)	Total Stream Impact (linear ft)	Stream Impacts Requiring Mitigation (linear ft)
R-2414A						
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	0	0	0	0	0
11	0	0	75	105	180	0
TOTAL:	**0**	**0**	**75**	**105**	**180**	**0**
R-2414B						
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	121	29	150	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	92	21	113	0
7	0	0	83	19	102	0
TOTAL:	**0**	**0**	**296**	**69**	**365**	**0**
PROJECT TOTAL:	**0**	**0**	**371**	**174**	**545**	**0**

Total Stream Impact for Project: 470 linear feet

Transportation Permitting Unit
1650 Mail Service Center, Raleigh, North Carolina 27699-1650
2321 Crabtree Boulevard, Suite 250, Raleigh, North Carolina 27604
Phone: 919-733-1786 / FAX 919-733-6893 / Internet: http://h2o.enr.state.nc.us/ncwetlands

Wetland Impacts in the Pasquotank River Basin

Site	Fill (permanent) (ac)	Fill (temporary) (ac)	Excavation (ac)	Mechanized Clearing (ac)	Hand Clearing (ac)*	Total Wetland Impact (ac)
R-2414A						
1	0.01	0	0	0	0.19	0.20
2	0	0	0	0	0.07	0.07
3	0.01	0	0	0	0.18	0.19
4	0.03	0	0	0	0.34	0.37
5	0.01	0	0	0	0.07	0.08
6	0.02	0	0	0	2.00	2.02
7	0.12	0	0	0	0.54	0.66
8	1.46	0	0	0	1.96	3.42
9	0.01	0	0	0	0.04	0.05
10	0.18	0	0	0	4.08	4.26
11	0	0	0	0	0.01	0.01
TOTAL:	**1.85**	**0.00**	**0.00**	**0.00**	**9.48**	**11.33**
R-2414B						
1	0	0	0	0	0.01	0.01
2	0.09	0	0	0	0.05	0.14
3	0.95	0	0.09	0	0.26	1.3
4	0.06	0	0	0	0.04	0.1
5	0.08	0	0	0	0.06	0.14
6	0.85	0	0.01	0	0.37	1.23
7	0.38	0	0	0	0.16	0.54
TOTAL:	**2.41**	**0.00**	**0.10**	**0.00**	**0.95**	**3.46**
PROJECT TOTAL:	**4.26**	**0.00**	**0.10**	**0.00**	**10.43**	**14.79**

* Totals include areas to be hand cleared for utility relocations
Total Wetland Impact for Project: 14.79 acres.
Total Wetland Impacts Requiring Mitigation: 4.36 acres

The application provides adequate assurance that the discharge of fill material into the waters of the Pasquotank River Basin in conjunction with the proposed development will not result in a violation of applicable Water Quality Standards and discharge guidelines. Therefore, the State of North Carolina certifies that this activity will not violate the applicable portions of Sections 301, 302, 303, 306, 307 of PL 92-500 and PL 95-217 if conducted in accordance with the application and conditions hereinafter set forth.

This approval is only valid for the purpose and design that you submitted in your application dated received October 21, 2008. Should your project change, you are required to notify the DWQ and submit a new application. If the property is sold, the new owner must be given a copy of this Certification and approval letter, and is thereby responsible for complying with all the conditions. If any additional wetland impacts, or stream impacts, for this

Transportation Permitting Unit
1650 Mail Service Center, Raleigh, North Carolina 27699-1650
2321 Crabtree Boulevard, Suite 250, Raleigh, North Carolina 27604
Phone: 919-733-1786 / FAX 919-733-6893 / Internet: http://h2o.enr.state.nc.us/ncwetlands

project (now or in the future) exceed one acre or 150 linear feet, respectively, additional compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7). For this approval to remain valid, you are required to comply with all the conditions listed below. In addition, you should obtain all other federal, state or local permits before proceeding with your project including (but not limited to) Sediment and Erosion control, Coastal Stormwater, Non-discharge and Water Supply watershed regulations. This Certification shall expire on the same day as the expiration date of the corresponding Corps of Engineers Permit.

Conditions of Certification:

Project Specific Conditions

1. In accordance with commitments made in your application, mechanized clearing shall not be used for the purpose of clearing vegetation in relocating overhead power lines within jurisdictional wetlands.

2. Bridge deck drains shall not discharge directly into the stream. Stormwater shall be directed across the bridge and pre-treated through site-appropriate means (grassed swales, pre-formed scour holes, vegetated buffers, etc.) before entering the stream. Please refer to the most current version of *Stormwater Best Management Practices.*

3. If multiple pipes or barrels are required, they shall be designed to mimic natural stream cross section as closely as possible including pipes or barrels at flood plain elevation and/or sills where appropriate. Widening the stream channel should be avoided. Stream channel widening at the inlet or outlet end of structures typically decreases water velocity causing sediment deposition that requires increased maintenance and disrupts aquatic life passage.

4. Except as noted in Condition #3, the placement of culverts and other structures in waters, streams, and wetlands shall be placed below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow passage of water and aquatic life. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or streambeds or banks, adjacent to or upstream and down stream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by DWQ. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact the NC DWQ for guidance on how to proceed and to determine whether or not a modification to this certification will be required.

5. Riprap shall not be placed in the active thalweg channel or placed in the streambed in a manner that precludes aquatic life passage. Bioengineering boulders or structures should be properly designed, sized and installed.

6. The permittee will need to adhere to all appropriate in-water work moratoriums (including the use of pile driving or vibration techniques) prescribed by the NC Wildlife Resources Commission, the US Fish and Wildlife Service, and National Marine Fisheries Service. No in-water work is permitted between February 15 and June 15 of any year, without prior approval from the NC Division of Water Quality and the NC Wildlife Resources Commission. In addition, the permittee shall conform to the NCDOT policy entitled "Stream Crossing Guidelines for Anadromous Fish Passage (May 12, 1997) at all times.

7. Where the existing culvert at Site 11 on Section A of the project will be removed, the banks shall be graded to match existing bank slopes. Additionally, any open areas shall be planted within two weeks after culvert removal with appropriate vegetation in order to stabilize the banks and surrounding areas.

Transportation Permitting Unit
1650 Mail Service Center, Raleigh, North Carolina 27699-1650
2321 Crabtree Boulevard, Suite 250, Raleigh, North Carolina 27604
Phone: 919-733-1786 / FAX 919-733-6893 / Internet: http://h2o.enr.state.nc.us/ncwetlands

8. Bridge piles and bents shall be constructed using driven piles (hammer or vibratory) or drilled shaft construction methods. More specifically, jetting or other methods of pile driving are prohibited unless prior written approval is given by DWQ first.

9. All pile driving or drilling activities shall be enclosed in turbidity curtains unless otherwise approved by DWQ in this certification.

10. Turbidity curtains shall be used to isolate all work areas from the stream at UT to Pasquotank River at Site 11, including pile or casement installation, placement of riprap, excavation or filling. Strict adherence to the Construction and Maintenance Best Management Practices will be required.

11. No utilities shall be relocated into jurisdictional wetland areas.

12. Compensatory mitigation for impacts to 4.36 acres of wetlands is required. We understand that you have chosen to perform compensatory mitigation for impacts to wetlands through the North Carolina Ecosystem Enhancement Program (EEP), and that the EEP has agreed to implement the mitigation for the project. EEP has indicated in a letter dated July 14, 2008 that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with the Tri-Party MOA signed on July 22, 2003 and the Dual-Party MOA signed on April 12, 2004.

General Conditions

13. If concrete is used during construction, a dry work area shall be maintained to prevent direct contact between curing concrete and stream water. Water that inadvertently contacts uncured concrete shall not be discharged to surface waters due to the potential for elevated pH and possible aquatic life and fish kills.

14. During the construction of the project, no staging of equipment of any kind is permitted in waters of the U.S., or protected riparian buffers.

15. The dimension, pattern and profile of the stream above and below the crossing shall not be modified. Disturbed floodplains and streams shall be restored to natural geomorphic conditions.

16. The use of rip-rap above the Normal High Water Mark shall be minimized. Any rip-rap placed for stream stabilization shall be placed in stream channels in such a manner that it does not impede aquatic life passage.

17. The Permittee shall ensure that the final design drawings adhere to the certification and to the drawings submitted for approval.

18. All work in or adjacent to stream waters shall be conducted in a dry work area. Approved BMP measures from the most current version of NCDOT Construction and Maintenance Activities manual such as sandbags, rock berms, cofferdams and other diversion structures shall be used to prevent excavation in flowing water.

19. Heavy equipment shall be operated from the banks rather than in the stream channel in order to minimize sedimentation and reduce the introduction of other pollutants into the stream.

20. All mechanized equipment operated near surface waters must be regularly inspected and maintained to prevent contamination of stream waters from fuels, lubricants, hydraulic fluids, or other toxic materials.

21. No rock, sand or other materials shall be dredged from the stream channel except where authorized by this certification.

22. Discharging hydroseed mixtures and washing out hydroseeders and other equipment in or adjacent to surface waters is prohibited.

23. The permittee and its authorized agents shall conduct its activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with §303(d) of the Clean Water Act) and any other appropriate requirements of State and Federal law. If DWQ determines that such standards or laws are not being met (including the failure to sustain a designated or achieved use) or that State or federal law is being violated, or that further conditions are necessary to assure compliance, DWQ may reevaluate and modify this certification.

24. All fill slopes located in jurisdictional wetlands shall be placed at slopes no flatter than 3:1, unless otherwise authorized by this certification.

25. A copy of this Water Quality Certification shall be maintained on site at the construction site at all times. In addition, the Water Quality Certification and all subsequent modifications, if any, shall be maintained with the Division Engineer and the on-site project manager.

26. The outside buffer, wetland or water boundary located within the construction corridor approved by this certification shall be clearly marked by highly visible fencing prior to any land disturbing activities. Impacts to areas within the fencing are prohibited unless otherwise authorized by this certification.

27. The issuance of this certification does not exempt the Permittee from complying with any and all statutes, rules, regulations, or ordinances that may be imposed by other government agencies (i.e. local, state, and federal) having jurisdiction, including but not limited to applicable buffer rules, stormwater management rules, soil erosion and sedimentation control requirements, etc.

28. The Permittee shall report any violations of this certification to the Division of Water Quality within 24 hours of discovery.

29. Upon completion of the project (including any impacts at associated borrow or waste site), the NCDOT Division Engineer shall complete and return the enclosed "Certification of Completion Form" to notify DWQ when all work included in the 401 Certification has been completed.

30. Native riparian vegetation must be reestablished within the construction limits of the project by the end of the growing season following completion of construction.

31. There shall be no excavation from, or waste disposal into, jurisdictional wetlands or waters associated with this certification without appropriate modification. Should waste or borrow sites, or access roads to waste or borrow sites, be located in wetlands or streams, compensatory mitigation will be required since that is a direct impact from road construction activities.

32. Erosion and sediment control practices must be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to protect surface waters standards:

33. The erosion and sediment control measures for the project must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Sediment and Erosion Control Planning and Design Manual.*

Transportation Permitting Unit
1650 Mail Service Center, Raleigh, North Carolina 27699-1650
2321 Crabtree Boulevard, Suite 250, Raleigh, North Carolina 27604
Phone: 919-733-1786 / FAX 919-733-6893 / Internet: http://h2o.enr.state.nc.us/ncwetlands

34. The design, installation, operation, and maintenance of the sediment and erosion control measures must be such that they equal, or exceed, the requirements specified in the most recent version of the *North Carolina Sediment and Erosion Control Manual.* The devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) projects, including contractor-owned or leased borrow pits associated with the project.

35. For borrow pit sites, the erosion and sediment control measures must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Surface Mining Manual.*

36. The reclamation measures and implementation must comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act.

37. Sediment and erosion control measures shall not be placed in wetlands or waters unless otherwise approved by this Certification.

Violations of any condition herein set forth may result in revocation of this Certification and may result in criminal and/or civil penalties. This Certification shall become null and void unless the above conditions are made conditions of the Federal 404 and/or Coastal Area Management Act Permit. This Certification shall expire upon the expiration of the 404 or CAMA permit.

If this Certification is unacceptable to you have the right to an adjudicatory hearing upon written request within sixty (60) days following receipt of this Certification. This request must be in the form of a written petition conforming to Chapter 150B of the North Carolina General Statutes and filed with the Office of Administrative Hearings, 6714 Mail Service Center, Raleigh, N.C. 27699-6714. If modifications are made to an original Certification, you have the right to an adjudicatory hearing on the modifications upon written request within sixty (60) days following receipt of the Certification. Unless such demands are made, this Certification shall be final and binding.

This the 18th day of December 2008

DIVISION OF WATER QUALITY

Coleen Sullins
Director

WQC No. 003774

William G. Ross Jr., Secretary
North Carolina Department of Environment and Natural Resources

Coleen Sullins, Director
Division of Water Quality

DWQ Project No.: _____ County: _____

Applicant: _____

Project Name: _____

Date of Issuance of 401 Water Quality Certification: _____

Certificate of Completion

Upon completion of all work approved within the 401 Water Quality Certification or applicable Buffer Rules, and any subsequent modifications, the applicant is required to return this certificate to the 401/Wetlands Unit, North Carolina Division of Water Quality, 1650 Mail Service Center, Raleigh, NC, 27699-1650. This form may be returned to DWQ by the applicant, the applicant's authorized agent, **or** the project engineer. It is not necessary to send certificates from all of these.

Applicant's Certification

I, _____, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature:_____Date:_____ _____

Agent's Certification

I, _____, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature:_____Date:_____

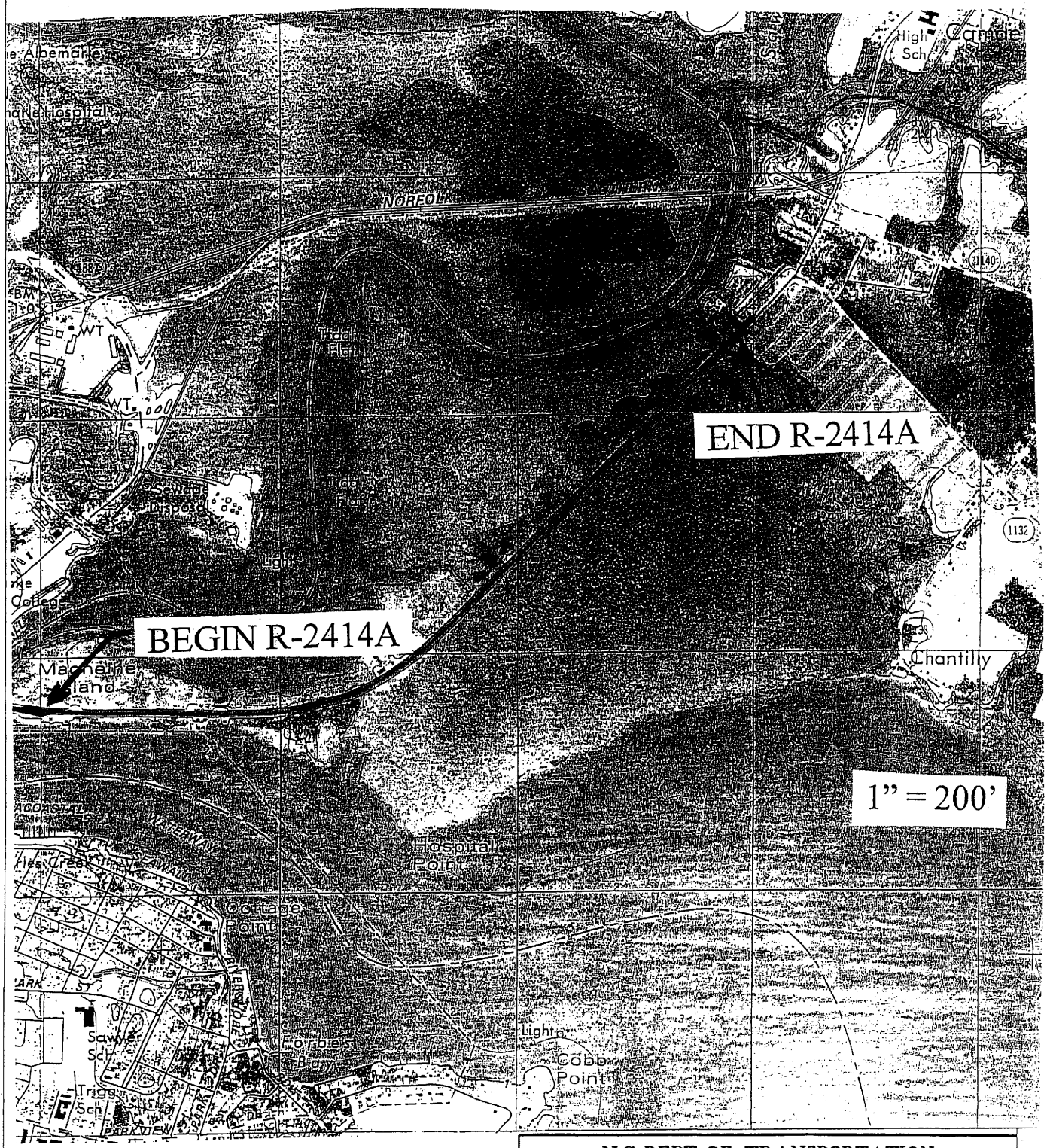
If this project was designed by a Certified Professional

I, _____, as a duly registered Professional _____ (i.e., Engineer, Landscape Architect, Surveyor, etc.) in the State of North Carolina, having been authorized to observe (periodically, weekly, full time) the construction of the project, for the Permitee hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the 401 Water Quality Certification and Buffer Rules, the approved plans and specifications, and other supporting materials.

Signature _____ Registration No. _____ Date _____

Transportation Permitting Unit
1650 Mail Service Center, Raleigh, North Carolina 27699-1650
2321 Crabtree Boulevard, Suite 250, Raleigh, North Carolina 27604
Phone: 919-733-1786 / FAX 919-733-6893 / Internet: http://h2o.enr.state.nc.us/ncwetlands

VICINITY MAP



N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

CAMDEN COUNTY
34430.1.1 (R-2414A)
US 158 WIDENING

SHEET 1 OF 36

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	7+00 -L-	18" RCP	<0.01				0.01					
2	10+75 -L- LT						<0.01					
3	12+30 -L- RT	Rip Rap	0.01									
4*	13+80 - 14+63 -L- LT		0.03									
5	15+60 - 15+75 -L- LT		<0.01									
6	16+62 - 18+17 -L- RT		0.02				0.10					
7*	16+79 - 23+30 -L- LT		0.12				0.31					
8*	20+16 - 43+00 -L- RT		1.46				1.51					
9	24+50 - 25+12 -L- LT		0.01				0.03					
10	25+90 - 42+90 -L- LT		0.18				0.89					
11**	43+10 -L-	3 span bridge (Length=100')							0.080		105	50
TOTALS:			1.83				2.85		0.080		105	50

* Portion of CAMA Wetland Impacts. Total Listed in Table.
Site 3 = 0.01 ac (Fill)
Site 4 = 0.03 ac (Fill)
Site 7 = 0.01 ac (Fill); 0.05 ac (Hand Clearing)
Site 8 = <0.01 ac (Fill); 0.02 ac (Hand Clearing)

** 50 ft of existing box culvert to be removed and replaced with open channel and bridged.

NOTE: 0.79 ac of Temp Impacts in Wetlands in the Hand Clearing areas due to erosion control measures. Includes 0.77 ac and 0.02 ac of impact to 404 and CAMA wetlands, respectively.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

CAMDEN COUNTY
WBS - 34430.1.1 (R-2414A)

US 158 Widening

March-08

ATN Revised 3/31/05

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: Permanent Fill In Wetlands (ha)	Temp. Fill In Wetlands (ha)	Excavation in Wetlands (ha)	Mechanized Clearing in Wetlands (ha)	Hand Clearing in Wetlands (ha)	SURFACE WATER IMPACTS: Permanent SW impacts (ha)	Temp. SW impacts (ha)	Existing Channel Impacts Temporary (m)	Natural Stream Design (m)
1	7+00 -L-	450 RCP	0.001				0.002				
2	10+75 -L- LT						0.001				
3*	12+30 -L- RT	Rip Rap	0.002								
4*	13+80 - 14+63 -L- LT		0.010								
5	15+60 - 15+75 -L- LT		0.001				0.002				
6	16+62 - 18+17 -L- RT		0.009				0.041				
7*	16+79 - 23+30 -L- LT		0.049				0.127				
8*	20+16 - 43+00 -L- RT		0.590				0.611				
9	24+50 - 25+12 -L- LT		0.003				0.012				
10	25+90 - 42+90 -L- LT		0.072				0.361				
11**	43+10 -L-	3 span bridge (Length = 30.4m)							0.033	32	15.2
TOTALS:			0.737				1.157		0.033	32	15.2

* Portion of CAMA Wetland Impacts. Total Listed in Table.

Site 3 = 0.002 ha (Fill)
Site 4 = 0.010 ha (Fill)
Site 7 = 0.003 ha (Fill); 0.022 ha (Hand Clearing)
Site 8 = 0.001 ha (Fill); 0.006 ha (Hand Clearing)

** 15.2m of existing box culvert to be removed and replaced with open channel and bridged.

NOTE: 0.318 ha of Temp impacts in wetlands in the Hand Clearing areas due to erosion control measures. Includes 0.311 ha and 0.007 ha of impacts to 404 and CAMA wetlands, respectively.

JMD Revised 2/03/05

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

CAMDEN COUNTY
WBS - 34430.1.1 (R-2414A)

US 158 Widening
SHEET 3 of 36 March-08

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	SITE NO.	NAMES	ADDRESSES
1	1	City of Elizabeth City	P.O. Box 347 Elizabeth City, NC 27909
	2, 3, 4, 5, 6, 7, 8, 9, 10, 11	NCDOT	
3	8	C.O. Robinson Trust	201 E. Main Street Elizabeth City, NC 27909

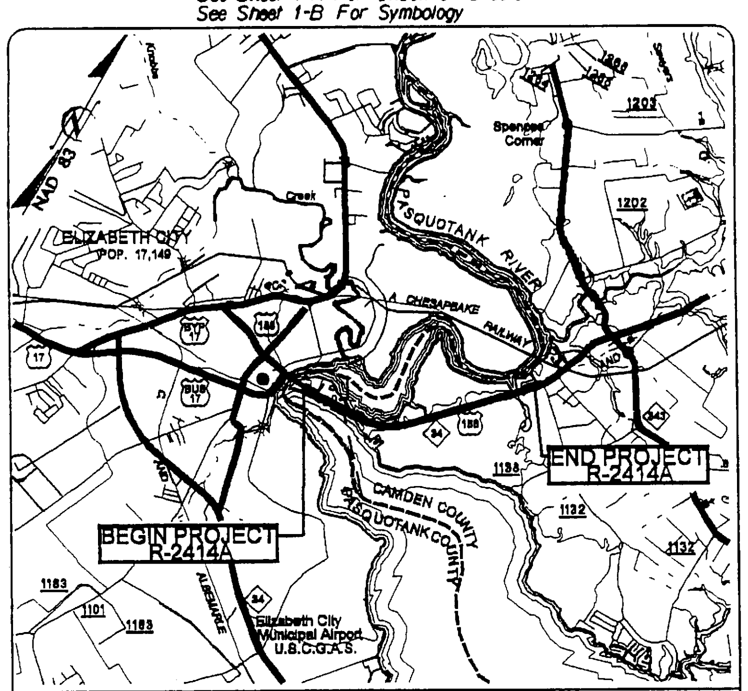
N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

CAMDEN COUNTY
34430.1.1 (R-2414A)
US 158 WIDENING

09/09/99

TIP PROJECT: R-2414A

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Symbology



VICINITY MAP

PRE-PLFI

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CAMDEN COUNTY

LOCATION: US 158 / NC 34 FROM EAST OF PASQUOTANK RIVER TO NORTH OF SR 1257 (HAVENWOOD DR.) BETWEEN ELIZABETH CITY AND CAMDEN

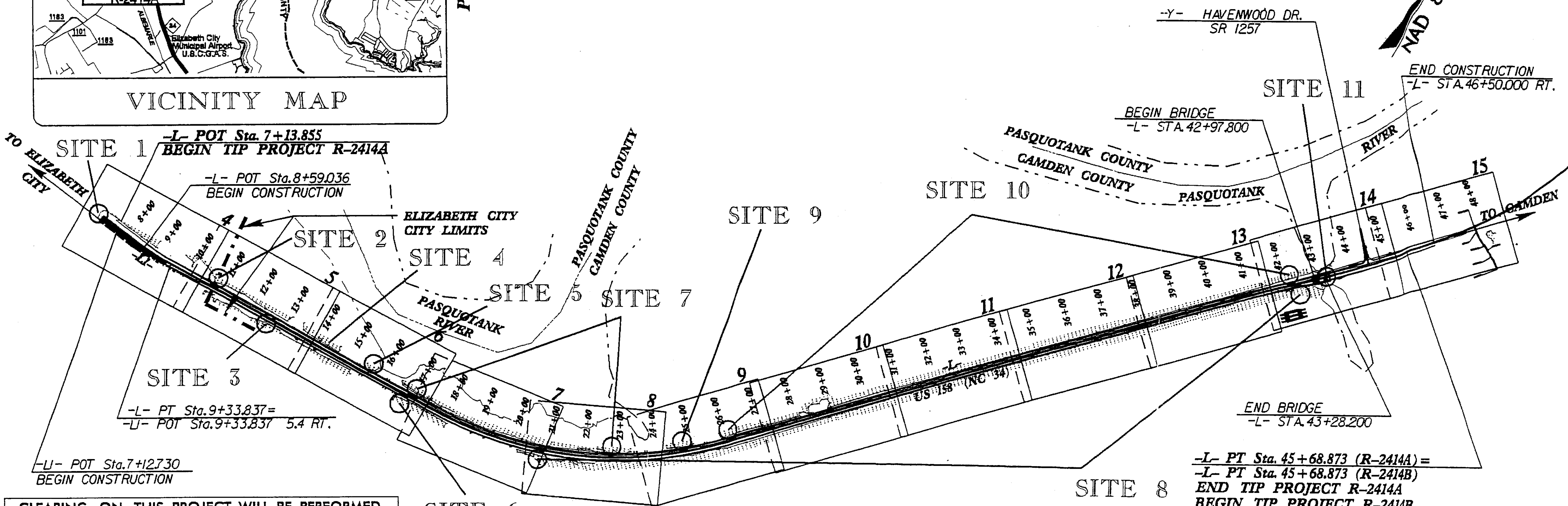
TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE

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-2414A		1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION		
34430.1.1	STP-158(2)	PE		
34430.2.4		ROW & UTILITIES		
		CONST.		

Permit Drawing
Sheet 5 of 36



CLEARING ON THIS PROJECT WILL BE PERFORMED BY THE LIMITS ESTABLISHED BY METHOD II

A PORTION OF THIS PROJECT IS WITHIN MUNICIPAL BOUNDARIES OF ELIZABETH CITY

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

5 0 10
PLANS

5 0 10
PROFILE (HORIZONTAL)

1 0 2
PROFILE (VERTICAL)

DESIGN DATA

ADT 2008 = 25210
ADT 2028 = 40730
DHV = 12 %
D = 60 %
T = 6 % *
V = 80–100 KM/H
* (TTST 2 % + DUAL 4 %)
FUNC. CLASS. = ARTERIAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-2414A	=	3.825 KM
LENGTH STRUCTURE TIP PROJECT R-2414A	=	0.030 KM
TOTAL LENGTH TIP PROJECT R-2414A	=	3.855 KM

KCI Associates of North Carolina, P.A.
SUITE 200, LANDMARK CENTER I, 4601 SIX FORKS RD. RALEIGH, NC 27609-5210 (919) 783-9214
• ENGINEERS • PLANNERS • ECOLOGISTS

Prepared in the Office of:
WETHERILL ENGINEERING
659 JONES FRANKLIN ROAD SUITE 164 Raleigh, N.C. 27606 bus: 919 851 8077 Fax: 919 851 8107
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION
For The North Carolina Department Of Transportation
2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
November 15, 2006

LETTING DATE:
October 21, 2008

NCDOT CONTACT:

EDWARD G. WETHERILL, PE
PROJECT ENGINEER

BOB A. MAY, PE
PROJECT DESIGN ENGINEER

DOUG TAYLOR, PE
ROADWAY DESIGN - ENGINEERING COORD. SECTION ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION

P.E.
STATE HIGHWAY DESIGN ENGINEER

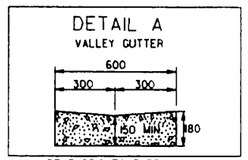
CONTRACT:

03-MAR-2008 13:23
r:\drainage\permit\r-2414a_prm_tsh.dgn

8/17/99

REVISIONS

DETAIL A
VALLEY GUTTER



- L1- RT 7+25.6 TO 7+35.9
- L1- RT 7+64.5 TO 7+74.7
- L1- RT 7+97.8 TO 8+08.0
- L1- RT 8+55.3 TO 8+65.4
- L1- RT 8+83.3 TO 8+93.5
- L1- RT 8+97.6 TO 9+07.7

F F DENOTES FILL IN WETLAND

HC HC DENOTES HAND CLEARING

-L-
PI Sta 8+89.622
Δ = 8° 27' 35.5" (LT)
L = 88.591
T = 44.376
R = 600.000
SE = 05
V_{DES} = 80 KPH

NAD 83

Permit Drawing
Sheet 6 of 36

METRIC
5 0 10

PROJECT REFERENCE NO.	SHEET NO.
R-2414A	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST. REV.
R/W REV.

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SUITE 200, LANDMARK CENTER I, 4601 SIX FORKS RD.
RALEIGH, NC 27609-5230 FIRM 783-924
• ENGINEERS • PLANNERS • ECOLOGISTS

ETHERTILL ENGINEERING
849 JONES FRANKLIN ROAD SUITE 114 Raleigh, N.C. 27606 Phone 919 851 8077 Fax 919 851 8182
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - NEPA/SEPA - CONSTRUCTION OBSERVATION

BEGIN TIP PROJECT R-2414A
-L- POT STA.7+13.855

SITE 1

CITY OF ELIZABETH CITY
D.B. 75, PG. 68

8+00

9+00

10+00

RUTH M. LOWRY
D.B. 83, PG. 39

BEGIN CONSTRUCTION
-L- POC STA.8+59.036

-L- PC Sta.8+45.246

-L- PT Sta.9+33.837 =
-U- POT Sta.9+33.837
5.400 RT.

Q10 = 0.067 cms (2.4 cfs)
V10 = 0.6 m/s (2.0 ft/s)

EXIST R/W

CLASS IRIP RAP
1.8 TONS
W/ 6.7 F.F.

PROP. SLOPE STAKE LINE

S 82° 36' 45.6" E
S 82° 36' 45.4" E

-L-

-U-

N 88° 55' 39.1" E

VALLEY GUTTER

GRAVEL DRIVE

H.R. GARDNER
D.B. 99, PG. 350
1-SFD

2SF APT

STELLA BUNDY
c/o JUNE MILLER
D.B. 92, PG. 884

JUNE MILLER
D.B. 93, PG. 296

CRUSHED SEASHELL

1SF BUS

1SFD

CLARENCE MUNDEN
"MARINA RESTAURANT"

ERVIN & DONNA STAHE
"THE PELICAN, Inc."
D.B. 16, PG. 825

GRADE TO DRAIN

PROP. SLOPE STAKE LINE

-U- PCSta.8+05.028

-U- PTSta.9+08.385

BEGIN CONSTRUCTION
-U- POT Sta.7+12.730

WATER

-U-
PI Sta 8+56.800
Δ = 8° 27' 35.5" (LT)
L = 103.357
T = 51.772
R = 700.000
SE = 05
V_{DES} = 80 KPH

MATCH TO SHEET 5
-L- STA 10+20.000

8/17/99

REVISIONS

METRIC	PROJECT REFERENCE NO.	SHEET NO.
5 0 10	R-2414A	4
	R/W SHEET NO.	
CONST.REV.	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
R/W REV.	PRELIMINARY PLANS NOT FOR CONSTRUCTION	

Permit Drawing Sheet 7 of 36

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SUITE 200, LANDMARK CENTER I 4601 Six FORKS RD.
RALEIGH, NC 27609-5291 (919) 783-9214
ENGINEERS • PLANNERS • ECOLOGISTS

WITHERILL ENGINEERING
849 JONES FRANKLIN ROAD SUITE 140 RALEIGH, N.C. 27606 PH 919 858 8077 FAX 919 851 5727
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - NDS/BPS - CONSTRUCTION OBSERVATION

DETAIL A
VALLEY GUTTER
600
300 300
150 MIN
180

- LI- RT 7+25.6 TO 7+35.9
- LI- RT 7+64.5 TO 7+74.7
- LI- RT 7+97.8 TO 8+08.0
- LI- RT 8+55.3 TO 8+65.4
- LI- RT 8+83.3 TO 8+93.5
- LI- RT 8+97.6 TO 9+07.7

F F DENOTES FILL IN WETLAND

HC HC DENOTES HAND CLEARING

NAD 83

-L-
PI Sta 8+89.622
Δ = 8°27'35.5" (LT)
L = 88.591
T = 44.376
R = 600.000
SE = 05
V_{DES} = 80 KPH

BEGIN TIP PROJECT R-2414A
-L- POT STA 7+13.855

SITE 1

CITY OF ELIZABETH CITY
D.B. 75, PG. 68

RUTH M. LOWRY
D.B. 83, PG. 39

-L- PC Sta. 8+45.246

BEGIN CONSTRUCTION
-L- POC STA 8+59.036

-L- PT Sta. 9+33.837 =
-LI- POT Sta. 9+33.837
5.400 RT.

Q10 = 0.067 cms (2.4 cfs)
V10 = 0.6 m/s (2.0 ft/s)

EXIST R/W

PROP. SLOPE STAKE LINE

CLASS III RIP RAP
1.5 TONS
W/ 6.7 F.F.

S 82° 36' 45.6" E
S 82° 36' 45.4" E
-L-
-U-

USI58 MC34 117 CONC
FMTL 450
750 CONC C&G
50 CONC ISLAND
76 BST
450mm CP

CB (1) (2) (3) (4) (5)

VALLEY GUTTER

GRAVEL DRIVE

H.R. GARDNER
D.B. 99, PG. 350

25SF APT

STELLA BUNDY
C/O JUNE MILLER
D.B. 93, PG. 264

JUNE MILLER
D.B. 93, PG. 26

D.B. 81, PG. 725

CRUSHED SEASHELL

1SF BUS

1SFD

CLARENCE MUNDEN
"MARINA RESTAURANT"

ERVIN & DONNA STAHL
"THE PELICAN, INC."
D.B. 76, PG. 628

150 CONC CURB
120 CONC CURB
300 CONC WALL
1200 WD WALL
(2) 1000 GAL TANKS
DOCK

-U- PC Sta. 8+05.028
-U- PT Sta. 9+08.385

-U-
PI Sta 8+56.800
Δ = 8°27'35.5" (LT)
L = 103.357
T = 51.772
R = 700.000
SE = 05
V_{DES} = 80 KPH

WATER

GRADE TO DRAIN

N 88° 55' 39.1" E

MATCH TO SHEET 5
-L- STA 10+20.000

8-JAN-2008 13:58
n:\hyd-hwy\projects\r-2414a\r-2414a_environmental\drawings\r-2414a_prn_01.pltdgn

REVISIONS

5/17/99

METRIC	PROJECT REFERENCE NO.	SHEET NO.
5 0 10	R-2414A	5
	R/W SHEET NO.	
	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
CONST.REV.		
R/W REV.		

NAD 83

Permit Drawing
Sheet 8 of 36

KCI Associates of North Carolina, P.A.
SUITE 200, LANDMARK CENTER I, 4601 SIX FORKS RD.
RALEIGH, NC 27609-5310 (919) 783-9214
ENGINEERS • PLANNERS • ECOLOGISTS

WETHERILL ENGINEERING
849 JONES FRANKLIN ROAD
SUITE 114
RALEIGH, N.C. 27606
P.O. BOX 80177
RALEIGH, N.C. 27623
PHONE 919 851-1277
FAX 919 851-1727
TRANSPORTATION PLANNING/DESIGN • BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN • NEPA/SEPA • CONSTRUCTION OBSERVATION

F / F DENOTES FILL IN WETLAND

HC HC DENOTES HAND CLEARING

SITE 2

SITE 3

11+00

12+00

13+00

MATCH TO SHEET 4

MATCH TO SHEET 6

-L- STA 10+20.000

-L- STA 13+80.000

N 08°42'07" E 119.780

N 00°21'50" W 244.895

N 88° 55' 39" E

08 ANTHONY WOODISSE D.B. 99, PG. 790

09 FIRST UNION NATIONAL BANK D.B. 60, PG. 895

14 CITY OF ELIZABETH CITY D.B. 44, PG. 277

9 ERVIN & DONNA STAHEL "THE PELICAN, Inc." D.B. 76, PG. 825

12 ERVIN & DONNA STAHEL D.B. 93, PG. 615

13 CITY OF ELIZABETH CITY D.B. 44, PG. 277

+42.000 21.000 (68.90')

+60.000 21.000 (68.90')

PROP. SLOPE STAKE LINE

SOIL

PUE

EXIST R/W

WLB

GUY

0.5 BST

US158 NC 34 6.8 BST

GRADE PO DRAIN

EXIST R/W

RIPRAP

WALL

CONC. WALL

DOCK

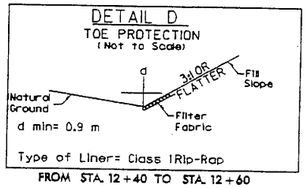
GR

PIER

CAMA WETLAND TOE PROTECTION SEE DETAIL D CLASS I RIP RAP 42 TONS W/ 54 SQ M F.F.

WATER

DETAIL D
TOE PROTECTION
(Not to Scale)



Type of Liner= Class I Rip-Rap
FROM STA. 12+40 TO STA. 12+60

WO GAZEBO

PIER

ALL DRIVEWAYS ARE 4.8 METERS UNLESS NOTED OTHERWISE

SEE SHEET 17 FOR -L- PROFILE

05-JAN-2008 13:26
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jcahill

METRIC	PROJECT REFERENCE NO.	SHEET NO.
5 0 10	R-2414A	5
	R/W SHEET NO.	
	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
CONST. REV.		
R/W REV.		

NAD 83

Permit Drawing
Sheet 9 of 36

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WETHERILL ENGINEERING
849 JONES FRANKLIN ROAD
SUITE 114 RALEIGH, N.C. 27606
TEL 919 851 8077
FAX 919 851 8 02
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - NCS/DPS - CONSTRUCTION OBSERVATION

REVISIONS

F/F DENOTES FILL IN WETLAND

HC HC DENOTES HAND CLEARING

SITE 2

SITE 3

ANTHONY WOODISSE
D.B. 99, PG. 790

FIRST UNION NATIONAL BANK
D.B. 60, PG. 595

CITY OF ELIZABETH CITY
D.B. 44, PG. 277

ERVIN & DONNA STAHEL
"THE PELICAN, Inc."
D.B. 76, PG. 825

ERVIN & DONNA STAHEL
D.B. 93, PG. 665

CITY OF ELIZABETH CITY
D.B. 44, PG. 277

11+00 12+00 13+00

MATCH TO SHEET 4 -L- STA 10+20.000

MATCH TO SHEET 6 -L- STA 13+80.000

+42.000 21.000 (68.90')

+60.000 21.000 (68.90')

PROP. SLOPE STAKE LINE

N 88° 55' 39.1" E

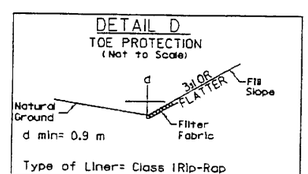
US158 NC 34 6.8 BST

0.5 BST

GRADE DRAIN

CANAL WETLAND TOE PROTECTION SEE DETAIL D CLASS I RIP RAP 42 TONS W/ 54 SQ M F.F.

DETAIL D
TOE PROTECTION
(Not to Scale)



Type of Liner= Class I Rip-Rap
FROM STA. 12+40 TO STA. 12+60

WATER

ALL DRIVEWAYS ARE 4.8 METERS UNLESS NOTED OTHERWISE

SEE SHEET 17 FOR -L- PROFILE

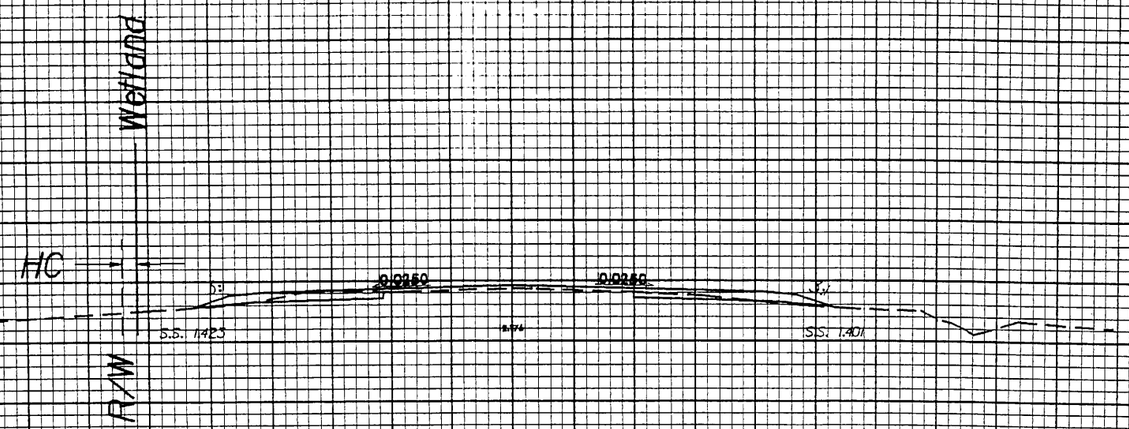
Permit Drawing
Sheet 10 of 36

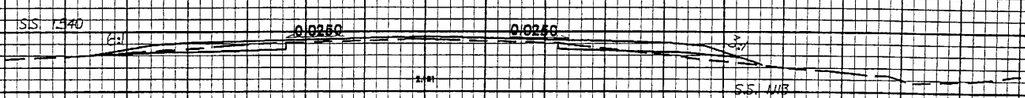
PROJECT REFERENCE NO.	SHEET NO.
R-2414A	X-10

2.5 0 2.5 5

METRIC

SITE 2





-prm_xpl.dgn

Permit Drawing
Sheet 11 of 36

PROJECT REFERENCE NO.	SHEET NO.
R-2414A	X-14

2.5 0 2.5 5

METRIC

SITE 3

CAMA Wetland

R/W

S.S. 1203

0.0250

0.0250

3%

3%

2.118

12+40.000

S.S. 1202

S.S. 1929

0.0250

0.0250

3%

3%

2.148

12+20.000

Permit Drawing
Sheet 12 of 36

PROJECT REFERENCE NO.	SHEET NO.
R-2414A	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC
5 0 10
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
CONST.REV.
R/W REV.

KCI Associates of North Carolina, P.A.
SUITE 200, LANDMARK CENTER I, 4601 SIX FORKS RD.
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ETHERIDGE ENGINEERING
849 JONES FRANKLIN ROAD SUITE 104 RALEIGH, N.C. 27606 PHONE: (919) 851-8277 FAX: (919) 851-8720
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

REVISIONS
R/W REVISION - REVISED PROPOSED STATION AND OFFSETS FOR TEMPORARY CONST. EASEMENT LEFT. BAW

F F DENOTES FILL IN WETLAND
HC HC DENOTES HAND CLEARING

NAD 83

WATER

SITE 4

SITE 5

SITE 7

SITE 6

-L- STA 13+80.000 MATCH TO SHEET 5

MATCH TO SHEET 7 -L- STA 17+40.000

14+00 15+00 16+00 17+00

-L- TS Sta 17+28.133

N 88° 55' 39.1" E -L-

(15) WILLIAM PEFLEY D.B. 62, PG. 89

(20) CAMDEN COUNT "PASQUOTANK RIVER YACHT CLUB" D.B. 65, PG. 64

(16) W.F. THOMPSON D.B. 102, PG. 282

(17) BILL & LINDA TAYLOR D.B. 82, PG. 4

(18) CAMDEN COUNTY ABC BOARD D.B. 71, PG. 399

(19) MARKHAM ENTERPRISES, Inc. "CAUSEWAY MARINA" D.B. 72, PG. 85 D.B. 59, PG. 14

(21) LLOYD D. GRIFFIN D.B. 38, PG. 45

(22) LLOYD D. GRIFFIN D.B. 38, PG. 45

+00.000 21.000 (68.90')
+56.826 21.198(69.55')
+57.384 (15.367(50.42'))

PROP. SLOPE STAKE LINE
EXIST R/W
EXIST. EXIST R/W
CAMA WETLAND
PUE
WLEB
ISF BUS
WD DECK
WD GUARD POSTS
1200 WD WALL (68.90')
1800 CHL W/ 3 SB
900 WD
1200 WALL
WALL
DOCK
RIPRAP
SOIL
GR
BST
CURB
GUY
GAZEBO
25FD
101 102 103 104 105 106

ALL DRIVEWAYS ARE 4.8 METERS UNLESS NOTED OTHERWISE

SEE SHEET 17 FOR -L- PROFILE

18-JAN-2008 13:25
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Permit Drawing
Sheet 13 of 36

METRIC	PROJECT REFERENCE NO.	SHEET NO.
5 0 10	R-2414A	6
	R/W SHEET NO.	
	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
CONST.REV.	PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
R/W REV.		

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849 JONES FRANKLIN ROAD SUITE 114 RALEIGH, N.C. 27606 PH 919 851 8077 FAX 919 851 8122
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - RR/RPS - CONSTRUCTION OBSERVATION

REVISIONS
R/W REVISION - REVISED PROPOSED STATION AND OFFSETS FOR TEMPORARY CONST. EASEMENT LEFT. BAM

F F DENOTES FILL IN WETLAND

HC HC DENOTES HAND CLEARING

NAD 83

WATER

SITE 4

SITE 5

SITE 7

SITE 6

-L- STA 13+80.000 MATCH TO SHEET 5

MATCH TO SHEET 7 -L- STA. 17+30.000

-L- TS Sta 17+28.133

N 88° 55' 39" E

WILLIAM PEFLEY D.B. 62, PG. 89

CAMDEN COUNTY "PASQUOTANK RIVER YACHT CLUB" D.B. 65, PG. 64

LLOYD D. GRIFFIN D.B. 38, PG. 45

W.F. THOMPSON D.B. 102, PG. 22

BILL & LINDA TAYLOR D.B. 62, PG. 4

CAMDEN COUNTY ABC BOARD D.B. 74, PG. 339

MARKHAM ENTERPRISES, Inc. "CAUSEWAY MARINA" D.B. 72, 15 D.B. 59, PG. 14

LLOYD D. GRIFFIN D.B. 38, PG. 45

PROP. SLOPE STAKE LINE

EXIST. WETLAND

EXIST R/W

EXIST. EXIST R/W

PUE

WD DECK

WD GUARD POSTS

ISF BUS

DOCK

WALL

RIPRAP

GAZEBO

2SFD

ALL DRIVEWAYS ARE 4.8 METERS UNLESS NOTED OTHERWISE

SEE SHEET 17 FOR -L- PROFILE

18-JUN-2008 13:25
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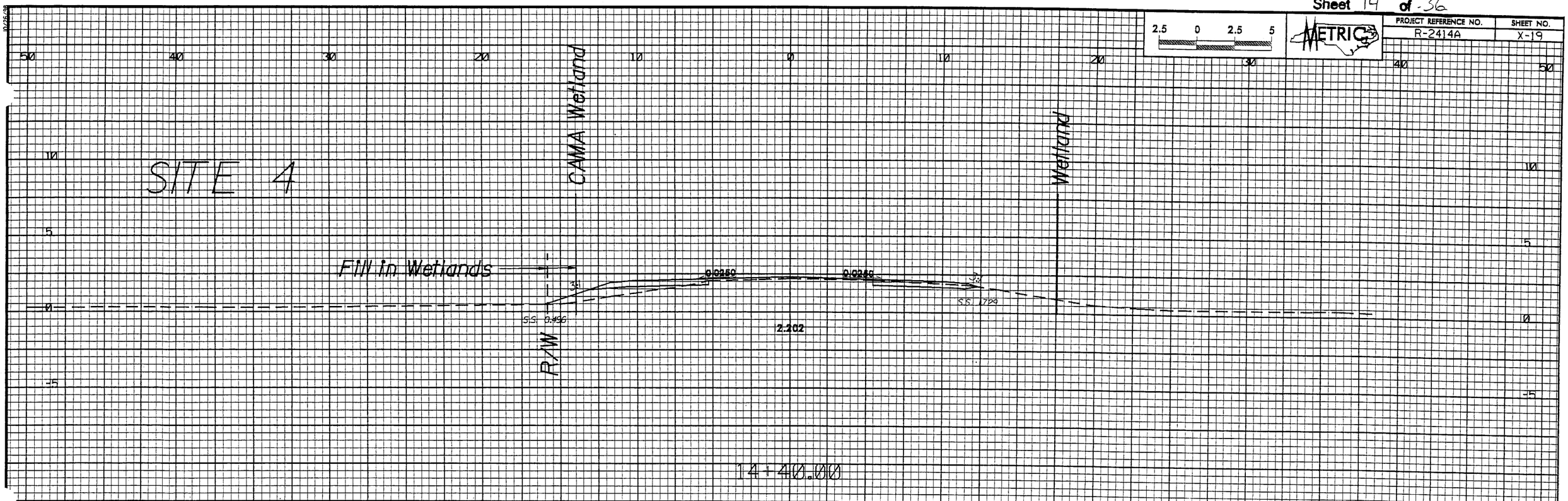
Permit Drawing
Sheet 14 of 36

PROJECT REFERENCE NO.	SHEET NO.
R-2414A	X-19

2.5 0 2.5 5 METRIC



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$dgn_file

Permit Drawing
Sheet 15 of 36

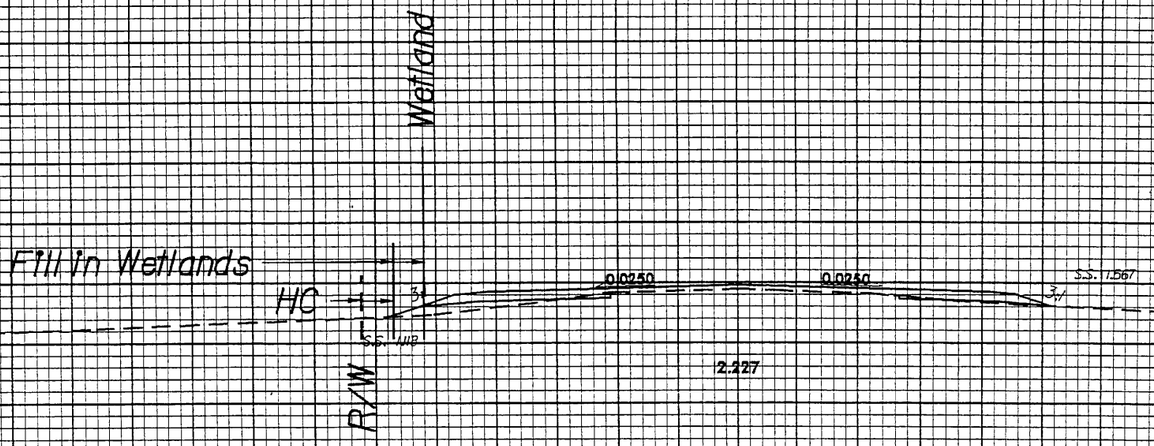
PROJECT REFERENCE NO.	SHEET NO.
R-2414A	X-22

2.5 0 2.5 5

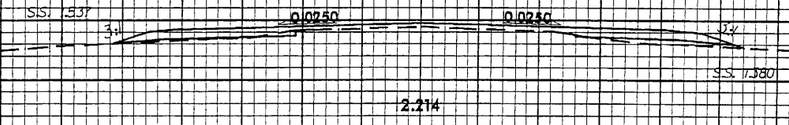
METRIC

SITE 5

Fill in Wetlands



15+60.00



15+40.000

—/—

Permit Drawing
Sheet 16 of 36

PROJECT REFERENCE NO.	SHEET NO.
R-2414A	X-26

2.5 0 2.5 5 METRIC

SITE 7

CAMA Wetland

Wetland

Fill in Wetlands
HC

R/W

S.S. 0.487

3:1

0.0259

0.0245

2.155

1/+20.00

Wetland

Fill in Wetlands
HC

R/W

S.S. 0.969

3:1

SITE 6

SITE 7

CAMA Wetland

Wetland

Fill in Wetlands
HC

R/W

S.S. 0.438

3:1

0.0250

0.0112

2.199

1/+00.00

Wetland

Fill in Wetlands
HC

R/W

S.S. 0.888

SITE 6

10/26/98

01-MAR-2000 13:19

PROJECT REFERENCE NO.	SHEET NO.
R-2414A	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST. REV.

R/W REV.

KCI Associates of North Carolina, P.A.
SUITE 200, LANDMARK CENTER I, 4601 SIX FORKS RD.
RALEIGH, NC 27609-5320 FIRM# 783-924
ENGINEERS • PLANNERS • ECOLOGISTS

WETHERILL ENGINEERING
869 JONES FRANKLIN ROAD SUITE 144 Raleigh, N.C. 27606 Tel: 919 858 6677 Fax: 919 851 8712
TRANSPORTATION PLANNING/DESIGN • BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN • NCDOT • CONSTRUCTION OBSERVATION

REVISIONS

F F DENOTES FILL IN WETLAND

HC HC DENOTES HAND CLEARING

NAD 83

MATCH TO SHEET 6

MATCH TO SHEET 8

-L- STA. 17+40.000

-L- STA. 20+60.000

-L- SC Sta. 18+03.33

SITE 7

SITE 6

SITE 8

WATER

18+00

19+00

20+00

PROP. SLOPE STAKE LINE

EXIST R/W

WETLAND

WOOD FENCE

24 C.H. ROBINSON D.B. 31, PG. 184

23 C.H. ROBINSON D.B. 31, PG. 184

25 CAMDEN COUNTY D.B. 93, PG. 299

26 F.K. KRAMER D.B. 75, PG. 71

27 W.F. THOMPSON D.B. 102, PG. 212

28 ROGER BRIGHT D.B. 75, PG. 644

29 LLOYD D. GRIFFIN D.B. 38, PG. 48

-L-

PIs Sta 17+78.136
Es = 2° 03' 57.4"
Ls = 75.000
LT = 50.003
ST = 25.003

PI Sta 21+97.702
Δ = 41° 33' 10.3" (LT)
L = 754.244
T = 394.569
R = 1,040.000
SE = 05
V_{DES} = 100 KPH

ALL DRIVEWAYS ARE 4.8 METERS UNLESS NOTED OTHERWISE

SEE SHEET 18 FOR -L- PROFILE

REVISIONS

8/17/09

PROJECT REFERENCE NO.	SHEET NO.
R-2414A	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

PRELIMINARY PLANS
NO JURISDICTIONAL USE - NOT FOR CONSTRUCTION

CONST.REV.

R/W REV.

KCI Associates of North Carolina, P.A.
SUITE 200, LANDMARK CENTER I, 4601 DIX FORKS RD.
RALEIGH, NC 27609-6280 (919) 783-9104
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WITHERILL ENGINEERING
849 JONES FRANKLIN ROAD SUITE 110 RALEIGH, N.C. 27606 PH 919 851 2277 FAX 919 851 8121
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - MS/EPS - CONSTRUCTION OBSERVATION

F F DENOTES FILL IN WETLAND

HC HC DENOTES HAND CLEARING

NAD 83

1.5

18+00

19+00

20+00

WATER

24 C.H. ROBINSON D.B. 31, PG. 184

24 C.H. ROBINSON D.B. 31, PG. 184

-L- SC Sta.18+03.133

SITE 7

25 CAMDEN COUNTY D.B. 93, PG. 219

PROP. SLOPE STAKE LINE

N 01°00'00.0" W 34.432

N 01°00'00.0" W 95.562

-L- STA.20+60.000

MATCH TO SHEET 6

MATCH TO SHEET 8

-L- STA.17+40.000

WETLAND

EXIST R/W

USI58 NC 34 67 BST

US158 NC24 67 BST

GUY

WOOD FENCE

SITE 6

SITE 8

23 C.H. ROBINSON D.B. 31, PG. 184

PIs Sta 17+78.136
Θs = 2°03'57.4"
Ls = 75.000
LT = 50.003
ST = 25.003

PI Sta 21+97.702
Δ = 41°33'10.3" (LT)
L = 754.244
T = 394.569
R = 1,040.000
SE = 05
V_{DES} = 100 KPH

23 C.H. ROBINSON D.B. 31, PG. 184

26 F.K. KRAMER D.B. 78, PG. 19

27 W.F. THOMPSON D.B. 102, PG. 282

28 ROGER BRIGHT D.B. 75, PG. 644

29 LLOYD D. GRIFFIN D.B. 38, PG. 48

S 01°00'00.0" E 245.90

S 01°00'00.0" E 24.59

S 01°00'00.0" E 182.174

S 01°00'00.0" E 182.174

ALL DRIVEWAYS ARE 4.8 METERS UNLESS NOTED OTHERWISE

SEE SHEET 18 FOR -L- PROFILE

8-JAN-2008 13:28
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Roadway Design

2.5 0 2.5 5

METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2414A	X-39

SITE 7

FIll In Wetlands

HC

CAMA Wetland

Wetland

R/W

S.S. 0425

3:1

0.0500

0.0500

2.078

S.S. 0698

22+40.00

SITE 8

FIll In Wetlands

HC

R/W

SITE 7

HC

CAMA Wetland

Wetland

R/W

S.S. 0593

3:1

0.0500

0.0500

2.086

S.S. 0785

22+20.00

SITE 8

HC

Wetland

R/W

PROJECT REFERENCE NO.	SHEET NO.
R-2414A	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

PRELIMINARY PLANS
NOT FOR CONSTRUCTION

CONST.REV.

R/W REV.

KCI Associates of North Carolina, P.A.
SUITE 200, LANDMARK CENTER I, 4601 SIX FORKS RD.
RALEIGH, NC 27609-4630 (919) 783-9214
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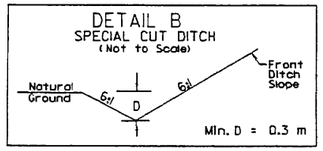
809 JONES FRANKLIN ROAD SUITE 124 Raleigh, N.C. 27606 Tel: 919 851 8077 Fax: 919 851 8727
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - ROW/RPS - CONSTRUCTION OBSERVATION

REVISIONS

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)



-L- LT 23+51 TO 24+00

F F DENOTES FILL IN WETLAND

HC HC DENOTES HAND CLEARING

PASQUOTANK RIVER

WATER

NAD 83

21+00

22+00

23+00

31 WILLIAM B. ROBINSON D.B. 35, PG. 48

31 WILLIAM B. ROBINSON D.B. 35, PG. 48

32 C.T. WHITE CALVIN LAMB D.B. 48, PG. 597

34 HAROLD CALDWELL D.B. 35, PG. 408

35 LES CELLES ROBERTSON D.B. 82, PG. 563

36 ERIE T. HASTE, JR. D.B. 76, PG. 456

SITE 7

Q10 = 0.053 cms (1.9 cfs)
V10 = 0.4 m/s (1.2 ft/s)

PROP. SLOPE STAKE LINE

404 WETLAND

GAMA WETLAND

EXIST R/W

CLASS I RIP RAP 1.8 TONS W/ 5:0 F.F.

SPECIAL DITCH SEE DETAIL B

IS MTL BUS

ISF BUS

WALL

GR

150 CONC CURB

-L- STA 24+00.000

MATCH TO SHEET 7

MATCH TO SHEET 9

-L- STA 20+60.000

0.6 BST

US158 NC24 6.7 BST

-L-

SITE 8

PROP. SLOPE STAKE LINE

GAMA WETLAND

EXIST R/W

30 WILLIAM B. ROBINSON D.B. 35, PG. 48

33 CLAY FOREMAN D.B. 89, PG. 799

-L-
PI Sta 21+97.702
Δ = 41° 33' 10.3" (LT)
L = 754.244
T = 394.569
R = 1040.000
SE = 05
V_{des} = 100 KPH

ALL DRIVEWAYS ARE 4.8 METERS UNLESS NOTED OTHERWISE

SEE SHEET 18 FOR -L- PROFILE

8-JUN-2008 13:30
c:\projects\environmental\drawings\r-2414a_sht_08.pmb.dgn
pcsit AT R2414A777

PROJECT REFERENCE NO.	SHEET NO.
R-2414A	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

KCI Associates of North Carolina, P.A.
SUITE 200, LANDMARK CENTER I, 4601 SIX FORKS RD.
RALEIGH, NC 27609-5280 (919) 783-9104
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WETHERILL ENGINEERING
849 KNIGHTDRIVE PARKWAY SUITE 104 Raleigh, N.C. 27604 Tel: 919 851 8077 Fax: 919 851 8717
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

REVISIONS

8/17/09

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)

Natural Ground, 6:1, D, 6:1, Front Ditch Slope

Min. D = 0.3 m

-L- LT 23+51 TO 24+00

F F DENOTES FILL IN WETLAND

HC HC DENOTES HAND CLEARING

PASQUOTANK RIVER

WATER

NAD 83

21+00

22+00

23+00

-L- STA 24+000.000

-L- STA 20+160.000

MATCH TO SHEET 7

MATCH TO SHEET 9

31 WILLIAM B. ROBINSON D.B. 35, PG. 48

31 WILLIAM B. ROBINSON D.B. 35, PG. 48

32 C.T. WHITE CALVIN LAMB D.B. 48, PG. 597

34 HAROLD CALDWELL D.B. 35, PG. 408

35 LES CELLES ROBERTSON D.B. 82, PG. 563

36 ERIE T. HASTE, JR. D.B. 76, PG. 456

30 WILLIAM B. ROBINSON D.B. 35, PG. 48

33 CLAY FOREMAN D.B. 83, PG. 799

SITE 7

SITE 8

Q10 = 0.053 cms (1.9 cfs)
V10 = 0.4 m/s (1.2 ft/s)

PROP. SLOPE STAKE LINE

404 WETLAND

GAMA WETLAND

EXIST R/W

CLASS I RIP RAP 18 TONS W/ 5:0 F.F.

SPECIAL DITCH SEE DETAIL B

IS MTL BUS

ISF BUS

WALL

GR

375

150 CONC CURB

Q6 BST

US158 NC24 6Z BST

UB BST

-L-
PI Sta 21+97.702
Δ = 41° 33' 10.3" (LT)
L = 754.244
T = 394.569
R = 1,040.000
SE = 05
V_{des} = 100 KPH

ALL DRIVEWAYS ARE 4.8 METERS UNLESS NOTED OTHERWISE

SEE SHEET 18 FOR -L- PROFILE

Permit Drawing Sheet 22 of 36

PROJECT REFERENCE NO.	SHEET NO.
R-2414A	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

PRELIMINARY PLANS
NOT APPROVED FOR CONSTRUCTION

CONST.REV.

R/W REV.

KCI Associates of North Carolina, P.A.
SUITE 200, LANDMARK CENTER I, 4601 FAYETTEVILLE RD.
RALEIGH, NC 27603-5380
ENGINEERS • PLANNERS • ECOLOGISTS
FIRM P-0339

WETHERILL ENGINEERING
889 JONES FRANKLIN ROAD
SUITE 144
Raleigh, N.C. 27606
tel 919 851 8077
fax 919 851 8177
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

REVISIONS

8/17/09

38 CYRUS AYDLETT
D.B. 33, PG. 619

39 ROBLEY PERRY
D.B. 35, PG. 121

40 GEORGE RAPER
D.B. 75, PG. 893

41 THEODORE WOOD
D.B. 75, PG. 69

42 UNDINE PERRY LONGO
D.B. 35, PG. 220

43 UNDINE PERRY LONGO
D.B. 35, PG. 220

37 CLAY FOREMAN
D.B. 89, PG. 799

F F DENOTES FILL IN WETLAND

HC HC DENOTES HAND CLEARING

NAD 83

SITE 9

SITE 10

SITE 8

24+00

25+00

26+00

27+00

MATCH TO SHEET 8

MATCH TO SHEET 10

-L- STA. 24+00.000

-L- STA. 27+20.000

-L- ST Sta. 26+32.377

-L- CS Sta. 25+57.377

N 43°14' 33.9" E

PROP SLOPE STAKE LINE

EXIST R/W

1SF BUS

CONC

GR

BST

0.6 BST

US158 NC34 67 BST

GUY

2400 WD

24001 CHL

-L-

PI Sta 21+97.702	PIs Sta 25+82.380
Δ = 41° 33' 10.3" (LT)	θs = 2° 03' 57.4"
L = 754.244	Ls = 75.000
T = 394.569	LT = 50.003
R = 1,040.000	ST = 25.003
SE = 05	
V_{des} = 100 KPH	

ALL DRIVEWAYS ARE 4.8 METERS UNLESS NOTED OTHERWISE

SEE SHEET 19 FOR -L- PROFILE

REVISIONS

METRIC

5 0 10

PROJECT REFERENCE NO.	SHEET NO.
R-2414A	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

KCI Associates of North Carolina, P.A.
SUITE 200, LANDMARK CENTER I, 4601 SIX FORKS RD.
RALEIGH, NC 27609-5230
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919 783-9214

ETHERIDGE ENGINEERING
469 JONES FRANKLIN ROAD
SUITE 144
RALEIGH, N.C. 27606
PHONE 919 851 8077
FAX 919 851 8712
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - MS/EPS - CONSTRUCTION OBSERVATION

38 CYRUS AYDLETT
D.B. 33, PG. 619

39 ROBLEY PERRY
D.B. 35, PG. 191

40 GEORGE RAPER
D.B. 75, PG. 893

41 THEODORE WOOD
D.B. 75, PG. 69

42 UNDINE PERRY LONGO
D.B. 35, PG. 220

43 UNDINE PERRY LONGO
D.B. 35, PG. 220

37 CLAY FOREMAN
D.B. 89, PG. 799

37 CLAY FOREMAN
D.B. 89, PG. 799

NAD 83

F F DENOTES FILL IN WETLAND

HC HC DENOTES HAND CLEARING

SITE 9

SITE 10

SITE 8

-L- STA. 24+00.000

-L- STA. 27+20.000

-L- ST Sta. 26+32.377

-L- CS Sta. 25+57.377

N 43°14'33.9" E

MATCH TO SHEET 8

MATCH TO SHEET 10

24+00

25+00

26+00

27+00

PROP. SLOPE STAKE LINE

EXIST R/W

0.6 BST

US158 NC34 6.7 BST

ISF BUS

124001 CHL

2400 WD

-L-

PI Sta 21+97.702	PIs Sta 25+82.380
Δ = 41° 33' 10.3" (LT)	θs = 2° 03' 57.4"
L = 754.244	Ls = 75.000
T = 394.569	LT = 50.003
R = 1,040.000	ST = 25.003
SE = 05	
V_{DES} = 100 KPH	

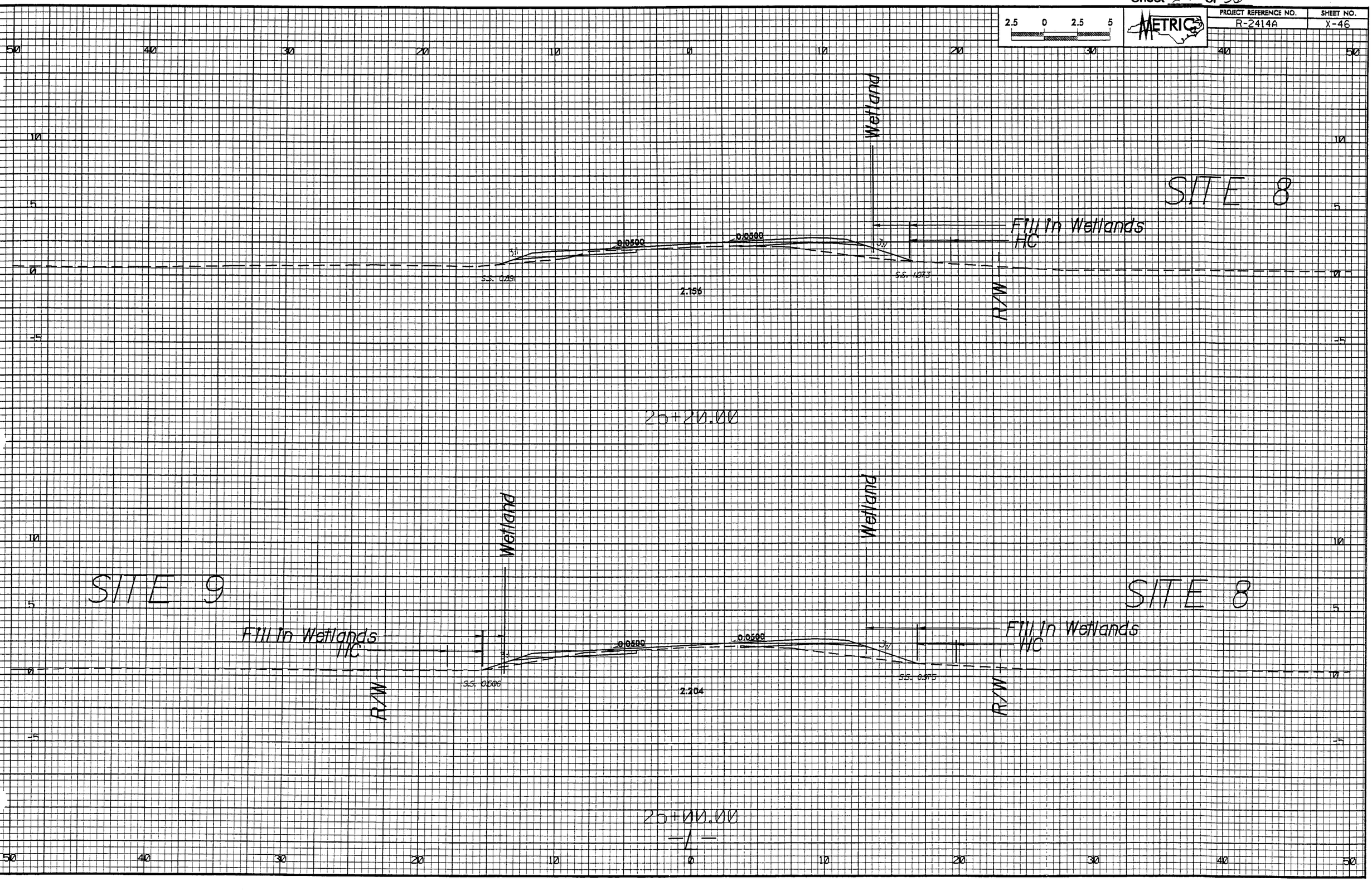
ALL DRIVEWAYS ARE 4.8 METERS UNLESS NOTED OTHERWISE

SEE SHEET 19 FOR -L- PROFILE

15-JAN-2008 13:24
R-2414A_PH1_2450911-environmental\designs\r-2414a_prm_89.pshdgn

PROJECT REFERENCE NO.	SHEET NO.
R-2414A	X-46

2.5 0 2.5 5 METRIC



Permit Drawing
Sheet 25 of 36

PROJECT REFERENCE NO.	SHEET NO.
R-2414A	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

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CIVIL/SITE DESIGN - MS/DPS - CONSTRUCTION OBSERVATION

REVISIONS

F F DENOTES FILL IN WETLAND

HC HC DENOTES HAND CLEARING

NAD 83

44 EDWARD DECKER D.B. 33, PG. 620

46 WILLIAM R. MOSS D.B. 74, PG. 34

47 C.W. WARD, SR. D.B. 36, PG. 641

49 C.W. WARD, SR. D.B. 36, PG. 641

48 WILLIAM R. MOSS D.B. 57, PG. 329

28+00

29+00

30+00

PASQUOTANK RIVER

N 43°12'52.7" E 33.148

SITE 10

PROP. SLOPE STAKE LINE

EXIST R/W

MATCH TO SHEET 9

MATCH TO SHEET 11

-L- STA 27+20.000

-L- STA. 30+80.000

0.6 BST

US158 NC34 6.7 BST

-L-

N 43°14'33.9" E

PROP. SLOPE STAKE LINE

SITE 8

45 CLAY FOREMAN D.B. 79, PG. 86

45 CLAY FOREMAN D.B. 79, PG. 86

ALL DRIVEWAYS ARE 4.8 METERS UNLESS NOTED OTHERWISE

SEE SHEET 19 FOR -L- PROFILE

15-JAN-2008 13:37
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PROJECT REFERENCE NO.	SHEET NO.
R-2414A	10
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

METRIC

5 0 10

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST. REV.

R/W REV.

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CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

REVISIONS

F/F DENOTES FILL IN WETLAND

HC/HC DENOTES HAND CLEARING

NAD 83

(44) EDWARD DECKER
D.B. 33, PG. 620

(46) WILLIAM R. MOSS
D.B. 74, PG. 34

(47) C.W. WARD, SR.
D.B. 36, PG. 641

(48) WILLIAM R. MOSS
D.B. 57, PG. 329

(49) C.W. WARD, SR.
D.B. 36, PG. 641

28+00

29+00

30+00

PASQUOTANK RIVER

N 43°32'52.7" E
33.48

SITE 10

PROP. SLOPE STAKE LINE

EXIST R/W

MATCH TO SHEET 9

MATCH TO SHEET 11

-L- STA 27+20.000

-L- STA. 30+80.000

-L- US158 NC34 6.7 BST

N 43°14'33.9" E

SITE 8

(45) CLAY FOREMAN
D.B. 79, PG. 86

(45) CLAY FOREMAN
D.B. 79, PG. 86

ALL DRIVEWAYS ARE 4.8 METERS UNLESS NOTED OTHERWISE

SEE SHEET 19 FOR -L- PROFILE

6-JAN-2008 13:37
C:\proj\2414a\survey\environmental\drawings\r-2414a-sprm.10.psh.dgn
jcain

PROJECT REFERENCE NO.	SHEET NO.
R-2414A	X-70

2.5 0 2.5 5

METRIC

SITE 10

Wetland

HC

SS 1:432

3%

0.0250

1.881

R/W

34+80.000

SITE 8

Wetland

Excavation In Wetlands

HC

0.0250

3%

SS 1:89

R/W

SITE 10

Wetland

HC

SS 1:261

3%

0.0250

1.871

R/W

34+60.000

SITE 8

Excavation In Wetlands

HC

0.0250

3%

SS 1:33

R/W

PROJECT REFERENCE NO.	SHEET NO.
R-2414A	11
R/W SHEET NO.	

METRIC

5 0 10

CONST.REV.

R/W REV.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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FIRM 783-924

ETHERIDGE ENGINEERING
449 JONES FRANKLIN ROAD
SUITE 140
RALEIGH, N.C. 27606
PHONE 919 851 2427
FAX 919 851 8121
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - RR/DPS - CONSTRUCTION OBSERVATION

REVISIONS

R-2414A

(49) C.W. WARD, SR.
D.B. 36, PG. 641

E E DENOTES EXCAVATION IN WETLAND

F F DENOTES FILL IN WETLAND

HC HC DENOTES HAND CLEARING

(51) COLLEGE OF THE ALBEMARLE
D.B. 89, PG. 778

NAD 83

(51) COLLEGE OF THE ALBEMARLE
D.B. 89, PG. 778

31+00 32+00 33+00 34+00

SITE 10

PROP. SLOPE STAKE LINE

EXIST R/W

0.6 BST

US158 NC34 6.7 BST

N 43°14' 33.9" E

-L-

-L- STA. 30+80.000 MATCH TO SHEET 10

-L- STA. 34+40.000 MATCH TO SHEET 12

SITE 8

PROP. SLOPE STAKE LINE

(50) CLAY FOREMAN
D.B. 73, PG. 88

ALL DRIVEWAYS ARE 4.8 METERS UNLESS NOTED OTHERWISE

SEE SHEET 20 FOR -L- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
R-2414A	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

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669 JONES FRANKLIN ROAD
SUITE 141
RALEIGH, N.C. 27606
PHONE 919 851 8477
FAX 919 851 8112
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - RR/SPS - CONSTRUCTION OBSERVATION

REVISIONS

8/21/03

(49) C.W. WARD, SR.
D.B. 36, PG. 641

(51) COLLEGE OF THE ALBEMARLE
D.B. 89, PG. 778

(51) COLLEGE OF THE ALBEMARLE
D.B. 89, PG. 778

E E DENOTES EXCAVATION IN WETLAND

F F DENOTES FILL IN WETLAND

HC HC DENOTES HAND CLEARING

NAD 83

31+00 32+00 33+00 34+00

SITE 10

SITE 8

PROP. SLOPE STAKE LINE

EXIST R/W

0.6 BST

US158 NC34 67 BST

N 43°14'33.9" E

-L-

MATCH TO SHEET 10

-L- STA. 30+80.000

MATCH TO SHEET 12

-L- STA. 34+40.000

(50) CLAY FOREMAN
D.B. 73, PG. 18

ALL DRIVEWAYS ARE 4.8 METERS UNLESS NOTED OTHERWISE

SEE SHEET 20 FOR -L- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
R-2414A	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

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RALEIGH, NC 27609-5220 (919) 783-9214
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W. ETHERIDGE ENGINEERING
889 JOHN FRANKLIN ROAD SUITE 140 Union, N.C. 27104
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

REVISIONS

DENOTES EXCAVATION IN WETLAND

DENOTES FILL IN WETLAND

DENOTES HAND CLEARING

(53) COLLEGE OF THE ALBEMARLE
D.B. 80, PG. 362

NAD 83

35+00 36+00 37+00 38+00

SITE 10

SITE 8

PROP. SLOPE STAKE LINE

EXIST R/W

-L-

N 43° 14' 33.9" E

0.6 BST

US158 NC34 67 BST

MATCH TO SHEET 11

MATCH TO SHEET 13

-L- STA. 34+40.000

-L- STA. 38+00.000

(52) W.B. ROBINSON
NO DEED REFERENCE AVAILABLE

(54) ROBERT LUTHER
D.B. 86, PG. 843

ALL DRIVEWAYS ARE 4.8 METERS UNLESS NOTED OTHERWISE

SEE SHEET 20 FOR -L- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
R-2414A	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

REVISIONS

DENOTES EXCAVATION IN WETLAND

DENOTES FILL IN WETLAND

DENOTES HAND CLEARING

NAD 83

35+00 | 36+00 | 37+00 | 38+00

SITE 10

SITE 8

MATCH TO SHEET 11

MATCH TO SHEET 13

-L- STA. 34+40.000

-L- STA. 38+00.000

PROP. SLOPE STAKE LINE

EXIST R/W

0.6 BST

US158 NC34 6.7 BST

-L-

N 43°14'33.9" E

53 COLLEGE OF THE ALBEMARLE
D.B. 80, PG. 362

52 W.B. ROBINSON
NO DEED REFERENCE AVAILABLE

54 ROBERT LUTHER
D.B. 86, PG. 843

ALL DRIVEWAYS ARE 4.8 METERS UNLESS NOTED OTHERWISE

SEE SHEET 20 FOR -L- PROFILE

KCI Associates of North Carolina, P.A.
3001 200, LANDMARK CENTER I, 4601 SIX FORKS RD.
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209 JOHNS FRANKLIN ROAD
SUITE 141
Vance, N.C. 27560
(919) 553-8277

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - SURVEYS - CONSTRUCTION OBSERVATION

8-JAN-2009 13:46
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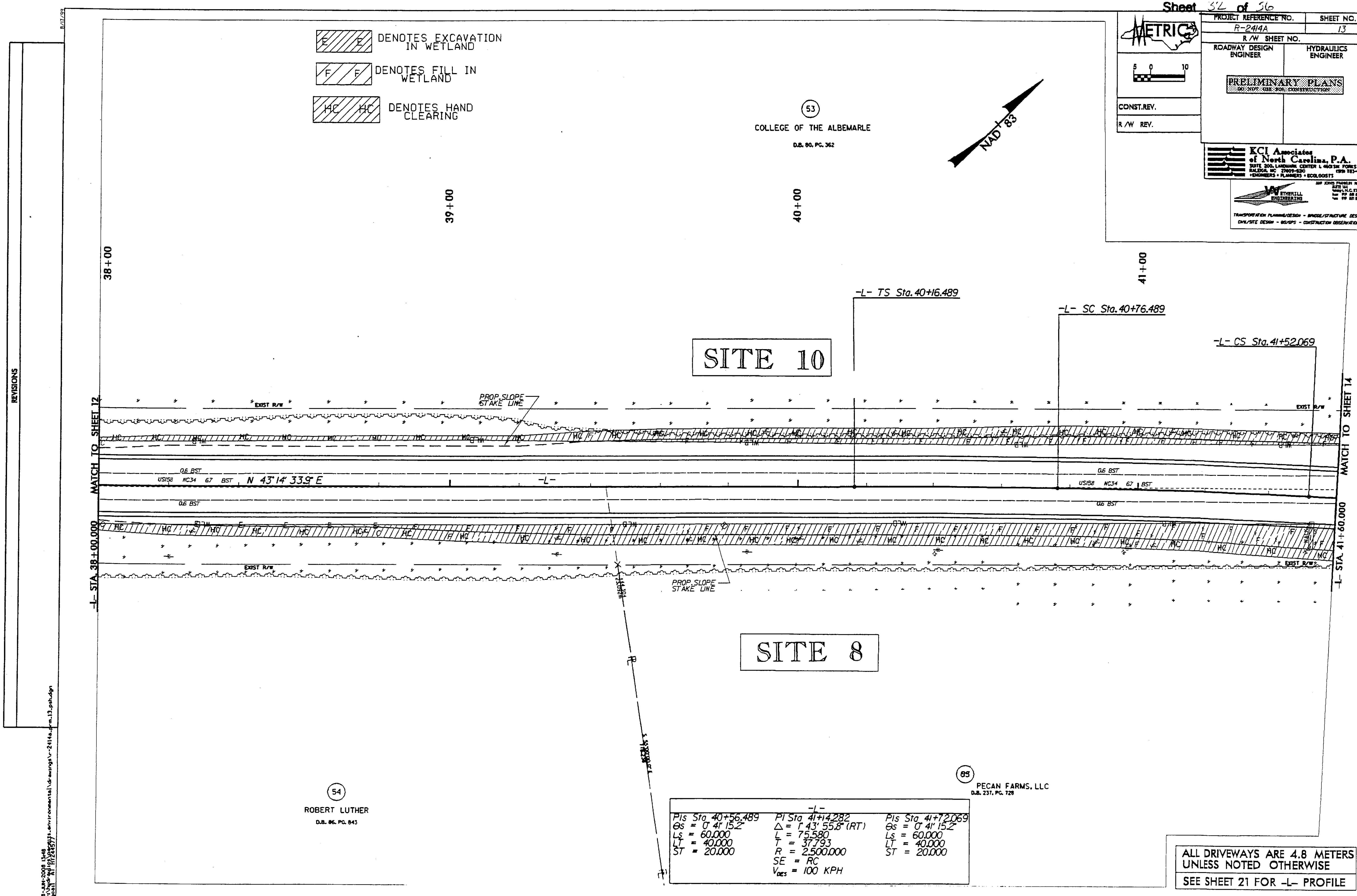

Sheet 32 of 56
PROJECT REFERENCE NO. R-2414A
SHEET NO. 13
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
METRIC
5 0 10
CONST.REV.
R/W REV.
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WETHERILL ENGINEERING
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION
REVISIONS
DENOTES EXCAVATION IN WETLAND
DENOTES FILL IN WETLAND
DENOTES HAND CLEARING
53
COLLEGE OF THE ALBEMARLE
D.B. 80, PG. 362
NAD 83
38+00
39+00
40+00
41+00
-L- TS Sta. 40+16.489
-L- SC Sta. 40+76.489
-L- CS Sta. 41+52.069
SITE 10
PROP. SLOPE STAKE LINE
EXIST R/W
MATCH TO SHEET 12
MATCH TO SHEET 14
0.6 BST
US158 NC34 6.7 BST
N 43° 14' 33.9" E
-L-
-L- STA. 38+00.000
-L- STA. 41+60.000
SITE 8
54
ROBERT LUTHER
D.B. 86, PG. 843
85
PECAN FARMS, LLC
D.B. 237, PG. 728
-L-
PIs Sta 40+56.489
θs = 0° 41' 15.2"
Ls = 60.000
LT = 40.000
ST = 20.000
PI Sta 41+14.282
Δ = 1° 43' 55.8" (RT)
L = 75.580
T = 37.793
R = 2,500.000
SE = RC
V DES = 100 KPH
PIs Sta 41+72.069
θs = 0° 41' 15.2"
Ls = 60.000
LT = 40.000
ST = 20.000
ALL DRIVEWAYS ARE 4.8 METERS UNLESS NOTED OTHERWISE
SEE SHEET 21 FOR -L- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
R-2414A	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

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SUITE 2001 LANDMARK CENTER I 4601 SIX FORKS RD.
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ETHERIDGE ENGINEERING
339 JONES FRANKLIN ROAD SUITE 140
Raleigh, N.C. 27606
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

DENOTES EXCAVATION IN WETLAND

DENOTES FILL IN WETLAND

DENOTES HAND CLEARING

(53) COLLEGE OF THE ALBEMARLE
D.B. 80, PG. 362

NAD 83

38+00 39+00 40+00 41+00

-L- TS Sta. 40+16.489

-L- SC Sta. 40+76.489

-L- CS Sta. 41+52.069

SITE 10

SITE 8

PROP. SLOPE STAKE LINE

EXIST R/W

0.6 BST

US158 NC34 67 BST

N 43°14' 33.9" E

-L-

MATCH TO SHEET 12

-L- STA. 38+00.000

MATCH TO SHEET 14

-L- STA. 41+60.000

(54) ROBERT LUTHER
D.B. 86, PG. 843

(85) PECAN FARMS, LLC
D.B. 237, PG. 728

-L-

PIs Sta. 40+56.489	PI Sta. 41+14.282	PIs Sta. 41+72.069
θs = 0° 41' 15.2"	Δ = 1° 43' 55.8" (RT)	θs = 0° 41' 15.2"
Ls = 60.000	L = 75.580	Ls = 60.000
LT = 40.000	T = 37.793	LT = 40.000
ST = 20.000	R = 2,500.000	ST = 20.000
	SE = RC	
	V_{des} = 100 KPH	

ALL DRIVEWAYS ARE 4.8 METERS UNLESS NOTED OTHERWISE

SEE SHEET 21 FOR -L- PROFILE

REVISIONS

8/17/98

18-FEB-2008 13:48
Plotted By: rhyde
Scale: 1" = 50'
C:\projects\environmental\drawings\r-2414a_prm_13_sph.dgn

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WETHERILL ENGINEERING
881 JONES FRANKLIN ROAD
SUITE 104
Raleigh, N.C. 27606
Phone 919 233 8073
Fax 919 233 8077
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

METRIC
5 0 10

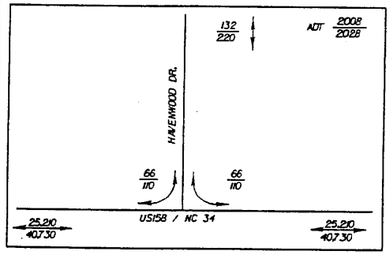
PROJECT REFERENCE NO.	SHEET NO.
R-2414A	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.
R/W REV.

REVISIONS

8-JAN-2008 13:52
c:\projects\31-environmental\drawings\r-2414a_rpm_14_psh.dgn

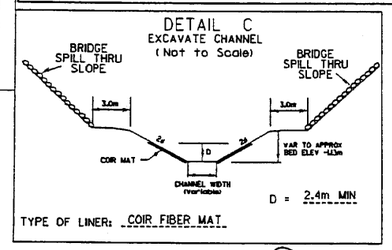


-L-
PIs Sta. 41+72.069
θs = 0° 41' 15.2"
Ls = 60.000
LT = 40.000
ST = 20.000

PIs Sta. 42+52.069
θs = 0° 41' 15.2"
Ls = 60.000
LT = 40.000
ST = 20.000

PI Sta. 44+20.646
Δ = 6° 48' 08.1" (LT)
L = 296.804
T = 148.577
R = 2,500.000
SE = RC
V_{DES} = 100 KPH

NAD 83



F/F DENOTES FILL IN WETLAND

HC/HC DENOTES HAND CLEARING

TS/TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

-L- 43+10

42+00

43+00

53
COLLEGE OF THE ALBEMARLE
D.B. 80, PG. 362

WATER

-L- SRS Sta. 42+12.069

SITE 10

SITE 11

-L- SC Sta. 42+72.069
Q10 = 0.040 cms (1.5 cfs)
OUTLET V10 = 2.7 m/s (9.0 ft/s)
RIP RAP PAD V10 = 0.12 m/s (0.4 ft/s)

CLASS I RIP RAP
1.8 TONS W, 5.0 F.F.

CLASS II RIP RAP (STRUCTURE ITEM)

BEGIN SHOULDER BERM GUTTER

-Y- POT Sta. 10+00.000

BOBBY F. & ELEANOR F. MATNEY
D.B. 132, PG. 193
2S BK D
(under construction)

44+00

5
WINIFRED WOOD
D.B. 44, PG. 207
2S BK D

WOODEN BULKHEAD WALL

GRADE TO DRAIN

GRADE TO DRAIN TO EX. 375 CMP

PROP SLOPE STAKE LINE

EXIST R/W

HAVENWOOD DR
S 43° 37' 42.20" E
52.85'

4.3 CONC

900 CONC

HAVENWOOD LAGOON

45+00

50.00'
N 42° 19' 06" E

-Y- +50.000
9052 (2970)

WILLIAM WEEKS
D.B. 48, PG. 37
2S BK D
6

CURB CUT 10+79

-Y- +65.000
25.395 (83.32')

EXISTING R/W

2GI TYPE-O

CB

375

10
11
12

CEM
(2) GRAVES

GRAU 350

USI58 MC34 6.7 BST

06 BST

2GI

TYPE-III

GUY

-L-

-L- STA. 41+60.000
MATCH TO SHEET 13

-L- STA. 45+00.000
MATCH TO SHEET 15

GRAU 850

EXIST. R/W

PROP SLOPE STAKE LINE

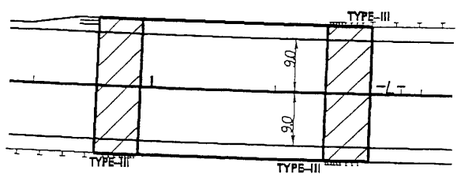
EXCAVATE CHANNEL SEE DETAIL C

PUE

-L- POC Sta. 44+48.281
-Y- POT Sta. 10+98.622

SITE 8

43+00



65
PECAN FARMS, LLC
D.B. 237, PG. 728

66
PECAN FARMS, LLC
D.B. 237, PG. 728

ALL DRIVEWAYS ARE 4.8 METERS UNLESS NOTED OTHERWISE

SEE SHEET 21 FOR -L- PROFILE

SEE SHEET 22 FOR -Y- PROFILE

SEE SHEET S-1 THRU S-__ FOR STRUCTURE PLANS

Permit Drawing
Sheet 35 of 36

KCI Associates of North Carolina, P.A.
SUITE 200, LANDMARK CENTER I, 4601 Six FORKS RD.
RALEIGH, NC 27609-6210
• ENGINEERS • PLANNERS • ECOLOGISTS
(919) 783-9214

WETHERILL ENGINEERING
819 JONES FRANKLIN ROAD
SUITE 104
Raleigh, N.C. 27606
Phone 919 851 8077
Fax 919 851 8077
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

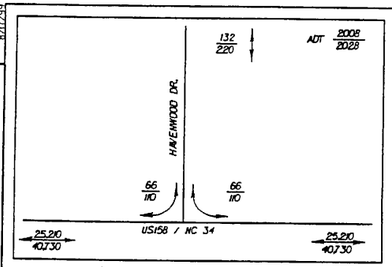
METRIC
5 0 10

PROJECT REFERENCE NO.	SHEET NO.
R-2414A	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST. REV.
R/W REV.

REVISIONS



-L-
PI Sta 41+72.069
Θs = 0° 41' 15.2"
Ls = 60.000
LT = 40.000
ST = 20.000

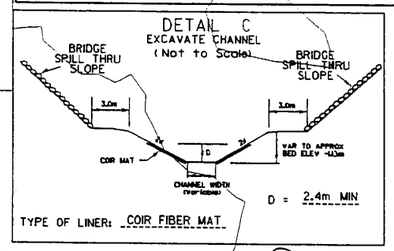
PI Sta 42+52.069
Θs = 0° 41' 15.2"
Ls = 60.000
LT = 40.000
ST = 20.000

PI Sta 44+20.546
Δ = 6° 48' 08.1" (LT)
L = 296.804
T = 148.577
R = 2,500.000
SE = RC
V_{des} = 100 KPH

NAD 83

F F DENOTES FILL IN WETLAND
HC HC DENOTES HAND CLEARING
TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DETAIL C
EXCAVATE CHANNEL
(Not to Scale)



TYPE OF LINER: COIR FIBER MAT
D = 2.4m MIN

-L- 43+10
53
COLLEGE OF THE ALBEMARLE
D.B. 80, PG. 362

-L- SRS Sta. 42+12.069

SITE 10

-L- SC Sta. 42+72.069
Q10 = 0.040 cms (1.5 cfs)
OUTLET V10 = 2.7 m/s (9.0 ft/s)
RIP RAP PAD V10 = 0.12 m/s (0.4 ft/s)

SITE 11

SITE 8

-Y- POT Sta. 10+00.000

BOBBY F. & ELEANOR F. MATNEY
D.B. 132, PG. 791
2S BK D
(under construction)

WINIFRED WOOD
D.B. 44, PG. 207
2S BK D
5

HAVENWOOD LAGOON
WILLIAM WEEKS
D.B. 48, PG. 37
2S BK D
6

-Y- +50.000
9052 (29.70)

CURB CUT 10+79

GRADE TO DRAIN

-L- +65.000
25.395 (83.32')

GRADE TO DRAIN TO EX. 375 CMP

PROP. SLOPE STAKE LINE

EXCAVATE CHANNEL SEE DETAIL C

WOODEN BULKHEAD

CLASS I RIP RAP 1.8 TONS W/ 5.0 F.F.

CLASS II RIP RAP (STRUCTURE ITEM)

BEGIN SHOULDER BERM GUTTER

TYPE III

EXIST R/W

GRAU 350 US158 NC34 67 BST

GRAU 850

2GI TYPE 20

375

CB

PECAN FARMS, LLC
D.B. 237, PG. 728
68

PECAN FARMS, LLC
D.B. 237, PG. 728
69

-L- POC Sta. 44+48.281
-Y- POT Sta. 10+98.622

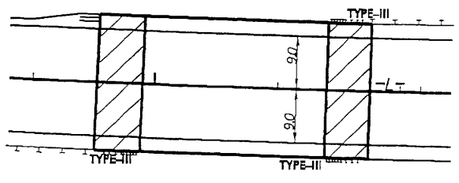
-L- STA. 41+60.000

-L- STA. 45+00.000

MATCH TO SHEET 13

MATCH TO SHEET 15

42+00
43+00
44+00
45+00



ALL DRIVEWAYS ARE 4.8 METERS UNLESS NOTED OTHERWISE

SEE SHEET 21 FOR -L- PROFILE
SEE SHEET 22 FOR -Y- PROFILE
SEE SHEET S-1 THRU S-__ FOR STRUCTURE PLANS

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STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 3.3	CMS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 1.71	M
BASE DISCHARGE	= 4.0	CMS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 1.86	M
OVERTOPPING DISCHARGE	= 5.9	CMS
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING ELEVATION	= 2.07	M

533 mm CORED SLAB
THREE SPAN - 1 @ 9.1m,
1 @ 12.2, 1 @ 9.1m
LENGTH 30.4m

BEGIN BRIDGE
-L- STA. 42+97.800
EL = 3.492 m

END BRIDGE
-L- STA. 43+28.200
EL = 3.717 m

PI = 43+80.000
EL = 4.102 m
VC = 75 m
K = 54.2
V_{DES} = 100 KPH

+0.7420%

-0.6430%

EX. CENTERLINE & GROUNDLINE

NATURAL GROUND

AREAS TO BE EXCAVATED
EST. 1600 C.M.

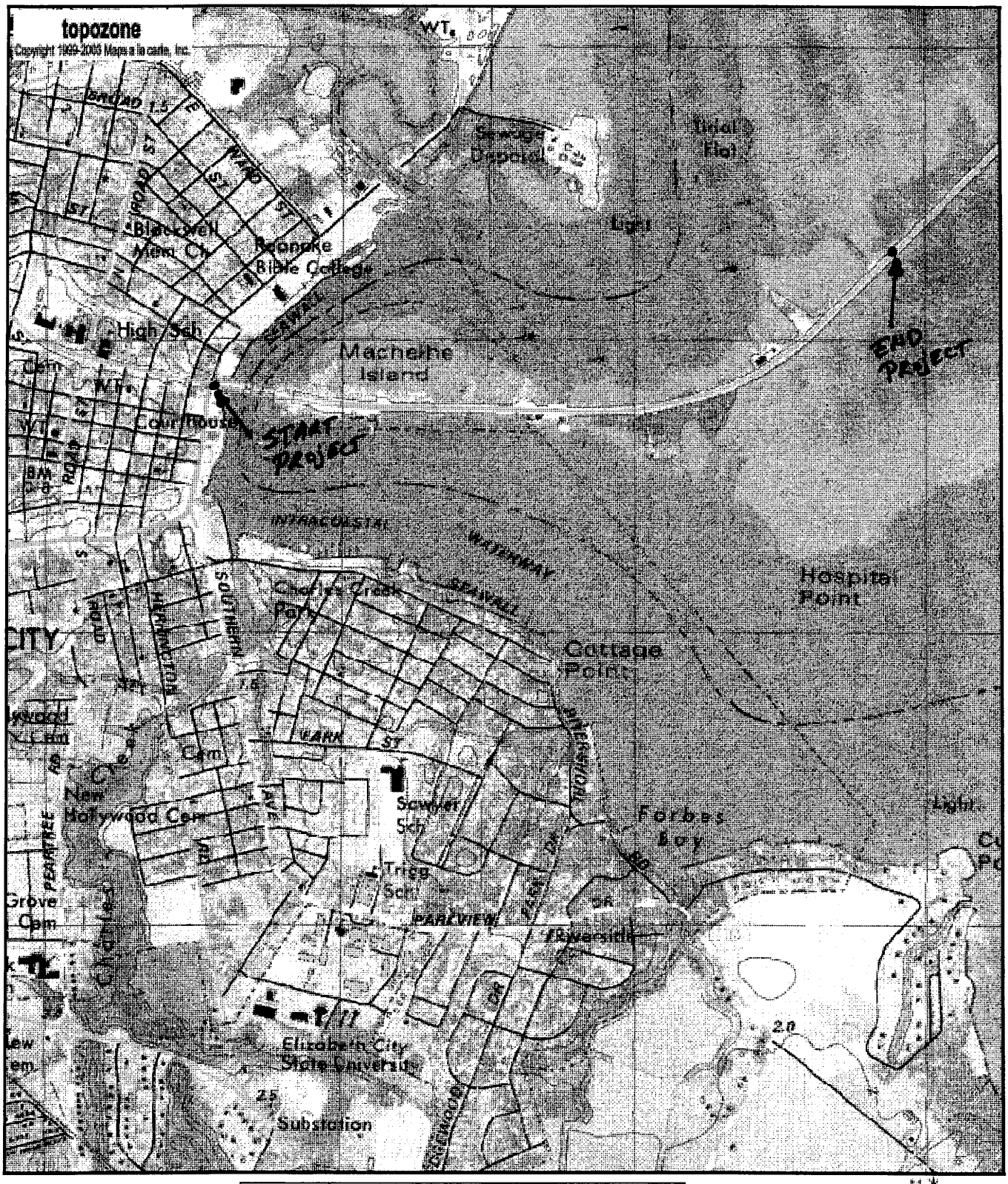
EXCAVATION

NWS = 0.470

REMOVE EXISTING
2.13m X 2.44m RCBC

VAR. TO APPROX.
BED ELEV. = (-)1.13m

2 +20 +40 +60 +80 43 +20 +40 +60 +80 44



UTM 18 391596E 4017366N (NAD83/WGS84)

Cottage Point, USGS Elizabeth City (NC) Quadrangle

Projection is UTM Zone 18 NAD83 Datum

Utility Permit Drawing
Sheet 1 of 16

R-2414A Utilities

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To) -L- LINE	Structure Size / Type	WETLAND IMPACTS: Permanent Fill In Wetlands (ha)	WETLAND IMPACTS: Temp. Fill In Wetlands (ha)	WETLAND IMPACTS: Excavation in Wetlands (ha)	WETLAND IMPACTS: Mechanized Clearing in Wetlands (ha)	WETLAND IMPACTS: Hand Clearing in Wetlands (ha)	SURFACE WATER IMPACTS: Permanent SW impacts (ha)	SURFACE WATER IMPACTS: Temp. SW impacts (ha)	SURFACE WATER IMPACTS: Existing Channel Impacts Temp (m)	SURFACE WATER IMPACTS: Natural Stream Design (m)
1	8+11 TO										
	8+83						0.072				
2	10+70 TO										
	11+07						0.024				
3	11+83 TO										
	13+00						0.074				
4	13+48 TO										
	14+64						0.136				
5	15+51 TO										
	15+79						0.030				
6	16+57 TO										
	23+30						0.767				
7	24+36 TO										
	25+11						0.092				
8	25+89 TO										
	28+17						0.184				
9	28+31 TO										
	28+45						0.006				
10	28+99 TO										
	41+64						1.291				
11	42+80 TO										
	43+00										
							0.004				
TOTALS:							2.679		0.000	0	0.0

Temporary fill in wetlands for erosion and sediment control measures.

Temporary Stream Impact.
Existing RCBC and Roadway Fill Removed.
Replaced w/ 23.9m of Open Channel.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

CAMDEN COUNTY
WBS - 34430.1.1 (R-2414A)

SHEET 2 OF 16 10/13/2008

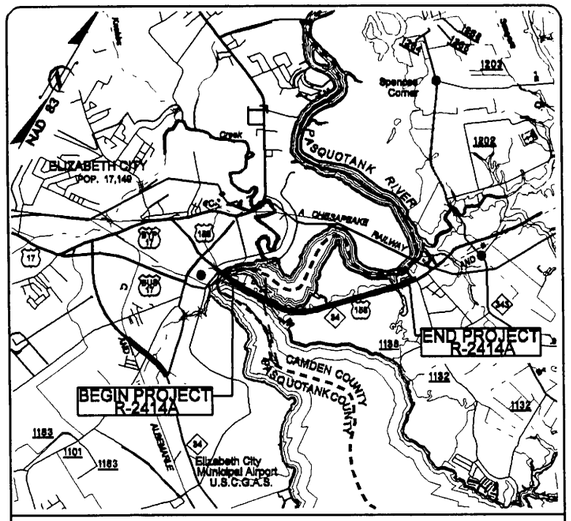
JMD Revised 2/03/05

9/03/99

TIP PROJECT: R-2414A

See Sheet 1-A For Index of Sheets

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

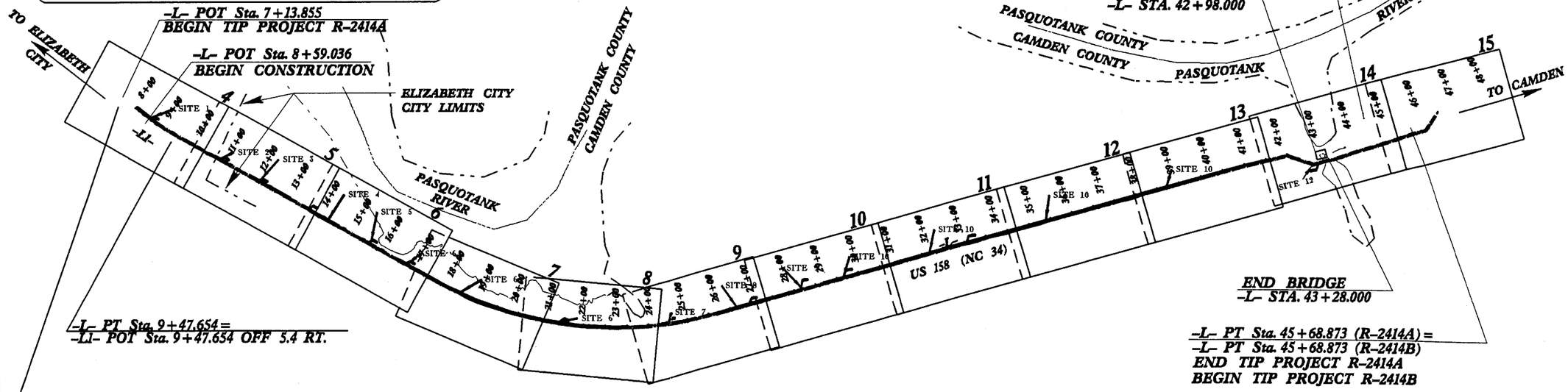
T.I.P. NO.	SHEET NO.
R-2414A	UO-1

Permit Drawing
Sheet 3 of 16
Utility

UTILITY BY OTHERS PLANS
CAMDEN COUNTY

LOCATION: US 158/NC 34 FORM EAST OF PASQUOTANK RIVER TO SOUTH OF SR 1257 (HAVENWOOD DR.) BETWEEN ELIZABETH CITY AND CAMDEN

TYPE OF WORK: POWER, TELEPHONE AND CABLE RELOCATION



CLEARING TO BE PERFORMED BY METHOD II

THIS PROJECT IS WITHIN MUNICIPAL BOUNDARIES OF ELIZABETH CITY

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

GRAPHIC SCALES

PLANS 5 0 10

PROFILE (HORIZONTAL) 5 0 10

PROFILE (VERTICAL) 1 0 2

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-2414A	=	3.825 KM
LENGTH STRUCTURE TIP PROJECT R-2414A	=	0.030 KM
TOTAL LENGTH TIP PROJECT R-2414A	=	3.855 KM

KCI Associates of North Carolina, P.A.
SUITE 200, LANDMARK CENTER I, 4601 SIX FORKS RD.
RALEIGH, NC 27609-5291 (919) 783-9214
• ENGINEERS • PLANNERS • ECOLOGISTS

PREPARED IN THE OFFICE OF:
DIVISION OF HIGHWAYS
DESIGN SERVICES
UTILITY SECTION
1591 MAIL SERVICES CENTER
RALEIGH NC 27699-1591
PHONE (919) 250-4128
FAX (919) 250-4119

Roger Worthington, P.E. UTILITIES SECTION ENGINEER
Corey Bousquet, P.E. UTILITIES SQUAD LEADER PROJECT ENGINEER
Britt McCurry UTILITIES PROJECT DESIGNER

07-APR-2008 14:14
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PROJECT REFERENCE NO.	SHEET NO.
R-2414A	U0-2

UTILITIES BY OTHERS

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

METRIC
5 0 10
CONST.REV.
R/W REV.

Utility Permit Drawing
Sheet 4 of 16

DETAIL A
VALLEY GUTTER
600
300 300
50 MIN. 180

- LI- RT 7+25.6 TO 7+35.9
- LI- RT 7+64.5 TO 7+74.7
- LI- RT 7+97.8 TO 8+08.0
- LI- RT 8+55.3 TO 8+65.4
- LI- RT 8+83.3 TO 8+93.5
- LI- RT 8+97.6 TO 9+07.7

F F DENOTES FILL IN WETLAND

HC HC DENOTES HAND CLEARING

NAD 83

-L-
PI Sta 8+89.622
Δ = 8° 27' 35.5" (LT)
L = 88.591
T = 44.376
R = 600.000
SE = 05
V_{des} = 80 KPH

BEGIN TIP PROJECT R-2414A
-L- POT STA.7+13.855

(GPS R2414A-1) POT 5+00.000
-L- STA. 7+52.069
OFF 15.670 RT.

CITY OF ELIZABETH CITY
D.B. 75, PG. 68

8+00

9+00

10+00

RUTH M. LOWRY
D.B. 83, PG. 39

BEGIN CONSTRUCTION
-L- POC STA.8+59.036

-L- PC Sta.8+45.246

SITE 1

-L- PT Sta.9+33.837
-U- POT Sta.9+33.837
5.400 RT.

= 0.067 cms (2.4 cfs)
) = 0.6 m/s (2.0 ft/s)

CLEANOUT
OUTFALL

CLASS I RIP RAP
L.8 TONS
W/ 6.7 F.F.

PROP. SLOPE STAKE LINE

BEGIN 750 CURB & GUTTER
-U- STA.7+12.730

S 82° 36' 45.6" E

750 CURB & GUTTER

S 82° 36' 45.4" E

200x300 CONC.CURB

GRAVEL DRIVE

H.R. GARDNER
D.B. 99, PG. 350
1-SFD

254mm PVC WATER DATUR
EXIST R/W

200x450 CONC.CURB

FORCE MAIN VALVE

FORCE MAIN PUMP

2SF APT

H.R. GARDNER
D.B. 99, PG. 350

STELLA BUNDY
C/O JUNE MILLER
D.B. 92, PG. 884

JUNE MILLER
D.B. 93, PG. 26

D.B. 84, PG. 725

BEGIN CONSTRUCTION
-U- POT Sta.7+12.730

-U- PCSta.8+05.028

-U- PTSta.9+08.385

WATER

-U-
PI Sta 8+56.800
Δ = 8° 27' 35.5" (LT)
L = 103.357
T = 51.772
R = 700.000
SE = 05
V_{des} = 80 KPH

N 88° 55' 39.5" E

CRUSHED SEASHELL

ISF BUS

ISFD

CLARENCE MUNDEN
"MARINA RESTAURANT"

ERVIN & DONNA STAHLE
"THE PELICAN, Inc."
D.B. 76, PG. 825

21 1000 GAL TANKS

DOCK

-BL- "I PINC 7+25.554
-L- STA. 9+76.098
OFF 12.260 LT.

-L- STA 10+20.000 MATCH TO SHEET 5

LEGEND
DENOTES HAND CLEARING IN WETLAND
MATTING WILL BE USED TO INSTALL POWER POLES IN WETLAND

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PROJECT REFERENCE NO.	SHEET NO.
R-2414A	U0-3

UTILITIES BY OTHERS

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

METRIC
5 0 10
CONST.REV.
R/W REV.

Utility Permit Drawing Sheet 5 of 16

5/14/99

REVISIONS

NAD 83

F/F DENOTES FILL IN WETLAND

HC/HC DENOTES HAND CLEARING

ANTHONY WOODISSE
D.B. 99, PG. 790

FIRST UNION NATIONAL BANK
D.B. 60, PG. 585

11+00

12+00

13+00

(INCGS CAUSEWAY) PINC 10+28.563
-L- STA. 12+79.033
OFF 5.538 LT.

CITY OF ELIZABETH CITY
D.B. 44, PG. 277

SITE 2

SITE 3

PROP SLOPE STAKE LINE

MATCH TO SHEET 4

MATCH TO SHEET 6

-L- STA 10+20.000

-L- STA 13+80.000

N 88° 55' 39" E

2+20 2+40 3+00 3+20 3+40 3+60 4+00 4+40 4+60 4+80 5+00 5+20 5+40 5+60

SOIL

12 PS

AIR RELEASE VALVE DATUR

WATER DATUR

0.5 BST

US#58 NC 34 6.8 BST

50mm PVC FORCE MAIN DATUR

254mm PVC WATER DATUR

GUY

WALL

CONC. WALL

DOCK

GRADE TO DRAIN

EXIST R/W

RIPRAP

CLASS I RIP RAP
41.6 TONS W/ 57.8 F.F.

PROP SLOPE STAKE LINE

+65.75
15.499 (50.85')

+89.000
20.250 (66.44')

+00.000
22.500 (73.82')

+12.455
15.463 (50.73')

10" TRENCHLESS INSTALL THROUGH WETLAND

MATCH EXIST. DRIVEWAY WIDTH

PROP DR CURB

3.5 GR

PIER

GR

S

WD
GAZEBO

ERVIN & DONNA STAHEL
"THE PELICAN, Inc."
D.B. 76, PG. 825

ERVIN & DONNA STAHEL
D.B. 93, PG. 65

WATER

LEGEND

DENOTES HAND CLEARING IN WETLAND

MATTING WILL BE USED TO INSTALL POWER POLES IN WETLAND

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PROJECT REFERENCE NO.	SHEET NO.
R-2414A	U0-4

METRIC

5 0 10

CONST.REV.

R/W REV.

UTILITIES BY OTHERS

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

Utility Permit Drawing
Sheet 6 of 16

5/14/99

REVISIONS

NAD 83

F/F DENOTES FILL IN WETLAND

HC/HC DENOTES HAND CLEARING

WATER

14+00 15+00 16+00 17+00

-L- STA 13+80.000 MATCH TO SHEET 5

-L- STA 17+40.000 MATCH TO SHEET 7

-L- TS Sta 17+28.33

-BL- ℙ 2 PINC 12+85.880
-L- STA. 15+36.339
OFF 7.893 LT.

+00.000 15.973 (52.40')
+20.000 15.989 (52.46')
+40.000 16.015 (52.54')
+53.253 15.787 (51.80')
+84.877 15.928 (52.26')

PROP SLOPE STAKE LINE

SITE 5

SITE 6

(2) WILLIAM PEFLEY D.B. 62, PG. 89

WILLIAM PEFLEY D.B. 62, PG. 89

LLOYD D. GRIFFIN D.B. 38, PG. 45

W.F. THOMPSON D.B. 102, PG. 22

BILL LINDA TAYLOR D.B. 82, PG. 6

CAMDEN COUNTY ABC BOARD D.B. 71, PG. 399

MARKHAM ENTERPRISES, Inc. "CAUSEWAY MARINA" D.B. 72, PG. 93 D.B. 96, PG. 161

LLOYD D. GRIFFIN D.B. 38, PG. 45

N 88° 55' 39" E

-L-

50mm PVC FORCE MAIN DATUR

25.4mm PVC WATER DATUM

MATCH EXIST. DRIVEWAY WIDTH

FORCE MAIN PUMP

1200 WD WALL

1800 CHL WK 3 SB

WD GUARD POSTS

CURB

RIPRAP

DOCK

2SFD

GAZEBO

ISF BUS

LEGEND

DENOTES HAND CLEARING IN WETLAND

MATTING WILL BE USED TO INSTALL POWER POLES IN WETLAND

SEE SHEET 17 FOR -L- PROFILE

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Projects\Roadway\Environmental\R-2414A_UT_04_PSH.DGN

METRIC

5 0 10

PROJECT REFERENCE NO.	SHEET NO.
[redacted]	7
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

REVISIONS

8/17/99

KCI Associates of North Carolina, P.A.
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• ENGINEERS • PLANNERS • ECOLOGISTS

WETHERILL ENGINEERING
669 JONES FRANKLIN ROAD, SUITE 140, RALEIGH, N.C. 27606
PHONE 919 851 8077 FAX 919 851 8707
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
DRAINAGE/SITE DESIGN - ROADWAY DESIGN - CONSTRUCTION OBSERVATION

Utility Permit Drawing
Sheet 7 of 16

DENOTES FILL IN WETLAND

DENOTES HAND CLEARING

NAD 83

18+00 19+00 20+00

WATER

C.H. ROBINSON
D.B. 31, PG. 184

-BL- ℄ PINC 14+97.199
-L- STA. 17+41.636
OFF 6.307 LT.

C.H. ROBINSON
D.B. 31, PG. 184

-L- SC Sta. 18+03.133

CAMDEN COUNTY
D.B. 93, PG. 219

(NCGS WOOD) PINC 17+52.478
-L- STA. 20+01.775
OFF 8.859 LT.

CAMA WETLAND

PROP. SLOPE STAKE LINE

EXIST R/W

MATCH TO SHEET 6

-L- STA. 17+40.000

MATCH TO SHEET 8

-L- STA. 22+60.000

PROP. 250mm WATER pipe

-L-

PIs Sta 17+78.136	PI Sta 21+97.702
θs = 2°03'51.4"	Δ = 41°33'10.3" (LT)
Ls = 75.000	L = 754.244
LT = 50.003	T = 394.569
ST = 25.003	R = 1,040.000
	SE = 05
	V_{des} = 100 KPH

254mm PVC WATER DATUM

WOOD FENCE

C.H. ROBINSON
D.B. 31, PG. 184

F.K. KRAMER
D.B. 73, PG. 78

W.F. THOMPSON
D.B. 102, PG. 212

ROGER BRIGHT
D.B. 73, PG. 644

LLOYD D. GRIFFIN
D.B. 38, PG. 48

ALL DRIVEWAYS ARE 4.8 METERS UNLESS NOTED OTHERWISE

SEE SHEET 18 FOR -L- PROFILE

03-JAN-2004 15:44
(Email) \\Rgc-v-241\e$\projects\V-2414\e87_rw_sd5.psh-dgn

PROJECT REFERENCE NO.	SHEET NO.
R-2414A	U0-6

METRIC

8 0 10

CONST.REV.

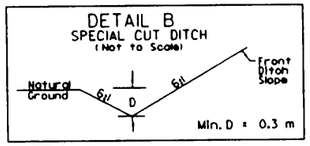
R/W REV.

UTILITIES BY OTHERS

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

Utility Permit Drawing
Sheet 3 of 16

DETAIL B
SPECIAL CUT DITCH
(Not to Scale)



-L- LT 23+51 TO 24+00

F/F DENOTES FILL IN WETLAND

HC/HC DENOTES HAND CLEARING

PASQUOTANK RIVER

WATER

WILLIAM B. ROBINSON
D.B. 35, PG. 48

WILLIAM B. ROBINSON
D.B. 35, PG. 48

C.T. WHITE
CALVIN LAMB
D.B. 46, PG. 997

HAROLD CALDWELL
D.B. 36, PG. 408

LES CELLES ROBERTSON
D.B. 82, PG. 963

ERIE T. HASTE, JR.
D.B. 76, PG. 456

NAD 83

Q10 = 0.053 cms (1.9 cfs)
V10 = 0.4 m/s (1.2 ft/s)

PROP. SLOPE STAKE LINE

SITE 6

MATCH TO SHEET 7

-L- STA. 20+60.000

MATCH TO SHEET 9

-L- STA. 24+00.000

CLASS VI RIP RAP W/ 5.0 F.F. 8 TONS

SPECIAL DITCH SEE DETAIL B

IS MTL BUS

ISF BUS

WALL

GR

12+80 13+00 13+20 13+40 13+60 13+80 14+00 14+20 14+40 14+60 14+80 15+00 15+20 15+40 15+60 15+80 16+00 16+20 16+40 16+60 16+80 17+00 17+20 17+40 17+60 17+80 18+00 18+20 18+40 18+60 18+80 19+00 19+20 19+40 19+60 19+80 20+00 20+20 20+40 20+60

0.6 BST

US158 NC24 67 BST

1.2 PS

2.5 PS

7.2

375

150 CONC CURB

24" PVC WATER MAIN

EXIST R/W

PROP. SLOPE STAKE LINE

WILLIAM B. ROBINSON
D.B. 35, PG. 48

CLAY FOREMAN
D.B. 83, PG. 739

-L-
PI Sta 21+97.702
Δ = 41° 33' 10.3" (LT)
L = 754.244
T = 394.569
R = 1,040.000
SE = 05
V_{DES} = 100 KPH

LEGEND

DENOTES HAND CLEARING IN WETLAND

MATTING WILL BE USED TO INSTALL POWER POLES IN WETLAND

5/11/99

07-APR-2008 14:04
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(dgnsh) ATRESS\ac permits

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-2414A	U0-7

METRIC

5 0 10

CONST.REV.

R/W REV.

UTILITIES BY OTHERS

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

Utility Permit Drawing
Sheet 9 of 16

CYRUS AYDLETT
D.B. 33, PG. 499

ROBLEY PERRY
D.B. 38, PG. 151

GEORGE RAPER
D.B. 75, PG. 893

THEODORE WOOD
D.B. 75, PG. 69

UNDINE PERRY LONGO
D.B. 35, PG. 220

UNDINE PERRY LONGO
D.B. 35, PG. 220

F/F DENOTES FILL IN WETLAND

HC/HC DENOTES HAND CLEARING

NAD 83

MATCH TO SHEET 8

-L- STA 24+00.000

24+00

25+00

26+00

27+00

SITE 7

SITE 8

-L- ST Sta. 26+32.377

60.000 TAPER LT & RT

PROP SLOPE STAKE LINE

PROP SLOPE STAKE LINE

-L- CS Sta. 25+57.377

N 43°14' 33.9" E

PAINTED ISLAND

MATCH TO SHEET 10

-L- STA. 27+20.000

CLAY FOREMAN
D.B. 89, PG. 799

CLAY FOREMAN
D.B. 89, PG. 799

-L-

PI Sta 21+97.702	PIs Sta 25+82.380
Δ = 41° 33' 10.3" (LT)	θs = 2° 03' 57.4"
L = 754.244	Ls = 75.000
T = 394.569	LT = 50.003
R = 1,040.000	ST = 25.003
SE = 05	
V_{DES} = 100 KPH	

LEGEND

DENOTES HAND CLEARING IN WETLAND

MATTING WILL BE USED TO INSTALL POWER POLES IN WETLAND

07-APR-2008 14:03
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PROJECT REFERENCE NO.	SHEET NO.
R-2414A	U0-8

UTILITIES BY OTHERS

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

CONST.REV.

R /W REV.

Utility Permit Drawing Sheet 10 of 16

F F DENOTES FILL IN WETLAND

HC HC DENOTES HAND CLEARING

NAD 83

EDWARD DECKER
D.B. 33, PG. 620

WILLIAM R. MOSS
D.B. 74, PG. 34

C.W. WARD, SR.
D.B. 36, PG. 64

C.W. WARD, SR.
D.B. 36, PG. 64

WILLIAM R. MOSS
D.B. 57, PG. 329

28+00

27+00

30+00

SITE 9

SITE 10

60.000 TAPER
LT & RT

PROP SLOPE STAKE LINE

19+00 19+40 19+60 19+80 20+00 20+20 20+40 20+60 20+80 21+00 21+20 21+40 21+60 21+80 22+00 22+20 22+40 22+60

EXIST R/W

12 PS

06 BST

US158 NC34 67 BST

12 PAINTED ISLAND

N 43°14'33.9"E

MATCH TO SHEET 9

MATCH TO SHEET 11

-L- STA 27+20.000

-L- STA. 30+80.000

PROP SLOPE STAKE LINE

S. FORK ROCKY RIVER

CLAY FOREMAN
D.B. 73, PG. 86

LEGEND

DENOTES HAND CLEARING IN WETLAND

MATTING WILL BE USED TO INSTALL POWER POLES IN WETLAND

CLAY FOREMAN
D.B. 73, PG. 86

5/14/99

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PROJECT REFERENCE NO.	SHEET NO.
R-2414A	U0-9

METRIC

5 0 10

CONST.REV.

R/W REV.

UTILITIES BY OTHERS

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

Utility Permit Drawing Sheet 11 of 16

E E DENOTES EXCAVATION IN WETLAND

F F DENOTES FILL IN WETLAND

HC HC DENOTES HAND CLEARING

C.W. WARD, SR.
D.B. 36, PG. 64

COLLEGE OF THE ALBEMARLE
D.B. 99, PG. 778

NAD 83

COLLEGE OF THE ALBEMARLE
D.B. 99, PG. 778

31+00 32+00 33+00 34+00

SITE 10

PROP SLOPE STAKE LINE

EXIST R/W

22+80 23+00 23+20 23+40 23+60 23+80 24+00 24+20 24+40 24+60 24+80 25+00 25+20 25+40 25+60 25+80 26+00 26+20

MATCH TO SHEET 10

-L- STA. 30+80.000

MATCH TO SHEET 12

-L- STA. 34+40.000

12 PS

0.6 BST

US158 NC34 67 BST

N 43°14'33.9"E

-L-

12 PAINTED ISLAND

12 PS/HC

25mm PVC WATER MAIN

PROP SLOPE STAKE LINE

50
CLAY FOREMAN
D.B. 73, PG. 88

LEGEND

DENOTES HAND CLEARING IN WETLAND

MATTING WILL BE USED TO INSTALL POWER POLES IN WETLAND

ALL DRIVEWAYS ARE 4.8 METERS UNLESS NOTED OTHERWISE

SEE SHEET 20 FOR -L- PROFILE

5/14/99

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PROJECT REFERENCE NO.	SHEET NO.
R-2414A	U0-10

UTILITIES BY OTHERS

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

CONST.REV.

R/W REV.

Utility Permit Drawing Sheet 12 of 16

E E DENOTES EXCAVATION IN WETLAND

F F DENOTES FILL IN WETLAND

HC HC DENOTES HAND CLEARING

COLLEGE OF THE ALBEMARLE
D.B. 80, PG. 362

NAD 83

35+00 36+00 37+00 38+00

SITE 10

PROP. SLOPE STAKE LINE

EXIST R/W

26+40 26+60 26+80 27+00 27+20 27+40 27+60 27+80 28+00 28+20 28+40 28+60 28+80 29+00 29+20 29+40 29+60 29+80

MATCH TO SHEET 11

MATCH TO SHEET 13

-L- STA. 34+40.000

-L- STA. 38+00.000

0.6 BST

US158 NC34 6.7 BST

1.2 PAINTED ISLAND

N 45°14'33.9" E

254mm PVC WATER DATUM

1.2 PS

W.B. ROBINSON
NO DEED REFERENCE AVAILABLE

ROBERT LUTHER
D.B. 86, PG. 343

LEGEND

DENOTES HAND CLEARING IN WETLAND

MATTING WILL BE USED TO INSTALL POWER POLES IN WETLAND

5/14/99

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PROJECT REFERENCE NO.	SHEET NO.
R-2414A	UO-11

METRIC

5 0 10

CONST.REV.

R/W REV.

UTILITIES BY OTHERS

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

Utility Permit Drawing Sheet 13 of 16

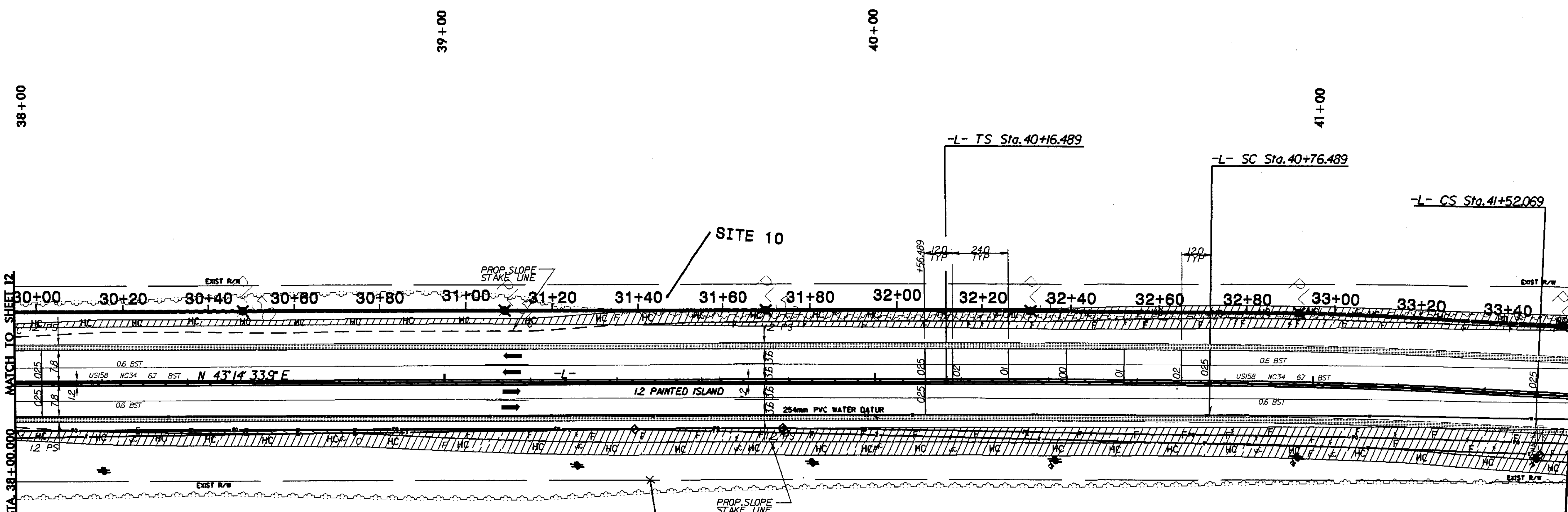
E E DENOTES EXCAVATION IN WETLAND

F F DENOTES FILL IN WETLAND

HC HC DENOTES HAND CLEARING

COLLEGE OF THE ALBEMARLE
D.B. 80, PG. 362

NAD 83



ROBERT LUTHER
D.B. 86, PG. 843

C.O. ROBINSON TRUST
D.B. 105, PG. 293

-L-		
PIs Sta 40+56.489	PI Sta 41+14.282	PIs Sta 41+72.069
θs = 0° 41' 15.2"	Δ = 1° 43' 55.8" (RT)	θs = 0° 41' 15.2"
Ls = 60.000	L = 75.580	Ls = 60.000
LT = 40.000	T = 37.793	LT = 40.000
ST = 20.000	R = 2,500.000	ST = 20.000
	SE = RC	
	V_{DES} = 100 KPH	

LEGEND

DENOTES HAND CLEARING IN WETLAND

MATTING WILL BE USED TO INSTALL POWER POLES IN WETLAND

5/14/99

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PROJECT REFERENCE NO.	SHEET NO.
R-2414A	U0-11

METRIC

5 0 10

CONST.REV.

R/W REV.

UTILITIES BY OTHERS

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

Utility Permit Drawing Sheet 14 of 16

E E DENOTES EXCAVATION IN WETLAND

F F DENOTES FILL IN WETLAND

HC HC DENOTES HAND CLEARING

COLLEGE OF THE ALBEMARLE
D.B. 90, PG. 362

NAD 83

38+00 39+00 40+00 41+00

-L- TS Sta. 40+16.489

-L- SC Sta. 40+76.489

-L- CS Sta. 41+52.069

SITE 10

+56.489

120 TYP 240 TYP 120 TYP

EXIST R/W

PROP. SLOPE STAKE LINE

30+00 30+20 30+40 30+60 30+80 31+00 31+20 31+40 31+60 31+80 32+00 32+20 32+40 32+60 32+80 33+00 33+20 33+40

MATCH TO SHEET 12

MATCH TO SHEET 14

0.6 BST

US158 NC34 67 BST

N 43°14'33.9"E

-L-

1.2 PAINTED ISLAND

254mm PVC WATER DATUR

1.2 PSI

-L- STA. 38+00.000

-L- STA. 41+60.000

ROBERT LUTHER
D.B. 96, PG. 843

C.O. ROBINSON TRUST
D.B. 105, PG. 293

-L-		
PIs Sta 40+56.489	PI Sta 41+14.282	PIs Sta 41+72.069
θs = 0° 41' 15.2"	Δ = 1° 43' 55.8" (RT)	θs = 0° 41' 15.2"
Ls = 60.000	L = 75.580	Ls = 60.000
LT = 40.000	T = 37.793	LT = 40.000
ST = 20.000	R = 2,500.000	ST = 20.000
	SE = RC	
	V_{des} = 100 KPH	

LEGEND

DENOTES HAND CLEARING IN WETLAND

MATTING WILL BE USED TO INSTALL POWER POLES IN WETLAND

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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-2414A	U0-12

UTILITIES BY OTHERS

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

METRIC 5 0 10

CONST.REV.

R/W REV.

Utility **Permit Drawing** Sheet 15 of 16

-L-

PIs Sta 41+72.069	PIs Sta 42+52.069	PI Sta 44+20.546
θs = 0° 41' 15.2"	θs = 0° 41' 15.2"	Δ = 6° 48' 08.1" (LT)
Ls = 60.000	Ls = 60.000	L = 296.804
LT = 40.000	LT = 40.000	T = 148.577
ST = 20.000	ST = 20.000	R = 2,500.000
		SE = RC
		V_{DES} = 100 KPH

NAD 83

F F DENOTES FILL IN WETLAND

HC HC DENOTES HAND CLEARING

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

COLLEGE OF THE ALBEMARLE
D.B. 80, PG. 362

42+00 43+00 44+00 45+00

-L- SRS Sta. 42+12.069

-L- SC Sta. 42+72.069

Q10 = 0.040 cms (1.5 cfs)
OUTLET V10 = 2.7 m/s (9.0 ft/s)
RIP RAP PAD V10 = 0.12 m/s (0.4 ft/s)

CLASS I RIP RAP
1.8 TONS W/ 5.0 F.F.
3.4 m EXPRESSWAY GUTTER

CLASS II RIP RAP (STRUCTURE ITEM)

REMOVE EXISTING STRUCTURE

PROP SLOPE STAKE LINE

EXIST R/W

MATCH TO SHEET 13

-L- STA. 41+60.000

PAINTED ISLAND

GRAU 350

+88.000
18.759 (61.55')

60.0 TRANSITION LT & RT

+72.069
23.000 (75.46')

SITE 11

COIR FIBER MATTING

GRADE TO DRAIN TO EX. 375 CMP

TYPE-III

60.0 TRANSITION

90.000 FULL LANE

TRIB TO PASQUOTANK RIVER

+40.000
23.000 (75.46')

WOODEN BULKHEAD
DO NOT DISTURB CEMETERY

-Y- POT Sta.10+00.000

WINIFRED WOOD
D.B. 44, PG. 207

-Y- POT STA.10+40.000
BEGIN CONSTRUCTION

25 BK D
(under construction)

S43°31'20"E

52 BST

HAVENWOOD DR.

EXISTING R/W

+40.000

+51.000
9.259 (30.38')

5

2S BK D

HAVENWOOD LAGOON

50/99
N44°19'E

-Y- +50.000
9052 (29.70')

WILLIAM WEEKS
D.B. 45, PG. 37
2S BK D

6

BEGIN C&G
CURB CUT 10+79

GRADE TO DRAIN

-L- +38.000
25.290 (82.97')

36.0 TRANSITION LT & RT

+75.625
R=15.0

10

GRADE TO DRAIN

-L- +65.000
25.833 (84.75')

R=15.0

EXISTING R/W

11

2GI TYPE S

CB

750 CURB & GUTTER

+88.987

12

90mm GAS DATUR

254mm PVC

MATCH TO SHEET 15

-L- STA. 45+00.000

BEGIN C&G

2 PS

+30.000
15.000 (49.21')
18.500 (60.70')

+30.000

+38.248

+50.000
18.500 (60.70')

-L- POC Sta.44+48.281
-Y- POT Sta.10+98.522

4
C.O. ROBINSON TRUST
D.B. 105, PG. 293

3
C.O. ROBINSON TRUST
D.B. 105, PG. 293

BEG. BRIDGE
-L- STA. 42+97.800

BEG. APP. SLAB
-L- STA. 42+90.485

END BRIDGE
-L- STA. 43+28.200

END APP. SLAB
-L- STA. 43+35.515

43+00

12 PS

2.482

TYPE-III

2.482 PS

90

180

025

22.361

SKETCH SHOWING BRIDGE/PAVEMENT RELATIONSHIP

LEGEND

DENOTES HAND CLEARING IN WETLAND

MATTING WILL BE USED TO INSTALL POWER POLES IN WETLAND

07-APR-2008 13:49
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Permit Drawing
Utility Sheet 16 of 16

PROJECT REFERENCE NO.	SHEET NO.
R-2414A	U0-13

UTILITIES BY OTHERS

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

METRIC
5 0 10

CONST.REV.

R/W REV.

5/14/99

NAD 83

ROBERT F. MASSIELLO, ET UX
DB 111, PG 705
DB 46, PG 260 (MAP)

ROSALYN J. FAIRCLOTH
DB 80, PG 392
DB 46, PG 260 (MAP)

(1) JAMIE H. WOOTEN, ET AL
DB 106, PG 689
DB 46, PG 260 (MAP)

HAVENWOOD LAGOON

(3) GEORGE T. GRIFFIN, ET UX
DB 52, PG 687
DB 46, PG 260 (MAP)

(4) O.C. ABBOTT
DB 54, PG 429

45+00 47+00 48+00

2S BK D

900 CONC

WALL DOCK

61090 N43°29'55"E 57.400 N41°31'55"E 61078 N40°43'33.83"E

-L- PC Sta. 47+13.146

-L- POC 47+73.037
-Y1- POT 10+00.000

RANDY ANSON CULPEPPER AND WIFE LISA NIX CULPEPPER
IS BK D
D.B. 147, PG. 639
D.B. 46, PG 260 (MAP)

ROSALYN J. FAIRCLOTH
IS BK D
D.B. 80, PG. 392
D.B. 46, PG 260 (MAP)

JAMES H. WOOTEN, ET AL
D.B. 106, PG. 689
D.B. 46, PG 260 (MAP)

PLANTER

PROP SLOPE STAKE LINE

EXIST R/W

REMOVE (13) CB

750 CURB & GUTTER

MATCH TO SHEET 14

-L- STA. 45+00.000

N 38° 36.9' E

+73.936 21.203

+68.873 EXIST R/W 15.000 (49.2')

+32.873

+31.000 17.400 (57.09')

24.0 TYP.

12.0 TYP.

END CONSTRUCTION
-L- STA. 46+50.000

PECAN FARMS, LLC
DB 237, PG 728

-L- PT STA. 45+68.873 (R-2414A) L.B. =
-L- POT STA. 45+68.873 (R-2414B) L.A.
N 288,267.5799 E 862835.4768
BEGIN STATE PROJECT R-2414B
END STATE PROJECT R-2414A

R-2414B
PI Sta 48+39.173
Δ = 16° 23' 31.2" (LT)
L = 250.333
T = 126.027
R = 875.000

-L-
PI Sta 44+20.646
Δ = 6° 48' 08.1" (LT)
L = 296.804
T = 148.577
R = 2,500.000
SE = RC
V_{des} = 100 KPH

-Y1-

PI Sta 10+37.521	PI Sta 10+85.741	PI Sta 11+15.669
Δ = 10° 10' 10" (LT)	Δ = 2° 32' 38.4" (RT)	Δ = 11° 00' 32.5" (RT)
L = 44.373	L = 21.313	L = 38.429
T = 22.245	T = 10.658	T = 19.274
R = 250.000	R = 480.000	R = 200.000

LEGEND
DENOTES HAND CLEARING IN WETLAND
MATTING WILL BE USED TO INSTALL POWER POLES IN WETLAND

+75.000 -L- 14.970 (49.12') 17.500 (57.41')

+79.805 -L- 17.500 (57.41')

+79.936 -L- 14.569 (49.11')

(2) QUALITY OIL COMPANY
DB 54, PG 546

PROP 200x45 CURB

3-ISL'S 6 GAS PUMPS U/MTL CANOPY

FILLER CAPS

ISBK BUS

LP TANK 400 mm C&G

1800 mm CHL

PT Sta. 10+59.649

PC Sta. 10+15.277

+63.120 -Y1- 20.000 (65.62')

+64.053 -Y1- 17.000 (55.77')

PC Sta. 10+75.082

(5) C. E. HURDLE, HEIRS
DB 23, PG 425 (MAP)
DB 26, PG 517
DB 28, PG 224
DB 105, PG 761

(5A) PECAN FARMS, LLC
DB 237, PG 728
PC-5 SL 16A (PLAT)

PCC Sta. 10+96.395

+20.000 -Y1- 19.000 (62.34')

+30.000 -Y1- 9.144 (30.00') 12.000 (39.37')

PT Sta. 11+34.824

US 158 7.9 BST

375 mm CMP

750 mm CONC

WATER ESMT

PLANTER 900 mm CONC

11/2SFD

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WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS			
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp (ft)
1	-L- 47+83 LT / 47+94 RT	1 @ 30" RCP					0.01				
2	-L- 51+60 LT / 51+95 RT	1 @ 30" RCP	0.09				0.05				
3	-L- 55+12 LT / 56+49 RT	1 @ 8' x 6' RCBC	0.65				0.26	0.04	0.01	121	29
	-L- 57+44 / 59+45 RT	-	0.30		0.09						
4	-L- 62+65 LT / 62+94 RT	1 @ 24"RCP	0.06				0.04				
5	-L- 67+19 LT / 67+70 RT	1 @ 30"RCP	0.08				0.06				
6	-L- 72+48 LT / 74+48 RT	2 @ 6' x 5' RCBC	0.85		0.01		0.37	0.05	0.01	92	21
Old SITE 7	-L- 82+23 / 82+43 RT	SITE DELETED									
7	-L- 88+60 / 89+28 LT	1 @ 10' x 5' RCBC	0.38				0.16	0.02	0.01	83	19
TOTALS:			2.42		0.10		0.95	0.11	0.03	297	69

0.22 Ac of Temporary Fill in Wetlands in the Hand Clearing areas for erosion control measures.

Permit Drawing
Sheet 1 of 38

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT 8.T020401 (R-2414B)
US 158 - NC 34 WIDENING

SHEET June-08

JMD Revised 2/03/05

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: Permanent Fill In Wetlands (ha)	WETLAND IMPACTS: Temp. Fill In Wetlands (ha)	WETLAND IMPACTS: Excavation in Wetlands (ha)	WETLAND IMPACTS: Mechanized Clearing in Wetlands (ha)	WETLAND IMPACTS: Hand Clearing in Wetlands (ha)	SURFACE WATER IMPACTS: Permanent SW impacts (ha)	SURFACE WATER IMPACTS: Temp. SW impacts (ha)	SURFACE WATER IMPACTS: Existing Channel Impacts Permanent (m)	SURFACE WATER IMPACTS: Existing Channel Impacts Temp. (m)	SURFACE WATER IMPACTS: Natural Stream Design (m)
1	-L- 47+83 LT / 47+94 RT	1 @ 750 RCP					0.003					
2	-L- 51+60 LT / 51+95 RT	1 @ 750 RCP	0.036				0.020					
3	-L- 55+12 LT / 56+49 RT	1 @ 2.4m x 1.8m RCBC	0.265				0.106	0.016	0.003	37.0	8.8	
	-L- 57+44 RT / 59+45 RT	-	0.120		0.038							
4	-L- 62+65 LT / 62+94 RT	1 @ 600 RCP	0.026				0.017					
5	-L- 67+19 LT / 67+70 RT	1 @ 750 RCP	0.032				0.024					
6	-L- 72+48 LT / 74+48 RT	2 @ 1.8m x 1.5m RCBC	0.345		0.003		0.151	0.022	0.004	28.0	6.5	
Old Site 7	-L- 82+43 / 82+83 RT	SITE DELETED										
7	-L- 88+60L / 89+28L	1 @ 3.0m x 1.5m RCBC	0.154				0.064	0.008	0.004	25.4	5.7	
TOTALS:			0.978		0.041		0.385	0.046	0.011	90.4	21.0	

0.087 Ha of Temporary Fill in Wetlands in the Hand Clearing areas for erosion control measures.

Permit Drawing
Sheet 2 of 38

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

CAMDEN COUNTY
PROJECT 8.T020401 (R-2414B)
US 158 - NC 34 WIDENING

SHEET June-08

JMD Revised 2/03/05

Project No. 8.T020401 (R-2414B)

Property Owner List

Site NO.	Property NO.	Name DB and Pg	Address
1	(5)	Pecan Farms LLC DB 237 PG 728	203 Dogwood Tr. Elizabeth City NC 27909
2	(16)	Linda Sue Lamb Hinton WB 99E, PG 22	135 Cottonwood Dr Hertford NC 27944
	(14)	Fred E. Upton, Jr., ET UX DB 42, Pg 615 DB 111, Pg 278	165 US 158 West Camden NC 27921
	(13)	Fred E. Upton, Heirs DB 22, Pg 468 DB 111, Pg 401	165 US 158 West Camden NC 27921
3	(23)	A & S Properties, LLC DB 157, Pg 769	913 Business Park Drive Chesapeake VA 23320
	(24)	Blue Sky Developments DB 138, Pg 109 PC-3, CL 77-B (PLAT)	300 Bridge Court #101 Camden NC 27921
	(22)	Ricky and Sheila Edwards DB 142, Pg 536	PO BOX 336 Shiloh NC 27974
	(25)	Camden County Board of Education DB 31, Pg 419 MB 18, Pg 551A DB 35, Pg 511 DB 62, Pg 15 DB 83, Pg 451	174 North 343 Camden NC 27921

(continued)

Permit Drawing
Sheet 3 of 38

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

CAMDEN COUNTY

PROJECT: 8.T020401 (R-2414B)
US 158 - NC 34 WIDENING

Project No. 8.T020401 (R-2414B)

Property Owner List

Site NO.	Property NO.	Name DB and Pg	Address
4	32	Mary M. Gordon DB 95, Pg 491 DB 116, Pg 890	104 North 343 Camden NC 27921
	34	Glen D. Gordon, ET UX DB 94, Pg 280 DB 83, Pg 679 DB 128, Pg 504 DB 87, Pg 181 (Post Office Lease) DB 132, Pg 160 (Store Leased)	128 Billet S. Bridge Rd Camden NC 27921
5	32	Mary M. Gordon DB 46, Pg 316A	104 North 343 Camden NC 27921
	39	TIDEWATER Agronomics	1601 N. Road St. Elizabeth City NC 27909
	38	Everything Real Estate LLC	PO Box 310 Camden NC 27921
	36	George Wood Farms, Inc. DB 115, Pg 607 DB 115, Pg 621	PO Box 159 Camden NC 29721
6	36	George Wood Farms, Inc. DB 115, Pg 607 DB 115, Pg 621	PO BOX 159 Camden NC 29721
	43	Albemarle Hospital, ET AL DB 120, Pg 372 DB 113, Pg 670 (MAP)	1144 North Road St Elizabeth City NC 27909
	42	James Raeburk + Elliot W. Jacobs	PO BOX 1554 Elizabeth City NC 27906

(continued)

Permit Drawing
Sheet 4 of 38

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

CAMDEN COUNTY

PROJECT: 8.T020401 (R-2414B)
US 158 - NC 34 WIDENING

SHEET ___ OF ___ **9/15/05**

REVISED 2/20/08

Project No. 8.T020401 (R-2414B)

Property Owner List

Site NO.	Property NO.	Name DB and Pg	Address
6 (Cont.)	16A	Norfolk Southern Railway Co. (Leased to Chesapeake & Albemarle R/R Co)	3 Commercial Place Norfolk VA 23510
	44	Brown Farms, Inc. DB 64, Pg 191 DB 54, Pg 175 (MAP)	343 North 34 Camden NC 27921
	45	Belcross Properties LLC	PO Box 26 Camden NC 27921
8	73	Doris H. Harris DB 33, Pg 604 PC 1, SL 15A	265 East US 158 Camden NC 27921
	74	W. W. Owens + Sons Moving + Storage, Inc	PO Box 503 Elizabeth City NC 27909
	71	Joesph O. Sawyer, ET UX DB 95, Pg 360 PC 1, Pg 12A	640 North 343 Camden NC 29721
	75	Linda S. Demuth, ET AL DB 119, Pg 930	Wilhelmshoeh 27A Forchheim GR 91301
	72	W.W. Owens & Sons Moving & Storage, Inc. DB 81, Pg 700	PO Box 503 Elizabeth City NC 27909
	76	Horace Melville Cuthrell, Jr., ET UX DB 78, Pg 809 PC 1, 163A	109 North 343 Camden NC 27921
	77	Wallace G. Cahoon DB 79, Pg 413 PC 1, SL 1A	1540 Cedar Road Chesapeake VA 23320

Permit Drawing
Sheet 5 of 38

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

CAMDEN COUNTY

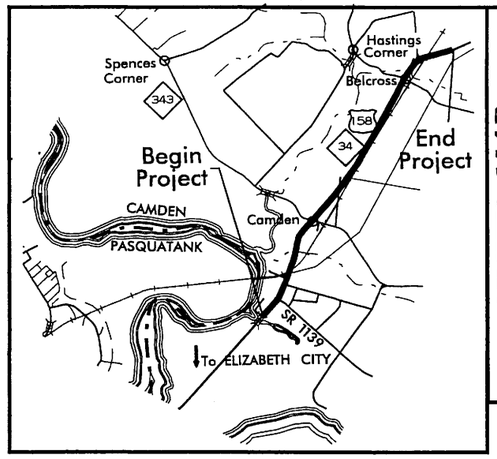
PROJECT: 8.T020401 (R-2414B)
US 158 - NC 34 WIDENING

SHEET ___ OF ___ **9/15/08**

TIP PROJECT: R-2414B

CONTRACT:

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CAMDEN COUNTY

LOCATION: US 158–NC 34 FROM NORTH OF SR 1257 TO EAST OF NC 34 IN BELCROSS

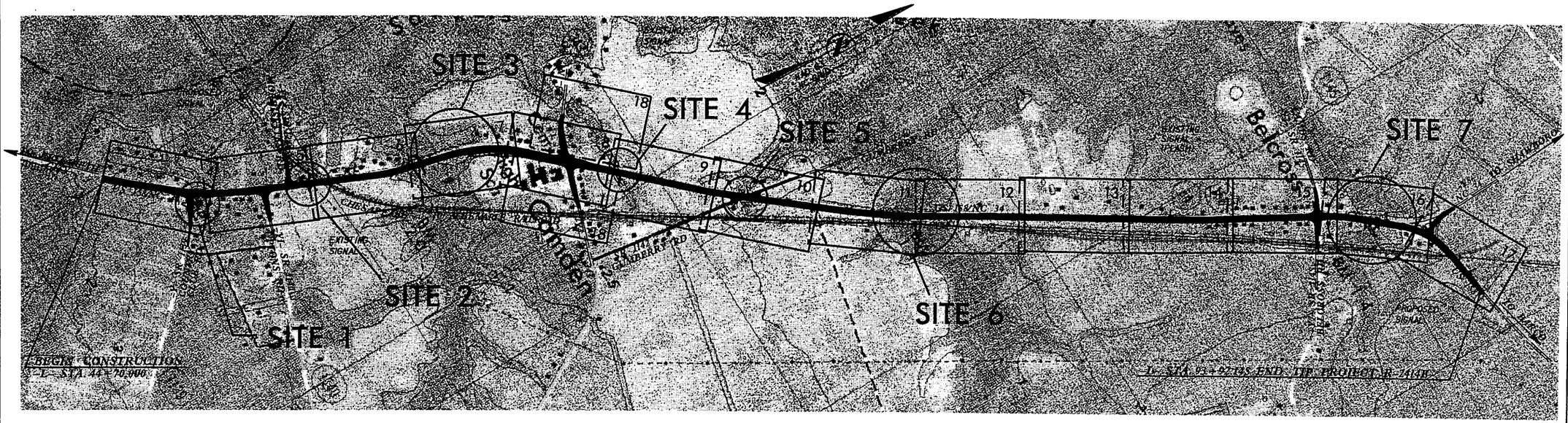
TYPE OF WORK: GRADING, DRAINAGE, PAVING, CURB & GUTTER, CULVERTS & SIGNALS

METRIC

ALL DIMENSIONS IN THESE PLANS ARE IN METERS UNLESS OTHERWISE SHOWN

STATE	STATE PROJECT REFERENCE NO.		SHEET NO.	TOTAL SHEETS
N.C.	R-2414B		1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION		
34430.1.1	STP-158(2)	PE		
34430.2.5		ROW & UTILITIES		

Permit Drawing
Sheet 6 of 38



THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

PLANS 5 0 10

PROFILE (HORIZONTAL) 5 0 10

PROFILE (VERTICAL) 1 0 2

DESIGN DATA

ADT (2009) = 26,000
ADT (2029) = 41,500
DHV = 12%
D = 60%
T = 6% *
V = 80 km/h

* (TTST 2%+ DUAL 4%)

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-2414B = 4.823 Km
TOTAL LENGTH TIP PROJECT R-2414B = 4.823 Km

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: NOVEMBER 15, 2006
LETTING DATE: NOVEMBER 17, 2009

EDWARD G. WETHERILL, PE
PROJECT ENGINEER

BOB A. MAY, PE
PROJECT DESIGN ENGINEER

NCDOT CONTACT: B. DOUG TAYLOR, PE
ROADWAY DESIGN PROJECT ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

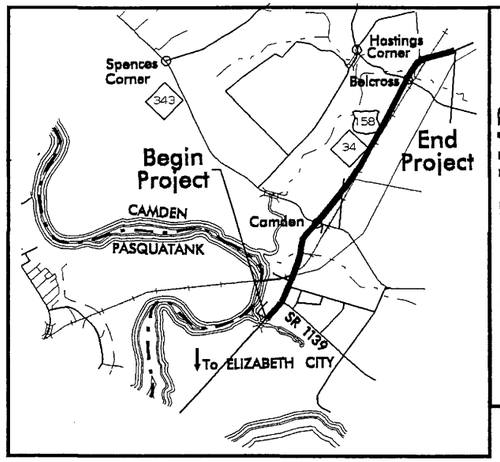
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

15-JUN-2008 15:27
C:\Projects\PROJECTS\2414b_prm_tsh.dgn

CONTRACT: TIP PROJECT: R-2414B

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CAMDEN COUNTY

LOCATION: US 158–NC 34 FROM NORTH OF SR 1257 TO EAST OF NC 34 IN BELCROSS

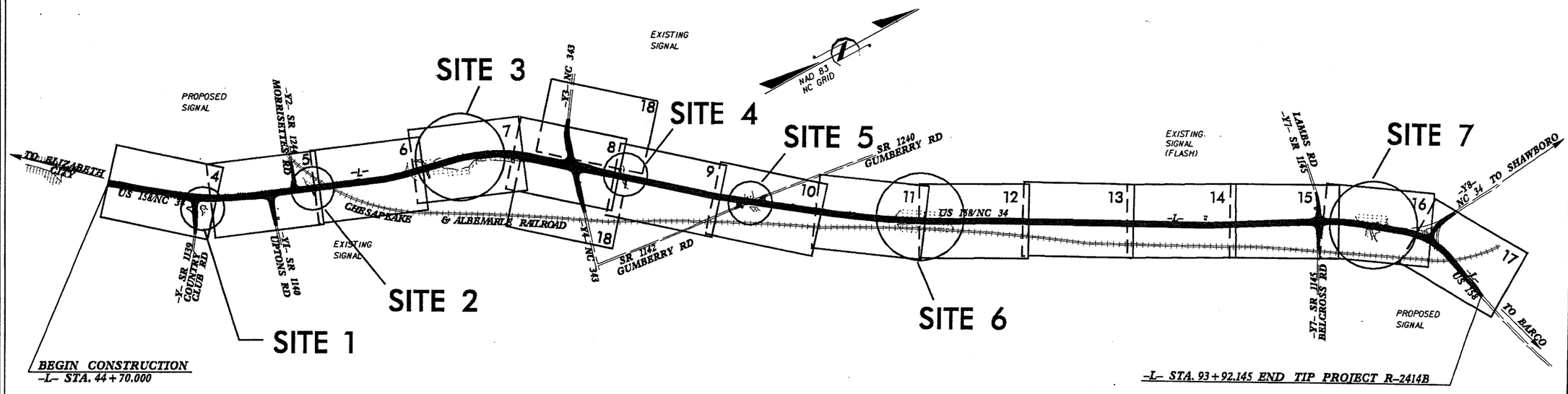
TYPE OF WORK: GRADING, DRAINAGE, PAVING, CURB & GUTTER, CULVERTS & SIGNALS

ALL DIMENSIONS IN THESE PLANS ARE IN METERS UNLESS OTHERWISE SHOWN

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2414B	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34430.1.1	STP-158(2)	PE
34430.2.5		ROW & UTILITIES

Permit Drawing
Sheet 1 of 38



BEGIN CONSTRUCTION
-L- STA. 44+70.000

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

PLANS 5 0 10

PROFILE (HORIZONTAL) 5 0 10

PROFILE (VERTICAL) 1 0 2

DESIGN DATA

ADT (2009) = 26,000
ADT (2029) = 41,500
DHV = 12%
D = 60%
T = 6% *
V = 80 km/h

* (TTST 2%+ DUAL 4%)

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-2414B = 4.823 Km
TOTAL LENGTH TIP PROJECT R-2414B = 4.823 Km

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: NOVEMBER 15, 2006
LETTING DATE: NOVEMBER 17, 2009

EDWARD G. WETHERILL, PE
PROJECT ENGINEER

BOB A. MAY, PE
PROJECT DESIGN ENGINEER

NCDOT CONTACT: B. DOUG TAYLOR, PE
ROADWAY DESIGN PROJECT ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

15-JUN-2008 11:03
r:\drainage\permits\r-2414b_prm_tsh.dgn
gcall at HP2445n7

E/10/09

REVISIONS

R/W REVISION - REVISED R/W ALONG -L- & -Y- TO SHOW BEING ACQUIRED UNDER NCDOT PROJECT R-2414A. BAM

R/W REVISION - ADDED PARCEL NO.5A & REVISED THE PROPERTY OWNER NAME ON PARCEL NO.5. BAM

WETHERILL ENGINEERING
849 James Franklin Rd. Suite 164 Raleigh, N.C. 27609 Phone 919 881 0277 Fax 919 881 0197
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GS/RPS - CONSTRUCTION OBSERVATION

TRANSITE CONSULTING ENGINEERS, INCORPORATED
300 Penmark Drive, Suite G-10 Raleigh, N.C. 27609

METRIC

5 0 10

CONST.REV.

R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2414B	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing Sheet 8 of 38

NAD 83 NC GRID

HC HC DENOTES HAND CLEARING

ROBERT F. MASSIELLO, ET UX
DB 111, PG 705
DB 46, PG 260 (MAP)

ROSALYN J. FAIRCLOTH
ISBKD
DB 80, PG 392
DB 46, PG 260 (MAP)

JAMIE H. WOOTON, ET AL
ISBKD
DB 106, PG 689
DB 46, PG 260 (MAP)

GEORGE T. GRIFFIN, ET UX
DB 52, PG 687
DB 46, PG 260 (MAP)

O.C. ABBOTT
DB 54, PG 429

PECAN FARMS, LLC
DB 237, PG 728

QUALITY OIL COMPANY
DB 54, PG 546

45+00 46+00 47+00 48+00

NOTE: SELECT TREES WITHIN CONSTRUCTION EASEMENT FROM -L- STA 46+50 LT TO -L- STA 47+80 MAY BE FLAGGED TO BE PRESERVED.

PC 47+13.146

-L- POC 47+73.037 =
-Y- POT 10+00.000

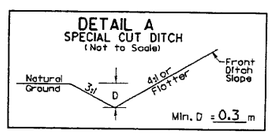
CL. 'B' RIP RAP
EST 10 MTN
EST 24 SM FF

MATCHLINE -L- STA. 48+40.000
SEE SHEET NO. 5

-L- PT 45+68.873 (R-2414A) LB =
-L- PT 45+68.873 (R-2414B) LA
END TIP PROJECT R-2414A
BEGIN TIP PROJECT R-2414B

NOTE: R/W AND EASEMENTS ON THE ROBINSON TRACT TO BE ACQUIRED UNDER THE R-2414A PROJECT.

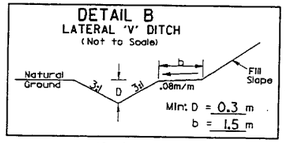
DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



Min. D = 0.3 m

-Y- 10+50 to 11+20 (LT.)
-Y- 10+55 to 11+00 (RT.)

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



Min. D = 0.3 m
b = 1.5 m

-Y- 10+19 to 10+50 (LT.)

NOTE: ALL DRIVES ARE 6.0 METERS UNLESS OTHERWISE DENOTED

SEE SHEET NO. 19 FOR -L- GRADE AND PROFILE.
SEE SHEET NO. 26 FOR -Y- GRADE AND PROFILE.
SEE SHEET NO. 2-F FOR -Y- INTERSECTION DETAIL.

R-2414A	-L-	-Y-	-Y-	-Y-
PI Sta 45+33.809	PI Sta 48+39.173	PI Sta 10+37.521	PI Sta 10+85.741	PI Sta 11+15.669
Δ = 8° 05' 01.5" (LT)	Δ = 16° 23' 31.2" (LT)	Δ = 10° 10' 10" (LT)	Δ = 2° 32' 38.4" (RT)	Δ = 11° 00' 32.5" (RT)
L = 352.720	L = 250.332	L = 44.373	L = 21.313	L = 38.429
T = 176.653	T = 126.027	T = 22.245	T = 10.658	T = 19.274
R = 2,500.000	R = 875.000	R = 250.000	R = 480.000	R = 200.000
SE = .025	SE = 0.03		AH = S 62° 41' 13" E	BK = S 62° 41' 13" E
DS = 80 KM/H	R'OFF = 60.750			AH = S 51° 40' 40.5" E
	DS = 80 KM/H			

E/10/28

REVISIONS

R/W REVISION - REVISED R/W ALONG -L- & -Y- TO SHOW BEING ACQUIRED UNDER NCDOT PROJECT R-2414A. BAM
R/W REVISION - ADDED PARCEL NO.5A & REVISED THE PROPERTY OWNER NAME ON PARCEL NO.5. BAM

WETHERILL ENGINEERING
309 Jones Franklin Rd. Suite 144 Raleigh, N.C. 27606 Phone 919 851 2277 Fax 919 851 2207
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - NPDES/BMPS - CONSTRUCTION OBSERVATION

TRANSITE CONSULTING ENGINEERS, INCORPORATED
300 Peacock Drive, Suite G-10 Raleigh, N.C. 27609

METRIC
5 0 10
CONST.REV.
R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2414B	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing Sheet 9 of 38

NAD 83/ NC GRID

HC HC DENOTES HAND CLEARING

ROBERT F. MASSIELLO, ET UX
DB 111, PG 705
DB 46, PG 260 (MAP)

ROSALYN J. FAIRCLOTH
ISBKD
DB 80, PG 392
DB 46, PG 260 (MAP)

JAMIE H. WOOTON, ET AL
ISBKD
DB 106, PG 689
DB 46, PG 260 (MAP)

GEORGE T. GRIFFIN, ET UX
DB 52, PG 687
DB 46, PG 260 (MAP)

O.C. ABBOTT
DB 54, PG 429

PECAN FARMS, LLC
DB 237, PG 728

QUALITY OIL COMPANY
DB 54, PG 546

C. E. HURDLE, HEIRS
DB 23, PG 425 (MAP)
DB 26, PG 517
DB 28, PG 224
DB 105, PG 761

NOTE: SELECT TREES WITHIN CONSTRUCTION EASEMENT FROM -L- STA 46+50 LT TO -L- STA 47+80 MAY BE FLAGGED TO BE PRESERVED.

NOTE: R/W AND EASEMENTS ON THE ROBINSON TRACT TO BE ACQUIRED UNDER THE R-2414A PROJECT.

-L- PT 45+68.873 (R-2414A) LB =
-L- PT 45+68.873 (R-2414B) LA
END TIP PROJECT R-2414A
BEGIN TIP PROJECT R-2414B

PC 47+13.146

-L- POC 47+73.037 =
-Y- POT 10+00.000

PC 10+15.277

PC 10+75.082

PT 10+59.649

PT 11+34.824

-Y- POC 11+30.000
END CONSTRUCTION

MATCHLINE -L- STA. 48+40.000 SEE SHEET NO. 5

SITE 1

CL. 'B' RIP RAP
EST 10 MTN
EST 24 SM FF

LAT. 'V' DITCH
SEE DETAIL B
EST 25 CM DDE

SPEC. CUT DITCH
SEE DETAIL A

SPEC. CUT DITCH
SEE DETAIL A

EXISTING CONSTRUCTION EASEMENT ACQUIRED UNDER NCDOT PROJECT R-2414A

EXISTING CONSTRUCTION EASEMENT ACQUIRED UNDER NCDOT PROJECT R-2414A

EXIST R/W ACQUIRED UNDER NCDOT PROJECT R-2414A

EXIST POE ACQUIRED UNDER NCDOT PROJECT R-2414A

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)

Natural Ground, 3:1, D, 4:1 or Flatter, Front Ditch Slope
Min. D = 0.3 m

-Y- 10+50 to 11+20 (LT.)
-Y- 10+55 to 11+00 (RT.)

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

Natural Ground, 3:1, D, 3:1, b, .08m/m, Fill Slope
Min. D = 0.3 m
b = 1.5 m

-Y- 10+19 to 10+50 (LT.)

NOTE: ALL DRIVES ARE 6.0 METERS UNLESS OTHERWISE DENOTED

SEE SHEET NO. 19 FOR -L- GRADE AND PROFILE.
SEE SHEET NO. 26 FOR -Y- GRADE AND PROFILE.
SEE SHEET NO. 2-F FOR -Y- INTERSECTION DETAIL.

R-2414A	-L-	-Y-	-Y-	-Y-
PI Sta 45+33.809	PI Sta 48+39.173	PI Sta 10+37.521	PI Sta 10+85.741	PI Sta 11+15.669
Δ = 8° 05' 01.5" (LT)	Δ = 16° 23' 31.2" (LT)	Δ = 10° 10' 10.1" (LT)	Δ = 2° 32' 38.4" (RT)	Δ = 11° 00' 32.5" (RT)
L = 352.720	L = 250.332	L = 44.373	L = 21.313	L = 38.429
T = 176.653	T = 126.027	T = 22.245	T = 10.658	T = 19.274
R = 2,500.000	R = 875.000	R = 250.000	R = 480.000	R = 200.000
SE = .025	SE = 0.03		AH = S 62° 41' 13" E	BK = S 62° 41' 13" E
DS = 80 KM/H	R'OFF = 60.750			AH = S 51° 40' 40.5" E
	DS = 80 KM/H			

Permit Drawing
Sheet 10 of 38

PROJECT REFERENCE NO.	SHEET NO.
R-2414B	X-124

2.5 0 2.5 5

METRIC

50 40 30 20 10 0 10 20 30 40 50

5

0.006 2.066 0.010

3:1 1.502 2.02 0.861 3:1

EP-1 EP-2

10+60.00

SITE 1

R/W

WETLAND

Y Y Y Y

He

5

0.025 2.294 0.025

3:1 +10% +37%

1.248 2.04

EP-3 EP-4

10+40.00

5

0.016 2.229 0.006

3:1 3:1

1.204 2.25 2.311

EP-5 EP-6

10+20.00

2.225

10+00.00

—Y—

50 40 30 20 10 0 10 20 30 40 50

21-APR-2008 07
C:\projects\RH2215...\rdu_xpl.pu.dgn

Permit Drawing
Sheet 11 of 38

REVISIONS
R/W REVISION - REVISED PROPERTY OWNER NAMES ON PARCEL NO.5,7,8,9,13,15 & 17. ADDED PARCEL NO.16A. BAM
R/W REVISION - ADDED PARCEL NO.7B & PROPERTY OWNER NAME. BAM

F/F DENOTES FILL IN WETLAND

HC/HC DENOTES HAND CLEARING

WETHERILL ENGINEERING — TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN — CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

TRANSITE CONSULTING ENGINEERS, INCORPORATED, 1300 Raddock Drive, Suite G-10, Raleigh, N.C. 27609

METRIC 5 0 10

PROJECT REFERENCE NO.	SHEET NO.
R-2414B	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS — DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

NAD 83 NC GRID

SEE SHEET NO. 4

MATCHLINE -L- STA. 48+40.000

MATCHLINE -L- STA. 52+00.000

SEE SHEET NO. 6

-L- POT 50+30.377 = -Y1- POT 10+00.000

PT 49+63.478

-Y2- POT 10+00.000

-Y2- PC 10+12.000 BEGIN CONSTRUCTION

PT 10+34.866

-Y2- PT 11+14.842

-L- POT 51+24.328 = -Y2- POT 11+14.842

-Y1- POT 11+15.000 END CONSTRUCTION

49+00 | 50+00 | 51+00 | 52+00

10+00 | 11+00

S 67° 29' 10.4" E

S 70° 06' 32.2" E

N 22° 28' 05.7" E

S 73° 01' 44.2" E

(4) O.C. ABBOTT DB 54, PG 429

(5) C. E. HURDLE, HEIRS DB 26, PG 517 DB 28, PG 224 DB 23, PG 425 (MAP) DB 105, PG 761

(6) THE BANK OF CURRITUCK DB 66, PG 105

(7) TERRY CHAMBERLAIN DB 239, PG 578 DB 161, PG 402 (PLAT)

(7A) DORIS R. RODGERS, ET AL DB 111, PG 659

(7A) ROBERT & BRENDA ALBURY DB 161, PG 396 DB 161, PG 398 (PLAT)

(8) BONNEY, OWNES, & TWIFORD, LLC DB 229, PG 22

(9) DORIS RODGERS & HILDA GARRETT DB 130, PG 317 DB 130, PG 319 (PLAT)

(9A) ANNIE B. WRIGHT, HEIRS DB 35, PG 230 DB 28, PG 549

(10) KEITH DANIEL WARD, ET UX DB 111, PG 385 DB 23, PG 425 (MAP)

(11) ROBERT F. ALBURY, ET UX DB 87, PG 003

(12) ANTHONY WOODDISSE, ET UX DB 91, PG 928 DB 92, PG 223 DB 89, PG 239 (MAP)

(13) FRED E. UPTON, HEIRS DB 22, PG 468 DB 111, PG 401

(13) FRED E. UPTON, I DB 22, PG 468 DB 111, PG 401

(14) FRED E. UPTON, JR., et ux DB 42, PG 615 DB 111, PG 278

(15) CAMDEN SALES & SERVICE DB 85, PG 520

(16) LINDA SUE LAMB HINTON WB 99E, PG 22

(16A) NORFOLK SOUTHERN RAILWAY CO (LEASED TO CHESAPEAKE & ALBEMARLE R/R CO)

(17) LARRY LAMB WB 99E, PG 22

POWER LINE EASEMENT NORTH CAROLINA POWER (VEPCO) DB 31, PG 439 DB 59, PG 677

SITE 2

DETAIL A — SPECIAL CUT DITCH (Not to Scale)
Min. D = 0.3m
-Y1- 10+60 to 11+00 (LT.)
-Y1- 10+60 to 11+00 (RT.)

DETAIL B — LATERAL 'V' DITCH (Not to Scale)
Min. D = 0.3 m, b = 1.5 m
-Y2- 10+40 to 10+80 (RT.)

DETAIL C — BASE DITCH (Not to Scale)
Min. D = 0.3m, B = .45m
-L- 49+71 (RT.)

DETAIL N — LATERAL BASE DITCH (Not to Scale)
Min. D = 0.3m, B = 0.6m, b = 0.9m
-L- 51+05 to 51+85 (RT.)

DETAIL F — 'V' DITCH (Not to Scale)
Min. D = 0.3 m
-Y2- 10+26 (LT.)

SPEC. CUT DITCH SEE DETAIL A

SPEC. CUT DITCH SEE DETAIL C

0.45m BASE DITCH SEE DETAIL C EST 5 CM DDE So = 4.31%

0.6m LAT. BASE DITCH SEE DETAIL N EST 10 CM DDE

'V' DITCH SEE DETAIL F So=0.300% CL. 'B' RIP RAP EST 2 MTN EST 6 SM FF

LAT. 'V' DITCH SEE DETAIL B EST 65 CM DDE

CL. 'B' RIP RAP EST 5 MTN EST 12 SM FF

CL. 'I' RIP RAP EST 6m MTN EST 14.2 SM FF Q10=0.65 cms (23cfs) V10=2.4m/s (7.9fps)

PREFORMED SCOUR HOLE HC B=1.5m D=0.6m R=1.0m W=1.5m d=0.15m

GRASS SWALE
DA= 2.62ac
Lsw= 263'
Se= 0.0020
SS= 3.3
Qz= 6.07cfs
Y2= 0.89fps
Q10= 7.70cfs
V10= 0.94fps

-L- PI Sta 48+39.173 Δ = 16° 23' 31.2" (LT) L = 250.332 T = 126.027 R = 875.000 SE = 0.03 R'OFF = 60.750 DS = 80 KM/H

-Y2- PI Sta 10+23.435 Δ = 2° 37' 12.8" (LT) L = 22.866 T = 11.435 R = 500.000 SE = EX.

15-JAN-2008 09:52
I:\projects\R-2414B\Final\drawings\r-2414b-prm.plt#02.dgn

Permit Drawing
Sheet 12 of 38

REVISIONS
R/W REVISION - REVISED PROPERTY OWNER NAMES ON PARCEL NO.5,7,8,9,13,15 & 17. ADDED PARCEL NO.16A. BAM
R/W REVISION - ADDED PARCEL NO.7B & PROPERTY OWNER NAME. BAM

F // F DENOTES FILL IN WETLAND

HC // HC DENOTES HAND CLEARING

WETHERILL ENGINEERING
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
DRAINAGE DESIGN - DEBSIPS - CONSTRUCTION OBSERVATION

TRANSITE CONSULTING ENGINEERS, INCORPORATED
1300 Paddock Drive, Suite G-10
Raleigh, N.C. 27609

NAD 83 NC GRID

METRIC
5 0 10

PROJECT REFERENCE NO.	SHEET NO.
R-2414B	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CONST.REV.
R/W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SEE SHEET NO. 4

MATCHLINE -L- STA. 48+40.000

SEE SHEET NO. 6

MATCHLINE -L- STA. 52+00.000

-L- POT 50+30.377 = -Y1- POT 10+00.000

PT 49+63.478

-Y2- POT 10+00.000

-Y2- PC 10+12.000
BEGIN CONSTRUCTION

PT 10+34.866

-Y2- PT 11+22.522

-L- POT 51+24.328 = -Y2- POT 11+14.842

-Y1- POT 11+15.000
END CONSTRUCTION

(4) O.C. ABBOTT
DB 54, PG 429

(5) C. E. HURDLE, HEIRS
DB 26, PG 517
DB 28, PG 224
DB 23, PG 425 (MAP)
DB 105, PG 761

(6) THE BANK OF CURRITUCK
DB 66, PG 105

(7) TERRY CHAMBERLAIN
DB 239, PG 578
DB 161, PG 402 (PLAT)

DORIS R. RODGERS, ET AL
DB 111, PG 659

(7A) ROBERT & BRENDA ALBURY
DB 161, PG 396
DB 161, PG 398 (PLAT)

(8) BONNEY, OWNES, & TWIFORD, LLC
DB 229, PG 22

(9) ISFD

(9A) ANNIE B. WRIGHT, HEIRS
DB 35, PG 230
DB 28, PG 549

(10) KEITH DANIEL WARD, ET UX
DB 111, PG 385
DB 23, PG 425 (MAP)

DORIS RODGERS & HILDA GARRETT
DB 130, PG 317
DB 130, PG 319 (PLAT)

(11) ROBERT F. ALBURY, ET UX
DB 87, PG 003

(12) ANTHONY WOODDISSE, ET UX
DB 91, PG 928
DB 92, PG 223
DB 89, PG 239 (MAP)

(13) FRED E. UPTON, HEIRS
DB 22, PG 468
DB 111, PG 401

(14) FRED E. UPTON, JR., et ux
DB 42, PG 615
DB 111, PG 278

(15) CAMDEN SALES & SERVICE
DB 85, PG 520

(16) LINDA SUE LAMB HINTON
WB 99E, PG 22

(17) LARRY LAMB
WB 99E, PG 22

POWER LINE EASEMENT
NORTH CAROLINA POWER
(VEPCO)
DB 31, PG 439
DB 59, PG 677

CAROLINA CONSTRUCTION CORP

CHESAPEAKE & ALBEMARLE R/R CO. (C&A)
LEASED TO SOUTHERN RAILWAY CO.

SITE 2

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground, 3:1, D, 4:1 or Flatter, Front Ditch Slope
Min. D = 0.3m
-Y1- 10+60 to 11+00 (LT.)
-Y1- 10+60 to 11+00 (RT.)

DETAIL B
LATERAL "V" DITCH
(Not to Scale)
Natural Ground, 3:1, D, 3:1, b, .08m/m, Fill Slope
Min. D = 0.3 m
b = 1.5 m
-Y2- 10+40 to 10+80 (RT.)

DETAIL C
BASE DITCH
(Not to Scale)
Natural Ground, 3:1, D, 3:1, Natural Ground, B
Min. D = 0.3m
B = .45m
-L- 49+71 (RT.)

DETAIL N
LATERAL BASE DITCH
(Not to Scale)
Natural Ground, 3:1, D, 3:1, b, .08m/m, Fill Slope
Min. D = 0.3m
B = 0.6m
b = 0.9m
-L- 51+05 to 51+85 (RT.)

DETAIL F
"V" DITCH
(Not to Scale)
Natural Ground, 3:1, D, 3:1, Natural Ground
Min. D = 0.3 m
-Y2- 10+26 (LT.)

"V" DITCH
SEE DETAIL F
So=0.300%
CL. 'B' RIP RAP
EST 2 MTN
EST 6 SM FF

LAT. "V" DITCH
SEE DETAIL B
EST 65 CM DDE

0.45m BASE DITCH
SEE DETAIL C
EST 5 CM DDE
So = 4.31%

0.6m LAT. BASE DITCH
SEE DETAIL N
EST 10 CM DDE

CL. 'B' RIP RAP
EST 5 MTN
EST 12 SM FF

CL. 'I' RIP RAP
EST 6 SM MTN
EST 14.2 SM FF
Q10=0.65 cms (23cfs)
V10=2.4m/s (7.9fps)

PREFORMED SCOUR HOLE
B=1.8m, D=0.6m
W=1.6m, d=0.15m

SPEC. CUT DITCH
SEE DETAIL A

NOTE: EXISTING SEPTIC SYSTEM "DO NOT DISTURB"

GRASS SWALE
DA= 2.62ac
Lsw= 263'
Se= 0.0020
Ss= 3.3
Q2= 6.07cfs
V2= 0.89fps
Q10= 7.70cfs
V10= 0.94fps

-L-
PI Sta 48+39.173
Δ = 16° 23' 31.2" (LT)
L = 250.332
T = 126.027
R = 875.000
SE = 0.03
R'OFF = 60.750
DS = 80 KM/H

-Y2-
PI Sta 10+23.435
Δ = 2° 37' 12.8" (LT)
L = 22.866
T = 11.435
R = 500.000
SE = EX.

PROJECT REFERENCE NO.	SHEET NO.
R-2414B	X-16

2.5 0 2.5 5

METRIC

40 30 20 10 0 10 20 30 40 50

10
5
0
-5

3.337
0.025
3.515
0.005
3.529
3:1
3:1
3:1
EP
EP
3.11

52+00.00

SITE 2

WETLAND

3.391
0.025
3.632
0.015
3.490
3:1
3:1
3.01
EP
EP
1.5:1

HC

FILL IN WETLAND

51+80.00

REVISIONS
11/07/06 - REVISED ROW AND TCE ON PARCEL 22.(ABP)
R/W REVISION - REVISED PROPERTY OWNER NAMES ON PARCEL NO.13,17,18,19,20,21 & 23. ADDED PARCEL NO.16A & 17A. BAM
R/W REVISION - REVISED PROPERTY OWNER NAME ON PARCEL NO.22. BAM

TRANSITE CONSULTING ENGINEERS, INCORPORATED
1300 Podcock Drive, Suite G-10
Raleigh, N.C. 27609

WETHERILL ENGINEERING
809 Jones Franklin Rd. Suite 144
Raleigh, N.C. 27606
Phone 919 851 8377
Fax 919 851 8107
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

METRIC
5 0 10

CONST.REV.	
R/W REV.	

PROJECT REFERENCE NO.	SHEET NO.
R-2414B	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SITE 3

F/F DENOTES FILL IN WETLAND

HC/HC DENOTES HAND CLEARING

NAD 83 NC GRID

SEE SHEET NO. 5

MATCHLINE -L- STA. 52+00.000

MATCHLINE -L- STA. 55+60.000

SEE SHEET NO. 7

RR*1 PC 10+00.000

52+00 | 10+00 | 53+00 | 54+00 | 55+00

(17) LARRY LAMB
WB 99E, PG 22

(17A) LINDA SUE LAMB HINTON
WB 99E, PG 22

RITA WHITE GREGORY, ET VIR
DB 93, PG 24
DB 69, PG 392

(21) RITA W. GREGORY
DB 128, PG 847

(23) A & S PROPERTIES, LLC
DB 157, PG 769

PC 54+18.095

PT 55+04.596

(16A) NORFOLK SOUTHERN RAILWAY CO
CHESAPEAKE & ALBEMARLE RR

(19) ARNOLD & THORNLEY, INC
DB 109, PG 279
WALKING BY FAITH FOUNDATION CHURCH

-L- POT 52+45.517 = RR*1 POC 10+57.969

RR*1 PT 11+32.492

(13) FRED E. UPTON, HEIRS
DB 22, PG 468
DB 111, PG 401

POWER LINE EASEMENT
NORTH CAROLINA POWER (VEPCO)
DB 31, PG 529
DB 40, PG 413
DB 62, PG 275

CL. 'B' RIP RAP
EST 1 MTN
EST 5 SM FF

(18) G. MATT WOOD, JR.
DB 135, PG 7

(20) WINNER'S CIRCLE CONDOS
JON R. MERRITT
DB 118, PG 535
(LOT & UNIT 143)
PC 3, SL 10-B
CAMDEN CO FARM BUREAU, INC
DB 121, PG 830 (UNIT 141B)
RICKY R. SMITHSON, ET UX
DB 121, PG 558 (UNIT 141A)
TRUSTEES OF VINEYARD CHRISTIAN FELLOWSHIP OF THE ALBEMARLE
DB 120, PG 525 (UNIT 145)

(22) RICKY L. EDWARDS & SHEILA R. EDWARDS
DB 142, PG 536

CLASS 'B' RIP RAP
EST 1.0 MTN
EST 4.2 SM FF

Q10=0.05cms (1.8cfs)
V10=2.7m/s (8.9ft/s)

CL. 'B' RIP RAP
EST 3 TON
EST 9 SM FF

CL. 'B' RIP RAP
SEE DETAIL M
EST 1 TON
EST 3 SM FF

LAT. 'V' DITCH
SEE DETAIL B
EST 2 CM DDE

LAT. 'V' DITCH
SEE DETAIL B
EST 300 CM DDE

GRASS SWALE
DA= 2.58ac
Lsw= 214'
Sw= 0.0027
SS= 3.3
Q2= 8.90cfs
V2= 1.10fps
Q10= 11.72cfs
V10= 1.48fps

SITE 3

DITCH END DETAIL M
(Not to Scale)
Ditch Slope
End Ditch Grade
Filter Fabric
Type of Liner = CL. 'B'
-L- 55+32 (RT.)

DETAIL B
LATERAL 'V' DITCH
(Not to Scale)
Natural Ground
Fill Slope
.08m/m
Min: D = 0.3 m
b = 0.9 m
-L- 54+47 to 54+52 (RT.)
-L- 54+67 to 55+32 (RT.)

RR *1
PI Sta 10+66.452
Δ = 11° 02' 25" (LT)
L = 132.492
T = 66.452
R = 687.593

-L-
PI Sta 54+61.452
Δ = 9° 48' 50.9" (LT)
L = 86.501
T = 43.357
R = 505.000
SE = 0.04
R'OFF = 81.000
DS = 80 KM/H

(125mm MONOLITHIC CONCRETE ISLAND, 150mm CONCRETE CURB AND GUTTER, REINFORCED CONCRETE BOX CULVERT)

NOTES:
1. ALL RESIDENTIAL DRIVEWAY RADII ARE 1.5m UNLESS OTHERWISE NOTED.
2. COMMERCIAL DRIVEWAY RADII ARE AS SHOWN ON PLANS.
3. ALL CHANNELIZATION CURBING IS 200 x 450.

REVISIONS
11/07/06 - REVISED ROW AND TCE ON PARCEL 22.(ABP)
R/W REVISION - REVISED PROPERTY OWNER NAMES ON PARCEL NO.13,17,18,19,20,21 & 23. ADDED PARCEL NO.16A & 17A. BAM
R/W REVISION - REVISED PROPERTY OWNER NAME ON PARCEL NO.22. BAM

TRANSITE CONSULTING ENGINEERS, INCORPORATED
1300 Podcock Drive, Suite G-10
Raleigh, N.C. 27609

ETHERIDGE ENGINEERING
889 Jones Franklin Rd. Suite 164
Raleigh, N.C. 27606
Phone 919 661 8077
Fax 919 661 8107
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

METRIC 5 0 10

PROJECT REFERENCE NO.	SHEET NO.
R-2414B	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.
R/W REV.

SITE 3

F/F DENOTES FILL IN WETLAND
HC/HC DENOTES HAND CLEARING

NAD 83 NC GRID

SEE SHEET NO. 5

MATCHLINE -L- STA. 52+00.000

MATCHLINE -L- STA. 55+60.000

SEE SHEET NO. 7

10+00 52+00 53+00 54+00 55+00

RR*1 PC 10+00.000

PC 54+18.095

PT 55+04.596

-L- POT 52+45.517 = RR*1 POC 10+57.969

RR*1 PT 11+32.492

(17) LARRY LAMB
WB 99E, PG 22

(17A) LINDA SUE LAMB HINTON
WB 99E, PG 22

RITA WHITE GREGORY, ET VIR
DB 93, PG 24
DB 69, PG 392

(21) RITA W. GREGORY
DB 128, PG 847

(23) A & S PROPERTIES, LLC
DB 157, PG 769

(19) ARNOLD & THORNLEY, INC
DB 109, PG 279
WALKING BY FAITH FOUNDATION CHURCH

(18) G. MATT WOOD, JR.
DB 135, PG 7

(20) WINNER'S CIRCLE CONDOS
JON R. MERRITT
DB 118, PG 535
(LOT & UNIT 143)
PC 3, SL 10-B
CAMDEN CO FARM BUREAU, INC
DB 121, PG 830 (UNIT 141B)
RICKY R. SMITHSON, ET UX
DB 121, PG 558 (UNIT 141A)
TRUSTEES OF VINEYARD CHRISTIAN FELLOWSHIP OF THE ALBEMARLE
DB 120, PG 525 (UNIT 145)

(22) RICKY L. EDWARDS & SHEILA R. EDWARDS
DB 142, PG 536

(13) FRED E. UPTON, HEIRS
DB 22, PG 468
DB 111, PG 401

NORFOLK SOUTHERN RAILWAY CO.

LEASED TO CHESAPEAKE & ALBEMARLE R/R CO.

POWER LINE EASEMENT
NORTH CAROLINA POWER (VEPCO)
DB 31, PG 529
DB 40, PG 413
DB 62, PG 275

CL. 'B' RIP RAP
EST 1 MTN
EST 5 SM FF

CLASS 'B' RIP RAP
EST LO MTN
EST 4.2 SM FF

Q10=0.05cms (1.8cfs)
V10=2.7m/s (8.9ft/s)

CL. 'B' RIP RAP
EST 3 TON
EST 9 SM FF

LAT. 'V' DITCH
SEE DETAIL B
EST 2 CM DDE

LAT. 'V' DITCH
SEE DETAIL B
EST 300 CM DDE

CL. 'B' RIP RAP
SEE DETAIL M
EST 1 TON
EST 3 SM FF

GRASS SWALE
DA= 2.58ac
Lsw= 214'
Se= 0.0027
SS= 3.3
Q2= 8.90cfs
V2= 1.10fps
Q10= 11.72cfs
V10= 1.81fps

SITE 3

RR *1
PI Sta 10+66.452
Δ = 11° 02' 25.1" (LT)
L = 132.492
T = 66.452
R = 687.593

125mm MONOLITHIC CONCRETE ISLAND
150mm CONCRETE CURB AND GUTTER
REINFORCED CONCRETE BOX CULVERT

NOTES:
1. ALL RESIDENTIAL DRIVEWAY RADII ARE 1.5m UNLESS OTHERWISE NOTED.
2. COMMERCIAL DRIVEWAY RADII ARE AS SHOWN ON PLANS.
3. ALL CHANNELIZATION CURBING IS 200 x 450.

-L-
PI Sta 54+61.452
Δ = 9° 48' 50.9" (LT)
L = 86.501
T = 43.357
R = 505.000
SE = 0.04
R'OFF = 81.000
DS = 80 KM/H

DITCH END DETAIL M
(Not to Scale)
Ditch Slope 3:1
End Ditch Grade
Filter Fabric
Type of Liner: CL. 'B'
-L- 55+32 (RT.)

DETAIL B
LATERAL 'V' DITCH
(Not to Scale)
Natural Ground 3:1 D 3:1 .08m/m b Fill Slope
Min: D = 0.3 m
b = 0.9 m
-L- 54+47 to 54+52 (RT.)
-L- 54+67 to 55+32 (RT.)

REVISIONS

11/07/06 - REVISED ROW,TCE & PDE ON PARCEL 25.(ABP)
R/W REVISION - REVISED PROPERTY OWNER NAMES ON PARCEL NO.23 & 24. ADDED PARCEL NO.24A & 25A. CORRECTED PROPERTY OWNER NAMES CHARLES H.HODGES & HOWARD S.STEVENS,HEIRS. BAM
R/W REVISION - REVISED PROPERTY OWNER NAME ON PARCEL NO.22. BAM

F/F DENOTES FILL IN WETLAND
HC/HC DENOTES HAND CLEARING
S/S DENOTES IMPACTS IN SURFACE WATER
TS/TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER
E/E DENOTES EXCAVATION IN WETLAND

(24) BLUE SKY DEVELOPMENT, LLC
DB 138, PG 109
PC-3, SL 77-B (PLAT)

NAD 83 NC GRID

ETHERIDGE ENGINEERING
869 Jones Franklin Rd. Suite 164 Raleigh, N.C. 27606 Fax 919 851 1277 Phone 919 851 0307
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
Civil/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION
TRANSITE CONSULTING ENGINEERS, INCORPORATED
3300 Poncaire Drive, Suite G-10 Raleigh, N.C. 27609

METRIC 5 0 10

CONST.REV.
R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2414B	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION

SITE 3

56+00 57+00 58+00

MATCHLINE -L- STA. 55+60.000

SEE SHEET NO. 6

MATCHLINE -L- STA. 59+00.000

SEE SHEET NO. 8

(23) A & S PROPERTIES, LLC
DB 157, PG 769

CLASS 'B' RIP RAP
EST 1.0 MTN
EST 4.2 SM FF

Q10=0.01cms (0.5cfs)
V10=2.1m/s (6.9ft/s)

N 12° 39' 14.8" E -L-

PC 56+74.089

GRASS SWALE
DA= 0.51ac
Lsw= 76'
Se= 0.0030
Ss= 3.3
Q10= 0.77cfs
V10= 2.40cfs
V10= 0.83fps

GRASS SWALE
DA= 11.58ac
Lsw= 552'
Se= 0.0010
Ss= 3.3
Q2= 25.9cfs
V2= 0.95fps
Q10= 33.9cfs
V10= 1.03fps

LAT. 'V' DITCH SEE DETAIL B E&T 8 CM DDE

CL. 'B' RIP RAP EST 2 MTN EST 6 SM FF

Q10=0.06cms (2.1cfs)
V10=2.8m/s (9.2ft/s)

CLASS 'B' RIP RAP
EST 1.0 MTN
EST 4.2 SM FF

1@ 2.4m x 1.8m RCBC

(22) RICKY L. EDWARDS & SHEILA R. EDWARDS
DB 142, PG 536

(25) CAMDEN CO BOARD OF EDUCATION
DB 31, PG 419
MB 18, PG 551A
DB 35, PG 511
DB 62, PG 15
DB 83, PG 451

CHARLES H. HODGES, ET UX
DB 59, PG 507

HOWARD S. STEVENS, HEIRS C/O F. W. STEVENS
DB 62, PG 640
DB 15, PG 536

(24A) BONNEY, OWENS, & TWIFORD, LLC
DB 231, PG 837

(26) CHARLES B. STEVENS
WILL 96-E-15 (ITEM 26)
DB 15, PG 537

JAMES B. SEYMOUR, JR., ET AL C/O WINFRED M. SEYMOUR
DB 108, PG 929

(27)

ISBKD

ISFD

1200 mm WD

BL- 34
PINC 18+99.462

PLANTER

EXIST R/W

PDE

PLUG

REMOVE EXIST RCBC

2.4m LAT. BASE DITCH SEE DETAIL P EST 310 CM DDE

CL. 'B' RIP RAP EST 2 MTN LT EST 6 SM FF

BATTING CAGE

CL. 'B' RIP RAP EST 3 MTN LT EST 9 SM FF

1800 mm CMP

SITE 3

SITE 3

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

-L- 57+24 to 57+47 (RT.)

-L-
PI Sta 58+15.159
Δ = 28° 46' 17.6" (RT)
L = 276.187
T = 141.071
R = 550.000
SE = 0.04
R'OFF = 81.000
DS = 80 KM/H

DETAIL P
LATERAL BASE DITCH
(Not to Scale)

Natural Ground, 3:1, D, B, b, .08m/m, Fill Slope

Min. D = 0.3m
B = 2.4m
b = 0.9m

-L- 57+52 to 59+20 (RT.)

125mm MONOLITHIC CONCRETE ISLAND
150mm CONCRETE CURB AND GUTTER
REINFORCED CONCRETE BOX CULVERT

(25) CAMDEN CO BOARD OF EDUCATION
DB 31, PG 419
MB 18, PG 551A
DB 35, PG 511
DB 62, PG 15
DB 83, PG 451

(25A) CAMDEN COUNTY
DB 143, PG 441
PC-3 SL 91A
(PLAT)

NOTES:
1. ALL RESIDENTIAL DRIVEWAY RADII ARE 1.5m UNLESS OTHERWISE NOTED.
2. COMMERCIAL DRIVEWAY RADII ARE AS SHOWN ON PLANS.
3. ALL CHANNELIZATION CURBING IS 200 x 450.

NOTE: ALL DRIVES ARE 6.0 METERS UNLESS OTHERWISE DENOTED

SEE SHEET NO. 20 FOR -L- FOR GRADE AND PROFILE.

REVISIONS
11/07/06 - REVISED ROW,TCE & PDE ON PARCEL 25.(ABP)
R/W REVISION - REVISED PROPERTY OWNER NAMES ON PARCEL NO.23 & 24. ADDED PARCEL NO.24A & 25A. CORRECTED PROPERTY OWNER NAMES CHARLES H.HODGES & HOWARD S.STEVENS,HEIRS. BAM
R/W REVISION - REVISED PROPERTY OWNER NAME ON PARCEL NO.22. BAM

F / F DENOTES FILL IN WETLAND

HC / HC DENOTES HAND CLEARING

S / S DENOTES IMPACTS IN SURFACE WATER

TS / TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

E / E DENOTES EXCAVATION IN WETLAND

(24) BLUE SKY DEVELOPMENT, LLC
DB 138, PG 109
PC-3, SL 77-B (PLAT)

NAD 83 NC GRID

ETHERIDGE ENGINEERING
809 Jones Franklin Rd. Suite 106
Raleigh, N.C. 27606
Phone: 919 661 0077
Fax: 919 851 8107
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
Civil/SITE DESIGN - GIS/APS - CONSTRUCTION OBSERVATION

TRANSITE CONSULTING ENGINEERS, INCORPORATED
3300 Peacock Drive, Suite G-10
Raleigh, N.C. 27609

METRIC

5 0 10

CONST.REV.

R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2418	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SITE 3

56+00

57+00

58+00

CHARLES H. HODGES, ET UX
DB 59, PG 507

HOWARD S. STEVENS,HEIRS
C/O
F. W. STEVENS
DB 62, PG 640
DB 15, PG 536

(24A) BONNEY, OWENS, & TWIFORD, LLC
DB 231, PG 837

(26) CHARLES B. STEVENS
WILL 96-E-15 (ITEM 26)
DB 15, PG 537

JAMES B. SEYMOUR, JR.,ET AL
C/O WINFRED M. SEYMOUR
DB 108, PG 929

(23) A & S PROPERTIES, LLC
DB 157, PG 769

CLASS 'B' RIP RAP
EST 1.0 MTN
EST 4.2 SM FF

Q10=0.01cms (0.5cfs)
V10=2.1m/s (6.9ft/s)

MATCHLINE -L- STA. 55+60.000

SEE SHEET NO. 6

N 12-39-14.8 E -L-

REMOVE EXIST 2@ RCBC

1@ 2.4m x 1.8m RCBC

Q10=0.06cms (2.1cfs)
V10=2.8m/s (9.2ft/s)

CLASS 'B' RIP RAP
EST 1.0 MTN
EST 4.2 SM FF

PC 56+74.089

GRASS SWALE
DA= 0.5ac
Lsw= 76
Se= 0.0030
SS= 3.3
Q10= 1.2cfs
V10= 0.77fps
Q10= 2.40cfs
V10= 0.83fps

LAT. 'V' DITCH
SEE DETAIL B
EST 8 CM DDE

CL. 'B' RIP RAP
EST 2 MTN
EST 6 SM FF

GRASS SWALE
DA= 11.88ac
Lsw= 562
Se= 0.0010
SS= 3.3
Q2= 25.9cfs
V2= 0.95fps
Q10= 33.9cfs
V10= 1.03fps

CL. 'B' RIP RAP
EST 2 MTN
EST 6 SM FF

2.4m LAT. BASE DITCH
SEE DETAIL P
EST 310 CM DDE

CL. 'B' RIP RAP
EST 2 MTN LT
EST 6 SM FF

CL. 'B' RIP RAP
EST 3 MTN LT
EST 9 SM FF

SITE 3

(22) RICKY L. EDWARDS & SHEILA R. EDWARDS
DB 142, PG 536

(25) CAMDEN CO
BOARD OF EDUCATION
DB 31, PG 419
MB 18, PG 551A
DB 35, PG 511
DB 62, PG 15
DB 83, PG 451

SITE 3

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

Natural Ground — 3H — 0.8m/m — Fill Slope
Min. D = 0.3 m
B = 0.9 m

(-L- 57+24 to 67+47 (RT.))

-L-
PI Sta 58+15.159
Δ = 28°46'17.6" (RT)
L = 276.187
T = 141.071
R = 550.000
Se = 0.04
ROFF = 81.000
DS = 80 KM/H

DETAIL P
LATERAL BASE DITCH
(Not to Scale)

Natural Ground — 3H — D — 3H — b — Fill Slope — 0.8m/m
B
Min. D = 0.3m
B = 2.4m
b = 0.9m

(-L- 57+52 to 59+20 (RT.))

(25) CAMDEN CO
BOARD OF EDUCATION
DB 31, PG 419
MB 18, PG 551A
DB 35, PG 511
DB 62, PG 15
DB 83, PG 451

(25A) CAMDEN COUNTY
DB 143, PG 441
PC-3 SL 91A
(PLAT)

NOTES:
1. ALL RESIDENTIAL DRIVEWAY RADII ARE 1.5m UNLESS OTHERWISE NOTED.
2. COMMERCIAL DRIVEWAY RADII ARE AS SHOWN ON PLANS.
3. ALL CHANNELIZATION CURBING IS 200 x 450.

125mm MONOLITHIC CONCRETE ISLAND, 150mm CONCRETE CURB AND GUTTER, REINFORCED CONCRETE BOX CULVERT

NOTE: ALL DRIVES ARE 6.0 METERS UNLESS OTHERWISE DENOTED

SEE SHEET NO. 20 FOR -L- FOR GRADE AND PROFILE.

SEE SHEET NO. 8

MATCHLINE -L- STA. 59+00.000

BL - 34
PINC 18+99.462

EL- 23+18.529
P.T. 360 60.521

BATTING CAGE

1SBKD

1SFD

1200 mm WD

PLANTER

EXIST R/W

PDE

CB

REVISIONS
R/W REVISION - REVISED PROPERTY OWNER NAME ON PARCEL NO.30. ADDED PARCEL NO.24A & 25A. BAM

6/20/08

WETHERILL ENGINEERING
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - 404/SPS - CONSTRUCTION OBSERVATION

TRANSITE CONSULTING ENGINEERS, INCORPORATED
300 Peacock Drive, Ste's G-10
Raleigh, N.C. 27609

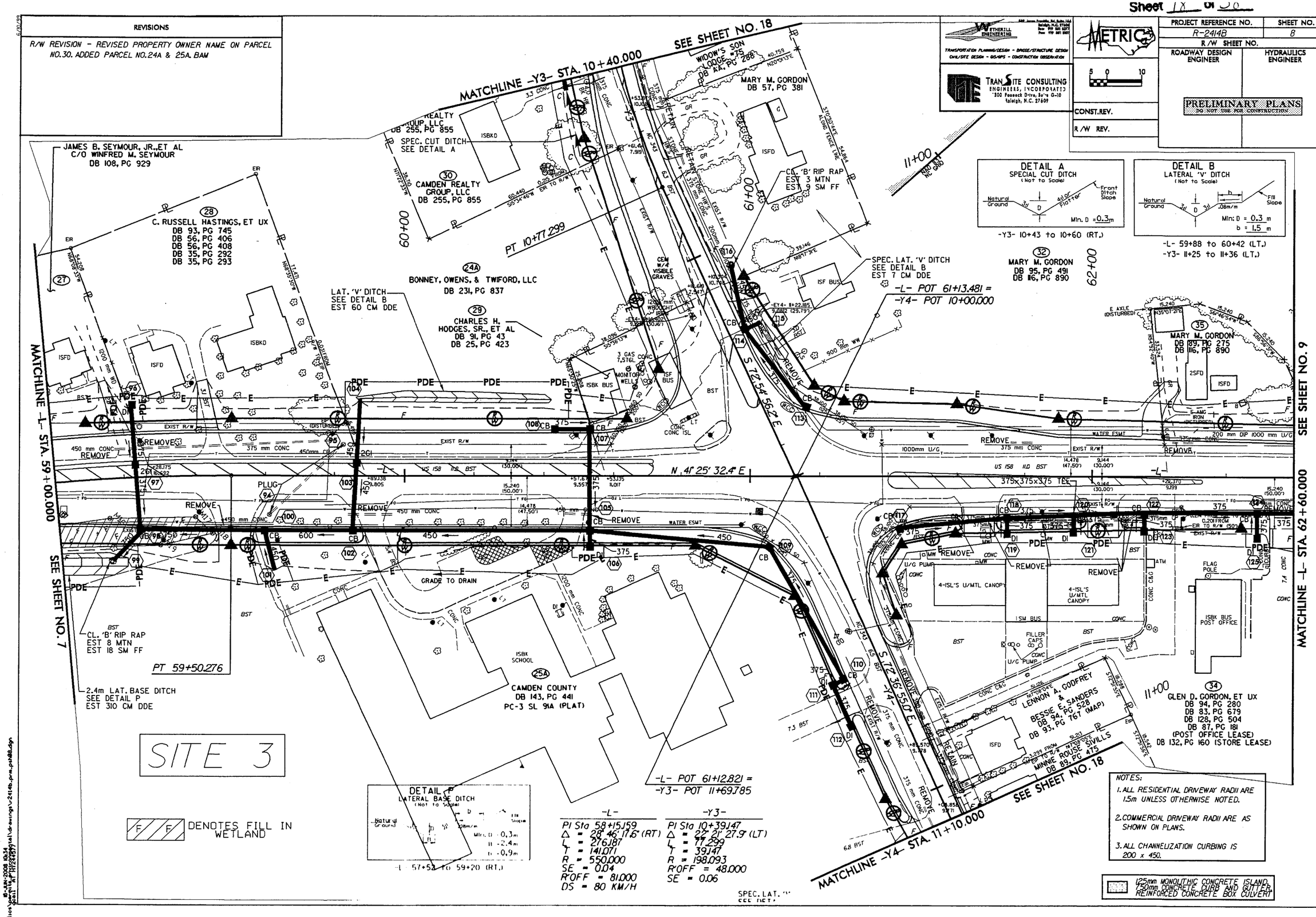
METRIC 5 0 10

CONST.REV.

R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2414B	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



REVISIONS

R/W REVISION - REVISED PROPERTY OWNER NAME ON PARCEL NO. 30. ADDED PARCEL NO. 24A & 25A. BAM

PROJECT REFERENCE NO.	SHEET NO.
R-2414B	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

WETHERILL ENGINEERING

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN - CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

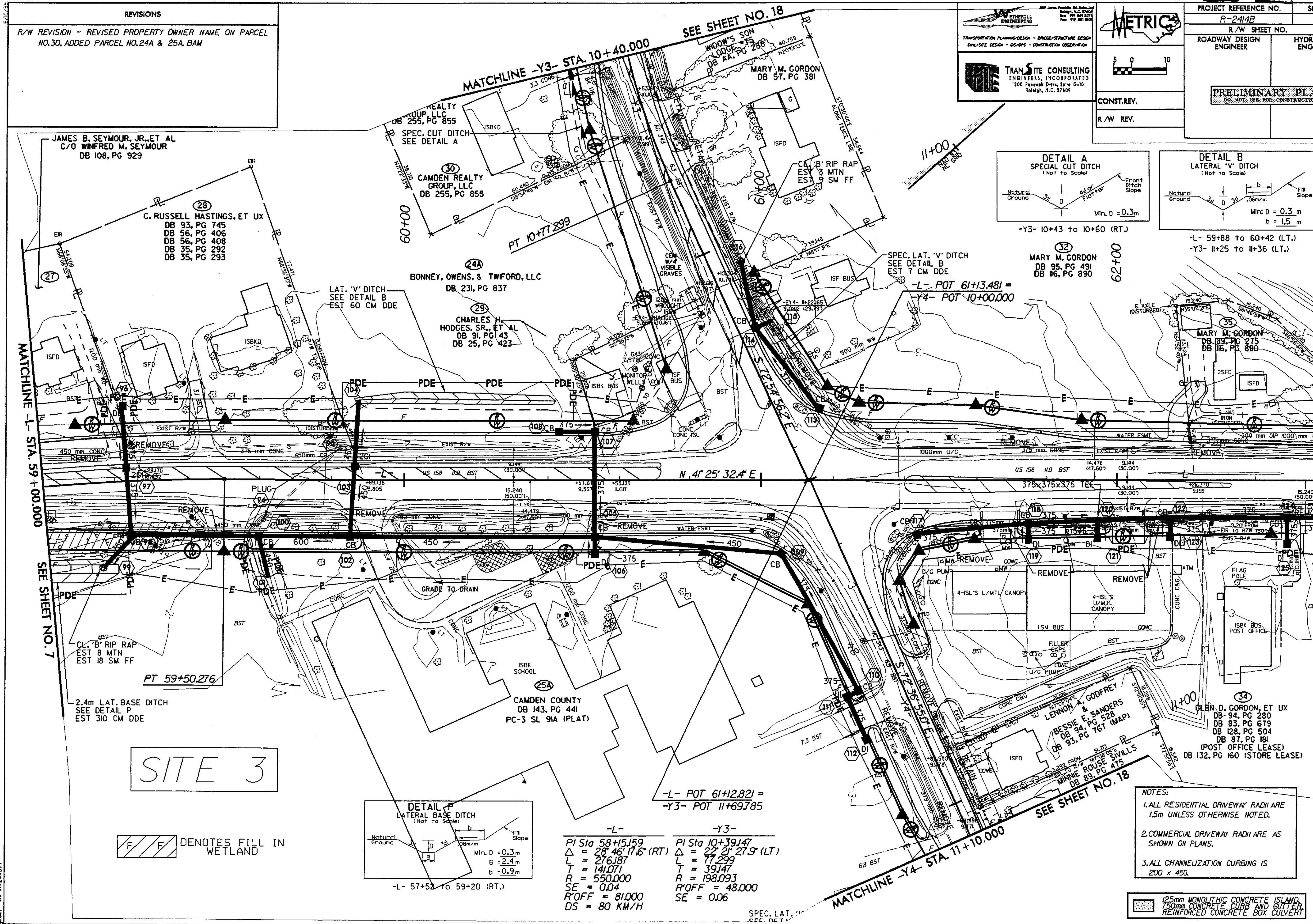
TRANSITE CONSULTING ENGINEERS, INCORPORATED
Raleigh, N.C. 27609

METRIC

CONST. REV.

R/W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



MATCHLINE -Y3- STA. 10+40.000
SEE SHEET NO. 18
MATCHLINE -L- STA. 59+00.000
SEE SHEET NO. 7
MATCHLINE -L- STA. 62+60.000
SEE SHEET NO. 9
MATCHLINE -Y4- STA. 11+10.000
SEE SHEET NO. 18
JAMES B. SEYMOUR, JR., ET AL
C/O WINFRED M. SEYMOUR
DB 108, PG 929
C. RUSSELL HASTINGS, ET UX
DB 93, PG 745
DB 56, PG 406
DB 56, PG 408
DB 35, PG 292
DB 35, PG 293
CAMDEN REALTY GROUP, LLC
DB 255, PG 855
SPEC. CUT DITCH
SEE DETAIL A
WIDOW'S SON LODGE #75
DB AA, PG 288
MARY M. GORDON
DB 57, PG 381
BONNEY, OWENS, & TWIFORD, LLC
DB 231, PG 837
CHARLES H. HODGES, SR., ET AL
DB 91, PG 43
DB 25, PG 423
LAT. 'V' DITCH
SEE DETAIL B
EST 60 CM DDE
CL. 'B' RIP RAP
EST 3 MTN
EST 9 SM FF
SPEC. LAT. 'V' DITCH
SEE DETAIL B
EST 7 CM DDE
-L- POT 61+13.481 =
-Y4- POT 10+00.000
MARY M. GORDON
DB 95, PG 491
DB 116, PG 890
MARY M. GORDON
DB 89, PG 275
DB 116, PG 890
N 41° 25' 32.4" E
PT 10+77.299
PT 59+50.276
CL. 'B' RIP RAP
EST 8 MTN
EST 18 SM FF
2.4m LAT. BASE DITCH
SEE DETAIL P
EST 310 CM DDE
CAMDEN COUNTY
DB 143, PG 441
PC-3 SL 91A (PLAT)
ISBK SCHOOL
LENNON A. GODFREY & BESSIE E. SANDERS
DB 94, PG 528
DB 93, PG 767 (MAP)
MINNIE ROUSE SIVILLS
DB 89, PG 475
GLEN D. GORDON, ET UX
DB 94, PG 280
DB 83, PG 679
DB 128, PG 504
DB 87, PG 181
(POST OFFICE LEASE)
DB 132, PG 160 (STORE LEASE)
-L- POT 61+12.821 =
-Y3- POT 11+69.785
SITE 3

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground — Front Ditch Slope 6:1 or Flatter — 3:1 — D
Min. D = 0.3 m
-Y3- 10+43 to 10+60 (RT.)

DETAIL B
LATERAL 'V' DITCH
(Not to Scale)
Natural Ground — Fill Slope — 3:1 — D — 3:1 — b — .08m/m
Min. D = 0.3 m
b = 1.5 m
-L- 59+88 to 60+42 (LT.)
-Y3- 11+25 to 11+36 (LT.)

DETAIL P
LATERAL BASE DITCH
(Not to Scale)
Natural Ground — Fill Slope — 3:1 — D — B — b — .08m/m
Min. D = 0.3 m
B = 2.4 m
b = 0.9 m
-L- 57+52 to 59+20 (RT.)

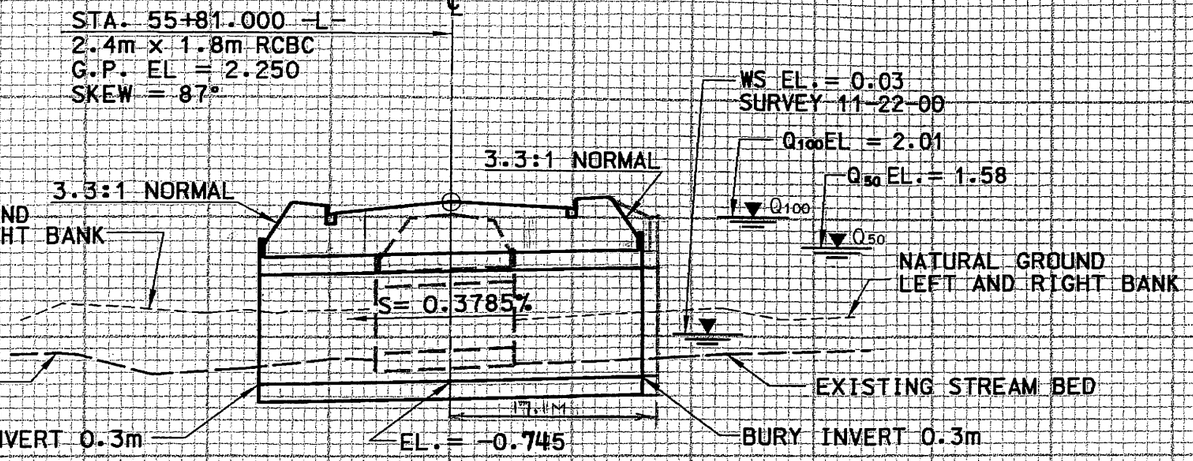
-L-	-Y3-
PI Sta 58+15.159	PI Sta 10+39.147
Δ = 28° 46' 17.6" (RT)	Δ = 22° 21' 27.9" (LT)
L = 276.187	L = 77.299
T = 141.071	T = 39.147
R = 550.000	R = 198.093
SE = 0.04	R'OFF = 48.000
R'OFF = 81.000	SE = 0.06
DS = 80 KM/H	

F / F DENOTES FILL IN WETLAND

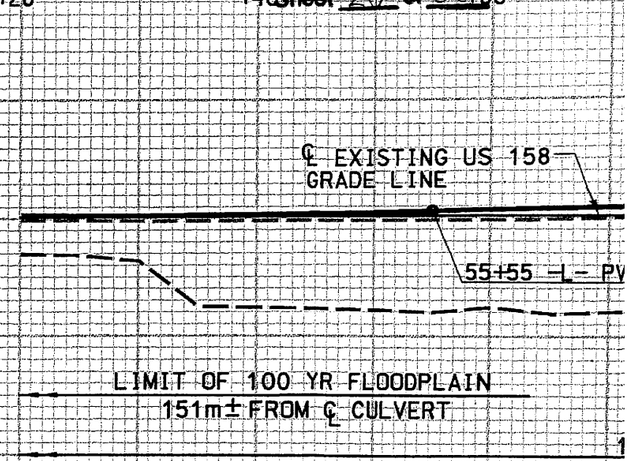
NOTES:

1. ALL RESIDENTIAL DRIVEWAY RADII ARE 1.5m UNLESS OTHERWISE NOTED.
2. COMMERCIAL DRIVEWAY RADII ARE AS SHOWN ON PLANS.
3. ALL CHANNELIZATION CURBING IS 200 x 450.

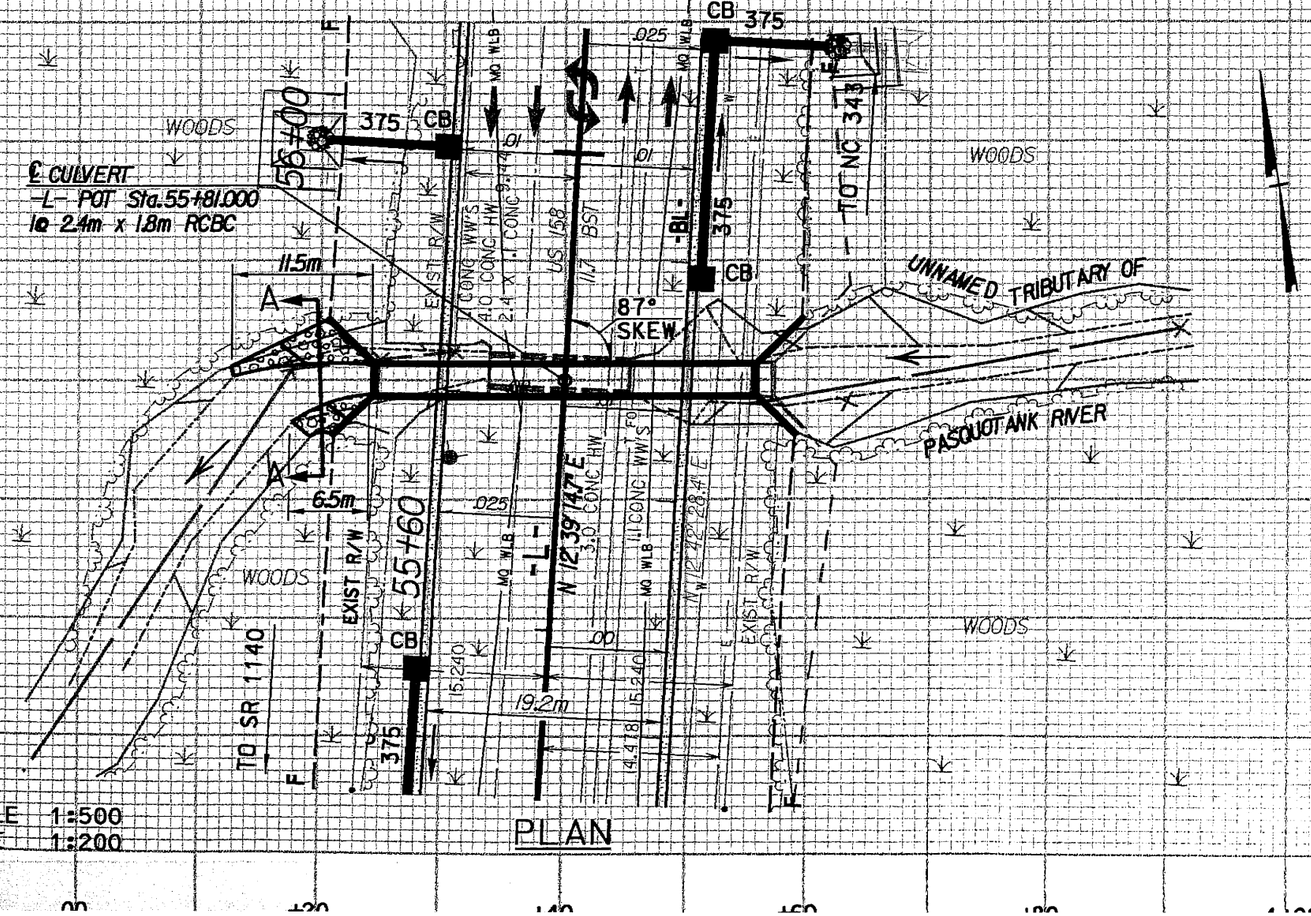
125mm MONOLITHIC CONCRETE ISLAND, 750mm CONCRETE CURB AND GUTTER, REINFORCED CONCRETE BOX CULVERT



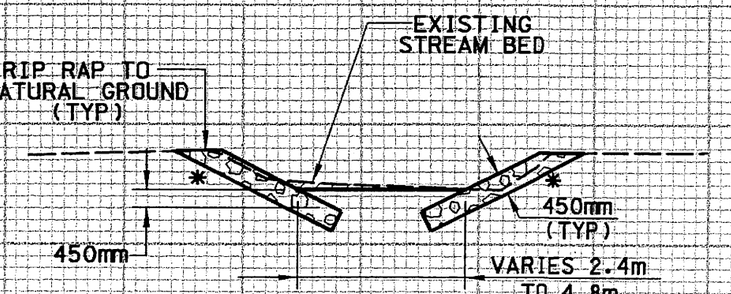
PROFILE



FLOODPLAIN



PLAN



L = 11.5m (RT) & 6.5m (LT) MEASURED FROM END OF CULVERT
EST. EXCAVATION = 4m³
EST. CLASS I RIP RAP = 23 TONS
EST. FILTER FABRIC = 30m²

SECTION A-A

▨ CHANNEL EXCAVATION
* SIDE SLOPES VARY FROM 2:1 TO EXISTING

2.5 0 2.5 5

METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2414B	X-26

SITE 3

WETLAND

22.66

0.010

3:1

PIDE

HC

FILL IN WETLANDS

EP

2.06

22.31

0.020

WETLAND

VAR.

3:1

E

HC

FILL IN WETLANDS

56+00.00

20.56

0.020

3:1

EP

2.06

22.46

0.011

21.45

VAR.

3:1

55+00.00

Permit Drawing
Sheet 22 of 38

2.5 0 2.5 5	METRIC	PROJECT REFERENCE NO.	SHEET NO.
		R-2414B	X-31

SITE 3

58+00.00

+6.0%
+9.0%
+4.0%
3%
3:1
0.040
EP
2:1
0.040
2.33%
WETLAND
3:1
0.429
FILL IN WETLANDS
EXCAVATION IN WETLANDS

57+00.00

3:1
3.05%
0.040
EP
2.64%
0.040
2.26%
3:1
0.408

Permit Drawing
Sheet 23 of 38

REVISIONS
R/W REVISION - REVISED THE PROPERTY OWNER NAME AND PARCEL NO.ON PARCEL NO.34. REVISED PROPERTY OWNER NAME FROM CHARLIE S.BARLETT TO JARED & STEPHANIE DALTON (NO CLAIM). BAM

6/10/09

STEWART ENGINEERING
1109 James Townsend Rd. Suite 102 Raleigh, N.C. 27604 Phone 919 846 0377 Fax 919 861 8907
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - QS/QPS - CONSTRUCTION OBSERVATION

TRANSITE CONSULTING ENGINEERS, INCORPORATED
1300 Patrick Drive, Suite 0-10 Raleigh, N.C. 27609

METRIC
5 0 10

PROJECT REFERENCE NO.	SHEET NO.
R-2414B	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CONST.REV.
R/W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SITE 4

GRASS SWALE
DA= 0.57ac
Lsw= 217'
Se= 0.0106
SS= 3:1
Q2= 2.01cfs
V2= 1.29fps
Q10= 2.65cfs
V10= 1.38fps

F F DENOTES FILL IN WETLAND

HC HC DENOTES HAND CLEARING

NAD 83 NC GRID

64+00 63 65+00

(32) MARY M. GORDON
DB 95, PG 491
DB 116, PG 890

SEE SHEET NO. 8

MATCHLINE -L- STA. 62+60.000

CL. 'B' RIP RAP EST 5 MTN EST 12 SM FF
Q10=0.32cms (11.3cfs) V10=1.9m/s (6.2ft/s)
CL. 'B' RIP RAP SEE DETAIL M EST 2 MTN EST 4 SM FF
LAT. 'V' DITCH SEE DETAIL B EST 135 CM DDE
CL. 'B' RIP RAP EST 2 MTN EST 6 SM FF
CL. 'B' RIP RAP EST 2 MTN EST 6 SM FF
CL. 'B' RIP RAP EST 3 MTN EST 9 SM FF
600mm MTLP
CONC COLLAR
600mm CONC
200mm CONC HW
REMOVE H.W.
PLUG
EXIST R/W
US 158 11.0 BST
US 158 6.8 BST
N 41° 25' 32.4" E
+97.230
15.839
+13.092
10.074
375
CB
PDE
T FO
E
F
S
W
WATER ESMT

GRASS SWALE
DA= 0.98ac
Lsw= 43'
Se= 0.0030
SS= 3:1
Q2= 2.29cfs
V2= 0.81fps
Q10= 3.00cfs
V10= 0.87fps

CL. 'B' RIP RAP EST 2 MTN EST 6 SM FF
CL. 'B' RIP RAP SEE DETAIL M EST 2 MTN EST 4 SM FF
LAT. 'V' DITCH SEE DETAIL B EST 35 CM DDE
CL. 'B' RIP RAP EST 2 MTN EST 6 SM FF
LAT. 'V' DITCH SEE DETAIL B EST 55 CM DDE
PC 65+86.527

SEE SHEET NO. 10

MATCHLINE -L- STA. 66+20.000

(34) GLEN D. GORDON, ET UX
DB 94, PG 280
DB 83, PG 679
DB 128, PG 504
DB 87, PG 181 (POST OFFICE LEASE)
DB 132, PG 160 (STORE LEASE)

SITE 4

(34) GLEN & SHEILA GORDON
DB 140, PG 778

DETAIL B
LATERAL 'V' DITCH
(Not to Scale)
Natural Ground, 3:1, D, 3:1, b, .08m/m, Fill Slope
Min. D = 0.6m
b = 0.9m

-L- 62+84 to 63+50 (LT.)
-L- 62+75 to 62+88 (RT.)
-L- 64+94 to 65+73 (RT.)

DITCH END DETAIL M
(Not to Scale)
Ditch Slope, 3:1, NG, 0.3 Min., End Ditch Grade, Filter Fabric
Type of Liner= CL. 'B'

-L- 62+88 (LT.)
-L- 62+88 (RT.)

-L-
PI Sta 66+25.744
Δ = 3° 44' 37.0" (LT)
L = 78.406
T = 39.217
R = 1,200.000
SE = 0.03
R'OFF = 60.750
DS = 80 KM/H

-Y6-
PI Sta 10+19.890
Δ = 2° 55' 37.3" (LT)
L = 39.770
T = 19.890
R = 778.495
SE = EX.
BCK = N 6°28'25.4" E

-Y6-
PI Sta 10+59.540
Δ = 2° 26' 50.5" (RT)
L = 39.533
T = 19.769
R = 925.512
SE = EX.
AH = N 5°59'38.6" E

CHESAPEAKE & ALBEMARLE RR
S31°21'21"W
RR SWITCH
(LEASED TO CHESAPEAKE & ALBEMARLE R/R CO)
EXIST R/W
SOU
ER
RETAIN
JARED & STEPHANIE DALTON
DB 208, PG 545
SR 1142 54 QUBERRY RD
1850 mm CML
1800mm CML
GR

(36) GEORGE WOOD FARMS, INC
DB 115, PG 607
DB 115, PG 621

125mm MONOLITHIC CONCRETE ISLAND, 150mm CONCRETE CURB AND GUTTER, REINFORCED CONCRETE BOX CULVERT

B-4414B-2008 10:32
I:\projects\2414b\roadway\drawings\v-2414b_prelpln09.dgn
Default User: RHZ2597

Partial Drawing
Sheet 24 of 38

REVISIONS
R/W REVISION - REVISED THE PROPERTY OWNER NAME AND PARCEL NO.ON PARCEL NO.34. REVISED PROPERTY OWNER NAME FROM CHARLIE S.BARLETT TO JARED & STEPHANIE DALTON (NO CLAIM). BAM

WETHERILL ENGINEERING
897 James Franklin Rd. Suite 104 Raleigh, N.C. 27609 Phone 919 881 9927 Fax 919 881 9927
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

TRANSITE CONSULTING ENGINEERS, INCORPORATED
3800 Paesack Drive, Suite 0-10 Raleigh, N.C. 27609

METRIC
5 0 10

CONST.REV.	
R/W REV.	

PROJECT REFERENCE NO.	SHEET NO.
R-2414B	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SITE 4

SITE 4

NAD 83 NC GRID

64+00

65+00

63

F F DENOTES FILL IN WETLAND

HC HC DENOTES HAND CLEARING

GRASS SWALE
DA= 0.57cc
Lsw= 217'
Se= 0.0106
SS= 3:1
Q2= 2.01cfs
V2= 1.29fps
Q10= 2.65cfs
V10= 1.38fps

GRASS SWALE
DA= 0.98cc
Lsw= 43'
Se= 0.0030
SS= 3:1
Q2= 2.29cfs
V2= 0.81fps
Q10= 3.00cfs
V10= 0.87fps

CL. 'B' RIP RAP
EST 5 MTN
EST 12 SM FF

CL. 'B' RIP RAP
SEE DETAIL M
EST 2 MTN
EST 4 SM FF

CL. 'B' RIP RAP
EST 2 MTN
EST 6 SM FF

CL. 'B' RIP RAP
EST 2 MTN
EST 6 SM FF

LAT. 'V' DITCH
SEE DETAIL B
EST 135 CM DDE

Q10=0.32cms (11.3cfs)
V10=1.9m/s (6.2Ft/s)

CL. 'B' RIP RAP
EST 2 MTN
EST 6 SM FF

CL. 'B' RIP RAP
SEE DETAIL M
EST 2 MTN
EST 4 SM FF

LAT. 'V' DITCH
SEE DETAIL B
EST 35 CM DDE

CL. 'B' RIP RAP
EST 3 MTN
EST 9 SM FF

600mm MFLP

LAT 'V' DITCH
SEE DETAIL B
EST 55 CM DDE

CL. 'B' RIP RAP
EST 2 MTN
EST 6 SM FF

PC 65+86.527

MATCHLINE -L- STA. 62+60.000

SEE SHEET NO. 8

MATCHLINE -L- STA. 66+20.000

SEE SHEET NO. 10

(32) MARY M. GORDON
DB 95, PG 491
DB 116, PG 890

(34) GLEN D. GORDON, ET UX
DB 94, PG 280
DB 83, PG 679
DB 128, PG 504
DB 87, PG 181 (POST OFFICE LEASE)
DB 132, PG 160 (STORE LEASE)

(34) GLEN & SHEILA GORDON
DB 140, PG 778

(36) GEORGE WOOD FARMS, INC
DB 115, PG 607
DB 115, PG 621

JARED & STEPHANIE DALTON
DB 208, PG 545

N 41° 25' 32.4" E

+97.230
15.838

+73.052
10.074

US 158 6.8 BST

US 158 11.0 BST

-L-

-Y6-

-Y6-

PLUG

REMOVE H.W.

PLUG

600mm CONC HW

CONC HW

EXIST R/W

WATER ESMT

CHESAPEAKE & ALBEMARLE RR

(LEASED TO CHESAPEAKE & ALBEMARLE R/R CO)

RETAIN

SOIL

QUAKERPOST RD

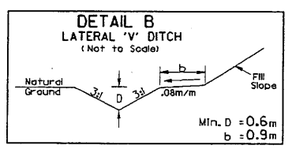
SR 1142

S.R. 1142

1850 mm CML

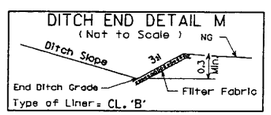
PDE

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



-L- 62+84 to 63+50 (LT.)
-L- 62+75 to 62+88 (RT.)
-L- 64+94 to 65+73 (RT.)

DITCH END DETAIL M
(Not to Scale)



-L- 62+88 (LT.)
-L- 62+88 (RT.)

-L-
PI Sta 66+25.744
Δ = 3° 44' 37.0" (LT)
L = 78.406
T = 39.217
R = 1,200.000
SE = 0.03
ROFF = 60.750
DS = 80 KM/H

-Y6-
PI Sta 10+19.890
Δ = 2° 55' 37.3" (LT)
L = 39.770
T = 19.890
R = 778.495
SE = EX.
BCK = N 6° 28' 25.4" E

-Y6-
PI Sta 10+59.540
Δ = 2° 26' 50.5" (RT)
L = 39.533
T = 19.769
R = 925.512
SE = EX.
AH = N 5° 59' 38.6" E

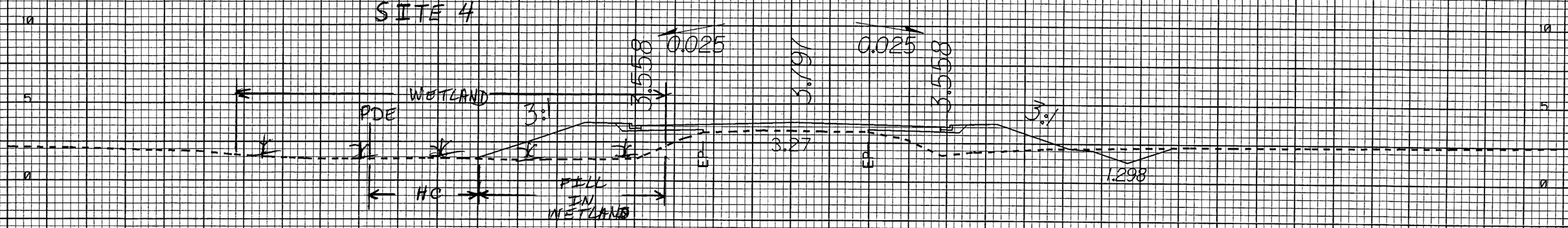
125mm MONOLITHIC CONCRETE ISLAND
750mm CONCRETE CURB AND GUTTER
REINFORCED CONCRETE BOX CULVERT

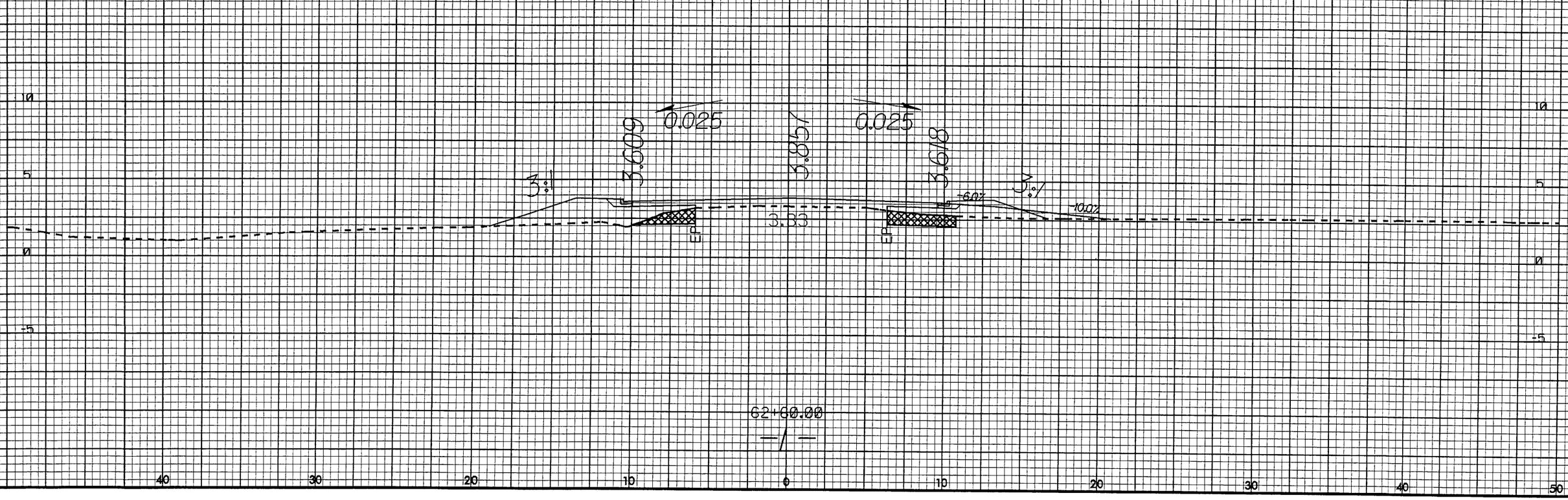
2.5 0 2.5 5

METRIC

PROJECT REFERENCE NO.	SHEET NO.
R-2414B	X-43

SITE 4





REVISIONS
R/W REVISION - REVISED PROPERTY OWNER NAME & ELIMINATED PARCEL NO.36 (NO CLAIM), REVISED PROPERTY OWNER NAMES ON PARCEL NO.38, 39 & 40. BAM

BETHELL ENGINEERING
849 James Townsville Rd, Suite 164 Raleigh, N.C. 27606 Phone 919 851 0277 Fax 919 851 0107
Transportation Planning/Design - Bridge/Structure Design Civil/Site Design - GIS/GPS - Construction Observation
TRANSITE CONSULTING ENGINEERS, INCORPORATED 3300 Poonock Drive, Suite G-10 Raleigh, N.C. 27609

METRIC
5 0 10

PROJECT REFERENCE NO.	SHEET NO.
R-2414B	10
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

CONST.REV.

R/W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

F/F DENOTES FILL IN WETLAND

HC/HC DENOTES HAND CLEARING

SITE 5

SEE SHEET NO. 9

MATCHLINE -L- STA. 66+20.000

MATCHLINE -L- STA. 69+80.000

SEE SHEET NO. 11

(32) MARY M. GORDON DB 46, PG 316A

(39) MATTHEW HARRELL DB 246, PG 540

M. W. GODWIN, HEIRS C/O JOYCE GODWIN DB 36, PG 656 MB 2, PG 23

MARY GODWIN HARRIS DB 52, PG 659 MB 2, PG 23

(37) DORIS S. BERRY DB 65, PG 187 DB 46, PG 316A DB 117, PG 179

(40) H & R INVESTMENT DB 167, PG 39

(41) NORTHEASTERN COMMUNITY DEVELOPMENT CORP, INC DB 111, PG 217 DB 116, PG 742 RC 2, SL. 87A

(34) PT 66+64.933 GLEN & SHEILA GORDON DB 140, PG 778

(38) TIDEWATER AGRONOMICS DB 229, PG 62

(36) GEORGE WOOD FARMS, INC DB 115, PG 607 DB 115, PG 621

TRACIE & CHARLIE CARTWRIGHT DB 232, PG 668

CL. 'I' RIP RAP EST 7 MTN EST 15 SM FF

TOE PROTECTION SEE DETAIL G EST 3 MTN EST 5 SM FF

Q10=0.48cms (17 cfs) V10=1.9m/s (6.2ft/s)

ROCK FILL IN POND SEE DETAIL H CL 'I' RIP RAP EST 90 MTN

LAT. 'Y' DITCH SEE DETAIL B EST 11CM DDE

LAT. 'V' DITCH SEE DETAIL B EST 150 CM DDE

CL. 'B' RIP RAP EST 3 MTN EST 9 SM FF

'V' DITCH SEE DETAIL F So = 0.30000% EST 5 CM DDE

'V' DITCH SEE DETAIL F So = 4.83333% EST 5/CM DDE

GRASS SWALE
DA= 1.69ac
Lswe 263'
Se= 0.0035
SS= 3:1
Q2= 5.12cfs
V2= 1.06fps
Q10= 6.71cfs
V10= 1.13fps

NORFOLK SOUTHERN RAILWAY CO (LEASED TO CHESAPEAKE & ALBEMARLE R/R CO)

SEE SHEET NO. 22 FOR -L- GRADE AND PROFILE.

NOTE: ALL DRIVES ARE 6.0 METERS UNLESS OTHERWISE DENOTED

-L-
PI Sta 66+25.744
Δ = 3°44'37.0" (LT)
L = 78.406
T = 39.217
R = 1,200.000
SE = 0.03
R'OFF = 60.750
DS = 80 KM/H

125mm MONOLITHIC CONCRETE ISLAND, 150mm CONCRETE CURB AND GUTTER, REINFORCED CONCRETE BOX CULVERT

DETAIL F
'V' DITCH
(Not to Scale)
Min. D = 0.3 m
-L- 66+87 (RT.)
-L- 67+06 (RT.)

DETAIL B
LATERAL 'V' DITCH
(Not to Scale)
Min. D = 0.3 m
b = 0.9 m
-L- 67+23 to 67+41 (RT.)
-L- 67+80 to 68+60 (RT.)

DETAIL G
TOE PROTECTION
(Not to Scale)
d = 0.3 m
Type of Liner = CL. 'B'
-L- 67+40 to 67+50 (LT.)

DETAIL H
ROCK FILL IN POND
(Not to Scale)
Elev.= 1.0
N.W.S. Elev.= 0.70
-L- 67+41 to 67+69 (RT.)

8-JAN-2008 10:44

REVISIONS
R/W REVISION - REVISED PROPERTY OWNER NAME & ELIMINATED PARCEL NO.36 (NO CLAIM), REVISED PROPERTY OWNER NAMES ON PARCEL NO.38,39 & 40. BAM

WETHERILL ENGINEERING
889 James Jackson Rd, Suite 164, Raleigh, N.C. 27606
Phone: 919 861 6577 Fax: 919 861 6507
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

TRANSITE CONSULTING ENGINEERS, INCORPORATED
3300 Poonack Drive, Suite G-10
Raleigh, N.C. 27609

METRIC
5 0 10

CONST.REV.
R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2414B	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

F F DENOTES FILL IN WETLAND

HC HC DENOTES HAND CLEARING

SITE 5

SEE SHEET NO. 9

MATCHLINE -L- STA. 66+20.000

MATCHLINE -L- STA. 69+80.000

SEE SHEET NO. 11

(32) MARY M. GORDON DB 46, PG 316A

(39) MATTHEW HARRELL DB 246, PG 540

M. W. GODWIN, HEIRS C/O JOYCE GODWIN DB 136, PG 656 MB 2, PG 23

MARY GODWIN HARRIS DB 521, PG 659 MB 2, PG 23

(41) NORTHEASTERN COMMUNITY DEVELOPMENT CORP, INC DB 111, PG 217 DB 116, PG 742 PC 2, SL 187A

(40) H & R INVESTMENT DB 167, PG 39

DORIS S. BERRY DB 65, PG 187 DB 46, PG 316A DB 117, PG 179

CL. 'I' RIP RAP EST 7 MTN EST 15 SM FF

TOE PROTECTION SEE DETAIL EST 3 MTN EST 5 SM FF

Q10=0.48cms (17) cfs
V10=1.0m/s (3.27) f/s

-L- PI Sta 66+25.744
Δ = 3°44'37.0" (LT)
L = 78.406
T = 39.217
R = 1,200.000
SE = 0.03
R'OFF = 60.750
DS = 80 KM/H

(34) PT 66+64.933
GLEN & SHEILA GORDON DB 140, PG 778

(38) TIDEWATER AGRONOMICS DB 229, PG 62

TRACIE & CHARLIE CARTWRIGHT DB 232, PG 668

NORFOLK SOUTHERN RAILWAY CO
(LEASED TO CHESAPEAKE & ALBEMARLE R/R CO)

ROCK FILL IN POND SEE DETAIL H CL 'I' RIP RAP EST 90 MTN

LAT. 'V' DITCH SEE DETAIL B EST 150 CM DDE

CL. 'B' RIP RAP EST 3 MTN EST 9 SM FF

(36) GEORGE WOOD FARMS, INC DB 115, PG 607 DB 115, PG 621

'V' DITCH SEE DETAIL F So = 0.3000% EST 5 CM DDE

'V' DITCH SEE DETAIL F So = 4.8333% EST 5 CM DDE

GRASS SWALE
Q2= 1.89cc
L84=263'
So=0.0035
SS=3:1
Q2=5.12CFS
V2=1.06f/s
Q10=6.93CFS
V10=1.31f/s

SEE SHEET NO. 22 FOR -L- GRADE AND PROFILE.

NOTE: ALL DRIVES ARE 6.0 METERS UNLESS OTHERWISE DENOTED

125mm MONOLITHIC CONCRETE ISLAND, 750mm CONCRETE CURB AND GUTTER, REINFORCED CONCRETE BOX CULVERT

DETAIL F
'V' DITCH
(Not to Scale)
Natural Ground — 3H — D — 3H — Natural Ground
Min. D = 0.3 m
-L- 66+87 (RT.)
-L- 67+06 (RT.)

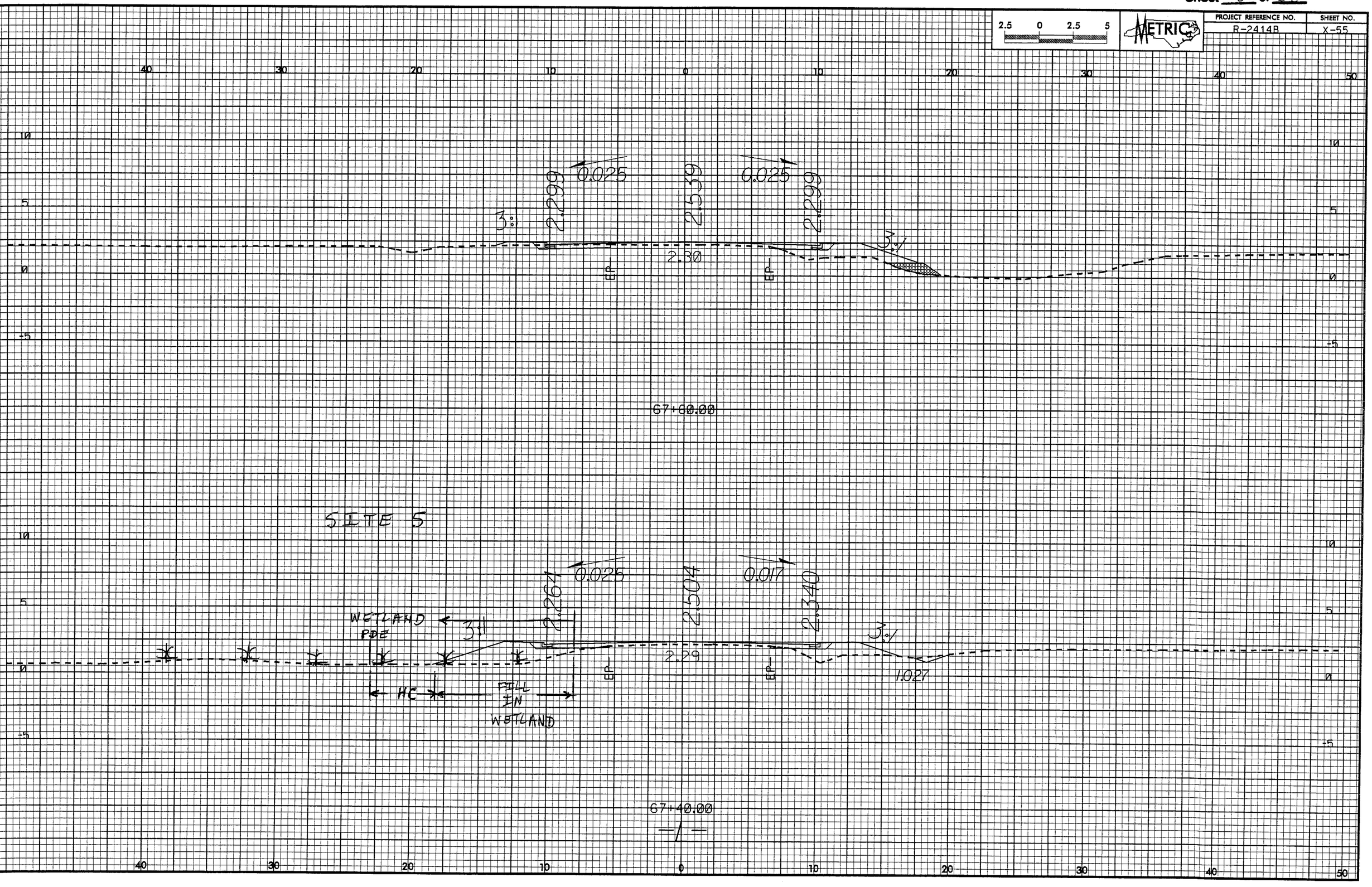
DETAIL B
LATERAL 'V' DITCH
(Not to Scale)
Natural Ground — 3H — D — 3H — Fill Slope; b; .08m/m
Min. D = 0.3 m
b = 0.9 m
-L- 67+23 to 67+41 (RT.)
-L- 67+80 to 68+60 (RT.)

DETAIL G
TOE PROTECTION
(Not to Scale)
Natural Ground — 3H — d — 3H — Fill Slope; Filter Fabric
d = 0.3 m
Type of Liner = CL. 'B'
-L- 67+40 to 67+50 (LT.)

DETAIL H
ROCK FILL IN POND
(Not to Scale)
Proposed; Existing; Earth Fill; Rock Fill To Berm (CL. I Rip Rap); 3H; .3m; Elev.= 1.0; N.W.S. Elev.= 0.70
-L- 67+41 to 67+69 (RT.)

PROJECT REFERENCE NO.	SHEET NO.
R-2414B	X-55

2.5 0 2.5 5 METRIC



REVISIONS

11/07/06 - REVISED ROW,TCE & PDE ON PARCEL 36.(ABP)
R/W REVISION - REVISED PROPERTY OWNER NAME ON PARCEL NO.42 & ADDED DEED BOOK DESCRIPTION TO PARCEL NO.44. BAM

ETHERTILL ENGINEERING
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GS/DPS - CONSTRUCTION OBSERVATION
TRANSITE CONSULTING ENGINEERS, INCORPORATED
300 Peasock Drive, Suite G-10
Raleigh, N.C. 27609

METRIC
5 0 10

PROJECT REFERENCE NO.	SHEET NO.
R-2414B	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CONST.REV.
R/W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

F/F DENOTES FILL IN WETLAND
HC/HC DENOTES HAND CLEARING

NAD 83 NC GRID

SITE 6

SEE SHEET NO. 10

MATCHLINE -L- STA. 69+80.000

MATCHLINE -L- STA. 73+40.000

SEE SHEET NO. 12

70+00 71+00 72+00 73+00

(41) NORTHEASTERN COMMUNITY DEVELOPMENT CORP, INC
DB 111, PG 217
DB 116, PG 742
PC 2, SL. 87A

(43) ALBEMARLE HOSPITAL, ET AL
DB 120, PG 372
DB 113, PG 670 (MAP)

(36) GEORGE WOOD FARMS, INC
DB 115, PG 607
DB 115, PG 621

PC 70+10.504

N 37° 40' 55" E

-L- PI Sta 72+27.319
Δ = 8° 51' 20" (LT)
D = 432.766
T = 216.815
R = 2,800.000
SE = NC
DS = 80 KM/H

CL 'B' RIP RAP
EST 2 MTN
EST 6 SM FF

LAT. 'V' DITCH
SEE DETAIL B
EST 70 CM DDE

CLASS 'B' RIP RAP
EST 1.0 MTN
EST 4.2 SM FF

Q10=0.84cms (1.4cfs)
V10=2.5m/s (8.2ft/s)

CL 'B' RIP RAP
EST 5 MTN
EST 12 SM FF

CL. 'B' RIP RAP
SEE DETAIL M
EST 12 SM FF

1.2m LAT. BASE DITCH
SEE DETAIL O
EST 50 CM DDE

GRASS SWALE
DA= 2.33ac
Lsw= 115
Sw= 0.005ft
SS= 3.3
Q2= 7.31cfs
V2= 1.34fps
Q10= 9.57cfs
V10= 1.42fps

SITE 6

(44) BROWN FARMS, INC
DB 64, PG 191
DB 54, PG 175 (MAP)
DB 70, PG 230

(36) GEORGE WOOD FARMS, INC
DB 115, PG 607
DB 115, PG 621

(42) JAMES ROEBUCK & ELLIOT W. JACOBS
DB 139, PG 829

NORFOLK SOUTHERN RAILWAY CO
(LEASED TO CHESAPEAKE & ALBEMARLE R/R CO)
CHESAPEAKE & ALBEMARLE RR

ISBK BUS
ISMTL BUS

DETAIL B
LATERAL 'V' DITCH
(Not to Scale)
Natural Ground, 3:1, D, 3:1, b, .08m/m, Fill Slope
Min. D = 0.3 m
b = 0.9 m
-L- 71+65 to 72+10 (LT.)

DETAIL O
LATERAL BASE DITCH
(Not to Scale)
Natural Ground, 3:1, D, 3:1, b, .08m/m, Fill Slope, B
Min. D = 0.3m
B = 1.2 m
b = 1.5 m
-L- 72+25 to 72+60 (RT.)

DITCH END DETAIL M
(Not to Scale)
Ditch Slope, 3:1, NC, Min 0.3, End Ditch Grade, Filter Fabric
Type of Liner = CL. 'B'
-L- 72+60 (RT.)

1.25mm MONOLITHIC CONCRETE ISLAND, 150mm CONCRETE CURB AND GUTTER, REINFORCED CONCRETE BOX CULVERT

NOTE: ALL DRIVES ARE 6.0 METERS UNLESS OTHERWISE DENOTED

SEE SHEET NO. 22 FOR -L- GRADE AND PROFILE.

REVISIONS

11/07/06 - REVISED ROW,TCE & PDE ON PARCEL 36.(ABP)
R/W REVISION - REVISED PROPERTY OWNER NAME ON PARCEL NO.42 & ADDED DEED BOOK DESCRIPTION TO PARCEL NO.44. BAM

ETHERIDGE ENGINEERING
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

TRANSITE CONSULTING ENGINEERS, INCORPORATED
300 Peacock Drive, Suite G-10
Raleigh, N.C. 27609

METRIC
5 0 10

CONST.REV.
R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2414B	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SITE 6

F/F DENOTES FILL IN WETLAND

HC/HC DENOTES HAND CLEARING

NAD 83 NC GRID

SEE SHEET NO. 10

MATCHLINE -L- STA. 69+80.000

MATCHLINE -L- STA. 73+40.000

SEE SHEET NO. 12

(41) NORTHEASTERN COMMUNITY DEVELOPMENT CORP, INC
DB 111, PG 217
DB 116, PG 742
PC 2, SL. 87A

(43) ALBEMARLE HOSPITAL, ET AL
DB 120, PG 372
DB 113, PG 670 (MAP)

(36) GEORGE WOOD FARMS, INC
DB 115, PG 607
DB 115, PG 621

(42) JAMES ROEBUCK & ELLIOT W. JACOBS
DB 139, PG 829

(44) BROWN FARMS, INC
DB 64, PG 191
DB 54, PG 175 (MAP)
DB 70, PG 230

NORFOLK SOUTHERN RAILWAY CO
(LEASED TO CHESAPEAKE & ALBEMARLE R/R CO)
CHESAPEAKE & ALBEMARLE RR

PC 70+10.504

-L- REMOVE

CL 'B' RIP RAP
EST 2 MTN
EST 6 SM FF

LAT. 'V' DITCH
SEE DETAIL 'B'
EST 70 CM DDE

CL 'B' RIP RAP
EST 15 MTN
EST 12 SM FF

CL. 'B' RIP RAP
SEE DETAIL M
EST 5 MTN
EST 12 SM FF

1.2m LAT. BASE DITCH
SEE DETAIL O
EST 50 CM DDE

CLASS 'B' RIP RAP
EST 1.0 MTN
EST 4.2 SM FF

Q10=0.04cms (1.4cfs)
V10=2.5m/s (8.2ft/s)

GRASS SWALE
DA= 2.33ac
Lsw= 115'
Se= 0.005ft
SS= 3:1
Q2= 7.3cfs
V2= 1.34fps
Q10= 9.57cfs
V10= 1.42fps

DETAIL B
LATERAL 'V' DITCH
(Not to Scale)
Natural Ground, 3:1, D, 3:1, b, Fill Slope, .08m/m
Min. D = 0.3 m
b = 0.9 m
-L- 71+65 to 72+10 (LT.)

-L-
PI Sta 72+27.319
Δ = 8°51' 20" (LT)
L = 432.766
T = 216.815
R = 2,800.000
SE = NC
DS = 80 KM/H

DETAIL O
LATERAL BASE DITCH
(Not to Scale)
Natural Ground, 3:1, D, 3:1, B, b, Fill Slope, .08m/m
Min. D = 0.3m
B = 1.2 m
b = 1.5 m
-L- 72+25 to 72+60 (RT.)

DITCH END DETAIL M
(Not to Scale)
Ditch Slope, 3:1, End Ditch Grade, Filter Fabric, 0.3 Min.
Type of Liner: CL. 'B'
-L- 72+60 (RT.)

125mm MONOLITHIC CONCRETE ISLAND
150mm CONCRETE CURB AND GUTTER
REINFORCED CONCRETE BOX CULVERT

NOTE: ALL DRIVES ARE 6.0 METERS UNLESS OTHERWISE DENOTED

SEE SHEET NO. 22 FOR -L- GRADE AND PROFILE.

18-JAN-2008 10:49
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REVISIONS

R/W REVISION - REVISED PDE & TCE ON PARCEL NO.36.(BAM)
R/W REVISION - ADDED DEED BOOK DESCRIPTION TO PARCEL NO.44. BAM

6/10/23

ETHERIDGE ENGINEERING
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/APS - CONSTRUCTION OBSERVATION

TRANSITE CONSULTING ENGINEERS, INCORPORATED
300 Fesnack Drive, Suite G-10
Raleigh, N.C. 27609

METRIC 5 0 10

CONST.REV.

R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2414B	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

F / F DENOTES FILL IN WETLAND

HC / HC DENOTES HAND CLEARING

E / E DENOTES EXCAVATION IN WETLAND

NAD 83 NC GRID

SITE 6

SEE SHEET NO. 11

MATCHLINE -L- STA. 73+40.000

SEE SHEET NO. 13

MATCHLINE -L- STA. 77+00.000

74+00 75+00 76+00 77+00

(36) GEORGE WOOD FARMS, INC
DB 115, PG 607
DB 115, PG 621

(46) SOUTHLAND, LLC
DB 174, PG 355

PT 74+43.271

PC 75+57.192

PT 76+16.024

CLASS 'B' RIP RAP
EST 1.0 MTN
EST 4.2 SM FF

Q10=0.08cms (2.8cfs)
V10=2.6m/s (8.5ft/s)

CL. 'B' RIP RAP
EST 2 MTN
EST 6 SM FF

-L- N 28°49'35.3" E

-L- N 30°10'29.3" E

US 158 67 BST

REMOVE EXIST RCBC (182)

1.8m x 1.8m RCBC

BROWN FARMS, INC
DB 64, PG 191
DB 54, PG 175 (MAP)

Q10=0.03cms (1.1cfs)
V10=2.4m/s (7.9ft/s)

Q10=0.05cms (1.8cfs)
V10=2.6m/s (8.5ft/s)

REMOVE 375 mm CONC

REMOVE 1000mm U/G

REMOVE 450 mm CONC

PLUG 450mm CMP @ 20.1

REMOVE 600 mm CONC

EXIST R/W

NORFOLK SOUTHERN RAILWAY CO

(LEASED TO CHESAPEAKE & ALBEMARLE R/R CO)

CHESAPEAKE & ALBEMARLE RR

4 STEEL I BEAMS

6.7 CONC HW'S

1200mm CONC HW

R/R SPIKE CA. OF TRACKS

SITE 6

CLASS 'B' RIP RAP
EST 1.0 MTN
EST 4.2 SM FF

CLASS 'B' RIP RAP
EST 1.0 MTN
EST 4.2 SM FF

(44) BROWN FARMS, INC
DB 64, PG 191
DB 54, PG 175 (MAP)
DB 70, PG 230

GRASS SWALE
DA= 0.67ac
Lsw= 42'
Se= 0.0017
SS= 3.3
Q2= 2.40cfs
V2= 0.67fps
Q10= 3.14cfs
V10= 0.71fps

LATERAL 'V' DITCH
SEE DETAIL B
EST 365 CM DDE

(45) BELCROSS PROPERTIES LLC
DB 233 PG 814

(45) BELCROSS PROPERTIES LLC
DB 233 PG 814

15 MTL BUS

BST PARKING

CL. 'B' RIP RAP
EST 2 MTN
EST 6.5 SM FF

CL. 'B' RIP RAP
EST 5 MTN
EST 12 SM FF

NOTE: EXISTING SEPTIC SYSTEM NOT DISTURB

0.6m BASE DITCH
SEE DETAIL I
So = 0.3000%
EST 18 CM DDE

+62.500 -L-
43.000 (141.08')

+75.000 -L-
43.000 (141.08')

(44A)

BROWN FARMS, INC
DB 64, PG 191
DB 54, PG 175 (MAP)

-L-
PI Sta 72+27.319
Δ = 8°51'20.1" (LT)
L = 432.766
T = 216.815
R = 2,800.000
SE = NC
DS = 80 KM/H

-L-
PI Sta 75+86.610
Δ = 1°20'54.0" (RT)
L = 58.832
T = 29.418
R = 2,500.000
SE = NC
DS = 80 KM/H

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

Natural Ground 3:1 0 3:1 FIN Slope .08m/m b

Min. D = 0.3 m
b = 0.9 m

-L- 74+40 to 75+70 (RT.)

DETAIL I
BASE DITCH
(Not to Scale)

Natural Ground 3:1 D 3:1 Natural Ground B

Min. D =0.3m
B =0.6m

-L- 76+72 (RT.)

NOTE: ALL DRIVES ARE 6.0 METERS UNLESS OTHERWISE DENOTED

SEE SHEET NO. 23 FOR -L- GRADE AND PROFILE.

15-BAR-2006 10:56
C:\Projects\2414b\roadway\total\d-swings\r-2414b_prm_pshl2.dgn

REVISIONS

R/W REVISION - REVISED PDE & TCE ON PARCEL NO. 36.(BAM)
R/W REVISION - ADDED DEED BOOK DESCRIPTION TO PARCEL NO. 44. BAM

ETHERIDGE ENGINEERING
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

TRANSITE CONSULTING ENGINEERS, INCORPORATED
3300 Poseock Drive, Suite G-10
Raleigh, N.C. 27609

METRIC
5 0 10

CONST.REV.
R /W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2414B	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

F/F DENOTES FILL IN WETLAND
HC/HC DENOTES HAND CLEARING
E/E DENOTES EXCAVATION IN WETLAND

NAD 83 NC GRID

SITE 6

MATCHLINE -L- STA. 73+40.000

SEE SHEET NO. 11

SEE SHEET NO. 13

MATCHLINE -L- STA. 77+00.000

74+00 75+00 76+00 77+00

(36) GEORGE WOOD FARMS, INC
DB 115, PG 607
DB 115, PG 621

(46) SOUTHLAND, LLC
DB 174, PG 355

PT 74+43.271

PC 75+57.192

PT 76+16.024

CLASS 'B' RIP RAP
EST 1.0 MTN
EST 4.2 SM FF

Q10=0.08cms (2.8cfs)
V10=2.6m/s (8.5ft/s)

CL. 'B' RIP RAP
EST 2 MTN
EST 6 SM FF

-L- N 28°49'35.3" E

-L- N 30°10'29.3" E

US 158 67 BST

REMOVE EXIST RCBC

REMOVE 375 mm CONC

REMOVE 1000mm U/G

REMOVE 450 mm CONC

PLUG 450mm C&P

EXIST R/W

SOIL

BROWN FARMS, INC (44)
DB 64, PG 191
DB 54, PG 175 (MAP)

Q10=0.03cms (1.0cfs)
V10=2.4m/s (7.9ft/s)

Q10=0.05cms (1.8cfs)
V10=2.6m/s (8.5ft/s)

STEEL BEAMS

1500mm CONC HW

NORFOLK SOUTHERN RAILWAY CO

LEASED TO CHESAPEAKE & ALBEMARLE R/R CO)

CHESAPEAKE & ALBEMARLE RR

RAIL SPIKE C/L OF TRACKS

S15°35'40"E 35.45

GRASS SWALE
DA= 0.67ac
Lsw= 427'
Se= 0.0017
SS= 3%
Q2= 2.40cfs
V2= 0.67fps
Q10= 3.14cfs
V10= 0.71fps

LATERAL 'V' DITCH
SEE DETAIL B
EST 365 CM DDE

CLASS 'B' RIP RAP
EST 1.0 MTN
EST 4.2 SM FF

CLASS 'B' RIP RAP
EST 1.0 MTN
EST 4.2 SM FF

(44) BROWN FARMS, INC
DB 64, PG 191
DB 54, PG 175 (MAP)
DB 70, PG 230

(45) BELCROSS PROPERTIES LLC
DB 233 PG 814

CL. 'B' RIP RAP
EST 2 MTN
EST 6.5 SM FF

(45) BELCROSS PROPERTIES LLC
DB 233 PG 814

1S WTL BUS

BST PARKING

CL. 'B' RIP RAP
EST 5 MTN
EST 12 SM FF

0.6m BASE DITCH
SEE DETAIL I
So = 0.3000%
EST 18 CM DDE

600 mm CONC

+52.500 -L-
43.000 (141.08')

+75.000 -L-
43.000 (141.08')

S55°26'25"E 29.903

BROWN FARMS, INC
DB 64, PG 191
DB 54, PG 175 (MAP)

-L-
PI Sta 72+27.319
Δ = 8°51'20" (LT)
L = 432.766
T = 216.815
R = 2,800.000
SE = NC
DS = 80 KM/H

-L-
PI Sta 75+86.610
Δ = 1°20'54.0" (RT)
L = 58.832
T = 29.418
R = 2,500.000
SE = NC
DS = 80 KM/H

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

Natural Ground — W — D — TW — b — .08m/m — Fill Slope

Min. D = 0.3 m
b = 0.9 m

-L- 74+40 to 75+70 (RT.)

DETAIL I
BASE DITCH
(Not to Scale)

Natural Ground — W — D — TW — B — Natural Ground

Min. D = 0.3m
B = 0.6m

-L- 76+72 (RT.)

NOTE: ALL DRIVES ARE 6.0 METERS UNLESS OTHERWISE DENOTED

SEE SHEET NO. 23 FOR -L- GRADE AND PROFILE.

18-JUN-2008 0:56
C:\Projects\2414b\Design\2414b-survey\V-2414b_pre_sht12.dgn

STA. 73+49.000 -L-
2 @ 1.8 x 1.5m RCBC
G.P. EL = 2.103
SKEW = 88°

℄

3.2:1 NORMAL

4:1 NORMAL

WS EL. = 0.411
SURVEY 11-22-00

Q_{100} EL. = 1.55

Q_{50} EL. = 1.28

Q_{100}

Q_{50}

NATURAL GROUND
LEFT AND RIGHT
BANK

S= 0.3084%

16.3m

EL. = -0.447

BURY INVERT 0.3m

EXISTING
STREAM BED

NATURAL GROUND
LEFT AND RIGHT BANK

EXISTING
STREAM BED

PROFILE

℄ EXIST
GRADE L

LIMIT OF 100 YR FLOODPLAIN
118m± FROM ℄ CULVERT

00 +20 +40 +60 +80 1+00

73+00 +80 +2

4 2 0 -2

WOODS

450

CB

℄ CULVERT
-L- POC Sta.73+49.000
2 @ 1.8m x 1.5m RCBC

UNNAMED TRIBUTARY
TO PASQUOTANK RIVER

TO NC 343

EXIST. R/W

5.9 CONC HW

73+80

73+60

73+40

-L-

88° SKEW

19.2m

.025

4.2 CONC WWS

1.8 CONC WWS

2-2.2 X 1.1 CONC

4.5 CONC HW

6.7 CONC HW'S

4 STEEL I-BEAMS

TO SR 1145

375

WOODS

F

HORIZ. SCALE 1:500
VERT. SCALE 1:200

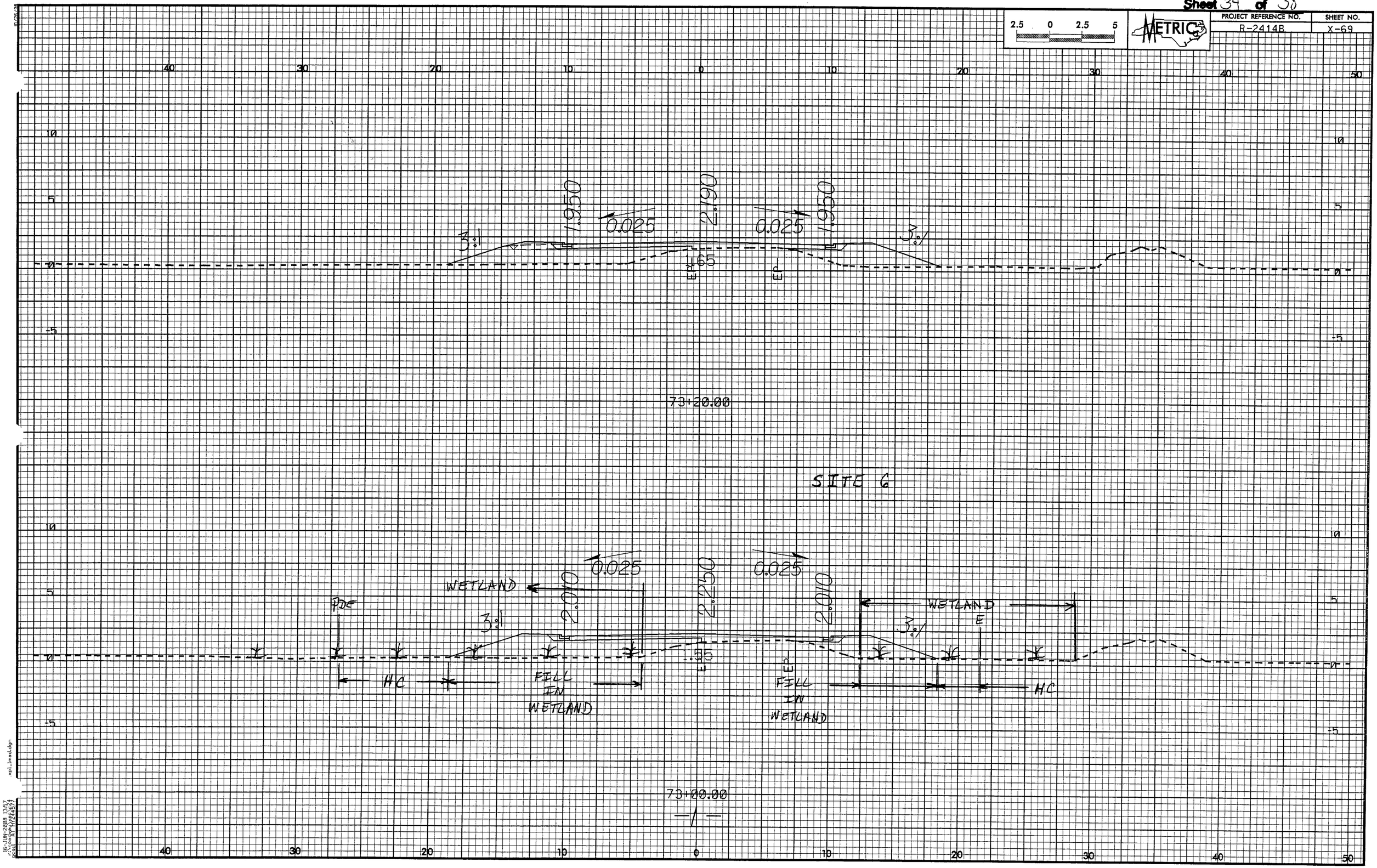
PLAN

00 +20 +40 +60 +80 1+00

PROJECT REFERENCE NO.	SHEET NO.
R-2414B	X-69

2.5 0 2.5 5

METRIC



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REVISIONS
R/W REVISION- REVISED ROW, PDE & TCE ON PARCEL NOS. 71, 74, 75, 76 & 77. REVISED FLAGGING DUE TO THE ELIMINATION OF EQUALITY. (BAM)
R/W REVISION - ADDED PARCEL NO. 71A & REVISED THE PROPERTY OWNER NAMES ON PARCEL NO. 71A & 74. BAM

ETHERIDGE ENGINEERING
880 Jones Franklin Rd. Bldg. 144
Raleigh, N.C. 27606
Phone 919 851 6277
Fax 919 851 6287
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

TRANSITE CONSULTING ENGINEERS, INCORPORATED
300 Peacock Drive, Suite G-10
Raleigh, N.C. 27609

METRIC
5 0 10

PROJECT REFERENCE NO.	SHEET NO.
R-2414B	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST. REV.

R/W REV.

Permit Drawing
Sheet 35 of 38

F/F DENOTES FILL IN WETLAND

HC/HC DENOTES HAND CLEARING

NAD 83 NC GRID

SITE 7

MATCHLINE -L- STA. 87+80.000

SEE SHEET NO. 15

MATCHLINE -L- STA. 90+80.000

SEE SHEET NO. 17

88+00

89+00

90+00

71A IRVIN R. LANCASTER DB 146, PG 392

71 JOSEPH O. SAWYER, ET UX DB 99 PG 360 PC 1, PG 12A

75 LINDA S. DEMUTH, ET AL DB 119, PG 930

76 HORACE MELVILLE CUTHRELL, JR., ET UX DB 78, PG 809 PC 1, 163A

77 WALLACE G. CAHOON DB 79, PG 413 PC 1, SL 1A

73 DORIS H. HARRIS DB 33, PG 604 PC 1, SL 15A

74 VINCENT R. RAGAN, ET UX DB 88, PG 812

72 W. W. OWENS & SONS MOVING & STORAGE, INC DB 81, PG 700

79 BROWN FARMS, INC. DB 76 PG 310

PT 88+52.679

PCSta. 90+20.913

REMOVE

EXIST R/W

US 158 12.1 BST

US 158 6.8 BST

1000mm U/C

400mm CONC HW

1@ 3.0m x 1.5m RCBC

N 38° 15' 58.4" E

REMOVE EXIST. RCBC

CL. 'B' RIP RAP EST 2 MTN EST 6 SM FF

CL. 'B' RIP RAP SEE DETAIL M EST 2 MTN EST 4 SM FF

CL. 'B' RIP RAP SEE DETAIL M EST 3 MTN EST 6 SM FF

CL. 'B' RIP RAP EST 5 MTN EST 12 SM FF

LAT. 'V' DITCH SEE DETAIL B EST 140 CM DDE

0.6m LAT. BASE DITCH SEE DETAIL N EST 165 CM DDE

GRASS SWALE
DA= 1.20ac
Lsw= 210'
Se= 0.0033
Ss= 3.3
Q2= 4.29cfs
V2= 0.99fps
Q10= 5.60cfs
V10= 1.06fps

GRASS SWALE
DA= 3.04ac
Lsw= 187'
Se= 0.0030
Ss= 4.34
Q2= 8.36cfs
V2= 1.13fps
Q10= 11.30cfs
V10= 1.21fps

-L-
PI Sta 88+00.038
Δ = 11° 00' 05.6" (RT)
L = 95.607
T = 52.967
R = 650.000
SE = 0.04
R'OFF = 50.625
DS = 80 KM/H

-L-
PI Sta 91+26.866
Δ = 41° 56' 30.2" (RT)
L = 204.966
T = 107.319
R = 280.000
SE = 0.04
R'OFF = 81.000
DS = 80 KM/H

DETAIL B
LATERAL 'V' DITCH
(Not to Scale)
Natural Ground, 3:1, D, 3:1, .08m/m, Fill Slope
Min. D = 0.3m
B = 0.9m
-L- 88+25 to 88+89 (RT.)

DETAIL N
LATERAL BASE DITCH
(Not to Scale)
Natural Ground, 3:1, D, 3:1, .08m/m, Fill Slope
Min. D = 0.3m
B = 0.6m
b = 1.5m
L- 89+35 to 89+80 (RT.)

DITCH END DETAIL M
(Not to Scale)
Ditch Slope, 3:1, 0.3m Min., NG, End Ditch Grade, Filter Fabric = CL. 'B' RIP RAP
-L- 88+89 (RT.)
-L- 89+35 (RT.)

NORFOLK SOUTHERN RAILWAY CO

(LEASED TO CHESAPEAKE & ALBEMARLE R/R CO)

NOTE: ALL DRIVES ARE 6.0 METERS UNLESS OTHERWISE DENOTED

SEE SHEET NO. 25 FOR -L- GRADE AND PROFILE.

15-JAN-2008 10:59

6/10/99

REVISIONS
R/W REVISION- REVISED ROW, PDE & TCE ON PARCEL NOS. 71, 74, 75, 76 & 77. REVISED FLAGGING DUE TO THE ELIMINATION OF EQUATUTY. (BAM)
R/W REVISION - ADDED PARCEL NO. 71A & REVISED THE PROPERTY OWNER NAMES ON PARCEL NO. 71A & 74. BAM

ETHERIDGE ENGINEERING
849 Jacobs Franklin Rd, Suite 144
Franklin, N.C. 28734
Ph: 919 524 1077
Fax: 919 587 0107
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

TRANSITE CONSULTING ENGINEERS, INCORPORATED
3300 Poseack Drive, Suite G-10
Raleigh, N.C. 27609

METRIC
5 0 10

CONST. REV.

R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2414B	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 36 of 38

F/F DENOTES FILL IN WETLAND

HC/HC DENOTES HAND CLEARING

NAD 83 NC GRID

SITE 7

MATCHLINE -L- STA. 87+80.000

SEE SHEET NO. 15

MATCHLINE -L- STA. 90+80.000

SEE SHEET NO. 17

71A IRVIN R. LANCASTER DB 146, PG 392

71 JOSEPH O. SAWYER, ET UX DB 95, PG 360 PC 1, PG 12A

75 LINDA S. DEMUTH, ET AL DB 119, PG 930

76 HORACE MELVILLE CUTHRELL, JR., ET UX DB 78, PG 809 PC 1, 163A

73 DORIS H. HARRIS DB 33, PG 604 PC 1, SL 15A

74 VINCENT R. RAGAN, ET UX DB 88, PG 812

72 W. W. OWENS & SONS MOVING & STORAGE, INC DB 81, PG 700

77 WALLACE G. CAHOON DB 79, PG 413 PC 1, SL 1A

79 BROWN FARMS, INC. DB 76 PG 310

PT 88+52.679

PCSta. 90+20.913

-L-
PI Sta 88+00.038
Δ = 11° 00' 05.6" (RT)
L = 305.607
T = 152.967
R = 1550.000
SE = 0.04
R'OFF = 50.625
DS = 80 KM/H

-L-
PI Sta 91+26.866
Δ = 41° 56' 30.2" (RT)
L = 204.966
T = 107.319
R = 280.000
SE = 0.04
R'OFF = 81.000
DS = 80 KM/H

REMOVE EXIST. RCBC

1@ 3.0m x 1.5m RCBC N 38° 15' 58.4" E

REMOVE

CL. 'B' RIP RAP EST 2 MTN EST 6 SM FF

CL. 'B' RIP RAP SEE DETAIL M EST 2 MTN EST 4 SM FF

CL. 'B' RIP RAP SEE DETAIL M EST 3 MTN EST 6 SM FF

CL. 'B' RIP RAP EST 5 MTN EST 12 SM FF

CL. 'B' RIP RAP EST 2 MTN EST 6 SM FF

LAT. 'V' DITCH SEE DETAIL B EST 140 CM DDE

LAT. BASE DITCH SEE DETAIL N EST 165 CM DDE

GRASS SWALE

DA= 1.20ac
Lsw= 210'
Sw= 0.0033
SS= 3.3
Q2= 4.29cfs
V2= 0.99fps
Q10= 5.60cfs
V10= 1.86fps

DA= 3.03ac
Lsw= 182'
Sw= 0.0733
SS= 3.3
Q2= 8.86cfs
V2= 1.13fps
Q10= 11.3cfs
V10= 1.21fps

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

DETAIL N
LATERAL BASE DITCH
(Not to Scale)

Natural Ground, 3:1, D, 3:1, .08m/m, Fill Slope, b, B
Min. D = 0.3m
B = 0.6m
b = 1.5m

-L- 88+25 to 88+89 (RT.)

L- 89+35 to 89+80 (RT.)

DITCH END DETAIL M
(Not to Scale)

Ditch Slope, 3:1, End Ditch Grade, NG, 0.3m Min., Filter Fabric, = CL. 'B' RIP RAP

-L- 88+89 (RT.)
-L- 89+35 (RT.)

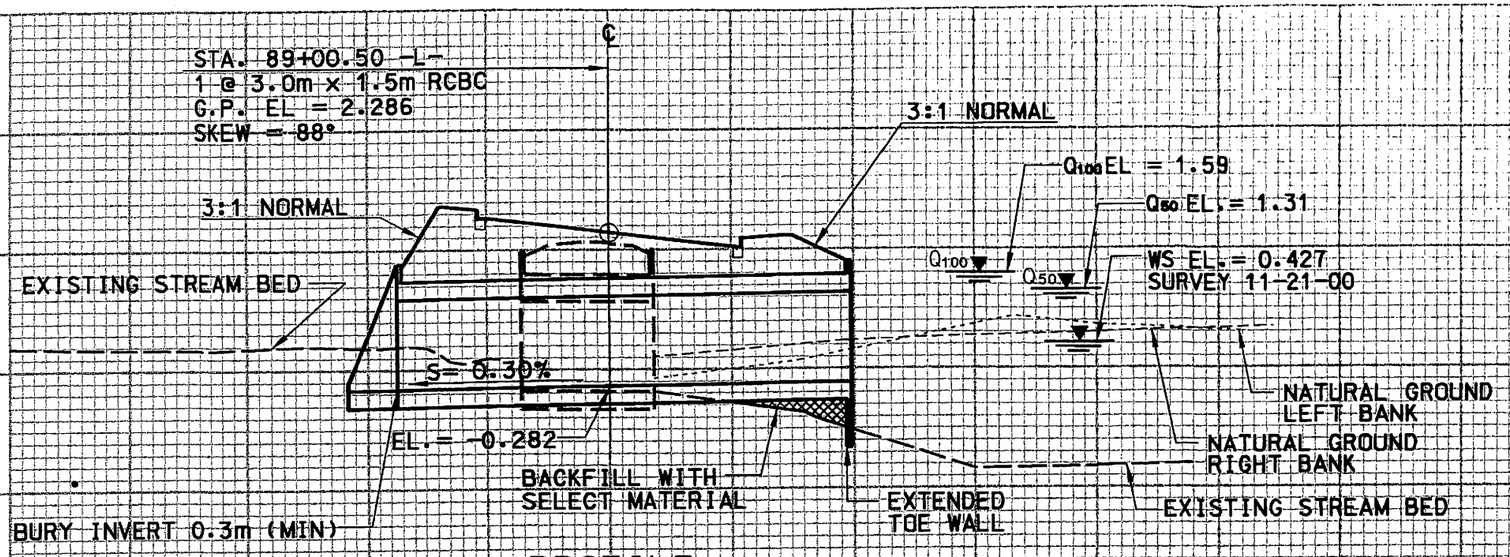
NORFOLK SOUTHERN RAILWAY CO

(LEASED TO CHESAPEAKE & ALBEMARLE R/R CO)

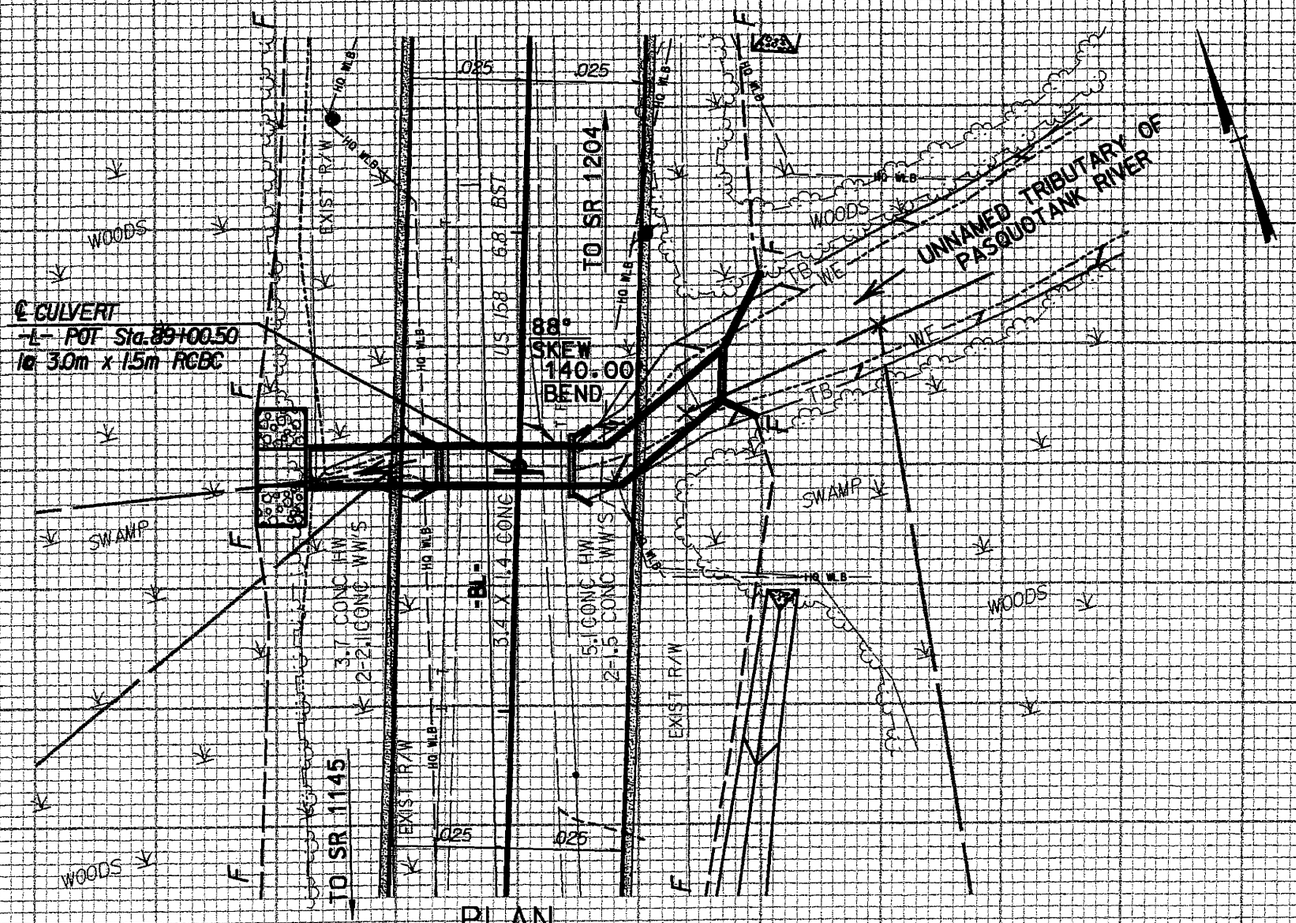
EXIST R/W

NOTE: ALL DRIVES ARE 6.0 METERS UNLESS OTHERWISE DENOTED

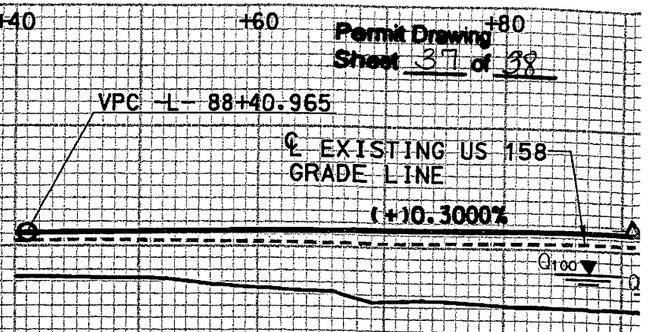
SEE SHEET NO. 25 FOR -L- GRADE AND PROFILE.



PROFILE



PLAN



PROPOSED PROFILE
PI = 87+80.000 -L-
ELEV = 2.031
VC = 46m
G1 = (+) 0.5000%
G2 = (+) 0.3000%
LOW POINT STA = 87+85.750
LOW POINT SHOULDER ELEV.= 1.849

FLOODPLA

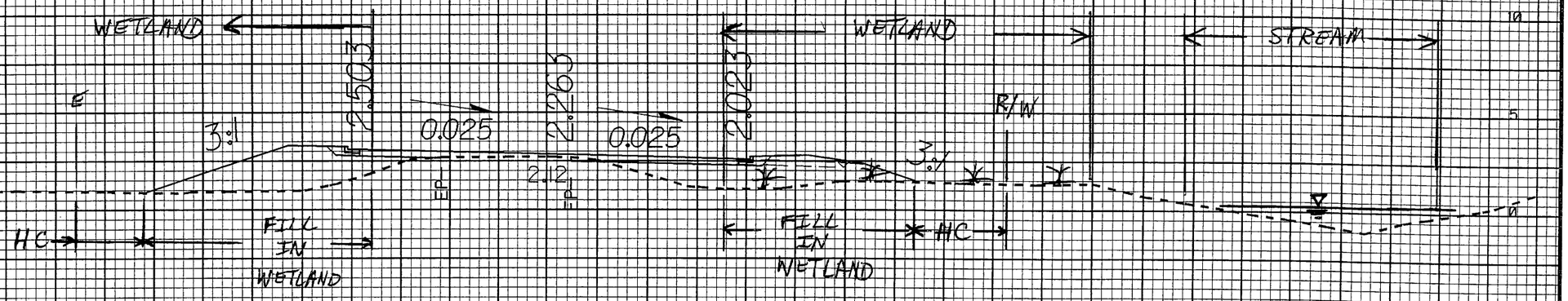
PERFORMANCE CURVE DATA

FREQUENCY (YR)	Q (cms)	W.S. EL. (m) NATURAL	EXISTING	PRO
10	4.16	0.86	0.90	
50	8.18	1.06	1.26	
100	10.50	1.16	1.49	
DT	12.60	1.23	1.70	

2.5 0 2.5 5	METRIC	PROJECT REFERENCE NO.	SHEET NO.
		R-2414B	X-111

Permit Drawing
Sheet 38 of 38

SITE 7



89+20.00

—/—

10/26/98

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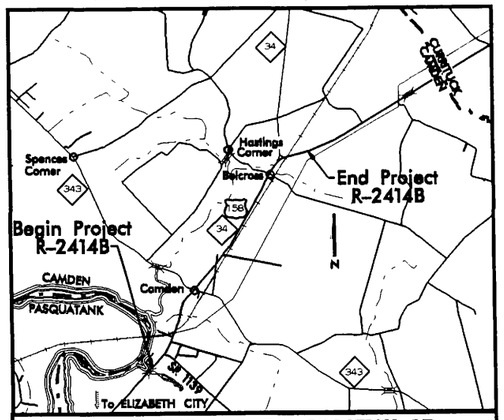
16-JUN-2008 14:31
rjohnson
$:\projects\2414b\geol\xpl\2414b57

TIP PROJECT: R-2414B

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



VICINITY MAP SHOWING LOCATION OF STATE PROJECT R-2414B

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITY BY OTHERS PLANS
CAMDEN COUNTY

LOCATION: US 158–NC 34 FROM SOUTH OF SR 1257 TO EAST OF NC 34 IN BELCROSS

TYPE OF WORK: UTILITIES RELOCATION

METRIC

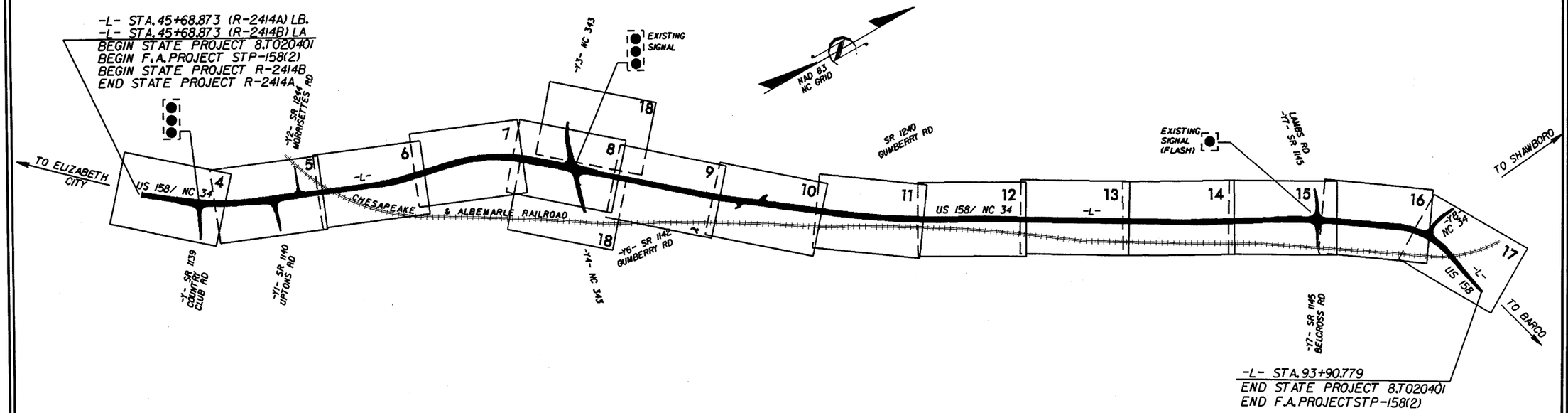
ALL DIMENSIONS IN THESE PLANS ARE IN METERS UNLESS OTHERWISE SHOWN

T.I.P. NO.	SHEET NO.
R-2414B	1

Utility

Permit Drawing Sheet 1 of 15

-L- STA. 45+68.873 (R-2414A) LB.
-L- STA. 45+68.873 (R-2414B) LA
BEGIN STATE PROJECT 8.T020401
BEGIN F.A. PROJECT STP-158(2)
BEGIN STATE PROJECT R-2414B
END STATE PROJECT R-2414A



-L- STA. 93+90.779
END STATE PROJECT 8.T020401
END F.A. PROJECT STP-158(2)

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

PLANS
PROFILE (HORIZONTAL)
PROFILE (VERTICAL)

INDEX OF SHEETS

SHEET NO.	DESCRIPTION

UTILITY OWNERS ON PROJECT

PREPARED IN THE OFFICE OF:
DIVISION OF HIGHWAYS
DESIGN SERVICES
UTILITY SECTION
1591 MAIL SERVICES CENTER
RALEIGH NC 27699-1591
PHONE (919) 250-4128
FAX (919) 250-4119

Roger Worthington, P.E.	UTILITIES SECTION ENGINEER
Corey Bousquet, P.E.	UTILITIES SQUAD LEADER PROJECT ENGINEER
Britt McCurry	UTILITIES PROJECT DESIGNER

04/08/08

14-MAY-2008 12:30
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kkomil AT PS237482

Utility

Permit Drawing Sheet 2 of 15

PROJECT REFERENCE NO.	SHEET NO.
R-2414B	4

UTILITIES BY OTHERS

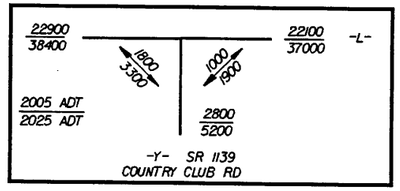
NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS

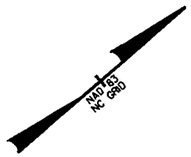
METRIC 5 0 10

CONST.REV.

R/W REV.

5/14/99





ROBERT F. MASSIELLO, ET UX
DB 111, PG 705
DB 46, PG 260 (MAP)

ROSALYN J. FAIRCLOTH
DB 80, PG 392
DB 46, PG 260 (MAP)

JAMIE H. WOOTON, ET AL
DB 106, PG 689
DB 46, PG 260 (MAP)

GEORGE T. GRIFFIN, ET UX
DB 52, PG 687
DB 46, PG 260 (MAP)

45 46 47 48

-80 37+00 37+20 37+40 37+60 37+80 38+00 38+20 38+40

PC 47+13.146

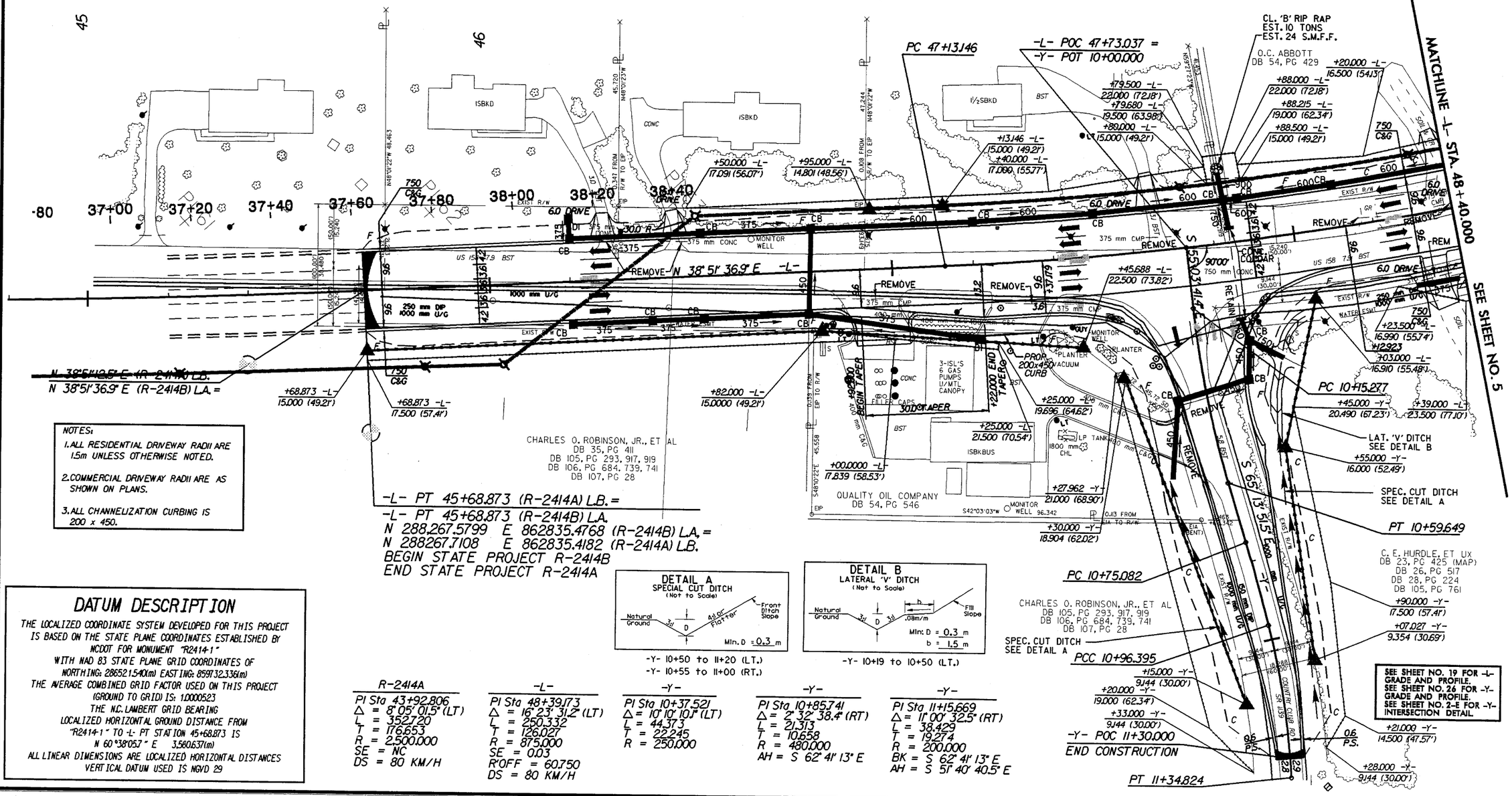
-L- POC 47+73.037 =
-Y- POT 10+00.000

CL. 'B' RIP RAP
EST. 10 TONS
EST. 24 S.M.F.F.

O.C. ABBOTT
DB 54, PG 429

MATCHLINE -L- STA. 48+40.000

SEE SHEET NO. 5



-L- PT 45+68.873 (R-2414A) L.B. =
-L- PT 45+68.873 (R-2414B) L.A.
N 288,267.5799 E 862835.4768 (R-2414B) L.A. =
N 288267.7108 E 862835.4182 (R-2414A) L.B.
BEGIN STATE PROJECT R-2414B
END STATE PROJECT R-2414A

NOTES:
1. ALL RESIDENTIAL DRIVEWAY RADII ARE 1.5m UNLESS OTHERWISE NOTED.
2. COMMERCIAL DRIVEWAY RADII ARE AS SHOWN ON PLANS.
3. ALL CHANNELIZATION CURBING IS 200 x 450.

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "R2414-1" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 286521.540(m) EASTING: 859732.336(m)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.0000523
THE N.C. LAMBERT GRID BEARING
LOCALIZED HORIZONTAL GROUND DISTANCE FROM "R2414-1" TO -L- PT STATION 45+68.873 IS N 60°38'05.7" E 3,580.637(m)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NGVD 29

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)

-Y- 10+50 to 11+20 (LT.)
-Y- 10+55 to 11+00 (RT.)

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

-Y- 10+19 to 10+50 (LT.)

R-2414A	-L-	-Y-	-Y-	-Y-
PI Sta 43+92.806	PI Sta 48+39.173	PI Sta 10+37.521	PI Sta 10+85.741	PI Sta 11+15.669
Δ = 8° 05' 01.5" (LT)	Δ = 16° 23' 31.2" (LT)	Δ = 10° 10' 10.1" (LT)	Δ = 2° 32' 38.4" (RT)	Δ = 11° 00' 32.5" (RT)
L = 352.720	L = 250.332	L = 44.373	L = 21.313	L = 38.429
T = 176.653	T = 126.027	T = 22.245	T = 10.658	T = 19.274
R = 2,500.000	R = 875.000	R = 250.000	R = 480.000	R = 200.000
SE = NC	SE = 0.03		AH = S 62° 41' 13" E	BK = S 62° 41' 13" E
DS = 80 KM/H	R'OFF = 60.750			AH = S 51° 40' 40.5" E
	DS = 80 KM/H			

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-2414B	U0-3

UTILITIES BY OTHERS

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

-Y2- SR 1244
MORRISETTES RD

2005 ADT / 2025 ADT
20000 / 33500 -L-
100/300
100/200
100/100
20000 / 33400 -L-

NAD 83 NC GRID

SEE SHEET NO. 4

MATCHLINE -L- STA. 48+40.000

SEE SHEET NO. 6

MATCHLINE -L- STA. 52+00.000

O.C. ABBOTT
DB 54, PG 429

THE BANK OF CURRITUCK
DB 66, PG 105

CAROLINA CONSTRUCTION CORP
DB 118, PG 20

ANTHONY WOODDISSE, ET UX
DB 92, PG 223
DB 89, PG 239 (MAP)

HARVEY F. GREGORY, JR., ET UX
DB 85, PG 520

POWER LINE EASEMENT
NORTH CAROLINA POWER
(VEPCO)
DB 31, PG 439
DB 59, PG 677

HORACE LAMB, ET UX
C/O LARRY LAMB
DB 66, PG 239

POWER LINE EASEMENT
NORTH CAROLINA POWER
(VEPCO)
DB 31, PG 439
DB 59, PG 677

HORACE LAMB, ET UX
C/O LARRY LAMB
DB 66, PG 239

LENA W. STALLINGS
DB 74, PG 190
DB 25, PG 425 (MAP)
DB 52, PG 27
DB 54, PG 29
DB 106, PG 21

C. E. HURDLE, ET UX
DB 26, PG 517
DB 28, PG 224
DB 23, PG 425 (MAP)
DB 105, PG 761

DORIS R. RODGERS, ET AL
DB 111, PG 659

DOROTHY L. HERTEL
DB 60, PG 618
DB 106, PG 213
DB 23, PG 425 (MAP)

DANIEL WARD, ET UX
DB 111, PG 385
DB 23, PG 425 (MAP)

ROBERT F. ALBURY, ET UX
DB 87, PG 003

FRED E. UPTON, JR., ET AL
DB 22, PG 468
DB 111, PG 401

FRED E. UPTON, JR.
DB 42, PG 615
DB 111, PG 278

FRED E. UPTON, JR., ET AL
DB 22, PG 468
DB 111, PG 401

-L- POT 50+30.377 = -Y1- POT 10+00.000
PT 49+63.478
-Y2- POT 10+00.000
-Y2- PC 10+12.000
BEGIN CONSTRUCTION
PT 10+34.866
-L- POT 51+24.328 = -Y2- POT 11+14.842
-Y1- POT 11+15.000
END CONSTRUCTION

N 22°28'05.7" E
S 73°30'44.2" E
S 67°29'10.4" E
S 70°56'23.2" E
87°25'31"
84°30'10"

PROP. 250mm WATER PIPE

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

-L- 48+40 to 48
-L- 49+71 to 50+(
-Y1- 10+20 to 10+40 (RT.)
-Y2- 10+40 to 10+80 (RT.)

-L- 49+71(RT.)

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)

-Y1- 10+60 to 11+00 (LT.)
-Y1- 10+40 to 11+00 (RT.)

-L-
PI Sta 48+39.73
Δ = 16°23'31.2" (LT)
L = 250.332
T = 126.027
R = 875.000
SE = 0.03
R'OFF = 60.750
DS = 80 KM/H

-Y2-
PI Sta 10+23.435
Δ = 2°37'12.8" (LT)
L = 22.866
T = 11.435
R = 500.000
SE = EX.

SPEC. CUT DITCH SEE DETAIL A

LAT. 'V' DITCH SEE DETAIL B

SEE SHEET NO. 19 FOR -L- GRADE AND PROFILE.
SEE SHEET NO. 26 FOR -Y1- & -Y2- GRADE AND PROFILE.
SEE SHEET NO. 2-E FOR -Y1- INTERSECTION DETAIL.
SEE SHEET NO. 2-F FOR -Y2- INTERSECTION DETAIL.

NOTES:
1. ALL RESIDENTIAL DRIVEWAY RADII ARE 1.5m UNLESS OTHERWISE NOTED.
2. COMMERCIAL DRIVEWAY RADII ARE AS SHOWN ON PLANS.
3. ALL CHANNELIZATION CURBING IS 200 x 450.

22100/37000 2800/4700 700/1200 20000/33500 -L-
2005 ADT / 2025 ADT 3500/5900
-Y1- SR 1140 UPTONS RD

METRIC
5 0 10

CONST.REV.
R/W REV.

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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-2414B	6

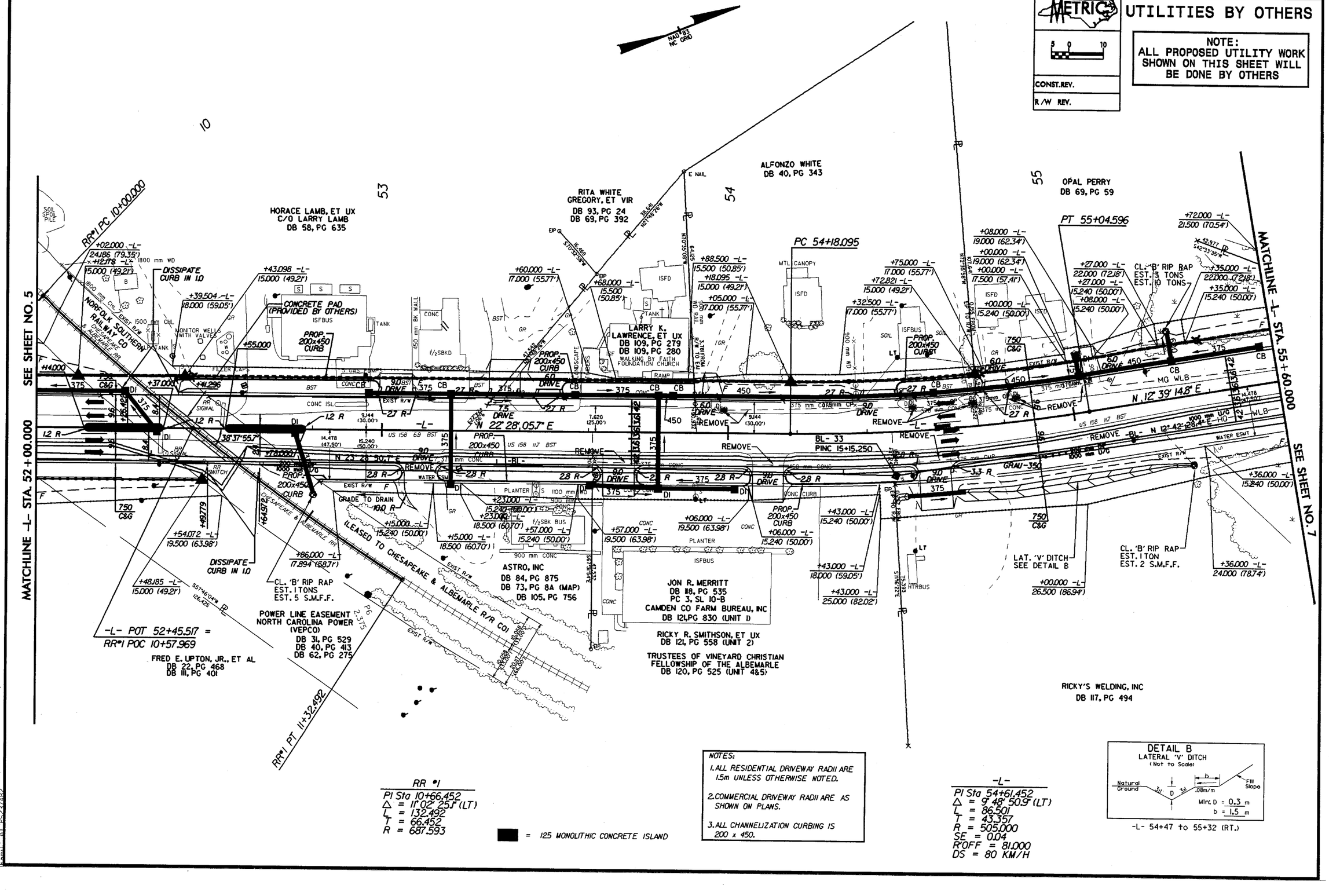
METRIC 5 0 10

CONST.REV.

R/W REV.

UTILITIES BY OTHERS

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



NOTES:
1. ALL RESIDENTIAL DRIVEWAY RADII ARE 1.5m UNLESS OTHERWISE NOTED.
2. COMMERCIAL DRIVEWAY RADII ARE AS SHOWN ON PLANS.
3. ALL CHANNELIZATION CURBING IS 200 x 450.

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

-L- 54+47 to 55+32 (RT.)

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Utility Sheet 5 of 12

PROJECT REFERENCE NO.	SHEET NO.
R-2414B	7

METRIC
5 0 10

CONST. REV.

R/W REV.

UTILITIES BY OTHERS

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

NAD 83 N. GRD

MATCHLINE -L- STA. 55+60.000

SEE SHEET NO. 6

MATCHLINE -L- STA. 59+00.000

SEE SHEET NO. 8

OPAL PERRY
DB 69, PG 59

MILDRED C. HARRELL
DB 73, PG 537
DB 18, PG 538A (MAP)

HOWARD S. STEVENS, HEIRS
C/O
F. W. STEVENS
DB 62, PG 640
DB 15, PG 536

CHARLES H. HODGES, ET UX
DB 59, PG 507

CHARLES B. STEVENS
WILL 96-E-15 (ITEM 26)
DB 15, PG 537

JAMES B. SEYMOUR, JR., ET AL
C/O WINFRED M. SEYMOUR
DB 108, PG 929

RICKY'S WELDING, INC
DB 117, PG 494

CAMDEN CO
BOARD OF EDUCATION
DB 31, PG 419
MB 18, PG 551A
DB 35, PG 511
DB 62, PG 15
DB 83, PG 451

CAMDEN CO
BOARD OF EDUCATION
DB 31, PG 419
MB 18, PG 551A
DB 35, PG 511
DB 62, PG 15
DB 83, PG 451

-L-
PI Sta 58+15.159
Δ = 28° 46' 17.6" (RT)
L = 276.187
T = 141.071
R = 550.000
SE = 0.04
R'OFF = 81.000
DS = 80 KM/H

PERMANENT SOIL REINFORCEMENT MATTING

NOTES:
1. ALL RESIDENTIAL DRIVEWAY RADII ARE 1.5m UNLESS OTHERWISE NOTED.
2. COMMERCIAL DRIVEWAY RADII ARE AS SHOWN ON PLANS.
3. ALL CHANNELIZATION CURBING IS 200 x 450.

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Utility Sheet 10 of 12

PROJECT REFERENCE NO.	SHEET NO.
R-2414B	U0-6

UTILITIES BY OTHERS

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

PROP. 250mm WATER PIPE

PUE

MATCHLINE -Y3- STA. 10+40.000

SEE SHEET NO. 18

MATCHLINE -L- STA. 59+00.000

SEE SHEET NO. 7

MATCHLINE -L- STA. 62+60.000

SEE SHEET NO. 9

MATCHLINE -Y4- STA. 11+10.000

SEE SHEET NO. 18

JAMES B. SEYMOUR, JR., ET AL
C/O WINFRED M. SEYMOUR
DB 108, PG 929

C. RUSSELL HASTINGS, ET UX
DB 93, PG 745
DB 56, PG 406
DB 56, PG 408
DB 35, PG 292
DB 35, PG 293

HORACE M. CUTHRELL, ET UX
DB 73, PG 542

WIDOW'S SON LODGE #75
DB AA, PG 288

MARY M. GORDON
DB 57, PG 381

MILDRED C. HARRELL
DB 73, PG 537
DB 18, PG 538A (MAP)

CHARLES H. HODGES, SR., ET AL
DB 91, PG 43
DB 25, PG 423

MARY M. GORDON
DB 95, PG 491
DB 116, PG 890

MARY M. GORDON
DB 89, PG 275
DB 116, PG 890

CAMDEN CO BOARD OF EDUCATION
DB 31, PG 419
MB 18, PG 551A
DB 35, PG 511
DB 62, PG 15
DB 83, PG 451

LENNON A. GODFREY & BESSIE E. SANDERS
DB 94, PG 528
DB 93, PG 767 (MAP)

MINNIE ROUSE SIVILLS
DB 89, PG 475

GLEN D. GORDON, ET UX
DB 94, PG 280
DB 83, PG 679
DB 128, PG 504
DB 87, PG 181
(POST OFFICE LEASE)
DB 132, PG 160 (STORE LEASE)

PT 10+77.299

PT 59+50.276

BL- 35 PINC 21+74.711=
BY4- POT 5+00.000

-L- POT 61+13.481 =
-Y4- POT 10+00.000

-L- POT 61+12.821 =
-Y3- POT 11+69.785

SPEC. CUT DITCH SEE DETAIL A

SPEC. LAT. 'V' DITCH SEE DETAIL B

LAT. 'V' DITCH SEE DETAIL B

CL. 'B' RIP RAP
EST. 3 TONS
EST. 9 TONS

PERMANENT TURF REINFORCEMENT

GRADE TO DRAIN

PROP. 200x450 CURB

PROP. 375x375x375 TEE

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)

Natural Ground — 3H — D — 4H or Flatter — Front Ditch Slope

Min. D = 0.3m

-Y3- 10+43 to 10+60 (RT.)

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

Natural Ground — 3H — D — 4H — .08m/m — b — Fill Slope

Min. D = 0.3 m
b = 1.5 m

-L- 59+88 to 60+42 (LT.)
-Y3- 11+20 to 11+36 (LT.)

-Y4- NC 343

17600 / 29400	5200 / 8400	2005 ADT / 2025 ADT
	3600 / 5700	900 / 1600
13100 / 22000	2600 / 4100	800 / 1400
	4100 / 7300	

-L-
PI Sta 58+15.159
Δ = 28° 46' 17.5" (RT)
L = 276.187
T = 141.071
R = 550.000
SE = 0.04
R'OFF = 81.000
DS = 80 KM/H

-Y3-
PI Sta 10+39.147
Δ = 22° 21' 27.9" (LT)
L = 77.299
T = 39.147
R = 198.093
R'OFF = 48.000
SE = 0.06

PERMANENT TURF REINFORCEMENT

SEE SHEET NO. 21 FOR -L- GRADE AND PROFILE.
SEE SHEET NO. 27 FOR -Y3- GRADE AND PROFILE.
SEE SHEET NO. 27 FOR -Y4- GRADE AND PROFILE.
SEE SHEET NO. 2-G FOR -Y3 & -Y4- INTERSECTION DETAIL.

METRIC
5 0 10

CONST.REV.

R/W REV.

5/14/99

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Utility

Permit Drawing
Sheet 7 of 15

PROJECT REFERENCE NO.	SHEET NO.
R-2414B	9

UTILITIES BY OTHERS

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

NOTES:
1. ALL RESIDENTIAL DRIVEWAY RADII ARE 1.5m UNLESS OTHERWISE NOTED.
2. COMMERCIAL DRIVEWAY RADII ARE AS SHOWN ON PLANS.
3. ALL CHANNELIZATION CURBING IS 200 x 450.

METRIC
5 0 10
CONST.REV.
R/W REV.

NAD 83 NC GRID

64

65

SEE SHEET NO. 8

SEE SHEET NO. 10

MATCHLINE -L- STA. 62+60.000

MATCHLINE -L- STA. 66+20.000

CL. 'B' RIP RAP EST. 5 TONS EST. 12 S.M.F.F.
+74.000 -L- 15.000 (49.21')
+71.090 -L- 23.500 (77.10')

CL. 'B' RIP RAP EST. 2 TONS EST. 6 S.M.F.F. SEE DETAIL M
+83.000 -L- 28.000 (91.86')

CL. 'B' RIP RAP EST. 2 TONS EST. 4 S.M.F.F.
+04.500 -L- 24.500 (80.38')
+03.868 -L- 20.500 (67.25')
+03.000 -L- 15.000 (49.21')

LAT. 'V' DITCH SEE DETAIL B

+38.000 -L- 19.000 (62.34')

MARY M. GORDON
DB 95, PG 491
DB 116, PG 890

+80.000 -L- 19.500 (63.98')

+40.000 -L- 18.500 (60.70')

+70.000 -L- 15.000 (49.21') 22.000 (72.18')
+70.000 -L- 18.500 (60.70')

CL. 'B' RIP RAP EST. 3 TONS EST. 9 S.M.F.F.

+78.000 -L- 15.000 (49.21') 22.000 (72.18')
+78.000 -L- 19.500 (63.98')
+20.000 -L- 19.000 (62.34') 15.000 (49.21')
+86.527 -L-

600mm M.T.L.P.

CONC. COLLAR CB
WATER ESMT
EXIST R/W
US 158 11.0 BST
US 158 6.8 BST
N 41° 25' 32.4" E
600mm CONC
600mm M.T.L.P.
PLUG
200mm CONC HW
REMOVE H.W.
750 C&G
CB
WATER ESMT

CL. 'B' RIP RAP EST. 2 TONS EST. 6 S.M.F.F.
+70.000 -L- 24.000 (78.74')
+70.000 -L- 15.060 (49.41')

CL. 'B' RIP RAP EST. 2 TONS EST. 4 TONS
LAT. 'V' DITCH SEE DETAIL B

+98.000 -L- 15.049 (49.37')
+98.000 -L- 24.000 (78.74')
+17.000 -L- 20.000 (65.62')
+60.000 -L- 18.500 (60.70')

+70.000 -L- 20.000 (65.62')
+70.000 -L- 15.177 (49.79')
21.000 (68.90') PC 65+86.527

+78.000 -L- 15.186 (49.82')
21.000 (68.90')
+18.000 -L- 20.000 (65.62')

-Y6- PT 10+79.303
-L- POC 66+11.449
81.504 RT.

PRC 10+39.770
-L- POT 65+81.427
104.827 RT.

-Y6- PC 10+00.000
-L- POT 65+49.426
128.434 RT.

MARY M. GORDON
DB 95, PG 491
DB 116, PG 890
DB 83, PG 680 (MAP)

GLEN D. GORDON, ET UX
DB 94, PG 280
DB 83, PG 679
DB 128, PG 504
DB 87, PG 181 (POST OFFICE LEASE)
DB 132, PG 160 (STORE LEASE)

CHESAPEAKE & ALBEMARLE RR
S 31° 21' 21" W
RR SWITCH
N 53° 27' 48" E
(LEASED TO CHESAPEAKE & ALBEMARLE R/R CO)

CHARLIE S. BARTLETT, ET UX
DB 62, PG 715

SP 1142 5.4 BST
GUMBERRY RD
SR 1142

+34.000 -Y6- 9.254 (30.36')
+34.000 -Y6- 21.000 (68.90')
+13.000 -Y6- 9.240 (30.31')
+13.500 -Y6- 28.500 (93.50')
+22.000 -Y6- 29.000 (95.14')

1650 mm CHL

GEORGE WOOD FARMS, INC
DB 115, PG 607
DB 115, PG 621

SEE SHEET NO. 21 FOR -L- GRADE AND PROFILE.

DETAIL B
LATERAL 'V' DITCH
(Not to Scale)
Natural Ground
Fill Slope
Min. D = 0.6 m
b = 1.5 m

-L- 62+84 to 63+00 (LT.)
-L- 62+75 to 62+88 (RT.)

DITCH END DETAIL M
(Not to Scale)
Ditch Slope
End Ditch Grade
Type of Liner: CL. 'B'
Filter Fabric

-L- 62+88 (LT.)
-L- 63+00 (RT.)

-L-	-Y6-	-Y6-
PI Sta 66+25.744	PI Sta 10+19.890	PI Sta 10+59.540
Δ = 3° 44' 37.0" (LT)	Δ = 2° 55' 37.3" (LT)	Δ = 2° 26' 50.5" (RT)
L = 78.406	L = 39.770	L = 39.533
T = 39.217	T = 19.890	T = 19.769
R = 1,200.000	R = 778.495	R = 925.512
SE = 0.03	SE = EX.	SE = EX.
R'OFF = 60.750	BCK = N 6° 28' 25.4" E	AH = N 5° 59' 38.6" E
DS = 80 KM/H		

5/14/99

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Permit Drawing

PROJECT REFERENCE NO.	SHEET NO.
R-2414B	10

UTILITIES BY OTHERS

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

METRIC
5 0 10
CONST.REV.
R/W REV.

5/14/99

MARY M. GORDON
DB 46, PG 316A

M. W. GODWIN, HEIRS
C/O JOYCE GODWIN
DB 36, PG 656
MB 2, PG 23

MARY GODWIN HARRIS
DB 52, PG 659
MB 2, PG 23

LOIS G. WHITE
WB 95-E-59
DB 72, PG 597
MB 2, PG 23
DB 116, PG 738
DB 44, PG 59

DORIS S. BERRY
DB 65, PG 187
DB 46, PG 316A
DB 117, PG 179

WATERMARK ASSOCIATION OF ARTISANS, INC
DB 91, PG 430
DB 89, PG 112 (MAP)
DB 116, PG 740
DB 44, PG 61

NORTHEASTERN COMMUNITY DEVELOPMENT CORP, INC
DB 111, PG 217
DB 116, PG 742
PC 2, SL. 87A

MARY M. GORDON
DB 95, PG 491
DB 116, PG 890
DB 83, PG 680 (MAP)

GEORGE WOOD FARMS, INC
DB 115, PG 607
DB 115, PG 621

B & B ENTERPRISES
DB 96, PG 152

NORFOLK SOUTHERN RAILWAY CO
(LEASED TO CHESAPEAKE & ALBEMARLE R/R CO)

SR 1240 GUMBERRY RD

MATCHLINE -L- STA. 66+20.000 — SEE SHEET NO. 9

MATCHLINE -L- STA. 69+80.000 — SEE SHEET NO. 11

PT 66+64.933

-L-
PI Sta 66+25.744
Δ = 3°44'37.0" (LT)
L = 78.406
T = 39.217
R = 1,200.000
SE = 0.03
P'OFF = 60.750
DS = 80 KM/H

NOTES:
1. ALL RESIDENTIAL DRIVEWAY RADII ARE 1.5m UNLESS OTHERWISE NOTED.
2. COMMERCIAL DRIVEWAY RADII ARE AS SHOWN ON PLANS.
3. ALL CHANNELIZATION CURBING IS 200 x 450.

SEE SHEET NO. 22 FOR -L- GRADE AND PROFILE.

SR 1240
GUMBERRY RD
100/300 2005 ADT
2020 ADT
100/100 100/100
13100/22000 13100/22000 -L-

DETAIL F
'V' DITCH
(Not to Scale)
Natural Ground, 3:1, D, 3:1, Natural Ground
Min. D = 0.3 m
-L- 66+87 (RT.)
-L- 67+06 (RT.)

DETAIL B
LATERAL 'V' DITCH
(Not to Scale)
Natural Ground, 3:1, D, 3:1, b, .08m/m, Fill Slope
Min. D = 0.3 m
b = 1.5 m
-L- 67+23 to 67+41 (RT.)

DETAIL G
TOE PROTECTION
(Not to Scale)
Natural Ground, 3:1, d, 3:1, Fill Slope, Filter Fabric
d = 0.3 m
Type of Liner = CL. 'B'
-L- 67+40 to 67+50 (LT.)

DETAIL H
ROCK FILL IN POND
(Not to Scale)
Proposed, Existing, Earth Fill, 3:1, Rock Fill to Berm, 1.5m, .3m, Elev.= 1.0, N.W.S. Elev.= 0.70
-L- 67+41 to 67+69 (RT.)

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PROJECT REFERENCE NO.	SHEET NO.
R-2414B	11

METRIC

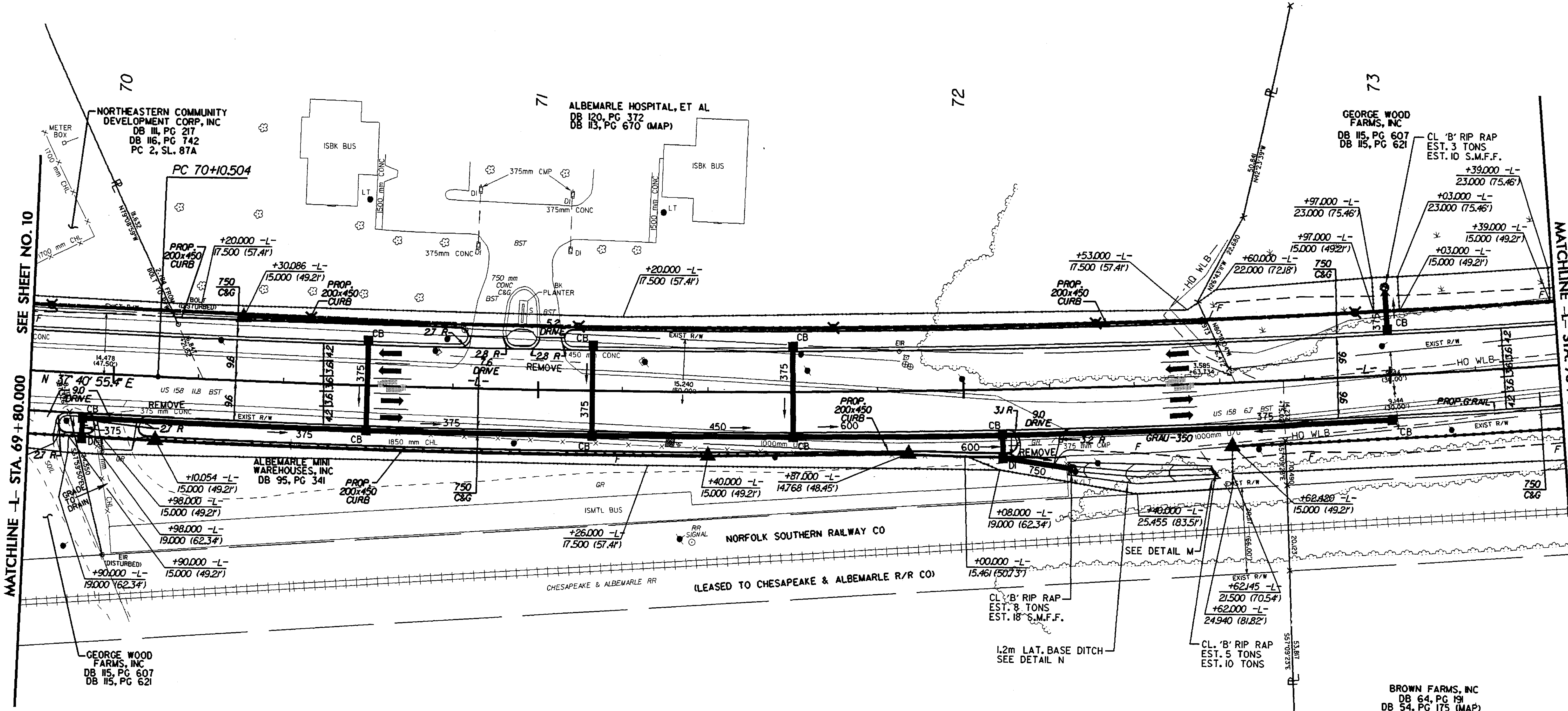
CONST.REV.

R/W REV.

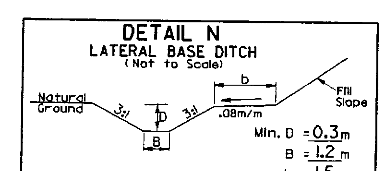
UTILITIES BY OTHERS

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

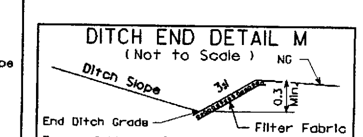
NOTES:
1. ALL RESIDENTIAL DRIVEWAY RADII ARE 1.5m UNLESS OTHERWISE NOTED.
2. COMMERCIAL DRIVEWAY RADII ARE AS SHOWN ON PLANS.
3. ALL CHANNELIZATION CURBING IS 200 x 450.



-L-
PI Sta 72+27.319
Δ = 8° 51' 20.1" (LT)
L = 432.766
T = 216.815
R = 2,800.000
SE = NC
DS = 80 KM/H



-L- 72+25 to 72+60 (RT.)



-L- 72+60 (RT.)

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PROJECT REFERENCE NO.	SHEET NO.
R-2414B	12

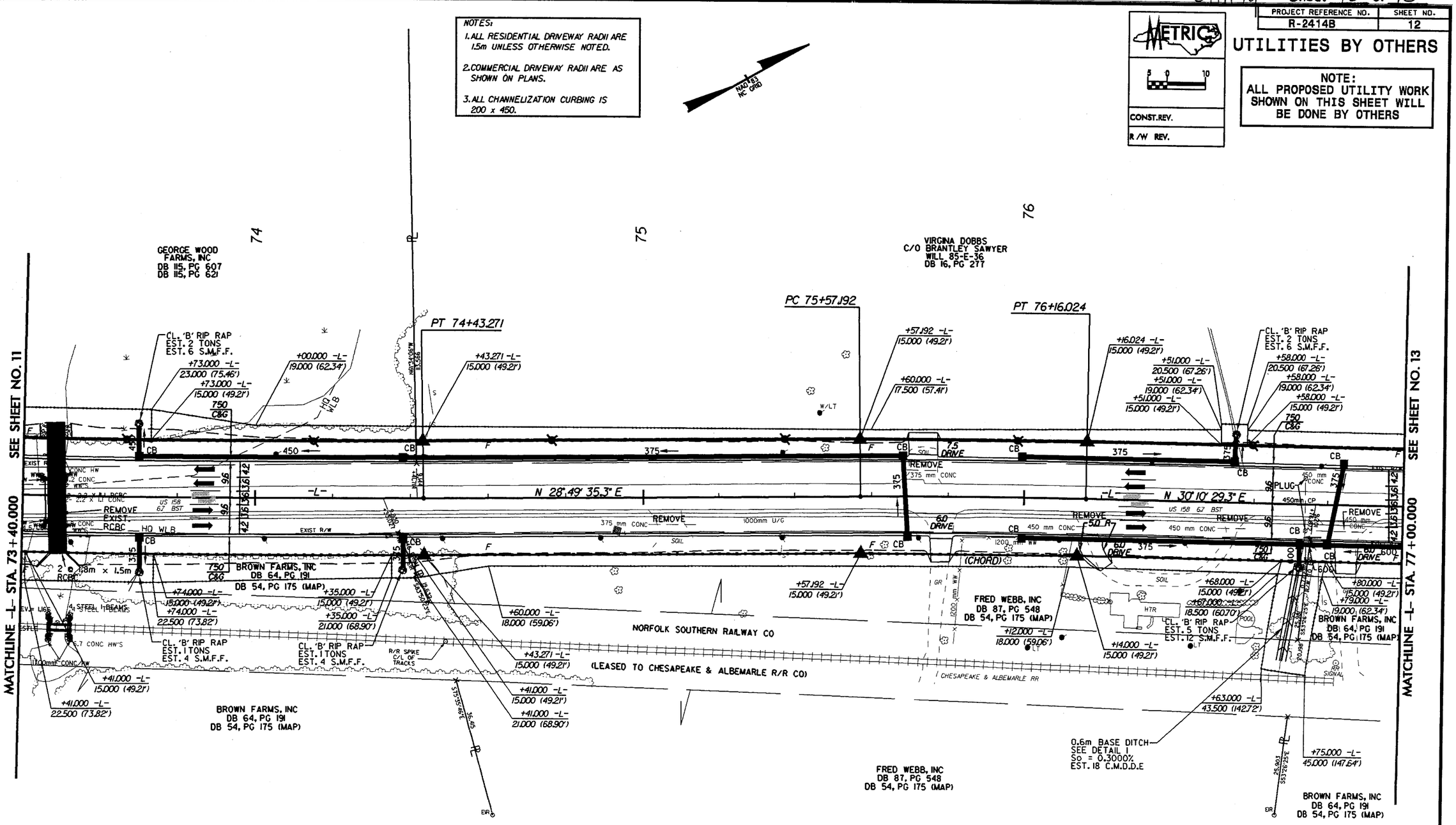
UTILITIES BY OTHERS

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

METRIC
5 0 10
CONST.REV.
R/W REV.

NOTES:
1. ALL RESIDENTIAL DRIVEWAY RADII ARE 1.5m UNLESS OTHERWISE NOTED.
2. COMMERCIAL DRIVEWAY RADII ARE AS SHOWN ON PLANS.
3. ALL CHANNELIZATION CURBING IS 200 x 450.

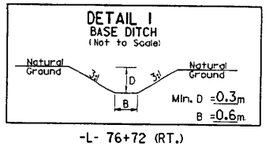
NAD 83 NC GRID



-L-
PI Sta 72+27.319
Δ = 8°51' 20.1" (LT)
L = 432.766
T = 216.815
R = 2,800.000
SE = NC
DS = 80 KM/H

-L-
PI Sta 75+86.610
Δ = 1° 20' 54.0" (RT)
L = 58.832
T = 29.418
R = 2,500.000
SE = NC
DS = 80 KM/H

DETAIL I
BASE DITCH
(Not to Scale)



-L- 76+72 (RT.)

PROJECT REFERENCE NO.	SHEET NO.
R-2414B	13

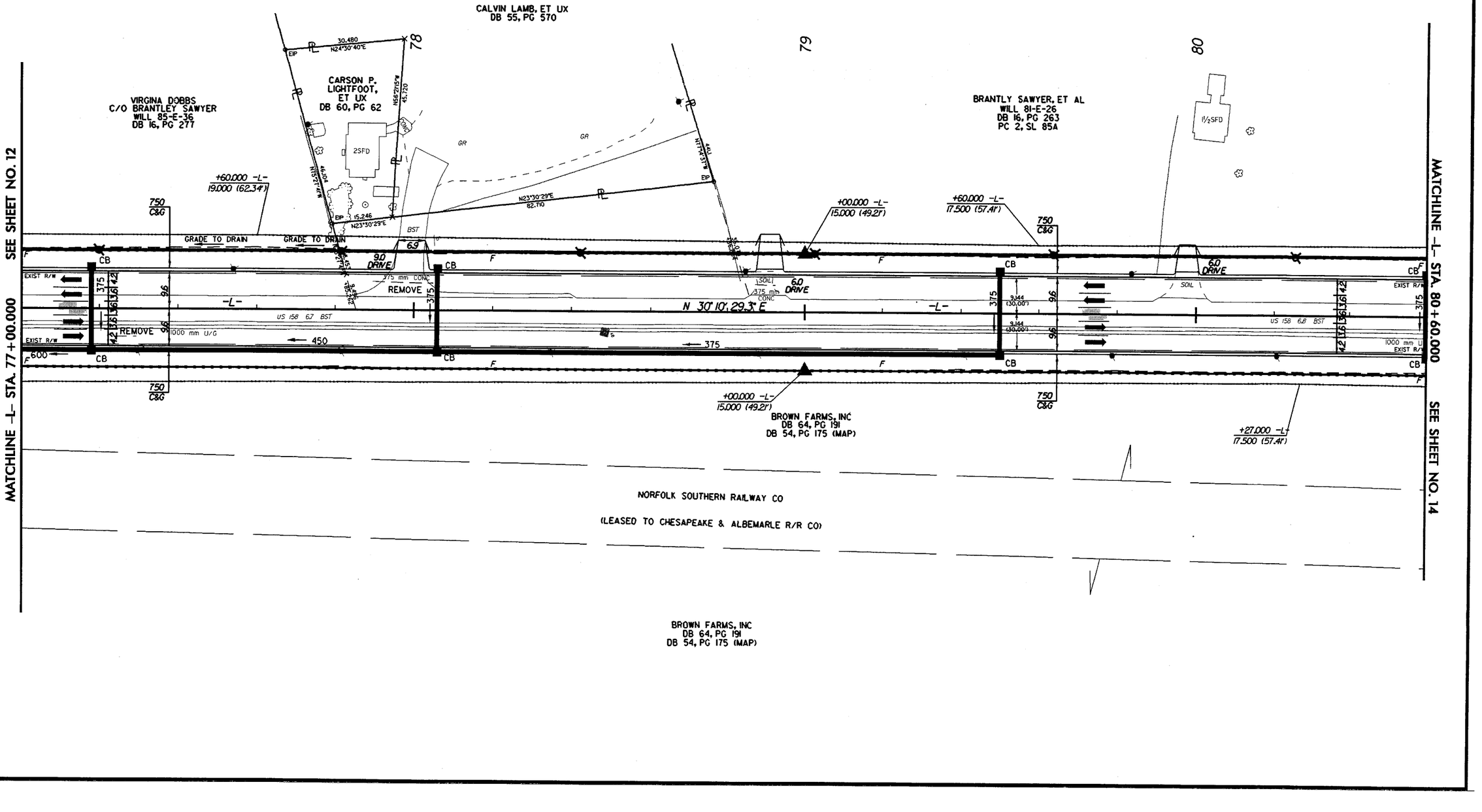
UTILITIES BY OTHERS

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

METRIC
5 0 10
CONST.REV.
R/W REV.

NOTES:
1. ALL RESIDENTIAL DRIVEWAY RADII ARE 1.5m UNLESS OTHERWISE NOTED.
2. COMMERCIAL DRIVEWAY RADII ARE AS SHOWN ON PLANS.
3. ALL CHANNELIZATION CURBING IS 200 x 450.

NAD 83 NC GRID



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Level: 1 Prec: 0.1 Scale: 1.0

PROJECT REFERENCE NO.	SHEET NO.
R-2414B	14

UTILITIES BY OTHERS

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

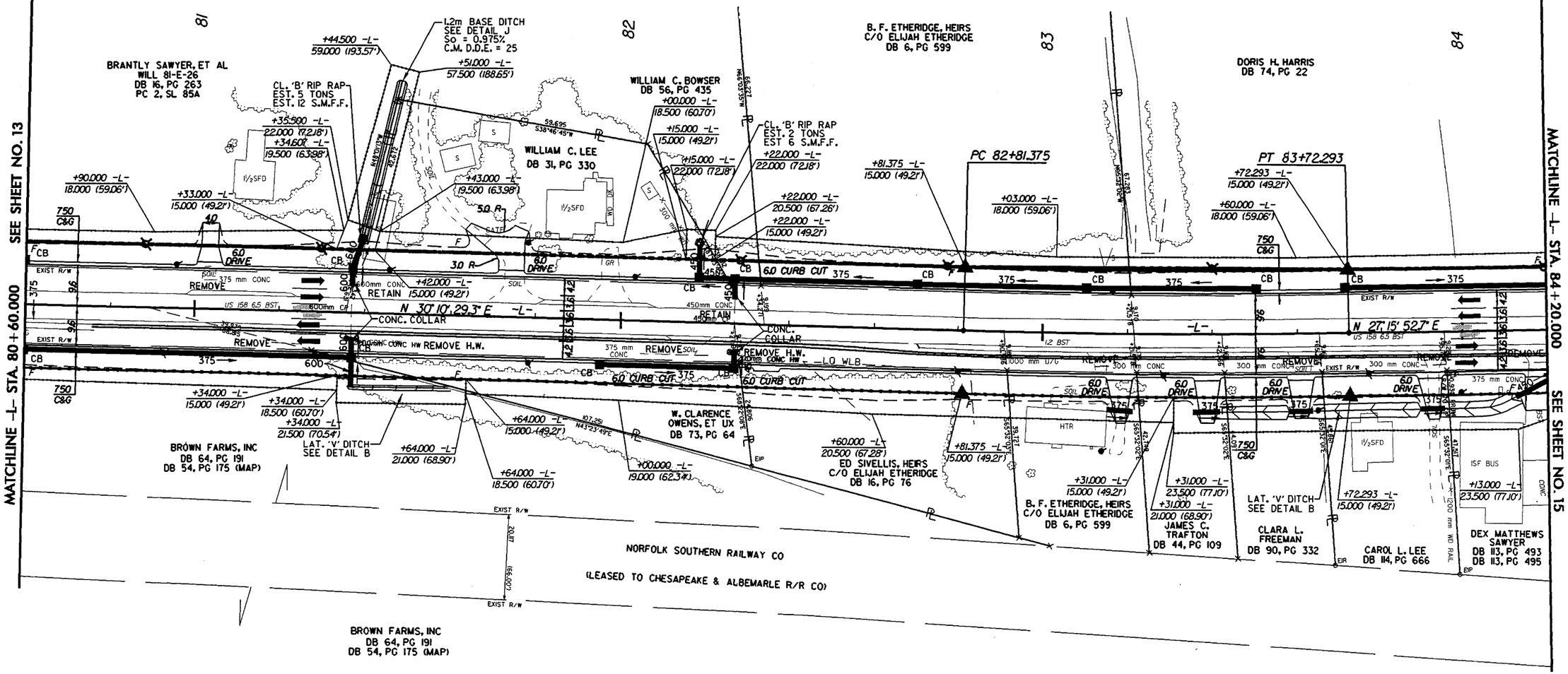
METRIC
5 0 10

CONST.REV.

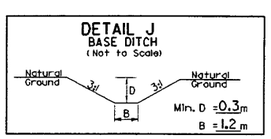
R/W REV.

NOTES:
1. ALL RESIDENTIAL DRIVEWAY RADII ARE 1.5m UNLESS OTHERWISE NOTED.
2. COMMERCIAL DRIVEWAY RADII ARE AS SHOWN ON PLANS.
3. ALL CHANNELIZATION CURBING IS 200 x 450.

NAD 83 NC GRID

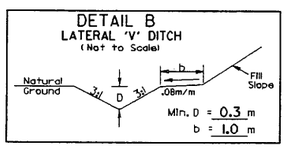


DETAIL J
BASE DITCH
(Not to Scale)



-L- 81+37 (LT.)

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



-L- 81+32 to 81+57 (RT.)
-L- 83+22 to 84+12 (RT.)

-L-
PI Sta 83+26.844
Δ = 2°54' 36.6" (LT)
L = 90.918
T = 45.469
R = 1,790.000
SE = 0.025
RTOFF = 50.625
DS = 80 KM/H

PROJECT REFERENCE NO.	SHEET NO.
R-2414B	15

UTILITIES BY OTHERS

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

METRIC
5 0 10
CONST.REV.
R/W REV.

NOTES:
1. ALL RESIDENTIAL DRIVEWAY RADII ARE 1.5m UNLESS OTHERWISE NOTED.
2. COMMERCIAL DRIVEWAY RADII ARE AS SHOWN ON PLANS.
3. ALL CHANNELIZATION CURBING IS 200 x 450.

DETAIL K
BASE DITCH
(Not to Scale)
Natural Ground, 3:1, D, 3:1, Natural Ground, B
Min. D = 0.3 m
B = .75 m
-Y7- 11+63 (LT.)

DETAIL F
'V' DITCH
(Not to Scale)
Natural Ground, 3:1, D, 3:1, Natural Ground
Min. D = 0.3 m
-L- 84+62 (LT.)

DETAIL L
SPECIAL CUT BASE DITCH
(Not to Scale)
Natural Ground, 3:1, D, 4:1 or Flatter, Front Ditch Slope, B
Min. D = 0.3 m
B = * m
-Y7- 10+20 to 10+60 (RT.)
*(VARIES 3m to 0m)

MATCHLINE -L- STA. 84+20.000
SEE SHEET NO. 14

MATCHLINE -L- STA. 87+80.000
SEE SHEET NO. 16

ROBERT E. CLIFTON, ET UX
DB 64, PG 129

PHYLLIS G. MINTON
DB 67, PG 673

DORIS H. HARRIS
DB 74, PG 22

THOMAS M. NOBLITT
DB 38, PG 12
DB 38, PG II (MAP)

EFFIE L. CREEKMORE
DB 14, PG 526

DEX MATTHEWS SAWYER
DB 113, PG 493
DB 113, PG 495

MICHAEL L. MATTERA
DB 104, PG 668
DB 95, PG 164 (MAP)

DANIEL R. McDOUGALD
DB 92, PG 505

W. W. OWENS & SONS MOVING & STORAGE, INC
DB 82, PG 238

ISF BUS WAREHOUSE

HISTORIC PROPERTY

EFFIE L. CREEKMORE
DB 15, PG 180
DB 28, PG 376
DB 38, PG 133

DORIS H. HARRIS
DB 5D, PG 115
DB 56, PG 682

W. C. HOLLOWELL, JR., ET UX
DB 72, PG 001

GARY D. FILARECKI AND ARRON O. WHITLEY
DB 84, PG 645

GAYLE C. NELSON
DB 127, PG 417
PC 1, SL 15A

MARGARET LOUISE GODFREY
DB 29, PG 580

JOSEPH O. SAWYER, ET UX
DB 95, PG 360
PC 1, PG 12A

W. W. OWENS & SONS MOVING & STORAGE, INC
DB 81, PG 700

NORFOLK SOUTHERN RAILWAY CO (LEASED TO CHESAPEAKE & ALBEMARLE R/R CO)
CHESAPEAKE & ALBEMARLE RR

-Y7- SR 1145 BELCROSS RD
2005 ADT
2025 ADT
1100 / 1700
800 / 1000
300 / 500
13100 / 22000
12200 / 20500
900 / 1500
300 / 500
1300 / 2200
-L-
-Y7- SR 1145 BELCROSS RD

-L-	-Y7-	-Y7-
PI Sta 86+83.427	PI Sta 10+36.638	PI Sta 11+19.581
Δ = 7° 24' 45.5" (RT)	Δ = 16° 40' 29.6" (RT)	Δ = 2° 07' 31.3" (RT)
L = 226.406	L = 72.758	L = 37.094
T = 113.361	T = 36.638	T = 18.549
R = 1750.000	R = 250.000	R = 1,000.000
SE = 0.025		
R'OFF = 50.625		
DS = 80 KM/H		

SEE SHEET NO. 24 FOR -L- GRADE AND PROFILE.
SEE SHEET NO. 28 FOR -Y7- GRADE AND PROFILE.
SEE SHEET NO. 2-H FOR -Y7- INTERSECTION DETAIL.

-Y7- POC 10+10.000
BEGIN CONSTRUCTION

-Y7- PC 10+00.000

-L- POC 87+21.942 = -Y7- POC 11+20.257

-Y7- POT 12+12.000
END CONSTRUCTION

-Y7- POT 12+40.000

PC 85+70.066

PT 10+72.758

PT 11+38.126

PC 11+00.051

BASE DITCH
SEE DETAIL K
So = 0.27%
D.D.E. = 3 C.M.

DITCH CLEANOUT
So = 0.15%
D.D.E. = 5 C.M.
MAINTAIN EXIST. CHANNEL X-SECTION

SPEC. CUT BASE DITCH
SEE DETAIL L

'V' DITCH SEE DETAIL F
So = 0.14%
C.M. D.D.E. = 5

CL. 'B' RIP RAP
EST. 8 TONS
EST. 18 S.M.F.F.

CL. 'B' RIP RAP
EST. 2 TONS
EST. 6 S.M.F.F.

CL. 'B' RIP RAP
EST. 3 TONS
EST. 9 S.M.F.F.

PROP. 200x450 CURB

REMOVE

RETAIN

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PROJECT REFERENCE NO.	SHEET NO.
R-2414B	16

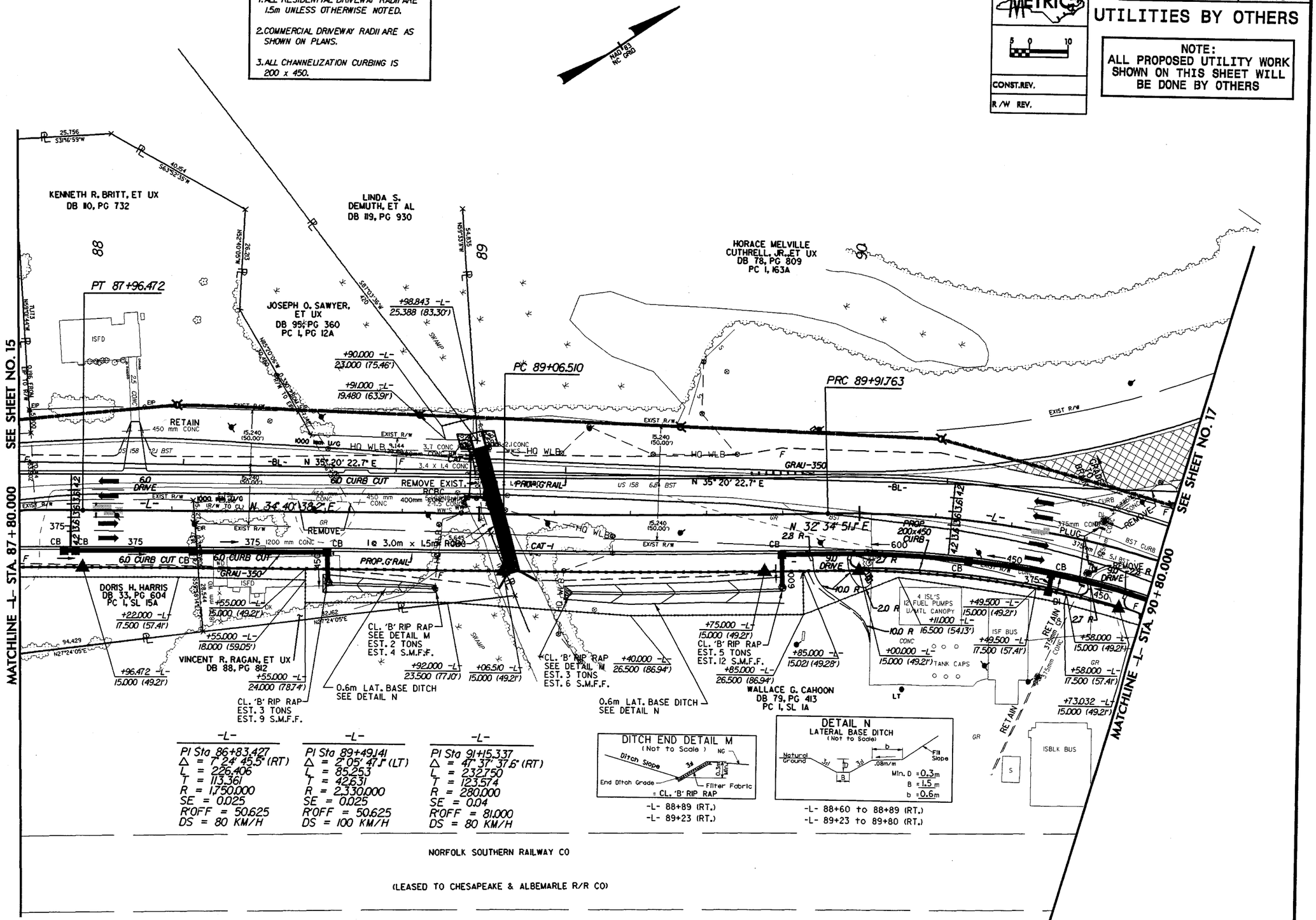
UTILITIES BY OTHERS

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

METRIC
5 0 10
CONST.REV.
R/W REV.

NOTES:
1. ALL RESIDENTIAL DRIVEWAY RADII ARE 1.5m UNLESS OTHERWISE NOTED.
2. COMMERCIAL DRIVEWAY RADII ARE AS SHOWN ON PLANS.
3. ALL CHANNELIZATION CURBING IS 200 x 450.

NAD 83 NC GRID



-L-
PI Sta 86+83.427
Δ = 7° 24' 45.5" (RT)
L = 226.406
T = 113.361
R = 1,750.000
SE = 0.025
R'OFF = 50.625
DS = 80 KM/H

-L-
PI Sta 89+49.141
Δ = 2° 05' 47.1" (LT)
L = 85.253
T = 42.631
R = 2,330.000
SE = 0.025
R'OFF = 50.625
DS = 100 KM/H

-L-
PI Sta 91+15.337
Δ = 47° 37' 37.6" (RT)
L = 232.750
T = 123.574
R = 280.000
SE = 0.04
R'OFF = 81.000
DS = 80 KM/H

DITCH END DETAIL M
(Not to Scale)

-L- 88+89 (RT.)
-L- 89+23 (RT.)

DETAIL N
LATERAL BASE DITCH
(Not to Scale)

-L- 88+60 to 88+89 (RT.)
-L- 89+23 to 89+80 (RT.)

5/14/99

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PROJECT REFERENCE NO.	SHEET NO.
R-2414B	17

METRIC 5 0 10

CONST.REV.

R/W REV.

UTILITIES BY OTHERS

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

5/14/99

DETAIL O
LATERAL BASE DITCH
(Not to Scale)

Natural Ground, 3:1, b, .08m/m, Fill Slope, D, B

Min. D = 0.3 m
B = 2.0 m
b = 1.5 m

-L- 91+60 to 92+40 (LT.)

-Y7- NC 34 2005 ADT 2025 ADT

5000 / 8700

12200 / 20500 — 4700 / 8200 — 300 / 500 — 7800 / 12800 -L-

NOTES:
1. ALL RESIDENTIAL DRIVEWAY RADII ARE 1.5m UNLESS OTHERWISE NOTED.
2. COMMERCIAL DRIVEWAY RADII ARE AS SHOWN ON PLANS.
3. ALL CHANNELIZATION CURBING IS 200 x 450.

■ = 125 MONOLITHIC CONCRETE ISLAND

SEE SHEET NO. 25 FOR -L- GRADE AND PROFILE.
SEE SHEET NO. 28 FOR -Y8- GRADE AND PROFILE.
SEE SHEET NO. 2-F FOR -Y8- INTERSECTION DETAIL.

+15.000 -Y8- 15.240 (50.00')

-Y8- POT 11+00.000 BEGIN CONSTRUCTION

+39.000 -Y8- 18.000 (59.06')

+41.000 -Y8- 17.256 (56.61')

S 3°32'00.5" E

PC 11+29.691

EXIST R/W

NC 34 69 BST

REMOVE 600mm CONC

REMOVE 450mm CONC

1000 mm UNDRAIN

BST CURB

GRADE TO DRAIN

EXIST R/W 15.240 (50.00')

MATCHLINE -L- STA. 90+80.000

SEE SHEET NO. 16

S 32°16'11.3" E

REMOVE

BST CURB

89°55'16.8"

US 158 77 BST

375x375x375 TEE

90 DRIVE 375

CB

DI

EXIST R/W

+95.000 -L- 16.502 (54.14')

+95.000 -L- 18.000 (59.06')

+86.000 -L- 17.500 (57.41')

+86.000 -L- 15.895 (52.15')

WEIGHT SCALES

CONC

S

ISBLK BUS

(5 SILOS)

2SF BUS

WALLACE G. CAHOON
DB 79, PG 413
PC 1, SL 1A

+20.779 BEGIN UNIFORM TAPER (RIGHT SIDE)

+55.000 -L- 20.220 (66.34')

+63.000 -L- 23.000 (75.46')

+92.376 -L- 24.500 (80.38')

JUNK YARD

SOIL

S33°46'14"W

ALBEMARLE RR

EXIST R/W

N 33°49' 40.9" E

REMOVE

133°48'21.2"

C. RUSSELL HASTINGS
AND
CALVIN LAMB
DB 119, PG 94
PC 2, SL 55A

PT 12+17.715

-L- POC 91+14.281 =
-Y8- POT 12+36.993

+51.000 -L- 28.859 (94.68')

+67.267 -L- 15.000 (49.21')

2.0m LAT. BASE DITCH SEE DETAIL O

+00.000 -L- 28.000 (91.86')

+24.513 -L- 15.000 (49.21')

PRC 92+24.513

+20.000 -L- 28.000 (91.86')

-L- POC 92+35.000
END 750 CURB & GUTTER
(DISSIPATE CURB IN 1.0)
BEGIN 1.2 FDPS

+34.501 -L- 15.000 (49.21')

+45.000 -L- 25.800 (84.64')

NORFOLK SOUTHERN RAILWAY CO
(LEASED TO CHESAPEAKE & ALBEMARLE R/R CO)

N33°46'14"E

ALBEMARLE RR

CONCRETE PAD (PROVIDED BY OTHERS)

REMOVE H.W.

+21.000

RR°2 POT 10+87.810

+62.720 -L- 15.000 (49.21')

+67.000 -L- 19.312 (63.36')

242.527 UNIFORM TAPER (LEFT SIDE OF PAVT)

SPEC. LAT. 'V' DITCH SEE DETAIL P

ROSE S. BELL
DB 36, PG 520

+60.000

+60.000 -L- 17.500 (57.41')

+67.550 -L- 15.000 (49.21')

+84.000 -L- 15.145 (49.69')

30.779 UNIFORM TAPER

-L- PT 93+90.779
END STATE PROJECT R-2414B

EXIST R/W

1.800mm CONC HW

450mm CONC

N 76°07' 09.9" E

EXIST R/W

+78.000 -L- 19.000 (62.34')

TIE TO EXISTING

+90.500 -L- 15.311 (50.23')

+90.779 END UNIFORM TAPER RIGHT SIDE

375 mm CONC

0.213 FROM EIR TO R/W

SFBUS

-L- POC 92+20.355
END 750 CURB & GUTTER
(DISSIPATE CURB IN 1.0)
BEGIN 1.2 FDPS

RR°2 POT 10+00.000

-L- POC 92+34.103 = +97.000 -L-
RR°2 POT 10+48.857 17.437 (57.21')

+97.000 -L- 20.000 (65.62')

BROWN FARMS, INC
DB 76, PG 310

270.000 UNIFORM TAPER (RIGHT SIDE OF PAVT)

SPEC. LAT. 'V' DITCH SEE DETAIL P

DETAIL P
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

Natural Ground, 3:1, D, 4:1 or Flatter, Fill Slope

Min. D = 0.3 m

-L- 93+00 to 93+80 (RT.)
-L- 92+54 to 93+80 (LT.)

-L-	-L-	-Y8-
PI Sta 91+15.337	PI Sta 93+07.681	PI Sta 11+74.655
Δ = 47° 37' 37.6" (RT)	Δ = 4° 05' 18.8" (LT)	Δ = 28° 49' 10.8" (LT)
L = 232.750	L = 166.266	L = 88.025
T = 123.574	T = 83.168	T = 44.964
R = 280.000	R = 2,330.000	R = 175.000
SE = 0.04	SE = NC	
R'OFF = 81.000	DS = 80 KM/H	
DS = 80 KM/H		

(4-MAY-2008 12:26 /projects/projects/highway/roadway/land_permit/r-2414b_UT_U015.psh)