



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

June 13, 2008

U. S. Army Corps of Engineers
Regulatory Field Office
Post Office Box 1000
Washington, NC 27889-1000

Attention: Mr. William Wescott
NCDOT Coordinator

Subject: **Application for Section 404 Individual Permit, Section 401 Water Quality Certification, and Neuse River Buffer Authorization** for the US 17 New Bern Bypass from SR 1330 near the Jones-Craven County Line to SR 1438 near Vanceboro, Craven County. State Project No. 6179001T, Debit \$570 from WBS 34414.1.1, TIP No. R-2301 A & B.

Dear Sir:

The North Carolina Department of Transportation (NCDOT) proposes to construct a four-lane, controlled access freeway around the western limits of the city of New Bern, in Craven County, North Carolina. The adjacent municipalities of River Bend, Trent Woods, and Bridgeton would also be bypassed. The proposed US 17 New Bern Bypass, approximately 12 to 16 miles long, would be designated as part of US 17. The bypassed portion of existing US 17 would be designated as US 17 Business. The New Bern Bypass is represented by two Sections R-2301 A & B; R-2301 A has final design, Section B has only preliminary estimates based on functional roadway construction limits within the preferred corridor. This application package consists of the cover letter, ENG Form 4345, half size plan sheets, permit drawings, utility plans, the Ecosystem Enhancement Program (EEP) confirmation letter, and Hydraulic Design Merger Concurrence meeting (4B, 4C) minutes for R-2301 A.

1.0 Purpose and Need

The purpose of the project is to improve regional mobility; improve access to the emerging commercial industrial and residential areas in the West New Bern/Washington Forks vicinity; accelerate planned economic growth in the local and regional areas served by US 17, reduce traffic congestion in the downtown New Bern area, facilitate the efficient movement of north-south traffic through the New Bern area, thereby conserving fuel and reducing delay for these travelers, and improve traffic safety.

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

TELEPHONE: 919-715-1500
FAX: 919-715-1501
WEBSITE: WWW.NCDOT.ORG

LOCATION:
2728 CAPITAL BLVD
PLB SUITE 168
RALEIGH, NC 27604

2.0 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 30.60 acres of permanent wetland impacts, 3.05 acres of permanent surface water impacts, and 334 linear feet of permanent stream impacts. In addition, there will be 0.79 acre of temporary impacts to wetlands due to the placement of temporary erosion control devices.

Neuse Riparian Buffers: There will be 36,569 ft² of impacts to riparian buffers for R-2301 A; of this Zone 1 has 21,400 ft² and Zone 2 has 15,169 ft². Buffer impacts for R-2301 B will be estimated at final design.

Table 1. Summary of Jurisdictional Permanent Impacts

Section	HUC	Riverine Wetlands (ac)*	Non-riverine Wetlands (ac)*	Streams (ft)	Ponds (ac)
R-2301 A	03020202	0.22	3.74	0.00	0.00
	03020204	11.60	2.94	334	0.00
R-2301 B	03020202	10.90 [†]	1.20 [†]	0.00 [†]	0.00 [†]
Total		22.72	7.88	334	0.00

*Includes fill, excavation, and mechanized clearing

[†]Impacts are based on preliminary design; therefore, these impacts are expected to decrease once the final design is completed.

3.0 Summary of Mitigation

The proposed construction of R-2301 A will impact 6.68 acres of jurisdictional non-riverine wetlands, 11.82 acres of jurisdictional riverine wetlands, and 334 linear feet of stream, that will require mitigation within the Neuse River Basin. The North Carolina Department of Environment and Natural Resources Ecosystem Enhancement Program (EEP) will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the unavoidable impacts to 18.49 acres of impacts to wetland and the 334 linear feet of stream.

Since R-2301 B is currently unfunded and jurisdictional resource impact estimates are based on functional roadway construction limits within the preferred corridor. Therefore, no mitigation plan for R-2301 B is proposed at this time. A mitigation proposal will be submitted with any relevant permit modifications for R-2301 when final design is complete for the B section.

4.0 Project Schedule

For construction purposes, the New Bern Bypass has been divided into two sections. Permit drawings for the proposed R-2301 A and preliminary estimates have been calculated for R-2301 B. The NCDOT will apply for any relevant permit modifications for R-2301 when final design is complete for the B section. Construction will not commence on the B section until permit modifications have been received based on final design. Currently, R-2301 A is scheduled to let November 18, 2008 and R-2301 B is designated as "Post Year" in the 2008-2015 TIP.

5.0 NEPA Document Status

The Final Environmental Impact Statement (FEIS) and the Record of Decision (ROD) for the FEIS were approved by the Federal Highway Administration (FHWA) in February 2001 and June 19, 2001 respectively, for R-2301 and circulated to the appropriate agencies. A FHWA Right of Way Consultation was issued on June 6, 2006.

6.0 Independent Utility

The subject project complies with 23 CFR Part 771.111(f), which lists the Federal Highway Administration (FHWA) characteristics of independent utility of a project:

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

7.0 Resource Status

Wetland and stream determination and delineations within R-2301 A for the Preferred Alternative corridor were first conducted in 1996 and 1997 by NCDOT using the field delineation method outlined in the 1987 Corps of Engineers Wetland Delineation Manual. The North Carolina Division of Water Quality's (DWQ) Identification Methods for the Origins of Intermittent and Perennial Streams was used to make stream determinations. Due to the age of the original delineations, URS Corp. conducted redelineation surveys during 2004 & 2005. A Jurisdictional Determination was issued on April 12, 2005 by David Lekson.

The wetlands associated with R-2301 B were identified based on National Wetland Inventory (NWI) mapping and field reconnaissance surveys, as outlined in 1987 Corps of Engineers Wetland Delineation Manual (Please see Exhibit 3.23 in FEIS for locations of wetlands within the R-2301 B corridor).

Streams were not summarized in the FEIS. However, two jurisdictional streams have been identified within the project area of R-2301 A, Deep Gully and UT to Deep Gully. Five named jurisdictional streams and their eight unnamed tributaries have been identified by means of remote sensing within the corridor of R-2301 B.

Table 2. R-2301 Stream Descriptions

Section	Permit Site No	Stream Name	Sub-basin	Stream Index Number	Best Usage Classification
HUC 03020204					
R-2301 A	1A	UT to Deep Gully	03-04-11	27-101-32	C;Sw,NSW
R-2301 A	1B	Deep Gully	03-04-11	27-101-32	C;Sw,NSW

Table 2 (Continued). R-2301 Stream Descriptions					
HUC 03020202					
Section	Permit Site No	Stream Name	Sub-basin	Stream Index Number	Best Usage Classification
R-2301 B	N/A	Batchelor Creek	03-04-08	27-98	C;Sw,NSW
R-2301 B	N/A	Round Tree Branch	03-04-08	27-98-2.5	C;Sw,NSW
R-2301 B	N/A	Neuse River	03-04-08	27-(96)	SC;Sw,NSW
R-2301 B	N/A	Swift Creek	03-04-09	27-97-(6)	SC;Sw,NSW
R-2301 B	N/A	Bear Branch	03-04-09	27-97-7	C;Sw,NSW

8.0 Impacts to Jurisdictional Resources

Impacts to jurisdictional wetlands and surface waters for R-2301 A are summarized below in Tables 3-4 respectively.

Table 3. R-2301 A Wetland Impacts and Descriptions

Permit Site No.	Delineation Label[†]	Riverine or Non-Riverine	Cowardin Description	Permanent* (ac.)	Temporary** (ac.)	Mitigation Required
HUC 03020204						
1A	LE	Riverine	PFO1C	0.07	0.00	Yes
1B	LE	Riverine	PFO1C	0.13	0.00	Yes
1C	LE	Riverine	PFO1C	0.01	0.00	Yes
2	SD	Non-Riverine	PFO1/4C	0.04	0.00	Yes
3	EF	Riverine	PFO1/4E	0.22	0.00	Yes
4	F	Non-Riverine	PFO1/2C	0.40	0.00	Yes
5	E	Non-Riverine	PFO1/2C	1.06	0.00	Yes
6	G	Non-Riverine	PFO2C	0.42	0.00	Yes
7	D	Non-Riverine	PFO1/2E	0.04	0.00	Yes
8	K	Non-Riverine	PFO1/4E	0.09	0.00	Yes
9	L/L1104	Non-Riverine	PFO1/4E	0.47	0.00	Yes
10	KC	Non-Riverine	PFO2/4C	1.22	0.00	Yes
10A	EAA	Non-Riverine	PFO1/2E	0.00	0.00	No
HUC 03020202						
11	KM/KK	Riverine	PFO1E PFO4E	9.17	0.00	Yes
12	CS	Non-Riverine	PFO1C	0.72	0.00	Yes
16	CR	Non-Riverine	PFO1/4C	0.12	0.00	Yes
18	CH	Non-Riverine	PFO1/2C	1.94	0.00	Yes
19	WB	Non-Riverine	PFO4C	0.09	0.00	Yes
20	RE	Riverine	PFO4E	1.04	0.00	Yes
21	WD	Riverine	PFO4E	1.18	0.00	Yes
22	3	Non-Riverine	PFO1/4E	0.03	0.00	Yes
23	2	Non-Riverine	PFO1/4E	0.04	0.00	Yes
Total				18.49	0.00	

Key: PFO – Palustrine-Forested, C – Seasonally Flooded, E – Seasonally Flooded/Saturated, 1 – Broad-Leaved Deciduous, 2 – Needle-Leaved Deciduous, 4 – Needle-Leaved Evergreen. *Includes fill, excavation, and

mechanized clearing, **Excludes 0.79 acre of temporary impacts to wetlands due to the placement of temporary erosion control devices throughout the project, †Labels from Natural Resources Technical Report (NRTR) Supplement

Table 4. R-2301 A Surface Water Impacts and Descriptions

Permit Site No.	Delineation Label	Stream				Pond	
		Permanent (ft)	Temporary (ft)	Permanent (ac.)	Temporary (ac.)	Permanent (ac.)	Temporary (ac.)
1A	UT to Deep Gully	334	0.00	0.05	< 0.01	0.00	0.00
Total		334	0.00	0.05	< 0.01	0.00	0.00

8.1 Impacts to Waters of the U.S.

Permanent Impacts: Proposed permanent impacts include fill, excavation, and mechanized clearing in wetlands. Of these impacts, 6.68 acres are to non-riverine wetlands and 11.82 acres are to riverine wetlands. The total permanent wetland impact for the R-2301 A is 18.49 acres. There are 334 linear ft. of stream impacts and 0.05 acre of fill in surface waters from the pipe installation at UT to Deep Gully.

Temporary Impacts: Proposed temporary impacts to wetlands is 0.79 acres of temporary fill in wetlands in the hand clearing areas for the installation of erosion control measures, including some or all of the following: Temporary Silt Fence, Special Sediment Control Fence, and Temporary Rock Silt Checks.

Hand Clearing: There will be 2.33 acres of hand clearing.

Utility Impacts: There will be < 0.01 acre (4 ft²) of permanent impacts and < 0.01 acre (4 ft²) jurisdictional resources resulting from placement and removal of power-line poles for R-2301 A (see Utility Plan Sheet 9, Site 20).

8.2 Impacts Neuse River Basin Riparian Buffers

This project is located in the Neuse River Basin (HUCs 03020202 & 03020204), therefore the regulations pertaining to the Neuse River Buffer Rules (15A NCAC 2B.0233) apply. There will be 36,569 ft² of impacts to riparian buffers. This includes 104 ft² in Zone 2 due to the bridge crossing at site 2. According to the buffer rules, bridges are *Allowable*. There will be 47 ft² in Zone 2 due to roadway crossing, which according to the buffer rules are also *Allowable*. Uses designated as *Allowable* may proceed within the riparian buffer if there are no practical alternatives to the requested use pursuant to Item (8) of this Rule. In addition, 36,418 ft² (21,400 ft² in Zone 1 and 15,018 ft² in Zone 2) of impacts will occur from the culvert installation at site 1. According to the buffer rules, road crossings greater than 150 feet are *Allowable with Mitigation*. Uses designated as *Allowable with Mitigation* may proceed within the riparian buffer provided that there are no practical alternatives to the requested use pursuant to Item (8) of this Rule and an appropriate mitigation strategy has been approved pursuant to Item (10) of this Rule. All practicable measures to minimize impacts within buffer zones were followed.

According to the Neuse River Riparian Buffer Rules, overhead electric utility line perpendicular crossings of streams and other surface waters that disturb equal to or less than 150 linear feet or

one-third of an acre of riparian buffer are *Exempt*. Uses designated as *Exempt* are allowed within the riparian buffer. *Exempt* uses shall be designed, constructed, and maintained to minimize soil disturbance and to provide the maximum water quality protection practicable. This project meets this threshold and is therefore *Exempt* from the buffer Rules. Consequently, a Buffer Authorization from the Division of Water Quality for utility work is not required.

9.0 Protected Species

The United States Fish and Wildlife Service list five federally protected species for Craven and Jones Counties as of the January 31, 2008 listing (Table 5).

Table 5. Federally Protected Species in Craven¹ and Jones² Counties

Common Name	Scientific Name	Federal Status	Habitat Present	Biological Conclusion
<i>Alligator mississippiensis</i> ^{1, 2}	American alligator	T(S/A)	N/A	N/A
<i>Dermochelys coriacea</i> ¹	Leatherback sea turtle	E	No Habitat	No Effect
<i>Trichechus manatus</i> ¹	West Indian Manatee	E	No Habitat	No Effect
<i>Picoides borealis</i> ^{1, 2}	Red-cockaded woodpecker	E	Minimal Habitat	No Effect
<i>Aeschynomene virginica</i> ¹	Sensitive joint-vetch	T	No Habitat	No Effect

A resurvey of the project corridor by helicopter for bald eagle (*Haliaeetus leucocephalus*) and red-cockaded woodpecker was conducted in September 2004 and again in January 2005 to identify nest sites; as a result, none were observed. In addition, ground surveys for sensitive joint-vetch were conducted in 2004; no suitable habitat was identified in the project corridor.

The Bald eagle was removed from the Endangered Species List on August 8, 2007. It is however, protected under the Bald and Golden Eagle Protection Act. As stated above, surveys found no nests within 660 feet of the project limits; nesting and foraging habitat will not be affected by the construction of R-2301 A.

10.0 Cultural Resources

10.1 Archaeology

A terrestrial archaeological survey of Alternative 12 (Preferred Alternative) was conducted between October 1998 and March 1999, to complete the archaeological evaluation of the project. The results of this investigation was submitted by the Federal Highway Administration to the North Carolina State Historic Preservation Office for review and comments for the Preferred Alternative corridor. The results of these surveys are included in the FEIS.

10.2 Historic Architecture

Twelve historic properties in close proximity to the alternatives for the proposed US 17 New Bern Bypass are listed in, or are eligible for listing in the National Register of Historic Places. These properties are Bellair Plantation; Ipock-Lancaster-Beaman Farm; Caswell Branch Bridge and Neuse Brick Road; John Gatlin House; James A. Ernul House; Trent Brick Road; Elijah

Farrow Farm; Beech Grove United Methodist Church; Carman House; and Ernul Brick Road, Clarks District, and the Norm Ipock House.

The Bellair Plantation currently is listed in the National Register as an eight-acre property. However, the historic architectural resources surveys conducted for the proposed action recommended the boundaries of the property be expanded to 377 acres. The SHPO concurred with this recommendation on December 21, 1990 (see FEIS).

For all the build alternatives, findings of no effect were determined for Bellair Plantation; Ipock-Lancaster-Beaman Farm; Caswell Branch Bridge and Neuse Brick Road; John Gatlin House; Trent Brick Road; Elijah Farrow Farm; Beech Grove United Methodist Church; Clarks District; and the Norm Ipock House.

A finding of no adverse effect was determined for the Carman House for the chosen Alternative provided the NCDOT consult with the SHPO on potential mitigation measures prior to right-of-way acquisition (see FEIS).

11.0 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.

12.0 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.

12.1 Avoidance and Minimization

All jurisdictional features were delineated, field verified and surveyed within the corridor for R-2301 A. 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 will minimize long-term water quality impacts using the most recent Best Management Practices for Protection of Surface Waters, as identified in the Federal Aid Highway Program (FHPM) and North Carolina Administrative Code, Chapter 4.
- 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.

- Crossings of jurisdictional areas were angled to cross as perpendicular as possible to minimize impacts.
- The use of Preformed Scour Holes.
- The use of 3:1 fill slopes in jurisdictional areas where practicable.
- The use of hand clearing in wetlands where practicable.
- Construction of bridge over Deep Gulley.
- The use of Equalizer Pipes to enhance hydraulic conductivity where practicable.
- To avoid and/or minimize impacts to anadromous fish, the “Stream Crossing Guidelines for Anadromous Fish Passage” will be followed including an in-stream construction moratorium from March 1 to August 31 on Bachelor Creek, Swift Creek, and the Neuse River (R-2301 B).
- Wetland impacts to riverine systems associated with the Neuse River, Swift Creek, and Bachelor Creek will be minimized by bridging the adjacent riverine wetlands (R-2301 B).

12.2 Compensation

The NCDOT has avoided and minimized impacts to jurisdictional resources to the greatest extent possible as described above. The unavoidable impacts to jurisdictional wetlands and streams will be offset by compensatory mitigation provided by off-site mitigation. The EEP will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the unavoidable impacts to 18.49 acres of wetlands, 334 linear feet of stream, and 33,917 ft² of riparian buffers resulting from the construction of R-2301 A. In order to comply with the prior commitment to provide mitigation from a constructed site showing reasonable success, NCDOT has requested EEP provide credits from sites that are in-basin, in-ground and showing success. Therefore, NCDOT is requesting a wetland and stream mitigation ratio of 1:1. A copy of the EEP Acceptance Letter is included with this application.

As stated in section 3.0, given that R-2301 B is currently unfunded and jurisdictional resource impacts are based on functional roadway construction limits within the preferred corridor, no mitigation is proposed for R-2301 B at this time. A mitigation proposal will be submitted with any relevant permit modifications for R-2301 when final design is complete for the B section. A previous commitment was to provide a portion of the mitigation from the removal of fill causeway located on NC 43, associated with the construction of R-2301 B. Feasibility of this removal for mitigation will be evaluated after final design for R-2301 B has been completed.

12.3 Previous Mitigation Commitments for B-2531

Commitments were made by NCDOT during the permitting for Bridge No. 28 on US 17 over the Neuse River and the widening of Bridge Nos. 83 and 84 on US 70 Bypass over the Trent River in New Bern (B-2531) related to compensatory mitigation for B-2531 and R-2301. These commitments required the construction of mitigation sites for B-2531 and R-2301, and monitoring of these sites until reasonable success is demonstrated, prior to beginning construction on R-2301.

Since that time, three mitigation sites have been constructed to provide compensatory mitigation for B-2531 from all or portions of the available assets. These sites include: Sawmill Mitigation Site, Lengyel Mitigation Site, and Croatan Mitigation Site. Overall, the site hydrology and vegetation for the Sawmill Mitigation Site have been extremely successful since construction in 2003. NCDOT plans to schedule a site visit with the Regulatory Agencies to confirm that the success criteria the site have been met. The Lengyel Mitigation Site and the Croatan Mitigation Site Phase I have been closed out for monitoring. The Croatan Mitigation Site Phase II has been proposed for close out due to hydrologic success and five years of monitoring.

With mitigation previously provided for B-2531 in addition to EEP providing credits for R-2301 from sites that are in-basin, in-ground and showing success, NCDOT feels that these prior commitments have been satisfied.

13.0 Indirect and Cumulative Effects

An Indirect and Cumulative Effects Assessment (ICE) was completed December 10, 2004. The report concluded that low population growth, lack of adequate water and sewer services, and significant expanses of wetlands (nearly one-third of the Growth Impact Study Area), would help deter project-induced growth. Any project related growth would be limited to interchanges at US 70 and US 17. R-2301 A is controlled access between these termini. The area around the US 70 interchange is presently developed with an established industrial park nearby. The southern terminus of the project, at US 17, is in a primarily rural region. R-2301 A will not likely induce any significant amount of growth in this area.

In response to NCDWQ comments to the 2004 ICE Assessment, an updated ICE was completed for the project May 21, 2008. While concurring with the 2004 report conclusions, the DWQ believed that the cumulative effects of R-2301 A could not be adequately addressed without considering the travel timesavings offered by the completion of R-2301B. The 2008 ICE concluded that R-2301B is identified as "Unfunded/Future Years" in the NCDOT 2009-2015 Draft STIP. Therefore, potential cumulative effects from the addition of this section of the bypass were low, given the timeframe of analysis (year 2030). Further, any significant travel timesavings from the addition of R-2301B would be for through-traffic transportation, around the City of New Bern. Additionally, the updated ICE discussed programs and measures that are presently in place to help mitigate the effects on water quality of any development within the GISA. These include Coastal Stormwater Rules, Neuse River Rules, Craven County Flood Damage Prevention Ordinance, and specific conservation measures developed by the City Of New Bern as a result of project R-4463 (NC 43 Connector).

14.0 Regulatory Approvals

Section 404

Application is hereby made for a USACE Individual 404 Permit as required for the above-described activities. NCDOT is requesting a phased permit to allow construction activities to commence on Section A of R-2301 as per attached construction plans. NCDOT will apply for a permit modification when designs are finalized for Section B.

Section 401

Application is hereby made for a Section 401 Water Quality Certification from the N. C. Division of Water Quality. NCDOT is requesting a phased certification to allow construction activities to commence on Section A of R-2301 as per attached construction plans. NCDOT will apply for a certification modification when designs are finalized for Section

Neuse Riparian Buffer Authorization

NCDOT is requesting a Neuse Riparian Buffer Authorization from the NCDWQ. NCDOT is requesting a phased authorization to allow construction activities to commence on Section A of R-2301 as per attached construction plans. NCDOT will apply for an authorization modification when designs are finalized for Section

Stormwater Permit

Under separate cover, NCDOT is submitting an application for a Stormwater Permit from the NCDWQ Stormwater Section.

CAMA

Under separate cover, NCDOT is submitting a request for a CAMA Federal Consistency Review from the N. C. Division of Coastal Management for R-2301 A. When final design has been completed for R-2301 B a CAMA Major Permit Application will be submitted.

A copy of this permit application will be posted on the DOT website at:
<http://www.ncdot.org/doh/preconstruct/pe/neu/permit.html>.

If you have any questions or need additional information, please contact Tyler Stanton at tstanton@ncdot.gov or (919) 715-1439.

Sincerely,



for

Gregory J. Thorpe, Ph.D.

Environmental Management Director, PDEA Branch

cc:

W/attachment

Mr. Brian Wrenn, NCDWQ (5 Copies)

Ms. Kathy Matthews, USEPA

W/o attachment (see website for attachments)

Dr. David Chang, P.E., Hydraulics

Mr. Greg Perfetti, P.E., Structure Design

Mr. Victor Barbour, P.E., Project Services Unit

Mr. Mark Staley, Roadside Environmental

Mr. C. E. Lassiter, PE, Div. 2 Engineer

Mr. Jay Johnson, Div. 2 Environmental Officer

Mr. Scott McLendon, USACE, Wilmington

Mr. Gary Jordan, USFWS

Mr. Travis Wilson, NCWRC

Mr. Ron Sechler, NMFS

Ms. Anne Deaton, NCDMF

Mr. Steve Sollod, NCDCM

Mr. Jay Bennett, P.E., Roadway Design

Mr. Majed Alghandour, P. E., Programming and TIP

Mr. Art McMillan, P.E., Highway Design

Ms. Beth Harmon, EEP

Mr. Todd Jones, NCDOT External Audit Branch

Mr. Mark Pierce, PE, PDEA

Mr. Drew Joyner, PE, Human Environment Unit Head

Mr. Clarence W. Coleman, P.E., FHWA

Ms. LeiLani Paugh, NEU

Mr. Randy Griffin, NEU

APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT
(33 CFR 325)

OMB APPROVAL NO. 0710-003
Expires December 31, 2004

Public reporting burden for this collection of information is estimated to average 10 hours per response, although the majority of applications should require 5 hours or less. This includes 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 Service Directorate of Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302; and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003), Washington, DC 20503. 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.

PRIVACY ACT STATEMENT

Authority: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research and Sanctuaries Act, 33 USC 1413, Section 103. 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. 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.

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETED
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(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME North Carolina Department of Transportation Project Development & Environmental Analysis	8. AUTHORIZED AGENT'S NAME AND TITLE (an agent is not required)
6. APPLICANT'S ADDRESS 1598 Mail Service Center Raleigh, NC 27699-1598	9. AGENT'S ADDRESS
7. APPLICANT'S PHONE NOS. W/AREA CODE a. Residence b. Business 919-715-7844	10. AGENT'S PHONE NOS. W/AREA CODE a. Residence b. Business

11. STATEMENT OF AUTHORIZATION

I hereby authorize, to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

APPLICANT'S SIGNATURE

DATE

NAME, LOCATION, AND DESCRIPTION OR PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions)

New Bern Bypass (R-2301 A)

13. NAME OF WATERBODY, IF KNOWN (if applicable)
Neuse River Basin (Deep Gulley)

14. PROJECT STREET ADDRESS (if applicable)

15. LOCATION OF PROJECT
Craven and Jones NC
COUNTY STATE

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions) Section, Township, Range, Lat/Lon, and/or Accessors's Parcel Number, for example.

New Bern, NC

17. DIRECTIONS TO THE SITE

Please see attached vicinity map and cover letter.

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

construct a new multi-lane freeway around a portion of the City of Fayetteville

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

Construct a four-lane, controlled access freeway around the western limits of the city of New Bern, in Craven County, North Carolina.

USE BLOCKS 20-22 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

Construction of a new roadway that crosses several jurisdictional waters of the US

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

Please see attached permit drawings for site-specific details.

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

Please see attached permit drawing summary sheet

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

24. 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 Permit Drawings

25. 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
--------	---------------	-----------------------	--------------	---------------	-------------

N/A

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

26. 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

6-13-08

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.

Subject: Minutes from the Interagency 4B Hydraulic Design Review Meeting on
April 12, 2005 for R-2301A in Craven and Jones Counties

Team Members:

William Wescott-USACE	(present)
Travis Wilson-NCWRC	(present)
Gary Jordan-USFWS	(present)
Kathy Matthews-EPA	(present)
Chris Militscher- EPA	(present)
Donnie Brew-FHWA	(present)
Tyler Stanton-NEU	(present)
Chris Rivenbark-NEU	(present)
John Merritt-NEU	(present)
Steve Sollod-NCDCM	(present)
Brian Wrenn-NCDWQ	(absent)
John Hennessy	(present 4/13/06)

Participants:

Marshall Clawson, NCDOT Hydraulics
Vincent Rivers, NCDOT Hydraulics
Vang Moua, NCDOT DSU
Brian Yamamoto, NCDOT-PDEA
Doug Taylor, NCDOT RDU
Davidian Byrd, NCDOT RDU
Katherine Scheetz, NCDOT RDU
Jeff Koontz, URS Corporation
Roger Weadon, MA Engineering

The general introduction was initiated by Marshall Clawson. Introductions were made by all in attendance.

General Notes:

- It was noted that the 4A Meeting was held on August 18th 2005
- Every cross pipe is buried 1 ft below existing ground
- There are only 2 jurisdictional streams on the project. The wetlands and stream classifications were updated by URS Corporation in the fall of 2004 and the jurisdictional delineation done by Bill Biddlecomb.

Sheets 4 -10
No comments

Sheet 11

Add toe protection between -L- Sta 32+10 and 32+40 RT to avoid a ditch that might drain wetlands.

Sheets 12 - 19
No comments

Sheets 20-21

Location and spacing of equalizer pipes is acceptable (spaced approximately 60m/200 ft).

Sheets 22 – 36

No comments

Sheet 37

The geotechnical recommendations were for an extended cut ditch to keep groundwater out of the subgrade. The proposed ditch along the left side of US 17 is a flat bottom trapezoidal ditch, which has a velocity less than 2 ft/s before entering into the wetlands.

Sheets 38- 40

No comments

Sheet 41

Recommend that the impact for the wetland at Y4 Sta 6+70 RT be a total take.

Meeting Adjourned

Additional comments from meeting with John Hennessy on April 13, 2006

- Confirm that that there were no additional streams noted on the soil suvey maps.
- Confirm 3:1 fill slopes at all wetland areas.
- Request to change fill slopes from 4:1 to 3:1 at judrisdictiona stream crossings located at Sta 17+96 and 49+35.
- Investigate adding a second equalizer pipe at wetland site located in the vicinity of Sta 34+80.
- Questioned the need for Road - DR1- because of wetland impacts.

Subject: Minutes from the Interagency 4C Hydraulic Design Review Meeting on
April 11, 2007 for R-2301A in Craven and Jones Counties

Team Members:

William Wescott-USACE	(present)
Gary Jordan-USFWS	(present)
Travis Wilson-NCWRC	(present)
Cathy Bittingham-NCDCM	(absent)
Steve Sollod-NCDCM	(present)
Stephen Lane, NCDCM	(present)
David Wainwright-NCDWQ	(present)
Chris Militscher- EPA	(present)
Kathy Matthews-EPA	(present)
Donnie Brew-FHWA	(present)
Davidian Byrd-Roadway	(present)
Brian Yamamoto-PDEA	(absent)
Chris Rivenbark-NEU	(present)

Participants:

Marshall Clawson, NCDOT Hydraulics
Vincent Rivers, NCDOT Hydraulics
Jeff Harris, NCDOT SDU
Kate Hite, NCDOT RDU
Mark Staley, NCDOT REU
Mark Laugisch, NCDOT REU
Ben Hemphill, NCDOT Utilities
Mike Robinson, NCDOT Division 2
Mark Pierce, PDEA
Elizabeth Lusk, NDOT NEU
Tyler Stanton, NCDOT NEU
LeiLani Paugh, NCDOT NEU
Morgan Weatherford, NCDOT NEU
Roger Weadon, MA Engineering

The general introduction was initiated by Marshall Clawson. Introductions were made by all in attendance.

General Notes:

- Questions were raised concerning how R-2514D would tie into this project (R-2301A) and any overlapping impacts to wetlands and the two Jurisdictional streams. Note: R-2514 is in the planning stage. The Agencies asked about changing the box culvert to a bridge. The reply was "No" because we have had the 4A and 4B meetings.
- The temporary fill associated with the erosion and sediment control measures will be added to the summary of impacts as a note.
- A question was raised about fill slopes. It was confirmed that 3:1 slopes were being proposed.

Sheets 5-7

See general note about R-2514D

Sheets 8 - 10

No comments

Sheet 11

There was a question concerning proposed pipe directly discharging into wetlands at site 5 and concerns for erosive velocities. Pipe needed to maintain the wetland hydrology for that site. Would consider making the pipe a dual pipe to further minimize outlet velocities

Sheets 12 - 14

No comments

Sheet 15

The Impacts at the triple pipe will be corrected to reflect the actual channel impacts.

Sheets 16 - 21

No comments

Sheet 22 - 24

Hand clearing impacts between the main line and the service road will be changed to mechanized clearing.

Sheet 26

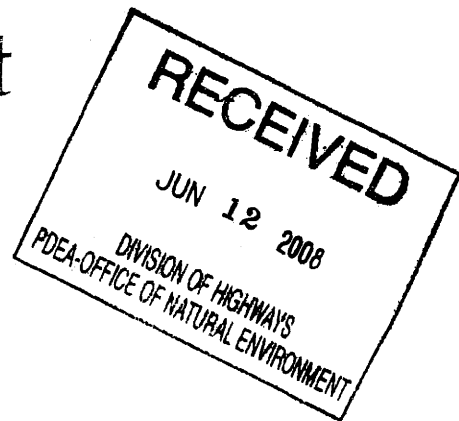
Site 20 will be changed to a total wetland loss.

Sheets 27- 41

No comments

Meeting Adjourned

Note: The Hydraulics Unit met with David Wainwright separately to review the buffer permit.



June 12, 2008

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

Dear Dr. Thorpe:

Subject: EEP Mitigation Commitment Letter:

R-2301A, US 17 – New Bern Bypass – from US 17 South of New Bern to US 70, Craven and Jones Counties; Neuse Basin, Cataloging Units 03020202 and 03020204, Southern Outer Coastal Plain

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will commit to provide the compensatory stream and wetland mitigation and buffer mitigation that will be required for the subject project. Based on the information supplied by you on June 10, 2008, the impacts are located in the Neuse River Basin in the Southern Outer Coastal Plain (SOCP) Eco-Region, and are as follows:

Neuse 03020202

Riparian Wetlands: 0.22 acre
Non-Riparian Wetlands: 3.74 acres

Neuse 03020204

Riparian Wetlands: 11.60 acres
Non-Riparian Wetlands: 2.94 acres
Warm Stream: 334 feet

Buffer – Zone 1: 19,661.0 square feet
Buffer – Zone 2: 14,303.0 square feet

Restoring... Enhancing... Protecting Our State

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



All buffer mitigation requests and approvals are administrated through the Riparian Restoration Buffer Fund. The NCDOT will be responsible to ensure that appropriate compensation for the buffer mitigation will be provided in the agreed upon method of fund transfer. Upon receipt of the NCDWQ's Buffer Authorization Certification, EEP will transfer funds from Tri-Party MOA Fund into the Riparian Restoration Buffer Fund. Upon completion of transfer payment, NCDOT will have completed its riparian buffer mitigation responsibility for TIP R-2301A. Subsequently, EEP will conduct a review of current MOA mitigation projects in the river basin to determine if available buffer mitigation credits exist. If there are buffer mitigation credits available, then the Riparian Restoration Buffer Fund will purchase the appropriate amount of buffer mitigation credits from Tri-Party MOA Fund.

EEP commits to implementing sufficient compensatory stream and wetland mitigation credits to offset the impacts associated with this project by the end of the MOA Year in which this project is permitted, in accordance with Section X of the Amendment No. 2 to the Memorandum of Agreement between the North Carolina Department of Environment and Natural Resources, the North Carolina Department of Transportation, and the U. S. Army Corps of Engineers, fully executed on March 8, 2007. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from EEP.

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

Sincerely,

A handwritten signature in cursive script, reading "William D. Gilmore".

William D. Gilmore, P.E.
EEP Director

cc: Mr. William Wescott, USACE – Washington
Mr. Brian Wrenn, Division of Water Quality, Wetlands/401 Unit
Mr. Steve Sollod, Division of Coastal Management
File: R-2301A



June 12, 2008

Mr. William Wescott
U. S. Army Corps of Engineers
Washington Regulatory Field Office
Post Office Box 1000
Washington, North Carolina 27889-1000

Subject: EEP Mitigation Acceptance Letter:

R-2301A, US 17 – New Bern Bypass from US 17 South of New Bern to US 70, Craven and Jones Counties; Neuse River Basin (Cataloging Units 03020202 and 03020204); Southern Outer Coastal Plain (SOCP) Eco-Region

References: TIP B-2531 – Replace Bridge Number 28 on US 17 over the Neuse River and Bridge Number 83/84 on US 70 Bypass over the Trent River, Craven County

NCDCM Major CAMA Permit Number 81-95 Issued June 26, 1995 (for TIP B-2531)

NCDWQ 401 Water Quality Certification 95123 Issued June 21, 1995 (for TIP B-2531)

Dear Mr. Wescott:

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the compensatory stream, riparian wetland and nonriparian wetland mitigation and the buffer mitigation for the unavoidable impact associated with the above referenced project. As indicated in the NCDOT's mitigation request dated June 10, 2008, stream, riparian and nonriparian wetland mitigation from EEP is required for approximately 334 feet of warm stream impacts, 11.82 acres of riparian wetland impacts and 6.68 acres of nonriparian wetland impacts. The impacts associated with this project are in two cataloging units and as follows:

Restoring, Enhancing, Protecting Our State



Neuse 03020202:

0.22 acre riparian wetland
3.74 acres nonriparian wetland

Neuse 03020204:

334 feet warm stream
11.60 acres riparian wetland
2.94 acres nonriparian wetland

Also, this project will impact buffers located in CU 03020204 of the Neuse River Basin. The total buffer impacts are 19,661.0 square feet in Zone 1 and 14,303.0 square feet in Zone 2 with a total buffer mitigation requirement of 80,437.5 square feet. If the buffer impacts or the amount of mitigation required from EEP increases or decreases for this project, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required. All buffer mitigation requests and approvals are administrated through the Riparian Restoration Buffer Fund (Fund 2982).

The NCDOT will be responsible to ensure that the appropriate compensation for the buffer mitigation will be provided in the agreed upon method of fund transfer. Upon receipt of the NCDWQ's Buffer Authorization Certification, EEP will transfer funds from Fund 2984 (Tri-Party MOA Account) into Fund 2982 and commit to provide the appropriate buffer mitigation to offset the impacts associated with this project.

At the request of the Division of Coastal Management and pursuant to permit conditions regarding mitigation included in the Major CAMA Permit and the 401 Water Quality Certification for TIP B-2531, below are two tables containing a listing of the mitigation sites and mitigation credits available in the cataloging units of the above identified impacts that meet the mitigation parameters established in the referenced permits. The information presented shows that the N. C. Department of Transportation implemented more than sufficient mitigation credits and demonstrated success through monitoring in cataloging units 03020202 and 03020204 of the Neuse River basin. The mitigation credits that exist in the cataloging units more than meets the mitigation conditions from the B-2531 permits as related to the New Bern Bypass project (TIP R-2301). The mitigation requirements associated with TIP R-2301 will be debited from the mitigation sites listed below in the amounts prescribed in the permits issued by the USACE and NCDWQ.

MOA Mitigation Assets in Neuse 03020202

Mitigation Site	River Basin	CU	Status	Stream		Riparian		Non-Riparian		Coastal Marsh	
				R	RE	R	RE	R	RE	R	RE
Bear Creek*	Neuse	03020202	Monitoring Complete	0	0	55.74	72.94	0	0	0	0
Neu-Con MBI (Casey-King)*	Neuse	03020202	Monitoring Year 5	0	0	0	0	24.62	0	0	0
Neu-Con MBI (Tull Wooten)*	Neuse	03020202	Monitoring Complete	0	0	0	0	0	25.00	0	0
Sleepy Creek	Neuse	03020202	Monitoring Year 3	0	0	92.03	94.83	0	0	0	0
Net Remaining Credits - Neuse 03020202 (as of 6/4/08)				0	0	147.77	167.77	24.62	25.00	0	0

MOA Mitigation Assets in Neuse 03020204

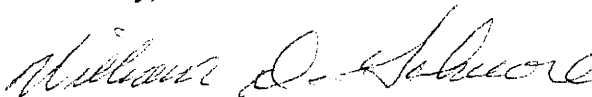
Mitigation Site	River Basin	CU	Status	Stream		Riparian		Non-Riparian		Coastal Marsh	
				R	RE	R	RE	R	RE	R	RE
Brock Mill Pond	Neuse	03020204	Monitoring Complete	0	680	0	21.80	0	0	0	0
Croatan, Phase I*	Neuse	03020204	Monitoring Complete	0	0	0	18.40	307.22	530.67	0	0
Croatan, Phase II*	Neuse	03020204	Monitoring Year 5	0	0	44.57	53.36	1,091.04	529.05	0	0
Neu-Con MBI (Marston)*	Neuse	03020204	Monitoring Year 3	6,042	0	30.00	30.00	0	0	0	0
Net Remaining Credits - Neuse 03020204 (as of 6/4/08)				6,042	680	74.57	123.56	1,398.26	1,059.72	0	0

*NOTE: Mitigation site is regulated by a mitigation banking instrument. Amount listed represents total remaining anticipated mitigation credits and not the current released amounts approved by the MBRTs.

Stream and wetland mitigation associated with this project will be provided in accordance with Section X of the Amendment No. 2 to the Memorandum of Agreement between the N. C. Department of Environment and Natural Resources, the N. C. Department of Transportation, and the U. S. Army Corps of Engineers fully executed on March 8, 2007 (Tri-Party MOA). EEP commits to debit sufficient compensatory riparian wetland and nonriparian wetland mitigation in Neuse 03020202 up to 0.44 and 7.48 wetland credits, respectively, and sufficient compensatory riparian and nonriparian wetland mitigation in Neuse 03020204 up to 23.2 and 5.88, respectively, as well as stream mitigation up to 668 credits to offset the impacts associated with this project by the end of the MOA year in which this project is permitted. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from EEP.

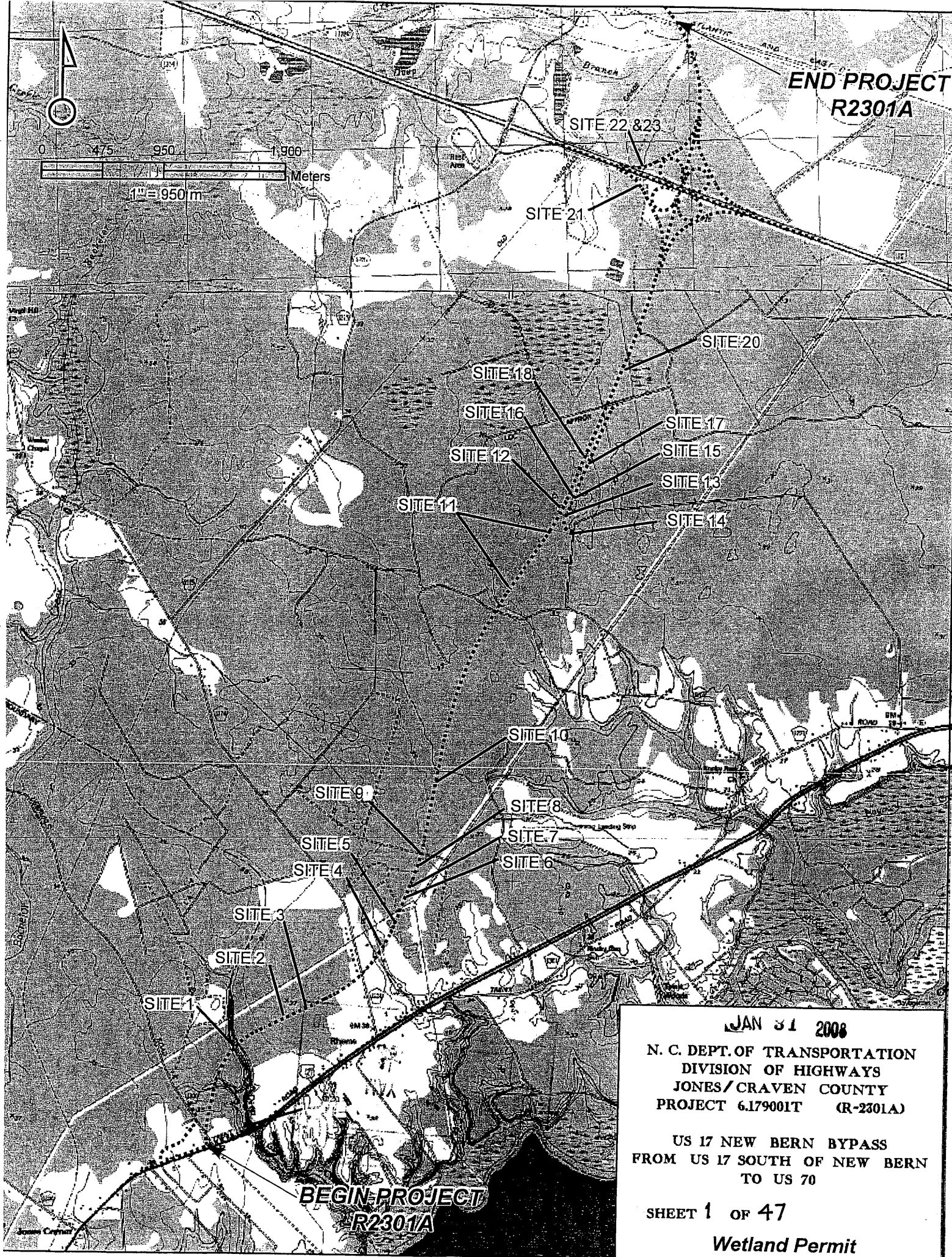
If you have any questions or need additional information, please contact Ms. Beth Harmon at 919-715-1929.

Sincerely,



William D. Gilmore, P.E.
EEP Director

cc: Mr. Gregory J. Thorpe, Ph.D., NCDOT-PDEA
Mr. Brian Wrenn, Division of Water Quality, Wetlands/401 Unit
Mr. Steve Sollod, Division of Coastal Management
File: R-2301A



**END PROJECT
R2301A**

SITE 22 & 23

SITE 21

SITE 20

SITE 18

SITE 16

SITE 17

SITE 12

SITE 15

SITE 13

SITE 11

SITE 14

SITE 10

SITE 9

SITE 8

SITE 5

SITE 7

SITE 4

SITE 6

SITE 3

SITE 2

SITE 1

**BEGIN PROJECT
R2301A**

JAN 31 2008

**N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
JONES/CRAVEN COUNTY
PROJECT 6.179001T (R-2301A)**

**US 17 NEW BERN BYPASS
FROM US 17 SOUTH OF NEW BERN
TO US 70**

SHEET 1 OF 47

Wetland Permit

Property Owners

Parcel Number

Names

Addresses

1

Sustainable Forests

PO Box 309
Roanoke Rapids, NC 5870

2

Palmer Heirs, John Henry
Peel, Nelson M.

1487 Wise Five Forks Road
Macon, C 27551

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

XXX COUNTY
WBS - XXXX (B-XXXX)

SHEET 2 of 47

4/11/2008

WETLAND PERMIT IMPACT SUMMARY

WETLAND IMPACTS											SURFACE WATER IMPACTS			
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ha)	Temp. Fill In Wetlands (ha)	Excavation in Wetlands (ha)	Mechanized Clearing in Wetlands (ha)	Hand Clearing in Wetlands (ha)	Permanent SW impacts (ha)	Temp. SW impacts (ha)	Existing Channel Impacts Permanent (m)	Natural Stream Design (m)			
1A	L 13+66 to 14+40	1650mm RCP	0.029				0.003	0.02	0.00	101.80				
1B	L 17+82 to 18+60	Bridge	0.052				0.208							
1C	Y1 20+98 to 21+30	Fill	0.004				0.005							
2	L 22+64 to 22+84		0.015				0.003							
3	L 24+52 to 24+98		0.089				0.013							
4	L 32+36 to 33+12		0.164				0.022							
5	L 34+27 to 35+08		0.430				0.048							
6	L 36+81 to 37+60		0.171				0.023							
7	L 37+84 to 38+07		0.017				0.001							
8	L 39+31 to 40+13		0.037				0.020							
9	L 39+30 to 41+29		0.190				0.028							
10	L 45+66 to 47+32		0.471		0.023		0.048							
11	L 61+78 to 69+22		3.712				0.446							
12	L 69+69 to 70+52		0.289				0.039							
16	L 71+13 to 71+60		0.047				0.013							
18	L 72+64 to 75+50		0.785				0.122							
19	L 80+66 to 80+89		0.035				0.000							
20	L 81+45 to 82+55		0.422				0.057							
21	RPB 5+58 to 7+28		0.248		0.218		0.055							
22	RPA 6+01 to 6+21		0.010				0.006							
23	RPA 6+59 to 6+69				0.015									
10A	L 55+70						0.000							
TOTALS:			7.217		0.256		1.16	0.019	0.001	101.8				

0.32 HA of temporary fill in wetland in the hand clearing areas for erosion control measures

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

CRAVEN COUNTY
WBS - 34414.1.1 (R-2301A)

JMD Revised 2/03/05

SHEET

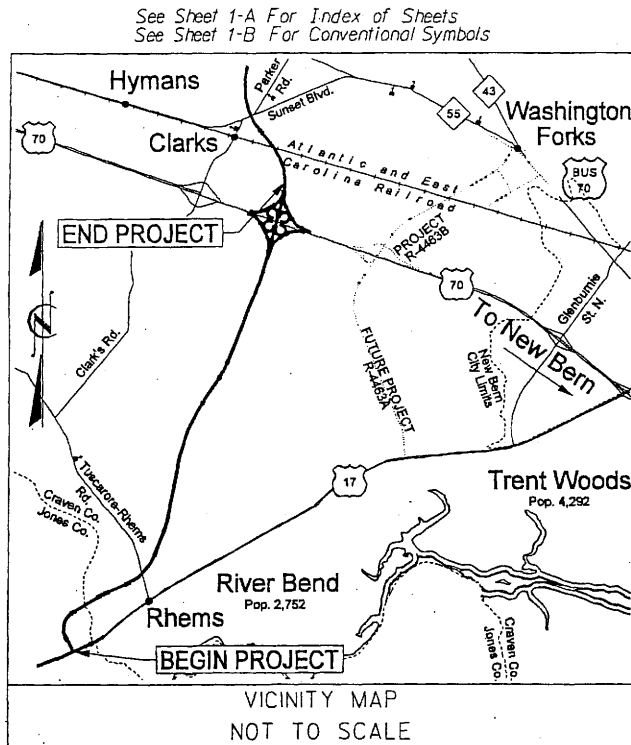
3/2008

Permit Drawing
Sheet 5 of 47
6/13/2008

9/09/99

TIP PROJECT: R-2301A

CONTRACT:



STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

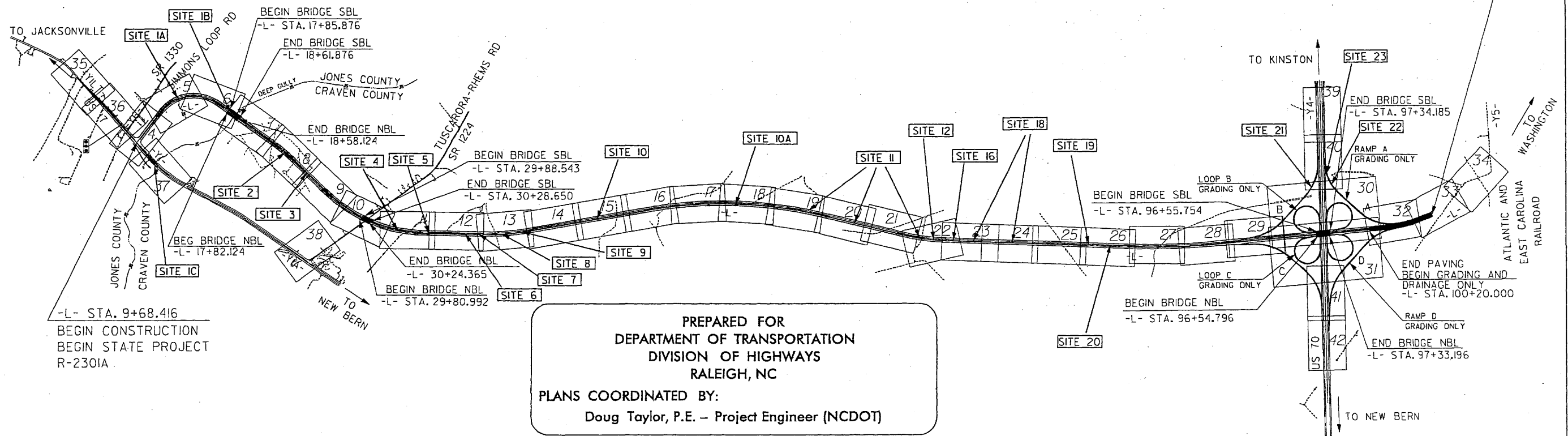
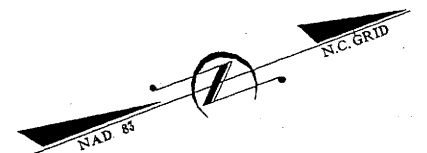
JONES & CRAVEN COUNTIES

LOCATION: US 17 NEW BERN BYPASS
FROM US 17 SOUTH OF NEW BERN TO US 70

TYPE OF WORK: DRAINAGE, GRADING, PAVING,
STRUCTURES, SIGNALS, AND SIGNING

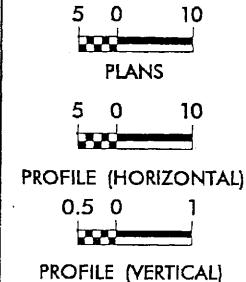
WETLAND PERMIT

 ALL DIMENSIONS IN THESE PLANS ARE IN METERS OR MILLIMETERS UNLESS OTHERWISE NOTED	STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
	N.C.	R-2301A	1	
	STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
	34414.1.1		P.E.	
	34414.2.3		R/W, UTIL	
	Permit Drawing			
	Sheet <u>6</u> of <u>47</u>			



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

GRAPHIC SCALES



DESIGN DATA

ADT 2008 = 23,300
ADT 2028 = 40,300
DHV = 10 %
D = 60 %
T = 12 %
(6% TTST + 6% DUAL)
V = 110 km/h
FUNCTIONAL CLASSIFICATION:
FREEWAY

PROJECT LENGTH

LENGTH ROADWAY STATE PROJECT 34414.2.3 = 9.331 KILOMETERS
LENGTH STRUCTURE STATE PROJECT 34414.2.3 = 0.198 KILOMETERS
TOTAL LENGTH STATE PROJECT 34414.2.3 = 9.529 KILOMETERS
(NBL USED FOR LENGTH CALCULATION)

THIS IS A CONTROLLED ACCESS PROJECT WITH ACCESS BEING LIMITED TO THE INTERCHANGES

Prepared in the Office of:
URS

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JUNE 30, 2006

LETTING DATE:
NOVEMBER 18, 2008

URS Corporation - North Carolina
1600 Perimeter Park Drive, Suite 400
Morrisville, North Carolina 27560
TELEPHONE (919) 461-1100 FAX (919) 461-1415

TIMOTHY H. KEENER, P.E.
PROJECT ENGINEER

JEFFREY A. KOONTZ, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.
ROADWAY DESIGN
ENGINEER

SIGNATURE: _____ P.E.
STATE HIGHWAY DESIGN ENGINEER

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA



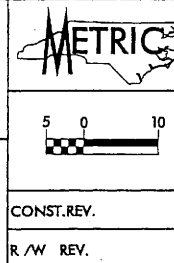
STATE HIGHWAY DESIGN ENGINEER

WETLAND PERMIT SITE 1A -L- 13+66 to 13+40

- TS TS TEMPORARY SURFACE WATER IMPACT
- S S PERMANENT SURFACE WATER IMPACT
- F F FILL IN WETLAND
- HC HC HC HAND CLEARING

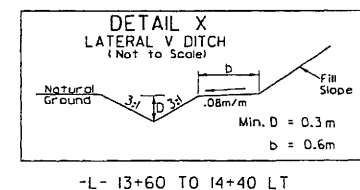
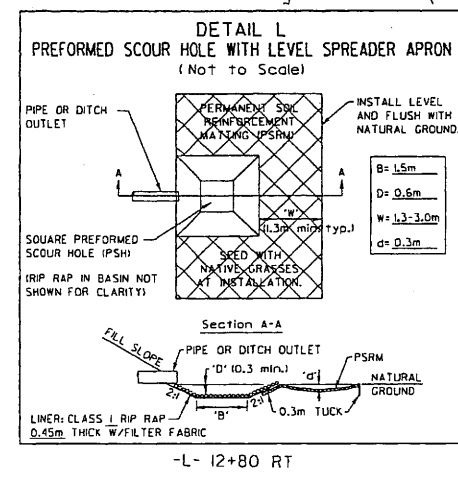
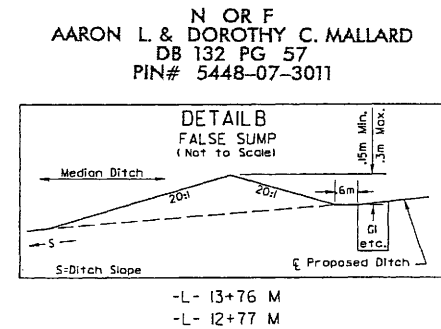
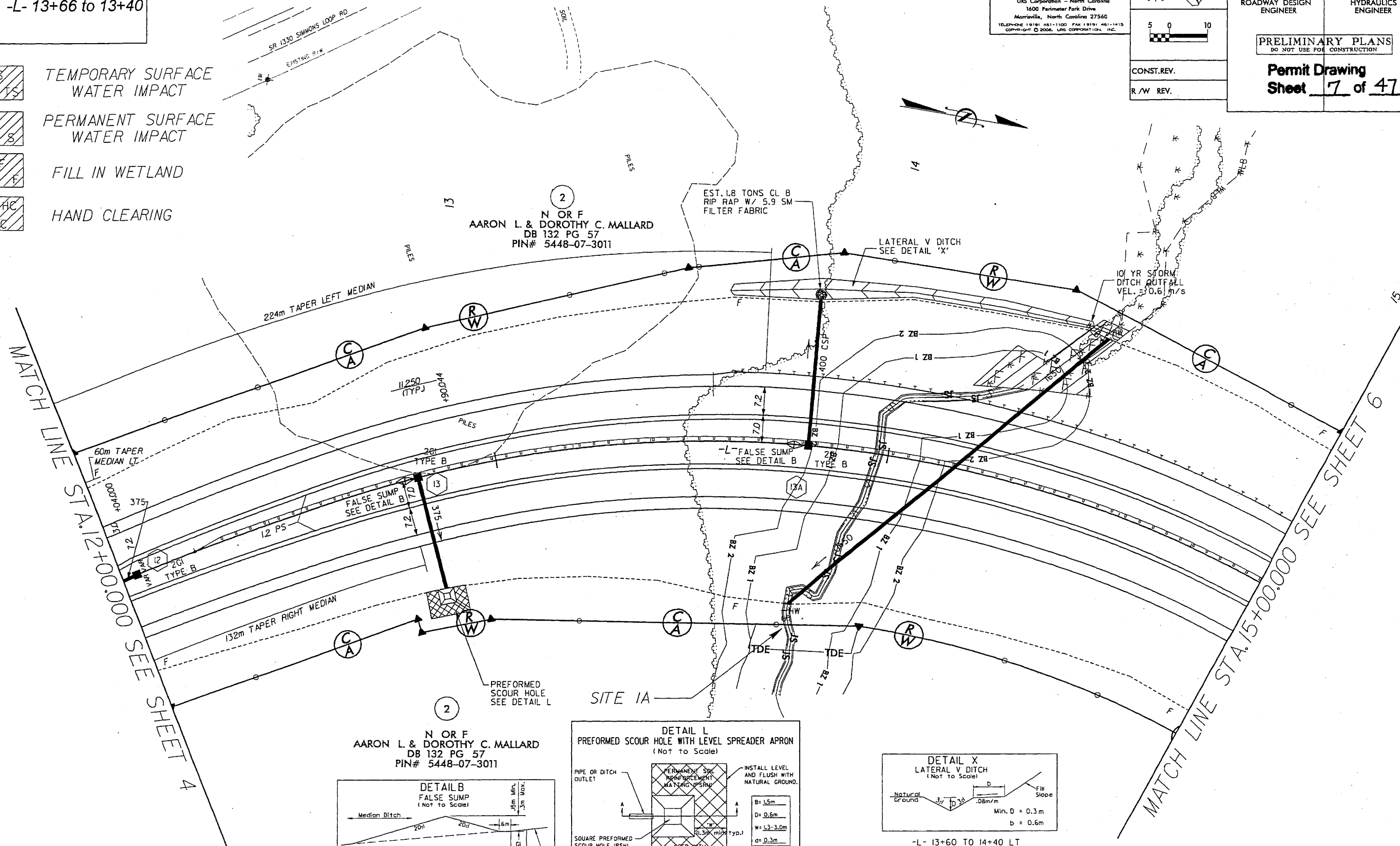
NOTE: FOR -L- PROFILE SEE SHEET 43

Prepared by
URS
URS Corporation - North Carolina
1600 Perimeter Park Drive
Morrisville, North Carolina 27560
TELEPHONE 1 813 461-1100 FAX 1 813 461-1415
COPYRIGHT © 2008, URS CORPORATION, INC.

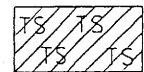


PROJECT REFERENCE NO. R-2301A	SHEET NO. 5
R/W SHEET NO. 4.5.6	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Permit Drawing Sheet 7 of 47	

DATE: JANUARY 31, 2008 REVISED -L- BYPASS ALIGNMENT ON NEW LOCATION BETWEEN STA. 9+68.416 AND 23+47.215 (12+00 TO 15+00 THIS SHEET)



WETLAND PERMIT SITE 1A -L- 13+66 to 13+40



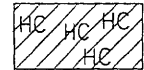
TEMPORARY SURFACE
WATER IMPACT



PERMANENT SURFACE
WATER IMPACT



FILL IN WETLAND

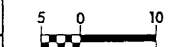


HAND CLEARING

NOTE: FOR -L- PROFILE SEE SHEET 43

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CONST. REV.

R/W REV.

PROJECT REFERENCE NO. SHEET NO.

R-2301A 5

R/W SHEET NO. 456

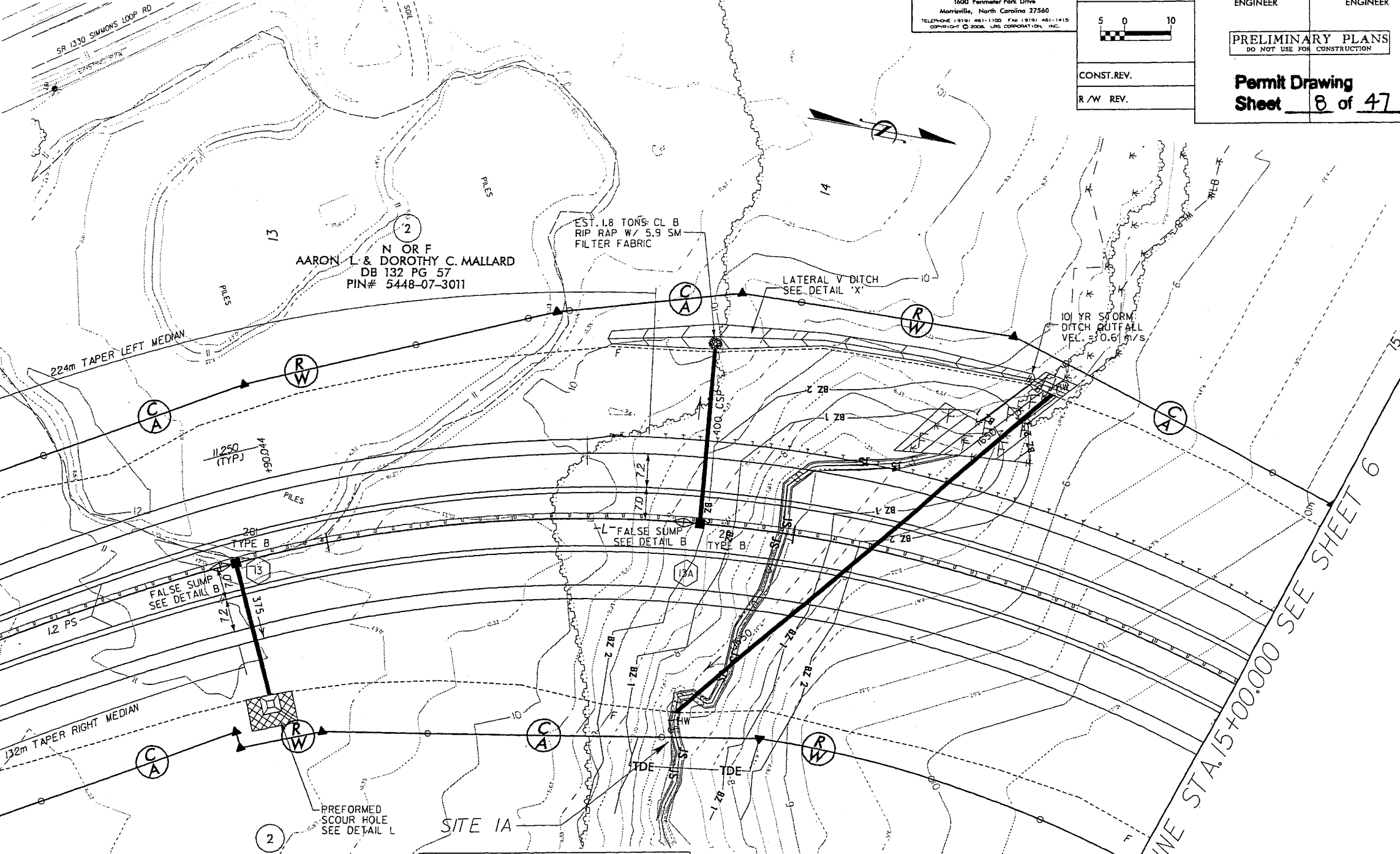
ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

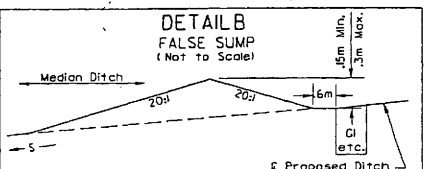
Permit Drawing
Sheet 8 of 47

MATCH LINE STA. 12+00.000 SEE SHEET 4

MATCH LINE STA. 15+00.000 SEE SHEET 6

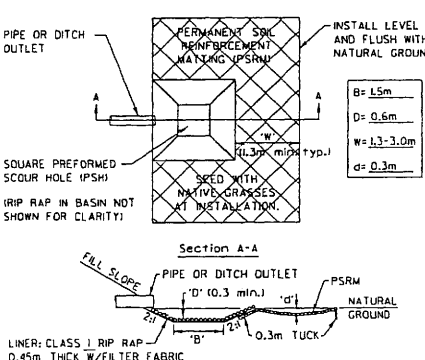


N OR F
AARON L. & DOROTHY C. MALLARD
DB 132 PG 57
PIN# 5448-07-3011

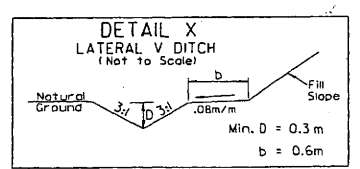


-L- 13+76 M
-L- 12+77 M

DETAIL L
PREFORMED SCOUR HOLE WITH LEVEL SPREADER APRON
(Not to Scale)



-L- 12+80 RT



-L- 13+60 TO 14+40 LT

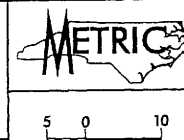
DATE: JANUARY 31, 2008 REVISED -L- BYPASS ALIGNMENT ON NEW LOCATION BETWEEN STA. 9+68.416 AND 23+47.215 (12+00 TO 15+00 THIS SHEET)

REVISIONS

WETLAND PERMIT SITE 1B

NOTE: FOR -L- PROFILE SEE SHEET 43-44

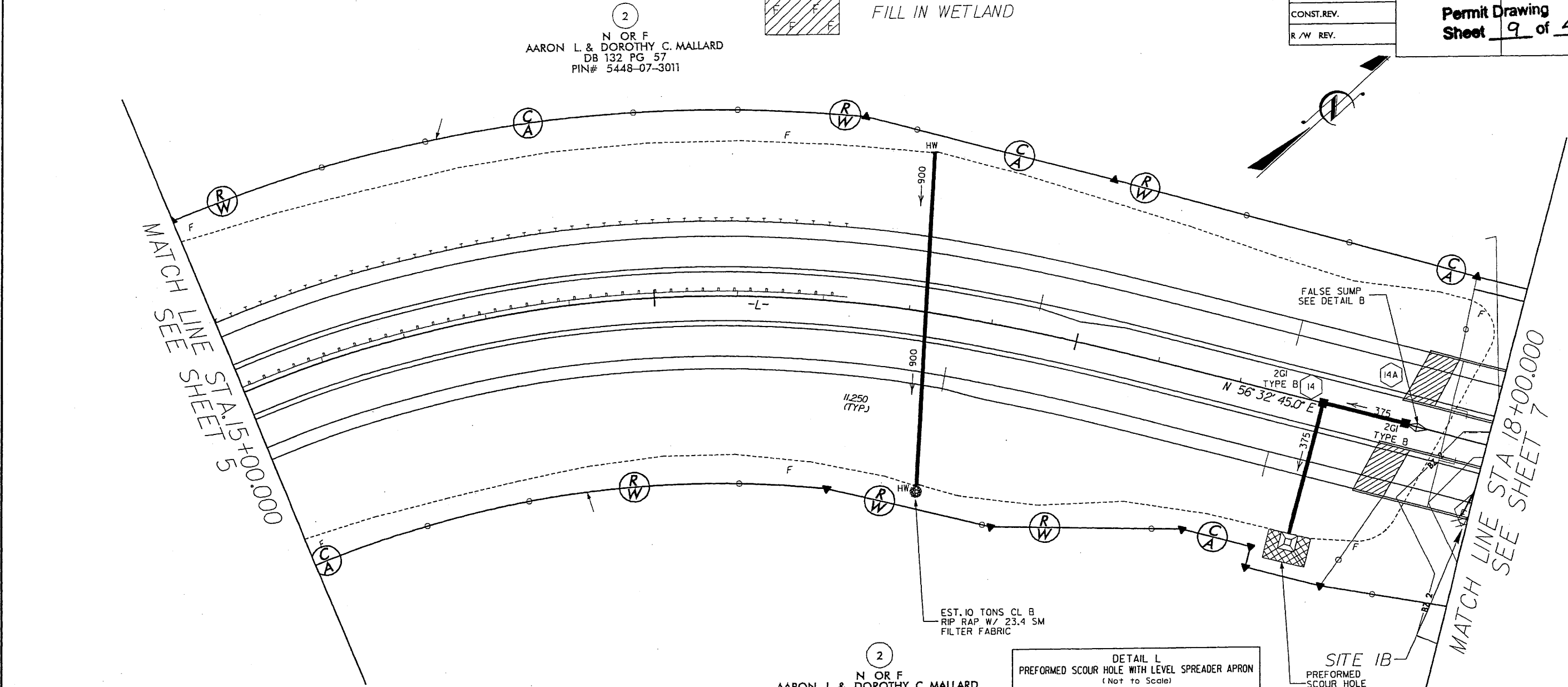
Prepared by
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Marietta, North Carolina 27540
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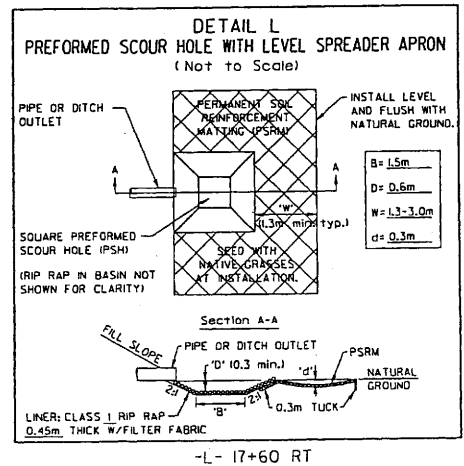
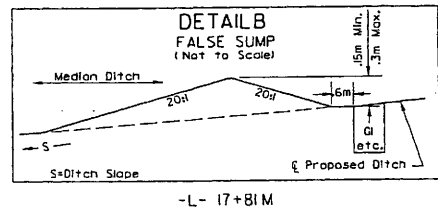
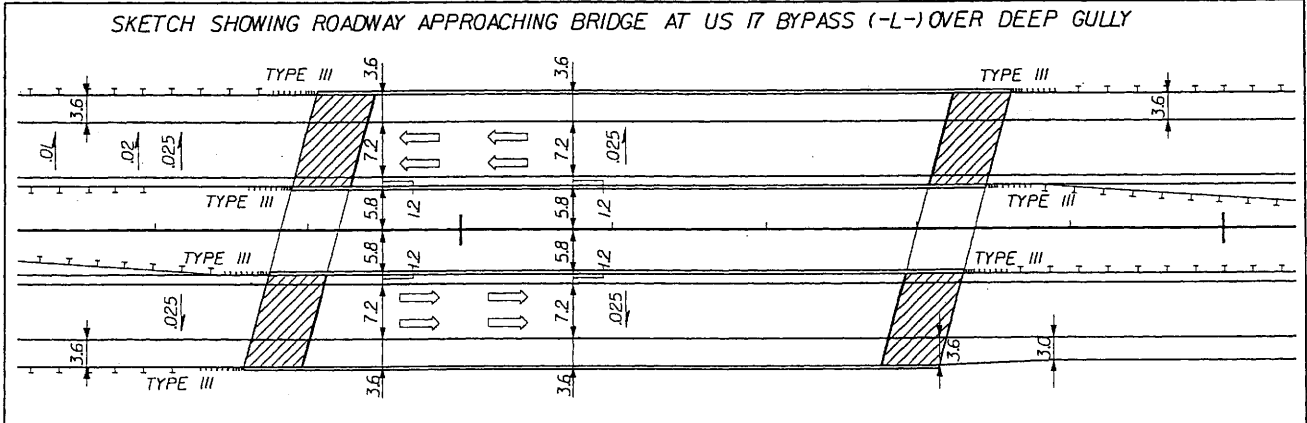
PROJECT REFERENCE NO.	SHEET NO.
R-2301A	6
R/W SHEET NO.	6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Permit Drawing Sheet <u>9</u> of <u>47</u>	

2
N OR F
AARON L. & DOROTHY C. MALLARD
DB 132 PG 57
PIN# 5448-07-3011

LEGEND
 FILL IN WETLAND



2
N OR F
AARON L. & DOROTHY C. MALLARD
DB 132 PG 57
PIN# 5448-07-3011



SITE 1B
PREFORMED SCOUR HOLE
SEE DETAIL L

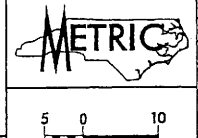
REVISIONS

JAN 31 2008

WETLAND PERMIT SITE 1B

NOTE: FOR -L- PROFILE SEE SHEET 43-44

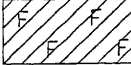
Prepared by
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PROJECT REFERENCE NO. R-2301A	SHEET NO. 6
R/W SHEET NO. 6	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Permit Drawing Sheet 10 of 47	

2
N OR F
AARON L & DOROTHY C. MALLARD
DB 132 PG 57
PIN# 5448-07-3011

LEGEND



FILL IN WETLAND

MATCH LINE
SEE SHEET 5
STA 15+00.000

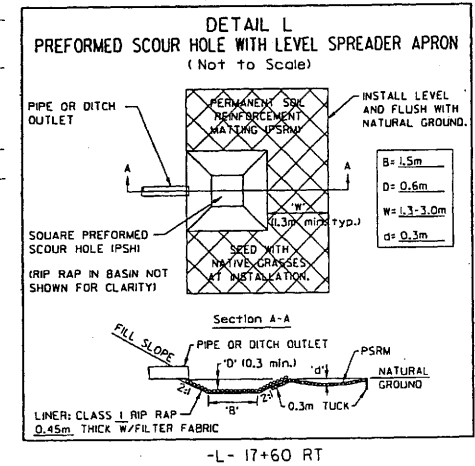
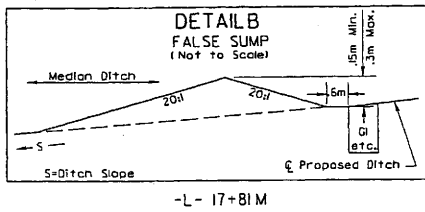
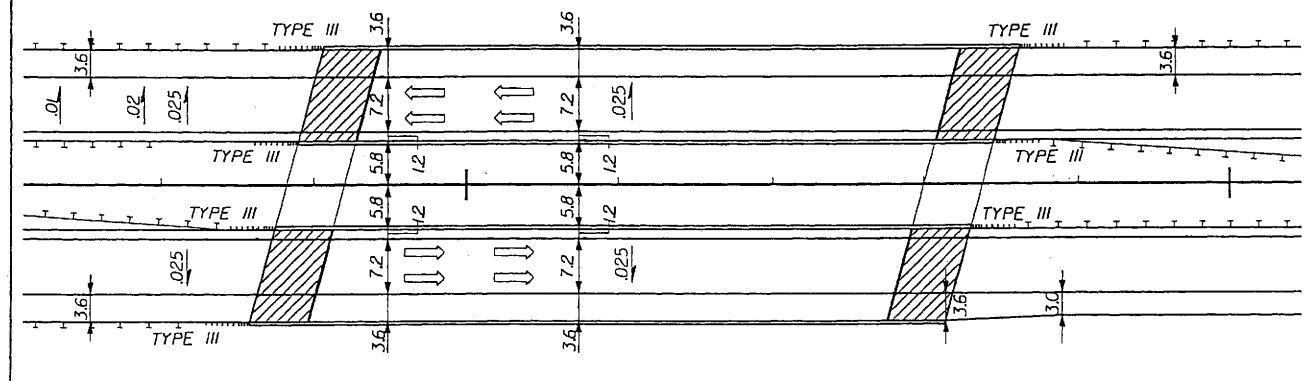
MATCH LINE
SEE SHEET 7
STA 18+00.000

FALSE SUMP
SEE DETAIL B

EST. 10' TONS CL B
RIP RAP W/ 23.4 SM
FILTER FABRIC

2
N OR F
AARON L & DOROTHY C. MALLARD
DB 132 PG 57
PIN# 5448-07-3011

SKETCH SHOWING ROADWAY APPROACHING BRIDGE AT US 17 BYPASS (-L-) OVER DEEP GULLY



SITE 1B
PREFORMED SCOUR HOLE
SEE DETAIL L

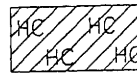
JAN 31 2008

REVISIONS

WETLAND PERMIT SITE 1B



FILL IN WETLAND

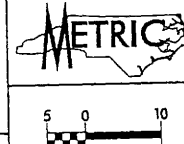


HAND CLEARING

NOTE: FOR -L- PROFILE SEE SHEET 44
FOR BRIDGE SKETCH SEE SHEET 6

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CONST. REV.
R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2301A	7
R/W SHEET NO.	7
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Permit Drawing
Sheet 11 of 47

2
N OR F
L. & DOROTHY C. MALLARD
DB 132 PG 57
PIN# 5448-07-3011

4A
N OR F
WEYERHAEUSER COMPANY
PIN# 8-200-010

3
N OR F
MACON F. & JOYCE F. DUNCAN
DB 525 PG 33
PLAT CAB. F. SL 162-H
PIN# 8-200-009

MATCH LINE STA 18+00.000 SEE SHEET 6

TEMPORARY
WORK BRIDGE

BEGIN SHOULDER
BERM GUTTER
-L- STA 18+72

PREFORMED
SCOUR HOLE
SEE DETAIL L

END SHOULDER
BERM GUTTER
-L- STA 18+80

FALSE SUMP
SEE DETAIL B

375 -L- TYPE B
N 56° 32' 45.0" E

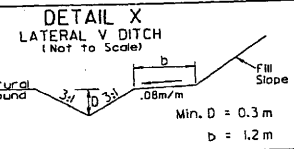
BEGIN SHOULDER
BERM GUTTER
-L- STA 18+62

END SHOULDER
BERM GUTTER
-L- STA 18+70

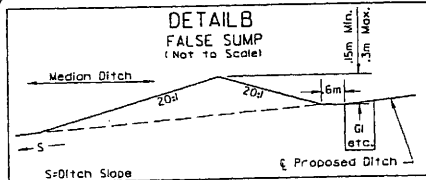
EST. 2.7 TONS CL B
RIP RAP W/ 8.4 SM
FILTER FABRIC

10 YR STORM
DITCH OUTFALL
VEL. = 0.61 m/s

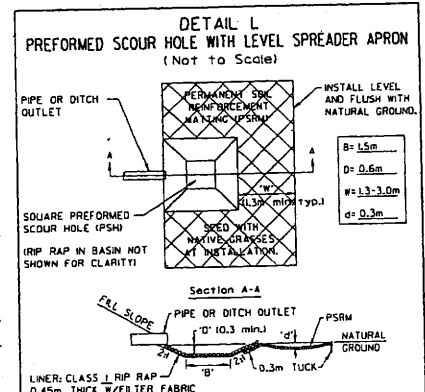
LATERAL V DITCH
SEE DETAIL X



-L- 18+97 TO 19+62 RT



-L- 19+51M



-L- 18+80 LT

3
N OR F
MACON F. & JOYCE F. DUNCAN
DB 525 PG 33
PLAT CAB. F. SL 162-H
PIN# 8-200-009

MATCH LINE STA 21+40.000
SEE SHEET 8

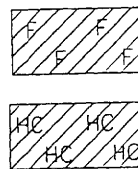
JAN 31 2008

AARON L. & DOROTHY C. MALLARD
DB 132 PG 57
PIN# 5448-07-3011

JONES CO.
WLB CRAVEN CO.

WLB WLB

WETLAND PERMIT SITE 1B



FILL IN WETLAND

HAND CLEARING

4A N OR F
WEYERHAEUSER COMPANY
PIN# 8-200-010

3 N OR F
MACON F. & JOYCE F. DUNCAN
DB 525 PG 33
PLAT CAB. F. SL 162-4H
PIN# 8-200-009

2 N OR F
L & DOROTHY C. MALLARD
DB 132 PG 57
PIN# 5448-07-3011

MATCH LINE STA 18+00.000 SEE SHEET 6

JAN 31 2008

NOTE: FOR -L- PROFILE SEE SHEET 44
FOR BRIDGE SKETCH SEE SHEET 6

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CONST. REV.

R/W REV.

PROJECT REFERENCE NO. R-2301A	SHEET NO. 7
R/W SHEET NO. 7	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION
Permit Drawing Sheet 12 of 47	

TEMPORARY
WORK BRIDGE

BEGIN SHOULDER
BERM GUTTER
-L- STA 18+72

PREFORMED
SCOUR HOLE
SEE DETAIL L

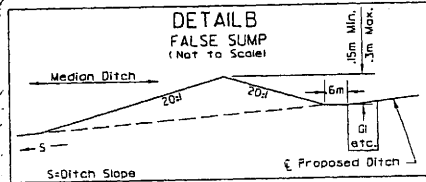
END SHOULDER
BERM GUTTER
-L- STA 18+80

BEGIN SHOULDER
BERM GUTTER
-L- STA 18+62

END SHOULDER
BERM GUTTER
-L- STA 18+70

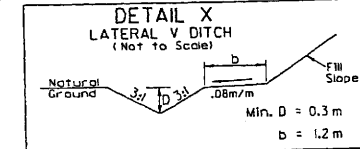
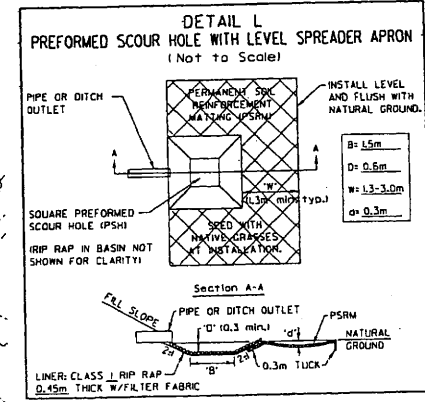
AARON L & DOROTHY C. MALLARD
DB 132 PG 57
PIN# 5448-07-3011

N OR F
JONES CO.
CRAVEN CO.



EST. 2.7 TONS CL B
RIP RAP W/ 8.4 SM
FILTER FABRIC

10-YR STORM
DITCH OUTFALL
VEL = 0.61 m/s



3 N OR F
MACON F. & JOYCE F. DUNCAN
DB 525 PG 33
PLAT CAB. F. SL 162-4H
PIN# 8-200-009

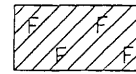
MATCH LINE STA 21+40.000
SEE SHEET 8

WETLAND PERMIT

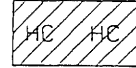
SITE 2 -L- 22+65
SITE 3 -L- 24+70

N OR F
WEYERHAEUSER COMPANY
PIN# 8-200-010

LEGEND



FILL IN WETLAND

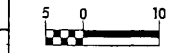


HAND CLEARING

NOTE: FOR -L- PROFILE SEE SHEET 44-45

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CONST. REV.

R/W REV.

PROJECT REFERENCE NO. SHEET NO.

R-2301A 8

R/W SHEET NO.

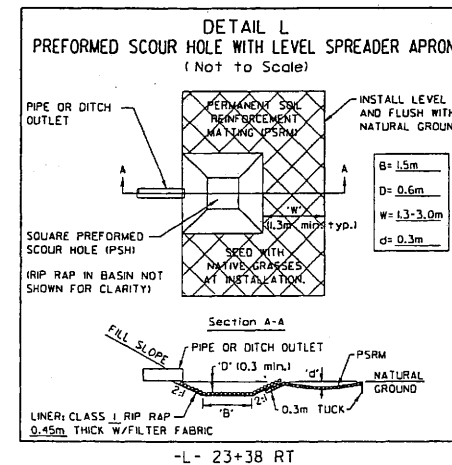
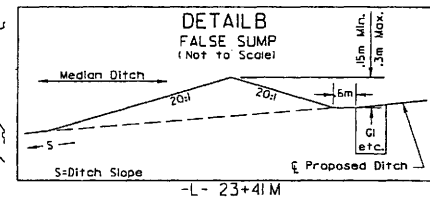
ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 13 of 47

3
N OR F
MACON F. & JOYCE F. DUNCAN
DB 525 PG 33
PLAT CAB. F. SL. 162-H
PIN# 8-200-009

3
N OR F
MACON F. & JOYCE F. DUNCAN
DB 525 PG 33
PLAT CAB. F. SL. 162-H
PIN# 8-200-009



MATCH LINE STA 21+40.000 SEE SHEET 7

MATCH LINE STA 24+80.000 SEE SHEET 9

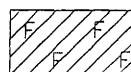
*JAN 31 2008

WETLAND PERMIT

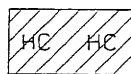
SITE 2 -L- 22+65
SITE 3 -L- 24+70

N OR F
WEYERHAEUSER COMPANY
PIN# 8-200-010

LEGEND



FILL IN WETLAND



HAND CLEARING

NOTE: FOR -L- PROFILE SEE SHEET 44-45

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CONST. REV.

R/W REV.

PROJECT REFERENCE NO. SHEET NO.

R-2301A 8

R/W SHEET NO. 8

ROADWAY DESIGN
ENGINEER

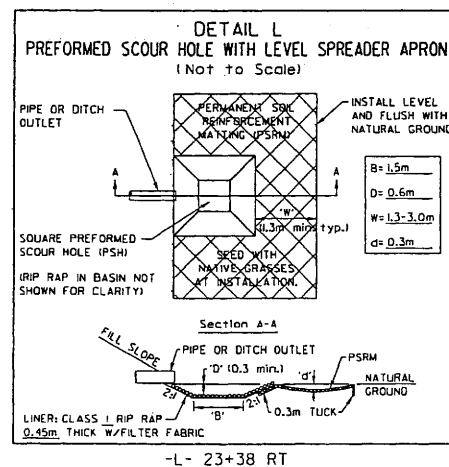
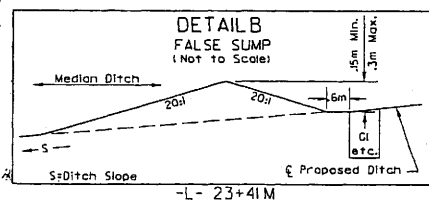
HYDRAULICS
ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 14 of 47

3
N OR F
MACON F. & JOYCE F. DUNCAN
DB 525 PG 33
PLAT CAB. F. SL. 162-H
PIN# 8-200-009

3
N OR F
MACON F. & JOYCE F. DUNCAN
DB 525 PG 33
PLAT CAB. F. SL. 162-H
PIN# 8-200-009

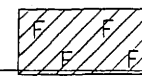


MATCH LINE STA 21+40.000 SEE SHEET 7

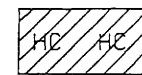
MATCH LINE STA 24+80.000 SEE SHEET 9

JAN 31 2008

WETLAND PERMIT
SITE 3 -L- 24+52 to 24+98



FILL IN WETLAND

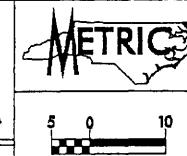


HAND CLEARING

NOTE: FOR -L- PROFILE SEE SHEETS 46

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PROJECT REFERENCE NO.	SHEET NO.
R-2301A	9
R/W SHEET NO.	9
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Permit Drawing Sheet 15 of 47	

CONST. REV.
R/W REV.

N OR F
WEYERHAEUSER COMPANY
PIN# 8-200-010

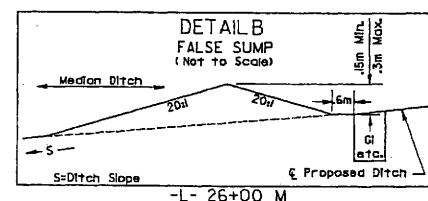
N OR F
MACON F. & JOYCE F. DUNCAN
DB 525 PG 33
PLAT CAB. F. SL 162-H
PIN# 8-200-009

MATCH LINE STA 24+80.000 SEE SHEET 8

MATCH LINE STA 28+00.000 SEE SHEET 10

N OR F
MACON F. & JOYCE F. DUNCAN
DB 525 PG 33
PLAT CAB. F. SL 162-H
PIN# 8-200-009

N OR F
WEYERHAEUSER COMPANY
PIN# 8-200-010



REVISIONS

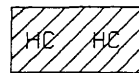
JAN 31 2008

8/1/99

WETLAND PERMIT SITE 3 -L- 24+52 to 24+98



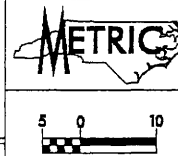
FILL IN WETLAND



HAND CLEARING

NOTE: FOR -L- PROFILE SEE SHEETS 46

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PROJECT REFERENCE NO.	SHEET NO.
R-2301A	9
R/W SHEET NO.	9
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Permit Drawing Sheet 16 of 47	

MATCH LINE STA 24+80.000 SEE SHEET 8

N OR F
MACON F. & JOYCE F. DUNCAN
DB 525 PG 33
PLAT CAB. F. SL 162-H
PIN# 8-200-009

N OR F
WEYERHAEUSER COMPANY
PIN# 8-200-010

+19.156
35.000
(114.83')

+29.156
35.000
(114.83')

+19.156
38.000
(124.67')

+29.156
35.000
(114.83')

EST. 7.3 TONS CL B
RIP RAP W/ 17.6 SM
FILTER FABRIC

EST. 1.8 TONS CL B
RIP RAP W/ 5.9 SM
FILTER FABRIC

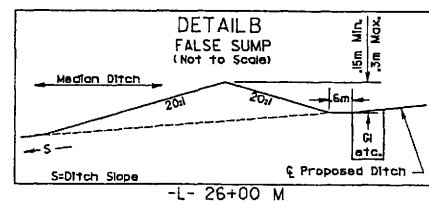
16" TAPER FALSE SUMP
SEE DETAIL B

PROP. CABLE GUIDERAIL

SITE 3

N OR F
MACON F. & JOYCE F. DUNCAN
DB 525 PG 33
PLAT CAB. F. SL 162-H
PIN# 8-200-009

N OR F
WEYERHAEUSER COMPANY
PIN# 8-200-010



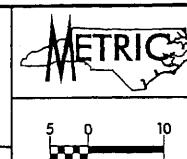
MATCH LINE STA 28+00.000 SEE SHEET 10

JAN 31 2008

WETLAND PERMIT
SITE 4 -L- 32+36 to 33+12
SITE 5 -L- 34+27 to 35+08

SITE 4 -L- 32+36 to 33+12
SITE 5 -L- 34+27 to 35+08

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PROJECT REFERENCE NO.	SHEET NO.
R-230/A	//
R/W SHEET NO.	//
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Permit Drawing Sheet 17 of 47	

CP&L RW EASEMENT

FILL IN WETLAND

HAND CLEARING

MATCH LINE STA. 31+40.000 SEE SHEET 10

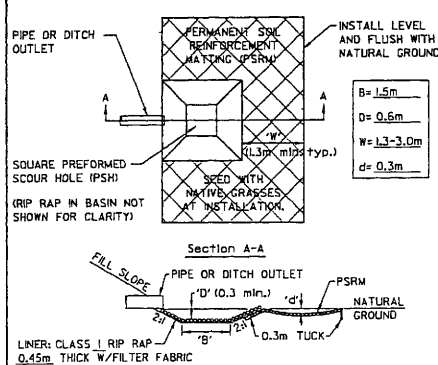
EST. 13.6 TONS CL
RIP RAP W/ 30.9
FILTER FABRIC

30'

12' 7.2' 5.8' 10.59'

N OR F
OTTO D. SIMMONS
DB 338 PG 592
PIN# 8-205-018

DETAIL L
PREFORMED SCOUR HOLE WITH LEVEL SPREADER APRON
(Not to Scale)



-L- 31+90 LT
-L- 33+53 LT

N OR F
BOBBIE F. & JANE P. MCLAWHORN
DB 883 PG 540
PLAT CAB. A, SL 157-B
PIN# 8-205-019

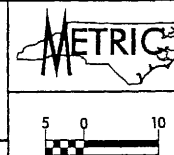
OTTO D. & LOTTIE A. SIMMONS
DB 411 PG 422
MAP BK. 3, PG 16
PIN# 8-205-020

MATCH LINE STA. 34+80.00 SEE SHEET 12

SITE 4 -L- 32+36 to 33+12
SITE 5 -L- 34+27 to 35+08

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CONST.REV.
R /W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-230/A	//
R/W	SHEET NO.
//	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Permit Drawing Sheet 18 of 47	

FILL IN WETLAND

HAND CLEARING

CP&L RW EASEMENT

MATCH LINE STA. 31+40.000 SEE SHEET 10

EST. 13.6 TONS CL.
RIP RAP W/ 30.9
FILTER FABRIC.

3.0
7.2
1.2
5.8
0.059

40°

JAN 31 2008

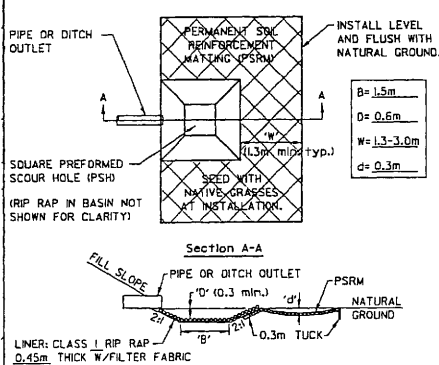
N OR F
OTTO D. SIMMONS
DB 338 PG 592
PIN# 8-205-018

N O R F
OTTO D. SIMMONS
DB 338 PG 592
PIN# 8-205-018

N OR F
BOBBIE F. & JANE P. MCLAWHORN
DB 883 PG 540
PLAT CAB. A, SL 157-B
PIN# 8-205-019

OTTO D. & LOTTIE A. SIMMONS
DB 411 PG 422
MAP BK. 3, PG 16
PIN# 8-205-020

DETAIL L
PREFORMED SCOUR HOLE WITH LEVEL SPREADER APRON
(Not to Scale)



-L- 31+90 LT
-L- 33+53 LT

MATCH LINE STA. 34+80.000 SEE SHEET 12

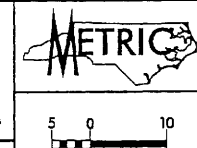
8/17/99

CURVE DATA -L-

NOTE: FOR -L- PROFILE SEE SHEETS 47-48.

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CONST.REV.
R /W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-230/A	12
R/W SHEET NO.	12
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS	
DO NOT USE FOR CONSTRUCTION	

Permit Drawing
Sheet 19 of 47

REVISIONS

JAN 31 2006

MATCH LINE STA. 34+80.000 SEE SHEET 11

FILL IN WETLAND

HAND CLEARING

OTTO D. & LOTTIE A. SIMMONS
DB 411 PG 422
MAP BK. 3, PG 16
PIN# 8-205-020

N O R F
OTTO D. SIMMONS
DB 338 PG 592
PIN# 8-205-021

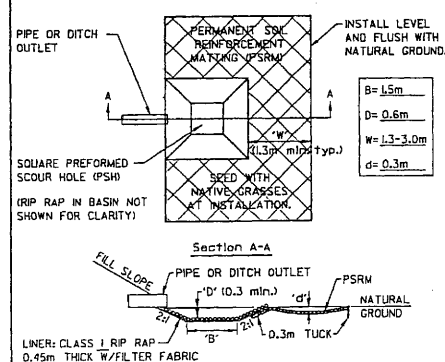
CP&L RW EASEMENT

SITE 5

SITE 6

SITE 7

DETAIL L
PREFORMED SCOUR HOLE WITH LEVEL SPREADER APRON
(Not to Scale)



-L- 36+66 RT

OTTO D. & LOTTIE A. SIMMONS
DB 411 PG 422
MAP BK. 3, PG 16
PIN# 8-205-020

CP&L R/W EASEMENT

MATCH LINE STA 38+20.00 SEE SHEET 13

WETLAND PERMIT

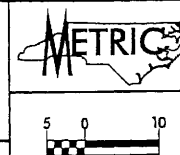
SITE 5 -L- 34+27 to 35+08
SITE 6 -L- 36+81 to 37+60
SITE 7 -L- 37+84 to 38+07

CURVE DATA -L-

Pls Sta 38+55.747
 $\theta_s = 120^\circ 12.8'$
 $L_s = 70.000$
 $LT_0 = 46.668$
 $ST = 23.335$
 $SE = 41\%$

NOTE: FOR -L- PROFILE SEE SHEETS 47-48

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PROJECT REFERENCE NO.	SHEET NO.
R-2301A	12
R/W SHEET NO.	12
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Permit Drawing Sheet 20 of 47	

CONST. REV.
R/W REV.

FILL IN WETLAND

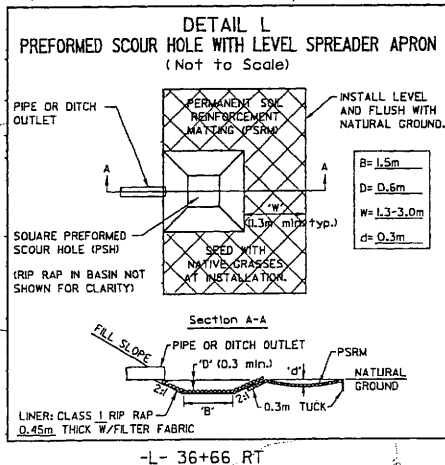
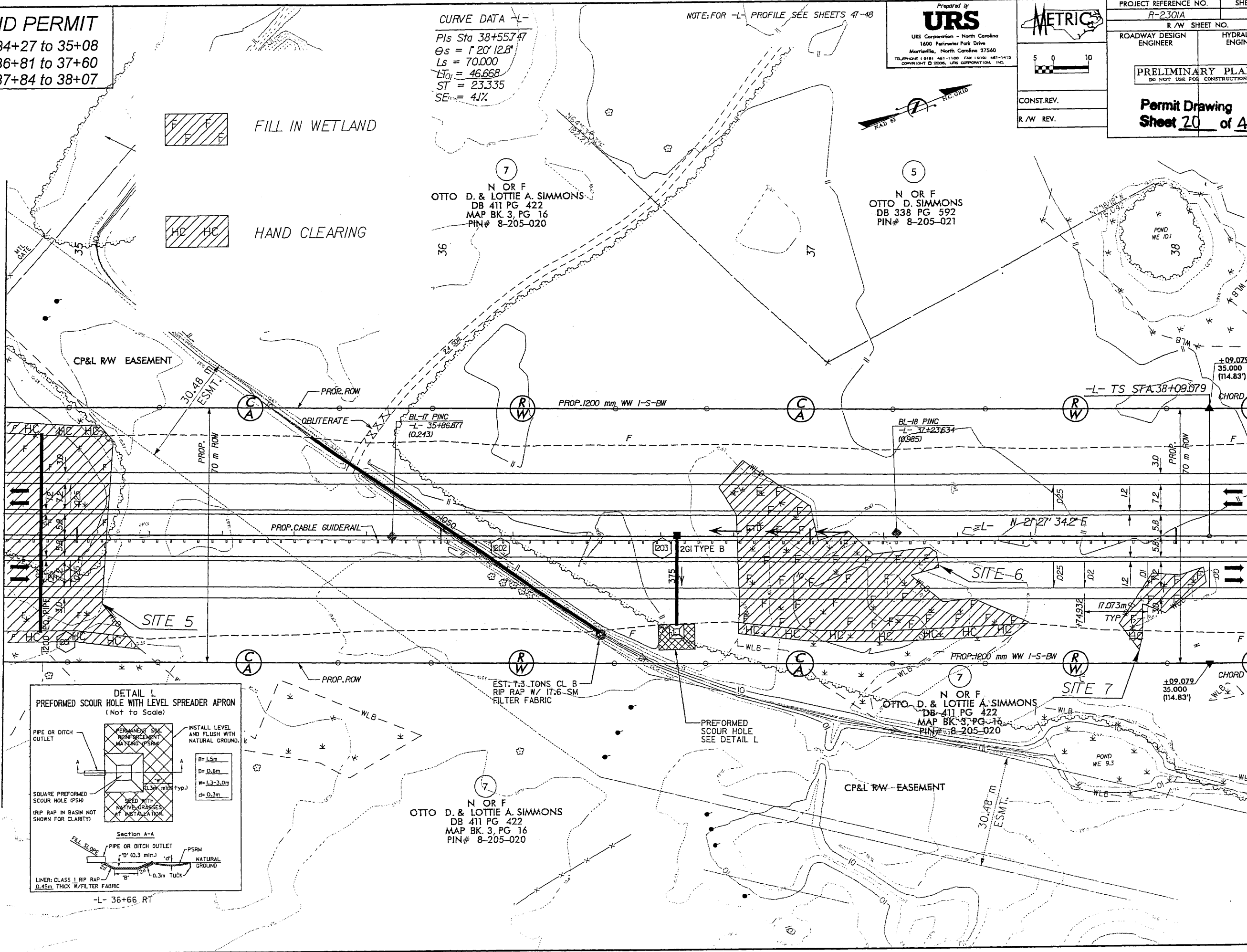
HAND CLEARING

OTTO D. & LOTTIE A. SIMMONS
DB 411 PG 422
MAP BK. 3, PG 16
PIN# 8-205-020

OTTO D. & LOTTIE A. SIMMONS
DB 338 PG 592
PIN# 8-205-021

MATCH LINE STA. 34+80.000 SEE SHEET 11

MATCH LINE STA 38+20.000 SEE SHEET 13



OTTO D. & LOTTIE A. SIMMONS
DB 411 PG 422
MAP BK. 3, PG 16
PIN# 8-205-020

OTTO D. & LOTTIE A. SIMMONS
DB 411 PG 422
MAP BK. 3, PG 16
PIN# 8-205-020

REVISIONS

JAN 31 2008

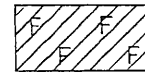
WETLAND PERMIT

SITE 8 -L- 39+31 to 40+13
SITE 9 -L- 39+30 to 41+29

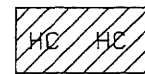
NOTE: FOR -L- PROFILE SEE SHEET 48

CURVE DATA -L-

Pls Sta 38+55.747	Pls Sta 39+89.818	Pls Sta 41+23.490
$\theta_s = 120' 12.8"$	$\Delta = 8' 26' 40.1" (LT)$	$\theta_s = 120' 12.8"$
$L_s = 70.000$	$L = 221.076$	$L_s = 70.000$
$LT = 46.668$	$T = 110.738$	$LT = 46.668$
$ST = 23.335$	$R = 1,500.000$	$ST = 23.335$
	$SE = 4.1\%$	



FILL IN WETLAND



HAND CLEARING

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CONST. REV.

R/W REV.

PROJECT REFERENCE NO. R-2301A SHEET NO. 13

R/W SHEET NO. 13

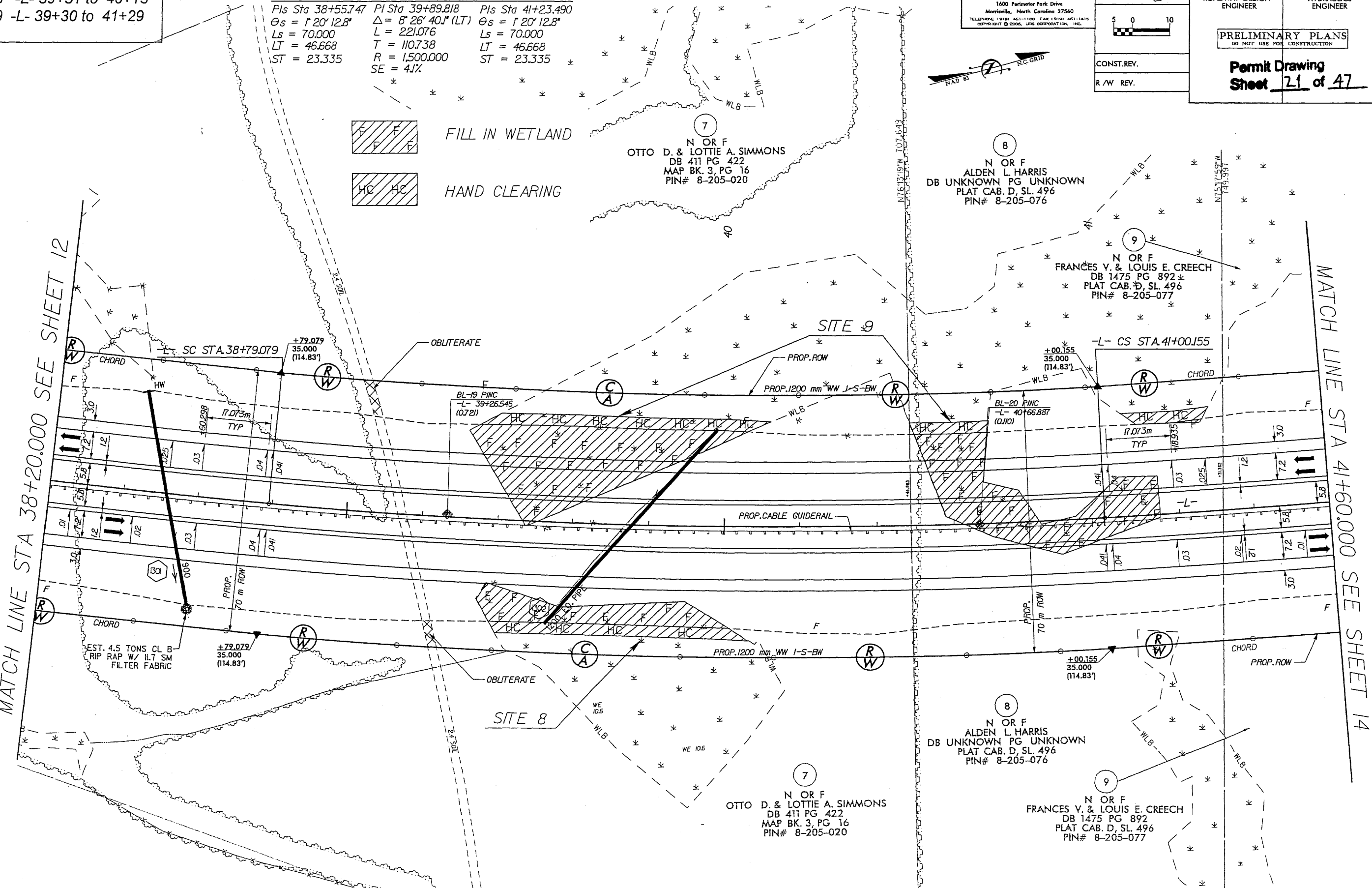
ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 21 of 47

MATCH LINE STA 38+20.000 SEE SHEET 12

MATCH LINE STA 41+60.000 SEE SHEET 14



REVISIONS

JAN 31 2006

WETLAND PERMIT
SITE 8 -L- 39+31 to 40+13
SITE 9 -L- 39+30 to 41+29

CURVE DATA -L-

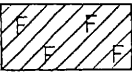
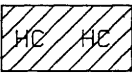
Pls Sta 38+55.747	Pl Sta 39+89.818	Pls Sta 41+23.490
$\theta_s = 120' 12.8"$	$\Delta = 8' 26' 40" (LT)$	$\theta_s = 120' 12.8"$
$L_s = 70.000$	$L = 221.076$	$L_s = 70.000$
$LT = 46.668$	$T = 110.738$	$LT = 46.668$
$ST = 23.335$	$R = 1,500.000$	$ST = 23.335$
	$SE = 4.1\%$	

NOTE: FOR -L- PROFILE SEE SHEET 48

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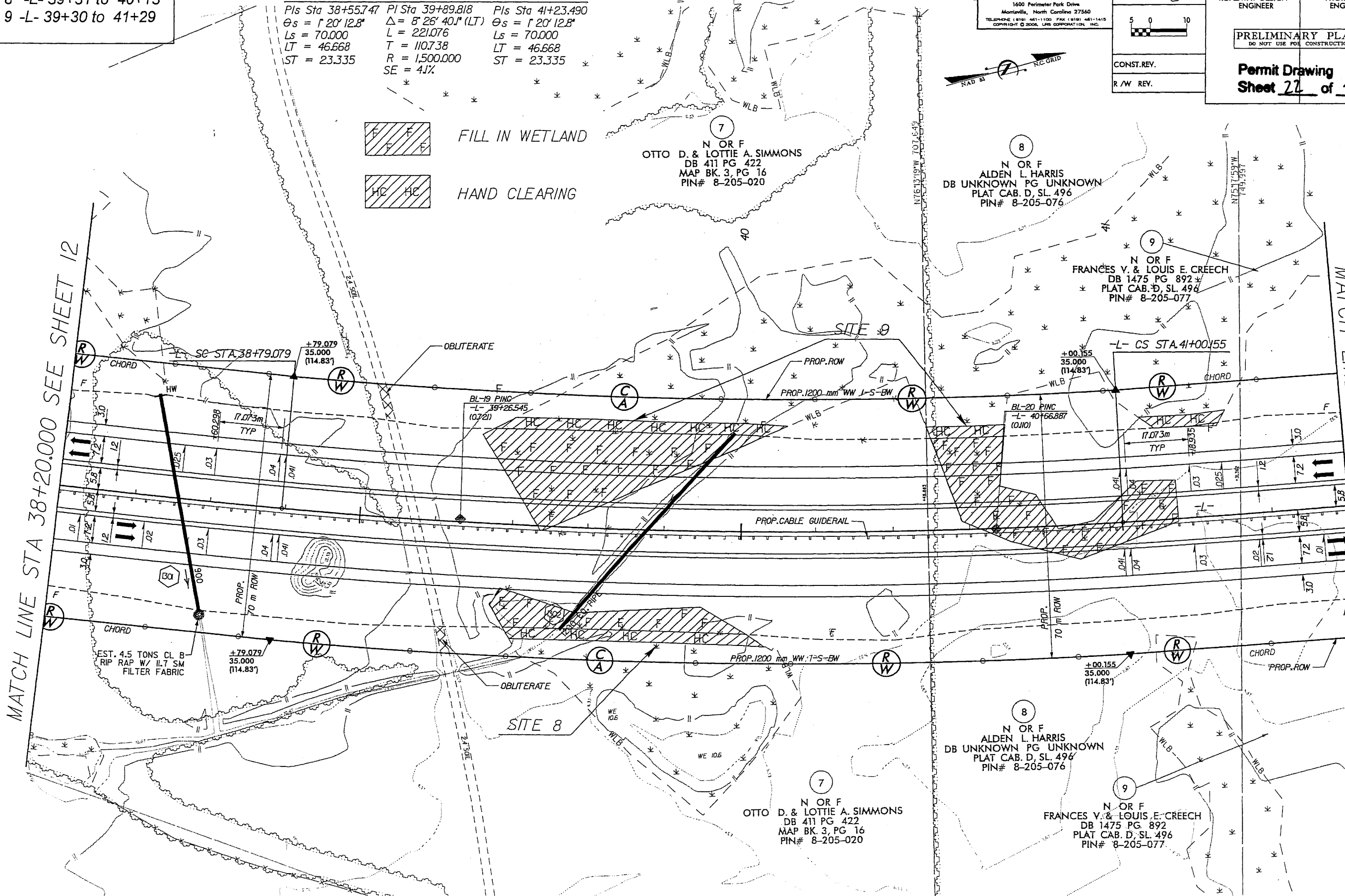
METRIC
5 0 10
NAD 83
N.C. GRID

PROJECT REFERENCE NO. R-2301A	SHEET NO. 13
R/W SHEET NO. 13	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Permit Drawing Sheet 21 of 47	

 **FILL IN WETLAND**
 **HAND CLEARING**

MATCH LINE STA 38+20.000 SEE SHEET 12

MATCH LINE STA 41+60.000 SEE SHEET 14



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8/17/99

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5 0 10

CONST.REV.

R / W REV.

REVISIONS

MATCH LINE STA. 45+00.000 SEE SHEET 14

MATCH LINE STA. 48+40.000 SEE SHEET 16

[illegible]

N O R F ✕
FORREST E. MINGES, JR.
DB 1000 PG 642 WLB-
PLAT CAB. A, SL. 76-B
PIN# 8-205-029

N OR F
FORREST E. MINGES, JR.
DB 1513 PG 703
PLAT CAB. A, SL. 76-B
PIN# 8-205-030

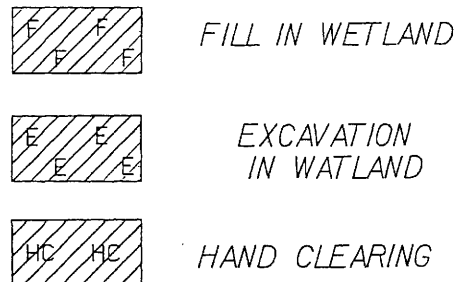
DETAIL L

DETAIL M

VARIES

4.8m TO 6.0m

WETLAND PERMIT
SITE 10 -L- 45+66 to 47+32



NOTE: FOR -L- PROFILE SEE SHEET 49

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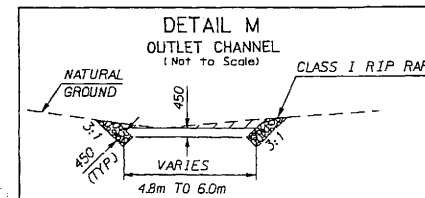
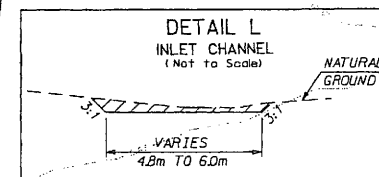
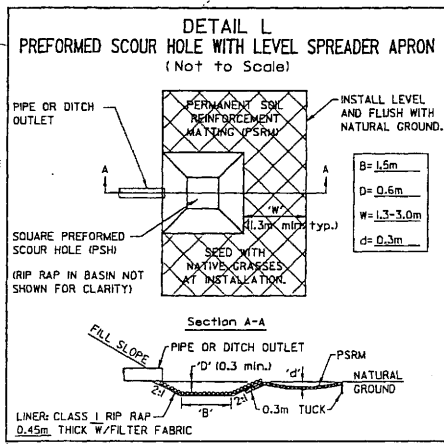
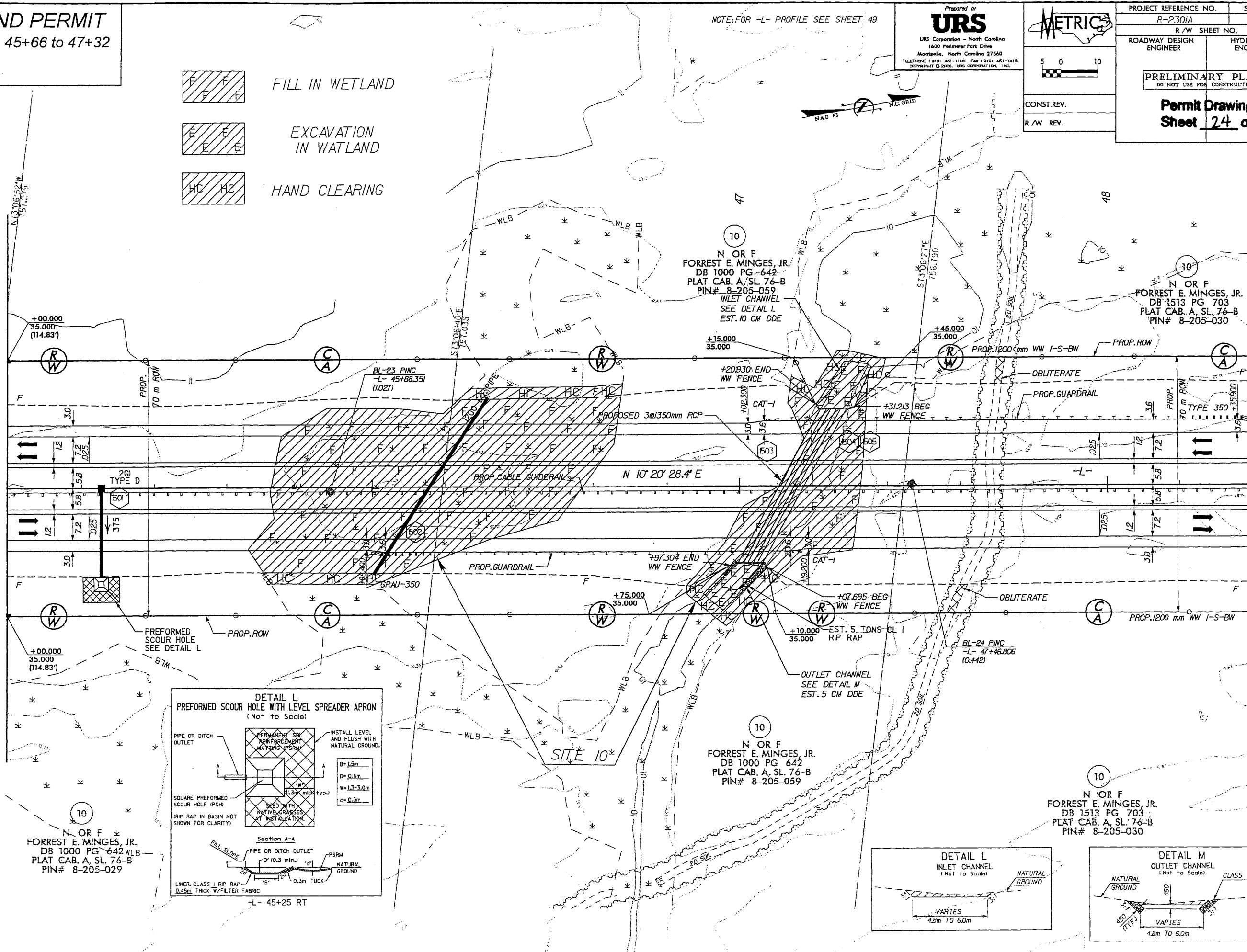


CONST. REV.
R/W REV.

PROJECT REFERENCE NO. R-2301A	SHEET NO. 15
R/W SHEET NO. 15	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Permit Drawing Sheet 24 of 47	

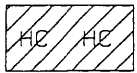
MATCH LINE STA. 45+00.000 SEE SHEET 14

MATCH LINE STA. 48+40.000 SEE SHEET 16



JAN 31 2008

WETLAND PERMIT SITE 10A

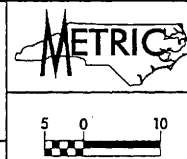


HAND CLEARING

4B
N OR F
WEYERHAEUSER COMPANY
DB 370 PG 53
PLAT CAB. C, SL. 52

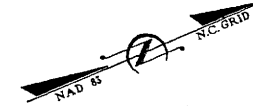
NOTE: FOR -L- PROFILE SEE SHEET 50-51

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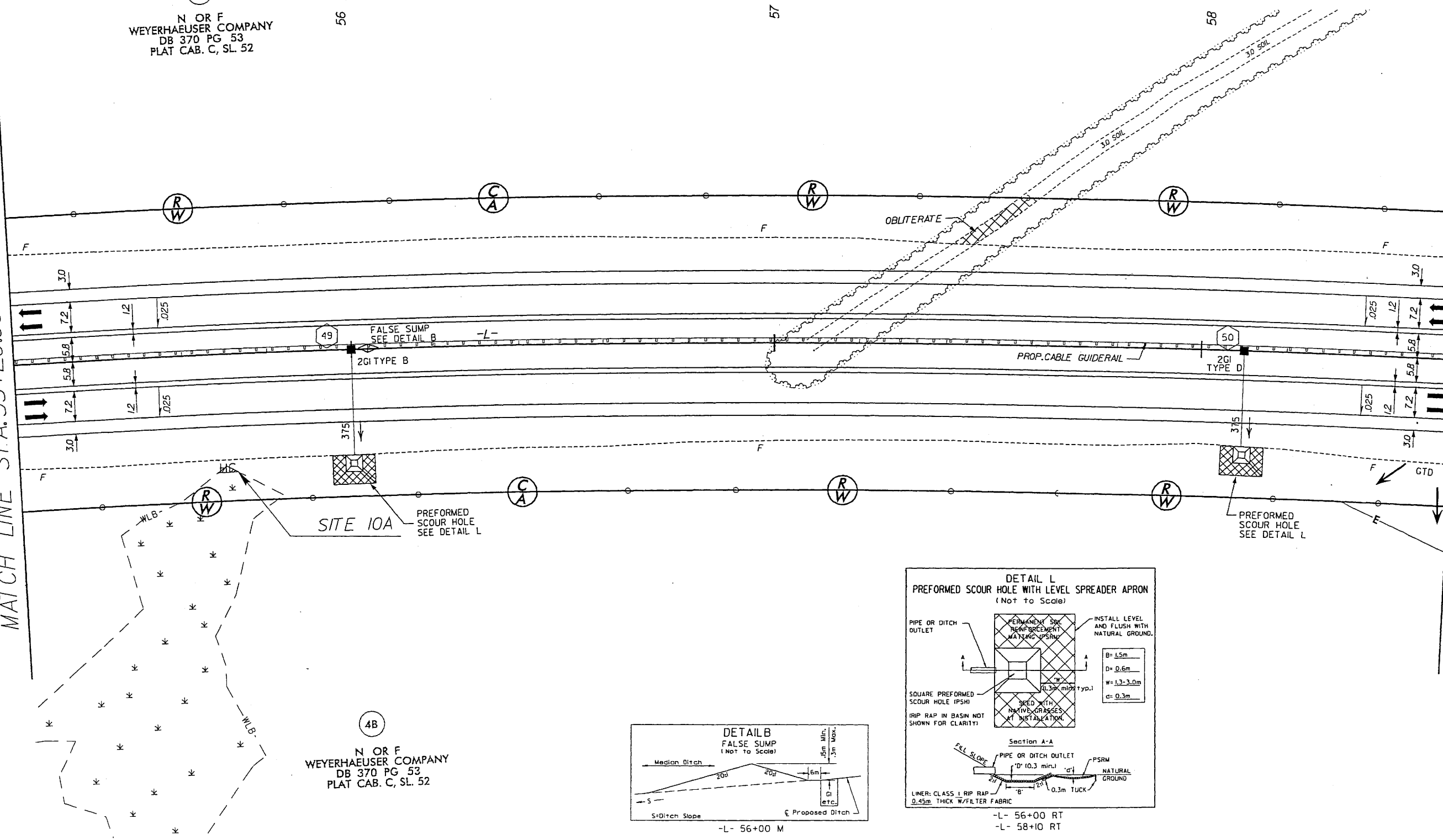
CONST. REV.
R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2301A	18
R/W SHEET NO.	18
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Permit Drawing Sheet <u>25</u> of <u>47</u>	

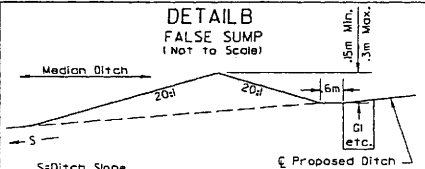


MATCH LINE STA. 55+20.00 SEE SHEET 17

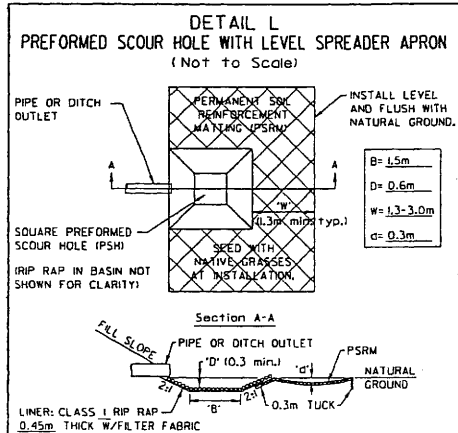
MATCH LINE STA. 58+60.00 SEE SHEET 19



4B
N OR F
WEYERHAEUSER COMPANY
DB 370 PG 53
PLAT CAB. C, SL. 52



-L- 56+00 M



-L- 56+00 RT
-L- 58+10 RT

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JAN 31 2008

WETLAND PERMIT
SITE 10A

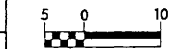


HAND CLEARING

NOTE: FOR -L- PROFILE SEE SHEET 50-51

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CONST. REV.

R/W REV.

PROJECT REFERENCE NO. R-2301A	SHEET NO. 18
R/W SHEET NO. 18	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Permit Drawing Sheet 26 of 47	

48
N OR F
WEYERHAEUSER COMPANY
DB 370 PG 53
PLAT CAB. C, SL 52

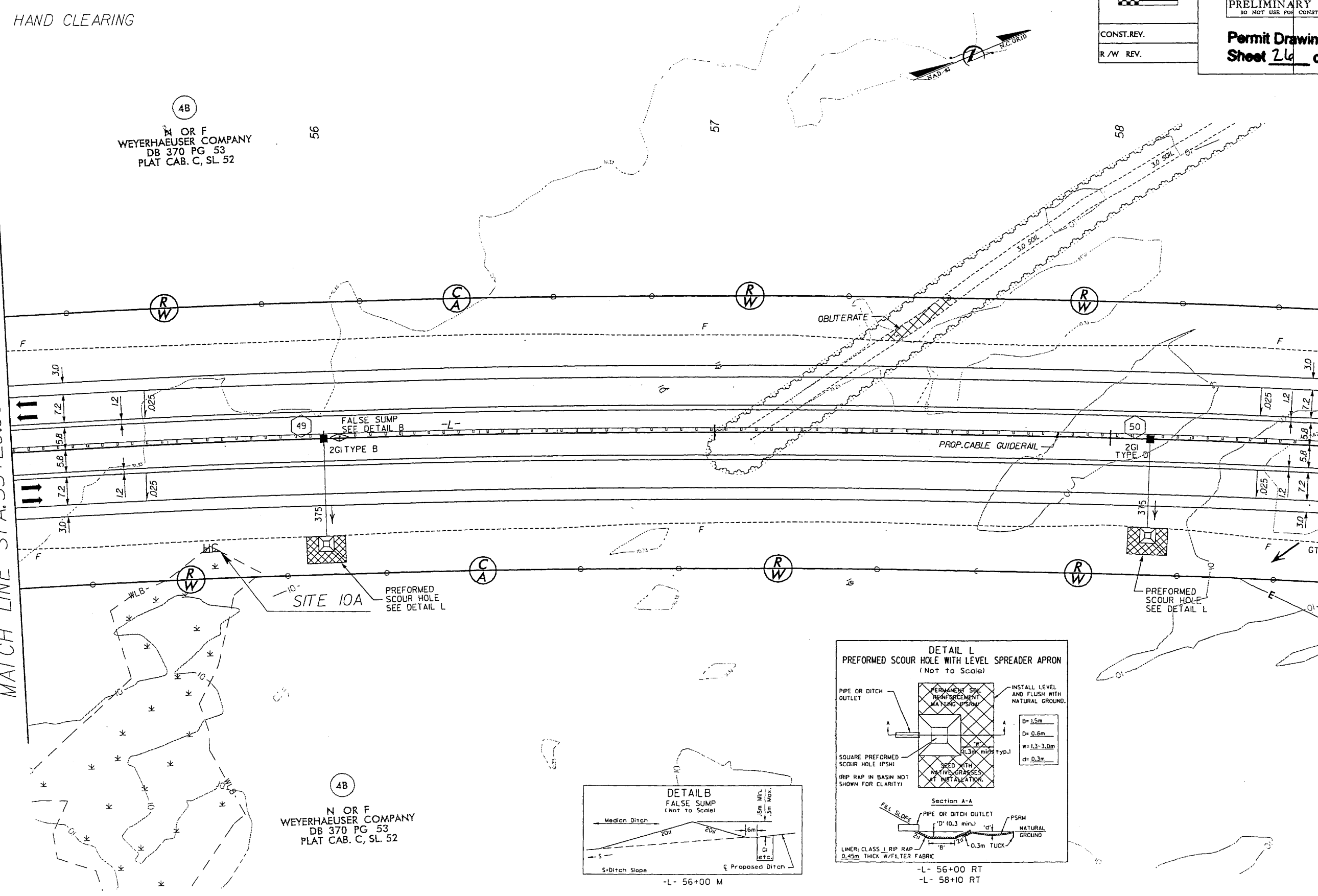
56

57

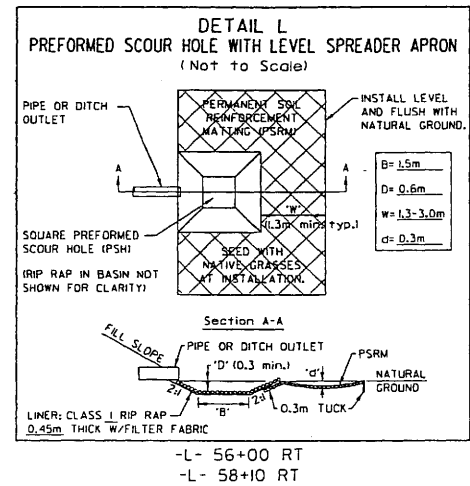
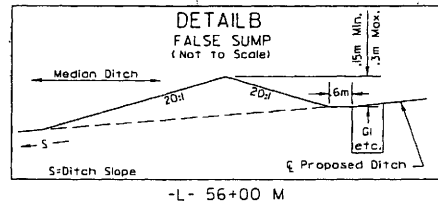
58

MATCH LINE STA. 55+20.000 SEE SHEET 17

MATCH LINE STA. 58+60.000 SEE SHEET 19



48
N OR F
WEYERHAEUSER COMPANY
DB 370 PG 53
PLAT CAB. C, SL 52

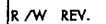


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JAN 31 2008

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PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 27 of 47

FILL IN WETLAND

HAND CLEARING

MATCH LINE STA. 58+60.000 SEE SHEET 18

WATCH LINE STA 58+60.00 SEE SHEET 18

CLEAR EASEMENT
AS NECESSARY
TO GRADE TO DRAIN

Diagram illustrating the installation of a square manhole using a Square Performed Scour Hole (PSH) and a Rip Rap in Basin (RIP RAP) in a basin not shown for clarity.

Top View:

- PIPE OR DITCH OUTLET
- PERMANENT SOIL REINFORCEMENT MATING (PSRM)
- INSTALL LEVEL AND FLUSH WITH NATURAL GROUND
- SQUARE PERFORMED SCOUR HOLE (PSH)
- SEED WITH NATIVE GRASSES AT INSTALLATION
- W = 1.3 - 3.0 m
- B = 1.5 m
- D = 0.5 m
- d = 0.3 m

Section A-A:

- FILL SLOPE
- PIPE OR DITCH OUTLET
- PSRM
- NATURAL GROUND
- LINER: CLASS 1 RIP RAP 0.45m THICK W/FILTER FABRIC
- 0.3m TUCK
- 0.3m (0.3 min.)
- 0.3m
- 0.3m

-L- 61+50 RT

N O R F
WEYERHAEUSER COMPANY
DB 370 PG 53
PLAT CAB. C, SL. 52

N O R F
DOROTHEA R. PATRICK
DB 705 PG 9
PIN# 8-210-003

N O R F
VIRGINIA L. FLOYD
DB 929 PG 561
PIN# 8-210-002

MATCH LINE STA.62+00.000 SEE SHEET 20

MATCH LINE STA. 62+00.00 SEE SHEET 28

WETLAND PERMIT
SITE 11 -L- 61+78 to 69+22

NOTE: FOR -L- PROFILE SEE SHEET 51

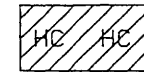
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PROJECT REFERENCE NO.	SHEET NO.
R-2301A	19
R/W SHEET NO.	19
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Permit Drawing Sheet 28 of 47	
CONST. REV.	
R/W REV.	

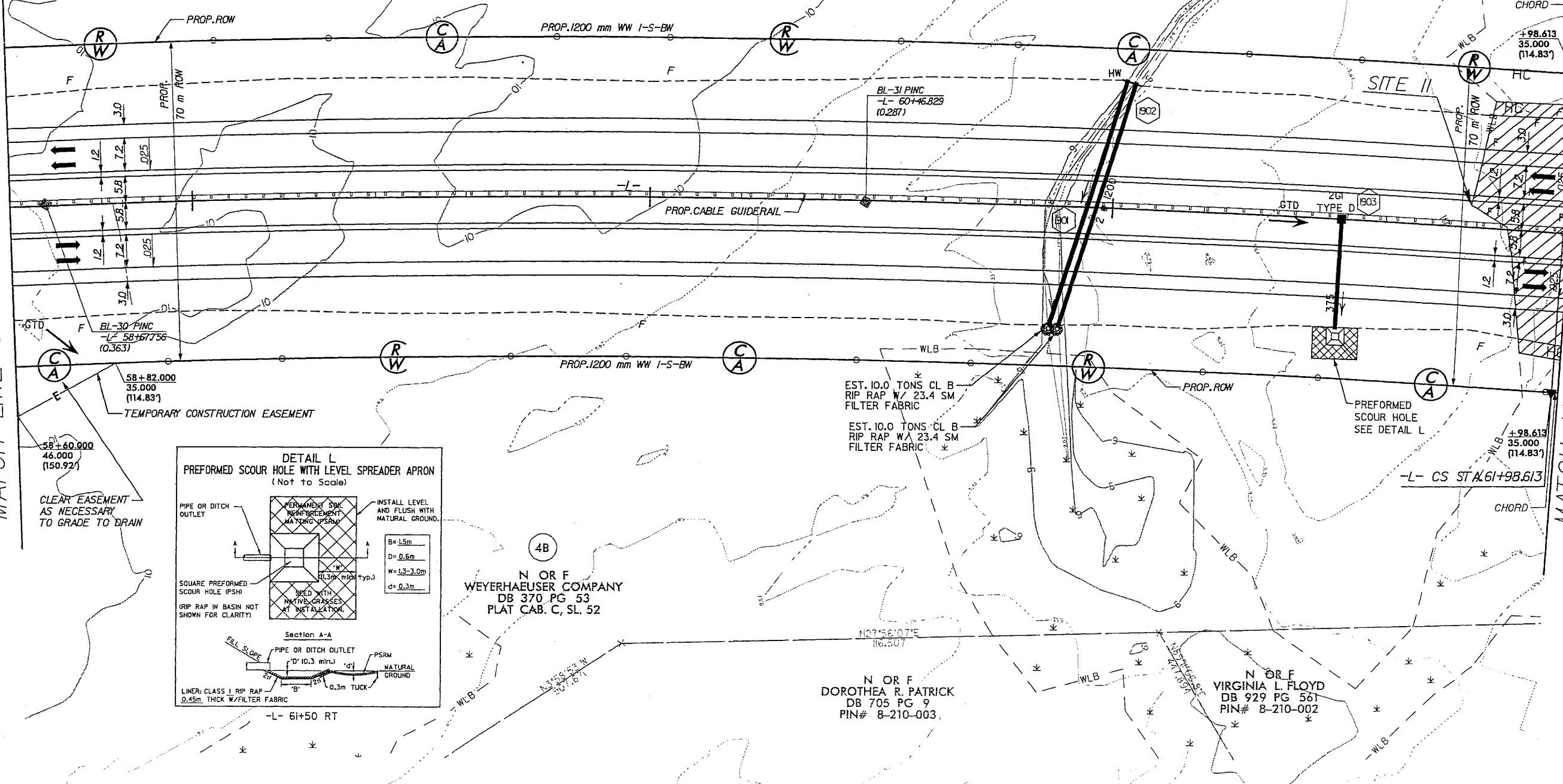


FILL IN WETLAND

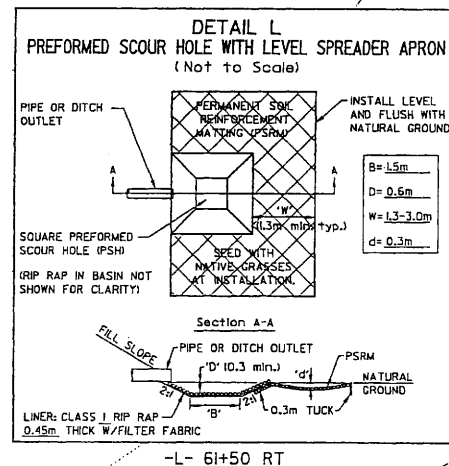


HAND CLEARING

MATCH LINE STA. 58+60.000 SEE SHEET 18



MATCH LINE STA. 62+00.000 SEE SHEET 20



N OR F
WEYERHAEUSER COMPANY
DB 370 PG 53
PLAT CAB. C, SL. 52

N OR F
DOROTHEA R. PATRICK
DB 705 PG 9
PIN# 8-210-003

N OR F
VIRGINIA L. FLOYD
DB 929 PG 561
PIN# 8-210-002

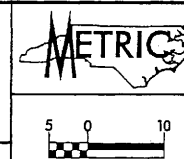
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WETLAND PERMIT
SITE 11 -L- 61+78 to 69+22

NOTE: FOR -L- PROFILE SEE SHEETS 51-52

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PROJECT REFERENCE NO.	SHEET NO.
R-2301A	20
R/W SHEET NO.	20
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Permit Drawing Sheet 29 of 47	

FILL IN WETLAND

HAND CLEARING

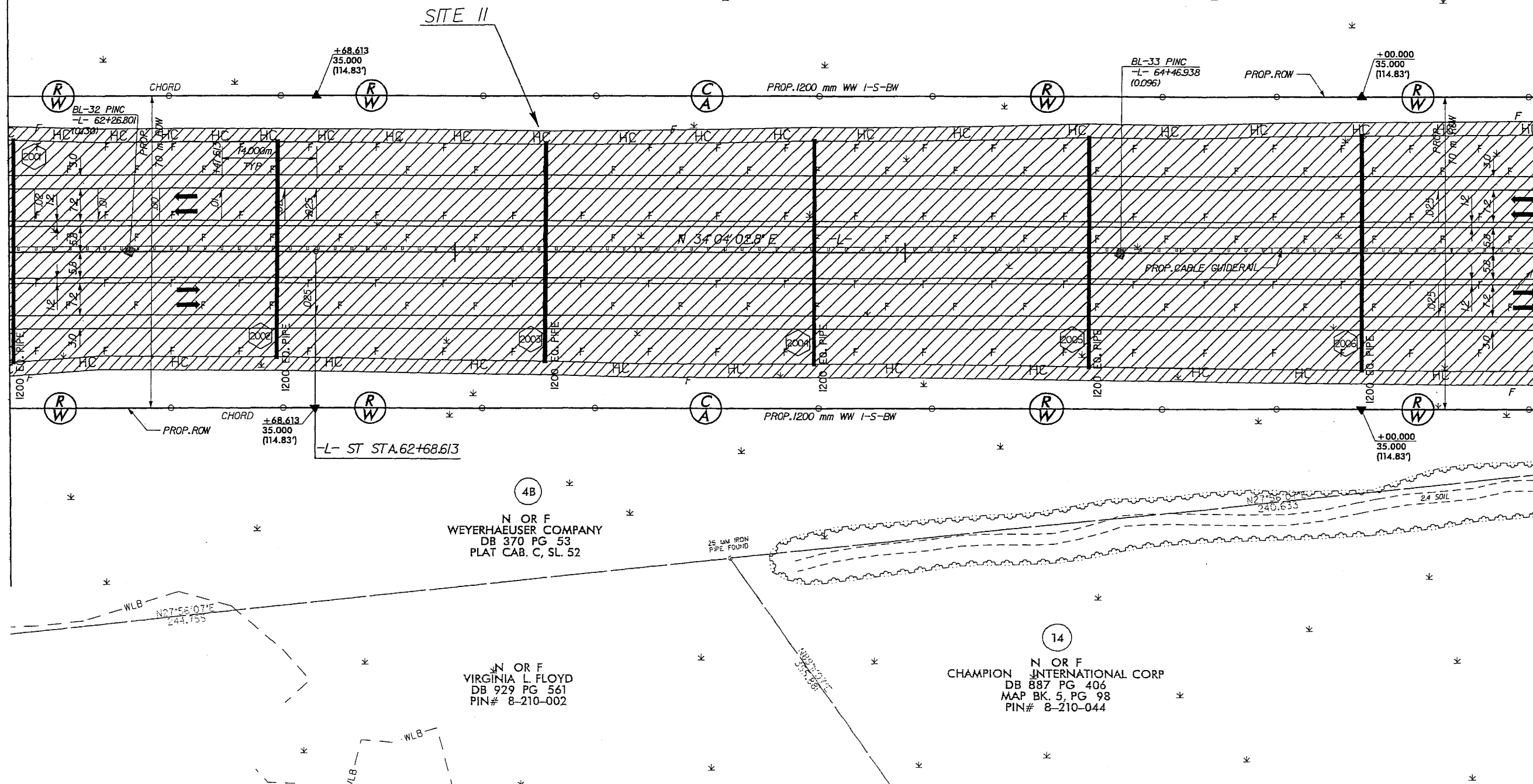
N OR F
WEYERHAEUSER COMPANY
DB 370 PG 53
PLAT CAB. C, SL. 52

64

65

MATCH LINE STA. 62+00.000 SEE SHEET 19

MATCH LINE STA. 65+40.000 SEE SHEET 21



REVISIONS

RJAN 31 2008

N OR F
WEYERHAEUSER COMPANY
DB 370 PG 53
PLAT CAB. C, SL. 52

N OR F
VIRGINIA L FLOYD
DB 929 PG 561
PIN# 8-210-002

N OR F
CHAMPION INTERNATIONAL CORP
DB 887 PG 406
MAP BK. 5, PG 98
PIN# 8-210-044

WETLAND PERMIT
SITE 11 -L- 61+78 to 69+22

NOTE: FOR -L- PROFILE SEE SHEETS 51-52

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METRIC

5 0 10

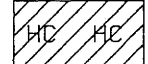
CONST. REV.

R/W REV.

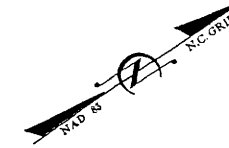
PROJECT REFERENCE NO.	SHEET NO.
R-2301A	20
R/W SHEET NO.	20
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Permit Drawing Sheet 30 of 47	



FILL IN WETLAND



HAND CLEARING

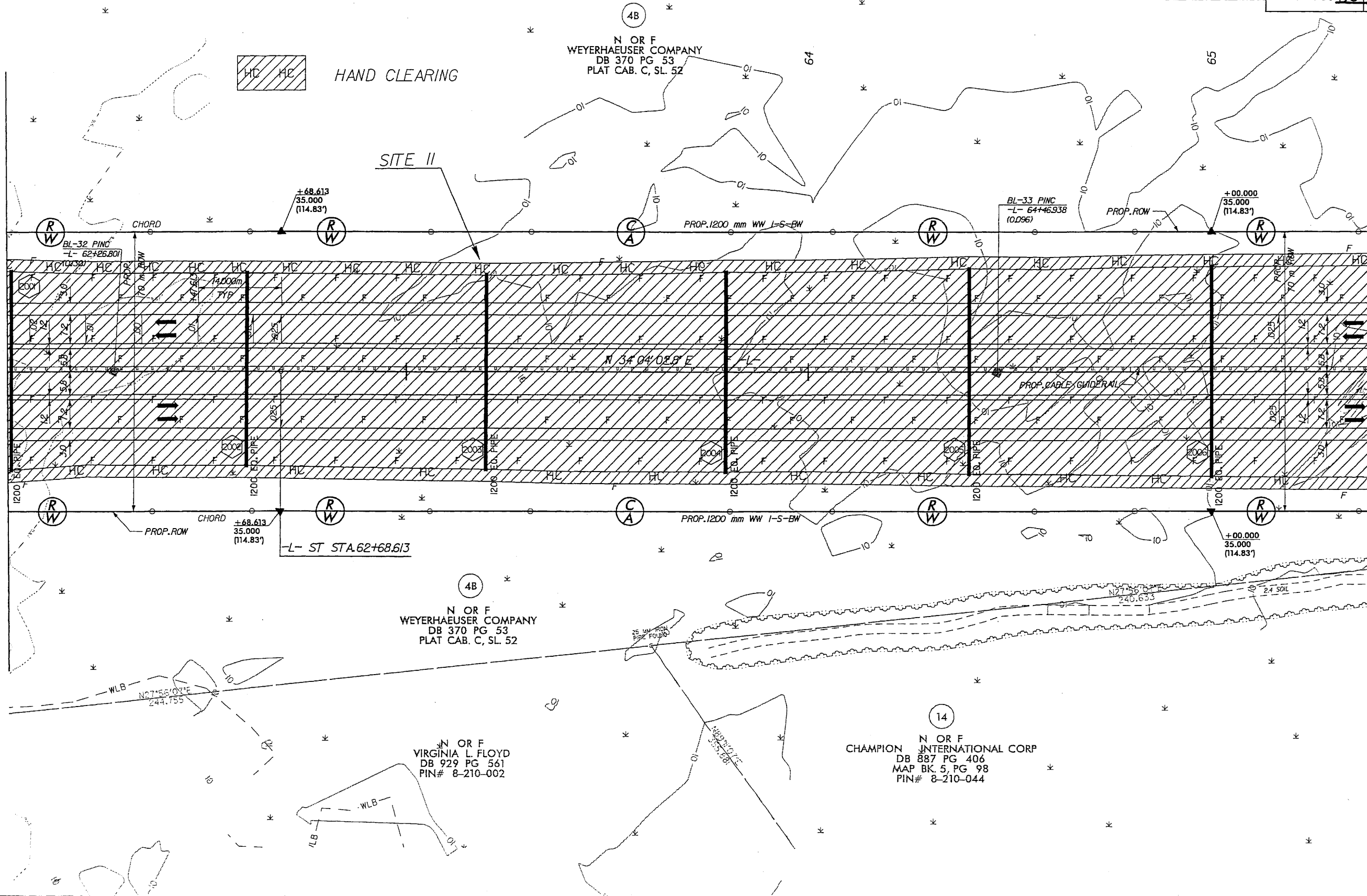


N OR F
WEYERHAEUSER COMPANY
DB 370 PG 53
PLAT CAB. C, SL. 52

SITE II

MATCH LINE STA. 62+00.000 SEE SHEET 19

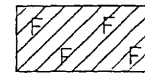
MATCH LINE STA. 65+40.000 SEE SHEET 21



REVISIONS

JAN 31 2008

WETLAND PERMIT
SITE 11 -L- 61+78 to 69+22



FILL IN WETLAND

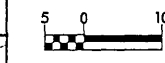


HAND CLEARING

NOTE: FOR -L- PROFILE SEE SHEET 52

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1600 Perimeter Park Drive
Mountainville, North Carolina 27560
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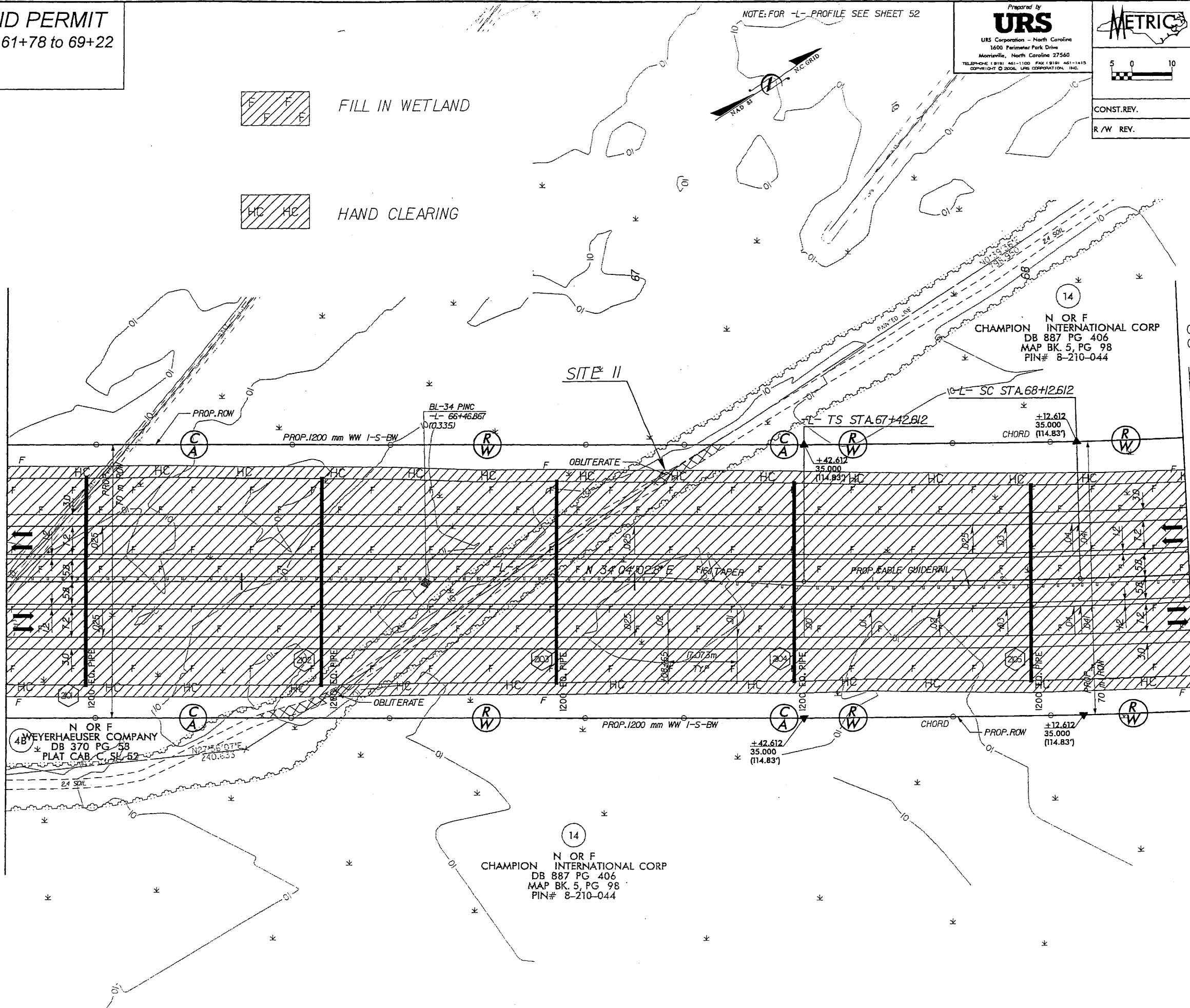
CONST. REV.

R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2301A	21
R/W SHEET NO.	21
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Permit Drawing Sheet 31 of 47	

MATCH LINE STA. 65+40.000 SEE SHEET 20

MATCH LINE STA. 68+40.000 SEE SHEET 22



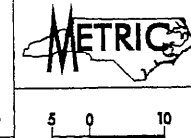
REVISIONS

JAN 31 2008

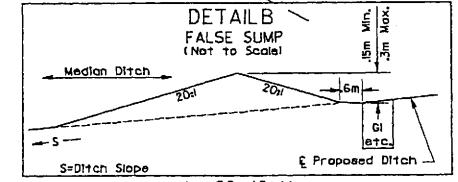
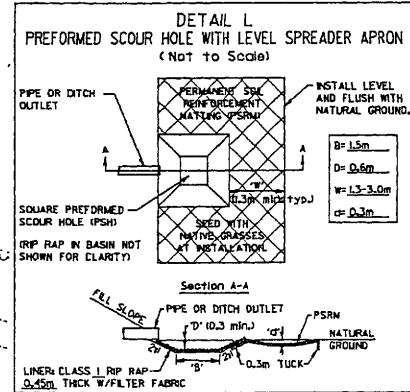
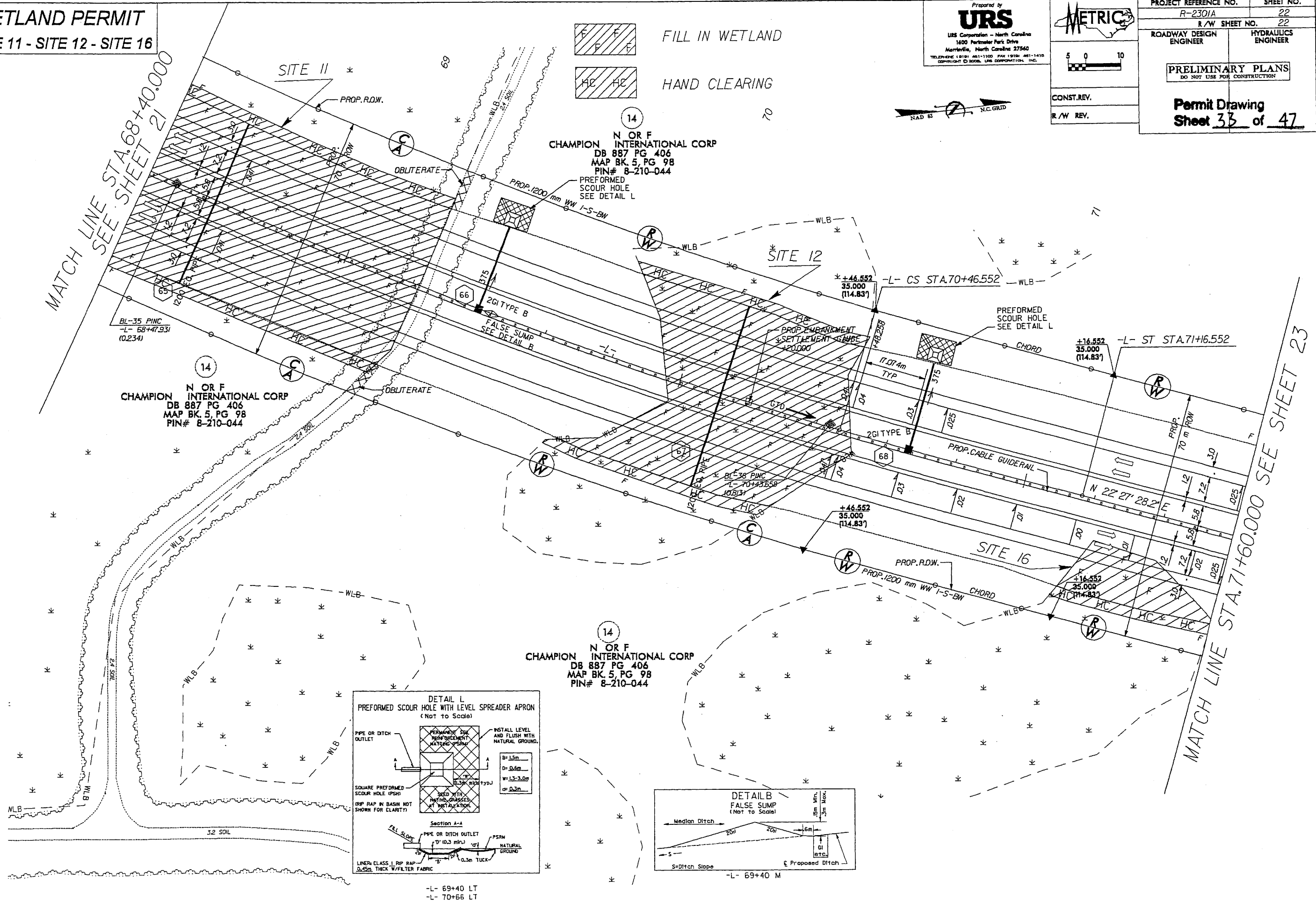
WETLAND PERMIT

SITE 11 - SITE 12 - SITE 16

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Morrisville, North Carolina 27560
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PROJECT REFERENCE NO.	SHEET NO.
R-2301A	22
R/W SHEET NO.	22
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Permit Drawing Sheet 33 of 47	



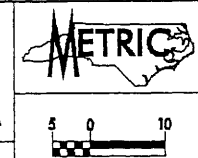
REVISIONS

JAN 31 2008

WETLAND PERMIT

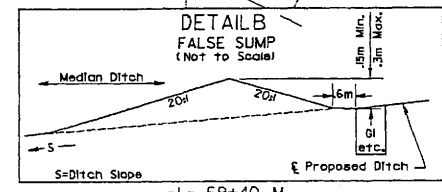
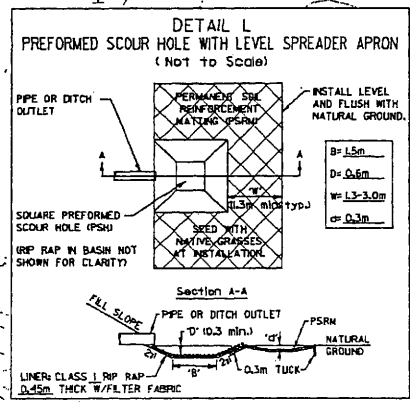
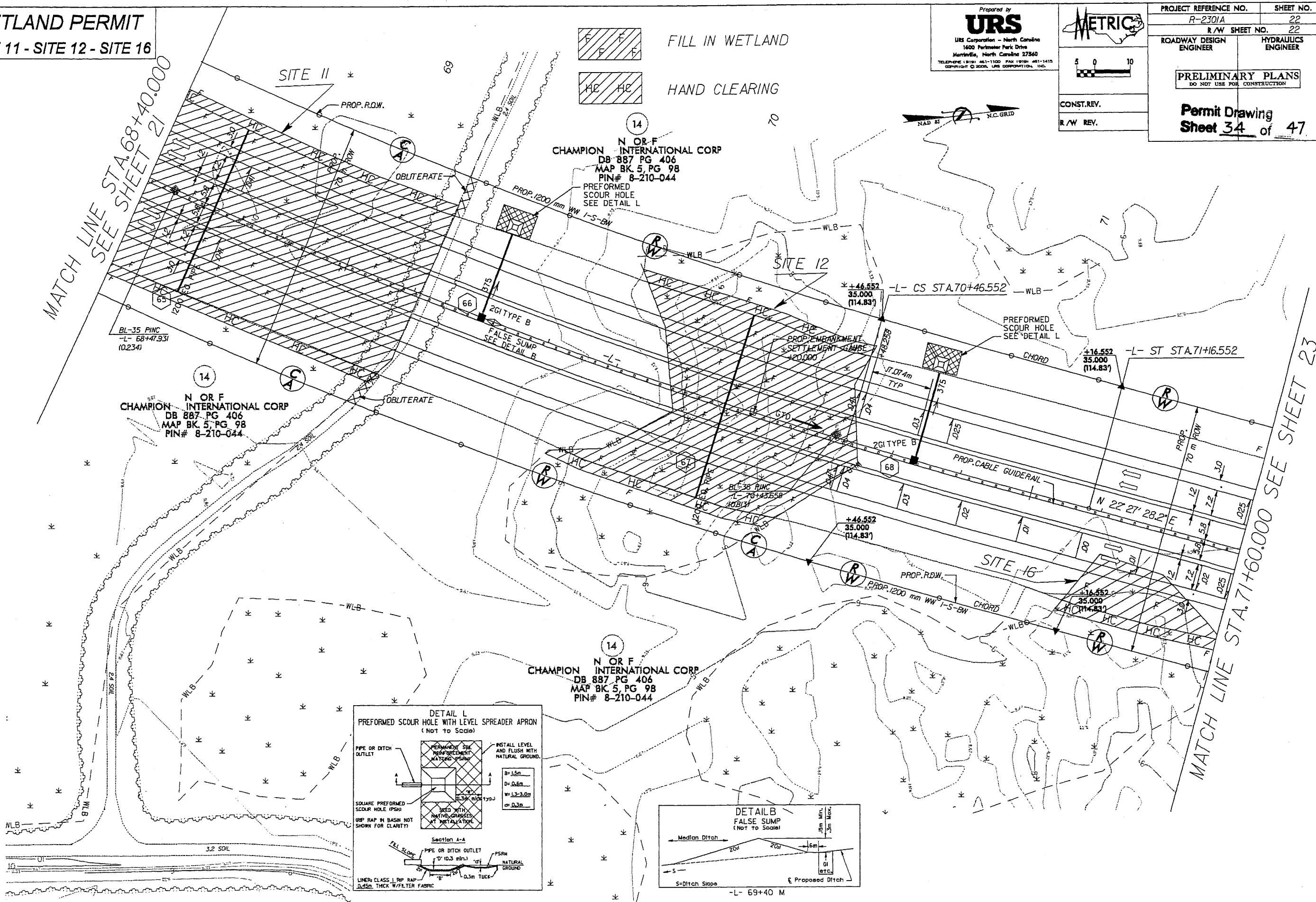
SITE 11 - SITE 12 - SITE 16

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 Morrisville, North Carolina 27560
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PROJECT REFERENCE NO.	SHEET NO.
R-2301A	22
R/W SHEET NO.	22
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Permit Drawing Sheet 34 of 47	

CONST. REV.
 R/W REV.



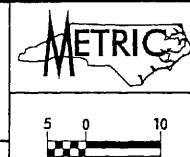
REVISIONS

JAN 31 2008

WETLAND PERMIT
SITE 18

NOTE: FOR -L- PROFILE SEE SHEET 52

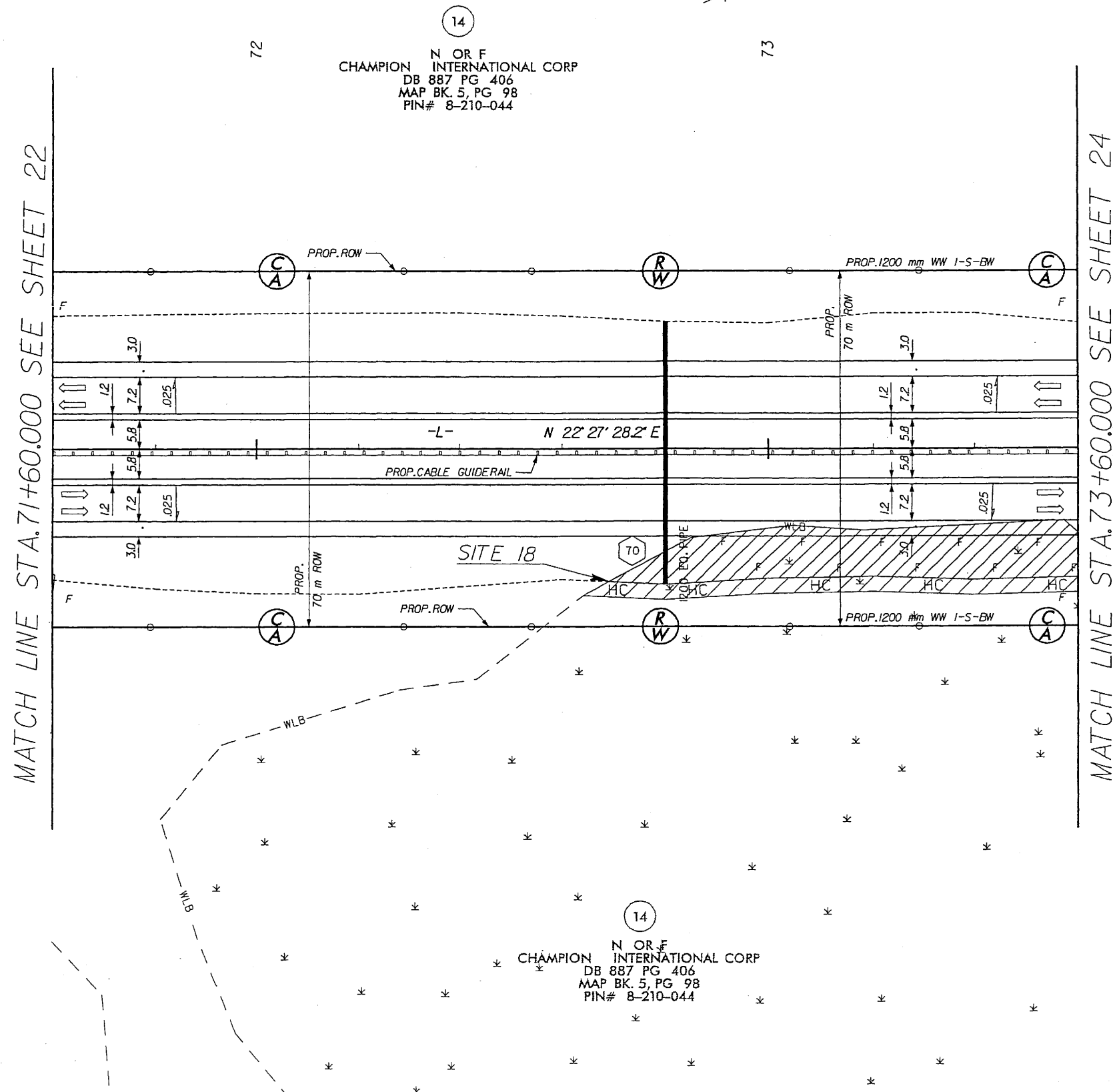
Prepared by
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Morrisville, North Carolina 27560
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PROJECT REFERENCE NO.	SHEET NO.
R-2301A	23
R /W SHEET NO. 23	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Permit Drawing Sheet <u>35</u> of <u>47</u>	

 *FILL IN WETLAND*

 *HAND CLEARING*



REVISIONS

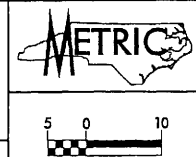
DATE: _____ ELIMINATED -DRI- AND CONSTRUCTION EASEMENT.

JAN 31 2008

SITE 18

NOTE: FOR -L- PROFILE SEE SHEET 52

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PROJECT REFERENCE NO.	SHEET NO.
R-230/A	23
R/W SHEET NO.	23
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Permit Drawing Sheet <u>36</u> of <u>47</u>	

FILL IN WETLAND

A diagram of a double-stranded DNA segment. It consists of two horizontal lines representing the sugar-phosphate backbones. The top line has a 'P' at the left end and a '5'' at the right end. The bottom line has a '3'' at the left end and a 'P' at the right end. Between the lines, there are two vertical lines representing base pairs, each labeled 'GC'.

HAND CLEARING

MATCH LINE STA. 71+60.000 SEE SHEET 22

CHAMPION N OR F
INTERNATIONAL CORP
DB 887 PG 406
MAP BK. 5, PG 98
PIN# 8-210-044

14

SITE 18

CHAMPION N O R F
INTERNATIONAL CORP
DB 887 PG 406
MAP BK. 5, PG 98
PIN# 8-210-044

14

REVISIONS

DATE: _____ ELIMINATED -DRI- AND CONSTRUCTION EASEMENT.

JAN 31 2008

WETLAND PERMIT
SITE 18

CHAMPION N OR F
INTERNATIONAL CORP
DB 887 PG 406
MAP BK. 5, PG 98
PIN# 8-210-044



FILL IN WETLAND



HC HC HAND CLEARING

NOTE: FOR -L- PROFILE SEE SHEET 52

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PROJECT REFERENCE NO.	SHEET NO.
P-2301A	21

R 2507A	24
R/W SHEET NO.	24
ROADWAY DESIGN	HYDRAULICS

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
----------------------------	------------------------

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 37 of 47

CONST.REV.

R / W REV.

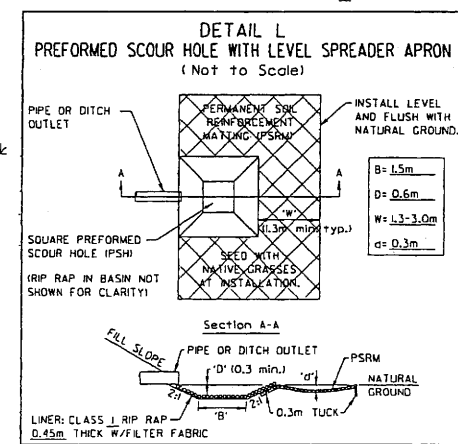
MATCH LINE STA. 73+60.00 SEE SHEET 23

MATCH LINE STA. 77+00.000 SEE SHEET 25

REVISIONS

DATE: **JAN 31 2008** ELIMINATED -DRIVE- AND CONSTRUCTION EASEMENT.

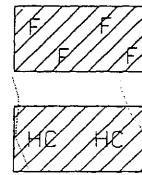
E: **JAN 31** ELIMINATED 2008



-L- 73+88 RT

WETLAND PERMIT
SITE 18

14
N OR F
CHAMPION INTERNATIONAL CORP
DB 887 PG 406
MAP BK. 5, PG 98
PIN# 8-210-044

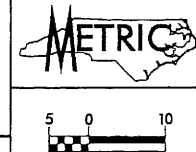


FILL IN WETLAND
HAND CLEARING

NOTE: FOR -L- PROFILE SEE SHEET 52

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URS

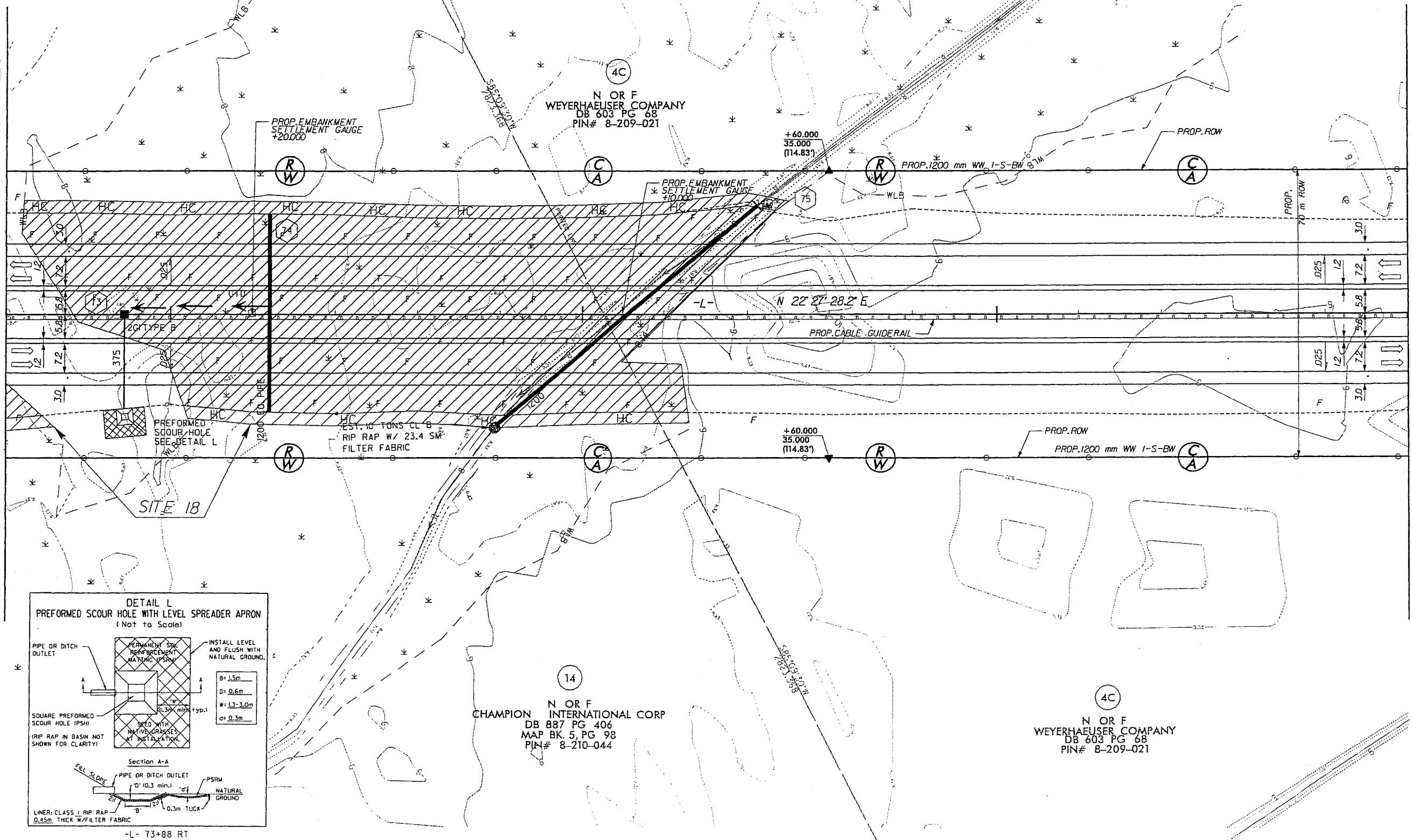
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1600 Perimeter Park Drive
Merrillville, North Carolina 27560
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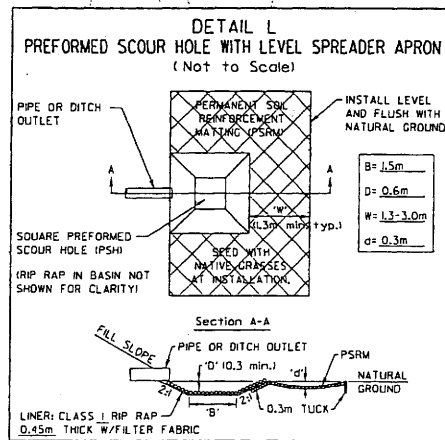
CONST. REV.
R/W REV.

PROJECT REFERENCE NO. R-2301A	SHEET NO. 24
R/W SHEET NO. 24	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Permit Drawing Sheet 38 of 47	

MATCH LINE STA. 73+60.000 SEE SHEET 23



MATCH LINE STA. 77+00.000 SEE SHEET 25



-L- 73+88 RT

14
N OR F
CHAMPION INTERNATIONAL CORP
DB 887 PG 406
MAP BK. 5, PG 98
PIN# 8-210-044

4C
N OR F
WEYERHAEUSER COMPANY
DB 603 PG 68
PIN# 8-209-021

REVISIONS

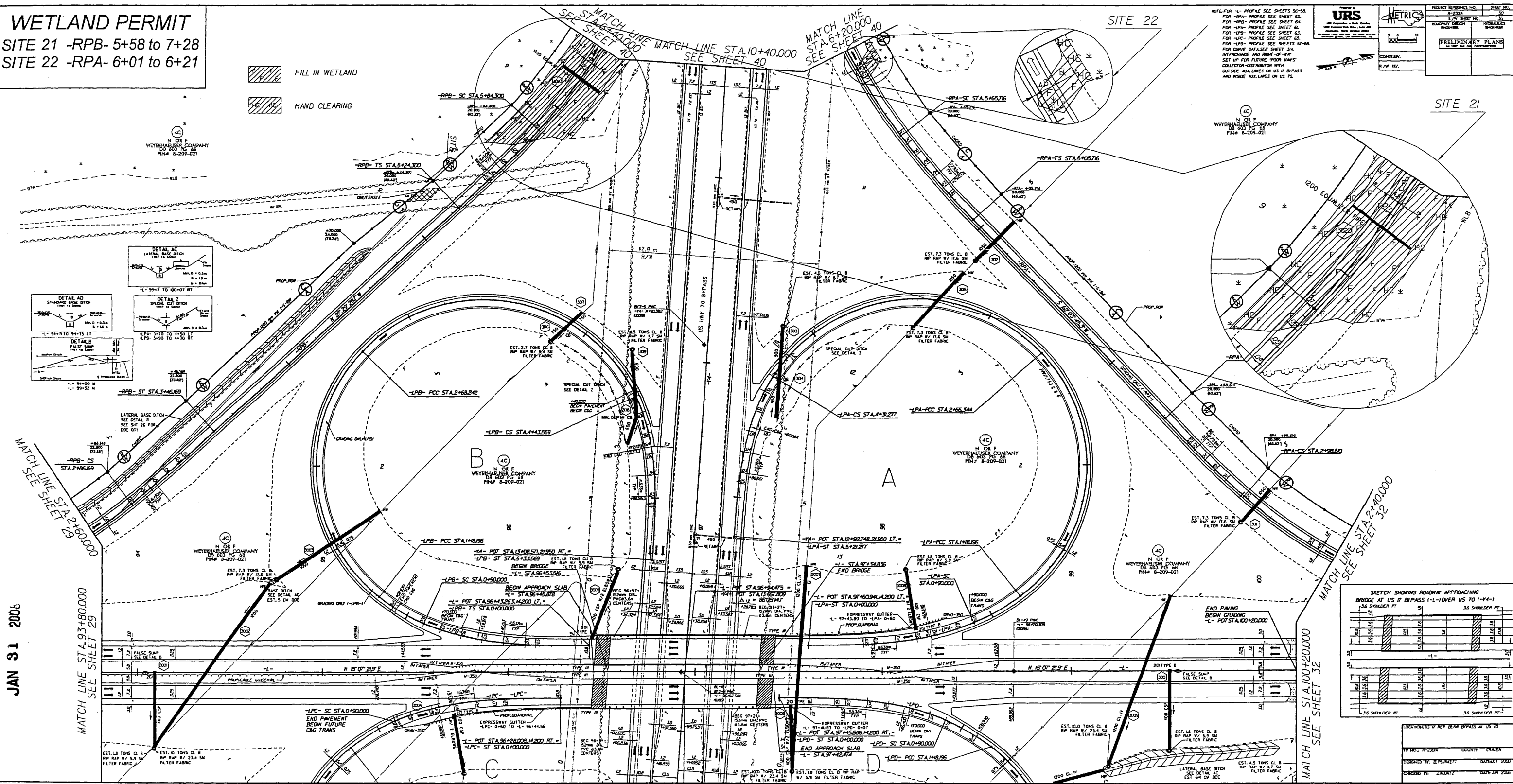
DATE: ELIMINATED -DRI- AND CONSTRUCTION EASEMENT.

JAN 31 2008

SITE 21 -RPB- 5+58 to 7+28
SITE 22 -RPA- 6+01 to 6+21

 FILL IN WETLAND

 HAND CLEARING



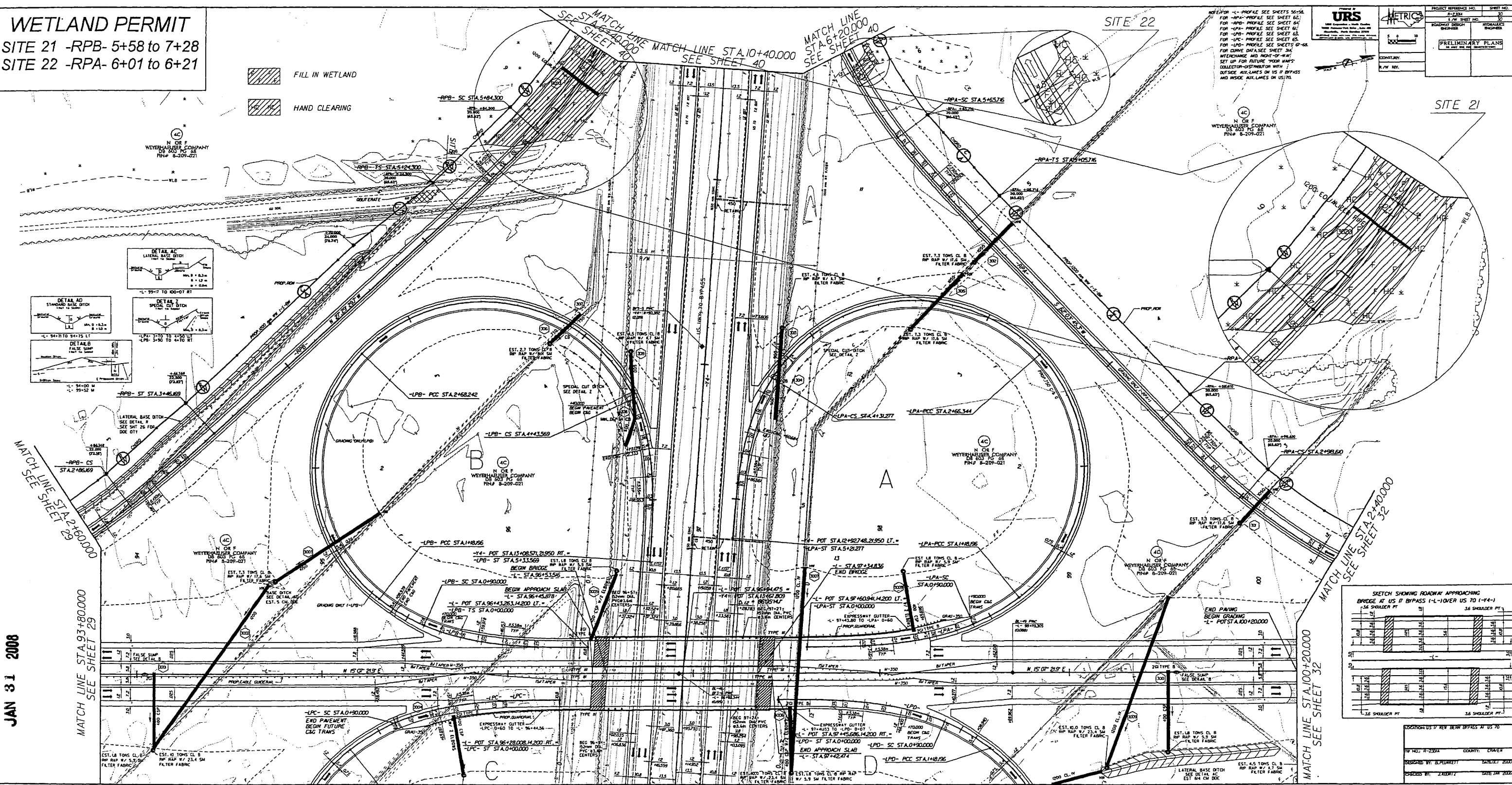
JAN 31 2006

MATCH LINE STA. 100+20.000
SEE SHEET 32

SITE 21 -RPB- 5+58 to 7+28
SITE 22 -RPA- 6+01 to 6+21

 FILL IN WETLAND

 HAND CLEARING



JAN 31 2008

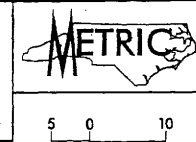
SEE SHEET 3

WETLAND PERMIT

SITE 1C
-Y1- 20+96 to 21+23

NOTE: FOR -Y1- PROFILE SEE SHEET 70

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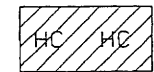
PROJECT REFERENCE NO.	SHEET NO.
R-2301A	37
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Permit Drawing Sheet <u>41</u> of <u>47</u>	

CONST. REV.
R/W REV.

LEGEND



FILL IN WETLAND



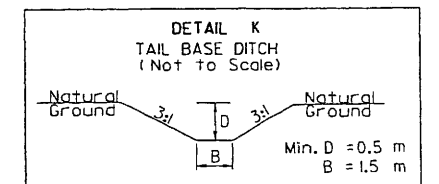
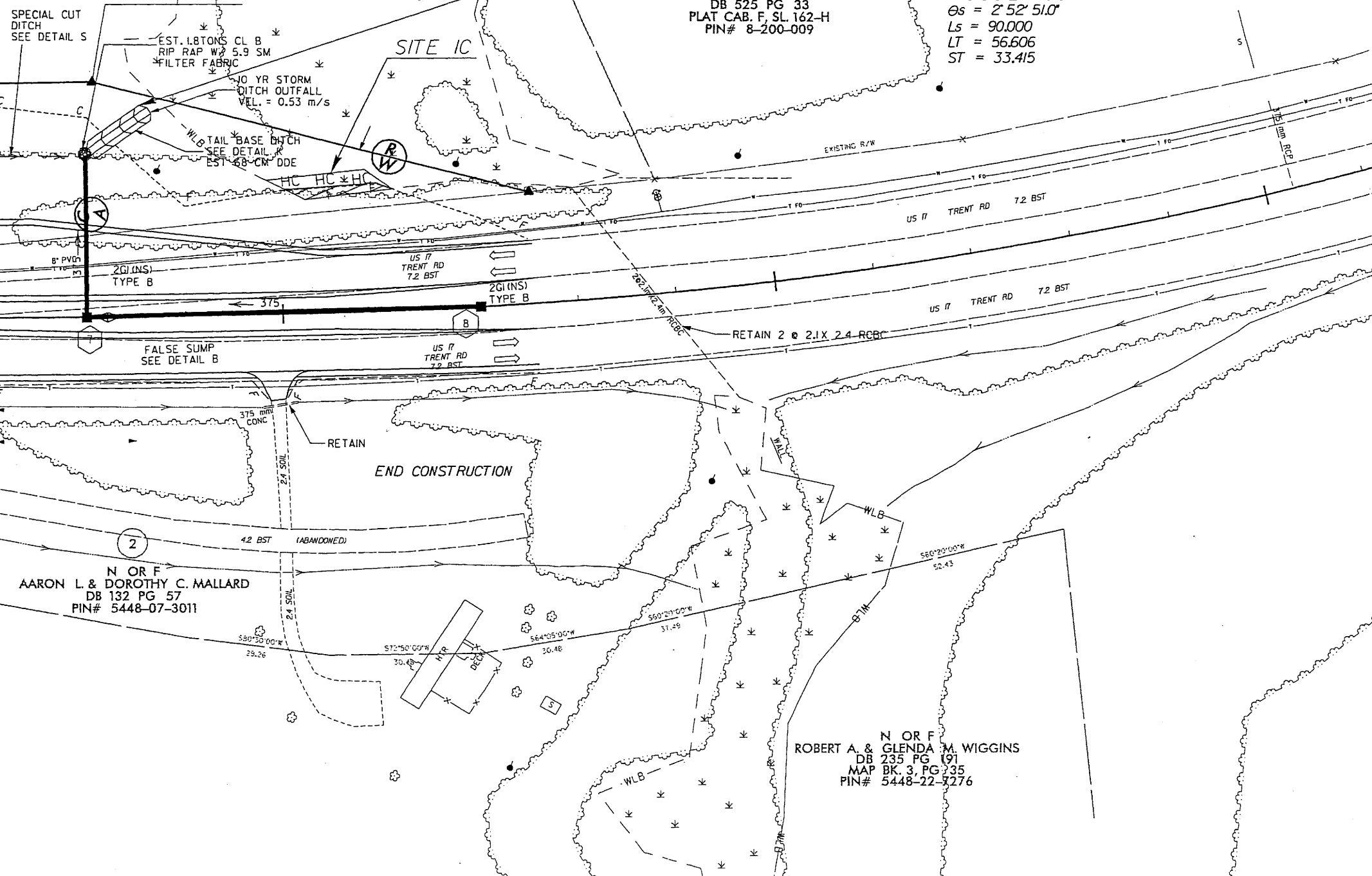
HAND CLEARING

CURVE DATA -Y1-
P.I. = 20+21.301
 $\Delta = 0^\circ 39' 21.1''$ (LT)
L = 80.013
T = 40.007
R = 6,990.000
SE = NC

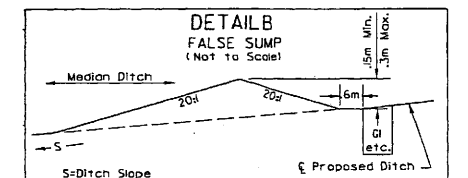
CURVE DATA -Y1-
P.I. = 22+79.780
 $\Delta = 16^\circ 20' 15.0''$ (LT)
L = 255.203
T = 128.473
R = 895.000
SE = 3.4%

CURVE DATA -Y1-
P.I.S. Sta 21+17.913
 $\Delta s = 2^\circ 52' 51.0''$
Ls = 90.000
LT = 56.606
ST = 33.415

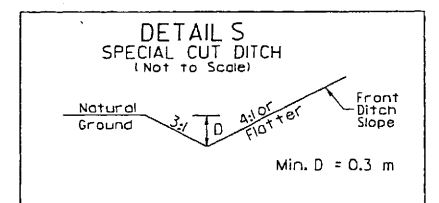
MATCH LINE STA. 20+40.000 SEE SHEET 4



-Y1- 20+60 TO 20+73 LT



-Y1- 20+65 M

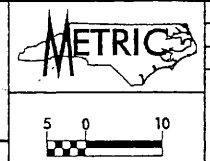


-Y1- 19+80 TO 20+60 LT

REVISIONS
DATE: JAN 31 2008
REVISED US 17 RT TURN LANE (-Y1- STA. 20+40 TO 21+51.307 THIS SHEET)

SITE 1C
-Y1- 20+96 to 21+23

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PROJECT REFERENCE NO.	SHEET NO.
R-2301A	37
R/W	SHEET NO.
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 42 of 47

CURVE DATA -YI-
P.J.S. Sta 21+17.913
 $\theta_s = 2^\circ 52' 51.0''$
 $L_s = 90.000$
 $LT = 56.606$
 $ST = 33.415$

HC HC

HAND CLEARING

DETAIL K
TAIL BASE DITCH
(Not to Scale)

Natural Ground 3:1 D 3:1 Natural Ground

Min. D = 0.5 m
B = 1.5 m

DETAIL B
FALSE SUMP
(Not to Scale)

Median Ditch

6m

S=Ditch Slope

Y1- 20+65 M

Proposed Ditch

G1 etc.

DETAIL S
SPECIAL CUT DITCH
(NOT to Scale)

Natural Ground

3H

D

4:1 or Flatter

Front Ditch Slope

Min. D = 0.3 m

-YI- 19+80 TO 20+60 LT

DATE: REVISED US 17 RT TURN LAWE.(-Y)- STA.20+40 TO 21+51.307 THIS SHEET)

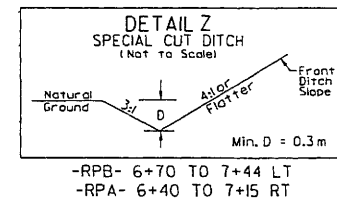
JAN 31 2008

REVISIONS

WETLAND PERMIT
SITE 21 -RPB- 5+58 to 7+28
SITE 23 -RPA- 6+59 to 6+69

The diagram illustrates three methods of wetland restoration, each represented by a rectangular area with diagonal hatching and specific labels:

- FILL IN WETLAND:** The top rectangle is divided into four quadrants, each labeled with the letter 'F'.
- EXCAVATION IN WETLAND:** The middle rectangle is divided into four quadrants, each labeled with the letter 'E'.
- HAND CLEARING:** The bottom rectangle is divided into two equal halves, each labeled 'HC'.



N O R F
WEYERHAEUSER COMPANY
DB 603 PG 68
PIN# 8-209-021

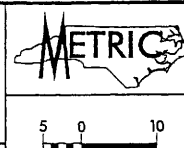
TIE TO EXIST WW FENCE

$\frac{-RPA + 00.536}{25.000}$
(82.02')

1500 mm WW W/ISBW

EST. 7.3 TONS CL B
RIP RAP W/ 17.6 SM
FILTER FABRIC

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PROJECT REFERENCE NO.	SHEET NO.
R-2301A	40
R/W	SHEET NO.
	41
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Permit Drawing Sheet <u>43</u> of <u>47</u>	

MATCH LINE STA. 6+80.000 SEE SHEET 40

30.000 MATCH LINE STA. 10+40.000
SEE SHEET 30

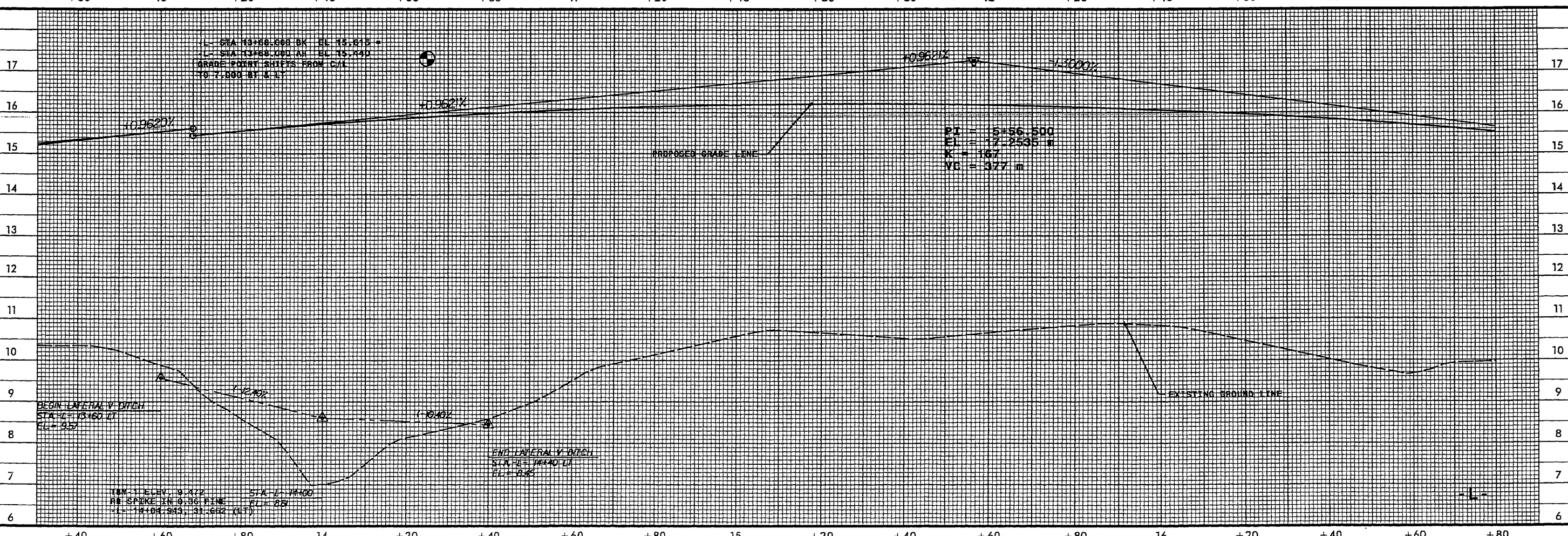
REVISIONS

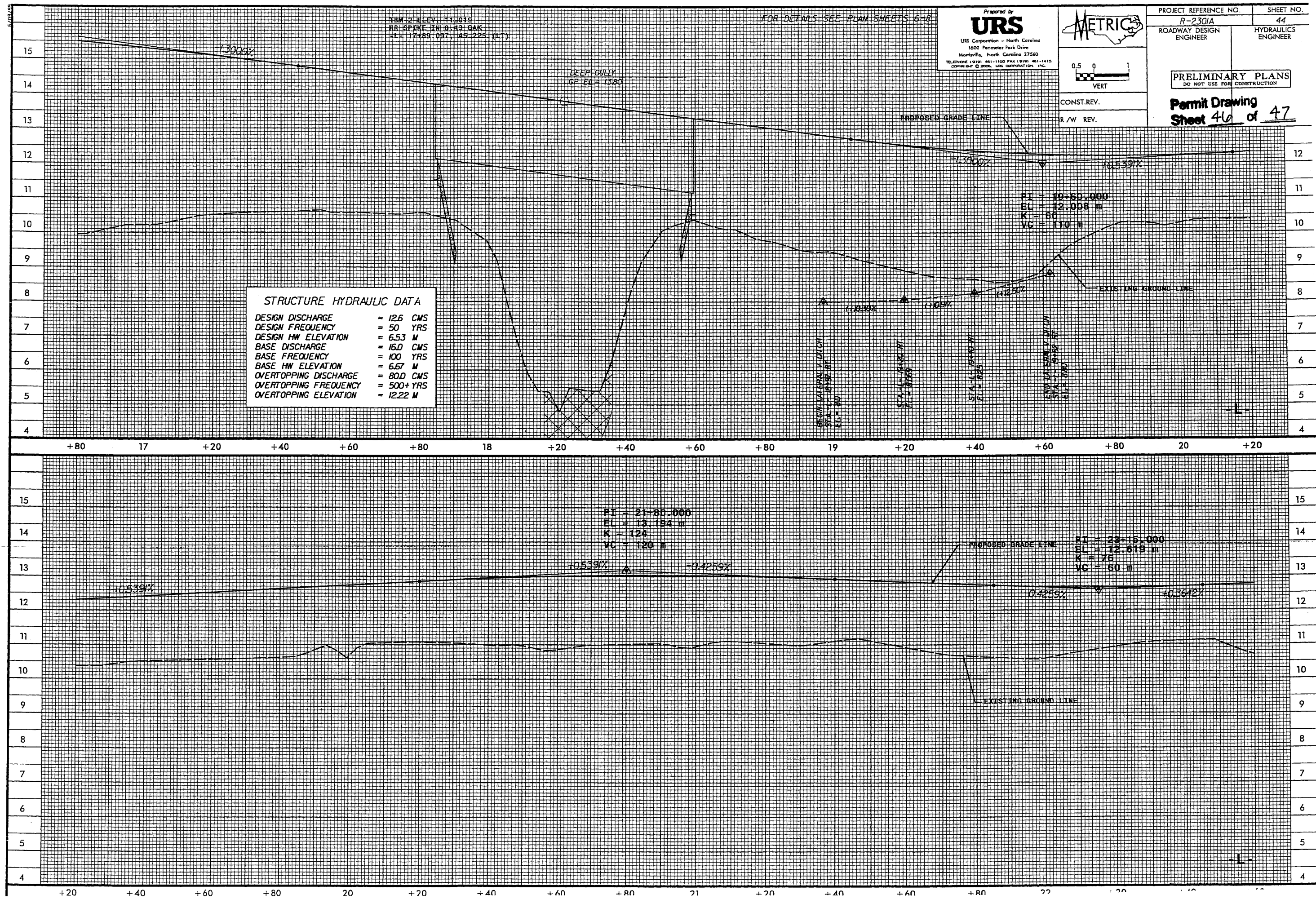
JAN 31 2008

15B
N OR F
CRAVEN COUNTY
DB 1604 PG 1010
PIN# 8-217-025

SITE 21

N O R F
WEYERHAEUSER COMPANY
DB 603 PG 68
PIN# 8-209-021





JAN 31 2008

5/09/08

YBM 3 ELEV. 11.062
RR SPIKE IN 0.18 MAPLE
+L- 24+00.520, 82.755 (LT)

FOR DETAILS SEE PLAN SHEETS 8 TO 10

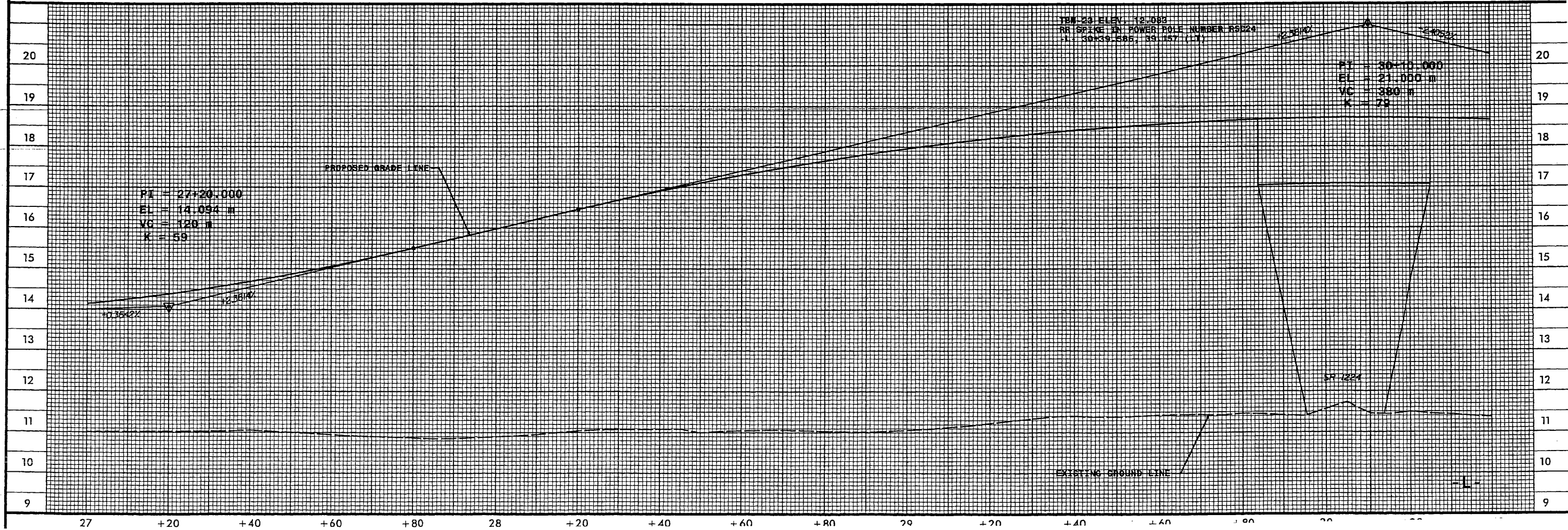
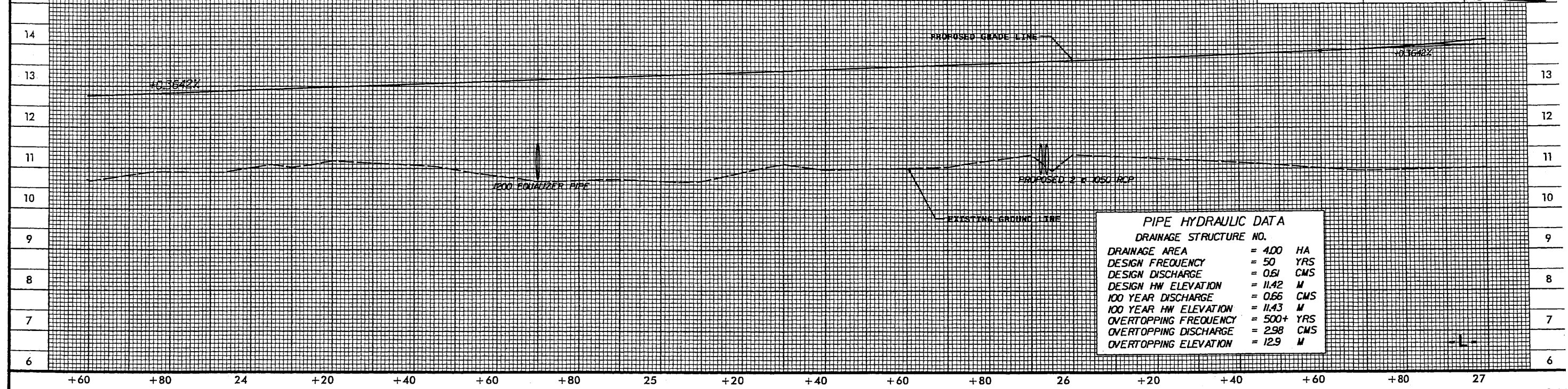
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METRIC
0.5 0 1
VERT

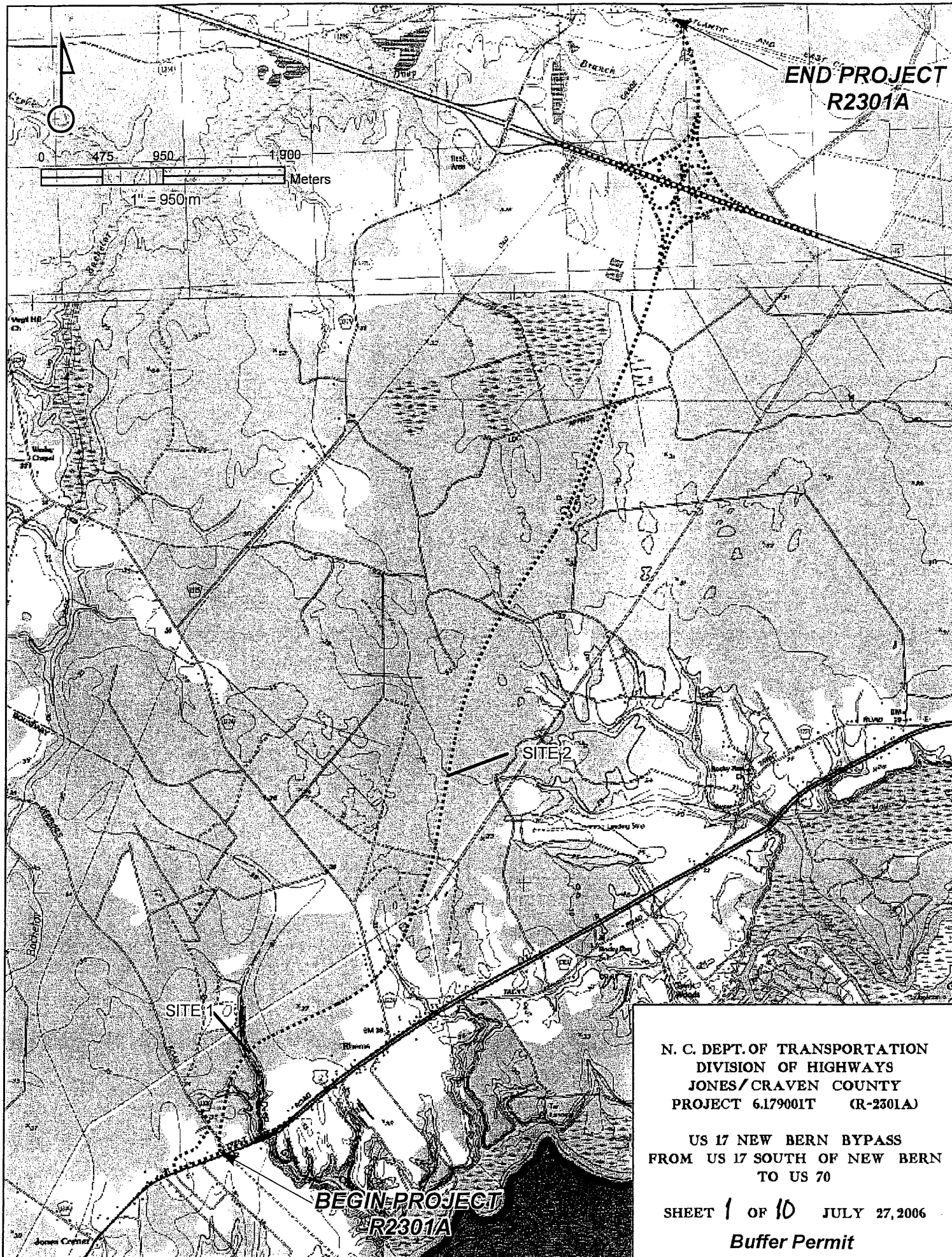
PROJECT REFERENCE NO.	SHEET NO.
R-2301A	45
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 47 of 47



JAN 31 2008



N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
JONES/ CRAVEN COUNTY
PROJECT 6.179001T (R-2301A)

US 17 NEW BERN BYPASS
FROM US 17 SOUTH OF NEW BERN
TO US 70

SHEET 1 OF 10 JULY 27, 2006

Buffer Permit

BUFFER IMPACTS SUMMARY

[illegible]

162 SM of buffer impacts in Zone 1 are accounted for as wetland impacts
71 SM of buffer impacts in Zone 2 are accounted for as wetland impacts

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

CRAVEN COUNTY

PROJECT: 6.179001T (R-2301A)

6/13/2008
SHEET 5 OF 5

Property Owners

Parcel Number

Names

Addresses

2	Aaron L. & Dorothy C. Mallard	
3	Macon F. & Joyce F Duncan	

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
Buffer Permit
Jones Craven COUNTY
WBS - 34414.1.1 (R--2301A)

SHEET

3 of 10

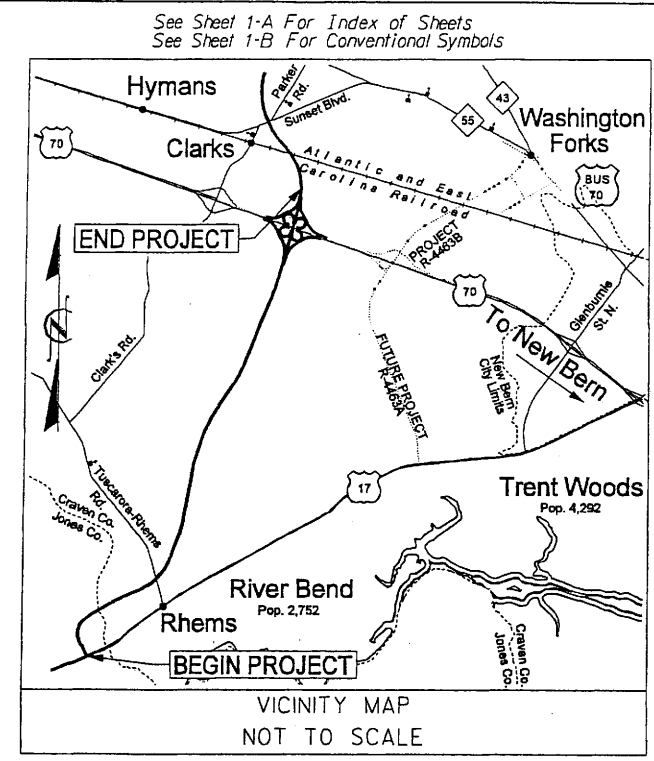
4/10/2008

9/05/99

TIP PROJECT: R-2301A

CONTRACT:

FEBRUARY 11, 2008 REVIEW PLANS FOR PRE-LET FIELD INSPECTION



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

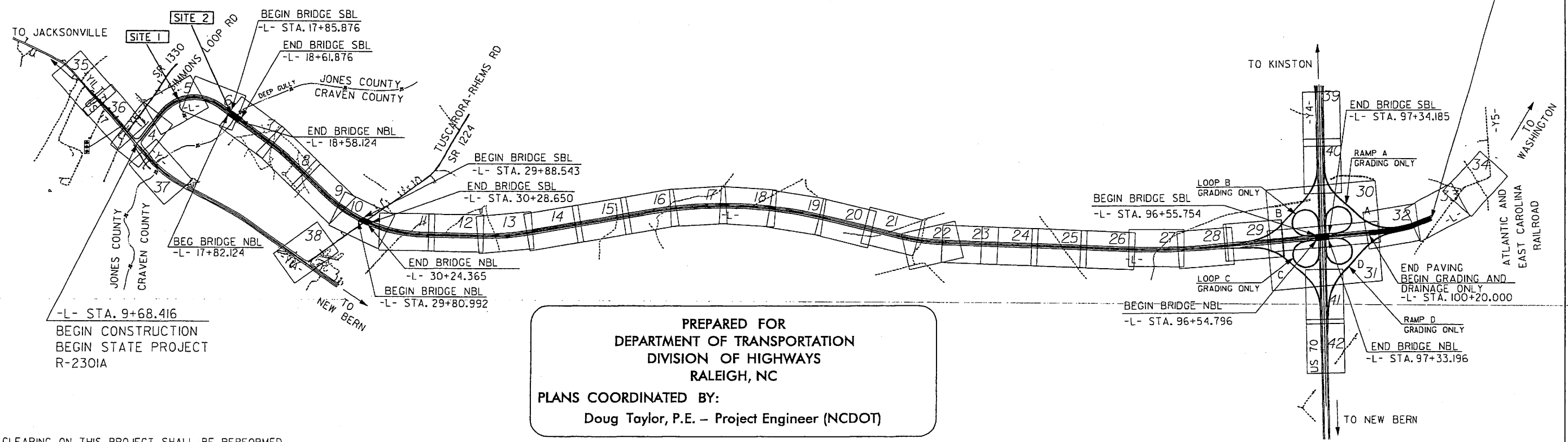
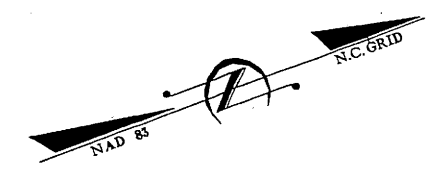
JONES & CRAVEN COUNTIES

LOCATION: US 17 NEW BERN BYPASS
FROM US 17 SOUTH OF NEW BERN TO US 70

TYPE OF WORK: DRAINAGE, GRADING, PAVING,
STRUCTURES, SIGNALS, AND SIGNING

BUFFER PERMIT

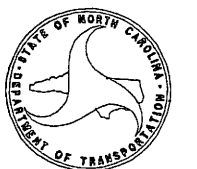
 ALL DIMENSIONS IN THESE PLANS ARE IN METERS OR MILLIMETERS UNLESS OTHERWISE NOTED	STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
	N.C.	R-2301A	1	
	STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
	34414.1.1		P.E.	
	34414.2.3		R/W, UTIL	
	Buffer Drawing			
	Sheet 4 of 10			



PREPARED FOR
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, NC

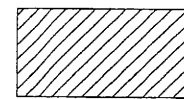
PLANS COORDINATED BY:
Doug Taylor, P.E. - Project Engineer (NCDOT)

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

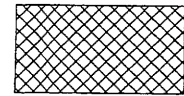
GRAPHIC SCALES 5 0 10 PLANS 5 0 10 PROFILE (HORIZONTAL) 0.5 0 1 PROFILE (VERTICAL)	DESIGN DATA ADT 2008 = 23,300 ADT 2028 = 40,300 DHV = 10 % D = 60 % T = 12 % (6% TTST + 6% DUAL) V = 110 km/h FUNCTIONAL CLASSIFICATION: FREWAY	PROJECT LENGTH LENGTH ROADWAY STATE PROJECT 34414.2.3 = 9.331 KILOMETERS LENGTH STRUCTURE STATE PROJECT 34414.2.3 = 0.198 KILOMETERS TOTAL LENGTH STATE PROJECT 34414.2.3 = 9.529 KILOMETERS (NBL USED FOR LENGTH CALCULATION) THIS IS A CONTROLLED ACCESS PROJECT WITH ACCESS BEING LIMITED TO THE INTERCHANGES	Prepared in the Office of: URS URS Corporation - North Carolina 1600 Perimeter Park Drive, Suite 400 Morrisville, North Carolina 27560 TELEPHONE (919) 461-1100 FAX (919) 461-1415 2006 STANDARD SPECIFICATIONS RIGHT OF WAY DATE: JUNE 30, 2006 LETTING DATE: NOVEMBER 18, 2008 TIMOTHY H. KEENER, P.E. PROJECT ENGINEER JEFFREY A. KOONTZ, P.E. 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
---	--	--	--	---	---

**BUFFER PERMIT
SITE 1**

LEGEND



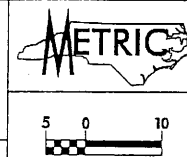
MITIGABLE IMPACTS ZONE 2



MITIGABLE IMPACTS ZONE 1

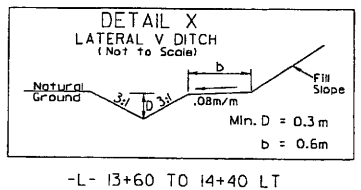
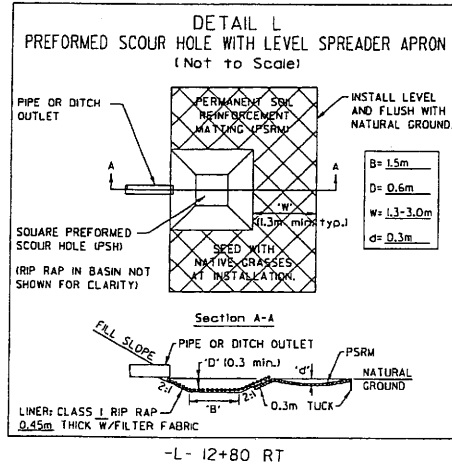
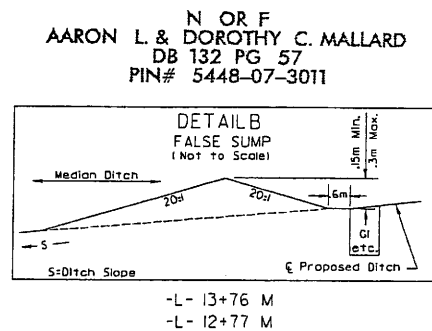
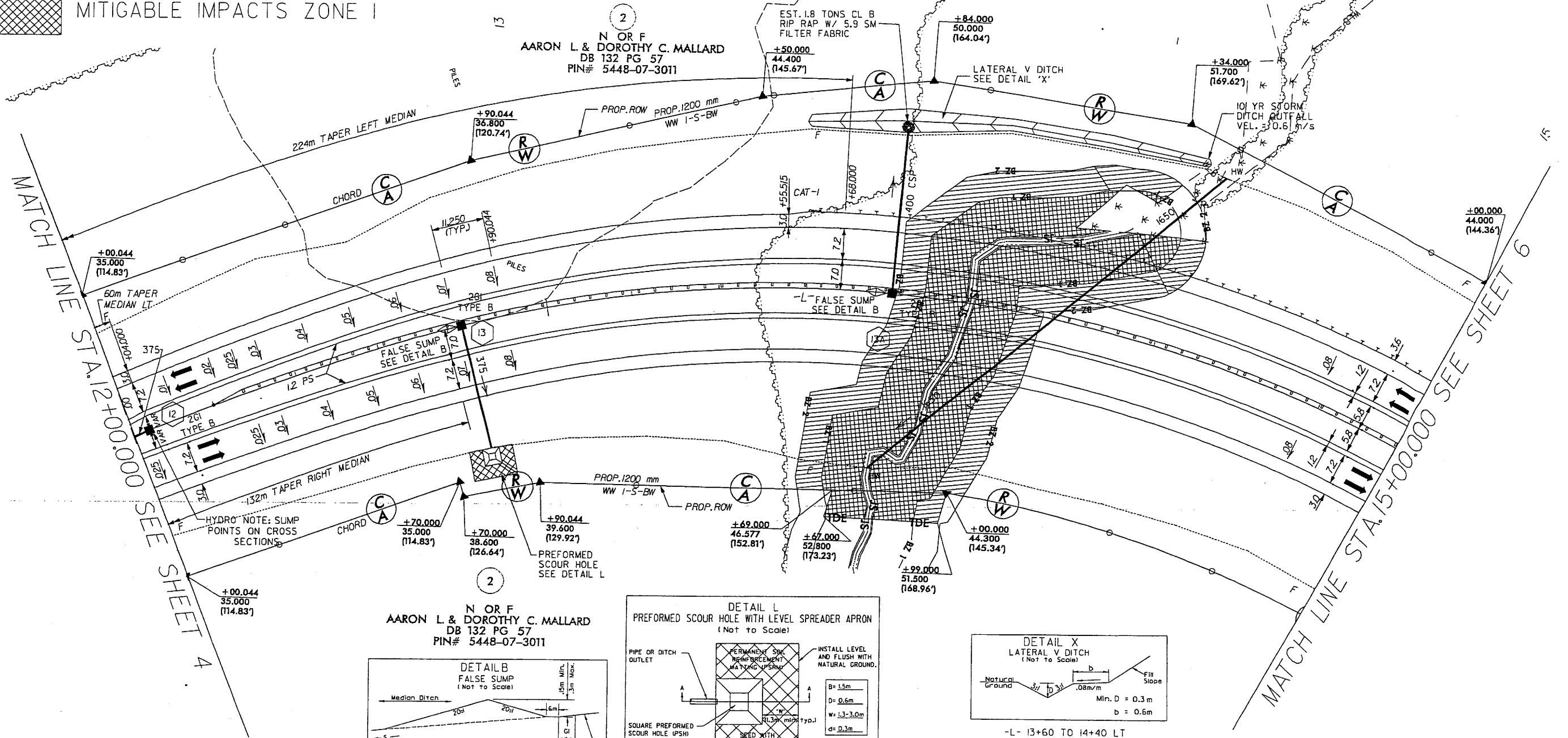
NOTE: FOR -L- PROFILE SEE SHEET 43

Prepared by
URS
URS Corporation - North Carolina
1600 Fairmeier Park Drive
Mettieville, North Carolina 27560
TELEPHONE (919) 451-1100 FAX (919) 451-1415
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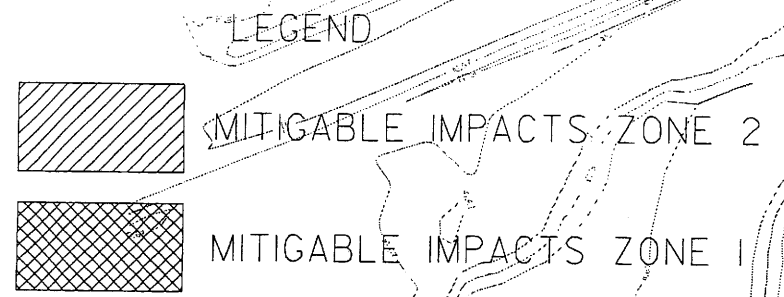


CONST. REV.
R/W REV.

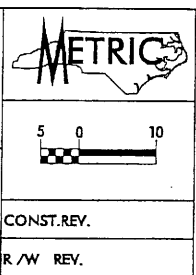
PROJECT REFERENCE NO. R-2301A	SHEET NO. 5
R/W SHEET NO. 5	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Buffer Drawing Sheet 5 of 10	



BUFFER PERMIT
SITE 1

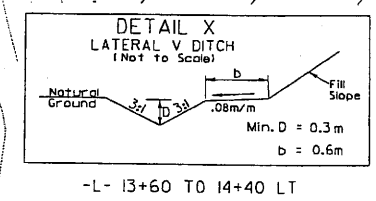
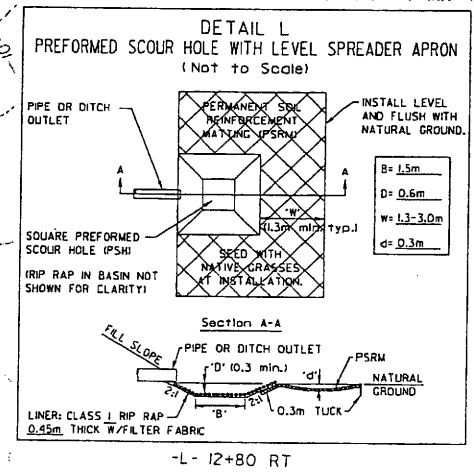
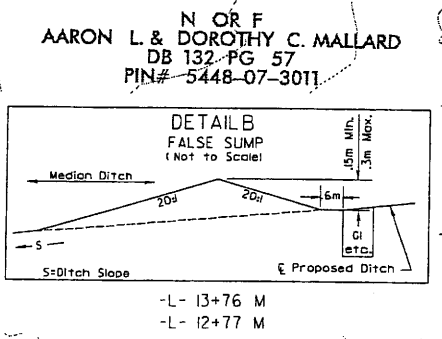
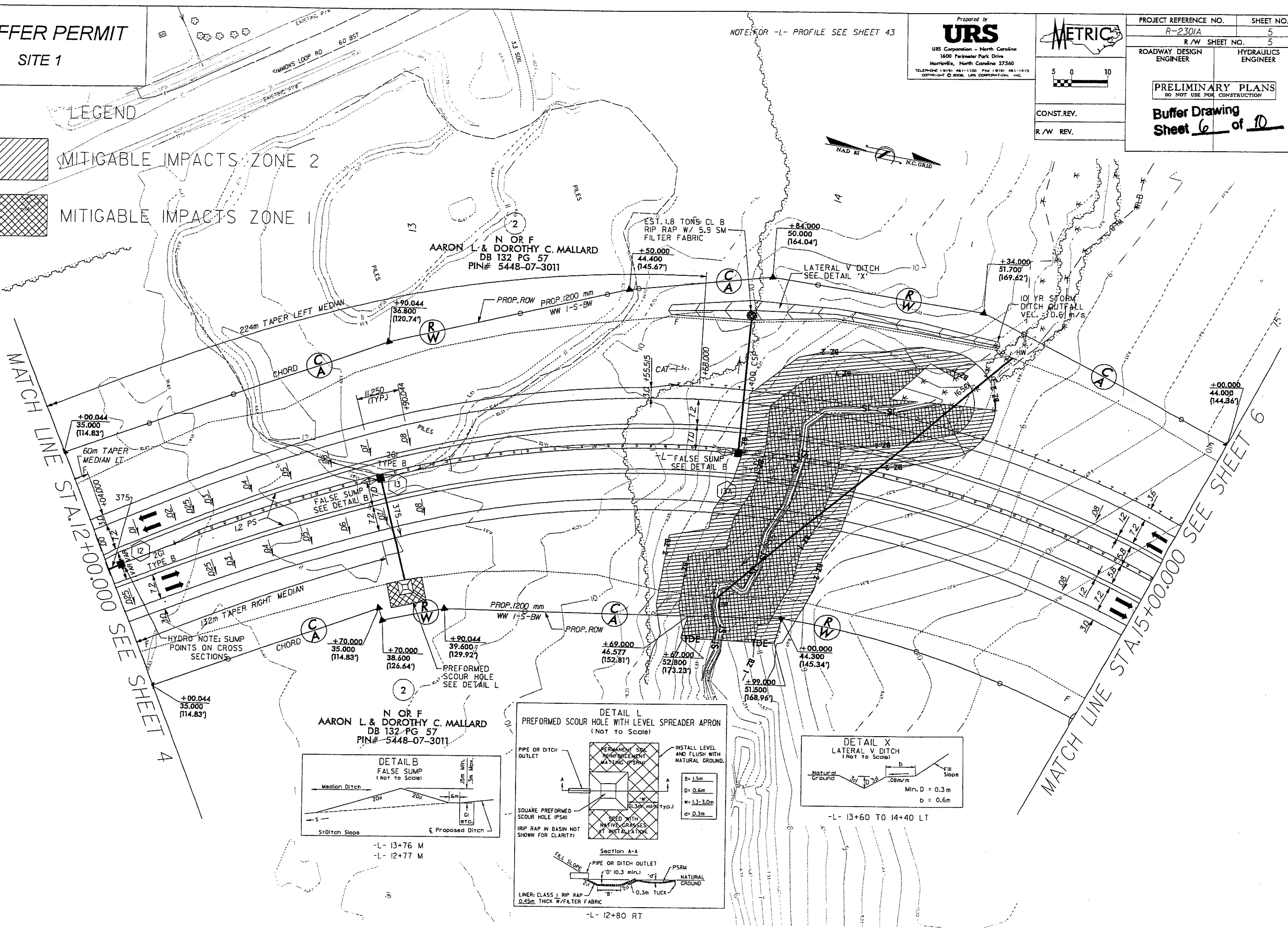


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Marietta, North Carolina 27560
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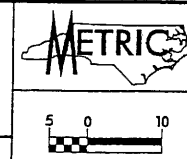
PROJECT REFERENCE NO. R-2301A	SHEET NO. 5
R/W SHEET NO. 5	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Buffer Drawing Sheet <u>6</u> of <u>10</u>	

NOTE: FOR -L- PROFILE SEE SHEET 43



SITE 2

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PROJECT REFERENCE NO.	SHEET NO.
R-2301A	6
R/W SHEET NO.	6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Buffer Drawing Sheet <u>7</u> of <u>10</u>	

ALLOWABLE IMPACTS ZONE 2

DETAIL B
FALSE SUMP
(Not to Scale)

Median Ditch

20:1

20:1

5m

1.5m Min.
1.5m Max.

Cl.
etc.

Proposed Ditch

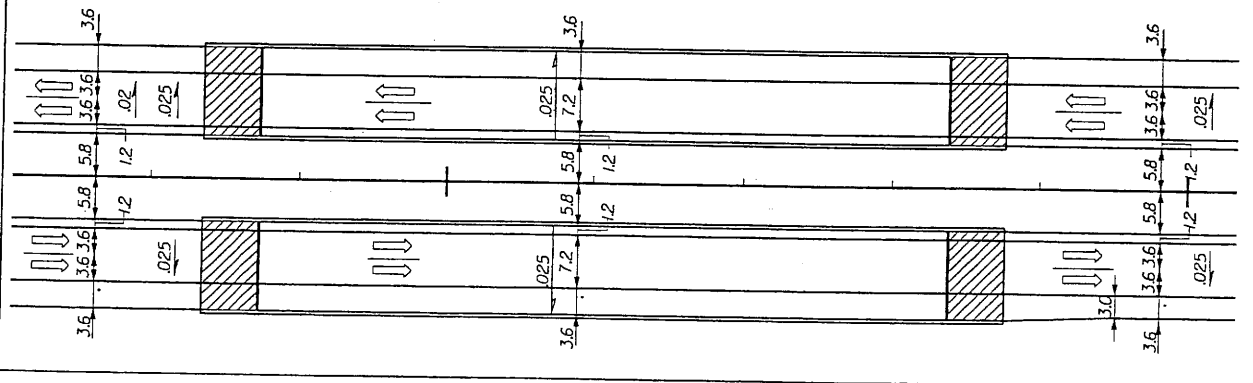
5=Ditch Slope

-L- 17+81 M

[illegible]

BUFFER IMPACTS_
SITE 2 (ZONE 2)

SKETCH SHOWING ROADWAY APPROACHING BRIDGE AT US 17 BYPASS (L-L) OVER DEEP GULLY



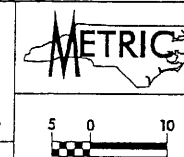
BUFFER PERMIT

SITE 2

NOTE: FOR -L- PROFILE SEE SHEET 43-44

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1600 Parkside Park Drive
Morriseville, North Carolina 27560
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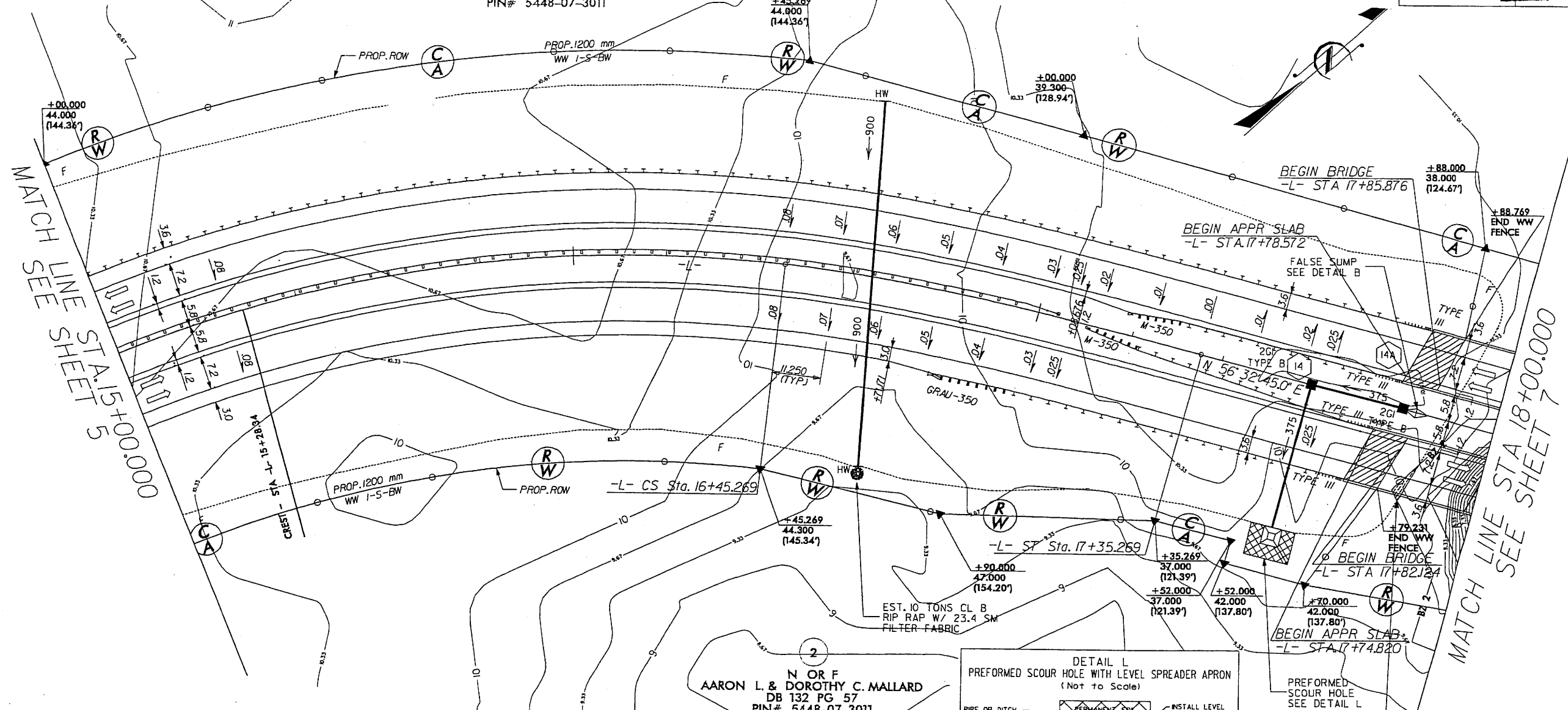
PROJECT REFERENCE NO.	SHEET NO.
R-2301A	6
R/W SHEET NO.	6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Buffer Drawing
Sheet 8 of 10

ALLOWABLE IMPACTS ZONE 2

N OR F
AARON L. & DOROTHY C. MALLARD
DB 132 PG 57
PIN# 5448-07-3011

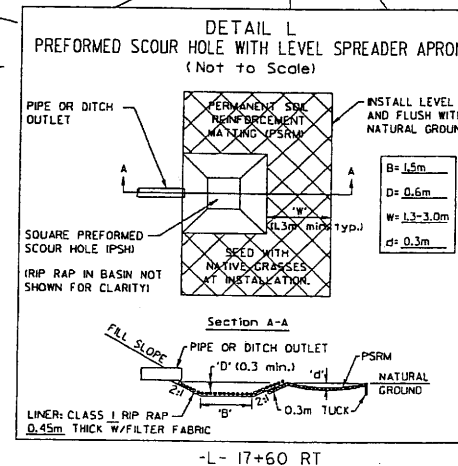
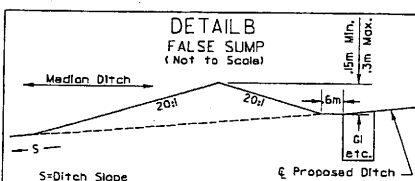
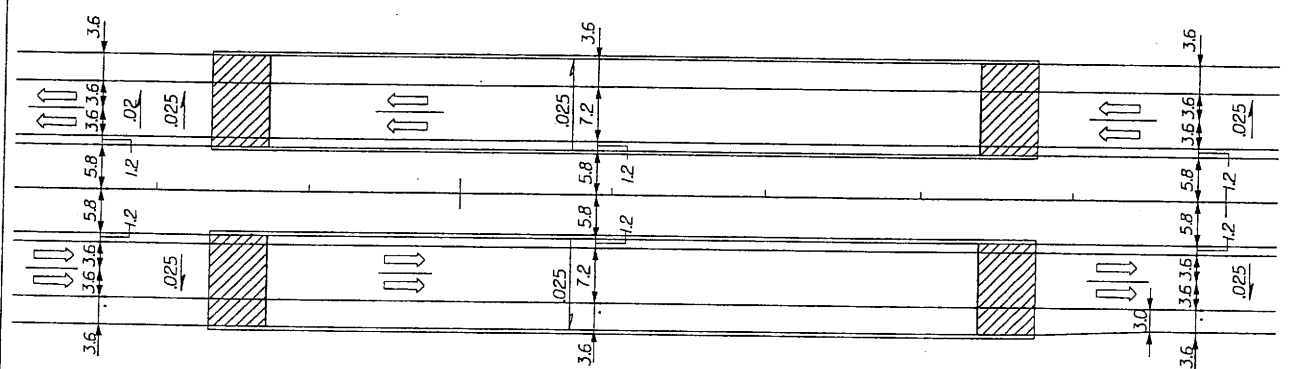


MATCH LINE SEE SHEET 5
STA 15+00.00

MATCH LINE SEE SHEET 7
STA 18+00.00

N OR F
AARON L. & DOROTHY C. MALLARD
DB 132 PG 57
PIN# 5448-07-3011

SKETCH SHOWING ROADWAY APPROACHING BRIDGE AT US 17 BYPASS (-L-) OVER DEEP GULLY



BUFFER IMPACTS
SITE 2 (ZONE 2)

BUFFER PERMIT

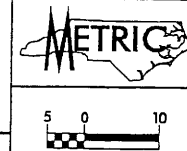
SITE 2

MITIGABLE IMPACTS ZONE 2

NOTE: FOR -L- PROFILE SEE SHEET 44
FOR BRIDGE SKETCH SEE SHEET 6

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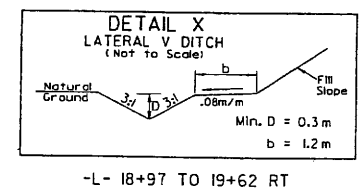
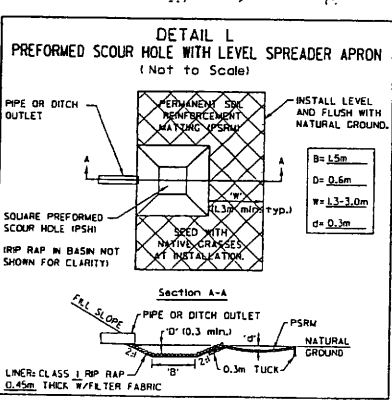
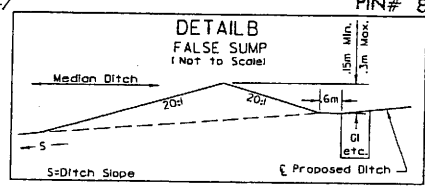
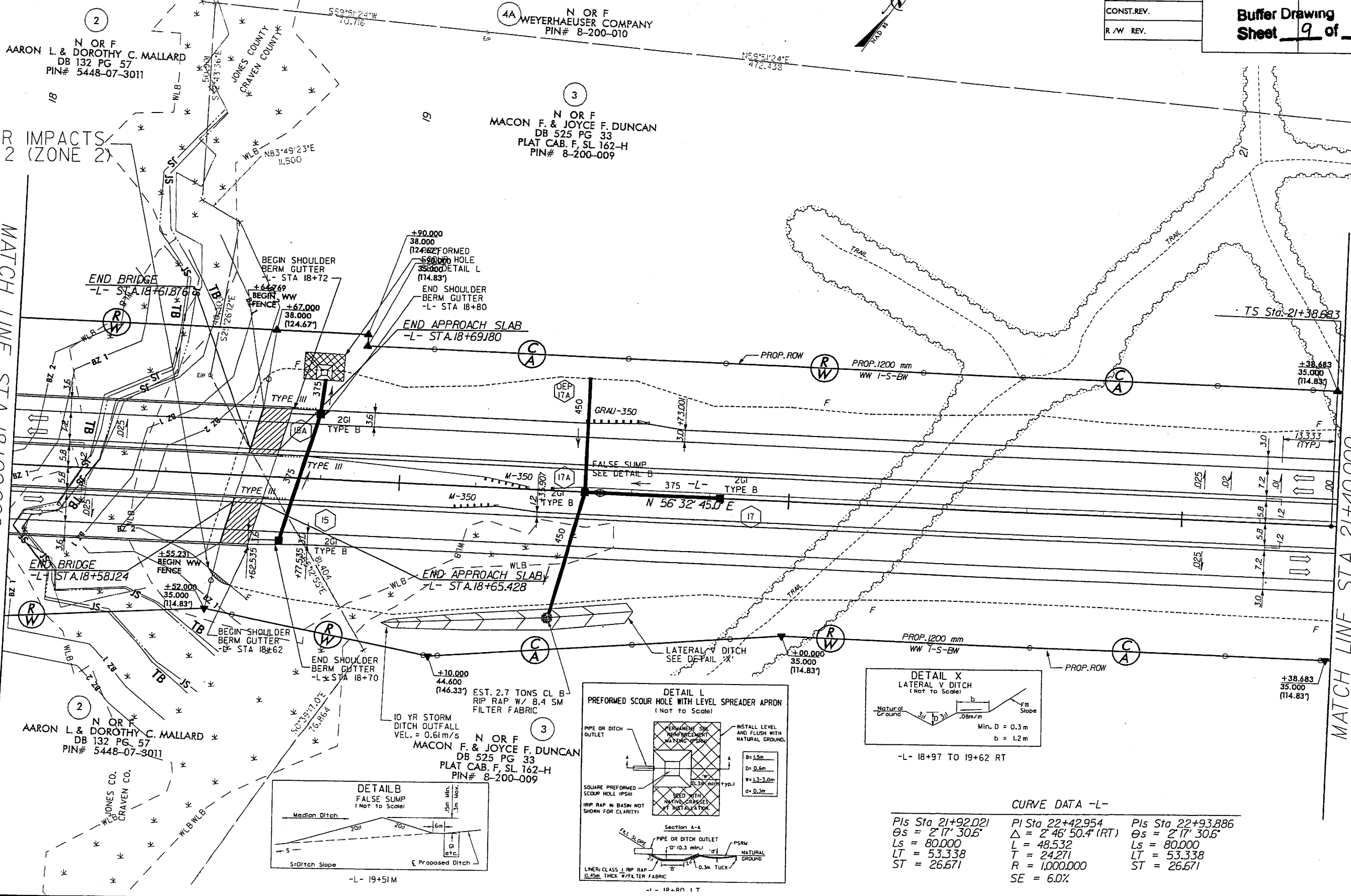
CONST. REV.
R/W REV.

PROJECT REFERENCE NO. R-2301A	SHEET NO. 7
R/W SHEET NO. 7	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Buffer Drawing Sheet 9 of 10	

BUFFER IMPACTS
SITE 2 (ZONE 2)

MATCH LINE STA 18+00.000 SEE SHEET 6

MATCH LINE STA 21+40.000
SEE SHEET 8

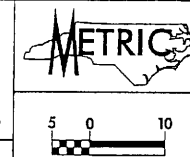


CURVE DATA -L-

Pls Sta 21+92.021	Pls Sta 22+42.954	Pls Sta 22+93.886
Θs = 2° 17' 30.6"	Δ = 2° 46' 50.4" (RT)	Θs = 2° 17' 30.6"
Ls = 80.000	L = 48.532	Ls = 80.000
LT = 53.338	T = 24.271	LT = 53.338
ST = 26.671	R = 1,000.000	ST = 26.671
	SE = 6.0%	

SITE 2

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Morrisville, North Carolina 27560
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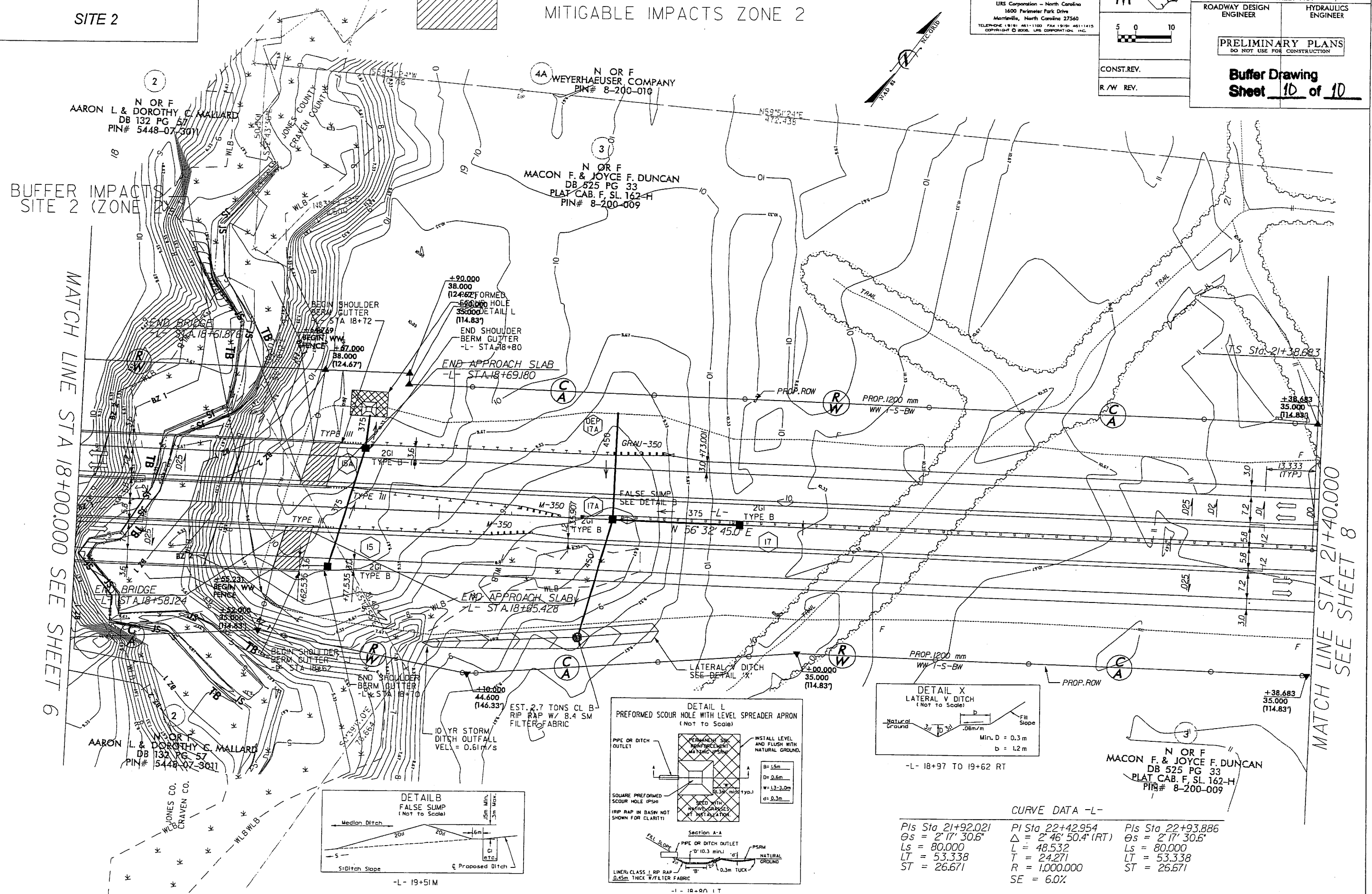


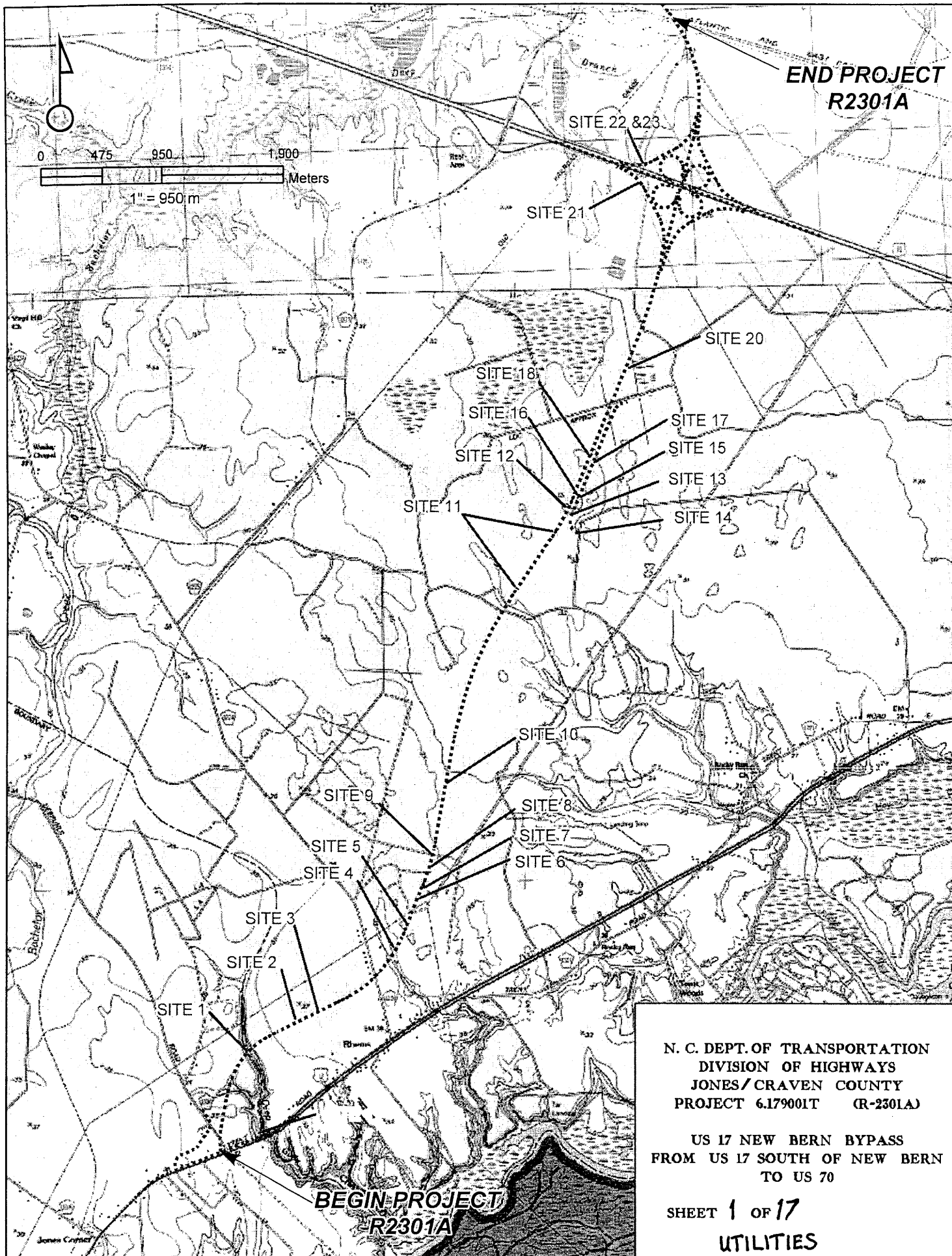
PROJECT REFERENCE NO.	SHEET NO.
R-2301A	7
R/W	SHEET NO.
7	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Buffer Drawing

Sheet 10 of 10





LEGEND

— WLB — EXISTING QUALITY WETLAND BOUNDARY

— HQ WLB — HIGH QUALITY WETLAND BOUNDARY

— MQ WLB — MEDIUM QUALITY WETLAND BOUNDARY

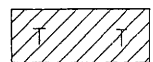
— LO WLB — LOW QUALITY WETLAND BOUNDARY

 WETLAND

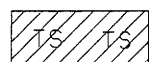
 DENOTES FILL IN WETLAND

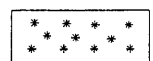
 DENOTES FILL IN SURFACE WATER

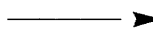
 DENOTES FILL IN SURFACE WATER (POND)

 DENOTES TEMPORARY FILL IN WETLAND

 DENOTES EXCAVATION IN WETLAND

 DENOTES TEMPORARY FILL IN SURFACE WATER

 DENOTES MECHANIZED CLEARING

 FLOW DIRECTION

 TOP OF BANK

— — — — — EDGE OF WATER

— — — — — C — — — — PROP. LIMIT OF CUT

— — — — — F — — — — PROP. LIMIT OF FILL

 PROP. RIGHT OF WAY

— — — — — EX. RIGHT OF WAY

— — — — — PROPERTY LINE

— ○ — — — — PROP. R/W FENCE

— + — — — — PROPERTY CORNER

— ○ — — — — EXISTING IRON PIN

— TDE — — — — TEMP. DRAINAGE EASEMENT

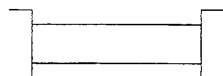
— PDE — — — — PERMANENT DRAINAGE EASEMENT

— EAB — — — — EXIST. ENDANGERED ANIMAL BOUNDARY

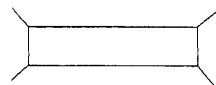
— EPB — — — — EXIST. ENDANGERED PLANT BOUNDARY

 5

ADJACENT PROPERTY OWNER OR PARCEL NUMBER



PROPOSED BRIDGE



PROPOSED BOX CULVERT



PROPOSED PIPE CULVERT



PROPOSED DRAINAGE STRUCTURE

(DASHED LINES DENOTE EXISTING STRUCTURES)



RIP RAP OUTLET PROTECTION



RIP RAP LINING



RIP RAP ENERGY DISSIPATOR BASIN



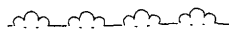
PREFORMED SCOUR HOLE



FALSE SUMP



SINGLE TREE



WOODS LINE

N. C. DEPT. OF TRANSPORTATION

DIVISION OF HIGHWAYS

JONES AND CRAVEN COUNTIES

WBS: 34414 (R-2301A)

PROPERTY OWNER

NAME AND ADDRESS

PARCEL NO.

OWNER'S NAME
& ADDRESS

4C

Weyerhaeuser Company

N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

JONES AND CRAVEN COUNTIES

WBS: 34414 (R-2301A)

WETLAND PERMIT IMPACT SUMMARY

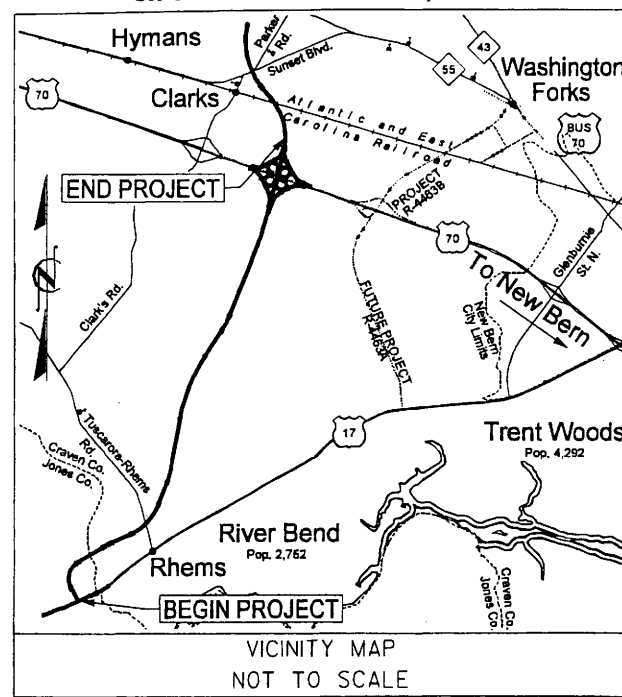
[illegible]

Temp. Fill in Wetlands: 4 sq. ft.
Excavation in Wetlands: 4 sq. ft.

TIP PROJECT: R-2301A

CONTRACT:

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



STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

JONES & CRAVEN COUNTIES

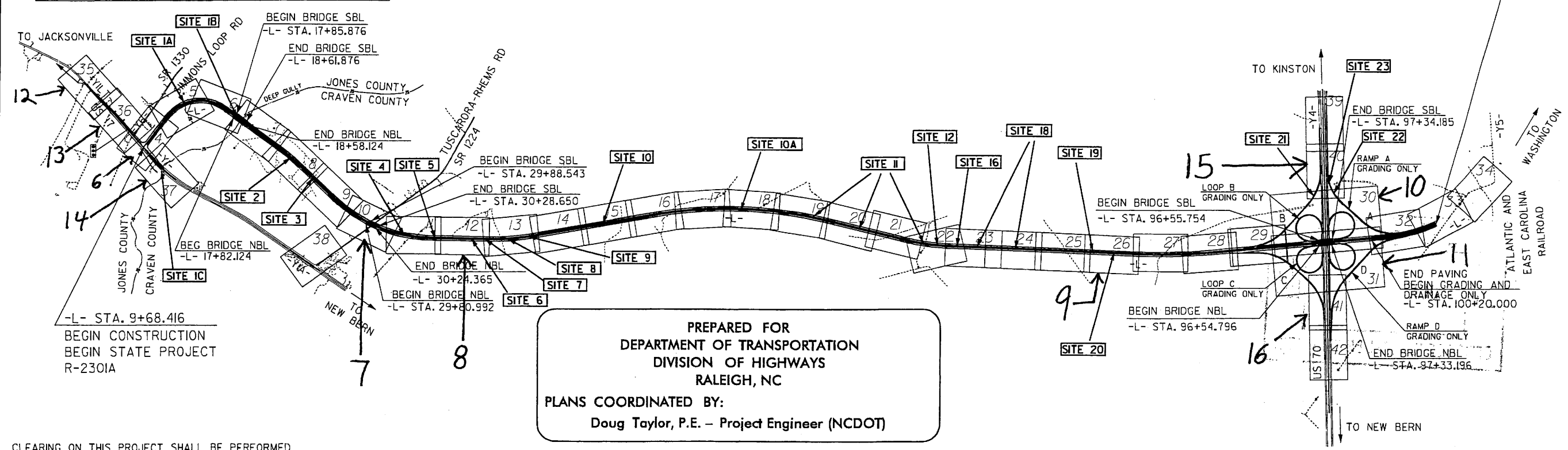
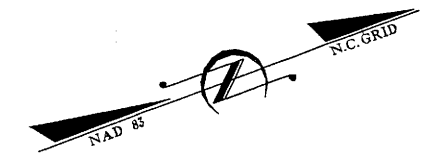
**LOCATION: US 17 NEW BERN BYPASS
FROM US 17 SOUTH OF NEW BERN TO US 70**

**TYPE OF WORK: DRAINAGE, GRADING, PAVING,
STRUCTURES, SIGNALS, AND SIGNING**

METRIC
ALL DIMENSIONS IN
THESE PLANS ARE IN METERS
OR MILLIMETERS UNLESS
OTHERWISE NOTED

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2301A	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34414.1.1		P.E.	
34414.2.3		R/W, UTIL	

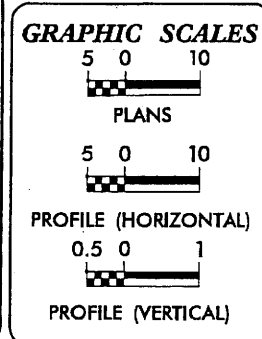
UTILITIES PLAN
SHEET 5 of 17



PREPARED FOR
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, NC
PLANS COORDINATED BY:
Doug Taylor, P.E. - Project Engineer (NCDOT)

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

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



DESIGN DATA

ADT 2008 = 23,300
ADT 2028 = 40,300
DHV = 10 %
D = 60 %
T = 12 %
(6% TTST + 6% DUAL)
V = 110 km/h
FUNCTIONAL CLASSIFICATION: FREEWAY

PROJECT LENGTH

LENGTH ROADWAY STATE PROJECT 34414.2.3 = 9.331 KILOMETERS
LENGTH STRUCTURE STATE PROJECT 34414.2.3 = 0.198 KILOMETERS
TOTAL LENGTH STATE PROJECT 34414.2.3 = 9.529 KILOMETERS
(NBL USED FOR LENGTH CALCULATION)

THIS IS A CONTROLLED ACCESS PROJECT WITH
ACCESS BEING LIMITED TO THE INTERCHANGES

Prepared in the Office of:
URS
URS Corporation - North Carolina
1600 Perimeter Park Drive, Suite 400
Morrisville, North Carolina 27560
TELEPHONE (919) 461-1100 FAX (919) 461-1415

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JUNE 30, 2006	TIMOTHY H. KEENER, P.E. PROJECT ENGINEER
LETTING DATE: NOVEMBER 18, 2008	JEFFREY A. KOONTZ, P.E. PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

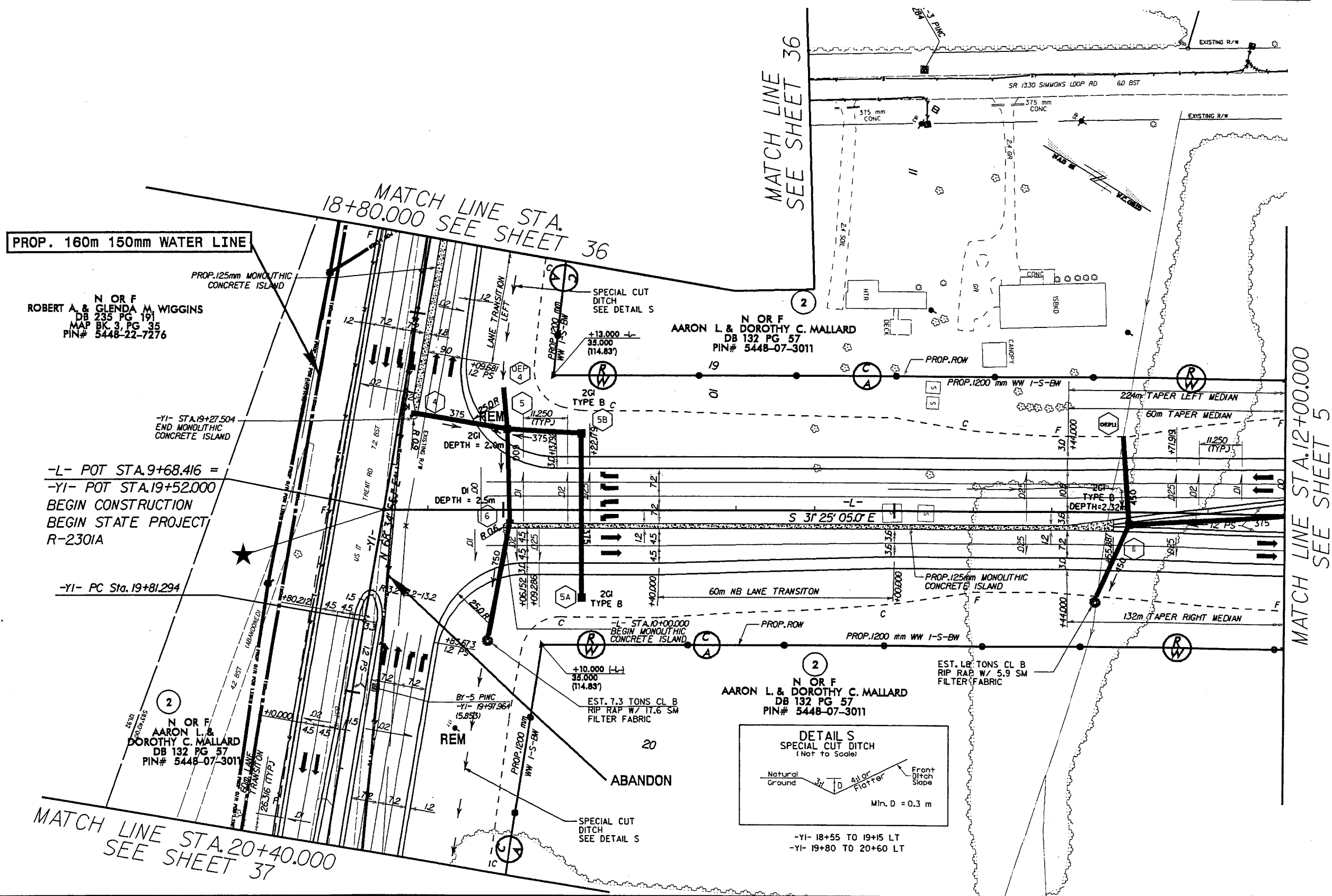
ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.

**DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA**

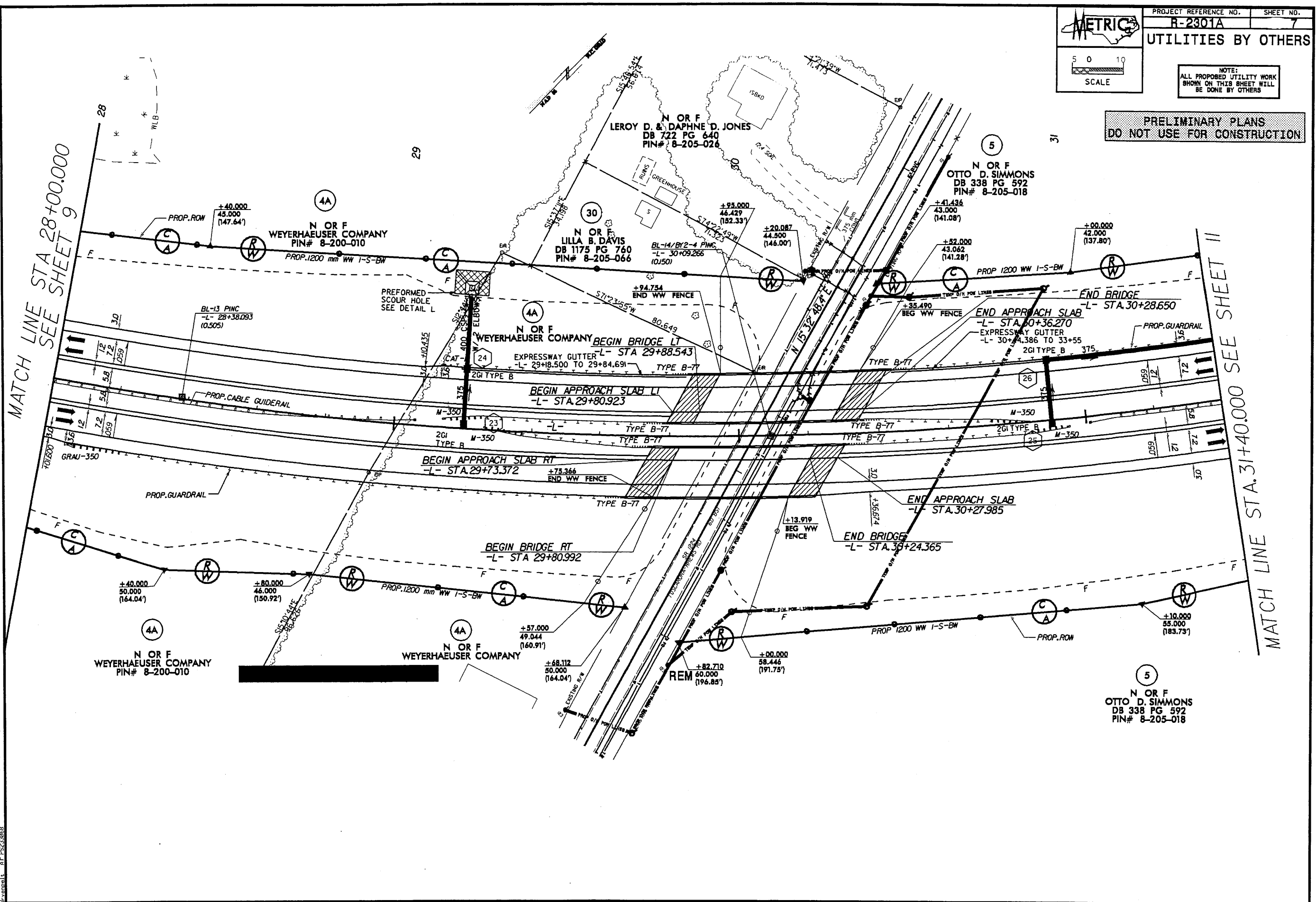
STATE HIGHWAY DESIGN ENGINEER

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



30 MAY 2008 15:43
C:\PROJECTS\2301A\2301A.dgn
8-205-018

MATCH LINE STA 28+00.000
SEE SHEET 9



PROJECT REFERENCE NO. **R-2301A** SHEET NO. **7**

UTILITIES BY OTHERS

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

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SCALE
5 0 10

N OR F
WEYERHAEUSER COMPANY
PIN# 8-200-010

N OR F
WEYERHAEUSER COMPANY

N OR F
LEROY D. & DAPHNE D. JONES
DB 722 PG 640
PIN# 8-205-028

N OR F
LILLA B. DAVIS
DB 1175 PG 760
PIN# 8-205-066

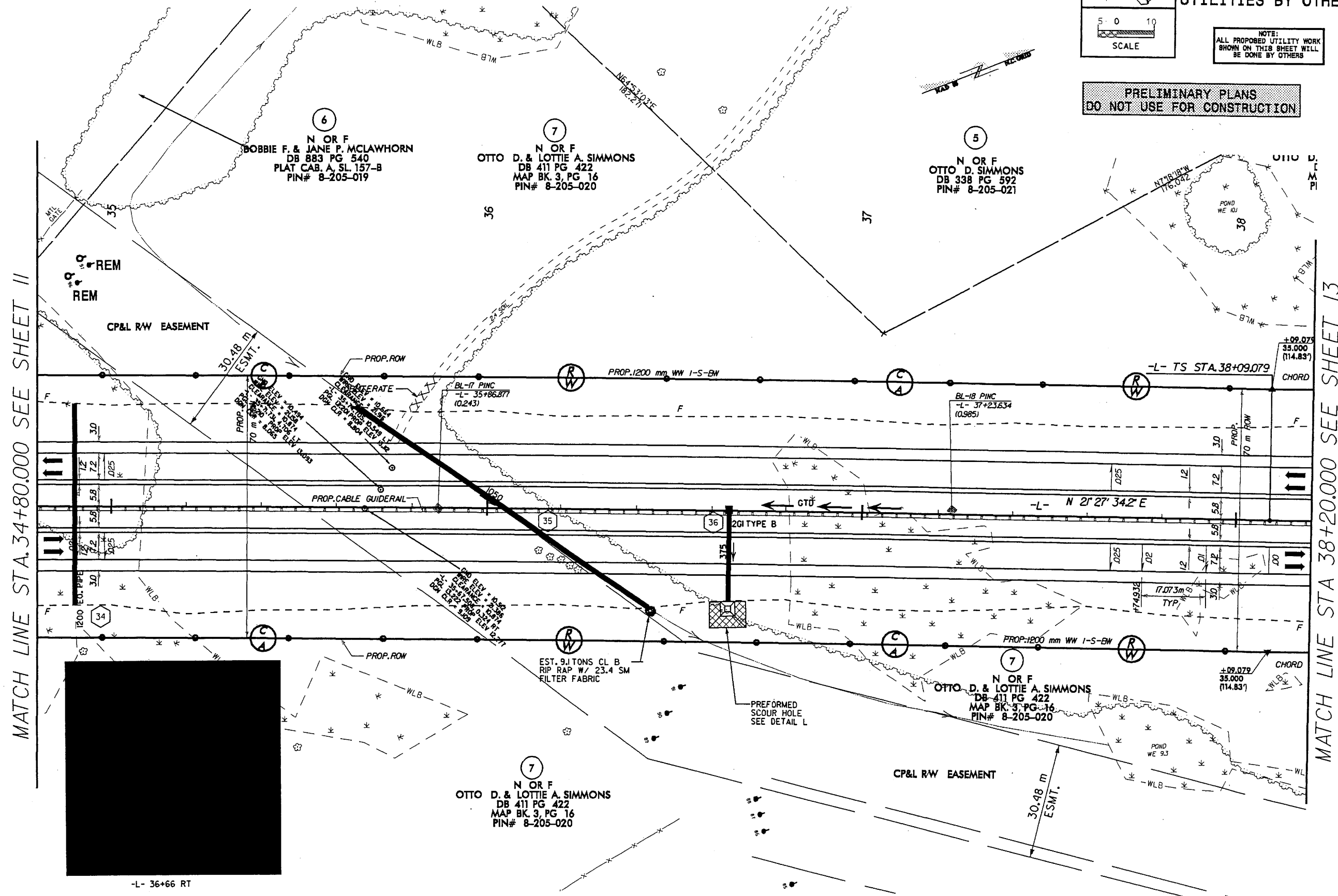
N OR F
OTTO D. SIMMONS
DB 338 PG 592
PIN# 8-205-018

N OR F
OTTO D. SIMMONS
DB 338 PG 592
PIN# 8-205-018

MATCH LINE STA. 31+40.000 SEE SHEET 11

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

**PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION**

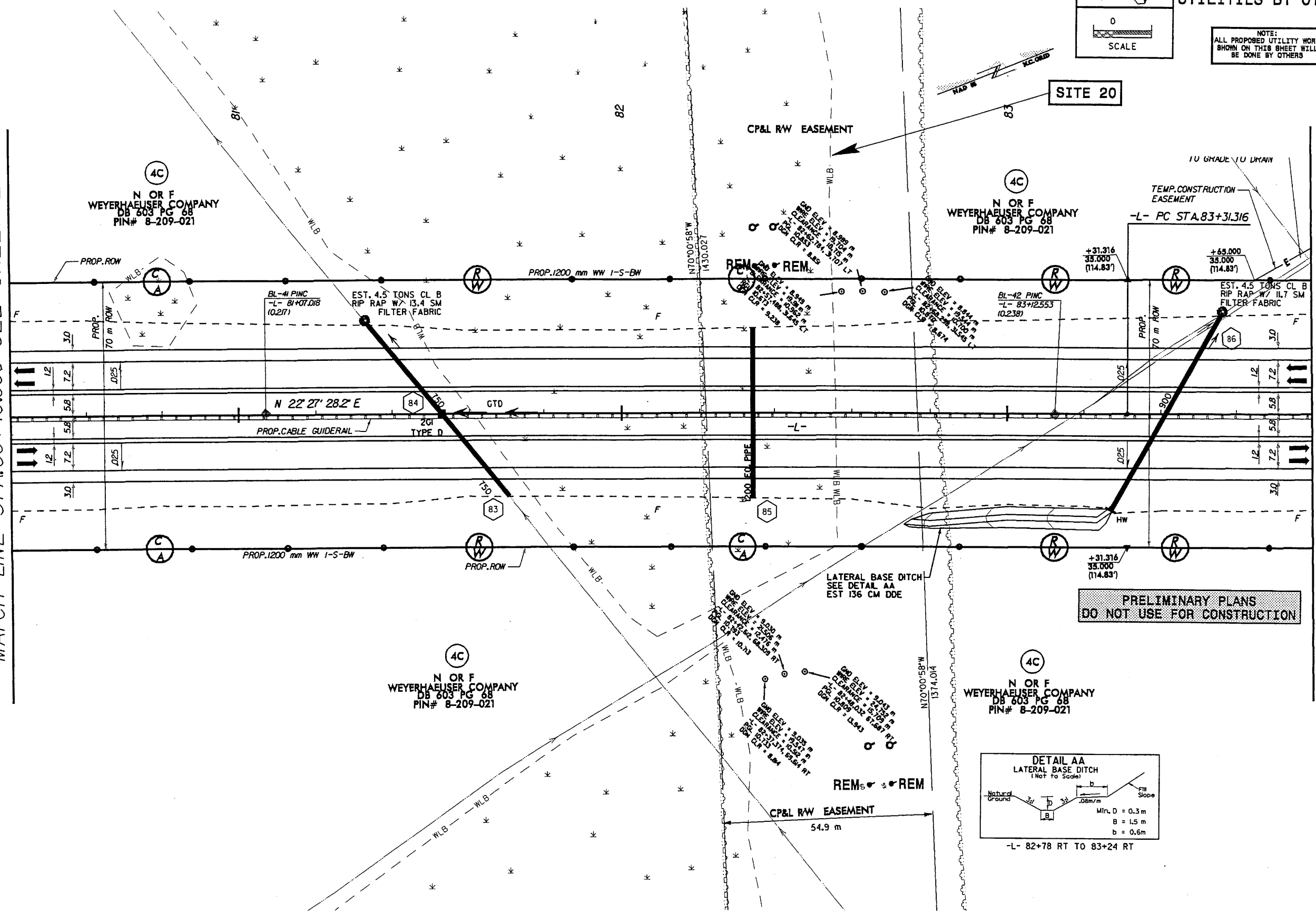


MATCH LINE STA. 34+80.00 SEE SHEET 11

MATCH LINE STA 38+20.00 SEE SHEET 13

20 MAY 2008 15:42
p:\utilities\2300\c.u.t.26.uo05.psh.pertmtdgn
dwgname: 2300\c.u.t.26.uo05.psh.pertmtdgn

MATCH LINE STA.80+40.000 SEE SHEET 25



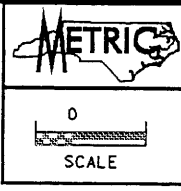
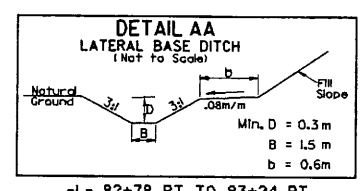
4C
N OR F
WEYERHAEUSER COMPANY
DB 603 PG 68
PIN# 8-209-021

4C
N OR F
WEYERHAEUSER COMPANY
DB 603 PG 68
PIN# 8-209-021

4C
N OR F
WEYERHAEUSER COMPANY
DB 603 PG 68
PIN# 8-209-021

4C
N OR F
WEYERHAEUSER COMPANY
DB 603 PG 68
PIN# 8-209-021

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

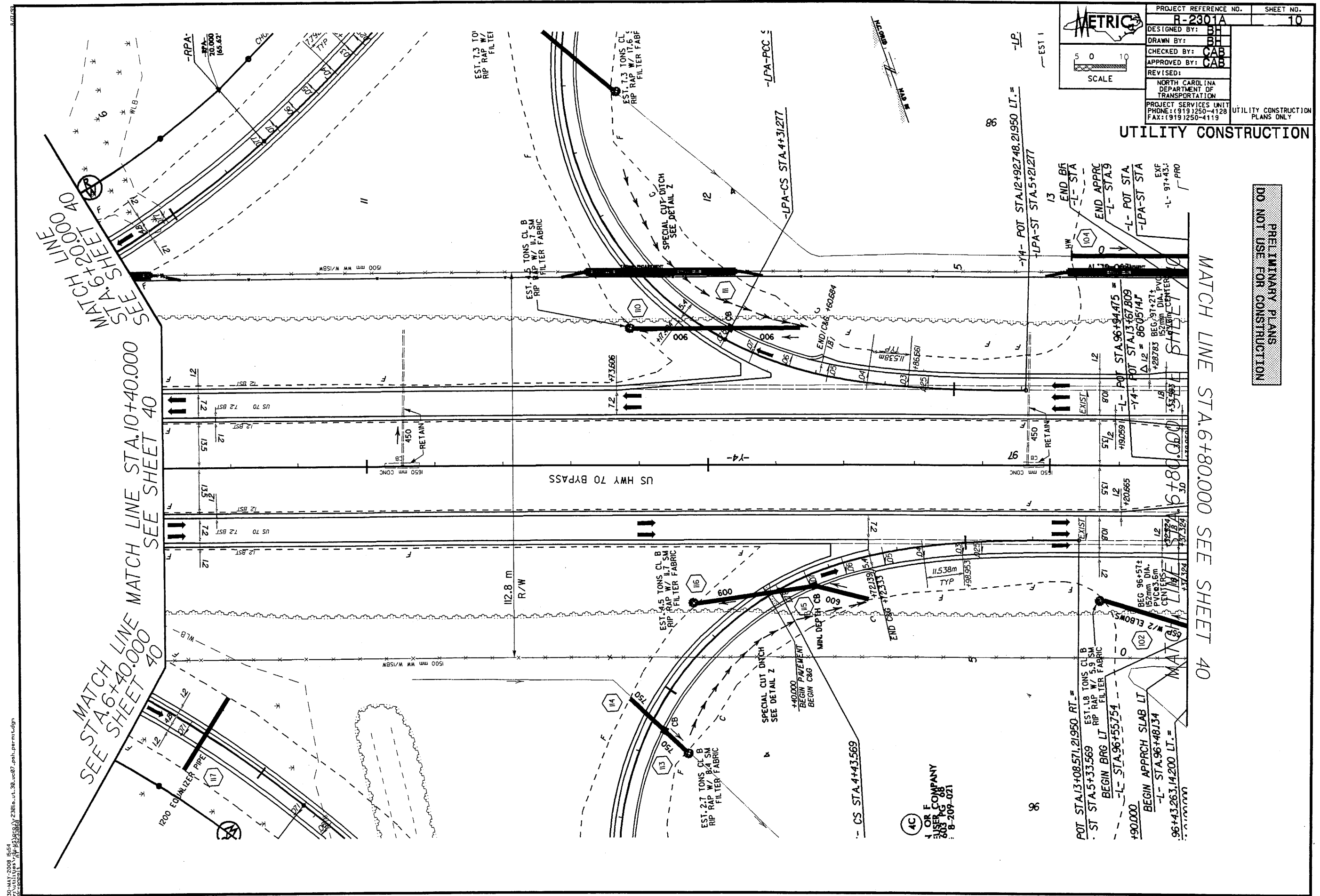


PROJECT REFERENCE NO. **R-2301A**
SHEET NO. **9**
UTILITIES BY OTHERS

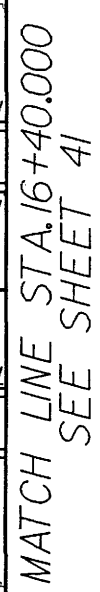
NOTE:
ALL PROPOSED UTILITY WORK
SHOWN ON THIS SHEET WILL
BE DONE BY OTHERS

SITE 20

MATCH LINE STA.83+80.000 SEE SHEET 27



A close-up photograph of a matchbook cover. The text 'MATCH LINE' is printed vertically. To its right, 'SHEET 4.6+0.000' is printed horizontally. Further right, 'SHEET 4' is printed vertically. The matchbook is white with black text and a black line indicating the match line.



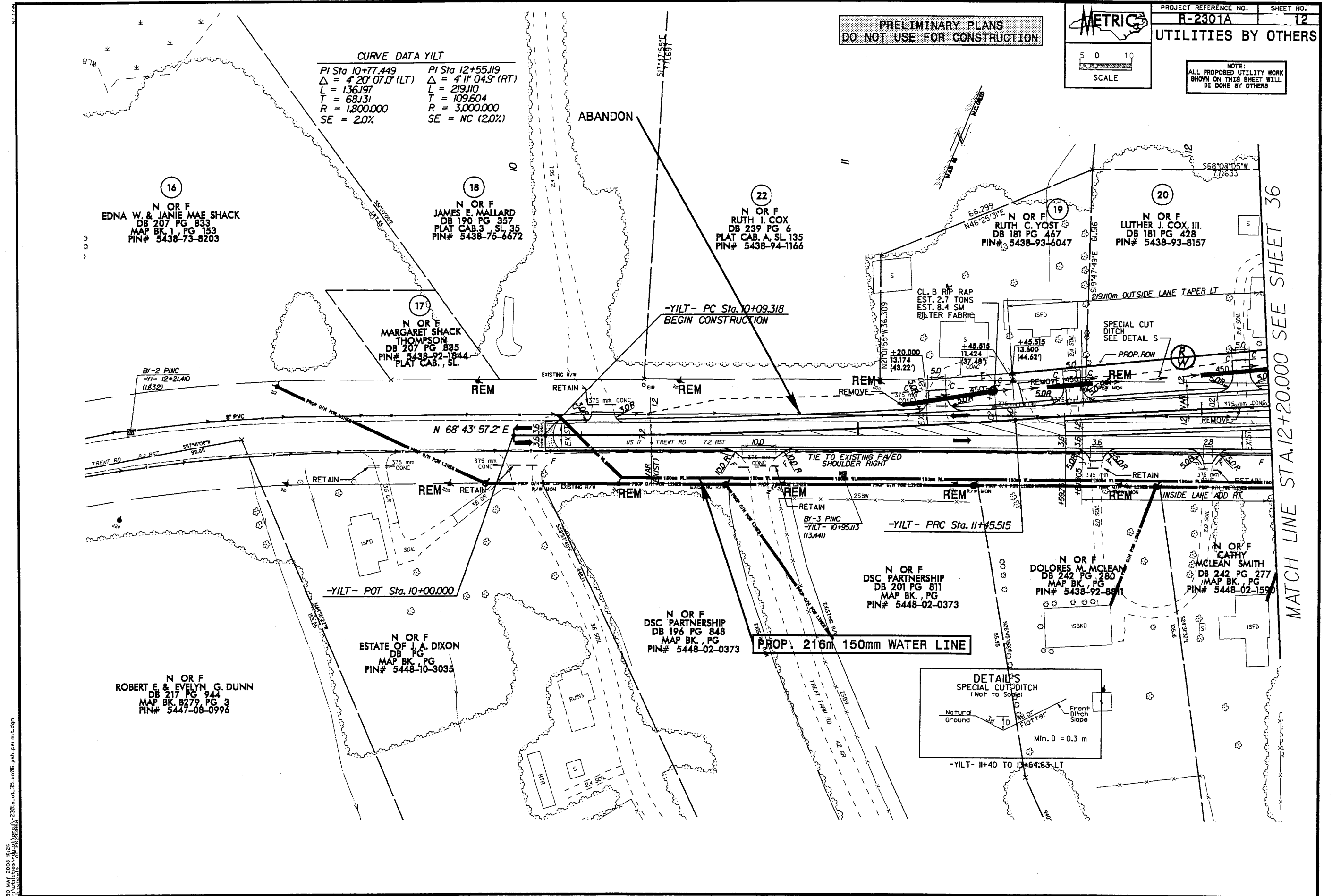
PROJECT REFERENCE NO.		SHEET NO.	
R-2301A		11	
DESIGNED BY:	BH		
DRAWN BY:	BH		
CHECKED BY:	CAB		
APPROVED BY:	CAB		
REVISED:			
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION			
PROJECT SERVICES UNIT PHONE: (919) 250-4128 FAX: (919) 250-4119		UTILITY CONSTRUCTION PLANS ONLY	

UTILITY CONSTRUCTION

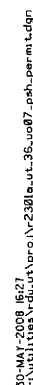
**PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION**

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

CURVE DATA YILT	
PI Sta 10+77.449	PI Sta 12+55.119
$\Delta = 4^{\circ} 20' 07.0''$ (LT)	$\Delta = 4^{\circ} 11' 04.9''$ (RT)
L = 136.97	L = 219.10
T = 68.131	T = 109.604
R = 1,800.000	R = 3,000.000
SE = 2.0%	SE = NC (2.0%)



MATCH LINE STA. 12+20.000 SEE SHEET 30



A horizontal scale bar with markings at 5, 0, and 10. The word "SCALE" is printed below the bar.

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



DETAIL Z
SPECIAL CUT DITCH
 (Not to Scale)

Natural Ground

3:1

D

4:1 or Flatter

Front Ditch Slope

Min. D = 0.3 m

-RPA- 6+40 TO 7+15 RT 00

N OR F
 CRAVEN COUNTY
 DB 1604 PG 1010
 PLAT CAB. C, SL. 26
 PIN# 8-217-1-014

4C
N OR F
WEYERHAEUSER COMPANY
DB 603 PG 68
PIN# 8-209-021

UTILITY CONSTRUCTION

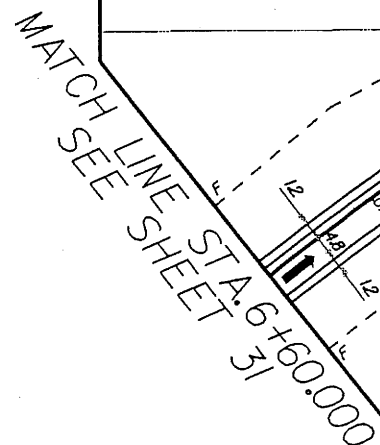
MATCH LINE STA. 6+80.000 SEE SHEET 40

30+0.00 MATCH LINE STA. 10+40.00
SEE SHEET 30

60-MAY-2008 16:29
\\activities\rdy-vt\proj\23016-ut-40-uc06-psb-permit.dgn

15B
N OR F
CRAVEN COUNTY
DB 1604 PG 1010
PIN# 8-217-025

N O R F
WEYERHAEUSER COMPANY
DB 603 PG 68
PIN# 8-209-021



Utilities Project Narrative

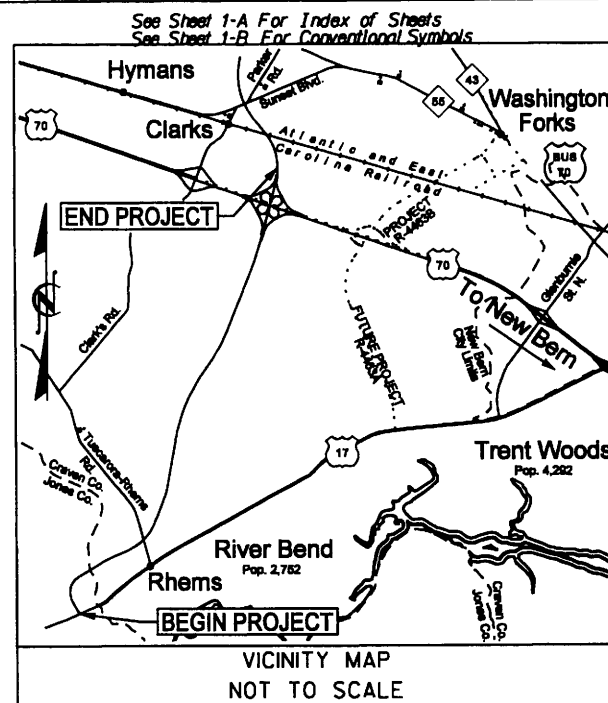
Utility construction for project R-2301A will be limited to relocation in kind for the purpose of avoiding conflicts between utilities and construction. No additional utilities capacity will be installed.

Utilities in conflict are power distribution lines, power transmission lines, telephone lines, CATV lines, a 150mm (6") water line along US 17 (Trent Road), and a 400mm (16") water line along US 70. Telephone and CATV lines will attach to the power line poles. Conflicting sections of the water line will be relocated out of conflict with the construction. With the exception of the power transmission line at Site 20, the utilities relocation work will result in no impact to wetlands.

At Site 20, two poles of a transmission line H-frame are located in wetlands. These poles will be replaced by taller poles 3m (~10') from the existing poles. This replacement will result in 0.37m^2 (4 ft²) in temporary impacts to wetlands, and 0.37m^2 (4 ft²) in permanent impact to wetlands.

TIP PROJECT: R-2301A

CONTRACT: C201976



STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

JONES & CRAVEN COUNTIES

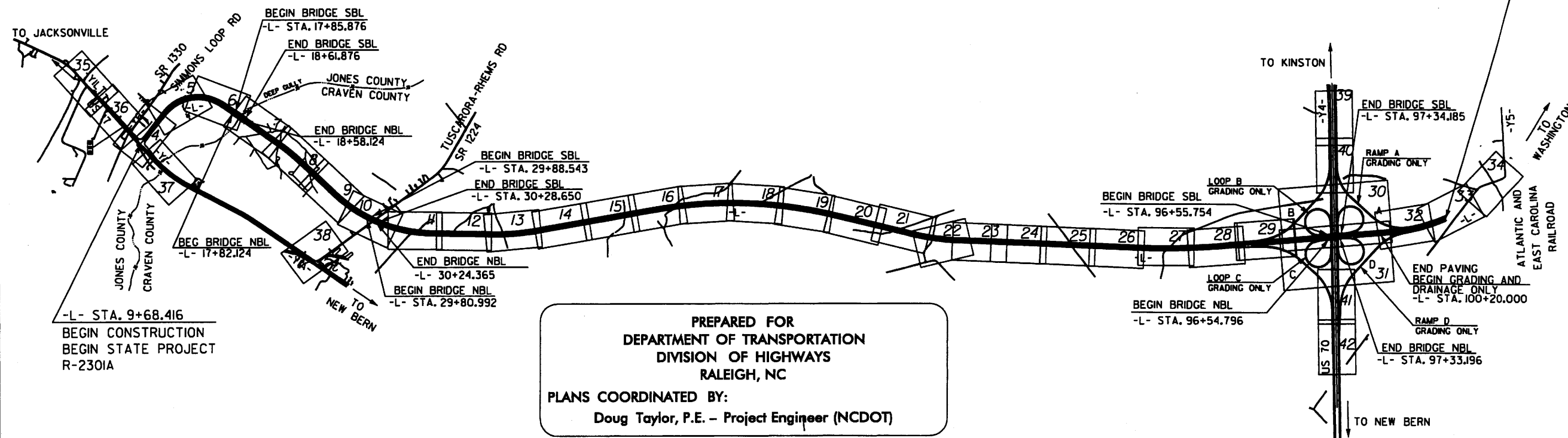
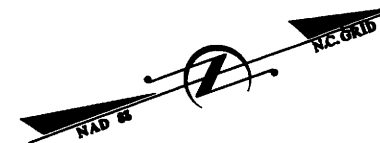
LOCATION: US 17 NEW BERN BYPASS
FROM US 17 SOUTH OF NEW BERN TO US 70

TYPE OF WORK: DRAINAGE, GRADING, PAVING,
STRUCTURES, SIGNALS, AND SIGNING



ALL DIMENSIONS IN
THESE PLANS ARE IN METERS
OR MILLIMETERS UNLESS
OTHERWISE NOTED

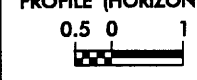
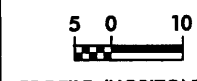
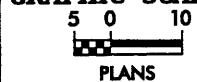
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2301A	1	
STATE FUNDING	F.A. FUND. NO.	DESCRIPTION	
34414.1.1		P.E.	
34414.2.3		R/W, UTIL	
34414.3.4		CONSTR.	



PREPARED FOR
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, NC

PLANS COORDINATED BY:
Doug Taylor, P.E. - Project Engineer (NCDOT)

GRAPHIC SCALES



DESIGN DATA

ADT 2008 = 23,300
ADT 2028 = 40,300

DHV = 10 %
D = 60 %
T = 12 %
(6% TTST + 6% DUAL)
V = 110 km/h

FUNCTIONAL CLASSIFICATION:
FREEWAY

PROJECT LENGTH

LENGTH ROADWAY STATE PROJECT 34414.2.3 = 9.331 KILOMETERS
LENGTH STRUCTURE STATE PROJECT 34414.2.3 = 0.198 KILOMETERS
TOTAL LENGTH STATE PROJECT 34414.2.3 = 9.529 KILOMETERS
(NBL USED FOR LENGTH CALCULATION)

THIS IS A CONTROLLED ACCESS PROJECT WITH
ACCESS BEING LIMITED TO THE INTERCHANGES

Prepared In the Office of:
URS
URS Corporation - North Carolina
1600 Perimeter Park Drive, Suite 400
Morrisville, North Carolina 27560
TELEPHONE (919) 461-1100 FAX (919) 461-1415

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JUNE 30, 2006

LETTING DATE:
NOVEMBER 18, 2008

JEFFREY A. KOONTZ, P.E.
PROJECT ENGINEER

MICHAEL LINDGREN, P.E.
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 P.E.

8/17/98

Disclaimer: This coordinate list is provided for the convenience of interested contractors and is intended for use during the project bidding process only. Coordinates are localized to this particular project and any conversion to state grid coordinates or other formats will be the responsibility of the recipient. While every effort has been made to provide up-to-date, accurate information, NCDOT makes no express guarantee as to the validity or potential for revision of this information prior to project letting.

Prepared by
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**CENTERLINE
COORDINATE
LIST SHEET**


CONST. REV.
R/W REV.

PROJECT REFERENCE NO. <i>R-2301A</i>		SHEET NO. <i>I-C</i>	
R/W SHEET NO. <i>I-C</i>			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			

REVISIONS

Point #	Chain	Station	Northing (Y)	Easting (X)	Point #	Chain	Station	Northing (Y)	Easting (X)	Point #	Chain	Station	Northing (Y)	Easting (X)
5000	L	10+00.000	147,436.73	774,556.97	5037	L	17+40.000	148,067.91	774,558.68	5074	L	24+80.000	148,449.52	775,191.38
5001	L	10+20.000	147,453.79	774,546.54	5038	L	17+60.000	148,078.93	774,575.36	5075	L	25+00.000	148,458.32	775,209.34
5002	L	10+40.000	147,470.86	774,536.12	5039	L	17+80.000	148,089.96	774,592.05	5076	L	25+20.000	148,467.11	775,227.30
5003	L	10+60.000	147,487.93	774,525.69	5040	L	18+00.000	148,100.99	774,608.74	5077	L	25+40.000	148,475.91	775,245.26
5004	L	10+80.000	147,505.00	774,515.26	5041	L	18+20.000	148,112.01	774,625.42	5078	L	25+60.000	148,484.71	775,263.23
5005	L	11+00.000	147,522.06	774,504.84	5042	L	18+40.000	148,123.04	774,642.11	5079	L	25+80.000	148,493.50	775,281.19
5006	L	11+20.000	147,539.13	774,494.41	5043	L	18+60.000	148,134.06	774,658.80	5080	L	26+00.000	148,502.30	775,299.15
5007	L	11+40.000	147,556.20	774,483.99	5044	L	18+80.000	148,145.09	774,675.48	5081	L	26+20.000	148,511.09	775,317.11
5008	L	11+60.000	147,573.27	774,473.56	5045	L	19+00.000	148,156.11	774,692.17	5082	L	26+40.000	148,519.89	775,335.07
5009	L	11+80.000	147,590.34	774,463.14	5046	L	19+20.000	148,167.14	774,708.86	5083	L	26+60.000	148,528.73	775,353.01
5010	L	12+00.000	147,607.40	774,452.71	5047	L	19+40.000	148,178.16	774,725.54	5084	L	26+80.000	148,537.70	775,370.89
5011	L	12+20.000	147,624.50	774,442.33	5048	L	19+60.000	148,189.19	774,742.23	5085	L	27+00.000	148,546.86	775,388.67
5012	L	12+40.000	147,641.75	774,432.21	5049	L	19+80.000	148,200.21	774,758.91	5086	L	27+20.000	148,556.31	775,406.29
5013	L	12+60.000	147,659.30	774,422.62	5050	L	20+00.000	148,211.24	774,775.60	5087	L	27+40.000	148,566.09	775,423.74
5014	L	12+80.000	147,677.27	774,413.85	5051	L	20+20.000	148,222.26	774,792.29	5088	L	27+60.000	148,576.22	775,440.98
5015	L	13+00.000	147,695.74	774,406.20	5052	L	20+40.000	148,233.29	774,808.97	5089	L	27+80.000	148,586.70	775,458.02
5016	L	13+20.000	147,714.70	774,399.82	5053	L	20+60.000	148,244.32	774,825.66	5090	L	28+00.000	148,597.51	775,474.84
5017	L	13+40.000	147,734.04	774,394.77	5054	L	20+80.000	148,255.34	774,842.35	5091	L	28+20.000	148,608.66	775,491.45
5018	L	13+60.000	147,753.69	774,391.06	5055	L	21+00.000	148,266.37	774,859.03	5092	L	28+40.000	148,620.13	775,507.83
5019	L	13+80.000	147,773.55	774,388.72	5056	L	21+20.000	148,277.39	774,875.72	5093	L	28+60.000	148,631.94	775,523.97
5020	L	14+00.000	147,793.52	774,387.75	5057	L	21+40.000	148,288.42	774,892.41	5094	L	28+80.000	148,644.06	775,539.88
5021	L	14+20.000	147,813.52	774,388.16	5058	L	21+60.000	148,299.43	774,909.10	5095	L	29+00.000	148,656.50	775,555.54
5022	L	14+40.000	147,833.43	774,389.95	5059	L	21+80.000	148,310.35	774,925.86	5096	L	29+20.000	148,669.25	775,570.95
5023	L	14+60.000	147,853.18	774,393.10	5060	L	22+00.000	148,321.09	774,942.73	5097	L	29+40.000	148,682.30	775,586.10
5024	L	14+80.000	147,872.66	774,397.61	5061	L	22+20.000	148,331.58	774,959.76	5098	L	29+60.000	148,695.66	775,600.99
5025	L	15+00.000	147,891.78	774,403.45	5062	L	22+40.000	148,341.73	774,976.99	5099	L	29+80.000	148,709.31	775,615.61
5026	L	15+20.000	147,910.46	774,410.59	5063	L	22+60.000	148,351.54	774,994.42	5100	L	30+00.000	148,723.25	775,629.95
5027	L	15+40.000	147,928.60	774,419.00	5064	L	22+80.000	148,361.00	775,012.04	5101	L	30+20.000	148,737.47	775,644.01
5028	L	15+60.000	147,946.12	774,428.65	5065	L	23+00.000	148,370.17	775,029.81	5102	L	30+40.000	148,751.97	775,657.78
5029	L	15+80.000	147,962.93	774,439.47	5066	L	23+20.000	148,379.12	775,047.70	5103	L	30+60.000	148,766.75	775,671.26
5030	L	16+00.000	147,978.95	774,451.43	5067	L	23+40.000	148,387.95	775,065.64	5104	L	30+80.000	148,781.79	775,684.44
5031	L	16+20.000	147,994.12	774,464.47	5068	L	23+60.000	148,396.75	775,083.60	5105	L	31+00.000	148,797.09	775,697.32
5032	L	16+40.000	148,008.34	774,478.52	5069	L	23+80.000	148,405.54	775,101.57	5106	L	31+20.000	148,812.64	775,709.89
5033	L	16+60.000	148,021.59	774,493.50	5070	L	24+00.000	148,414.34	775,119.53	5107	L	31+40.000	148,828.45	775,722.14
5034	L	16+80.000	148,033.94	774,509.23	5071	L	24+20.000	148,423.14	775,137.49	5108	L	31+60.000	148,844.50	775,734.08
5035	L	17+00.000	148,045.63	774,525.46	5072	L	24+40.000	148,431.93	775,155.45	5109	L	31+80.000	148,860.78	775,745.70
5036	L	17+20.000	148,056.86	774,542.00	5073	L	24+60.000	148,440.73	775,173.41	5110	L	32+00.000	148,877.29	775,756.98

B-17-28

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Prepared by

URS

URS Corporation - North Carolina
1600 Piedmont Park Drive
Morrisville, North Carolina 27560
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CENTERLINE
COORDINATE
LIST SHEET





CONST. REV.

R/W REV.

PROJECT REFERENCE NO.		SHEET NO.	
R-2301A		1-D	
R/W SHEET NO.		1-D	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS		DO NOT USE FOR CONSTRUCTION	

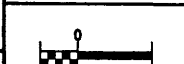
REVISIONS

Point #	Chain	Station	Northing (Y)	Easting (X)	Point #	Chain	Station	Northing (Y)	Easting (X)	Point #	Chain	Station	Northing (Y)	Easting (X)
5111	L	32+20.000	148,894.02	775,767.94	5148	L	39+60.000	149,576.09	776,051.83	5185	L	47+00.000	150,301.82	776,194.78
5112	L	32+40.000	148,910.97	775,778.55	5149	L	39+80.000	149,595.25	776,057.56	5186	L	47+20.000	150,321.49	776,198.37
5113	L	32+60.000	148,928.13	775,788.83	5150	L	40+00.000	149,614.49	776,063.04	5187	L	47+40.000	150,341.17	776,201.96
5114	L	32+80.000	148,945.49	775,798.76	5151	L	40+20.000	149,633.79	776,068.26	5188	L	47+60.000	150,360.84	776,205.55
5115	L	33+00.000	148,963.04	775,808.34	5152	L	40+40.000	149,653.17	776,073.22	5189	L	47+80.000	150,380.52	776,209.14
5116	L	33+20.000	148,980.79	775,817.57	5153	L	40+60.000	149,672.61	776,077.92	5190	L	48+00.000	150,400.19	776,212.73
5117	L	33+40.000	148,998.71	775,826.44	5154	L	40+80.000	149,692.11	776,082.36	5191	L	48+20.000	150,419.87	776,216.32
5118	L	33+60.000	149,016.81	775,834.95	5155	L	41+00.000	149,711.67	776,086.54	5192	L	48+40.000	150,439.54	776,219.91
5119	L	33+80.000	149,035.07	775,843.10	5156	L	41+20.000	149,731.28	776,090.47	5193	L	48+60.000	150,459.22	776,223.50
5120	L	34+00.000	149,053.48	775,850.93	5157	L	41+40.000	149,750.92	776,094.21	5194	L	48+80.000	150,478.89	776,227.09
5121	L	34+20.000	149,071.99	775,858.50	5158	L	41+60.000	149,770.59	776,097.85	5195	L	49+00.000	150,498.57	776,230.69
5122	L	34+40.000	149,090.56	775,865.92	5159	L	41+80.000	149,790.27	776,101.44	5196	L	49+20.000	150,518.25	776,234.28
5123	L	34+60.000	149,109.17	775,873.25	5160	L	42+00.000	149,809.94	776,105.03	5197	L	49+40.000	150,537.92	776,237.87
5124	L	34+80.000	149,127.78	775,880.57	5161	L	42+20.000	149,829.62	776,108.62	5198	L	49+60.000	150,557.60	776,241.46
5125	L	35+00.000	149,146.40	775,887.88	5162	L	42+40.000	149,849.29	776,112.21	5199	L	49+80.000	150,577.27	776,245.06
5126	L	35+20.000	149,165.01	775,895.20	5163	L	42+60.000	149,868.97	776,115.80	5200	L	50+00.000	150,596.93	776,248.70
5127	L	35+40.000	149,183.63	775,902.52	5164	L	42+80.000	149,888.64	776,119.39	5201	L	50+20.000	150,616.58	776,252.43
5128	L	35+60.000	149,202.24	775,909.83	5165	L	43+00.000	149,908.32	776,122.98	5202	L	50+40.000	150,636.21	776,256.27
5129	L	35+80.000	149,220.85	775,917.15	5166	L	43+20.000	149,927.99	776,126.57	5203	L	50+60.000	150,655.81	776,260.25
5130	L	36+00.000	149,239.47	775,924.47	5167	L	43+40.000	149,947.67	776,130.16	5204	L	50+80.000	150,675.39	776,264.35
5131	L	36+20.000	149,258.08	775,931.78	5168	L	43+60.000	149,967.34	776,133.75	5205	L	51+00.000	150,694.93	776,268.59
5132	L	36+40.000	149,276.69	775,939.10	5169	L	43+80.000	149,987.02	776,137.34	5206	L	51+20.000	150,714.45	776,272.95
5133	L	36+60.000	149,295.31	775,946.42	5170	L	44+00.000	150,006.69	776,140.93	5207	L	51+40.000	150,733.94	776,277.45
5134	L	36+80.000	149,313.92	775,953.73	5171	L	44+20.000	150,026.37	776,144.52	5208	L	51+60.000	150,753.40	776,282.07
5135	L	37+00.000	149,332.53	775,961.05	5172	L	44+40.000	150,046.04	776,148.11	5209	L	51+80.000	150,772.82	776,286.83
5136	L	37+20.000	149,351.15	775,968.37	5173	L	44+60.000	150,065.72	776,151.70	5210	L	52+00.000	150,792.22	776,291.71
5137	L	37+40.000	149,369.76	775,975.68	5174	L	44+80.000	150,085.39	776,155.29	5211	L	52+20.000	150,811.58	776,296.73
5138	L	37+60.000	149,388.37	775,983.00	5175	L	45+00.000	150,105.07	776,158.88	5212	L	52+40.000	150,830.91	776,301.87
5139	L	37+80.000	149,406.99	775,990.32	5176	L	45+20.000	150,124.74	776,162.47	5213	L	52+60.000	150,850.20	776,307.14
5140	L	38+00.000	149,425.60	775,997.64	5177	L	45+40.000	150,144.42	776,166.06	5214	L	52+80.000	150,869.46	776,312.54
5141	L	38+20.000	149,444.22	776,004.95	5178	L	45+60.000	150,164.09	776,169.65	5215	L	53+00.000	150,888.68	776,318.07
5142	L	38+40.000	149,462.85	776,012.23	5179	L	45+80.000	150,183.77	776,173.24	5216	L	53+20.000	150,907.86	776,323.72
5143	L	38+60.000	149,481.52	776,019.39	5180	L	46+00.000	150,203.44	776,176.83	5217	L	53+40.000	150,927.00	776,329.51
5144	L	38+80.000	149,500.26	776,026.37	5181	L	46+20.000	150,223.12	776,180.42	5218	L	53+60.000	150,946.11	776,335.42
5145	L	39+00.000	149,519.09	776,033.12	5182	L	46+40.000	150,242.79	776,184.01	5219	L	53+80.000	150,965.18	776,341.46
5146	L	39+20.000	149,538.00	776,039.61	5183	L	46+60.000	150,262.47	776,187.60	5220	L	54+00.000	150,984.20	776,347.62
5147	L	39+40.000	149,557.01	776,045.85	5184	L	46+80.000	150,282.14	776,191.19	5221	L	54+20.000	151,003.19	776,353.92

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**CENTERLINE
COORDINATE
LIST SHEET**



CONST. REV.
R/W REV.

PROJECT REFERENCE NO.		SHEET NO.	
R-2301A		I-E	
R/W SHEET NO.		I-E	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			

Point #	Chain	Station	Northing (Y)	Easting (X)	Point #	Chain	Station	Northing (Y)	Easting (X)	Point #	Chain	Station	Northing (Y)	Easting (X)
5222	L	54+40.000	151,022.13	776,360.33	5259	L	61+80.000	151,685.68	776,683.64	5296	L	69+20.000	152,302.67	777,091.88
5223	L	54+60.000	151,041.03	776,366.88	5260	L	62+00.000	151,702.41	776,694.60	5297	L	69+40.000	152,320.29	777,101.35
5224	L	54+80.000	151,059.88	776,373.55	5261	L	62+20.000	151,719.07	776,705.67	5298	L	69+60.000	152,338.03	777,110.58
5225	L	55+00.000	151,078.69	776,380.35	5262	L	62+40.000	151,735.68	776,716.81	5299	L	69+80.000	152,355.89	777,119.57
5226	L	55+20.000	151,097.46	776,387.27	5263	L	62+60.000	151,752.26	776,728.00	5300	L	70+00.000	152,373.88	777,128.32
5227	L	55+40.000	151,116.18	776,394.31	5264	L	62+80.000	151,768.82	776,739.20	5301	L	70+20.000	152,391.97	777,136.84
5228	L	55+60.000	151,134.85	776,401.49	5265	L	63+00.000	151,785.39	776,750.41	5302	L	70+40.000	152,410.18	777,145.11
5229	L	55+80.000	151,153.47	776,408.78	5266	L	63+20.000	151,801.96	776,761.61	5303	L	70+60.000	152,428.50	777,153.14
5230	L	56+00.000	151,172.04	776,416.20	5267	L	63+40.000	151,818.53	776,772.81	5304	L	70+80.000	152,446.90	777,160.97
5231	L	56+20.000	151,190.56	776,423.74	5268	L	63+60.000	151,835.09	776,784.02	5305	L	71+00.000	152,465.36	777,168.68
5232	L	56+40.000	151,209.04	776,431.41	5269	L	63+80.000	151,851.66	776,795.22	5306	L	71+20.000	152,483.84	777,176.32
5233	L	56+60.000	151,227.46	776,439.20	5270	L	64+00.000	151,868.23	776,806.42	5307	L	71+40.000	152,502.32	777,183.96
5234	L	56+80.000	151,245.82	776,447.11	5271	L	64+20.000	151,884.80	776,817.63	5308	L	71+60.000	152,520.81	777,191.60
5235	L	57+00.000	151,264.14	776,455.14	5272	L	64+40.000	151,901.36	776,828.83	5309	L	71+80.000	152,539.29	777,199.24
5236	L	57+20.000	151,282.40	776,463.30	5273	L	64+60.000	151,917.93	776,840.03	5310	L	72+00.000	152,557.77	777,206.88
5237	L	57+40.000	151,300.61	776,471.58	5274	L	64+80.000	151,934.50	776,851.24	5311	L	72+20.000	152,576.26	777,214.52
5238	L	57+60.000	151,318.76	776,479.98	5275	L	65+00.000	151,951.07	776,862.44	5312	L	72+40.000	152,594.74	777,222.16
5239	L	57+80.000	151,336.85	776,488.50	5276	L	65+20.000	151,967.64	776,873.64	5313	L	72+60.000	152,613.22	777,229.80
5240	L	58+00.000	151,354.89	776,497.14	5277	L	65+40.000	151,984.20	776,884.85	5314	L	72+80.000	152,631.70	777,237.44
5241	L	58+20.000	151,372.87	776,505.90	5278	L	65+60.000	152,000.77	776,896.05	5315	L	73+00.000	152,650.19	777,245.08
5242	L	58+40.000	151,390.79	776,514.78	5279	L	65+80.000	152,017.34	776,907.25	5316	L	73+20.000	152,668.67	777,252.72
5243	L	58+60.000	151,408.65	776,523.78	5280	L	66+00.000	152,033.91	776,918.46	5317	L	73+40.000	152,687.15	777,260.36
5244	L	58+80.000	151,426.45	776,532.89	5281	L	66+20.000	152,050.47	776,929.66	5318	L	73+60.000	152,705.64	777,268.00
5245	L	59+00.000	151,444.19	776,542.13	5282	L	66+40.000	152,067.04	776,940.86	5319	L	73+80.000	152,724.12	777,275.64
5246	L	59+20.000	151,461.87	776,551.49	5283	L	66+60.000	152,083.61	776,952.07	5320	L	74+00.000	152,742.60	777,283.28
5247	L	59+40.000	151,479.48	776,560.96	5284	L	66+80.000	152,100.18	776,963.27	5321	L	74+20.000	152,761.09	777,290.92
5248	L	59+60.000	151,497.03	776,570.55	5285	L	67+00.000	152,116.74	776,974.47	5322	L	74+40.000	152,779.57	777,298.56
5249	L	59+80.000	151,514.52	776,580.25	5286	L	67+20.000	152,133.31	776,985.68	5323	L	74+60.000	152,798.05	777,306.20
5250	L	60+00.000	151,531.94	776,590.08	5287	L	67+40.000	152,149.88	776,996.88	5324	L	74+80.000	152,816.54	777,313.84
5251	L	60+20.000	151,549.30	776,600.01	5288	L	67+60.000	152,166.45	777,008.08	5325	L	75+00.000	152,835.02	777,321.48
5252	L	60+40.000	151,566.59	776,610.07	5289	L	67+80.000	152,183.06	777,019.22	5326	L	75+20.000	152,853.50	777,329.12
5253	L	60+60.000	151,583.81	776,620.24	5290	L	68+00.000	152,199.75	777,030.24	5327	L	75+40.000	152,871.99	777,336.76
5254	L	60+80.000	151,600.96	776,630.52	5291	L	68+20.000	152,216.56	777,041.08	5328	L	75+60.000	152,890.47	777,344.41
5255	L	61+00.000	151,618.05	776,640.92	5292	L	68+40.000	152,233.50	777,051.70	5329	L	75+80.000	152,908.95	777,352.05
5256	L	61+20.000	151,635.06	776,651.43	5293	L	68+60.000	152,250.59	777,062.09	5330	L	76+00.000	152,927.44	777,359.69
5257	L	61+40.000	151,652.01	776,662.05	5294	L	68+80.000	152,267.82	777,072.25	5331	L	76+20.000	152,945.92	777,367.33
5258	L	61+60.000	151,668.88	776,672.79	5295	L	69+00.000	152,285.18	777,082.19	5332	L	76+40.000	152,964.40	777,374.97

REVISIONS

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**CENTERLINE
COORDINATE
LIST SHEET**

CONST. REV.
R / W REV.

PROJECT REFERENCE NO. R-2301A	SHEET NO. I-F
R / W SHEET NO. I-F	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

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Point #	Chain	Station	Northing (Y)	Easting (X)	Point #	Chain	Station	Northing (Y)	Easting (X)	Point #	Chain	Station	Northing (Y)	Easting (X)
5333	L	76+60.000	152,982.89	777,382.61	5370	L	84+00.000	153,666.94	777,664.85	5407	L	91+40.000	154,371.61	777,889.07
5334	L	76+80.000	153,001.37	777,390.25	5371	L	84+20.000	153,685.54	777,672.20	5408	L	91+60.000	154,390.91	777,894.29
5335	L	77+00.000	153,019.85	777,397.89	5372	L	84+40.000	153,704.17	777,679.47	5409	L	91+80.000	154,410.22	777,899.51
5336	L	77+20.000	153,038.34	777,405.53	5373	L	84+60.000	153,722.83	777,686.67	5410	L	92+00.000	154,429.53	777,904.72
5337	L	77+40.000	153,056.82	777,413.17	5374	L	84+80.000	153,741.52	777,693.80	5411	L	92+20.000	154,448.84	777,909.94
5338	L	77+60.000	153,075.30	777,420.81	5375	L	85+00.000	153,760.24	777,700.85	5412	L	92+40.000	154,468.14	777,915.16
5339	L	77+80.000	153,093.79	777,428.45	5376	L	85+20.000	153,778.98	777,707.82	5413	L	92+60.000	154,487.45	777,920.38
5340	L	78+00.000	153,112.27	777,436.09	5377	L	85+40.000	153,797.76	777,714.72	5414	L	92+80.000	154,506.76	777,925.60
5341	L	78+20.000	153,130.75	777,443.73	5378	L	85+60.000	153,816.55	777,721.55	5415	L	93+00.000	154,526.07	777,930.81
5342	L	78+40.000	153,149.24	777,451.37	5379	L	85+80.000	153,835.38	777,728.29	5416	L	93+20.000	154,545.37	777,936.03
5343	L	78+60.000	153,167.72	777,459.01	5380	L	86+00.000	153,854.24	777,734.97	5417	L	93+40.000	154,564.68	777,941.25
5344	L	78+80.000	153,186.20	777,466.65	5381	L	86+20.000	153,873.12	777,741.57	5418	L	93+60.000	154,583.99	777,946.47
5345	L	79+00.000	153,204.68	777,474.29	5382	L	86+40.000	153,892.02	777,748.09	5419	L	93+80.000	154,603.30	777,951.68
5346	L	79+20.000	153,223.17	777,481.93	5383	L	86+60.000	153,910.95	777,754.54	5420	L	94+00.000	154,622.60	777,956.90
5347	L	79+40.000	153,241.65	777,489.57	5384	L	86+80.000	153,929.91	777,760.91	5421	L	94+20.000	154,641.91	777,962.12
5348	L	79+60.000	153,260.13	777,497.21	5385	L	87+00.000	153,948.89	777,767.20	5422	L	94+40.000	154,661.22	777,967.34
5349	L	79+80.000	153,278.62	777,504.85	5386	L	87+20.000	153,967.90	777,773.42	5423	L	94+60.000	154,680.53	777,972.56
5350	L	80+00.000	153,297.10	777,512.49	5387	L	87+40.000	153,986.94	777,779.57	5424	L	94+80.000	154,699.83	777,977.77
5351	L	80+20.000	153,315.58	777,520.13	5388	L	87+60.000	154,005.99	777,785.64	5425	L	95+00.000	154,719.14	777,982.99
5352	L	80+40.000	153,334.07	777,527.77	5389	L	87+80.000	154,025.08	777,791.63	5426	L	95+20.000	154,738.45	777,988.21
5353	L	80+60.000	153,352.55	777,535.41	5390	L	88+00.000	154,044.18	777,797.54	5427	L	95+40.000	154,757.75	777,993.43
5354	L	80+80.000	153,371.03	777,543.05	5391	L	88+20.000	154,063.31	777,803.38	5428	L	95+60.000	154,777.06	777,998.64
5355	L	81+00.000	153,389.52	777,550.69	5392	L	88+40.000	154,082.46	777,809.14	5429	L	95+80.000	154,796.37	778,003.86
5356	L	81+20.000	153,408.00	777,558.33	5393	L	88+60.000	154,101.64	777,814.83	5430	L	96+00.000	154,815.68	778,009.08
5357	L	81+40.000	153,426.48	777,565.97	5394	L	88+80.000	154,120.83	777,820.43	5431	L	96+20.000	154,834.98	778,014.30
5358	L	81+60.000	153,444.97	777,573.61	5395	L	89+00.000	154,140.05	777,825.97	5432	L	96+40.000	154,854.29	778,019.51
5359	L	81+80.000	153,463.45	777,581.25	5396	L	89+20.000	154,159.30	777,831.42	5433	L	96+60.000	154,873.60	778,024.73
5360	L	82+00.000	153,481.93	777,588.89	5397	L	89+40.000	154,178.56	777,836.80	5434	L	96+80.000	154,892.91	778,029.95
5361	L	82+20.000	153,500.42	777,596.53	5398	L	89+60.000	154,197.84	777,842.10	5435	L	97+00.000	154,912.21	778,035.17
5362	L	82+40.000	153,518.90	777,604.17	5399	L	89+80.000	154,217.15	777,847.33	5436	L	97+20.000	154,931.52	778,040.39
5363	L	82+60.000	153,537.38	777,611.81	5400	L	90+00.000	154,236.46	777,852.55	5437	L	97+40.000	154,950.83	778,045.60
5364	L	82+80.000	153,555.87	777,619.45	5401	L	90+20.000	154,255.76	777,857.76	5438	L	97+60.000	154,970.14	778,050.82
5365	L	83+00.000	153,574.35	777,627.09	5402	L	90+40.000	154,275.07	777,862.98	5439	L	97+80.000	154,989.44	778,056.04
5366	L	83+20.000	153,592.83	777,634.73	5403	L	90+60.000	154,294.38	777,868.20	5440	L	98+00.000	155,008.75	778,061.26
5367	L	83+40.000	153,611.32	777,642.36	5404	L	90+80.000	154,313.69	777,873.42	5441	L	98+20.000	155,028.06	778,066.47
5368	L	83+60.000	153,629.83	777,649.93	5405	L	91+00.000	154,332.99	777,878.64	5442	L	98+40.000	155,047.37	778,071.69
5369	L	83+80.000	153,648.37	777,657.43	5406	L	91+20.000	154,352.30	777,883.85	5443	L	98+60.000	155,066.67	778,076.91

REVISIONS

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**CENTERLINE
COORDINATE
LIST SHEET**

METRIC

CONST.REV.
R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2301A	1-6
R/W SHEET NO.	1-6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Point #	Chain	Station	Northing (Y)	Easting (X)	Point #	Chain	Station	Northing (Y)	Easting (X)	Point #	Chain	Station	Northing (Y)	Easting (X)
5444	L	98+80.000	155,085.98	778,082.13	5481	L	106+20.000	155,812.91	778,155.79					
5445	L	99+00.000	155,105.29	778,087.35	5482	L	106+40.000	155,832.41	778,151.34					
5446	L	99+20.000	155,124.60	778,092.56	5483	L	106+60.000	155,851.82	778,146.51					
5447	L	99+40.000	155,143.90	778,097.78	5484	L	106+80.000	155,871.13	778,141.32					
5448	L	99+60.000	155,163.21	778,103.00	5485	L	107+00.000	155,890.34	778,135.76					
5449	L	99+80.000	155,182.52	778,108.22	5486	L	107+20.000	155,909.44	778,129.83					
5450	L	100+00.000	155,201.82	778,113.43	5487	L	107+40.000	155,928.43	778,123.54					
5451	L	100+20.000	155,221.13	778,118.65	5488	L	107+60.000	155,947.29	778,116.89					
5452	L	100+40.000	155,240.44	778,123.87	5489	L	107+80.000	155,966.02	778,109.88					
5453	L	100+60.000	155,259.75	778,129.09	5490	L	108+00.000	155,984.61	778,102.52					
5454	L	100+80.000	155,279.05	778,134.30	5491	L	108+20.000	156,003.07	778,094.80					
5455	L	101+00.000	155,298.37	778,139.49	5492	L	108+40.000	156,021.37	778,086.74					
5456	L	101+20.000	155,317.72	778,144.55	5493	L	108+60.000	156,039.51	778,078.32					
5457	L	101+40.000	155,337.12	778,149.42	5494	L	108+80.000	156,057.49	778,069.57					
5458	L	101+60.000	155,356.58	778,154.01	5495	L	109+00.000	156,075.30	778,060.47					
5459	L	101+80.000	155,376.13	778,158.25	5496	L	109+20.000	156,092.94	778,051.03					
5460	L	102+00.000	155,395.75	778,162.11	5497	L	109+40.000	156,110.39	778,041.26					
5461	L	102+20.000	155,415.45	778,165.60	5498	L	109+60.000	156,127.65	778,031.16					
5462	L	102+40.000	155,435.20	778,168.71	5499	L	109+80.000	156,144.71	778,020.73					
5463	L	102+60.000	155,455.01	778,171.45	5500	L	110+00.000	156,161.58	778,009.98					
5464	L	102+80.000	155,474.87	778,173.81	5501	L	110+20.000	156,178.24	777,998.91					
5465	L	103+00.000	155,494.77	778,175.79	5502	L	110+40.000	156,194.68	777,987.53					
5466	L	103+20.000	155,514.71	778,177.39										
5467	L	103+40.000	155,534.67	778,178.61										
5468	L	103+60.000	155,554.65	778,179.45										
5469	L	103+80.000	155,574.65	778,179.91										
5470	L	104+00.000	155,594.65	778,179.98										
5471	L	104+20.000	155,614.65	778,179.68										
5472	L	104+40.000	155,634.63	778,179.00										
5473	L	104+60.000	155,654.61	778,177.93										
5474	L	104+80.000	155,674.55	778,176.49										
5475	L	105+00.000	155,694.47	778,174.67										
5476	L	105+20.000	155,714.35	778,172.46										
5477	L	105+40.000	155,734.18	778,169.88										
5478	L	105+60.000	155,753.96	778,166.92										
5479	L	105+80.000	155,773.68	778,163.59										
5480	L	106+00.000	155,793.33	778,159.88										

REVISIONS

REVISIONS

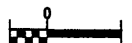
8/27/8

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SURVEY
CONTROL
SHEET



CONST.REV.

R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2301A	I-H
R/W SHEET NO.	I-H
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT
IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY
NCDOT FOR MONUMENT "R2301-6"
WITH NAD 83 STATE PLANE GRID COORDINATES OF
NORTHING: 151382935(m) EASTING: 776104.156(m)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT
(GROUND TO GRID) IS: 0.999880190
THE N.C. LAMBERT GRID BEARING
LOCALIZED HORIZONTAL GROUND DISTANCE FROM
"R2301A-6" TO L- STATION 9+68.416 IS
S 21° 04' 12" W 4257.833m
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NGVD 29

PAVEMENT SCHEDULE

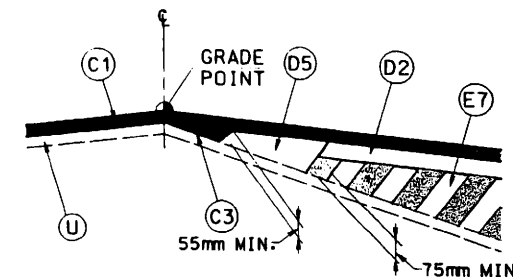
CODE	DESCRIPTION
C1	PROP. APPROX. 80mm ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 96 kg/sm IN EACH OF TWO LAYERS.
C2	PROP. APPROX. 80mm ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 96 kg/sm IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPH. CONC. SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 2.40 KG PER SQ METER PER 1 mm DEPTH TO BE PLACED IN LAYER NOT LESS THAN 30mm OR GREATER THAN 40 mm IN DEPTH.
C4	PROP. VAR. DEPTH ASPH. CONC. SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 2.40 KG PER SQ METER PER 1 mm DEPTH TO BE PLACED IN LAYER NOT LESS THAN 30mm OR GREATER THAN 40 mm IN DEPTH.
D1	PROP. APPROX. 100mm ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 245 kg/sm.
D2	PROP. APPROX. 70mm ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 172 kg/sm.
D3	PROP. APPROX. 100mm ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 245 kg/sm.
D4	PROP. APPROX. 65mm ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 160 kg/sm.
D5	PROP. VAR. DEPTH ASPH. CONC. INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 2.45 KG PER SQ METER PER 1 mm DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 55mm OR GREATER THAN 110mm IN DEPTH.
E1	PROP. 160mm ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 196 kg/sm IN EACH OF TWO LAYERS.
E2	PROP. 140mm ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 343 kg/sm.
E3	PROP. 120mm ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 343 kg/sm.
E4	PROP. 100mm ASPH. CONC. BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 245 kg/sm.
E5	PROP. 75mm ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 184 kg/sm.
E6	PROP. 100mm ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 245 kg/sm.
E7	PROP. VAR. DEPTH ASPH. CONC. BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 2.45 KG PER SQ METER PER 1 mm DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 75mm OR GREATER THAN 140mm IN DEPTH.
E8	PROP. VAR. DEPTH ASPH. CONC. BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 2.45 KG PER SQ METER PER 1 mm DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 75mm OR GREATER THAN 140mm IN DEPTH.
J1	PROP. 250mm AGGREGATE BASE COURSE.
J2	PROP. 200mm AGGREGATE BASE COURSE.
J3	PROP. 150mm AGGREGATE BASE COURSE.
J4	PROP. VAR DEPTH AGGREGATE BASE COURSE.
R1	125mm MONOLITHIC CONCRETE ISLAND (SEE PLANS FOR LOCATIONS)
R2	750mm CONCRETE CURB AND GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W1	VARIABLE DEPTH BITUMINOUS PAVEMENT (SEE WEDGING DETAIL 1)
W2	VARIABLE DEPTH BITUMINOUS PAVEMENT (SEE WEDGING DETAIL 2)

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

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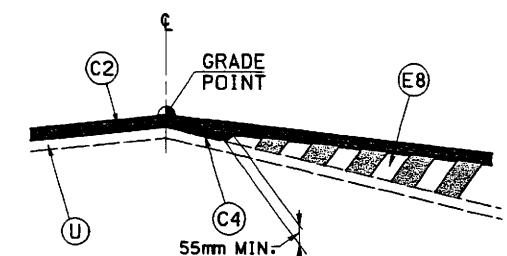
METRIC
NOT TO SCALE

PROJECT REFERENCE NO. R-2301A	SHEET NO. 2
R/W SHEET NO. 2	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



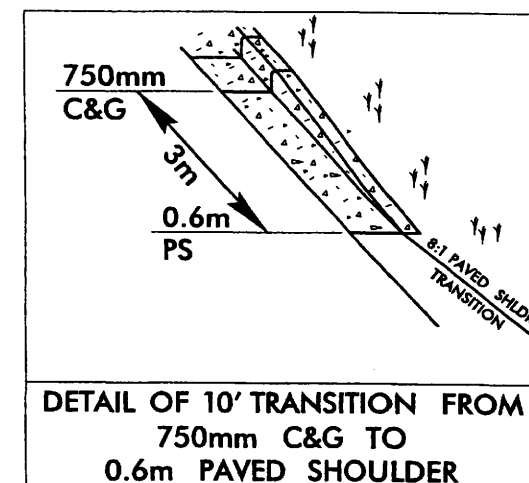
W1 WEDGING DETAIL 1

USE IN CONJUNCTION WITH TYP. SEC. NO.s 6, 7, AND 8 FOR -Y1LT- & -Y1-



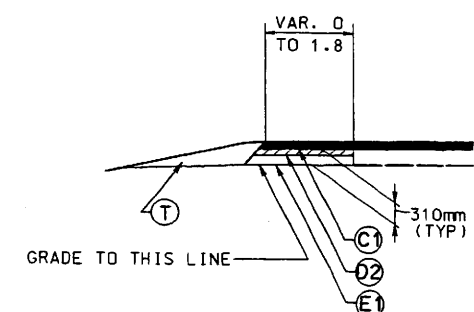
W2 WEDGING DETAIL 2

USE IN CONJUNCTION WITH TYP. SEC. NO. 11 FOR -Y6-



DETAIL OF 10' TRANSITION FROM 750mm C&G TO 0.6m PAVED SHOULDER

-LPA- STA. 0+90.000 TO 0+93.000
-LPB- STA. 0+70.000 TO 0+73.000
-LPC- STA. 0+90.000 TO 0+93.000
-LPD- STA. 0+70.000 TO 0+73.000



NARROW WIDENING DETAIL 1

USE IN CONJUNCTION WITH TYP. SEC. NO. 5 AND 8 FOR -Y1LT- & -Y1- IN AREAS WITH LESS THAN 1.8 M OF WIDENING

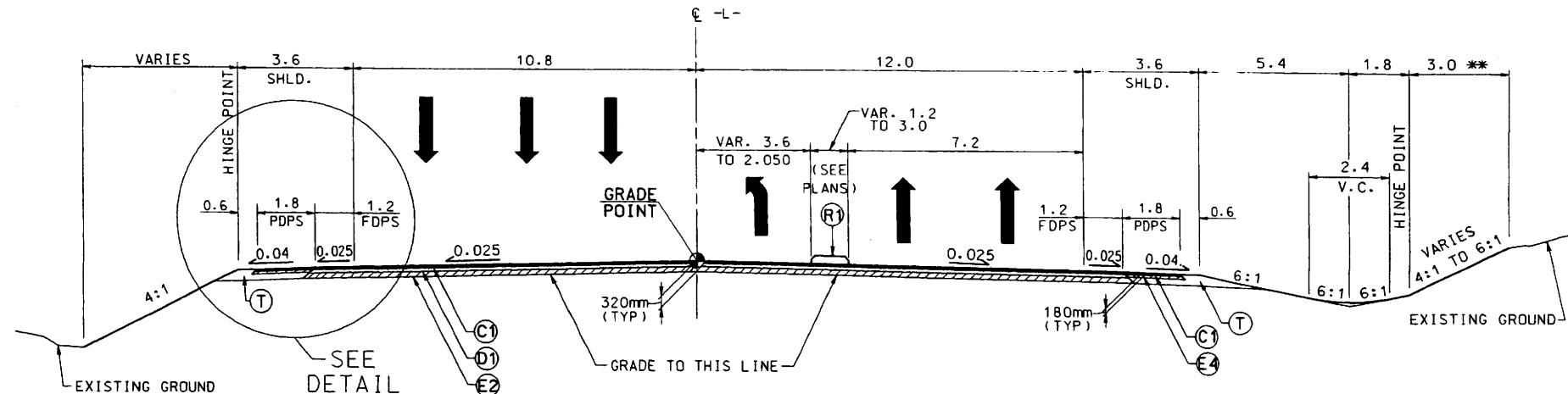
PAVEMENT SCHEDULE	
CODE	DESCRIPTION
C1	80mm S9.5C
C2	80mm S9.5B
C3	VAR. S9.5C
C4	VAR. S9.5B
D1	100mm I19.0C
D2	70mm I19.0C
D3	100mm I19.0B
D4	65mm I19.0B
D5	VAR. I19.0C
E1	160mm B25.0C
E2	140mm B25.0C
E3	120mm B25.0C
E4	100mm B25.0C
E5	75mm B25.0C
E6	100mm B25.0B
E7	VAR. B25.0C
E8	VAR. B25.0B
J1	250mm ABC
J2	200mm ABC
J3	150mm ABC
J4	VAR. ABC
R1	CONC ISLAND (125mm)
R2	CONC C & G (750mm)
T	EARTH MATERIAL
U	EXIST PAVEMENT
W1	WEDGING DETAIL 1
W2	WEDGING DETAIL 2

NOTES:
 TYPICAL SECTIONS SHOWN ARE FOR TANGENT SECTIONS ONLY. SEE PLANS AND STANDARD DRAWINGS FOR SUPERELEVATION DETAILS AND LANE ADDITIONS/WIDENING AT INTERSECTIONS.
 MAXIMUM ROLLOVER = 0.06.
 ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.
 FOR PAVEMENT SCHEDULE WITH APPLICATION RATES SEE SHEET 2.
 ALL SUBGRADE SLOPES PARALLEL TO PAVEMENT SURFACE SLOPES
 FDPS - FULL DEPTH PAVED SHOULDER
 PDPS - PARTIAL DEPTH PAVED SHOULDER
 * ADD 1.0 WITH GUARDRAIL
 ** WHEN THESE DISTANCES INDICATE SLOPES OUTSIDE THE LIMITS SHOWN, THE DISTANCE BECOMES VARIABLE AND THE MAXIMUM SLOPE MAINTAINED. SEE CROSS SECTIONS.

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METRIX
 NOT TO SCALE

PROJECT REFERENCE NO. R-2301A	SHEET NO. 2-A
R/W SHEET NO. 2-A	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

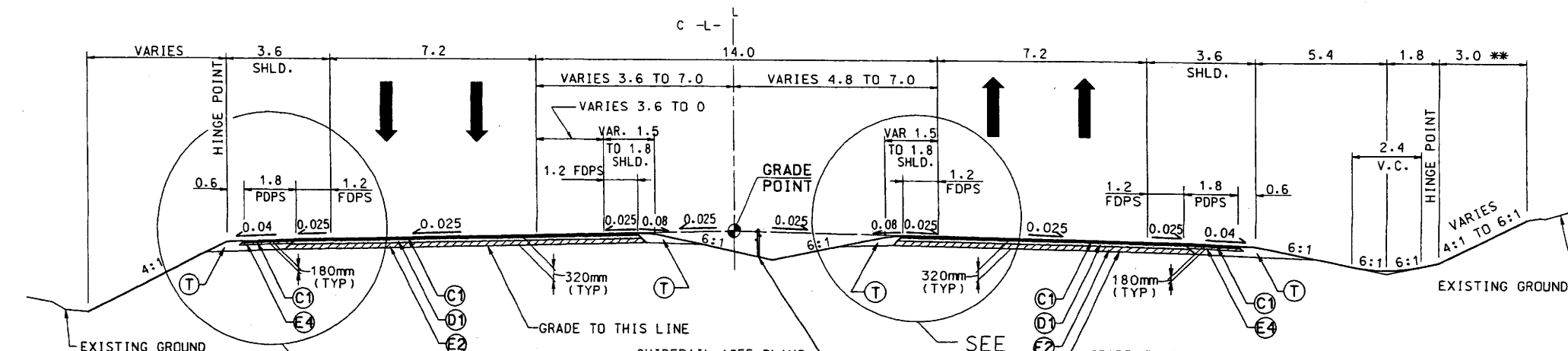
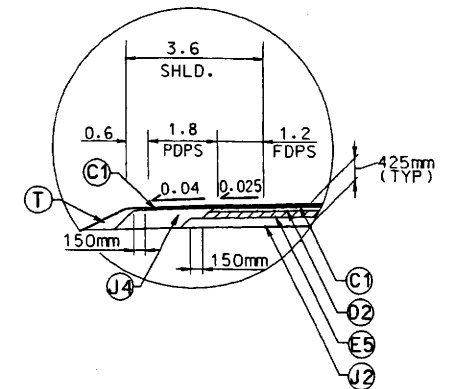


TYPICAL SECTION NO. 1

-L- US 17 BYPASS

USE TYPICAL SECTION NO. 1 AS FOLLOWS:
 -L- STA. 9+87.608 TO STA. 11+55.887

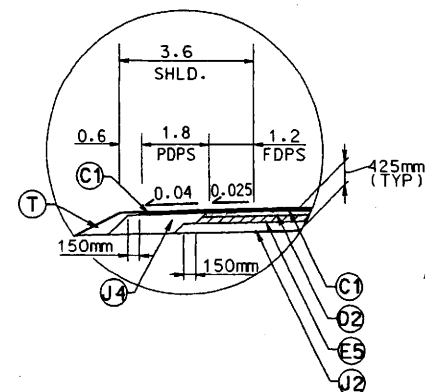
ALTERNATE 2 PAVEMENT DESIGN DETAIL 'A'



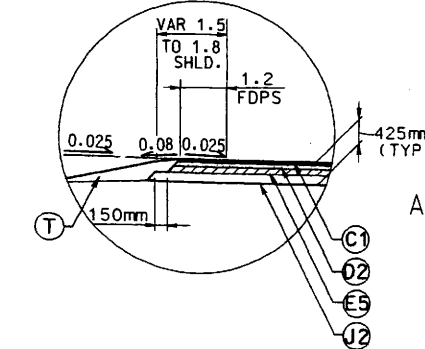
TYPICAL SECTION NO. 2

-L- US 17 BYPASS

USE TYPICAL SECTION NO. 2 AS FOLLOWS:
 -L- STA. 11+55.887 TO STA. 13+68.000



ALTERNATE 2 PAVEMENT DESIGN DETAIL 'B'

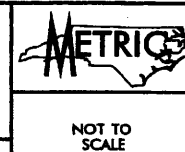


ALTERNATE 2 PAVEMENT DESIGN DETAIL 'C'

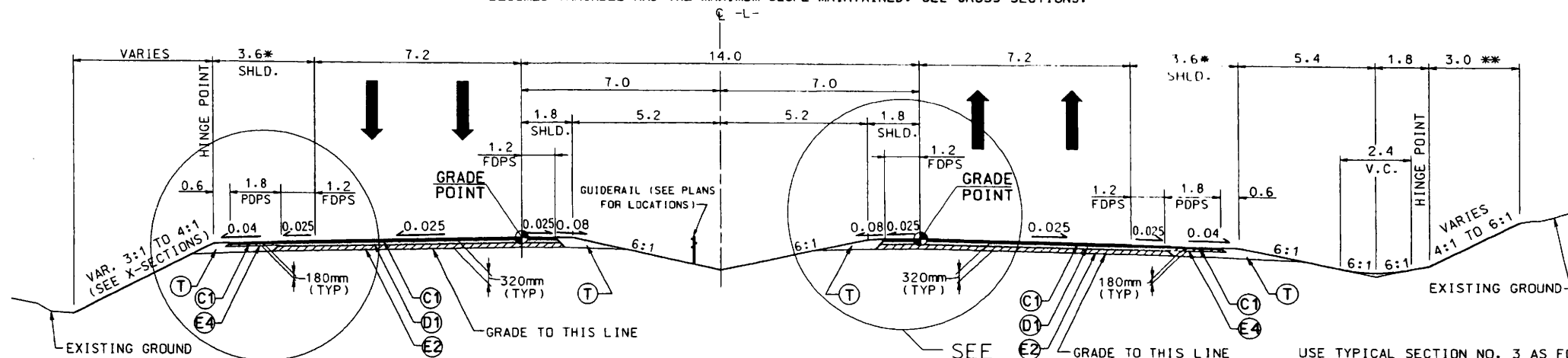
PAVEMENT SCHEDULE	
CODE	DESCRIPTION
C1	80mm S9.5C
C2	80mm S9.5B
C3	VAR. S9.5C
C4	VAR. S9.5B
D1	100mm I19.0C
D2	70mm I19.0C
D3	100mm I19.0B
D4	65mm I19.0B
D5	VAR. I19.0C
E1	160mm B25.0C
E2	140mm B25.0C
E3	120mm B25.0C
E4	100mm B25.0C
E5	75mm B25.0C
E6	100mm B25.0B
E7	VAR. B25.0C
E8	VAR. B25.0B
J1	250mm ABC
J2	200mm ABC
J3	150mm ABC
J4	VAR. ABC
R1	CONC ISLAND (125mm)
R2	CONC C & G (750mm)
T	EARTH MATERIAL
U	EXIST PAVEMENT
W1	WEDGING DETAIL 1
W2	WEDGING DETAIL 2

NOTES:
 TYPICAL SECTIONS SHOWN ARE FOR TANGENT SECTIONS ONLY. SEE PLANS AND STANDARD DRAWINGS FOR SUPERELEVATION DETAILS AND LANE ADDITIONS/WIDENING AT INTERSECTIONS.
 MAXIMUM ROLLOVER = 0.06.
 ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.
 FOR PAVEMENT SCHEDULE WITH APPLICATION RATES SEE SHEET 2.
 ALL SUBGRADE SLOPES PARALLEL TO PAVEMENT SURFACE SLOPES
 FDPS - FULL DEPTH PAVED SHOULDER
 PDPS - PARTIAL DEPTH PAVED SHOULDER
 * ADD 1.0 WITH GUARDRAIL
 ** WHEN THESE DISTANCES INDICATE SLOPES OUTSIDE THE LIMITS SHOWN, THE DISTANCE BECOMES VARIABLE AND THE MAXIMUM SLOPE MAINTAINED. SEE CROSS SECTIONS.

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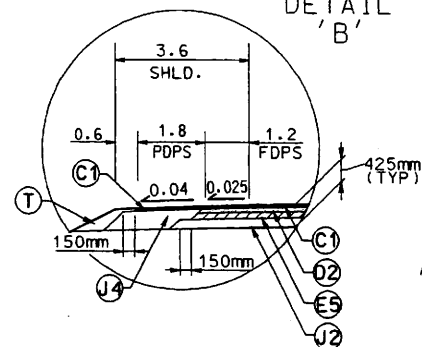
PROJECT REFERENCE NO.	SHEET NO.
R-2301A	2-B
R/W SHEET NO.	2-B
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



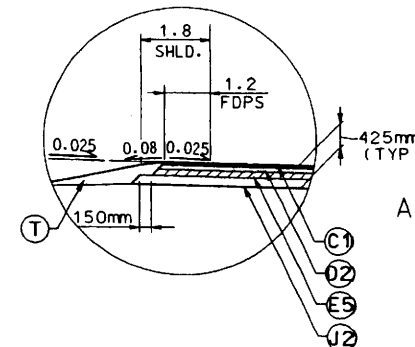
TYPICAL SECTION NO. 3
 -L- US 17 BYPASS

USE TYPICAL SECTION NO. 3 AS FOLLOWS:

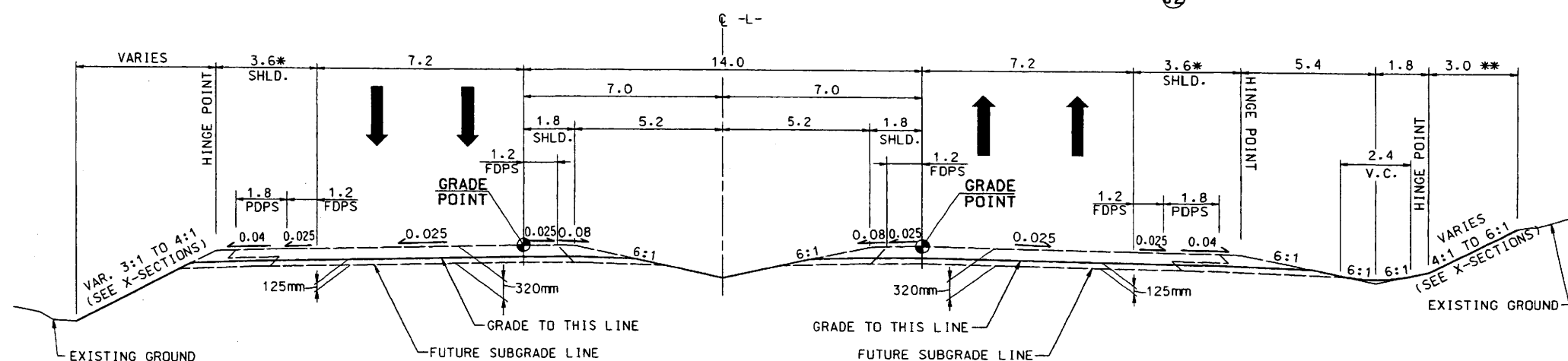
- L- STA. 13+68.000 SBL TO STA. 17+85.876 (BEG BRIDGE SBL)
- L- STA. 13+68.000 NBL TO STA. 17+82.124 (BEG BRIDGE NBL)
- L- STA. 18+61.876 (END BRIDGE SBL) TO STA. 29+88.543 (BEG BRIDGE SBL)
- L- STA. 18+58.124 (END BRIDGE NBL) TO STA. 29+80.992 (BEG BRIDGE NBL)
- L- STA. 30+28.650 (END BRIDGE SBL) TO STA. 96+55.754 (BEG BRIDGE SBL)
- L- STA. 30+24.365 (END BRIDGE NBL) TO STA. 96+54.796 (BEG BRIDGE NBL)
- L- STA. 97+34.185 (END BRIDGE SBL) TO STA. 100+20.000 (END PAVING SBL)
- L- STA. 97+33.196 (END BRIDGE NBL) TO STA. 100+20.000 (END PAVING NBL)



ALTERNATE 2 PAVEMENT
 DESIGN DETAIL 'B'



ALTERNATE 2 PAVEMENT
 DESIGN DETAIL 'C'



TYPICAL SECTION NO. 4
 -L- US 17 BYPASS
 (GRADING ONLY)

USE TYPICAL SECTION NO. 4 AS FOLLOWS:

- L- STA. 100+20.000 TO STA. 104+80.000 (END GRADING)
- L- STA. 104+80.000 TO STA. 109+88.000 (FUTURE)

REVISIONS

TYPICAL SECTIONS SHOWN ARE FOR TANGENT SECTIONS ONLY. SEE PLANS AND STANDARD DRAWINGS FOR SUPERELEVATION DETAILS AND LANE ADDITIONS/WIDENING AT INTERSECTIONS. MAXIMUM ROLLOVER = 0.06.

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

FOR PAVEMENT SCHEDULE WITH APPLICATION RATES SEE SHEET 2.

ALL SUBGRADE SLOPES PARALLEL TO PAVEMENT SURFACE SLOPES

FDPS - FULL DEPTH PAVED SHOULDER

PDPS - PARTIAL DEPTH PAVED SHOULDER

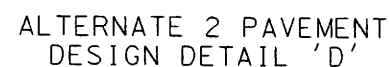
* ADD 1.0 WITH GUARDRAIL

** WHEN THESE DISTANCES INDICATE SLOPES OUTSIDE THE LIMITS SHOWN, THE DISTANCE BECOMES VARIABLE AND THE MAXIMUM SLOPE MAINTAINED. SEE CROSS SECTIONS.

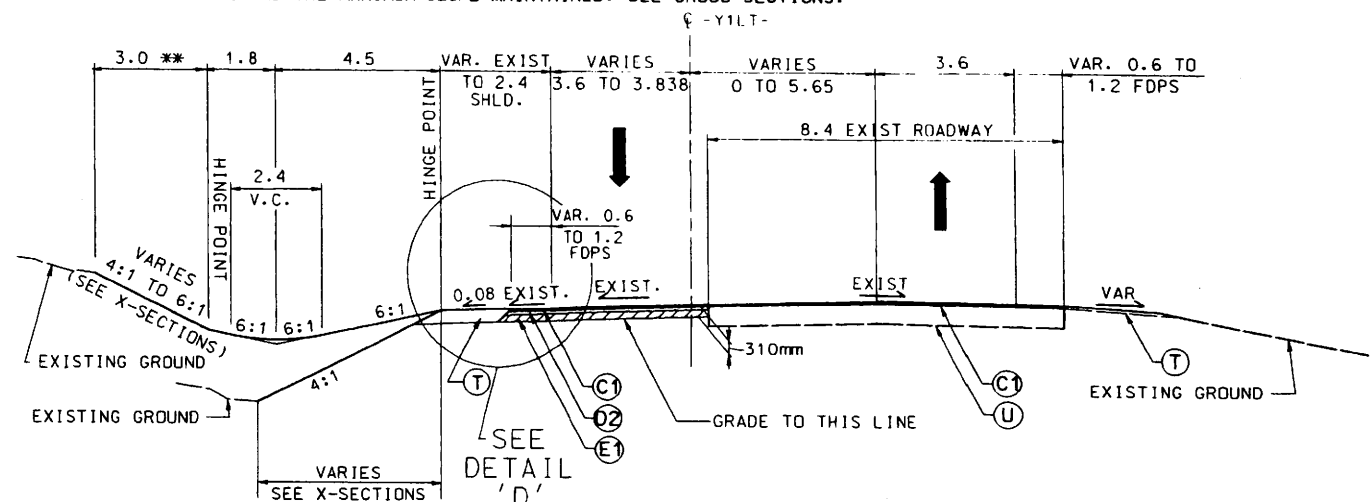
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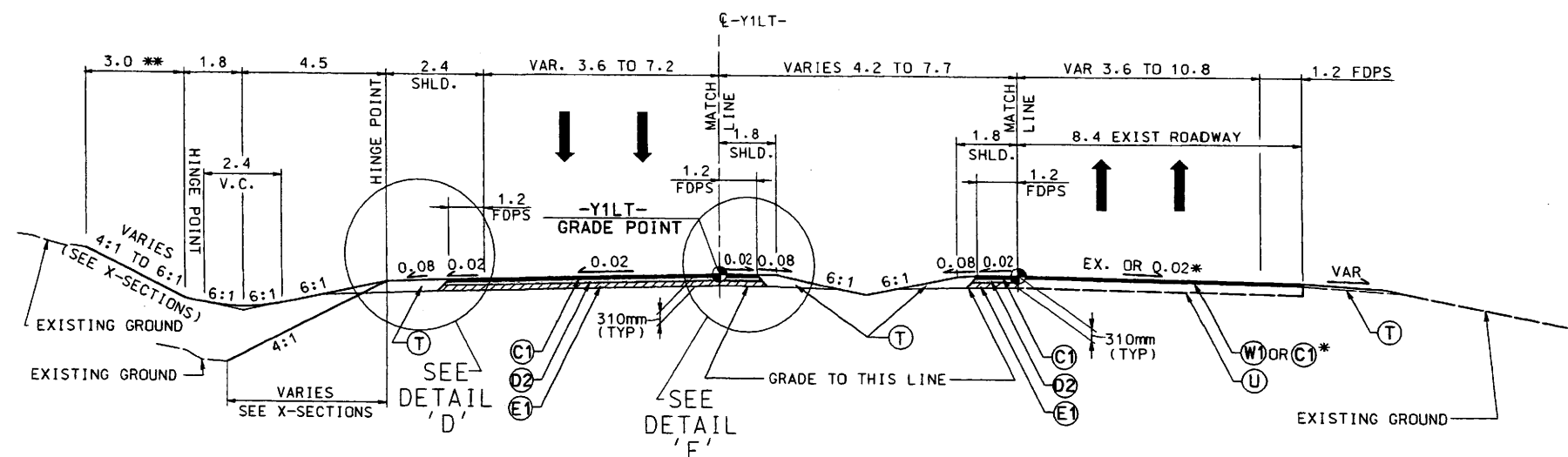


NOTE:
SEE NARROW WIDENING DETAIL 1 ON SHEET 2 FOR
AREAS OF WIDENING LESS THAN 1.8m IN WIDTH.



-Y1LT- US 17

USE TYPICAL SECTION NO. 5 AS FOLLOWS:
-Y1LT- STA. 10+09.318 TO STA. 11+59.753

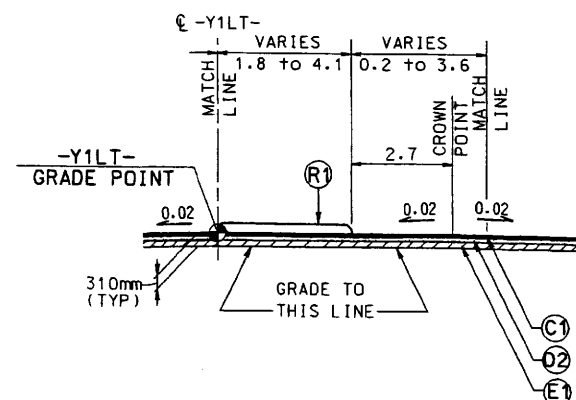


-Y1LT- US 17

-Y1LT- STA. 11+59.753 TO STA. 13+32.422

NOTES:
* SEE PLANS AND CROSS SECTIONS FOR
LOCATIONS OF WEDGING ON NORTHBOUND
LANES TO PROVIDE CONTINUOUS SLOPE
TOWARD THE OUTSIDE SHOULDER
(TO TIE TO Y1 CROWN POINT AT END OF Y1LT)

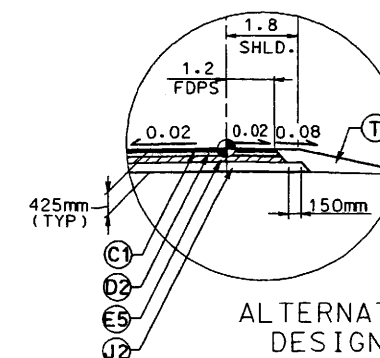
SEE WEDGING DETAIL 1 ON SHEET 2.
SEE NARROW WIDENING DETAIL 1 ON SHEET 2 FOR
AREAS OF WIDENING LESS THAN 1.8m IN WIDTH.



-Y1LT- US 17

USE TYPICAL SECTION NO. 6A IN CONJUNCTION
WITH TYPICAL SECTION NO. 6 AS FOLLOWS:

-Y1LT- STA. 13+32.422 TO STA. 13+64.625



ALTERNATE 2 PAVEMENT
DESIGN DETAIL 'E'

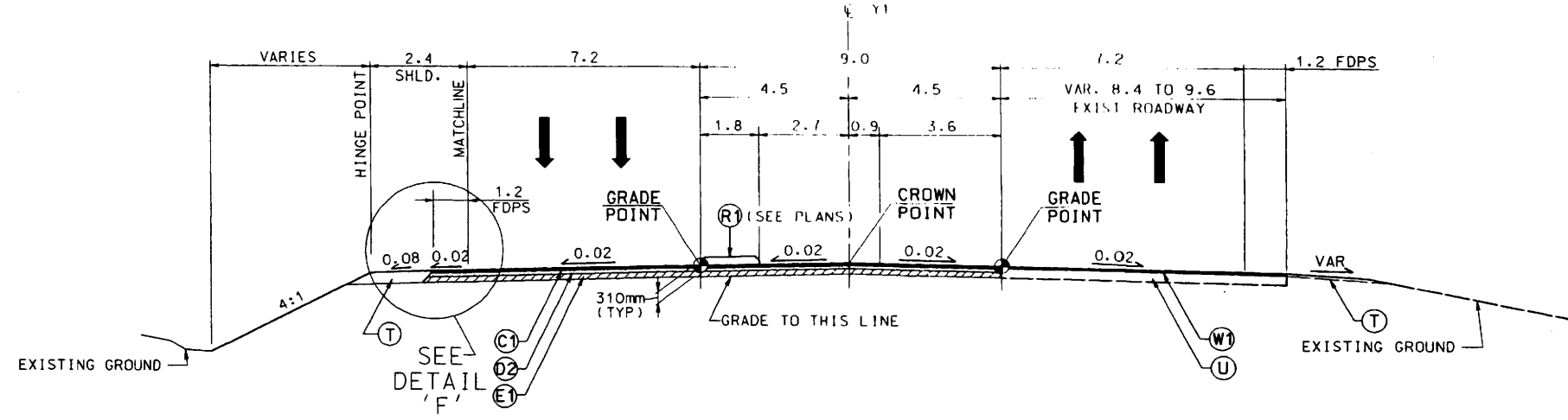
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METRIC
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PROJECT REFERENCE NO. R-2301A	SHEET NO. 2-D
R/W SHEET NO. 2-D	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

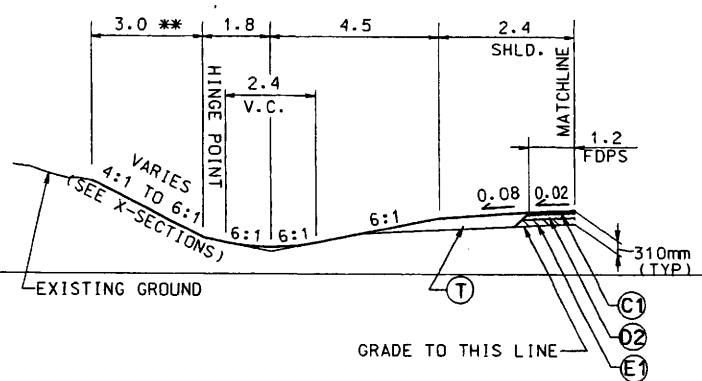
CODE	DESCRIPTION
C1	80mm S9.5C
C2	80mm S9.5B
C3	VAR. S9.5C
C4	VAR. S9.5B
D1	100mm I19.0C
D2	70mm I19.0C
D3	100mm I19.0B
D4	65mm I19.0B
D5	VAR. I19.0C
E1	160mm B25.0C
E2	140mm B25.0C
E3	120mm B25.0C
E4	100mm B25.0C
E5	75mm B25.0C
E6	100mm B25.0B
E7	VAR. B25.0C
E8	VAR. B25.0B
J1	250mm ABC
J2	200mm ABC
J3	150mm ABC
J4	VAR. ABC
R1	CONC ISLAND (125mm)
R2	CONC C & G (750mm)
T	EARTH MATERIAL
U	EXIST PAVEMENT
W1	WEDGING DETAIL 1
W2	WEDGING DETAIL 2

NOTES:
 TYPICAL SECTIONS SHOWN ARE FOR TANGENT SECTIONS ONLY. SEE PLANS AND STANDARD DRAWINGS FOR SUPERELEVATION DETAILS AND LANE ADDITIONS/WIDENING AT INTERSECTIONS.
 MAXIMUM ROLLOVER = 0.06.
 ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.
 FOR PAVEMENT SCHEDULE WITH APPLICATION RATES SEE SHEET 2.
 ALL SUBGRADE SLOPES PARALLEL TO PAVEMENT SURFACE SLOPES
 FDPS - FULL DEPTH PAVED SHOULDER
 PDPS - PARTIAL DEPTH PAVED SHOULDER
 * ADD 1.0 WITH GUARDRAIL
 ** WHEN THESE DISTANCES INDICATE SLOPES OUTSIDE THE LIMITS SHOWN, THE DISTANCE BECOMES VARIABLE AND THE MAXIMUM SLOPE MAINTAINED. SEE CROSS SECTIONS.

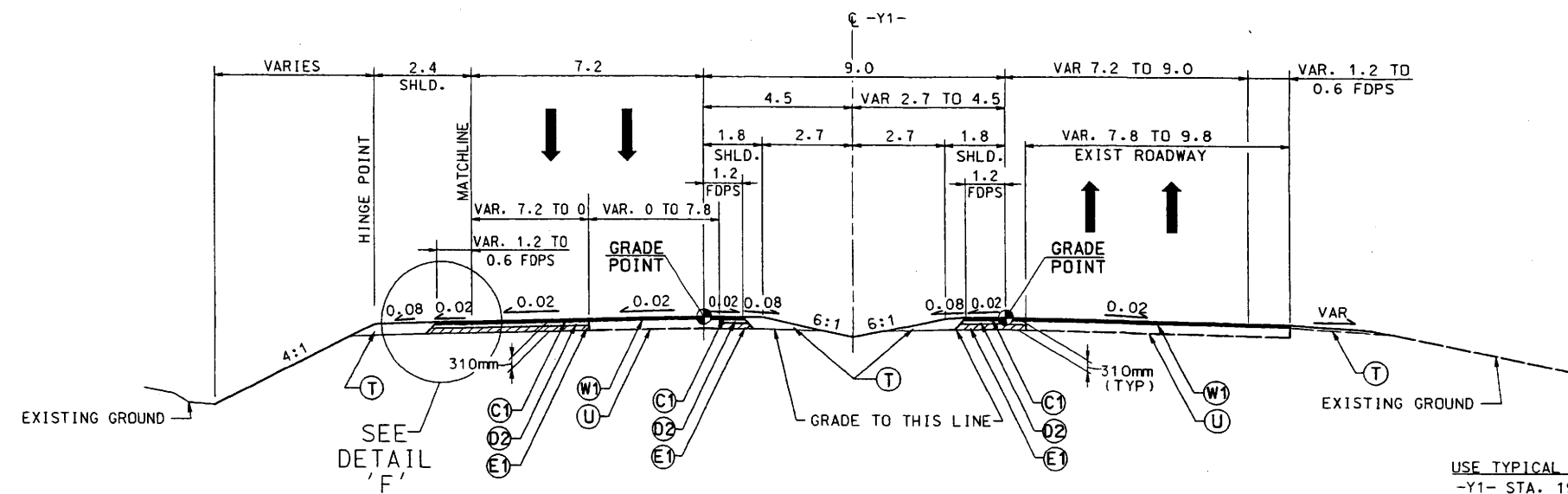


TYPICAL SECTION NO. 7
 -Y1- US 17

USE TYPICAL SECTION NO. 7 AS FOLLOWS:
 -Y1- STA. 16+97.996 TO STA. 19+27.504 (INTERSECTION)
 NOTES:
 SEE WEDGING DETAIL 1 ON SHEET 2.

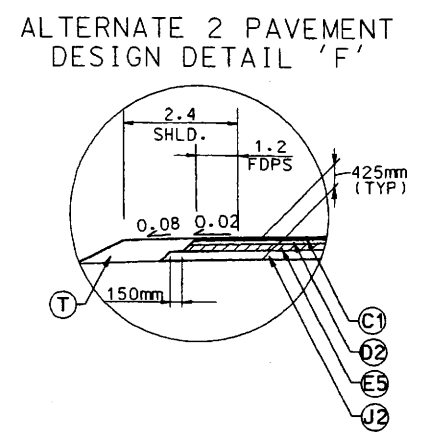


PARTIAL TYPICAL SECTION NO. 7A/8A
 USE IN CONJUNCTION WITH TYPICAL SECTION NO. 7 AND NO. 8. SEE CROSS SECTIONS FOR LOCATIONS.



TYPICAL SECTION NO. 8
 -Y1- US 17

USE TYPICAL SECTION NO. 8 AS FOLLOWS:
 -Y1- STA. 19+81.294 TO STA. 21+51.307
 NOTES:
 SEE WEDGING DETAIL 1 ON SHEET 2.
 SEE NARROW WIDENING DETAIL 1 ON SHEET 2 FOR AREAS OF WIDENING LESS THAN 1.8m IN WIDTH.



REVISIONS

PAVEMENT SCHEDULE	
CODE	DESCRIPTION
C1	80mm S9.5C
C2	80mm S9.5B
C3	VAR. S9.5C
C4	VAR. S9.5B
D1	100mm I19.0C
D2	70mm I19.0C
D3	100mm I19.0B
D4	65mm I19.0B
D5	VAR. I19.0C
E1	160mm B25.0C
E2	140mm B25.0C
E3	120mm B25.0C
E4	100mm B25.0C
E5	75mm B25.0C
E6	100mm B25.0B
E7	VAR. B25.0C
E8	VAR. B25.0B
J1	250mm ABC
J2	200mm ABC
J3	150mm ABC
J4	VAR. ABC
R1	CONC ISLAND (125mm)
R2	CONC C & G (750mm)
T	EARTH MATERIAL
U	EXIST PAVEMENT
W1	WEDGING DETAIL 1
W2	WEDGING DETAIL 2

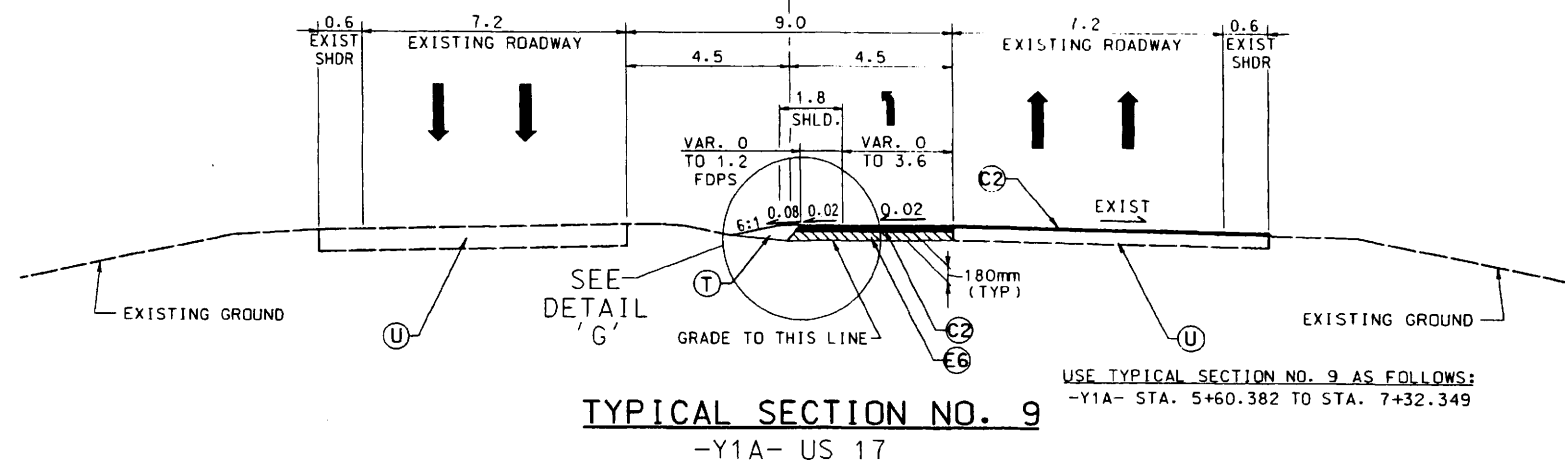
NOTES:
 TYPICAL SECTIONS SHOWN ARE FOR TANGENT SECTIONS ONLY. SEE PLANS AND STANDARD DRAWINGS FOR SUPERELEVATION DETAILS AND LANE ADDITIONS/WIDENING AT INTERSECTIONS.
 MAXIMUM ROLLOVER = 0.06.
 ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.
 FOR PAVEMENT SCHEDULE WITH APPLICATION RATES SEE SHEET 2.
 ALL SUBGRADE SLOPES PARALLEL TO PAVEMENT SURFACE SLOPES
 FDPS - FULL DEPTH PAVED SHOULDER
 PDPS - PARTIAL DEPTH PAVED SHOULDER
 * ADD 1.0 WITH GUARDRAIL
 ** WHEN THESE DISTANCES INDICATE SLOPES OUTSIDE THE LIMITS SHOWN, THE DISTANCE BECOMES VARIABLE AND THE MAXIMUM SLOPE MAINTAINED. SEE CROSS SECTIONS.

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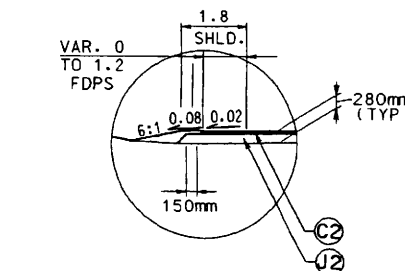


NOT TO SCALE

PROJECT REFERENCE NO. R-2301A	SHEET NO. 2-E
R/W SHEET NO. 2-E	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



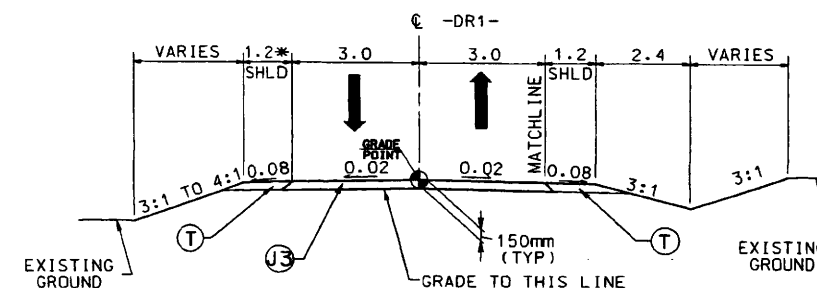
USE TYPICAL SECTION NO. 9 AS FOLLOWS:
 -Y1A- STA. 5+60.382 TO STA. 7+32.349



ALTERNATE 2 PAVEMENT DESIGN DETAIL 'G'

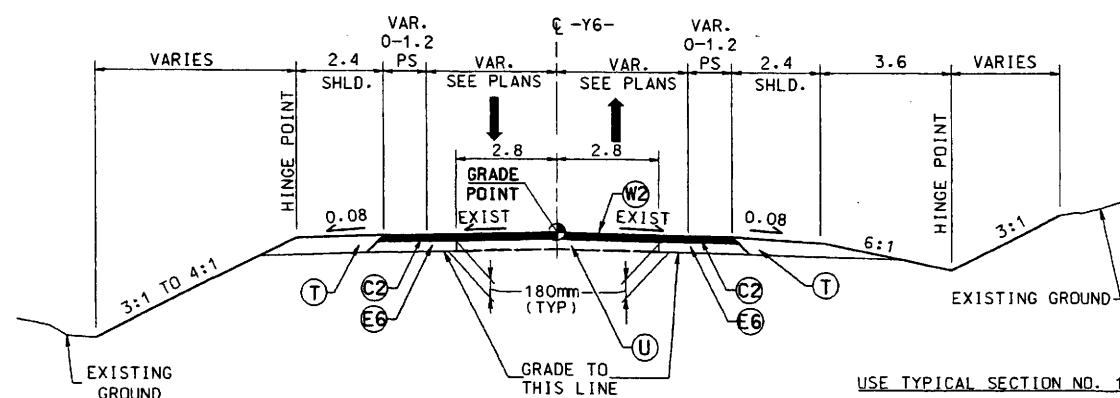
NOTE:
 USE ALL ASPHALT DESIGN FOR AREAS OF WIDENING LESS THAN 1.8m IN WIDTH.

TYPICAL SECTION NO. 10
 DELETED



TYPICAL SECTION NO. 12
 -DR1- DRIVEWAY

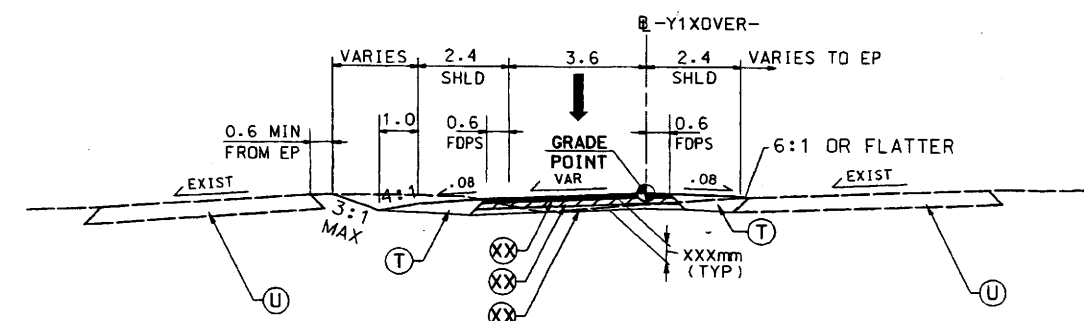
USE TYPICAL SECTION NO. 12 AS FOLLOWS:
 -DR1- STA. 5+01.600 TO STA. 17+05.963



TYPICAL SECTION NO. 11
 -Y6- SR 1330

USE TYPICAL SECTION NO. 11 AS FOLLOWS:
 -Y6- STA. 10+20.000 TO STA. 10+53.173

NOTE:
 SEE WEDGING DETAIL 2 ON SHEET 2.



TYPICAL SECTION NO. 13
 -Y1XOVER- US 17 CROSS-OVER DETOUR
 PAVEMENT DESIGN PENDING

USE TYPICAL SECTION NO. 13 AS FOLLOWS:
 -Y1XOVER- STA. 10+00.000 TO 13+37.247

8/17/99

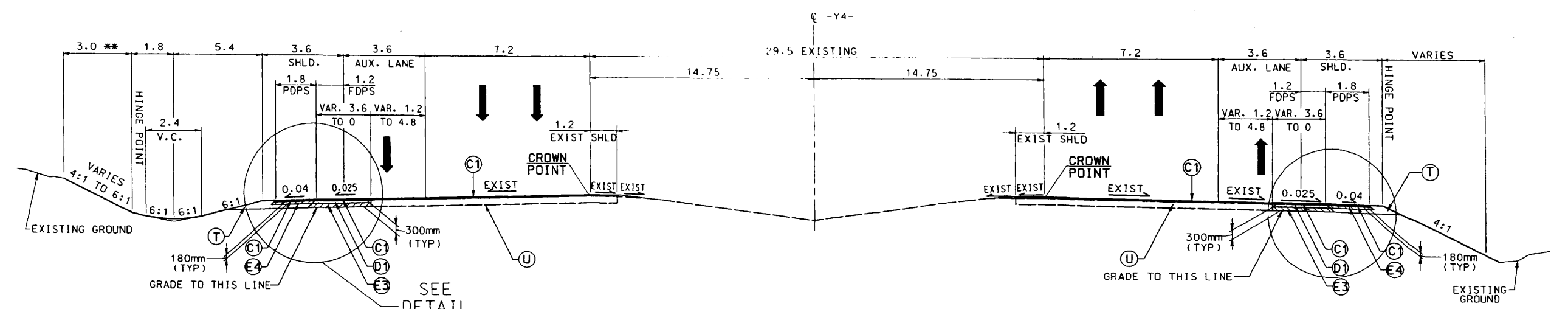
PAVEMENT SCHEDULE	
CODE	DESCRIPTION
C1	80mm S9.5C
C2	80mm S9.5B
C3	VAR. S9.5C
C4	VAR. S9.5B
D1	100mm I19.0C
D2	70mm I19.0C
D3	100mm I19.0B
D4	65mm I19.0B
D5	VAR. I19.0C
E1	160mm B25.0C
E2	140mm B25.0C
E3	120mm B25.0C
E4	100mm B25.0C
E5	75mm B25.0C
E6	100mm B25.0B
E7	VAR. B25.0C
E8	VAR. B25.0B
J1	250mm ABC
J2	200mm ABC
J3	150mm ABC
J4	VAR. ABC
R1	CONC ISLAND (125mm)
R2	CONC C & G (750mm)
T	EARTH MATERIAL
U	EXIST PAVEMENT
W1	WEDGING DETAIL 1
W2	WEDGING DETAIL 2

NOTES:
TYPICAL SECTIONS SHOWN ARE FOR TANGENT SECTIONS ONLY. SEE PLANS AND STANDARD DRAWINGS FOR SUPERELEVATION DETAILS AND LANE ADDITIONS/WIDENING AT INTERSECTIONS.
MAXIMUM ROLLOVER = 0.06.
ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.
FOR PAVEMENT SCHEDULE WITH APPLICATION RATES SEE SHEET 2.
ALL SUBGRADE SLOPES PARALLEL TO PAVEMENT SURFACE SLOPES
FDPS - FULL DEPTH PAVED SHOULDER
PDPS - PARTIAL DEPTH PAVED SHOULDER
* ADD 1.0 WITH GUARDRAIL
** WHEN THESE DISTANCES INDICATE SLOPES OUTSIDE THE LIMITS SHOWN, THE DISTANCE BECOMES VARIABLE AND THE MAXIMUM SLOPE MAINTAINED. SEE CROSS SECTIONS.

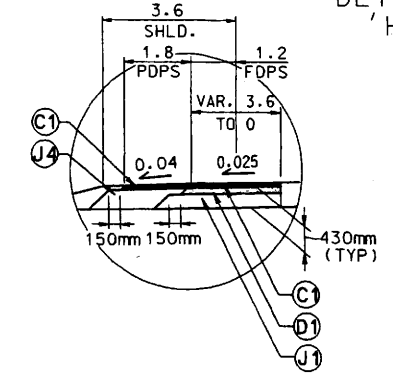
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NOT TO SCALE

PROJECT REFERENCE NO.		SHEET NO.	
R-2301A		2-F	
R/W SHEET NO.		2-F	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			

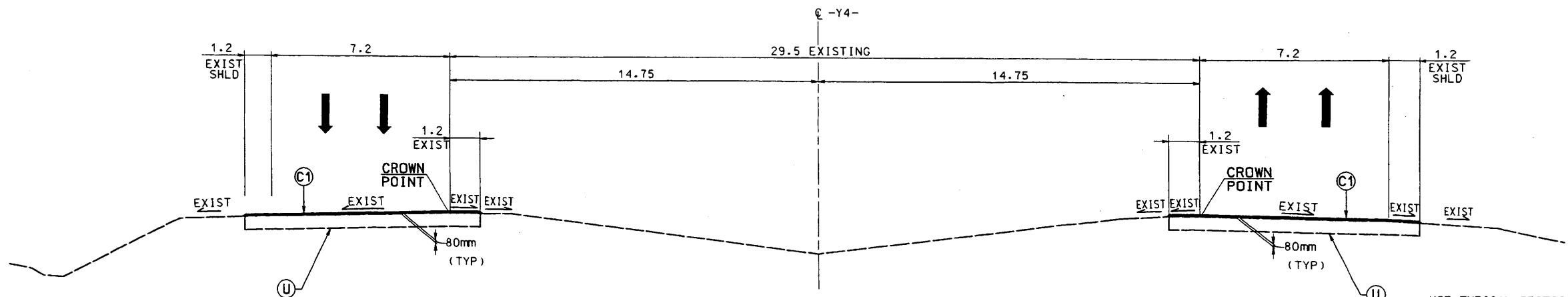


TYPICAL SECTION NO. 14
-Y4- US 70



ALTERNATE 2 PAVEMENT
DESIGN DETAIL 'H'
NOTE:
USE ASPHALT PAVEMENT DESIGN ABOVE FOR
AREAS OF WIDENING LESS THAN 1.8m IN WIDTH.

USE TYPICAL SECTION NO. 14 AS FOLLOWS:
-Y4- STA. 3+99.427 TO STA. 8+46.976 WBL
-Y4- STA. 5+69.220 TO STA. 8+32.601 EBL
-Y4- STA. 12+92.748 TO STA. 14+27.048 WBL
-Y4- STA. 13+08.571 TO STA. 14+42.870 EBL
-Y4- STA. 19+09.786 TO STA. 21+79.786 EBL
-Y4- STA. 20+00.000 TO STA. 20+50.393 WBL



TYPICAL SECTION NO. 15
-Y4- US 70

USE TYPICAL SECTION NO. 15 AS FOLLOWS:
-Y4- STA. 8+46.976 TO STA. 12+92.748 WBL
-Y4- STA. 8+32.601 TO STA. 13+08.571 EBL
-Y4- STA. 14+27.048 TO STA. 19+09.786 EBL
-Y4- STA. 14+42.870 TO STA. 20+00.000 WBL

8/27/08

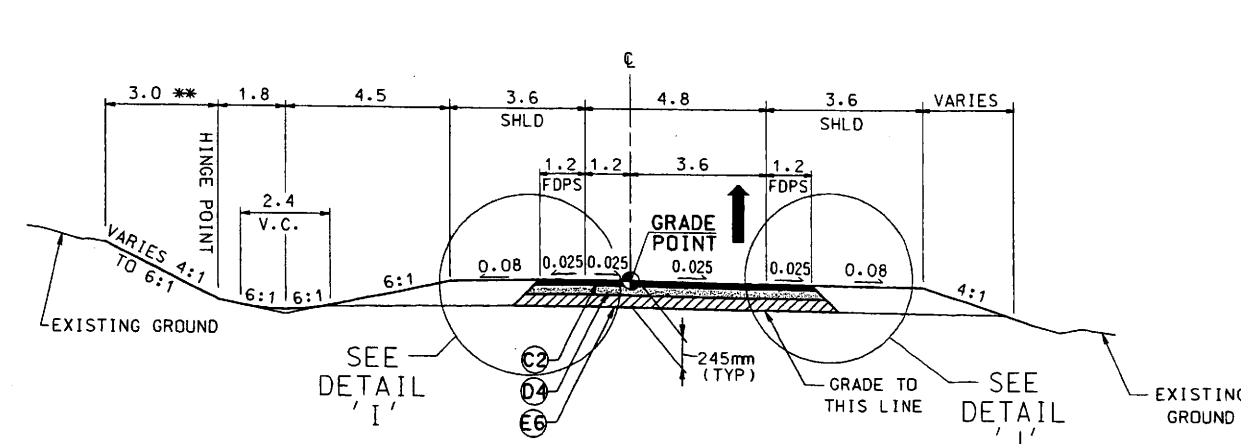
PAVEMENT SCHEDULE	
CODE	DESCRIPTION
C1	80mm S9.5C
C2	80mm S9.5B
C3	VAR. S9.5C
C4	VAR. S9.5B
D1	100mm I19.0C
D2	70mm I19.0C
D3	100mm I19.0B
D4	65mm I19.0B
D5	VAR. I19.0C
E1	160mm B25.0C
E2	140mm B25.0C
E3	120mm B25.0C
E4	100mm B25.0C
E5	75mm B25.0C
E6	100mm B25.0B
E7	VAR. B25.0C
E8	VAR. B25.0B
J1	250mm ABC
J2	200mm ABC
J3	150mm ABC
J4	VAR. ABC
R1	CONC ISLAND (125mm)
R2	CONC C & G (750mm)
T	EARTH MATERIAL
U	EXIST PAVEMENT
W1	WEDGING DETAIL 1
W2	WEDGING DETAIL 2

NOTES:
 TYPICAL SECTIONS SHOWN ARE FOR TANGENT SECTIONS ONLY. SEE PLANS AND STANDARD DRAWINGS FOR SUPERELEVATION DETAILS AND LANE ADDITIONS/WIDENING AT INTERSECTIONS.
 MAXIMUM ROLLOVER = 0.06.
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 FOR PAVEMENT SCHEDULE WITH APPLICATION RATES SEE SHEET 2.
 ALL SUBGRADE SLOPES PARALLEL TO PAVEMENT SURFACE SLOPES
 FDPS - FULL DEPTH PAVED SHOULDER
 PDPS - PARTIAL DEPTH PAVED SHOULDER
 * ADD 1.0 WITH GUARDRAIL
 ** WHEN THESE DISTANCES INDICATE SLOPES OUTSIDE THE LIMITS SHOWN, THE DISTANCE BECOMES VARIABLE AND THE MAXIMUM SLOPE MAINTAINED. SEE CROSS SECTIONS.

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METRIC
 NOT TO SCALE

PROJECT REFERENCE NO. R-2301A	SHEET NO. 2-6
R/W SHEET NO. 2-6	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

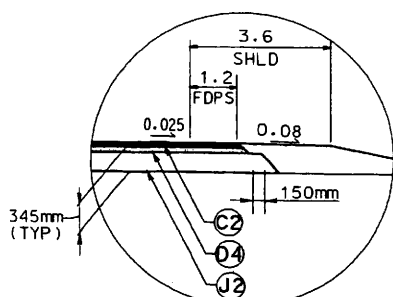


TYPICAL SECTION NO. 16

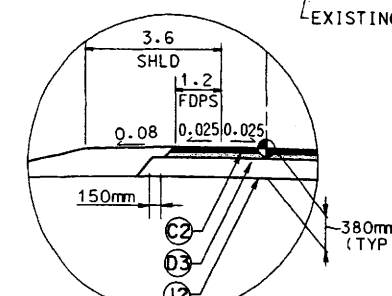
- RPA- RAMP A
- RPB- RAMP B
- RPC- RAMP C
- RPD- RAMP D

USE TYPICAL SECTION NO. 16 AS FOLLOWS:
 -RPA- STA. 6+95.000 TO STA. 8+07.566
 -RPB- STA. 0+00.000 TO STA. 8+49.861 (OPPOSITE HAND)
 -RPC- STA. 0+00.000 TO STA. 9+23.560
 -RPD- STA. 7+80.000 TO STA. 9+46.925 (OPPOSITE HAND)

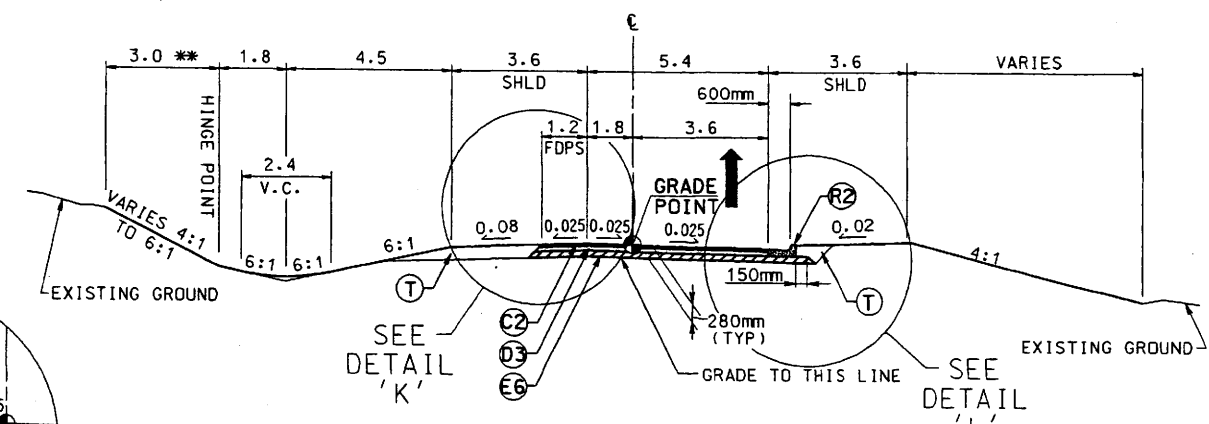
ALTERNATE 2 PAVEMENT DESIGN DETAIL 'I'



ALTERNATE 2 PAVEMENT DESIGN DETAIL 'J'



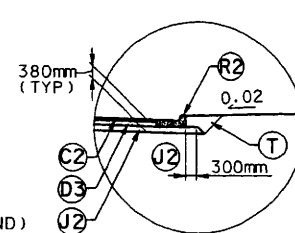
ALTERNATE 2 PAVEMENT DESIGN DETAIL 'K'



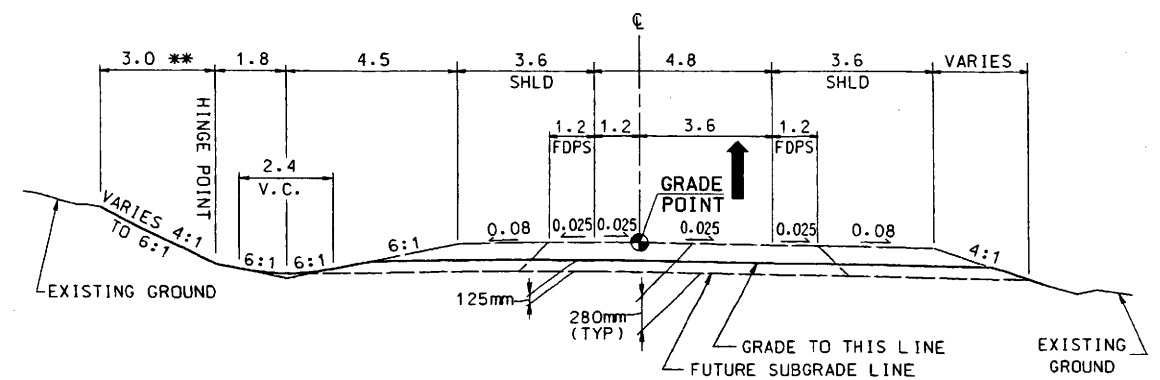
TYPICAL SECTION NO. 17

- LPA- LOOP A
- LPB- LOOP B
- LPC- LOOP C
- LPD- LOOP D

USE TYPICAL SECTION NO. 17 AS FOLLOWS:
 -LPA- STA. 0+00.000 TO STA. 5+21.277 (OPPOSITE HAND)
 -LPB- STA. 0+00.000 TO STA. 1+08.939
 -LPC- STA. 4+40.000 TO STA. 5+33.569
 -LPD- STA. 0+00.000 TO STA. 0+90.000 (OPPOSITE HAND)
 -LPC- STA. 4+17.429 TO STA. 5+21.277 (OPPOSITE HAND)
 -LPD- STA. 0+00.000 TO STA. 5+33.569



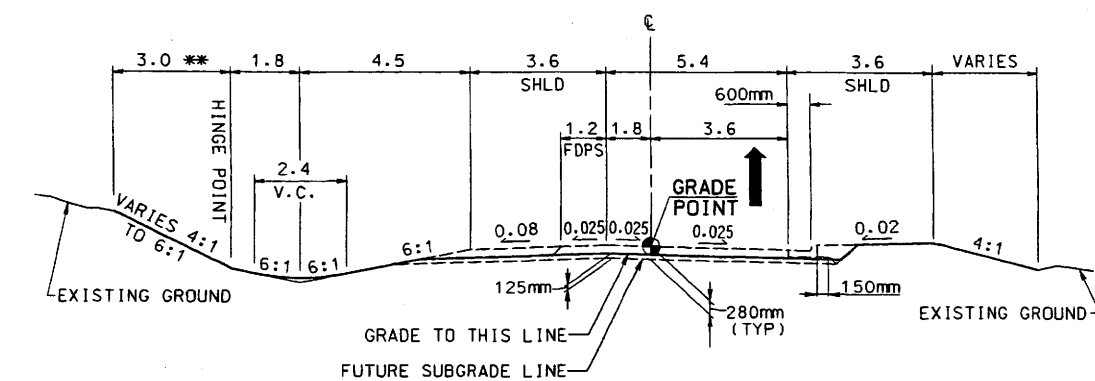
ALTERNATE 2 PAVEMENT DESIGN DETAIL 'L'



TYPICAL SECTION NO. 18

- RPA- RAMP A
- RPD- RAMP D (GRADING ONLY)

USE TYPICAL SECTION NO. 18 AS FOLLOWS:
 -RPA- STA. 0+00.000 TO STA. 6+95.000
 -RPD- STA. 0+00.000 TO STA. 7+80.000

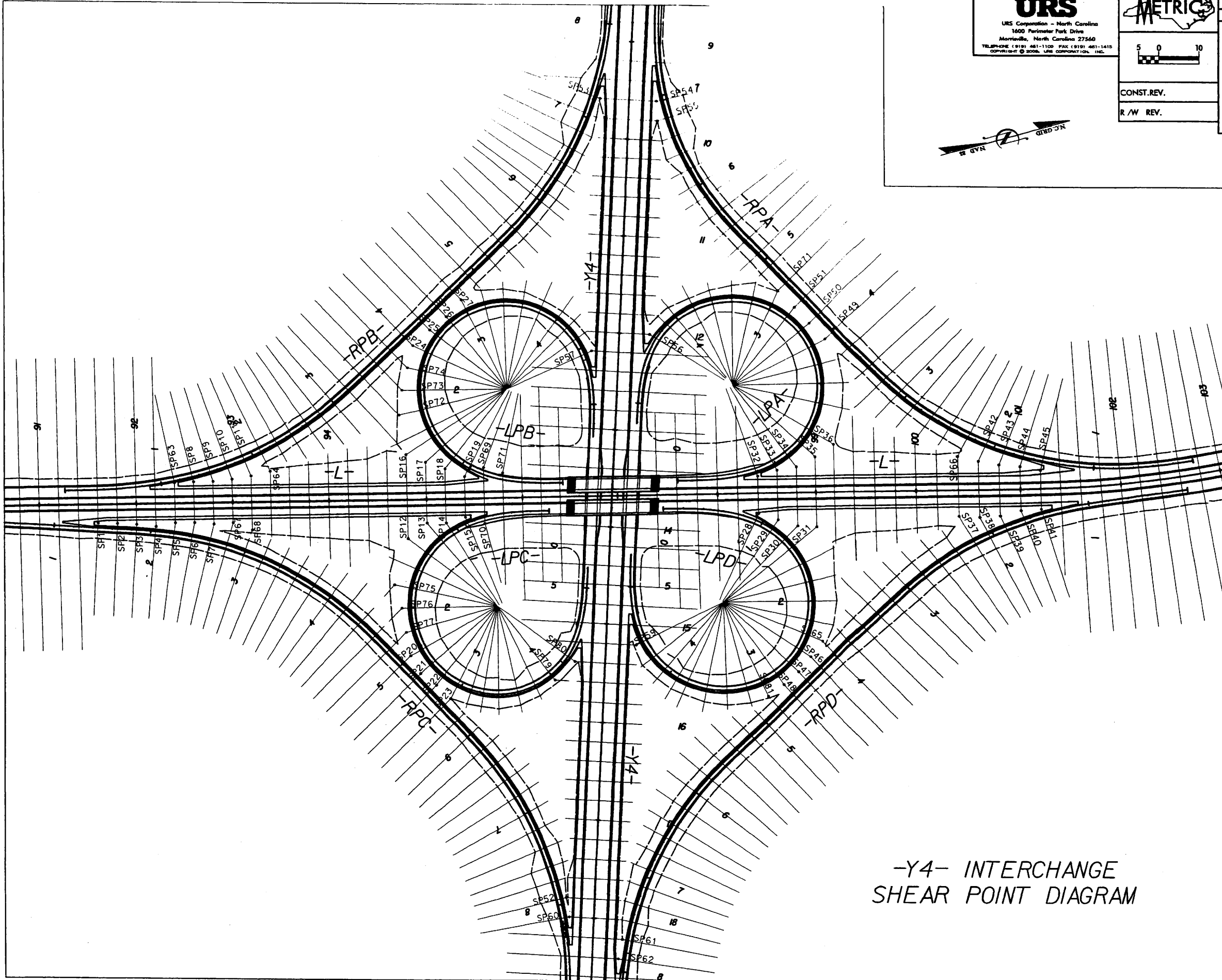


TYPICAL SECTION NO. 19

- LPB- LOOP B
- LPC- LOOP C (GRADING ONLY)

USE TYPICAL SECTION NO. 19 AS FOLLOWS:
 -LPB- STA. 1+08.939 TO STA. 4+40.000
 -LPC- STA. 0+90.000 TO STA. 4+17.429 (OPPOSITE HAND)

REVISIONS



-Y4- INTERCHANGE
SHEAR POINT DIAGRAM

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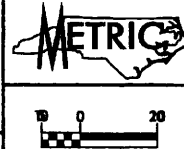
PROJECT REFERENCE NO. R-2301A	SHEET NO. 2-H
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
CONST. REV.	
R/W REV.	

8/17/98

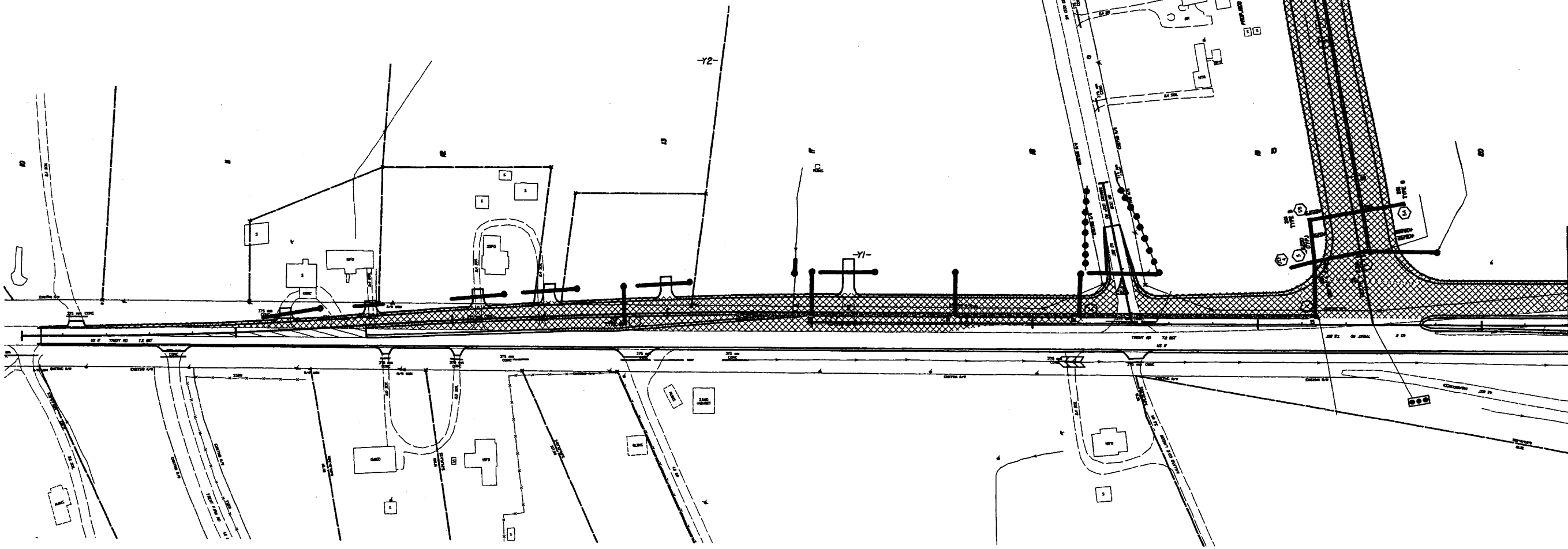
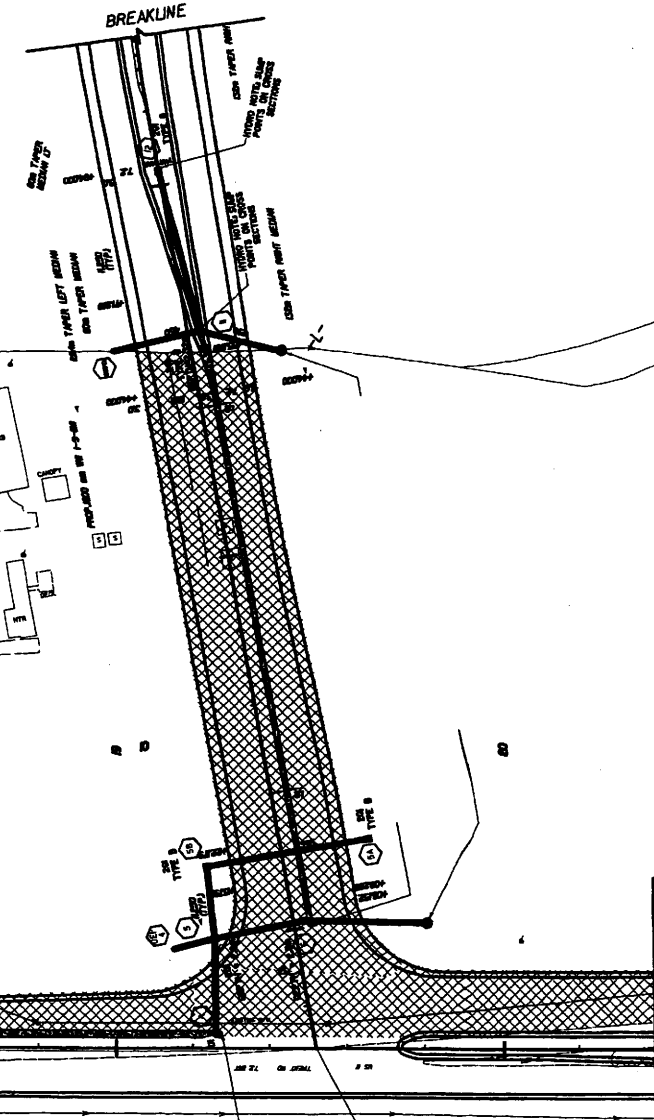
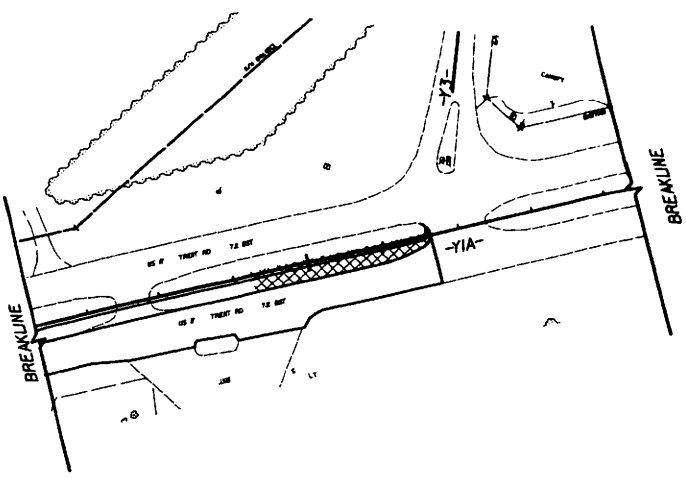
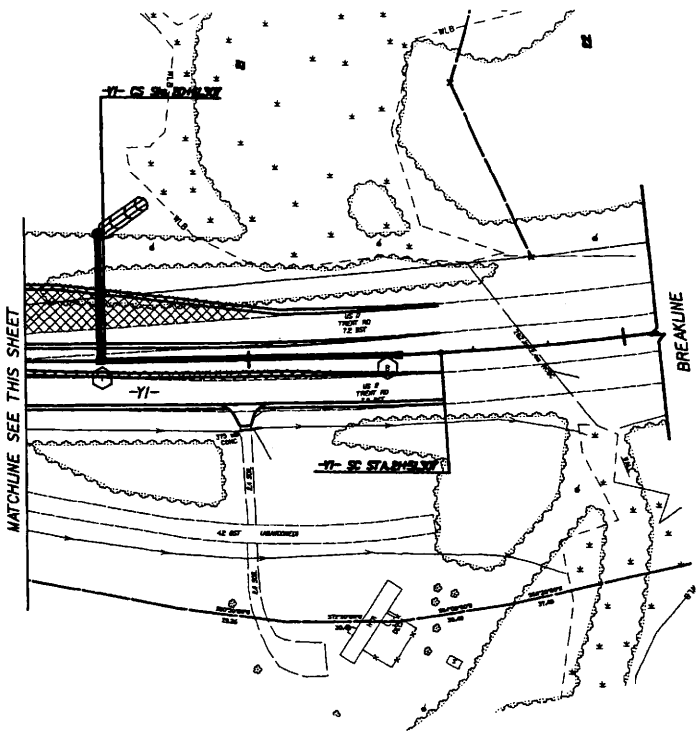
UNDERCUT LOCATIONS



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Morrisville, North Carolina 27560
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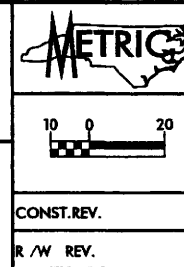
PROJECT REFERENCE NO.	SHEET NO.
R-2301A	2-1
R/W SHEET NO.	2-1
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
CONST. REV.	
R/W REV.	



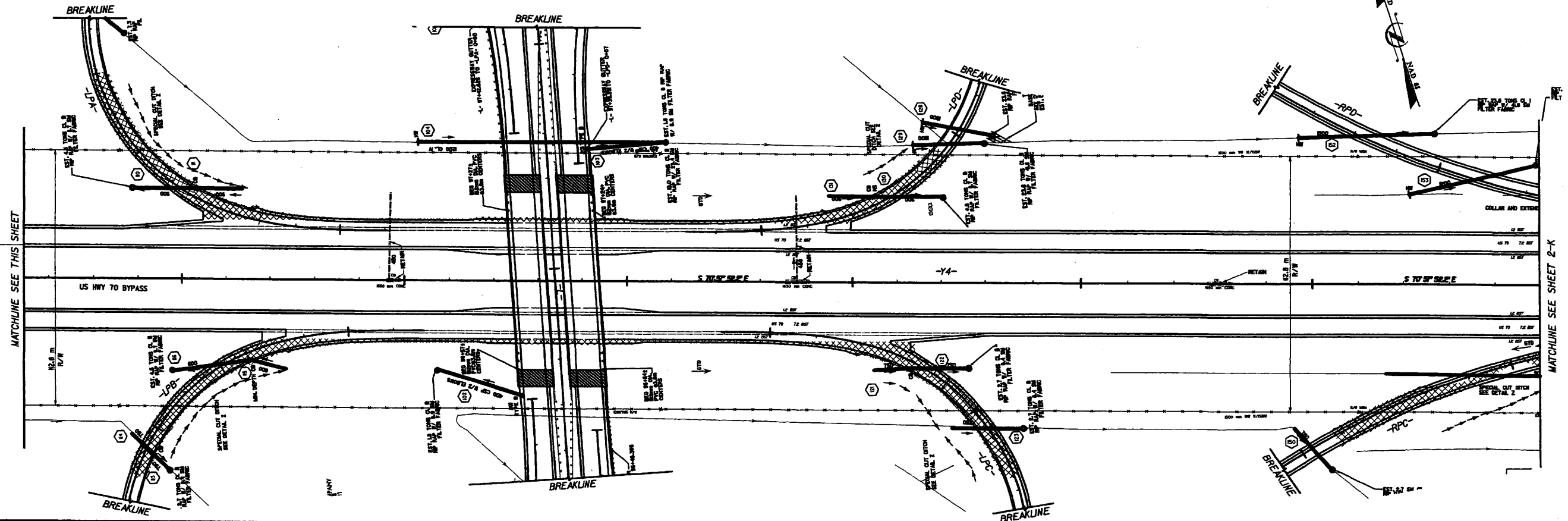
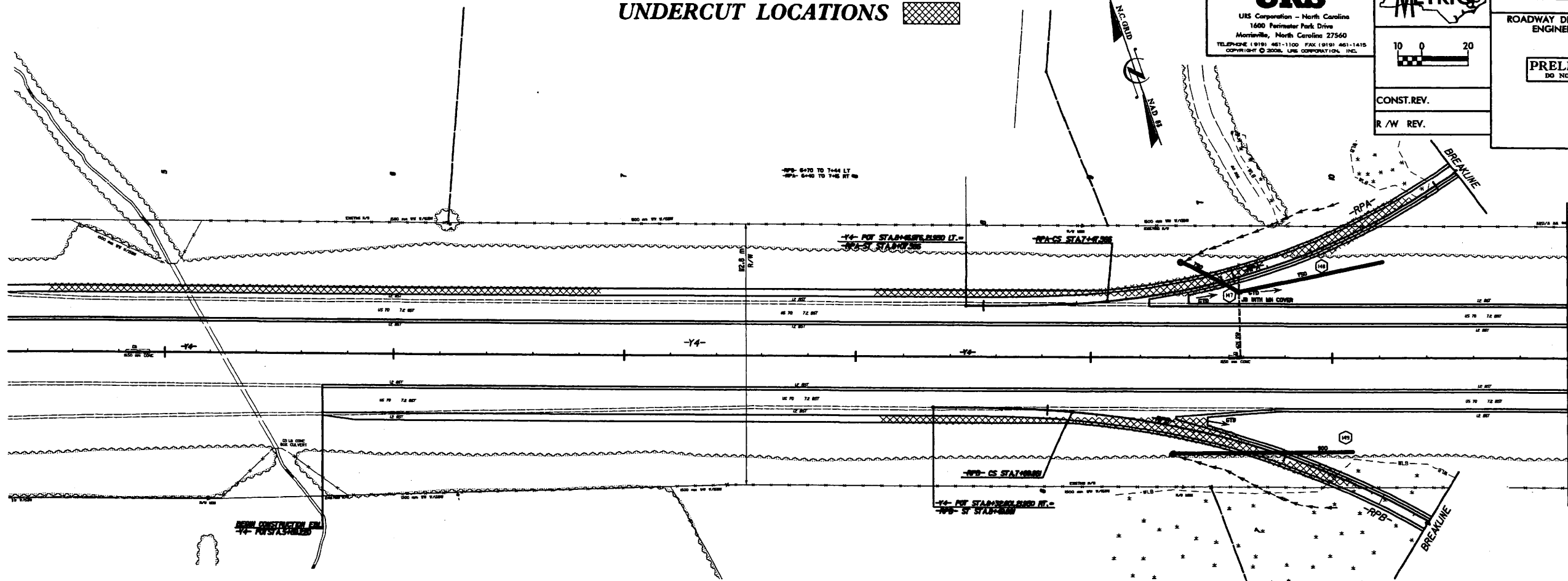
REVISIONS

UNDERCUT LOCATIONS

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PROJECT REFERENCE NO. R-2301A	SHEET NO. 2-J
R/W SHEET NO. 2-J	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

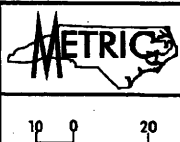


REVISIONS

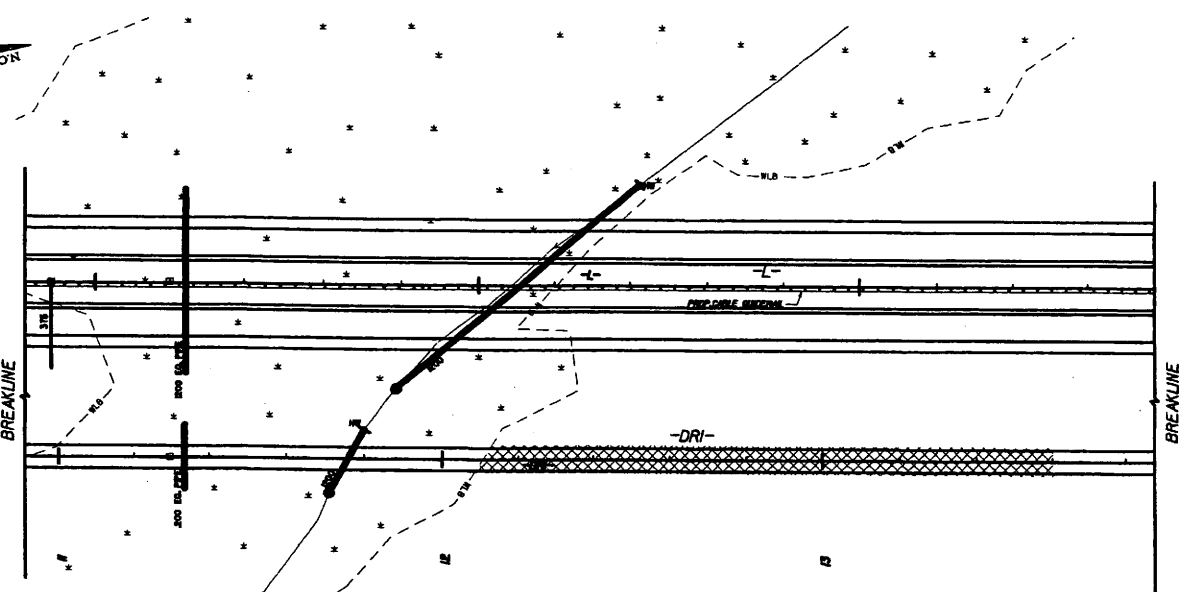
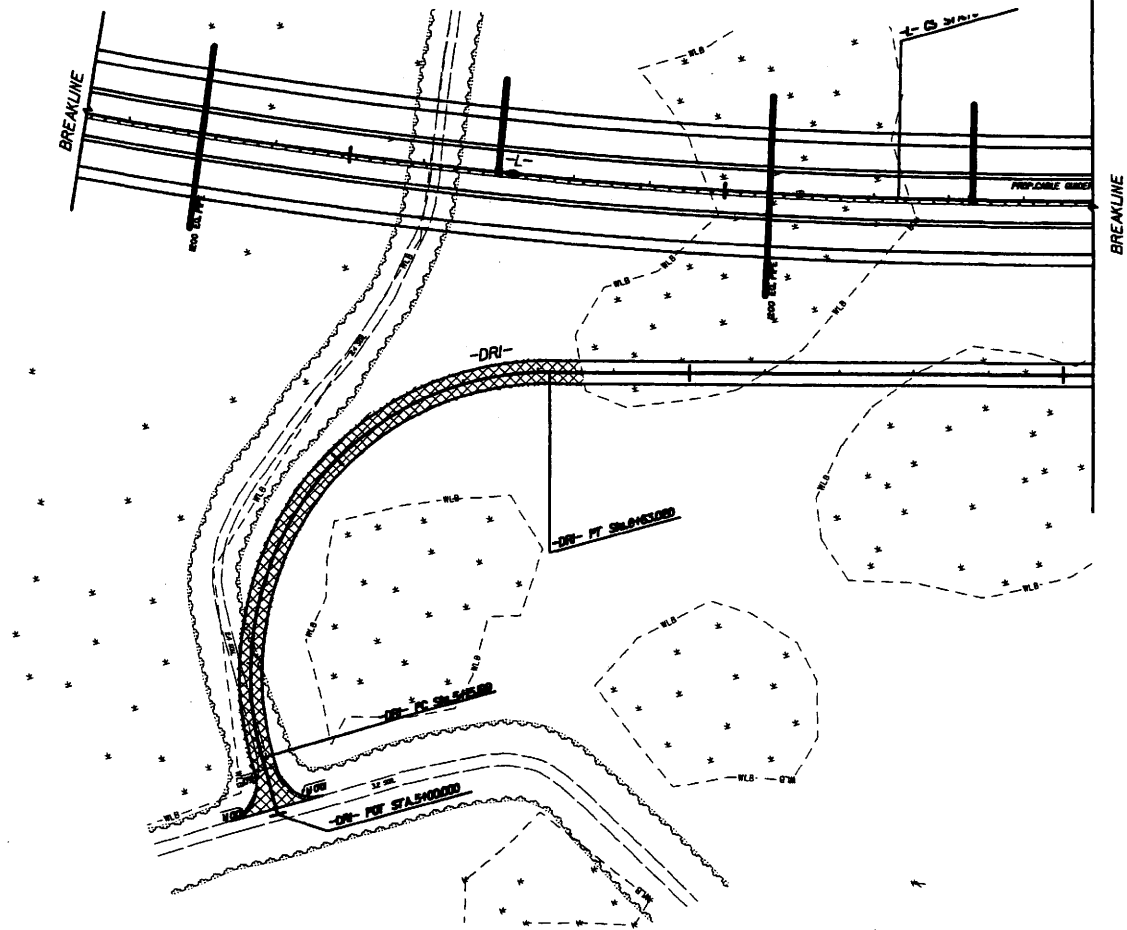
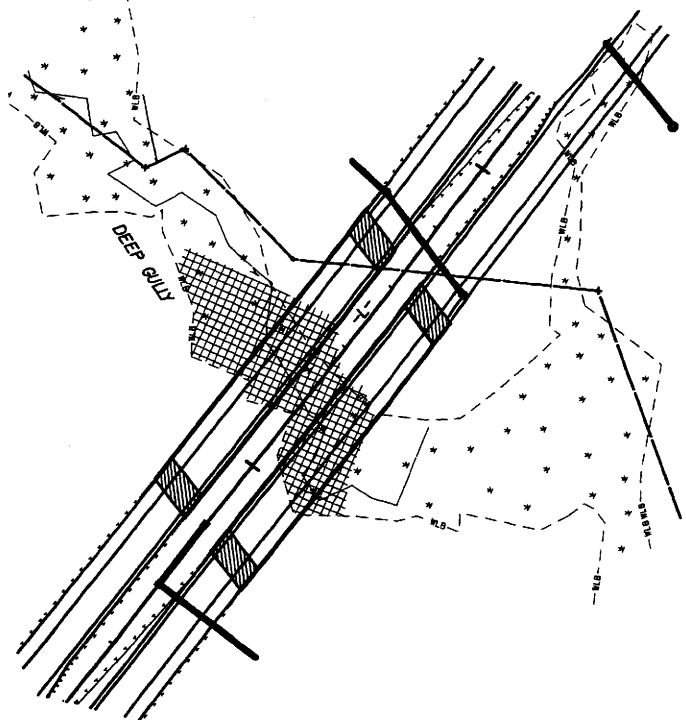
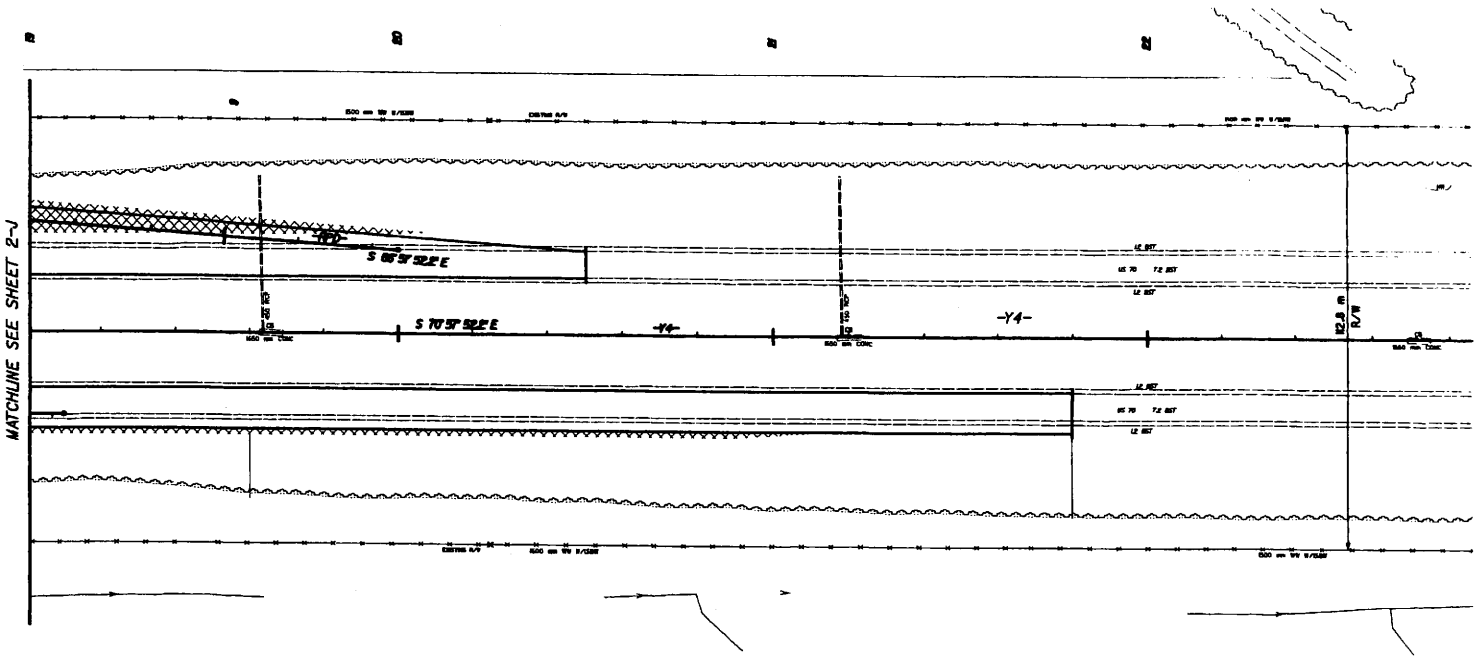
UNDERCUT LOCATIONS



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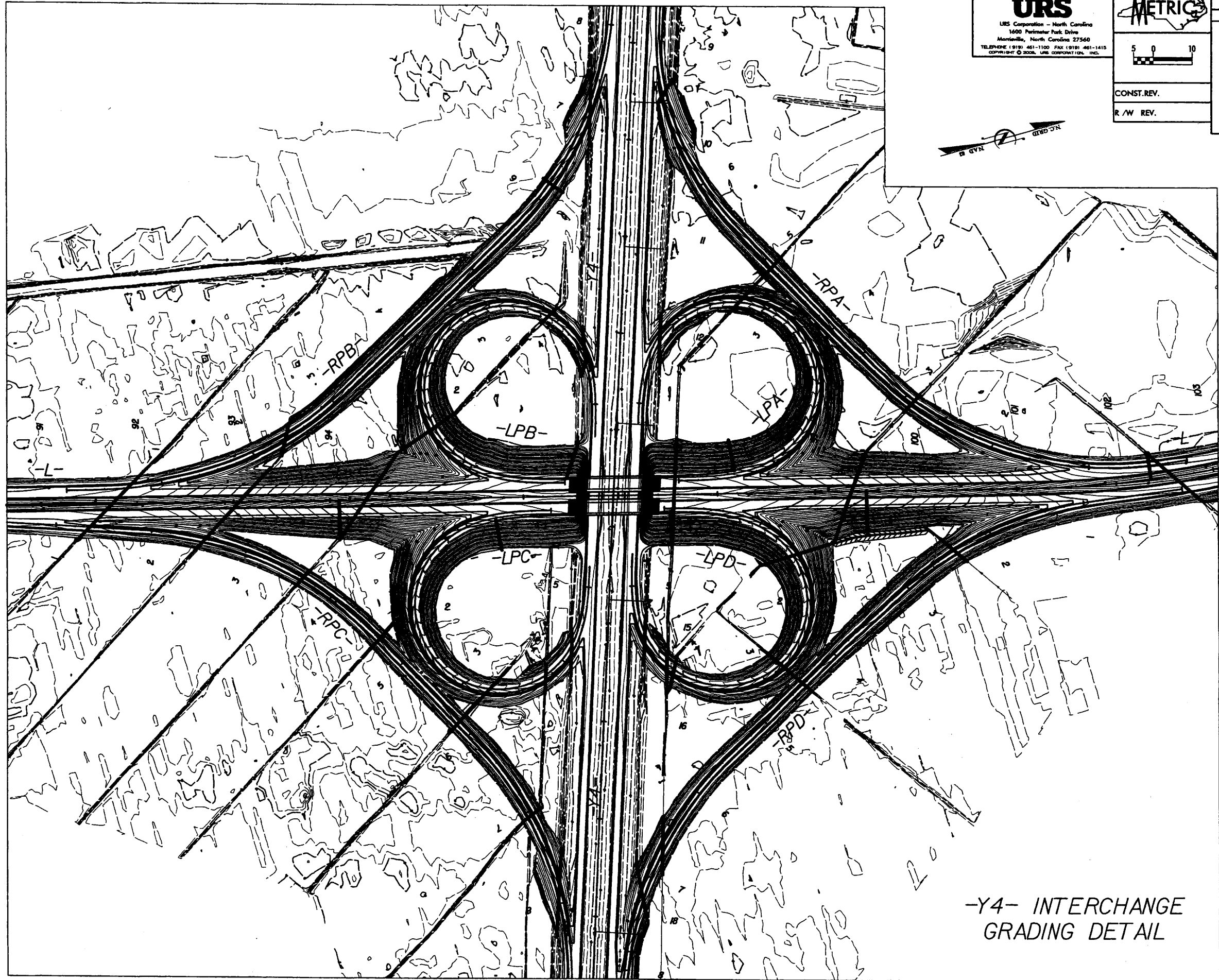
PROJECT REFERENCE NO. R-2301A	SHEET NO. 2-K
R/W SHEET NO. 2-K	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
CONST.REV.	
R/W REV.	



REVISIONS

8/17/98

REVISIONS



-Y4- INTERCHANGE
GRADING DETAIL

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METRIC

5 0 10

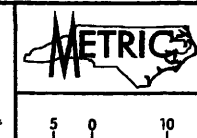
CONST. REV.

R/W REV.

PROJECT REFERENCE NO. R-2301A	SHEET NO. 2-L
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

NOTE: FOR -YIXOVER- PROFILE SEE SHEET 73.

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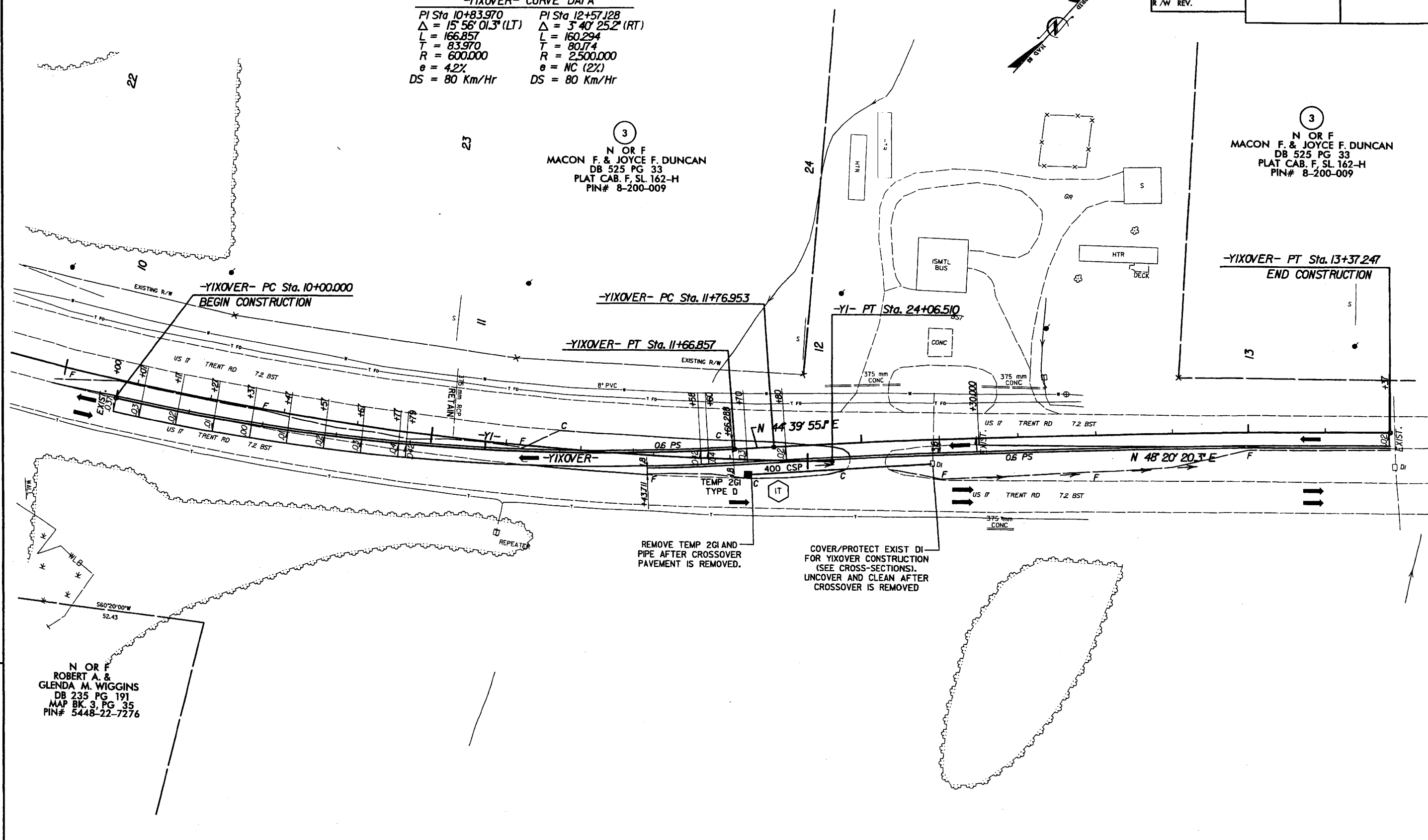


PROJECT REFERENCE NO. R-2301A	SHEET NO. 2-M
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
CONST. REV.	
R/W REV.	

-YIXOVER- CURVE DATA	
PI Sta 10+83.970	PI Sta 12+57.28
$\Delta = 15^\circ 56' 01.3''$ (LT)	$\Delta = 3^\circ 40' 25.2''$ (RT)
L = 166.857	L = 160.294
T = 83.970	T = 80.774
R = 600.000	R = 2,500.000
e = 4.2%	e = NC (2%)
DS = 80 Km/Hr	DS = 80 Km/Hr

3
N OR F
MACON F. & JOYCE F. DUNCAN
DB 525 PG 33
PLAT CAB. F. SL 162-H
PIN# 8-200-009

3
N OR F
MACON F. & JOYCE F. DUNCAN
DB 525 PG 33
PLAT CAB. F. SL 162-H
PIN# 8-200-009



REVISIONS

N OR F
ROBERT A. &
GLENDA M. WIGGINS
DB 235 PG 191
MAP BK. 3, PG 35
PIN# 5448-22-7276

REMOVE TEMP 2GI AND
PIPE AFTER CROSSOVER
PAVEMENT IS REMOVED.

COVER/PROTECT EXIST DI
FOR YIXOVER CONSTRUCTION
(SEE CROSS-SECTIONS).
UNCOVER AND CLEAN AFTER
CROSSOVER IS REMOVED

8/17/99

REVISIONS

COMPUTED BY: JAK DATE: 02/22/08
CHECKED BY: MDL DATE: 02/22/08

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
SUMMARY OF EARTHWORK
IN CUBIC METERS

Prepared by
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1400 Renaissance Park Drive
Merrillville, North Carolina 27560
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PROJECT REFERENCE NO. R-2301A
SHEET NO. 3-A

EARTHWORK TOTALS FOR ALTERNATE 2 PAVEMENT DESIGN

STATION TO STATION	UNCL. EXCAVATION	UNDERCUT	EMBANKMENT + %	BORROW	WASTE
SUMMARY #1					
-Y1XOVER STA 10+00.000 TO 13+37.307	2843	0	299	0	2344
-Y1- STA 16+97.996 TO 21+51.307	4722	3275	9755	9283	7525
-Y1LT- STA 10+20.000 TO 13+64.625	10350	5356	20403	19371	14674
-Y6- STA 10+20.000 TO 10+53.173	39	0	70	66	35
TOTAL SUMMARY #1	17754	8631	30527	28720	24578
SUMMARY #2					
-L- STA 10+00.000 TO 17+84.000 (BEG BRG)	3842	4552	208365	207597	7626
TOTAL SUMMARY #2	3842	4552	208365	207597	7626
SUMMARY #3					
-L- STA 18+60.000 (END BRG) TO 29+84.110 (BEG BRG)	0	0	184984	184984	0
TOTAL SUMMARY #3	0	0	184984	184984	0
SUMMARY #4					
-L- STA 30+24.956 (END BRG) TO 40+20.000	0	0	203261	203261	0
-Y1A- STA 5+68.342 TO 7+32.342	145	207	266	121	207
TOTAL SUMMARY #4	145	207	203527	203382	207
SUMMARY #5					
-L- STA 40+20.000 TO 50+20.000	0	0	91879	91879	0
TOTAL SUMMARY #5	0	0	91879	91879	0
SUMMARY #6					
-L- STA 50+20.000 TO 60+20.000	0	0	80559	80559	0
TOTAL SUMMARY #6	0	0	80559	80559	0
SUMMARY #7					
-L- STA 60+20.000 TO 70+20.000	0	0	115033	115033	0
TOTAL SUMMARY #7	0	0	115033	115033	0
SUMMARY #8					
-L- STA 70+20.000 TO 80+20.000	0	0	90131	90131	0
-DR1- STA 5+06.100 TO 17+00.633	298	1388	17798	17727	1615
TOTAL SUMMARY #8	298	1388	107929	107658	1615
SUMMARY #9					
-L- STA 80+20.000 TO 90+20.000	0	0	69569	69569	0
TOTAL SUMMARY #9	0	0	69569	69569	0
SUMMARY #10					
-L- STA 90+20.000 TO 96+53.516 (BEG BRG)	0	0	195410	195410	0
-LPB- STA 0+00.000 TO 4+47.000	179	318	48621	42472	348
-RPB- STA 0+00.000 TO 4+30.000	634	167	20830	20640	611
-LPC- STA 0+00.000 TO 4+26.000	307	226	43388	43150	295
-RPC- STA 0+00.000 TO 8+14.265	360	133	17828	17486	151
TOTAL SUMMARY #10	1480	844	320077	319158	1405
SUMMARY #11					
-L- STA 97+34.836 (END BRG) TO 104+97.876	0	0	210544	210544	0
-LPA- STA 0+00.000 TO 4+30.000	466	355	44978	44746	589
-RPA- STA 0+00.000 TO 6+35.263	604	201	18350	18196	651
-LPD- STA 0+00.000 TO 4+61.000	256	118	48545	48308	137
-RPD- STA 0+00.000 TO 7+87.180	97	0	29978	29896	15
-Y4- STA 3+98.427 TO 14+00.000	2059	2346	3943	1989	2451
TOTAL SUMMARY #11	3482	3020	356338	353679	3843
SUMMARY #12					
-Y4- STA 14+00.000 TO 21+79.783	1451	2040	3828	2445	2108
TOTAL SUMMARY #12	1451	2040	3828	2445	2108
SUMMARY #13					
REMOVE -Y1XOVER-TEMP US 17 DETOUR	239	0	3304	3065	0
TOTAL SUMMARY #13	239	0	3304	3065	0
SUBTOTAL (SUMMARIES 1-13)	28691	26682	1775919	1767928	41382
LOSS DUE TO CLEARING & GRUBBING	-100			100	
UNDERCUT (CONTINGENCY + GRADE FT)		2500	3125	3125	2500
SHOULDER CONSTRUCTION			48488	48488	
SUITABLE WASTE TO REPLACE BORROW			-2344	-2344	
PROJECT TOTAL	28591	23182	1827532	1817297	41538
EST. 5% FOR REPLACING TOPSOIL ON BORROW PIT				90865	
GRAND TOTAL	28591	23182	1827532	1908162	41538
SAY	28,600	23,200	1,827,550	1,908,200	41,550

EARTHWORK TOTALS FOR ALTERNATE 1 PAVEMENT DESIGN

SUBTOTAL (SUMMARIES 1-13)	28691	26682	1775919	1767928	41382
ADJ. FOR ALT 1 PAVEMENT DESIGN	-1926		51252	53178	
LOSS DUE TO CLEARING & GRUBBING	-100			100	
UNDERCUT (CONTINGENCY + GRADE FT)		2500	3125	3125	2500
SHOULDER CONSTRUCTION			77825	77825	
SUITABLE WASTE TO REPLACE BORROW			-2344	-2344	
PROJECT TOTAL	28665	23182	1908121	1898112	41538
EST. 5% FOR REPLACING TOPSOIL ON BORROW PIT				94991	
GRAND TOTAL	28665	23182	1908121	1994803	41538
SAY	28700	23200	1,908,150	1,994,850	41,550

NOTE: Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

EST. DRAINAGE DITCH EXCAVATION - 1695 CUBIC METERS

DATE: JANUARY 31, 2008 REVISED -L- BYPASS ALIGNMENT ON NEW LOCATION BETWEEN STA. 9+68.416 AND 23+47.215 (9+68.416 TO 12+00 THIS SHEET)

25300	14700	
41700	25000	23300
		40300
US 17	US 17 BYPASS	
8600	ADT 2008	
15300	ADT 2028	
19200		
32000		

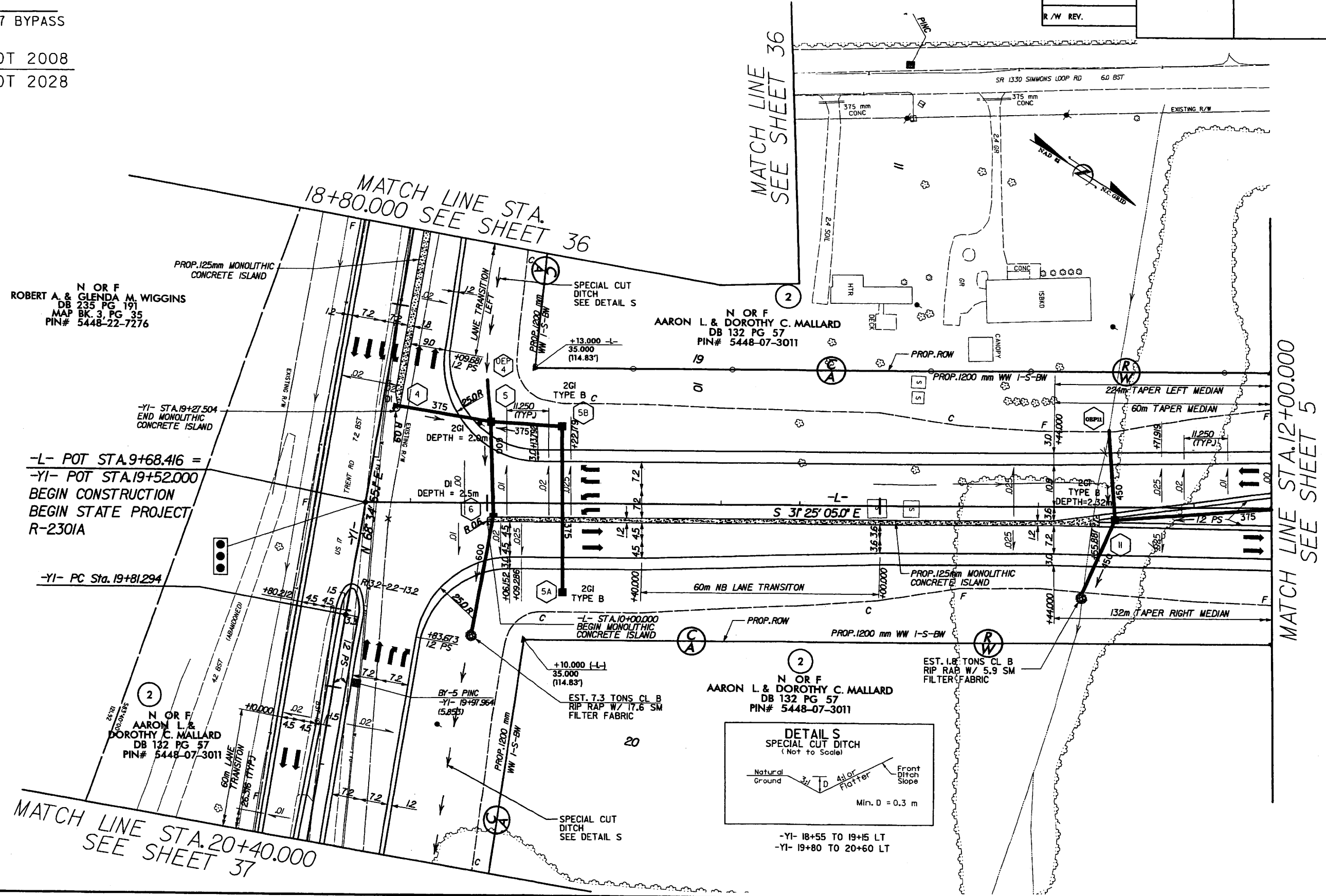
MONOLITHIC CONCRETE ISLAND
PROPOSED SIGNAL

NOTE: FOR -L- PROFILE SEE SHEET 43.
FOR -YI- PROFILE SEE SHEETS 70

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

PROJECT REFERENCE NO.	SHEET NO.
R-2301A	4
R/W SHEET NO.	4.37
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

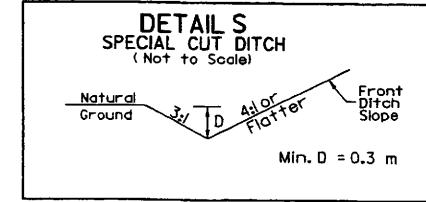


N OR F
ROBERT A. & GLENDA M. WIGGINS
DB 235 PG 191
MAP BK. 3, PG 35
PIN# 5448-22-7276

N OR F
AARON L. & DOROTHY C. MALLARD
DB 132 PG 57
PIN# 5448-07-3011

N OR F
AARON L. & DOROTHY C. MALLARD
DB 132 PG 57
PIN# 5448-07-3011

N OR F
AARON L. & DOROTHY C. MALLARD
DB 132 PG 57
PIN# 5448-07-3011



-YI- 18+55 TO 19+15 LT
-YI- 19+80 TO 20+60 LT

MATCH LINE STA. 12+00.000
SEE SHEET 5

PROJECT REFERENCE NO.	SHEET NO.
R-230/A	5
R / W SHEET NO. 4,5,6	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

CURVE DATA -L-
 Pls Sta 12+60.120
 $\Delta s = 8' 53'' 26.6''$
 $L_s = 90.000$
 $LT = 60.076$
 $ST = 30.069$
 Pls Sta 14+93.793
 $\Delta = 70' 10'' 56.7''$ (RT)
 $L = 355.225$
 $T = 203.749$
 $R = 290.000$
 $SE = 8.0\%$
 Pls Sta 16+75.338
 $\Delta s = 8' 53'' 26.6''$
 $L_s = 90.000$
 $LT = 60.076$
 $ST = 30.069$

N OR F
 AARON L & DOROTHY C. MALLARD
 DB 132 PG 57
 PIN# 5448-07-3011

EST. 1.8 TONS CL B
 RIP RAP W/ 5.9 SM
 FILTER FABRIC
 +50.000
 44.400
 (145.67')

+84.000
 50.000
 (164.04')

LATERAL V DITCH
 SEE DETAIL 'X'
 EST. 99 CM DDE

+34.000
 51.700
 (169.62')

10 YR STORM
 DITCH OUTFALL
 VEL. ≈ 0.6 m/s

+00.000
 44.000
 (144.36')

MATCH LINE STA. 12+00.00 SEE SHEET 4

MATCH LINE STA. 15+00.00 SEE SHEET 6

DETAIL B
 FALSE SUMP
 (Not to Scale)

DETAIL L
 PREFORMED SCOUR HOLE WITH LEVEL SPREADER APRON
 (Not to Scale)

DETAIL X
 LATERAL V DITCH
 (Not to Scale)

-L- 13+76 M
 -L- 12+77 M

-L- 12+80 RT

-L- 13+60 TO 14+40 LT

DETAIL L
PREFORMED SCOUR HOLE WITH LEVEL SPREADER APRON
 (Not to Scale)

PIPE OR DITCH OUTLET

PERMANENT SOIL REINFORCEMENT MATTING (PSRM)

INSTALL LEVEL AND FLUSH WITH NATURAL GROUND.

A

W

3.0m (min typ.)

SQUARE PREFORMED SCOUR HOLE (PSM)

SEED WITH NATIVE GRASSES AT INSTALLATION

(RIP RAP IN BASIN NOT SHOWN FOR CLARITY)

B = 1.5m
 D = 0.6m
 W = 1.3 - 3.0m
 d = 0.3m

Section A-A

FALL SLOPE

PIPE OR DITCH OUTLET

PSRM

NATURAL GROUND

2h

B' (0.3 min.)

d'

2A

0.3m TUCK

LINER: CLASS 1 RIP RAP
 0.45m THICK W/FILTER FABRIC

-L- I2+80 RT

DETAIL X
LATERAL V DITCH
 (Not to Scale)

Natural Ground

3:1

5:1

0.08m/m

b

D

Fill Slope

Min. D = 0.3 m
 b = 0.6 m

-L- 13+60 TO 14+40 LT

DETAILS
FALSE SUMP
(Not to Scale)

15m Min. 1.5m Max.

Median Ditch

20m 20m

S-Ditch Slope

Proposed Ditch

L-13+76 M
L-12+77 M

Section A-A

PIPE OR DITCH OUTLET

PSRM

NATURAL GROUND

FILL SLOPE

0.3m

TUCK

0.45m

THICK W/FILTER FABRIC

CLASS 1 RIP RAP

LINEAR

12+80 RT

DATE: JANUARY 31, 2008 REVISED -L- BYPASS ALIGNMENT ON NEW LOCATION BETWEEN STA. 9+68.416 AND 23+47.215 (12+00 TO 15+00 THIS SHEET)

DATE: JANUARY 31, 2008 REVISED -L- BYPASS ALIGNMENT ON NEW LOCATION BETWEEN STA 9+68.416 AND 23+47.215 (15+00 TO 18+00 THIS SHEET). DEEP GULLY NOW BRIDGED.

REVISIONS

CURVE DATA -L-

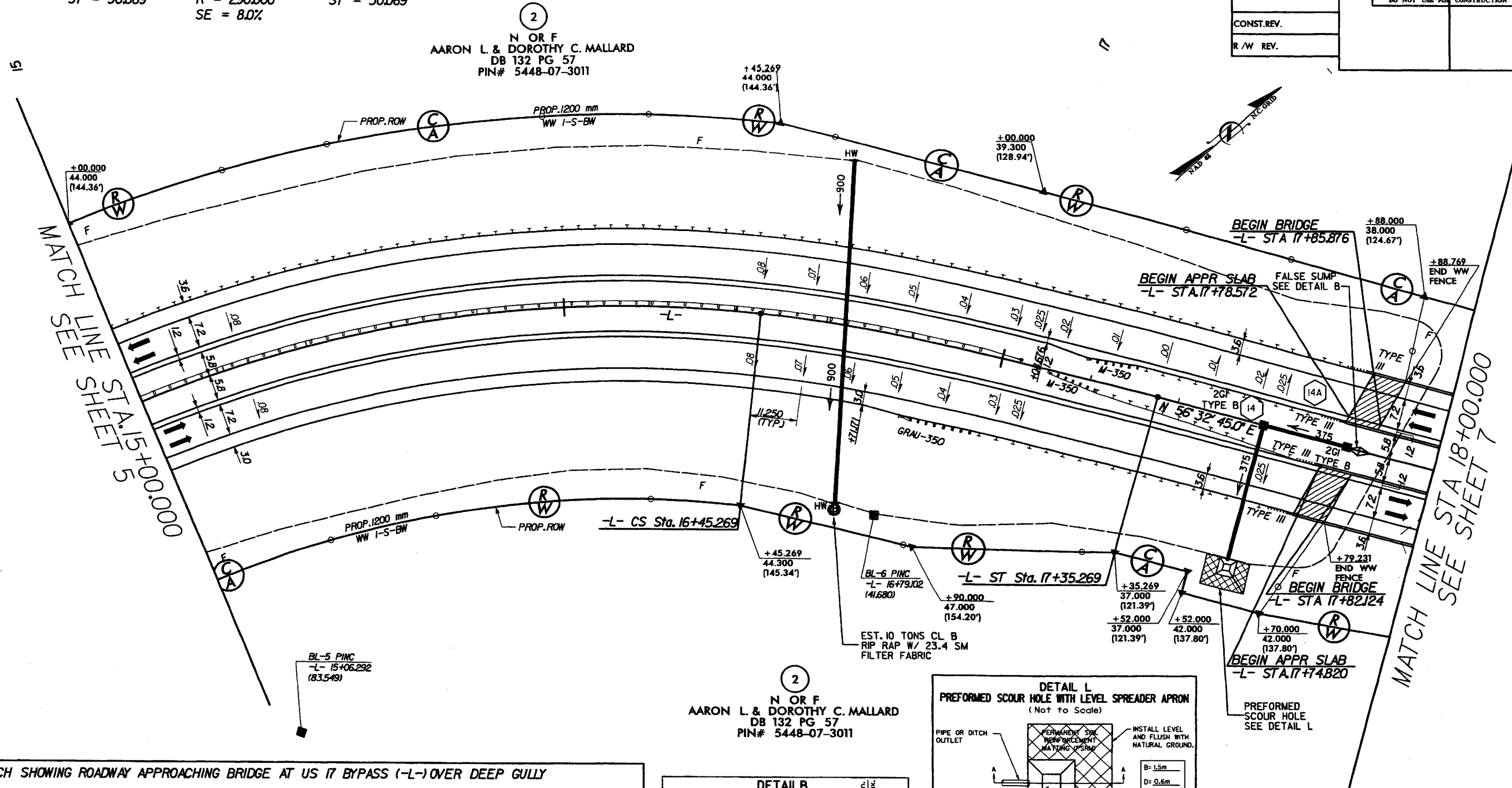
Pls Sta 12+60.120	Pls Sta 14+93.793	Pls Sta 16+75.338
$\theta_s = 8' 53'' 26.6''$	$\Delta = 70' 10'' 56.7''$ (RT)	$\theta_s = 8' 53'' 26.6''$
Ls = 90.000	L = 355.225	Ls = 90.000
LT = 60.076	T = 203.749	LT = 60.076
ST = 30.069	R = 290.000	ST = 30.069
	SE = 8.0%	

NOTE: FOR -L- PROFILE SEE SHEET 43-44

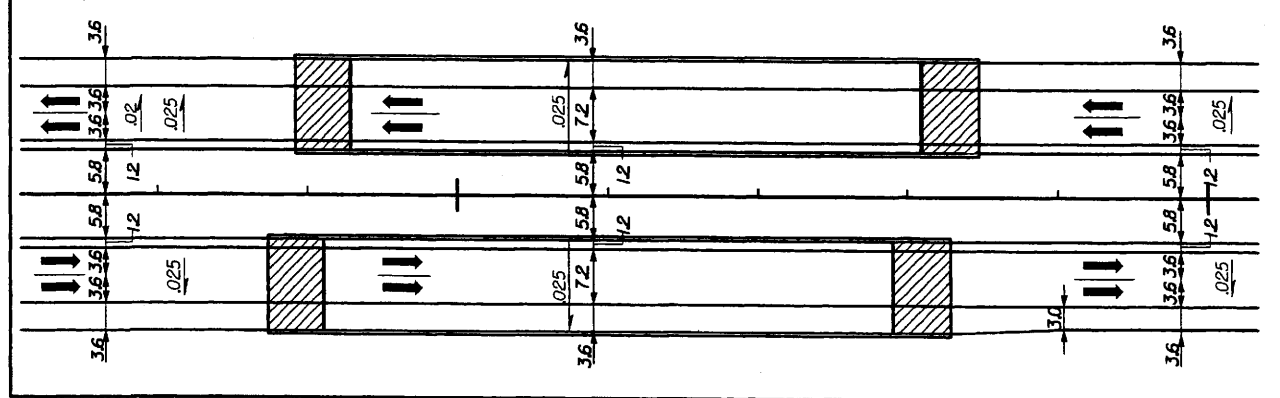
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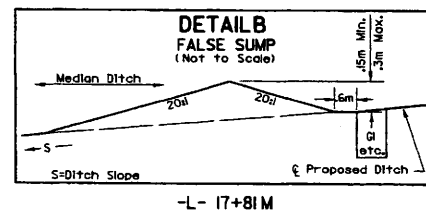
PROJECT REFERENCE NO.	SHEET NO.
R-2301A	6
R/W SHEET NO.	6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
CONST. REV.	
R/W REV.	



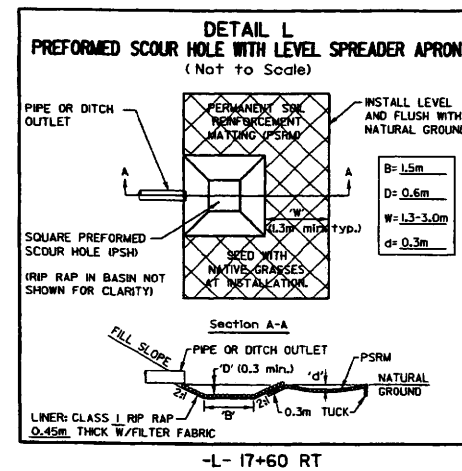
SKETCH SHOWING ROADWAY APPROACHING BRIDGE AT US 17 BYPASS (-L-) OVER DEEP GULLY



2
N OR F
AARON L. & DOROTHY C. MALLARD
DB 132 PG 57
PIN# 5448-07-3011



-L- 17+81M

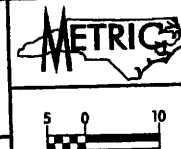


-L- 17+60 RT

REVISIONS

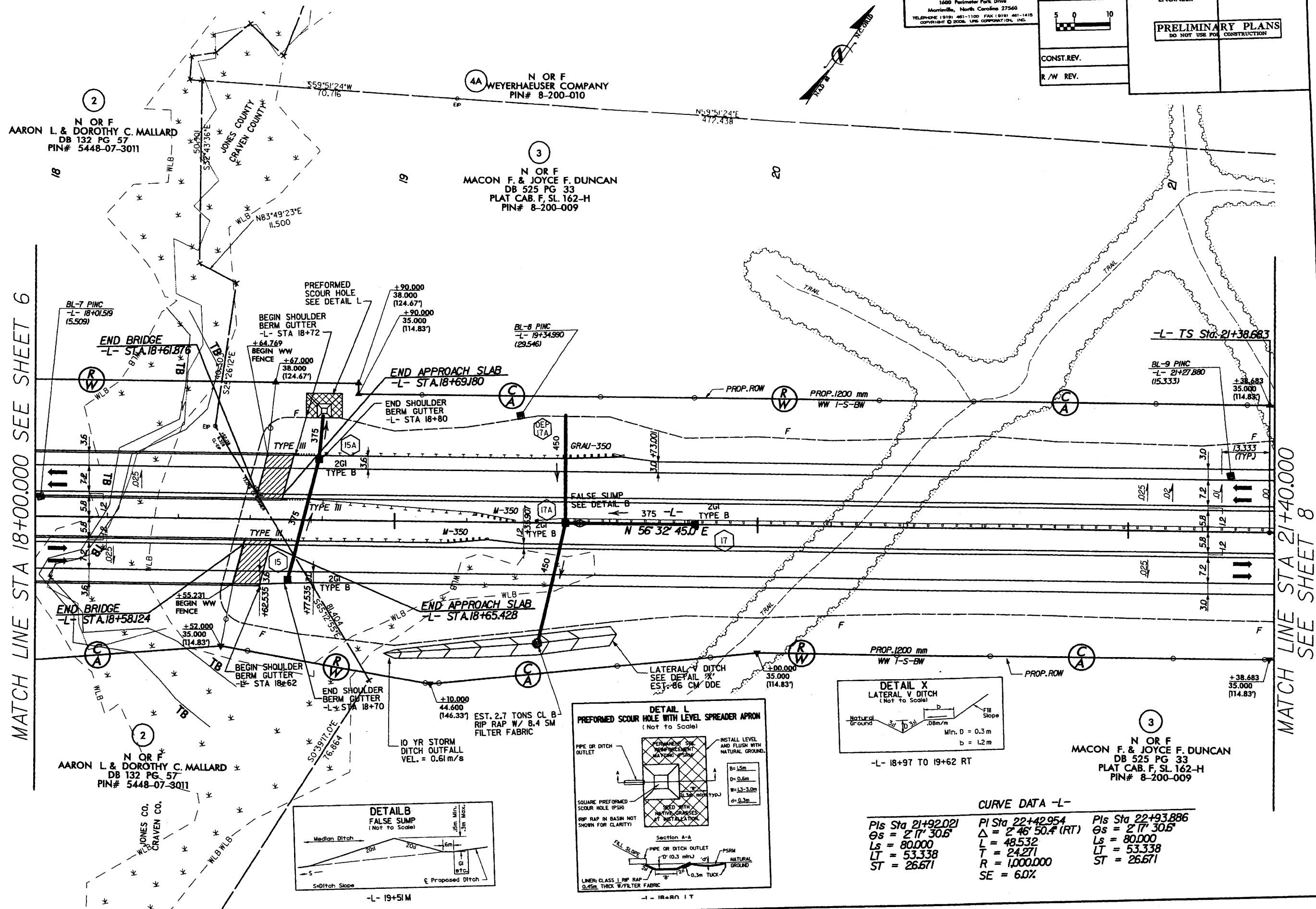
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CONST.REV.
R/W REV.

PROJECT REFERENCE NO.		SHEET NO.	
R-2301A		7	
R/W SHEET NO.		7	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			



NOTE: FOR -L- PROFILE SEE SHEET 44-45

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PROJECT REFERENCE NO.	SHEET NO.
R-2301A	8
R/W SHEET NO.	8
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
CONST. REV.	
R/W REV.	

4A
N OR F
WEYERHAEUSER COMPANY
PIN# 8-200-010

CURVE DATA -L-

Pls Sta 21+92.021 θs = 2°17'30.6" Ls = 80.000 LT = 53.338 ST = 26.671	Pls Sta 22+42.954 Δ = 2°46'50.4" (RT) L = 48.532 T = 24.271 R = 1,000.000 SE = 6.0%	Pls Sta 22+93.886 θs = 2°17'30.6" Ls = 80.000 LT = 53.338 ST = 26.671
---	--	---

3
N OR F
MACON F. & JOYCE F. DUNCAN
DB 525 PG 33
PLAT CAB. F. SL 162-H
PIN# 8-200-009

-L- SC Sta. 22+18.683

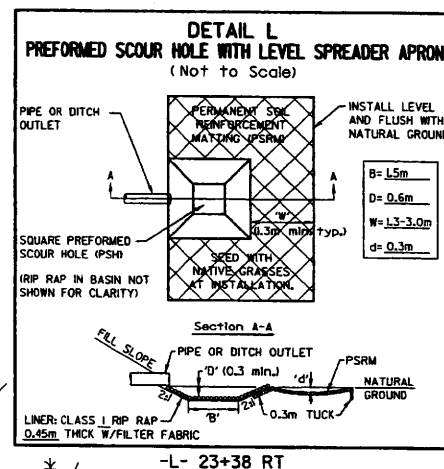
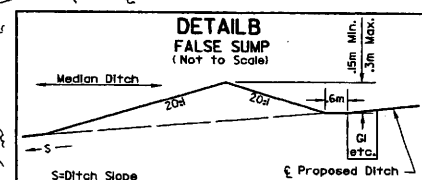
-L- CS Sta. 22+67.215

-L- ST Sta. 23+47.215

MATCH LINE STA 21+40.000 SEE SHEET 7

MATCH LINE STA 24+80.000 SEE SHEET 9

3
N OR F
MACON F. & JOYCE F. DUNCAN
DB 525 PG 33
PLAT CAB. F. SL 162-H
PIN# 8-200-009



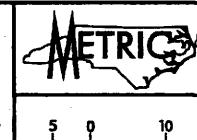
CURVE DATA -L-

Pls Sta 26+89.62 PI Sta 30+56.607
 $\theta_s = 2^\circ 34' 41.9''$ $\Delta = 37^\circ 17' 38.6''$ (LT)
 $L_s = 90.000$ $L = 650.904$
 $LT = 60.006$ $T = 337.451$
 $ST = 30.006$ $R = 1,000.000$
 $SE = 5.9\%$

NOTE: FOR -L- PROFILE SEE SHEETS 45

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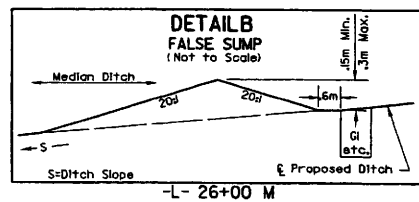
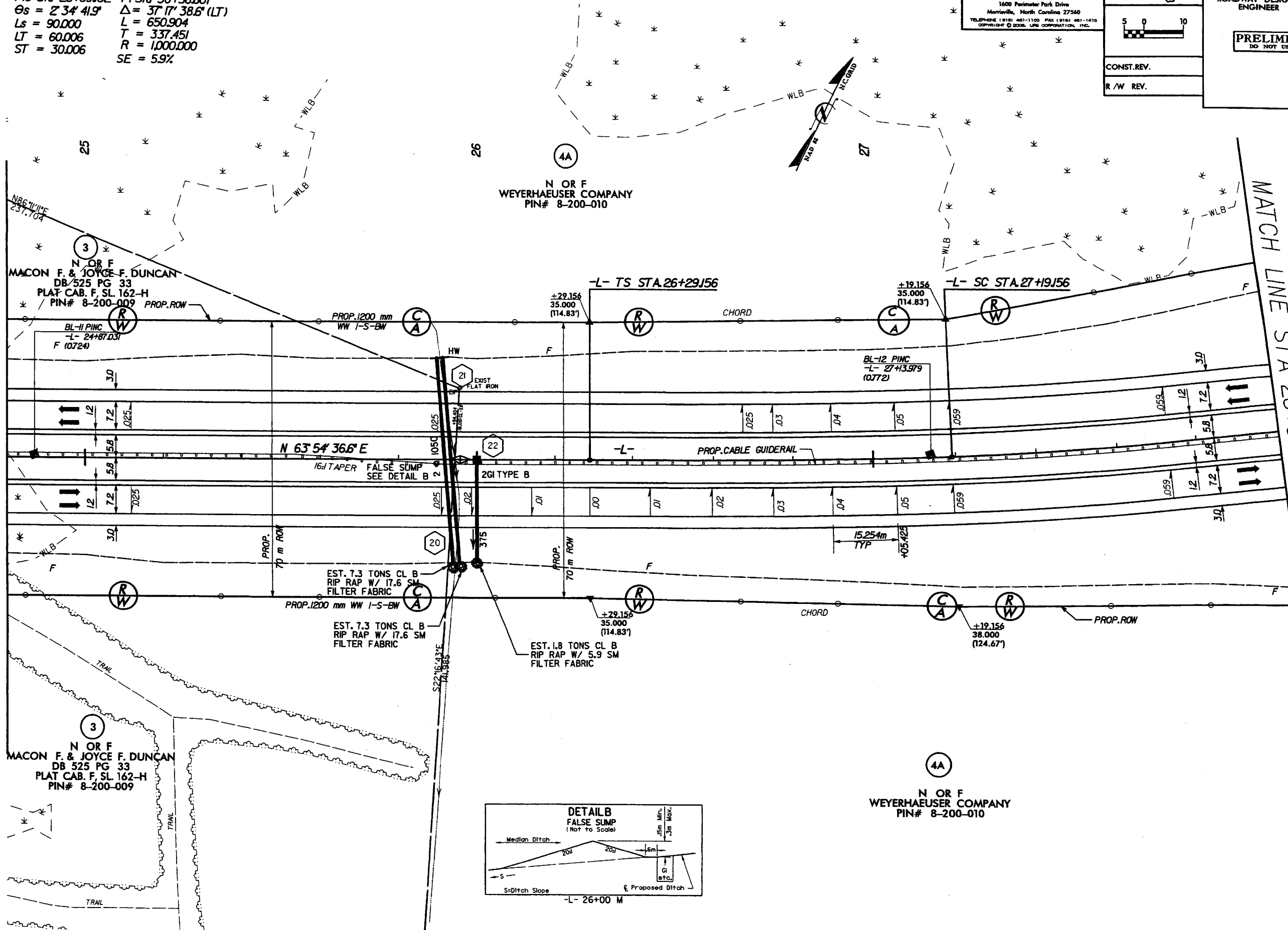


CONST. REV.
 R/W REV.

PROJECT REFERENCE NO. R-2301A	SHEET NO. 9
R/W SHEET NO. 9	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

MATCH LINE STA 24+80.000 SEE SHEET 8

MATCH LINE STA 28+00.000 SEE SHEET 10



N OR F
 WEYERHAEUSER COMPANY
 PIN# 8-200-010

CURVE DATA -L-
 PI Sta 30+56.607
 $\Delta = 37^\circ 17' 38.6''$ (LT)
 $L = 650.904$
 $T = 337.451$
 $R = 1,000.000$
 $SE = 5.9\%$

NOTE: FOR -L- PROFILE SEE SHEET 46-47

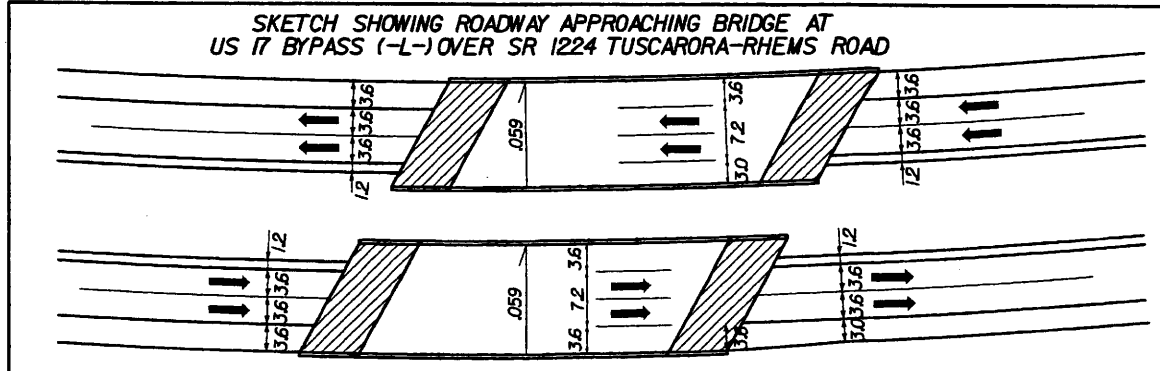
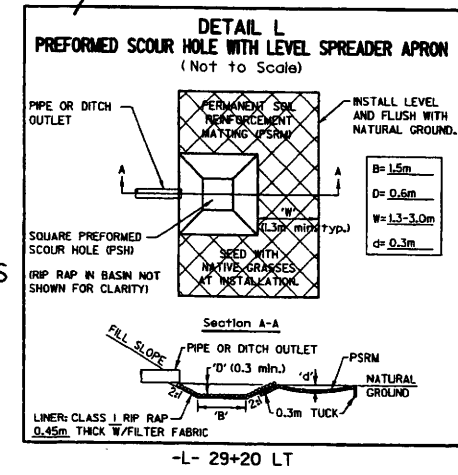
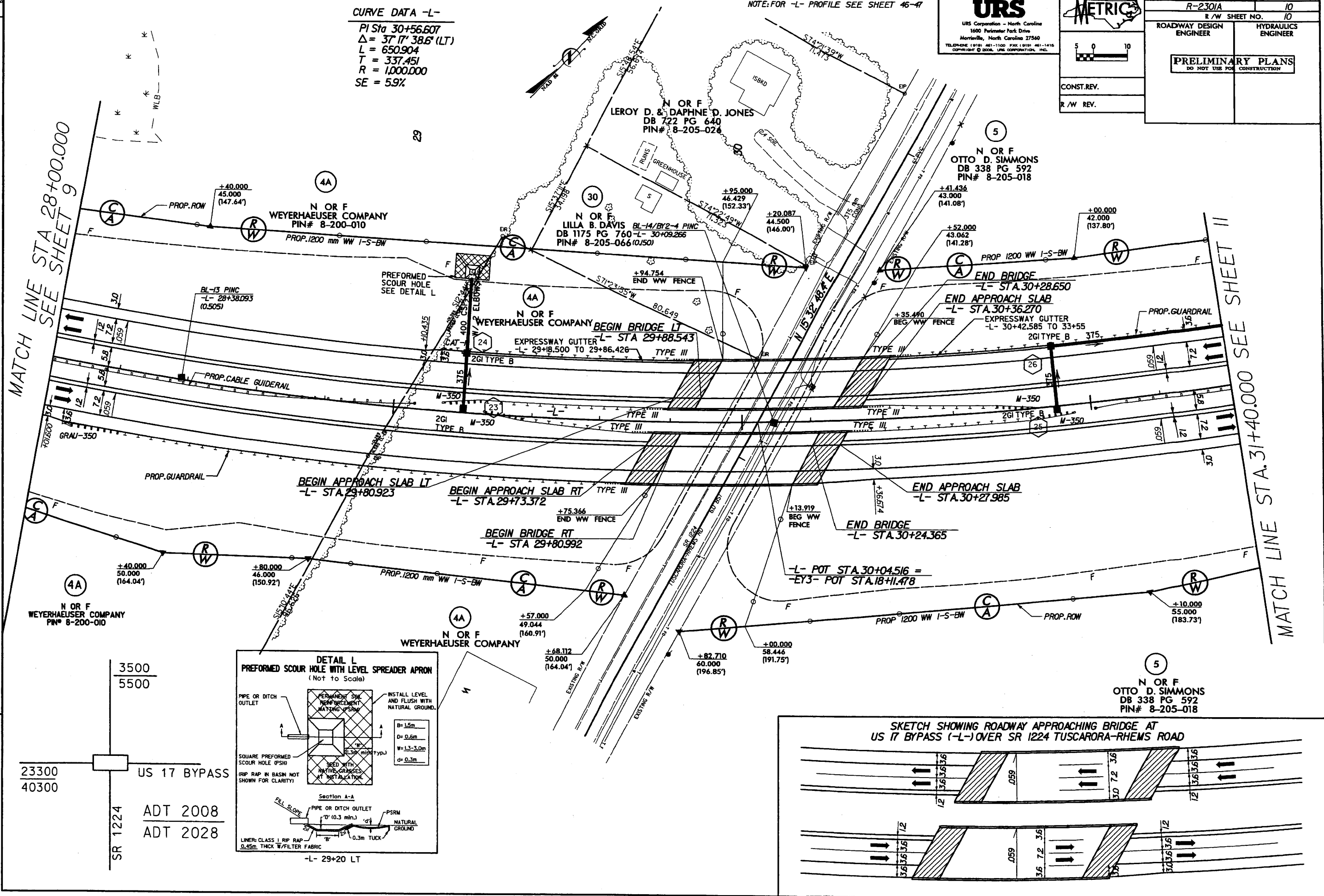
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PROJECT REFERENCE NO.	SHEET NO.
R-2301A	10
R/W SHEET NO.	10
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
CONST. REV.	
R/W REV.	

MATCH LINE STA 28+00.000
 SEE SHEET 9

MATCH LINE STA 31+40.000 SEE SHEET 11



PROJECT REFERENCE NO.		SHEET NO.	
R-2301A		//	
R /W SHEET NO.		//	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			

CURVE DATA -L-

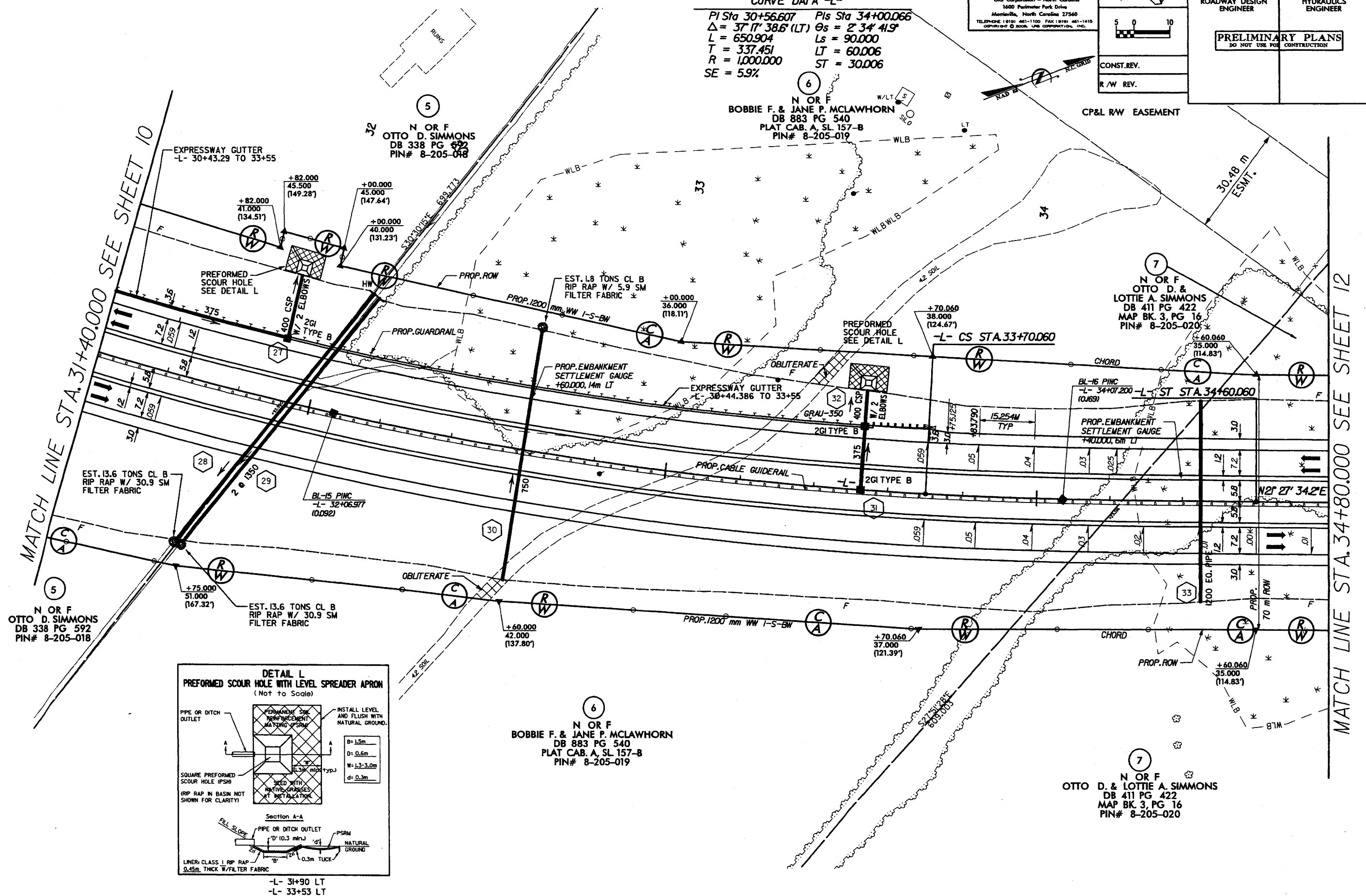
$Pls\ Sta\ 30+56.607$	$Pls\ Sta\ 34+00.066$
$\Delta = 37^\circ 17' 38.6" (LT)$	$\Theta_s = 2^\circ 34' 41.9"$
$L = 650.904$	$L_s = 90.000$
$T = 337.451$	$LT = 60.006$
$R = 1,000.000$	$ST = 30.006$
$SE = 5.9\%$	

= 5.9% 6 N O R F W/LT
BOBBIE F. & JANE P. MCCLAWHORN
DB 883 PG 540
PLAT CAB. A, SL. 157-B
PIN# 8-205-019

CP&L RW EASEMENT

Technical drawing of a road cross-section. The drawing shows a 30' wide road with a 12' travel lane, 12' shoulder, and 5' sidewalk. The drawing includes a match line at STA. 31+40.000, a note 'EST. 13.6 TONS C RIP RAP W/ 30.9 FILTER FABRIC', and a reference to 'SEE SHEET 10'.

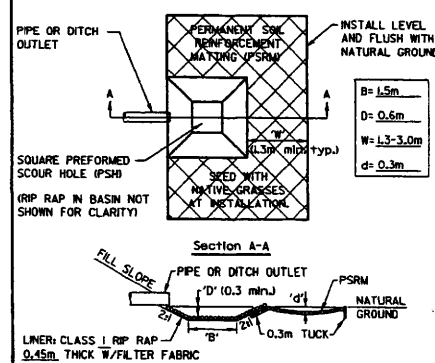
MATCH LINE STA. 34+80.000 SEE SHEET 12



REVISIONS

DATE: 12/7/06 - PARCEL 6; REVISED ROW MONUMENT AT 33+00 LT TO 36.00m (118J1')

DETAIL L
PREFORMED SCOUR HOLE WITH LEVEL SPREADER APRON
(Not to Scale)



-L- 31+90 LT
-L- 33+53 LT

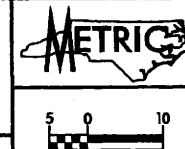
CURVE DATA -L-

Pls Sta 38+55.747
 $\theta_s = 120^\circ 12.8'$
 $L_s = 70.000$
 $LT = 46.668$
 $ST = 23.335$
 $SE = 4.1\%$

NOTE: FOR -L- PROFILE SEE SHEETS 46-47

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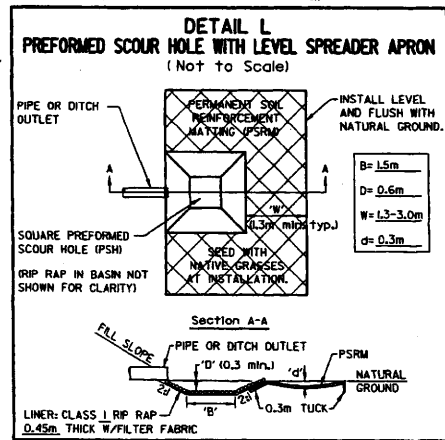
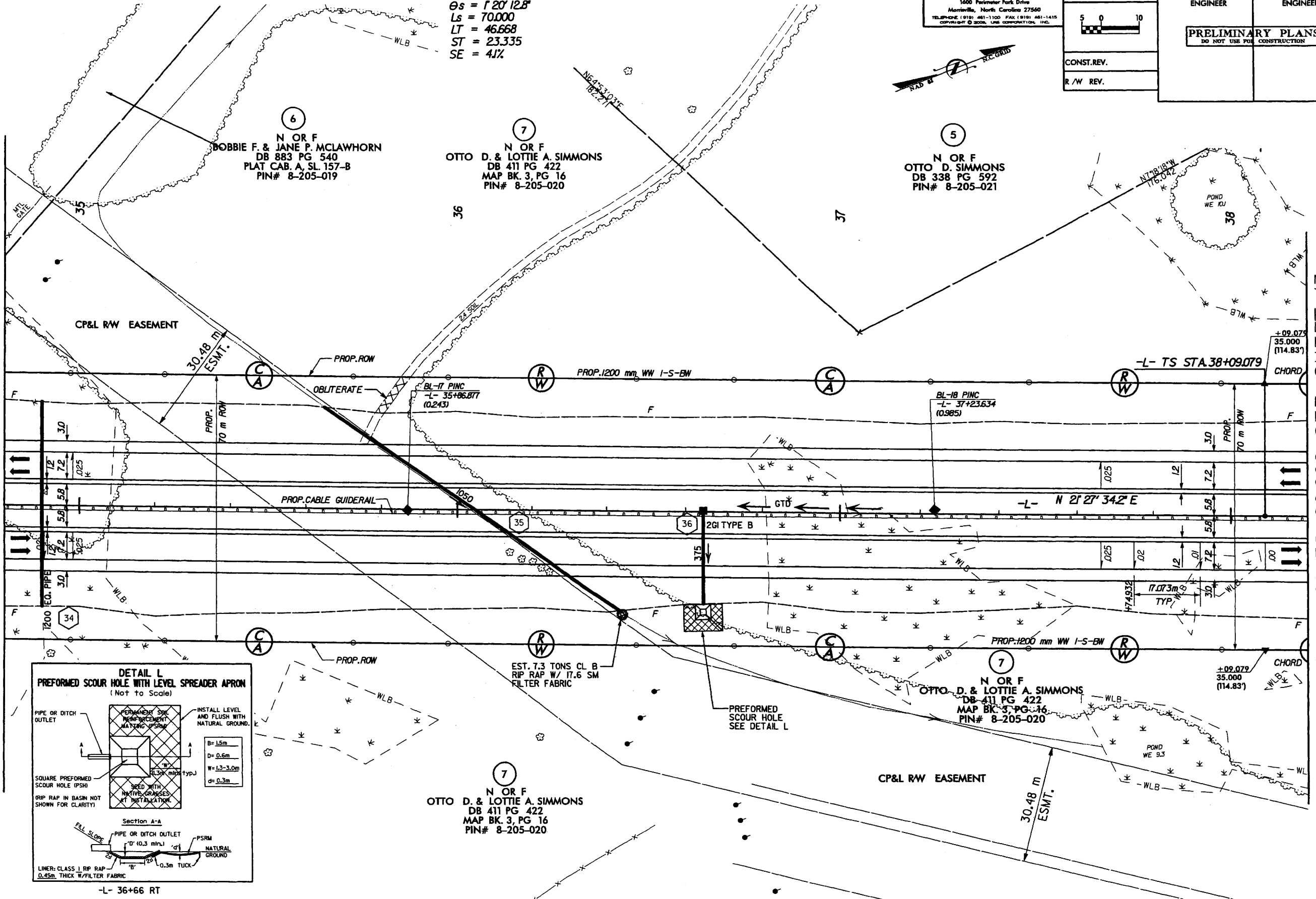


CONST. REV.
 R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-230/A	12
R/W SHEET NO.	12
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

MATCH LINE STA. 34+80.000 SEE SHEET 11

MATCH LINE STA 38+20.000 SEE SHEET 13



-L- 36+66 RT

8/17/99

NOTE: FOR L- PROFILE SEE SHEET 47

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

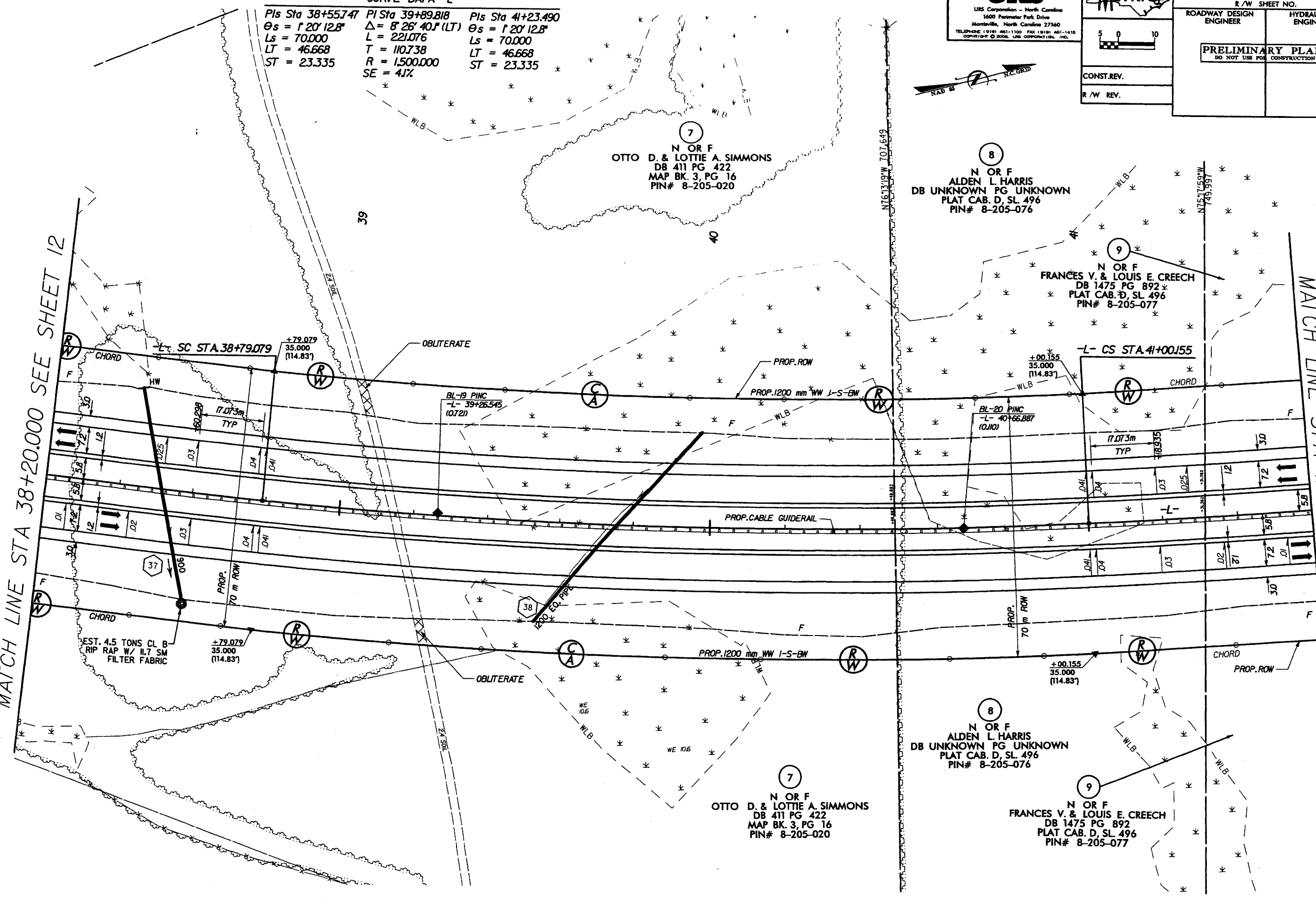
PROJECT REFERENCE NO.		SHEET NO.
R-2301A		13
R/W SHEET NO.		
13		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
PRELIMINARY PLANS		
DO NOT USE FOR CONSTRUCTION		

CURVE DATA -L-

Pls Sta 38+55.747	Pls Sta 39+89.818	Pls Sta 41+23.490
$\theta_s = 1' 20' 12.8''$	$\Delta = 8' 26' 40.1''$ (LT)	$\theta_s = 1' 20' 12.8''$
$L_s = 70.000$	$L = 221.076$	$L_s = 70.000$
$LT = 46.668$	$T = 110.738$	$LT = 46.668$
$ST = 23.335$	$R = 1,500.000$	$ST = 23.335$
	$SE = 41\%$	

MATCH LINE STA 38+20.000 SEE SHEET 12

MATCH LINE STA 41+60.000 SEE SHEET 14



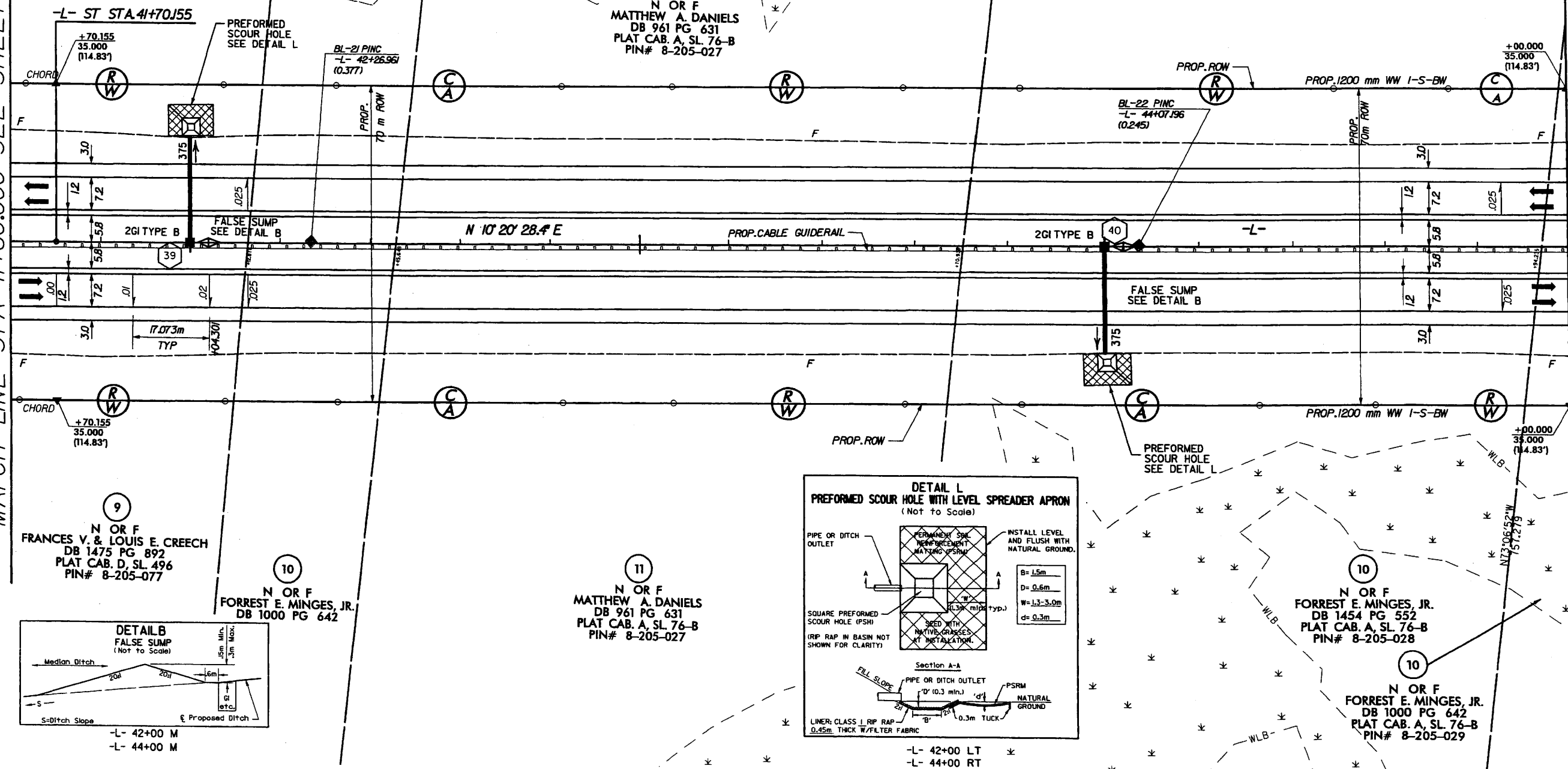
REVISIONS

PROJECT REFERENCE NO.		SHEET NO.	
R-2301A		14	
R/W		SHEET NO.	
		14	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			

NAD 83  N.C. GRID

10
N OR F
FORREST E. MINGES, JR.
DB 1454 PG 552
PLAT CAB. A, SL. 76-B
PIN# 8-205-028

MATCH LINE STA 45+00.000 SEE SHEET 15



8/17/99

NOTE: FOR -L- PROFILE SEE SHEET 48

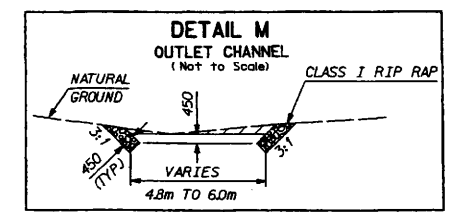
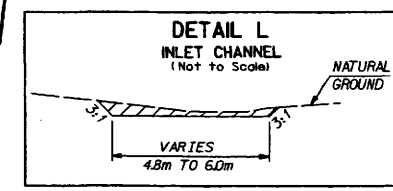
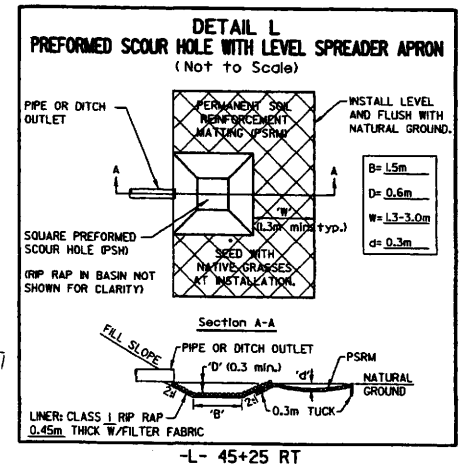
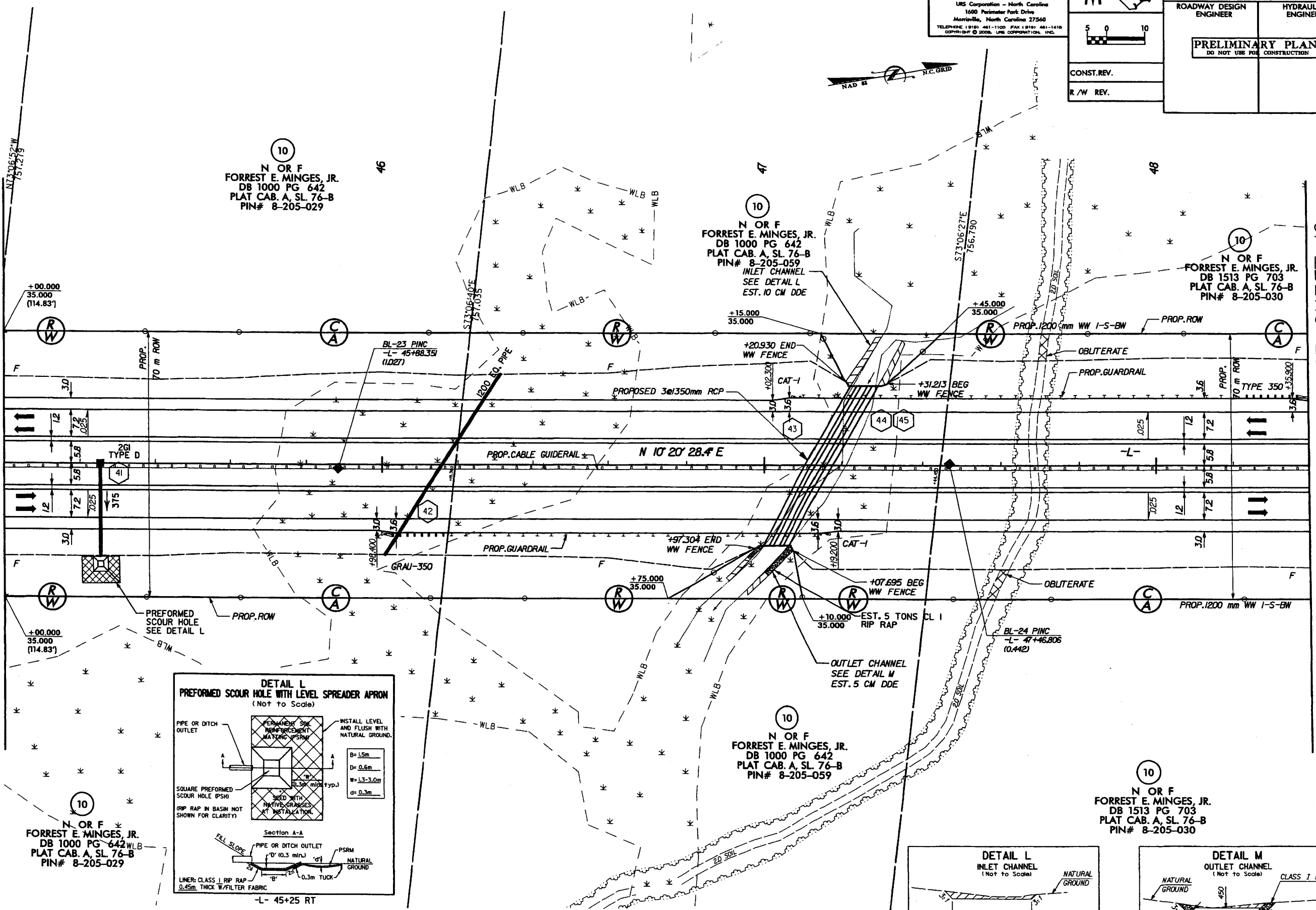
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METRIC
5 0 10
CONST. REV.
R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2301A	15
R/W SHEET NO.	15
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

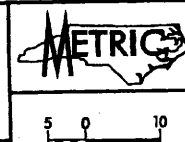
MATCH LINE STA. 45+00.000 SEE SHEET 14

MATCH LINE STA. 48+40.000 SEE SHEET 16



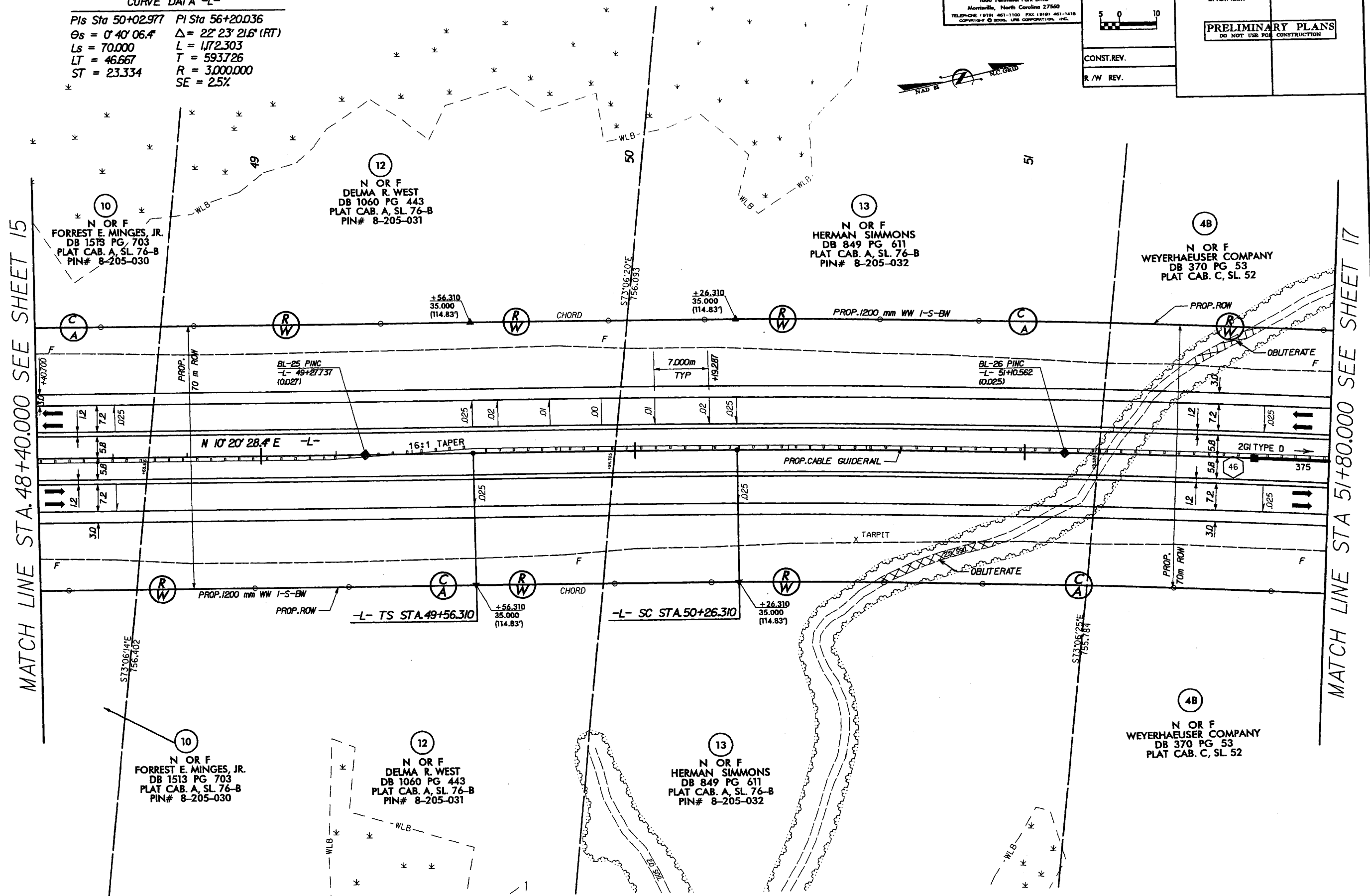
REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
R-2301A	16
R/W SHEET NO.	16
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Pls Sta 50+02.977	Pl Sta 56+20.036
$\theta_s = 0^\circ 40' 06.4''$	$\Delta = 22^\circ 23' 21.6''$ (RT)
$L_s = 70.000$	$L = 172.303$
$LT = 46.667$	$T = 593.726$
$ST = 23.334$	$R = 3,000.000$
	$SE = 2.5\%$



NOTE: FOR -L- PROFILE SEE SHEETS 49

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METRIC

5 0 10

CONST. REV.

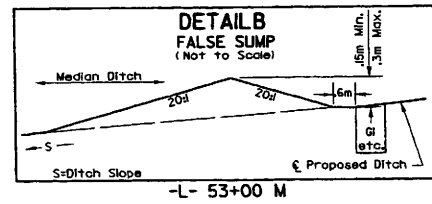
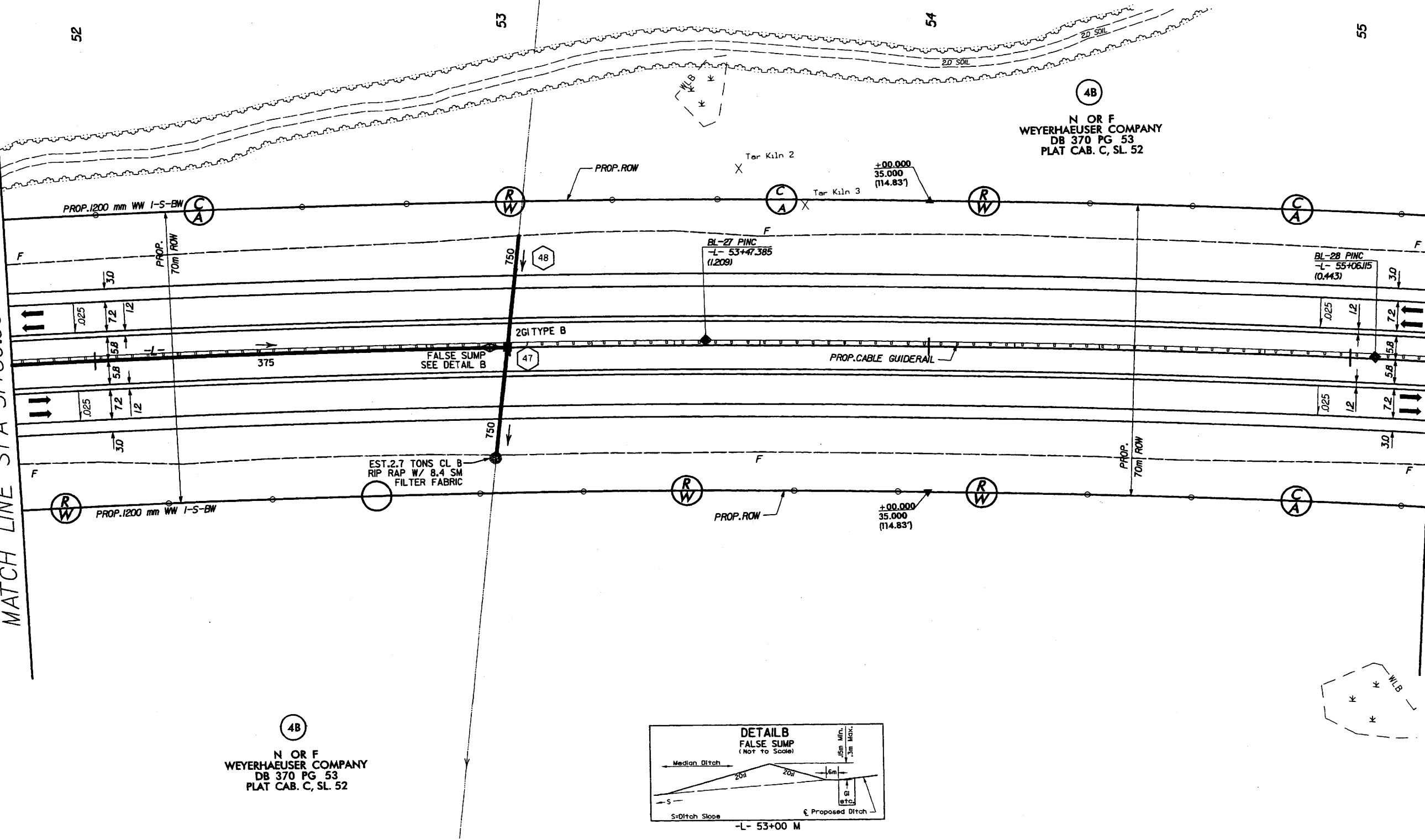
R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2301A	17
R/W SHEET NO.	17
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

CURVE DATA -L-
PI Sta 56+20.036
 $\Delta = 22^\circ 23' 21.6" (RT)$
 $L = 1172.303$
 $T = 593.726$
 $R = 3,000.000$
 $SE = 2.5\%$

MATCH LINE STA 51+80.000 SEE SHEET 16

MATCH LINE STA 55+20.000 SEE SHEET 18

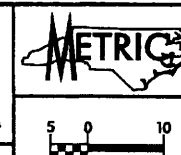


48
N OR F
WEYERHAEUSER COMPANY
DB 370 PG 53
PLAT CAB. C, SL. 52

REVISIONS

NOTE: FOR -L- PROFILE SEE SHEET 49-50

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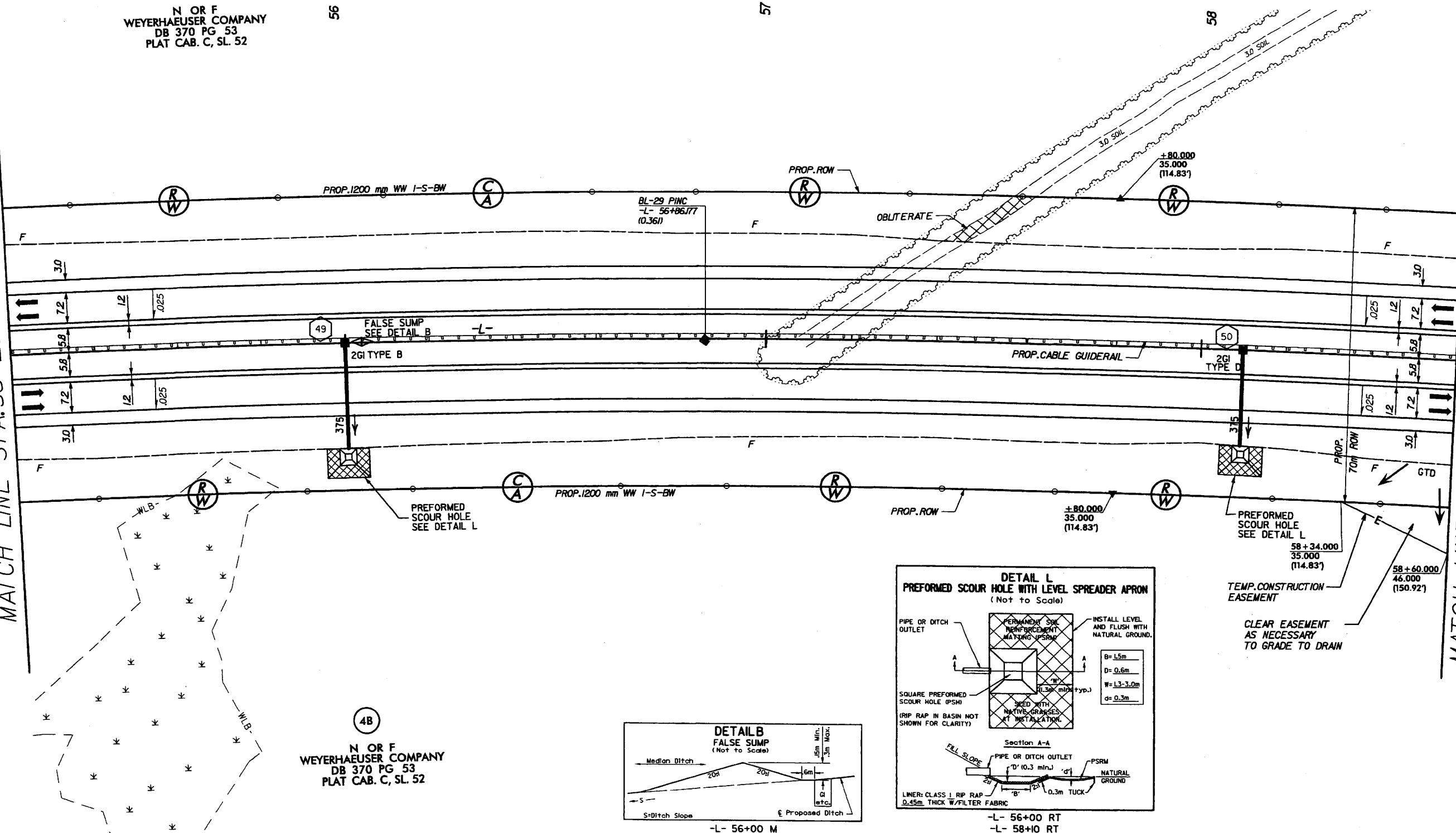


PROJECT REFERENCE NO.	SHEET NO.
R-2301A	18
R/W SHEET NO.	18
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
CONST. REV.	
R/W REV.	

CURVE DATA -L-
PI Sta 56+20.036
 $\Delta = 22^\circ 23' 21.6''$ (RT)
 $L = 1,172.303$
 $T = 593.726$
 $R = 3,000.000$
 $SE = 2.5\%$

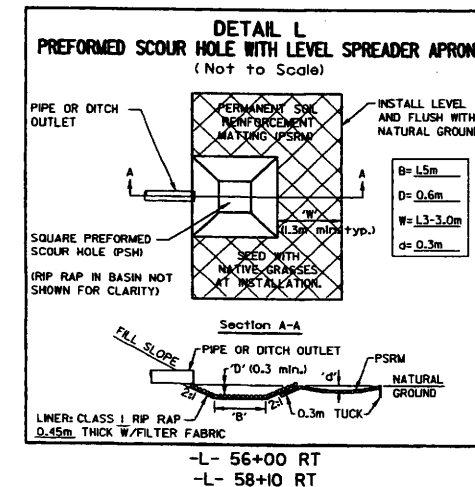
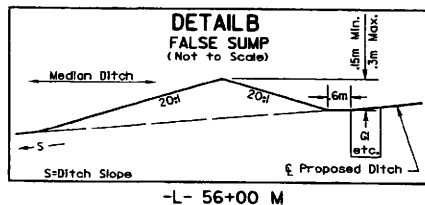
4B
N OR F
WEYERHAEUSER COMPANY
DB 370 PG 53
PLAT CAB. C, SL. 52

MATCH LINE STA. 55+20.000 SEE SHEET 17



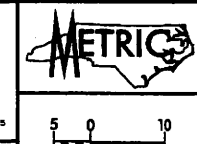
MATCH LINE STA. 58+60.000 SEE SHEET 19

4B
N OR F
WEYERHAEUSER COMPANY
DB 370 PG 53
PLAT CAB. C, SL. 52



NOTE: FOR -L- PROFILE SEE SHEET 50

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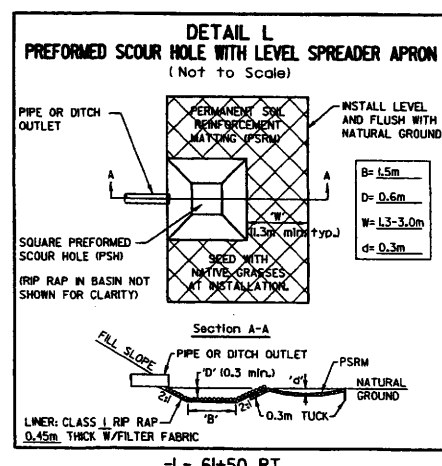
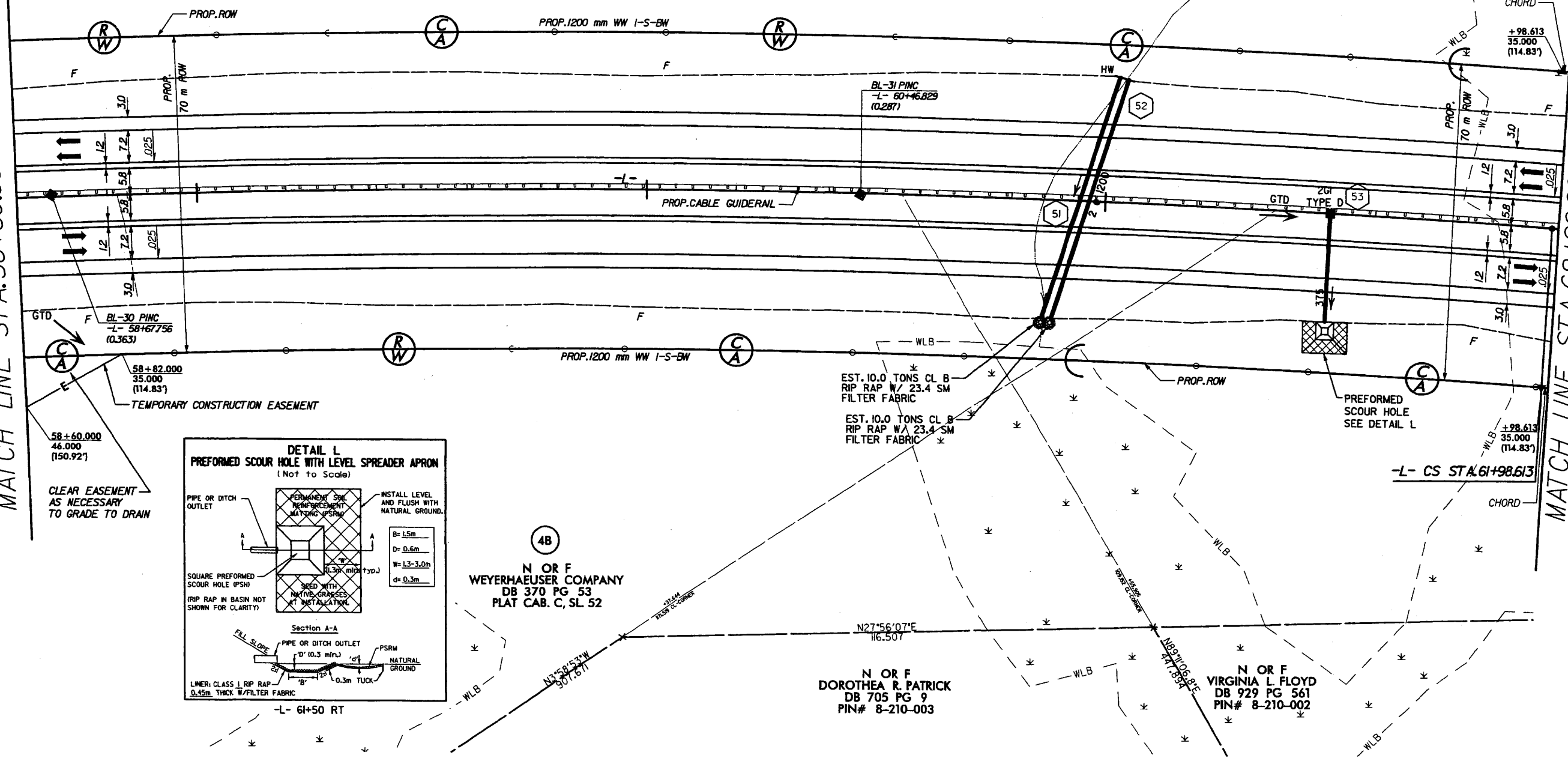
PROJECT REFERENCE NO.	SHEET NO.
R-2301A	19
R/W SHEET NO.	19
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
CONST. REV.	
R/W REV.	

CURVE DATA -L-
PI Sta 56+20.036 PIs Sta 62+21.946
 $\Delta = 22^\circ 23' 21.6''$ (RT) $\Theta_s = 0^\circ 40' 06.4''$
 $L = 1,172.303$ $L_s = 70.000$
 $T = 593.726$ $LT = 46.667$
 $R = 3,000.000$ $ST = 23.334$
 $SE = 2.5\%$

N OR F
WEYERHAEUSER COMPANY
DB 370 PG 53
PLAT CAB. C, SL 52

MATCH LINE STA. 58+60.000 SEE SHEET 18

MATCH LINE STA. 62+00.000 SEE SHEET 20



N OR F
WEYERHAEUSER COMPANY
DB 370 PG 53
PLAT CAB. C, SL 52

N OR F
DOROTHEA R. PATRICK
DB 705 PG 9
PIN# 8-210-003

N OR F
VIRGINIA L. FLOYD
DB 929 PG 561
PIN# 8-210-002

9/17/98

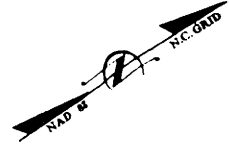
NOTE: FOR -L- PROFILE SEE SHEETS 50-51

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METRIC
5 0 10

PROJECT REFERENCE NO.	SHEET NO.
R-230/A	20
R/W SHEET NO.	20
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
CONST. REV.	
R/W REV.	

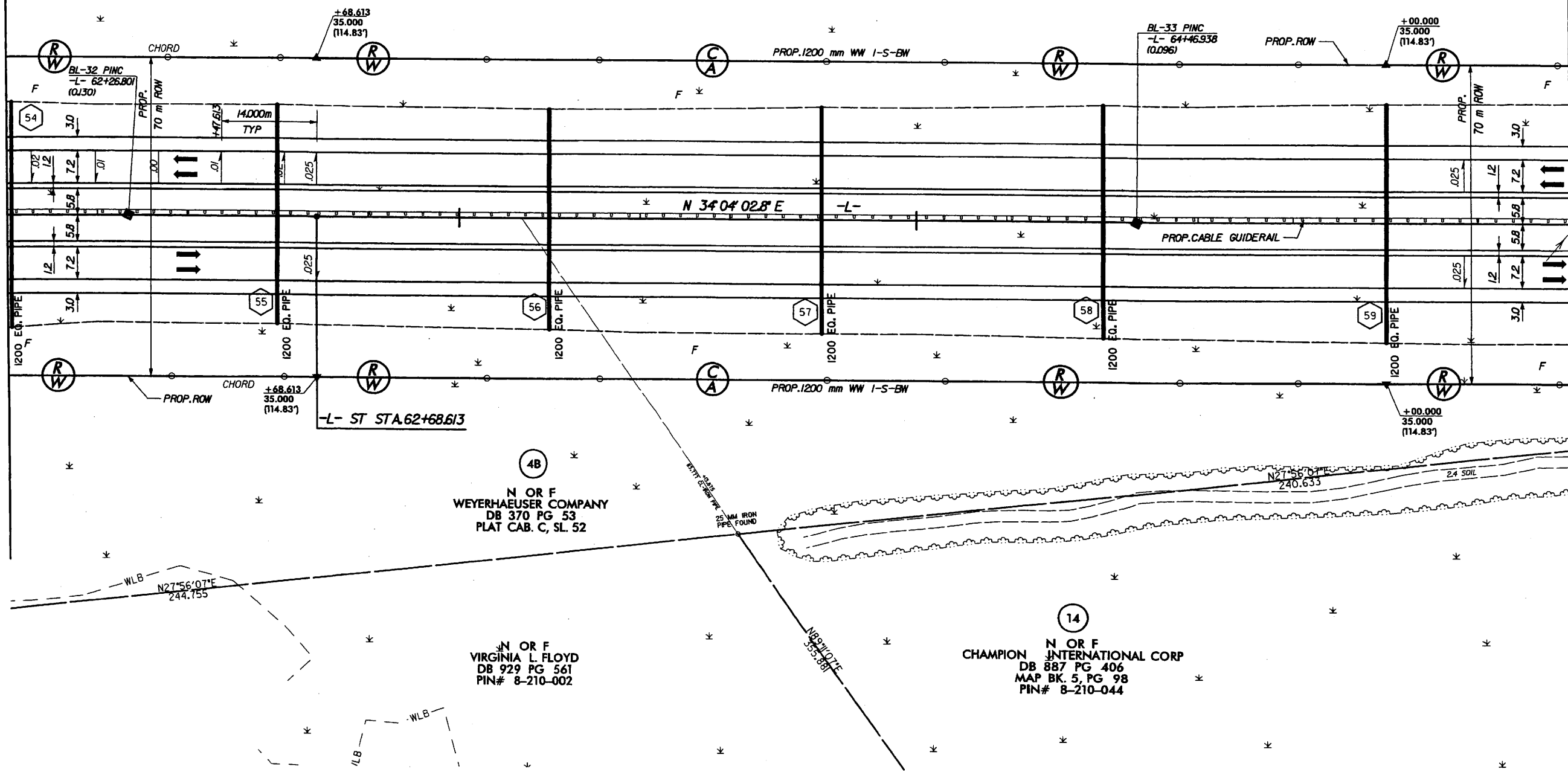
CURVE DATA -L-
Pls Sta 62+21.946
 $\theta_s = 0^\circ 40' 06.4''$
 $L_s = 70.000$
 $LT = 46.667$
 $ST = 23.334$
 $SE = 2.5\%$



48
N OR F
WEYERHAEUSER COMPANY
DB 370 PG 53
PLAT CAB. C, SL 52

MATCH LINE STA.62+00.000 SEE SHEET 19

MATCH LINE STA.65+40.000 SEE SHEET 21



REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-2301A	21
R / W SHEET NO.	21
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

CURVE DATA -L-

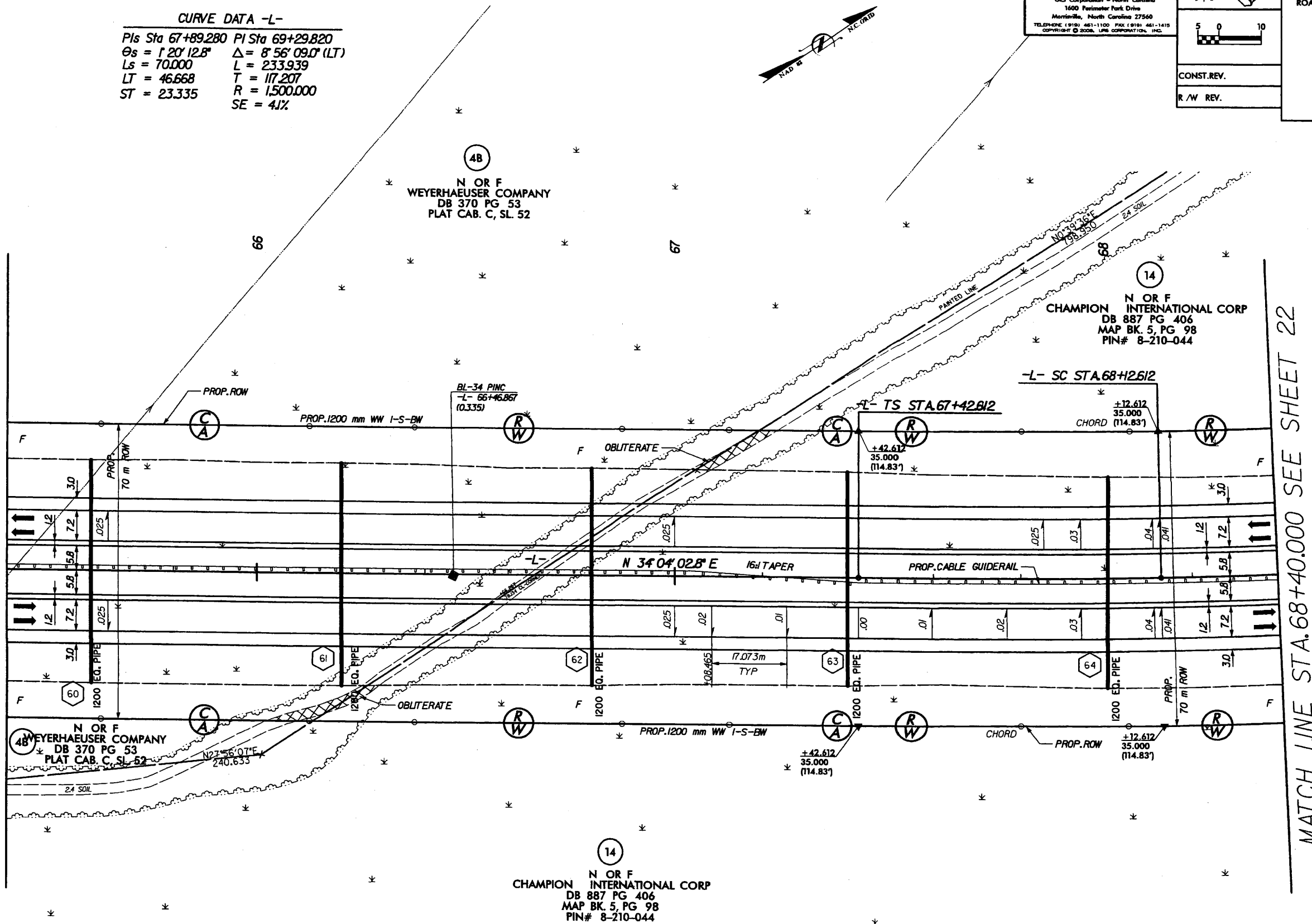
<i>Pls Sta 67+89.280</i>	<i>Pl Sta 69+29.820</i>
$\theta_s = 1^{\circ}20'12.8''$	$\Delta = 8^{\circ}56'09.0''$ (LT)
$L_s = 70.000$	$L = 233.939$
$LT = 46.668$	$T = 117.207$
$ST = 23.335$	$R = 1,500.000$
	$SE = 4\%$

N O R F
WEYERHAEUSER COMPANY
DB 370 PG 53
PLAT CAB. C, SL. 52

CHAMPION N OR F INTERNATIONAL CORP
DB 887 PG 406
MAP BK. 5, PG 98
PIN# 8-210-044

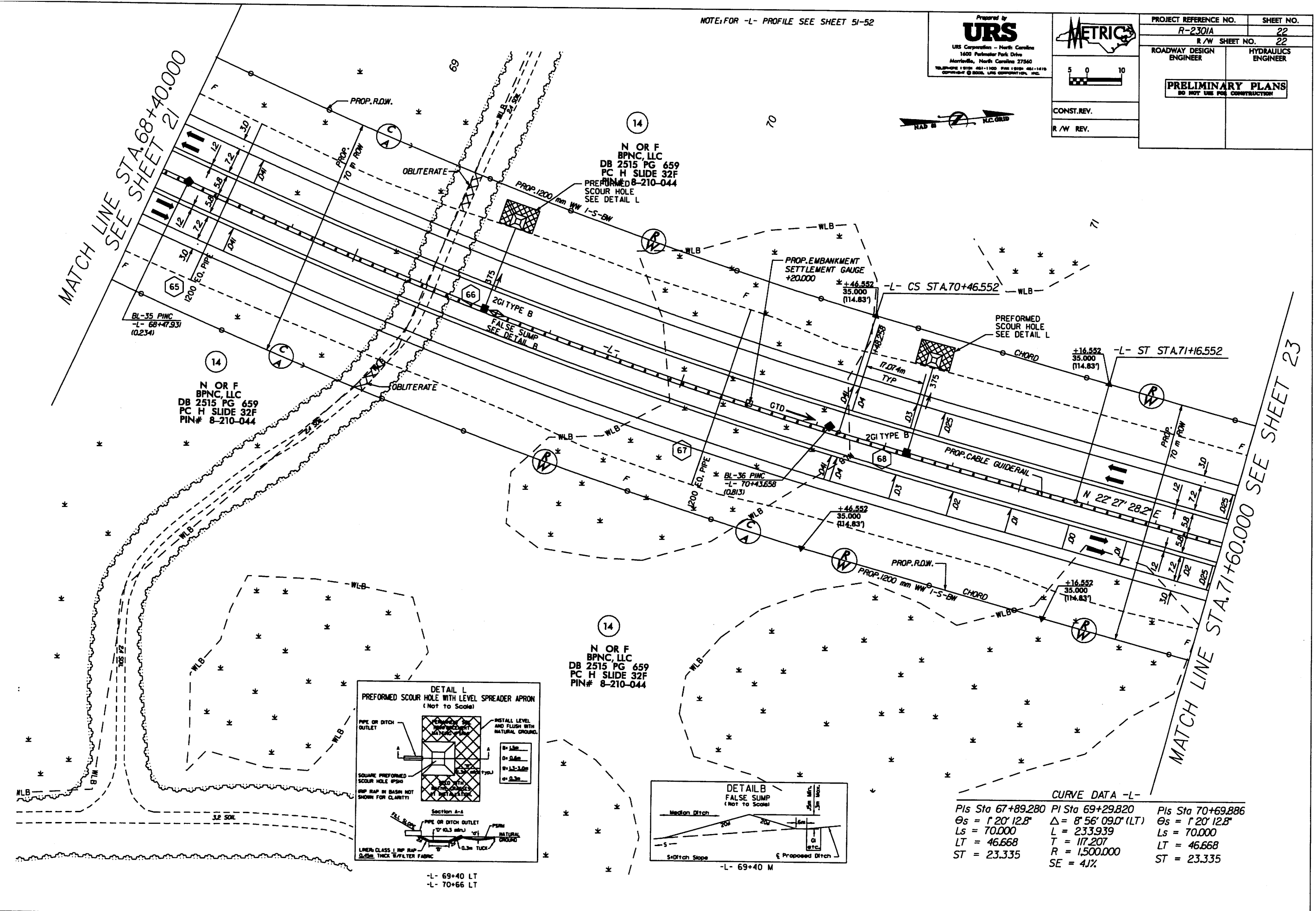
MATCH LINE STA. 65+40.00 SEE SHEET 20

MATCH LINE STA. 68+40.000 SEE SHEET 22



PROJECT REFERENCE NO.	SHEET NO.
R-2301A	22
R/W SHEET NO.	22
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

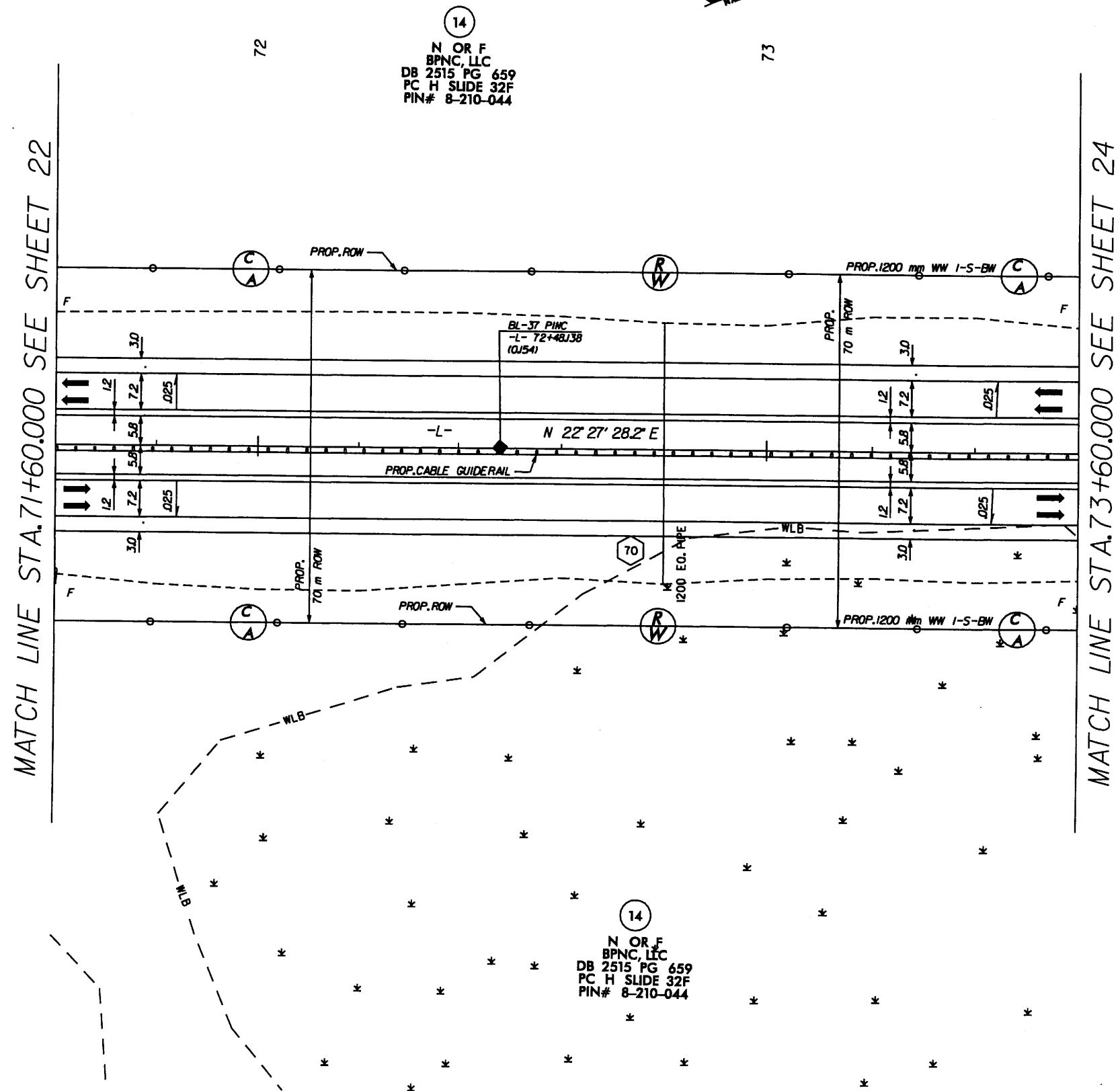
STA. 71+16.552



REVISIONS
DATE: _____ ELIMINATED -DRI- AND CONSTRUCTION EASEMENT.
DATE: _____ PARCEL 14: PROPERTY OWNER NAME CHANGE

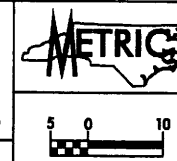
-L- 69+40 LT
-L- 70+66 LT

DATE: _____ ELIMINATED -DRI- AND CONSTRUCTION EASEMENT.
Page 100 of 100
 DATE: _____ PARCEL 14; PROPERTY OWNER NAME CHANGE
Page 100 of 100



NOTE: FOR -L- PROFILE SEE SHEET 52

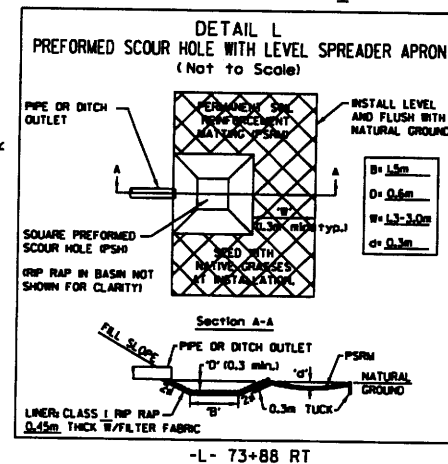
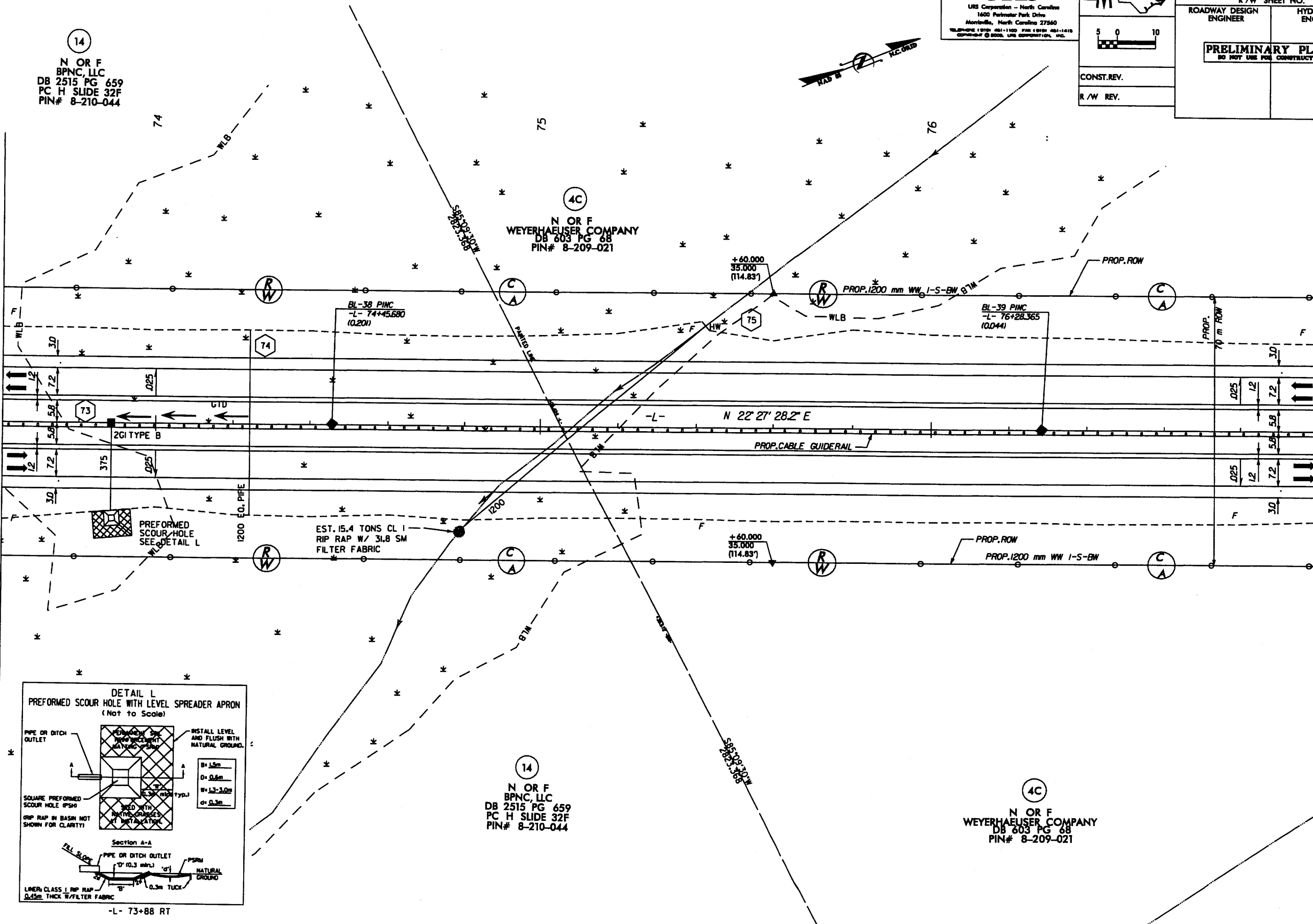
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PROJECT REFERENCE NO.	SHEET NO.
R-2301A	24
R/W SHEET NO.	24
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
CONST. REV.	
R/W REV.	

MATCH LINE STA. 73+60.000 SEE SHEET 23

MATCH LINE STA. 77+00.000 SEE SHEET 25



-L- 73+88 RT

REVISIONS

DATE: ELIMINATED -ORI- AND CONSTRUCTION EASEMENT.
DATE: PARCELS 4 AND 14 PARCEL 4 SUBDIVIDED INTO PARCELS 4A-4G. PARCEL 14 PROPERTY OWNER NAME CHANGE

14
N OR F
BPNC, LLC
DB 2515 PG 659
PC H SLIDE 32F
PIN# 8-210-044

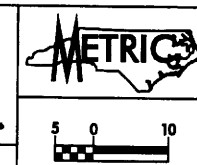
4C
N OR F
WEYERHAEUSER COMPANY
DB 603 PG 68
PIN# 8-209-021

14
N OR F
BPNC, LLC
DB 2515 PG 659
PC H SLIDE 32F
PIN# 8-210-044

4C
N OR F
WEYERHAEUSER COMPANY
DB 603 PG 68
PIN# 8-209-021

NOTE: FOR -L- PROFILE SEE SHEETS 52-53

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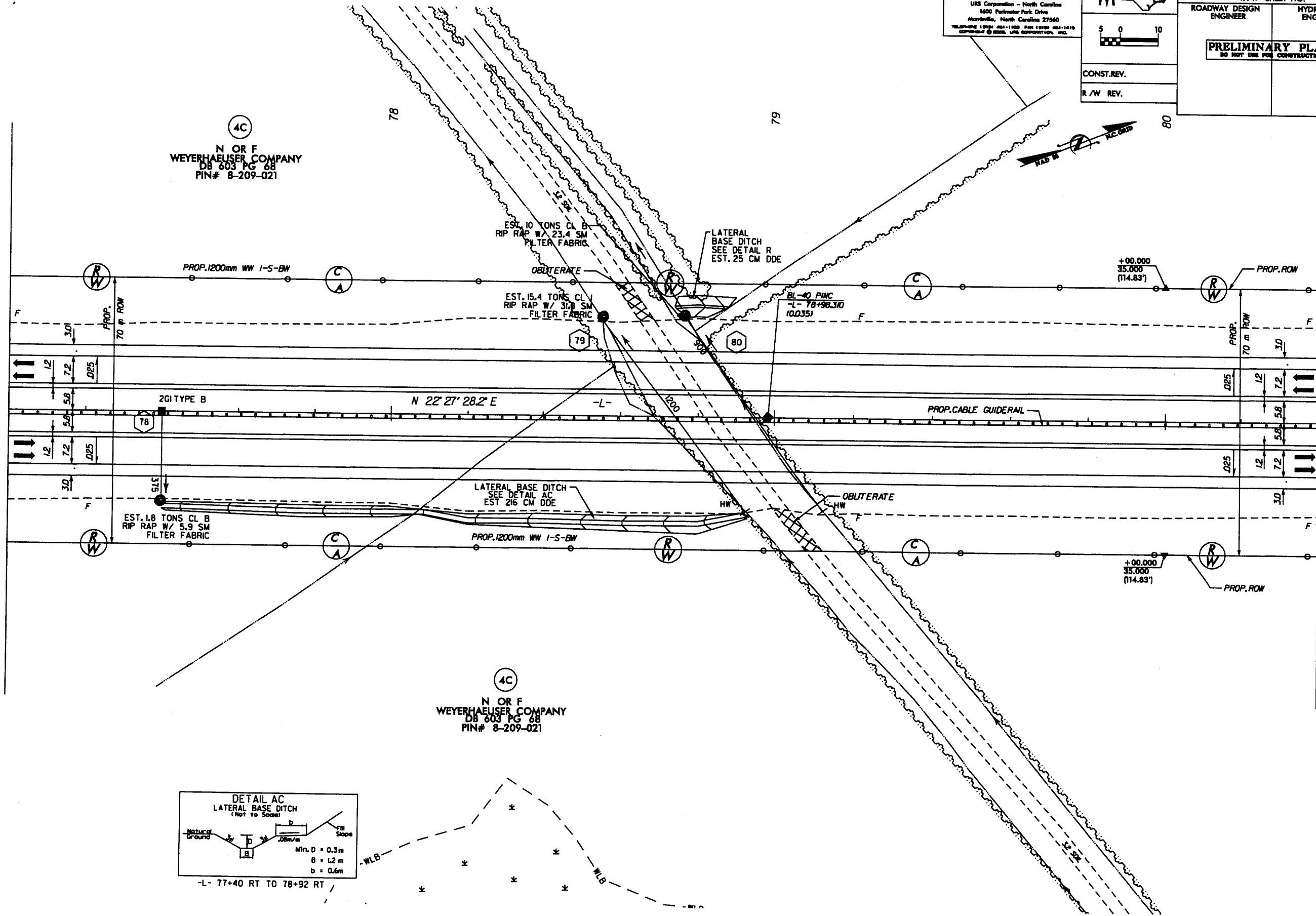
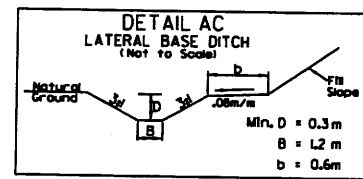
PROJECT REFERENCE NO.	SHEET NO.
R-2301A	25
R/W SHEET NO.	25
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
CONST. REV.	
R/W REV.	

MATCH LINE STA. 77+00.000 SEE SHEET 24

MATCH LINE STA. 80+40.000 SEE SHEET 26

4C
N OR F
WEYERHAEUSER COMPANY
DB 603 PG 68
PIN# 8-209-021

4C
N OR F
WEYERHAEUSER COMPANY
DB 603 PG 68
PIN# 8-209-021



REVISIONS
DATE: ELIMINATED -DRI- AND CONSTRUCTION EASEMENT.

DETAIL AA
LATERAL BASE DITCH
 (Not to Scale)

Natural Ground

3:1

3:1

b

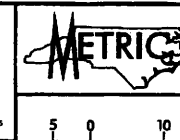
.08m/m

Fill Slope

Min. D = 0.3 m
 B = 1.5 m
 b = 0.6 m

-L- 82+78 RT TO 83+24 RT

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PROJECT REFERENCE NO.	SHEET NO.
R-230/A	27
R/W	SHEET NO. 27
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

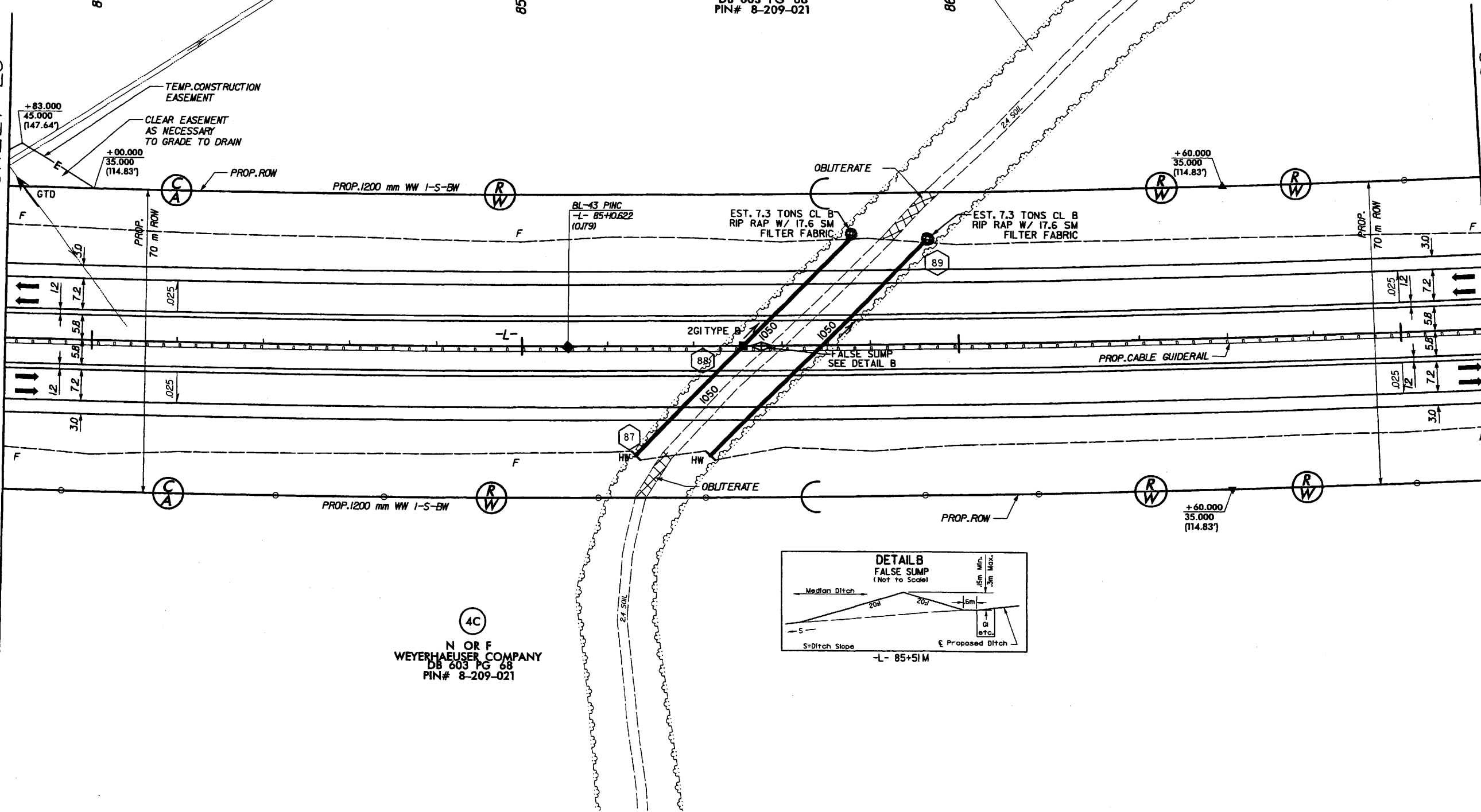


CONST.REV.
R /W REV.

4C
N OR F
WEYERHAEUSER COMPANY
DB 603 PG 68
PIN# 8-209-021

MATCH LINE STA 83+80.000 SEE SHEET 26

MATCH LINE STA. 87+20.000 SEE SHEET 28



DETAIL B
FALSE SUMP
(Not to Scale)

Median Ditch

20m

20m

1.5m Min.
3m Max.

S=Ditch Slope

Proposed Ditch

L-85+51M

4C
N O R F
WEYERHAEUSER COMPANY
DB 603 PG 68
PIN# 8-209-021

CURVE DATA -L-
 P.I. = 86+51.807
 $\Delta = 7' 20'' 06.2''$ (LT)
 L = 640.105
 T = 320.490
 R = 5,000.000
 SE = NC

NOTE: FOR -L- PROFILE SEE SHEETS 54
 FOR -RPC- PROFILE SEE SHEETS 65-66

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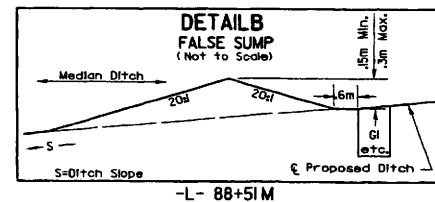
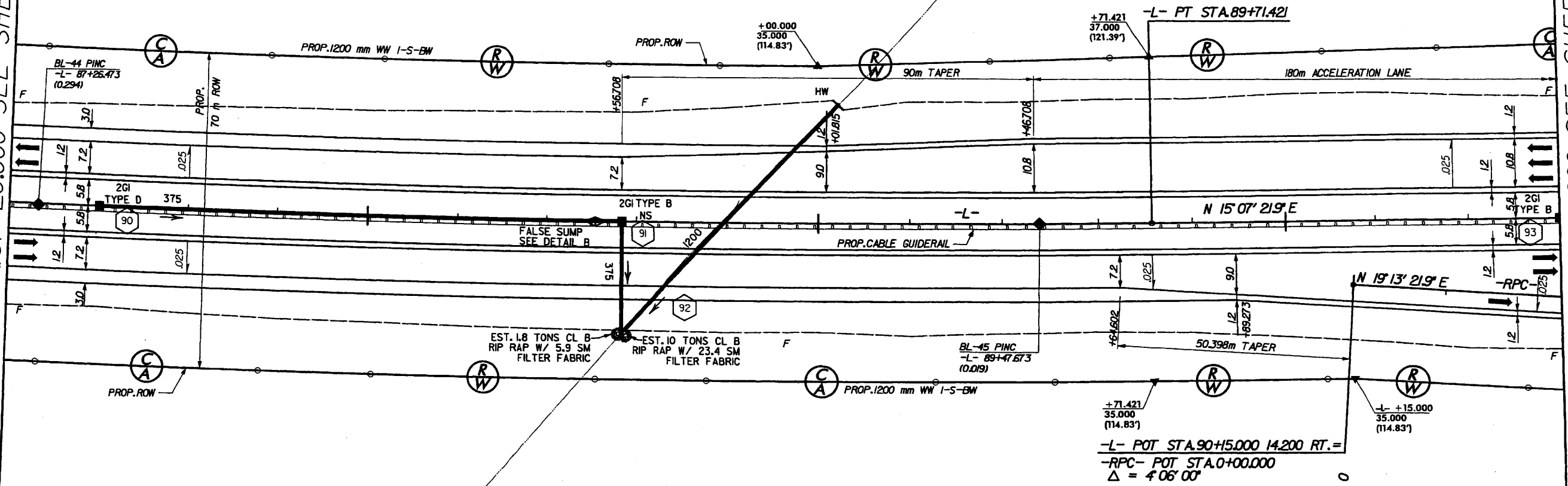


PROJECT REFERENCE NO.	SHEET NO.
R-230/A	28
R/W SHEET NO.	28
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
CONST. REV.	
R/W REV.	

4C
 N OR F
 WEYERHAEUSER COMPANY
 DB 603 PG 68
 PIN# 8-209-021

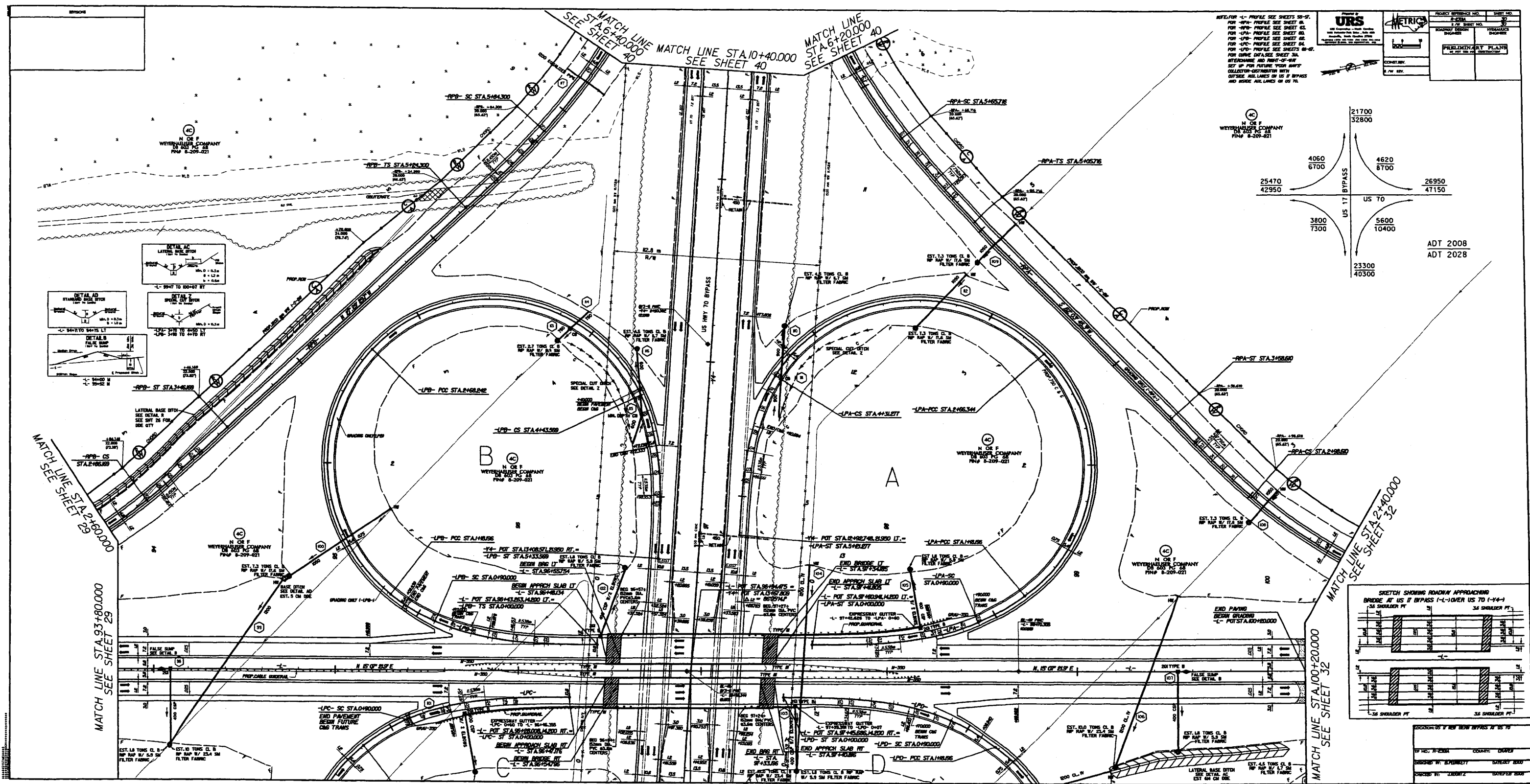
MATCH LINE STA. 87+20.000 SEE SHEET 27

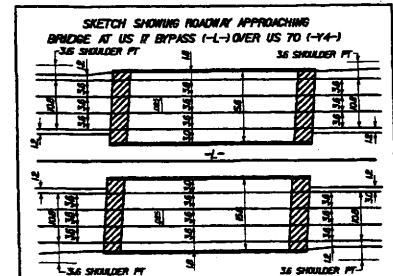
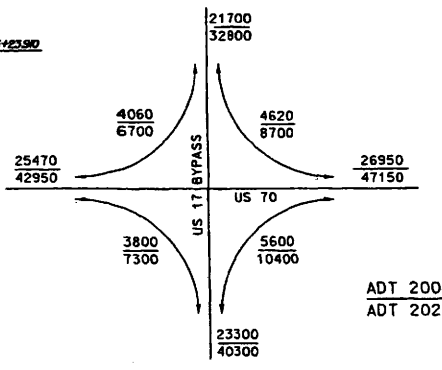
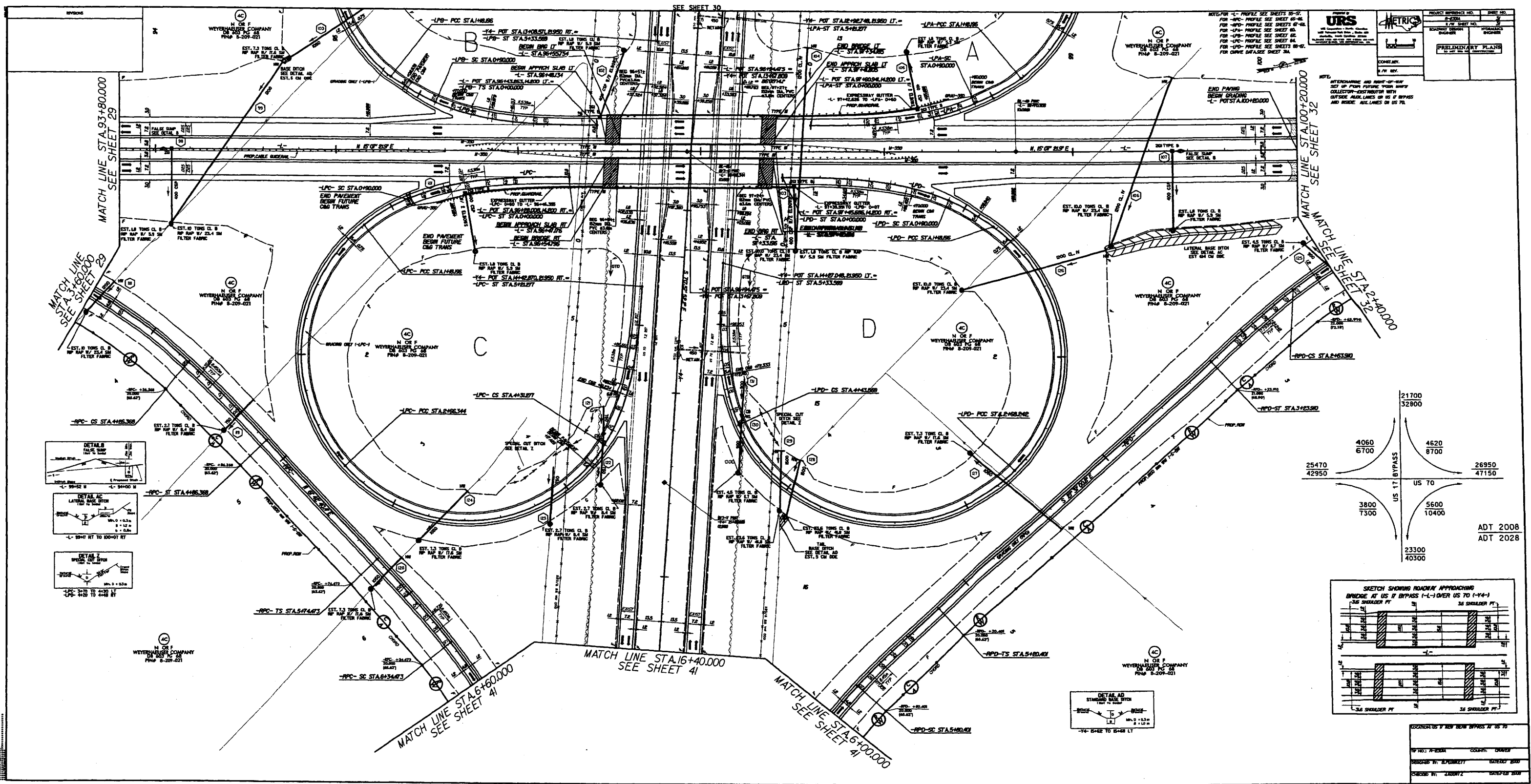
MATCH LINE STA. 90+60.000 SEE SHEET 29



4C
 N OR F
 WEYERHAEUSER COMPANY
 DB 603 PG 68
 PIN# 8-209-021

REVISIONS





CONTRACT NO. 11-00000000	
PROJECT NO. 11-00000000	COUNTY: OREGON
DESIGNED BY: J. J. JENSEN	DRAWN BY: J. J. JENSEN
CHECKED BY: J. J. JENSEN	DATE: 11/11/11



PROJECT REFERENCE NO.	SHEET NO.
R-2301A	3/A
R/W SHEET NO.	3/A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
CONST. REV.	
R/W REV.	

INTERCHANGE CURVE DATA

<u>CURVE DATA -LPA-</u> P.I.S. = 0+60.535 $\theta_s = 23^\circ 26' 21''$ $L_s = 90.000$ $LT = 60.535$ $ST = 30.487$	<u>CURVE DATA -LPA-</u> PI Sta 1+04.176 $\Delta = 14^\circ 41' 10.7''$ (LT) $L = 28.196$ $T = 14.176$ $R = 110.000$ $SE = 7.8\%$	<u>CURVE DATA -LPA-</u> PI Sta 2+15.240 $\Delta = 94^\circ 18' 50.0''$ (LT) $L = 148.148$ $T = 97.045$ $R = 90.000$ $SE = 7.8\%$	<u>CURVE DATA -LPA-</u> PI Sta 3+83.634 $\Delta = 105^\circ 00' 00.0''$ (LT) $L = 164.934$ $T = 117.290$ $R = 90.000$ $SE = 7.8\%$	<u>CURVE DATA -LPA-</u> P.I.S. = 4+62.010 $\theta_s = 28^\circ 38' 52.4''$ $L_s = 90.000$ $LT = 60.805$ $ST = 30.733$	<u>CURVE DATA -LPB-</u> P.I.S. Sta 0+60.535 $\theta_s = 23^\circ 26' 21''$ $L_s = 90.000$ $LT = 60.535$ $ST = 30.487$	<u>CURVE DATA -LPB-</u> PI Sta 1+04.176 $\Delta = 14^\circ 41' 10.8''$ (RT) $L = 28.196$ $T = 14.176$ $R = 110.000$ $SE = 7.8\%$	<u>CURVE DATA -LPB-</u> PI Sta 2+17.317 $\Delta = 95^\circ 31' 20.6''$ (RT) $L = 150.046$ $T = 99.121$ $R = 90.000$ $SE = 7.8\%$	<u>CURVE DATA -LPB-</u> PI Sta 4+00.715 $\Delta = 111^\circ 37' 01.0''$ (RT) $L = 175.328$ $T = 132.473$ $R = 90.000$ $SE = 7.8\%$	<u>CURVE DATA -LPB-</u> P.I.S. Sta 4+74.303 $\theta_s = 28^\circ 38' 52.4''$ $L_s = 90.000$ $LT = 60.805$ $ST = 30.733$
--	--	--	--	--	--	--	--	--	--

<u>CURVE DATA -RPA-</u> P.I.S. = 0+34.981 $\theta_s = 63^\circ 41' 39''$ $L_s = 60.000$ $LT = 34.981$ $ST = 25.082$ $\Delta I = 139.333''$ $\Delta 2 = 45^\circ 40.8''$ $R1 = 1035.800$ $R2 = 350.000$	<u>CURVE DATA -RPA-</u> PI Sta 1+12.235 $\Delta = 16^\circ 58' 35.6''$ (RT) $L = 103.704$ $T = 52.235$ $R = 350.000$ $SE = 7.1\%$	<u>CURVE DATA -RPA-</u> PI Sta 2+32.358 $\Delta = 26^\circ 12' 07.1''$ (RT) $L = 134.907$ $T = 68.654$ $R = 295.000$ $SE = 7.7\%$	<u>CURVE DATA -RPA-</u> P.I.S. = 3+18.630 $\theta_s = 5^\circ 49' 36.1''$ $L_s = 60.000$ $LT = 40.022$ $ST = 20.020$	<u>CURVE DATA -RPA-</u> PI Sta 6+59.634 $\Delta = 35^\circ 19' 10.3''$ (RT) $L = 181.850$ $T = 93.918$ $R = 295.000$ $SE = 7.7\%$	<u>CURVE DATA -RPB-</u> P.I.S. Sta 0+40.010 $\theta_s = 3^\circ 54' 23.5''$ $L_s = 60.000$ $LT = 40.010$ $ST = 20.009$	<u>CURVE DATA -RPB-</u> PI Sta 1+08.389 $\Delta = 12^\circ 33' 06.1''$ (LT) $L = 96.390$ $T = 48.389$ $R = 440.000$ $SE = 6.3\%$	<u>CURVE DATA -RPB-</u> PI Sta 2+22.033 $\Delta = 21^\circ 14' 42.2''$ (LT) $L = 129.779$ $T = 65.643$ $R = 350.000$ $SE = 7.1\%$	<u>CURVE DATA -RPB-</u> P.I.S. Sta 3+06.183 $\theta_s = 4^\circ 54' 39.8''$ $L_s = 60.000$ $LT = 40.015$ $ST = 20.014$	<u>CURVE DATA -RPB-</u> PI Sta 6+90.140 $\Delta = 33^\circ 39' 02.8''$ (LT) $L = 205.561$ $T = 105.840$ $R = 350.000$ $SE = 7.1\%$	<u>CURVE DATA -RPB-</u> PIs Sta 5+64.315 $\theta_s = 4^\circ 54' 39.8''$ $L_s = 60.000$ $LT = 40.015$ $ST = 20.014$	<u>CURVE DATA -RPB-</u> PIs Sta 8+09.875 $\theta_s = 4^\circ 54' 39.8''$ $L_s = 60.000$ $LT = 40.015$ $ST = 20.014$
---	---	---	---	---	---	--	---	---	--	--	--

<u>CURVE DATA -LPC-</u> P.I.S. = 0+60.535 $\theta_s = 23^\circ 26' 21''$ $L_s = 90.000$ $LT = 60.535$ $ST = 30.487$	<u>CURVE DATA -LPC-</u> PI Sta 1+04.176 $\Delta = 14^\circ 41' 10.6''$ (LT) $L = 28.196$ $T = 14.176$ $R = 110.000$ $SE = 7.8\%$	<u>CURVE DATA -LPC-</u> PI Sta 2+15.240 $\Delta = 94^\circ 18' 50.1''$ (LT) $L = 148.148$ $T = 97.045$ $R = 90.000$ $SE = 7.8\%$	<u>CURVE DATA -LPC-</u> PI Sta 3+83.634 $\Delta = 105^\circ 00' 00.0''$ (LT) $L = 164.934$ $T = 117.290$ $R = 90.000$ $SE = 7.8\%$	<u>CURVE DATA -LPC-</u> P.I.S. = 4+62.010 $\theta_s = 28^\circ 38' 52.4''$ $L_s = 90.000$ $LT = 60.805$ $ST = 30.733$	<u>CURVE DATA -LPD-</u> P.I.S. = 0+60.535 $\theta_s = 23^\circ 26' 21''$ $L_s = 90.000$ $LT = 60.535$ $ST = 30.487$	<u>CURVE DATA -LPD-</u> PI Sta 1+04.176 $\Delta = 14^\circ 41' 10.8''$ (RT) $L = 28.196$ $T = 14.176$ $R = 110.000$ $SE = 7.8\%$	<u>CURVE DATA -LPD-</u> PI Sta 2+17.317 $\Delta = 95^\circ 31' 20.5''$ (RT) $L = 150.046$ $T = 99.121$ $R = 90.000$ $SE = 7.8\%$	<u>CURVE DATA -LPD-</u> PI Sta 4+00.715 $\Delta = 111^\circ 37' 01.1''$ (RT) $L = 175.328$ $T = 132.473$ $R = 90.000$ $SE = 7.8\%$	<u>CURVE DATA -LPD-</u> P.I.S. = 4+74.303 $\theta_s = 28^\circ 38' 52.4''$ $L_s = 90.000$ $LT = 60.805$ $ST = 30.733$
--	--	--	--	--	--	--	--	--	--

<u>CURVE DATA -RPC-</u> PIs Sta 2+06.837 $\theta_s = 4^\circ 54' 39.8''$ $L_s = 60.000$ $LT = 40.015$ $ST = 20.014$	<u>CURVE DATA -RPC-</u> PI Sta 3+29.388 $\Delta = 32^\circ 39' 58.8''$ (RT) $L = 199.547$ $T = 102.567$ $R = 350.000$ $SE = 7.1\%$	<u>CURVE DATA -RPC-</u> PIs Sta 4+46.382 $\theta_s = 4^\circ 54' 39.8''$ $L_s = 60.000$ $LT = 40.015$ $ST = 20.014$	<u>CURVE DATA -RPC-</u> PIs Sta 6+14.488 $\theta_s = 4^\circ 54' 39.8''$ $L_s = 60.000$ $LT = 40.015$ $ST = 20.014$	<u>CURVE DATA -RPC-</u> PI Sta 7+53.289 $\Delta = 37^\circ 30' 07.7''$ (RT) $L = 229.087$ $T = 118.816$ $R = 350.000$ $SE = 7.1\%$	<u>CURVE DATA -RPD-</u> P.I.S. = 0+20.002 $\theta_s = 1^\circ 36' 54.8''$ $L_s = 60.000$ $LT = 40.002$ $ST = 20.002$	<u>CURVE DATA -RPD-</u> P.I.S. = 1+00.015 $\theta_s = 4^\circ 54' 39.8''$ $L_s = 60.000$ $LT = 40.015$ $ST = 20.014$	<u>CURVE DATA -RPD-</u> P.I. = 1+61.327 $\Delta = 13^\circ 28' 06.3''$ (LT) $T = 41.327$ $L = 82.274$ $R = 350.000$ $SE = 7.1\%$	<u>CURVE DATA -RPD-</u> PI Sta 2+33.205 $\Delta = 11^\circ 58' 16.5''$ (LT) $L = 61.637$ $T = 30.931$ $R = 295.000$ $SE = 7.7\%$	<u>CURVE DATA -RPD-</u> P.I.S. = 2+83.930 $\theta_s = 5^\circ 49' 36.1''$ $L_s = 60.000$ $LT = 40.022$ $ST = 20.020$
--	--	--	--	--	---	---	--	--	---

<u>CURVE DATA -RPD-</u> PIs Sta 5+60.417 $\theta_s = 4^\circ 54' 39.8''$ $L_s = 60.000$ $LT = 40.015$ $ST = 20.014$	<u>CURVE DATA -RPD-</u> PI Sta 6+72.632 $\Delta = 29^\circ 31' 31.7''$ (LT) $L = 180.361$ $T = 92.231$ $R = 350.000$ $SE = 7.1\%$	<u>CURVE DATA -RPD-</u> PIs Sta 7+80.776 $\theta_s = 4^\circ 54' 39.8''$ $L_s = 60.000$ $LT = 40.015$ $ST = 20.014$
--	---	--

REVISIONS

CURVE DATA -L-

Pls Sta 101+31.971 Pls Sta 106+53.464 Pls Sta 111+11.348
 $\theta_s = 2' 27'' 19.9''$ $\Delta = 50' 10'' 04.9''$ (LT) $\theta_s = 2' 27'' 19.9''$
 $L_s = 90.000$ $L = 919.377$ $L_s = 90.000$
 $LT = 60.006$ $T = 491.499$ $LT = 60.006$
 $ST = 30.005$ $R = 1,050.000$ $ST = 30.005$
 $SE = 5.9\%$

CURVE DATA -RPA-

P.I.S. = 0+34.981
 $\theta_s = 6' 34'' 13.9''$
 $L_s = 60.000$
 $LT = 34.981$
 $ST = 25.082$
 $\Delta I = 1' 39'' 33.1''$
 $\Delta 2 = 4' 54'' 40.8''$
 $RI = 1035.800$
 $R2 = 350.000$

CURVE DATA -RPA-

P.I. Sta 1+12.235
 $\Delta = 16' 58'' 35.6''$ (RT)
 $L = 103.704$
 $T = 52.235$
 $R = 350.000$
 $SE = 7.1\%$

CURVE DATA -RPA-

P.I. Sta 2+32.358
 $\Delta = 26' 12'' 07.1''$ (RT)
 $L = 134.907$
 $T = 68.654$
 $R = 295.000$
 $SE = 7.7\%$

NOTE: FOR -L- PROFILE SEE SHEET 57
 FOR -RPA- PROFILE SEE SHEETS 61
 FOR -RPD- PROFILE SEE SHEET 67-68

INTERCHANGE AND RIGHT-OF-WAY
 SET UP FOR FUTURE "POOR MAN'S"
 COLLECTOR-DISTRIBUTOR WITH
 OUTSIDE AUX. LANES ON US 17 BYPASS

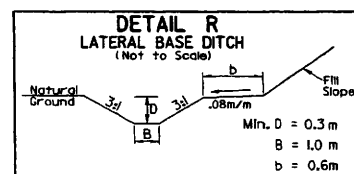
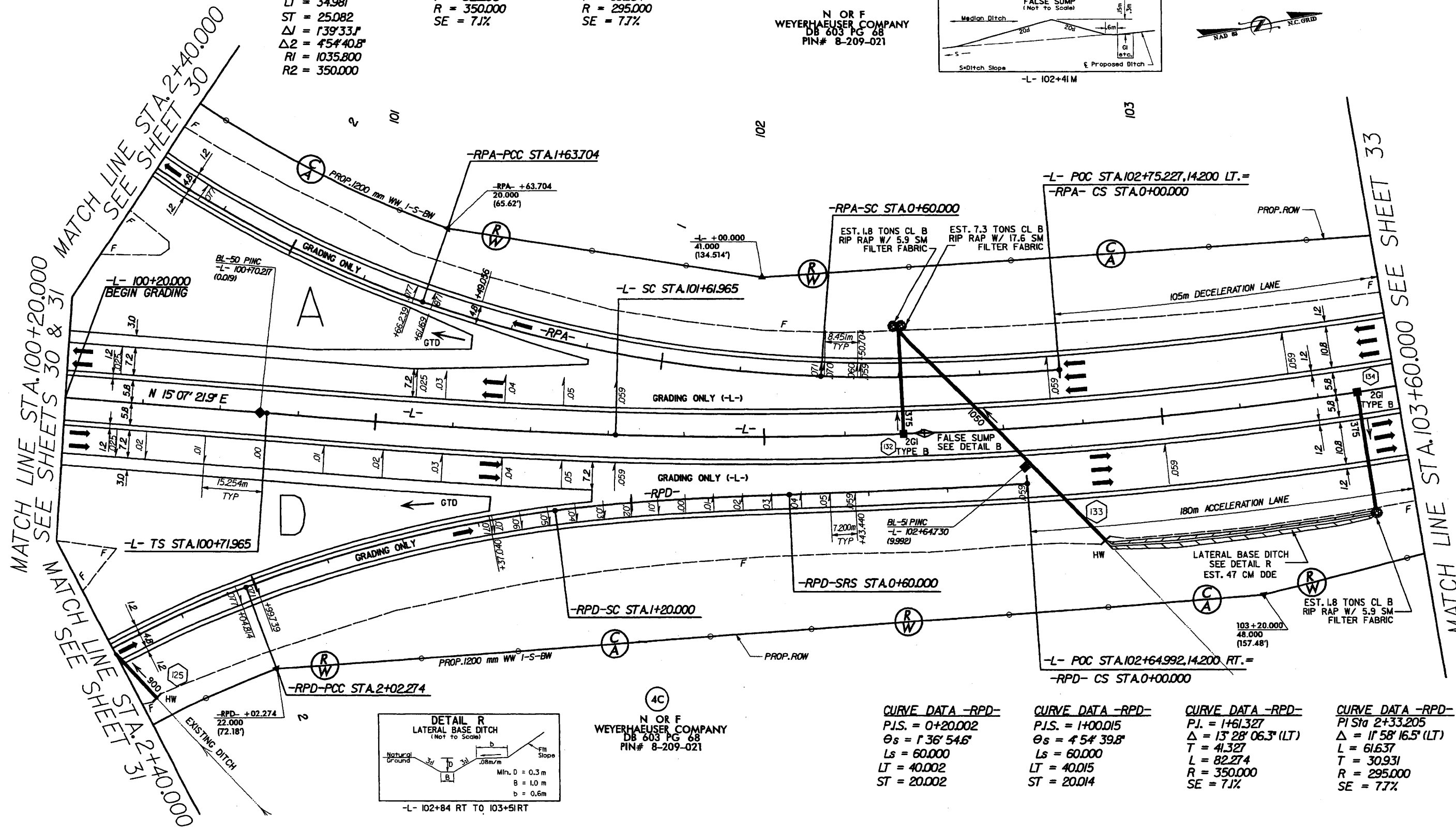
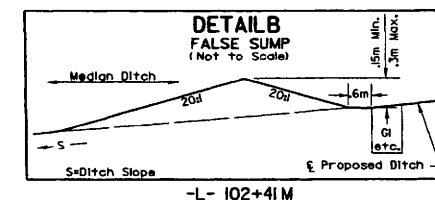
Prepared by
URS

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PROJECT REFERENCE NO.	SHEET NO.
R-2301A	32
R/W SHEET NO.	32
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
CONST. REV.	
R/W REV.	

4C
 N OR F
 WEYERHAEUSER COMPANY
 DB 603 PG 68
 PIN# 8-209-021



-L- 102+84 RT TO 103+51 RT

4C
 N OR F
 WEYERHAEUSER COMPANY
 DB 603 PG 68
 PIN# 8-209-021

CURVE DATA -RPD-

P.I.S. = 0+20.002
 $\theta_s = 1' 36'' 54.6''$
 $L_s = 60.000$
 $LT = 40.002$
 $ST = 20.002$

CURVE DATA -RPD-

P.I.S. = 1+00.015
 $\theta_s = 4' 54'' 39.8''$
 $L_s = 60.000$
 $LT = 40.015$
 $ST = 20.014$

CURVE DATA -RPD-

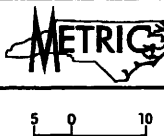
P.I. = 1+61.327
 $\Delta = 13' 28'' 06.3''$ (LT)
 $T = 41.327$
 $L = 82.274$
 $R = 350.000$
 $SE = 7.1\%$

CURVE DATA -RPD-

P.I. Sta 2+33.205
 $\Delta = 11' 58'' 16.5''$ (LT)
 $L = 61.637$
 $T = 30.931$
 $R = 295.000$
 $SE = 7.7\%$

NOTE: FOR -L- PROFILE SEE SHEETS 57-58

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PROJECT REFERENCE NO.	SHEET NO.
R-2301A	33
R/W SHEET NO.	33
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
CONST. REV.	
R/W REV.	

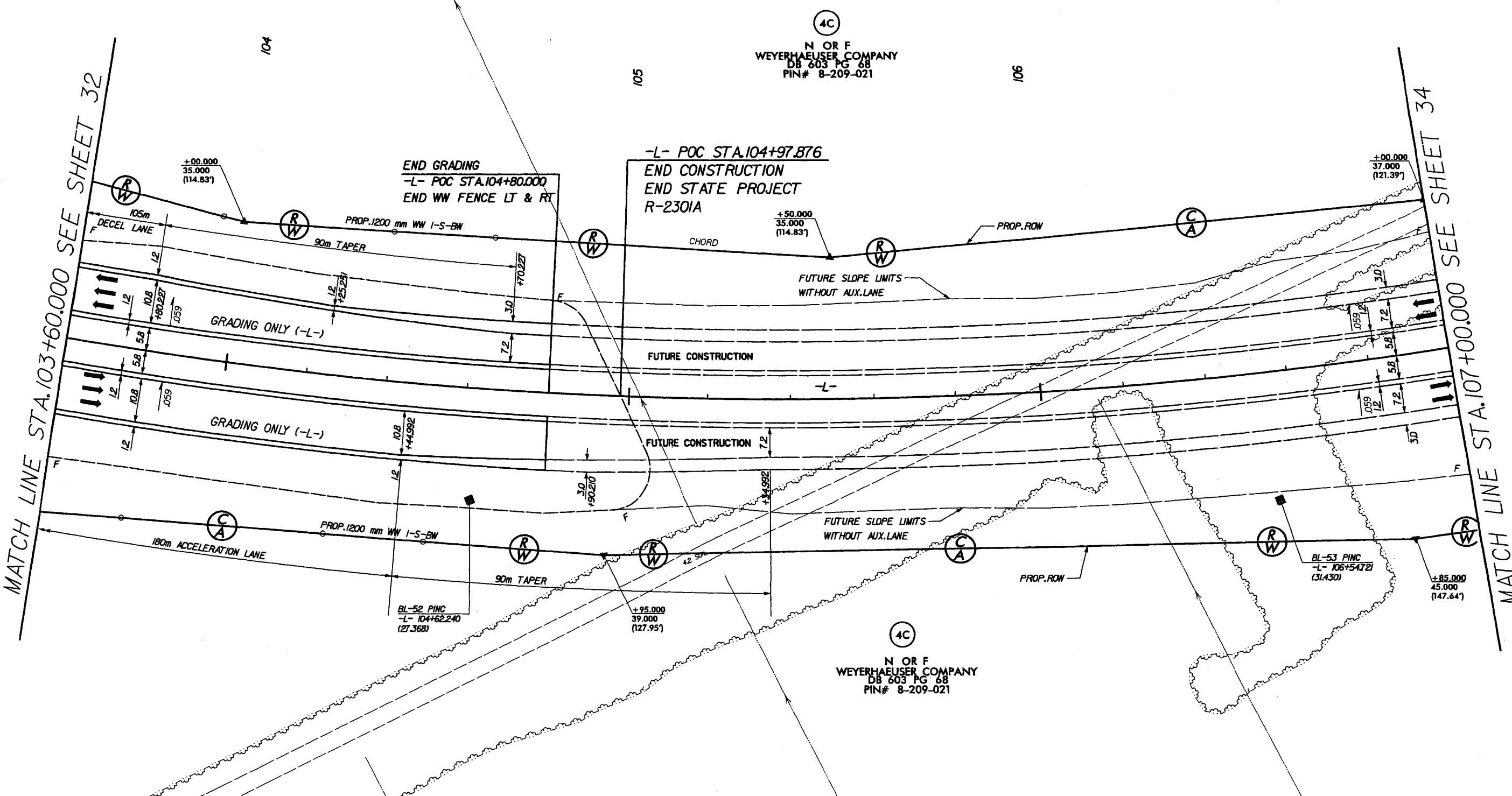
CURVE DATA -L-
PI Sta 106+53.464
 $\Delta = 50^\circ 10' 04.9''$ (LT)
L = 919.377
T = 491.499
R = 1,050.000
SE = 5.9%

4C
N OR F
WEYERHAEUSER COMPANY
DB 603 PG 68
PIN# 8-209-021



MATCH LINE STA. 103+60.000 SEE SHEET 32

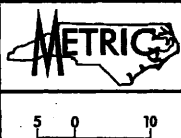
MATCH LINE STA. 107+00.000 SEE SHEET 34



REVISIONS

NOTE: THIS SHEET FOR RIGHT-OF-WAY ONLY
FOR -L- PROFILE SEE SHEET SEE SHEETS 58-59

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PROJECT REFERENCE NO.	SHEET NO.
R-230/A	34
R/W SHEET NO.	34
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
CONST. REV.	
R/W REV.	

CURVE DATA -L-
PI Sta 106+53.464
 $\Delta = 50^\circ 10' 04.9''$ (LT)
L = 919.377
T = 491.499
R = 1,050.000
SE = 5.9%

4C
N OR F
WEYERHAEUSER COMPANY
DB 603 PG 68
PIN# 8-209-021

A&EC RR
RW EASEMENT

CP&L RW EASEMENT

A&EC RR
RW EASEMENT

15A
N OR F
CRAVEN COUNTY
DB 1604 PG 1010
PLAT CAB. C, SL 26
PIN# 8-217-1-009

BL-55/BY4-2/PINC
-L- 110+36.697
(3.478)

FUTURE CONSTRUCTION

FUTURE CONSTRUCTION

FUTURE SLOPE LIMITS
WITHOUT AUX. LANE

BL-54 PINC
-L- 108+51.940
(22.870)

N OR F
WEYERHAEUSER COMPANY
DB 603 PG 68
PIN# 8-209-021

PROP. ROW

27.40 m
R/W

CP&L RW EASEMENT

-L- 109+25.000
60.743
(199.29)

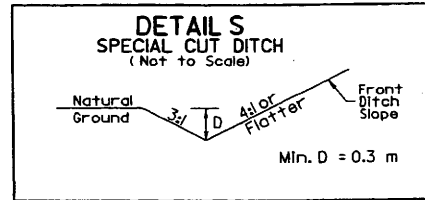
BY4-3 PINC
-L- 109+57.136
(65.833)

60.96 m
R/W

ATLANTIC AND EAST CAROLINA RAILROAD

MATCH LINE STA. 107+00.000
SEE SHEET 33

REVISIONS



DATE: JANUARY 31, 2008 REVISED US 17 -YI- ALIGNMENT AND TIE TO EXIST. ADDED -YILT- ALIGNMENT (-YILT- STA. 12+20 TO EQUALITY TO -YI- 18+80 THIS SHEET)

MONOLITHIC CONCRETE ISLAND

NOTE: FOR -YI- PROFILE SEE SHEET 70-71
FOR -YILT- PROFILE SEE SHEET 69

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

PROJECT REFERENCE NO.	SHEET NO.
R-230/A	36
R/W SHEET NO.	4.36
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

MATCH LINE STA. 12+20.000 SEE SHEET 35

MATCH LINE STA. 18+80.000 SEE SHEET 4

CURVE DATA YILT
PI Sta 10+77.449
 $\Delta = 4' 20'' 07.0''$ (LT)
L = 136.197
T = 68.131
R = 1,800.000
SE = 2.0%
PI Sta 12+55.119
 $\Delta = 4' 11'' 04.9''$ (RT)
L = 219.110
T = 109.604
R = 3,000.000
SE = NC (2.0%)

N OR F
LUTHER J. COX, III.
DB 181 PG 428
PIN# 5438-93-8157

N OR F
ALLIE RAY HERRING, JR.
DB 239 PG 6
PLAT CAB. A, SL 135
PIN# 5438-94-6260

EST. 1.8 TONS CL B
RIP RAP W/ 5.9 SM
FILTER FABRIC

N OR F
LULA COX HERRING
DB 175 PG 332
PLAT CAB. A, SL 1-A
PIN# 5448-03-1216

-YILT- PT Sta. 13+64.625 LB=
-YI- POT Sta. 16+97.996 (4.5m RT) LA

N OR F
ROBERT A. & GLENDA M. WIGGINS
DB 235 PG 191
MAP BK. 3, PG 35
PIN# 5448-21-3497

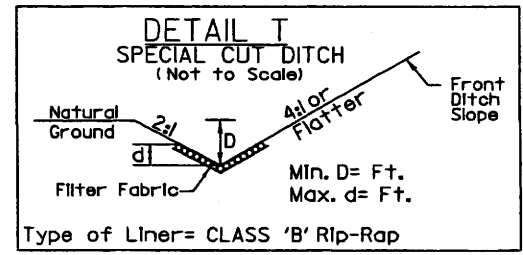
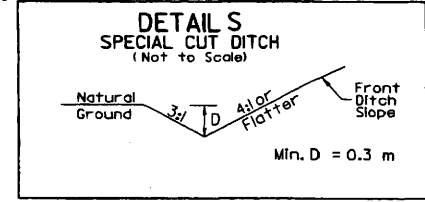
-Y6- POT Sta. 10+20
BEGIN CONSTRUCTION

N OR F
AARON L. &
DOROTHY C. MALLARD
DB 132 PG 57
PIN# 5448-07-3011

PROP. ROW
POT Sta. 10+00.000

EST. 4.5 TONS CL B
RIP RAP W/ 11.7 SM
FILTER FABRIC

+62.000
34.500 (113.19')
END WW FENCE
WW T-S-BW



-Y6- 10+00 TO 10+39 LT
-Y6- 10+02 TO 10+44.86 RT

21200
37600

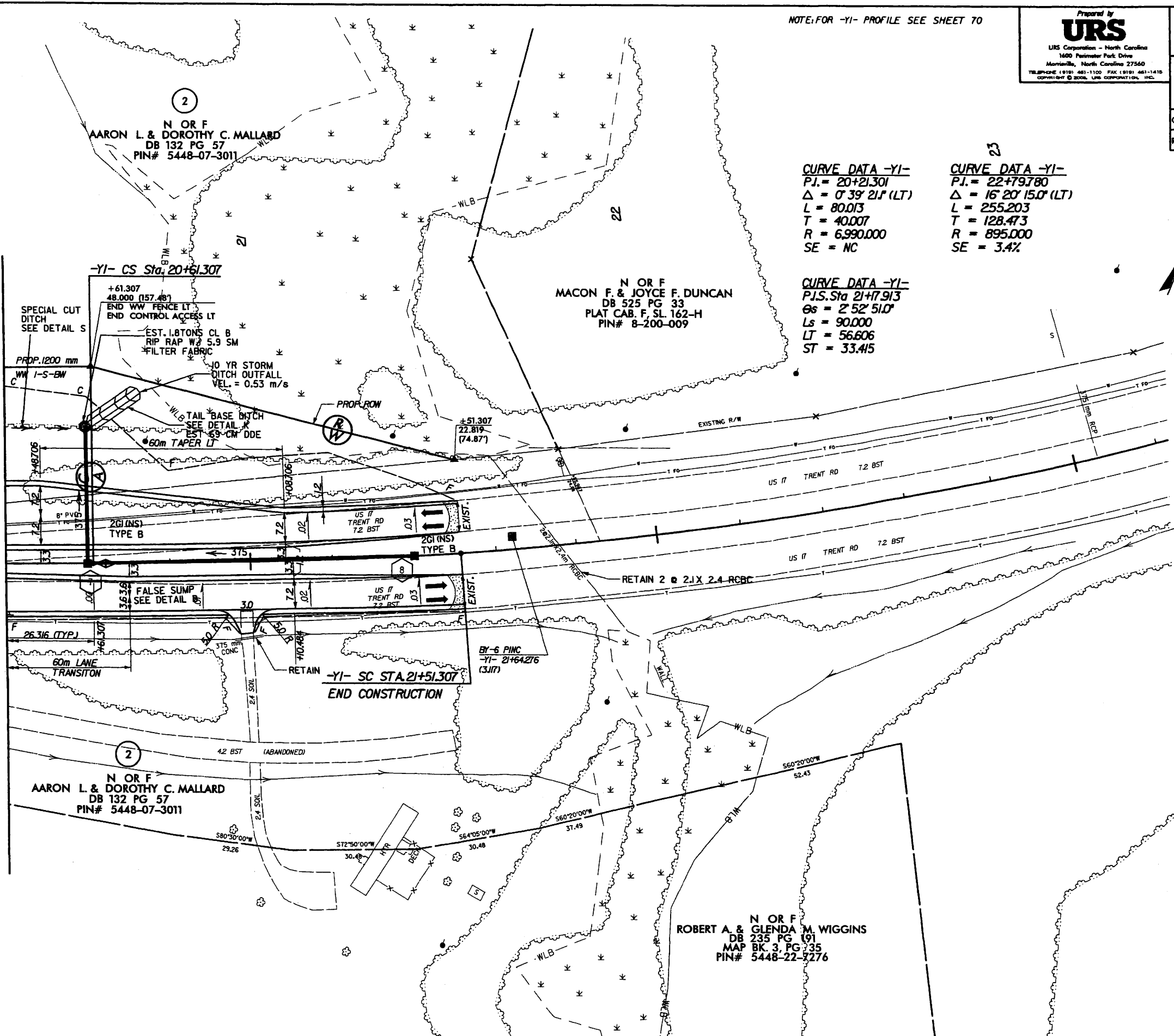
US 17

21200
37600

DATE: JANUARY 31, 2008 REVISED US 17 RT TURN LANE (-YI- STA. 20+40 TO 21+51.307 THIS SHEET)

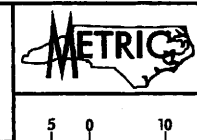
REVISIONS

MATCH LINE STA. 20+40.000 SEE SHEET 4



NOTE: FOR -YI- PROFILE SEE SHEET 70

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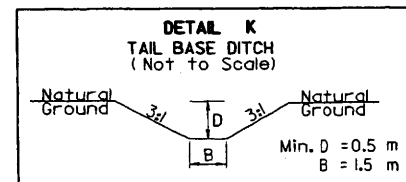


PROJECT REFERENCE NO.	SHEET NO.
R-2301A	37
R/W SHEET NO.	37
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
CONST. REV.	
R/W REV.	

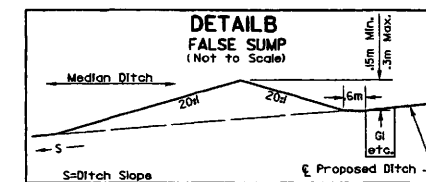
CURVE DATA -YI-
P.I. = 20+21.301
 $\Delta = 0^\circ 39' 21''$ (LT)
L = 80.013
T = 40.007
R = 6,990.000
SE = NC

CURVE DATA -YI-
P.I. = 22+79.780
 $\Delta = 16^\circ 20' 15.0''$ (LT)
L = 255.203
T = 128.473
R = 895.000
SE = 3.4%

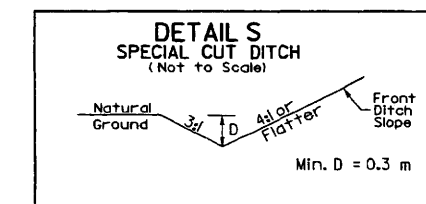
CURVE DATA -YI-
P.I. Sta 21+79.913
 $\Delta = 2^\circ 52' 51.0''$
Ls = 90.000
LT = 56.606
ST = 33.415



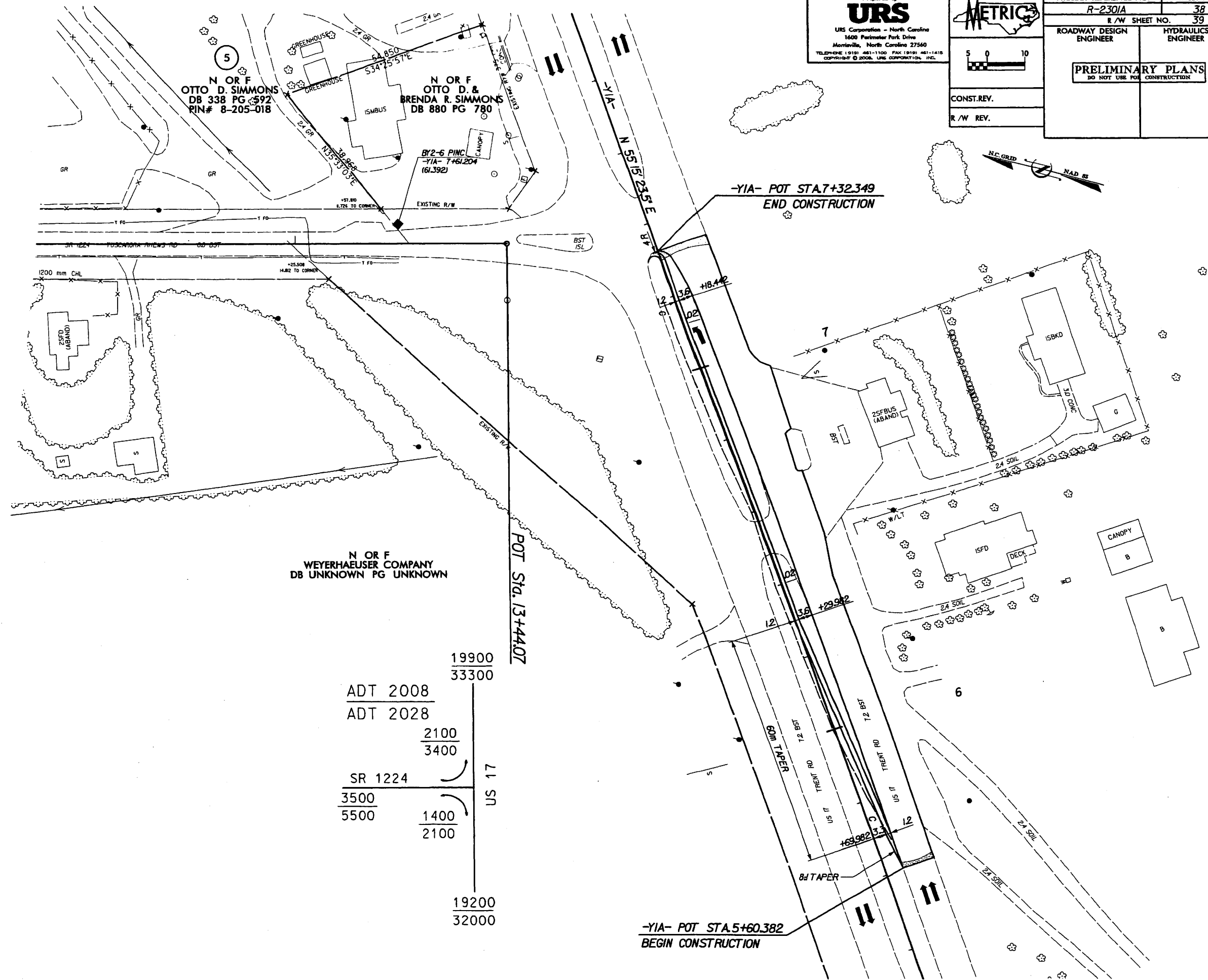
-YI- 20+60 TO 20+73 LT



-YI- 20+65 M



-YI- 19+80 TO 20+60 LT



REVISIONS

8/17/99

REVISIONS

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METRIC



CONST. REV.

R/W REV.

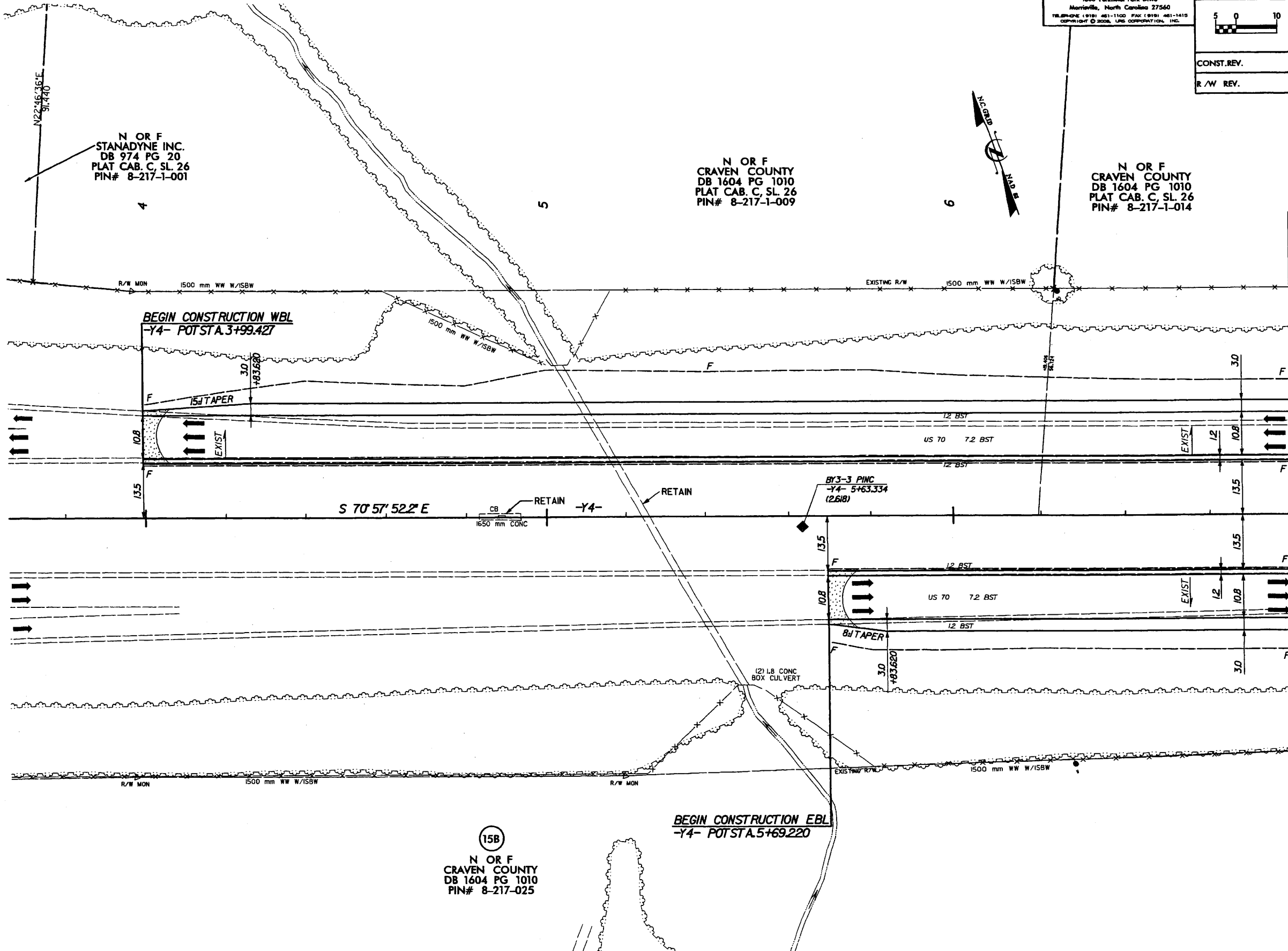
PROJECT REFERENCE NO. SHEET NO.

R-2301A 39

R/W SHEET NO. 40

ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

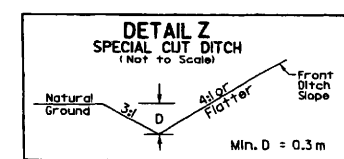


MATCH LINE STA. 6+80.000 SEE SHEET 40

REVISIONS
DATE: JANUARY 31, 2008 PARCEL 15B, ELIMINATED CLAIM C/A REVISED TO PROPERTY LINE INTERSECTION WITH PARCEL 4C AND EXISTING C/A

CURVE DATA -RPA-

Pls Sta 5+45.737	PI Sta 6+59.634	Pls Sta 7+67.586
$\theta_s = 54^\circ 36'$	$\Delta = 35^\circ 19' 10.3" (RT)$	$\theta_s = 54^\circ 36'$
Ls = 60.000	L = 181.850	Ls = 60.000
LT = 40.022	T = 93.918	LT = 40.022
ST = 20.020	R = 295.000	ST = 20.020
	SE = 77%	

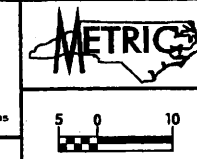


-RPB- 6+70 TO 7+44 LT
-RPA- 6+40 TO 7+15 RT

N OR F
CRAVEN COUNTY
DB 1604 PG 1010
PLAT CAB. C, SL. 26
PIN# 8-217-1-014

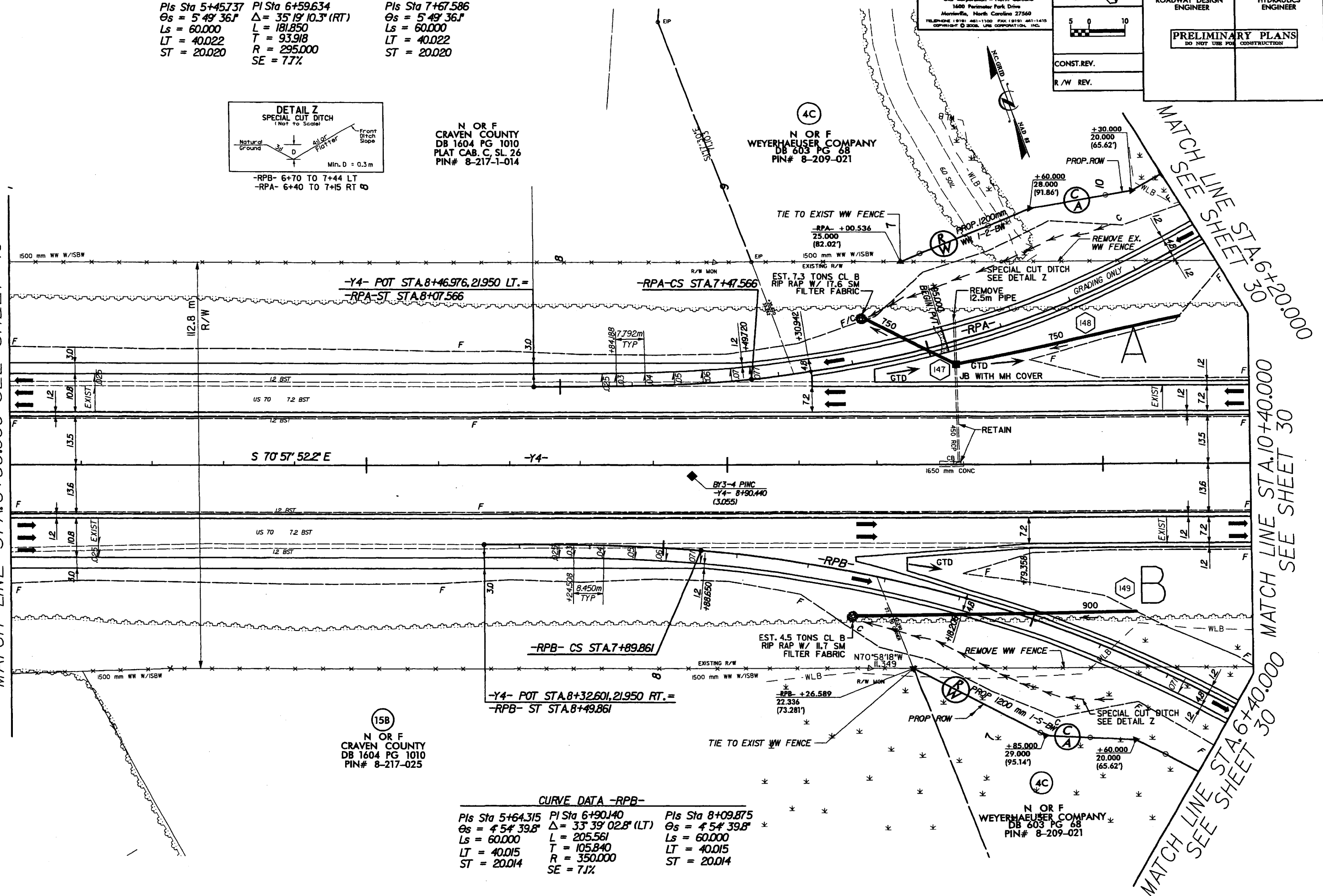
NOTE: FOR -RPA- PROFILE SEE SHEET 61
FOR -RPB- PROFILE SEE SHEETS 63-64

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PROJECT REFERENCE NO.	SHEET NO.
R-2301A	40
R/W SHEET NO.	41
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
CONST. REV.	
R/W REV.	

MATCH LINE STA. 6+80.000 SEE SHEET 40



15B
N OR F
CRAVEN COUNTY
DB 1604 PG 1010
PIN# 8-217-025

CURVE DATA -RPB-

Pls Sta 5+64.315	PI Sta 6+90.140	Pls Sta 8+09.875
$\theta_s = 45^\circ 39.8'$	$\Delta = 33^\circ 39' 02.8" (LT)$	$\theta_s = 45^\circ 39.8'$
Ls = 60.000	L = 205.561	Ls = 60.000
LT = 40.015	T = 105.840	LT = 40.015
ST = 20.014	R = 350.000	ST = 20.014
	SE = 71%	

N OR F
WEYERHAEUSER COMPANY
DB 603 PG 68
PIN# 8-209-021

MATCH LINE STA. 6+80.000 SEE SHEET 40
MATCH LINE STA. 10+40.000 SEE SHEET 30
MATCH LINE STA. 4+6+40.000 SEE SHEET 30

RPD 7+40 LT TO 8+65 LT
RPC 7+60 LT TO 8+35 LT

8/17/95

NOTE: FOR -RPD- PROFILE SEE SHEET 68

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METRICS

5 0 10

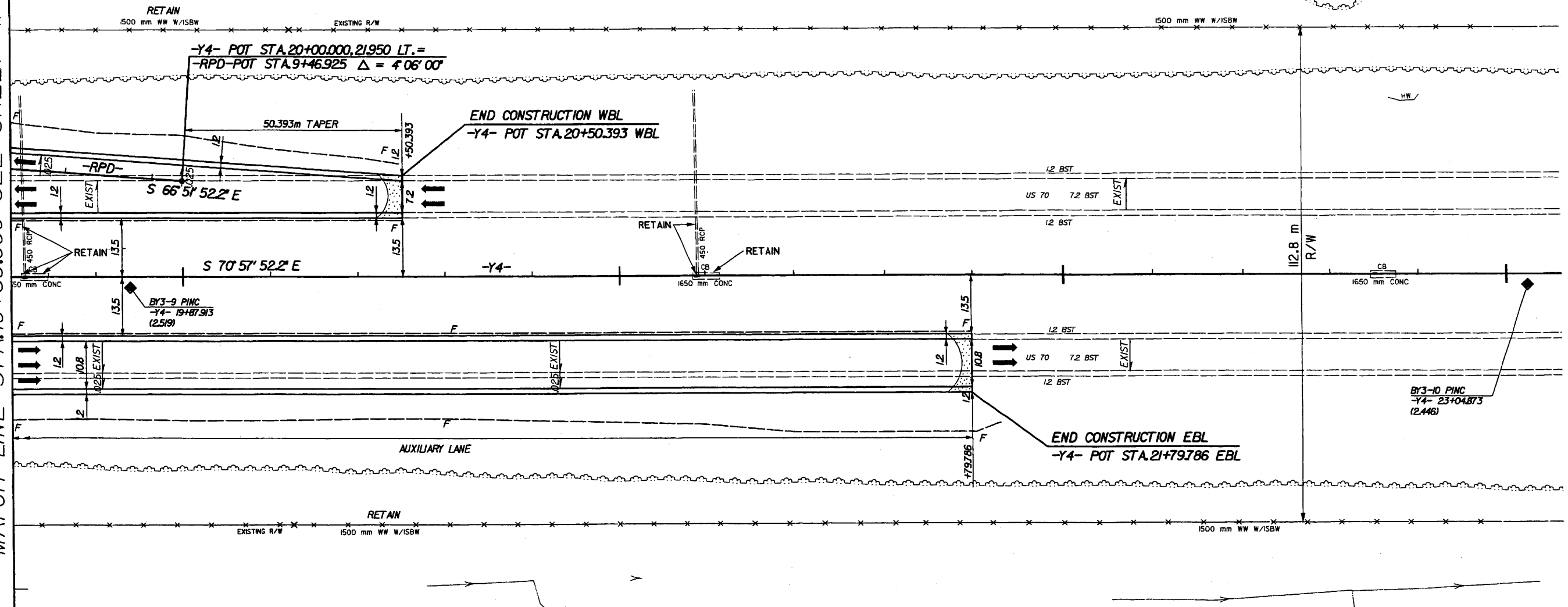
CONST. REV.

R/W REV.

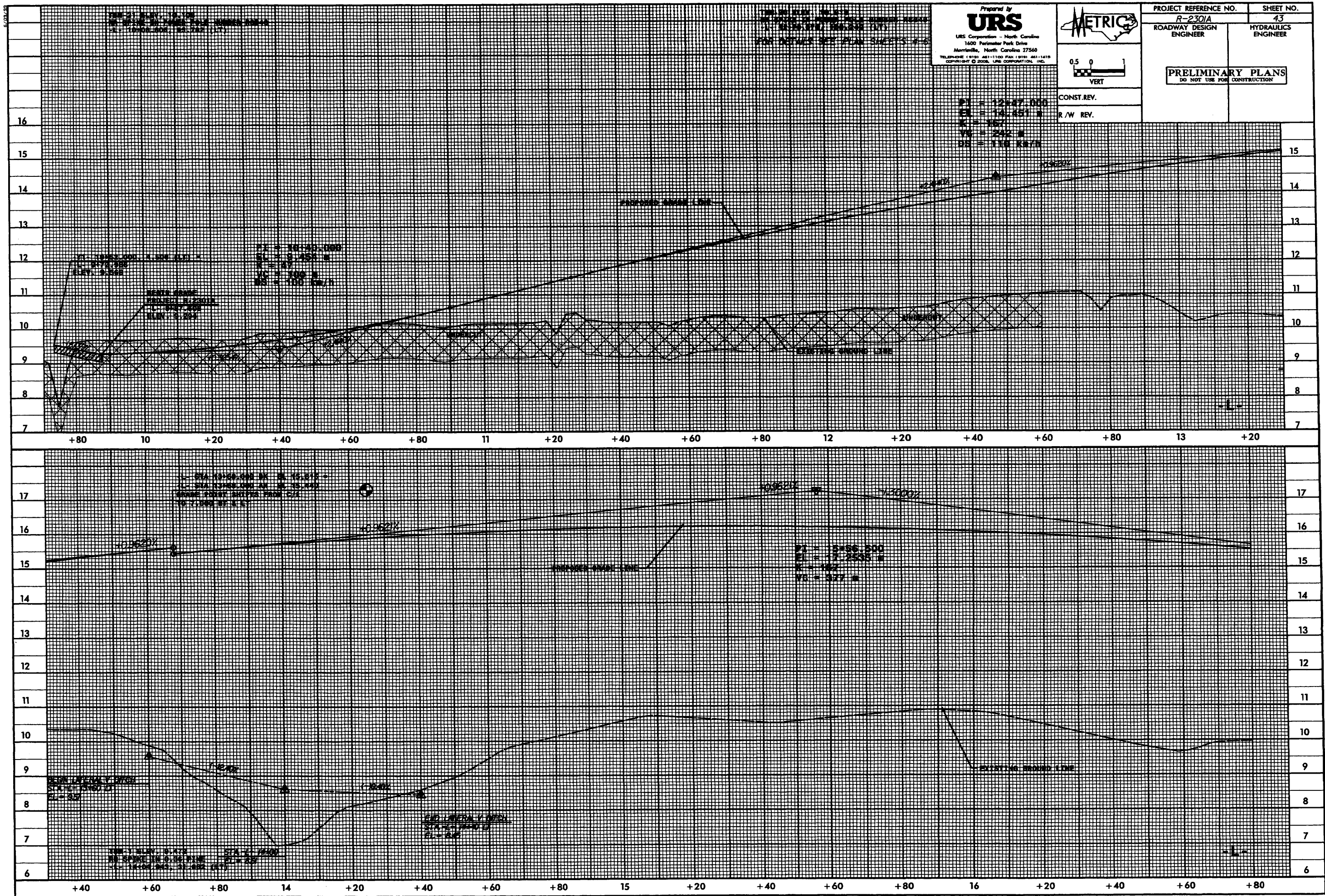
PROJECT REFERENCE NO.	SHEET NO.
R-2301A	42
R/W SHEET NO.	43
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

4C
N OR F
WEYERHAEUSER COMPANY
DB 603 PG 68
PIN# 8-209-021

MATCH LINE STA. 19+60.000 SEE SHEET 41



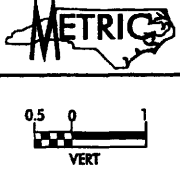
4C
N OR F
WEYERHAEUSER COMPANY
DB 603 PG 68
PIN# 8-209-021



PROJECT NO. R-230/A
ROADWAY DESIGN ENGINEER

PREPARED BY
URS CORPORATION - NORTH CAROLINA
1400 PINEHURST PARK DRIVE
MARTINVILLE, NORTH CAROLINA 27540
TELEPHONE (919) 461-1100 FAX (919) 461-1419
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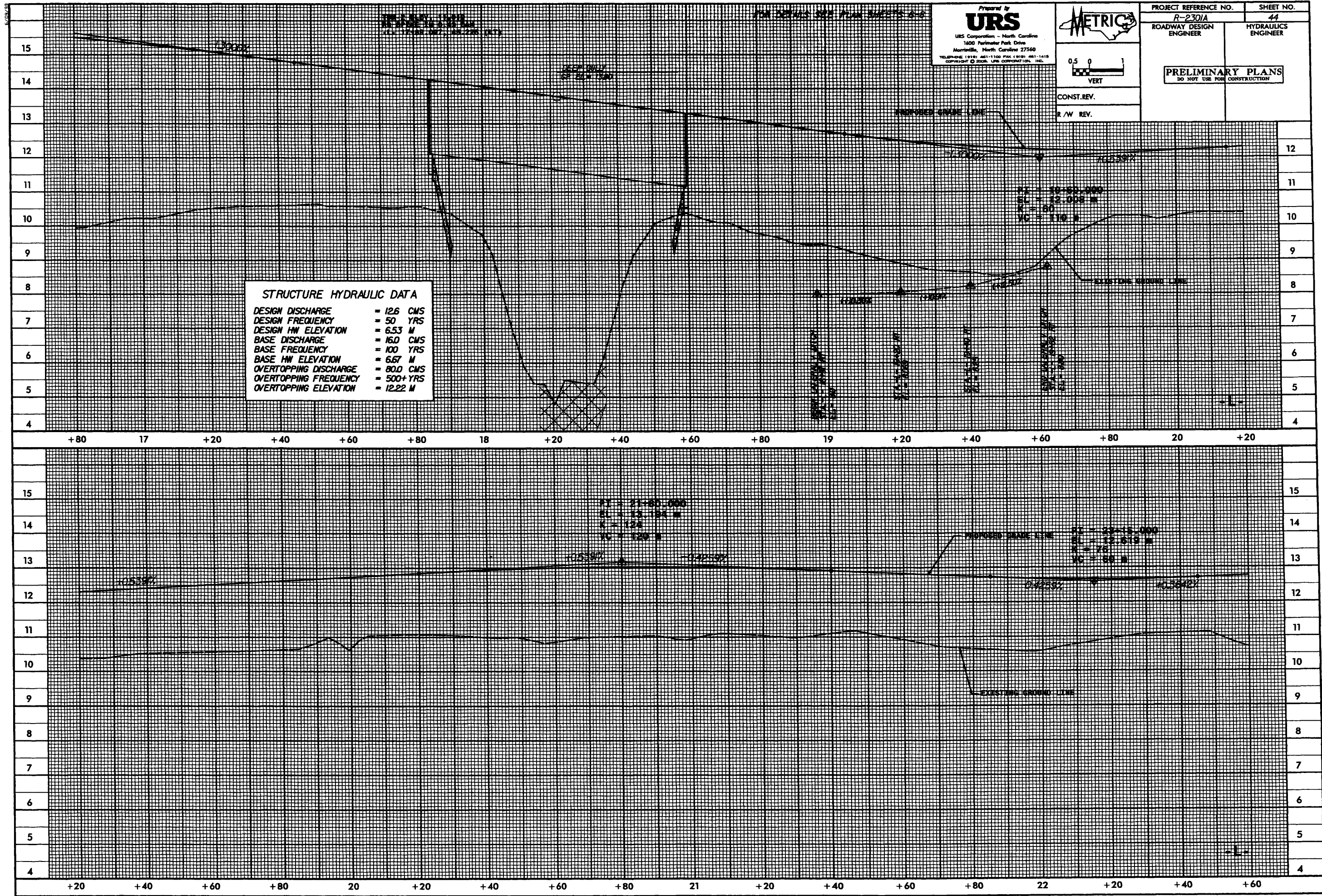
PROJECT REFERENCE NO.
R-230/A



SHEET NO.
43
HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST. REV.
R/W REV.

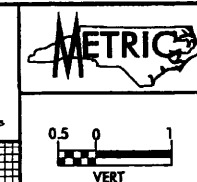


8/09/98

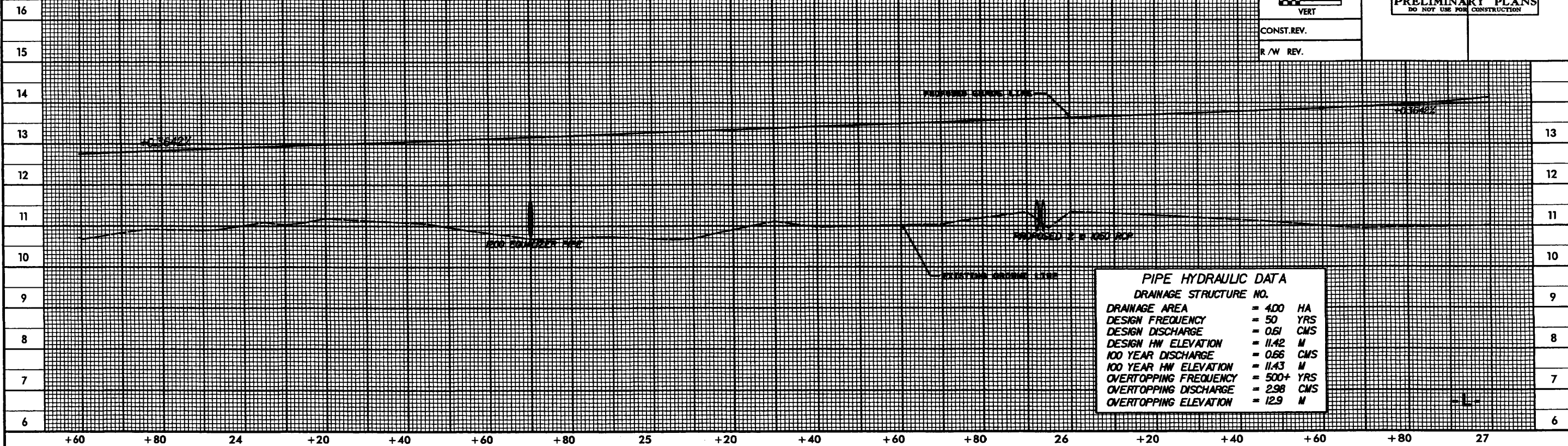
URS CORPORATION
1400 Perimeter Park Drive
Marietta, North Carolina 27560
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NEW BRANCH SEE PLANS SHEETS R-10

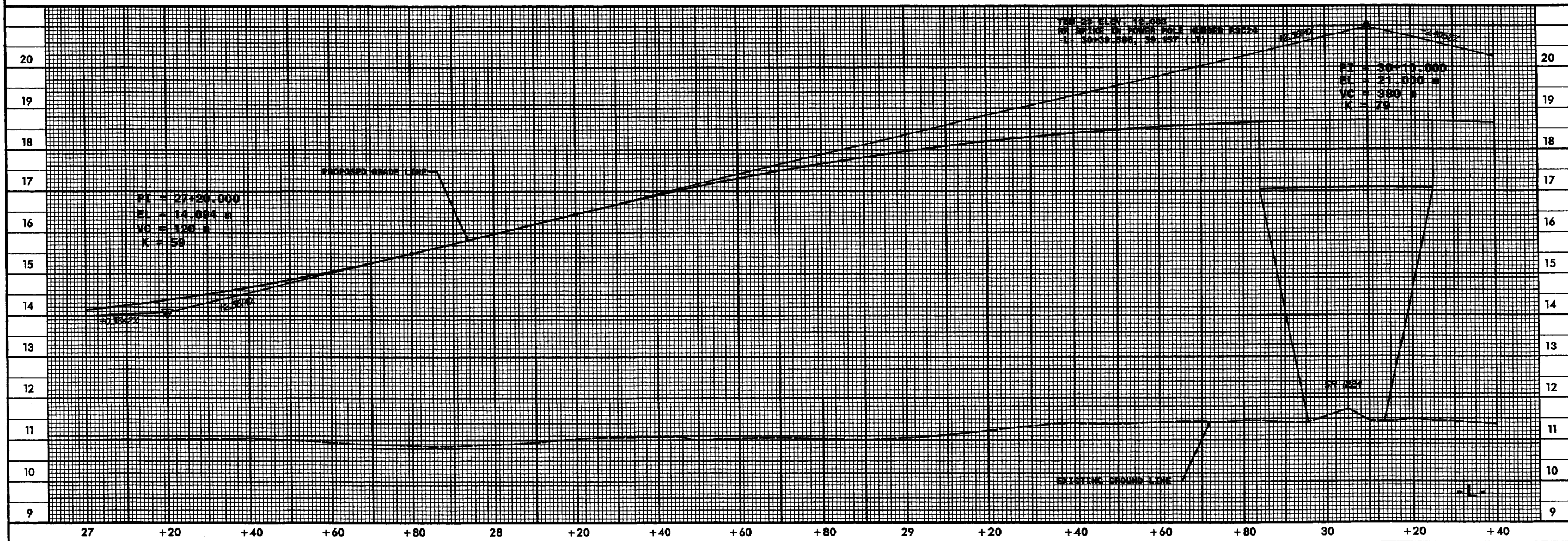
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Marietta, North Carolina 27560
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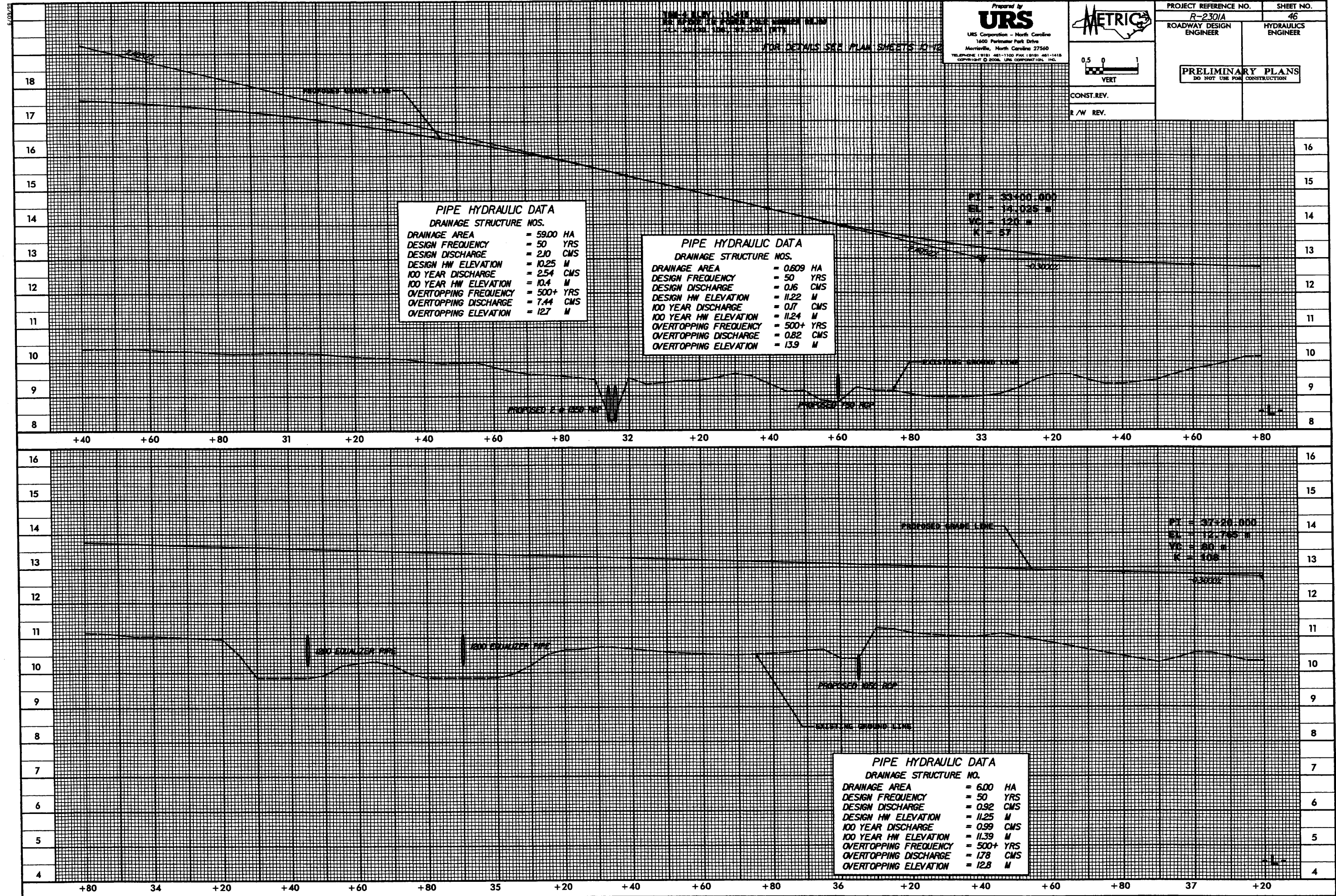


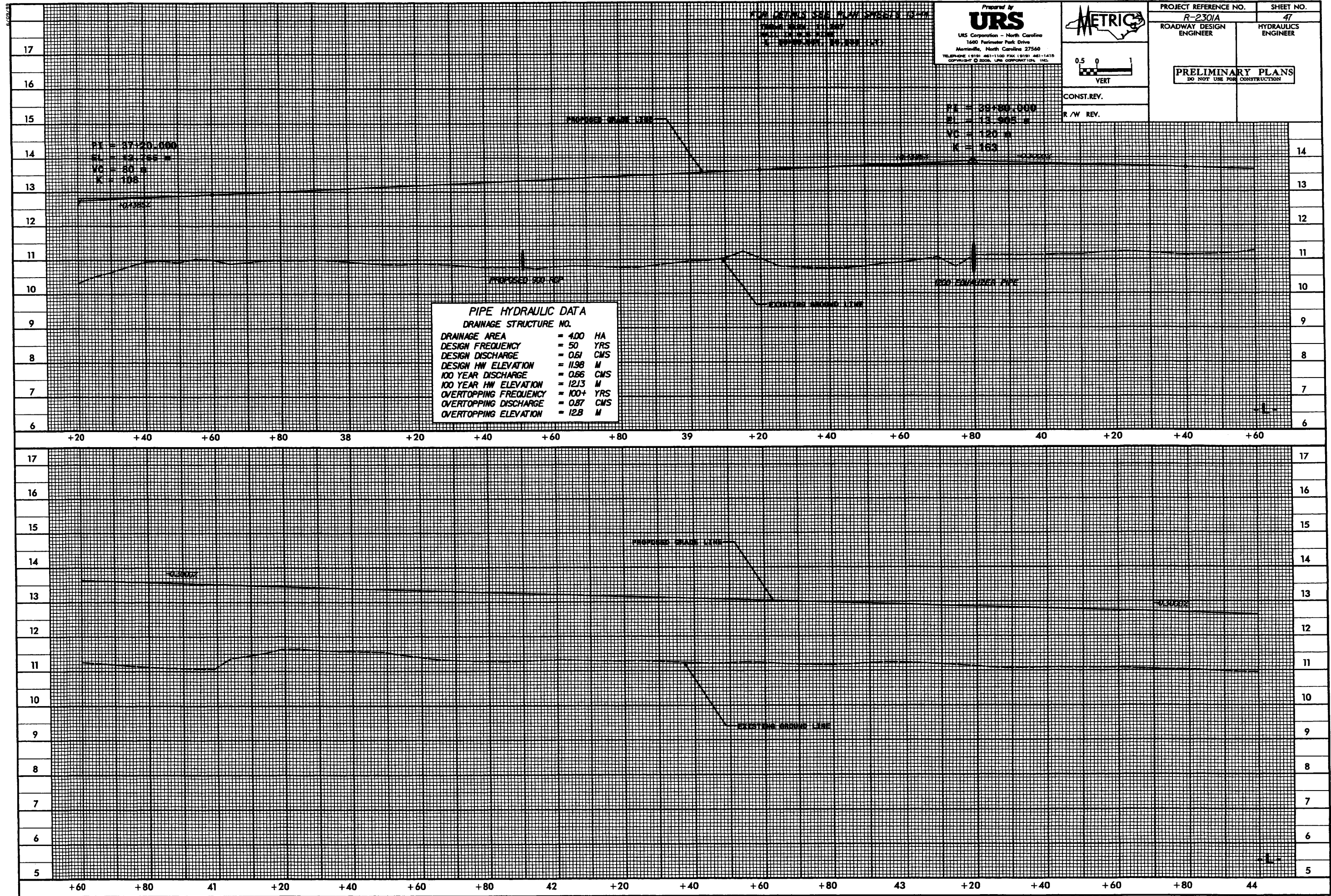
PROJECT REFERENCE NO. R-2301A	SHEET NO. 45
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
CONST. REV.	
R/W REV.	



PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO.	
DRAINAGE AREA	= 4.00 HA
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 0.61 CMS
DESIGN HW ELEVATION	= 11.42 M
100 YEAR DISCHARGE	= 0.66 CMS
100 YEAR HW ELEVATION	= 11.43 M
OVERTOPPING FREQUENCY	= 500+ YRS
OVERTOPPING DISCHARGE	= 2.98 CMS
OVERTOPPING ELEVATION	= 12.9 M







5/09/04

TOP DETAILS SEE PLAN SHEETS 47-8

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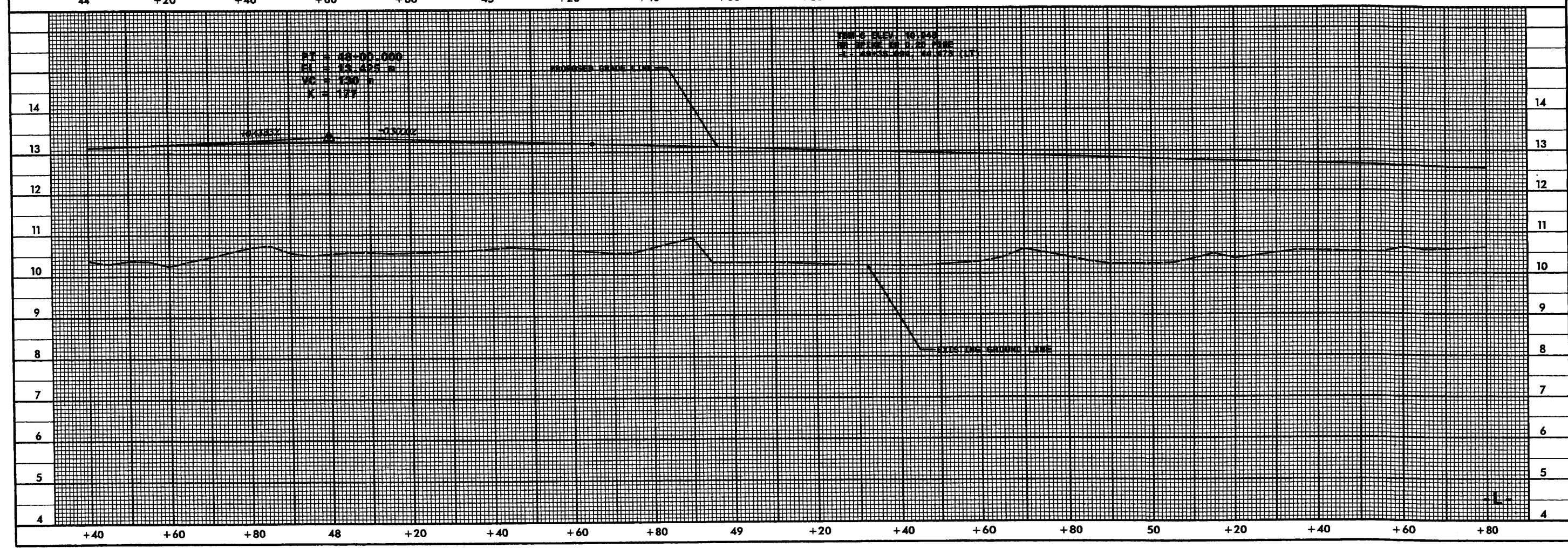
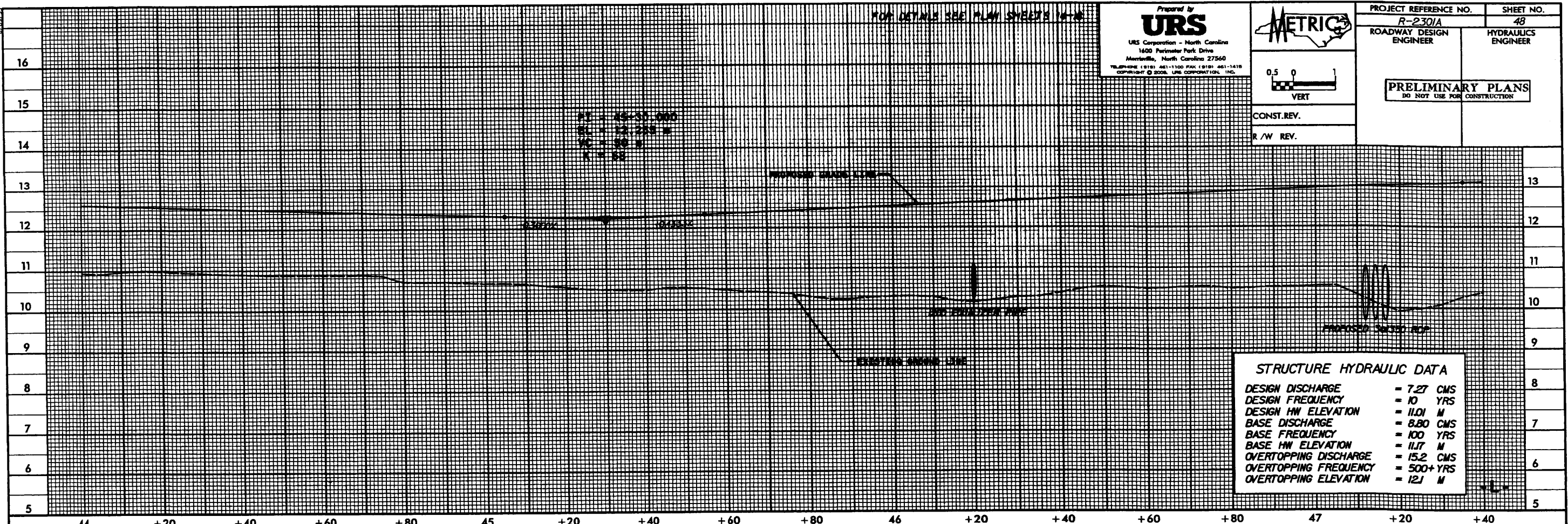
0.5 0 1
VERT

CONST.REV.

R /W REV.

PROJECT REFERENCE NO. R-2301A	SHEET NO. 48
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



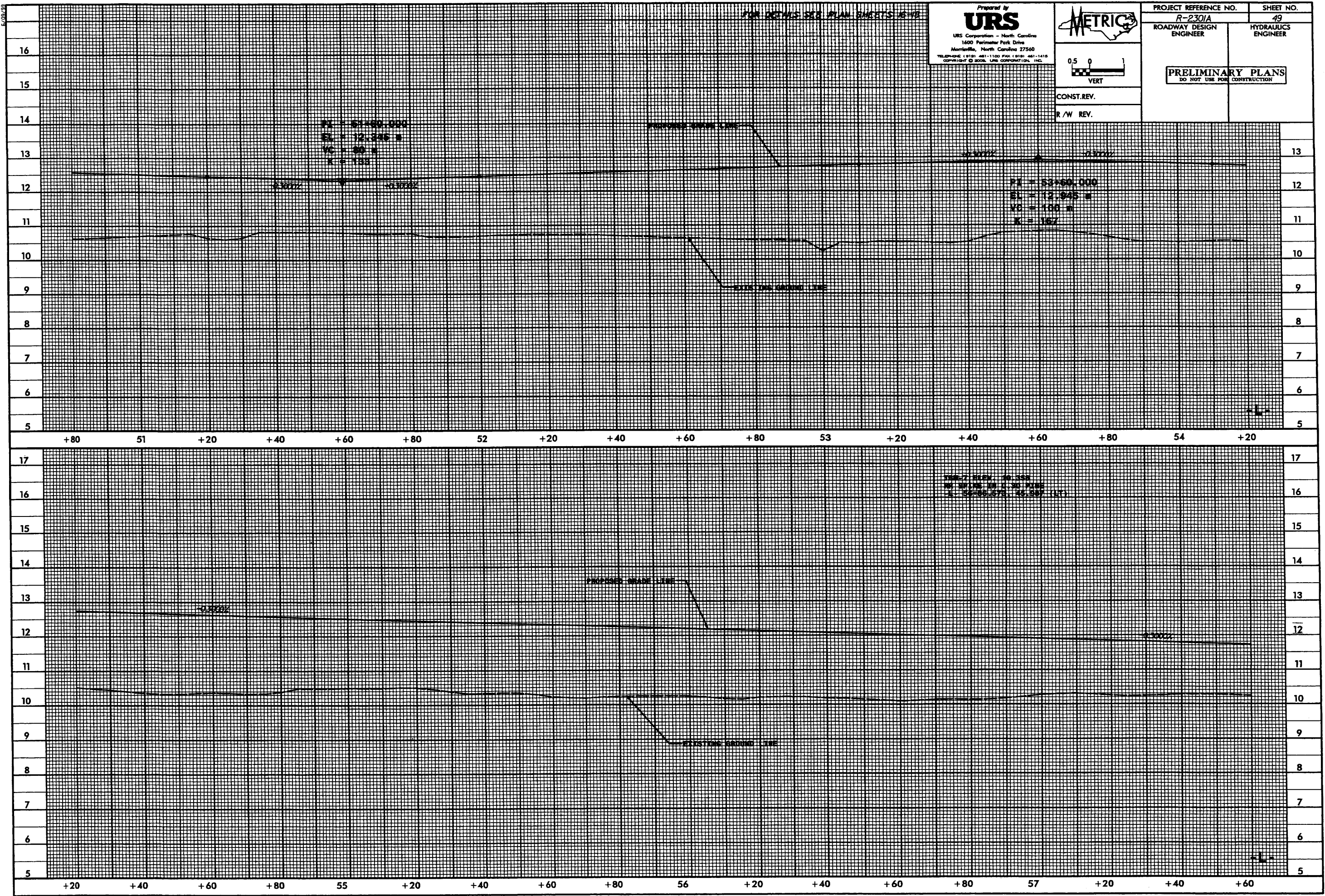
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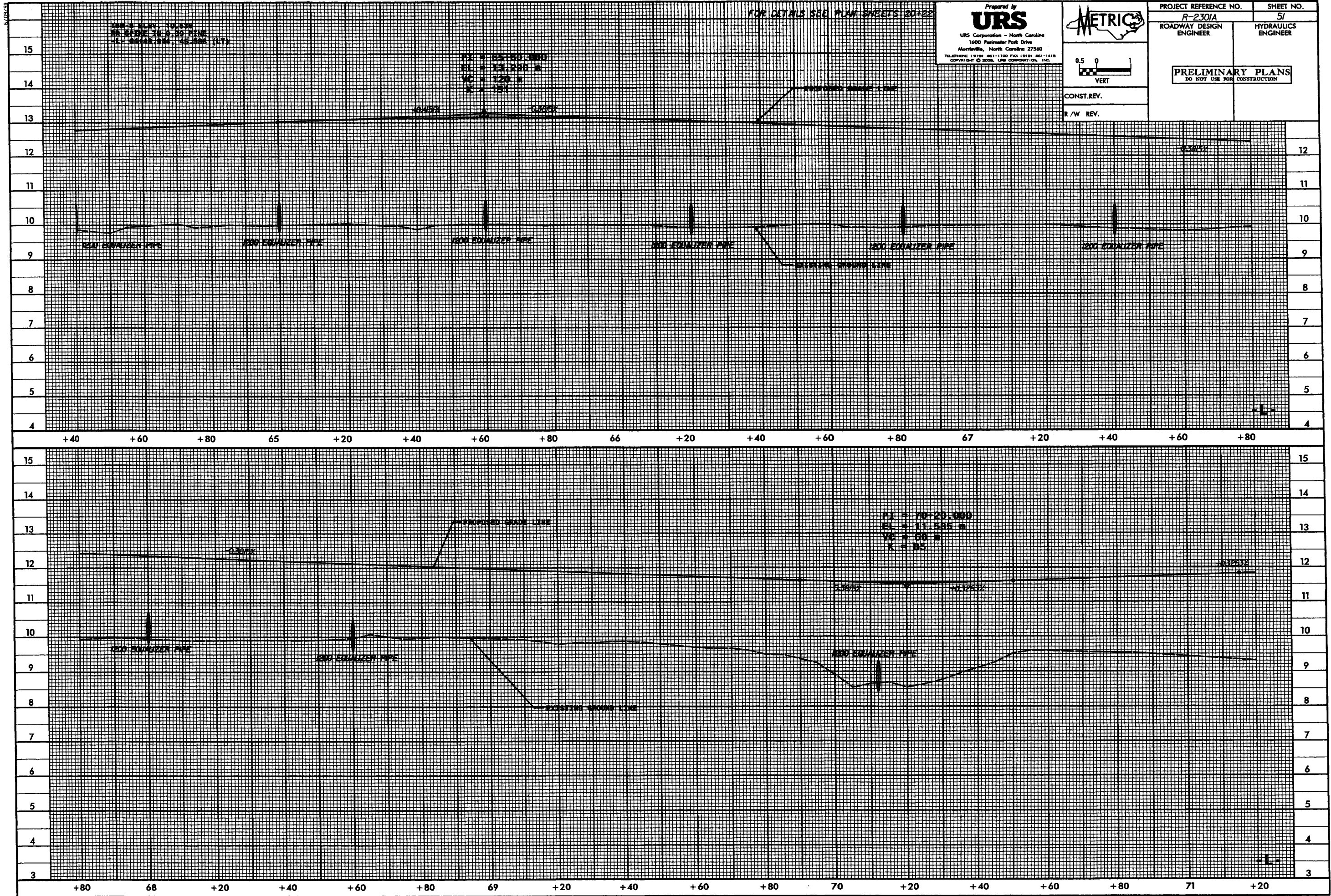
FOR DETAILS SEE PLAN SHEETS 16-18

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METRIC
0.5 0
VERT
CONST. REV.
R/W REV.

PROJECT REFERENCE NO. R-2301A ROADWAY DESIGN ENGINEER	SHEET NO. 49 HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	





08/09/20

FOR DETAILS SEE PLAN SHEETS 22-25

TBM - 0.000, 0.000
 RE SPINE IN - 0.20 FINE
 1 - 7248.500, 50.150 (LTP)

Prepared by
ITDC

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0.5 0
VERT

PROJECT REFERENCE NO.

R-2301A

ROADWAY DESIGN ENGINEER

SHEET NO.	
-----------	--

52

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

RELIMINARY PLAN
DO NOT USE FOR CONSTRUCTION

$PI = 72.10$ mm
 $EL = 12.155$ m
 $VC = 190$ m
 $K = 155$

$PI = 74.16.000$
 $EL = 10.355 \text{ m}$
 $VC = 100 \text{ m}$
 $K = 71$

B09-BIOLOGICAL SCIENCES

EXTENDING BEYOND THE BOUND

1200 EQUATOR PAPER

$PI = 75 + 80.000$
 $EL = 11.205 \text{ 元}$
 $VC = 140 \text{ 元}$
 $K = 175$

PI = 77+40.000
EL = 10.725 m
VC = 50 m
K = 83

PROPOSED CHAIRMAN

EXISTING GROUND LINE

PROCESO 1200 ACP

NEW LATERAL BASE OPTION
\$1.00 PER SHARE (10%)

5/19/95

FOR DETAILS SEE PLANS SHEETS 25-27

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METRIC
0.5 0 1
VERT
CONST. REV.
R / W REV.

PROJECT REFERENCE NO. R-2301A	SHEET NO. 53
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

PIPE HYDRAULIC DATA		
DRAINAGE STRUCTURE NO.		
DRAINAGE AREA	= 23.0	HA
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 0.88	CMS
DESIGN HW ELEVATION	= 8.84	M
100 YEAR DISCHARGE	= 1.07	CMS
100 YEAR HW ELEVATION	= 8.98	M
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 2.55	CMS
OVERTOPPING ELEVATION	= 10.76	M

PT = 78+40.000
EL = 11.205 M
VC = 1.05 M
K = 157

PT = 78+40.000
EL = 11.205 M
VC = 1.05 M
K = 157

PIPE HYDRAULIC DATA		
DRAINAGE STRUCTURE NO.		
DRAINAGE AREA	= 12.0	HA
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 0.47	CMS
DESIGN HW ELEVATION	= 8.68	M
100 YEAR DISCHARGE	= 0.57	CMS
100 YEAR HW ELEVATION	= 8.82	M
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 1.08	CMS
OVERTOPPING ELEVATION	= 10.6	M

PT = 78+40.000
EL = 11.205 M
VC = 1.05 M
K = 157

78 +20 +40 +60 +80 79 +20 +40 +60 +80 80 +20 +40 +60 +80 81 +20 +40

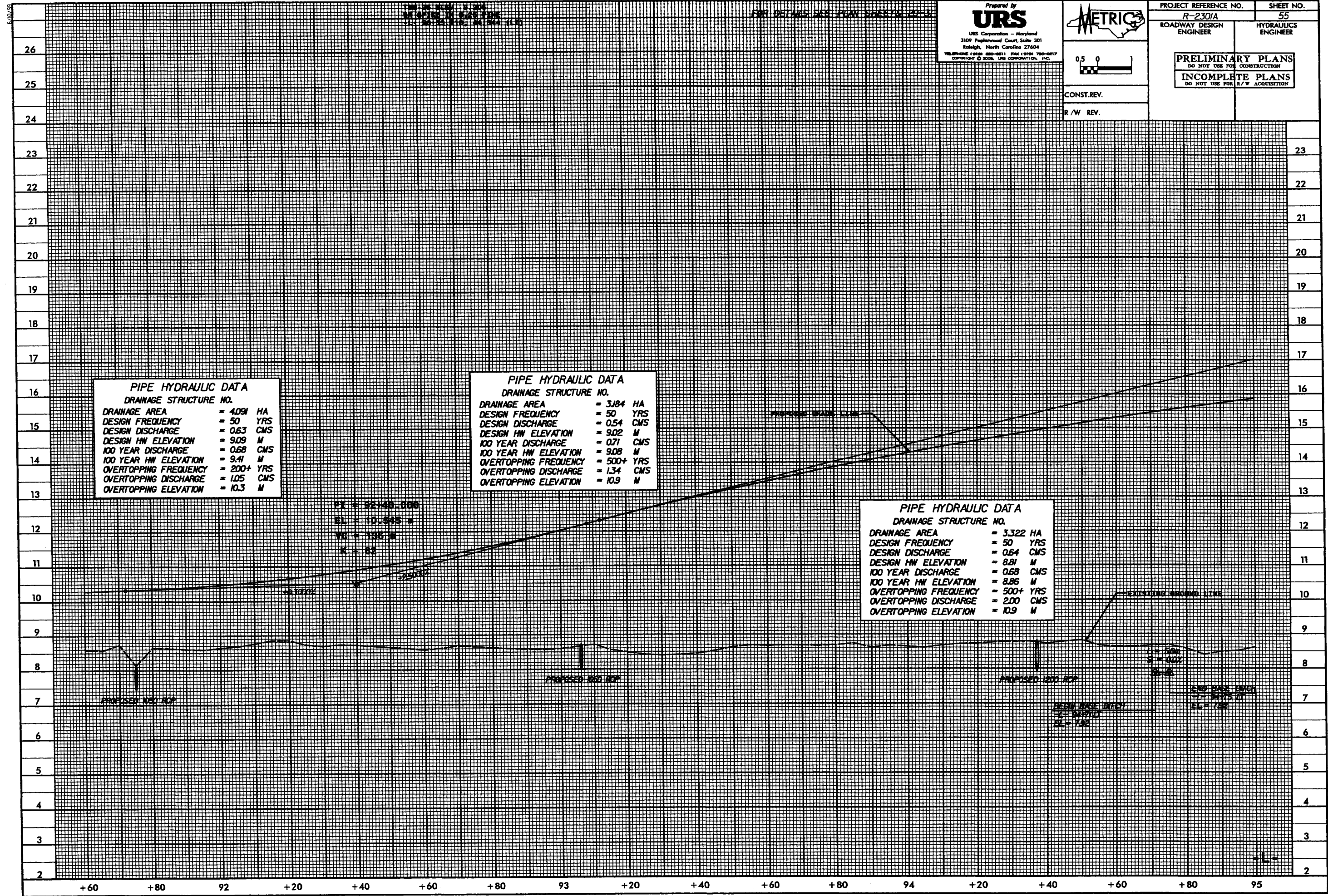
PIPE HYDRAULIC DATA		
DRAINAGE STRUCTURE NO.		
DRAINAGE AREA	= 1.0	HA
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 0.23	CMS
DESIGN HW ELEVATION	= 9.30	M
100 YEAR DISCHARGE	= 0.24	CMS
100 YEAR HW ELEVATION	= 9.36	M
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 0.46	CMS
OVERTOPPING ELEVATION	= 10.64	M

PT = 81+40.000
EL = 10.605 M
VC = 1.05 M
K = 87

PIPE HYDRAULIC DATA		
DRAINAGE STRUCTURE NO.		
DRAINAGE AREA	= 4.20	HA
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 0.72	CMS
DESIGN HW ELEVATION	= 9.70	M
100 YEAR DISCHARGE	= 0.76	CMS
100 YEAR HW ELEVATION	= 9.85	M
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 0.97	CMS
OVERTOPPING ELEVATION	= 10.6	M

PT = 83+40.000
EL = 11.205 M
VC = 1.05 M
K = 157

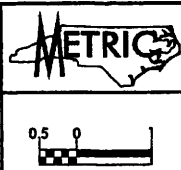
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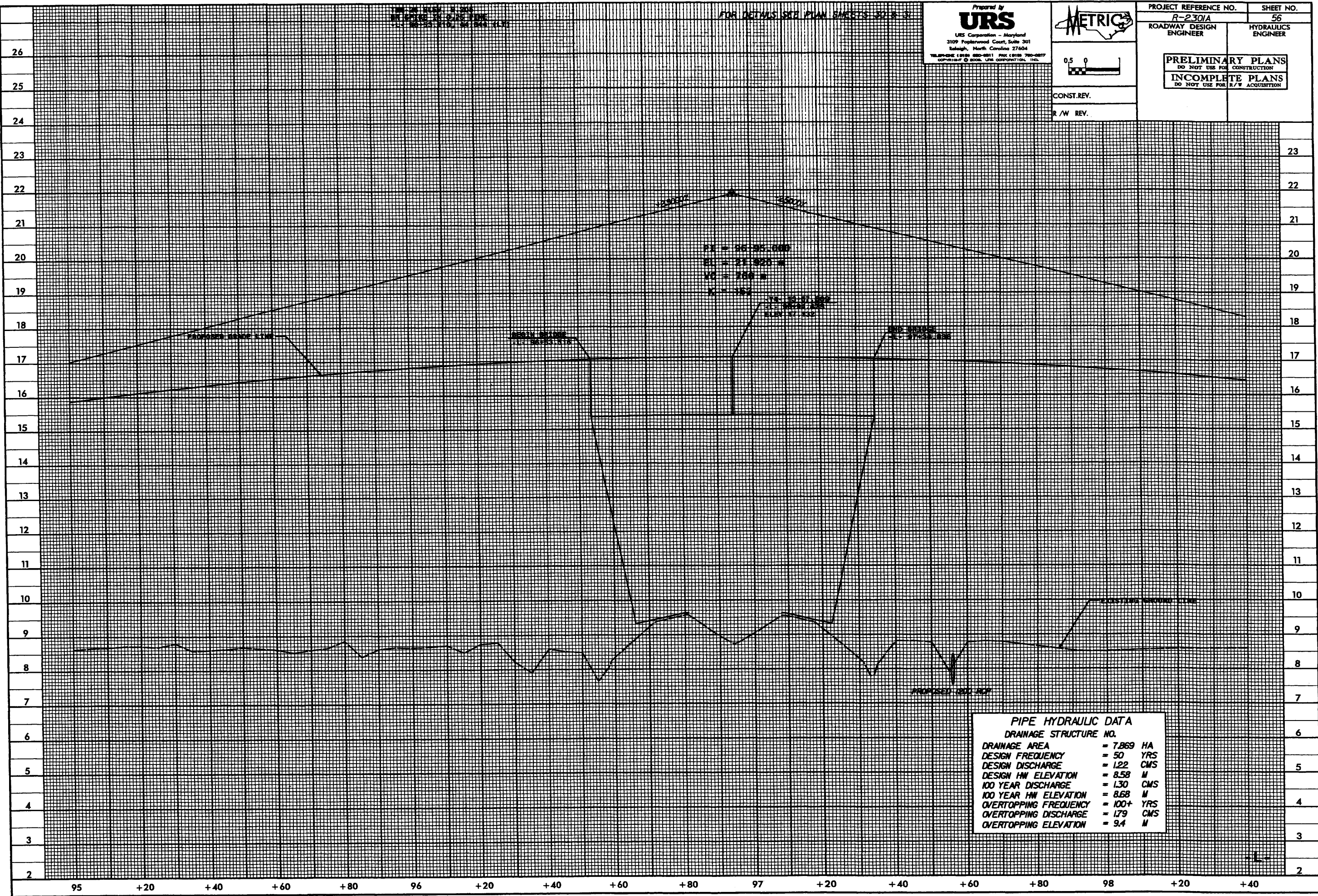
DATE: 10/20/98
BY: J. J. JONES
CHECKED: J. J. JONES

FOR DETAILS SEE PLAN SHEETS 50 & 51

Prepared by
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Raleigh, North Carolina 27604
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PROJECT REFERENCE NO.		SHEET NO.
R-230/A		56
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION		
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION		



PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO.	
DRAINAGE AREA	= 7.869 HA
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 1.22 CMS
DESIGN HW ELEVATION	= 8.58 M
100 YEAR DISCHARGE	= 1.30 CMS
100 YEAR HW ELEVATION	= 8.68 M
OVERTOPPING FREQUENCY	= 100+ YRS
OVERTOPPING DISCHARGE	= 1.79 CMS
OVERTOPPING ELEVATION	= 9.4 M

5/10/95

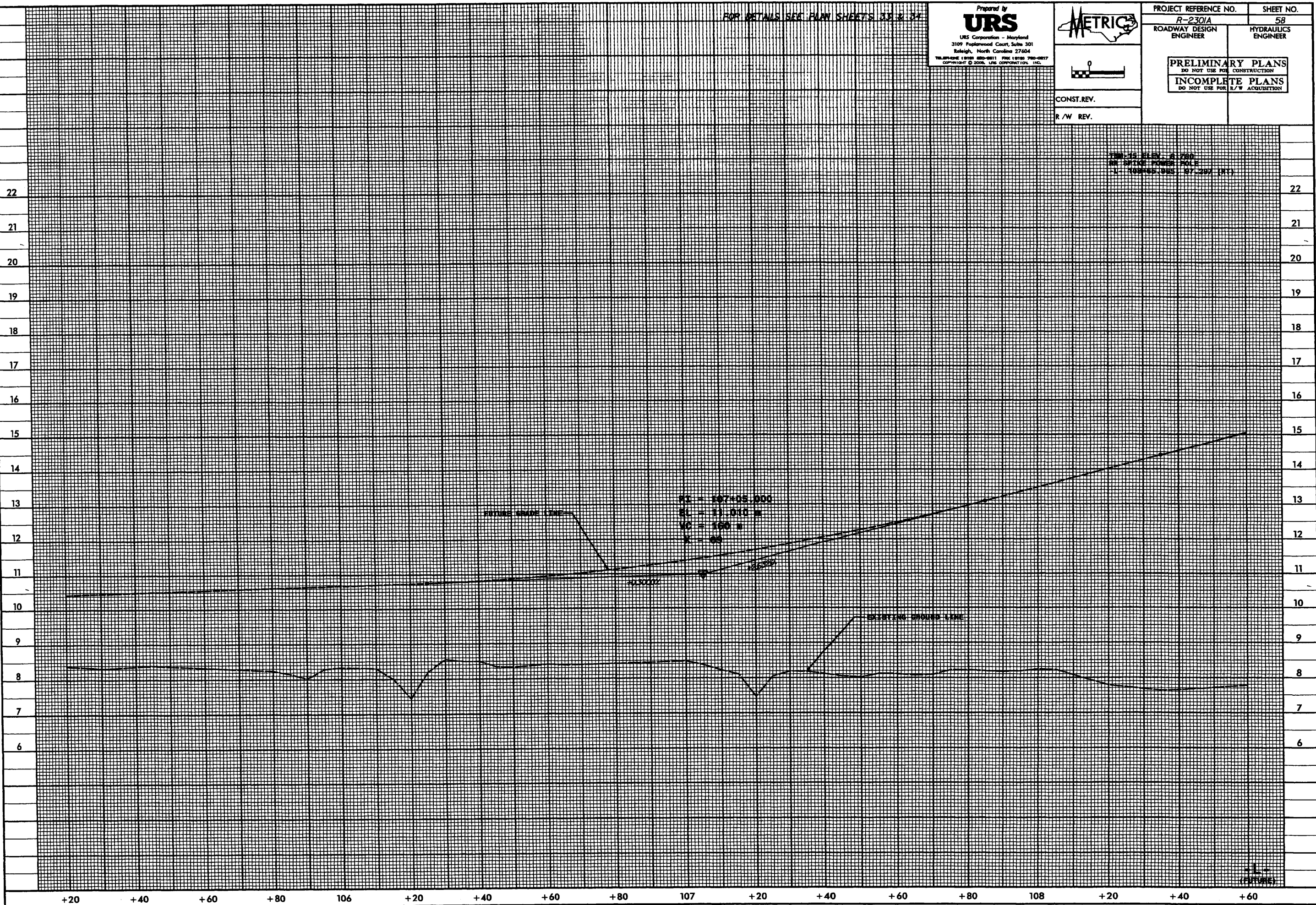
FOR DETAILS SEE PLAN SHEETS 33 & 34

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PROJECT REFERENCE NO. R-2301A	SHEET NO. 58
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
CONST. REV.	
R/W REV.	

TWO-15 ELEV. 8.780
BY SETBACK POWER POLE
1-100465.985 07-207 (RT)



1-100465.985 07-207 (RT)

+60	+80	109	+20	+40	+60	+80	110	+20	+40	+60	+80	111	+20	+40	+60	+80	112
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地址: 上海南京路 100 号
 电话: 220 220 220 220 220
 邮编: 200000

THE UNIVERSITY OF CHICAGO

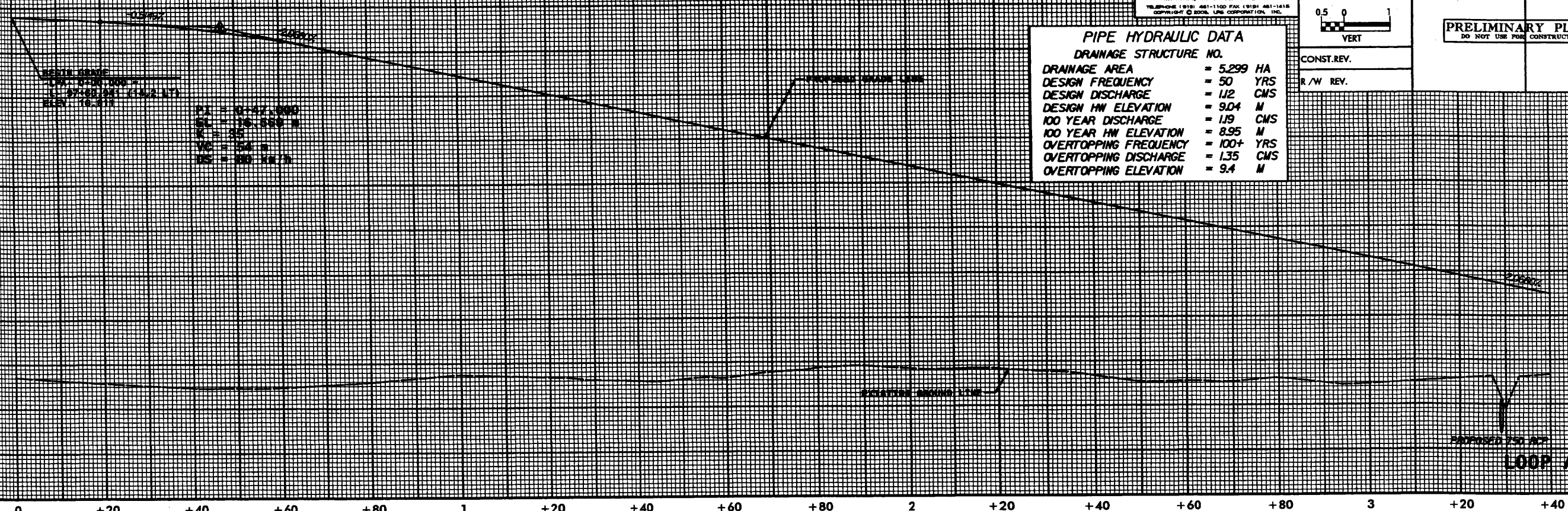
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Morrisville, North Carolina 27560
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The METRIC logo features the word "METRIC" in a bold, sans-serif font, with a stylized map of the United States integrated into the letter "I". Below the logo is a vertical scale bar with markings at 0.5, 0, and 1, and the label "VERT" underneath.

PROJECT REFERENCE NO.	SHEET NO.
R-2301A	60
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO.	
DRAINAGE AREA	= 5.299 HA
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 112 CMS
DESIGN HW ELEVATION	= 9.04 M
100 YEAR HW ELEVATION	= 119 CMS
100 YEAR HW ELEVATION	= 8.95 M
OVERTOPPING FREQUENCY	= 100+ YRS
OVERTOPPING DISCHARGE	= 1.35 CMS
OVERTOPPING ELEVATION	= 9.4 M

CONST.REV.
R /W REV.



LOOP A

PIPE HYDRAULIC DATA		
DRAINAGE STRUCTURE NO.		
DRAINAGE AREA	= 1.059	HA
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 0.35	CMS
DESIGN HW ELEVATION	= 8.03	M
100 YEAR DISCHARGE	= 0.37	CMS
100 YEAR HW ELEVATION	= 8.07	M
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 0.84	CMS
OVERTOPPING ELEVATION	= 9.2	M

FI = 4:20.000
EL = 8.853 米
VC = 50 米
K = 17
DS = 50 米/分

$P_T = 4.85.000$
 $P_L = 9.430 \text{ *}$
 $V_C = 10 \text{ *}$
 $K = 12$
 $DS = 60 \text{ km/h}$

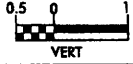
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LOOP A

+40 +60 +80 4 +20 +40 +60 +80 5 +20

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 4400 Riverchase Park Drive
 Charlotte, North Carolina 27560
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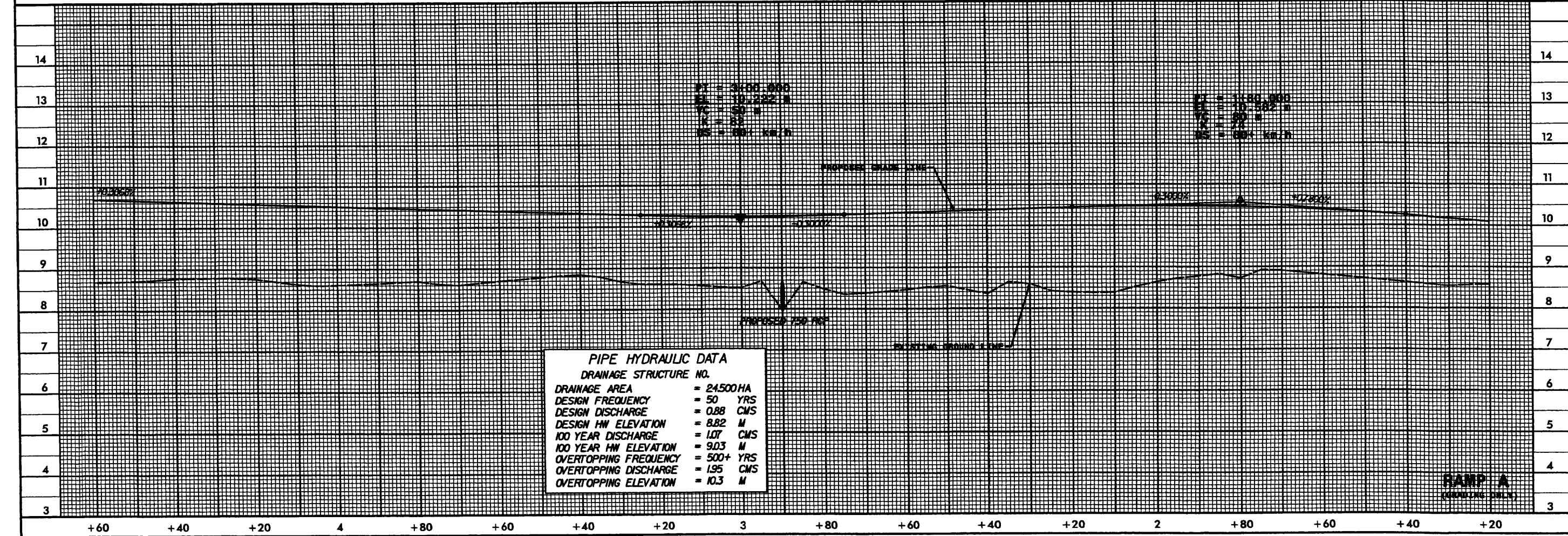
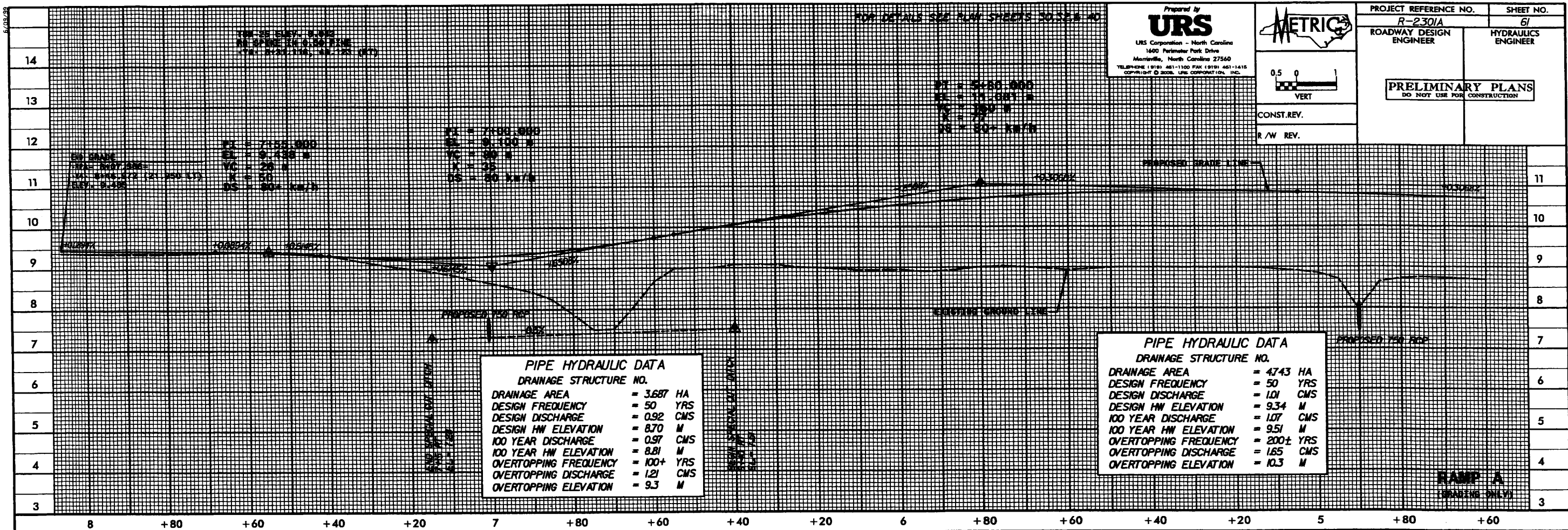
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VERT

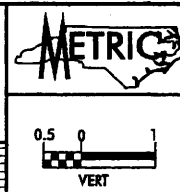
CONST. REV.

R / W REV.

| | |
|---|------------------------|
| PROJECT REFERENCE NO.
R-2301A | SHEET NO.
61 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION | |



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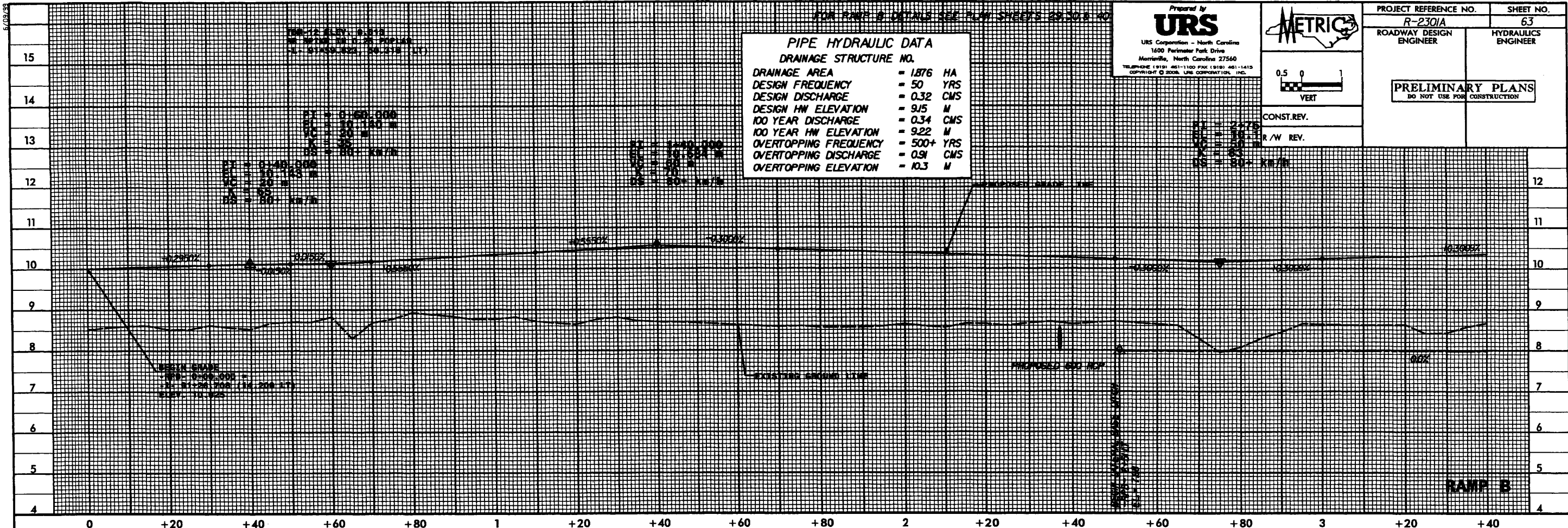


| | | |
|---|--|------------------------|
| PROJECT REFERENCE NO.
R-2301A | | SHEET NO.
63 |
| ROADWAY DESIGN
ENGINEER | | HYDRAULICS
ENGINEER |
| PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION | | |

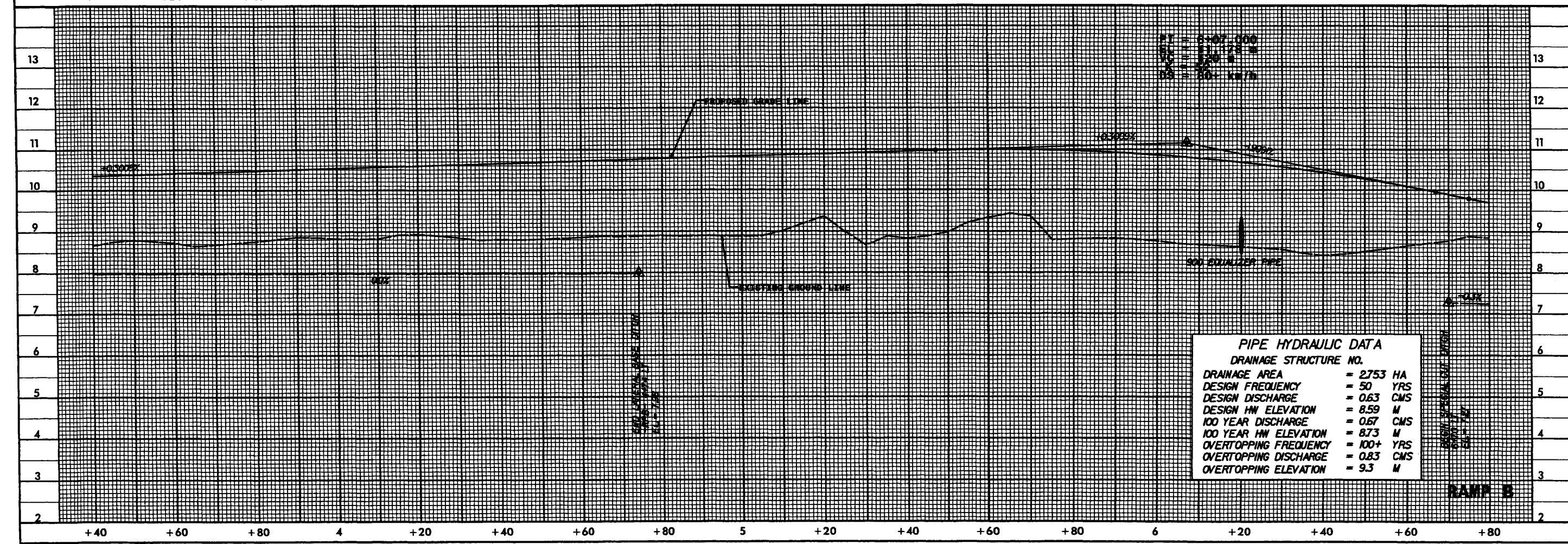
FOR RAMP B DETAILS SEE PLAN SHEETS 29, 30 & 40

| PIPE HYDRAULIC DATA | |
|------------------------|------------|
| DRAINAGE STRUCTURE NO. | |
| DRAINAGE AREA | = 1876 HA |
| DESIGN FREQUENCY | = 50 YRS |
| DESIGN DISCHARGE | = 0.32 CMS |
| DESIGN HW ELEVATION | = 9.15 M |
| 100 YEAR DISCHARGE | = 0.34 CMS |
| 100 YEAR HW ELEVATION | = 9.22 M |
| OVERTOPPING FREQUENCY | = 500+ YRS |
| OVERTOPPING DISCHARGE | = 0.91 CMS |
| OVERTOPPING ELEVATION | = 10.3 M |

PT = 2+75
 EL = 10.17 M
 VC = 8+
 OS = 50+ KM/H



| PIPE HYDRAULIC DATA | |
|------------------------|------------|
| DRAINAGE STRUCTURE NO. | |
| DRAINAGE AREA | = 2753 HA |
| DESIGN FREQUENCY | = 50 YRS |
| DESIGN DISCHARGE | = 0.63 CMS |
| DESIGN HW ELEVATION | = 8.59 M |
| 100 YEAR DISCHARGE | = 0.67 CMS |
| 100 YEAR HW ELEVATION | = 8.73 M |
| OVERTOPPING FREQUENCY | = 100+ YRS |
| OVERTOPPING DISCHARGE | = 0.83 CMS |
| OVERTOPPING ELEVATION | = 9.3 M |



FOR RAMP C DETAILS SEE PLAN SHEETS 29, 31 & 41

DESIGN GRADE
TRANSITION
L = 10+15.000' (18.200' x 1)
ELEV. 10.000'

PROPOSED GRADE LINE

EXISTING GROUND LINE

PROJECT REFERENCE NO. R-2301A
ROADWAY DESIGN ENGINEER

SHEET NO. 65
HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.

| | |
|-----------------------|------------|
| DRAINAGE AREA | = 4.920 HA |
| DESIGN FREQUENCY | = 50 YRS |
| DESIGN DISCHARGE | = 1.02 CMS |
| DESIGN HW ELEVATION | = 8.95 M |
| 100 YEAR DISCHARGE | = 1.08 CMS |
| 100 YEAR HW ELEVATION | = 8.99 M |
| OVERTOPPING FREQUENCY | = 500+ YRS |
| OVERTOPPING DISCHARGE | = 2.22 CMS |
| OVERTOPPING ELEVATION | = 9.9 M |

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.

| | |
|-----------------------|------------|
| DRAINAGE AREA | = 0.751 HA |
| DESIGN FREQUENCY | = 50 YRS |
| DESIGN DISCHARGE | = 0.19 CMS |
| DESIGN HW ELEVATION | = 8.79 M |
| 100 YEAR DISCHARGE | = 0.21 CMS |
| 100 YEAR HW ELEVATION | = 8.83 M |
| OVERTOPPING FREQUENCY | = 500+ YRS |
| OVERTOPPING DISCHARGE | = 0.53 CMS |
| OVERTOPPING ELEVATION | = 10.2 M |

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.

| | |
|-----------------------|------------|
| DRAINAGE AREA | = 2.498 HA |
| DESIGN FREQUENCY | = 50 YRS |
| DESIGN DISCHARGE | = 0.48 CMS |
| DESIGN HW ELEVATION | = 8.67 M |
| 100 YEAR DISCHARGE | = 0.51 CMS |
| 100 YEAR HW ELEVATION | = 8.71 M |
| OVERTOPPING FREQUENCY | = 500+ YRS |
| OVERTOPPING DISCHARGE | = 1.25 CMS |
| OVERTOPPING ELEVATION | = 9.6 M |

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METRIC

0.5
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R / W REV.

PROJECT REFERENCE NO. **R-2301A** SHEET NO. **66**
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER

PRELIMINARY PLANS
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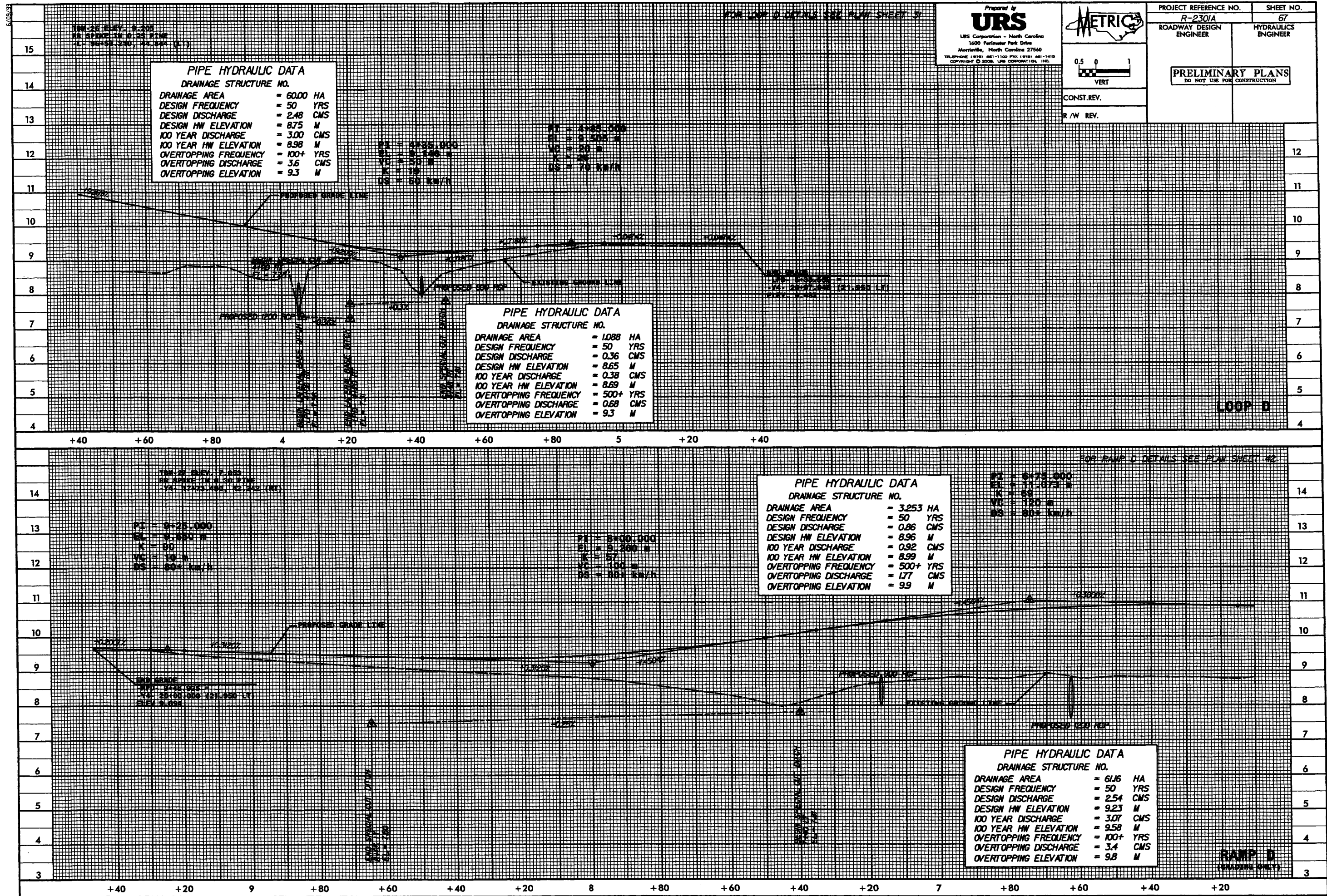
FOR RAMP C DETAILS SEE PLAN SHEETS 201.312 & 41

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO. 7
DRAINAGE AREA = 0.838 HA
DESIGN FREQUENCY = 50 YRS
DESIGN DISCHARGE = 0.18 CMS
DESIGN HW ELEVATION = 8.01 M
100 YEAR DISCHARGE = 0.19 CMS
100 YEAR HW ELEVATION = 8.03 M
OVERTOPPING FREQUENCY = 500+ YRS
OVERTOPPING DISCHARGE = 0.59 CMS
OVERTOPPING ELEVATION = 9.6 M

FOR LOOP D DETAILS SEE PLAN SHEET 31

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO. 8
DRAINAGE AREA = 1.937 HA
DESIGN FREQUENCY = 50 YRS
DESIGN DISCHARGE = 0.57 CMS
DESIGN HW ELEVATION = 8.71 M
100 YEAR DISCHARGE = 0.61 CMS
100 YEAR HW ELEVATION = 8.64 M
OVERTOPPING FREQUENCY = 100+ YRS
OVERTOPPING DISCHARGE = 0.8 CMS
OVERTOPPING ELEVATION = 9.6 M

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO. 9
DRAINAGE AREA = 35.21 HA
DESIGN FREQUENCY = 50 YRS
DESIGN DISCHARGE = 1.41 CMS
DESIGN HW ELEVATION = 8.67 M
100 YEAR DISCHARGE = 1.71 CMS
100 YEAR HW ELEVATION = 9.03 M
OVERTOPPING FREQUENCY = 100+ YRS
OVERTOPPING DISCHARGE = 1.91 CMS
OVERTOPPING ELEVATION = 9.3 M



TURN 25 ELEV. 9.205
RM SPREAD 10.0 25.81M
LC 98+50.200 44.000 (LT)

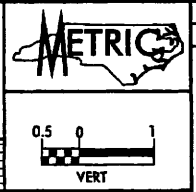
| PIPE HYDRAULIC DATA | |
|------------------------|------------|
| DRAINAGE STRUCTURE NO. | |
| DRAINAGE AREA | = 60.00 HA |
| DESIGN FREQUENCY | = 50 YRS |
| DESIGN DISCHARGE | = 2.48 CMS |
| DESIGN HW ELEVATION | = 8.75 M |
| 100 YEAR DISCHARGE | = 3.00 CMS |
| 100 YEAR HW ELEVATION | = 8.98 M |
| OVERTOPPING FREQUENCY | = 100+ YRS |
| OVERTOPPING DISCHARGE | = 3.6 CMS |
| OVERTOPPING ELEVATION | = 9.3 M |

PI = 8+25.000
EL = 8.850 M
K = 50
VC = 50 M
OS = 50 KM/H

PI = 8+45.000
EL = 8.500 M
K = 20
VC = 20 M
OS = 70 KM/H

FOR RAMP D DETAILS SEE PLAN SHEET 3

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| PROJECT REFERENCE NO. | | SHEET NO. | |
|---|--|---------------------|--|
| R-2301A | | 67 | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER | |
| PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION | | | |
| | | | |
| CONST. REV. | | | |
| R/W REV. | | | |

| PIPE HYDRAULIC DATA | |
|------------------------|------------|
| DRAINAGE STRUCTURE NO. | |
| DRAINAGE AREA | = 10.88 HA |
| DESIGN FREQUENCY | = 50 YRS |
| DESIGN DISCHARGE | = 0.36 CMS |
| DESIGN HW ELEVATION | = 8.65 M |
| 100 YEAR DISCHARGE | = 0.38 CMS |
| 100 YEAR HW ELEVATION | = 8.69 M |
| OVERTOPPING FREQUENCY | = 500+ YRS |
| OVERTOPPING DISCHARGE | = 0.68 CMS |
| OVERTOPPING ELEVATION | = 9.3 M |

TURN 25 ELEV. 7.875
RM SPREAD 10.0 25.81M
LC 98+50.200 44.000 (LT)

PI = 9+25.000
EL = 8.850 M
K = 50
VC = 50 M
OS = 50 KM/H

PI = 8+00.000
EL = 8.200 M
K = 57
VC = 100 M
OS = 80 KM/H

| PIPE HYDRAULIC DATA | |
|------------------------|------------|
| DRAINAGE STRUCTURE NO. | |
| DRAINAGE AREA | = 3.253 HA |
| DESIGN FREQUENCY | = 50 YRS |
| DESIGN DISCHARGE | = 0.86 CMS |
| DESIGN HW ELEVATION | = 8.96 M |
| 100 YEAR DISCHARGE | = 0.92 CMS |
| 100 YEAR HW ELEVATION | = 8.99 M |
| OVERTOPPING FREQUENCY | = 500+ YRS |
| OVERTOPPING DISCHARGE | = 1.77 CMS |
| OVERTOPPING ELEVATION | = 9.9 M |

PI = 6+75.000
EL = 11.075 M
K = 69
VC = 120 M
OS = 80 KM/H

FOR RAMP D DETAILS SEE PLAN SHEET 12

| PIPE HYDRAULIC DATA | |
|------------------------|------------|
| DRAINAGE STRUCTURE NO. | |
| DRAINAGE AREA | = 61.6 HA |
| DESIGN FREQUENCY | = 50 YRS |
| DESIGN DISCHARGE | = 2.54 CMS |
| DESIGN HW ELEVATION | = 9.23 M |
| 100 YEAR DISCHARGE | = 3.07 CMS |
| 100 YEAR HW ELEVATION | = 9.58 M |
| OVERTOPPING FREQUENCY | = 100+ YRS |
| OVERTOPPING DISCHARGE | = 3.4 CMS |
| OVERTOPPING ELEVATION | = 9.8 M |

RAMP D
(SHADING ONLY)

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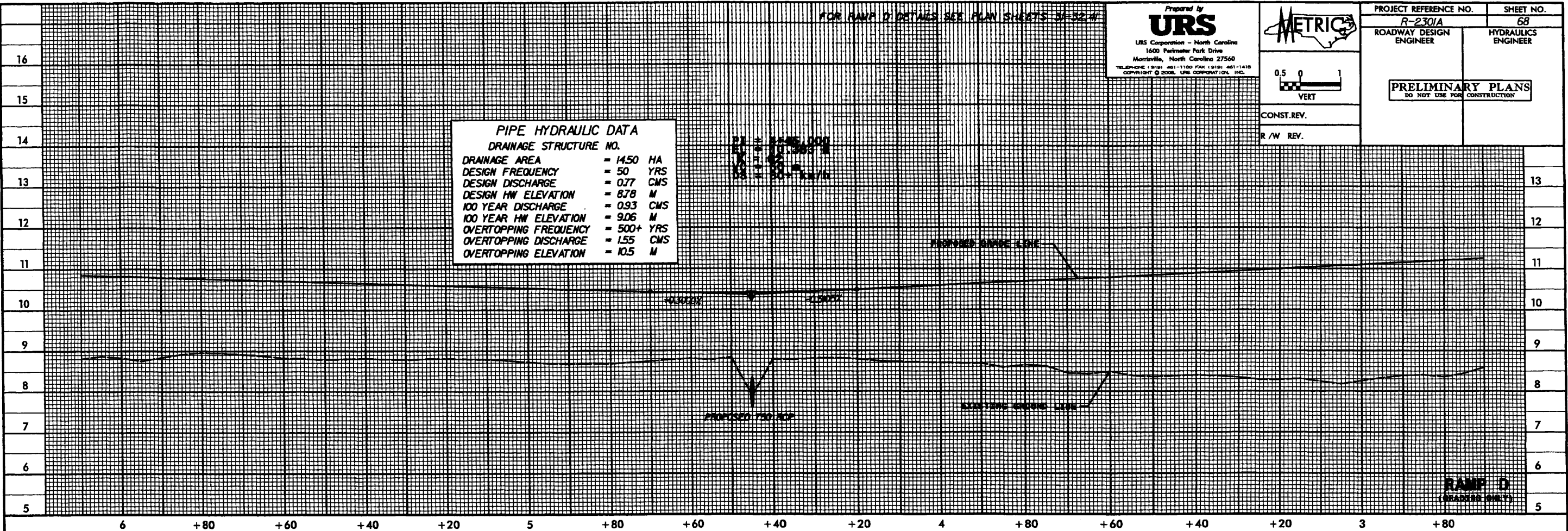
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| | |
|---|------------------------|
| PROJECT REFERENCE NO.
R-230/A | SHEET NO.
68 |
| ROADWAY DESIGN
ENGINEER | HYDRAULICS
ENGINEER |
| PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION | |
| CONST. REV. | |
| R/W REV. | |

| PIPE HYDRAULIC DATA | |
|------------------------|------------|
| DRAINAGE STRUCTURE NO. | |
| DRAINAGE AREA | = 14.50 HA |
| DESIGN FREQUENCY | = 50 YRS |
| DESIGN DISCHARGE | = 0.77 CMS |
| DESIGN HW ELEVATION | = 8.78 M |
| 100 YEAR DISCHARGE | = 0.93 CMS |
| 100 YEAR HW ELEVATION | = 9.06 M |
| OVERTOPPING FREQUENCY | = 500+ YRS |
| OVERTOPPING DISCHARGE | = 1.55 CMS |
| OVERTOPPING ELEVATION | = 10.5 M |

PI = 1145.000
 EL = 10.365 M
 V = 20 M
 K = 30
 DS = 30 KM/H



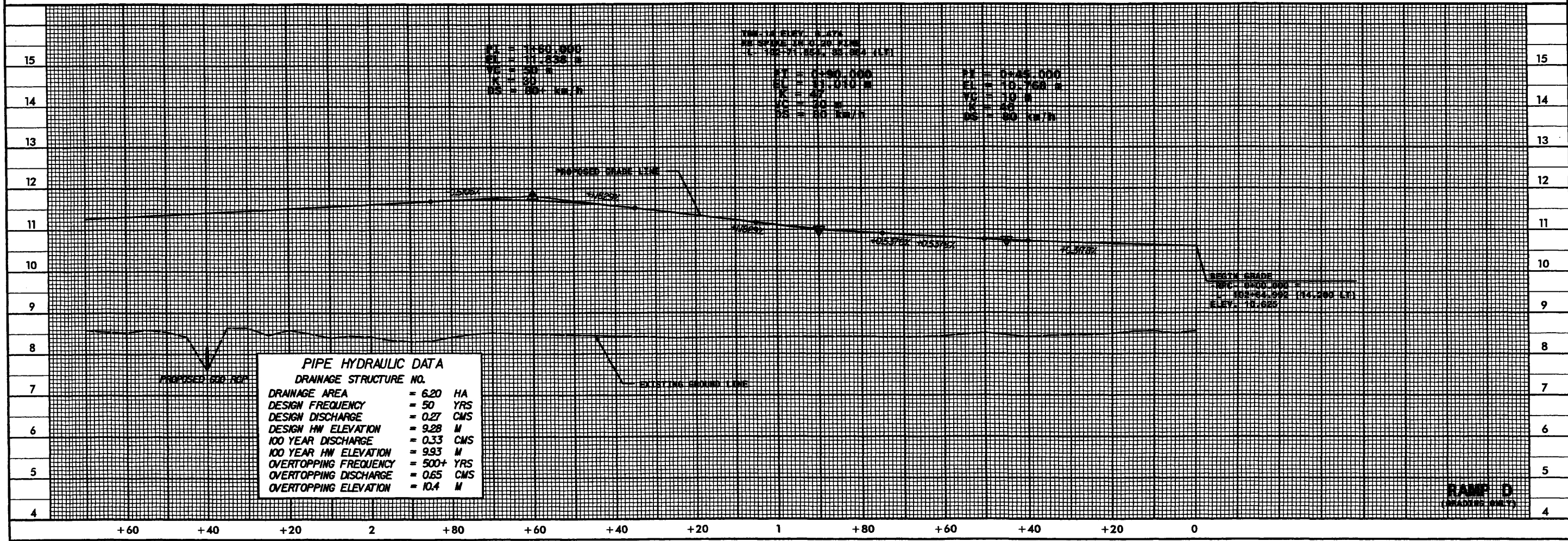
PI = 1160.000
 EL = 11.838 M
 V = 20 M
 K = 30
 DS = 30 KM/H

PI = 1160.000
 EL = 11.838 M
 V = 20 M
 K = 30
 DS = 30 KM/H

PI = 1160.000
 EL = 11.838 M
 V = 20 M
 K = 30
 DS = 30 KM/H

PI = 1160.000
 EL = 11.838 M
 V = 20 M
 K = 30
 DS = 30 KM/H

| PIPE HYDRAULIC DATA | |
|------------------------|------------|
| DRAINAGE STRUCTURE NO. | |
| DRAINAGE AREA | = 6.20 HA |
| DESIGN FREQUENCY | = 50 YRS |
| DESIGN DISCHARGE | = 0.27 CMS |
| DESIGN HW ELEVATION | = 9.28 M |
| 100 YEAR DISCHARGE | = 0.33 CMS |
| 100 YEAR HW ELEVATION | = 9.93 M |
| OVERTOPPING FREQUENCY | = 500+ YRS |
| OVERTOPPING DISCHARGE | = 0.65 CMS |
| OVERTOPPING ELEVATION | = 10.4 M |



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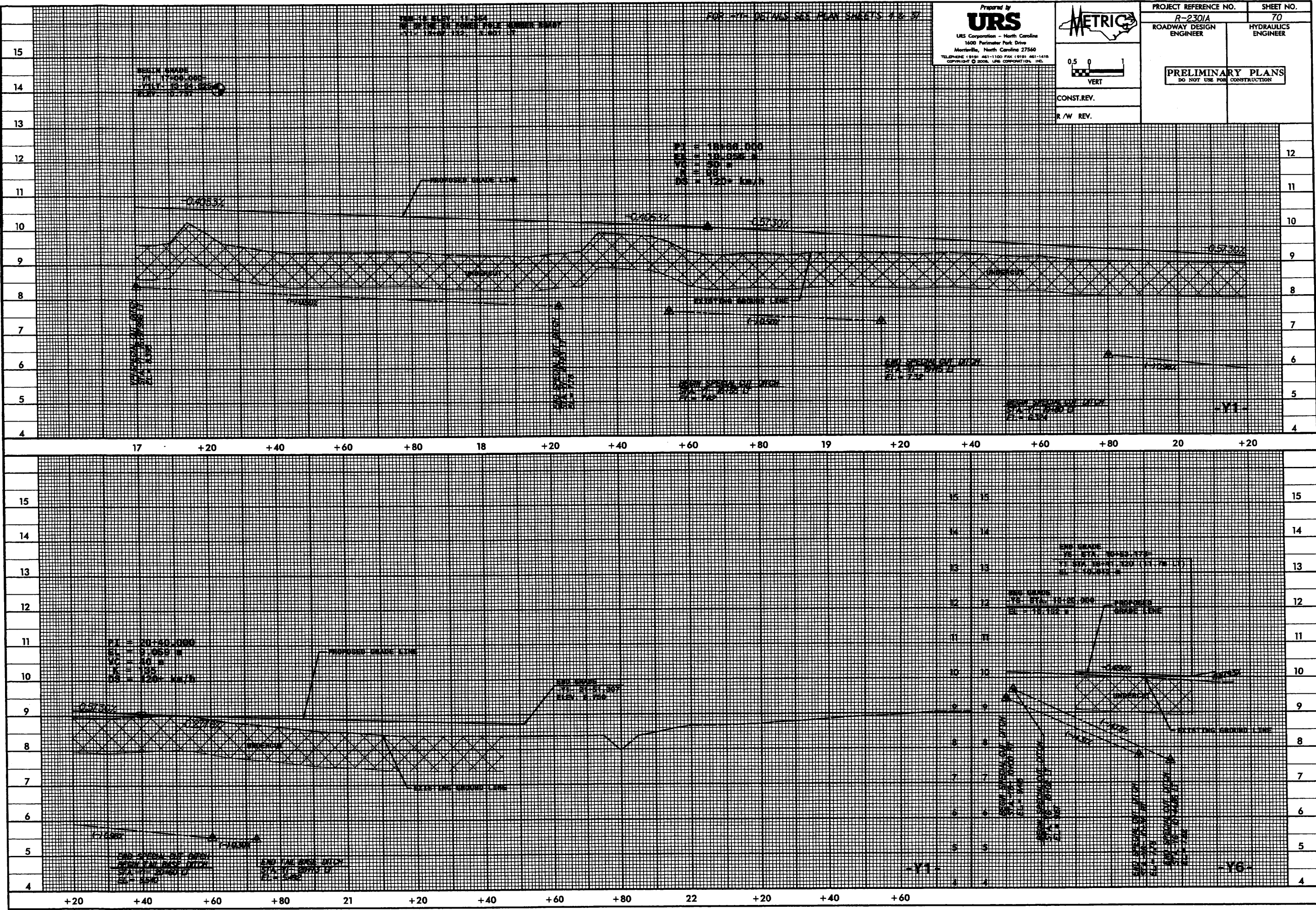
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 R / W REV.

| | |
|---|------------------------|
| PROJECT REFERENCE NO.
R-2301A | SHEET NO.
70 |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

PRELIMINARY PLANS
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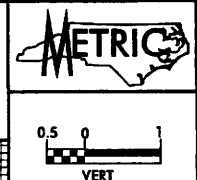
FOR -11- DETAILS SEE PLAN SHEETS 7 & 37



-DR-

FOR DRI DETAILS SEE PLAIN SHEETS 22-25

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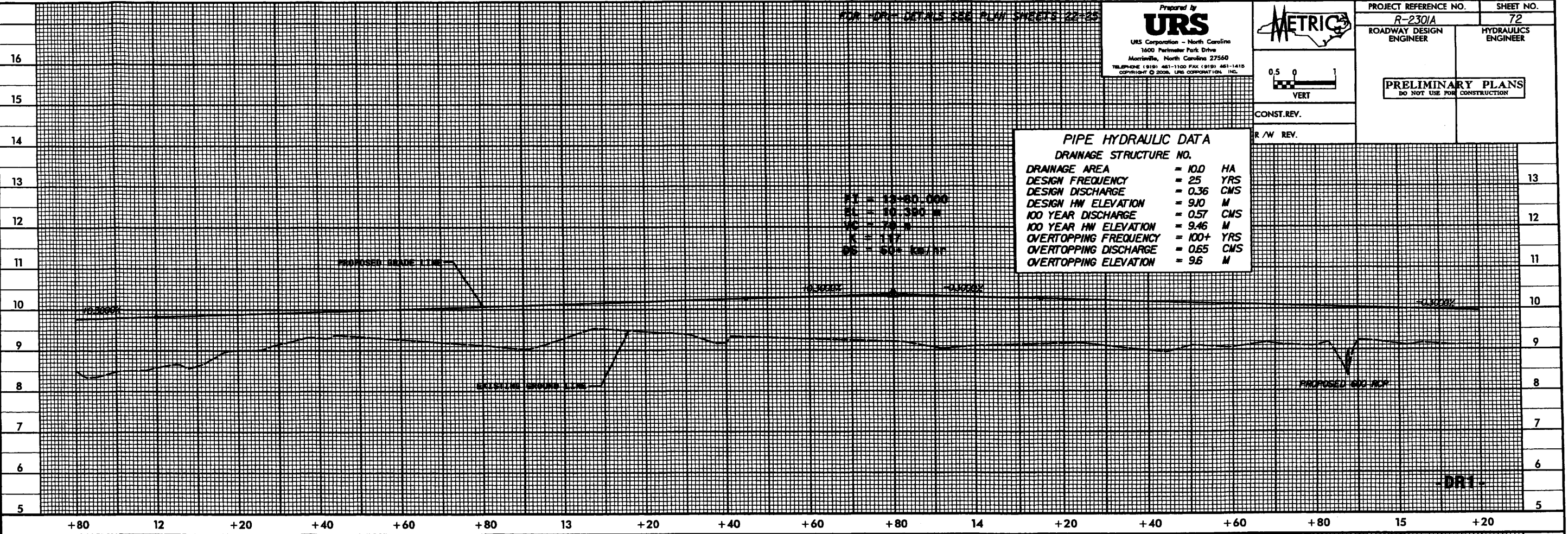


PROJECT REFERENCE NO. **R-2301A**
ROADWAY DESIGN ENGINEER
SHEET NO. **72**
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST. REV.
R /W REV.

| PIPE HYDRAULIC DATA | | |
|------------------------|--------|-----|
| DRAINAGE STRUCTURE NO. | | |
| DRAINAGE AREA | = 10.0 | HA |
| DESIGN FREQUENCY | = 25 | YRS |
| DESIGN DISCHARGE | = 0.36 | CMS |
| DESIGN HW ELEVATION | = 9.0 | M |
| 100 YEAR DISCHARGE | = 0.57 | CMS |
| 100 YEAR HW ELEVATION | = 9.46 | M |
| OVERTOPPING FREQUENCY | = 100+ | YRS |
| OVERTOPPING DISCHARGE | = 0.65 | CMS |
| OVERTOPPING ELEVATION | = 9.6 | M |

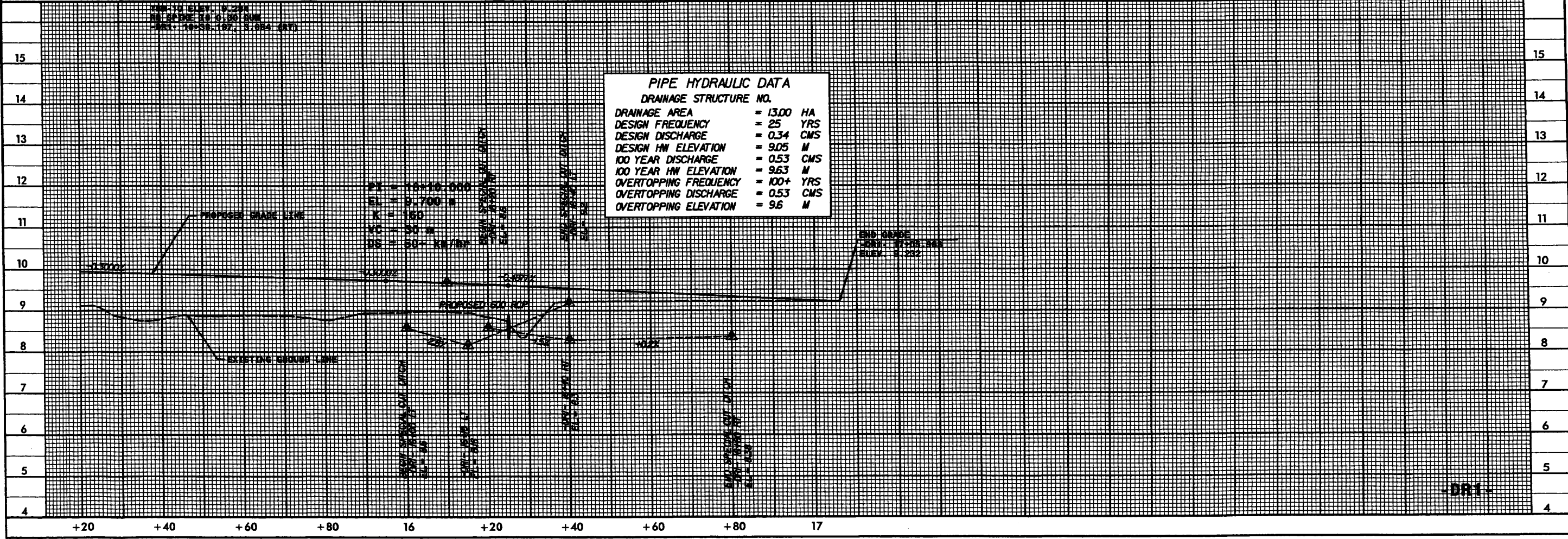
PI = 10+60.000
SL = 10.380 M
VC = 70 M
K = 1.0
GS = 50+ KM/H



| PIPE HYDRAULIC DATA | | |
|------------------------|---------|-----|
| DRAINAGE STRUCTURE NO. | | |
| DRAINAGE AREA | = 13.00 | HA |
| DESIGN FREQUENCY | = 25 | YRS |
| DESIGN DISCHARGE | = 0.34 | CMS |
| DESIGN HW ELEVATION | = 9.05 | M |
| 100 YEAR DISCHARGE | = 0.53 | CMS |
| 100 YEAR HW ELEVATION | = 9.63 | M |
| OVERTOPPING FREQUENCY | = 100+ | YRS |
| OVERTOPPING DISCHARGE | = 0.53 | CMS |
| OVERTOPPING ELEVATION | = 9.6 | M |

PI = 10+10.000
SL = 9.700 M
VC = 50 M
K = 1.0
GS = 50+ KM/H

END GRADE
DR1 = 10+15.345
ELEV = 9.722



5/08/05

FOR R/W ELEV. 11.000
ON SPICE IN POWER POLE NUMBER 10067
ON 11/08/04 10067 11.000 11.000

FOR FINISHED GRADE SEE DETAIL SHEETS 21M

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METRIC
0.5 0 1
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R/W REV.

PROJECT REFERENCE NO.

R-2301A

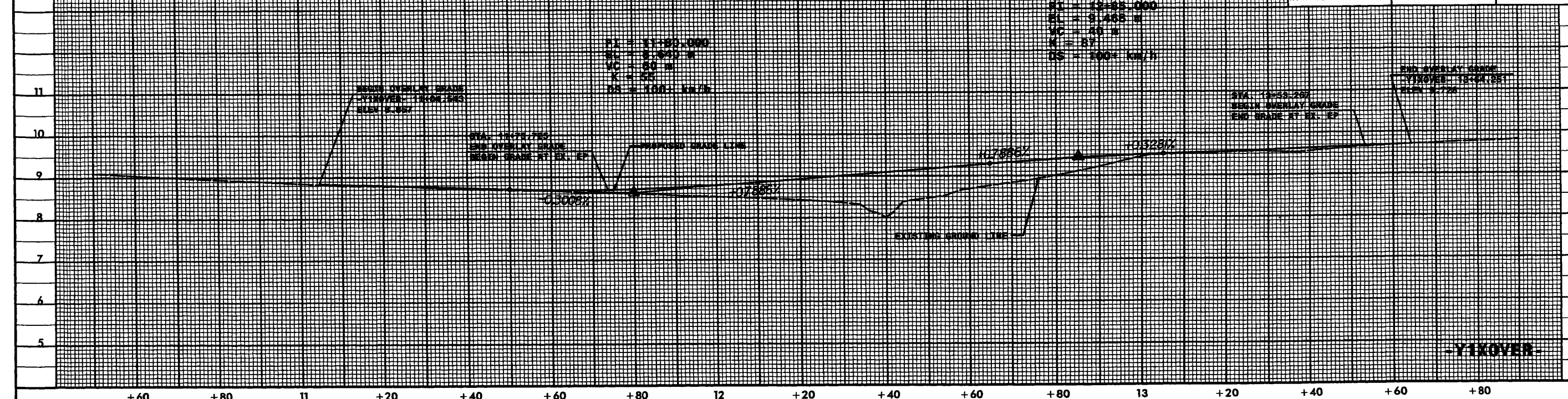
ROADWAY DESIGN
ENGINEER

SHEET NO.

73

HYDRAULICS
ENGINEER

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