



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

April 24, 2007

U. S. Army Corps of Engineers
Regulatory Field Office
Post Office Box 1890
Wilmington, NC 28402-1890

ATTN: Mr. Richard Spencer
NCDOT Coordinator

Subject: **Application for Section 404 Nationwide Permit 14 and Section 401 Water Quality Certification.** Widening of US 1 (Fayetteville Road) to a curb and gutter facility in Rockingham, Richmond County, North Carolina. Federal Aid Project No. STP-0001(7), State Project No. 8.1581301, WBS Element 34950.1.1, TIP No. U-3456

\$200.00 Debit from WBS Element 34950.1.1.

Please see the enclosed Pre-Construction Notification, permit drawings, design plans, and EEP acceptance letter for the subject project. The North Carolina Department of Transportation (NCDOT) proposes to widen US 1 (Fayetteville Road) to a facility utilizing curb and gutter. The proposed improvements will begin 800 ft west of SR 1424 (Roberdel Road) and end 600 ft east of SR 1640 (Wiregrass Road)/SR 1442 (Ledbetter Road). The roadway will be widened to a combined five-lane curb and gutter facility from Roberdel Road to Old Aberdeen Road and a four-lane 18-foot median divided curb and gutter facility from Old Aberdeen Road to Wiregrass Road/Ledbetter Road.

The purpose of this project is to improve safety and provide better traffic carrying capacity along US 1. US 1 is designated as a Major Thoroughfare on the Rockingham-Hamlet Thoroughfare Plan. The proposed improvements are in conformance with the thoroughfare plan. Construction of this project will be a step toward implementation of these long-range plans, which were adopted by local governments and NCDOT.

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

TELEPHONE: 919-715-1334 or
919-715-1335

FAX: 919-715-5501

WEBSITE: WWW.NCDOT.ORG

LOCATION:
2728 CAPITAL BLVD, SUITE 240
RALEIGH NC 27604

NEPA DOCUMENT STATUS

An Environmental Assessment (EA) was completed for the project in May of 2001, the Federal Highway Administration (FHWA) issued an administrative action, Finding of No Significant Impact (FONSI) in December of 2002. Additional copies of these documents are available upon request.

IMPACTS TO WATERS OF THE UNITED STATES

The project is located in sub basin 03-07-16 of the Yadkin River Basin. This area is part of Hydrologic Cataloging Unit 03040201. The project area lies along a low ridge separating two watersheds. To the north side of the project, water drains towards Hitchcock Creek, while on the south side of the project, water drains towards Falling Creek. There is one perennial stream, with a best usage classification of WS-III, located within the project area, and is a tributary of Falling Creek. This stream, UT-A, will be piped under the proposed roadway widening. Most of the project area lies in protected water supply watersheds for either Hitchcock Creek (Roberdel Lake) to the north or Falling Creek (Hinson Lake) to the south. The western portion of this project is within half a mile of the critical area for the water supply of Hinson Lake. Hazardous spill catch basins will be implemented along this stretch of the project. Both lakes supply water to the city of Rockingham. Roberdel Lake (DWQ Index No. 13-39-9-(0.3)) and all of its tributaries have best usage classifications of WS-III. Below the dam at Roberdel Lake, Hitchcock Creek (DWQ Index No. 13-39-(10)) is classified as Class C. Hinson Lake (DWQ Index No. 13-39-12-(1)) and all of its tributaries have best usage classifications of WS-III. Tributaries within the project study area are located outside of the ½ mile radius of the critical area for this watershed.

There are two streams listed on the 2004 Final 303(d) list within 1.0 mile of the project study area. Hitchcock Creek (DWQ Index No. 13-39-1) is listed due to the fish consumption advisory pertaining to mercury levels. Falling Creek (DWQ Index No. 13-39-12-(7.5)) is listed due to aquatic weeds.

Neither High Quality Waters (HQW), Water Supplies (WS-I or WS-II), nor Outstanding Resource Waters (ORW) occur within 1.0 mile of the project area.

There are two wetlands located within the project corridor. Both wetlands originate inside of the project study area and expand well beyond the limits of the corridor. Wetland-1 (Site 1) is located on the south side of US 1, approximately 400 feet west of the intersection of SR 1645 and US 1. Wetland-2 (Site 2) is also situated south of US 1, and is approximately 200 feet west of the intersection of SR 1682 and US 1. Wetland-1 is classified as non-riverine, while wetland-2 has been determined to be a riverine wetland. Both wetlands are best classified as palustrine, forested, temporarily flooded communities (PF01A Cowardin classification).

Temporary Impacts

There are no anticipated temporary impacts to surface waters or wetlands associated with this project.

Permanent Impacts

Site 1:

Approximately 0.13 acre of non-riverine wetland will be impacted on Site 1. Roadway fill will account for 0.10 acre while mechanized clearing will be responsible for the remaining 0.03 acre.

Site 2:

There will be approximately 107 linear feet of jurisdictional stream impacts (Site 2). This will occur through the extension of a piped culvert for the unnamed tributary to Falling Creek (UT-A) that is crossed by the proposed roadway.

At Site 2, 0.05 acre and 0.03 acre of riverine wetland will be impacted due to roadway fill and mechanized clearing, respectively. Mechanized clearing is necessary at both sites to provide access for equipment and construction of the new fill slopes.

Utility Impacts

Power lines and other utilities are located within wetland areas in the project corridor. However, there will be no new construction of, nor relocation of existing utilities performed in jurisdictional areas.

MITIGATION OPTIONS

Avoidance and Minimization and Compensatory Mitigation

The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize jurisdictional impacts, and to provide full compensatory mitigation of all remaining, unavoidable jurisdictional impacts. Avoidance measures were taken during the planning and NEPA compliance stages; minimization measures were incorporated as part of the project design. With the exception of not building the project, there are no feasible means of avoiding this stream taking. NCDOT will minimize impacts on the stream through the use of best management practices.

According to the Clean Water Act (CWA) §404(b)(1) guidelines, NCDOT must avoid, minimize, and mitigate, in sequential order, impacts to waters of the US. The following is a list of the project's jurisdictional stream avoidance/minimization activities proposed or completed by NCDOT:

Avoidance/Minimization

- Temporary construction impacts due to erosion and sedimentation will be minimized through implementation of stringent erosion control methods and use of Best Management Practices (BMPs) highlighted in NCDOT's "Best Management Practices for Construction and Maintenance Activities".
- Maintain 2:1 fill slopes in jurisdictional areas.

- No staging of construction equipment or storage of construction supplies will be allowed in wetlands or near surface waters.
- Best Management Practices for Protection of Surface Waters will be implemented.
- Curb and gutter will be constructed to collect storm water, utilizing catch basins and drop inlets, from the highway.
- Hazardous spill basins will be implemented along the western portion of the project corridor.
- Preformed scour holes are located along the project corridor.

Compensatory Mitigation

NCDOT has avoided and minimized impacts to jurisdictional resources to the greatest extent possible. Unavoidable, permanent impacts to 107 feet of jurisdictional stream will be offset by compensatory mitigation provided by the EEP program. NCDOT is proposing 1:1 mitigation for the subject stream based on degradation. The stream in question is formed by a spring that surfaces approximately 45 feet north of the existing highway and flows southward, is piped under the highway, and feeds an adjacent wetland. During site visits, stream flow has been extremely low, constricted by leaf debris and roadside refuse. The stream channel has minimal meandering and a silty substrate beneath the detritus. Two wetlands will be impacted during the construction of this project. There will be 0.08 acre of riparian wetland impacted and 0.13 acre of non-riparian impacts. An acceptance letter dated March 15, 2007 from EEP is attached.

FEDERALLY PROTECTED SPECIES

Plants and animals with federal classifications of Endangered (E), Threatened (T), Proposed Endangered (PE), and Proposed Threatened (PT) are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. The United States Fish and Wildlife Service (USFWS) lists 5 species for Richmond County. Table 1 lists the species and their federal status.

Table 1. Federally Protected Species in Richmond County, NC

Common Shortnose Name	Scientific Name	Federal Status*	Biological Conclusion	Habitat Present
Sturgeon	<i>Acipenser brevirostrum</i>	E	No Effect	No
Rough-leaved loosestrife	<i>Lysimachia asperulaefolia</i>	E	No Effect	No
Red-cockaded woodpecker	<i>Picoides borealis</i>	E	No Effect	No
Michaux's sumac	<i>Rhus michauxii</i>	E	No Effect	No
Carolina heelsplitter	<i>Lasmigona decorata</i>	E	No Effect	No

*E= endangered

Biological conclusions of "No Effect" were issued for the shortnose sturgeon, rough-leaved loosestrife, red-cockaded woodpecker, Michaux's sumac, and Carolina heelsplitter due to lack of appropriate habitat in the study area, per the Environmental Assessment. On August 21, 2001

the USFWS issued a concurrence letter for the five species listed above and the biological conclusion for each. This concurrence letter is located in the appendix of the FONSI document for this project. As Michaux's sumac is considered to be a plant that can migrate, a follow-up species survey was performed on September 19, 2005 by NCDOT biologists. No individuals were observed during the survey, so the biological conclusion of No Effect in the Environmental Assessment remains valid.

SCHEDULE

The project calls for a let date of October 16, 2007 and has a review date of August 28, 2007. This project has a date of availability of November 27, 2007. It is expected that the contractor will begin construction shortly after that date.

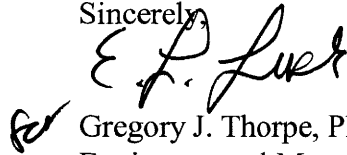
REGULATORY APPROVALS

Section 404 Permit: The project has been processed by the Federal Highway Administration and has been issued an administrative action of, "Finding of No Significant Impact" (FONSI) in accordance with 23 CFR 771.115(b). The NCDOT requests that these activities be authorized by a Nationwide Permit 14 (67 FR 2020; January 15, 2002).

Section 401 Permit: General Water Quality Certification 3627 will apply to this project. All general conditions of the Water Quality Certifications will be met. Written concurrence is required for this certification. In accordance with 15A NCAC 2H, Section .0500 and 15A NCAC 2B.0200 we are providing five copies of this application to the North Carolina Department of Environment and Natural Resources, Division of Water Quality, for their review and approval.

A copy of this permit application will be posted on the NCDOT website at:
<http://www.ncdot.org/doh/preconstruct/pe/neu/permit.html>. If you have any questions or need additional information, please contact Ashley Cox at 919-715-5534 or acox@dot.state.nc.us.

Sincerely,

A handwritten signature in black ink, appearing to read "G. J. Thorpe".

Gregory J. Thorpe, Ph.D.
Environmental Management Director, PDEA

Cc:

w/attachment

- Mr. John Hennessy, NCDWQ (5 copies)
- Mr. Travis Wilson, NCWRC
- Mr. Gary Jordan, USFWS
- Dr. David Chang, P.E., Hydraulics
- Mr. Mark Staley, Roadside Environmental
- Mr. Greg Perfetti, P.E., Structure Design
- Mr. Victor Barbour, Project Services Unit
- Mr. Tim Johnson, P.E, Division 8 Engineer
- Mr. Art King, Division 8 Environmental Officer

w/o attachment

- Mr. Jay Bennett, P.E., Roadway Design
- Mr. Majed Alghandour, P.E., Programming and TIP
- Mr. Art McMillan, P.E., Highway Design
- Mr. Scott McLendon, USACE, Wilmington
- Ms. Beverly Robinson, PDEA
- Ms. Beth Harmon, EEP
- Mr. Todd Jones, NCDOT External Audit Branch

Office Use Only:

Form Version March 05

USACE Action ID No. _____

DWQ No. _____

(If any particular item is not applicable to this project, please enter "Not Applicable" or "N/A".)

I. Processing

1. Check all of the approval(s) requested for this project:

<input checked="" type="checkbox"/> Section 404 Permit	<input type="checkbox"/> Riparian or Watershed Buffer Rules
<input type="checkbox"/> Section 10 Permit	<input type="checkbox"/> Isolated Wetland Permit from DWQ
<input checked="" type="checkbox"/> 401 Water Quality Certification	<input type="checkbox"/> Express 401 Water Quality Certification
2. Nationwide, Regional or General Permit Number(s) Requested: Nationwide Permit 14
3. If this notification is solely a courtesy copy because written approval for the 401 Certification is not required, check here: ☐
4. If payment into the North Carolina Ecosystem Enhancement Program (NCEEP) is proposed for mitigation of impacts, attach the acceptance letter from NCEEP, complete section VIII, and check here: ☒
5. If your project is located in any of North Carolina's twenty coastal counties (listed on page 4), and the project is within a North Carolina Division of Coastal Management Area of Environmental Concern (see the top of page 2 for further details), check here: ☐

II. Applicant Information

1. Owner/Applicant Information
Name: North Carolina Department of Transportation
Mailing Address: Gregory J. Thorpe, Ph.D., Manager
Project Development and Environmental Analysis Branch
1598 Mail Service Center
Raleigh, NC 27699-1598
Telephone Number: 919-733-3141 Fax Number: 919-733-9794
E-mail Address: gthorpe@dot.state.nc.us
2. Agent/Consultant Information (A signed and dated copy of the Agent Authorization letter must be attached if the Agent has signatory authority for the owner/applicant.)
Name: _____
Company Affiliation: _____
Mailing Address: _____

Telephone Number: _____ Fax Number: _____
E-mail Address: _____

III. Project Information

Attach a **vicinity map** clearly showing the location of the property with respect to local landmarks such as towns, rivers, and roads. Also provide a detailed **site plan** showing property boundaries and development plans in relation to surrounding properties. Both the vicinity map and site plan must include a scale and north arrow. The specific footprints of all buildings, impervious surfaces, or other facilities must be included. If possible, the maps and plans should include the appropriate USGS Topographic Quad Map and NRCS Soil Survey with the property boundaries outlined. Plan drawings, or other maps may be included at the applicant's discretion, so long as the property is clearly defined. For administrative and distribution purposes, the USACE requires information to be submitted on sheets no larger than 11 by 17-inch format; however, DWQ may accept paperwork of any size. DWQ prefers full-size construction drawings rather than a sequential sheet version of the full-size plans. If full-size plans are reduced to a small scale such that the final version is illegible, the applicant will be informed that the project has been placed on hold until decipherable maps are provided.

1. Name of project: Proposed Widening of US 1 From SR 1424 to SR 1640/SR 1442
2. T.I.P. Project Number or State Project Number (NCDOT Only): U-3456
3. Property Identification Number (Tax PIN): N/A
4. Location
County: Richmond Nearest Town: Rockingham
Subdivision name (include phase/lot number): N/A
Directions to site (include road numbers/names, landmarks, etc.): US 1 South, just east of Rockingham. Site is approximately 160 feet west of intersection of SR 1682 (Peterson Rd) and SR 1504 (Philadelphia Dr).
5. Site coordinates (For linear projects, such as a road or utility line, attach a sheet that separately lists the coordinates for each crossing of a distinct waterbody.)
Decimal Degrees (6 digits minimum): _____ °N _____ °W
6. Property size (acres): Please refer to attached drawings.
7. Name of nearest receiving body of water: Falling Creek (Hinson Lake)
8. River Basin: Yadkin River
(Note – this must be one of North Carolina's seventeen designated major river basins. The River Basin map is available at <http://h2o.enr.state.nc.us/admin/maps/>.)
9. Describe the existing conditions on the site and general land use in the vicinity of the project at the time of this application: The local area surrounding the proposed project consists of gently rolling hills and land use is best described as residential development, natural forest vegetation, and wetlands.

10. Describe the overall project in detail, including the type of equipment to be used: NCDOT proposes to widen US 1 to a five-lane facility from SR 1424 (Roberdel Rd) to SR 1426 (Old Aberdeen Rd) and a four-lane median divided facility from SR 1426 (Old Aberdeen Rd) to SR 1640 (Wiregrass Rd)/SR 1442 (Ledbetter Rd) utilizing curb and gutter.
11. Explain the purpose of the proposed work: The purpose of this project is to improve safety and provide better traffic carrying capacity along US 1. US 1 is designated as a Major Thoroughfare on the Rockingham-Hamlet Thoroughfare Plan.

IV. Prior Project History

If jurisdictional determinations and/or permits have been requested and/or obtained for this project (including all prior phases of the same subdivision) in the past, please explain. Include the USACE Action ID Number, DWQ Project Number, application date, and date permits and certifications were issued or withdrawn. Provide photocopies of previously issued permits, certifications or other useful information. Describe previously approved wetland, stream and buffer impacts, along with associated mitigation (where applicable). If this is a NCDOT project, list and describe permits issued for prior segments of the same T.I.P. project, along with construction schedules. Notification of JD was issued on November 25, 2002. Site was initially inspected on June 29, 2000. Action ID: 200101026

V. Future Project Plans

Are any future permit requests anticipated for this project? If so, describe the anticipated work, and provide justification for the exclusion of this work from the current application.

N/A

VI. Proposed Impacts to Waters of the United States/Waters of the State

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to wetlands, open water, and stream channels associated with the project. Each impact must be listed separately in the tables below (e.g., culvert installation should be listed separately from riprap dissipater pads). Be sure to indicate if an impact is temporary. All proposed impacts, permanent and temporary, must be listed, and must be labeled and clearly identifiable on an accompanying site plan. All wetlands and waters, and all streams (intermittent and perennial) should be shown on a delineation map, whether or not impacts are proposed to these systems. Wetland and stream evaluation and delineation forms should be included as appropriate. Photographs may be included at the applicant's discretion. If this proposed impact is strictly for wetland or stream mitigation, list and describe the impact in Section VIII below. If additional space is needed for listing or description, please attach a separate sheet.

1. Provide a written description of the proposed impacts: There will be approximately 107 linear feet of warm perennial stream impacted using a pipe culvert. A total of 0.21 acres of wetland will be impacted from roadway fill, 0.13 acres of non-riverine and 0.08 acres of riverine wetland.

2. Individually list wetland impacts. Types of impacts include, but are not limited to mechanized clearing, grading, fill, excavation, flooding, ditching/drainage, etc. For dams, separately list impacts due to both structure and flooding.

Wetland Impact Site Number (indicate on map)	Type of Impact	Type of Wetland (e.g., forested, marsh, herbaceous, bog, etc.)	Located within 100-year Floodplain (yes/no)	Distance to Nearest Stream (linear feet)	Area of Impact (acres)
Site 1	Roadway fill, clearing	Forested	No	@ 1950	0.13
Site 2	Roadway fill, clearing	Forested	No	0	0.08
Total Wetland Impact (acres)					0.21

3. List the total acreage (estimated) of all existing wetlands on the property: 1.2 acres

4. Individually list all intermittent and perennial stream impacts. Be sure to identify temporary impacts. Stream impacts include, but are not limited to placement of fill or culverts, dam construction, flooding, relocation, stabilization activities (e.g., cement walls, rip-rap, crib walls, gabions, etc.), excavation, ditching/straightening, etc. If stream relocation is proposed, plans and profiles showing the linear footprint for both the original and relocated streams must be included. To calculate acreage, multiply length X width, then divide by 43,560.

Stream Impact Number (indicate on map)	Stream Name	Type of Impact	Perennial or Intermittent?	Average Stream Width Before Impact	Impact Length (linear feet)	Area of Impact (acres)
1	UT to Falling Creek	Culvert	Perennial	2.5 – 3 feet	107	0.01
Total Stream Impact (by length and acreage)					107	0.01

5. Individually list all open water impacts (including lakes, ponds, estuaries, sounds, Atlantic Ocean and any other water of the U.S.). Open water impacts include, but are not limited to fill, excavation, dredging, flooding, drainage, bulkheads, etc.

Open Water Impact Site Number (indicate on map)	Name of Waterbody (if applicable)	Type of Impact	Type of Waterbody (lake, pond, estuary, sound, bay, ocean, etc.)	Area of Impact (acres)
N/A				
Total Open Water Impact (acres)				0

6. List the cumulative impact to all Waters of the U.S. resulting from the project:

Stream Impact (acres):	0.01
Wetland Impact (acres):	0.21
Open Water Impact (acres):	0
Total Impact to Waters of the U.S. (acres)	0.22
Total Stream Impact (linear feet):	107

7. Isolated Waters

Do any isolated waters exist on the property? ☐ Yes ☒ No

Describe all impacts to isolated waters, and include the type of water (wetland or stream) and the size of the proposed impact (acres or linear feet). Please note that this section only applies to waters that have specifically been determined to be isolated by the USACE.

N/A

8. Pond Creation

If construction of a pond is proposed, associated wetland and stream impacts should be included above in the wetland and stream impact sections. Also, the proposed pond should be described here and illustrated on any maps included with this application.

Pond to be created in (check all that apply): ☐ uplands ☐ stream ☐ wetlands

Describe the method of construction (e.g., dam/embankment, excavation, installation of draw-down valve or spillway, etc.): N/A

Proposed use or purpose of pond (e.g., livestock watering, irrigation, aesthetic, trout pond, local stormwater requirement, etc.): N/A

Current land use in the vicinity of the pond: N/A

Size of watershed draining to pond: N/A Expected pond surface area: N/A

VII. Impact Justification (Avoidance and Minimization)

Specifically describe measures taken to avoid the proposed impacts. It may be useful to provide information related to site constraints such as topography, building ordinances, accessibility, and financial viability of the project. The applicant may attach drawings of alternative, lower-impact site layouts, and explain why these design options were not feasible. Also discuss how impacts were minimized once the desired site plan was developed. If applicable, discuss construction techniques to be followed during construction to reduce impacts.

With the exception of not building the project, there are no means of avoiding this stream taking. NCDOT will minimize impacts to the stream and wetlands through the use of Best Management Practices.

VIII. Mitigation

DWQ - In accordance with 15A NCAC 2H .0500, mitigation may be required by the NC Division of Water Quality for projects involving greater than or equal to one acre of impacts to freshwater wetlands or greater than or equal to 150 linear feet of total impacts to perennial streams.

USACE – In accordance with the Final Notice of Issuance and Modification of Nationwide Permits, published in the Federal Register on January 15, 2002, mitigation will be required when necessary to ensure that adverse effects to the aquatic environment are minimal. Factors including size and type of proposed impact and function and relative value of the impacted aquatic resource will be considered in determining acceptability of appropriate and practicable mitigation as proposed. Examples of mitigation that may be appropriate and practicable include, but are not limited to: reducing the size of the project; establishing and maintaining wetland and/or upland vegetated buffers to protect open waters such as streams; and replacing losses of aquatic resource functions and values by creating, restoring, enhancing, or preserving similar functions and values, preferable in the same watershed.

If mitigation is required for this project, a copy of the mitigation plan must be attached in order for USACE or DWQ to consider the application complete for processing. Any application lacking a required mitigation plan or NCEEP concurrence shall be placed on hold as incomplete. An applicant may also choose to review the current guidelines for stream restoration in DWQ's Draft Technical Guide for Stream Work in North Carolina, available at <http://h2o.enr.state.nc.us/ncwetlands/strmgide.html>.

1. Provide a brief description of the proposed mitigation plan. The description should provide as much information as possible, including, but not limited to: site location (attach directions and/or map, if offsite), affected stream and river basin, type and amount (acreage/linear feet) of mitigation proposed (restoration, enhancement, creation, or preservation), a plan view, preservation mechanism (e.g., deed restrictions, conservation easement, etc.), and a description of the current site conditions and proposed method of construction. Please attach a separate sheet if more space is needed.

Compensatory mitigation will be derived from an inventory of assets already in existence within the same 8-digit cataloguing unit, through NCEEP.

2. Mitigation may also be made by payment into the North Carolina Ecosystem Enhancement Program (NCEEP). Please note it is the applicant's responsibility to contact the NCEEP at (919) 715-0476 to determine availability, and written approval from the NCEEP indicating that they are will to accept payment for the mitigation must be attached to this form. For

additional information regarding the application process for the NCEEP, check the NCEEP website at <http://h2o.enr.state.nc.us/wrp/index.htm>. If use of the NCEEP is proposed, please check the appropriate box on page five and provide the following information:

Amount of stream mitigation requested (linear feet): 107
Amount of buffer mitigation requested (square feet): N/A
Amount of Riparian wetland mitigation requested (acres): 0.08
Amount of Non-riparian wetland mitigation requested (acres): 0.13
Amount of Coastal wetland mitigation requested (acres): N/A

IX. Environmental Documentation (required by DWQ)

1. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land? Yes ☒ No ☐
2. If yes, does the project require preparation of an environmental document pursuant to the requirements of the National or North Carolina Environmental Policy Act (NEPA/SEPA)?
Note: If you are not sure whether a NEPA/SEPA document is required, call the SEPA coordinator at (919) 733-5083 to review current thresholds for environmental documentation.
Yes ☒ No ☐
3. If yes, has the document review been finalized by the State Clearinghouse? If so, please attach a copy of the NEPA or SEPA final approval letter. Yes ☒ No ☐

X. Proposed Impacts on Riparian and Watershed Buffers (required by DWQ)

It is the applicant's (or agent's) responsibility to determine, delineate and map all impacts to required state and local buffers associated with the project. The applicant must also provide justification for these impacts in Section VII above. All proposed impacts must be listed herein, and must be clearly identifiable on the accompanying site plan. All buffers must be shown on a map, whether or not impacts are proposed to the buffers. Correspondence from the DWQ Regional Office may be included as appropriate. Photographs may also be included at the applicant's discretion.

1. Will the project impact protected riparian buffers identified within 15A NCAC 2B .0233 (Neuse), 15A NCAC 2B .0259 (Tar-Pamlico), 15A NCAC 02B .0243 (Catawba) 15A NCAC 2B .0250 (Randleman Rules and Water Supply Buffer Requirements), or other (please identify _____)? Yes ☐ No ☒

2. If “yes”, identify the square feet and acreage of impact to each zone of the riparian buffers. If buffer mitigation is required calculate the required amount of mitigation by applying the buffer multipliers.

Zone*	Impact (square feet)	Multiplier	Required Mitigation
1			
2			
Total			

* Zone 1 extends out 30 feet perpendicular from the top of the near bank of channel; Zone 2 extends an additional 20 feet from the edge of Zone 1.

If buffer mitigation is required, please discuss what type of mitigation is proposed (i.e., Donation of Property, Riparian Buffer Restoration / Enhancement, or Payment into the Riparian Buffer Restoration Fund). Please attach all appropriate information as identified within 15A NCAC 2B .0242 or .0244, or .0260.

N/A

XI. Stormwater (required by DWQ)

Describe impervious acreage (existing and proposed) versus total acreage on the site. Discuss stormwater controls proposed in order to protect surface waters and wetlands downstream from the property. If percent impervious surface exceeds 20%, please provide calculations demonstrating total proposed impervious level.

N/A

XII. Sewage Disposal (required by DWQ)

Clearly detail the ultimate treatment methods and disposition (non-discharge or discharge) of wastewater generated from the proposed project, or available capacity of the subject facility.

N/A

XIII. Violations (required by DWQ)

Is this site in violation of DWQ Wetland Rules (15A NCAC 2H .0500) or any Buffer Rules?

Yes ☐ No ☒

Is this an after-the-fact permit application? Yes ☐ No ☒

XIV. Cumulative Impacts (required by DWQ)

Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality? Yes ☐ No ☒

If yes, please submit a qualitative or quantitative cumulative impact analysis in accordance with the most recent North Carolina Division of Water Quality policy posted on our website at

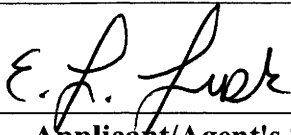
<http://h2o.enr.state.nc.us/ncwetlands>. If no, please provide a short narrative description:

N/A

XV. Other Circumstances (Optional):

It is the applicant's responsibility to submit the application sufficiently in advance of desired construction dates to allow processing time for these permits. However, an applicant may choose to list constraints associated with construction or sequencing that may impose limits on work schedules (e.g., draw-down schedules for lakes, dates associated with Endangered and Threatened Species, accessibility problems, or other issues outside of the applicant's control).

N/A



4.24.07

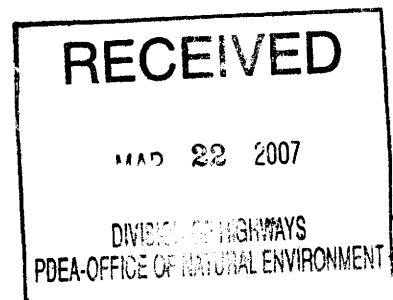
Applicant/Agent's Signature

Date

(Agent's signature is valid only if an authorization letter from the applicant is provided.)



March 15, 2007



Mr. Gregory J. Thorpe, Ph.D.
Environmental Management Director
Project Development and Environmental Analysis Branch
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Dear Dr. Thorpe:

Subject: EEP Mitigation Acceptance Letter:

U-3456, Widening of US 1, Richmond County

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the wetland and stream mitigation for the subject project. Based on the information supplied by you in a letter dated February 19, 2007, the impacts are located in CU 03040201 of the Yadkin River Basin in the Southern Piedmont (SP) Eco-Region, and are as follows:

Riparian Wetland Impacts:	0.08 acre
Non-Riparian Wetland Impacts:	0.13 acre
Stream Impacts:	107 feet

This project is included in the NCDOT's Design Build Program. EEP commits to implementing sufficient compensatory stream and wetland mitigation to offset the impacts associated with this project by the end of the MOA Year in which this project is permitted, in accordance with Section X of the Memorandum of Agreement between the North Carolina Department of Environment and Natural Resources, the North Carolina Department of Transportation, and the U. S. Army Corps of Engineers, signed on July 22, 2003. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from EEP.

If you have any questions or need additional information, please contact Ms. Beth Harmon at 919-715-1929.

Sincerely,

William D. Gilmore, P.E.
EEP Director

cc: Mr. Richard Spencer, USACE – Wilmington
Mr. John Hennessy, Division of Water Quality, Wetlands/401 Unit
File: U-3456

Restoring... Enhancing... Protecting Our State



North Carolina Ecosystem Enhancement Program, 1652 Mail Service Center, Raleigh, NC 27699-1652 / 919-715-0476 / www.nceep.net



March 15, 2007

Mr. Richard Spencer
U. S. Army Corps of Engineers
Wilmington Regulatory Field Office
Post Office Box 1890
Wilmington, North Carolina 28402

Dear Mr. Spencer

Subject: EEP Mitigation Acceptance Letter:

U-3456, Widening of US 1, Richmond County; Yadkin River Basin (CU
03040201); Southern Piedmont (SP) Eco-Region

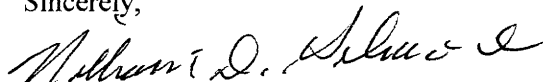
The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide mitigation for the unavoidable impacts associated with the above referenced project as requested by NCDOT in a letter dated February 19, 2007. This project is included in the NCDOT's Design Build Program. The impacts as reported by the NCDOT are as follows:

Riparian Wetland Impacts:	0.08 acre
Non-Riparian Wetland Impacts:	0.13 acre
Stream Impacts:	107 feet

Compensatory wetland and stream mitigation associated with this project will be provided in accordance with Section X of the Memorandum of Agreement between the N. C. Department of Environment and Natural Resources, the N. C. Department of Transportation, and the U. S. Army Corps of Engineers signed on July 22, 2003 (Tri-Party MOA). EEP commits to implement sufficient compensatory riparian and non-riparian wetland mitigation up to 0.16 and 0.26 wetland credits, respectively and stream mitigation up to 214 stream credits to offset the impacts associated with this project by the end of the MOA year in which this project is permitted. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from EEP.

If you have any questions or need additional information, please contact Ms. Beth Harmon at 919-715-1929.

Sincerely,

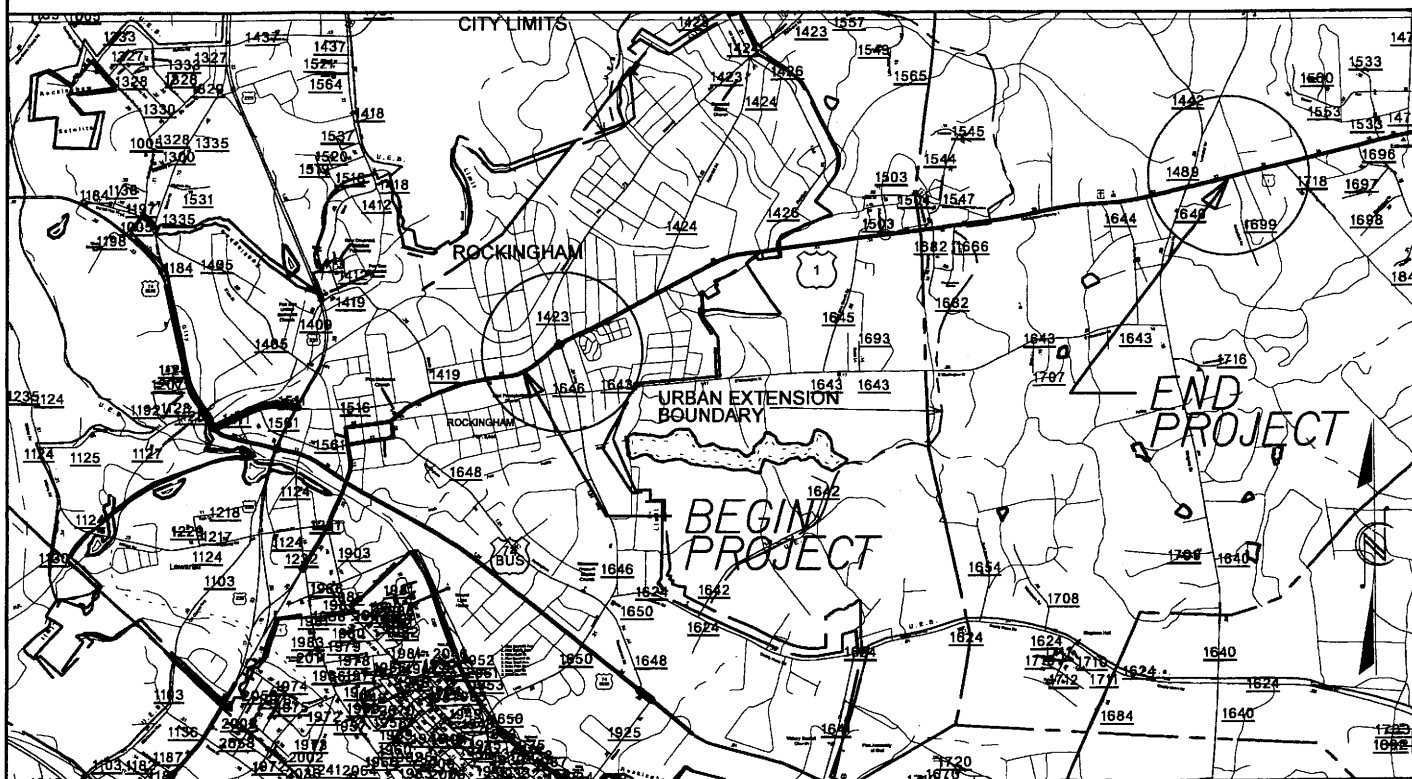
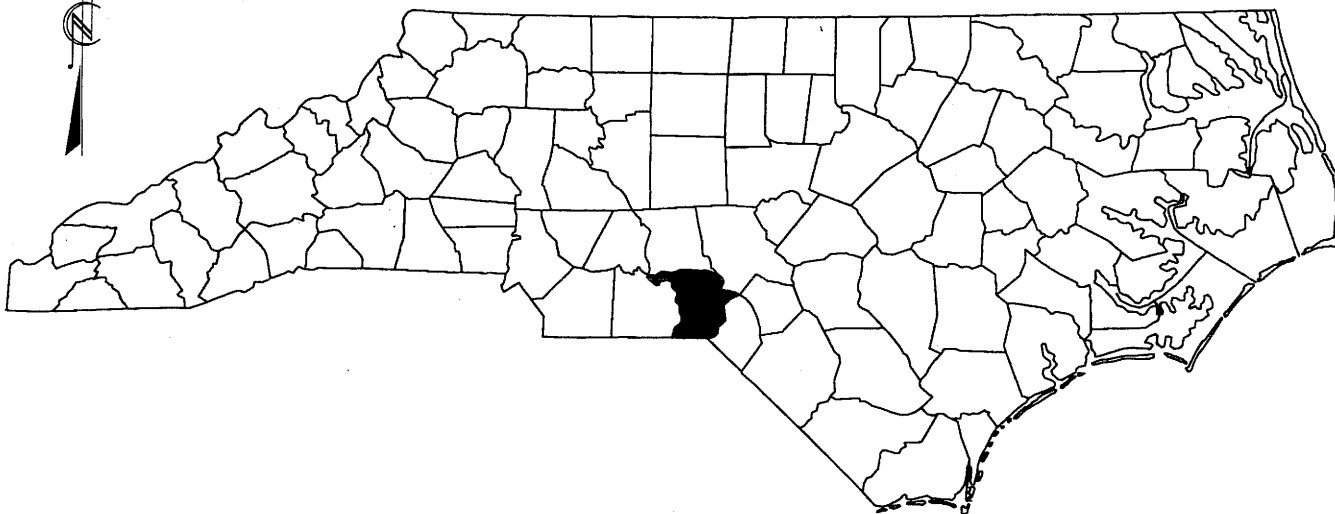

William D. Gilmore, P.E.
EEP Director

cc: Mr. Gregory J. Thorpe, Ph.D., NCDOT-PDEA
Mr. John Hennessy, Division of Water Quality, Wetlands/401 Unit
File: U-3456

Restoring... Enhancing... Protecting Our State



NORTH CAROLINA



VICINITY MAPS

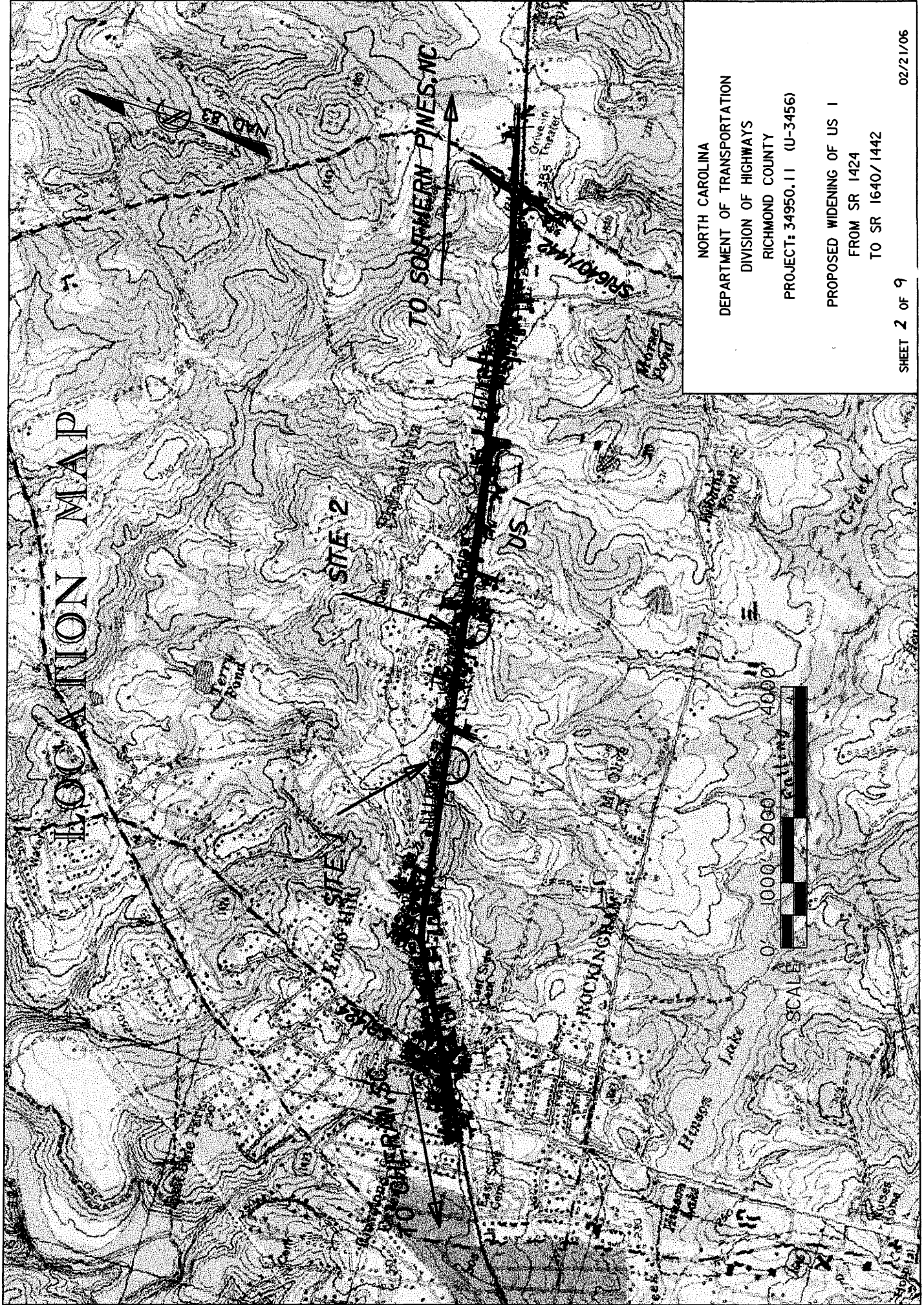
NCDOT

**DIVISION OF HIGHWAYS
RICHMOND COUNTY**

PROJECT: 34950.11 (U-3456)

**PROPOSED WIDENING OF US 1
FROM SR 1424 TO SR 1640/1442**

LOCATION MAP

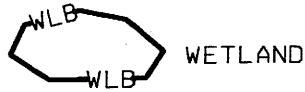


NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
RICHMOND COUNTY
PROJECT: 34950.11 (U-3456)

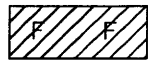
PROPOSED WIDENING OF US 1
FROM SR 1424
TO SR 1640/1442

WETLAND LEGEND

— WLB — WETLAND BOUNDARY



WETLAND



DENOTES FILL IN WETLAND



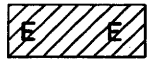
DENOTES FILL IN SURFACE WATER



DENOTES FILL IN SURFACE WATER (POND)



DENOTES TEMPORARY FILL IN WETLAND



DENOTES EXCAVATION IN WETLAND



DENOTES TEMPORARY FILL IN SURFACE WATER



DENOTES MECHANIZED CLEARING

→ → → FLOW DIRECTION

— TB — TOP OF BANK

— WE — EDGE OF WATER

— C — PROP. LIMIT OF CUT

— F — PROP. LIMIT OF FILL

— △ — PROP. RIGHT OF WAY

— NG — NATURAL GROUND

— PL — PROPERTY LINE

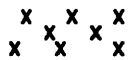
— TDE — TEMP. DRAINAGE EASEMENT

— PDE — PERMANENT DRAINAGE EASEMENT

— EAB — EXIST. ENDANGERED ANIMAL BOUNDARY

— EPB — EXIST. ENDANGERED PLANT BOUNDARY

— ▽ — WATER SURFACE

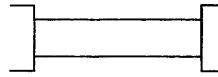


LIVE STAKES

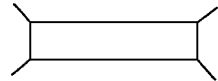


BOULDER

— — — COIR FIBER ROLLS



PROPOSED BRIDGE



PROPOSED BOX CULVERT



PROPOSED PIPE CULVERT

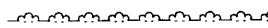
(DASHED LINES DENOTE EXISTING STRUCTURES)

12"-48" PIPES

54" PIPES & ABOVE



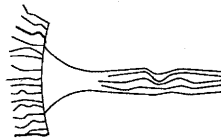
SINGLE TREE



WOODS LINE



DRAINAGE INLET



ROOTWAD



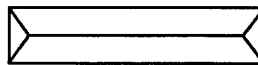
RIP RAP



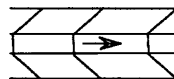
ADJACENT PROPERTY OWNER OR PARCEL NUMBER IF AVAILABLE



PREFORMED SCOUR HOLE



LEVEL SPREADER (LS)



DITCH / GRASS SWALE

NCDOT

DIVISION OF HIGHWAYS

RICHMOND COUNTY

PROJECT: 34950.11 (U-3456)

**PROPOSED WIDENING OF US 1
FROM SR 1424 TO SR 1640/1442**

PROPERTY OWNERS
NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
60	KENNETH J.LAYTON INC.	P.O. BOX 1205 ROCKINGHAM, NC 28380
97	UNKNOWN	
99	LEON WALL	P.O. BOX 1502 ROCKINGHAM, NC 28380

NCDOT

DIVISION OF HIGHWAYS

RICHMOND COUNTY

PROJECT: 34950.1.1 (U-3456)

**PROPOSED WIDENING OF US 1
FROM SR 1424 TO SR 1640/1442**

WETLAND PERMIT IMPACT SUMMARY

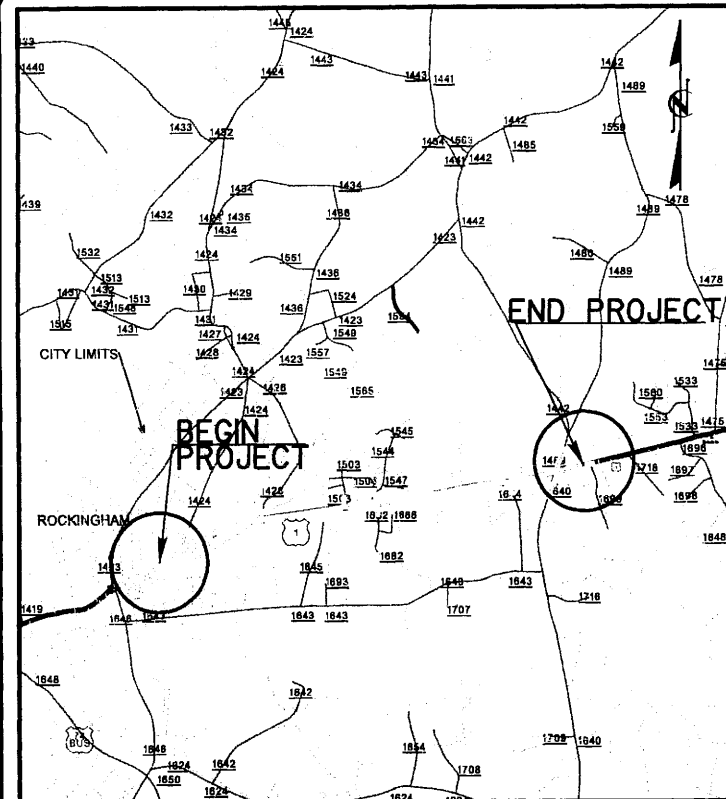
			WETLAND IMPACTS						SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation In Wetlands (ac)	Mechanized Clearing (Method III) (ac)	Fill In SW (Natural) (ac)	Fill In SW (Pond) (ac)	Temp. Fill In SW (ac)	Existing Channel Impacted (ft)	Natural Stream Design (ft)		
1	-L- Sta 67+90 RT to Sta. 70+45 RT	Roadway Fill	0.10			0.03							
2	-L- Sta. 88+90 RT to 'L- Sta. 91+50 RT	Roadway Fill	0.05			0.03	0.01			107			

METHOD II CLEARING USED IN WETLANDS

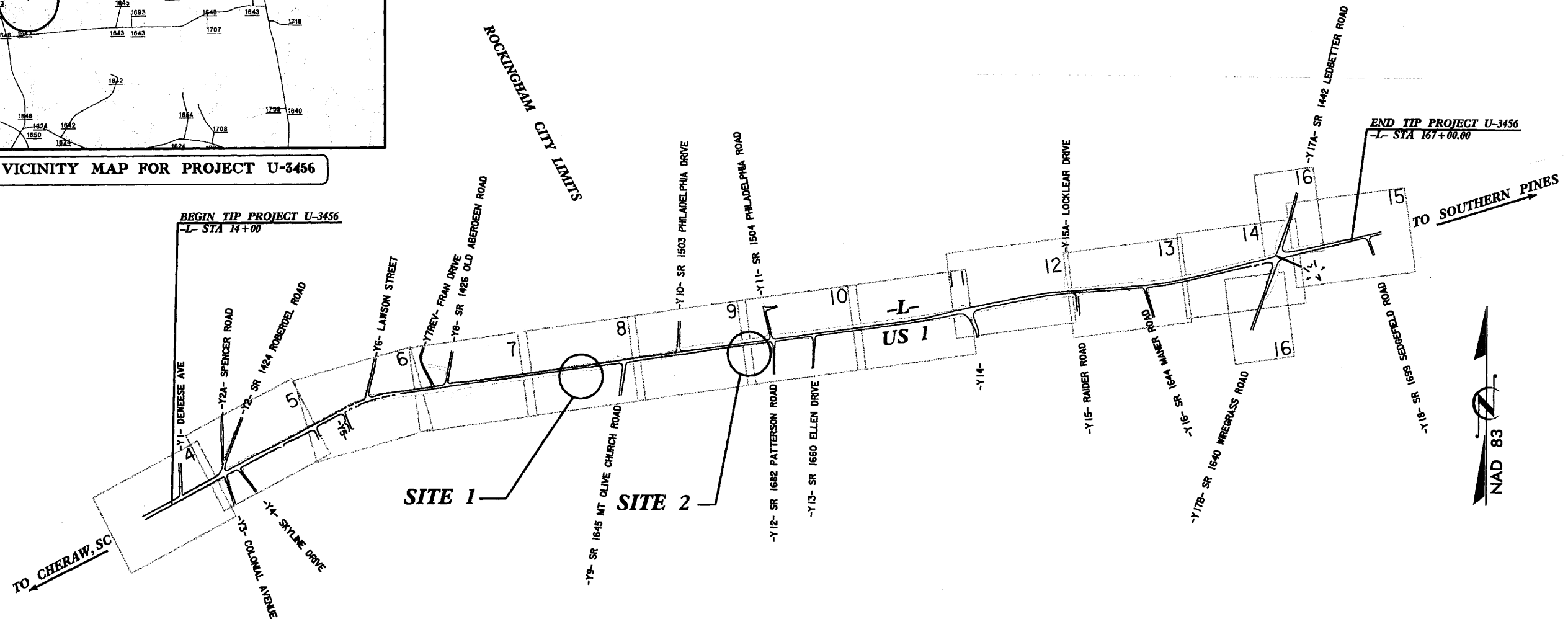
NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
RICHMOND COUNTY
PROJECT 34950.1.1 (U-3456)
PROPOSED WIDENING OF US 1 FROM
SR 1424 TO SR 1640/SR 1442
SHEET **5** OF **9** 2/6/2007

\\fs1\B20\U-3456\Hydraulics\permit submittal\U3456_RDY_TSH.dgn
11/29/2006

CONTRACT: A304351 T.I.P. PROJECT: U-3456



VICINITY MAP FOR PROJECT U-3456

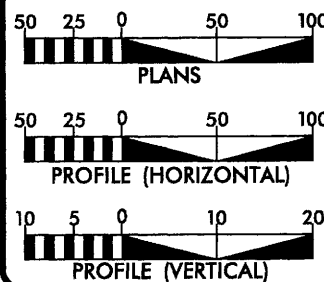


See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols

A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF ROCKINGHAM.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III, EXCEPT IN WETLANDS.
NCDOT CONTACT : TERESA M. BRUTON, P.E., PROJECT ENGINEER, PROJECT SERVICES

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES



DESIGN DATA

ADT 2005 = 13900
ADT 2025 = 22100
DHV = 10%
D = 60%
T = 11%
TTST 6% DUAL 5%
V = 50mph

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-3456 = 2.898 MILES
LENGTH STRUCTURES TIP PROJECT U-3456 = 0.000 MILES
TOTAL LENGTH OF TIP PROJECT U-3456 = 2.898 MILES

2003 STANDARD SPECIFICATIONS

R/W DATE:
LETTING DATE: October 17, 2006

G.T. SHEARIN, P.E.
EARTH TECH PROJECT MANAGER

Prepared In the Office of:



A Tyco International Ltd. Company

FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

701 Corporate Center Drive
Suite 475
Raleigh, N.C. 27607
(919) 854-6200
FAX (919) 854-6259

HYDRAULICS ENGINEER

JOHN MARK KAMPRATH, P.E.
SIGNATURE:

ROADWAY DESIGN
ENGINEER

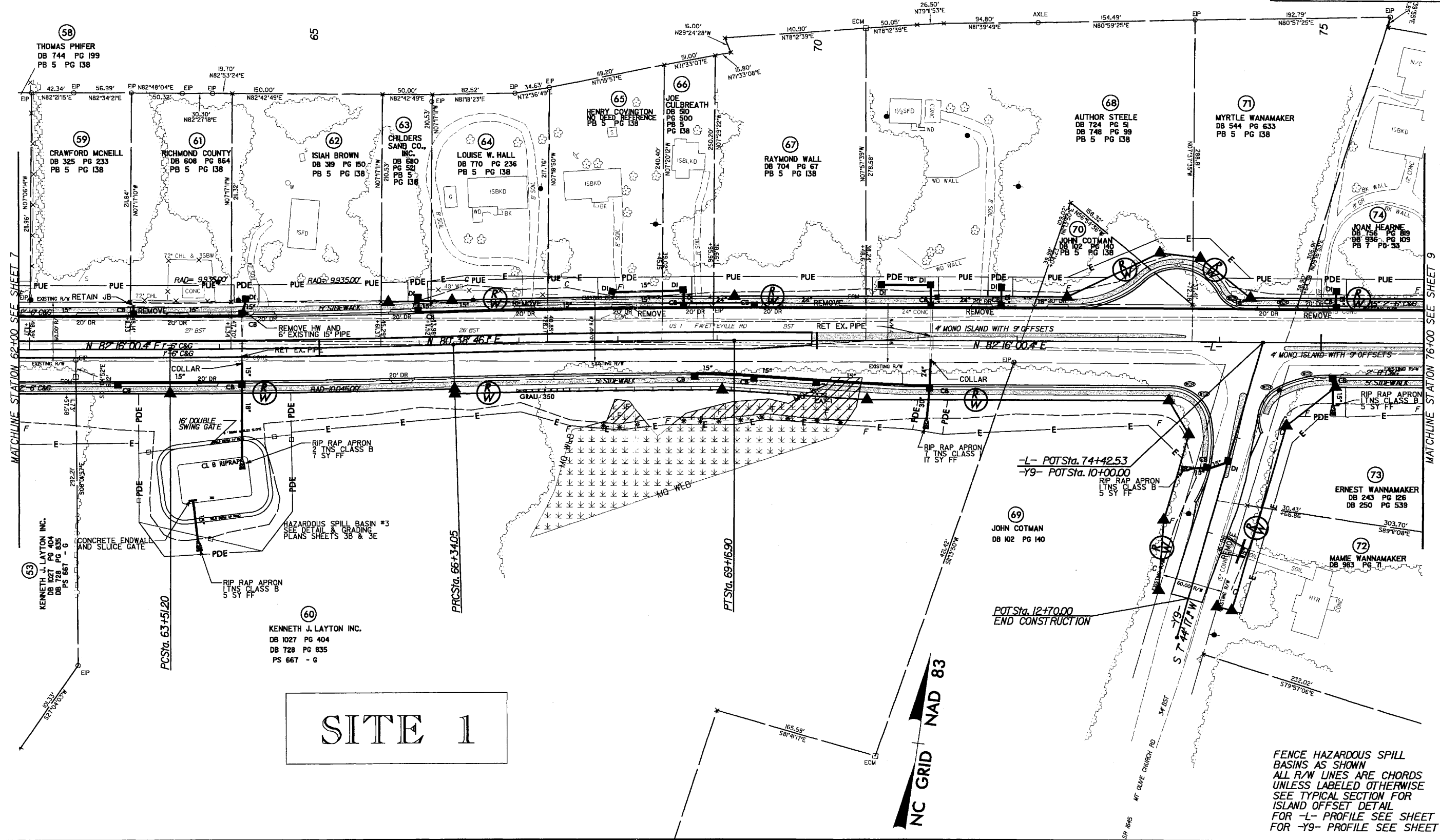
G. T. SHEARIN, P.E.
SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

ART MCMILLAN, P.E.
STATE DESIGN ENGINEER
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR
DATE

k:\51800\U-3456\Hydraulics\permit submittal\U3456.RDY_PSH08.dgn
11/29/2006 11:54:53 AM



-L-
PI Sta 64+92.63
 $\Delta = 1^\circ 37' 14.2''$ (LT)
 $D = 0^\circ 34' 22.6''$
 $L = 282.85'$
 $T = 141.44'$
 $R = 10,000.00'$
SE = NC

-R-
PI Sta 67+75.48
 $\Delta = 1^\circ 37' 14.2''$ (RT)
 $D = 0^\circ 34' 22.6''$
 $L = 282.85'$
 $T = 141.44'$
 $R = 10,000.00'$
SE = NC

7 9

PROJECT REFERENCE NO.		SHEET NO.	
U-3456		8	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			
Prepared in the Office of: EARTH TECH 701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 • (919) 854-6253 (FAX)			
GRAPHIC SCALE 25' 0 25' 50'			

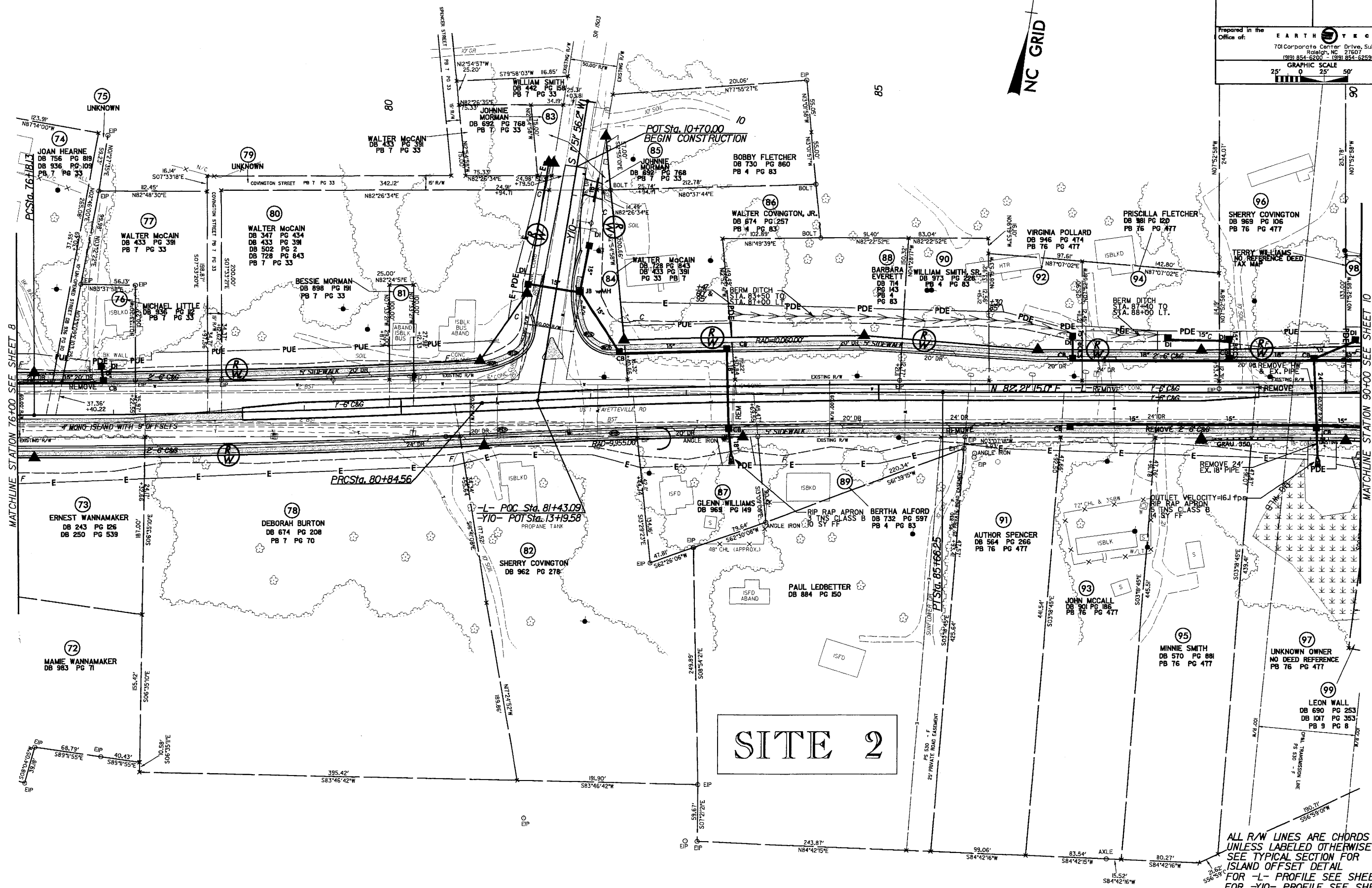
FENCE HAZARDOUS SPILL BASINS AS SHOWN
ALL R/W LINES ARE CHORDS
UNLESS LABELED OTHERWISE
SEE TYPICAL SECTION FOR ISLAND OFFSET DETAIL
FOR -L- PROFILE SEE SHEET 19
FOR -Y9- PROFILE SEE SHEET 24

-L-
PI Sta 78+51.39
 $\Delta = 2' 40' 20.8''$ (LT)
D = 0' 34' 22.6"
L = 466.43'
T = 233.26'
R = 10,000.00'
SE = NC

-L-
PI Sta 83+25.45
 $\Delta = 2' 45' 35.5''$ (RT)
D = 0' 34' 22.6"
L = 481.69'
T = 240.89'
R = 10,000.00'
SE = NC

Permit Drawing
Sheet 8 of 9

PROJECT REFERENCE NO.		SHEET NO.	
U-3456		9	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			
Prepared in the Office of: EARTH TECH 701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-5500 - (919) 854-6259 (FAX)			
GRAPHIC SCALE 25' 0' 25' 50'			



SITE 2

ALL R/W LINES ARE CHORDS
UNLESS LABELED OTHERWISE
SEE TYPICAL SECTION FOR
ISLAND OFFSET DETAIL
FOR -L- PROFILE SEE SHEET 19
FOR -Y10- PROFILE SEE SHEET 24

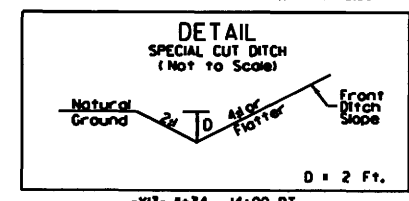
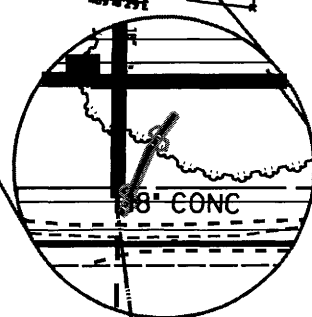
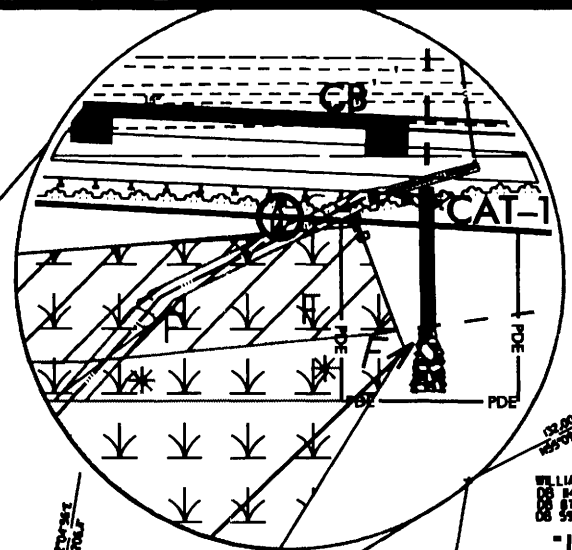
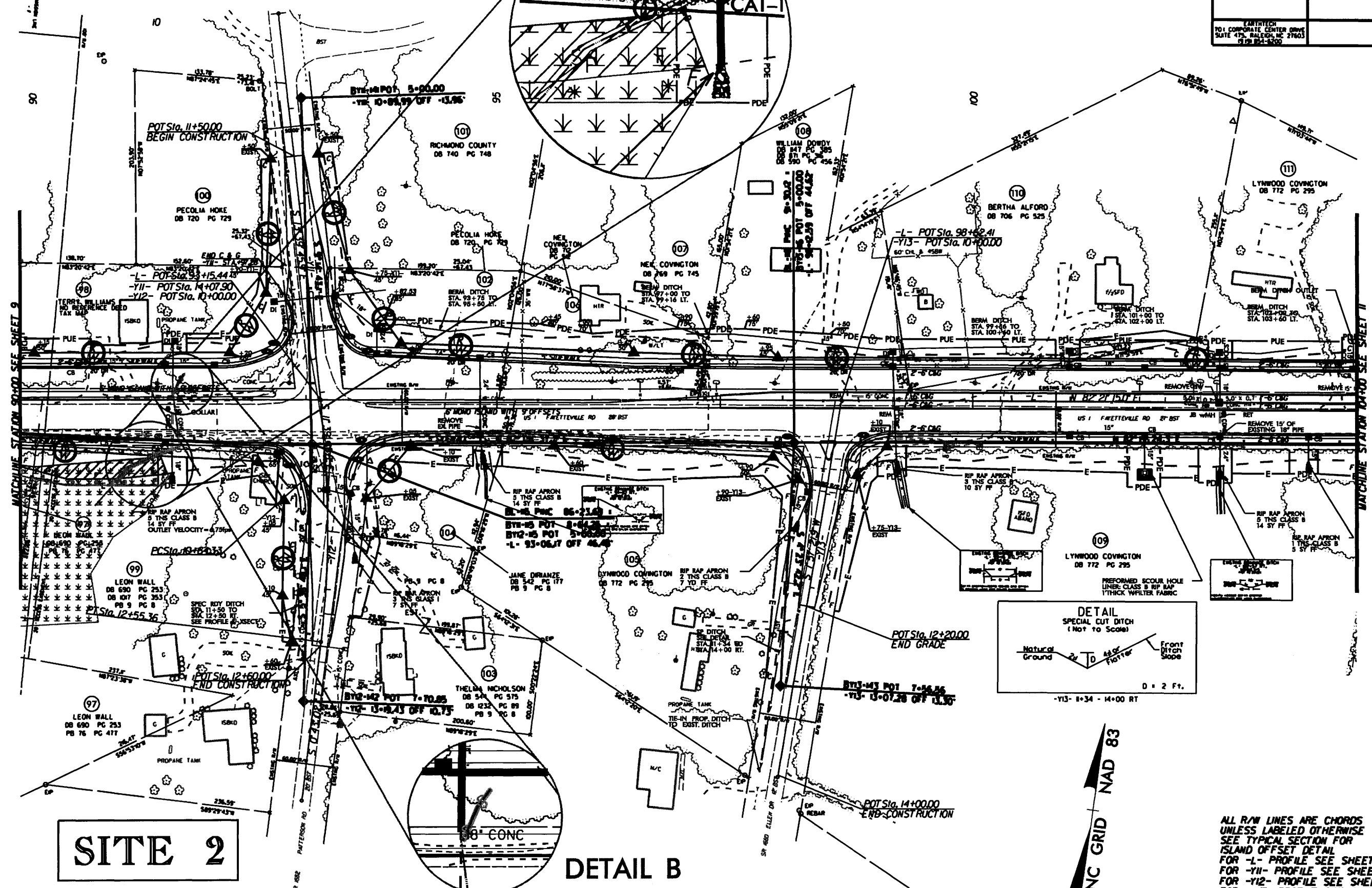
K:\61800\U-3456\Hydraulics\permit submittal\U3456_RDY_PSH09.dgn
11/29/2006 11:55:18 AM

-Y12-
 P1 Sta 11+60.14
 $\Delta = 10' 56" 43.7" (RT)$
 $D = 5' 43" 46.5"$
 $L = 191.03'$
 $T = 95.81'$
 $R = 1,000.00'$
 $Sa = .03$
 $Ra = 60.00'$

DETAIL A

Permit Drawing
 Sheet 9 of 9

PROJECT REFERENCE NO.	SHEET NO.
U-3456	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
LANTIER 701 CORPORATE CENTER DRIVE SUITE 475, RALEIGH, NC 27603 919 854-3200	



SITE 2

DETAIL B

NC GRID NAD 83

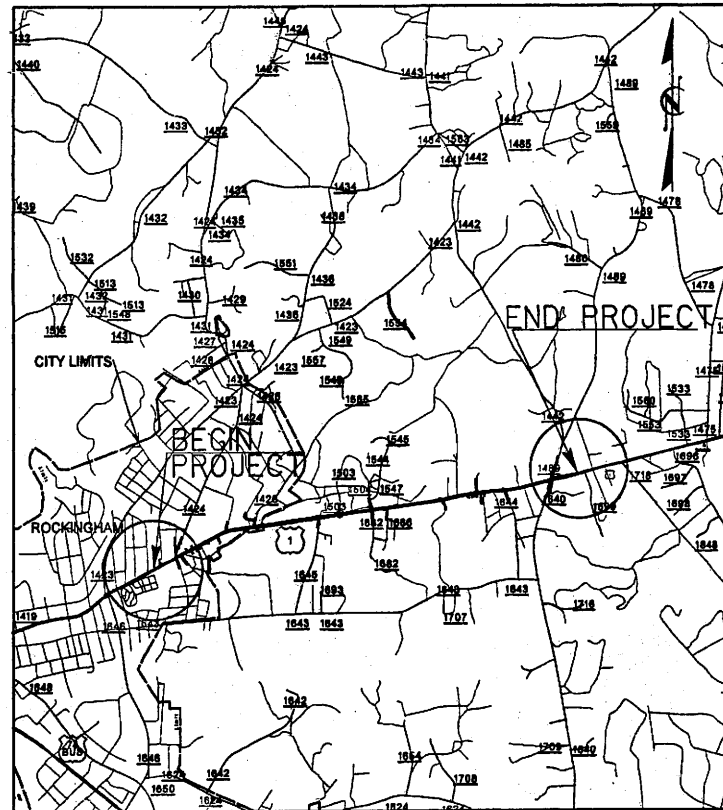
ALL R/W LINES ARE CHORDS
 UNLESS LABELED OTHERWISE
 SEE TYPICAL SECTION FOR
 ISLAND OFFSET DETAIL
 FOR -L- PROFILE SEE SHEET 20
 FOR -Y11- PROFILE SEE SHEET 24
 FOR -Y12- PROFILE SEE SHEET 24
 FOR -Y13- PROFILE SEE SHEET 24

REVISIONS

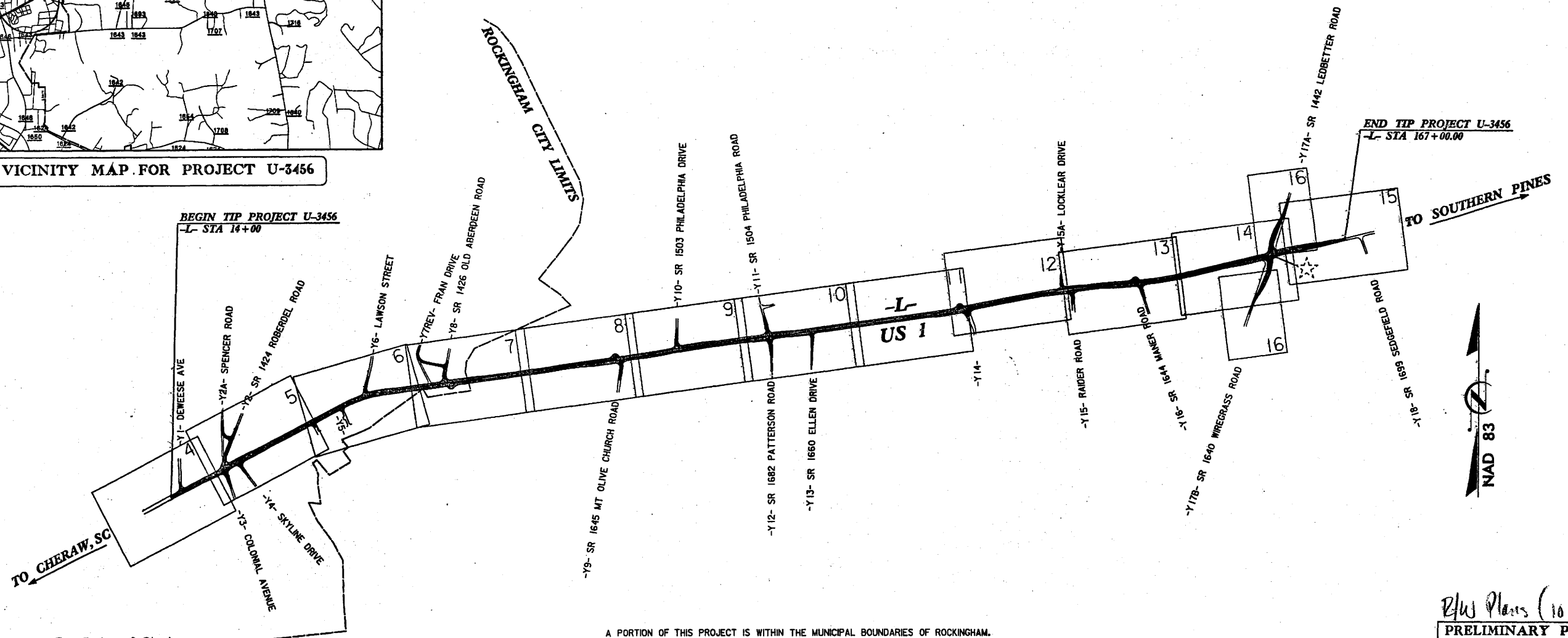
DATE: 4/27/2021
 TIME: 11:30 AM
 BY: J. L. L. / J. L. L.

6380\U-3456\Revised\PROJ\U3456_r.dwg
29/2/2004 1:40:45 PM

CONTRACT: C201685 T.I.P. PROJECT: U-3456



VICINITY MAP FOR PROJECT U-3456



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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
RICHMOND COUNTY

R/W PLANS

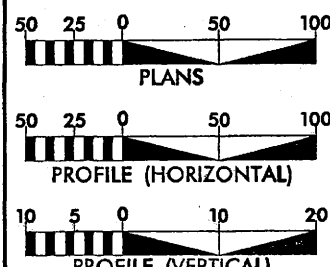
LOCATION: US 1 FROM SR 1424 (ROBERDEL ROAD)
TO SR 1640 (WIREGRASS ROAD) / SR 1442
(LEDBETTER ROAD) IN ROCKINGHAM

TYPE OF WORK: GRADING, DRAINAGE, PAVING, SIDEWALKS
AND SIGNALS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-3456	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34950.1.1	STP-0001(7)	PE	
34950.2.2	STP-0001(7)	R/W, Util	

A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF ROCKINGHAM.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III, EXCEPT IN WETLANDS.
NCDOT CONTACT : TERESA M. BRUTON, P.E., PROJECT ENGINEER, PROJECT SERVICES

GRAPHIC SCALES



DESIGN DATA

ADT 2005 = 13900
ADT 2025 = 22100
DHV = 10%
D = 60%
T = 11%
TTST 6% DUAL 5%
V = 50mph

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-3456 = 2.898 MILES
LENGTH STRUCTURES TIP PROJECT U-3456 = 0.000 MILES
TOTAL LENGTH OF TIP PROJECT U-3456 = 2.898 MILES

2002 STANDARD SPECIFICATIONS

R/W DATE: OCTOBER 29, 2004
LETTING DATE: OCTOBER 17, 2006
Oct. 16 - 07

G.T. SHEARIN, P.E.
EARTH TECH PROJECT MANAGER

Prepared in the Office of:
EarthTech
A Tyco International Ltd. Company

FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
701 Corporate Center Drive
Suite 475
Raleigh, N.C. 27607
(919)-854-6200
FAX (919)-854-6259

HYDRAULICS ENGINEER

JOHN MARK KAMPATH, P.E.
SIGNATURE:

ROADWAY DESIGN
ENGINEER

G.T. SHEARIN, P.E.
SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

ART MCMILLAN, P.E.
STATE DESIGN ENGINEER
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR
DATE

R/W Plans (10/29/04)
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

*S.U.E = SUBSURFACE UTILITY ENGINEER

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
CONVENTIONAL SYMBOLS

ROADS & RELATED ITEMS

Edge of Pavement	
Curb	
Prop. Slope Stakes Cut	
Prop. Slope Stakes Fill	
Prop. Woven Wire Fence	
Prop. Chain Link Fence	
Prop. Barbed Wire Fence	
Prop. Wheelchair Ramp	
Curb Cut for Future Wheelchair Ramp	
Exist. Guardrail	
Prop. Guardrail	
Exist. Cable Guiderail	
Prop. Cable Guiderail	
Equality Symbol	
Pavement Removal	
Proposed Traffic Signal	
Existing Traffic Signal	

RIGHT OF WAY

Baseline Control Point	
Existing Right of Way Marker	
Exist. Right of Way Line w/Marker	
Prop. Right of Way Line with Proposed	
R/W Marker (Iron Pin & Cap)	
Prop. Right of Way Line with Proposed	
(Concrete or Granite) R/W Marker	
Exist. Control of Access Line	
Prop. Control of Access Line	
Exist. Easement Line	
Prop. Temp. Construction Easement Line	
Prop. Temp. Drainage Easement Line	
Prop. Perm. Drainage Easement Line	
Prop. Perm. Utility Easement Line	

HYDROLOGY

Stream or Body of Water	
Flow Arrow	
Disappearing Stream	
Spring	
Swamp Marsh	
Shoreline	
Falls, Rapids	
Prop Lateral, Tail, Head Ditches	

STRUCTURES

MAJOR

Bridge Wing Wall, Head Wall
and End Wall

MINOR

Head & End Wall

Pipe Culvert

Footbridge

Drainage Boxes

Paved Ditch Gutter

UTILITIES

Exist. Pole	
Exist. Power Pole	
Prop. Power Pole	
Exist. Telephone Pole	
Prop. Telephone Pole	
Exist. Joint Use Pole	
Prop. Joint Use Pole	
Telephone Pedestal	
Cable TV Pedestal	
Hydrant	
Satellite Dish	
Exist. Water Valve	
Sewer Clean Out	
Power Manhole	
Telephone Booth	
Water Manhole	
Light Pole	
H-Frame Pole	
Power Line Tower	
Pole with Base	
Gas Valve	
Gas Meter	
Telephone Manhole	
Power Transformer	
Sanitary Sewer Manhole	
Storm Sewer Manhole	
Tank; Water, Gas, Oil	
Water Tank With Legs	
Traffic Signal Junction Box	
Fiber Optic Splice Box	
Television or Radio Tower	
Utility Power Line Connects to Traffic	

Recorded Water Line	
Designated Water Line (S.U.E.*)	
Sanitary Sewer	
Recorded Sanitary Sewer Force Main	
Designated Sanitary Sewer Force Main(S.U.E.*)	
Recorded Gas Line	
Designated Gas Line (S.U.E.*)	
Storm Sewer	
Recorded Power Line	
Designated Power Line (S.U.E.*)	
Recorded Telephone Cable	
Designated Telephone Cable (S.U.E.*)	
Recorded U/G Telephone Conduit	
Designated U/G Telephone Conduit (S.U.E.*)	
Unknown Utility (S.U.E.*)	
Recorded Television Cable	
Designated Television Cable (S.U.E.*)	
Recorded Fiber Optics Cable	
Designated Fiber Optics Cable (S.U.E.*)	
Exist. Water Meter	
U/G Test Hole (S.U.E.*)	
Abandoned According to U/G Record	
End of Information	

BOUNDARIES & PROPERTIES

State Line	
County Line	
Township Line	
City Line	
Reservation Line	
Property Line	
Property Line Symbol	
Exist. Iron Pin	
Property Corner	
Property Monument	
Property Number	
Parcel Number	
Fence Line	
Existing Wetland Boundaries	
Proposed Wetland Boundaries	
Existing Endangered Animal Boundaries	
Existing Endangered Plant Boundaries	

BUILDINGS & OTHER CULTURE

Buildings	
Foundations	
Area Outline	
Gate	
Gas Pump Vent or U/G Tank Cap	
Church	
School	
Park	
Cemetery	
Dam	
Sign	
Well	
Small Mine	
Swimming Pool	

TOPOGRAPHY

Loose Surface	
Hard Surface	
Change in Road Surface	
Curb	
Right of Way Symbol	
Guard Post	
Paved Walk	
Bridge	
Box Culvert or Tunnel	
Ferry	
Culvert	
Footbridge	
Trail, Footpath	
Light House	

VEGETATION

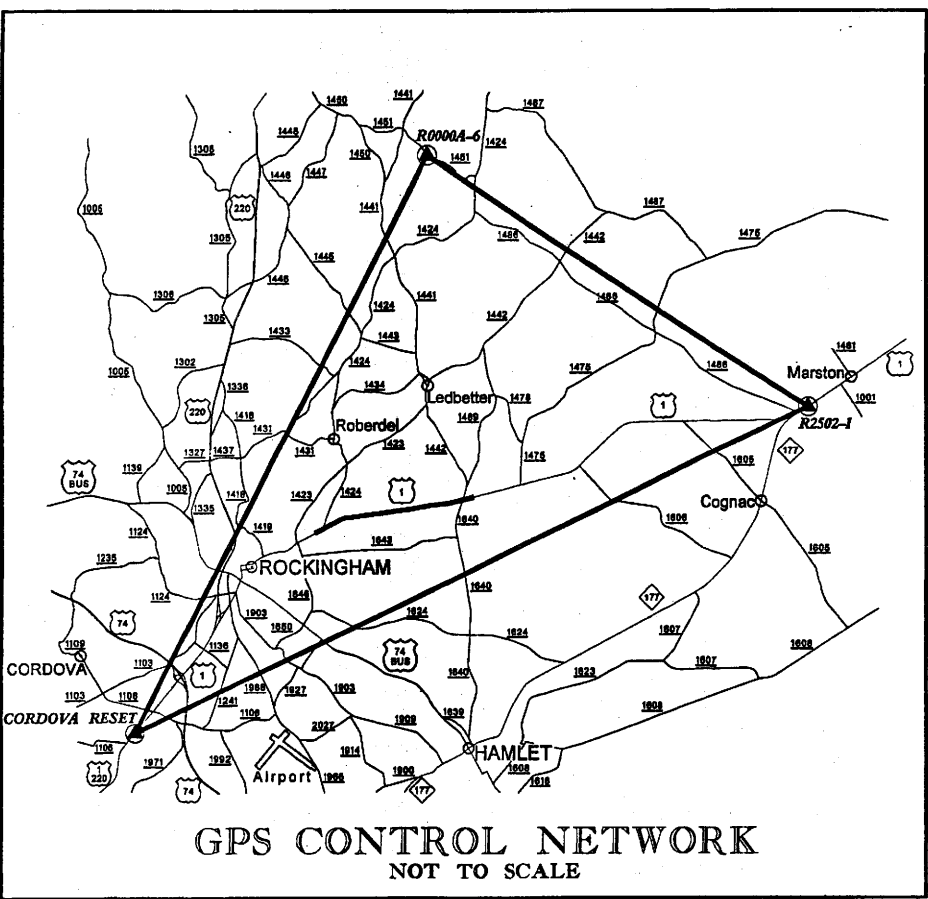
Single Tree	
Single Shrub	
Hedge	
Woods Line	
Orchard	
Vineyard	

RAILROADS

Standard Gauge	
RR Signal Milepost	
Switch	

SURVEY CONTROL SHEET

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-3456	1C	
LOCATION AND SURVEYS			



-L- STA. 170+16.64 END STATE PROJECT 8.1581301
LOCALIZED PROJECT COORDINATES
N = 440082.71
E = 1790351.28

NCDOT GPS STATION U3456-6
LOCALIZED PROJECT COORDINATES
N = 440521.06
E = 1792017.36

NCDOT GPS STATION U3456-5
LOCALIZED PROJECT COORDINATES
N = 440009.74
E = 1790192.44

-L- STA. 10+00.00 BEGIN STATE PROJECT 8.1581301
LOCALIZED PROJECT COORDINATES
N = 436589.04
E = 1774860.10

NCDOT GPS STATION U3456-1
LOCALIZED PROJECT COORDINATES
N = 435833.97
E = 1773374.55

NCDOT GPS STATION U3456-4
LOCALIZED PROJECT COORDINATES
N = 438183.59
E = 1780904.14

NCDOT GPS STATION U3456-3
LOCALIZED PROJECT COORDINATES
N = 437225.37
E = 1780749.22

NCDOT GPS STATION U3456-2
LOCALIZED PROJECT COORDINATES
N = 436858.29
E = 1775434.31

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "FRUITLAND" WITH NAD 83/95 STATE PLANE GRID COORDINATES OF NORTHING: 427332.498(ft) EASTING: 1804014.118(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99986692 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "FRUITLAND" TO -L- STATION 10+00.00 IS N 72°23'06.37" W 30,588.243' ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

● INDICATES CONTROL MONUMENTS SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.

PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION.

SEE CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

NOTE: DRAWING NOT TO SCALE

NOTES

1. THE SITE CALIBRATION SHOWN IS BASED UPON A NETWORK TIED TO THE HARN (HIGH ACCURACY REFERENCE NETWORK) NAD 83/95 ADJUSTMENT. THIS CALIBRATION WILL ALLOW THE END USER TO WORK WITHIN THE SAME COORDINATE SYSTEM WHEN USING RTK (REAL TIME KINEMATIC) GPS AND A LOCAL BASE STATION. IF ANOTHER SYSTEM SUCH AS VRS (VIRTUAL REFERENCE STATION) IS USED, ADDITIONAL FIELD TIES MAY BE NEEDED TO REDUCE POSSIBLE ERRORS, OR BIASES.

2. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING "PROJECT CONTROL DATA" AT:
[HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.doh.dot.state.nc.us/preconstruct/highway/location/project/)

THE FILES TO BE FOUND ARE AS FOLLOWS:
u3456_ls_gpscallb_030708.html
u3456_ls_wgs84_030708.txt
u3456_ls_local_030708.txt
u3456_ls_control_020301.txt

THE WGS84 AND LOCAL FILES ARE COMMA DELIMITED AND CAN BE USED TO REPRODUCE THE SITE CALIBRATION FOR THE END USER'S GPS EQUIPMENT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

SURVEY CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
U-3456	10
LOCATION & SURVEYS	

GPS CALIBRATION REPORT

PROJECT : U3456

TIP NUMBER	U-3456	DATE & TIME	4:27:46 PM 7/8/03
USER NAME	SCRANFORD		
COORDINATE SYSTEM	US STATE PLANE	ZONE	NORTH CAROLINA
	1983		3200
HORIZONTAL DATUM	NAD 1983 (CONUS)		
VERTICAL DATUM	NAVD88	GEOID MODEL	GEOID99 (CONUS)
COORDINATE UNITS	US SURVEY FEET		
DISTANCE UNITS	US SURVEY FEET		
HEIGHT UNITS	US SURVEY FEET		

LOCAL SITE INFORMATION

LOCALIZED AROUND	
LATITUDE	N/A
LONGITUDE	N/A
SITE SCALE FACTOR	N/A

THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION USES A LOCALIZED COORDINATE SYSTEM WHICH IS VERY SIMILAR TO NORTH CAROLINA ZONE 3200 FROM WHICH IT IS DERIVED. PLEASE TAKE CARE IN UTILIZING THESE COORDINATES TO ELIMINATE CONFUSION OF THE TWO SYSTEMS. THIS FILE IS TO AID IN THE USE OF REAL TIME KINEMATIC (RTK) GPS DURING CONSTRUCTION LAYOUT.

DATUM TRANSFORMATION PARAMETERS

DATUM TRANSFORMATION COMPUTATION NOT REQUESTED

UPDATED DEFAULT PROJECTION (TRANSVERSE MERCATOR) DEFINITION

UPDATED DEFAULT PROJECTION NOT REQUESTED

HORIZONTAL ADJUSTMENT PARAMETERS

NORTHING COORDINATE OF ROTATION CENTER	443559.494SFT
EASTING COORDINATE OF ROTATION CENTER	1787501.133SFT
ROTATION ABOUT THE CENTER	
POINT	0.00'00"
TRANSLATION NORTH	2.185SFT
TRANSLATION EAST	-2.198SFT
SCALE FACTOR	1.00013274

VERTICAL ADJUSTMENT PARAMETERS

NORTHING COORDINATE OF ORIGIN	
POINT	418166.349SFT
EASTING COORDINATE OF ORIGIN	
POINT	1758155.453SFT
VERTICAL SEPARATION AT ORIGIN	0.102SFT
SLOPE NORTH	-2.189PPM
SLOPE EAST	-0.216PPM

GEOID MODEL DEFINITION

GEOID99 (CONUS)

RESIDUAL DIFFERENCES BETWEEN GPS (WGS84) AND LOCAL COORDINATES

SUMMARY

	MAXIMUM ERROR	ROOT MEAN SQUARE ERROR	POINT
HORIZONTAL	0.039SFT	0.006	R0000A-6
VERTICAL	0.047SFT	0.007	U3456-3
THREE-DIMENSIONAL	0.048SFT	0.009	U3456-3

POINT RESIDUALS

WGS84 COORDINATES	CALCULATED POINT FOR DISPLAY ONLY	LOCAL COORDINATES
POINT R0000A-6	NORTHING 471503.157SFT	POINT R0000A-6 - LOCAL
LATITUDE 35.02'36.24304"N	EASTING 1785651.965SFT	NORTHING 471503.145SFT
LONGITUDE 79.42'58.12583"W	ELEVATION 399.738SFT	EASTING 1785652.003SFT
HEIGHT 297.356SFT	HORZ ERROR 0.039SFT	ELEVATION 399.724SFT
	VERT ERROR 0.014SFT	UTILIZED HORZ AND VERT
	3D ERROR 0.042SFT	QUALITY SURVEY QUALITY
POINT R2502-1	NORTHING 448358.224SFT	POINT R2502-1 - LOCAL
LATITUDE 34.58'49.68449"N	EASTING 1821667.443SFT	NORTHING 448358.250SFT
LONGITUDE 79.35'43.33520"W	ELEVATION 410.355SFT	EASTING 1821667.436SFT
HEIGHT 306.418SFT	HORZ ERROR 0.027SFT	ELEVATION 410.350SFT
	VERT ERROR 0.005SFT	UTILIZED HORZ AND VERT
	3D ERROR 0.027SFT	QUALITY SURVEY QUALITY
POINT U3456-1	NORTHING 435833.979SFT	POINT U3456-1 - LOCAL
LATITUDE 34.56'42.56353"N	EASTING 1773374.566SFT	NORTHING 435833.968SFT
LONGITUDE 79.45'22.50428"W	ELEVATION 304.565SFT	EASTING 1773374.554SFT
HEIGHT 202.026SFT	HORZ ERROR 0.017SFT	ELEVATION 304.583SFT
	VERT ERROR 0.017SFT	UTILIZED HORZ AND VERT
	3D ERROR 0.024SFT	QUALITY SURVEY QUALITY
POINT U3456-2	NORTHING 436858.306SFT	POINT U3456-2 - LOCAL
LATITUDE 34.56'52.84894"N	EASTING 1775434.327SFT	NORTHING 436858.296SFT
LONGITUDE 79.44'57.85655"W	ELEVATION 300.522SFT	EASTING 1775434.313SFT
HEIGHT 197.932SFT	HORZ ERROR 0.017SFT	ELEVATION 300.551SFT
	VERT ERROR 0.029SFT	UTILIZED HORZ AND VERT
	3D ERROR 0.033SFT	QUALITY SURVEY QUALITY
POINT U3456-4 - WGS84	NORTHING 438183.591SFT	POINT U3456-4 - LOCAL
LATITUDE 34.57'06.35987"N	EASTING 1780904.136SFT	NORTHING 438183.595SFT
LONGITUDE 79.43'52.27136"W	ELEVATION 319.316SFT	EASTING 1780904.138SFT
HEIGHT 216.565SFT	HORZ ERROR 0.005SFT	ELEVATION 319.301SFT
	VERT ERROR 0.016SFT	UTILIZED HORZ AND VERT
	3D ERROR 0.016SFT	QUALITY SURVEY QUALITY
POINT U3456-3	NORTHING 437225.382SFT	POINT U3456-3 - LOCAL
LATITUDE 34.56'56.87156"N	EASTING 1780749.236SFT	NORTHING 437225.376SFT
LONGITUDE 79.43'54.04724"W	ELEVATION 318.342SFT	EASTING 1780749.227SFT
HEIGHT 215.579SFT	HORZ ERROR 0.011SFT	ELEVATION 318.388SFT
	VERT ERROR 0.047SFT	UTILIZED HORZ AND VERT
	3D ERROR 0.048SFT	QUALITY SURVEY QUALITY
POINT U3456-5	NORTHING 440009.738SFT	POINT U3456-5 - LOCAL
LATITUDE 34.57'25.08340"N	EASTING 1790192.444SFT	NORTHING 440009.743SFT
LONGITUDE 79.42'00.05112"W	ELEVATION 358.851SFT	EASTING 1790192.447SFT
HEIGHT 255.818SFT	HORZ ERROR 0.006SFT	ELEVATION 358.831SFT
	VERT ERROR 0.020SFT	UTILIZED HORZ AND VERT
	3D ERROR 0.021SFT	QUALITY SURVEY QUALITY
POINT U3456-6	NORTHING 440521.053SFT	POINT U3456-6 - LOCAL
LATITUDE 34.57'30.26724"N	EASTING 1792017.365SFT	NORTHING 440521.058SFT
LONGITUDE 79.41'38.97096"W	ELEVATION 354.251SFT	EASTING 1792017.364SFT
HEIGHT 251.167SFT	HORZ ERROR 0.004SFT	ELEVATION 354.248SFT
	VERT ERROR 0.003SFT	UTILIZED HORZ AND VERT
	3D ERROR 0.006SFT	QUALITY SURVEY QUALITY

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SURVEY CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
U-3456	1E
LOCATION & SURVEYS	

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
101	BL-101	436646.5168	1775027.9483	295.64	11+75.39	26.76 RT
127	BL-127	436788.5934	1775300.5679	NOT SET	14+82.81	27.03 RT
2	GPS U3456-2	436858.2950	1775434.3130	300.55	16+33.63	27.16 RT
102	BL-102	437089.1817	1775877.1665	293.84	21+33.06	27.52 RT
103	BL-103	437199.5417	1776097.5529	299.68	23+79.49	31.72 RT
104	BL-104	437399.4807	1776469.6868	320.78	28+01.91	26.77 RT
105	BL-105	437557.5048	1776775.0052	322.92	31+45.70	28.04 RT
106	BL-106	437807.8586	1777408.9526	304.09	38+60.70	28.60 RT
107	BL-107	438000.5977	1777649.5221	310.57	41+30.54	21.76 RT
108	BL-108	438110.1998	1778103.8312	322.65	46+00.58	4.44 LT
136	BL-136	438167.6851	1778530.6175	NOT SET	50+31.22	3.97 LT
109	BL-109	438165.5511	1778663.2598	319.25	51+65.06	3.83 LT
110	BL-110	438266.9187	1779268.7308	331.21	57+75.98	2.98 LT
111	BL-111	438367.4183	1780066.6169	323.95	65+79.98	7.41 RT
112	BL-112	438478.0264	1780961.0099	331.88	74+81.35	23.54 RT
113	BL-113	438557.3519	1781491.2868	349.74	80+16.54	24.24 RT
140	BL-140	438578.1722	1781637.7916	NOT SET	81+64.55	29.68 RT
114	BL-114	438660.5816	1782217.9941	333.38	87+51.85	33.25 RT
115	BL-115	438721.2198	1782769.1407	325.59	93+06.17	46.48 RT
116	BL-116	438790.4420	1783270.8080	326.54	98+12.59	44.62 RT
117	BL-117	438935.8205	1784345.3686	348.05	109+00.98	44.03 RT
118	BL-118	439112.0899	1785339.2148	338.16	119+84.42	23.97 RT
119	BL-119	439242.4864	1785912.9657	351.45	124+92.67	7.13 RT
120	BL-120	439333.4343	1786551.9144	352.01	131+38.67	18.33 RT
121	BL-121	439395.4854	1787423.6737	354.19	140+13.76	47.33 RT
122	BL-122	439575.5868	1788337.6177	352.39	149+39.77	37.05 RT
123	BL-123	439758.1452	1789146.9516	354.41	157+67.48	59.98 RT
5	GPS U3456-5	440089.7418	1790192.4458	358.83	168+45.17	33.93 RT
124	BL-124	440262.0357	1790355.3863	357.37	170+15.74	21.05 RT
BY1 POINT	DESC.	NORTH	EAST	ELEVATION	Y01 STATION	OFFSET
125	BY1-125	437089.2659	1775342.7626	291.94	10+00.95	16.51 LT
126	BY1-126	436875.2973	1775313.6825	298.02	11+93.68	19.93 RT
127	BL-127	436788.5934	1775300.5679	NOT SET	OUTSIDE PROJECT LIMITS	
BY2 POINT	DESC.	NORTH	EAST	ELEVATION	Y02 STATION	OFFSET
128	BY2-128	437963.2212	1776151.2849	290.04	OUTSIDE PROJECT LIMITS	
129	BY2-129	437425.3123	1775929.8541	296.01	14+36.00	25.78 RT
102	BL-102	437089.1817	1775877.1665	293.84	OUTSIDE PROJECT LIMITS	
BY3 POINT	DESC.	NORTH	EAST	ELEVATION	Y03 STATION	OFFSET
102	BL-102	437089.1817	1775877.1665	293.84	10+32.27	28.75 RT
130	BY3-130	438662.7633	1776801.3663	285.04	12+86.65	15.73 LT
BY4 POINT	DESC.	NORTH	EAST	ELEVATION	Y04 STATION	OFFSET
103	BL-103	437199.5417	1776097.5529	299.68	18+36.38	24.47 LT
131	BY4-131	436984.2818	1776248.1339	300.38	12+98.93	13.69 LT
BY5 POINT	DESC.	NORTH	EAST	ELEVATION	Y05 STATION	OFFSET
106	BL-106	437807.8586	1777408.9526	304.09	10+26.15	26.89 LT
132	BY5-132	437715.9556	1777467.0757	313.48	12+07.32	16.69 LT
BY6 POINT	DESC.	NORTH	EAST	ELEVATION	Y06 STATION	OFFSET
133	BY6-133	438411.3936	1777729.2135	307.32	OUTSIDE PROJECT LIMITS	
107	BL-107	438000.5977	1777649.5221	310.57	OUTSIDE PROJECT LIMITS	
BY7 POINT	DESC.	NORTH	EAST	ELEVATION	Y07REV STATION	OFFSET
134	BY7-134	438449.1974	1778382.3662	327.15	12+27.06	24.79 RT
135	BY7-135	438211.9345	1778507.3147	320.26	13+87.44	227.19 RT
136	BL-136	438167.6851	1778530.6175	NOT SET	14+18.72	266.21 RT
BY8 POINT	DESC.	NORTH	EAST	ELEVATION	Y08 STATION	OFFSET
137	BY8-137	438518.9534	1778704.7608	329.87	OUTSIDE PROJECT LIMITS	
109	BL-109	438165.5511	1778663.2598	319.25	12+94.14	24.94 RT
BY9 POINT	DESC.	NORTH	EAST	ELEVATION	Y09 STATION	OFFSET
112	BL-112	438478.0264	1780961.0099	331.88	18+12.34	43.69 LT
4	GPS U3456-4	438163.5938	1780904.1378	319.38	OUTSIDE PROJECT LIMITS	
BY10 POINT	DESC.	NORTH	EAST	ELEVATION	Y10 STATION	OFFSET
138	BY10-138	438922.3807	1781643.2836	367.10	18+00.01	21.36 LT
139	BY10-139	438854.9399	1781639.0164	350.48	12+87.46	25.00 LT
140	BL-140	438578.1722	1781637.7916	NOT SET	OUTSIDE PROJECT LIMITS	
BY11 POINT	DESC.	NORTH	EAST	ELEVATION	Y11 STATION	OFFSET
141	BY11-141	439080.7347	1782710.6203	341.46	18+89.99	13.96 LT
115	BL-115	438721.2198	1782769.1407	325.59	OUTSIDE PROJECT LIMITS	

BY12 POINT	DESC.	NORTH	EAST	ELEVATION	Y12 STATION	OFFSET
115	BL-115	438721.2198	1782769.1407	325.59	10+45.71	12.50 RT
142	BY12-142	438451.6857	1782795.7985	305.21	13+19.43	10.73 RT
BY13 POINT	DESC.	NORTH	EAST	ELEVATION	Y13 STATION	OFFSET
116	BL-116	438790.4420	1783270.8080	326.54	10+52.30	41.68 RT
143	BY13-143	438534.6408	1783290.4686	323.02	13+07.28	13.38 RT
BY14 POINT	DESC.	NORTH	EAST	ELEVATION	Y14 STATION	OFFSET
118	BL-118	439112.0899	1785339.2148	338.16	10+43.99	81.46 LT
144	BY14-144	438846.1554	1785319.0810	334.63	12+85.38	48.17 RT
BY15 POINT	DESC.	NORTH	EAST	ELEVATION	Y15 STATION	OFFSET
120	BL-120	439333.4343	1786551.9144	352.01	10+20.12	46.56 RT
145	BY15-145	439072.3939	1786591.0441	345.07	12+83.78	32.48 RT
BY16 POINT	DESC.	NORTH	EAST	ELEVATION	Y16 STATION	OFFSET
121	BL-121	439395.4854	1787423.6737	354.19	10+41.81	32.37 RT
146	BY16-146	439185.4103	1787549.6346	352.67	12+79.43	21.61 LT
BY17 POINT	DESC.	NORTH	EAST	ELEVATION	Y17A STATION	OFFSET
147	BY17-147	440516.1058	1789318.5761	355.42	10+65.89	16.00 RT
123	BL-123	439758.1452	1789146.9516	354.41	OUTSIDE PROJECT LIMITS	
148	BY17-148	439130.5415	1788858.8810	350.06	OUTSIDE PROJECT LIMITS	
BY17 POINT	DESC.	NORTH	EAST	ELEVATION	Y17B STATION	OFFSET
147	BY17-147	440516.1058	1789318.5761	355.42	OUTSIDE PROJECT LIMITS	
123	BL-123	439758.1452	1789146.9516	354.41	10+51.52	33.92 LT
148	BY17-148	439130.5415	1788858.8810	350.06	17+29.54	18.06 RT

BM * 1 ELEVATION = 290.64'
 N 436697 E 1774813
 L STATION 10+08 118 LEFT
 RAILROAD SPIKE IN BASE OF POWER POLE

 BM * 2 ELEVATION = 301.97'
 N 437042 E 1776232
 L STATION 24+26 233 RIGHT
 RAILROAD SPIKE IN BASE OF POWER POLE

 BM * 3 ELEVATION = 310.76'
 N 437846 E 1777513
 L STATION 38+41 291 RIGHT
 RAILROAD SPIKE IN BASE OF POWER POLE

 BM * 4 ELEVATION = 333.61'
 N 438618 E 1778712
 L STATION 52+70 417 LEFT
 RAILROAD SPIKE IN BASE OF POWER POLE

 BM * 5 ELEVATION = 322.21'
 N 438196 E 1780913
 L STATION 73+96 297 RIGHT
 RAILROAD SPIKE IN BASE OF POWER POLE

 BM * 6 ELEVATION = 382.09'
 N 438433 E 1782836
 L STATION 93+36 341 RIGHT
 RAILROAD SPIKE IN BASE OF POWER POLE

 BM * 7 ELEVATION = 337.61'
 N 439009 E 1785376
 L STATION 119+21 132 RIGHT
 RAILROAD SPIKE IN BASE OF 15' PINE TREE

 BM * 8 ELEVATION = 344.95'
 N 439026 E 1786653
 L STATION 131+99 337 RIGHT
 RAILROAD SPIKE IN BASE OF POWER POLE

 BM * 9 ELEVATION = 355.16'
 N 439256 E 1788193
 L STATION 147+24 314 RIGHT
 RAILROAD SPIKE IN BASE OF POWER POLE

 BM * 10 ELEVATION = 356.29'
 N 439768 E 1790377
 L STATION 169+68 312 RIGHT
 RAILROAD SPIKE IN BASE OF POWER POLE

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 IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY
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 WITH NAD 83/95 STATE PLANE GRID COORDINATES OF
 NORTHING: 427332498(ft) EASTING: 1804014.118(ft)
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT
 (GROUND TO GRID) IS: 0.99986692
 THE N.C. LAMBERT GRID BEARING AND
 LOCALIZED HORIZONTAL GROUND DISTANCE FROM
 "FRUITLAND" TO L- STATION 10+000 IS
 N 72°23'06.37" W 30,588.243'
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NAVD 88

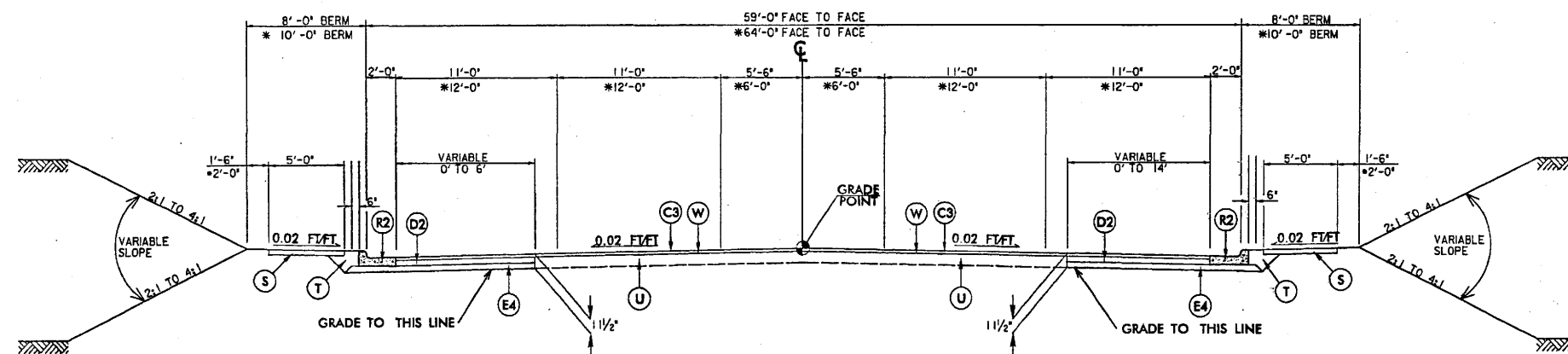
NOTES

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BY SELECTING "PROJECT CONTROL DATA" AT:
[HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.doh.dot.state.nc.us/preconstruct/highway/location/project/)

 THE FILES TO BE FOUND ARE AS FOLLOWS:
 u3456_ls_gpscdlib_030708.html
 u3456_ls_wgs84_030708.txt
 u3456_ls_local_030708.txt
 u3456_ls_control_020301.txt

 THE WGS84 AND LOCAL FILES ARE COMMA DELIMITED AND CAN BE USED TO
 REPRODUCE THE SITE CALIBRATION FOR THE END USER'S GPS EQUIPMENT. IF
 FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND
 SURVEYS UNIT.

PROJECT REFERENCE NO.		SHEET NO.	
U-3456		2	
ROADWAY DESIGN ENGINEER		PAVEMENT DESIGN ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			
Prepared in the Office of: EARTH SYSTEMS 70 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 • (919) 854-6255(FAX)			



TYPICAL SECTION NO. 1

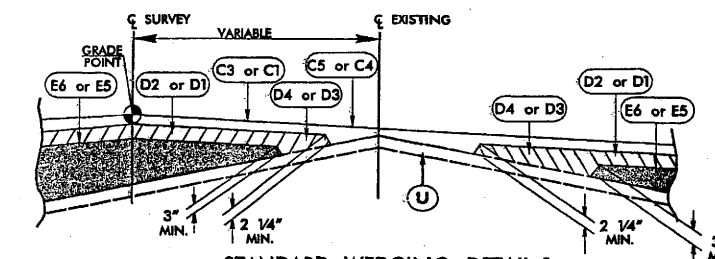
USE TYPICAL SECTION NO. 1

-L- FROM STA. 14+00.00 TO STA. 22+00.00

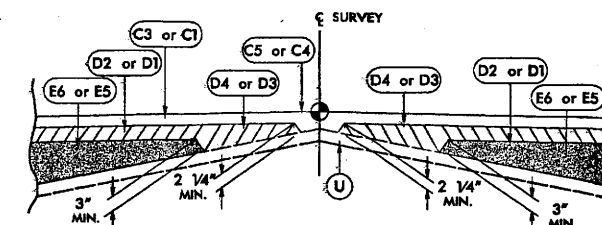
* -L- FROM STA. 22+00.00 TO 23+00.00

NOTE: REMOVE 1' +/- OF EXISTING PAVEMENT FOR INSTALLATION OF CURB AND GUTTER

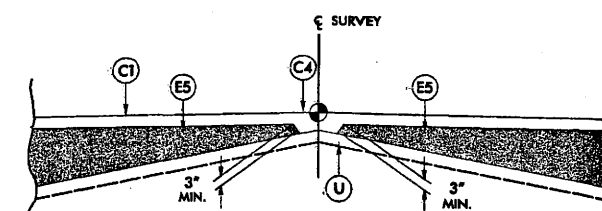
NOTE: SEE PLANS FOR LIMITS OF SIDEWALK



STANDARD WEDGING DETAIL 1
FOR -L-, Y17A-, -Y17B-



STANDARD WEDGING DETAIL 2
FOR -L-, Y17A-, -Y17B-



STANDARD WEDGING DETAIL 3
FOR -Y4-, -Y8-, -Y13-, -Y15-

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 140 LBS. PER SQ. YD.	E4	PROP. APPROX. 4 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.
C2	PROP. APPROX. 2 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 140 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	E5	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
C3	PROP. APPROX. 2 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 140 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	E6	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
C4	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT TO EXCEED 1 1/2" IN DEPTH.	J1	6" AGGREGATE BASE COURSE
C5	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT TO EXCEED 1 1/2" IN DEPTH.	R1	1'-6" CONCRETE CURB AND GUTTER.
D1	PROP. APPROX. 2 1/4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 256.5 LBS. PER SQ. YD.	R2	2'-6" CONCRETE CURB AND GUTTER.
D2	PROP. APPROX. 4 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 256.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R3	5" MONOLITHIC CONCRETE ISLAND (KEYED IN)
D3	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/4" IN DEPTH OR GREATER THAN 4" IN DEPTH.	S	4" CONCRETE SIDEWALK
D4	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/4" IN DEPTH OR GREATER THAN 4" IN DEPTH.	T	EARTH MATERIAL.
E1	PROP. APPROX. 3" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	U	EXISTING PAVEMENT.
E2	PROP. APPROX. 4 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.	W	WEDGING
E3	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.		

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

Prepared in the
Office of:

EARTH  TECH

701 Corporate Center Drive, Suite 475
Raleigh, NC 27607
(919) 854-5200 • (919) 854-6250 (FAX)



-L- FROM STA. 23+00.00 TO STA. 33+50.00

NOTE: SEE PLANS FOR LIMITS OF SIDEWALK

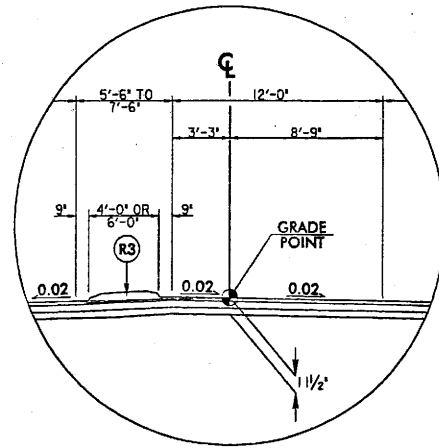


-L- FROM STA. 33+50.00 TO STA. 52+50.00

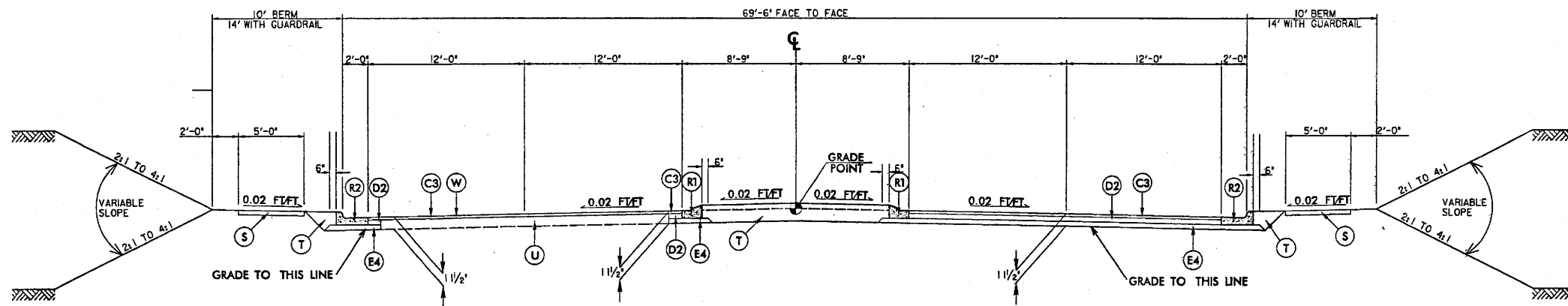
NOTE: REMOVE 1' +/- OF EXISTING PAVEMENT FOR
INSTALLATION OF CURB AND GUTTER

NOTE: SEE PLANS FOR LIMITS OF SIDEWALK

PAVEMENT SCHEDULE	
C1	1 1/4" 89.5B
C2	2 1/2" 89.5B
C3	2 1/2" 89.5C
C4	VAR. DEPTH 89.5B
C5	VAR. DEPTH 89.5C
D1	2 1/4" 119.0B
D2	4 1/2" 119.0C
D3	VAR. DEPTH 119.0B
D4	VAR. DEPTH 119.0C
E1	3" B25.0B
E2	4 1/2" B25.0B
E3	5" B25.0B
E4	4 1/2" B25.0C
E5	VAR. DEPTH B25.0B
E6	VAR. DEPTH B25.0C
J1	8" AGGREGATE BASE COURSE
R1	1'-6" CURB AND GUTTER
R2	2'-6" CURB AND GUTTER
R3	6" MONOLITHIC CONCRETE ISLAND KEYED IN
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING



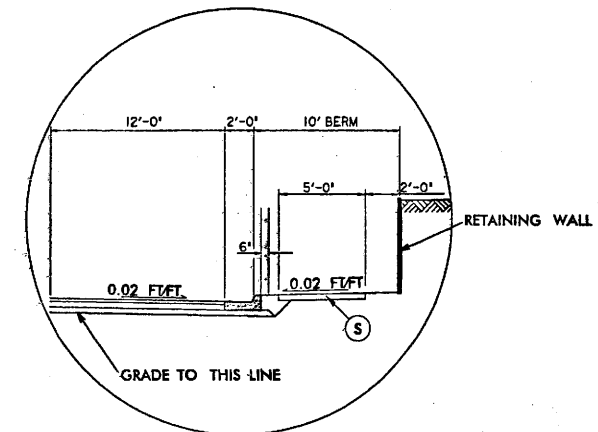
DETAIL NO. 4A



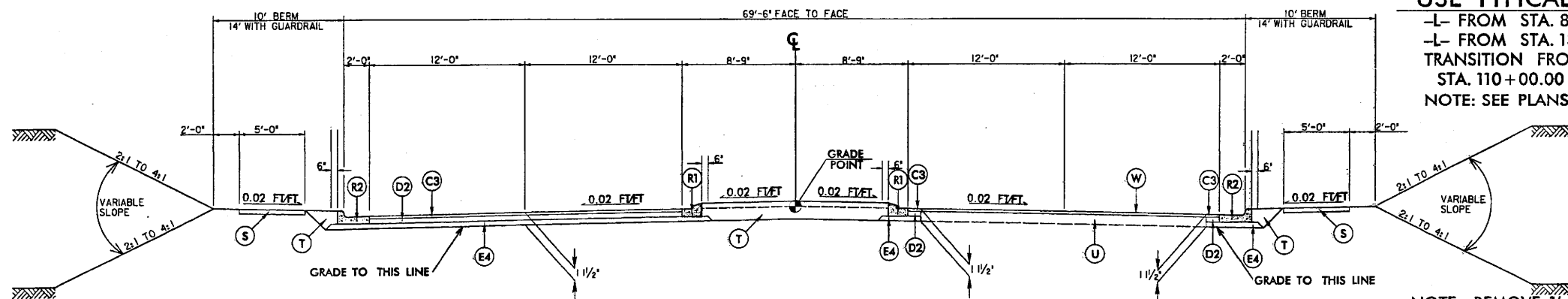
TYPICAL SECTION NO. 4

USE DETAIL NO. 4B

-L- FROM STA. 113+15 TO 117+30
IN CONJUNCTION WITH TYPICAL SECTION NOS. 4 AND 5



DETAIL NO. 4B



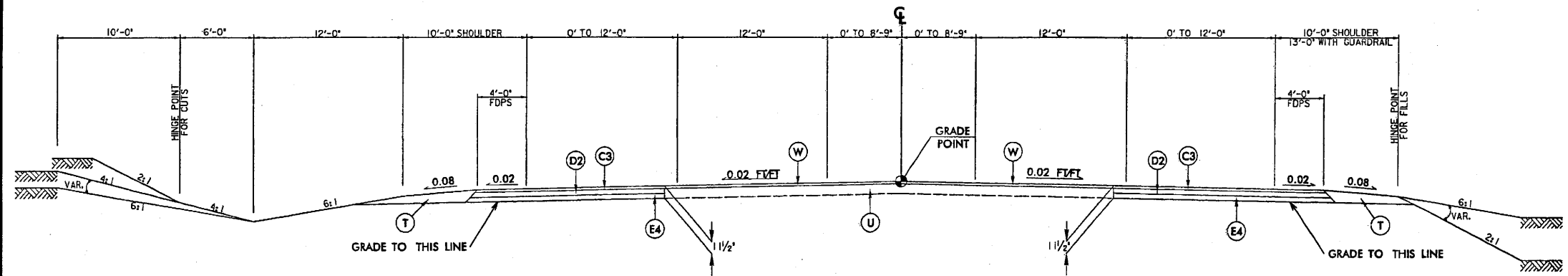
TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5

-L- FROM STA. 80+00.00 TO STA. 115+00.00
-L- FROM STA. 132+00.00 TO STA. 156+75.00
TRANSITION FROM TYPICAL 5 TO 4
STA. 110+00.00 +/- TO STA. 120+00.00 +/-
NOTE: SEE PLANS FOR LIMITS OF SIDEWALK

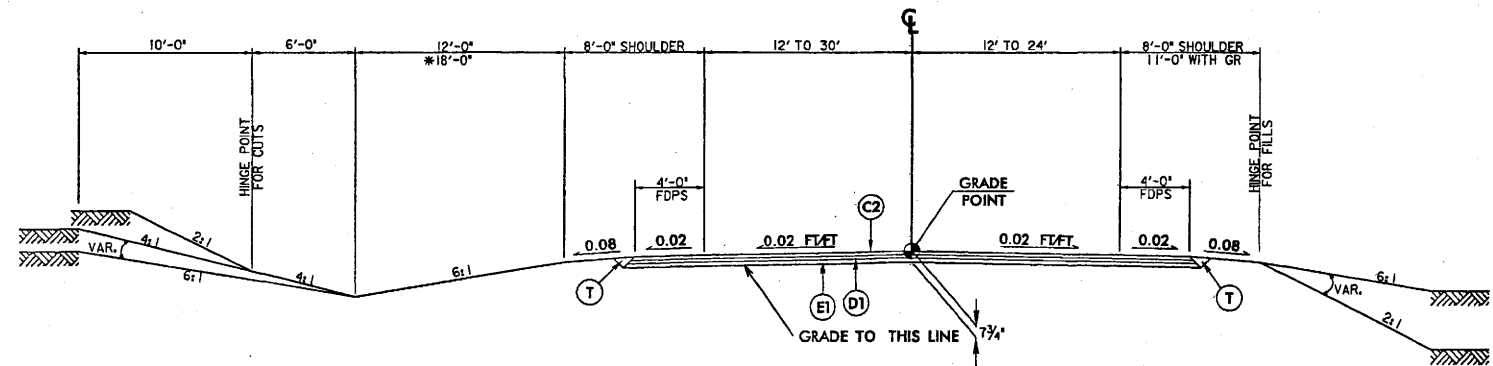
NOTE: REMOVE 1' +/- OF EXISTING PAVEMENT FOR INSTALLATION OF CURB AND GUTTER
GRADE POINT PROJECTED FROM PAVEMENT

PAVEMENT SCHEDULE	
C1	1 1/4" S9.5B
C2	2 1/2" S9.5B
C3	2 1/2" S9.5C
C4	VAR. DEPTH S9.5B
C5	VAR. DEPTH S9.5C
D1	2 1/4" I19.0B
D2	4 1/2" I19.0C
D3	VAR. DEPTH I19.0B
D4	VAR. DEPTH I19.0C
E1	3" B25.0B
E2	4 1/2" B25.0B
E3	5" B25.0B
E4	4 1/2" B25.0C
E5	VAR. DEPTH B25.0B
E6	VAR. DEPTH B25.0C
J1	8" AGGREGATE BASE COURSE
R1	1'-6" CURB AND GUTTER
R2	2'-6" CURB AND GUTTER
R3	5" MONOLITHIC CONCRETE ISLAND KEYED IN
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WFOOTING



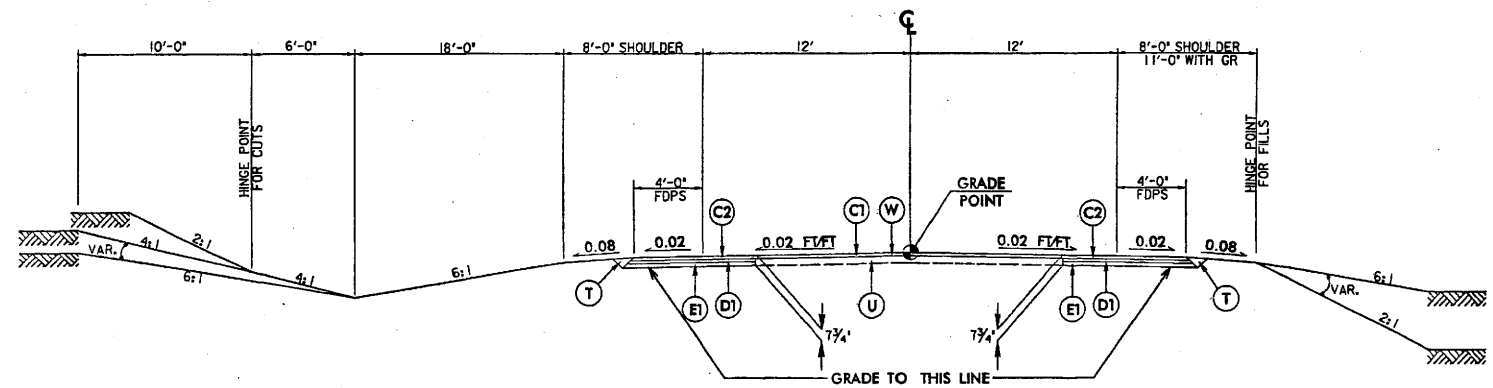
TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6
-L- FROM STA. 156+75.00 TO STA. 167+00.00



TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7
-Y2- FROM STA. 11+80.00 TO STA. 16+98.56
* -Y17B- FROM STA. 10+40.84 TO STA. 15+90.00

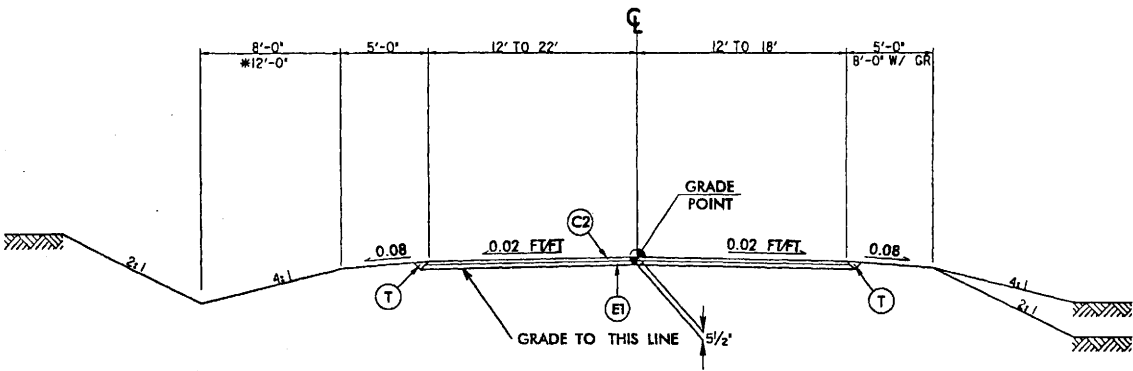


TYPICAL SECTION NO. 8

USE TYPICAL SECTION NO. 8
-Y17B- FROM STA. 15+90.00 TO STA. 18+00.00

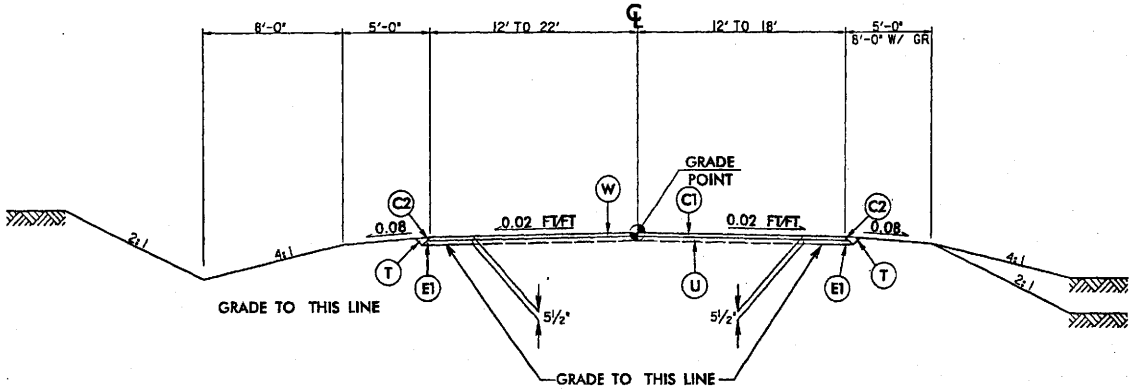
PAVEMENT SCHEDULE	
C1	1 1/4" 89.58
C2	2 1/2" 89.58
C3	2 1/2" 89.58
C4	VAR. DEPTH 89.58
C5	VAR. DEPTH 89.58
D1	2 1/4" 118.08
D2	4 1/2" 118.08
D3	VAR. DEPTH 118.08
D4	VAR. DEPTH 118.08
E1	3" B25.08
E2	4 1/2" B25.08
E3	5" B25.08
E4	4 1/2" B25.08
E5	VAR. DEPTH B25.08
E6	VAR. DEPTH B25.08
J1	8" AGGREGATE BASE COURSE
R1	1'-6" CURB AND GUTTER
R2	2'-6" CURB AND GUTTER
R3	5" MONOLITHIC CONCRETE ISLAND KEYED IN
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING

PROJECT REFERENCE NO.		SHEET NO.	
U-3456		2D	
ROADWAY DESIGN ENGINEER		PAVEMENT DESIGN ENGINEER	
<div>PRELIMINARY PLANS</div> <div>DO NOT USE FOR CONSTRUCTION</div>			
Prepared in the Office of:		EARTH TECH 70 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 - (919) 854-6258(FAX)	



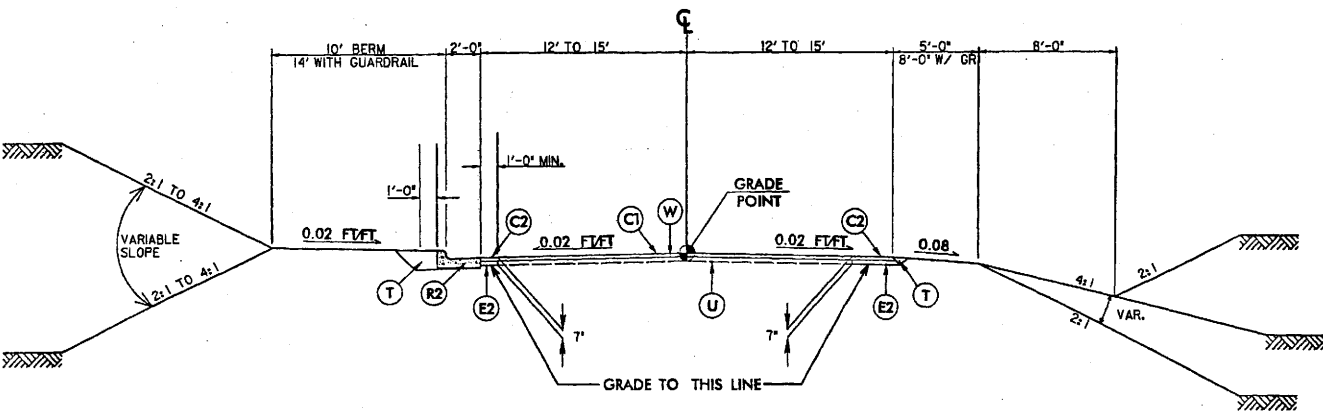
TYPICAL SECTION NO. 9

USE TYPICAL SECTION NO. 9
-Y2A- FROM STA. 10+00.00 TO STA. 12+75.64
-Y3- FROM STA. 10+34.91 TO STA. 12+50.00
*-Y9- FROM STA. 10+40.00 TO STA. 12+70.00
-Y10- FROM STA. 10+70.00 TO STA. 12+79.92
-Y11- FROM STA. 11+50.00 TO STA. 13+67.36
-Y12- FROM STA. 10+40.29 TO STA. 12+60.00
-Y15- FROM STA. 10+39.68 TO STA. 11+80.00
-Y16- FROM STA. 10+41.49 TO STA. 12+15.00



TYPICAL SECTION NO. 10

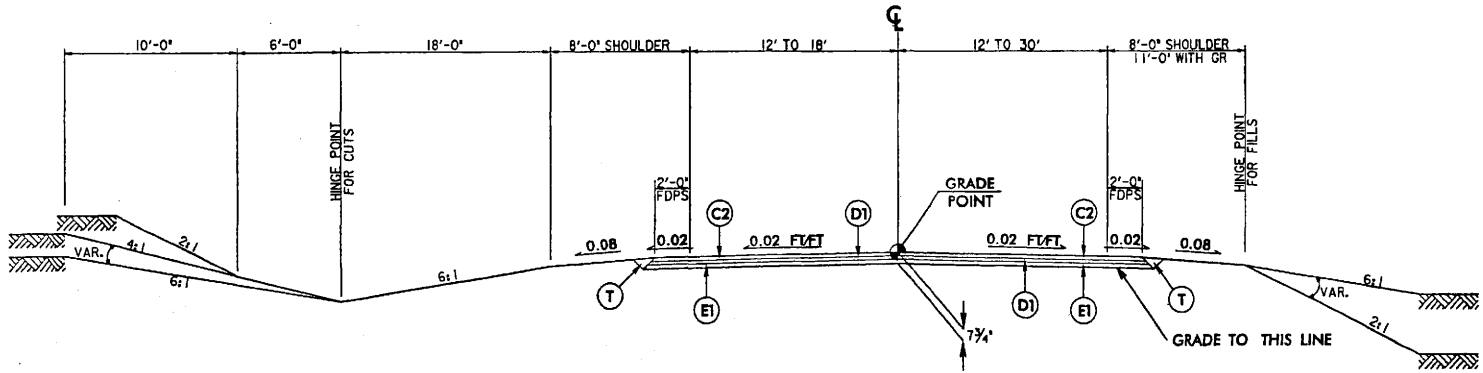
USE TYPICAL SECTION NO. 10
-Y13- FROM STA. 10+39.66 TO STA. 12+20.00



TYPICAL SECTION NO. 11

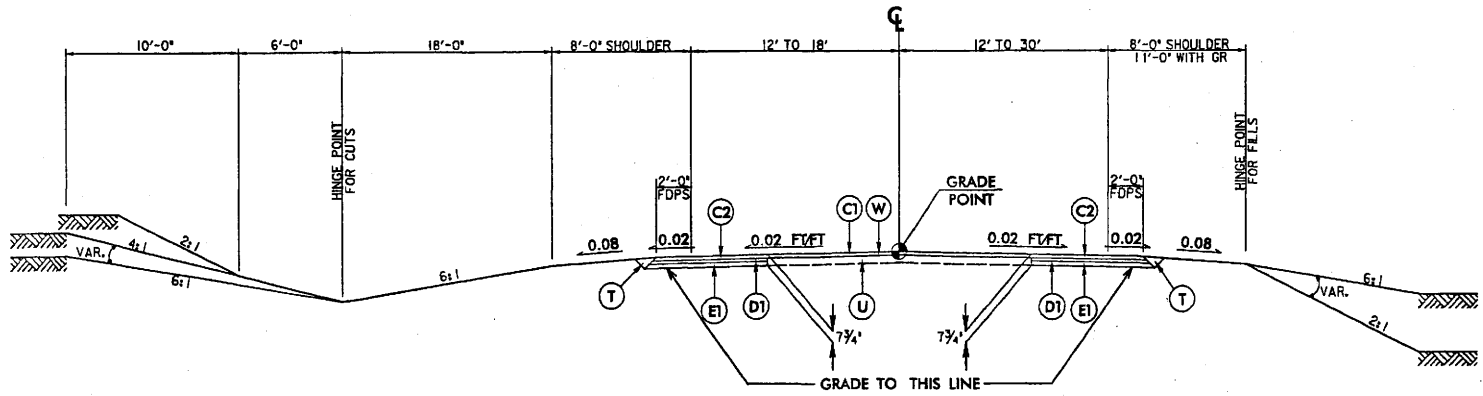
USE TYPICAL SECTION NO. 11
-Y4- FROM STA. 10+30.44 TO STA. 12+40.00

PAVEMENT SCHEDULE	
C1	1 1/4" S9.5B
C2	2 1/2" S9.5B
C3	2 1/2" S9.5C
C4	VAR. DEPTH S9.5B
C5	VAR. DEPTH S9.5C
D1	2 1/4" I19.0B
D2	4 1/2" I19.0C
D3	VAR. DEPTH I19.0B
D4	VAR. DEPTH I19.0C
E1	3" B25.0B
E2	4 1/2" B25.0B
E3	5" B25.0B
E4	4 1/2" B25.0C
E5	VAR. DEPTH B25.0B
E6	VAR. DEPTH B25.0C
J1	8" AGGREGATE BASE COURSE
R1	1'-6" CURB AND GUTTER
R2	2'-6" CURB AND GUTTER
R3	5" MONOLITHIC CONCRETE ISLAND KEYED IN
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.



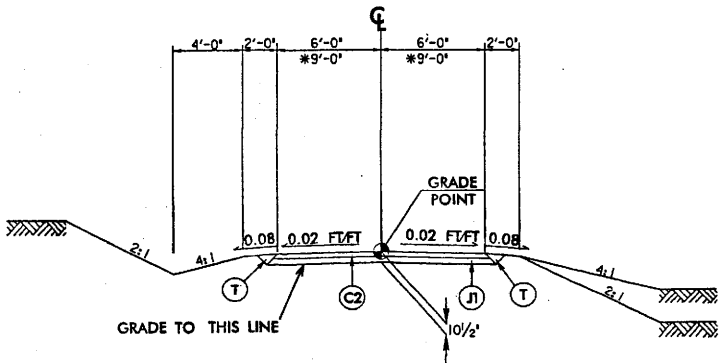
TYPICAL SECTION NO. 15

USE TYPICAL SECTION NO. 15
-Y17A- FROM STA. 13+00.00 TO STA. 17+72.73



TYPICAL SECTION NO. 16

USE TYPICAL SECTION NO. 16
-Y17A- FROM STA. 10+50.00 TO STA. 13+00.00



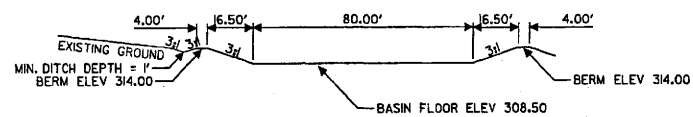
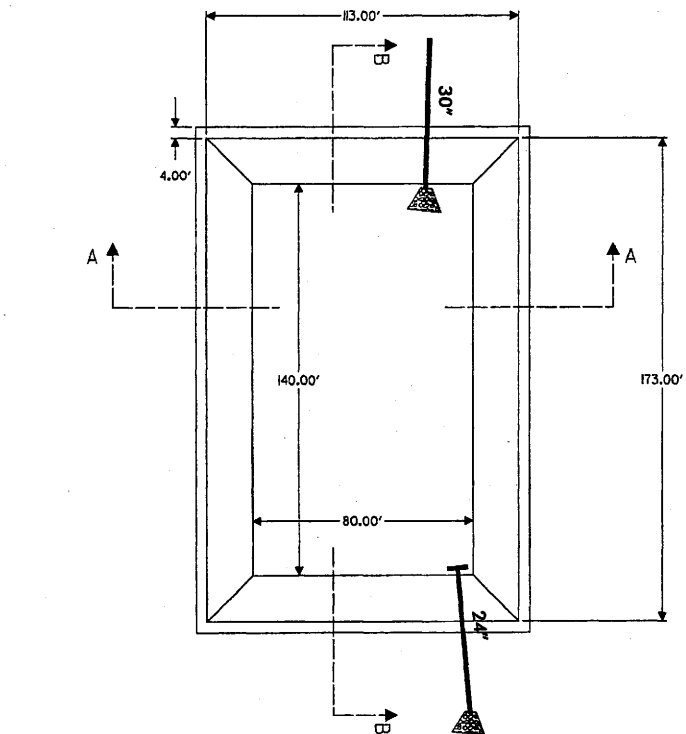
TYPICAL SECTION NO. 17

USE TYPICAL SECTION NO. 17
-DR1- FROM STA. 10+32.75 TO STA. 11+45.00
-DR2- FROM STA. 10+34.52 TO STA. 11+00.00
-DR3- FROM STA. 10+38.44 TO STA. 11+00.00
-DR4- FROM STA. 10+42.53 TO STA. 11+00.00
-DR5- FROM STA. 10+32.76 TO STA. 11+00.00
-DR6- FROM STA. 10+30.00 TO STA. 11+95.00
-DR7- FROM STA. 10+30.54 TO STA. 10+95.00
-DR8- FROM STA. 10+00.00 TO STA. 10+69.99
-DR9- FROM STA. 10+10.00 TO STA. 10+64.62
-DR10- FROM STA. 10+30.00 TO STA. 10+90.00
-DR11- FROM STA. 10+15.00 TO STA. 11+80.00

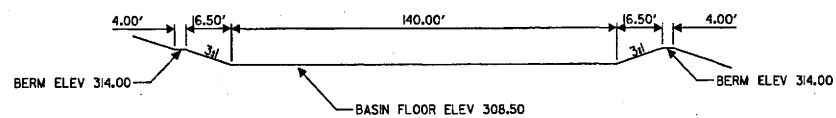
PAVEMENT SCHEDULE	
C1	1 1/4" 89.5B
C2	2 1/2" 89.5B
C3	2 1/2" 89.5C
C4	VAR. DEPTH 89.5B
C5	VAR. DEPTH 89.5C
D1	2 1/4" I19.0B
D2	4 1/2" I19.0C
D3	VAR. DEPTH I19.0B
D4	VAR. DEPTH I19.0C
E1	3" B25.0B
E2	4 1/2" B25.0B
E3	5" B25.0B
E4	4 1/2" B25.0C
E5	VAR. DEPTH B25.0B
E6	VAR. DEPTH B25.0C
J1	8" AGGREGATE BASE COURSE
R1	1'-6" CURB AND GUTTER
R2	2'-6" CURB AND GUTTER
R3	5" MONOLITHIC CONCRETE ISLAND KEYED IN
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WFOOTING

PROJECT REFERENCE NO.	SHEET NO.
U-3456	2G
ROADWAY DESIGN ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Prepared in the Office of: EARTH TECH 701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 - (919) 854-5259(FAX)	

BASIN 1

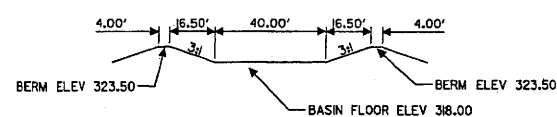
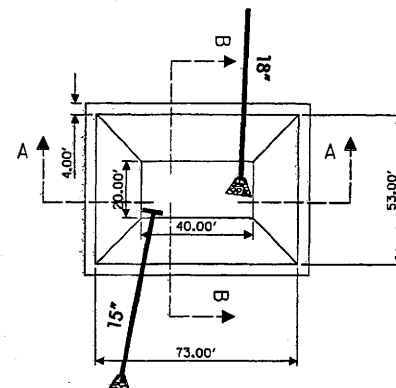


CROSS SECTION A-A

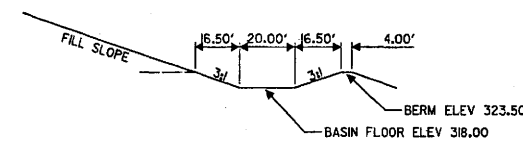


CROSS SECTION B-B

BASIN 2

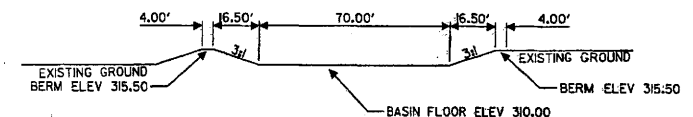
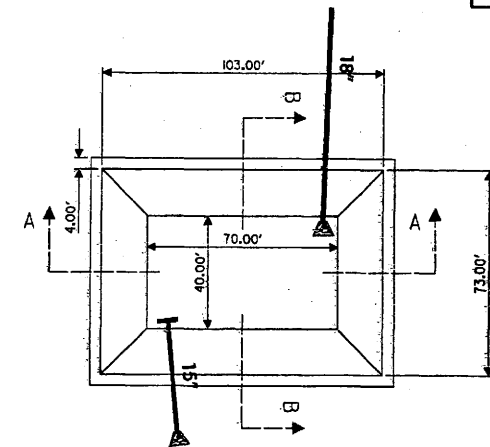


CROSS SECTION A-A

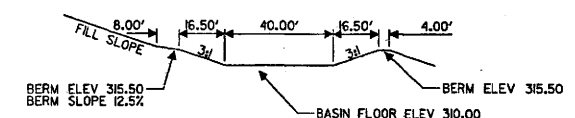


CROSS SECTION B-B

BASIN 3



CROSS SECTION A-A



CROSS SECTION B-B

BASIN #	PIPE SIZE	FLOOR ELEV	DEPTH	CAPACITY	STATION
BASIN 1	24"	308.50	5.5'	55491 CF	-L- 50+72 RT
BASIN 2	15"	318.00	5.5'	6583 CF	-L- 57+65 RT
BASIN 3	15"	310.00	5.5'	17111 CF	-L- 64+22 RT


Hazardous Spill Retention Basins are provided at new and/or improved roadway sections to aid in containment and clean up of accidental spills by truck traffic. Basins are provided in particular locations including areas in proximity to sensitive waters and water supplies.

DESIGN SERVICES UNIT STANDARDS AND SPECIAL DESIGN Office 919-250-4128 FAX 919-250-4119	
HAZARDOUS SPILL BASIN DETAILS	
ORIGINAL BY: WRR	DATE: 3/21/03
MODIFIED BY:	DATE:
CHECKED BY:	DATE:

\\p001\U-3456\Roadway\PROJ\U3456-rdy_detail3b.dgn
 2/20/04 1:10:28 PM

PROJECT NO.	SHEET NO.
U-3456	3-A

Prepared in the
Office of:

EARTH  TECH

701 Corporate Center Drive, Suite 475
Raleigh, NC 27607
(919) 854-6200 - (919) 854-6259 (FAX)

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Alignment	Station	Station	Uncl. Excav.	Embank. +%	Borrow	Waste
RIGHT SIDE						
L (RT)	14+00.	23+00.	119	667	548	
-Y3-	10+34.91	12+50.	489	365		124
SUBTOTAL			608	1,032	548	124
L (RT)	23+00.	33+50.	7,683	83		7,600
-Y4-	10+30.44	12+05.	196	98		98
SUBTOTAL			7,879	181		7,698
L (RT)	33+50.	52+50.	694	7,334	6,640	
SUBTOTAL			694	7,334	6,640	
L (RT)	52+50.	80+00.	125	31,168	31,043	
-Y9-	10+40.	12+70.	106	440	334	
SUBTOTAL			231	31,608	31,377	
L (RT)	80+00.	110+00.	272	5,921	5,649	
-Y12-	10+40.29	12+60.	120	455	335	
-Y13-	10+39.66	12+20.	53	40		13
SUBTOTAL			445	6,416	5,984	13
L (RT)	110+00.	115+00.	1,098	637		461
SUBTOTAL			1,098	637		461
L (RT)	115+00.	132+00.	2,599	10,526	7,927	
-Y15-	10+39.68	11+80.	41	452	411	
SUBTOTAL			2,640	10,978	8,338	
L (RT)	132+00.	156+75.	232	3,028	2,796	
-Y16-	10+41.49	12+15.	530	4		526
SUBTOTAL			762	3,032	2,796	526
L (RT)	156+75.	167+00.	328	197		131
-Y17B-	10+40.84	18+00.	1,841	2,213	372	
SUBTOTAL			2,169	2,410	372	131
SUBTOTAL RIGHT SIDE			16,526	63,628	56,055	8,953
PROJECT SUBTOTAL			40,124	95,578	78,798	23,194
SHOULDER MATERIAL WASTE IN LIEU OF BORROW EST TOPSOIL TO REPL. BORROW					-23,194 2,780	-23,194
DDE						
PROJECT TOTAL			40,124	95,578	58,384	

[illegible]

**STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS**

PARCEL INDEX SHEET

PROJ. REFERENCE NO. U-3456	SHEET NO. 3-B
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PARCEL No.	SHEET No.	PROPERTY OWNER NAME
1	4	CASSIE REECE
2	4	BEN F. FURR
3	4	UNKNOWN
4	4	WILLIAM BARNHARDT
5	4	GEORGE C. EWING
6	4,5	GLENN MANNING
7	4,5	JULIA RATLIFF
8	4,5	SCOTT THOMAS
9	4,5	JAI AGARWAL
10	5	BRIAN BELCHER
11	5	DAVIE S. DAWKINS
12	5	DAVIE DAWKINS
13	5	UNKNOWN
14	5	UNKNOWN
15	5	SAM TANNER
16	5	RODNEY PATTERSON
17	5	HARVEY MELTON
18	5	HIRAM DAVIDSON EST.
19	5	SUSAN WILSON
20	5	JOEY JONES
21	5	SAM TANNER
22	5	UNKNOWN
23	5	DEBORAH B. MOORE
24	5	ROLAND JONES, JR.
25	5	KENNETH TANNER
26	5	BETTY McLAURIN
27	5	NELL COPELAND
28	5	WILLIAM USSERY
29	5	R. H. JONES, JR.
30	5	ATLANTIC FINANCIAL GROUP, LLC.
31	5	JOHN H. LONG
32	5	JAMES STEPHENS
33	5	WILLIAM USSERY
34	5,6	RIDDLE PROPERTIES, LLC
35	5	PRENTICE SPENCER
36	5	LOTTIE McDONALD
37	5,6	JAY RAMEY, JR.
38	6	CHARLES DYSON
39	6	EVERETT STROMAN
40	6	MARY HAYWOOD
41	6	JAMES MABE
42	6	WESLEY DENHAM
43	6	L. & T. TRUCKING COMPANY, INC.
44	6	BILLY MOSS, JR.
45	6	HORACE RUSSELL
46	6	BONNIE CADIEU
47	6	WESLEY DENHAM
48	6,7	HAZEL JENKINS
49	6,7	TONY MARTIN
50	6,7	JOHN M. WEBB
51	6,7	UNKNOWN
52	7	BERNICE LEIGH
53	7,8	KENNETH J. LAYTON INC.
54	7	JOHN WEBB
55	7	WHITEFORD CARRIKER, JR.
56	7	EDGAR L. WHITE
57	7	WILLIAM USSERY
58	7,8	THOMAS PHIFER
59	8	CRAWFORD MCNEILL
60	8	KENNETH J. LAYTON INC.

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
61	8	RICHMOND COUNTY
62	8	ISIAH BROWN
63	8	CHILDERS SAND CO., INC.
64	8	LOUISE W. HALL
65	8	HENRY COVINGTON
66	8	JOE CULBREATH
67	8	RAYMOND WALL
68	8	AUTHOR STEELE
69	8	JOHN COTMAN
70	8	JOHN COTMAN
71	8	MYRTLE WANNAMAKER
72	8,9	MAMIE WANNAMAKER
73	8,9	ERNEST WANNAMAKER
74	8,9	JOAN HEARNE
75	9	UNKNOWN
76	9	MICHAEL LITTLE
77	9	WALTER McCAIN
78	9	DEBORAH BURTON
79	9	UNKNOWN
80	9	WALTER McCAIN
81	9	BESSIE MORMAN
82	9	SHERRY COVINGTON
83	9	JOHNNIE MORMAN
84	9	WALTER McCAIN
85	9	JOHNNIE MORMAN
86	9	WALTER COVINGTON, JR.
87	9	GLENN WILLIAMS
88	9	BARBARA EVERETT
89	9	BERTHA ALFORD
90	9	WILLIAM SMITH, SR.
91	9	AUTHOR SPENCER
92	9	VIRGINIA POLLARD
93	9	JOHN MCCALL
94	9	PRISCILLA FLETCHER
95	9	MINNIE SMITH
96	9	SHERRY COVINGTON
97	9,10	UNKNOWN
98	9,10	TERRY WILLIAMS
99	9,10	LEON WALL
100	10	PECOLIA HOKE
101	10	RICHMOND COUNTY
102	10	PECOLIA HOKE
103	10	DOCKERY SETTLE
104	10	JANE DIRIANZE
105	10	LYNWOOD COVINGTON
106	10	NEIL COVINGTON
107	10	UNKNOWN
108	10	WILLIAM DOWDY
109	10,11	LYNWOOD COVINGTON
110	10	BERTHA ALFORD
111	10,11	LYNWOOD COVINGTON
112	11,12	THE BOARD OF EDUCATION OF RICHMOND COUNTY
113	11	HENRY USSERY
114	11	HAGINS TITUS EST.
115	11,12	JULIA WILLIAMS
116	11,12	RALPH A. SOUDER
117	12	MCCASKILL OIL COMPANY
118	12	JAMES PORTER
119	12	SOUTHERN INVESTMENT AND DEVELOPMENT COMPANY
120	12	MAMIE TERRY LITTLE

PROJ. REFERENCE NO.	SHEET NO.
U-3456	3-C

R/W Revisions: PLE added to Parcels 1, 8 & 12 on 12/16/06

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DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
RIGHT OF WAY AREA DATA SHEET

PROJECT REFERENCE NO. U-3456		SHEET NO. 3-D
ROADWAY DESIGN ENGINEER		
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION		
Prepared in the Office of: EARTH SYSTEMS 701 Corporate Center Drive, Suite 475 Raleigh, NC 27601 (919) 854-6200 - (919) 854-6259(FAX)		

PARCEL NO.	PROPERTY OWNER NAMES	TOTAL ACREAGE	AREA TAKEN	AREA REMAINING RIGHT	AREA REMAINING LEFT	CONSTRUCTION EASEMENT	PERMANENT DRAINAGE EASEMENT	TEMPORARY DRAINAGE EASEMENT	PERMANENT UTILITY EASEMENT
1	CASSIE REECE	28,009 SF	81 SF	27,928 SF		30 SF			
2	BEN F.FURR	1.45 AC	1,967 SF		1.40 AC	1,640 SF			
3	UNKNOWN		200 SF			111 SF			
4	WILLIAM BARNHARDT	4.12 AC	0.14 AC	3.98 AC		526 SF			0.16 AC
5	GEORGE C. EWING	1.46 AC	3,247 SF		1.39 AC	1,623 SF			
6	GLENN MANNING	32,452 SF	1,011 SF		31,441 SF	998 SF			
7	JULIA RATLIFF	1.60 AC	0.11 AC		1.49 AC	2,785 SF			
8	SCOTT THOMAS	11,805 SF	1,000 SF	10,805 SF					879 SF
9	JAI AGARWAL	19,646 SF	84 SF	19,562 SF		191 SF			
10	BRIAN BELCHER	18,992 SF		18,992 SF		356 SF			
11	DAVIE S. DAWKINS	19,428 SF		19,428 SF		105 SF			
12	DAVIE DAWKINS	19,123 SF	6,262 SF	12,861 SF		1,834 SF			741 SF
13	UNKNOWN		?						
14	UNKNOWN		?						
15	SAM TANNER	36,503 SF	8,906 SF	27,597 SF		1,810 SF	3,196 SF		1,884 SF
16	RODNEY PATTERSON	12,850 SF	531 SF		12,319 SF				

PARCEL NO.	PROPERTY OWNER NAMES	TOTAL ACREAGE	AREA TAKEN	AREA REMAINING RIGHT	AREA REMAINING LEFT	CONSTRUCTION EASEMENT	PERMANENT DRAINAGE EASEMENT	TEMPORARY DRAINAGE EASEMENT	PERMANENT UTILITY EASEMENT
17	HARVEY MELTON	36,591 SF	12,020 SF		24,571 SF	2,991 SF			3,859 SF
18	HIRAM DAVIDSON EST.	21,998 SF	14,759 SF	7,239 SF		1,227 SF			
19	SUSAN WILSON	13,591 SF	1,184 SF	12,407 SF		700 SF			
20	JOEY JONES	10,585 SF	215 SF	10,370 SF		343 SF			
21	SAM TANNER		5986 SF			2,456 SF	1,750 SF		
22	UNKNOWN		575 SF			583 SF			
23	DEBORAH B. MOORE	1.13 AC	0.11 AC		1.02 AC	3,401 SF			3,803 SF
24	ROLAND JONES, JR.	22,216 SF	428 SF		21,788 SF	2,148 SF			
25	KENNETH TANNER	17,860 SF	1,399 SF	16,461 SF		1,923 SF			
26	BETTY McLAURIN	1.09 AC	9 SF		1.09 AC	1,989 SF			
27	NELL COPELAND	23,522 SF	1,601 SF		21,921 SF	1,047 SF			1,570 SF
28	WILLIAM USSERY	1.03 AC	1,992 SF	0.98 AC		0.10 AC			
29	R.H. JONES, JR.	1.34 AC	3,080 SF		1.27 AC	3,980 SF			3,016 SF
30	ATLANTIC FINANCIAL GROUP, LLC.	1.07 AC	2,196 SF	1.02 AC		0.14 AC			
31	JOHN H. LONG	37,636 SF	1,408 SF	36,228 SF		3,784 SF			
32	JAMES STEPHENS	1.71 AC	3,034 SF		1.64 AC	751 SF			2,965 SF

R/W Revision - Pile added to Paved 53 asphalt

10/19/2009
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DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
RIGHT OF WAY AREA DATA SHEET

PROJECT REFERENCE NO.		SHEET NO.	
U-3456		3-E	
ROADWAY DESIGN ENGINEER			
<div>PRELIMINARY PLANS</div> <div>DO NOT USE FOR CONSTRUCTION</div>			
Prepared in the Office of: EARTH TECH			
701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 • (919) 854-6259(FAX)			

PARCEL NO.	PROPERTY OWNER NAMES	TOTAL ACREAGE	AREA TAKEN	AREA REMAINING RIGHT	AREA REMAINING LEFT	CONSTRUCTION EASEMENT	PERMANENT DRAINAGE EASEMENT	TEMPORARY DRAINAGE EASEMENT	PERMANENT UTILITY EASEMENT
33	WILLIAM USSERY	40,032 SF	1,724 SF	38,308 SF		2,550 SF			
34	RIDDLE PROPERTIES, LLC	11.18 AC	0.15 AC	11.03 AC		0.24 AC	500 SF		
35	PRENTICE SPENCER	23,827 SF	295 SF		23,532 SF	38 SF			288 SF
36	LOTTIE McDONALD	19,863 SF	1,244 SF		18,619 SF	784 SF			1,212 SF
37	JAY RAMEY, JR.	1.10 AC	1,540 SF		1.06 AC	1,258 SF			1,500 SF
38	CHARLES DYSON	1.41 AC	1,320 SF		1.38 AC	1,304 SF			1,310 SF
39	EVERETT STROMAN	30,100 SF	1,260 SF		28,840 SF	1,217 SF			1,221 SF
40	MARY HAYWOOD	43,125 SF	2,130 SF		40,995 SF	1,850 SF	991 SF		1,803 SF
41	JAMES MABE	2.18 AC	0.17 AC		2.01 AC	0.18 AC	3,942 SF		0.10 AC
42	WESLEY DENHAM	1.45 AC	2,899 SF	1.38 AC		1,395 SF			
43	L. & T. TRUCKING COMPANY, INC.	40,859 SF	1,647 SF	39,212 SF		1,155 SF			
44	BILLY MOSS, JR.	23,915 SF		23,915 SF		1,292 SF			
45	HORACE RUSSELL	1.02 AC	3,289 SF	0.94 AC		1,947 SF			
46	BONNIE CADIEU	1.62 AC	0.13 AC		1.49 AC	4,103 SF			2,822 SF
47	WESLEY DENHAM	1.68 AC	0.21 AC	1.47 AC		2,233 SF	1,097 SF		
48	HAZEL JENKINS	2.65 AC	1,014 SF		2.63 AC	73 SF			3,154 SF

PARCEL NO.	PROPERTY OWNER NAMES	TOTAL ACREAGE	AREA TAKEN	AREA REMAINING RIGHT	AREA REMAINING LEFT	CONSTRUCTION EASEMENT	PERMANENT DRAINAGE EASEMENT	TEMPORARY DRAINAGE EASEMENT	PERMANENT UTILITY EASEMENT
49	TONY MARTIN	5.80 AC	0.31 AC	5.49 AC		0.13 AC	561 SF		
50	JOHN M. WEBB	25,657 SF			25,657 SF		260 SF		2,499 SF
51	UNKNOWN		1,677 SF			1,201 SF	455 SF		
52	BERNICE LEIGH	19,602 SF			19,602 SF				1,574 SF
53	KENNETH J. LAYTON INC.		1.16 AC			1.01 AC	1.38 AC		3,557 SF
54	JOHN WEBB	1.37 AC	0.49 AC		0.88 AC	0.12 AC	804 SF		979 SF
55	WHITEFORD CARRIKER, JR.	20,473 SF	1,639 SF		18,834 SF	1,002 SF			
56	EDGAR L. WHITE	26,136 SF	27 SF		26,109 SF	110 SF			
57	WILLIAM USSERY	4.42 AC	0.18 AC	4.24 AC		1,077 SF	1,207 SF		0.27 AC
58	THOMAS PHIFER	1.22 AC			1.22 AC		1,885 SF		2,173 SF
59	CRAWFORD MCNEILL	21,127 SF			21,127 SF				1,673 SF
60	KENNETH J. LAYTON INC.		0.70 AC			0.56 AC	0.56 AC		
61	RICHMOND COUNTY	21,170 SF			21,170 SF				1,703 SF
62	ISIAH BROWN	31,625 SF			31,625 SF		434 SF		2,317 SF
63	CHILDERS SAND CO., INC.	10,542 SF	24 SF		10,518 SF	1 SF	396 SF		599 SF
64	LOUISE W. HALL	24,742 SF	316 SF		24,426 SF	365 SF			2,334 SF

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA RIGHT OF WAY AREA DATA SHEET

PROJECT REFERENCE NO. U-3456	SHEET NO. 3-F
ROADWAY DESIGN ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
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PARCEL NO.	PROPERTY OWNER NAMES	TOTAL ACREAGE	AREA TAKEN	AREA REMAINING RIGHT	AREA REMAINING LEFT	CONSTRUCTION EASEMENT	PERMANENT DRAINAGE EASEMENT	TEMPORARY DRAINAGE EASEMENT	PERMANENT UTILITY EASEMENT
65	HENRY COVINGTON	26,790 SF	607 SF		26,183 SF	42 SF	1,320 SF		1,013 SF
66	JOE CULBREATH	12,371 SF	314 SF		12,057 SF		583 SF		428 SF
67	RAYMOND WALL	41,077 SF	999 SF		40,078 SF				3,038 SF
68	AUTHOR STEELE	1.94 AC	2,595 SF		1.88 AC	932 SF	1,800 SF		1,695 SF
69	JOHN COTMAN		0.25 AC			0.13 AC			
70	JOHN COTMAN		3,151 SF		4,864 SF	798 SF			937 SF
71	MYRTLE WANAMAKER	43,037 SF	2,112 SF		40,925 SF	1,095 SF			1,278 SF
72	MAMIE WANNAMAKER		1,613 SF			1,092 SF			
73	ERNEST WANNAMAKER	1.08 AC	0.19 AC	0.89 AC		0.15 AC	862 SF		
74	JOAN HEARNE	39,466 SF	1,298 SF		38,168 SF		500 SF		2,646 SF
75	UNKNOWN		83 SF						163 SF
76	MICHAEL LITTLE	6,621 SF	645 SF		5,976 SF		263 SF		651 SF
77	WALTER McCAIN	19,559 SF	722 SF		18,837 SF				1,368 SF
78	DEBORAH BURTON	2.96 AC	0.13 AC	2.83 AC		0.16 AC			
79	UNKNOWN		239 SF			105 SF			301 SF
80	WALTER McCAIN	1.44 AC	0.16 AC		1.28 AC	1,248 SF	300 SF		0.12 AC

PARCEL NO.	PROPERTY OWNER NAMES	TOTAL ACREAGE	AREA TAKEN	AREA REMAINING RIGHT	AREA REMAINING LEFT	CONSTRUCTION EASEMENT	PERMANENT DRAINAGE EASEMENT	TEMPORARY DRAINAGE EASEMENT	PERMANENT UTILITY EASEMENT
81	BESSIE MORMAN	2,483 SF	414 SF		2,069 SF				500 SF
82	SHERRY COVINGTON	1.68 AC	1,244 SF	1.65 AC		2,871 SF			
83	JOHNNIE MORMAN	1,830 SF	75 SF	1,755 SF		84 SF			
84	WALTER McCAIN	7,972 SF	7,972 SF		0 SF				
85	JOHNNIE MORMAN	392 SF	392 SF		0 SF				
86	WALTER COVINGTON, JR.	27,966 SF	4,779 SF		23,187 SF	2,475 SF			1,653 SF
87	GLENN WILLIAMS	13,896 SF	152 SF	13,744 SF		2,694 SF	1,043 SF		
88	BARBARA EVERETT	27,443 SF	8,061 SF		19,382 SF	41 SF	5,648 SF		13 SF
89	BERTHA ALFORD	10,890 SF		10,890 SF		5,184 SF			
90	WILLIAM SMITH, SR.	13,199 SF	3,688 SF		9,511 SF		3,005 SF		
91	AUTHOR SPENCER	43,517 SF		43,517 SF		1,151 SF			
92	VIRGINIA POLLARD	12,545 SF	3,233 SF		9,312 SF		2,963 SF		
93	JOHN MCCALL	1.01 AC		1.01 AC		1,550 SF			
94	PRISCILLA FLETCHER	17,076 SF	4,645 SF		12,431 SF	187 SF	1,361 SF		1,500 SF
95	MINNIE SMITH	1.02 AC	120 SF	1.02 AC		1,742 SF			
96	SHERRY COVINGTON	1.06 AC	0.11 AC		0.95 AC		418 SF		1,902 SF

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA RIGHT OF WAY AREA DATA SHEET

PROJECT REFERENCE NO. U-3456		SHEET NO. 3-G
ROADWAY DESIGN ENGINEER		<div style="border: 2px solid black; padding: 5px; display: inline-block;"> PRELIMINARY PLANS <small>DO NOT USE FOR CONSTRUCTION</small> </div>
<small>Prepared in the Office of:</small> <div style="display: inline-block; text-align: center;"> EARTH TECH <small>701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 - (919) 854-6259(FAX)</small> </div>		

PARCEL NO.	PROPERTY OWNER NAMES	TOTAL ACREAGE	AREA TAKEN	AREA REMAINING RIGHT	AREA REMAINING LEFT	CONSTRUCTION EASEMENT	PERMANENT DRAINAGE EASEMENT	TEMPORARY DRAINAGE EASEMENT	PERMANENT UTILITY EASEMENT
97	UNKNOWN	1.57 AC	314 SF	1.56 AC		2,237 SF	900 SF		
98	TERRY WILLIAMS	38,856 SF	14,607 SF		24,249 SF	955 SF	911 SF		2,451 SF
99	LEON WALL	2.05 AC	0.77 AC	1.88 AC		0.15 AC	903 SF		
100	PECOLIA HOKE	24,394 SF	910 SF		23,484 SF	832 SF			
101	RICHMOND COUNTY	5.37 AC	1,194 SF		5.34 AC	932 SF			
102	PECOLIA HOKE	22,913 SF	11,381 SF		11,532 SF		3,050 SF		
103	DOCKERY SETTLE	11,718 SF			11,718 SF	1,265 SF			
104	JANE DIRIANZE	13,068 SF	1,248 SF	11,820 SF		1,988 SF	593 SF		
105	LYNWOOD COVINGTON	1.89 AC	2,035 SF	1.84 AC		0.22 AC	56 SF		
106	NEIL COVINGTON	18,687 SF	8,353 SF		10,334 SF		4,767 SF		
107	UNKNOWN						144 SF		
108	WILLIAM DOWDY	1.05 AC	0.77 AC		0.88 AC		0.12 AC		39 SF
109	LYNWOOD COVINGTON		393 SF			0.38 AC	4,348 SF		
110	BERTHA ALFORD	1.93 AC	3,181 SF		1.86 AC	652 SF	500 SF		0.10 AC
111	LYNWOOD COVINGTON	2.27 AC	0.49 AC		1.78 AC	1,036 SF	1,750 SF		0.19 AC
112	THE BOARD OF EDUCATION OF RICHMOND COUNTY	93.59 AC	0.22 AC	93.37 AC		0.19 AC			

PARCEL NO.	PROPERTY OWNER NAMES	TOTAL ACREAGE	AREA TAKEN	AREA REMAINING RIGHT	AREA REMAINING LEFT	CONSTRUCTION EASEMENT	PERMANENT DRAINAGE EASEMENT	TEMPORARY DRAINAGE EASEMENT	PERMANENT UTILITY EASEMENT
113	HENRY USSERY	33.84 AC	0.50 AC		33.34 AC	2,344 SF			0.31 AC
114	HAGINS TITUS EST.	2.38 AC	2,115 SF		2.33 AC	920 SF			2,550 SF
115	JULIA WILLIAMS	3.33 AC	468 SF		3.32 AC	663 SF			3,189 SF
116	RALPH A. SOUDER	7.71 AC	3,841 SF		7.62 AC	3,633 SF	1,039 SF		1,424 SF
117	MCCASKILL OIL COMPANY	13.67 AC	0.39 AC	13.28 AC		0.31 AC	1212 SF		
118	JAMES PORTER	41,469 SF	6,120 SF	35,349 SF		2,901 SF			
119	SOUTHERN INVESTMENT AND DEVELOPMENT COMPANY	4.60 AC			4.60 AC	3,527 SF			
120	MAMIE TERRY LITTLE	1.52 AC			1.52 AC	14 SF	1181 SF		2,156 SF
121	JAMES PORTER	40,424 SF	4,363 SF	36,061 SF		5,108 SF	786 SF		
122	RONNIE WALL	41,295 SF	4,317 SF	36,978 SF		4,857 SF			
123	JAMES TERRY	21,432 SF	86 SF		21,346 SF				2,305 SF
124	LAWERENCE TERRY	2.23 AC	0.77 AC		2.06 AC	2,804 SF			834 SF
125	JEFFREY PRESSLEY	1.89 AC	0.27 AC	1.62 AC		0.13 AC			
126	JOHN EVANS	4.12 AC	0.52 AC		3.60 AC	2,150 SF	556 SF		3,945 SF
127	JERRY TILLEY	40,119 SF	4,964 SF	35,155 SF		3,943 SF			
128	EDWIN PINEDA	40,598 SF	624 SF	39,974 SF		3,130 SF			

R/W Revision - PUE added to Parcel 132 on 12/6/02

R/W REVISION 06/01/05
PARCEL 135

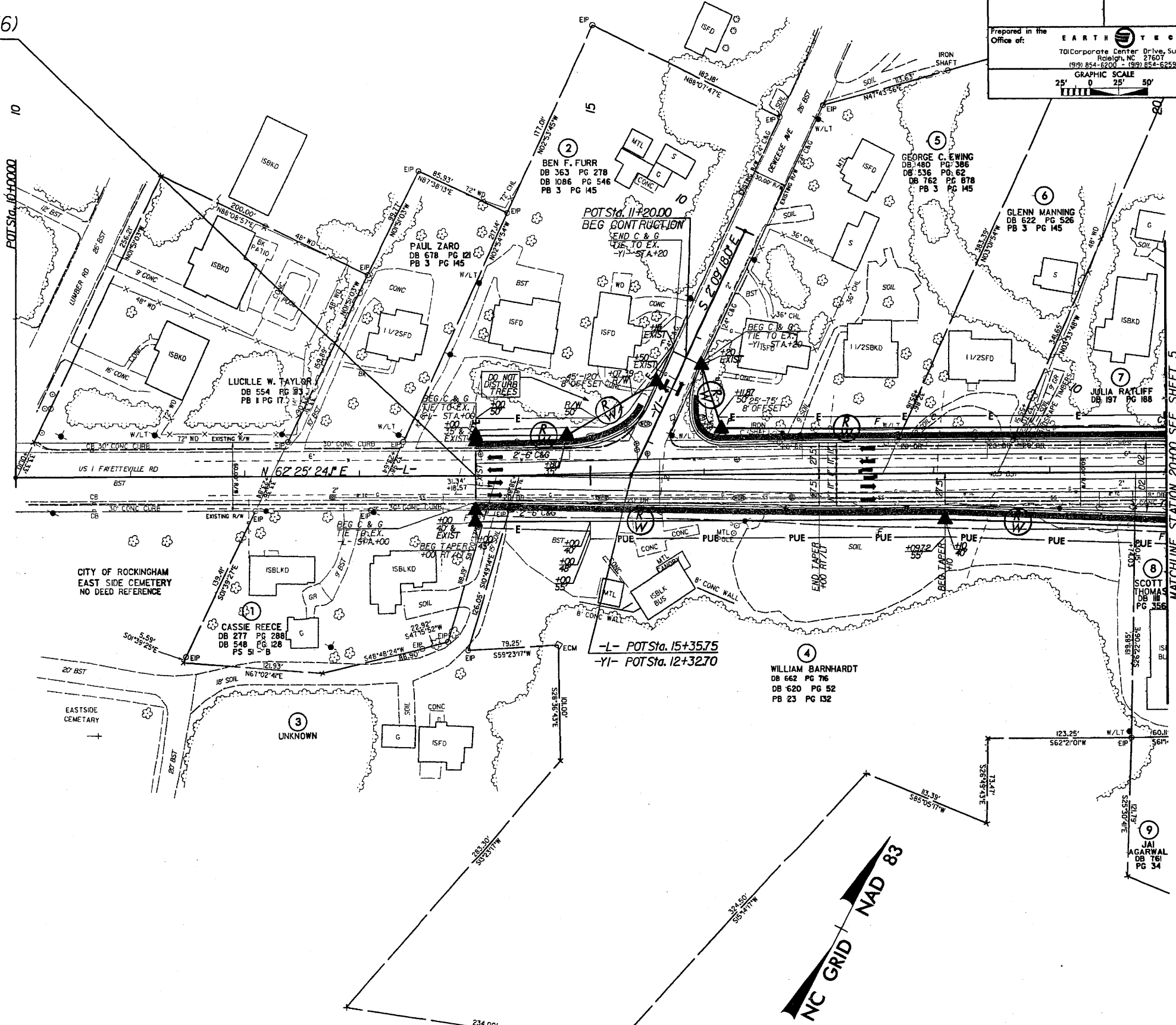
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PLAN Division - FILE added to Plans 4 & 8
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BEGIN STATE PROJECT (U-3456)
-L- POT STA 14+00

PROJECT REFERENCE NO. U-3456		SHEET NO. 4	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			
Prepared in the Office of: EARTH TECH 701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 • (919) 854-6259 (FAX)			
GRAPHIC SCALE 25' 0 25' 50'			



DATUM DESCRIPTION
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCSS FOR MONUMENT "FRUITLAND" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 427332.4980(M) EASTING: 1804014.1180(M) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99986682 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "FRUITLAND" TO 4+ STATION 14+00.00 IS N 71° 50' 55.0" W 30,307.68' ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS MVD 29

ALL R/W LINES ARE CHORDS
UNLESS LABELED OTHERWISE
FOR -L- PROFILE SEE SHEET 17

0

<p>(36)</p> <p>OTTIE McDONALD DB 442 PG 464 PB 3 PG 201</p>	<p>(37)</p> <p>JAY RAMEY, JR. DB 724 PG 860 PB 3 PG 201</p>
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62° 28' 32.6" E

EXIST. DETENTION BASIN
TOP OF BANK

(34)

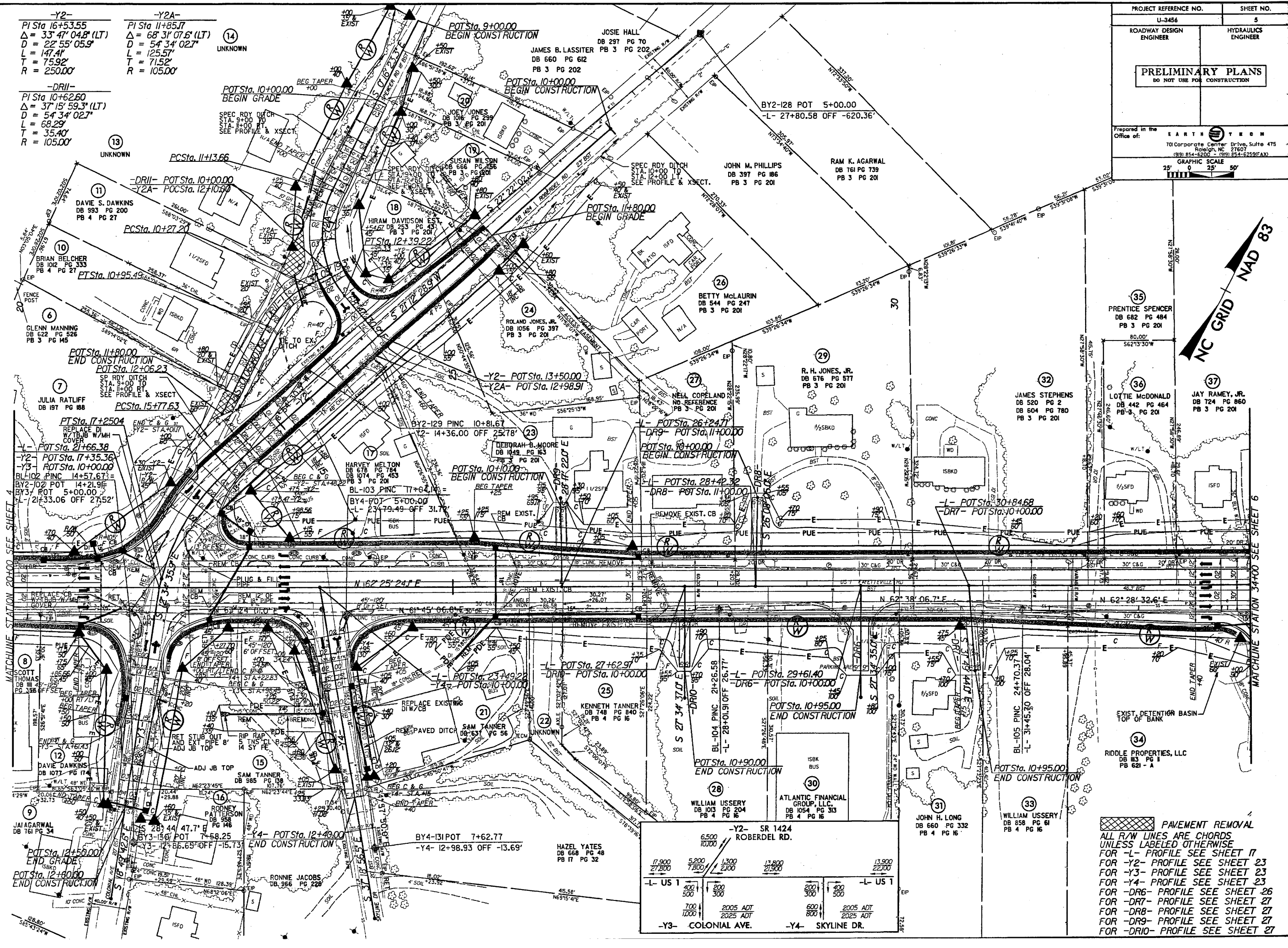
DDLE PROPERTIES, LLC

DB 113 PG 11
PB 621 - A

PAVEMENT REMOVAL
L R/W LINES ARE CHORDS
Labeled OTHERWISE
SEE PROFILE SHEET 7

R -Y2- PROFILE SEE SHEET 23
R -Y3- PROFILE SEE SHEET 23
R -Y4- PROFILE SEE SHEET 23
R -DR6- PROFILE SEE SHEET 26
R -DR7- PROFILE SEE SHEET 27

R -DR7- PROFILE SEE SHEET 27
R -DR8- PROFILE SEE SHEET 27
R -DR9- PROFILE SEE SHEET 27
R -DR10- PROFILE SEE SHEET 27




PI Sta 12+81.77
 $\Delta = 24^\circ 04' 21.5''$ (LT)
 $D = 22^\circ 55' 05.9''$
 $L = 105.04'$
 $T = 53.30'$
 $R = 250.00'$

PROJECT REFERENCE NO.	SHEET NO.
U-3456	6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
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TECH

701 Corporate Center Drive, Suite 475
Raleigh, NC 27607
(919) 854-8206 (919) 854-6258(FAX)

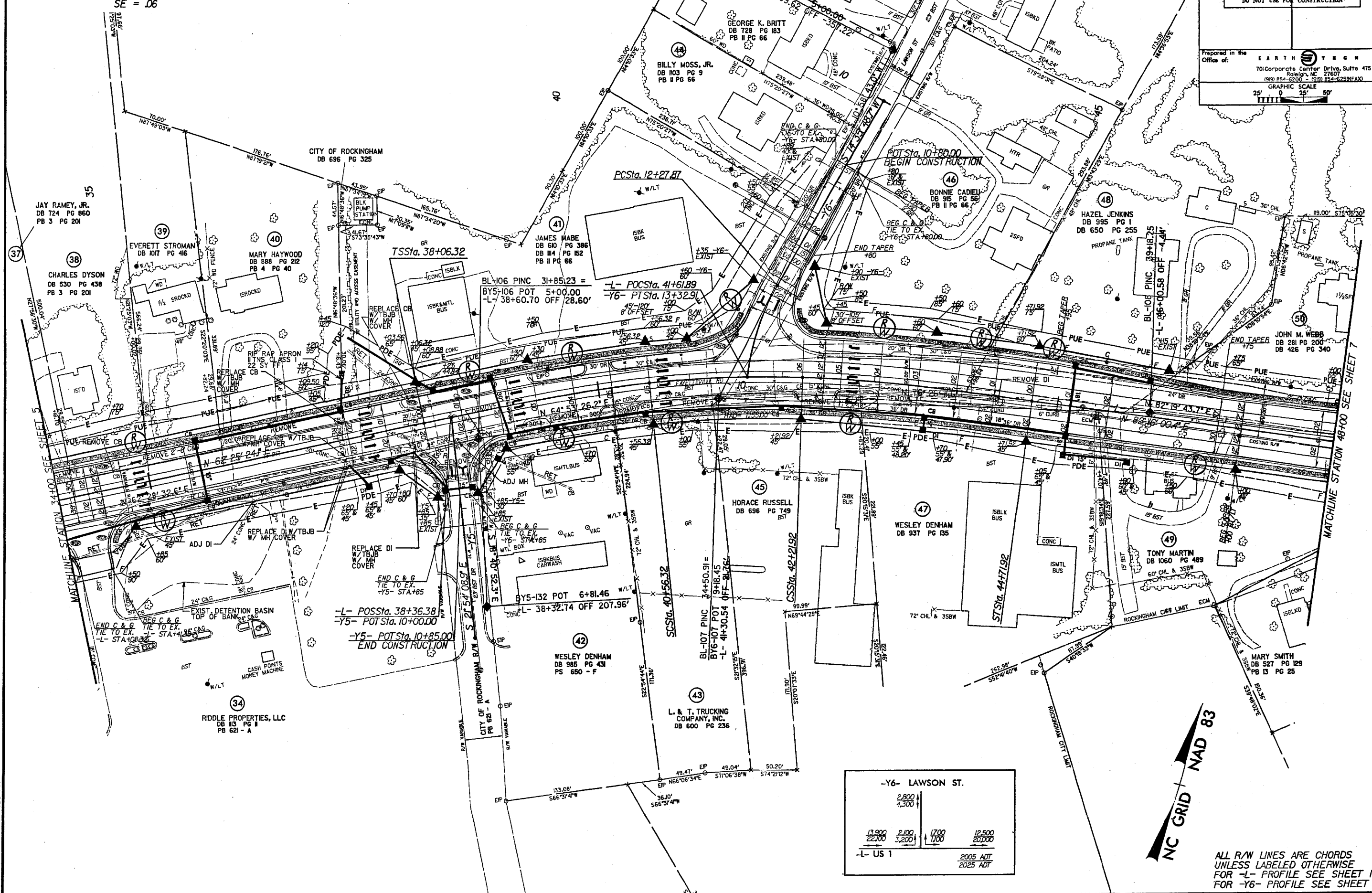
GRAPHIC SCALE

25'

0

25'

50'



-Y6- LAWSON ST.

2,800
4,300

13,900
22,600

2,100
3,200

17,000
1,000

12,500
20,000

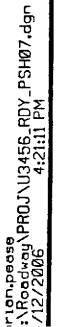
-L- US 1


2005 ADT
2025 ADT

NC GRID + NAD 83

ALL R/W LINES ARE CHORDS
UNLESS LABELED OTHERWISE
FOR -L- PROFILE SEE SHEET 18
FOR -Y6- PROFILE SEE SHEET 23

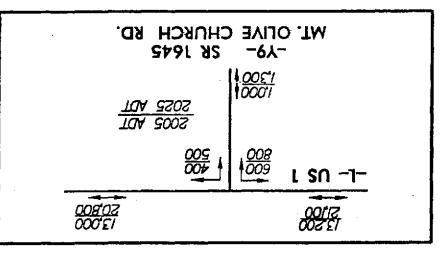
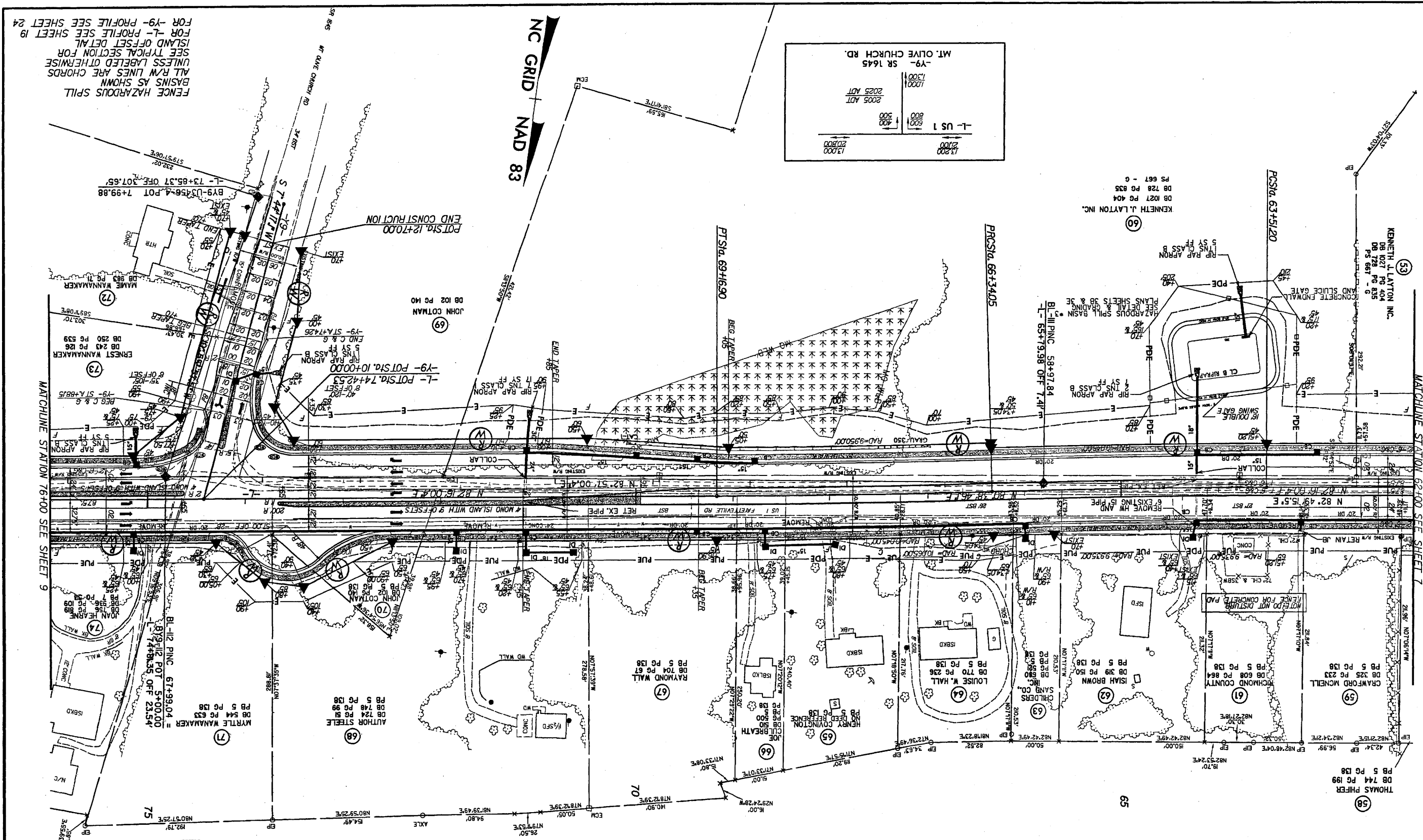
lanjley
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 PAVEMENT REMOVAL
FENCE HAZARDOUS SPILL
BASINS AS SHOWN
ALL R/W LINES ARE CHORDS
UNLESS LABELED OTHERWISE
SEE TYPICAL SECTION FOR
ISLAND OFFSET DETAIL
FOR -L- PROFILE SEE SHEET 18
FOR -Y7REV- PROFILE SEE SHEET 23
FOR -Y8- PROFILE SEE SHEET 24

PI STA 64+92.63
Δ = 1.37' (42' (LT))
D = 0.34' (22.6'
L = 282.85'
T = 141.44'
R = 10,000.00'
SE = NC
SE = NC

PROJECT REFERENCE NO. U-3456	
ROADWAY DESIGN ENGINEER	
HYDRAULICS ENGINEER	
SHEET NO. 8	
PRELIMINARY PLANS	
DO NOT USE FOR CONSTRUCTION	
Reported in the Office of: EARTH	
701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 851-6200 - (919) 851-6259 (FAX)	
GRAPHIC SCALE 0 25' 50'	



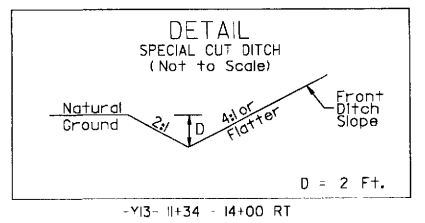
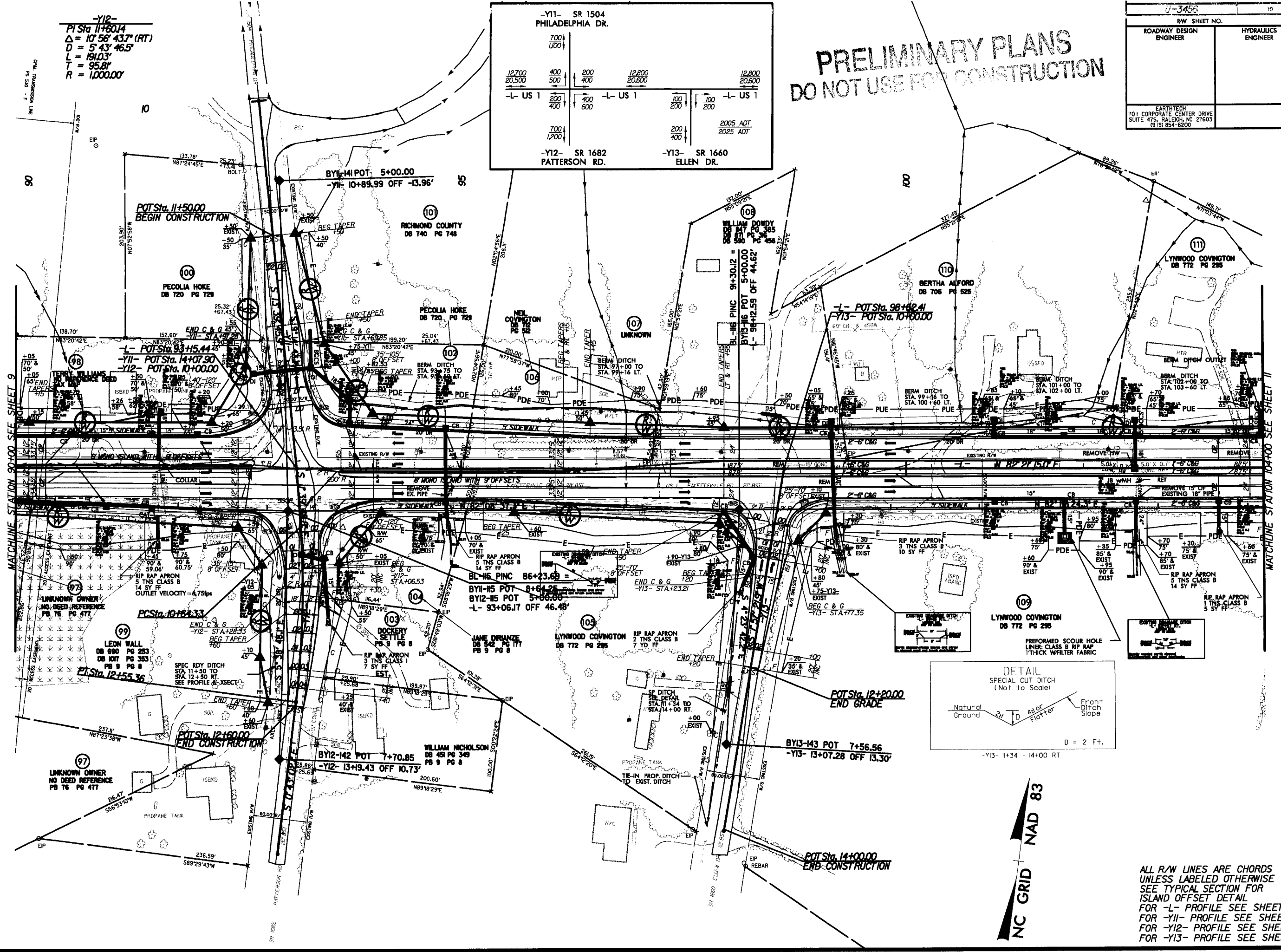
FENCE HAZARDOUS SPILL
BASINS AS SHOWN
ALL R/W LINES ARE CHORDS
UNLESS LABELED OTHERWISE
SEE TYPICAL SECTION FOR
ISLAND OFFSET DETAIL
FOR -L- PROFILE SEE SHEET 19
FOR -Y9- PROFILE SEE SHEET 24

-Y12-
PI Sta 11+80.14
 $\Delta = 10^\circ 56' 43.7" (RT)$
 $D = 5^\circ 43' 46.5"$
 $L = 191.03'$
 $T = 95.81'$
 $R = 1,000.00'$

-Y11- SR 1504 PHILADELPHIA DR.			
12700 20.500	400 500	200 400	12800 20.600
-L- US 1	200 400	-L- US 1	100 200
700 1200	400 600	200 400	2005 ADT 2025 ADT
-Y12- SR 1682 PATTERSON RD.		-Y13- SR 1660 ELLEN DR.	

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

J-3456	
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
EARTHTECH 701 CORPORATE CENTER DRIVE SUITE 475, RALEIGH, NC 27603 (919) 854-6200	



NC GRID NAD 83

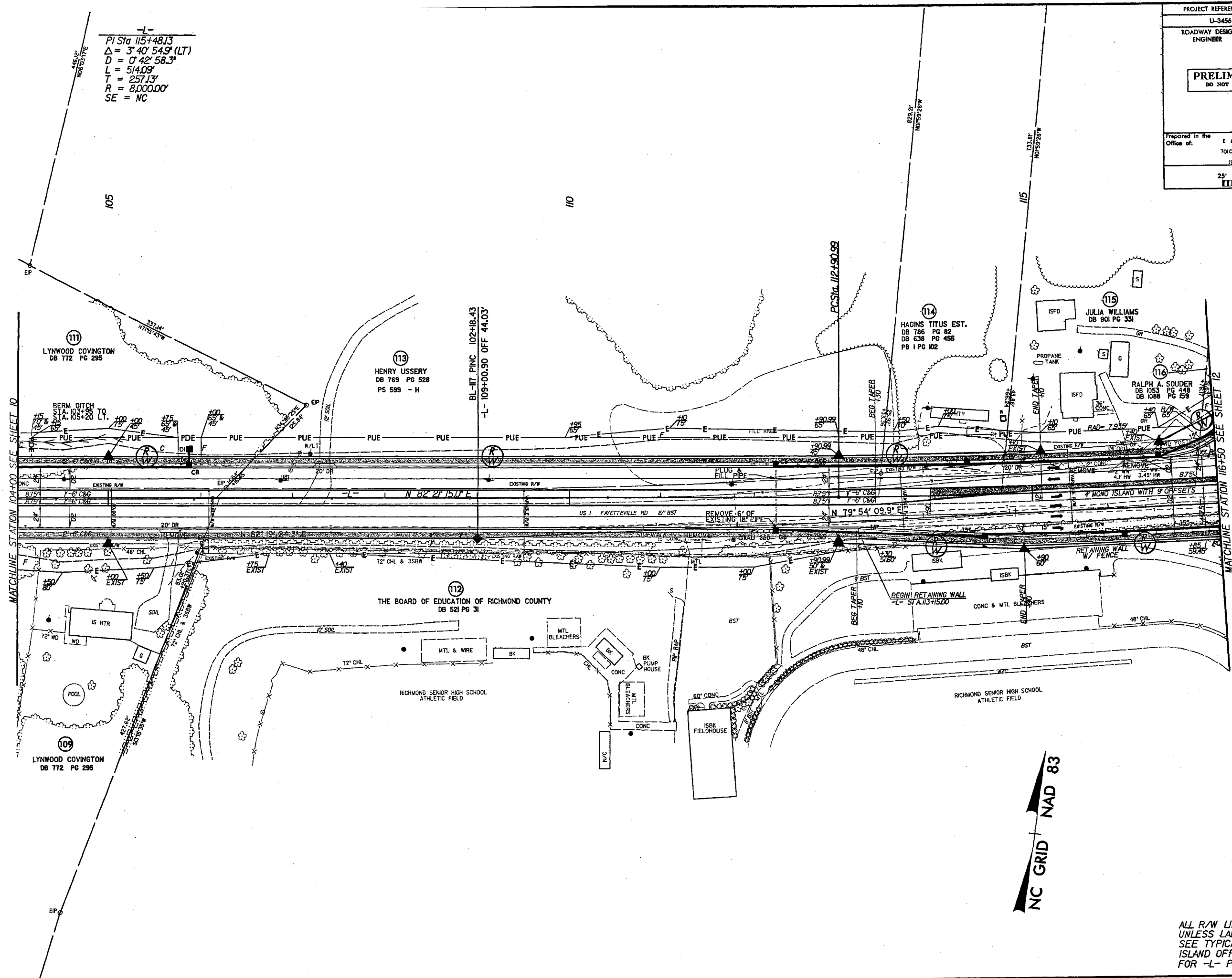
ALL R/W LINES ARE CHORDS
UNLESS LABELED OTHERWISE
SEE TYPICAL SECTION FOR
ISLAND OFFSET DETAIL
FOR -L- PROFILE SEE SHEET 20
FOR -Y11- PROFILE SEE SHEET 24
FOR -Y12- PROFILE SEE SHEET 24
FOR -Y13- PROFILE SEE SHEET 24

REVISIONS

Revisions:
USER: dmp/mt
DATE: 8/28/2007
TIME: 09:44 AM
DGN: K:\80000-3456\Roadway\Proj\J3456-RT_PSH.dgn

PROJECT REFERENCE NO.		SHEET NO.	
U-3456		11	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			
Prepared in the Office of: EARTH SYSTEMS 701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 - (919) 854-6259(FAX)			
GRAPHIC SCALE 25' 0 25' 50'			

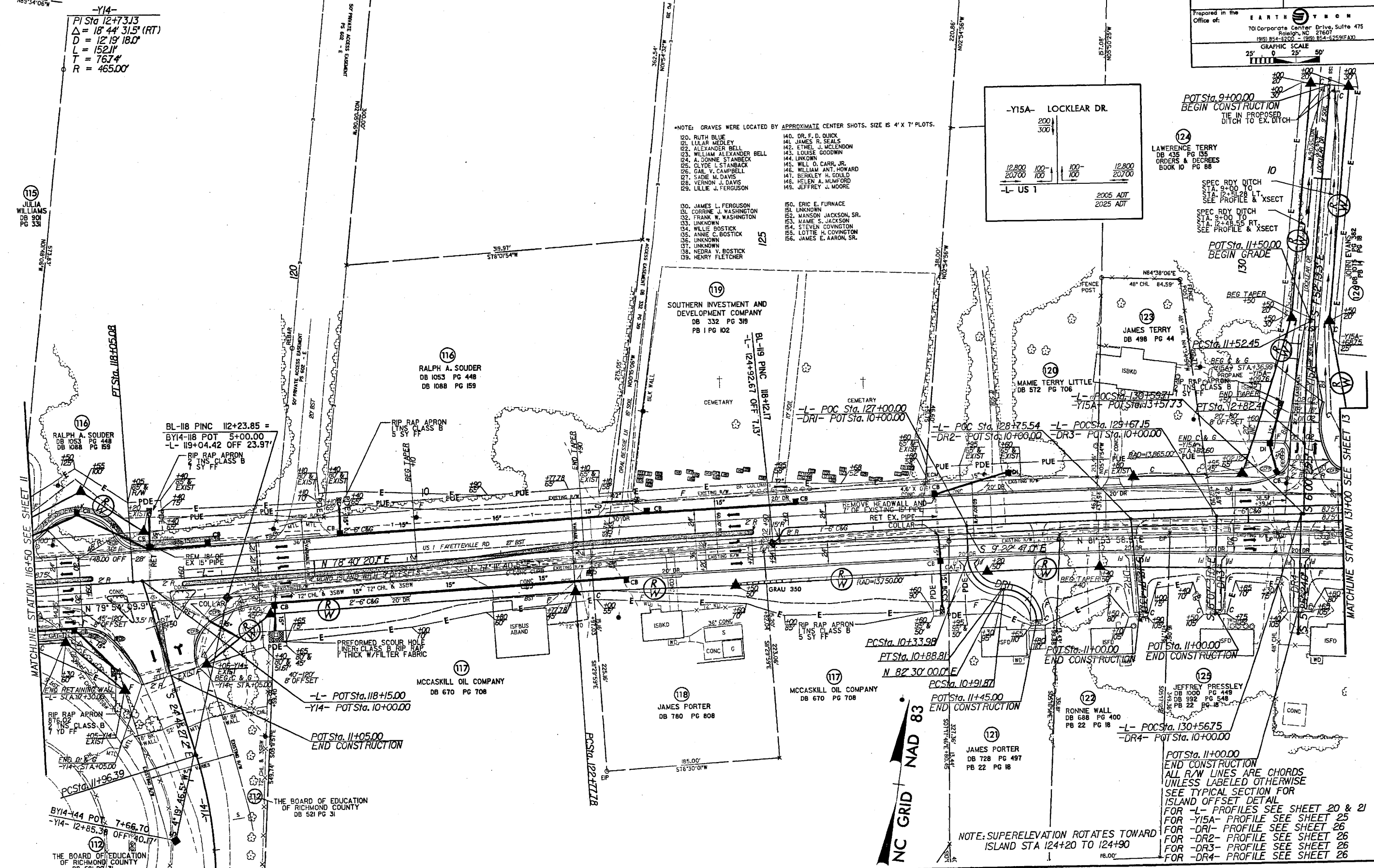
-L-
 PI Sta 115+48.13
 $\Delta = 3^{\circ} 40' 54.9" (LT)$
 $D = 0^{\circ} 42' 58.3"$
 $L = 514.09'$
 $T = 257.13'$
 $R = 8,000.00'$
 SE = NC



NC GRID
 NAD 83

ALL R/W LINES ARE CHORDS
 UNLESS LABELED OTHERWISE
 SEE TYPICAL SECTION FOR
 ISLAND OFFSET DETAIL
 FOR -L- PROFILE SEE SHEET 20

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 18/29/2004 1:39:20 PM



NOTE: SUPERELEVATION ROTATES TOWARD
ISLAND STA 124+20 TO 124+90

POT Sta. 11+00.00
END CONSTRUCTION
ALL R/W LINES ARE CHORDS
UNLESS LABELED OTHERWISE
SEE TYPICAL SECTION FOR
ISLAND OFFSET DETAIL
FOR -L- PROFILES SEE SHEET 20 & 21
FOR -Y15A- PROFILE SEE SHEET 25
FOR -DR1- PROFILE SEE SHEET 26
FOR -DR2- PROFILE SEE SHEET 26
FOR -DR3- PROFILE SEE SHEET 26
FOR -DR4- PROFILE SEE SHEET 26

dlan@leu
K:\61800\U-3456\Roadway\PROJ\U3456_rdy_psh12.dgn
10/29/2004 1:39:17 PM

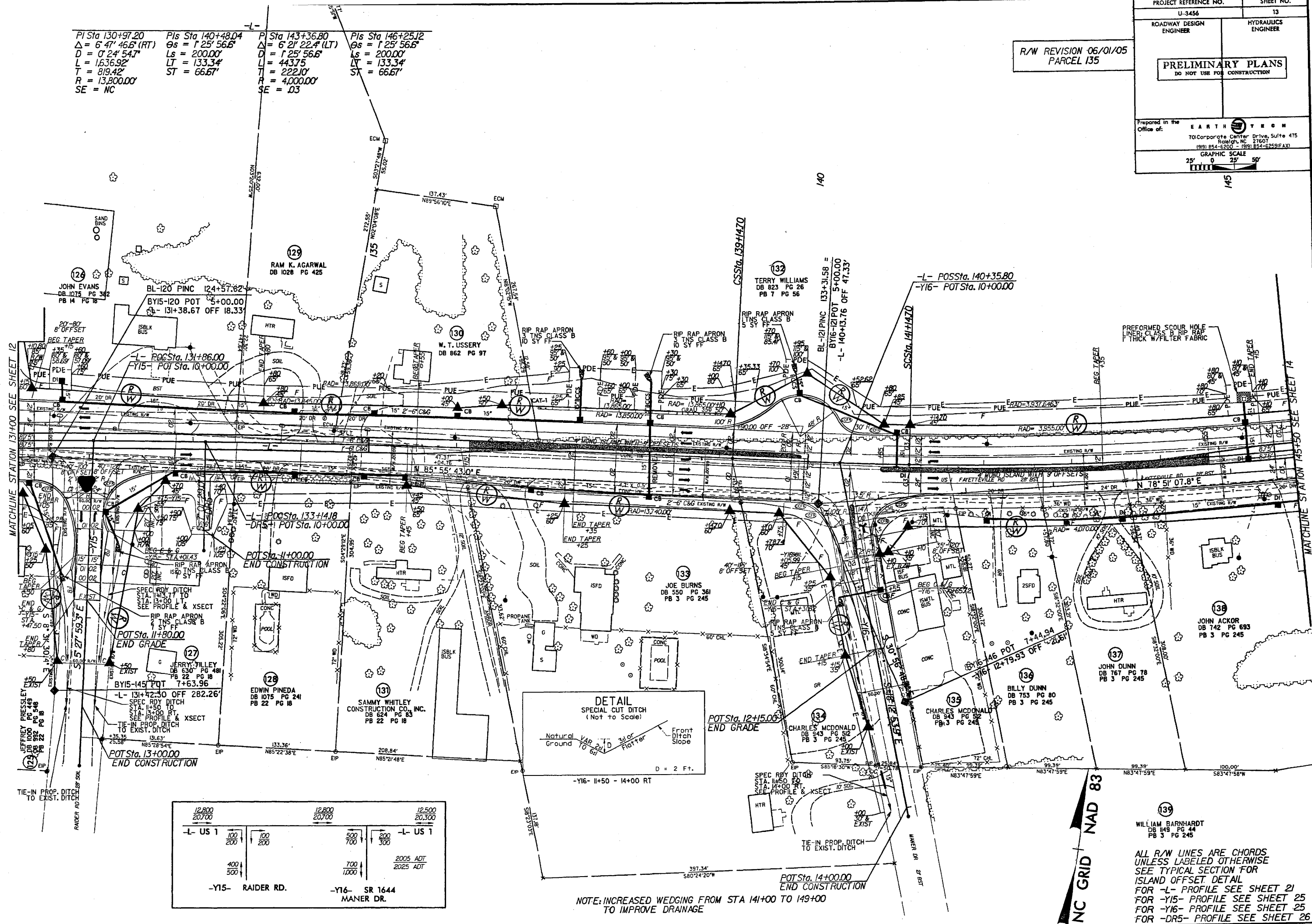
2nd Revision - Reduced PLO, revised drainage and retain the existing driveway on Parcel 135 12/05/05 WJL

PI Sta 130+97.20 $\Delta = 6' 47' 46.6''$ (RT) $D = 0' 24' 54.7''$ $L = 1636.92'$ $T = 819.42'$ $R = 13,800.00'$ $SE = NC$	PIs Sta 140+48.04 $\Delta s = 1' 25' 56.6''$ $Ls = 200.00'$ $ST = 66.67'$	PIs Sta 143+36.80 $\Delta = 6' 21' 22.4''$ (LT) $D = 1' 25' 56.6''$ $L = 443.75'$ $T = 222.10'$ $R = 4,000.00'$ $SE = .03$	PIs Sta 146+25.12 $\Delta s = 1' 25' 56.6''$ $Ls = 200.00'$ $LT = 133.34'$ $ST = 66.67'$
--	--	--	--

R/W REVISION 06/01/05
PARCEL 135

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PROJECT REFERENCE NO. U-3456 SHEET NO. 13
ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER
Prepared in the Office of: EARTH SYSTEM
701 Corporate Center Drive, Suite 475
Raleigh, NC 27601
(919) 854-6200 - (919) 854-6259 (FAX)
GRAPHIC SCALE
25' 0 25' 50'



DETAIL
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground
Front Ditch Slope
D = 2 Ft.

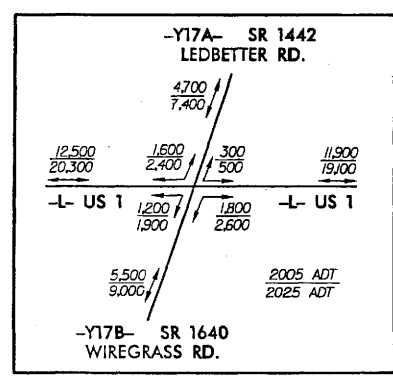
12,800 20,700	12,800 20,700	12,500 20,300
-L- US 1	-L- US 1	-L- US 1
100 200	100 200	100 200
400 500	400 500	400 500
-Y15- RAIDER RD.	-Y16- SR 1644 MANER DR.	2005 ADT 2025 ADT

NOTE: INCREASED WEDGING FROM STA 141+00 TO 149+00
TO IMPROVE DRAINAGE

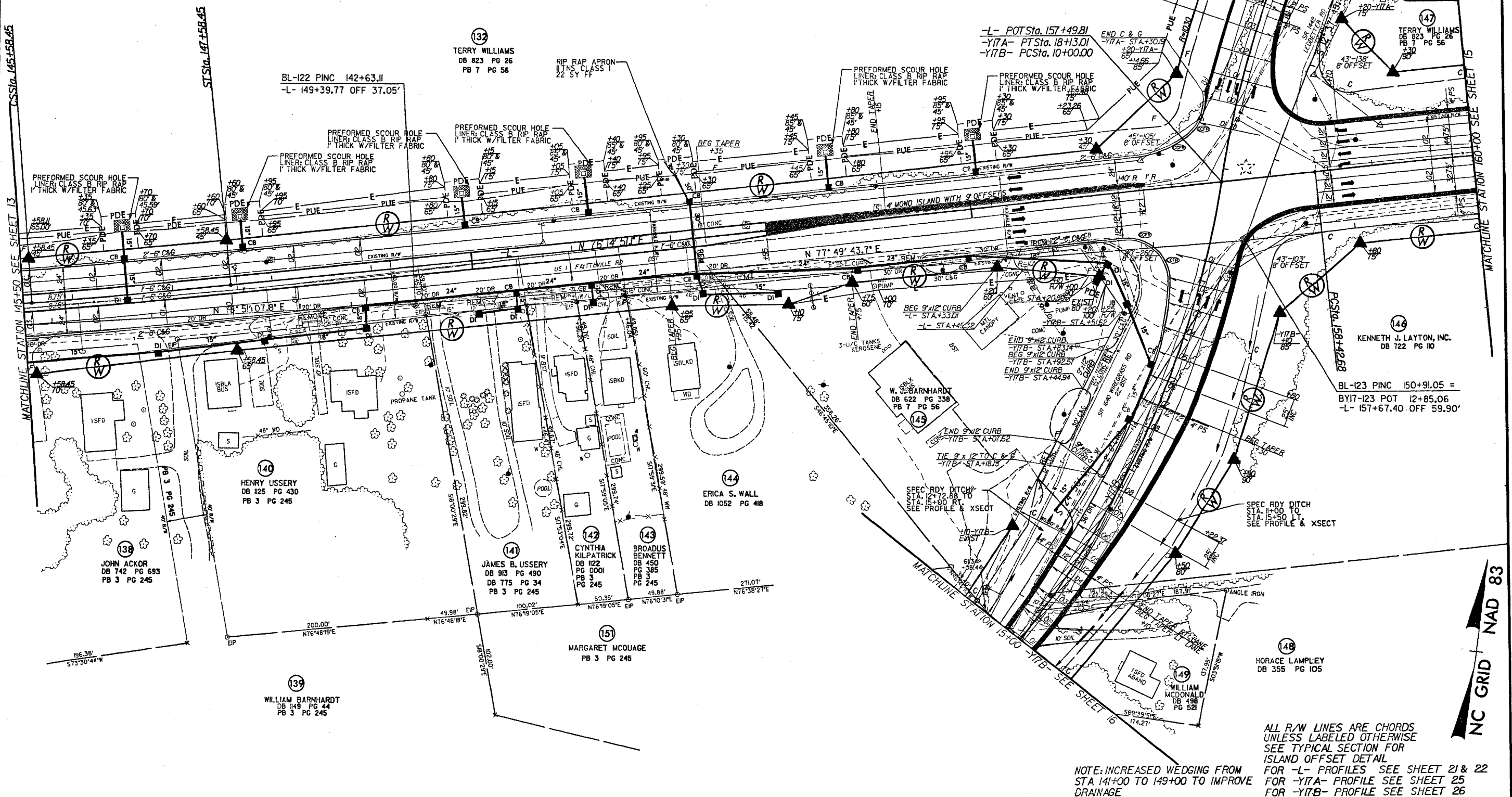
ALL R/W LINES ARE CHORDS
UNLESS LABELED OTHERWISE
SEE TYPICAL SECTION FOR
ISLAND OFFSET DETAIL
FOR -L- PROFILE SEE SHEET 21
FOR -Y15- PROFILE SEE SHEET 25
FOR -Y16- PROFILE SEE SHEET 25
FOR -DR5- PROFILE SEE SHEET 26

R/W Revision - PUE added to Parcel 132 11/26/16

-L-				-Y7A-		-Y7B-	
Pls Sta 140+480.4	Pls Sta 143+36.80	Pls Sta 146+25.12	Pls Sta 160+49.91	Pls Sta 15+85.57	Pls Sta 12+67.76	Pls Sta 12+67.76	Pls Sta 12+67.76
$\Delta s = 1' 25' 56.6"$	$\Delta s = 1' 25' 56.6"$	$\Delta s = 1' 25' 56.6"$	$\Delta s = 2' 58' 03.8"$ (RT)	$\Delta s = 27' 33' 05.1"$ (LT)	$\Delta s = 31' 00' 55.4"$ (RT)	$\Delta s = 31' 00' 55.4"$ (RT)	$\Delta s = 31' 00' 55.4"$ (RT)
$Ls = 200.00'$	$Ls = 200.00'$	$Ls = 200.00'$	$Ls = 200.00'$	$Ls = 200.00'$	$Ls = 200.00'$	$Ls = 200.00'$	$Ls = 200.00'$
$LT = 133.34'$	$LT = 133.34'$	$LT = 133.34'$	$LT = 133.34'$	$LT = 133.34'$	$LT = 133.34'$	$LT = 133.34'$	$LT = 133.34'$
$ST = 66.67'$	$ST = 66.67'$	$ST = 66.67'$	$ST = 66.67'$	$ST = 66.67'$	$ST = 66.67'$	$ST = 66.67'$	$ST = 66.67'$
	$SE = .03$						



PROJECT REFERENCE NO.		SHEET NO.	
U-3456		14	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			
Prepared in the Office of:			
EARTH TECH 701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 • (919) 854-6250 (FAX)			
GRAPHIC SCALE 25' 0" 25' 50'			





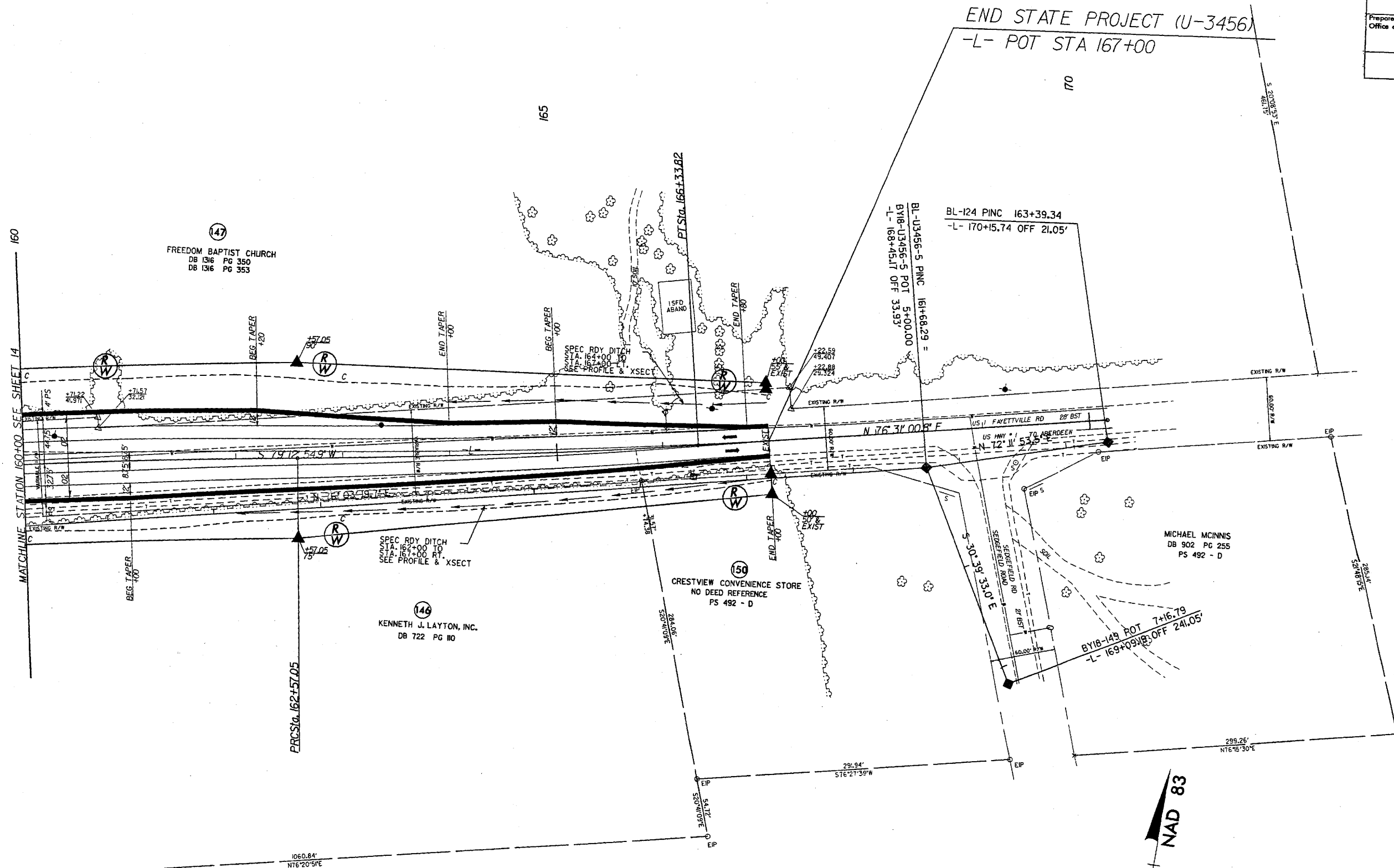
NOTE: INCREASED WEDGING FROM STA 141+00 TO 149+00 TO IMPROVE DRAINAGE

ALL R/W LINES ARE CHORDS UNLESS LABELED OTHERWISE SEE TYPICAL SECTION FOR ISLAND OFFSET DETAIL

FOR -L- PROFILES SEE SHEET 21 & 22
FOR -Y7A- PROFILE SEE SHEET 25
FOR -Y7B- PROFILE SEE SHEET 26

4/12/2006 4:21:30 PM
PROJ: U3456, R/W, PSH4.dgn
BRUNCE

PROJECT REFERENCE NO.		SHEET NO.	
U-3456		15	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<div style="border: 1px solid black; padding: 10px; text-align: center;"> <p>PRELIMINARY PLANS</p> <p>DO NOT USE FOR CONSTRUCTION</p> </div>			
Prepared in the Office of:		 <p>EARTH TECH</p> <p>101 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 - (919) 854-6259(FAX)</p>	
25'		50'	
		<p>GRAPHIC SCALE</p> <p>0 25' 50'</p>	



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$$$$$DATE$$$$$
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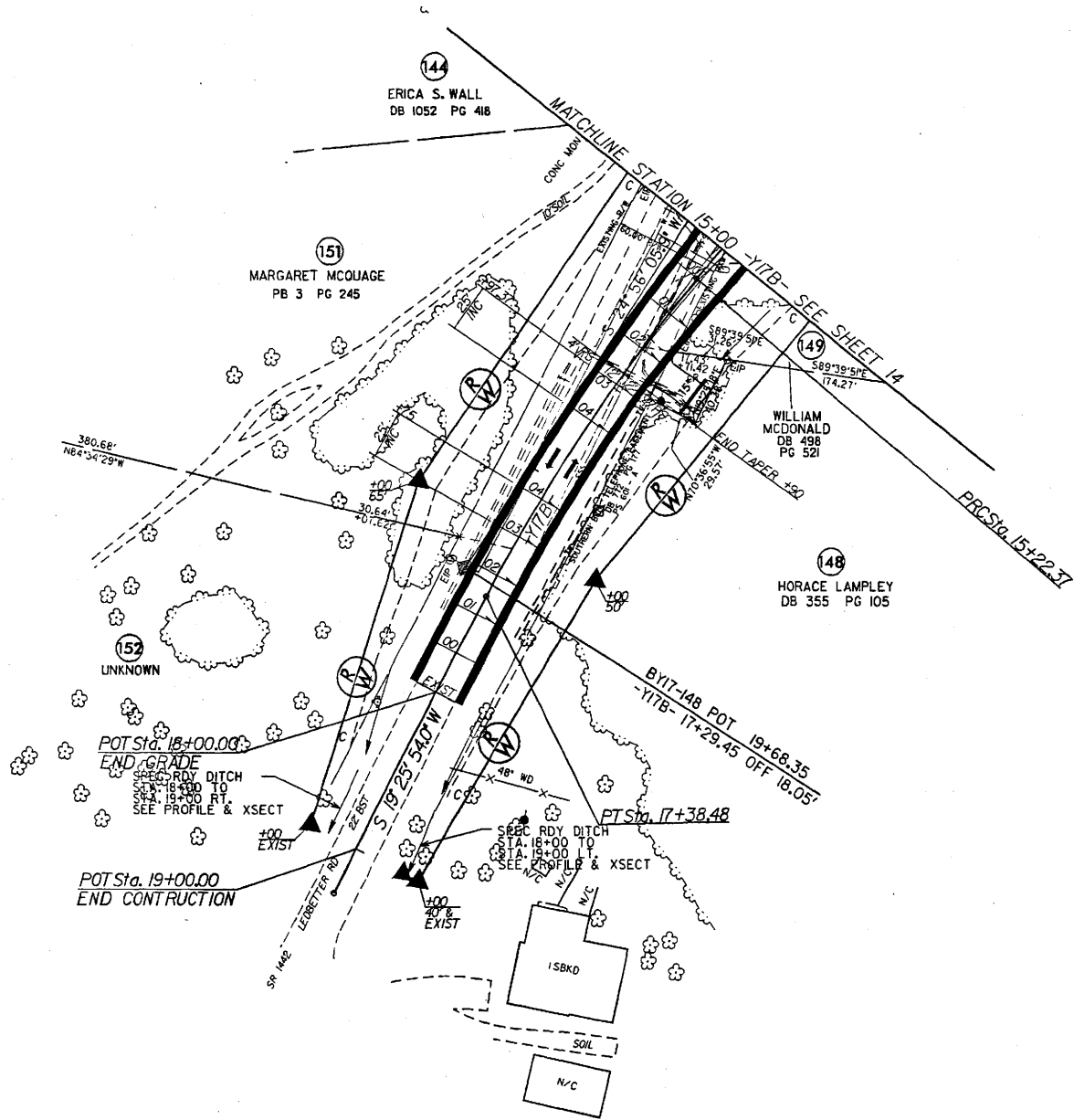
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NC GRID NAD 83

ALL R/W LINES ARE CHORDS
UNLESS LABELED OTHERWISE

-Y17B-
 PI Sta 16+30.88
 $\Delta = 12' 49' 52.5''$ (LT)
 $D = 5' 56' 14.6''$
 $L = 216.11'$
 $T = 108.51'$
 $R = 965.00'$

-Y17B-

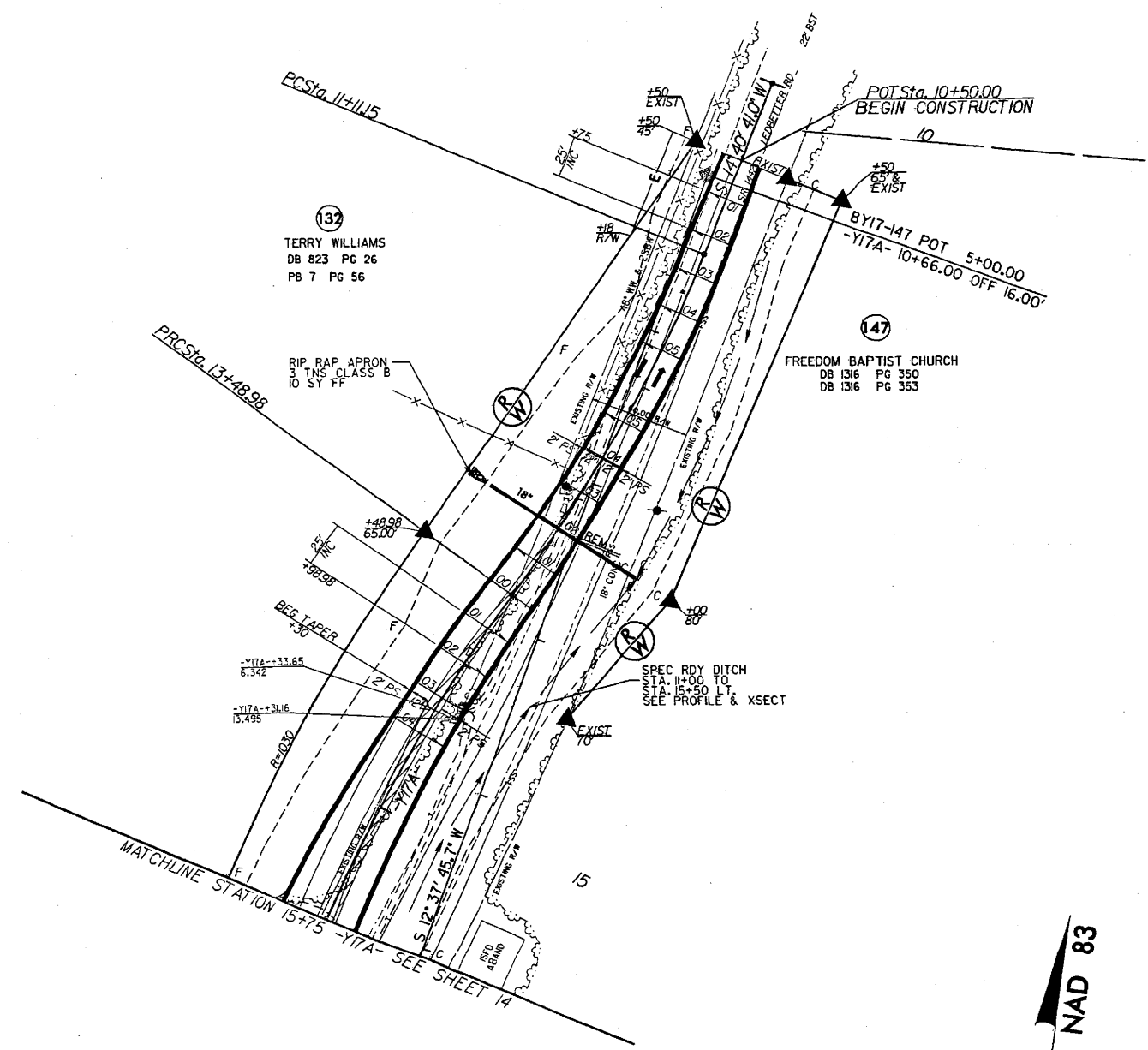


NC GRID NAD 83



-Y17A-
 PI Sta 12+30.67
 $\Delta = 14' 07' 15.2''$ (RT)
 $D = 5' 56' 14.6''$
 $L = 237.83'$
 $T = 119.52'$
 $R = 965.00'$

-Y17A-
 PI Sta 15+85.57
 $\Delta = 27' 33' 05.1''$ (LT)
 $D = 5' 56' 14.6''$
 $L = 4640.3'$
 $T = 236.59'$
 $R = 965.00'$

-Y17A-



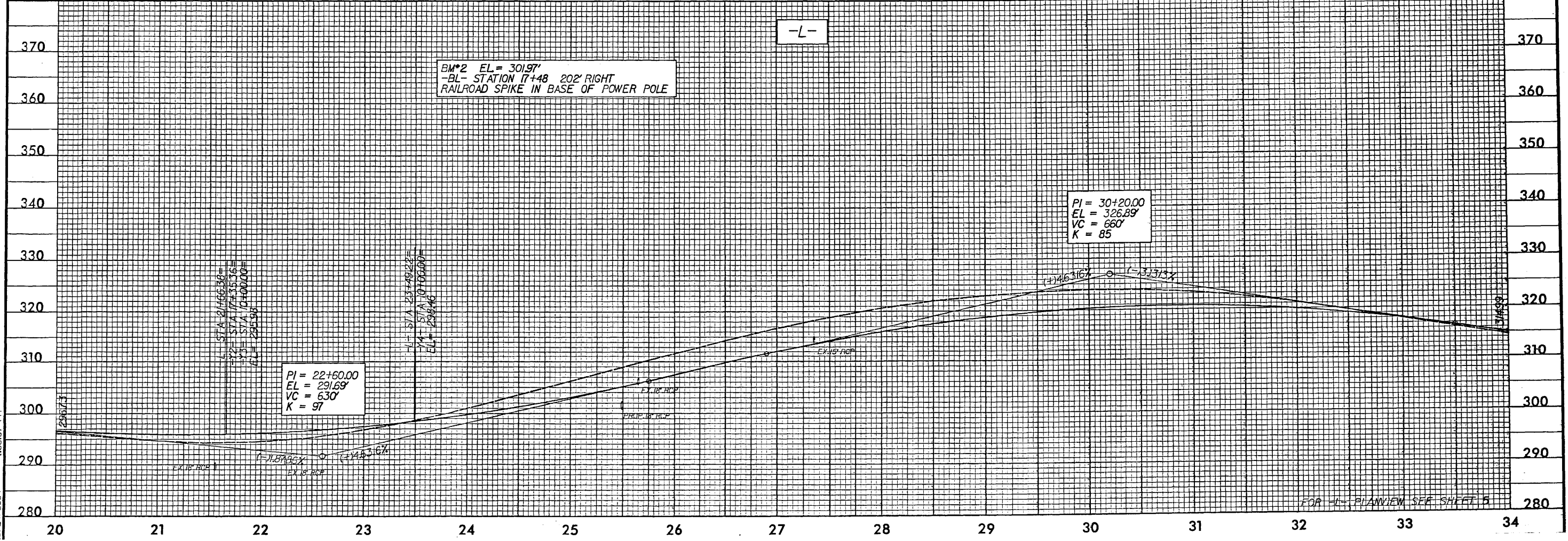
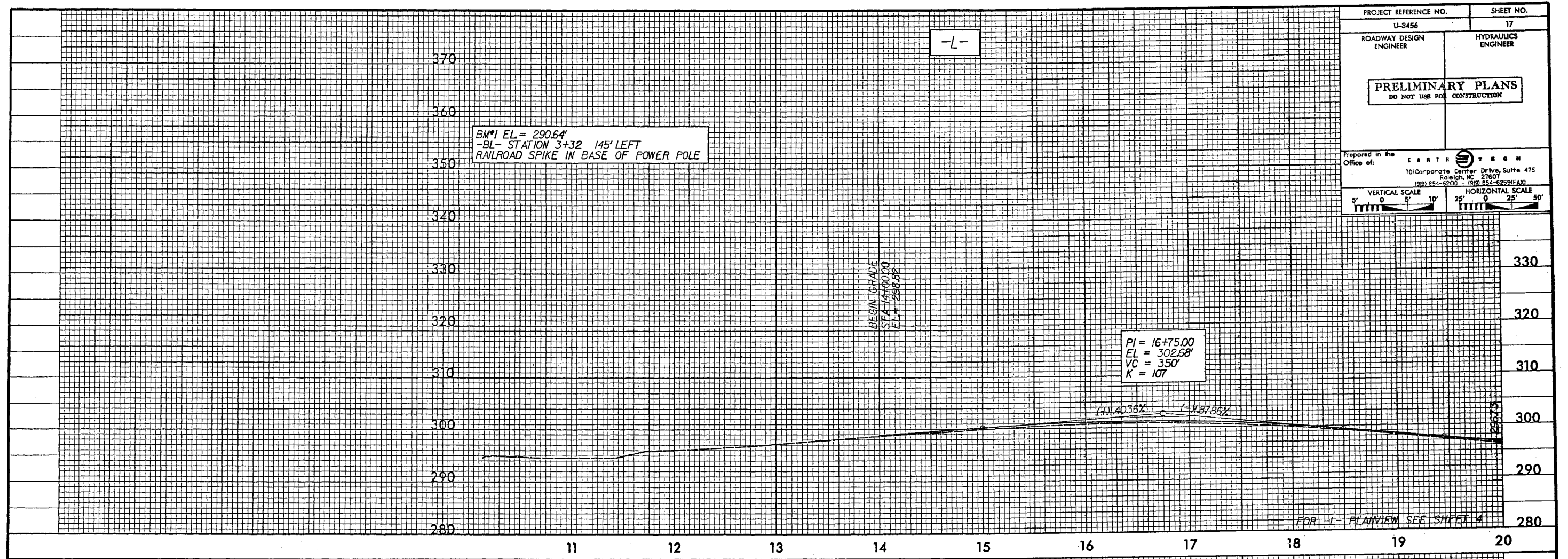
NC GRID NAD 83

PROJECT REFERENCE NO.		SHEET NO.	
U-3456		16	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<div style="border: 1px solid black; padding: 10px; text-align: center;"><h2>PRELIMINARY PLANS</h2><p>DO NOT USE FOR CONSTRUCTION</p></div>			
Prepared in the Office of:		<div style="text-align: center;"> EARTH SYSTEMS</div>	
701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 • (919) 854-6259(FAX)			
GRAPHIC SCALE			
25' 0 25' 50'			
			

ALL R/W LINES ARE CHORDS
 UNLESS LABELED OTHERWISE
 FOR -Y17A- PROFILE SEE SHEET 25
 FOR -Y17B- PROFILE SEE SHEET 26

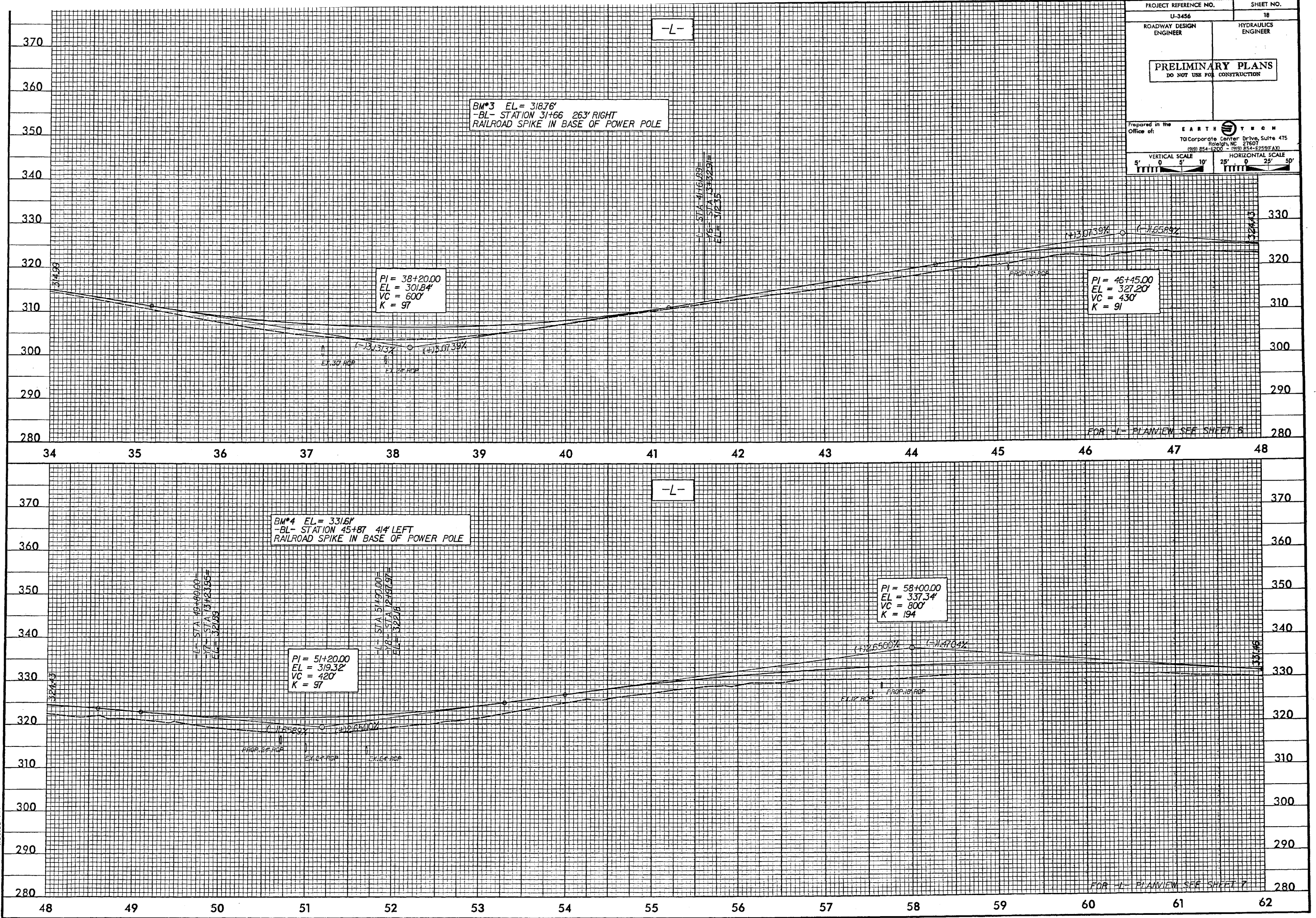
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PROJECT REFERENCE NO.		SHEET NO.	
U-3456		17	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			
Prepared in the Office of: EARTH SYSTEM			
701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 (919) 854-6258 (FAX)			
VERTICAL SCALE 5' 0' 5' 10'		HORIZONTAL SCALE 25' 0' 25' 50'	



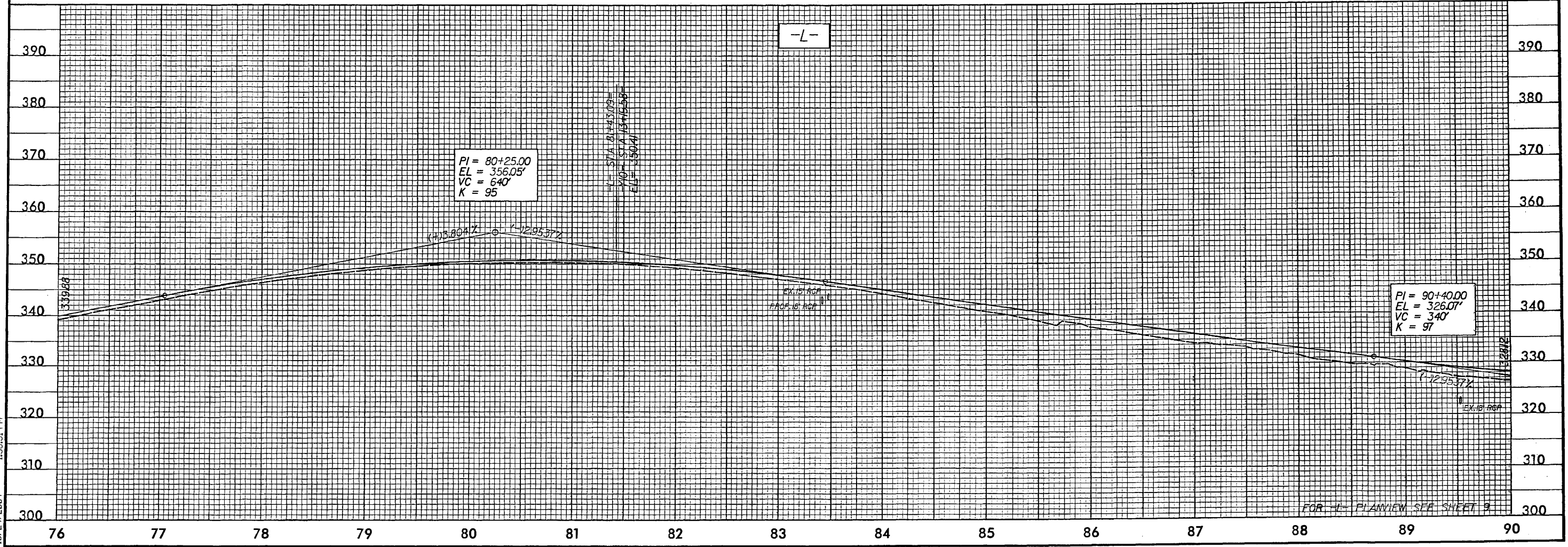
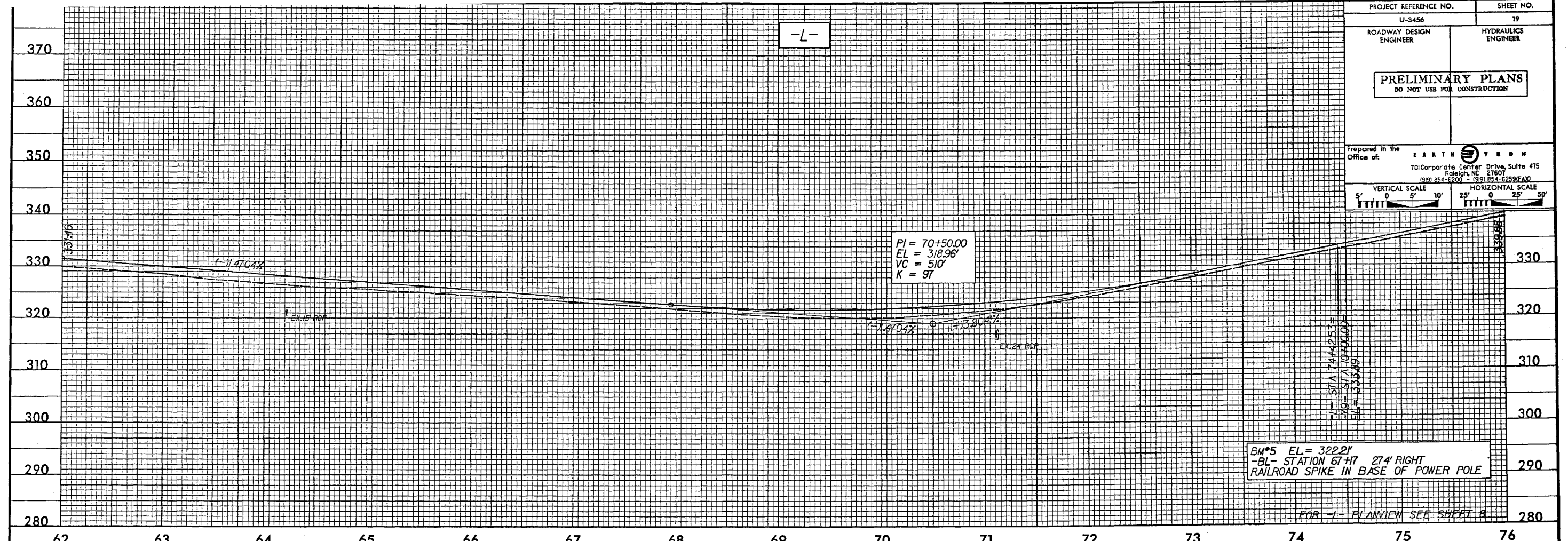
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PROJECT REFERENCE NO.		SHEET NO.	
U-3456		18	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			
Prepared in the Office of: EARTH TECH 701 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 - (919) 854-6259 (FAX)			
VERTICAL SCALE 5' 0 5' 10'		HORIZONTAL SCALE 25' 0 25' 50'	



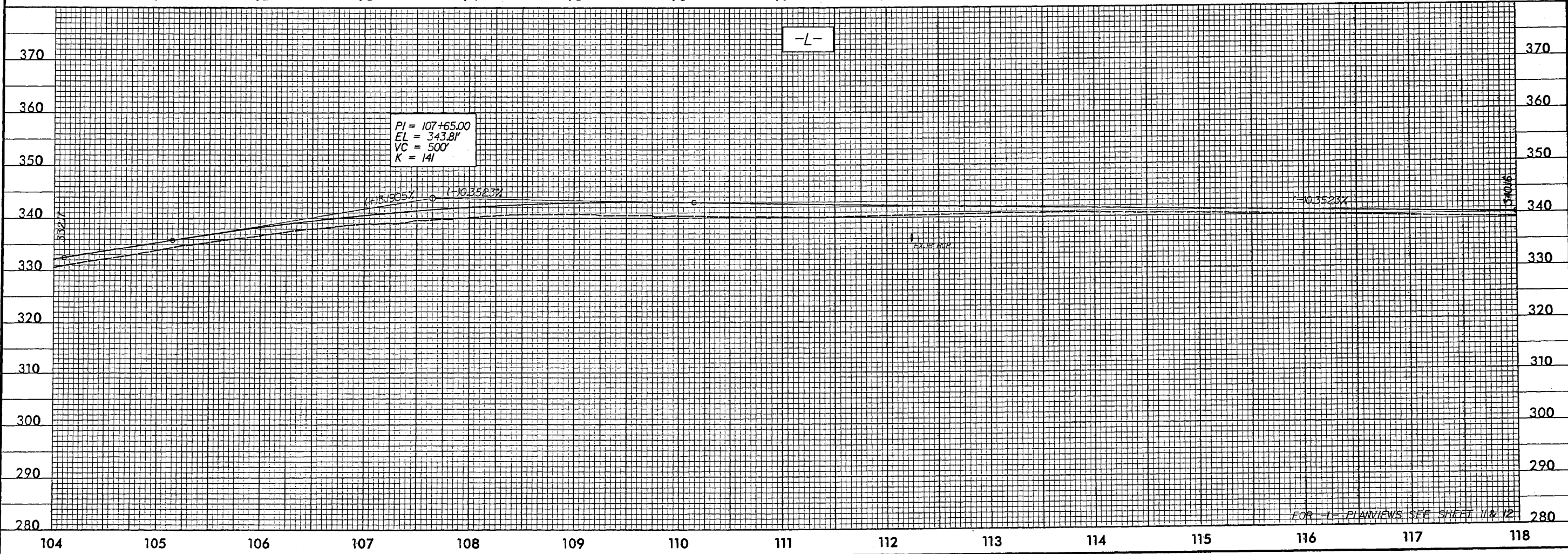
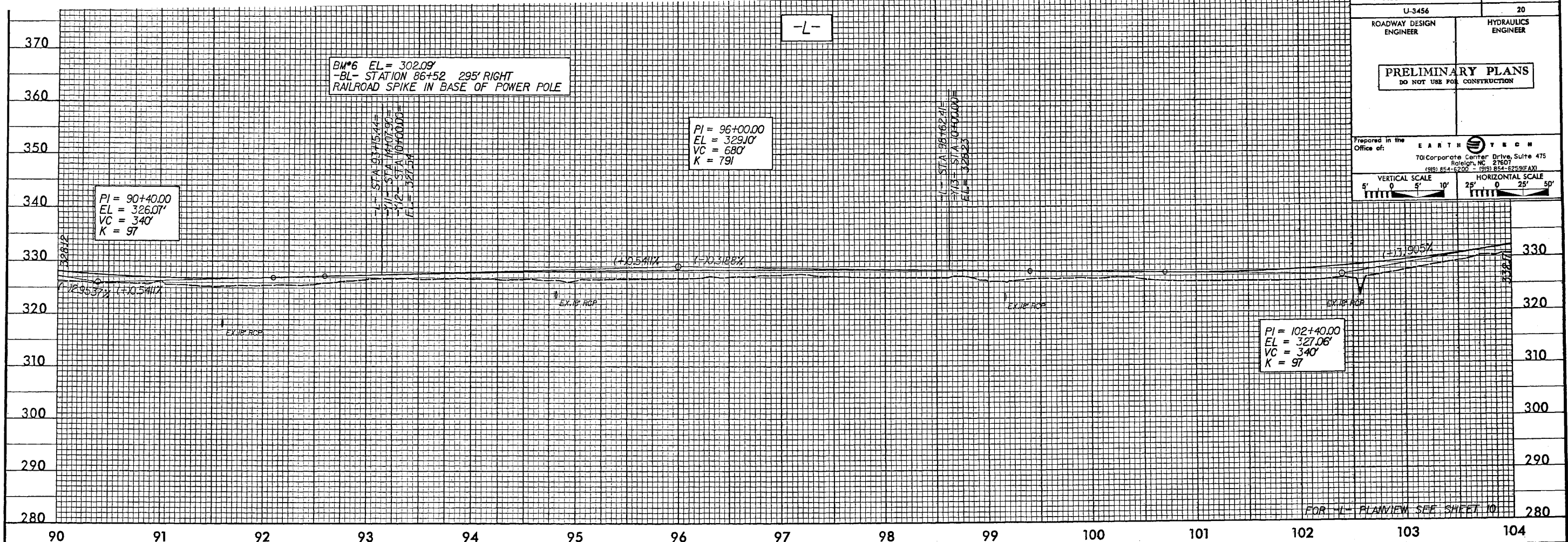
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PROJECT REFERENCE NO.		SHEET NO.	
U-3456		19	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			
Prepared in the Office of: EARTH TECH 70 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 • (919) 854-6259 (FAX)			
VERTICAL SCALE 5' 0" 5' 10'		HORIZONTAL SCALE 25' 0" 25' 50'	



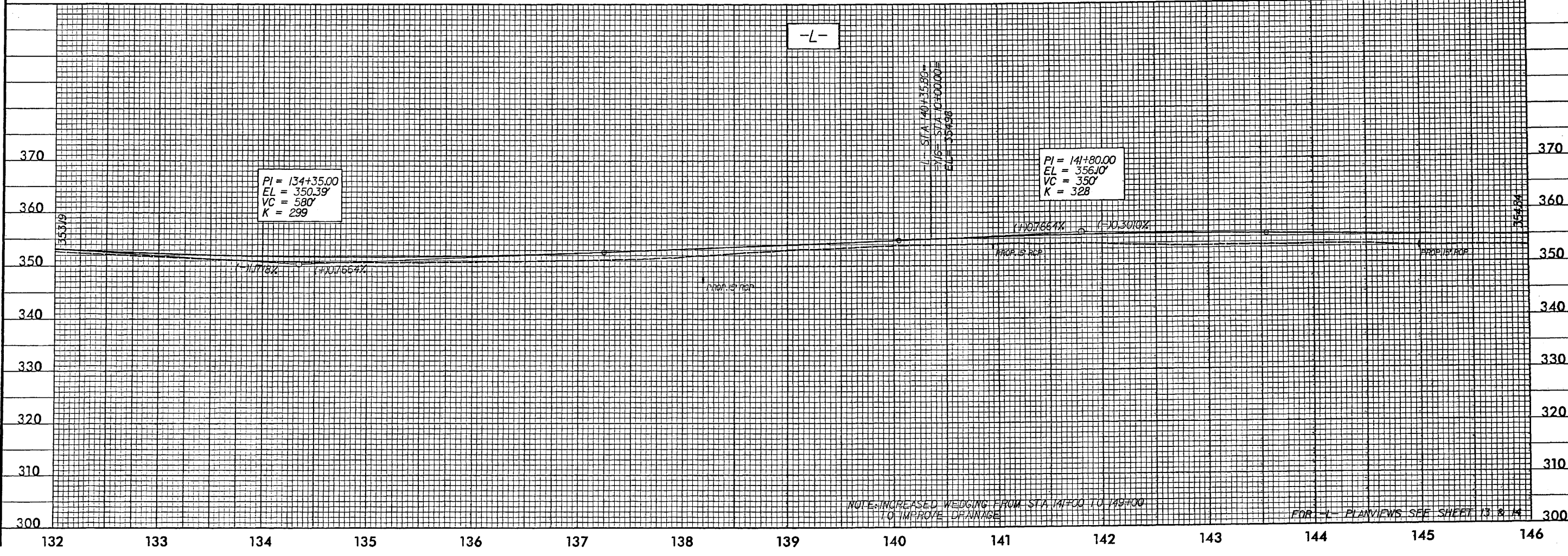
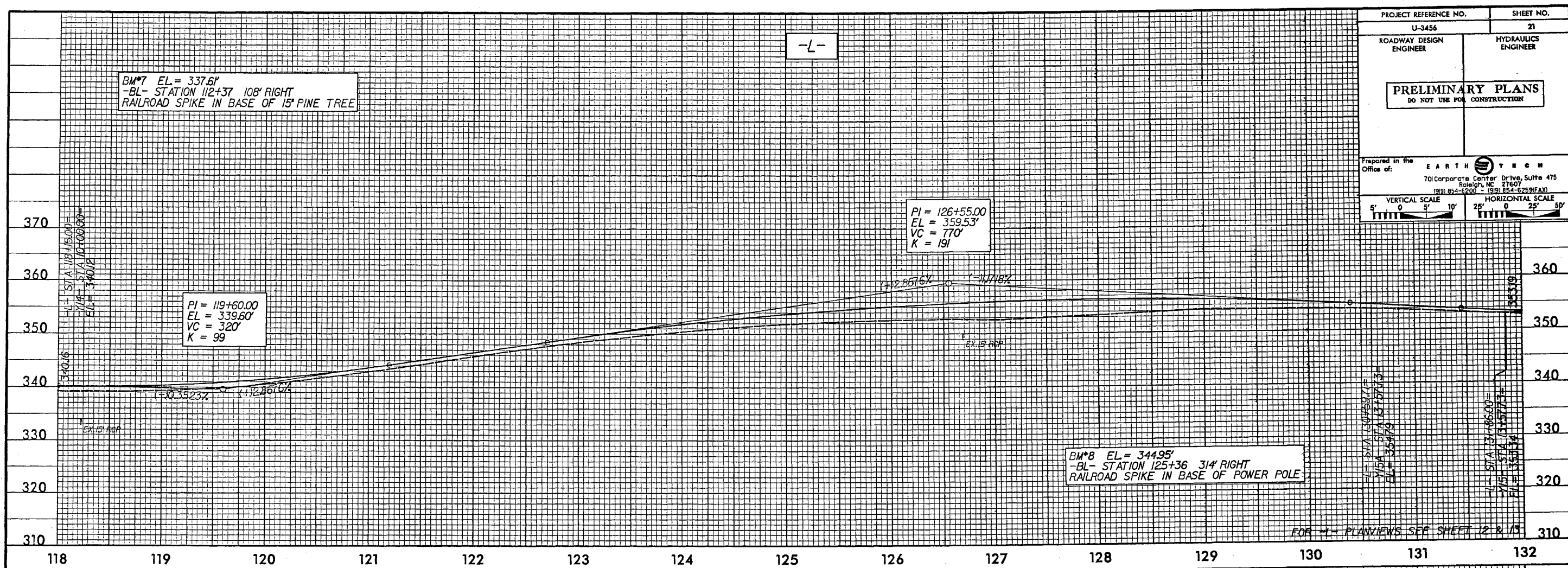
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PROJECT REFERENCE NO.		SHEET NO.	
U-3456		20	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			
Prepared in the Office of: EARTH TECH 70 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 - (919) 854-6258(FAX)			
VERTICAL SCALE 5' 0 5' 10'		HORIZONTAL SCALE 25' 0 25' 50'	



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PROJECT REFERENCE NO.		SHEET NO.	
U-3456		21	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			
Prepared in the Office of: EARTH TECH 70 Corporate Center Drive, Suite 475 Raleigh, NC 27607 (919) 854-6200 • (919) 854-6259(FAX)			
VERTICAL SCALE 0 5' 10'		HORIZONTAL SCALE 0 25' 50'	



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3/25/2004 1:39:48 PM

PROJECT REFERENCE NO.		SHEET NO.	
U-3456		22	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			
Prepared in the Office of: EARTH TECH 701 Corporate Center Drive, Suite 415 Raleigh, NC 27607 (919) 854-6200 • (919) 854-6255 (FAX)			
VERTICAL SCALE 5' 0" 5' 10'		HORIZONTAL SCALE 25' 0" 25' 50'	

BM*9 EL = 355.16'
 -BL- STATION 140+60 286' RIGHT
 RAILROAD SPIKE IN BASE OF POWER POLE

PI = 152+00.00
 EL = 353.03'
 VC = 470'
 K = 513

PI = 157+95.00
 EL = 356.69'
 VC = 200'
 K = 6078

NOTE: INCREASED WEDGING FROM STA 141+00 TO 149+00 TO IMPROVE DRAINAGE

FOR -L- PLANVIEW SEE SHEET 14

BM*10 EL = 356.29'
 -BL- STATION 162+70 287' RIGHT
 RAILROAD SPIKE IN BASE OF POWER POLE

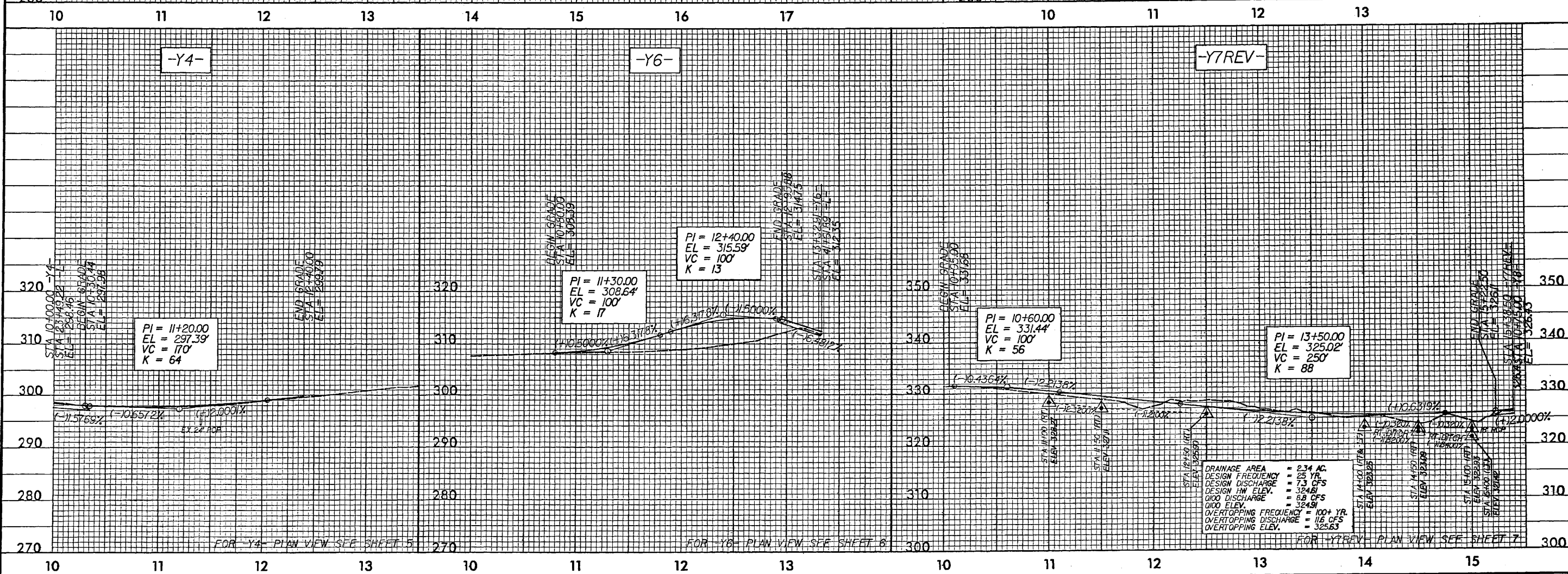
PI = 164+70.00
 EL = 360.62'
 VC = 290'
 K = 556

PI = 10+70.00
 EL = 287.69'
 VC = 140'
 K = 29

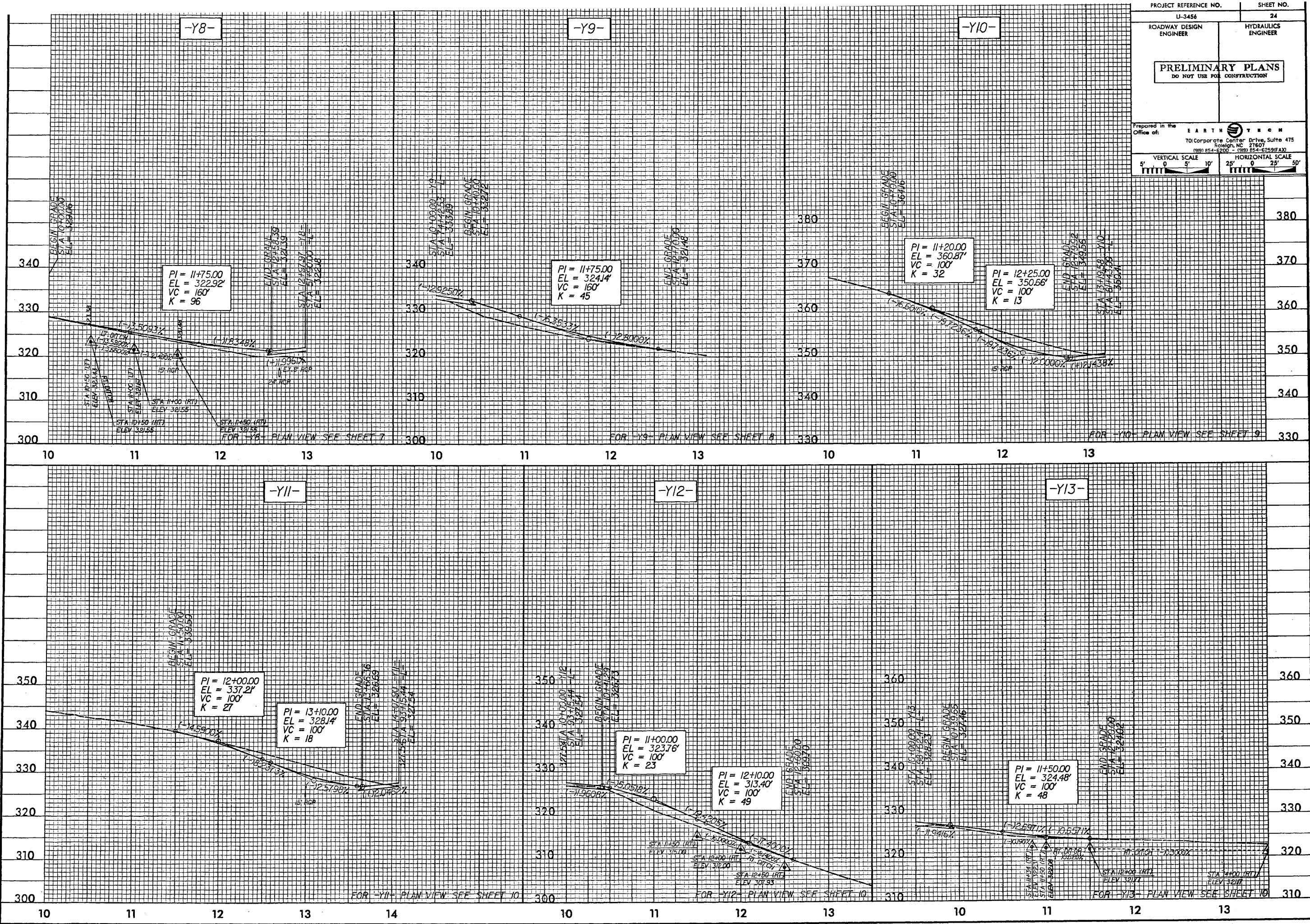
FOR -L- PLANVIEW SEE SHEET 15

FOR -Y2A- PLANVIEW SEE SHEET 5

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 10/25/2004 1:38:46 PM



DRAINAGE AREA = 2.34 AC
 DESIGN FREQUENCY = 25 YR
 DESIGN DISCHARGE = 7.3 CFS
 DESIGN HW ELEV. = 324.61
 ORO DISCHARGE = 6.8 CFS
 ORO ELEV. = 324.51
 OVERTOPPING FREQUENCY = 100+ YR
 OVERTOPPING DISCHARGE = 11.6 CFS
 OVERTOPPING ELEV. = 325.63



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R/W REVISION 06/01/05
PARCEL 135

