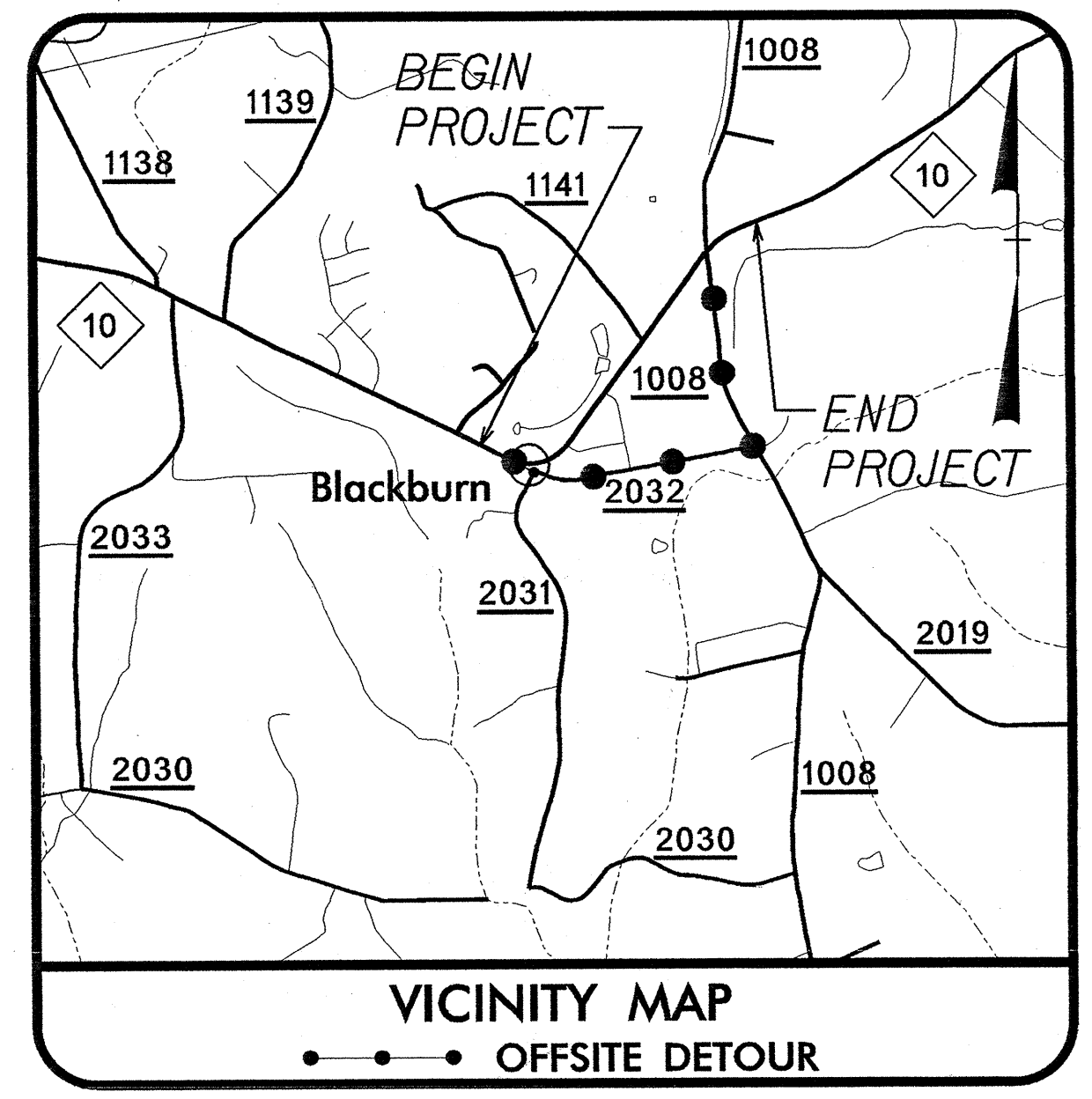


09/08/09

WBS ELEMENT: 37897

CONTRACT NO.: C201907

See Sheet 1-A For Index of Sheets



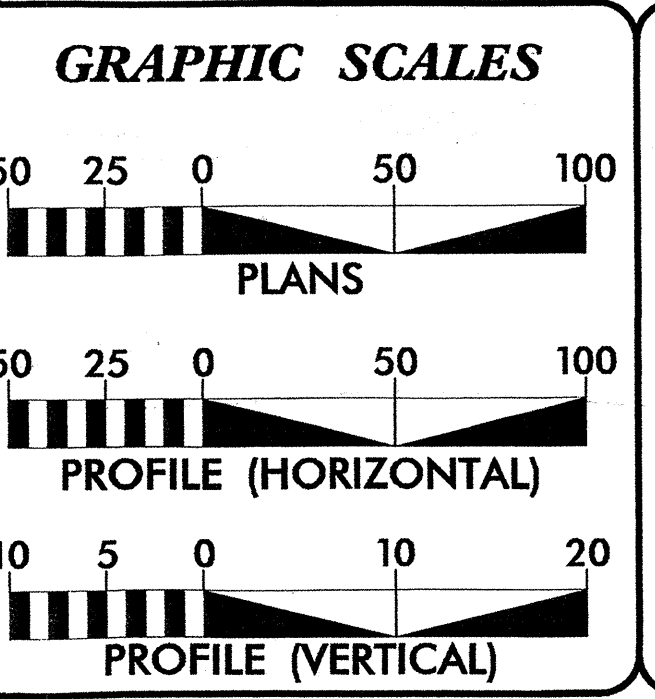
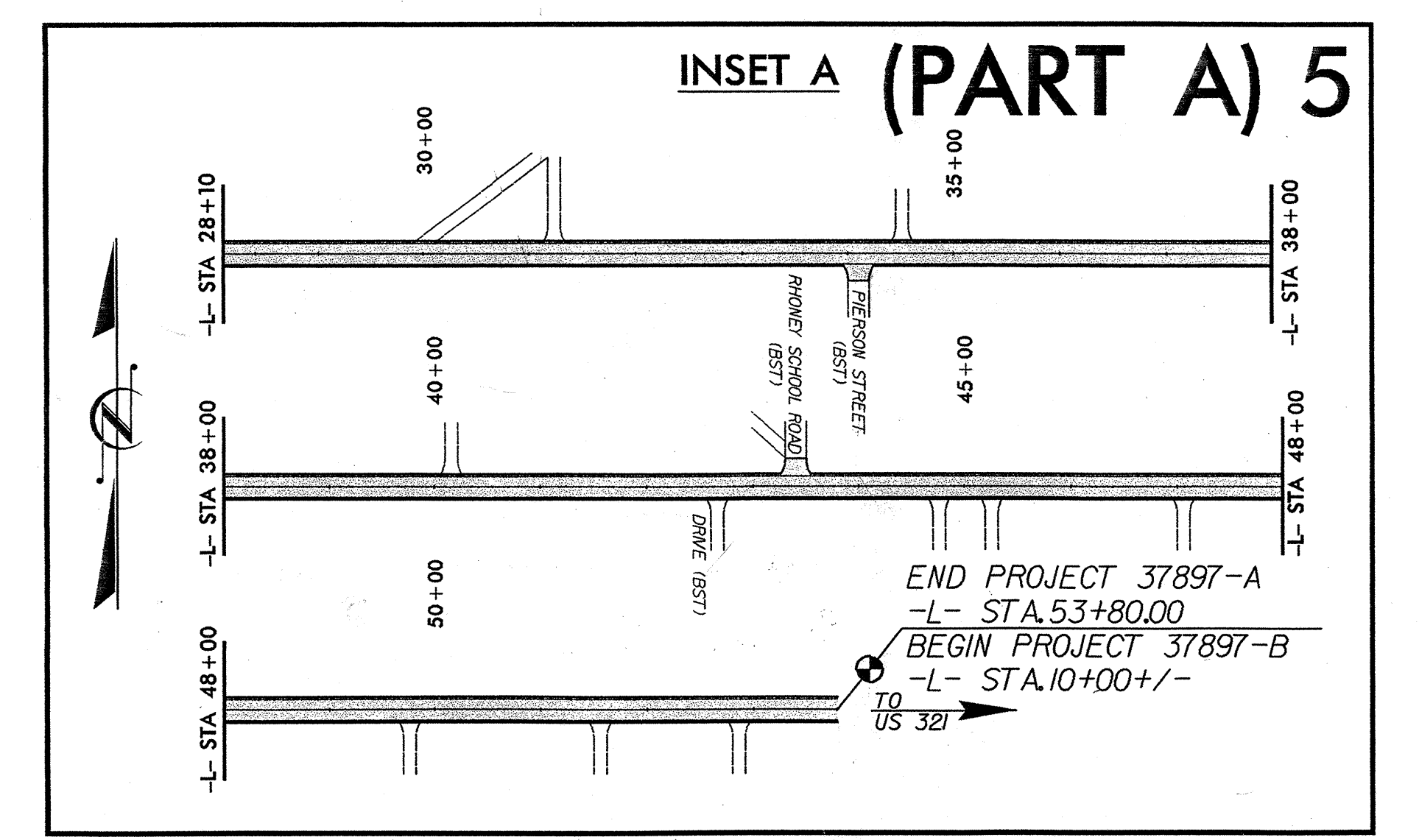
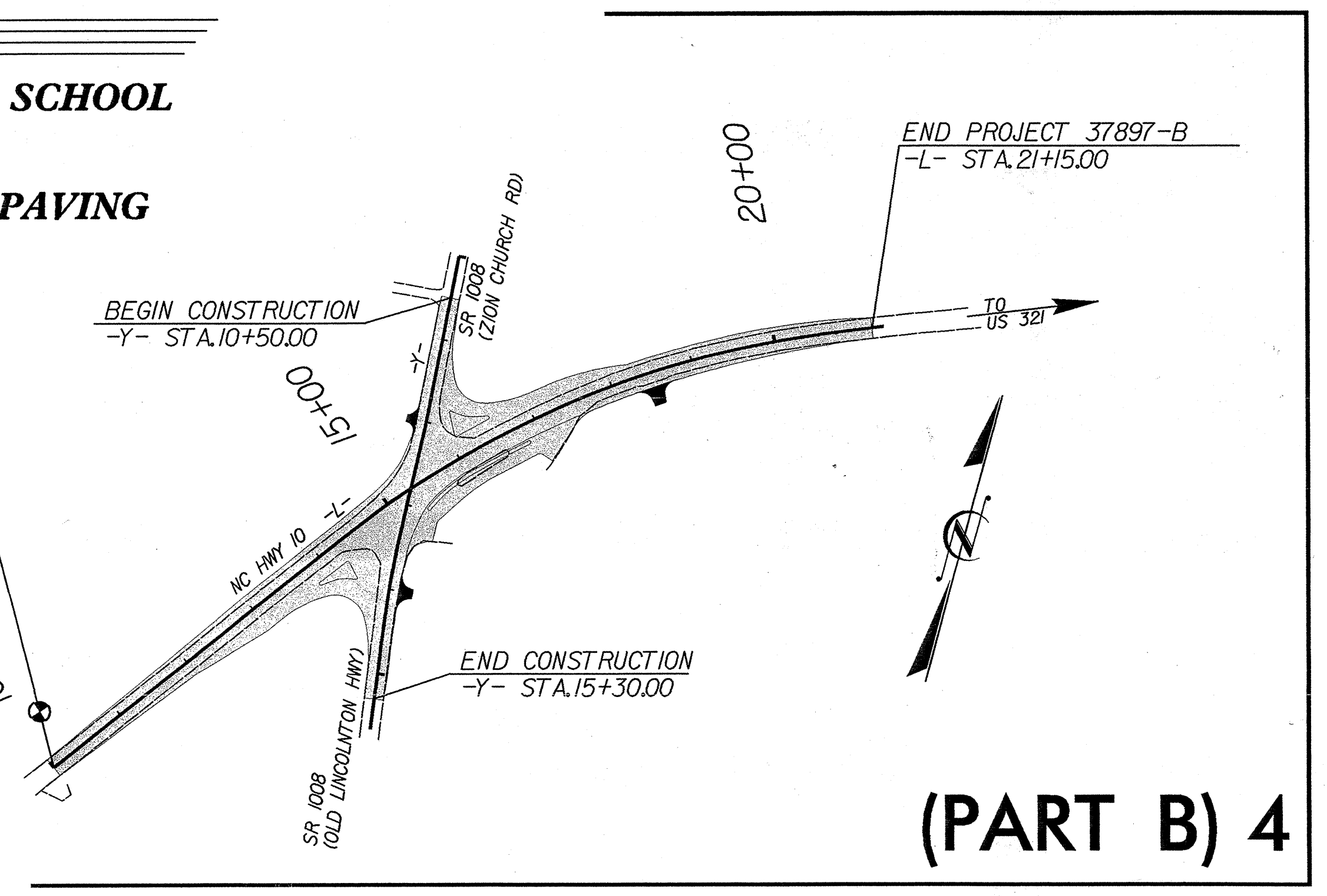
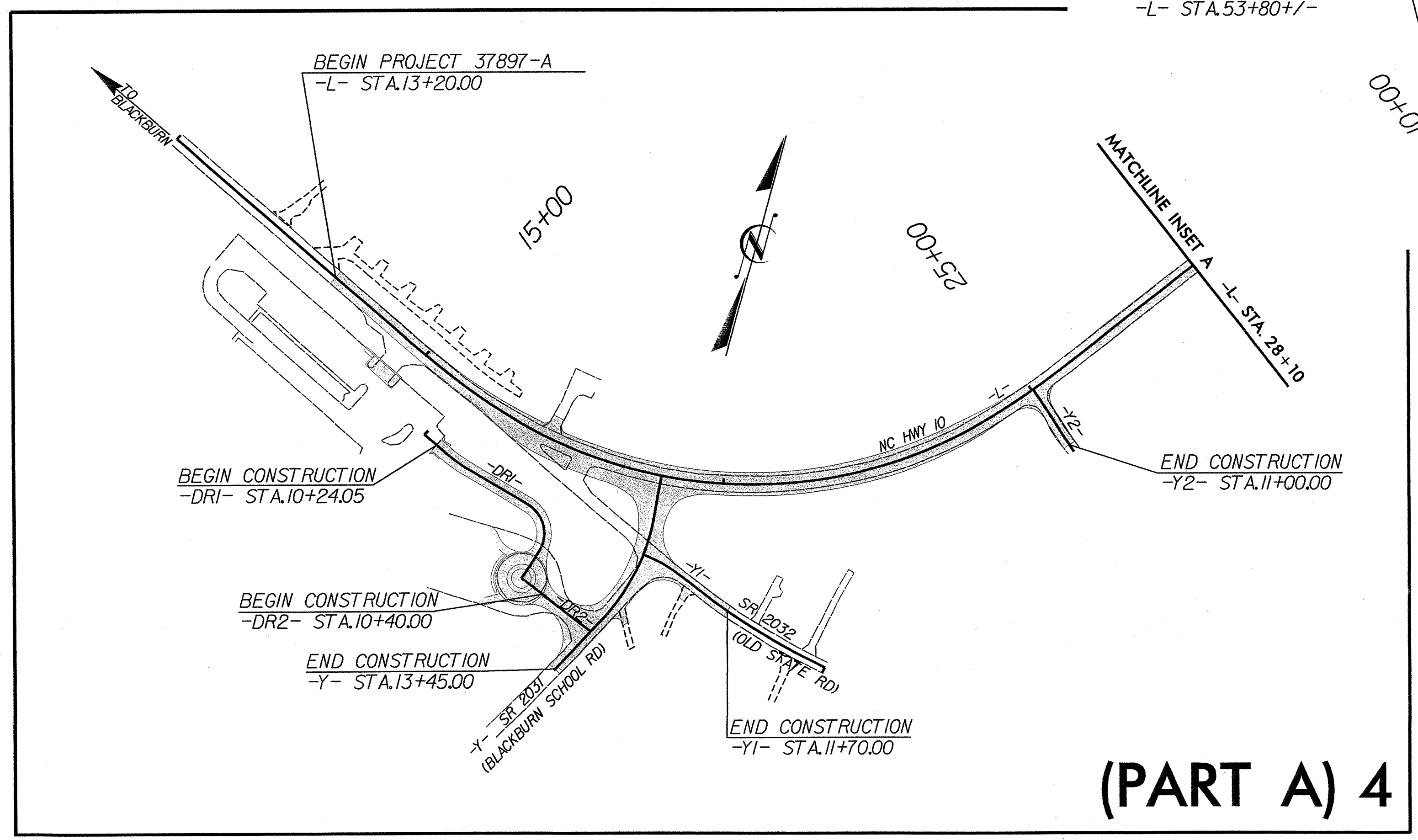
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**CATAWBA COUNTY**

**LOCATION: NC HWY 10 FROM BLACKBURN SCHOOL TO INTERSECTION OF SR 1008**

**TYPE OF WORK: GRADING, DRAINAGE, AND PAVING**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	37897	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
37897		PE, RW, FINAL	



**DESIGN DATA**

Vd = 50 MPH

FUNCTIONAL CLASS = LOCAL

\* DESIGN EXCEPTION REQUIRED FOR VERT. CURVATURE, VERT. SSD, AND MAXIMUM GRADE

**PROJECT LENGTH**

LENGTH ROADWAY PROJECT 37897-A	=	0.769 MI
LENGTH ROADWAY PROJECT 37897-B	=	0.211 MI
LENGTH ROADWAY PROJECT TOTAL	=	0.980 MI

Plans Prepared By:  
**TGS ENGINEERS**  
SUITE 141  
975 WALNUT STREET  
CARY, NC 27511  
PH (919) 319-8850

2006 STANDARD SPECIFICATIONS

**RIGHT OF WAY DATE:**  
FEBRUARY 2007

**LETTING DATE:**  
January 15, 2008'

Plans Prepared for:  
**NCDOT DIVISION 12**  
NCDOT Contact:  
**STEVE RACKLEY**  
DIVISION PROJECT MANAGER

**CHARLES L. FLOWE, PE**  
PROJECT ENGINEER

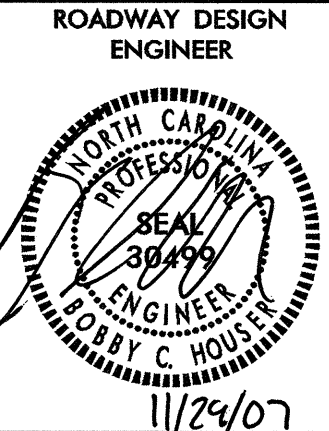
**BOBBY C. HOUSER, PE**  
PROJECT DESIGN ENGINEER

**ROADWAY DESIGN ENGINEER**

**BOBBY C. HOUSER, P.E.**  
SIGNATURE:

10/11/07

\$\$\$\$\$ SYSTEME\$\$\$\$\$  
\$\$\$\$\$ USER\$\$\$\$\$



8/17/99

COMBINED INDEX OF SHEETS	
SHEET NUMBER	SHEET
COMBINED 37897	
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
3	SUMMARY OF QUANTITIES
37897-A	
1	TITLE SHEET
2 THRU 2-B	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS
2-C	ROUNDBOUT GRADING PLAN
3-A	SUMMARY OF GUARDRAIL, EARTHWORK SUMMARY, AND ASPHALT PAVEMENT REMOVAL AND BREAKING SUMMARY
3-B	SUMMARY OF DRAINAGE QUANTITIES
3-C	RIGHT OF WAY AREA DATA SHEET
4 THRU 5	PLAN SHEET
6	PROFILE SHEET
TCP-1 THRU TCP-12	TRAFFIC CONTROL PLANS
PM-1	PAVEMENT MARKING PLANS
NCMA-1 THRU NCMA-2	NC MOVING AHEAD TRAFFIC CONTROL DETAILS
EC-1 THRU EC-4	EROSION CONTROL PLANS
X-INDEX	CROSS-SECTION INDEX
X-SUM	CROSS-SECTION SUMMARY
X-1 THRU X-17	CROSS-SECTIONS
37897-B	
1	TITLE SHEET
2	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS
3-A	SUMMARY OF GUARDRAIL, EARTHWORK SUMMARY, AND ASPHALT PAVEMENT REMOVAL AND BREAKING SUMMARY
3-B	SUMMARY OF DRAINAGE QUANTITIES
3-C	RIGHT OF WAY AREA DATA SHEET
4	PLAN SHEET
5	PROFILE SHEET
TCP-1 THRU TCP-5	TRAFFIC CONTROL PLANS
PM-1	PAVEMENT MARKING PLANS
NCMA-1 THRU NCMA-2	NC MOVING AHEAD TRAFFIC CONTROL DETAILS
EC-1 THRU EC-3	EROSION CONTROL PLANS
X-INDEX	CROSS SECTION INDEX
X-SUM	CROSS SECTION SUMMARY
X-1 THRU X-11	CROSS-SECTIONS

**GENERAL NOTES:** 2006 SPECIFICATIONS  
EFFECTIVE: 07-18-06  
REVISED: 07-18-06

**GRADE LINE:  
GRADING AND SURFACING:**  
THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

**CLEARING:**  
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

**SUPERELEVATION:**  
ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

**SHOULDER CONSTRUCTION:**  
ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01.

**SIDE ROADS:**  
THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

**GUARDRAIL:**  
THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

**SUBSURFACE PLANS:**  
NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

**UTILITIES:**  
UTILITY OWNERS ON THIS PROJECT ARE  
DUKE POWER  
BELLSOUTH  
POWER  
TELEPHONE  
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

**RIGHT-OF-WAY MARKERS:**  
ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY CONTRACT.

**DRIVEWAYS:**  
DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH DETAILS IN PLANS AT LOCATIONS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER. STREET RETURNS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.04.

**SHOULDER RECONSTRUCTION:**  
THE CONTRACTORS ATTENTION IS CALLED TO THE FACT THAT SHOULDER BORROW AND DITCH CONSTRUCTION ARE INCLUDED IN THE ITEM "SHOULDER RECONSTRUCTION", SEE SPECIAL PROVISIONS.

**SHORING:**  
SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

THE CONTRACT INCLUDES THE FOLLOWING ITEMS FOR WHICH QUANTITIES AND LOCATIONS WILL BE DETERMINED BY THE ENGINEER DURING CONSTRUCTION:

- SUPPLEMENTAL CLEARING AND GRUBBING
- INCIDENTAL STONE BASE

2006 ROADWAY STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated July 18, 2006 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
<b>DIVISION 2 - EARTHWORK</b>	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
225.06	Method of Grading Sight Distance at Intersections
<b>DIVISION 3 - PIPE CULVERTS</b>	
300.01	Method of Pipe Installation - Method 'A'
310.10	Driveway Pipe Construction
<b>DIVISION 5 - SUBGRADE, BASES AND SHOULDERS</b>	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
<b>DIVISION 6 - ASPHALT BASES AND PAVEMENTS</b>	
654.01	Pavement Repairs
<b>DIVISION 8 - INCIDENTALS</b>	
840.01	Brick Catch Basin - 12" thru 54" Pipe
840.02	Concrete Catch Basin - 12" thru 54" Pipe
840.17	Concrete Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.22	Frames and Wide Slot Sag Grates
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.29	Frames and Narrow Slot Flat Grates
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.34	Traffic Bearing Junction Box - for Use with Pipes 42" and Under
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.72	Pipe Collar
852.01	Concrete Islands
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

Note: Not to Scale

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

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# CONVENTIONAL PLAN SHEET SYMBOLS

### BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○
Property Corner	⊗
Property Monument	□
Parcel/Sequence Number	⑫③
Existing Fence Line	×-×-×
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	WLB
Proposed Wetland Boundary	WLB
Existing Endangered Animal Boundary	EAB
Existing Endangered Plant Boundary	EPB

### BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	⊙
Well	⊙
Small Mine	⊗
Foundation	□
Area Outline	□
Cemetery	⊕
Building	□
School	⊕
Church	⊕
Dam	⊕

### HYDROLOGY:

Stream or Body of Water	-----
Hydro, Pool or Reservoir	-----
Jurisdictional Stream	JS
Buffer Zone 1	BZ 1
Buffer Zone 2	BZ 2
Flow Arrow	←
Disappearing Stream	→
Spring	○
Wetland	WLB
Proposed Lateral, Tail, Head Ditch	-----
False Sump	▽

### RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○
Switch	□
RR Abandoned	-----
RR Dismantled	-----

### RIGHT OF WAY:

Baseline Control Point	◇
Existing Right of Way Marker	△
Existing Right of Way Line	-----
Proposed Right of Way Line	-----
Proposed Right of Way Line with Iron Pin and Cap Marker	-----
Proposed Right of Way Line with Concrete or Granite Marker	-----
Existing Control of Access	○
Proposed Control of Access	○
Existing Easement Line	-----
Proposed Temporary Construction Easement	-----
Proposed Temporary Drainage Easement	-----
Proposed Permanent Drainage Easement	-----
Proposed Permanent Utility Easement	-----

### ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	C
Proposed Slope Stakes Fill	F
Proposed Wheel Chair Ramp	WCR
Proposed Wheel Chair Ramp Curb Cut	WCC
Curb Cut for Future Wheel Chair Ramp	CCFR
Existing Metal Guardrail	-----
Proposed Guardrail	-----
Existing Cable Guiderail	-----
Proposed Cable Guiderail	-----
Equality Symbol	⊕
Pavement Removal	⊗

### VEGETATION:

Single Tree	○
Single Shrub	○
Hedge	-----
Woods Line	-----
Orchard	-----
Vineyard	-----

### EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	CONC
Bridge Wing Wall, Head Wall and End Wall	CONC WW
MINOR:	
Head and End Wall	CONC HW
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	CB
Paved Ditch Gutter	-----
Storm Sewer Manhole	⊙
Storm Sewer	S

### UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	⊙
Power Line Tower	⊗
Power Transformer	⊗
U/G Power Cable Hand Hole	PH
H-Frame Pole	●
Recorded U/G Power Line	P
Designated U/G Power Line (S.U.E.*)	P

### TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	⊙
Telephone Booth	⊕
Telephone Pedestal	⊕
Telephone Cell Tower	⊕
U/G Telephone Cable Hand Hole	PH
Recorded U/G Telephone Cable	T
Designated U/G Telephone Cable (S.U.E.*)	T
Recorded U/G Telephone Conduit	TC
Designated U/G Telephone Conduit (S.U.E.*)	TC
Recorded U/G Fiber Optics Cable	T FO
Designated U/G Fiber Optics Cable (S.U.E.*)	T FO

### WATER:

Water Manhole	⊙
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
Recorded U/G Water Line	W
Designated U/G Water Line (S.U.E.*)	W
Above Ground Water Line	A/G Water

### TV:

TV Satellite Dish	⊕
TV Pedestal	⊕
TV Tower	⊗
U/G TV Cable Hand Hole	PH
Recorded U/G TV Cable	TV
Designated U/G TV Cable (S.U.E.*)	TV
Recorded U/G Fiber Optic Cable	TV FO
Designated U/G Fiber Optic Cable (S.U.E.*)	TV FO

### GAS:

Gas Valve	◇
Gas Meter	⊕
Recorded U/G Gas Line	G
Designated U/G Gas Line (S.U.E.*)	G
Above Ground Gas Line	A/G Gas

### SANITARY SEWER:

Sanitary Sewer Manhole	⊙
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	SS
Above Ground Sanitary Sewer	A/G Sanitary Sewer
Recorded SS Forced Main Line	FSS
Designated SS Forced Main Line (S.U.E.*)	FSS

### MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	⊕
Utility Located Object	○
Utility Traffic Signal Box	⊕
Utility Unknown U/G Line	UTL
U/G Tank; Water, Gas, Oil	□
A/G Tank; Water, Gas, Oil	□
U/G Test Hole (S.U.E.*)	⊕
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
**SUMMARY OF QUANTITIES**

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201907

ItemNumber	Sec #	Quantity	Unit	Description
000100000-N	800	Lump Sum		MOBILIZATION
000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING
000100000-E	200	Lump Sum		CLEARING & GRUBBING - ACRE(S)
002200000-E	225	4,490	CY	UNCLASSIFIED EXCAVATION
003600000-E	225	200	CY	UNDERCUT EXCAVATION
005000000-E	226	2	ACR	SUPPLEMENTARY CLEARING & GRUBBING
010600000-E	230	100	CY	BORROW EXCAVATION
015600000-E	250	2,395	SY	REMOVAL OF EXISTING ASPHALT PAVEMENT
017700000-E	250	310	SY	BREAKING OF EXISTING ASPHALT PAVEMENT
031800000-E	300	120	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS
034300000-E	310	164	LF	15" SIDE DRAIN PIPE
036000000-E	310	16	LF	12" RC PIPE CULVERTS, CLASS III
036600000-E	310	436	LF	15" RC PIPE CULVERTS, CLASS III
037200000-E	310	304	LF	18" RC PIPE CULVERTS, CLASS III
037800000-E	310	196	LF	24" RC PIPE CULVERTS, CLASS III
073800000-E	310	4	LF	42" BIT COAT CS PIPE CULVERTS, TYPE B 0.109" THICK
099500000-E	340	424	LF	PIPE REMOVAL
099600000-N	350	1	EA	PIPE CLEAN-OUT
101100000-N	500	Lump Sum		FINE GRADING
112100000-E	520	60	TON	AGGREGATE BASE COURSE
122000000-E	545	150	TON	INCIDENTAL STONE BASE
124500000-E	SP	1	SMI	SHOULDER RECONSTRUCTION
133000000-E	607	50	SY	INCIDENTAL MILLING
148900000-E	610	3,400	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
149800000-E	610	3,560	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B

ItemNumber	Sec #	Quantity	Unit	Description
151900000-E	610	2,140	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B
156000000-E	620	443	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
170400000-E	SP	50	TON	PATCHING EXISTING PAVEMENT
200000000-N	806	11	EA	RIGHT OF WAY MARKERS
225300000-E	840	3,383	CY	PIPE COLLARS
228600000-N	840	12	EA	MASONRY DRAINAGE STRUCTURES
230800000-E	840	6.1	LF	MASONRY DRAINAGE STRUCTURES
235200000-N	840	1	EA	FRAME WITH GRATE, STD #40,**** (G)
236500000-N	840	2	EA	FRAME WITH TWO GRATES, STD #40.22
236700000-N	840	7	EA	FRAME WITH TWO GRATES, STD #40.29
254200000-E	846	140	LF	1'-6" CONCRETE CURB & GUTTER
254900000-E	846	200	LF	2'-6" CONCRETE CURB & GUTTER
264700000-E	852	295	SY	5" MONOLITHIC CONCRETE ISLANDS (SURFACE MOUNTED)
303000000-E	862	1,100	LF	STEEL BM GUARDRAIL
304500000-E	862	50	LF	STEEL BM GUARDRAIL, SHOP CURVED
315000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
327000000-N	SP	10	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
356600000-E	867	370	LF	WOVEN WIRE FENCE RESET
362800000-E	876	30	TON	RIP RAP, CLASS I
364900000-E	876	309	TON	RIP RAP, CLASS B
365600000-E	876	954	SY	FILTER FABRIC FOR DRAINAGE
440000000-E	1110	684	SF	WORK ZONE SIGNS (STATIONARY)
440500000-E	1110	352	SF	WORK ZONE SIGNS (PORTABLE)
441000000-E	1110	96	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
443000000-N	1130	223	EA	DRUMS

ItemNumber	Sec #	Quantity	Unit	Description
444500000-E	1145	336	LF	BARRICADES (TYPE III)
445000000-N	1150	1,000	HR	FLAGGER
465500000-E	1205	11,645	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)
468600000-E	1205	15,163	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)
469500000-E	1205	205	LF	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)
471000000-E	1205	195	LF	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)
472100000-E	1205	6	EA	THERMOPLASTIC PAVEMENT MARKING CHARACTER (120 MILS)
472500000-E	1205	19	EA	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)
481000000-E	1205	3,608	LF	PAINT PAVEMENT MARKING LINES (4")
482000000-E	1205	50	LF	PAINT PAVEMENT MARKING LINES (8")
483500000-E	1205	11	LF	PAINT PAVEMENT MARKING LINES (24")
484500000-N	1205	4	EA	PAINT PAVEMENT MARKING SYMBOL
490500000-N	1253	169	EA	SNOWPLOWABLE PAVEMENT MARKERS
600000000-E	1605	4,875	LF	TEMPORARY SILT FENCE
600900000-E	1610	640	TON	STONE FOR EROSION CONTROL, CLASS B
601200000-E	1610	205	TON	SEDIMENT CONTROL STONE
601500000-E	1615	3.5	ACR	TEMPORARY MULCHING
601800000-E	1620	150	LB	SEED FOR TEMPORARY SEEDING
602100000-E	1620	0.75	TON	FERTILIZER FOR TEMPORARY SEEDING
602900000-E	SP	75	LF	SAFETY FENCE
603000000-E	1630	720	CY	SILT EXCAVATION
603300000-E	1631	984	SY	SYNTHETIC ROVING
603600000-E	1631	492	SY	MATting FOR EROSION CONTROL
604200000-E	1632	240	LF	1/4" HARDWARE CLOTH
608400000-E	1660	4	ACR	SEEDING & MULCHING
608700000-E	1660	2.5	ACR	MOWING
609000000-E	1661	100	LB	SEED FOR REPAIR SEEDING
609300000-E	1661	0.5	TON	FERTILIZER FOR REPAIR SEEDING
609600000-E	1662	100	LB	SEED FOR SUPPLEMENTAL SEEDING
610800000-E	1665	2.75	TON	FERTILIZER TOPDRESSING
611700000-N	SP	14	EA	RESPONSE FOR EROSION CONTROL

5/28/99

07-NOV-2007 09:38  
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09/28/09  
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 CONTRACT NO.:  
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 \$\$\$DGN\$\$\$\$\$  
 \$\$\$USERNAME\$\$\$\$\$

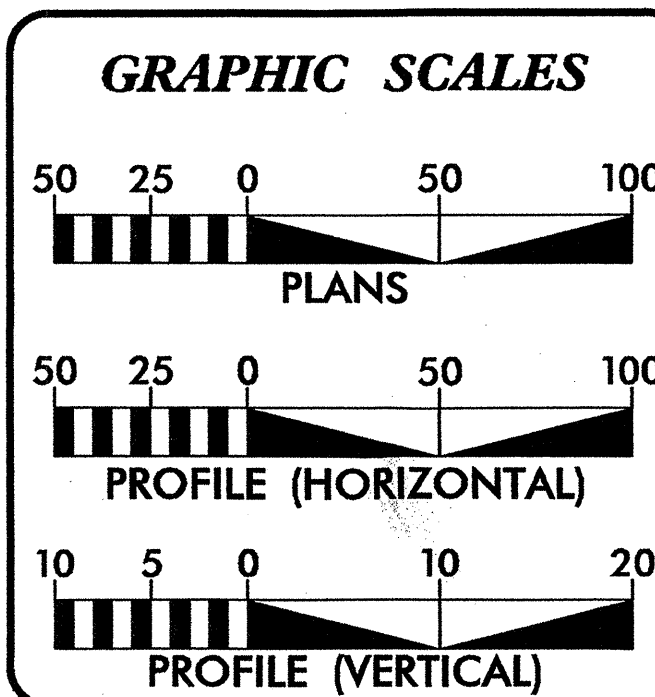
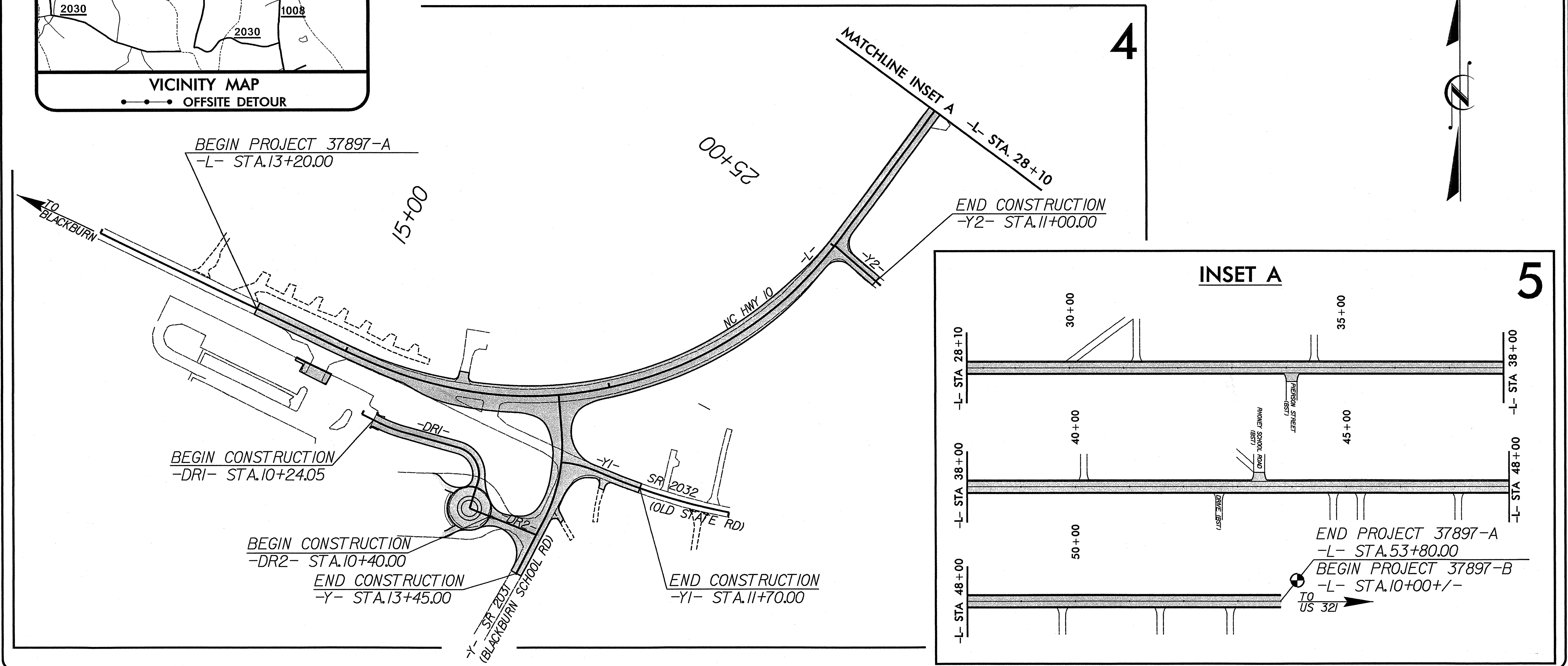
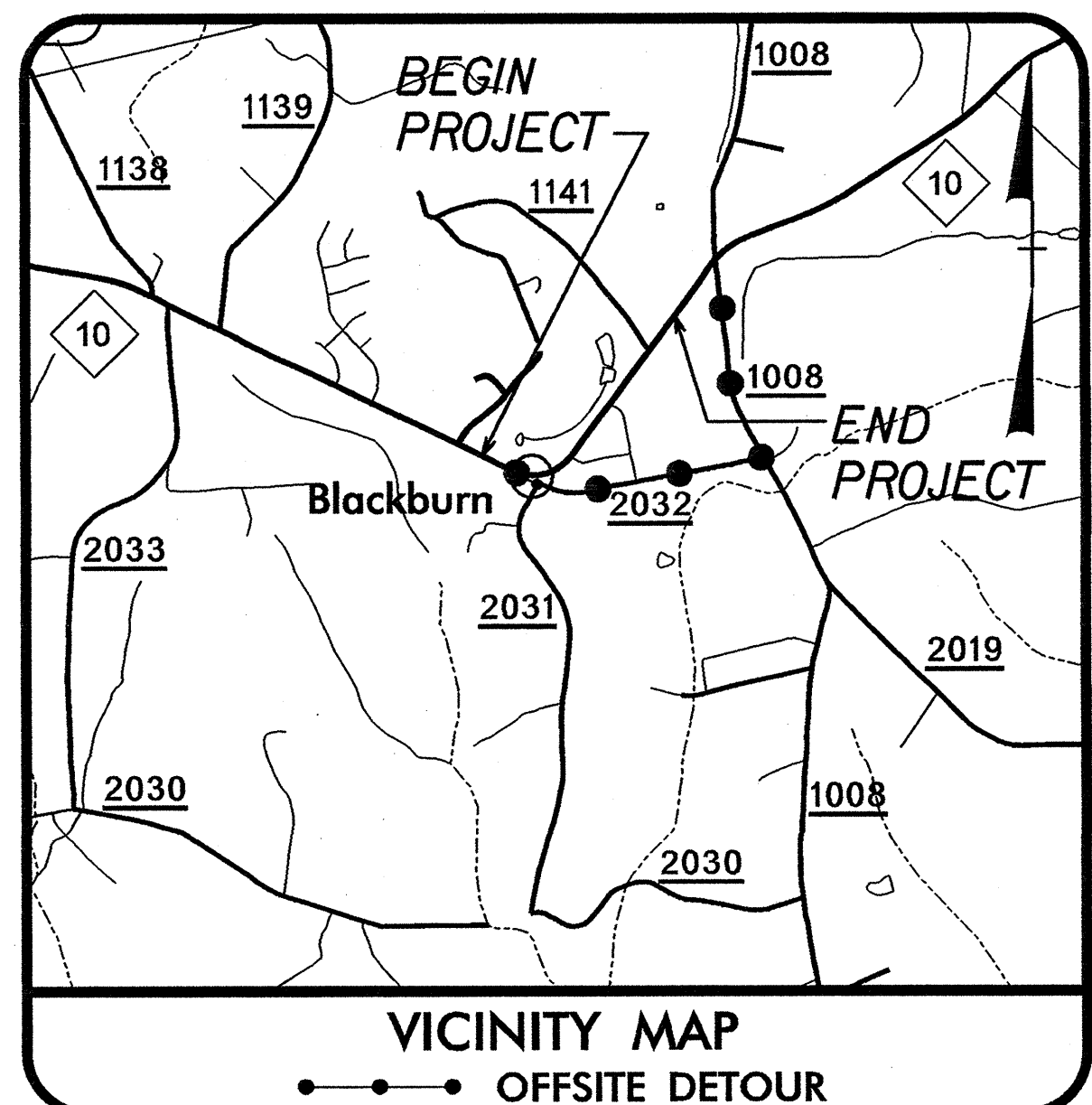
See Sheet 1-A For Index of Sheets

STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

**CATAWBA COUNTY**

LOCATION: INTERSECTION OF NC HWY 10 AND SR2032 (OLD STATE RD)  
 TYPE OF WORK: GRADING, DRAINAGE, AND PAVING

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	37897-A	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
37897		PE, R/W, FINAL	



DESIGN DATA

FUNCTIONAL CLASS = LOCAL

PROJECT LENGTH

LENGTH ROADWAY PROJECT 37897-A = 0.769 MI

Plans Prepared By:  
**TGS ENGINEERS**  
 TGS ENGINEERS  
 SUITE 141  
 975 WALNUT STREET  
 CARY, NC 27511  
 PH (919) 319-8850

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:  
**FEBRUARY 2007**

LETTING DATE:  
 January 15, 2008

Plans Prepared for:  
**NC DOT DIVISION 12**  
 NCDOT Contact:  
**GARY R. SPANGLER**  
 DIVISION PROJECT MANAGER

**CHARLES L. FLOWE, PE**  
 PROJECT ENGINEER

**BOBBY C. HOUSER, PE**  
 PROJECT DESIGN ENGINEER

ROADWAY DESIGN ENGINEER

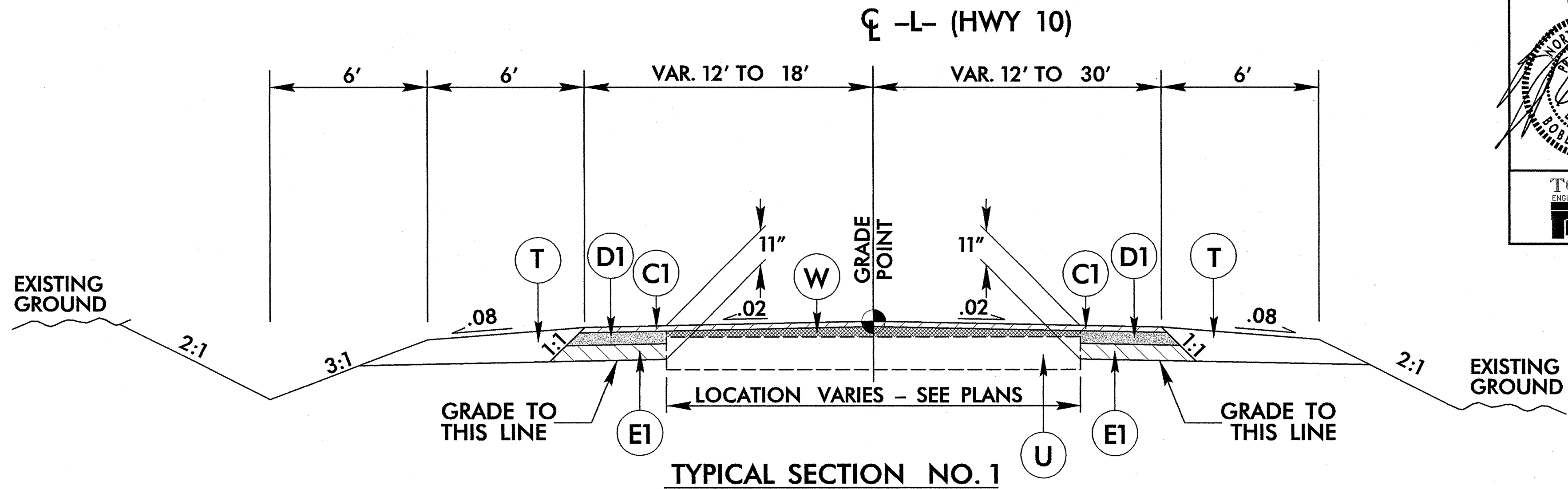
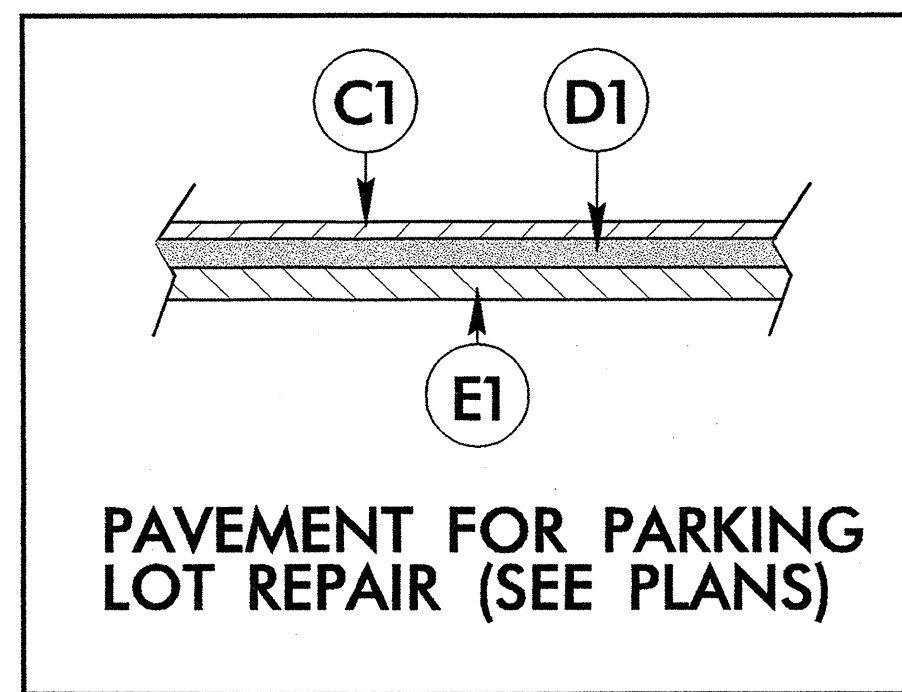
**BOBBY C. HOUSER, P.E.**  
 SIGNATURE:

10/11/07

6/2/99

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	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 TO EXCEED 2" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	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.
E1	PROP. APPROX. 5.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E2	PROP. APPROX. 9 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 1083 LBS. PER SQ. YD.
E3	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 4" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING.

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



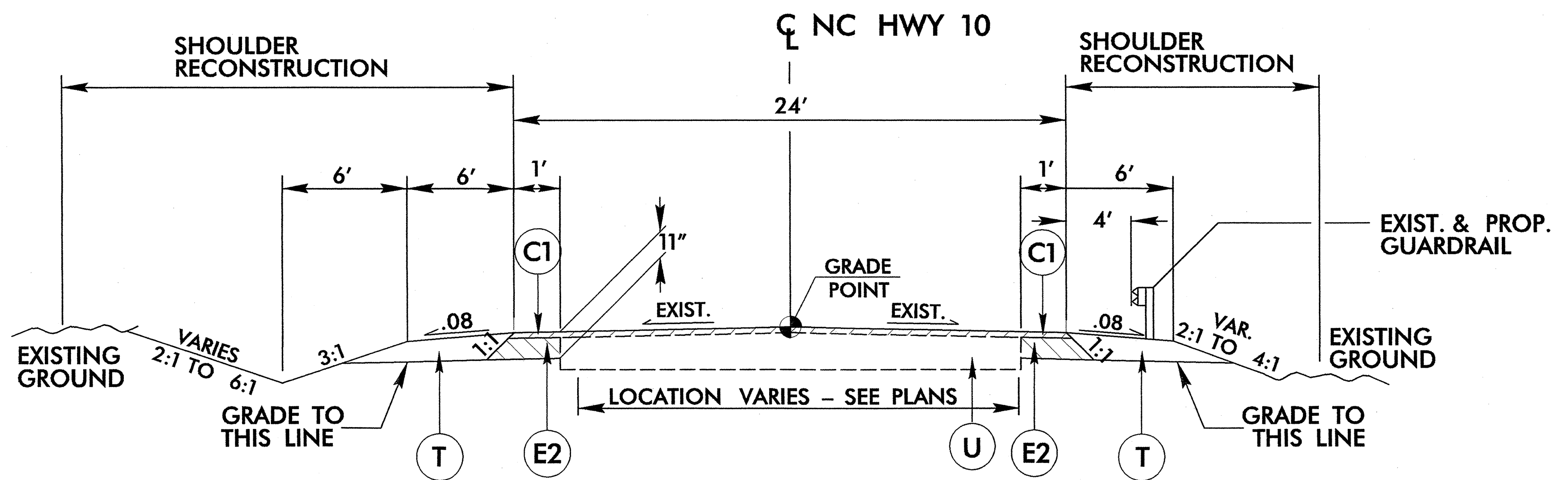
USE TYPICAL SECTION NO. 1 AS FOLLOWS:

-L- STA. 13+50.00 TO 27+80.00

NOTE: NO GUARDRAIL WIDENING.  
GUARDRAIL TO BE PLACED ON EDGE OF SHOULDER.  
SEE PLANS FOR GUARDRAIL LOCATIONS.

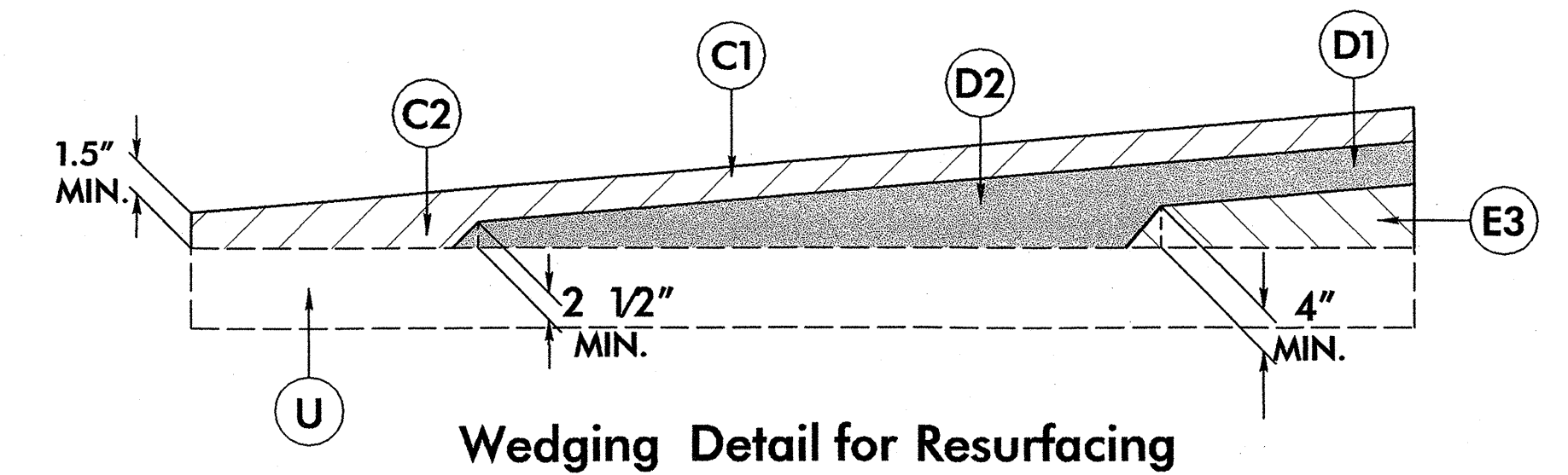
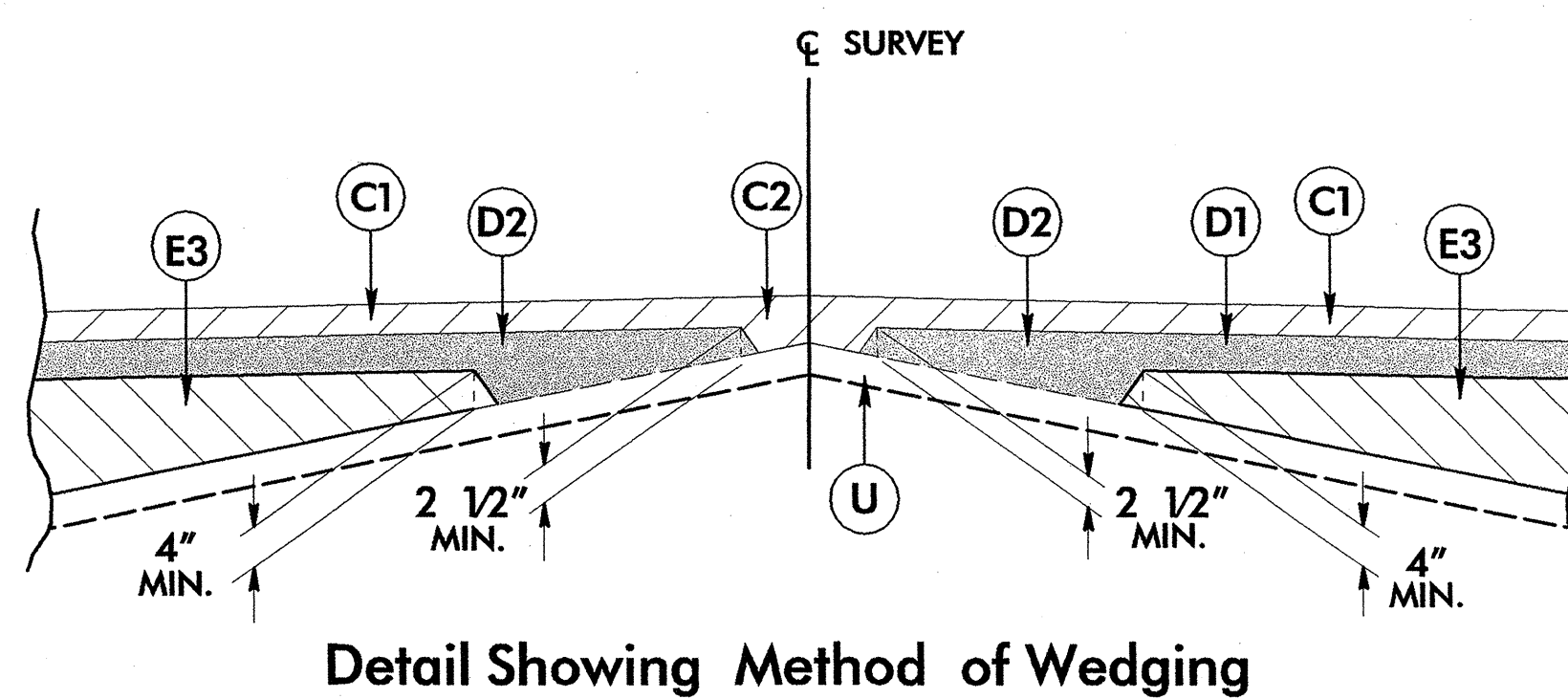
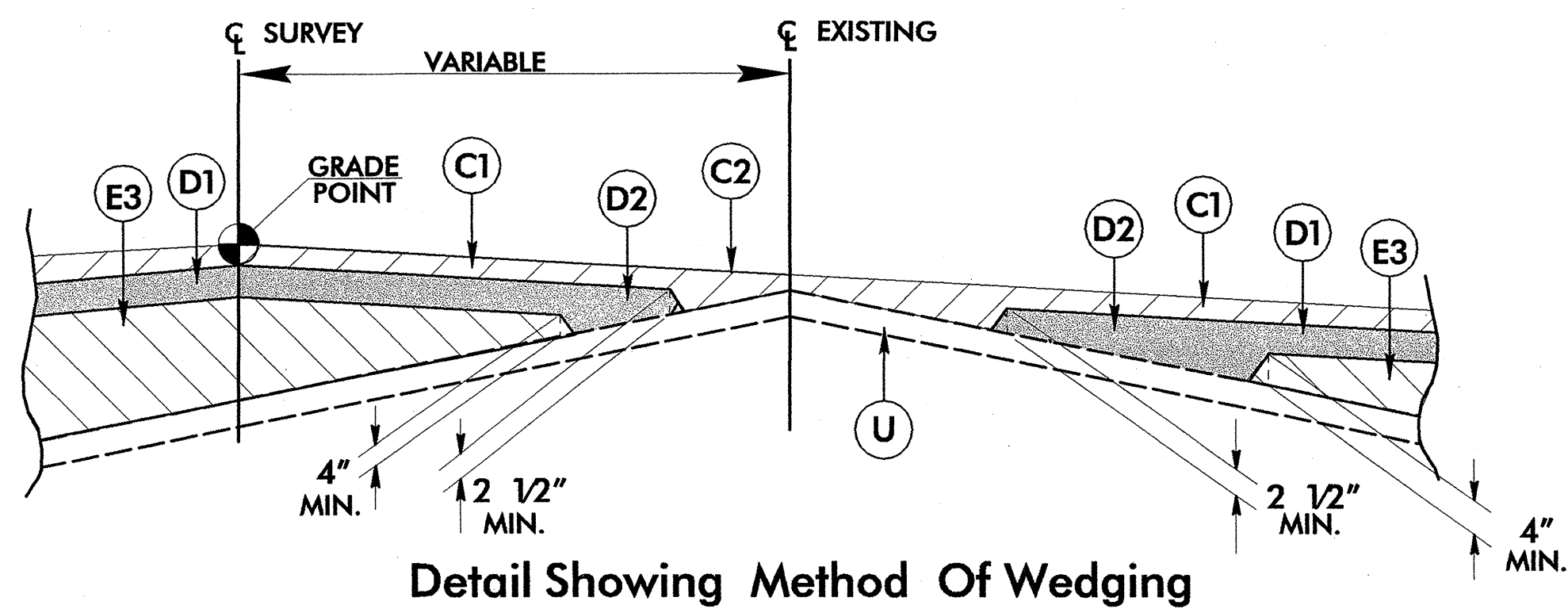
NOTES:  
TRANSITION FROM EXISTING TO TYPICAL NO.1 AT THE FOLLOWING LOCATIONS:  
-L- STA. 13+20.00 TO 13+50.00

TRANSITION FROM TYPICAL NO.1 TO TYPICAL NO. 2 AT THE FOLLOWING LOCATIONS:  
-L- STA. 27+80.00 TO 28+10.00



USE TYPICAL SECTION NO. 2 AS FOLLOWS:

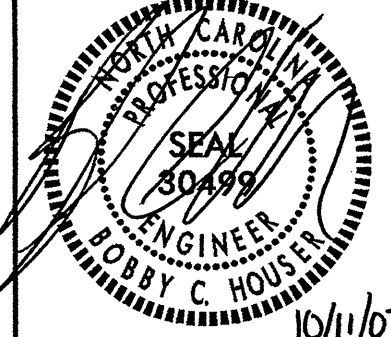
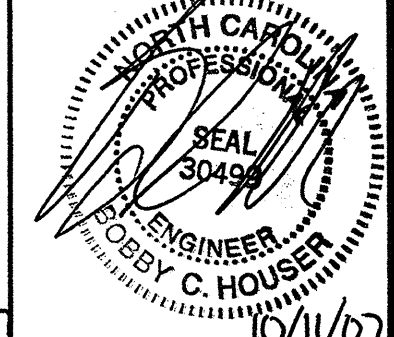
-L- STA. 28+10 +/- TO 53+80 +/-

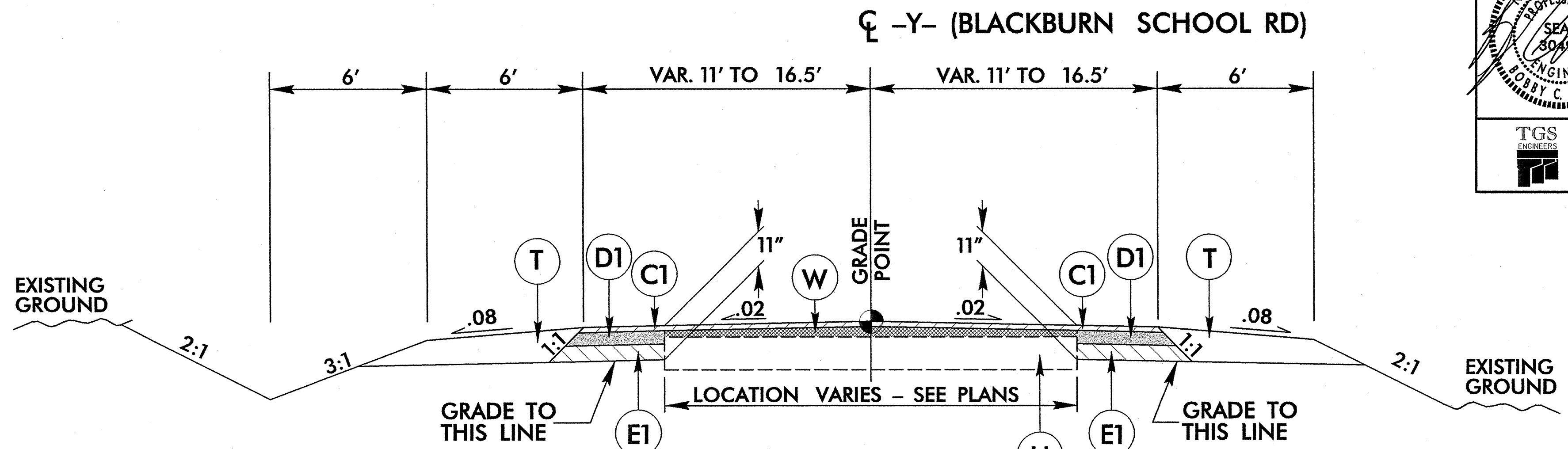


6/2/99  
 10/1/07  
 10/11/07  
 TGS ENGINEERS  
 SUITE 141  
 975 WALNUT STREET  
 CARY, NC 27511  
 PH (919) 319-8850

PROJECT REFERENCE NO. 37897-A	SHEET NO. 2
ROADWAY DESIGN ENGINEER TGS ENGINEERS 10/1/07	PAVEMENT DESIGN ENGINEER TGS ENGINEERS 10/11/07
TGS ENGINEERS SUITE 141 975 WALNUT STREET CARY, NC 27511 PH (919) 319-8850	

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B
E1	PROP. APPROX. 5.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING.

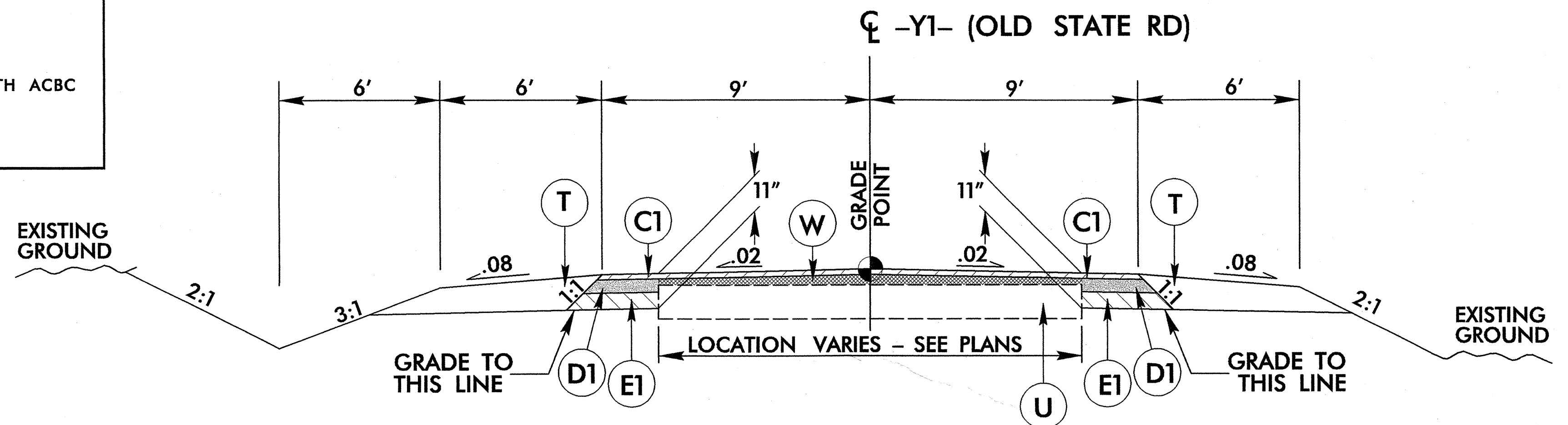
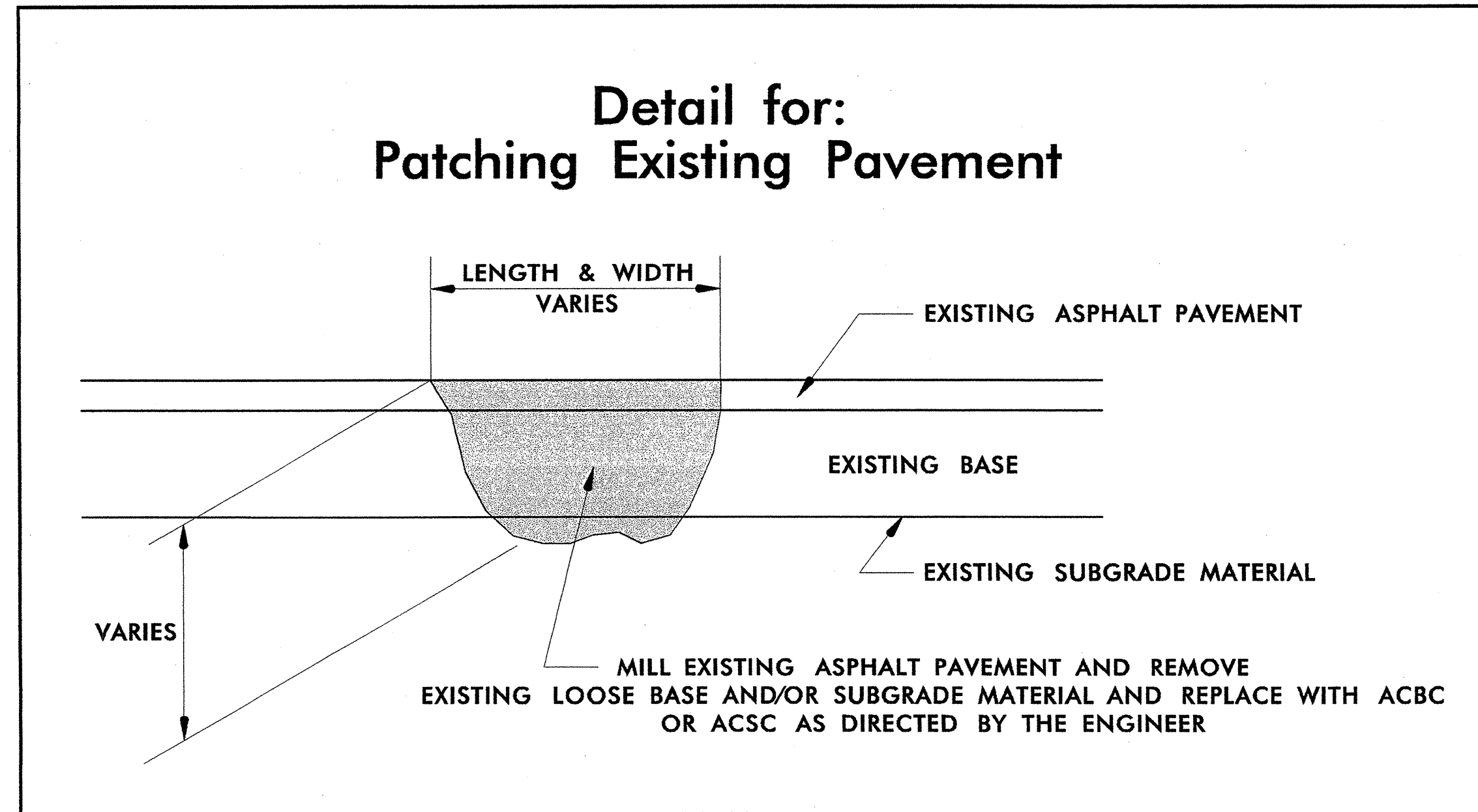
PROJECT REFERENCE NO. 37897-A	SHEET NO. 2A
ROADWAY DESIGN ENGINEER 	PAVEMENT DESIGN ENGINEER 
TGS ENGINEERS SUITE 141 975 WALNUT STREET CARY, NC 27511 PH (919) 319-8850	



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3 AS FOLLOWS:  
-Y- STA. 10+18.00 TO 13+15.00

NOTE:  
TRANSITION FROM EXISTING TO TYPICAL NO.3 AT THE FOLLOWING LOCATIONS:  
-Y- STA. 13+15.00 TO 13+45.00


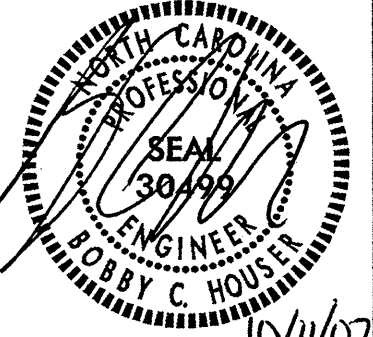


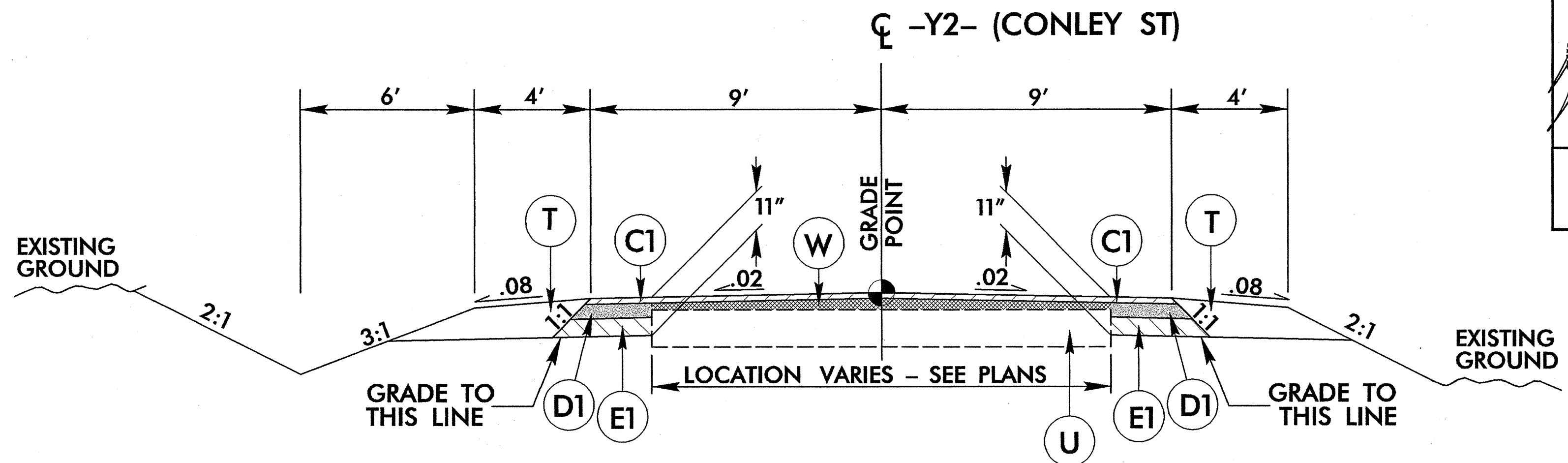
TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4 AS FOLLOWS:  
-Y1- STA. 12+00.00 TO 13+05.81

NOTE:  
TRANSITION FROM EXISTING TO TYPICAL NO.4 AT THE FOLLOWING LOCATIONS:  
-Y1- STA. 11+70.00 TO 12+00.00

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B
E1	PROP. APPROX. 5.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING.

PROJECT REFERENCE NO. 37897-A	SHEET NO. 2B
ROADWAY DESIGN ENGINEER 	PAVEMENT DESIGN ENGINEER 
TGS ENGINEERS SUITE 141 975 WALNUT STREET CARY, NC 27511 PH (919) 319-8850	

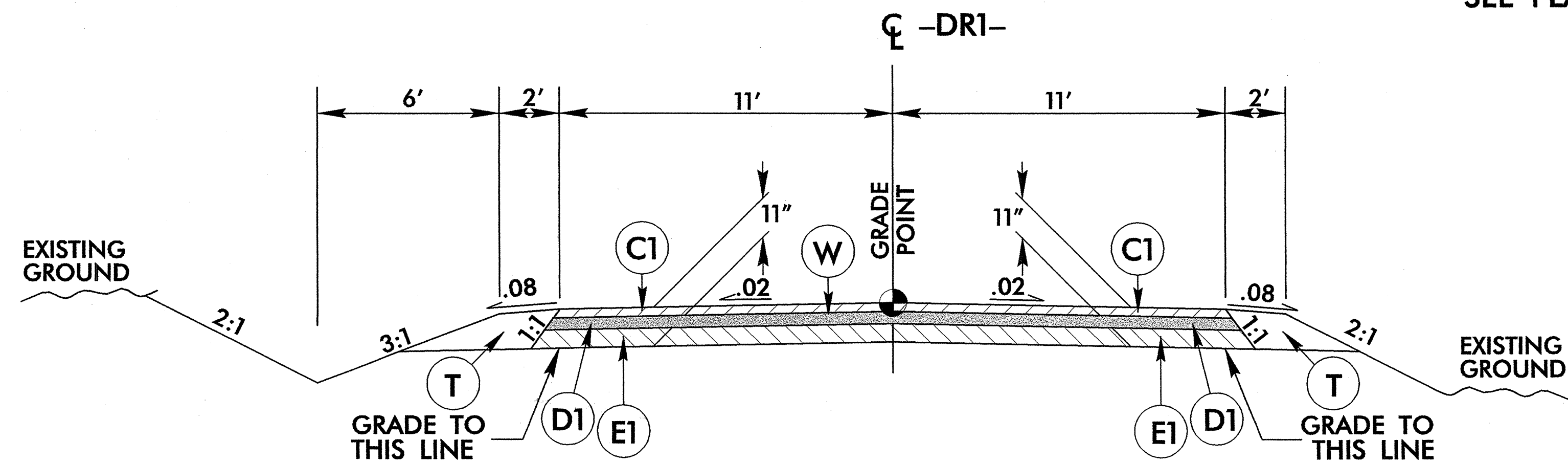


TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5 AS FOLLOWS:

-Y2- STA. 10+12.18 TO 11+00.00

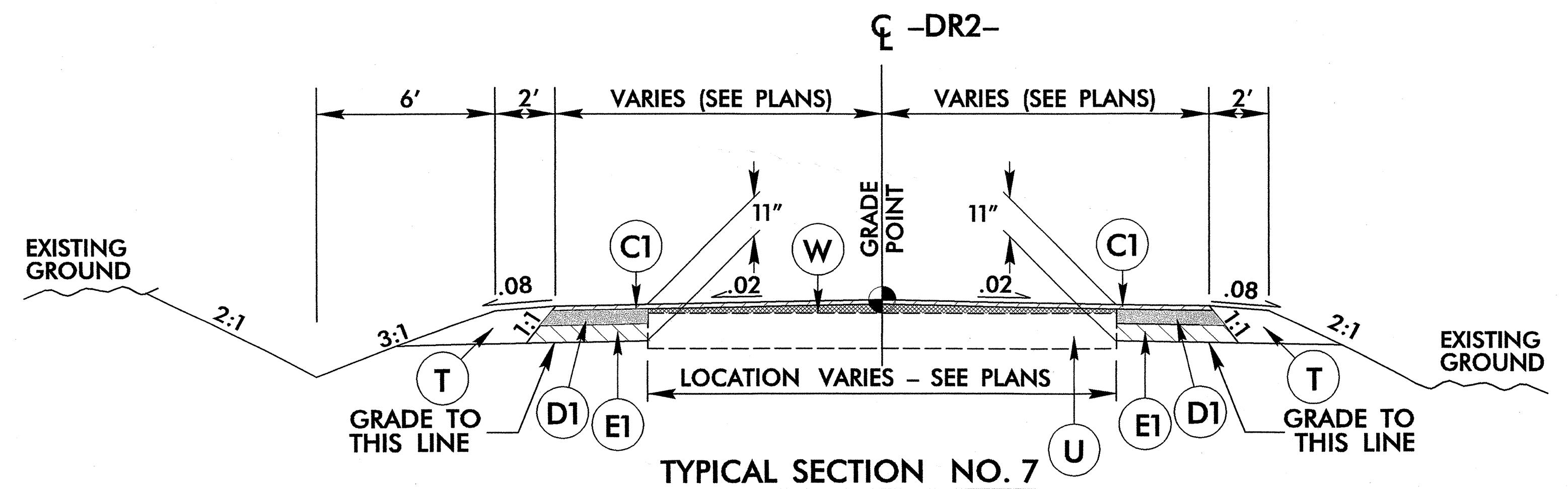
NOTE: NO GUARDRAIL WIDENING.  
GUARDRAIL TO BE PLACED ON EDGE OF SHOULDER.  
SEE PLANS FOR GUARDRAIL LOCATIONS.



TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6 AS FOLLOWS:

-DR1- STA. 10+24.05 TO 12+79.09



TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7 AS FOLLOWS:

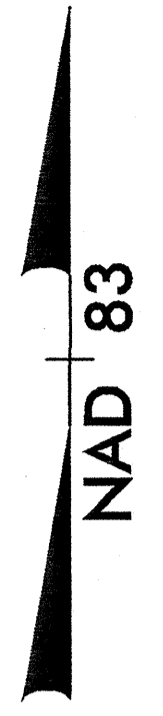
-DR2- STA. 10+40.00 TO 11+21.02



8/17/99

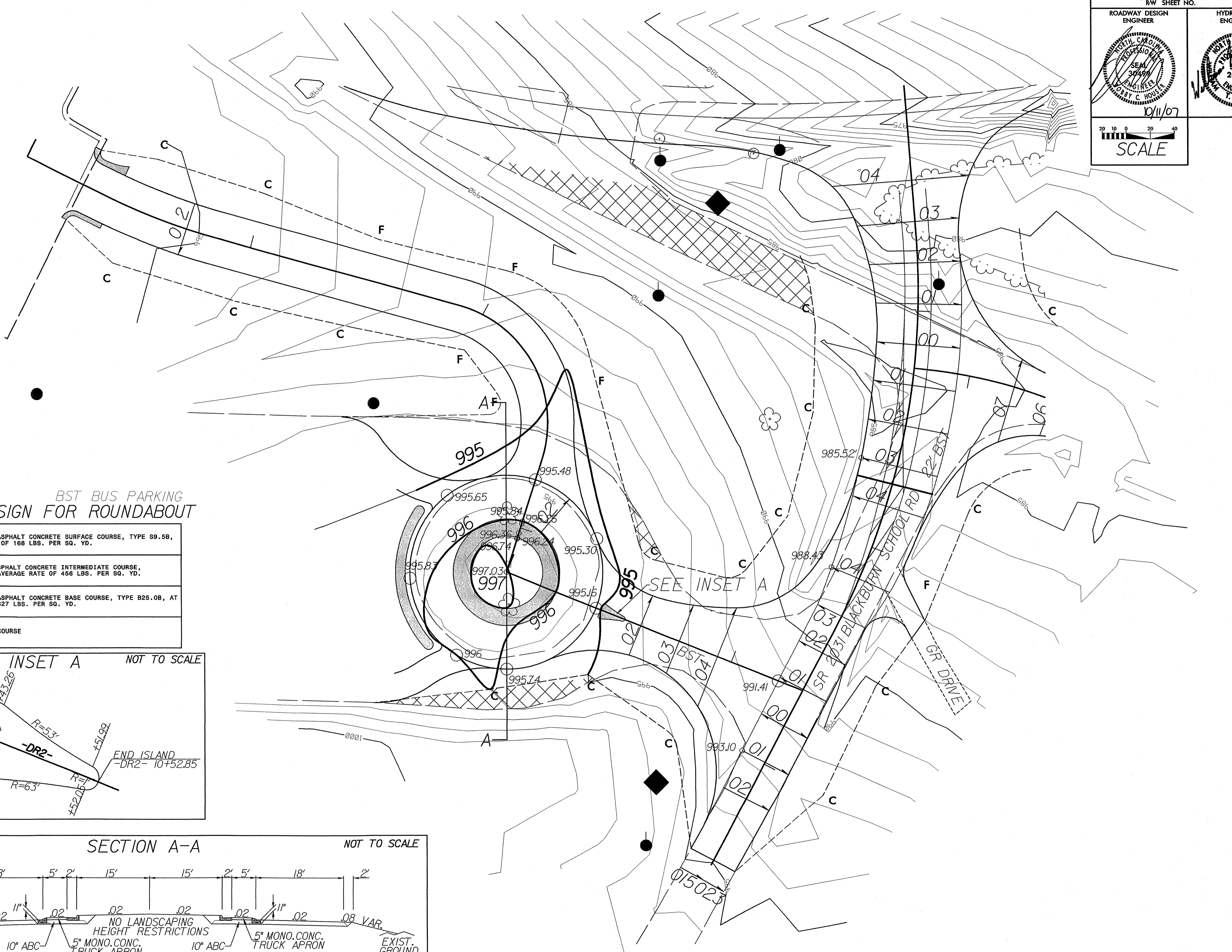
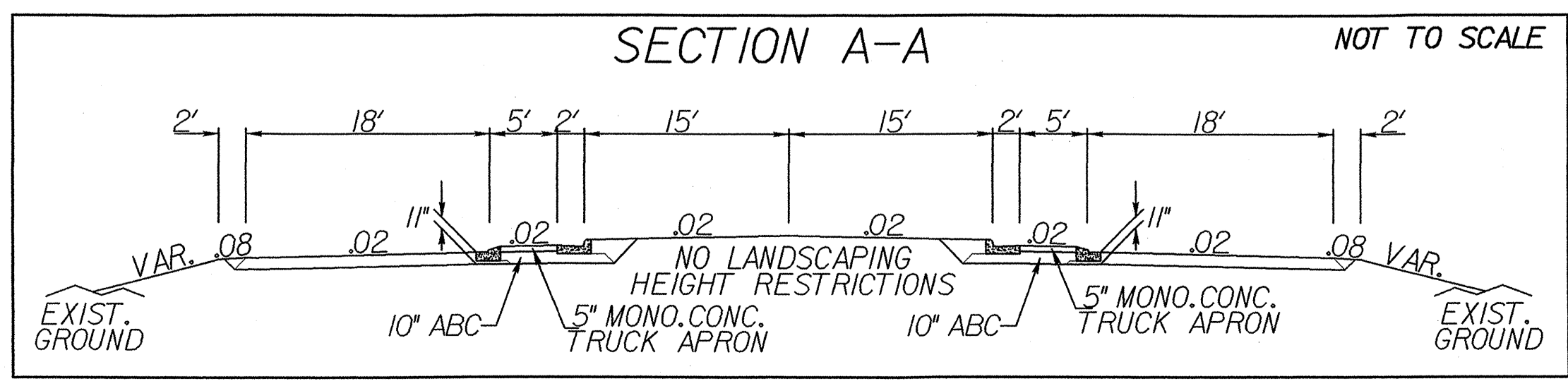
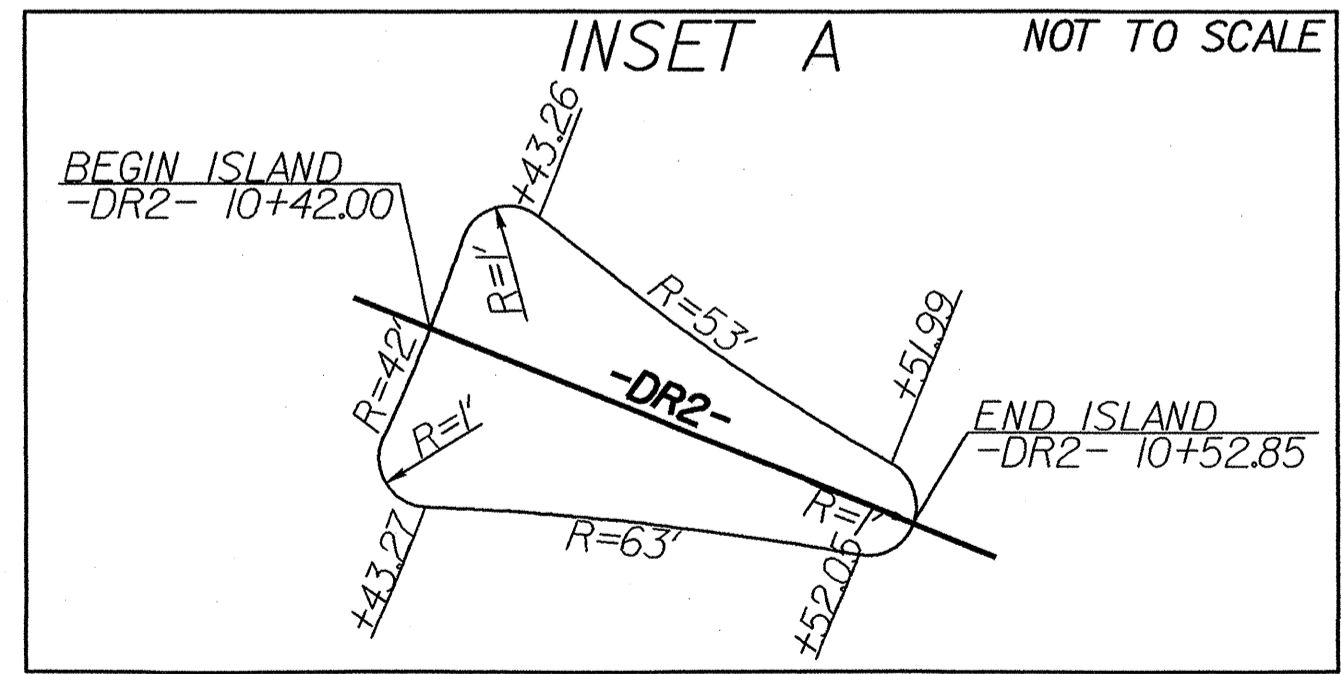
PROJECT REFERENCE NO. 37897-A	SHEET NO. 2-C
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
SCALE 0 10 20 40	

REVISIONS



### BST BUS PARKING PAVEMENT DESIGN FOR ROUNDABOUT

C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E1	PROP. APPROX. 5.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
J	10" AGGREGATE BASE COURSE



\*\*\*\*\*SYTIME\*\*\*\*\*  
\*\*\*\*\*DESIGN\*\*\*\*\*  
\*\*\*\*\*PRINT\*\*\*\*\*





STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**RIGHT OF WAY AREA DATA**

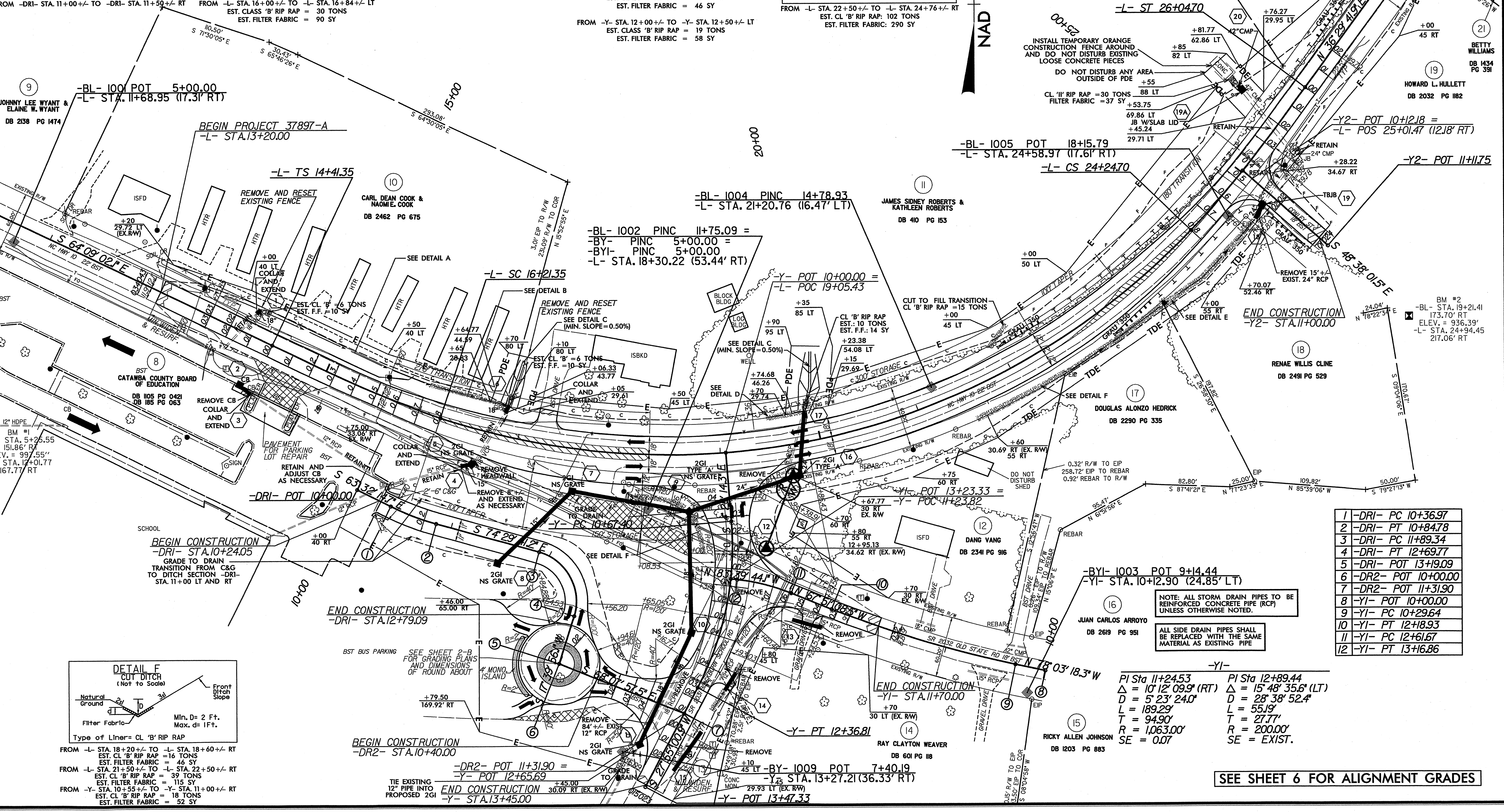
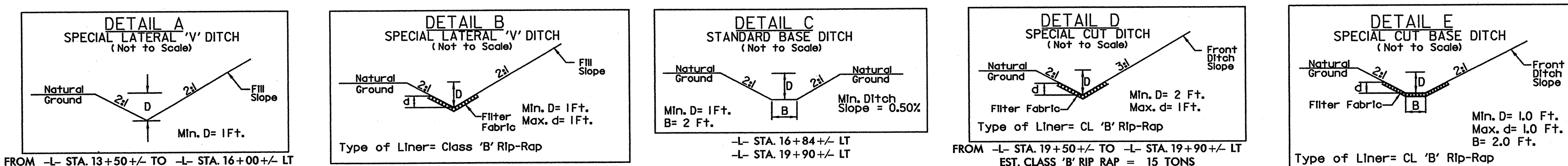
PARCEL NO.	PROPERTY OWNERS NAMES	TOTAL ACREAGE	AREA TAKEN	AREA REMAINING	CONST. EASE.	PERM. DRAIN. EASE.	TEMP. DRAIN. EASE.
8	CATWABA COUNTY BOARD OF EDUCATION	21.76 ac	-	-	1.30 ac	-	-
9	JOHNNY LEE & ELAINE W. WYANT	2.11 ac	-	-	-	-	-
10	CARL DEAN & NAOMI E. COOK	2.28 ac	-	-	3663 sf	674 sf	-
11	JAMES SIDNEY AND KATHLEEN ROBERTS	16.40 ac	-	-	0.36 ac	0.13 ac	-
12	DANG YANG	1.02 ac	0.12 ac	0.90 ac	0.18 ac	-	1494 sf
13	WESLEY RAY WEAVER	25,700 sf	-	-	1186 sf	-	-
14	RAY CLAYTON WEAVER	2.96 ac	-	-	2241 sf	-	-
15	RICKY ALLEN JOHNSON	1.05 ac	-	-	-	-	-
16	JUAN CARLOS ARROYO	25,265 sf	-	-	-	-	-
17	DOUGLAS ALONZO HEDRICK	29,185 sf	-	-	-	-	1773 sf
18	RENAE WILLIS CLINE	1.00 ac	-	-	-	-	2676 sf
19	HOWARD L. HULLETT	1.17 ac	-	-	2255 sf	-	-
20	SUSAN J. SMITH	41,382 sf	-	-	1443 sf	-	-
21	BETTY WILLIAMS	21,344 sf	-	-	-	-	-

**DATUM DESCRIPTION**  
 THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "BL-1001" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 687411.0956(ft) EASTING: 1306933.0292(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: .99984979 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BL-1001" TO -L- STATION 13+20.00 IS S 70 41 17 E 152.04 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

**-L-**  
 Pls Sta 15+61.45 PI Sta 20+72.18 Pls Sta 24+84.79  
 $\Delta = 7' 15" 46.2"$   $\Delta = 6' 49" 43.5" (LT)$   $\Delta = 7' 15" 46.2"$   
 $L_s = 180.00'$   $L = 803.35'$   $L_s = 180.00'$   
 $LT = 120.10'$   $L = 803.35'$   $LT = 120.10'$   
 $ST = 60.09'$   $T = 450.83'$   $ST = 60.09'$   
 $R = 710.00'$   $R = 300.00'$   
 $SE = 0.08$

**-Y-**  
 Pls Sta 11+54.43 PI Sta 11+54.43  
 $\Delta = 3' 21" 15.8" (RT)$   
 $D = 19' 05" 54.9"$   
 $L = 169.41'$   
 $T = 87.03'$   
 $R = 300.00'$   
 $SE = 0.04$

**-DRI-**  
 Pls Sta 10+60.95 PI Sta 12+41.26  
 $\Delta = 10' 57" 26.5" (LT)$   $\Delta = 9' 29" 37.3" (RT)$   
 $D = 22' 55" 05.9"$   $D = 11' 35" 29.6"$   
 $L = 47.81'$   $L = 80.43'$   
 $T = 23.98'$   $T = 51.92'$   
 $R = 250.00'$   $R = 50.00'$   
 $SE = 0.02$



1	-DRI- PC 10+36.97
2	-DRI- PT 10+84.78
3	-DRI- PC 11+89.34
4	-DRI- PT 12+69.77
5	-DRI- POT 13+19.09
6	-DR2- POT 10+00.00
7	-DR2- POT 11+31.90
8	-YI- POT 10+00.00
9	-YI- PC 10+29.64
10	-YI- PT 12+18.93
11	-YI- PC 12+61.67
12	-YI- PT 13+16.86

**-YI-**  
 Pls Sta 11+24.53 PI Sta 12+89.44  
 $\Delta = 10' 12" 09.9" (RT)$   $\Delta = 15' 48" 35.6" (LT)$   
 $D = 5' 23" 24.0"$   $D = 28' 38" 52.4"$   
 $L = 189.29'$   $L = 55.19'$   
 $T = 94.90'$   $T = 27.77'$   
 $R = 1,063.00'$   $R = 200.00'$   
 $SE = 0.07$   $SE = EXIST.$

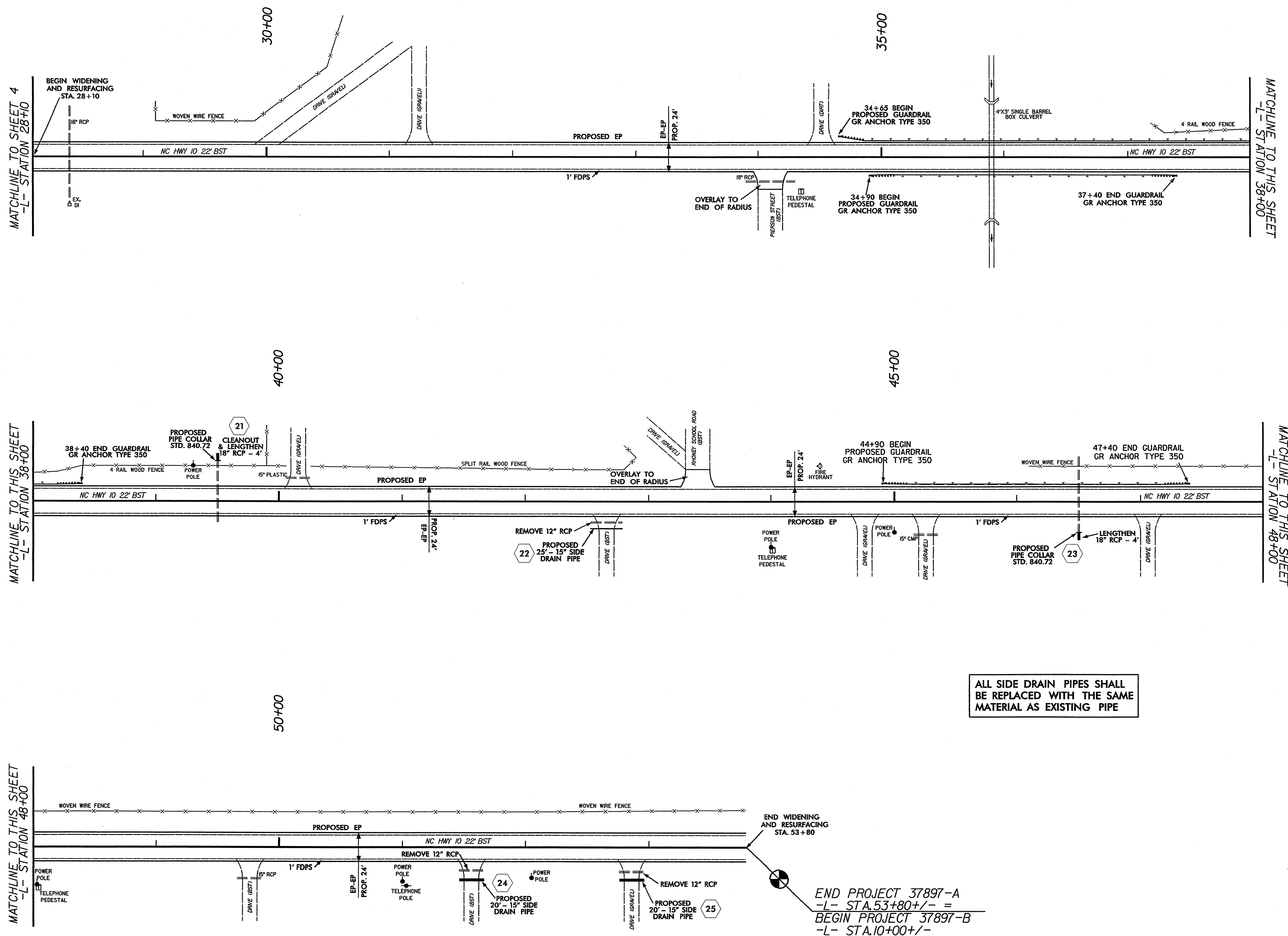
SEE SHEET 6 FOR ALIGNMENT GRADES

REVISIONS

8/17/99

8/17/99

PROJECT REFERENCE NO. 37897-A	SHEET NO. 5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



ALL SIDE DRAIN PIPES SHALL BE REPLACED WITH THE SAME MATERIAL AS EXISTING PIPE

PROPOSED EDGE OF PAVEMENT ———  
 EXISTING EDGE OF PAVEMENT ———  
 FDPS = FULL DEPTH PAVED SHOULDER

\*NOT TO SCALE - PROJECT NOT SURVEYED

REVISIONS

SYSTEMS DESIGN SERVICES

**PIPE HYDRAULIC DATA**  
DRAINAGE STRUCTURE NO.16

DRAINAGE AREA	= 4	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 17	CFS
DESIGN HW ELEVATION	= 967.40	FT
100 YEAR DISCHARGE	= 20	CFS
100 YEAR HW ELEVATION	= 967.80	FT
OVERTOPPING FREQUENCY	= 100±	YRS
OVERTOPPING DISCHARGE	= 30±	CFS
OVERTOPPING ELEVATION	= 969.85	FT

**DITCH LEGEND**

LEFT DITCH	---
RIGHT DITCH	----

BM #2 ELEVATION = 936.39'  
 N 687333 E 1308304  
 R/R SPIKE IN 20" MAPLE ON SOUTH SIDE OF  
 CONLEY STREET  
 APPROX. 150' FROM INTERSECTION  
 -L- STA. 24+94.45 (217.06' RT)

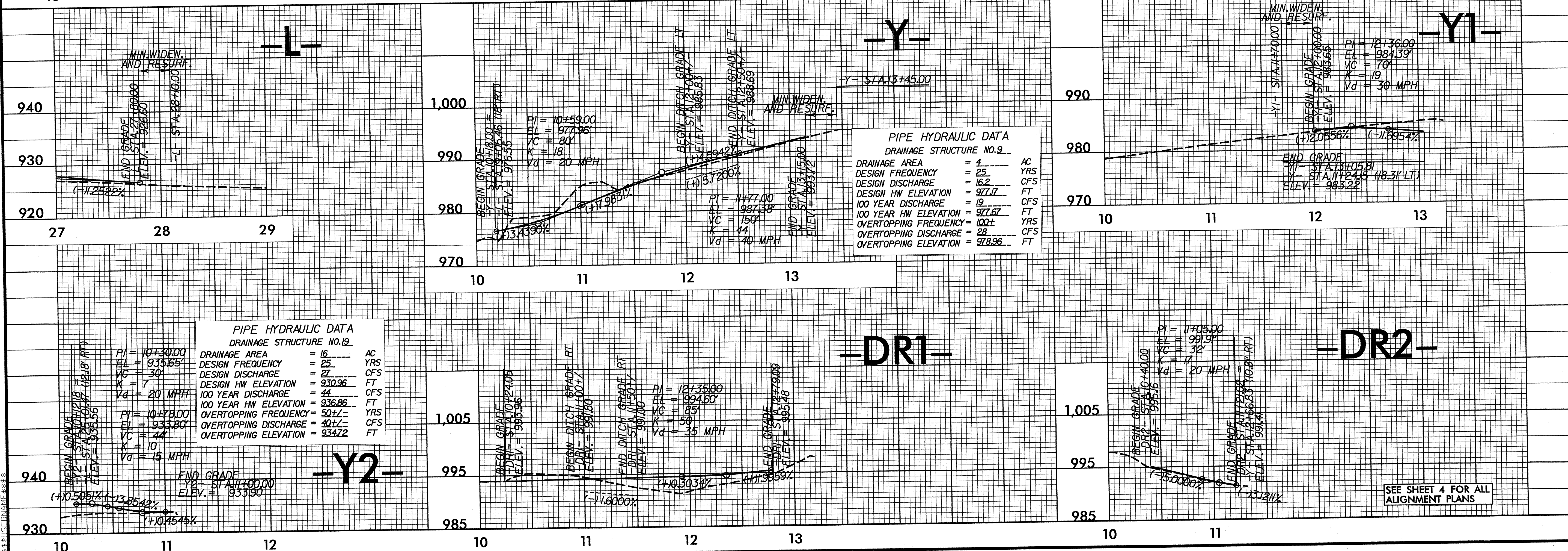
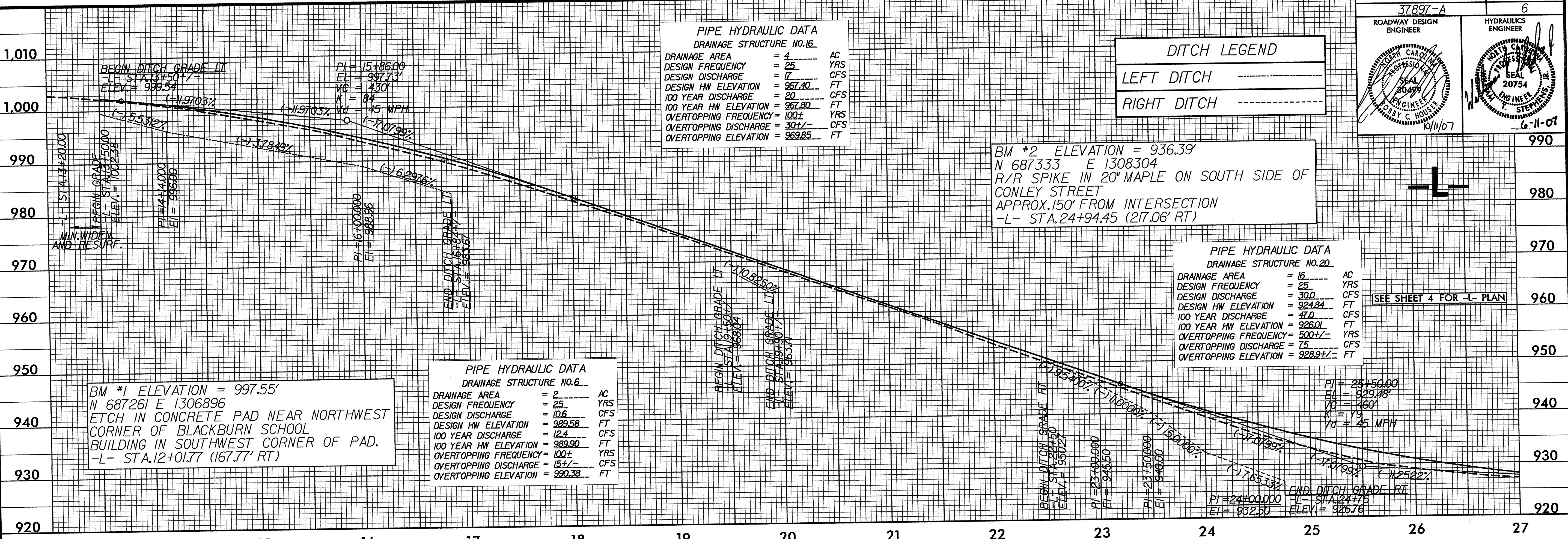
**PIPE HYDRAULIC DATA**  
DRAINAGE STRUCTURE NO.20

DRAINAGE AREA	= 16	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 300	CFS
DESIGN HW ELEVATION	= 924.84	FT
100 YEAR DISCHARGE	= 410	CFS
100 YEAR HW ELEVATION	= 926.01	FT
OVERTOPPING FREQUENCY	= 500±	YRS
OVERTOPPING DISCHARGE	= 75	CFS
OVERTOPPING ELEVATION	= 928.9±	FT

**PIPE HYDRAULIC DATA**  
DRAINAGE STRUCTURE NO.6

DRAINAGE AREA	= 2	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 10.6	CFS
DESIGN HW ELEVATION	= 989.58	FT
100 YEAR DISCHARGE	= 12.4	CFS
100 YEAR HW ELEVATION	= 989.90	FT
OVERTOPPING FREQUENCY	= 100±	YRS
OVERTOPPING DISCHARGE	= 15±	CFS
OVERTOPPING ELEVATION	= 990.38	FT

BM #1 ELEVATION = 997.55'  
 N 687261 E 1306896  
 ETCH IN CONCRETE PAD NEAR NORTHWEST  
 CORNER OF BLACKBURN SCHOOL  
 BUILDING IN SOUTHWEST CORNER OF PAD.  
 -L- STA. 12+01.77 (167.77' RT)



SEE SHEET 4 FOR ALL ALIGNMENT PLANS

5/28/99

DATE PLOTTED: 10/11/07  
 PLOTTER: HPGL  
 PLOT SCALE: 1"=40'  
 PLOT SHEET: 6 OF 6