



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

February 25, 2004

U. S. Army Corps of Engineers
Asheville Regulatory Field Office
151 Patton Ave., Room 208
Asheville, North Carolina 28801-5006

ATTN.: Mr. Steve Lund
Regulatory Permits Manager

Dear Sir:

Subject: **Application for Section 404 and 401 permits for the US 70 Relocation.** US 70 Relocation from SR 2318 (Fanjoy Road) east of Statesville to the Iredell-Rowan County Line. Iredell County. State Project No. 8.1631801. Federal Aid Project STP-70 (39). TIP No. R-2911A. \$475.00 to work order 8.1631801, WBS Element 34517.1.2.

The North Carolina Department of Transportation (NCDOT), Division of Highways, in consultation with the Federal Highway Administration (FHWA) proposes to relocate US 70 in Iredell County, from 2318 (Fanjoy Road) east of Statesville to the Iredell-Rowan County line. The proposed project is approximately 5.1 miles in length, and will provide a five-lane, 60-foot wide roadway, with two-foot curb and gutters transitioning to a four-lane, 48-foot wide roadway, with a 30-foot raised median and 8 to 10-foot shoulders. The five-lane section will start at Fanjoy Road, and continue for 0.4 miles. The current at-grade rail crossing at the beginning of the project will be changed to a grade separated (bridged) crossing. The four-lane divided facility will continue for the remainder of the section. The current design consists of a two to three-lane (24-48 feet wide) facility with a 60-foot right-of-way, and 2 to 8-foot shoulders.

Purpose and Need: The purpose of this project is to increase traffic carrying capacity and to improve safety by widening and relocating US 70 from the existing two to three-lane facility to a four and five-lane roadway. The relocation of the roadway at the beginning of the project area was necessary to reduce the congestion and avoid substantial delays caused by rail spur tracks crossing near SR 2361 (McNess Road). The proposed roadway will provide a continuous multi-lane facility leaving Statesville in conformance with Thoroughfare plans for Statesville. US 70 is classified as a Major Thoroughfare on the Statesville Thoroughfare Plan, and serves as an arterial thoroughfare that serves commuters traveling between Statesville, Cleveland, and Salisbury. Section A of R-2911 is the western end of the 19-mile long US 70 improvement project from Statesville to Salisbury. It is the only section of the project that involves relocation of the roadway.

Summary of Impacts: Impacts to jurisdictional areas of R-2911A consist of a total of 0.26 acres of permanent, riverine wetland impacts, 0.25 acres of fill in surface waters, and 1,998 linear feet of stream channels. The impacts to jurisdictional stream channels consist of the installation of two reinforced concrete box culverts and three reinforced concrete pipes for crossing of four tributaries to Third Creek. Table 1 summarizes the jurisdictional impacts associated with the R-2911A project. Wetland impacts for Section A have been reduced by 1.83 acres from the proposed original alternative (Alternate 3) by shifting the alignment south. The new alternative (Alternate 3a) has been altered to avoid three wetland impact areas. All acreage values have been rounded to two decimal places throughout this application.

Table 1: Summary of Jurisdictional Impacts (Federal Clean Water Act)

Section	Permanent Wetland (ac)* Riverine	Existing Channel Impacts (ft)	Surface Water (ac)
R-2911A	0.26	1,998	0.25

* Includes fill, excavation, and mechanized clearing

Summary of Mitigation: Throughout the NEPA and design process this project has been designed to avoid and minimize impacts to jurisdictional areas. Specific strategies are detailed elsewhere in this document. Highlights include relocating the proposed alignment south in order to minimize wetland loss, and the relocation of 180 linear feet of an unnamed tributary to Third Creek (Site 2, Station -L- 32+ 20 LT, -L- 32+90 RT, Sheet 5 of 16) using natural channel design.

The necessary compensatory mitigation to offset the 0.26 acres of permanent wetland impacts and the remaining 1,817 linear feet of unavoidable impacts to waters that are jurisdictional under the Federal Clean Water Act will be provided by the NCDENR Ecosystem Enhancement Program (EEP).

PROJECT SCHEDULE

Construction of R-2911 is divided into five sections as described in Table 2. Section A, the subject of this permit application, is scheduled to be let on May 18, 2004. Section E near Salisbury was let December 16, 2003. The remaining sections B, C, and D are scheduled to for construction in 2008, 2004, and 2004 respectively.

Permit drawings for Section A are included in this application in Attachment A. Permit drawings for the remaining sections will be provided under a separate cover as the design for these sections is completed. The permit applications for Sections B, C, and D will be submitted to the USACE Raleigh Regulatory Field Office since they are within Rowan County, which is covered by the Raleigh Field Office. Permits for Section E were issued in 2003. The Action ID for Section E is 200221536. The permit was issued on December 4, 2003. The Water Quality Certification number is 3434. The permit was issued on September 25, 2003.

Table 2. Project Sections and Scheduling

Section	Project Limits	Scheduled Let Date
R-2911A	SR 2318 in Iredell County to the Rowan County Line	May 18, 2004
R-2911B	Rowan County Line to SR 1743	October 21, 2008
R-2911C	SR 1743 to SR 1739, Rowan County	November 16, 2004
R-2911D	SR 1739 to 0.4 miles west of SR 1953, Rowan County	October 19, 2004
R-2911E	0.4 miles west of SR 1953 to US 601, Rowan County	Let on December 16, 2003

NEPA DOCUMENT STATUS

An Environmental Assessment (EA) for R-2911 was submitted by NCDOT in compliance with the National Environmental Policy Act. The EA was approved on May 7, 1999. A Finding of No Significant Impact (FONSI) was approved on December 21, 2000. The documents addressed the entire length of the R-2911 project, the relocation and widening of the existing US 70 from SR 2318 (Fanjoy Road) in Statesville to US 601 in Salisbury. The EA explains the purpose and need for the project; provides a description of the alternatives considered; and characterizes the social, economic, and environmental effects. After the EA was approved it was circulated to federal, state, and local agencies. Copies of the EA and FONSI have been provided to regulatory review agencies involved in the approval process. Additional copies will be provided upon request.

Logical Termini: R-2911A is in compliance with 23 CFR Part 771.111(f) which lists the FHWA characteristics of the 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; and
- (3) The project does not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.

R-2911A will connect two other TIP widening projects. To the west is TIP project U-2421. U-2421 widened US 70 to a 5-lane facility in June of 2002. R-2911B lies to the east of R-2911A, and will widen US 70 to a 4-lane facility in October, 2008.

RESOURCE STATUS

Wetland and Stream Delineations:

Wetland and Stream classifications and delineations for R-2911A were field verified by John Hendrix and Cynthia Van der Wiele [NC Division of Water Quality] on June 26, 2002.

The attached permit application package consists of drawings depicting jurisdictional impacts and natural channel design of the channel relocation of an unnamed tributary to Third Creek (Site 2, Station -L- 32+20 LT, -L- 32+90 RT, Sheet 5 of 16). As previously mentioned, the construction of R-2911A will involve 0.26 acres of permanent wetland impacts, 0.25 acres of fill within surface waters, and 1,998 linear feet of impacts to jurisdictional streams. All impacts

associated with this project are located within the 03040102 HU of the Yadkin River Basin. There are no 303-d listed waters within the project area.

R-2911A: Characterization of Jurisdictional Sites:

Wetlands

Section A will have 0.26 acres of permanent wetland impacts (Table 3). Wetlands within section R-2911A can be characterized as palustrine, forested, broad-leaved deciduous, seasonally flooded (PF01C, Cowardin, *et al.*). The wetlands in Section A occur in association with stream floodplains and are considered riverine in nature.

Wetlands associated with streams can be characterized as bottomland hardwood forest wetlands (Schafale and Weakley, 1990). Hydrology for these wetlands is primarily from overbank flooding from the adjacent stream. Dominant canopy and understory vegetation includes blackgum (*Nyssa sylvatica*), green ash (*Fraxinus pennsylvanica*), yellow poplar (*Liriodendron tulipifera*), sweetgum (*Liquidambar styraciflua*), black willow (*Salix nigra*), red maple (*Acer rubrum*), box elder (*Acer negundo*), sycamore (*Platanus occidentalis*), willow oak (*Quercus phellos*), spicebush (*Lindera benzoin*), ironwood (*Carpinus caroliniana*), river birch (*Betula nigra*), and silky dogwood (*Cornus amomum*). Herbaceous species include sensitive fern (*Onoclea sensibilis*), seedbox (*Ludwigia alternifolia*), giant cane (*Arundinaria gigantea*), jewelweed (*Impatiens capensis*), and rush (*Juncus* sp.). These riverine wetlands occur in association with Unnamed Tributaries to Third Creek (Sites 2, 6, 7; permit drawing sheets 5, 9, 10 of 16).

Table 3. Jurisdictional Impacts within R-2911A

Site	Station (From/To)	Wetland Impacts(ac)* (riverine)	Fill in SW (Natural) (ac)*	Existing Channel Impacted (ft)	Natural Stream Design (ft)
1	-L-30+80 LT		0.04	427	
	-L-31+45LT				
2	-L-32+20 LT	0.12	0.06	508	180
	-L-32+90 RT				
3	-L-34+50 LT		0.03	344	
	-L-34+62 RT				
4	-L-44+12 LT		0.05	502	
	-L-44+90 RT				
6	-Y7-13+55 LT	0.01			
	-Y7-13+70 LT				
7	-L-48+66 RT	0.13	0.03(pond)		
	-L-49+30 RT				
10	-L-63+62 RT		0.04	217	
	-L-63+84 LT				
TOTAL		0.26	0.25	1,998	180

* Includes fill, excavation, and mechanized clearing

Streams

Within section R-2911A five streams are traversed. Jurisdictional stream information is presented in Table 4. The UT Third Creek (1) is an intermittent stream approximately 2.5 feet wide and 0.3 feet deep. The channel substrate consists of a gravel, sand, silt and clay. The UT Third Creek (2) is a perennial stream approximately 2.5 feet wide and 0.3 feet deep with a substrate of gravel, sand, silt and clay. The UT Third Creek (3) is a perennial stream approximately 2 feet wide and 0.3 feet deep, with a substrate consisting of cobble, gravel, sand and silt. The UT Third Creek (4) is an intermittent stream approximately 2 feet wide and 0.3 feet deep with a substrate of cobble, gravel, sand and silt. The UT Third Creek (5) is an intermittent stream approximately 2 feet wide and 0.2 feet deep with a substrate of sand, silt, and clay.

Table 4. Jurisdictional Stream Information on R-2911A

Site	Station Number (From/To)	Stream Name	DWQ Index No.	Stream Classification	Status	Impact (ft)
1	30+80/ 31+45	UT to Third Creek (1)	12-108	C	Intermittent	427
2	32+20/ 32+90	UT to Third Creek (2)	12-108	C	Perennial	508
3	34+50/ 34+62	UT to Third Creek (3)	12-108	C	Perennial	344
4	44+12/ 44+90	UT to Third Creek (4)	12-108	C	Intermittent	502
10	63+62/ 63+84	UT to Third Creek (5)	12-108	C	Intermittent	217
TOTAL						1,998

* NCDOT proposes that the relocated stream channel at Site 2 will provide onsite mitigation for 180 feet of Site 2 impacts, requiring a balance of 328 feet of impact to be mitigated offsite.

TEMPORARY IMPACTS

There will be temporary impacts from the dewatering at culvert extensions at Sites 2 and 4. The following paragraphs describe the activities, provide restoration plans, schedules, and removal and disposal plans.

Construction of the 3.7m by 2.1m Reinforced Concrete Box Culvert (RCBC) at St. 32+60 –L- and the 2.7m by 2.4m RCBC at St. 44+43 –L- will involve the construction of stilling basins, impervious dikes, and temporary channel changes with liner. The stilling basins will be utilized to dewater the construction areas. Impervious dikes will be installed upstream and downstream of the construction zones and areas adjacent to the temporary channel changes with liner. The temporary channel changes with liner will be constructed to divert the stream around the construction zone. The impervious dikes may be constructed from a combination of materials that will be selected during the construction of the project in order to minimize the temporary impacts. Traditional methods include, sheet piling, sandbags, concrete traffic barrier or soil encased in fabric.

Restoration Plan: The area impacted by the construction of the RCBC's will be restored to pre-project conditions and contours following the completion of the permanent structure and roadway. The impacted areas will be revegetated according to the Seeding and Mulching Specifications included in the Erosion Control Special Provisions.

Schedule: All steps will be taken to minimize stream impacts for the unnamed tributaries to Third Creek. NCDOT will request the Contractor to complete the construction of the RCBC's in a timely manner so that all exposed areas will be stabilized to prevent erosion. The project schedule calls for a production letting of May 18, 2004 with a date of availability of June 18, 2004. It is expected that the Contractor will choose to start construction of the temporary detour at that time.

Removal and Disposal Plan: The Contractor will be required to submit a reclamation plan for the removal of and disposal of all materials off-site at an upland location. The Contractor will use excavating equipment to remove any materials from the stream. Heavy-duty trucks, dozers, cranes and various other pieces of mechanical equipment necessary for construction of roadways and culverts will be used on site. All material placed in the stream will be removed at that time. The Contractor will have the option of reusing any of the materials that the Engineer deems suitable in the construction of the project. After the impervious dikes are no longer needed, all materials will become the property of the Contractor.

PROTECTED SPECIES

Plants and animals with federal classification of Endangered (E), Threatened (T), Proposed Endangered (PE), and Proposed Threatened (PT) are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. The United States Fish and Wildlife Service (USFWS) lists one federally protected species for Iredell County as of the February 2003 listing. The Bog turtle (*Clemmys muhlenbergii*) is listed as T (S/A), threatened due to similarity of appearance. This species is not biologically endangered or threatened and is not subject to Section 7 consultation

CULTURAL RESOURCES

There are no eligible National Register properties within the vicinity of Section A. A survey of archaeological resources within the entire R-2911 corridor resulted in 20 potential historic period archaeological sites. Of these 20, two are listed as "unknown at this time", one was "not evaluated", two were "possibly eligible", and fourteen were recommended as "not eligible". One possibly eligible property, the 'Farmville Plantation', was identified as within the Area of Potential Effect. After the initial investigation, it was required that additional archaeological investigations take place. The additional investigations were conducted July 19, 2002 through July 27, 2002. A letter from SHPO states that all sites are described as lacking integrity, and not eligible for listing. Therefore, this project is in compliance with Section 106 of the National Historic Preservation Act provided it is implemented consistent with the conditions of SHPO. No eligible Historical Properties are located within the project area. Historical and Archaeological clearance letters from SHPO are located in Attachment C.

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. The project is not located in a 100-year floodplain.

INDIRECT AND CUMULATIVE IMPACTS

An Indirect and Cumulative Impact Study for R-2911A was completed on February 6, 2004. The construction of R-2911A is not expected to result in any indirect or cumulative impacts that will adversely affect water quality. The ICE report is included as Attachment D.

WILD AND SCENIC RIVER SYSTEM

The project will not impact any Designated Wild and Scenic Rivers or any rivers included in the list of study rivers (Public Law 90-542, as amended).

MITIGATION OPTIONS

The Corps of Engineers has adopted, through the Council on Environmental Quality (CEQ), a wetland mitigation policy that embraces the concept of “no net loss of wetlands” and sequencing. The purpose of this policy is to restore and maintain the chemical, biological, and physical integrity of the Waters of the United States. Mitigation of wetland and surface water impacts has been defined by the CEQ to include: avoiding impacts, minimizing impacts, rectifying impacts, reducing impacts over time and compensating for impacts (40 CFR 1508.20). Executive Order 11990 (Protection of Wetlands) and Department of Transportation Order 5660.1A (Preservation of the Nations Wetlands), emphasize protection of the functions and values provided by wetlands. These directives require that new construction in wetlands be avoided as much as possible and that all practicable measures are taken to minimize or mitigate impacts to wetlands.

AVOIDANCE AND MINIMIZATION: 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.

Avoidance: All wetland areas not affected by the project will be protected from unnecessary encroachment. In direct consultation with the U.S. Army Corps of Engineers (USACE), decisions were made to shift the original preferred alignment to minimize wetland impacts. The original alignment would have impacted 2.1 acres of wetland. By shifting the alignment to the south, NCDOT has avoided impacts to 1.83 acres of wetland. NCDOT has also dropped a Y-line (Site 5 on original design plans), which avoids impacting 0.5 acres of wetland and 712 linear feet of stream channel. Also, no staging of construction equipment or storage of construction supplies will be allowed in wetlands or near surface waters.

Minimization: Minimization includes the examination of appropriate and practicable steps to reduce the adverse impacts.

Specific minimization techniques were implemented as follows:

1. Best Management Practices: NCDOT has committed that Sediment and Erosion Control Guidelines for BMPs for Protection of Surface Waters will be adhered to during construction to minimize potential negative environmental impacts. (See FONSI)
2. Revegetation: Within 15 days of construction completion, vegetation will be reestablished on exposed areas with judicious use of pesticide and herbicide.
3. Natural Channel Design: UT to Third Creek (2) at Site 2 (Station -L- 32+20 LT, -L- 32+90)

RT, Sheet 5 of 16) will require 180 linear feet of stream relocation. Natural Channel Design will be utilized to construct an E5 type stream channel. Channel characteristics will resemble those of a reference reach downstream of the impacted site. Channel banks will be planted with trees and shrubs similar to those found along the reference reach. The natural channel design was reviewed and approved at the September 20, 2002 permit drawing review meeting. Details are included in Attachment E.

4. Culverts: New culverts at sites 2 and 4 (Stations -L- 32 + 60 and -L- 44 + 43) will be buried one foot below the existing streambed in order to allow aquatic life movement through the culverts at low flow.
5. Sediment and Erosion Control Measures: NCDOT will stipulate that sediment and erosion control measures not be placed in wetlands unless it is absolutely necessary to place silt fences on wetland boundaries to contain erosion caused by the sheet flow of water. This commitment will be incorporated into the construction contract awarded for the proposed project.
6. Clearing: Clearing Method III (clearing and grubbing of vegetation to 10 feet beyond the construction limits) will be used.

COMPENSATION: The primary emphasis of the compensatory mitigation is to reestablish a condition that would have existed if the project were not built. As previously stated, mitigation is limited to reasonable expenditures and practicable considerations related to highway operation. Mitigation is generally accomplished through a combination of methods designed to replace wetland functions and values lost as a result of construction of the project. These methods consist of creation of new wetlands from uplands, borrow pits, and other non-wetland areas; restoration of wetlands; and enhancement of existing wetlands. Where such options may not be available, or when existing wetlands and wetland-surface water complexes are considered to be important resources worthy of preservation, consideration is given to preservation as at least one component of a compensatory mitigation proposal.

FHWA STEP DOWN COMPLIANCE: All compensatory mitigation must be in compliance with 23 CFR Part 777.9, "Mitigation of Impacts" that describes the actions that should be followed to qualify for Federal-aid highway funding. This process is known as the FHWA "Step Down" procedure:

1. Consideration must be given to mitigation within the right-of-way and should include the enhancement or restoration of existing wetlands and / or streams and the creation of new wetlands in the highway median, borrow pit areas, interchange areas and along the roadside.
2. Where mitigation within the right-of-way does not fully offset wetland or stream losses, compensatory mitigation may be conducted outside the right-of-way including enhancement, creation, and preservation.

Based upon the agreements stipulated in the "Memorandum of Agreement Among the North Carolina Department of Environment and Natural Resources, the North Carolina Department of Transportation, and the U.S. Army Corps of Engineers, Wilmington District" (MOA), it is understood that 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 NCDOT projects that are listed in Exhibit 1 of the subject MOA during the EEP transition period which ends on June 30, 2005.

Since the subject project is listed in Exhibit 1, the necessary compensatory mitigation to offset unavoidable impacts to waters that are jurisdictional under the federal Clean Water Act will be

provided by the EEP. The offsetting mitigation will derive from an inventory of assets already in existence within the 03040102 cataloguing unit. The Department has avoided and minimized impacts to jurisdictional resources to the greatest extent possible as described above. The remaining, unavoidable impacts to 1,781 linear feet of jurisdictional streams and 0.26 acres of riverine wetland will be offset by compensatory mitigation provided by the EEP program. A letter of request for confirmation from the EEP program was submitted February 5, 2004. A copy is attached for your convenience (Attachment F).

REGULATORY APPROVALS

Application is hereby made for a Section 404 Individual Permit as required for the above-mentioned activities. By copy of this letter, we are also requesting a 401 Water Quality Certification. In compliance with Section 143-215.3D(e) of the NCAC we will provide \$475.00 to act as payment for processing the Section 401 permit application as previously noted in this application (see Subject line). Seven copies of the application are being provided to the North Carolina Department of Environment and Natural Resources, Division of Water Quality, for their review.

Thank you for your assistance with this project. If you have any questions or need any additional information about this project, please contact Mr. Matt M. Haney at (919) 715-1428.

Sincerely,



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

Cc: Mr. John Dorney, NCDENR, NCDWQ (7 copies)
Ms. Marla Chambers, NCWRC
Ms. Becky Fox, USEPA
Ms. Marella Buncick, USFWS
Mr. John F. Sullivan, III, FHWA
Mr. Jay Bennett, P.E., Roadway Design
Mr. Omar Sultan, Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. David Chang, P.E., Hydraulics
Mr. Greg Perfetti, P.E., Structure Design
Mr. Mark Staley, Roadside Environmental
Mr. M.L. Holder, P.E., Division 12 Engineer
Ms. Trish Simon, Division 12 DEO
Mr. David Franklin, USACE, Wilmington (Cover Letter only)

**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	9. AGENT'S ADDRESS
7. APPLICANT'S PHONE NOS. W/AREA CODE a. Residence b. Business 919-715-1500	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) US 70 Relocation from SR 2318 (Fanjoy Road) east of Statesville to the Iredell-Rowan County Line. Iredell County, NC.	
13. NAME OF WATERBODY, IF KNOWN (if applicable) UT Third Creek	14. PROJECT STREET ADDRESS (if applicable)
15. LOCATION OF PROJECT Iredell COUNTY NC STATE	
16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions) Section, Township, Range, Lat/Lon, and/or Accessors's Parcel Number, for example.	

17. DIRECTIONS TO THE SITE

US 70, at SR 2318 (Fanjoy Road) near Statesville.

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

Relocation of US 70 from a two to three-lane facility to a four to five-lane roadway. The project is 5.1 miles long and will provide a median divided, curb and gutter roadway with 8-10-foot shoulders.

R-2911 A of the project will involve five stream crossings, impacting 1,998 linear feet of stream channel. Natural channel design will be used to relocate 180 linear feet of one of the channels. 0.26 acres of wetlands 0.25 acres of surface waters will be impacted.

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

Public transportation. To increase traffic capacity and safety by widening the roadway. US 70 is designated as a Major Thoroughfare on the Statesville Thoroughfare Plan and serves as a major arterial for commuters traveling between Statesville, Cleveland and Salisbury.

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

20. Reason(s) for Discharge

Needed in order to provide a wider road base for the highway widening.

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

See attached permit drawings.

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

1781.1 linear feet of stream channel, 0.21 acres of fill in surface waters, and 0.27 acres of wetland

23. Is Any Portion of the Work Already Complete? Yes ___ No X 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).

See Attached List

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
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* 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.


SIGNATURE OF APPLICANT

2/20/04
DATE

SIGNATURE OF AGENT

DATE

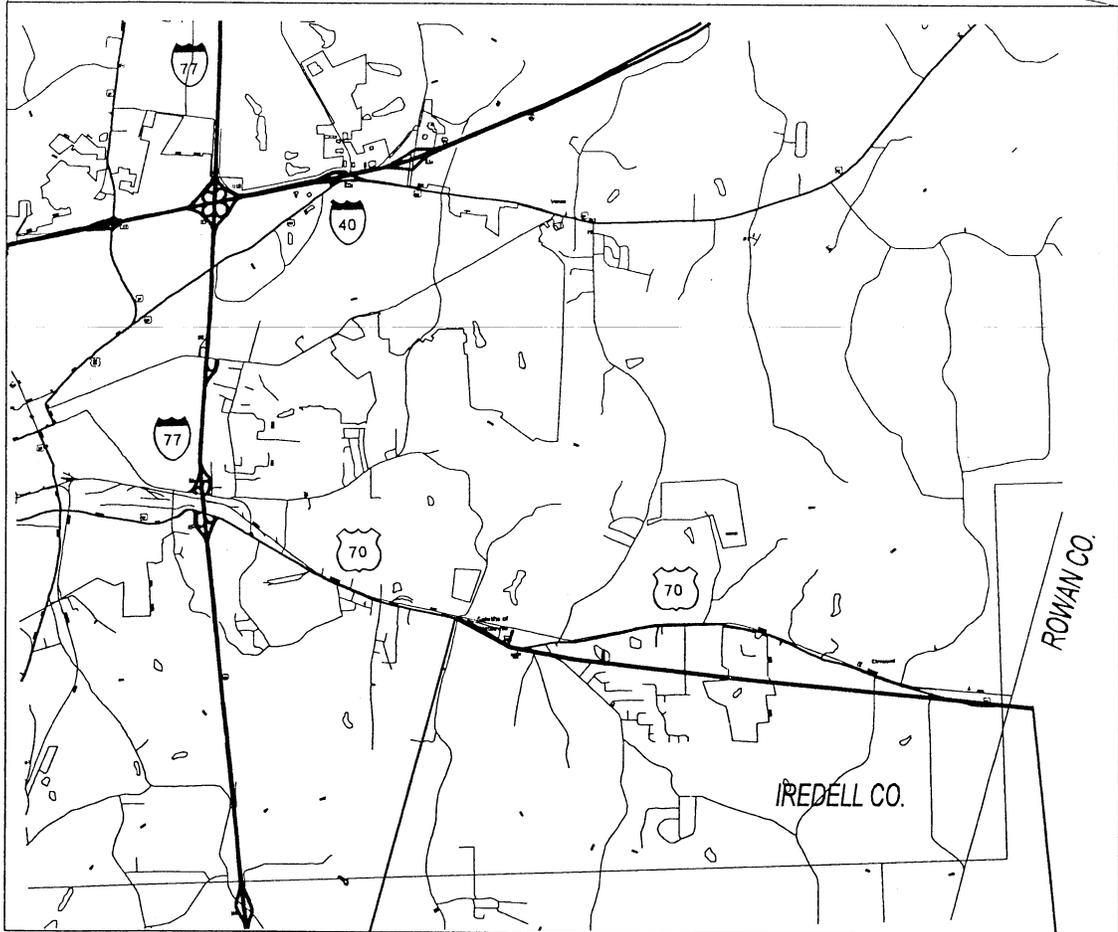
The application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

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.

ATTACHMENT A

Permit Drawings

VICINITY MAP



BEGIN
PROJECT

END
PROJECT



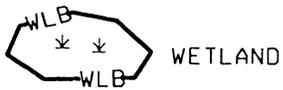
N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

IREDELL COUNTY

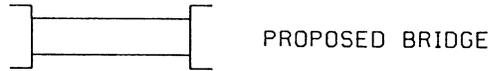
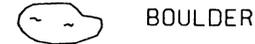
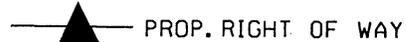
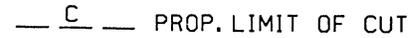
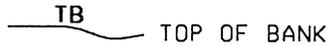
PROJECT: 8.1823401 (R-2911A)

LEGEND

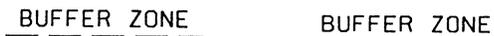
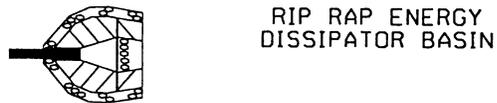
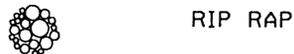
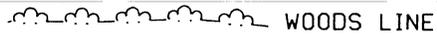
— WLB — WETLAND BOUNDARY



← FLOW DIRECTION



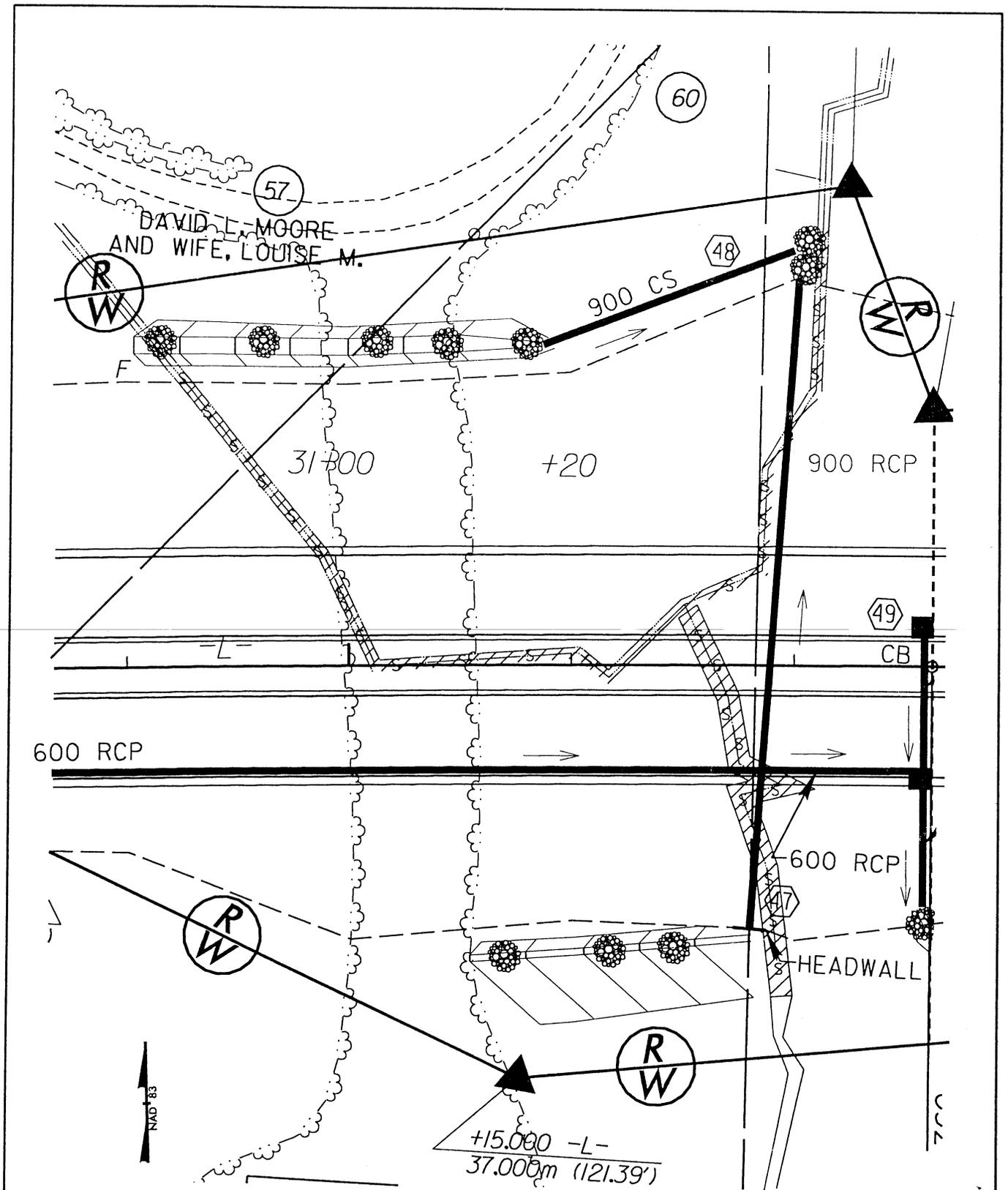
(DASHED LINES DENOTE EXISTING STRUCTURES)



N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

IREDELL COUNTY

PROJECT: 8.1823401 (R-2911A)



PLAN VIEW
SITE 1

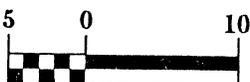
N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

IREDELL COUNTY

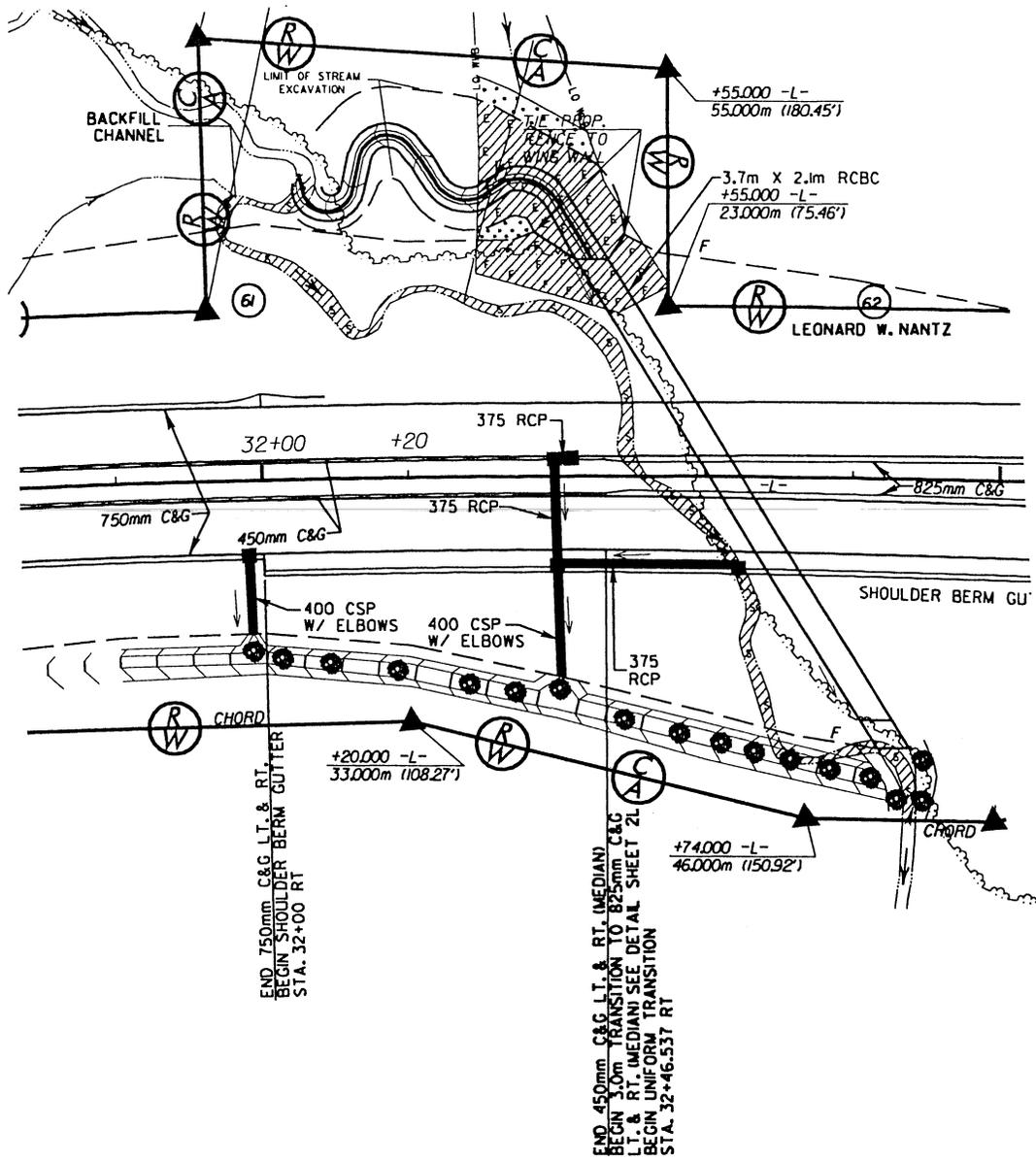
PROJECT: 8.1823401 (R-2911A)



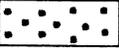
DENOTES FILL IN
SURFACE WATERS

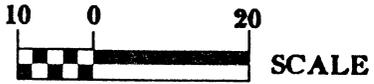


SCALE

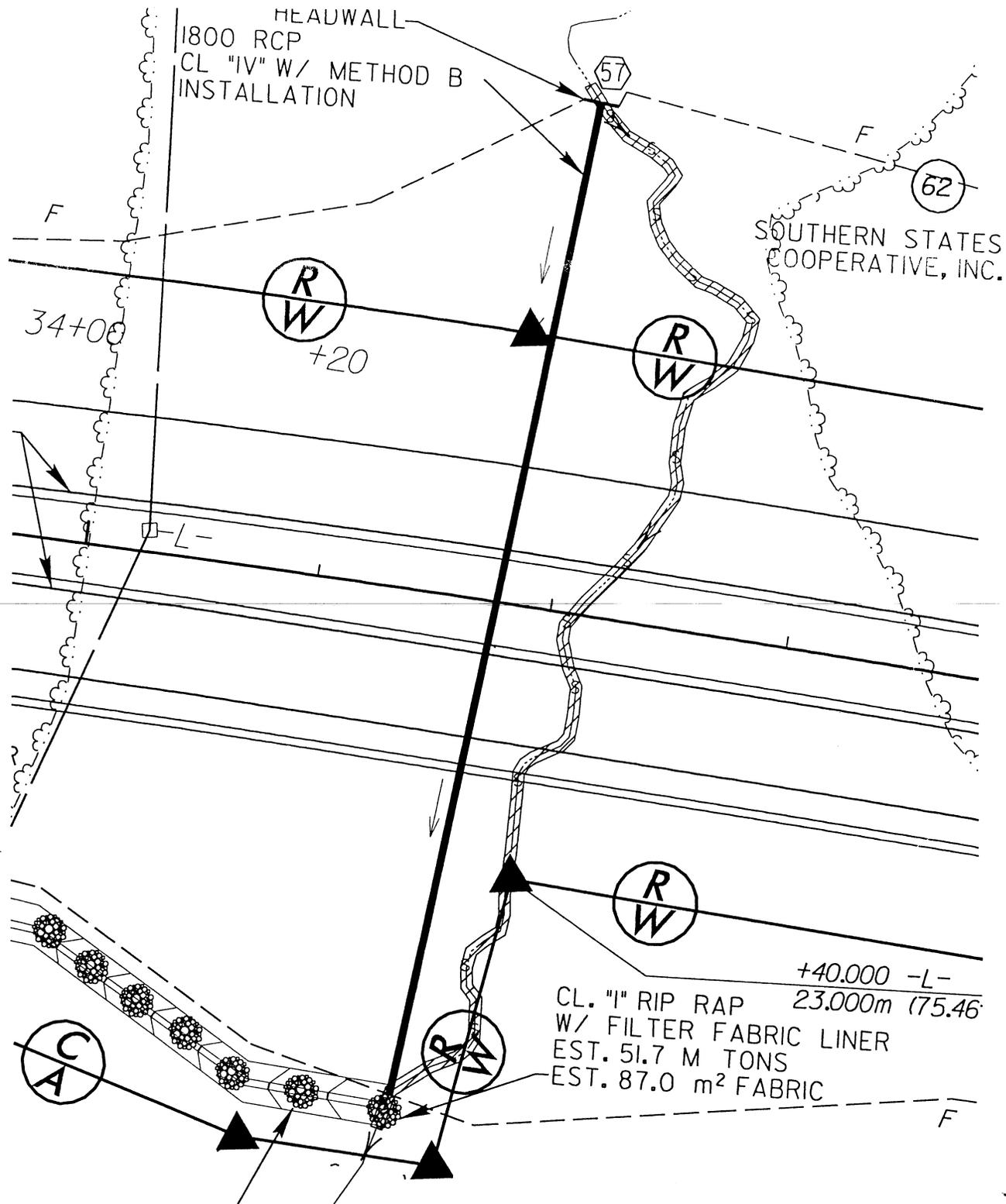


PLAN VIEW
SITE 2

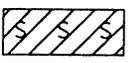
-  DENOTES MECHANIZED CLEARING
-  DENOTES EXCAVATION IN WETLANDS
-  DENOTES FILL IN WETLANDS
-  DENOTES FILL IN SURFACE WATERS



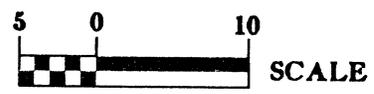
N. C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 IREDELL COUNTY
 PROJECT: 8.1823401 (R-2911A)
 SHEET 5 OF 16 7/12/02



PLAN VIEW
SITE 3



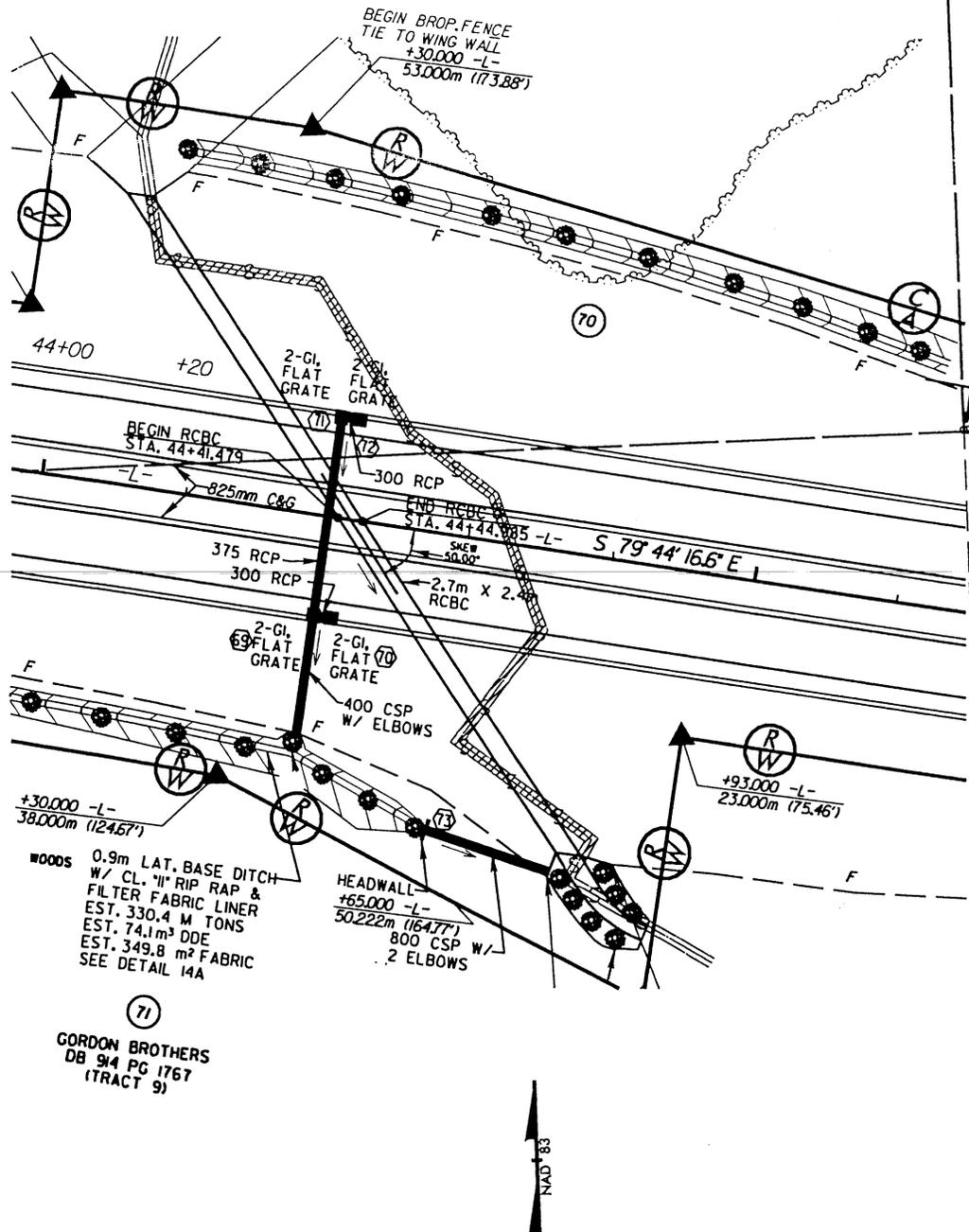
DENOTES FILL IN
SURFACE WATERS



N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

IREDELL COUNTY

PROJECT: 8.1823401 (R-2911A)



WOODS 0.9m LAT. BASE DITCH
 W/ CL. "II" RIP RAP &
 FILTER FABRIC LINER
 EST. 330.4 M TONS
 EST. 74.1m³ DDE
 EST. 349.8 m² FABRIC
 SEE DETAIL 14A

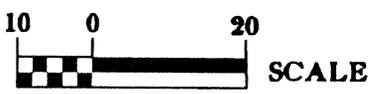
(71)
 GORDON BROTHERS
 DB 94 PG 1767
 (TRACT 9)

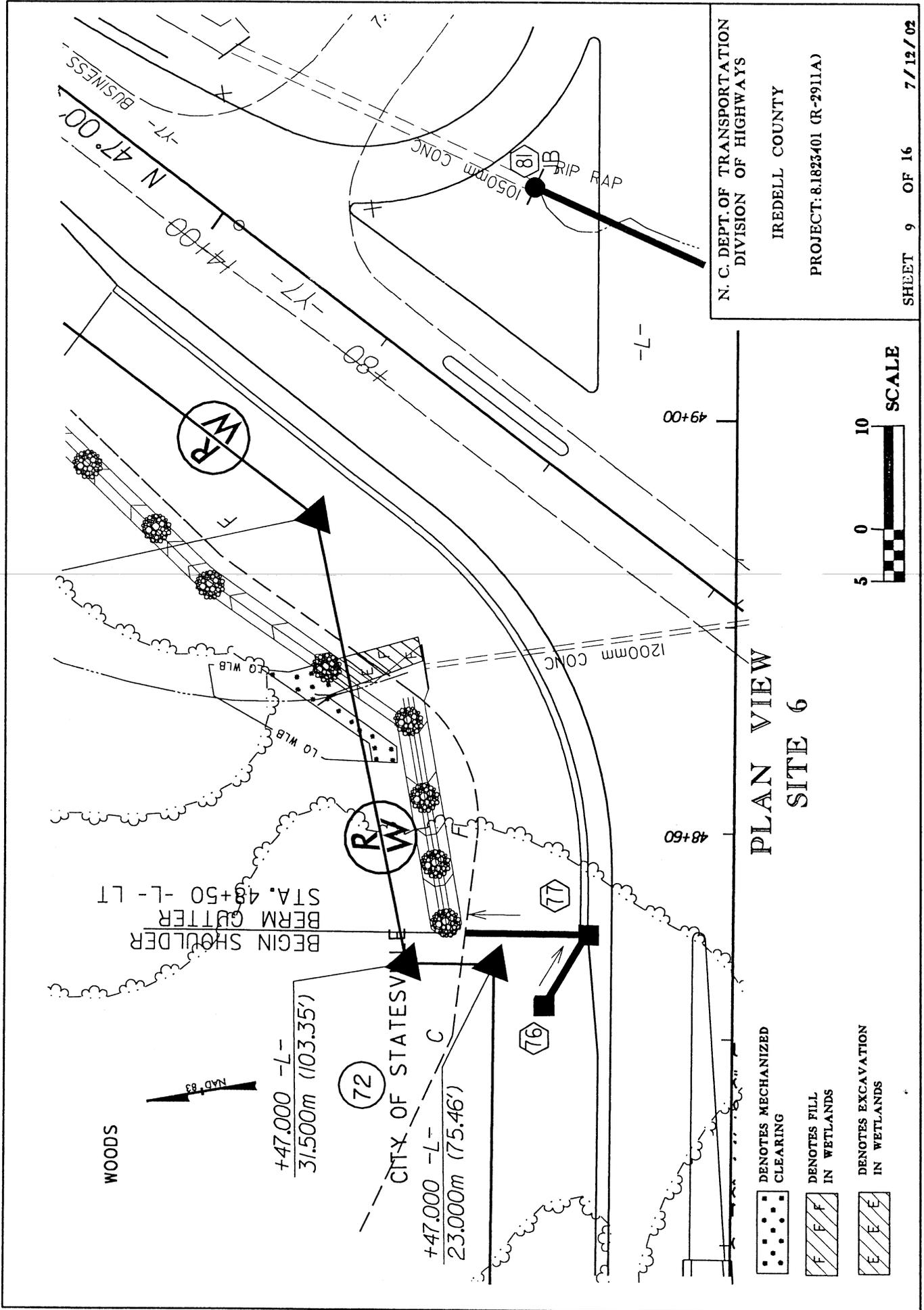


PLAN VIEW
 SITE 4

N. C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 IREDELL COUNTY
 PROJECT: 8.1823401 (R-2911A)

 DENOTES FILL IN SURFACE WATERS

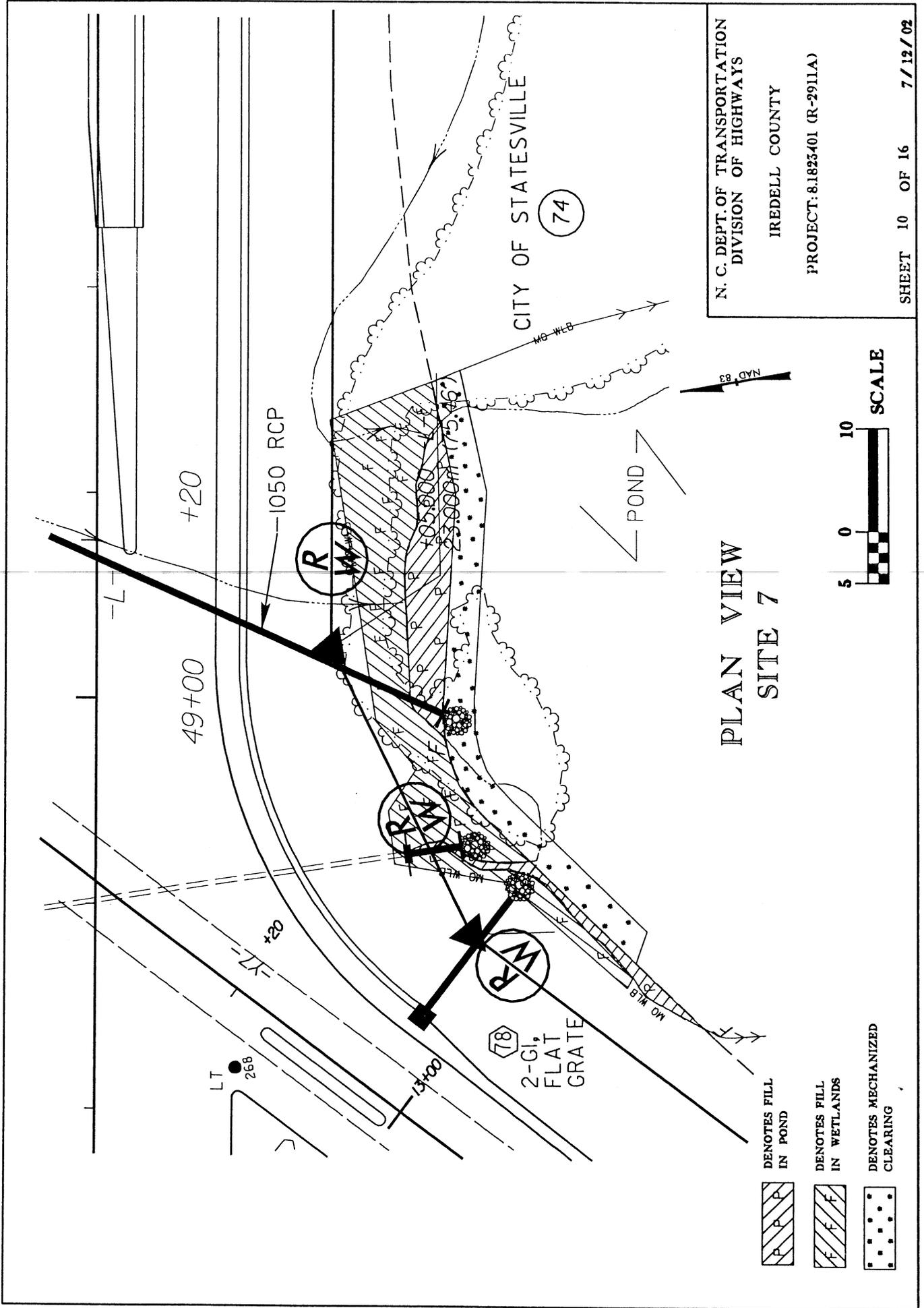




N. C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 IREDELL COUNTY
 PROJECT: 8.1825401 (R-2911A)

PLAN VIEW
 SITE 6





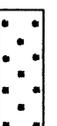
N. C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS

IREDELL COUNTY

PROJECT: 8.1825401 (R-2911A)

SHEET 10 OF 16 7/12/02

PLAN VIEW
 SITE 7

- 
 DENOTES FILL
 IN POND
- 
 DENOTES FILL
 IN WETLANDS
- 
 DENOTES MECHANIZED
 CLEARING

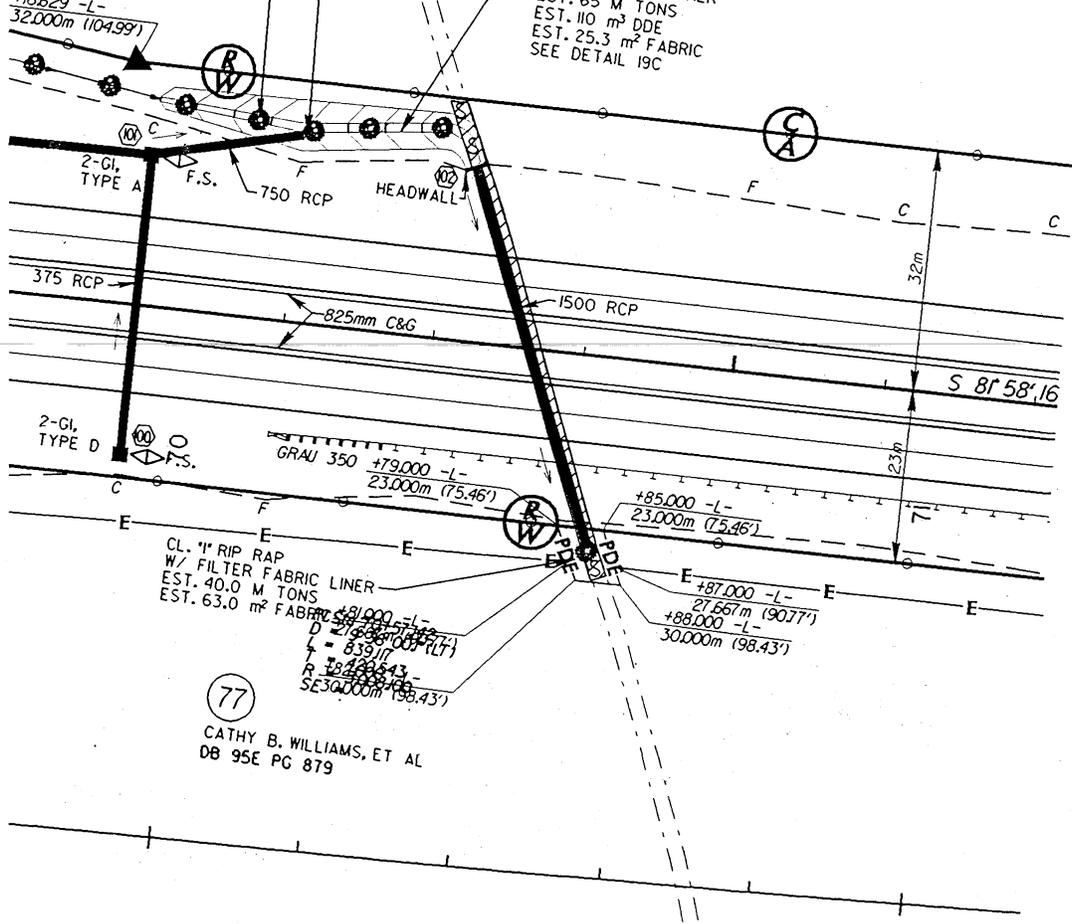
63

64

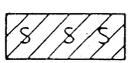
0.6m-1.2m LAT. BASE DITCH
 W/ CL. 1/2" RIP RAP &
 FILTER FABRIC LINER
 EST. 30.0 M TONS
 EST. 75.0 m³ DDE
 EST. 75.0 m² FABRIC
 SEE DETAIL 19B
 NOTE: TRANSITION
 BASE WIDTH FROM
 0.6m TO 1.2m
 +16.629 -L-
 32.000m (104.99')

CL. 1/2" RIP RAP
 W/ FILTER FABRIC LINER
 EST. 7.5 M TONS
 EST. 18.0 m² FABRIC

SPEC. GRADE LAT. BASE DITCH
 W/ CL. 1/2" RIP RAP &
 FILTER FABRIC LINER
 EST. 65 M TONS
 EST. 110 m³ DDE
 EST. 25.3 m² FABRIC
 SEE DETAIL 19C

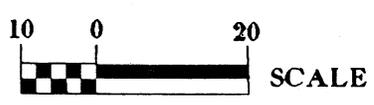


(77)
 CATHY B. WILLIAMS, ET AL
 DB 95E PG 879



DENOTES FILL
 IN SURFACE WATERS

PLAN VIEW
 SITE 10



N. C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 IREDELL COUNTY
 PROJECT: 8.1823401 (R-2911A)

PROPERTY OWNER

NAME AND ADDRESS

OWNER'S NAME	ADDRESS
David L. Moore and wife, Louise M.	2470 Salisbury Hwy Statesville, NC 28677
Lynn Edwin McNeely	153 Red Walnut Dr. Statesville, NC 28677
Ada Marie Rankin	49 Carroll St Patterson, NJ 07501.
Jack Bradshaw Borders, Jr and Steven Boyce Borders	188 Knox Farm Rd Stetesville, NC 28677
Gordon Brothers	P.O. Box 1192 Stetesville, NC 28687
Leonard W. Nance	2492 Salibury Hwy. Stetesville, NC 28677
Southern States Cooperative, Inc. (Attn Mr. Creeden)	P.O Box 26234 Richmond, VA 23260
Carolina Tractor & Equipment Co., Inc.	P.O. Box 1095 Charlotte, NC 28201
City of Statesville	P.O. Box 1111 Statesville, NC 28677
David C. Warren and wife, Mary M.	175 Triplett Rd Cleveland, NC 27013

**N. C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS**

IREDELL COUNTY

PROJECT: 8.1823401 (R-2911A)

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS				SURFACE WATER IMPACTS				Natural Stream Design (m)	
			Fill In Wetlands (ha)	Temp. Fill In Wetlands (ha)	Excavation In Wetlands (ha)	Mechanized Clearing (Method III) (ha)	Fill In SW (Natural) (ha)	Fill In SW (Pond) (ha)	Temp. Fill In SW (ha)	Existing Channel Impacted (m)		
1	-L- 30+80 LT	900mm RCP					0.018				130	0
	-L- 31+45 LT											
2	-L- 32+20 LT	3.7m x 2.1m RCBC	0.017		0.026	0.007	0.026				155	55
	-L- 32+90 RT											
3	-L- 34+50 LT	1800mm RCP					0.011				105	0
	-L- 34+62 RT											
4	-L- 44+12 LT	2.7m x 2.4m RCBC					0.019				153	0
	-L- 44+90 RT											
5	-Y8- 14+10 LT	3.4m x 2.7m RCBC	0		0	0	0				0	0
	-Y8- 15+35 RT											
6	-Y7- 13+55 LT	1200 RCP	0.001		0.001	0.004						
	-Y7- 13+70 LT											
7	-L- 48+66 RT	1050 RCP	0.033			0.019			0.013			
	-L- 49+30 RT											
8	-L- 68+35 RT	1350mm RCP										
	-L- 68+51 RT											
9	-L- 74+16 RT	600 RCP										
	-L- 74+63 RT											
10	-L- 63+62 LT	1500mm RCP					0.015				66	
	-L- 63+84 RT											
TOTALS:			0.051	0	0.027	0.03	0.089	0.013	0	0.013	609	55

OMITTED - STREAM DEEMED NON-JURISDICTIONAL

OMITTED - STREAM DEEMED NON-JURISDICTIONAL

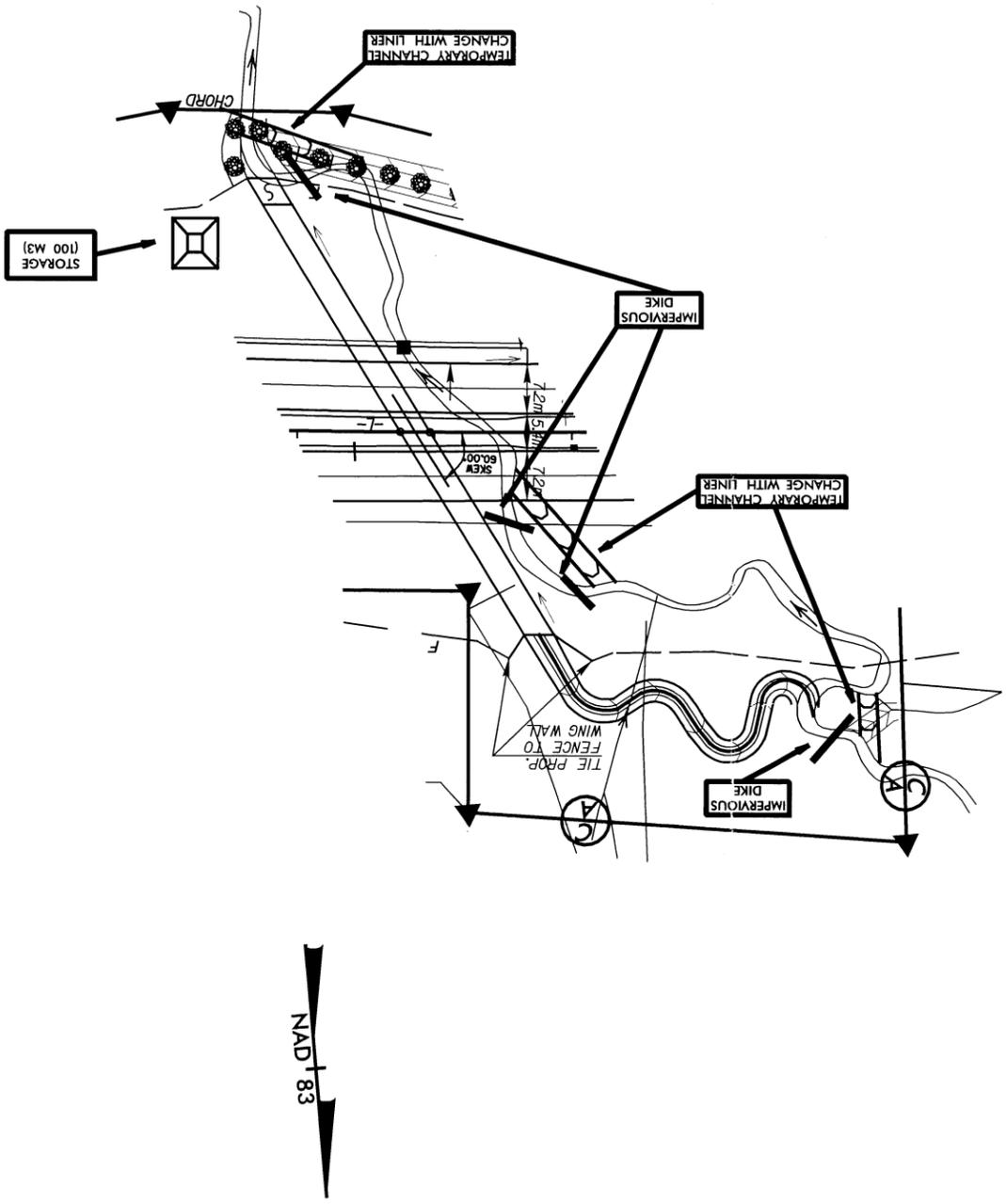
NCDOT

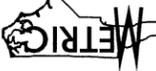
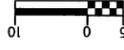
DIVISION OF HIGHWAYS
 IREDELL COUNTY
 PROJECT 8.1823401 (R-2911A)
 US 70 FROM SR 2318 TO
 ROWAN COUNTY LINE

ATTACHMENT B

Culvert Extension Details

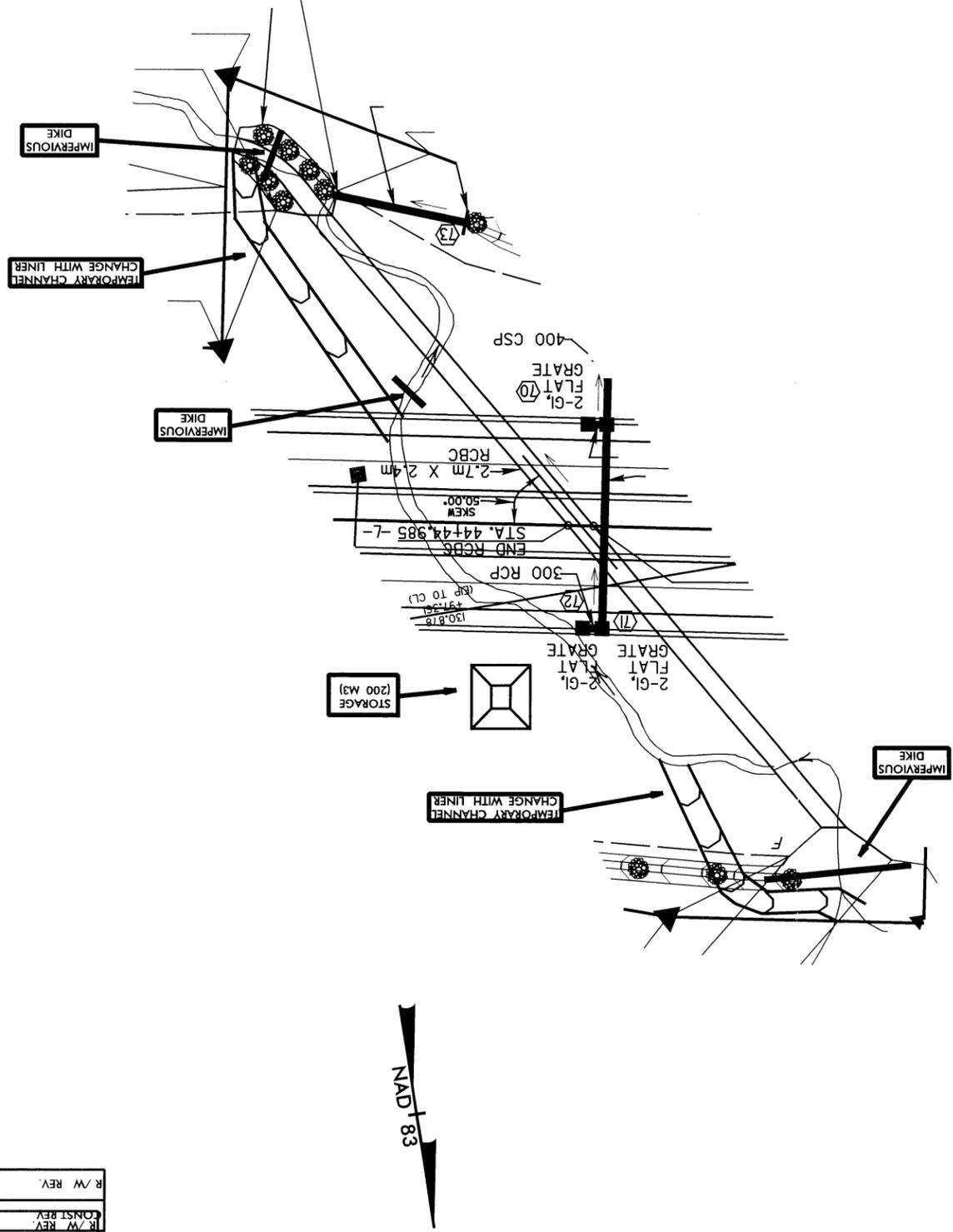
- CONSTRUCTION SEQUENCE (STA. 32 + 60 -L-)
1. Construct 100 m3 stilling basin
 2. Construct temporary channel change with liner (1m depth, 1.5m base, 2:1 side slopes)
 3. Construct impervious dike
 4. Construct culvert
 5. Divert water through culvert
 6. Complete roadway



PROJECT REFERENCE NO.		R-2911A	
SHEET NO.		EC-10/CONST.10	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
R/W SHEET NO.		R/W SHEET NO.	
CONST. REV.		R/W REV.	
			

CONSTRUCTION SEQUENCE (STA. 44 + 43 -L-)

1. Construct 200 m3 stilling basin
2. Construct temporary channel change with liner
1m depth, 2m base, 2:1 side-slopes
3. Construct impervious dikes
4. Construct culvert
5. Divert water through culvert
6. Complete roadway



PROJECT REFERENCE NO. R-2911A		R/W REV.	
SHEET NO. EC-15/CONST.14		CONST. REV.	
R/W SHEET NO.		R/W REV.	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
METRIG			

ATTACHMENT C

Cultural Resource Letters



North Carolina Department of Cultural Resources

James B. Hunt Jr., Governor
Betty Ray McCain, Secretary

Division of Archives and History
Jeffrey J. Crow, Director

February 10, 1999

MEMORANDUM

TO: Beverly Robinson
Planning and Environmental Branch
Division of Highways
Department of Transportation

FROM: David Brook *David Brook*
Deputy State Historic Preservation Officer

SUBJECT: US 70 widening and partial relocation, R-
2911, Iredell and Rowan Counties, ER 97-
7230

In our letter of December 15, 1998, we requested a revised report that included maps of actual surveyed areas. The author of the report, John Mintz, provided the maps requested. This information completes our requirements for additional information. As previously stated, we concur with the evaluations and recommendations contained in the report.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, please contact Renee Gledhill-Earley, environmental review coordinator, at 919/733-4763.

DB:slw



CONCURRENCE FORM
FOR
ASSESSMENT OF EFFECTS

Project Description

WIDENING AND PARTIAL RELOCATION: U.S. 70 FROM SR 2318
2 EXISTING MULTILANES AT US 601

FEB 18, 1999, representatives of the

- North Carolina Department of Transportation (NCDOT)
- Federal Highway Administration (FHWA)
- North Carolina State Historic Preservation Office (SHPO)
- Other _____

_____ agreed the subject project and agreed

there are no effects on the National Register-listed property within the project's area of potential effect and listed on the reverse.

there are no effects on the National Register-eligible properties located within the project's area of potential effect and listed on the reverse.

there is an effect on the National Register-listed property/properties within the project's area of potential effect. The property/properties and the effect(s) are listed on the reverse.

there is an effect on the National Register-eligible property/properties within the project's area of potential effect. The property/properties and effect(s) are listed on the reverse.

_____ signed:

Larry Pope _____ 2/18/1999
representative, NCDOT, Historic Architectural Resources Section Date

Kathy J. Mann _____ 3/11/99
VA for the Division Administrator, or other Federal Agency Date

Lee Deekill-Ealey _____ 2/18/99
representative, SHPO Date

David Wood _____ 3/25/99
State Historic Preservation Officer Date

Federal Aid # STP-0224 (3) TIP # R-2911 County Rowan/Iredell

Properties within area of potential effect for which there is no effect. Indicate if property is National Register-listed (NR) or determined eligible (DE).

Cameron Presbyterian Church (DE)
Alternate 3A

Properties within area of potential effect for which there is an effect. Indicate property status (NR or DE) and describe effect.

Wood-Fleming House (DE) Alternate 3A
4 lane section w/ 30' median - Conditional
No Adverse Effect w/ SHPO review of median openings

Reason(s) why effect is not adverse (if applicable).

NCDOT agrees to allow SHPO to review/comment on median openings.

Initialed:

NCDOT

MPA

FHWA

West

SHPO

WIS



North Carolina Department of Cultural Resources

State Historic Preservation Office

David L. S. Brook, Administrator

James B. Hunt Jr., Governor
Betty Ray McCain, Secretary

Division of Archives and History
Jeffrey J. Crow, Director

December 21, 2000

MEMORANDUM

To: William D. Gilmore, P.E., Manager
Project Development and Environmental Analysis Branch
From: David Brook (signature)
Deputy State Historic Preservation Officer
Re: Archeological Testing and Evaluation of Five Sites,
(31RW172, 31RW173, 31RW174, 31RW175, 31RW47).
Rowan County Sept. 2000, Rowan County, R-2911, ER 97-7230

The report evaluates four archaeological sites (31RW172-175) discovered by Mintz et al. in 1998 and 31RW47 discovered by Laurie Adams in 1975. This work is an addendum to the Mintz report. It includes geomorphological analyses of the sites as an appendix (E) by Daniel R. Hayes. The report includes good maps, illustrations, and appendices.

All sites are described as lacking integrity and not eligible for listing in the National Register of Historic Places. We concur with your determination of ineligibility.

The archeological investigation within the proposed right-of-way completes the Section 106 process for the archeological component of the project area as proposed currently.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, Environmental Review Coordinator, at 919/733-4763.

DB:kgc

cc: FHWA
Tom Padgett, NCDOT

A-30

Table with 3 columns: Location, Mailing Address, Telephone/Fax. Rows include ADMINISTRATION, ARCHAEOLOGY, RESTORATION, SURVEY & PLANNING.



North Carolina Department of Cultural Resources

James B. Hunt Jr., Governor
Betty Ray McCain, Secretary

MAILING ADDRESS
4617 Mail Service Center
Raleigh, NC 27699-4617

Division of Archives and History
Jeffrey J. Crow, Director

LOCATION
507 North Blount Street
Raleigh, NC
State Courier 53-31-31



July 27, 1999

MEMORANDUM

TO: William D. Gilmore, P.E., Manager
Project Development and Environmental Analysis Branch
Division of Highways
Department of Transportation

FROM: David Brook *David Brook*
Deputy State Historic Preservation Officer

SUBJECT: US 70, widening and partial location from
SR 2318 to US 601, Iredell and Rowan
Counties, Federal Aid Project STP 70(39),
State Project 8.1631801, TIP R-2911, 99-E-
4220-0732

We have received the Environmental Assessment (EA) for the above project from the State Clearinghouse and would like to comment.

The EA identifies the need for additional archaeological investigation at six sites to determine their eligibility for listing in the National Register of Historic Places. However, only one of these potentially significant sites was identified by a permanent state site number within the discussion of cultural resources. The complete list of sites needing additional investigation includes: 31RW172, 31RW173, 31RW175, 31RW177**, 31ID257, 31ID261**.

We look forward to reviewing the results of additional archaeological investigations conducted at these six sites.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, please contact Renee Gledhill-Earley, environmental review coordinator, at 919/733-4763.

DB:slw

cc: State Clearinghouse
Nicholas Graf
Tom Padgett

A-9





North Carolina Department of Cultural Resources

James B. Hunt Jr., Governor
Betty Ray McCain, Secretary

Division of Archives and History
Jeffrey J. Crow, Director

September 11, 1998

Nicholas L. Graf
Division Administrator
Federal Highway Administration
Department of Transportation
310 New Bern Avenue
Raleigh, N.C. 27601-1442

Re: Widen and relocate US 70 from SR 2318 to US 601,
Rowan and Iredell Counties, R-2911, Federal Aid
Project No. STP-70(39), State Project No. 8.1631801,
ER 99-7322

Dear Mr. Graf:

Thank you for your letter of August 20, 1998, transmitting the historic structures survey report by Ed Davis concerning the above project.

For purposes of compliance with Section 106 of the National Historic Preservation Act, we concur that the following properties are eligible for the National Register of Historic Places under the criterion cited:

Cameron Presbyterian Church (ID 79). This African American Presbyterian church is eligible under Criterion A for religion. Please provide us with a brief written description and justification for the proposed boundaries, particularly along US 70.

Wood-Fleming House (RW 768). This house is a rare Gothic Revival style antebellum residence in Rowan County, and is eligible under Criterion C for architecture. Please provide us with a brief written description and justification for the proposed boundaries, particularly along US 70.

The following properties were determined not eligible for listing in the National Register of Historic Places:

Wayside Elementary School. This 1947 school has undergone numerous alterations and has lost integrity.

Elmwood United Methodist Church. This property lacks special historic or architectural significance.

Clyde Graham Farm. This farm has lost integrity and lacks special historic or architectural significance.

St. Matthews Episcopal Church (RW 1386). This church has undergone several alterations and has lost integrity.



CONCURRENCE FORM
FOR
ASSESSMENT OF EFFECTS

Project Description

WIDENING AND PARTIAL RELOCATION OF US 70 FROM SR 318 TO EXISTING MULTILANES AT US 601

OCTOBER 15, 1998, representatives of the

- North Carolina Department of Transportation (NCDOT)
- Federal Highway Administration (FHWA)
- North Carolina State Historic Preservation Office (SHPO)
- Other _____

_____ read the subject project and agreed

there are no effects on the National Register-listed property within the project's area of potential effect and listed on the reverse.

there are no effects on the National Register-eligible properties located within the project's area of potential effect and listed on the reverse.

there is an effect on the National Register-listed property/properties within the project's area of potential effect. The property-properties and the effect(s) are listed on the reverse.

there is an effect on the National Register-eligible property/properties within the project's area of potential effect. The property/properties and effect(s) are listed on the reverse.

d:

[Signature]
Representative, NCDOT, Historic Architectural Resources Section

OCTOBER 15, 1998
Date

[Signature]
A, for the Division Administrator, or other Federal Agency

10/15/98
Date

[Signature]
Representative, SHPO

10/15/98
Date

[Signature]
Historic Preservation Officer

10/20/98
Date

(over)

Project Aid # STP-0224(3) TIF # R-2911 County ROWAN/IREDELL

Properties within area of potential effect for which there is no effect. Indicate if property is National Register-listed (NR) or determined eligible (DE).

Cameron Presbyterian Church (DE)
Alternates 2 and 3

Properties within area of potential effect for which there is an effect. Indicate property status (NR, DE) and describe effect.

Cameron Presbyterian Church (DE);
Alternate 1: Adverse effect
~~Alternates 2 and 3: Adverse effect~~

Wood-Fleming House (DE)
5 lane section - Adverse effect
4 lane section w/ 30' median - Conditional No Adverse Effect
with SHPO review of median openings.

Reason(s) why effect is not adverse (if applicable).

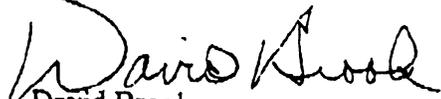
Prepared by: NCDOT ED FHWA RH SHPO WDB

The report meets our office's guidelines and those of the Secretary of the Interior.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, please contact Renee Gledhill-Earley, environmental review coordinator, at 919/733-4763.

Sincerely,



David Brook
Deputy State Historic Preservation Officer

DB:slw

cc: W. D. Gilmore
B. Church
Beverly Robinson (FAX)



North Carolina Department of Cultural Resources

as B. Hunt Jr., Governor
y Ray McCain, Secretary

Division of Archives and History
Jeffrey J. Crow, Director

March 27, 1998

Nicholas L. Graf
Division Administrator
Federal Highway Administration
Department of Transportation
310 New Bern Avenue
Raleigh, N.C. 27601-1442



Re: Archaeological Survey Report, US 70 from SR 2318 to US 601, Iredell and Rowan Counties, North Carolina, Federal Aid Project No. STP-70(39), TIP No. R-2911, State Project No. 8.1631801, ER 97-7230, ER 98-8572

Dear Mr. Graf:

Thank you for your letter of February 19, 1998, transmitting the archaeological survey report by John J. Mintz and Brian Smith, North Carolina Department of Transportation concerning the above project. We have reviewed the draft report and feel it needs minor revision prior to our acceptance.

During the course of the survey twenty sites were investigated with varying degrees of intensity. These included nineteen previously unrecorded archaeological sites (31RW168-178, 31ID254-260), and one revisitation (31RW47). Of these sites, one (31ID261**), the Farmville Plantation, also known as Darshana Plantation) was identified as listed in the National Register of Historic Places, two (31RW172 and 175) were identified as NRHP status "unknown at this time," two (31RW173 and 177**) were recommended as "possibly eligible," one (31ID257**) was listed as "not evaluated," and fourteen sites (31RW168-171, 31RW174**, 31RW176**, 31RW178, 31ID254-256**, 31ID258/258**-260 and 31RW47) were recommended as "not eligible."

Additional investigation was recommended for sites 31RW172, 31RW173, 31RW175, and 31RW177**. No further work was recommended for sites 31RW168-171, 31RW174**, 31RW176**, 31RW178, 31ID254-255, 31ID257**-261**, and 31RW47.

We do not completely agree with these recommendations and feel they should be modified or revised. In several instances statements in the report conflict with one another concerning National Register eligibility. Several sites have been recommended for no further work without a complete investigation having been conducted. Our specific comments are attached for your consideration. Upon

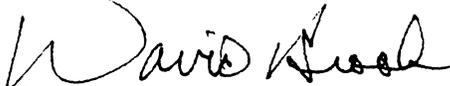


receipt of a revised final report and corrected site forms we will continue review of this project.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, please contact Renee Gledhill-Earley, environmental review coordinator, at 919/733-4763.

Sincerely,



David Brook
Deputy State Historic Preservation Officer

DB:slw

Attachment

cc: ✓ H. F. Vick
John Mintz

**"Archaeological Survey Report Widening and Partial Relocation of US 70
from SR 2318 (Fanjoy Road) East of Statesville to US 601 in Salisbury,
Iredell, and Rowan Counties, North Carolina"
by John J. Mintz and Brian Smith, NCDOT, R-2911,
ER 97-7230, ER 98-8572**

Comments:

1. We prefer to have sites recommended as eligible, not eligible, or unassessed for National Register significance. This means sites 31RW172, 173, 175, 177**, and 31ID257** need further evaluation to determine their National Register eligibility or should be identified as unassessed. Different terms for "unassessed eligibility" are likely to lead to misinterpretation. Please identify these sites as unassessed.
2. Site 31ID257**, a historic log cabin, is identified in Table 16 (p. 37-38) as not evaluated for the National Register and recommended for no further work. Within the report site 31ID257** is considered both not eligible and possibly eligible (see p. 30). This needs to be resolved with a single evaluation clearly stating the eligibility of the site for the National Register.
3. Site 31ID261** is listed on the National Register, but has not been evaluated for archaeological significance. Site 31ID261**, the Farmville Plantation, is recommended for no further work. We note this site, an architecturally significant property listed in the National Register, is misidentified as "Darshana Plantation" and has been assigned an archaeological site number (31ID261**) without benefit of archaeological testing. For accuracy all references to Darshana Plantation should be replaced with the identification "Farmville Plantation." Additional information should elaborate on the more recent name change to "Darshana Plantation," and identification of the actual National Register boundaries.
4. Figures 3-6b should indicate the actual surveyed area for this project. Although the linear nature of the project area can be identified from the illustrations, the extent of the survey, and areas which may have been excluded for various reasons (prior development, degree of slope, etc.) cannot. Please modify the figures to illustrate the actual area of survey.
5. Site 31RW47 was revisited and evaluated as not eligible. No further work is recommended. The report indicates the site is privately-owned, in pasture, and not investigated further. We feel the significance of 31RW47 has not been determined. Therefore, we disagree with the recommendation of "not eligible/no further work." The site is unassessed for National Register eligibility and needs further investigation to determine its significance.
6. 31ID256**, the Cameron Presbyterian Church Cemetery is identified as a historic cemetery of modern origin, but the specific age, extent, or cultural affiliation of the cemetery is not stated in the report. Please provide additional information concerning the nature, age, and extent of this cemetery.
7. The report should be thoroughly proofread for spelling and/or typographical errors, including page 11, "Blygonum," and on page 38, "reigster" should be spelled register.



North Carolina Department of Cultural Resources

B. Hunt Jr., Governor
Ray McCain, Secretary

Division of Archives and History
Jeffrey J. Crow, Director

December 6, 1996

MEMORANDUM

TO: H. Franklin Vick, P.E., Manager
Planning and Environmental Branch
Division of Highways
Department of Transportation

FROM: David Brook *David Brook*
Deputy State Historic Preservation Officer

SUBJECT: Improvements to US 70 from SR 2318 to
near US 601, Iredell and Rowan Counties,
R-2911, Federal Aid Project STP-70(39),
State Project 8.1631801, 97-E-4220-
0302



We have received information concerning the above project from the State Clearinghouse.

We have conducted a search of our maps and files and have located the following structures of historical or architectural importance within the general area of the project:

Cameron Presbyterian Church (ID 79), north and south sides of US 70, 0.6 mile west of junction with SR 2362, Elmwood.

Wood-Fleming House (RW 83), south side of US 70, 0.05 mile east of junction with SR 1801, Cleveland vicinity.

Barber Junction Depot (RW 68), north side of US 70, east of SR 1958.

Griffith-Sowers House (RW 184), down lane off north side of US 70, 0.2 mile west of junction with SR 1953, west Salisbury. This property was placed on the state study list on July 23, 1979.

St. Matthews Episcopal Church (RW 185), southwest side of US 70, 0.05 mile northwest of junction with SR 1954.

Because the survey of historic architectural resources in Rowan County is over a decade old, there may be structures of which we are unaware within the project area. Therefore, we recommend that an architectural historian with the North



H. F. Vick
December 6, 1996, Page 2

Carolina Department of Transportation survey the area of potential effect and report the findings to us.

We recommend a survey for archaeological resources in all new right-of-way.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, please contact Renee Gledhill-Earley, environmental review coordinator, at 919/733-4763.

DB:slw

cc: State Clearinghouse
N. Graf
B. Church
T. Padgett
Rowan County Historic Properties Commission

ATTACHMENT D

ICE Report

**QUALITATIVE INDIRECT AND
CUMULATIVE EFFECTS ASSESSMENT**

US 70

TIP R-2911A-D

Rowan and Iredell Counties,

North Carolina

Prepared for
North Carolina Department of Transportation
Office of Human Environment

Prepared by:

HNTB North Carolina, PC

*2108 South Boulevard
Suite 108
Charlotte, North Carolina 28203
February 6, 2004*



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**North Carolina Department of Transportation
Office of Human Environment**

**Qualitative Indirect and Cumulative Effects (ICE) Assessment
TIP R-2911A-D, Rowan and Iredell Counties**

I. EXECUTIVE SUMMARY

TIP R-2911A-D is a proposed widening and/or partial relocation of US 70 from Fanjoy Road (SR 2318) east of Statesville in Iredell County to about 0.4 miles west of Kepley Road (SR 1953) west of Salisbury in Rowan County. The total length of the project is 15.7 miles. According to the May 1999 Environmental Assessment, the purpose and need of TIP R-2911A-D is to increase the traffic carrying capacity of US 70 and to improve safety along the entire corridor.

Identify the Study Area Direction and Goals

- Population growth along the US 70 corridor is strong, with the demographic area increasing by 32.1% from 1990 to 2000.
- Over a third of the jobs added to Iredell County and nearly half of the jobs added to Rowan County between 1990 and 2000 were in the services sector.
- US 70 between Salisbury and Statesville is predominantly rural, with a small number of large, campus-style industrial plants and scattered, large lot single family uses.
- A major traffic generator along the TIP R-2911A-D project length is the Freightliner plant in the Town of Cleveland, which employs a total of 3,100 people.
- Proximity to Charlotte and the Triad (Winston-Salem, Greensboro, High Point), access to three major interstates (I-40, I-77, I-85), and convenient railroad access make this section of US 70 desirable for light manufacturing/distribution-related development.

Inventory of Notable Features

- According to the 1999 Environmental Assessment conducted for this project, no federally endangered or threatened species were found to be located within the project impact area as defined by that document.
- Two properties eligible for the National Register of Historic Sites are located along the US 70 corridor:
 1. Cameron Presbyterian Church (US 70 just east of SR 2488)
 2. Wood-Fleming House (US 70 & SR 1801)
- Fourth Creek, which flows from west of Statesville near the Iredell County border with Alexander County to the Yadkin River (which forms the border between Davie and Rowan Counties), is listed on the federal 303(d) impaired creeks list. It should be minimally impacted because of the requirement for storm water drainage controls (BMPs) with respect to new development.



Identify Activities That Cause Effects

- According to the Environmental Assessment, a total of 3.3 acres of wetlands will be impacted as a result of the construction of TIP R-2911A-D.
- The project is consistent with the land use plan and existing zoning for Iredell County as well as existing zoning for Rowan County, which is only designated in developed or developing areas.
- Rowan County does not have a land use plan.
- Based on the conclusions of the Environmental Assessment and comments received from federal, state, and local agencies, the Finding of No Significant Impact indicates that TIP R-2911A-D will not have a significant impact upon the quality of the human or natural environment.

Identify Potential Indirect and Cumulative Effects For Analysis

- According to the purpose and need as stated by the NCDOT, as well as our field observations and discussions with local planners, TIP R-2911A-D is not intended to serve a specific development, nor is it being built for economic development purposes.
- Because of the lack of heavy traffic volumes on intersecting roadways, limited water/sewer service, no frontage roads, and the rural environment, highway-related development as a result of TIP R-2911A-D should be minimal.

Analyze Indirect and Cumulative Effects

- Travel time savings should approach the ten minute level from one terminus of TIP R-2911A-D to the other.
- Residential growth as a result of the project will be limited by the lack of water/sewer services, which is basically limited to the City of Statesville and the Town of Cleveland.
- Both counties view US 70 as a developing industrial corridor, and TIP R-2911A-D should assist in that effort by providing improved access and mobility.
- When combined with Section E of TIP R-2911, Sections A-D will create a more efficient connection between I-77 in Iredell County and I-85 in Rowan County, making the corridor a more desirable location for industry.

Evaluate Analysis Results

- No adverse environmental impacts are anticipated as a result of the TIP R-2911A-D.
- The alignment of Section A, which is on new location, provides ideal access to the Statesville Business Park, making it more attractive for industrial development.
- The quality of the streams that intersect both the new location portion of the project and the widening of the existing roadway will be protected by the NCDOT applying BMPs during construction of the project and by local jurisdictions regulating storm water runoff on a development-by-development basis.

- By relocating the Iredell County portion of US 70, there is more potential for induced growth along this section since the railroad no longer creates a deterrent to development along the north side of the roadway.
- In terms of water quality impacts, since there is a low likelihood of induced growth and thus a minimal increase in impervious surface coverage anticipated, TIP R-2911A-D does not seem likely to cause any deterioration that would not already occur from non-project related growth.

II. PROJECT DOCUMENTATION AND BACKGROUND

As part of TIP R-2911A-D, the North Carolina Department of Transportation (NCDOT) proposes to widen and/or partially relocate US 70 from Fanjoy Road (SR 2318) east of Statesville to about 0.4 miles west of Kepley Road (SR 1953). The total length of the project is 15.7 miles. According to the May 1999 Environmental Assessment, the purpose and need of TIP R-2911A-D is to increase the traffic carrying capacity of US 70 and to improve safety along the entire corridor.

TIP R-2911A-D is divided into four sections. Section A begins at Fanjoy Road (SR 2318) and ends at the Iredell/Rowan County line. For clarification purposes, SR 2318 is called Fanjoy Road north of US 70 and Shiloh Road south of US 70. This section is being designed as a four-lane facility with a 30-foot raised median. As is indicated in Figure 1, Section B will begin at the Iredell/Rowan County line along existing US 70 and end at Main Street (SR 1743). It is proposed as a four-lane facility with a 30-foot raised grass median and grass shoulders. Section C will begin at Main Street (SR 1743) and end at Hilderbrand Road (SR 1739). Section C is proposed as a four-lane facility with an 18-foot median and curb and gutter through the Town of Cleveland, transitioning to a four-lane, 46-foot median section from the east side of Cleveland to Hilderbrand Road (SR 1739). Section D will begin at Hilderbrand Road (SR 1739) and end 0.4 miles west of Kepley Road (SR 1953). It is proposed as a four-lane facility with a 46-foot raised grass median.

The median construction as part of TIP R-2911A-D creates partial control of access along the entire length of the project since left-turning movements will only be provided at median break locations.

Construction of TIP R-2911A-D is scheduled to begin in FY 2003, with Section A being the first to be improved. The last section to start construction is Section B, which is slated to begin after FY 2007. Section C is scheduled for construction in FY 2005, while Section D is scheduled for construction in FY 2004.

III. STUDY AREA BOUNDARIES

Identification of Demographic Area

A demographic area was delineated in order to analyze the population growth trends encompassing the project (see Figure 1). This area is generally bounded by I-77 to the west, Oswalt Amity Road and NC 150 to the south, the western edge of Salisbury to the

east, and the Yadkin River to the north. The following US Census Bureau Block Groups from 2000 are included in the demographic area for TIP R-2911A-D:

- Census Tract 512.02, Block Group 2
- Census Tract 513.04, Block Group 2
- Census Tract 519.01, Block Group 1, 3, 4
- Census Tract 519.02, Block Group 1, 2
- Census Tract 606, Block Group 2,3,4
- Census Tract 607, Block Group 5, 6
- Census Tract 613, Block Group 3

Identification of the Potential Growth Impact Area

The North Carolina DOT's and North Carolina DENR's *Guidance for Assessing Indirect and Cumulative Impacts of Transportation Projects in North Carolina* indicate that the development effects of a new roadway facility are most often found up to one mile around an interchange, and up to two to five miles along major feeder roadways to the interchange. Based on this research, an initial review of project area conditions, and our own professional judgment, it was determined that the potential for growth impact as a result of TIP R-2911A-D would mostly be within a three-mile radius of the project alignment (see Figure 2). This three-mile radius, referred to as the Potential Growth Impact Area (PGIA), is the area within which the project has the potential to induce land use changes, and will determine the data collection and analysis area, but will not necessarily be the extent of the growth impact that is expected to occur.

IV. IDENTIFY THE STUDY AREA DIRECTION AND GOALS

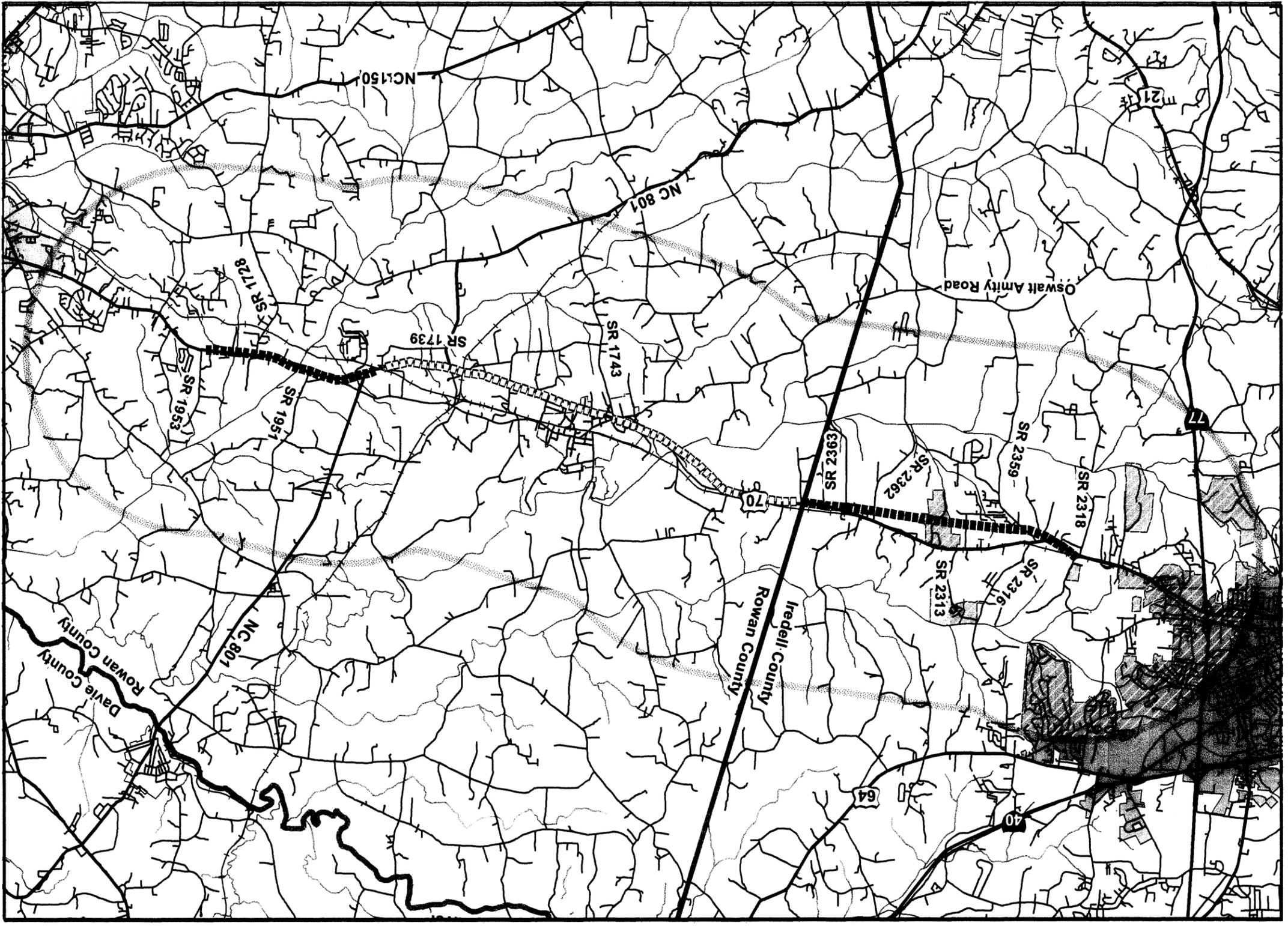
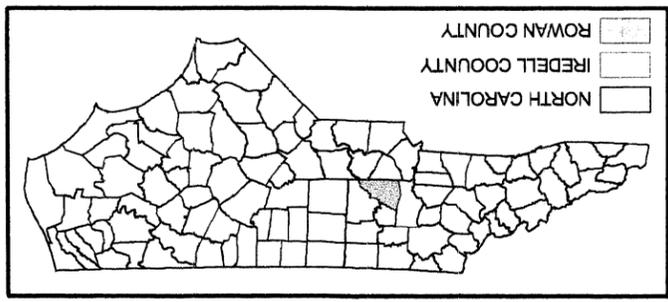
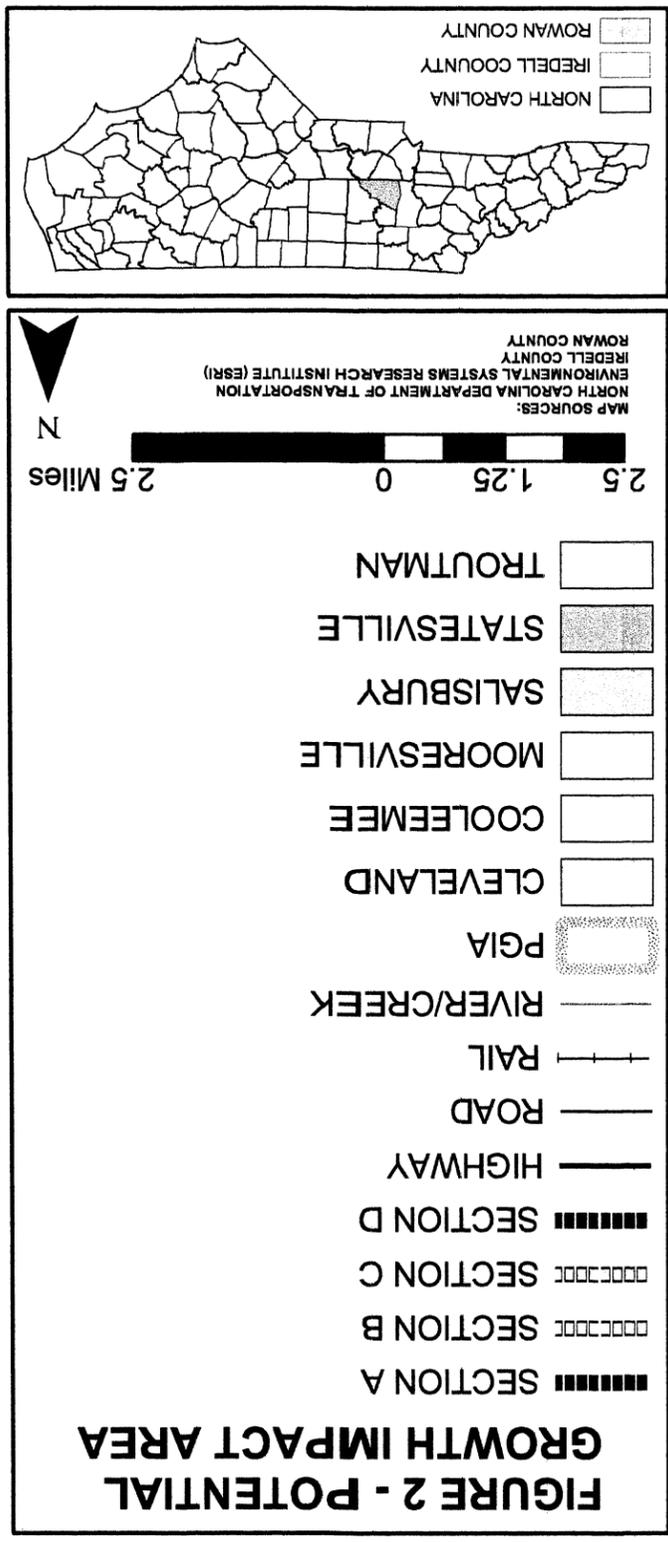
Regional Influences

The interstate system (I-40, I-75, I-85), Charlotte, Winston-Salem, and Lake Norman have and will continue to influence development decisions within the region surrounding TIP R-2911A-D. According to local planners, it seems likely that existing industries along the US 70 corridor located their facilities where they did because of at least one of these regional influences. The Norfolk Southern railroads, which intersect at NC 801 South and US 70, also have influenced distribution-related industries to locate in this area.

It also should be noted that development historically began to locate along the Yadkin River to take advantage of its transportation benefits. The river meanders its way southeastward, eventually is renamed the Pee Dee River, and reaches the Atlantic Ocean near Georgetown, South Carolina.

Population and Employment

Land use along the US 70 project corridor is predominantly rural with scattered single family residences (mainly large lot and farm houses) and some industrial clusters. Most of the major industrial plants along the corridor are in Rowan County and include Freightliner, located in Cleveland, KoSa, located at the intersection of US 70 and NC 801 N, Meridian, located just west of Second Creek, and Tyco, also located in the Town of



Cleveland. Industrial development in Iredell County, mainly in the form of warehousing and distribution facilities, is located along US 70 and the railroad between Triplett Road (SR 2362) and Fanjoy Road (SR 2318), at the western terminus of the project corridor.

US 70 Looking West Near The Intersection Of US 801 North



Table 1 indicates population growth trends for the demographic area, Rowan County, Iredell County, and North Carolina. During the 1990s, the demographic area grew more rapidly than both counties and the State. Close proximity to the City of Charlotte, Lake Norman, and the I-77 corridor has spurred much of the growth within Iredell County, while I-85 is the major growth generator in Rowan County. Population growth within the demographic area has mostly been a result of the close proximity to three major interstates (I-77, I-85, I-40), Charlotte, and the Triad, as well as comparably low property taxes. According to local planners, employment growth has also triggered residential development in the area, as workers prefer to be close to their jobs.

Table 1. Population Growth, 1990-2000

Area	Population		Growth	
	1990	2000	#	%
Demographic Area	16,732	22,103	5,371	32.1%
Rowan County	110,605	130,340	19,735	17.8%
Iredell County	92,931	122,600	29,669	31.9%
North Carolina	6,628,637	8,049,313	1,420,676	21.4%

Source: US Census Bureau 1990, 2000

According to data from the North Carolina Employment Security Commission presented in Table 2, Iredell County added 11,933 jobs between 1990 and 2002, resulting in a



29.1% increase. The manufacturing sector lost nearly 3,000 jobs during the 12-year span, while the health care and social assistance sector added over 3,800 jobs. In addition, as a result of the substantial residential growth taking place near Lake Norman, the retail trade sector added the second highest number of jobs (2,720) of all industry sectors in Iredell County, growing by 56.2%.

**Table 2. Employment By Sector
 Iredell County, 1990-2002**

Sector	Employment		Change	
	1990	2002	#	%
Agriculture	258	427	169	65.5%
Mining	N/A	N/A	N/A	N/A
Utilities	152	130	-22	-14.5%
Construction	2,416	3,557	1,141	47.2%
Manufacturing	16,400	13,454	-2,946	-18.0%
Wholesale Trade	1,359	2,127	768	56.5%
Retail Trade	4,838	7,558	2,720	56.2%
Transportation/Warehousing/ Information	1,337	2,259	922	69.0%
FIRE	1,069	1,341	272	25.4%
Professional and Technical Services	444	1,043	599	134.9%
Management of Companies and Enterprises	163	218	55	33.7%
Administrative and Waste Services	1,394	2,495	1,101	79.0%
Educational Services	2,463	3,751	1,288	52.3%
Health Care and Social Assistance	3,292	7,093	3,801	115.5%
Arts, Entertainment, & Recreation	N/A	N/A	N/A	N/A
Accommodation & Food Services	3,009	3,944	935	31.1%
Other Services	899	1,536	637	70.9%
Public Administration	1,574	2,067	493	31.3%
Unclassified	N/A	N/A	N/A	N/A
Total:	41,067	53,000	11,933	29.1%

Source: North Carolina Employment Security Commission

Overall, Rowan County employment (14.2%) did not grow as rapidly as Iredell County employment (29.1%) between 1990 and 2002, particularly because of less growth in the construction, retail trade, and public administration sectors (See Table 3). In fact, retail trade actually lost 1,405 jobs during that time period. However, manufacturing

employment did not decrease nearly as much in Rowan County as it did in Iredell County. Among other large industrial facilities located in Rowan County along the US 70 corridor, Freightliner, which employs approximately 3,000 people in the Town of Cleveland, is a likely reason why these sectors are strong compared to Iredell County and the State.

Table 3. Employment By Sector
Rowan County, 1990-2002

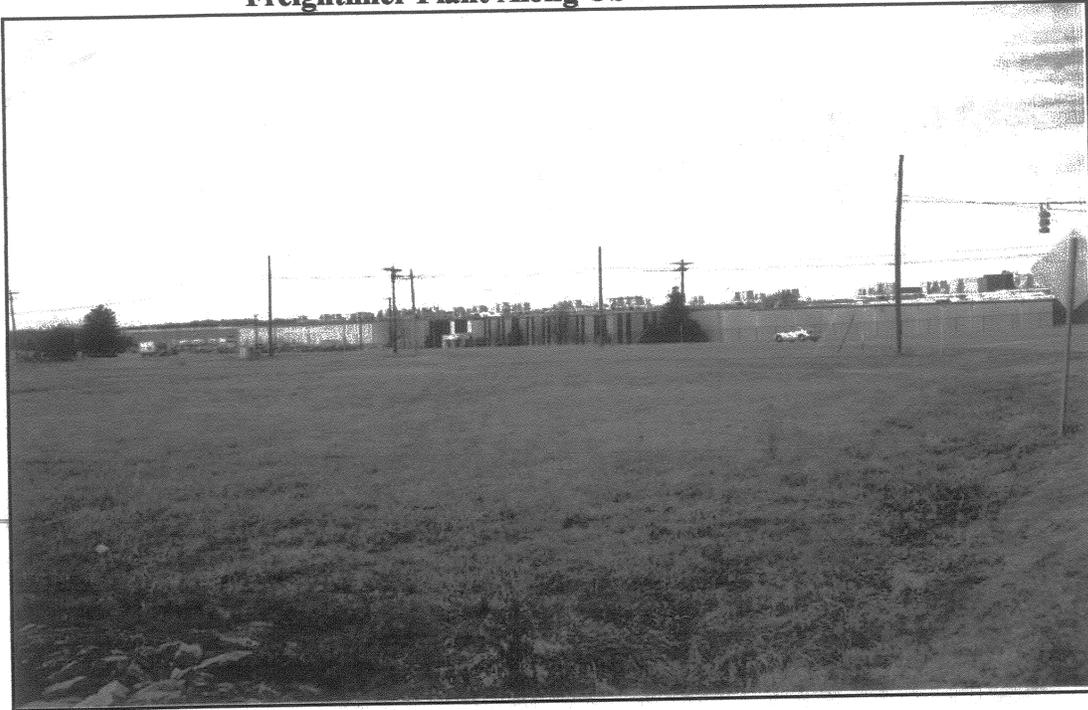
Sector	Employment		Change	
	1990	2002	#	%
Agriculture	310	250	-60	-19.4%
Mining	155	203	48	31.0%
Utilities	N/A	N/A	N/A	N/A
Construction	2,050	2,098	48	2.3%
Manufacturing	12,695	11,696	-999	-7.9%
Wholesale Trade	1,293	1,623	330	25.5%
Retail Trade	6,158	4,753	-1,405	-22.8%
Transportation/Warehousing/ Information	1,021	3,133	2,112	206.9%
FIRE	1,038	1,034	-4	-0.4%
Professional and Technical Services	354	882	528	149.2%
Management of Companies and Enterprises	N/A	N/A	N/A	N/A
Administrative and Waste Services	831	1,333	502	60.4%
Educational Services	3,279	4,000	721	22.0%
Health Care and Social Assistance	4,622	6,359	1,737	37.6%
Arts, Entertainment, & Recreation	274	476	202	73.7%
Accommodation & Food Services	2,334	3,157	823	35.3%
Other Services	813	1,415	602	74.0%
Public Administration	2,031	2,419	388	19.1%
Unclassified	N/A	N/A	N/A	N/A
Total:	39,258	44,831	5,573	14.2%

Source: North Carolina Employment Security Commission

Employment as a whole in North Carolina grew by 21.7% between 1990 and 2002, led by the addition of 178,394 jobs in the health care and social assistance industry sector. North Carolina's manufacturing sector lost nearly a quarter (21.5%) of its work force during the same timeframe, compared to the counties which encompass TIP R-2911A-D losing only 7.9% (Rowan County) and 18% (Iredell County). Fueled by overall

employment growth at Freightliner, Rowan County's transportation sector grew by 206.9% (2,112 employees), and the manufacturing sector only lost 7.9% of its workforce, compared to a 21.1% decrease within the State.

Freightliner Plant Along US 70 in Cleveland



**Table 4. Employment By Sector
 North Carolina, 1990-2002**

Sector	Employment		Change	
	1990	2002	#	%
Agriculture	21,827	31,376	9,549	43.7%
Mining	3,993	4,203	210	5.3%
Utilities	27,287	15,447	-11,840	-43.4%
Construction	166,733	219,036	52,303	31.4%
Manufacturing	820,249	643,978	-176,271	-21.5%
Wholesale Trade	139,697	162,233	22,536	16.1%
Retail Trade	381,041	442,878	61,837	16.2%
Transportation/Warehousing/ Information	161,308	213,393	52,085	32.3%
FIRE	135,534	184,990	49,456	36.5%
Professional and Technical Services	91,327	148,043	56,716	62.1%
Management of Companies and Enterprises	35,104	63,565	28,461	81.1%



Administrative and Waste Services	110,979	209,753	98,774	89.0%
Educational Services	233,161	317,043	83,882	36.0%
Health Care and Social Assistance	261,592	439,986	178,394	68.2%
Arts, Entertainment, & Recreation	31,090	50,554	19,464	62.6%
Accommodation & Food Services	206,014	288,201	82,187	39.9%
Other Services	80,279	98,844	18,565	23.1%
Public Administration	171,716	214,079	42,363	24.7%
Unclassified	N/A	N/A	N/A	N/A
Total:	3,078,931	3,747,602	668,671	21.7%

Source: North Carolina Employment Security Commission

Land Use

Iredell County

The dominant land use along the US 70 corridor in Iredell County is industrial. There are basically four industrial clusters: an area along the north side of US 70 between Fanjoy Road (SR 2318) and Bell Farm Road (SR 2316), an area along the south side of US 70 (includes Statesville Business Park), a mixed-use site on the north side of US 70 directly across from the Statesville Business Park, and a smaller area on the north side of US 70 at Knox Farm Road (SR 2363) and at the county line.

Existing residential clusters along this stretch of US 70 in Iredell County are predominantly located south of the corridor along Bethesda Road (SR 2359), Triplett Road (SR 2362), and Knox Farm Road (SR 2363), with the exception being the Oakcreek community located along Bell Farm Road (SR 2316) north of US 70.

Iredell County recently completed the US 70 East Corridor Future Land Use Report 2002-2003. There are five core elements within the report that are expected to guide development along the corridor which are as follows:

1. A primary industrial area anchored by the Statesville Business Park that is oriented to the proposed relocated US 70 south of existing US 70
2. A proposed shopping center in the triangle formed by the convergence of the existing and proposed US 70
3. A proposed secondary convenience shopping center located east of Triplett Road (SR 2362) between the existing and proposed US 70
4. A “transitional” area just east of Bell Farm Road (SR 2316), including 267 acres along John Long Road (SR 2313) proposed for Planned Unit Development use (purple area indicated in Figure 3)
5. Two conditional use sites: the former Wayside School and the southeast quadrant of existing US 70 and Shiloh Road (SR 2318)

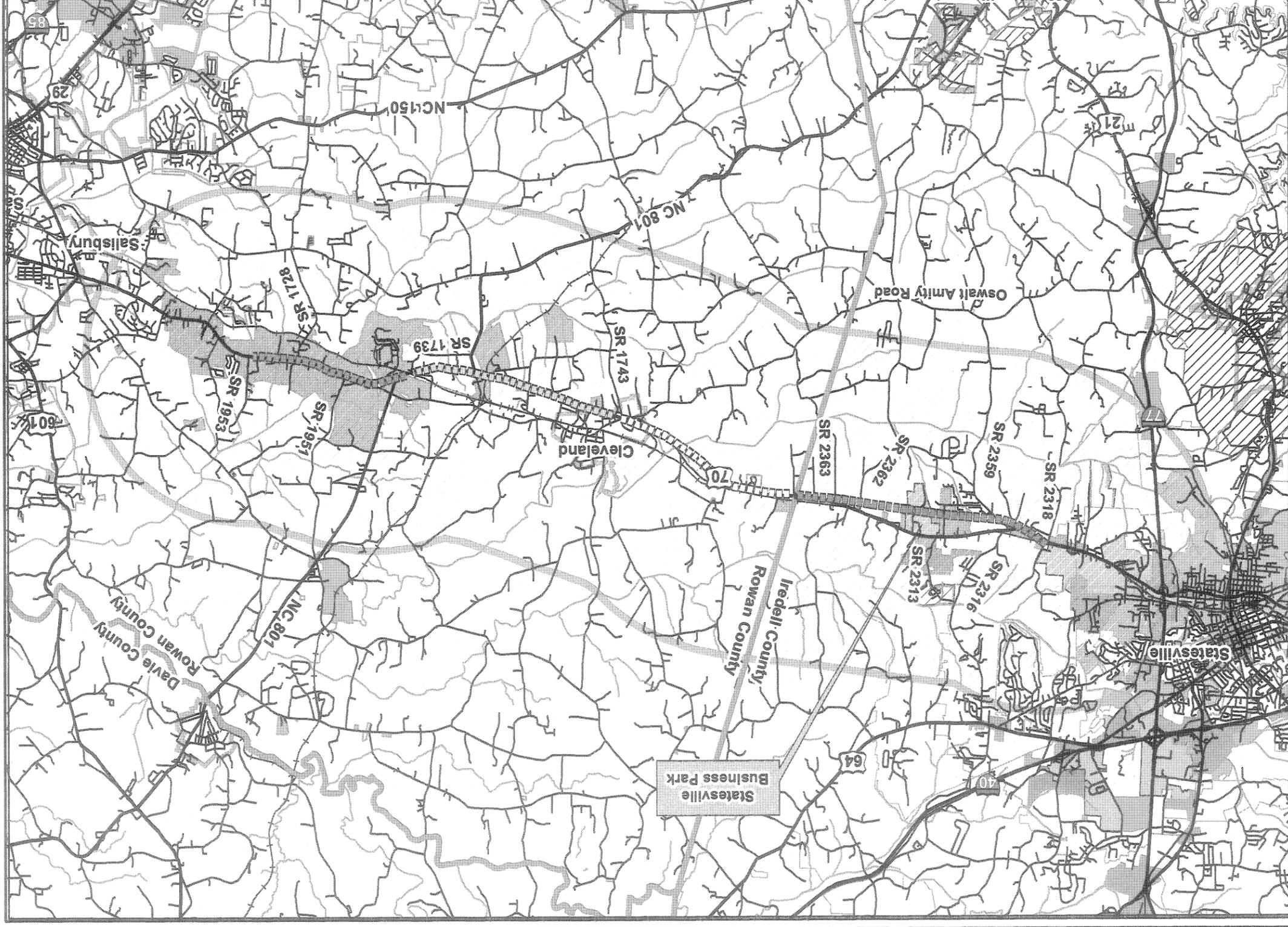
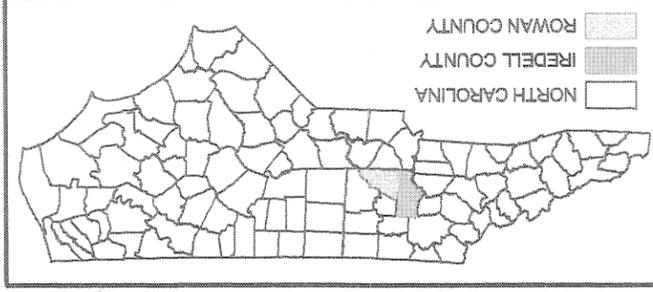
FIGURE 3 - EXISTING ZONING

IREDELL CO	SECTION A	■■■■■■■■■■
TOWN/CITY	SECTION B	▤▤▤▤▤▤▤▤
IND	SECTION C	▧▧▧▧▧▧▧▧
MIXED-USE	SECTION D	▩▩▩▩▩▩▩▩
ROAD	HIGHWAY	—————
MF	ROAD	—————
COMM	RAIL	——+——
SF	RIVER/CREEK	~~~~~
ROWAN CO	PGIA	▭▭▭▭▭▭▭▭
IND	MUNICIPALITIES	▭▭▭▭▭▭▭▭
MF	STATESVILLE	▧▧▧▧▧▧▧▧
COMM	AIRPORT	▩▩▩▩▩▩▩▩
SF	IND/OFFICE	▧▧▧▧▧▧▧▧
	IND/OFFICE	▧▧▧▧▧▧▧▧
	MF	▧▧▧▧▧▧▧▧
	SF	▧▧▧▧▧▧▧▧

MAP SOURCES:
 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 ENVIRONMENTAL SYSTEMS RESEARCH INSTITUTE (ESRI)
 CITY OF STATESVILLE
 ROWAN COUNTY
 IREDELL COUNTY

2.5 Miles
 0 1.25 2.5

N



Rowan County

Unlike Iredell County, Rowan County does not have a land use plan. Existing land use along the US 70 project corridor is characterized by scattered single family and large, campus-style industrial plants. Along the US 70 corridor within the Town of Cleveland, land uses include a mix of industrial, single family, limited commercial, and institutional uses (schools and churches).

Neither Statesville nor Cleveland have land use plans indicating future land use in specific locations.

Residential Development Along US 70 In Cleveland



Zoning

City of Statesville

Zoning along both sides of US 70 west of TIP R-2911A-D to I-77 in Statesville is predominantly office/industrial (light blue area indicated in Figure 3). There are a number of existing distribution and warehouse facilities that are able to take advantage of the close proximity to the railroad, which runs parallel to US 70 and I-77 and is less than a mile to the west. In addition, the Statesville Waste Water Treatment Plant is located at the intersection of Bell Farm Road (SR 2316) and John Long Road (SR 2313) to the north of existing US 70. The Statesville Business Park at US 70 and Business Park Road (see Figure 3) which is currently under construction, is bisected by the proposed new location portion of TIP R-2911A-D.

Iredell County

As it relates to Section A of TIP R-2911A-D, single family residential is the most common zoning designation in the Iredell County portion of the PGIA (see Figure 3). Along the project length, zoning is comprised of a mixture of single family residential,

manufacturing, and office/industrial. There is a 267-acre tract of land located to the north of existing US 70, bisected by John Long Road (SR 2313) that is zoned for Planned Unit Development (mixed-use), which would include residential, shopping, and public uses. In addition, the new location portion of TIP R-2911A-D bisects an existing industrial area that includes the Poly One and Purina Mills plants located just west of the previously mentioned Statesville Business Park at US 70 and Business Park Road.

Rowan County

As it relates to Sections B-D of TIP R-2911A-D, zoning in unincorporated Rowan County is only focused in existing and future growth areas, with the remainder of the county unzoned (basically designated as rural/agricultural; see white area throughout most of county in Figure 3). There is a very low growth area west of the Town of Cleveland along US 70 that does not have any zoning designations, other than a small pocket of industrial and residential near the Rowan/Iredell County border. Land immediately fronting US 70 east of Cleveland, predominantly along the NC 801 North and South corridors, is a mix of single family residential and industrial zoning, with a number of large, campus-like manufacturing plants located among scattered, large-lot single family homes. Further east, approaching the Town of Salisbury, land is mostly zoned for commercial uses with some pockets of single family residential.

Transportation Plans

TIP R-2911A-D is identified in the 2004-2010 North Carolina Transportation Improvement Program as being in the design phase. R-2911E, the section closest to Salisbury, is actually in the right-of-way acquisition phase since it is the first segment of the entire R-2911 project to be built. This section extends from 0.4 miles west of Kepley Road (SR 1953) to US 601 in Salisbury. Cumulatively, TIP R-2911A-E should make the US 70 corridor between Salisbury and Statesville even more attractive for new development, particularly commercial. Traffic along US 70 coming from either I-77 or I-85 will never need to drive on a two-lane section of roadway, making travel faster and safer.

The 1997-2007 Iredell County Land Use Plan provides recommendations from the Iredell County Thoroughfare Plan, adopted in 1993, for the Iredell County portion of US 70. According to the document, US 70 from the eastern boundary of Statesville to Rowan County “is quickly reaching capacity and is scheduled for a feasibility study and/or right-of-way protection for a multi-lane cross section between I-77 in Statesville and US 601 in Salisbury...”. Because of growth and capacity issues, the Iredell County Thoroughfare Plan recommends a “four-lane divided cross section with a grass median” for this section of US 70.

The March 2000 Rowan County Thoroughfare Plan and Report, which also provides recommendations for the Town of Cleveland along US 70, identifies US 70 from the western edge of the Salisbury Planning Area Boundary (just east of Parks Road (SR 1951)) to Iredell County as a principal arterial. The section east of Parks Road (SR 1951) is designated as a major thoroughfare. The plan recognizes TIP R-2911 as a system need, stating “There are numerous driveways along the facility, and a projected truck

percentage as high as ten percent. The widening will help with the driveway turn movements and increase safety along the facility.”

Environmental Regulations

In addition to local land use and zoning policies, there are some State-related environmental regulations that will also affect the amount and location of growth along the US 70 corridor with or without TIP R-2911A-D. As shown in Figure 4, a small portion of the WS-II Back/Sloans Creek Water Supply Watershed (WSW) is located within the PGIA. Development regulations within this class of water supply watershed include the following:

Critical Area:

- A maximum of one dwelling unit per two acres, or 6% built-upon area for the low density option;
- A maximum of 6%-24% built-upon area for the high density option, with requirements to control for the 1” storm;
- 10/70 provision is not allowed;
- No new landfills; and
- Agriculture Best Management Practices (BMPs) are required.

Protected Area:

- A maximum of one dwelling unit per acre, or 12% built-upon area for the low density option;
- A maximum of 12%-30% built-upon area for the high density option, with requirements to control for the 1” storm;
- 10/70 provision is allowed;
- New landfills are allowed; and
- Agriculture BMPs are not required.

As is indicated in Figure 4, the boundaries for the WS-IV Lake Norman WSW, the WS-IV South Yadkin River WSW, and the WS-IV Yadkin River WSW are all outside of the PGIA and should have no influence over development potential.

In addition to the water supply watersheds, there is one 303(d) listed impaired creek located within the PGIA. Fourth Creek, which flows from west of Statesville near the Iredell County border with Alexander County to the Yadkin River (which forms the border between Davie and Rowan Counties), is listed on the federal 303(d) impaired creeks list. However, only the 9 ½-mile section of the creek from the Iredell County line to the Yadkin River is considered impaired (see Figure 4). The cause of impairment is defined as “fecal coliform”, with the potential source listed as agriculture. Mitigation efforts to remove this creek from the 303(d) list are considered a low priority. Any development that may occur as a result of TIP R-2911A-D will be required to include adequate storm water drainage controls (BMPs) to minimize the further degradation of this creek.

V. INVENTORY OF NOTABLE FEATURES

The following tables list the notable features that are, or potentially could be, located within the PGIA. Some of the sources are not as specific as others in terms of location; therefore, it is not certain whether or not the feature could be impacted by TIP R-2911A-D.

Table 5. Federally-Listed Species, US 70 Corridor

Group	Scientific Name	Common Name	Federal Status	State Status	Quad(s)
Animal	Glyptemys Muhlenbergii	Bog Turtle	Either very rare and local throughout its range, or found locally in a restricted area	Threatened	Statesville East, Cleveland, Shepherds, Cool Springs
Animal	Pseudiron Centralis	White Sand-River Mayfly	Demonstrably secure globally, although it may be quite rare in parts of its range	Significantly Rare	Statesville East
Animal	Dibusa Angata	Caddisfly	Unranked or rank uncertain	Unranked or rank uncertain	Cool Springs
Animal	Homoeoneuria Cahabensis	Sand-Filtering Mayfly	Imperiled globally because of rarity or otherwise vulnerable to extinction in its range	Significantly Rare	Cool Springs
Animal	*Haliaeetus Leucocephalus	Bald Eagle	Threatened	N/A	N/A
Plant	Gnaphalium Hellerivar Helleri	Heller's Rabbit Tobacco	Secure globally, although it may be quite rare within its range	Significantly Rare-Peripheral	Cool Springs
Plant	Magnolia Macrophylla	Bigleaf Magnolia	Demonstrably secure globally, although it may be quite rare in parts of its range	Significantly Rare-Peripheral	Statesville East, Shepherds
Plant	*Helianthus Schweinitzii	Schweinitz's Sunflower	Endangered	N/A	N/A

Source: North Carolina Natural Heritage Program

* Listed in Environmental Assessment, 1999



Table 6. Natural Communities, US 70 Corridor

Group	Name	Federal Status	Quad(s)
Natural Community	Mesic Mixed Hardwood Forest	Demonstrably secure globally, although it may be quite rare in parts of its range	Statesville East, Shepherds, Cool Springs
Natural Community	Basic Oak - Hickory Forest	Secure globally, although it may be quite rare in parts of its range	Statesville East, Rowan Mills, Cleveland
Natural Community	Dry Oak - Hickory Forest	Demonstrably secure globally, although it may be quite rare in parts of its range	Cleveland, Rowan Mills
Natural Community	Piedmont Monadnock Forest	Demonstrably secure globally, although it may be quite rare in parts of its range	Cleveland, Rowan Mills
Natural Community	Upland Depression Swamp Forest	Either very rare and local throughout its range, or found locally in a restricted area	Cleveland, Rowan Mills
Natural Community	Xeric Hardpan Forest	Either very rare and local throughout its range, or found locally in a restricted area	Cleveland
Natural Community	Dry Mesic Oak - Hickory Forest	Demonstrably secure globally, although it may be quite rare in parts of its range	Cool Springs
Natural Community	Low Elevation Seep	Secure globally, although it may be quite rare in parts of its range	Cool Springs
Natural Community	Piedmont Coastal Plain Heath Bluff	Secure globally, although it may be quite rare in parts of its range	Cool Springs

Source: North Carolina Natural Heritage Program

**Table 7. Architectural Features and Historic Sites
 Potential Growth Impact Area**

Name	Address	Status
*Wood Fleming House	US 70 and SR 1801	Eligible for National Register of Historic Places
*Cameron Presbyterian Church	US 70	Eligible for National Register of Historic Places
Bethesda Presbyterian Church	SR 2359, Houstonville	National Register of Historic Places
Farmville Plantation	SR 2362, Elmwood	National Register of Historic Places
Hall Family House	NC 801, Bear Poplar	National Register of Historic Places
John Phifer Farm	Phifer Road and SR 1978, Cleveland	National Register of Historic Places
Knox Farm Historic District	Knox and Amity Rds, Cleveland	National Register of Historic Places
Knox-Johnstone House	100 Beaumont Farm Rd, Cleveland	National Register of Historic Places
Third Creek Presbyterian	SR 1973, Cleveland	National Register of Historic Places
Waddle-Click Farm	SR 2309, Statesville	National Register of Historic Places
Wood Grove	SR 1743, Bear Poplar	National Register of Historic Places

Source: North Carolina Department of Transportation – Statewide Planning Division (June 2003)

* Listed in Environmental Assessment, 1999

Table 8. Solid Waste Facilities

Facility Name	Location	Type	Lined
Iredell County C&D Unit	SR 2319, Iredell County	Construction and Demolition Landfill	No

Source: NC Department of Environment and Natural Resources

**Table 9. Underground Storage Tanks,
TIP R-2911A-D**

UST Facility ID	Section of TIP R-2911	Name/Location
0-032884	A	Roton's BP/106 Nabor's Road
0-023056	A	Wayside Markit/2353 Salisbury Road
0-034242	A	Stop-A-Lot #1, 3062 Salisbury Road
0-010424	A	Elmwood Grocery & Service, Hwy. 70 Rt. 1
Unknown	A	Abandoned Gas Station/Rt. 1
0-031675	B	B & D Superette/1821 Statesville Blvd.
0-019421	C	Padgett's BP Service/11498 Statesville Blvd.
0-019429	C	Knight Oil Co./P.O. BOX 98
0-022023	C	Community Grocery/11260 Statesville Blvd.
0-021873	C	The Quick Sack/9850 Statesville Blvd.
Unknown	C	Abandoned Auto Repair Shop/Hwy. 70, Rt. 1
0-024468	C	West Rowan Automotive/US 70-US 801
0-019428	C	W. Rowan Restaurant & Grocery/Hwy. 70, Rt. 1

Source: Environmental Assessment, 1999

Based on the review of a GIS shapefile acquired from the NCDOT Statewide Planning Branch, there are no superfund sites located within the Potential Growth Impact Area of TIP R-2911A-D.

VI. IDENTIFY ACTIVITIES THAT CAUSE EFFECTS

Previous Conclusions

Environmental Assessment (EA)

According to the May 1999 Environmental Assessment (EA), the preferred alternative for TIP R-2911A-D will not adversely affect two eligible historic properties: the Wood Fleming House, located on the south side of US 70 at SR 1801 west of Cleveland, and Cameron Presbyterian Church, with property located on both sides of US 70 about one half mile west of Elmwood Road (SR 2362).

Furthermore, the EA concluded that construction of TIP R-2911A-D will result in impacts to water resources. These impacts will be restricted to the project construction phase only, with BMP's to be strictly enforced during the entire life of the project. In addition, the document states that no adverse effect on any federally endangered or threatened species is anticipated as a result of TIP R-2911A-D.

Finding of No Significant Impact (FONSI)

A Finding of No Significant Impact (FONSI) report was completed in December 2000. The document (which includes findings for Sections A-E of TIP R-2911) concludes that anticipated impacts will affect a total of 6,537 feet of surface water and 2.92 acres of wetlands within the right-of-way. All other findings are consistent with those that are found within the 1999 Environmental Assessment.

VII. IDENTIFY POTENTIAL INDIRECT AND CUMULATIVE EFFECTS FOR ANALYSIS

In the April 2001 handbook titled "*Guidance for Assessing Indirect and Cumulative Impacts of Transportation Projects in North Carolina*", the North Carolina DOT outlines a set of factors that need to be evaluated to determine whether or not any further analysis regarding indirect and cumulative impacts is needed.

The following is an assessment of those factors as they relate to TIP R-2911A-D:

Conflict with local plan:

As was mentioned earlier in this report, TIP R-2911A-D is consistent with the thoroughfare plans for both Iredell and Rowan counties. It is also consistent with the land use plan and zoning for Iredell County. Rowan County planners see the US 70 corridor as a commercial/employment corridor, which would seem to encourage transportation projects such as TIP R-2911A-D.

Explicit economic development purpose:

Based on our findings and discussions with local planners, there does not appear to be any explicit economic development purpose for TIP R-2911A-D. Any economic development that takes place as a result of the project would be beneficial to both counties, yet the project itself is not being built as an incentive for business/industry to locate along the US 70 corridor. Commercial development has already occurred, and continues to occur, despite the roadway predominantly being only two lanes.

Planned to serve specific development:

Based on our findings, TIP R-2911A-D is not being built to serve a specific development. The current facility is used by local residents, through-traffic, and a number of different industries located along the corridor. Because of this, the project would not benefit or adversely affect any specific development, but rather the community as a whole. It would, however, allow for more efficient travel to and from I-85 and I-77 for the abundance of truck traffic originating from the Freightliner plant in the Town of Cleveland. It would also improve travel time for vehicles that currently have to travel behind slow-moving trucks, and provide for safer passing movements.

Likely to stimulate land development having complementary (to highway-related travel) functions:

The assessment of this factor partially involves an evaluation of a subset of factors commonly used to determine the potential for induced growth surrounding rural intersections including:



- Distance to a major urban center
- Traffic volumes on intersecting roadways
- Presence of frontage roads/Access control
- Availability of water/sewer

TIP R-2911A-D is located approximately halfway between Charlotte to the south and Winston-Salem to the north, with about 42 miles separating both cities from the project area. Based on discussions with local planning agencies, most of the growth related to Charlotte extends to southern Rowan County, and most of the growth related to Winston-Salem extends to southern Davie County. In addition, US 70 is an east-west route in this area, while both Charlotte and Winston-Salem are located to the south and north. This situation makes it less likely that development would occur along US 70 solely as a result of the proximity to these two urban centers.

According to the NCDOT Office of Statewide Planning, the following are the Year 2001 traffic volumes on major intersecting roadways from east to west:

- | | |
|-------------------------|---------------------------|
| 1. SR 1953 – 430 ADT | 6. SR 2362 – 1,400 ADT |
| 2. SR 1951 – 1,300 ADT | 7. SR 2316 – 3,200 ADT |
| 3. NC 801 N – 3,300 ADT | 8. SR 2359 – 3,300 ADT |
| 4. NC 801 S – 4,300 ADT | 9. SR 2318 N – 1,300 ADT |
| 5. SR 1743 – 1,900 ADT | 10. SR 2318 S – 1,700 ADT |

Generalized ADT LOS calculations produced by the Florida Department of Transportation's (FDOT) software QLOS, and based on HCM methodologies, show that daily traffic capacity for this type of roadway is approximately 10,500 vehicles.

No frontage roads are proposed for TIP R-2911A-D, and access is basically going to be dictated by the proposed medians, which will limit left-turning movements to major intersections and destinations along the corridor.

Water and sewer service is only available in the extreme western portion of the PGIA within the City of Statesville, and within the Town of Cleveland which is located in the middle of the PGIA.

Likely to influence intraregional land development location decisions:

Typically, if the conditions are favorable for development and/or a region is currently undergoing urbanization, an improvement in the transportation infrastructure is likely to influence where development will occur. In this circumstance, conditions within the majority of the PGIA are not favorable for development (moderate growth, lack of water/sewer service, limited destinations), and this portion of Rowan and Iredell Counties is not undergoing urbanization.

Notable feature present in PGIA:

According to the EA, there are no federally endangered or threatened species within the project's impact area as defined by that document, nor are there any federally designated historic properties or districts (although there are two *eligible* historic properties listed in



the EA), located within the PGIA. Furthermore, there are no notable water resources (other than a small portion of the 303(d) impaired Third Creek), within the PGIA.

VIII. ANALYZE INDIRECT AND CUMULATIVE EFFECTS

Potential for Land Use Change

To further justify the determination that indirect and cumulative impacts would not be likely as a result of TIP R-2911A-D, an analysis of a set of quantitative factors was completed. This analysis helps to determine the likelihood of anticipated indirect and cumulative impacts related to the project. Table 10 below indicates the results of this rating analysis:

Table 10. Potential For Land Use Change, 2000-2020

Rating	Change in Accessibility	Change in Property Values	Forecasted Growth	Land Supply vs. Land Demand	Water/ Sewer Availability	Market For Development	Public Policy
Strong	Travel Time Savings > 10 min.	> 50% Increase	> 3% Annual Pop. Growth	< 10-Year Supply of Land	Current Services Exist	Extremely High Potential	Pro-Growth
^							
"	X		X				X
"							
"		X			X	X	
"				X			
Weak	Travel Time Savings < 10 min.	No Change	< 1% Annual Pop. Growth	> 20-Year Supply of Land	No Plans For Future Service	Extremely Low Potential	Anti-Growth

Because of the addition of a grass median ranging from 18 to 46 feet along most of the project length, accessibility to much of the land along the US 70 corridor would be limited to right turn movements only. Full access is granted at certain intersections where median breaks are proposed, including but not limited to the following signalized intersections:

- SR 1728
- NC 801 North
- NC 801 South
- SR 1001 (Amity Hill Road)
- SR 1743 (Main Street)

In addition to the partial control of access proposed for R-2911A-D, two more lanes in each direction throughout the project length will improve travel time savings. With a higher speed limit, slow-moving truck traffic becoming more easily passable, and left



turns being limited to median break intersections, travel time savings should approach the ten minute level.

Section A of TIP R-2911A-D is on new location, which improves access to land that was previously limited in terms of its access to major thoroughfares. Because of this situation, property values should increase for the parcels along this section of the project. However, land along the remaining sections B-D already have access to existing US 70, which is proposed to be widened to four lanes. Parcels along these portions of TIP R-2911A-D should experience some property value escalation because of the improved mobility the additional lanes provide. However, these parcels will also be limited in terms of access to the facility as a result of the proposed median, which should limit the increase of property values. Any property value escalation along the US 70 corridor is probably more a function of increased development activity in the area, rather than the potential widening of US 70.

Demographic area growth is healthy, with population growing at a rate of 32.1% from 1990 to 2000, equating to approximately 3% a year. Iredell County as a whole grew similarly, while Rowan County only grew by 17.8% during the 1990s. A population growth forecast was not conducted for the demographic area, although the North Carolina Office of State Budget and Management forecasts a growth rate of 25.5% for Iredell County between 2000 and 2010, and a growth rate of 15.8% for Rowan County during the same timeframe.

With respect to land supply along the TIP R-2911A-D project corridor, most of the land within the PGIA is currently undeveloped and available for new development. Because of the substantial amount of available land and current lack of market activity, the build-out within this area should extend well beyond the next 20 years, as urbanization pressures from Statesville and Salisbury, as well as Charlotte, Winston Salem, and High Point begin to take hold.

Water and sewer service within the PGIA is limited to the City of Statesville and the Town of Cleveland. In addition, there is a sewer line that extends along US 70 to the Statesville Business Park, and a sewer line that extends to the Wastewater Treatment Plant north of US 70 along Bell Farm Road.

There has been very little development activity along the rural-natured US 70 corridor within recent years. Local public policy does not discourage development from occurring as long as it abides by the land use and zoning plans for the area. According to local planners, there is no new development under construction or proposed along TIP R-2911A-D, although the Statesville Business Park is actively marketing sites within its boundaries for distribution/light manufacturing facilities.

When combined with Section E of TIP R-2911, TIP R-2911A-D will create a more efficient connection between I-77 in Iredell County and I-85 in Rowan County, making the corridor a more desirable location for industry. In addition, the entire TIP R-2911 project encourages the cities of Statesville and Salisbury to grow eastward and westward,

respectively, while the Town of Cleveland also becomes more accessible from both directions.

Identification of the Impact Area

The potential location of induced growth for TIP R-2911A-D was identified by eliminating undevelopable lands within the PGIA, such as already built-up areas, floodplains, and steep topography. Areas were then determined where travel time savings are most likely to occur as a result of the project. The availability of water/sewer, the existing transportation network (growth corridors), existing zoning, and proposed land use also influenced the determination of the where this growth may occur.

Figure 5 indicates the general boundaries of where induced growth resulting from TIP R-2911A-D should occur. Already built-up light industrial areas along the US 70 corridor in Statesville were not included within this area. Land along Twin Oaks Road and S. Greenbriar Road to the north of US 70, and also along Shiloh Church Road (SR 2318) and Third Creek Road (SR 2522) to the south of US 70 was included because of the direct access provided as well as the presence of existing sewer and/or water lines. In addition, the boundaries were extended along Bell Farm Road (SR 2316), an intersecting roadway that carries traffic to and from US 64. US 64 also provides the only railroad grade separation crossing along this section of US 70.

Induced growth is likely to occur approximately two miles along Bethesda Road (SR 2359), Triplett Road (SR 2362), and Knox Farm Road (SR 2363) to the south of TIP R-2911A-D, while only a mile or so along Elmwood Road (SR 2308) to the north of US 70. This is due to the fact that most of the impact of the new location section of TIP R-2911A-D is more likely to take place south of the project because land to the north would still be more directly accessible by existing US 70. Also, this land is closer to the high growth areas of both counties.

In Rowan County, the same philosophy holds true, as land along major feeder roadways is more likely to be impacted because of the direct access they provide. In particular, NC 801, which provides north-south access from the Winston-Salem area to the Lake Norman area, should become more attractive to new development with the completion of TIP R-2911A-D. Potential induced growth areas to the east of the project terminus in Rowan County at SR 1953 extend approximately two miles along the US 70 corridor, before most of the land becomes built-up near Salisbury.

IX. EVALUATE ANALYSIS RESULTS

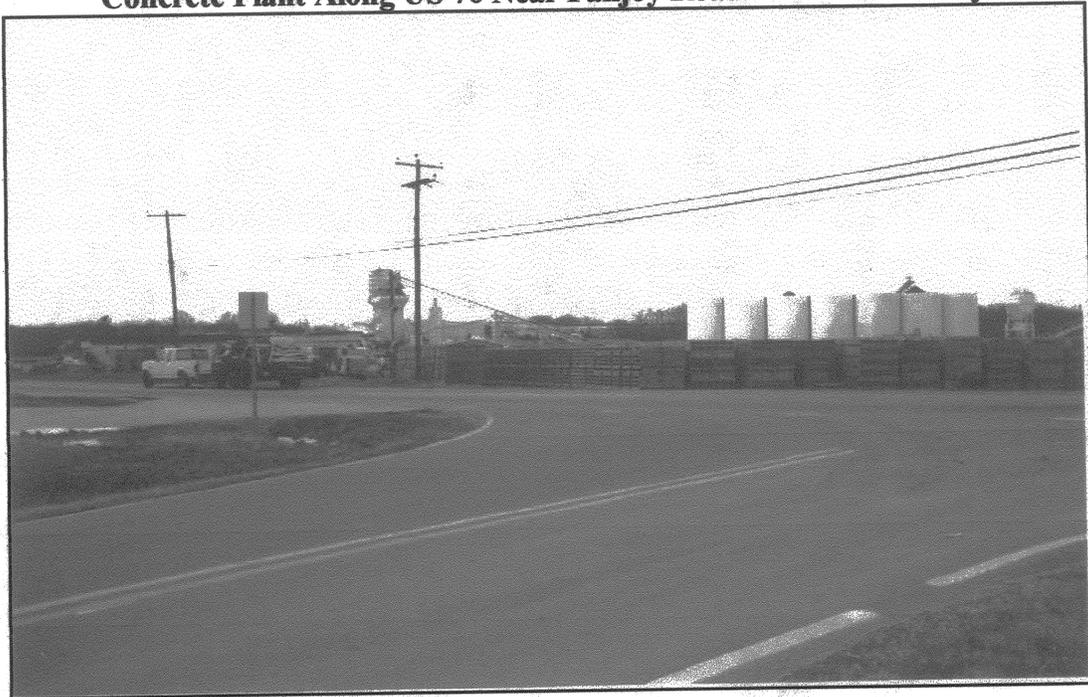
TIP R-2911A-D is located along a predominantly rural corridor connecting two relatively large towns and interstate highways. According to NCDOT, the main purpose of the project is to improve the mobility of automobiles and trucks traveling to and from these destinations. For sections B-D, adding two lanes in each direction should not drastically impact the amount of growth, both residential and commercial, that will occur along US 70 and its intersecting roadways. The lack of public infrastructure (water/sewer), partial

control of access, large supply of land, and limited market for development all contribute to a low likelihood of induced growth as a result of TIP R-2911A-D.

Section A, however, is on new location, creating new intersections and providing access to previously inaccessible land, particularly to the south of the new alignment. In addition, it bisects the Statesville Business Park property, making land for sale within the park much more attractive to prospective buyers/tenants. Relocating US 70 also provides ideal access along both sides of US 70, whereas the railroad currently serves as a deterrent to development along the north side of existing US 70. This situation will allow for the industrial expansion of the entire corridor. Finally, land use recommendations within the US 70 East Corridor Future Land Use Report, conducted by Iredell County in 2002-2003, hinge upon Section A of TIP R-2911A-D being built. These recommendations include:

- A primary industrial area anchored by the Statesville Business Park
- A proposed shopping center in the triangle formed by the convergence of the old US 70, the proposed new US 70, and Bethesda Road
- A proposed convenience shopping area located east of Triplett Road between old US 70 and new US 70

Concrete Plant Along US 70 Near Fanjoy Road in Iredell County



Most of the induced growth along the entire corridor should be industrial and single family residential in nature, along with the occasional retail cluster at major intersections. In terms of indirect and cumulative environmental issues, any induced development that takes place as a result of TIP R-2911A-D may impact existing wetlands in the area. According to the Environmental Assessment, there are two wetland sites along the new alignment of Section A, one along Section B, three along Section C, and four along



Section D. Some of these wetlands will unavoidably be disturbed by the construction of TIP R-2911A-D, while others may be impacted by the growth that occurs as a result of the project.

The quality of the streams that intersect both the new location portion of the project and the widening of the existing roadway will be protected by the NCDOT applying BMPs during construction of the project and by local jurisdictions regulating storm water runoff on a development-by-development basis. In addition, there is a 303(d) list impaired creek (Fourth Creek) located within the PGIA to the north of existing US 70 (see Figure 4). Because of the drainage pattern, induced growth along Elmwood Road (SR 2308) in Iredell County, and Phifer Road (SR 1977), Third Creek Church Road (SR 1973), and Chenault Road (SR 1972) in Rowan County, could affect the quality of the discharge into the impaired portion of Fourth Creek. However, induced growth in these areas would not necessarily affect the WS-IV South Yadkin River water supply watershed, which is located well to the north of where Fourth Creek unites with the south flowing Yadkin River.

Eligible for the National Register, Cameron Presbyterian Church historic property, which is located along both sides of existing US 70 just east of SR 2488, would more than likely indirectly benefit from the reduction in traffic along what will be the old US 70. The new location Section A would not tie into existing US 70 until Phifer Lane, well east of the church. The Wood Fleming House, which is also eligible for the National Register, is located on a portion of existing US 70, which will be widened from two lanes to four lanes with a median divided facility. No adverse direct impacts are expected for this property either, assuming a median break is provided for full access to the site. However, indirect impacts as it relates to induced growth may or may not adversely affect the site.

In terms of water quality impacts, since there is a low likelihood of induced growth and thus a minimal increase in impervious surface coverage anticipated, TIP R-2911A-D does not seem likely to cause any deterioration that would not already occur from non-project related growth. Of course, temporary impacts due to construction are likely, such as increased sedimentation due to soil erosion. Furthermore, the 303(d) impaired Fourth Creek should be minimally impacted because of the requirement for storm water drainage controls (BMPs) with respect to new development.

ATTACHMENT E

Natural Channel Design Narrative



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MEMO

To:
Anne Gamber, PE
North Carolina Department of Transportation
Hydraulics Unit
Century Center, 1000 Birch Ridge Drive
Raleigh, North Carolina 27610

Copies:
File

From:
Steven Bondor, PE

Date:
10 December 2003

ARCADIS Project No.:
NC30135.0000

Subject:
Natural Channel Design
Project 8.1631801 R-2911A
Iredell County, NC

Natural channel design methods were utilized at one location within the project: -L- Sta 32+07 left to Sta 32+43 left. The design methods used are in accordance with those recommended in "*Applied River Morphology*" (Rosgen 1996).

Data collection consisted of review of topographic mapping prepared from the project surveys and the USGS Statesville, NC Quadrangle map. Stream pattern data including the sinuosity, meander wavelength, belt width, and bend radii was obtained from the project topographic mapping. Regional curves, prepared by the N.C. Stream Restoration Institute, depicting bankfull depth, bankfull cross sectional area, bankfull discharge, and bankfull width for stable streams, were utilized to compare the channel dimensions observed in the field with those of other streams in the region.

The following data was obtained from field surveys of the existing stream: bankfull cross section, floodplain cross section, longitudinal stream profile, and an estimate of bed / bank material. The following Level II stream parameters (as defined in "*Applied River Morphology*") were determined based on analysis of the field survey data: bankfull cross sectional area, riffle depth, pool depth, riffle slope, pool slope, water surface slope, width / depth ratio, and entrenchment ratio. The field survey data and a summary of the Level II stream parameters are enclosed.

-L- Sta 32+07 left to Sta 32+43 left

A portion of the existing stream is located below the proposed fill slope and crosses the proposed roadway alignment at an extreme skew angle. This reach of the stream is generally in stable condition and was used as the reference reach for design of the stream relocation. The stream crossing requires a reinforced

ARCADIS

concrete box culvert to convey the design storm discharge from the watershed. The stream relocation is recommended to minimize the skew angle of the culvert. The stream is located within 200 feet of the primary outfall of a pond through which most of the watershed drains and is the source of the stream. The watershed is mostly rural with a combination of agricultural land usage and a few isolated residential areas. No significant sediment sources were observed in the watershed nor were significant sediment depositional features observed in the stream. The watershed is expected to develop however, potentially causing an increase in the discharge to the stream.

Analysis of the field survey data indicated that the existing stream most closely resembled an E5 stream. The E5 type stream has high sinuosity, high meander width ratios, is slightly entrenched with an active floodplain, includes a riffle pool sequence, relatively low width / depth ratios, and slopes less than 2%. The observed bankfull indicators were within the bottom of the existing channel and are well below the regional curve data due to the reduction of the bankfull discharge by the pond. Using the top of bank as bankfull however, results in channel dimensions that correlate with the regional curve data. This confirms that the channel was formed prior to construction of the pond.

The proposed channel was designed assuming the bankfull discharge will increase due to future development within the watershed and that the pond will remain in place. If the pond were removed, the bankfull discharge would increase even more and would cause the channel to enlarge itself accordingly with the concrete box culvert functioning as a "grade control". The proposed channel dimensions are slightly larger than the existing and include a floodplain bench to minimize bank height and the potential for bank erosion. Root wads and woody vegetation are recommended to stabilize the banks. Rock vanes are not required due to the short length of the relocated channel and due to the presence of the concrete box culvert. The proposed channel dimension, pattern, and profile are shown on the roadway plan and profile sheets and were determined based on the parameters of the E5 stream type, the reference reach data, the regional curve data, and the existing topographic features.

Shear stress for the proposed channel is approximately equal to the shear stress of the existing channel based on the proposed profile and cross section. The existing channel is relatively stable and was used as the reference reach for the proposed channel.

Variables	Existing Channel	Proposed Reach	USGS Station	Reference Reach
1. Stream type	E5	E5		E5
2. Drainage area (D.A.) ac.	153	153		153
3. Bankfull width (Wbkf) ft.	10	11		10
4. Bankfull mean depth (dbkf) ft.	1.2	1.3		1.2
5. Width/depth ratio (Wbkf/dbkf)	8.33	8.46		8.33
6. Bankfull cross-sectional area (Abkf) ft. ²	11.9	10		11.9
7. Bankfull mean velocity (Vbkf) ft/sec	3.20	3.50		3.20
8. Bankfull discharge (Qbkf) ft. ³ /sec	38.08	35.00		38.08
9. Bankfull max depth (dmbkf) ft.	1.9	2.2		1.9
10. Width of floodprone area (Wfpa) ft.	35	37		35
11. Entrenchment ratio (Wfpa/Wbkf)	3.50	3.36		3.50
12. Meander length (Lm) ft.	57	59		57
13. Ratio of meander length to bankfull width (Lm/Wbkf)	5.70	5.36		5.70
14. Radius of curvature (Rc) ft.	21	16		21
15. Ratio of radius of curvature to bankfull width (Rc/Wbkf)	2.1	1.45		2.1
16. Belt width (Wblt) ft.	23	31		23
17. Meander width ratio (Wblt/Wbkf)	0.32	0.32		0.32
18. Sinuosity (stream length/valley length) (K)	1.6	1.6		1.6
19. Valley Slope (VS)	0.01	0.01		0.01
20. Average slope (CS)	0.016	0.016		0.016
21. Pool slope				
22. Ratio of pool slope to average slope				
23. Maximum pool depth (dpmax) ft.				
24. Ratio of pool depth to average bankfull depth (dp/dbkf)	0	0		0
25. Pool width (Wp) ft.				
26. Ratio of pool width to bankfull width				
27. Pool to pool spacing ft.				
28. Ratio of pool to pool spacing to bankfull width	0	0		0
29. Ratio of lowest bank height to bankfull height (or max bankfull depth) (BHlow/dmbkf)				

NATURAL CHANNEL DESIGN DATA

MORPHOLOGICAL MEASUREMENT TABLE

SITE 2

N.C. DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 IREDELL COUNTY
 PROJECT: 8.1631801 (R-2911A)
 US 70 FROM SR 2318 TO ROWAN CO. LINE

SHEET 16 OF 16 DATE, 2001

ATTACHMENT F

Request Letter for Mitigation to EEP



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

February 5, 2004

Mr. William D. Gilmore, P.E.
EEP Transition Manager
Ecosystem Enhancement Program
1652 Mail Service Center
Raleigh, NC 27699-1652

RECEIVED

FEB 5 2004

NO ECOSYSTEM
ENHANCEMENT

Dear Sir:

Subject: Iredell County. US 70 relocation from SR 2318 (Fanjoy Road) to the Iredell-Rowan County line. State Project No 8.1631801. TIP No. R-2911A.

The purpose of this letter is to request that the North Carolina Ecosystem Enhancement Program (EEP) provide confirmation that you are willing to provide compensatory mitigation for the project in accordance with the Memorandum of Agreement (MOA) signed July 22, 2003 by the USACE, the NCDENR and the NCDOT.

The North Carolina Department of Transportation proposes to relocate a 5.1 mi length of US 70 in Iredell County. A five-lane roadway with 2 ft curb and gutters transitioning to a four-lane median divided roadway, with 8 to 10 ft shoulders, is proposed. The proposed right-of-way (ROW) width for the project is 100 to 150 ft.

**RESOURCES UNDER THE JURISDICTION OF SECTION 404 AND 401 OF THE
CLEAN WATER ACT.**

We have avoided and minimized the impacts to jurisdictional resources to the greatest extent possible as described in the permit application. A copy of the permit application can be found at <http://www.ncdot.org/planning/pe/naturalunit/Applications.html>. The remaining impacts to jurisdictional resources will be compensated for by mitigation provided by the EEP program. We estimate that 1,601 linear feet of jurisdictional streams and 0.27 acres of wetlands will be impacted.

The project is located in the Piedmont Physiographic Province in Iredell County in the Yadkin River basin in Hydrological Cataloguing Unit 03040102.

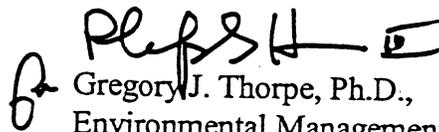
- The stream impacts will be to first and or second order perennial streams and first order intermittent streams that are tributaries to Third Creek [DWQ# 12-108]. We propose to mitigate for the stream impacts by using the EEP for the 1,601 feet of impacts.
- The wetland impacts total 0.27 acres of riverine wetlands. We propose to provide compensatory mitigation for the wetland impacts by using the EEP for the 0.27 acres of impacts.

Please send the letter of confirmation to Steve Lund (USACE Coordinator) at U. S. Army Corps of Engineers Asheville Regulatory Field Office (151 Patton Ave., Room 208 Asheville, NC 28801-5006). Mr. Lund's FAX number is (828) 281-8120. The current let date for the project is May 18, 2004 for which the let review date is March 30, 2004.

In order to satisfy regulatory assurances that mitigation will be performed; the NCDWQ requires a formal letter from EEP indicating their willingness and ability to provide the mitigation work requested by NCDOT. The NCDOT requests such a letter of confirmation be addressed to Mr. John Hennessy of NCDWQ, with copies submitted to NCDOT.

If you have any questions or need additional information please call Matt Haney at (919) 715-1428

Sincerely,



Gregory J. Thorpe, Ph.D.,
Environmental Management Director
Project Development & Environmental Analysis Branch

cc: Mr. John Hennessy, Division of Water Quality
Ms. Marella Buncick, USFWS
Ms. Marla Chambers, NCWRC
Mr. Jay Bennett, P.E., Roadway Design
Mr. Omar Sultan, Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. David Chang, P.E., Hydraulics
Mr. Greg Perfetti, P.E., Structure Design
Mr. Mark Staley, Roadside Environmental
Mr. M.L. Holder, P.E., Division 12 Engineer
Ms. Trish Simon, Division 12 DEO
Mr. David Franklin, USACE, Wilmington
Mr. William D. Gilmore, P.E., EEP, Raleigh
Ms. Becky Fox, USEPA
Mr. John F. Sulliyon, III, FHWA

September 20, 2002

Subject: Draft Minutes Interagency Permit Drawing Review Meeting on September 19, 2002, for R2911A, Iredell County.

Team Members:

John Hendrix – USACE	(Present)
Cynthia Van Der Wiele – NCDWQ	(Present)
Marla Chambers – NCWRC	(Present)
Marella Buncick – USFWS	(Absent)
Christopher Militscher – USEPA-Raleigh	(Present)
Matt Haney – NCDOT PDEA	(Present)

Participants:

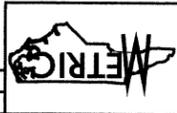
David Chang – NCDOT Hydraulics
Diane Hampton – NCDOT Division 9
Jerry Parker – NCDOT PDEA
Ted Bitterfield – USEPA
Marshall Clawson – NCDOT Hydraulics
Nidal Albadawi – NCDOT Design Services
Anne Gamber – NCDOT Hydraulics

The meeting began with Marshall Clawson giving a brief description of the project. The project consists of the widening of US 70 from SR 2318 near Statesville to Rowan County line.

1. Sites 1,2 and 3: No comments.
2. Site 4: The hydraulics unit will check if the upstream pipe is perched. *Action taken: The pipe is an outlet for a dam.*
3. Site 5: John Hendrix had not been advised of the crossing at Y8 in the alternate selection process and if the crossing is necessary then all alternatives would need to be reinvestigated. Nidal Albadawi stated that the Y line was necessary to provide access to the people who lived in the Forest Acres Mobile Home Park. John Hendrix stated that he would not approve permit with Site 5 as presented. From an email sent September 20, 2002, John Hendrix offered these alternatives: 1) Eliminate Y8 and proceed with the permit process; 2) Provide the review team with a full assessment of the access issue, including affected parties/parcels, existing access routes, alternatives for regaining lost access, and specific alternatives to the proposed spur road location, if that concept is the best solution available. *Action taken: Two alternatives were investigated. The first was to retain the spur, bridging the wetlands and stream and resulted in a cost of 2.3 million dollars. The second was to bridge the proposed US 70 over the existing access to the subject properties and resulted in a cost of 1.2 million dollars. The spur road (Y8) will be eliminated from the project.*
4. Sites 6 and 7: No comments.
5. Sites 8 and 9: These sites were deemed non-jurisdictional and omitted.

CONVENTIONAL SYMBOLS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS



PROJ. REFERENCE NO. _____
SHEET NO. 1-B

ROADS & RELATED ITEMS

	Edge of Pavement
	Curb
	Prop. Slope Stakes Cut
	Prop. Slope Stakes Fill
	Prop. Woven Wire Fence
	Prop. Chain Link Fence
	Prop. Barbed Wire Fence
	Prop. Wheelchair Ramp
	Prop. Wheelchair Ramp
	Curb Cut For Future Wheelchair Ramp
	Exist. Guardrail
	Prop. Guardrail
	Exist. Cable Gutter
	Prop. Cable Gutter
	Equality Symbol
	Pavement Removal
	Baseline Control Point
	Existing Right of Way Marker
	Exist. Right of Way Line w/Marker
	Prop. Right of Way Line with Proposed RW marker (Iron Pin & Cap)
	Prop. Right of Way Line with Proposed (Concrete or Granite) R/W Marker
	Exist. Control of Access Line
	Prop. Control of Access Line
	Exist. Easement Line
	Prop. Temp. Construction Easement Line
	Prop. Temp. Drainage Easement Line
	Prop. Perm. Drainage Easement Line
	Stream or Body of Water
	Flow Arrow
	Disappearing Stream
	Spring
	Swamp Marsh
	Shoreline
	Falls, Rapids
	Prop Lateral, Tail, Head Ditches

HYDROLOGY

	Head & End Wall
	Pipe Culvert
	Footbridge
	Drainage Boxes
	Paved Ditch Gutter
	Exist. Pole
	Prop. Pole
	Exist. Telephone Pole
	Prop. Telephone Pole
	Exist. Joint Use Pole
	Prop. Joint Use Pole
	Telephone Pedestal
	Cable TV Pedestal
	Hydrant
	Satellite Dish
	Exist. Water Valve
	Sewer Clean Out
	Power Manhole
	Telephone Booth
	Water Manhole
	Light Pole
	H-Frame Pole
	Power Line Tower
	Pole with Base
	Gas Valve
	Gas Meter
	Telephone Manhole
	Power Transformer
	Sanitary Sewer Manhole
	Storm Sewer Manhole
	Tank; Water, Gas, Oil
	Water Tank With Legs
	Traffic Signal Junction Box
	Fiber Optic Splice Box
	Television or Radio Tower
	Utility Power Line Connects to Traffic Signal Lines Cut Into the Pavement

UTILITIES

	Recorded Water Line (S.U.E.*)
	Sanitary Sewer
	Recorded Sanitary Sewer Force Main
	Designated Sanitary Sewer Force Main (S.U.E.*)
	Recorded Gas Line
	Designated Gas Line (S.U.E.*)
	Storm Sewer
	Recorded Power Line
	Designated Power Line (S.U.E.*)
	Recorded Telephone Cable
	Designated Telephone Cable (S.U.E.*)
	Recorded UG Telephone Conduit
	Designated UG Telephone Conduit (S.U.E.*)
	Unknown Utility (S.U.E.*)
	Recorded Television Cable
	Designated Television Cable (S.U.E.*)
	Recorded Fiber Optics Cable
	Designated Fiber Optics Cable (S.U.E.*)
	Exist. Water Meter
	UG Test Hole (S.U.E.*)
	Abandoned According to UG Record
	End of Information
	State Line
	County Line
	Township Line
	City Line
	Reservation Line
	Property Line
	Property Line Symbol
	Exist. Iron Pin
	Property Corner
	Property Monument
	Property Number
	Parcel Number
	Fence Line
	Existing Wetland Boundaries
	Proposed Wetland Boundaries
	Existing Endangered Animal Boundaries
	Existing Endangered Plant Boundaries

BOUNDARIES & PROPERTIES

TOPOGRAPHY

	Buildings
	Foundations
	Area Outline
	Gate
	Gas Pump Vent or UG Tank Cap
	Church
	School
	Park
	Cemetery
	Dam
	Sign
	Well
	Small Mine
	Swimming Pool
	Loose Surface
	Hard Surface
	Change in Road Surface
	Curb
	Right of Way Symbol
	Guard Post
	Paved Walk
	Bridge
	Box Culvert or Tunnel
	Ferry
	Culvert
	Footbridge
	Trail, Footpath
	Light House
	Single Tree
	Single Shrub
	Hedge
	Woods Line
	Orchard
	Vineyard
	Standard Gauge
	RR Signal Milepost
	Switch

VEGETATION

RAILROADS

Revised 2/25/93

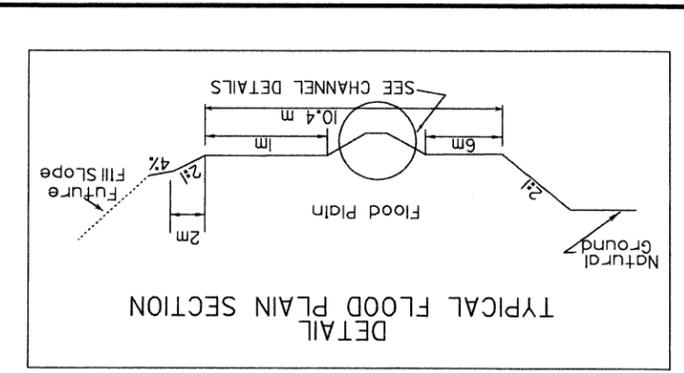
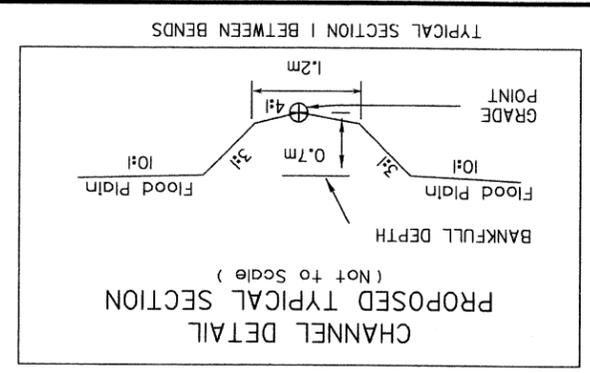
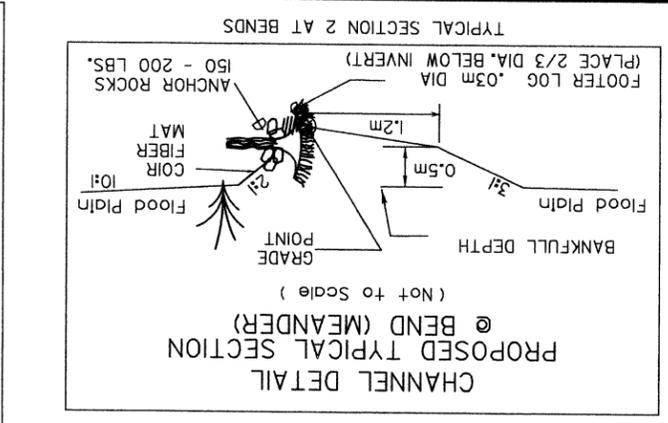
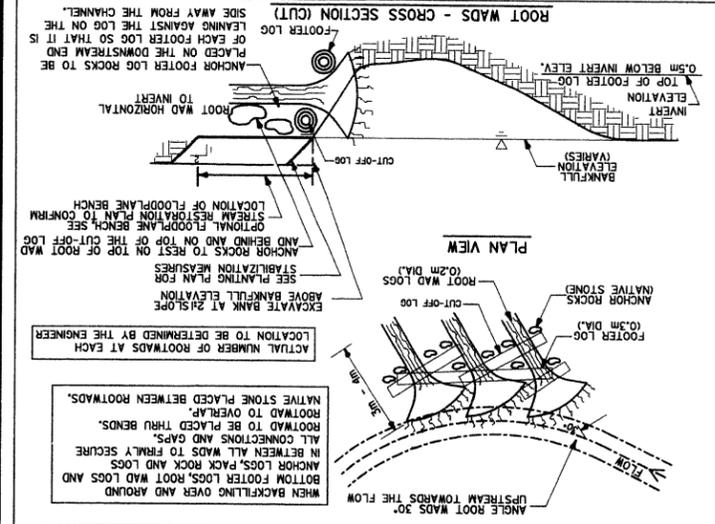
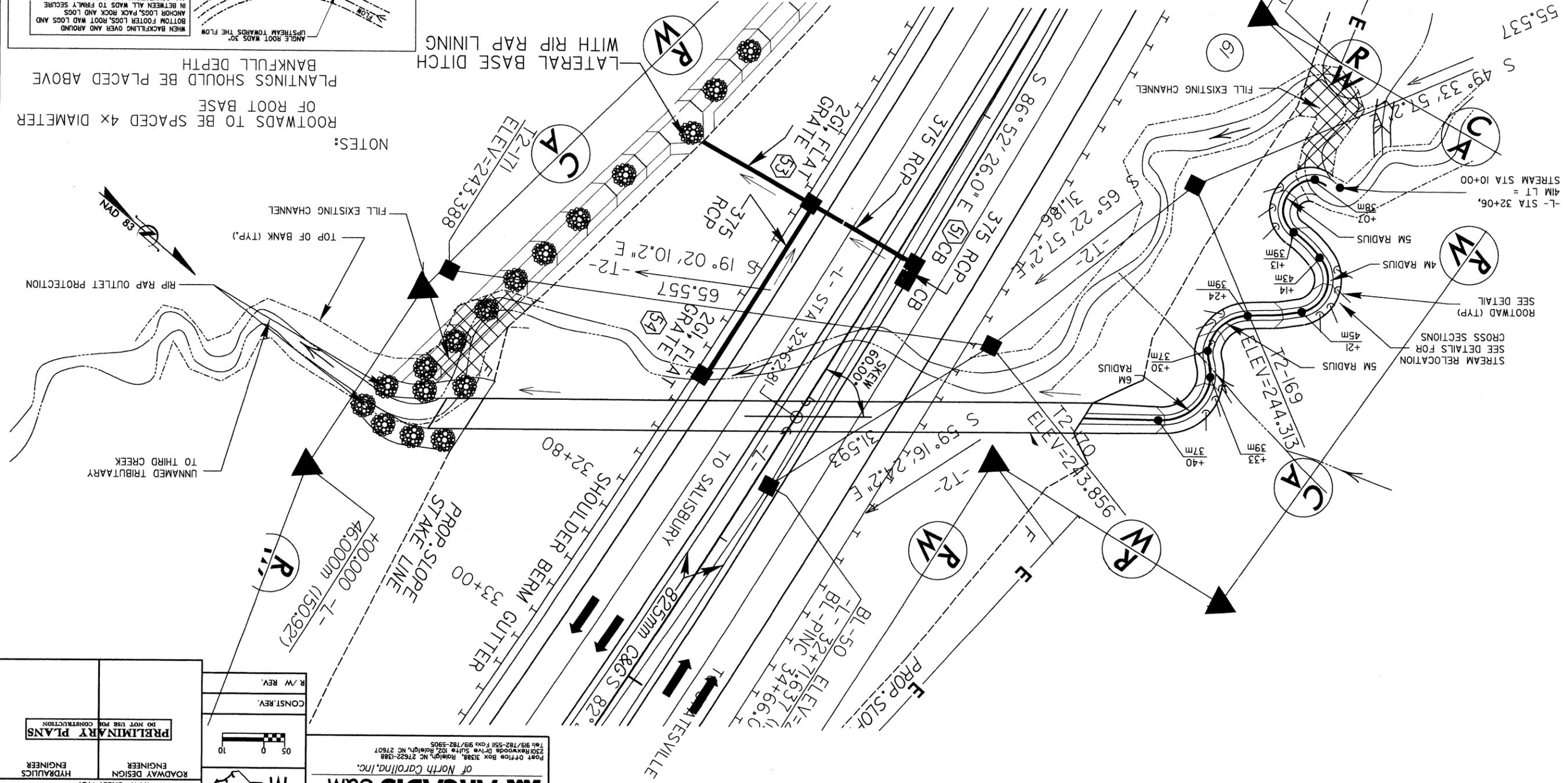
*S.U.E. = SUBSURFACE UTILITY ENGINEER

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	R-2911A
SHEET NO.	21
ROADWAY DESIGN ENGINEER	
HYDRAULICS ENGINEER	
DO NOT USE FOR CONSTRUCTION	
PRELIMINARY PLANS	

R/W SHEET NO. **METRIC**
 CONST. REV.
 R/W REV.

ARCADIS G&M
 of North Carolina, Inc.
 Post Office Box 3198, Raleigh, NC 27622-1388
 2200 Research Drive, Suite 102, Raleigh, NC 27607
 Tel: 919/782-5511 Fax: 919/782-5985



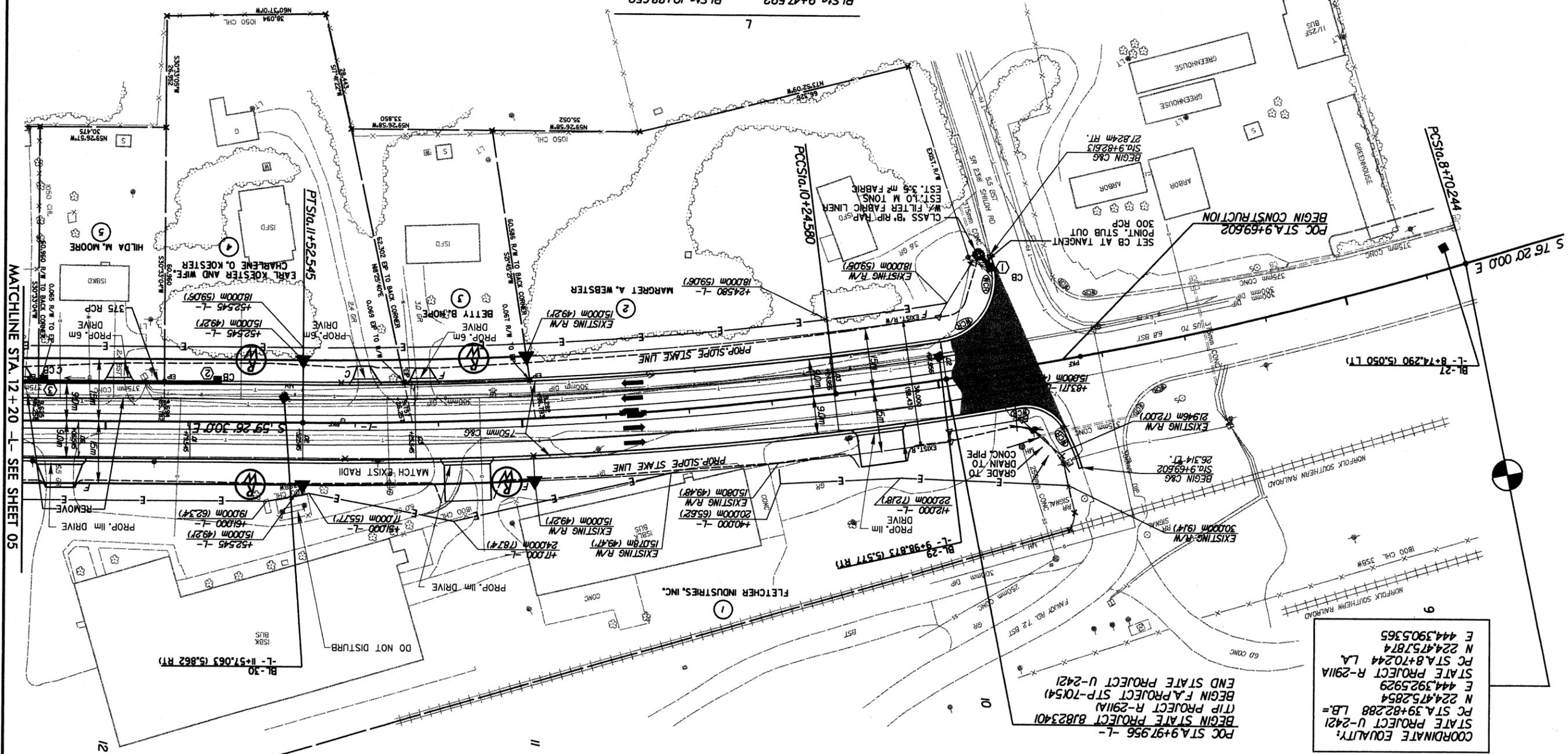
REVISIONS

8/17/2018

SEE SHEET 33 FOR L-PROFILE

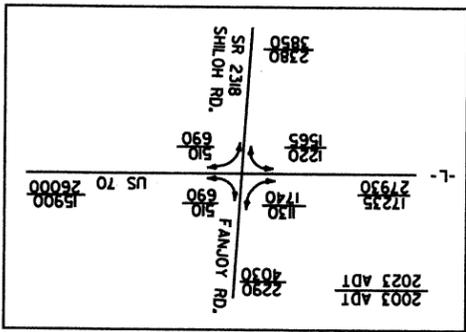
PI Sta 9+47.592
 $\Delta = 9.33' 35.3" (RT)$
 $L = 154.336 M$
 $T = 77.348 M$
 $R = 925.000 M$
 SUPER = 0.02

PI Sta 10+88.650
 $\Delta = 7.19' 54.7" (RT)$
 $L = 127.965 M$
 $T = 64.070 M$
 $R = 1000.000 M$
 SUPER = 0.03



COORDINATE EQUALITY:
 STATE PROJECT U-2421
 PC STA. 39+82.288 LB.=
 N 224.475.2854
 E 444.392.5929
 STATE PROJECT R-2911A
 PC STA. 8+70.244 LA
 N 224.475.7874
 E 444.390.5365

DATUM DESCRIPTION
 IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY
 NCSS FOR MONUMENT "384-JAS"
 WITH NAD 83 STATE PLANE GRID COORDINATES OF
 NORTHING: 22071828 (EASTING: 459380286M)
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT
 (GROUND TO GRID) IS: 0.999873400
 THE N.C. LAMBERT GRID BEARING
 LOCALIZED HORIZONTAL GROUND DISTANCE FROM
 "384-JAS" TO L-PC STA 10+97.956 IS
 N 76°30'57.874" W 152902.36M
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NAVD 29



PROJECT REFERENCE NO. R-2911A
 SHEET NO. 04

ROADWAY DESIGN ENGINEER
 HYDRAULICS ENGINEER

PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

R/W REV.
 CONST. REV.

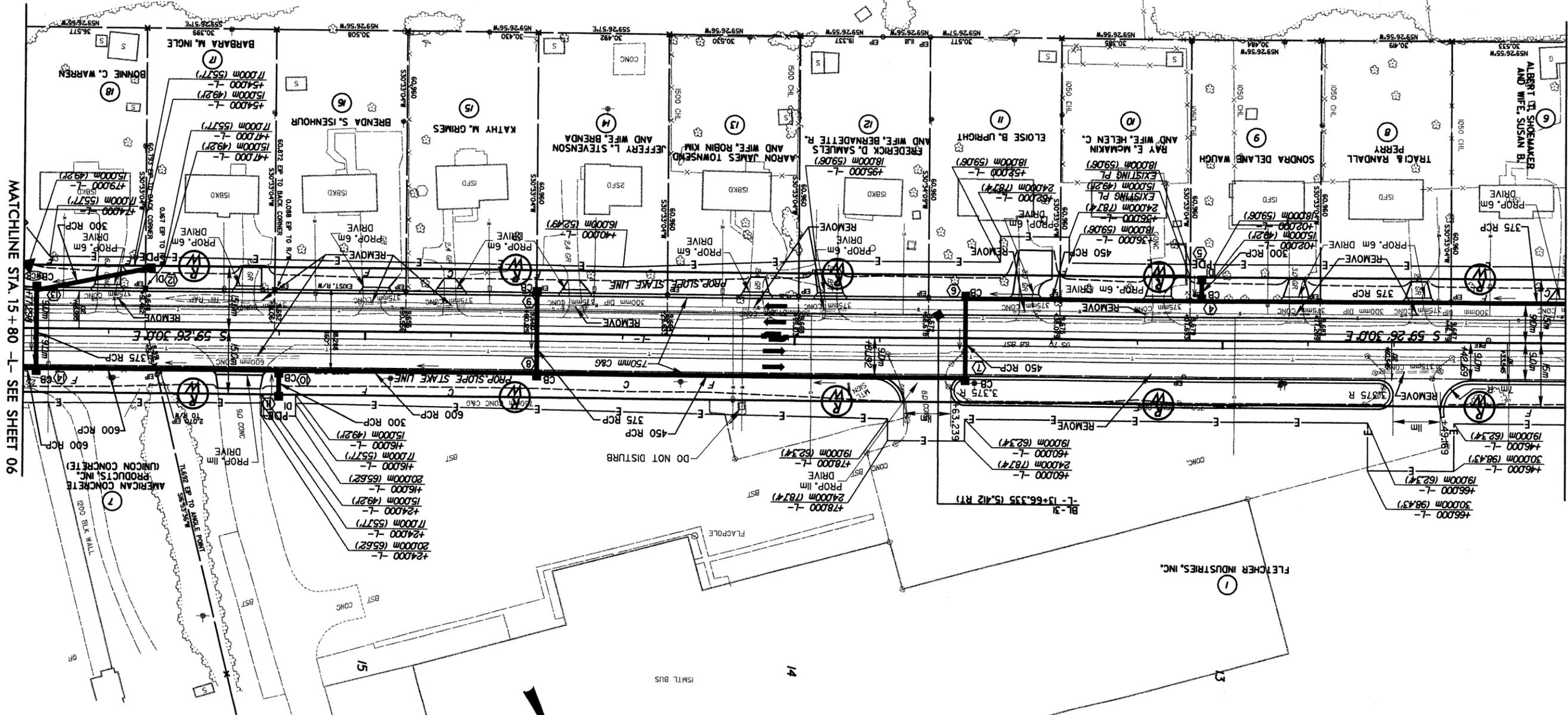
5' 0'
 10'

METRIX

ARCADIS
 G & M of North Carolina, Inc.
 www.arcadis-us.com
 801 Corporate Center Drive, Suite 300
 Raleigh, NC 27607-5073
 Tel: 919/854-1282 Fax: 919/854-5448

MATCHLINE STA. 12 + 20 - SEE SHEET 05

SEE SHEET 33 FOR L-PROFILE



MATCHLINE STA. 15 + 80 L- SEE SHEET 06

MATCHLINE STA. 12 + 20 L- SEE SHEET 04

PROJECT REFERENCE NO.	R-2911A
SHEET NO.	05
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	
HYDRAULICS ENGINEER	
PRELIMINARY PLANS	DO NOT USE FOR CONSTRUCTION

METRIC

CONSTR. REV.

R/W REV.

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 Raleigh, NC 27607-5073
 Tel: 919/854-1282 Fax: 919/854-5448

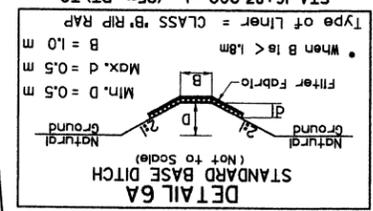
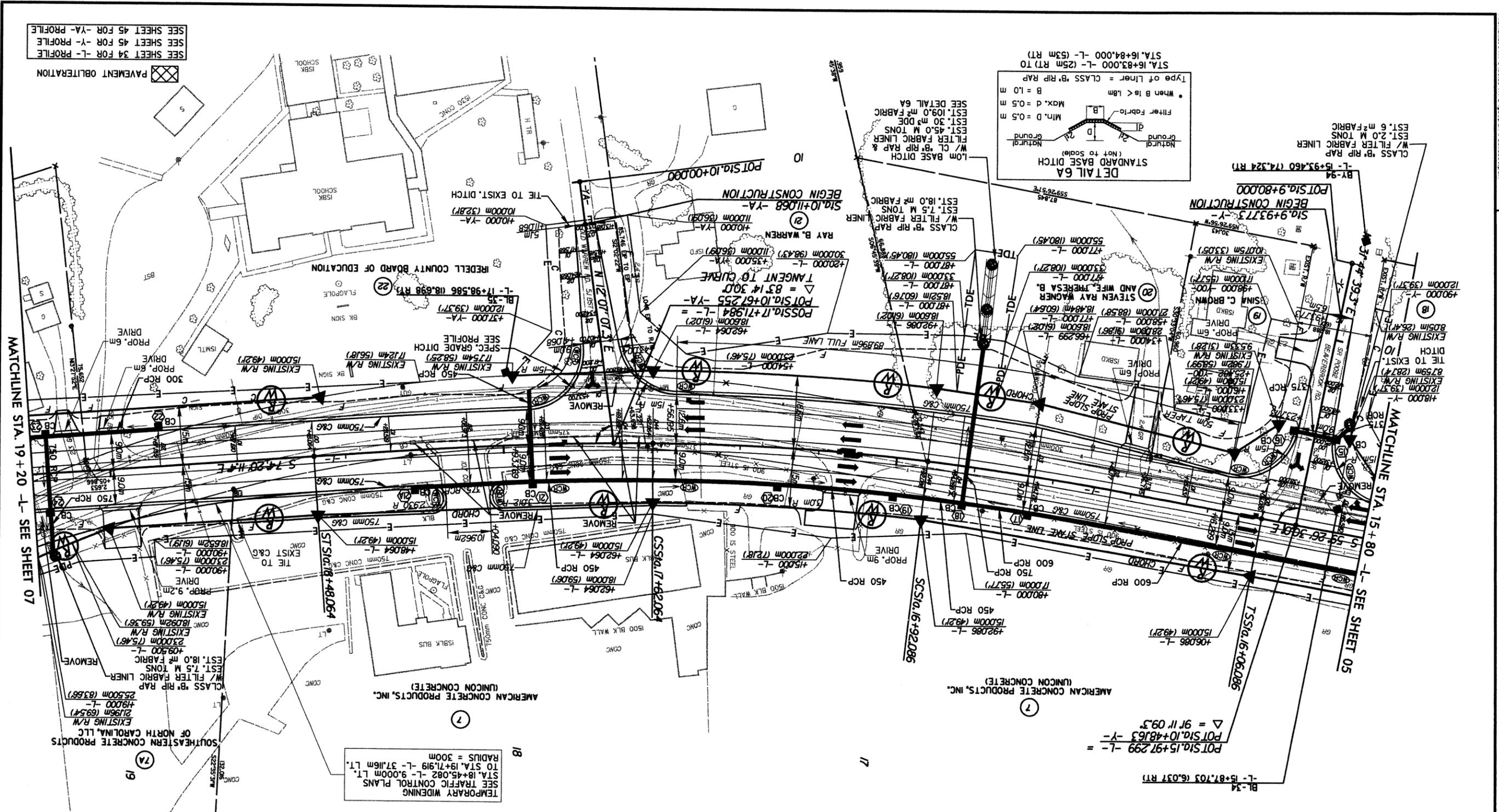
- REVISIONS
- 100302 PROPERTY OWNER NAME CHANGE ON PARCELS 8 & 11
 - 100302 RB MOVED EASEMENT AROUND DRIVE STA. 12 + 55 + L- PARCEL 1
 - 100302 RB WIDEN DRIVEWAYS TO 11m PARCEL 1
 - 100302 RB CHANGES IN PLAN/METRICS PARCEL 1

ARCADIS G&M
 Date: 05/09/2002 Time: 02:41:04 PM
 Path: \\arcadis-us.com\arcadis\2911a\05\plan\100302.dwg

SEE SHEET 34 FOR L-PROFILE
SEE SHEET 45 FOR Y-PROFILE
SEE SHEET 45 FOR YA-PROFILE



PAVEMENT OBLITERATION



MATCHLINE STA. 19+20 -L- SEE SHEET 07

MATCHLINE STA. 15+80 -L- SEE SHEET 05

PROJECT REFERENCE NO.	R-2911A
SHEET NO.	06
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	
HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



ARCADIS
C & M of North Carolina, Inc.
MWM.ARCADIS-US.COM
801 Corporate Center Drive, Suite 300
Raleigh, NC 27607-5073
Tel: 919/854-1282 Fax: 919/854-5448

7

P=1	= 11+27.577
Δ	= 14°53'41.4" LT.
L _S	= 86.000 M
θ _S	= 4°06'22.3" LT.
T _S	= 121.491 M
L _C	= 69.978 M
R	= 600.000 M
U	= 57.349 M
V	= 28.681 M
P	= 0.514 M
O	= 42.993 M
SUPER	= 0.044

TEMPORARY WIDENING
SEE TRAFFIC CONTROL PLANS
TO STA. 18+45.082 -L- 9.000m LT.
TO STA. 19+71.919 -L- 37.116m LT.
RADIUS = 300m

100302 RB SPLIT PARCEL 7 INTO PARCELS 7 & 7A
100302 RB ADDITIONAL TCE AND PDE ADDED PARCEL 7
100302 RB CHANGES IN PLANNIMETRICS PARCELS 7 & 7A
100302 RB ADDED DRIVE TO PARCEL 7A

REVISIONS

ARCADIS GSM
Date: 05/20/02 Time: 02:40 PM
Filename: V:\T\03\0155\T\03\0000\K\29110606.dwg

PROJECT REFERENCE NO. R-2911A
SHEET NO. 09

R/W SHEET NO. 09

ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

METRIC

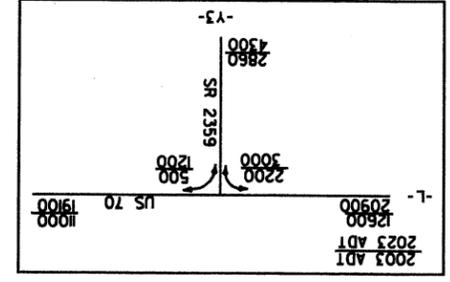
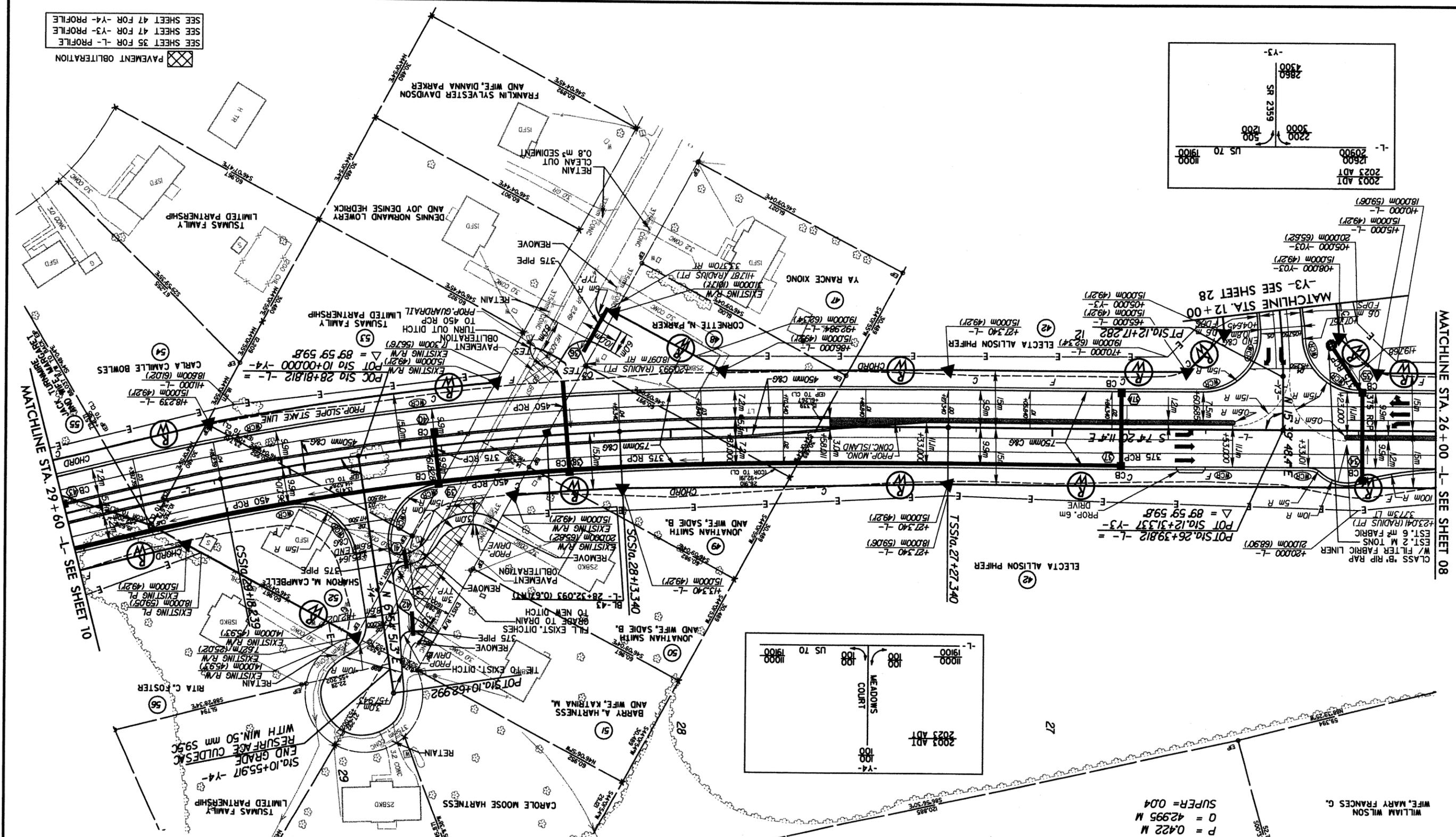
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CONSTR. REV.
R/W REV.

ARCADIS

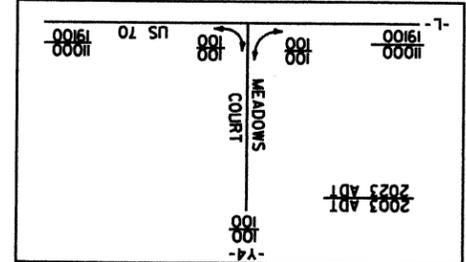
G & M of North Carolina, Inc.
WWW.ARCADIS-US.COM

801 Corporate Center Drive, Suite 300
Raleigh, NC 27607-5073
Tel: 919/854-1282 Fax: 919/854-5448



SEE SHEET 35 FOR L-PROFILE
SEE SHEET 47 FOR -Y3-PROFILE
SEE SHEET 47 FOR -Y4-PROFILE

PAVEMENT OBLITERATION



WIFE, MARY FRANCES G.
WILLIAM WILSON

P.I. = 28+66.388
Δ = 14'58"59.5' LT.
L.S. = 86,000 M
S. = 3'22"29.8' LT.
T.S. = 139,048 M
L.C. = 104,900 M
R. = 730,000 M
U. = 57,344 M
V. = 28,676 M
P. = 0.422 M
O. = 42,995 M
SUPER = 0.04

P.I. = 11+47.669
Δ = 6'47"37.2' RT.
T. = 86,770 M
L. = 156,383 M
R. = 145,000 M
SUPER = 0.06



MATCHLINE STA. 26 + 00 - SEE SHEET 08

CLASS 'B' RIP RAP
EST. 2 M TONS
W/ FILTER FABRIC LINER
EST. 6 M² FABRIC
POT Sta. 26+39.812 -L- =
POT Sta. 26+31.337 -Y3-
Δ = 89'59"59.8'
PROP. 6m DRIVE
ELECTA ALLISON PHIFER

TSS Sta. 27+27.340
+27'340 -L-
18,000m (59,087)
+27'340 -L-
15,000m (49,271)

POT Sta. 12+17.282 -L-
19,000m (62,337)
ELECTA ALLISON PHIFER
+27'340 -L-
15,000m (49,271)

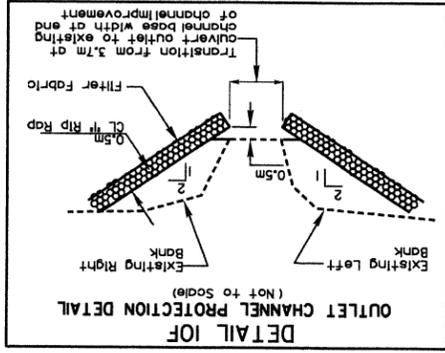
MATCHLINE STA. 12 + 00 - SEE SHEET 28

REVISIONS

ARCADIS G&M
Date: 05/20/2002 Time: 02:48:27 PM
Filename: Y:\03\3035\1\03\0000\1\2911a09.dwg

01/802 BP EASEMENT CHANGED ON PARCELS 47, 48, 49, 50, 53, 55, 56
01/802 BP RAW AND EASEMENT CHANGED ON PARCEL 48
01/802 BP TOTAL TRACT AREA CHANGED ON PARCEL 54
10/30/02 BP PROPERTY OWNER NAME CHANGED ON PARCELS 47, 49, 52, 53

01/8/02 BP EASEMENT CHANGED ON PARCELS 55, 56, 58, 59, 59
 01/8/02 BP RW AND EASEMENT CHANGED ON PARCELS 57, 40, 41
 10/03/02 RB PROPERTY OWNER NAME CHANGED ON PARCELS 59 & 40



P.I. = 32+94.211

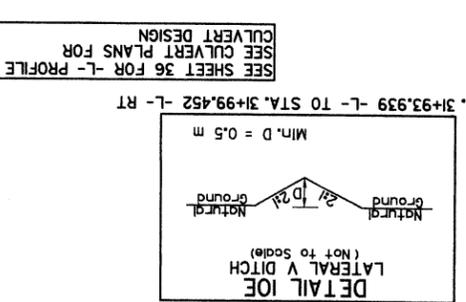
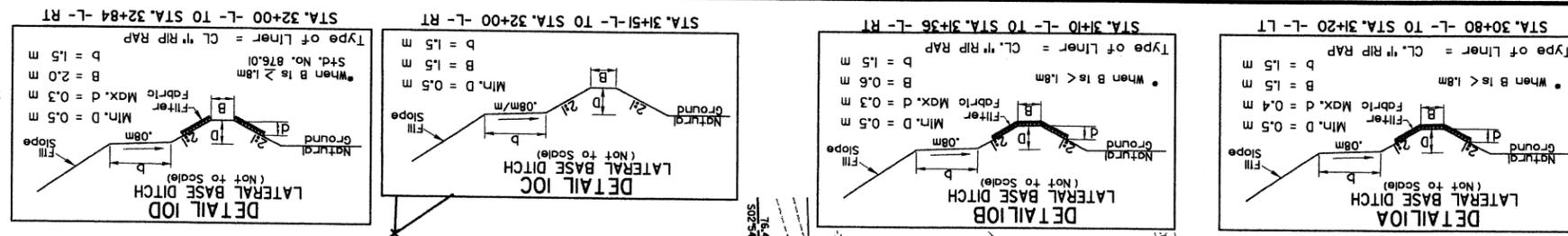
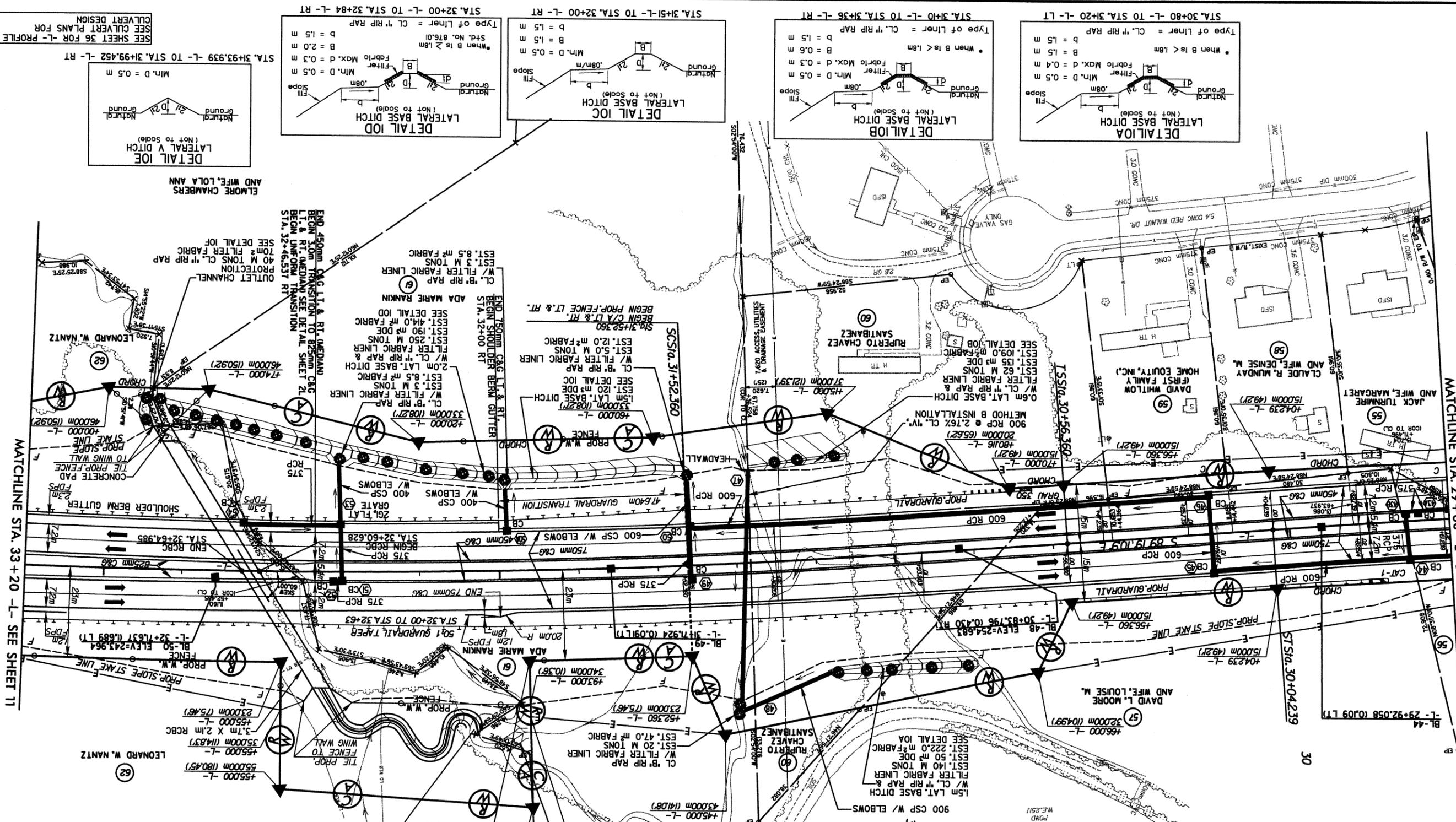
Δ	= 1458.595' LT.
L _S	= 86.000 M
θ _S	= 322.295' LT.
L _C	= 139.048 M
T _S	= 237.851 M
L _C	= 282.534 M
R	= 730.000 M
U	= 57.344 M
V	= 28.676 M
P	= 0.422 M
O	= 42.995 M

SUPER = 0.04

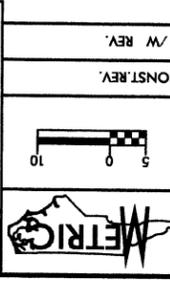
P.I. = 32+94.211

Δ	= 1050.391' RT.
L _S	= 96.000 M
θ _S	= 122.304' RT.
T _S	= 237.851 M
L _C	= 282.534 M
R	= 2000.000 M
U	= 64.002 M
V	= 32.002 M
P	= 0.192 M
O	= 47.999 M

SUPER = 0.026



PROJECT REFERENCE NO.	R-2911A
R/W SHEET NO.	10
ENGINEER	ROADWAY DESIGN
HYDRAULICS ENGINEER	DO NOT USE FOR CONSTRUCTION



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PROJECT REFERENCE NO. R-2911A
SHEET NO. 11

ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

R/W SHEET NO. R-2911A

CONSTR. REV. R/W REV.

05 0 10

ARCADIS G&M

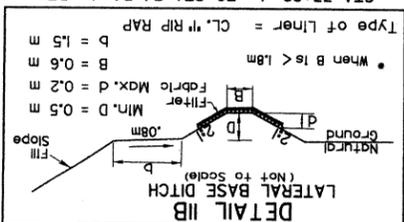
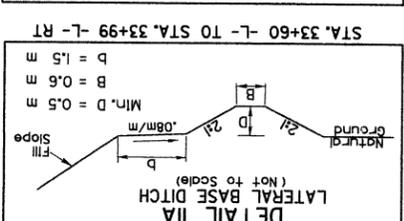
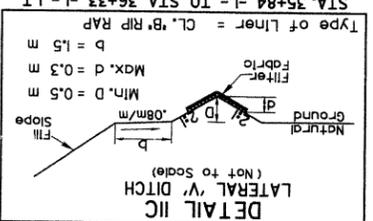
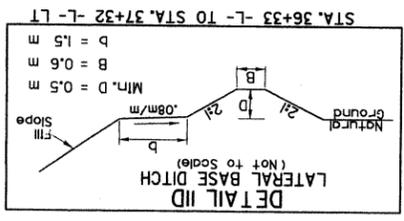
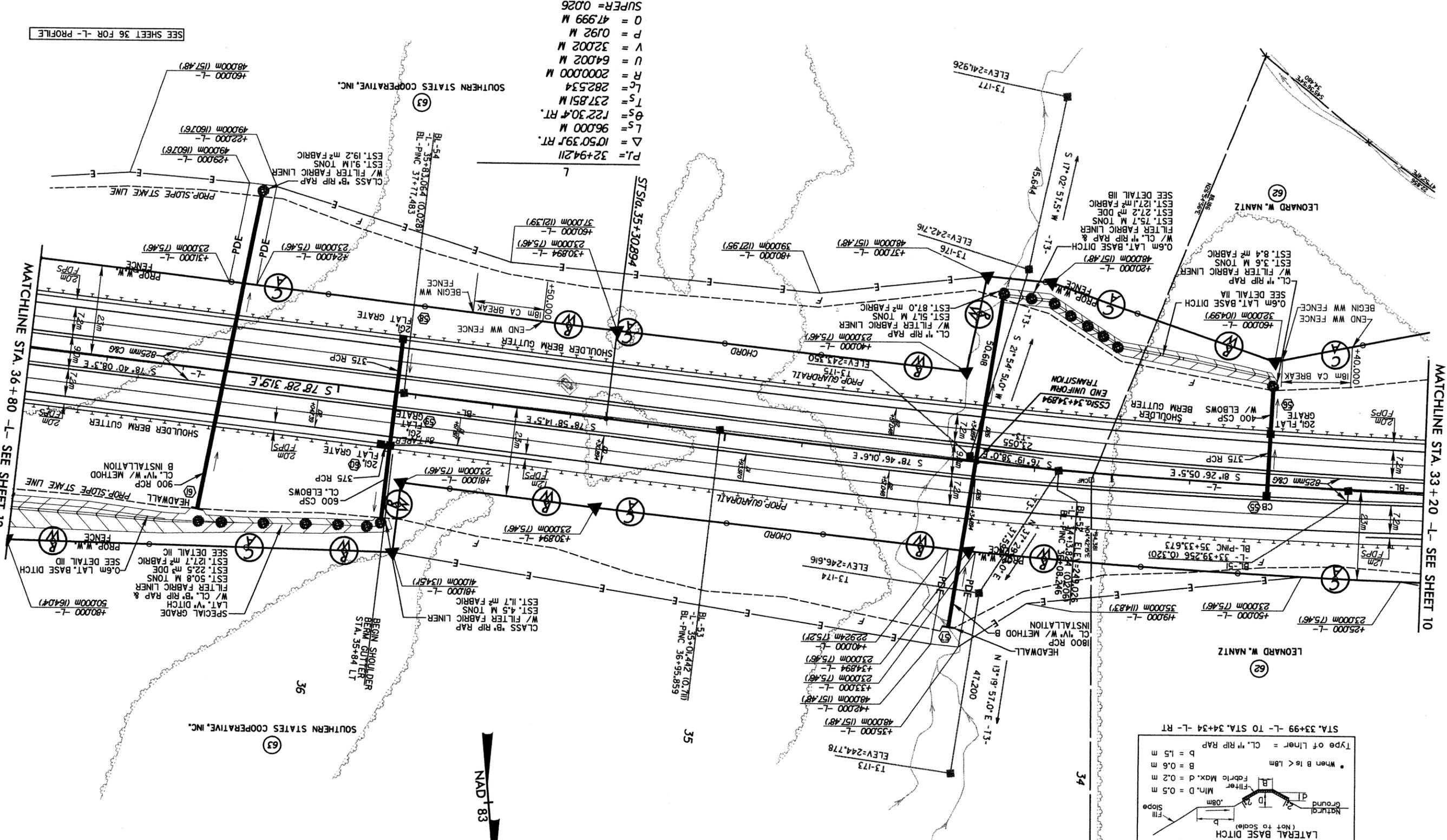
of North Carolina, Inc.

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P.I. = 32+94.211
Δ = 1050.391 RT.
L.S. = 96.000 M
ΘS = 122.304 RT.
T.S. = 237.851 M
L.C. = 282.534
R = 2000.000 M
V = 64.002 M
P = 32.002 M
O = 47.999 M
SUPER = 0026

SEE SHEET 36 FOR L-PROFILE

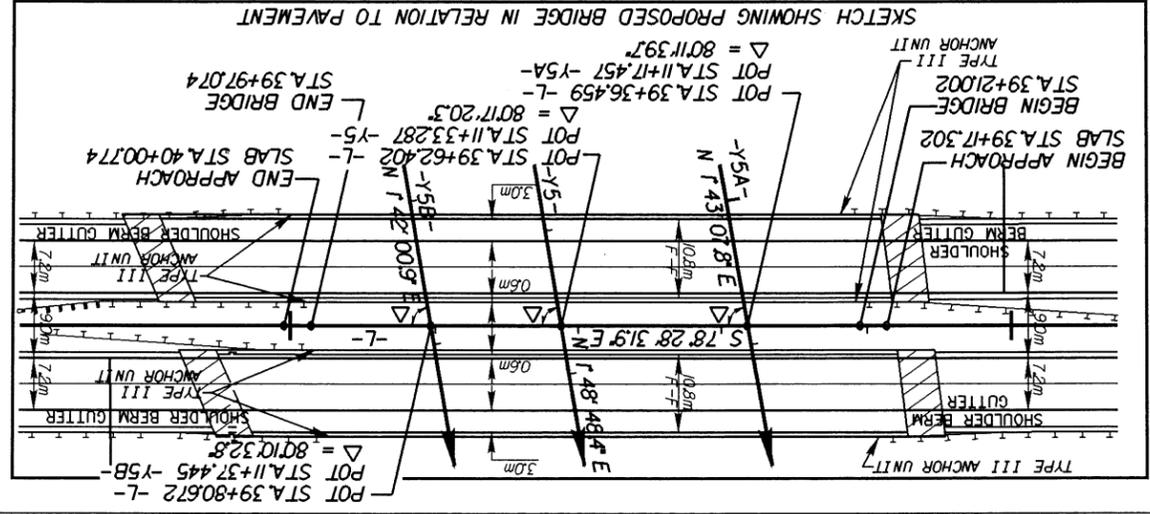
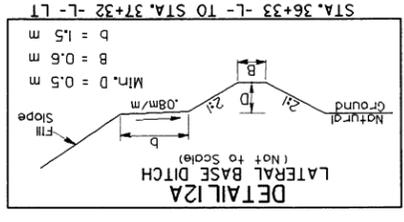


REVISIONS

8/27/99

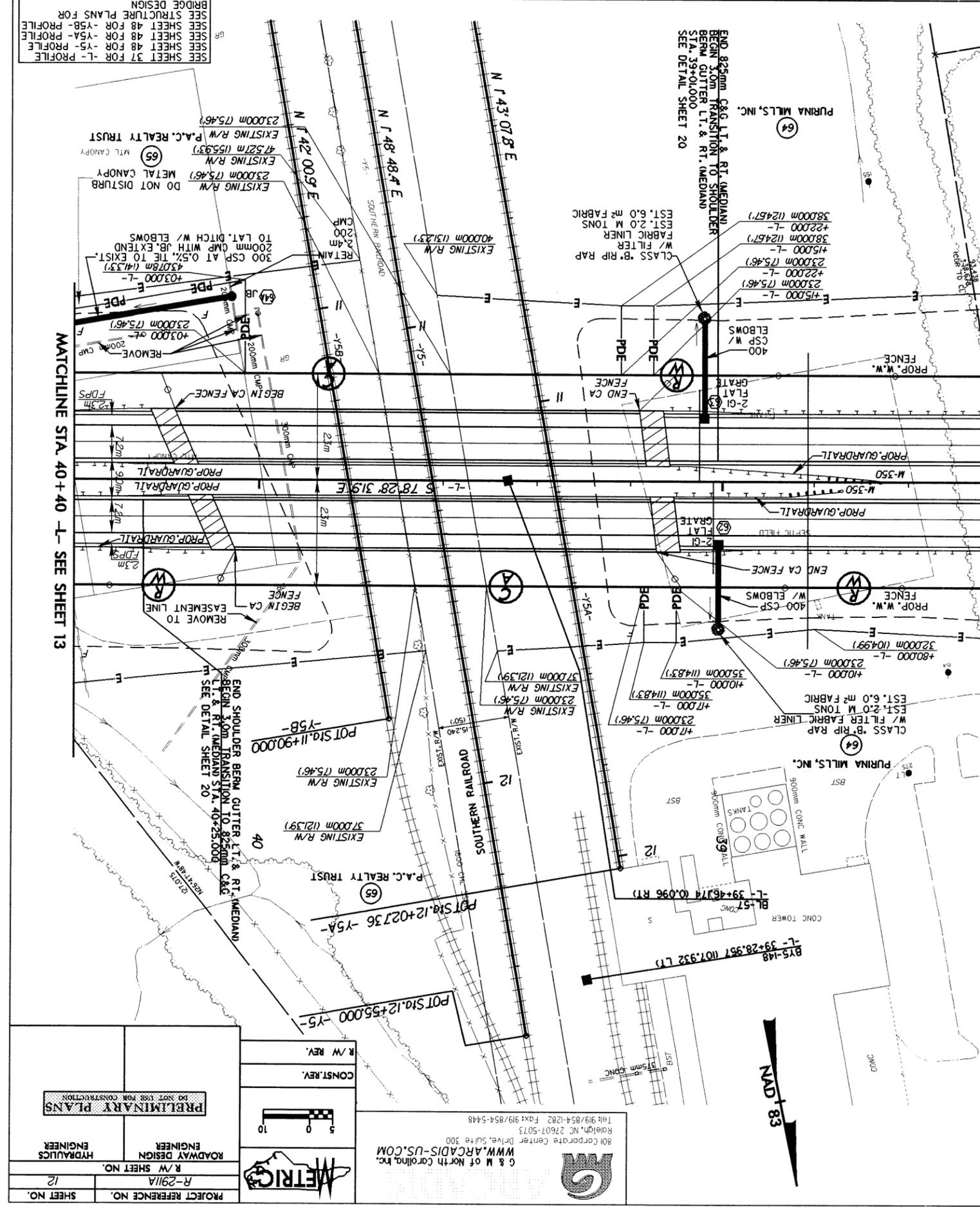
REVISIONS

MATCHLINE STA. 36+80 -L- SEE SHEET 11



SEE SHEET 37 FOR -L- PROFILE
 SEE SHEET 48 FOR -Y5- PROFILE
 SEE SHEET 48 FOR -Y5A- PROFILE
 SEE SHEET 48 FOR -Y5B- PROFILE
 SEE STRUCTURE PLANS FOR
 BRIDGE DESIGN

MATCHLINE STA. 40+40 -L- SEE SHEET 13



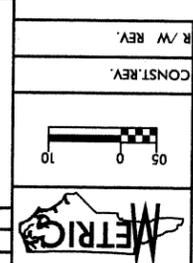
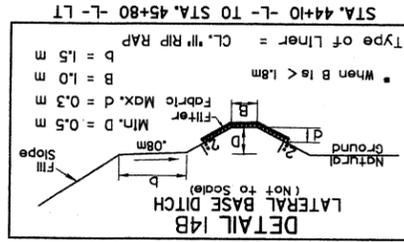
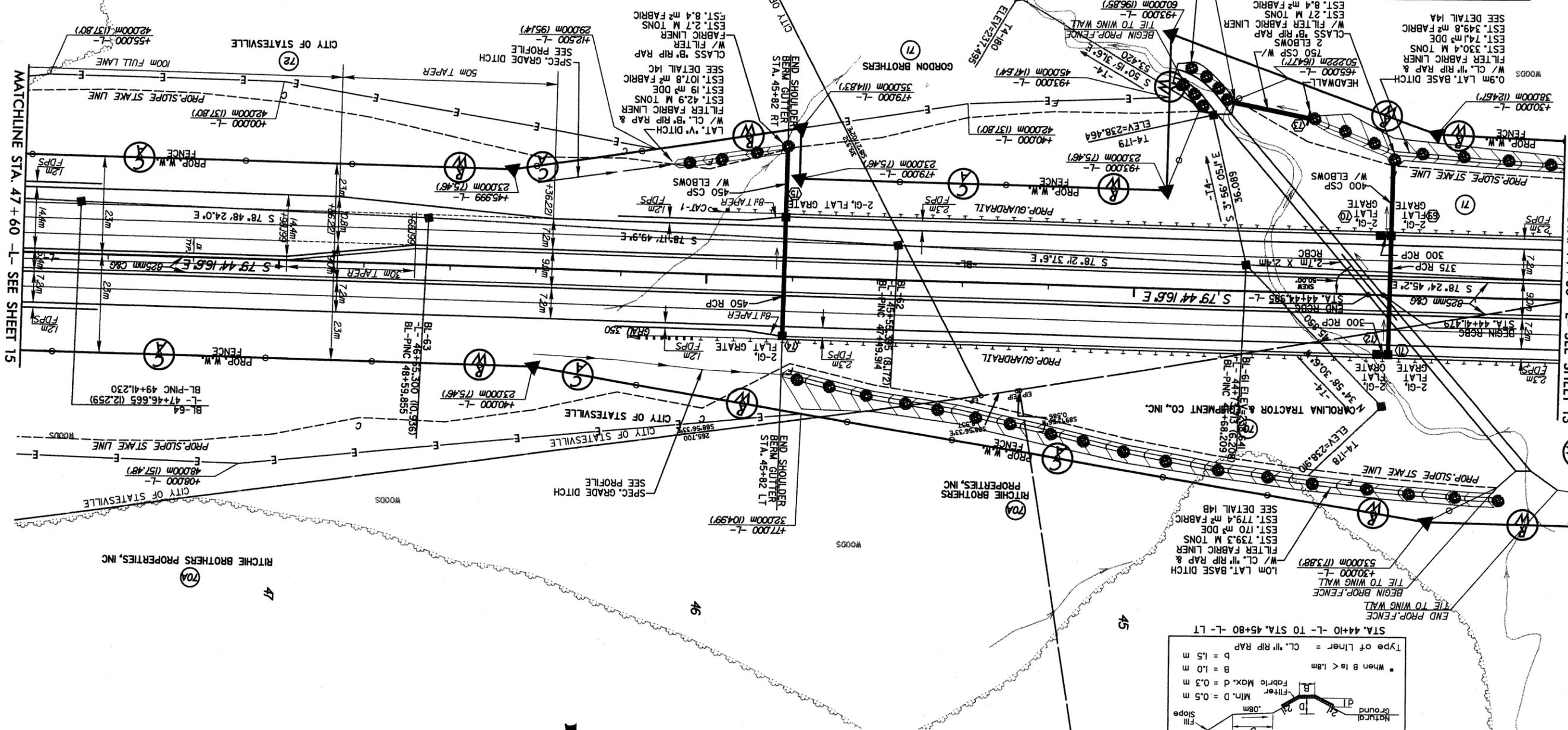
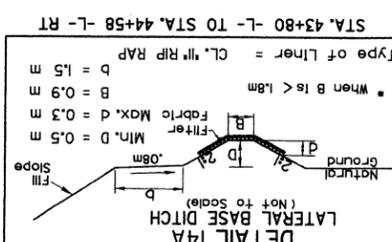
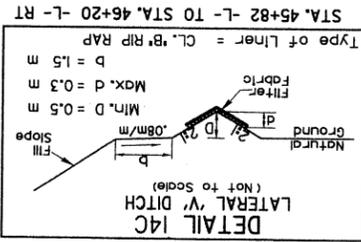
PROJECT REFERENCE NO. R-2911A
 SHEET NO. 12
 R/W SHEET NO.
 ROADWAY DESIGN ENGINEER
 HYDRAULICS ENGINEER
 PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

CONST. REV.
 R/W REV.

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SEE SHEET 38 FOR L-L PROFILE



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PROJECT REFERENCE NO. R-2911A
 SHEET NO. 14
 R/W SHEET NO. 14
 ROADWAY DESIGN ENGINEER
 HYDRAULICS ENGINEER
 R/W REV.
 CONST. REV.
 R/W REV.

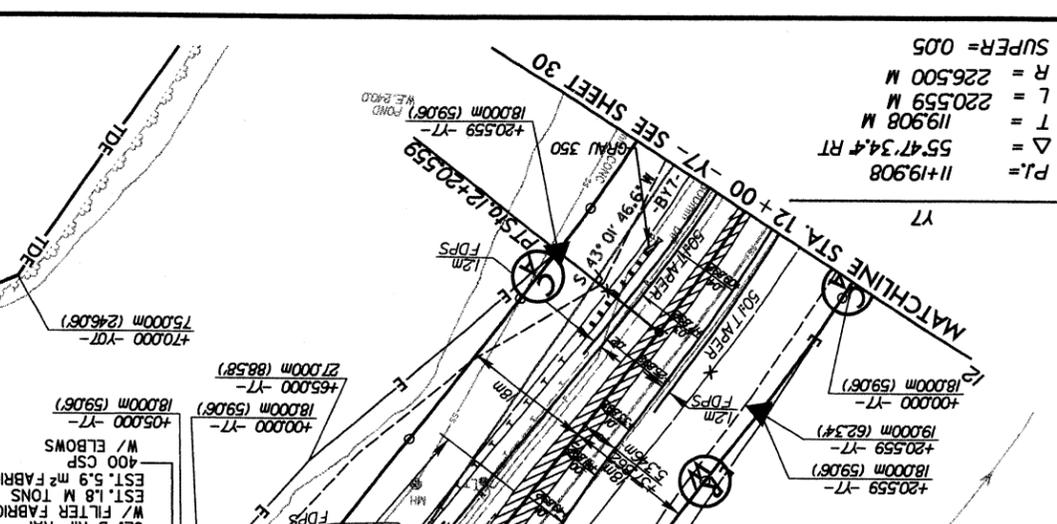
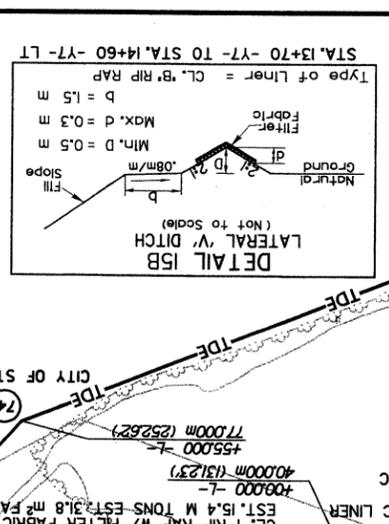
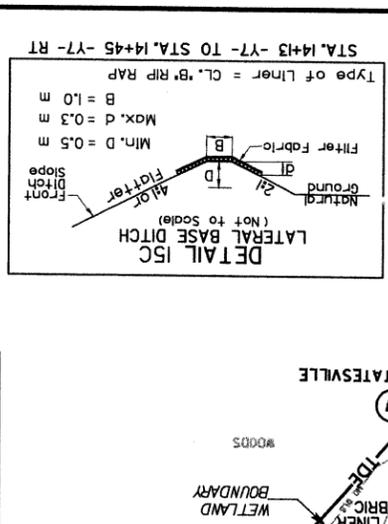
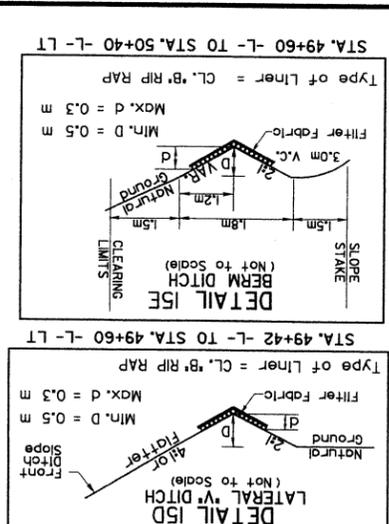
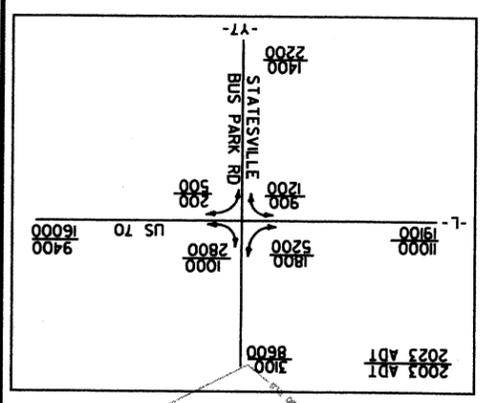


030502 LC PARCEL 70 SPLIT INTO 70 AND 70A

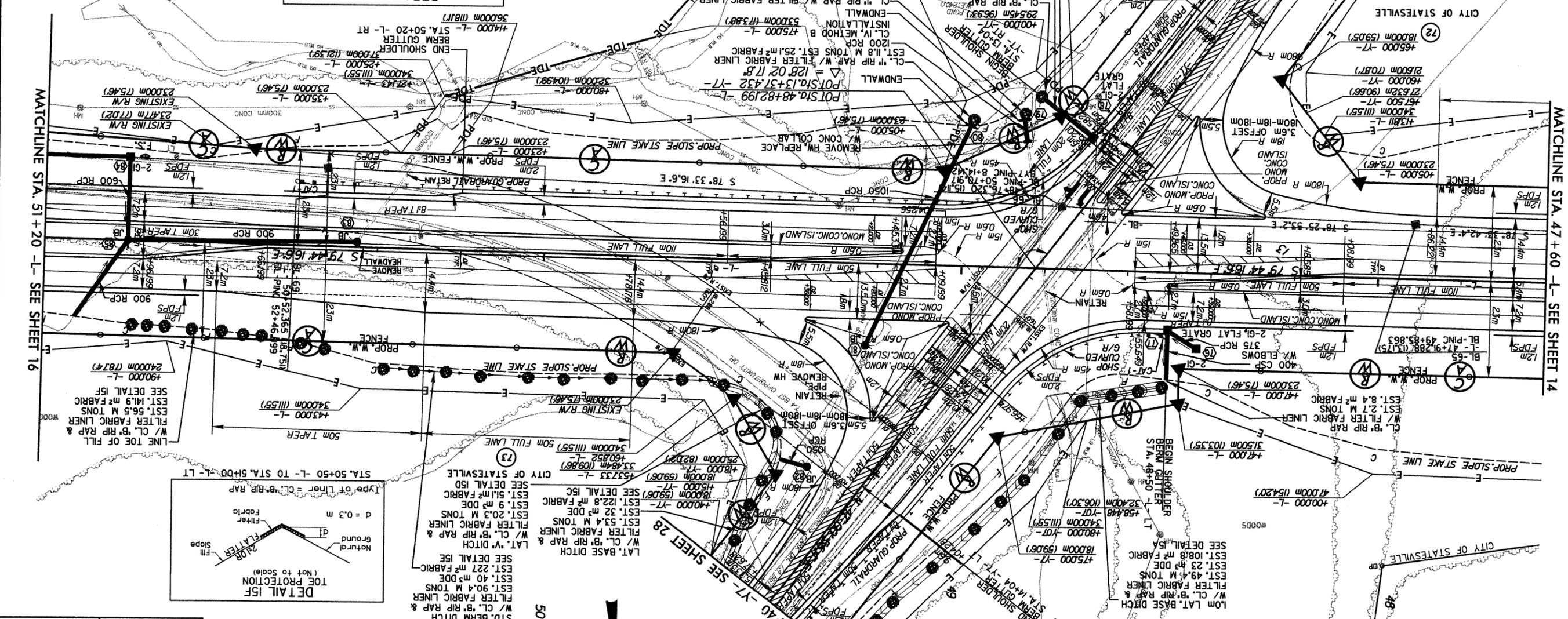
REVISIONS

8/17/20

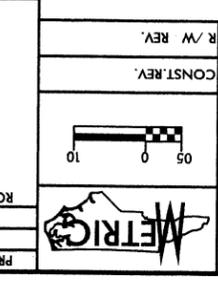
SEE SHEET 39 FOR L-PROFILE
SEE SHEET 49 FOR Y7-PROFILE
PAVEMENT OBLITERATION



P.I. = 11+19.908
Δ = 55'47.34" RT
L = 119.908 M
T = 220.559 M
R = 226.500 M
SUPER = 0.05



PROJECT REFERENCE NO. R-2911A
SHEET NO. 15
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
DO NOT USE FOR CONSTRUCTION
PRELIMINARY PLANS



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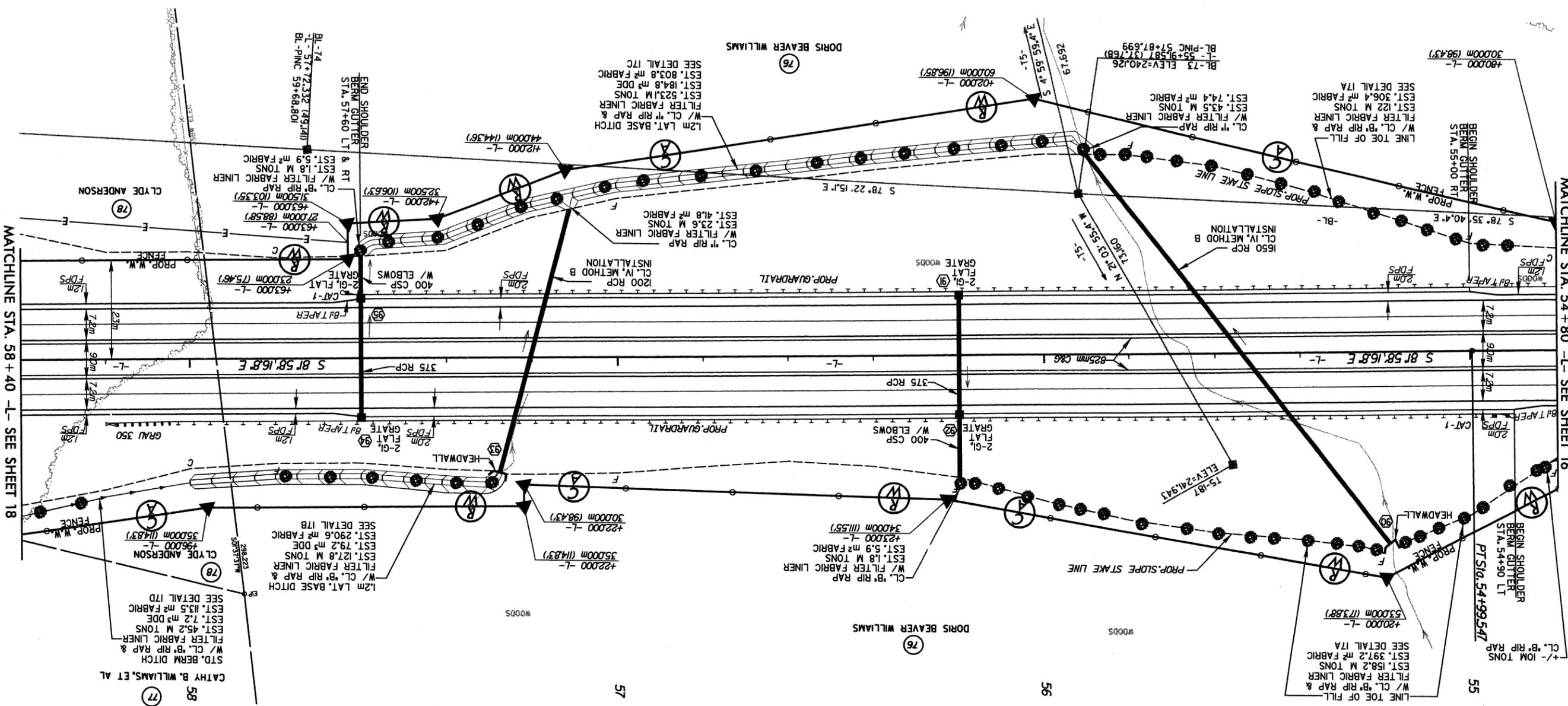
R/W REV.
CONST. REV.
R/W REV.

REVISIONS

SEE SHEET 40 FOR L-L PROFILE

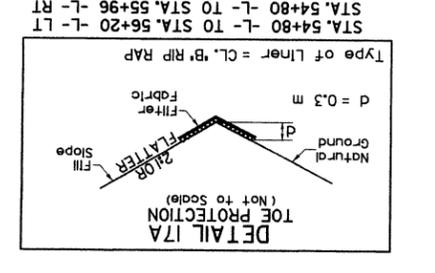
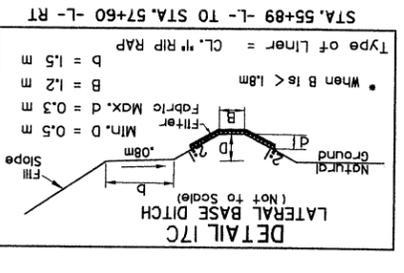
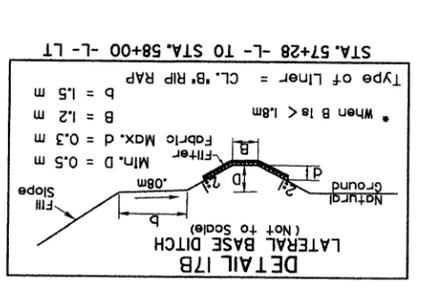
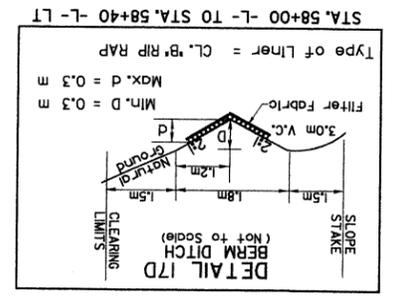
MATCHLINE STA. 58+40 -L- SEE SHEET 18

MATCHLINE STA. 54+80 -L- SEE SHEET 16



57

P.I.	54+02.09
Δ	21400.3 LT
T	97.463 M
L	194.901 M
R	5000.000 M
SUPER = NC	



PROJECT REFERENCE NO. R-291/A
SHEET NO. 17

ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST. REV.
R/W REV.

SCALE: 0 5 10

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REVISIONS

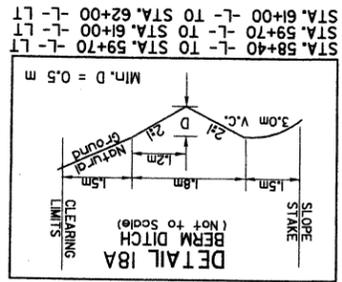
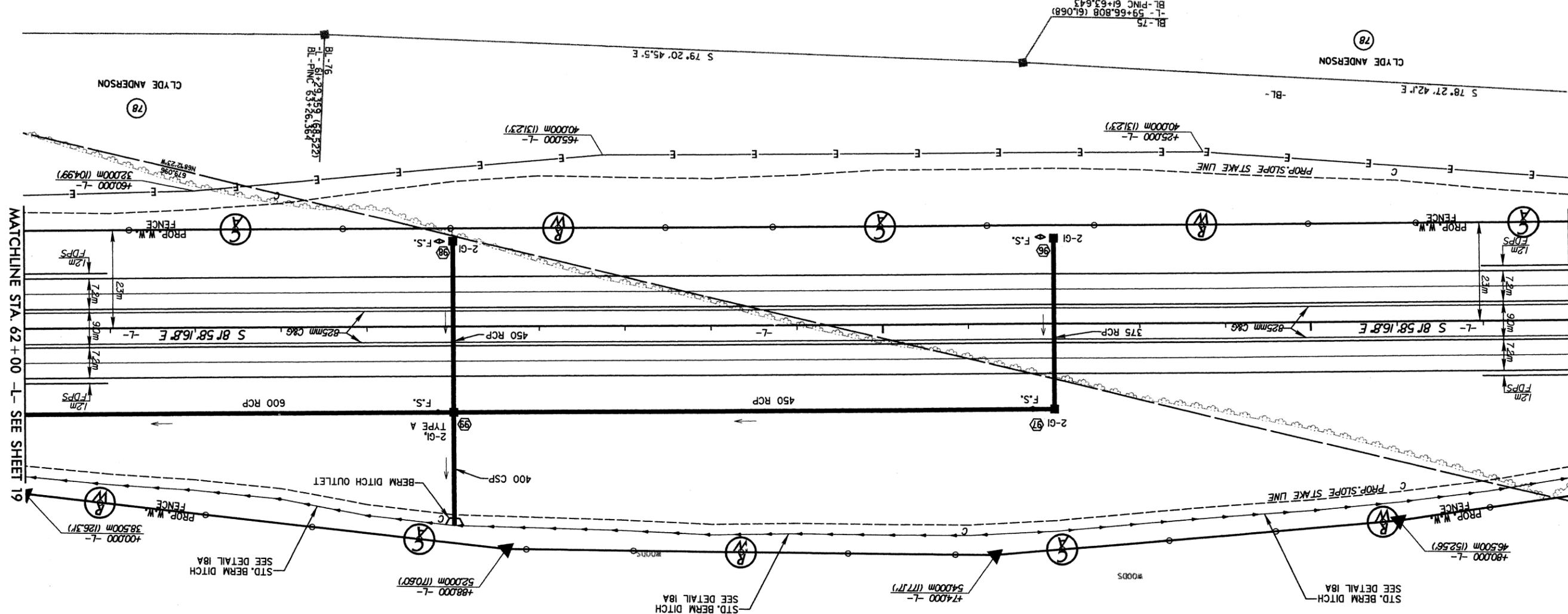
DATE

STATIONING

REVISIONS

MATCHLINE STA. 58+40 -L- SEE SHEET 17

MATCHLINE STA. 62+00 -L- SEE SHEET 19



PROJECT REFERENCE NO.	R-2911A
SHEET NO.	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	CATHY B. WILLIAMS, ET AL
HYDRAULICS ENGINEER	
DO NOT USE FOR CONSTRUCTION	
PRIMARY PLANS	

R/W REV. _____

 CONST. REV. _____

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SEE SHEET 40 FOR -L- PROFILE

8/17/08

PROJECT REFERENCE NO. R-2911A SHEET NO. 19

ROADWAY DESIGN ENGINEER HYDRAULICS

DO NOT USE FOR CONSTRUCTION

PRELIMINARY PLANS

R/W REV. CONST. REV. R/W REV.

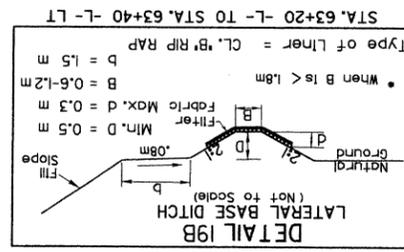
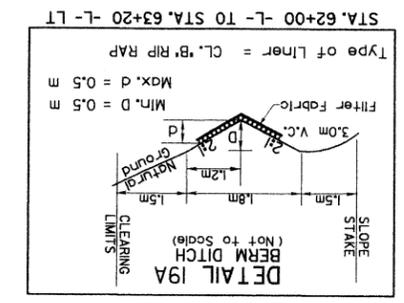
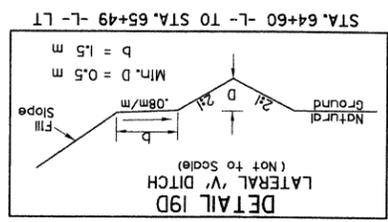
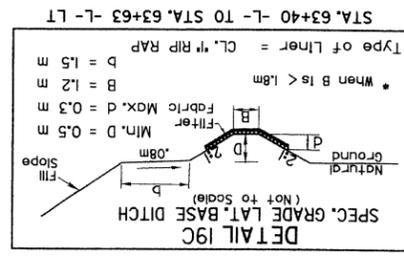
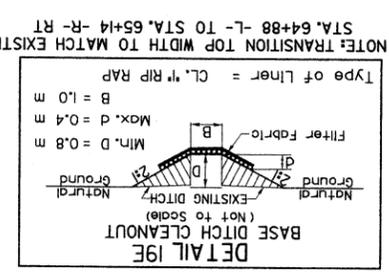
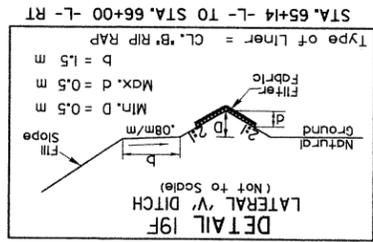
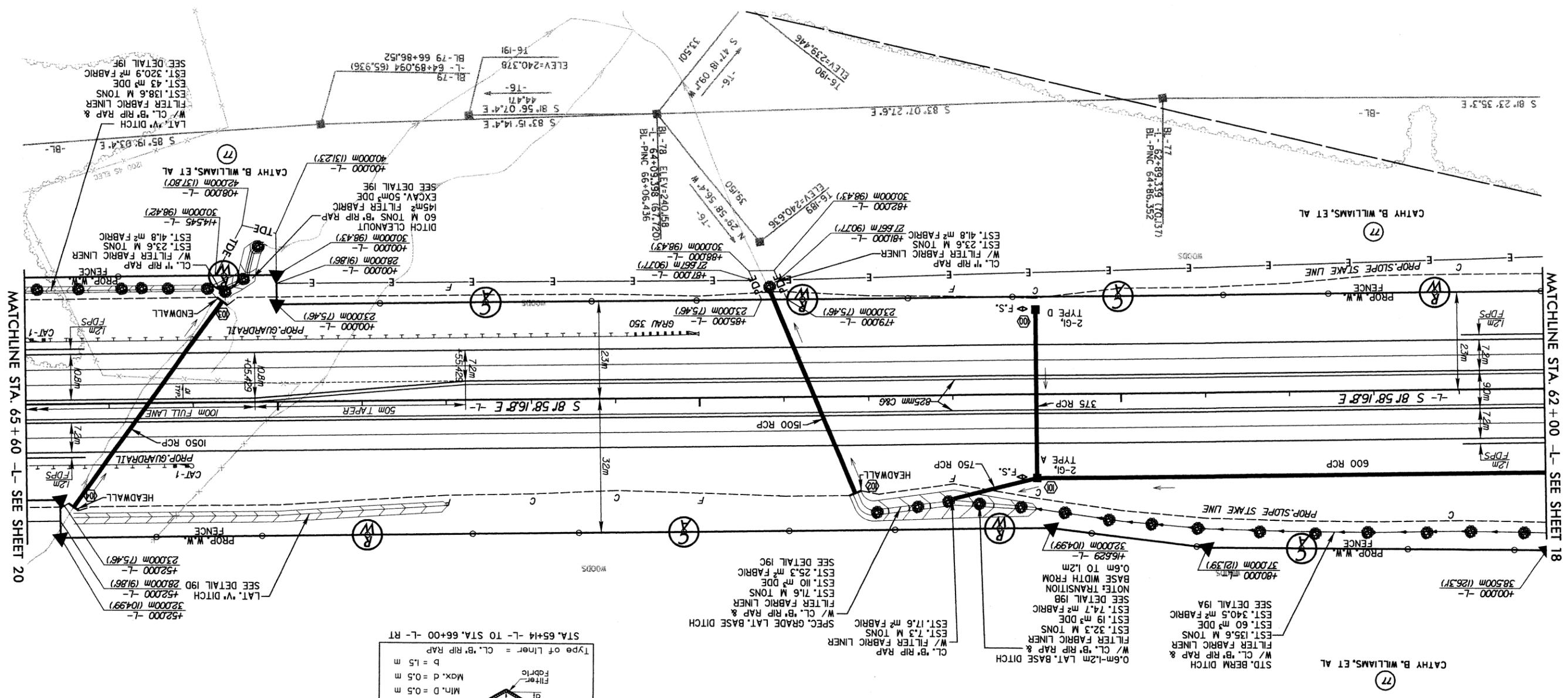
ARCADIS G&M

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 919.782.5511 Fax: 919.782.5905

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SEE SHEET 41 FOR L-L PROFILE



NOTE: TRANSITION TOP WIDTH TO MATCH EXISTING
 STA. 64+88 -L- TO STA. 65+14 -R- RT



REVISIONS

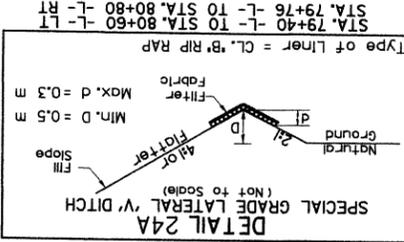
MATCHLINE STA. 65+60 -L- SEE SHEET 20

MATCHLINE STA. 62+00 -L- SEE SHEET 18

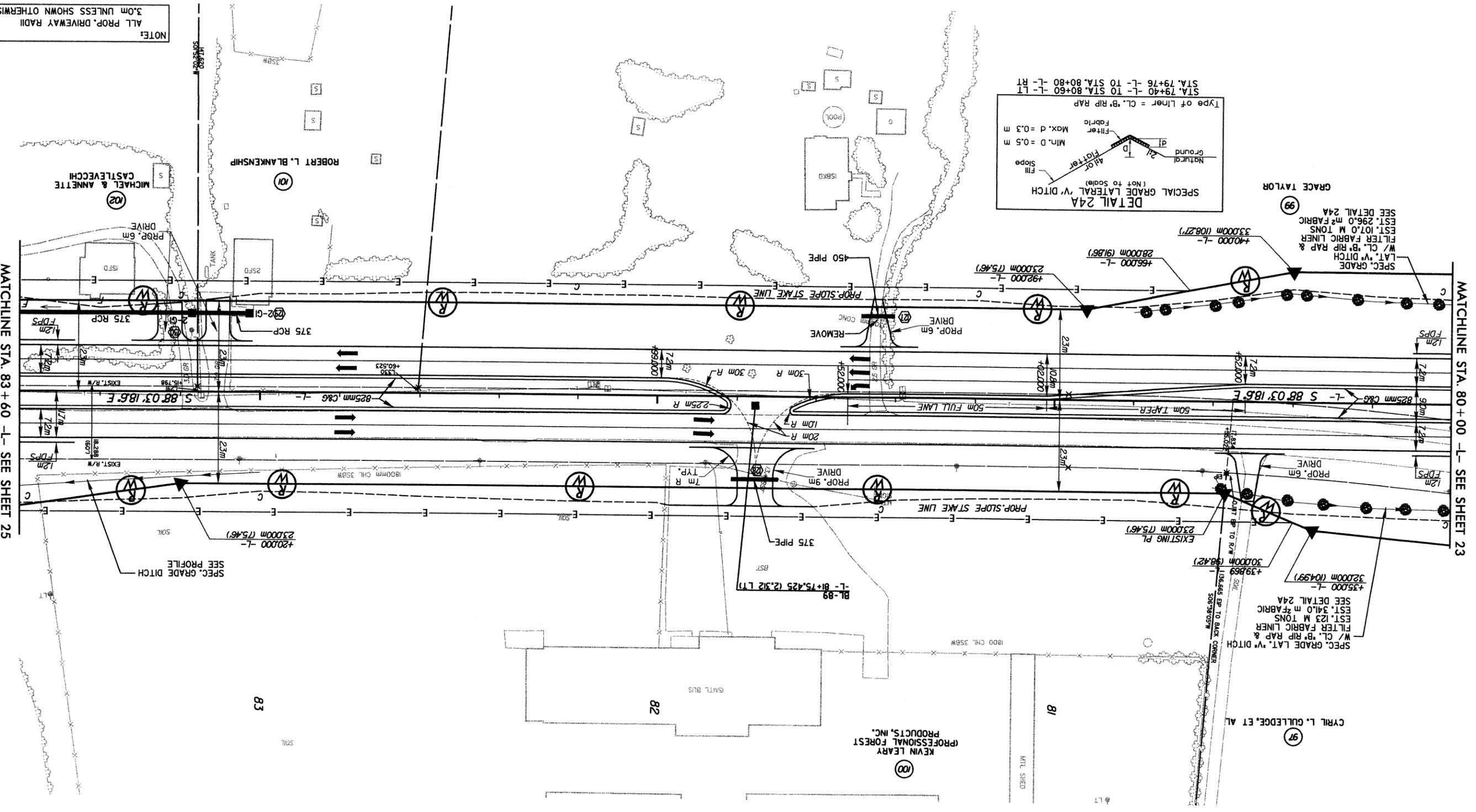
ARCADIS G&M
 03/05/2002 Time: 02:42:54 PM
 03/05/2002 10:03:02
 1003002
 1003002

030502 LC PROPERTY LINES CHANGED ON PARCELS 99, 101 AND 102
 030302 LC PROPERTY OWNER NAME CHANGED ON PARCEL 102
 1003002 RB PROPERTY OWNER NAME CHANGED ON PARCELS 99 & 100
 1003002 RB SOIL DRIVEWAY LOCATED AND PROPOSED DRIVEWAY ADDED

REVISIONS



NOTE:
 ALL PROP. DRIVEWAY RADII
 3.0m UNLESS SHOWN OTHERWISE.
 SEE SHEET 43 FOR -L- PROFILE



PROJECT REFERENCE NO.	R-2911A
SHEET NO.	24
ROADWAY DESIGN ENGINEER	
HYDRAULICS ENGINEER	
R/W SHEET NO.	
PRELIMINARY PLANS	
DO NOT USE FOR CONSTRUCTION	

CONST. REV.

R/W REV.

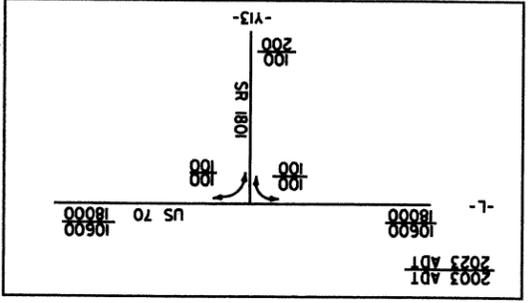
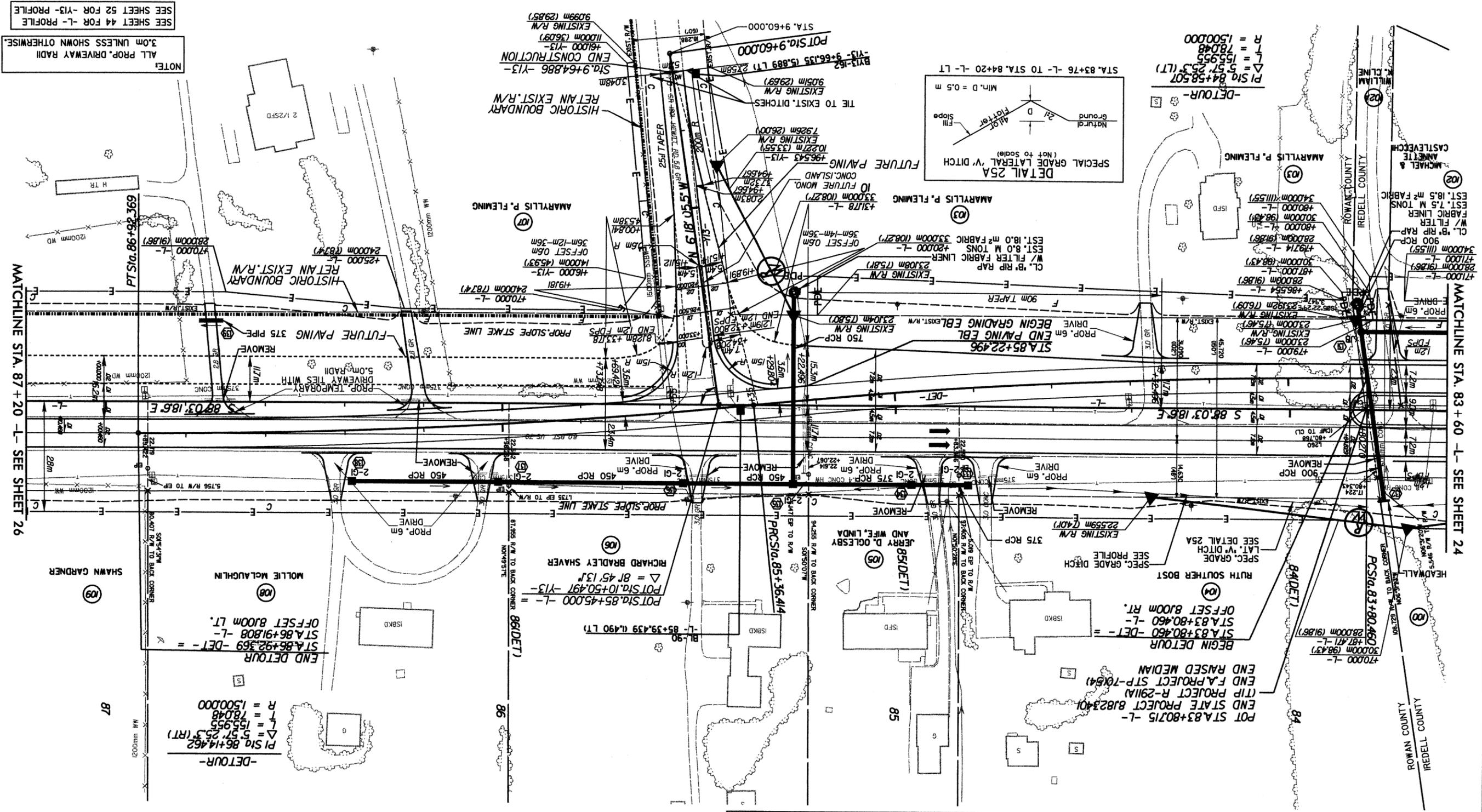
ARCADIS
 G & M of North Carolina, Inc.
 WWW.ARCADIS-US.COM
 801 Corporate Center Drive, Suite 300
 Raleigh, NC 27607-5073
 Tel: 919/854-1282 Fax: 919/854-5448



NOTE:
ALL PROP. DRIVEWAY RADII
3.0m UNLESS SHOWN OTHERWISE.
SEE SHEET 44 FOR -L- PROFILE
SEE SHEET 52 FOR -Y3- PROFILE

MATCHLINE STA. 87 + 20 -L- SEE SHEET 26

MATCHLINE STA. 83 + 60 -L- SEE SHEET 24



PROJECT REFERENCE NO. R-2911A		SHEET NO. 25	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
801 Corporate Center Drive, Suite 300 Raleigh, NC 27607-5073 Tel: 919/854-1282 Fax: 919/854-5448 www.arcadis-us.com			
CONST. REV.		R/W REV.	
DO NOT USE FOR CONSTRUCTION PRELIMINARY PLANS			

REVISIONS

030502	LC	PROPERTY OWNER NAME CHANGED FOR PARCEL 102
030502	RB	PARCEL 102A SHOWN AS OWNER OF EASEMENT THROUGH PARCEL 102
100302	RB	PROPERTY OWNER NAME CHANGED ON PARCELS 100, 108, 109
100302	RB	EASEMENT LINE CHANGED TO PROPERTY LINE PARCEL 102

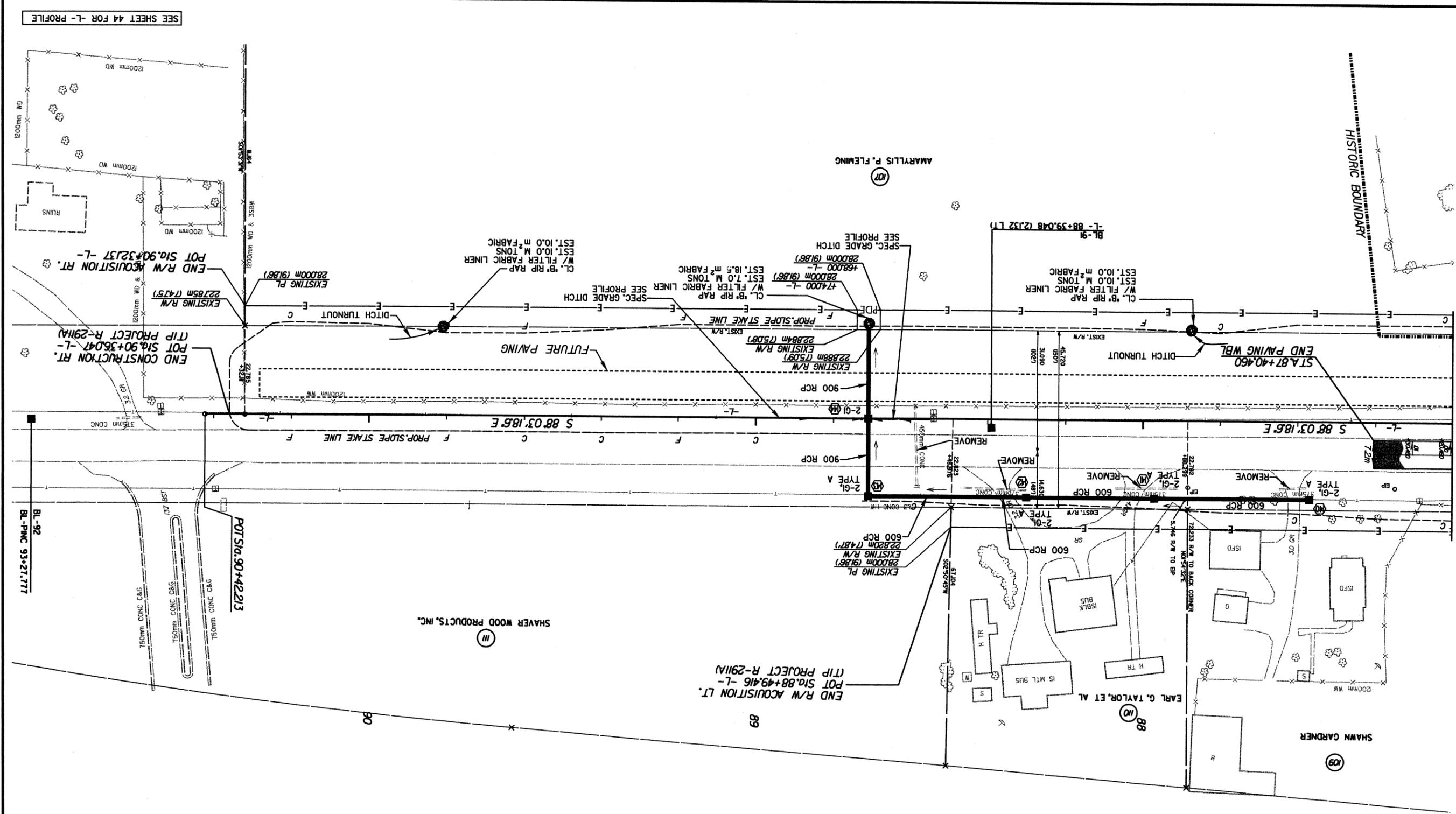
ARCADIS 02M
Date: 05/05/2002 Time: 02:42:59 PM
User: jlv@arcadis-us.com

100302 RB PROPERTY OWNER NAME CHANGED ON PARCELS 109, 110

REVISIONS

ARCADIS GAM
 Date: 05/05/2002 Time: 02:43:04 PM
 File: R:\100302\100302\100302.dwg

MATCHLINE STA. 87 + 20 -L- SEE SHEET 25



SEE SHEET 44 FOR -L- PROFILE

PROJECT REFERENCE NO. R-2911A
 SHEET NO. 26
 ROADWAY DESIGN ENGINEER
 HYDRAULICS ENGINEER
 PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

CONSTR. REV.
 R/W REV.
 METRIC logo
 Scale bar: 0, 5, 10

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Y8

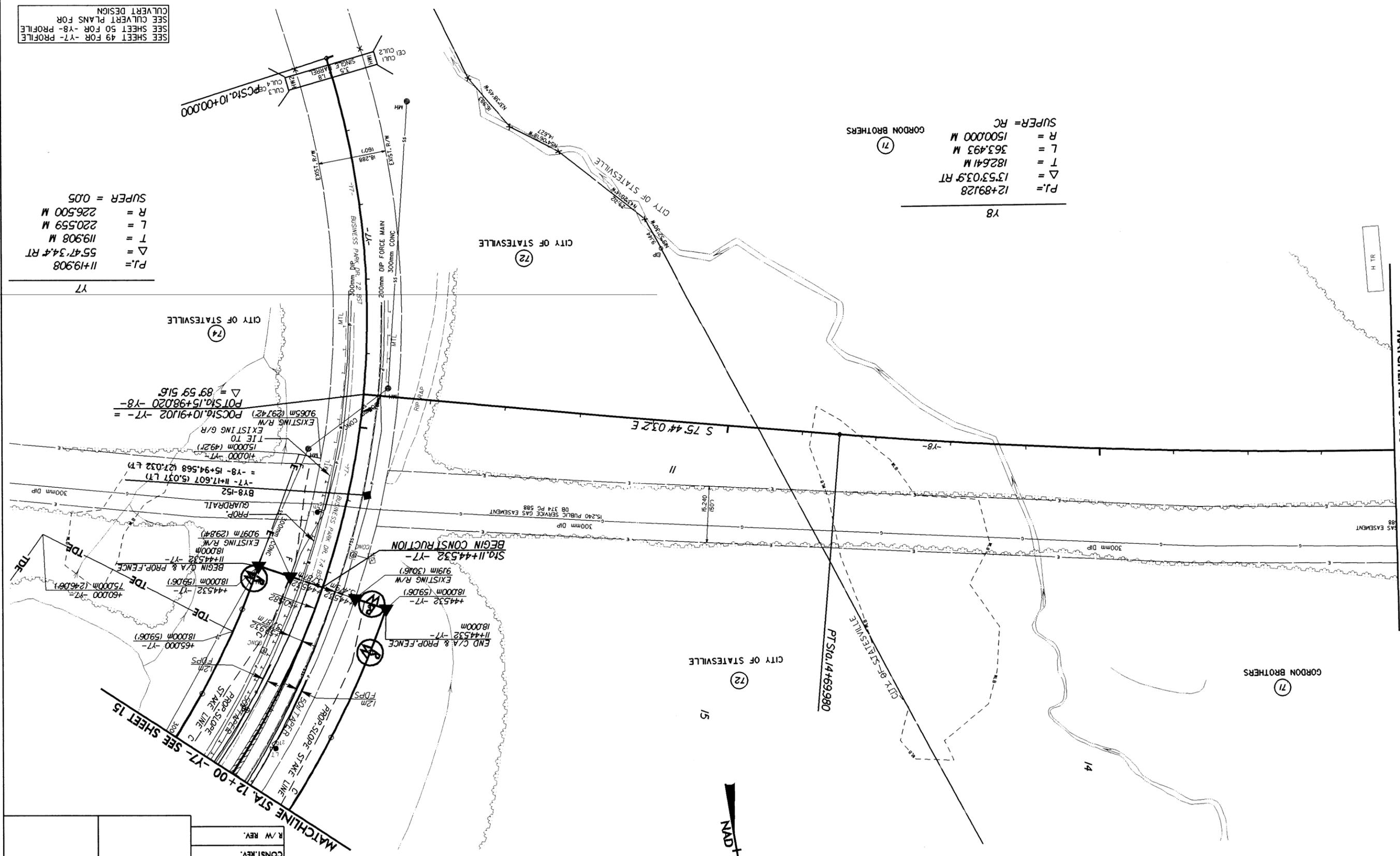
P.I.	12+89128
Δ	1353.039 RT
T	182.641 M
L	363.493 M
R	1500.000 M
SUPER = RC	

GORDON BROTHERS
 (71)

SEE SHEET 49 FOR -Y7- PROFILE
 SEE SHEET 50 FOR -Y8- PROFILE
 SEE CULVERT PLANS FOR
 CULVERT DESIGN

Y7

P.I.	11+19.908
Δ	5547.344 RT
T	119.908 M
L	220.559 M
R	226.500 M
SUPER = 0.05	



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METRIC

CONSTR. REV.
 R/W REV.

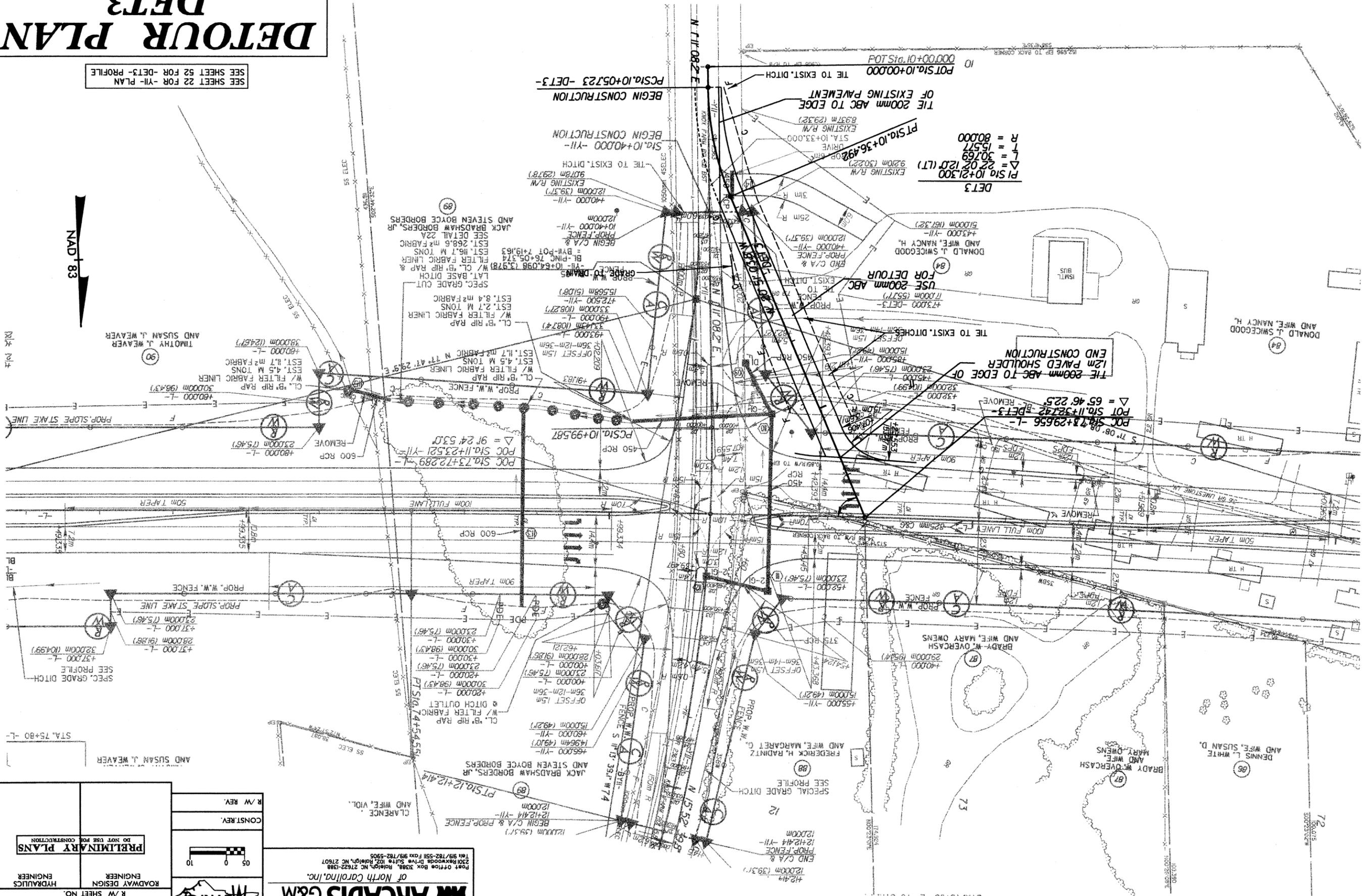
5 0 10

PROJECT REFERENCE NO.	R-2911A
SHEET NO.	30
R/W SHEET NO.	
HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER	
PRELIMINARY PLANS	
NO. NOT FOR CONSTRUCTION	

DETOUR PLAN -DET3-

SEE SHEET 22 FOR -YII- PLAN
SEE SHEET 52 FOR -DET3- PROFILE

NAD 83



REVISIONS

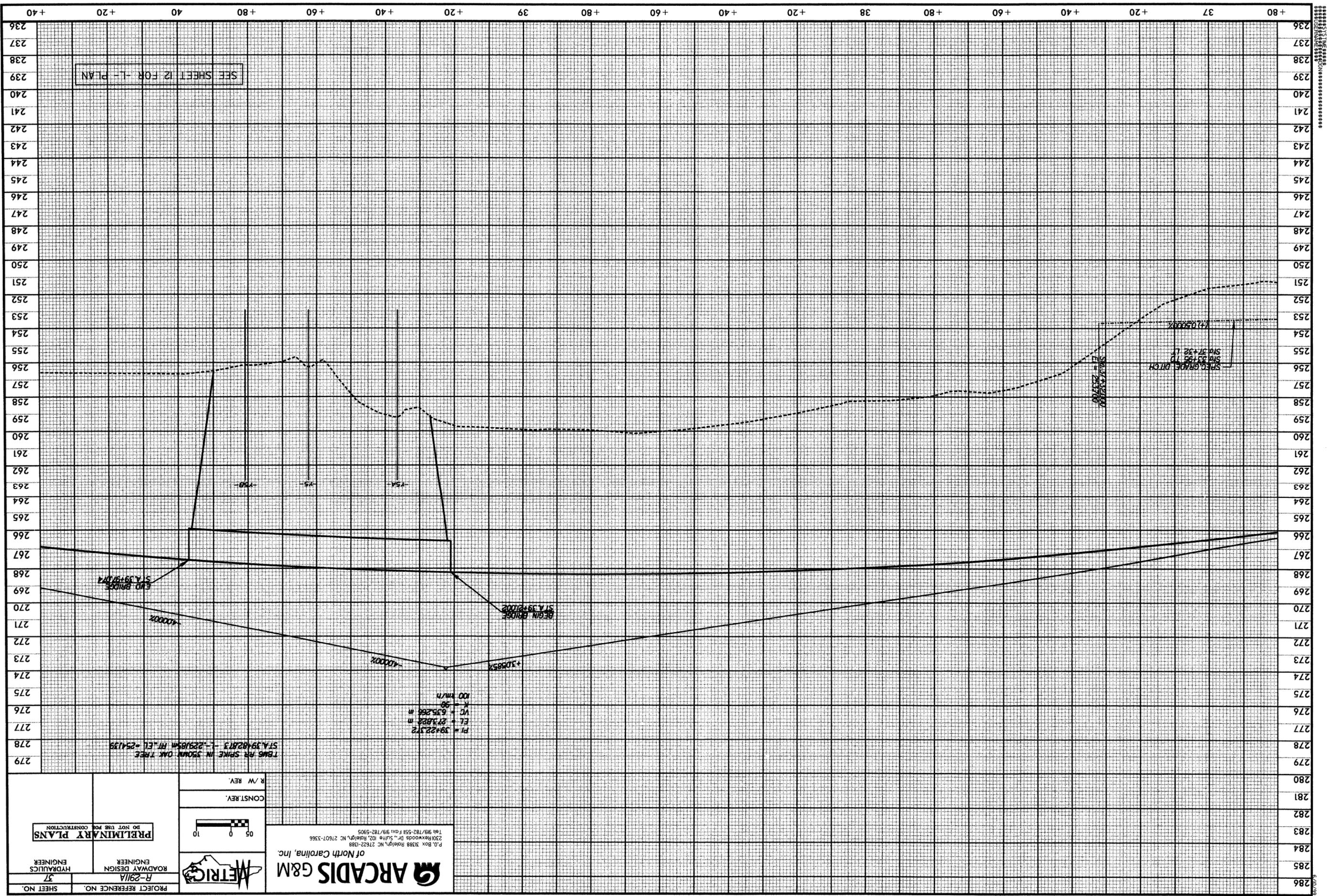
PROJECT REFERENCE NO.	R-2911A
SHEET NO.	32
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	
HYDRAULICS ENGINEER	
DO NOT USE FOR CONSTRUCTION	PRELIMINARY PLANS

0 5 10

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SEE SHEET 12 FOR L-PLAN

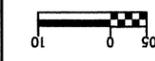
SPECIAL DITCH
 STA 253+32.12
 17.0500%

BEGIN BRIDGE
 STA 269+21.02

END BRIDGE
 STA 269+19.17

PI = 39+22.372
 EL = 273.828 m
 VC = 635.266 m
 K = 58
 100 M/M

TBM RISE SPIKE IN 350MM OAK TREE
 STA 278+22.813 - 229185M H. EL = 254.139

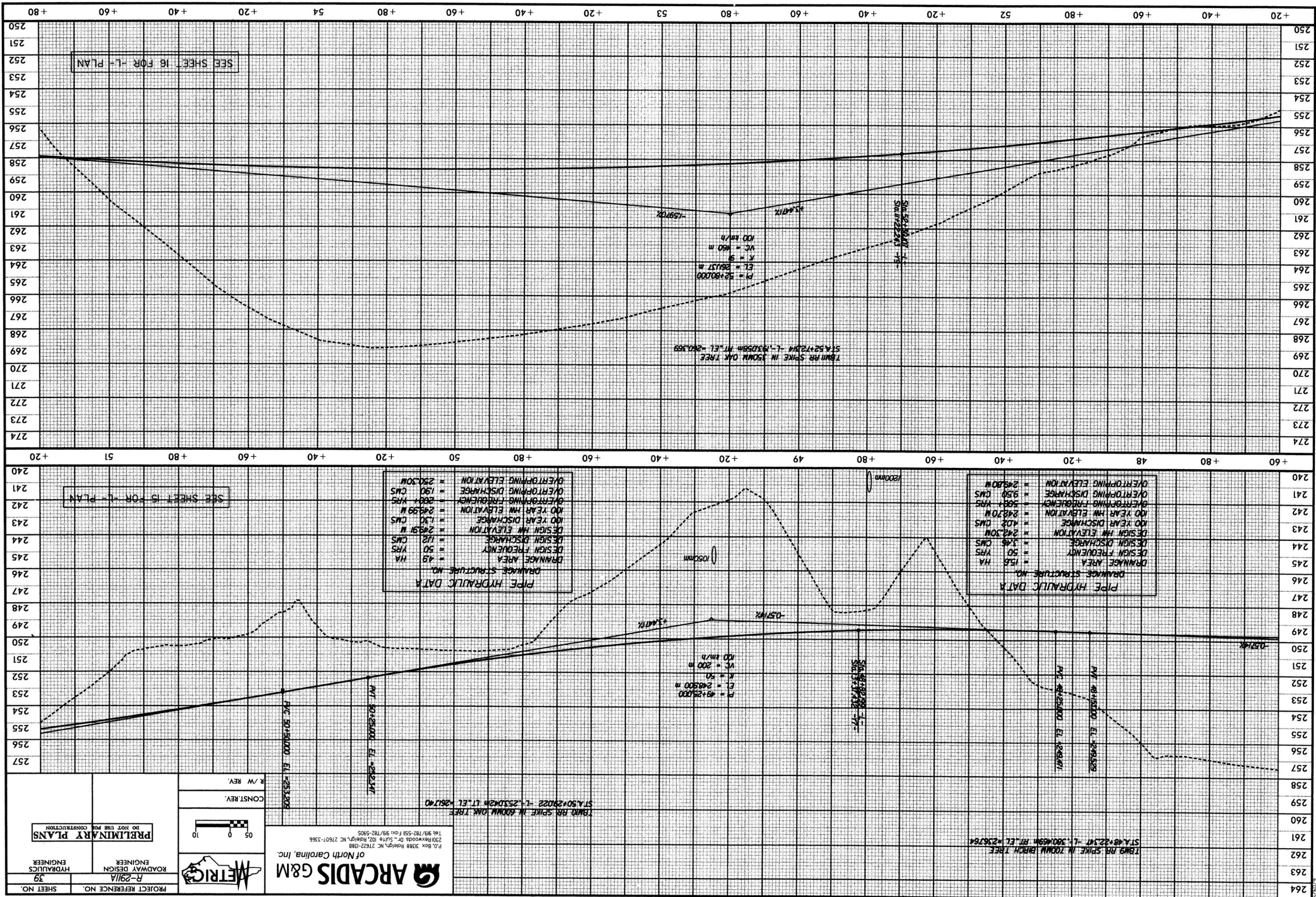


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PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

PROJECT REFERENCE NO. R-2911A
 SHEET NO. 37
 ROADWAY DESIGN ENGINEER
 HYDRAULICS ENGINEER

R/W REV.
 CONST. REV.



SYSTEM CONSTRUCTION
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SHEET NO. 39
 PROJECT REFERENCE NO. R-291A
 ROADWAY DESIGN ENGINEER
 PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

METRIC
 0 5 10
 R/W REV
 CONST. REV

ARCADIS G&M
 of North Carolina, Inc.
 P.O. Box 3188 Raleigh, NC 27622-1988
 2201 Reawoods Dr., Suite 102, Raleigh, NC 27607-3366
 1-813-913-5511 Fax: 1-813-913-5505

PIPE HYDRAULIC DATA

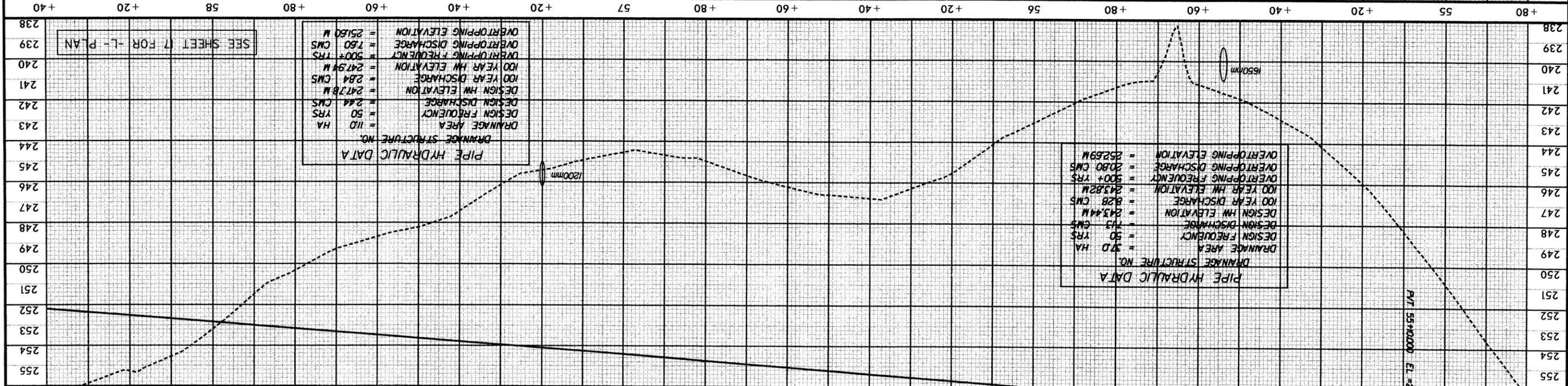
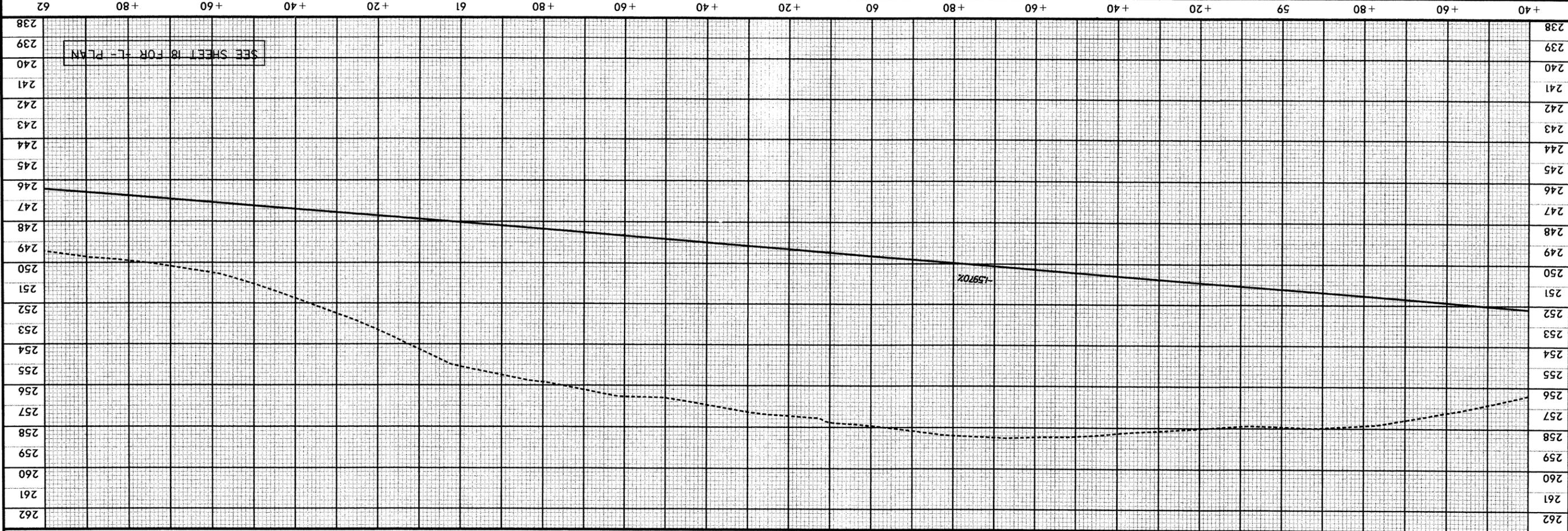
DRAINAGE AREA	= 4.9 HA
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 112 CMS
DESIGN HW ELEVATION	= 249.91 M
100 YEAR HW ELEVATION	= 249.99 M
OVERTOPPING FREQUENCY	= 200 YRS
OVERTOPPING DISCHARGE	= 190 CMS
OVERTOPPING ELEVATION	= 250.30 M

PIPE HYDRAULIC DATA

DRAINAGE AREA	= 15.6 HA
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 346 CMS
DESIGN HW ELEVATION	= 242.30 M
100 YEAR HW ELEVATION	= 242.70 M
OVERTOPPING FREQUENCY	= 500 YRS
OVERTOPPING DISCHARGE	= 950 CMS
OVERTOPPING ELEVATION	= 248.80 M

TBM RR SPIKE IN 60MM OAK TREE
 STA. 50+29.022 -1- 253.022M LT. EL. = 261.740
 TBM RR SPIKE IN 150MM OAK TREE
 STA. 64+12.000 -1- 260.359M RT. EL. = 260.359
 TBM RR SPIKE IN 100MM BIRCH TREE
 STA. 61+22.347 -1- 260.699M RT. EL. = 256.764

SYSTEM DOWN
 DRAINAGE PLAN



PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.	= 110
DRAINAGE AREA	= 110 HA
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 244 CMS
DESIGN HM ELEVATION	= 247.8 M
100 YEAR HM ELEVATION	= 247.9 M
DESIGN DISCHARGE	= 284 CMS
100 YEAR HM ELEVATION	= 247.9 M
OVERTOPPING FREQUENCY	= 500+ YRS
OVERTOPPING DISCHARGE	= 760 CMS
OVERTOPPING ELEVATION	= 251.60 M

PIPE HYDRAULIC DATA

DRAINAGE STRUCTURE NO.	= 370
DRAINAGE AREA	= 370 HA
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 713 CMS
DESIGN HM ELEVATION	= 243.44 M
100 YEAR HM ELEVATION	= 243.82 M
DESIGN DISCHARGE	= 828 CMS
100 YEAR HM ELEVATION	= 243.82 M
OVERTOPPING FREQUENCY	= 500+ YRS
OVERTOPPING DISCHARGE	= 2080 CMS
OVERTOPPING ELEVATION	= 252.69 M

PROJECT REFERENCE NO. R-2911A
 SHEET NO. 40

ROADWAY DESIGN ENGINEER
 HYDRAULICS ENGINEER

PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

CONST. REV.
 R/W REV.

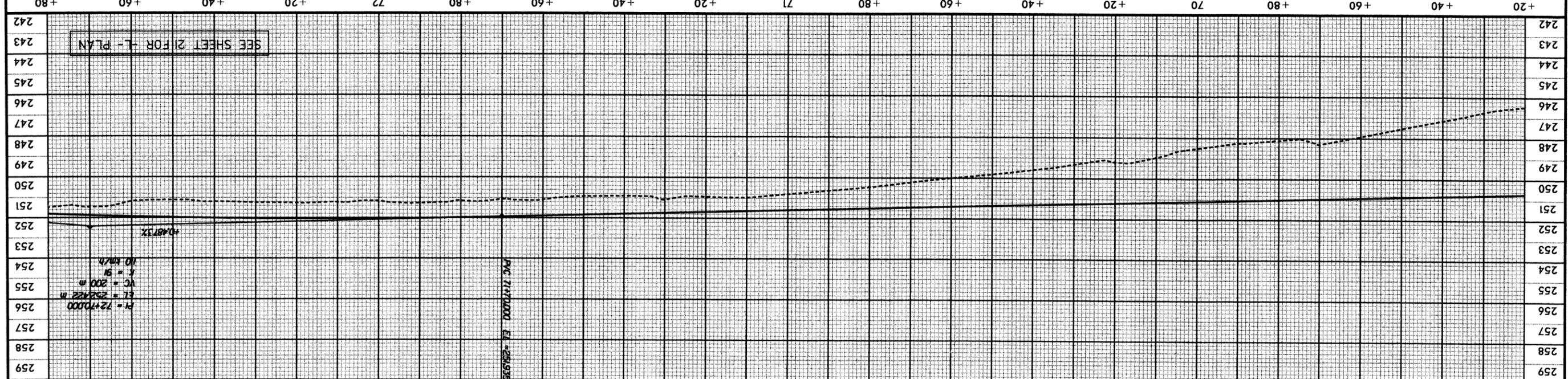
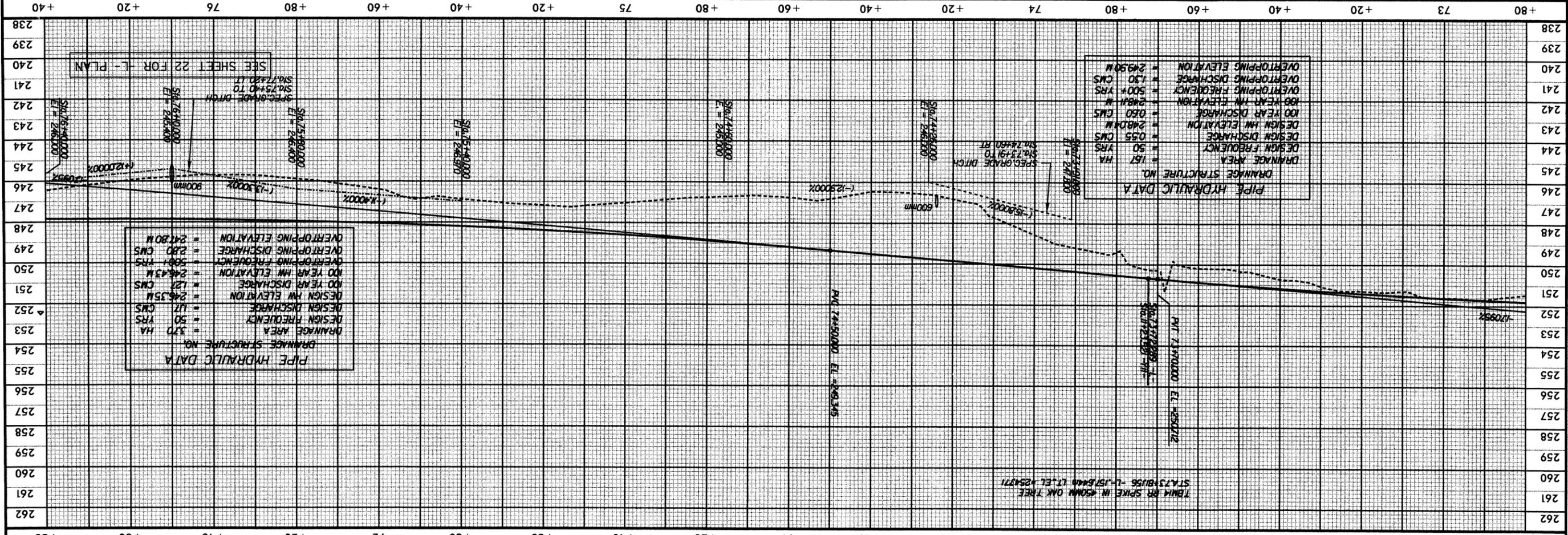
Scale: 0 5 10

ARCADIS G&M
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P.O. Box 3088 Raleigh, NC 27622-1388
 2300 Rexwoods Dr., Suite 102, Raleigh, NC 27607-3566
 Tel: 919/782-5511 Fax: 919/782-5905

6/20/09

SYSTEM DRAWING ON



PROJECT REFERENCE NO. R-2911A
 HYDRAULICS ENGINEER
 ROADWAY DESIGN ENGINEER

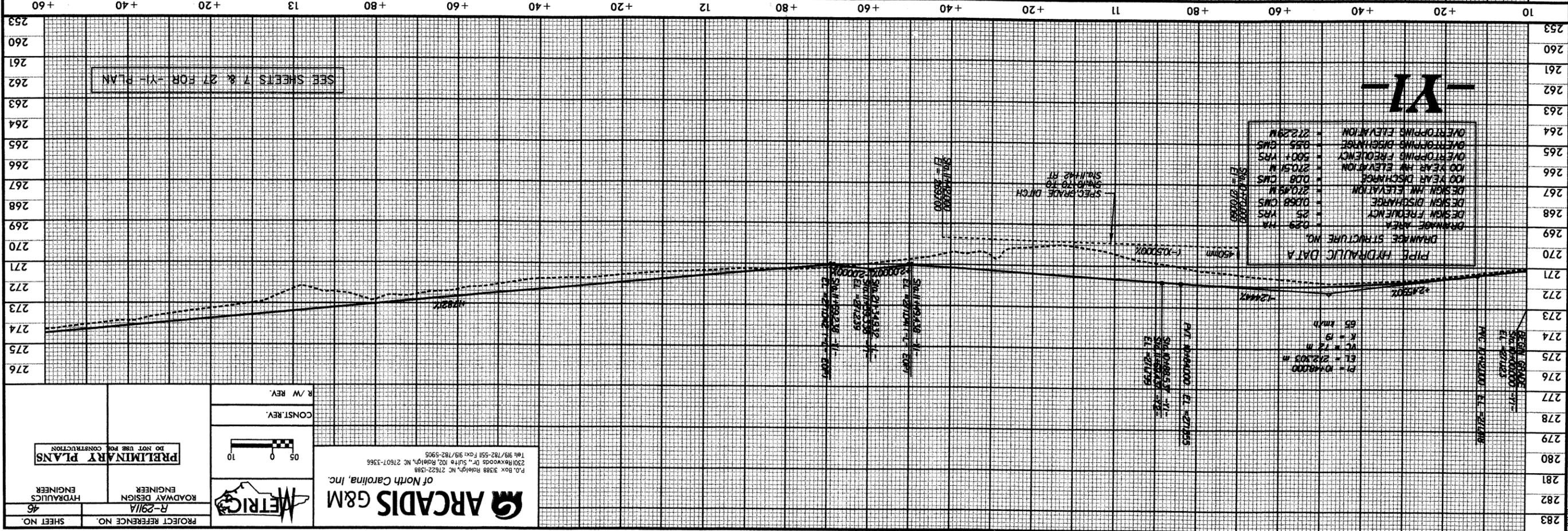
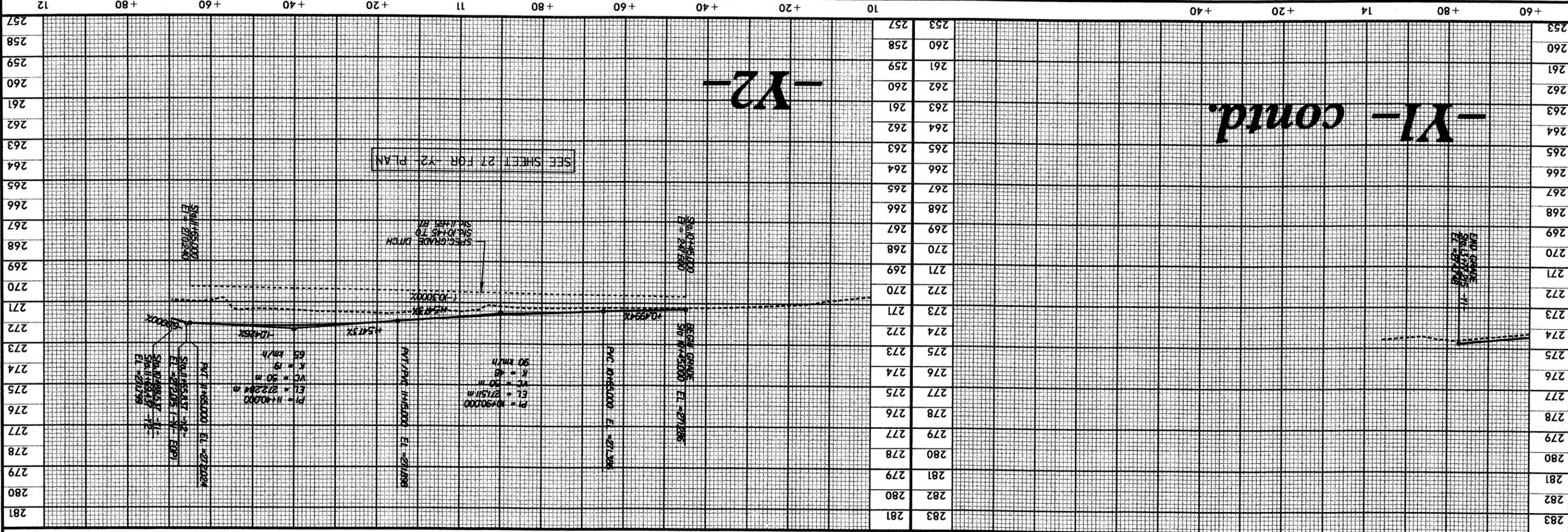
PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

SCALE: 1" = 10'

ARCADIS G&M
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 P.O. Box 3388 Raleigh, NC 27622-1388
 2101 RAYWOOD DR - SUITE 102, RALEIGH, NC 27607-3366
 TEL: 919/782-5588 FAX: 919/782-5905

R/W REV.
 CONST. REV.

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PROJECT REFERENCE NO. R-291/A
 SHEET NO. 46
 HYDRAULICS ENGINEER
 ROADWAY DESIGN ENGINEER

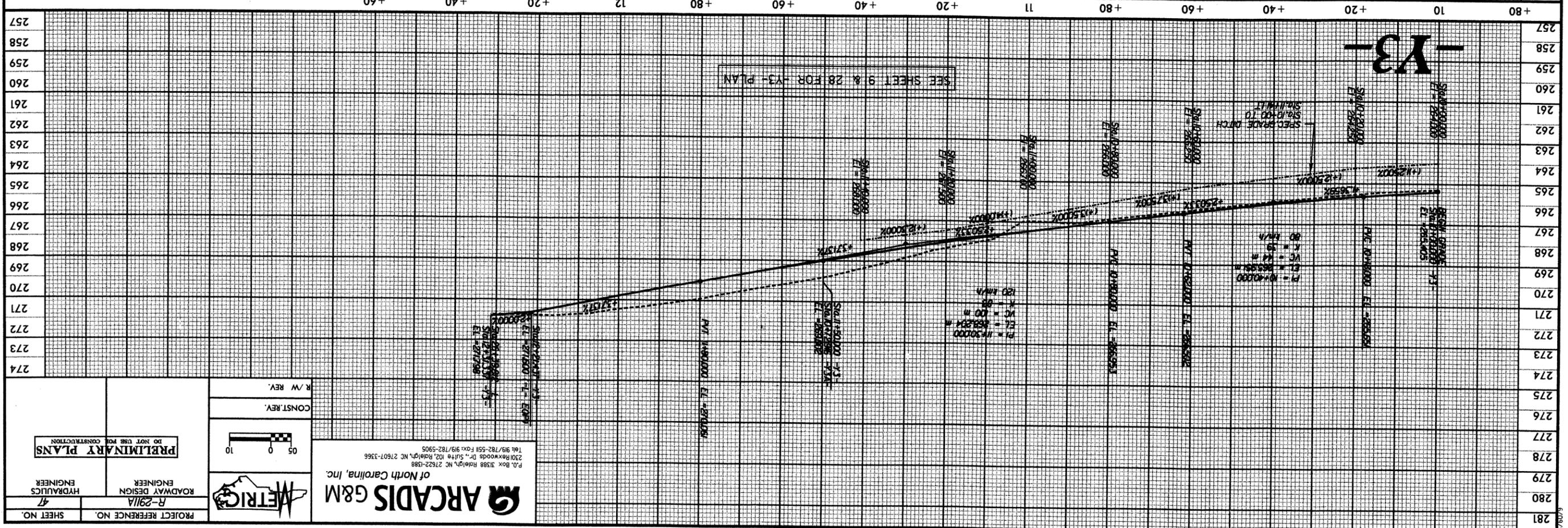
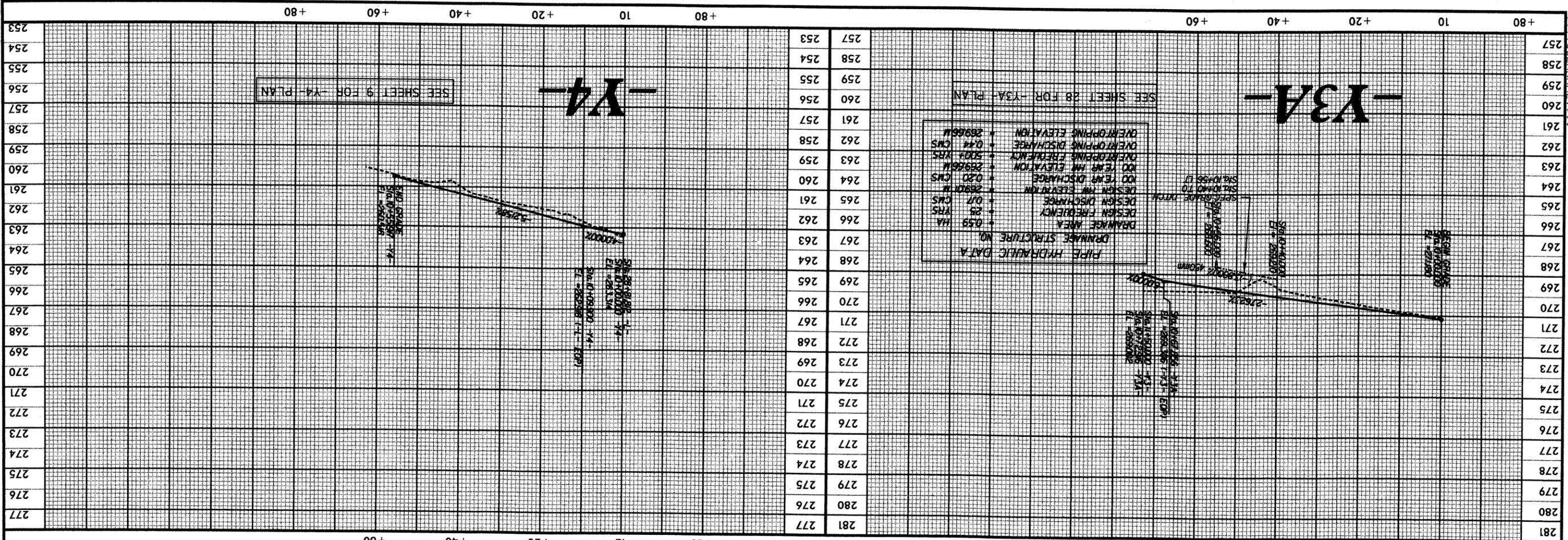
PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

ARCADIS G&M
 of North Carolina, Inc.
 P.O. Box 3588 Raleigh, NC 27622-0388
 230 REXFORDS DR., SUITE 102, RALEIGH, NC 27607-3566
 1/4 919/782-5511 FAX 919/782-5905

METRIC

05 10

R/W REV.
 CONST. REV.



PROJECT REFERENCE NO. R-291A
 SHEET NO. 4

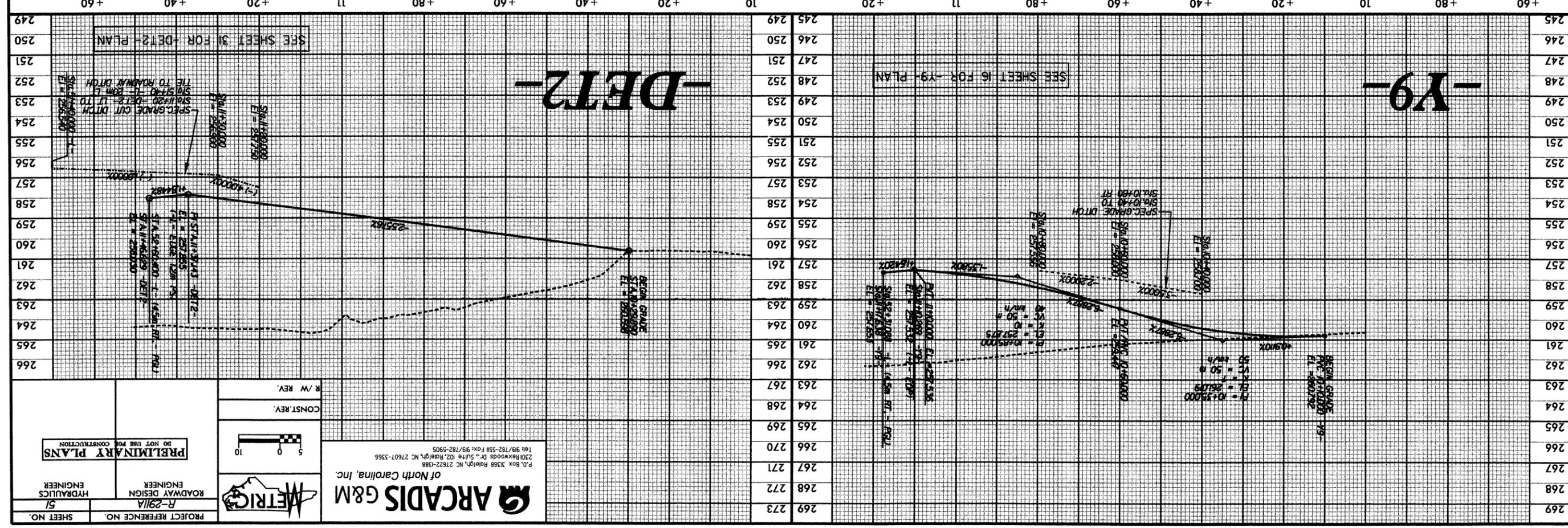
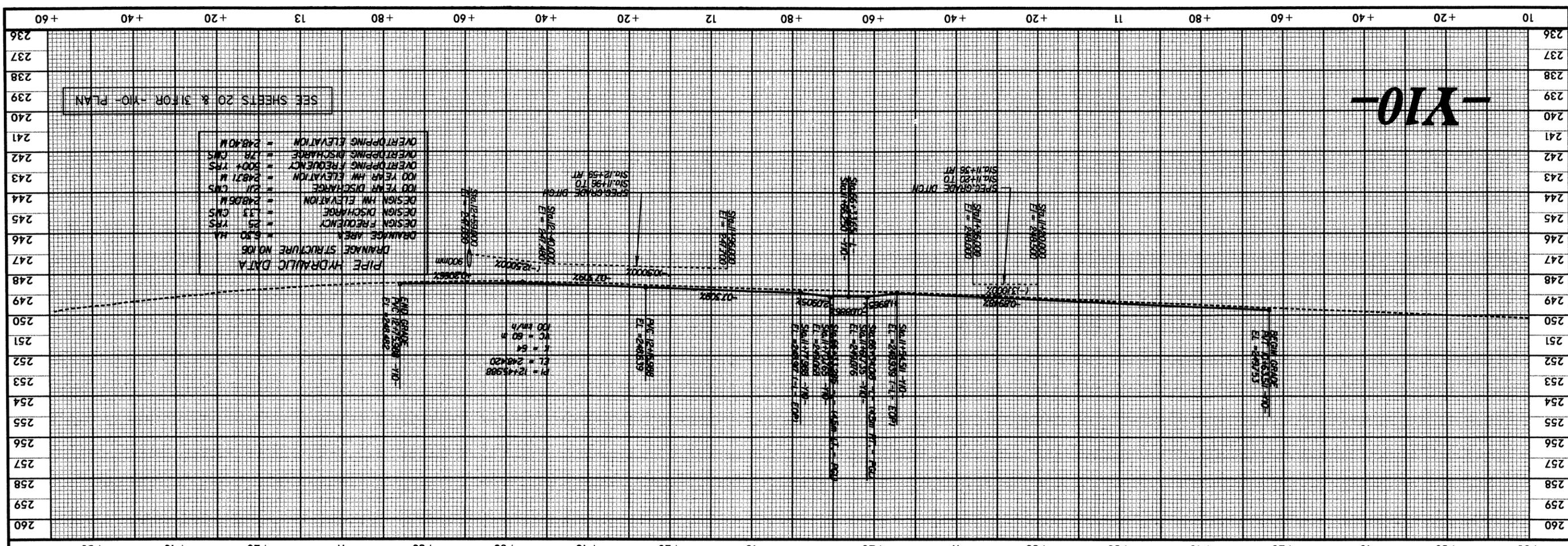
ROADWAY DESIGN ENGINEER
 HYDRAULICS ENGINEER

ARCADIS G&M
 of North Carolina, Inc.
 P.O. Box 31388 Raleigh, NC 27622-1388
 230 Roxwoods Dr., Suite 102, Raleigh, NC 27607-1366
 Tel: 919/782-5511 Fax: 919/782-5905

CONST. REV.
 R/W REV.

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DO NOT USE FOR CONSTRUCTION
 PRIMARY PLANS



PIPE HYDRAULIC DATA
 DRAINAGE STRUCTURE NO. 108
 DRAINAGE AREA = 6.50 HA
 DESIGN FREQUENCY = 25 YRS
 DESIGN DISCHARGE = 1.33 CMS
 DESIGN HW ELEVATION = 248.65 M
 100 YEAR DISCHARGE = 2.11 CMS
 100 YEAR HW ELEVATION = 248.71 M
 OVERTOPPING FREQUENCY = 500+ YRS
 OVERTOPPING DISCHARGE = 78 CMS
 OVERTOPPING ELEVATION = 248.40 M

SEE SHEET 20 & 31 FOR Y10-PLAN

SEE SHEET 16 FOR Y9-PLAN

SEE SHEET 31 FOR DET2-PLAN

PROJECT REFERENCE NO. R-2911A
 SHEET NO. 51
 HYDRAULICS ENGINEER
 ROADWAY DESIGN ENGINEER
 DO NOT USE FOR CONSTRUCTION
PRELIMINARY PLANS
 SCALE: 1" = 20.000'
 METRIC
 of North Carolina, Inc.
 1010 Box 3398 Raleigh, NC 27622-1398
 2101 Rockwoods Dr., Suite 102, Raleigh, NC 27607-3366
 Tel: 919/782-5511 Fax: 919/782-5905