



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE  
GOVERNOR

EUGENE A. CONTI, JR.  
SECRETARY

December 13, 2012

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

ATTN: Mr. Brad Shaver  
NCDOT Coordinator

Subject: **Revised Application for Individual Section 404 and Section 401 Water Quality Certification** for the proposed NC 133 Connector from NC 211-133 (Southport Supply Road) to NC 87-133 (River Road), Brunswick County. Federal Aid Project No. STP-133(3), Debit \$475.00 from WBS No. 34531.1.1, TIP R-3324

The North Carolina Department of Transportation (NCDOT), Division of Highways, in consultation with the Federal Highway Administration (FHWA), proposes to construct a two-lane facility on new location from NC 211-133 (Southport Supply Road) to NC 87-133 (River Road), and construct the entrance road to Sunny Point Military Terminal in the city of Southport, Brunswick County, North Carolina.

As a result of a September 12, 2012 onsite meeting and subsequent correspondence with the N.C. Division of Water Quality and the U.S. Army Corps of Engineers, several items have been revised since our July 19, 2012 permit application. Therefore, this letter replaces our original application dated July 19, 2012, as well as request approval for a Section 404 Individual Permit, and Section 401 Water Quality Certification. In addition to this revised cover letter, this application package includes the following for R-3324: revised permit drawings, revised ENG Form 4345, revised utility drawings and the Ecosystem Enhancement Program (EEP) request letter. The previously provided half size roadway plans, stormwater management plan, and USFWS Concurrence letter are unchanged.

## 1.0 Purpose and Need

The purpose of the project is to improve safety by eliminating three points of conflict for those traveling to Oak Island and redirecting some of the moving traffic from two intersections. It will reduce congestion by separating the NC 133, NC 211, and NC 87 traffic. In addition, it will improve system linkage in the Southport/Oak Island area by providing an alternate and more direct route for NC 133 traffic.

## 2.0 Project Description

The total project length is approximately 2.1 miles. Along with the new location roadway, the recommended alternative includes a reconfiguration of the intersection of NC 87, NC 133, and the

**MAILING ADDRESS:**  
NC DEPARTMENT OF TRANSPORTATION  
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TELEPHONE: 919-707-6100  
FAX: 919-212-5785

WEBSITE: [WWW.NCDOT.ORG](http://WWW.NCDOT.ORG)

**LOCATION:**

1020 BIRCH RIDGE DRIVE  
RALEIGH NC 27610-4328



entrance road to Sunny Point Military Terminal.

### **3.0 Summary of Impacts**

Waters of the U.S.: Construction of the proposed project will necessitate impacts to jurisdictional waters. There will be a total of 6.29 acres of permanent wetland impacts, 0.24 acres of permanent surface water impacts, and 1,239 linear feet of permanent stream impacts. There will also be 1.7 acres of permanent impacts to account for the potential 'ditch effect' from the relocation of ditches located on NC133/87. Additionally there will be 0.87 acre of temporary fill in wetlands in the hand clearing areas for the installation of erosion control measures and temporary fill for bridge installation.

### **4.0 Summary of Mitigation**

The proposed construction of R-3324 will impact 6.48 (including potential ditch effect) acres of jurisdictional non-riverine wetlands, 1.51 acres of jurisdictional riverine wetlands, and 1,239 linear feet of stream that will require mitigation within the Cape Fear River Basin. EEP will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for these unavoidable impacts.

### **5.0 Project Schedule**

Currently, R-3324 has a review date of January 1, 2013 and is scheduled to let February 19, 2013; it will be available for construction shortly thereafter.

### **6.0 NEPA Document Status**

The FHWA and NCDOT completed the Environmental Assessment (EA) in July 2006 in compliance with the National Environmental Protection Act (NEPA) guidelines. The EA explains the purpose and need for the project, provides a description of the alternatives considered, and characterizes the social, economic, and environmental effects. The EA was approved and circulated to federal, state, and local agencies. Then following the EA, a FONSI Statement was completed October 2007 and a FHWA Construction Consultation was completed September 2008. 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-3324 is in compliance with 23 CFR Part 771.111(f) which lists the FHWA characteristics of the independent utility of a project. The project 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;
- The project does not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.

### **7.0 Resource Status**

The project is located in the Cape-Fear River Basin and lies within Hydrologic Unit 03030005 (Subbasin 03-06-17). This is within the Southern Outer Coastal Plain eco-region. The project crosses UT's (Unnamed Tributaries) 1, 2 and 4 to Dutchman Creek as well as Jump and Run Creek.

## **7.1 Wetland Delineations**

A wetland identification and preliminary assessment analysis for the study area was performed and summarized in the 2001 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 performed in 2005 and verified by Mr. Dave Timpy of the USACE, Wilmington District on February 15, 2006 Action Id. (200100921). Subsequently, wetland delineations were updated by Ms. Kim Garvey in November 5, 2008 on parcel #22100001, Action Id. (SAW-2008-1687). An updated Jurisdictional Determination package was provided to the USACE and a site visit was made on September 11, 2012, attended by Mr. Brad Shaver (USACE) and Mason Herndon (DWQ). An electronic copy of the Rapanos forms are included with this updated application.

## **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 November 5, 2008. The stream classifications were revisited on September 11, 2012 by Mr. Brad Shaver (USACE) and Mason Herndon (DWQ).

## **7.3 R-3324: Characterization of Jurisdictional Sites**

### **7.3.1 Wetlands**

There are eight wetland communities found within the project study area: Pond Pine Woodland, High Pocosin, Low Pocosin, Coastal Plain Bottomland Hardwoods (Blackwater subtype), Wet Pine Flatwoods, Pine Savanna, and Pine Flat. More detailed information about these wetlands can be found in the EA and the NRTR which includes figures showing the wetlands within the project area.

### **7.3.2 Streams**

Best Usage Classifications for jurisdictional streams are provided in the EA. There are waters within the project vicinity classified as High Quality Waters (HQW), including the Dutchman Creek and UT's 1, 2 and 4 to Dutchman Creek. 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. Jump and Run Creek and Dutchman Creek 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 Cape Fear River Basin, nor do they drain into any Section 303(d) waters within 1.0 mile of the project study area.

## **7.4 Impacts to Jurisdictional Resources**

Impacts to jurisdictional wetlands and surface waters for R-3324 are summarized below in Tables 1 & 2 respectively.

**Table 1. R-3324 Wetlands Impacts**

| Permit Drawing Site Number (2012) | Map Label in NRTR (2006) | Type         | Permanent Impacts (ac.) | Hand Clearing* (ac.) | Mitigation Required** |
|-----------------------------------|--------------------------|--------------|-------------------------|----------------------|-----------------------|
| 2                                 | IS14                     | Non-riparian | 0.13                    |                      | Yes                   |
| 4                                 | IS5                      | Non-riparian | 0.15                    | 0.06                 | Yes                   |
| 5                                 | IS7                      | Non-riparian | 2.03                    | 0.35                 | Yes                   |
| 6                                 | RS2                      | Riparian     | 1.47                    |                      | Yes                   |
| 7                                 | IS8                      | Non-riparian | 0.06                    | 0.03                 | Yes                   |
| 8                                 | IS8                      | Non-riparian | 0.56                    | 0.12                 | Yes                   |
| 10                                | IS8                      | Non-riparian | 0.49                    | 0.14                 | Yes                   |
| 11                                | IS3                      | Non-riparian | 1.27                    |                      | Yes                   |
| 12                                | IS3                      | Non-riparian | 0.09                    | 0.43                 | Yes                   |
| 13                                | RS4                      | Riparian     | 0.04                    | 0.01                 | Yes                   |
| <b>Total:</b>                     |                          |              | <b>6.29</b>             | <b>1.17</b>          | <b>6.29</b>           |

\* There will be 0.48 acre of temporary fill in wetlands for erosion control measures in the hand clearing areas. In addition, there will be 0.85 acre of hand clearing due to utility relocation. There will also be 1.7 acres of permanent impacts to account for the potential 'ditch effect' from the relocation of ditches located on NC133/87.

\*\*For permanent impacts

**Table 2. R-3324 Surface Water Impacts**

| Permit Drawing Site Number | Waterbody                       | Permanent Channel (ft.) | Temporary Channel (ft.) | Permanent SW (ac.) | Temporary SW (ac.) | Mitigation* Required |
|----------------------------|---------------------------------|-------------------------|-------------------------|--------------------|--------------------|----------------------|
| 1                          | Jump and Run Creek              | 26                      | 0                       | <0.01              | 0.02               | Yes                  |
| 4                          | Stream 4 – UT to Dutchman Creek | 131                     | 0                       | 0.05               | 0                  | Yes**                |
| 5                          | Stream 4 – UT to Dutchman Creek | 242                     | 0                       | 0.03               | 0                  | Yes                  |
| 6                          | Stream 6 – UT to Dutchman Creek | 395                     | 0                       | 0.10               | 0                  | Yes                  |
| 9                          | Stream 2 - UT to Dutchman Creek | 116                     | 69                      | 0.02               | 0.01               | Yes                  |
| 11                         | Stream 1 – UT to Dutchman Creek | 86                      | 57                      | 0.01               | 0.01               | Yes                  |
| <b>Total:</b>              |                                 | <b>1,239</b>            | <b>372</b>              | <b>0.24</b>        | <b>0.05</b>        |                      |

\*There will be 126 feet of channel impacts due to the placement of box culverts.

\*\*There will be 350 feet of channel impacts off-set due to the relocated stream channel.

Permanent Impacts: Proposed permanent impacts for R-3324 include fill, and excavation in wetlands. This includes impacts to 1.51 acres of riparian wetlands and 4.78 acres of non-riparian wetlands. There will also be 1.7 acres of permanent impacts to account for the potential 'ditch effect' from the relocation of ditches located on NC133/87. Proposed permanent impacts to surface waters are 1,239 linear feet (0.24 acre), which includes two pipes proposed to be extended and replaced at unnamed tributaries (UT) to Dutchman Creek (site 4), and three box culverts to a UT to Dutchman Creek (sites 9 & 11), bridge construction over Jump and Run Creek and UT to Dutchman Creek, and the resulting fill.

Temporary Impacts: There will be 126 linear feet of temporary impacts to surface water due to box culvert installations. In addition, 0.48 acre of temporary impacts to wetlands for temporary fill in wetlands for erosion control measures, including Temporary Silt Fence and/or Special Sediment Control Fence.

Hand Clearing: There will be 1.17 acres of temporary impacts to wetlands resulting from hand clearing due to project construction.

Utility Impacts: There will be < 0.01 acre of impacts due to fill associated with utilities. In addition, there will be 0.85 acres of hand clearing due to utility relocations.

## 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 for Brunswick County**

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

Key: E= Endangered, T= Threatened, T(S/A) = Threatened (Similarity of Appearance), MANLAA= May Affect, Not Likely to Adversely Affect

NCDOT committed to implement the USFWS's Guidelines for Avoiding Impacts to the West Indian Manatee: *Precautionary Measures for Construction in North Carolina Waters* to the maximum extent practicable.

After a RCW foraging analysis report was undertaken in 2006, it was determined that the biological conclusions for the RCW should be revised to 'May Affect, Not Likely to Adversely Affect' from 'May Effect' in the EA. Concurrence was received from the USFWS for this species on January 8, 2008. NCDOT staff looked for changes in RCW habitat within the Right of Way during the May 23, 2012 plant survey. No major changes were noted but due to the time that has passed since the foraging habitat analysis report was performed in 2006, NCDOT retained Dr. J. H. Carter III and Associates, Inc. to re-survey the existing clusters for any changes and survey within a ½ mile radius in areas with foraging or potential foraging habitat. The Department has attached email correspondence from the USFWS response to this updated report and according to the USFWS assuming there is no major delay in the project construction, the previous concurrence is still valid.

Ten populations of rough leaved loosestrife (RLL) were identified, mainly along the Progress Energy utility powerline corridor that runs east-west through the center of the project study area. An additional survey was performed in June 2006. One additional population was found in a utility corridor that runs north-south and is located along the northeast study area boundary. All of the discovered populations of RLL are north of the chosen alternative for the proposed NC 133 Connector. It was determined that the biological conclusion for the RLL should be revised to 'May Affect, Not Likely to Adversely Affect' from 'Unresolved' in the EA. Concurrence was received from the USFWS for this species on January 8, 2008. On May 23, 2012 NCDOT employees surveyed for RLL within the NCDOT right-of-way for this project. No plants were observed during this survey.

Possible habitat for Cooley's meadowrue was identified during surveys in 2005. A follow up survey was performed June 2006. No Cooley's meadowrue were found in this survey. It was determined that the biological conclusion for the Cooley's meadowrue should be revised to 'No Effect' from 'Unresolved' in the EA. Concurrence was received from the USFWS for this species on January 8, 2008. On May 23, 2012 NCDOT employees surveyed for Cooley's meadowrue within the NCDOT right-of-way for this project. No plants were observed during this survey.

After verbal consultation with UFSWS concerning the lack of definitive evidence of the species' existence, and considering the Service has presumed the eastern cougar to be extinct, it was determined that the biological conclusions for the eastern cougar should be revised to 'No Effect' from 'May Affect, Not Likely to Adversely Affect' in the EA. Concurrence was received from the USFWS for this species on January 8, 2008.

#### **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-3324.

### **9.0 *Cultural Resources***

#### ***Archaeology and Historic Architecture***

The NCDOT conducted an archaeological survey of the project area in May 2005. The majority of the project area was determined to be disturbed from previous residential and commercial development. No archeological sites were recorded, and no evidence of cultural use or occupation of the project area was encountered during the survey. This work was done in compliance with Section 106 of the National Historic Preservation Act and the guidelines issued by the Advisory Council on Historic Preservation. Once a recommended alignment was chosen, additional archaeological studies were undertaken in late 2006 with no significant sites being identified.

The area of potential effects (APE) for historic architectural resources was reviewed by a NCDOT staff architectural historian. The NCDOT, North Carolina Historic Preservation Office, and Federal Highway Administration agree that there are no properties within the APE over fifty years of age and no properties

less than fifty years of age that meet eligibility Criterion G for listing in the National Register. No further compliance with Section 106 is required for historic architectural resources.

## **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-3324. 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.
- 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.
- Preformed Scour Holes will be used where practicable.
- Equalizer pipes at five locations: 46+50-L-, 66+0-L-, 68+50-L-, 106+50-L-, 117+00-L-.
- Storm water will be treated using grass swales and an infiltration basin.
- Bridging of Dutchman Creek.
- Station 112+82-L- (Tributary to Dutchmans Creek) will be a box culvert with sills to maintain the normal flow and channel characteristics.
- The use of 3:1 fill slopes in jurisdictional areas.
- NCDOT will implement Best Management Practices for Bridge Demolition and Removal.
- Sediment and erosion control measures shall adhere to the Design Standards in Sensitive Watersheds during construction of the project.
- Special Sediment Control Fence will be used where applicable.
- The use of hand clearing rather than mechanized clearing throughout the project where practicable.
- Pipes will be precharged with native material, from the project site if possible.
- No rip rap will be placed in the low flow channels or in the thalweg as to not impede aquatic passage.
- Site IX has an earthen floodplain bench designed on both ends of the culvert at the overflow barrel.

- NCDOT will replant and monitor Site IV to insure the temporary fill does not create a permanent impact. If this restoration is unsuccessful NCDOT will coordinate with the regulatory agencies to mitigate for this impact.

### **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 and non-riparian wetlands and stream impacts consisting of 4.75 acres of jurisdictional non-riverine wetlands, 1.51 acre of jurisdictional riverine wetlands, and 1,239 linear feet of stream, will be offset by compensatory mitigation provided by the EEP.

### **12.0 Indirect and Cumulative Effects**

An updated Indirect and Cumulative Effects (ICE) report was completed in November, 2009. The report concluded that the majority of the Future Land Use Study Area (FLUSA) is currently designated for commercial development with some areas zoned for industrial and medium to higher density residential development. In accordance with expected local growth, water and wastewater services for the majority of the FLUSA will be provided by 2020. Analysis of future land use in the area suggest that projected development trends will continue within the project area, with commercial development continuing to cluster along NC 211 (Southport-Supply Road) and NC 133 (Long Beach Road) in the southern portion of the FLUSA. The proposed access control of one driveway per parcel is likely to temper growth along the proposed 2.1-mile corridor, and the larger parcels along this segment already have access to NC 211 (Southport-Supply Road) or NC 87-133 (River Road). As such, the project is not expected to dramatically change land use projections or alter regional traffic patterns. Growth in the form of community-serving commercial or retail uses could cluster around the newly created intersections at NC 87 (River Road) and NC 211 (Southport-Supply Road). Although the new alignment section will be partially access controlled, limited commercial and residential development is likely, and already occurring, along the proposed road. This development will result in only a slight increase in density than what would likely occur under a No-Build condition. Cumulatively, the North Carolina International Terminal, located northeast of the FLUSA, is expected to be operational within ten to twenty years, which is within the ICE future time horizon. The terminal would have a greater influence on local development than the proposed 2.1-mile connector. Implementation of R-3324 will not result in significant direct impacts. The minor effects associated with implementation of the proposed road project, in conjunction with the other transportation and infrastructure projects in the area, will not result in significant cumulative effects on notable human and natural features.

### **13.0 Regulatory Approvals**

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

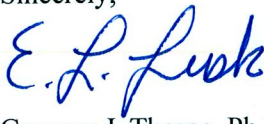
Section 401: We are also requesting a Section 401 Water Quality Certification from the NCDWQ. We are providing two (2) copies of this application to the NCDWQ, for their approval.

CAMA: A Consistency Certification will be submitted to the NC Division of Coastal Management under a separate cover.

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 John S. Merritt at 919-707-6140 or [jsmerritt@ncdot.gov](mailto:jsmerritt@ncdot.gov).

Sincerely,

  
for

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

cc:

NCDOT Permit Application Standard Distribution List.



|   |  |                      |   |                              |  |
|---|--|----------------------|---|------------------------------|--|
| <b>APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT</b><br>(33 CFR 325)  |  |                      | <b>OMB APPROVAL NO. 0710-0003</b><br><b>EXPIRES: 31 August 2012</b>   |                              |  |
| <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>                                      |  |                      |   |                              |  |
| <b>PRIVACY ACT STATEMENT</b>  |  |                      |   |                              |  |
| <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> |  |                      |   |                              |  |
| <b>(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)</b>   |  |                      |   |                              |  |
| 1. APPLICATION NO.  |  | 2. FIELD OFFICE CODE |   | 3. DATE RECEIVED             |  |
|   |  |                      |   | 4. DATE APPLICATION COMPLETE |  |
|   |  |                      |   |                              |  |
| <b>(ITEMS BELOW TO BE FILLED BY APPLICANT)</b>  |  |                      |   |                              |  |
| 5. APPLICANT'S NAME:<br>First – <b>Greg</b> Middle –    Last – <b>Thorpe, Ph.D.</b><br>Company – <b>NC Department of Transportation (NCDOT)</b><br>E-mail Address – <b>gthorpe@ncdot.gov</b>  |  |                      | 8. AUTHORIZED AGENT'S NAME AND TITLE (an agent is not required)<br>First –    Middle –    Last –<br>Company –<br>E-mail Address – |                              |  |
| 6. APPLICANT'S ADDRESS. Address – <b>1598 Mail Service Center</b><br>City – <b>Raleigh</b> State – <b>NC</b> Zip – <b>27699-1598</b> Country – <b>USA</b>   |  |                      | 9. AGENT'S ADDRESS Address – 1<br>City –    State –    Zip –    Country – USA   |                              |  |
| 7. APPLICANT'S PHONE NOS. W/AREA CODE.<br>a. Residence- NA    b. Business-    c. Fax  |  |                      | 10. AGENT'S PHONE NOS. W/AREA CODE<br>a. Residence- NA    b. Business-    c. Fax  |                              |  |
| <b>STATEMENT OF AUTHORIZATION</b>   |  |                      |   |                              |  |
| 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.   |  |                      |   |                              |  |
| _____<br>APPLICANT'S SIGNATURE  |  |                      | _____<br>DATE   |                              |  |
| <b>NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY</b>   |  |                      |   |                              |  |
| 12. PROJECT NAME OR TITLE (see instructions)<br><b>R-3324 – New route from NC 211-133 (Southport Supply Road) to NC 87-133 (River Road)</b>   |  |                      |   |                              |  |
| 13. NAME OF WATERBODY, IF KNOWN (if applicable),<br>Jump and Run Creek and Dutchman Creek   |  |                      | 14. PROJECT STREET ADDRESS (if applicable)<br>Address - NA<br>City -    State –    Zip -  |                              |  |
| 15. LOCATION OF PROJECT: Decimal degrees NAD 83, center coordinates are approximately<br>Latitude: <b>33.962583 N</b> Longitude: <b>-78.040953 W</b>  |  |                      |   |                              |  |
| 16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions)<br>State Tax Parcel ID –    Municipality –    Range –<br>Section –    Township –   |  |                      |   |                              |  |

17. DIRECTIONS TO THE SITE:

Please see attached permit drawings

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

**The NCDOT, Division of Highways, in consultation with the Federal Highway Administration (FHWA) proposes to construct a two-lane facility on new location from NC 211-133 (Southport Supply Road) to NC 87-133 (River Road), and construct the entrance road to Sunny Point Military Terminal. Total project length is 2.1 miles.**

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

**The purpose of the project is to improve safety by eliminating three points of conflict for those traveling to Oak Island and redirecting some of the moving traffic from two intersections. It will reduce congestion by separating the NC 133, NC 211, and NC 87 traffic. In addition, it will improve system linkage in the Southport/Oak Island area by providing an alternate and more direct route for NC 133 traffic.**

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

20. Reason(s) for Discharge

**Construction of roadway, bridge, culvert 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

**Please see attached impact summary sheet**

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 X

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. Thorpe, Ph.D. Dec 13, 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.



# MITIGATION REQUEST FORM TRI-PARTY MOA (NCDOT)

Revised 3/24/2008



Fill in requested information, print out the form, sign and date, and either mail to EEP, 1652 Mail Service Center, Raleigh, NC 27699-1652, or fax to 919-715-2219. Attachments are acceptable for clarification purposes.

Electronic submissions are permissible; however, an acceptance letter cannot be sent until the original signed form has been received.

| NCDOT CONTACT INFORMATION |                           | REGULATORY CONTACT INFORMATION |                           |
|---------------------------|---------------------------|--------------------------------|---------------------------|
| Agency/Division           | NCDOT-Highways            | USACE Office                   | Regulatory Field Office   |
| Branch                    | PDEA-NEU                  | USACE Contact                  | Mr. Brad Shaver           |
| Mailing Address           | 1598 Mail Service Center  | Mailing Address                | Post Office Box 1890      |
| City, State, Zip          | Raleigh, NC 27699-1598    | City, State, Zip               | Wilmington, NC 28402-1890 |
| Project Manager           | John Merritt              | USACE Fax Number               | (910) 251-4025            |
| Telephone Number          | (919) 707-6000            | NCDWQ Contact                  |                           |
| E-Mail Address            | jsmerritt@dot.state.nc.us | Mailing Address                |                           |
| Supervisor                | Chris Rivenbark           | City, State, Zip               |                           |
| Telephone Number          | (919) 707-6000            | NCDWQ Fax Number               |                           |

| PROJECT LOCATION INFORMATION AND IMPACTS  |                      |  |  |
|---|----------------------|--|--|
| TIP Number(s)                             |                      | R-3324   |  |
| TIP Description                           |                      | New Route from NC 211 to NC 87 at SR 1525 (Bethel Rd.) |  |
| Current Let Date                          |                      | 2/19/13  |  |
| NCDOT Highway Division                    |                      | Division 3   |  |
| County(ies)                               |                      | Brunswick  |  |
| EEP Ecoregion(s)                          |                      | Southern Outer Coastal Plain                           |  |
| River Basin(s)                            |                      | Cape Fear  |  |
| Cataloging Unit(s) (8-digit)              |                      | 03030005   |  |
| Total Stream (feet)                       | Warm                 | 889  |  |
|   | Cool                 |  |  |
|   | Cold                 |  |  |
|   | TOTAL                | 889  |  |
| Total Riparian Wetland Impact (acres)     |                      | 1.51   |  |
| Total Non-Riparian Wetland Impact (acres) |                      | 7.33   |  |
| Total Coastal Marsh Impact (acres)        |                      |  |  |
| Total Buffer Impact                       | Zone 1 (square feet) |  |  |
|   | Zone 2 (square feet) |  |  |

| OTHER INFORMATION  |  |
|--|--|
| USACE Action ID Number (if known)  |  |
| NCDWQ Project Number (if known)  |  |
| NCDCM Project Number (if known)  |  |
| Comments:<br>Of the 7.33 acres of non-riparian 0.85 acre at 0.50:1 ratio and 6.48 acres at 2:1 ratio |  |

| IMPORTANT                           |                                  | Signature of Applicant or Agent: |          |
|-------------------------------------|----------------------------------|----------------------------------|----------|
| Check below if this request is a:   |                                  |                                  |          |
| <input type="checkbox"/>            | New Mitigation Request           | Date:                            | 12/14/12 |
| <input checked="" type="checkbox"/> | Revision to a current acceptance |                                  |          |

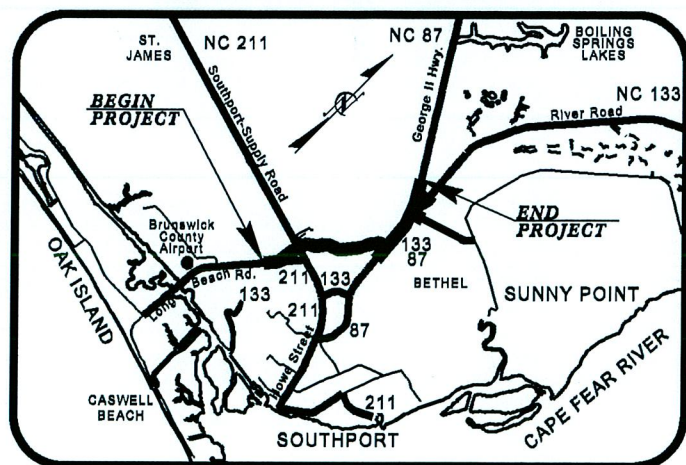


09/28/99

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

**CONTRACT: C202155**  
**TIP PROJECT: R-3324**

See Sheet 1-A For Index of Sheets



STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**BRUNSWICK COUNTY**

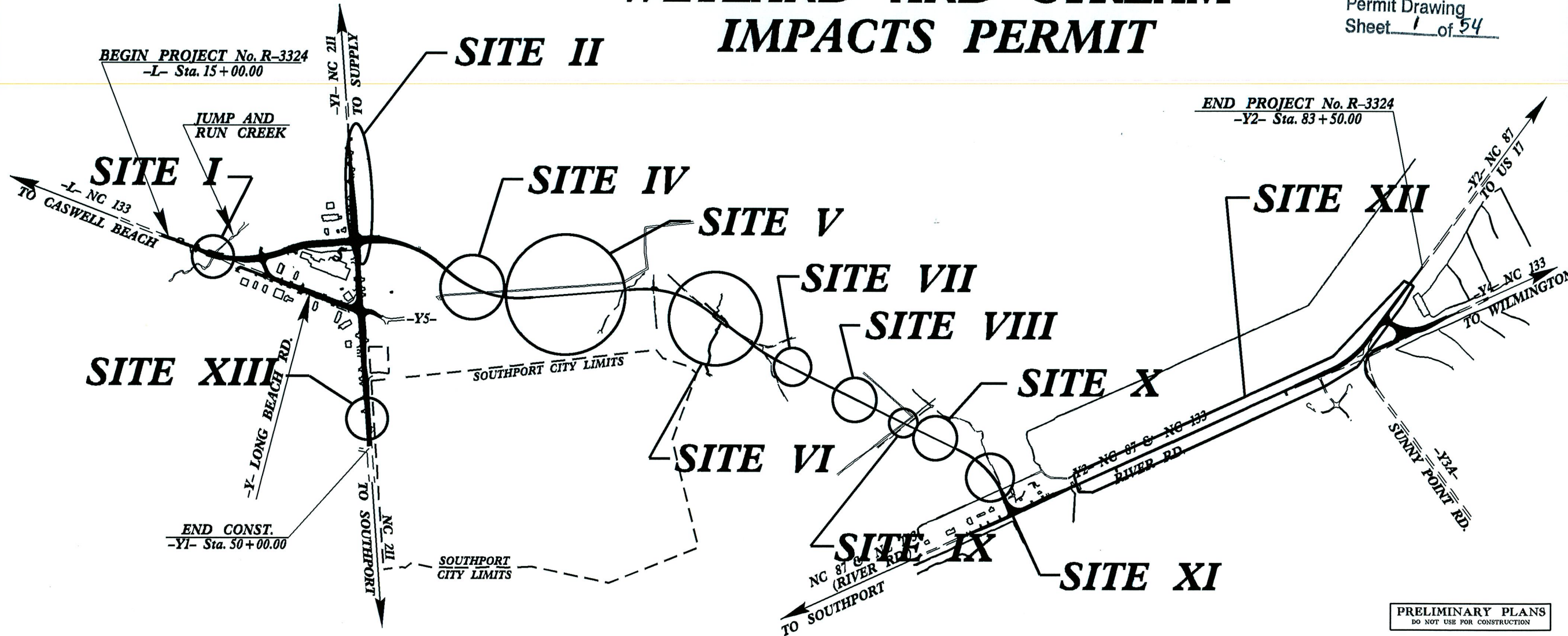
LOCATION: NEW ROUTE FROM NC 133 (LONG BEACH RD.) TO NC 133.

TYPE OF WORK: GRADING, DRAINAGE, PAVING, SIGNALS, STRUCTURES,  
CULVERTS, RETAINING WALL.

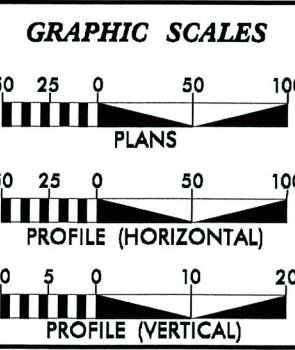
**WETLAND AND STREAM  
IMPACTS PERMIT**

| STATE           | STATE PROJECT REFERENCE NO. | SHEET NO.       | TOTAL SHEETS |
|-----------------|-----------------------------|-----------------|--------------|
| N.C.            | R-3324                      | 1               |              |
| STATE PROJ. NO. | F.A. PROJ. NO.              | DESCRIPTION     |              |
| 34531.1.1       | STP-0133(3)                 | PE              |              |
| 34531.2.1       | STP-0133(3)                 | R/W & Utilities |              |
| 34531.3.1       | STP-0133(7)                 | CONST.          |              |
|                 |                             |                 |              |
|                 |                             |                 |              |
|                 |                             |                 |              |

NAD 83/95  
Permit Drawing  
Sheet 1 of 54



PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION



**DESIGN DATA**

|                                  |
|----------------------------------|
| ADT 2009 = 9,514 - 13,720        |
| ADT 2033 = 13,620 - 47,170       |
| DHV = 50 %                       |
| D = 10 %                         |
| T = 5 % *                        |
| V = 50 MPH                       |
| FUNCTIONAL CLASSIFICATION: LOCAL |
| * TTST 2% DUAL 3%                |

**PROJECT LENGTH**

|  |                    |
|--|--------------------|
| LENGTH ROADWAY TIP No. R-3324 (-L-) =        | 2.193 MILES        |
| LENGTH ROADWAY TIP No. R-3324 (-Y2-) =       | 1.134 MILES        |
| <b>LENGTH STRUCTURES PROJECT No. R-3324:</b> |                    |
| (@ Jump-n-Run Creek) =                       | 0.026 MILES        |
| (@ Trib. to Dutchman Creek) =                | 0.030 MILES        |
| <b>TOTAL LENGTH TIP PROJECT No. R-3324 =</b> | <b>3.271 MILES</b> |

Prepared In the Office of:

**DIVISION OF HIGHWAYS**  
1000 Birch Ridge Dr., Raleigh NC, 27610

|                                      |  |
|--------------------------------------|--|
| 2012 STANDARD SPECIFICATIONS         |  |
| RIGHT OF WAY DATE:<br>MARCH 31, 2008 | JIMMY GOODNIGHT, PE<br>PROJECT ENGINEER      |
| LETTING DATE:<br>FEBRUARY 15, 2013   | STEVE KENDALL, PE<br>PROJECT DESIGN ENGINEER |

**HYDRAULICS ENGINEER**

SIGNATURE: \_\_\_\_\_ P.E.

**ROADWAY DESIGN ENGINEER**

SIGNATURE: \_\_\_\_\_ P.E.

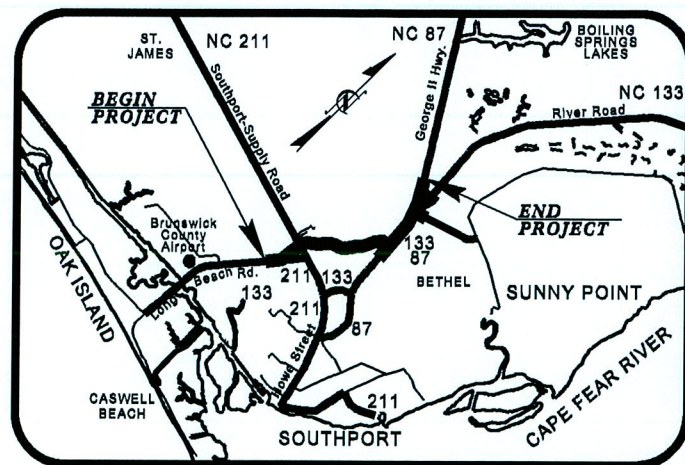
**DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA**

STATE HIGHWAY DESIGN ENGINEER



09/08/99

See Sheet 1-A For Index of Sheets



STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

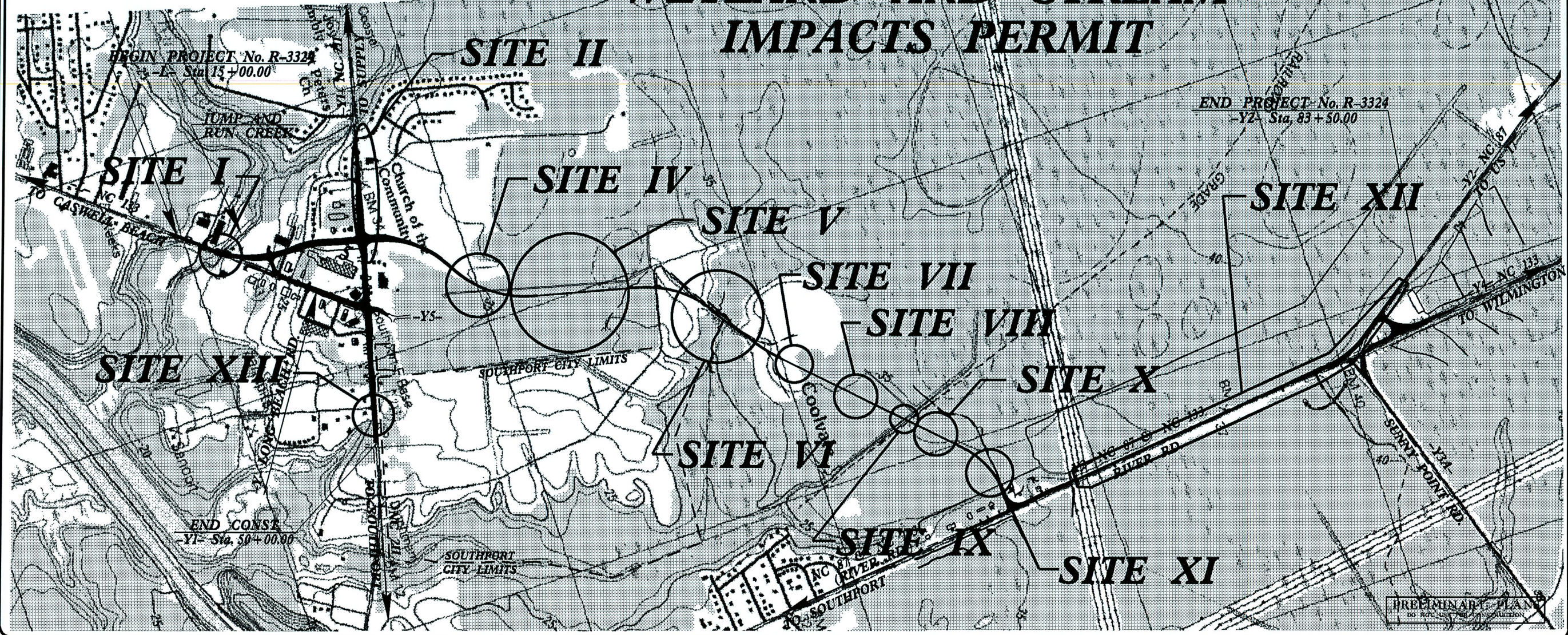
Permit Drawing  
Sheet 2 of 54

| STATE           | STATE PROJECT REFERENCE NO. | SHEET NO.      | TOTAL SHEETS |
|-----------------|-----------------------------|----------------|--------------|
| N.C.            | R-3324                      | 1              |              |
| STATE PROJ. NO. | F.A. PROJ. NO.              | DESCRIPTION    |              |
| 34531.1.1       | STP-0133(3)                 | PE             |              |
| 34531.2.1       | STP-0133(3)                 | RW & Utilities |              |
| 34531.3.1       | STP-0133(7)                 | CONST.         |              |
|                 |                             |                |              |
|                 |                             |                |              |

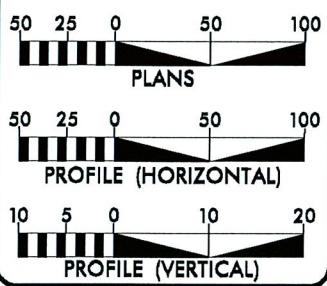
## BRUNSWICK COUNTY

LOCATION: NEW ROUTE FROM NC 133 (LONG BEACH RD.) TO NC 133.  
TYPE OF WORK: GRADING, DRAINAGE, PAVING, SIGNALS, STRUCTURES,  
CULVERTS, RETAINING WALL

## WETLAND AND STREAM IMPACTS PERMIT



### GRAPHIC SCALES



### DESIGN DATA

ADT 2009 = 9,514 - 13,720  
ADT 2033 = 13,620 - 47,170  
DHV = 50 %  
D = 10 %  
T = 5 % \*  
V = 50 MPH  
FUNCTIONAL CLASSIFICATION:  
LOCAL  
\* TTST 2% DUAL 3%

### PROJECT LENGTH

LENGTH ROADWAY TIP No. R-3324 (-L-) = 2.193 MILES  
LENGTH ROADWAY TIP No. R-3324 (-Y2-) = 1.134 MILES  
LENGTH STRUCTURES PROJECT No. R-3324:  
(@ Jump-n-Run Creek) = 0.026 MILES  
(@ Trib. to Dutchman Creek) = 0.030 MILES  
TOTAL LENGTH TIP PROJECT No. R-3324 = 3.271 MILES

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:  
MARCH 31, 2008

LETTING DATE:  
FEBRUARY 15, 2013

JIMMY GOODNIGHT, PE  
PROJECT ENGINEER

STEVE KENDALL, 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

TIP PROJECT: R-3324

CONTRACT: C202155

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



8/17/16

PROPERTY OWNERS

7 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
FORMERLY  
SOUTHPORT-OAK ISLAND  
CHAMBER OF COMMERCE

8 KATHLEEN VILOSKI

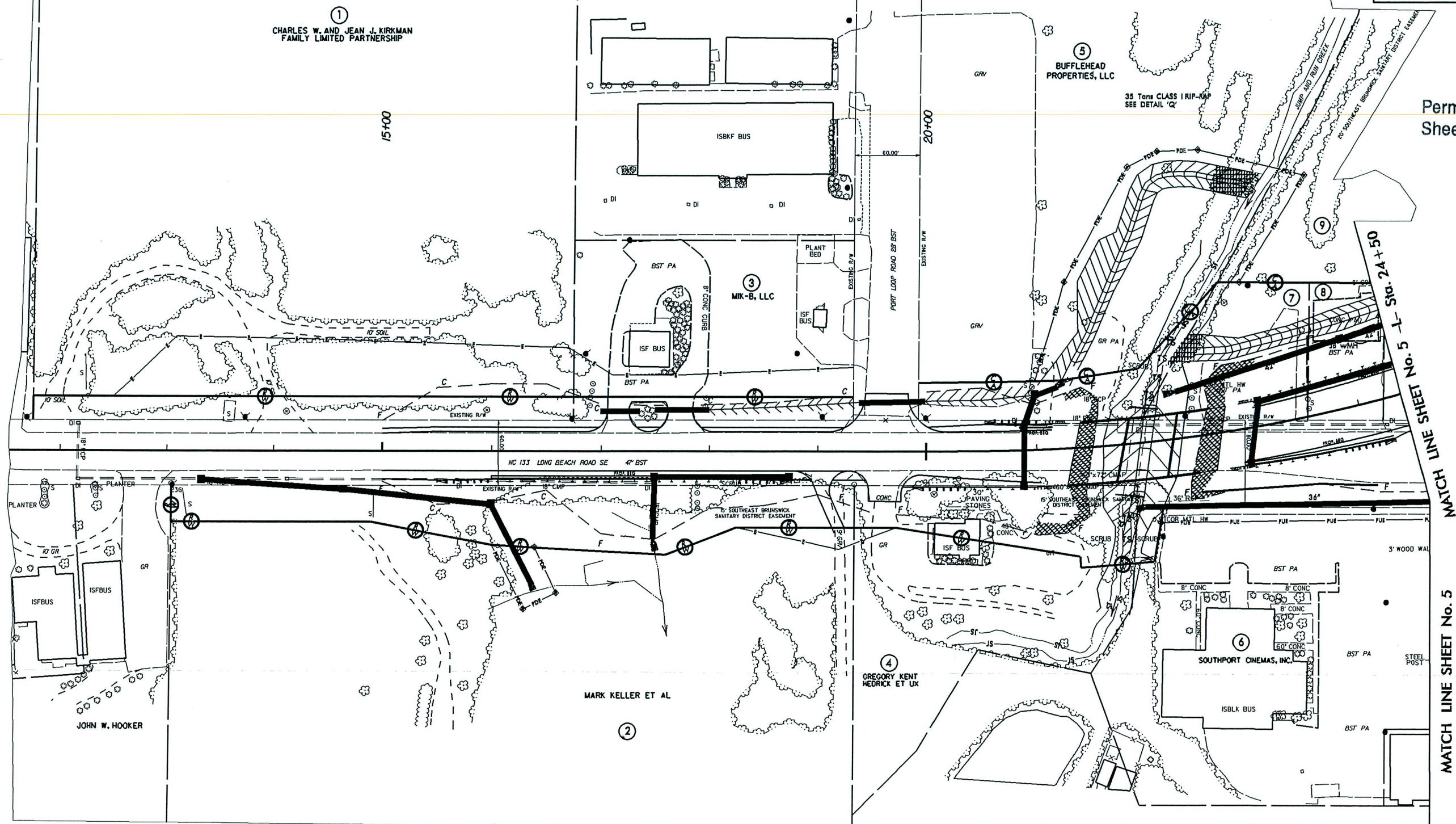
# SITE I



- 5' 5' DENOTES IMPACTS IN SURFACE WATER
- 15' 15' DENOTES TEMPORARY IMPACTS IN SURFACE WATER

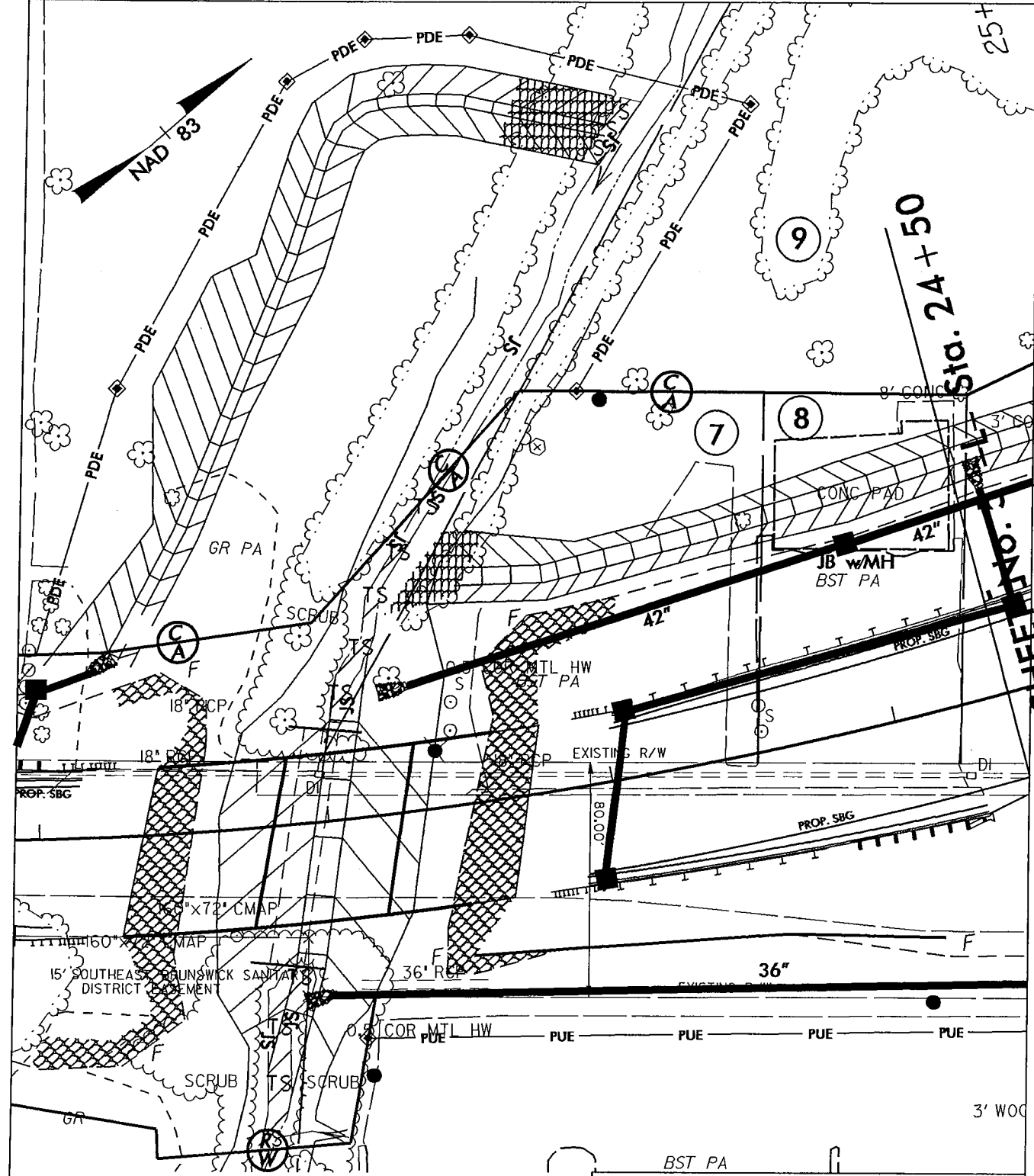
|   |  |                        |  |
|---|--|------------------------|--|
| PROJECT REFERENCE NO.<br><b>R-3324</b>                              |  | SHEET NO.<br><b>4</b>  |  |
| RW SHEET NO.  |  |                        |  |
| ROADWAY DESIGN<br>ENGINEER  |  | HYDRAULICS<br>ENGINEER |  |
| <div>PRELIMINARY PLANS</div> <div>DO NOT USE FOR CONSTRUCTION</div> |  |                        |  |
| SEE SHEET No. 23 FOR -L- PROFILE                                    |  |                        |  |
| SEE SHEET No. 2-F FOR RELATIONSHIP<br>OF BRIDGE TO ROADWAY SKETCH   |  |                        |  |
| SEE SHEET No. S-1 to S-<br>FOR STRUCTURE PLANS                      |  |                        |  |
| SEE SHEET No. 2-H FOR DITCH DETAILS                                 |  |                        |  |
| SEE SHEET No. 4-A FOR DETOUR PLANS                                  |  |                        |  |



Permit Drawing  
Sheet 3 of 54



MATCH LINE SHEET No. 5 L- Sta. 24+50

MATCH LINE SHEET No. 5



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



**SITE I**

Permit Drawing  
 Sheet 4 of 54

**NCDOT**

**DIVISION OF HIGHWAYS**

**BRUNSWICK COUNTY**

**PROJECT: 3453.1.1 (R-3324)**

**NEW ROUTE FROM NC 133**  
**TO NC 133 AND NC 87**

**SHEET**

**OF**

**12 / 04 / 12**



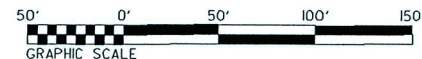
8/17/15

PROPERTY OWNERS

7 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
FORMERLY  
SOUTHPORT-OAK ISLAND  
CHAMBER OF COMMERCE

8 KATHLEEN VILOSKI

# SITE I

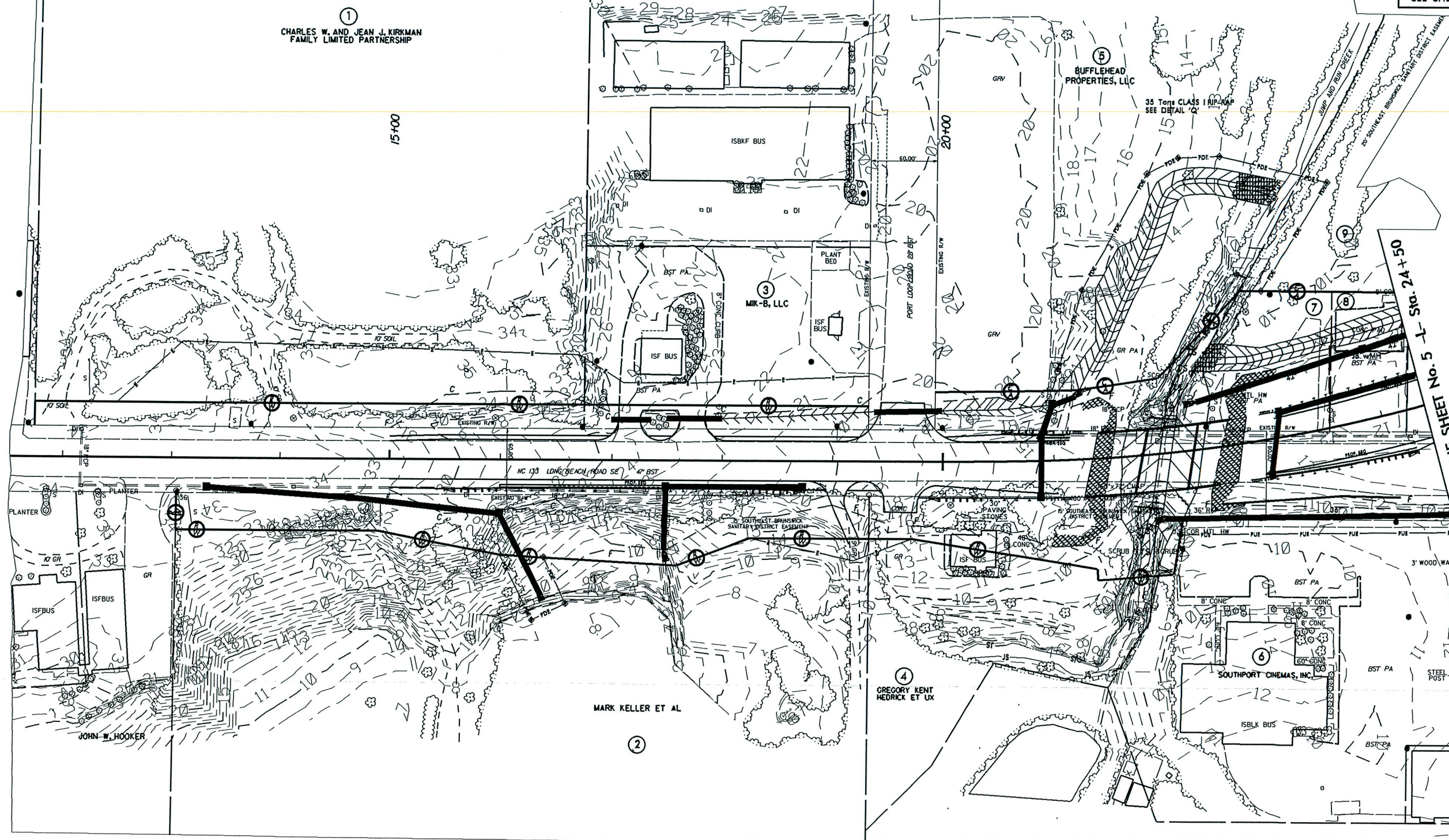


15 15 DENOTES IMPACTS IN SURFACE WATER

15 15 DENOTES TEMPORARY IMPACTS IN SURFACE WATER

| PROJECT REFERENCE NO.  |  | SHEET NO.                   |
|--|--|-----------------------------|
| R-3324   |  | 4                           |
| RW SHEET NO.   |  |                             |
| ROADWAY DESIGN ENGINEER  |  | HYDRAULICS ENGINEER         |
| PRELIMINARY PLANS  |  | DO NOT USE FOR CONSTRUCTION |
| SEE SHEET No. 23 FOR -L- PROFILE                               |  |                             |
| SEE SHEET No. 2-F FOR RELATIONSHIP OF BRIDGE TO ROADWAY SKETCH |  |                             |
| SEE SHEET No. S-1 to S- FOR STRUCTURE PLANS                    |  |                             |
| SEE SHEET No. 2-H FOR DITCH DETAILS                            |  |                             |
| SEE SHEET No. 4-A FOR DETOUR PLANS                             |  |                             |

Permit Drawing  
Sheet 5 of 54





5/28/99

# -L- SITE I

PROPOSED 3 @ 15'  
36' PRESTRESSED CONG. GIRDER  
SKEW = 105° ELEV. = 23.02'

BRIDGE HYDRAULIC DATA

|                       |   |       |     |
|-----------------------|---|-------|-----|
| DESIGN DISCHARGE      | = | 1800  | CFS |
| DESIGN FREQUENCY      | = | 50    | YRS |
| DESIGN HW ELEVATION   | = | 12.00 | FT  |
| BASE DISCHARGE        | = | 1800  | CFS |
| BASE FREQUENCY        | = | 100   | YRS |
| BASE HW ELEVATION     | = | 11.40 | FT  |
| OVERTOPPING DISCHARGE | = | 9500  | CFS |
| OVERTOPPING FREQUENCY | = | 500+  | YRS |
| OVERTOPPING ELEVATION | = | 20.70 | FT  |

DATE OF SURVEY JANUARY 17, 2008  
M.S. ELEVATION AT DATE OF SURVEY = 103.54' ±

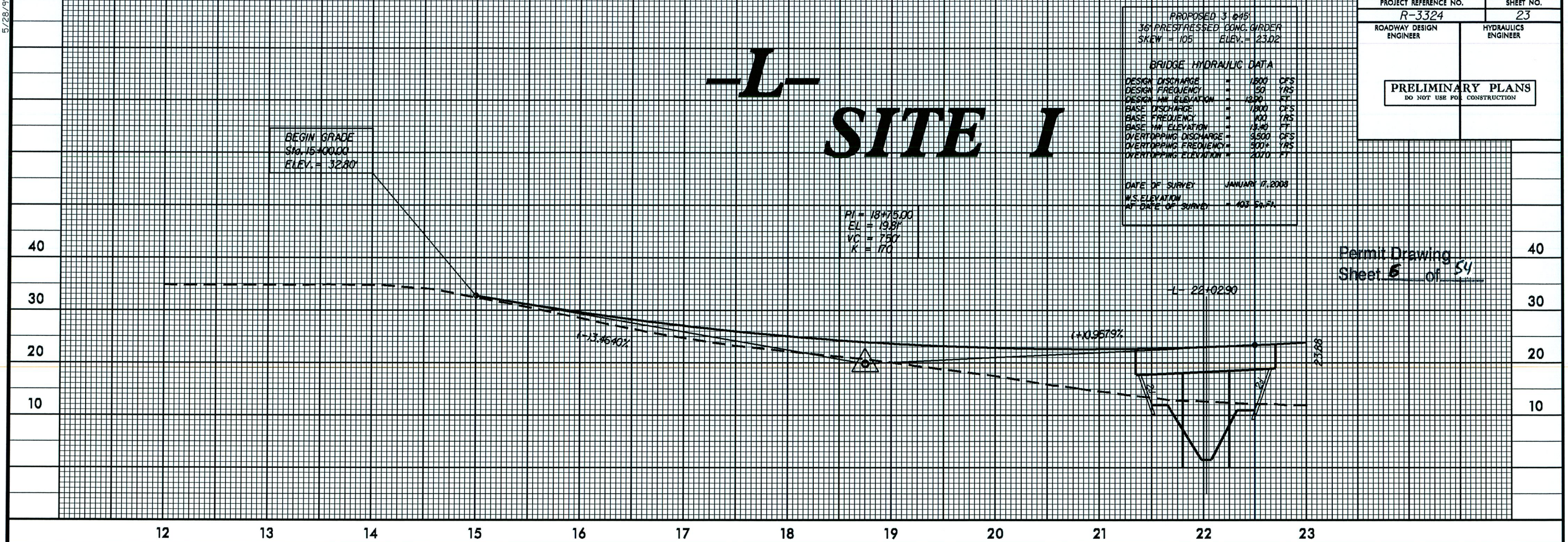
|  |                        |
|--|------------------------|
| PROJECT REFERENCE NO.<br><b>R-3324</b> | SHEET NO.<br><b>23</b> |
| ROADWAY DESIGN<br>ENGINEER             | HYDRAULICS<br>ENGINEER |

**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION

BEGIN GRADE  
Sta. 15+00.00  
ELEV. = 32.00'

PI = 18+75.00  
EL = 19.81'  
VC = 750'  
K = 170

Permit Drawing  
Sheet **6** of **54**



# -L-

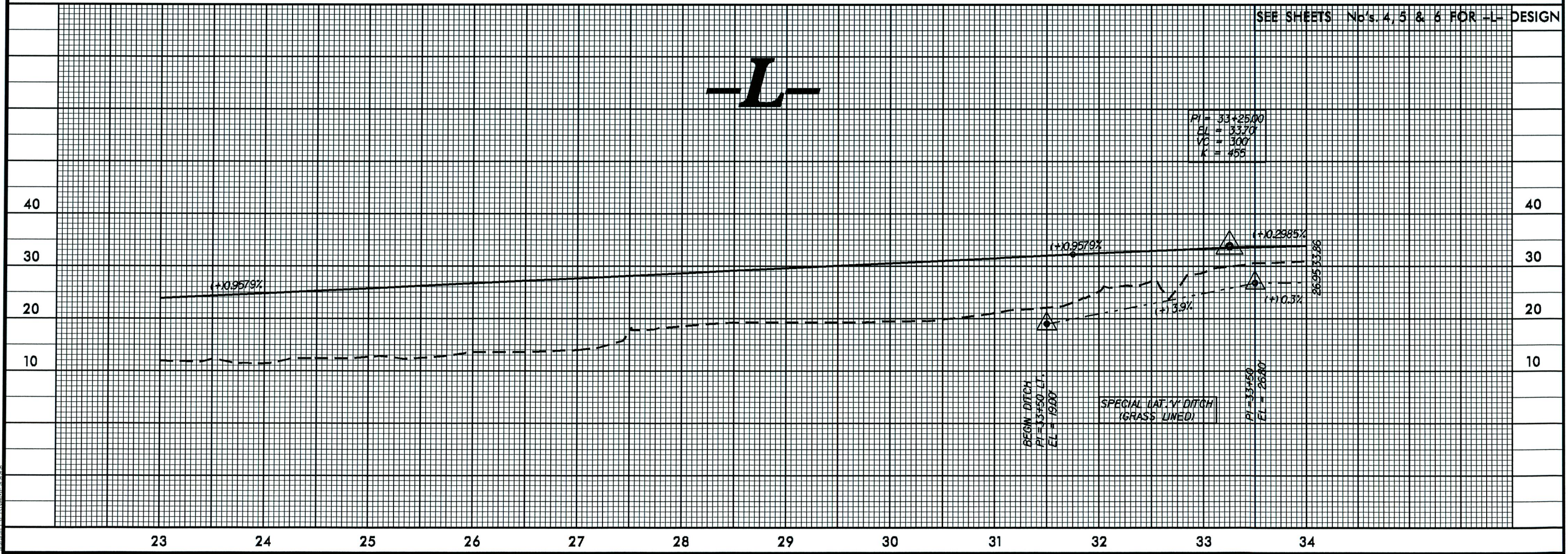
PI = 33+25.00  
EL = 33.70'  
VC = 300'  
K = 455

BEGIN DITCH  
PI = 33+50.00  
EL = 19.00'

SPECIAL 'LAT-Y' DITCH  
(GRASS LINED)

PI = 33+50.00  
EL = 26.00'

26.95 33.86

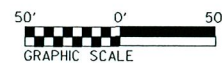




# SITE II

 DENOTES EXCAVATION  
IN WETLAND

 DENOTES FILL IN WETLAND



Permit Drawing  
Sheet 7 of 54

MATCH LINE SHEET No. 6 -YI- Sta. 20+00



8/17/99

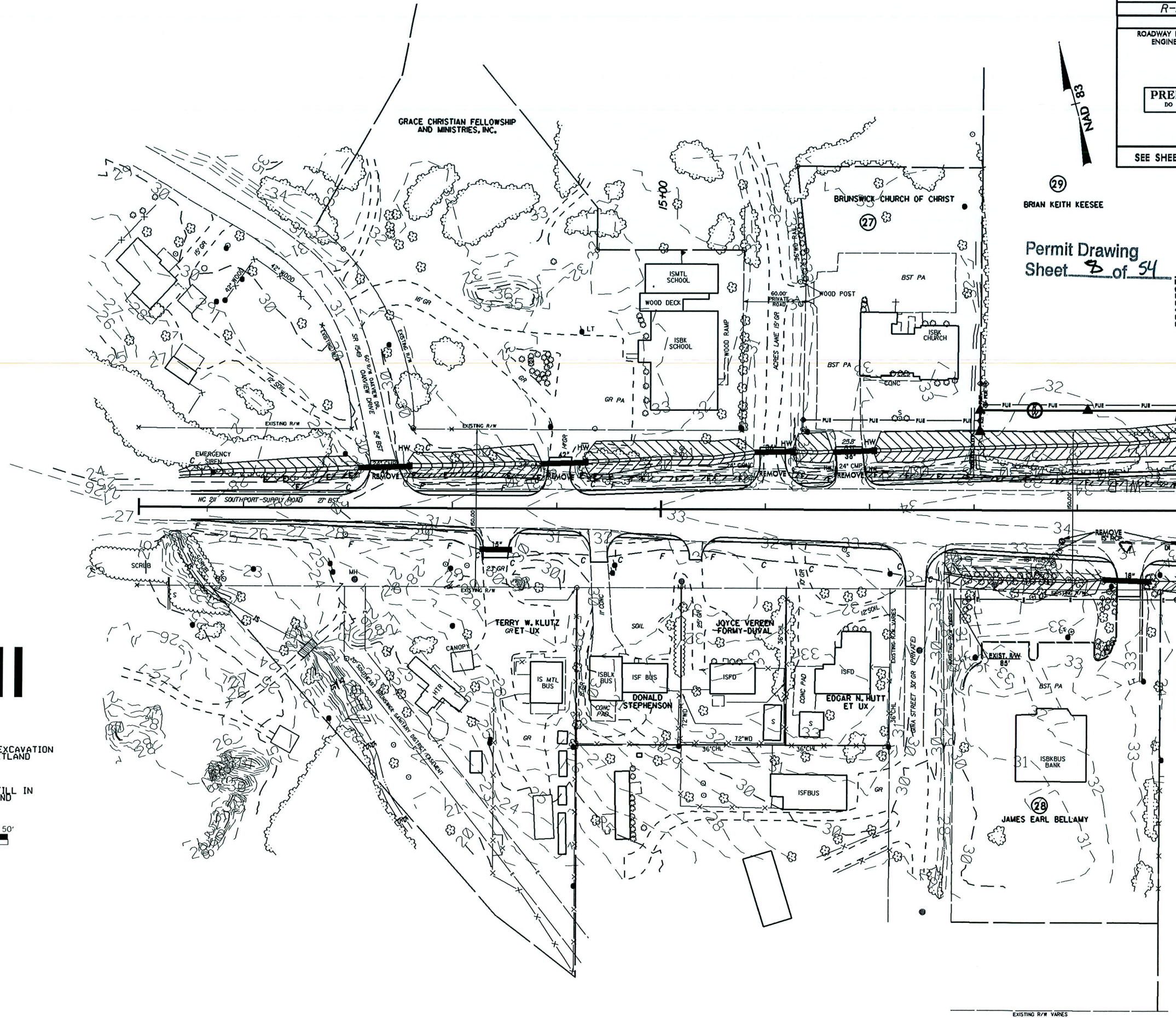
STINEBAUGH CONSULTANTS, INC.

# SITE II

 DENOTES EXCAVATION IN WETLAND

 DENOTES FILL IN WETLAND

50' 0' 50'  
GRAPHIC SCALE



|   |                        |                        |
|---|------------------------|------------------------|
| PROJECT REFERENCE NO.<br><i>R-3324</i>                              |                        | SHEET NO.<br><i>20</i> |
| RW SHEET NO.  |                        |                        |
| ROADWAY DESIGN<br>ENGINEER  | HYDRAULICS<br>ENGINEER |                        |
| <div>PRELIMINARY PLANS</div> <div>DO NOT USE FOR CONSTRUCTION</div> |                        |                        |
| SEE SHEET No. 29 FOR -YI- PROFILE                                   |                        |                        |

29  
BRIAN KEITH KEESEE

Permit Drawing  
Sheet 8 of 54

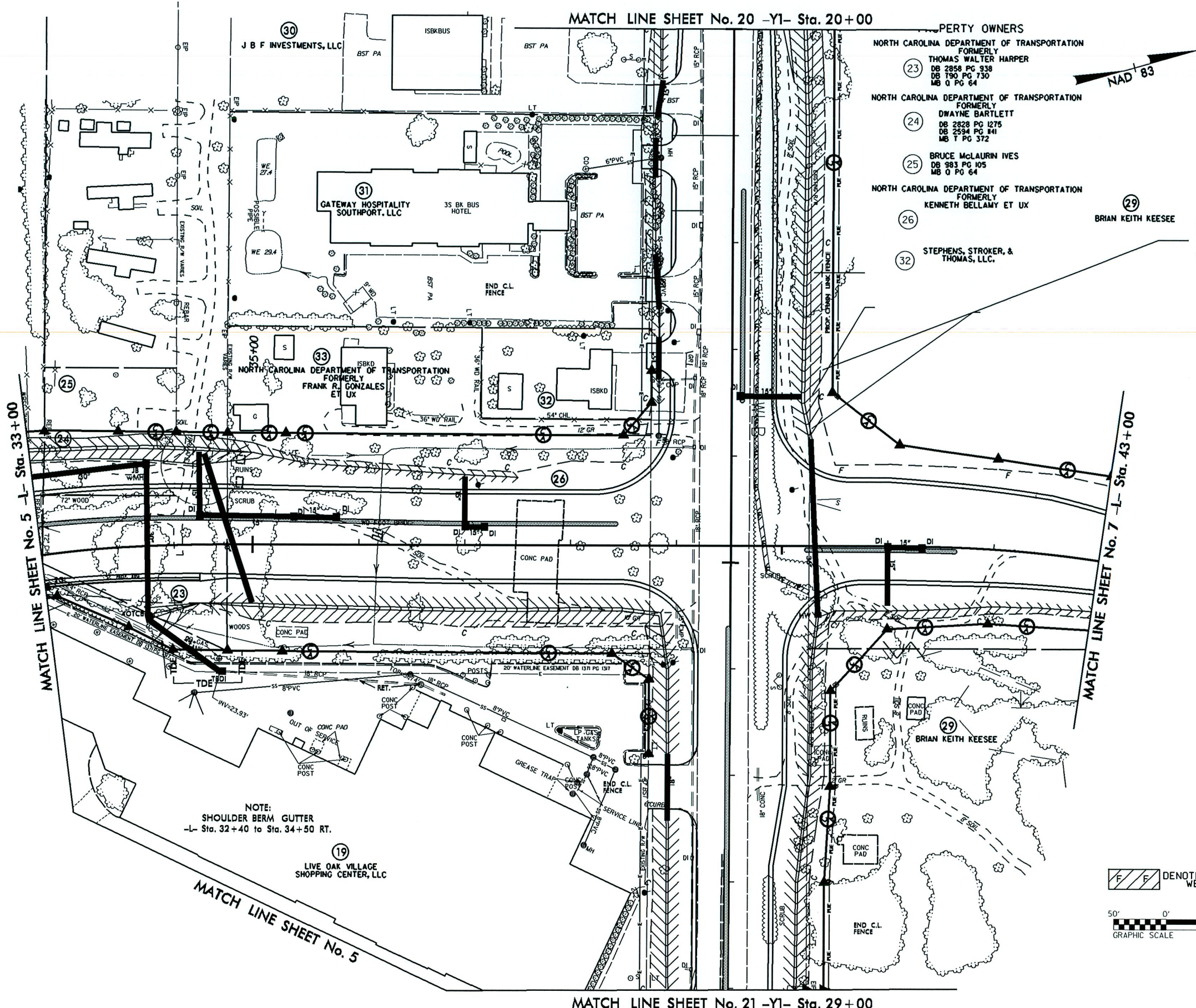
MATCH LINE SHEET No. 6 -YI- Sta. 20+00

EXISTING R/W VARIES

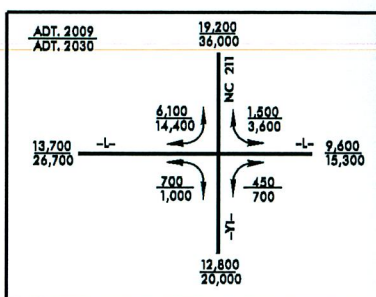


8/17/99

|  |                        |                       |
|--|------------------------|-----------------------|
| PROJECT REFERENCE NO.<br><i>R-3324</i>                       |                        | SHEET NO.<br><i>6</i> |
| RW SHEET NO.   |                        |                       |
| ROADWAY DESIGN<br>ENGINEER                                   | HYDRAULICS<br>ENGINEER |                       |
| <div>PRELIMINARY PLANS<br/>DO NOT USE FOR CONSTRUCTION</div> |                        |                       |
| SEE SHEET No. 23 & 24 FOR -L- PROFILE                        |                        |                       |
| SEE SHEET No. 29 FOR -Y1- PROFILE                            |                        |                       |
| SEE SHEET 2-H FOR DITCH DETAILS                              |                        |                       |



# SITE II

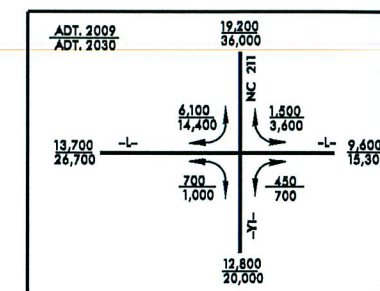
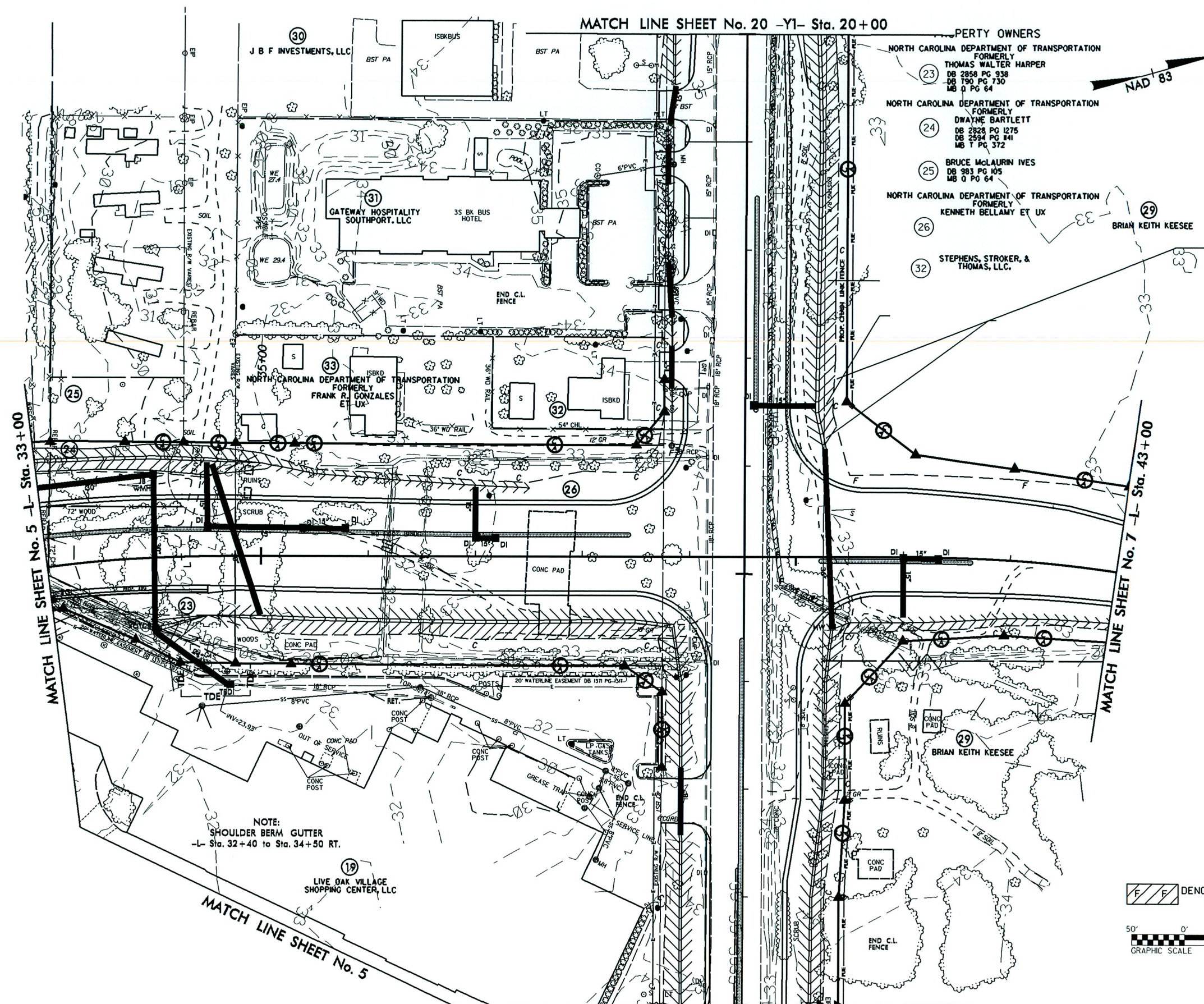


Permit Drawing  
Sheet 9 of 54



|  |                        |
|--|------------------------|
| PROJECT REFERENCE NO.  | SHEET NO.              |
| R-3324   | 6                      |
| RW SHEET NO.   |                        |
| ROADWAY DESIGN<br>ENGINEER   | HYDRAULICS<br>ENGINEER |
| <div style="border: 1px solid black; padding: 10px; text-align: center;"> <b>PRELIMINARY PLANS</b><br/>             DO NOT USE FOR CONSTRUCTION           </div> |                        |
| SEE SHEET NO. 23 & 24 FOR -L- PROFILE<br>SEE SHEET NO. 29 FOR -YI- PROFILE<br>SEE SHEET 2-H FOR DITCH DETAILS  |                        |

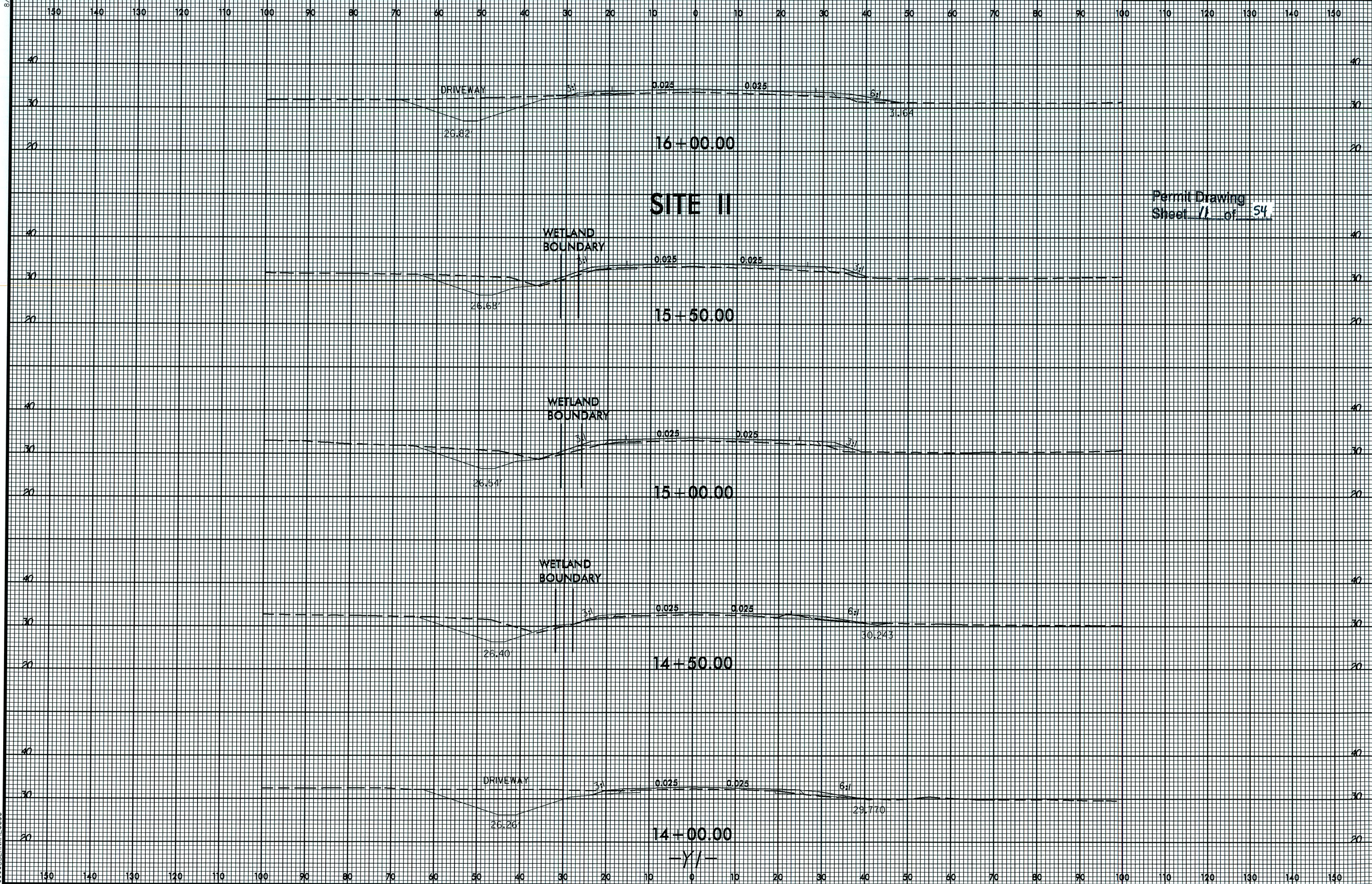
## SITE II

Permit Drawing  
Sheet 10 of 54

MATCH LINE SHEET No. 21 -Y1- Sta. 29+00



8/23/99





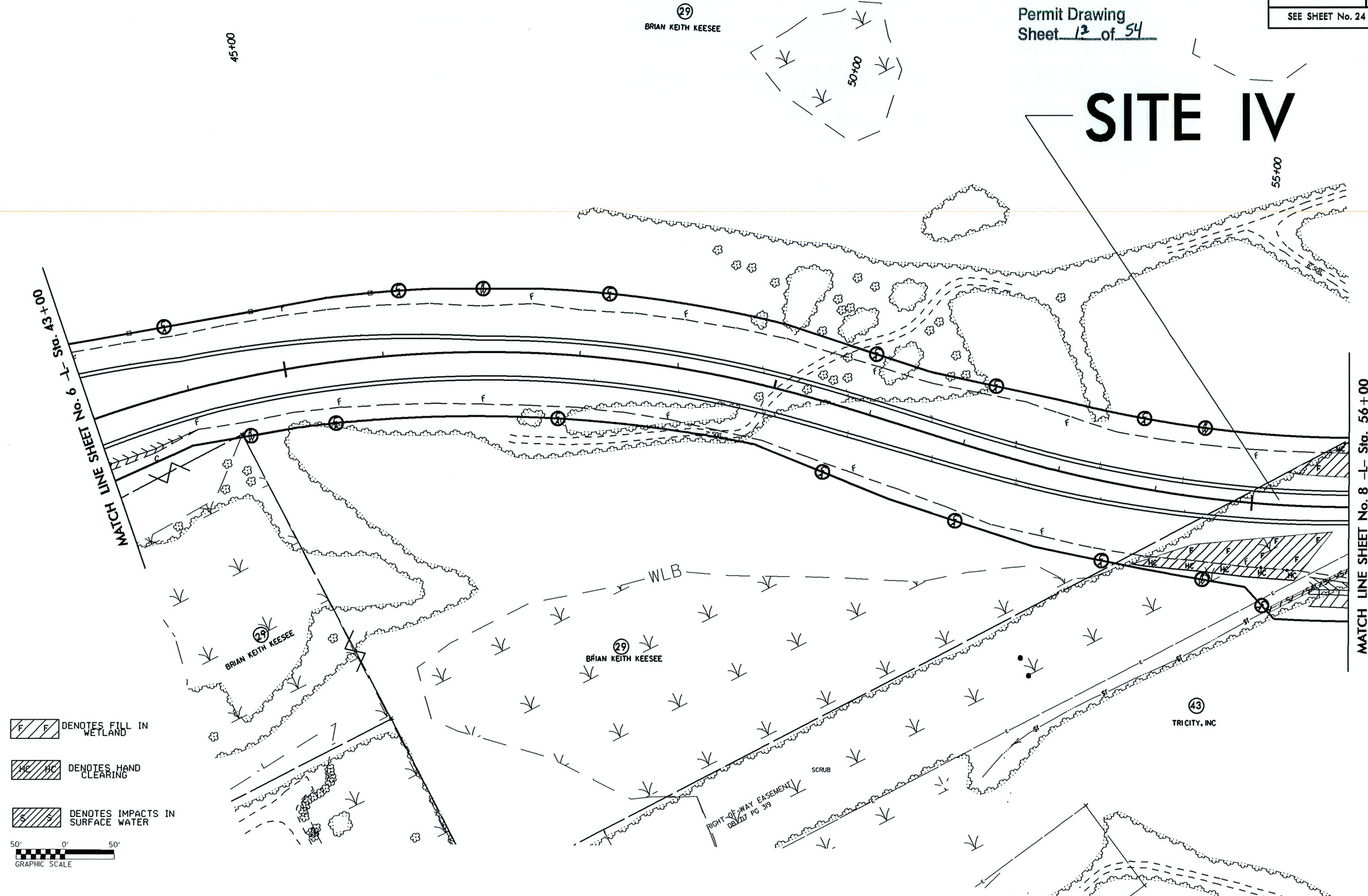
8/17/95

|   |                        |                       |
|---|------------------------|-----------------------|
| PROJECT REFERENCE NO.<br><i>R-3324</i>  |                        | SHEET NO.<br><i>7</i> |
| RW SHEET NO.  |                        |                       |
| ROADWAY DESIGN<br>ENGINEER  | HYDRAULICS<br>ENGINEER |                       |
| <div style="border: 1px solid black; padding: 10px; text-align: center;"><b>PRELIMINARY PLANS</b><br/>DO NOT USE FOR CONSTRUCTION</div> |                        |                       |
| SEE SHEET No. 24 FOR -L- PROFILE  |                        |                       |



Permit Drawing  
Sheet 12 of 54

# SITE IV



DENOTES FILL IN WETLAND

DENOTES HAND CLEARING

DENOTES IMPACTS IN SURFACE WATER

50' 0' 50'  
GRAPHIC SCALE

THIS DRAWING IS THE PROPERTY OF THE MISSOURI DEPARTMENT OF TRANSPORTATION. IT IS TO BE USED ONLY FOR THE PROJECT AND PURPOSE SPECIFIED IN THE ORDER. IT IS NOT TO BE REPRODUCED OR USED FOR ANY OTHER PURPOSE WITHOUT THE WRITTEN PERMISSION OF THE MISSOURI DEPARTMENT OF TRANSPORTATION.



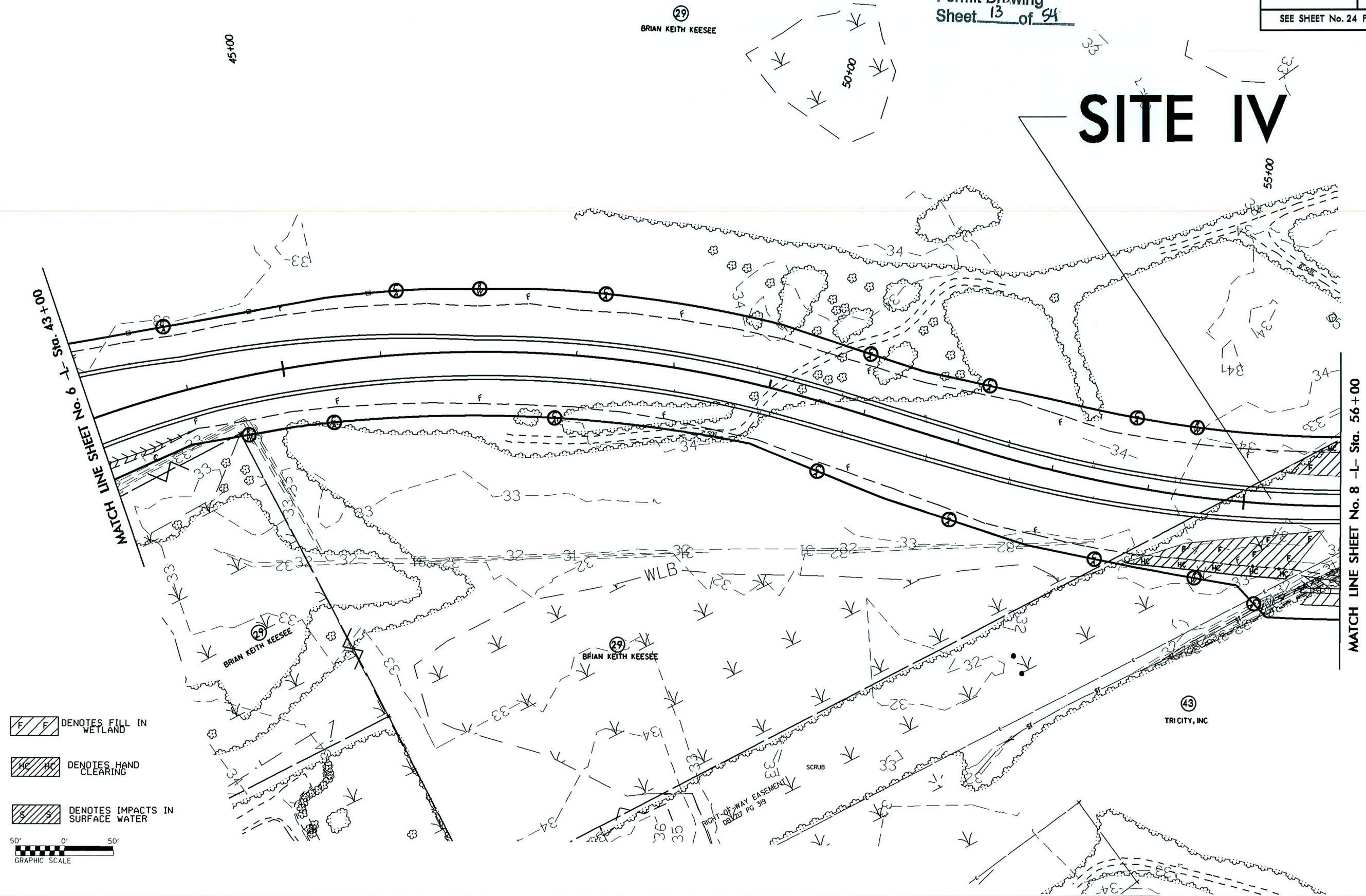
8/17/99

|   |                        |           |
|---|------------------------|-----------|
| PROJECT REFERENCE NO.   |                        | SHEET NO. |
| R-3324  |                        | 7         |
| RW SHEET NO.  |                        |           |
| ROADWAY DESIGN<br>ENGINEER  | HYDRAULICS<br>ENGINEER |           |
| <div>PRELIMINARY PLANS</div> <div>DO NOT USE FOR CONSTRUCTION</div> |                        |           |
| SEE SHEET No. 24 FOR -L- PROFILE                                    |                        |           |

Permit Drawing  
Sheet 13 of 54



**SITE IV**











8/17/99

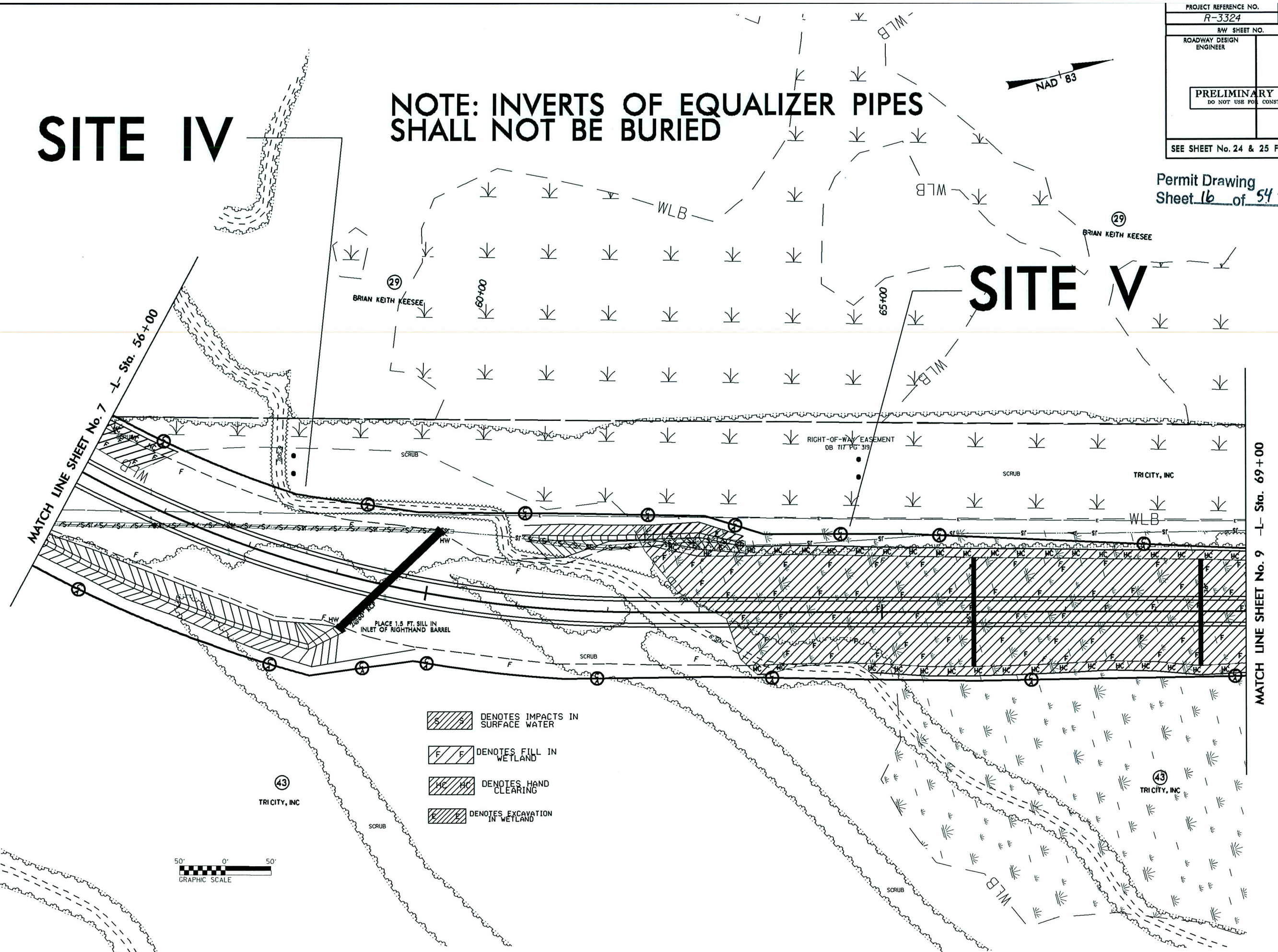
# SITE IV

NOTE: INVERTS OF EQUALIZER PIPES  
SHALL NOT BE BURIED



|   |                        |                       |
|---|------------------------|-----------------------|
| PROJECT REFERENCE NO.<br><i>R-3324</i>  |                        | SHEET NO.<br><i>8</i> |
| RAW SHEET NO.   |                        |                       |
| ROADWAY DESIGN<br>ENGINEER  | HYDRAULICS<br>ENGINEER |                       |
| <div style="border: 1px solid black; padding: 10px; text-align: center;"><b>PRELIMINARY PLANS</b><br/>DO NOT USE FOR CONSTRUCTION</div> |                        |                       |
| SEE SHEET No. 24 & 25 FOR -L- PROFILE   |                        |                       |

Permit Drawing  
Sheet 16 of 54



MATCH LINE SHEET No. 9 -L- Sta. 69+00




8/17/99

NAD 83





(29)  
BRIAN KEITH KEESEE

**MATCH LINE SHEET No. 9 -L- Sta. 69+00**

50' 0' 50'

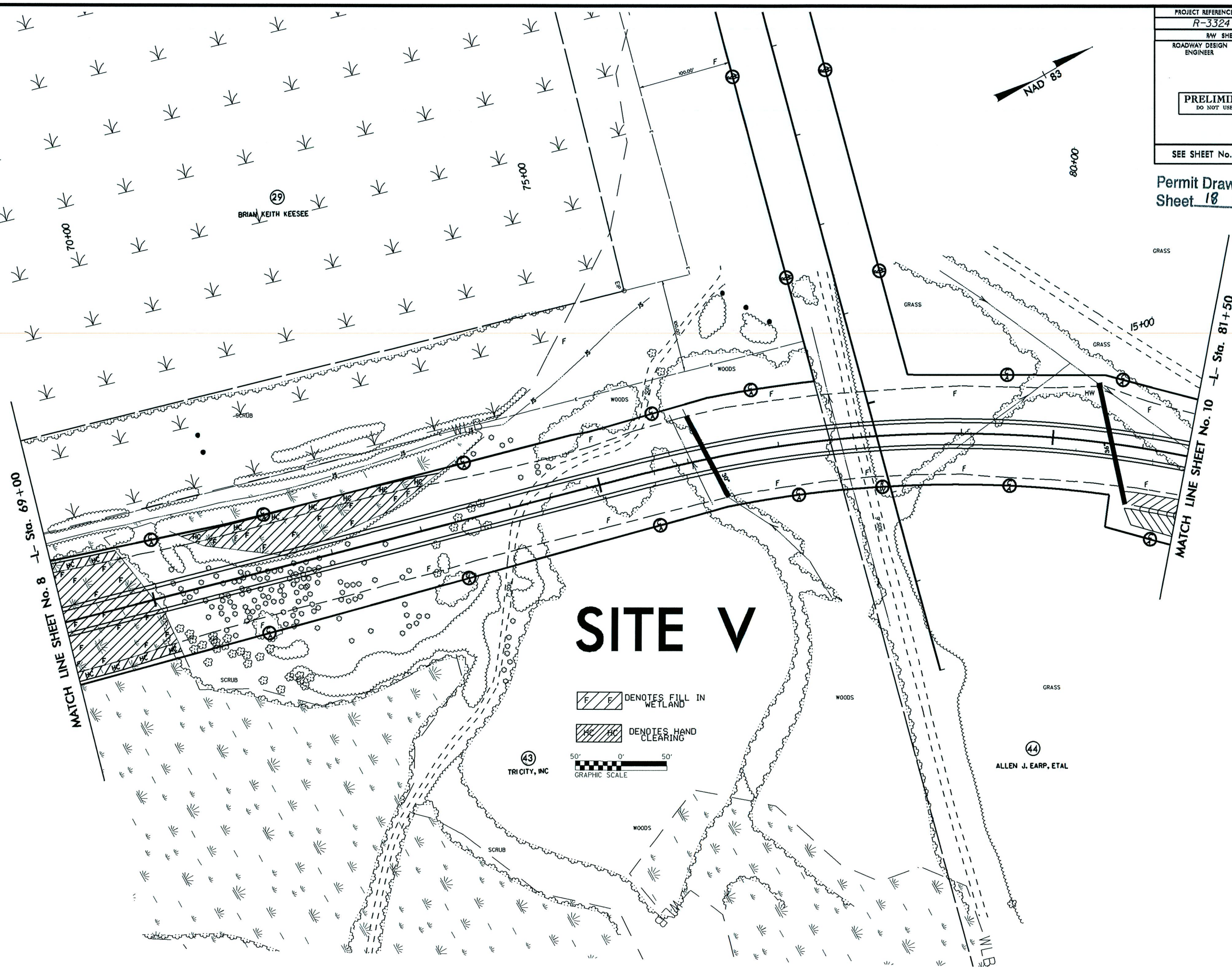


GRAPHIC SCALE

 DENOTES IMPACTS IN SURFACE WATER  
 DENOTES FILL IN WETLAND  
 DENOTES HAND CLEARING  
 DENOTES EXCAVATION IN WETLAND



## REVISIONS

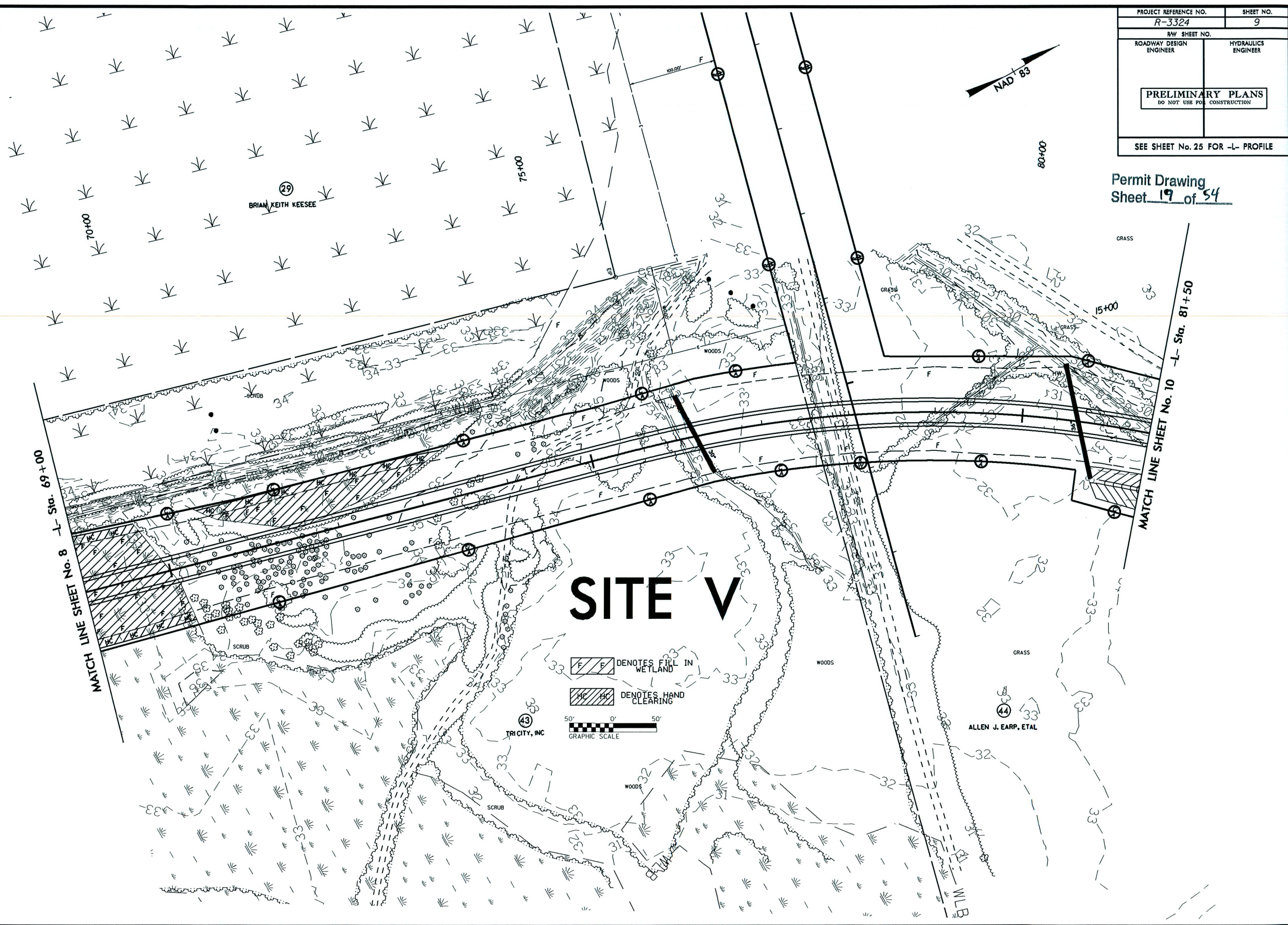
Permit Drawing  
Sheet 18 of 54



8/17/99

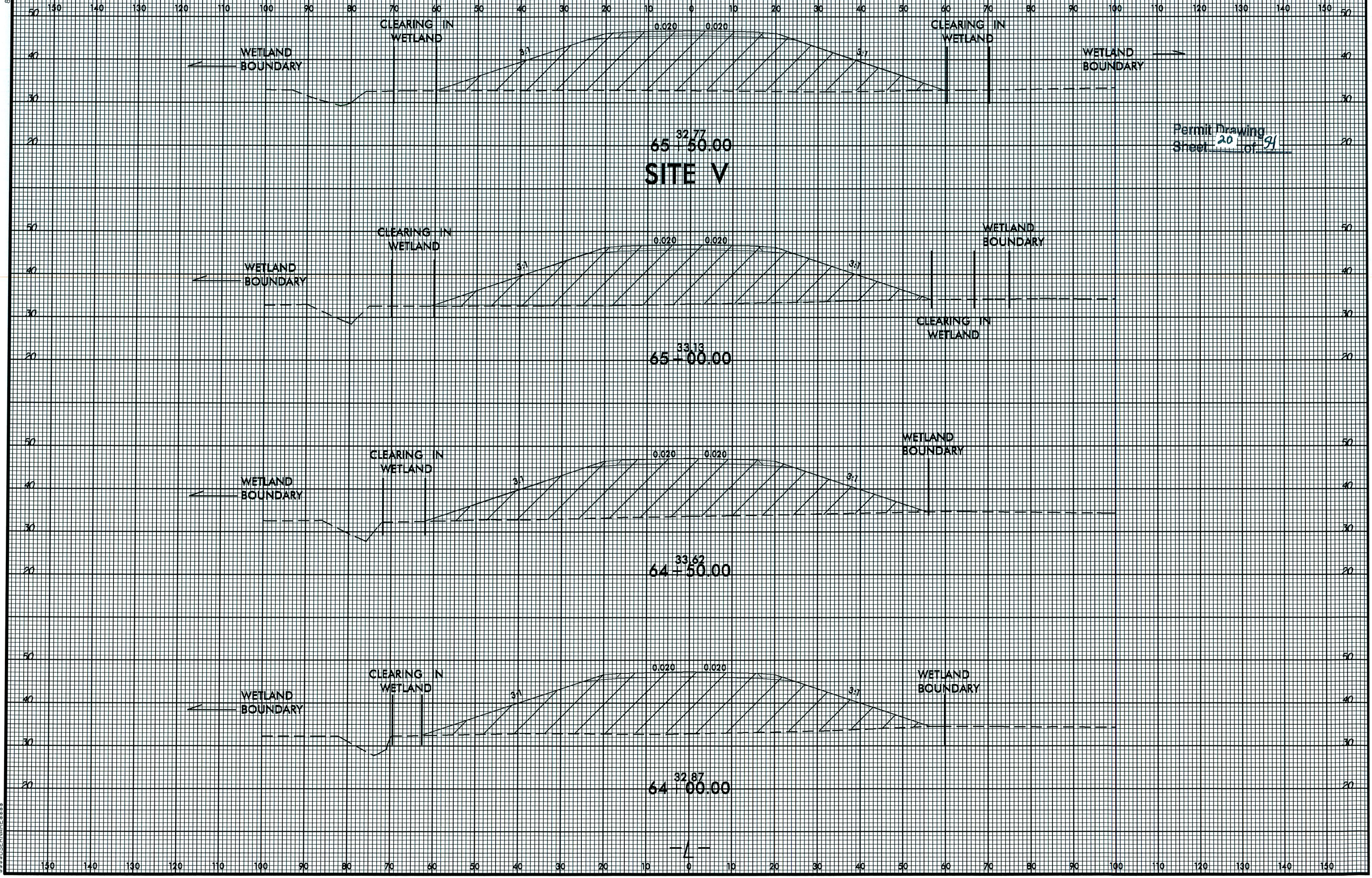
REVISIONS

SYTIME  
DESIGN  
PRIVATE





8/23/99




Permit Drawing  
Sheet 20 of 94





 DENOTES EXCAVATION  
IN WETLAND

 DENOTES TEMPORARY  
FILL IN WETLAND

 DENOTES IMPACTS IN SURFACE WATER

 DENOTES FILL IN WETLAND

 DENOTES MECHANIZED CLEARING

Permit Drawing  
Sheet 21 of 54

44  
ALLEN J. EARP, ETAL

# SITE VI

44  
ALLEN J. EARP, ETAL

CHANNEL  
RELOCATION  
DDE = 2,410 Cu. Yds.

NOTE: FILL STREAM WITH CLASS 2 1/2' RIP RAP  
TO ELEV. 25.0 FT. @ 450 TONS

$$\underline{81 + 50}$$

ATCH LINE SHEET No. 11 -L- Sta. 94+50

|   |                        |
|---|------------------------|
| PROJECT REFERENCE NO.   | SHEET NO.              |
| <i>R-3324</i>   | <i>10</i>              |
| RW SHEET NO.  |                        |
| ROADWAY DESIGN<br>ENGINEER  | HYDRAULICS<br>ENGINEER |
| <div style="border: 1px solid black; padding: 10px; text-align: center;"><b>PRELIMINARY PLANS</b><br/>DO NOT USE FOR CONSTRUCTION</div> |                        |
| SEE SHEET No. 25 & 26 FOR -L- PROFILE   |                        |
| SEE SHEET No. 2-F FOR RELATIONSHIP<br>OF BRIDGE TO ROADWAY SKETCH   |                        |
| SEE SHEET No's. S- to S-<br>FOR STRUCTURE PLANS   |                        |

WOODS

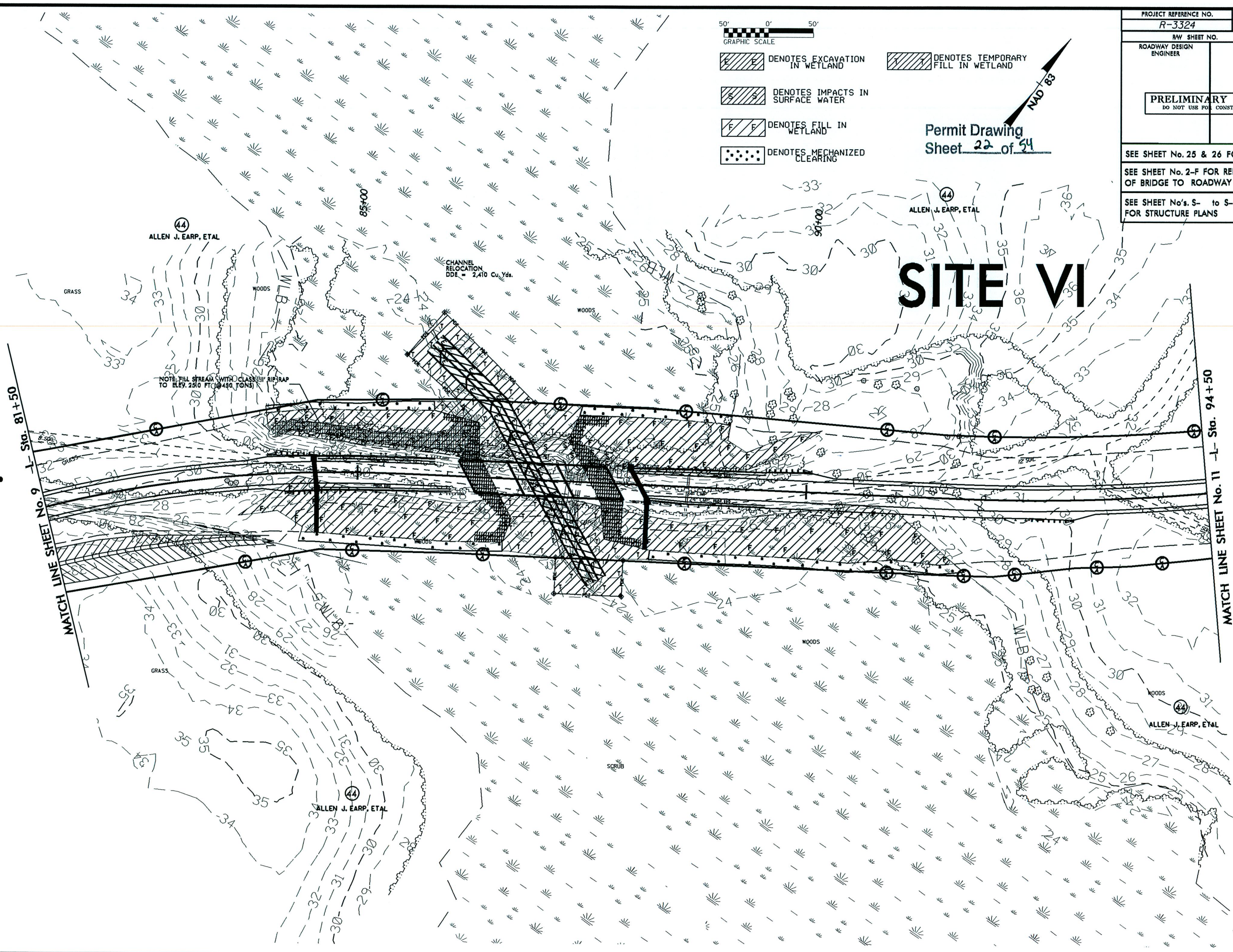
(44)

ALLEN J. EARP, ETAL



8/17/95

SYSTIME\$\$\$\$  
\$\$\$\$\$USCRAVIL\$\$\$\$\$



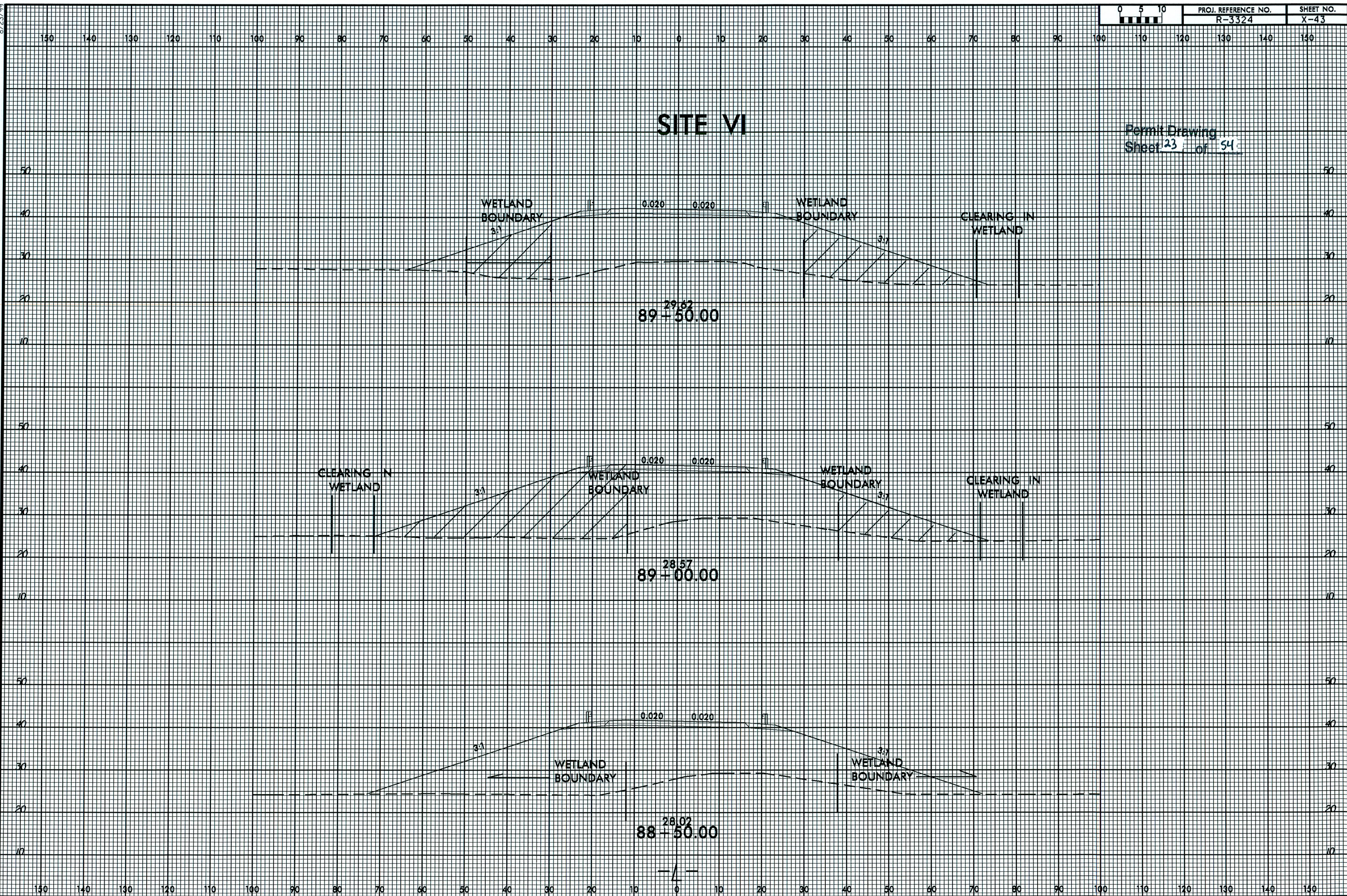
- DENOTES EXCAVATION IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING

- DENOTES TEMPORARY FILL IN WETLAND

Permit Drawing  
Sheet 22 of 54

|   |  |                        |  |
|---|--|------------------------|--|
| PROJECT REFERENCE NO.<br><i>R-3324</i>  |  | SHEET NO.<br><i>10</i> |  |
| RW SHEET NO.  |  |                        |  |
| ROADWAY DESIGN<br>ENGINEER  |  | HYDRAULICS<br>ENGINEER |  |
| <div style="border: 1px solid black; padding: 10px; text-align: center;"><b>PRELIMINARY PLANS</b><br/>DO NOT USE FOR CONSTRUCTION</div> |  |                        |  |
| SEE SHEET No. 25 & 26 FOR -L- PROFILE   |  |                        |  |
| SEE SHEET No. 2-F FOR RELATIONSHIP<br>OF BRIDGE TO ROADWAY SKETCH   |  |                        |  |
| SEE SHEET No's. S- to S-<br>FOR STRUCTURE PLANS   |  |                        |  |







5/28/99

|                              |              |
|------------------------------|--------------|
| PROPOSED 3' 056'             |              |
| 36" PRESTRESSED CONC. GIRDER |              |
| SKW = 80                     | ELEV. = 4.04 |
| BRIDGE HYDRAULIC DATA        |              |
| DESIGN DISCHARGE             | = 476 CFS    |
| DESIGN FREQUENCY             | = 50 YRS     |
| DESIGN HW ELEVATION          | = 26.60 FT   |
| BASE DISCHARGE               | = 629 CFS    |
| BASE FREQUENCY               | = 100 YRS    |
| BASE HW ELEVATION            | = 27.00 FT   |
| OVERTOPPING DISCHARGE        | = N/A CFS    |
| OVERTOPPING FREQUENCY        | = 500+ YRS   |
| OVERTOPPING ELEVATION        | = N/A FT     |

DATE OF SURVEY JANUARY 23, 2008  
WS ELEVATION  
AT DATE OF SURVEY = 239.54 FT

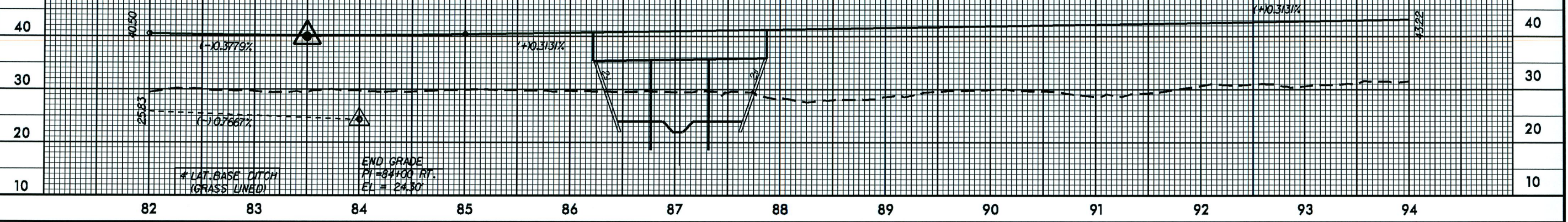
|   |                        |           |
|---|------------------------|-----------|
| PROJECT REFERENCE NO.   |                        | SHEET NO. |
| R-3324  |                        | 26        |
| ROADWAY DESIGN<br>ENGINEER  | HYDRAULICS<br>ENGINEER |           |
| <div>PRELIMINARY PLANS</div> <div>DO NOT USE FOR CONSTRUCTION</div> |                        |           |

Permit Drawing  
Sheet 24 of 54

PI = 83+50.00  
EL = 39.93  
VC = 300'  
K = 434

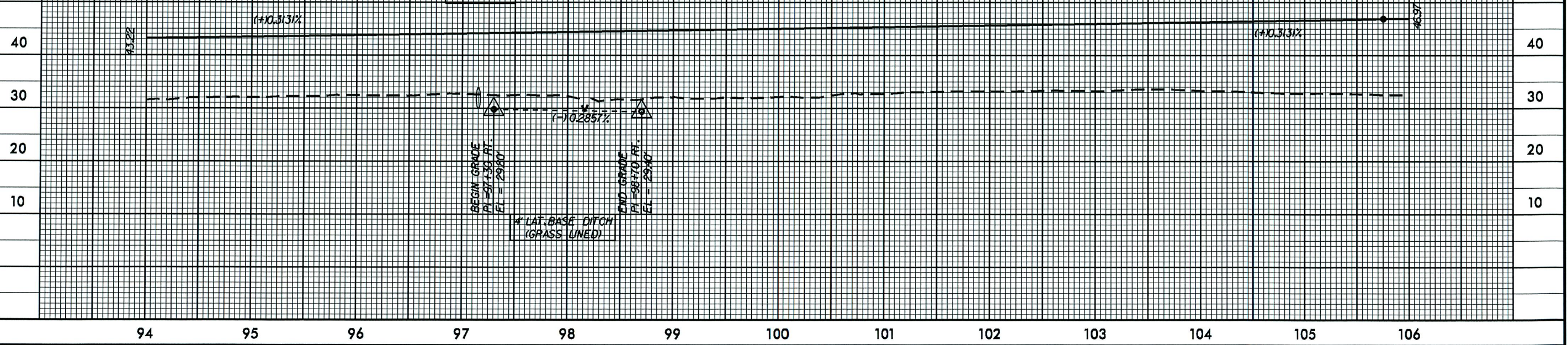
L = 87+04.50

**SITE VI**



|                        |            |
|------------------------|------------|
| PIPE HYDRAULIC DATA    |            |
| DRAINAGE STRUCTURE NO. |            |
| DRAINAGE AREA          | = 14 AC    |
| DESIGN FREQUENCY       | = 50 YRS   |
| DESIGN DISCHARGE       | = 63 CFS   |
| DESIGN HW ELEVATION    | = 33.60 FT |
| 100 YEAR DISCHARGE     | = 63 CFS   |
| 100 YEAR HW ELEVATION  | = 33.70 FT |
| OVERTOPPING FREQUENCY  | = 500+ YRS |
| OVERTOPPING DISCHARGE  | = 240 CFS  |
| OVERTOPPING ELEVATION  | = 44.20 FT |

L = 97+15  
43' ROP  
SKEW = 70

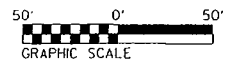


SEE SHEETS No's. 10 & 11 FOR -L- DESIGN

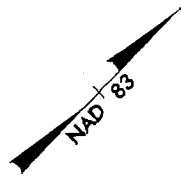


8/17/99

SYTIME\$\$\$\$  
VOLUME\$\$\$\$  
DRAWING\$\$\$\$  
USERNAME\$\$\$\$



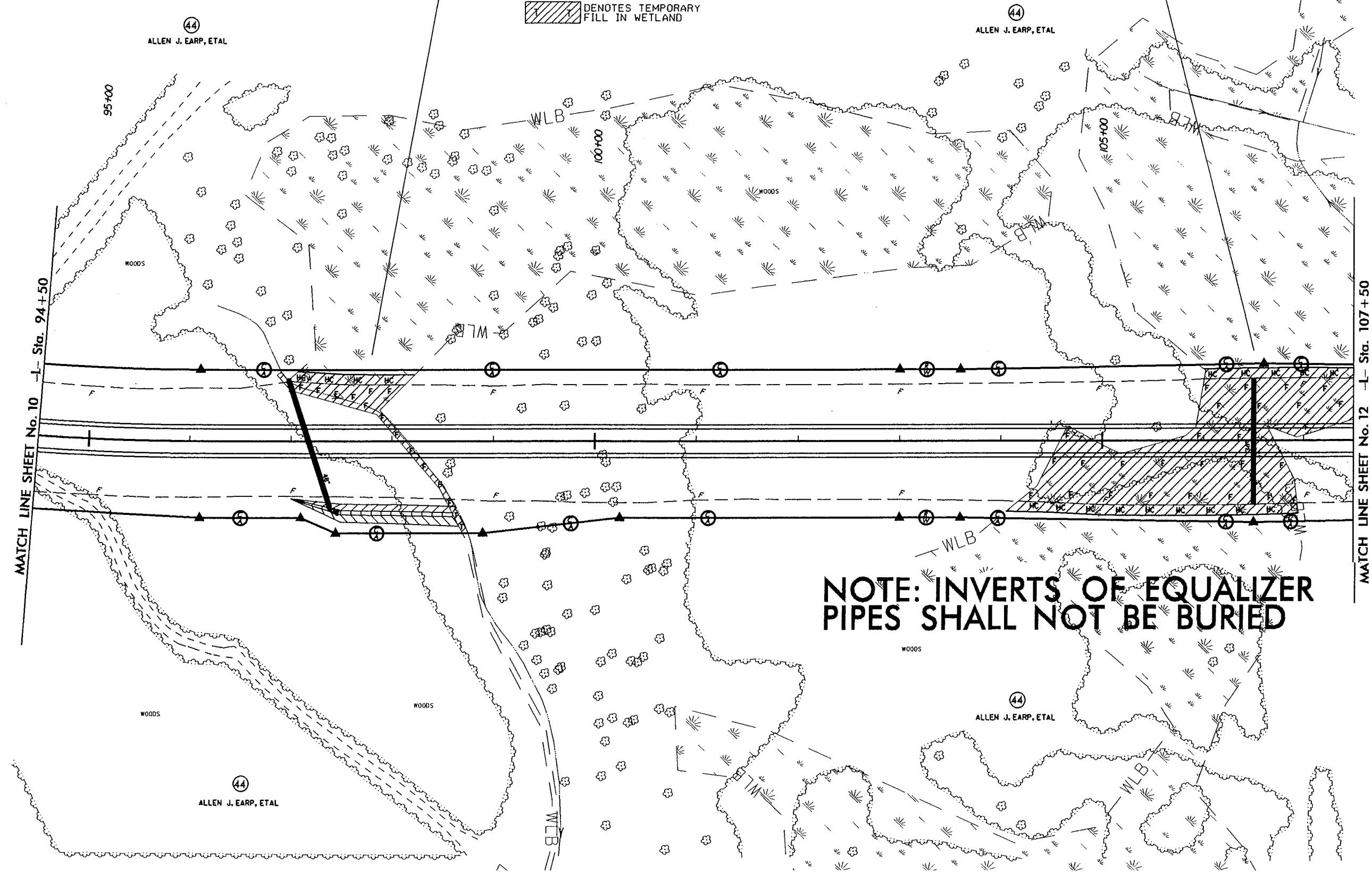
Permit Drawing  
Sheet 25 of 54



|   |  |                        |  |
|---|--|------------------------|--|
| PROJECT REFERENCE NO.<br>R-3324   |  | SHEET NO.<br>II        |  |
| RW SHEET NO.  |  |                        |  |
| ROADWAY DESIGN<br>ENGINEER  |  | HYDRAULICS<br>ENGINEER |  |
| <div style="border: 1px solid black; padding: 10px; text-align: center;"><b>PRELIMINARY PLANS</b><br/>DO NOT USE FOR CONSTRUCTION</div> |  |                        |  |
| SEE SHEET No. 26 & 27 FOR -L- PROFILE   |  |                        |  |

# SITE VII

# SITE VIII



NOTE: INVERTS OF EQUALIZER  
PIPES SHALL NOT BE BURIED

Permit Drawing  
Sheet 26 of 54

NAD 83

# SITE VII

44  
ALLEN J. EARP, ETAL

# SITE VIII

44  
ALLEN J. EARP, ETAL

(44)

ALLEN J. EARP, ETAL

30- (44)  
ALLEN J. EARP, ETAL

**NOTE: INVERTS OF EQUALIZER  
PIPES SHALL NOT BE BURIED**

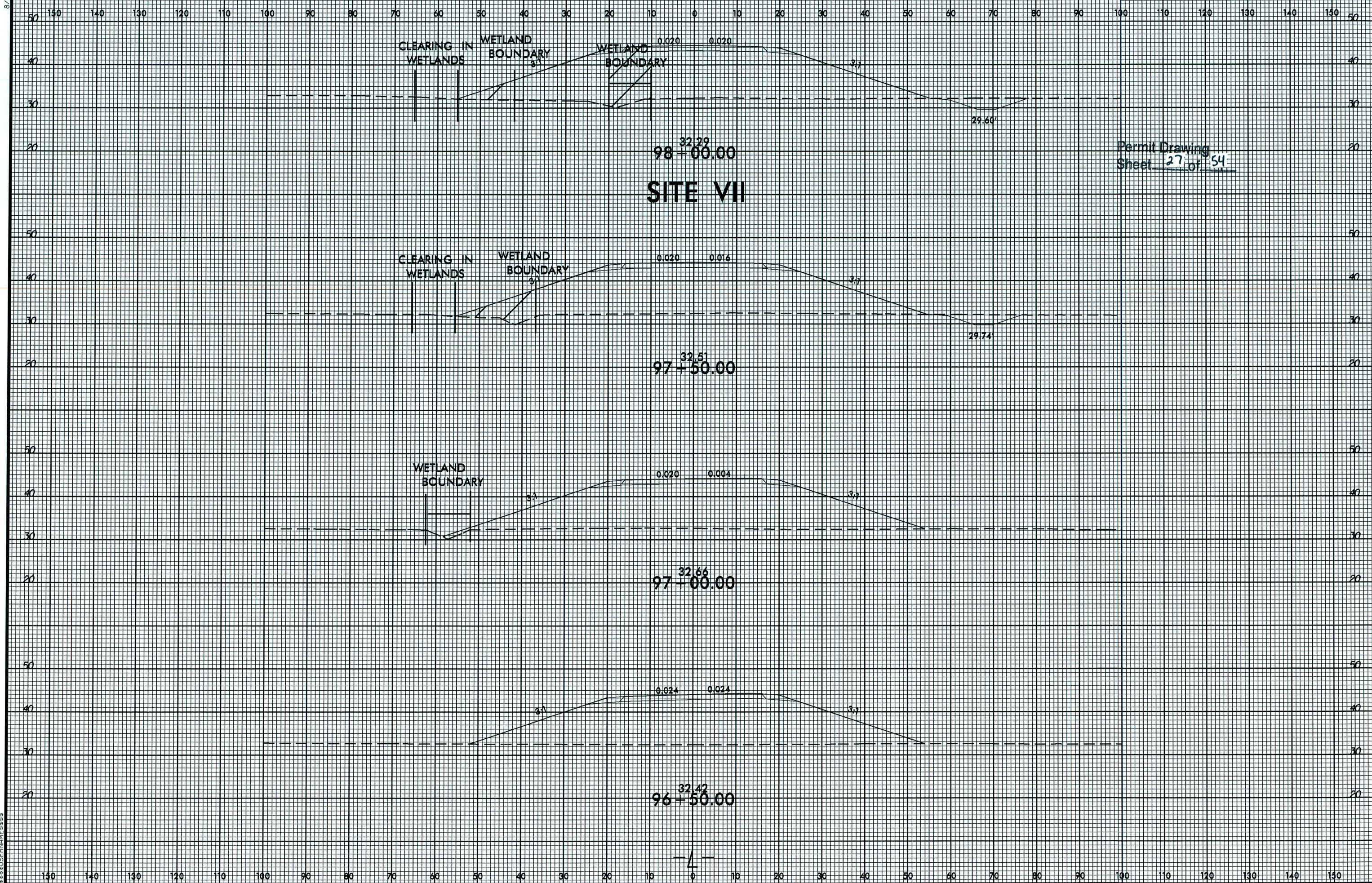
MATCH LINE SHEET No. 10 -L- Sta. 94+50

MATCH LINE SHEET No. 12 —L— Sta. 107+50

TIME SDCN



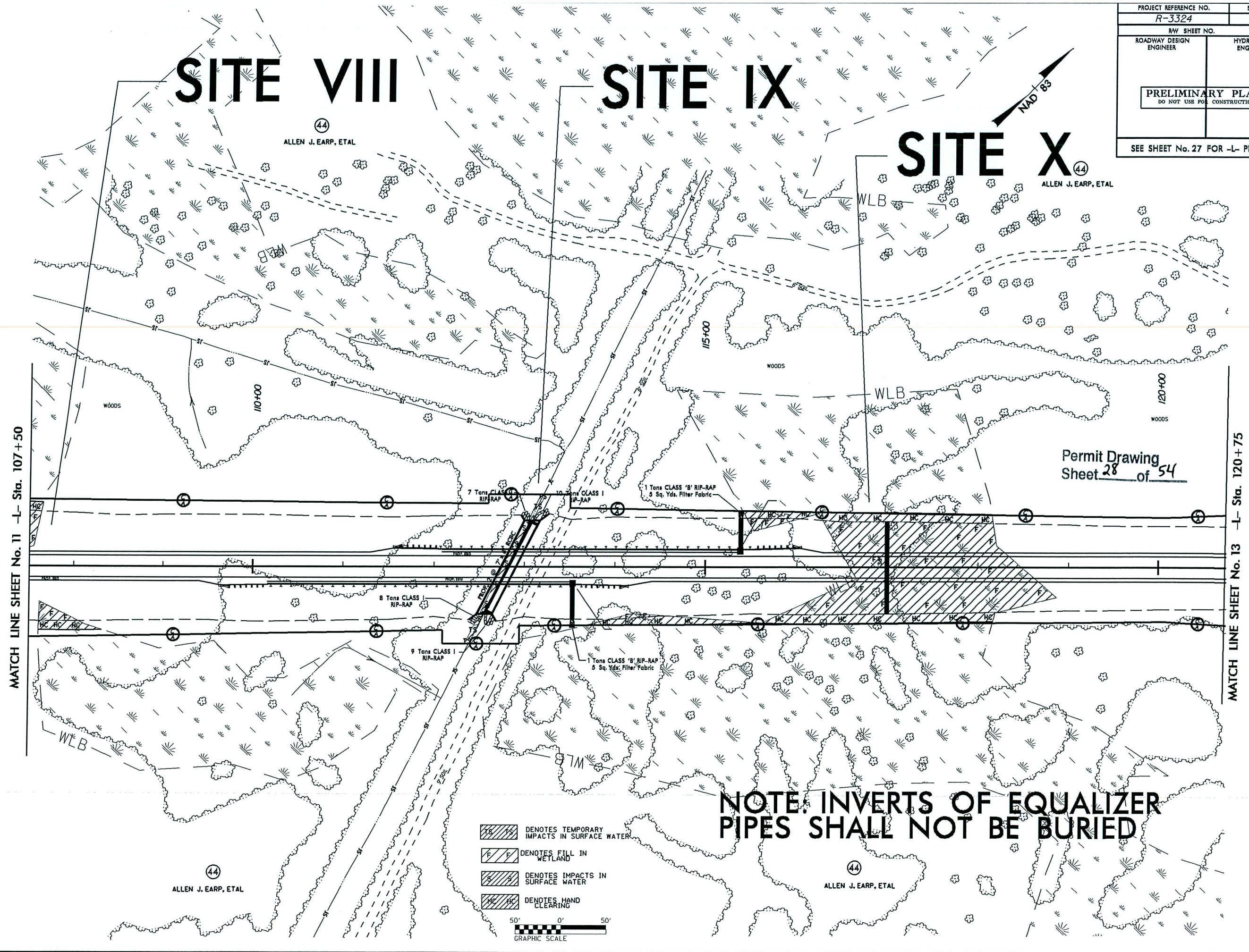
8/23/95



STATIONING: 96+50.00 97+00.00 97+50.00 98+00.00



|  |                     |
|--|---------------------|
| PROJECT REFERENCE NO.                            | SHEET NO.           |
| R-3324   | 12                  |
| RAW SHEET NO.                                    |                     |
| ROADWAY DESIGN ENGINEER                          | HYDRAULICS ENGINEER |
| PRELIMINARY PLANS<br>DO NOT USE FOR CONSTRUCTION |                     |
| SEE SHEET No. 27 FOR -L- PROFILE                 |                     |



SYSTEMS ENGINEERING

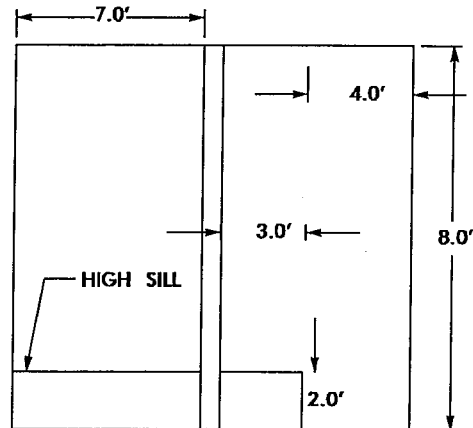


# **SKewed MULTI-BARREL LOW FLOW CHANNEL,SILLS AND FLOOD PLAIN**

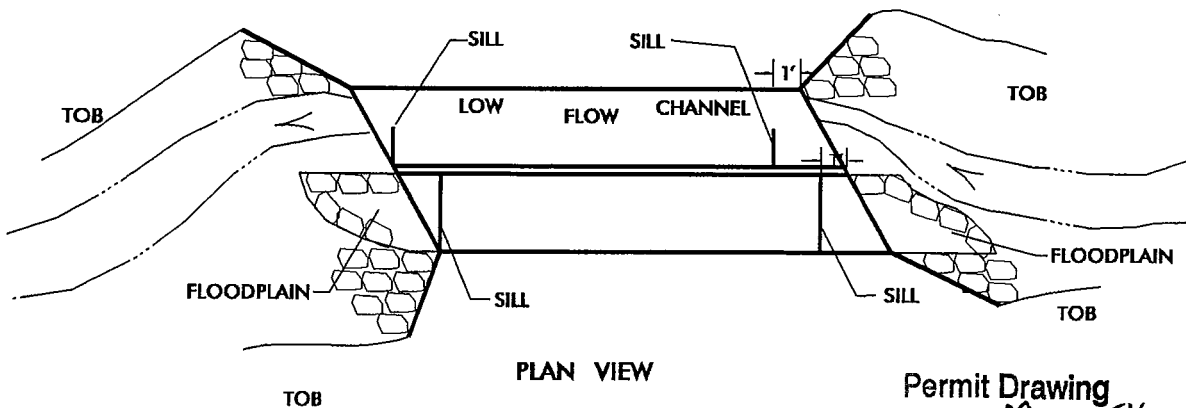
(NOT TO SCALE)

**\*NOTES:**

- 1) BED MATERIAL BETWEEN SILLS IN THE CULVERT SHALL PROVIDE A CONTINUOUS LOW FLOW CHANNEL. THE MATERIAL SHALL BE NATURAL STONE WITH A GRADATION SIZE SIMILAR TO THAT OF CLASS 'B' RIP RAP. STONES LARGER THAN 6 INCHES SHALL NOT BE PLACED WITHIN THE LOW FLOW CHANNEL. BED MATERIALS SUBJECT TO APPROVAL BY THE ENGINEER.
- 2) SILLS ARE TO BE 1.0 FT. WIDE, CAST SEPARATELY AND ATTACHED BY DOWELS.
- 3) TOP OF LOW FLOW SILLS SHOULD MATCH STREAM BED ELEVATION IN LOW FLOW CHANNEL OF STREAM. (THALWEG)
- 4) CLASS 'B' RIP RAP MAY BE USED TO SUPPLEMENT NATURAL BED MATERIAL.
- 5) DO NOT SET ELEVATION OF HIGH SILL ABOVE BANK FULL.
- 6) NUMBER OF SILL DETERMINED BY THE ENGINEER.



**SILLS AT  
INLET AND OUTLET**

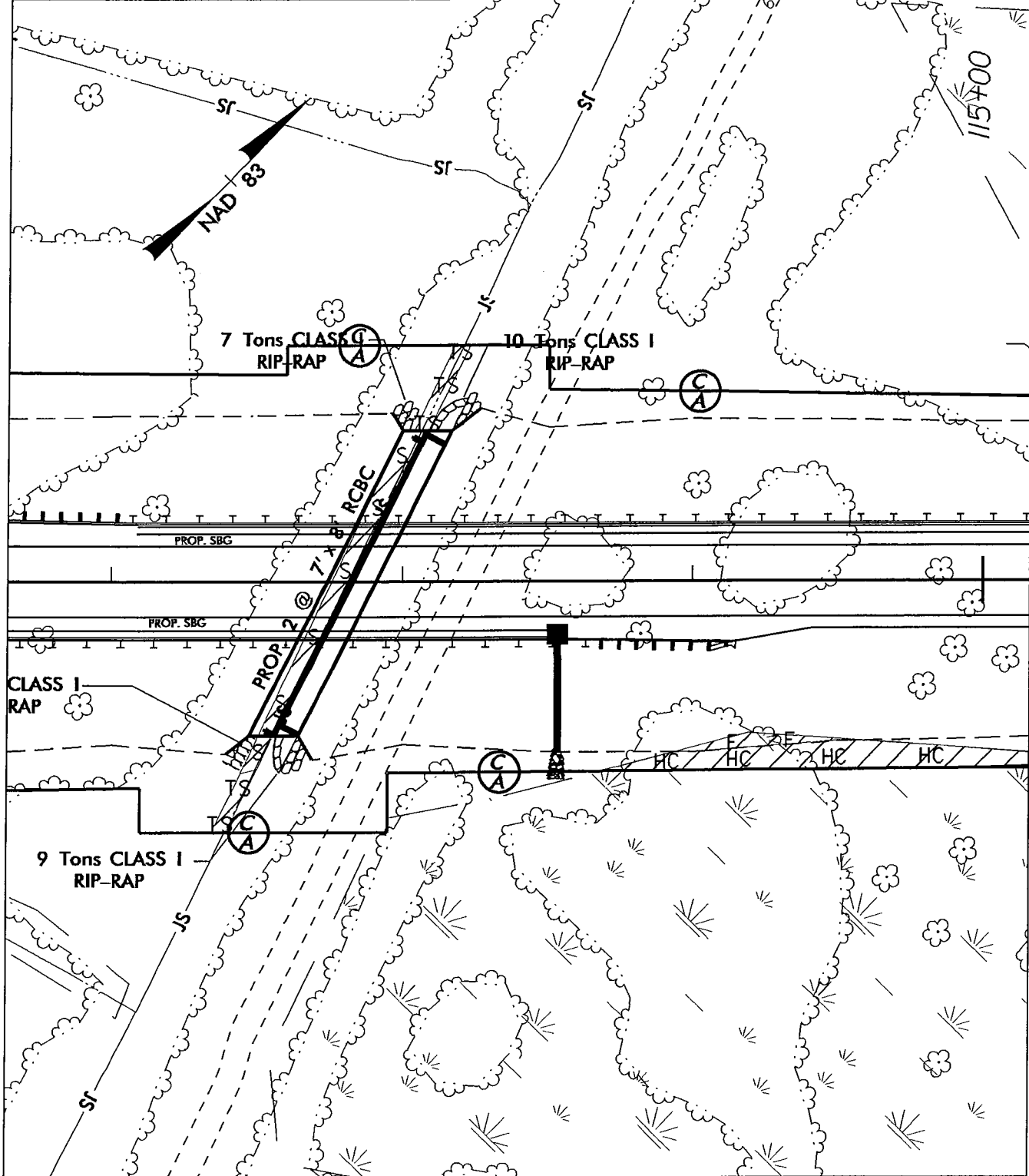





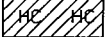
Permit Drawing  
Sheet 29 of 54

**PLAN VIEW  
SITE IX  
-L- STA. 112 + 82.5  
2@ 7' x 8' RCBC**

**NCDOT  
DIVISION OF HIGHWAYS  
BRUNSWICK COUNTY  
PROJECT: 34531.1.1 (R-3324)**

**NEW ROUTE FROM NC 133  
AND NC 87**



-  DENOTES TEMPORARY IMPACTS IN SURFACE WATER
-  DENOTES FILL IN WETLAND
-  DENOTES IMPACTS IN SURFACE WATER
-  DENOTES HAND CLEARING

## SITE IX

Permit Drawing  
Sheet 30 of 54

50' 0' 50'



GRAPHIC SCALE

# NCDOT

DIVISION OF HIGHWAYS  
BRUNSWICK COUNTY  
PROJECT: 34531.1.1 (R-3324)

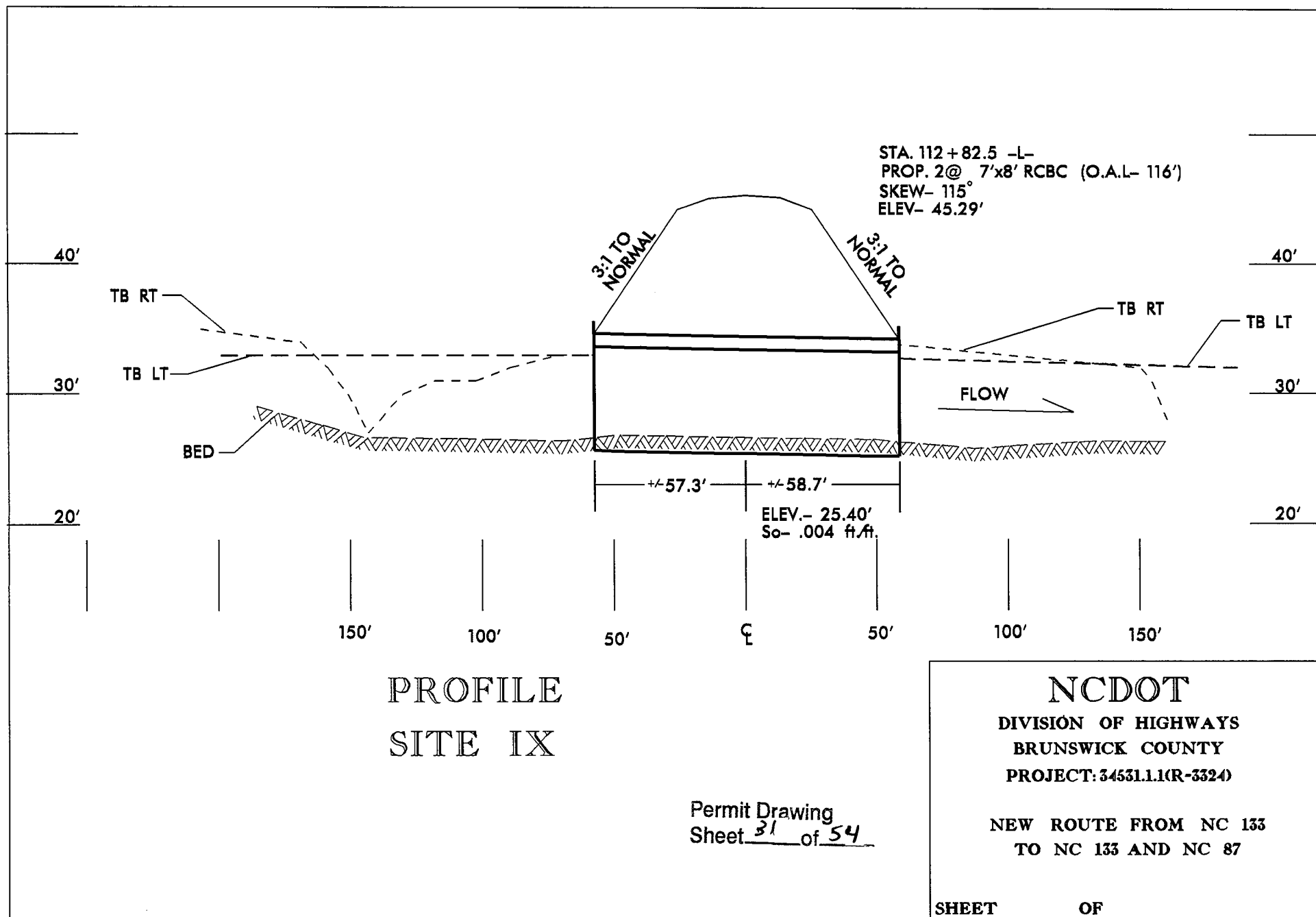
NEW ROUTE FROM NC 133  
AND NC 87

SHEET

OF

12/04/12







# SITE VIII

# SITE IX

# SITE X

ALLEN J. EARP, ET

Permit Drawing  
Sheet 32 of 54

MATCH LINE SHEET No. 11 -L- Sta. 107+50





MATCH LINE SHEET No. 13 - L- Sta. 120+75

**NOTE: INVERTS OF EQUALIZER  
PIPES SHALL NOT BE BURIED**


ALLEN J. EARP, ET

ALLEN J. EARP, ET AL.

ALLEN J. EARP, ET AL.

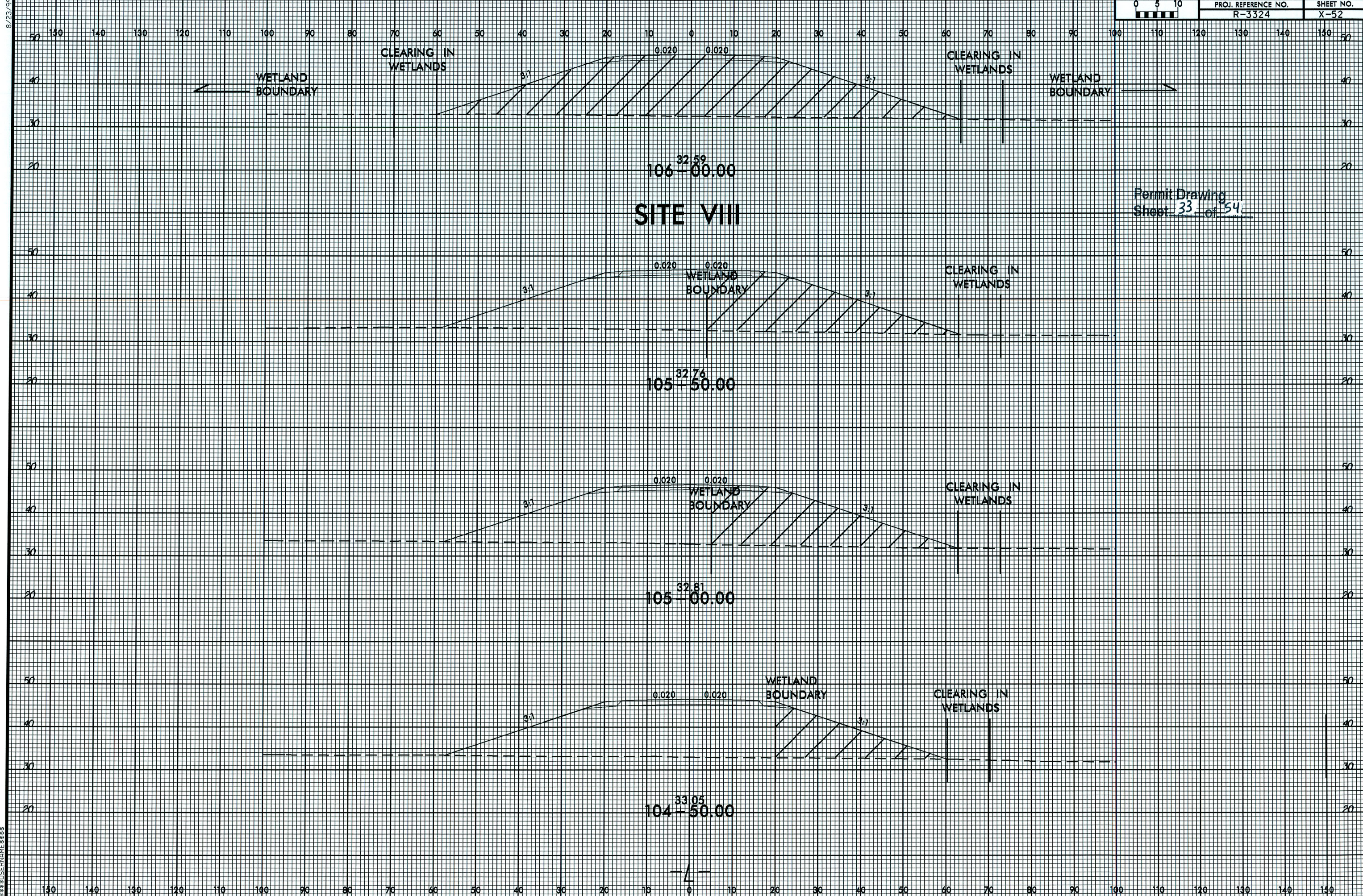
|   |   |
|---|---|
|  | DENOTES TEMPORARY<br>IMPACTS IN SURFACE WATER |
|  | DENOTES FILL IN<br>WETLAND                    |
|  | DENOTES IMPACTS IN<br>SURFACE WATER           |
|  | DENOTES HAND                                  |

50' 0' 5'



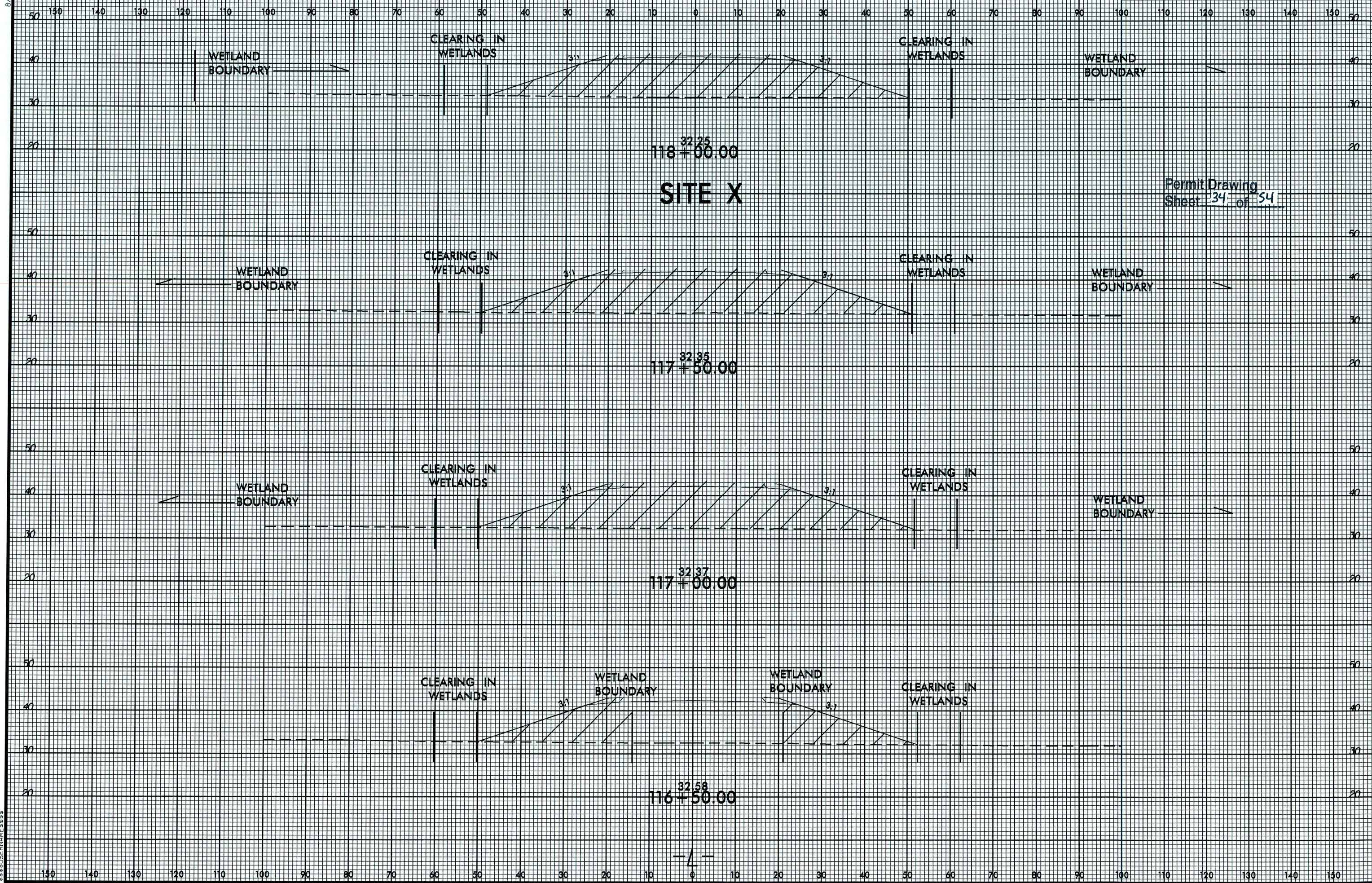
GRAPHIC SCALE



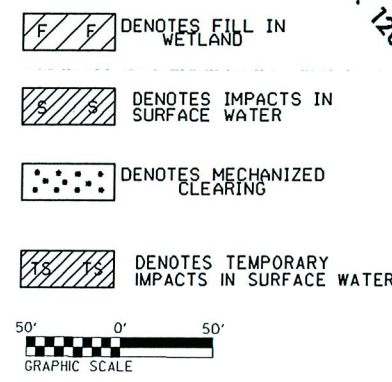




8/23/99







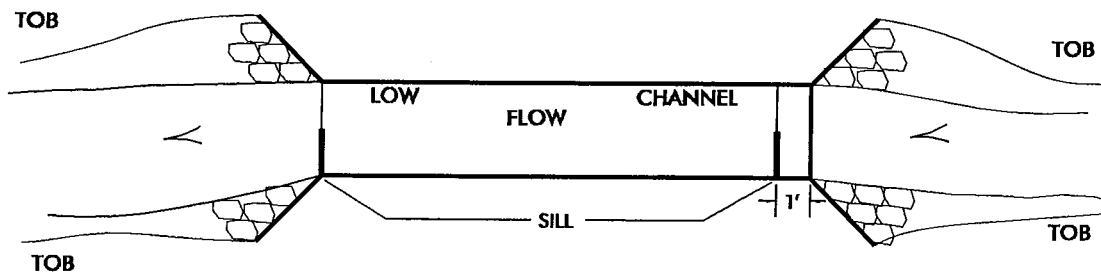
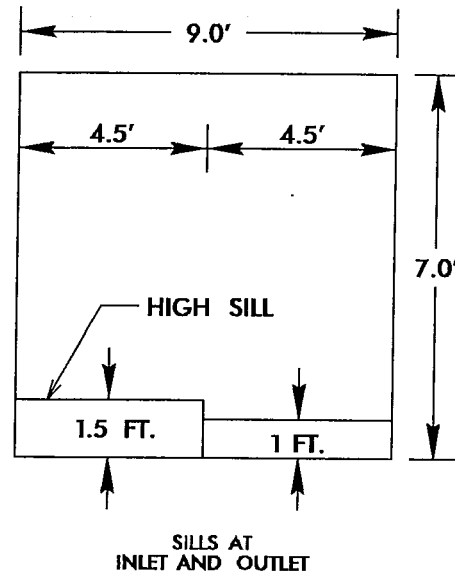


# LOW FLOW CHANNEL AND SILLS

(NOT TO SCALE)

**\*NOTES:**

- 1) BED MATERIAL BETWEEN SILLS IN THE CULVERT SHALL PROVIDE A CONTINUOUS LOW FLOW CHANNEL. THE MATERIAL SHALL BE NATURAL STONE WITH A GRADATION SIZE SIMILAR TO THAT OF CLASS 'B' RIP RAP. STONES LARGER THAN 6 INCHES SHALL NOT BE PLACED WITHIN THE LOW FLOW CHANNEL BED MATERIALS SUBJECT TO APPROVAL BY THE ENGINEER.
- 2) SILLS ARE TO BE 1.0 FT. WIDE, CAST SEPARATELY AND ATTACHED BY DOWELS.
- 3) TOP OF LOW FLOW SILLS SHOULD MATCH STREAM BED ELEVATION IN LOW FLOW CHANNEL OF STREAM. (THALWEG)
- 4) CLASS 'B' RIP RAP MAY BE USED TO SUPPLEMENT NATURAL BED MATERIAL.
- 5) DO NOT SET ELEVATION OF HIGH SILL ABOVE BANK FULL.
- 6) NUMBER OF SILLS DETERMINED BY THE ENGINEER.



PLAN VIEW

Permit Drawing  
Sheet 36 of 54

PLAN VIEW

SITE XI  
-L- STA. 127+46  
1 @ 9' X 7' RCBC

NCDOT

DIVISION OF HIGHWAYS  
BRUNSWICK COUNTY  
PROJECT: 34531.1.1 (R-3324)

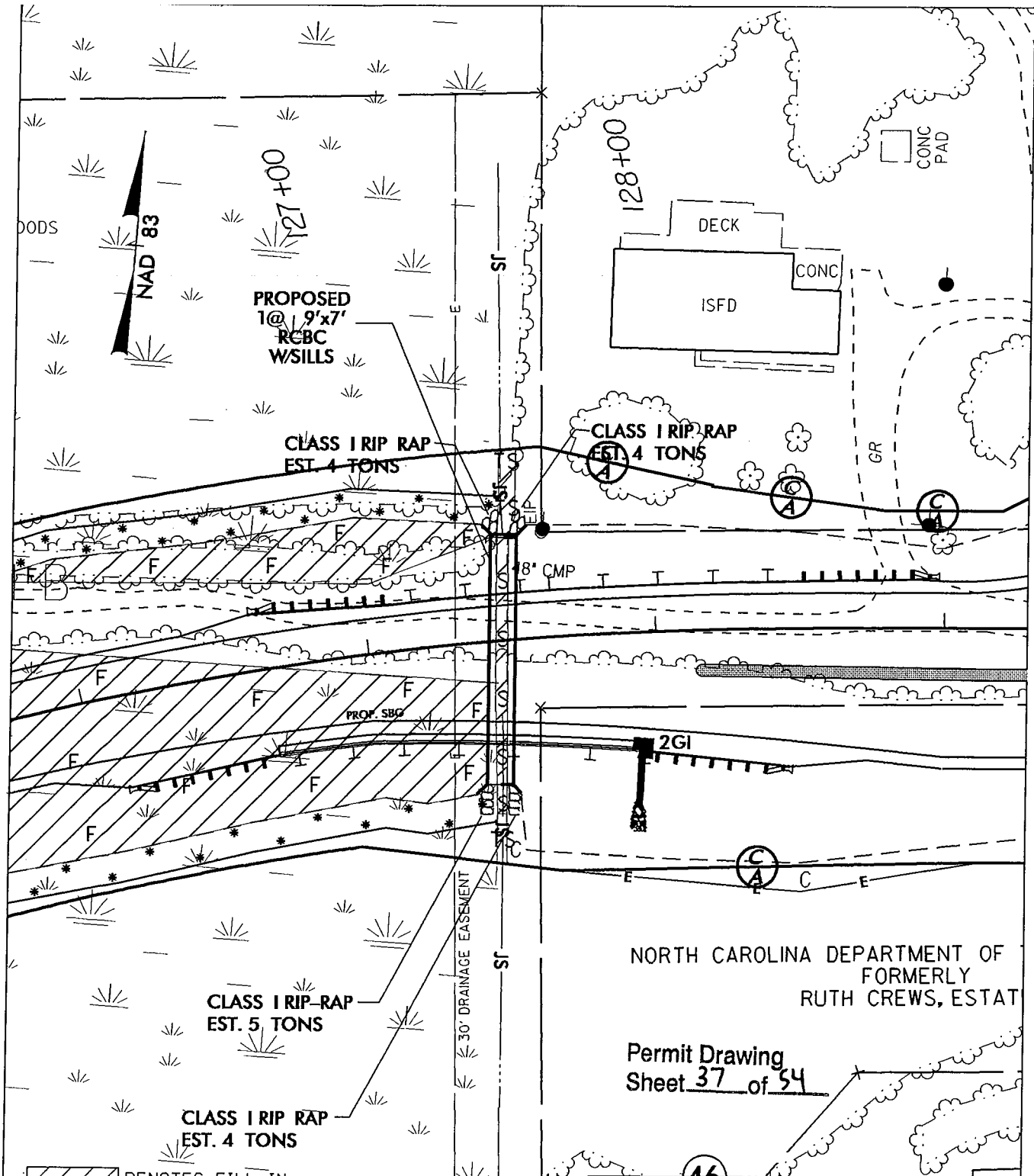
NEW ROUTE FROM NC 133  
AND NC 87

SHEET

OF

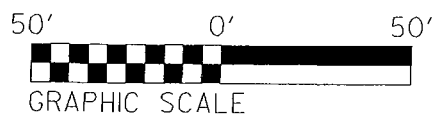
10 / 30 / 12





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

**SITE XI**



NORTH CAROLINA DEPARTMENT OF  
FORMERLY  
RUTH CREWS, ESTAT

Permit Drawing  
Sheet 37 of 54

**NCDOT**

DIVISION OF HIGHWAYS

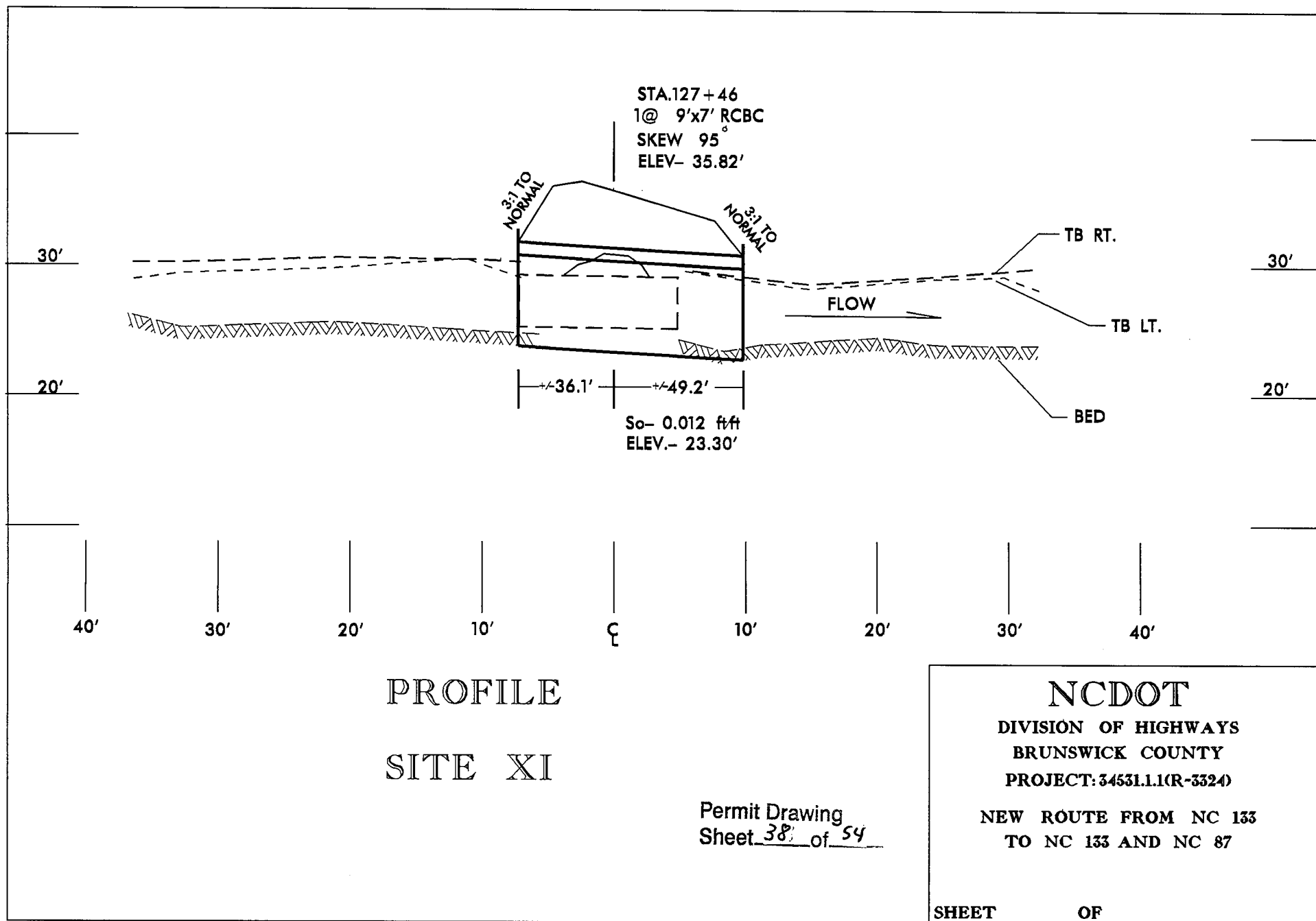
BRUNSWICK COUNTY

PROJECT: 34531.1.1 (R-3324)

NEW ROUTE FROM NC 133  
AND NC 87

SHEET      OF      12 / 04 / 12

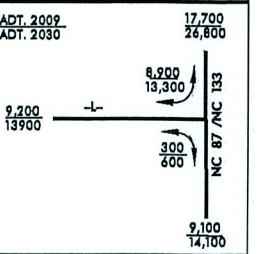






8/17/15

|  |  |                     |  |
|--|--|---------------------|--|
| PROJECT REFERENCE NO. R-3324   |  | SHEET NO. 13        |  |
| RW SHEET NO.   |  | HYDRAULICS ENGINEER |  |
| ROADWAY DESIGN ENGINEER  |  | HYDRAULICS ENGINEER |  |
| <b>PRELIMINARY PLANS</b><br>DO NOT USE FOR CONSTRUCTION                    |  |                     |  |
| SEE SHEET No. 27 FOR -L- PROFILE<br>SEE SHEET No. 30 & 31 FOR -Y2- PROFILE |  |                     |  |



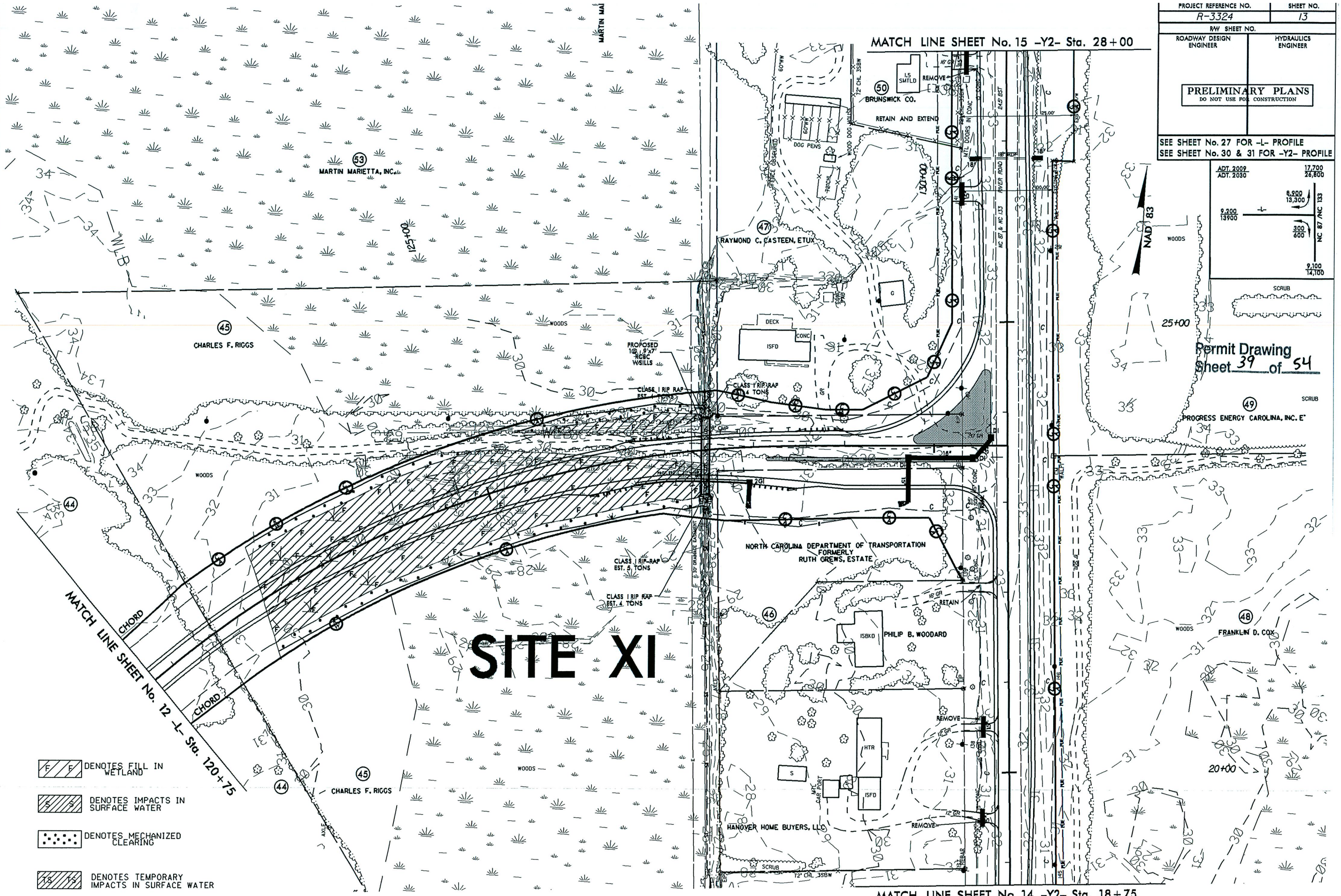
Permit Drawing  
Sheet 39 of 54

PROGRESS ENERGY CAROLINA, INC. E

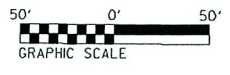
FRANKLIN D. COX

MATCH LINE SHEET No. 15 -Y2- Sta. 28+00

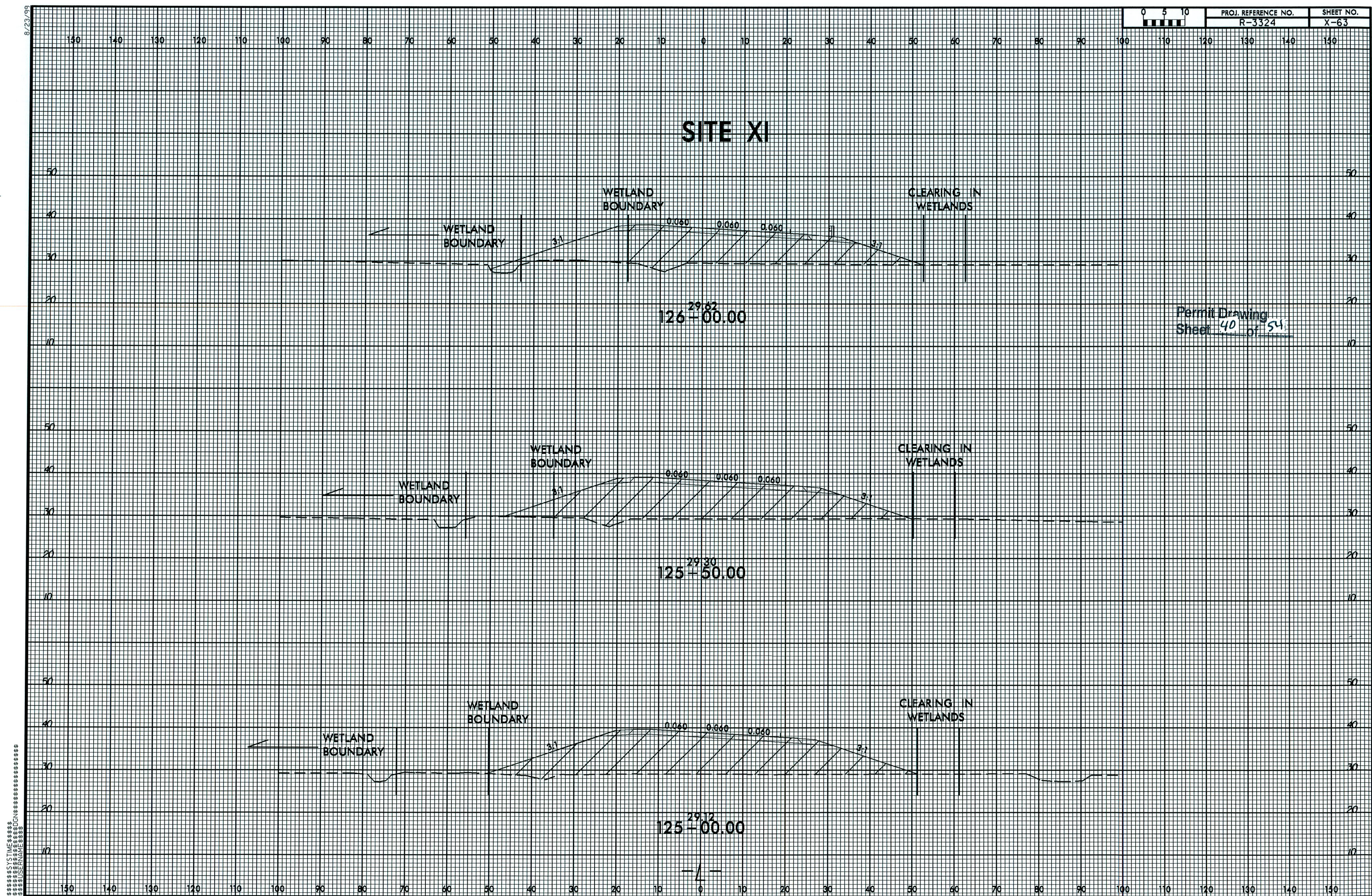
MATCH LINE SHEET No. 14 -Y2- Sta. 18+75



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





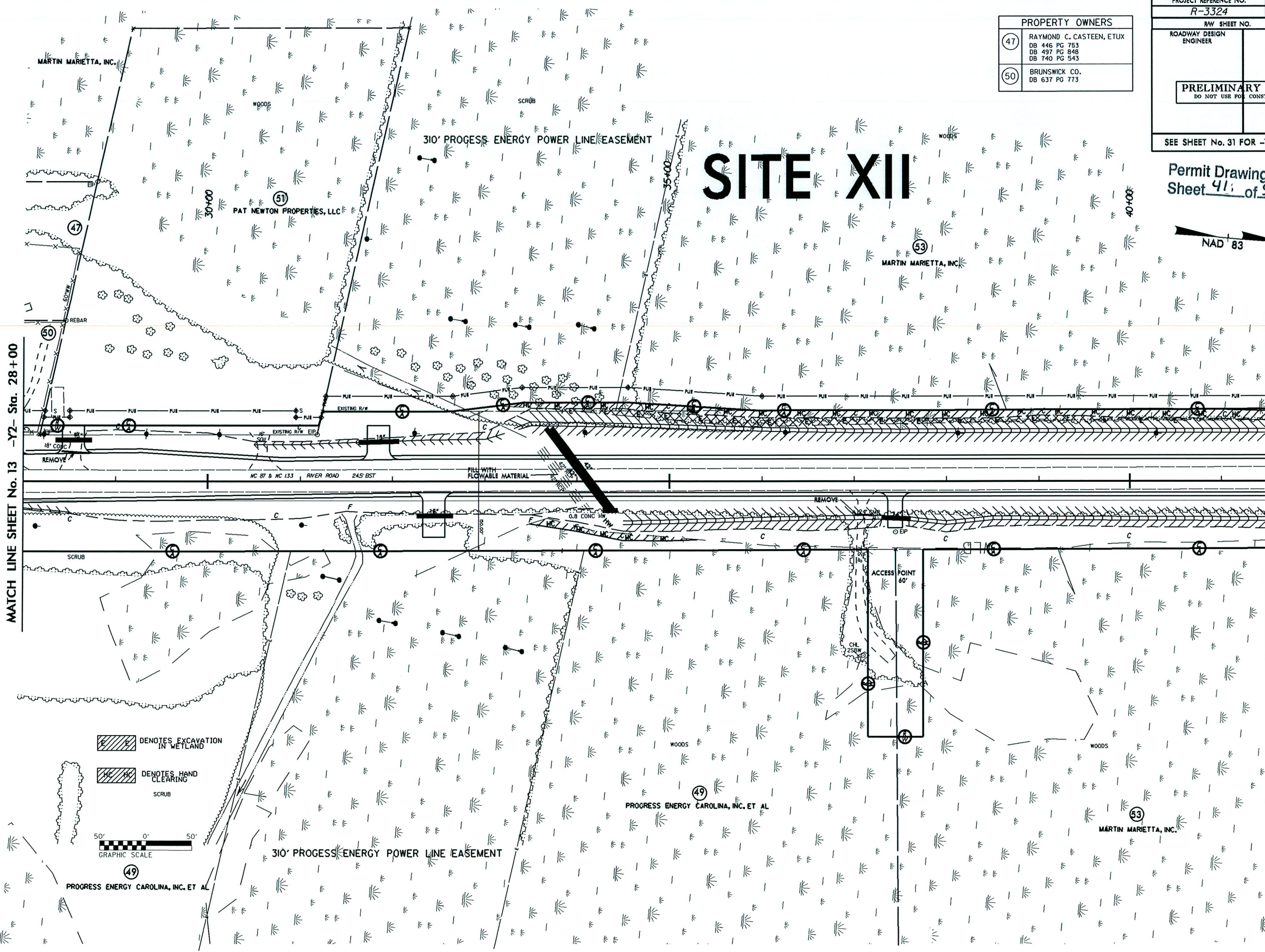




8/17/99

MATCH LINE SHEET No. 13 -Y2- Sta. 28+00

MATCH LINE SHEET No. 16 -Y2- Sta. 41+50



| PROPERTY OWNERS |   |
|-----------------|---|
| (47)            | RAYMOND C. CASTEEN, ETUX<br>DB 446 PG 763<br>DB 497 PG 848<br>DB 740 PG 543 |
| (50)            | BRUNSWICK CO.<br>DB 637 PG 773  |

|  |  |                        |  |
|--|--|------------------------|--|
| PROJECT REFERENCE NO.                            |  | SHEET NO.              |  |
| R-3324   |  | 15                     |  |
| RW SHEET NO.                                     |  |                        |  |
| ROADWAY DESIGN<br>ENGINEER                       |  | HYDRAULICS<br>ENGINEER |  |
| PRELIMINARY PLANS<br>DO NOT USE FOR CONSTRUCTION |  |                        |  |
| SEE SHEET No. 31 FOR -Y2- PROFILE                |  |                        |  |

Permit Drawing  
Sheet 41 of 94

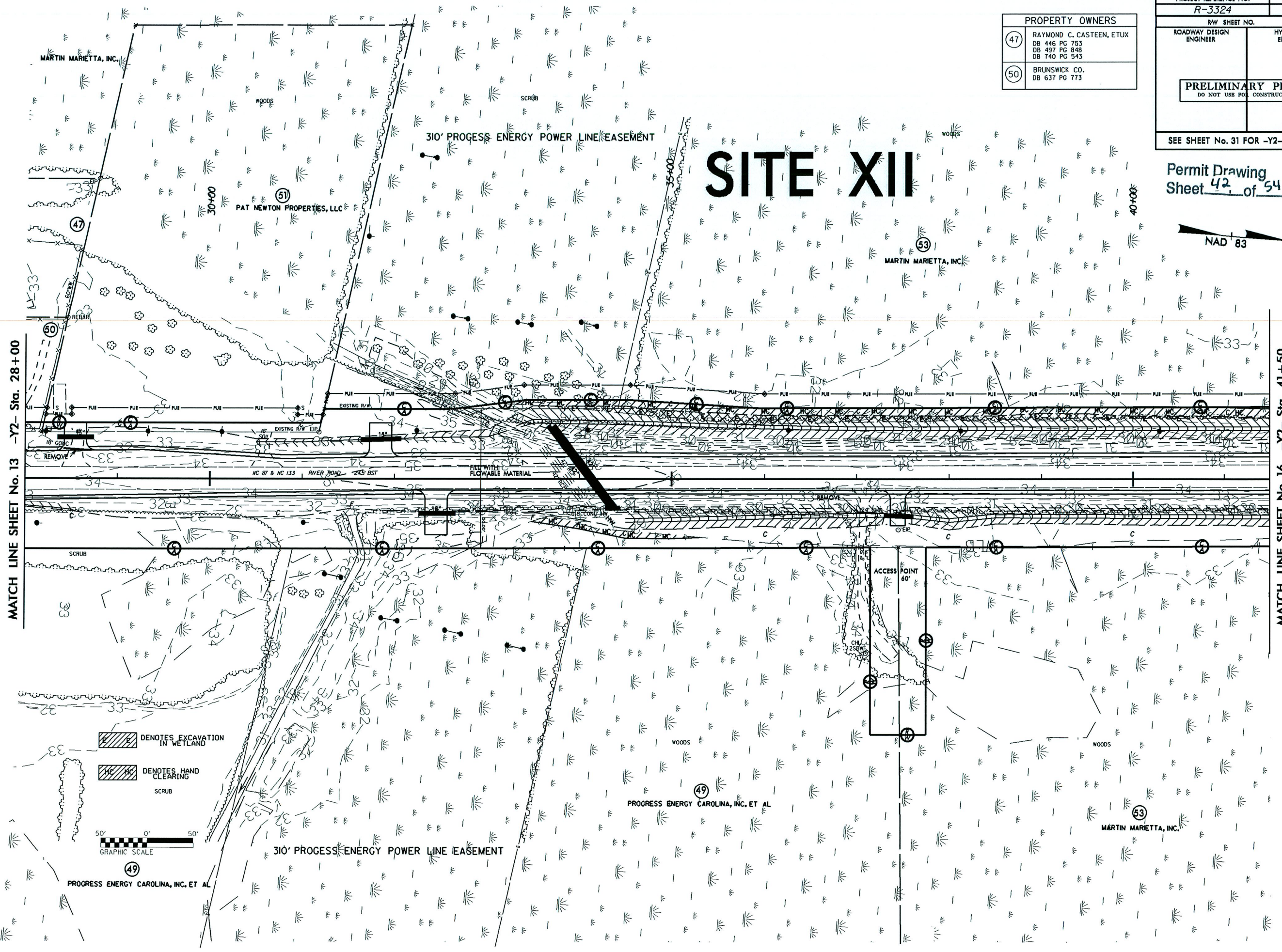
NAD 83



8/17/99

MATCH LINE SHEET No. 13 -Y2- Sta. 28+00

MATCH LINE SHEET No. 16 -Y2- Sta. 41+50



| PROPERTY OWNERS |   |
|-----------------|---|
| (47)            | RAYMOND C. CASTEEN, ETUX<br>DB 446 PG 763<br>DB 497 PG 848<br>DB 740 PG 543 |
| (50)            | BRUNSWICK CO.<br>DB 637 PG 773  |

|   |  |                     |  |
|---|--|---------------------|--|
| PROJECT REFERENCE NO.   |  | SHEET NO.           |  |
| R-3324  |  | 15                  |  |
| RW SHEET NO.  |  |                     |  |
| ROADWAY DESIGN ENGINEER   |  | HYDRAULICS ENGINEER |  |
| <div>PRELIMINARY PLANS</div> <div>DO NOT USE FOR CONSTRUCTION</div> |  |                     |  |
| SEE SHEET No. 31 FOR -Y2- PROFILE                                   |  |                     |  |

Permit Drawing  
Sheet 42 of 54

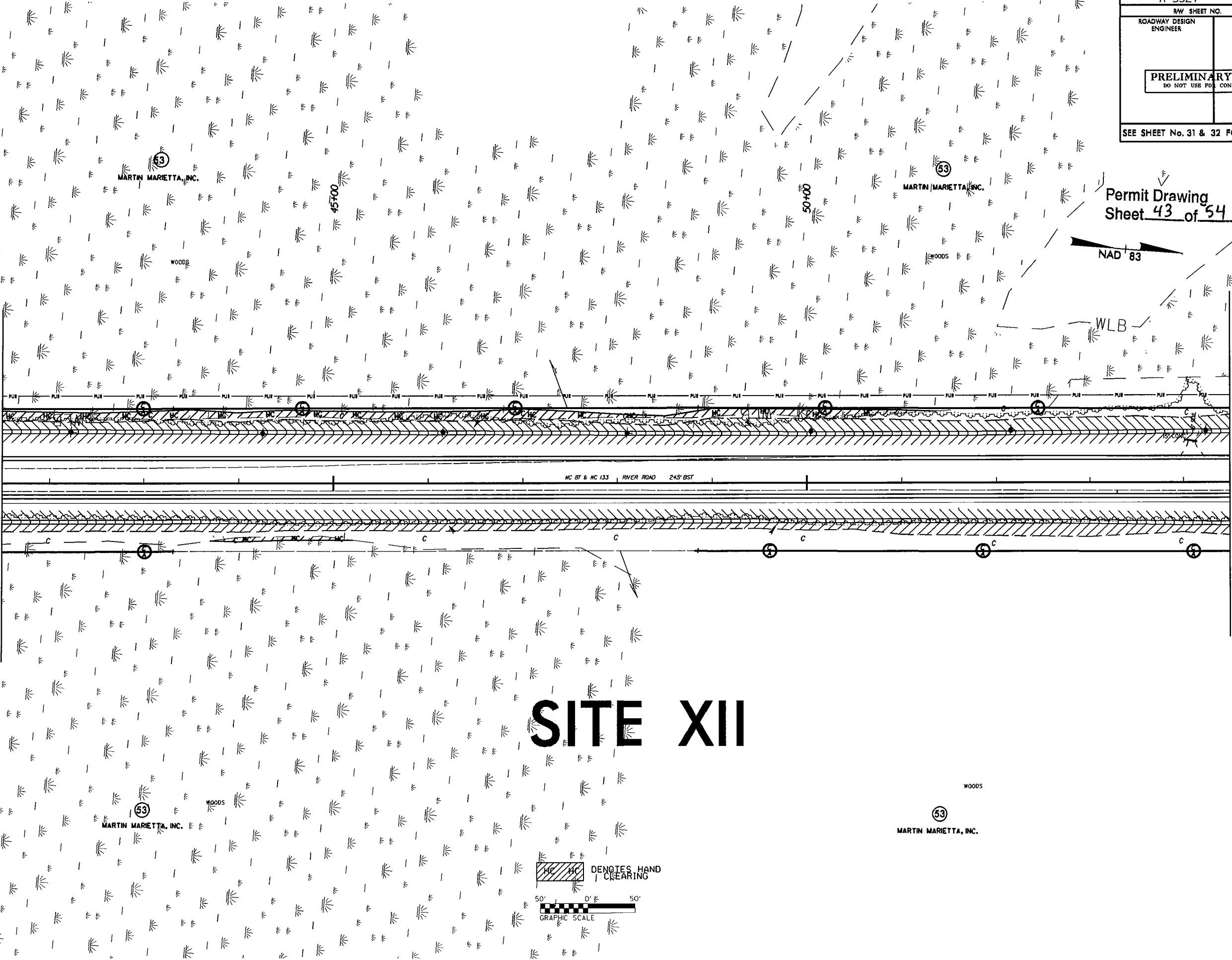
NAD 83



8/17/99

SYSTEMS  
DESIGN  
SERVICES

MATCH LINE SHEET No. 15 -Y2- Sta. 41+50



|  |                     |
|--|---------------------|
| PROJECT REFERENCE NO.                            | SHEET NO.           |
| R-3324   | 16                  |
| RW SHEET NO.                                     |                     |
| ROADWAY DESIGN ENGINEER                          | HYDRAULICS ENGINEER |
| PRELIMINARY PLANS<br>DO NOT USE FOR CONSTRUCTION |                     |
| SEE SHEET No. 31 & 32 FOR -Y2- PROFILE           |                     |

Permit Drawing  
Sheet 43 of 54

MATCH LINE SHEET No. 17 -Y2- Sta. 54+50

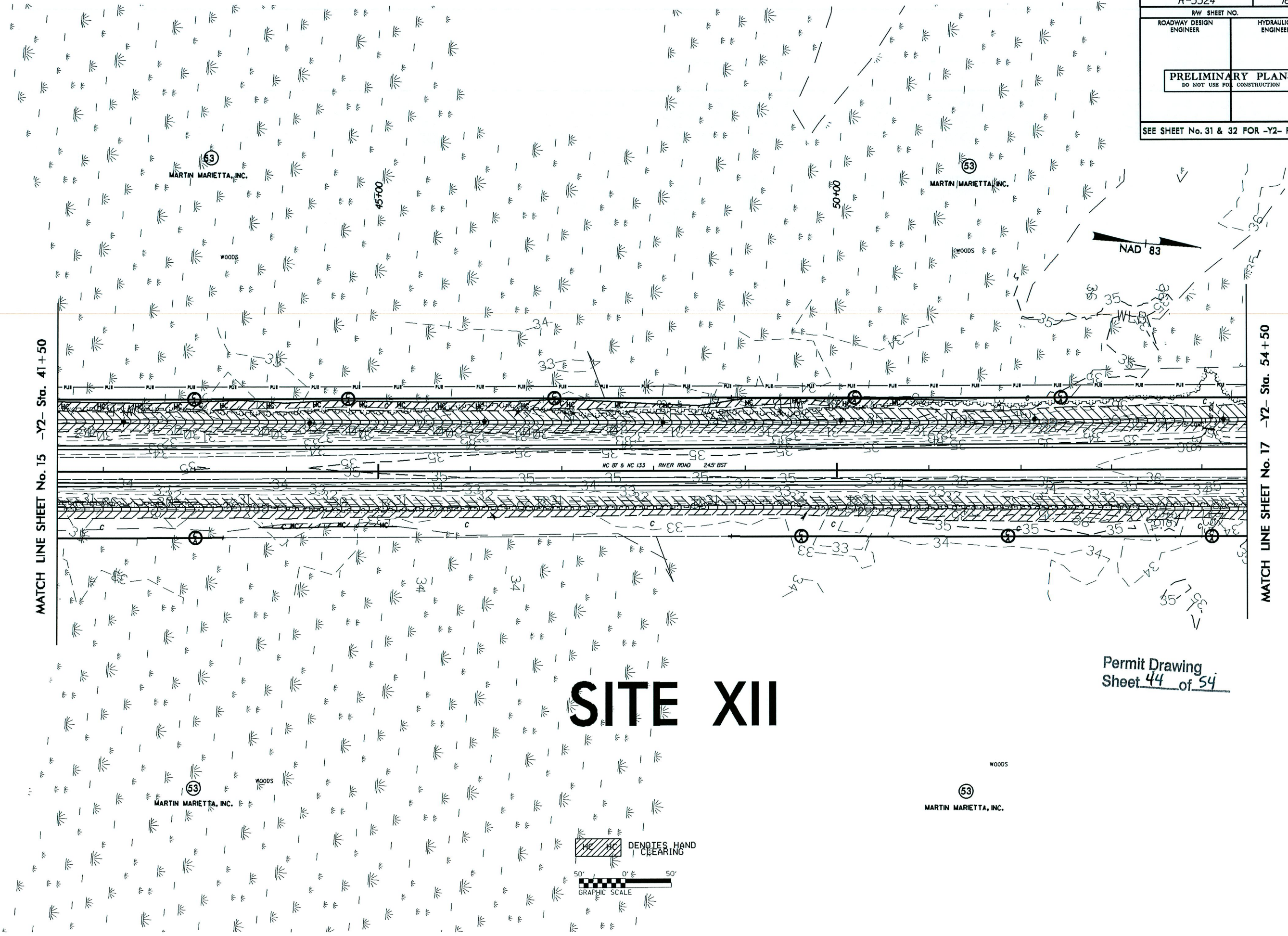


8/17/95

|  |                        |                 |
|--|------------------------|-----------------|
| PROJECT REFERENCE NO.<br>R-3324                              |                        | SHEET NO.<br>16 |
| RW SHEET NO.   |                        |                 |
| ROADWAY DESIGN<br>ENGINEER                                   | HYDRAULICS<br>ENGINEER |                 |
| <div>PRELIMINARY PLANS<br/>DO NOT USE FOR CONSTRUCTION</div> |                        |                 |
| SEE SHEET No. 31 & 32 FOR -Y2- PROFILE                       |                        |                 |

MATCH LINE SHEET No. 15 -Y2- Sta. 41+50

MATCH LINE SHEET No. 17 -Y2- Sta. 54+50



# SITE XII

Permit Drawing  
Sheet 44 of 54

SYTIME  
DRAWN  
USERNAME



8/17/99

STANDARD CONSTRUCTION

# SITE XII

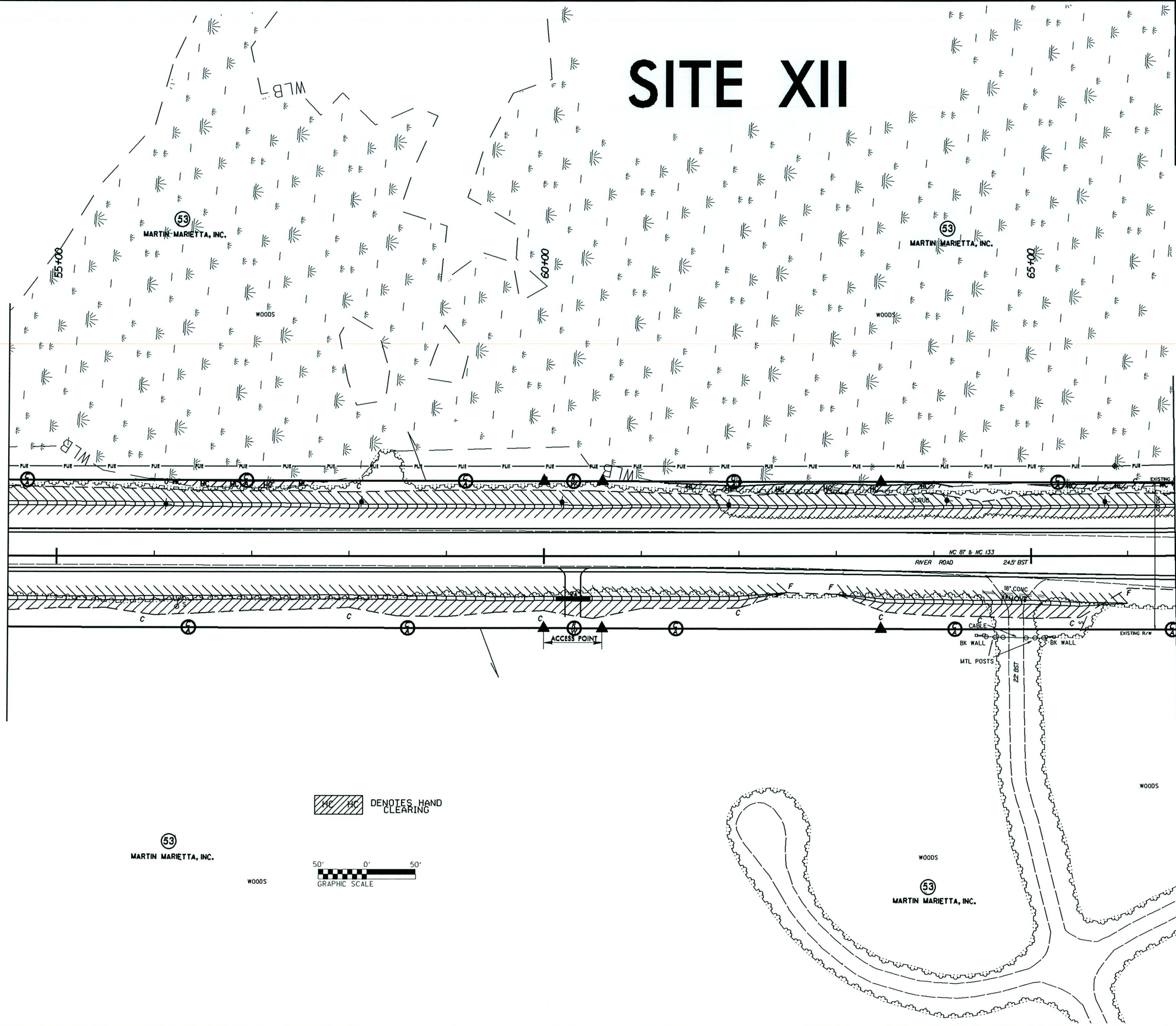
|  |                        |
|--|------------------------|
| PROJECT REFERENCE NO.<br>R-3324                  | SHEET NO.<br>17        |
| R/W SHEET NO.                                    |                        |
| ROADWAY DESIGN<br>ENGINEER                       | HYDRAULICS<br>ENGINEER |
| PRELIMINARY PLANS<br>DO NOT USE FOR CONSTRUCTION |                        |
| SEE SHEET No. 32 FOR -Y2- PROFILE                |                        |



Permit Drawing  
Sheet 45 of 54

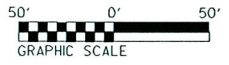
MATCH LINE SHEET No. 16 -Y2- Sta. 54+50

MATCH LINE SHEET No. 18 -Y2- Sta. 66+50



HC HC DENOTES HAND CLEARING

53  
MARTIN MARIETTA, INC.

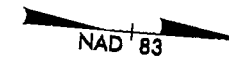
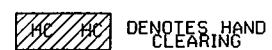
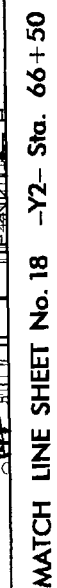
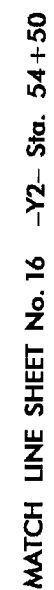


53  
MARTIN MARIETTA, INC.



# SITE XII

|  |                        |
|--|------------------------|
| PROJECT REFERENCE NO.  | SHEET NO.              |
| R-3324   | 17                     |
| RW SHEET NO.   |                        |
| ROADWAY DESIGN<br>ENGINEER   | HYDRAULICS<br>ENGINEER |
| <div style="border: 1px solid black; padding: 10px; text-align: center;"> <b>PRELIMINARY PLANS</b><br/>             DO NOT USE FOR CONSTRUCTION           </div> |                        |
| SEE SHEET No. 32 FOR -Y2- PROFILE  |                        |

Permit Drawing  
Sheet 46 of 54

(53)  
MARTIN MARIETTA, INC.

WOODS

WOODS

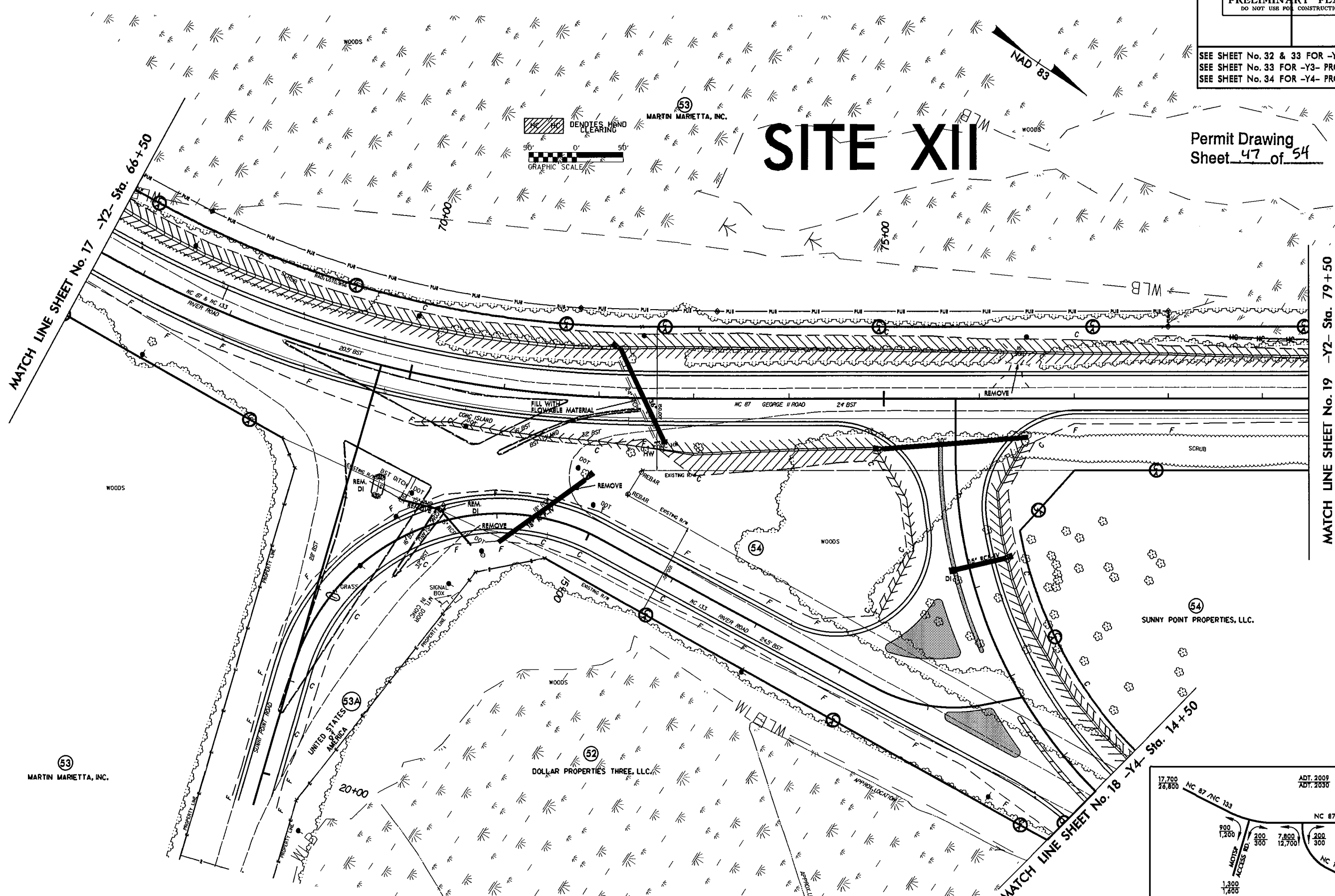
53  
MARTIN MARIETTA, INC.

WOOD:



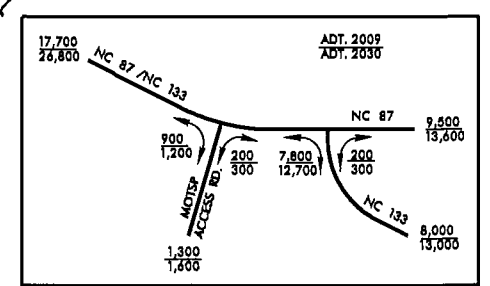
8/17/99

|   |                        |                        |
|---|------------------------|------------------------|
| PROJECT REFERENCE NO.<br><i>R-3324</i>  |                        | SHEET NO.<br><i>18</i> |
| RW SHEET NO.  |                        |                        |
| ROADWAY DESIGN<br>ENGINEER  | HYDRAULICS<br>ENGINEER |                        |
| <div style="border: 1px solid black; padding: 10px; text-align: center;"><b>PRELIMINARY PLANS</b><br/>DO NOT USE FOR CONSTRUCTION</div> |                        |                        |
| SEE SHEET No. 32 & 33 FOR -Y2- PROFILE<br>SEE SHEET No. 33 FOR -Y3- PROFILE<br>SEE SHEET No. 34 FOR -Y4- PROFILE                        |                        |                        |



# SITE XII

Permit Drawing  
Sheet 47 of 54



SYSTEMS  
DESIGN  
PLANS



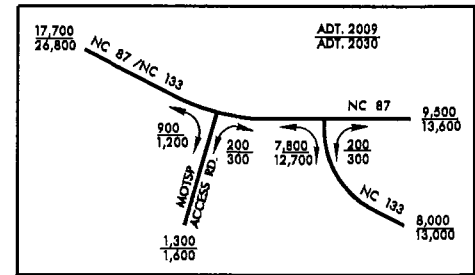
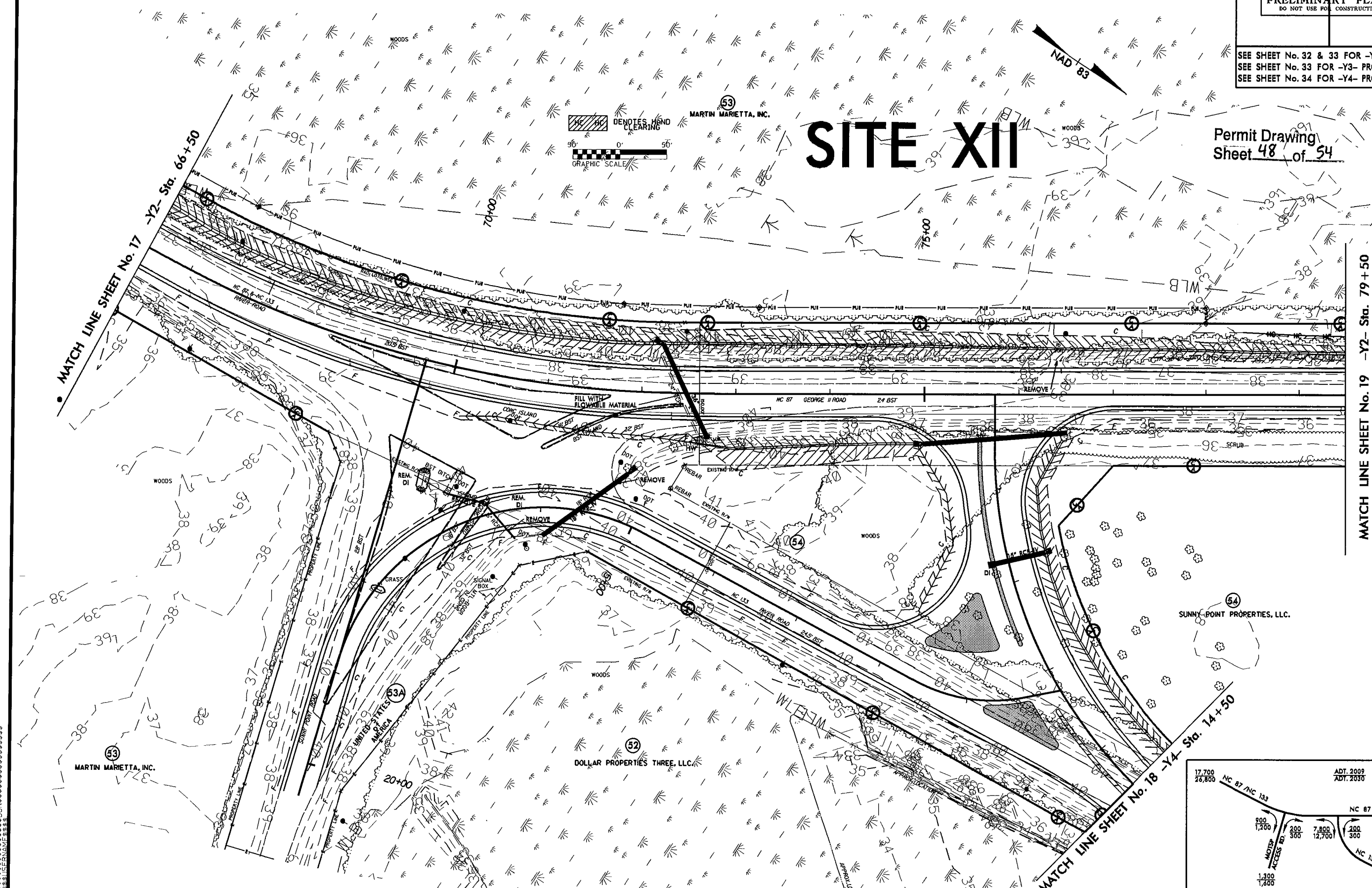
8/17/99

|   |  |                        |
|---|--|------------------------|
| PROJECT REFERENCE NO.<br><i>R-3324</i>                              |  | SHEET NO.<br><i>18</i> |
| RW SHEET NO.  |  |                        |
| ROADWAY DESIGN<br>ENGINEER  |  | HYDRAULICS<br>ENGINEER |
| <div>PRELIMINARY PLANS</div> <div>DO NOT USE FOR CONSTRUCTION</div> |  |                        |

SEE SHEET No. 32 & 33 FOR -Y2- PROFILE  
SEE SHEET No. 33 FOR -Y3- PROFILE  
SEE SHEET No. 34 FOR -Y4- PROFILE

Permit Drawing  
Sheet 48 of 54

# SITE XII



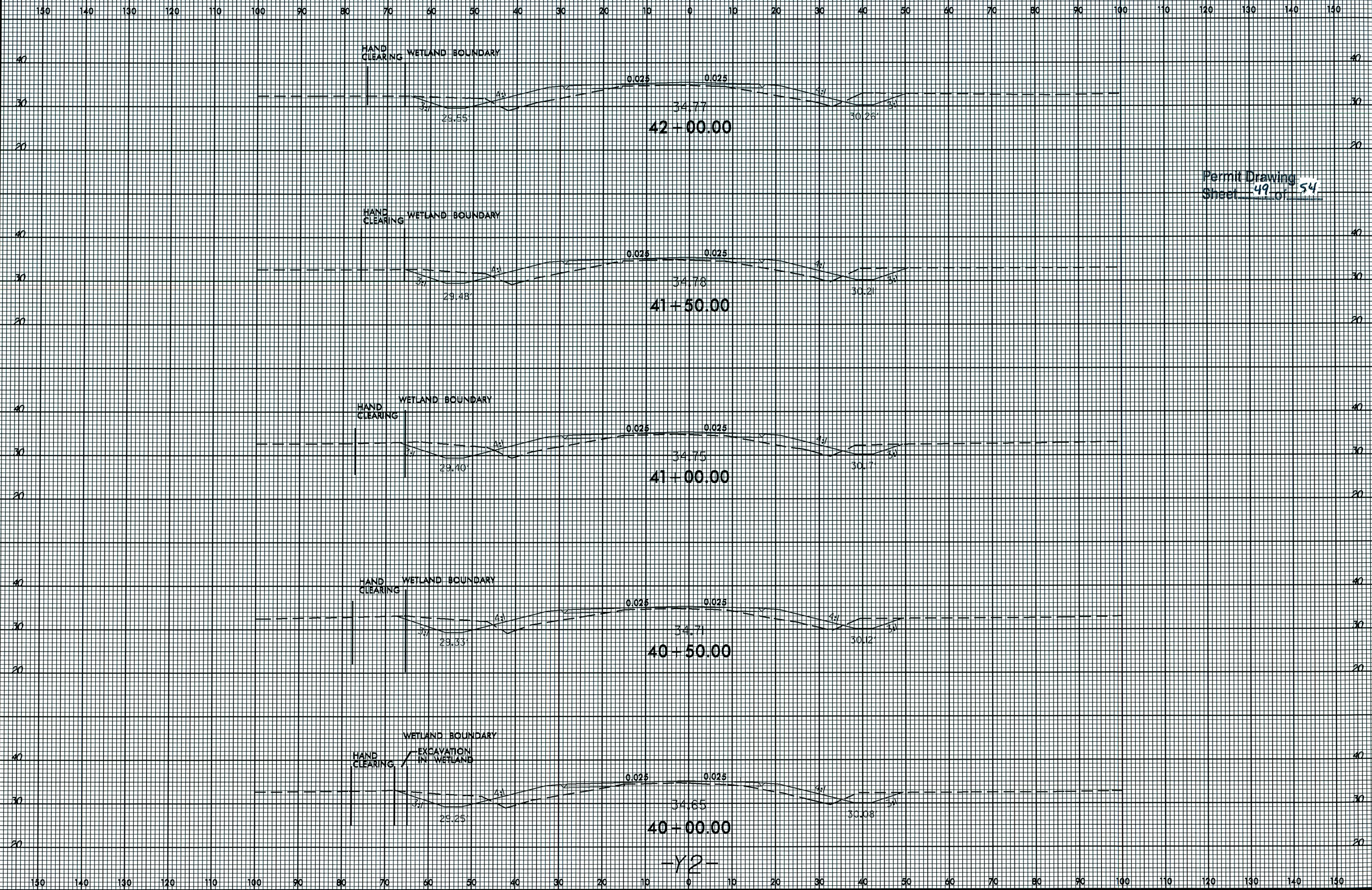


8/23/95



PROJ. REFERENCE NO.  
R-3324

SHEET NO.  
X-109









# SITE XIII

Permit Drawing  
Sheet 51 of 54

**MATCH LINE SHEET No. 21 -YI- Sta. 39+00**

PROPERTY ANNEXED BY  
CITY OF SOUTHPORT

TRICITY, INC.

SOUTHPORT CITY LIMITS -

40  
JS SOUTH, LLC.

83

WFO

ISMASONRY BUS

ISBN 805274

W. R. SCHMIDT, LLC

MAGGIE S. JACKSON

JUNE SMITH ET UX

PROPERTY OWNERS  
FRANK GARDNER JR., ET UX

 DENOTES EXCAVATION  
IN WETLAND

 DENOTES FILL IN  
WETLAND

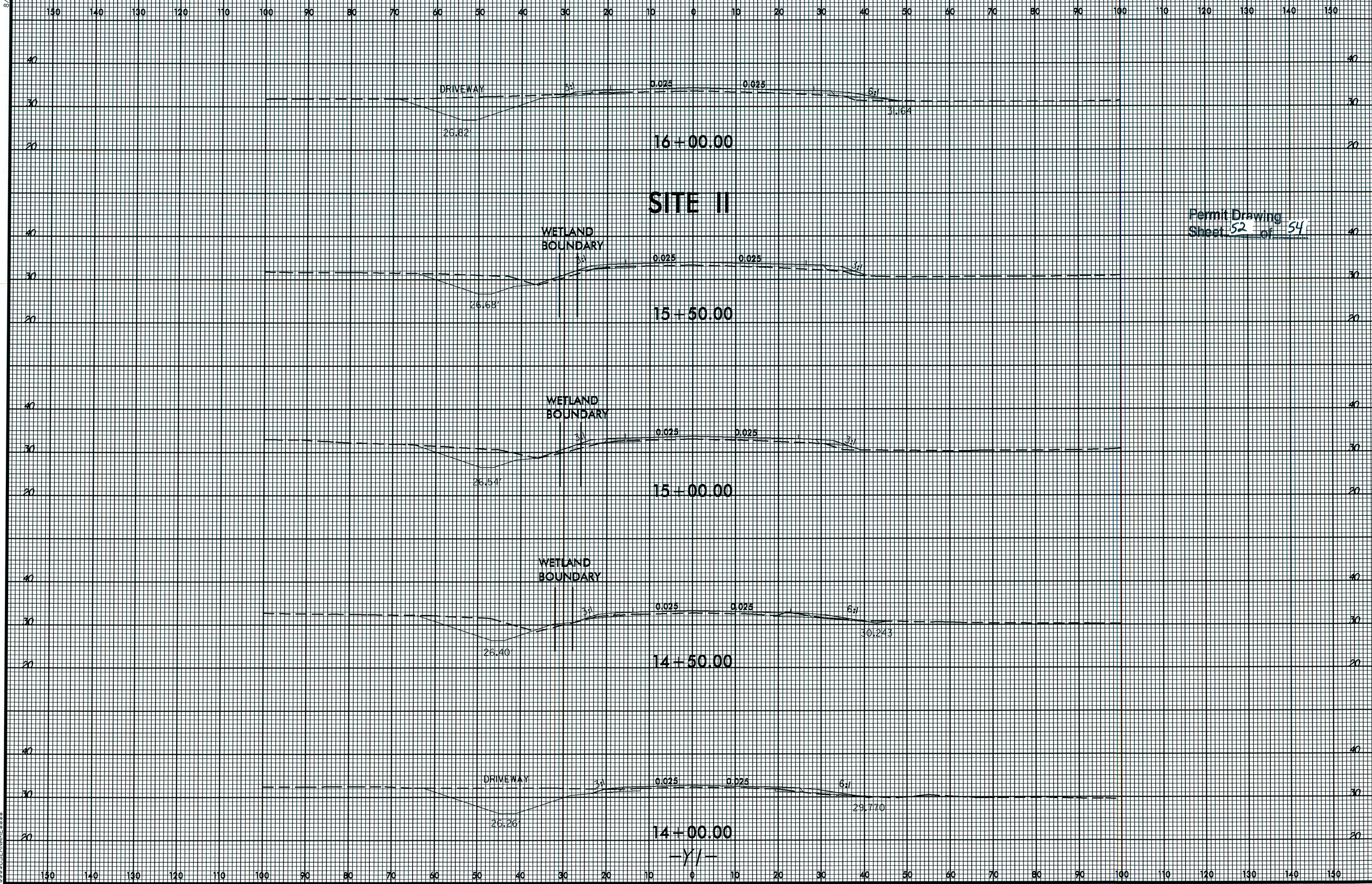
 DENOTES HAND CLEARING

50' 0' 50'

GRAPHIC SCALE



8/23/99



Permit Drawing  
Sheet 52 of 54



# PROPERTY OWNERS

NAMES AND ADDRESSES

| PARCEL NO. | NAMES                                       | ADDRESSES  |
|------------|---|--|
| 4          | GREGORY K. HEDRICK                          | 504 INDIAN WELLS CIRCLE<br>LEXINGTON, N.C. 27295   |
| 5          | BUFFLE HEAD<br>PROPERTIES, LLC              | P.O. BOX 3069<br>BALD HEAD ISLAND, N.C. 28461      |
| 6          | SOUTHEAST CINEMA<br>ENTERTAINMENT, INC      | 4523 PARK ROAD #A-105<br>CHARLOTTE, N.C. 28209     |
| 7          | SOUTHPORT-OAK ISLAND<br>CHAMBER OF COMMERCE | HWY 133 LONG BEACH RD.<br>SOUTHPORT, N.C. 28461    |
| 43         | TRI CITY, INC.                              | TRI CITY SHOPPING CENTER<br>ROCKINGHAM, N.C. 28379 |
| 44         | ALLEN J. EARP                               | P.O. BOX 3649<br>WILMINGTON, N.C. 28406            |
| 45         | CHARLES F. RIGGS                            | 202 WARLICK ST.<br>JACKSONVILLE, N.C. 28540        |
| 49         | PROGRESS ENERGY<br>CAROLINA, INC.           | P.O. BOX 14042<br>ST. PETERSBURG, FL. 33733        |
| 53         | MARTIN MARIETTA, INC                        | 2700 WYCLIFF RD. SUITE 104<br>RALEIGH, N.C. 27607  |

Permit Drawing  
Sheet 53 of 54

**NCDOT**

DIVISION OF HIGHWAYS  
BRUNSWICK COUNTY  
PROJECT: 34531.1.1 (R-3324)

NEW ROUTE FROM NC 133  
TO NC 133 AND NC 87

SHEET

OF



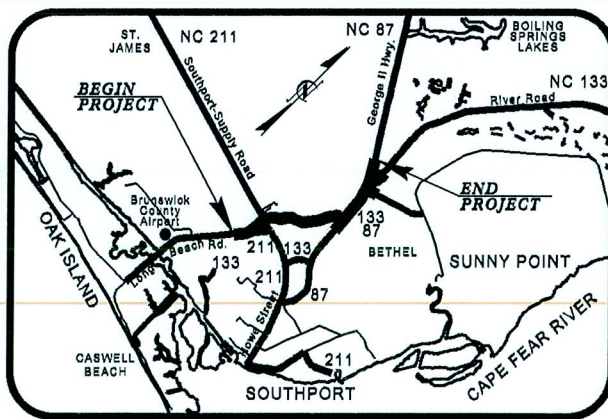




16-NOV-2012 12:34  
R:\Utilities\RDY\U\Proj\NEU\3324.UO-L.Rdy\_tsh.dgn  
\$\$\$\$\$USERNAME\$\$\$\$\$

TIP PROJECT: R-3324

See Sheet 1-A For Index of Sheets



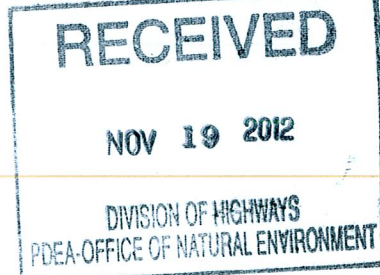
# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

## NEU PERMIT DRAWINGS BRUNSWICK COUNTY

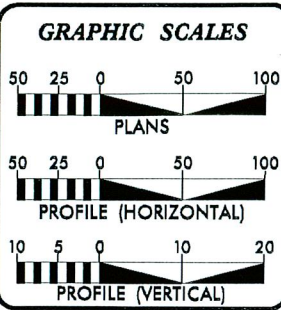
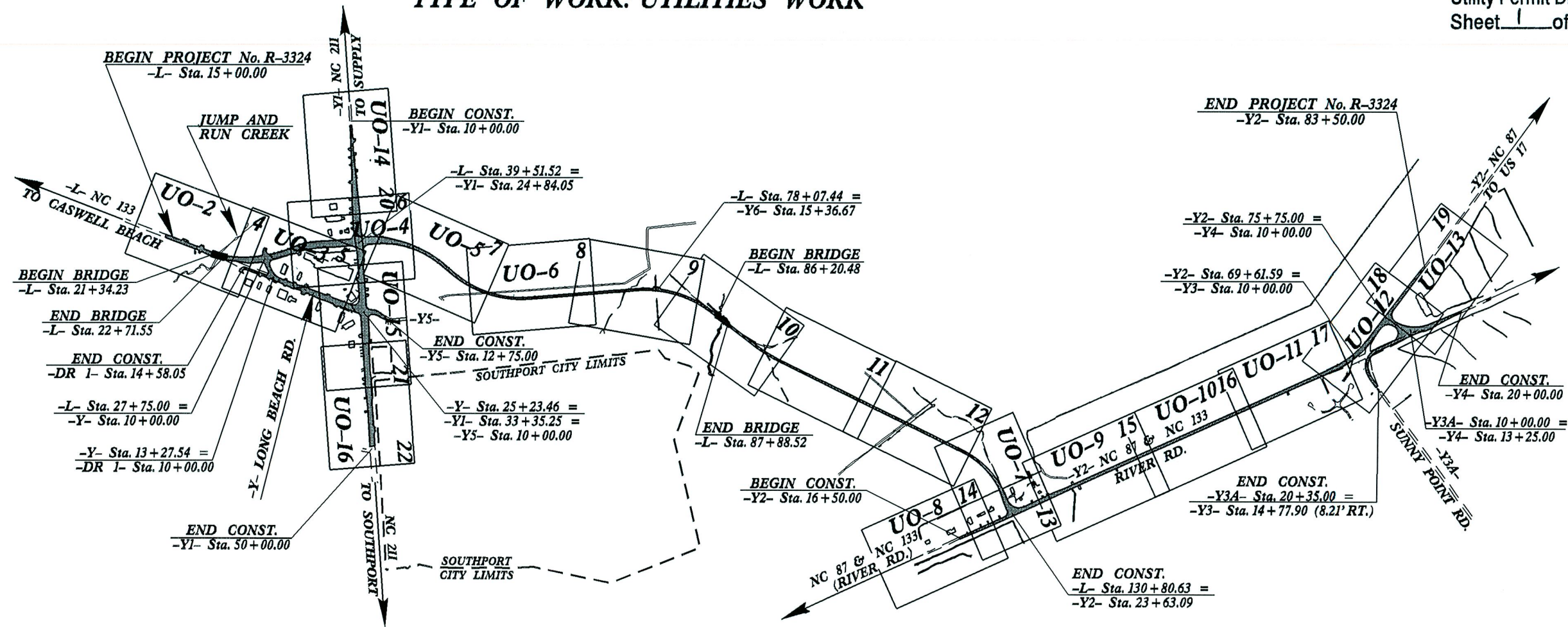
LOCATION: NEW ROUTE FROM NC 133 (LONG BEACH RD.) TO NC 133.

TYPE OF WORK: UTILITIES WORK

|            |           |
|------------|-----------|
| T.I.P. NO. | SHEET NO. |
| R-3324     | UO-1      |




Utility Permit Drawing  
Sheet 1 of 17



| SHEET NO.       | DESCRIPTION                   |
|-----------------|-------------------------------|
| UO-1            | TITLE SHEET                   |
| UO-2 THRU UO-16 | UTILITY BY OTHERS PLAN SHEETS |

| UTILITY OWNERS ON PROJECT                                   |
|---|
| (1) Brunswick EMC - Power                                   |
| (2) Progress Energy - Power                                 |
| (3) Atlantic Telephone Membership Corp. - Telephone         |
| (4) AT&T - Telephone  |
| (5) Time Warner Cable - CATV                                |
| (6) City of Southport - Prop. 16" Force Main sewer          |
| (7) Brunswick County Public Utilities - 12" F.M. & 12" W.L. |



PREPARED IN THE OFFICE OF:  
DIVISION OF HIGHWAYS  
UTILITIES UNIT  
UTILITIES ENGINEERING  
1591 MAIL SERVICES CENTER  
RALEIGH NC 27699-1591  
PHONE (919) 707-6690  
FAX (919) 256-4151

Roger Worthington, P.E. UTILITIES SECTION ENGINEER  
Steve McKee, P.E. UTILITIES SQUAD LEADER PROJECT ENGINEER  
Jamshid Hafshejani UTILITIES PROJECT DESIGNER



UTILITIES BY OTHERS

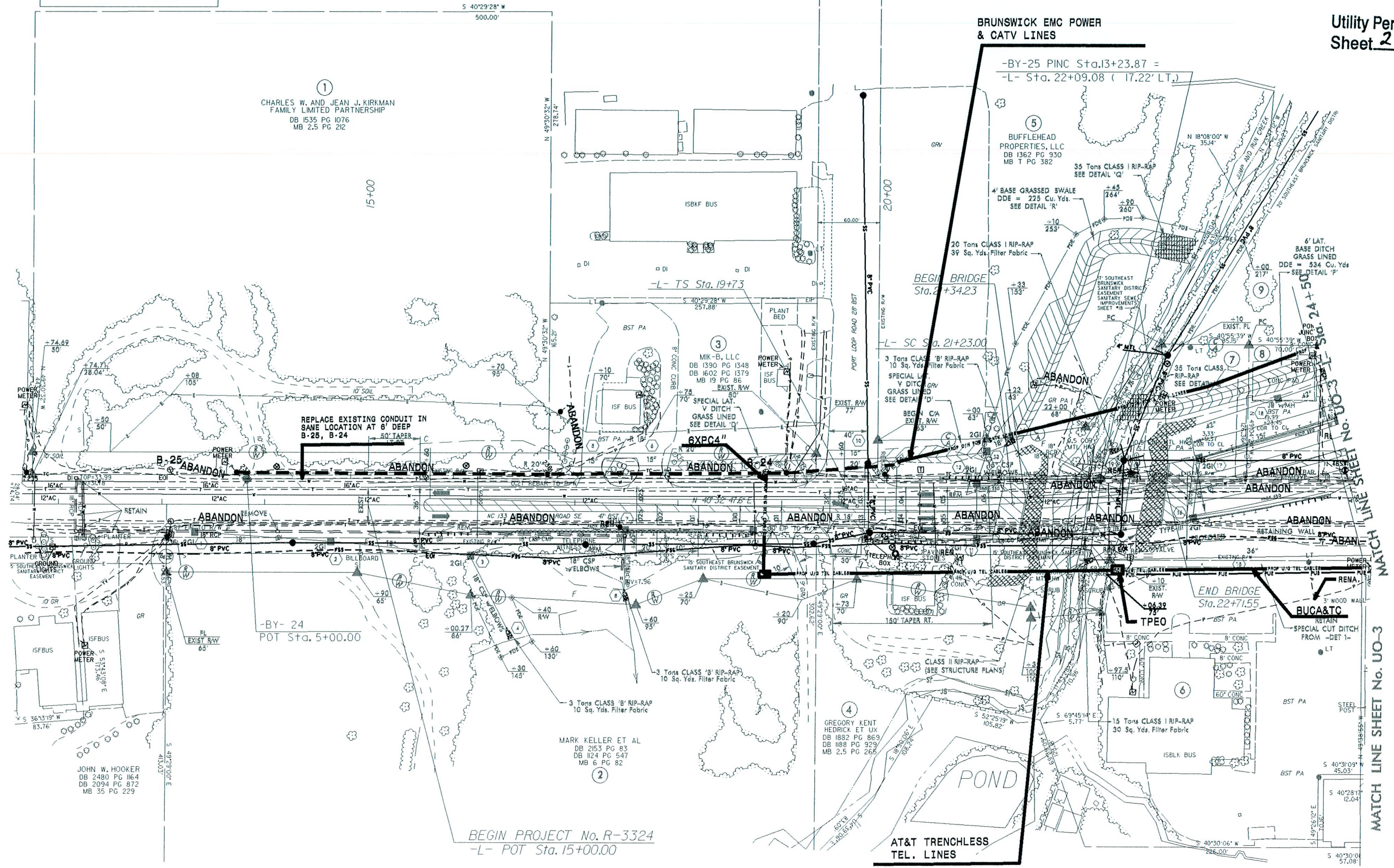
NOTE:  
ALL PROPOSED UTILITY WORK  
SHOWN ON THIS SHEET WILL  
BE DONE BY OTHERS

SHOULDER BERM GUTTER LOCATIONS  
-L- Sta. 20+87 to BEGIN BRIDGE LT.  
-L- END BRIDGE to Sta. 27+00 LT.  
-L- Sta. 16+00 to Sta. 18+70 RT.  
-L- END BRIDGE to Sta. 25+85 RT.  
-L- Sta. 28+00 to Sta. 31+00 RT.

| PROPERTY OWNERS |   |    |  |
|-----------------|---|----|--|
| 6               | SOUTHEAST CINEMA ENTERTAINMENT, INC.<br>DB 1835 PG 420<br>MB X PG 62<br>MB X PG 28  | 8  | KATHLEEN VILOSKI<br>DB 2368 PG 197   |
| 7               | NORTH CAROLINA DEPARTMENT OF TRANSPORTATION<br>FORMERLY SOUTHPORT-OAK ISLAND CHAMBER OF COMMERCE<br>DB 3083 PG 116<br>DB 576 PG 382<br>DB 1134 PG 894 | 10 | DAVIDSON ANIMAL HOSPITAL, PA<br>DB 1835 PG 420<br>DB 2160 PG 844<br>DB 1195 PG 1088<br>MB Y PG 263 |
|                 |   | 11 | RONALD M. HUGHES<br>DB 904 PG 482<br>MB X PG 28  |

Pls Sta 20+73.01 P Sta 25+50.41  
θs = 2° 57' 48.9" Δ = 32° 50' 51.0" (LT)  
Ls = 150.00' D = 3° 57' 05.2"  
LT = 100.00' L = 831.28'  
ST = 50.00' T = 427.41'  
R = 1,450.00'

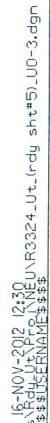
Utility Permit Drawing  
Sheet 2 of 17



16-NOV-2012 12:33  
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USER:NAME



Utility Permit Drawing  
Sheet 3 of 17





Utility Permit Drawing  
Sheet 4 of 17



16-NOV-2012 12:28  
es\RdyUt\Proj\NEU\R3324-Ut\_(rdy\_sht#6)\_U0-4.dgn



Utility Permit Drawing  
Sheet 5 of 17

29  
BRIAN KEITH KEESEE  
DB 3167 PG 407  
DB 2179 PG 367  
MAP 19 PG 506  
MAP 18 PG 205

 $45+00$ 

DETAIL A  
SPECIAL CUT DITCH  
(Not to Scale)

Natural Ground 3% D 4:1 or Flatter Front Ditch Slope  
Min. D=1.5 Ft.

**DETAIL M**  
**LATERAL BASE DITCH**  
 (Not To Scale)

The diagram shows a cross-section of a lateral base ditch. The ditch is trapezoidal, with a bottom width labeled **B** and a top width labeled **b**. The depth of the ditch is labeled **D**. The side slopes are indicated by a 3:1 ratio on both sides. The ditch is excavated into the **Natural Ground**, which is shown as a sloped line on the left. The ditch is filled with **Fill**, and the **Fill Slope** is shown on the right. The bottom of the ditch is labeled **1' Ft.**. The following dimensions are specified:

- Min. **D** = 2.0 Ft.
- B** = 5.0 Ft.
- b** = 5.0 Ft.

-1- Step. 55 + 62 to Step. 59 + 00 RT.

```

16-NOV-2012 12:27
\\s\rdy_ut\proj\NEU\R3324_ut_(rdy_sh#7)_U0-5.dgn
$$$$$USERNAME$$$$$

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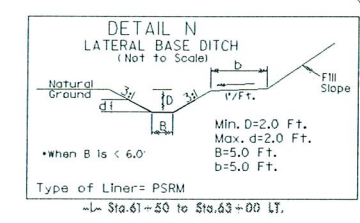
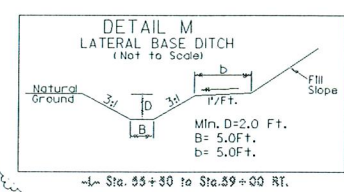
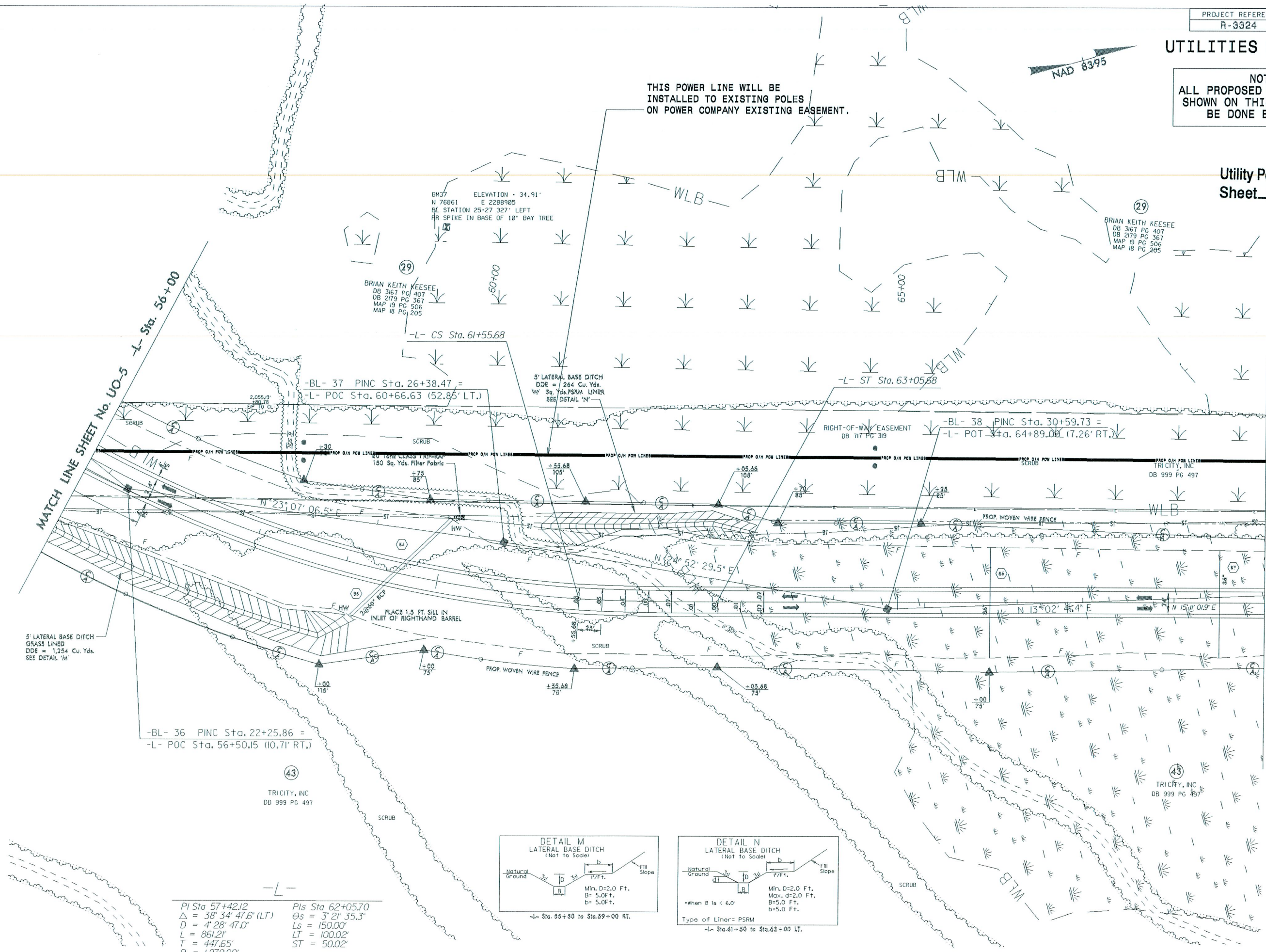


UTILITIES BY OTHERS

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

Utility Permit Drawing  
Sheet 6 of 17

THIS POWER LINE WILL BE  
INSTALLED TO EXISTING POLES  
ON POWER COMPANY EXISTING EASEMENT.



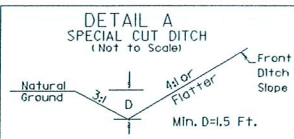
PI Sta 57+42.12  
 $\Delta = 38^\circ 34' 47.6''$  (LT)  
D = 4' 28' 47.0"  
L = 861.2'  
T = 447.65'  
R = 1,279.00'

PIs Sta 62+05.70  
 $\Theta s = 3^\circ 21' 35.3''$   
Ls = 150.00'  
LT = 100.02'  
ST = 50.02'

16-NOV-2012 11:58  
R:\Projects\3324\UO-6.dgn  
R:\Projects\3324\UO-6.dgn  
R:\Projects\3324\UO-6.dgn



5/14/99  
16-NOV-2012 14:57  
R3324-UT.rdy shw#13:UO-7.dgn  
333-555-5555



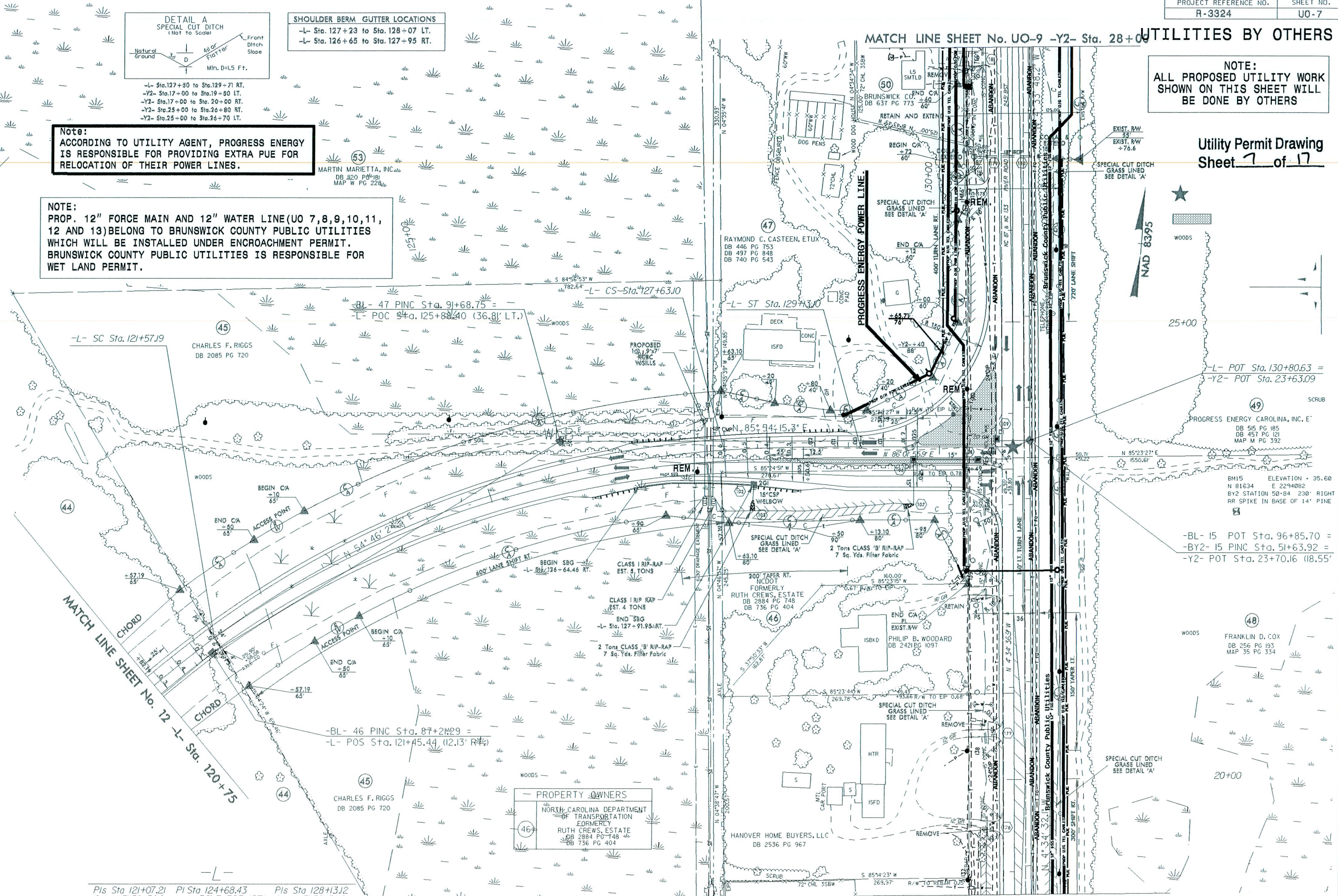
SHOULDER BERM GUTTER LOCATIONS  
-L- Sta. 127+23 to Sta. 128+07 LT.  
-L- Sta. 126+65 to Sta. 127+95 RT.

Note:  
ACCORDING TO UTILITY AGENT, PROGRESS ENERGY  
IS RESPONSIBLE FOR PROVIDING EXTRA PUE FOR  
RELOCATION OF THEIR POWER LINES.

NOTE:  
PROP. 12" FORCE MAIN AND 12" WATER LINE(UO 7,8,9,10,11,  
12 AND 13)BELONG TO BRUNSWICK COUNTY PUBLIC UTILITIES  
WHICH WILL BE INSTALLED UNDER ENCROACHMENT PERMIT.  
BRUNSWICK COUNTY PUBLIC UTILITIES IS RESPONSIBLE FOR  
WET LAND PERMIT.

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

Utility Permit Drawing  
Sheet 7 of 17



|                   |                         |                   |
|-------------------|-------------------------|-------------------|
| Pls Sta 121+07.21 | Pl Sta 124+68.43        | Pls Sta 128+13.12 |
| Os = 3' 59' 50.6" | Os = 32' 17' 38.7" (RT) | Os = 3' 59' 50.6" |
| Ls = 150.00'      | D = 5' 19' 47.4"        | Ls = 150.00'      |
| LT = 100.03'      | L = 605.91'             | LT = 100.03'      |
| ST = 50.02'       | T = 311.24'             | ST = 50.02'       |
|                   | R = 1,075.00'           |                   |

MATCH LINE SHEET No. UO-8 -Y2- Sta. 18+75



16-NOV-2012 14:53  
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USER:RDJ

5/14/99

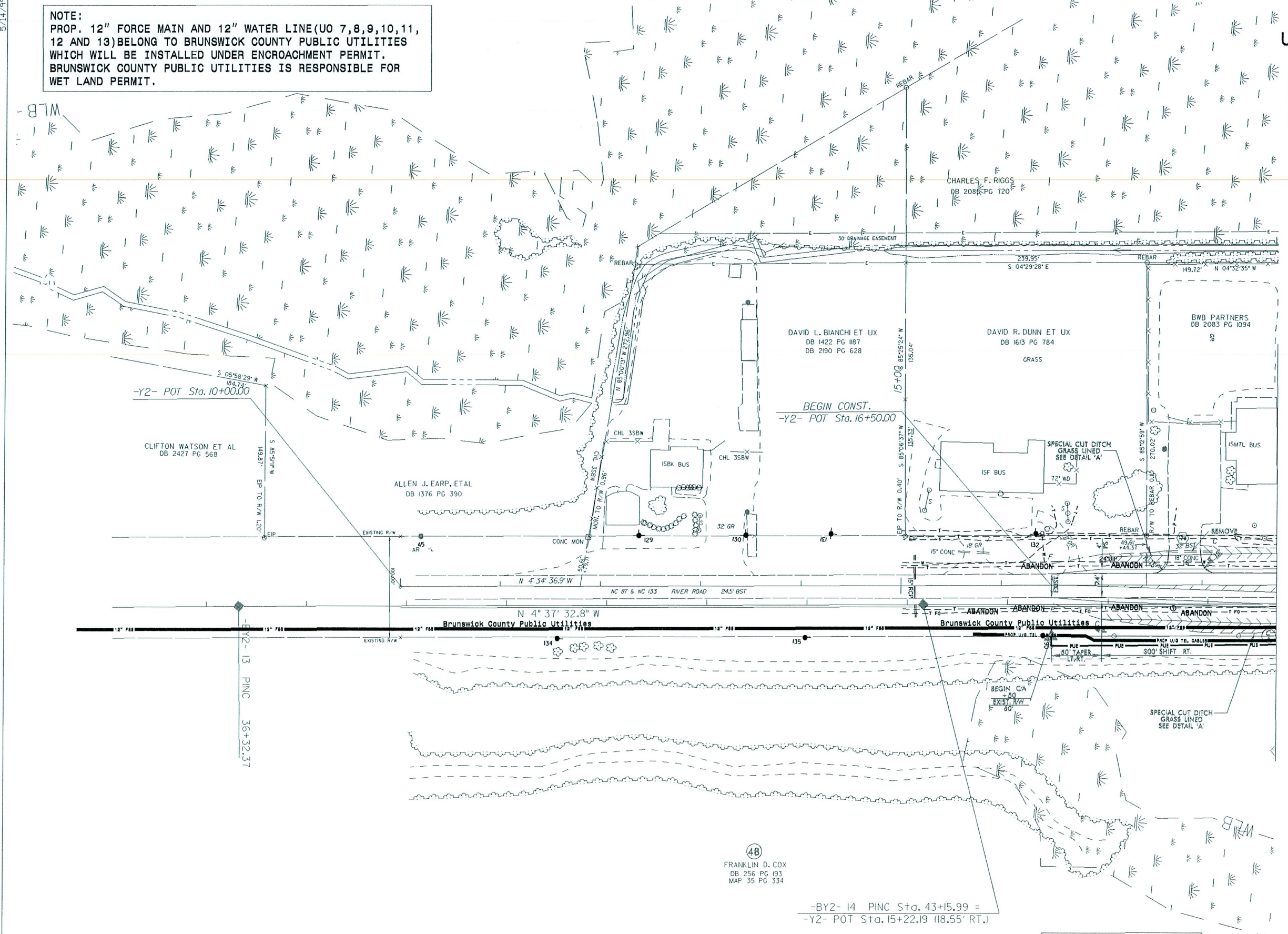
NOTE:  
PROP. 12" FORCE MAIN AND 12" WATER LINE(UO 7,8,9,10,11,  
12 AND 13)BELONG TO BRUNSWICK COUNTY PUBLIC UTILITIES  
WHICH WILL BE INSTALLED UNDER ENCROACHMENT PERMIT.  
BRUNSWICK COUNTY PUBLIC UTILITIES IS RESPONSIBLE FOR  
WET LAND PERMIT.

|                       |           |
|-----------------------|-----------|
| PROJECT REFERENCE NO. | SHEET NO. |
| R-3324                | UO-8      |

UTILITIES BY OTHERS

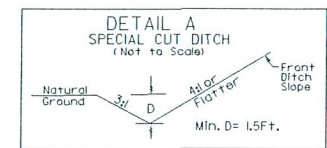
NOTE:  
ALL PROPOSED UTILITY WORK  
SHOWN ON THIS SHEET WILL  
BE DONE BY OTHERS

Utility Permit Drawing  
Sheet 8 of 17



MATCH LINE SHEET No. UO-7 -Y2- Sta. 18+75

(48)  
FRANKLIN D. COX  
DB 256 PG 193  
MAP 35 PG 334



-Y2- Sta. 17+00 to Sta. 19+50 LT.  
-Y2- Sta. 17+00 to Sta. 20+00 RT.

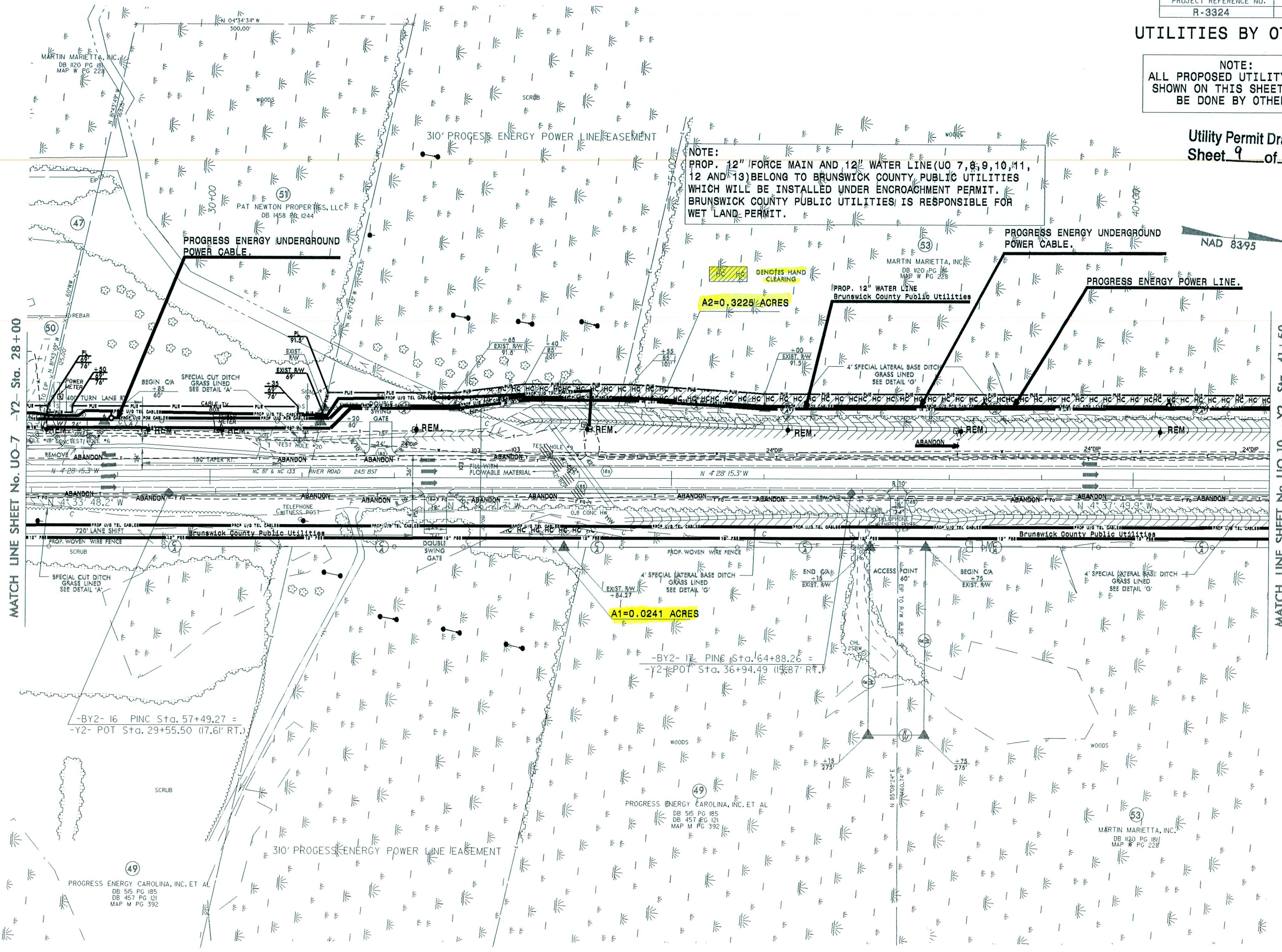


UTILITIES BY OTHERS

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

Utility Permit Drawing  
Sheet 9 of 17

NOTE:  
PROP. 12" FORCE MAIN AND 12" WATER LINE (UO 7, 8, 9, 10, 11, 12 AND 13) BELONG TO BRUNSWICK COUNTY PUBLIC UTILITIES WHICH WILL BE INSTALLED UNDER ENCROACHMENT PERMIT. BRUNSWICK COUNTY PUBLIC UTILITIES IS RESPONSIBLE FOR WET LAND PERMIT.



MATCH LINE SHEET No. UO-7 -Y2- Sta. 28+00

MATCH LINE SHEET No. UO-10 -Y2- Sta. 41+50

-BY2- 16 PINE Sta. 57+49.27 =  
-Y2- POT Sta. 29+55.50 (17.6' RT.)

A1=0.0241 ACRES  
-BY2- 17 PINE Sta. 64+88.26 =  
-Y2- POT Sta. 36+94.49 (15.8' RT.)

16-NOV-2012 14:52  
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USER:R3324

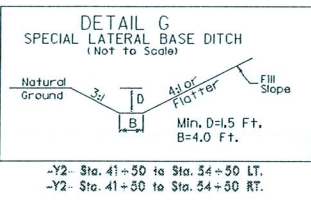


UTILITIES BY OTHERS

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

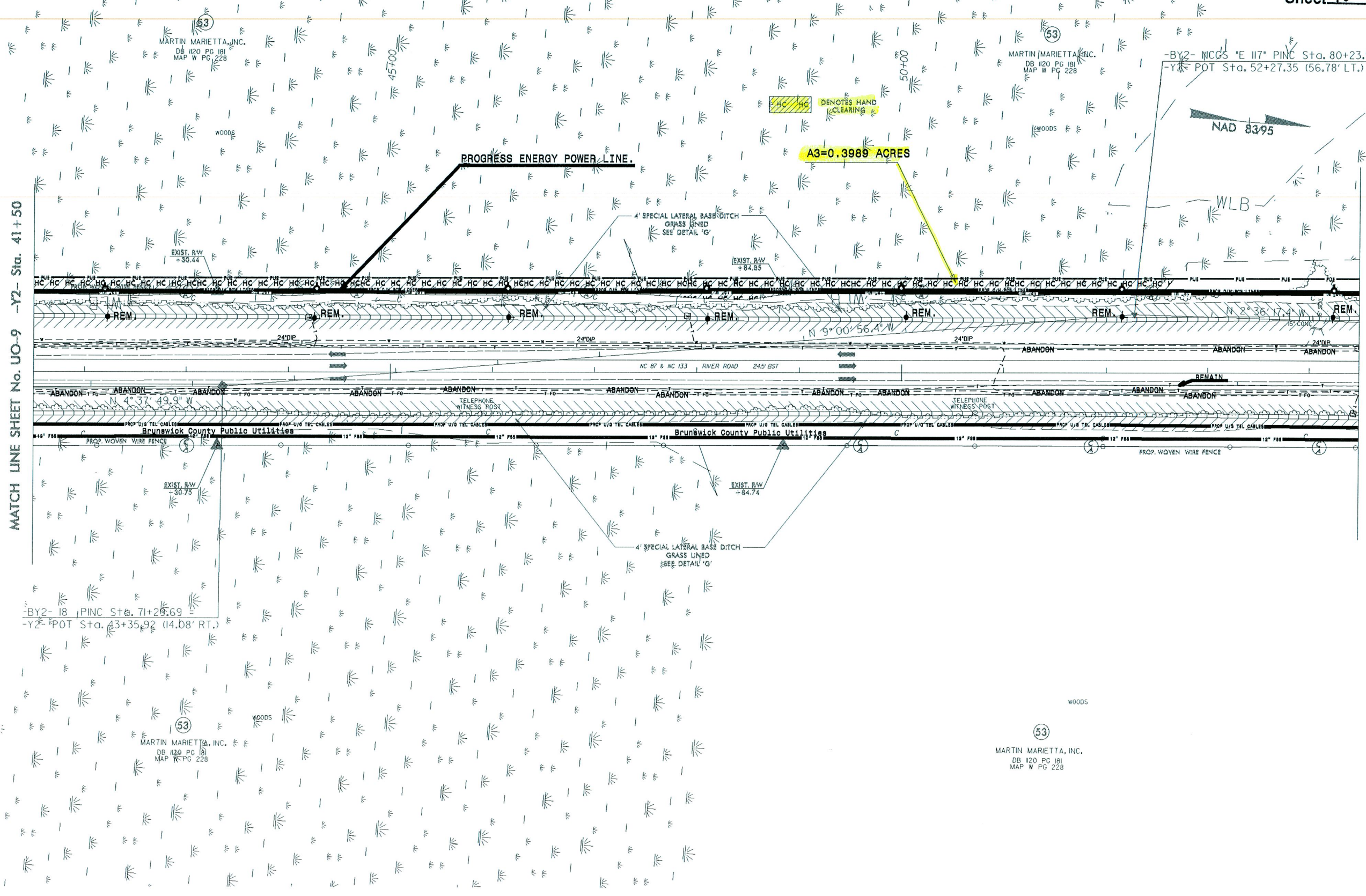
Utility Permit Drawing  
Sheet 10 of 17

NOTE:  
PROP. 12" FORCE MAIN AND 12" WATER LINE(UO 7,8,9,10,11,  
12, AND 13)BELONG TO BRUNSWICK COUNTY PUBLIC UTILITIES  
WHICH WILL BE INSTALLED UNDER ENCROACHMENT PERMIT.  
BRUNSWICK COUNTY PUBLIC UTILITIES IS RESPONSIBLE FOR  
WET LAND PERMIT.



MATCH LINE SHEET No. UO-9 -Y2- Sta. 41+50

MATCH LINE SHEET No. UO-11 -Y2- Sta. 54+50





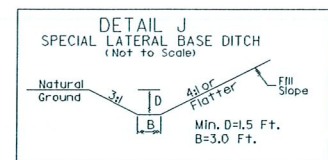
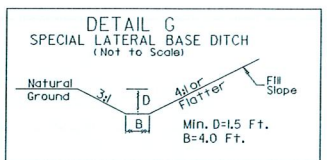
UTILITIES BY OTHERS

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

Utility Permit Drawing  
Sheet 11 of 17



-Y2-  
Pls Sta 66+86.71  
Os = 3' 42' 16.1"  
Ls = 150.00'  
LT = 100.02'  
ST = 50.02'



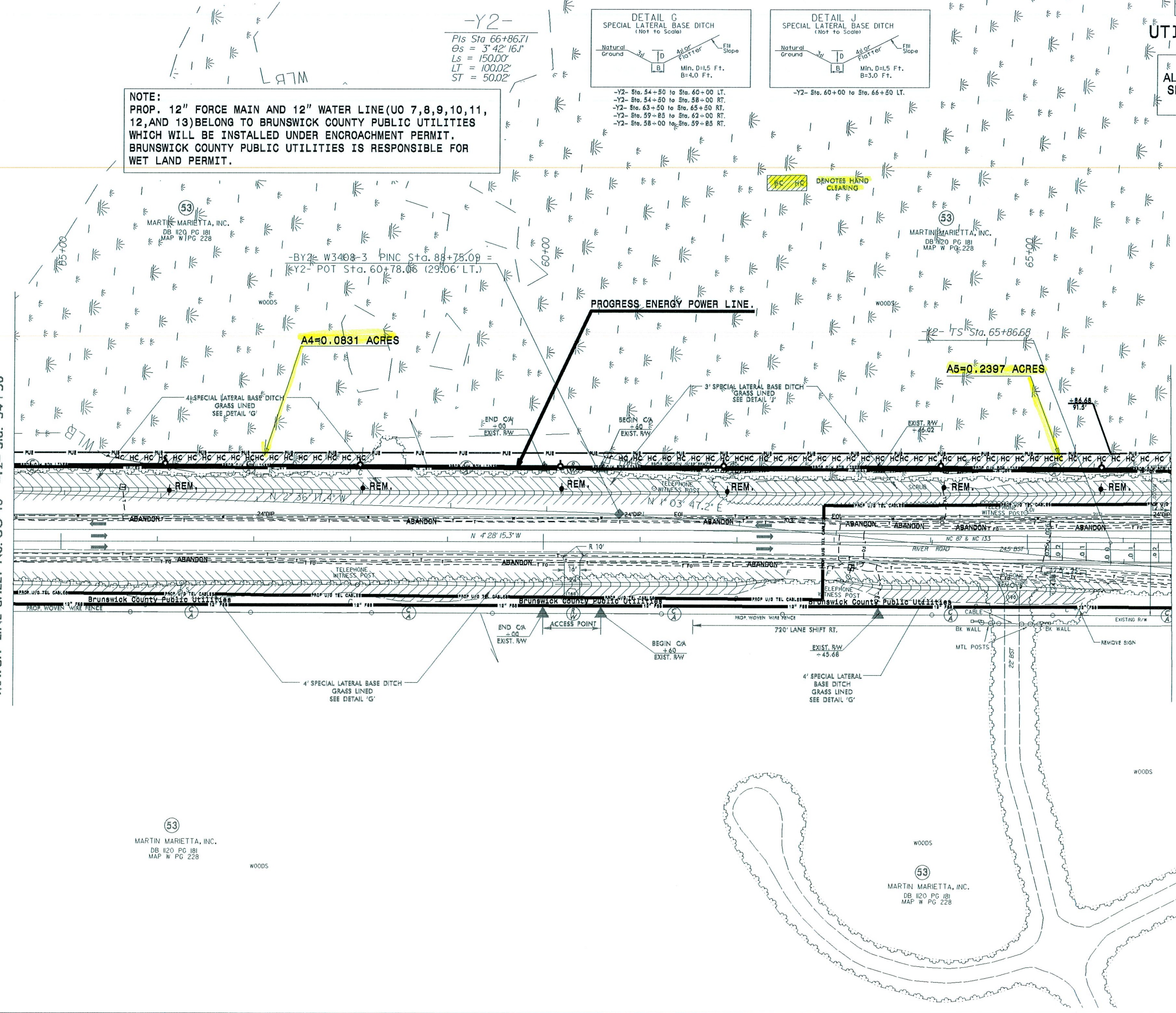
NOTE:  
PROP. 12" FORCE MAIN AND 12" WATER LINE (UO 7,8,9,10,11,  
12, AND 13) BELONG TO BRUNSWICK COUNTY PUBLIC UTILITIES  
WHICH WILL BE INSTALLED UNDER ENCROACHMENT PERMIT.  
BRUNSWICK COUNTY PUBLIC UTILITIES IS RESPONSIBLE FOR  
WET LAND PERMIT.

-Y2- Sta. 54+50 to Sta. 60+00 LT.  
-Y2- Sta. 54+50 to Sta. 58+00 RT.  
-Y2- Sta. 63+50 to Sta. 65+50 RT.  
-Y2- Sta. 59+85 to Sta. 62+00 RT.  
-Y2- Sta. 58+00 to Sta. 59+85 RT.

-Y2- Sta. 60+00 to Sta. 66+50 LT.

MATCH LINE SHEET No. UO-10 -Y2- Sta. 54+50

MATCH LINE SHEET No. UO-12 -Y2- Sta. 66+50



16-NOV-2012 11:48  
R3324\_UO-11.dgn  
R3324\_UO-11.dgn

(53)  
MARTIN MARIETTA, INC.  
DB 1120 PG 181  
MAP W PG 228

(53)  
MARTIN MARIETTA, INC.  
DB 1120 PG 181  
MAP W PG 228



Utility Permit Drawing  
Sheet 12 of 17

DETAIL J  
SPECIAL LATERAL BASE DITCH  
(Not to Scale)

Natural Ground

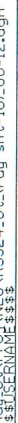
3:1

D

B

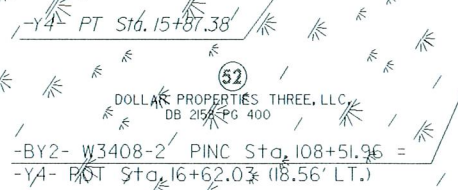
4:1 or Flatter

Min. D=1.5 Ft.  
B=3.0 Ft.





Utility Permit Drawing  
Sheet 13 of 17



16-NOV-2012 11:43  
\\rdy-ut\pro\NEU\R324-Ut\_(rdy\_sht#19)\_U0-13.dgn

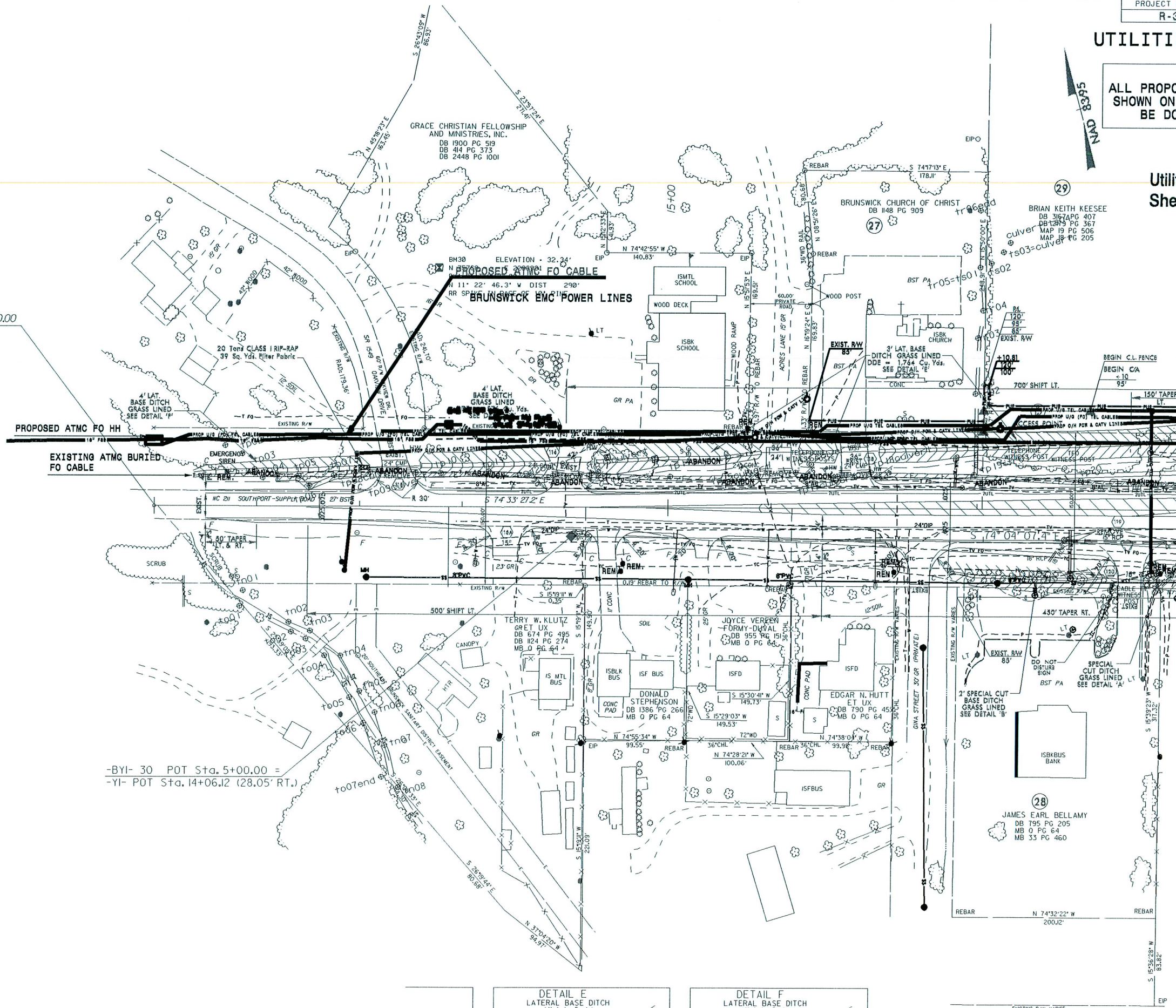


UTILITIES BY OTHERS

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

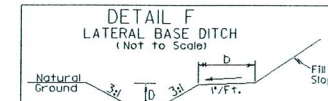
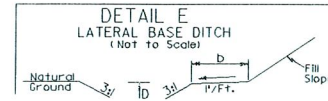
Utility Permit Drawing  
Sheet 14 of 17

-Y1- POT Sta. 10+00.00



-BYI- 30 POT Sta. 5+00.00 =  
-Y1- POT Sta. 14+06.12 (28.05' RT.)

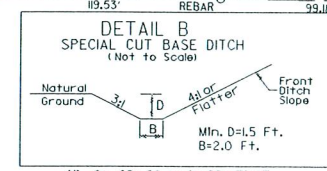
MATCH LINE SHEET No. UO-4 -Y1- Sta. 20+00





Utility Permit Drawing  
Sheet 15 of 17

Utility Permit Drawing  
Sheet 15 of 17



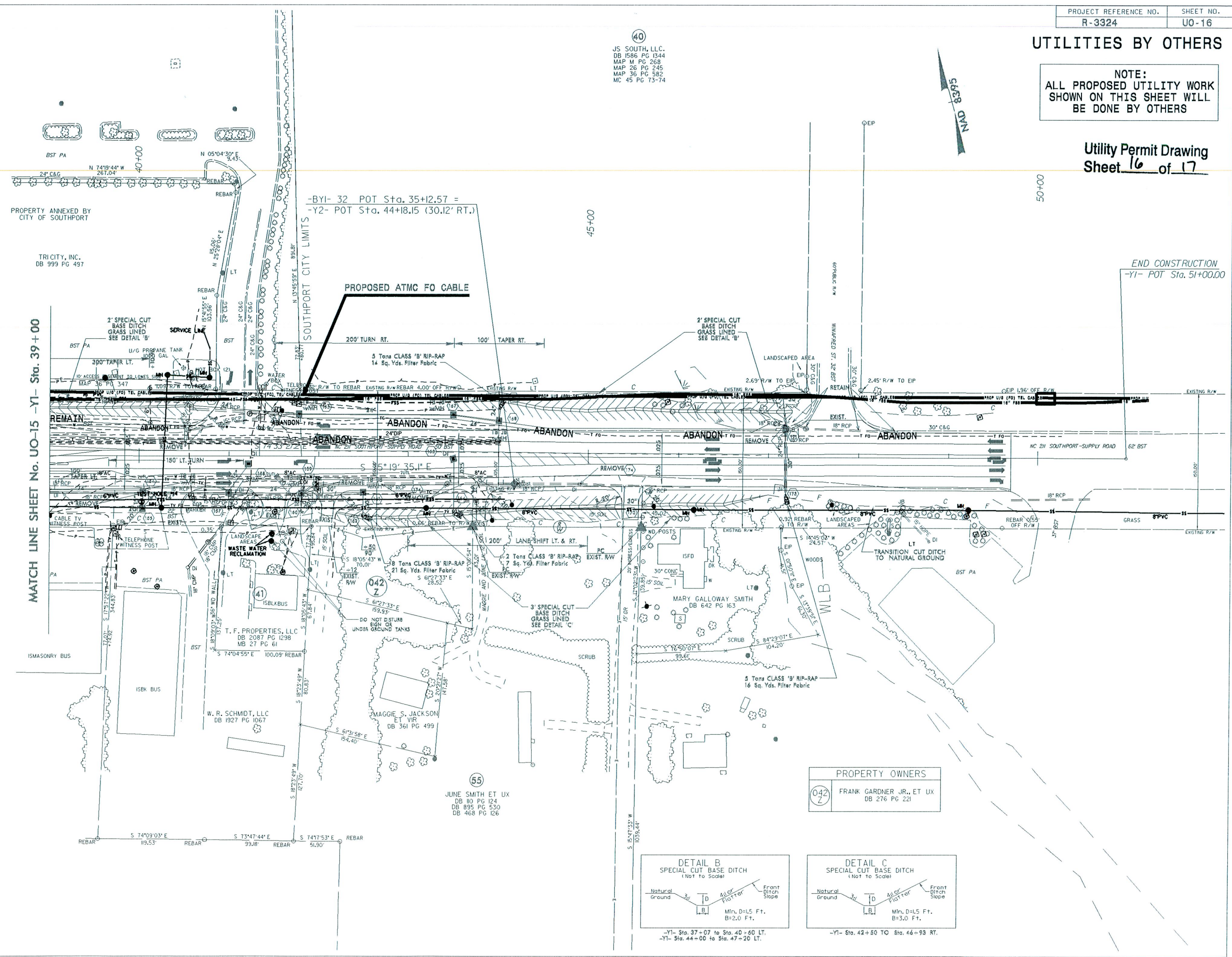


UTILITIES BY OTHERS

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

Utility Permit Drawing  
Sheet 16 of 17

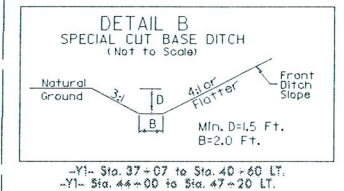
END CONSTRUCTION  
-Y1- POT Sta. 51+00.00



MATCH LINE SHEET No. UO-15 -Y1- Sta. 39+00

40  
JS. SOUTH, LLC.  
DB 1586 PG 1344  
MAP M PG 268  
MAP 26 PG 245  
MAP 36 PG 582  
MC 45 PG 73-74

PROPERTY OWNERS  
042 Z  
FRANK GARDNER JR., ET UX  
DB 276 PG 221





| Site No. |             | Station (From/To) | Structure Size / Type | WETLAND IMPACTS                 |                             |                             |                                      |                                |                           | SURFACE WATER IMPACTS |   |                                     |                            |  |
|----------|-------------|-------------------|-----------------------|---------------------------------|-----------------------------|-----------------------------|--------------------------------------|--------------------------------|---------------------------|-----------------------|---|-------------------------------------|----------------------------|--|
|          |             |                   |                       | Permanent Fill In Wetlands (ac) | Temp. Fill In Wetlands (ac) | Excavation in Wetlands (ac) | Mechanized Clearing in Wetlands (ac) | Hand Clearing in Wetlands (ac) | Permanent SW impacts (ac) | Temp. SW impacts (ac) | Existing Channel Impacts Permanent (ft) | Existing Channel Impacts Temp. (ft) | Natural Stream Design (ft) |  |
| A1&A2    | sheet UO-9  | O/H Power Line    | <0.01                 |                                 |                             |                             |                                      | 0.36                           |                           |                       |   |                                     |                            |  |
| A3       | sheet UO-10 | O/H Power Line    | <0.01                 |                                 |                             |                             |                                      | 0.40                           |                           |                       |   |                                     |                            |  |
| A4&A5    | sheet UO-11 | O/H Power Line    | <0.01                 |                                 |                             |                             |                                      | 0.32                           |                           |                       |   |                                     |                            |  |
| A6&A7    | sheet UO-12 | O/H Power Line    | <0.01                 |                                 |                             |                             |                                      | 0.06                           |                           |                       |   |                                     |                            |  |
| A8       | sheet UO-13 | O/H Power Line    | <0.01                 |                                 |                             |                             |                                      | 0.03                           |                           |                       |   |                                     |                            |  |
|          |             |                   |                       |                                 |                             |                             |                                      |                                |                           |                       |   |                                     |                            |  |
|          |             |                   |                       |                                 |                             |                             |                                      |                                |                           |                       |   |                                     |                            |  |
|          |             |                   |                       |                                 |                             |                             |                                      |                                |                           |                       |   |                                     |                            |  |
|          |             |                   |                       |                                 |                             |                             |                                      |                                |                           |                       |   |                                     |                            |  |
|          |             |                   |                       |                                 |                             |                             |                                      |                                |                           |                       |   |                                     |                            |  |
| TOTALS:  |             |                   | <0.01                 | 0.00                            | 0.00                        | 0.00                        | 0.00                                 | 0.85                           | 0.00                      | 0.00                  | 0.00                                    | 0.00                                | 0.00                       |  |

Utility Permit Drawing  
Sheet 17 of 17

NC DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
BRUNSWICK COUNTY  
TIP PROJECT (R-3324)