



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

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SECRETARY

September 3, 2010

U. S. Army Corps of Engineers
Regulatory Field Office
3331 Heritage Trade Drive Suite 105
Wake Forest, NC 27587

ATTN: Mr. Monte Matthews
NCDOT Coordinator

Subject: **Application for Individual Section 404 and 401 permits** for the widening of US 321 from SR 1500 (Blackberry Road) to US 221 at Blowing Rock; Watauga and Caldwell Counties; State Project No. 6.739001T; NCDOT Division 11; TIP No. R-2237C.
Debit \$570.00 from WBS Element No. 34402.2.6

Dear Mr. Matthews:

The North Carolina Department of Transportation (NCDOT) proposes to widen and improve the existing section of US 321 from SR 1500 (Blackberry Road) to US 221 at Blowing Rock, from an existing two-lane facility to a four-lane facility in Watauga and Caldwell Counties. The total length of the project is approximately 4.0 miles. This state-funded project is identified as Project Number R-2237C in the NCDOT 2006-2012 *Transportation Improvement Plan* (TIP). In the widening of US 321, curves will be eased south of Blowing Rock and in the Country Club Drive and Norwood Circle area of Blowing Rock. The project includes a four-lane section with shoulders south of Gideon Ridge and the Blowing Rock town limits, a four-lane section with curb and gutter and some turn lanes in Blowing Rock south of US 321 Business, and four lanes with a landscaped median north of US 321 Business. Several intersections also will be improved.

This application package consists of: the cover letter, ENG form 4345, EEP mitigation acceptance letter, interagency hydraulic design review (4B) meeting minutes, interagency permit drawing review (4C) meeting minutes and actions taken, Indirect and Cumulative Effects Assessment Update, Stormwater Management Plan, permit (hydraulic) drawings, half-size roadway plan sheets, Memorandum of Agreement (MOA), and Memorandum of Understanding (MOU).

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1 SOUTH WILMINGTON STREET
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Purpose and Need

As stated in the State Final Environmental Impact Statement, the primary needs of the proposed project are to address traffic service deficiencies along US 321 within the project area, and to address crash rates on existing US 321 within the Town of Blowing Rock. Crash rates are far higher than statewide averages for similar roads. The primary purposes of the project are to improve traffic flow and level of service (LOS) on US 321 from Blackberry Road to US 221, and to reduce crash potential on US 321 within Blowing Rock. Additionally, it is a purpose of the project to achieve the system continuity objective of the Highway Trust Fund Act. Improvements to US 321 in the project area also are an acknowledgement of the importance of US 321 as a Strategic Corridor. Additional information is included in the State Final Environmental Impact Statement and the Record of Decision (ROD).

Project Schedule

Table 1 provides the project limits and let dates for each section of the US 321 project.

Table 1 – Project Schedule

Section	Project Limits	Let Date
A	North of NC 268 to North of SR 1370 (Kirby Mountain Rd)	July 1997
B	SR 1370 (Kirby Mountain Rd) to SR 1500 (Blackberry Rd)	December 2004
C	SR 1500 (Blackberry Rd) to US 221 at Blowing Rock	March 2011

A permit for R-2237A was issued on April 25, 1997, and construction was completed in June 2001. The permit for R-2237B was issued on December 15, 2004, and construction began in July 2005 and is currently underway and on-going.

Summary of Jurisdictional Impacts

The project has been designed to avoid and minimize impacts to jurisdictional areas throughout the Merger process and design process. However, construction of the proposed project will necessitate impacts to jurisdictional waters. Table 2 presents an overview of the impacts associated with this project, per River Basin. A portion of the project also falls within the Catawba River Basin; however, there are no jurisdictional features on that section of the project.

Table 2 - Summary of Impacts

River Basin	Permanent Wetland (ac)	Permanent Stream (lf)	Temporary Stream (ac) ^{1/}	Surface Water [pond] (ac)
Yadkin-Pee Dee	0.13	1,002	0.03	0.00
New	0.06	661	0.02	0.02
Totals	0.19	1,636	0.05	0.02

^{1/} Values are based on rounding, due to some of the individual impacts being <0.01 acre.

Summary of Mitigation:

All mitigation will be provided by the Ecosystem Enhancement Program (EEP). NCDOT does not currently have legacy mitigation to cover the impacts for this project. Additionally, there are no on-site mitigation opportunities for this project.

NEPA DOCUMENT STATUS

In August 1993, NCDOT prepared an Environmental Assessment (EA) that recommended widening approximately 15.1 miles of US 321 from two to four lanes from NC 268 in Patterson to US 221 in Blowing Rock. Many residents of the Town of Blowing Rock strongly preferred a project that included a bypass around Blowing Rock. Therefore, it was decided that an Environmental Impact Statement (EIS) would be prepared for the northern 4.3 miles of the EA's project area, from SR 1500 (Blackberry Road) to US 221 in Blowing Rock. This section of the project was dedicated as a separate section of the overall US 321 widening and given a separate TIP number (R-2237C). A State *Draft* EIS was approved on June 30, 2002, and was published on May 17, 2004. The State *Final* EIS was published on September 6, 2006, and subsequently a State Record of Decision (ROD) was published on December 19, 2007. The ROD documents the selection of the Widening Alternative (listed as the Preferred Alternative in the *Final* EIS) as the Least Environmentally Damaging Alternative (LEDPA). Copies of the documents were provided to the regulatory review agencies involved in the approval process. Additional copies of the documents are available upon request and are also available on-line at: <http://www.ncdot.gov/projects/BlowingRock321/>.

INDEPENDENT UTILITY

R-2237C is in compliance with 23 CFR Section 771.111(f) which lists the Federal Highway Administration (FHWA) characteristics of independent utility of a project:

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

RESOURCE STATUS

Blowing Rock is at the divide of three major watersheds: the New River Basin, the Yadkin-Pee Dee River Basin, and the Catawba River Basin. This project will impact streams and wetlands in the New River Basin and in the Yadkin-Pee Dee River Basin, but will not impact any streams or wetlands in the Catawba River Basin. Streams and drainages located southeast and east of Blowing Rock, on the Blue Ridge escarpment, are part of the Yadkin-Pee Dee River Basin (USGS Hydrologic Unit 03040101, NCDWQ subbasin 03-07-01) and include Bailey Camp Creek and its associated unnamed tributary, and unnamed tributaries to the Yadkin River within the project area. Streams and drainages in areas including most of Blowing Rock and areas north

of the Blue Ridge escarpment, are part of the New River Basin (USGS Hydrologic Unit 05050001, NCDWQ subbasin 05-07-01) and include the Middle Fork of the South Fork of the New River (Middle Fork) and its associated unnamed tributaries within the project area.

Jurisdictional Delineations

A Notification of Jurisdictional Determination (JD) (Action ID 200231262) was issued by the U.S. Army Corp of Engineers (USACE) in 2002 for the delineation of jurisdictional resources. As the JD expired in 2006, a re-verification of the jurisdictional features was conducted. The assessment, which was conducted in 2008, was limited to the selected LEDPA, the Widening Alternative. The JD re-evaluation information was submitted to the USACE in a letter dated May 22, 2008, and an approved JD (Action ID 200802649) for the LEDPA was subsequently issued by the USACE (dated September 16, 2008).

Subsequent to the Merger Concurrence Point 4C meeting, the NCDOT conducted additional site visits to ensure that all of the jurisdictional features along the project had been assessed. Final field visits/meetings were conducted on October 28, 2009 and December 3, 2009, with Monte Mathews of the USACE and Amy Euliss of the North Carolina Department of Water Quality (NCDWQ). One additional stream segment, that is located outside of the previous project footprint, was identified in the field. This additional segment is the downstream reach of a jurisdictional stream that was included in the previous JD. The NCDWQ issued an "On-Site Determination for Applicability to the Mitigation Rules (15A NCAC 2H .0506(h)), version 2", dated January 4, 2010. The USACE issued an addendum to the approved JD verification, dated August 25, 2010, that maintains the original Action ID number.

WILD AND SCENIC RIVERS

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).

303(d) LIST

Section 303(d) of the Clean Water Act (CWA) requires states to develop a list of waters not meeting water quality standards or which have impaired uses. The Yadkin River, in the reach to which the tributaries in the project area flow, was listed in the Final 2006 303(d) Impaired Waters List for turbidity. This reach of the Yadkin River however, is not included on the draft 2010 Impaired Waters List; it has been de-listed.

IMPACTS TO WATERS OF THE U.S.

Please note that Permit Sites I & II, as depicted with this application submittal, were not included on the Permit Sheets at the 4B and 4C concurrence meetings. As a result, all Permit Site numbers referred to at the 4B and 4C concurrence meetings are moved up two (2) site numbers in this application (e.g. Site I at meetings = Site III on Permit Sheets in application, etc.).

Surface Waters

Permanent impacts are proposed on 1,636 linear feet of jurisdictional streams: 975 linear feet within the Yadkin Pee-Dee River Basin and 661 within the New River Basin. All jurisdictional streams within the project are perennial. The impacts are for the installation and/or replacement of various pipes, the replacement of an RCBC, the placement of riprap at inlets and/or outlets of pipes and culverts, the placement of riprap for stream bank stabilization, and for the placement of roadway fill. Temporary impacts are proposed on 0.05 acre (288 lf) of jurisdictional streams. Temporary impacts will be necessary for construction/replacement of various pipes and the RCBC. Detailed impact data are presented below in Table 3 and Table 4.

Permanent impacts are proposed on 0.02 acre of a non-jurisdictional pond. The impact is necessary for the installation of pipes and associated roadway fill.

Table 3. Impacts to jurisdictional streams in Yadkin-Pee Dee River Basin (HUC 03040101)

Site No.	Station No.	Stream Name	Stream Type / Classification	Impact Type	Impact Length	Impact Acreage	Mitigation Ratio	Mitigation Required
I	385+70 to 389+45-L-	UT1 to Bailey Camp Creek	Perennial / C; Tr	Perm. fill	294 lf	--	2:1	588 lf
				Temp. fill	--	<0.01 ac.	--	0
II	403+30-L-	Bailey Camp Creek	Perennial / C; Tr	Perm. fill	119 lf	--	2:1	238 lf
				Temp. fill	--	<0.01 ac.	--	0
III	442+00 to 444+00-L-	UT1 to Yadkin River	Perennial / C; Tr	Perm. fill	53 lf	--	2:1	106 lf
		UT2 to Yadkin River	Perennial / C; Tr	Perm. fill	150 lf	--	2:1	300 lf
				Bank stabilization	10 lf	--	1:1	10 lf *
Temp. fill	--	0.01 ac.	--	0				
IV	444+65 to 449+50-L-	UT2 to Yadkin River	Perennial / C; Tr	Perm. fill	317 lf	--	2:1	634 lf
				Temp. fill	--	0.01 ac.	--	0
V	451+40-L-	UT2 to Yadkin River	Perennial / C; Tr	Perm. fill	22 lf	--	2:1	44 lf
				Bank stabilization	10 lf	--	1:1	10 lf *
				Temp. fill	--	<0.01 ac.	--	0
Permanent Impacts at 2:1 mitigation:					955 lf			1,910 lf
Permanent Impacts at 1:1 mitigation (bank stabilization):					20 lf			20 lf
Permanent Impacts at no mitigation (per USACE & DWQ):					0			0
Total Permanent Impacts:					975 lf			1,930 lf
Total Temporary Impacts:					--	0.03**		0

* see mitigation explanation in site specific impact section below and in Mitigation section of this application.

** value based on rounding, due to some of the individual impacts being <0.01 acre.

Table 4. Impacts to jurisdictional streams in New River Basin (HUC 05050001)

Site No.	Station No.	Stream Name	Stream Type / Classification	Impact Type	Impact Length	Impact Acreage	Mitigation Ratio	Mitigation Required
VI	495+20 to 498+15-L-	UT1 to Middle Fork*	Perennial / WS-IV: +	Perm. fill	294 lf	--	2:1	588 lf
VII	523+33.5-L-	Middle Fork	Perennial / WS-IV: +	Perm. fill	128 lf	--	2:1	256 lf
				Bank stabilization	32 lf	--	1:1	32 lf **
				Temp. fill	--	0.01 ac.	--	0
IX	540+20-L-	UT2 to Middle Fork	Perennial / WS-IV: +	Perm. fill	119 lf	--	2:1	238 lf
					14 lf		N/A **	0
				Temp. fill	--	<0.01 ac.	--	0
X	553+50-L-	UT3 to Middle Fork	Perennial / WS-IV: +	Perm. fill	49 lf	<0.01 ac.	2:1	98 lf
		UT4 to Middle Fork			25 lf	<0.01 ac.		50 lf
XII	561+56-L-	UT5 to Middle Fork	Perennial / WS-IV: +	Temp. fill	--	0.01 ac.	--	0
Permanent Impacts at 2:1 mitigation:					615 lf			1,230 lf
Permanent Impacts at 1:1 mitigation (bank stabilization):					32 lf			32 lf
Permanent Impacts at no mitigation (per USACE & DWQ):					14 lf			0
Total Permanent Impacts:					661 lf			1,262 lf
Total Temporary Impacts:					--	0.02***		0

* Middle Fork = Middle Fork of the South Fork of the New River.

** see mitigation explanation in site specific impact section below and in Mitigation section of this application.

*** value based on rounding, due to some of the individual impacts being <0.01 acre.

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Wetlands

Permanent impacts are proposed on 0.19 acre of riparian wetlands, comprised of the placement of 0.13 acre of permanent fill, the excavation of 0.03 acre, and the mechanized clearing of 0.03 acre. Of the 0.19 acre of impact to riparian wetlands, 0.13 acre occurs in the Yadkin Pee-Dee River Basin (HUC 03040101) and 0.06 acre occurs in the New River Basin (HUC 05050001). There will be no temporary impacts to any wetlands. Detailed impact data are presented below in Table 5 and Table 6. A brief description of each impact is included in the permit site descriptions on the following pages.

Table 5. Impacts to jurisdictional wetlands in Yadkin-Pee Dee River Basin (HUC 03040101)

Site No.	Riparian / Non-Riparian	Impact Type	Permanent Impacts	Proposed Mitigation Ratio	Mitigation Required
III	Riparian	Permanent Fill	0.01 ac.	2:1	0.06 ac.
		Mechanized Clearing	0.02 ac.		
IV	Riparian	Permanent Fill	0.07 ac.	2:1	0.20 ac.
		Excavation	0.02 ac.		
		Mechanized Clearing	0.01 ac.		
Total:			0.13 ac.		0.26 ac.

Table 6. Impacts to jurisdictional wetlands in New River Basin (HUC 05050001)

Site No.	Riparian / Non-Riparian	Impact Type	Permanent Impacts	Proposed Mitigation Ratio	Mitigation Required
VI	Riparian	Permanent Fill	0.01 ac.	2:1	0.02 ac.
VII	Riparian	Excavation	0.01 ac.	2:1	0.02 ac.
XI	Riparian	Permanent Fill	0.04 ac.	2:1	0.08 ac.
Total:			0.06 ac.		0.12 ac.

Site by Site Summary of Jurisdictional Impacts

Permit Site I: UT1 to Bailey Creek will be impacted by the installation of a 24-inch Corrugated Steel Pipe (CSP) and the installation of riprap at the pipe outlet.

- Permanent Stream Impacts: 294 lf
- Temporary Stream Impacts: <0.01 ac

Permit Site II: Bailey Creek will be impacted by the installation of a 36-inch CSP and the installation of riprap at the pipe outlet.

- Permanent Stream Impacts: 119 lf
- Temporary Stream Impacts: <0.01 ac

Permit Site III: UT1 to Yadkin River will be impacted by the placement of roadway fill, and the installation of a spring box and 12-inch CSP. UT2 to Yadkin River will be impacted by the installation of a 54-inch Reinforced Concrete Pipe (RCP). Wetland TG will be impacted by the placement of permanent fill material in the wetland and from mechanical clearing in a portion of the wetland. The 54-inch pipe will be installed at-grade to not disrupt the hydrology of the Wetland TG.

- Permanent Stream Impacts: 240 lf
 - UT1 to Yadkin River: 53 lf
 - UT2 to Yadkin River: 150 lf
(140 lf: pipe installation; 10 lf: stream bank stabilization)
- Temporary Stream Impacts (UT2 to Yadkin River): 0.01 ac
- Permanent Wetland Impacts: 0.03 ac
(0.01 ac: permanent fill; 0.02 ac: mechanized clearing).

The USACE does not require mitigation for stream bank stabilization impacts. The permanent impact from stream bank stabilization (10 lf) will be mitigated at the DWQ ratio of 1:1.

Permit Site IV: UT2 to Yadkin River will be impacted by the placement of fill material for the creation of a 5-foot wide lateral base ditch. Wetland TG / TAA will be permanently impacted by the placement of roadway fill, excavation, and mechanized clearing in the wetland.

- Permanent Stream Impacts: 317 lf
- Temporary Stream Impacts: 0.01 ac
- Permanent Wetland Impacts: 0.10 ac
(0.07 ac: permanent fill; 0.02 ac: excavation; 0.01 ac: mechanized clearing).

Permit Site V: UT2 to Yadkin River will be impacted by the replacement of a 48-inch Corrugated Metal Pipe (CMP) with a new, longer 48-inch CMP and the installation of riprap for stream bank stabilization.

- Permanent Stream Impacts: 32 lf
(22 lf: pipe installation; 10 lf: stream bank stabilization)
- Temporary Stream Impacts: <0.01 ac

The USACE does not require mitigation for stream bank stabilization impacts. The permanent impact from stream bank stabilization (10 lf) will be mitigated at the DWQ ratio of 1:1.

Permit Site VI: UT1 to Middle Fork of the South Fork of the New River and Wetland TAI will both be impacted by the placement of fill material.

- Permanent Stream Impacts: 294 lf
- Permanent Wetland Impacts: 0.01 ac

Permit Site VII: The Middle Fork of the South Fork of the New River will be impacted by the replacement of an existing 2 @ 7-foot X 8-foot Reinforced Concrete Box Culvert (RCBC) with a longer 2 @ 11-foot X 8-foot RCBC and installation of riprap for stream bank stabilization on both ends of the RCBC. The inverts of the RCBC will be buried one foot. One of the barrels will be designed as a 'low flow channel' and will have a 6-inch sill for five feet of the width and a 1-foot sill for the remaining six feet of width of the barrel. Bed material placed between the

sills will provide a continuous low flow channel between the lower sills. The top of the 1-foot sills will match the stream bed elevation in the low flow channel of the stream (see Permit Sheets 39 and 40 of 45). Wetland TAM will be permanently impacted by excavation.

- Permanent Stream Impacts: 160 lf
(128 lf: pipe installation; 32 lf: stream bank stabilization)
- Temporary Stream Impacts: 0.01 ac
- Permanent Wetland Impacts: 0.01 ac

The USACE does not require mitigation for stream bank stabilization impacts. The permanent impact from stream bank stabilization (32 lf) will be mitigated at the DWQ ratio of 1:1.

Permit Site VIII: A pond will be impacted by fill for the abandonment of a 36-inch CMP and an 18-inch CMP, and the installation of a 30-inch RCP and a 15-inch CSP.

- Permanent Pond Impacts: 0.02 ac

Permit Site IX: UT2 to Middle Fork of the South Fork of the New River will be impacted by the re-direction of the stream from an existing 30-inch CMP to a proposed 42-inch Welded Steel Pipe. This results in the portion of the stream from the existing outfall to the Middle Fork of the South Fork of the New River being piped. This is due to the existing outfall being inadequate to convey the 10-year flood event. In order to utilize the existing outfall, the drainage would need to be piped under an existing structure on the property, and the outlet pipe would be 4-5 feet below the existing channel. Therefore, piping the drainage in the new 42-inch CSP is the most practical alternative.

- Permanent Stream Impacts: 133 lf
- Temporary Stream Impacts: <0.01 ac

During the December 3, 2009 jurisdictional site visit, the USACE and DWQ representatives both agreed that mitigation would not be required for impacts to the 14-foot long section of stream located at the existing outfall, as it has already been impacted.

Permit Site X: UT3 and UT4 to Middle Fork of the South Fork of the New River will be impacted by fill material and from re-routing the flow to a new 30-inch CMP.

- Permanent Stream Impacts: 74 lf
 - UT3 to Middle Fork: 49 lf
 - UT4 to Middle Fork: 25 lf
- Temporary Stream Impacts: <0.01 ac

Permit Site XI: Wetland TAU will be permanently impacted by the filling of the wetland associated with the installation of a 15-inch RCP. Middle Fork Creek will be impacted by the extension of a triple-barrel reinforced concrete box culvert.

- Permanent Wetland Impacts: 0.04 ac

Permit Site XII: UT5 to Middle Fork of the South Fork of the New River will have temporary impacts from the replacement of a 72-inch CMP with an 84-inch Welded Steel Pipe. Trenchless installation methods will be utilized for the pipe installation. The existing pipe is undersized for the drainage area.

- Temporary Stream Impacts: 0.01 ac

FEDERALLY PROTECTED SPECIES

Plants and animals with a Federal classification of Endangered (E) or Threatened (T) are protected under provisions of Section 7 and Section 9 of the Endangered Species Act of 1973, as amended. As of January 31, 2008, the federally protected species listed by the United States Fish and Wildlife Service (USFWS) for Caldwell and Watauga Counties has been expanded since the completion of the State Final EIS. Virginia big-eared bat has been added to both Caldwell and Watauga Counties, and Blue Ridge goldenrod has been added to Watauga County. Table 4 lists the species currently listed as Threatened or Endangered by USFWS, their federal status, the biological conclusion, and the county in which they are listed.

Table 7. Federally Protected Species Listed for Caldwell and Watauga Counties, NC

Common Name	Scientific Name	Federal Status	Habitat	Biological Conclusion	County
Vertebrates					
Bog turtle	<i>Clemmys muhlenbergii</i>	T(S/A)	No	Not Required	Caldwell / Watauga
Carolina northern flying squirrel	<i>Glaucomys sabrinus coloratus</i>	E	No	No Effect	Caldwell / Watauga
Virginia big-eared bat *	<i>Corynorhinus townsendii virginianus</i>	E	No	No Effect	Caldwell / Watauga
Invertebrates					
Spruce-fir moss spider	<i>Microhexura montivaga</i>	E	No	No Effect	Caldwell / Watauga
Vascular Plants					
Blue Ridge goldenrod **	<i>Solidago spithamea</i>	T	No	No Effect	Watauga
Dwarf-flowered heartleaf	<i>Hexastylis naniflora</i>	T	No	No Effect	Caldwell
Heller's blazing star	<i>Liatris helleri</i>	T	Yes	No Effect	Caldwell / Watauga
Roan Mountain bluet	<i>Houstonia montana</i> (= <i>Hedyotis purpurea</i> <i>var. montana</i>)	E	No	No Effect	Watauga
Spreading avens	<i>Geum radiatum</i>	E	No	No Effect	Watauga

* Virginia big-eared bat was not included on the list of Threatened/Endangered species for Watauga or Caldwell counties during preparation of the State FEIS, but was addressed at the request of USFWS. Virginia big-eared bat has subsequently been listed for both Caldwell County and Watauga County.

** Blue Ridge goldenrod was not included on the list of Threatened/Endangered species for Watauga or Caldwell counties during preparation of the State Final EIS (subsequently listed for Watauga County).

There is no habitat within the project for the following species, as documented in the State FEIS: Carolina northern flying squirrel, spruce-fir moss spider, Roan Mountain bluet, and spreading avens. As such, this project will have No Effect on these species.

The State FEIS noted that there is habitat within the project for dwarf-flowered heartleaf, but that this project would have No Effect on this species. Later consultation with Marella Buncick of the USFWS determined that there in fact is no habitat for dwarf-flowered heartleaf. The biological conclusion remains No Effect for dwarf-flowered heartleaf.

There is habitat within the project for Heller's blazing star, in the form of granite outcrops, as noted in the State FEIS. An August 1, 2003, survey resulted in no observation of any individuals of this species. Based on the presence of a population of Heller's blazing star on the cliffs of *The Blowing Rock* (approximately 0.2 mile west of the project), a May Affect, Not Likely to Adversely Affect biological conclusion was given in the State FEIS. An updated survey conducted on August 4, 2010, also resulted in no observation of any individuals of this species. Based on correspondence with Marella Buncick of the USFWS (August 16, 2010 e.mail), the project will have No Effect on Heller's blazing star.

Blue Ridge goldenrod was listed as a federally threatened species in Watauga County subsequent to completion of the State FEIS, and therefore was not addressed in the FEIS. Review of habitat requirements for this species (cliffs, ledges, balds, and rock outcrops of higher mountain peaks above 4,600 feet) determined that there is no habitat within the project limits. Review of the NCNHP database (updated June 2010) reveals that there are no known populations of Blue Ridge goldenrod within one mile of the project. Therefore, this project will have No Effect on Blue Ridge goldenrod.

On March 24, 2005, NCDOT biologists assessed the area within the project limits for the presence of suitable habitat for Virginia big-eared bat. This assessment was conducted at the request of the USFWS, based on the project's proximity to known populations at Grandfather Mountain, even though it was not listed as a federally threatened species in Caldwell County or Watauga County at the time of the FEIS. This species has subsequently been included on the list of federally protected species for both Caldwell County and Watauga County. The 2005 survey determined that there is no suitable habitat within the project for the Virginia big-eared bat. On August 3, 2010, NCDOT biologists conducted another assessment for Virginia big-eared bat, resulting in the determination that there is no night roosting habitat (caves or mines) within the project limits. Based on correspondence with Marella Buncick of the USFWS (August 12, 2010 e.mail), the project will have No Effect on the Virginia big-eared bat.

TROUT WATERS AND MORATORIA

In correspondence dated April 5, 2010, Marla Chambers of the North Carolina Wildlife Resources Commission (NCWRC) stated that all the streams in the project are trout streams and a trout moratorium, from October 15th to April 15th, will be in place for the project.

CULTURAL RESOURCES

Archaeology

An archaeological survey was conducted to determine if archaeological resources that are listed on, or potentially eligible for, the National Register of Historic Places (NRHP) are located in the vicinity of the project area. Resource eligibility was assessed against NRHP criteria. Background research conducted at the North Carolina Office of State Archaeology (OSA), found that there are no previously recorded archaeological sites in or adjacent to the area of potential effect (APE). The APE was surveyed in the field to identify previously unrecorded archaeological sites. Portions of the APE that could be safely accessed were surveyed. Areas of steep terrain, disturbed areas, and wet areas were not surveyed. Shovel tests were conducted in the areas surveyed, and no archaeological sites were found. The surveyors recommended that no additional archaeological work was needed. The State Historic Preservation Officer (SHPO) confirmed in a letter dated June 13, 2001, that no further archaeological studies were needed (see Appendix A of State FEIS).

Historic Architecture

Three (3) historic resources listed on the National Register of Historic Places (NRHP) are present in the project's APE: the Green Park Historic District, the Green Park Inn, and the Bollinger-Hartley house. It has been determined that the project has an Adverse Effect on the Green Park Historic District and the Green Park Inn, but has No Adverse Effect on the Bollinger-Hartley House. These determinations were affirmed by the study's historic resource consulting parties, including the USACE and the State Historic Preservation Officer (SHPO).

A Memorandum of Agreement (MOA) on mitigation of adverse effects of the project on the Green Park Historic District between the USACE, the NCDOT, and SHPO was signed in September 2004. Several others also signed the MOA as concurring parties (Town of Blowing Rock, Caldwell County, the owner of the Green Park Inn, the owner of Cottage #21, and the Blowing Rock Country Club). A Memorandum of Understanding (MOU) between the NCDOT and the Town of Blowing Rock relating to the US 321 Improvement Project was signed in October 2004. Copies of the MOA and MOU are attached to this permit application.

UTILITY IMPACTS

Utility impacts on this project involve the relocation of an existing 8-inch ductile iron sewer line which is currently installed over top of the existing RCBC. The existing culvert located at Station 523+33 -L- will be removed and replaced with a new culvert in approximately the same alignment; however, the new culvert will have new headwalls at locations different than the existing culvert. The existing sewer line will be relocated away from the proposed headwall below the stream bed. This work is being performed in an area where construction activities associated with the culvert replacement are planned, and relocation of the sewer line causes no additional impacts to jurisdictional features.

FEMA COMPLIANCE

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

INDIRECT AND CUMULATIVE EFFECTS ANALYSIS

Because few direct impacts are anticipated, the cumulative effect of this project when considered in the context of other past, present and future actions, and the resulting impact on the notable human and natural features, should be minimal. Therefore, potential indirect and cumulative effects to downstream water quality should be minimal. The Indirect and Cumulative Effects Assessment Update, dated August 27, 2010, is attached to this application.

MITIGATION OPTIONS

The USACE 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 Merger compliance stages; minimization measures were incorporated as part of the project design. Minimization includes the examination of appropriate and practicable steps to reduce the adverse impacts.

Avoidance and minimization efforts and techniques were implemented as follows:

- Impacts were minimized as a result of the Widening Alternative having been selected as the LEDPA, rather than the selection of one of the new location bypass alternatives. The Widening Alternative will be along the existing highway corridor (i.e. it will not create a new corridor through any Blowing Rock neighborhoods, rural communities, or natural areas). It also will not adversely affect community facilities or resources and will affect less than two-tenths of an acre of wetlands. The Widening Alternative will involve the least wildlife habitat fragmentation of the alternatives considered because of the urbanized nature of its corridor. It will have little effect on development projects under way in Blowing Rock or on development trends.
- Storm drainage is being discharged as far away from jurisdictional streams as practicable throughout the project.
- *Design Standards in Sensitive Watersheds* will be implemented to minimize erosion/sedimentation loss during construction phase.

- A 24-inch storm drain pipe at Station 356+00 -L- Rt. was extended approximately 275 feet to the bottom of slope with a manhole and pipe on a flat grade at the outlet to reduce erosion potential.
- At Permit Site I, a riprap pad is proposed at the pipe outlet to dissipate velocity and to reduce erosion potential.
- At Permit Site II, a riprap pad is proposed at the pipe outlet to dissipate velocity and to reduce erosion potential.
- A retaining wall was added from Station 438+00 to Station 442+00 -L- Rt. to avoid stream impacts to the adjacent section of UT2 to Yadkin River.
- At Permit Site III, a 2:1 fill slope is proposed to minimize impacts to the wetland, with the exception at Station 443+50.00 -L- Rt. where the slope is tying back in (and where guardrail will be installed) and a 3:1 slope is needed in order to cover the pipe that cannot be shortened.
- At Permit Site III, the 54-inch pipe is proposed to be left on grade, rather than burying it a foot, to maintain the wetland hydrology and prevent a total take of the wetland.
- At Permit Site IV, drop boxes have been proposed on the 15-inch and 30-inch pipe outlets to flatten the pipes and reduce outlet velocities.
- At Permit Site IV, riprap has been removed from the bed of the 5-foot lateral base ditch to help facilitate aquatic passage, but has been retained on the banks.
- At Permit Site V, a retaining wall was added from Station 449+85.00 -L- Rt. to Station 451+60.00 -L- Rt. to avoid direct impacts to the stream from roadway fill.
- At Permit Site VII, the existing 2 @ 8'X7' culvert in Middle Fork South Fork New River at Station 523+33.5 -L- will be replaced by a 2 @ 11'X8' RCBC. The RCBC will have one-foot sills at the inlet and outlet and have a low-flow channel in the northernmost barrel to help hold substrate in the culvert and prevent head cutting and facilitate aquatic passage.
- Between Permit Sites VII and VIII, the Special Lateral Base Ditch will be grass-lined.
- At Permit Site IX, riprap is proposed at the pipe outlet to dissipate velocity and to reduce erosion potential.
- At Permit Site XII, a trenchless installation (boring) technique will be utilized for the installation of an 84-inch welded steel pipe to maintain traffic on US 321 during construction.
- The NCDOT's Best Management Practices for Protection of Surface Waters will be implemented.
- The NCDOT will make a special effort to preserve trees of particular value identified by the Town of Blowing Rock that are outside the clear recovery area. Any trees within 14 feet of the face of curb would need to meet the NCDOT guidelines for plantings before they could be preserved.
- The lane widths in the Green Park Historic District north of Green Hill Road were reduced from 12 feet to 11 feet to minimize historic property impacts.
- A proposed median at the Green Park Inn will not be constructed between Green Hill Road and US 321 Business in order to narrow the footprint of the proposed improvement and minimize impacts to the Green Park Historic District.
- A retaining wall was added from Station 459+50.00 -L- Rt. to Station 465+50.00 -L- Rt. to minimize impacts to Blowing Rock County Club Golf Course Hole No. 4, which is part of the Green Park Historic District.
- A retaining wall was added from Station 539+50.00 -L- Lt. to Station 543+50.00 -L- Lt. to minimize impacts to the Bollinger-Hartley House historical property.

Compensatory Mitigation

All mitigation for the project will be provided by EEP (EEP acceptance letter attached). The offsetting mitigation will derive from an inventory of assets already in existence within the same 8-digit cataloguing unit. The Department has avoided and minimized impacts to jurisdictional resources to the greatest extent possible. Compensatory mitigation for this project consists of the following:

Compensatory Stream Mitigation: Unavoidable impacts to jurisdictional streams on the project total 1,636 linear feet. During the December 3, 2009 field inspection, a section of UT2 to Middle Fork (Permit Site IX) located at the existing outfall on the west side of US 321 (area between two piped sections) was determined to have already been impacted. As such, the USACE and NCDWQ representatives agreed that mitigation would not be required for this approximately 14-foot long section.

Stabilizing the bank of a stream does not require fill in the stream bed and, therefore, under Section 404 of the Clean Water Act, does not constitute Loss of Waters of the U.S. and is not subject to compensatory mitigation by the USACE. The DWQ does require mitigation for stream bank stabilization, at a ratio of 1:1, if the impacts to a particular stream exceed their mitigation threshold of 150 linear feet. As such, the ten linear feet of stream bank stabilization impact at Site III and Site V each, and 32 linear feet of stream bank stabilization impact at Site VII will require mitigation by the DWQ at a 1:1 ratio.

Compensatory mitigation has been acquired through the EEP for 1,622 linear feet of stream impact for the project. Of the 975 linear of stream impacts to be mitigated within the Yadkin-Pee Dee River Basin (HUC 03040101), 955 linear feet will be mitigated at a 2:1 ratio and 20 linear feet will be mitigated at a 1:1 ratio. Of the 647 linear of stream impacts to be mitigated within the New River Basin (HUC 05050001), 615 linear feet will be mitigated at a 2:1 ratio and 32 linear feet will be mitigated at a 1:1 ratio.

Compensatory Wetland Mitigation: Compensatory mitigation has been acquired through EEP for the 0.19 acre of wetland impacts. Of the 0.19 acre of wetland impacts for which mitigation will be provided, 0.13 acre of wetland impact is within the Yadkin-Pee Dee River Basin (HUC 03040101), and 0.06 acre of wetland impact is within the New River Basin (HUC 05050001).

REGULATORY APPROVALS

Application is hereby made for a Department of the Army Individual 404 Permit as required for the above-described activities. We are also hereby requesting a 401 Water Quality Certification from the NCDWQ. In compliance with Section 143-215.3D(e) of the NCAC, we will provide \$570.00 to act as payment for processing the Section 401 permit application previously noted in this application (see Subject line). We are providing five (5) copies of this application to the NCDWQ for their review.

It is anticipated that comments from the NCWRC will be required prior to authorization by the Corps of Engineers. By copy of this letter and attachment, NCDOT hereby requests NCWRC review. NCDOT requests that NCWRC forward their comments to the Corps of Engineers.

If you have any questions or need additional information please contact Mr. Bill Barrett by telephone at (919) 431-6688 or by e.mail at wabarrett@ncdot.gov. A copy of this application will also be posted at: www.ncdot.org/doh/preconstruct/pe/neu/permit.html.

Sincerely,



for

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

cc: w/ attachment

Mr. Brian Wrenn, NCDWQ (5 Copies)
Ms. Marla Chambers, NCWRC
Ms. Jennifer Derby, USEPA
Ms. Marella Buncick, USFWS

w/o attachment (see website for attachments)

Dr. David Chang, P.E., Hydraulics
Mr. Dewayne Sykes, P.E., Utilities Unit
Mr. Mark Staley, Roadside Environmental
Mr. Greg Perfetti, P.E., Structure Design
Mr. Michael A. Pettyjohn, P.E. Division 11 Engineer
Mr. Heath Slaughter, Division 11 Environmental Officer
Mr. Jay Bennett, P.E., Roadway Design
Mr. Majed Alghandour, P. E., Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Ms. Missy Dickens Pair, P.E.
Mr. Scott McLendon, USACE, Wilmington
Ms. Beth Harmon, EEP
Mr. Phillip Ayscue, NCDOT External Audit Branch
Mr. Drew Joyner, PE, Human Environment Unit Head
Mr. Clarence W. Coleman, P.E., FHWA

**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

(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 1548 Mail Service Center Raleigh, NC 27699-1548	9. AGENT'S ADDRESS
7. APPLICANT'S PHONE NOS. W/AREA CODE a. Residence b. Business 919-733-3141	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) R-2237C: Widening of US 321 from SR 1500 (Blackberry Rd) to US 221 at Blowing Rock, Caldwell and Watauga counties, NC	14. PROJECT STREET ADDRESS (if applicable)
13. NAME OF WATERBODY, IF KNOWN (if applicable) In Yadkin-Pee Dee River Basin: Bailey Camp Creek and associated tributary; and tributaries to Yadkin River. In New River Basin: Middle Fork of South Fork of New River and associated tributaries.	

15. LOCATION OF PROJECT

Caldwell & Watauga
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

Please see attached vicinity map and cover letter.

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

Widen and improve an existing 2-lane facility to a 4-lane facility. The total length of the project is approximately 4.034 miles. In the widening of US 321, curves will be eased south of Blowing Rock and in the Country Club Drive and Norwood Circle area of Blowing Rock. The project includes a four-lane section with shoulders south of Gideon Ridge and the Blowing Rock town limits, a four lane section with curb and gutter and some turn lanes in Blowing Rock south of US 321 Business, and four lanes with a landscaped median north of US 321 Business. Several intersections also will be improved.

The project will permanently impact a total of 1,636 linear feet of perennial streams (10 streams) and 0.19 acre of wetlands (5 wetlands), and 0.02 acre of pond (1 pond). Of these totals, 975 linear feet of stream impact and 0.13 acre of wetland impact will occur within the Yadkin-Pee Dee River Basin; and 661 linear feet of stream impact, 0.06 acre of wetland impact, and 0.02 acre of pond impact will occur within the New River Basin.

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

The primary needs of the project are to address traffic service deficiencies along US 321 and to address crash rates on existing US 321 within the Town of Blowing Rock that are far higher than statewide averages for similar roads. The primary purposes of the project to improve traffic flow and level of service (LOS), and to reduce crash potential on US 321 within the Town of Blowing Rock. Additionally, it is a purpose of the project to achieve the system continuity objective of the Highway Trust Fund Act. Improvements to US 321 in the project area also are an acknowledgement of the importance of US 321 as a Strategic Corridor.

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)

The project will permanently impact a total of 1,636 linear feet of perennial streams (10 streams) and 0.19 acre of wetlands (5 wetlands), and 0.02 acre of pond (1 pond). Of these totals, 975 linear feet of stream impact and 0.13 acre of wetland impact will occur within the Yadkin-Pee Dee River Basin; and 661 linear feet of stream impact, 0.06 acre of wetland impact, and 0.02 acre of pond impact will occur within the New River Basin.

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

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

Please see sheet 42 of 45 and 43 of 45 in the permit drawing package.

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.

E.L. Fusk 9.3.10

SIGNATURE OF APPLICANT

DATE

SIGNATURE OF AGENT

DATE

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

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



August 30, 2010

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

Dear Mr. Thorpe:

Subject: EEP Mitigation Acceptance Letter:

R-2237C, US 321 from SR 1500 (Blackberry Road) to US 221 at Blowing Rock, Watauga and Caldwell Counties; New and Yadkin River Basins

The purpose of this letter is to notify you that the Ecosystem Enhancement Program (EEP) will provide the compensatory stream and riparian wetland mitigation for the unavoidable impact associated with the above referenced project. Based on the information supplied by you on August 30, 2010, the impacts are located in CU 05050001 of the New River Basin and 03040101 of the Yadkin River Basin in the Northern Mountains (NM) Eco-Region, and are as follows:

IMPACTS / MITIGATION UNITS	Stream			Wetlands			Buffer	
	Cold	Cool	Warm	RW	NRW	CM	Zone 1	Zone 2
Impacts – New 05050001 (NM)	647			0.06				
Mitigation Units – New 05050001 (up to 2:1)	1,262			0.12				
Impacts – Yadkin 03040101 (NM)	975			0.13				
Mitigation Units – Yadkin 03040101 (up to 2:1)	1,930			0.26				
Impacts – Total Project	1,622			0.19				
Mitigation Units – Total Project (up to 2:1)	3,192			0.38				

This mitigation acceptance letter replaces the mitigation acceptance letter issued on August 2, 2010. EEP commits to implementing sufficient compensatory stream and riparian wetland mitigation credits to offset the final permitted impacts associated with this project in accordance with the N.C. Department of Environment and Natural Resources' Ecosystem Enhancement Program In-Lieu Fee Instrument dated July 28, 2010. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from EEP.

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

Sincerely,

William D. Gilmore, P.E.
 EEP Director

cc: Mr. Monte Matthews, USACE – Raleigh Regulatory Field Office
 Mr. Brian Wrenn, Division of Water Quality, Wetlands/401 Unit
 File: R-2237C Revised

Restoring... Enhancing... Protecting Our State



**Minutes of the 30% Hydraulic Design Review (4B) Meeting on January 23, 2008 for R-2237C.
Us 321 from SR 1500 (Blackberry Rd.) to US 221 at Blowing Rock**

Participant:

Team Members:

Randy Henegar, NCDOT Hydraulics (present)
Monte Matthews, USACE (present)
Trent Beaver, NCDOT Division 11 (present)
Amy Euliss, NCDWQ (absent)
Marla Chambers, NCWRC (present)
Marella Buncick, USFWS (present)
Brian Wrenn, NCDWQ (absent)
David Harris, NCDOT REU (absent)
Kathy Matthews, EPA (absent)
Greg Brew, NCDOT Roadway (present)
Donnie Brew, FHWA (present)
Chris Militscher, USEPA (present)
Carla Dagnino, NCDOT NEU (present)
John Frye, NCDOT Structures (present)
Derrick Weaver, PDEA (absent)

Other Attendees

Bill Barrett, NCDOT NEU
Marc Shown, NCDOT Hydraulics
Troy Wilson, USFWS
Wayne Best, NCDOT Roadway
Missy Dickens, NCDOT PDEA
David Wainwright, NCDWQ

The 4B meeting held on 1/23/08, began with Randy Henegar providing an overview of the project and handing out plan sheets with delineated wetlands.

Although there are few wetland and stream impacts, a sheet by sheet review was conducted due to the length of time that has past since the last meeting with the agencies.

Sheet 4:

No stream or wetland impacts.

Sheets 5,6,7,8,9:

No wetland or stream impacts.

Sheet 10 & 11:

JD 2A & 2B.

Wetland Site-1 is actually two separate sites close together and is associated with JD2A &2B. A portion of Site-1 will be filled.

A tributary to the Yakin River will be impacted between station 442+00-L- and 449+00-L-. Because of a steep ridge across the stream, approximately 150ft.of the stream will have to be piped. There was discussion as to

whether the pipe should be buried or not. USFW and EPA stated there was no aquatic life in the stream due to runoff from the golf course upstream.

It was the consensus that the pipe should not be buried to prevent a total take on wetland site #1.

A retaining wall was added at the upper reaches of this reach to prevent a stream relocation that would impact historical property, large trees, and site 1.

Drop boxes will be installed on the two outlet structures that discharge into the stream. This will lower the discharge velocity.

Stream Mitigation will be investigated for this site.

Sheet 12, 13:

No wetland or stream impacts.

Sheets 14, 15:

JD # 3- Stream with small drainage area drains from existing stormdrain system. The stream will be filled and the toe of fill will be armored (approximately drainage area is 1.3 acres).

Sheets 16, 17:

JD # 4- Middle Fork. Extending 2@ 8X7 RCBC. Agencies recommended burying 1foot and placing sills at both ends. This will allow the culvert bottom to fill in naturally, help hold the substrate in the culvert and prevent head cutting.

Sheet 18:

JD # 5- Near community center. This stream may not be jurisdictional. NEU and USACE will investigate.

Sheet 19:

JD # 7- No comments.

Sheet 20:

No wetland or stream impacts.

NEU and USACE will visit the project to re-delineate the wetlands and streams.

rch

**Minutes of the Permit Drawing Review (4C) Meeting on September 23, 2009 for R-2237C.
Us 321 from SR 1500 (Blackberry Rd.) to US 221 at Blowing Rock**

Participant:

Team Members:

Randy Henegar, NCDOT Hydraulics (present)
Monte Matthews, USACE (present)
Trent Beaver, NCDOT Division 11 (present)
Amy Euliss, NCDWQ (present)
Marla Chambers, NCWRC (present)
Marella Buncick, USFWS (present)
Jake Rigsbee, FHWA (absent)
Kathy Matthews, EPA (absent)
Greg Brew, NCDOT Roadway (absent)
Carla Dagnino, NCDOT NEU (present)
John Frye, NCDOT Structures (absent)
Derrick Weaver, PDEA (absent)

Other Attendees

Bill Barrett, NCDOT NEU
Marc Shown, NCDOT Hydraulics
Wayne Best, NCDOT Roadway
Missy Pair, NCDOT PDEA
Donnie Brew, FHWA

The 4C meeting held on 9/23/09 began with Randy Henegar providing a review of the 4B minutes and the measures taken or to be taken.

Site I: The 54" RCP will not have the inverts buried.

Site II: Drop boxes have been proposed on the 15" and 30" pipe outlets to flatten the pipes and reduce outlet velocities.

Site V: The 2@ 8'x7' RCBC will be replaced with a 2@ 11'x8' RCBC with the inverts buried one foot and one foot sills placed in both barrels at the inlet and outlet to help hold substrate in the culvert and prevent head cutting.

Site VII: NEU and USACE will revisit this site to determine if it is jurisdictional. They will also determine if there is any jurisdictional stream at the outlet of existing cross-pipe and if so delineate the stream.

DWQ requested delineation showing that this project does not drain to HQW or ORW.

A site by site review of the permit drawings was then conducted.

Site I:

No Comments

Site II:

Hydraulics questioned whether the impacts should be shown as pond impacts or wetland and stream impacts. Pond impacts are currently shown. NEU indicated that the impacts should be stream and wetland. Hydraulics will make revisions.

DWQ questioned whether there was rip rap in the bottom of proposed stream relocation. Hydraulics indicated that since it had no aquatic life that the rip rap was called for in the bottom of the channel. It was agreed that rip rap would be placed in the bottom of the channel.

Blow ups of all sites were requested. Hydraulics will provide blow ups with the permit package.

Site III:

No Comments

Site IV:

No Comments

Site V:

NCWRC asked if there would be sills in the inlet of the proposed culvert and if there would be alternating baffles in one of the barrels. Hydraulics indicated that at present there are sills at the inlet and that alternating baffles were not in the present design. Hydraulics will incorporate a low flow channel with alternating baffles into the design.

Site VI:

DWQ asked if the ponds had the stream running through them. Hydraulics indicated that there was a diversion from the stream through an 8" plastic pipe to the first pond and the first and second ponds are connected by an 8" plastic pipe.

DWQ asked if the ponds were designed for stormwater treatment. Hydraulics indicated that the ponds were most likely created for aesthetics and that the proposed hydraulic design is maintaining existing drainage patterns.

Division indicated that there has been some talk of lowering the southbound lanes in order to eliminate pond impacts.

Site VII:

This stream may not be jurisdictional. Also there is no jurisdictional stream delineated on the west side of US 321. NEU and USACE will verify and delineate if necessary.

Site VIII:

No comments.

Site IX:

DWQ requested that any stream lines that are not jurisdictional be removed from the plans. Roadway Design will remove them from plans.

Site X:

The question arose as to whether this pipe needs to be buried. It was agreed that pipe would not have to be buried.

rch



**TIP Project No. R-2237C, US 321 Improvements from Blackberry Road to US 221
Caldwell and Watauga Counties
Indirect and Cumulative Effects Assessment Update
August 27, 2010**

Overview

The following ICE technical memorandum includes updated analysis and additional cumulative effects language. A re-examination of the data and conclusions from Section 4.15, Secondary and Cumulative Impacts contained within the *2006 Final Environmental Impact Assessment (FEIS)*, as well as current local input and updated North Carolina Department of Commerce data, both support the final determination that R-2237C has a ***low potential*** for inducing change in land use that would notably contribute to cumulative effects. ***No additional qualitative indirect and cumulative effects analysis in the form of a Land Use Scenario Assessment is recommended.***

Project Description

The Project Merger Team selected the Widening Alternative as the Least Damaging Practicable Alternative (LEDPA) at the January 15, 2003 Concurrence Point Three Meeting. The Widening Alternative calls for the widening of existing US 321 from two lanes to four lanes through The Town of Blowing Rock from Blackberry Road to Possum Hollow Road. The project includes a four-lane section with shoulders south of the municipal limits; a four-lane section with curb and gutter and some turn lanes in Blowing Rock south of US 321 Business; four-lanes with a landscaped median north of US 321 Business; and some intersection improvements.

Market for Development and Development Trends

Current development, population and employment trends, existing regulations, and local input suggest existing development patterns can be expected to extend into the future, in both the build and no-build scenarios.

According to Town of Blowing Rock Planning Director, the recent economic downturn has greatly affected new construction, the majority of which has traditionally been in the form of single-family residential housing. It was stated that, in 2008, there were 26 homes constructed. In 2009, the number of single-family homes constructed had dropped to three. Although single-family residential construction typically constitutes the majority of new construction, there have been two mixed-use projects that have been recently approved, but have yet to break ground. The first is a project located at the intersection of Ransom Street and US 321. The second project is the larger of the two and is approved for a 72 room hotel, 2 restaurants, 36 condos, and a parking structure. This project is located off of the US 321 corridor on Main Street.

Population and Economic Trends

According to the US Census Bureau, Watauga County's estimated 2009 population was 45,479. This figure represents an annual growth rate of 0.72 % from the certified 2000 population, which was 42,703. As stated in the *FEIS*, it is estimated that Watauga County's population increases by approximately 10,000 during the summer months, with approximately 32% of the county's population residing in the major population center of Boone. The Town of Blowing Rock grew 64 people or by 4.51 % between April 2000 (1,418) and July 2008 (1,482) according to the North Carolina Office of State Management and Budget.

Based on North Carolina Employment Security Commission data, the civilian labor force estimate for unemployment (not seasonally adjusted) in June 2010 for Watauga County was 7.5 %. In contrast, the rate for North Carolina was 10.2 % in June 2010.

A review of the North Carolina Employment Security Commission, High Country Workforce Development Board employment projection data, of which Watauga County is a part, reveals that the projected annualized employment growth rate between 2006 and 2016 will be 1.14 %.

Development Regulations

Caldwell County

Caldwell County has an adopted zoning ordinance. The zoning map designates the land along the US 321 corridor adjacent to the portion of proposed project within Catawba County as R-R (Rural-Residential). Land to the east of US 321 within Catawba County is zoned RA-20 (Residential-Agricultural District).

The *Caldwell County Comprehensive Plan* was adopted in 1995. According to the plan, there will be some residential development along the Caldwell and Watauga County line south of Blowing Rock. However, the intensity of this development will be tempered by the lack of available sites and water and sewer service. Commercial development is expected along US 321 near Lenoir and Hudson.

Watauga County

Watauga County does not have an adopted zoning ordinance and one is not currently in development. However, the county does have a comprehensive plan, originally adopted in 1992. The recently updated comprehensive plan, the final draft of which was presented in January 2010, is entitled the *Citizen's Plan for Watauga*. This plan, according to the plan's Oversight Group, was developed "to provide a balance between managing change, preserving community traditions, protecting the natural environment and enhancing the quality of life."

The plan is divided into nine sections, including: transportation, economic development, economic gateways, key economic sectors, water and sewer, key community services,

affordable/workforce housing, preservation of unique community identities and heritage and parks and recreation. The plan also addresses preparing and managing change in Watauga County and details on how to implement the plan.

Other applicable development regulations currently in place include the:

- *Watauga County Erosion Control Ordinance*; The main purpose of this ordinance is to “regulate certain land-disturbing activities to control accelerated erosion and sedimentation in order that water pollution from sedimentation may be prevented.”
- *Watauga County Subdivision and Multi-Unit Structure Ordinance*; This ordinance was amended on August 18, 2009 and governs the subdivision of land and multi-unit structures within the county namely to ensure; adequately planned streets, water/sewer systems and other infrastructure and to prevent flood damage and soil erosion.
- *Watershed Protection Ordinance*; This ordinance applies to the area designated as a Public Water Supply Watershed by the North Carolina Environmental Management Commission. In terms of this project, the area that drains into Flat Top Branch and the South Fork of the New River is included within this protection area.

Town of Blowing Rock

The Town of Blowing Rock has an adopted zoning ordinance. The zoning map designates various residential zoning classifications with varying densities and general business along US 321. Parcels are zoned R-15 (low-density residential), R-10M (medium density residential) and R-6M (high density residential) for the southern municipal limits to US 321 Business. Parcels located between US 321 Business and US 221 are zoned GB (general business), a zoning district designed to accommodate a wide-range of auto-oriented commercial activities.

The *Town of Blowing Rock Comprehensive Plan (2004)* outlines policies to guide future development and the preservation of natural resources and historic properties. Central to the document is the goal of preserving the existing quality of life and historic village character of the Town. This document also stipulates that US 321 be improved between US 321 Business and US 221 to “include curb and gutter, sidewalks, coach lights, landscaping, and proper NCDOT standard driveway connections with curb stops to promote the village character and public safety.”

Water and Sewer Services

Water and sewer services are generally available within the municipal limits of Blowing Rock, including portions of the town within Caldwell County. Sewer service is somewhat lacking in the Laurel Park area although a lift station has been constructed to provide service to that area in the future. Properties outside of the town municipal limits within Caldwell County rely on individual wells and septic systems. According to the Caldwell County website, “[The long range expansion plan] includes the completion of

construction of main distribution lines to the County's boundaries that are shared with all of the neighboring counties, except Avery and Watauga. The development of new operating/pressure gradients will be required to serve to the boundaries with those two neighbors.”

Water Plant

The Town of Blowing Rock operates a 1.0 MGD Water Treatment Plant (WTP), constructed in 1978, which is located along US 321 just south of the Blue Ridge Parkway. The WTP's capacity is expandable to 2.0 MGD. The Town's service area is entirely south of the WTP. The Town's reservoirs include a 45-47 million gallon pond on Brickhouse Creek, and Chetola Lake which serves as a backup water source during times of drought.

According to the Town's website, “[Blowing Rock] has actively sought new water sources, which may prove to be more reliable. In times of drought and high demand, the current source is of inadequate quantity. At this time, the Town of Blowing Rock is under restrictions imposed by North Carolina Department of Environment and Natural Resources restricting development, which would result in additional water service connections. In 2008, the Town executed a water agreement with the Town of Boone for an emergency water system interconnection. This project is currently under construction and should be completed during fiscal year 2010.”

Wastewater Treatment Plant

The Town of Blowing Rock's Wastewater Treatment Plant is located in close proximity to the Water Treatment Plant and discharges into the Middle Fork of the New River. The plant has a capacity of 0.80 MGD, but could be expanded to a capacity of 1.2 MGD. The system utilizes four sewer system lift stations for the entire service, which includes most of the Town except for an area to the northeast, centered around Possum Hollow Road.

Transportation Impact Causing Activities

Because the proposed project is the widening of existing US 321 along the same general alignment, it will not result in a notable change in access or exposure, since access and a certain level of exposure currently exists. Also, the project will not result in a notable change in travel patterns. The additional capacity gained due the widening, access control, and the addition of dedicated turning lanes on the existing facility will result in minimal travel time savings along the corridor, estimated to be 1-2 minutes. The posted speed limit on the widened facility (35mph or 45mph) will not change from existing conditions and therefore any travel time savings will be gained from reduced delay.

Updated Analysis; Indirect and Cumulative Effects Screening Matrices

The Indirect and Cumulative Land Use Effects Screening Matrix (see Tables 1, 2, and 3) was developed to qualitatively assess factors that influence land development decisions.

It rates the influence of each category from high concern for indirect effects to less concern for indirect effects. The measures used to rate the effects from a high concern for indirect effects potential to less concern for indirect potential are also supported by documentation. Each characteristic is assessed individually and the results of the table are looked at comprehensively to determine the indirect and cumulative effects potential of the proposed project. The Scope of the project and Change in Accessibility categories are given extra weight to determine if future growth in the area is related to the project modifications. For projects that have more categories noted as moderate to high concern, the screening matrix may indicate the need for further examination in the form of an ICE Land Use Scenario Assessment.

Table 1

Indirect and Cumulative Land Use Effects Screening Tool - TIP R-2237C, Preferred Alternative (Widen Existing)										
Rating	Scope of Project	Change in Accessibility	Forecasted Population Growth	Forecasted Employment Growth	Available Land	Water/Sewer Availability	Market for Development	Public Policy	Notable Environmental Features	Result
More Concern	Major New Location	> 10 minute travel time savings	> 3% annual population growth	Substantial # of New Jobs Expected	5000+ Acres of Land	All services existing / available	Development activity abundant	Less stringent growth management	protected or Threatened Resources	
↑										
↑										
↔						X			X	
↓	X	X	X	X			X	X		Indirect Scenario Assessment Not Likely
↓					X					
Less Concern	Very Limited Scope	No travel time savings	No population growth or decline	No new Jobs or Job Losses	Limited Land Available	No service available now or in future	Development activity lacking	More stringent growth management	Features incorporated in local protection	

Screening Matrix Results Summary

- The scope of the project, the widening of existing US 321 in Blowing Rock, is limited.
- The project will result in minimal travel time savings and will not result in a change in travel patterns.
- Watauga County’s approximate annual population growth rate between 2010 and 2030 is projected to be 0.8 %.
- The projected annualized employment growth rate between 2006 and 2016 for the High Country Workforce Development Board, which includes Watauga County, is 1.14 %.
- For this ICE Update, a FLUSA has been delineated which encompasses approximately 900 acres of land. Without detailed developable land calculations overlaying development constraints on identified vacant land, approximately 300 acres of developable land is assumed to be available for development.
- There is existing water and sewer service, provided by the Town of Blowing Rock, within the majority of the area surrounding the proposed project.
- Some new residential development, generally single family vacation homes, has occurred and will continue to occur in the project area. However, due to the economy, construction has slowed significantly since 2008. There are relatively large mixed-use projects approved for adjacent to US 321 and further removed from the corridor along Main Street, although construction is currently on-hold.

- Watauga County does not have an adopted zoning ordinance, but does have a *Subdivision Ordinance* and an *Erosion Control Ordinance*, in addition to a comprehensive plan. Caldwell County and the Town of Blowing Rock both have an adopted zoning ordinance and a comprehensive plan.
- Targeted, threatened or protected natural resources in the project area include the Middle Fork/South Fork of the New River, which is a designated Trout Stream but is not on the draft 2010 303(d) list of impaired waters. The National Committee for the New River has designated this tributary of the New River as a Land Trust Priority Area and has established a 500 buffer. Flat Top Branch, which is a tributary of the Middle Fork/South Fork of the New River, and which is located just northwest of the project area, is designated as a High Quality Water. Land near the southern terminus of the Preferred Alternative, in Caldwell County, is within the Catawba River watershed. Although these waters are outside the direct project footprint, runoff from construction could potentially affect water quality in Johns River and Mulberry Creek, a High Quality Water. In addition, there is a protected WS-IV Water Supply Watershed for the South Fork of the New River that encompasses the majority of the project area. There is also land managed by the National Park Service as conservation open space along the Blue Ridge Parkway and land within the Pisgah National Forest owned by the US Forest Service.

Indirect Screening Conclusion

The potential for project induced growth and land use change is low because the proposed project will not increase access or exposure to surrounding properties. Because this project is a widening on existing location, it will not result in the creation of a new land use node. Traffic patterns will not change and travel time savings, as a result of the project, will be minimal. Although traffic counts are projected to increase through the design year, the Preferred Alternative is expected to meet the purpose and need of the project, to increase the safety and capacity of the existing roadway.

The increased traffic volume associated with the widened roadway could lead to more intense commercial re-development of the largely built-out parcels adjacent to US 321, as evidenced by plans to construct the mixed-use project at the corner of Ransom Street and US 321. However, it will likely not lead to residential re-development.

Although there is some available land within the project area, especially on the southern end of the project within Caldwell County, there is a lack of existing and/or planned water and sewer service in that area and environmental constraints such as the presence of steep slopes and the Pisgah National Forest. The presence of 100-year floodplain immediately to the west of the US 321 corridor within Blowing Rock is also a constraint to development in this area. While these constraints would not necessarily prohibit development they will serve to further temper future development trends.

Potential Cumulative Impacts

Past public and private actions within the study area include: existing commercial and residential development in Blowing Rock (primarily in the form of single family residential), E-4569 the restoration of a pedestrian walkway along US 321 Business in Blowing Rock, R-2237B the widening of US 321 from SR 1370 to SR 1500, R-0529 the widening of US 421 from NC 194 in Boone to two miles east of US 221 in Watauga County, U-3800 the widening of US 321 from River Street to US 421/NC 194 in Boone and the expansion of the sewer system in Blowing Rock with the construction of a lift station to serve the Laurel Park neighborhood.

Present actions with cumulative effects potential are limited to this proposed project, TIP Project R-2237C, the Preferred Alternative of which will widen US 321 on existing location through the Town of Blowing Rock. This alternative will not result in a change of traffic patterns or increase traffic on adjoining facilities or result in a change of access. This alternative, will however, improve traffic flow on US 321 through the design year and meet the project purpose and need.

The Preferred Alternative will not result in a notable loss of natural resources or habitat fragmentation, as it consists of an existing location widening along an already developed corridor. The Preferred Alternative will not result in notable direct impacts to plant communities. The potential for direct and temporary project construction related impacts to water quality in the form of increased sedimentation will be addressed through on-site mitigation in the form of best management practices. The potential for impacts to water quality through increased impervious surface due to induced growth is minimal and will be mitigated through stormwater control measures.

Future actions include: R-2566 the proposed widening of NC 105 in Watauga and Avery Counties, R-2615 a proposed project to widen US 421 to a multi-lane road from US 221 in Boone to the Tennessee State Line, R-2915 a proposed project to widen US 221 in Watauga and Ashe Counties, U-2703 the proposed southern bypass of Boone on new location, U-2211 the widening of SR 1001 in Lenoir and U-4435 the proposed construction of an interchange at the US 64 and US 321 intersection in Lenoir.

There have been two mixed-use projects that have been recently approved, but have yet to break ground. The first is a project located at the intersection of Ransom Street and US 321 that includes residential with ground floor retail. The second project is the larger of the two and is approved for a 72 room hotel, two restaurants, 36 condos, and a parking structure. This project is located off of the US 321 corridor on Main Street.

Although recent local planner input indicated that residential development in the project area has decreased due to the economic downturn, future development potential, based upon the attractiveness of the area, will remain moderate. The lack of planned water and sewer service within the Caldwell County portion of the project area will limit the amount and density of future development.

Notable natural environmental resources located within the project area include the Middle Fork/South Fork of the New River, which is a designated Trout Stream, but is not on the draft 2010 303(d) list of impaired waters. The National Committee for the New River has designated this tributary of the New River as a Land Trust Priority Area and has established a proposed 500 buffer. Flat Top Branch, which is a tributary of the Middle Fork/South Fork of the New River, and which is located just northwest of the project area, is designated as a High Quality Water. Land near the southern terminus of the Preferred Alternative, in Caldwell County, is within the Catawba River watershed. Although these waters are outside the direct project footprint, runoff from construction could potentially affect water quality in Johns River and Mulberry Creek, a High Quality Water. In addition, there is a protected WS-IV Water Supply Watershed for the South Fork of the New River that encompasses the majority of the project area. There is also land managed by the National Park Service as conservation open space along the Blue Ridge Parkway and land within the Pisgah National Forest owned by the US Forest Service.

Because of the limited induced development expected, the associated minimal increase in impervious surface and the mitigation measures in place, these features would not be substantially impacted. Any development (residential development is unlikely) or change in land use expected as a result of the project would occur in the planning jurisdiction of Blowing Rock, including the one-mile ETJ, and would be subject to existing regulations. Direct natural environmental impacts by NCDOT projects will be addressed by programmatic agreements with resource agencies, and will be further evaluated by the NCDOT Natural Environment Unit during project permitting. Natural environmental impacts that may result from any induced development may be avoided or minimized through the implementation of local, state, and federal regulations. Because few indirect impacts are anticipated, the cumulative effect of this project when considered in the context of other past, present and future actions, and the resulting impact on the notable human and natural features, should be minimal. Therefore, potential indirect and cumulative effects to downstream water quality should be minimal. *No additional ICE study is recommended.*

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STORMWATER MANAGEMENT PLAN

R-2237C, State Project 34402.1.1
Caldwell/Watauga Counties
Hydraulics Project Engineer: R.C. Henegar, PE

Date 4/15/10

ROADWAY DESCRIPTION

This project is to widen US 321 (an existing two-lane facility) from 1500 (Blackberry Road) to US 221 at Blowing Rock to four lanes in Caldwell and Watauga Counties. The total project length is approximately 4.034 miles.

ENVIRONMENTAL DESCRIPTION

This project is located in the Yadkin and New River Basins. There is one primary stream crossing on this project. Middle Fork South Fork New River has a DWQ classification of WS IV+. Wetlands will be impacted by the proposed project.

BEST MANAGEMENT PRACTICES AND MAJOR STRUCTURES

The existing 2@ 8'X7' culvert in Middle Fork South Fork New River will be replaced by a 2@ 11'X8' reinforced box culvert with one foot sills at the inlet and outlet and a low flow channel in the northernmost barrel. Storm drainage is being discharged as far away from the stream as practicable.

The following summarizes where the BMP's will be used on the project:

- 24" storm drain pipe @ Sta. 356+00 -L- Rt. was extended +/- 275' to bottom of slope with a MH and pipe on a flat grade at the outlet to reduce erosion potential.
- A retaining wall was added from Sta. 438+00 to Sta. 442+00 -L- Rt. to reduce stream impacts.
- A retaining wall was added from Sta. 449+85 to Sta. 451+60 -L- Rt. to reduce stream impacts.
- Storm drainage is being discharged as far away from jurisdictional streams as practicable.



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

MEMORANDUM OF UNDERSTANDING

Between the N.C. Board of Transportation and the Town of Blowing Rock
Relating to the
US 321 Improvements Project
From Blackberry Road (SR 1500) to Possum Hollow Road (SR 1632)
Watauga and Caldwell Counties
TIP Project R-2237C

Whereas, the Widening Alternative is the Preferred Alternative for proposed improvements to US 321 between Blackberry Road (SR 1500) and Possum Hollow Road (SR 1632) in Blowing Rock, North Carolina (Transportation Improvement Project R-2237C);

Whereas, this Memorandum of Understanding applies only if NCDOT decides to construct the Preferred Alternative;

Whereas, the Town of Blowing Rock is a unique destination community with rural mountain resort character and timeless small-town charm that will be affected by the proposed Widening Alternative;

Whereas, the Town of Blowing Rock is the home of The Blowing Rock - North Carolina's oldest travel attraction since 1933;

Whereas, the Green Park Inn, the State's second oldest surviving resort hotel, has played an important role in the early development of the tourist industry in western North Carolina;

Whereas, the Green Park Inn, the Blowing Rock Country Club Golf Course, and the surrounding residential area is listed as an historic district in the National Register of Historic Places;

Whereas, the Widening Project will adversely affect the Green Park Historic District and consequently will be the subject of a Memorandum of Agreement between the U.S. Army Corps of Engineers, the State Historic Preservation Officer, and the NCDOT in compliance with Section 106 of the National Historic Preservation Act;

Whereas, no stipulation in this Memorandum of Understanding can override any stipulation of the Section 106 Memorandum of Agreement;

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS
1548 MAIL SERVICE CENTER
RALEIGH NC 27699-1548

TELEPHONE: 919-733-3141
FAX: 919-733-9794

WEBSITE: WWW.NCDOT.ORG

LOCATION:
TRANSPORTATION BUILDING
1 SOUTH WILMINGTON STREET
RALEIGH NC

Whereas, the Green Park Historic District contains the following contributing elements:

- the Queen Anne-style Green Park Inn, which was an integral feature in the development of this mountain-top area for resort estates and cottages in the late nineteenth and early twentieth centuries;
- the Blowing Rock Country Club golf course, constructed shortly after 1915 increased the recreational opportunities of the area which in turn supported the continued success of the hotel and the marketability of residential properties in the Green Park area; and
- residential neighborhoods that display variations on vernacular architectural designs that have in common many design and decorative features, were constructed for similar purposes (i.e., as resort housing), and during a specific period (i.e., 1920 to 1930), and had a common social focus on the Green Park Inn and the golf course/country club;

Now, therefore, the North Carolina Board of Transportation and the Town of Blowing Rock do hereby agree to implement the following measures related to the design, implementation, and mitigation of the subject project, if the Widening Alternative is selected as the final, approved alternative by NCDOT:

NCDOT shall construct 11-foot lanes within the Green Park Historic District; 12-foot lanes will be constructed elsewhere along the project.

NCDOT shall fund and construct sidewalks on the east side of US 321 from Green Hill Road/Rock Road to US 321 Business. NCDOT shall fund and construct sidewalks on both sides of US 321 from US 321 Business to Possum Hollow Road.

NCDOT shall terminate Goforth Road just east of US 321 rather than re-build its intersection with US 321.

NCDOT shall not construct a median between Green Hill Road and US 321 Business in order to narrow the footprint of the proposed improvement. The median in front of the Green Park Inn that was shown on the Corridor Public Hearing Map shall be eliminated.

NCDOT shall rebuild the emergency vehicle access at The Pines (a residential subdivision), or replace it with something that will serve the same function. The goal is to insure that emergency vehicles can access the subdivision directly from US 321 since the neighborhood streets and turning radii are too narrow for emergency vehicles to navigate.

If the Town wants highway lighting outside of the Green Park Historic District, it shall purchase, install, and maintain the roadway lighting equipment of its choice. NCDOT shall reimburse the Town for the cost of said roadway lights. NCDOT will not participate in providing highway lighting within the limits of the Green Park Historic District. NCDOT shall coordinate with the Town to insure AASHTO lighting requirements are met. NCDOT's Utility Agent will handle any right of way encroachment associated with Town lighting. If right of way and berm widths are not wide enough to accommodate poles outside the clear zone, breakaway poles will be required. Any breakaway or non-breakaway light poles will be placed behind the sidewalk.

NCDOT shall replace all existing stone walls within the Town limits removed by the project with new in-kind stone walls. All other retaining walls along the project within the Town limits will be formed concrete walls with simulated masonry surface treatment. The surface treatment will be designed to resemble the existing stone walls in the historic district (e.g., the low wall in front of the Green Park Inn). The appearance of the surface treatment will be coordinated with the Town of Blowing Rock, and a sample of the surface treatment shall be fabricated for the Town's review and comment and the Department's approval prior to permanent installation on the project.

Where guardrail is required, NCDOT shall install approved wooden-faced guardrail where it can be installed and meet safety requirements. If, during final design, locations are identified where wooden-faced guardrail cannot be installed, or where installation of wooden-faced guardrail would cause an undesirable increase in project right of way in order to provide necessary roadside clear areas, NCDOT will coordinate with the Town of Blowing Rock (and the State Historic Preservation Officer if any locations within the Green Park Historic District are involved) to find an acceptable alternative prior to finalizing the plans.

NCDOT shall place existing overhead utilities (electrical, telephone, and cable television) underground between Green Hill Road and Possum Hollow Road.

NCDOT shall design and implement a post-construction landscape plan that will include the following elements:

- a median on US 321 from US 321 Business to the project terminal at Possum Hollow Road. The median shall either be vegetated or decorative concrete (Town's choice). If the median is vegetated, it will be planted with vegetation of NCDOT's choosing that is both cold-hardy and salt-hardy where safety conditions allow. If the median is to be decorative concrete, then the aesthetic details will be coordinated with the Town of Blowing Rock, and a sample will be fabricated for the Town's review and comment and the Department's approval prior to permanent installation on the project.
- decorative pedestrian lights (i.e., "coach" lights), the style of which is to be agreed to by both the Town of Blowing Rock and the NCDOT, at selected locations within the Town limits. All decorative pedestrian light locations within NCDOT right of way (e.g., in areas of more concentrated landscaping) must be approved the Special Design Section of NCDOT's Roadway Design Unit. NCDOT will pay for the lighting equipment and installation, and NCDOT will install the lights as part of the landscape plan implementation. (NCDOT may choose to do a two-phase post-construction landscape implementation. The first phase would be the hardscape elements, which would include pedestrian lights, to be overseen by the Resident Engineer. The second phase would be the landscape design and development, which would be overseen by the Roadside Environmental Unit.) The Town will assume ownership of the lights and will pay for utility (electricity) costs;
- broader areas of more concentrated landscaping where right of way, roadway elements, terrain, and safety conditions allow.

NCDOT shall make a special effort to preserve trees of particular value identified by the Town that are outside the clear recovery area. Any trees within 14 feet of the face of curb would need to meet NCDOT guidelines for plantings before they could be preserved.

NCDOT shall design and construct, as part of the post-construction landscape plan, a park on the uneconomic right of way remnant remaining following the realignment of US 321 Business/Main Street at US 321 (near Shoppes on the Parkway). (The park construction will be part of the landscape contract, which will be awarded to a landscape contractor after the roadway construction contract is complete.) NCDOT will convey the Department's interest in this property to the Town, and the Town will assume the maintenance for the park.

NCDOT shall provide a set of preliminary right of way plans to the Town of Blowing Rock for their review and comment at the following milestones:

- Approximately 25% design (horizontal and vertical alignments complete, approximately six months prior to submittal of the plans to the Right of Way Branch)
- Approximately 50% plans at the time of the preliminary field inspection (drainage added, construction limits defined, right of way and easements defined prior to right of way submittal)
- Approximately 80% at the time of the final field inspection (prior to finalizing plans for turn in)

NCDOT shall submit a set of preliminary signing plans to the Town of Blowing Rock for their review and comment. The Town will identify locations where proposed signs may create an aesthetic concern. NCDOT will coordinate with the Town to establish the number, size, and placement of signs to the degree that the Manual on Uniform Traffic Control Devices allows.

NCDOT shall submit preliminary pavement marking plans to the Town of Blowing Rock for review and comment.

NCDOT shall submit preliminary traffic control plans to the Town of Blowing Rock for review and comment.

NCDOT shall submit a preliminary set of Sedimentation and Erosion Control Plans to the Town of Blowing Rock for review and comment.

NCDOT shall submit preliminary post-construction landscape plans to the Town of Blowing Rock for review and comment.

NCDOT's Geotechnical Engineering Unit, in consultation with Division 11, shall develop a vibration monitoring plan for the project, to include on-site research during final design as well as monitoring during construction. The recommendations of the plan shall be provided to the Town of Blowing Rock for review prior to adoption of the plan.

NCDOT will use "Smart Zone" techniques in the maintenance of traffic during construction. These techniques could include items such as advance notification of

delays, lane closures, real time monitoring, and the use of Digital Message Systems. In addition, NCDOT will maintain a website that will provide information on anticipated delays based on scheduled construction activities.

NCDOT will evaluate flashing warning lights, pavement markers, rumble strips and/or stripes, delineation, warning signs, and/or lighting that would be appropriate to increase safety and improve driver behavior during fog occurrences. The plans submitted by NCDOT to the State Historic Preservation Office and the Town of Blowing Rock for review would show the results of NCDOT's evaluation and the resulting recommendations.

NCDOT shall design and install a coordinated traffic signal system.

NCDOT shall use standard mast arm signal poles for traffic signals. If the Town chooses a decorative mast-arm pole that exceeds the cost of the NCDOT-standard mast-arm pole, then the Town will pay the incremental cost difference.

NCDOT shall provide an emergency crossover (with pavers that will allow grass to grow through them) at the planned Fire/EMS station (parcel no. 1504 on the Corridor Public Hearing Map). This crossover will permit volunteer fire fighters to turn left into the station and fire trucks to turn left out of the station. No signal of any kind will be provided at this location, but it will be signed for emergency use only. It is imperative that the Town or County enforce the appropriate use of this crossover; under no circumstances should anyone use it in a non-emergency situation.

NCDOT will construct a retaining wall at the Bollinger-Hartley House to minimize the project's impact on that property. Landscaping on the Bollinger-Hartley House property will be discussed with the SHPO and the property owners and will be included in the post-construction landscape plan.

NCDOT's Construction Unit IMPACT Public Information Program will work with the Town of Blowing Rock to develop an appropriate public information plan (PIP). As part of the PIP, NCDOT will hold a pre-construction "kick-off" meeting to introduce the contractor and the construction process to area residents.

NCDOT will develop, maintain, and consistently update a project website to provide current information about the schedule and development of the project, project progress, project contact information, and notification of any anticipated delays based on scheduled construction activities.

NCDOT and the contractor will limit blasting to specific times and those times will be posted on the aforementioned project website. In addition, blasting activities will be announced to the media as to be outlined in the PIP.

NCDOT will conduct pre-construction surveys of all structures adjacent to US 321 within the historic district to record a "before" condition so that any construction-related damage can be accurately identified.

NCDOT shall require that all construction trucks traveling at speeds greater than 25 mph will cover their truck beds in order to reduce the amount of dust and debris.

NCDOT shall not permit staging areas within the Green Park Historic District. NCDOT will permit overnight parking of equipment and storage of materials associated with current construction needs within the construction right-of-way limits along any part of the project corridor.

NCDOT shall not permit waste deposits, borrow pits, or construction offices within the Green Park Historic District.

NCDOT and the Town recognize that engineering constraints may arise and engineering standards may change between the date of this Understanding and the time of project completion. Should an engineering issue arise that complicates the fulfillment of any of these measures, NCDOT will initiate discussions with the Town to resolve the issue.

In witness whereof, this Memorandum of Understanding has been executed as of the last day written below on the part of the North Carolina Department of Transportation and the Town of Blowing Rock, by authority duly given, as evidenced by the attached certified copy of Resolution, Ordinance or Charter Provision, as the case may be.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

L. Sanderson
State Highway Administrator

Approved by the Board of Transportation: October 7, 2004

TOWN OF BLOWING ROCK

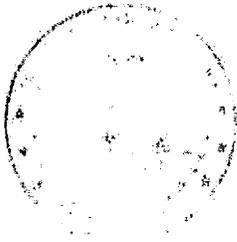
Jerry D. Vest
Mayor

Attest: Theresa H. Greene
Clerk



MUNICIPAL SEAL

Approved by the Town Board of Blowing Rock: Oct. 12, 2004



Town of Blowing Rock

1036 Main Street • Post Office Box 47 • Blowing Rock, NC 28605

Resolution #2004-__

RESOLUTION TO APPROVE A MEMORANDUM OF UNDERSTANDING Between the N.C. Board of Transportation and the Town of Blowing Rock Relating to the US 321 Improvements Project in Blowing Rock, NC

Whereas, the Widening Alternative has been identified by the NC Department of Transportation as the Preferred Alternative for proposed improvements to the US 321 Improvements Project between Blackberry Road (SR 1500) and Possum Hollow Road (SR 1632R) in Blowing Rock, North Carolina (Transportation Improvement Project R-2237C); and

Whereas, over the past several years the Town of Blowing Rock and the NC Department of Transportation have worked closely on the planning and design of the proposed U.S. 321 Improvements Project; and

Whereas, the Town of Blowing Rock desires that the road widening project minimize and mitigate project impacts, preserve and enhance the unique village atmosphere characteristics of Blowing Rock and include "parkway" amenities that are aesthetically pleasing as well as safety conscience; and

Whereas, a Memorandum of Understanding has been drafted based on these discussions and negotiations between the Town of Blowing Rock and NC Department of Transportation, with input from citizens and interested parties; and

Whereas, this agreement consists of the improvements of US 321 from Blackberry Road to Possum Hollow Road in Blowing Rock and lists measures that relate to minimizing and mitigating project impacts to both the Green Park Historic District and to the Town of Blowing Rock by preserving and enhancing the community character of the Town, including sidewalks, lighting, wall treatment, guardrail, utilities, landscaping, emergency access, review of plans, construction management (including blasting), traffic maintenance during construction, and post-construction traffic management, which includes a coordinated signal system; and

Whereas, the NC Department of Transportation Board formally adopted this MOU at their regular meeting on October 7, 2004;

Now, Therefore, Be It Resolved, by the Town Council of the Town of Blowing Rock that, in order to minimize and mitigate project impacts and preserve and enhance community character, the Memorandum of Understanding between the N.C. Board of Transportation and the Town of Blowing Rock, relating to the US 321 Improvements Project (R-2237C), be ratified upon adoption of this Resolution.

Approved this the 12th day of October, 2004.

Attest: Sharon H. Greene
Sharon H. Greene, Town Clerk

Terry D. Lentz
Terry Lentz, Mayor Pro-tem

**MEMORANDUM OF AGREEMENT
AMONG
THE UNITED STATES ARMY CORPS OF ENGINEERS,
WILMINGTON DISTRICT,
THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION,
AND
THE NORTH CAROLINA STATE HISTORIC PRESERVATION OFFICER
FOR
US 321 IMPROVEMENTS
FROM SR 1500 (BLACKBERRY ROAD)
TO SR 1632 (POSSUM HOLLOW ROAD)
TOWN OF BLOWING ROCK, NORTH CAROLINA
WATAUGA AND CALDWELL COUNTIES
TIP PROJECT R-2237C**

WHEREAS, the Regulatory Division of the United States Army Corps of Engineers (USACE), Wilmington District, is considering the issuance of a permit to the North Carolina Department of Transportation (NCDOT), pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344), for the widening of US 321 from SR 1500 (Blackberry Road) to SR 1632 (Possum Hollow Road) within Blowing Rock, North Carolina (the Undertaking), which is NCDOT's Preferred Alternative; and

WHEREAS, this Memorandum of Agreement (Agreement) applies only if NCDOT decides to construct the Preferred Alternative (that is, proceed with the Undertaking); and

WHEREAS, the duration for the Undertaking from Right-of-Way acquisition to completion of construction is likely to take up to ten years during which time traffic management will be required; and

WHEREAS, the terrain in the area of the Undertaking is mountainous and requires blasting during construction and constrains the options for minimization of impacts; and

WHEREAS, the Town of Blowing Rock is a unique destination community with rural mountain resort character, and the Green Park Inn, the State's second oldest surviving resort hotel, is an element within of the National Register-listed Green Park Historic District and considered a local landmark; and

WHEREAS, NCDOT has determined that the Undertaking will have an adverse effect upon the National Register-listed Green Park Historic District; and

WHEREAS, the USACE and NCDOT have consulted with the North Carolina State Historic Preservation Officer (SHPO) pursuant to 36 CFR Part 800, regulations implementing Section 106 of the National Historic Preservation Act (16 U.S.C. 470f); and

WHEREAS, the Town of Blowing Rock (Town), Concerned Citizens of Blowing Rock, Blowing Rock Historical Society, Caldwell County Commissioners, and owners of historic properties within the Green Park Historic District have participated in the consultation and have been invited to concur in this Agreement; and

WHEREAS, NCDOT and the Town of Blowing Rock have entered into a Memorandum of Understanding (MOU) to implement measures related to the design, implementation, and mitigation of the Undertaking outside of the Green Park Historic District and it is understood that no stipulation in the MOU can override any stipulation of this Agreement;

NOW, THEREFORE, the USACE, NCDOT, and SHPO agree that the Undertaking shall be implemented in accordance with the following stipulations in order to take into account the effect of the Undertaking on historic properties.

STIPULATIONS

The USACE will include the following stipulations as part of any permit issued to NCDOT for the Undertaking:

I. DOCUMENTATION

- A. Green Park Historic District: Prior to the initiation of construction activities, NCDOT shall record the existing conditions of the Green Park Historic District and its surroundings in accordance with the attached Historic Structures and Landscape Recordation Plan (Appendix A). This will include a video to document US 321 and the surrounding landscape and structures within the historic district as well as keying the locations of the filming to an aerial photograph of the historic district adjacent to US 321.
- B. Individual Structures: Prior to the initiation of construction activities, NCDOT shall record the existing conditions of the following structures and their immediate surroundings in accordance with Appendix A. The structures are:
 - Green Park Inn
 - Cottage No. 21 (as referred to in the 1994 National Register Nomination)
 - A.G. Jonas Cottage
- C. Existing Stone Walls: Prior to the initiation of construction activities, NCDOT shall record the existing stone walls along US 321 within the historic district in accordance with Appendix A.
- D. Blowing Rock Country Club Golf Course Hole Number 4: Prior to the initiation of construction activities, NCDOT shall record the existing conditions of Hole No. 4 in accordance with Appendix A.

II. BASELINE STUDIES AND VIBRATION MONITORING

- A. Development of Vibration Monitoring Plan: NCDOT's Geotechnical Engineering Unit, in consultation with NCDOT Division 11, shall develop a

vibration monitoring plan for the project, to include on-site research during final design as well as monitoring during construction. The recommendations of the plan shall be provided to the USACE, SHPO, Town, and other concurring parties for their comments prior to adoption of the plan.

- B. Baseline Studies: On-site research, done prior to construction, will measure existing vibration exposure, determine sensitivity of nearby structures, and assign thresholds accordingly.
- C. Vibration Monitoring: Vibration monitoring will be conducted on key structures within the historic district (to be recommended in the aforementioned vibration-monitoring plan). When a reading exceeds an established threshold, the alarm will sound and anyone who hears it, e.g., property owners/staff or contractor personnel, shall immediately contact the Resident Engineer.
- D. Pre-construction Surveys: NCDOT will conduct pre-construction surveys of all structures adjacent to US 321 within the historic district to record a "before" condition so that any construction-related damage can be accurately identified.

III. COMMUNITY COMMUNICATIONS

- A. Public Information Plan: NCDOT's Construction Unit IMPACT Public Information Program will work with the Town of Blowing Rock to develop an appropriate public information plan (PIP).
- B. "Kick-Off" Meeting: As part of the PIP, NCDOT will hold a pre-construction "kick-off" meeting to introduce the contractor and the construction process to area residents.
- C. Project Website: NCDOT will develop, maintain, and consistently update a project website to provide current information about the schedule and development of the project, project progress, project contact information, and notification of any anticipated delays based on scheduled construction activities.
- D. Contact with Resident Engineer: NCDOT's construction project manager shall be the Resident Engineer. He or she is the only individual with the authority to stop construction. Citizens may directly contact the Resident Engineer (and assistants) with questions or concerns so that the Resident Engineer can immediately address any project concerns.

IV. PROJECT DESIGN

- A. Review of Plans: To insure that the Town of Blowing Rock, and the SHPO are consulted and the Residents of the Green Park Historic District are given an opportunity for review, NCDOT will provide the following plans for comment. Plans will be provided to the Blowing Rock Town Board, the SHPO, and available for review at the Blowing Rock Town Library.
 - Roadway Design Plans at 25%, 50%, and 80% of completion
 - Preliminary Post-Construction Landscape Design Plans
 - Preliminary Traffic Control Plans
 - Preliminary Pavement Marking Plans

- Preliminary Signing Plans
 - Preliminary Sedimentation and Erosion Control Plans
- B. Guardrail: Where guardrail is required, NCDOT shall install approved wooden-faced guardrail where it can be installed and meet safety requirements. If, during final design, locations are identified where wooden-faced guardrail cannot be installed, or where, in order to meet safety requirements, installation would cause an undesirable increase in project right of way to provide necessary roadside clear areas, NCDOT will coordinate with the Town and SHPO to find an acceptable guardrail alternative prior to finalizing the plans.
- C. Lane Width: The width of lanes within the boundary of the Green Park Historic District will be limited to 11-feet.
- D. Goforth Road: NCDOT shall terminate Goforth Road just east of US 321 rather than rebuild its intersection with US 321.
- E. Median: NCDOT will not construct a median within the limits of the Green Park Historic District.
- F. Highway Lighting: NCDOT will not install highway lighting within the limits of the Green Park Historic District.
- G. Signal Poles: NCDOT shall use standard mast-arm signal poles for traffic signals, including the one(s) proposed in the Green Park Historic District. If the Town chooses a decorative mast arm pole that exceeds the cost of the NCDOT-standard mast-arm pole, the Town will pay the incremental cost difference.
- H. Utilities: NCDOT will place existing overhead utility lines (electrical, telephone, and cable television) underground between Green Hill Road and Possum Hollow Road.
- I. Stone Walls: NCDOT will replace all existing stone walls in the Town limits (including the Green Park Historic District) removed by the Undertaking with new in-kind stone walls. All other retaining walls along the Undertaking within the Town limits will be formed concrete walls with simulated masonry surface treatment. The surface treatment will be designed to resemble the existing stone walls in the historic district (e.g., the low wall in front of the Green Park Inn). The appearance of the surface treatment will be coordinated with the Town of Blowing Rock, and a sample of the surface treatment shall be fabricated for the Town's and SHPO's review and comment and the Department's approval prior to permanent installation on the project.
- J. Sidewalks: NCDOT will provide a sidewalk, five feet in width, on the east side of US 321 from Green Hill road to US 321 Business (which includes the part of the project within the historic district), so that the west side berm may be used for more concentrated landscaping. Pedestrian crossings (crosswalks and/or pedestrian signals) may be provided at signalized intersections.
- K. Decorative Pedestrian Lights: NCDOT shall include, as a part of the post-construction landscape plan, decorative pedestrian lights, the style of which is to be agreed upon by the Town, SHPO, and NCDOT, at selected locations within the Town limits. Any decorative pedestrian light locations within NCDOT right-of-way (e.g., in areas of more concentrated landscaping) must

be approved by the Special Design Section of NCDOT's Roadway Design Unit. NCDOT will pay for the lighting equipment and installation, and NCDOT will install the lights as part of the landscape plan implementation. The Town will assume ownership of the lights and will pay all utility (electricity) costs.

- L. Landscaping: Plantings will be planned in accordance with NCDOT's Guidelines for Planting within Highway Right-of-Way. Broader areas of more concentrated landscaping will be included where right-of-way, roadway elements, terrain, and safety conditions allow. Design and landscape characteristics will be developed through discussions with the Town Board, SHPO and Residents of the Green Park Historic District to maintain the rural mountain resort character of the district.
- M. Coordinated Signal System: NCDOT will design and install a coordinated traffic signal system as part of the Undertaking.
- N. Speed Limit: The speed limit within the historic district shall be posted 35 mph after construction.
- O. Fog Safety Study: NCDOT will evaluate flashing warning lights, pavement markers, rumble strips and/or stripes, delineation, warning signs, and/or lighting that would be appropriate to increase safety and improve driver behavior during fog occurrences. The plans submitted by NCDOT to SHPO and the Town for review and comment (Item IV.A) will show the results of NCDOT's evaluation and the resulting recommendations.

V. CONSTRUCTION ACTIVITIES

- A. Blasting: NCDOT and the contractor shall limit blasting to specific times. Those times will be posted on the aforementioned project website. In addition, blasting activities will be announced to the media as outlined in the PIP.
- B. Dust Minimization: NCDOT and the contractor shall utilize a truck to periodically spray water on dry, exposed soil to control dust to the greatest extent possible.
- C. Reseeding Exposed Dirt: In accordance with NCDOT's Best Management Practices for Protection of Surface Waters, NCDOT and the contractor shall seed exposed soil with grass in order to control run-off, erosion, and dust.
- D. Covered Truck Beds: NCDOT shall require all construction trucks traveling at speeds greater than 25 mph to cover their truck beds in order to reduce the amount of dust and debris.
- E. Staging Areas: NCDOT shall not permit staging areas within the Green Park Historic District. NCDOT may permit overnight parking of equipment and storage of materials, associated with current construction needs, within the construction right-of-way limits along any part of the project corridor.
- F. Waste Sites, Borrow Pits, and Construction Offices: NCDOT shall not permit waste deposits, borrow pits, or construction offices within the Green Park Historic District.
- G. "Smart Zone" Techniques: NCDOT shall use "Smart Zone" techniques in the maintenance of traffic during construction. These techniques may include

methods such as advance notification of delays, lane closures, real time monitoring, and the use of Digital Message Systems. In addition, NCDOT shall maintain a website that will provide information on anticipated delays based on scheduled construction activities.

VI. GREEN PARK INN

NCDOT, in consultation with SHPO and the property owners, shall develop measures to reduce the adverse effect of the Undertaking on the Green Park Inn. These measures may include, but are not limited to, the following:

- Replacement of the existing stone walls;
- Replacement of the existing sidewalk;
- Reconfiguration of the existing parking lot;
- Sound abatement/buffering; and/or
- Landscaping.

VII. A.G. JONAS COTTAGE

NCDOT, in consultation with SHPO and the property owners, shall develop measures to reduce the adverse effect of the Undertaking on the A.G. Jonas Cottage. These measures may include, but are not limited to, the following:

- Construction of a retaining wall;
- Construction of a privacy fence;
- Sound abatement/buffering; and/or
- Landscaping.

VIII. COTTAGE NO.21 (as referred to in the 1994 National Register Nomination)

In the event that this property is not determined to be a relocation in the final design, NCDOT, in consultation with SHPO and the property owners, shall develop measures to reduce the adverse effect of the Undertaking on Cottage No.21. These measures may include, but are not limited to, the following:

- Providing alternative access to the property;
- Construction of a retaining wall; and/or
- Landscaping.

IX. BLOWING ROCK COUNTRY CLUB GOLF COURSE

NCDOT will construct a retaining wall on the east side of US 321 at the Blowing Rock Country Club Golf Course (Hole No. 4) in order to minimize impacts to the course.

IX. UNANTICIPATED DISCOVERY

In accordance with 36 CFR 800.11(a), and prior to initiation of construction activities, NCDOT shall ensure preparation of a plan of action should archaeological or architectural resources be inadvertently or accidentally discovered during the construction phase of the project. The plan shall provide for an assessment of the significance of the discovery in consultation amongst NCDOT, USACE, and the SHPO. Inadvertent or accidental discovery of human remains will be handled in accordance with North Carolina General Statutes 65 and 70.

X. DISPUTE RESOLUTION

Should the North Carolina SHPO or any parties to this agreement object within (30) days to any plans or documentation provided for review pursuant to this agreement, NCDOT shall consult with the North Carolina SHPO to resolve the objection. If the USACE or the North Carolina SHPO determines that the objection cannot be resolved, USACE will forward all documentation relevant to the dispute to the Advisory Council on Historic Preservation (Council). Within thirty (30) days after receipt of all pertinent documentation, the Council will either:

- A. Provide USACE with recommendations which USACE will take into account in reaching a final decision regarding the dispute, or
- B. Notify USACE that it will comment pursuant to 36 CFR Section 800.7(c) and proceed to comment. Any Council comment provided in response to such a request will be taken into account by USACE in accordance with 36 CFR Section 800.7 (c) (4) with reference to the subject of the dispute.

Any recommendation or comment provided by the Council will be understood to pertain only to the subject of the dispute; USACE's responsibility to carry out all the actions under this agreement that are not the subject of the dispute will remain unchanged.

Execution of this Memorandum of Agreement by USACE, the NCDOT, and the North Carolina SHPO, its subsequent filing with the Advisory Council on Historic Preservation, and implementation of its terms evidence that USACE has afforded the Council an opportunity to comment on the US 321 improvements from SR 1500 to SR 1632 in the Town of Blowing Rock, and its effects on the Green Park Historic District and that USACE has taken into account the effects of the Undertaking on this National Register-listed historic district.

AGREE:

Charles R. Alford, Jr. 11/15/04
UNITED STATES ARMY CORPS OF ENGINEERS, WIMINGTON DISTRICT DATE
Cole, USA

Gregory Purpe 4 Nov 04
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DATE

Jeffrey Brown 10/25/04
NORTH CAROLINA HISTORIC PRESERVATION OFFICER DATE

FILED BY:

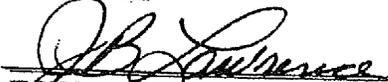
ADVISORY COUNCIL ON HISTORIC PRESERVATION

DATE

**MEMORANDUM OF AGREEMENT
AMONG
THE UNITED STATES ARMY CORPS OF ENGINEERS,
WILMINGTON DISTRICT,
THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION,
AND
THE NORTH CAROLINA STATE HISTORIC PRESERVATION OFFICER
FOR
US 321 IMPROVEMENTS
FROM SR 1500 (BLACKBERRY ROAD)
TO SR 1632 (POSSUM HOLLOW ROAD)
TOWN OF BLOWING ROCK, NORTH CAROLINA
WATAUGA AND CALDWELL COUNTIES
TIP PROJECT R-2237C**

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CONCUR:


TOWN OF BLOWING ROCK

11/24/04
DATE

**MEMORANDUM OF AGREEMENT
AMONG
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CONCUR:

Concerned Citizens of Blowing Rock

Date

Concerned Citizens of Blowing Rock (PLEASE PRINT)

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AMONG
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WILMINGTON DISTRICT,
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CONCUR:

Blowing Rock Historical Society

Date

Blowing Rock Historical Society (PLEASE PRINT)

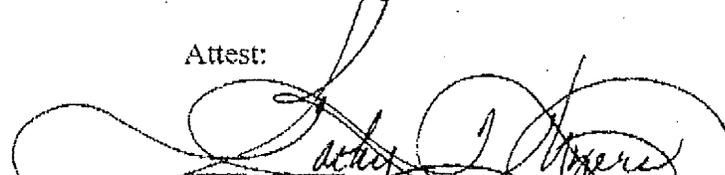
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Adopted this the 6th day of December, 2004.


Chairman
Caldwell County Board of Commissioners

Attest:


Kathy T. Myers, Clerk to the Board

MEMORANDUM OF AGREEMENT
 AMONG
 THE UNITED STATES ARMY CORPS OF ENGINEERS,
 WILMINGTON DISTRICT,
 THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION,
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CONCUR:

James Deal

12-6-04

Watauga County Commissioners

Date

James Deal

Watauga County Commissioners (PLEASE PRINT)

Post-It Fax Note	7671	Date	4/26/05	Pages	1
To	Missy Dickens	From	Amata Fogle		
Co. Dept	NCDOT	Co			
Phone #		Phone #	828 265-8000		
Fax #	919-733-9774	Fax #	828-264-3230		

**MEMORANDUM OF AGREEMENT
AMONG
THE UNITED STATES ARMY CORPS OF ENGINEERS,
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CONCUR:

Rennie E. WRPNN
Owner(s) of Green Park Inn

12-9-04
Date

Rennie E. WRPNN
Owner(s) of Green Park Inn (PLEASE PRINT)

**MEMORANDUM OF AGREEMENT
AMONG
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CONCUR:

Owners of A.G. Jonas Cottage

Date

Owners of A.G. Jonas Cottage (PLEASE PRINT)

**MEMORANDUM OF AGREEMENT
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CONCUR:

HFW/ Properties, Inc. by William H. Carter 12/14/01

Owner(s) Cottage #21 Date

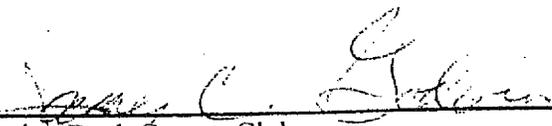
HFW/ PROPERTIES, Inc. by William H. CARTER, PRESIDENT

Owner(s) Cottage #21 (PLEASE PRINT)

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CONCUR:


Blowing Rock County Club

12/8/04
Date

James C. Gobwin
Blowing Rock County Club (PLEASE PRINT)

APPENDIX

Historic Structures and Landscape Recordation Plan
For the widening of US 321 from SR 1500 (Blackberry Road) to
SR 1632 (Possum Hollow Road) within Blowing Rock, North Carolina

Photographic Requirements

- A. Green Park Historic District: Prior to the initiation of construction activities, NCDOT shall record the existing conditions of the Green Park Historic District and its surroundings in a video documenting US 321 and the surrounding landscape and structures within the historic district and keying the locations of the filming on an aerial photograph.
- B. Individual Structures: Prior to the initiation of construction activities, NCDOT shall photographically record the existing conditions of the Green Park Inn, Cottage No. 21, and A.G. Jonas Cottage and their immediate surroundings. For each structure NCDOT shall collect selected views of each building including, but not limited to:
- Overall views of each building (elevations and oblique views)
 - Interior views of the main areas and noted interior architectural elements
 - Overall views of the project area, showing the relationship of each building to its setting
- C. Existing Stone Walls: Prior to the initiation of construction activities, NCDOT shall photographically record the conditions of existing stone walls along US 321 within the historic district. For each NCDOT shall collect selected views of each stone wall including, but not limited to:
- Overall views of each wall (elevations and oblique views)
 - Overall views of the project area, showing the relationship of each wall to its setting

Photographic Format

- ◆ Digital video transferred to a CD-ROM
- ◆ Color slides (all views)
- ◆ 35 mm or larger black and white negatives (all views)
- ◆ Two Black and white contact sheets (all views)
- ◆ All processing to be done to archival standards
- ◆ All photographs and negatives to be labeled according to Division of Archives and History standards

Copies and Curation

One (1) set of all photographic documentation will be deposited with the North Carolina Division of Archives and History/State Historic Preservation Office to be made a permanent part of the statewide survey and iconographic collection.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2237C	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34402.1.1		PE	
34402.2.6		R/W	

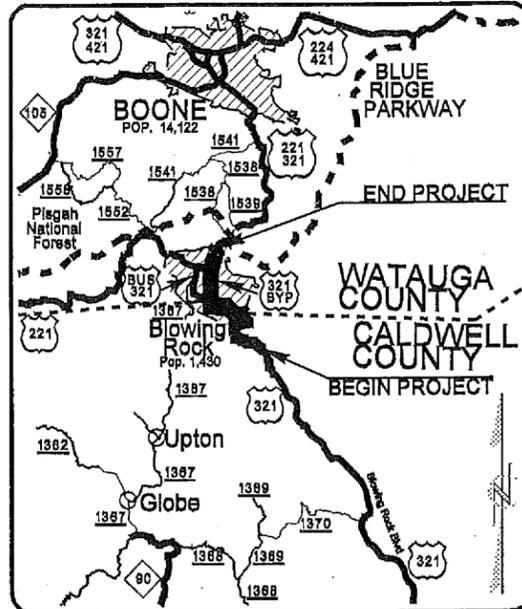
CALDWELL & WATAUGA COUNTIES

LOCATION: US 321 FROM SR 1500 (BLACKBERRY ROAD)
TO US 221 AT BLOWING ROCK

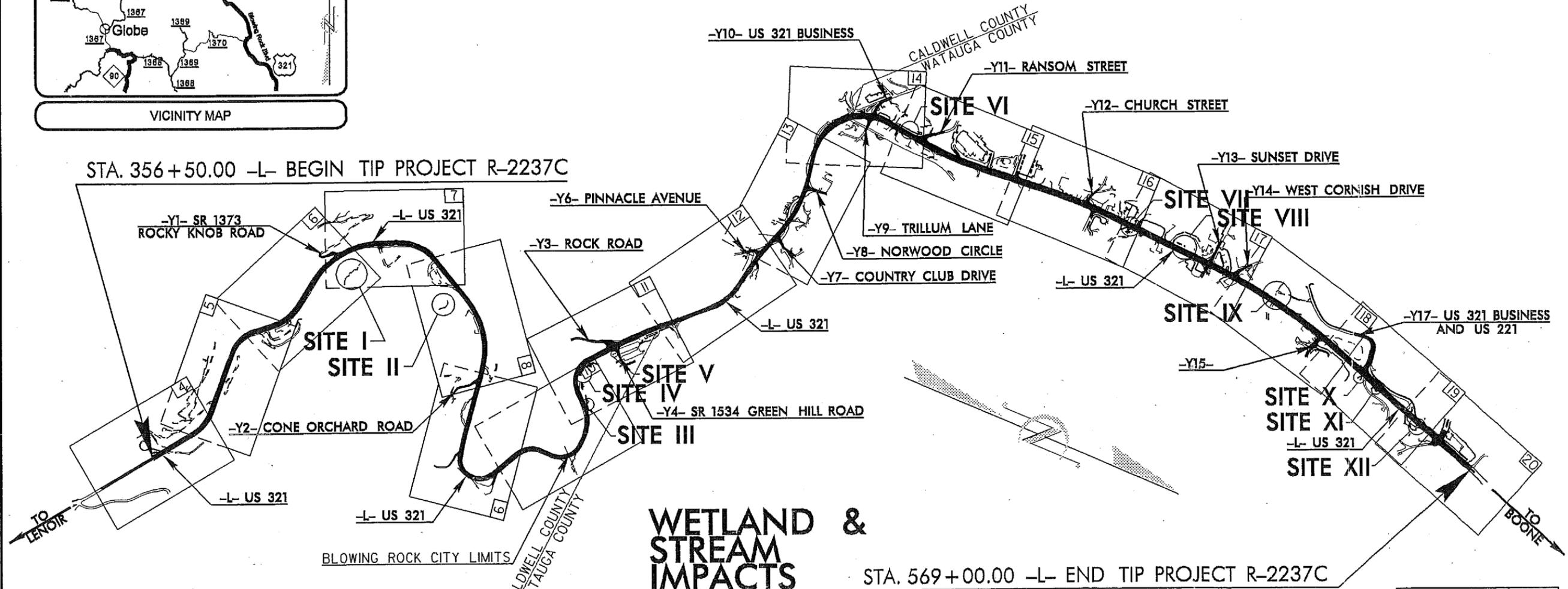
TYPE OF WORK: GRADING, DRAINAGE, PAVING, CULVERT, RETAINING WALLS,
AND SIGNALS

Permit Drawing
Sheet 1 of 45

CONTRACT: R-2237C



VICINITY MAP



**WETLAND &
STREAM
IMPACTS**

A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF BLOWING ROCK
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

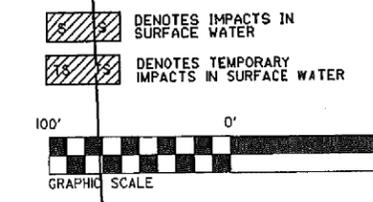
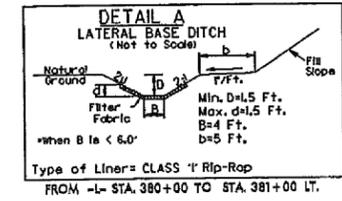
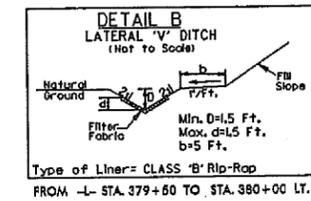
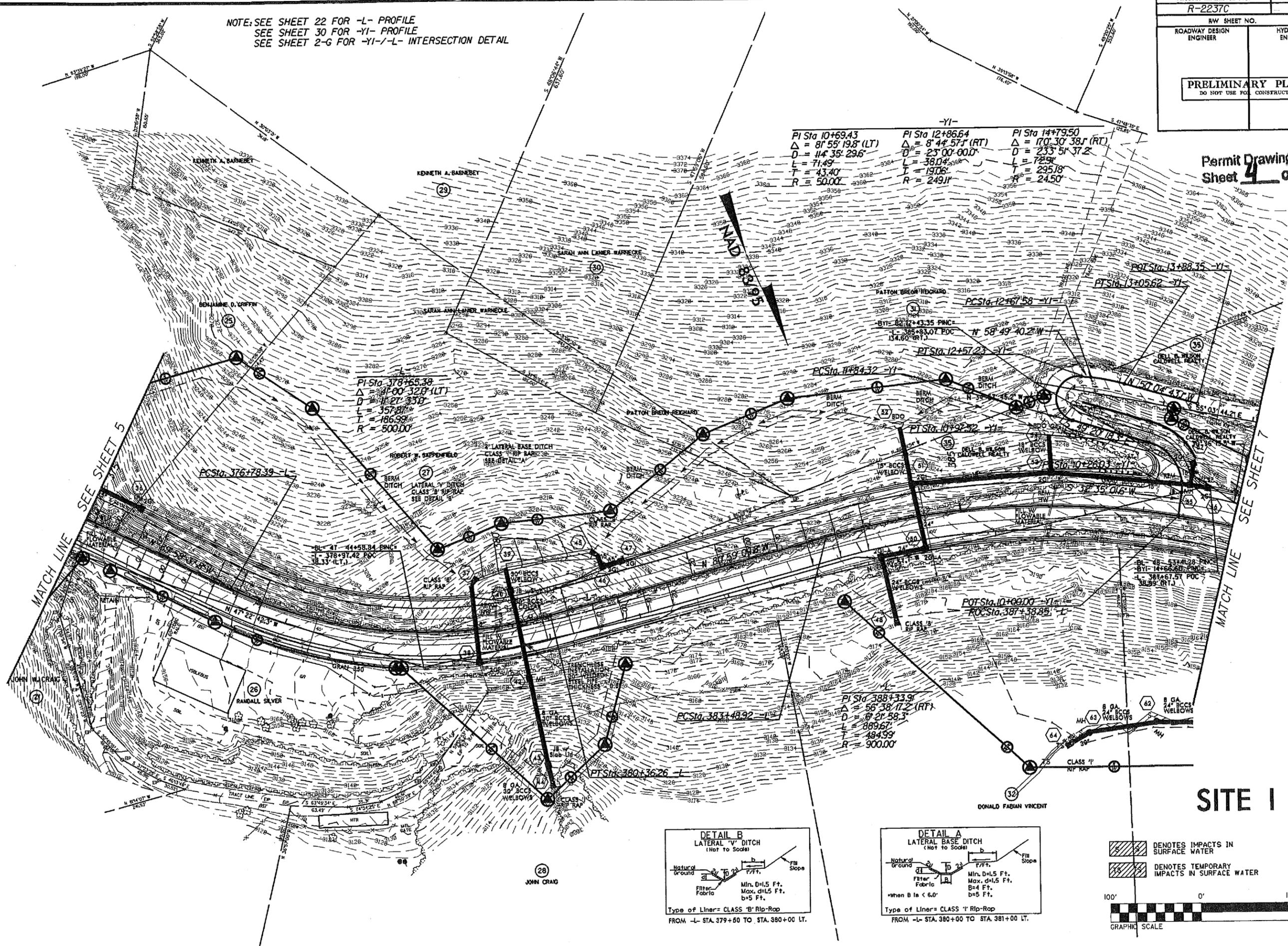
<p>GRAPHIC SCALES</p> <p>50 25 0 50 100 PLANS</p> <p>50 25 0 50 100 PROFILE (HORIZONTAL)</p> <p>10 5 0 10 20 PROFILE (VERTICAL)</p>	<p>DESIGN DATA</p> <p>ADT 2006 = 18,935 ADT 2025 = 27,450 DHV = 7 % D = 60 % T = 8 % * V = 50 MPH * TTST 3% + DUAL 5%</p>	<p>PROJECT LENGTH</p> <p>LENGTH ROADWAY TIP PROJECT R-2237C = 4.025 MILES TOTAL LENGTH OF TIP PROJECT R-2237C = 4.025 MILES</p>	<p>Prepared in the Office of: DIVISION OF HIGHWAYS 1000 Birch Ridge Dr., Raleigh NC, 27610</p>		<p>HYDRAULICS ENGINEER</p> <p>SIGNATURE: _____ P.E.</p>	<p>DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA</p> <p>STATE HIGHWAY DESIGN ENGINEER</p>
			<p>2006 STANDARD SPECIFICATIONS</p> <p>RIGHT OF WAY DATE: JUNE 27, 2008</p> <p>LETTING DATE: OCTOBER 19, 2010</p>	<p>G. E. BREW, PE PROJECT ENGINEER</p> <p>W. T. BEST PROJECT DESIGN ENGINEER</p>		

24-NOV-2009 07:27
r:\hydraulic\permits\environmental\drawings\2237c_rdy_tsh.dgn
shown at H1239382

CONTRACT: R-2237C

Permit Drawing
Sheet 4 of 45

NOTE: SEE SHEET 22 FOR -L- PROFILE
SEE SHEET 30 FOR -YI- PROFILE
SEE SHEET 2-G FOR -YI-/-L- INTERSECTION DETAIL



SITE I

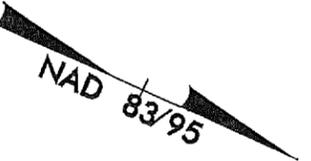
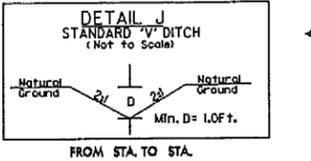
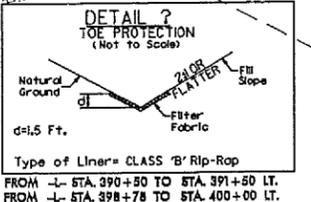
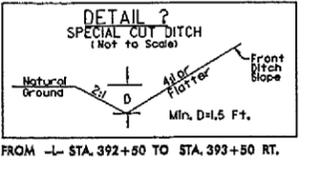
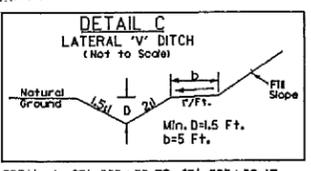
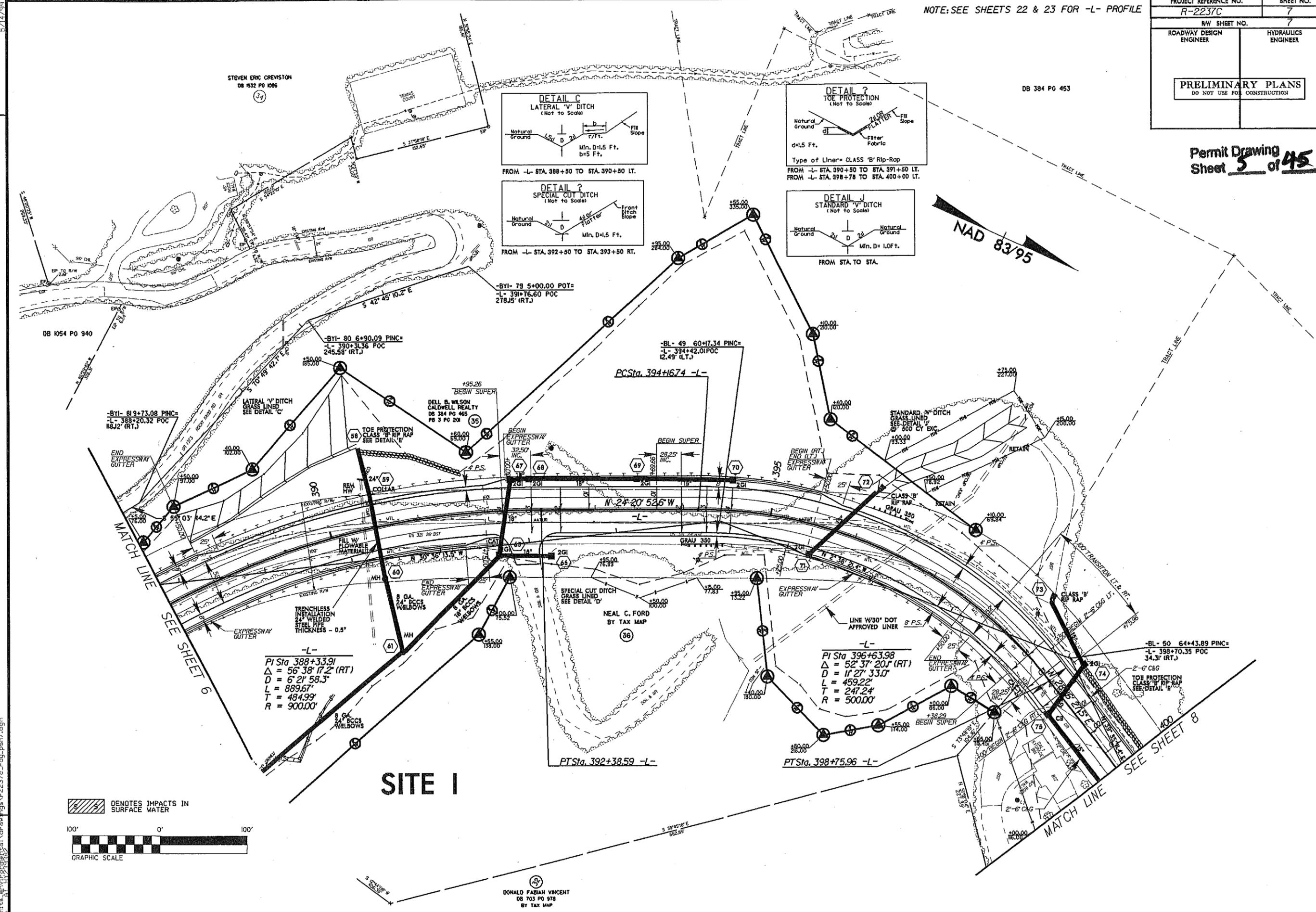
26-APR-2010 15:36
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 rdj

REVISIONS

NOTE: SEE SHEETS 22 & 23 FOR -L- PROFILE

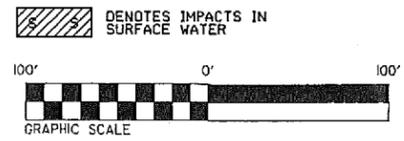
PROJECT REFERENCE NO.	SHEET NO.
R-2237C	7
RW SHEET NO. 7	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Permit Drawing Sheet 5 of 45



-L-
PI Sta 388+33.91
Δ = 56° 38' 17.2" (RT)
D = 6' 21" 58.3"
L = 889.67'
T = 484.99'
R = 900.00'

-L-
PI Sta 396+63.98
Δ = 52° 37' 20.1" (RT)
D = 11' 27" 33.0"
L = 459.22'
T = 247.24'
R = 500.00'



REVISIONS
Right of Way. This revision consists of adding temporary construction easement to Parcel 37.

23-NOV-2009 16:09
\\permits\sp\11233333\drawings\2237c-rdy-pah7.dgn

DONALD FABIAN VINCENT
DB 703 PO 978
BY TAX MAP

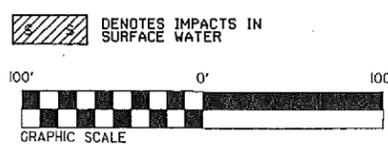
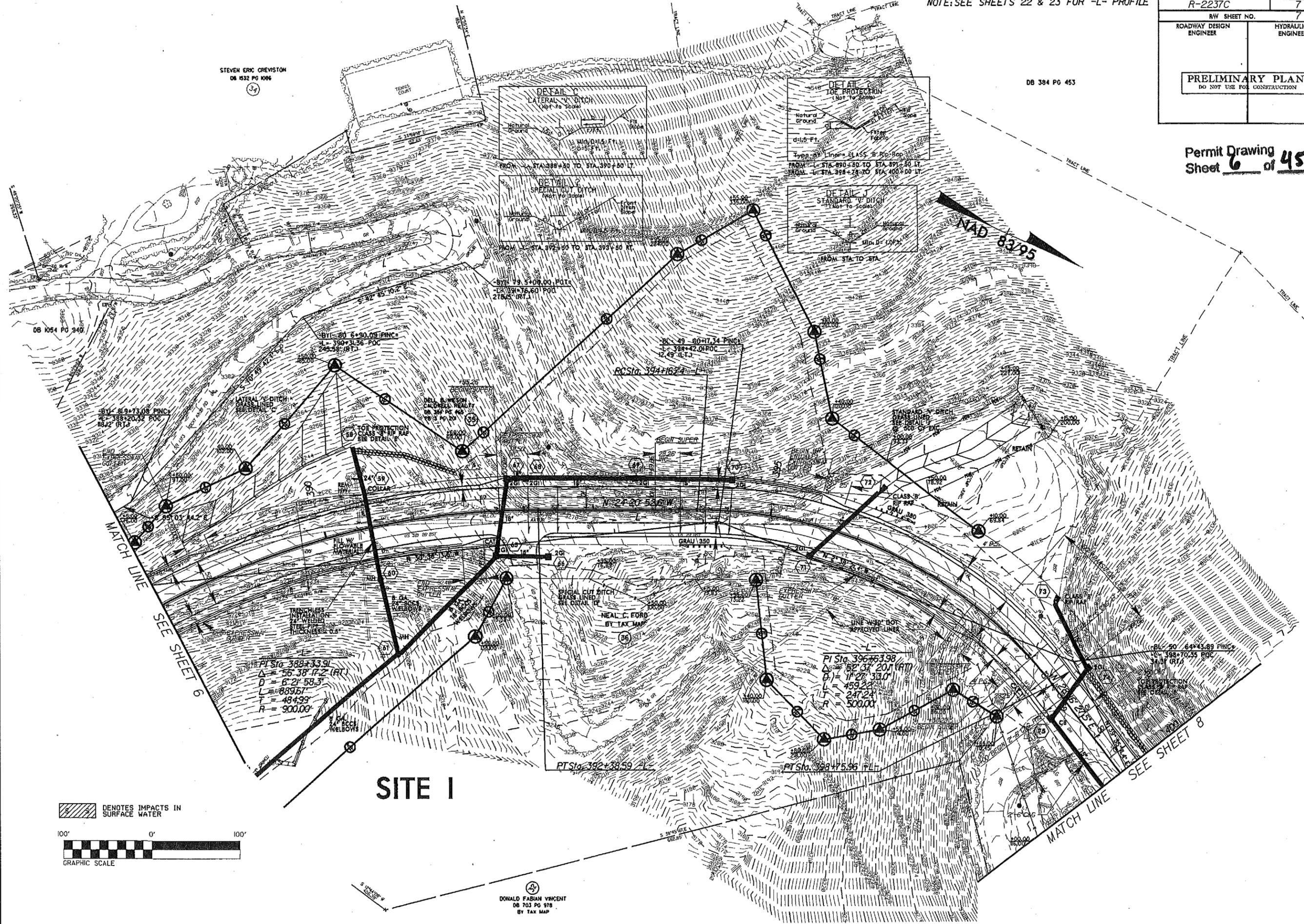
PROJECT REFERENCE NO. R-2237C	SHEET NO. 7
R/W SHEET NO. 7	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Permit Drawing Sheet 6 of 45

5/14/99

STEVEN ERIC CREVISTON
DB 432 PG 1086
34

DB 384 PG 453



SITE I

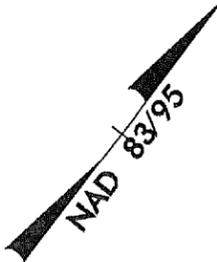
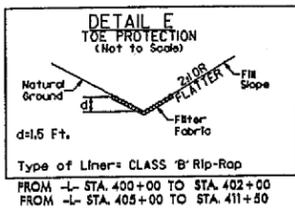
DONALD FABIAN VINCENT
DB 703 PG 978
BY TAX MAP

REVISIONS
Right of Way This revision consists of adding temporary construction easement to Parcel 37.

05-JAN-2010 08:15
permits\p\2237c\drawings\2237c_rdy_psh7.dgn

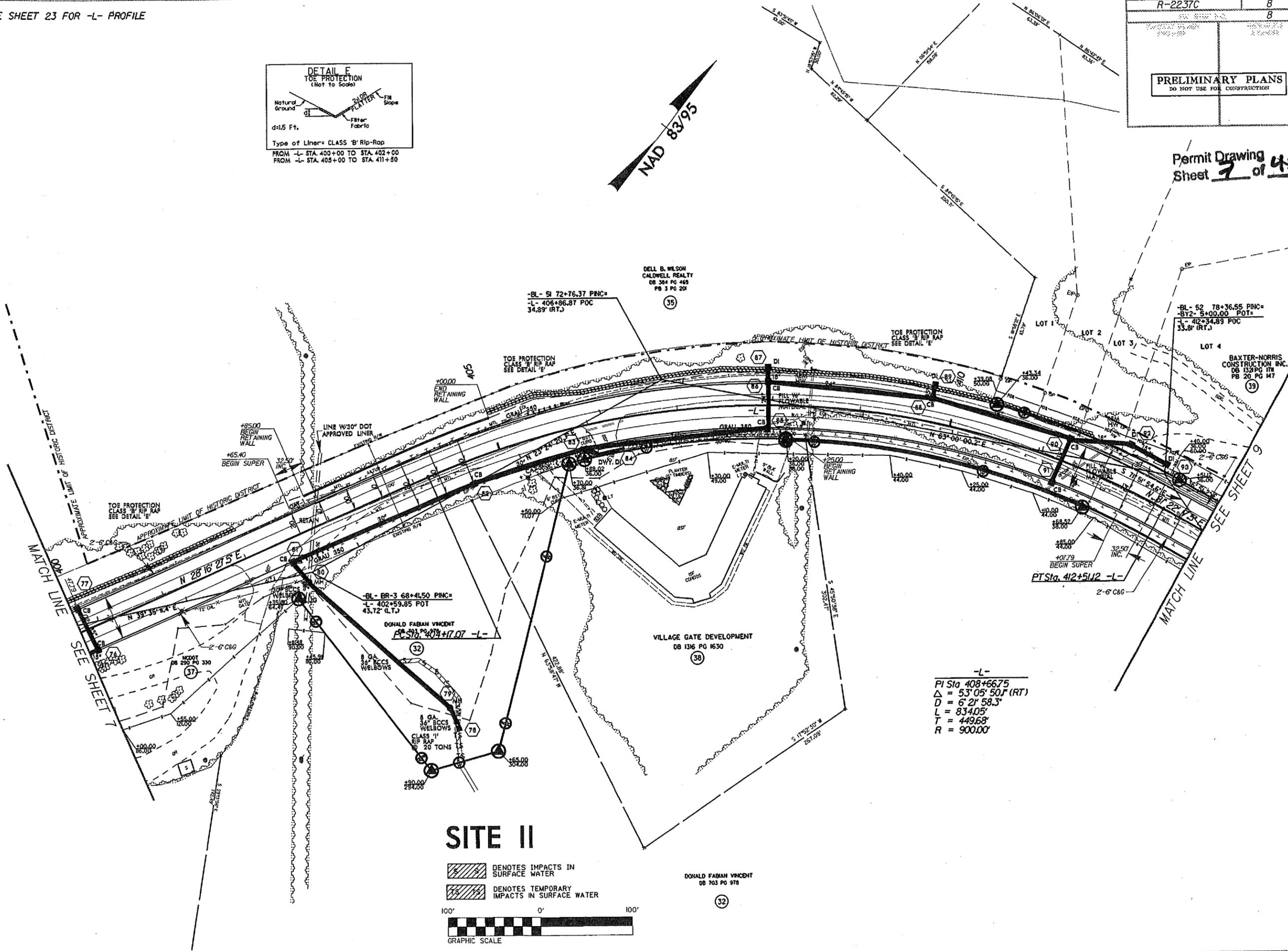
NOTE: SEE SHEET 23 FOR -L- PROFILE

R-2237C		8
PROJECT: 13410001		8
DATE: 01-20-09		
DRAWN BY: [Name]		
CHECKED BY: [Name]		
PRELIMINARY PLANS		
DO NOT USE FOR CONSTRUCTION		



Permit Drawing
Sheet **7** of **45**

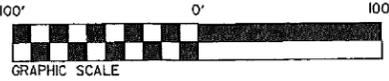
Right of Way: This revision consists of adding temporary construction easement to Parcel 37.



-L-
 PI Sta 408+66.75
 $\Delta = 53^{\circ} 05' 50.1\" (RT)$
 $D = 6' 21' 58.3\"$
 $L = 834.05'$
 $T = 449.68'$
 $R = 900.00'$

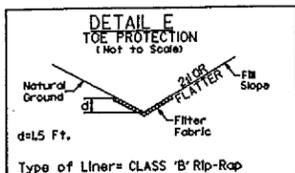
SITE II

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



26-APR-2010 13:43
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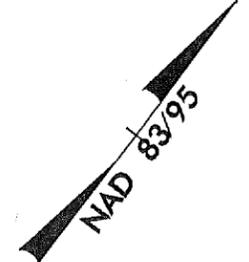
NOTE: SEE SHEET 23 FOR -L- PROFILE



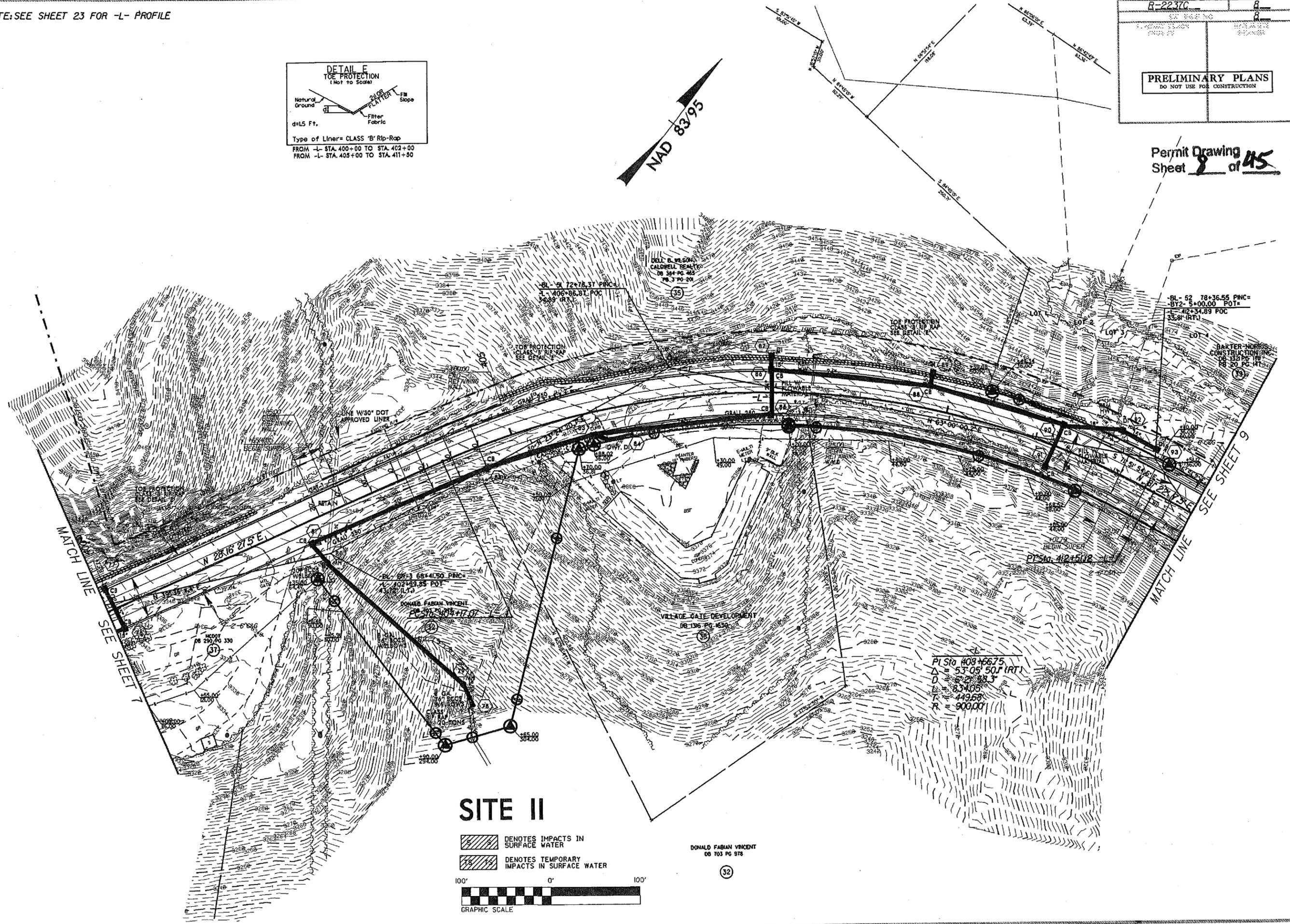
Type of Liner= CLASS 'B' Rip-Rap
 FROM -L- STA. 400+00 TO STA. 402+00
 FROM -L- STA. 405+00 TO STA. 411+00

R-2237C		8	
DATE: 06/27/06		8	
PROJECT: 00		00	
DRAWN: 00		00	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			

Permit Drawing
 Sheet **8** of **45**



Right of Way: This revision consists of adding temporary construction easement to Parcel 37.



SITE II

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



DONALD FABIAN VINCENT
 00 103 PG 978

32

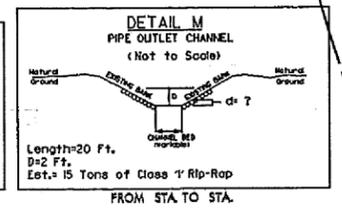
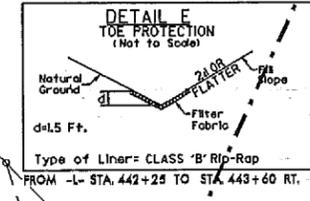
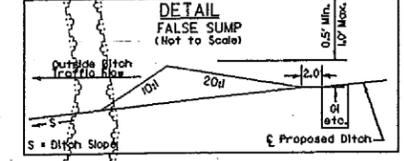
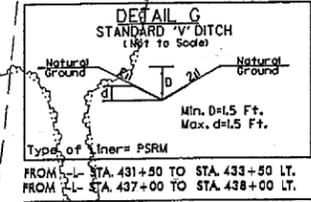
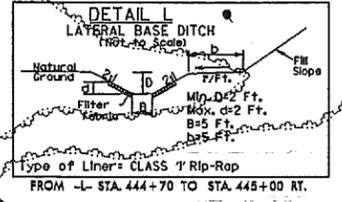
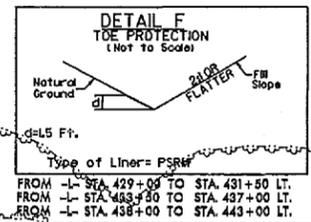
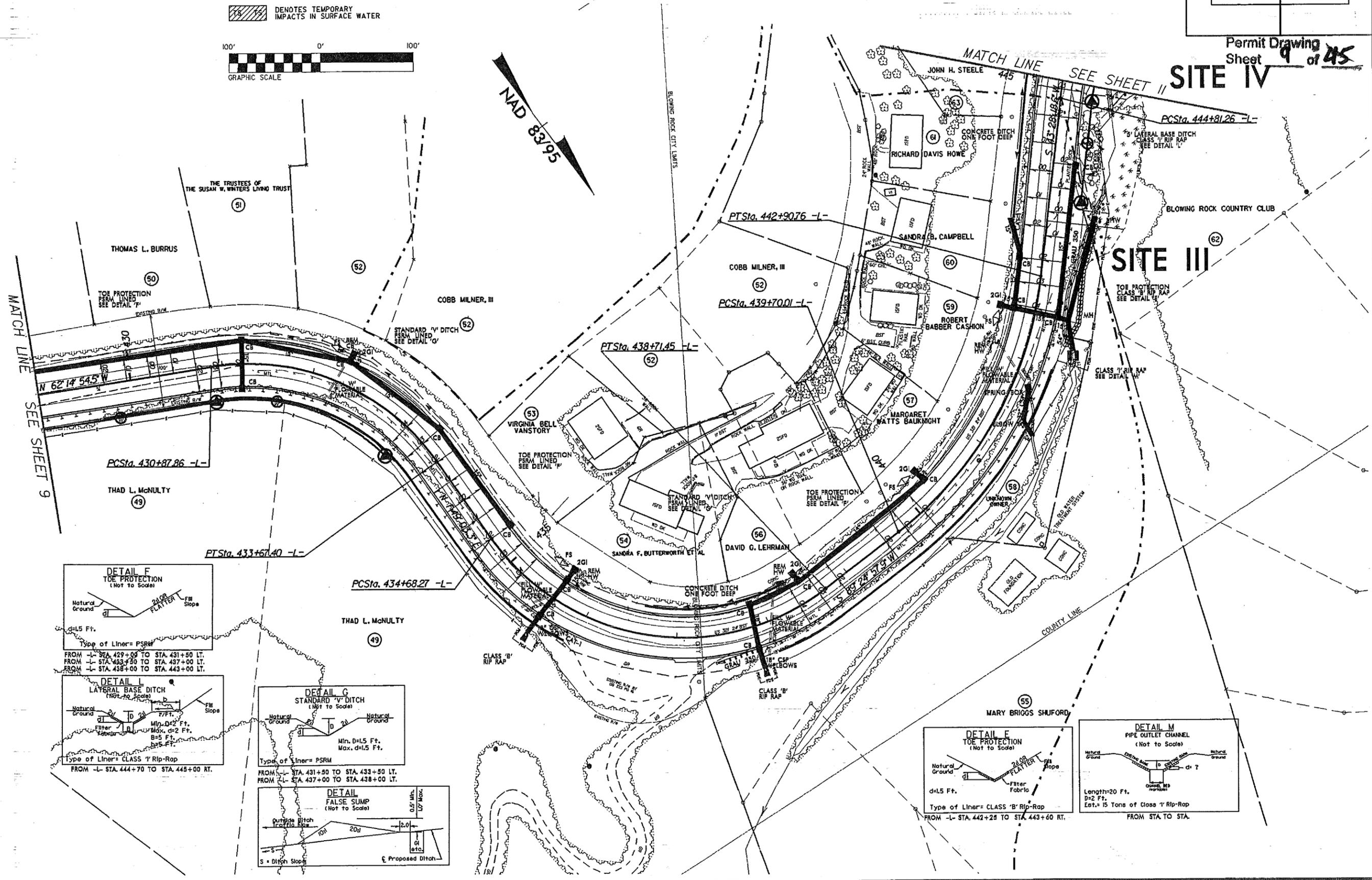
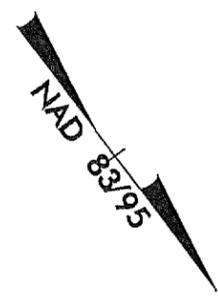
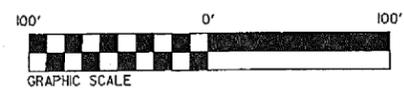
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NOTE: SEE SHEETS 24 & 25 FOR -L- PROFILE

PROJECT REFERENCE NO. R-2237C	SHEET NO. 10
R/W SHEET NO. 10	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Permit Drawing Sheet 9 of 45

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

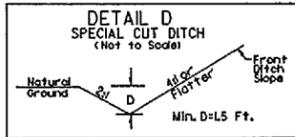


5/14/99

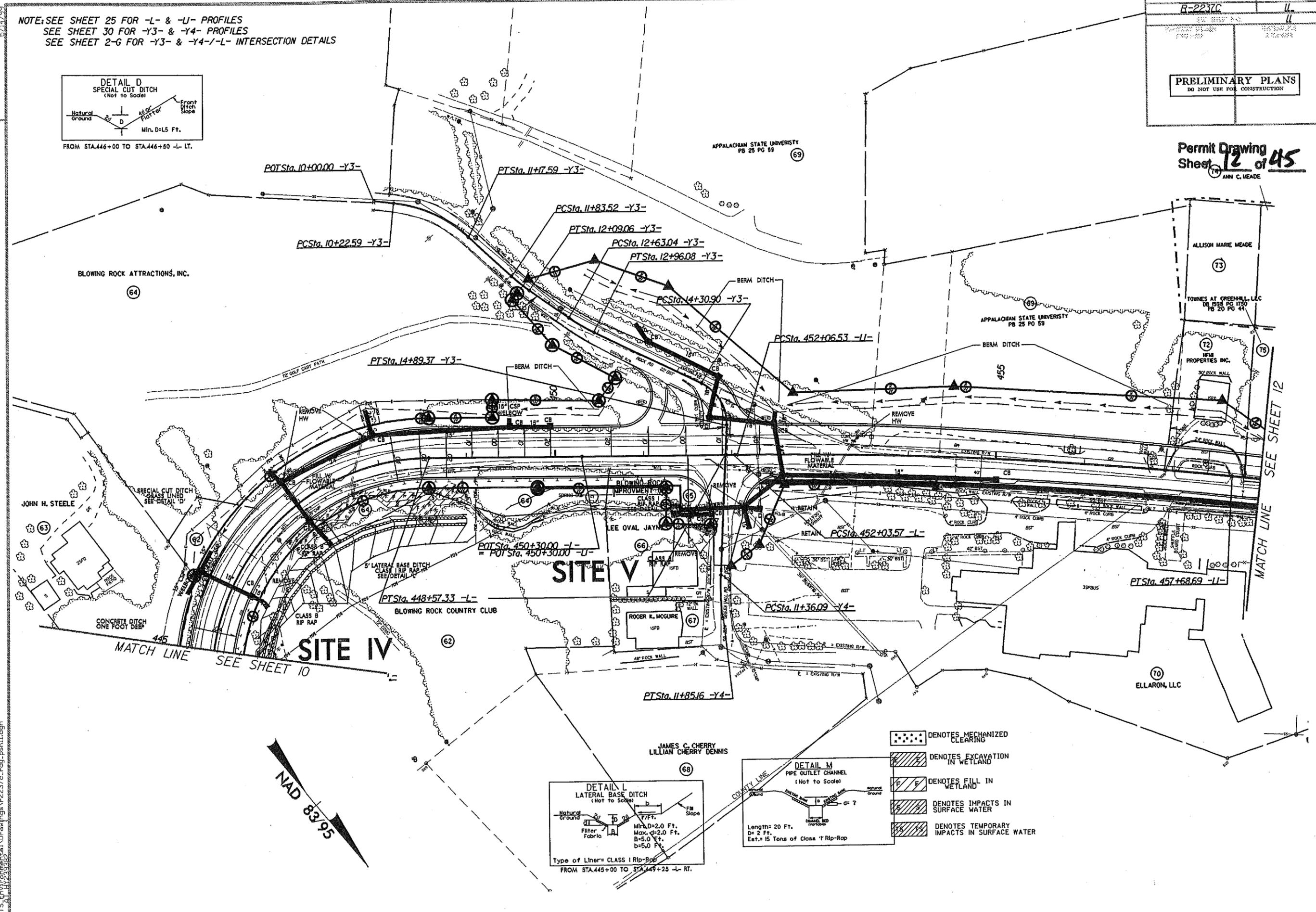
NOTE: SEE SHEET 25 FOR -L- & -U- PROFILES
 SEE SHEET 30 FOR -Y3- & -Y4- PROFILES
 SEE SHEET 2-G FOR -Y3- & -Y4-/-L- INTERSECTION DETAILS

R-2237C II
 PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

Permit Drawing
 Sheet 12 of 45
 ANN C. LEADE

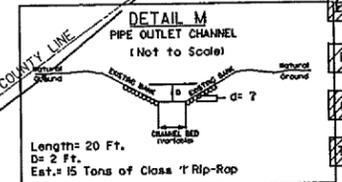
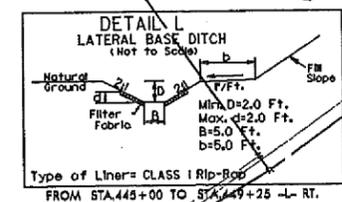
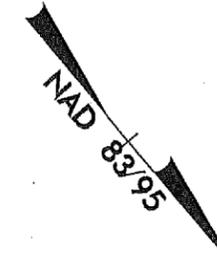


FROM STA. 446+00 TO STA. 446+50 -L- LT.



THE REVISION CONSISTS OF CHANGING THE RIGHT OF WAY ON PARCEL 69.

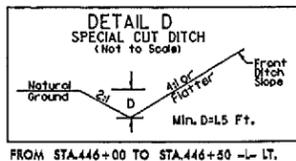
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 PERMITS: C:\Users\jleade\OneDrive\Drawings\2237c_rdy_psh11.dgn
 jleade



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

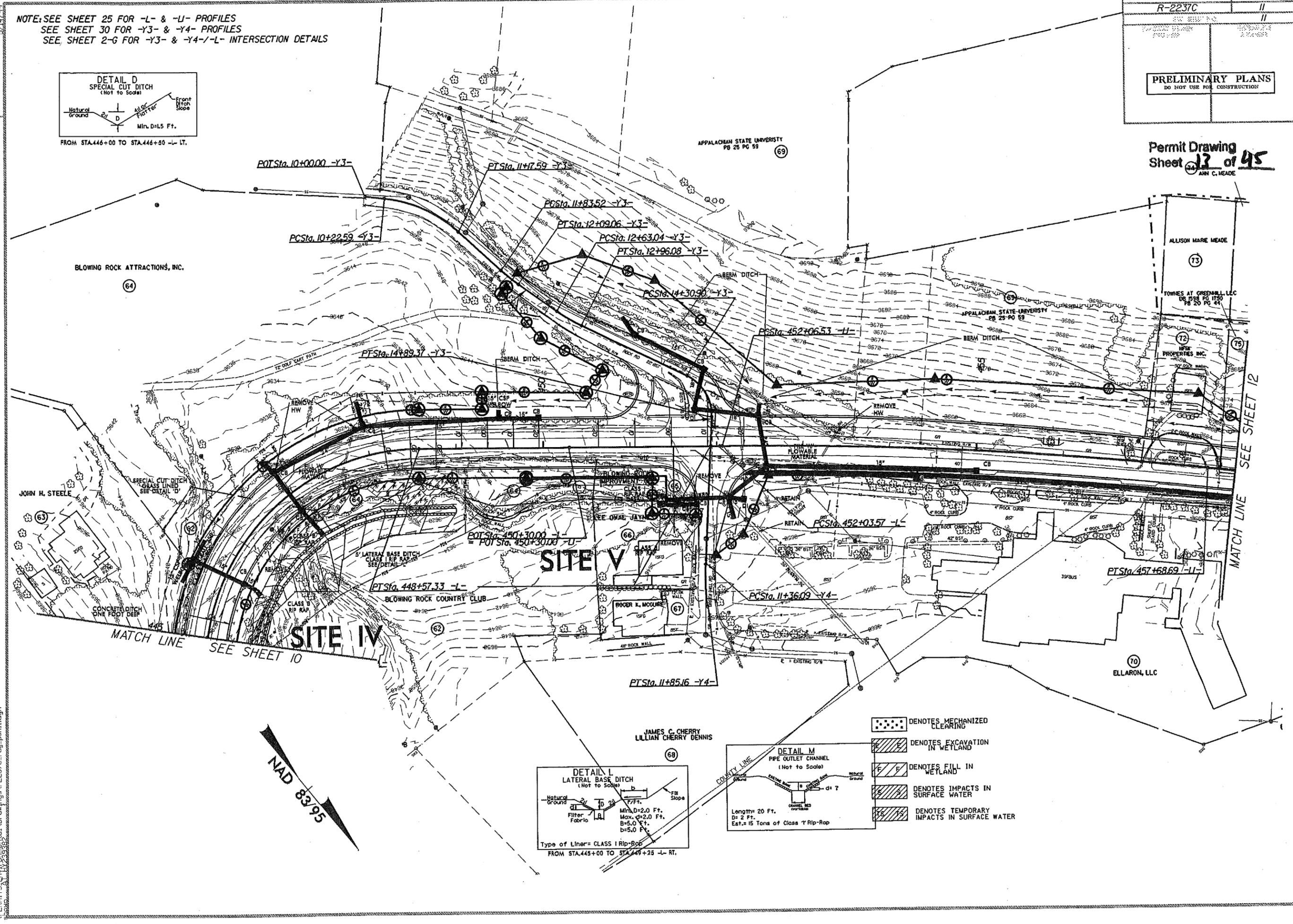
MATCH LINE SEE SHEET 12

NOTE: SEE SHEET 25 FOR -L- & -U- PROFILES
 SEE SHEET 30 FOR -Y3- & -Y4- PROFILES
 SEE SHEET 2-G FOR -Y3- & -Y4-/-L- INTERSECTION DETAILS

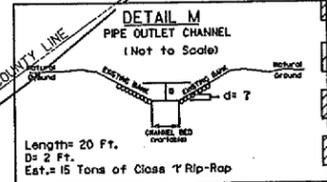
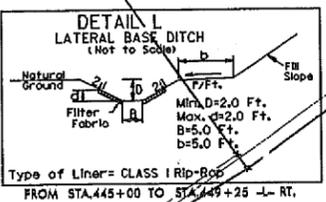
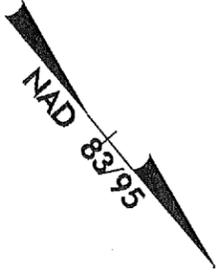


Permit Drawing
 Sheet 13 of 45
 ANN C. MEADE

THE REVISION CONSISTS OF CHANGING THE RIGHT OF WAY ON PARCEL 69.



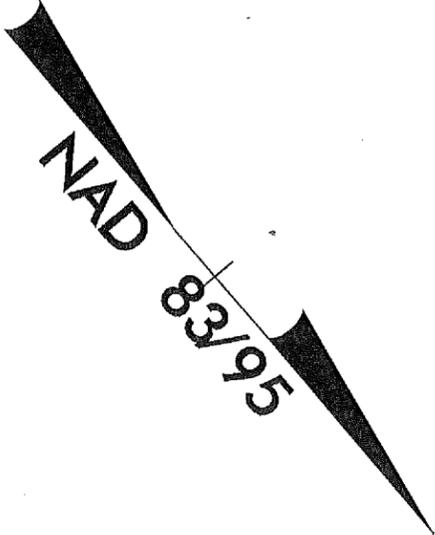
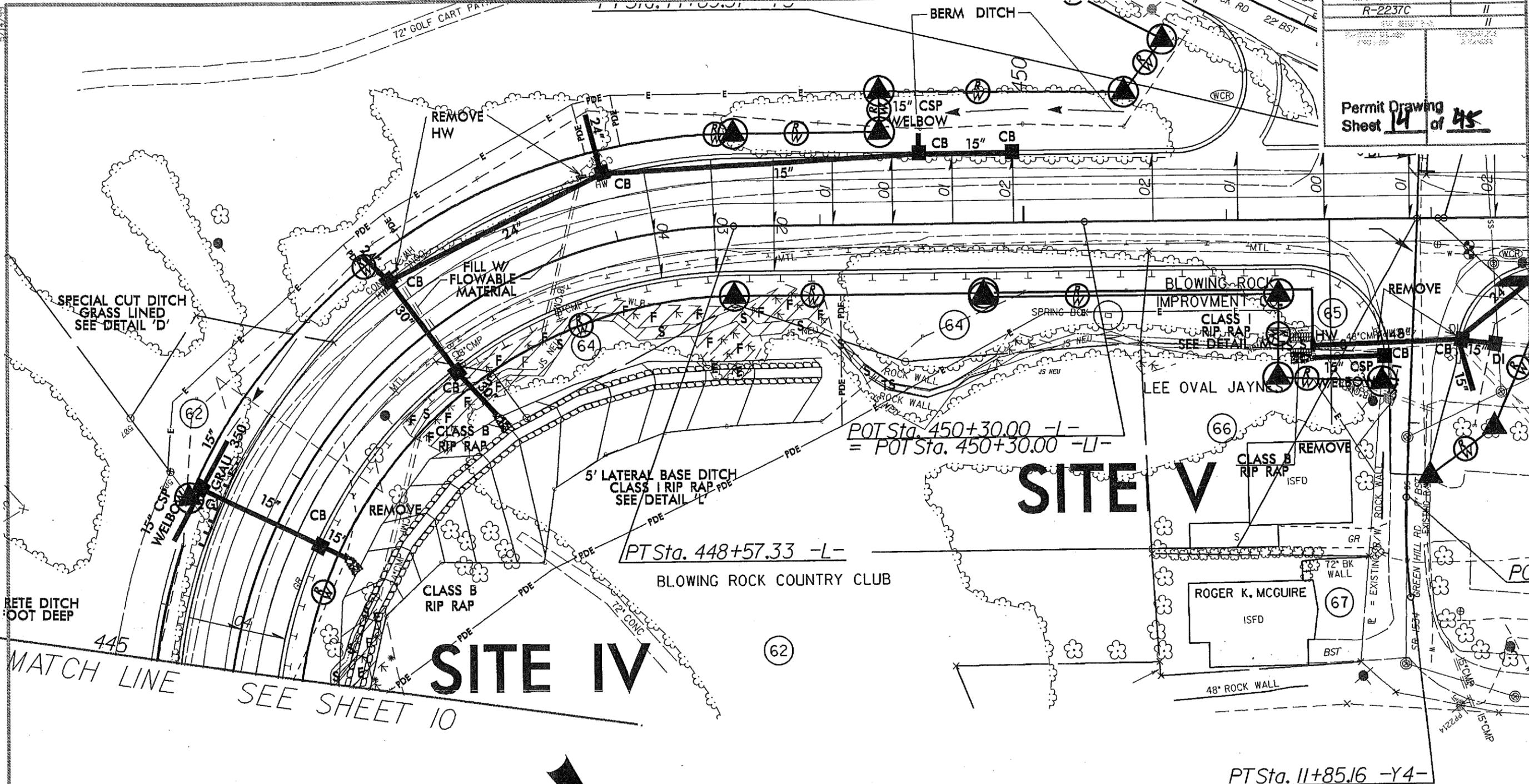
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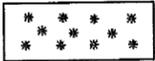
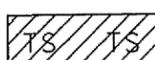


- DENOTES MECHANIZED CLEARING
- DENOTES EXCAVATION IN WETLAND
- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

MATCH LINE SEE SHEET 12

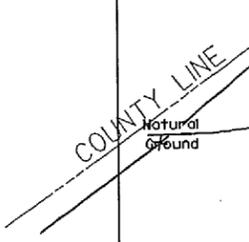
MATCH LINE SEE SHEET 10



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

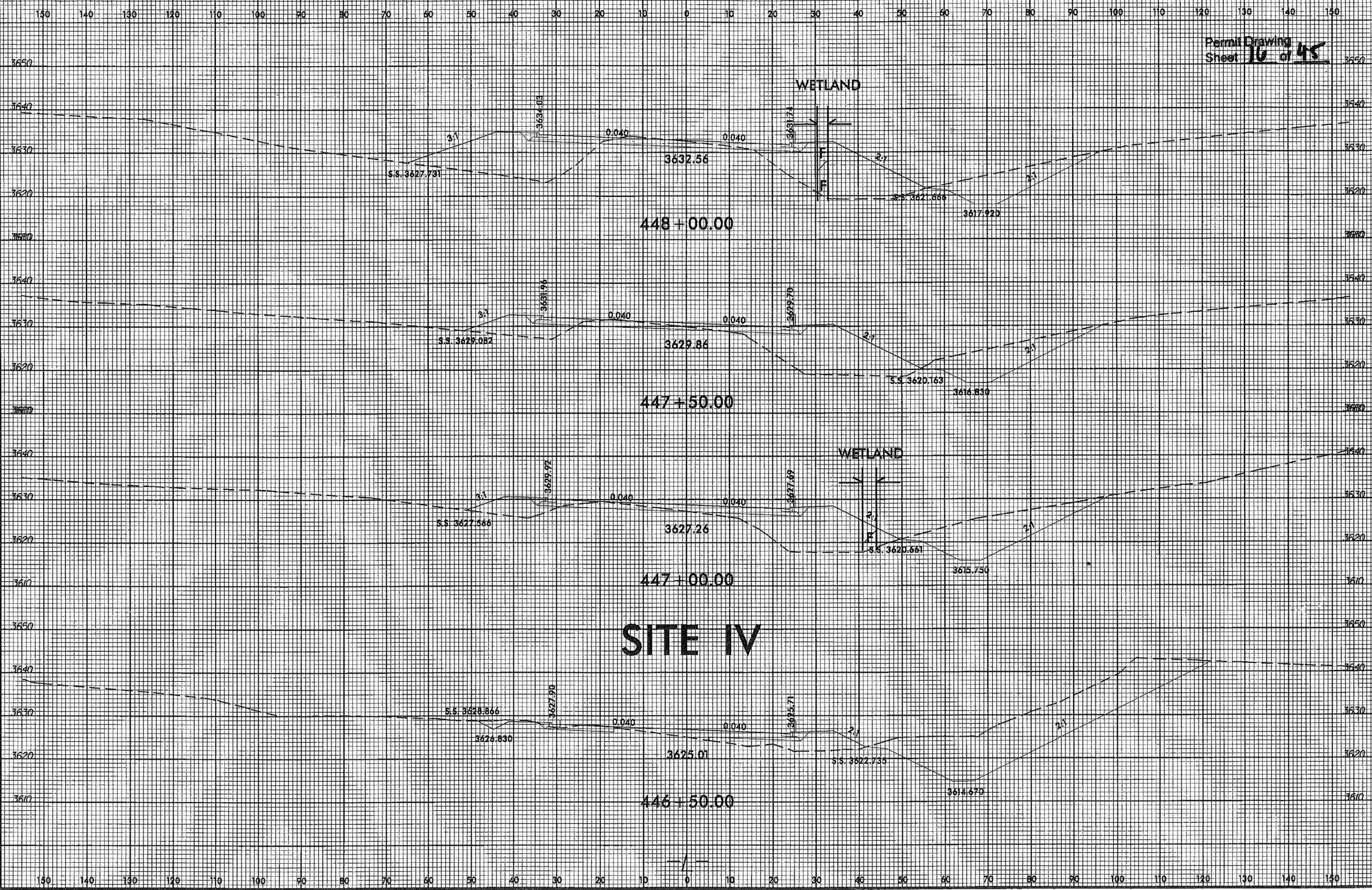
JAMES C. CHERRY
 LILLIAN CHERRY DENNIS

(68)



26-APR-2010 13:56 PERMITS-Engineering\Drawings\R-2237c_rdy_psh11x2.dgn

8/23/95
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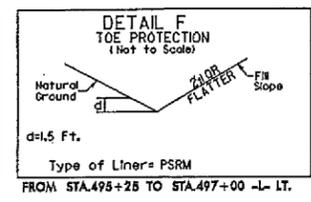
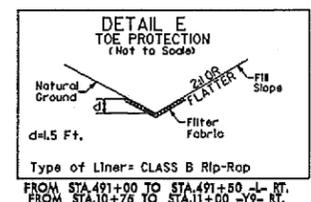
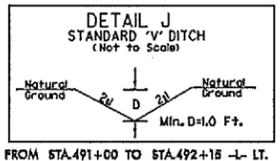


04-JAN-2010 14:58
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 REVISIONS

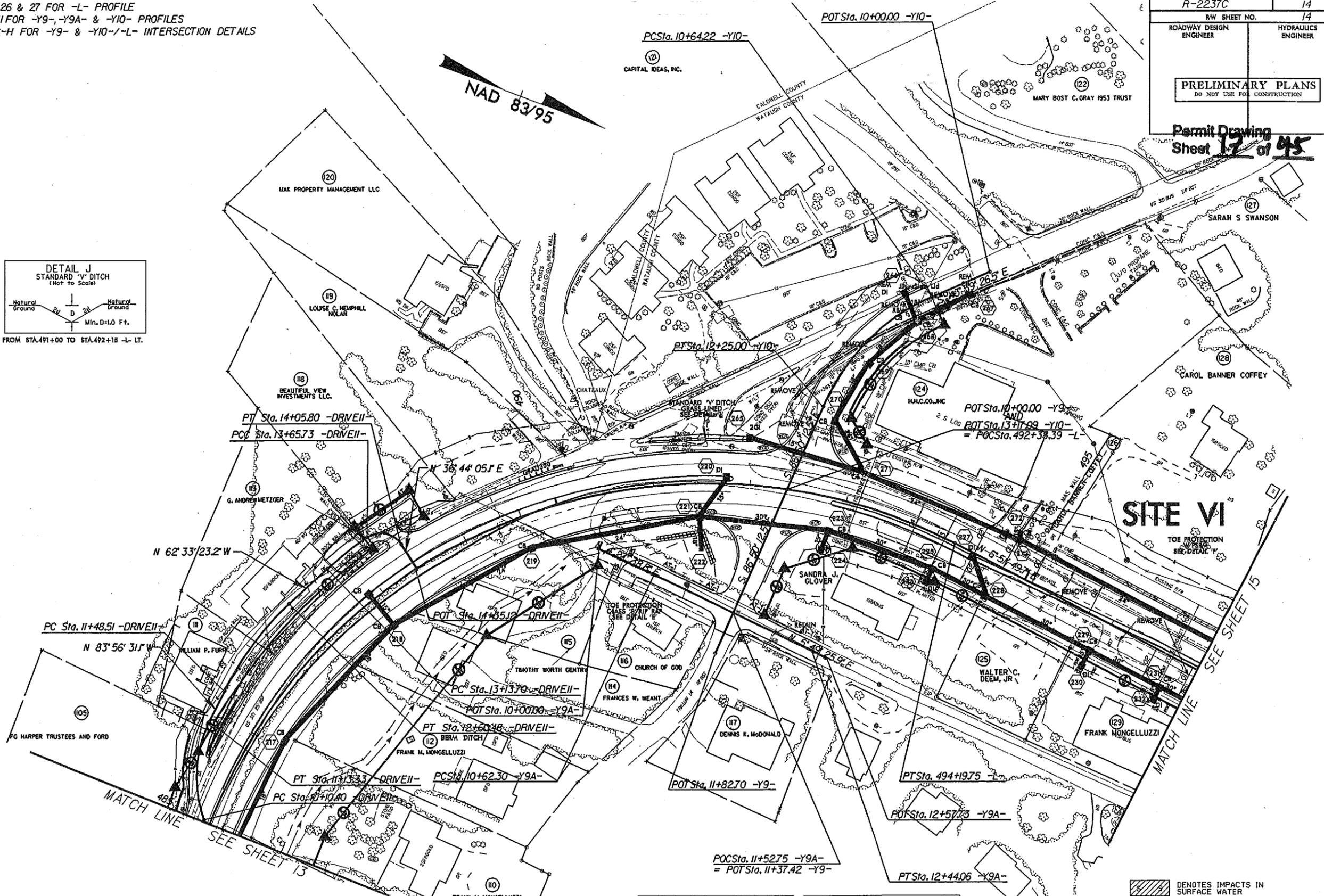
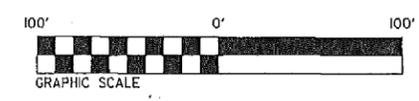
NOTE: SEE SHEETS 26 & 27 FOR -L- PROFILE
 SEE SHEET 31 FOR -Y9-, -Y9A- & -Y10- PROFILES
 SEE SHEET 2-H FOR -Y9- & -Y10-/-L- INTERSECTION DETAILS

PROJECT REFERENCE NO.	R-2237C	SHEET NO.	14
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS		DO NOT USE FOR CONSTRUCTION	

Permit Drawing
 Sheet 14 of 15



DENOTES IMPACTS IN SURFACE WATER



SITE VI
 TOE PROTECTION
 SEE DETAIL E/F

MATCH LINE
 SEE SHEET 15

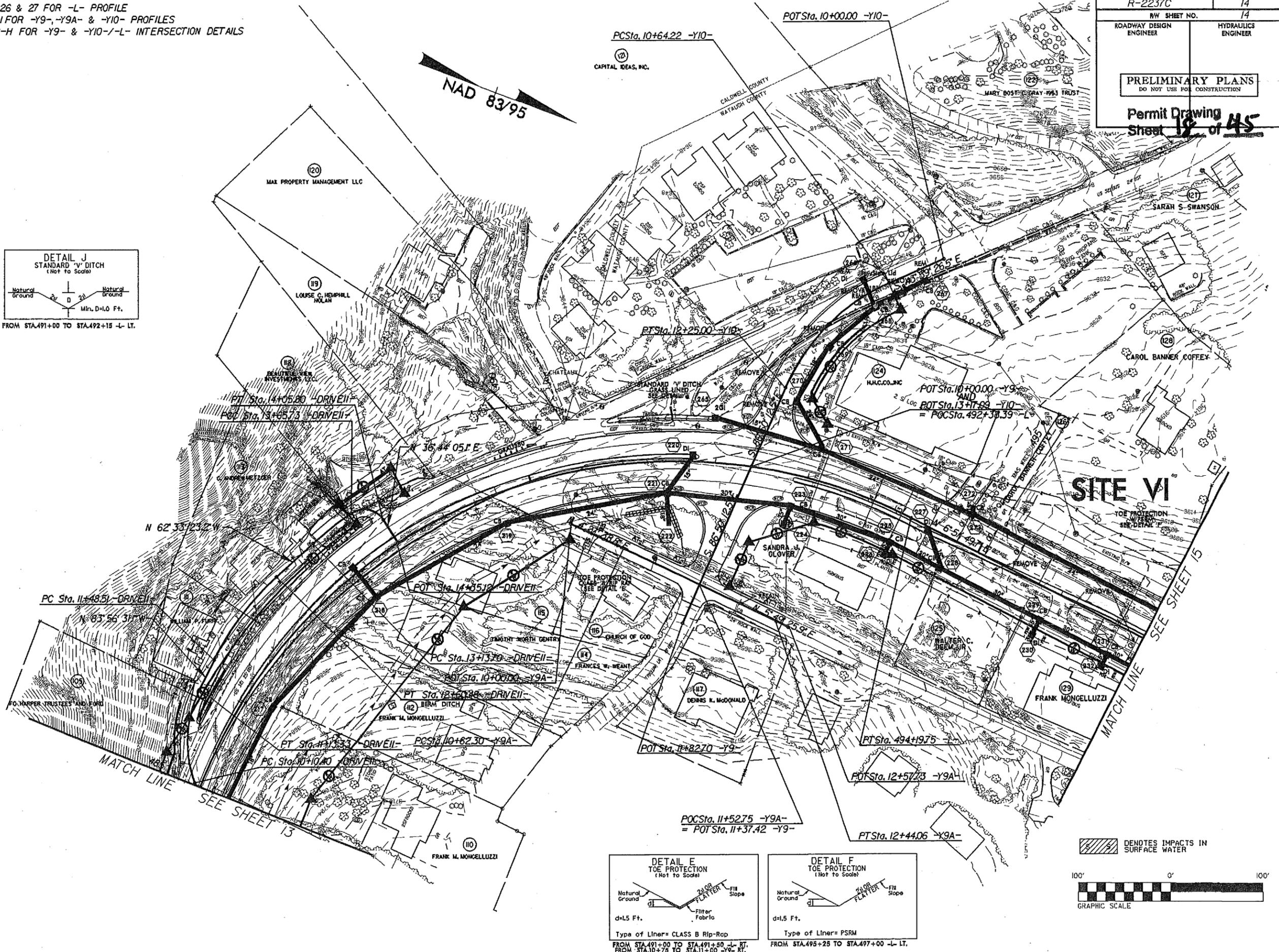
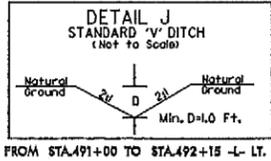
MATCH LINE
 SEE SHEET 13

NOTE: SEE SHEETS 26 & 27 FOR -L- PROFILE
 SEE SHEET 31 FOR -Y9-, -Y9A- & -Y10- PROFILES
 SEE SHEET 2-H FOR -Y9- & -Y10-/-L- INTERSECTION DETAILS

PROJECT REFERENCE NO. R-2237C	SHEET NO. 14
RDW SHEET NO. 14	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	

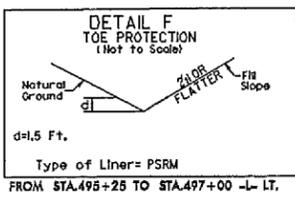
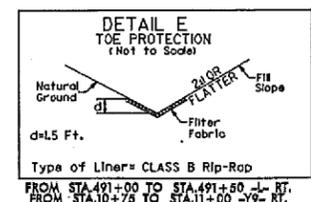
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing
Sheet 18 of 45

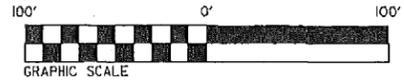


REVISIONS

SITE VI

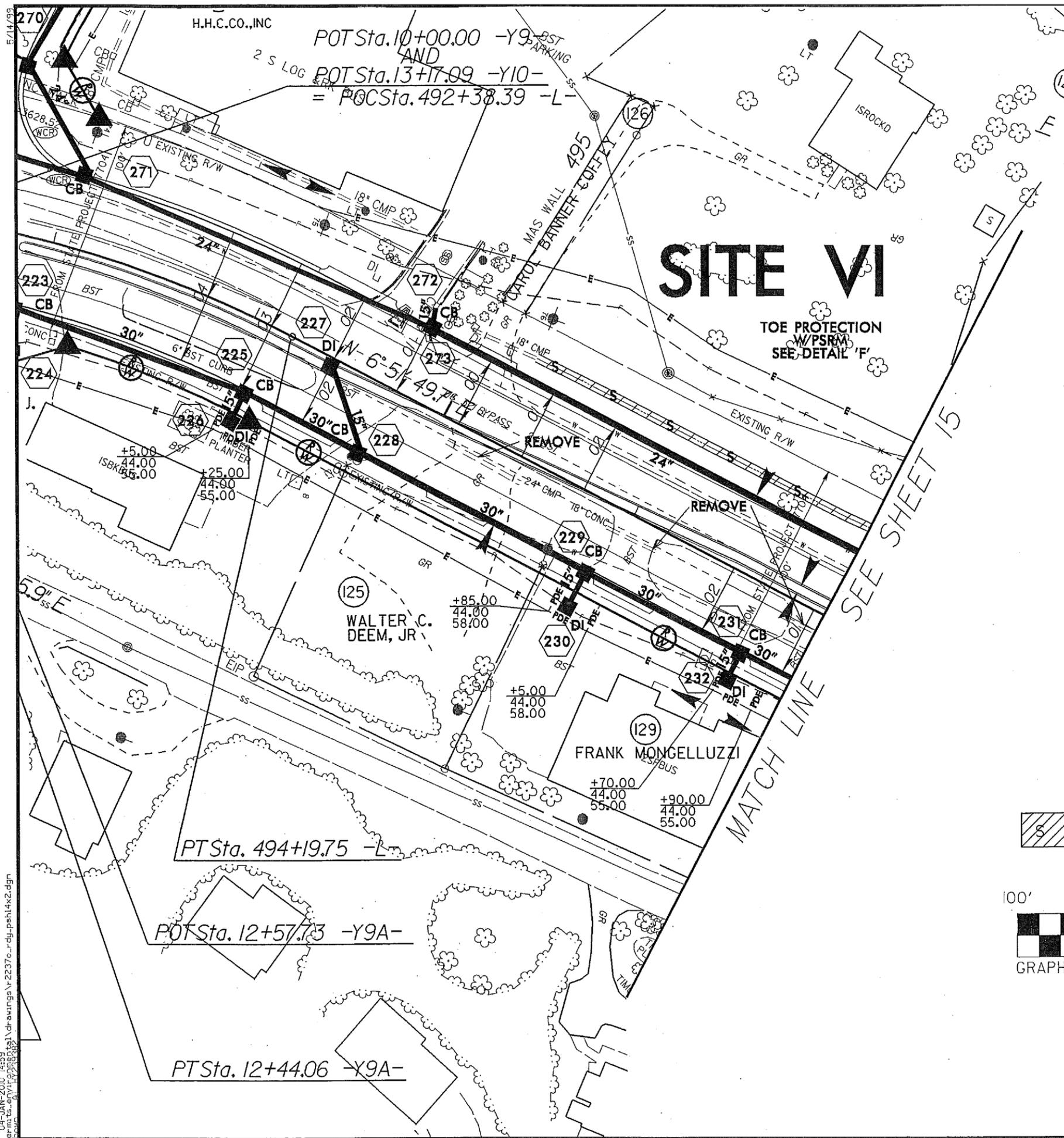


/// DENOTES IMPACTS IN SURFACE WATER



05-JAN-2010 08:19
 xpermits\p\110200803\1\drawings\R-2237c_r.dwg_pah14.dgn

PROJECT REFERENCE NO.	R-2237C	SHEET NO.	14
R/W SHEET NO.	14		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
Permit Drawing		Sheet 19 of 45	

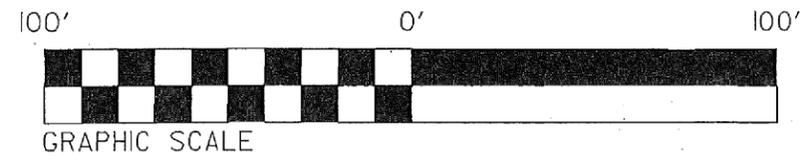


SITE VI

TOE PROTECTION
W/PSRM
SEE DETAIL 'F'



 DENOTES IMPACTS IN SURFACE WATER

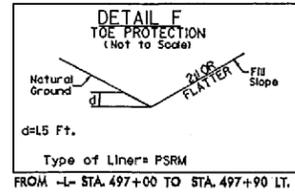


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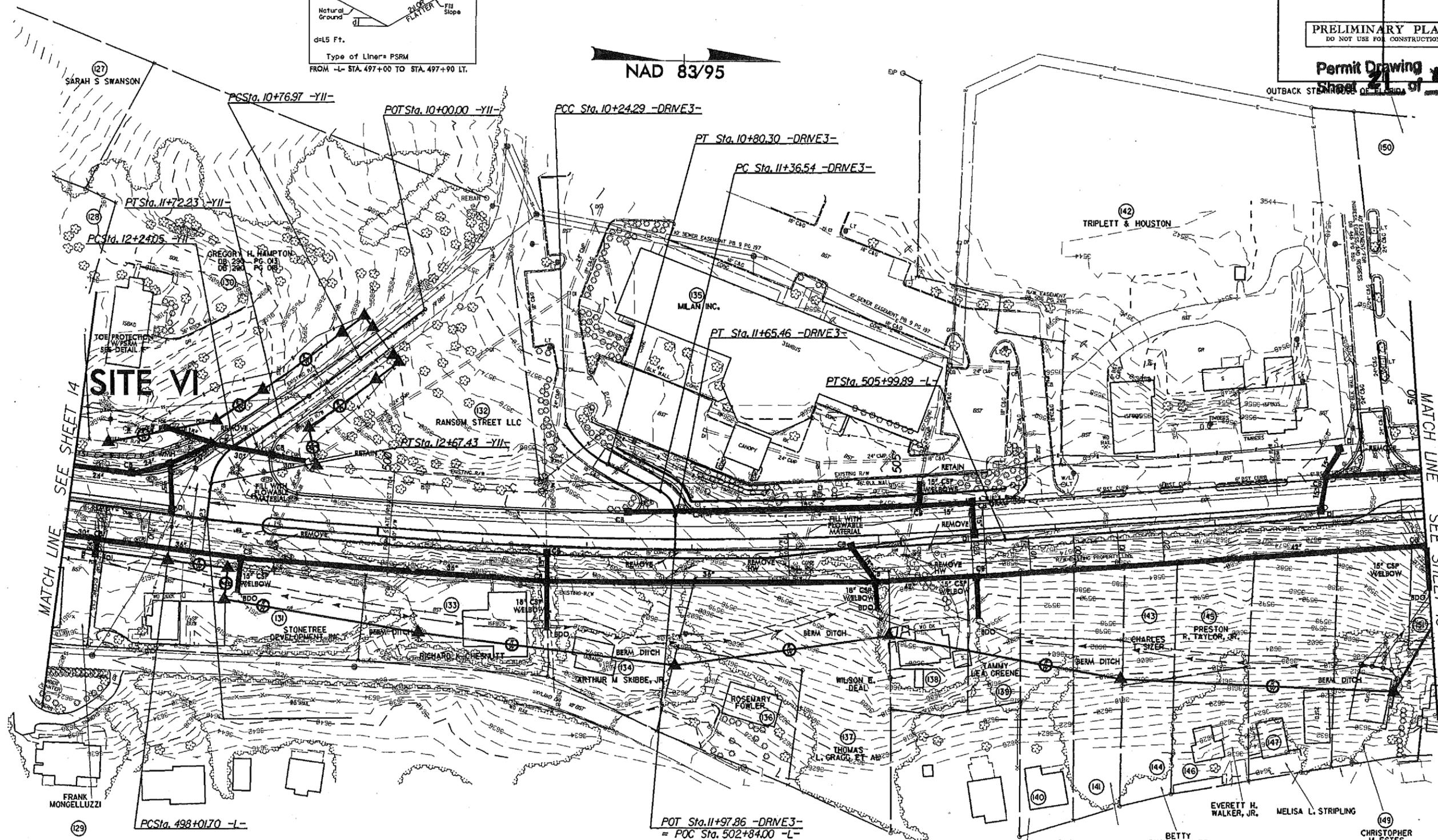
5/14/95

NOTE: SEE SHEET 27 FOR -L- PROFILE
SEE SHEET 31 FOR -YII- PROFILE
SEE SHEET 2-H FOR -YII-/-L- INTERSECTION DETAIL
SEE SHEET 33 FOR -DRVE3- PROFILE

PROJECT REFERENCE NO.	R-2237C	SHEET NO.	15
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION		Permit Drawing Sheet 21 of 45	



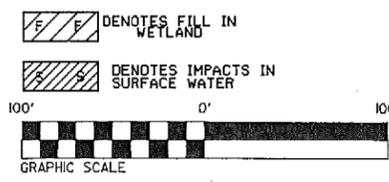
NAD 83/95



SITE VI

MATCH LINE SEE SHEET 14

MATCH LINE SEE SHEET 16

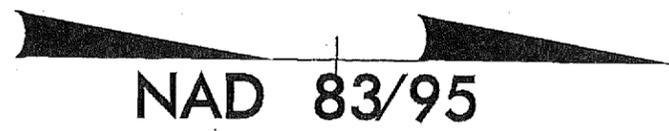


REVISIONS

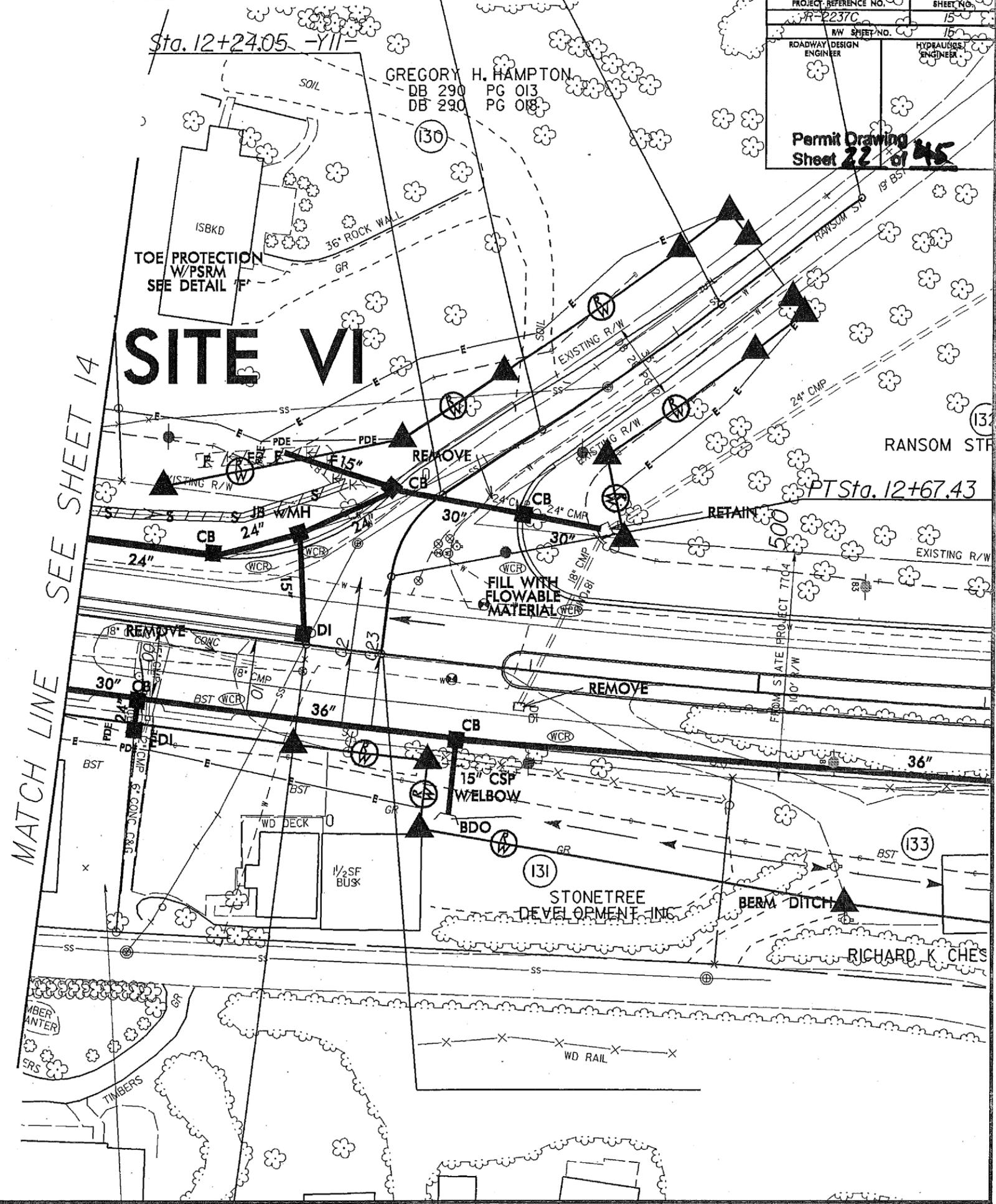
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PROJECT REFERENCE NO. R-2237C	SHEET NO. 15
R/W SHEET NO. 15	HYDRAULIC ENGINEER
ROADWAY DESIGN ENGINEER	

Permit Drawing
Sheet 22 of 45

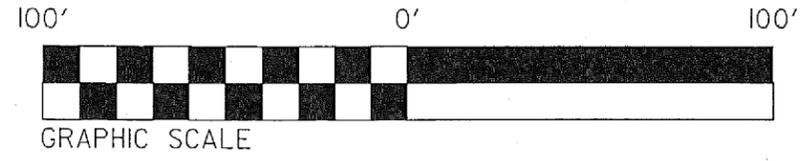


SITE VI



 DENOTES FILL IN WETLAND

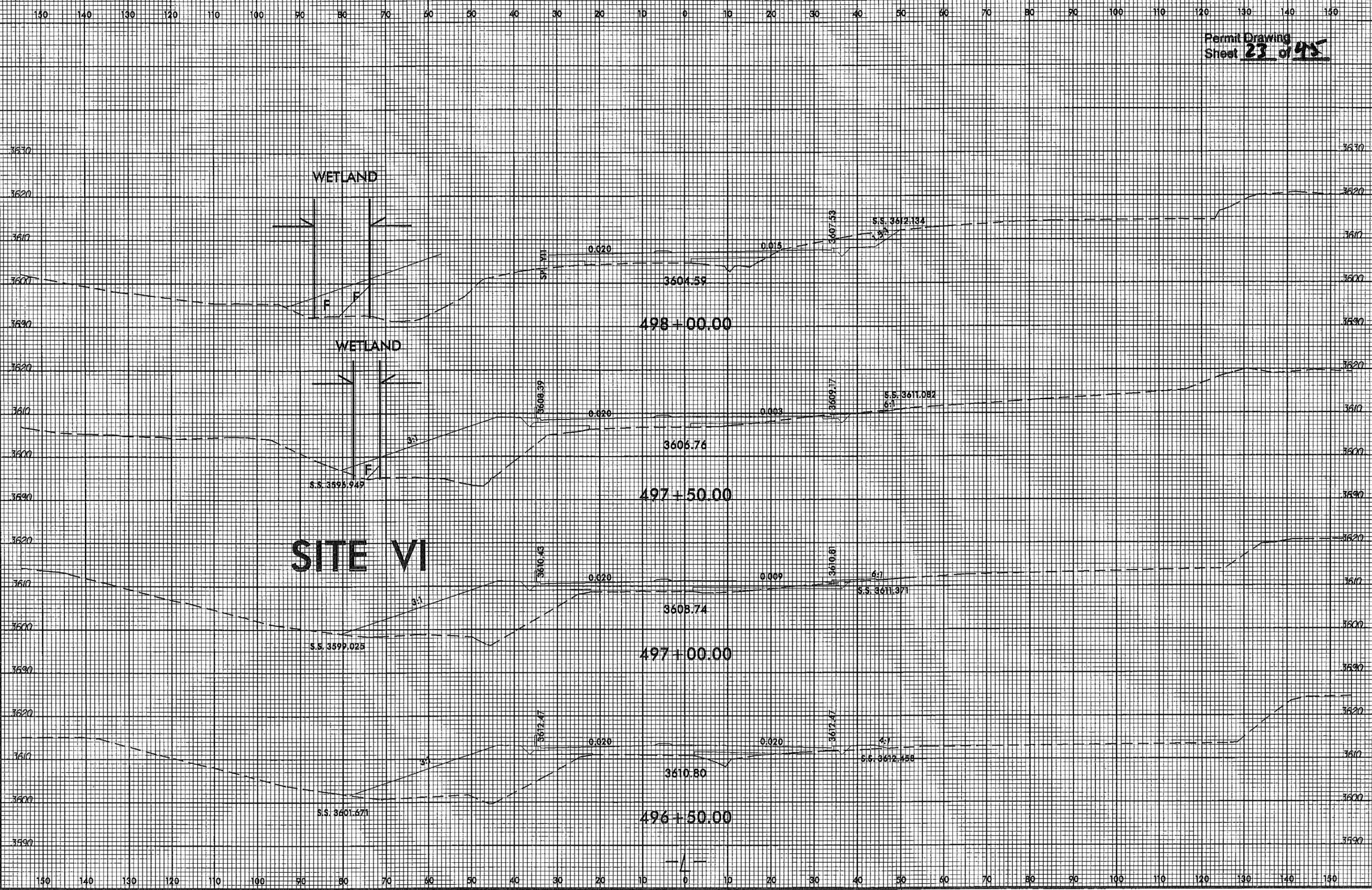
 DENOTES IMPACTS IN SURFACE WATER



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8/23/99

Permit Drawing
Sheet **23** of **95**



SITE VI

WETLAND

WETLAND

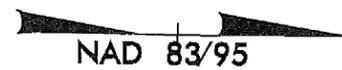
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497+50.00

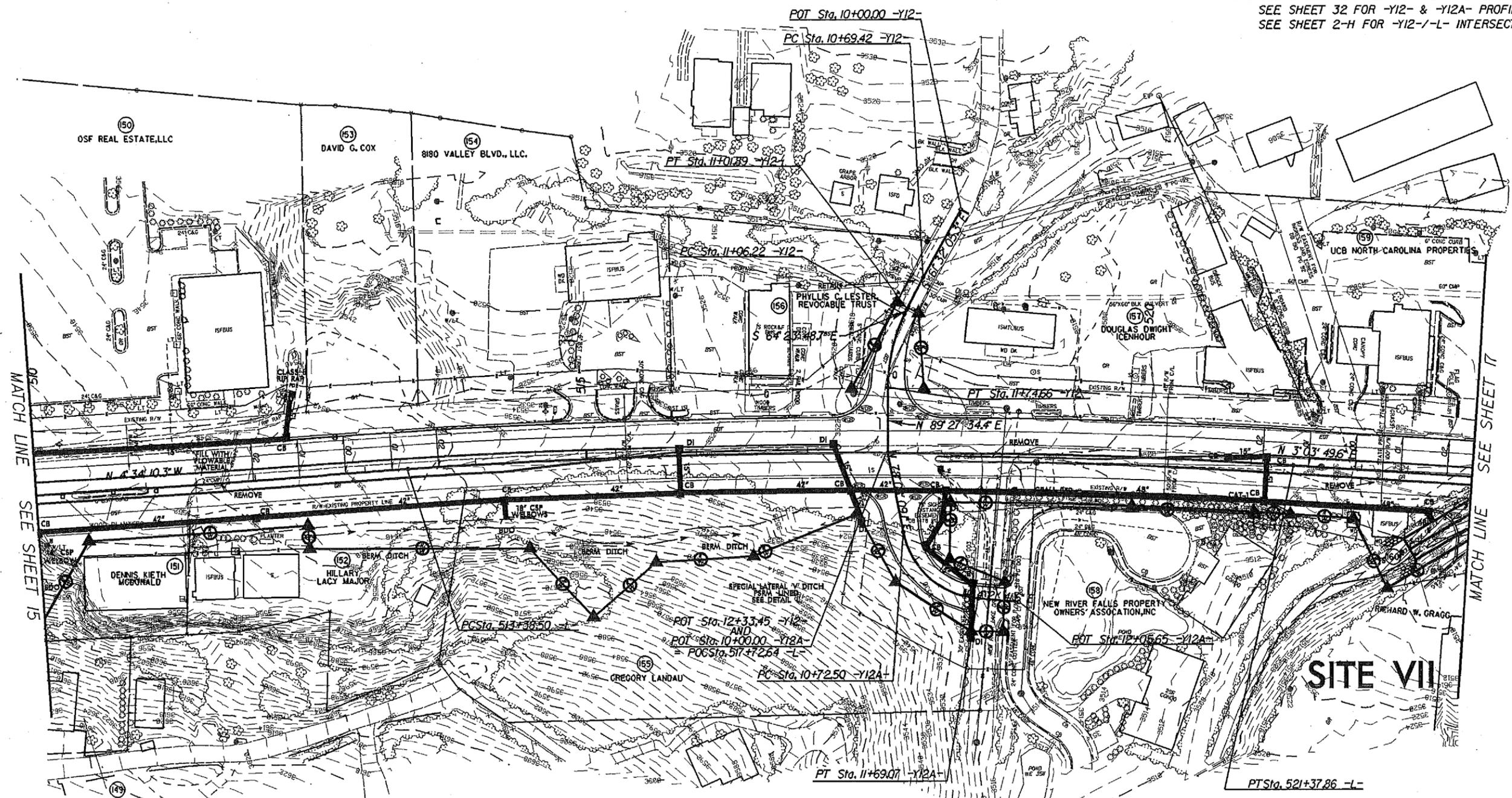
497+00.00

496+50.00

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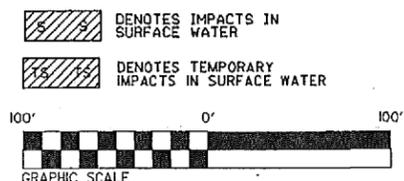
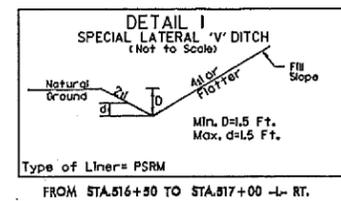


NOTE: SEE SHEETS 27 & 28 FOR -L- PROFILE
SEE SHEET 32 FOR -Y12- & -Y12A- PROFILE
SEE SHEET 2-H FOR -Y12-/-L- INTERSECTION DETAIL



MATCH LINE SEE SHEET 15

MATCH LINE SEE SHEET 17



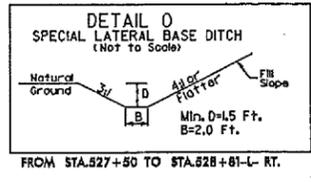
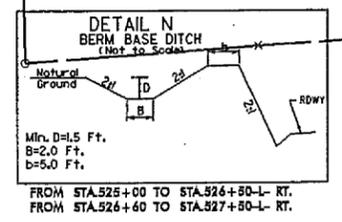
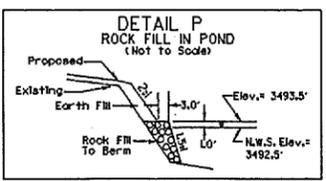
REVISIONS

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NOTE: SEE SHEET 28 FOR -L- PROFILE
 SEE SHEET 32 FOR -Y13- & -Y14- PROFILE
 SEE SHEET 2-1 FOR -Y13- & -Y14-/-L- INTERSECTION DETAILS
 SEE SHEET 38 FOR -DRIVE4- PROFILE

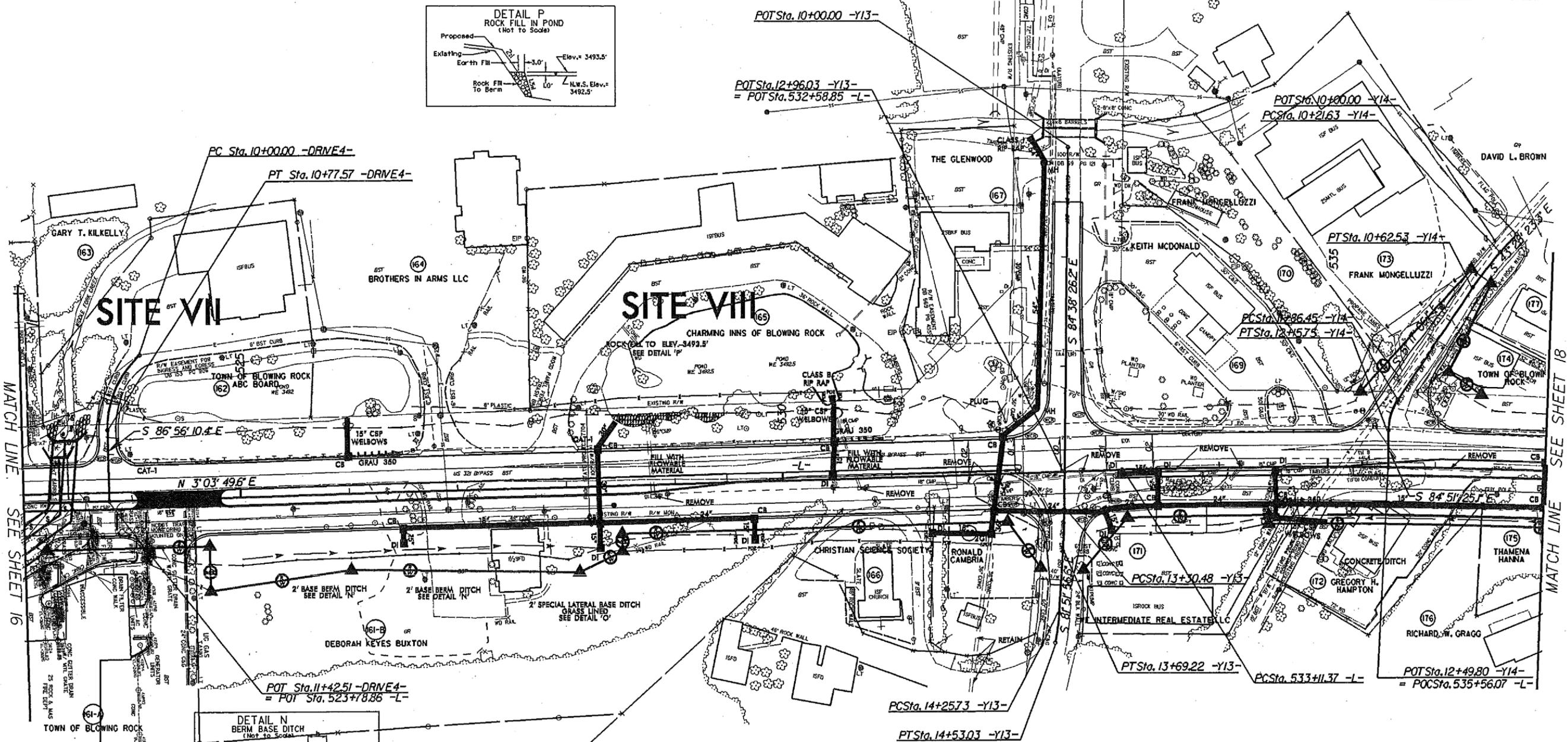
PROJECT REFERENCE NO. R-2237C	SHEET NO. 17
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Permit Drawing Sheet 27 of 45	

NAD 83/95



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

100' 0' 100'
 GRAPHIC SCALE



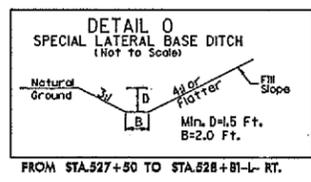
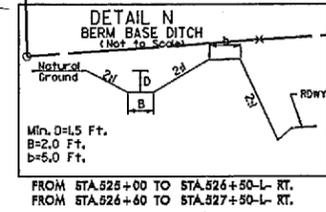
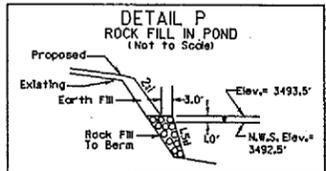
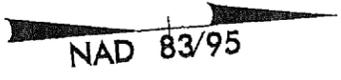
REVISIONS

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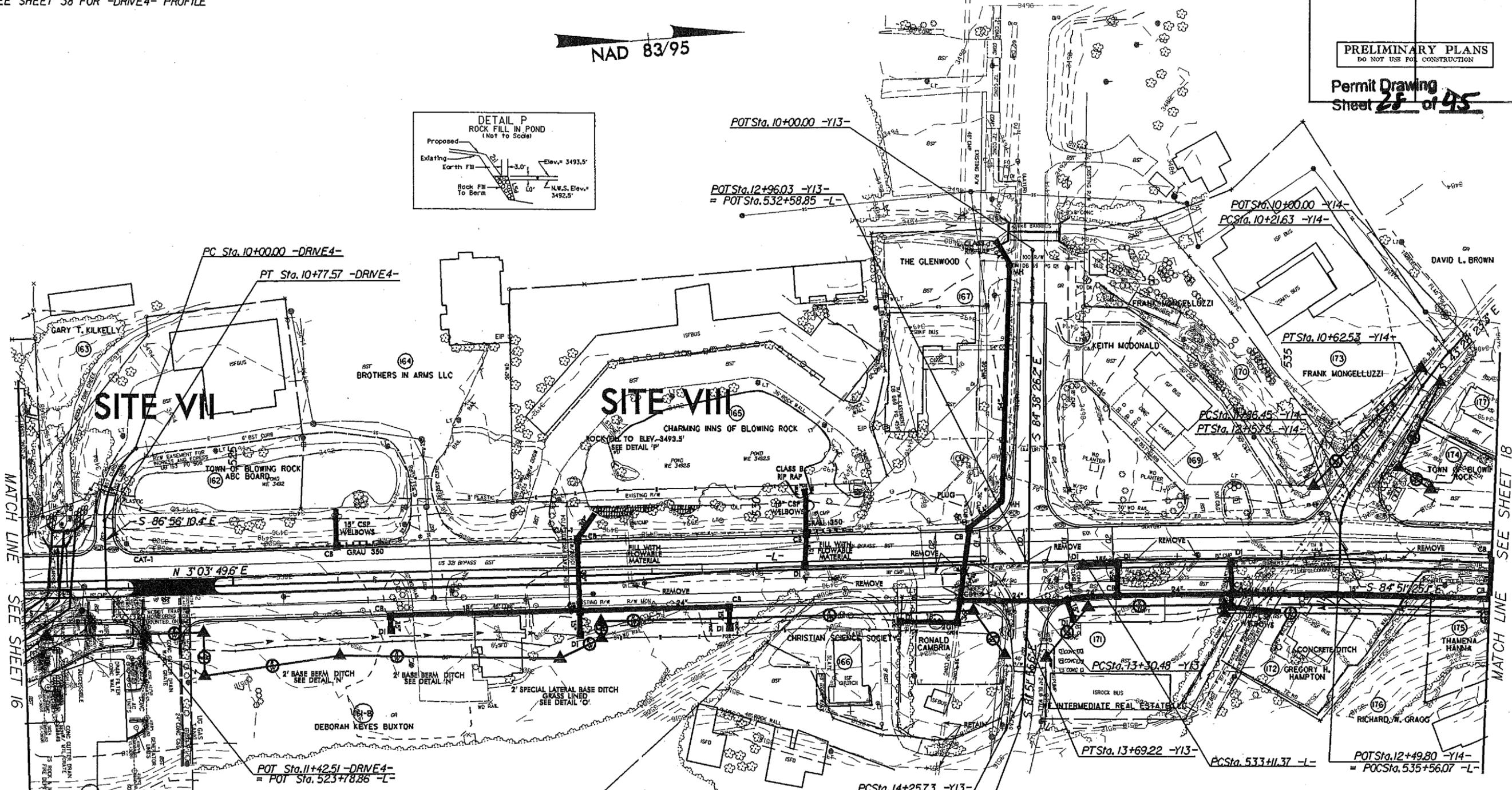
NOTE: SEE SHEET 28 FOR -L- PROFILE
SEE SHEET 32 FOR -Y13- & -Y14- PROFILE
SEE SHEET 2-1 FOR -Y13- & -Y14-/-L- INTERSECTION DETAILS
SEE SHEET 38 FOR -DRIVE4- PROFILE

PROJECT REFERENCE NO. R-2237C	SHEET NO. 17
RW SHEET NO. 17	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
Permit Drawing Sheet 25 of 45	



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

100' 0' 100'
GRAPHIC SCALE



REVISIONS

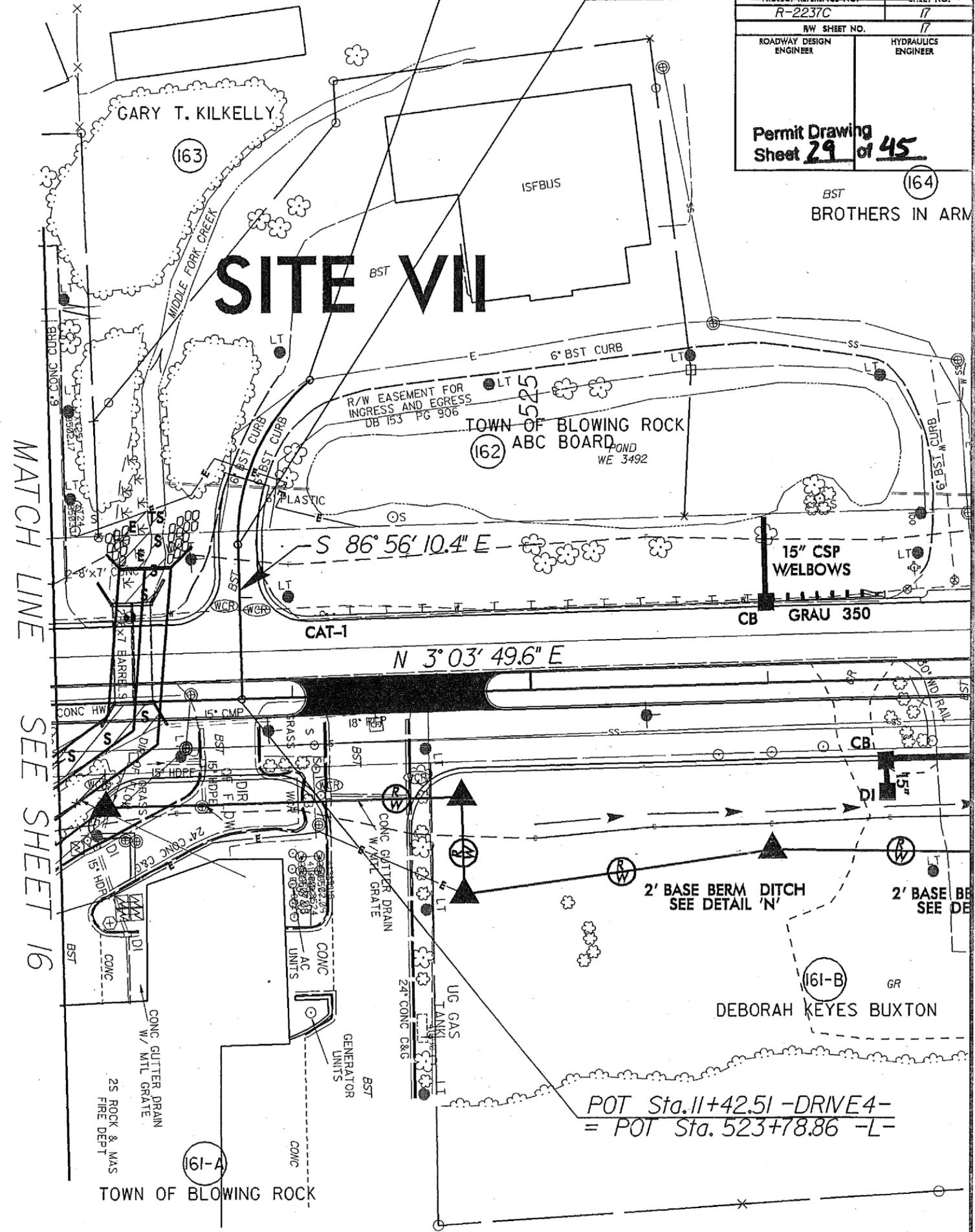
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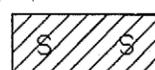
MATCH LINE SEE SHEET 18

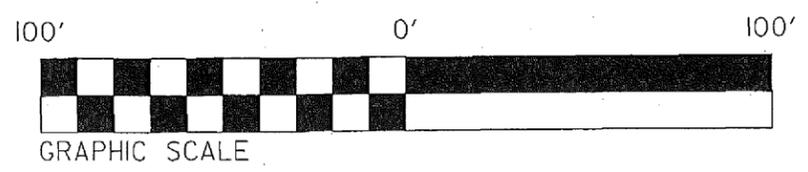
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PROJECT REFERENCE NO. R-2237C	SHEET NO. 17
R/W SHEET NO. 17	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
Permit Drawing Sheet 29 of 45	

NAD 83/95

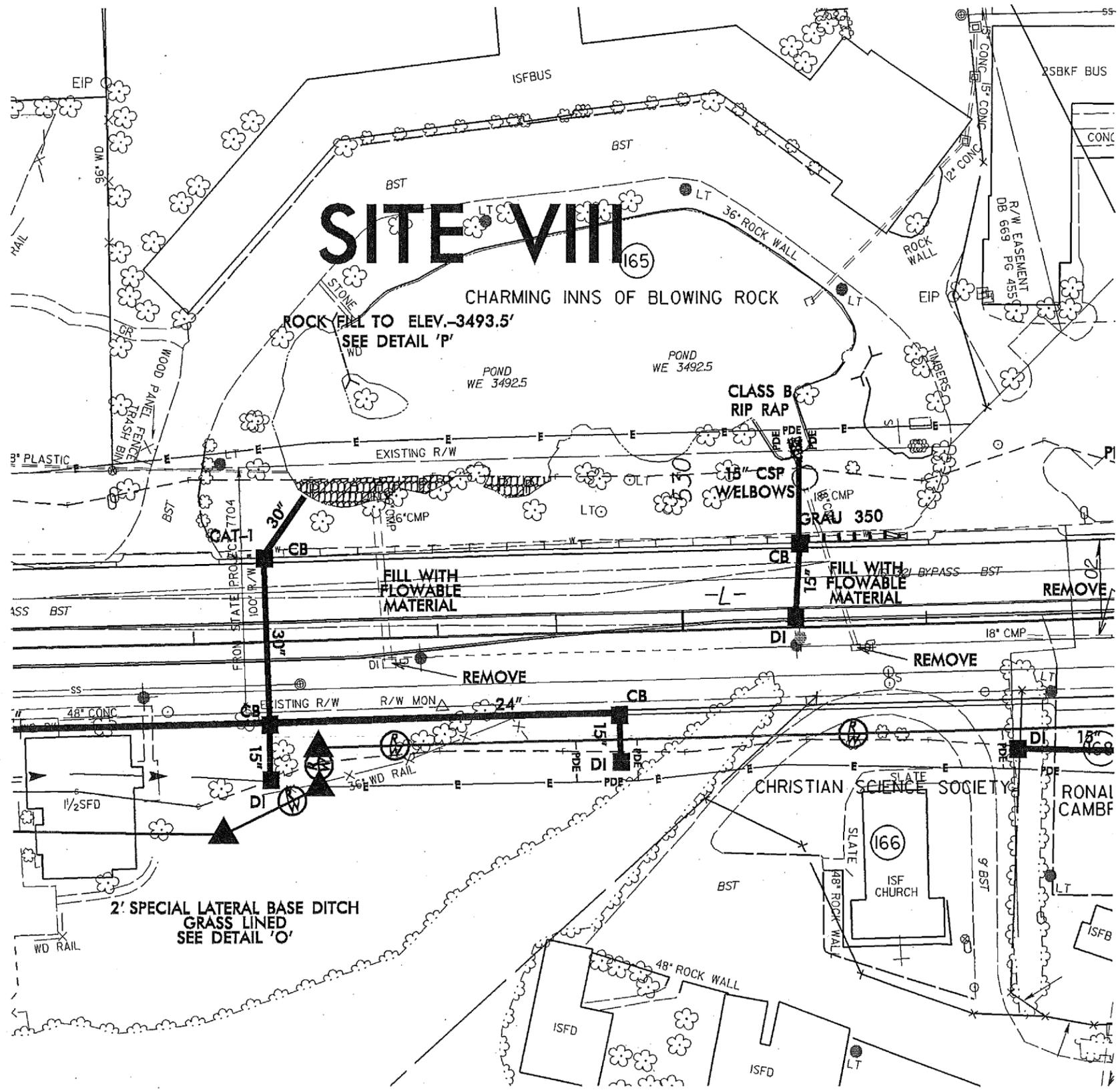
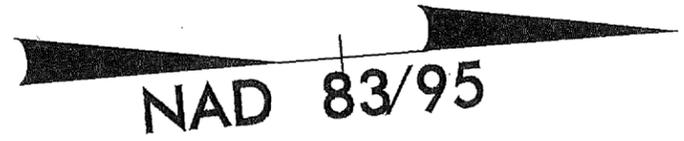


-  DENOTES EXCAVATION IN WETLAND
-  DENOTES IMPACTS IN SURFACE WATER
-  DENOTES TEMPORARY IMPACTS IN SURFACE WATER

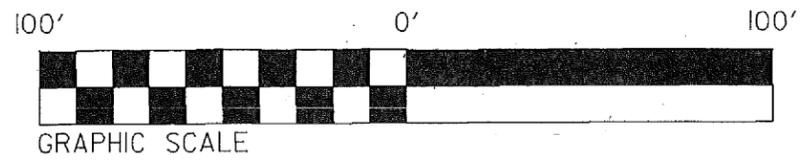


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PROJECT REFERENCE NO. R-2237C	SHEET NO. 17
RW SHEET NO. 17	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
Permit Drawing Sheet 30 of 45	



 DENOTES IMPACTS IN SURFACE WATER (POND)



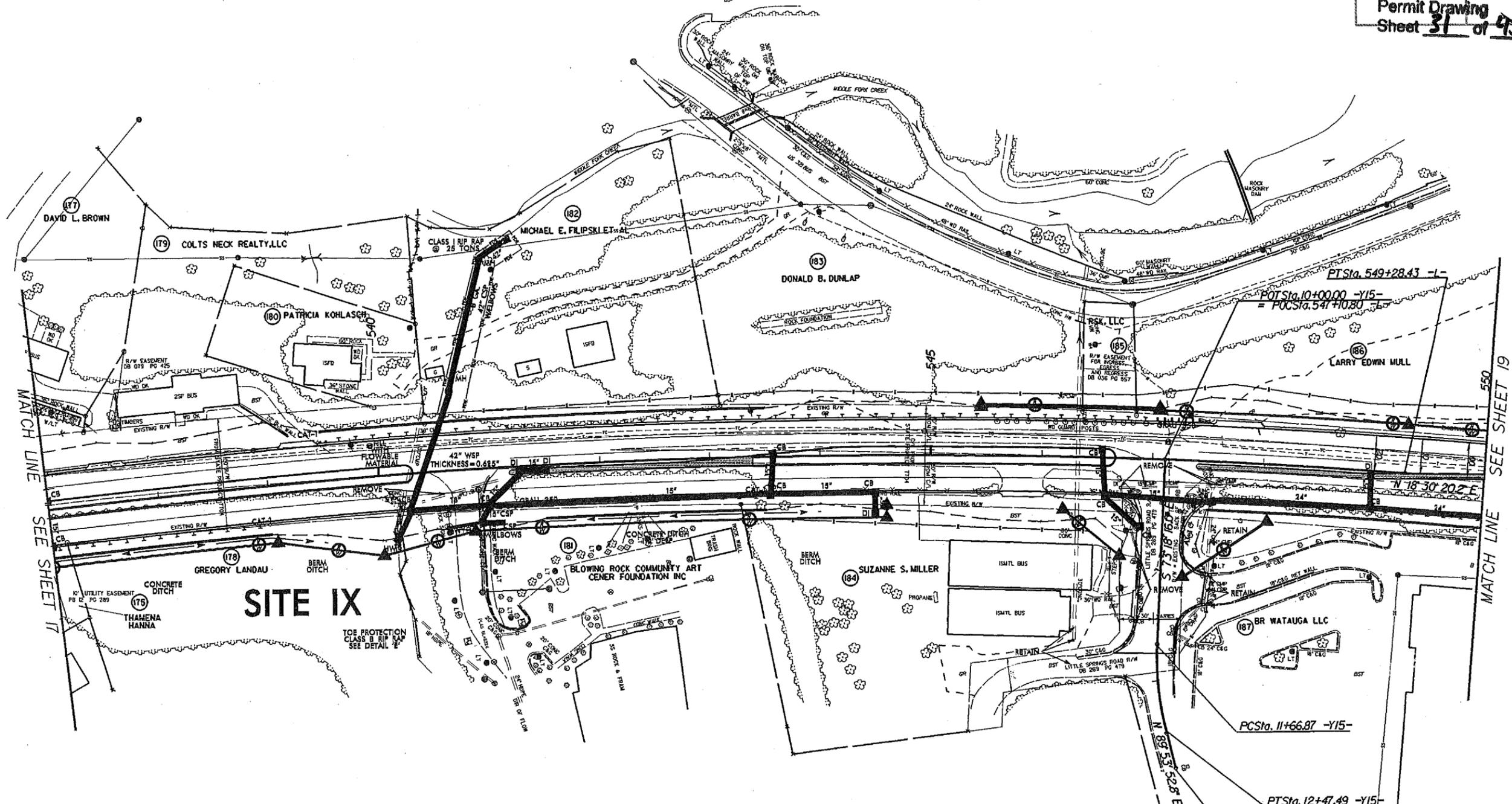
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NOTE: SEE SHEETS 28 & 29 FOR -L- PROFILE
 SEE SHEET 32 FOR -Y15- PROFILE
 SEE SHEET 2-1 FOR -Y15-/-L- INTERSECTION DETAIL

R-2237C	18
18	18
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

Permit Drawing
 Sheet 31 of 45

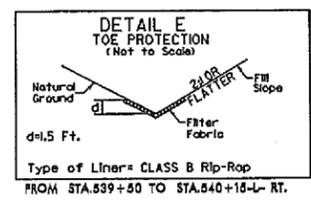
NAD 83/95



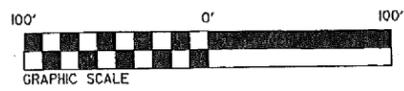
MATCH LINE SEE SHEET 17

MATCH LINE SEE SHEET 19

SITE IX



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



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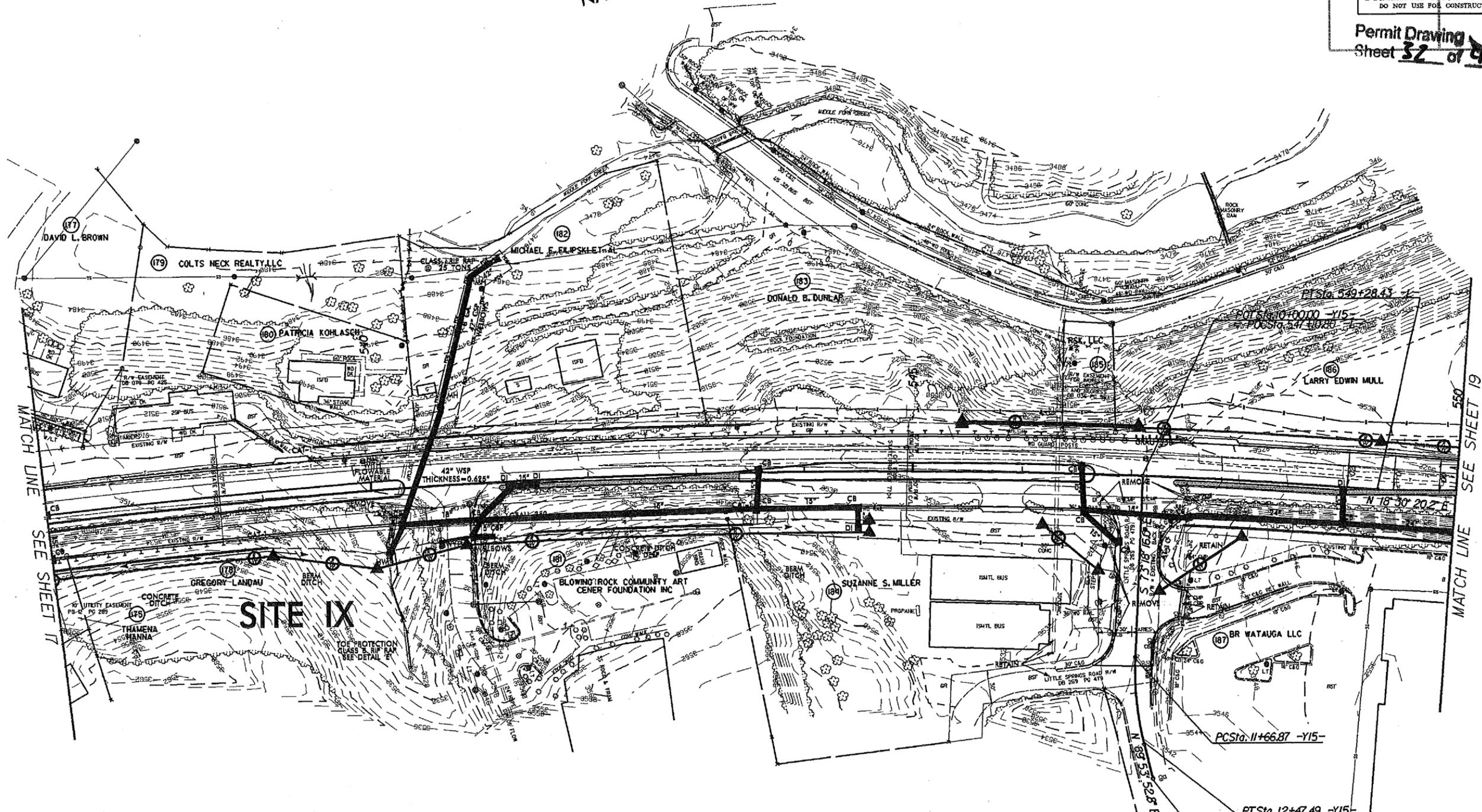
NOTE: SEE SHEETS 28 & 29 FOR -L- PROFILE
 SEE SHEET 32 FOR -Y15- PROFILE
 SEE SHEET 2-1 FOR -Y15-/-L- INTERSECTION DETAIL

R-2237C	18
SEE SHEET 28	18

PRELIMINARY PLANS
 DO NOT USE FOR CONSTRUCTION

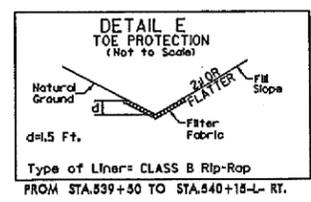
Permit Drawing
 Sheet **32** of **45**

NAD 83/95

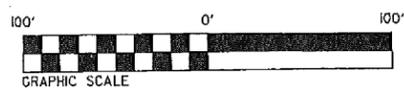


MATCH LINE SEE SHEET 17

MATCH LINE SEE SHEET 19



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



5/14/99 REVISIONS

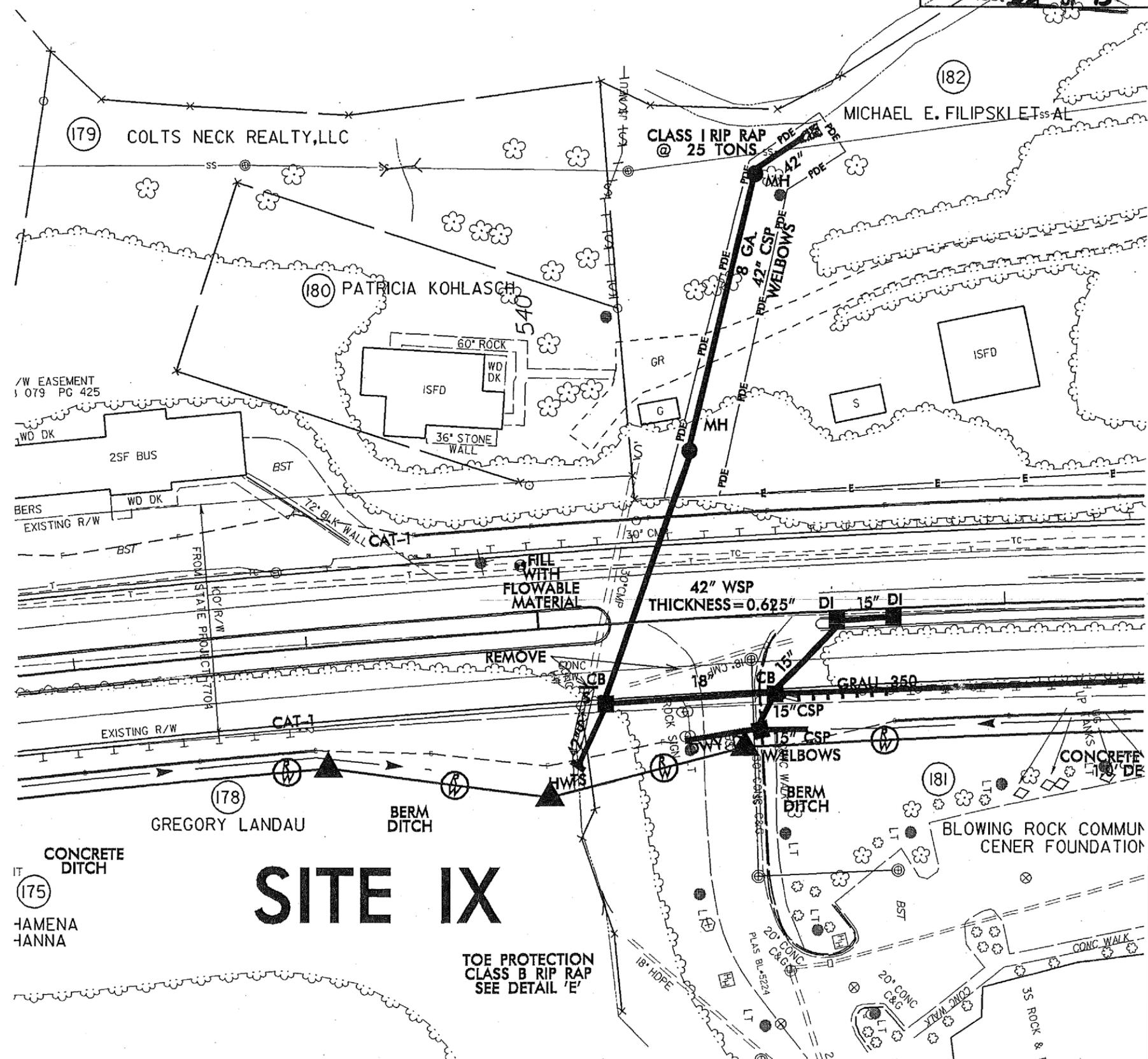
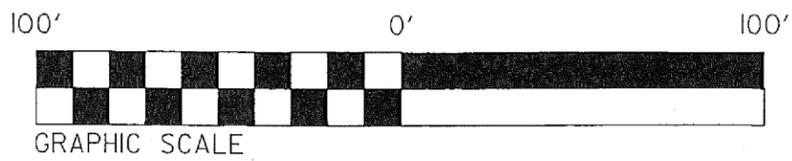
PROJECT REFERENCE NO. R-2237C	SHEET NO. 18
R/W SHEET NO. 18	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Permit Drawing
Sheet 33 of 45

NAD 83/95

 DENOTES IMPACTS IN SURFACE WATER

 DENOTES TEMPORARY IMPACTS IN SURFACE WATER

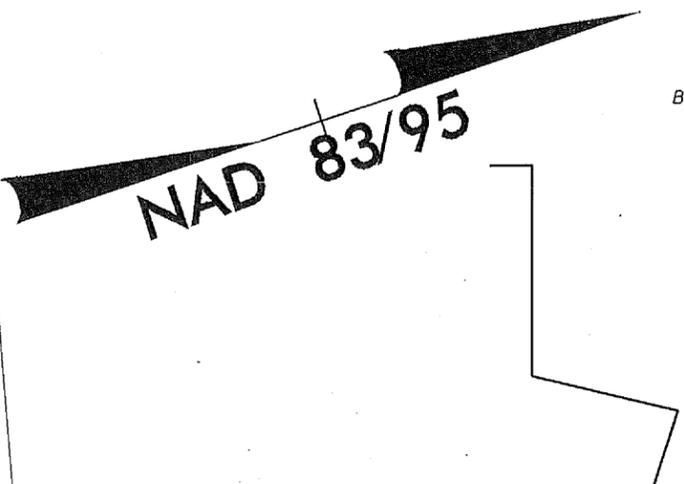
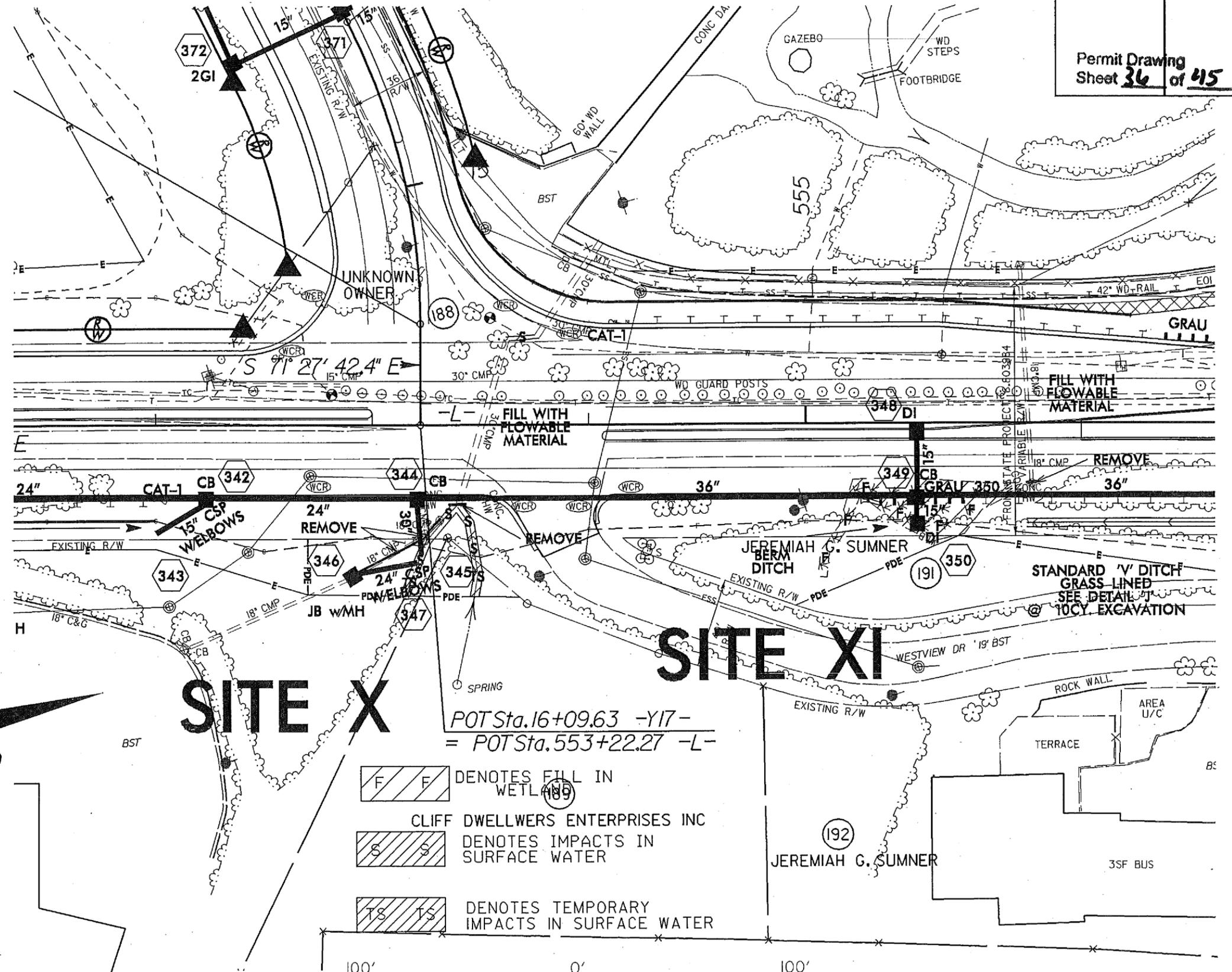


SITE IX

TOE PROTECTION
CLASS B RIP RAP
SEE DETAIL 'E'

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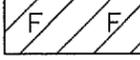
MATCH LINE SEE SHEET 18

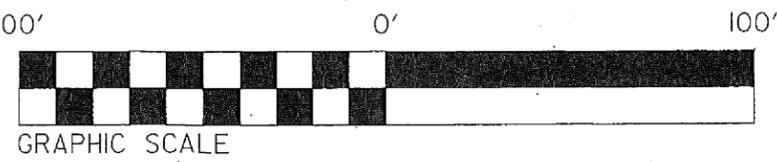


SITE X

SITE XI

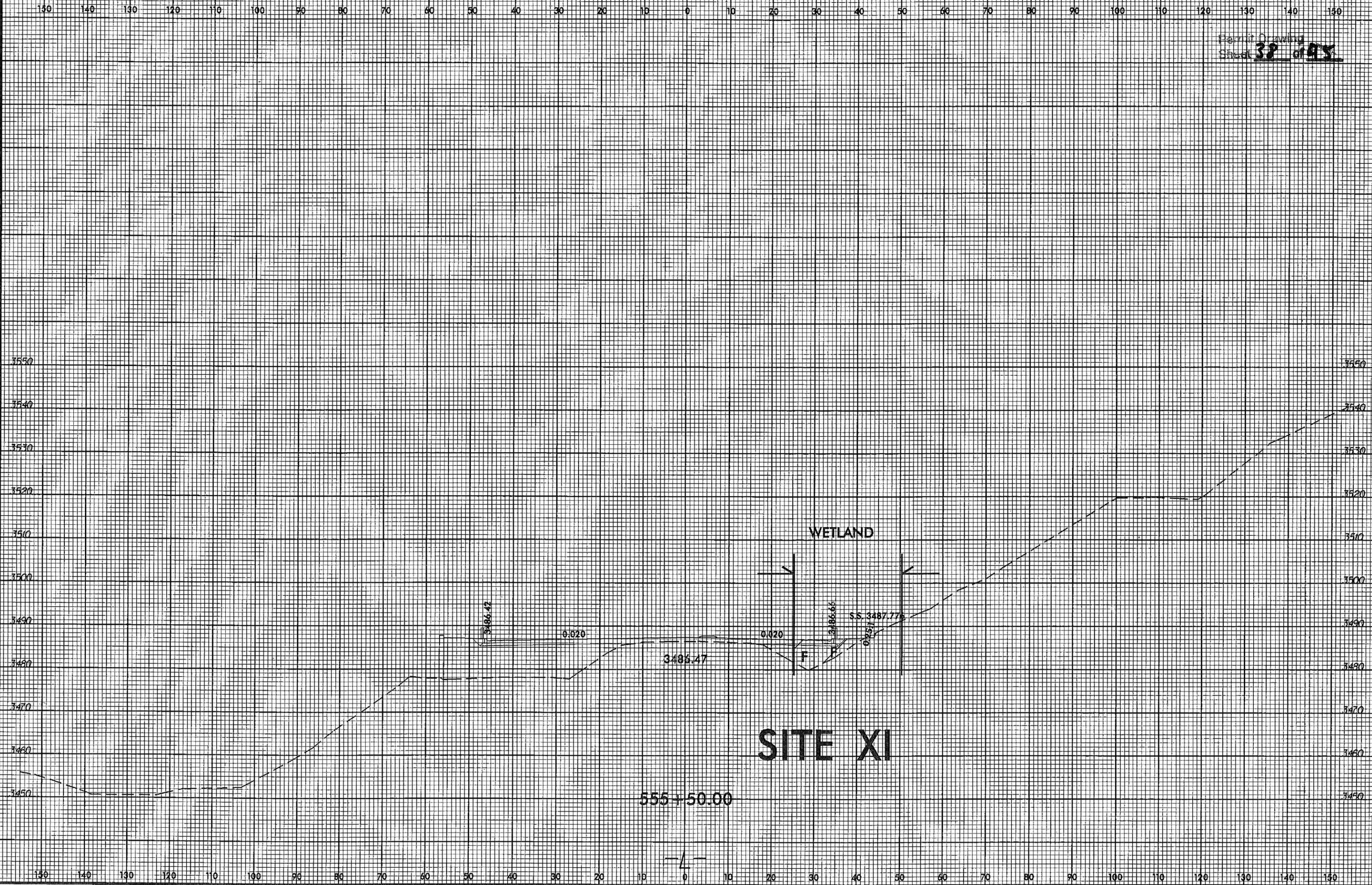
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= POT Sta. 553+22.27 -L-

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



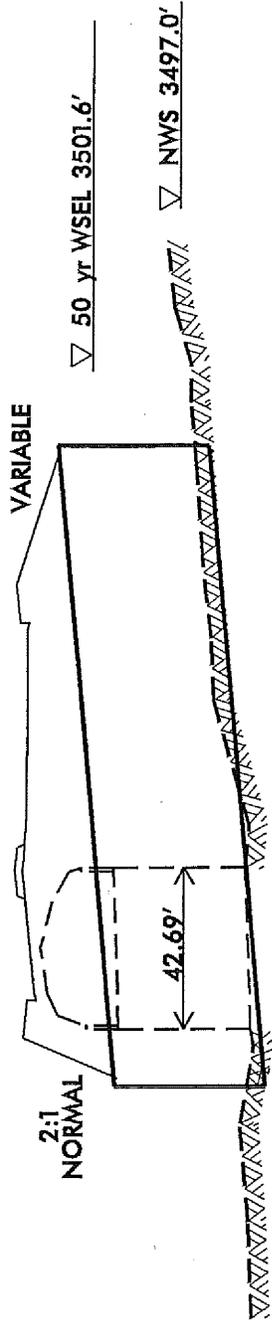
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Permit Drawing
Sheet 32 of 95



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CL 523+33.51 -L-
 2@ 11' X 8' RCBC
 GRADE FT. ELEV. 3505.26'
 SKEW = 96



CL INV ELEV. 3493.41
 SLOPE 0.018 FT./FT.

NOTE: BURY INLET
 AND OUTLET ONE FOOT. PLACE
 SILLS IN INLET AND OUTLET
 ACROSS BOTH BARRELS.

3510

3500

3490

3480

200

150

100

50

CL

50

100

150

200

PROFILE

SITE VII

NCDOT

DIVISION OF HIGHWAYS
 CALDWELL/WATAUGA CO.
 PROJECT: 34402.1.1 (R-2237C)
 US 321 FROM SR 1500 TO
 US 221 AT BLOWING ROCK

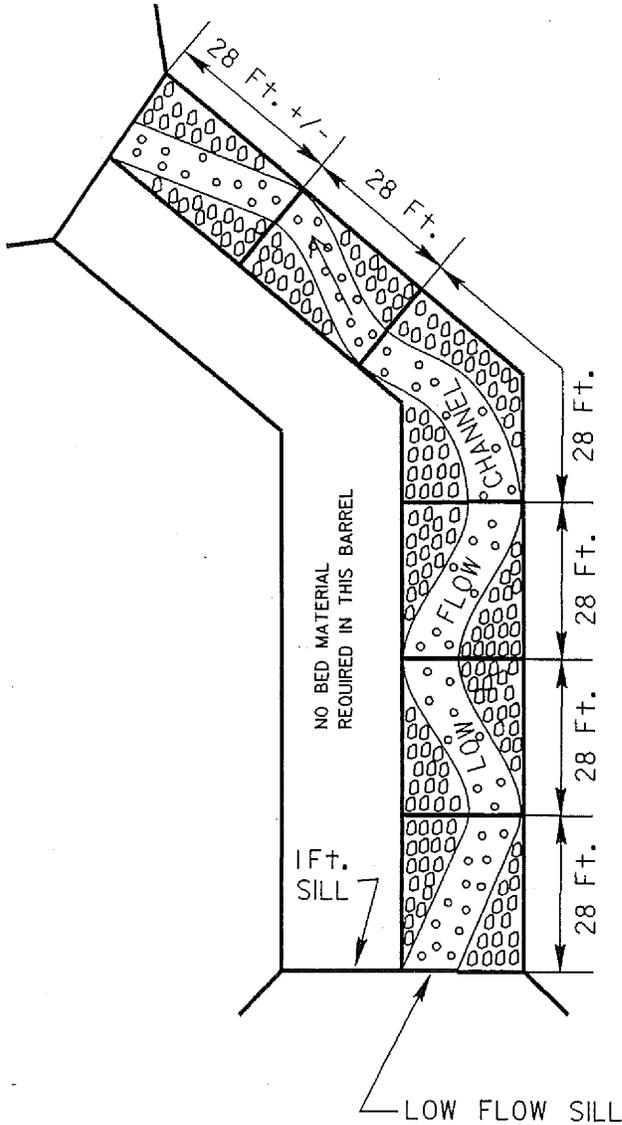
SHEET

OF

1/5/10

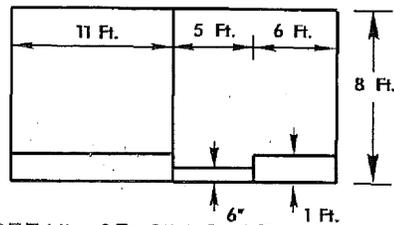
Permit Drawing
 Sheet 39 of 45

SITE VII



NOTES:

1. Bed material placed between sills in the culvert shall provide a continuous low flow channel between the lower sills. The material shall be natural stone with a gradation size similar to that of Class B riprap. Stones larger than 6 inches shall not be placed within the low flow channel. Bed materials subject to approval by the Engineer.
2. Sills are to be 1.0 Ft. wide and cast separately and attached by dowels.
3. The 1 Ft. high and 6 inch high sills are to be separate units.
4. Top of high sill should match stream bed elevation in low flow channel of stream.



DETAIL OF SILLS AT INLET AND OUTLET (not to scale)

DETAIL OF LOW FLOW CHANNEL AND SILL
 -L- STA. 523 +33.51
 2 @ 11 Ft. X 8 Ft. RCBC
 MIDDLE FORK
 (not to scale)

NCDOT
 DIVISION OF HIGHWAYS
 WATAUGA COUNTY
 PROJECT: 34402.1.1 (R-2237C)
 US 321 FROM SR 1500
 TO US 221 AT
 BLOWING ROCK
 SHEET OF 9/30/09

STA. 561+56.5 -L-
 PROP. 84" WELDED STEEL PIPE
 SKEW 91
 ELEV. 3476.54'

RETAINING WALL

EXISTING JB

OHW- 3453.4'
 BED

3470'

3460'

3450'

3440'

150'

100'

50'

♀

50'

100'

150'

200'

250'

SITE XII
 PROFILE

NCDOT
 DIVISION OF HIGHWAYS
 CALDWELL/WATAUGA CO.
 PROJECT: 34402.1.1 (R-2237C)
 US 321 FROM SR 1500
 TO US 221 AT
 BLOWING ROCK

SHEET OF DRAWING 9/2/09

Sheet 41 of 45

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
32	DONALD FABIAN VINCENT	315 CAMELTOWN HILL RD. DANVILLE, PA 17821
36	NEAL C. FORD	4708 BILLS LANE LENOIR, NC 28645
62	BLOWING ROCK COUNTRY CLUB	P.O. BOX 628 BLOWING ROCK, NC 28605
65	BLOWING ROCK IMPROVEMENT CO.	P.O. BOX 905 BLOWING ROCK, NC 28605
66	LEE OVAL JAYNES	314 HUFFMAN ST. MORGANTON, NC 28655
	NCDOT	P.O. BOX 250 NORTH WILKESBORO, NC 28659
130	GEORGE H. HAMPTON	P.O. BOX 1849 BLOWING ROCK, NC 28605
160	RICHARD W. GRAGG	P.O. BOX 12 BLOWING ROCK, NC 28605
161-A	TOWN OF BLOWING ROCK	1036 MAIN ST. BLOWING ROCK, NC 28605
162	TOWN OF BLOWING ROCK ABC BOARD	7960 VALLEY BLVD. BLOWING ROCK, NC 28605
164	BROTHERS IN ARMS LLC	226 MULBERRY ST. NW LENOIR, NC 28645
165	CHARMING INNS OF BLOWING ROCK	18 BROAD ST. (SUITE 400) CHARLESTON, SC 29401
178	GREGORY LANDAU	16425 COLLINS AVE. (APT. 291) NORTH MIAMI BEACH, FL 33160
181	BLOWING ROCK COMMUNITY ART CENTER FOUNDATION INC.	P.O. BOX 1009 BLOWING ROCK, NC 28605

NCDOT

DIVISION OF HIGHWAYS
CALDWELL// WATAUGA CO.

PROJECT: 34402.1.1 (R-2237C)

US 321 FROM SR 1500
TO US 221 AT
BLOWING ROCK

SHEET

OF

1 / 24 / 09

Permit Drawing
Sheet 42 of 45

PROPERTY OWNERS

NAMES AND ADDRESSES

PARCEL NO.	NAMES	ADDRESSES
182	MICHAEL FILIPSKI	7890 EVERSFIELD RD. STOKESDALE, NC 27357
187	BR WATAUGA LLC	600 GREEN VALLEY RD. (SUITE 202) GREENSBORO, NC 27404
189	CLIFF DWELLERS ENTERPRISES INC.	5885 N. ROSE BARK WAY BEVERLY HILLS, FL 33465
191	JEREMIAH G. SUMNER	P.O. BOX 2125 BLOWING ROCK, NC 28605
195	TANAWHA LLC	P.O. BOX 2701 BLOWING ROCK, NC 28605
197	SUSIE W. UNDERWOOD	148 POSSUM HOLLOW RD. BLOWING ROCK, NC 28605

NCDOT

DIVISION OF HIGHWAYS
CALDWELL// WATAUGA CO.

PROJECT: 34402.1.1 (R-2237C)

US 321 FROM SR 1500

TO US 221 AT

BLOWING ROCK

SHEET

OF

11 / 24 / 09

Permit Drawing
Sheet 43 of 45

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS						SURFACE WATER IMPACTS				
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)	
I	385+70 TO 389+45 -L-	24" CSP							0.02	<0.01	294	36	
II	403+30 -L-	36" CSP						0.01	<0.01	119	33		
III	442+00 TO 444+00 -L-	54" RCP BANK STABILIZATION FILL IN STREAM	0.01		0.02			0.01	0.01	150	43		
IV	444+65 TO 449+50 -L-		0.07		0.01			0.03	0.01	317	46		
V	451+40 -L-	BANK STABILIZATION						<0.01	<0.01	22	6		
VI	495+20 TO 498+15 -L-		0.01					0.03		294			
VII	523+33.5 -L-	2 @ 11'X8' RCBC BANK STABILIZATION			0.01			0.04	0.01	128	26		
VIII	528+40 TO 530+50 -L-	30" RCP 15" CSP						0.02		32			
TOTALS:					0.03			0.17	0.04	1429	190		

SITE VIII - IMPACTS TO SW POND 0.02 AC.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

CALDWELL/WATAUGA COUNTIES
WBS - 34402.1.1 (R-2237C)

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS						SURFACE WATER IMPACTS					
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)		
IX	540+20 -L-	42" WELDED STEEL PIPE								0.01	<0.01	133	10	
X	553+50 -L-	30" RCP								<0.01	<0.01	49	14	
XI	555+50 -L-	15" RCP	0.04							<0.01	<0.01	25	19	
XII	561+56 -L-	84" WELDED STEEL PIPE									0.01		45	
TOTALS:			0.04							0.02	0.01	207	88	

GRAND TOTALS	0.13	0.03	0.03	0.03	0.18	0.05	1636	278
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NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

CALDWELL/WATAUGA COUNTIES
WBS - 34402.1.1 (R-2237C)

09/28/09

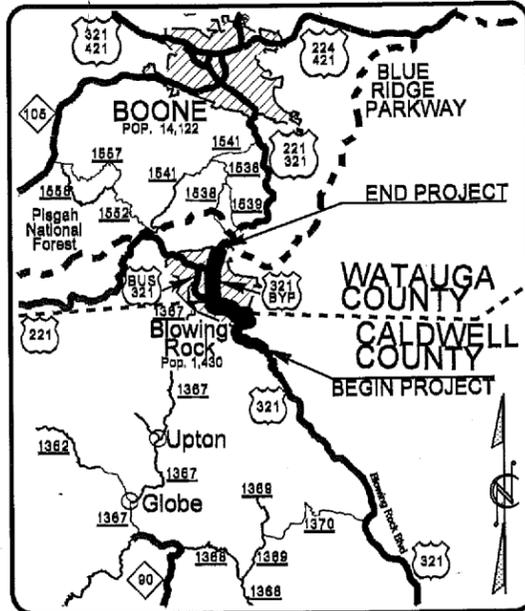
See Sheet 1-A For Index of Sheets

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CALDWELL & WATAUGA COUNTIES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2237C	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34402.1.1		PE	
34402.2.6		R/W	

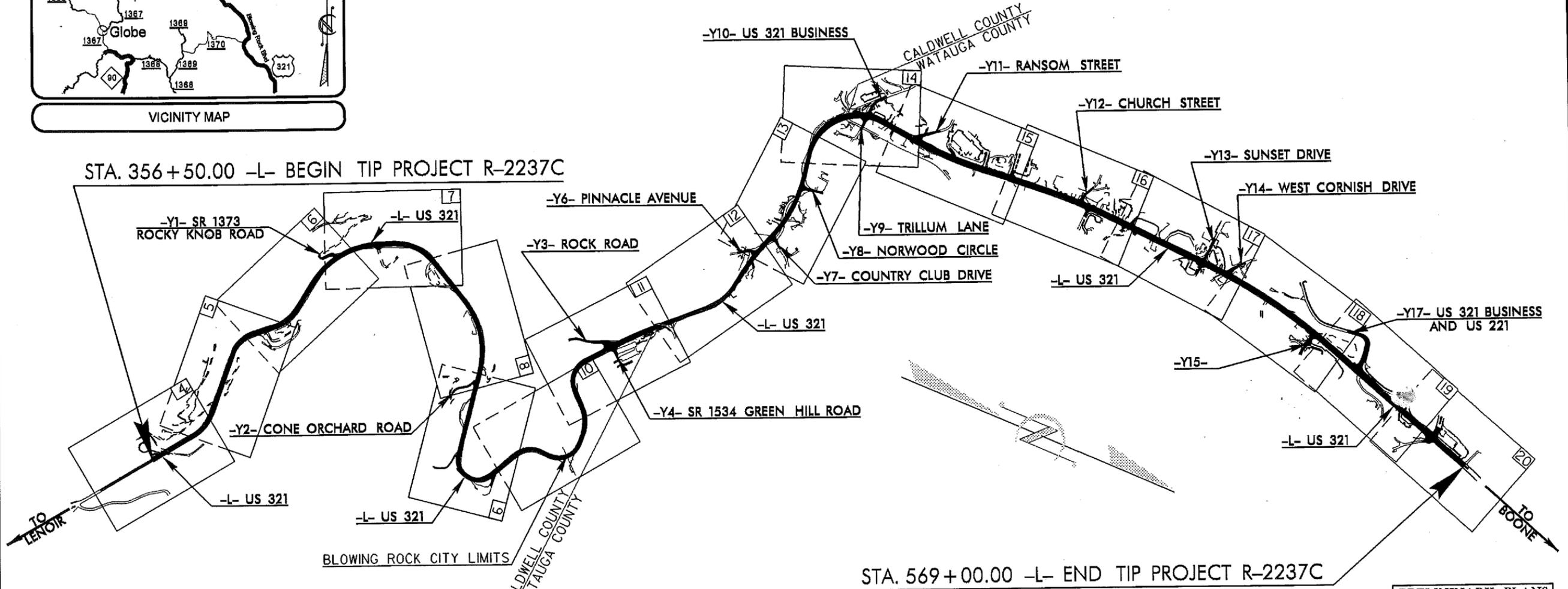
TIP PROJECT: R-2237C



VICINITY MAP

**LOCATION: US 321 FROM SR 1500 (BLACKBERRY ROAD)
TO US 221 AT BLOWING ROCK**

**TYPE OF WORK: GRADING, DRAINAGE, PAVING, CULVERT, RETAINING WALLS,
AND SIGNALS**



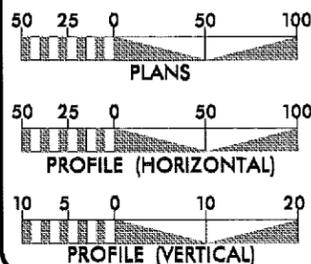
STA. 356+50.00 -L- BEGIN TIP PROJECT R-2237C

STA. 569+00.00 -L- END TIP PROJECT R-2237C

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF BLOWING ROCK
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II

GRAPHIC SCALES



DESIGN DATA

ADT 2006 = 18,935
 ADT 2025 = 27,450
 DHV = 7 %
 D = 60 %
 T = 8 % *
 V = 50 MPH

* TTST 3% + DUAL 5%

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-2237C = 4.025 MILES
 TOTAL LENGTH OF TIP PROJECT R-2237C = 4.025 MILES

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
 JUNE 27, 2008

LETTING DATE:
 MARCH 15, 2011

G. E. BREW, PE
 PROJECT ENGINEER

W. T. BEST
 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

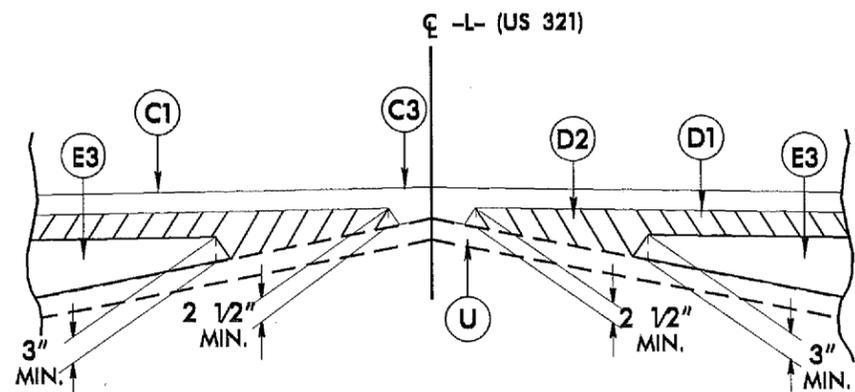
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CONTRACT:

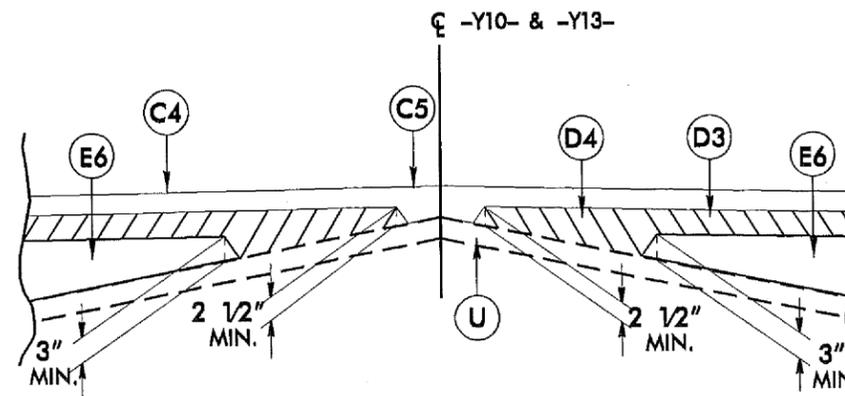
PROJECT REFERENCE NO. R-2237C		SHEET NO. 2	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		PAVEMENT DESIGN ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			

PAVEMENT SCHEDULE (PRELIMINARY PAVEMENT DESIGN)			
C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 188 LBS. PER SQ. YD.	E4	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 488 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 338 LBS. PER SQ. YD.	E5	PROP. APPROX. 4 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1 1/2" IN DEPTH OR GREATER THAN 3" IN DEPTH.	E6	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
C4	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 338 LBS. PER SQ. YD.	J1	PROP. 8" AGGREGATE BASE COURSE.
C5	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1 1/2" IN DEPTH OR GREATER THAN 3" IN DEPTH.	R1	2'-6" CONCRETE CURB AND GUTTER.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 458 LBS. PER SQ. YD.	R2	1'-6" CONCRETE CURB AND GUTTER.
D2	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 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.	R3	EXPRESSWAY GUTTER.
D3	PROP. APPROX. 2 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	R4	5" NONLITHIC CONCRETE ISLAND.
D4	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.	S	4" CONCRETE SIDEWALK.
E1	PROP. APPROX. 3" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	T	EARTH MATERIAL.
E2	PROP. APPROX. 7" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 399 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	U	EXISTING PAVEMENT.
E3	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 5 1/2" IN DEPTH.	U1	REMOVAL OF EXISTING PAVEMENT.
		W	VARIABLE DEPTH ASPHALT PAVEMENT. (SEE STANDARD WEDGING DETAILS)

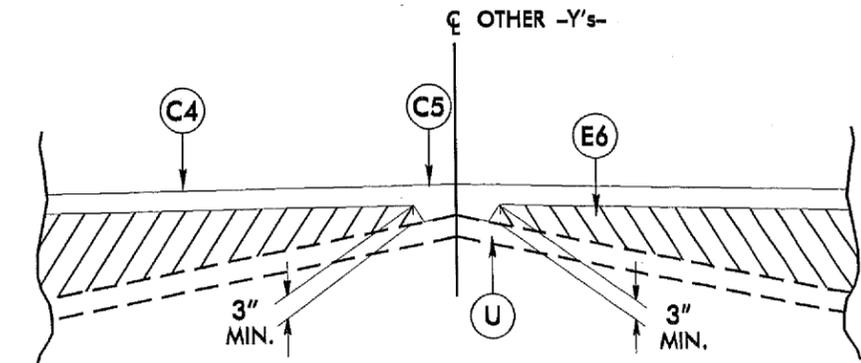
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



Detail Showing Method of Wedging



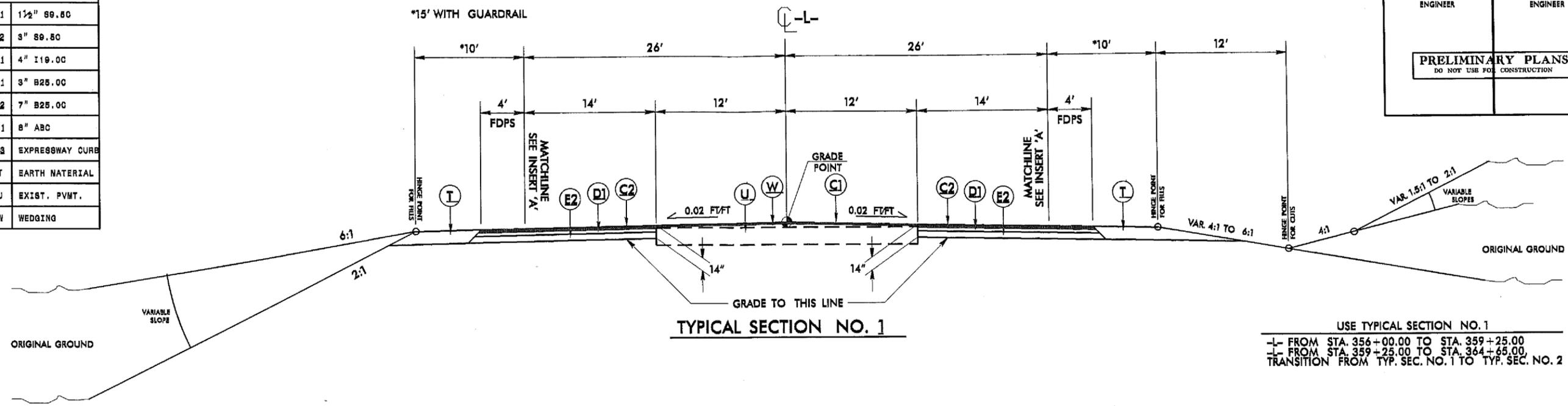
Detail Showing Method of Wedging



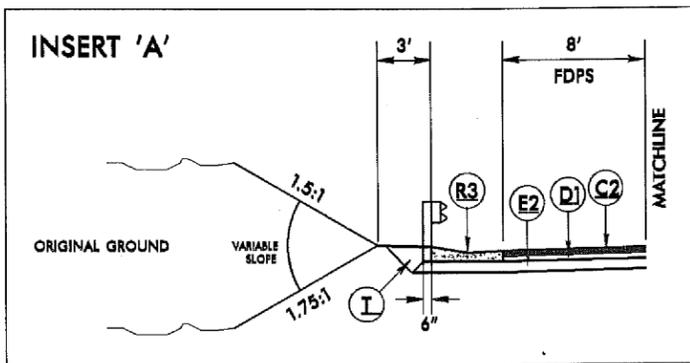
Detail Showing Method of Wedging

PVMT. SCHEDULE	
C1	1 1/2" 89.80
C2	3" 89.80
D1	4" 119.00
E1	3" B25.00
E2	7" B25.00
J1	8" ABC
R3	EXPRESSWAY CURB
T	EARTH MATERIAL
U	EXIST. PVMT.
W	WEDGING

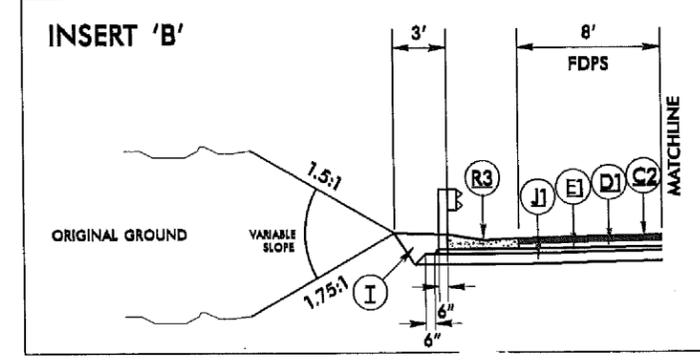
PROJECT REFERENCE NO. R-2237C	SHEET NO. 2-A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



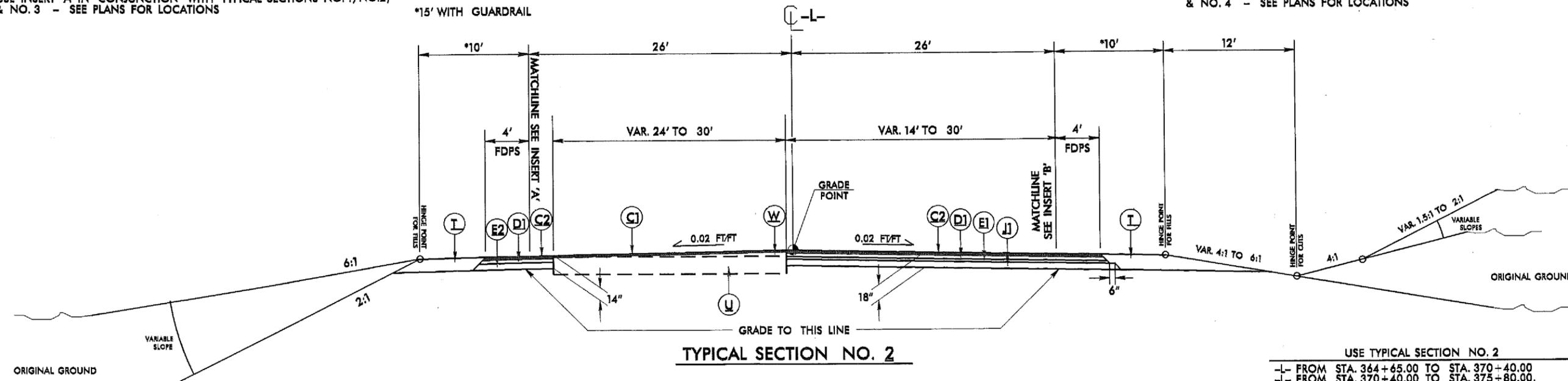
USE TYPICAL SECTION NO. 1
 -L- FROM STA. 356+00.00 TO STA. 359+25.00
 -L- FROM STA. 359+25.00 TO STA. 364+65.00
 TRANSITION FROM TYP. SEC. NO. 1 TO TYP. SEC. NO. 2



USE INSERT 'A' IN CONJUNCTION WITH TYPICAL SECTIONS NO. 1, NO. 2, & NO. 3 - SEE PLANS FOR LOCATIONS



USE INSERT 'B' IN CONJUNCTION WITH TYPICAL SECTIONS NO. 2, NO. 3, & NO. 4 - SEE PLANS FOR LOCATIONS

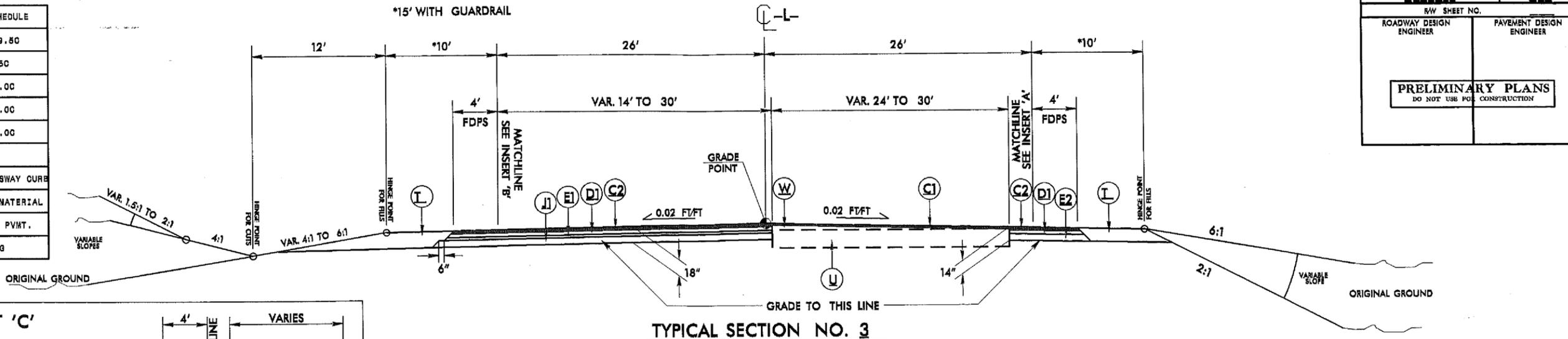


USE TYPICAL SECTION NO. 2
 -L- FROM STA. 364+65.00 TO STA. 370+40.00
 -L- FROM STA. 370+40.00 TO STA. 375+80.00
 TRANSITION FROM TYP. SEC. NO. 2 TO TYP. SEC. NO. 3

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18 MAY 2010 09:47
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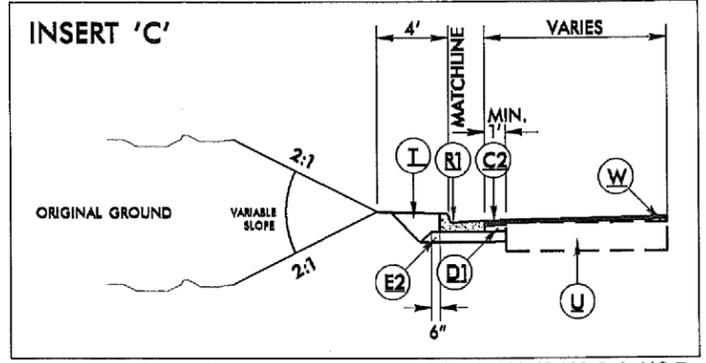
PROJECT REFERENCE NO. R-22370	SHEET NO. 2-B
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

PVMT. SCHEDULE	
C1	1 1/2" S9.50
C2	3" S9.50
D1	4" I19.00
E1	3" B25.00
E2	7" B25.00
J1	8" ABC
RS	EXPRESSWAY CURB
T	EARTH MATERIAL
U	EXIST. PVMT.
W	WEDGING

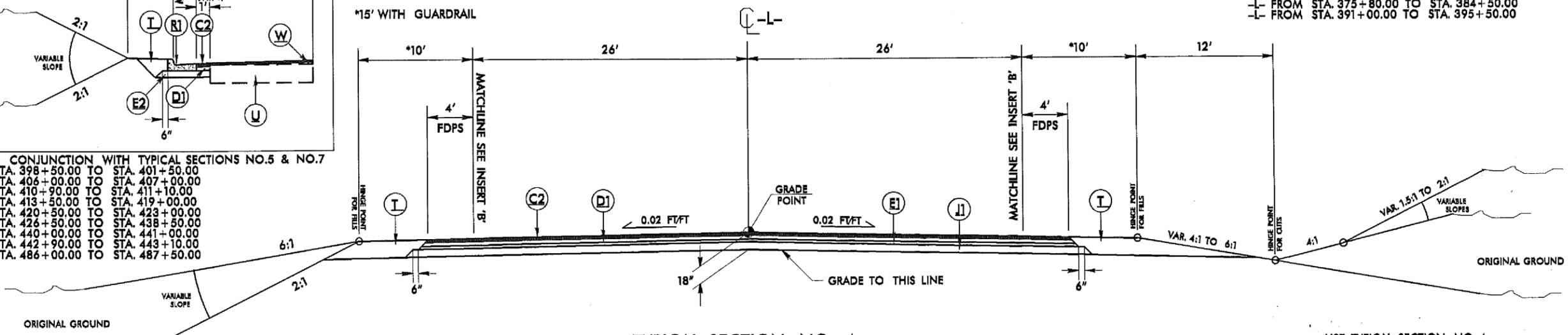


TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3
 -L- FROM STA. 375+80.00 TO STA. 384+50.00
 -L- FROM STA. 391+00.00 TO STA. 395+50.00

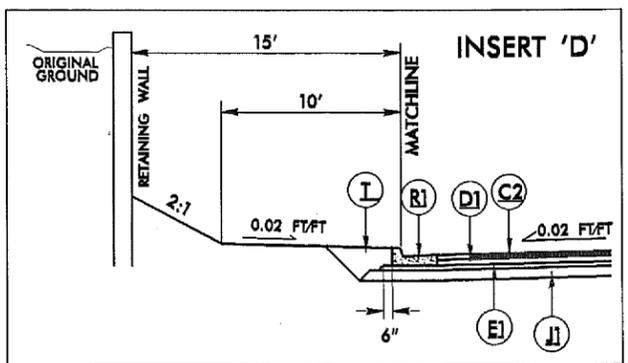


USE INSERT 'D' IN CONJUNCTION WITH TYPICAL SECTIONS NO.5 & NO.7
 -L- LEFT FROM STA. 398+50.00 TO STA. 401+50.00
 -L- LEFT FROM STA. 406+00.00 TO STA. 407+00.00
 -L- LEFT FROM STA. 410+90.00 TO STA. 411+10.00
 -L- LEFT FROM STA. 413+50.00 TO STA. 419+00.00
 -L- LEFT FROM STA. 420+50.00 TO STA. 423+00.00
 -L- LEFT FROM STA. 426+50.00 TO STA. 438+50.00
 -L- LEFT FROM STA. 440+00.00 TO STA. 441+00.00
 -L- LEFT FROM STA. 442+90.00 TO STA. 443+10.00
 -L- LEFT FROM STA. 486+00.00 TO STA. 487+50.00

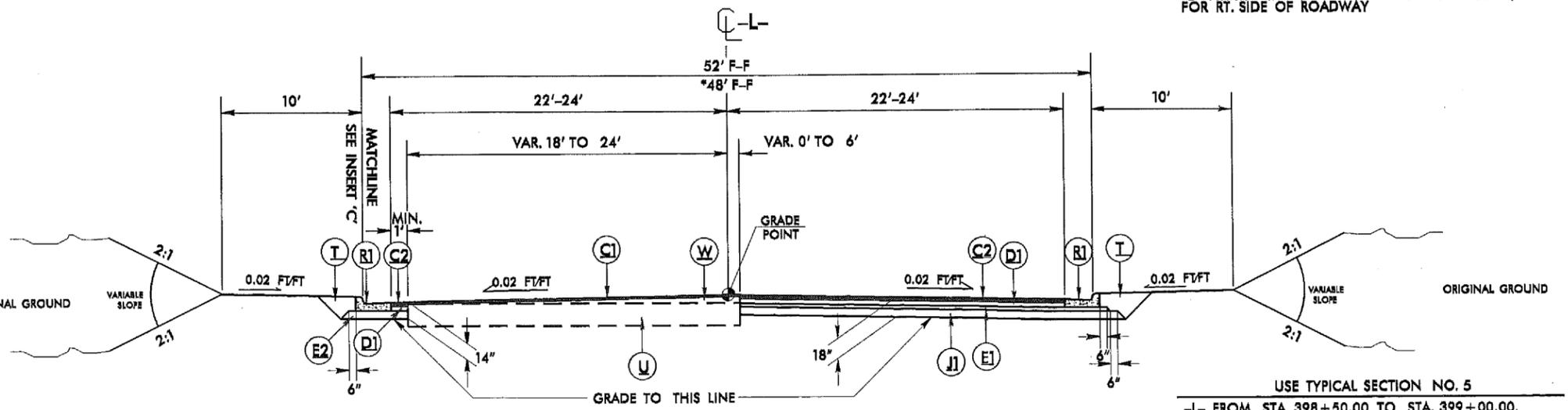


TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4
 -L- FROM STA. 384+50.00 TO STA. 391+00.00
 -L- FROM STA. 395+50.00 TO STA. 398+50.00
 -L- FROM STA. 398+50.00 TO STA. 399+00.00,
 FOR RT. SIDE OF ROADWAY



USE INSERT 'D' IN CONJUNCTION WITH TYPICAL SECTION NO.6
 -L1- LEFT FROM STA. 458+00.00 TO STA. 459+50.00



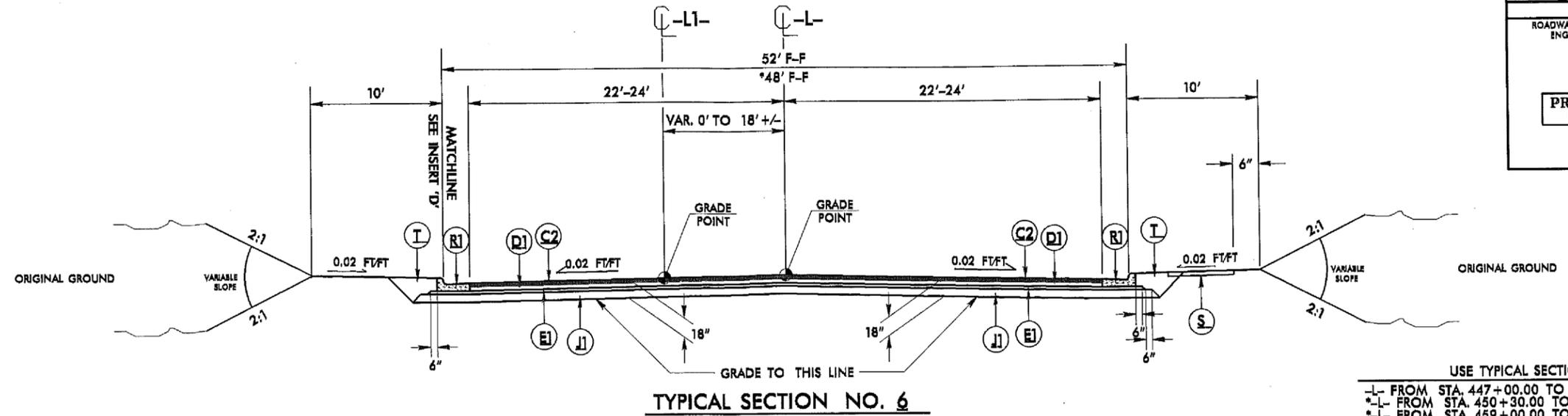
TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5
 -L- FROM STA. 398+50.00 TO STA. 399+00.00,
 FOR LT. SIDE OF ROADWAY
 -L- FROM STA. 399+00.00 TO STA. 432+00.00
 *L- FROM STA. 432+00.00 TO STA. 433+00.00,
 TRANSITION FROM 48' F-F TO 44' F-F
 *L- FROM STA. 433+00.00 TO STA. 446+50.00
 *L- FROM STA. 446+50.00 TO STA. 447+00.00,
 TRANSITION FROM TYP. SEC. NO. 5 TO TYP. SEC. NO. 6

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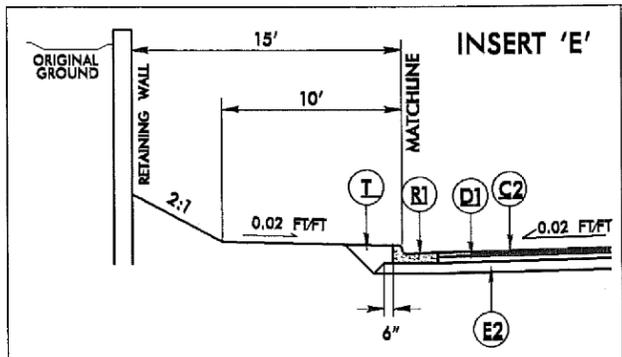
PROJECT REFERENCE NO. R-2237C	SHEET NO. 2-C
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

PVNT. SCHEDULE	
C1	1 1/2" 89.8C
C2	3" 89.5C
D1	4" I19.0C
E1	3" B25.0C
E2	7" B25.0C
ES	VAR. B25.0C
J1	8" ABC
R1	2' x 6" CURB
R2	1' x 6" CURB
R4	3" M. C. ISLAND
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST. PVMT.
W	WEDGING

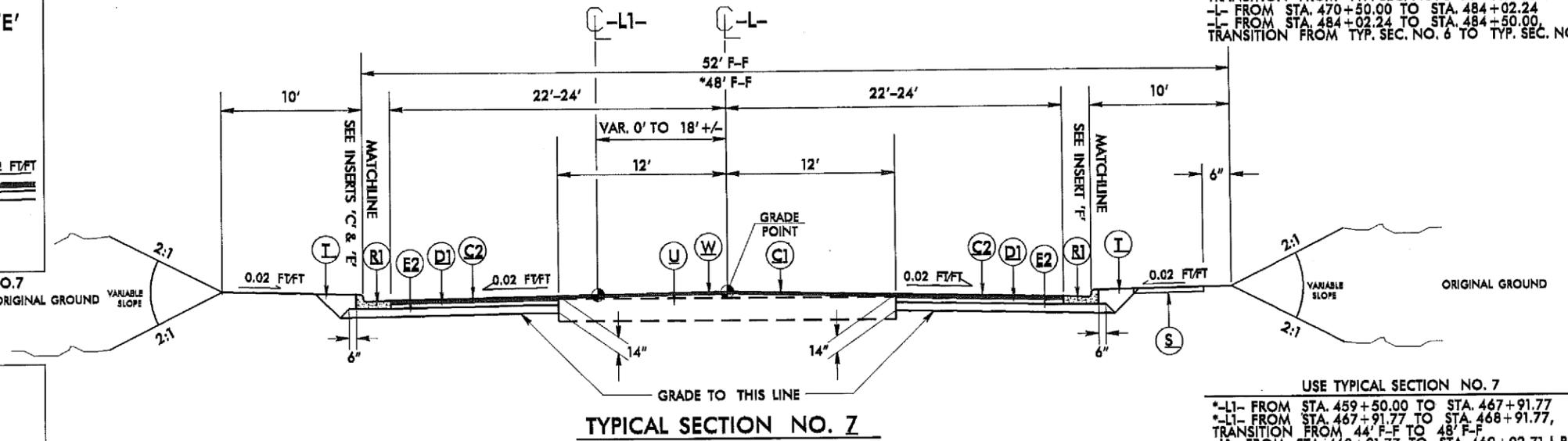


TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6
 -L- FROM STA. 447+00.00 TO STA. 450+30.00
 *-L- FROM STA. 450+30.00 TO STA. 459+00.00
 *-L- FROM STA. 459+00.00 TO STA. 459+50.00
 TRANSITION FROM TYP. SEC. NO. 6 TO TYP. SEC. NO. 7
 -L- FROM STA. 470+50.00 TO STA. 484+02.24
 -L- FROM STA. 484+02.24 TO STA. 484+50.00
 TRANSITION FROM TYP. SEC. NO. 6 TO TYP. SEC. NO. 7

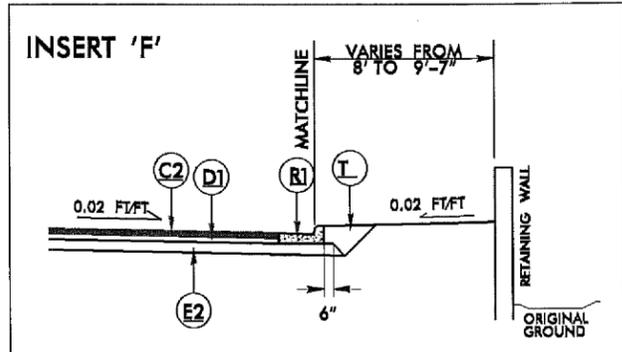


USE INSERT 'E' IN CONJUNCTION WITH TYPICAL SECTION NO. 7
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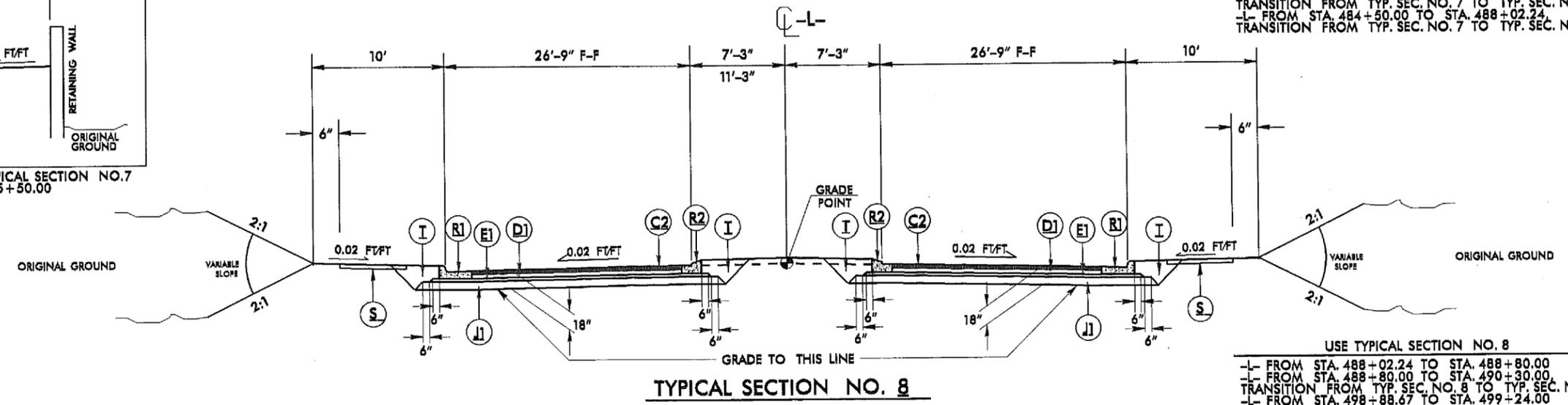


TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7
 *-L1- FROM STA. 459+50.00 TO STA. 467+91.77
 *-L1- FROM STA. 467+91.77 TO STA. 468+91.77,
 TRANSITION FROM 44' F-F TO 48' F-F
 -L1- FROM STA. 468+91.77 TO STA. 469+02.71 L.B.
 -L- FROM STA. 469+10.94 L.A. TO STA. 470+50.00
 TRANSITION FROM TYP. SEC. NO. 7 TO TYP. SEC. NO. 6
 -L- FROM STA. 484+50.00 TO STA. 488+02.24
 TRANSITION FROM TYP. SEC. NO. 7 TO TYP. SEC. NO. 8



USE INSERT 'F' IN CONJUNCTION WITH TYPICAL SECTION NO. 7
 -L1- RIGHT FROM STA. 459+50 TO STA. 465+50.00



TYPICAL SECTION NO. 8

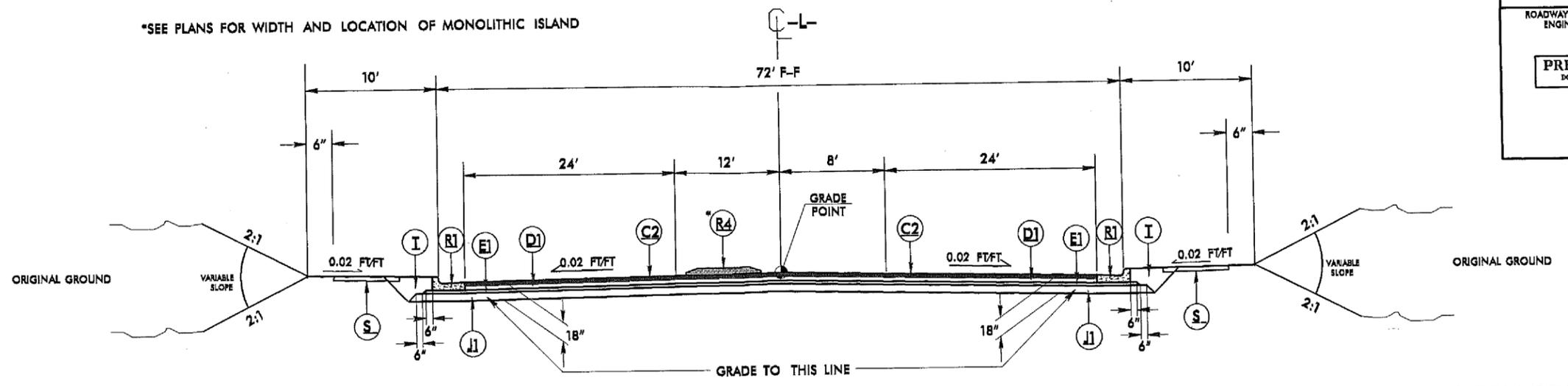
USE TYPICAL SECTION NO. 8
 -L- FROM STA. 488+02.24 TO STA. 488+80.00
 -L- FROM STA. 488+80.00 TO STA. 490+30.00
 TRANSITION FROM TYP. SEC. NO. 8 TO TYP. SEC. NO. 10
 -L- FROM STA. 498+88.67 TO STA. 499+24.00
 -L- FROM STA. 499+24.00 TO STA. 505+24.00
 TRANSITION FROM LT. SIDE MEDIAN FROM 7'3" TO 11'3"

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 95

PROJECT REFERENCE NO.	SHEET NO.
R-2237C	2-0
RAW SHEET NO.	
ROADWAY DESIGN ENGINEER	PAYMENT DESIGN ENGINEER
PRELIMINARY PLANS	
DO NOT USE FOR CONSTRUCTION	

PVNT. SCHEDULE	
C1	1 1/2" S9.50
C2	3" S9.50
D1	4" I19.00
E1	3" B25.00
E2	7" B25.00
ES	VAR. B25.00
J1	8" ABC
R1	2' x 6" CURB
R2	1' x 6" CURB
R4	3" M. O. ISLAND
S	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST. PVMT.
U1	PVNT. REMOVAL
W	WEDGING

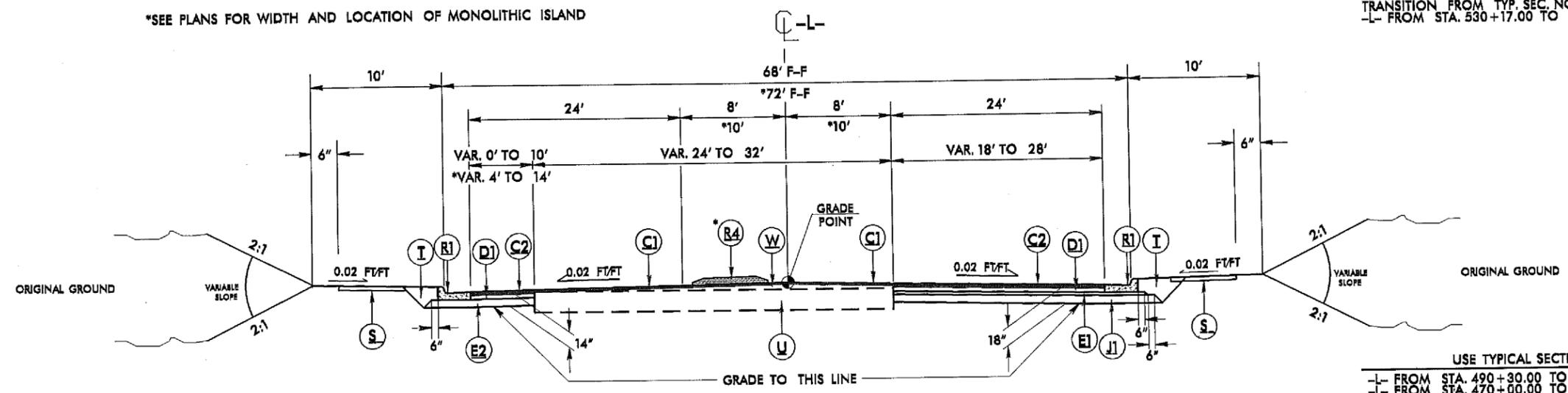
*SEE PLANS FOR WIDTH AND LOCATION OF MONOLITHIC ISLAND



TYPICAL SECTION NO. 9

USE TYPICAL SECTION NO. 9
 -L- FROM STA. 505+24.00 TO STA. 507+50.00
 -L- FROM STA. 507+50.00 TO STA. 508+50.00
 TRANSITION FROM TYP. SEC. NO. 9 TO TYP. SEC. NO. 10
 -L- FROM STA. 530+17.00 TO STA. 535+00.00

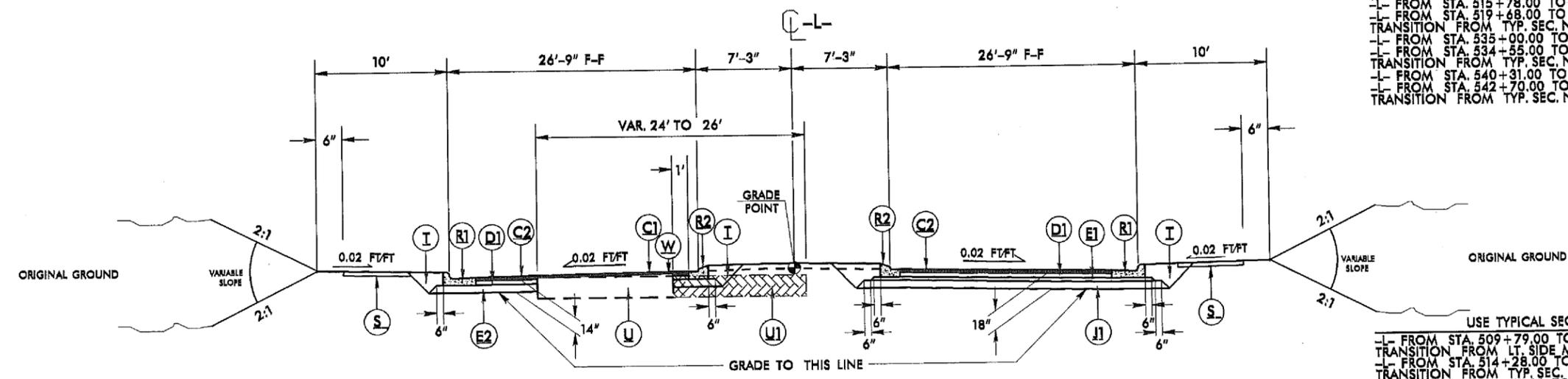
*SEE PLANS FOR WIDTH AND LOCATION OF MONOLITHIC ISLAND



TYPICAL SECTION NO. 10

USE TYPICAL SECTION NO. 10
 -L- FROM STA. 490+30.00 TO STA. 498+88.67
 -L- FROM STA. 470+00.00 TO STA. 484+02.24
 -L- FROM STA. 484+02.24 TO STA. 484+50.00
 TRANSITION FROM TYP. SEC. NO. 6 TO TYP. SEC. NO. 7
 -L- FROM STA. 508+00.00 TO STA. 509+79.00
 (USE 68' F-F DIMENSIONS)
 -L- FROM STA. 515+78.00 TO STA. 519+68.00
 -L- FROM STA. 519+68.00 TO STA. 521+18.00
 TRANSITION FROM TYP. SEC. NO. 10 TO TYP. SEC. NO. 11
 -L- FROM STA. 535+00.00 TO STA. 535+23.75.00
 -L- FROM STA. 534+55.00 TO STA. 536+05.00
 TRANSITION FROM TYP. SEC. NO. 10 TO TYP. SEC. NO. 11
 -L- FROM STA. 540+31.00 TO STA. 542+70.00
 -L- FROM STA. 542+70.00 TO STA. 544+20.00
 TRANSITION FROM TYP. SEC. NO. 10 TO TYP. SEC. NO. 11

*SEE PLANS FOR WIDTH AND LOCATION OF MONOLITHIC ISLAND



TYPICAL SECTION NO. 11

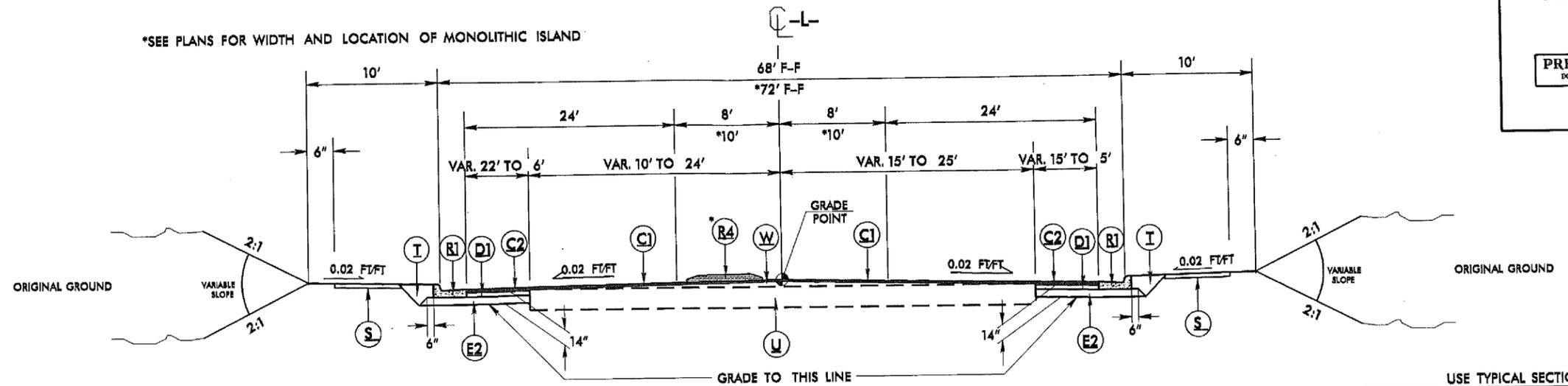
USE TYPICAL SECTION NO. 11
 -L- FROM STA. 509+79.00 TO STA. 514+28.00
 TRANSITION FROM LT. SIDE MEDIAN FROM 11'3" TO 7'3"
 -L- FROM STA. 514+28.00 TO STA. 515+78.00
 TRANSITION FROM TYP. SEC. NO. 11 TO TYP. SEC. NO. 10
 -L- FROM STA. 521+18.00 TO STA. 528+67.00
 -L- FROM STA. 528+67.00 TO STA. 530+17.00
 TRANSITION FROM TYP. SEC. NO. 11 TO TYP. SEC. NO. 9
 -L- FROM STA. 536+05.00 TO STA. 540+31.00
 -L- FROM STA. 544+20.00 TO STA. 546+67.00
 -L- FROM STA. 557+08.00 TO STA. 560+98.00
 -L- FROM STA. 560+98.00 TO STA. 562+40.00
 TRANSITION FROM TYP. SEC. NO. 11 TO TYP. SEC. NO. 12

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 9-MAY-2010 09:48
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PROJECT REFERENCE NO. R-2237C	SHEET NO. 2-E
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

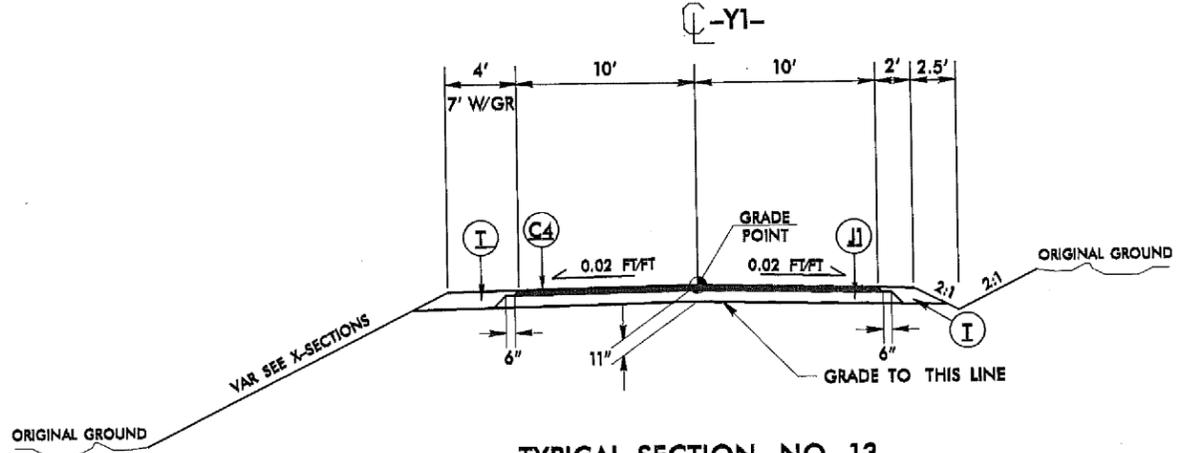
PVMT. SCHEDULE	
C1	1 1/2" 89.5C
C2	3" 89.5C
C4	3" 89.5B
D1	4" I19.0C
E1	3" B25.0C
E2	7" B25.0C
E3	VAR. B25.0C
E4	4" B25.0B
J1	8" ABC
R1	2' x 6" CURB
R4	3" M. C. ISLAND
B	4" SIDEWALK
T	EARTH MATERIAL
U	EXIST. PVMT.
W	WEDGING

*SEE PLANS FOR WIDTH AND LOCATION OF MONOLITHIC ISLAND



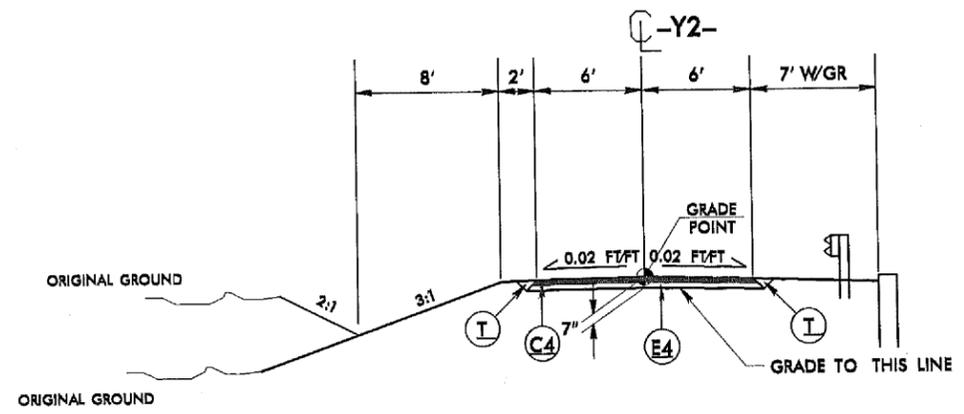
TYPICAL SECTION NO. 12

USE TYPICAL SECTION NO. 12
 -L FROM STA. 546+67.00 TO STA. 555+58.00
 -L FROM STA. 555+58.00 TO STA. 557+08.00
 TRANSITION FROM TYP. SEC. NO. 12 TO TYP. SEC. NO. 11
 -L FROM STA. 562+40.00 TO STA. 565+00.00
 -L FROM STA. 565+00.00 TO STA. 569+00.00
 TRANSITION FROM TYP. SEC. NO. 12 TO EXISTING



TYPICAL SECTION NO. 13

USE TYPICAL SECTION NO. 13
 10+95.03 to 11+94.28



TYPICAL SECTION NO. 14

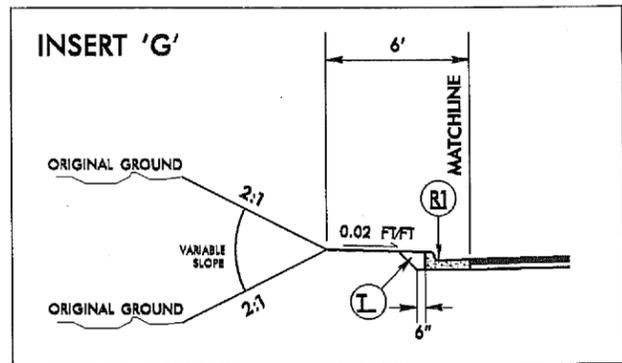
USE TYPICAL SECTION NO. 14
 10+69.34 TO 12+80.00

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 18-MAY-2010 09:48
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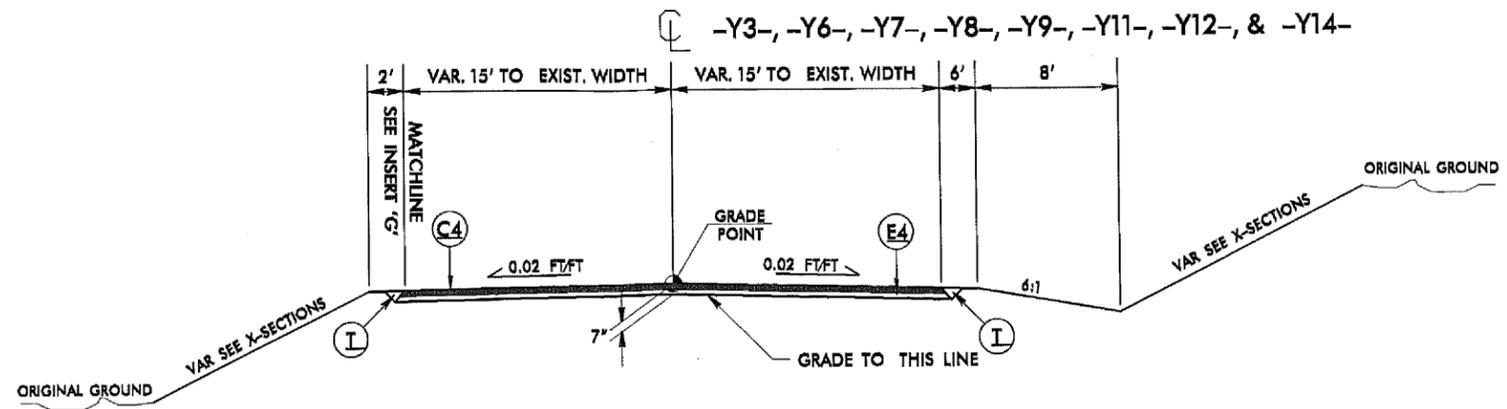
5/14/99

PVMT. SCHEDULE	
CA	3" 89.5B
E4	4" B25.0B
E5	4 1/2" B26.0B
T	EARTH MATERIAL

PROJECT REFERENCE NO. R-2237C	SHEET NO. 2-E
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	PAYMENT DESIGN ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

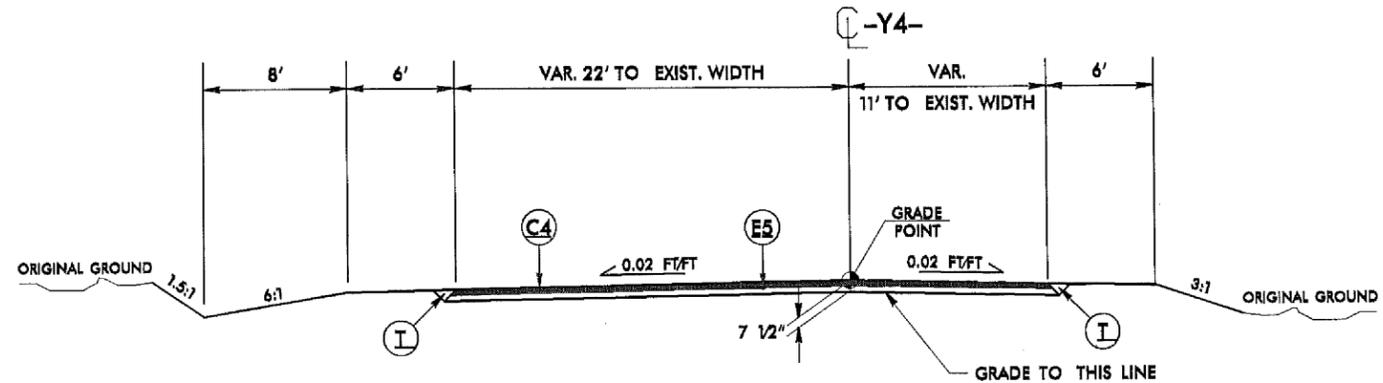


USE INSERT 'G' IN CONJUNCTION WITH TYPICAL SECTION NO. 15 ON -Y14- FROM STA. 11+00.00 TO STA. 11+47.79 (L.T.)



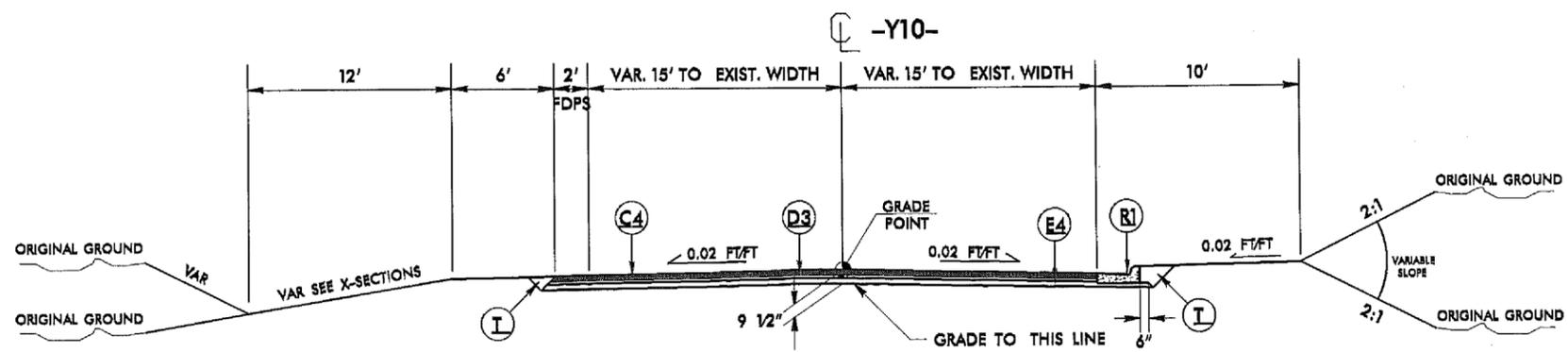
TYPICAL SECTION NO. 15

- USE TYPICAL SECTION NO. 15
- Y3- 12+00.00 TO 13+53.53
 - Y6- 10+50.00 TO 11+22.22
 - Y7- 10+86.63 TO 11+25.00
 - Y8- 10+70.86 TO 11+30.00
 - Y9- 10+96.23 TO 11+60.00
 - Y11- 10+50.00 TO 11+76.43
 - Y12- 11+00.00 TO 11+62.79
 - Y14- 10+50.00 TO 11+47.79



TYPICAL SECTION NO. 16

USE TYPICAL SECTION NO. 16
10+69.90 TO 11+25.00



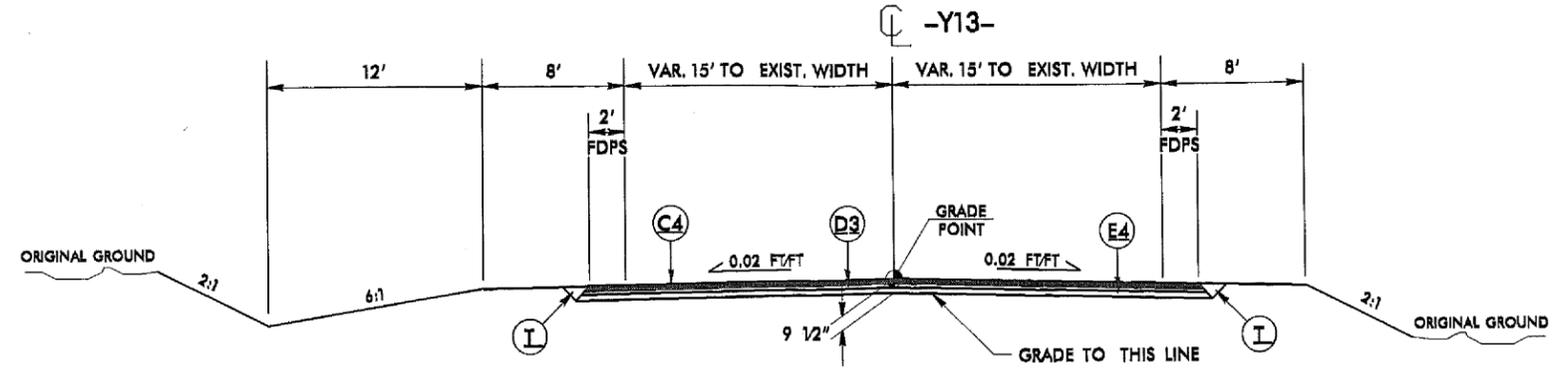
TYPICAL SECTION NO. 17

USE TYPICAL SECTION NO. 17
-Y10- 10+64.22 TO 12+32.29

19-MAY-2010 09:48 R:\Roadway\2237c_rdy_tjy.dgn

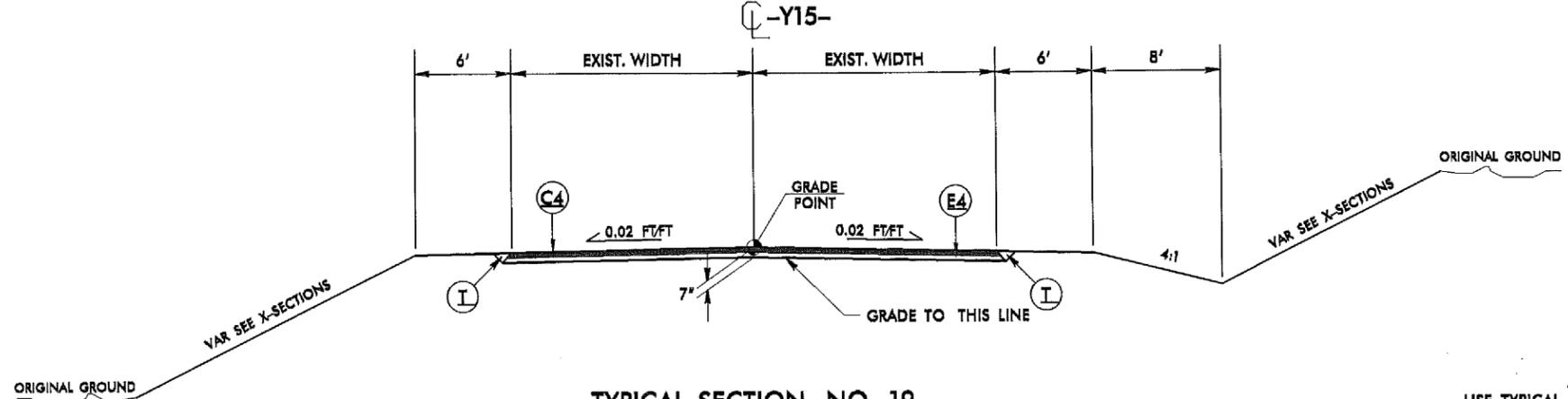
PVNT. SCHEDULE	
CA	3" 80.5B
DA	2 1/2" 119.0B
EA	4" 826.0B
B	4" SIDEWALK
T	EARTH MATERIAL

PROJECT REFERENCE NO. A-22370	SHEET NO. 2-6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	PAYMENT DESIGN ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



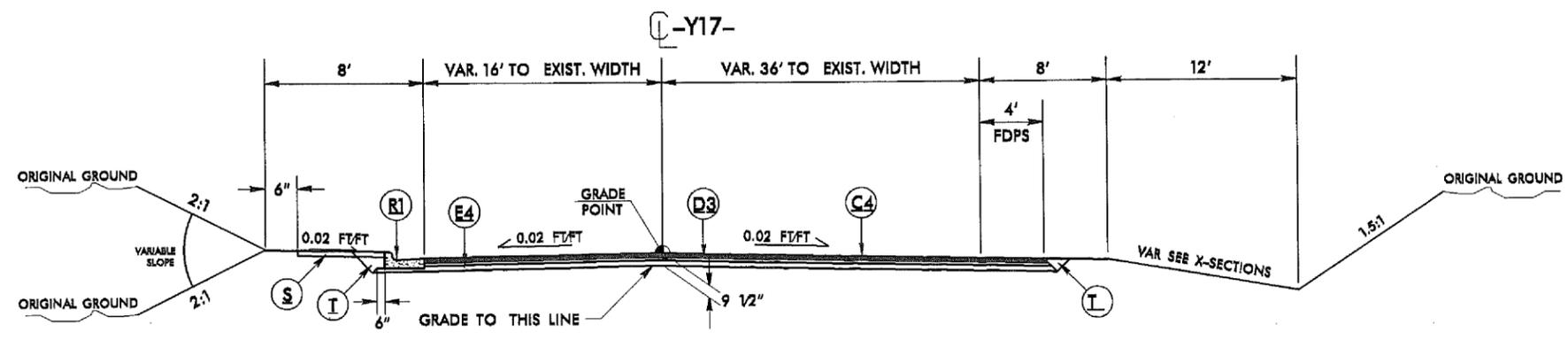
TYPICAL SECTION NO. 18

USE TYPICAL SECTION NO. 18
-Y13- 10+50.00 TO 12+26.11



TYPICAL SECTION NO. 19

USE TYPICAL SECTION NO. 19
-Y15- 10+72.00 TO 11+50.00



TYPICAL SECTION NO. 20

USE TYPICAL SECTION NO. 20
-Y17- 10+50.00 TO 15+04.04

5/14/99
 18-MAY-2010 09:45
 R:\Roadway\22370\22370_rdl_tup.dgn

PROJECT REFERENCE NO.	R-2237C	SHEET NO.	4
ROADWAY DESIGN ENGINEER	E. KATHRYNE MILLER	HYDRAULICS ENGINEER	
PRELIMINARY PLANS		DO NOT USE FOR CONSTRUCTION	

NOTE: SEE SHEET 21 FOR -L- PROFILE
SEE SHEET 34 FOR -DRIVE5-, -DRIVE6-,
-DRIVE7- & -DRIVE9- PROFILE

-DRIVE5-
PI Sta 11+16.30
 $\Delta = 40'05" 40.2' (RT)$
 $D = 114'35" 29.6'$
 $L = 34.99'$
 $T = 18.25'$
 $R = 500.00'$

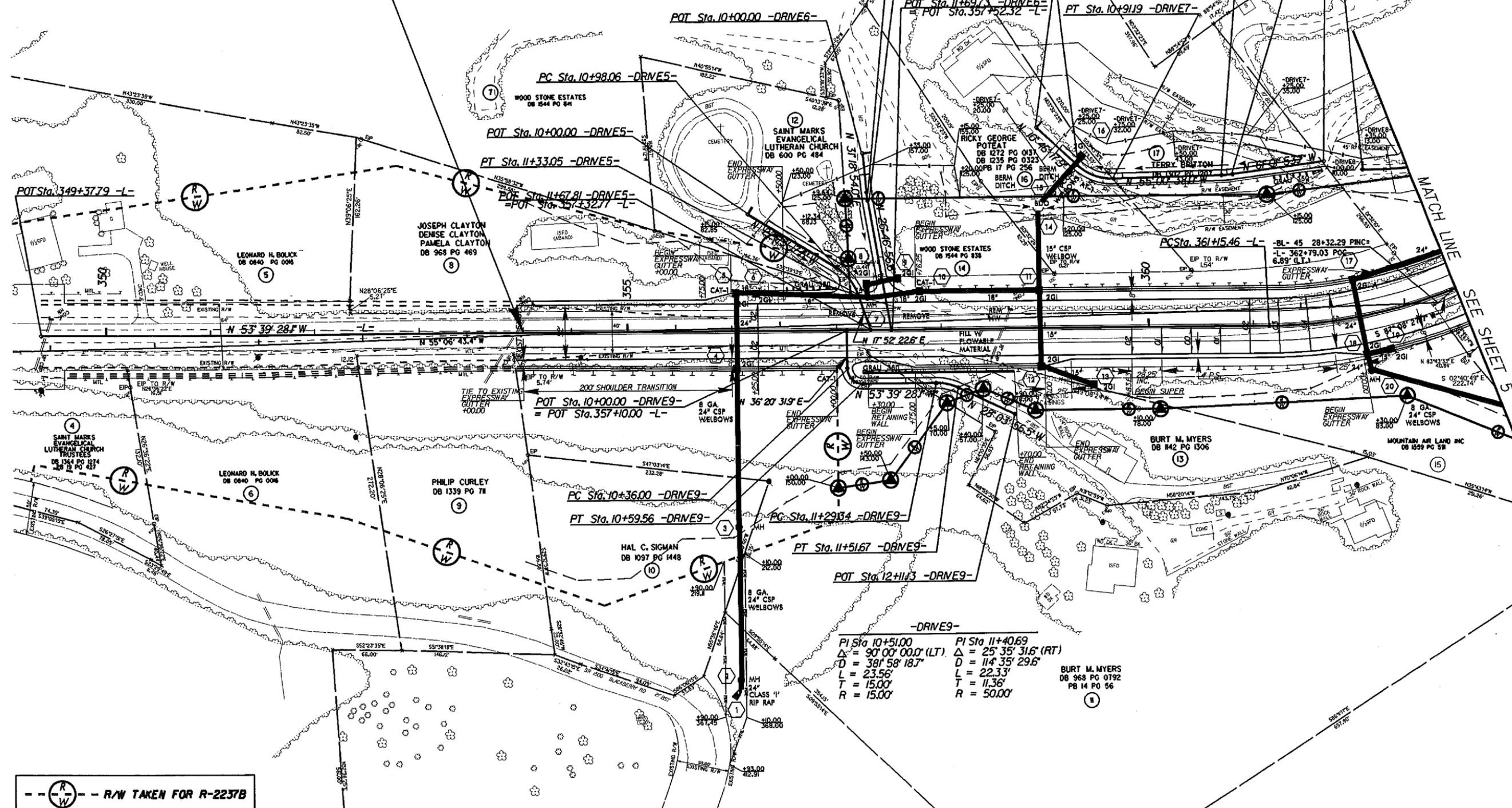
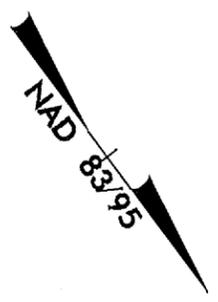
-DRIVE6-
PI Sta 10+41.25
 $\Delta = 4'31" 57.2' (LT)$
 $D = 57'17" 44.8'$
 $L = 7.9'$
 $T = 3.96'$
 $R = 100.00'$

-DRIVE7-
PI Sta 10+72.91
 $\Delta = 44'14" 20.1' (LT)$
 $D = 114'35" 29.6'$
 $L = 38.6'$
 $T = 20.32'$
 $R = 500.00'$

-DRIVE8-
PI Sta 13+11.37
 $\Delta = 6'01" 15.7' (LT)$
 $D = 57'17" 44.8'$
 $L = 10.5'$
 $T = 5.26'$
 $R = 100.00'$

-L-
PI Sta 362+97.25
 $\Delta = 39'57" 38.7' (LT)$
 $D = 11'27" 33.0'$
 $L = 348.72'$
 $T = 181.79'$
 $R = 500.00'$

EGIN CONSTRUCTION TIP PROJECT R-2237C



-- (R/W) -- R/W TAKEN FOR R-2237B

R/W REVISION: REVISED EXISTING R/W LIMITS ON PARCELS 14, 15, 16, AND 17. CHANGED NAME ON PARCEL 15. WTB 3/15/2010

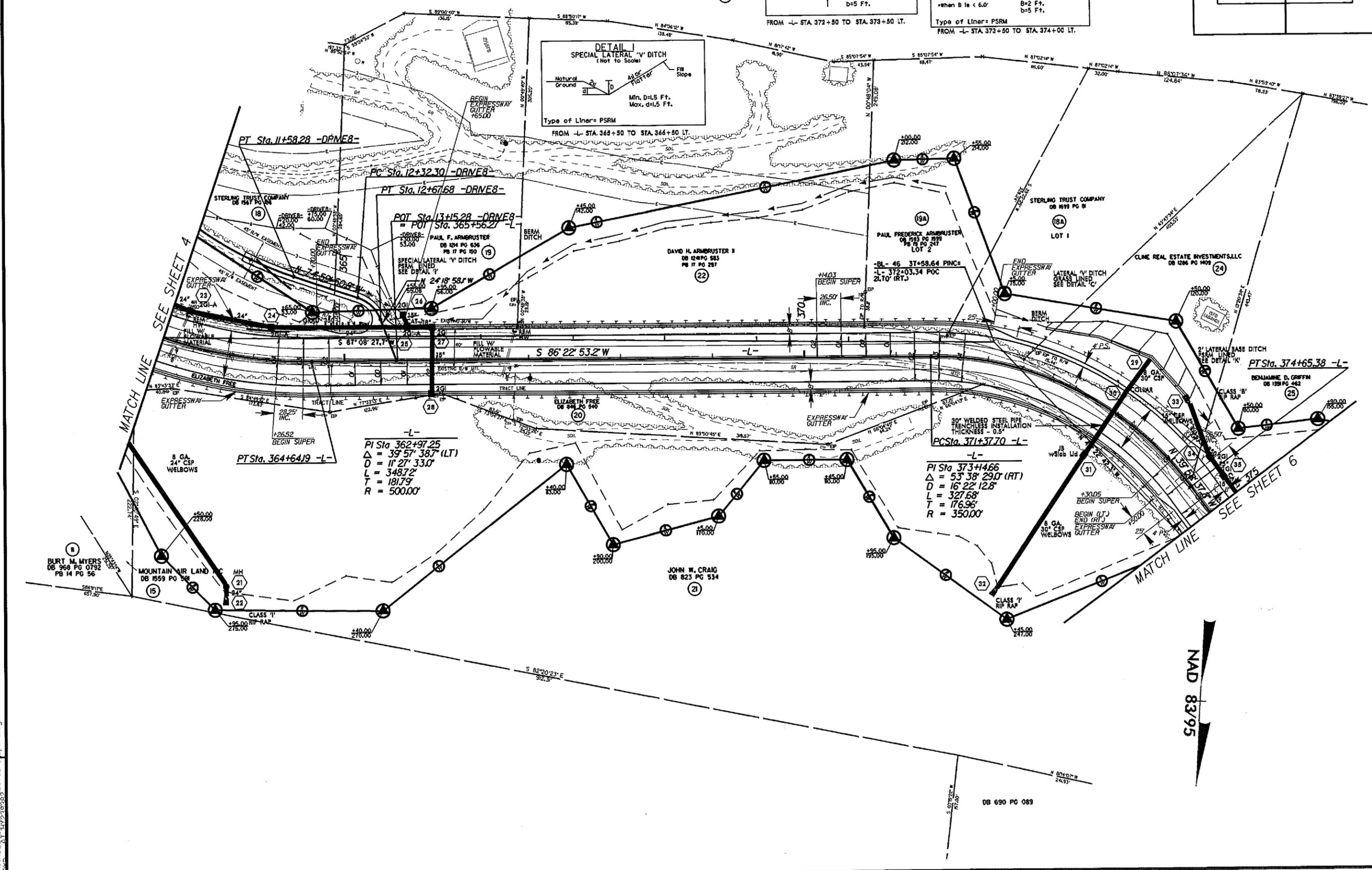
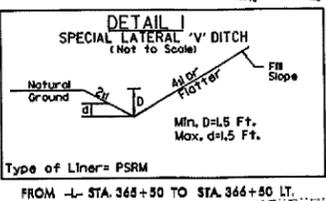
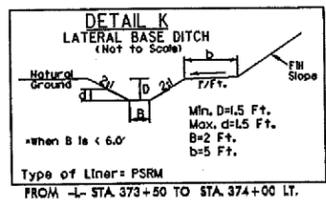
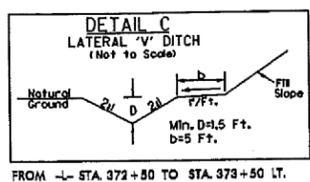
19-MAY-2010 09:55
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PROJECT REFERENCE NO.	SHEET NO.
R-2237C	5
R/W SHEET NO.	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

NOTE: SEE SHEETS 21 & 22 FOR -L- PROFILE
SEE SHEET 34 FOR -DRVE8- PROFILE

-DRVE8-

PI Sta 10+80.19	PI Sta 12+51.24
$\Delta = 22^\circ 40' 18.7"$ (LT)	$\Delta = 50^\circ 40' 52.7"$ (RT)
D = 143' 26.2'	D = 143' 14' 22.0'
L = 158.28'	L = 35.38'
T = 80.19'	T = 18.94'
R = 400.00'	R = 40.00'



R/W REVISION: ADDED PARCEL 18A AND 19A TO LEFT SIDE OF -L- CHANGED NAME ON PARCEL 15, MTB 3/15/2010

REVISIONS

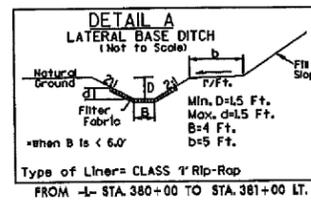
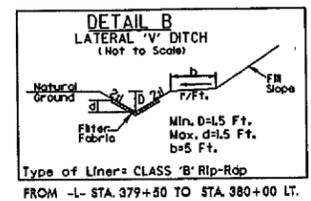
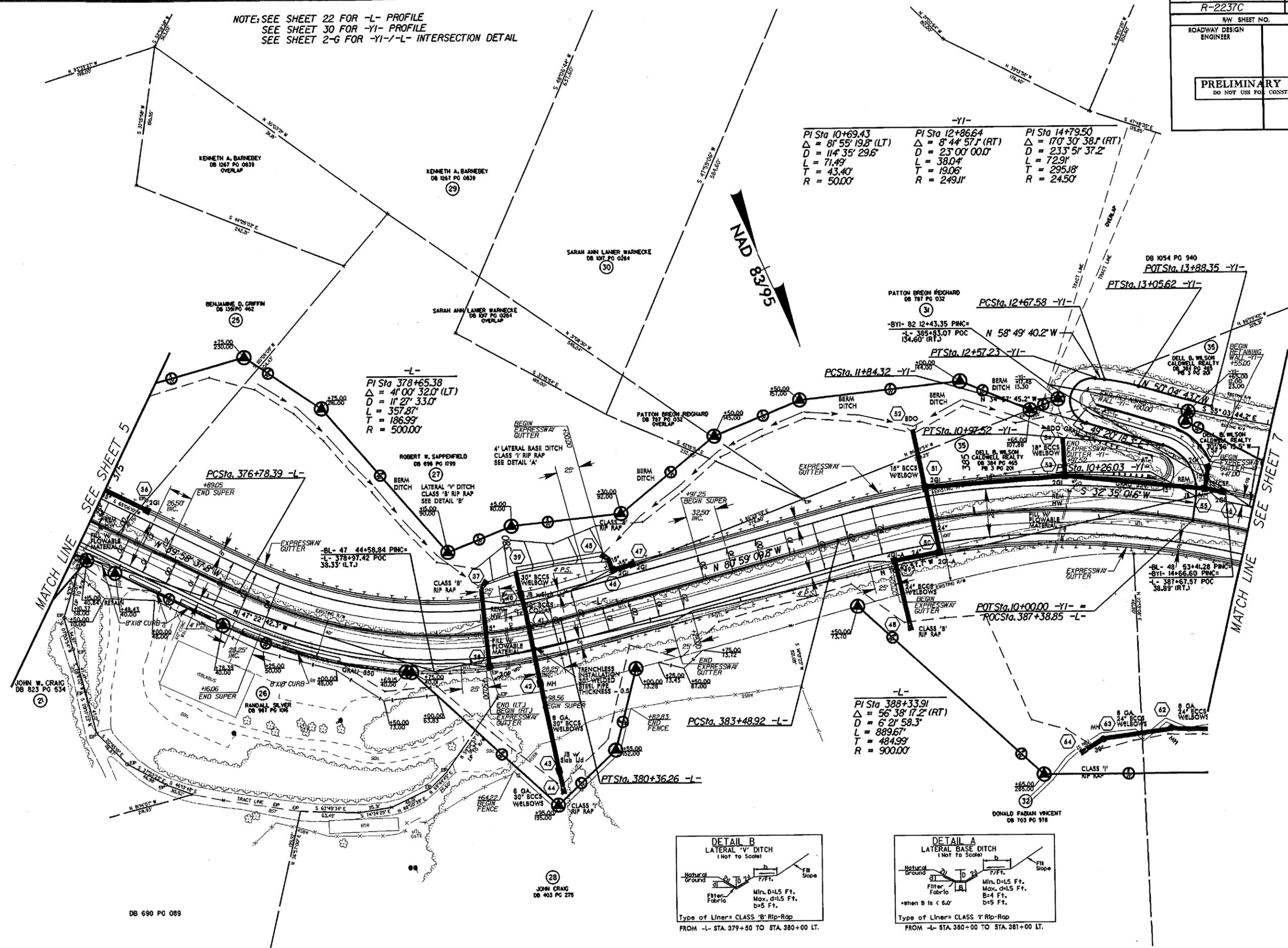
15-MAY-2010 09:57
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psh:5.ctb

NOTE: SEE SHEET 22 FOR -L- PROFILE
 SEE SHEET 30 FOR -YI- PROFILE
 SEE SHEET 2-G FOR -YI-/-L- INTERSECTION DETAIL

-YI-
 PI Sta 10+69.43 PI Sta 12+86.64 PI Sta 14+79.50
 $\Delta = 81^{\circ}55'19.8"$ (LT) $\Delta = 8^{\circ}44'57.1"$ (RT) $\Delta = 170^{\circ}30'38.1"$ (RT)
 $D = 114^{\circ}35'29.6"$ $D = 23^{\circ}00'00.0"$ $D = 233^{\circ}51'37.2"$
 $L = 71.49'$ $L = 38.04'$ $L = 72.91'$
 $T = 43.40'$ $T = 19.06'$ $T = 295.18'$
 $R = 500.00'$ $R = 249.11'$ $R = 24.50'$

-L-
 PI Sta 378+65.38
 $\Delta = 41^{\circ}00'32.0"$ (LT)
 $D = 11^{\circ}27'33.0"$
 $L = 357.87'$
 $T = 186.99'$
 $R = 500.00'$

-L-
 PI Sta 388+33.91
 $\Delta = 56^{\circ}38'17.2"$ (RT)
 $D = 6^{\circ}21'58.3"$
 $L = 889.67'$
 $T = 484.99'$
 $R = 900.00'$



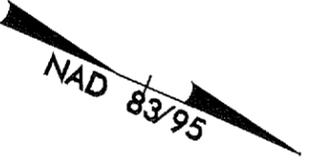
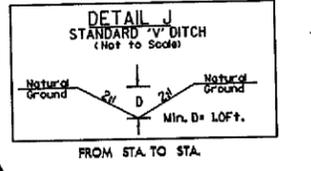
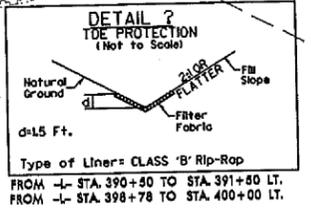
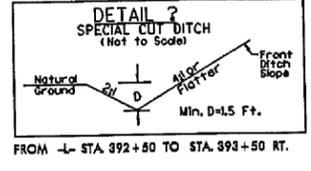
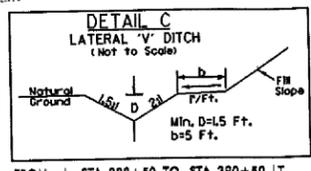
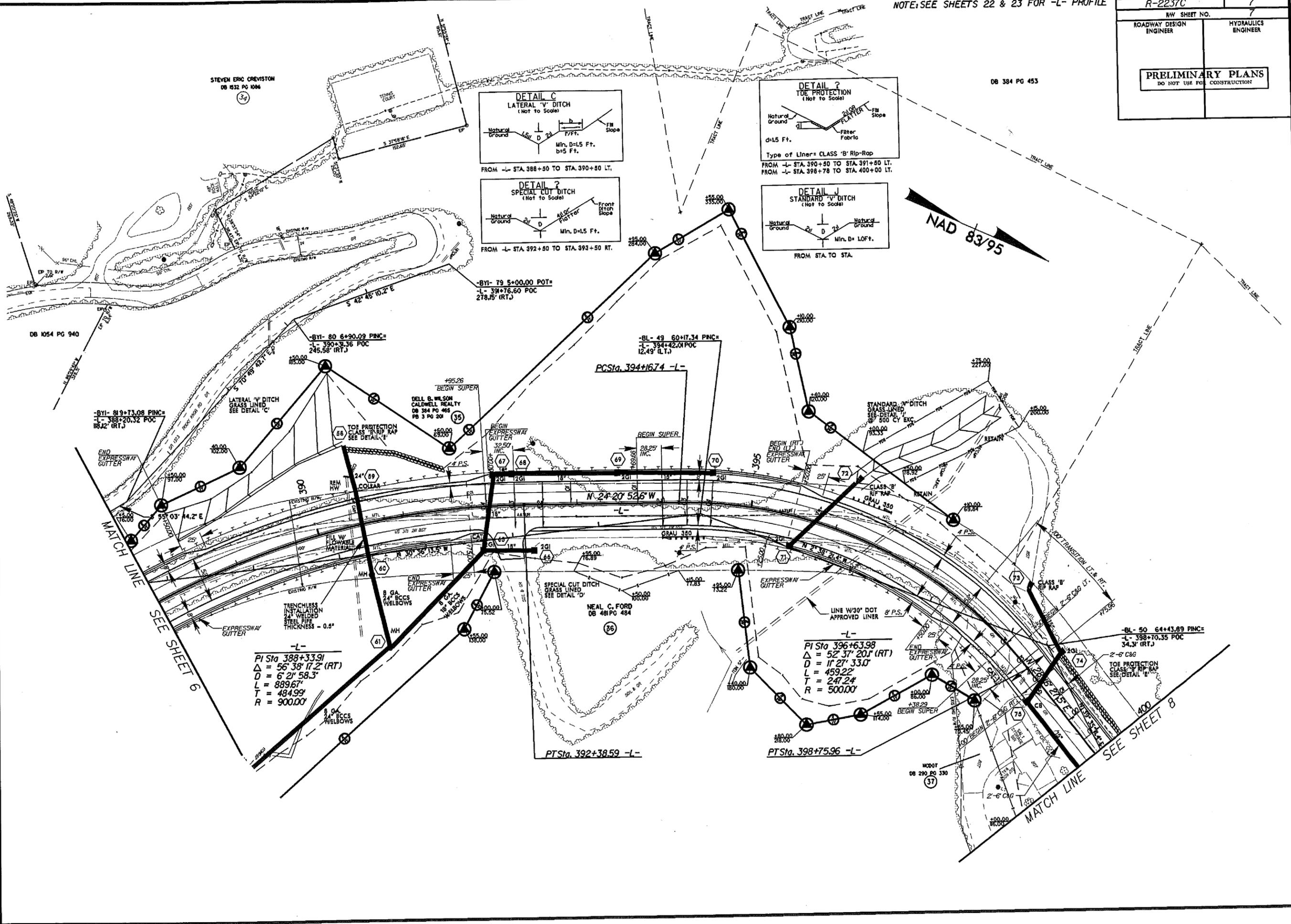
REVISIONS
 R/W REVISION: PROPERTY LINES WERE REVISED FOR PARCEL 32 WTB. 4/5/2010
 19-MAY-2010 10:00 AM Roadway-11-2237c-r-d psh6.cdg
 DB 690 PG 089

R-2237C		7
RW SHEET NO.		7
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
PRELIMINARY PLANS		
DO NOT USE FOR CONSTRUCTION		

5/14/99

REVISIONS
R/W REVISIONS: PROPERTY LINES WERE REVISED FOR PARCELS 36 AND 37. WTB 4/5/2010

19-MAY-2010 10:23
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MATCH LINE
SEE SHEET 6

PI Sta 388+33.91
Δ = 56° 38' 17.2" (RT)
D = 62' 58.3"
L = 889.67'
T = 484.99'
R = 900.00'

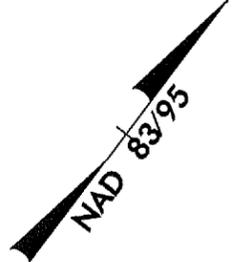
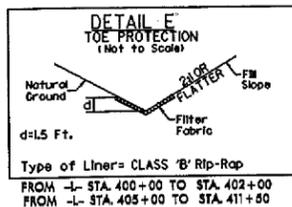
-L-
PI Sta 396+63.98
Δ = 52° 37' 20.1" (RT)
D = 112' 33.0"
L = 459.22'
T = 247.24'
R = 500.00'

MATCH LINE
SEE SHEET 8

PI Sta 392+38.59 -L-
PT Sta. 398+75.96 -L-

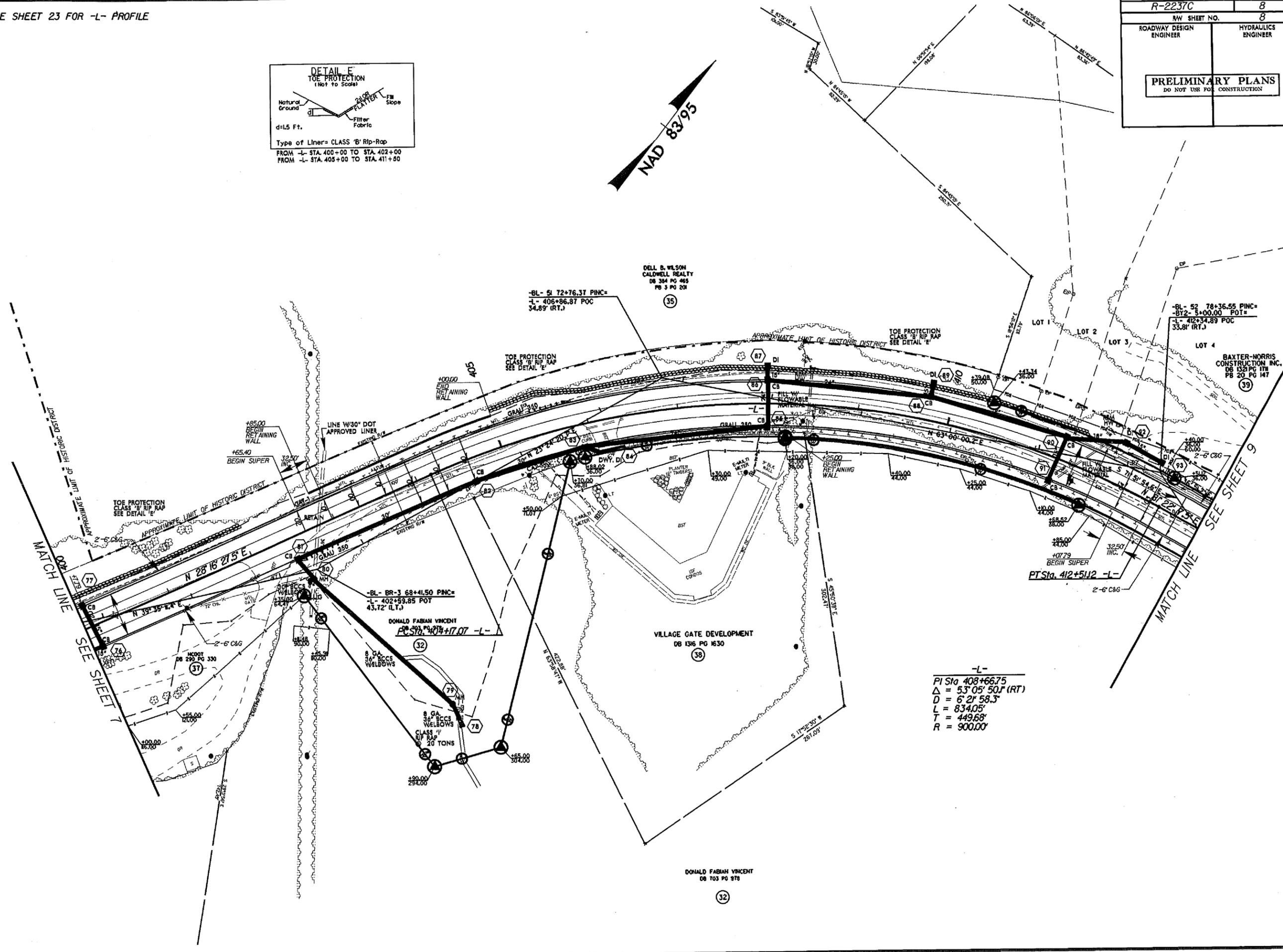
PROJECT REFERENCE NO.	SHEET NO.
R-2237C	8
R/W SHEET NO.	8
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS	
DO NOT USE FOR CONSTRUCTION	

NOTE: SEE SHEET 23 FOR -L- PROFILE



REVISIONS
R/W REVISIONS: PROPERTY LINES WERE REVISED FOR PARCELS 32 AND 37. WTB 4/5/2010

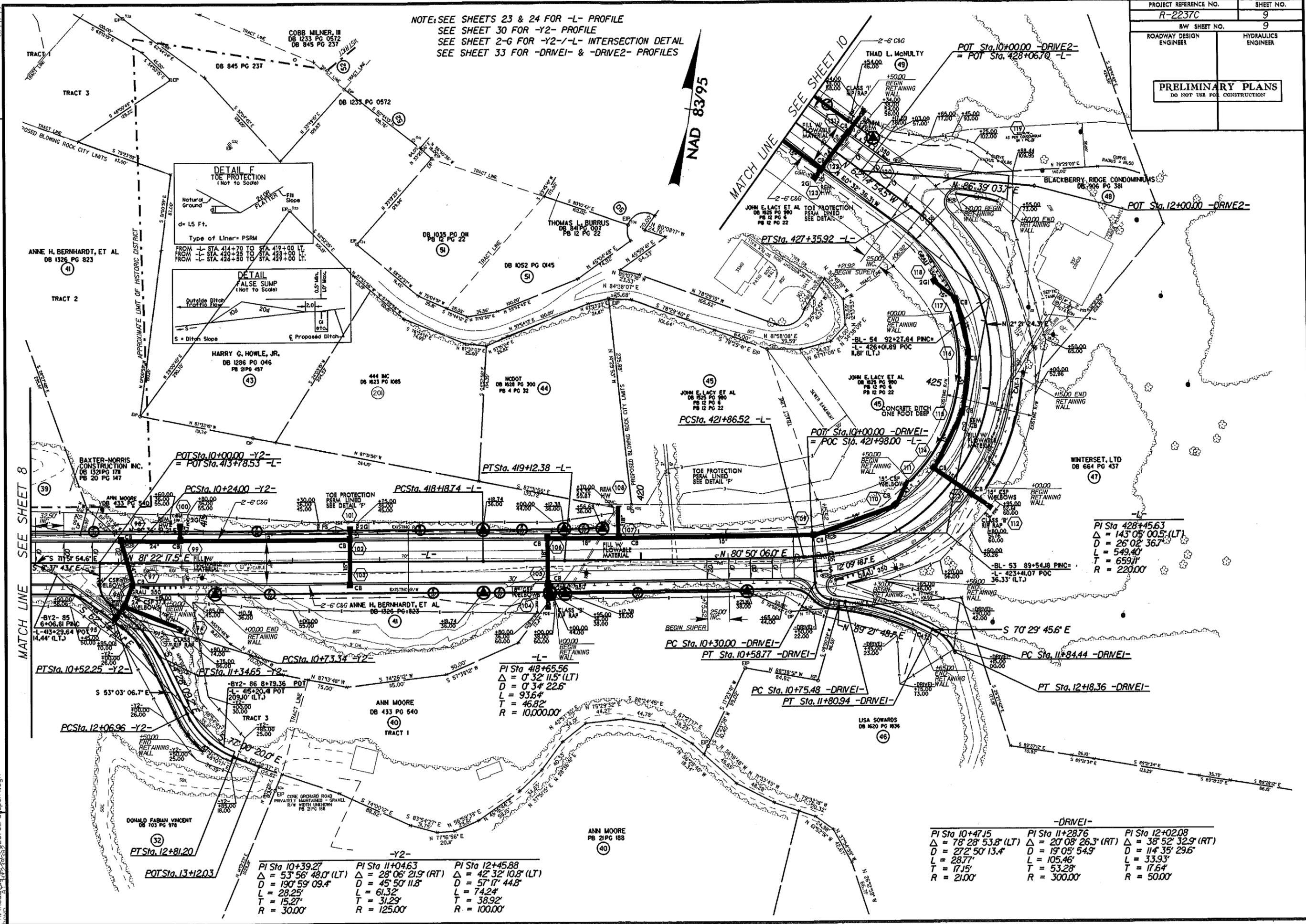
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PROJECT REFERENCE NO.	SHEET NO.
R-2237C	9
R/W SHEET NO.	9
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS	
DO NOT USE FOR CONSTRUCTION	

NOTE: SEE SHEETS 23 & 24 FOR -L- PROFILE
 SEE SHEET 30 FOR -Y2- PROFILE
 SEE SHEET 2-G FOR -Y2-/-L- INTERSECTION DETAIL
 SEE SHEET 33 FOR -DRIVE1- & -DRIVE2- PROFILES

NAD 83/95

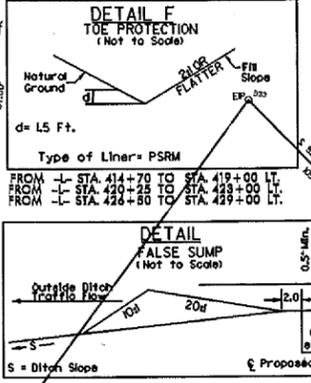


REVISIONS: R/W REVISION: REVISED UNKNOWN PROPERTY NAME TO ANN MOORE LEFT OF STA. 43+60 -L- ELIMATED PARCEL 42, COMBINED WITH PARCEL 41, CHANGED PARCEL 48 PROPERTY OWNERS NAME TO BLACKBERRY RIDGE CONDOMINIUMS. WTB. 3/15/2010

MATCH LINE SEE SHEET 8

MATCH LINE SEE SHEET 10

5/14/99



PI Sta 428+45.63
 $\Delta = 143^{\circ} 05' 00.5" (LT)$
 $D = 26^{\circ} 02' 36.7"$
 $L = 549.40'$
 $T = 659.11'$
 $R = 220.00'$

PI Sta 418+65.56
 $\Delta = 0^{\circ} 32' 11.5" (LT)$
 $D = 0^{\circ} 34' 22.6"$
 $L = 93.64'$
 $T = 46.82'$
 $R = 10,000.00'$

-DRIVE1-		
PI Sta 10+47.15	PI Sta 11+28.76	PI Sta 12+02.08
$\Delta = 78^{\circ} 28' 53.8" (LT)$	$\Delta = 20^{\circ} 08' 26.3" (RT)$	$\Delta = 38^{\circ} 52' 32.9" (RT)$
$D = 272^{\circ} 50' 13.4"$	$D = 19^{\circ} 05' 54.9"$	$D = 114^{\circ} 35' 29.6"$
$L = 287.7'$	$L = 105.46'$	$L = 33.93'$
$T = 17.15'$	$T = 53.28'$	$T = 17.64'$
$R = 21.00'$	$R = 300.00'$	$R = 50.00'$

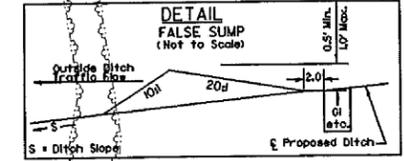
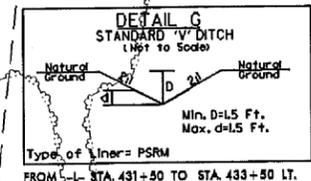
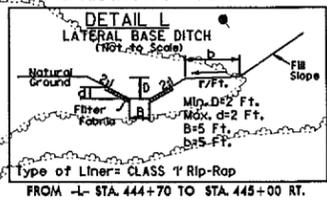
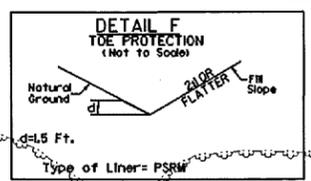
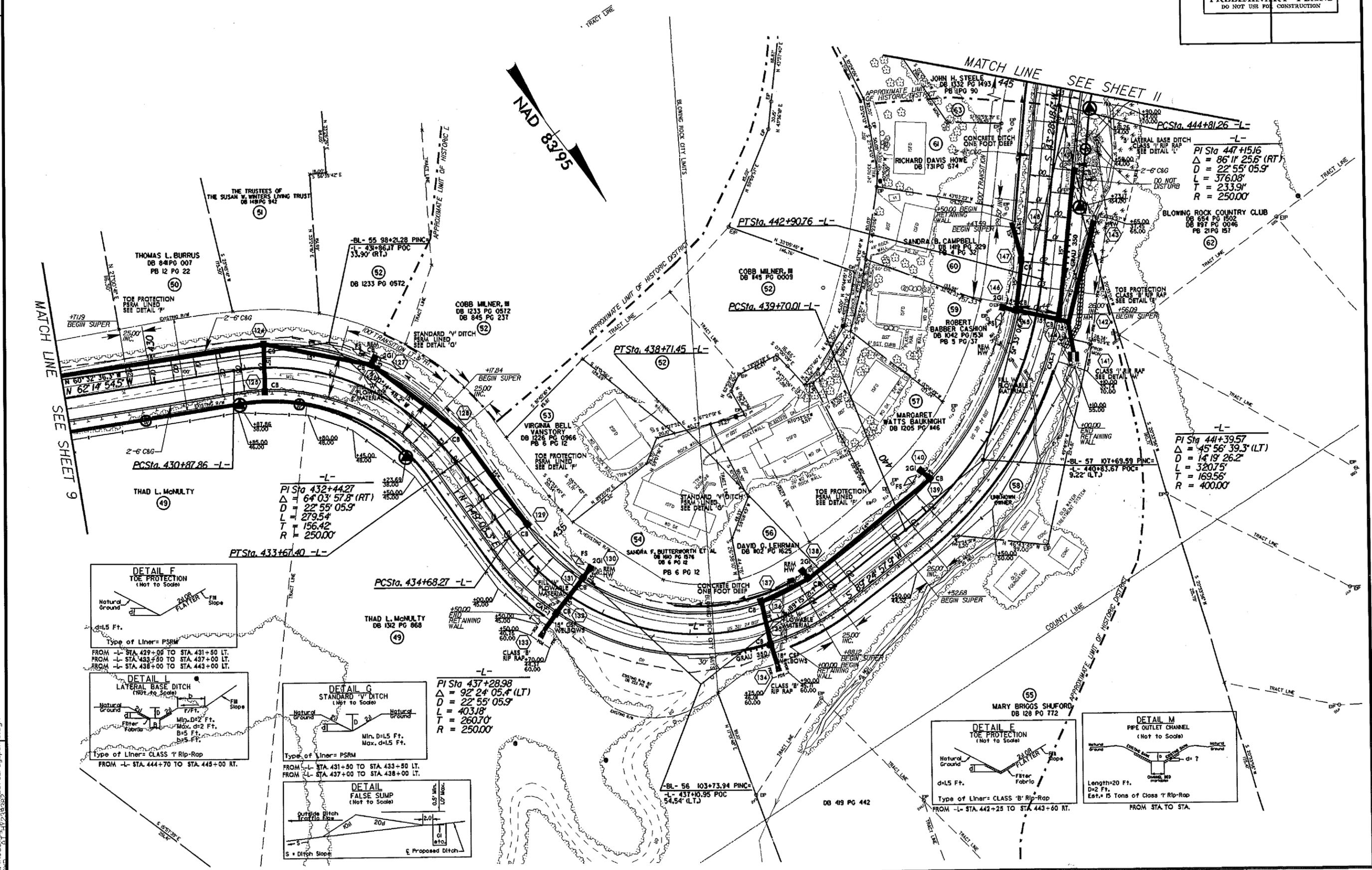
-Y2-		
PI Sta 10+39.27	PI Sta 11+04.63	PI Sta 12+45.88
$\Delta = 53^{\circ} 56' 48.0" (LT)$	$\Delta = 28^{\circ} 06' 21.9" (RT)$	$\Delta = 42^{\circ} 32' 10.8" (LT)$
$D = 190^{\circ} 59' 09.4"$	$D = 45^{\circ} 50' 11.8"$	$D = 57^{\circ} 17' 44.8"$
$L = 28.25'$	$L = 61.32'$	$L = 74.24'$
$T = 15.27'$	$T = 31.29'$	$T = 38.92'$
$R = 30.00'$	$R = 125.00'$	$R = 100.00'$

19-MAY-2010 10:25
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 psh9.dgn

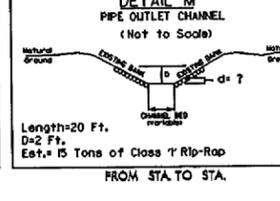
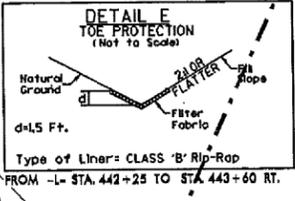
NOTE: SEE SHEETS 24 & 25 FOR -L- PROFILE

PROJECT REFERENCE NO.	R-2237C	SHEET NO.	10
RW SHEET NO.	10	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS			
DO NOT USE FOR CONSTRUCTION			

REVISIONS
 R/W REVISION: THESE REVISIONS CONSIST OF ADDING A NOTE "DO NOT DISTURB" TO PARCEL 62 FOR SIGN AND ROCK PLANTER, REVISING EXISTING R/W ON PARCEL 63 AND REMOVING PROPOSED R/W ON PARCEL 63, WTB 3/15/2010



-L-
PI Sta 437+28.98
Δ = 92' 24" 05.4" (LT)
D = 22' 55" 05.9"
L = 403.18'
T = 260.70'
R = 250.00'

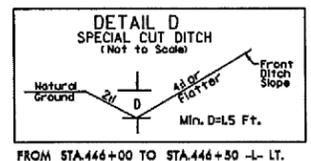


-L-
PI Sta 441+39.57
Δ = 45' 56" 39.3" (LT)
D = 14' 19" 26.2"
L = 320.75'
T = 169.56'
R = 400.00'

-L-
PI Sta 447+15.16
Δ = 86' 11" 25.6" (RT)
D = 22' 55" 05.9"
L = 376.08'
T = 233.91'
R = 250.00'

PROJECT REFERENCE NO.	SHEET NO.
R-2237C	11
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS	
DO NOT USE FOR CONSTRUCTION	

NOTE: SEE SHEET 25 FOR -L- & -U- PROFILES
 SEE SHEET 30 FOR -Y3- & -Y4- PROFILES
 SEE SHEET 2-G FOR -Y3- & -Y4-/-L- INTERSECTION DETAILS



PI Sta 10+71.75 Δ = 36° 17' 18.8" (RT) D = 38' 11" 49.9" L = 95.00' T = 49.16' R = 150.00'	PI Sta 11+96.30 Δ = 7° 18' 59.4" (LT) D = 28' 38" 52.4" L = 25.54' T = 12.79' R = 200.00'	PI Sta 12+79.60 Δ = 9° 27' 58.8" (LT) D = 28' 38" 52.4" L = 33.04' T = 16.56' R = 200.00'	PI Sta 14+64.00 Δ = 67° 00' 18.1" (RT) D = 114' 35" 29.6" L = 58.47' T = 33.10' R = 50.00'
---	--	--	---

-L-

PI Sta 447+15.16 Δ = 86° 11' 25.6" (RT) D = 22' 55" 05.9" L = 376.08' T = 233.91' R = 250.00'
--

-U-

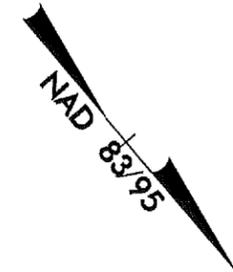
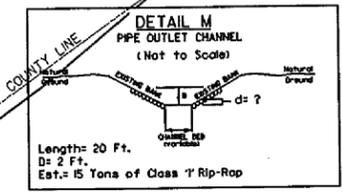
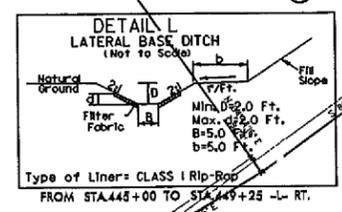
PI Sta 454+87.91 Δ = 6° 28' 30.9" (RT) D = 1' 08" 45.3" L = 562.16' T = 281.38' R = 5,000.00'
--

-L-

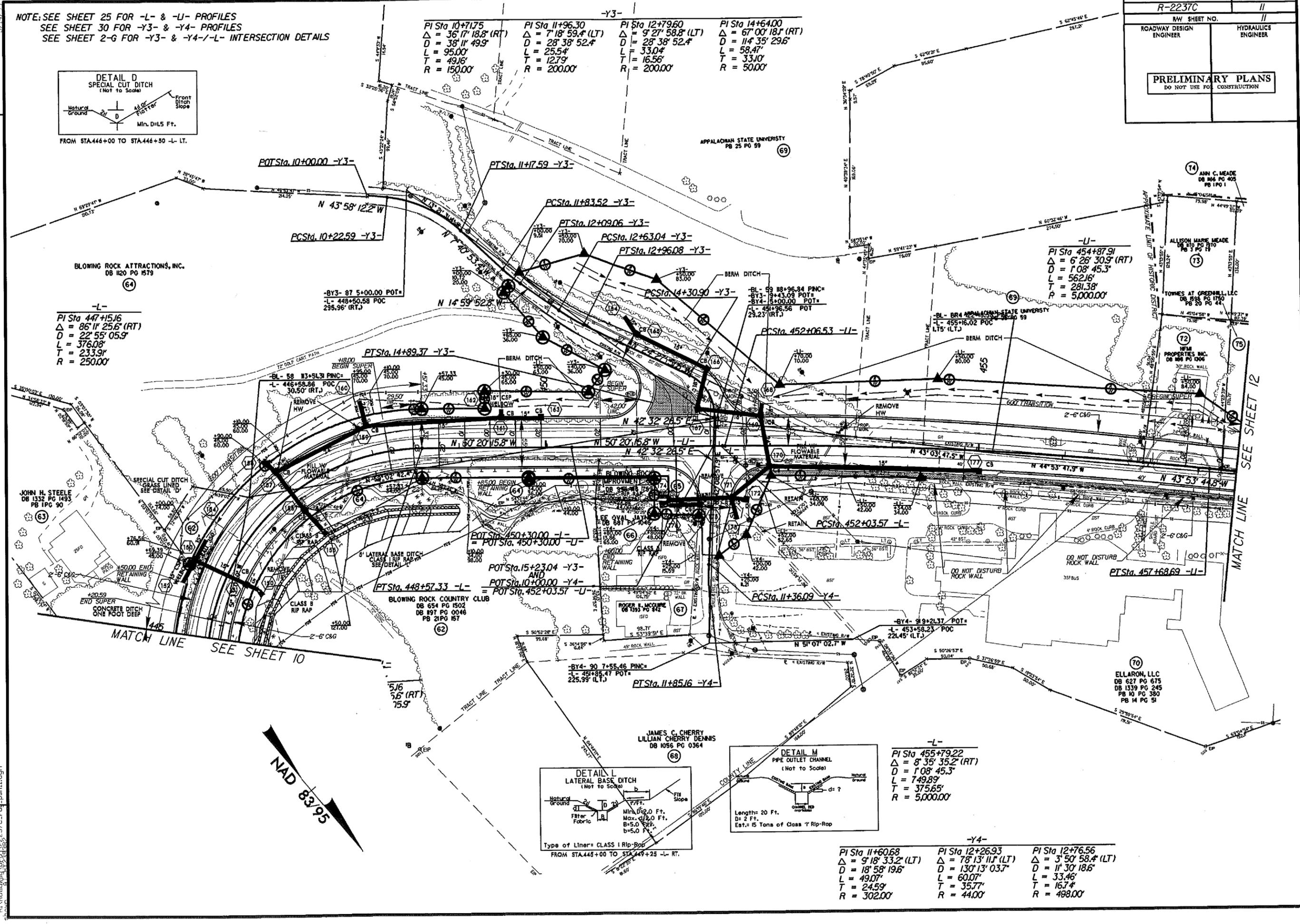
PI Sta 455+79.22 Δ = 8° 35' 35.2" (RT) D = 1' 08" 45.3" L = 749.89' T = 375.65' R = 5,000.00'
--

-Y4-

PI Sta 11+60.68 Δ = 9° 18' 33.2" (LT) D = 18' 58" 19.6" L = 49.07' T = 24.59' R = 302.00'	PI Sta 12+26.93 Δ = 7° 13' 11.5" (LT) D = 130' 13" 03.7" L = 60.07' T = 35.77' R = 44.00'	PI Sta 12+76.56 Δ = 3° 50' 58.4" (LT) D = 11' 30" 18.6" L = 33.46' T = 16.74' R = 498.00'
--	--	--



REVISIONS
 R/W REVISIONS THE REVISIONS CONSIST OF REVISING EXISTING R/W AND REMOVING PROPOSED R/W ON PARCEL 63, ADDING PROPERTY OWNERS NAME AND PARCEL NUMBER 64, ELIMINATED PARCEL 71 TO COMBINE IT WITH PARCEL 69, AND CHANGED PARCEL NUMBER 69 PROPERTY OWNERS NAME. WTB 3/15/2010
 19-MAY-2010 10:42
 R:\Road\p10237\c-rd1-ps-h1.dgn

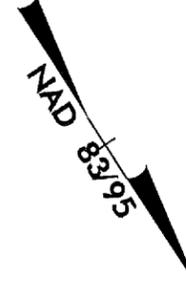
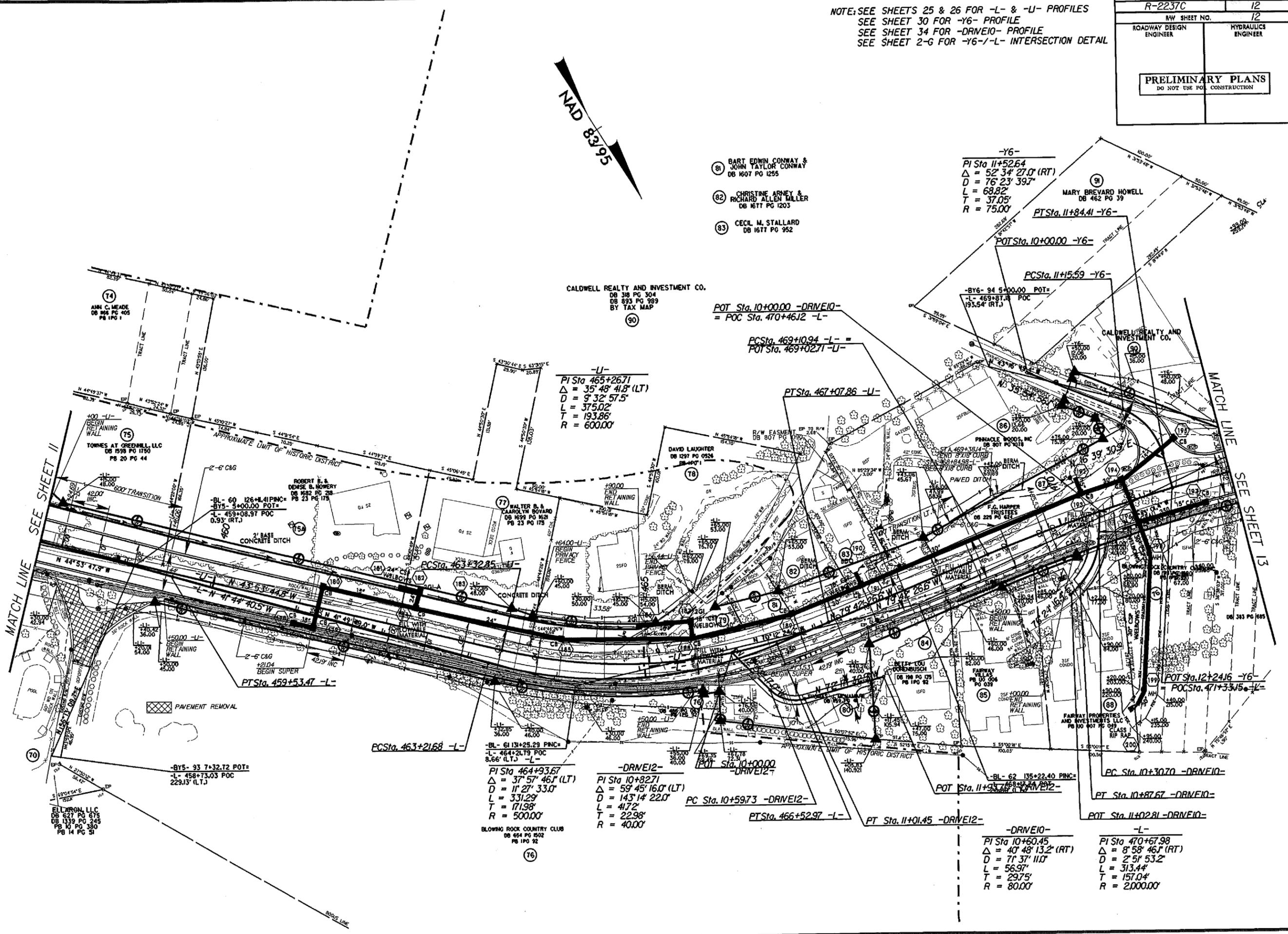


NOTE: SEE SHEETS 25 & 26 FOR -L- & -U- PROFILES
 SEE SHEET 30 FOR -Y6- PROFILE
 SEE SHEET 34 FOR -DRIVEIO- PROFILE
 SEE SHEET 2-6 FOR -Y6-/-L- INTERSECTION DETAIL

PROJECT REFERENCE NO. R-2237C	SHEET NO. 12
R/W SHEET NO. 12	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

REVISIONS
 RIGHT OF WAY: THIS REVISION CONSISTS OF EXTENDING THE RETAIN WALL ACROSS PARCEL 77, COMBINING PARCELS 76 AND 89 AND REMOVING PARCEL 89, CHANGING RIGHT OF WAY TO TOTAL TAKE PROPERTY ON PARCEL 80, CHANGED NAMES ON PARCELS 81, 82, 83 AND 90, COMBINE PARCELS 90 AND 94, WTB 3/15/2010

5/14/99



- 81 BART EDWIN CONWAY & JOHN TAYLOR CONWAY DB 1607 PG 1255
- 82 CHRISTINE ARNEY & RICHARD ALLEN MILLER DB 1677 PG 1203
- 83 CECIL M. STALLARD DB 1677 PG 952

-U-
 PI Sta 465+2671
 $\Delta = 35^\circ 48' 41.8''$ (LT)
 D = 9' 32' 57.5"
 L = 375.02'
 T = 193.86'
 R = 600.00'

-Y6-
 PI Sta 11+52.64
 $\Delta = 52^\circ 34' 27.0''$ (RT)
 D = 76' 23' 39.7"
 L = 68.82'
 T = 37.05'
 R = 75.00'

-L-
 PI Sta 464+93.67
 $\Delta = 37^\circ 57' 46.1''$ (LT)
 D = 11' 27' 33.0"
 L = 331.29'
 T = 171.98'
 R = 500.00'

-DRIVE12-
 PI Sta 10+8271
 $\Delta = 59^\circ 45' 16.0''$ (LT)
 D = 143' 14' 22.0"
 L = 417.2'
 T = 22.98'
 R = 40.00'

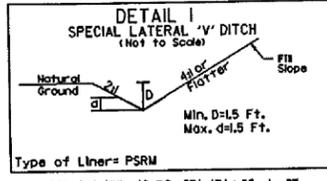
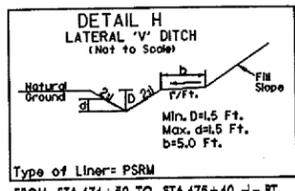
-DRIVEIO-
 PI Sta 10+60.45
 $\Delta = 40^\circ 48' 13.2''$ (RT)
 D = 71' 37' 11.0"
 L = 56.97'
 T = 29.75'
 R = 80.00'

-L-
 PI Sta 470+67.98
 $\Delta = 8^\circ 58' 46.1''$ (RT)
 D = 2' 51' 53.2"
 L = 313.44'
 T = 157.04'
 R = 2000.00'

19-MAY-2010 10:44
 H:\Roadway\1237c_r-dj-psh12.dgn

NOTE: SEE SHEET 26 FOR -L- PROFILE
 SEE SHEET 31 FOR -Y7- & -Y8- PROFILES
 SEE SHEET 2-G FOR -Y7-/-L- INTERSECTION DETAIL
 SEE SHEET 2-H FOR -Y8-/-L- INTERSECTION DETAIL

NAD 83/95



-L-

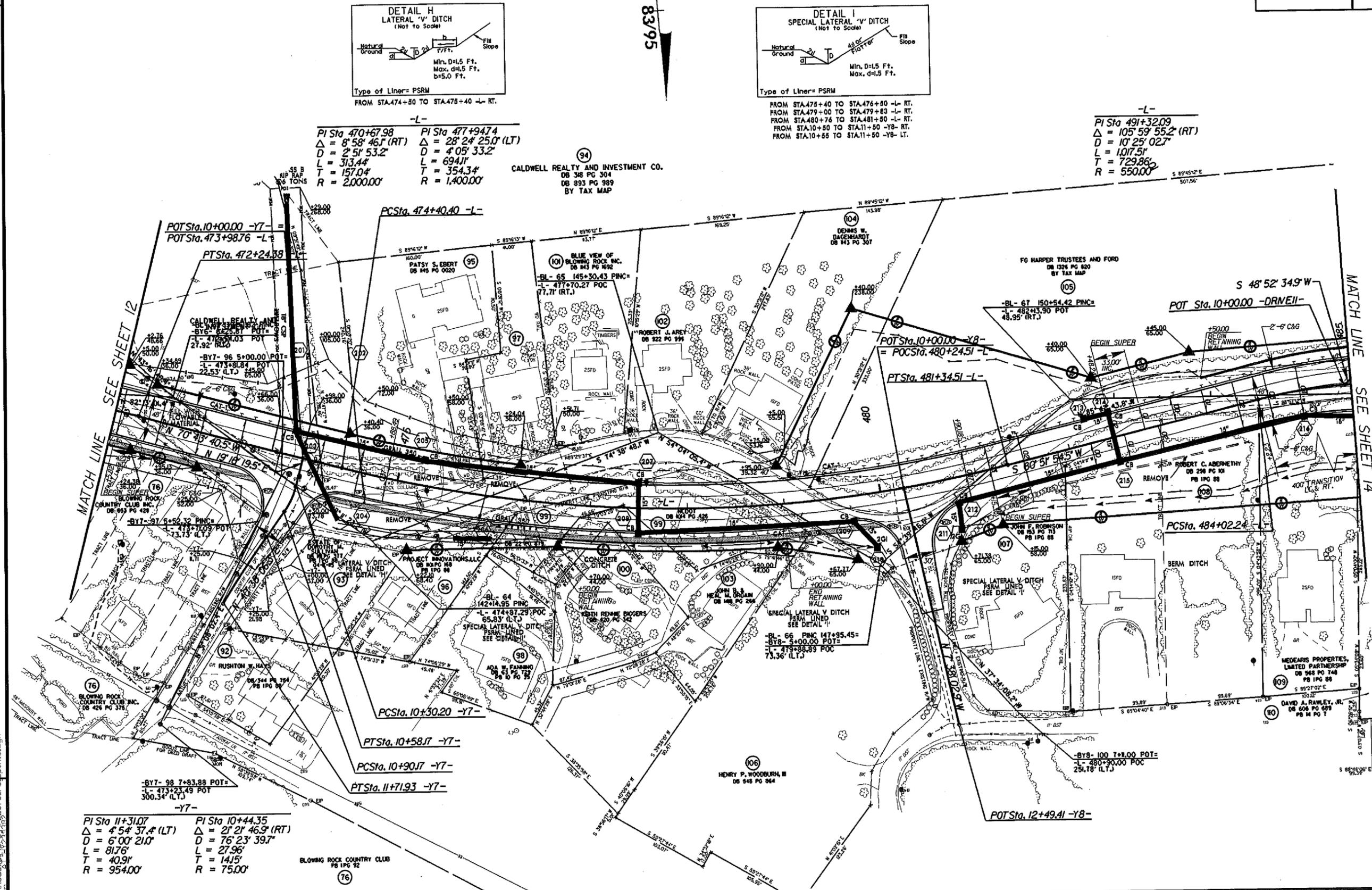
PI Sta 470+67.98	PI Sta 477+94.74
$\Delta = 8^{\circ} 58' 46.1$ (RT)	$\Delta = 28^{\circ} 24' 25.0$ (LT)
D = 2' 51' 53.2"	D = 4' 05' 33.2"
L = 313.44'	L = 694.11'
T = 157.04'	T = 354.34'
R = 2,000.00'	R = 1,400.00'

FROM STA.478+40 TO STA.476+80 -L- RT.
 FROM STA.479+00 TO STA.479+83 -L- RT.
 FROM STA.480+76 TO STA.481+50 -L- RT.
 FROM STA.10+80 TO STA.11+50 -Y8- RT.
 FROM STA.10+85 TO STA.11+50 -Y8- LT.

-L-

PI Sta 491+32.09
$\Delta = 105^{\circ} 59' 55.2$ (RT)
D = 10' 25' 02.7"
L = 1,017.51'
T = 729.86'
R = 550.00'

94 CALDWELL REALTY AND INVESTMENT CO.
 DB 318 PG 304
 DB 393 PG 989
 BY TAX MAP



-Y7-

PI Sta 11+31.07	PI Sta 10+44.35
$\Delta = 4^{\circ} 54' 37.4$ (LT)	$\Delta = 21^{\circ} 21' 46.9$ (RT)
D = 6' 00' 21.0"	D = 76' 23' 39.7"
L = 81.76'	L = 27.96'
T = 40.91'	T = 14.15'
R = 954.00'	R = 75.00'

BLOWING ROCK COUNTRY CLUB
 76 1PG 92

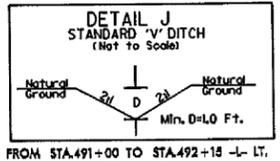
RIGHT OF WAY: THIS REVISION CONSISTS OF COMBINING PARCELS 90 AND 94 AND ELIMINATING PARCEL 94, CHANGED NAMES ON PARCELS 100 AND 103, WTB 3/15/2010

19-MAY-2010 10:45 R:\Roadway\18591\2237c-r.dwg-psh13.dgn

NOTE: SEE SHEETS 26 & 27 FOR -L- PROFILE
 SEE SHEET 31 FOR -Y9-, -Y9A- & -Y10- PROFILES
 SEE SHEET 2-H FOR -Y9- & -Y10-/-L- INTERSECTION DETAILS

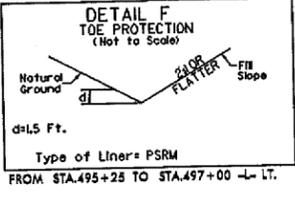
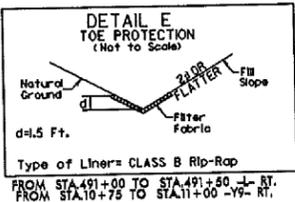
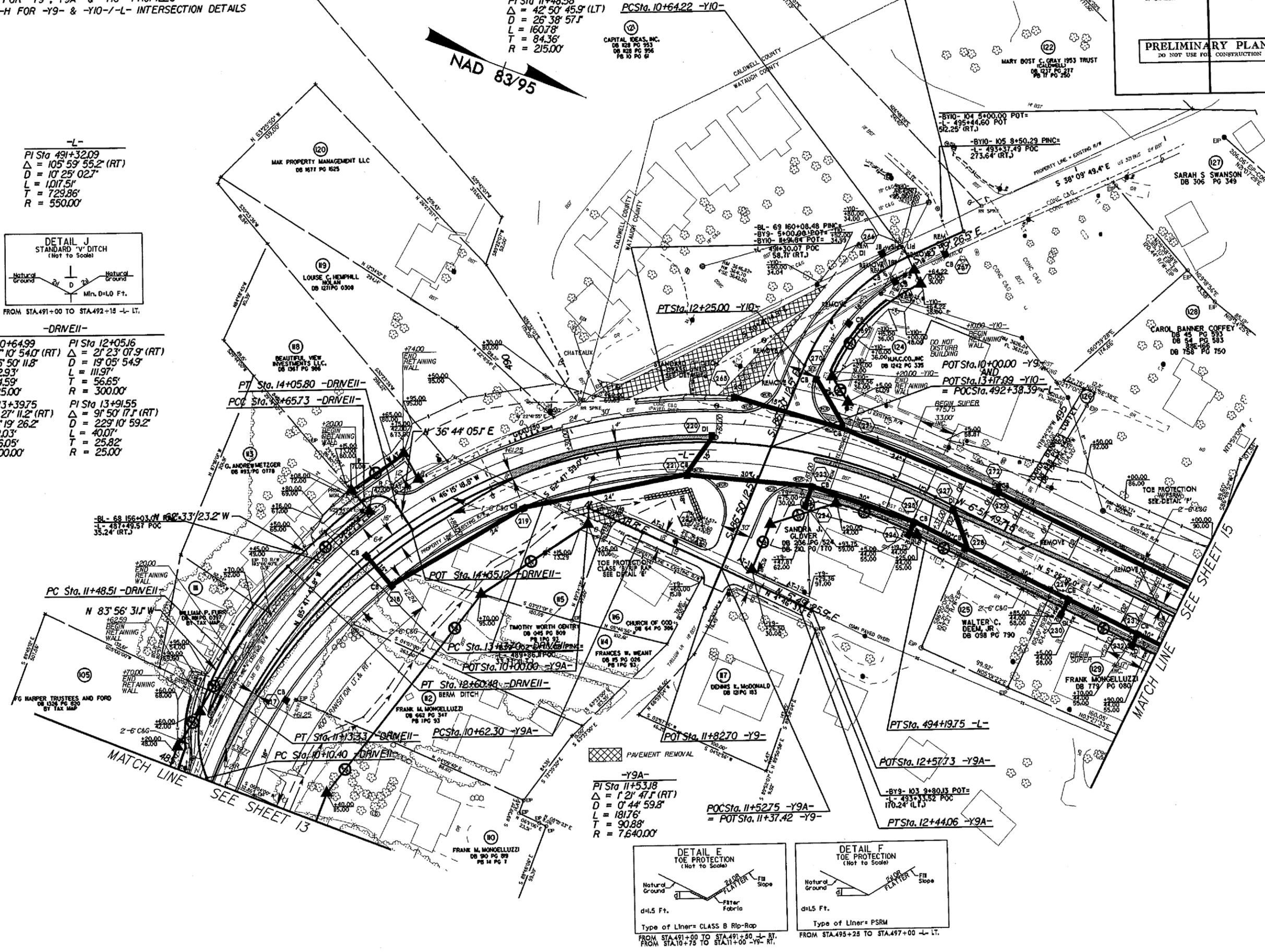
-Y10-
 PI Sta. 11+48.58
 $\Delta = 42^\circ 50' 45.9" (LT)$ PCS Sta. 10+64.22 -Y10-
 D = 26' 38" 57.1"
 L = 160.78'
 T = 84.36'
 R = 215.00'

-L-
 PI Sta. 491+32.09
 $\Delta = 105^\circ 59' 55.2" (RT)$
 D = 10' 25" 02.7"
 L = 1,017.51'
 T = 729.86'
 R = 550.00'



-DRIVEII-
 PI Sta. 10+64.99 PI Sta. 12+05.16
 $\Delta = 47^\circ 10' 54.0" (RT)$ $\Delta = 21^\circ 23' 07.9" (RT)$
 D = 45' 50" 11.8" D = 19' 05" 54.9"
 L = 102.93' L = 111.97'
 T = 56.65' T = 56.65'
 R = 125.00' R = 300.00'

PI Sta. 13+39.75 PI Sta. 13+91.55
 $\Delta = 7^\circ 27' 11.2" (RT)$ $\Delta = 91^\circ 50' 17.7" (RT)$
 D = 14' 19" 26.2" D = 229' 10" 59.2"
 L = 52.03' L = 40.07'
 T = 26.05' T = 25.82'
 R = 400.00' R = 25.00'



REVISIONS

RIGHT OF WAY: THIS REVISION CONSISTS OF ADDING RETAINING WALLS AND CHANGING THE ALIGNMENT OF DRIVE II. IN ADDITION THE RIGHT OF WAY AND EASEMENT HAVE CHANGED ON PARCELS 105, 113, 115, 118, 119, 120, AND 121.

19-MAY-2010 10:52
 R:\Roadway\2237c_rdl\peh1.dgn

PROJECT REFERENCE NO.	R-2237C	SHEET NO.	15
RAW SHEET NO.	15		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			

NOTE: SEE SHEET 27 FOR -L- PROFILE
 SEE SHEET 31 FOR -YII- PROFILE
 SEE SHEET 2-H FOR -YII-/-L- INTERSECTION DETAIL
 SEE SHEET 33 FOR -DRIVE3- PROFILE

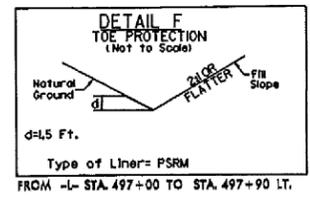
-YII-
 PI Sta 11+24.62
 $\Delta = 3^\circ 48' 59.4" (RT)$
 $D = 4' 00' 24.1"$
 $L = 95.25'$
 $T = 47.64'$
 $R = 1,430.00'$

PI Sta 12+47.21
 $\Delta = 49^\circ 42' 41.5" (LT)$
 $D = 114' 35' 29.6"$
 $L = 43.38'$
 $T = 23.36'$
 $R = 50.00'$

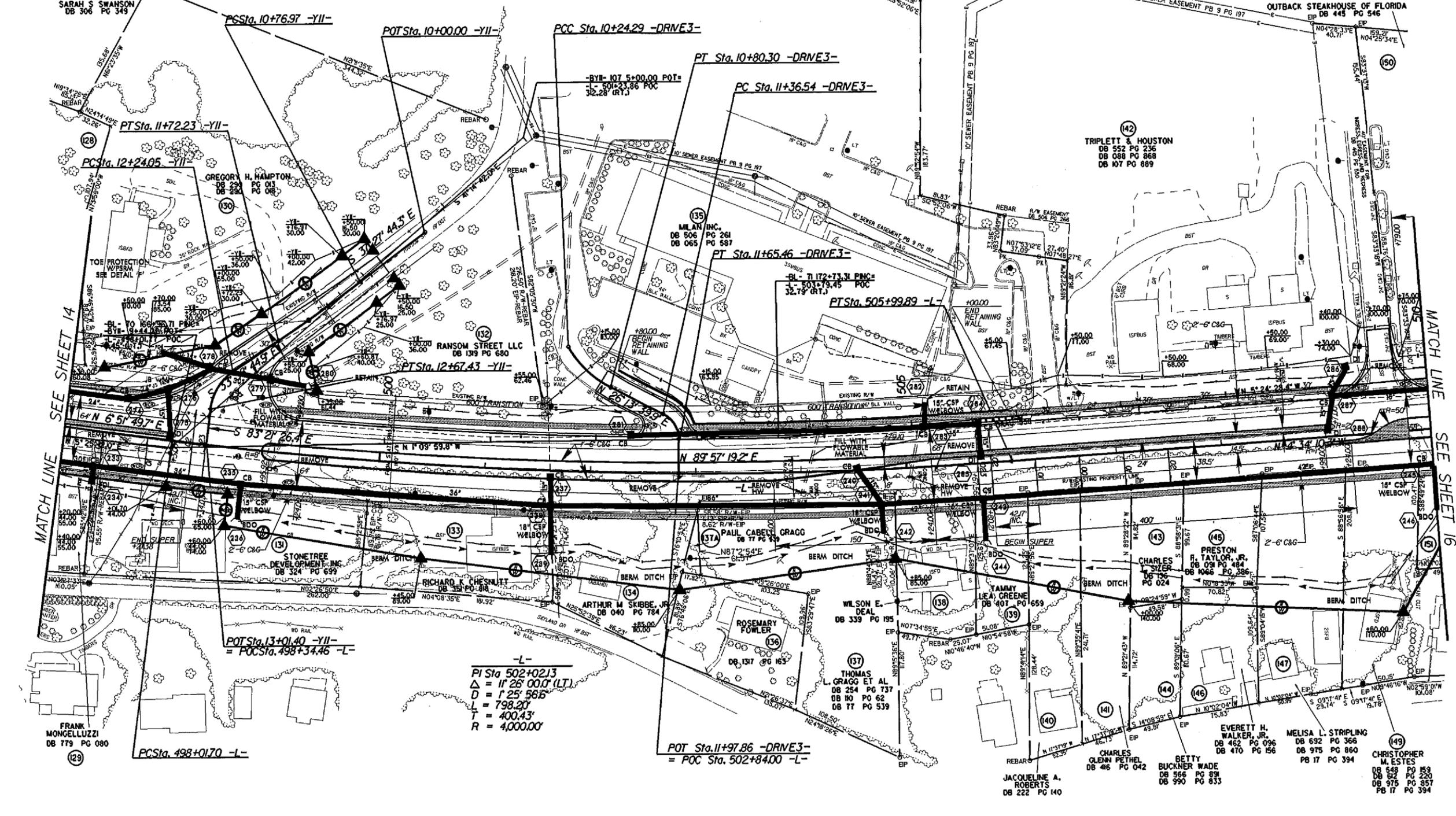
-DRIVE3-
 PI Sta 10+14.25
 $\Delta = 75^\circ 13' 19.2" (LT)$
 $D = 309' 42' 24.9"$
 $L = 24.29'$
 $T = 14.25'$
 $R = 18.50'$

PI Sta 10+53.14
 $\Delta = 33^\circ 46' 59.3" (LT)$
 $D = 60' 18' 40.8"$
 $L = 56.01'$
 $T = 28.85'$
 $R = 95.00'$

PI Sta 11+52.71
 $\Delta = 63^\circ 43' 39.3" (RT)$
 $D = 220' 22' 06.2"$
 $L = 28.92'$
 $T = 16.16'$
 $R = 26.00'$



NAD 83/95



RIGHT OF WAY: THIS REVISION CONSISTS OF CHANGING PROPERTY LINE ON PARCEL 137, ADDED PARCEL 137A, PROPERTY BOUNDARY OVERLAP ON PARCEL 146, WTB 3/15/2010

15-MAY-2010 10:53
 P:\Projects\2237c_r-d\psht15.dgn

5/14/99
 R/W Revision: The revision consists of adding PUE and revising TCE on Parcel 159 (Designated Inc.) w/b 4/20/10
 19-MAY-2010 10:53
 R:\Roadway\1053\2237c_r.dwg - psh15.dgn

REVISIONS

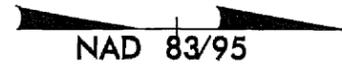
MATCH LINE SEE SHEET 15

MATCH LINE SEE SHEET 17

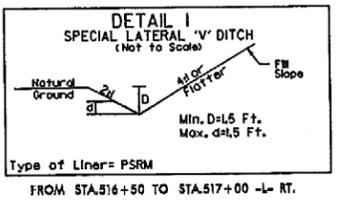
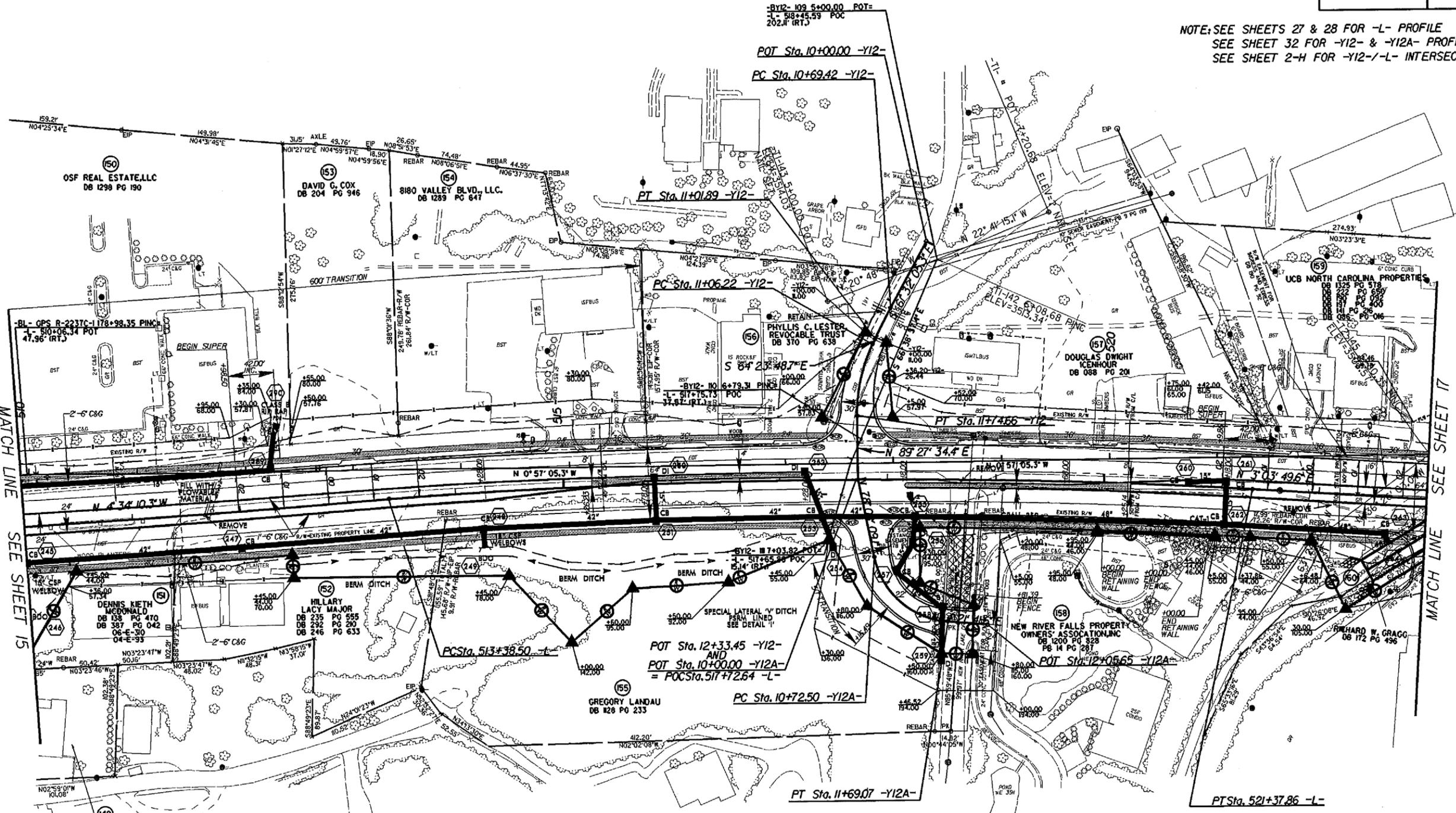
PROJECT REFERENCE NO. R-2237C	SHEET NO. 16
RAW SHEET NO. 16	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

-Y12-

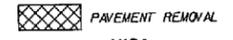
PI Sta 10+85.66	PI Sta 11+41.05
$\Delta = 2' 51" 43.3" (LT)$	$\Delta = 26' 08" 36.9" (LT)$
$D = 8' 48" 53.0"$	$D = 38' 11" 49.9"$
$L = 32.47'$	$L = 68.44'$
$T = 16.24'$	$T = 34.83'$
$R = 650.00'$	$R = 150.00'$



NOTE: SEE SHEETS 27 & 28 FOR -L- PROFILE
 SEE SHEET 32 FOR -Y12- & -Y12A- PROFILE
 SEE SHEET 2-H FOR -Y12-/-L- INTERSECTION DETAIL



-L-	-Y12A-
PI Sta 517+38.77	PI Sta 11+28.78
$\Delta = 7' 37" 59.8" (RT)$	$\Delta = 73' 46" 27.5" (LT)$
$D = 0' 57" 17.7"$	$D = 76' 23" 39.7"$
$L = 799.36'$	$L = 96.57'$
$T = 400.27'$	$T = 56.29'$
$R = 6,000.00'$	$R = 75.00'$

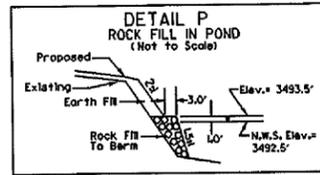


NOTE: SEE SHEET 28 FOR -L- PROFILE
 SEE SHEET 32 FOR -Y13- & -Y14- PROFILE
 SEE SHEET 2-1 FOR -Y13- & -Y14-/-L- INTERSECTION DETAILS
 SEE SHEET 38 FOR -DRIVE4- PROFILE

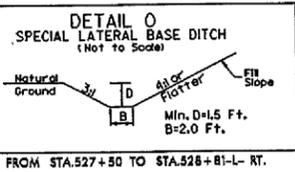
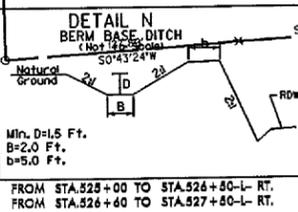
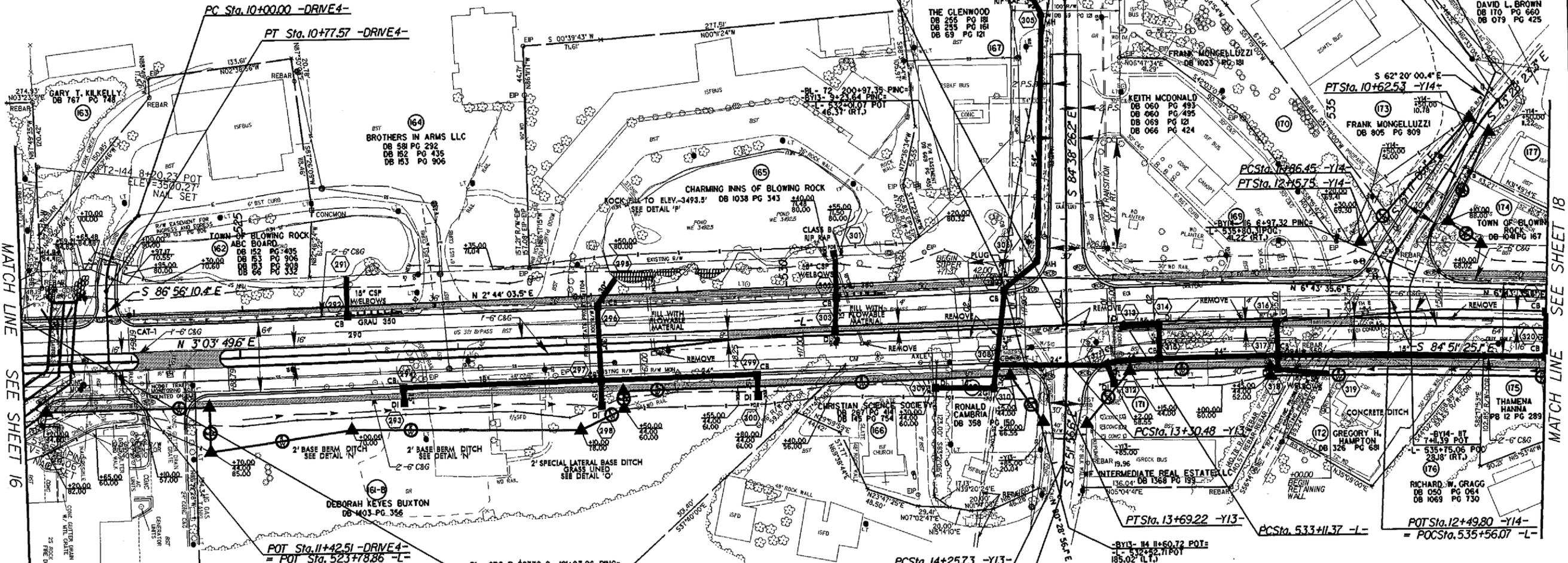
NAD 83/95

PROJECT REFERENCE NO.	R-2237C	SHEET NO.	17
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			

-DRIVE4-
 PI Sta 10+41.51
 $\Delta = 50' 30" 20.0'$ (LT)
 $D = 65' 06" 31.8'$
 $L = 77.5'$
 $T = 41.5'$
 $R = 88.00'$



PC Sta. 10+00.00 -DRIVE4-
 PT Sta. 10+77.57 -DRIVE4-



-Y13-
 PI Sta 13+49.85
 $\Delta = 2' 46" 29.6'$ (RT)
 $D = 7' 09" 43.7'$
 $L = 38.7'$
 $T = 19.38'$
 $R = 800.00'$

-Y14-
 PI Sta 14+39.41
 $\Delta = 8' 4" 22.5'$ (RT)
 $D = 3' 49" 51.6'$
 $L = 27.30'$
 $T = 13.68'$
 $R = 180.00'$

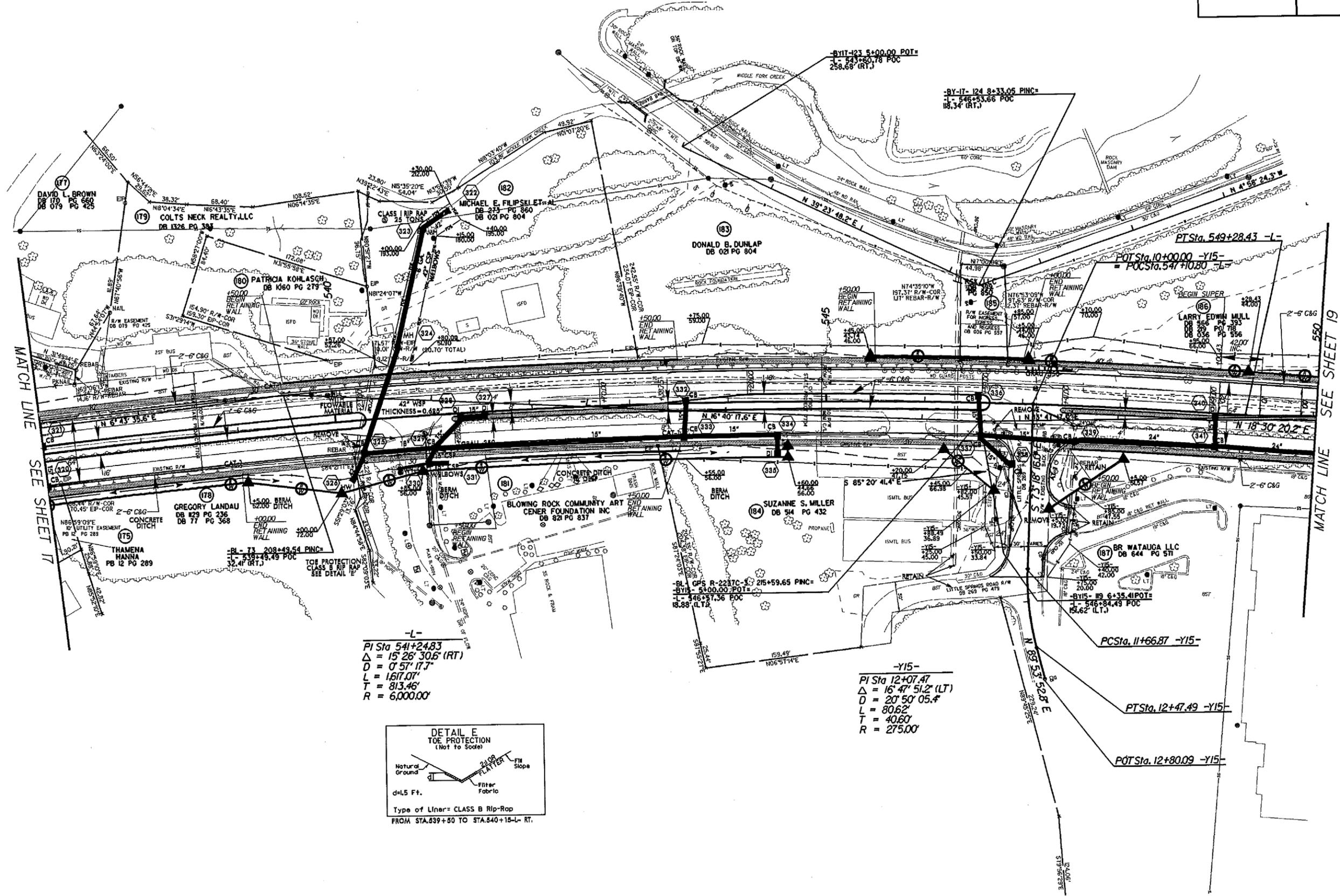
REVISIONS
 R/W Revision: This revision consists of adding PUE, revising the TCE on Parcel 159 (DePalacio Inc.) w/b 4/20/10
 19-MAY-2010 10:54
 At: Roadway Design
 P:\Roadway\2237c-rdl\2237c-rdl-psht17.dgn

MATCH LINE SEE SHEET 16

MATCH LINE SEE SHEET 18

NOTE: SEE SHEETS 28 & 29 FOR -L- PROFILE
 SEE SHEET 32 FOR -Y15- PROFILE
 SEE SHEET 2-1 FOR -Y15-/-L- INTERSECTION DETAIL.

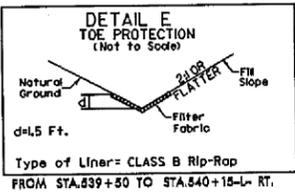
PROJECT REFERENCE NO.	SHEET NO.
R-2237C	18
R/W SHEET NO.	18
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



Right of Way this revision consists of adding DB 1069, Pg. 7.30 to Parcel 176 owned by Richard W. Grapp.

REVISIONS

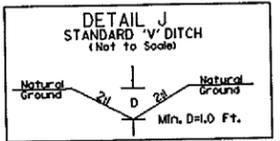
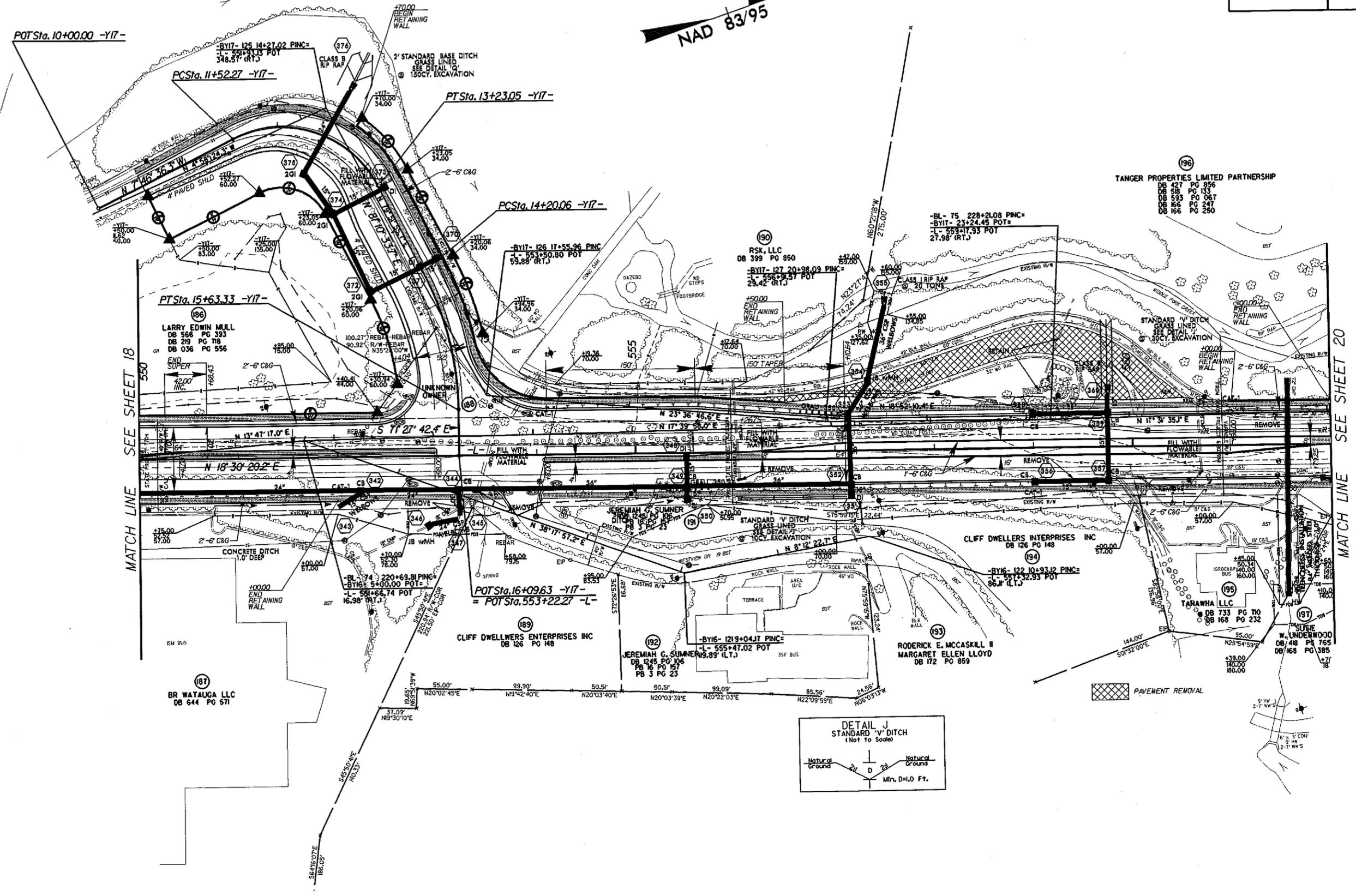
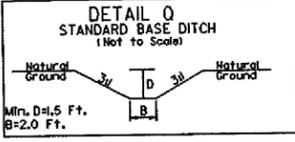
18-MAY-2010 10:55
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NOTE: SEE SHEET 29 FOR -L- PROFILE
 SEE SHEET 33 FOR -Y17- PROFILE
 SEE SHEET 2-1 FOR -Y17-/-L- INTERSECTION DETAIL

PROJECT REFERENCE NO.	R-2237C	SHEET NO.	19
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			

-Y17-
 PI Sta 12+60.28 PI Sta 14+93.08
 $\Delta = 88^{\circ} 57' 09.9''$ (RT) $\Delta = 27^{\circ} 21' 43.9''$ (RT)
 $D = 52^{\circ} 05' 13.5''$ $D = 19^{\circ} 05' 54.9''$
 $L = 170.78'$ $L = 143.27'$
 $T = 108.01'$ $T = 73.03'$
 $R = 110.00'$ $R = 300.00'$



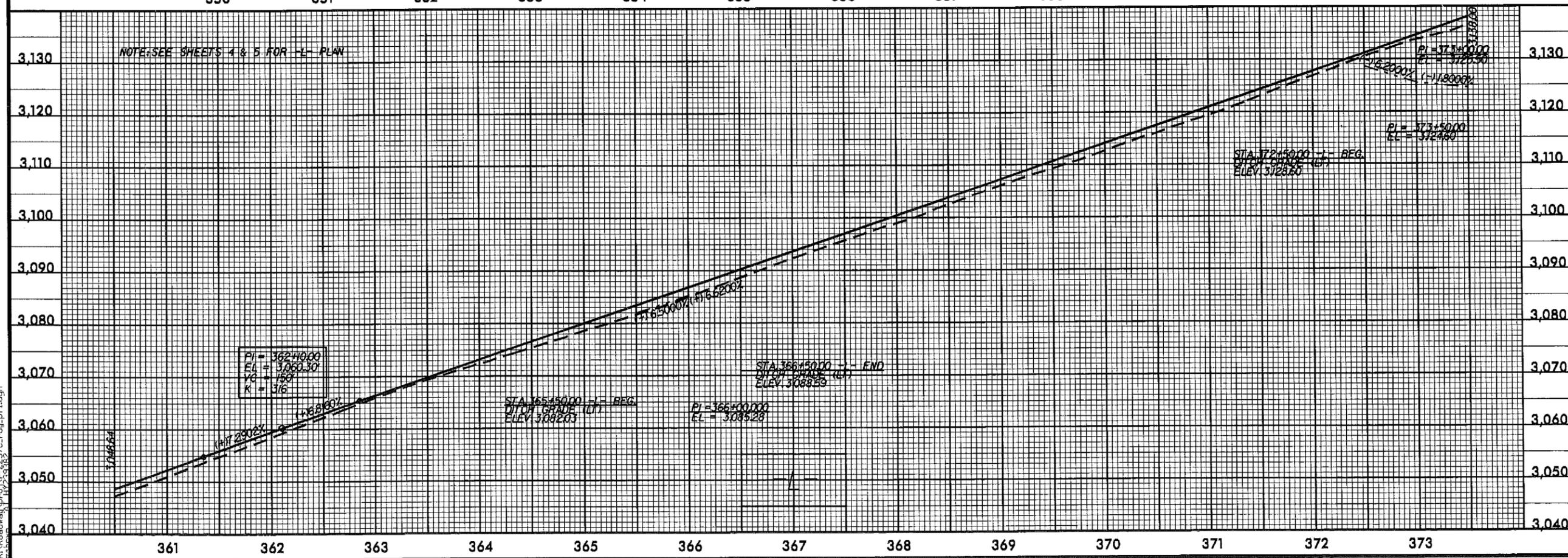
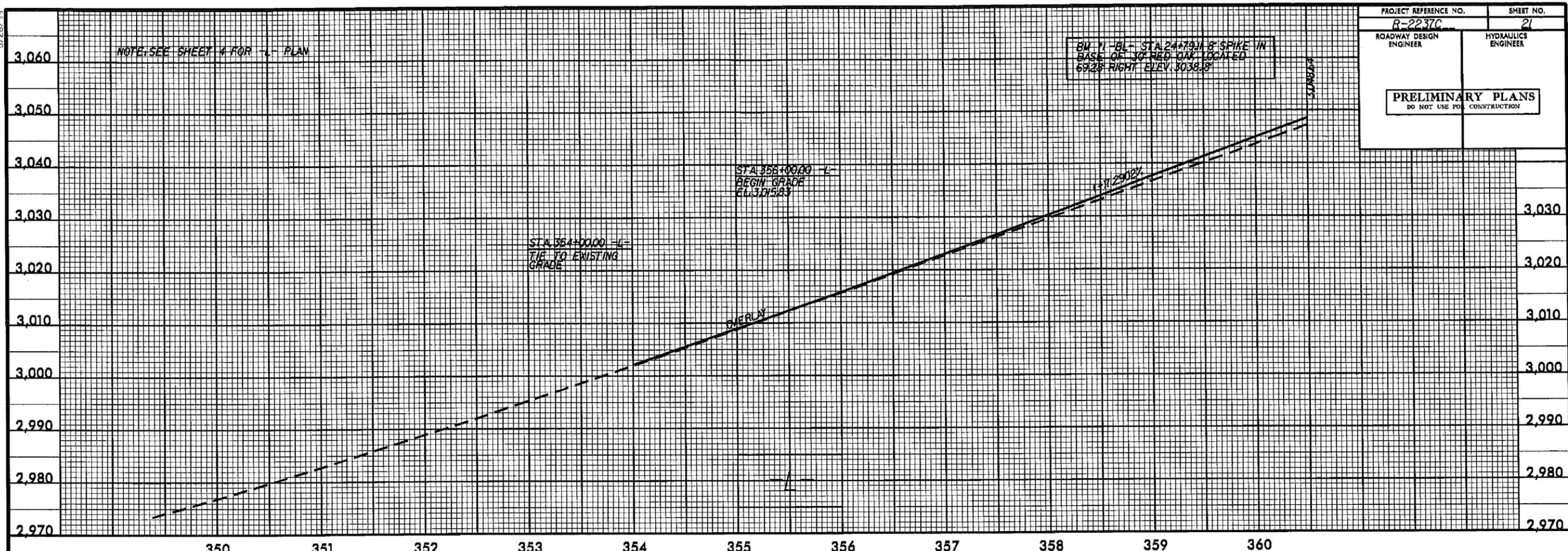
MATCH LINE SEE SHEET 18

MATCH LINE SEE SHEET 20

5/14/99
 19-MAY-2010 10:58
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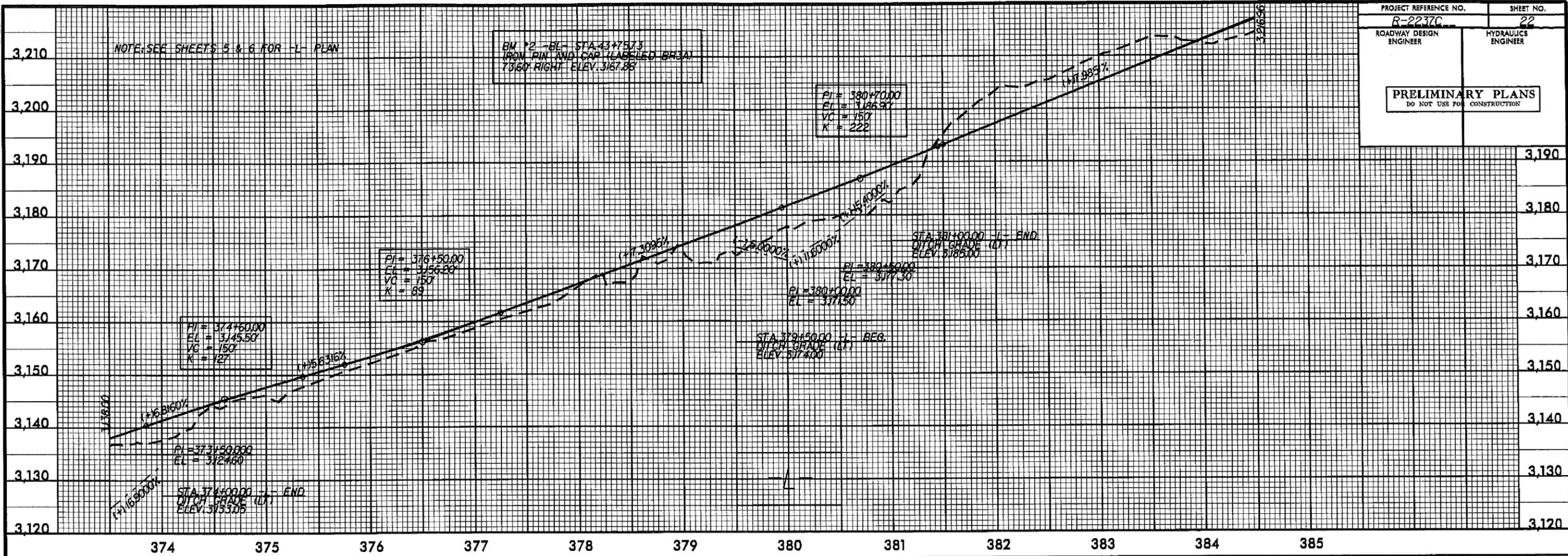
5/28/09
 18-MAY-2010 11:00
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PROJECT REFERENCE NO. R-2237C	SHEET NO. 21
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

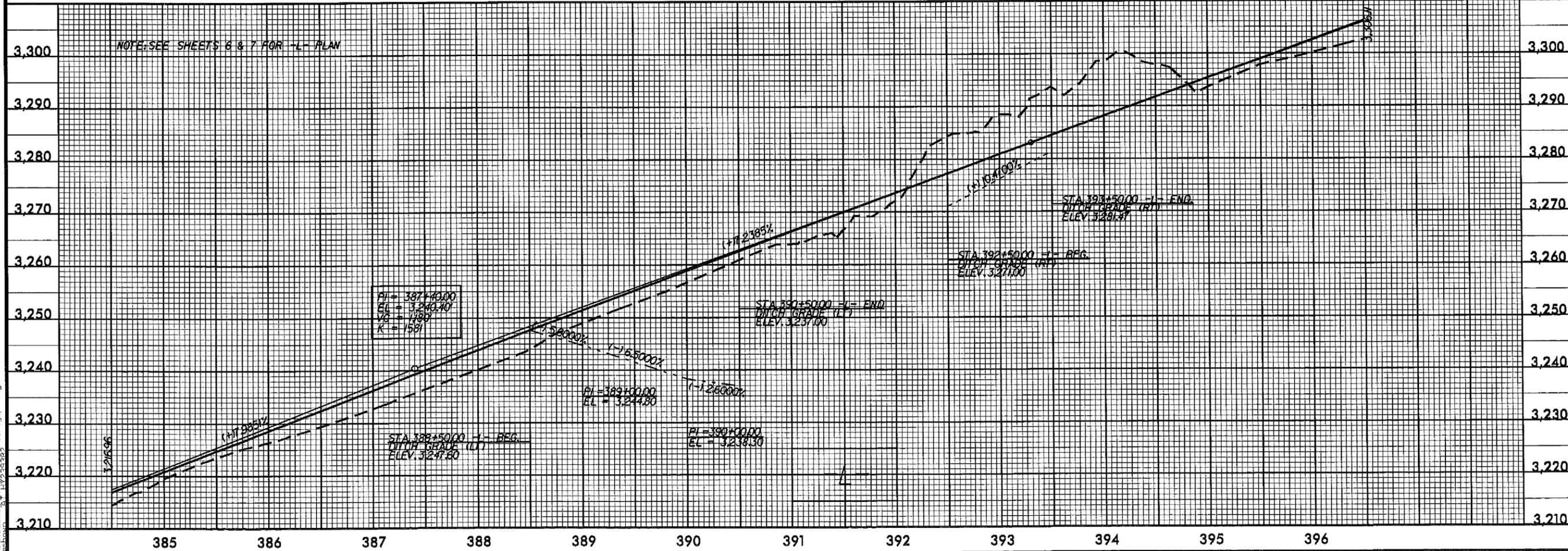


5/28/98

PROJECT REFERENCE NO. R-2237C	SHEET NO. 22
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

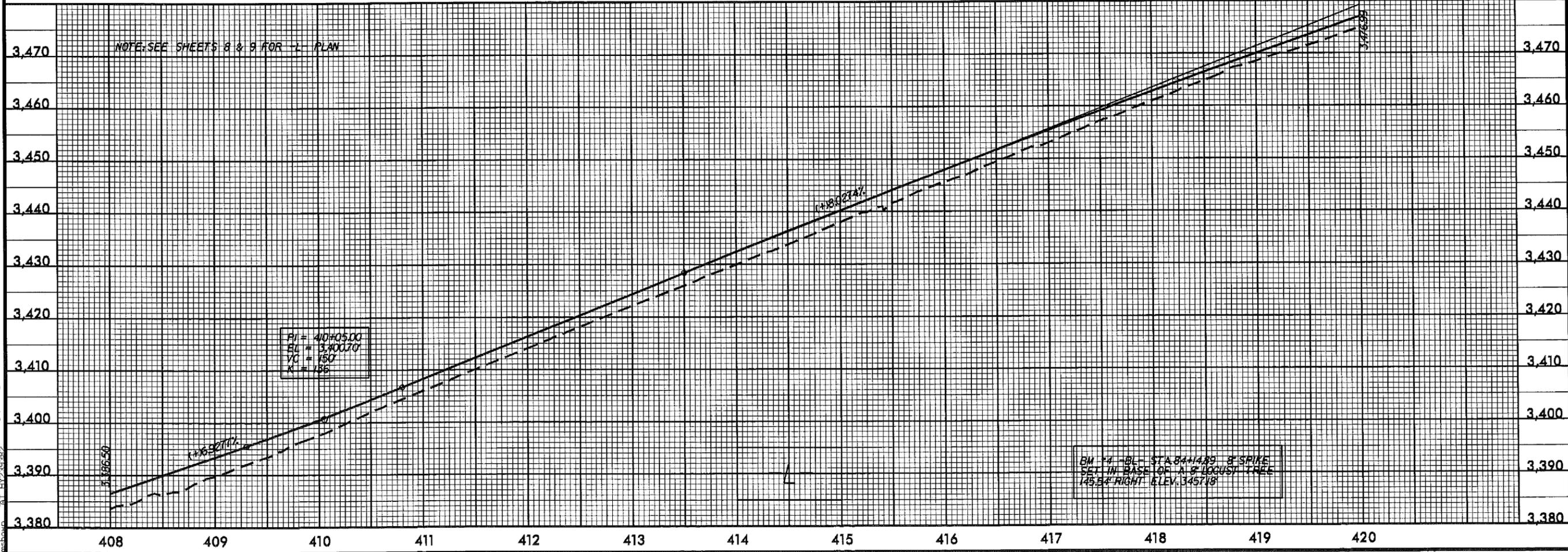
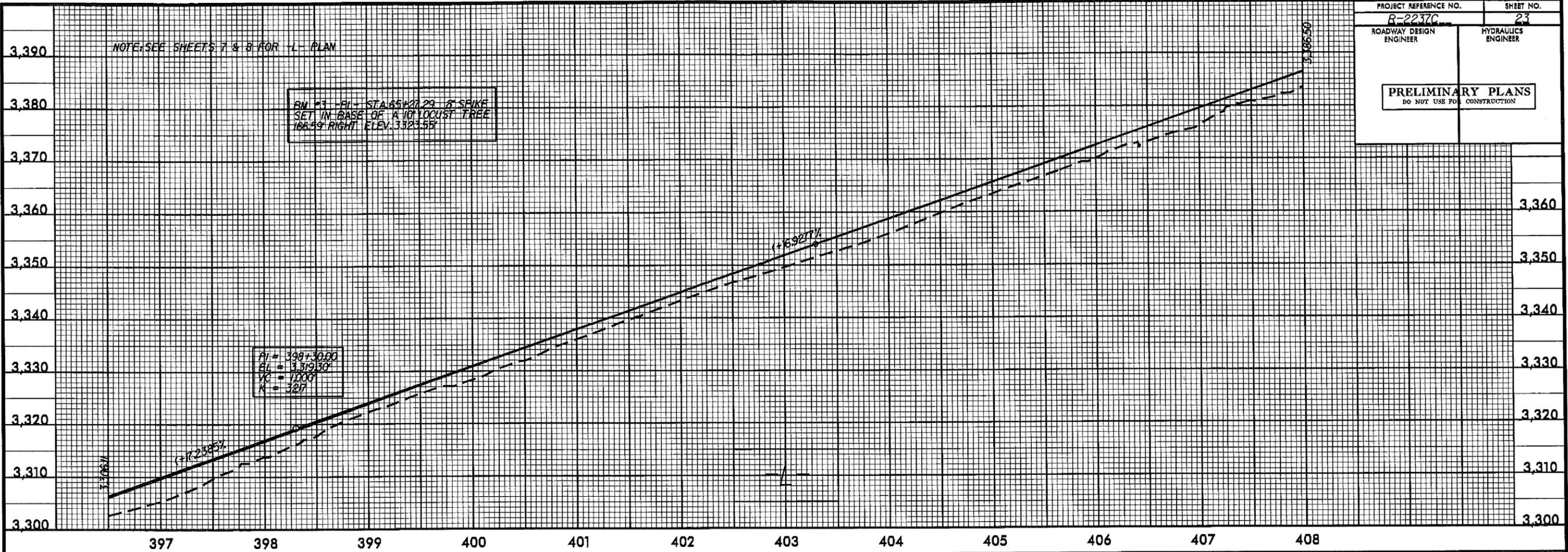


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R-2237C-rd-1110-1110-1110-1110.dgn



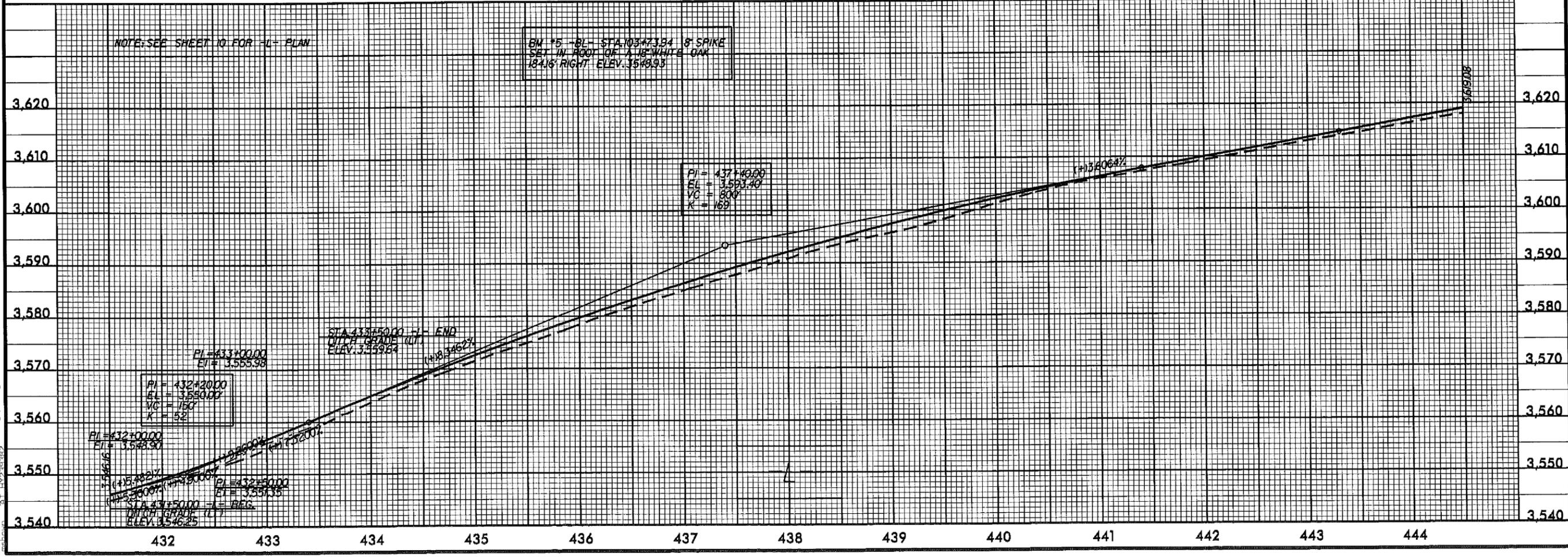
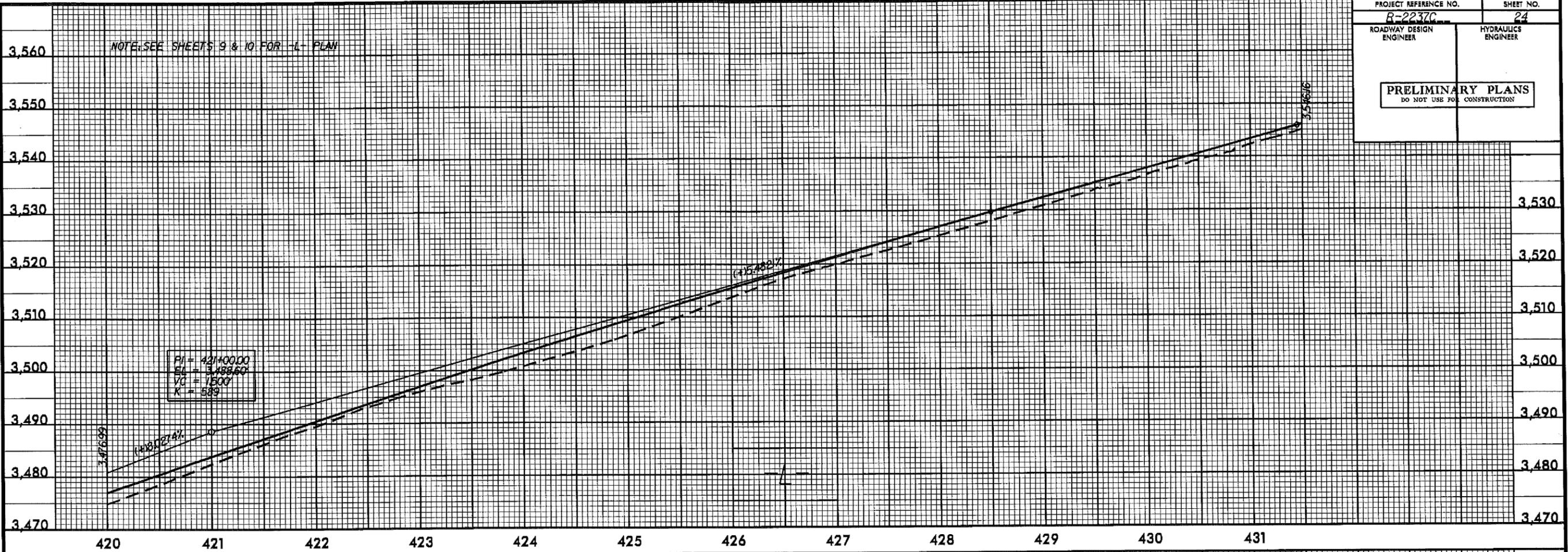
5/28/99

PROJECT REFERENCE NO. R-2237C	SHEET NO. 23
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



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5/28/99



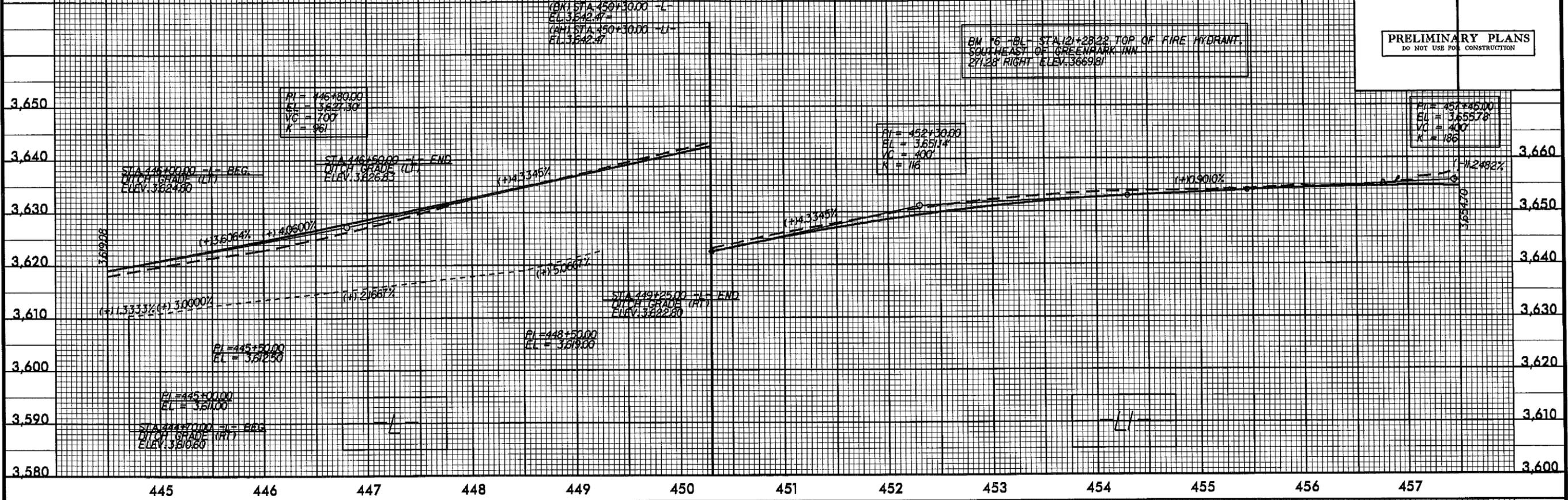
9 MAY 2000 11:11
 9:23:37
 2237c_rdy_pfl.dgn

5/28/98

PROJECT REFERENCE NO. R-2237C	SHEET NO. 25
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

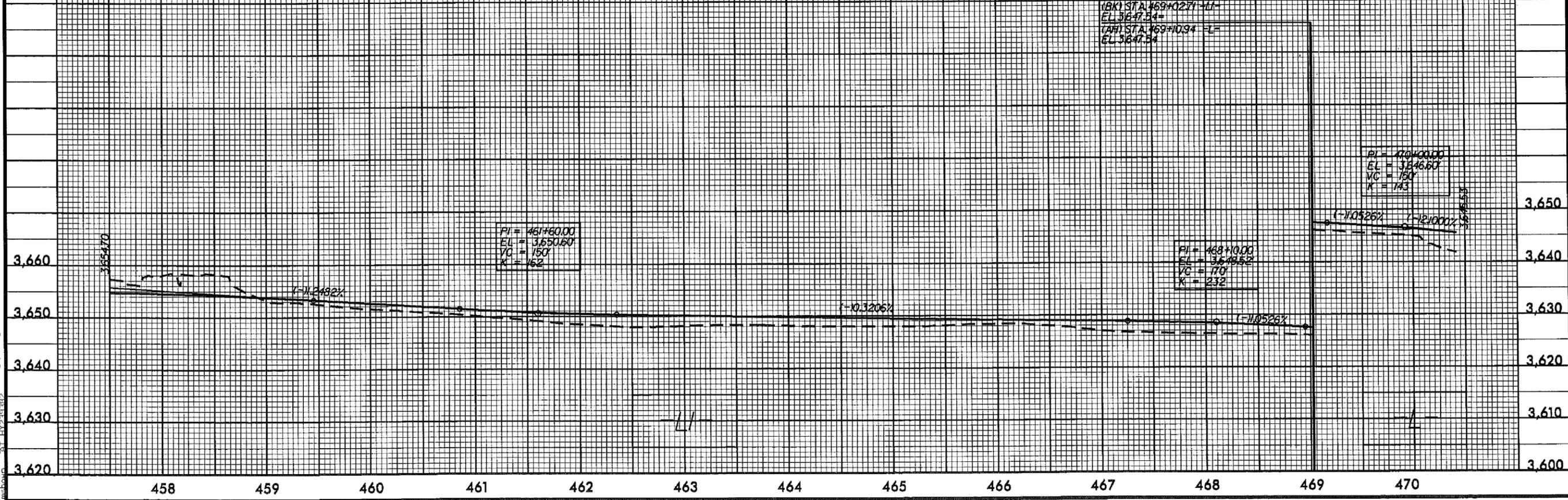
NOTE: SEE SHEETS 10 & 11 FOR -L- PLAN

NOTE: SEE SHEET 11 FOR -L- PLAN



NOTE: SEE SHEETS 11 & 12 FOR -L- PLAN

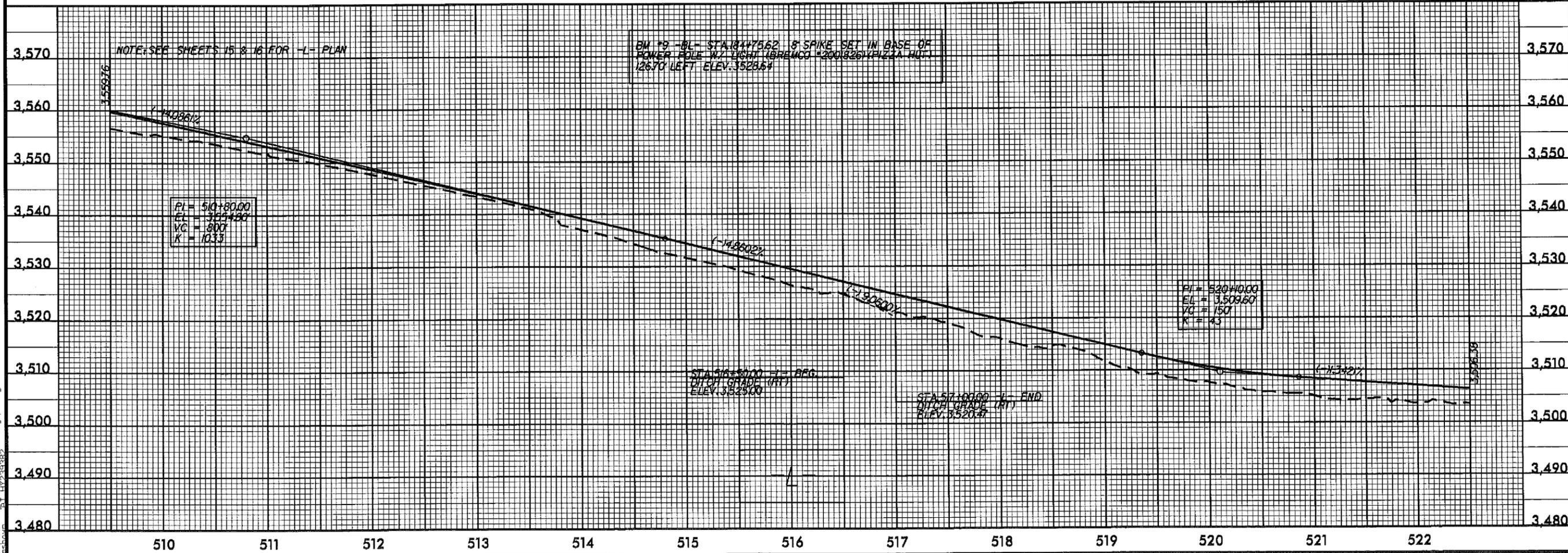
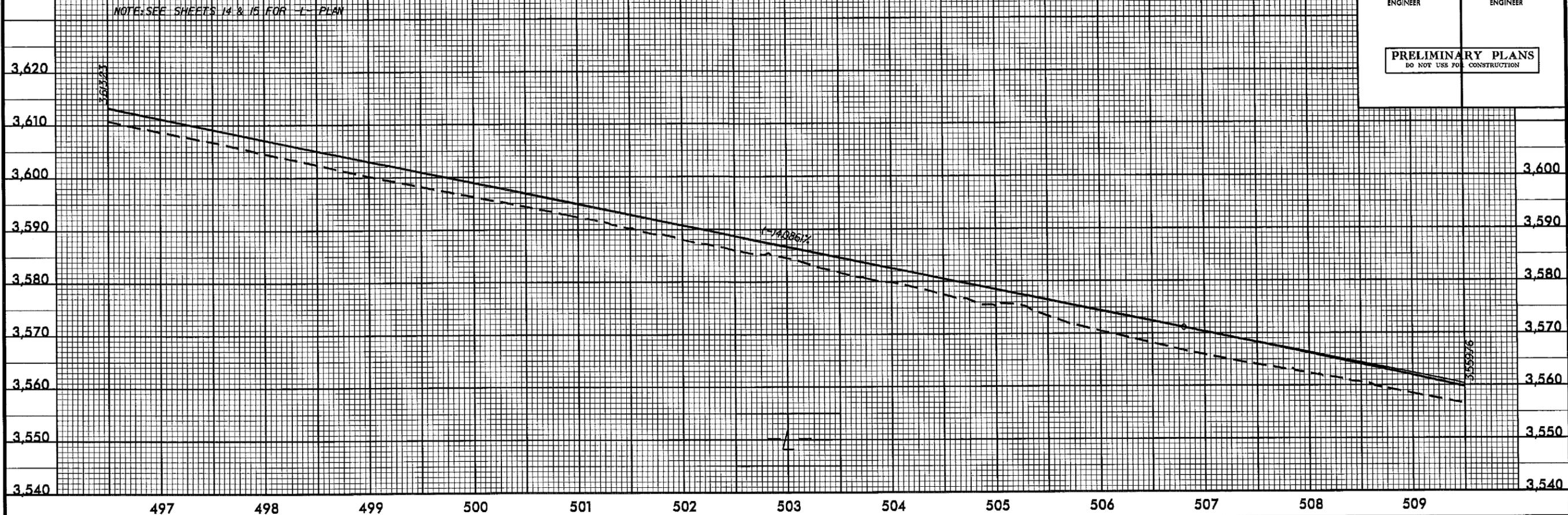
NOTE: SEE SHEET 12 FOR -L- PLAN



R:\MAY-2010\1142\1142.dwg 5/28/98 R-2237C.rdy pf1.dgn

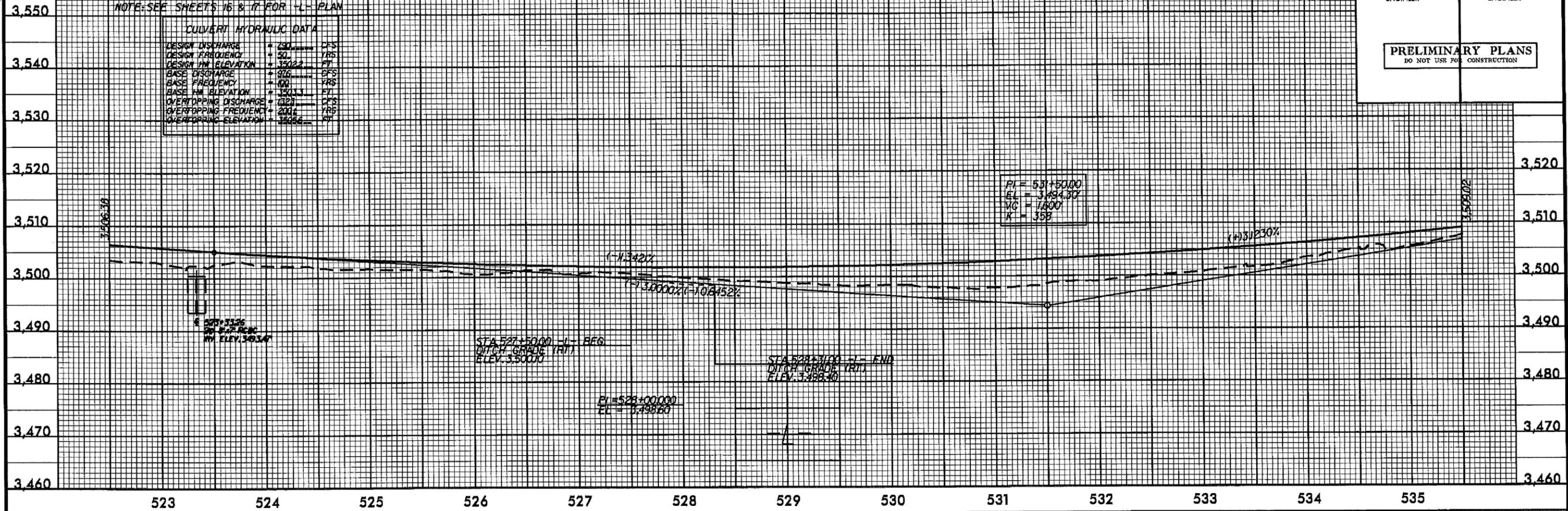
5/28/98

PROJECT REFERENCE NO. R-2237C	SHEET NO. 27
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

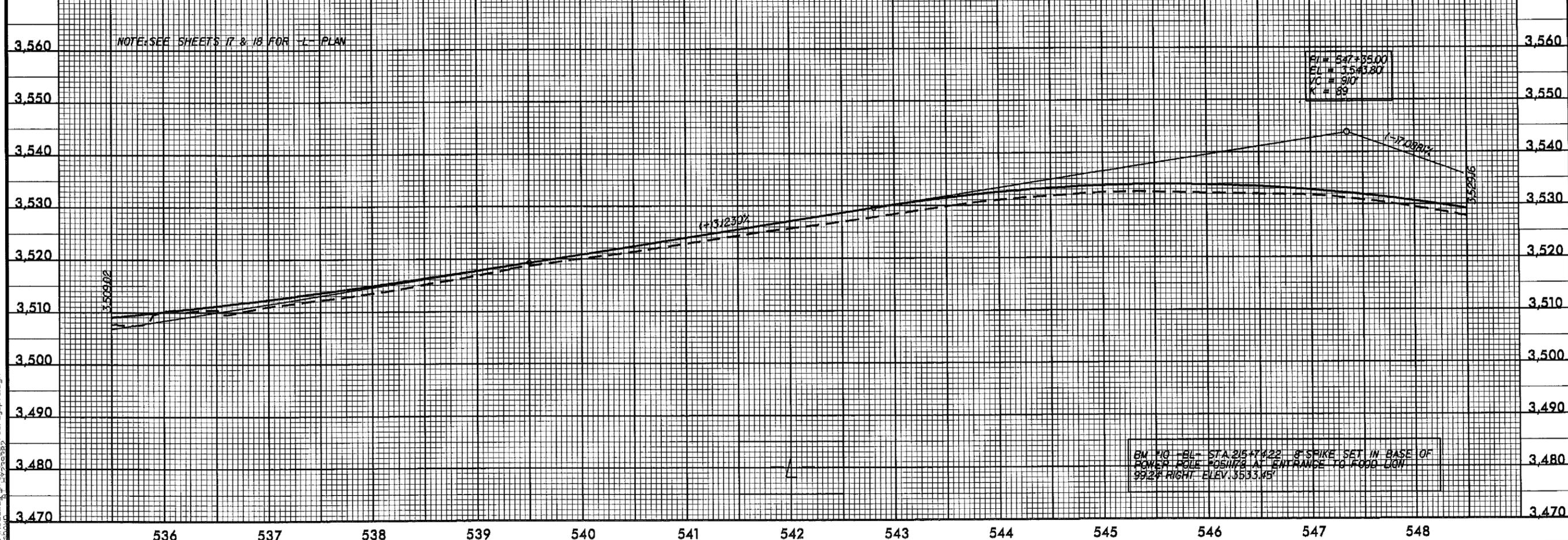


12-MAY-2010 11:15
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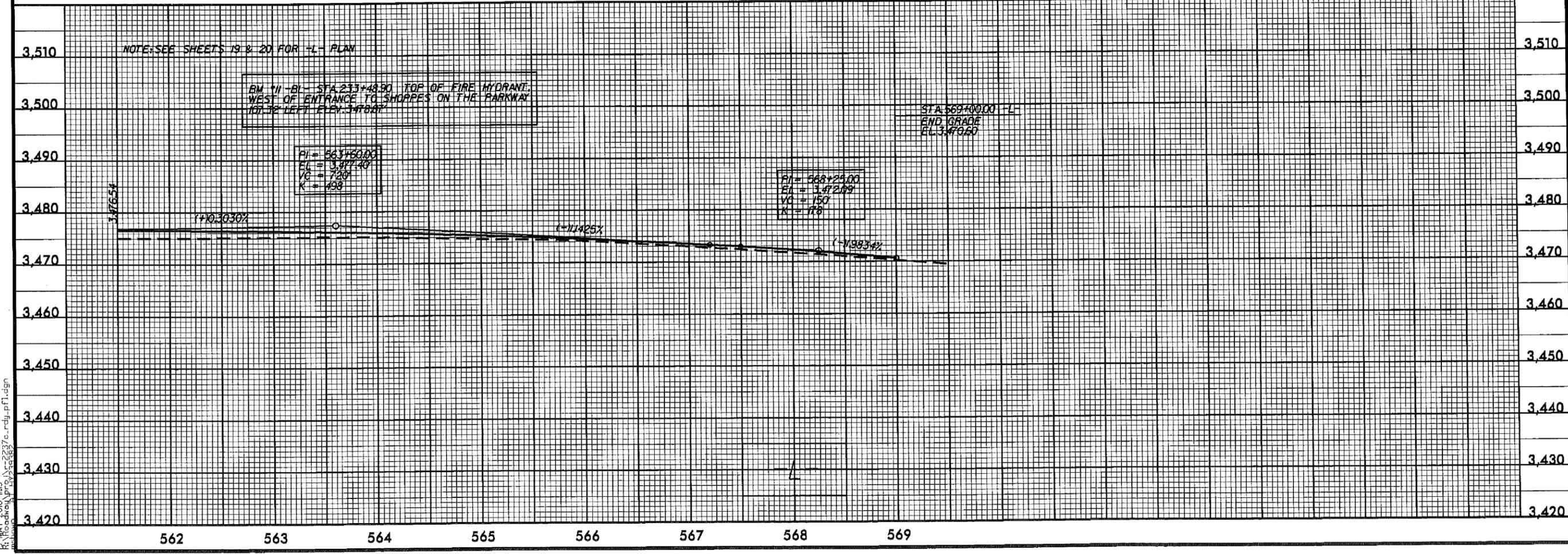
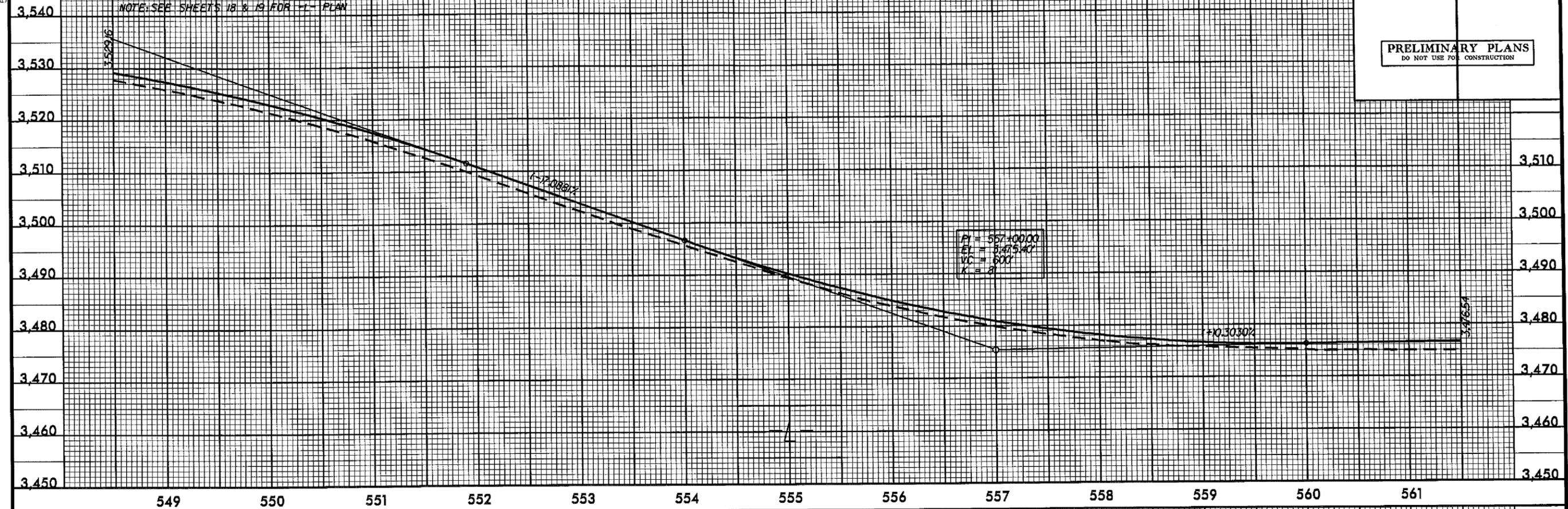
5/28/99



19-MAY-2010 11:13 AM
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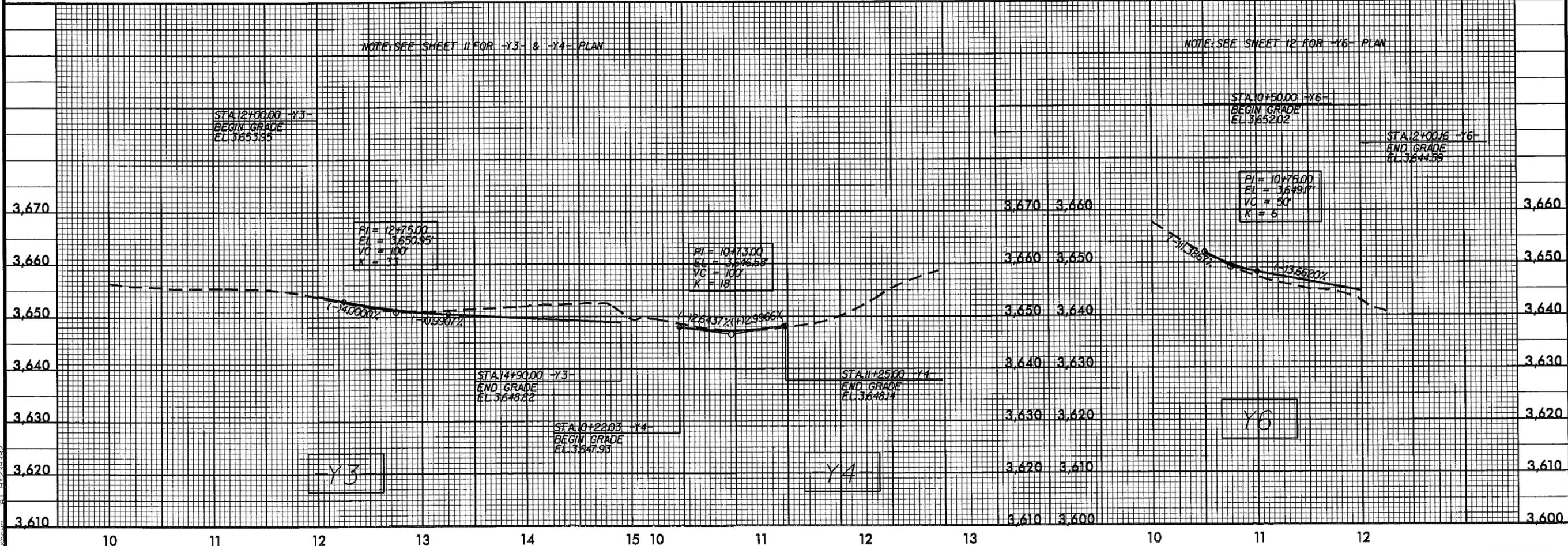
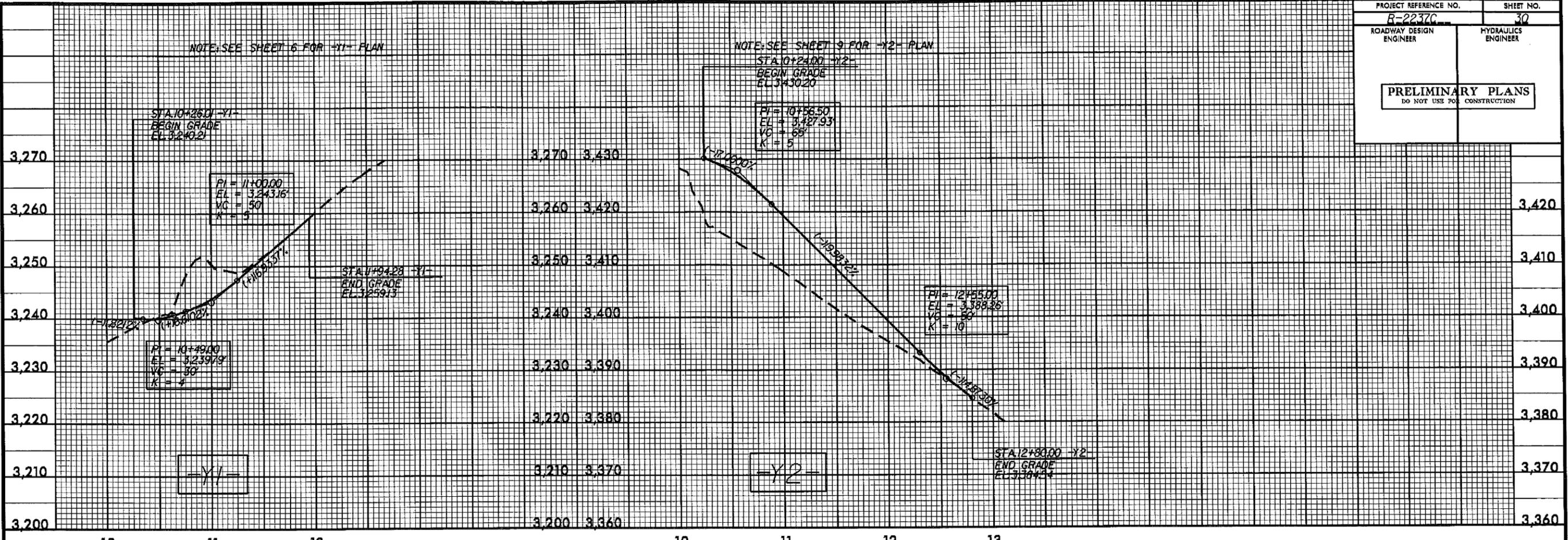
5/28/99



5-MAY-2010 11:13
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5/28/99

PROJECT REFERENCE NO. R-2237C	SHEET NO. 30
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

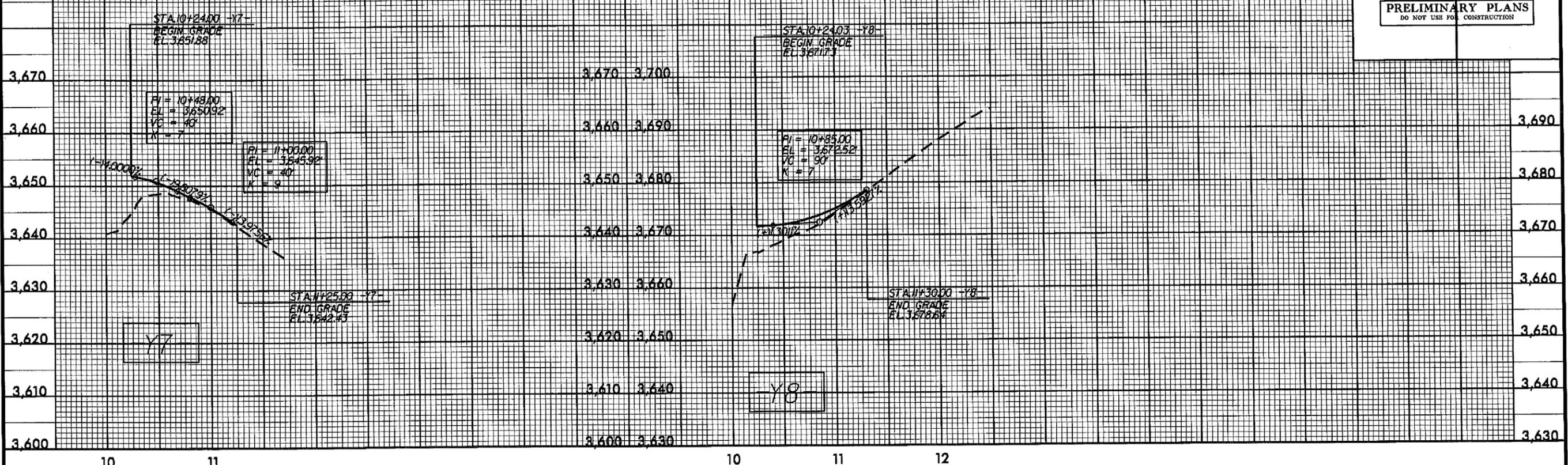


19 MAY 2000 11:44 AM
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5/28/99

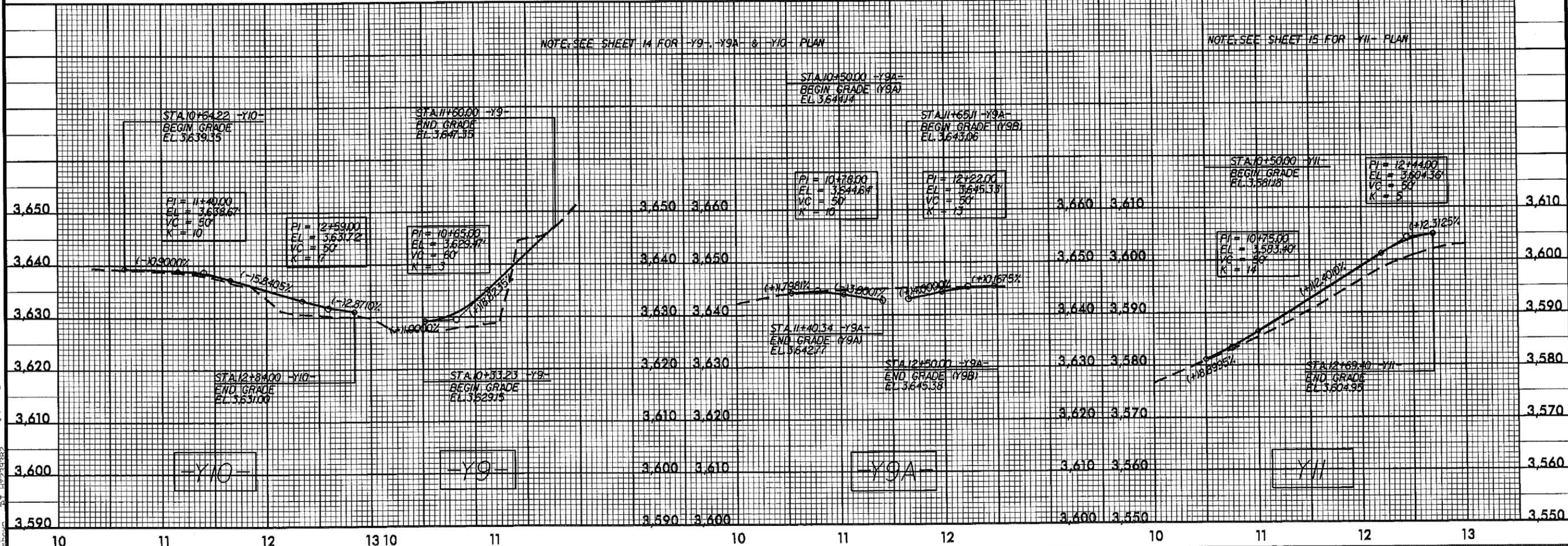
NOTE: SEE SHEET 13 FOR Y7- & Y8- PLAN

PROJECT REFERENCE NO. R-2237C	SHEET NO. 31
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



NOTE: SEE SHEET 14 FOR Y9-, Y9A- & Y10- PLAN

NOTE: SEE SHEET 15 FOR Y11- PLAN

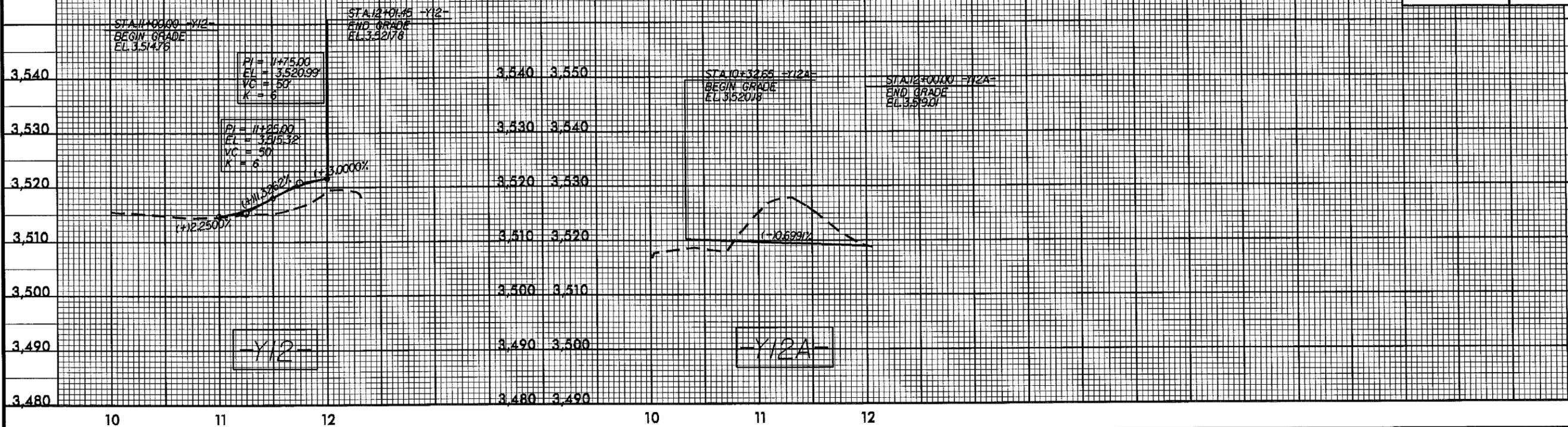


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5/28/99

PROJECT REFERENCE NO. R-2237C	SHEET NO. 32
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

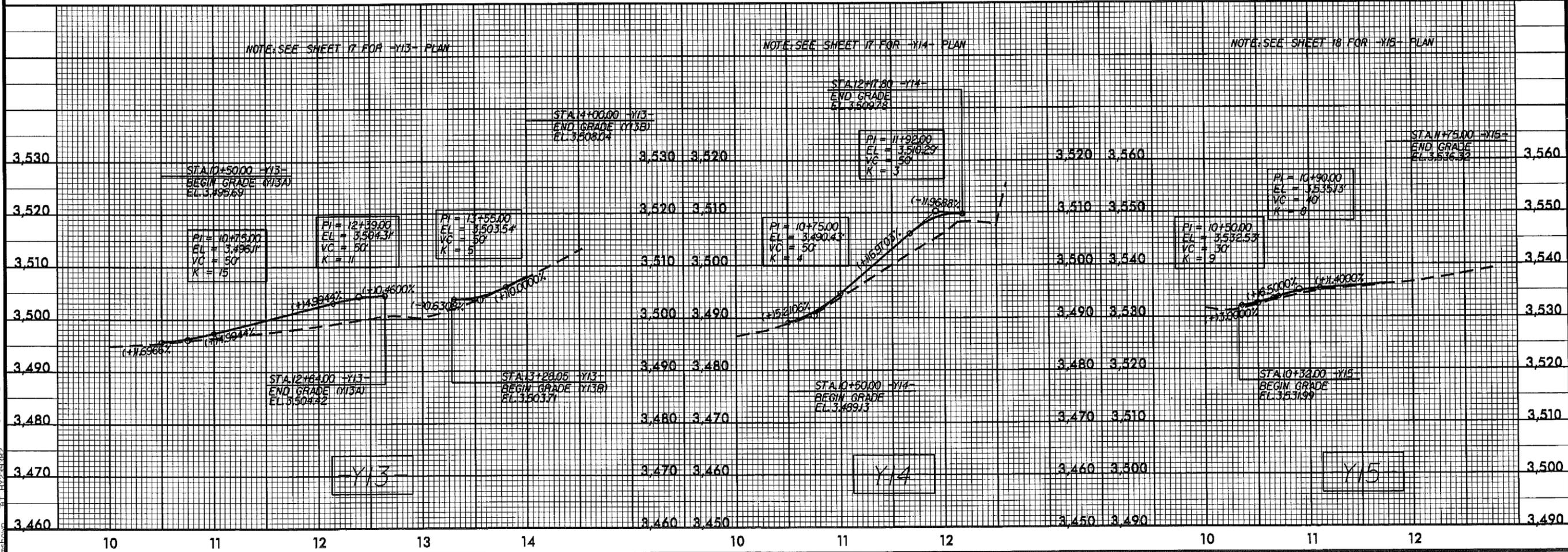
NOTE: SEE SHEET 16 FOR -Y12- & -Y12A- PLAN



NOTE: SEE SHEET 17 FOR -Y13- PLAN

NOTE: SEE SHEET 17 FOR -Y14- PLAN

NOTE: SEE SHEET 18 FOR -Y15- PLAN

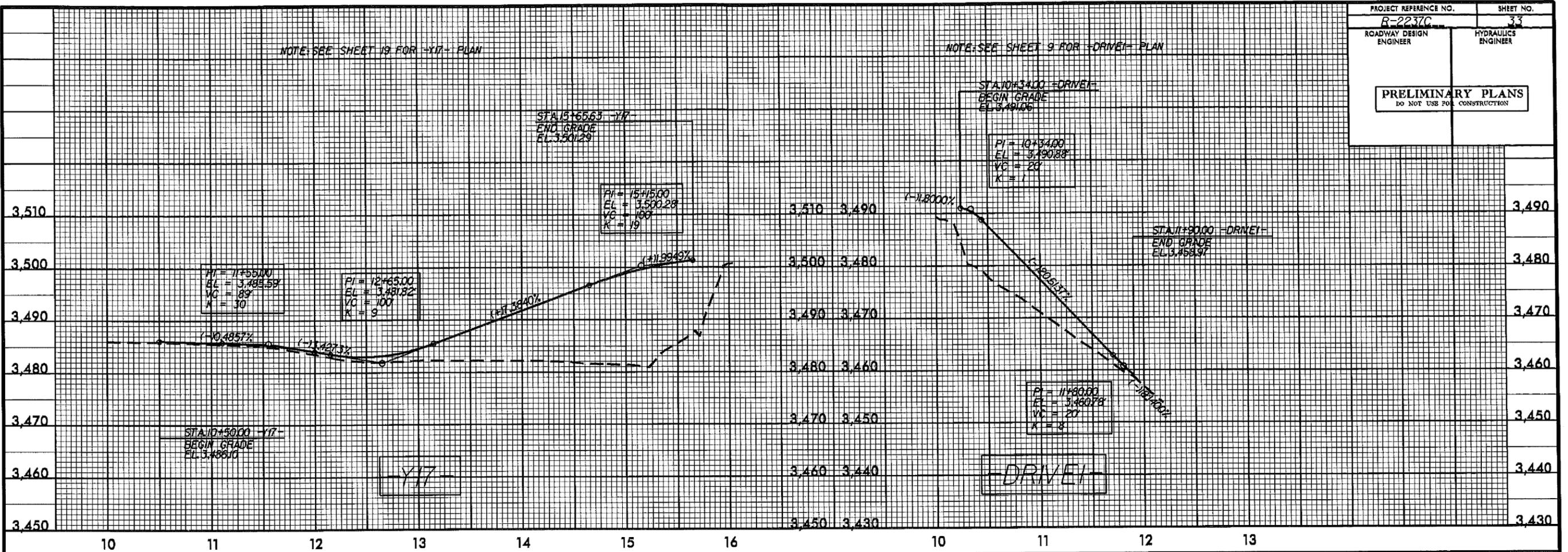


18-MAY-2010 11:45
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5/28/99

NOTE: SEE SHEET 19 FOR -Y17- PLAN

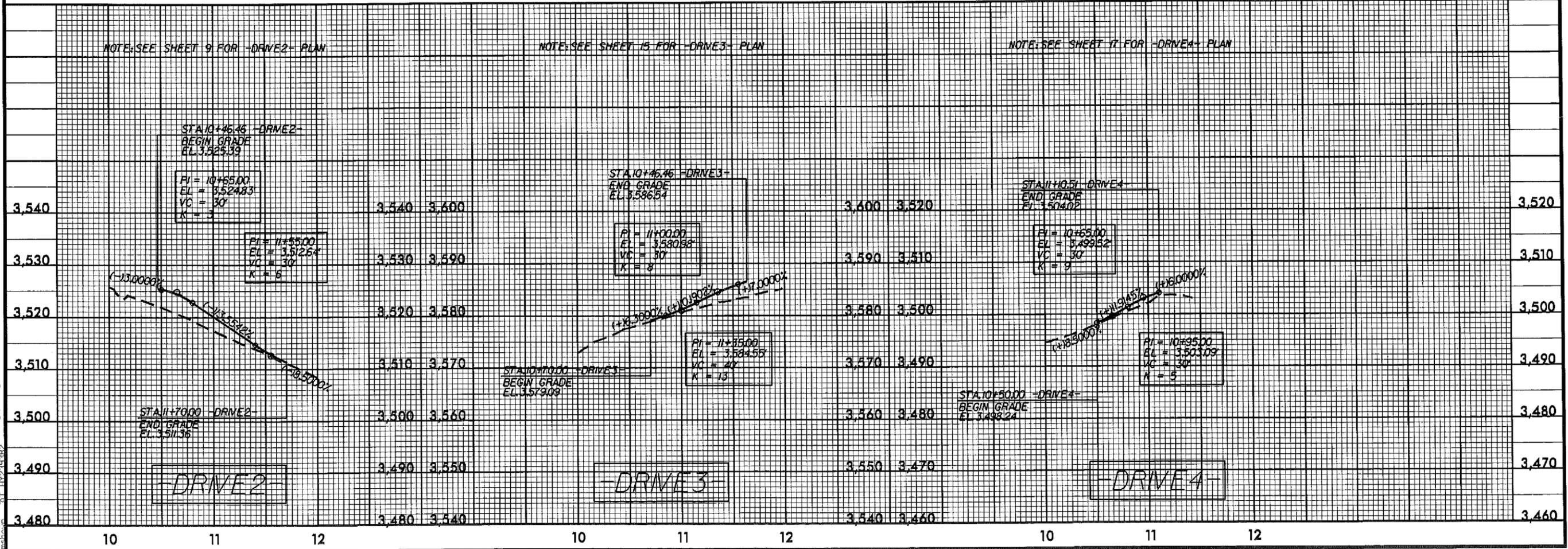
NOTE: SEE SHEET 9 FOR -DRIVE1- PLAN



NOTE: SEE SHEET 9 FOR -DRIVE2- PLAN

NOTE: SEE SHEET 15 FOR -DRIVE3- PLAN

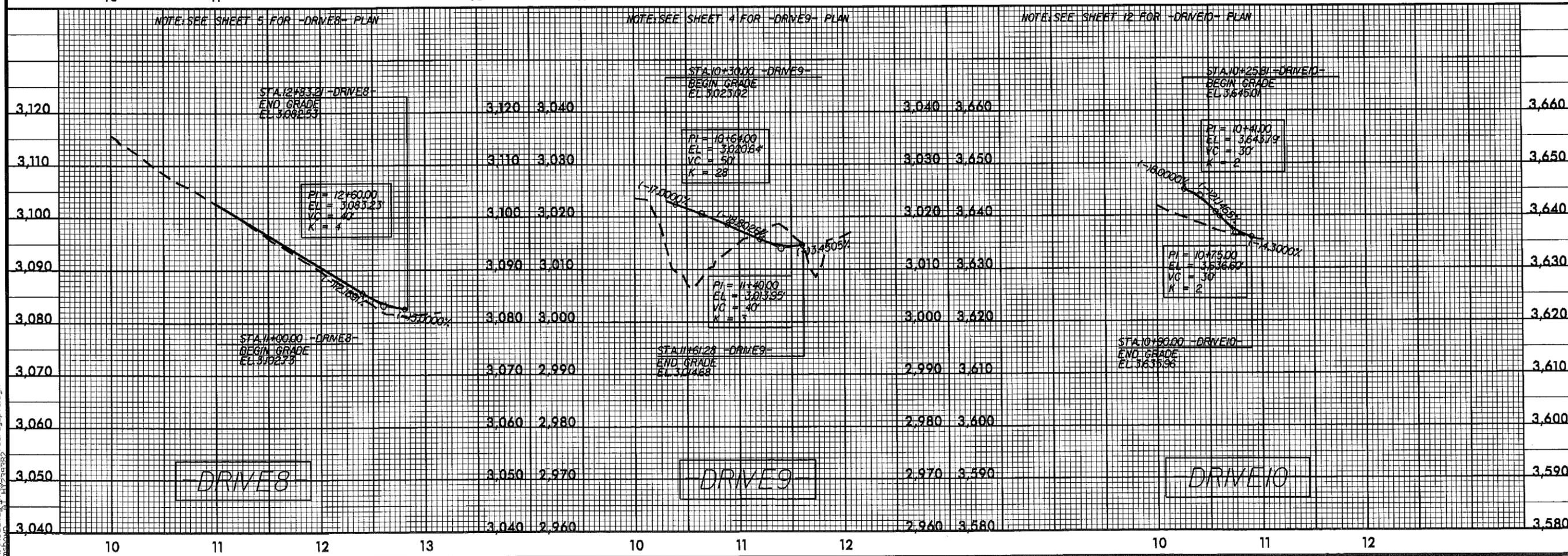
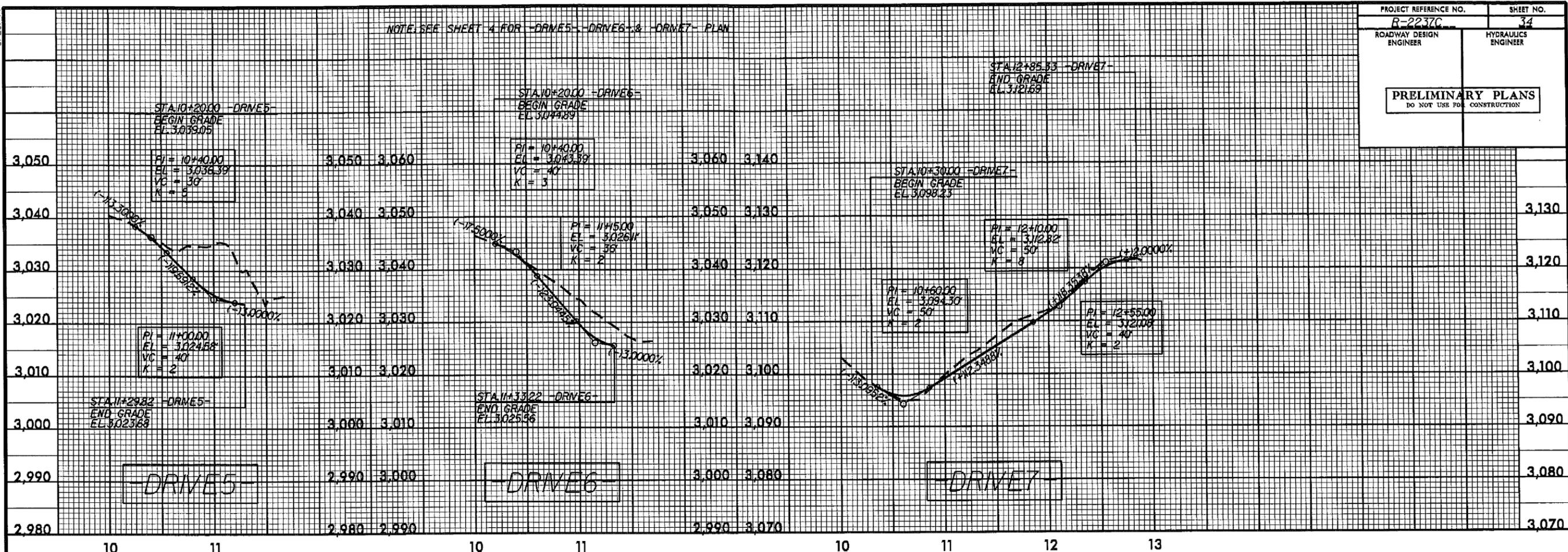
NOTE: SEE SHEET 11 FOR -DRIVE4- PLAN



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5/28/98

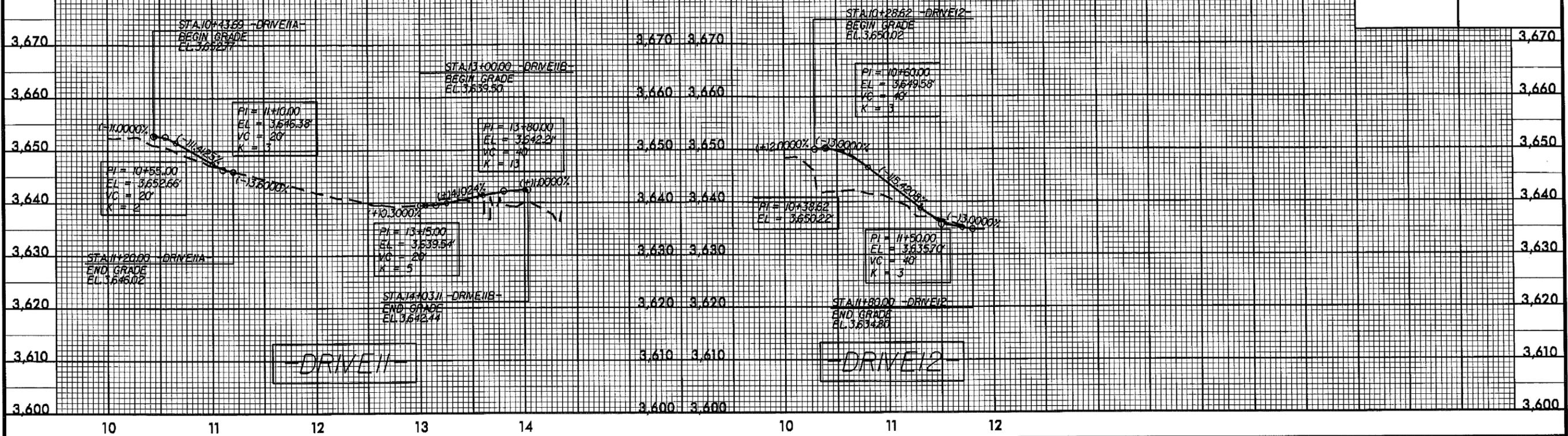
PROJECT REFERENCE NO. R-2237C	SHEET NO. 34
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



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5/28/99

PROJECT REFERENCE NO. R-2237C	SHEET NO. 35
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



9 MAY 2000 11:16
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