



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

October 3, 2012

Wilmington Regulatory Field Office
US Army Corps of Engineers
69 Darlington Avenue
Wilmington, North Carolina 28403

ATTN: Mr. Brad Shaver
NCDOT Coordinator

Dear Mr. Shaver:

Subject: Application for Individual Section 404 Permit and Section 401 Water Quality Certification
for the proposed construction of an extension of SR 1163 (Old Georgetown Rd) from SR 1184
(Ocean Isle Beach Rd) to NC 179 in Brunswick County, State Project 6.231023, TIP R-3432.
Debit \$570.00 from WBS 35501.1.1

The North Carolina Department of Transportation (NCDOT), Division of Highways proposes to construct an extension of SR 1163 (Georgetown Road) from SR 1184 to NC 179 in Brunswick County.

The purpose of this letter is to request approval for a Section 404 Individual Permit and a Section 401 Water Quality Certification. In addition to the cover letter and ENG Form 4345, this application package includes the following for R-3432: stormwater management plan, permit drawings, utility plans, half size roadway plans, and EEP Acceptance Letter.

1.0 Purpose and Need

The purpose for this project, as identified in the Final State Environmental Assessment (SEA), is to alleviate traffic congestion and improve safety along NC 179 and to establish a more efficient travel route between the towns of Shallotte and Calabash.

2.0 Project Description

The NCDOT proposes to extend SR 1163 (Old Georgetown Road) from SR 1184 (Ocean Isle Beach Road) to NC 179 (Bricklanding Road). Dual lane roundabouts will be constructed at each of the abovementioned intersections. Total project length is 2.9 miles.

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

TELEPHONE: 919-707-6100
FAX: 919-212-5785

WEBSITE: WWW.NCDOT.ORG

LOCATION:
1020 BIRCH RIDGE DRIVE
RALEIGH NC 27610-4328

3.0 Summary of Impacts

Waters of the U.S.: Proposed impacts to jurisdictional areas total 0.73 acre of permanent riparian wetland impacts, 0.10 acre of surface water impacts, 0.01 acre of temporary surface water impacts, 366 feet of permanent stream impacts, and 25 feet of temporary stream impacts.

4.0 Summary of Mitigation

The proposed construction of R-3432 will impact 0.73 acre of jurisdictional riparian wetlands that will require mitigation. The unavoidable impacts to the 0.73 acre of jurisdictional riparian wetlands will be offset by compensatory mitigation provided by the NC Ecosystem Enhancement Program (EEP). In addition, the unavoidable impacts to 366 linear feet of jurisdictional stream will also be offset by compensatory mitigation provided by EEP.

5.0 Project Schedule

Currently, R-3432 has a review date of April 30, 2013 and is scheduled to let June 18, 2013; it will be available for construction shortly thereafter. The let date, however, may advance as additional funds become available.

6.0 SEPA Document Status

The NCDOT completed the SEA March 25, 2009 in compliance with SEPA guidelines. The SEA explains the purpose and need for the project, provides a description of the alternatives considered, and characterizes the social, economic, and environmental effects. The SEA was approved and circulated to federal, state, and local agencies. Then following the SEA, a State Finding of No Significant Impact (SFONSI) Statement was completed January 8, 2010, and an Environmental Document Update was completed August 29, 2011. Copies of the project documents have been provided to regulatory review agencies involved in the approval process. Additional copies will be provided upon request.

6.1 *Independent Utility*

R-3432 meets the criteria for independent utility as discussed below:

- The project has logical termini and independent utility and is of sufficient length to address environmental matters on a broad scope;
- The project is usable and a reasonable expenditure of funds, even if no additional transportation improvements are made in the area; and
- The project does not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.

7.0 Resource Status

The project is located in the Lumber River Basin and lies within Hydrologic Unit 03040207. This is within the Southern Outer Coastal Plain eco-region.

7.1 *Wetland Delineations*

A wetland identification and preliminary assessment analysis for the study area was performed and summarized in the 2008 Natural Resources Technical Report (NRTR). The wetlands within the study area were delineated based on the 1987 U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual and a preliminary design was prepared to avoid and minimize wetlands to the maximum extent possible.

Wetland delineations were completed in early 2006 and field verified by Mr. Dave Timpy of the USACE, Wilmington District on March 6, 2006. Subsequently, wetland delineations were updated in June 2011. This delineation was then field verified by Mr. Brad Shaver of the USACE, Wilmington District on October 14, 2011.

7.2 *Stream Delineations*

Data collected for streams were derived from USGS topographic maps, the Brunswick County Soil Survey (USDA, 1986), and site reconnaissance. The data included stream classification, which was presented in the NRTR. The USACE concurred on stream classifications on October 14, 2011, when Mr. Brad Shaver with the USACE visited the site.

7.3 *R-3432: Characterization of Jurisdictional Sites*

7.3.1 *Wetlands*

There are two wetland communities (classified under NCWAM Guidelines) found within the project study area: Headwater Forest and Pine Flat. In the SEA and the NRTR *Cowardin et al.* 1979 along with a Riverine/Non-Riverine designation were used to classify wetland communities. Therefore these two communities are described as PFO3,4 Riverine and PFO4 Non-Riverine respectively.

7.3.2 *Streams*

Best Usage Classifications for jurisdictional streams are provided in the SEA. Due to the project's proximity to the coast, several waters designated as High Quality Water (HQW) SA occur within 1.0 mile of the project area. These waters are HQW due to their supplemental classification (SA) of Tidal Salt Waters that are used for commercial shellfishing or marketing purposes. As such, NCDOT's Design Standards in Sensitive Watersheds will be implemented for this project.

Neither Water Supplies (WS-I: undeveloped watersheds or WS-II: predominately undeveloped watersheds), nor Outstanding Resource Waters (ORW) occur within 1.0 mile of the project study area. The tributaries impacted by this project are not designated as North Carolina Natural or Scenic Rivers, or as National Wild and Scenic Rivers. Additionally, these waters are not listed on the Final 2010 303(d) list of impaired waters due to sedimentation or turbidity for the Lumber River Basin, nor do they drain into any Section 303(d) impaired waters due to sedimentation or turbidity within 1.0 mile of the project study area.

7.4 *Impacts to Jurisdictional Resources*

Impacts to jurisdictional wetlands and surface waters for R-3432 are summarized below in Tables 1 & 2 respectively. Wetland impacts have increased since the completion of the SFONSI; however, this was noted in the Environmental Document Update, dated August 29, 2011. Additionally, stream impacts have increased since the Environmental Document Update due to the need to realign the stream at site 5 to correct problems with scour and headcutting.

Table 1. R-3432 Wetlands Impacts

Permit Drawing Site Number (2012)	Map Label in SEA (2009)/Label for JD (2011)	Type	Permanent Impacts (ac.)	Temporary Impacts (ac.)	Mitigation Required
2	WC/WC	Riparian	0.03	0	Yes
3	WC/WC	Riparian	0.51	0	Yes
4	WC/WD	Riparian	0.19	0	Yes
Total:			0.73	0	

Table 2. R-3432 Surface Water Impacts

Permit Drawing Site Number	Map Label in SEA (2009)/Label for JD (2011)	Permanent (ft)	Temporary (ft)	Permanent (ac.)	Temporary (ac.)	Mitigation Required*
1	Not Listed/SC	0	0	0.03	< 0.01	No
2	Not Listed/SB	200	10	0.05	< 0.01	Yes
5	SE/SA	166	15	0.02	< 0.01	Yes
Total:		366	25	0.10	0.01	

*For permanent linear impacts

Permanent Impacts: Proposed permanent impacts for R-3432 include fill, excavation, and mechanized clearing to 0.73 acre of riparian wetlands. Proposed permanent impacts to surface waters are 366 linear feet (0.10 acre), which includes two pipes proposed to be installed in unnamed tributaries (UT) to Jinnys Branch (sites 2 & 5) and a pipe installation in a tributary to Waters of the U.S. (site 1).

Temporary Impacts: There will be 25 linear feet (0.01 acre) of temporary impacts to surface water due to pipe installations.

Utility Impacts: There will be no impacts to jurisdictional resources resulting from project construction.

8.0 Protected Species

The United States Fish and Wildlife Service (USFWS) list 13 federally protected species for Brunswick County as of the March 21, 2011 listing (Table 3).

Table 3. Federally Protected Species in Brunswick County

Scientific Name	Common Name	Federal Status	Habitat	Biological Conclusion
<i>Alligator mississippiensis</i>	American alligator	T(S/A)	No	N/A
<i>Chelonia mydas</i>	Green sea turtle	T	No	No Effect
<i>Lepidochelys kempii</i>	Kemp's ridley sea turtle	E	No	No Effect
<i>Dermochelys coriacea</i>	Leatherback sea turtle	E	No	No Effect
<i>Caretta caretta</i>	Loggerhead sea turtle	T	No	No Effect
<i>Charadrius melodus</i>	Piping plover	T	No	No Effect
<i>Picoides borealis</i>	Red-cockaded woodpecker	E	Yes	No Effect
<i>Mycteria americana</i>	Wood stork	E	No	No Effect
<i>Acipenser brevirostrum</i>	Shortnose sturgeon	E	No	No Effect
<i>Trichechus manatus</i>	West Indian manatee	E	No	No Effect
<i>Thalictrum cooley</i>	Cooley's meadowrue	E	Yes	No Effect
<i>Lysimachia asperulaefolia</i>	Rough-leaved loosestrife	E	Yes	No Effect
<i>Amaranthus pumilus</i>	Seabeach amaranth	T	No	No Effect

Key: E= Endangered, T= Threatened, T(S/A)= Threatened(Similarity of Appearance)

A review of the North Carolina Natural Heritage Program (NCNHP) database, updated April 2012, indicated no known occurrences of protected species within one mile of the project study area.

8.1 Bald and Golden Eagle Protection Act (BGPA)

In the July 9, 2007 Federal Register (72:37346-37372), the bald eagle was declared recovered, and removed

(de-listed) from the Federal List of Threatened and Endangered wildlife. This delisting took effect August 8, 2007. After delisting, the Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. 668-668d) became the primary law protecting bald eagles. For this project, it has been concluded that no nesting or foraging habitat exists in or within 660 feet of the project limits.

8.2 *Moratoria*

No moratoria have been recommended for R-3432.

9.0 *Cultural Resources*

An updated archaeological investigation was completed for the project area in November 2009. No eligible sites were discovered in the project area. On December 10, 2009, the State Historic Preservation Office (SHPO) sent a letter to NCDOT stating that they had reviewed and concurred with the conclusions in the updated archaeological report; therefore, no additional investigations will be necessary.

In letters dated April 4, 1996 and August 8, 2006, the North Carolina Historic Preservation Office (NCHPO) determined that this project as it is proposed will not affect any historic structures.

10.0 *FEMA Compliance*

The project has been coordinated with appropriate state and local officials and the Federal Emergency Management Agency (FEMA) to assure compliance with FEMA, state, and local floodway regulations.

11.0 *Mitigation Options*

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.

11.1 *Avoidance and Minimization*

All jurisdictional features were delineated, field verified and surveyed within the corridor for R-3432. Using these surveyed features, preliminary designs were adjusted to avoid and/or minimize impacts to jurisdictional areas. NCDOT employs many strategies to avoid and minimize impacts to jurisdictional areas in all of its designs. Many of these strategies have been incorporated into BMP documents that have been reviewed and approved by the resource agencies and which will be followed throughout construction. All wetland areas not affected by the project will be protected from unnecessary encroachment. Individual avoidance and minimization items are as follows:

- No staging of construction equipment or storage of construction supplies will be allowed in wetlands or near surface waters.
- The project was designed to avoid or minimize disturbance to aquatic life movements.
- The selected alternative was chosen to avoid a potential Environmental Justice issue as well as minimize wetland impacts.
- NCDOT and its contractors will not excavate, fill, or perform land clearing activities within Waters of the U.S. or any areas under the jurisdiction of the USACE, except as authorized by the USACE. To ensure that all borrow and waste activities occur on high ground, except as authorized by permit, the NCDOT shall require its contractors to identify all areas to be used to borrow material, or to dispose of dredged, fill or waste material. Documentation of the location and characteristics of all borrow and disposal sites associated with the project will be available to the USACE on request.

- Storm water will be treated using grass swales.
- The use of 3:1 fill slopes in all jurisdictional areas.
- Design Standards in Sensitive Watersheds will be implemented.
- Grassed ditches, shoulders, and slopes were incorporated to aid in treatment of runoff.
- Re-alignment of stream and pipe at -Y10- STA. 29+50 is necessary to correct issues of scour and headcutting.
- Minimized use of curb and gutter and maintained grass shoulder sheet flow throughout project to the maximum extent practical.

11.3 Compensation

The NCDOT has avoided and minimized impacts to jurisdictional resources to the greatest extent possible as described above. The unavoidable impacts to jurisdictional riparian wetlands and surface waters will be offset by compensatory mitigation provided by the EEP. A copy of the EEP acceptance letter, dated June 7, 2012, is attached.

12.0 Indirect and Cumulative Effects

As detailed in the 2008 Indirect and Cumulative Effects (ICE) analysis, Land use change is anticipated to occur within the boundaries of the Future Land Use Study Area (FLUSA) along US Highway 17 and NC 179 regardless of the construction of the proposed project. This will be facilitated primarily by the notable increase in population that has been projected over the next decade. According to local planning officials, the population growth in Brunswick County is expected to continue.

Brunswick County adheres to a Unified Development Ordinance and has a central permitting office and planning department that oversees the enforcement of the zoning ordinances. The two largest zoning districts within Brunswick County are Residential Agriculture and Residential. These two districts account for 92.1 percent of the County's land that is not included within a municipality's corporate limits or extraterritorial jurisdiction. The FLUSA is not within a municipality's corporate limits or extraterritorial jurisdiction, but is adjacent to the satellite range where Ocean Isle Beach supply's sewer service. There are currently no public sewers in the project area.

To accommodate growth that has already occurred and to prepare for future growth, the County has developed goals for managed growth, infrastructure, economic development, job growth, and quality of life issues. Brunswick County has developed a CAMA Land Use Plan titled, *Brunswick County Core Land Use Plan* (2007, recertified 2011), which includes the implementation of the improved stormwater rules in coastal counties.

Brunswick County also considers the protection of environmentally sensitive resources including NWI wetland areas and Significant Natural Heritage Areas to be imperative in consideration of the development pressures that have recently been experienced by the County. There are a notable amount of NWI identified wetlands and a designated Significant Natural Heritage Areas (specifically the Sandy Branch Sand Ridge and Bay Complex) within the FLUSA.

Although the project may improve accessibility to some developable land within the FLUSA, the lack of municipal sewer service, the existence of environmentally sensitive areas, and coastal county stormwater regulations, are anticipated to constrain the development of parcels immediately adjacent to the proposed project. Future development within the FLUSA is expected to be concentrated along US Highway 17, and NC 179, where infrastructure is already available to support both commercial and residential growth.

13.0 Regulatory Approvals

Section 404: Application is hereby made for a USACE Individual 404 Permit as required for the above-described activities.

Section 401: We are also requesting a Section 401 Water Quality Certification from the NCDWQ. We are providing five (5) copies of this application to the NCDWQ, for their approval.

CAMA: Under separate cover, NCDOT is submitting a request for a CAMA Federal Consistency Review from the N. C. Division of Coastal Management for R-3432.

A copy of this permit application and its distribution list 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 Tyler Stanton at 919-707-6156 or tstanton@ncdot.gov.

Sincerely,



Gregory J. Thorpe, Ph.D., Manager
Project Development and Environmental Analysis Unit

cc:

NCDOT Permit Application Standard Distribution List.

APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT (33 CFR 325)		OMB APPROVAL NO. 0710-0003 EXPIRES: 31 August 2012	
<p>Public reporting burden for this collection of information is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters, Executive Services and Communications Directorate, Information Management Division and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please DO NOT RETURN your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.</p>			
PRIVACY ACT STATEMENT			
<p>Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.</p>			
(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)			
1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE
(ITEMS BELOW TO BE FILLED BY APPLICANT)			
5. APPLICANT'S NAME: First – Greg Middle - Last – Thorpe, Ph.D. Company – NC Department of Transportation (NCDOT) E-mail Address – gthorpe@ncdot.gov		8. AUTHORIZED AGENT'S NAME AND TITLE (an agent is not required) First – Middle - Last – Company – E-mail Address –	
6. APPLICANT'S ADDRESS. Address – 1598 Mail Service Center City – Raleigh State – NC Zip – 27699-1598 Country – USA		9. AGENT'S ADDRESS Address – 1 City – State – Zip – Country – USA	
7. APPLICANT'S PHONE NOs. W/AREA CODE. a. Residence- NA b. Business- c. Fax		10. AGENT'S PHONE NOs. W/AREA CODE a. Residence- NA b. Business- c. Fax	
STATEMENT OF AUTHORIZATION			
11. I hereby authorize, _____ to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.			
_____ APPLICANT'S SIGNATURE		_____ DATE	
NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY			
12. PROJECT NAME OR TITLE (see instructions) R-3432 – Extension of SR 1163 (Georgetown Rd) From SR 1184 (Ocean Isle Beach Rd) to NC 179			
13. NAME OF WATERBODY, IF KNOWN (if applicable),		14. PROJECT STREET ADDRESS (if applicable) Address - NA City - State – Zip -	
15. LOCATION OF PROJECT: Decimal degrees NAD 83, center coordinates are approximately Latitude: 33.932002 N Longitude: -78.427885 W			
16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions) State Tax Parcel ID – Municipality – Section - Township - Range -			

17. DIRECTIONS TO THE SITE:

Please see attached permit drawings

18. Nature of Activity (Description of project, include all features)

The NCDOT proposes to extend SR 1163 (Old Georgetown Road) from SR 1184 (Ocean Isle Beach Road) to NC 179 (Bricklanding Road). Dual lane roundabouts will be constructed at each of the abovementioned intersections. Total project length is 2.9 miles.

19. Project Purpose (Describe the reason or purpose of the project, see Instructions)

The purpose for this project, as identified in the Final State Environmental Assessment (SEA), is to alleviate traffic congestion and improve safety along NC 179 and to establish a more efficient travel route between the towns of Shallotte and Calabash.

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

Construction of roadway and pipe installations

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Please see attached permit drawings

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions) Acres Or Liner Feet

Permanent: 0.73 acre riparian wetlands, 0.10 acre surface waters, 366 feet of stream

Temporary: 0.01 acre of surface waters, 25 feet of stream

23. Description of Avoidance, Minimization, and Compensation (see instructions)

Please see attached permit application cover letter

24. Is Any Portion of the Work Already Complete? Yes ☐ No ☒ IF YES, DESCRIBE THE COMPLETED WORK

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (If more than can be entered here, please attach a supplemental list).

Please see attached

26. List of Other Certifications or Approvals/Denials Received from other Federal, State, or Local Agencies for Work Described in This Application.

Agency	Type Approval*	Identification Number	Date Applied	Date Approved	Date Denied

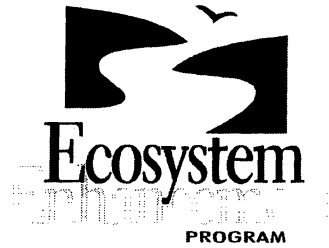
* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for a permit or permits to authorize the work described in this application. I certify that the information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

E. L. Lusk for Gregory J. Thapo, PhD Oct 3, 2012
SIGNATURE OF APPLICANT DATE SIGNATURE OF AGENT DATE

The application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than \$10,000 or imprisoned not more than five years or both.



June 7, 2012

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

Dear Dr. Thorpe:

Subject: EEP Mitigation Acceptance Letter:

R-3432, SR 1163 (Georgetown Road Extension) from SR 1184 (Ocean Isle Beach Road)
to NC 179, Brunswick County

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the compensatory stream and riparian wetland mitigation for the subject project. Based on the information supplied by you on June 5, 2012, the impacts are located in CU 03040207 of the Lumber River basin in the Southern Outer Coastal Plain (SOCP) Eco-Region, and are as follows:

Lumber 03040207 SOCP	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non- Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts (feet/acres)	0	0	366	0.73	0	0	0	0

EEP commits to implementing sufficient compensatory stream and riparian wetland mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies in accordance with the N.C. Department of Environment and Natural Resources' Ecosystem Enhancement Program In-Lieu Fee Instrument dated July 28, 2010. 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,

Michael Ellison
EEP Deputy Director

cc: Mr. Brad Shaver, USACE – Wilmington Regulatory Field Office
Mr. David Wainwright, Division of Water Quality, Wetlands/401 Unit
File: R-3432

Restoring... Enhancing... Protecting Our State



RECEIVED

OCT 18 2011

Action 08-2007-983
DIVISION OF HIGHWAYS
DEA OFFICE OF NATURAL ENVIRONMENT

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

County: Brunswick

U.S.G.S. Quad: Shallotte

NOTIFICATION OF JURISDICTIONAL DETERMINATION

Applicant: NCDOT - NEU
Address: attn: Mr. Tyler Stanton
1598 Mail Service Center
Raleigh, NC 27699-1598

Property description:

Size (acres) +/- 130
Nearest Waterway Shallotte River
USGS HUC 03040201

Nearest Town Ocean Isle
River Basin Lower Pee Dee
Coordinates N 33.9359 W -78.4273

Location description The subject new location project (R 3432) would be an extension of Old Georgetown Road located north of Ocean Isle and would connect Ocean Isle Beach Road to Hale Swamp Rd. in Brunswick County.
Indicate Which of the Following Apply:

A. Preliminary Determination

- ☐ Based on preliminary information, there may be wetlands and waters on the above described property. We strongly suggest you have this property inspected to determine the extent of Department of the Army (DA) jurisdiction. To be considered final, a jurisdictional determination must be verified by the Corps. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331).

B. Approved Determination

- ☐ There are Navigable Waters of the United States within the above described property subject to the permit requirements of Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

- ☒ There are wetlands on the above described property subject to the permit requirements of Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ We strongly suggest you have the wetlands on your property delineated. Due to the size of your property and/or our present workload, the Corps may not be able to accomplish this wetland delineation in a timely manner. For a more timely delineation, you may wish to obtain a consultant. To be considered final, any delineation must be verified by the Corps.

☐ The wetland on your property have been delineated and the delineation has been verified by the Corps. We strongly suggest you have this delineation surveyed. Upon completion, this survey should be reviewed and verified by the Corps. Once verified, this survey will provide an accurate depiction of all areas subject to CWA jurisdiction on your property which, provided there is no change in the law or our published regulations, may be relied upon for a period not to exceed five years.

☒ **The wetlands and streams within your study area (R 3432) have been delineated and the delineation has been verified by the Corps. For reference purposes the Corps is utilizing the package submitted by Tyler Stanton of NEU (specifically the JD map received via email on 10/13/2011, attached) as the approximate location of the verified delineation. The delineation to date has been located by GPS.**

- ☐ There are no waters of the U.S., to include wetlands, present on the above described property which are subject to the permit requirements of Section 404 of the Clean Water Act (33 USC 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

- The property is located in one of the 20 Coastal Counties subject to regulation under the Coastal Area Management Act (CAMA). You should contact the Division of Coastal Management in Washington, NC, at (252) 946-6481 to determine their requirements.

Placement of dredged or fill material within waters of the US and/or wetlands without a Department of the Army permit may constitute a violation of Section 301 of the Clean Water Act (33 USC § 1311). If you have any questions regarding this determination and/or the Corps regulatory program, please contact **Brad Shaver** at **910-251-4611**.

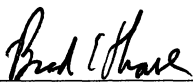
C. Basis For Determination

The subject features appear to have both an ordinary high water mark and characteristics described in the 1987 Corps Delineation Manual. The aforementioned features ultimately drain to Jinnys Branch and the Shallotte River, both navigable waters of the US.

D. Remarks

The site was reviewed with Tyler Stanton of NCDOT (NEU) on 6/17/2010 and 6/14/2011. Individual property owners have been sent their appeal rights and instructions how to view the JD map. The property owners have until December 14, 2011 to appeal the JD call or provide information that could warrant another review.

Corps Regulatory Official: _____



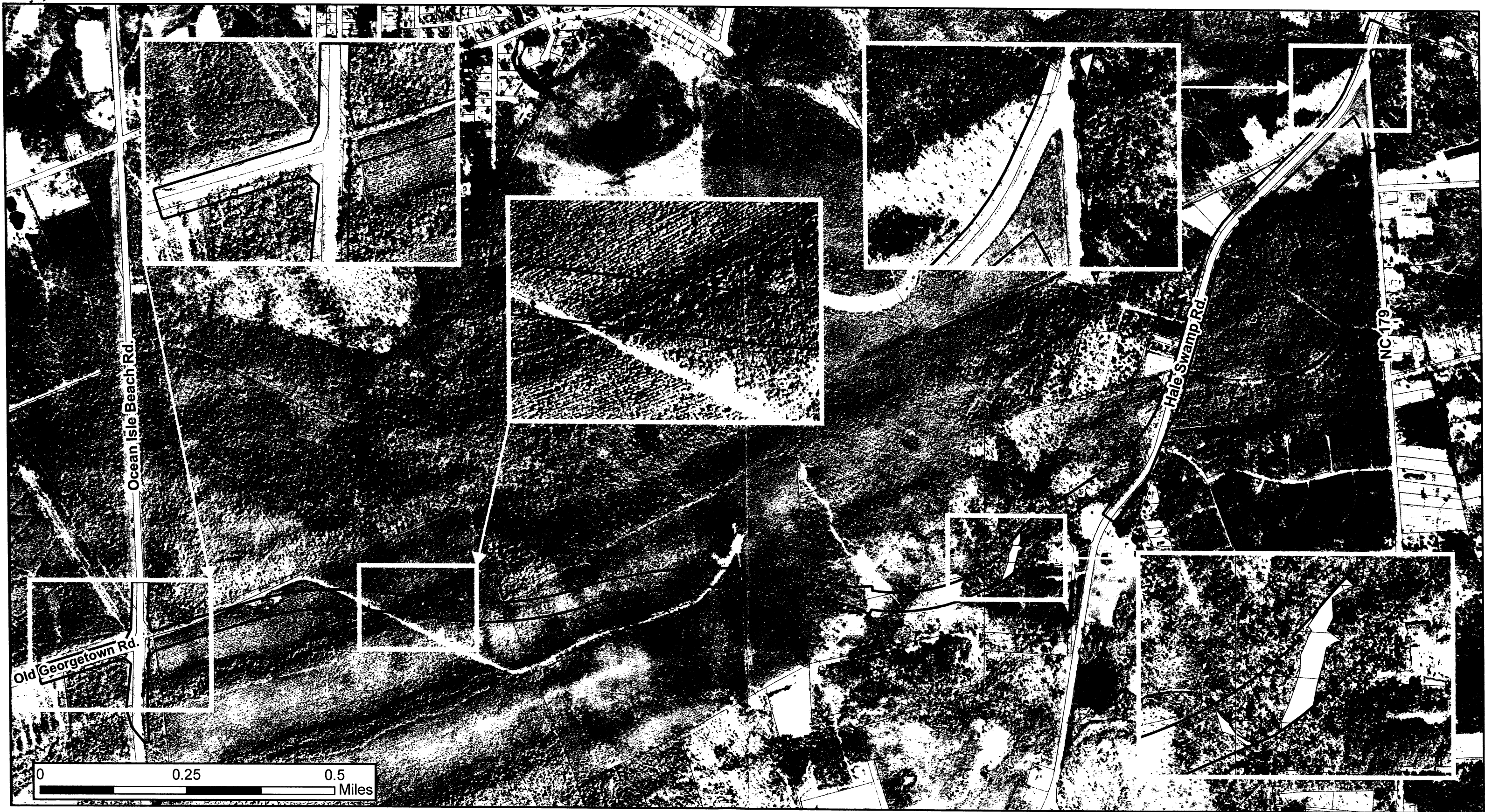
Date **10/14/2011**

Expiration Date **10/14/2016**

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the attached customer Satisfaction Survey or visit <http://www.saw.usace.army.mil/WETLANDS/index.html> to complete the survey online.

Copy furnished:

NC DOT Division 3 attn: Mr. Stonewall Mathis, 5501 Barbados Blvd Castle Hayne, NC 28429
Emily Hughes, USACE Brunswick Project Manager



	<ul style="list-style-type: none"> Proposed Project Area* Brunswick Co. Parcels (2010) Jurisdictional Tributaries Jurisdictional Wetlands 	<h2>NCDOT TIP R-3432</h2> <h3><i>Brunswick County</i></h3> <p>Proposed Extention of SR 1163 (Old Georgetown Rd.) from SR 1184 (Ocean Isle Beach Rd.) to NC 179</p>	<p>Prepared by the NCDOT Project Development & Environmental Analysis Branch Natural Environment Unit</p>
--	---	--	---

*The areas outside of the project area have not been delineated or evaluated for wetland and streams/jurisdictional resources.



(Version 1.2; Released September 2011)

North Carolina Department of Transportation
Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR LINEAR ROADWAY PROJECTS



Project/TIP No.: R-3432

County(ies): Brunswick

Page 1 of 1

General Project Information

Project No.: R-3432 Project Type: New Location Date: 5/3/2012

NCDOT Contact: John W. Twisdale, Jr., PE Contractor / Designer: Paul Atkinson, PE

Address: 1020 Birch Ridge Drive
Raleigh, NC 27610

Address: 1020 Birch Ridge Drive
Raleigh, NC 27610

Phone: 919-707-6754

Phone: 919-707-6707

Email:

Email:

City/Town: Ocean Isle and Shallotte

County(ies):

Brunswick

River Basin(s): Lumber

CAMA County?

Yes

Primary Receiving Water: Unnamed Tributary Jimmy's Branch

NCDWQ Stream Index No.: 15-25-2-16-1-(1)

NCDWQ Surface Water Classification for Primary Receiving Water

Primary:

Class C

Other Stream Classification:

Supplemental:

Swamp Waters (Sw)

303(d) Impairments:

None

Buffer Rules in Effect

N/A

Project Description

Project Length (lin. Miles or feet): 2.859 miles Surrounding Land Use: forestry land with some residential development along existing roadways at end of project

Proposed Project

Existing Site

Project Built-Upon Area (ac.)

ac.

Typical Cross Section Description: 40' ROAD SHOULDER SECTION; 2 12' LANES, 8' SHOULDERS

NEW LOCATION, FORESTED

ac.

Average Daily Traffic (veh/hr/day): Design/Future: ADT 2033= 12,592 VPD

Existing:

ADT 2013=7,312 VPD

General Project Narrative:

Minimizing use of curb and gutter and maintaining grass shoulder sheet flow throughout project to the maximum extent practical. In wetland areas, using 3:1 side slopes to minimize impacts. Using grassed ditches, shoulders, and slopes to aid in treatment of runoff. Re-alignment of stream and pipe at -Y10- STA. 29+50 is necessary to correct issues of scour and headcutting.

References



References

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3432	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
35501.1.1		P.E.	
35501.2.1		RW,UTL.	

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

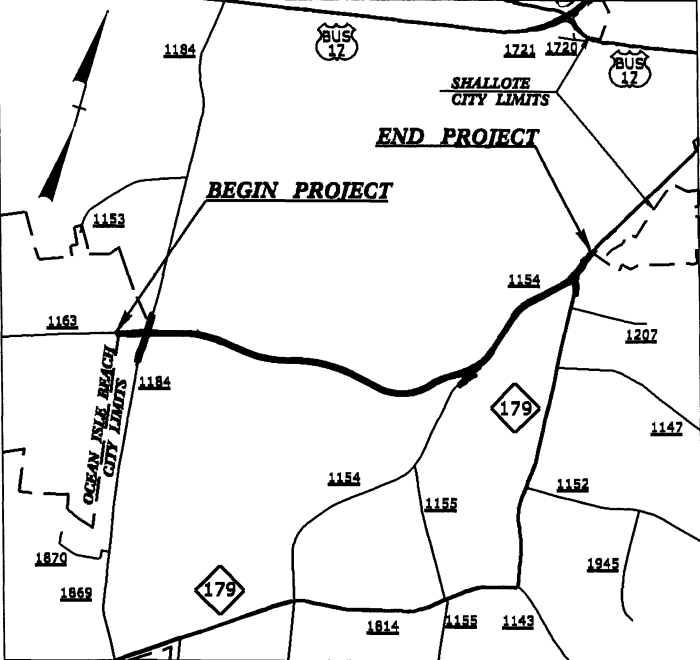
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BRUNSWICK COUNTY

LOCATION: SR 1163 (OLD GEORGETOWN ROAD EXTENSION) FROM SR 1184
(OCEAN ISLE BEACH ROAD) TO NC 179

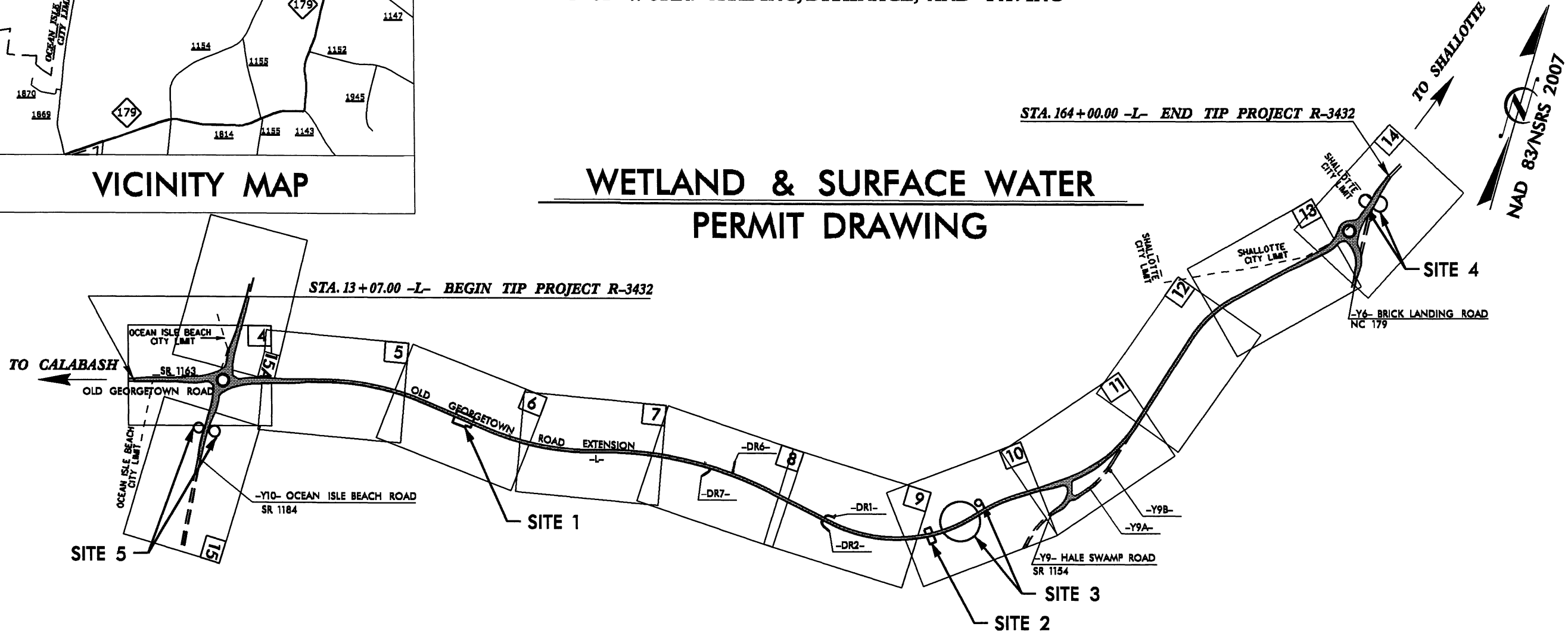
TYPE OF WORK: GRADING, DRAINAGE, AND PAVING

Permit Drawing
Sheet 1 of 29



VICINITY MAP

WETLAND & SURFACE WATER
PERMIT DRAWING

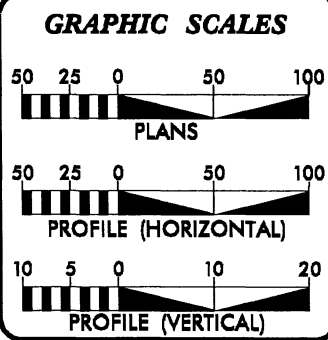


THIS IS A PARTIAL CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO POINTS AS SHOWN ON THE PLANS.
A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF OCEAN ISLE BEACH AND SHALLOTTE.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONTRACT:

TIP PROJECT: R-3432



DESIGN DATA	
ADT 2013	= 7,312
ADT 2033	= 12,592
DHV	= 55 %
D	= 13 %
T	= 3 % *
V	= 60 MPH
* (TTST 1 % + DUAL 2 %)	
FUNC. CLASS.	= COLLECTOR
SUB-REGIONAL TIER	

PROJECT LENGTH	
LENGTH ROADWAY TIP PROJECT R-3432	= 2.859 MILES
TOTAL LENGTH TIP PROJECT R-3432	= 2.859 MILES

Prepared in the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
NOVEMBER 29, 2011

LETTING DATE:
JUNE 18, 2013

G. E. BREW, PE
PROJECT ENGINEER

THAD F. DUNCAN, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER

BRUNSWICK COUNTY

R-3432

SR 1163 (OLD GEORGETOWN RD.)
EXTENSION FROM SR 1184 (OCEAN
ISLE BEACH RD.) TO NC 119

STA. 164+00.00 -E- END TIP PROJECT R-3432

STA. 13+00.00 -L- BEGIN TIP PROJECT R-3432

WETLAND & SURFACE WATER
PERMIT DRAWING

TO CALABASH

SITE 5

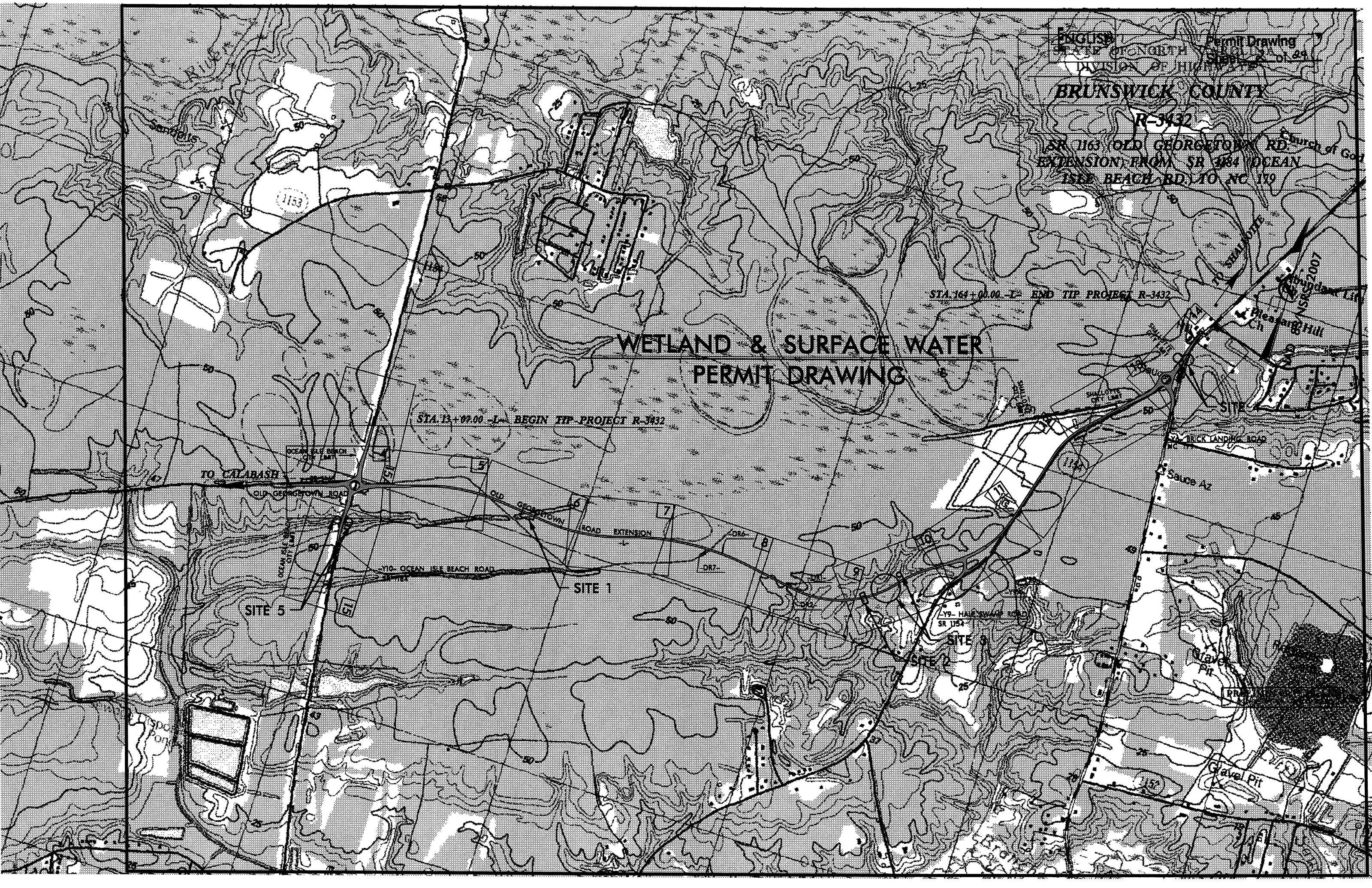
SITE 1

SITE 3

SITE 2

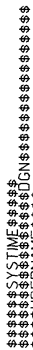
Gravel Pit

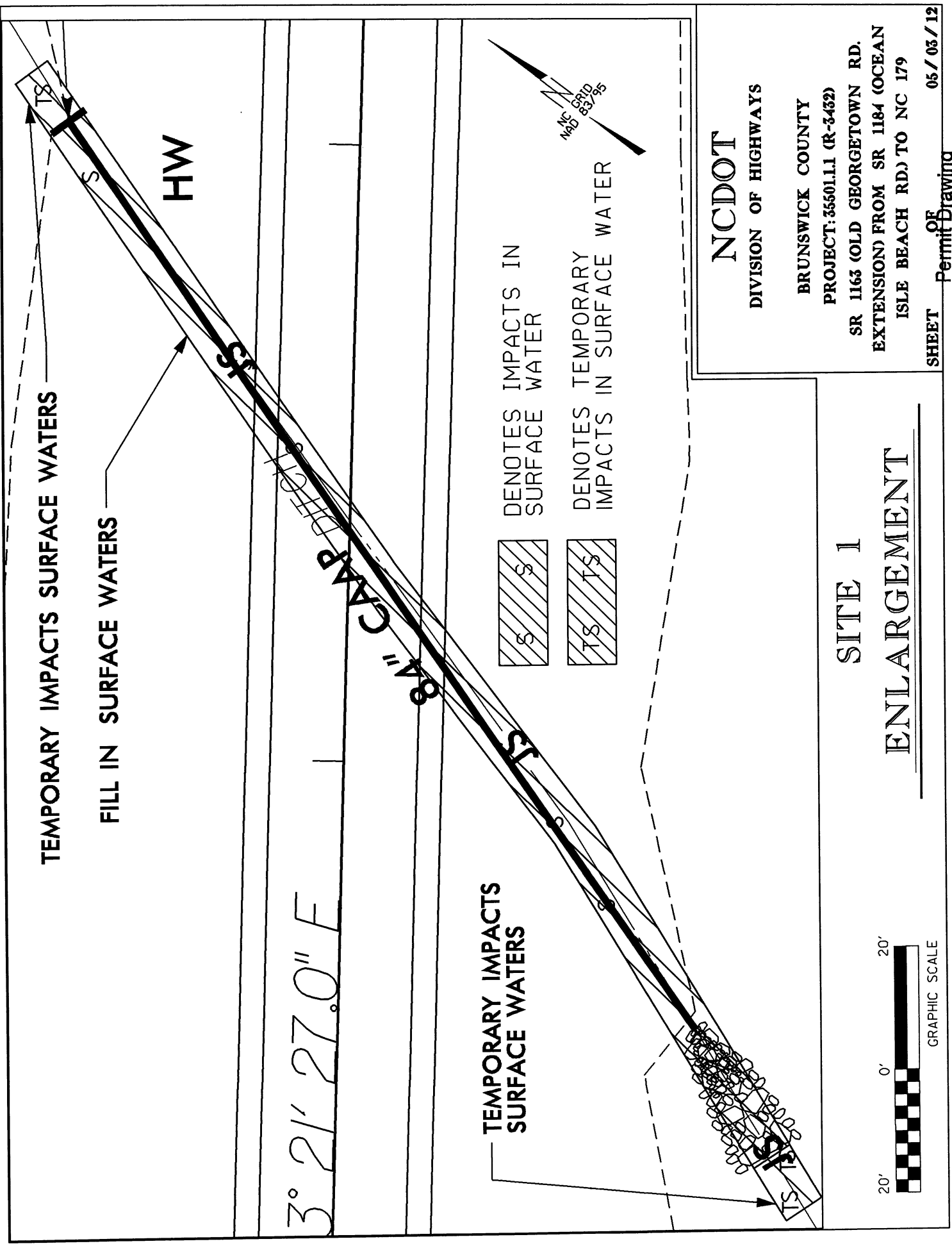
Gravel Pit



\$\$\$\$\$SYTIME\$\$\$\$\$
\$\$\$\$\$DGN\$\$\$\$\$

\$\$\$\$\$SYTIME\$\$\$\$\$
\$\$\$\$\$DGN\$\$\$\$\$





NCDOT

DIVISION OF HIGHWAYS

BRUNSWICK COUNTY

PROJECT: 35501.1.1 (R-3432)

SR 1163 (OLD GEORGETOWN RD.
EXTENSION) FROM SR 1184 (OCEAN
ISLE BEACH RD.) TO NC 179

SHEET 5 OF 12
Permit Drawing
Sheet 5 of 29

SITE 1 JURISDICTIONAL STREAM PROFILE

NCDOT

DIVISION OF HIGHWAYS

BRUNSWICK COUNTY

PROJECT: 35501.1.1 (R-3432)

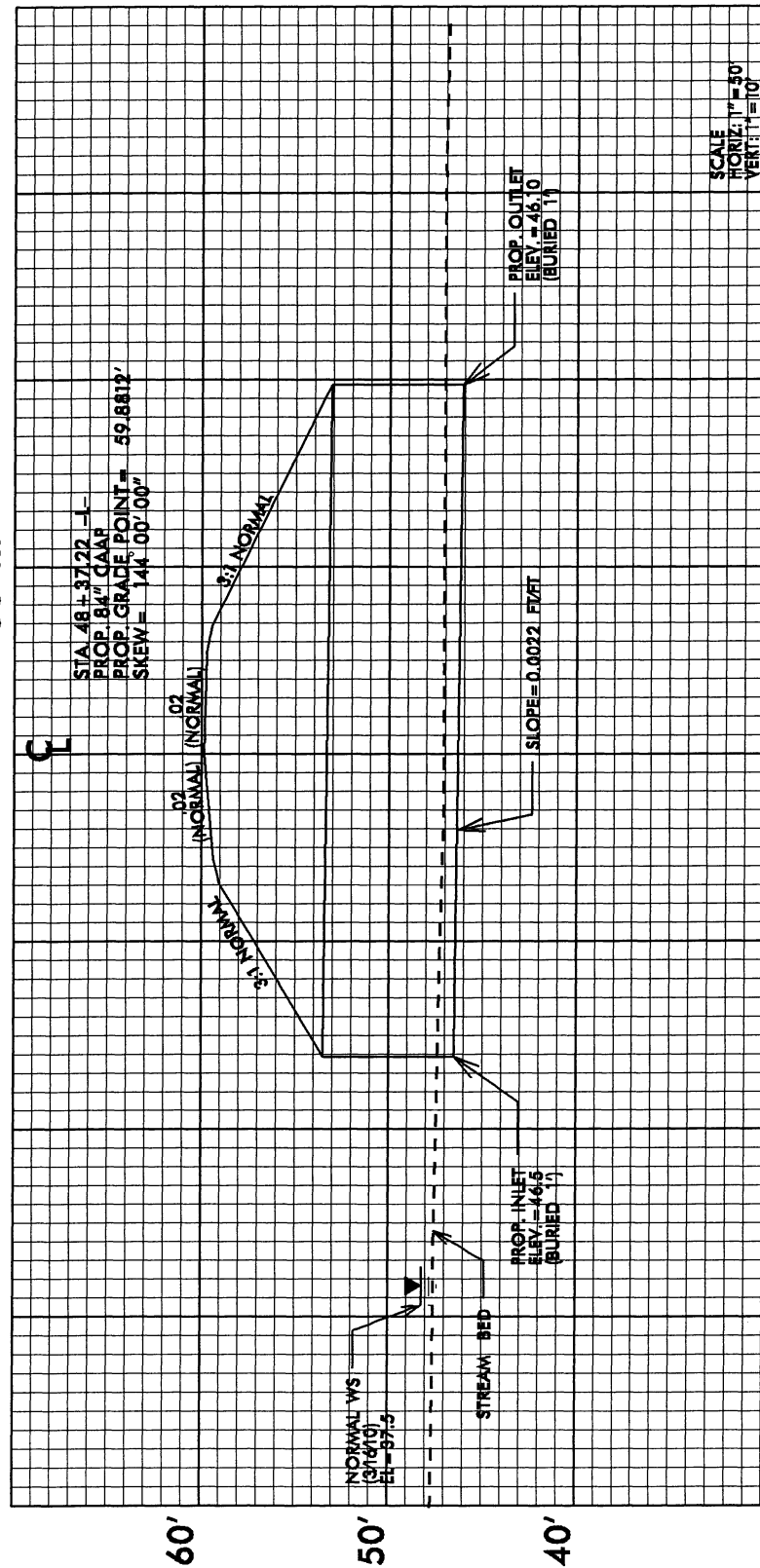
SR 1163 (OLD GEORGETOWN RD.

EXTENSION) FROM SR 1184 (OCEAN

ISLE BEACH RD.) TO NC 179

SHEET 05 OF 05 / 03 / 12

150' LT 100' LT 50' LT 0 50' RT 100' RT 150' RT



Permit Drawing
Sheet 6 of 12

5/28/99

PROJECT REFERENCE NO. R-3432		SHEET NO. 17	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS FOR THE PROPOSED CONSTRUCTION			
Permit Drawing Sheet 7 of 29			

PIPE HYDRAULIC DATA
DRAINAGE STR. NO. 0601/0602
DRAINAGE AREA = 6992 AC
DESIGN FREQUENCY = 25 YRS
DESIGN DISCHARGE = 27.9 CFS
DESIGN HW ELEVATION = 52.5 FT
100 YEAR DISCHARGE = 45.3 CFS
100 YEAR HW ELEVATION = 54.7 FT
OVERTOPPING FREQUENCY = 10 +/- YRS
OVERTOPPING DISCHARGE = 9.3 CFS
OVERTOPPING ELEVATION = 51.2 FT

PIPE HYDRAULIC DATA
DRAINAGE STR. NO. 0603/0604
DRAINAGE AREA = 6992 AC
DESIGN FREQUENCY = 25 YRS
DESIGN DISCHARGE = 134 CFS
DESIGN HW ELEVATION = 52.5 FT
100 YEAR DISCHARGE = 201 CFS
100 YEAR HW ELEVATION = 54.7 FT
OVERTOPPING FREQUENCY = 10 +/- YRS
OVERTOPPING DISCHARGE = 78 CFS
OVERTOPPING ELEVATION = 51.2 FT

PI = 47+00.00
EL = 80.34
VC = 200
K = 17.8

PI = 54+05.00
EL = 55.50
VC = 200
K = 18.5

SITE 1

BM#14
RR SPIKE 8" PINE
153' RT OF BL STA. 38+77 ELEV. 52.60

BM#17
RR SPIKE 7" PINE
135' LT OF BL STA. 59+39 ELEV. 54.41

5/28/99

8/17/99

REVISIONS

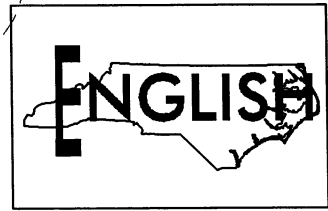
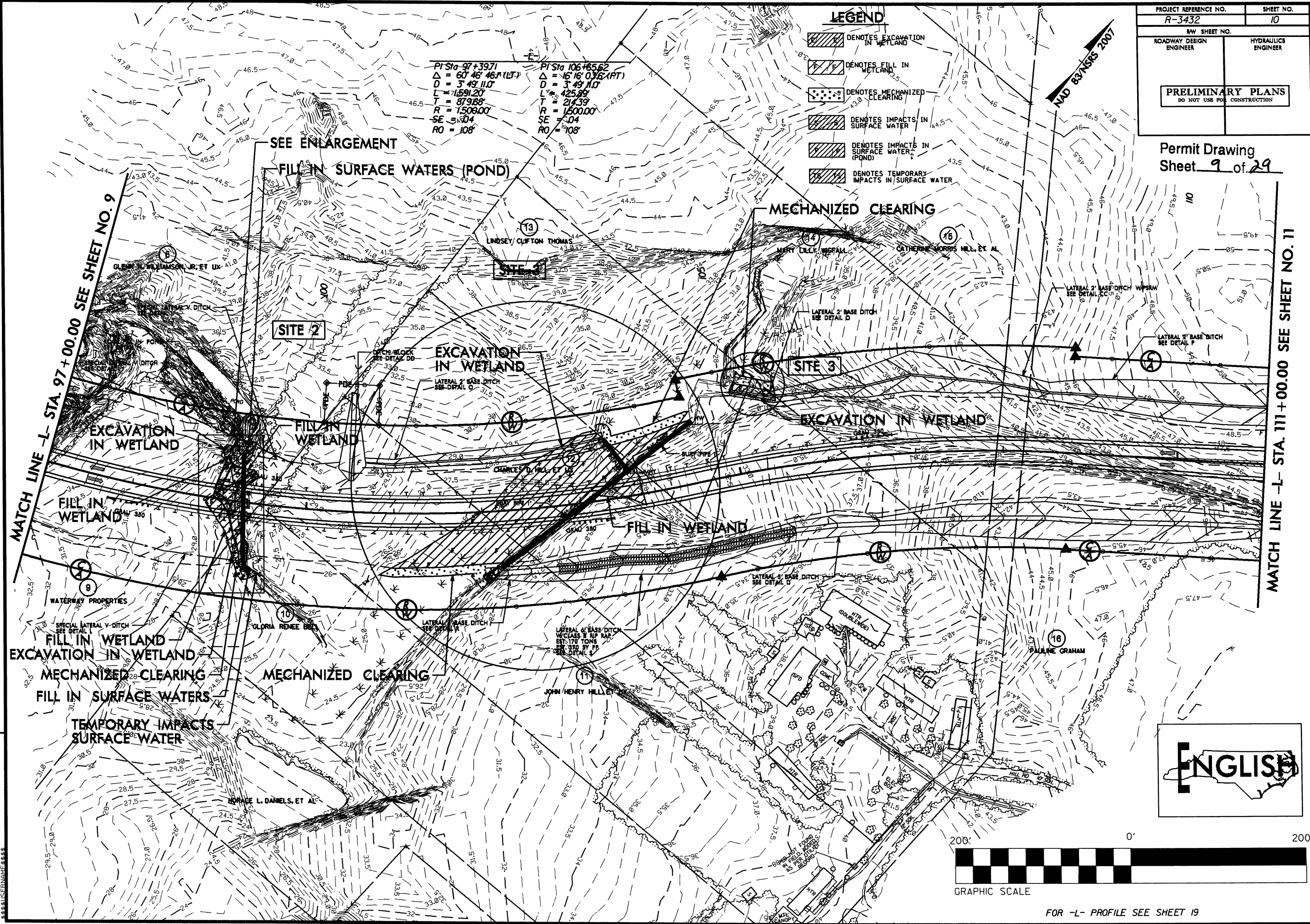
*****SYTIME*****
*****SYSDOWN*****
*****SYSENAME*****

PROJECT REFERENCE NO.	SHEET NO.
R-3432	10
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Permit Drawing
Sheet 9 of 29

LEGEND

- DENOTES EXCAVATION IN WETLAND
- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER



GRAPHIC SCALE

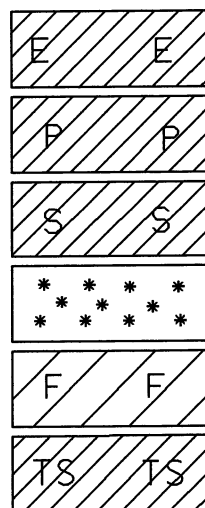
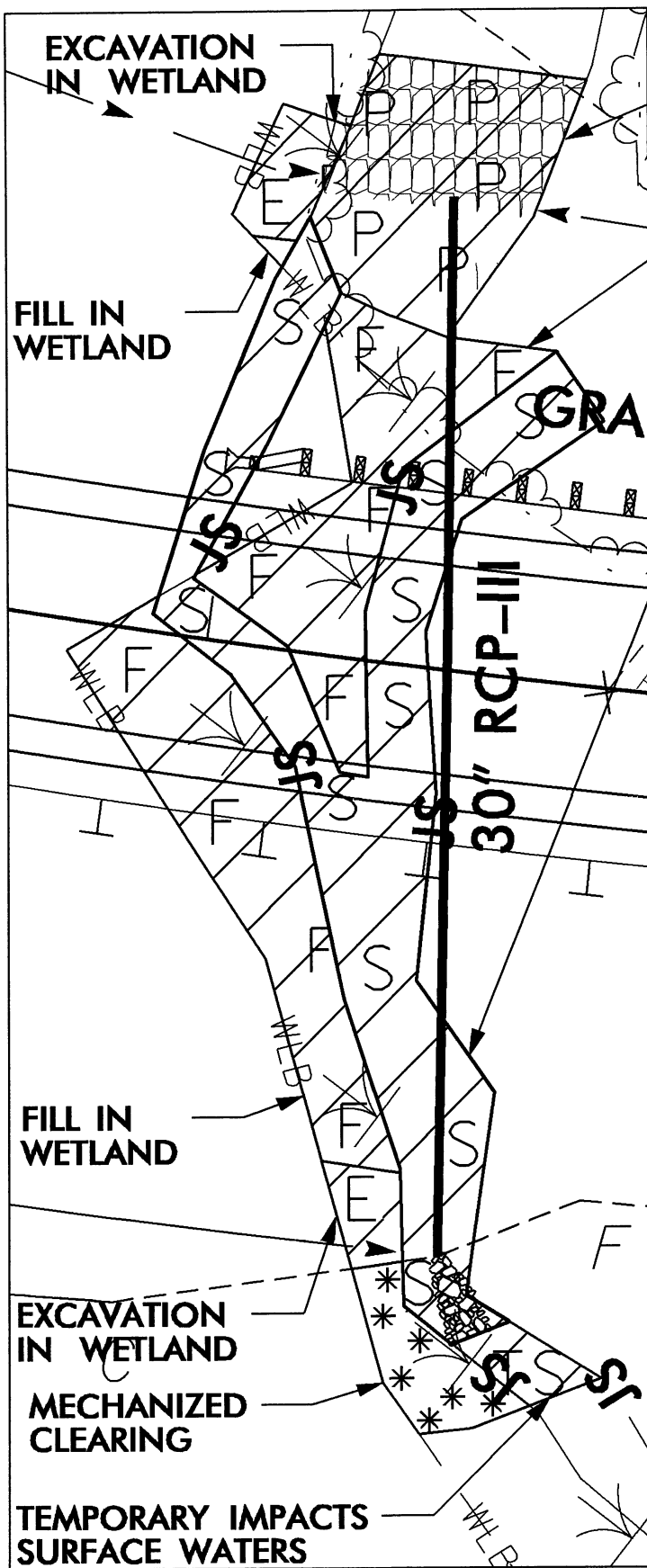
FOR -L- PROFILE SEE SHEET 19

MATCH LINE -L- STA. 111+00.00 SEE SHEET NO. 11

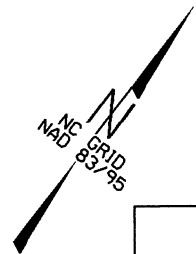
MATCH LINE -L- STA. 97+00.00 SEE SHEET NO. 9

PI Sta 97+39.71
Δ = 60° 46' 46" (RT)
D = 3' 49' 11.0"
L = 71591.20'
T = 87988'
R = 1508.00'
SE = .04
RO = 108'

PI Sta 106+65.62
Δ = 16° 16' 03.6" (RT)
D = 3' 49' 11.0"
L = 425.89'
T = 214.39'
R = 1500.00'
SE = .04
RO = 108'



E DENOTES EXCAVATION IN WETLAND
 P DENOTES IMPACTS IN SURFACE WATER (POND)
 S DENOTES IMPACTS IN SURFACE WATER
 * DENOTES MECHANIZED CLEARING
 F DENOTES FILL IN WETLAND
 TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER



GRAPHIC SCALE

NCDOT
 DIVISION OF HIGHWAYS

 BRUNSWICK COUNTY
 PROJECT: 35501.1.1 (R-3432)
 SR 1163 (OLD GEORGETOWN RD. EXTENSION) FROM SR 1184 (OCEAN ISLE BEACH RD.) TO NC 179

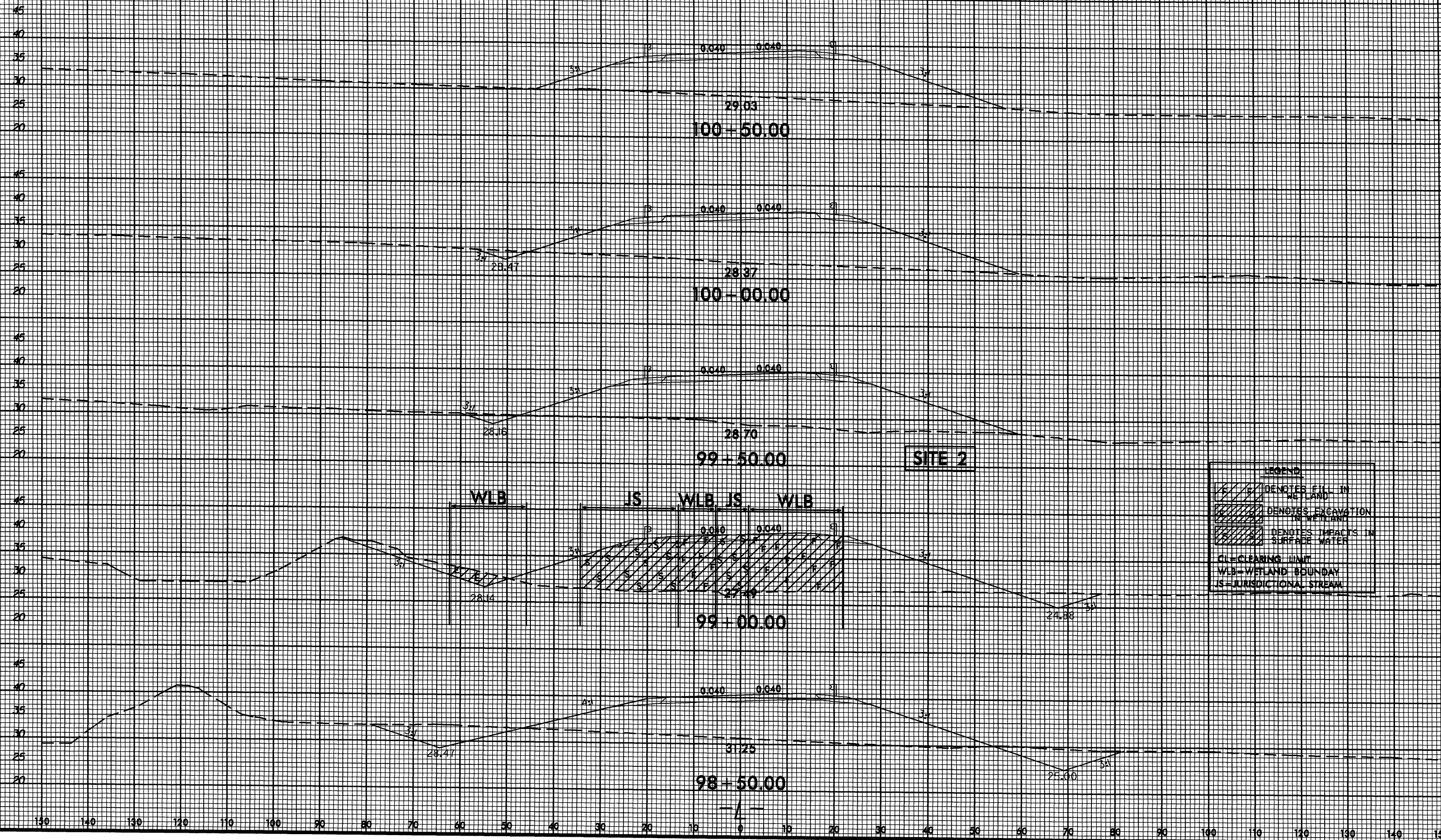
 SHEET OF 05 / 03 / 12

Permit Drawing
 Sheet 10 of 29

SITE 2
 ENLARGEMENT

8/23/99

Permit Drawing
Sheet II of 04



LEGEND

- DENOTES FILL IN WETLAND
- DENOTES EXCAVATION IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- CL= CLEARING LIMIT
- WLB= WETLAND BOUNDARY
- JS= JURISDICTIONAL STREAM

5/28/99

PROJECT REFERENCE NO. R-3432		SHEET NO. 19	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			

Permit Drawing
Sheet 12 of 29

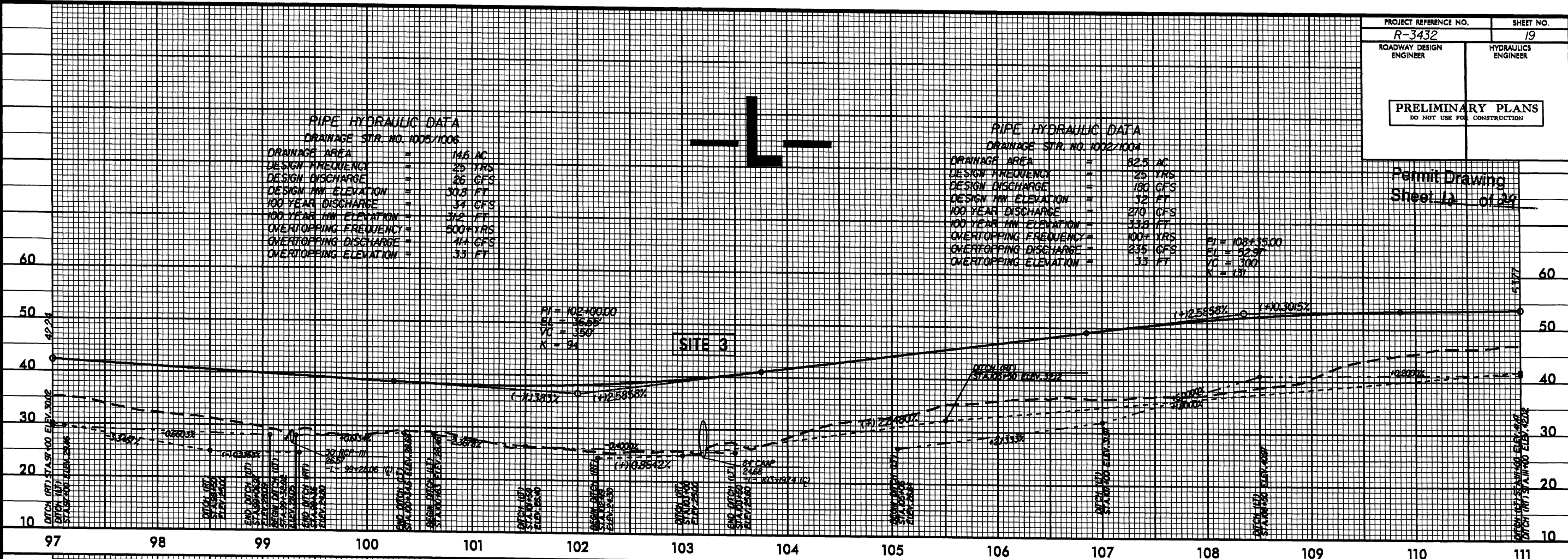
PIPE HYDRAULIC DATA
DRAINAGE STR. NO. 1005/1006

DRAINAGE AREA	=	146 AC
DESIGN FREQUENCY	=	25 YRS
DESIGN DISCHARGE	=	26 CFS
DESIGN HW ELEVATION	=	30.8 FT
100 YEAR DISCHARGE	=	34 CFS
100 YEAR HW ELEVATION	=	31.2 FT
OVERTOPPING FREQUENCY	=	500 YRS
OVERTOPPING DISCHARGE	=	41+ CFS
OVERTOPPING ELEVATION	=	33 FT

PIPE HYDRAULIC DATA
DRAINAGE STR. NO. 1002/1004

DRAINAGE AREA	=	82.5 AC
DESIGN FREQUENCY	=	25 YRS
DESIGN DISCHARGE	=	180 CFS
DESIGN HW ELEVATION	=	32 FT
100 YEAR DISCHARGE	=	270 CFS
100 YEAR HW ELEVATION	=	33.8 FT
OVERTOPPING FREQUENCY	=	100+ YRS
OVERTOPPING DISCHARGE	=	235 CFS
OVERTOPPING ELEVATION	=	33 FT

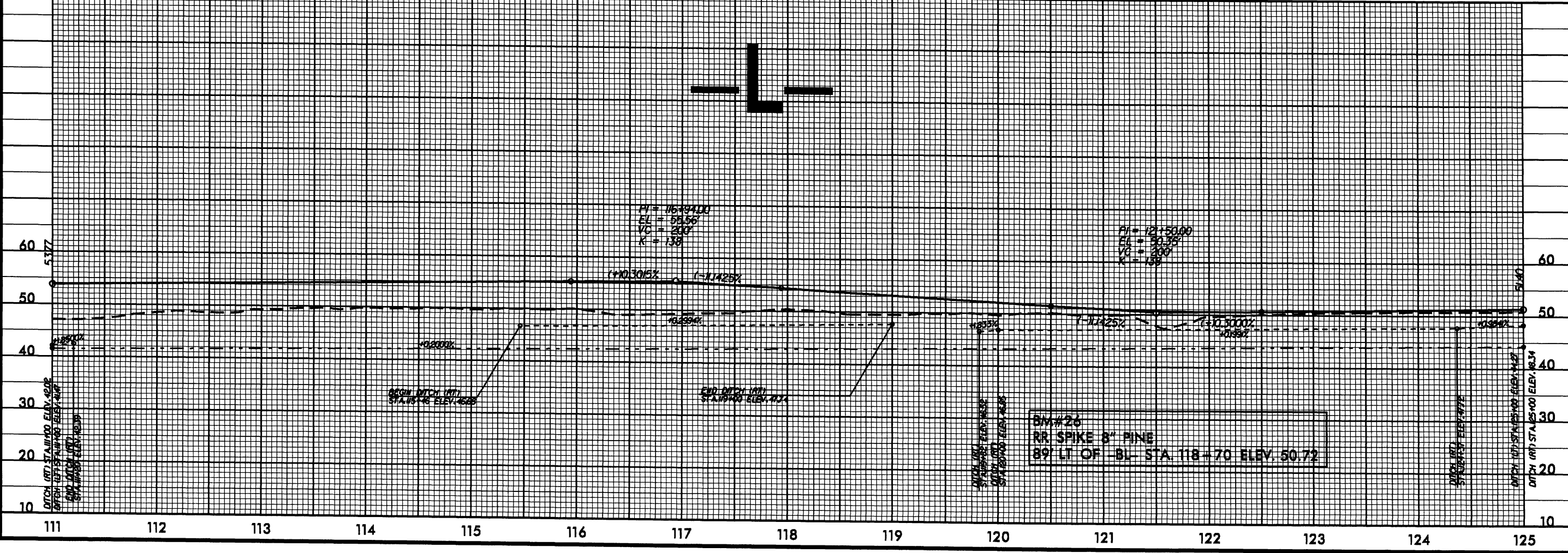
PI = 108+35.00
EL = 52.95
VC = 300
K = 131



PI = 116+94.00
EL = 58.56
VC = 200
K = 138

PI = 121+50.00
EL = 50.35
VC = 200
K = 138

BM #26
RR SPIKE 3" PINE
89' LT OF BL STA 118+70 ELEV. 50.72



8/23/99

SITE 3

Permit Drawing
Sheet 13 of 24

WLB

WLB

WLB

WLB

103 + 00.00

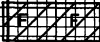

102 + 50.00

102 + 00.00

101 + 50.00

101 + 00.00

LEGEND

-  DENOTES FILL IN WETLAND
-  DENOTES EXCAVATION IN WETLAND
- CL = CLEARING LIMIT
- WLB = WETLAND BOUNDARY

8/23/99

SITE 3

Permit Drawing
Sheet 14 of 29

WLB

105+50.00

105+00.00

104+51.23

104+00.00

WLB

103+50.00

LEGEND

DENOTES FILL IN WETLAND

DENOTES EXCAVATION IN WETLAND

CL

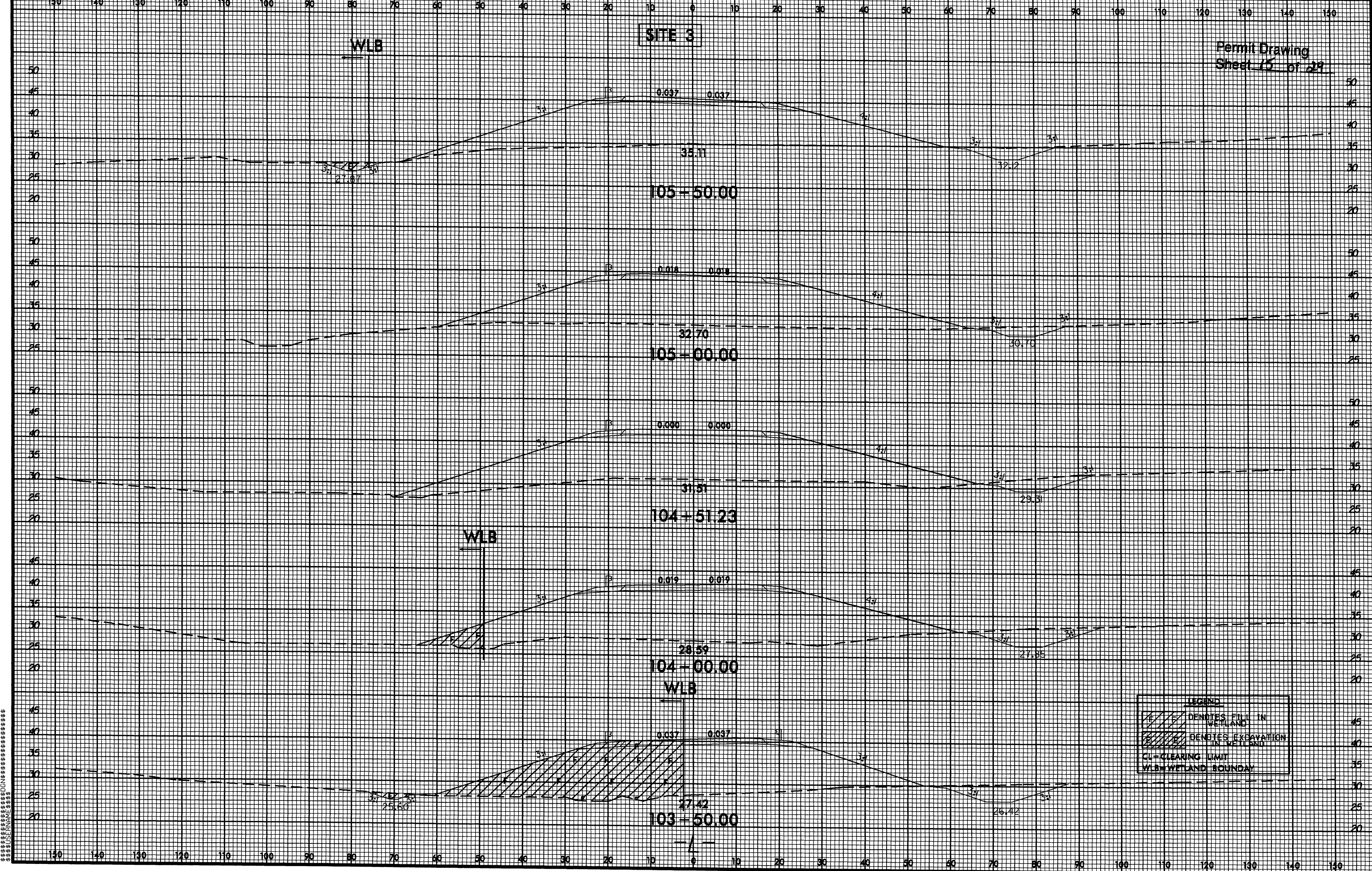
CLEARING LIMIT

WLB

WETLAND BOUNDARY

\$\$\$\$\$SYTIME\$\$\$\$\$
\$\$\$\$\$DGN\$\$\$\$\$
\$\$\$\$\$USER\$\$\$\$\$
\$\$\$\$\$NAME\$\$\$\$\$

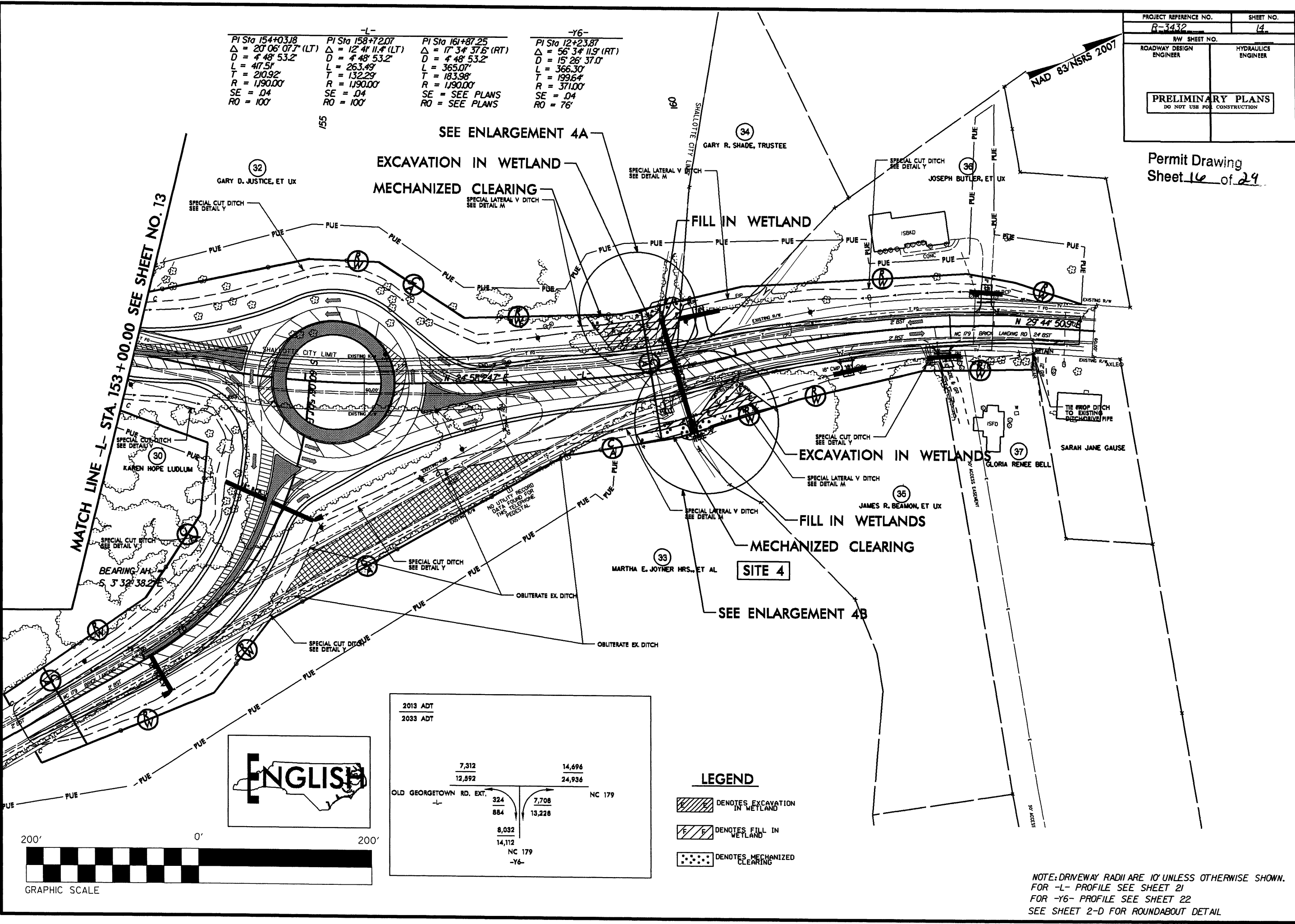
8/23/09



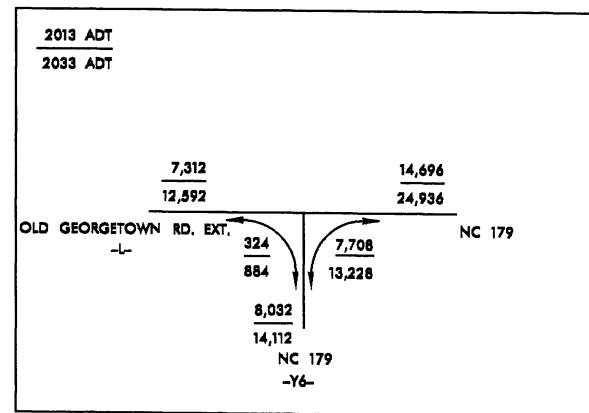
PROJECT REFERENCE NO. R-3432	SHEET NO. 14
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Permit Drawing
Sheet **14** of **29**

-L-		-Y6-	
PI Sta 154+03.18	PI Sta 158+72.07	PI Sta 161+87.25	PI Sta 12+23.87
$\Delta = 20^{\circ}06'07.7"$ (LT)	$\Delta = 12^{\circ}41'11.4"$ (LT)	$\Delta = 17^{\circ}34'37.6"$ (RT)	$\Delta = 56^{\circ}34'11.9"$ (RT)
D = 4'48'53.2"	D = 4'48'53.2"	D = 4'48'53.2"	D = 15'26'37.0"
L = 417.51'	L = 263.49'	L = 365.07'	L = 366.30'
T = 210.92'	T = 132.29'	T = 183.98'	T = 199.64'
R = 1,190.00'	R = 1,190.00'	R = 1,190.00'	R = 371.00'
SE = .04	SE = .04	SE = .04	SE = .04
RO = 100'	RO = 100'	RO = 100'	RO = 76'



REVISIONS
 R-W REV-2 REVISING PUE ON PARCEL 30. 5/14/12 TFD



- LEGEND**
- DENOTES EXCAVATION IN WETLAND
 - DENOTES FILL IN WETLAND
 - DENOTES MECHANIZED CLEARING

NOTE: DRIVEWAY RADII ARE 10' UNLESS OTHERWISE SHOWN.
 FOR -L- PROFILE SEE SHEET 21
 FOR -Y6- PROFILE SEE SHEET 22
 SEE SHEET 2-D FOR ROUNDABOUT DETAIL

8/17/99

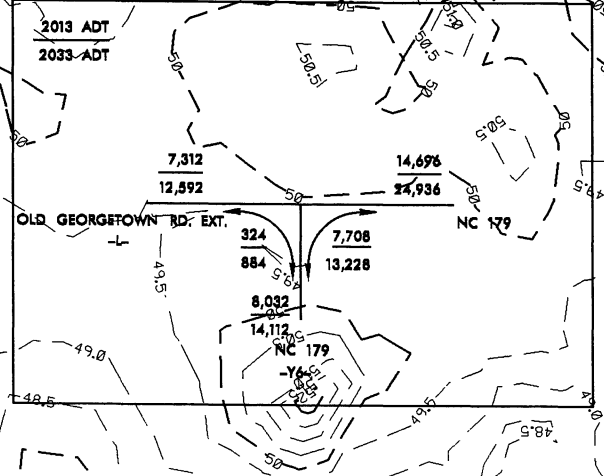
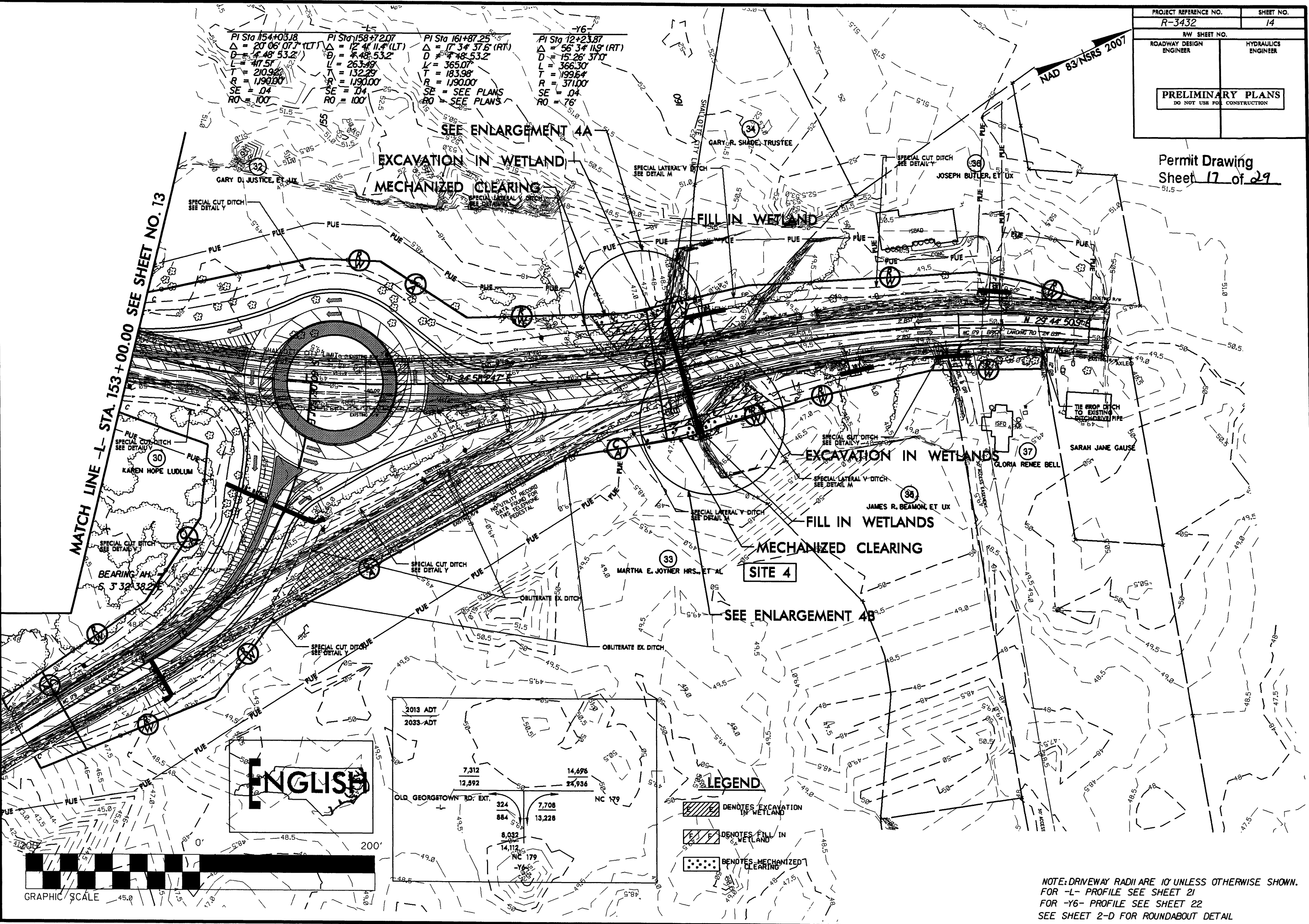
R/W REV. REVISING PUE ON PARCEL 30. 5/14/12 TFD

REVISIONS

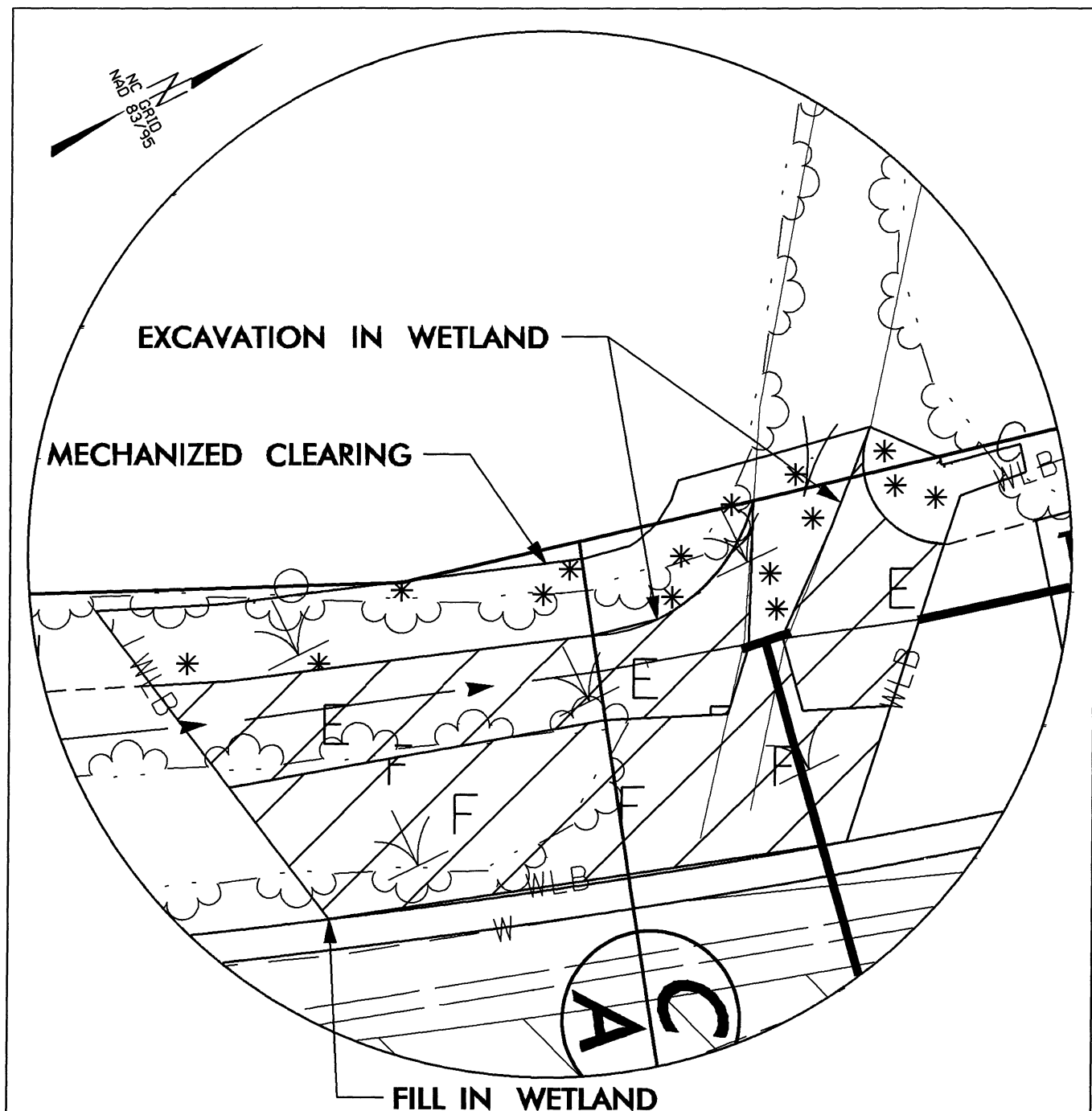
PI Sta 154+03.8 Δ = 20' 06" 07.7' (LT) D = 4' 48" 53.2" L = 417.51' T = 210.92' R = 1190.00' SE = .04 RO = 100'	PI Sta 158+72.07 Δ = 12' 41" 11.4' (LT) D = 4' 48" 53.2" L = 263.49' T = 132.29' R = 1190.00' SE = .04 RO = 100'	PI Sta 161+87.25 Δ = 17' 34" 37.6' (RT) D = 4' 48" 53.2" L = 365.07' T = 183.98' R = 1190.00' SE = SEE PLANS RO = SEE PLANS	-Y6- PI Sta 12+23.87 Δ = 56' 34" 11.9' (RT) D = 15' 26" 37.0" L = 366.30' T = 199.64' R = 371.00' SE = .04 RO = 76'
--	---	--	---

PROJECT REFERENCE NO. R-3432	SHEET NO. 14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

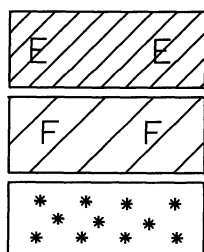
Permit Drawing
Sheet 17 of 29



NOTE: DRIVEWAY RADII ARE 10' UNLESS OTHERWISE SHOWN.
FOR -L- PROFILE SEE SHEET 21
FOR -Y6- PROFILE SEE SHEET 22
SEE SHEET 2-D FOR ROUNDABOUT DETAIL



SITE 4A ENLARGEMENT

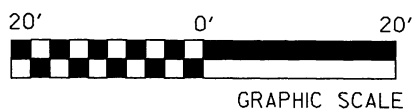


DENOTES EXCAVATION
IN WETLAND

DENOTES FILL IN
WETLAND

DENOTES MECHANIZED
CLEARING

Permit Drawing
Sheet 18 of 29



NCDOT
DIVISION OF HIGHWAYS

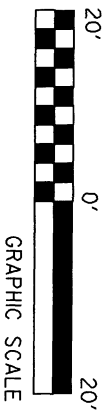
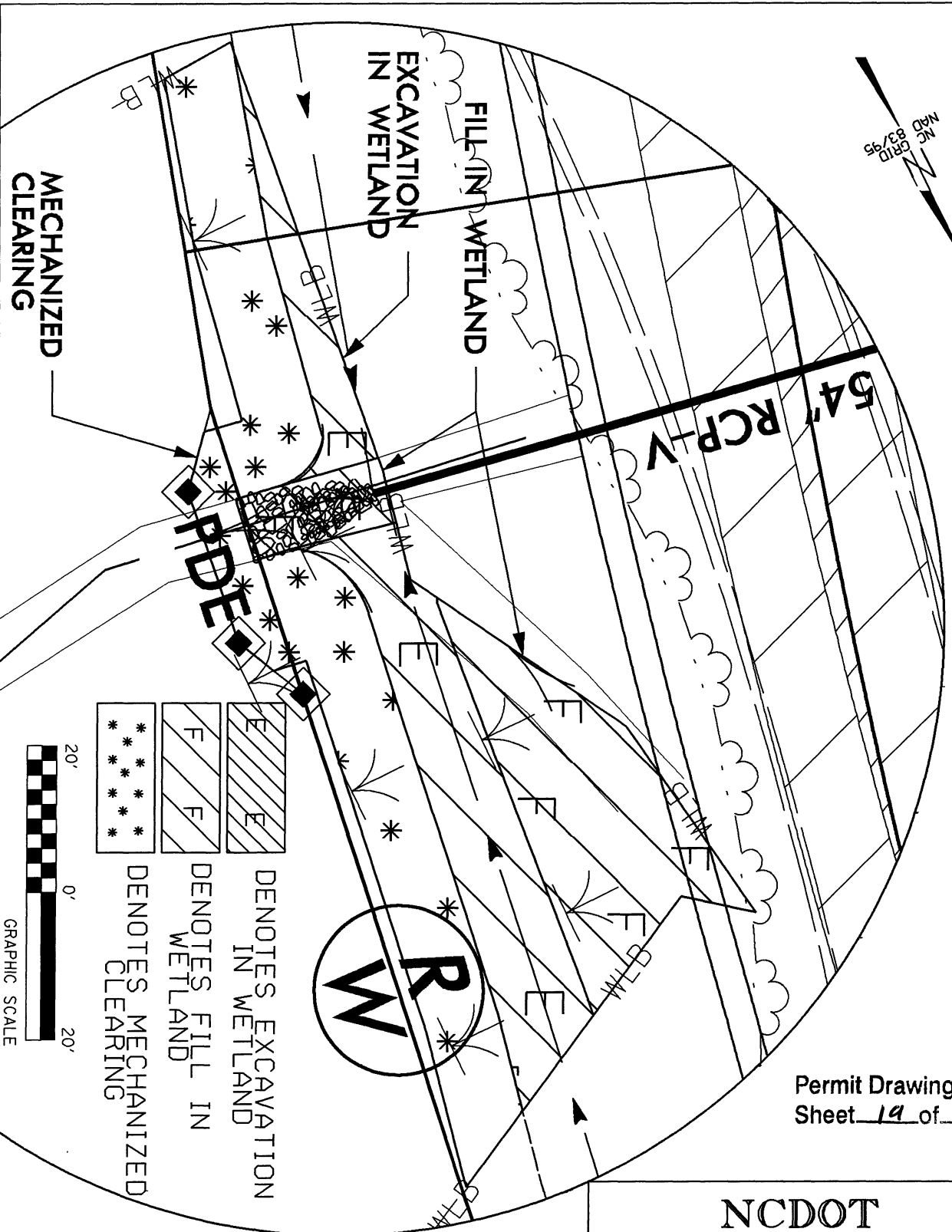
BRUNSWICK COUNTY
PROJECT: 35501.1.1 (R-3432)

SR 1163 (OLD GEORGETOWN RD.
EXTENSION) FROM SR 1184 (OCEAN
ISLE BEACH RD.) TO NC 179

SHEET

OF

04 / 25 / 12



- DENOTES EXCAVATION IN WETLAND
- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING



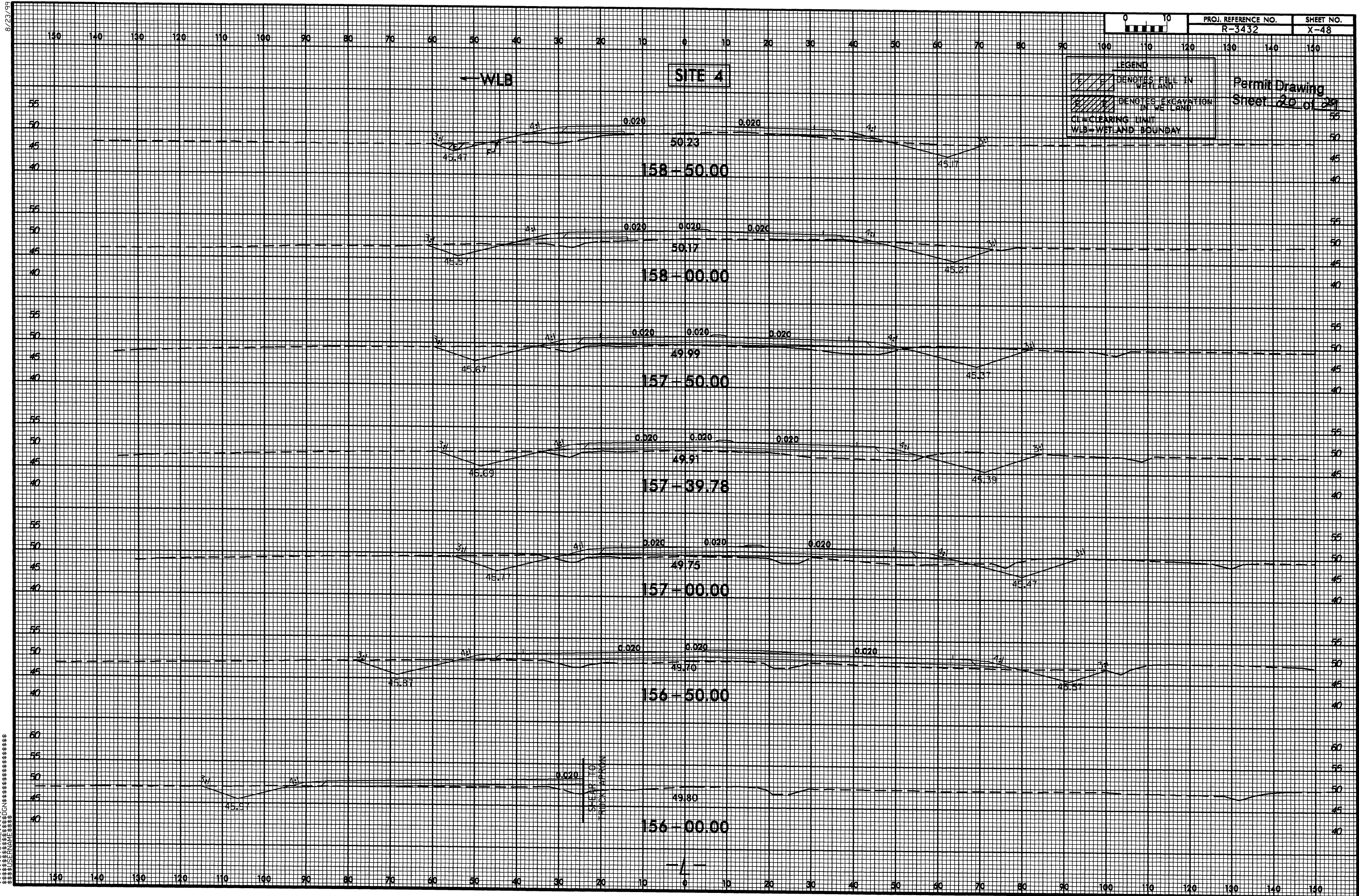
Permit Drawing
Sheet 19 of 29

SITE 4B
ENLARGEMENT

NCDOT
DIVISION OF HIGHWAYS

BRUNSWICK COUNTY
PROJECT: 35501.1.1 (R-3432)
SR 1163 (OLD GEORGETOWN RD. EXTENSION) FROM SR 1184 (OCEAN ISLE BEACH RD.) TO NC 179

SHEET OF 05 / 03 / 12



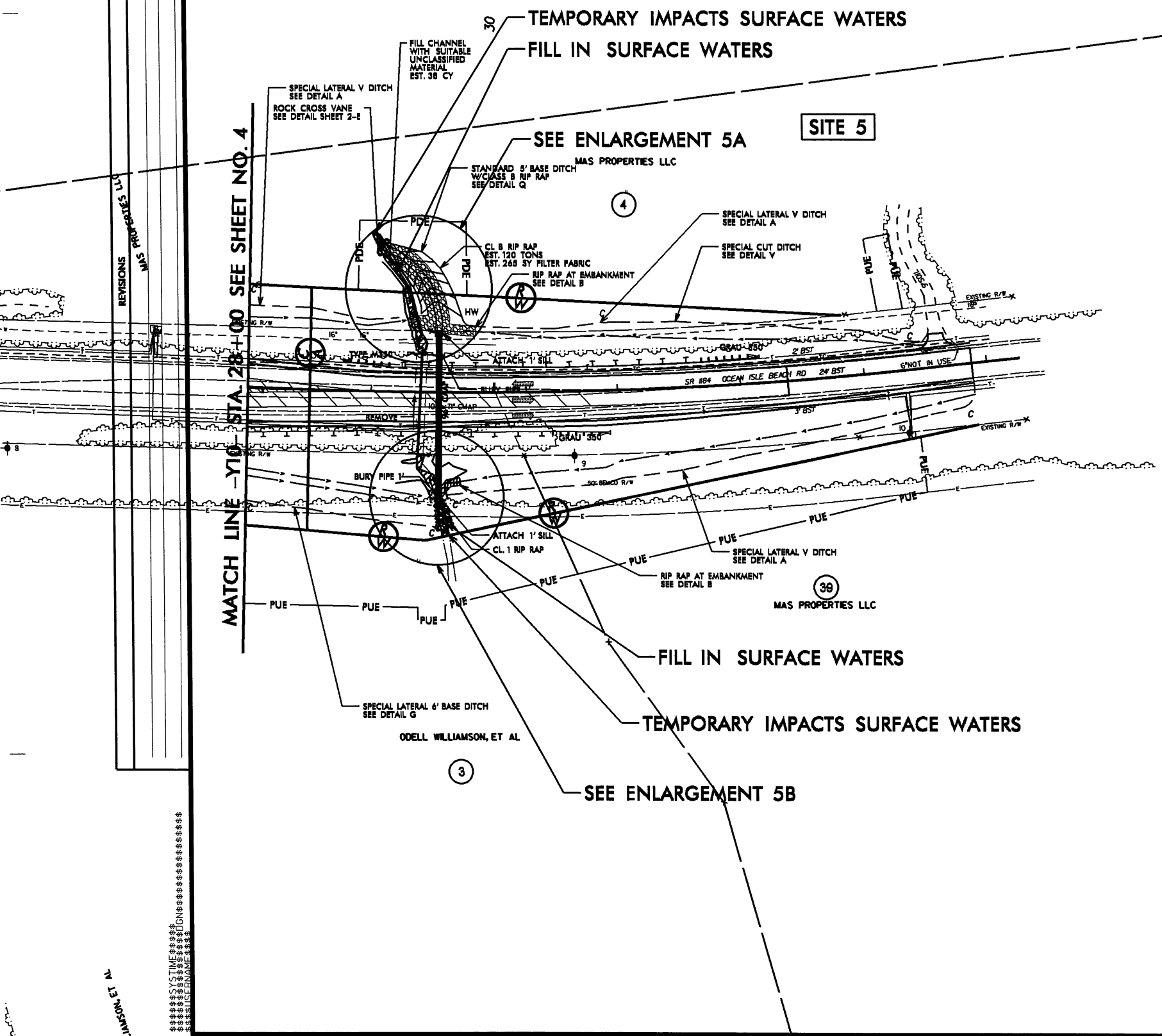
8/17/99

-Y10-
PI Sta 31+16.11
 $\Delta = 7' 51" 41.7" (LT)$
 $D = 1' 47" 25.8"$
 $L = 439.07'$
 $T = 219.88'$
 $R = 3,200.00'$
 $SE = .03$
 $RO = 8'$

NAD 83/NSRS 2007

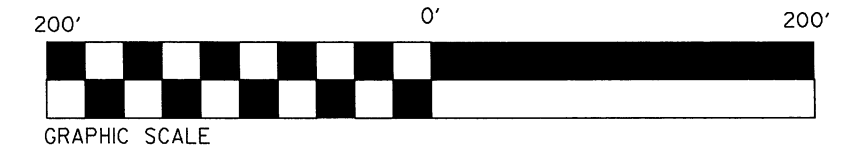
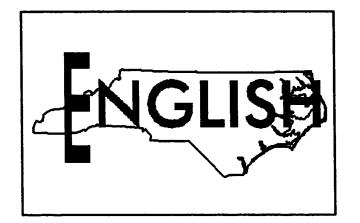
PROJECT REFERENCE NO.	SHEET NO.
R-3432	15
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Permit Drawing
Sheet 22 of 29



LEGEND

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



FOR -Y10- PROFILE SEE SHEET 21A

NAD 83/NSRS 2007

TEMPORARY IMPACTS SURFACE WATERS

PDE

PDE

PDE

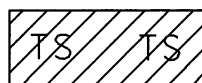
HW

W

50

FILL IN SURFACE WATERS

SITE 5A ENLARGEMENT

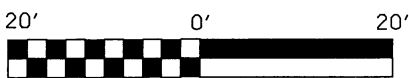


DENOTES TEMPORARY
IMPACTS IN SURFACE WATER



DENOTES IMPACTS IN
SURFACE WATER

Permit Drawing
Sheet 24 of 29



GRAPHIC SCALE

NCDOT

DIVISION OF HIGHWAYS

BRUNSWICK COUNTY

PROJECT: 35501.1.1 (R-3432)

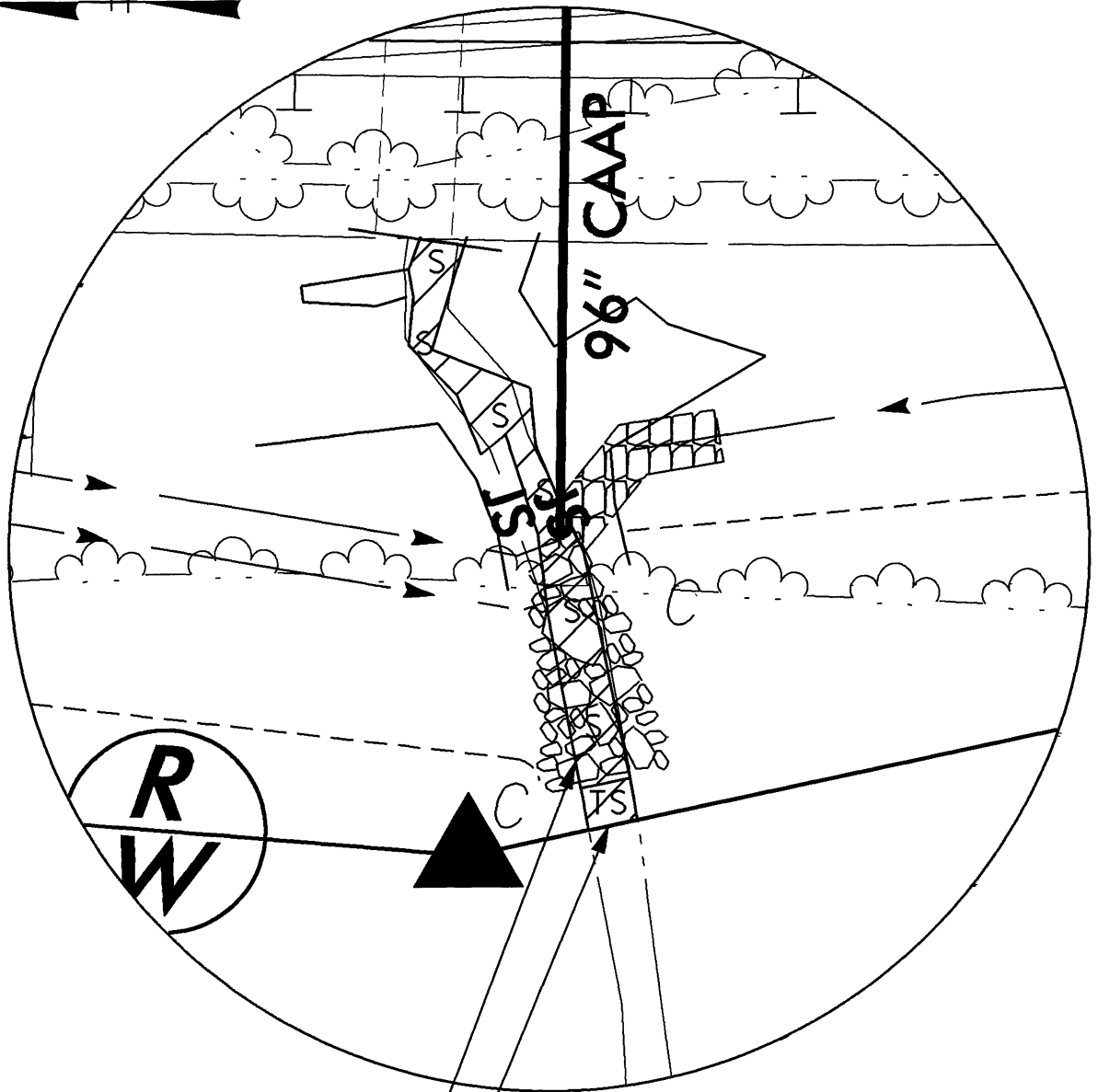
**SR 1163 (OLD GEORGETOWN RD.
EXTENSION) FROM SR 1184 (OCEAN
ISLE BEACH RD.) TO NC 179**

SHEET

OF

05 / 03 / 12

NAD 83/NSRS 2007



FILL IN SURFACE WATERS

TEMPORARY IMPACTS
SURFACE WATERS

Permit Drawing
Sheet 25 of 24

SITE 5B ENLARGEMENT



DENOTES TEMPORARY
IMPACTS IN SURFACE
WATER



DENOTES IMPACTS IN
SURFACE WATER

20' 0' 20'



GRAPHIC SCALE

NCDOT

DIVISION OF HIGHWAYS

BRUNSWICK COUNTY

PROJECT: 35501.1.1 (R-3432)

SR 1163 (OLD GEORGETOWN RD.
EXTENSION) FROM SR 1184 (OCEAN
ISLE BEACH RD.) TO NC 179

SHEET

OF

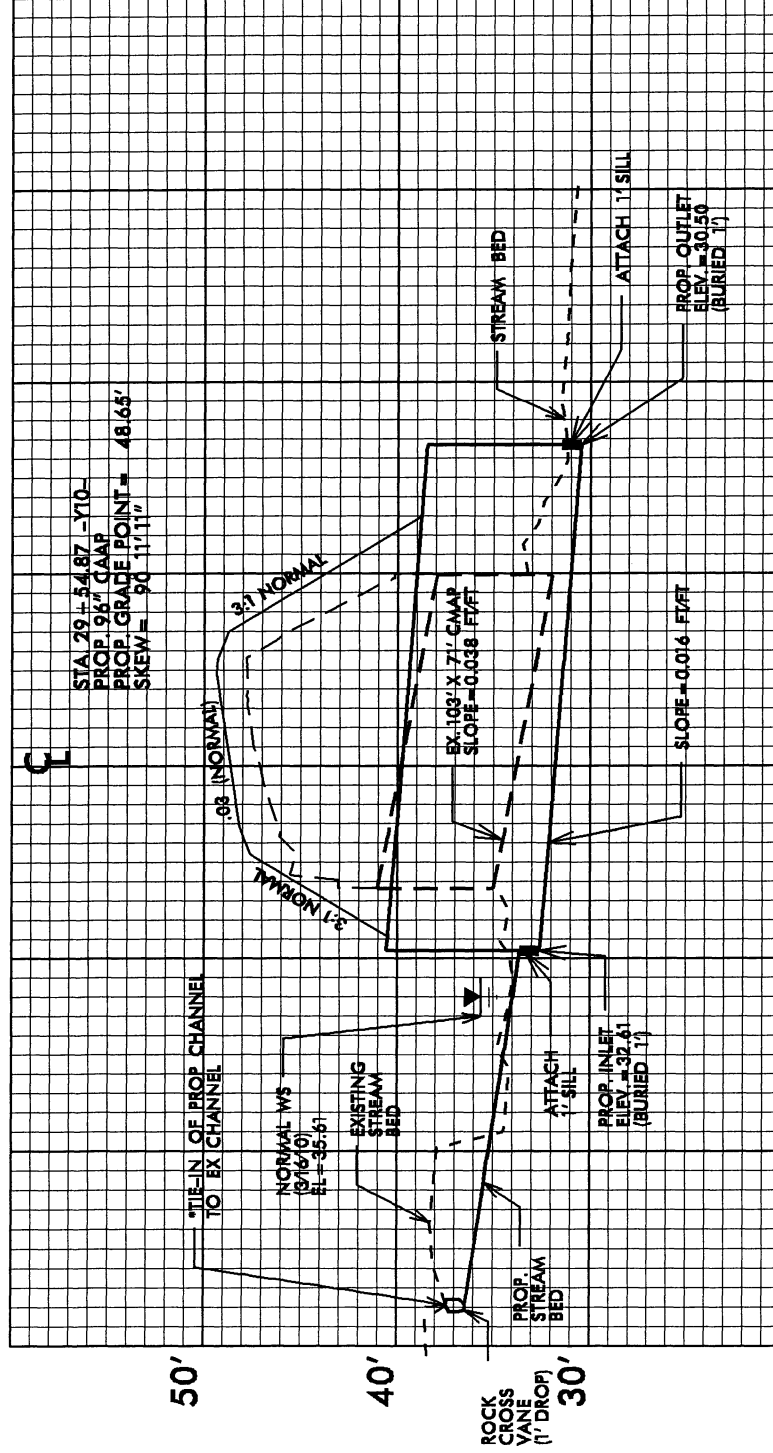
05 / 03 / 12

SITE 5 JURISDICTIONAL STREAM PROFILE

NCDOT
DIVISION OF HIGHWAYS
BRUNSWICK COUNTY
PROJECT: 35501.1.1 (R-3432)
SR 1163 (OLD GEORGETOWN RD.
EXTENSION) FROM SR 1184 (OCEAN
ISLE BEACH RD.) TO NC 179

SHEET 05 OF 05 / 03 / 12

150' LT 100' LT 50' LT 0 50' RT 100' RT 150' RT



Permit Drawing
Sheet 27 of 29

-Y10-

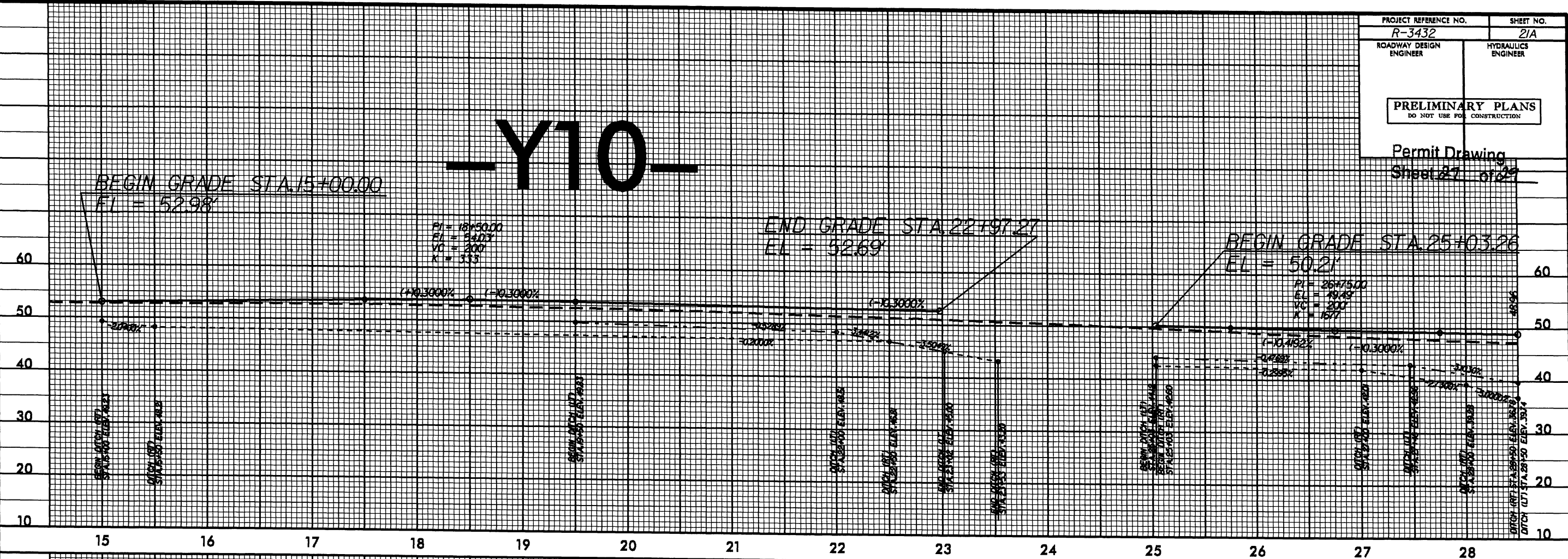
BEGIN GRADE STA. 15+00.00
EL = 52.98'

PI = 18+50.00
EL = 54.03'
VC = 200'
K = 333

END GRADE STA. 22+97.27
EL = 52.69'

BEGIN GRADE STA. 25+03.26
EL = 50.21'

PI = 26+75.00
EL = 49.43'
VC = 200'
K = 1677

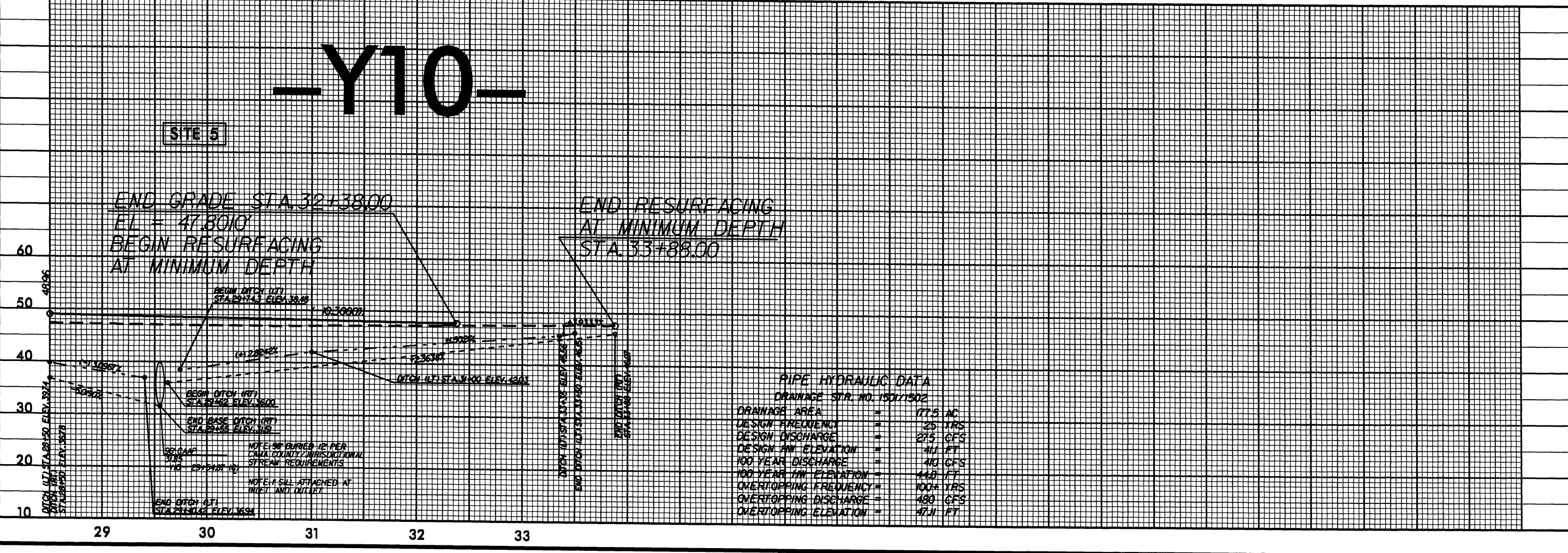


-Y10-

SITE 5

END GRADE STA. 32+38.00
EL = 47.8010'
BEGIN RESURFACING
AT MINIMUM DEPTH

END RESURFACING
AT MINIMUM DEPTH
STA. 33+88.00



PIPE HYDRAULIC DATA
DRAINAGE STR. NO. 15011502

DRAINAGE AREA	=	177.5 AC
DESIGN FREQUENCY	=	25 YRS
DESIGN DISCHARGE	=	275 CFS
DESIGN HW ELEVATION	=	41.1 FT
100 YEAR DISCHARGE	=	410 CFS
100 YEAR HW ELEVATION	=	44.0 FT
OVERTOPPING FREQUENCY	=	100+ YRS
OVERTOPPING DISCHARGE	=	480 CFS
OVERTOPPING ELEVATION	=	47.11 FT

NOTE: 12" BURIED 12" PER
CAMA COUNTY ZONING/UTL
STREAM REQUIREMENTS

NOTE: 1" SILL ATTACHED AT
INLET AND OUTLET

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
3	Odell & Glenn N. Williamson	PO BOX 1602, Shallotte, NC 28459
4, 39	MAS Properties, LLC	131 Ocean Blvd. West, Holden Beach, NC 28462
5	Mills Land and Timber, LLC	131 Ocean Blvd. West, Holden Beach, NC 28462
8	Glen N., Jr. & Sarah S. Williamson	PO BOX 1602, Shallotte, NC 28459
9	Waterway Properties	1625 Woodview Dr., Ocean Isle Beach, NC 28469
10	Gloria Renee Bell	PO BOX 1984, Shallotte, NC 28459
11	John Henry & Mabeline Hill	1060 Hale Swamp Rd., SW, Shallotte, NC 28459
12	Charles D. Hill	PO BOX 374, Shallotte, NC 28459
13	Lindsey Clifton Thomas	PO BOX 181, Shallotte, NC 28459
14	Mary Lily Wigfall	4768 Oakview Dr., Southport, NC 28461
32	Gary D. & Rebecca H. Justice, et ux	3288 Channelside Dr., SW, Supply, NC 28462
33	Martha Joyner HRS, et al	812 N. Caswell Ave., Southport, NC 28461
34	Gary R. Shade, Trustee	PO BOX 1621, Mountain View, CA 94042
35	James R. & Caroline K. Beamon	PO BOX 1403, North Wilkesboro, NC 28659

Permit Drawing
Sheet 28 of 29

NCDOT
DIVISION OF HIGHWAYS

BRUNSWICK COUNTY
PROJECT: 35501.1.1 (R-3432)
SR 1163 (OLD GEORGETOWN RD.
EXTENSION) FROM SR 1184 (OCEAN
ISLE BEACH RD.) TO NC 179

			WETLAND IMPACTS						SURFACE WATER IMPACTS						
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)			
1	-L- 46+95/49+28	84" CAAP						0.03	<0.01						
2	-L- 98+85/99+39	30" RCP-III	0.03		<0.01	<0.01		0.05	<0.01	200	10				
3	-L- 100+97/105+53	84" CAAP	0.40		0.04	0.07									
4	-L- 158+32/160+27	54" RCP-V	0.06		0.06	0.07									
5	-Y10- 29+37/29+63	96" CAAP						0.02	<0.01	166	15				
TOTALS:			0.49		0.10	0.14		0.10	0.01	366	25				

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
BRUNSWICK COUNTY
WBS - 35501.1.1 (R-3432)

Permit Drawing
Sheet 29 of 29

ATN Revised 3/31/05

SHEET

6/5/2012

R-3432 NEU Narrative**Utility Owners:**

- **Power:** Brunswick EMC (Transmission) - Mr. Rodney Scruggs 910-755-4246
- **Power:** Brunswick EMC (Distribution) - Mr. Josh Winslow, PE (910) 754-4391
- **Telephone:** ATMC (Atlantic Telephone Membership Corporation) - Mr. Scott Dutton (910) 755-1701
- **Water:** Brunswick County (water)- John Nicholes (910) 253-2653
- **Cable TV:** Time Warner Cable Mr. Robert John (910) 772-5757

General Utility Relocation:

All utility lines inside project limits currently within construction limits will be adjusted as necessary or relocated away from construction before project let.

Existing Utilities:

- **Power (Transmission):** Existing transmission O/H power poles are in conflict with construction of the project and will be relocated outside the R/W line and inside the PUE line. There is no impact on wetlands.
- **Power (Distribution):** Existing O/H power poles are in conflict with construction of the project and will be relocated inside the PUE line. There is no impact on wetlands.
- **Telephone:** Existing Telephone lines will be adjusted as required.
- **Water:** The water line will be relocated as required, using trenchless method in wetlands areas. There is no impact on the wetlands.
- **Cable TV:** Existing Telephone lines will be adjusted as required.

CONTRACT:

**DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA**

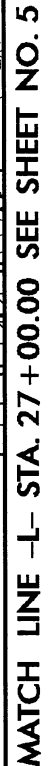
THE PLANS WILL BE
REVISED WHEN THE
SUE DATA BECOME AVAILABLE

STA.13+07.00 -L-

BEGIN STATE PROJECT R-3432

PROP. O/H POWER LINE

PUE TO BE DEEDED TO BRUNSWICK EMC



FOR -L- PROFILE SEE SHEET 16
FOR -Y10- PROFILE SEE SHEET 21A
SEE SHEET 2-C FOR ROUNDABOUT DETAIL

8/17/99

18 MAY 2002 10:37
C:\UTL\PERM\3432\rdg\NEU\psh_10.dgn

PROJECT REFERENCE NO. R-3432		SHEET NO. 10	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			
Utility Permit Drawing Sheet <u>3</u> of <u>10</u>			

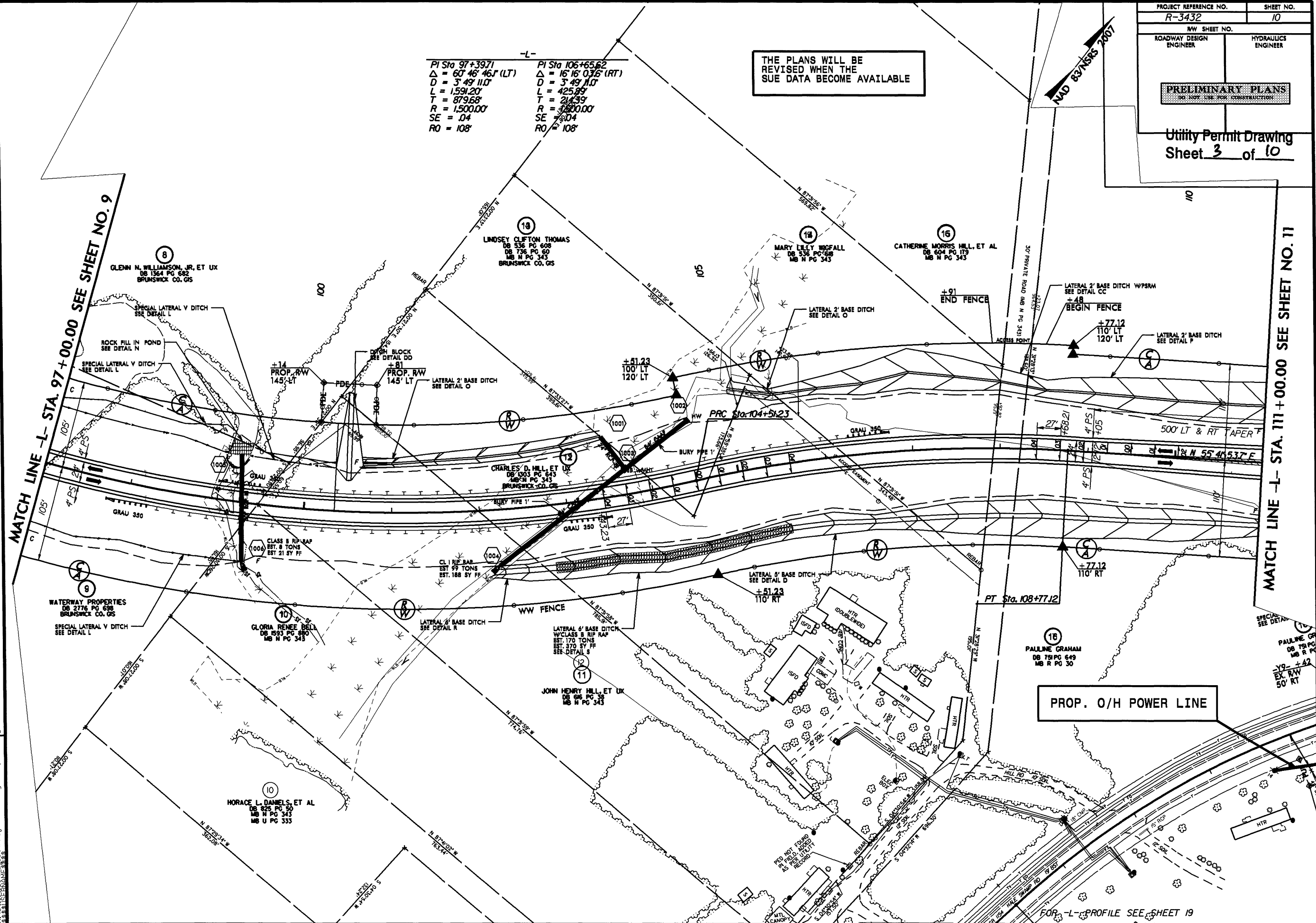
THE PLANS WILL BE
REVISED WHEN THE
SUE DATA BECOME AVAILABLE

-L-
PI Sta 97+39.71
 $\Delta = 60^\circ 46' 46''$ (LT)
D = 3' 49' 11.0"
L = 1591.20'
T = 879.68'
R = 1500.00'
SE = .04
RO = 108'

PI Sta 106+65.62
 $\Delta = 16^\circ 16' 03''$ (RT)
D = 3' 49' 11.0"
L = 425.89'
T = 214.39'
R = 1500.00'
SE = .04
RO = 108'

MATCH LINE -L- STA. 97+00.00 SEE SHEET NO. 9

MATCH LINE -L- STA. 171+00.00 SEE SHEET NO. 11

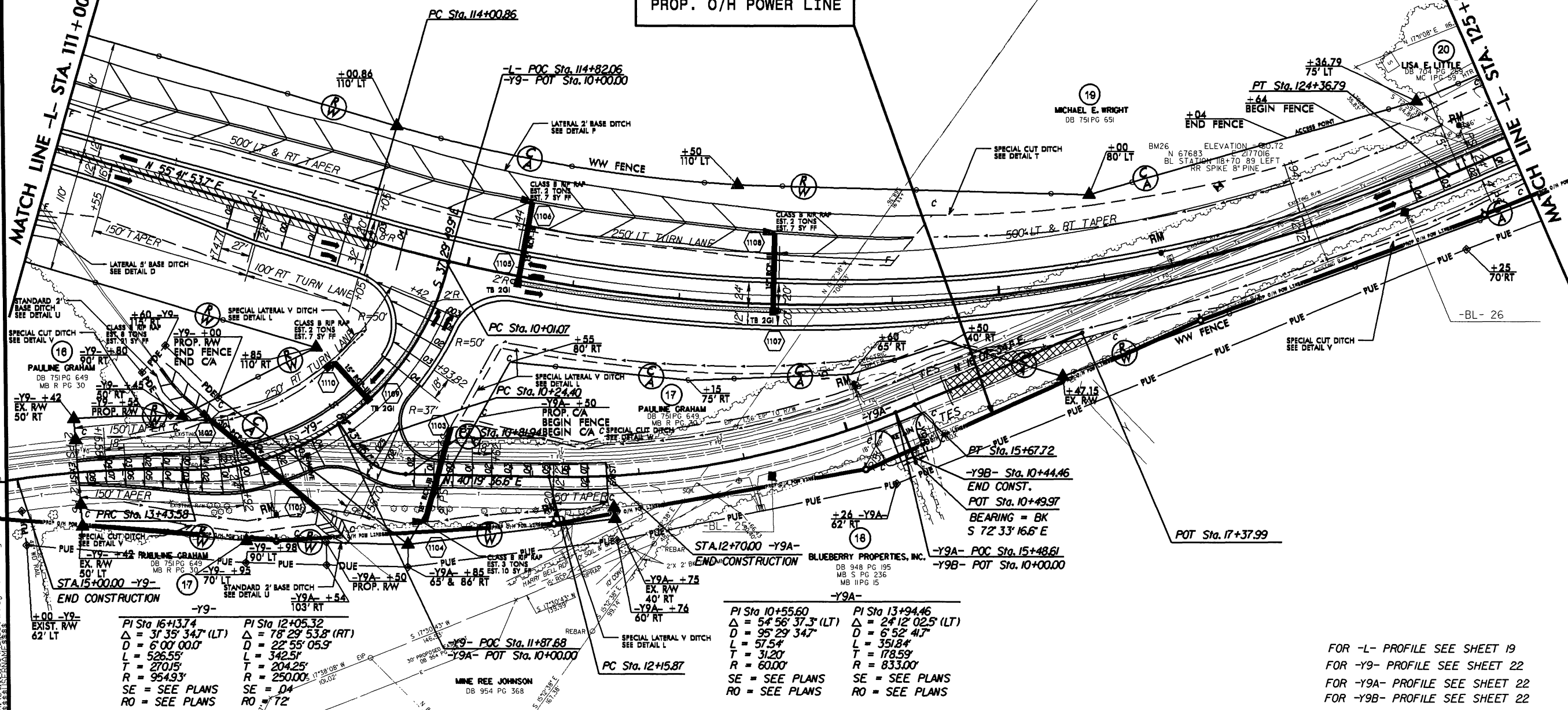
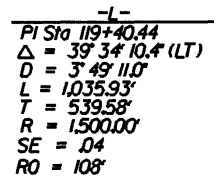


PROP. O/H POWER LINE

FOR -L- PROFILE SEE SHEET 19

NAD 83/NSRS 2007

THE PLANS WILL BE
REVISED WHEN THE
SUE DATA BECOME AVAILABLE



PI Sta 10+55.60	PI Sta 13+94.46
$\Delta = 54^{\circ} 56' 37.3" (LT)$	$\Delta = 24^{\circ} 12' 02.5" (LT)$
$D = 95^{\circ} 29' 34.7"$	$D = 6^{\circ} 52' 41.7"$
$L = 57.54'$	$L = 351.84'$
$T = 31.20'$	$T = 178.59'$
$R = 60.00'$	$R = 833.00'$
SE = SEE PLANS	SE = SEE PLANS
RO = SEE PLANS	RO = SEE PLANS

FOR -L- PROFILE SEE SHEET 19
FOR -Y9- PROFILE SEE SHEET 22
FOR -Y9A- PROFILE SEE SHEET 22
FOR -Y9B- PROFILE SEE SHEET 22

ROW REV.;REVISING PUE ON PARCEL 17 AND 18. 5/14/12 TFD

8-MAY-2012 10:53
8:\Utilities\Rdu-Ut\Proj\R3432-rdy-NEU\bsh-11.cgn

8/17/99

ROW REV: REVISING PUE ON PARCEL 18 AND 21 THRU 25. 5/14/12 TFD

18-MAY-2012 10:54
R:\Utilities\Roads\Proj\3432_rdy\NEU_psh\12.dgn

MATCH LINE -L- STA. 125+00.00 SEE SHEET NO. 11

21
SHEFFIELD SEAFOOD & GROCERY, INC
DB 1503 PG 859
MB R PG 90

22
JOHN C. SHEFFIELD, ET UX
DB 1318 PG 1244

-L-
PI Sta 138+23.07
 $\Delta = 28^\circ 49' 49.1''$ (RT)
 $D = 4^\circ 48' 53.2''$
 $L = 598.79'$
 $T = 305.88'$
 $R = 1190.00'$
 $SE = .04$
 $RO = 100'$

THE PLANS WILL BE
REVISED WHEN THE
SUE DATA BECOME AVAILABLE

PROP. O/H POWER LINE

23
WHITE INVESTMENTS
DB 690 PG 953
DB 690 PG 955
MB R PG 288

24
KAROLYN J. DIER, ET AL
DB 2316 PG 25
DB 991 PG 1066
DB 613 PG 1097

23
WHITE INVESTMENTS
DB 690 PG 953
DB 690 PG 955
MB R PG 288

25
BURNACE J. CAUSEY, ET UX
DB 1120 PG 378

18
BLUEBERRY PROPERTIES, INC
DB 948 PG 195
MB 11 PG 15
MB S PG 236

PC Sta. 135+17.20

NAD 83/NSRS 2007

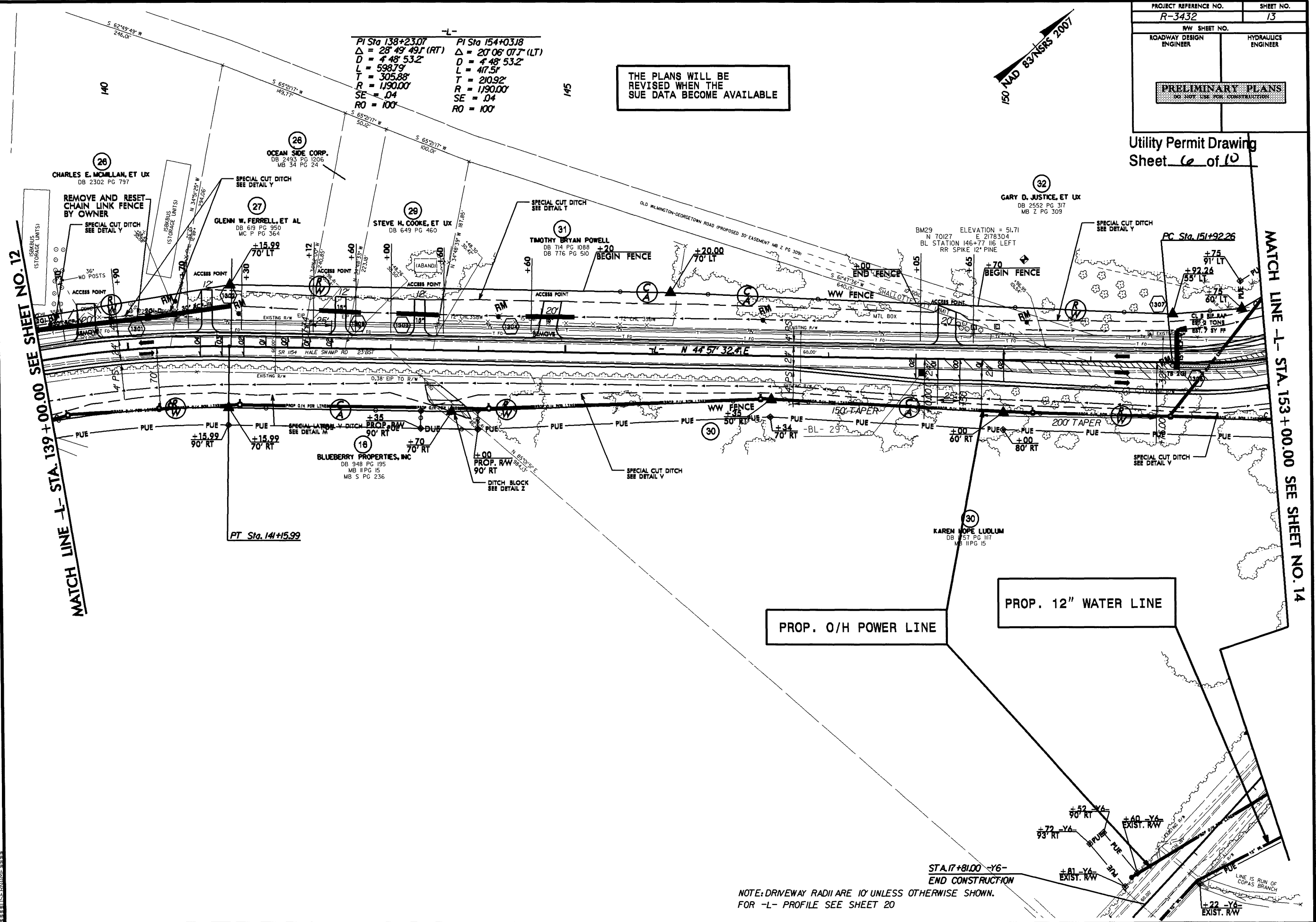
PROJECT REFERENCE NO. R-3432	SHEET NO. 12
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS	
Utility Permit Drawing Sheet 5 of 10	

NOTE: DRIVEWAY RADII ARE 10' UNLESS OTHERWISE SHOWN.
FOR -L- PROFILE SEE SHEET 20

8/17/99

ROW REV: REVISING PUE ON PARCEL 18 AND 26 THRU 32. 5/14/12 TFD

18 MAY 2012 10:57 ut:\proj\3432_r.dwg NEU.psh 13.dgn



THE PLANS WILL BE
REVISED WHEN THE
SUE DATA BECOME AVAILABLE

PROJECT REFERENCE NO.	SHEET NO.
R-3432	13
RAW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Utility Permit Drawing
Sheet 12 of 10

NOTE: DRIVEWAY RADII ARE 10' UNLESS OTHERWISE SHOWN.
FOR -L- PROFILE SEE SHEET 20

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3432	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Utility Permit Drawing
Sheet 7 of 19

THE PLANS WILL BE
REVISED WHEN THE
SUE DATA BECOME AVAILABLE

150 NAD 83 NBS 2007

PI Sta 138+23.07
 $\Delta = 28^{\circ} 49' 49.1''$ (RT)
 $D = 4^{\circ} 48' 53.2''$
 $L = 598.79'$
 $T = 305.88'$
 $R = 1,190.00'$
 $SE = .04$
 $RO = 100'$

PI Sta 154+03.18
 $\Delta = 20^{\circ} 06' 07.7''$ (LT)
 $D = 4^{\circ} 48' 53.2''$
 $L = 417.51'$
 $T = 210.92'$
 $R = 1,190.00'$
 $SE = .04$
 $RO = 100'$

MATCH LINE -L- STA. 139+00.00 SEE SHEET NO. 12

MATCH LINE -L- STA. 153+00.00 SEE SHEET NO. 14

CHARLES E. MCILLAN, ET UX
DB 2302 PG 797

REMOVE AND RESET
CHAIN LINK FENCE
BY OWNER

SPECIAL CUT DITCH
SEE DETAIL Y

SPECIAL CUT DITCH
SEE DETAIL Y

GLENN W. FERRELL, ET AL
DB 619 PG 950
MC P PG 364

STEVE H. COOKE, ET UX
DB 649 PG 460

SPECIAL CUT DITCH
SEE DETAIL Y

TIMOTHY BRYAN POWELL
DB 714 PG 1088
DB 776 PG 510

+20 BEGIN FENCE

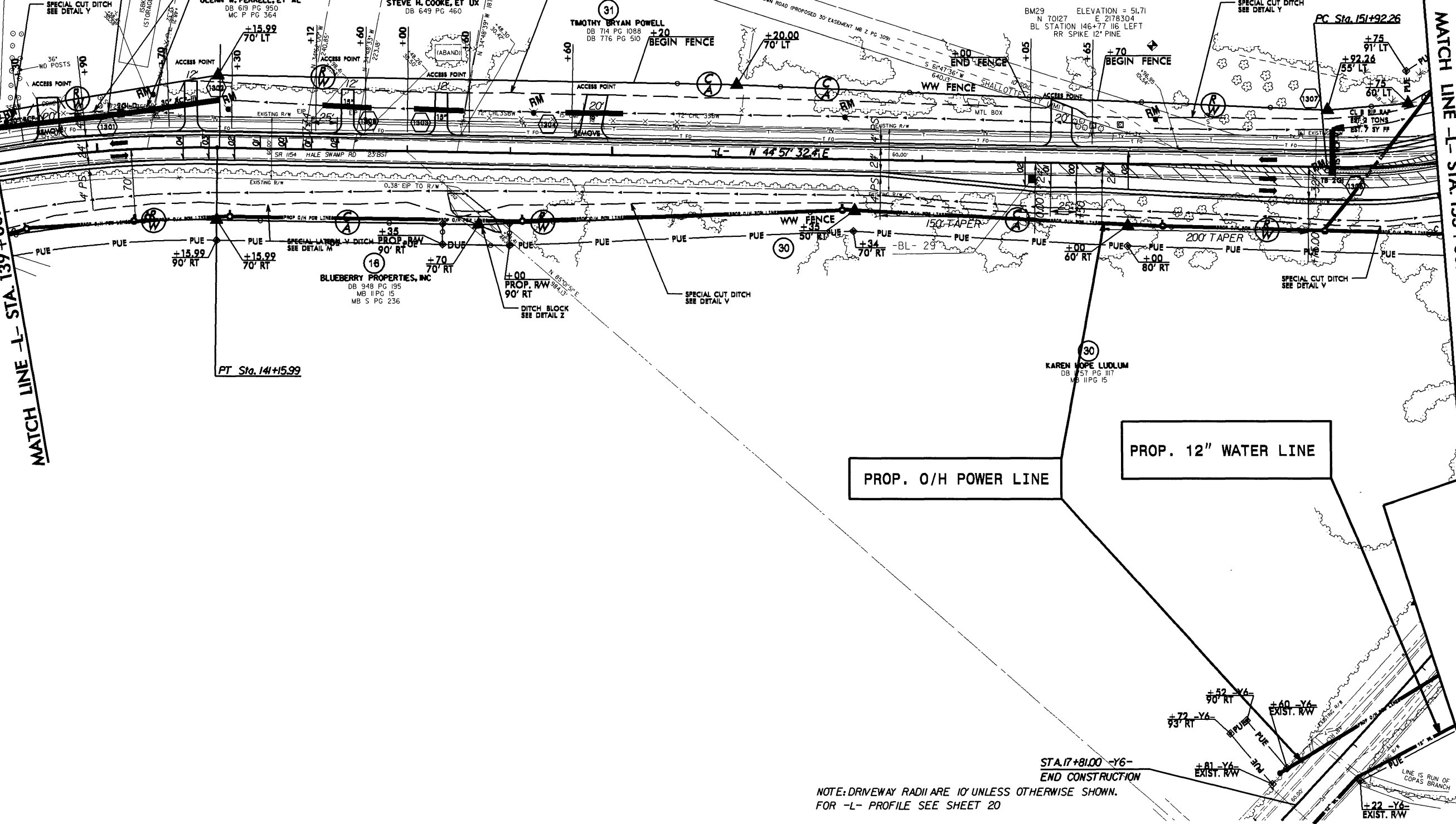
GARY D. JUSTICE, ET UX
DB 2552 PG 317
MB 2 PG 309

SPECIAL CUT DITCH
SEE DETAIL Y

BM29 ELEVATION = 51.71
N 70127 E 2178304
BL STATION 146+77.116 LEFT
RR SPIKE 12" PINE

PC Sta. 151+92.26

+75
91' LT
+92.26
55' LT
+75
60' LT



PROP. 0/H POWER LINE

PROP. 12" WATER LINE

STA. 17+81.00 -Y6-
END CONSTRUCTION

NOTE: DRIVEWAY RADII ARE 10' UNLESS OTHERWISE SHOWN.
FOR -L- PROFILE SEE SHEET 20

+22 -Y6-
EXIST. R/W

ROW REV: REVISING PUE ON PARCEL 18 AND 26 THRU 32. 5/14/12 TFD

18-MAY-2012 10:58
R:\Projects\3432\3432-13.dgn

NAD 83/NSRS 2007

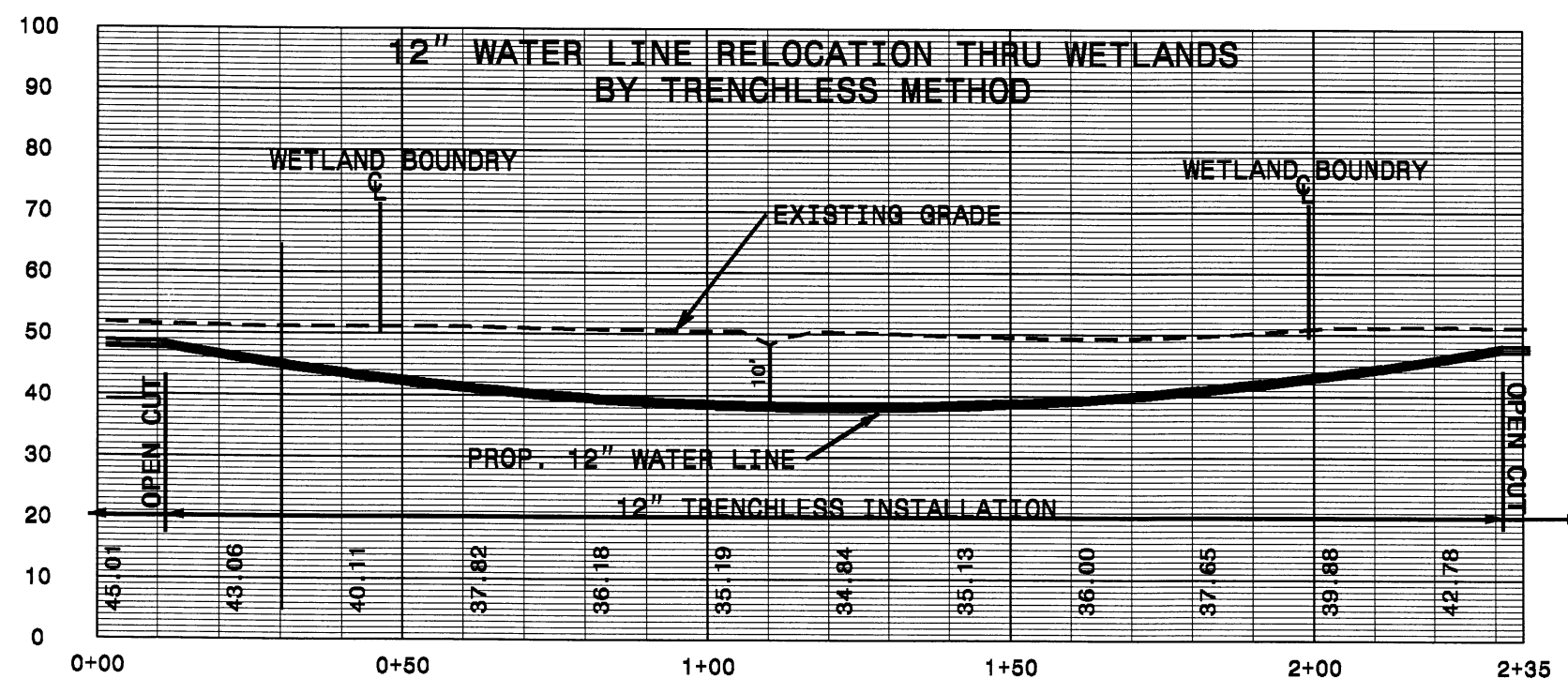
THE PLANS WILL BE
REVISED WHEN THE
SUE DATA BECOME AVAILABLE

-L-			-Y6-		
PI Sta 154+03.8	PI Sta 158+72.07	PI Sta 161+87.25	PI Sta 152+23.87		
$\Delta = 20' 06" 07.7" (LT)$	$\Delta = 12' 41" 11.4" (LT)$	$\Delta = 17' 34" 37.6" (RT)$	$\Delta = 56' 34" 11.9" (RT)$		
D = 4' 48" 53.2"	D = 4' 48" 53.2"	D = 4' 48" 53.2"	D = 15' 26" 37.0"		
L = 417.51'	L = 263.49'	L = 365.07'	L = 366.30'		
T = 210.92'	T = 132.29'	T = 183.98'	T = 199.64'		
R = 1190.00'	R = 1190.00'	R = 1190.00'	R = 371.00'		
SE = .04	SE = .04	SE = SEE PLANS	SE = .04		
RO = 100'	RO = 100'	RO = SEE PLANS	RO = 76'		

MATCH LINE - L- STA. 153 + 00.00 SEE SHEET NO. 13
 25'
 P.U.E.
 SPECIAL CUT DITCH SEE DETAIL V
 (30)
 KAREN HOPE
 DB 1757 P
 MB 11 PG
 Y6
 PROP.
 Y6
 80' R
 SPECIAL CUT DITCH SEE DETAIL V

R/W REV: REVISING PUE ON PARCEL 30. 5/14/12 TFD

8-MAY-2012 10:59
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8/17/99

18-MAY-2012 11:04
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R:\Utilities\15-04-NEU\15-04-NEU.dwg

MATCH LINE -Y10- STA. 28+00 SEE SHEET NO. 4

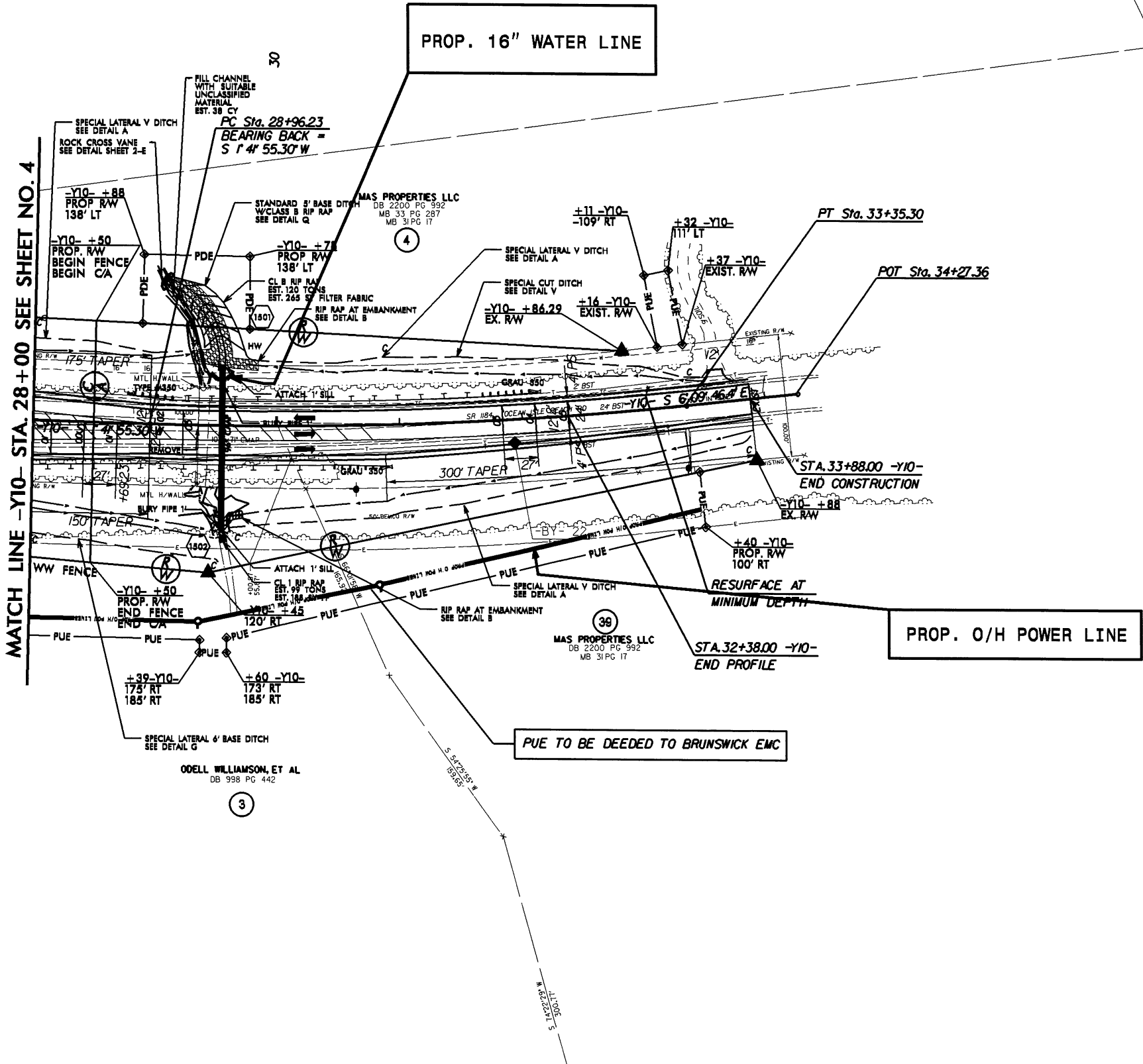
-Y10-
PI Sta. 31+16.11
 $\Delta = 7^\circ 51' 41.7" (LT)$
 $D = 1^\circ 47' 25.8"$
 $L = 439.07'$
 $T = 219.88'$
 $R = 3,200.00'$
 $SE = .03$
 $RO = 8'$

PROP. 16" WATER LINE

NAD 83/NSRS 2007

THE PLANS WILL BE
REVISED WHEN THE
SUE DATA BECOME AVAILABLE

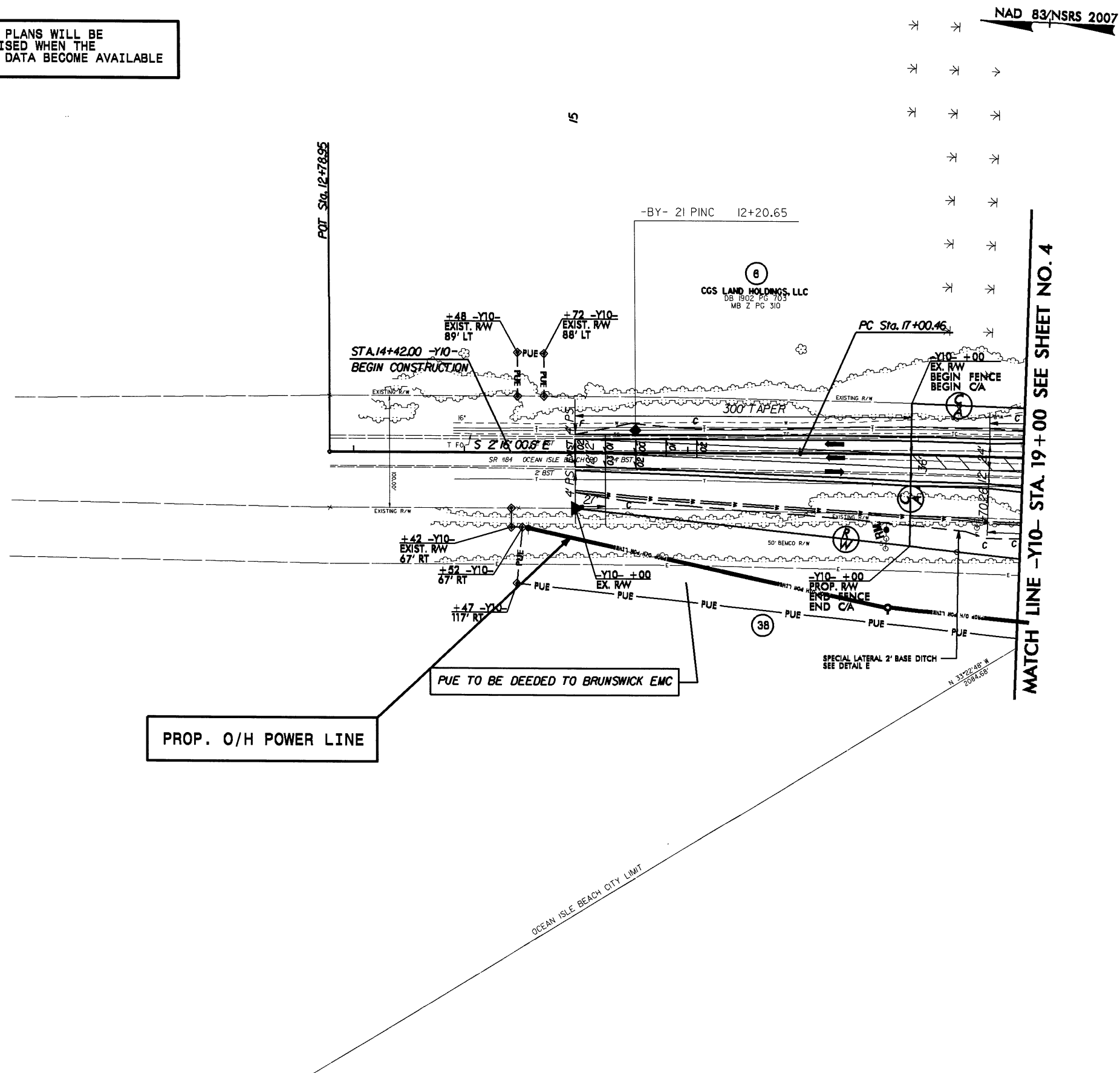
PROJECT REFERENCE NO.	SHEET NO.
R-3432	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Utility Permit Drawing Sheet 9 of 10	



FOR -Y10- PROFILE SEE SHEET 21A

18-MAY-2012 11:05
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PROP. O/H POWER LINE



Utility Permit Drawing
Sheet 10 of 10

FOR -Y10- PROFILE SEE SHEET 21A

09/08/99

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

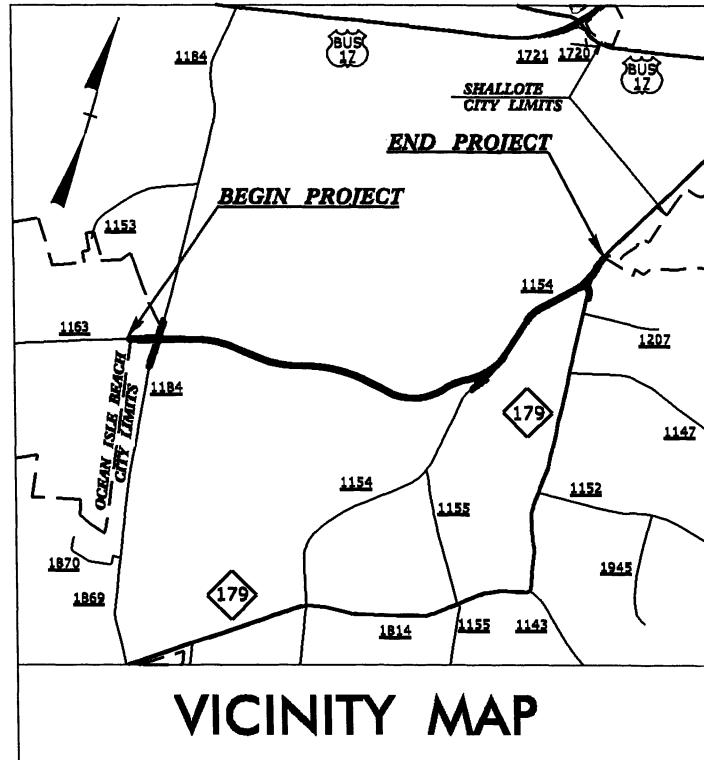
BRUNSWICK COUNTY

LOCATION: SR 1163 (OLD GEORGETOWN ROAD EXTENSION) FROM SR 1184
(OCEAN ISLE BEACH ROAD) TO NC 179

TYPE OF WORK: GRADING, DRAINAGE, AND PAVING

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-3432	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
35501.1.1		P.E.	
35501.2.1		RAW, UTL.	

TIP PROJECT: R-3432



Note: Not to Scale***S.U.E. = Subsurface Utility Engineering**STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYSPROJECT REFERENCE NO.
R-3432SHEET NO.
1-B

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	⊙ EP
Property Corner	-----
Property Monument	⊠ ECM
Parcel/Sequence Number	②③
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	⊠
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	-w.b.-
Proposed Wetland Boundary	-w.b.-
Existing Endangered Animal Boundary	-EAB-
Existing Endangered Plant Boundary	-EPB-
Known Soil Contamination: Area or Site	☠ ☠
Potential Soil Contamination: Area or Site	☠ ☠

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	⊙
Well	⊙
Small Mine	✕
Foundation	⊠
Area Outline	⊠
Cemetery	⊠
Building	⊠
School	⊠
Church	⊠
Dam	⊠

HYDROLOGY:

Stream or Body of Water	-----
Hydro, Pool or Reservoir	⊠
Jurisdictional Stream	-JS-
Buffer Zone 1	-BZ 1-
Buffer Zone 2	-BZ 2-
Flow Arrow	→
Disappearing Stream	→
Spring	⊙
Wetland	⊠
Proposed Lateral, Tail, Head Ditch	→
False Sump	⊠

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	-----
Switch	-----
RR Abandoned	-----
RR Dismantled	-----

RIGHT OF WAY:

Baseline Control Point	-----
Existing Right of Way Marker	-----
Existing Right of Way Line	-----
Proposed Right of Way Line	-----
Proposed Right of Way Line with Iron Pin and Cap Marker	-----
Proposed Right of Way Line with Concrete or Granite Marker	-----
Existing Control of Access	-----
Proposed Control of Access	-----
Existing Easement Line	-----
Proposed Temporary Construction Easement	-----
Proposed Temporary Drainage Easement	-----
Proposed Permanent Drainage Easement	-----
Proposed Permanent Drainage / Utility Easement	-----
Proposed Permanent Utility Easement	-----
Proposed Temporary Utility Easement	-----
Proposed Aerial Utility Easement	-----

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	-----
Proposed Slope Stakes Fill	-----
Proposed Curb Ramp	-----
Existing Metal Guardrail	-----
Proposed Guardrail	-----
Existing Cable Guiderail	-----
Proposed Cable Guiderail	-----
Equality Symbol	-----
Pavement Removal	-----

VEGETATION:

Single Tree	-----
Single Shrub	-----
Hedge	-----
Woods Line	-----

Orchard	-----
Vineyard	-----

EXISTING STRUCTURES:

MAJOR:	-----
Bridge, Tunnel or Box Culvert	-----
Bridge Wing Wall, Head Wall and End Wall	-----
MINOR:	-----
Head and End Wall	-----
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	-----
Paved Ditch Gutter	-----
Storm Sewer Manhole	-----
Storm Sewer	-----

UTILITIES:

POWER:	-----
Existing Power Pole	-----
Proposed Power Pole	-----
Existing Joint Use Pole	-----
Proposed Joint Use Pole	-----
Power Manhole	-----
Power Line Tower	-----
Power Transformer	-----
U/G Power Cable Hand Hole	-----
H-Frame Pole	-----
Recorded U/G Power Line	-----
Designated U/G Power Line (S.U.E.*)	-----

TELEPHONE:

Existing Telephone Pole	-----
Proposed Telephone Pole	-----
Telephone Manhole	-----
Telephone Booth	-----
Telephone Pedestal	-----
Telephone Cell Tower	-----
U/G Telephone Cable Hand Hole	-----
Recorded U/G Telephone Cable	-----
Designated U/G Telephone Cable (S.U.E.*)	-----
Recorded U/G Telephone Conduit	-----
Designated U/G Telephone Conduit (S.U.E.*)	-----
Recorded U/G Fiber Optics Cable	-----
Designated U/G Fiber Optics Cable (S.U.E.*)	-----

WATER:

Water Manhole	-----
Water Meter	-----
Water Valve	-----
Water Hydrant	-----
Recorded U/G Water Line	-----
Designated U/G Water Line (S.U.E.*)	-----
Above Ground Water Line	-----

TV:

TV Satellite Dish	-----
TV Pedestal	-----
TV Tower	-----
U/G TV Cable Hand Hole	-----
Recorded U/G TV Cable	-----
Designated U/G TV Cable (S.U.E.*)	-----
Recorded U/G Fiber Optic Cable	-----
Designated U/G Fiber Optic Cable (S.U.E.*)	-----

GAS:

Gas Valve	-----
Gas Meter	-----
Recorded U/G Gas Line	-----
Designated U/G Gas Line (S.U.E.*)	-----
Above Ground Gas Line	-----

SANITARY SEWER:

Sanitary Sewer Manhole	-----
Sanitary Sewer Cleanout	-----
U/G Sanitary Sewer Line	-----
Above Ground Sanitary Sewer	-----
Recorded SS Forced Main Line	-----
Designated SS Forced Main Line (S.U.E.*)	-----

MISCELLANEOUS:

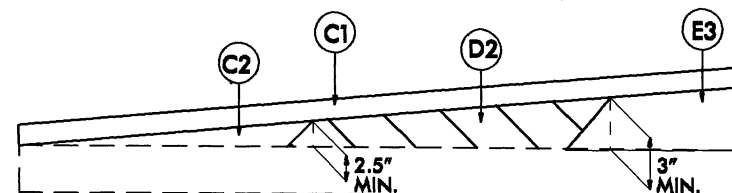
Utility Pole	-----
Utility Pole with Base	-----
Utility Located Object	-----
Utility Traffic Signal Box	-----
Utility Unknown U/G Line	-----
U/G Tank; Water, Gas, Oil	-----
Underground Storage Tank, Approx. Loc.	-----
A/G Tank; Water, Gas, Oil	-----
Geoenvironmental Boring	-----
U/G Test Hole (S.U.E.*)	-----
Abandoned According to Utility Records	-----
End of Information	-----

6/2/99

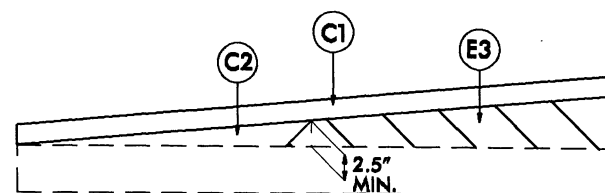
17-MAY-2012 07:31
R:\Roadway\Projects\17-3432-R-dg-typ.dgn
\$\$\$\$\$

PAVEMENT SCHEDULE (PRELIMINARY PAVEMENT DESIGN)	
A	PROP. 7" CONCRETE TRUCK APRON WITH 4X4 W3.5XW3.6 WIRE MESH
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	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 2" IN DEPTH.
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	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 2.5" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4.0" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 458 LBS. PER SQ. YD.
E2	PROP. APPROX. 5.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E3	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.
J1	PROP. 6" AGGREGATE BASE COURSE.
J2	PROP. 8" AGGREGATE BASE COURSE.
R1	1'-6" CONCRETE CURB AND GUTTER.
R2	8"x 18" CONCRETE CURB.
P	PRIME COAT AT THE RATE OF 0.35 GAL. PER SQ. YD.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL SHEET NO. 2 & 2A)

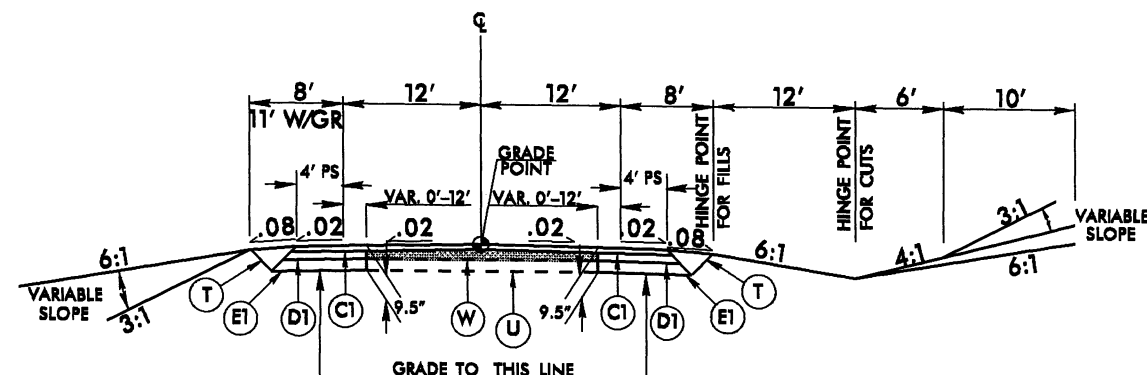
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



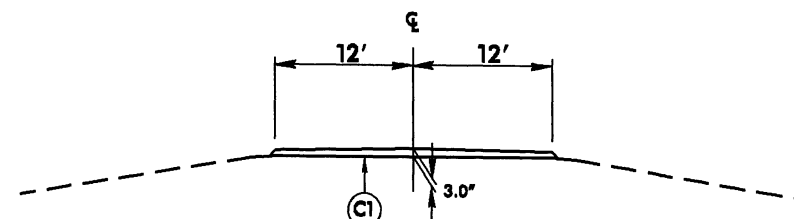
Wedging Detail For Resurfacing
Use With Typical No. 1



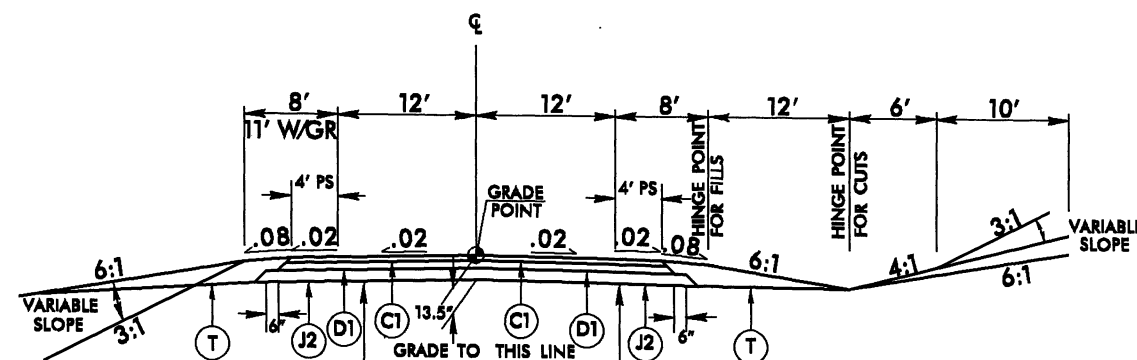
Wedging Detail For Resurfacing
Use with Typical No. 3



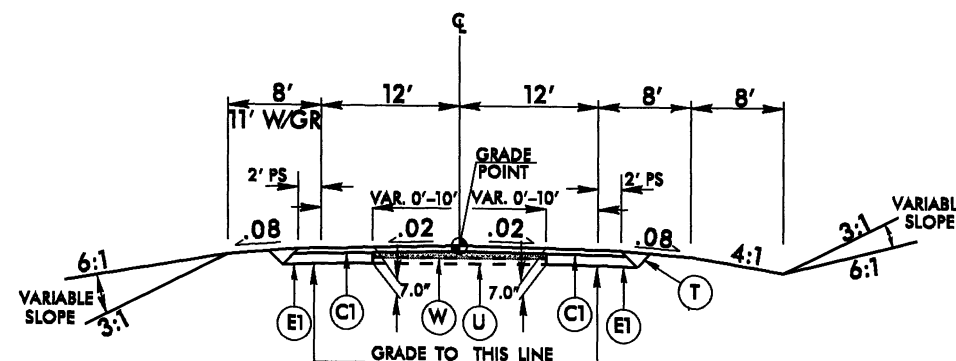
TYPICAL SECTION NO. 1



TYPICAL SECTION NO. 1A



TYPICAL SECTION NO. 2



TYPICAL SECTION NO. 3

PROJECT REFERENCE NO.	SHEET NO.
R-3432	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

USE TYPICAL SECTION NO. 1

-L- STA. 13+07.00 TO -L- STA. 21+39.61
-L- STA. 121+67.33 TO -L- STA. 154+29.55
-L- STA. 156+35.60 TO -L- STA. 162+50.00
-Y10- STA. 15+00.00 TO -Y10- STA. 22+97.27
-Y10- STA. 25+03.26 TO -Y10- STA. 32+38.00

USE TYPICAL SECTION NO. 1A

-L- STA. 162+50.00 TO -L- STA. 164+00.00
-Y10- STA. 32+38.00 TO -Y10- STA. 33+88.00

USE TYPICAL SECTION NO. 2

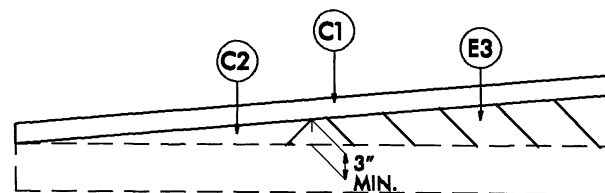
-L- STA. 23+45.61 TO -L- STA. 121+67.33

USE TYPICAL SECTION NO. 3

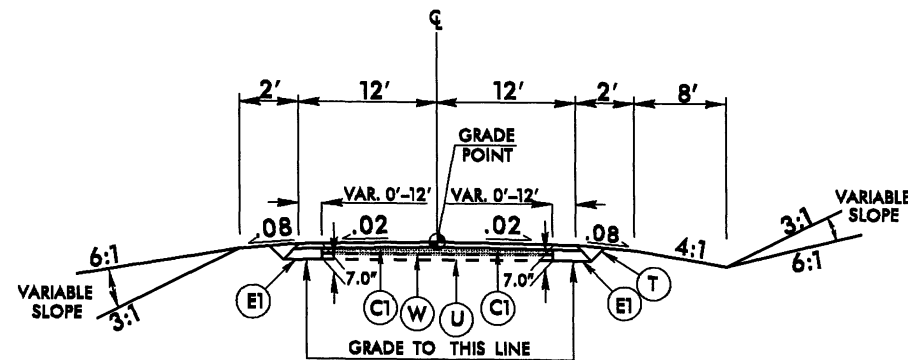
-Y9- STA. 10+20.00 TO -Y9- STA. 14+42.00

PROJECT REFERENCE NO.	SHEET NO.
R-3432	2-A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

PAVEMENT SCHEDULE (PRELIMINARY PAVEMENT DESIGN)	
C1	3" S9.5B
E1	4.0" B25.0B
E2	5.5" B25.0B
E3	VAR. B25.0B
J1	6" ABC
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING



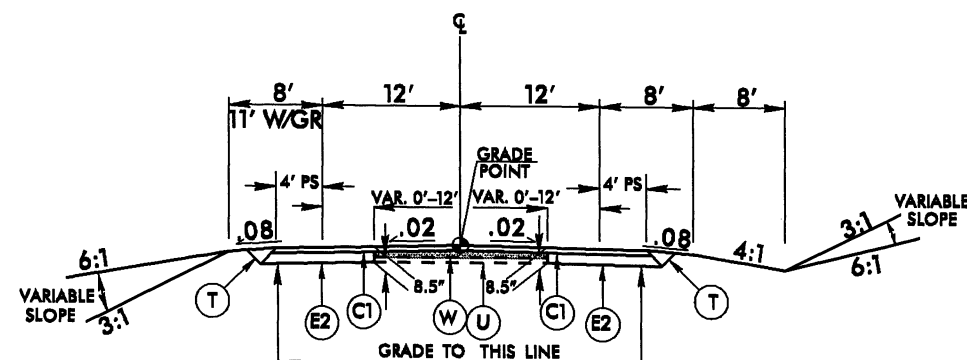
Wedging Detail For Resurfacing
Use with Typical No. 4 & No. 5



TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4

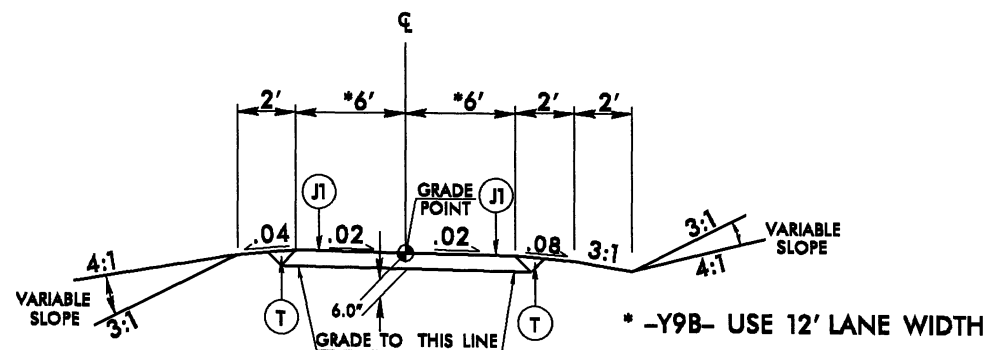
-Y9A- STA. 10+24.00 TO -Y9A- STA. 12+70.00



TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5

-Y6- STA. 10+97.24 TO -Y6- STA. 15+56.00



TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6

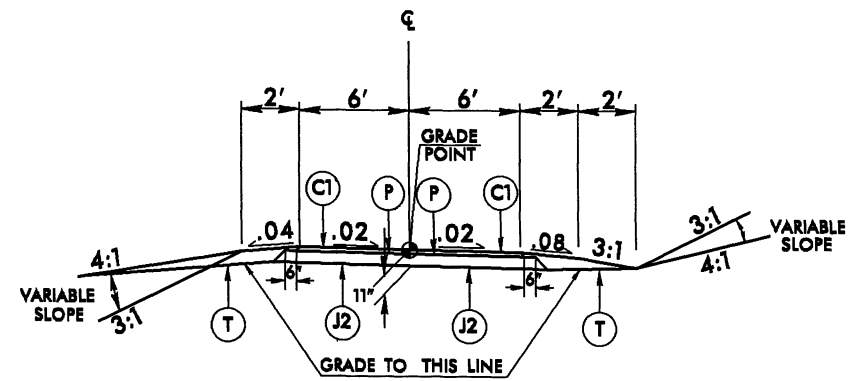
-DR1- STA. 10+00.00 TO -DR1- STA. 11+21.34
-DR2- STA. 10+16.04 TO -DR2- STA. 11+63.32
-Y9B- STA. 10+09.46 TO -Y9B- STA. 10+44.46

* -Y9B- USE 12' LANE WIDTH

6/2/99

PAVEMENT SCHEDULE	
(PRELIMINARY PAVEMENT DESIGN)	
A	7" CONCRETE W/4X4 W3.5XW3.5 WIRE MESH
C1	3" S9.5B
D1	2.5" I19.0B
E1	4" 25.0B
J2	8" ABC
P	PRIME COAT
T	EARTH MATERIAL
R1	1'-6" C & G
R2	8"x 18" CURB

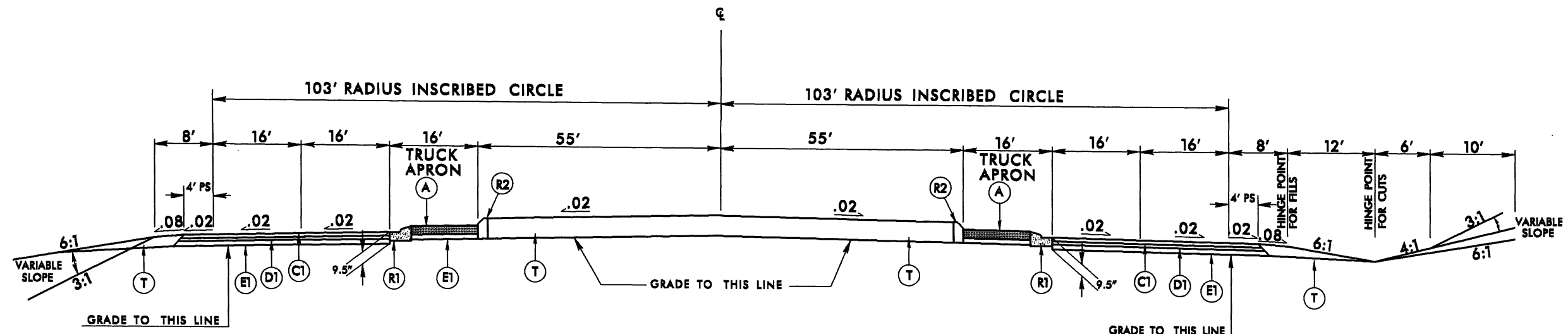
PROJECT REFERENCE NO.	SHEET NO.
R-3432	2-B
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7

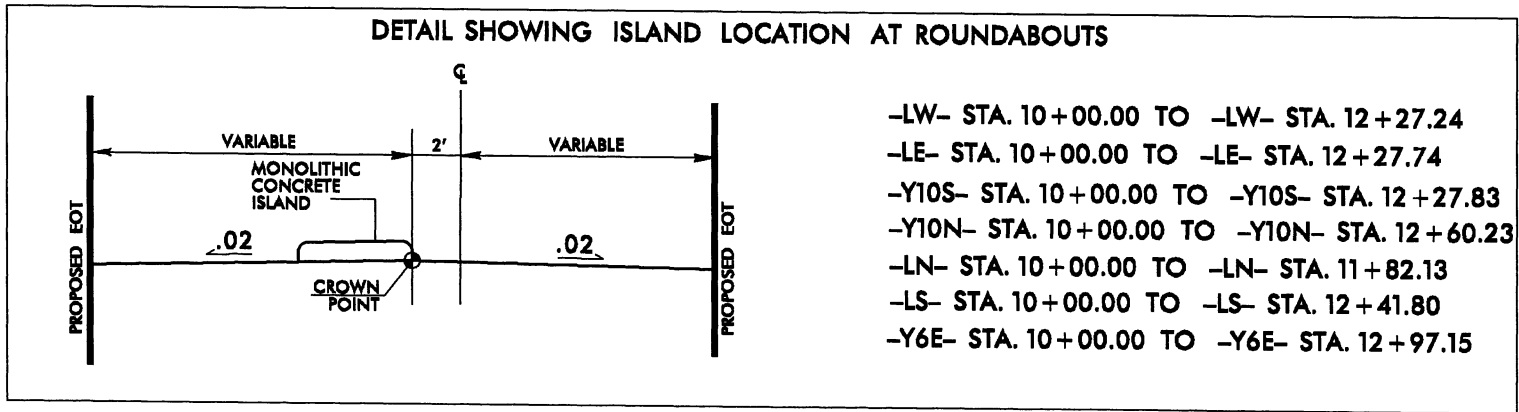
-DR6- STA. 10+00.00 TO -DR6- STA. 11+30.89
-DR7- STA. 10+16.00 TO -DR7- STA. 11+40.00



TYPICAL SECTION NO. 8

USE TYPICAL SECTION NO. 8

-L- STA. 21+39.61 TO -L- STA. 23+45.61
-L- STA. 154+29.55 TO -L- STA. 156+35.60

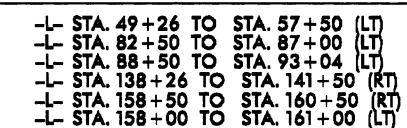
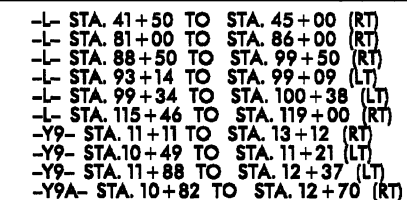
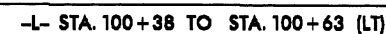
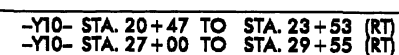
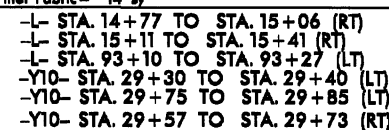
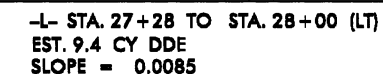
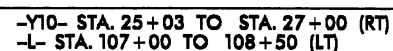
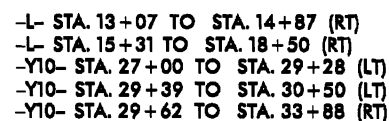


-LW- STA. 10+00.00 TO -LW- STA. 12+27.24
-LE- STA. 10+00.00 TO -LE- STA. 12+27.74
-Y10S- STA. 10+00.00 TO -Y10S- STA. 12+27.83
-Y10N- STA. 10+00.00 TO -Y10N- STA. 12+60.23
-LN- STA. 10+00.00 TO -LN- STA. 11+82.13
-LS- STA. 10+00.00 TO -LS- STA. 12+41.80
-Y6E- STA. 10+00.00 TO -Y6E- STA. 12+97.15

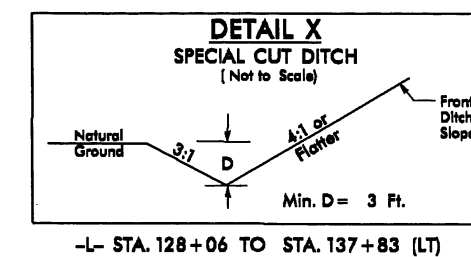
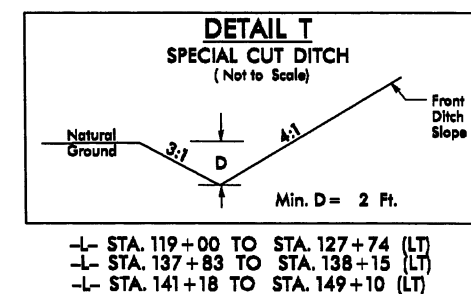
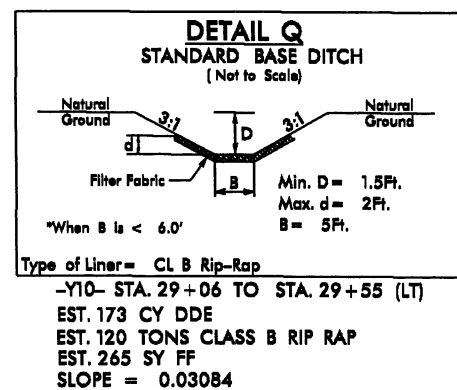
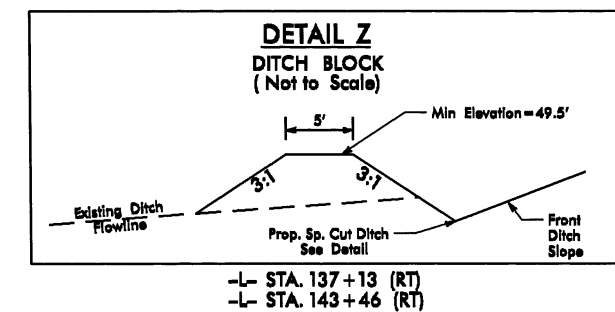
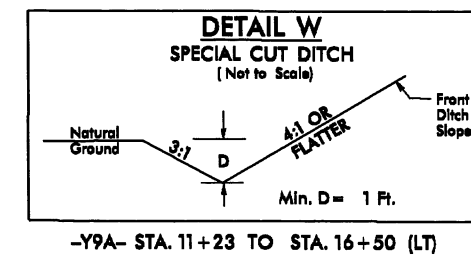
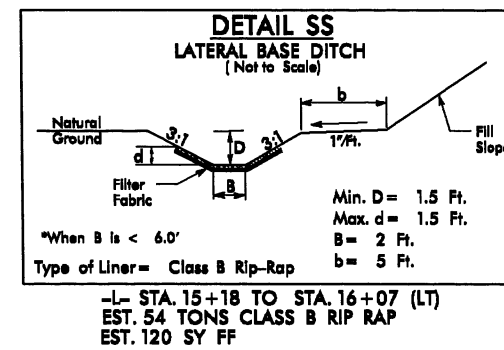
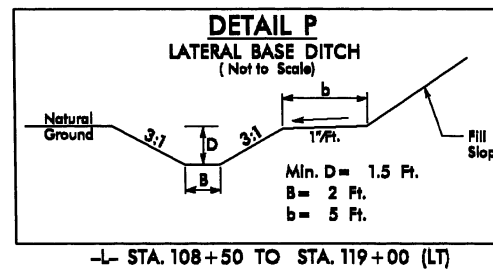
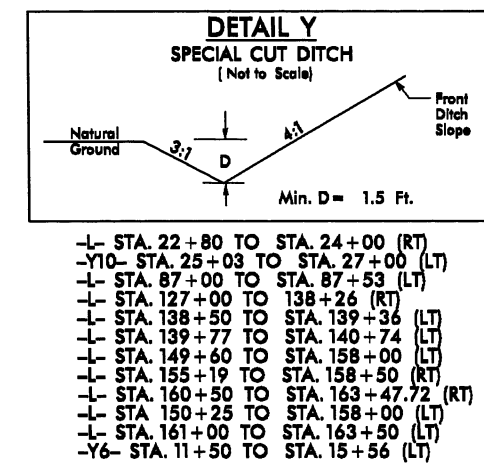
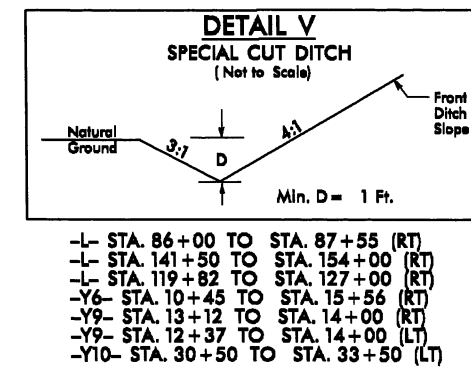
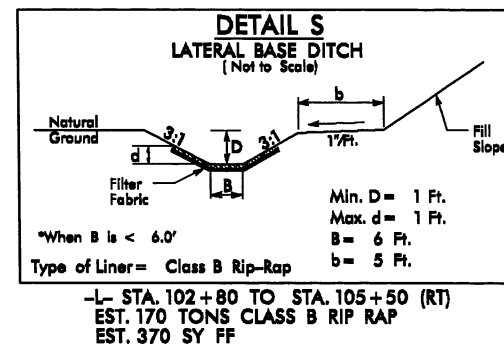
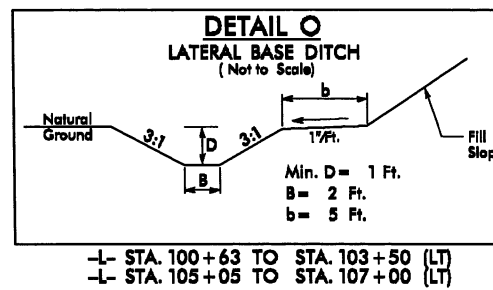
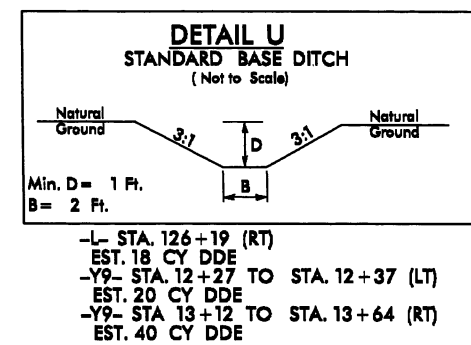
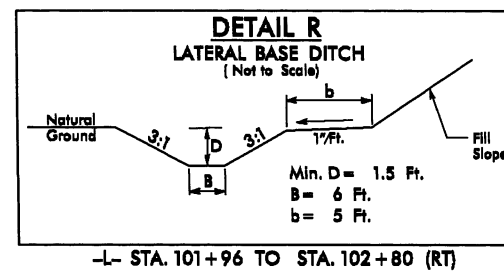
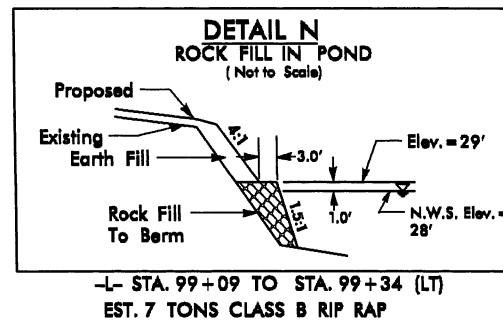
SEE ROUNDABOUT DETAILS ON SHEETS 2-C & 2-D

17-MAY-2012 07:31
R:\Projects\3432\3432-rd-j-typ.dgn

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



PROJECT REFERENCE NO.	SHEET NO.
R-3432	2-6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



8/17/99

17-MAY-2012 07:13
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C:\PROJECTS\3432\3432.DWG

REVISIONS

-Y10-
PI Sta 18+73.55
 $\Delta = 3' 57' 55.9" (RT)$
 $D = 1' 08' 45.3"$
 $L = 346.06'$
 $T = 173.10'$
 $R = 5,000.00'$
 $SE = .04$
 $RO = 108'$

STA.13+07.00 -L-
BEGIN STATE PROJECT R-3432

PUE TO BE DEEDED TO BRUNSWICK EMC

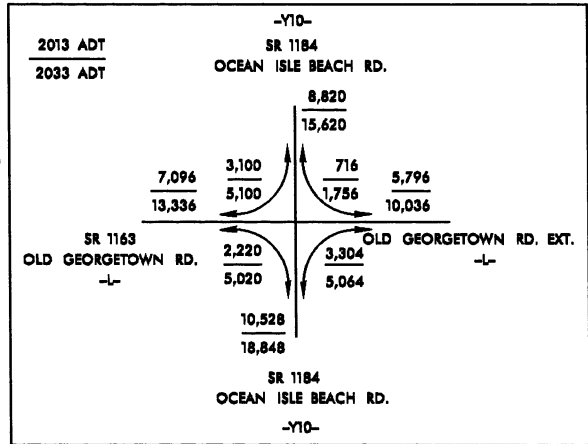
PUE TO BE DEEDED TO BRUNSWICK EMC

MATCH LINE -Y10- STA. 19+00 SEE SHEET NO. 15A

MATCH LINE -Y10- STA. 28+00 SEE SHEET NO. 15

PROJECT REFERENCE NO. <i>R-3432</i>		SHEET NO. <i>4</i>	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<div>PRELIMINARY PLANS</div> <div>DO NOT USE FOR CONSTRUCTION</div>			

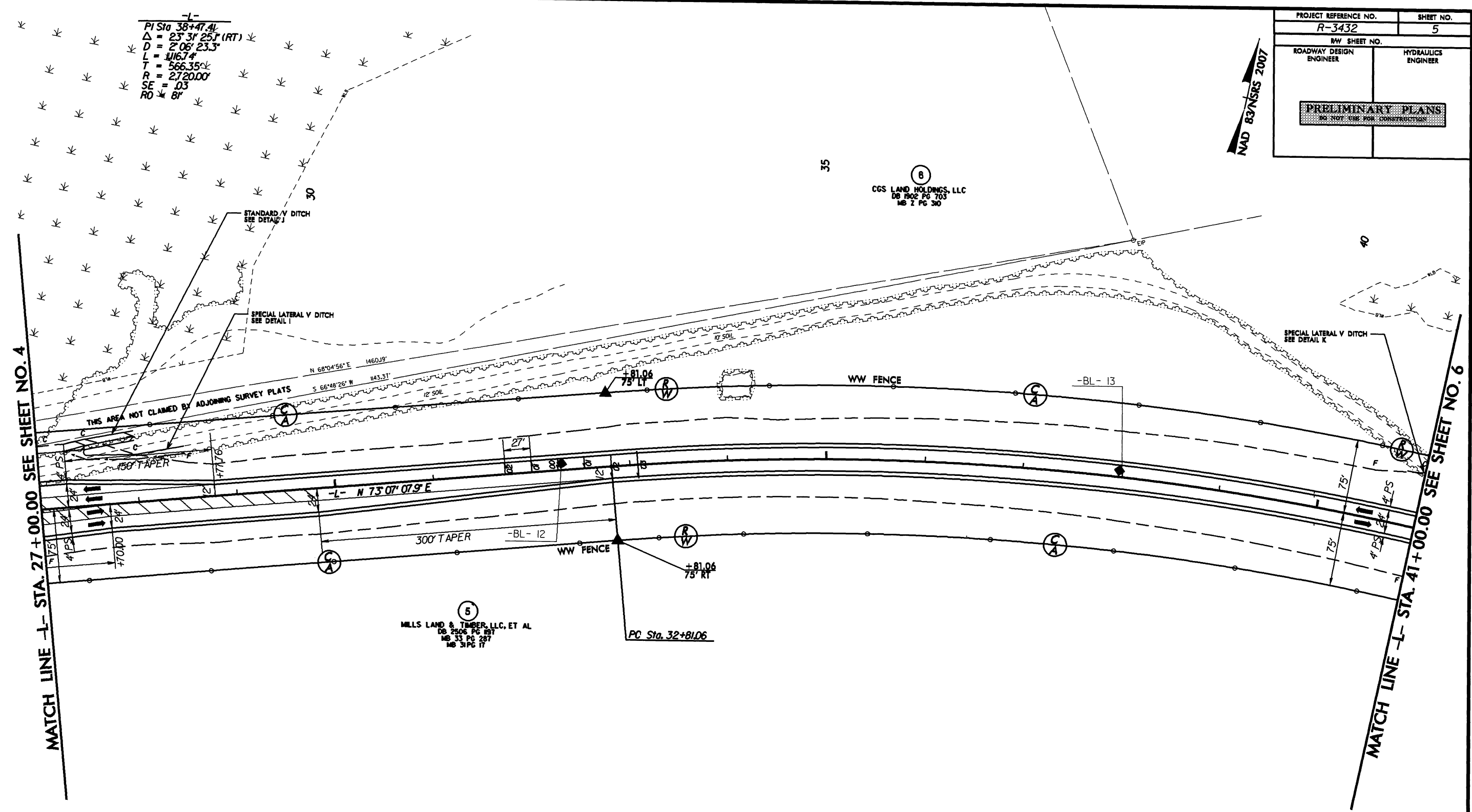
MATCH LINE -L- STA. 27+00.00 SEE SHEET NO. 5



FOR -L- PROFILE SEE SHEET 16
FOR -Y10- PROFILE SEE SHEET 21A
SEE SHEET 2-C FOR ROUNDABOUT DETAIL

8/17/99

17-MAY-2012 07:32
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\$\$\$\$\$USERNAME\$\$\$\$\$



NAD 83/NSRS 2007

PROJECT REFERENCE NO. <i>R-3432</i>		SHEET NO. <i>5</i>
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
<div>PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION</div>		

FOR -L- PROFILE SEE SHEET 16

8/17/99

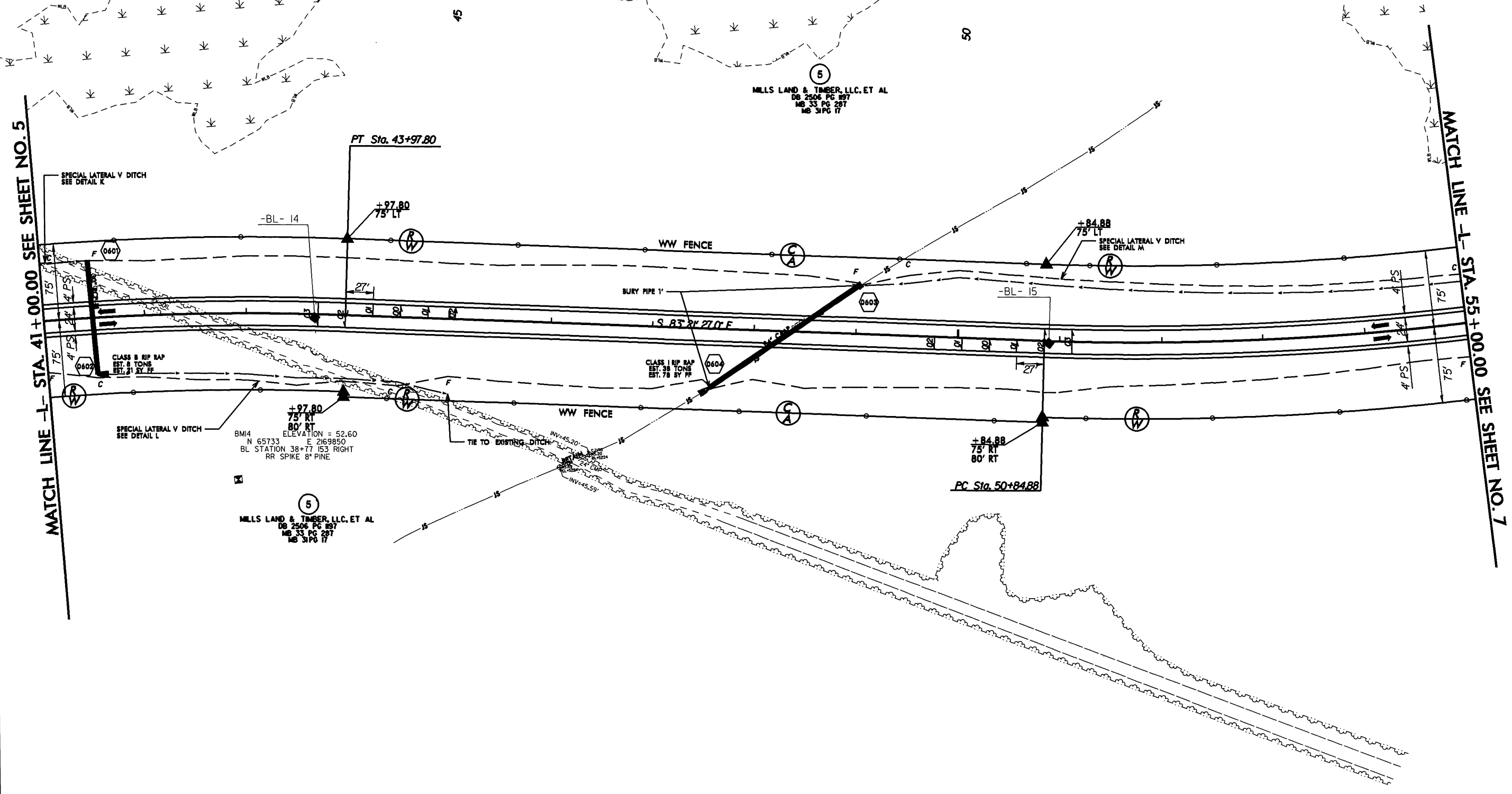
11 MAY 2012 07:32 -3432-rdy.psh_06.dgn
C:\PROJECTS\3432\3432.dwg

R/W REV: REVISING PDE ON PARCEL 5. 5/9/12 TFD
R/W REV: REMOVING PDE ON PARCEL 5. 5/14/12 TFD

-L-
PI Sta 38+47.41 Δ = 23° 31' 25" (RT) D = 2' 06" 23.3" L = 1,116.74' T = 566.35' R = 2720.00' SE = .03 RO = 8'
PI Sta 56+83.73 Δ = 24° 49' 58.6" (LT) D = 2' 06" 23.3" L = 1,178.89' T = 598.85' R = 2720.00' SE = .03 RO = 8'

NAD 83/NSRS 2007

PROJECT REFERENCE NO.	SHEET NO.
R-3432	6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



FOR -L- PROFILE SEE SHEET 17

8/17/99

17-MAY-2012 07:32
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REVISIONS

MATCH LINE -L- STA. 55+00.00 SEE SHEET NO. 6

MATCH LINE -L- STA. 69+00.00 SEE SHEET NO. 8

-L-
PI Sta 56+83.73
 $\Delta = 24^\circ 49' 58.6''$ (LT)
D = 2' 06" 23.3"
L = 178.89'
T = 598.85'
R = 2720.00'
SE = .03
RO = 8'

PI Sta 72+30.40
 $\Delta = 28^\circ 24' 01.9''$ (RT)
D = 1' 29" 59.6"
L = 1,893.51'
T = 966.63'
R = 3,820.00'
SE = .03
RO = 8'

GLENN N. WILLIAMSON, JR. ET UX
DB 1564 PG 642

-BL- 16

SPECIAL LATERAL V DITCH
SEE DETAIL M

PRC Sta. 62+63.78

BMIT ELEVATION = 54.41
N 66070 E 2171863
BL STATION 59+39.136 LEFT
RR SPIKE 7" PINE

-BL- 17

+63.78
75' LT

WW FENCE

+63.78
75' RT

WW FENCE

5
MILLS LAND & TIMBER, LLC, ET AL
DB 2506 PG 197
MB 33 PG 287
MB 31 PG 17

NAD 83/NSRS 2007

PROJECT REFERENCE NO.	SHEET NO.
R-3432	7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

FOR -L- PROFILE SEE SHEET 17

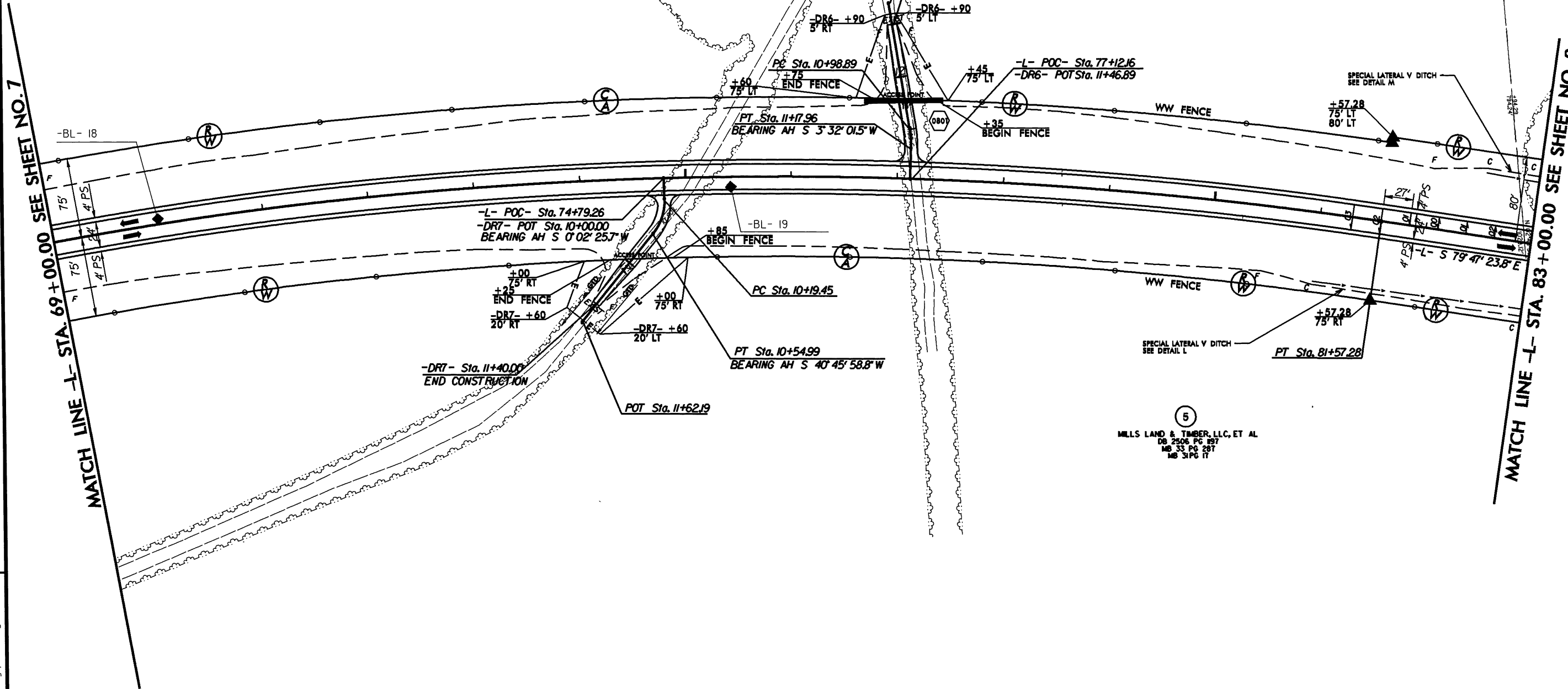
8/17/99

11-MAY-2012 07:32 3432-rdy.psh.08.dgn
C:\ENGINEERING\3432\

PROJECT REFERENCE NO.	SHEET NO.
R-3432	8
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

NAD 83/NSRS 2007

-L-	-DR6-	-DR7-
PI Sta 72+30.40	PI Sta 11+08.45	PI Sta 10+38.01
$\Delta = 28^\circ 24' 01.9" (RT)$	$\Delta = 10^\circ 55' 41.3" (RT)$	$\Delta = 40^\circ 43' 33.1" (RT)$
D = 129' 59.6"	D = 57' 17" 44.8"	D = 114' 35' 29.6"
L = 1,893.51'	L = 19.07'	L = 35.54'
T = 966.63'	T = 9.57'	T = 18.56'
R = 3,820.00'	R = 100.00'	R = 50.00'
SE = .03	SE = SEE PLANS	SE = SEE PLANS
RO = 8'		



NOTE: DRIVEWAY RADII ARE 10' UNLESS OTHERWISE SHOWN.
FOR -L- PROFILE SEE SHEET 18
FOR -DR6- PROFILE SEE SHEET 23
FOR -DR7- PROFILE SEE SHEET 23

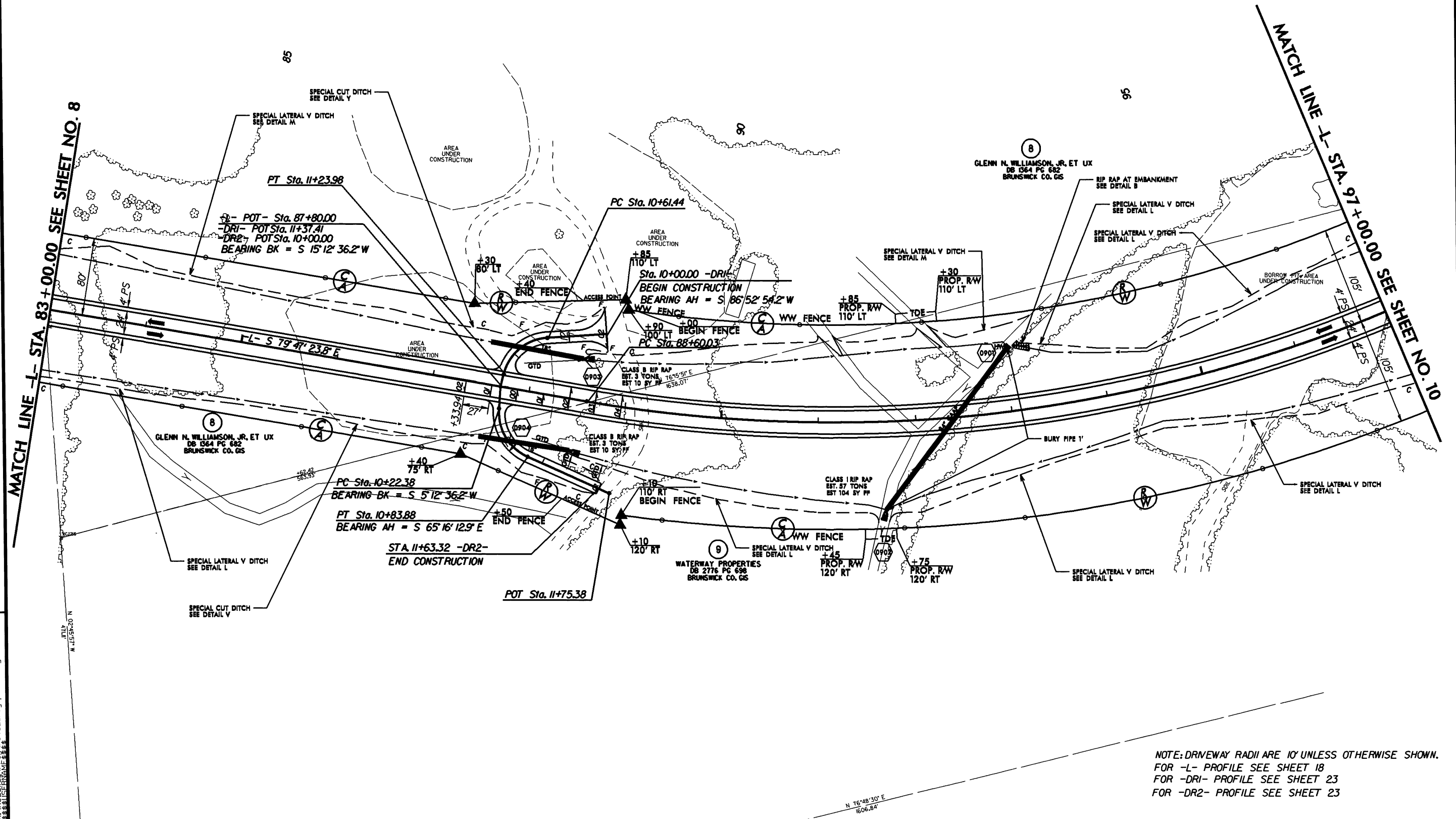
8/17/99

17 MAY 2012 07:33
R-3432.rdy.psh.dgn
R-3432-01.dwg

NAD 83/NSRS 2007

PROJECT REFERENCE NO.	SHEET NO.
R-3432	9
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

-L-	-DRI-	-DR2-
PI Sta 97+39.71 $\Delta = 60' 46' 46.1''$ (LT) $D = 3' 49' 11.0''$ $L = 1591.20'$ $T = 879.68'$ $R = 1500.00'$ $SE = .04$ $RO = 108'$	PI Sta 10+97.55 $\Delta = 71' 40' 18.0''$ (LT) $D = 114' 35' 29.6''$ $L = 62.55'$ $T = 36.11'$ $R = 50.00'$ $SE = SEE PLANS$	PI Sta 10+57.70 $\Delta = 70' 28' 49.1''$ (LT) $D = 114' 35' 29.6''$ $L = 61.51'$ $T = 35.32'$ $R = 50.00'$ $SE = SEE PLANS$

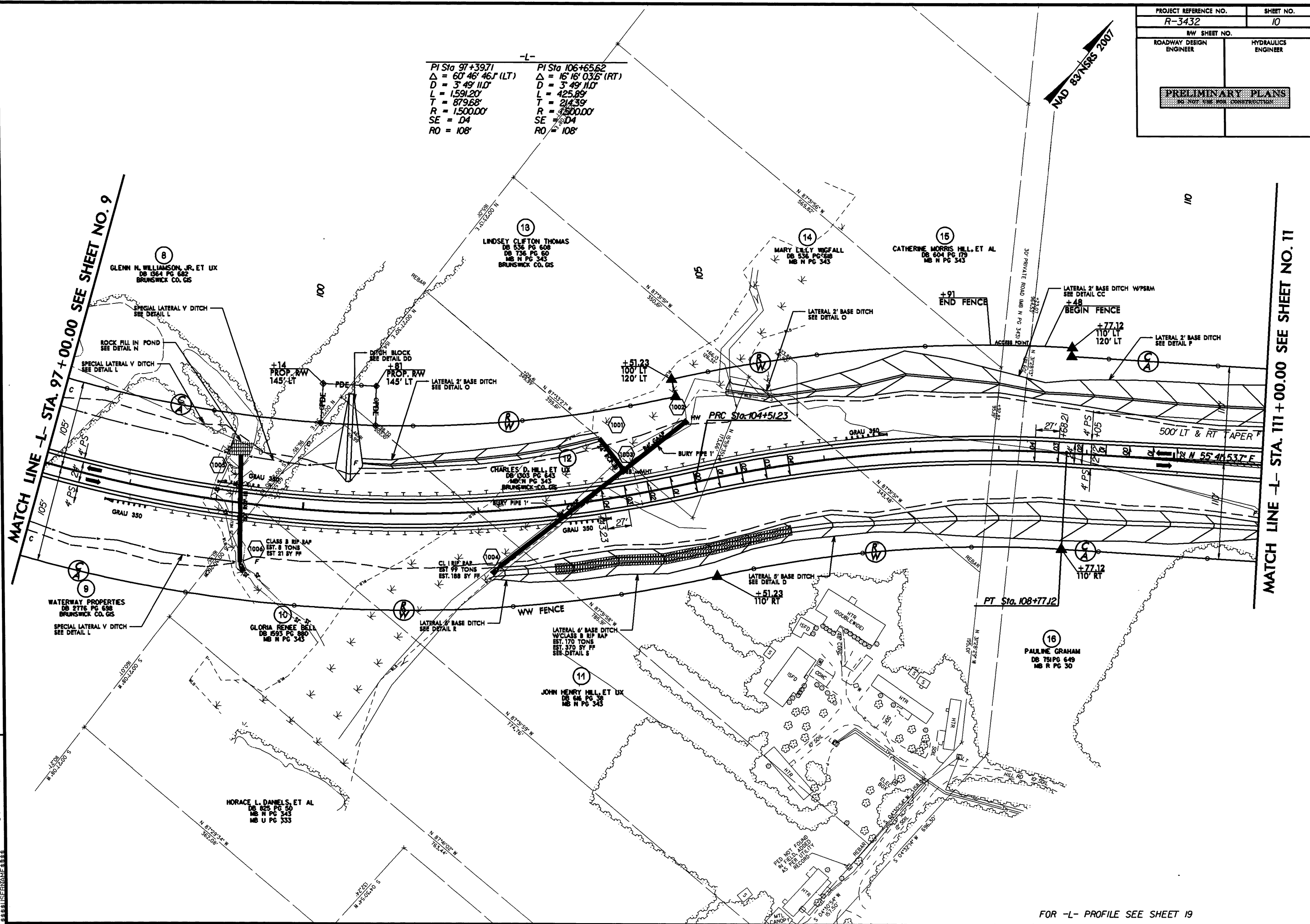


NOTE: DRIVEWAY RADII ARE 10' UNLESS OTHERWISE SHOWN.
FOR -L- PROFILE SEE SHEET 18
FOR -DRI- PROFILE SEE SHEET 23
FOR -DR2- PROFILE SEE SHEET 23

8/17/99

17 MAY 2012 07:32 -3432.rdy_psh_10.dgn
S:\PROJECTS\3432\3432.dwg

PROJECT REFERENCE NO.	SHEET NO.
R-3432	10
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



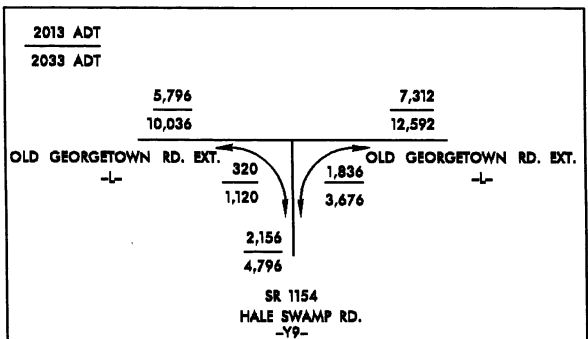
FOR -L- PROFILE SEE SHEET 19

8/17/99

ROW REV. REVISING PUE ON PARCEL 17 AND 18. 5/14/12 TFD

17 MAY 2012 07:33 3432.rdy.psh.11.dgn
3432.DWG

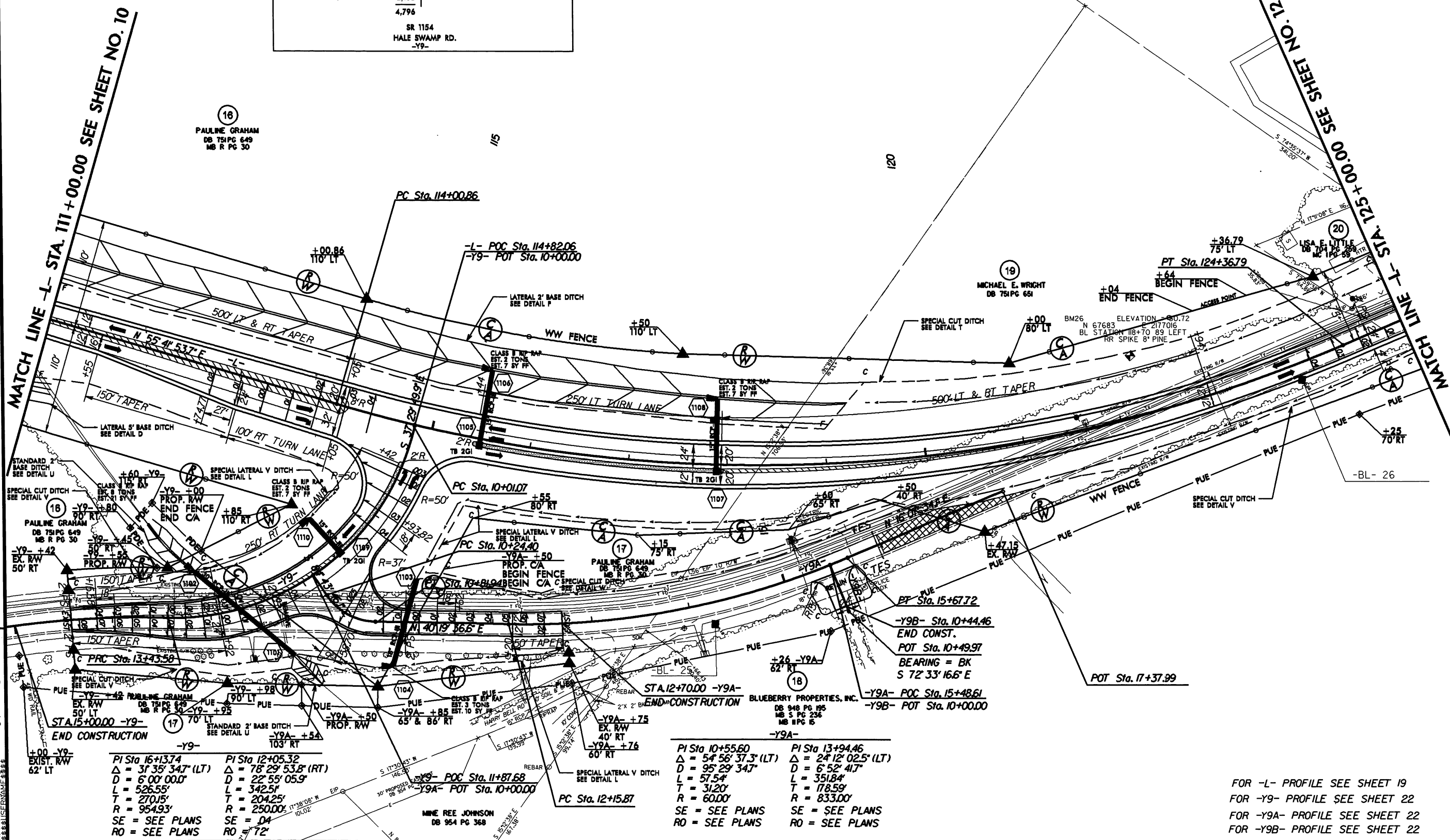
-L-
PI Sta 119+40.44
 $\Delta = 39^\circ 34' 10.4" (LT)$
D = 3' 49' 11.0"
L = 1035.93'
T = 539.58'
R = 1500.00'
SE = .04
RO = 108'



SHEFFIELD SEAFOOD & GROCERY, INC.
DB 1503 PG 859
MB R PG 90

NAD 83/NSRS 2007

PROJECT REFERENCE NO. R-3432	SHEET NO. 11
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



PI Sta 16+13.74
 $\Delta = 31^\circ 35' 34.7" (LT)$
D = 6' 00' 00.0"
L = 526.55'
T = 270.15'
R = 954.93'
SE = SEE PLANS
RO = SEE PLANS

PI Sta 12+05.32
 $\Delta = 78^\circ 29' 53.8" (RT)$
D = 22' 55' 05.9"
L = 342.51'
T = 204.25'
R = 250.00'
SE = .04
RO = 72'

PI Sta 10+55.60
 $\Delta = 54^\circ 56' 37.3" (LT)$
D = 95' 29' 34.7"
L = 57.54'
T = 31.20'
R = 60.00'
SE = SEE PLANS
RO = SEE PLANS

PI Sta 13+94.46
 $\Delta = 24^\circ 12' 02.5" (LT)$
D = 6' 52' 41.7"
L = 351.84'
T = 178.59'
R = 833.00'
SE = SEE PLANS
RO = SEE PLANS

FOR -L- PROFILE SEE SHEET 19
FOR -Y9- PROFILE SEE SHEET 22
FOR -Y9A- PROFILE SEE SHEET 22
FOR -Y9B- PROFILE SEE SHEET 22

8/17/99

ROW REV.: REVISING PUE ON PARCEL 18 AND 21 THRU 25. 5/14/12 TFD

I:\MAY-2012 07132_2432_rdu-psh_12.dgn

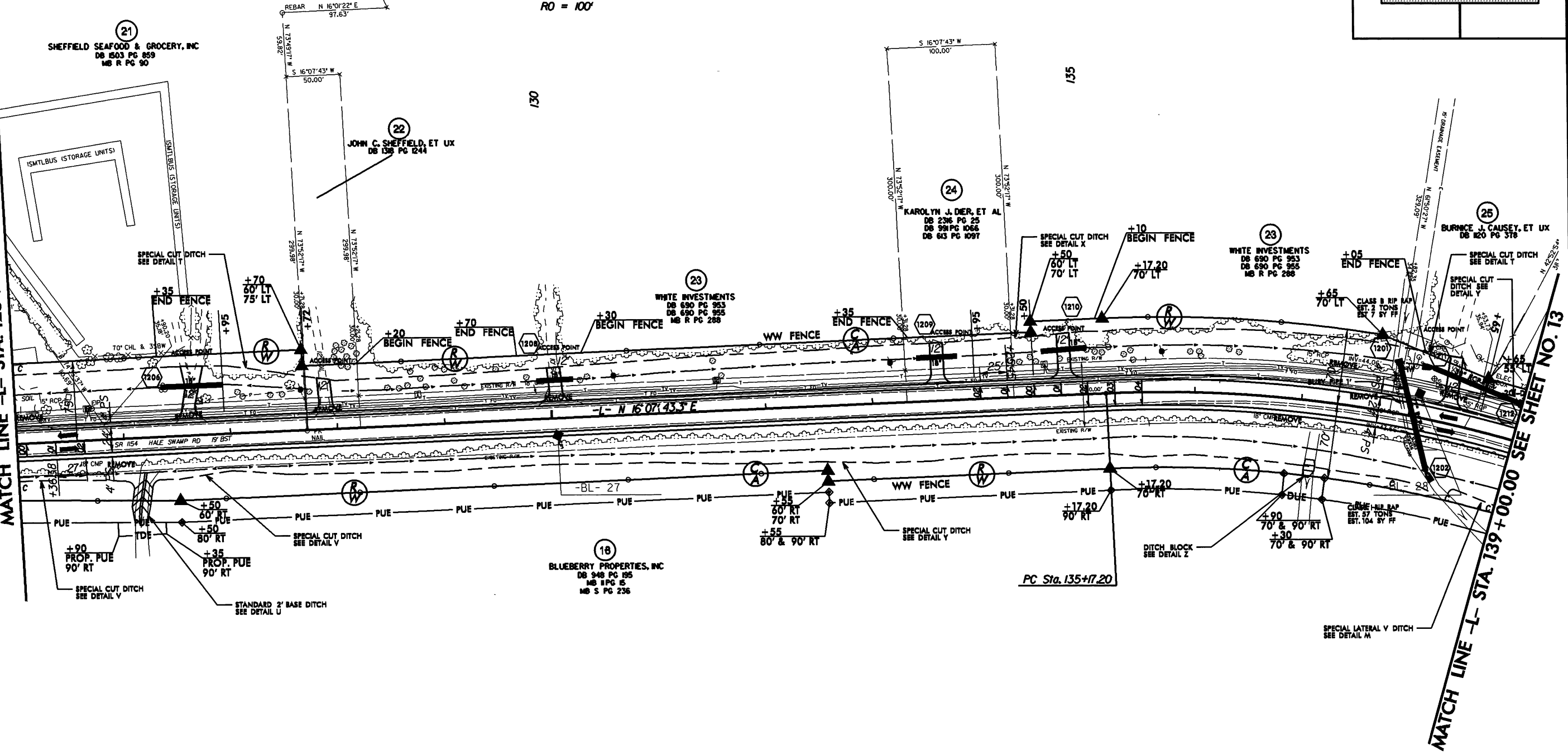
PROJECT REFERENCE NO.	SHEET NO.
R-3432	12
NW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

NAD 83/NRS 2007

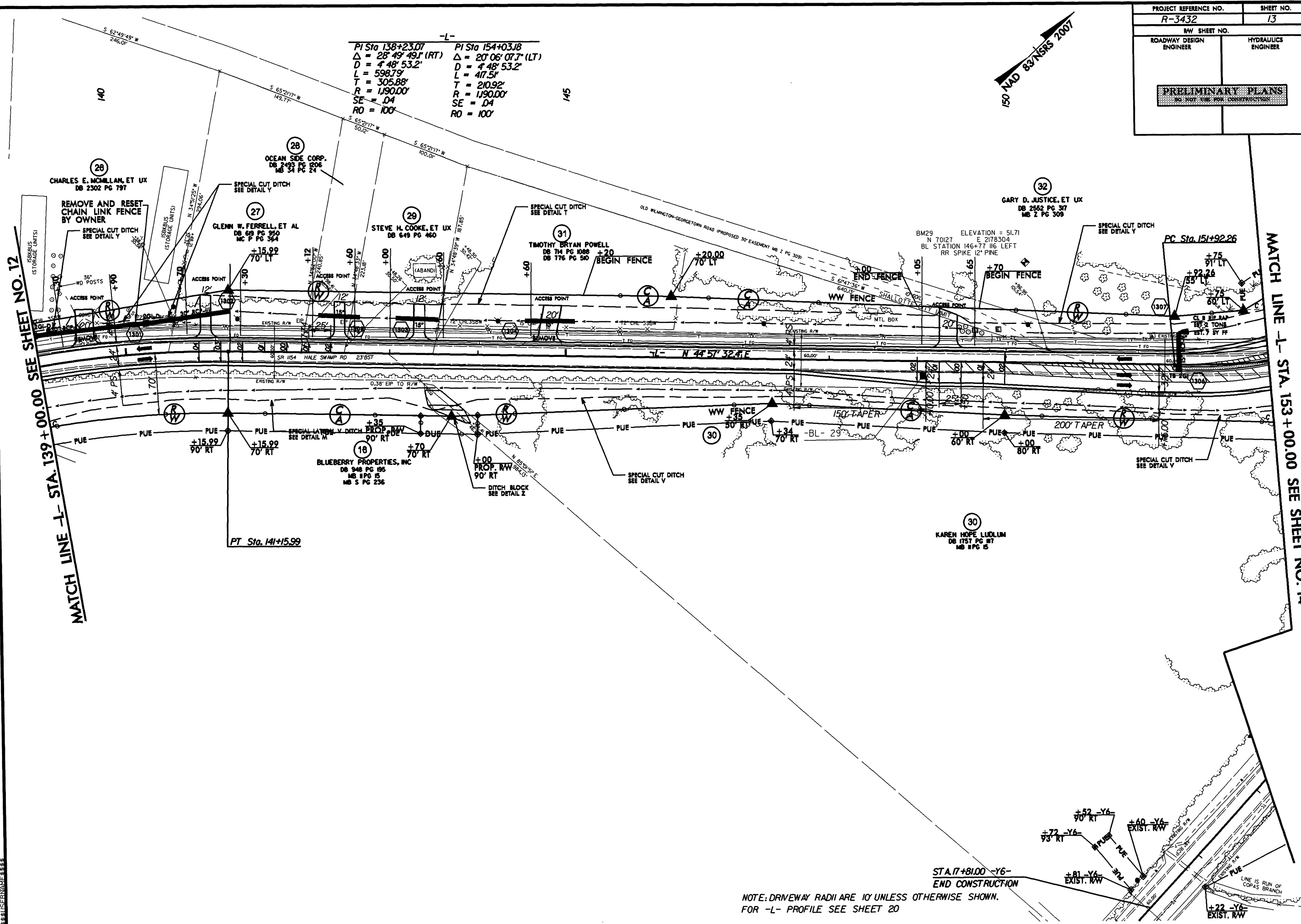
-L-
PI Sta 138+23.07
 $\Delta = 28^{\circ} 49' 49.1''$ (RT)
D = 448' 53.2"
L = 598.79'
T = 305.88'
R = 1,190.00'
SE = 04
RO = 100'

MATCH LINE -L- STA. 125+00.00 SEE SHEET NO. 11

MATCH LINE -L- STA. 139+00.00 SEE SHEET NO. 13



NOTE: DRIVEWAY RADII ARE 10' UNLESS OTHERWISE SHOWN.
FOR -L- PROFILE SEE SHEET 20



NOTE: DRIVEWAY RADII ARE 10' UNLESS OTHERWISE SHOWN.
FOR -L- PROFILE SEE SHEET 20

ROW REV.: REVISING PUE ON PARCEL 18 AND 26 THRU 32. 5/14/12 TFD

7-MAY-2012 07:32
R:\Roadway\Project\3432-rdy-psh-13.dgn
\$\$\$\$\$USERNAME\$\$\$\$\$

8/17/99

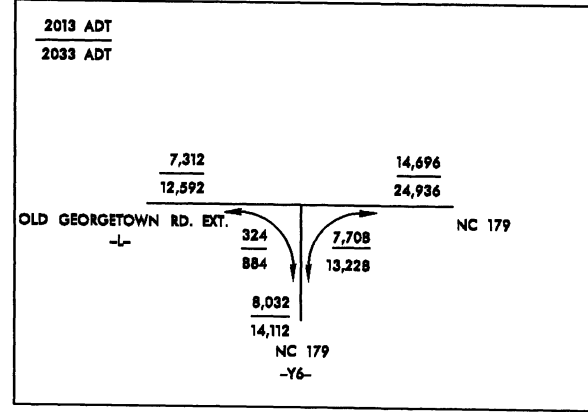
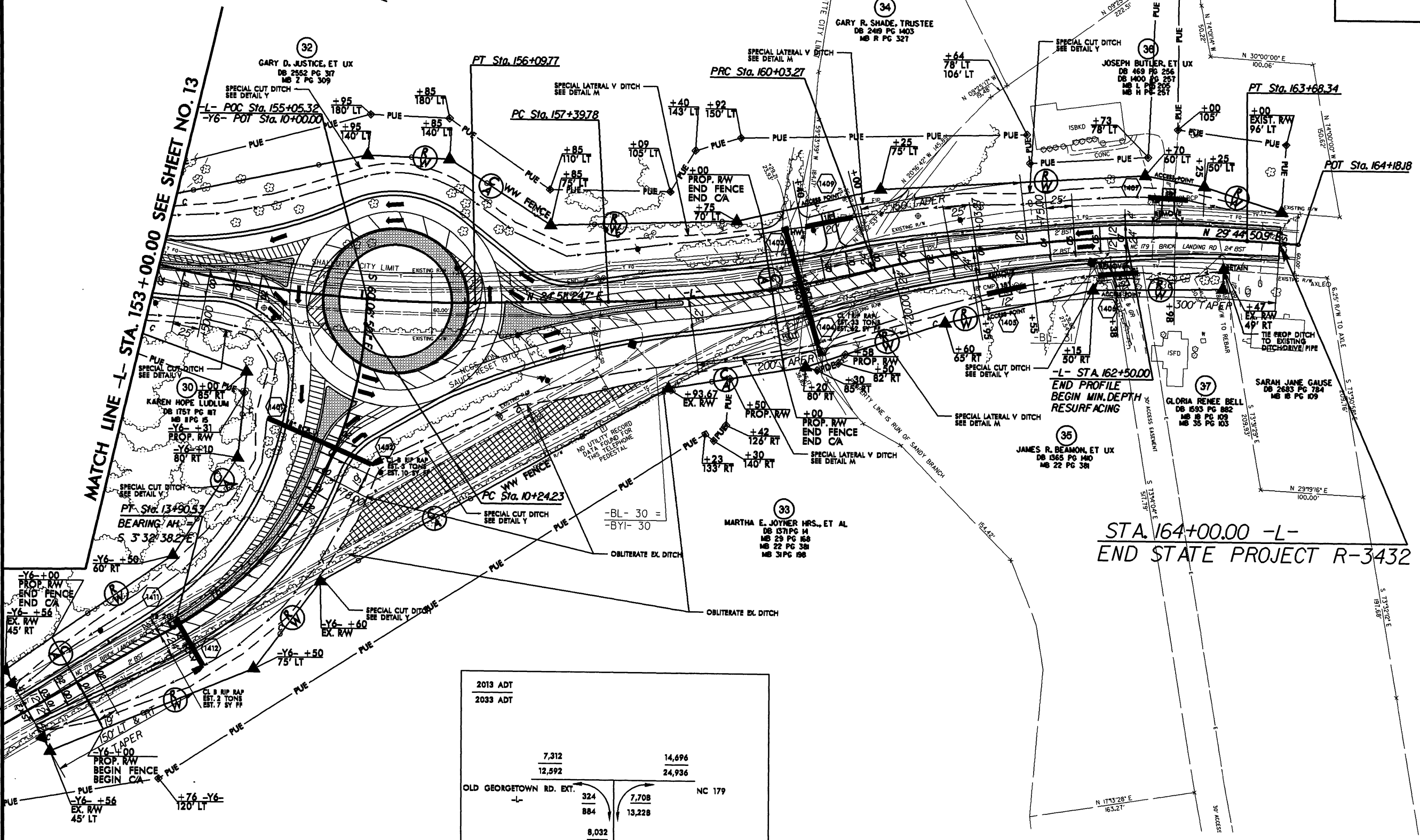
R/W REV. REVISING PUE ON PARCEL 30. 5/14/12 TFD

17-MAY-2012 07:132
R:\Roadway\Projects\3432-2-dy.psh-14.dgn
USER NAME

-L-			
PI Sta 154+03.18	PI Sta 158+72.07	PI Sta 161+87.25	PI Sta 162+23.87
$\Delta = 20' 06" 07.7" (LT)$	$\Delta = 12' 41" 11.4" (LT)$	$\Delta = 17' 34' 37.6" (RT)$	$\Delta = 56' 34' 11.9" (RT)$
$D = 4' 48" 53.2"$	$D = 4' 48" 53.2"$	$D = 4' 48" 53.2"$	$D = 15' 26' 37.0"$
$L = 417.51'$	$L = 263.49'$	$L = 365.07'$	$L = 366.30'$
$T = 210.92'$	$T = 132.29'$	$T = 183.98'$	$T = 199.64'$
$R = 1,190.00'$	$R = 1,190.00'$	$R = 1,190.00'$	$R = 371.00'$
$SE = .04$	$SE = .04$	$SE = SEE PLANS$	$SE = .04$
$RO = 100'$	$RO = 100'$	$RO = SEE PLANS$	$RO = 76'$

PROJECT REFERENCE NO. R-3432		SHEET NO. 14
RW SHEET NO.		HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER		

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



STA. 164+00.00 -L-
END STATE PROJECT R-3432

NOTE: DRIVEWAY RADII ARE 10' UNLESS OTHERWISE SHOWN.
FOR -L- PROFILE SEE SHEET 21
FOR -Y6- PROFILE SEE SHEET 22
SEE SHEET 2-D FOR ROUNDABOUT DETAIL

8/17/99

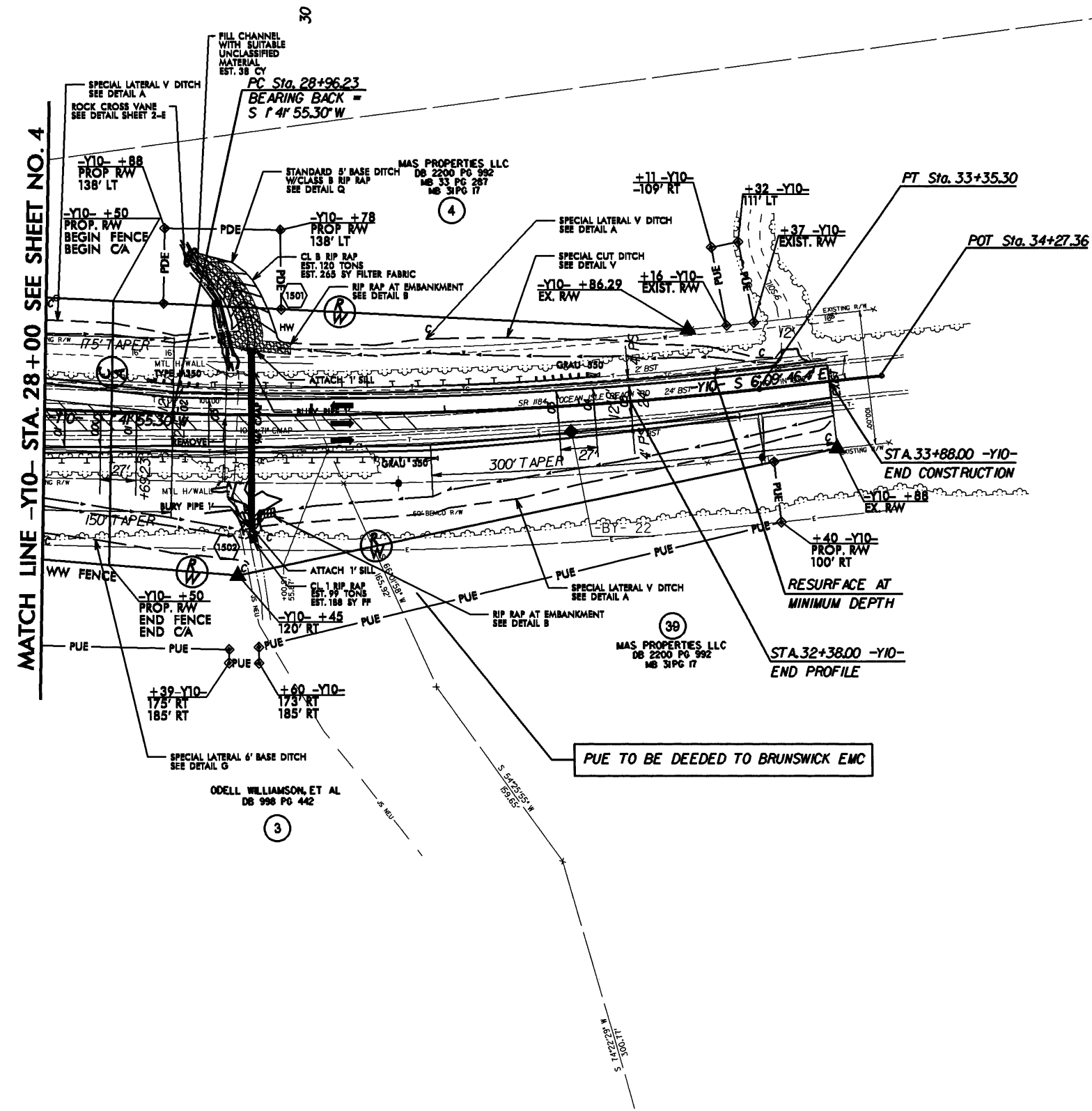
17-MAY-2012 07:32 3432-rdy-ph-15.dgn
S:\PROJECTS\3432\3432.dwg

REVISIONS

-Y10-
PI Sta. 31+16.11
 $\Delta = 7^\circ 51' 41.7" (LT)$
 $D = 147' 25.8"$
 $L = 439.07'$
 $T = 219.88'$
 $R = 3,200.00'$
 $SE = .03$
 $RO = 8'$

NAD 83/NSRS 2007

PROJECT REFERENCE NO.	SHEET NO.
R-3432	15
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

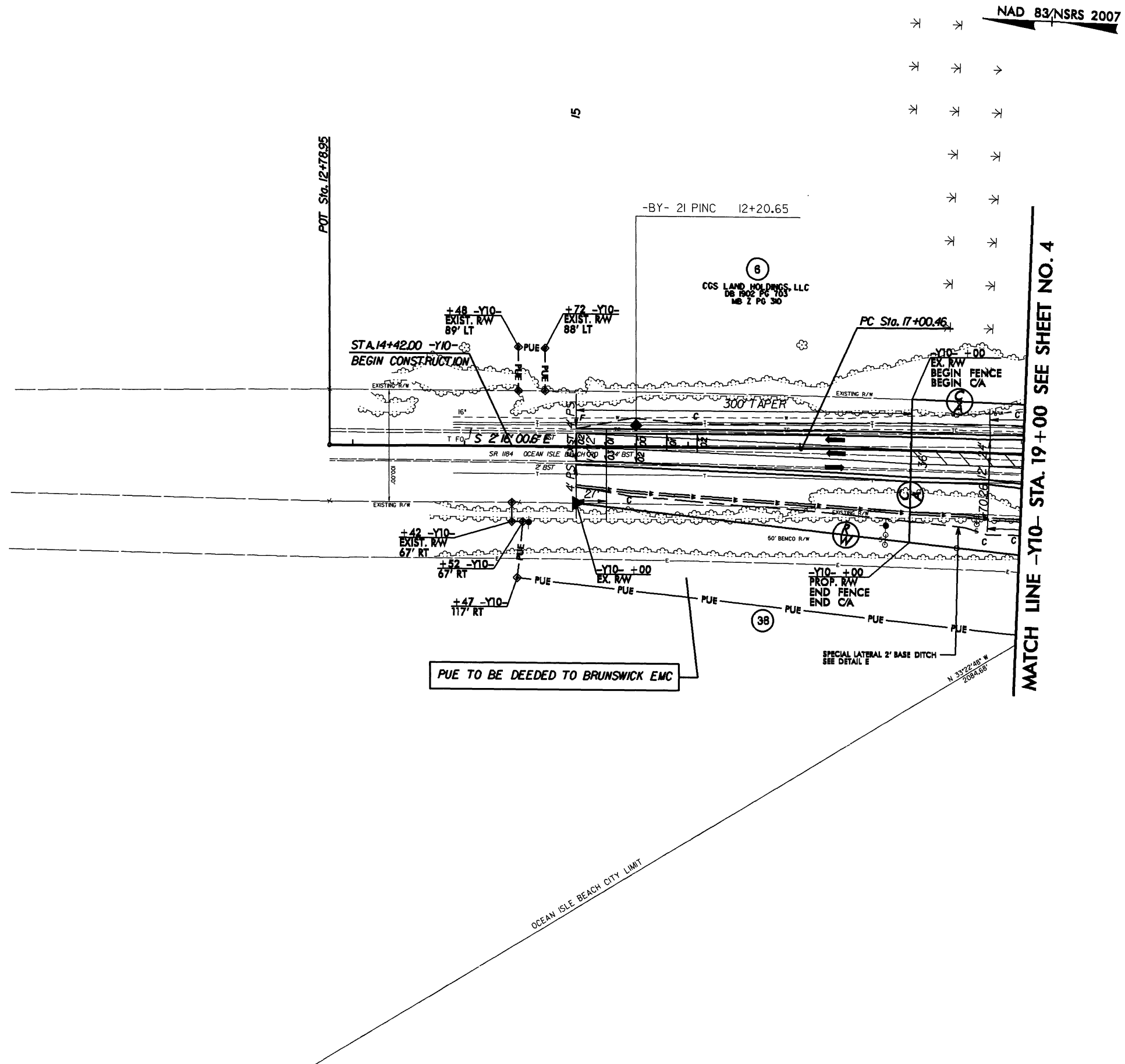


FOR -Y10- PROFILE SEE SHEET 21A

8/17/99

17-MAY-2012 07:32
R:\Projects\17-MAY-2012 07:32\17-MAY-2012 07:32\17-MAY-2012 07:32.dgn
8:58:58 PM

REVISIONS



PROJECT REFERENCE NO.	SHEET NO.
R-3432	15A
RAW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS	

FOR -Y10- PROFILE SEE SHEET 21A