



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE  
GOVERNOR

EUGENE A. CONTI, JR.  
SECRETARY

December 1, 2009

Ms. Kimberly Garvey  
U.S. Army Corps of Engineers  
Regulatory Field Office  
69 Darlington Avenue  
Wilmington, North Carolina 28403-1343

Dear Madam:

Subject: **Application for Nationwide Permit 3** for the widening of NC 24-87 (Bragg Boulevard) from the US 401 bypass to SR 1437 (Santa Fe Drive/Shaw Road) in Cumberland County. State Project No. 8.1443401. Federal Aid Project Number NHF-24(12). WBS 34942.1.1.TIP No. U-3423.

Please find enclosed the PCN form, permit drawings, half-size plan sheets, and USFWS Concurrence Letter for the above referenced project. An Environmental Assessment (EA) was completed for this project on August 31, 2004 and a Finding of No Significant Impact was completed on April 11, 2006 and distributed shortly thereafter. Additional copies are available upon request. The North Carolina Department of Transportation (NCDOT), Division of Highways, in consultation with the Federal Highway Administration (FHWA), proposes to widen NC 24-87 (Bragg Boulevard) from the US 401 Bypass to SR 1437 (Santa Fe Drive/Shaw Road) in Cumberland County. Permanent impacts to 10 linear ft of stream and <0.01 ac. of non-riparian wetland are proposed as a result of project construction.

This project calls for a letting date of June 15, 2010 and a review date of April 27, 2010; however, the let date may advance as additional funding becomes available.

### Regulatory Approvals

Section 404 Permit: The NCDOT requests that a Nationwide Permit 3 authorize these activities. (72 CFR; 11092-11198, March 12, 2007).

Section 401 Permit: We anticipate 401 General Certification number 3687 will apply to this project. NCDOT will adhere to all standard conditions of this certification and therefore is not requesting written approval. NCDOT is providing two copies of this application to the North Carolina Department of Environmental and Natural Resources, Division of Water Quality, for their review.

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

TELEPHONE: 919-431-2000  
FAX: 919-431-2002  
WEBSITE: [WWW.NCDOT.ORG](http://WWW.NCDOT.ORG)

**LOCATION:**  
4701 ATLANTIC AVENUE  
SUITE 116  
RALEIGH NC 27604

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

If you have any questions or need additional information, please call Mr. Chris Manley, at 919-431-6746.

Sincerely,



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

cc list:

w/attachment

Mr. Brian Wrenn, NCDWQ (2 Copies)

W/o attachment (see website for attachments)

Dr. David Chang, P.E., Hydraulics

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

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

Mr. Mark Staley, Roadside Environmental

Mr. Greg Burns, P.E., Division 6 Engineer

Mr. Jim Rerko, Division 6 Environmental Officer

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

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

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

Mr. Scott McLendon, USACE, Wilmington

Mr. Travis Wilson, NCWRC

Mr. Gary Jordan, USFWS

Ms. Anne Deaton, NCDMF

Mr. Ron Sechler, NMFS

Mr. Jay McInnis, P.E., PDEA



Office Use Only:  
 Corps action ID no. \_\_\_\_\_  
 DWQ project no. \_\_\_\_\_  
 Form Version 1.3 Dec 10 2008

## Pre-Construction Notification (PCN) Form

### A. Applicant Information

#### 1. Processing

1a. Type(s) of approval sought from the Corps:	<input checked="" type="checkbox"/> Section 404 Permit	<input type="checkbox"/> Section 10 Permit
1b. Specify Nationwide Permit (NWP) number: 3 or General Permit (GP) number:		
1c. Has the NWP or GP number been verified by the Corps?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
1d. Type(s) of approval sought from the DWQ (check all that apply):		
<input type="checkbox"/> 401 Water Quality Certification – Regular <input type="checkbox"/> Non-404 Jurisdictional General Permit <input type="checkbox"/> 401 Water Quality Certification – Express <input type="checkbox"/> Riparian Buffer Authorization		
1e. Is this notification solely for the record because written approval is not required?	For the record only for DWQ 401 Certification: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	For the record only for Corps Permit: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
1f. Is payment into a mitigation bank or in-lieu fee program proposed for mitigation of impacts? If so, attach the acceptance letter from mitigation bank or in-lieu fee program.	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
1g. Is the project located in any of NC's twenty coastal counties. If yes, answer 1h below.	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
1h. Is the project located within a NC DCM Area of Environmental Concern (AEC)?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

#### 2. Project Information

2a. Name of project:	Widening of NC 24-87 (Bragg Boulevard) from the US 401 Bypass to SR 1437(Santa Fe Drive/Shaw Road)
2b. County:	Cumberland
2c. Nearest municipality / town:	Fayetteville
2d. Subdivision name:	<i>not applicable</i>
2e. NCDOT only, T.I.P. or state project no.:	U-3423

#### 3. Owner Information

3a. Name(s) on Recorded Deed:	North Carolina Department of Transportation
3b. Deed Book and Page No.	<i>not applicable</i>
3c. Responsible Party (for LLC if applicable):	<i>not applicable</i>
3d. Street address:	1598 Mail Service Center
3e. City, state, zip:	Raleigh, NC 27699-1598
3f. Telephone no.:	(919) 431-6746
3g. Fax no.:	(919) 431-2002
3h. Email address:	cdmanley@ncdot.gov

<b>4. Applicant Information (if different from owner)</b>	
4a. Applicant is:	<input type="checkbox"/> Agent <input type="checkbox"/> Other, specify:
4b. Name:	<i>not applicable</i>
4c. Business name (if applicable):	
4d. Street address:	
4e. City, state, zip:	
4f. Telephone no.:	
4g. Fax no.:	
4h. Email address:	
<b>5. Agent/Consultant Information (if applicable)</b>	
5a. Name:	<i>not applicable</i>
5b. Business name (if applicable):	
5c. Street address:	
5d. City, state, zip:	
5e. Telephone no.:	
5f. Fax no.:	
5g. Email address:	

<b>B. Project Information and Prior Project History</b>	
<b>1. Property Identification</b>	
1a. Property identification no. (tax PIN or parcel ID):	<i>not applicable</i>
1b. Site coordinates (in decimal degrees):	Latitude: 35.955 (DD.DDDDDD) Longitude: - 78.9560 (-DD.DDDDDD)
1c. Property size:	40 acres
<b>2. Surface Waters</b>	
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	Little Cross Creek
2b. Water Quality Classification of nearest receiving water:	WS IV
2c. River basin:	Cape Fear
<b>3. Project Description</b>	
3a. Describe the existing conditions on the site and the general land use in the vicinity of the project at the time of this application: Currently there is an existing roadway on site, and the surrounding area is Commercial and Residential.	
3b. List the total estimated acreage of all existing wetlands on the property: 0.04	
3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property: 60	
3d. Explain the purpose of the proposed project: The purpose is to improve safety and increase the traffic carrying capacity of NC 24-87 in Fayetteville.	
3e. Describe the overall project in detail, including the type of equipment to be used: The project involves widening the existing road to three travel lanes in each direction from the current three lanes northbound and two lanes southbound. Standard road building equipment, such as trucks, dozers, and excavators will be used.	
<b>4. Jurisdictional Determinations</b>	
4a. Have jurisdictional wetland or stream determinations by the Corps or State been requested or obtained for this property / project (including all prior phases) in the past? Comments: The JD was requested when the Natural Resource work was completed for U-2519E (adjacent project). USACE AID 2008-01413 was issued for U-2519E.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
4b. If the Corps made the jurisdictional determination, what type of determination was made?	<input type="checkbox"/> Preliminary <input type="checkbox"/> Final
4c. If yes, who delineated the jurisdictional areas? Name (if known): H. W. Lochner	Agency/Consultant Company: H. W. Lochner Other:
4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation. October 23, 2008	
<b>5. Project History</b>	
5a. Have permits or certifications been requested or obtained for this project (including all prior phases) in the past?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown
5b. If yes, explain in detail according to "help file" instructions.	
<b>6. Future Project Plans</b>	
6a. Is this a phased project?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
6b. If yes, explain.	

### C. Proposed Impacts Inventory

#### 1. Impacts Summary

1a. Which sections were completed below for your project (check all that apply):

- Wetlands                       Streams - tributaries                       Buffers  
 Open Waters                       Pond Construction

#### 2. Wetland Impacts

If there are wetland impacts proposed on the site, then complete this question for each wetland area impacted.

2a. Wetland impact number – Permanent (P) or Temporary (T)	2b. Type of impact	2c. Type of wetland (if known)	2d. Forested	2e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)	2f. Area of impact (acres)
Site 1 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ	
Site 2 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ	
Site 3 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	Fill	non- riparian	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	<0.01
Site 4 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ	
Site 5 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ	
Site 6 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ	
<b>2g. Total wetland impacts</b>					<0.01 Permanent 0 Temp.

2h. Comments:

#### 3. Stream Impacts

If there are perennial or intermittent stream impacts (including temporary impacts) proposed on the site, then complete this question for all stream sites impacted.

3a. Stream impact number - Permanent (P) or Temporary (T)	3b. Type of impact	3c. Stream name	3d. Perennial (PER) or intermittent (INT)?	3e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)	3f. Average stream width (feet)	3g. Impact length (linear feet)
Site 1 <input checked="" type="checkbox"/> P <input checked="" type="checkbox"/> T	Bank Stabilization	UT to Little Cross Creek	<input checked="" type="checkbox"/> PER <input type="checkbox"/> INT	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	2.5	10 Perm 10 Temp
Site 2 <input type="checkbox"/> P <input checked="" type="checkbox"/> T	Bank Stabilization	UT to Little Cross Creek	<input checked="" type="checkbox"/> PER <input type="checkbox"/> INT	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	2.5	10
Site 3 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 4 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 5 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 6 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
<b>3h. Total stream and tributary impacts</b>						10 Perm 20 Temp

3i. Comments:

**4. Open Water Impacts**

If there are proposed impacts to lakes, ponds, estuaries, tributaries, sounds, the Atlantic Ocean, or any other open water of the U.S. then individually list all open water impacts below.

4a. Open water impact number – Permanent (P) or Temporary (T)	4b. Name of waterbody (if applicable)	4c. Type of impact	4d. Waterbody type	4e. Area of impact (acres)
O1 <input type="checkbox"/> P <input type="checkbox"/> T				
O2 <input type="checkbox"/> P <input type="checkbox"/> T				
O3 <input type="checkbox"/> P <input type="checkbox"/> T				
O4 <input type="checkbox"/> P <input type="checkbox"/> T				
<b>4f. Total open water impacts</b>				0 Permanent 0 Temporary

4g. Comments:

**5. Pond or Lake Construction**

If pond or lake construction proposed, then complete the chart below.

5a. Pond ID number	5b. Proposed use or purpose of pond	5c. Wetland Impacts (acres)			5d. Stream Impacts (feet)			5e. Upland (acres)
		Flooded	Filled	Excavated	Flooded	Filled	Excavated	Flooded
P1								
P2								
<b>5f. Total</b>								

5g. Comments:

5h. Is a dam high hazard permit required?	<input type="checkbox"/> Yes <input type="checkbox"/> No      If yes, permit ID no:
5i. Expected pond surface area (acres):	
5j. Size of pond watershed (acres):	
5k. Method of construction:	

**6. Buffer Impacts (for DWQ)**

If project will impact a protected riparian buffer, then complete the chart below. If yes, then individually list all buffer impacts below. If any impacts require mitigation, then you **MUST** fill out Section D of this form.

6a. Project is in which protected basin?		<input type="checkbox"/> Neuse <input type="checkbox"/> Catawba		<input type="checkbox"/> Tar-Pamlico <input type="checkbox"/> Randleman		<input checked="" type="checkbox"/> Other:	
6b. Buffer impact number – Permanent (P) or Temporary (T)	6c. Reason for impact	6d. Stream name	6e. Buffer mitigation required?	6f. Zone 1 impact (square feet)	6g. Zone 2 impact (square feet)		
B1 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No				
B2 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No				
B3 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No				
<b>6h. Total buffer impacts</b>				0	0		
6i. Comments:							



<b>D. Impact Justification and Mitigation</b>		
<b>1. Avoidance and Minimization</b>		
1a. Specifically describe measures taken to avoid or minimize the proposed impacts in designing project. The alignment was shifted to the west which reduced wetland impacts.		
1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques. Best Management Practices will be used during construction to minimize the effects on the jurisdictional resources. Hand clearing will be used rather than mechanized clearing within the wetland. Type II clearing method (clearing stops at the construction limits vs. Type III which clears out 10 feet beyond the construction limits) will be used at the Buena Vista property to minimize the removal of vegetation at this location.		
<b>2. Compensatory Mitigation for Impacts to Waters of the U.S. or Waters of the State</b>		
2a. Does the project require Compensatory Mitigation for impacts to Waters of the U.S. or Waters of the State?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If no, explain: Compensatory mitigation is not proposed due to the minimal amount of permanent impacts.	
2b. If yes, mitigation is required by (check all that apply):	<input type="checkbox"/> DWQ <input type="checkbox"/> Corps	
2c. If yes, which mitigation option will be used for this project?	<input type="checkbox"/> Mitigation bank <input type="checkbox"/> Payment to in-lieu fee program <input type="checkbox"/> Permittee Responsible Mitigation	
<b>3. Complete if Using a Mitigation Bank</b>		
3a. Name of Mitigation Bank: not applicable		
3b. Credits Purchased (attach receipt and letter)	Type	Quantity
3c. Comments:		
<b>4. Complete if Making a Payment to In-lieu Fee Program</b>		
4a. Approval letter from in-lieu fee program is attached.	<input type="checkbox"/> Yes	
4b. Stream mitigation requested:	0 linear feet	
4c. If using stream mitigation, stream temperature:	<input type="checkbox"/> warm <input type="checkbox"/> cool <input type="checkbox"/> cold	
4d. Buffer mitigation requested (DWQ only):	0 square feet	
4e. Riparian wetland mitigation requested:	0 acres	
4f. Non-riparian wetland mitigation requested:	0 acres	
4g. Coastal (tidal) wetland mitigation requested:	0 acres	
4h. Comments:		
<b>5. Complete if Using a Permittee Responsible Mitigation Plan</b>		
5a. If using a permittee responsible mitigation plan, provide a description of the proposed mitigation plan.		

**6. Buffer Mitigation (State Regulated Riparian Buffer Rules) – required by DWQ**

6a. Will the project result in an impact within a protected riparian buffer that requires buffer mitigation?  Yes  No

6b. If yes, then identify the square feet of impact to each zone of the riparian buffer that requires mitigation. Calculate the amount of mitigation required.


Zone	6c. Reason for impact	6d. Total impact (square feet)	Multiplier	6e. Required mitigation (square feet)
Zone 1			3 (2 for Catawba)	
Zone 2			1.5	
<b>6f. Total buffer mitigation required:</b>				

6g. If buffer mitigation is required, discuss what type of mitigation is proposed (e.g., payment to private mitigation bank, permittee responsible riparian buffer restoration, payment into an approved in-lieu fee fund).

6h. Comments:

<b>E. Stormwater Management and Diffuse Flow Plan (required by DWQ)</b>	
<b>1. Diffuse Flow Plan</b>	
1a. Does the project include or is it adjacent to protected riparian buffers identified within one of the NC Riparian Buffer Protection Rules?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
1b. If yes, then is a diffuse flow plan included? If no, explain why. Comments:	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>2. Stormwater Management Plan</b>	
2a. What is the overall percent imperviousness of this project?	N/A %
2b. Does this project require a Stormwater Management Plan?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
2c. If this project DOES NOT require a Stormwater Management Plan, explain why:	
2d. If this project DOES require a Stormwater Management Plan, then provide a brief, narrative description of the plan: See permit drawings	
2e. Who will be responsible for the review of the Stormwater Management Plan?	<input type="checkbox"/> Certified Local Government <input type="checkbox"/> DWQ Stormwater Program <input type="checkbox"/> DWQ 401 Unit
<b>3. Certified Local Government Stormwater Review</b>	
3a. In which local government's jurisdiction is this project?	not applicable
3b. Which of the following locally-implemented stormwater management programs apply (check all that apply):	<input type="checkbox"/> Phase II <input type="checkbox"/> NSW <input type="checkbox"/> USMP <input type="checkbox"/> Water Supply Watershed <input type="checkbox"/> Other:
3c. Has the approved Stormwater Management Plan with proof of approval been attached?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>4. DWQ Stormwater Program Review</b>	
4a. Which of the following state-implemented stormwater management programs apply (check all that apply):	<input type="checkbox"/> Coastal counties <input type="checkbox"/> HQW <input type="checkbox"/> ORW <input type="checkbox"/> Session Law 2006-246 <input type="checkbox"/> Other:
4b. Has the approved Stormwater Management Plan with proof of approval been attached?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b>5. DWQ 401 Unit Stormwater Review</b>	
5a. Does the Stormwater Management Plan meet the appropriate requirements?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
5b. Have all of the 401 Unit submittal requirements been met?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

<b>F. Supplementary Information</b>	
<b>1. Environmental Documentation (DWQ Requirement)</b>	
1a. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
1b. If you answered "yes" to the above, does the project require preparation of an environmental document pursuant to the requirements of the National or State (North Carolina) Environmental Policy Act (NEPA/SEPA)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
1c. If you answered "yes" to the above, has the document review been finalized by the State Clearing House? (If so, attach a copy of the NEPA or SEPA final approval letter.)  Comments:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>2. Violations (DWQ Requirement)</b>	
2a. Is the site in violation of DWQ Wetland Rules (15A NCAC 2H .0500), Isolated Wetland Rules (15A NCAC 2H .1300), DWQ Surface Water or Wetland Standards, or Riparian Buffer Rules (15A NCAC 2B .0200)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
2b. Is this an after-the-fact permit application?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
2c. If you answered "yes" to one or both of the above questions, provide an explanation of the violation(s):	
<b>3. Cumulative Impacts (DWQ Requirement)</b>	
3a. Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
3b. If you answered "yes" to the above, submit a qualitative or quantitative cumulative impact analysis in accordance with the most recent DWQ policy. If you answered "no," provide a short narrative description.  Due to the minimal transportation impact resulting from this widening, this project will neither influence nearby land uses nor stimulate growth. Therefore, a detailed indirect or cumulative effects study will not be necessary.	
<b>4. Sewage Disposal (DWQ Requirement)</b>	
4a. Clearly detail the ultimate treatment methods and disposition (non-discharge or discharge) of wastewater generated from the proposed project, or available capacity of the subject facility.  not applicable	

<b>5. Endangered Species and Designated Critical Habitat (Corps Requirement)</b>		
5a. Will this project occur in or near an area with federally protected species or habitat?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
5b. Have you checked with the USFWS concerning Endangered Species Act impacts?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
5c. If yes, indicate the USFWS Field Office you have contacted.	<input checked="" type="checkbox"/> Raleigh <input type="checkbox"/> Asheville	
5d. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat? NCNHP, 2005 Field Surveys, and USFWS-Concurrence Letter. An additional survey for Michaux's sumac will be conducted prior to project construction.		
<b>6. Essential Fish Habitat (Corps Requirement)</b>		
6a. Will this project occur in or near an area designated as essential fish habitat?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
6b. What data sources did you use to determine whether your site would impact Essential Fish Habitat? NMFS County Index		
<b>7. Historic or Prehistoric Cultural Resources (Corps Requirement)</b>		
7a. Will this project occur in or near an area that the state, federal or tribal governments have designated as having historic or cultural preservation status (e.g., National Historic Trust designation or properties significant in North Carolina history and archaeology)?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
7b. What data sources did you use to determine whether your site would impact historic or archeological resources? NEPA Documentation		
<b>8. Flood Zone Designation (Corps Requirement)</b>		
8a. Will this project occur in a FEMA-designated 100-year floodplain?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
8b. If yes, explain how project meets FEMA requirements: NCDOT Hydraulics Unit coordination with FEMA		
8c. What source(s) did you use to make the floodplain determination? FEMA Maps		
Dr. Gregory J. Thorpe, Ph D Applicant/Agent's Printed Name	 _____ Applicant/Agent's Signature (Agent's signature is valid only if an authorization letter from the applicant is provided.)	12-1-09 Date

Alexia Ragnor

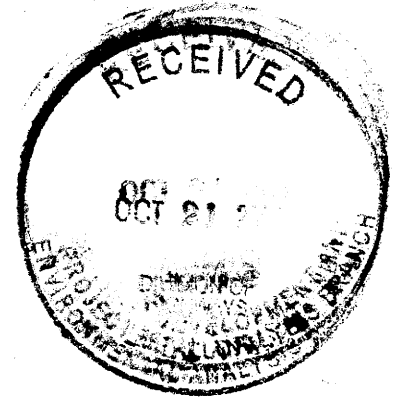


# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

Raleigh Field Office  
Post Office Box 33726  
Raleigh, North Carolina 27636-3726

October 19, 2004



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

Dear Dr. Thorpe:

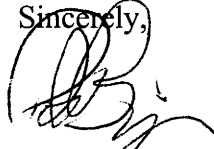
This letter is in response to your October 15, 2004 letter which requested comments from the U.S. Fish and Wildlife Service (Service) on the Environmental Assessment (EA) for the proposed widening of NC 24-87 (Bragg Boulevard) from US 401 Bypass to SR 1437 (Santa Fe Drive / Shaw Road), Cumberland County (TIP No. U-3423). These comments are provided in accordance with provisions of the Fish and Wildlife Coordination Act (16 U.S.C. 661-667d) and section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531-1543).

According to the EA, the North Carolina Department of Transportation proposes to widen a 1.39 mile portion of NC 24-87 to three lanes in each direction with a raised median and curb and gutter. The EA states that no wetlands will be affected by the project, and that only 40 linear feet of an unnamed tributary to Little Cross Creek will be affected. Due to the urban nature of the project area, impacts to fish and wildlife resources should be minimal.

The EA states that the project will have no effect on the following six federally listed species for Cumberland County: Saint Francis's satyr (*Neonympha mitchellii francisci*), small whorled pogonia (*Isotria medeoloides*), pondberry (*Lindera melissifolia*), rough-leaved loosestrife (*Lysimachia asperulaefolia*), American chaffseed (*Schwalbea americana*) and red-cockaded woodpecker (*Picoides borealis*). In addition, the EA states that the project may affect, but is not likely to adversely affect Michaux's sumac (*Rhus michauxii*). The Service concurred with these determinations in a letter dated December 30, 2003. This concurrence is still valid. We believe that the requirements of section 7(a)(2) of the ESA have been satisfied for now. We remind you that obligations under section 7 consultation must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered in this review; (2) this action is subsequently modified in a manner that was not considered in this review; (3) a new species is listed or critical habitat determined that may be affected by the identified action.

The Service believes that this EA adequately addresses the potential effects of this proposed project on fish and wildlife resources and on waters and wetlands of the United States. The Service appreciates the opportunity to review this project. If you have any questions regarding our response, please contact Mr. Gary Jordan at (919) 856-4520, ext. 32.

Sincerely,

A handwritten signature in black ink, appearing to read "Pete Benjamin", written over the word "Sincerely,".

Pete Benjamin  
Ecological Services Supervisor

cc: Richard Spencer, USACOE, Wilmington, NC  
Chris Militscher, USEPA, Raleigh, NC  
Travis Wilson, NCWRC, Creedmoor, NC  
Beth Barnes, NCDWQ, Raleigh, NC

09/08/99

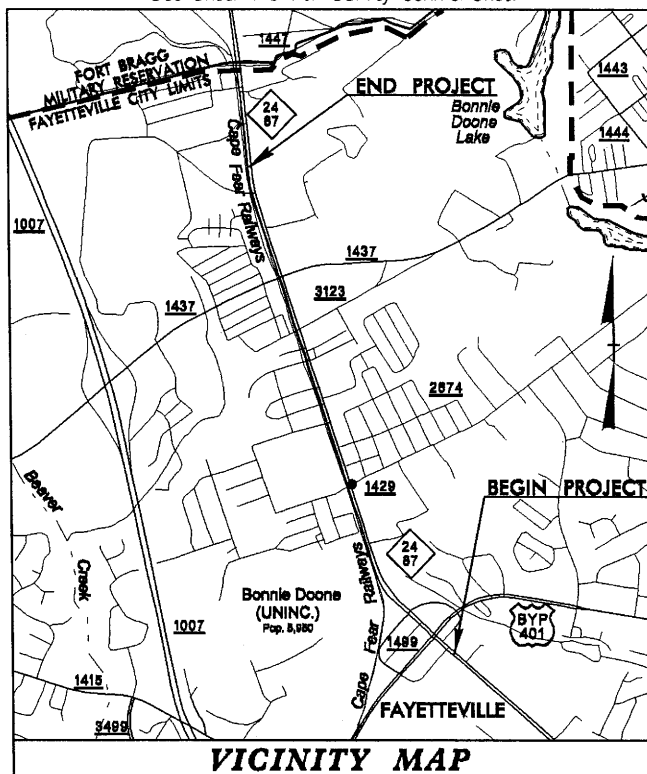
See Sheet 1-A For Index of Sheets  
See Sheet 1-B For Conventional Symbols  
See Sheet 1-C for Survey Control Sheet

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

Permit Drawing  
Sheet 1 of 11

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-3423	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34942.1.1	NHF-24(12)	PE	
34942.2.2	NHF-24(12)	RW & UTIL.	

TIP PROJECT: U-3423



CUMBERLAND COUNTY

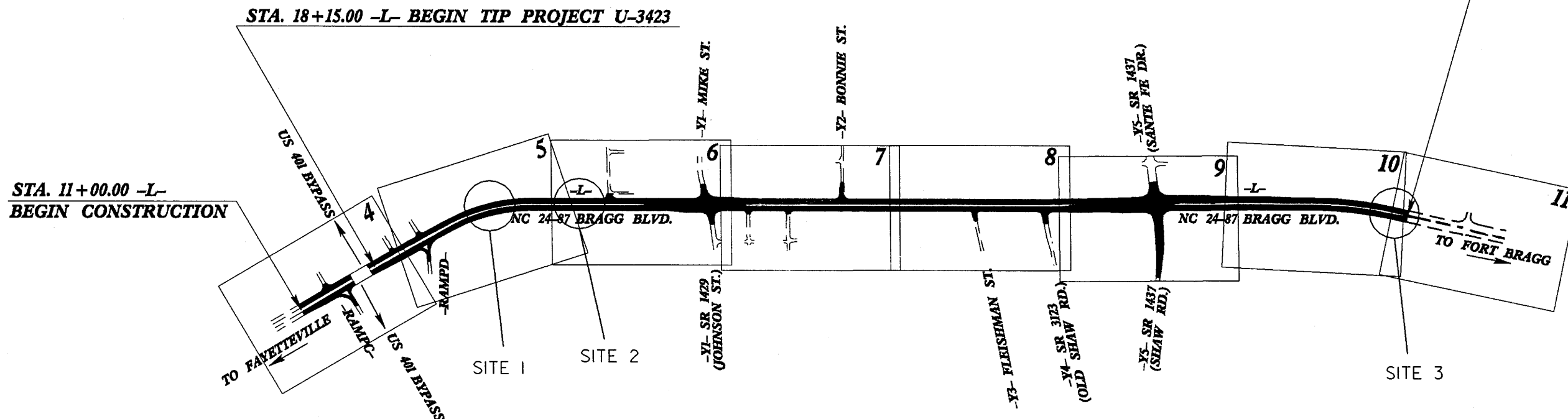
LOCATION: NC 24 - 87 (BRAGG BOULEVARD)  
FROM THE US 401 BYPASS TO NORTH OF  
SR 1437 (SANTE FE DRIVE /SHAW ROAD)  
TYPE OF WORK: GRADING, DRAINAGE, PAVING, WIDENING,  
CURB & GUTTER, SIGNALS, AND  
OVERHEAD SIGNING



NAD 8395

WETLAND/STREAM PERMIT DRAWINGS

STA. 105+57.51 -L- END TIP PROJECT U-3423



STA. 11+00.00 -L-  
BEGIN CONSTRUCTION

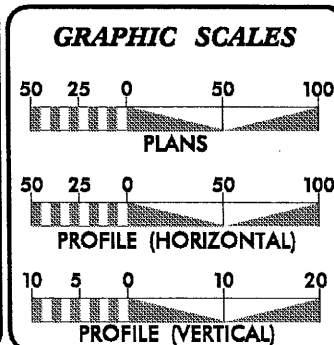
STA. 18+15.00 -L- BEGIN TIP PROJECT U-3423

NOTE: THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF FAYETTEVILLE.  
NOTE: CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION

RECEIVED  
AUG 26 2009  
MANLEY  
DIVISION OF HIGHWAYS  
OFFICE OF NATURAL ENVIRONMENT

CONTRACT:



DESIGN DATA

ADT 2010 =	43,200
ADT 2030 =	49,700
DHV =	9 %
D =	50 %
T =	11 % *
V =	50 MPH
* TTST 4% + DUAL 7%	
FUNC CLASS =	ARTERIAL

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT U-3423	=	1.656 MILES
TOTAL LENGTH OF TIP PROJECT U-3423	=	1.656 MILES

Prepared in the Office of:

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JUNE 20, 2008	BRENDA MOORE, P.E. PROJECT ENGINEER
LETTING DATE: JUNE 15, 2010	JOYCE DREW PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

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

ROADWAY DESIGN ENGINEER

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

DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER

25-AUG-2009 07:27  
R:\hydraulics\permit\drawings\U-3423-rdy-tsh.dgn  
sjsykes AT HYDRAULICS

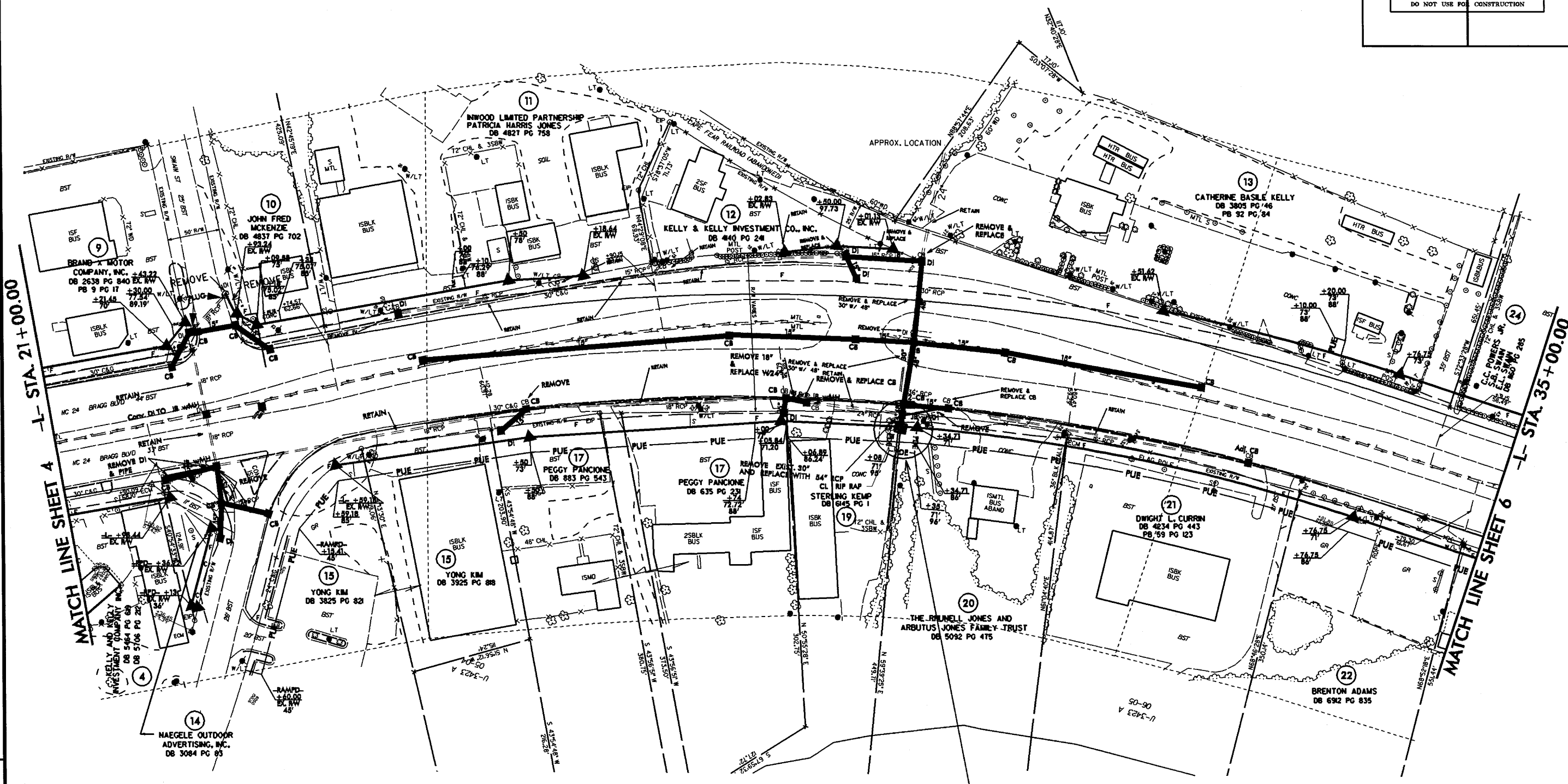


PROJECT REFERENCE NO.	SHEET NO.
U-3423	5
HW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS	
DO NOT USE FOR CONSTRUCTION	

Permit Drawing  
Sheet 2 of 11

R/W REV. 07/13/09 (UMD) ADJUSTING PROPOSED 8"x18" CONCRETE CURB AND R/W TO AVOID IMPACTING THE BUILDING ON PARCEL 4.  
3-R/W-REV-04/22/09-REVISIONS

REVISIONS



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

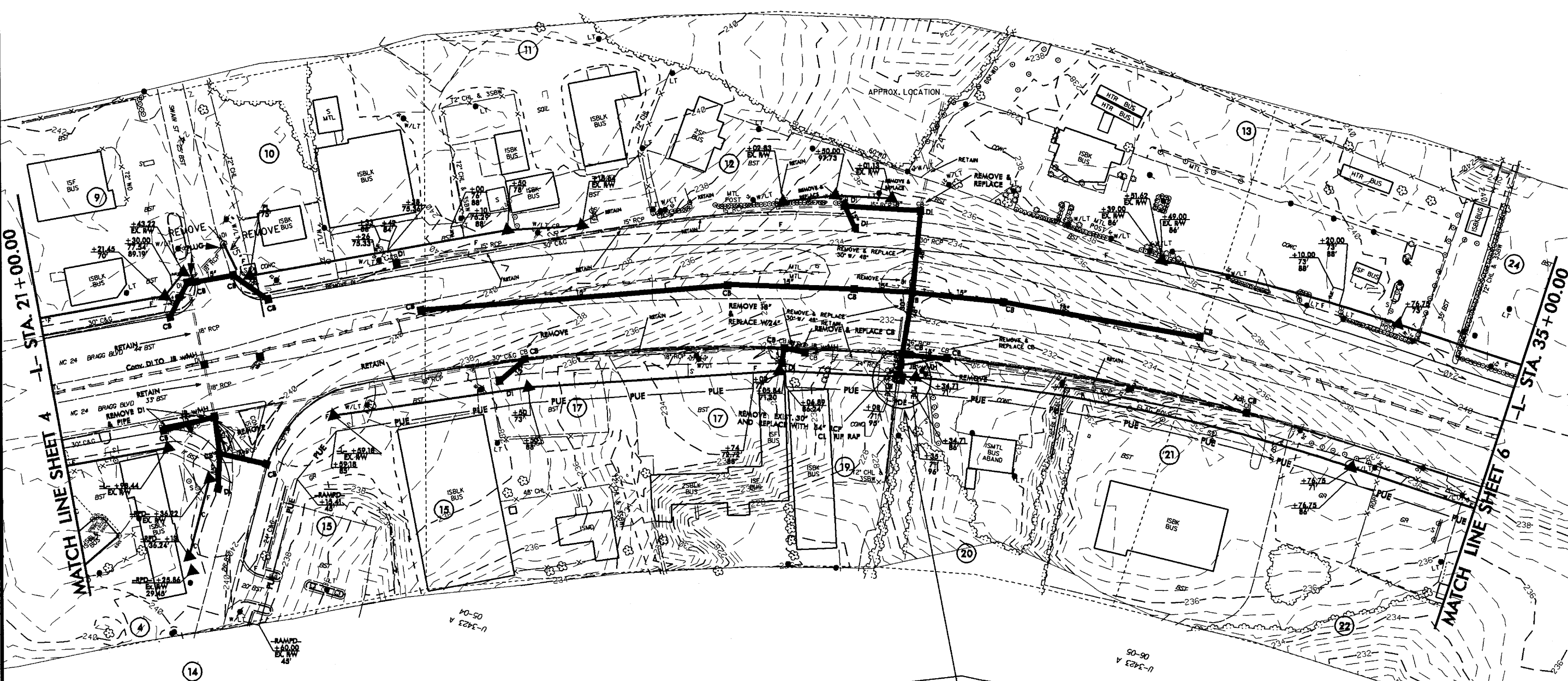
SITE I  
SEE  
ENLARGEMENT

25 AUG-2009 08:47  
C:\p01\autocad\drawings\13-R/W-REV-04/22/09-REVISIONS

PROJECT REFERENCE NO. U-3423	SHEET NO. 5
R/W SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Permit Drawing  
Sheet 3 of 11

REVISIONS  
 R/W REV. 04/22/09 (BM) ADDING PUE AFFECTING PARCELS 9-11, 13, 15, 17 & 19-23  
 R/W REV. 07/13/09 (LIND) ADJUSTING PROPOSED BRAGG CONCRETE CURB AND R/W TO AVOID IMPACTING THE BUILDING ON PARCEL 4  
 R/W REV. 10/14/09 (BM) ADDING 32' DRIVE FOR PARCEL 14 EXISTING DRIVE LINE TO BE MAINTAINED AND ADJUSTING PROPERTY OWNER LINES ON PARCELS 14, 17 & 22  
 R/W REV. 10/23/09 (BM) ADDING PUE AFFECTING PARCEL 14, 15, 17, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100  
 3/4/2010 R/W REV. 11/07/09 (LIND) ADJUSTING PUE AFFECTING PARCEL 14, 15, 17, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

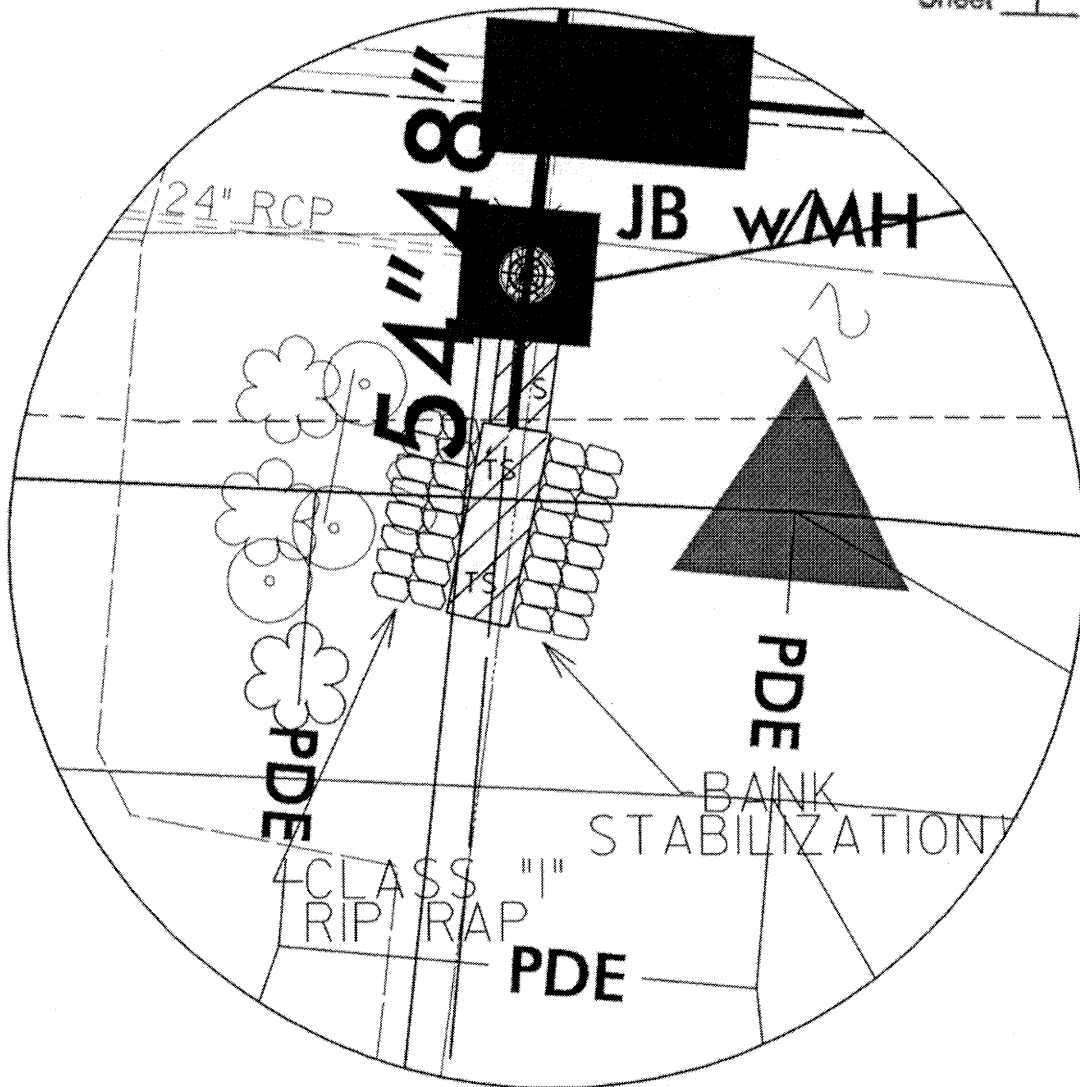


SITE I  
SEE  
ENLARGEMENT

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

**ENLARGEMENT SHOWS PERMANENT AND  
TEMPORARY SURFACE WATER IMPACTS**

Permit Drawing  
Sheet 4 of 11



ENLARGEMENT, SITE I



GRAPHIC SCALE



DENOTES IMPACTS IN  
SURFACE WATER



DENOTES TEMPORARY  
IMPACTS IN SURFACE WATER

PLAN VIEW



**NCDOT**

**DIVISION OF HIGHWAYS**

**CUMBERLAND COUNTY**

**PROJECT: 34942.1.1 (U-3423)**

**NC 24-87(BRAGG BLVD.) FROM  
US 401 BYPASS TO NORTH OF**

**SR 1437(SANTA FE DR./SHAW RD.)**

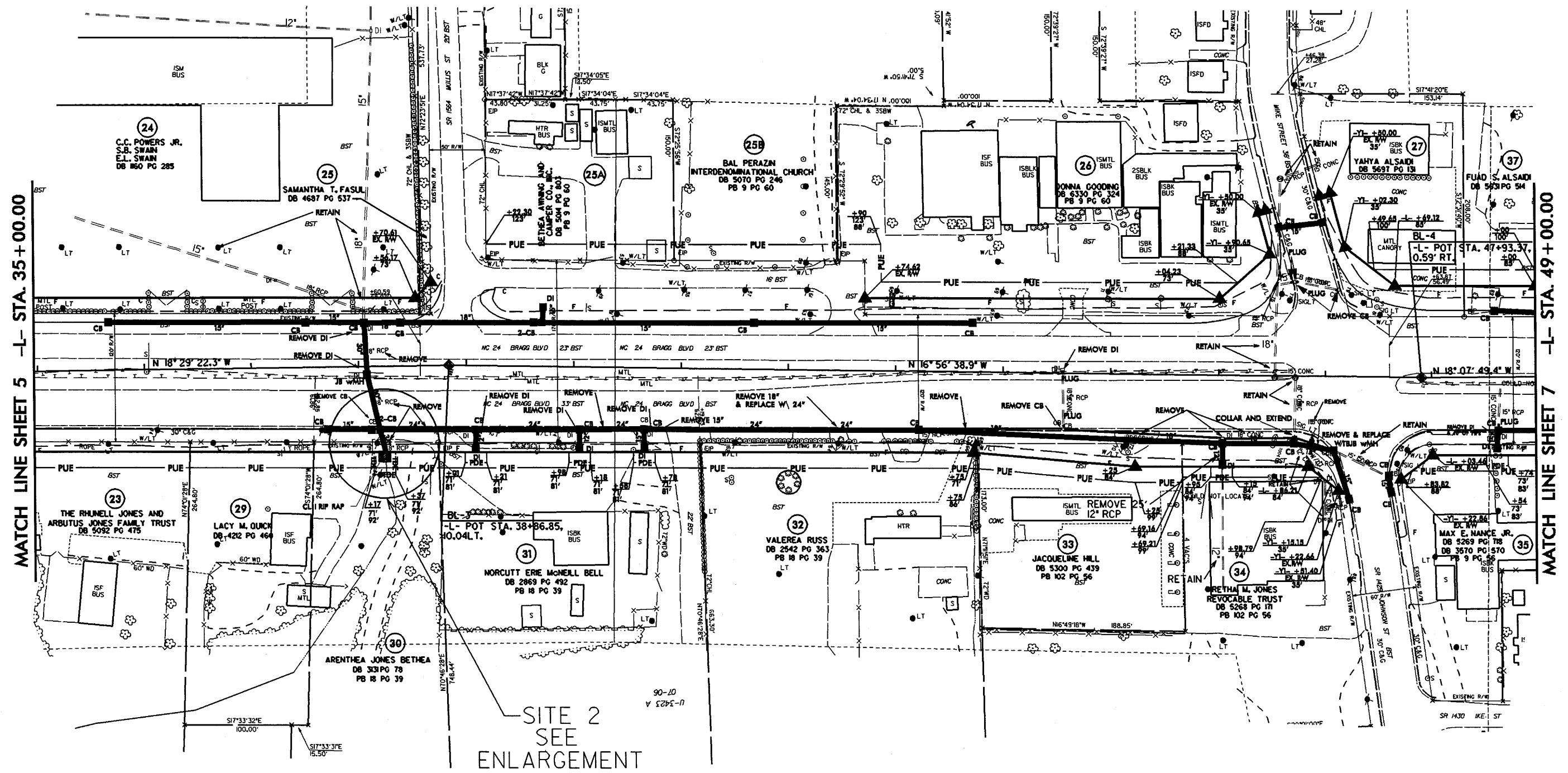
SHEET

OF

06 / 29 / 09

PROJECT REFERENCE NO.		SHEET NO.	
U-3423		6	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS		DO NOT USE FOR CONSTRUCTION	

Permit Drawing  
Sheet 5 of 11



SITE 2  
SEE  
ENLARGEMENT

/// DENOTES TEMPORARY IMPACTS IN SURFACE WATER

REVISIONS  
 25 AUG 2009 08:50  
 3:30 PM REV. 04/22/09. REV. ADDING PUE AFFECTING PARCELS 23, 25A, 25B, 26, 27, 29, 35, & 37.

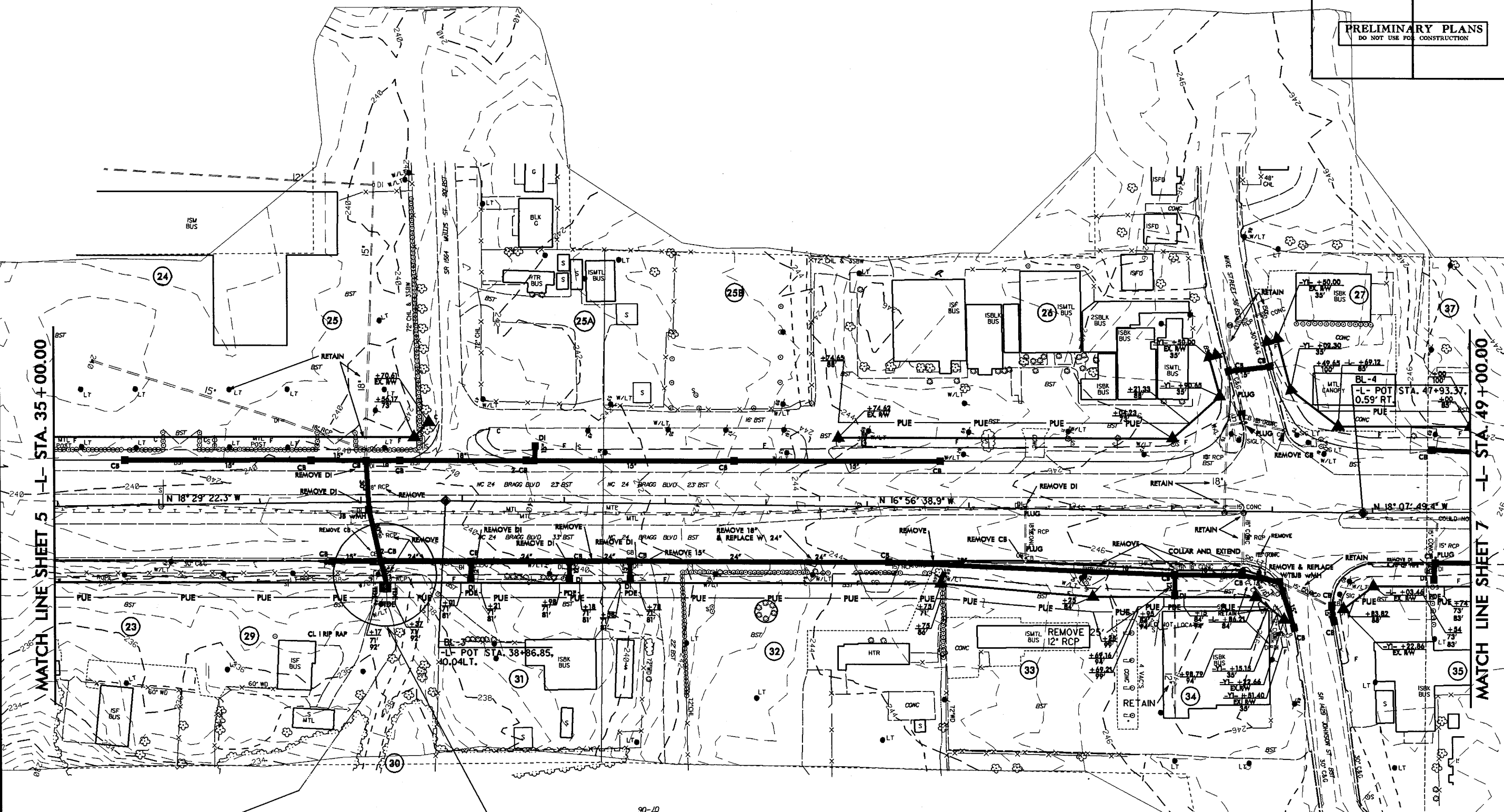
MATCH LINE SHEET 5 -L- STA. 35+00.00

MATCH LINE SHEET 7 -L- STA. 49+00.00

PROJECT REFERENCE NO. U-3423	SHEET NO. 6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Permit Drawing  
Sheet 6 of 11

REVISIONS  
 R/W REV 04/22/09 (ENR) ADDING PUE AFFECTING PARCELS 23, 25A, 25B, 26, 27, 29-35 & 37.  
 R/W REV 10/14/09 (ENR) UPDATING PROPERTY OWNER NAME ON PARCEL 26. ELIMINATING 30' DRIVE ON PARCELS 27 & 37.  
 R/W REV 10/23/09 (ENR) REMOVING PUE AFFECTING PARCELS 25A & 25B. ADJUSTING PUE AFFECTING PARCEL 26.  
 R/W REV 11/09/09 (ENR) ADDING DRIVEWAY AFFECTING PARCELS 23



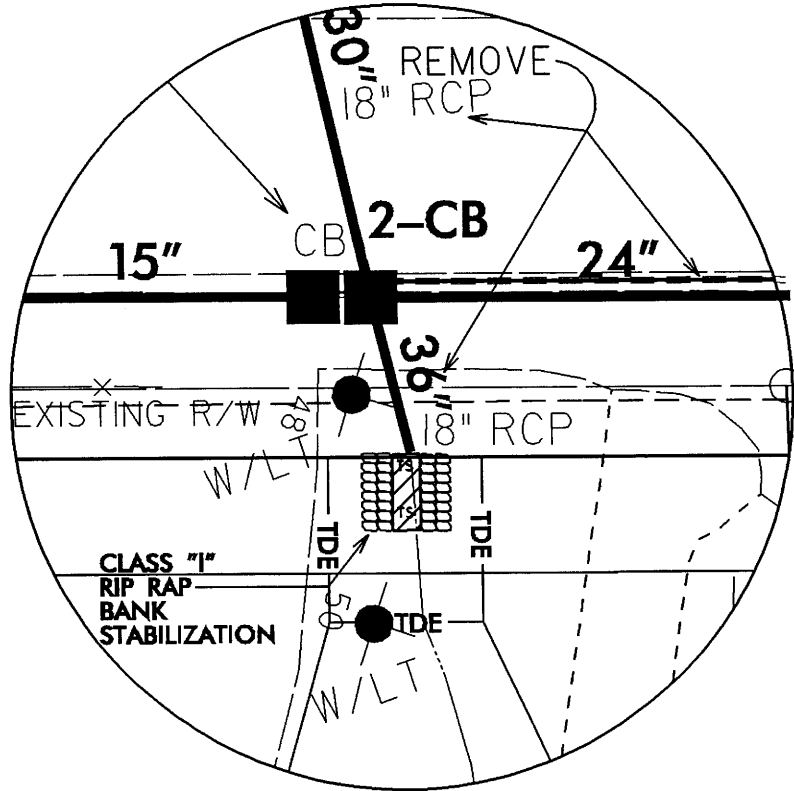
SITE 2  
SEE  
ENLARGEMENT

 DENOTES TEMPORARY  
IMPACTS IN SURFACE WATER

20-NOV-2009 10:27  
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 U-3423

ENLARGEMENT SHOWS TEMPORARY  
SURFACE WATER IMPACTS

Permit Drawing  
Sheet 7 of 11

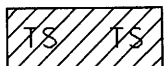


ENLARGEMENT, SITE 2



GRAPHIC SCALE

PLAN VIEW



DENOTES TEMPORARY  
IMPACTS IN SURFACE WATER



**NCDOT**

DIVISION OF HIGHWAYS

CUMBERLAND COUNTY

PROJECT: 34942.1.1 (U-3423)

NC 24-87(BRAGG BLVD) FROM

US 401 BYPASS TO NORTH OF

SR 1437(SANTA FE DR./SHAW RD.)

SHEET

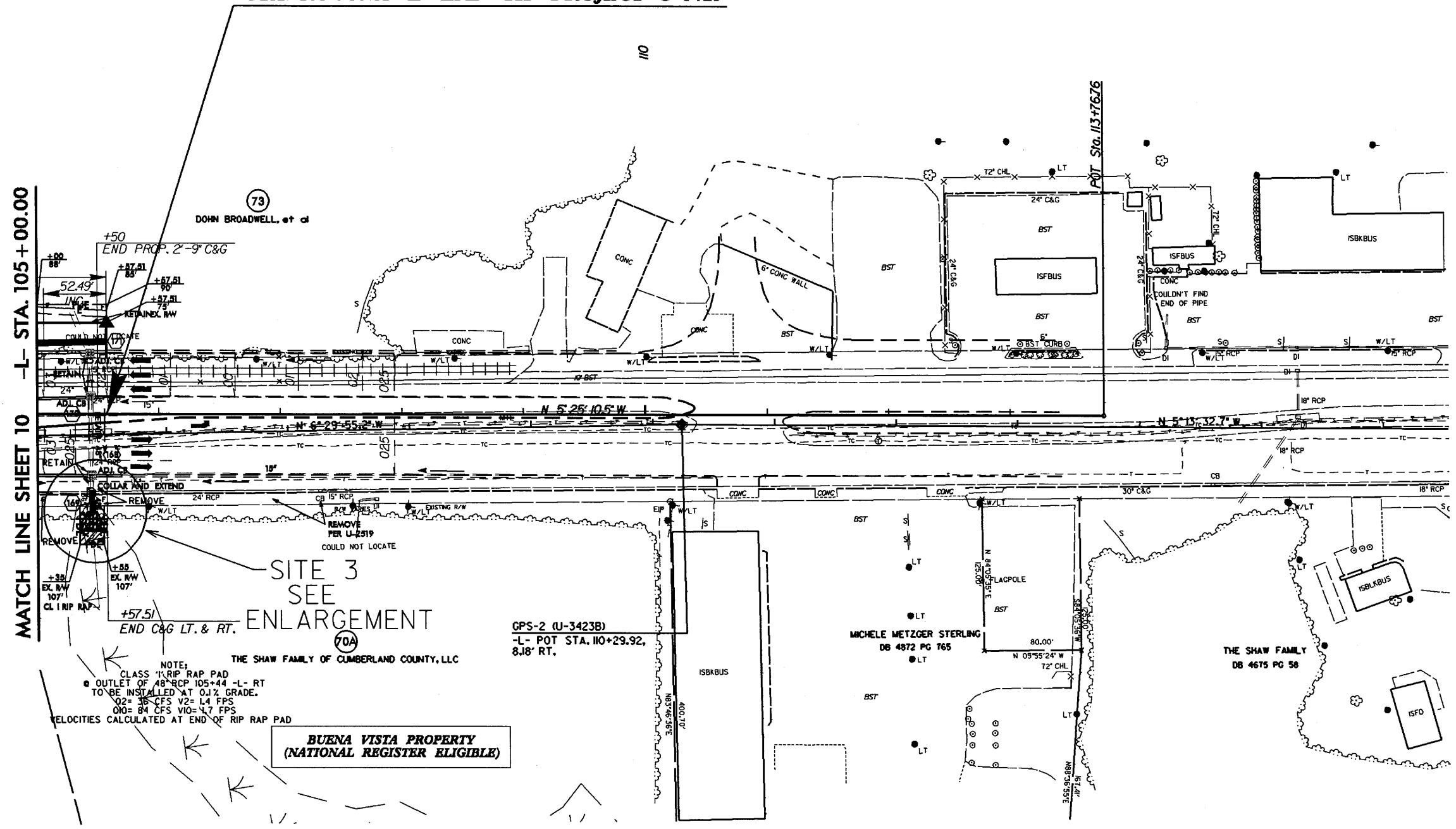
OF

06 / 29 / 09

PROJECT REFERENCE NO. <b>U-3423</b>	SHEET NO. <b>11</b>
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

Permit Drawing  
Sheet 8 of 11

**STA. 105+57.51 -L- END TIP PROJECT U-3423**



MATCH LINE SHEET 10 -L- STA. 105+00.00

REVISIONS

NOTE:  
 CLASS 1' RIP RAP PAD  
 OUTLET OF 18" RCP 105+44 -L- RT  
 TO BE INSTALLED AT 0.1% GRADE.  
 Q2= 36 CFS V2= 1.4 FPS  
 Q10= 84 CFS V10= 4.7 FPS  
 VELOCITIES CALCULATED AT END OF RIP RAP PAD

**SITE 3  
SEE  
ENLARGEMENT**

**BUENA VISTA PROPERTY  
(NATIONAL REGISTER ELIGIBLE)**

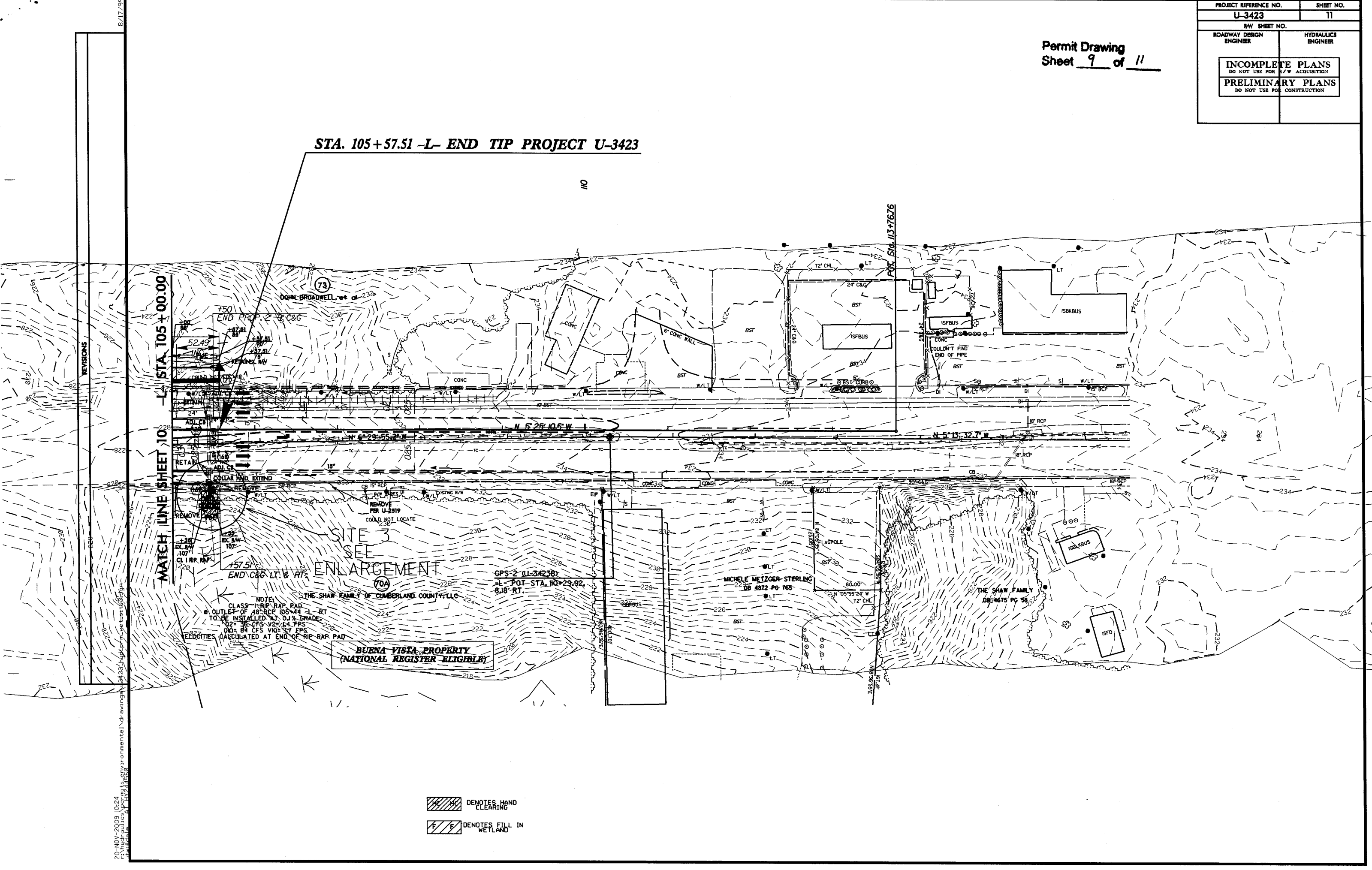
- DENOTES HAND CLEARING
- DENOTES FILL IN WETLAND

8/17/99  
20-NOV-2009 10:25  
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HYDROLOGICAL ENGINEER

PROJECT REFERENCE NO. <b>U-3423</b>	SHEET NO. <b>11</b>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR A/W ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

Permit Drawing  
Sheet 9 of 11

**STA. 105+57.51 -L- END TIP PROJECT U-3423**



MATCH LINE SHEET 10 -L- STA 105+00.00

REVISIONS

NOTE:  
CLASS 1 RIP RAP PAD  
OUTLET OF 18\"/>

**BUENA VISTA PROPERTY**  
(NATIONAL REGISTER ELIGIBLE)

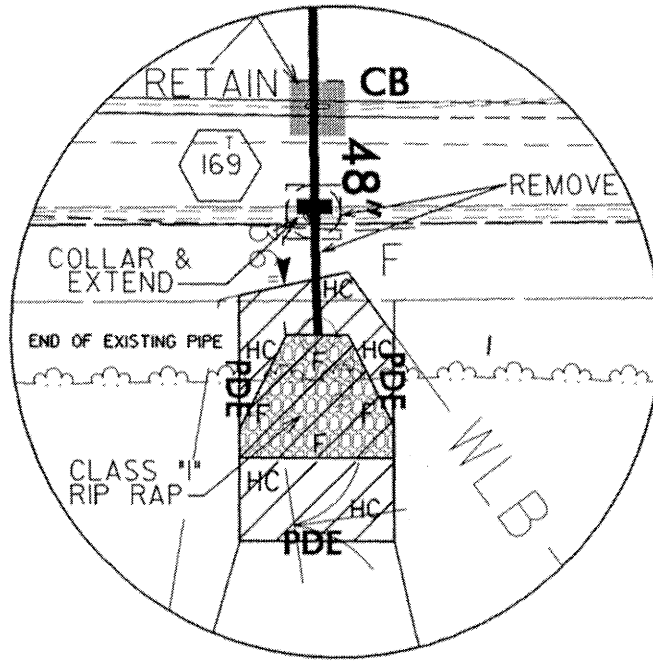
- DENOTES HAND CLEARING
- DENOTES FILL IN WETLAND

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ENLARGEMENT SHOWS PERMANENT  
FILL IN WETLANDS

Permit Drawing  
Sheet 10 of 11



ENLARGEMENT, SITE 3



GRAPHIC SCALE

PLAN VIEW

 DENOTES FILL IN WETLAND

 DENOTES HAND CLEARING



NCDOT

DIVISION OF HIGHWAYS

CUMBERLAND COUNTY

PROJECT: 34942.1.1 (U-3423)

NC 24-87(BRAGG BLVD.) FROM

US 401 BYPASS TO NORTH OF

SR 1437(SANTA FE DR./SHAW RD.)

SHEET

OF

06 / 29 / 09



09/08/09

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

STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

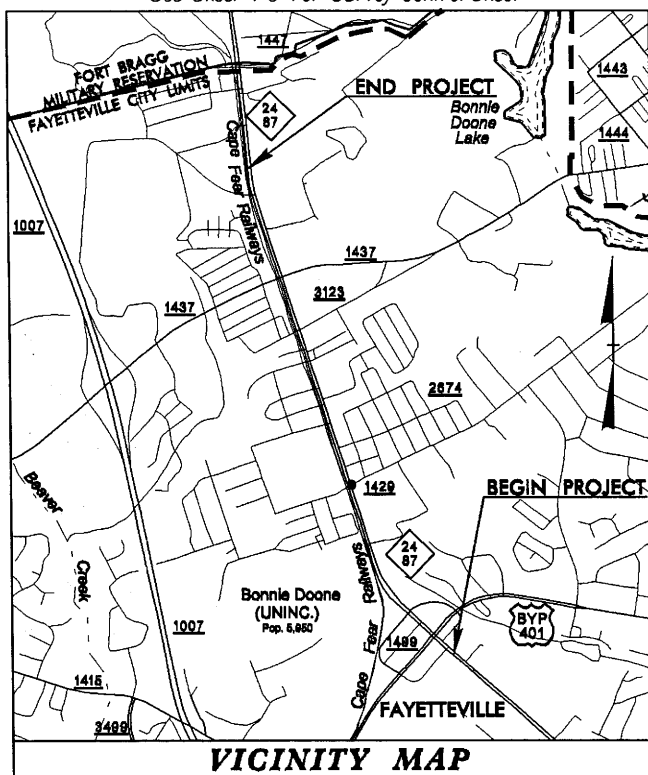
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-3423	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34942.1.1	NHF-24(12)	PE	
34942.2.2	NHF-24(12)	RW & UTIL.	

**CUMBERLAND COUNTY**

**LOCATION: NC 24 - 87 (BRAGG BOULEVARD)**  
**FROM THE US 401 BYPASS TO NORTH OF**  
**SR 1437 (SANTE FE DRIVE /SHAW ROAD)**  
**TYPE OF WORK: GRADING, DRAINAGE, PAVING, WIDENING,**  
**CURB & GUTTER, SIGNALS, AND**  
**OVERHEAD SIGNING**



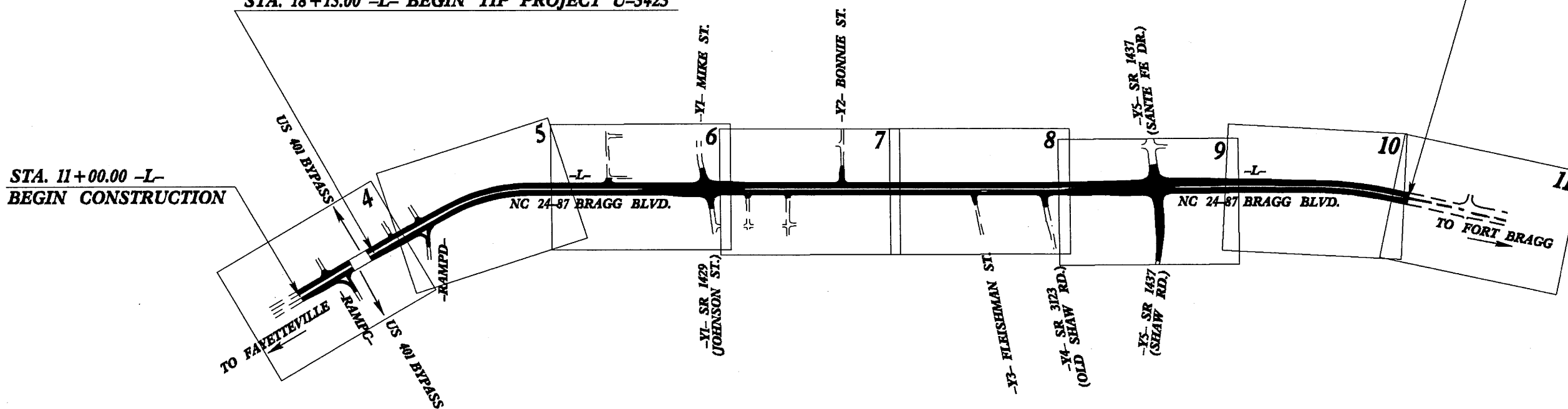
**TIP PROJECT: U-3423**



VICINITY MAP

STA. 105+57.51 -L- END TIP PROJECT U-3423

STA. 18+15.00 -L- BEGIN TIP PROJECT U-3423




STA. 11+00.00 -L-  
 BEGIN CONSTRUCTION

NOTE: THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF FAYETTEVILLE.  
 NOTE: CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

PRELIMINARY PLANS  
 DO NOT USE FOR CONSTRUCTION

**CONTRACT:**

<p><b>GRAPHIC SCALES</b></p> <p>50 25 0 50 100 PLANS</p> <p>50 25 0 50 100 PROFILE (HORIZONTAL)</p> <p>10 5 0 10 20 PROFILE (VERTICAL)</p>	<p><b>DESIGN DATA</b></p> <p>ADT 2010 = 43,200            ADT 2030 = 49,700            DHV = 9 %            D = 50 %            T = 11 % *            V = 50 MPH</p> <p>* TTST 4% + DUAL 7%            FUNC CLASS = ARTERIAL</p>	<p><b>PROJECT LENGTH</b></p> <p>LENGTH OF ROADWAY TIP PROJECT U-3423 = 1.656 MILES            TOTAL LENGTH OF TIP PROJECT U-3423 = 1.656 MILES</p>	<p>Prepared In the Office of:  <b>DIVISION OF HIGHWAYS</b>            1000 Birch Ridge Dr., Raleigh NC, 27610</p>	<p><b>HYDRAULICS ENGINEER</b></p> <p>SIGNATURE: _____ P.E.</p>	<p><b>DIVISION OF HIGHWAYS</b>            STATE OF NORTH CAROLINA</p>  <p>STATE HIGHWAY DESIGN ENGINEER P.E.</p>
			<p>2006 STANDARD SPECIFICATIONS</p> <p>RIGHT OF WAY DATE: <u>JUNE 20, 2008</u>            LETTING DATE: <u>JUNE 15, 2010</u></p>	<p><b>BRENDA MOORE, P.E.</b>            PROJECT ENGINEER</p> <p><b>JOYCE DREW</b>            PROJECT DESIGN ENGINEER</p>	

19-AUG-2009 14:44  
 r:\roadway\proj\U3423\_rdy\_tsh.dgn  
 Andrew A RD248598

10/25/05

Note: Not to Scale

\*S.U.E. = Subsurface Utility Engineering

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

Table listing symbols for boundaries and property: State Line, County Line, Township Line, City Line, Reservation Line, Property Line, Existing Iron Pin, Property Corner, Property Monument, Parcel/Sequence Number, Existing Fence Line, Proposed Woven Wire Fence, Proposed Chain Link Fence, Proposed Barbed Wire Fence, Existing Wetland Boundary, Proposed Wetland Boundary, Existing Endangered Animal Boundary, Existing Endangered Plant Boundary.

BUILDINGS AND OTHER CULTURE:

Table listing symbols for buildings and other culture: Gas Pump Vent or U/G Tank Cap, Sign, Well, Small Mine, Foundation, Area Outline, Cemetery, Building, School, Church, Dam.

HYDROLOGY:

Table listing symbols for hydrology: Stream or Body of Water, Hydro, Pool or Reservoir, Jurisdictional Stream, Buffer Zone 1, Buffer Zone 2, Flow Arrow, Disappearing Stream, Spring, Swamp Marsh, Proposed Lateral, Tail, Head Ditch, False Sump.

RAILROADS:

Table listing symbols for railroads: Standard Gauge, RR Signal Milepost, Switch, RR Abandoned, RR Dismantled.

RIGHT OF WAY:

Table listing symbols for right of way: Baseline Control Point, Existing Right of Way Marker, Existing Right of Way Line, Proposed Right of Way Line, Proposed Right of Way Line with Iron Pin and Cap Marker, Proposed Right of Way Line with Concrete or Granite Marker, Existing Control of Access, Proposed Control of Access, Existing Easement Line, Proposed Temporary Construction Easement, Proposed Temporary Drainage Easement, Proposed Permanent Drainage Easement, Proposed Permanent Utility Easement.

ROADS AND RELATED FEATURES:

Table listing symbols for roads and related features: Existing Edge of Pavement, Existing Curb, Proposed Slope Stakes Cut, Proposed Slope Stakes Fill, Proposed Wheel Chair Ramp, Existing Metal Guardrail, Proposed Guardrail, Existing Cable Guiderail, Proposed Cable Guiderail, Equality Symbol, Pavement Removal.

VEGETATION:

Table listing symbols for vegetation: Single Tree, Single Shrub, Hedge, Woods Line, Orchard, Vineyard.

EXISTING STRUCTURES:

Table listing symbols for existing structures: MAJOR: Bridge, Tunnel or Box Culvert, Bridge Wing Wall, Head Wall and End Wall; MINOR: Head and End Wall, Pipe Culvert, Footbridge, Drainage Box: Catch Basin, DI or JB, Paved Ditch Gutter, Storm Sewer Manhole, Storm Sewer.

UTILITIES:

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

TELEPHONE:

Table listing symbols for telephone: Existing Telephone Pole, Proposed Telephone Pole, Telephone Manhole, Telephone Booth, Telephone Pedestal, Telephone Cell Tower, U/G Telephone Cable Hand Hole, Recorded U/G Telephone Cable, Designated U/G Telephone Cable (S.U.E.\*), Recorded U/G Telephone Conduit, Designated U/G Telephone Conduit (S.U.E.\*), Recorded U/G Fiber Optics Cable, Designated U/G Fiber Optics Cable (S.U.E.\*).

WATER:

Table listing symbols for water: Water Manhole, Water Meter, Water Valve, Water Hydrant, Recorded U/G Water Line, Designated U/G Water Line (S.U.E.\*), Above Ground Water Line.

TV:

Table listing symbols for TV: TV Satellite Dish, TV Pedestal, TV Tower, U/G TV Cable Hand Hole, Recorded U/G TV Cable, Designated U/G TV Cable (S.U.E.\*), Recorded U/G Fiber Optic Cable, Designated U/G Fiber Optic Cable (S.U.E.\*).

GAS:

Table listing symbols for gas: Gas Valve, Gas Meter, Recorded U/G Gas Line, Designated U/G Gas Line (S.U.E.\*), Above Ground Gas Line.

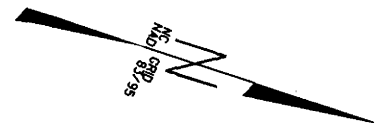
SANITARY SEWER:

Table listing symbols for sanitary sewer: Sanitary Sewer Manhole, Sanitary Sewer Cleanout, U/G Sanitary Sewer Line, Above Ground Sanitary Sewer, Recorded SS Forced Main Line, Designated SS Forced Main Line (S.U.E.\*).

MISCELLANEOUS:

Table listing symbols for miscellaneous: Utility Pole, Utility Pole with Base, Utility Located Object, Utility Traffic Signal Box, Utility Unknown U/G Line, U/G Tank; Water, Gas, Oil, AG Tank; Water, Gas, Oil, U/G Test Hole (S.U.E.\*), Abandoned According to Utility Records, End of Information.

# SURVEY CONTROL SHEET U-3423

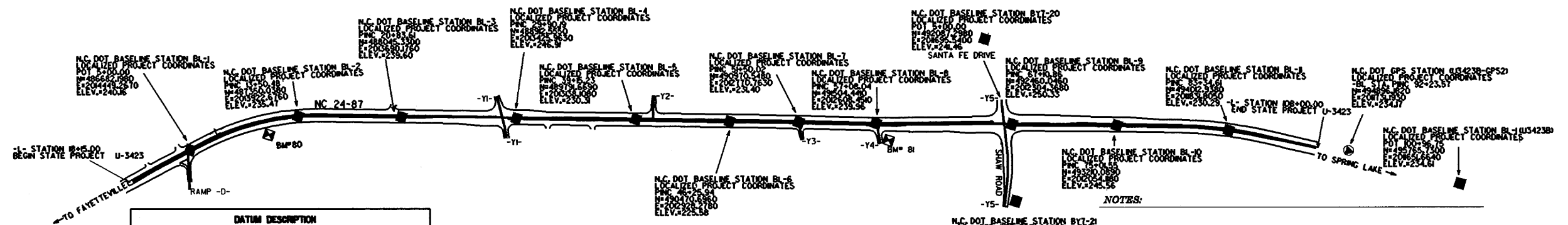


BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	U-3423A	BL-1	486682.1980	2014449.2670	240.16	23+00.31	2.74 RT
2	U-3423A	BL-2	487350.0380	2013922.6760	235.47	31+54.73	12.25 LT
3	U-3423	BL-3	488045.3300	2013690.1760	239.60	38+86.85	10.04 LT
4	U-3423A	BL-4	488912.5550	2013425.9630	246.91	47+93.37	0.58 RT
5	U-3423A	BL-5	489791.6690	2013138.1080	230.31	57+18.37	7.73 LT
6	U-3423A	BL-6	490470.6960	2012928.2780	225.58	64+29.06	2.22 LT
7	U-3423A	BL-7	490970.5480	2012770.7630	231.40	69+53.12	2.66 LT
8	U-3423A	BL-8	491504.4410	2012608.4510	239.96	75+11.14	1.54 LT
9	U-3423A	BL-9	492460.0460	2012304.3680	250.33	85+14.01	16.55 RT
10	U-3423A	BL-10	493210.0890	2012054.1180	245.56	93+04.84	4.76 RT
11	U-3423A	BL-11	494012.9380	2011831.8050	238.29	101+39.66	11.56 RT
12	U-3423B	GPS2	494896.1820	2011731.1930	234.17	110+29.92	8.18 RT
13	U-3423B	BL-1	495765.7380	2011651.6640	234.61	OUTSIDE PROJECT LIMITS	

BY7	POINT	DESC.	NORTH	EAST	ELEVATION	Y5 STATION	OFFSET
20	U-3423A	BY7-20	492087.2980	2011695.5480	241.46	10+18.32	38.12 RT
90	U-3423A	BL-9	492460.0460	2012304.3680	250.33	17+27.37	49.54 LT
21	U-3423A	BY7-21	492627.1400	2012881.6380	245.98	23+20.28	28.25 LT

.....  
 BM80 ELEVATION = 231.53  
 N 487229 E 2014117  
 L STATION 29+53 104 RIGHT  
 R/R SPIKE IN BASE OF SIGN POLE  
 .....

.....  
 BM81 ELEVATION = 241.62  
 N 491629 E 2012895  
 L STATION 76+04 118 RIGHT  
 P/K NAIL IN BST PARKING LOT  
 .....



**DATUM DESCRIPTION**  
 THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "ACACIA"  
 WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF  
 NORTHING: 466066.280(+1) EASTING: 1984258.880(+1)  
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 99974730  
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "ACACIA" TO -L- STATION 18+45.00 IS  
 N 56° 24' 51.9\"/>

**NOTES:**

- THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:  
[HTTP://WWW.DOE.DOT.STATE.NC.US/PHCONSTRUCT/HIGHWAY/LOCATION/PROJECT](http://www.doe.dot.state.nc.us/PHCONSTRUCT/HIGHWAY/LOCATION/PROJECT)  
 THE FILES TO BE FOUND ARE AS FOLLOWS:  
 U3423\_LS\_CONTROL\_071119.TXT  
 SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
- INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.  
 PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.  
 NETWORK ESTABLISHED FROM EXISTING EARN MONUMENTATION  
 SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

NOTE: DRAWING NOT TO SCALE

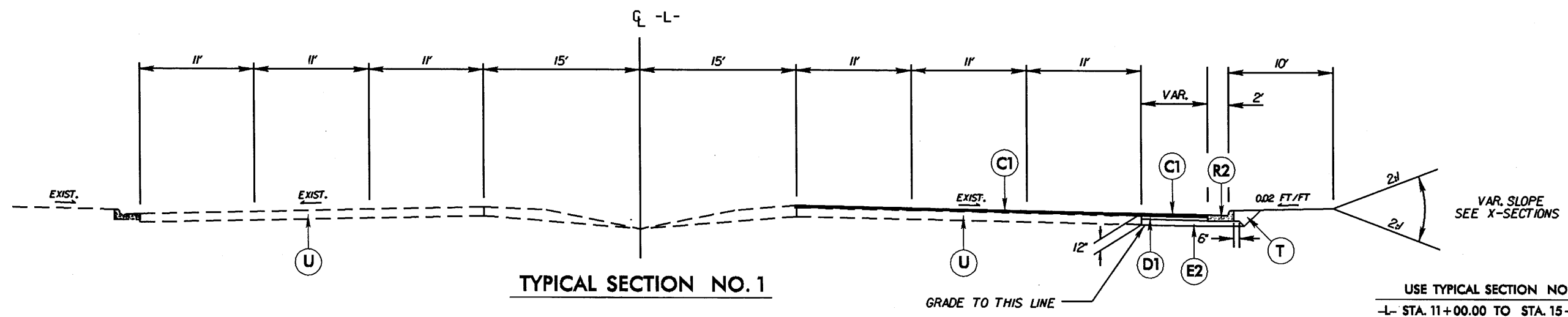
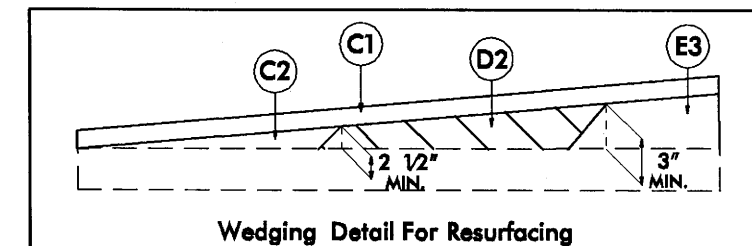
6/2/99

# PAVEMENT SCHEDULE

(PRELIMINARY PAVEMENT DESIGN)

PROJECT REFERENCE NO. <b>U-3423</b>	SHEET NO. <b>2</b>
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
<b>PRELIMINARY PLANS</b> <small>DO NOT USE FOR CONSTRUCTION</small>	

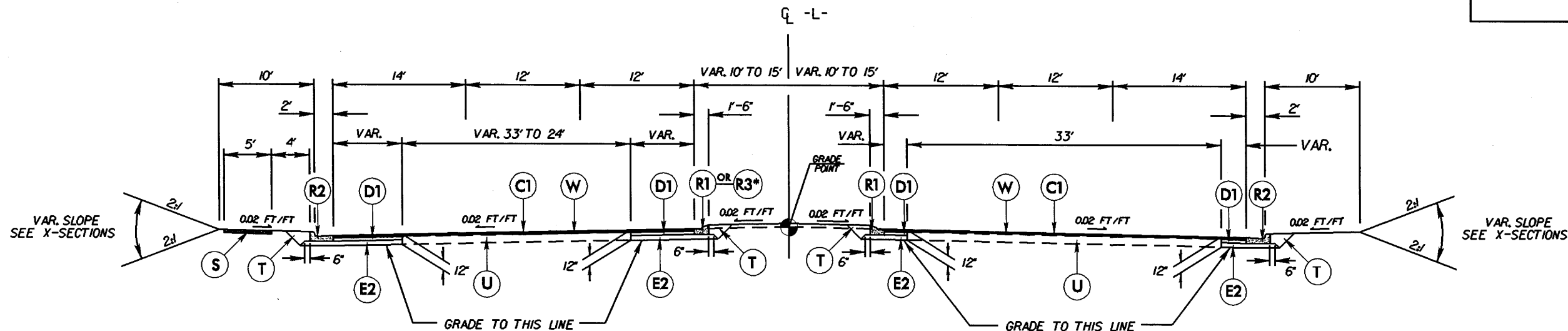
<b>C1</b>	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	<b>R4</b>	5" MONOLITHIC CONCRETE ISLAND.
<b>C2</b>	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1½" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.	<b>S</b>	4" CONCRETE SIDEWALK.
<b>D1</b>	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	<b>T</b>	EARTH MATERIAL.
<b>D2</b>	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.	<b>U</b>	EXISTING PAVEMENT.
<b>E1</b>	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	<b>W</b>	WEDGING (SEE DETAIL THIS SHEET).
<b>E2</b>	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.	NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.	
<b>E3</b>	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.		
<b>R1</b>	1'-6" CONCRETE CURB AND GUTTER.		
<b>R2</b>	2'-6" CONCRETE CURB AND GUTTER.		
<b>R3</b>	2'-9" CONCRETE CURB AND GUTTER.		



19-AUG-2009 14:44  
U:\PROJECTS\2423.rdy-tp.dgn

6/2/99

PROJECT REFERENCE NO. U-3423	SHEET NO. 2-A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
<b>PRELIMINARY PLANS</b>	
<small>DO NOT USE FOR CONSTRUCTION</small>	

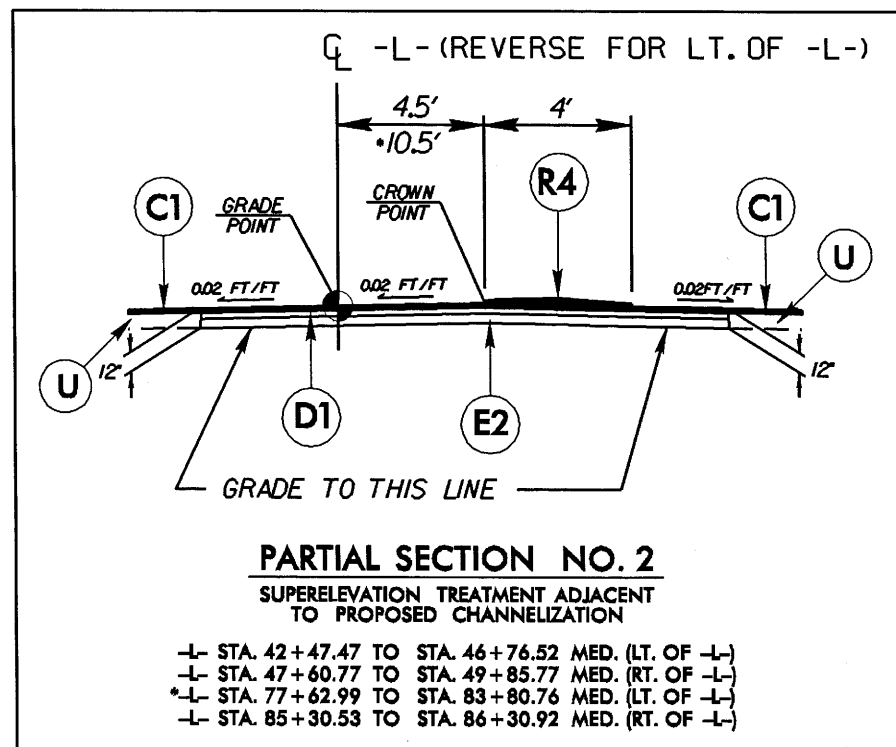


**TYPICAL SECTION NO. 2**

USE TYPICAL SECTION NO. 2

-L- STA. 17+99.10 TO STA. 95+50.00  
\* SEE PARTIAL SECTION NO. 2A

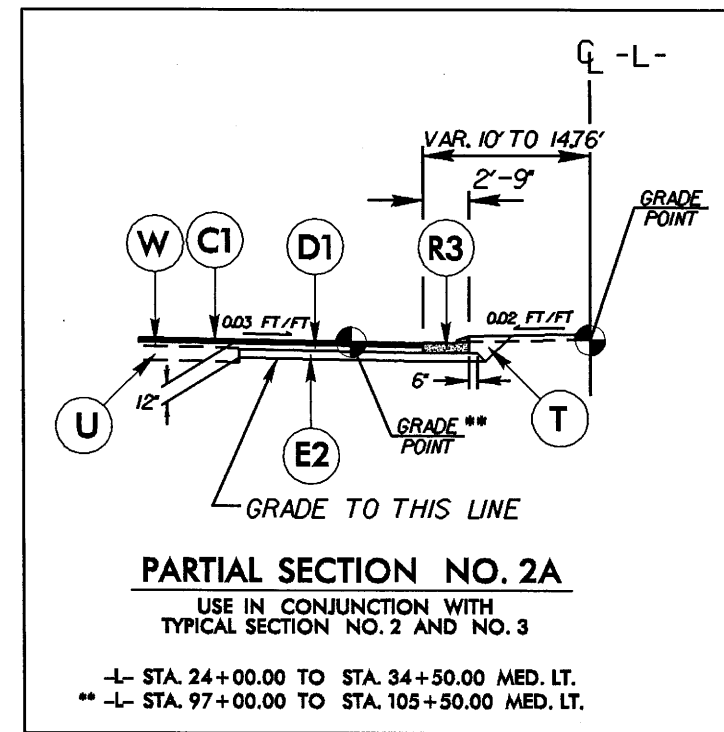
NOTE: TRANSITION FROM 11' LANES TO 12' LANES  
STA. 23+91.82 TO STA. 28+86.82



**PARTIAL SECTION NO. 2**

SUPERELEVATION TREATMENT ADJACENT TO PROPOSED CHANNELIZATION

- L- STA. 42+47.47 TO STA. 46+76.52 MED. (LT. OF -L-)
- L- STA. 47+60.77 TO STA. 49+85.77 MED. (RT. OF -L-)
- \*-L- STA. 77+62.99 TO STA. 83+80.76 MED. (LT. OF -L-)
- L- STA. 85+30.53 TO STA. 86+30.92 MED. (RT. OF -L-)



**PARTIAL SECTION NO. 2A**

USE IN CONJUNCTION WITH TYPICAL SECTION NO. 2 AND NO. 3

- L- STA. 24+00.00 TO STA. 34+50.00 MED. LT.
- \*\* -L- STA. 97+00.00 TO STA. 105+50.00 MED. LT.

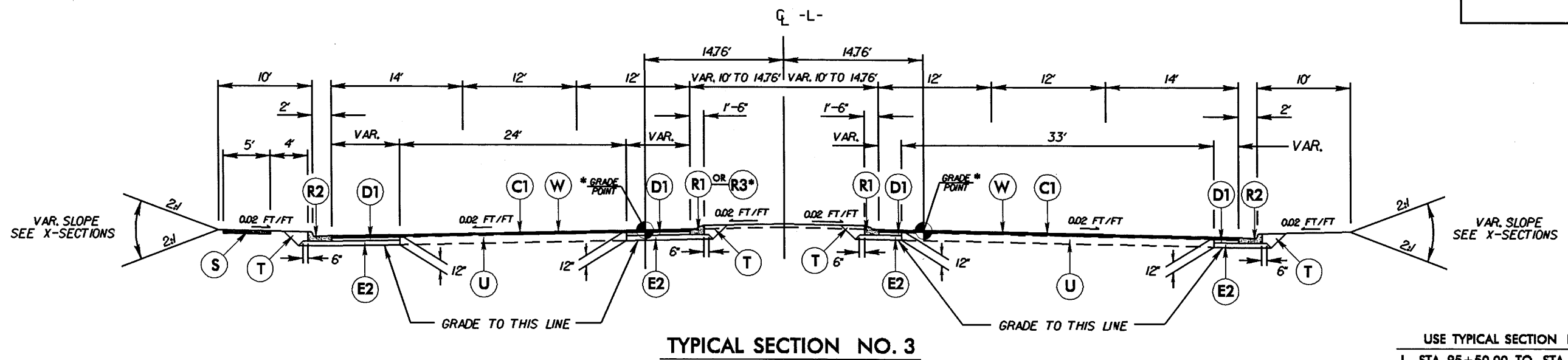
PAVEMENT SCHEDULE (PRELIMINARY PAVEMENT DESIGN)	
C1	3" S9.5C
C2	VAR. S9.5C
D1	4" I19.0C
D2	VAR. I19.0C
E1	4" B25.0C
E2	5" B25.0C
E3	VAR. B25.0C
R1	1'-8" C & G
R2	2'-8" C & G
R3	2'-9" C & G
R4	5" MON. CONC. ISL.
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING

19-AUG-2009 14:44  
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6/2/99

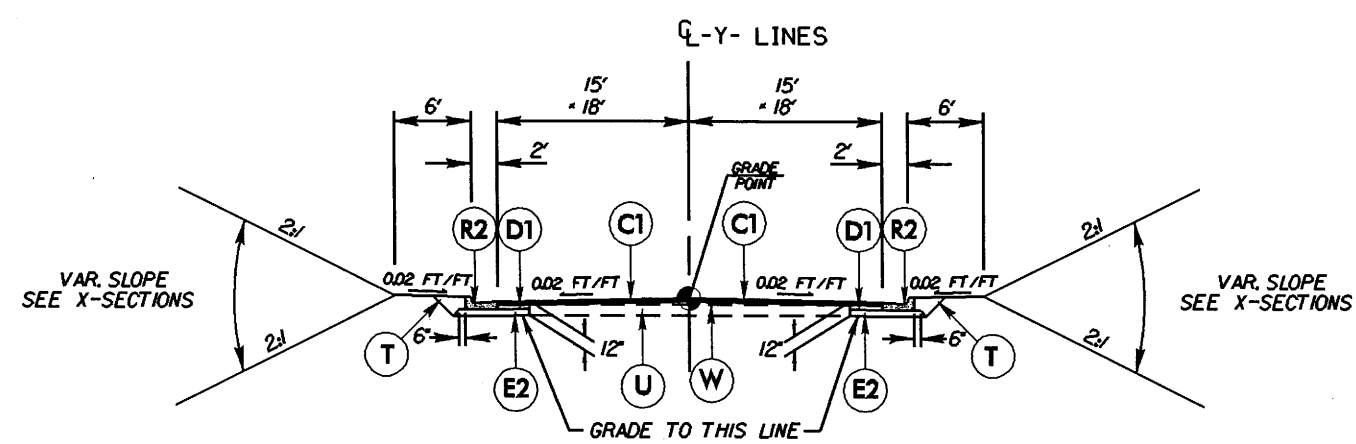
19-AUG-2009 14:44  
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PROJECT REFERENCE NO. U-3423	SHEET NO. 2-B
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



**TYPICAL SECTION NO. 3**

USE TYPICAL SECTION NO. 3  
 -L- STA. 95+50.00 TO STA. 105+57.51  
 \* SEE PARTIAL SECTION NO. 2A



**TYPICAL SECTION NO. 4**

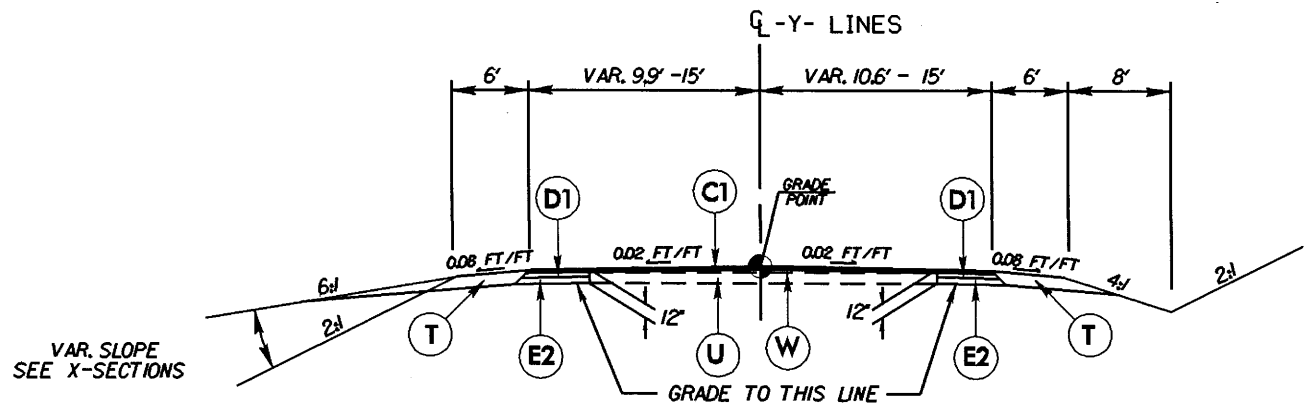
USE TYPICAL SECTION NO. 4  
 \* -Y1- STA. 12+50.00 TO STA. 13+56.28  
 \* -Y1- STA. 14+80.39 TO STA. 15+75.00  
 \* -Y2- STA. 11+25.00 TO STA. 12+08.32  
 \* -Y3- STA. 10+49.09 TO STA. 10+93.00  
 \* -Y4- STA. 10+49.11 TO STA. 11+50.00

PAVEMENT SCHEDULE (PRELIMINARY PAVEMENT DESIGN)	
C1	3" S9.5C
C2	VAR. S9.5C
D1	4" I19.0C
D2	VAR. I19.0C
E1	4" B25.0C
E2	5" B25.0C
E3	VAR. B25.0C
R1	1'-6" C & G
R2	2'-6" C & G
R3	2'-0" C & G
R4	5" MON. CONC. ISL.
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING



6/2/99

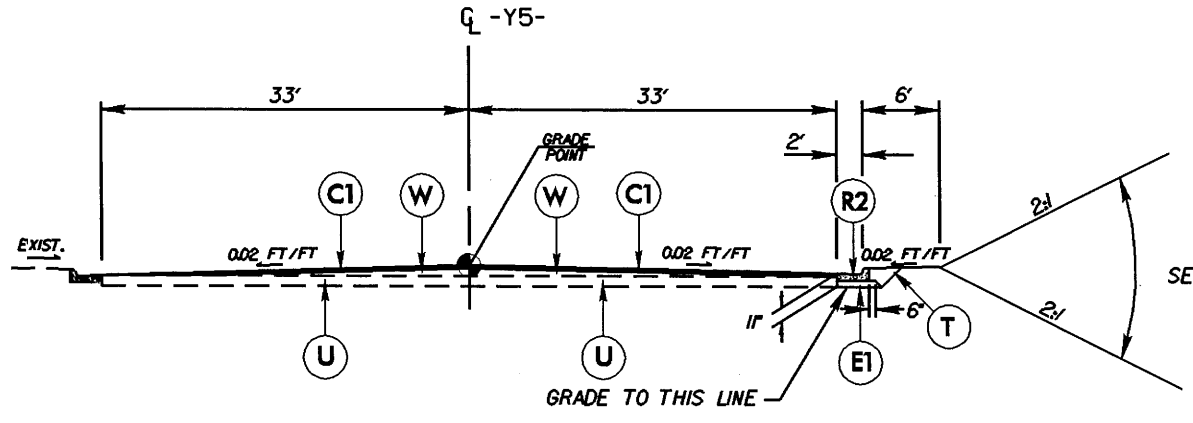
PROJECT REFERENCE NO. U-3423	SHEET NO. 2-C
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



VAR. SLOPE  
SEE X-SECTIONS

**TYPICAL SECTION NO. 5**

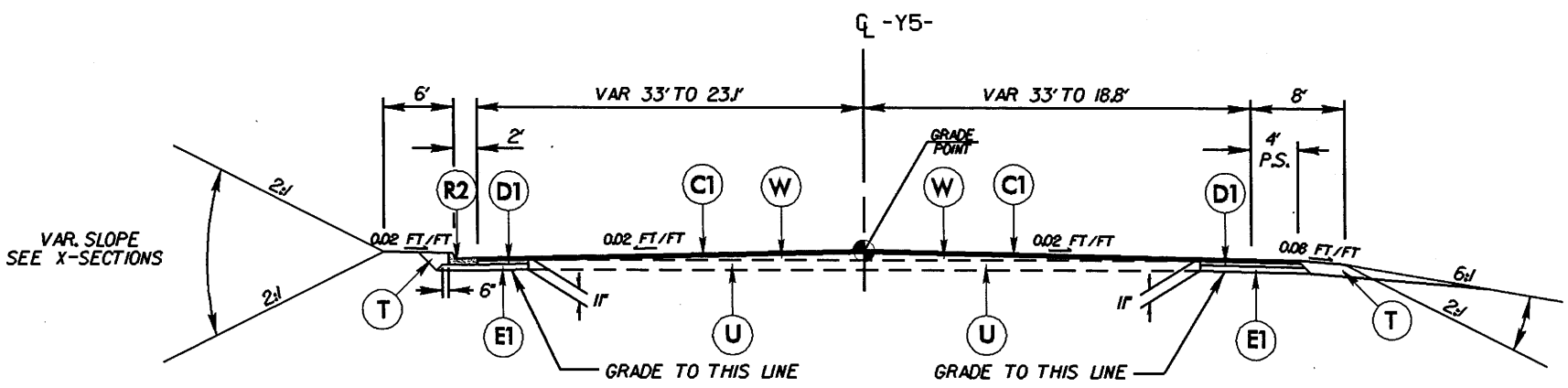
USE TYPICAL SECTION NO. 5  
-Y2- STA. 10+75.00 TO STA. 11+25.00



VAR. SLOPE  
SEE X-SECTIONS

**TYPICAL SECTION NO. 6**

USE TYPICAL SECTION NO. 6  
-Y5- STA. 14+10.00 TO STA. 16+35.00



VAR. SLOPE  
SEE X-SECTIONS

**TYPICAL SECTION NO. 7**

USE TYPICAL SECTION NO. 7  
-Y5- STA. 17+71.31 TO STA. 22+00.00

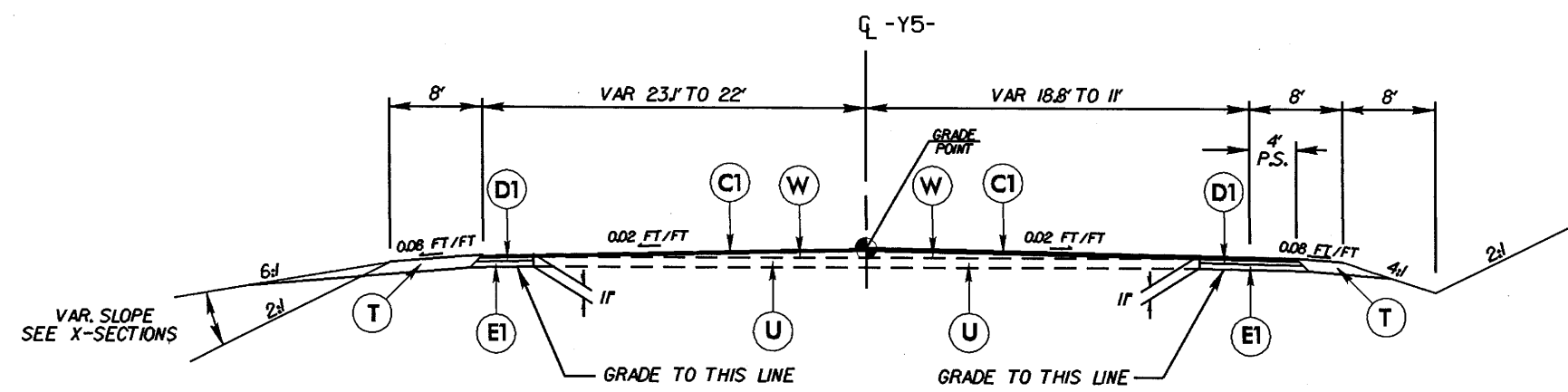
PAVEMENT SCHEDULE (PRELIMINARY PAVEMENT DESIGN)	
C1	3" S9.5C
C2	VAR. S9.5C
D1	4" I19.0C
D2	VAR. I19.0C
E1	4" B25.0C
E2	5" B25.0C
E3	VAR. B25.0C
R1	1'-6" C & G
R2	2'-6" C & G
R3	2'-9" C & G
R4	5" MON. CONC. ISL.
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING

19-AUG-2009 14:44 U:\3423\_rdy\_sfp.dgn

6/2/99

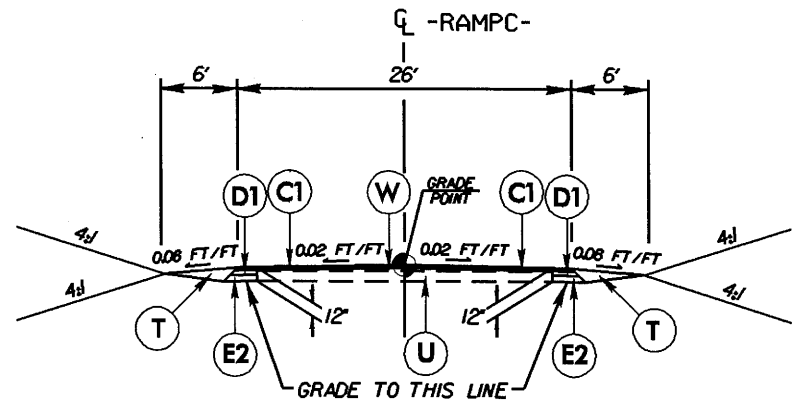
19-AUG-2009 14:44  
 P:\3423\1444\19-AUG-2009 14:44\U3423.dwg tujp.dgn

PROJECT REFERENCE NO. U-3423	SHEET NO. 2-D
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



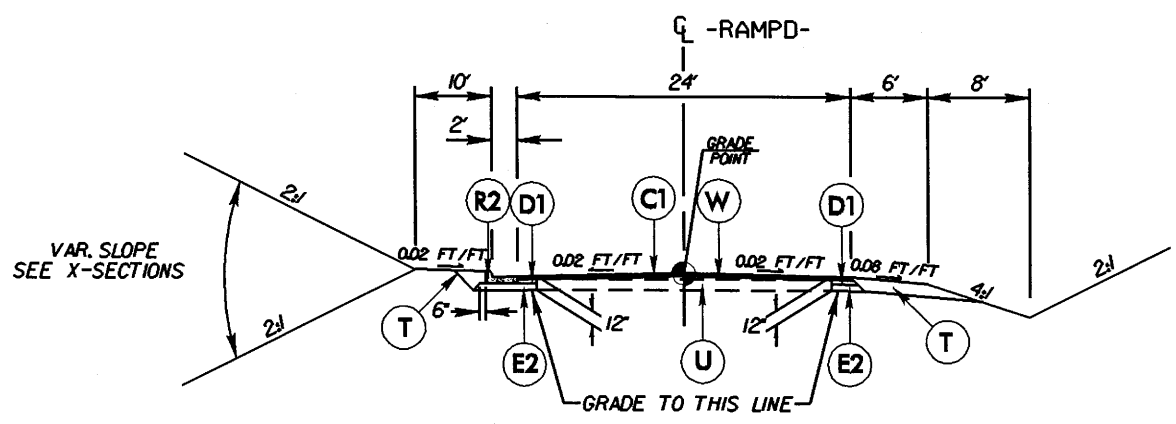
**TYPICAL SECTION NO. 8**

USE TYPICAL SECTION NO. 8  
 -Y5- STA. 22+00.00 TO STA. 23+25.00



**TYPICAL SECTION NO. 9**

USE TYPICAL SECTION NO. 9  
 -RAMPC- STA. 10+48.62 TO STA. 12+00.00



**TYPICAL SECTION NO. 10**

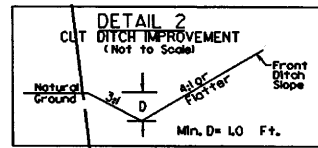
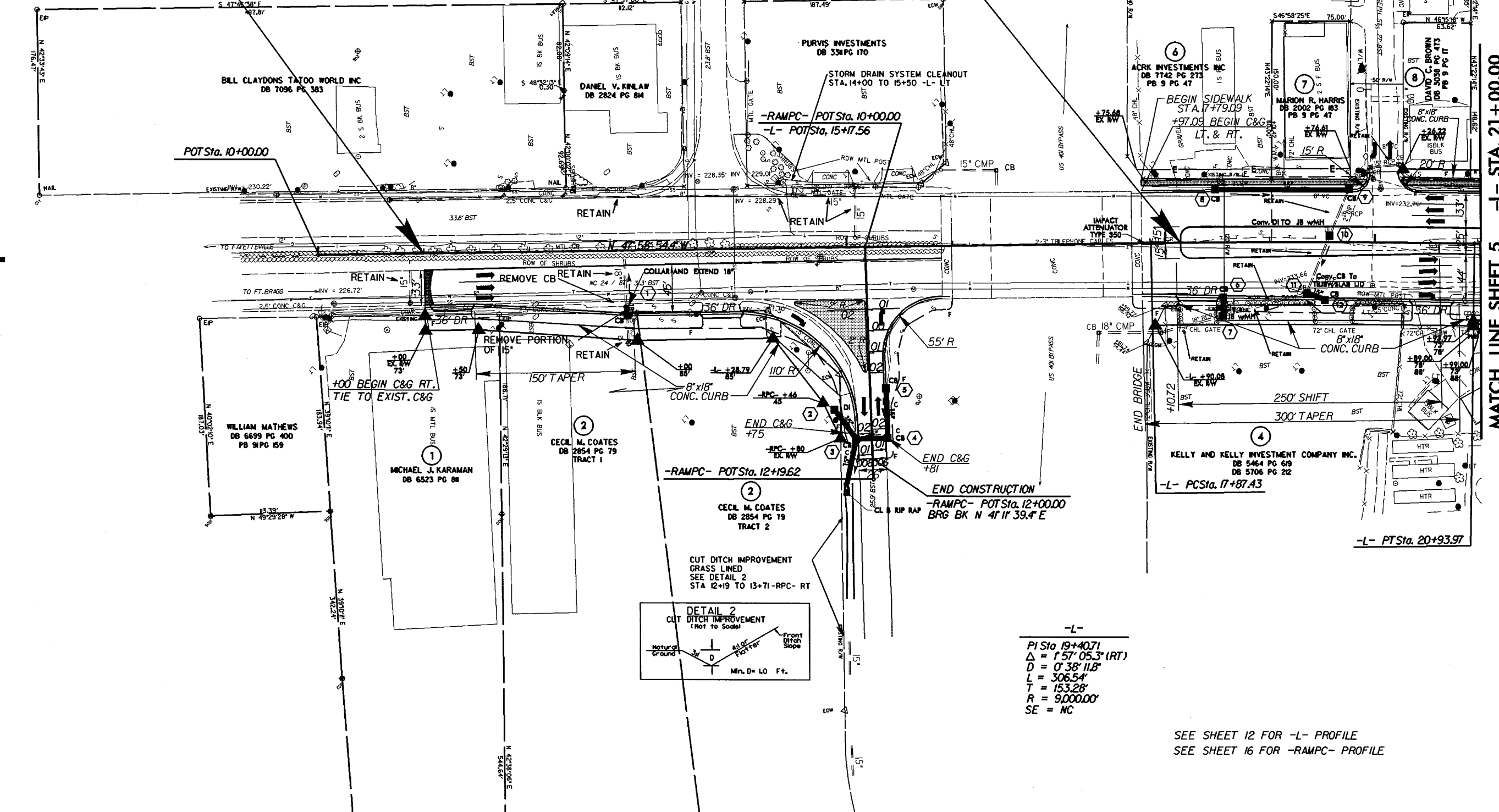
USE TYPICAL SECTION NO. 10  
 -RAMPD- STA. 10+59.47 TO STA. 12+25.00

PAVEMENT SCHEDULE (PRELIMINARY PAVEMENT DESIGN)	
C1	3" S9.5C
C2	VAR. S9.5C
D1	4" I19.0C
D2	VAR. I19.0C
E1	4" B25.0C
E2	5" B25.0C
E3	VAR. B25.0C
R1	1'-6" C & G
R2	2'-6" C & G
R3	2'-9" C & G
R4	5" MON. CONC. ISL.
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING

PROJECT REFERENCE NO.	SHEET NO.
U-3423	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

**STA. 18+15.00 -L- BEGIN TIP PROJECT U-3423**

**STA. 11+00.00 -L-  
BEGIN CONSTRUCTION**



-L-  
 P/ Sta 19+40.71  
 $\Delta = 1' 57'' 05.3''$  (RT)  
 $D = 0' 38'' 11.8''$   
 $L = 306.54'$   
 $T = 153.28'$   
 $R = 9,000.00'$   
 $SE = NC$

SEE SHEET 12 FOR -L- PROFILE  
 SEE SHEET 16 FOR -RAMPC- PROFILE

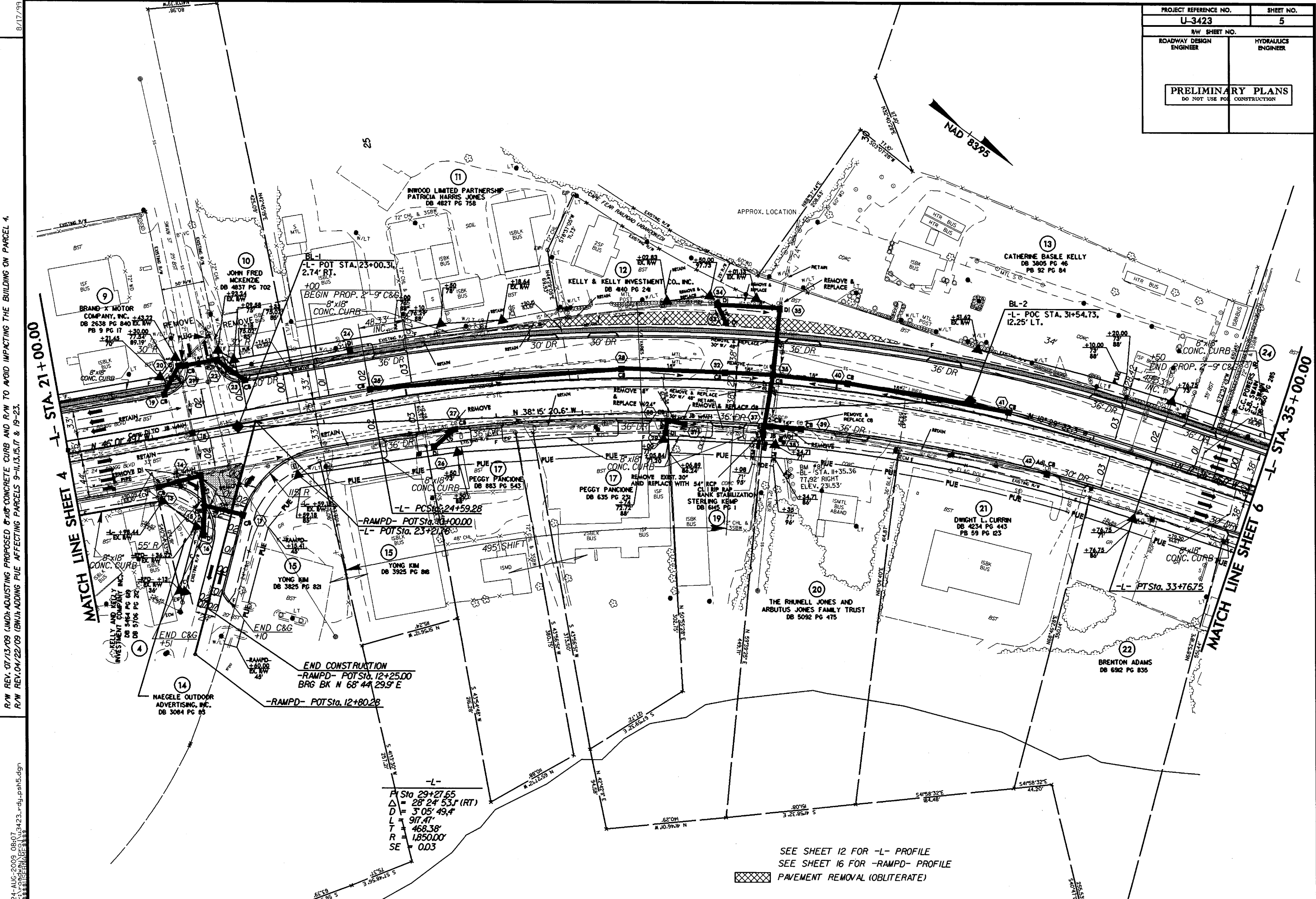
REVISIONS  
 R/W REV. 07/13/09 (JMD)-ADJUSTING PROPOSED 8'-X18" CONCRETE CURB AND R/W TO AVOID IMPACTING THE BUILDING ON PARCEL 4.  
 R/W REV. 04/22/09 (BMD)-ADDING PIE AFFECTING PARCEL 4.

8/17/99

19-AUG-2009 14:44  
 U:\3423.L-rdy-pash4.dgn  
 5348589461

MATCH LINE SHEET 5 -L- STA. 21+00.00

PROJECT REFERENCE NO.	SHEET NO.
U-3423	5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



8/17/99  
 R/W REV. 07/13/09 (MND) ADJUSTING PROPOSED 8'x18" CONCRETE CURB AND R/W TO AVOID IMPACTING THE BUILDING ON PARCEL 4.  
 R/W REV. 04/22/09 (ENH) ADDING PUE AFFECTING PARCELS 9-11, 13, 15, 17 & 19-23.

REVISIONS

24-AUG-2009 08:07 U:\3423.rdw.pshb.dgn  
 1:33:33

-L-  
 P Sta 29+27.55  
 $\Delta = 28' 24" 53.1' (RT)$   
 $D = 3' 05" 49.4'$   
 $L = 917.41'$   
 $T = 468.38'$   
 $R = 1,850.00'$   
 $SE = 0.03$

SEE SHEET 12 FOR -L- PROFILE  
 SEE SHEET 16 FOR -RAMPD- PROFILE  
 PAVEMENT REMOVAL (OBLITERATE)

8/17/99

R/W REV. 04/22/09 (B)U/A-DODDING PUE AFFECTING PARCELS 23,25A,25B,26-27,29-35, & 37.

24-AUG-2009 08:20:3423.rdy.pch6.dgn

PROJECT REFERENCE NO. <b>U-3423</b>	SHEET NO. <b>6</b>
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

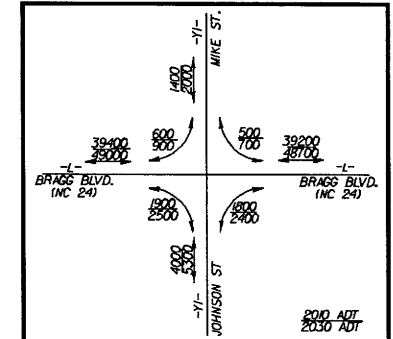
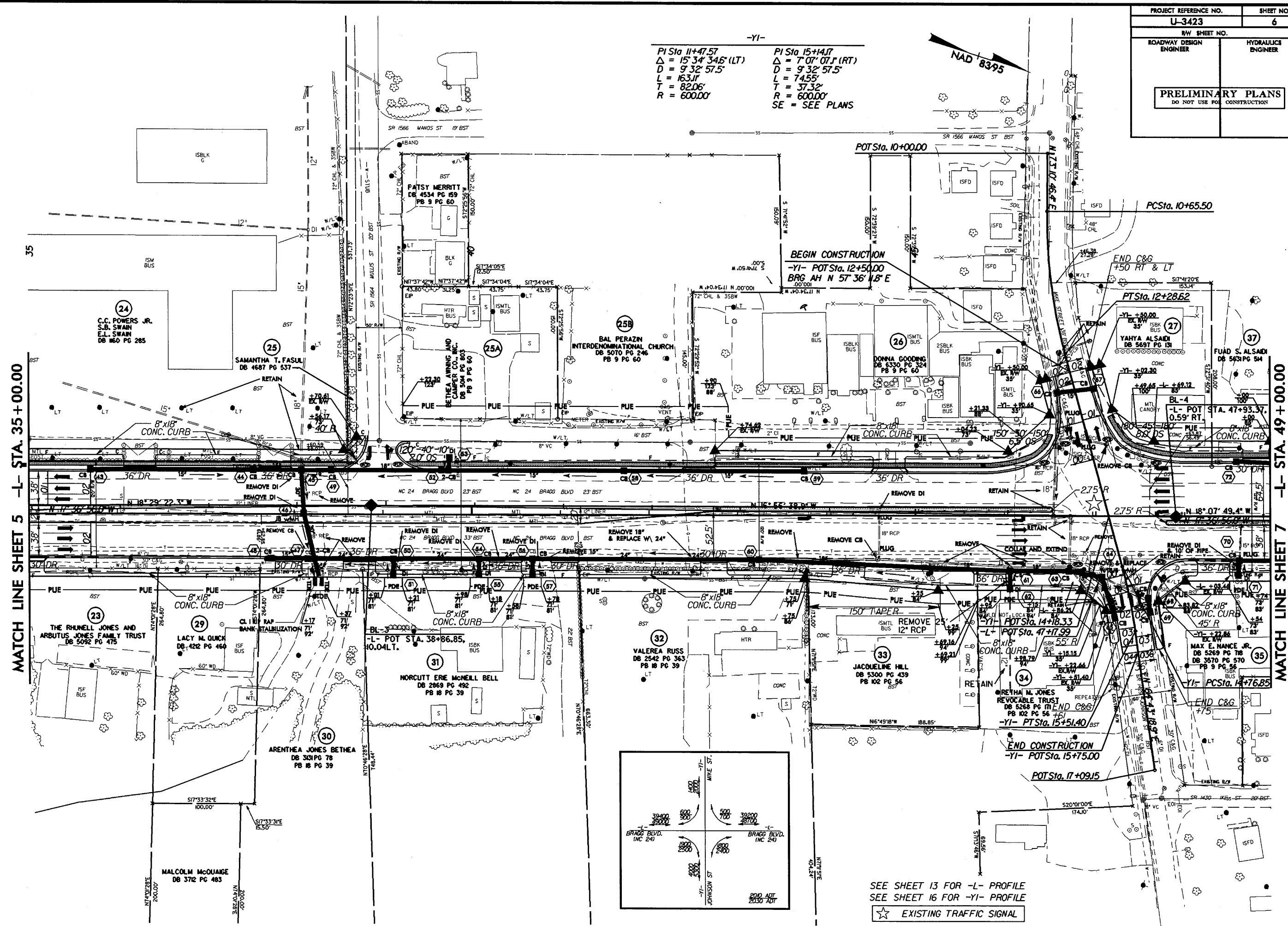
-YI-

PI Sta 11+47.57 Δ = 15° 34' 34" (LT) D = 9° 32' 57.5" L = 163.11' T = 82.06' R = 600.00'	PI Sta 15+14.17 Δ = 7° 07' 07" (RT) D = 9° 32' 57.5" L = 74.55' T = 37.32' R = 600.00' SE = SEE PLANS
---	---



MATCH LINE SHEET 5 -L- STA. 35+00.00

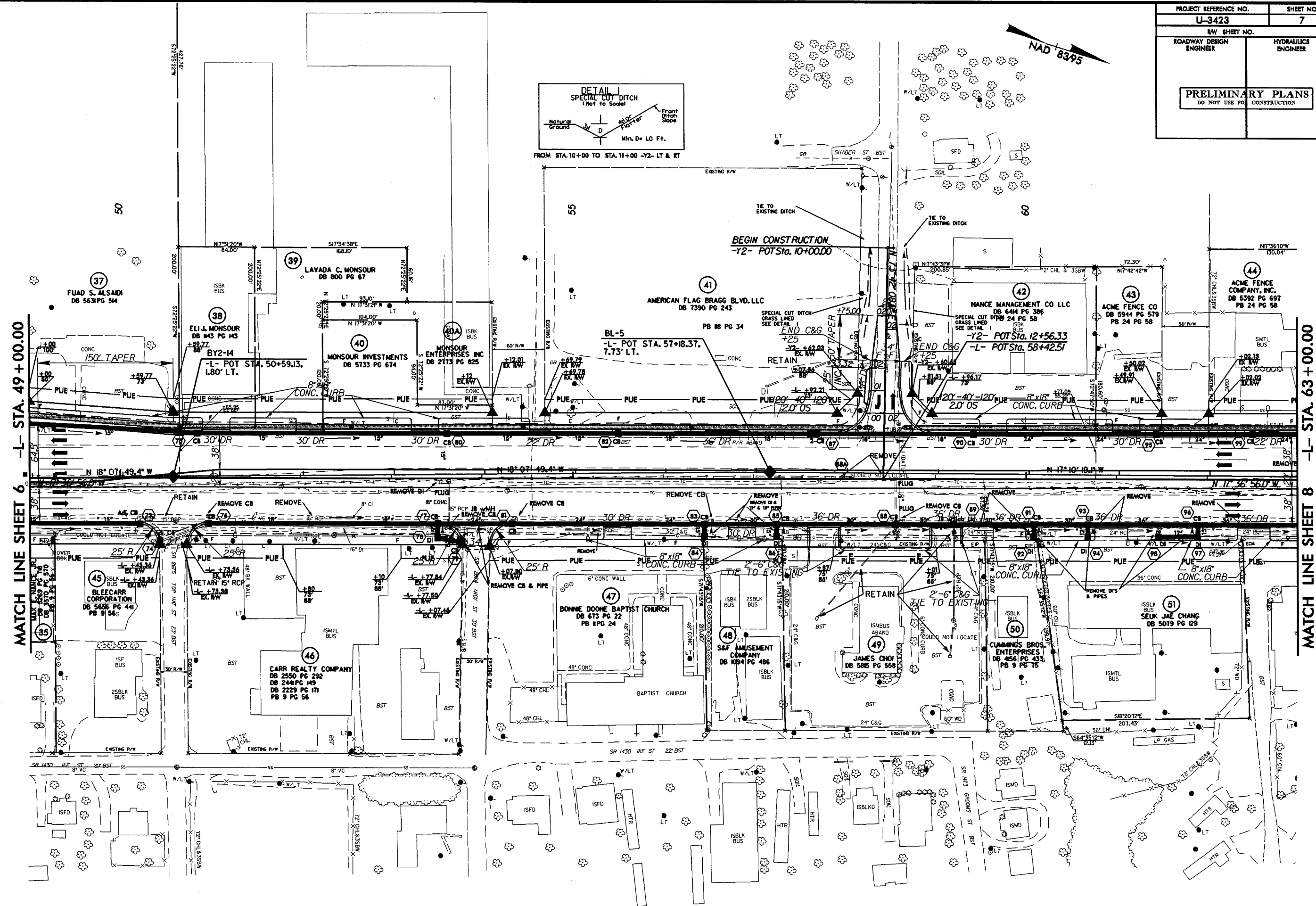
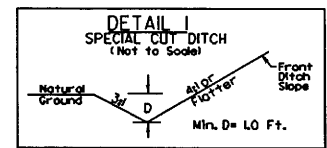
MATCH LINE SHEET 7 -L- STA. 49+00.00



SEE SHEET 13 FOR -L- PROFILE  
SEE SHEET 16 FOR -YI- PROFILE

★ EXISTING TRAFFIC SIGNAL

PROJECT REFERENCE NO. <b>U-3423</b>		SHEET NO. <b>7</b>	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION			



MATCH LINE SHEET 6 -L- STA. 49 + 00.00

MATCH LINE SHEET 8 -L- STA. 63 + 00.00

REVISIONS

R/W REV.04/22/09 (BNI) ADDING PUE AFFECTING PARCELS 35 & 37-52.

19-AUG-2009 14:44 U-3423-rdy-psh7.dgn

SEE SHEET 13 FOR -L- PROFILE  
SEE SHEET 16 FOR -Y2- PROFILE

8/17/99

R/W REV. 04/22/09 (BNU) ADDING PUE AFFECTING PARCELS 44.52-55.57-58.60.62.64.67-68 & 71.

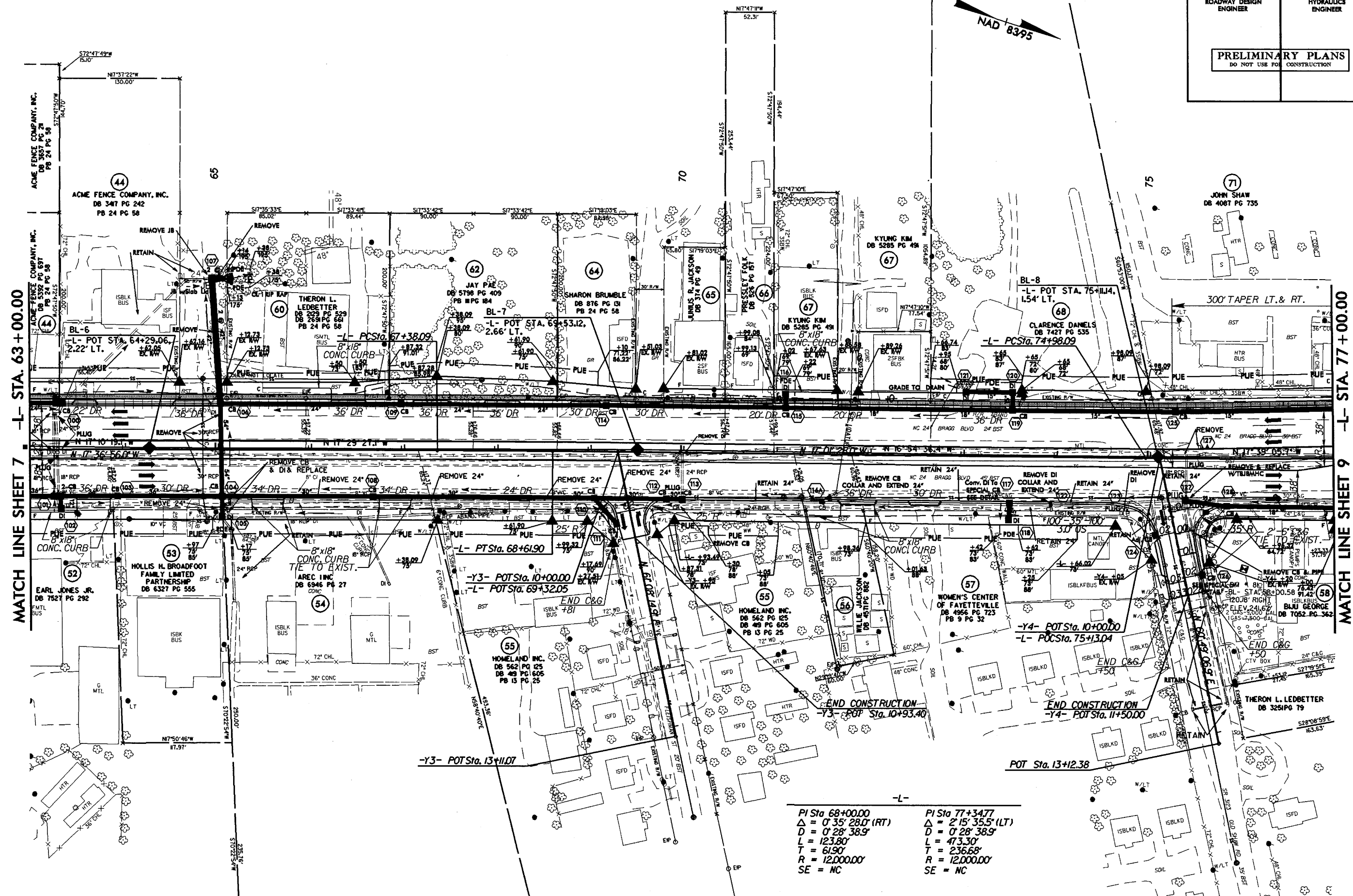
19-AUG-2009 14:44 U:\3423\cdy\_psh8.dgn

PROJECT REFERENCE NO. <b>U-3423</b>		SHEET NO. <b>8</b>	
RAW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION			



MATCH LINE SHEET 7 -L- STA. 63+00.00

MATCH LINE SHEET 9 -L- STA. 77+00.00



-L-	-L-
PI Sta 68+00.00	PI Sta 77+34.77
Δ = 0° 35' 28.0" (RT)	Δ = 2° 15' 35.5" (LT)
D = 0' 28' 38.9"	D = 0' 28' 38.9"
L = 123.80'	L = 47.330'
T = 61.90'	T = 236.68'
R = 12,000.00'	R = 12,000.00'
SE = NC	SE = NC

SEE SHEET 14 FOR -L- PROFILE  
SEE SHEET 17 FOR -Y3- & -Y4- PROFILE

8/17/99

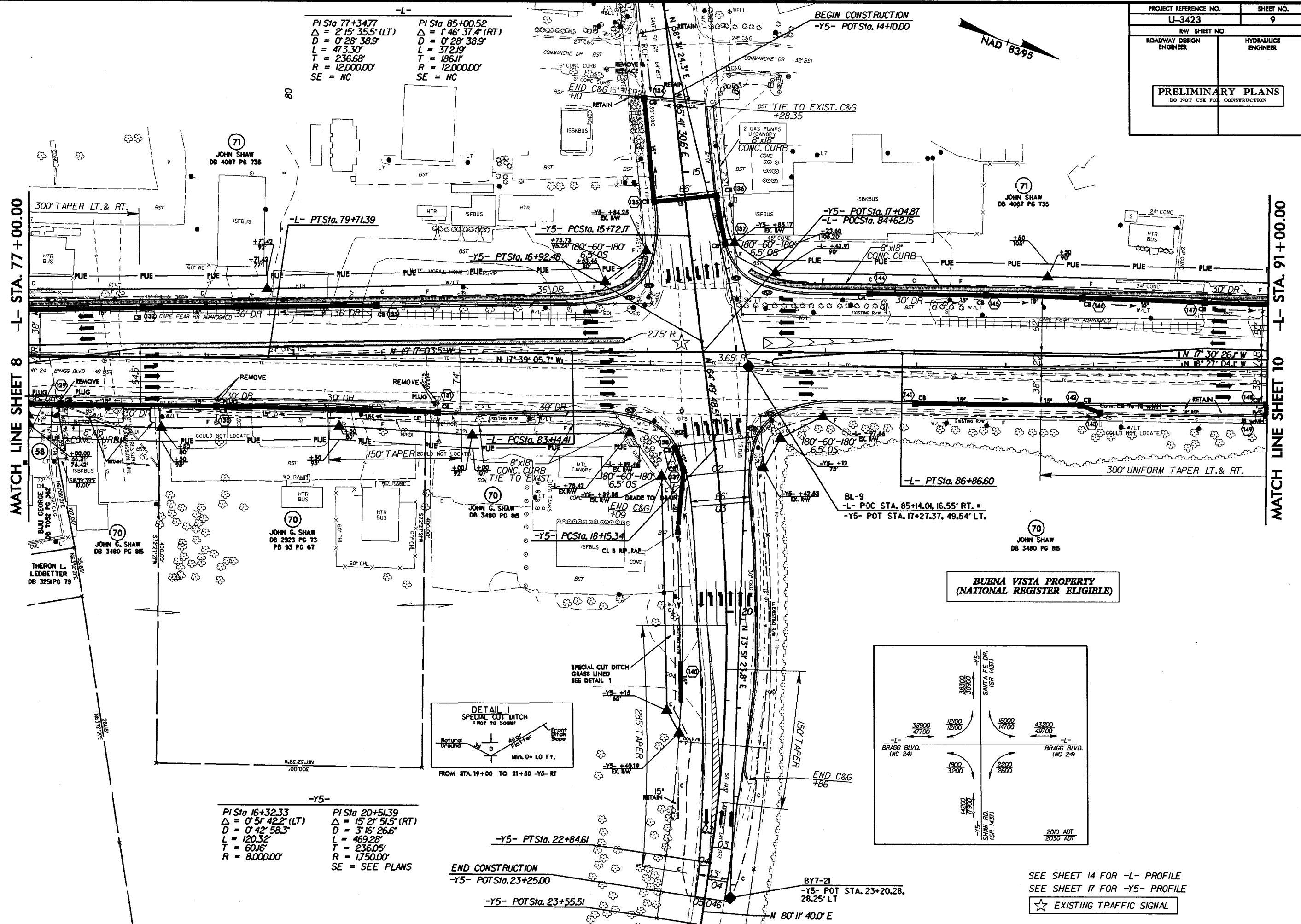
R/W REV. 04/22/09 (ENH) ADDING PUE AFFECTING PARCELS 58, 70 & 71.

19-AUG-2009 14:45 3423-rdy-psh.dgn

PROJECT REFERENCE NO. <b>U-3423</b>	SHEET NO. <b>9</b>
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

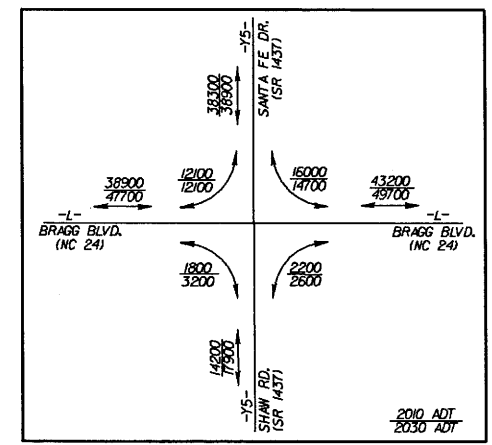
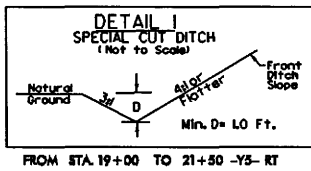
MATCH LINE SHEET 8 -L- STA. 77+00.00

MATCH LINE SHEET 10 -L- STA. 91+00.00



-L-  
 PI Sta 77+34.77    PI Sta 85+00.52  
 $\Delta = 2' 15" 35.5' (LT)$      $\Delta = 1' 46" 37.4' (RT)$   
 $D = 0' 28" 38.9'$      $D = 0' 28" 38.9'$   
 $L = 473.30'$      $L = 372.19'$   
 $T = 236.68'$      $T = 186.11'$   
 $R = 12,000.00'$      $R = 12,000.00'$   
 SE = NC    SE = NC

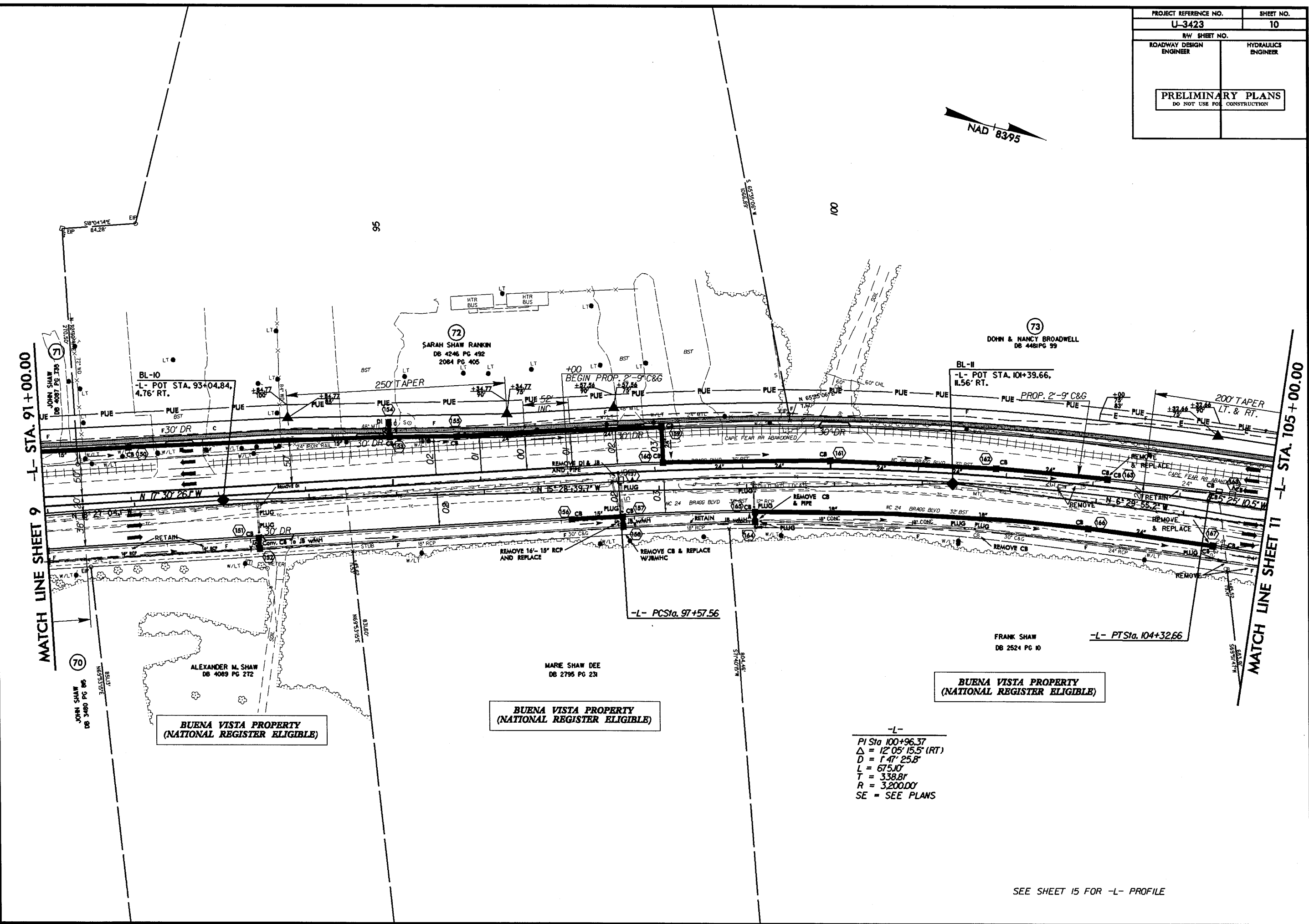
-Y5-  
 PI Sta 16+32.33    PI Sta 20+51.39  
 $\Delta = 0' 51" 42.2' (LT)$      $\Delta = 15' 21" 51.5' (RT)$   
 $D = 0' 42" 58.3'$      $D = 3' 16" 26.6'$   
 $L = 120.32'$      $L = 469.28'$   
 $T = 60.16'$      $T = 236.05'$   
 $R = 8,000.00'$      $R = 1750.00'$   
 SE = SEE PLANS



SEE SHEET 14 FOR -L- PROFILE  
 SEE SHEET 17 FOR -Y5- PROFILE  
 ☆ EXISTING TRAFFIC SIGNAL



PROJECT REFERENCE NO.	SHEET NO.
U-3423	10
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



REVISIONS

R/W REV. 04/22/09 (ENH) ADDING PUE AFFECTING PARCELS 71-73.

19-AUG-2009 14:45  
 5:34:23...rdj...evh.dgn

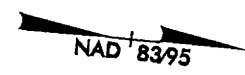
MATCH LINE SHEET 9 -L- STA. 91+00.00

MATCH LINE SHEET 11 -L- STA. 105+00.00

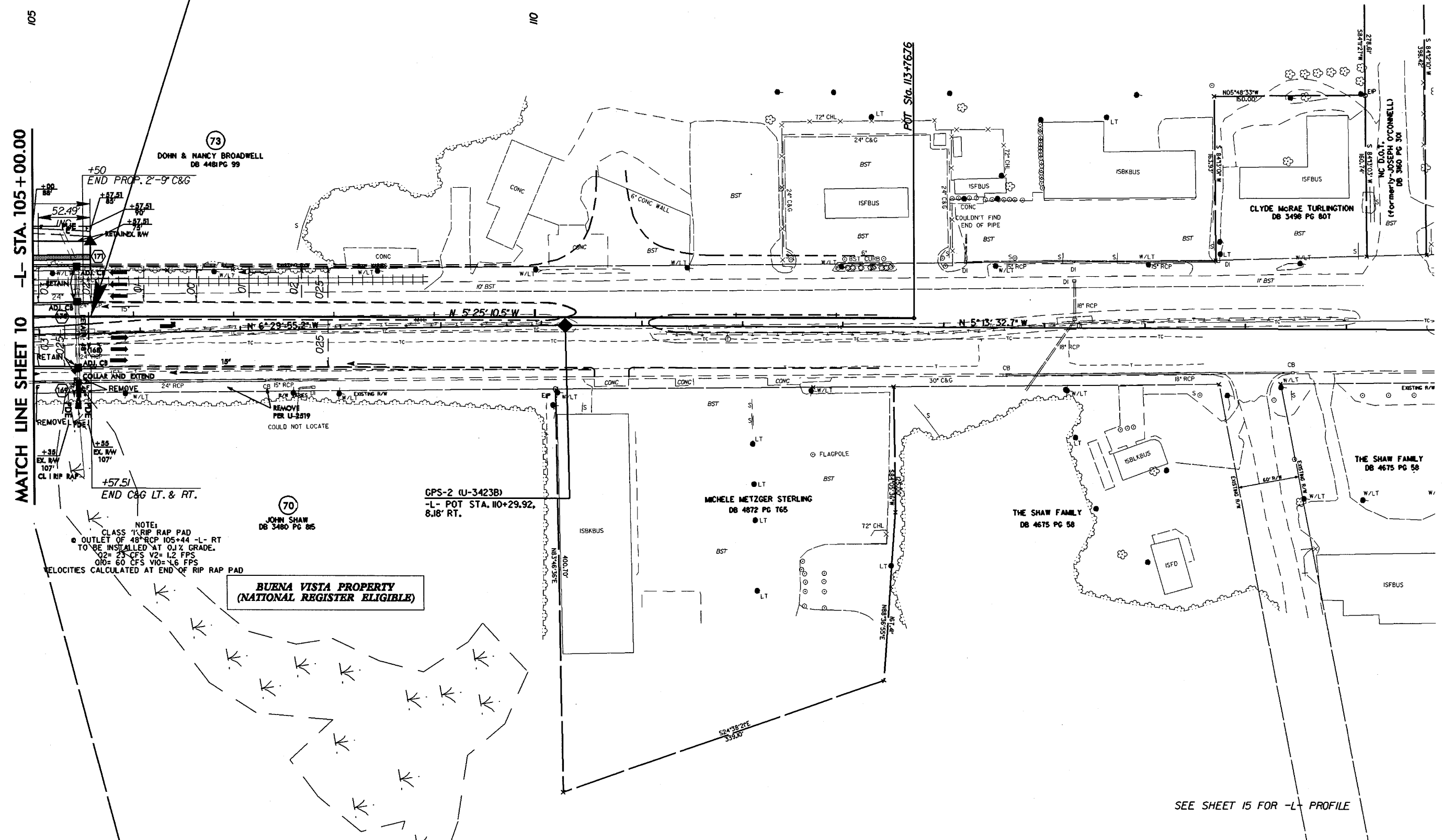
-L-  
 PI Sta 100+96.37  
 $\Delta = 12' 05" 15.5" (RT)$   
 $D = 1' 47" 25.8"$   
 $L = 675.10'$   
 $T = 338.81'$   
 $R = 3,200.00'$   
 SE = SEE PLANS

SEE SHEET 15 FOR -L- PROFILE

PROJECT REFERENCE NO. <b>U-3423</b>	SHEET NO. <b>11</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



**STA. 105+57.51 -L- END TIP PROJECT U-3423**



**MATCH LINE SHEET 10 -L- STA. 105+00.00**

NOTE:  
CLASS 1 RIP RAP PAD  
OUTLET OF 48" RCP 105+44 -L- RT  
TO BE INSTALLED AT 0.1% GRADE.  
Q2= 23 CFS V2= 1.2 FPS  
Q10= 60 CFS V10= 1.6 FPS  
VELOCITIES CALCULATED AT END OF RIP RAP PAD

**BUENA VISTA PROPERTY  
(NATIONAL REGISTER ELIGIBLE)**

SEE SHEET 15 FOR -L- PROFILE

8/17/99

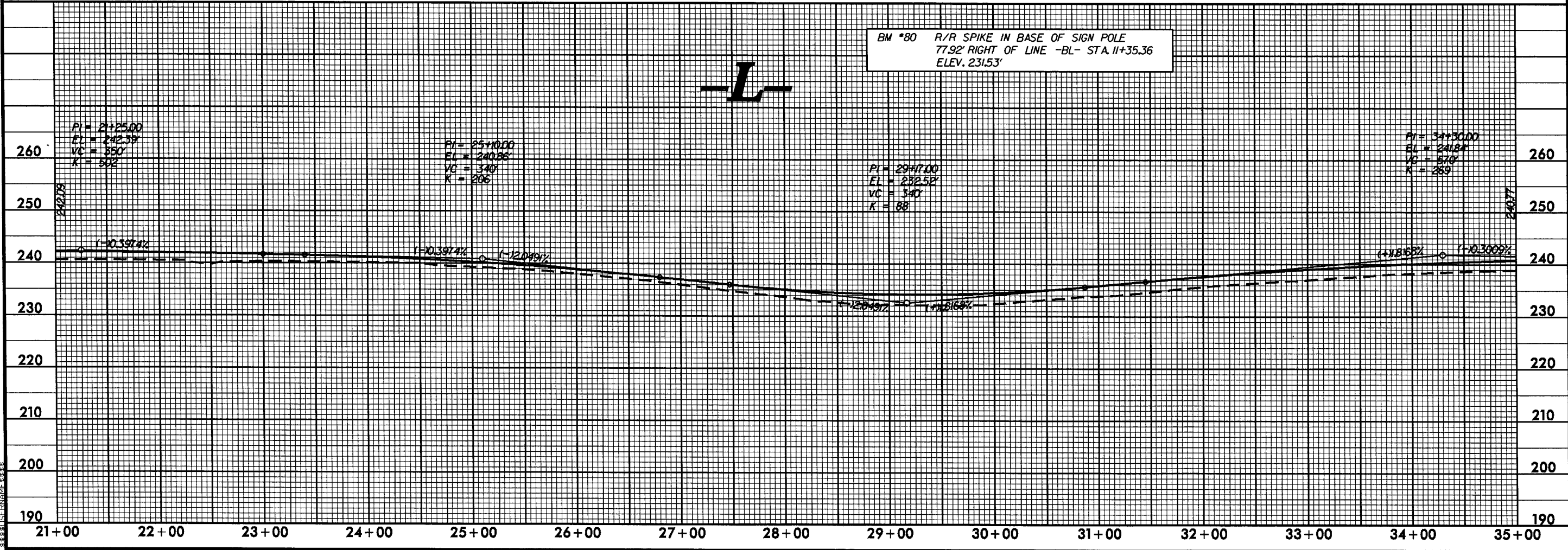
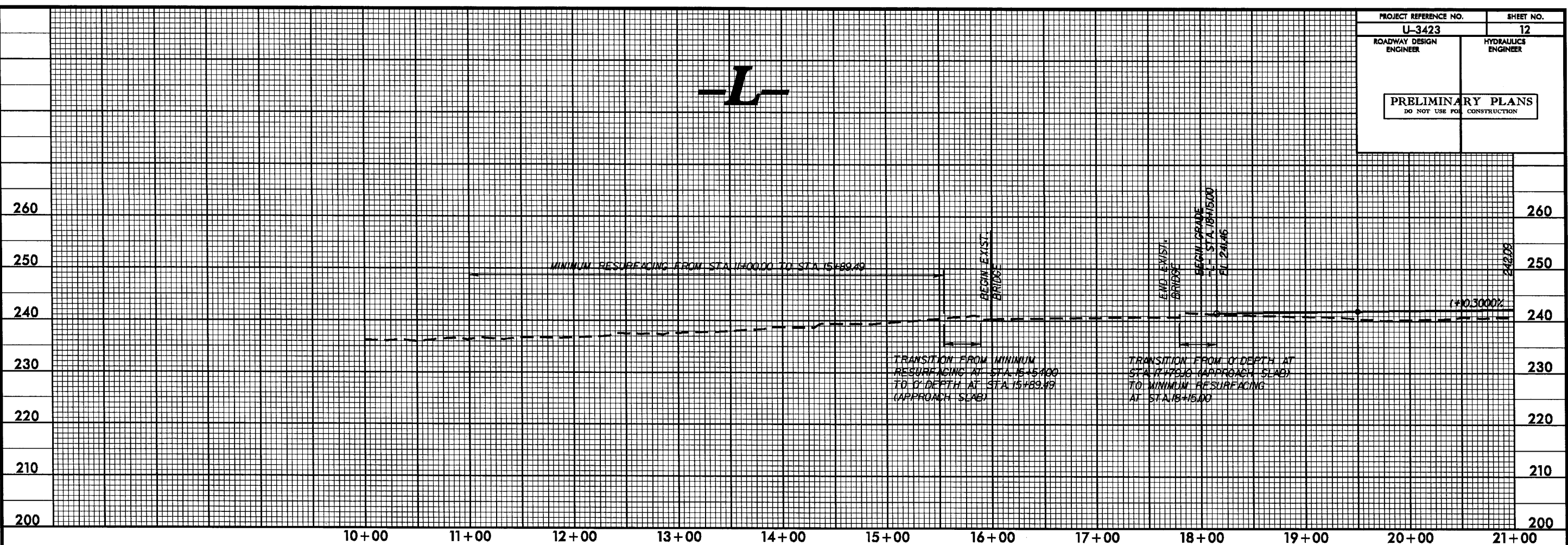
REVISIONS

RW REV.04/22/09 (BNU) ADDING PUE AFFECTING PARCELS 73.

19-AUG-2009 14:45  
C:\PROJECTS\U-3423\rdy\_psh\l\_rev\hyd.dgn

5/28/99

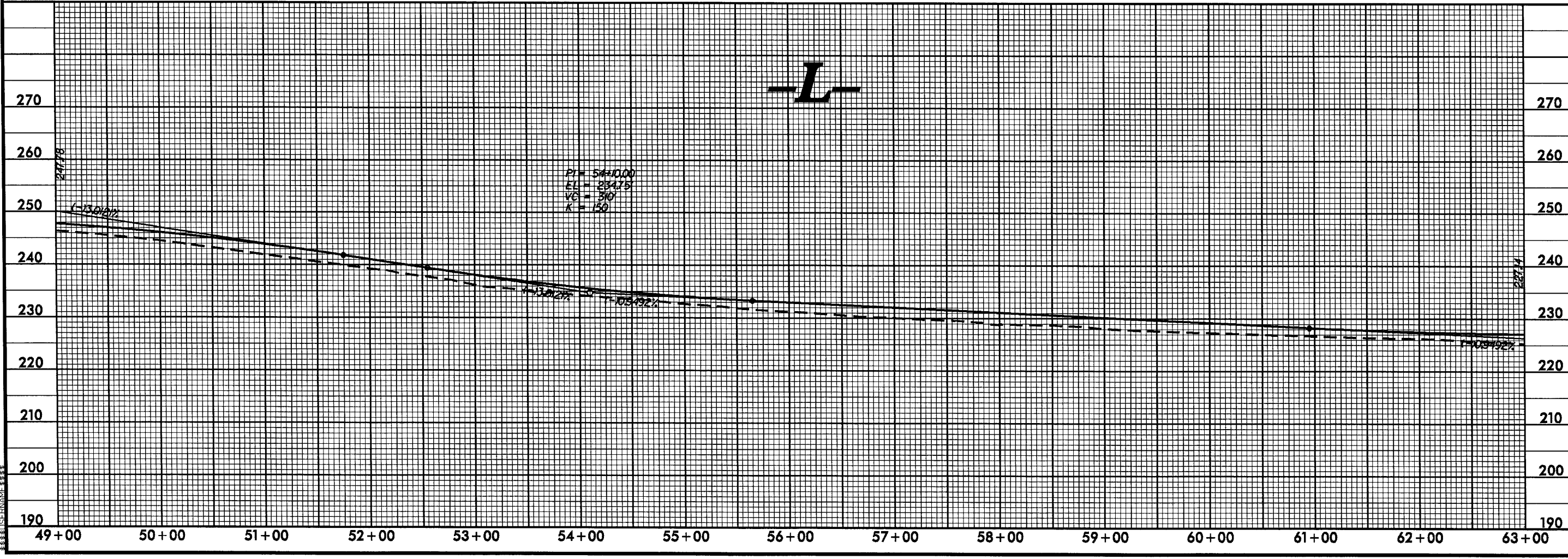
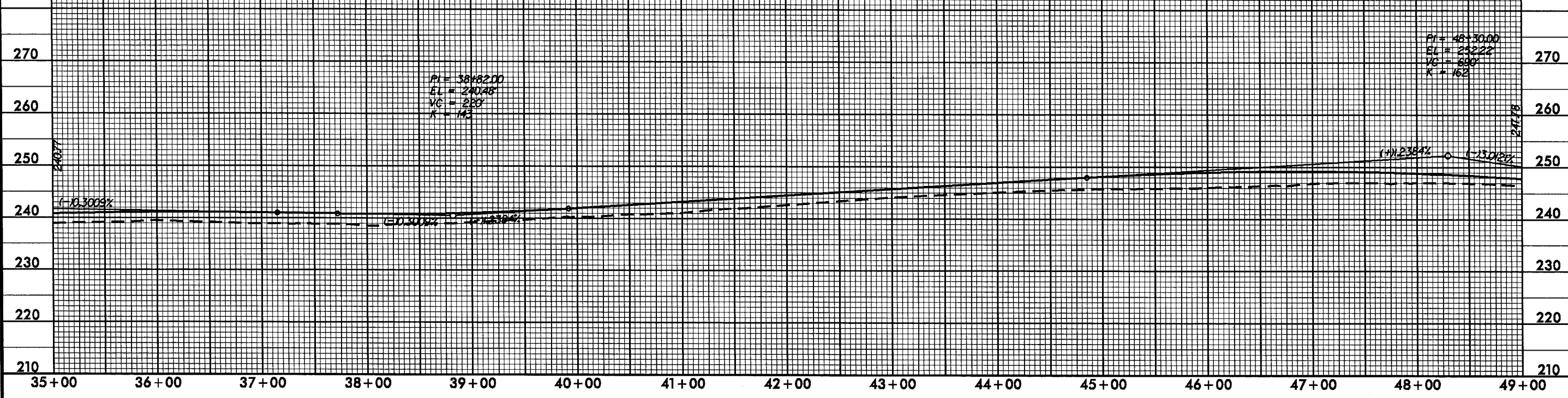
PROJECT REFERENCE NO. <b>U-3423</b>	SHEET NO. <b>12</b>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



19-AUG-2009 14:45 U:\3423.dwg psh12.dgn

5/28/99

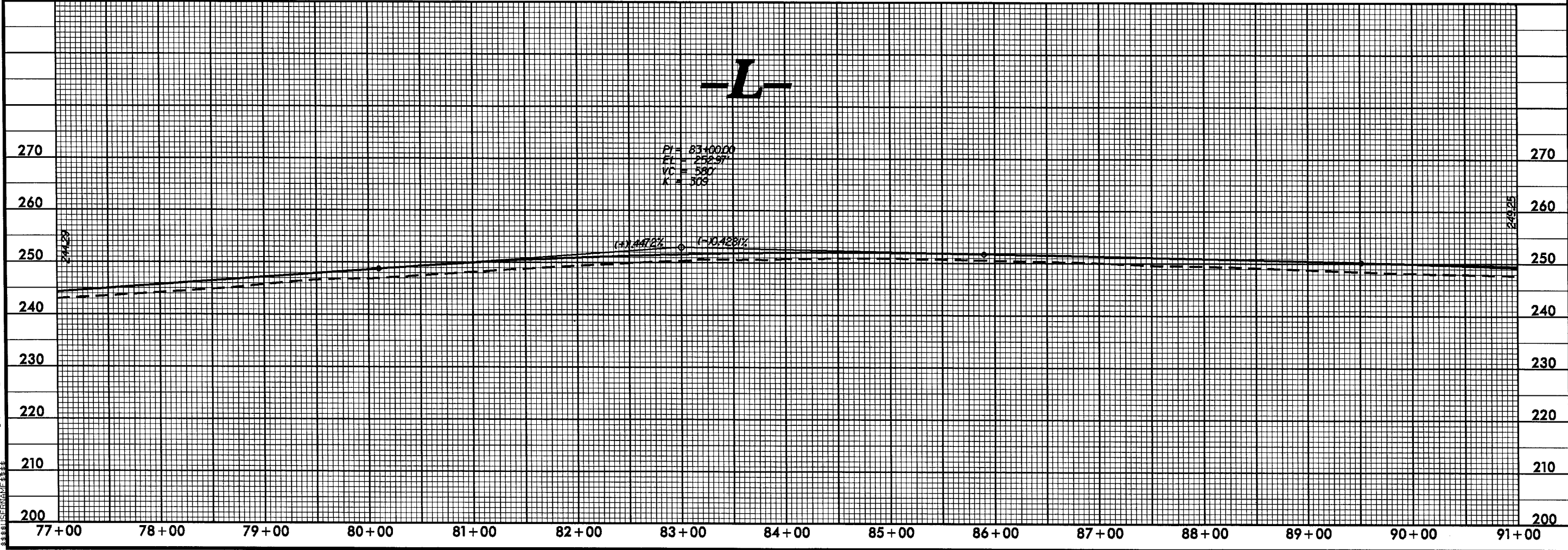
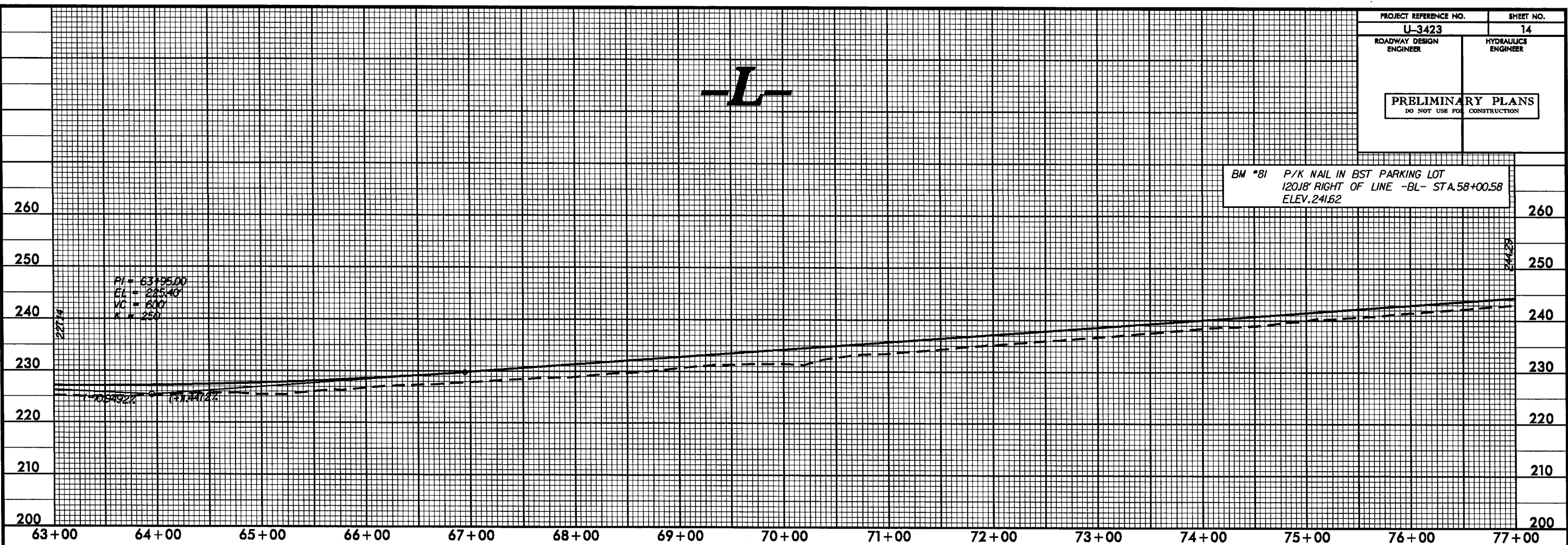
PROJECT REFERENCE NO. <b>U-3423</b>	SHEET NO. <b>13</b>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



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5/28/99

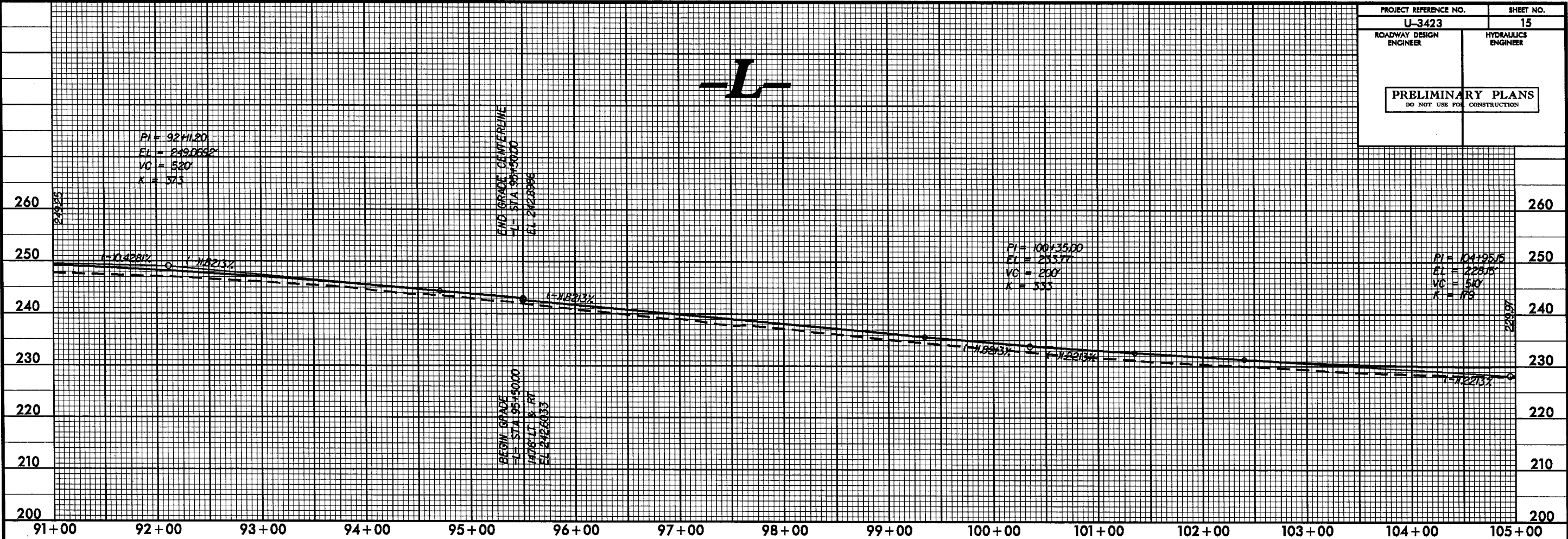
PROJECT REFERENCE NO. U-3423	SHEET NO. 14
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



19-AUG-2009 14:45 U:\3423\rdy\_psh14.dgn

5/28/99

PROJECT REFERENCE NO. <b>U-3423</b>	SHEET NO. <b>15</b>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



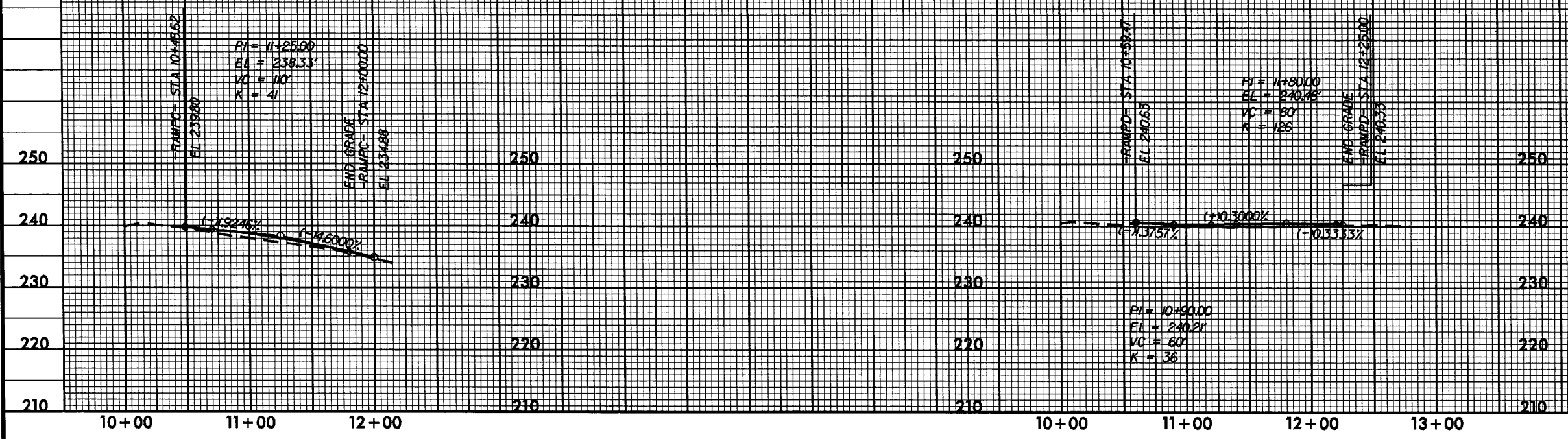
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5/28/99

PROJECT REFERENCE NO. <b>U-3423</b>	SHEET NO. <b>16</b>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

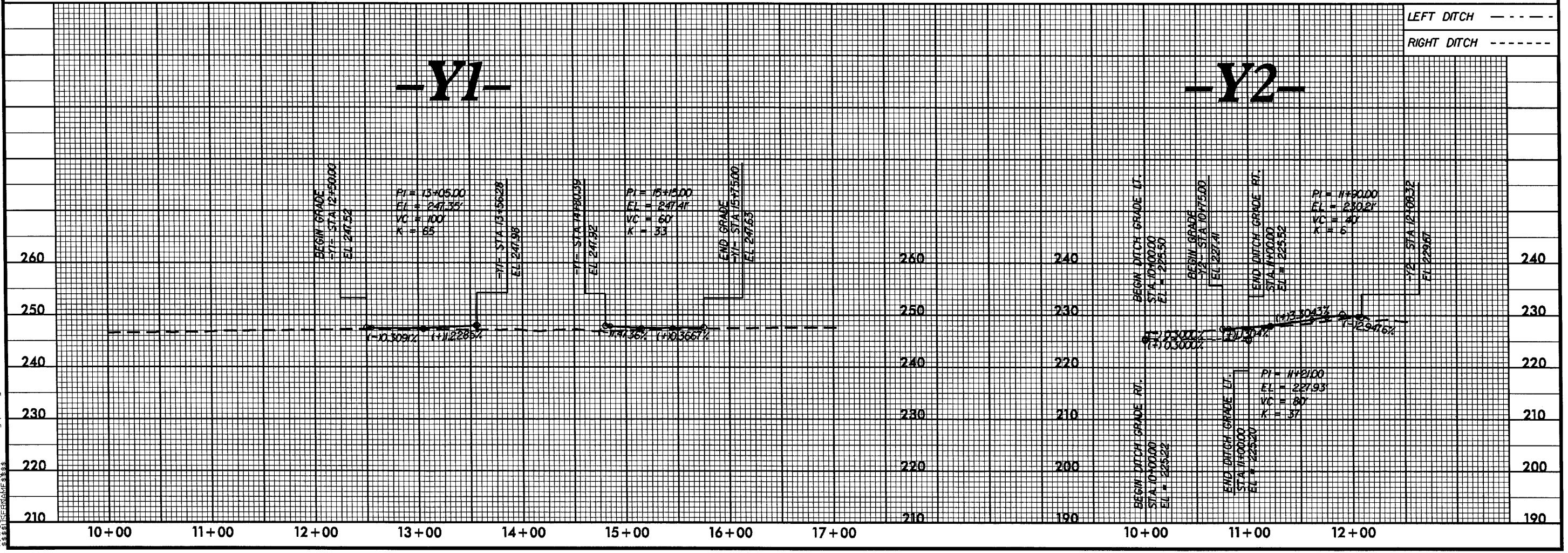
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# -RAMP D-



# -Y1-

# -Y2-



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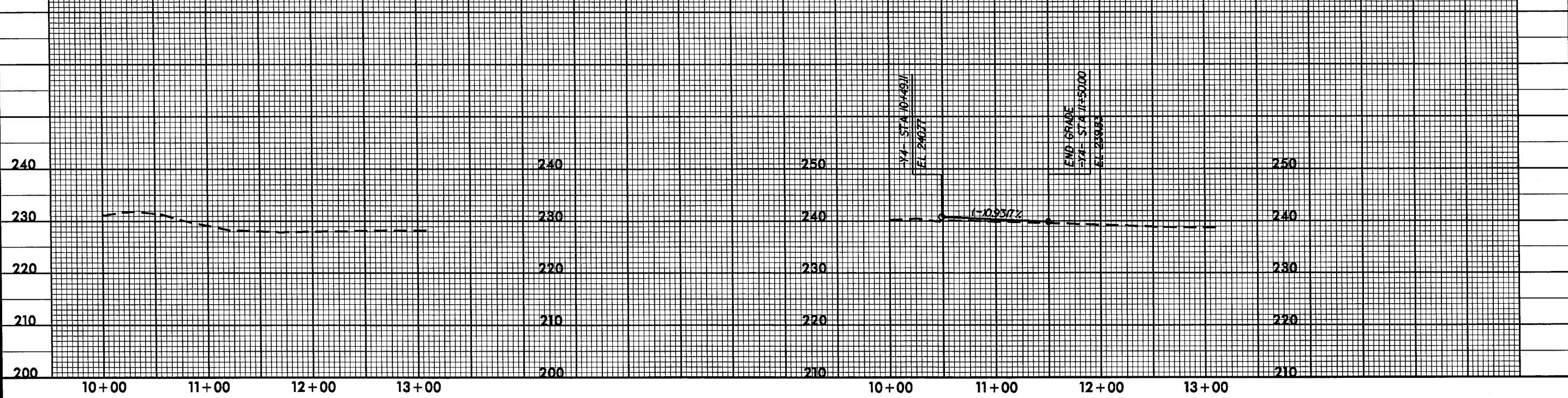
5/28/99

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PROJECT REFERENCE NO. <b>U-3423</b>	SHEET NO. <b>17</b>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

# -Y3-

# -Y4-



# -Y5-

RIGHT DITCH -----

