

See Sheet 1-A For Index of Sheets

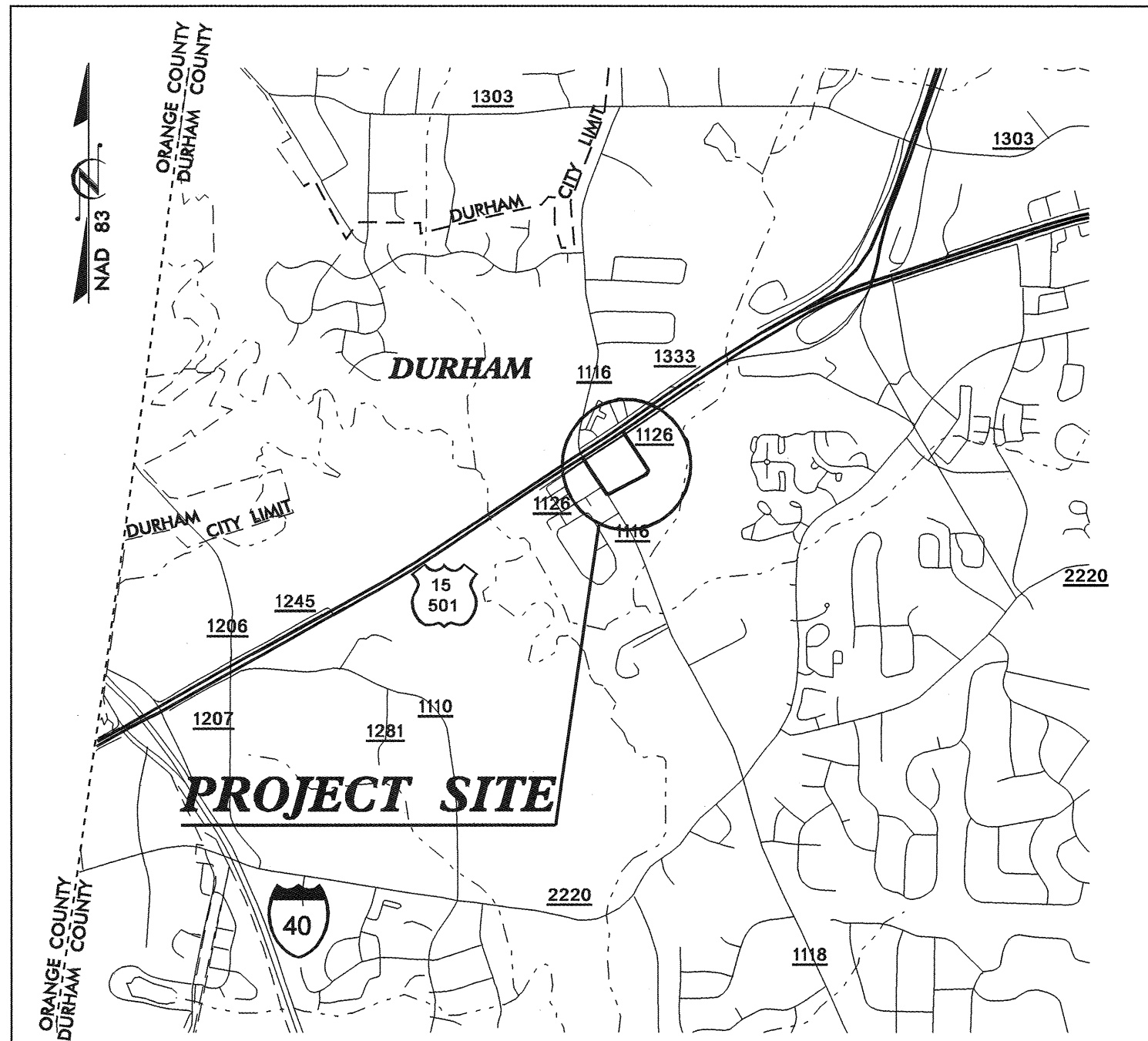
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

DURHAM COUNTY

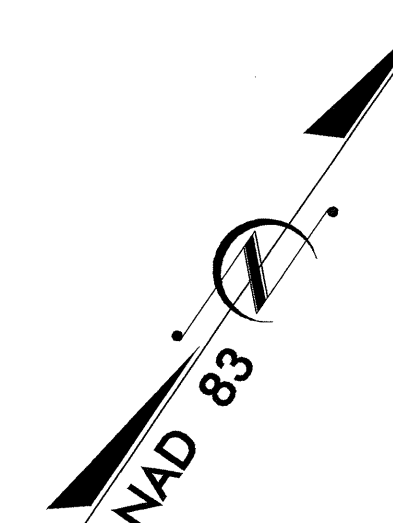
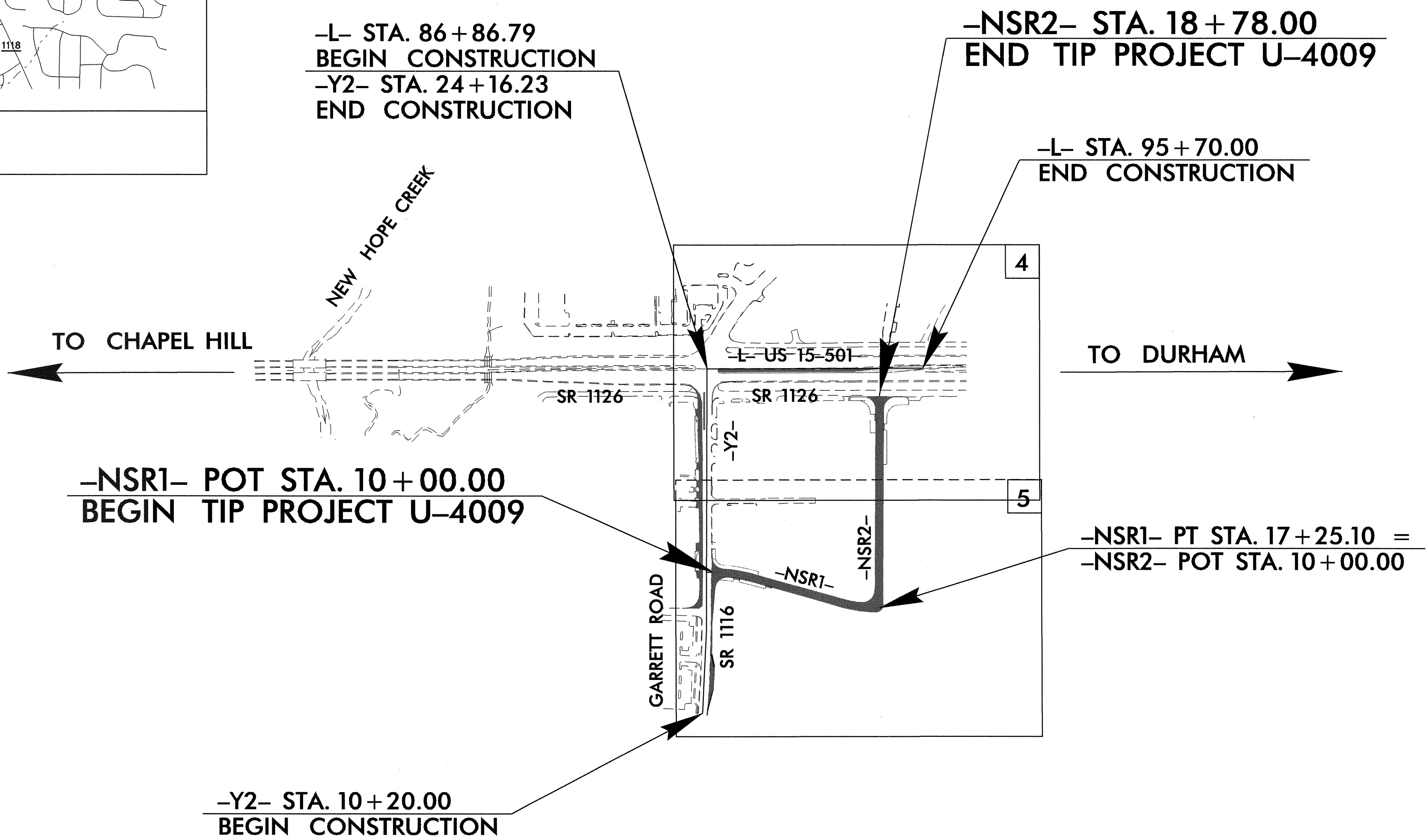
LOCATION: SR 1126 (SERVICE ROAD) NEAR THE US 15/501 AND SR 1116 (GARRETT ROAD) INTERSECTION

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-4009	1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
35010.1.1		U-4009 (PE)	
35010.2.1		U-4009 (R/W, UTIL)	
35010.3.1		U-4009 (CONST)	

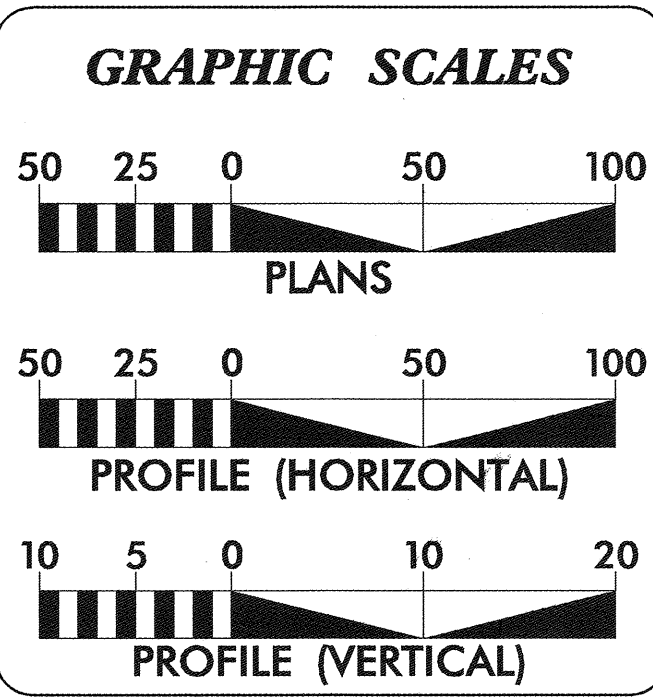


VICINITY MAP



TIP PROJECT: U-4009

CONTRACT: C201487



DESIGN DATA

ADT 2002 =	1,736
ADT 2025 =	5,600
DHV =	10%
D =	60%
T =	3% *
V =	40 MPH
* DUAL 2 % TTST 1 %	

PROJECT LENGTH

TOTAL LENGTH OF TIP PROJECT U-4009 = 0.304 MI

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MARCH 31, 2003

LETTING DATE:
AUGUST 21, 2007

A. JASON MOORE, P.E.
PROJECT ENGINEER

BRYAN KEY, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

RODNEY DESIGN

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.

STATE DESIGN ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR

DATE

U-4009 SURVEY CONTROL SHEET

NOTES

1. THE SITE CALIBRATION SHOWN IS BASED UPON A NETWORK TIED TO THE HARN (HIGH ACCURACY REFERENCE NETWORK) NAD 83/95 ADJUSTMENT. THIS CALIBRATION WILL ALLOW THE END USER TO WORK WITHIN THE SAME COORDINATE SYSTEM WHEN USING RTK (REAL-TIME KINEMATIC) GPS AND A LOCAL BASE STATION. IF ANOTHER SYSTEM SUCH AS VRS (VIRTUAL REFERENCE STATION) IS USED, ADDITIONAL FIELD TIES MAY BE NEEDED TO REDUCE POSSIBLE ERRORS OR BIASES.

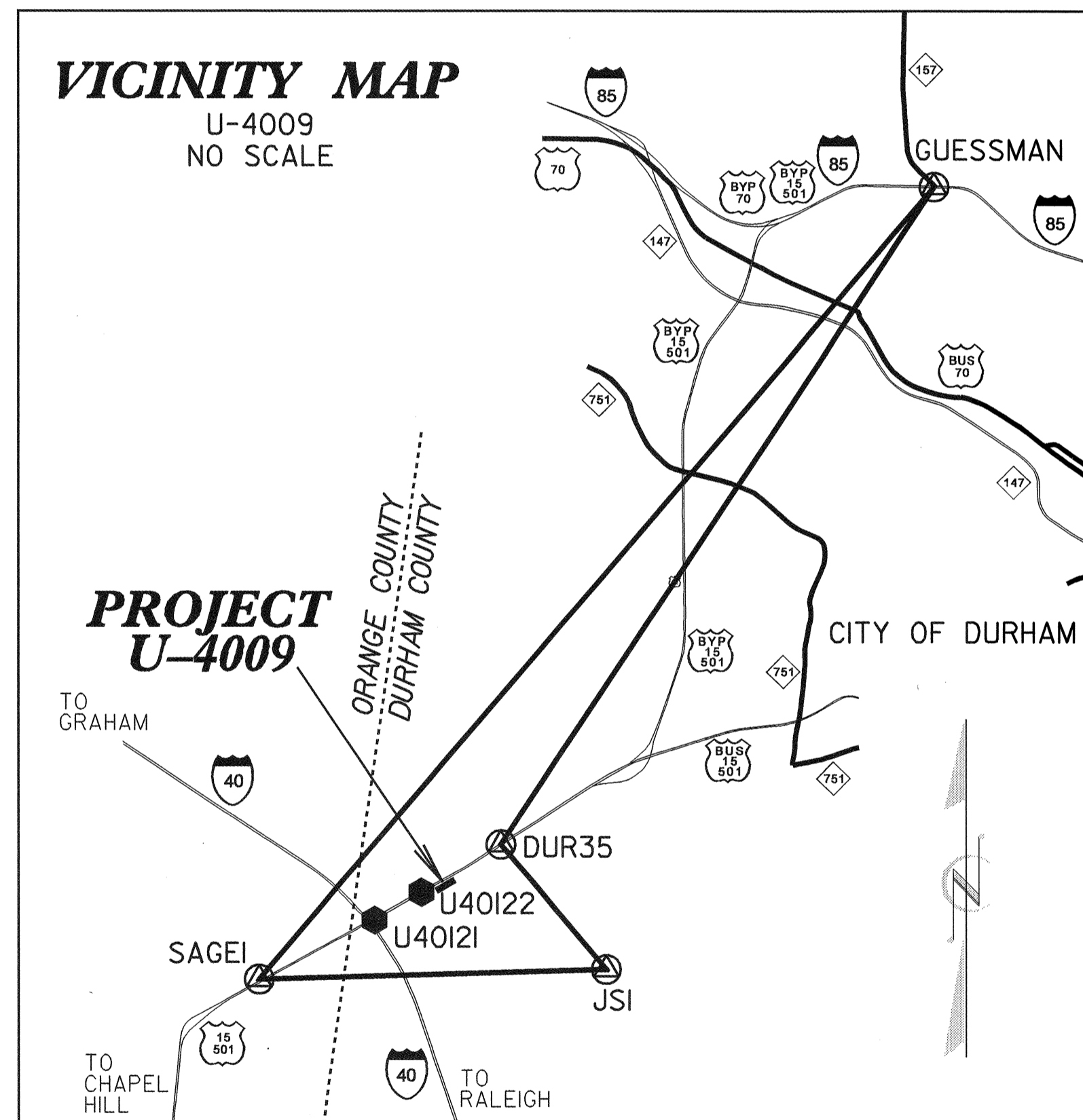
2. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:

<http://www.doh.dot.state.nc.us/preconstruct/highway/location/project/>

THE FILES TO BE FOUND ARE AS FOLLOWS:

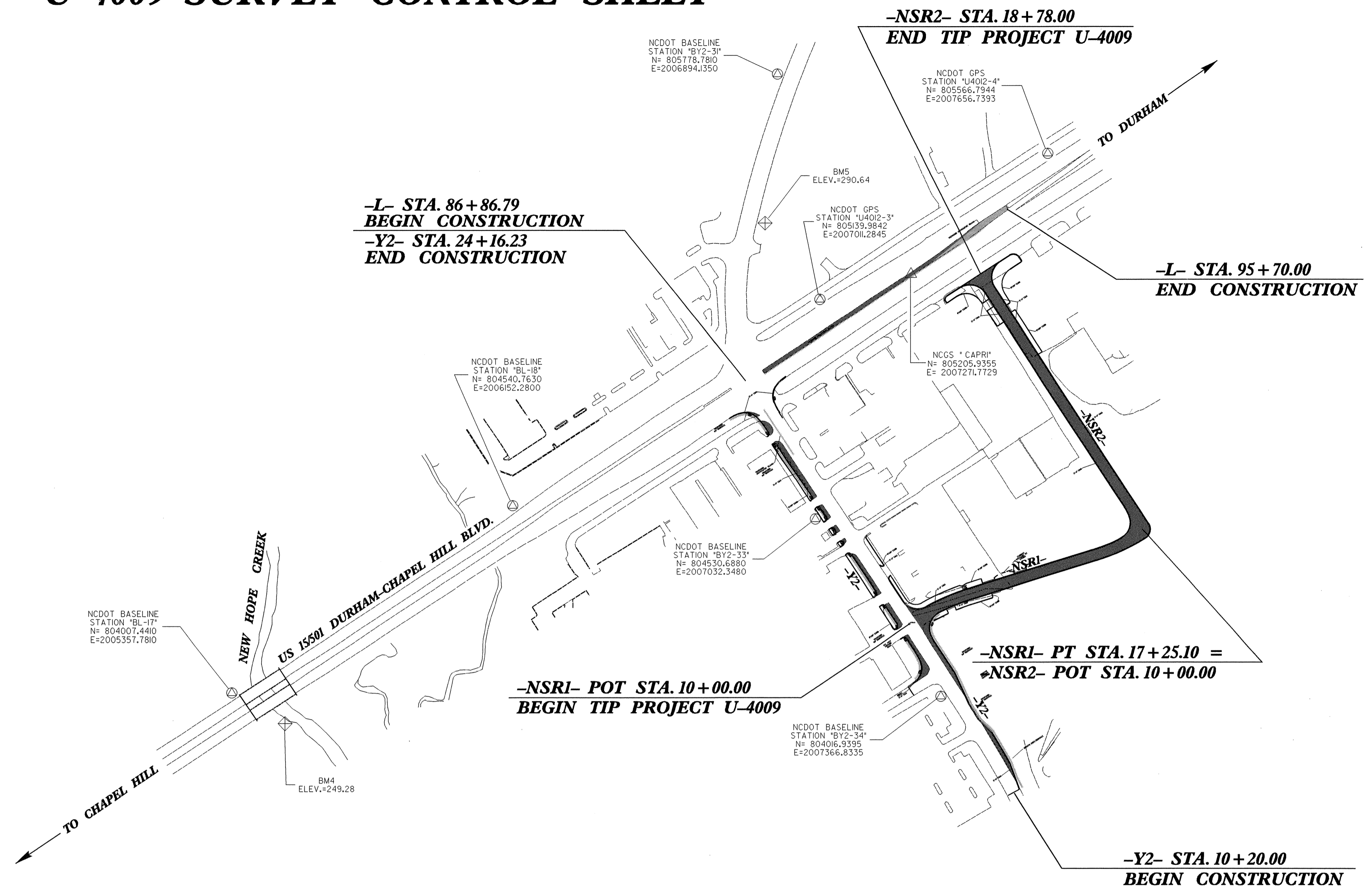
U4009_LS_GPCALIB_040130.TXT
 U4009_LS_WGS84_040130.TXT
 U4009_LS_LOCAL_040130.TXT
 U4009_LS_CONTROL_040130.TXT

THE WGS84 AND LOCAL FILES ARE COMMA DELIMITED AND CAN BE USED TO REPRODUCE THE SITE CALIBRATION FOR THE END USER'S GPS EQUIPMENT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "CAPRI" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 805205.9355(ft) EASTING: 200727.17729(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999941240 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "CAPRI" TO NSR1- STATION 10+00.00 IS S 00° 18' 51.6" W 991.4447' ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NGVD 29



⊙ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.

PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION.

SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

NOTE: DRAWING NOT TO SCALE

U-4009 SURVEY CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
U-4009	I-D
LOCATION AND SURVEYS	

GPS CALIBRATION REPORT

PROJECT : U4009

TIP NUMBER
 USER NAME KHUDSON DATE & TIME 2:50:22 PM 1/14/04
 COORDINATE SYSTEM US STATE PLANE ZONE NORTH CAROLINA
 1983
 HORIZONTAL DATUM NAD 1983 (CONUS) GEOID MODEL GEOID99 (CONUS)
 VERTICAL DATUM
 COORDINATE UNITS US SURVEY FEET
 DISTANCE UNITS US SURVEY FEET
 HEIGHT UNITS US SURVEY FEET

LOCAL SITE INFORMATION

LOCALIZED AROUND NCGS 'CAPRI'
 NORTHING 805205.9355
 EASTING 2007271.7729
 SITE SCALE FACTOR 1.00005066

THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION USES A LOCALIZED COORDINATE SYSTEM WHICH IS VERY SIMILAR TO NORTH CAROLINA ZONE 3200 FROM WHICH IT IS DERIVED. PLEASE TAKE CARE IN UTILIZING THESE COORDINATES TO ELIMINATE CONFUSION OF THE TWO SYSTEMS. THIS FILE IS TO AID IN THE USE OF REAL TIME KINEMATIC (RTK) GPS DURING CONSTRUCTION LAYOUT.

DATUM TRANSFORMATION PARAMETERS

DATUM TRANSFORMATION COMPUTATION NOT REQUESTED

UPDATED DEFAULT PROJECTION (TRANSVERSE MERCATOR) DEFINITION

UPDATED DEFAULT PROJECTION NOT REQUESTED

HORIZONTAL ADJUSTMENT PARAMETERS

NORTHING COORDINATE OF ROTATION CENTER 805648.477SFT
 EASTING COORDINATE OF ROTATION CENTER 2006308.411SFT
 POINT ROTATION ABOUT THE CENTER
 TRANSLATION NORTH 0.00'00"
 TRANSLATION EAST 0.033SFT
 SCALE FACTOR 1.00005066

VERTICAL ADJUSTMENT PARAMETERS

NORTHING COORDINATE OF ORIGIN POINT 798805.431SFT
 EASTING COORDINATE OF ORIGIN POINT 1996126.909SFT
 VERTICAL SEPARATION AT ORIGIN -0.007SFT
 SLOPE NORTH 3.957PPM
 SLOPE EAST -2.711PPM

GEOID MODEL DEFINITION

GEOID99 (CONUS)

RESIDUAL DIFFERENCES BETWEEN GPS (WGS84) AND LOCAL COORDINATES

SUMMARY

	MAXIMUM ERROR	ROOT MEAN SQUARE ERROR	POINT
HORIZONTAL	0.102SFT	0.014	SAGE - WGS84
VERTICAL	0.048SFT	0.008	SAGE - WGS84
THREE-DIMENSIONAL	0.113SFT	0.017	SAGE - WGS84

POINT RESIDUALS

WGS84 COORDINATES	CALCULATED POINT FOR DISPLAY ONLY	LOCAL COORDINATES
POINT SAGE - WGS84 LATITUDE 35°56'41.29031"N LONGITUDE 79°00'47.09912"W HEIGHT 232.641SFT	NORTHING 798805.431SFT EASTING 1996126.909SFT ELEVATION 334.484SFT HORZ ERROR 0.102SFT VERT ERROR 0.048SFT 3D ERROR 0.113SFT	POINT SAGE - LOCAL NORTHING 798805.422SFT EASTING 1996127.010SFT ELEVATION 334.436SFT UTILIZED HORZ AND VERT QUALITY CONTROL QUALITY
POINT 44 JS 1 - WGS84 LATITUDE 35°56'44.97749"N LONGITUDE 78°58'05.44827"W HEIGHT 214.609SFT	NORTHING 799179.552SFT EASTING 2009418.841SFT ELEVATION 316.905SFT HORZ ERROR 0.073SFT VERT ERROR 0.035SFT 3D ERROR 0.081SFT	POINT 44 JS 1 - LOCAL NORTHING 799179.541SFT EASTING 2009418.769SFT ELEVATION 316.870SFT UTILIZED HORZ AND VERT QUALITY CONTROL QUALITY
POINT GUESSMAN - WGS84 LATITUDE 36°01'42.82700"N LONGITUDE 78°55'32.29549"W HEIGHT 294.442SFT	NORTHING 829305.437SFT EASTING 2021989.360SFT ELEVATION 396.574SFT HORZ ERROR 0.037SFT VERT ERROR 0.016SFT 3D ERROR 0.041SFT	POINT GUESSMAN - LOCAL NORTHING 829305.463SFT EASTING 2021989.387SFT ELEVATION 396.558SFT UTILIZED HORZ AND VERT QUALITY CONTROL QUALITY
POINT DUR 35 - WGS84 LATITUDE 35°57'32.51379"N LONGITUDE 78°58'54.43419"W HEIGHT 157.519SFT	NORTHING 803985.433SFT EASTING 2005390.042SFT ELEVATION 259.572SFT HORZ ERROR 0.014SFT VERT ERROR 0.011SFT 3D ERROR 0.018SFT	POINT DUR 35 - LOCAL NORTHING 803985.437SFT EASTING 2005390.029SFT ELEVATION 259.583SFT UTILIZED HORZ AND VERT QUALITY CONTROL QUALITY
POINT U-4012-1 - WGS84 LATITUDE 35°57'03.71159"N LONGITUDE 78°59'31.62571"W HEIGHT 220.374SFT	NORTHING 801072.437SFT EASTING 2000541.762SFT ELEVATION 322.313SFT HORZ ERROR 0.003SFT VERT ERROR 0.017SFT 3D ERROR 0.017SFT	POINT U-4012-1 - LOCAL NORTHING 801072.434SFT EASTING 2000541.762SFT ELEVATION 322.336SFT UTILIZED HORZ AND VERT QUALITY CONTROL QUALITY
POINT U-4012-2 - WGS84 LATITUDE 35°57'14.19496"N LONGITUDE 78°59'31.62571"W HEIGHT 208.605SFT	NORTHING 802132.613SFT EASTING 2002332.587SFT ELEVATION 310.590SFT HORZ ERROR 0.018SFT VERT ERROR 0.020SFT 3D ERROR 0.027SFT	POINT U-4012-2 - LOCAL NORTHING 802132.609SFT EASTING 2002332.569SFT ELEVATION 310.610SFT UTILIZED HORZ AND VERT QUALITY CONTROL QUALITY

POINT U-4012-3 - WGS84
 NORTHING 805139.986SFT
 EASTING 2007011.301SFT
 ELEVATION 280.445SFT
 HORZ ERROR 0.015SFT
 VERT ERROR 0.018SFT
 3D ERROR 0.024SFT

POINT U-4012-3 - LOCAL
 NORTHING 805139.984SFT
 EASTING 2007011.286SFT
 ELEVATION 280.463SFT
 UTILIZED HORZ AND VERT
 QUALITY CONTROL QUALITY

POINT U-4012-4 - WGS84
 NORTHING 805566.796SFT
 EASTING 2007656.749SFT
 ELEVATION 272.729SFT
 HORZ ERROR 0.010SFT
 VERT ERROR 0.033SFT
 3D ERROR 0.034SFT

POINT U-4012-4 - LOCAL
 NORTHING 805566.796SFT
 EASTING 2007656.739SFT
 ELEVATION 272.762SFT
 UTILIZED HORZ AND VERT
 QUALITY CONTROL QUALITY

NOTES

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- THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT [HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.doh.dot.state.nc.us/preconstruct/highway/location/project/)

THE FILES TO BE FOUND ARE AS FOLLOWS:
 U4009_LS_CONTROL_040130.TXT
 U4009_LS_GPSCALIB_040130.TXT
 U4009_LS_WGS84_040130.TXT
 U4009_LS_LOCAL_040130.TXT

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 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NGVD 29

U-4009 SURVEY CONTROL SHEET

NOTES

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 U4009_LS_CONTROL_040130.TXT

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CONTROL DATA

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
17	BL-17	804007.4410	2005357.7810	259.28	69+73.49	44.46 LT
18	BL-18	804540.7630	2006152.2800	258.97	79+30.36	52.87 LT
3	GPS U4012-3	805139.9840	2007011.2840	280.46	89+77.34	80.84 LT
4	GPS U-4012-4	805566.7940	2007656.7390	272.76	97+51.15	82.28 LT

BY2 POINT	DESC.	NORTH	EAST	ELEVATION	Y2 STATION	OFFSET
31	BY2-31	805776.7810	2006894.1350	303.63	OUTSIDE PROJECT LIMITS	
130	GPS U4012-3	805139.9842	2007011.2845	280.46	OUTSIDE PROJECT LIMITS	
33	BY2-33	804530.6880	2007032.3480	267.77	19+76.46	24.09 LT
34	BY2-34	804016.9395	2007366.8335	258.13	13+63.42	23.28 LT

BENCHMARK DATA

.....
 BM4 ELEVATION = 249.28
 N 803932 E 2005499
 L STATION 70+50 96 RIGHT
 RR SPIKE SET IN BASE OF 18" RED OAK

 BM5 ELEVATION = 290.64
 N 805353 E 2006845
 L STATION 89+56 350 LEFT
 RR SPIKE SET IN BASE OF 12" PINE

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 S 00° 18' 51.6" W 991.4447'
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
 VERTICAL DATUM USED IS NGVD 29

PROJECT REFERENCE NO.	SHEET NO.
U-4009	1-F
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

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

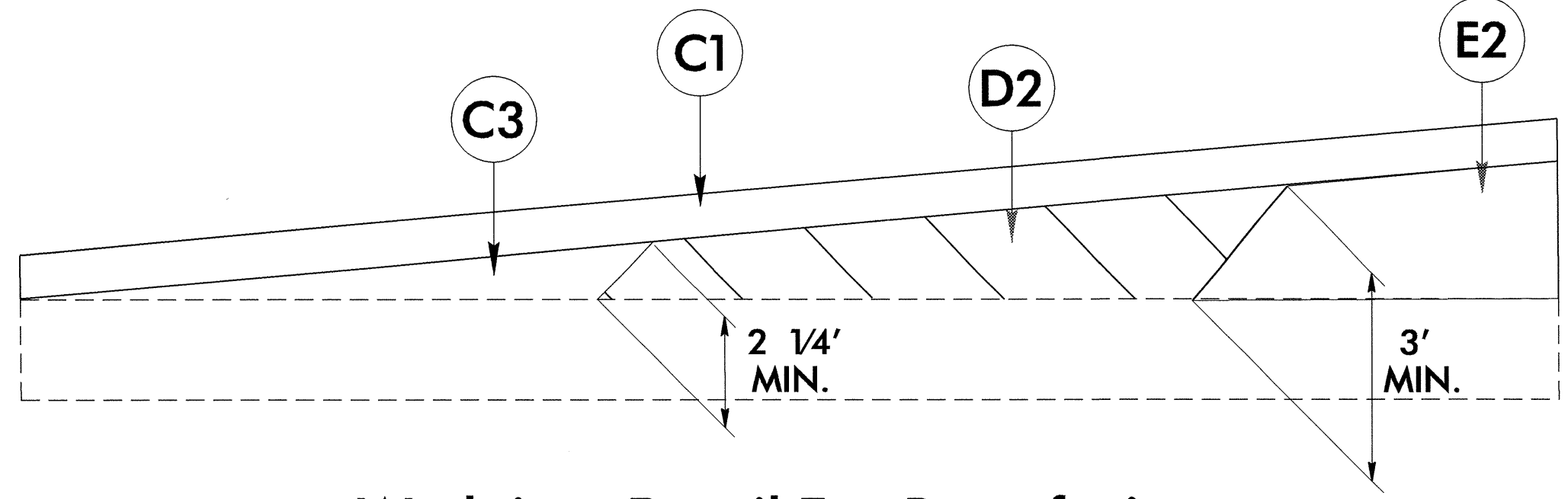
Point #	Chain	Station	Northing(Y)	Easting(X)
1	NSR 1	10 +00.00	804214.5058	2007266.334
2	NSR 1	11 +00.00	804265.2441	2007352.413
3	NSR 1	12 +00.00	804301.6538	2007445.43
4	NSR 1	13 +00.00	804331.5447	2007540.858
5	NSR 1	14 +00.00	804361.4356	2007636.286
6	NSR 1	15 +00.00	804391.3266	2007731.715
7	NSR 1	16 +00.00	804422.3729	2007826.754
8	NSR 1	17 +00.00	804465.8763	2007916.667
9	NSR 1	17 +33.10	804474.7476	2007931.296
10	NSR 1	17 +33.10	804474.7476	2007931.296
13	NSR 2	11 +00.00	804562.9767	2007883.551
14	NSR 2	12 +00.00	804646.8519	2007829.1
15	NSR 2	13 +00.00	804730.7271	2007774.649
16	NSR 2	14 +00.00	804814.6023	2007720.197
17	NSR 2	15 +00.00	804898.4775	2007665.746
18	NSR 2	16 +00.00	804982.3527	2007611.295
19	NSR 2	17 +00.00	805066.2279	2007556.843
20	NSR 2	18 +00.00	805150.1031	2007502.392
21	NSR 2	18 +78.00	805215.5258	2007459.92
22	NSR 2	18 +78.00	805215.5258	2007459.92

6/2/99
16-JUL-2007 10:40
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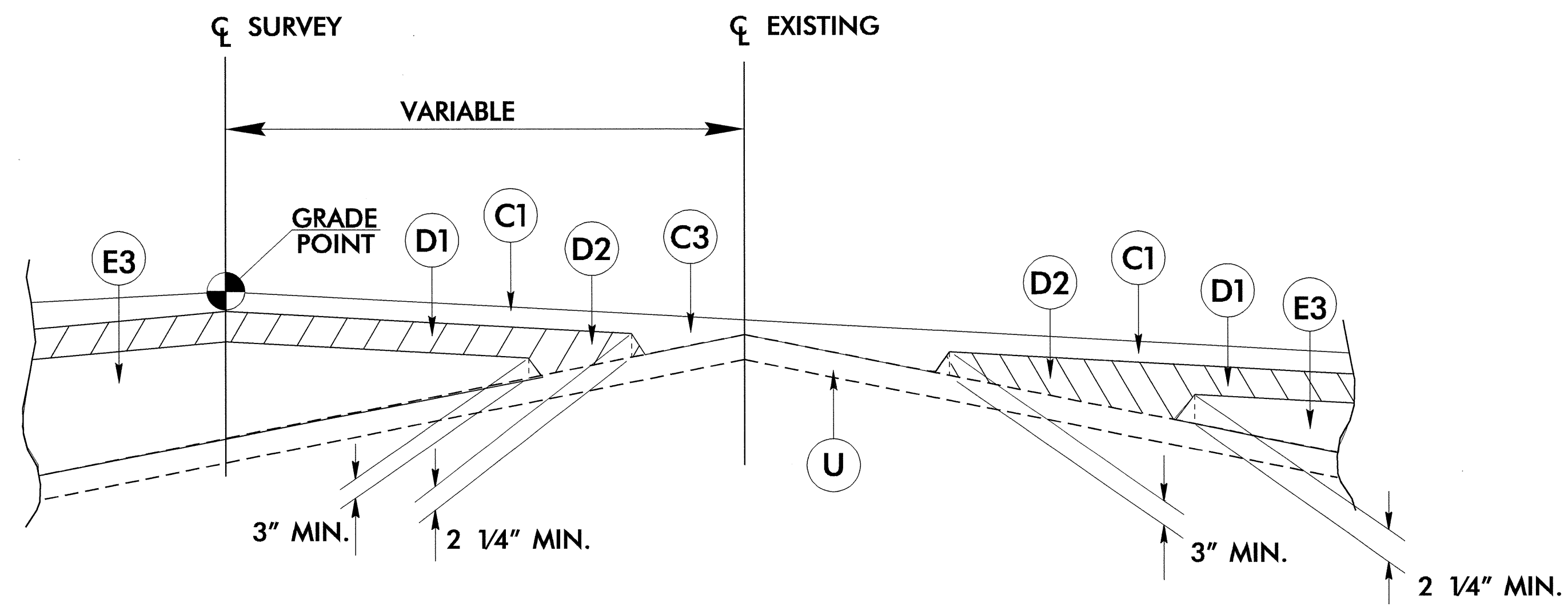
PROJECT REFERENCE NO. U-4009	SHEET NO. 2
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 26896 7-16-07	PAVEMENT DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 22896 7-17-07 Clark S. Morrison

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF THE TWO LAYERS
C3	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" IN DEPTH OR GREATER THAN 1 1/2" 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" IN DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/4" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.
E2	PROP. APPROX. 5 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 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 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
J1	PROP. 8" AGGREGATE BASE COURSE.
R1	2'-6" CONCRETE CURB AND GUTTER.
R2	8"x18" CONCRETE CURB.
R3	5" MONOLITHIC CONCRETE ISLAND. (SURFACE MOUNTED)
S	4" CONCRETE SIDEWALK.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	MILLING EXISTING BITUMINOUS PAVEMENT, VARIABLE 1 1/2" IN DEPTH.
V1	MILLING EXISTING BITUMINOUS PAVEMENT, VARIABLE IN DEPTH, 0" TO 3 1/2".
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAILS).

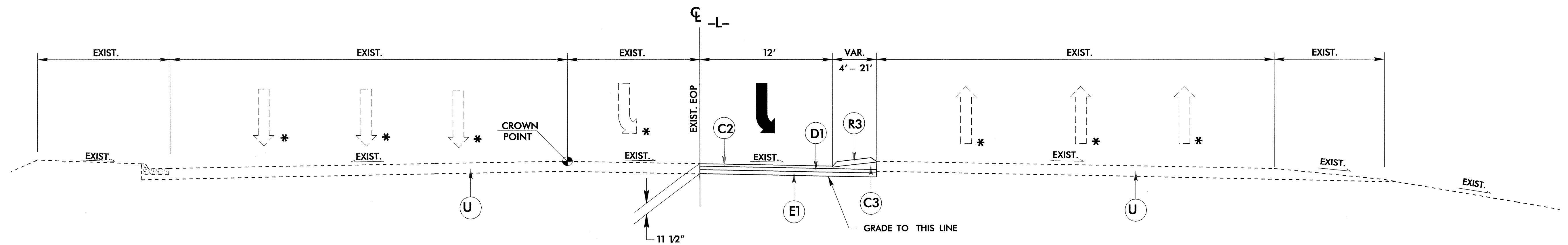
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE



Wedging Detail For Resurfacing

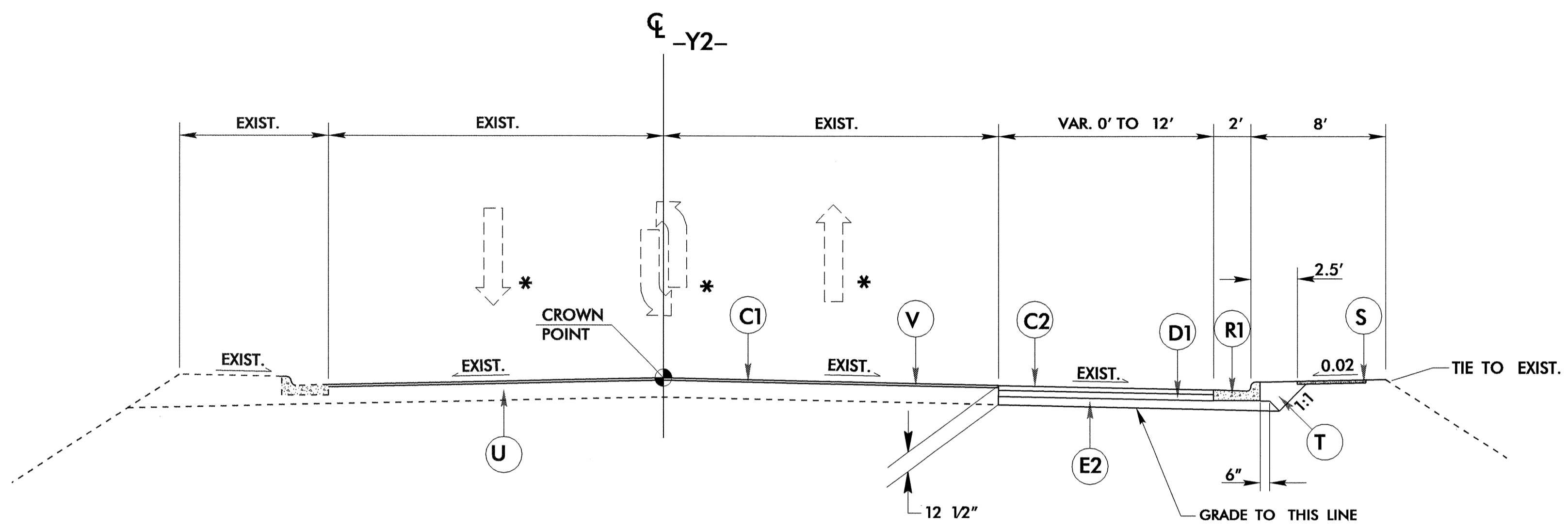


Detail Showing Method Of Wedging



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1
-L- STA 86+86.79 TO 95+70.00
*Existing Lane Usage



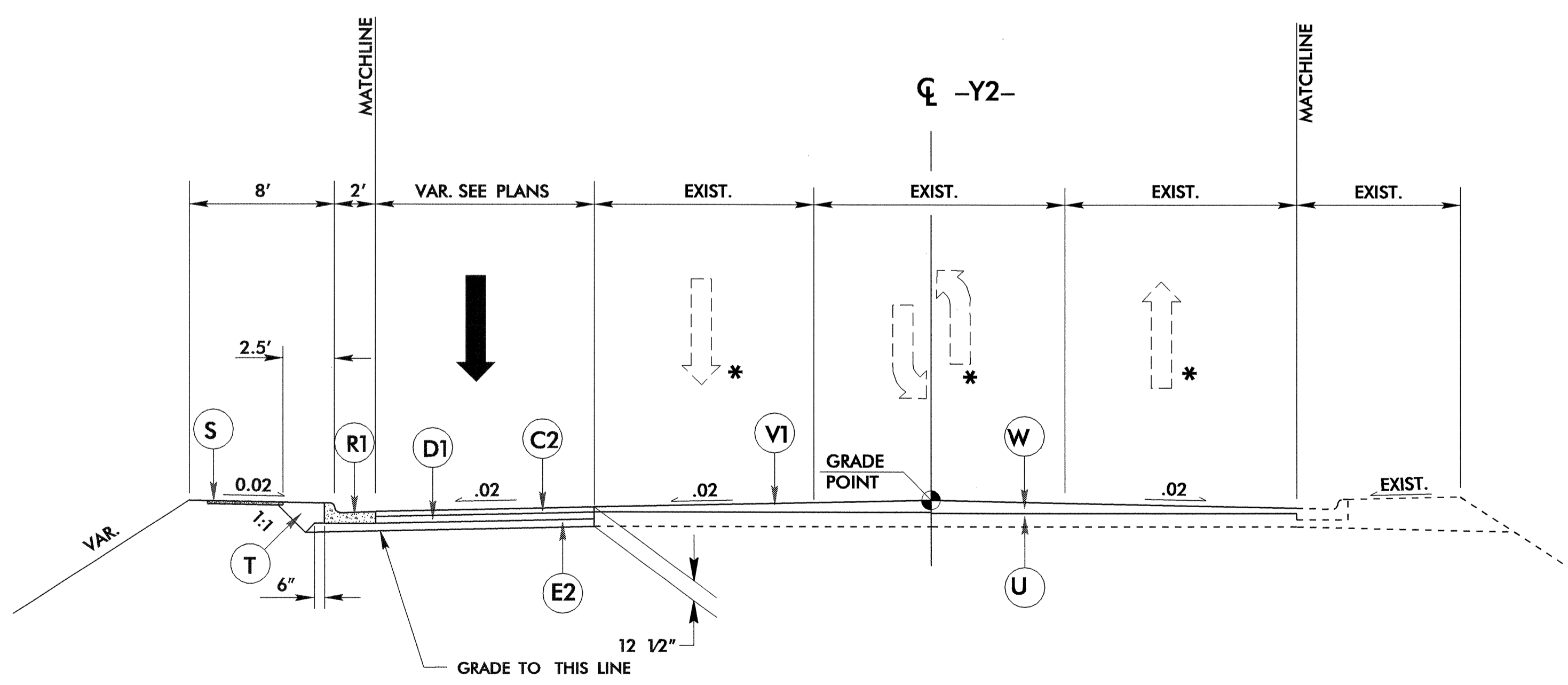
TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2

-Y2- STA 10+20.00 TO 14+35.00
 BUS STOP -Y2- STA 10+20.00 RT TO 12+50.00 RT
 SEE PLANS FOR RIGHT TURN LANE LOCATION

* Existing Lane Usage

C1	1.5" ASPHALT CONC. SURFACE COURSE, TYPE S9.5B
C2	3" ASPHALT CONC. SURFACE COURSE, TYPE S9.5B
D1	4" ASPHALT CONC. INTERMEDIATE COURSE, TYPE I19.0B
E2	5.5" ASPHALT CONC. BASE COURSE, TYPE B25.0B
R1	2'-6" CONCRETE CURB AND GUTTER.
S	4" CONCRETE SIDEWALK.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	1 1/2" MILLING
V1	VAR. DEPTH MILLING, 0" TO 3 1/2"
W	WEDGING



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO.3

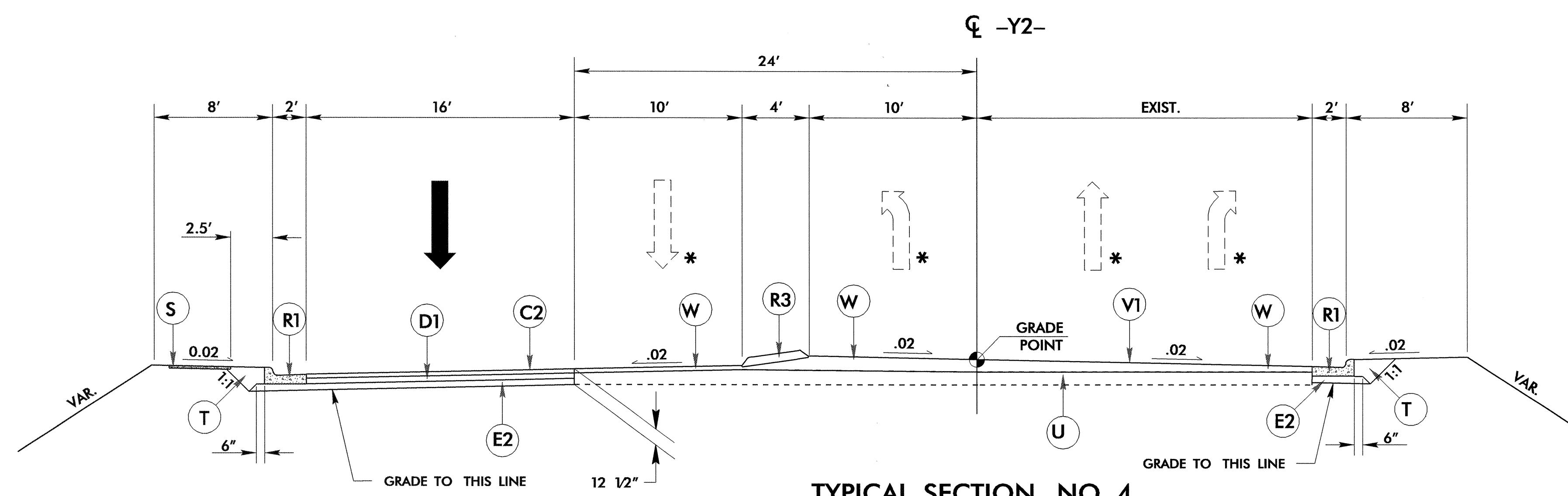
-Y2- STA 14+35.00 TO 22+70.00
 USE INSET A -Y2- STA 14+35.00 RT TO 15+60.00 RT
 USE INSET B -Y2- STA 15+88.00 LT TO 22+15.00 LT
 USE INSET C -Y2- STA 16+15.00 RT TO 17+15.00 RT
 USE INSET D -Y2- STA 17+15.00 RT TO 18+60.00 RT

* Existing Lane Usage

NOTE: TRANSITION FROM TYPICAL SECTION NO. 5
 TO TYPICAL SECTION NO. 6
 -Y2- STA. 21+65.00 TO 22+70.00

6/12/99
16-JUL-2007 10:40
R:\Pro\141005-248
Bockey AT RD226358

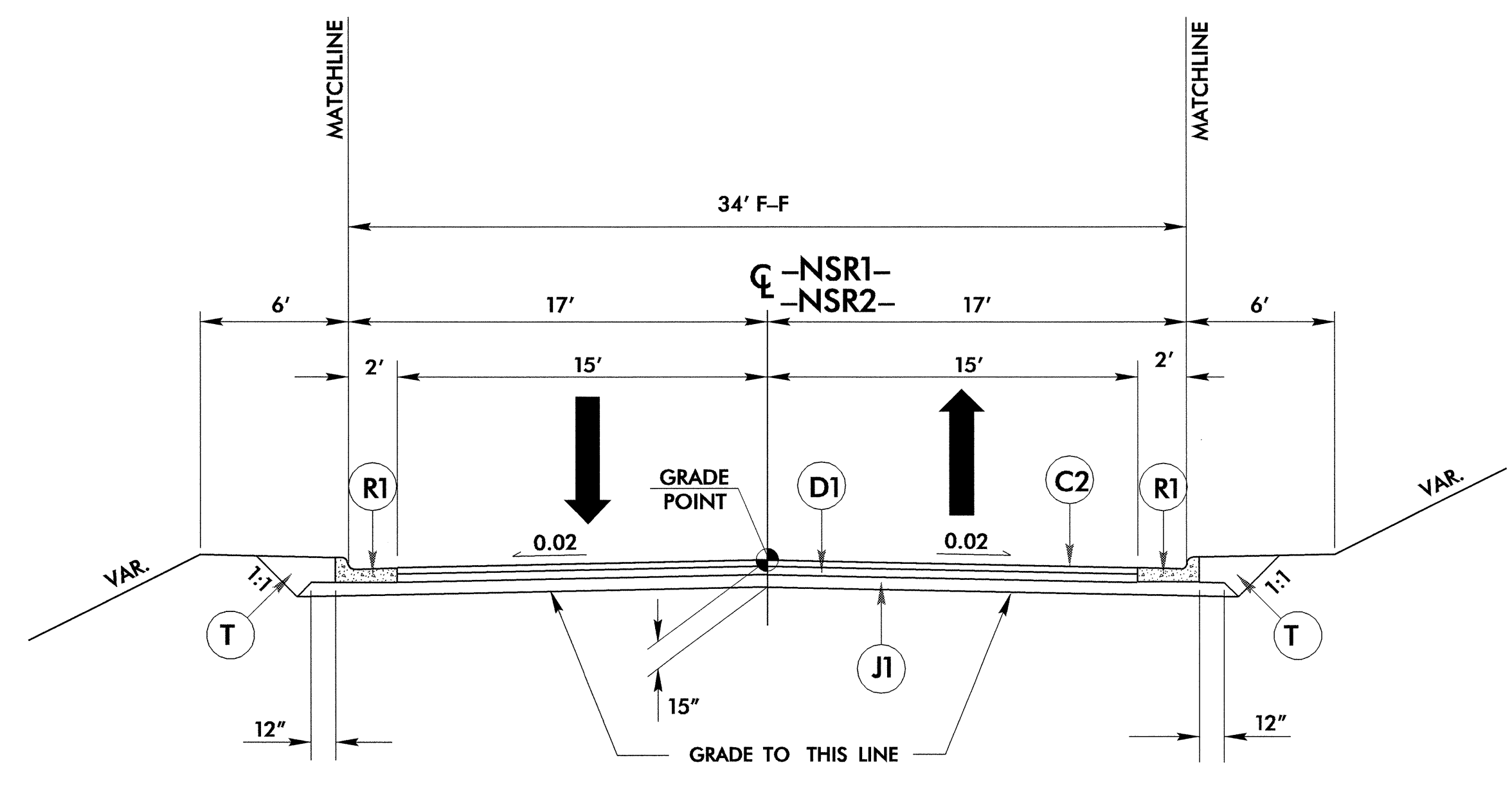
PROJECT REFERENCE NO. U-4009	SHEET NO. 2-B
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 26964 JAYAN C. KEY 7-16-07	PAVEMENT DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 22896 CLARK S. MORRIS 7-17-07



TYPICAL SECTION NO. 4

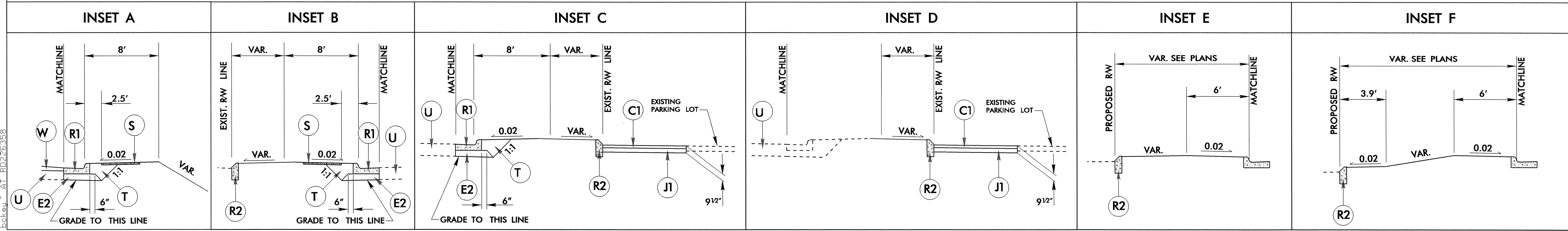
C1	1.5" ASPHALT CONC. SURFACE COURSE, TYPE S9.5B
C2	3" ASPHALT CONC. SURFACE COURSE, TYPE S9.5B
D1	4" ASPHALT CONC. INTERMEDIATE COURSE, TYPE I19.0B
E2	5 1/2" ASPHALT CONC. BASE COURSE, TYPE B25.0B
J1	8" AGGREGATE BASE COURSE.
R1	2'-6" CONCRETE CURB AND GUTTER.
R2	8"x18" CONCRETE CURB.
R3	5" MONOLITHIC CONCRETE ISLAND. (SURFACE MOUNTED)
S	4" CONCRETE SIDEWALK.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V1	VAR. DEPTH MILLING, 0" TO 3 1/2"
W	WEDGING

USE TYPICAL SECTION NO. 4
-Y2- STA 22+70.00 TO 23+64.00
* Existing Lane Usage



TYPICAL SECTION NO. 5

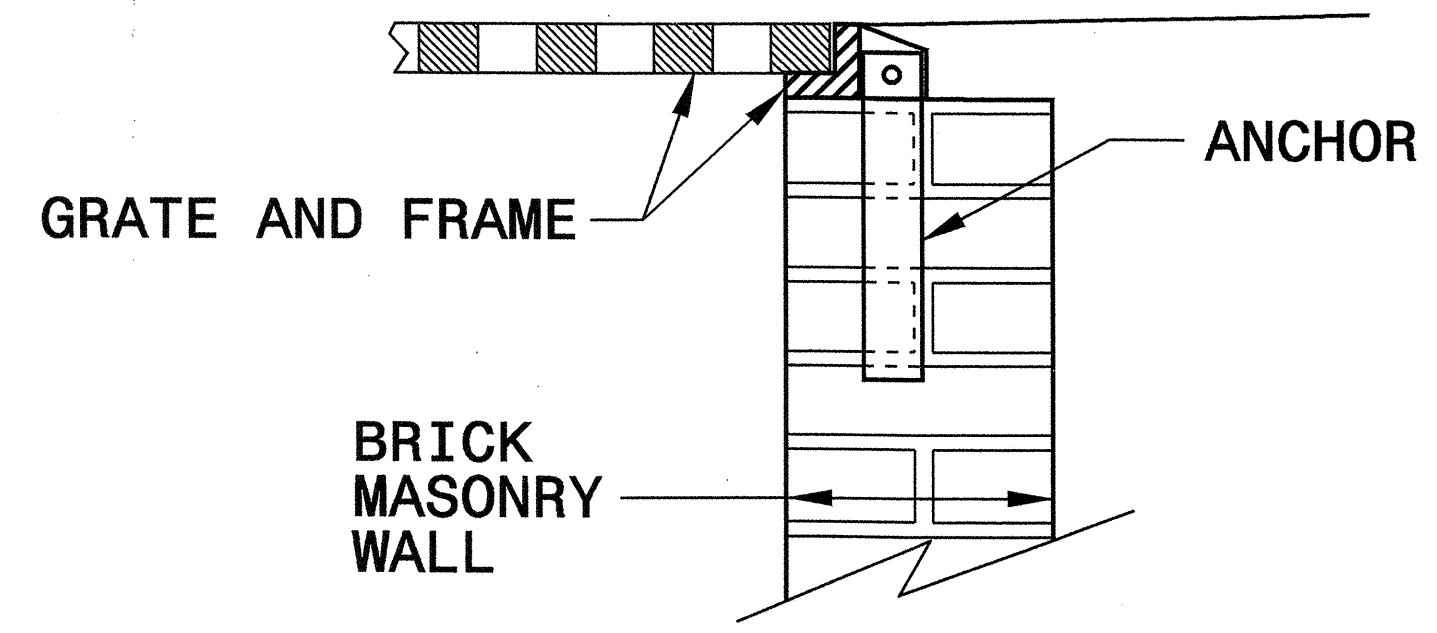
USE TYPICAL SECTION NO. 5
-NSR1- STA 10+19.31 TO STA. 17+25.10
-NSR2- STA 10+00.00 TO STA. 18+78.00
USE INSET E -NSR1- STA 10+60.00 LT TO STA. 12+10.00 LT
USE INSET E -NSR1- STA 10+65.00 RT TO STA. 12+50.00 RT (MIRROR)
USE INSET F -NSR2- STA 17+15.00 LT TO STA. 18+50.00 LT
USE INSET F -NSR2- STA 15+85.00 RT TO STA. 18+30.00 RT (MIRROR)



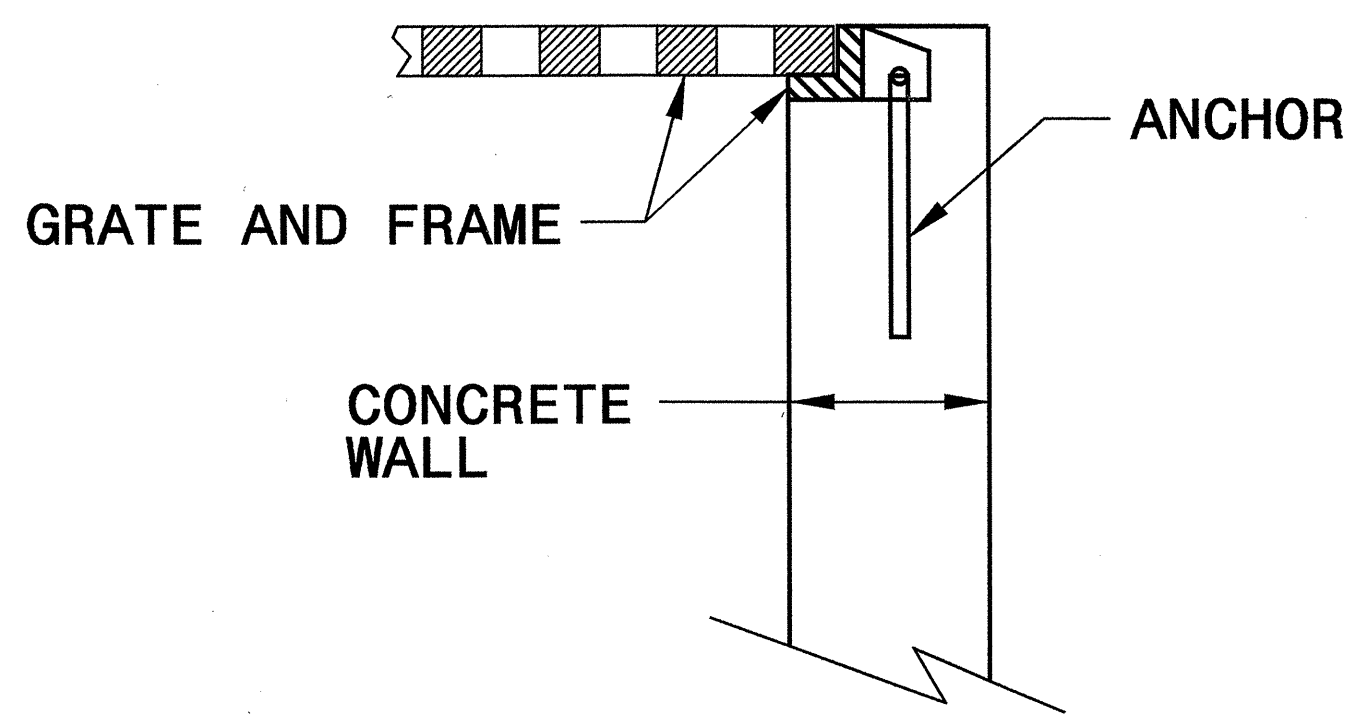
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE

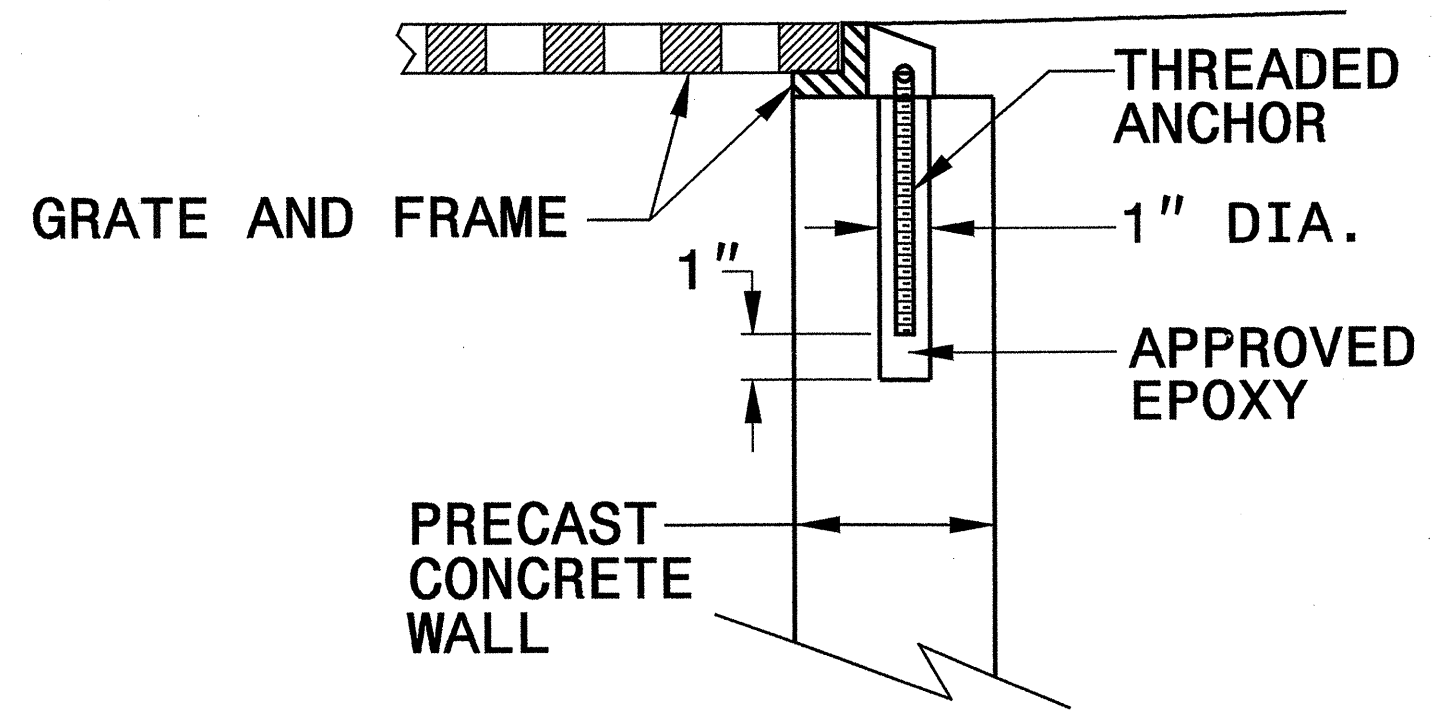
SHEET 1 OF 1
840D25



BRICK MASONRY CONSTRUCTION



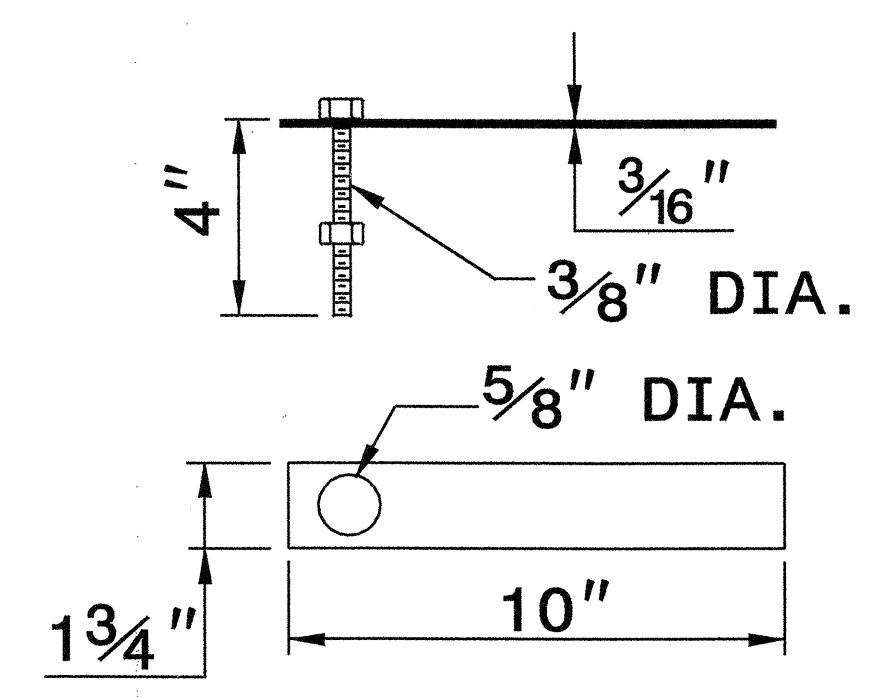
CONCRETE CONSTRUCTION



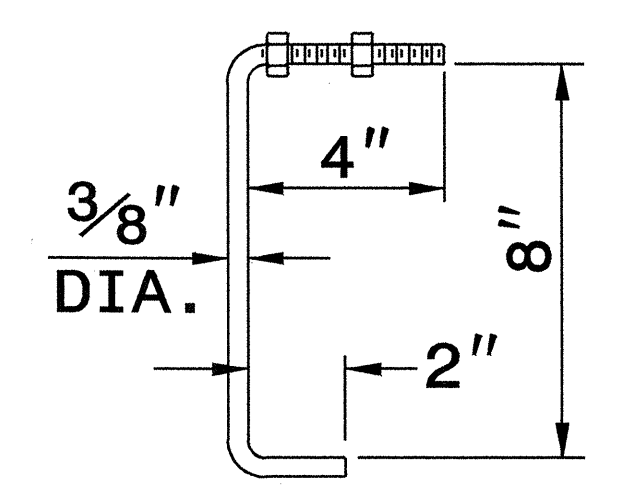
PRECAST CONCRETE CONSTRUCTION

DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET

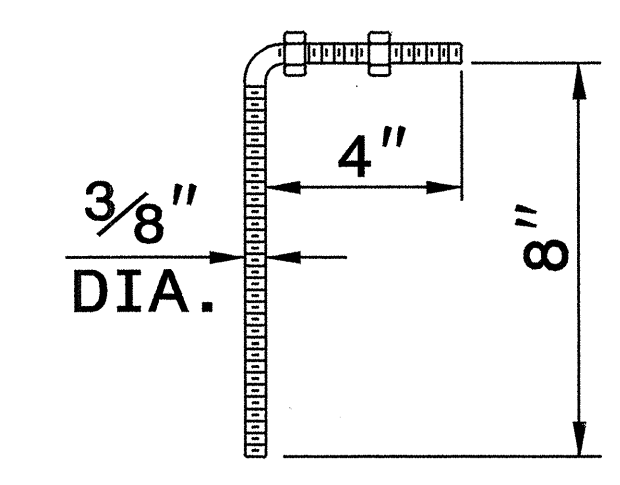
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



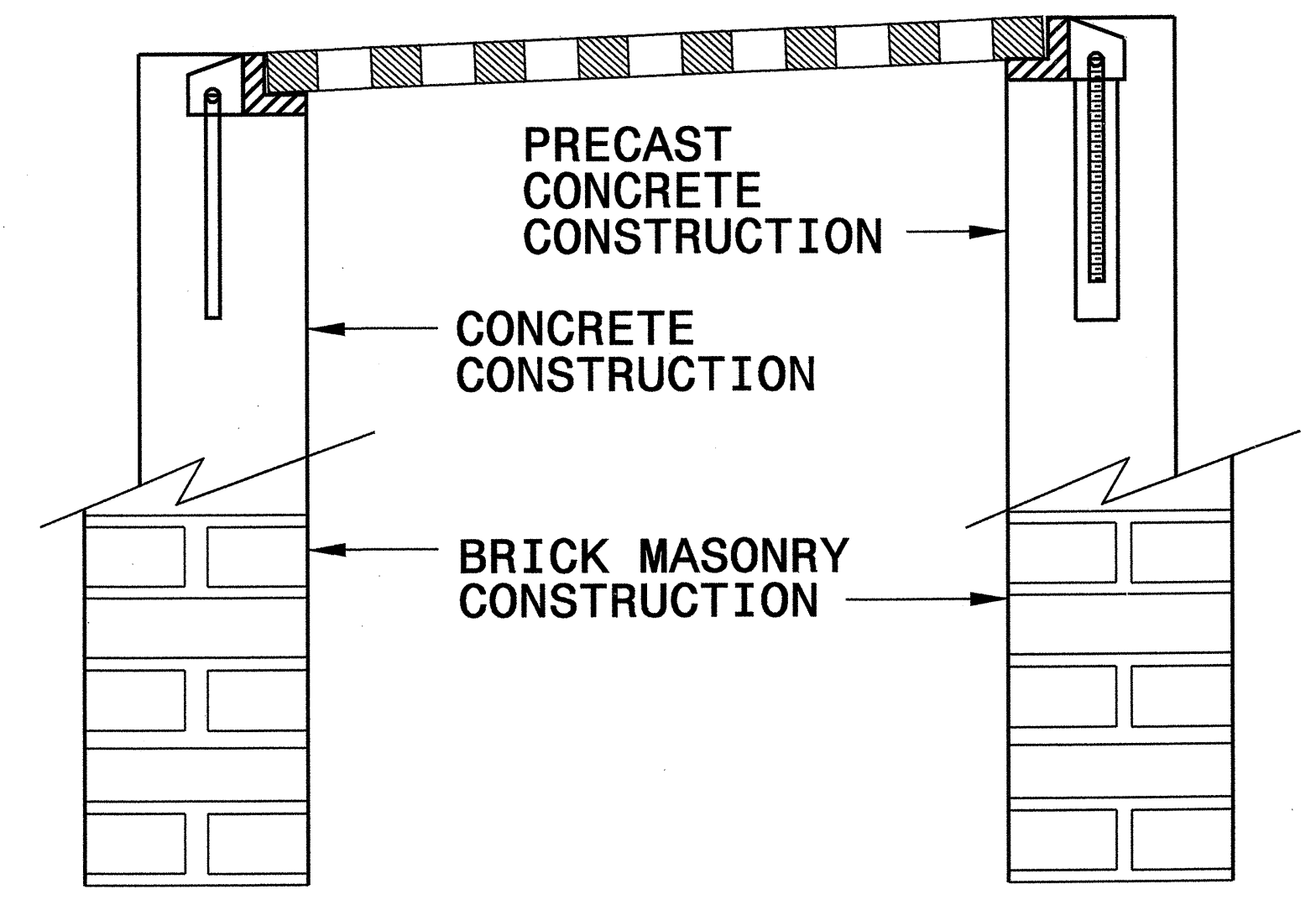
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



CONCRETE ANCHOR
3/8" DIA. BENT BAR



PRECAST CONCRETE ANCHOR
3/8" DIA. BENT BAR



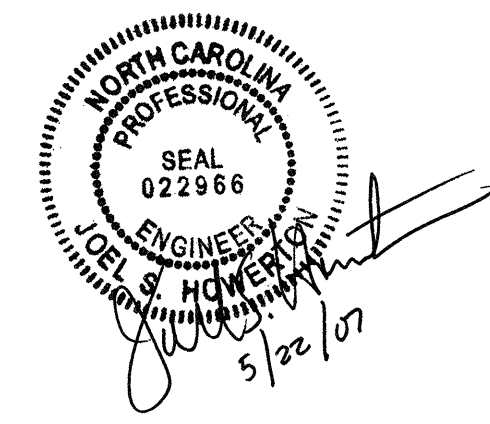
FRAME AND GRATE INSTALLATION FOR NORMAL CROWN AND SUPERELEVATED SECTIONS

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1
840D25

01-MAR-2007 09:04 s:\contracts\contract\special_details\vericard\stds\06\stds to special_details\84025 anchorage for frames\840d25.dgn j.powers-ton AI PS212260



**PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN**
Office 919-250-4128 FAX 919-250-4119

SEE PLATE FOR TITLE

ORIGINAL BY: 2006 STD 840.25 DATE: 07/18/06
MODIFIED BY: E.E. WARD DATE: 9/25/06
CHECKED BY: _____ DATE: _____
FILE SPEC.: _____

RD206394

COMPUTED BY:	OJF	DATE:	2/9/2004
CHECKED BY:	BCK	DATE:	2/9/2004

PROJECT NO.	SHEET NO.
U-4009	3-C

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

Station	Station	Uncl. Excav.	Undercut Excav.	Embank. +15%	Borrow	Waste
SUMMARY NO. 1						
-L- 86+86.79	-L- 98+70	621				621
SUBTOTAL NO. 1		621				621
SUMMARY NO. 2						
-NSR1- 10+20	-NSR1- 17+20	187	568	3396	3209	568
SUBTOTAL NO. 2		187	568	3396	3209	568
SUMMARY NO. 3						
-NSR2- 10+15	-NSR2- 18+65	399	533	1703	1412	641
SUBTOTAL NO.3		399	533	1703	1412	641
SUMMARY NO. 4						
-Y2-LT 10+00	-Y2-LT 25+50	534		132		402
SUBTOTAL NO.4		534		132		402
SUMMARY NO. 5						
-Y2-RT 10+00	-Y2-RT 25+50	600		32		568
SUBTOTAL NO. 5		600		32		568
SUMMARY TOTALS:		2341	1101	5263	4621	2800
LOSS DUE TO CLEARING & GRUBBING		-1000			1000	
ADDITIONAL UNDERCUT			100			100
SEDIMENT TRAP CLEANOUT			35			35
WASTE IN LIEU OF BORROW					-568	-586
PROJECT SUB-TOTAL		1341	1236	5263	5053	2349
5% TO REPLACE TOPSOIL ON BORROW PIT					253	
GRAND TOTALS		1341	1236	5263	5306	2349
DDE = 340 CY						
BACKFILL UNDERCUT WITH SELECT MATERIAL OR SELECT GRANULAR MATERIAL						

SUMMARY OF EXISTING ASPHALT PAVEMENT REMOVAL

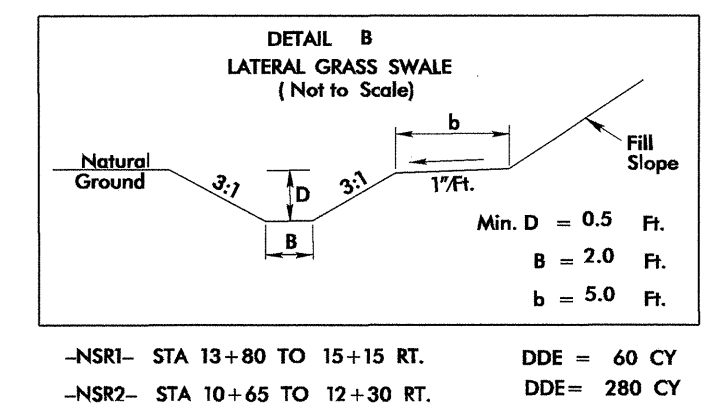
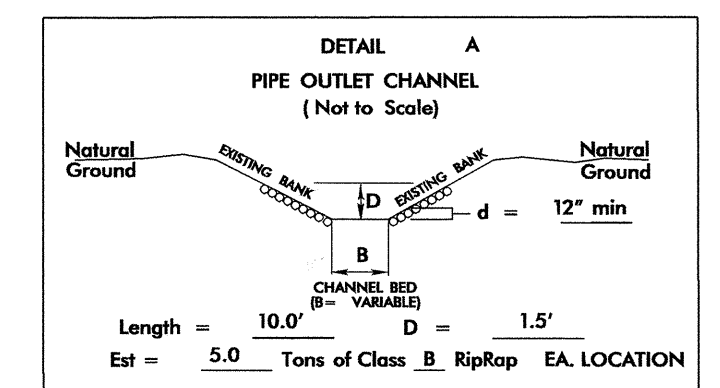
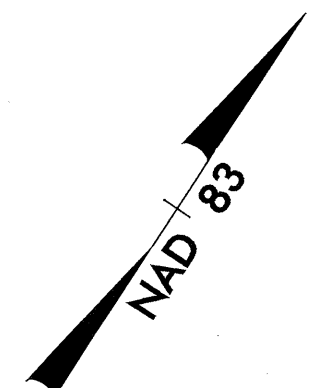
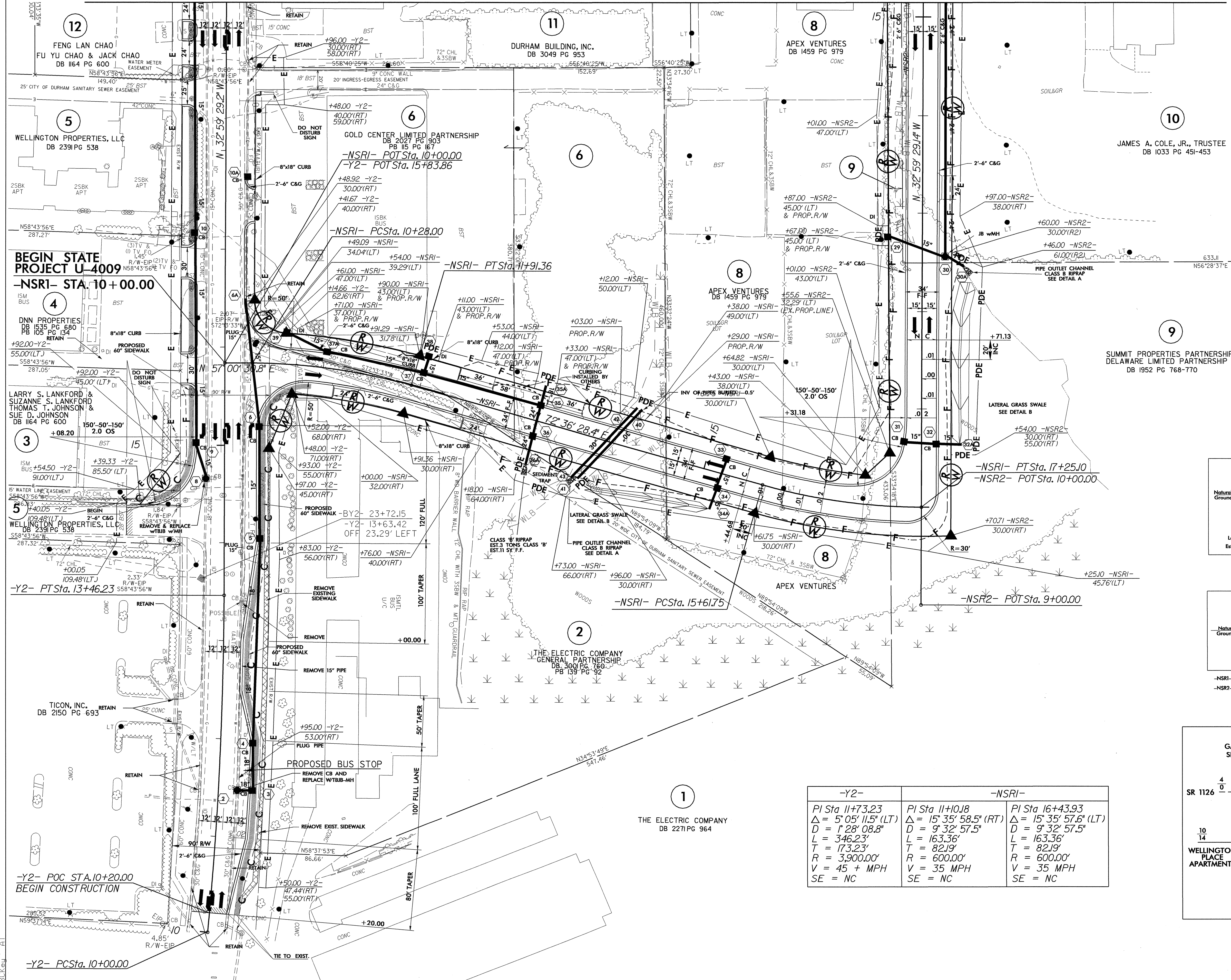
Line	Station	Station	LOC LT/RT/CL	YD ²
-Y2-	23+16		LT	346.65
-Y2-	23+16		RT	580.36
			TOTAL	927.01
			SAY	1020

SUMMARY OF FENCE REMOVAL

FOR CONTRACTORS INFORMATION ONLY.
FENCE REMOVAL INCIDENTAL TO CLEARING AND GRUBBING.

Line	Station	Station	LOC LT/RT/CL	LIN FT
-NSR1-	15+82.00		LT & RT	18.52
-NSR1-	15+86.68	16+66.49	RT	79.81
-NSR1-	16+62.00		RT	38.50
-NSR1-	16+67.00		LT	80.00
			NSR1 TOTAL	216.83
-NSR2-	12+18.00	14+75.00	LT	257.00
-NSR2-				
			NSR2 TOTAL	257.00
			TOTAL	473.83
			SAY	520.00

-Y2- STA. 19+50.00 MATCH LINE SEE SHEET 4



GARRETT RD. SR 1116		2002 ADT IN HUNDREDS		2025 ADT IN HUNDREDS	
		181	261		
SR 1126	4	10	17	56	SR 1126
		178	261		
10	7				
14	9				
WELLINGTON PLACE APARTMENTS	3				SERVICE RD.
	5				
	174				
	257				
	0				SERVICE RD.
	10				
	42				
	174				
	289				0
					52

-Y2-	-NSRI-	
PI Sta 11+73.23	PI Sta 11+10.18	PI Sta 16+43.93
$\Delta = 5' 05'' 11.5'' (LT)$	$\Delta = 15' 35'' 58.5'' (RT)$	$\Delta = 15' 35'' 57.6'' (LT)$
$D = 1' 28'' 08.8''$	$D = 9' 32'' 57.5''$	$D = 9' 32'' 57.5''$
$L = 346.23'$	$L = 163.36'$	$L = 163.36'$
$T = 173.23'$	$T = 82.19'$	$T = 82.19'$
$R = 3,900.00'$	$R = 600.00'$	$R = 600.00'$
$V = 45 + MPH$	$V = 35 MPH$	$V = 35 MPH$
SE = NC	SE = NC	SE = NC

SEE SHEET 6 FOR -NSRI- PROFILE
SEE SHEET 6 FOR -NSR2- PROFILE
SEE SHEET 7 FOR -Y2- PROFILE

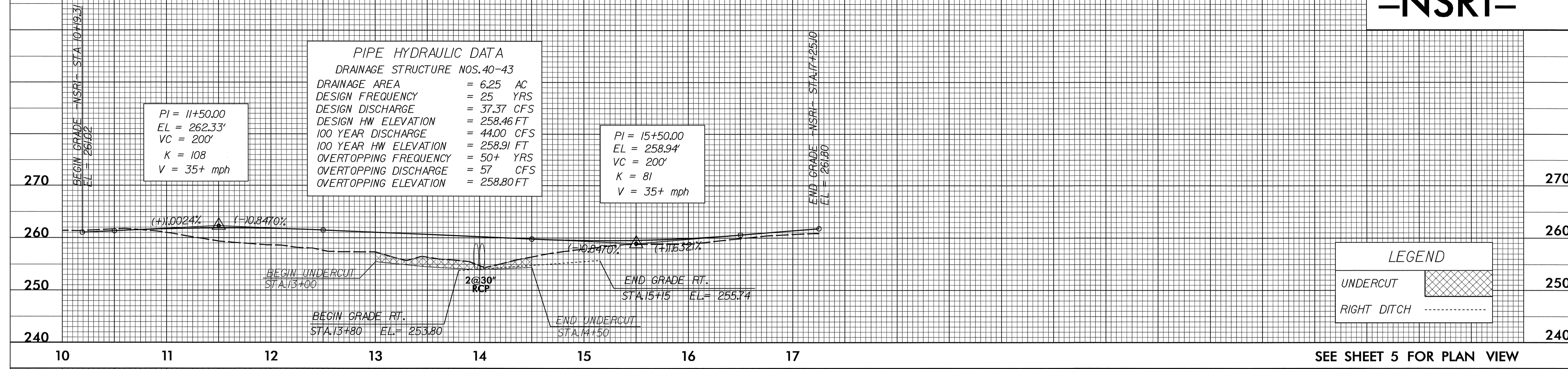
8/17/99
19-MAY-2004 12:08
R:\Projects\U-4009\psh5\BCKKey rd-09occe34

5/28/99

PROJECT REFERENCE NO. U-4009	SHEET NO. 6
ROADWAY DESIGN ENGINEER BRYAN C. KEY SEAL 26964 NORTH CAROLINA PROFESSIONAL ENGINEER 3-15-04	HYDRAULICS ENGINEER MARC T. SHOWN SEAL 20870 NORTH CAROLINA PROFESSIONAL ENGINEER 3-15-04

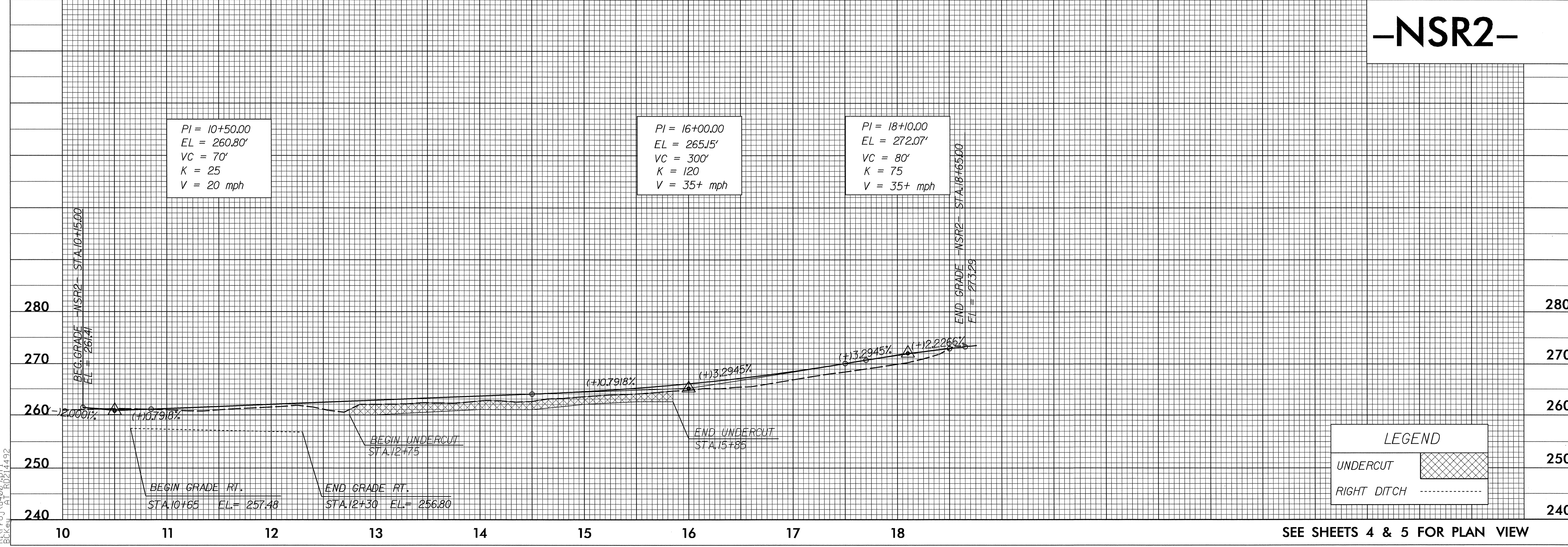
BM 5 RAIL ROAD SPIKE IN BASE OF 12" PINE
269' LEFT OF BL STA. 87+42
N 805353.0000 E 2005499.0000
ELEV. = 290.64

-NSR1-



SEE SHEET 5 FOR PLAN VIEW

-NSR2-



SEE SHEETS 4 & 5 FOR PLAN VIEW

10-MAR-2004 08:29
BCKey RD214492

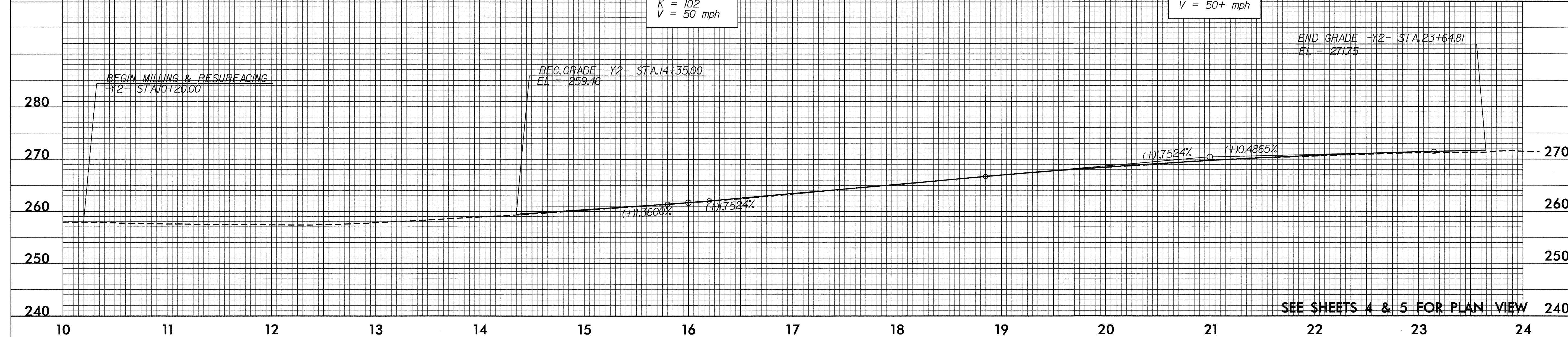
5/26/99

PROJECT REFERENCE NO. U-4009	SHEET NO. 7
ROADWAY DESIGN ENGINEER BRYAN C. KEY SEAL 26964 3-15-04	HYDRAULICS ENGINEER MARC T. SHOWN SEAL 20670 3-15-04

-Y2-

$PI = 16+00.00$
 $EL = 261.70'$
 $VC = 40'$
 $K = 102$
 $V = 50 \text{ mph}$

$PI = 21+00.00$
 $EL = 270.46'$
 $VC = 430'$
 $K = 340$
 $V = 50+ \text{ mph}$



17-FEB-2004 12:17
 P:\PROJECTS\U-4009\PT1 RD196588
 6/20/04