

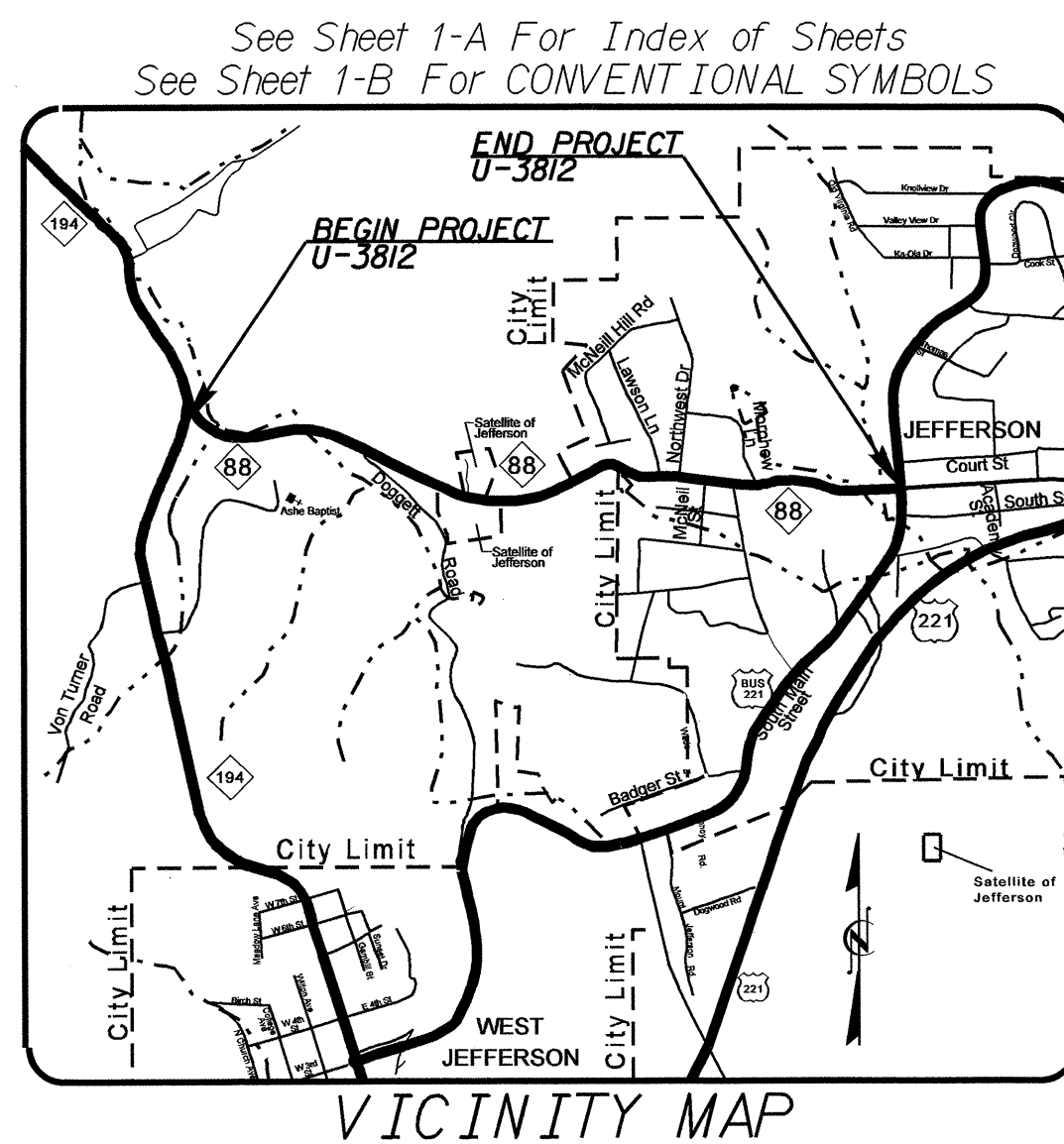
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-3812	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34977.1.1	STP-88(2)	P.E.	
34977.2.2	STP-88(2)	R/W, UTILITIES	
34977.3.1	STP-88(6)	CONSTRUCTION	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ASHE COUNTY

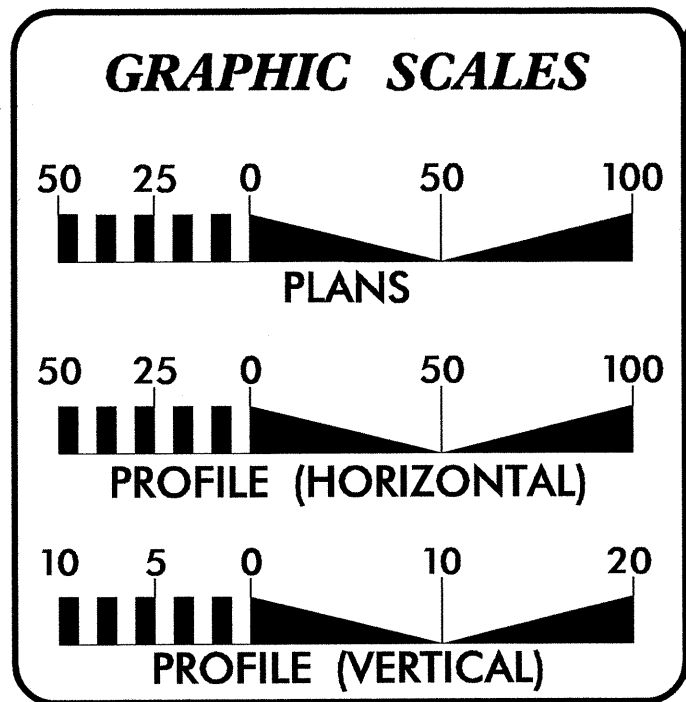
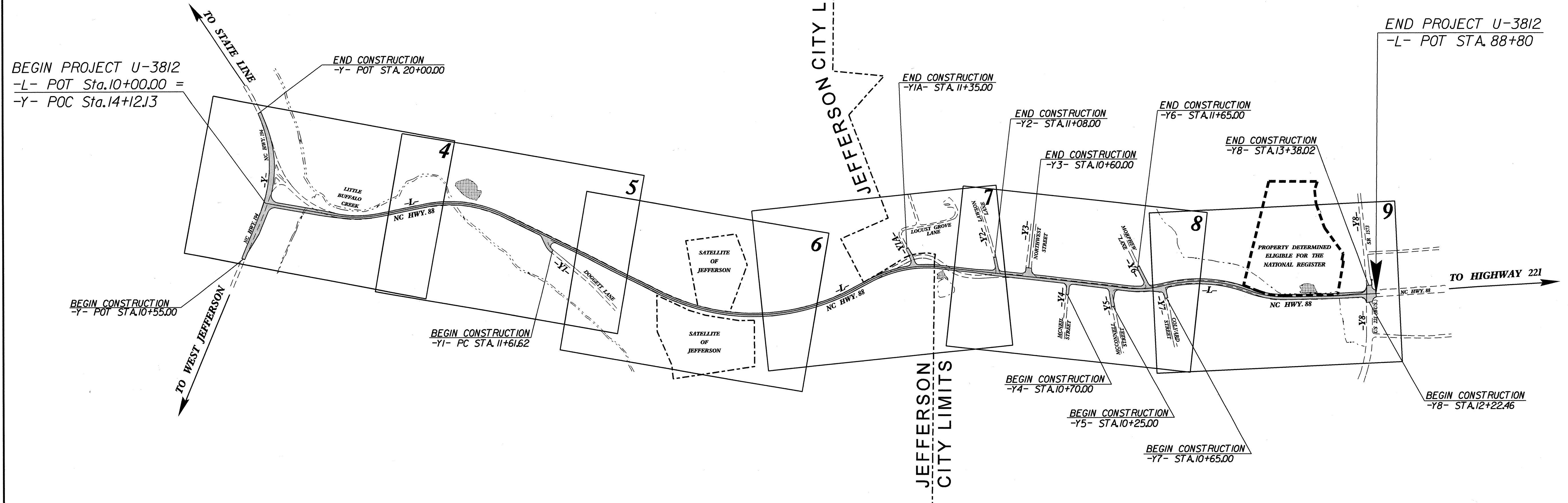
LOCATION: NC 88 (WEST MAIN ST.) FROM NC 194 TO US 221 BUSINESS (SOUTH MAIN ST.)

TYPE OF WORK: GRADING, PAVING, DRAINAGE, SIGNALS, AND CULVERT.



TIP PROJECT: U-3812

CONTRACT: C202744



DESIGN DATA

ADT 2009 =	8,700
ADT 2030 =	13,300
DHV =	12 %
D =	60 %
T =	6 % *
V =	50 MPH (Rural)
V =	35 MPH (Urban)
*TTST 1% DUAL 5 %	

REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-3812 =	1.492 MILES
TOTAL LENGTH TIP PROJECT U-3812 =	1.492 MILES

FUNCTIONAL CLASS = RURAL PRINCIPAL ARTERIAL

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

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: November 12, 2009	J. S. GOODNIGHT, PE PROJECT ENGINEER
LETTING DATE: January 17, 2012	S. D. KENDALL, PE PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

Paul F. Fisher 9-26-11
SIGNATURE: PAUL F. FISHER
SEAL 12675

ROADWAY DESIGN ENGINEER

S. D. Kendall 9-26-11
SIGNATURE: S. D. KENDALL
SEAL 33296

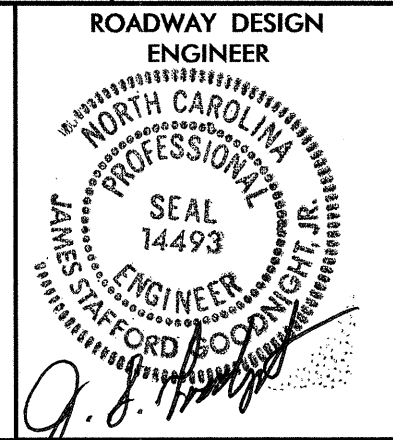
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

Art McMiller P.E.
STATE HIGHWAY DESIGN ENGINEER

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8/17/99

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS



**2006 ROADWAY ENGLISH
STANDARD DRAWINGS**

EFF. 07-18-06
REV. 01-02-07

GENERAL NOTES

2006 SPECIFICATIONS
EFFECTIVE: 07-18-06
REVISED: 07-18-06

INDEX OF SHEETS

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

STD.NO.	TITLE
DIVISION 2 – EARTHWORK	
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 Obtaining Sight Distance at Intersections
DIVISION 3 – PIPE CULVERTS	
310.10	Driveway Pipe Construction
DIVISION 5 – SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction – High Side of Superelevated Curve – Method I
DIVISION 6 – SUBGRADE, BASES AND SHOULDERS	
654.01	Pavement Repair
DIVISION 8 – INCIDENTALS	
815.03	Pipe Underdrain and Blind Drain
838.01	Concrete Endwall for Single and Double Pipe Culverts – 15" thru 48" Pipe, 90 Skew
838.11	Brick Endwall for Single & Double Pipe Culv. – 15" thru 48" Pipe 90 Skew
838.28	Reinforced Concrete Endwall – for Double & Triple 60" Pipe 90 Skew
838.45	Notes for Reinforced Concrete Endwall – Std. Dwg. 838.21 thru 838.40
838.58	Reinforced Brick Endwall – for Double & Triple 60" Pipe 90 Skew
838.75	Notes for Reinforced Brick Endwall – Std. Dwg. 838.51 thru 838.70
838.80	Precast Endwalls – 12" thru 72" Pipe 90 Skew
840.00	Concrete Base pad for Drainage Structures
840.01	Brick Catch Basin – 12" thru 54" Pipe
840.02	Concrete Catch Basin – 12" thru 54" Pipe
840.03	Frame, Grates and Hood – for Use on Standard Catch Basin
840.04	Concrete Open Throat Catch Basin – 12" thru 48" Pipe
840.05	Brick Open Throat Catch Basin – 12" thru 48" 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
840.24	Frames and Narrow Slot Sag Grates
840.26	Brick Grated Drop Inlet Type 'A' – 12" thru 72" Pipe
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
840.32	Brick Junction Box – 12" thru 66" Pipe
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
848.01	Concrete Sidewalk
848.03	Driveway Turnout – Drop Curb Type
848.04	Street Turnout
850.01	Concrete Paved Ditch
862.01	Guardrail Placement
862.02	Guardrail Installation
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

GRADING AND SURFACING OR RESURFACING AND WIDENING:
THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF THE SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED 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 RELYOLVED 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.

UNDERDRAINS:
UNDERDRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.03 AT LOCATIONS DIRECTED BY THE ENGINEER.

DRIVEWAYS:
DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.03 AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

STREET TURNOUT:
STREET RETURNS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 248.04 USING RADII NOTED ON THE PLANS.

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.

TEMPORARY SHORING:
SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".

UTILITIES:
UTILITY OWNERS ON THIS PROJECT ARE:
Town of Jefferson, North Carolina
Mediacom /Morris Broadband
Sprint /Central Telephone Company –Embarq /Centurylink
Blue Ridge Electric Membership Corporation
Skyline TMC

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED OTHERS, EXCEPT AS SHOWN ON THE PLANS.

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

CURB RAMPS:
CURB RAMPS ARE SHOWN ON PLANS AT APPROXIMATE LOCATIONS. CONSTRUCT ALL CURB RAMPS USING DETAILS 2-I THRU 2-J.

SHEET No.	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
1-C THRU 1-F	SURVEY CONTROL SHEET
1-G	CENTERLINE COORDINATION LIST
2 THRU 2-C	TYPICAL SECTIONS, PAVEMENT SCHEDULE, MILLING DETAIL, WEDGING DETAILS AND DETAIL OF UNDERCUT AT GRADE POINT
2-D	DRAINAGE DITCH DETAILS
2-E THRU 2-F	METHOD OF PIPE INSTALATION
2-G	ANCHORAGE FOR FRAMES: BRICK /CONCRETE /PRECAST CONCRETE
2-H	DETAIL FOR TEMPORARY CONTAINMENT OF PETROLEUM CONTAMINATED SOIL
2-I THRU 2-J	DETAIL FOR CURB RAMPS
2-K	DETAIL FOR CHAIN LINK FENCE ON CONCRETE RETAINING WALL
2-L	BICYCLE SAFE FRAME AND GRATE
2-M	TEMPORARY SHORING DETAILS
3 (2 SHEETS)	SUMMARY OF QUANTITIES
3-A THRU 3-C	DRAINAGE SUMMARY SHEETS (48" & UNDER)
3-D	DRAINAGE SUMMARY SHEETS (54" & OVER), GUARDRAIL SUMMARY, MILLING OF EXISTING ASPHALT PAVEMENT, REMOVAL OF EXISTING ASPHALT PAVEMENT, PROP. CHAIN LINK FENCE.
3-E	SUMMARY OF EARTHWORK
3-F	PARCEL INDEX
4 THRU 9	PLAN SHEETS
10 THRU 14	PROFILE SHEETS
TMP-1 THRU TMP-15	TRANSPORTATION MANAGEMENT PLAN
PMP-1 THRU PMP-7	PAVEMENT MARKING PLAN
EC-1 THRU EC-17	EROSION CONTROL PLANS
RF-1	REFORSTATION DETAIL SHEET
SIGN-1 THRU SIGN-10	SIGNING PLANS
SIG-1 THRU SIG-18	SIGNAL PLAN
UC-1 THRU UC-6	UTILITY CONSTRUCTION PLANS
UO-1 THRU UO-7	UTILITIES BY OTHERS PLANS
X-1	CROSS-SECTION INDEX OF SHEETS
X-1A	CROSS-SECTION SUMMARY SHEET
C-1 THRU C-8	CULVERT STRUCTURE PLANS
W-1 THRU W-2	RETAINING WALL PLANS

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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

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
Known Soil Contamination: Boundary or Site	☠ ☠
Potential Soil Contamination: Boundary or Site	☠ ?

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	⋈
Proposed Lateral, Tail, Head Ditch	▭
False Sump	▭

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	CSX TRANSPORTATION MILEPOST 35
Switch	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	E
Proposed Temporary Construction Easement	E
Proposed Temporary Drainage Easement	TDE
Proposed Permanent Drainage Easement	PDE
Proposed Permanent Drainage / Utility Easement	DUE
Proposed Permanent Utility Easement	PUE
Proposed Temporary Utility Easement	TUE
Proposed Aerial Utility Easement	AUE
Proposed Permanent Easement with Iron Pin and Cap Marker	◆

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	C
Proposed Slope Stakes Fill	F
Proposed Curb Ramp	CR
Curb Cut Future 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	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	-----
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	-----
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	-----
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

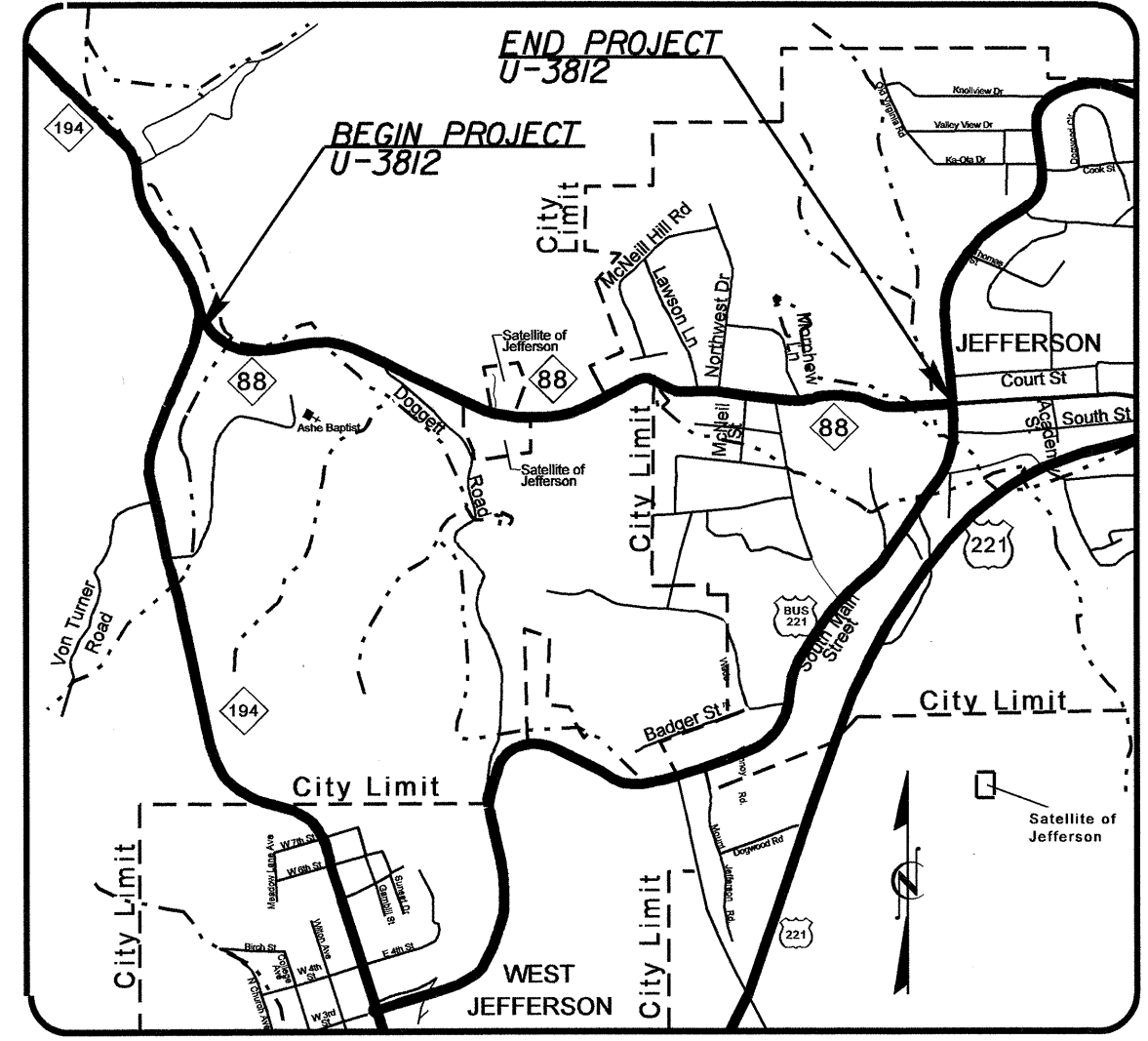
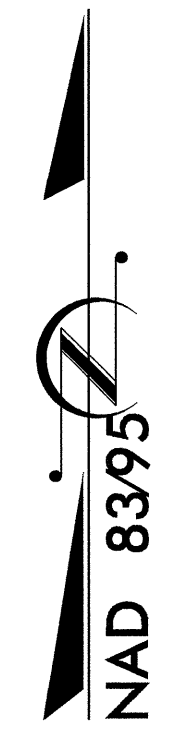
SANITARY SEWER:

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	U/UL
U/G Tank; Water, Gas, Oil	▭
Underground Storage Tank, Approx. Loc.	UST
A/G Tank; Water, Gas, Oil	▭
Geoenvironmental Boring	⊗
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
SURVEY CONTROL U3812



END TIP PROJECT U-3812
-L- POT STA 88+00.00
N= 981074.7006
E= 1272087.2023

BEGIN TIP PROJECT U-3812
-L- POT STA 10+00 =
-Y- POC STA 14+12.13
N= 981704.8726
E= 1264546.3462

NC DOT GPS STATION U3812-2
LOCALIZED PROJECT COORDINATES
N= 981860.791
E= 1264620.569

NC DOT GPS STATION U3812-4
LOCALIZED PROJECT COORDINATES
N= 982196.963
E= 1269890.902

NC DOT GPS STATION U3812-1
LOCALIZED PROJECT COORDINATES
N= 980674.137
E= 1264108.082

NC DOT GPS STATION U3812-3
LOCALIZED PROJECT COORDINATES
N= 981175.742
E= 1269782.422

NC DOT GPS STATION U3812-5
LOCALIZED PROJECT COORDINATES
N= 981157.529
E= 1273012.430

NC DOT GPS STATION U3812-6
LOCALIZED PROJECT COORDINATES
N= 981159.209
E= 1274003.027

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "U3812-3" WITH NAD 83/95 STATE PLANE GRID COORDINATES OF NORTHING: 981175.742(±) EASTING: 1269782.422(±) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99994558 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "U3812-3" TO -L- STATION 10+00.00 IS N 84°13'46" W 5262.74 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

- NOTES:
- THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
[HTTP://WWW.DOI.DOT.STATE.NC.US/PRECONSTRUCTION/HIGHWAY/LOCATION/PROJECT/](http://www.doh.dot.state.nc.us/preconstruction/highway/location/project/)
THE FILES TO BE FOUND ARE AS FOLLOWS:
U3812_LS_CONTROL.TXT
 - SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
 - INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION
SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
SURVEY CONTROL U-3812

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
2	GPSU3812-2	981860.7910	1264620.1760	2859.90	10+46.19	166.22 LT
7	BL-7	981674.1662	1265461.4165	2853.93	19+31.00	21.40 LT
8	BL-8	981687.0278	1266052.8500	2869.01	25+21.35	16.77 LT
9	BL-9	981471.5371	1266437.9542	2891.19	29+59.87	20.49 RT
10	BL-10	980961.1954	1267550.8514	2974.59	41+81.30	22.97 RT
11	BL-11	980959.0265	1268211.6829	3022.36	48+38.34	18.87 RT
12	BL-12	981167.9499	1268712.5002	3038.55	53+78.67	15.30 RT
13	BL-13	981307.2478	1268987.1700	3027.90	56+78.37	41.73 LT
14	BL-14	981178.6572	1269440.5977	3000.89	61+35.57	56.99 RT
3	GPSU3812-3	981175.7420	1269782.4220	2982.02	64+75.68	22.67 RT
15	BL-15	981141.6768	1270074.8691	2968.64	67+70.35	22.47 RT
16	BL-16	981104.8609	1270374.4317	2971.46	70+72.16	23.26 RT
17	BL-17	981096.9890	1270631.5365	2980.46	73+24.34	23.60 RT
18	BL-18	981173.8171	1270955.1770	2962.41	76+54.81	9.83 LT
19	BL-19	981064.1954	1271495.6391	2929.17	82+07.73	5.49 LT
20	BL-20	981042.6423	1272079.3870	2919.46	87+90.42	31.58 RT
21	BL-21	981139.2782	1272637.9034	2932.22		OUTSIDE PROJECT LIMITS

BY POINT	DESC.	NORTH	EAST	ELEVATION	Y STATION	OFFSET
22	BY-22	982692.1832	1264316.8605	2839.09		OUTSIDE PROJECT LIMITS
23	BY-23	982364.1857	1264509.6512	2846.58	20+82.78	16.50 RT
8600	BY-8600	981860.7910	1264620.1760	2859.90	15+76.42	40.16 RT
24	BY-24	981045.3178	1264294.7613	2918.34		OUTSIDE PROJECT LIMITS

BY1 POINT	DESC.	NORTH	EAST	ELEVATION	Y1 STATION	OFFSET
8601	BY1-8601	981471.5371	1266437.9542	2891.19	12+49.35	60.01 LT
25	BY1-25	980843.0476	1267061.1064	2883.85		OUTSIDE PROJECT LIMITS

BY2 POINT	DESC.	NORTH	EAST	ELEVATION	Y2 STATION	OFFSET
26	BY2-26	981404.4335	1269541.2608	3004.16	11+84.40	11.87 RT
8602	BY2-8602	981178.6572	1269440.5977	3000.89		OUTSIDE PROJECT LIMITS

BY3 POINT	DESC.	NORTH	EAST	ELEVATION	Y3 STATION	OFFSET
4	GPSU3812-4	982196.9630	1269890.9020	2996.25		OUTSIDE PROJECT LIMITS
8603	BY3-8603	981175.7420	1269782.4220	2982.02		OUTSIDE PROJECT LIMITS

BY4 POINT	DESC.	NORTH	EAST	ELEVATION	Y4 STATION	OFFSET
8604	BY4-8604	981141.6768	1270074.8691	2968.64	11+26.81	25.16 RT
27	BY4-27	980966.2977	1270043.8369	2959.27		OUTSIDE PROJECT LIMITS

BY5 POINT	DESC.	NORTH	EAST	ELEVATION	Y5 STATION	OFFSET
8605	BY5-8605	981104.8609	1270374.4317	2971.46	11+39.53	29.55 RT
28	BY5-28	980911.0086	1270396.1131	2952.95		OUTSIDE PROJECT LIMITS

BY6 POINT	DESC.	NORTH	EAST	ELEVATION	Y6 STATION	OFFSET
29	BY6-29	981304.9765	1270496.2747	2986.76		OUTSIDE PROJECT LIMITS
8606	BY6-8606	981096.9890	1270631.5365	2980.46		OUTSIDE PROJECT LIMITS

BY7 POINT	DESC.	NORTH	EAST	ELEVATION	Y7 STATION	OFFSET
8607	BY7-8607	981096.9890	1270631.5365	2980.46	11+27.51	81.13 LT
30	BY7-30	980941.9538	1270770.7748	2976.82		OUTSIDE PROJECT LIMITS

BY8 POINT	DESC.	NORTH	EAST	ELEVATION	Y8 STATION	OFFSET
31	BY8-31	981616.4521	1272078.3425	2941.06		OUTSIDE PROJECT LIMITS
8608	BY8-8608	981042.6423	1272079.3870	2919.46	12+47.10	36.27 LT

BY9 POINT	DESC.	NORTH	EAST	ELEVATION	Y8 STATION	OFFSET
8609	BY9-8609	981042.6423	1272079.3870	2919.46	12+47.10	36.27 LT
32	BY9-32	980654.4521	1272077.4309	2912.72		OUTSIDE PROJECT LIMITS

```

*****
BM*1 ELEVATION = 2880.08'
N 981924. E 1264329.
R/R SPIKE IN BASE OF 20" WALNUT
Y STATION 16+19 256' LEFT
*****
BM*2 ELEVATION = 2859.20'
N 981505. E 1265974.
R/R SPIKE IN BASE OF 10" LOCUST
L STATION 24+90 180' RIGHT
*****
BM*3 ELEVATION = 2996.46'
N 980806. E 1267887.
R/R SPIKE IN BASE OF 12" LOCUST
L STATION 45+16 137' RIGHT
*****
BM*4 ELEVATION = 3020.06'
N 981654. E 1269468.
R/R SPIKE IN BASE OF 24" WHITE PINE
L STATION 61+11 418' LEFT
*****
*****
BM*5 ELEVATION = 2990.85'
N 981454. E 1270436.
R/R SPIKE IN BASE OF 24" CHERRY
L STATION 70+91 331' LEFT
*****
*****
BM*6 ELEVATION = 2925.53'
N 981277. E 1271733.
R/R SPIKE IN BASE OF 12" POPLAR
L STATION 84+49 216' LEFT
*****
*****
BM*7 ELEVATION = 2935.67'
N 981287. E 1272617.
R/R SPIKE IN BASE OF 36" OAK
OUTSIDE PROJECT LIMITS
*****

```

NOTES:

- 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:
[U3812_LS_CONTROL.TXT](#)

SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

⊙ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION
SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "U3812-3"
WITH NAD 83/95 STATE PLANE GRID COORDINATES OF
NORTHING: 981175.742(+ft) EASTING: 1269782.422(+ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99994558
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "U3812-3" TO -L- STATION 10+00.00 IS
N 84°13'46" W 5262.74
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

SURVEY CONTROL SHEET U-3812

L

TYPE	STATION	NORTH	EAST
POT	10+00.00	981704.8726	1264546.3462
PC	14+87.37	981621.8517	1265026.5974
PT	17+97.90	981626.5484	1265335.2949
PC	21+01.65	981687.3719	1265632.8929
PT	26+74.40	981615.8176	1266190.7859
PC	38+64.21	981091.0940	1267258.6413
PT	52+19.02	981107.6932	1268564.1313
PC	53+65.02	981175.3922	1268693.4868
PT	58+58.12	981265.5138	1269171.0003
PC	65+32.70	981192.0741	1269841.5731
PT	65+85.55	981186.0436	1269894.0724
PC	71+46.55	981119.0789	1270451.0613
PRC	74+00.46	981134.6541	1270703.1071
PRC	79+99.45	981101.3869	1271292.2414
PT	82+60.09	981057.6143	1271547.6506
PC	85+69.09	981062.6925	1271856.6088
PT	86+07.95	981064.0860	1271895.4441
POT	89+00.00	981080.2278	1272187.0530

Y3

TYPE	STATION	NORTH	EAST
POT	10+00.00	981199.3357	1269774.6444
POT	12+51.00	981448.8505	1269801.9095

Y4

TYPE	STATION	NORTH	EAST
POT	10+00.00	981017.5879	1270038.5954
POT	11+50.07	981167.0732	1270051.8620

Y5

TYPE	STATION	NORTH	EAST
POT	10+00.00	980968.5965	1270363.5006
PC	11+00.28	981067.3098	1270345.8440
PT	11+40.94	981107.8084	1270343.3782
POT	11+50.94	981117.7930	1270343.9317

Y

TYPE	STATION	NORTH	EAST
POT	10+00.00	981322.5397	1264392.7222
PC	13+35.08	981632.4212	1264520.2058
PT	20+36.34	982315.0271	1264513.0861
POT	20+91.34	982365.4435	1264491.1046

Y6

TYPE	STATION	NORTH	EAST
POT	10+00.00	981117.6517	1270605.3094
POT	11+70.77	981269.8901	1270527.9444

Y1

TYPE	STATION	NORTH	EAST
POT	10+00.00	981272.9053	1266637.9397
PC	11+69.50	981379.2625	1266505.9609
PT	12+33.15	981436.6823	1266489.4232
POT	12+62.45	981464.3854	1266498.9628

Y7

TYPE	STATION	NORTH	EAST
POT	10+00.00	980988.4555	1270736.7162
POT	11+50.10	981135.4767	1270706.4487

Y1A

TYPE	STATION	NORTH	EAST
POT	10+00.00	981266.5375	1268999.3245
PC	10+30.00	981295.0148	1268989.8882
PT	10+87.56	981348.0081	1268967.5755
POT	12+21.06	981466.6028	1268906.2768

Y8

TYPE	STATION	NORTH	EAST
POT	10+00.00	980796.2910	1272115.7828
PC	12+22.46	981018.7470	1272115.9004
PT	13+38.02	981134.1203	1272110.2347
POT	16+18.02	981412.7585	1272082.6534

Y2

TYPE	STATION	NORTH	EAST
POT	10+00.00	981221.6468	1269571.5464
PC	10+95.00	981314.4838	1269551.3895
PT	12+17.17	981432.6880	1269520.6363
POT	12+27.17	981442.2553	1269517.7265

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "U3812-3" WITH NAD 83/95 STATE PLANE GRID COORDINATES OF NORTHING: 981175.742(±ft) EASTING: 1269782.422(±ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99994558 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "U3812-3" TO -L- STATION 10+00.00 IS N 84°13'46" W 5262.74 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

NOTES:

1. 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:
 U3812_LS_CONTROL.TXT

SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

© INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
 PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
 NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION
 SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

NOTE: DRAWING NOT TO SCALE

SURVEY CONTROL SHEET U-3812

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	11+00.00	60.00	981628.7152	1264634.6641
L	12+00.00	50.00	981621.5347	1264734.9060
L	12+65.00	60.00	981600.6085	1264797.2526
L	14+31.96	42.88	981589.0428	1264964.6877
L	29+50.00	48.68	981450.5848	1266416.6661
L	30+81.00	48.81	981392.6940	1266534.1806
L	49+75.02	50.10	980965.6577	1268354.8600
L	49+75.04	45.00	980970.5169	1268353.3077
L	52+19.02	45.00	981067.8234	1268584.9974
L	53+60.63	-50.00	981217.6541	1268666.4084
L	53+65.02	45.00	981135.5200	1268714.3486
L	54+60.00	40.00	981177.2320	1268794.3579
L	55+94.15	-50.00	981301.5215	1268898.1523
L	56+10.00	88.00	981169.2674	1268940.4729
L	56+75.00	80.00	981185.8735	1268997.0697
L	57+30.00	45.00	981224.6884	1269045.0774
L	58+00.00	60.00	981209.8702	1269110.6899
L	58+58.12	97.00	981169.0903	1269160.4402
L	58+60.00	-53.19	981318.1837	1269178.6608
L	59+50.00	-87.00	981341.9939	1269271.8066
L	59+62.00	41.86	981212.5965	1269299.7066
L	60+50.00	-81.00	981325.1429	1269370.5590
L	61+00.00	-60.00	981298.8243	1269417.9756
L	61+95.00	-60.00	981288.4820	1269512.4110
L	62+27.40	40.00	981185.5494	1269533.7290
L	62+90.00	-30.00	981248.3179	1269603.5803
L	64+10.00	-30.00	981235.2539	1269722.8671
L	65+14.31	-30.00	981223.8976	1269826.5602
L	65+32.70	40.00	981152.3118	1269837.2185
L	65+85.55	40.00	981146.3296	1269889.2977
L	65+87.59	-30.00	981215.5857	1269899.6777
L	66+91.07	-30.00	981203.2330	1270002.4228
L	66+91.45	-40.00	981213.1162	1270003.9938
L	67+00.00	40.00	981132.6676	1270002.9333
L	68+00.00	30.00	981130.6594	1270103.4120
L	70+00.00	30.00	981106.7861	1270301.9821
L	71+00.00	40.00	981084.9209	1270400.0734
L	71+46.55	40.00	981079.3648	1270446.2867
L	71+46.55	-40.00	981158.7929	1270455.8360
L	72+25.00	-40.00	981154.0929	1270529.6186
L	73+14.51	40.00	981079.4225	1270623.4280
L	73+73.00	56.52	981073.2200	1270687.7712
L	74+00.46	-50.00	981183.1841	1270691.0722
L	74+50.00	30.00	981115.9423	1270757.2342
L	77+58.00	55.00	981102.8715	1271051.7269
L	77+75.00	40.00	981115.7719	1271069.6366
L	79+99.45	-50.00	981148.2535	1271309.6632
L	79+99.45	40.00	981063.8936	1271278.3040
L	81+50.00	-50.00	981113.9548	1271444.9093
L	81+50.00	-60.00	981123.8558	1271446.3130
L	81+60.00	40.00	981023.4368	1271442.7535
L	82+43.00	30.00	981027.5429	1271530.3264
L	82+60.09	-60.00	981117.6062	1271546.6645
L	82+60.09	30.00	981027.6183	1271548.1436
L	85+69.09	30.00	981032.6966	1271857.1063
L	85+69.95	-57.00	981119.6986	1271856.4872
L	86+07.95	-60.00	981123.9943	1271892.1279
L	86+07.95	30.00	981034.1318	1271897.1019
L	86+30.00	-50.00	981115.2284	1271914.6987
L	86+38.00	30.00	981035.7928	1271927.1080
L	86+40.00	-30.00	981095.8116	1271925.7888
L	87+65.00	30.00	981042.8121	1272053.9139
L	87+74.00	-30.00	981103.2178	1272059.5840
L	88+87.00	-30.64	981110.1045	1272172.3757

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y	10+40.00	-14.88	981365.1924	1264394.1805
Y	10+45.00	15.16	981358.3882	1264423.8619
Y	10+75.00	-40.00	981407.1179	1264384.2645
Y	10+97.00	55.00	981391.3200	1264480.4905
Y	13+35.08	70.00	981605.7892	1264584.9417
Y	13+35.08	-40.00	981647.6395	1264483.2138
Y	13+80.00	-40.00	981687.6835	1264498.4982
Y	15+00.00	-50.00	981799.9553	1264519.2639
Y	15+50.00	-40.00	981844.9446	1264537.2845
Y	16+50.00	-50.00	981940.2599	1264535.6263
Y	17+20.00	-70.00	982005.2473	1264515.0163
Y	17+56.51	55.17	982050.1665	1264637.3032
Y	19+00.00	-70.00	982168.6376	1264489.9085
Y	19+55.00	30.00	982248.4481	1264570.5791
Y	19+96.34	-15.74	982272.3827	1264513.5287
Y	19+98.63	-25.00	982271.1502	1264504.0824
Y	20+00.00	14.28	982286.5818	1264540.2299

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y5	10+40.00	17.99	981011.1395	1270374.1685
Y5	10+90.00	34.00	981063.1769	1270381.1228
Y5	11+05.00	-14.88	981069.7434	1270330.3674

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y6	10+50.00	25.00	981173.5522	1270604.9446
Y6	11+65.00	17.46	981272.6569	1270546.1217
Y6	11+65.00	25.00	981276.0736	1270552.8450
Y6	11+65.00	-20.71	981255.3631	1270512.0949

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y7	11+05.00	25.00	981096.3398	1270740.0302
Y7	10+60.00	15.77	981050.4030	1270740.0641
Y7	10+60.00	25.00	981052.2641	1270749.1041
Y7	10+60.00	-14.48	981044.3032	1270710.4349

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y8	12+22.46	-31.70	981018.7637	1272084.2014
Y8	13+38.02	-25.00	981131.6577	1272085.3563
Y8	13+38.02	26.00	981136.6814	1272136.1082
Y8	14+11.02	29.99	981209.7285	1272132.8880
Y8	14+35.43	-20.04	981229.0893	1272080.7002

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y1	11+55.00	-12.79	981360.2020	1266509.2230
Y1	11+55.00	11.21	981378.8893	1266524.2825
Y1	11+55.00	-20.00	981354.5914	1266504.7016
Y1	11+69.50	-20.00	981363.6898	1266493.4114

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y2	10+40.00	25.00	981266.0405	1269587.4901
Y2	10+95.00	25.00	981319.7882	1269575.8203
Y2	10+95.00	-19.65	981310.3152	1269532.1905
Y2	11+25.00	9.29	981345.8864	1269553.7644

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y3	10+70.00	-45.00	981273.8096	1269737.5145
Y3	10+70.00	-25.31	981271.6710	1269757.0865
Y3	10+70.00	23.16	981266.4057	1269805.2712

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y4	10+95.00	-19.04	981113.8994	1270028.0255
Y4	10+95.00	21.85	981110.2803	1270068.7583

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "U3812-3" WITH NAD 83/95 STATE PLANE GRID COORDINATES OF NORTHING: 981175.742(ft) EASTING: 1269782.422(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99994558 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "U3812-3" TO -L- STATION 10+00.00 IS N 84°13'46" W 5262.74 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

NOTES:

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

THE FILES TO BE FOUND ARE AS FOLLOWS:
 U3812_LS_CONTROL.TXT

SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

© INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
 PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
 NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION
 SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

NOTE: DRAWING NOT TO SCALE

6/2/99

02-NOV-2011 08:37
 R:\Roadway\Projects\U3812\ls-1f.dgn
 11:51:51 AM

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

CENTERLINE COORDINATE LIST

Table with 5 columns: Point #, Chain, Station, Northing (Y), Easting (X). Contains coordinate data for points 1 through 80.

Table with 5 columns: Point #, Chain, Station, Northing (Y), Easting (X). Contains coordinate data for points 81 through 160.

Table with 5 columns: Point #, Chain, Station, Northing (Y), Easting (X). Contains coordinate data for points 161 through 240.

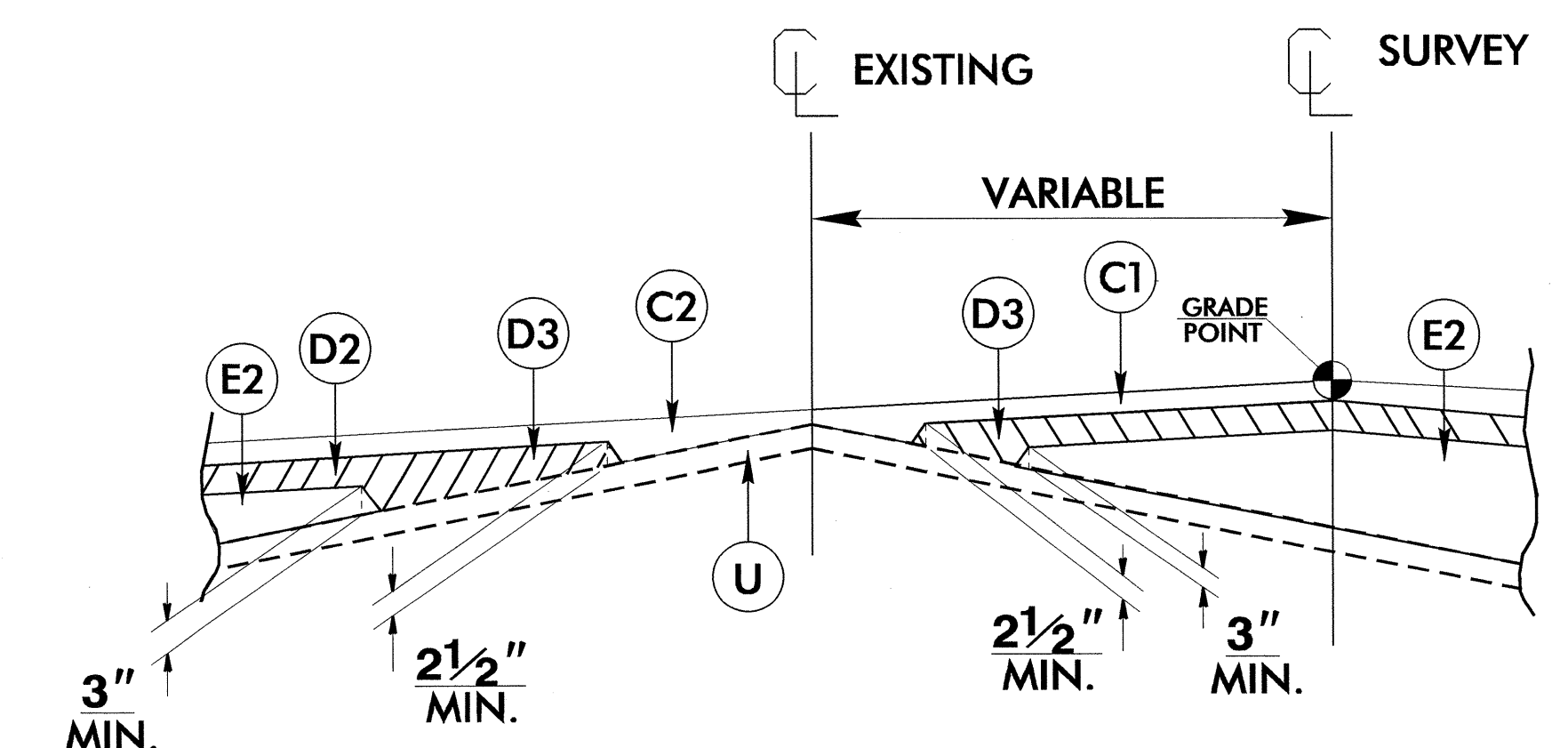
Table with 5 columns: Point #, Chain, Station, Northing (Y), Easting (X). Contains coordinate data for points 241 through 320.

Table with 5 columns: Point #, Chain, Station, Northing (Y), Easting (X). Contains coordinate data for points 321 through 400.

PAVEMENT SCHEDULE

FINAL PAVEMENT DESIGN

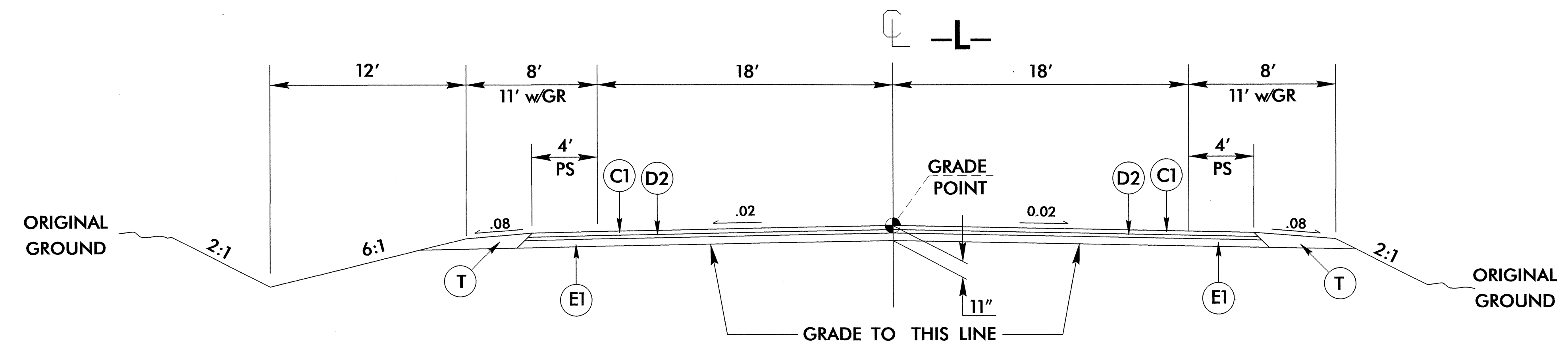
C	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R1	2'-6" CONCRETE CURB & GUTTER
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.	S	4" CONCRETE SIDEWALK
D1	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	T	EARTH MATERIAL
D2	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	U	EXISTING PAVEMENT
D3	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 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.	V	MILLING 1½" EXISTING ASPHALT PAVEMENT
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	W1 W2 W3	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAILS).



Detail Showing Method of Wedging -W1-

PROJECT REFERENCE NO. U-3812	SHEET NO. 2
ROADWAY DESIGN ENGINEER SEAL 33298 S. D. KENDALL 9/22/11	PAVEMENT DESIGN ENGINEER SEAL 13368 DUN-CHI CHEN 9/22/11

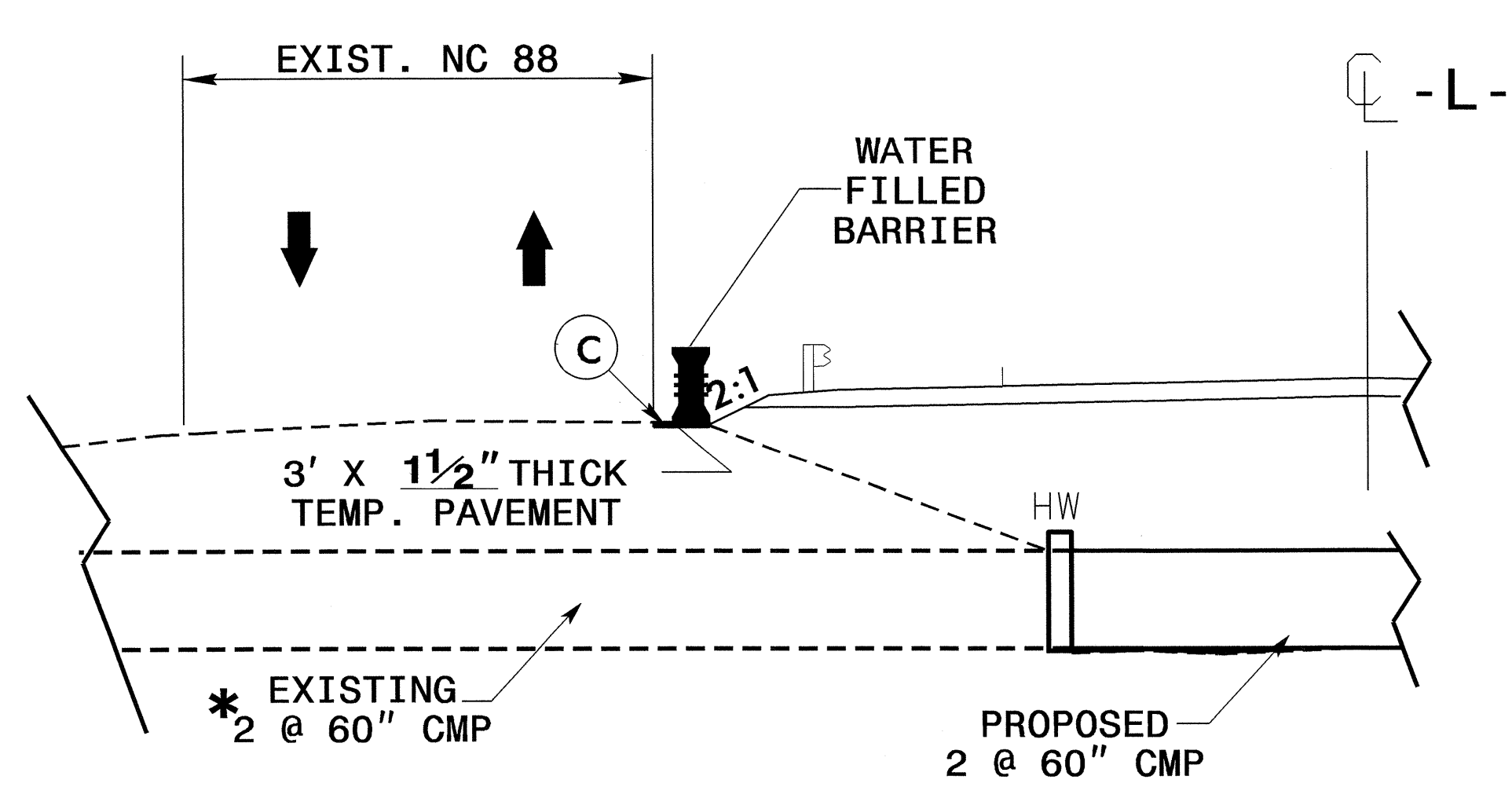
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



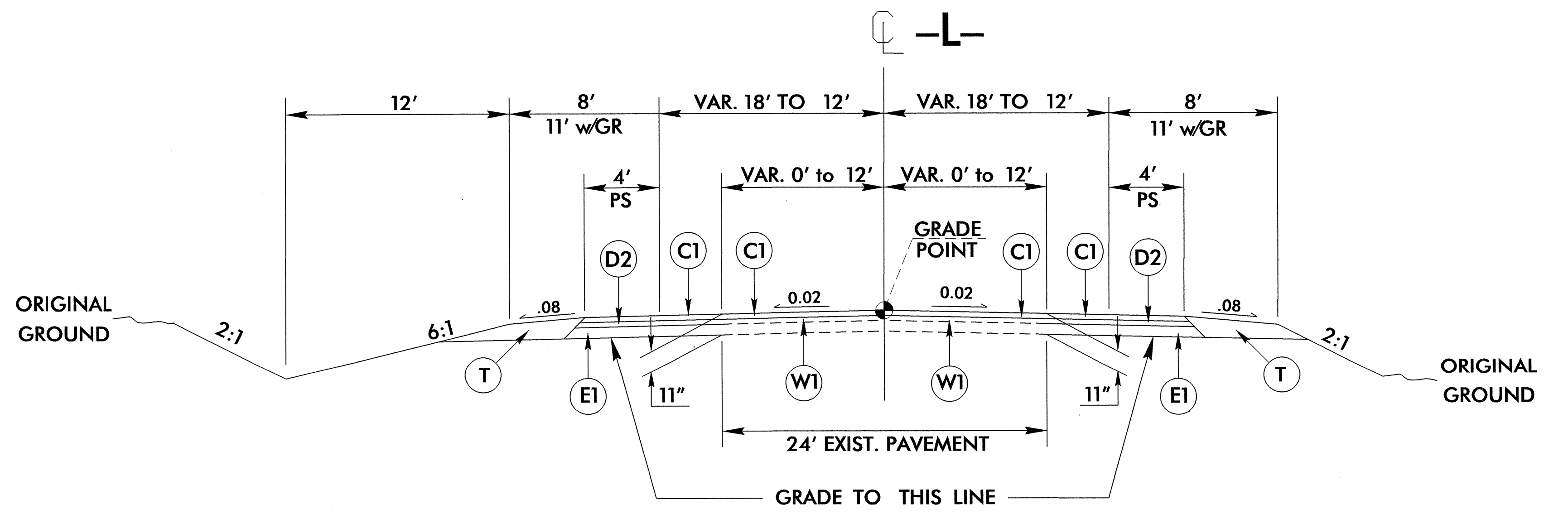
TYPICAL SECTION NO. 1

-L- Sta. 10+24.20 to Sta. 13+40.00
-L- Sta. 55+30.00 to Sta. 62+82.48

TEMPORARY PAVEMENT FOR PHASE CONSTRUCTION SEE SHEET TMP-4 FOR DETAIL



-L- Sta. 12+00 to Sta. 13+57 RT.

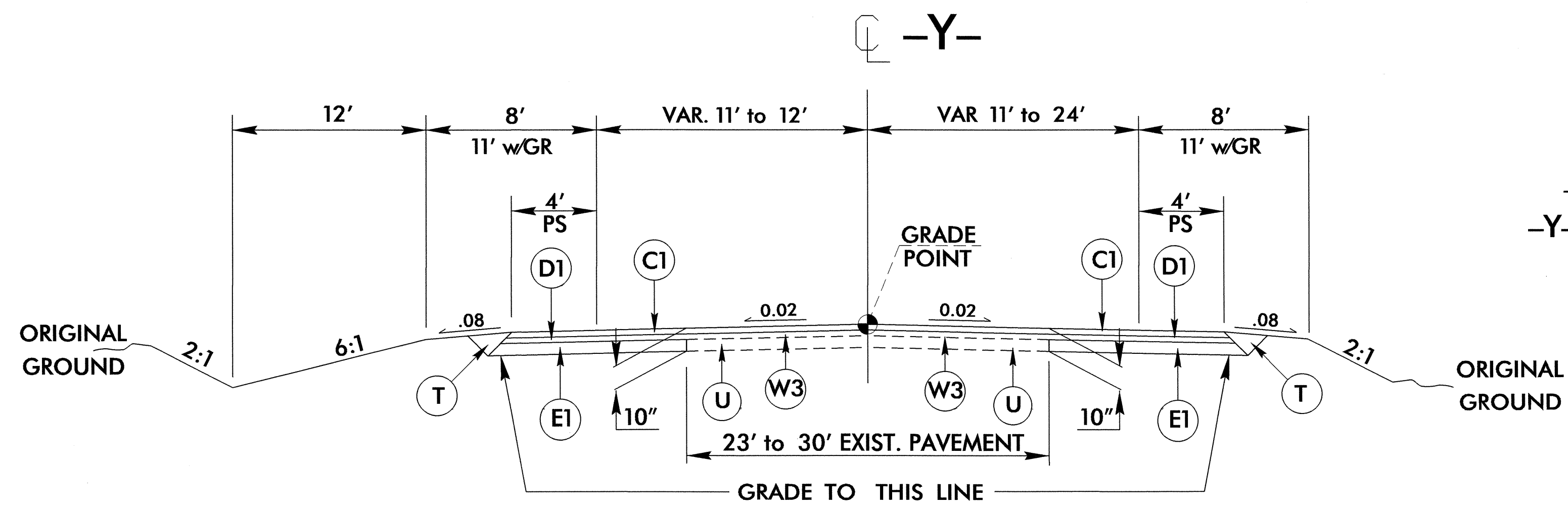


TYPICAL SECTION NO. 2

-L- Sta. 13+40.00 to Sta. 14+04.00
-L- Sta. 50+00.00 to Sta. 55+30.00

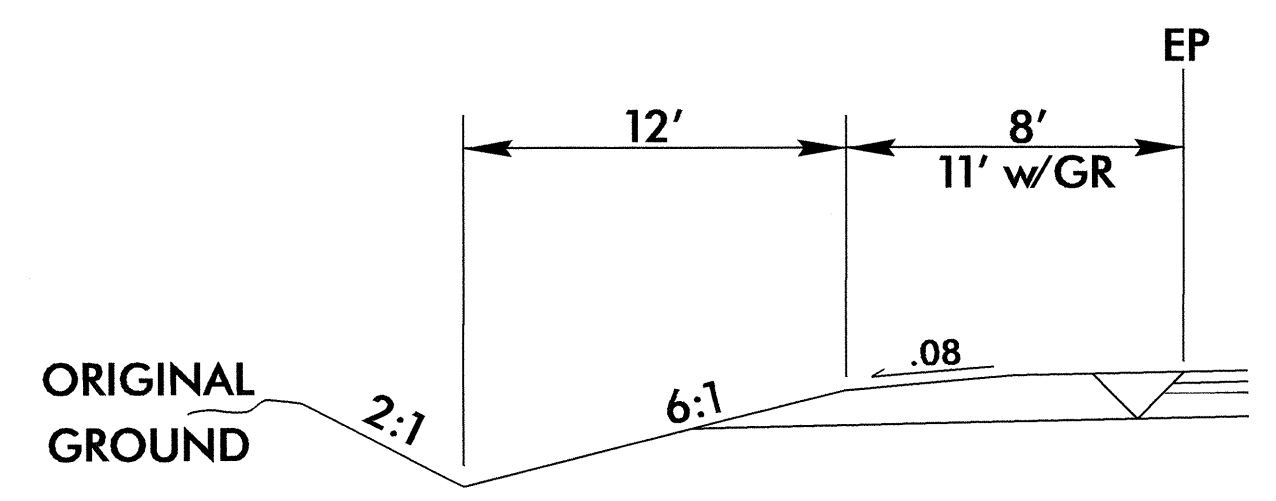
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22-SEP-2011 4:44 AM U:\3812-rdy-1\sup.dgn

PROJECT REFERENCE NO. U-3812	SHEET NO. 2-B
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

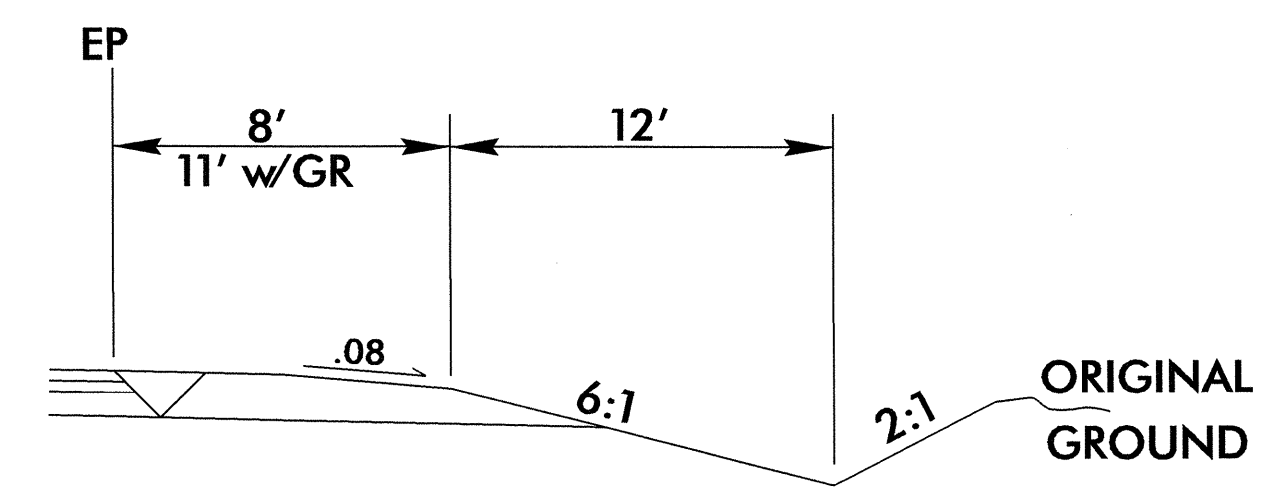


TYPICAL SECTION NO. 5
-Y- Sta. 10+55.00 to Sta. 20+00.00

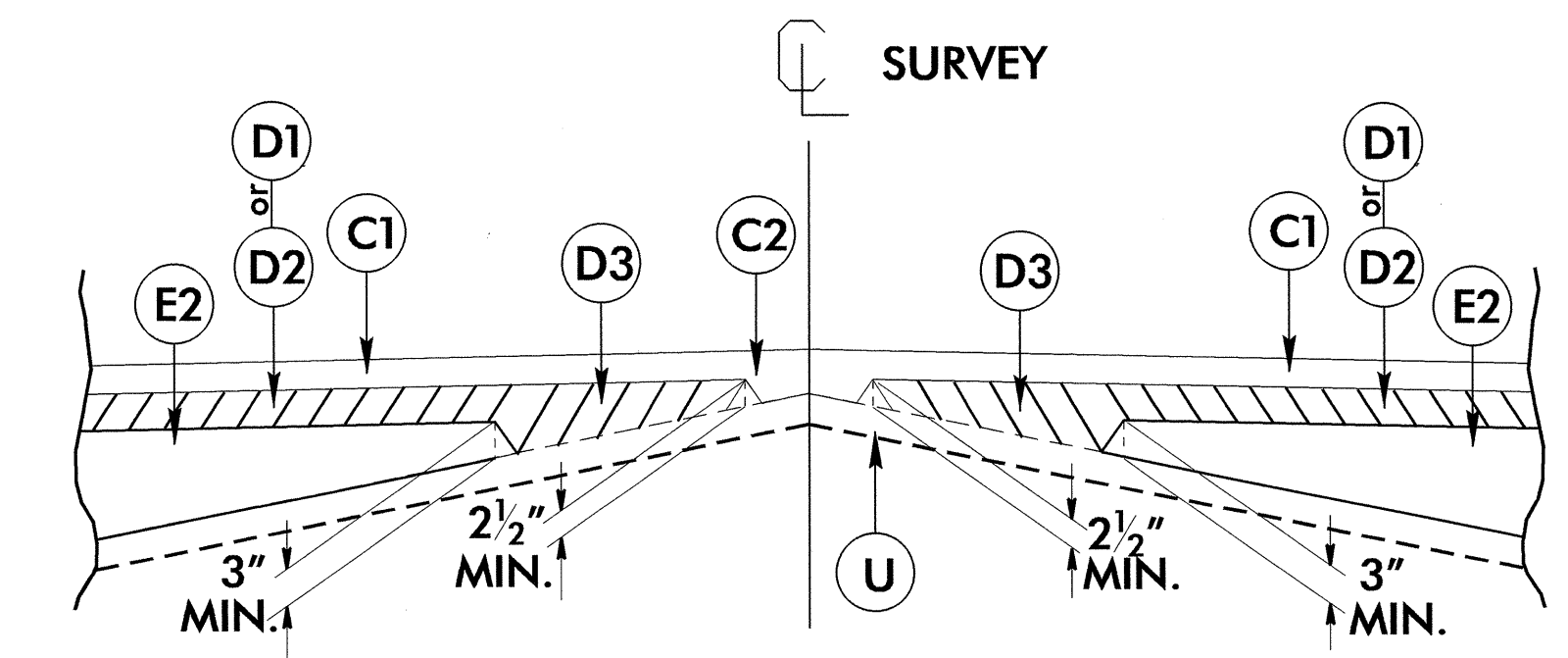
C1	3" S9.5B
C2	VAR. S9.5B
D1	3" I19.0B
D2	4" I19.0B
D3	VAR. I19.0B
E1	4" B25.0B
E2	VAR. B25.0B
R1	2'-6" C & G
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W3	WEDGING



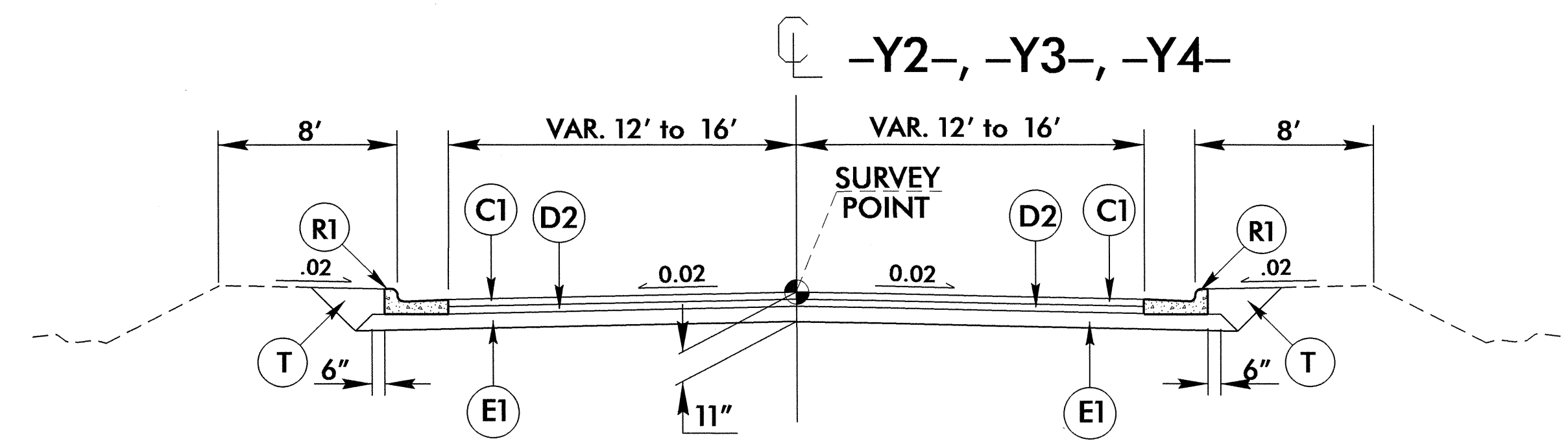
USE IN CONJUNCTION WITH
TYPICAL SECTION No. 5 and 6
-Y- Sta. 15+71.78 to Sta. 20+00.00 LT.
-Y2- Sta. 10+19.00 to Sta. 10+60.00 LT.



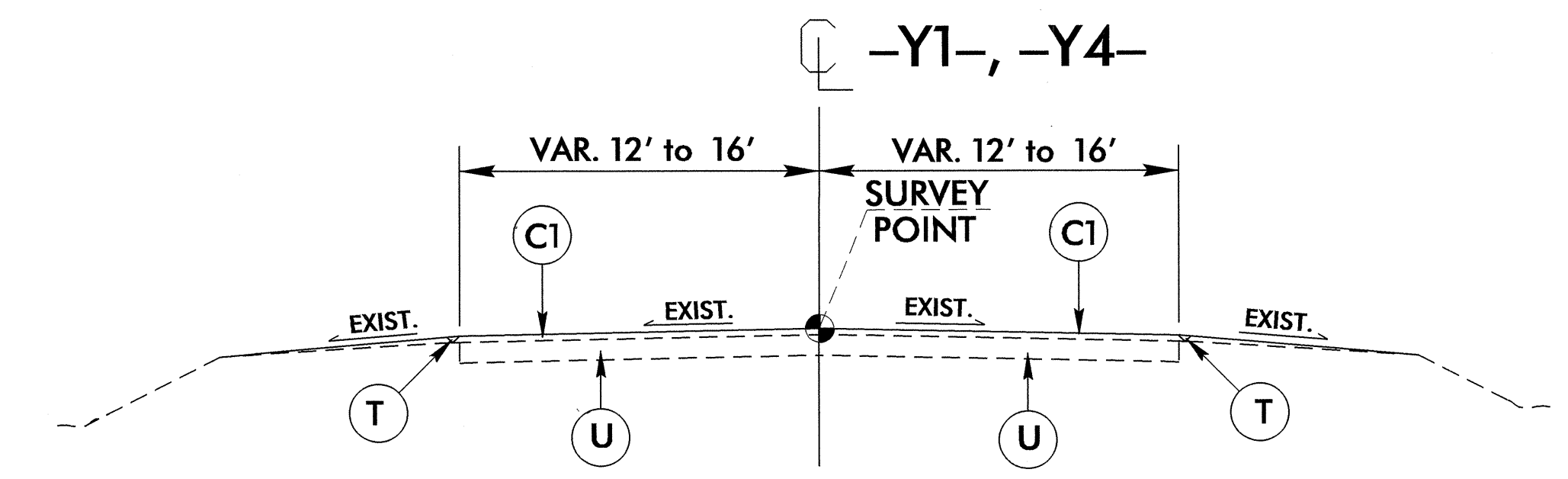
USE IN CONJUNCTION WITH
TYPICAL SECTION No. 5 and 6
-Y- Sta. 17+46.84 to Sta. 20+00.00 RT.
-Y2- Sta. 10+60.00 to Sta. 11+25.00 RT.



Detail Showing Method of Wedging -W3-

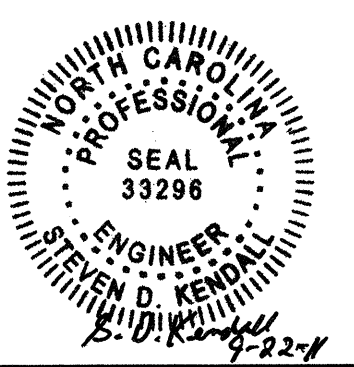
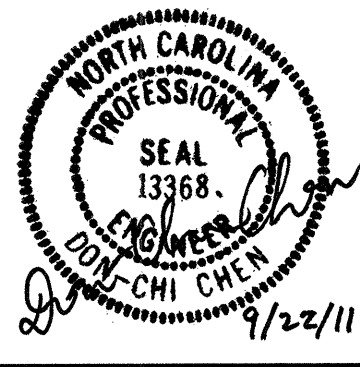


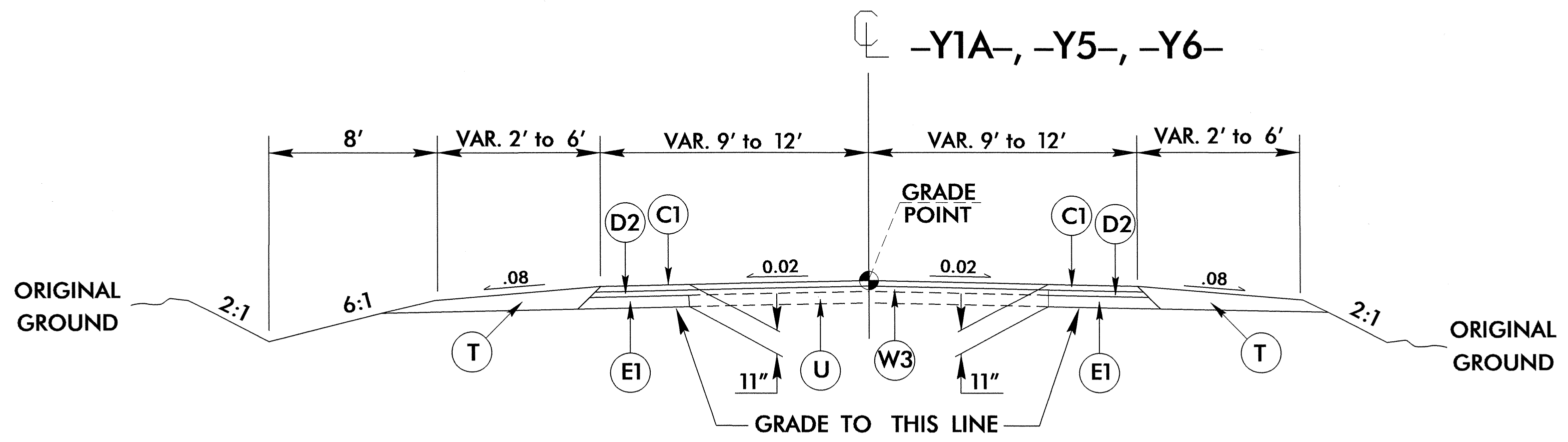
TYPICAL SECTION NO. 6
-Y2- Sta. 10+19.00 to Sta. 11+25.00
-Y3- Sta. 10+18.07 to Sta. 10+60.00
-Y4- Sta. 10+93.66 to Sta. 11+32.06



TYPICAL SECTION NO. 7
-Y1- Sta. 11+61.62 to Sta. 12+51.30
-Y4- Sta. 10+70.00 to Sta. 10+93.66

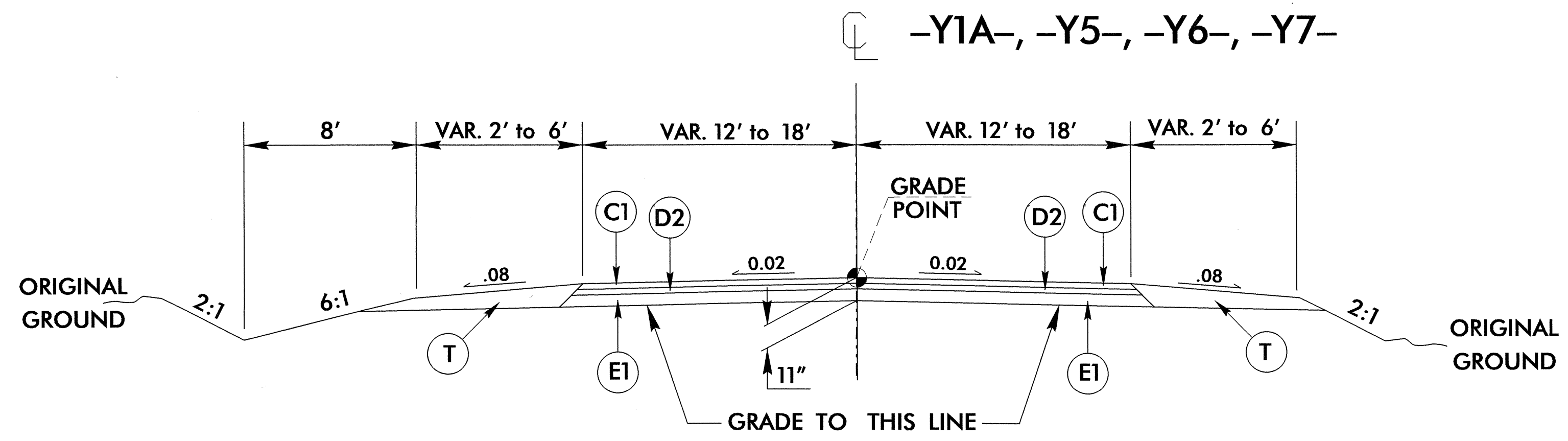
6/2/99

PROJECT REFERENCE NO. U-3812	SHEET NO. 2-C
ROADWAY DESIGN ENGINEER 	PAVEMENT DESIGN ENGINEER 
C1	3" S9.5B
C2	VAR. S9.5B
D2	4" I19.0B
D3	VAR. I19.0B
E1	4" B25.0B
E2	VAR. B25.0B
R1	2'-6" C & G
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W3	WEDGING



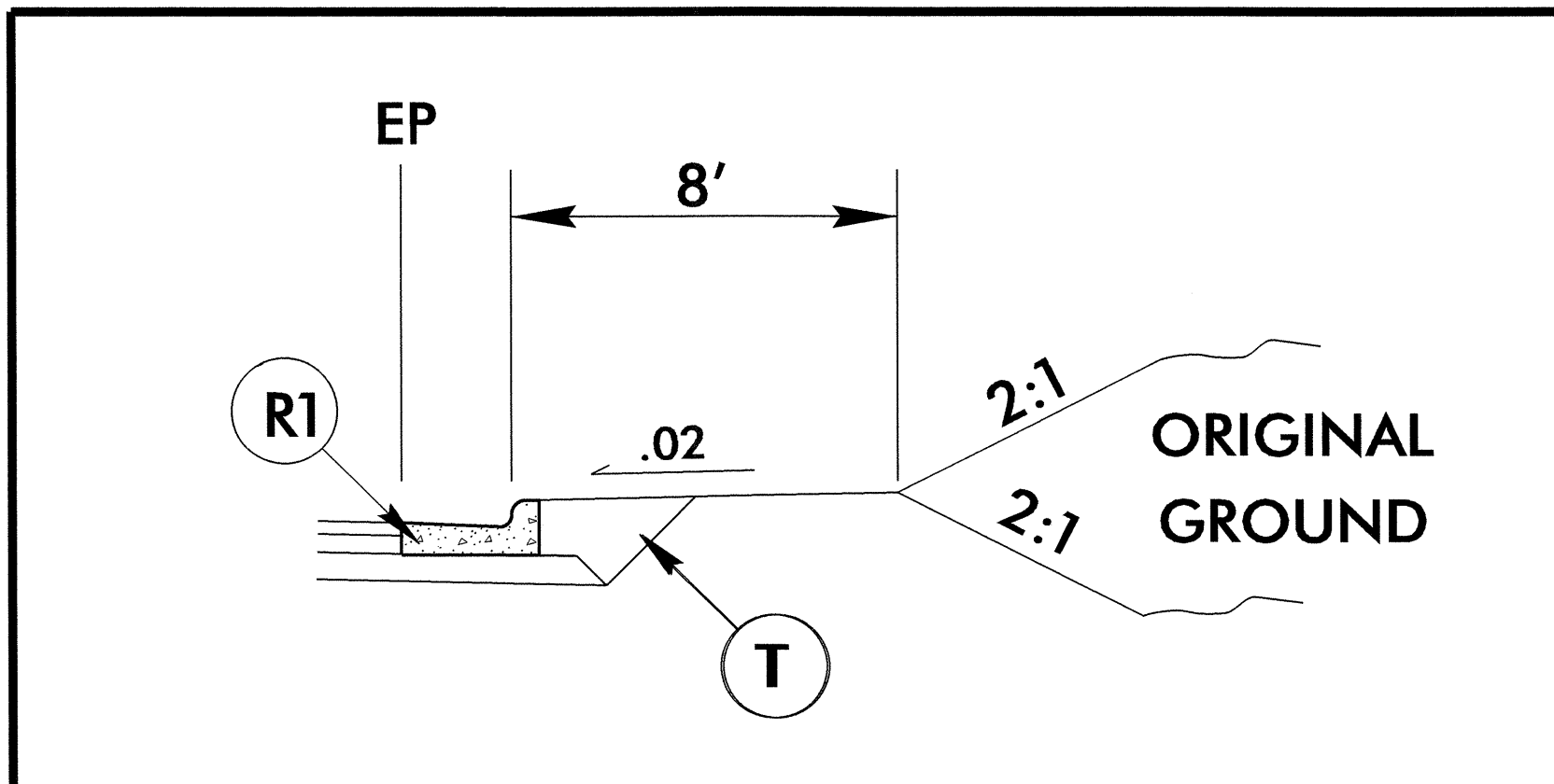
TYPICAL SECTION NO. 8

-Y1A- Sta. 10+47.00 to Sta. 11+35.00
 -Y5- Sta. 10+25.00 to Sta. 10+93.24
 -Y6- Sta. 11+50.00 to Sta. 11+65.00



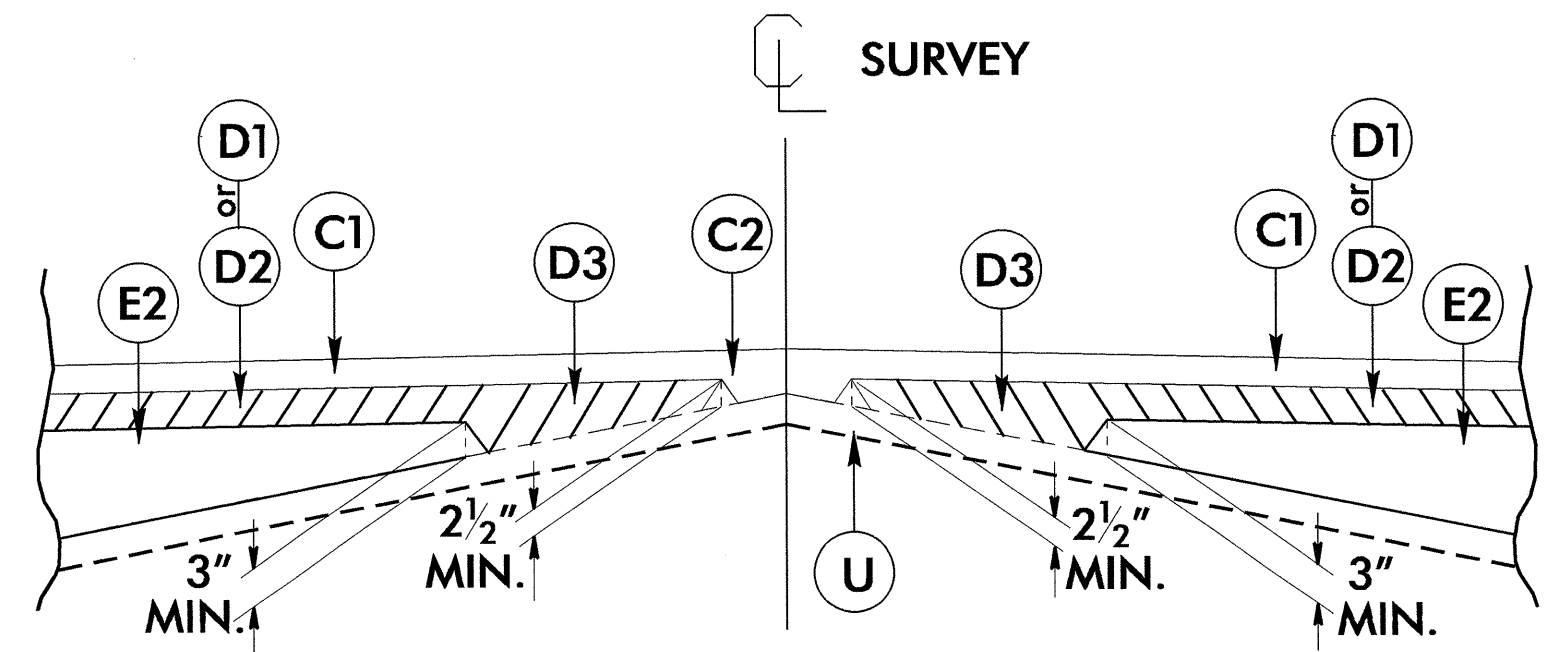
TYPICAL SECTION NO. 9

-Y1A- Sta. 10+12.31 to Sta. 10+47.00
 -Y5- Sta. 10+93.24 to Sta. 11+46.90
 -Y6- Sta. 10+63.09 to Sta. 11+50.00



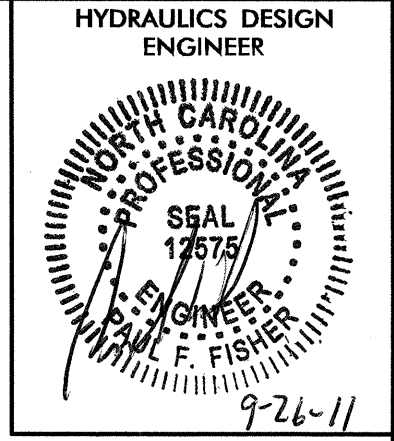
USE IN CONJUNCTION WITH
TYPICAL SECTION No. 9

-Y5- Sta. 10+93.24 to Sta. 11+46.90 LT/RT.
 -Y6- Sta. 10+20.91 to Sta. 10+63.09 LT/RT.
 -Y7- Sta. 10+65.00 to Sta. 11+28.02 LT/RT.

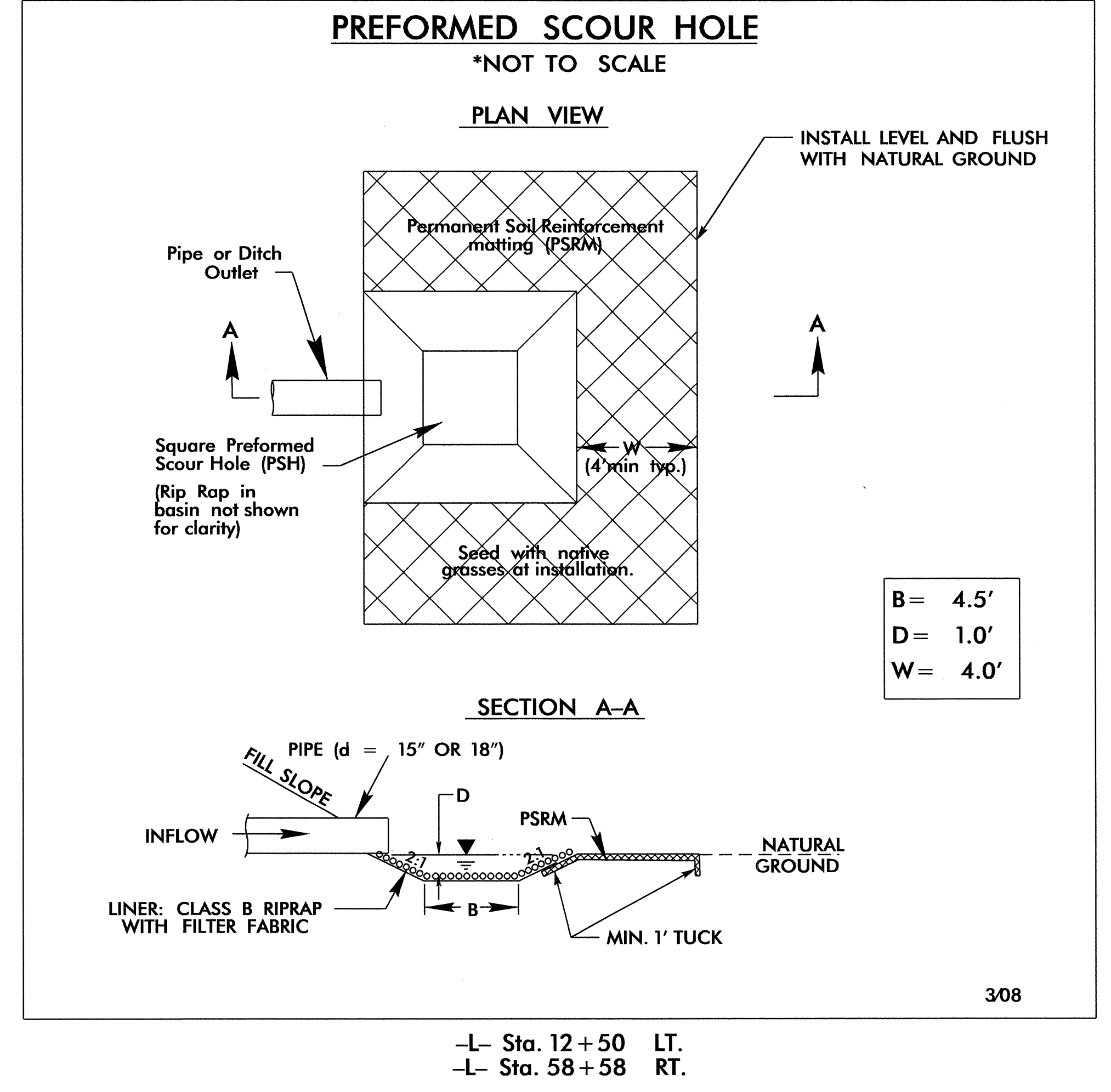
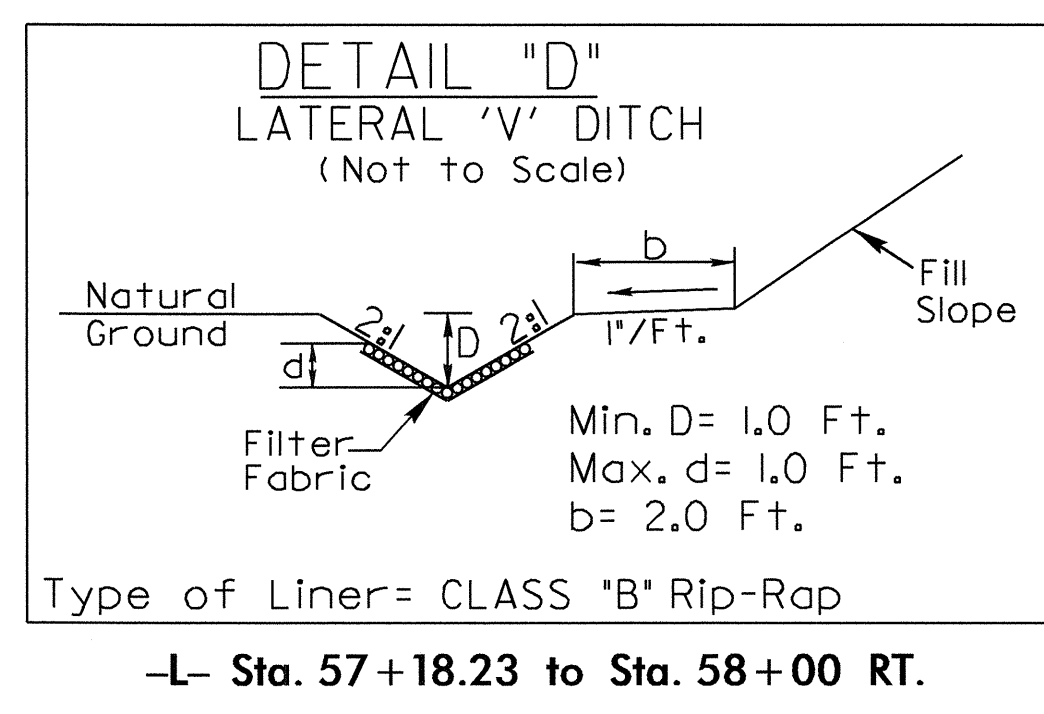
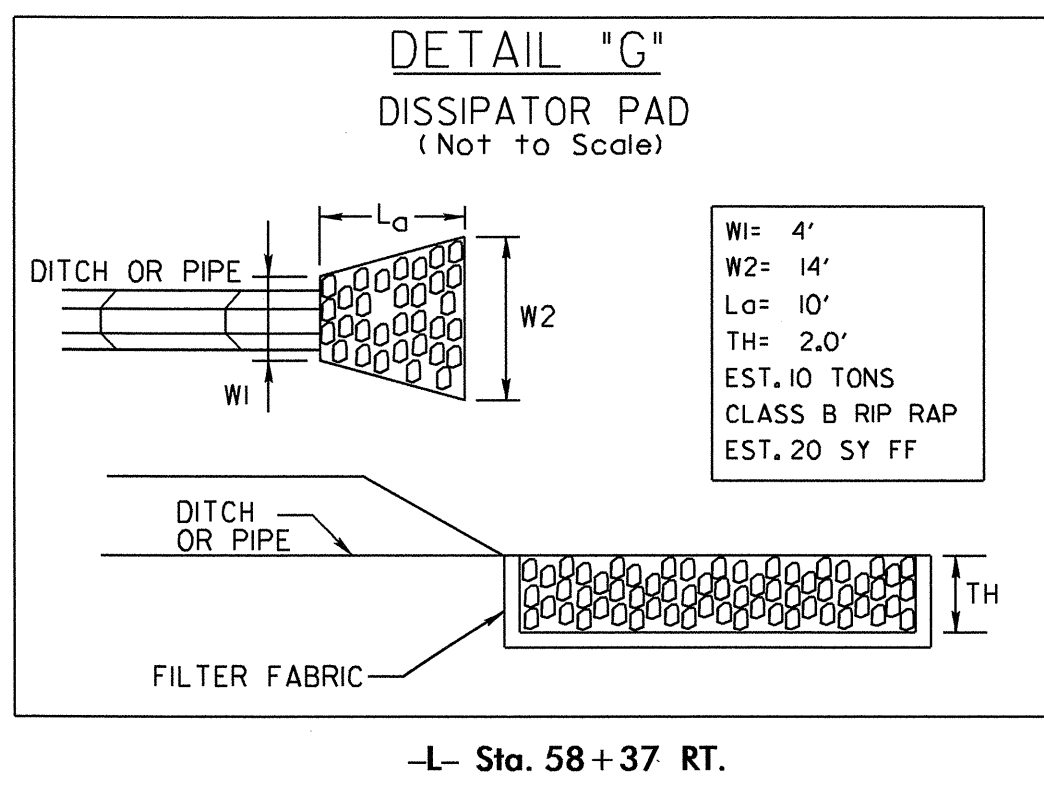
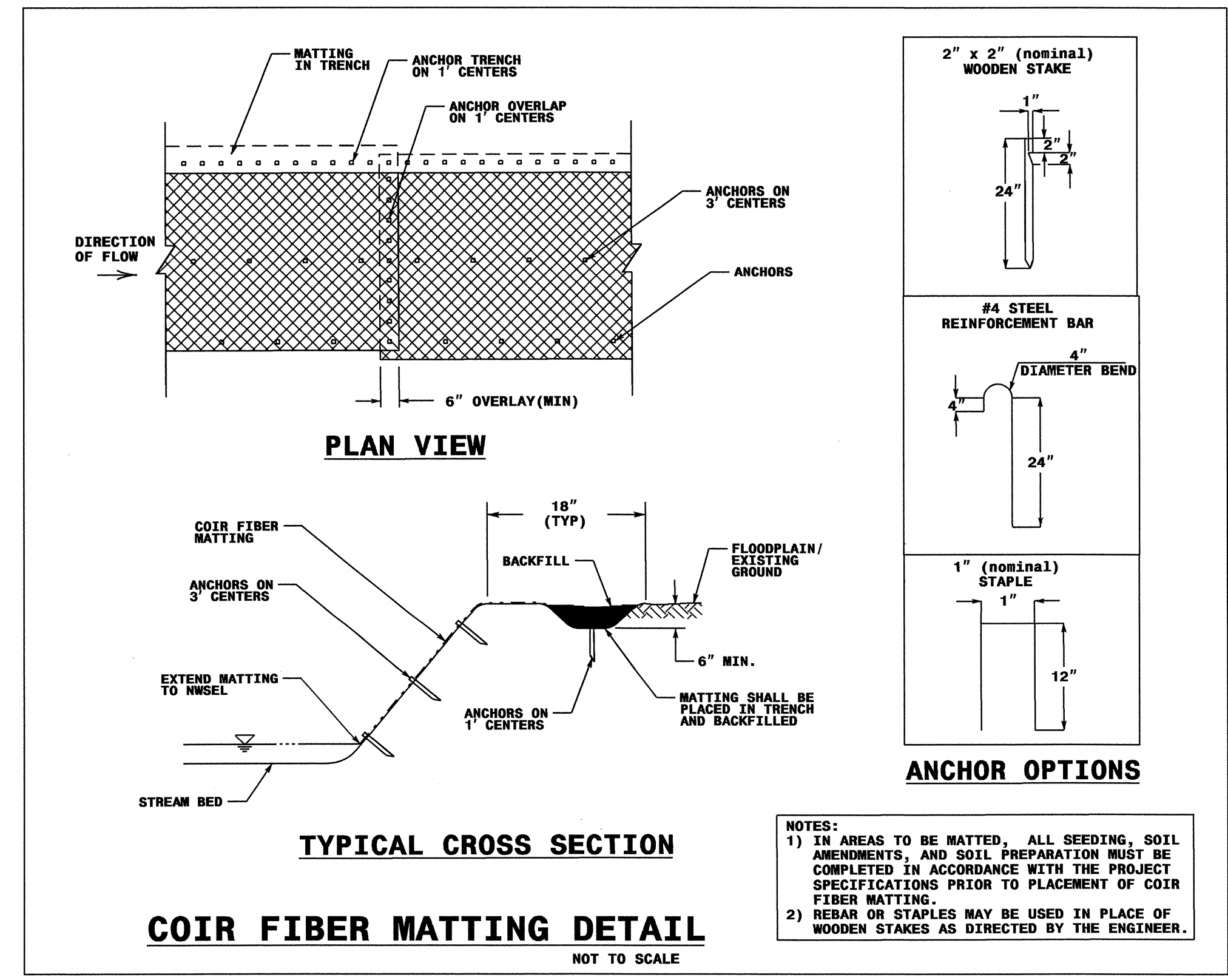
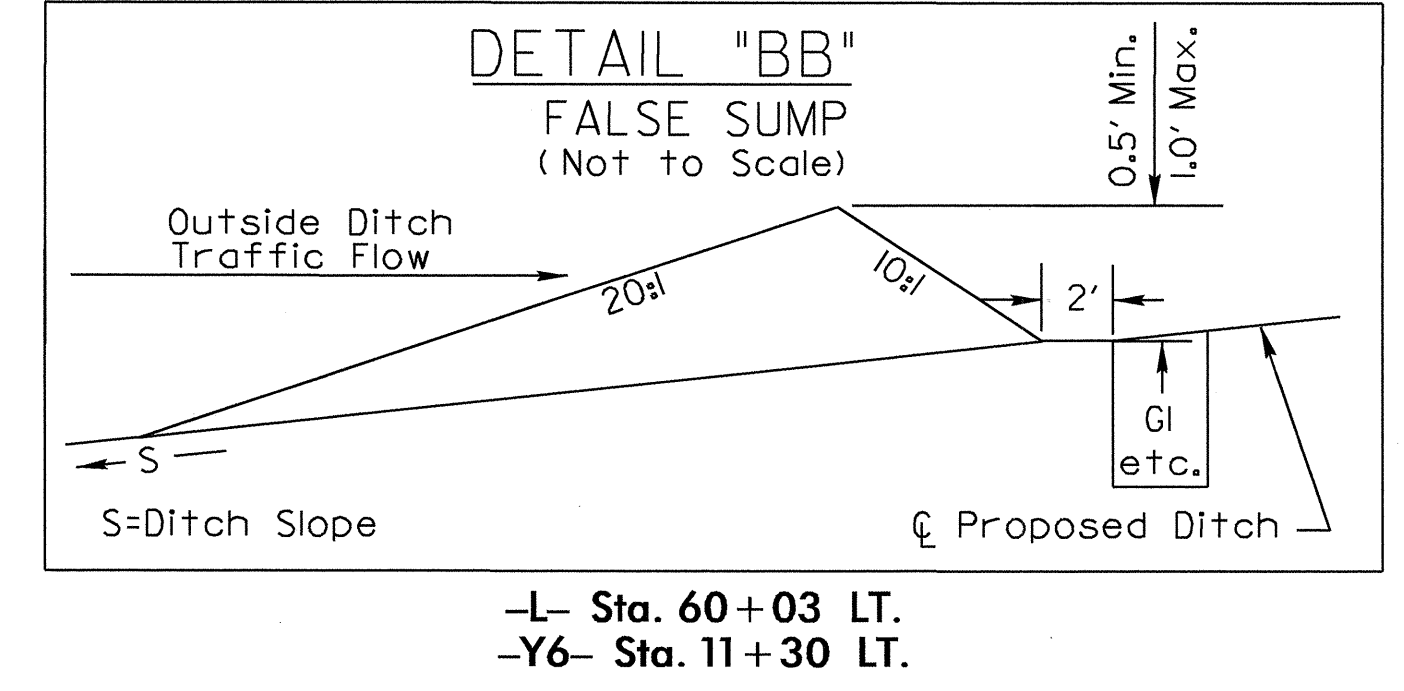
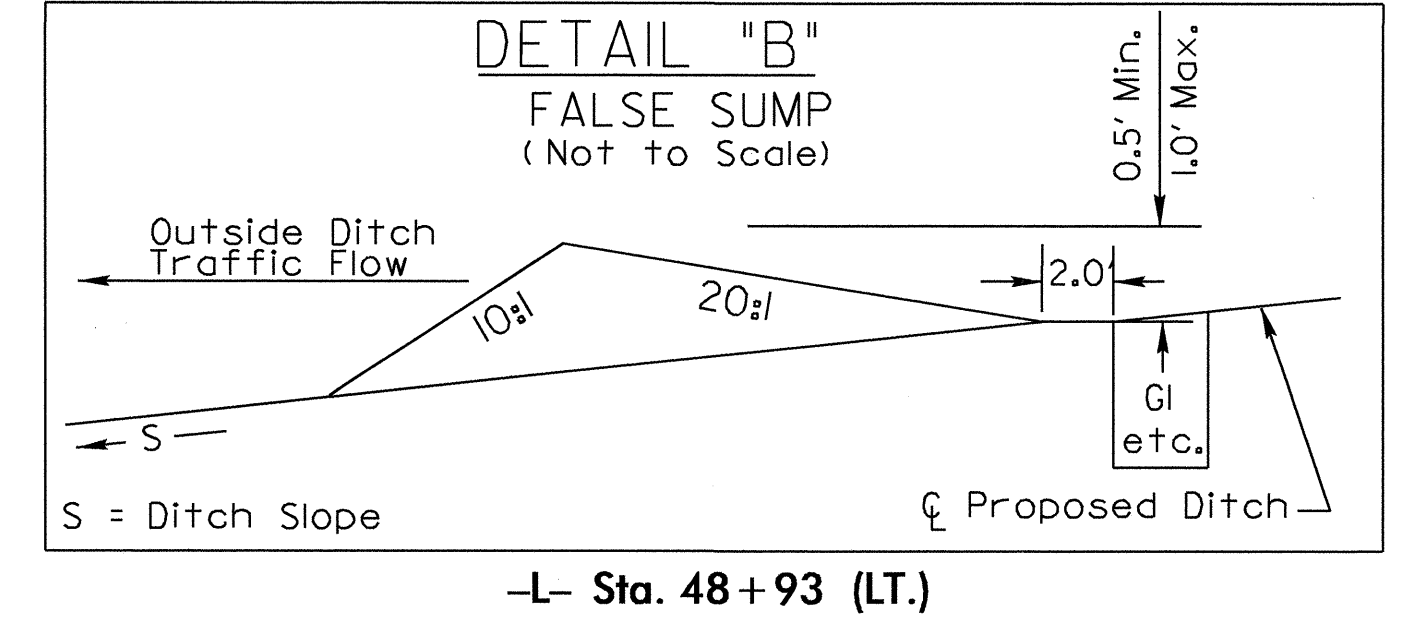
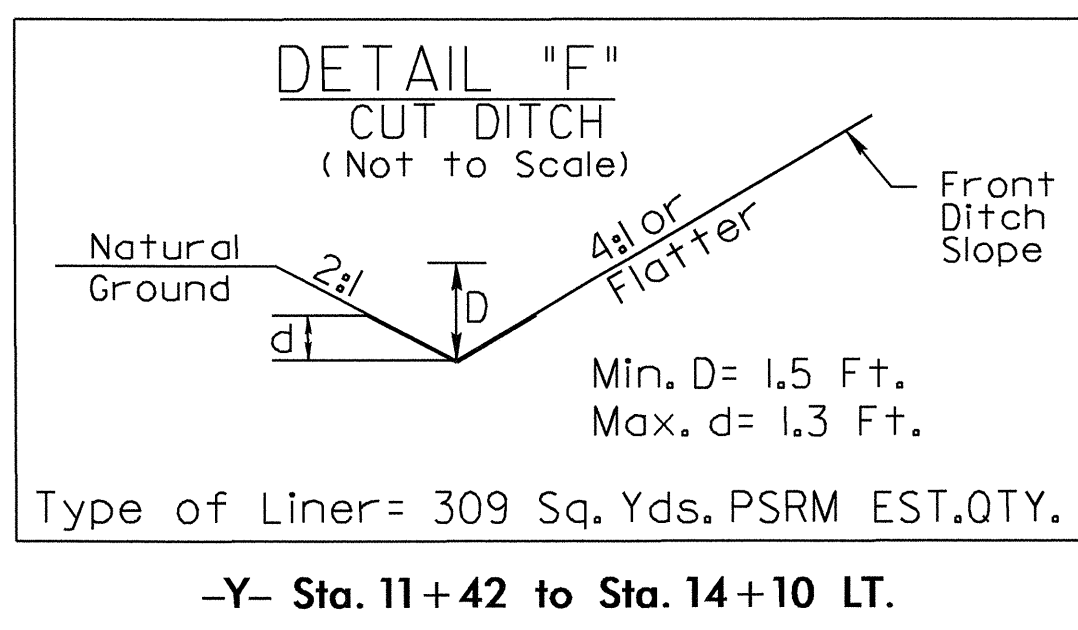
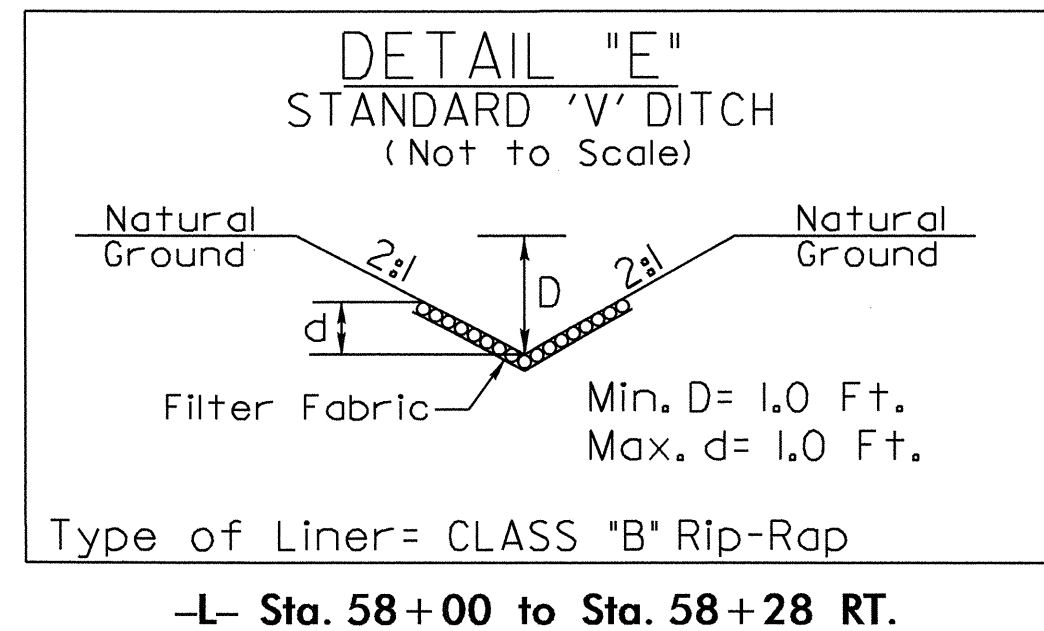
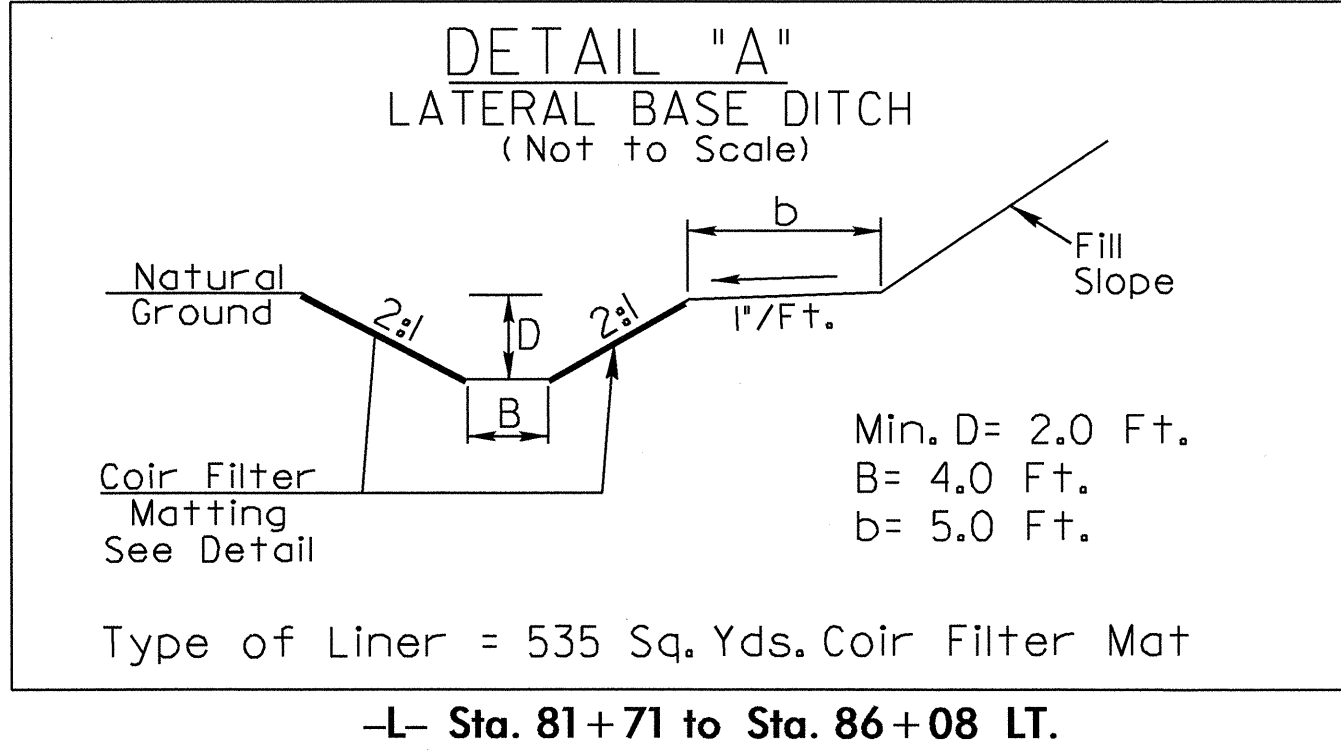


Detail Showing Method of Wedging -W3-

22-SEP-2011 4:45 AM U:\3812-rdy-typ.dgn



STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS DRAINAGE DITCH DETAILS

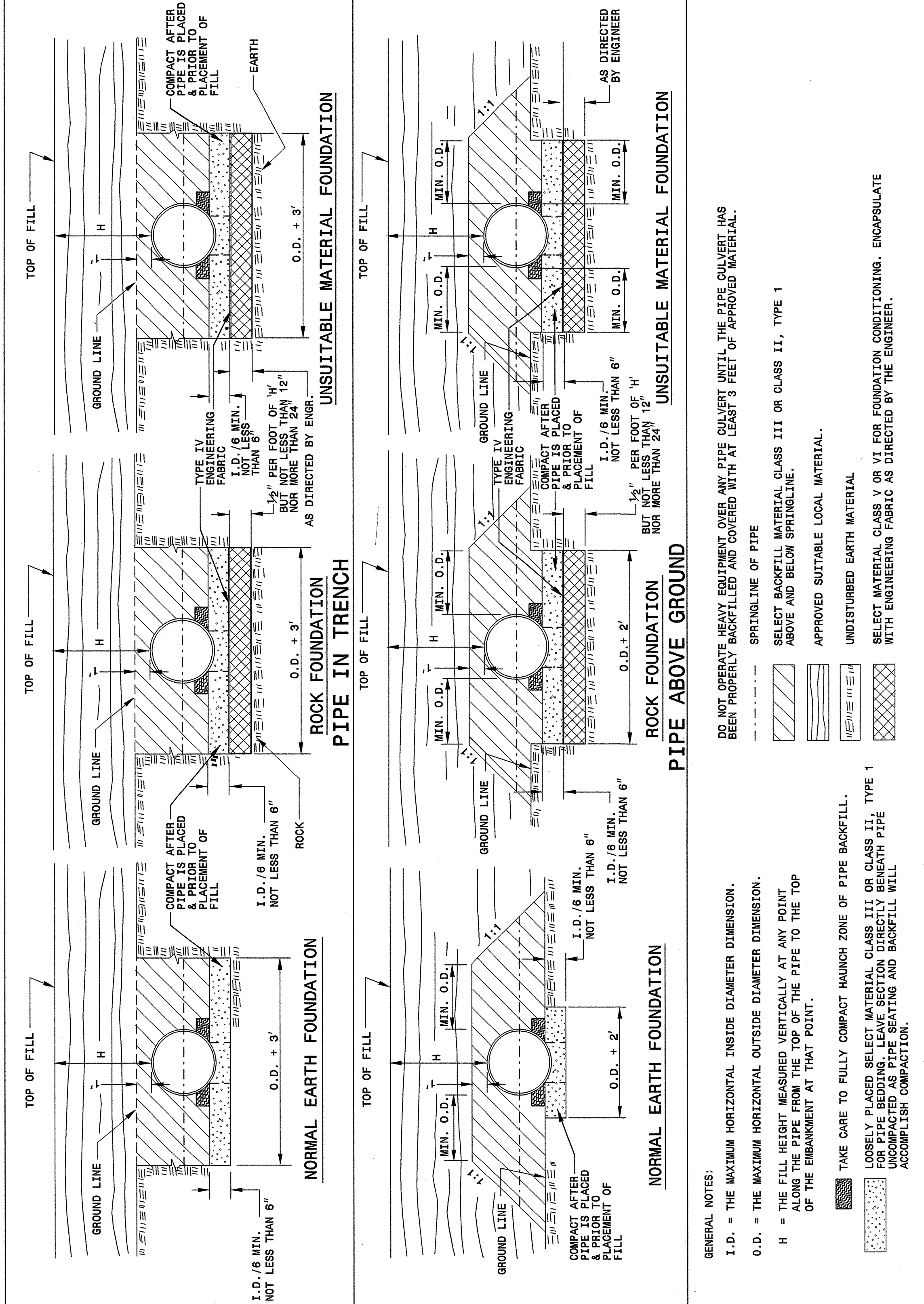


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5/14/99

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
 Z-06
 ENGLISH DETAIL DRAWING FOR METHOD OF PIPE INSTALLATION
 FLEXIBLE PIPE
 SHEET 1 OF 3
300D01



GENERAL NOTES:
 I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.
 O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.
 H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

SPRINGLINE OF PIPE

SELECT BACKFILL MATERIAL CLASS III OR CLASS II, TYPE 1 ABOVE AND BELOW SPRINGLINE.

APPROVED SUITABLE LOCAL MATERIAL.

UNDISTURBED EARTH MATERIAL

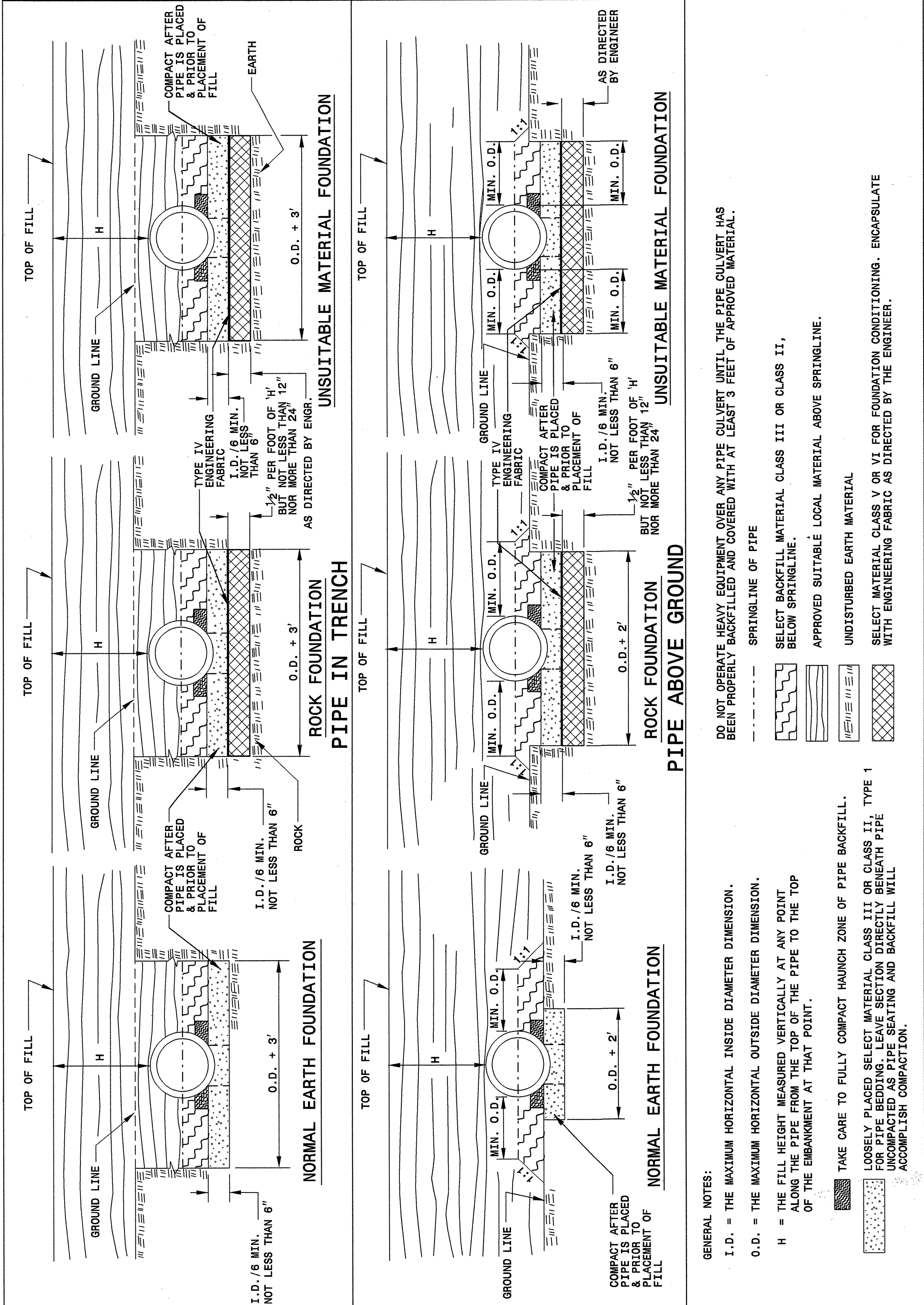
SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH ENGINEERING FABRIC AS DIRECTED BY THE ENGINEER.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
 Z-06
 ENGLISH DETAIL DRAWING FOR METHOD OF PIPE INSTALLATION
 FLEXIBLE PIPE
 SHEET 1 OF 3
300D01

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
 Z-06
 ENGLISH DETAIL DRAWING FOR METHOD OF PIPE INSTALLATION
 RIGID PIPE
 SHEET 2 OF 3
300D01



GENERAL NOTES:
 I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.
 O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.
 H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

SPRINGLINE OF PIPE

SELECT BACKFILL MATERIAL CLASS III OR CLASS II, TYPE 1 ABOVE AND BELOW SPRINGLINE.

APPROVED SUITABLE LOCAL MATERIAL ABOVE SPRINGLINE.

UNDISTURBED EARTH MATERIAL

SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH ENGINEERING FABRIC AS DIRECTED BY THE ENGINEER.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
 Z-06
 ENGLISH DETAIL DRAWING FOR METHOD OF PIPE INSTALLATION
 RIGID PIPE
 SHEET 2 OF 3
300D01



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

SEE PLATE FOR TITLE

ORIGINAL BY: K Kempf DATE: 5-15-09
 MODIFIED BY: DATE:
 CHECKED BY: DATE: 7/20/09
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 jhowerton AT PS237501

5/14/99

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

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
 FILL HEIGHT TABLES

SHEET 3 OF 3
300D01

FLEXIBLE PIPE

Round Corrugated Aluminum Pipe
 2 2/3 x 1/2 corrugation **

Diameter (Inches)	Minimum cover (Inches)	Maximum Height of Cover (feet)
12	12	10 9
15	12	218
18	12	174
21	12	144
24	12	123
27	12	108
30	12	95
36	12	60
42	12	50
48	12	46
54	12	46
66	12	50
72	12	51
		41

Round Corrugated Steel Pipe
 2 2/3 x 1/2 corrugation **

Diameter (Inches)	Minimum cover (Inches)	Maximum Height of Cover (feet)
12	12	204
15	12	162
18	12	135
21	12	115
24	12	100
30	12	79
36	12	65
42	12	55
48	12	48
54	12	54
60	12	69
66	12	81
72	12	74
78	12	81
84	12	89

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

ENGLISH DETAIL DRAWING FOR
METHOD OF PIPE INSTALLATION
 FILL HEIGHT TABLES

SHEET 3 OF 3
300D01

** FOR DIFFERENT CORRUGATIONS AND ARCH PIPES REFER TO ROADWAY DESIGN MANUAL OR MANUFACTURERS SPECIFICATION.

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

- CSP - AASHTO M86
- CAAP - AASHTO M196
- HDPE - AASHTO M294
- PVC - ASTM F949 or AASHTO M304

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LFRD BRIDGE DESIGN SPECIFICATIONS

1' MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

RIGID PIPE

REFER TO THE FOLLOWING FOR PIPE SPECIFICATIONS

- RCP - AASHTO M170

NOTES: FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LFRD BRIDGE DESIGN SPECIFICATIONS

1' MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS

- HDPE - * (Minimum fill) 2' for pipe diameters ≥ 12" and ≤ 60"
- * (Maximum fill) 20' for pipe diameters ≤ 24"
- 17' for pipe diameters ≥ 30" and ≤ 60"

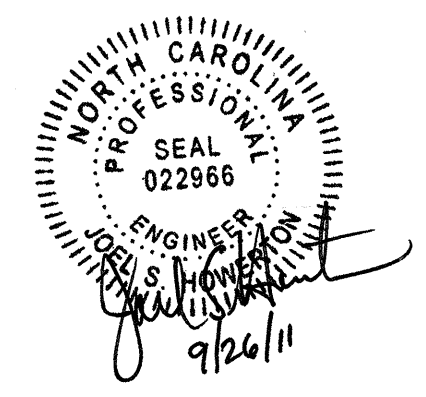
- PVC - * (Minimum fill) 2' for pipe diameters ≥ 12" and ≤ 36"
- * (Maximum fill) 30' for pipe diameters ≥ 12" and ≤ 36"

* FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE

- RCP - * (Minimum fill) 1' for Class IV & CLASS V
- 2' for Class III & Class II
- * (Maximum fill) 10' - Class II pipe
- 20' - Class III pipe
- 30' - Class IV pipe
- 40' - Class V pipe

(For fills > 40' & < 80' use LFRD Direct Design Method)

* FILL HEIGHT IS MEASURED FROM THE TOP OF THE PIPE TO THE BOTTOM OF THE PAVEMENT STRUCTURE



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

SEE PLATE FOR TITLE

ORIGINAL BY: KKempf DATE: 5-15-09
 MODIFIED BY: *[Signature]* DATE: 7/30/09
 CHECKED BY: *[Signature]* DATE: 7/30/09
 FILE SPEC: s:\contracts\contractors\special_details\vericard\stds\stdstodetails\30001\0300d01.dgn

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

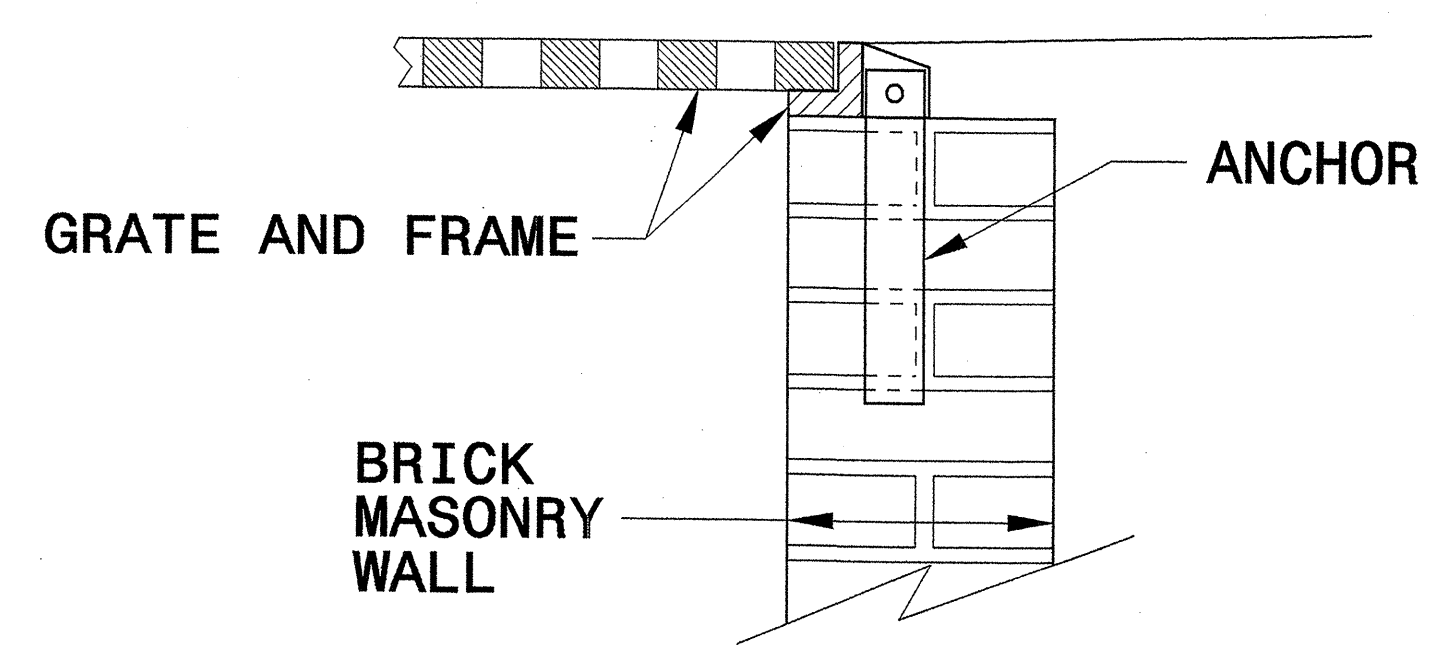
ENGLISH DETAIL DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1
840D25

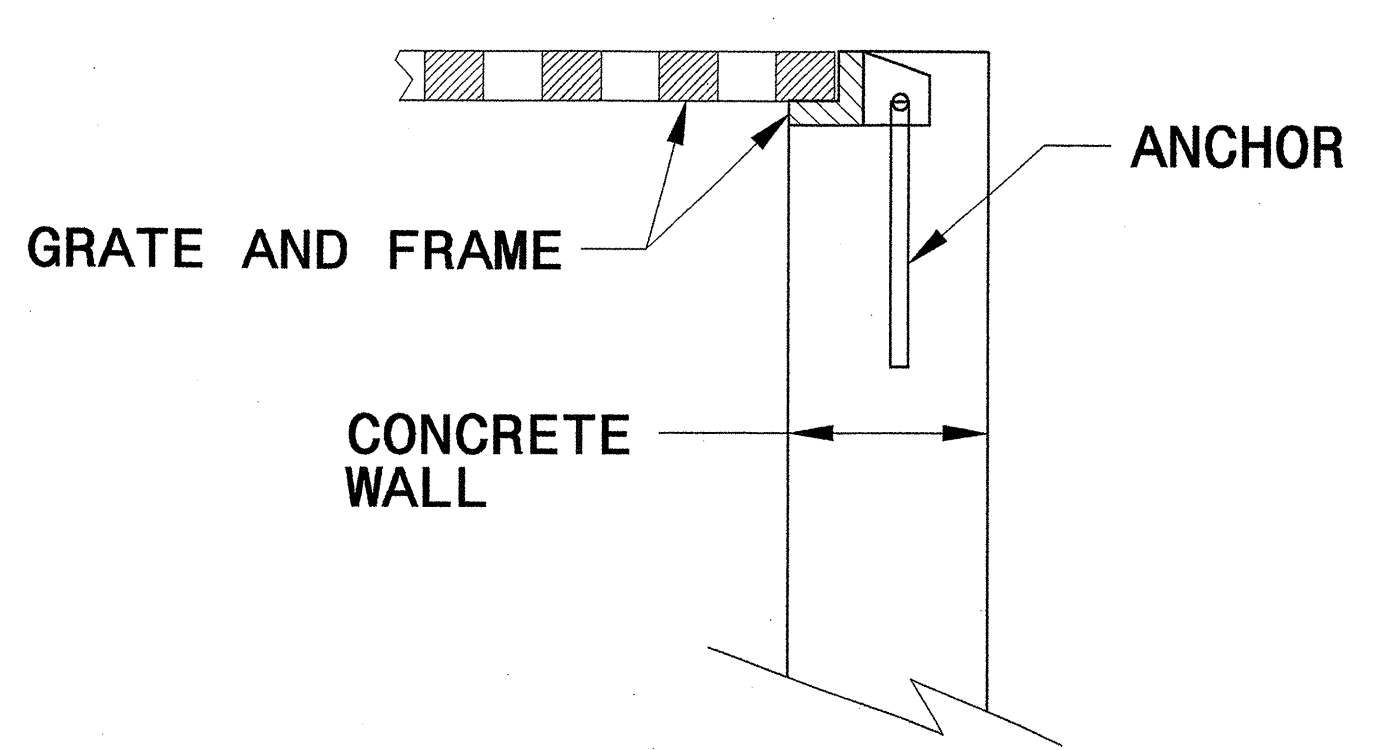
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

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

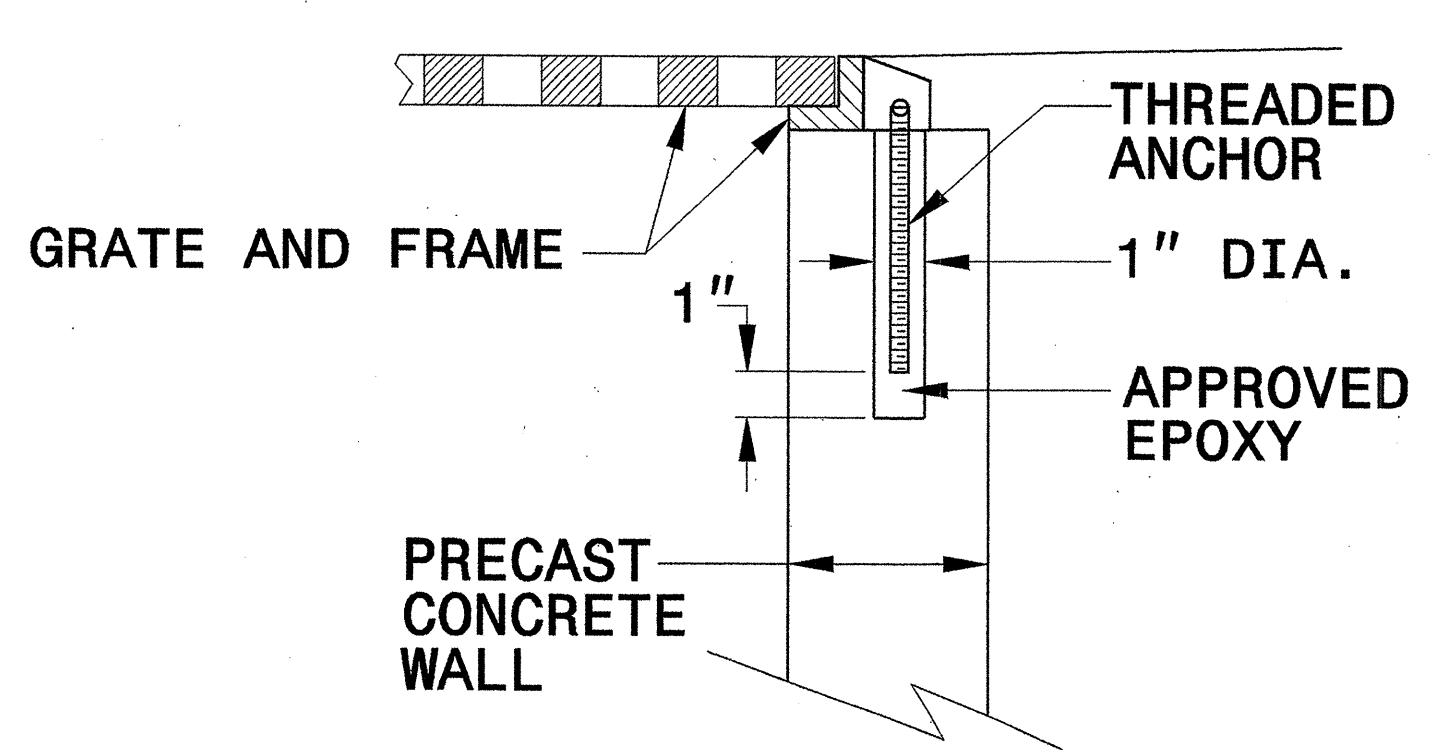
SHEET 1 OF 1
840D25



BRICK MASONRY CONSTRUCTION



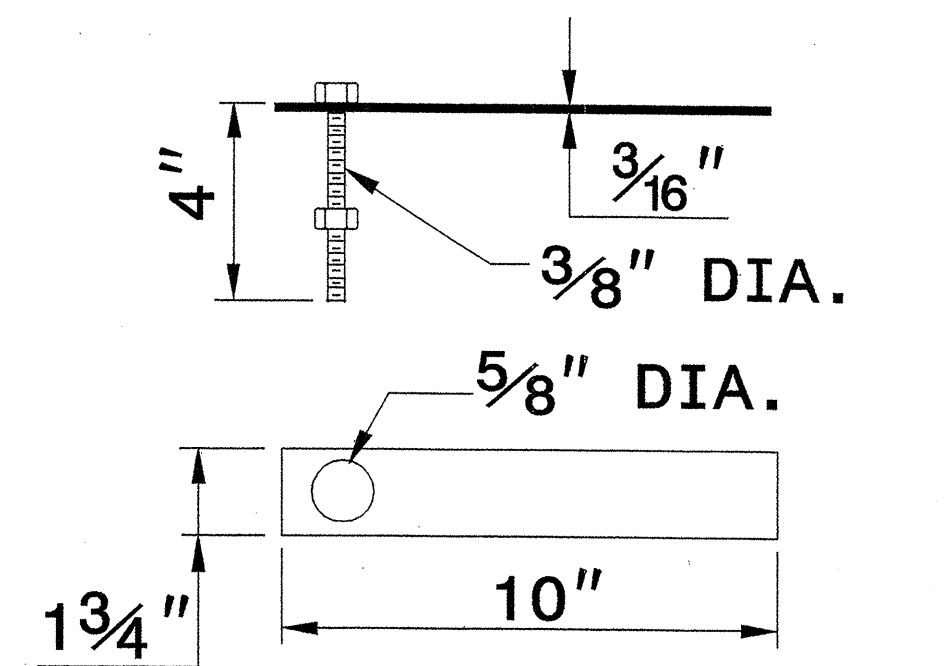
CONCRETE CONSTRUCTION



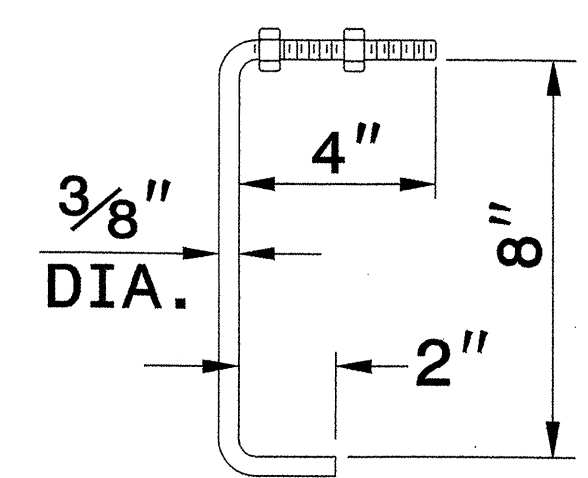
PRECAST CONCRETE CONSTRUCTION

DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET

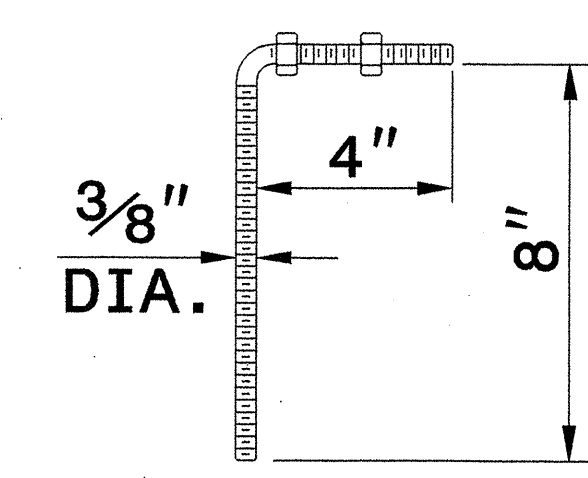
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



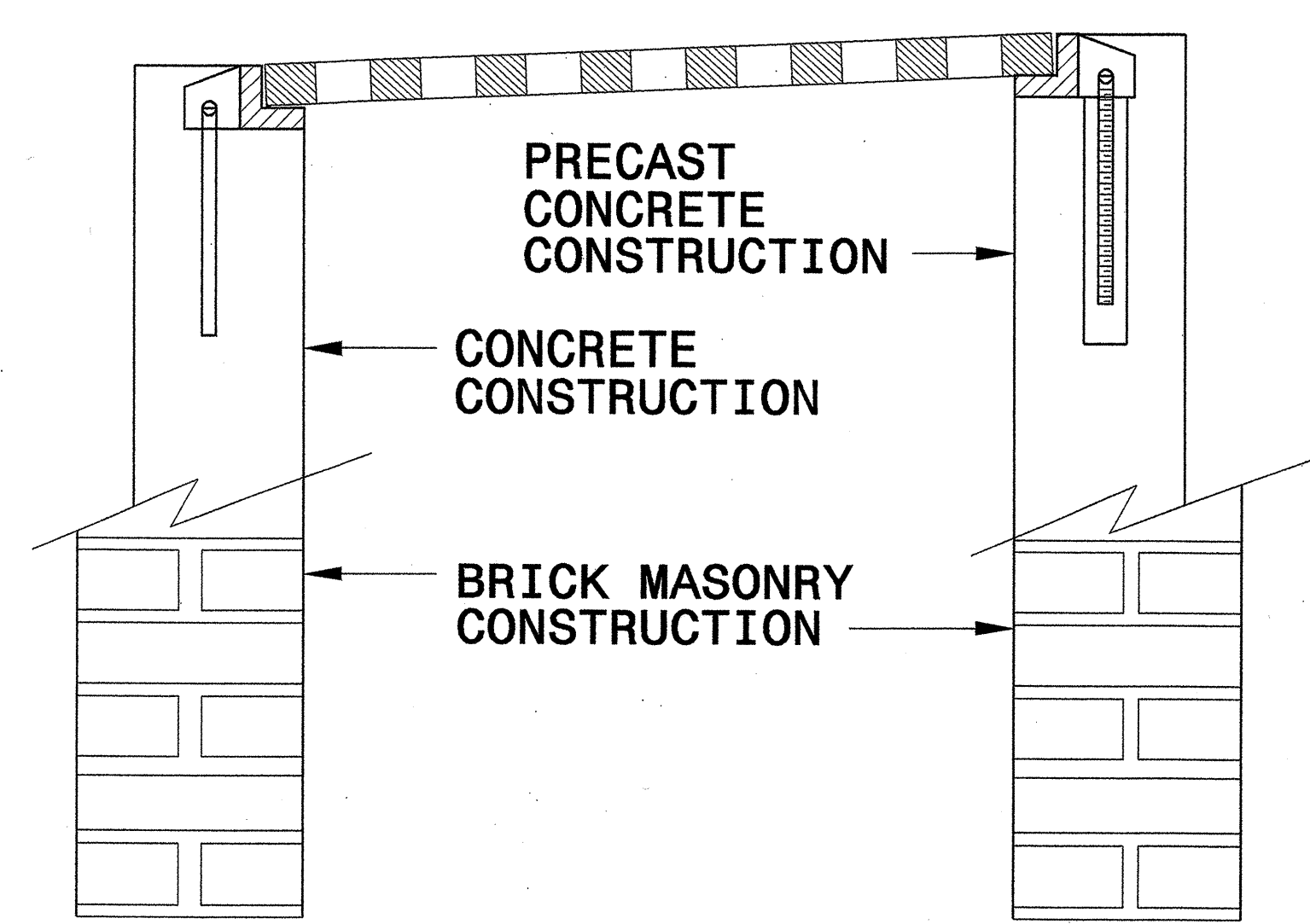
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



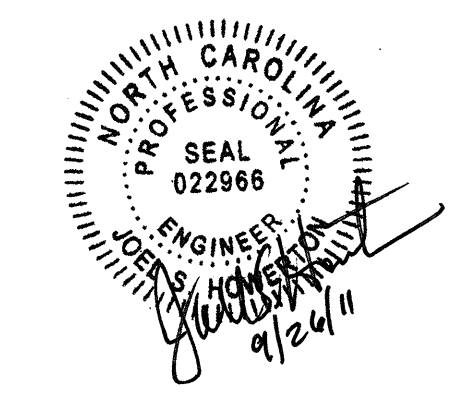
CONCRETE ANCHOR
3/8" DIA. BENT BAR



PRECAST CONCRETE ANCHOR
3/8" DIA. BENT BAR



FRAME AND GRATE INSTALLATION FOR NORMAL CROWN AND SUPERELEVATED SECTIONS



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: [Signature] DATE: 11/13/08
FILE SPEC.: [Signature]

SYSTEMS DESIGN SUPERVISOR

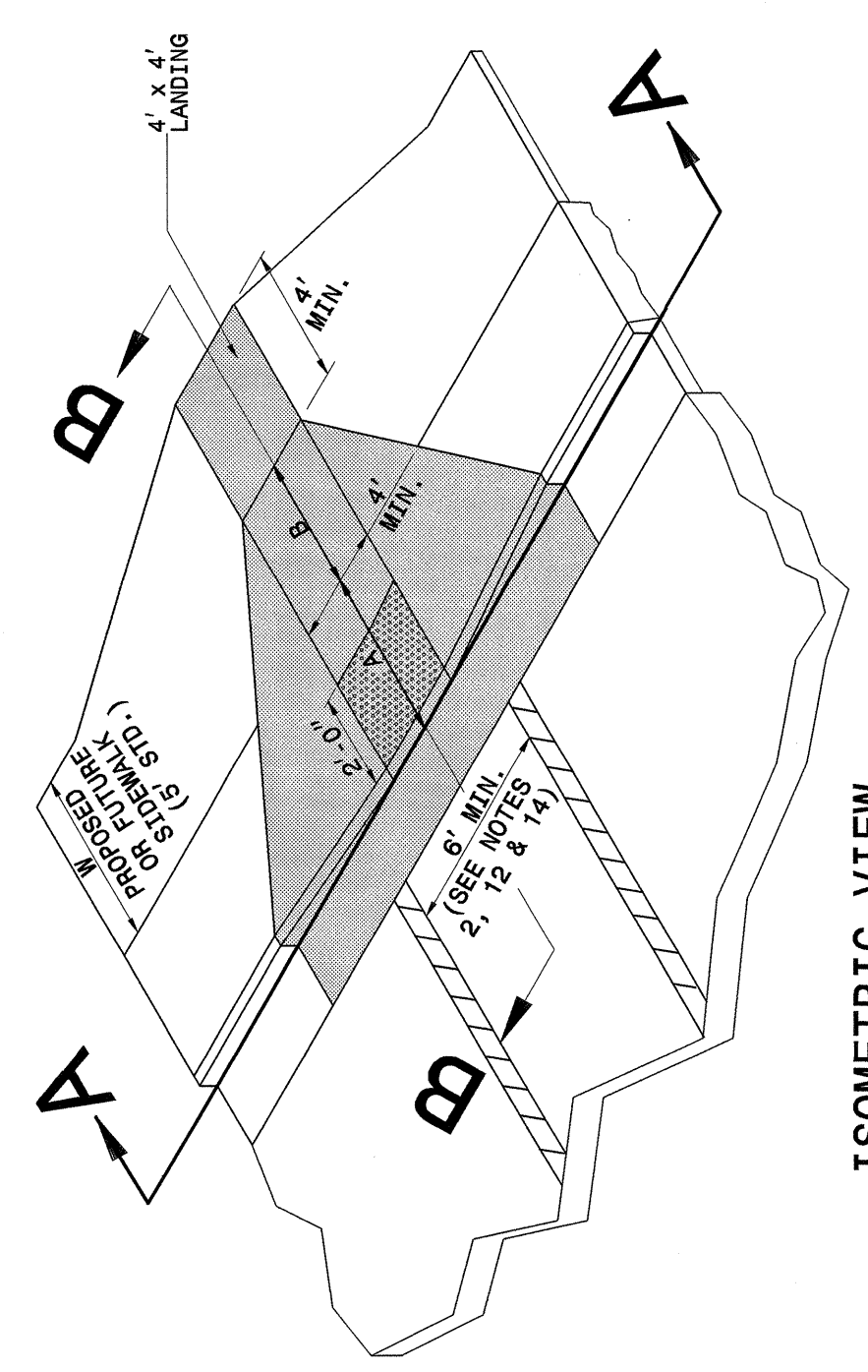
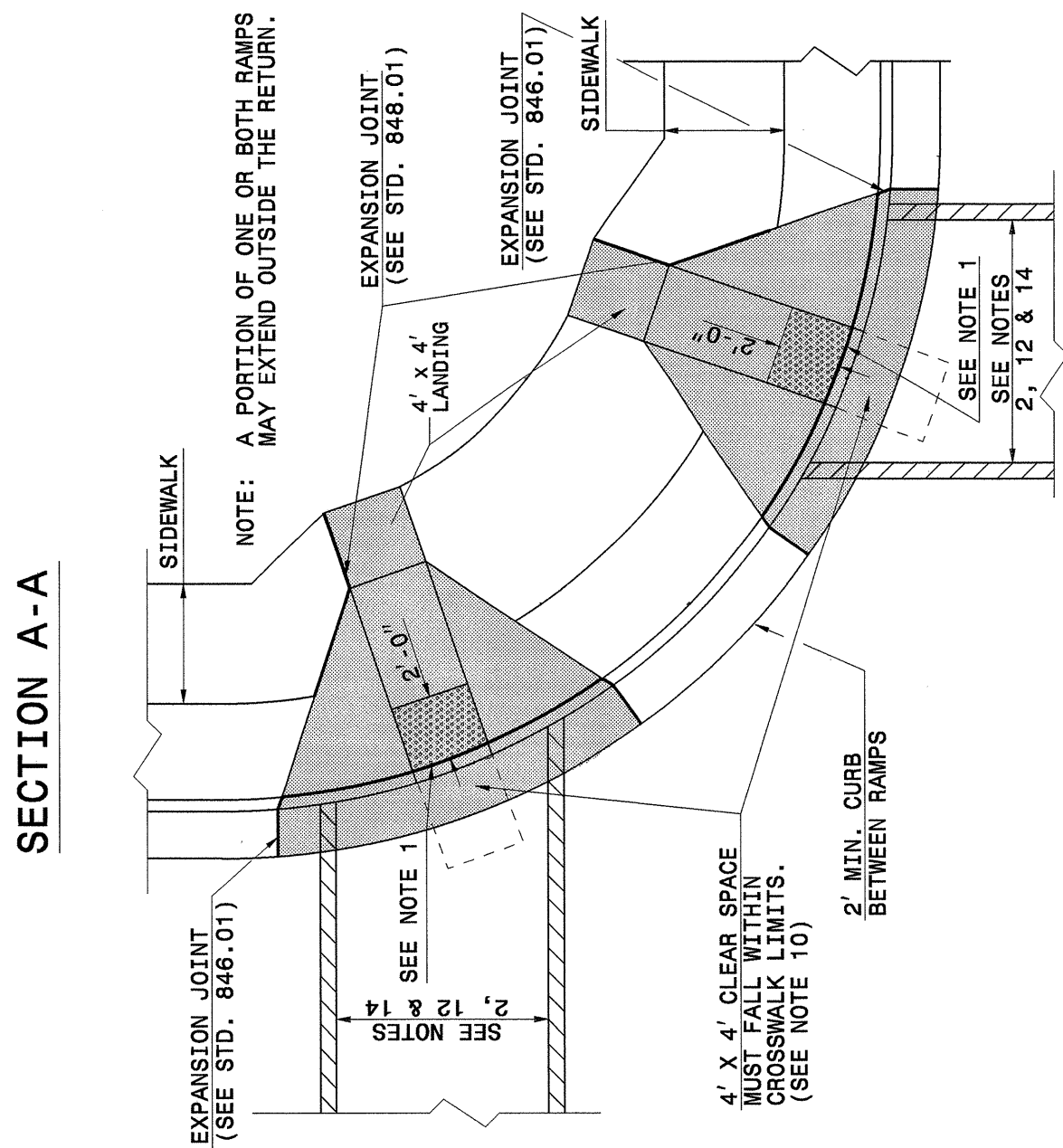
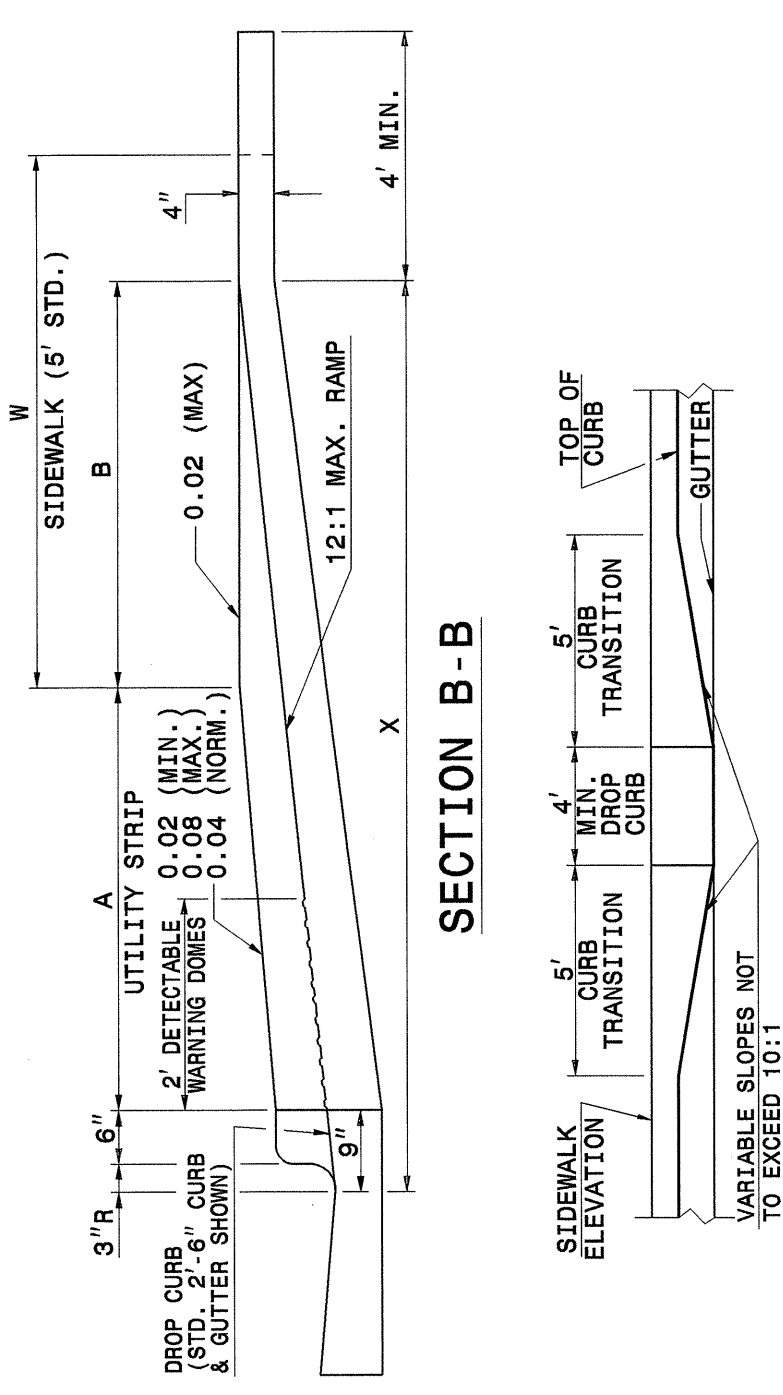
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR

CURB RAMP

PROPOSED CURB AND GUTTER

SHEET 1 OF 3 **848D05**



NOTES:

- DETECTABLE WARNING DOMES WILL COVER 2'-0" LENGTH AND FULL WIDTH OF THE RAMP FLOOR AS SHOWN ON THE DETAILS.
- DETECTABLE WARNING DOMES WILL CONTRAST VISIBILITY WITH ADJOINING SURFACE, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT SEQUENCE COVERING THE ENTIRE RAMP.

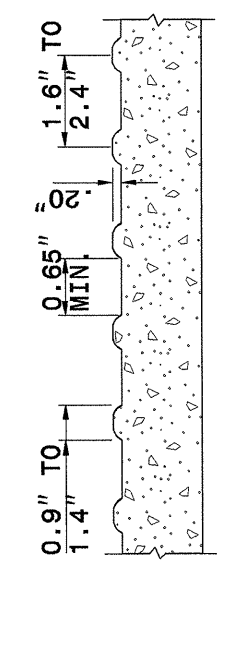
W	A	W+A-9"	X	B
5'	0.0'	5.8'	5.8'	5.0'
6'	0.0'	6.8'	6.8'	6.0'
7'	0.0'	7.8'	7.3'	6.5'
8'	0.0'	8.8'	7.8'	7.0'
9'	2.0'	7.8'	8.1'	4.8'
10'	3.0'	6.8'	8.3'	4.4'
11'	3.5'	9.3'	8.4'	4.1'
12'	4.0'	9.8'	8.6'	3.8'
13'	4.5'	10.3'	8.7'	3.4'
14'	5.0'	10.8'	8.9'	3.1'

B = X - (A+9")

B = DISTANCE FROM FRONT EDGE OF SIDEWALK TO BACK POINT OF 12:1 (8.33%) SLOPE.

* SIDEWALK DROPS REQUIRED FOR ALL SIDEWALK SLOPES

** BACK OF SIDEWALK DROP REQUIRED FOR SIDEWALK SLOPES 0.04.



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

ENGLISH DETAIL DRAWING FOR

CURB RAMP

PROPOSED CURB AND GUTTER

SHEET 1 OF 3 **848D05**

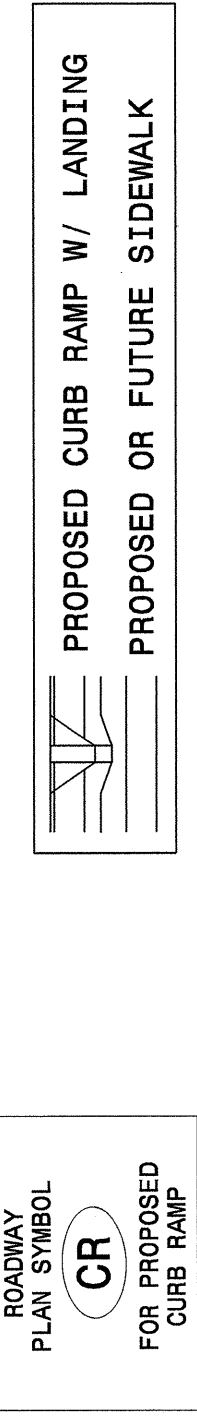
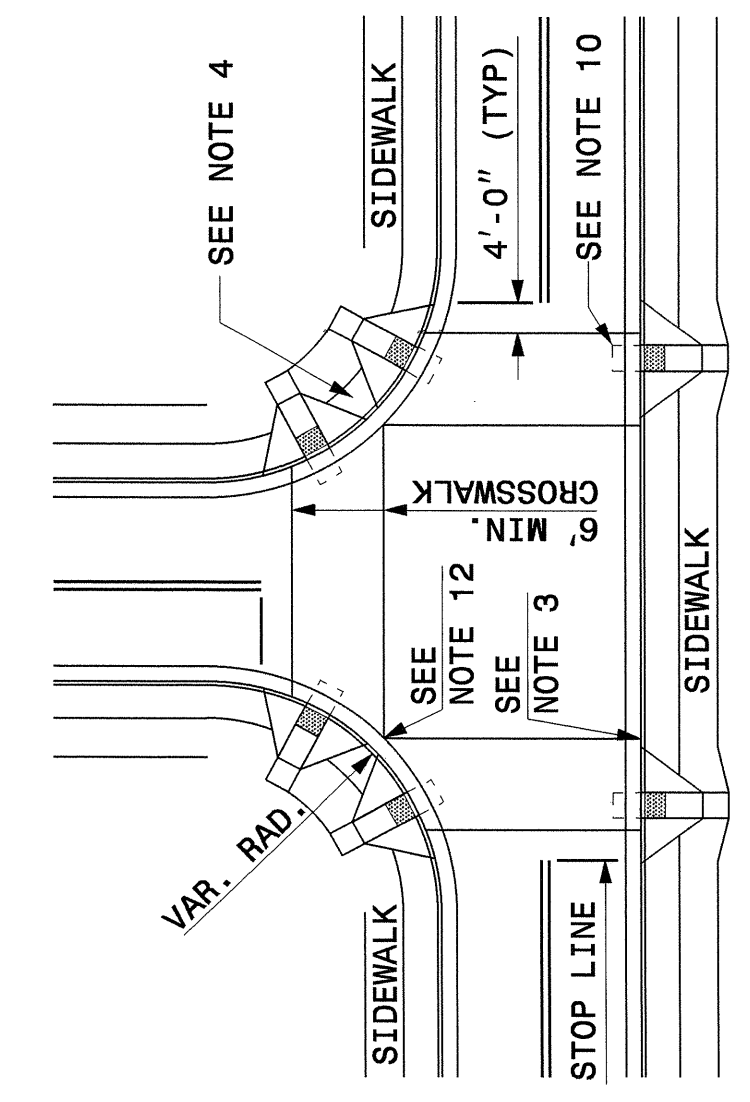
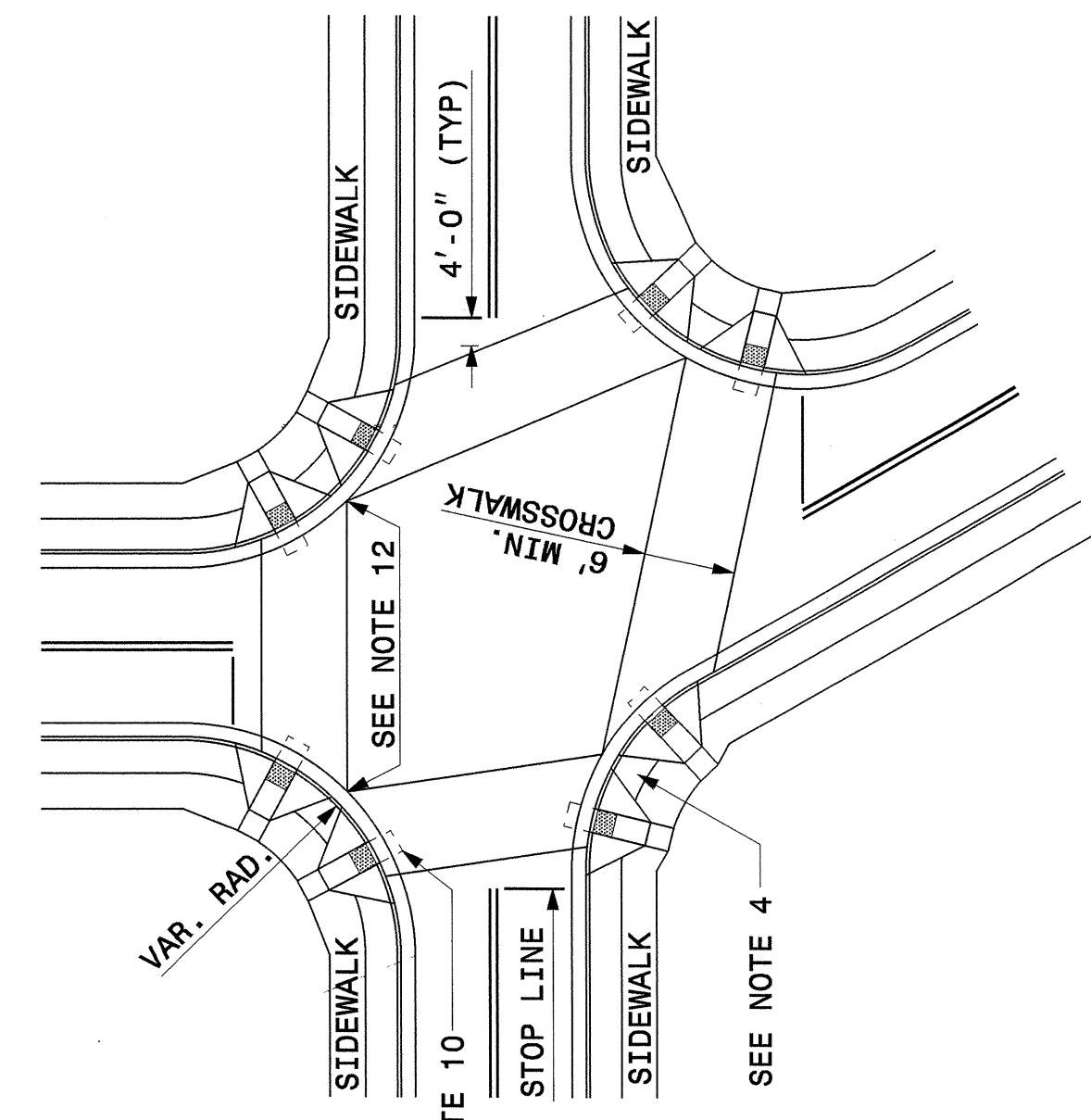
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR

CURB RAMP

PROPOSED CURB AND GUTTER

SHEET 2 OF 3 **848D05**



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

ENGLISH DETAIL DRAWING FOR

CURB RAMP

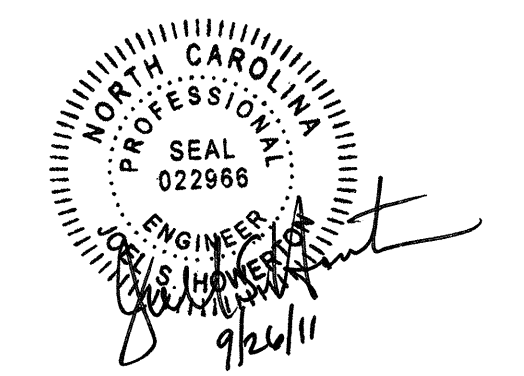
PROPOSED CURB AND GUTTER

SHEET 2 OF 3 **848D05**

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

SEE PLATE FOR TITLE

ORIGINAL BY: STD.NO.848.05 DATE: 4-22-10
 MODIFIED BY: DATE:
 CHECKED BY: DATE: 4/12/10
 FILE SPEC.: SpecialDetails/EricWard/STDS/848D05.dgn



\$\$\$\$\$SYTIME\$\$\$\$\$
 \$\$\$\$\$\$DATE\$\$\$\$\$
 \$\$\$\$\$\$USERNAME\$\$\$\$\$

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

ENGLISH DETAIL DRAWING FOR
CURB RAMP
NOTES

SHEET 3 OF 3
848D05

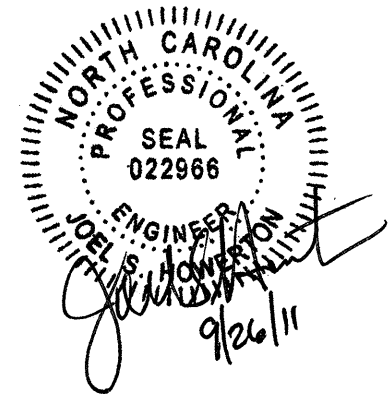
- NOTES:
1. CONSTRUCT THE RAMP SURFACE TO BE STABLE, FIRM, AND SLIP RESISTANT. CONSTRUCT THE CURB RAMP TYPE AS SHOWN IN THE PAVEMENT MARKING PLANS OR AS DIRECTED BY THE ENGINEER.
 2. LOCATE CURB RAMPS AND PLACE PEDESTRIAN CROSSWALK MARKINGS AS SHOWN IN THE PAVEMENT MARKING PLANS. WHEN FIELD ADJUSTMENTS REQUIRE MOVING CURB RAMPS OR MARKINGS AS SHOWN, CONTACT THE SIGNING AND DELINEATION UNIT OR LOCATE AS DIRECTED BY THE ENGINEER.
 3. COORDINATE THE CURB RAMP AND THE PEDESTRIAN CROSSWALK MARKINGS SO A 4'x4' CLEAR SPACE AT THE BASE OF THE CURB RAMP WILL FALL WITHIN THE PEDESTRIAN CROSSWALK LINES.
 4. SET BACK DISTANCE FROM INSIDE CROSSWALK MARKING TO NEAREST EDGE OF TRAVEL LANE IS 4' MINIMUM.
 5. REFER TO THE PAVEMENT MARKING PLANS FOR STOP BAR LOCATIONS AT SIGNALIZED INTERSECTIONS. IF A PAVEMENT MARKING PLAN IS NOT PROVIDED, CONTACT THE SIGNAL DESIGN SECTION FOR THE STOP BAR LOCATIONS OR LOCATE AS DIRECTED BY THE ENGINEER.
 6. TERMINATE PARKING A MINIMUM OF 20' BACK OF A PEDESTRIAN CROSSWALK.
 7. CONSTRUCT CURB RAMPS A MINIMUM OF 4' WIDE.
 8. CONSTRUCT THE RUNNING SLOPE OF THE RAMP 8.33% MAXIMUM.
 9. ALLOWABLE CROSS SLOPE ON SIDEWALKS AND CURB RAMPS WILL BE 2% MAXIMUM.
 10. CONSTRUCT THE SIDE FLARE SLOPE A MAXIMUM OF 10% MEASURED ALONG THE CURB LINE.
 11. CONSTRUCT THE COUNTER SLOPE OF THE GUTTER OR STREET AT THE BASE OF THE CURB RAMP A MAXIMUM OF 5% AND MAINTAIN A SMOOTH TRANSITION.
 12. CONSTRUCT LANDINGS FOR SIDEWALK A MINIMUM OF 4'x4' WITH A MAXIMUM SLOPE OF 2% IN ANY DIRECTION. CONSTRUCT LANDINGS FOR MEDIAN ISLANDS A MINIMUM OF 5'x5' WITH A MAXIMUM SLOPE OF 2% IN ANY DIRECTION.
 13. TO USE A MEDIAN ISLAND AS A PEDESTRIAN REFUGE AREA, MEDIAN ISLANDS WILL BE A MINIMUM OF 6' WIDE. CONSTRUCT MEDIAN ISLANDS TO PROVIDE PASSAGE OVER OR THROUGH THE ISLAND.
 14. SMALL CHANNELIZATION ISLANDS THAT CAN NOT PROVIDE A 5'x5' LANDING AT THE TOP OF A RAMPS, WILL BE CUT THROUGH LEVEL WITH THE SURFACE STREET.
 15. CURB RAMPS WITH RETURNED CURBS MAY BE USED ONLY WHERE PEDESTRIANS WOULD NOT NORMALLY WALK ACROSS THE RAMP. THE ADJACENT SURFACE IS PLANTING OR OTHER NON-WALKING SURFACE OR THE SIDE APPROACH IS SUBSTANTIALLY OBSTRUCTED.
 16. PLACE A 1/2" EXPANSION JOINT WHERE THE CONCRETE CURB RAMP JOINS THE CURB AS SHOWN IN ROADWAY STANDARD DRAWING 848.01
 17. PLACE ALL PEDESTRIAN PUSH BUTTON ACTUATORS AND CROSSING SIGNALS AS SHOWN IN THE PLANS OR AS SHOWN IN THE MUTCD.
 18. CURB RAMPS THROUGH MEDIAN ISLANDS, SINGLE RAMPS AT DUAL CROSSWALKS OR LIMITED R/W SITUATIONS, WILL BE HANDLED BY SPECIAL DETAILS. CONTACT THE CONTRACT STANDARDS AND DEVELOPMENT UNIT FOR THE DETAILS OR FOR A SPECIAL DESIGN.

STATE OF
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RALEIGH, N.C.

ENGLISH DETAILS DRAWING FOR
CURB RAMP
NOTES

SHEET 3 OF 3
848D05

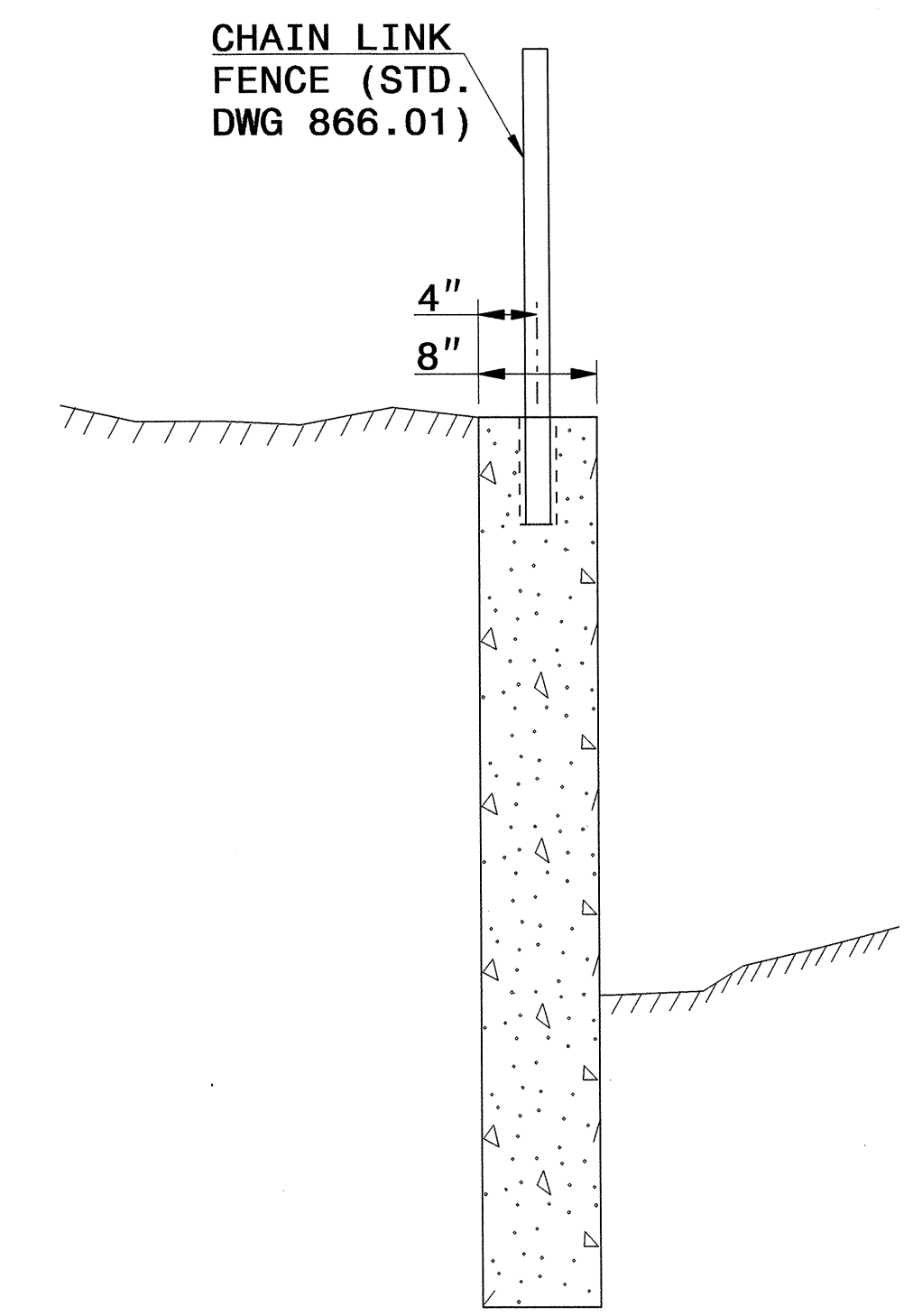
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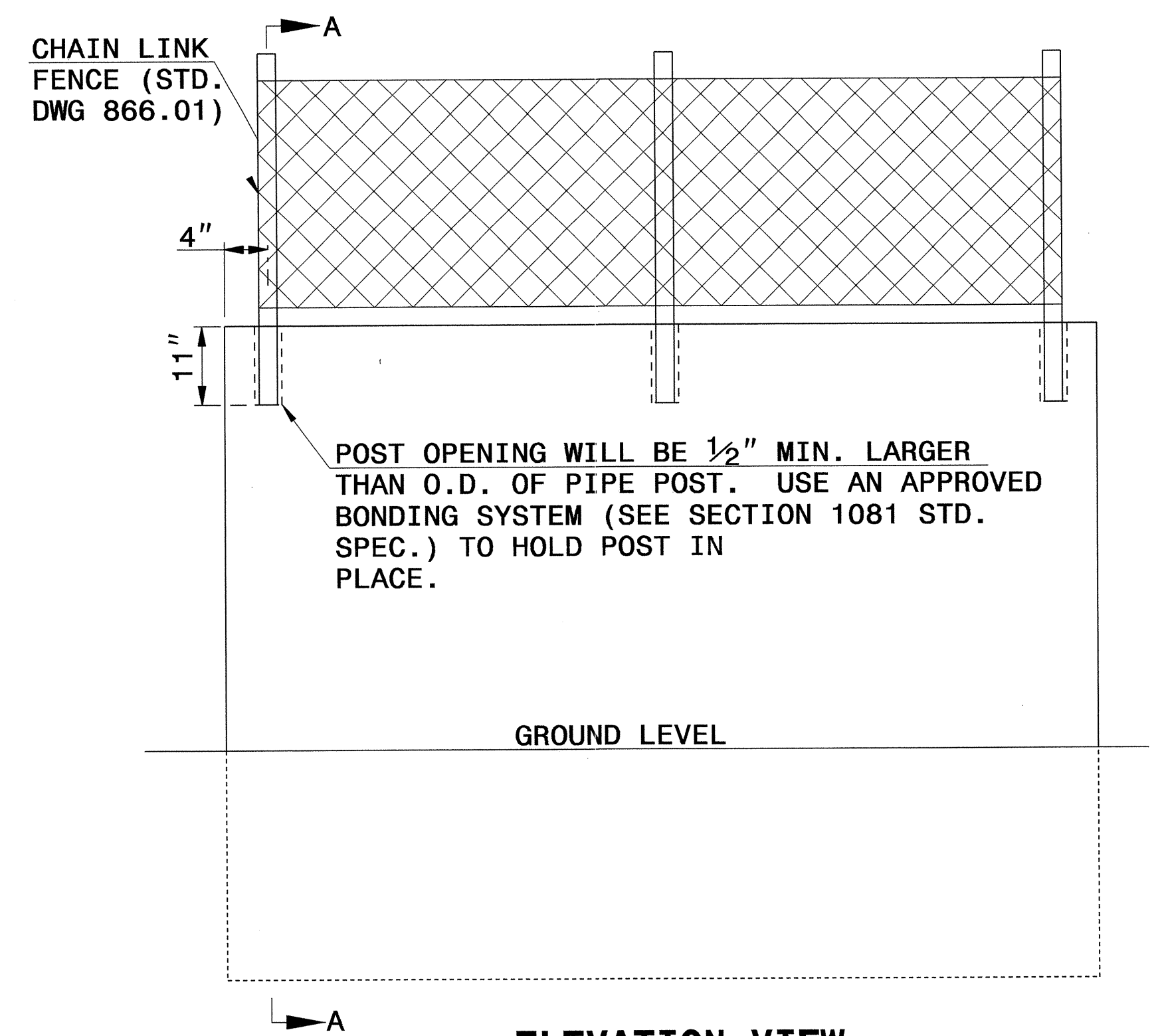
**CONTRACT STANDARDS
AND DEVELOPMENT UNIT**
Office 919-250-4128 FAX 919-250-4119

SEE PLATE FOR TITLE

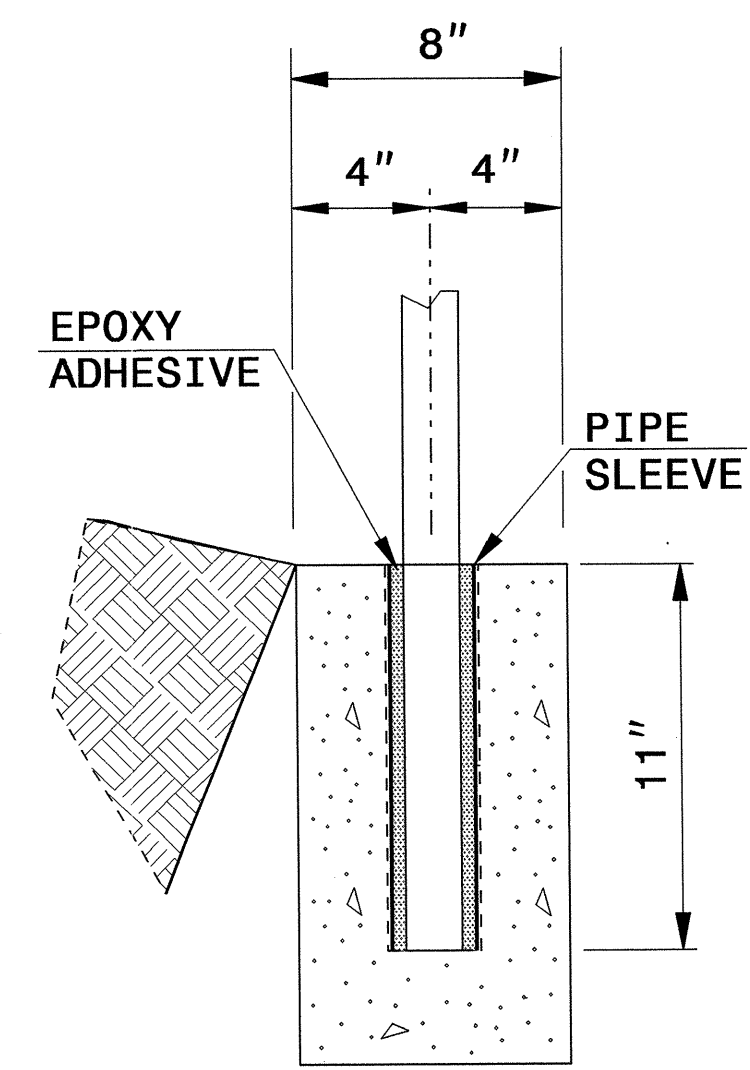
ORIGINAL BY: STD.NO.848.05 DATE: 4-22-11
 MODIFIED BY: *Eric Ward* DATE: *5/31/11*
 CHECKED BY: *Eric Ward* DATE: *5/31/11*
 FILE SPEC.: SpecialDetails/EricWard/STDs/848d05.dgn



**SECTION A-A
CONCRETE RETAINING WALL**



**ELEVATION VIEW
OF RETAINING WALL**



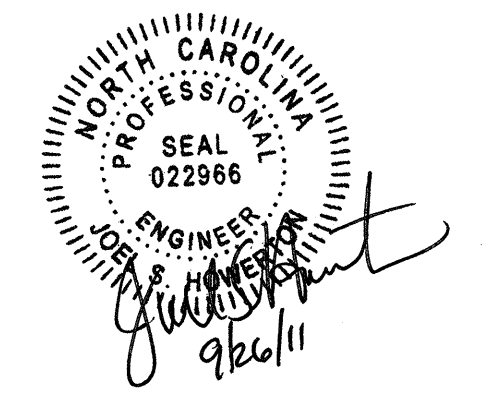
INSET 'A'

GENERAL NOTES:
REFER TO PROJECT SPECIAL PROVISIONS FOR VINYL COATED CHAIN LINK FENCE
INSTALL PIPE SLEEVES IN THE RETAINING WALL (SEE INSET 'A')
AND REFER TO STD. SPECIFICATION 1081 FOR PROPER ANCHOR SYSTEM.

MODIFICATIONS TO THE ANCHORS MAY BE MADE AS DIRECTED BY THE ENGINEER.

REFER TO RDWY. STD. DWG. NO. 866.01 FOR ALL CHAIN LINK FENCE PARTS, SPACING AND DIMENSIONS.

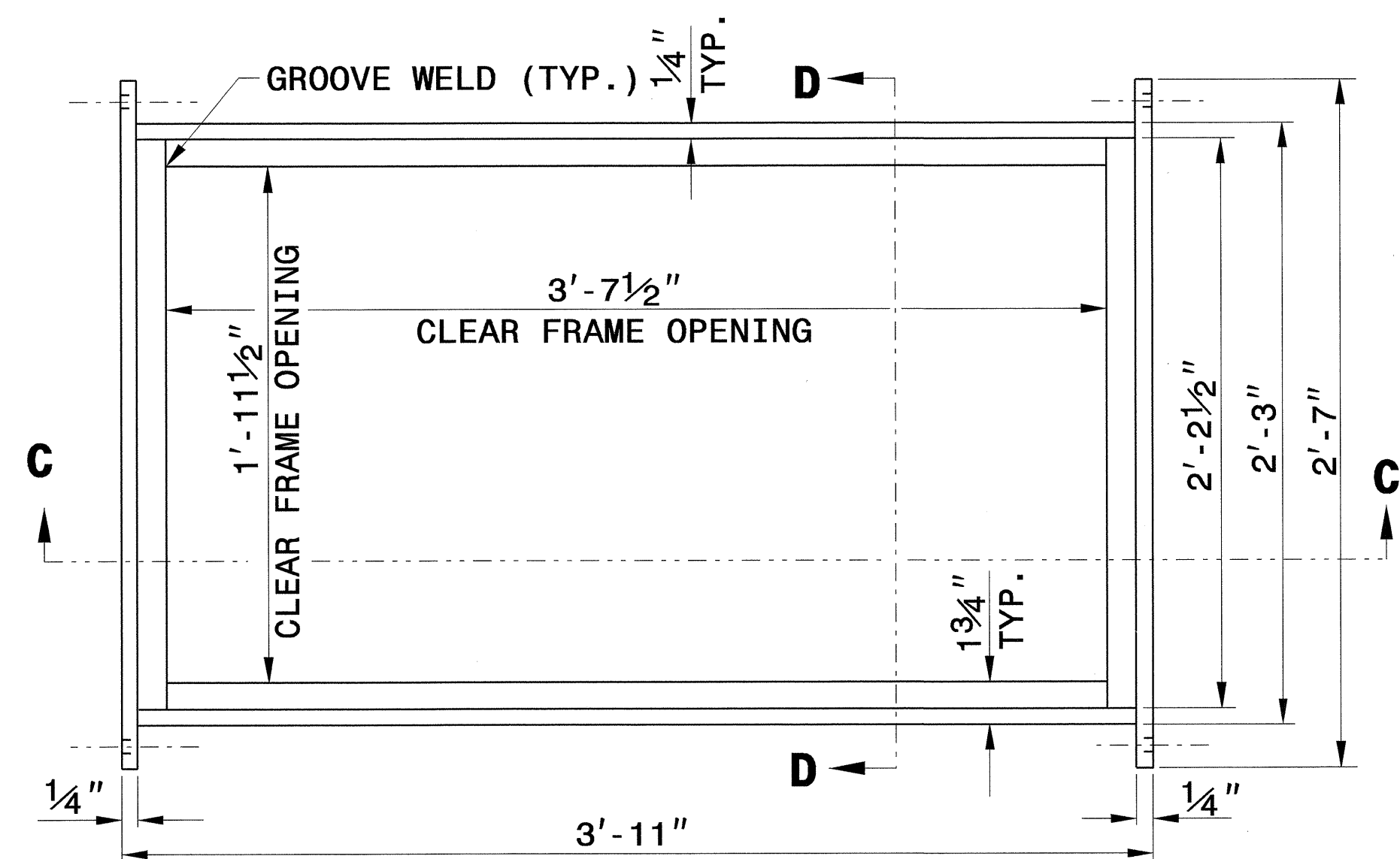
REFER TO THE TYPICAL SECTIONS AND PLAN SHEET 9 FOR WALL LOCATION.



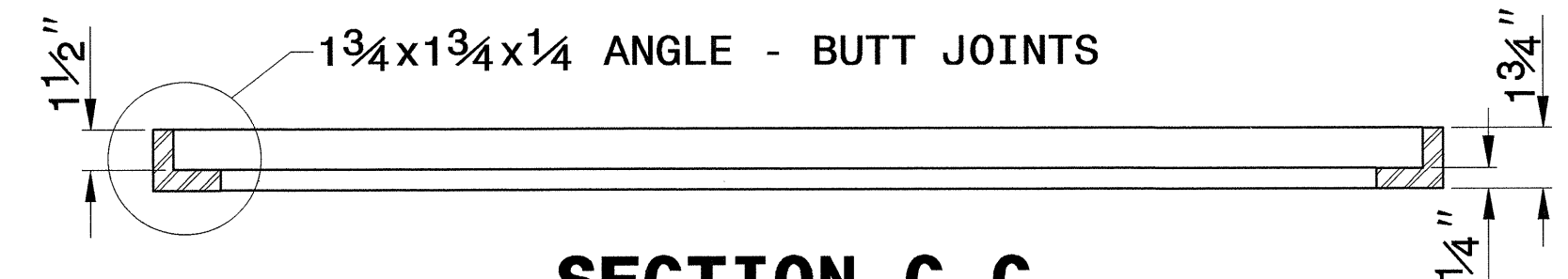
**CONTRACT STANDARDS
AND DEVELOPMENT UNIT**
Office 919-250-4128 FAX 919-250-4119

**CHAIN LINK FENCE ON
CONCRETE RETAINING WALL**

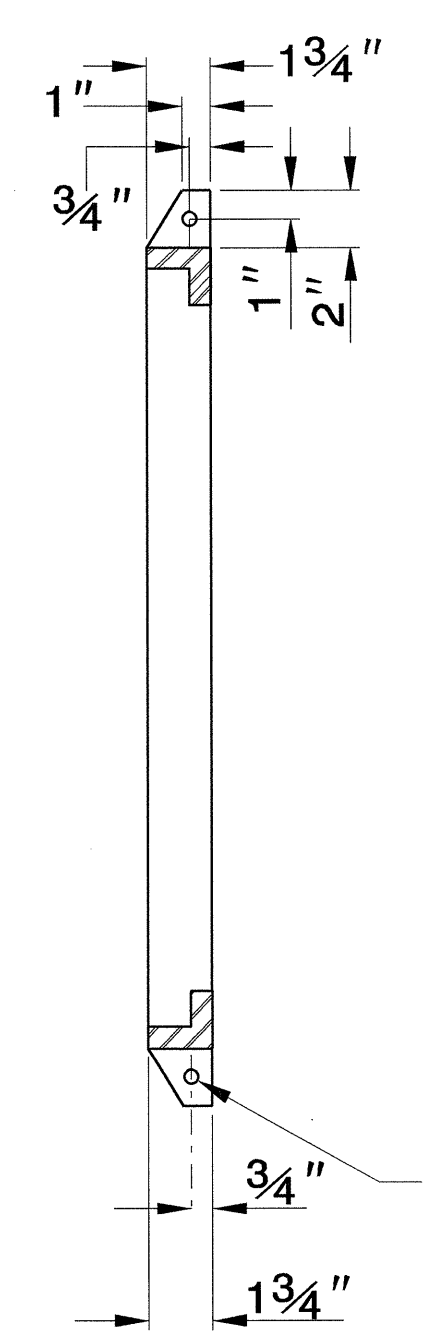
ORIGINAL BY: L. Robinson DATE: Nov. 1996
MODIFIED BY: J.E. Ward DATE: Nov. 2001
CHECKED BY: J. E. Ward DATE: 5/9/11
FILE SPEC.: psr/details/metric/842d03.dgn



PLAN VIEW



**SECTION C-C
FRAME**

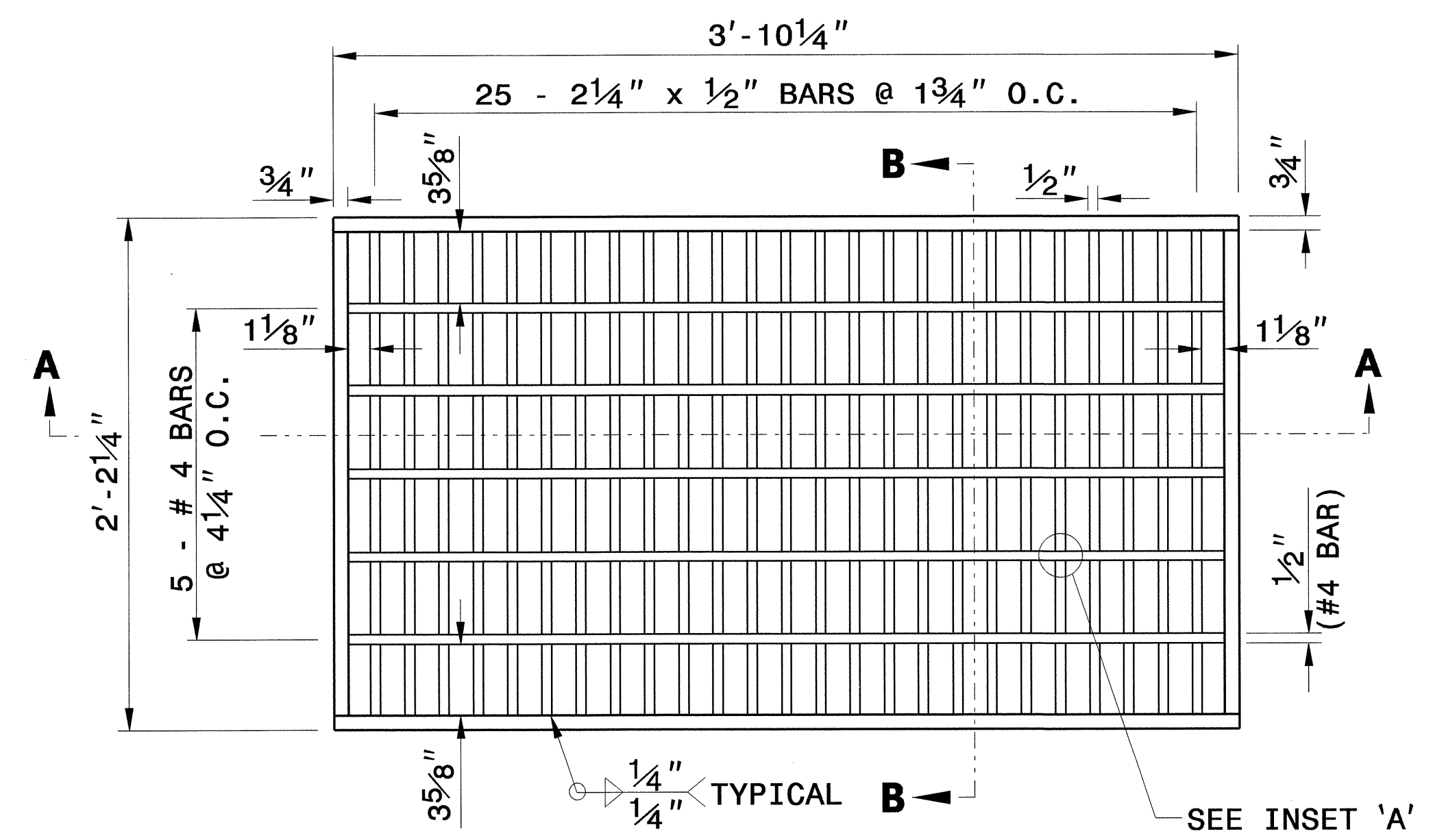


SECTION 'D-D'

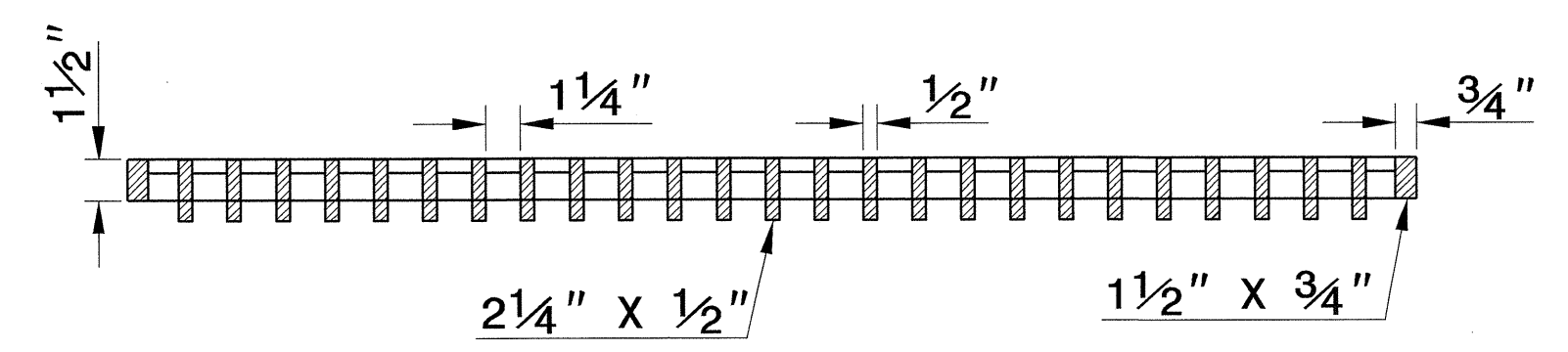
1/2" DIA. HOLE FOR 3/8" DIA. CONCRETE ANCHOR (4 REQUIRED) (SEE STANDARD 840.25 FOR FRAME ANCHORAGE)

NOTES:

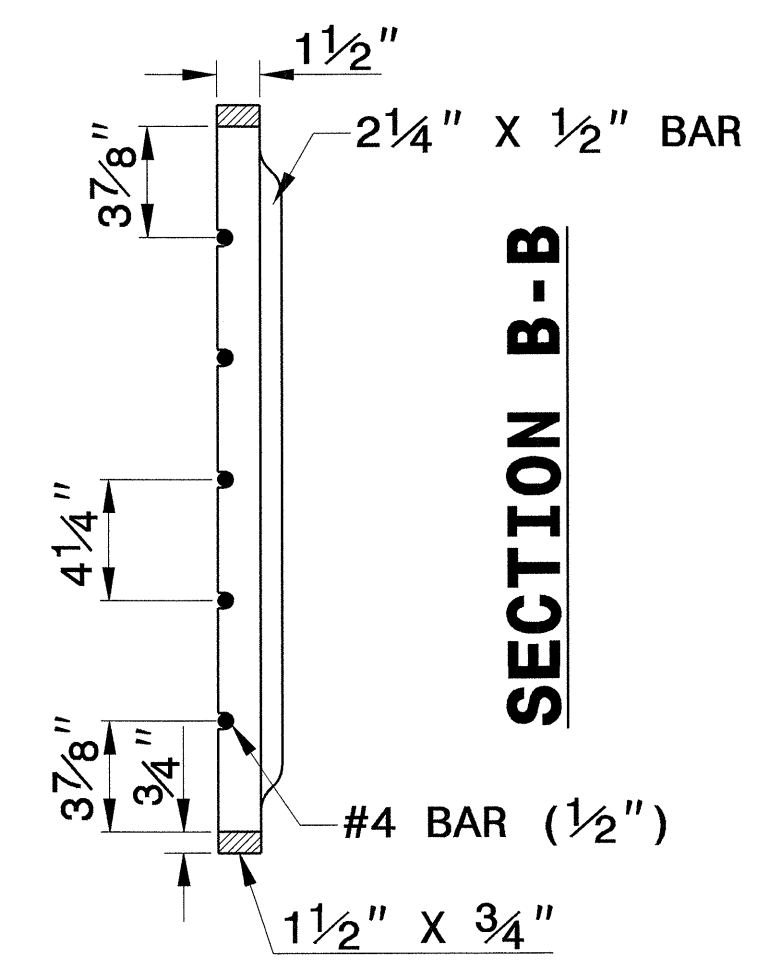
1. HOT DIP GALVANIZE FRAME AND GRATE IN ACCORDANCE WITH ASTM DESIGNATION A-123 AND AASHTO M-111.
2. GRATE SHOULD MEET HS-20 LOADING.
3. PROVIDE STEEL CONFORMING TO THE REQUIREMENTS OF A.S.T.M. DESIGNATION A-36.
4. WELD IN ACCORDANCE WITH THE ANSI/AASHTO/AWS D1.5 WELDING CODE. SEAL WELD ALL CONNECTIONS ALONG TOP AND BOTTOM HORIZONTAL SEAMS OF CONNECTIONS IN ADDITION TO ANY REQUIRED STRUCTURAL WELDS.
5. SEE STANDARD DRAWING 840.25 FOR FRAME ANCHORAGE.



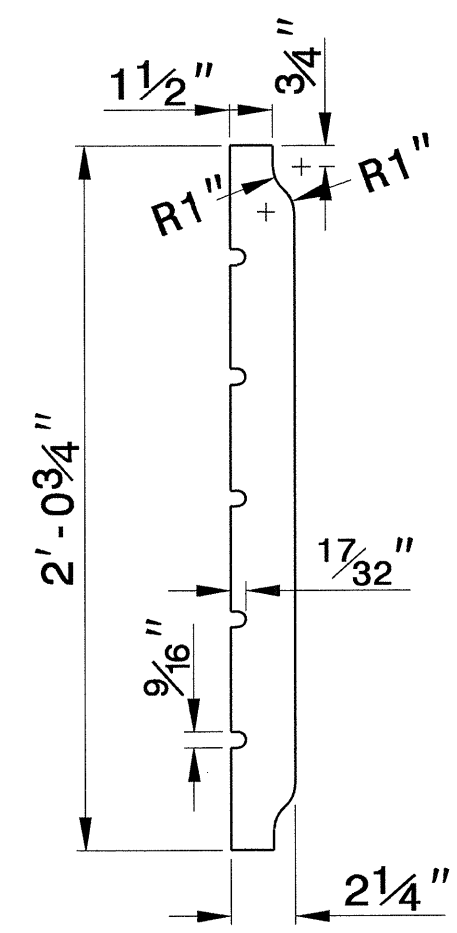
PLAN VIEW



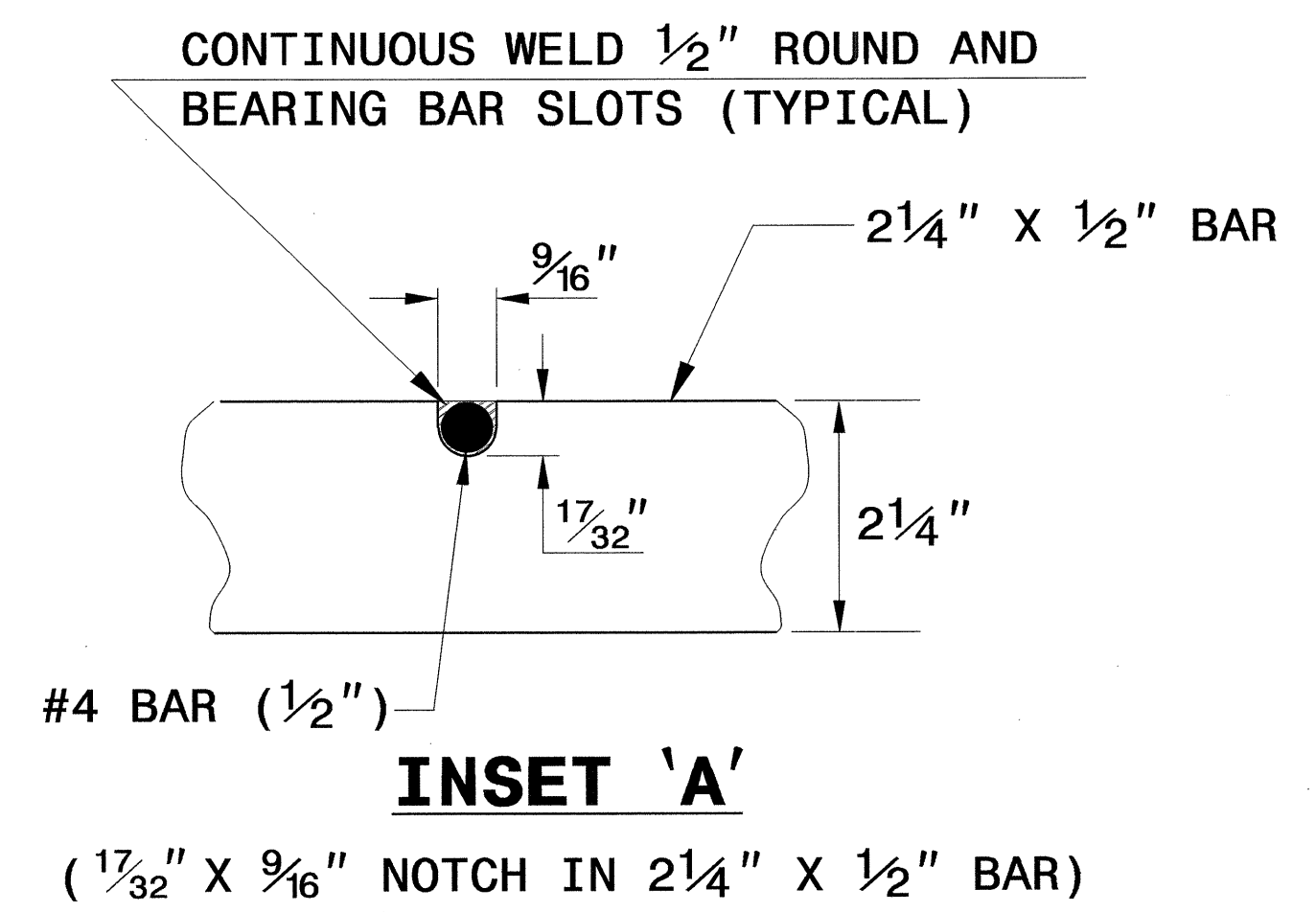
**SECTION A-A
GRATE**



SECTION B-B



DETAIL OF BEARING BAR



INSET 'A'

5/14/99
REVISIONS
DATE
BY
DESCRIPTION

REVISED 10-10-02 FOR HS-20 LOADING



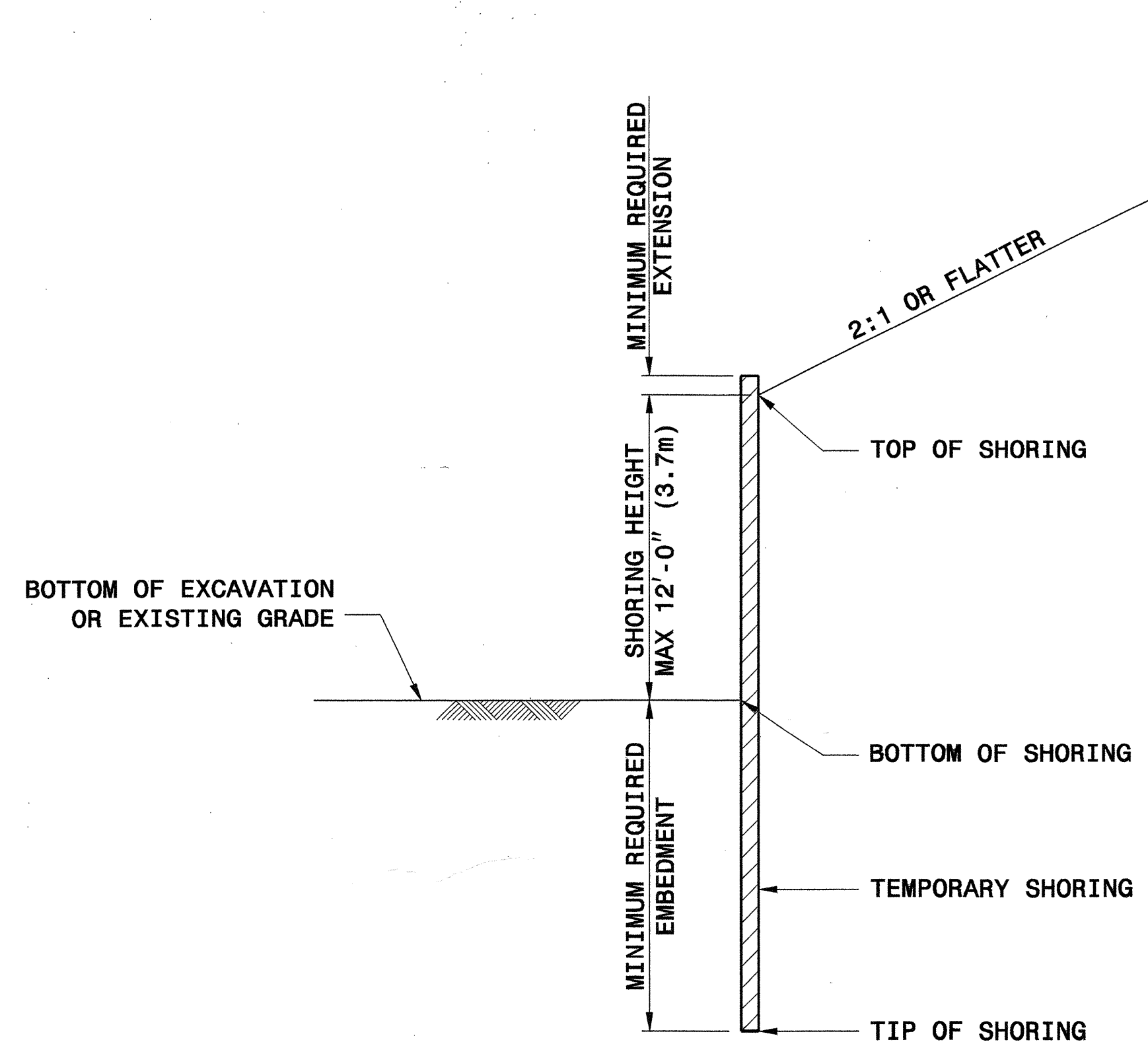
CONTRACT STANDARDS & DEVELOPMENT UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4119

BICYCLE SAFE STEEL GRATE AND FRAME

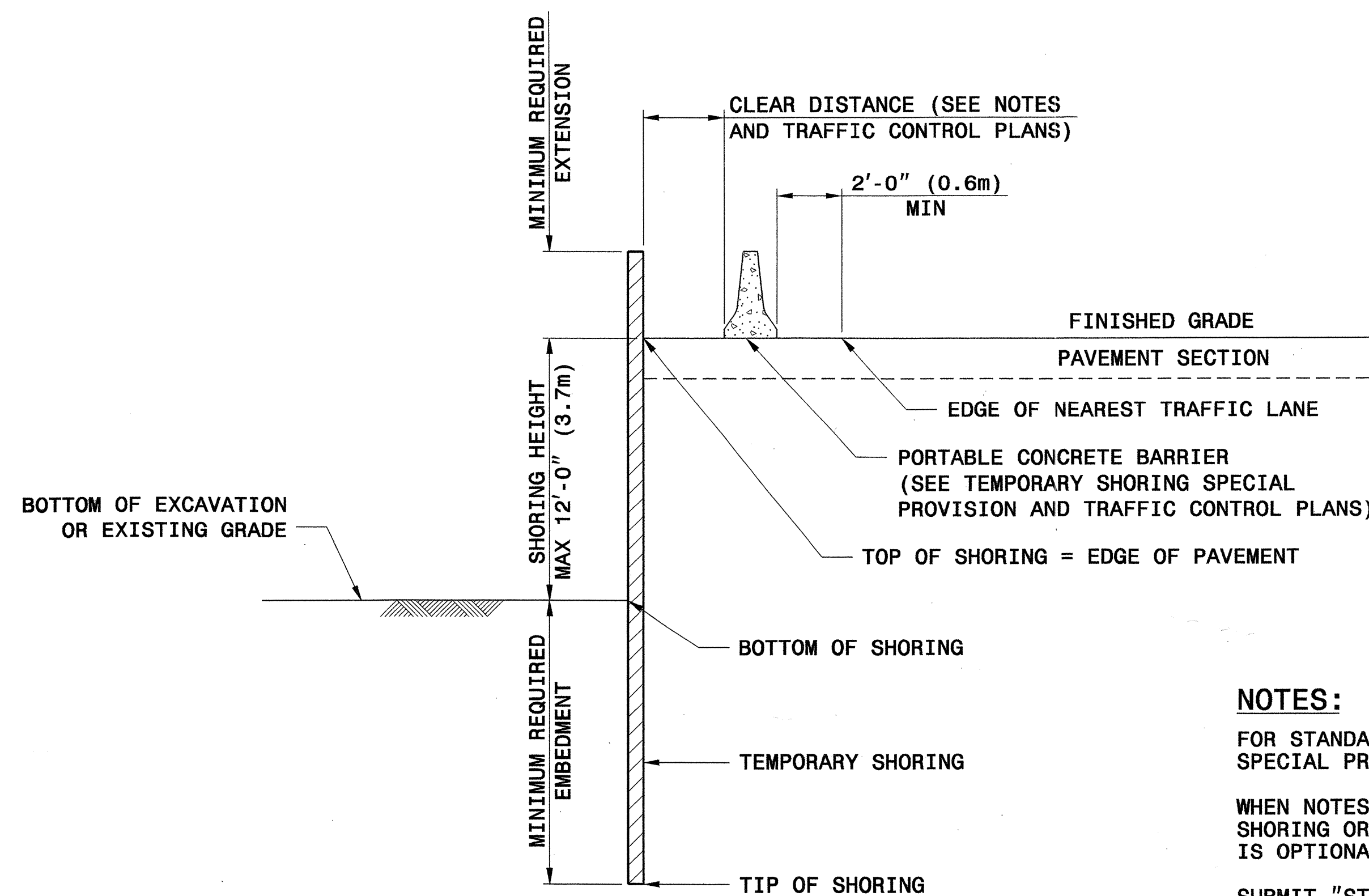
ORIGINAL BY: E.E. WARD DATE: 11-12-98
MODIFIED BY: E.E. WARD DATE: 10-10-02
CHECKED BY: *J. S. [Signature]* DATE: 9/20/11
FILE SPEC.: *usr/stand/details/bicyclesafe.dgn*

GEOTECHNICAL ENGINEER ENGINEER

Scott A. Hidden 3/29/15



SLOPE CASE



SURCHARGE CASE

NOTES:

FOR STANDARD TEMPORARY SHORING, SEE TEMPORARY SHORING SPECIAL PROVISION.

WHEN NOTES ON PLANS DO NOT PROHIBIT STANDARD TEMPORARY SHORING OR STANDARD SHORING, STANDARD TEMPORARY SHORING IS OPTIONAL.

SUBMIT "STANDARD TEMPORARY SHORING SELECTION FORM" AT LEAST 14 DAYS BEFORE BEGINNING SHORING CONSTRUCTION. UP TO THREE LOCATIONS MAY BE INCLUDED ON EACH SELECTION FORM.

STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING CONDITIONS:

- 1) MAXIMUM SHORING HEIGHT IS 12'-0" (3.7m).
- 2) TRAFFIC SURCHARGE IS 240 PSF (11.5 KPA) MAXIMUM OR BACKSLOPE IS 2:1 (H:V) OR FLATTER.
- 3) BOTTOM OF EXCAVATION OR EXISTING GRADE IN FRONT OF SHORING IS 6:1 (H:V) SLOPE OR FLATTER.
- 4) H PILE SPACING IS 6'-0" (1.8m).
- 5) H PILE EMBEDMENT DEPTHS ARE FOR DRIVEN PILES.
- 6) TIMBER LAGGING IS A MINIMUM OF 3" (75mm) THICK.

STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
 TOTAL UNIT WEIGHT = 120 PCF (18.8 KN/M³)
 FRICTION ANGLE = 30 DEGREES
 COHESION = 0 PSF (0 KPA)
 GROUNDWATER IS ASSUMED TO BE BELOW BOTTOM OF SHORING.

DO NOT USE STANDARD TEMPORARY SHORING WHEN THE ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE OR GROUNDWATER IS ABOVE THE BOTTOM OF SHORING.

DO NOT USE STANDARD TEMPORARY SHORING WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS PRESENT WITHIN THE EMBEDMENT DEPTH.

VERIFY GROUNDWATER ELEVATION BEFORE BEGINNING SHORING CONSTRUCTION.

IF THE CLEAR DISTANCE AVAILABLE IS LESS THAN THE MINIMUM REQUIRED IN ACCORDANCE WITH THE TRAFFIC CONTROL PLANS, SET THE BARRIER AGAINST THE TRAFFIC SIDE OF THE SHORING AND USE THE "SURCHARGE CASE WITH TRAFFIC IMPACT".

AT THE CONTRACTOR'S OPTION, H PILE EMBEDMENT DEPTHS FOR PILES SET IN DRILLED HOLES MAY BE REDUCED BY 25%. FOR PILE EXCAVATION, SEE TEMPORARY SHORING SPECIAL PROVISION.

CONTROL DRAINAGE DURING CONSTRUCTION IN THE VICINITY OF THE SHORING. COLLECT AND DIRECT RUNOFF AWAY FROM SHORING.

CONTACT THE ENGINEER IF MINIMUM REQUIRED EMBEDMENT IS NOT ACHIEVED.

GROUNDWATER CONDITION	SHORING HEIGHT FT (m)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H PILES WITH TIMBER LAGGING			SHEET PILES		H PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT FT (m)	MINIMUM REQUIRED SECTION MODULUS IN ³ /FT (cm ³ /m)	MINIMUM REQUIRED EMBEDMENT FT (m)			MINIMUM REQUIRED EMBEDMENT FT (m)	MINIMUM REQUIRED SECTION MODULUS IN ³ /FT (cm ³ /m)	MINIMUM REQUIRED EMBEDMENT FT (m)		
		HP 10x42 (HP 250x62)	HP 12x53 (HP 310x79)	HP 14x73 (HP 360x108)				HP 10x42 (HP 250x62)	HP 12x53 (HP 310x79)	HP 14x73 (HP 360x108)	
GROUNDWATER ELEVATION BELOW TIP OF SHORING	< 6 (1.8)	7.5 (2.3)	3.0 (161)	8.0 (2.4)	8.0 (2.4)	8.0 (2.4)	11.0 (3.4)	10.0 (538)	9.5 (2.9)	9.5 (2.9)	9.5 (2.9)
	7 (2.1)	8.5 (2.6)	4.5 (242)	9.5 (2.9)	9.5 (2.9)	9.5 (2.9)	12.0 (3.7)	12.0 (645)	10.5 (3.2)	10.5 (3.2)	10.5 (3.2)
	8 (2.4)	10.0 (3.0)	6.5 (349)	10.5 (3.2)	10.5 (3.2)	10.5 (3.2)	12.5 (3.8)	14.0 (753)	11.5 (3.5)	11.5 (3.5)	11.5 (3.5)
	9 (2.7)	11.0 (3.4)	9.5 (511)	--	12.0 (3.7)	12.0 (3.7)	13.5 (4.1)	16.5 (887)	--	12.5 (3.8)	12.5 (3.8)
	10 (3.0)	12.5 (3.8)	13.0 (699)	--	--	13.5 (4.1)	14.0 (4.3)	19.5 (1048)	--	13.5 (4.1)	13.5 (4.1)
	11 (3.4)	13.5 (4.1)	17.0 (914)	--	--	14.5 (4.4)	15.0 (4.6)	22.5 (1210)	--	--	14.5 (4.4)
	12 (3.7)	15.0 (4.6)	21.5 (1156)	--	--	16.0 (4.9)	16.0 (4.9)	25.5 (1371)	--	--	15.5 (4.7)
GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND TIP OF SHORING	< 6 (1.8)	11.5 (3.5)	4.5 (242)	11.5 (3.5)	11.5 (3.5)	11.5 (3.5)	16.0 (4.9)	12.0 (645)	13.0 (4.0)	13.0 (4.0)	13.0 (4.0)
	7 (2.1)	13.0 (4.0)	7.0 (376)	13.0 (4.0)	13.0 (4.0)	13.0 (4.0)	17.0 (5.2)	14.5 (780)	14.5 (4.4)	14.5 (4.4)	14.5 (4.4)
	8 (2.4)	15.0 (4.6)	10.0 (538)	--	15.0 (4.6)	15.0 (4.6)	18.0 (5.5)	17.0 (914)	--	15.5 (4.7)	15.5 (4.7)
	9 (2.7)	17.0 (5.2)	14.0 (753)	--	17.0 (5.2)	17.0 (5.2)	19.0 (5.8)	20.0 (1075)	--	17.0 (5.2)	17.0 (5.2)
	10 (3.0)	18.5 (5.6)	19.5 (1048)	--	--	18.5 (5.6)	20.0 (6.1)	23.5 (1263)	--	--	18.5 (5.6)
	11 (3.4)	20.5 (6.3)	26.0 (1398)	--	--	--	21.0 (6.4)	28.0 (1505)	--	--	20.0 (6.1)
	12 (3.7)	22.5 (6.9)	33.0 (1774)	--	--	--	22.0 (6.7)	33.0 (1774)	--	--	21.5 (6.6)

NOTE: MINIMUM REQUIRED EXTENSION IS 6" (150mm) FOR "SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT" AND 32" (800 mm) FOR "SURCHARGE CASE WITH TRAFFIC IMPACT".

GEOTECHNICAL ENGINEERING UNIT
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD DRAWING NO. 1801.01

STANDARD TEMPORARY SHORING

DATE: 2-20-07

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202744														
ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description
000010000-N	800	Lump Sum		MOBILIZATION	236600000-N	840	16	EA	FRAME WITH TWO GRATES, STD 840.24	471000000-E	1205	176	LF	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)
001500000-N	205	1	EA	SEALING ABANDONED WELLS	236700000-N	840	3	EA	FRAME WITH TWO GRATES, STD 840.29	481000000-E	1205	91,600	LF	PAINT PAVEMENT MARKING LINES (4")
002200000-E	225	17,500	CY	UNCLASSIFIED EXCAVATION	237400000-N	840	5	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E)	482000000-E	1205	400	LF	PAINT PAVEMENT MARKING LINES (8")
003800000-E	SP	1,000	CY	SHALLOW UNDERCUT	237400000-N	840	14	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F)	483500000-E	1205	30	LF	PAINT PAVEMENT MARKING LINES (24")
005000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING	237400000-N	840	8	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G)	484500000-N	1205	15	EA	PAINT PAVEMENT MARKING SYMBOL
005700000-E	226	1,425	CY	UNDERCUT EXCAVATION	237400000-N	SP	2	EA	GENERIC DRAINAGE ITEM BICYCLE SAFE STEEL GRATE AND FRAME	484700000-E	1205	42,408	LF	POLYUREA PAVEMENT MARKING LINES (4", *****) (HIGHLY REFLECTIVE ELEMENTS)
006300000-N	SP	Lump Sum		GRADING	247300000-N	SP	2	EA	GENERIC DRAINAGE ITEM BICYCLE SAFE STEEL GRATE AND FRAME	485000000-E	1205	1,000	LF	REMOVAL OF PAVEMENT MARKING LINES (4")
008000000-E	SP	1,900	TON	CLASS IV SUBGRADE STABILIZATION	253500000-E	846	870	LF	***X*** CONCRETE CURB (9" X 12")	490500000-N	1253	210	EA	SNOWPLOWABLE PAVEMENT MARKERS
013400000-E	240	410	CY	DRAINAGE DITCH EXCAVATION	254900000-E	846	4,640	LF	2'-6" CONCRETE CURB & GUTTER	532520000-E	1510	38	LF	2" WATER LINE
019500000-E	SP	2,300	CY	SELECT GRANULAR MATERIAL	255600000-E	846	425	LF	SHOULDER BERM GUTTER	532560000-E	1510	3,187	LF	6" WATER LINE
019600000-E	270	2,400	SY	FABRIC FOR SOIL STABILIZATION	259100000-E	848	1,380	SY	4" CONCRETE SIDEWALK	553600000-E	1515	1	EA	2" VALVE
019900000-E	SP	330	SF	TEMPORARY SHORING	261200000-E	848	400	SY	6" CONCRETE DRIVEWAY	554000000-E	1515	13	EA	6" VALVE
023400000-E	SP	100	CY	GENERIC GRADING ITEM STOCKPILING OF CONTAMINATED SOIL	261900000-E	850	220	SY	4" CONCRETE PAVED DITCH	564800000-N	1515	7	EA	RELOCATE WATER METER
024100000-E	SP	1,200	SY	GENERIC GRADING ITEM GEOTEXTILE FOR PAVEMENT STABILIZATION	261900000-E	850	220	SY	4" CONCRETE PAVED DITCH	564900000-N	1515	6	EA	RECONNECT WATER METER
031800000-E	SP	590	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS	275900000-N	SP	16	EA	GENERIC PAVING ITEM CONCRETE CURB RAMPS	567200000-N	1515	4	EA	RELOCATE FIRE HYDRANT
032000000-E	SP	2,383	SY	FOUNDATION CONDITIONING FABRIC	303000000-E	862	1,362.5	LF	STEEL BM GUARDRAIL	569130000-E	1520	50	LF	8" SANITARY GRAVITY SEWER
033520000-E	SP	2,312	LF	15" DRAINAGE PIPE	304500000-E	862	250	LF	STEEL BM GUARDRAIL, SHOP CURVED	577500000-E	1525	1	EA	4" DIA UTILITY MANHOLE
033530000-E	SP	600	LF	18" DRAINAGE PIPE	315000000-N	862	10	EA	ADDITIONAL GUARDRAIL POSTS	580000000-E	1530	2,895	LF	ABANDON 6" UTILITY PIPE
033540000-E	SP	480	LF	24" DRAINAGE PIPE	319500000-N	862	3	EA	GUARDRAIL ANCHOR UNITS, TYPE AT-1	600000000-E	1605	13,000	LF	TEMPORARY SILT FENCE
033560000-E	SP	176	LF	36" DRAINAGE PIPE	327000000-N	SP	11	EA	GUARDRAIL ANCHOR UNITS, TYPE 350	600600000-E	1610	1,200	TON	STONE FOR EROSION CONTROL, CLASS A
034300000-E	SP	80	LF	15" SIDE DRAIN PIPE	336000000-E	863	250	LF	REMOVE EXISTING GUARDRAIL	600900000-E	1610	660	TON	STONE FOR EROSION CONTROL, CLASS B
034400000-E	SP	56	LF	18" SIDE DRAIN PIPE	357500000-E	SP	480	LF	GENERIC FENCING ITEM BLACK VINYL COATED CHAIN LINK FENCE, 48" FABRIC ON RETAINING WALL	601200000-E	1610	1,170	TON	SEDIMENT CONTROL STONE
057600000-E	SP	136	LF	*** CS PIPE CULVERTS, ***** THICK (60", 0.168")	357800000-N	SP	40	EA	GENERIC FENCING ITEM BLACK VINYL COATED METAL LINE POSTS FOR 48" CHAIN LINK FENCE	601500000-E	1615	9.5	ACR	TEMPORARY MULCHING
058200000-E	SP	36	LF	15" CS PIPE CULVERTS, 0.064" THICK	357800000-N	SP	2	EA	GENERIC FENCING ITEM BLACK VINYL COATED METAL TERMINAL POSTS FOR 48" CHAIN LINK FENCE	601800000-E	1620	250	LB	SEED FOR TEMPORARY SEEDING
058800000-E	SP	8	LF	18" CS PIPE CULVERTS, 0.064" THICK	364900000-E	876	42	TON	RIP RAP, CLASS B	602100000-E	1620	2	TON	FERTILIZER FOR TEMPORARY SEEDING
059400000-E	SP	44	LF	24" CS PIPE CULVERTS, 0.064" THICK	365600000-E	876	1,415	SY	FILTER FABRIC FOR DRAINAGE	602400000-E	1622	900	LF	TEMPORARY SLOPE DRAINS
063600000-E	SP	2	EA	*** CS PIPE ELBOWS, ***** THICK (15", 0.064")	365900000-N	SP	2	EA	PREFORMED SCOUR HOLES WITH LEVEL SPREADER APRON	602700000-N	1622	18	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
063600000-E	SP	2	EA	*** CS PIPE ELBOWS, ***** THICK (24", 0.064")	407200000-E	903	901	LF	SUPPORTS, 3-LB STEEL U-CHANNEL	602900000-E	SP	1,100	LF	SAFETY FENCE
099500000-E	340	500	LF	PIPE REMOVAL	409600000-N	904	4	EA	SIGN ERECTION, TYPE D	603000000-E	1630	1,850	CY	SILT EXCAVATION
111000000-E	510	500	TON	STABILIZER AGGREGATE	410200000-N	904	22	EA	SIGN ERECTION, TYPE E	603600000-E	1631	13,000	SY	MATTING FOR EROSION CONTROL
122000000-E	545	150	TON	INCIDENTAL STONE BASE	410800000-N	904	11	EA	SIGN ERECTION, TYPE F	603700000-E	SP	1,575	SY	COIR FIBER MAT
129700000-E	607	9,150	SY	MILLING ASPHALT PAVEMENT, **** DEPTH (1-1/2")	415500000-N	907	39	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	603800000-E	SP	650	SY	PERMANENT SOIL REINFORCEMENT MAT
148900000-E	610	4,200	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B	415800000-N	907	15	EA	DISPOSAL OF SIGN SYSTEM, WOOD	604200000-E	1632	3,125	LF	1/4" HARDWARE CLOTH
149800000-E	610	3,000	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE 119.0B	440000000-E	1110	617	SF	WORK ZONE SIGNS (STATIONARY)	604500000-E	SP	100	LF	*** TEMPORARY PIPE (24")
151900000-E	610	6,100	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	440500000-E	1110	211	SF	WORK ZONE SIGNS (PORTABLE)	604800000-E	SP	220	SY	FLOATING TURBIDITY CURTAIN
157500000-E	SP	695	TON	ASPHALT BINDER FOR PLANT MIX	441000000-E	1110	209	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)	607000000-N	SP	8	EA	SPECIAL STILLING BASINS
169300000-E	654	175	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR	442000000-N	1120	2	EA	CHANGEABLE MESSAGE SIGN	6071012000-E	SP	1,500	LF	COIR FIBER WATTLE
202200000-E	SP	67.2	CY	SUBDRAIN EXCAVATION	443000000-N	1130	250	EA	DRUMS	6071020000-E	SP	650	LB	POLYACRYLAMIDE (PAM)
203300000-E	SP	50.4	CY	SUBDRAIN FINE AGGREGATE	443500000-N	1135	25	EA	CONES	6071030000-E	SP	460	LF	COIR FIBER BAFFLE
204400000-E	SP	300	LF	6" PERFORATED SUBDRAIN PIPE	444500000-E	1145	160	LF	BARRICADES (TYPE III)	6071050000-E	SP	6	EA	*** SKIMMER (1-1/2")
207000000-N	SP	1	EA	SUBDRAIN PIPE OUTLETS	445000000-N	1150	360	MD	FLAGGER	608400000-E	1660	9	ACR	SEEDING & MULCHING
207700000-E	SP	6	LF	6" OUTLET PIPE (SUBDRAINS)	445500000-N	1150	360	MD	FLAGGER	608700000-E	1660	3	ACR	MOWING
220900000-E	838	4	CY	ENDWALLS	448000000-N	1165	1	EA	TMA	609000000-E	1661	100	LB	SEED FOR REPAIR SEEDING
222000000-E	838	8.3	CY	REINFORCED ENDWALLS	450700000-E	SP	500	LF	WATER FILLED BARRIER	609600000-E	1662	175	LB	SEED FOR SUPPLEMENTAL SEEDING
225300000-E	840	1	CY	PIPE COLLARS	451000000-N	SP	16	HR	LAW ENFORCEMENT	610800000-E	1665	4.75	TON	FERTILIZER TOPDRESSING
227500000-E	SP	44	CY	FLOWABLE FILL	451600000-N	1180	40	EA	SKINNY DRUM	611100000-E	SP	160	LF	IMPERVIOUS DIKE
228600000-N	840	50	EA	MASONRY DRAINAGE STRUCTURES	465000000-N	1251	170	EA	TEMPORARY RAISED PAVEMENT MARKERS	611450000-N	SP	100	MHR	SPECIALIZED HAND MOWING
230800000-E	840	13	LF	MASONRY DRAINAGE STRUCTURES	469500000-E	1205	190	LF	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)	611700000-N	SP	100	EA	RESPONSE FOR EROSION CONTROL
					469700000-E	1205	109	LF	THERMOPLASTIC PAVEMENT MARKING LINES (8", 120 MILS)	612300000-E	1670	0.25	ACR	REFORESTATION
										700000000-E	1705	2	EA	PEDESTRIAN SIGNAL HEAD (**, ** SECTION) (16' 1" SECTION WITH COUNT-DOWN)

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STATE OF NORTH CAROLINA
SUMMARY OF QUANTITIES

PROJECT REFERENCE No.	SHEET No.
U-3812	3
SHEET 2 of 2	

ItemNumber	Sec #	Quantity	Unit	Description
7060000000-E	1705	1,805	LF	SIGNAL CABLE
7120000000-E	1705	13	EA	VEHICLE SIGNAL HEAD (12", 3 SECTION)
7132000000-E	1705	2	EA	VEHICLE SIGNAL HEAD (12", 4 SECTION)
7144000000-E	1705	2	EA	VEHICLE SIGNAL HEAD (12", 5 SECTION)
7264000000-E	1710	695	LF	MESSENGER CABLE (3/8")
7288000000-E	1715	85	LF	PAVED TRENCHING (*****) (1, 2')
7300000000-E	1715	735	LF	UNPAVED TRENCHING (*****) (1, 2')
7324000000-N	1716	10	EA	JUNCTION BOX (STANDARD SIZE)
7444000000-E	1725	1,495	LF	INDUCTIVE LOOP SAWCUT
7456000000-E	1726	2,660	LF	LEAD-IN CABLE (*****) (14-2)
7576000000-N	SP	8	EA	METAL STRAIN SIGNAL POLE
7613000000-N	SP	8	EA	SOIL TEST
7614100000-E	SP	48	CY	DRILLED PIER FOUNDATION
7684000000-N	1750	2	EA	SIGNAL CABINET FOUNDATION
7756000000-N	1751	2	EA	CONTROLLER WITH CABINET (TYPE 2070L, BASE MOUNTED)
7780000000-N	1751	9	EA	DETECTOR CARD (TYPE 2070L)
7901000000-N	1753	2	EA	CABINET BASE EXTENDER

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK
 IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT + %	BORROW	WASTE
SUMMARY No. 1 (Area 1, Phase 1)					
-L- Sta. 10+15.28 to Sta. 13+00 (L/RT)	10		4,701	4,691	
-L- Sta. 13+00.00 to Sta. 15+50(RT)	101		635	534	
-Y- Sta. 10+55.00 to Sta. 16+00.00	306		805	499	
SUBTOTAL SUMMARY No. 1 (Area 1, Phase 1)	417		6,141	5,724	
SUMMARY No. 2 (Area 2, Phase 1)					
-L- Sta. 49+50.00 to Sta. 63+00.00	11,133	125	3,318		7,940
-Y1A- Sta. 10+12.35 to Sta. 10+40.00	3		128	125	
-Y2- Sta. 10+19.00 to Sta. 11+25.00	213		89		124
SUBTOTAL SUMMARY No. 2 (Area 2, Phase 1)	11,349	125	3,535	125	8,064
SUMMARY No. 3 (Area 2, Phase 1)					
-L- Sta. 63+00.00 to Sta. 88+10.21 (LT)	1,231	100	4,279	3,048	100
-Y6- Sta. 10+20.91 to Sta. 11+65.00	520		9		511
SUBTOTAL SUMMARY No. 3 (Area 2, Phase 1)	1,751	100	4,288	3,048	611
SUBTOTAL SUMMARY's 1 thru 3 (Phase 1)	13,517	225	13,964	8,897	8,675
SUMMARY No. 4 (Area 1, Phase 2)					
-L- Sta. 13+00.00 to Sta. 15+50.00 (LT)	6		167	161	
-Y- Sta. 16+00.00 to Sta. 20+00.00	2,583		299		2,284
SUBTOTAL SUMMARY No. 4 (Area 1, Phase 2)	2,589		466	161	2,284
SUMMARY No. 5 (Area 1, Phase 2)					
-L- Sta. 61+67.00 to Sta. 88+10.21 (RT)	2,381		1,400		981
-Y1A- 10+40.00 TO 11+35.00	1		68	67	
-Y5- 10+25 TO 11+46.90			261	261	
SUBTOTAL SUMMARY No. 5 (Area 1, Phase 2)	2,382		1,729	328	981
SUBTOTAL SUMMARY's 4 thru 5 (Phase 2)	4,971	0	2,195	489	3,265
SUMMARIES TOTAL	18,488	225	16,159	9,386	11,940
MATERIAL FOR SHOULDER CONSTRUCTION			1,501	1,501	
LOSS DUE TO CLEARING AND GRUBBING	-1,100			1,100	
WASTE IN LIEU OF BORROW				-11,715	-11,715
PROJECT TOTAL	17,388	225	17,660	272	225
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT ADDITIONAL UNDERCUT		1,200		14	
PROJECT GRAND TOTAL	17,388	1,425	17,660	286	1,425
SAY	17,500	1,425		300	
EST. DRAINAGE DITCH EXCAVATION	410				
SHALLOW UNDERCUT	1,000				
CLASS IV SUBGRADE STABILIZATION	1,900 TONS				
		FROM GEOTECH LETTER DATED JUNE 2,2009			
		FROM GEOTECH LETTER DATED JUNE 2,2009			

NOTE: Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

NOTE: Approximate Quantities ONLY. Borrow Excavation, Fine Grading, Clearing & Grubbing, Removal of Existing Pavement will be Paid for at the Lump Sum Price for "GRADING".

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PARCEL INDEX

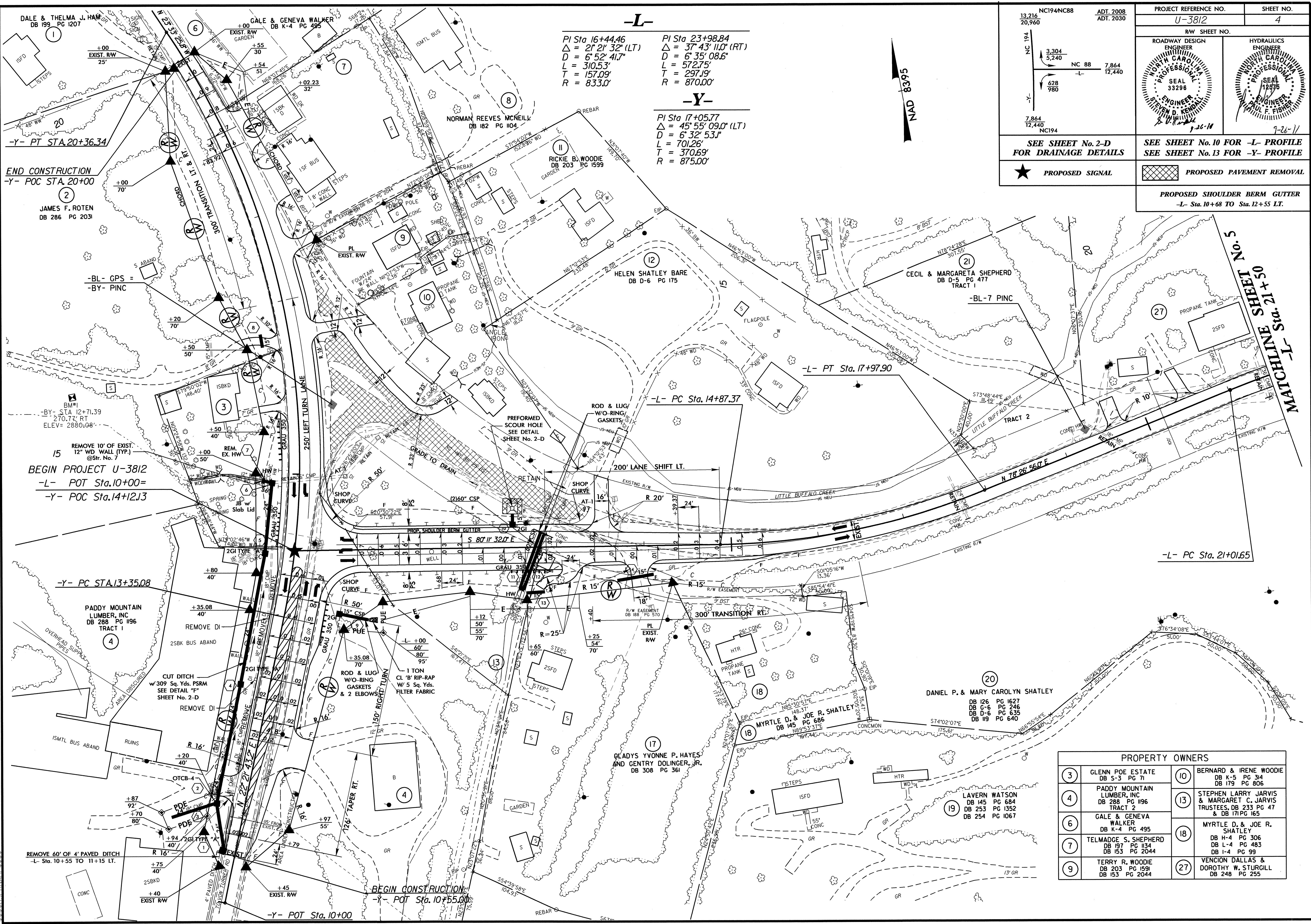
PARCEL No.	SHEET No.	PROPERTY OWNER NAME	PARCEL No.	SHEET No.	PROPERTY OWNER NAME	PARCEL No.	SHEET No.	PROPERTY OWNER NAME	PARCEL No.	SHEET No.	PROPERTY OWNER NAME
1	4	DALE & THELMA J. HAM	33	5	JOHN R. BARKER	58	8	ROSS H. & MARY G. JONES	82	8	PHYLLIS JANET NEAVES ESTATE
2	4	JAMES F. ROTEN	34	5, 6	LEROY S. MEAD	59	8	BOBBY & ROSA L. TYSINGER	83	8	ROLAND R. & CATHERINE B. HARDY
3	4	GLENN POE ESTATE	35	6	ROBERT L. & CAROL M. HOLICK	60	8	HERBERT & REVA BARD	84	8	MARTIN F. WOODRUFF
4	4	PADDY MOUTAIN LUMBER, INC.	36	6	MYRTLE RUTH HALSEY	61	8	LEROY D. KENNELL	85	8, 9	JOSEPH R. NEAL
6	4	GALE & GENEVA WALKER	37	6	RICHARD K. & PHYLLIS R. ASHLEY	62	8	JEFFERY E. MAYNOR & TERRI B. MAYNOR	86	8, 9	NEW RIVER BEHAVIORAL HEALTHCARE PREVENTION FOUND.
7	4	TELMADGE S. SHEPHERD	38	6	VERONICA H. GUZMAN			NELSE L. & INA HIMELRIGHT OSBORNE	87	9	SARAH GORDON NEAL
8	4	NORMAN REEVES McNEEL	39	6	McFARLAND & COMPANY, INC.	63	8		88	9	TOWN OF JEFFERSON
9	4	TERRY R. WOODIE	40	6	MARC C. & SHELBY M. WADDELL			JOHNNY L. & MARY S. LYALL	89	9	DAVID S. & TERI S. KNAPP
10	4	BERNARD & IRENE WOODIE	41	6	BAXTER & MARIE GRUBB	64	8	NORTH CAROLINA COUNCIL OF ASSEMBLIES OF GOD, INC.	90	9	JOAN ROAN
11	4	RICKIE B. WOODIE	42	6	UNKNOWN OWNER	65	8		91	9	THOMAS D. & VICTORIA HERMAN
12	4	HELEN SHATLEY BARE	43	6	JAMES & BEULAH HAM			DAVID ASHLEY	92	9	JOHN CHRISTOPHER BARR, ET. AL.
13	4	STEPHEN & MARGARET JARVIS	44	6	SERAFIN RUIZ & ROCIO ALEJANDRA LARA HERNANDEZ	66	8	KINGDOM HALL OF JEHOVAH'S WITNESSES TRUSTEES	93	9	E. TRUIETT Jr. & MAREA B. WEAVER
17	4	GLADYS YVONNE P. HAYES				67	8		94	9	JOSEPH H. GWYN
18	4	MYRTLE D. & JOE R. SHATLEY	45	6	FRANCISCO LEDEZMA BARRIENTOS & AUSENCIA ABUNDIZ DELEDEZMA			JOHN WILLIAMS & MARY ELIZABETH ROTEN, ET. AL.	95	9	EVELYN L. FREEMAN
19	4	LAVERN WATSON				68	8		96	9	F. KENNETH & BONNIE J. LANE
20	4,5	DANIEL P. & MARY CAROLYN SHATLEY	46	6	GLENN & RUTH TRIVETTE			CONLEY W. SHEPHERD & MICHAEL L. SHEPHERD	97	9	JERROLD W. ASHLEY
			47	6	ROBERT McFARLAND FRANKLIN & CHERYL JANE ROBERTS	69	8		98	9	BARKER BROTHERS
21	4	CECIL & MARGARETA SHEPHERD						ROBERT G. & DEBRA E. POE, ET. AL.	99	9	DARREL & DARLENE POE, RICHARD & MICHELLE HAMBY
22	5	HOWARD & EDITH ROSE	48	6, 7	McFARLAND & COMPANY, INC.	70	8	PRICILLA L. NORRIS & CLAYTON E. NORRIS			
23	5	HAROLD & DELLA STANSBERRY	49	6	CLAUDE & VIRGINIA ASHLEY	71	8		100	9	GEORGE TIMOTHY & SANDY W. SHATLEY
24	5	CURTIS & SHARON SHEPHERD	50	6, 7	ROBERT McFARLAND FRANKLIN & CHERYL JANE ROBERTS			SAMUEL GUTIERREZ & ELIDA GUTIERREZ			
25	5	EMMETT R. & ANNE LEWIS				72	8		101	9	LEROY S. MEAD
26	5	E. HESTER & FAYE T. LEWIS	51	6, 7	Mt. PADDY CHRISTIAN UNION CHURCH			ERNIE CARPENTER & DAVID BARR SELF-HELP CREDIT UNION	102	9	GALE S. & JUANITA D. ROARK
27	4, 5	VENCION DALLAS & DORTHY W. STURGILL	52	7	RICHARD K. & PHILLIS R. ASHLEY	73	8		103	9	JEFFERSON UNITED METHODIST CHURCH TRUSTEES
						74	8	BETTY C. CROWDER			
28	5	BLUE RIDGE ELECTRIC MEMBERSHIP CORPORATION	53	7	JACK RUDOLPH & DONNA J. NEAL	75	8	WILLIAM T. & NORMA RUPAED	104	9	VERONICA H. GUZMAN
			54	7, 8	GWYN PARK LITTLE	76	8		105	9	GEORGE TIMOTHY & SANDRA W. SHATLEY
29	5	JAMES F. & ALLSYA M. ROTEN	55	7	CYRIL EDWARD & MAUREEN HARRINGTON HUNTE (TRACT 1)	77	8	R. C. & ZELMA MILLER			
30	5	ARTHUR STURGILL				78	8	BLANCH W. BARKER			
31	5	VENCION DALLAS & DORTHY W. STURGILL	55	7	CYRIL EDWARD & MAUREEN HARRINGTON HUNTE (TRACT 2)	79	8	LARRY RODGER & LINDA C. COLDIRON	106	9	MARC C. & SHELBY M. WADDELL
									107	9	BAXTER & MARIE GRUBB
32	5	JOHNNY ARVIL & DEBORAH M. STURGILL	56	7	DAVID W. MILLER	80	8	JOHN W. & MARTHA BADGER	112	9	JEFFERSON SUPERMARKET CO WILDA GREEN, ET. AL.
			57	8	DAVID W. MILLER	81	8	AMANDA K. BARKER LE			

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-L-

PI Sta 16+44.46
 $\Delta = 2^\circ 21' 32''$ (LT)
 $D = 6^\circ 52' 41.7''$
 $L = 310.53'$
 $T = 157.09'$
 $R = 833.0'$

PI Sta 23+98.84
 $\Delta = 37^\circ 43' 11.0''$ (RT)
 $D = 6^\circ 35' 08.6''$
 $L = 572.75'$
 $T = 297.19'$
 $R = 870.00'$

-Y-

PI Sta 17+05.77
 $\Delta = 45^\circ 55' 09.0''$ (LT)
 $D = 6^\circ 32' 53.1''$
 $L = 701.26'$
 $T = 370.69'$
 $R = 875.00'$

13.216 20,960 NC194NC88	ADT. 2008 ADT. 2030	PROJECT REFERENCE NO. U-3812	SHEET NO. 4
		RW SHEET NO.	
SEE SHEET No. 2-D FOR DRAINAGE DETAILS		SEE SHEET No. 10 FOR -L- PROFILE SEE SHEET No. 13 FOR -Y- PROFILE	
PROPOSED SIGNAL		PROPOSED PAVEMENT REMOVAL	
PROPOSED SHOULDER BERM GUTTER -L- Sta. 10+68 TO Sta. 12+55 LT.			

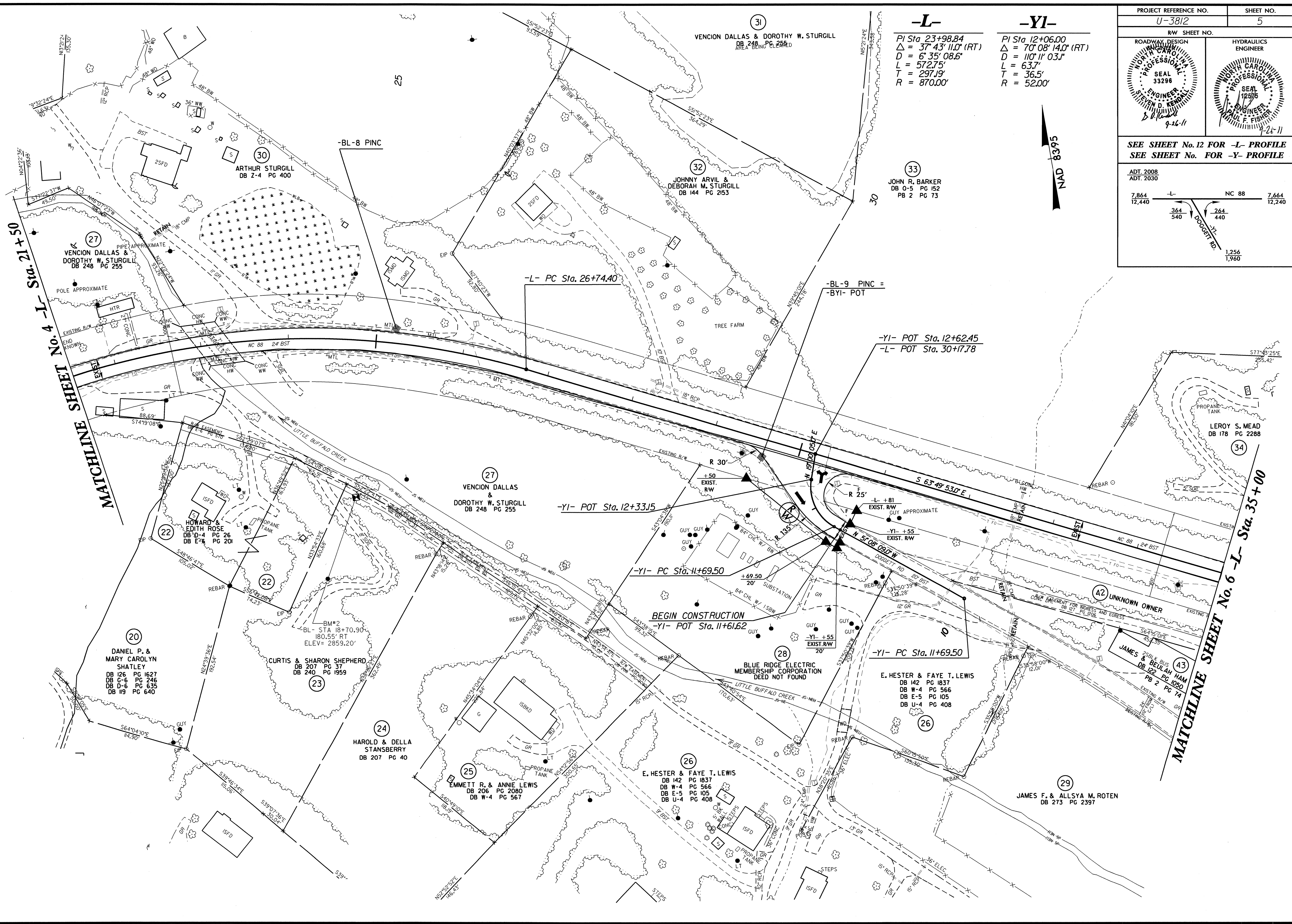
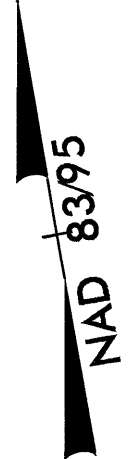
MATCHLINE SHEET No. 5
 -L- Sta. 21+50

PROPERTY OWNERS			
3	GLENN POE ESTATE DB K-5 PG 34 DB S-3 PG 71	10	BERNARD & IRENE WOODIE DB K-5 PG 314 DB I79 PG 806
4	PADDY MOUNTAIN LUMBER, INC DB 288 PG 196 TRACT 2	13	STEPHEN LARRY JARVIS & MARGARET C. JARVIS TRUSTEES, DB 233 PG 47 & DB 171 PG 165
6	GALE & GENEVA WALKER DB K-4 PG 495	18	MYRTLE D. & JOE R. SHATLEY DB H-4 PG 306 DB L-4 PG 483 DB I-4 PG 99
7	TELMADGE S. SHEPHERD DB 197 PG 134 DB 153 PG 2044	27	VENCION DALLAS & DOROTHY W. STURGILL DB 248 PG 255
9	TERRY R. WOODIE DB 203 PG 1591 DB 153 PG 2044		

PROJECT REFERENCE NO. U-3812	SHEET NO. 5
RW SHEET NO.	
ROADWAY DESIGN SEAL 33296 9-26-11	HYDRAULICS ENGINEER SEAL 12505 9-26-11
SEE SHEET No. 12 FOR -L- PROFILE SEE SHEET No. FOR -Y- PROFILE	
ADT. 2008 ADT. 2030	

-L-
 PI Sta 23+98.84
 $\Delta = 37^\circ 43' 11.0''$ (RT)
 $D = 6' 35.086'$
 $L = 572.75'$
 $T = 297.19'$
 $R = 870.00'$

-YI-
 PI Sta 12+06.00
 $\Delta = 70^\circ 08' 14.0''$ (RT)
 $D = 110' 11' 03.1''$
 $L = 637'$
 $T = 36.5'$
 $R = 52.00'$



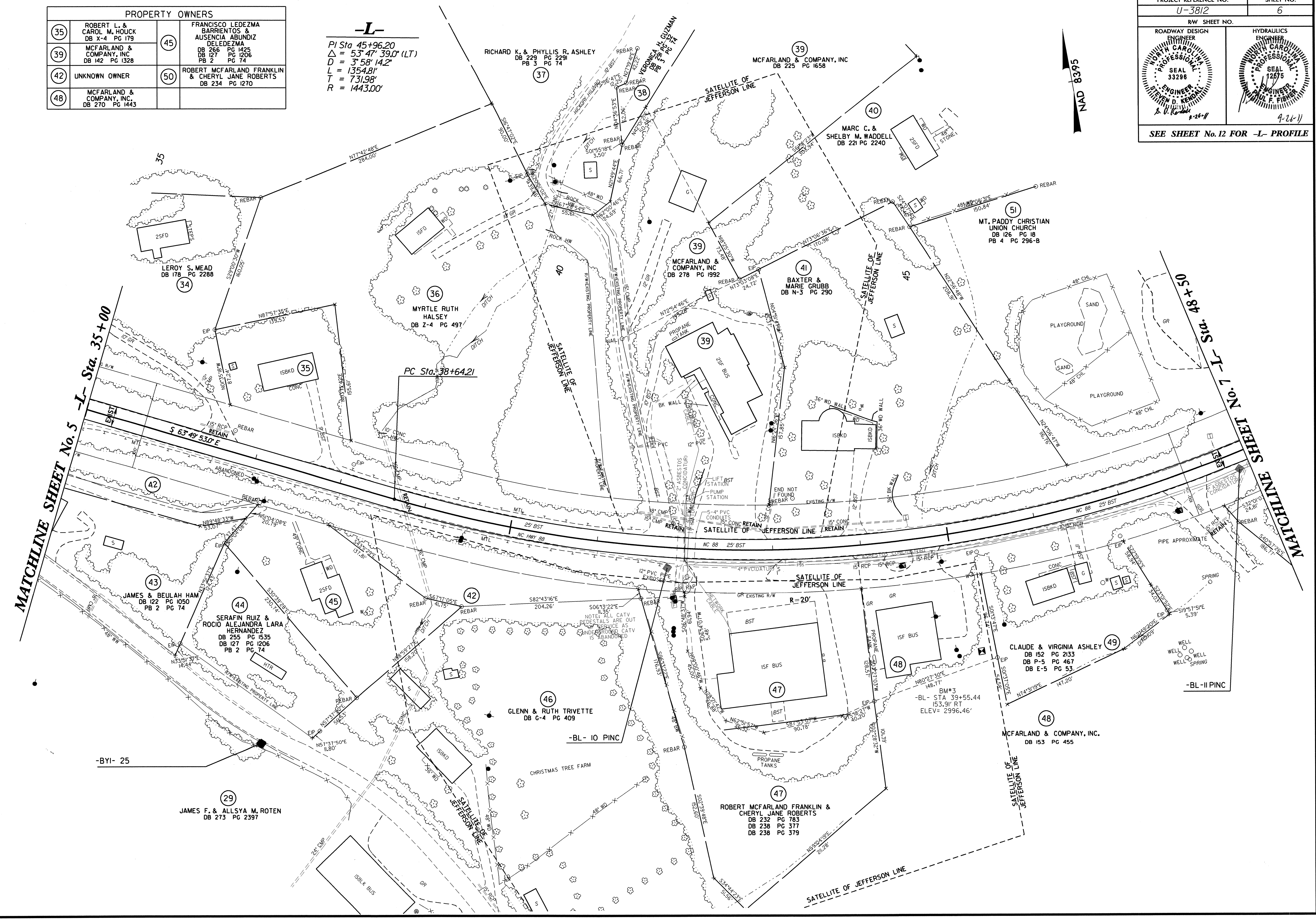
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PROJECT REFERENCE NO. U-3812	SHEET NO. 6
RAW SHEET NO.	
ROADWAY DESIGN ENGINEER SEAL 33298 STEVEN D. SEMALL S. D. Semall 4-26-11	HYDRAULICS ENGINEER SEAL 12675 DANIEL E. FISHER 4-26-11
SEE SHEET No. 12 FOR -L- PROFILE	

PROPERTY OWNERS			
35	ROBERT L. & CAROL M. HOUCK DB X-4 PG 179	45	FRANCISCO LEDEZMA BARRIENTOS & AUSENCIA ABUNDIZ DELEDEZMA DB 266 PG 1425 DB 127 PG 1206 PB 2 PG 74
39	MCFARLAND & COMPANY, INC. DB 142 PG 1328	50	ROBERT MCFARLAND FRANKLIN & CHERYL JANE ROBERTS DB 234 PG 1270
42	UNKNOWN OWNER		
48	MCFARLAND & COMPANY, INC. DB 270 PG 1443		

-L-
 $PI\ Sta\ 45+96.20$
 $\Delta = 53^{\circ}47'39.0''(LT)$
 $D = 3'58'14.2''$
 $L = 1354.81'$
 $T = 731.98'$
 $R = 1443.00'$

NAD 8395




MATCHLINE SHEET No. 5 -L- Sta. 35+00

MATCHLINE SHEET No. 7 -L- Sta. 48+80.00

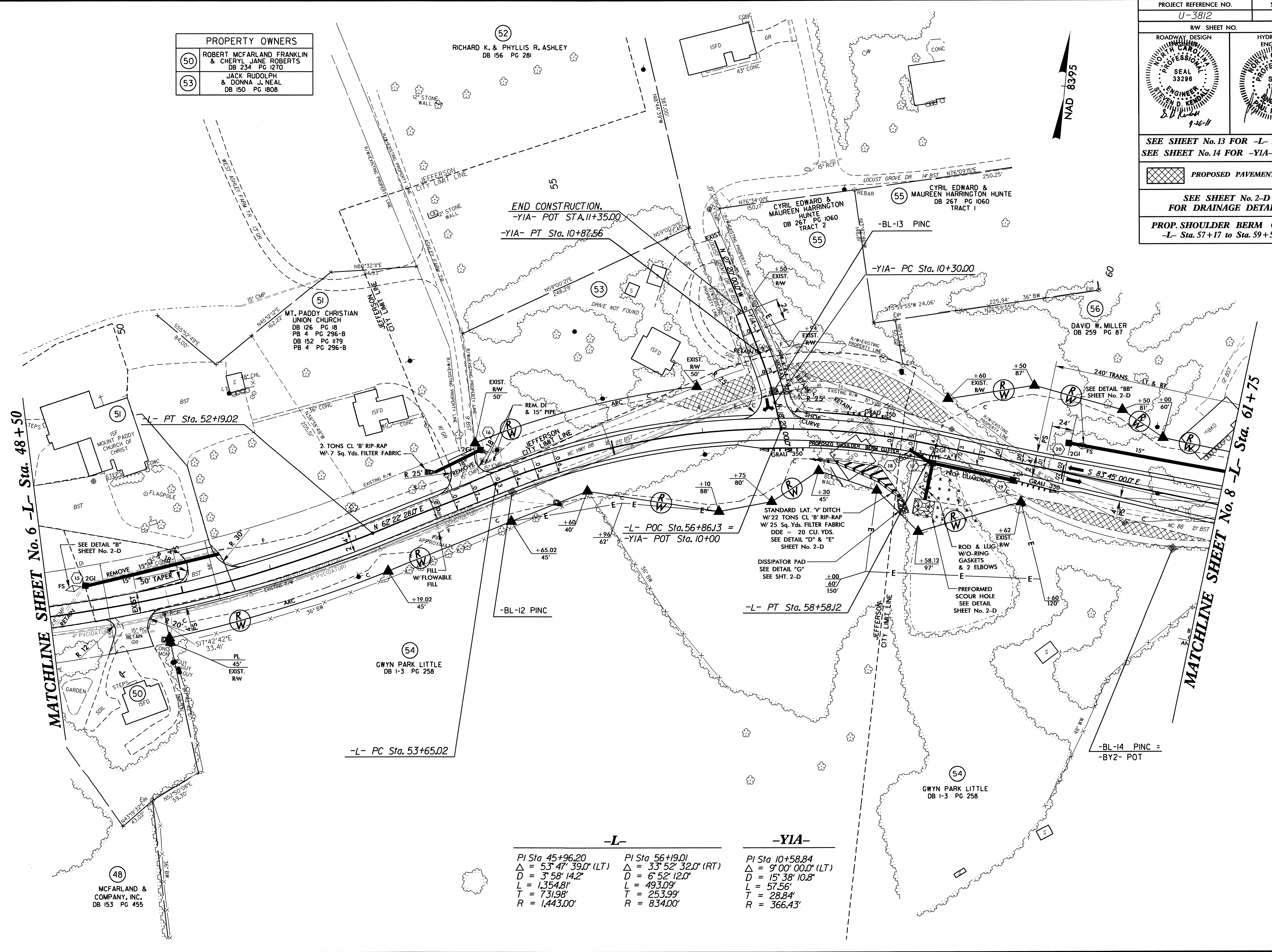
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PROJECT REFERENCE NO. U-3812	SHEET NO. 7
RW SHEET NO.	
ROADWAY DESIGN SEAL 33296 9-26-11	HYDRAULICS ENGINEER SEAL 12579 9-26-11
SEE SHEET No. 13 FOR -L- PROFILE SEE SHEET No. 14 FOR -YIA- PROFILE	
 PROPOSED PAVEMENT REMOVAL	
SEE SHEET No. 2-D FOR DRAINAGE DETAILS	
PROP. SHOULDER BERM GUTTER -L- Sta. 57+17 to Sta. 59+55 RT.	

PROPERTY OWNERS	
50	ROBERT MCFARLAND FRANKLIN & CHERYL JANE ROBERTS DB 234 PG 1270
53	JACK RUDOLPH & DONNA J. NEAL DB 150 PG 1808



-L-	-YIA-	-L-
PI Sta 45+96.20	PI Sta 56+19.01	PI Sta 10+58.84
Δ = 53° 47' 39.0" (LT)	Δ = 33° 52' 32.0" (RT)	Δ = 9° 00' 00.0" (LT)
D = 3' 58' 14.2"	D = 6' 52' 12.0"	D = 15' 38' 10.8"
L = 1,354.81'	L = 493.09'	L = 57.56'
T = 731.98'	T = 253.99'	T = 28.84'
R = 1,443.00'	R = 834.00'	R = 366.43'

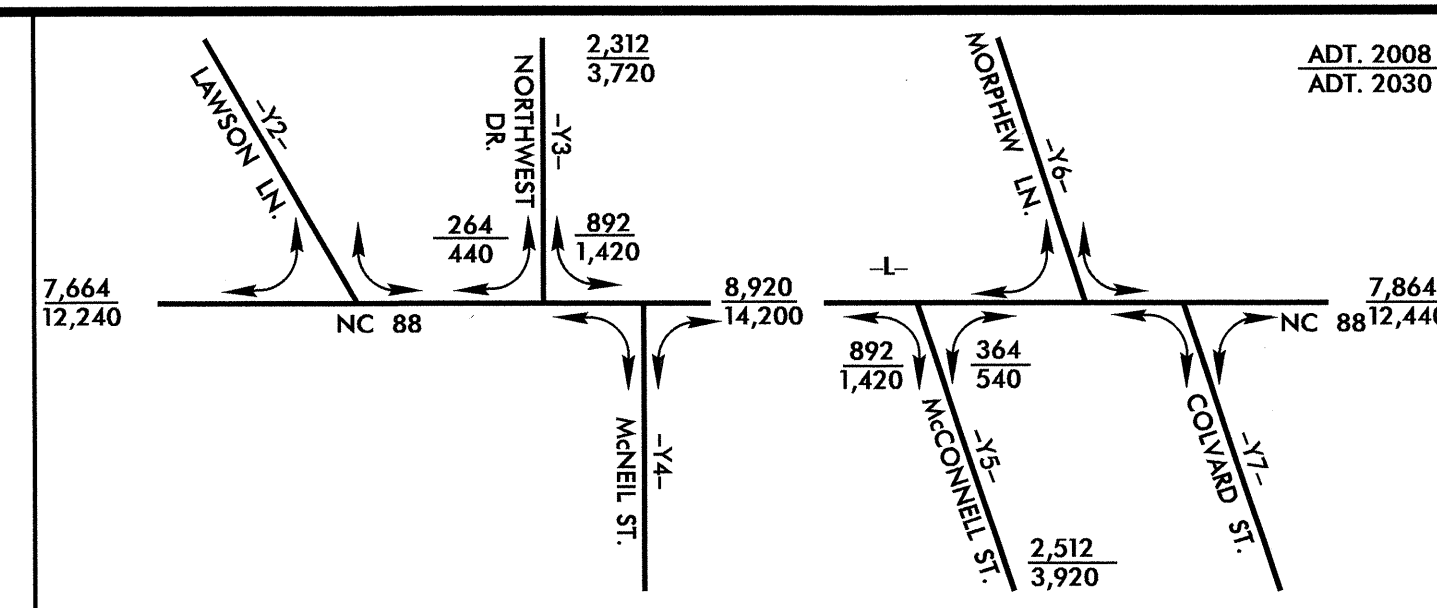
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PROPERTY OWNERS			
(62)	JEFFERY E. MAYNOR TERRI B. MAYNOR DB 323 PG 2124 PB 1 PG 56	(72)	SAMUEL GUTIERREZ & ELIDA GUTIERREZ DB 356 PG 1940 PB 2 PG 83
(63)	NELSE L. & INA HIMELRIGHT OSBORNE DB 245 PG 981 PB 1 PG 56	(73)	ERNIE CARPENTER & DAVID BARR DB 277 PG 1491 PB 2 PG 83
(68)	JOHN WILLIAM & MARY ELIZABETH ROTEN, ETAL DB 279 PG 41 PB 2 PG 83	(75)	BETTY C. CROWDER DB 148 PG 473 PB 3 PG 140
(69)	CONLEY W. SHEPHERD & MICHAEL L. SHEPHERD DB 399 PG 1758 PB 2 PG 83	(81)	AMANDA K. BARKER L/E DB 254 PG 1050 PB 1 PG 16
(70)	ROBERT G. & DEBRA E. POE, ET AL DB 197 PG 2459 PB 2 PG 83	(82)	PHYLIS JANET NEAVES DB 167 PG 2169 PB 1 PG 16 07 E 287
(71)	PRISCILLA L. NORRIS & CLAYTON E. NORRIS DB 378 PG 1503 PB 2 PG 83	(86)	NEW RIVER BEHAVIORAL HEALTHCARE PREVENTION FOUNDATION DB 270 PG 135 PB 1 PG 16

-L-

PI Sta 65+59.12 Δ = 0° 36' 20.0" (RT) D = 1'08" 45.3" L = 52.84' T = 26.42' R = 5,000.00'	PI Sta 72+74.91 Δ = 20° 47' 00.0" (LT) D = 8' 11" 06.4" L = 253.92' T = 128.37' R = 700.00'	PI Sta 77+09.24 Δ = 34° 19' 10.0" (RT) D = 5' 43' 46.5" L = 598.99' T = 308.78' R = 1,000.00'
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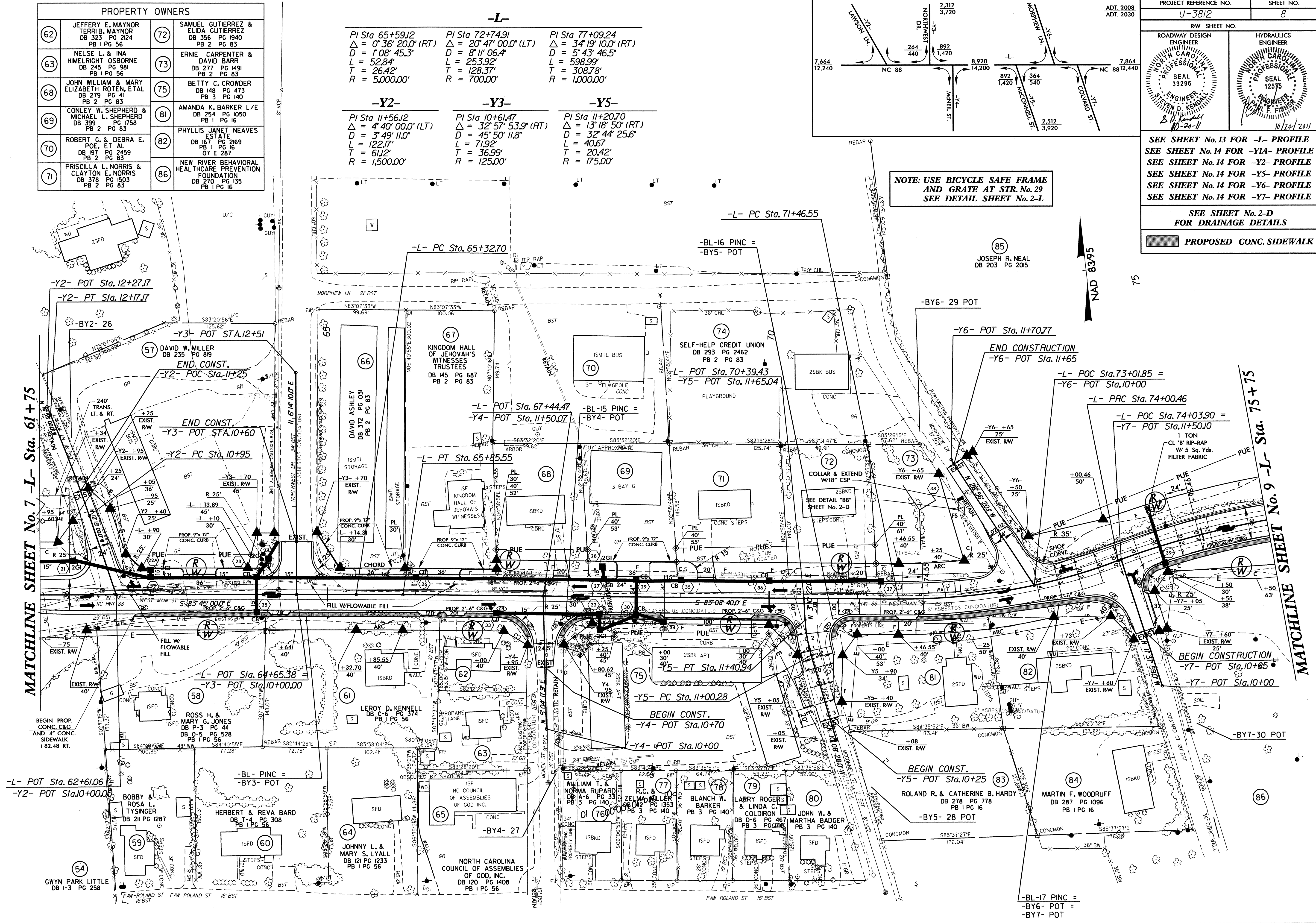
-Y2-	-Y3-	-Y5-
PI Sta 11+56.12 Δ = 4° 40' 00.0" (LT) D = 3° 49' 11.0" L = 122.17' T = 61.12' R = 1,500.00'	PI Sta 10+61.47 Δ = 32° 57' 53.9" (RT) D = 45° 50' 11.8" L = 71.92' T = 36.99' R = 125.00'	PI Sta 11+20.70 Δ = 13° 18' 50" (RT) D = 32° 44' 25.6" L = 40.67' T = 20.42' R = 175.00'



PROJECT REFERENCE NO. U-3812	SHEET NO. 8
RW SHEET NO.	
ROADWAY DESIGN ENGINEER SEAL 33296 S. D. KENDALL 8/20/11	HYDRAULICS ENGINEER SEAL 12575 R. E. FISHER 10/14/2011
SEE SHEET No. 13 FOR -L- PROFILE SEE SHEET No. 14 FOR -Y1A- PROFILE SEE SHEET No. 14 FOR -Y2- PROFILE SEE SHEET No. 14 FOR -Y5- PROFILE SEE SHEET No. 14 FOR -Y6- PROFILE SEE SHEET No. 14 FOR -Y7- PROFILE	
SEE SHEET No. 2-D FOR DRAINAGE DETAILS	
PROPOSED CONC. SIDEWALK	

MATCHLINE SHEET No. 7 -L- Sta. 61+75

MATCHLINE SHEET No. 9 -L- Sta. 75+75



NOTE: USE BICYCLE SAFE FRAME
AND GRATE AT STR. No. 29
SEE DETAIL SHEET No. 2-L

-BL-17 PINC =
-BY6- POT =
-BY7- POT =

PROPERTY OWNERS			
91	THOMAS D. & VICTORIA HERMAN DB 198 PG 2499 DB 19 PG 469	99	DARREL & DARLENE POE, RICHARD & MICHELLE HAMBY DB 256 PG 1517
92	JOHN CHRISTOPHER BARR ET AL DB 405 PG 1039	105	GEORGE TIMOTHY & SANDRA W. SHATLEY DB 251 PG 1259
93	E. TRUIETT JR. & MAREA B. WEAVER DB K-5 PG 254	103	JEFFERSON UNITED METHODIST CHURCH TRUSTEES DB 283 PG 435 DB 84 PG 292 DB 163 PG 29 DB 84 PG 248

-L-

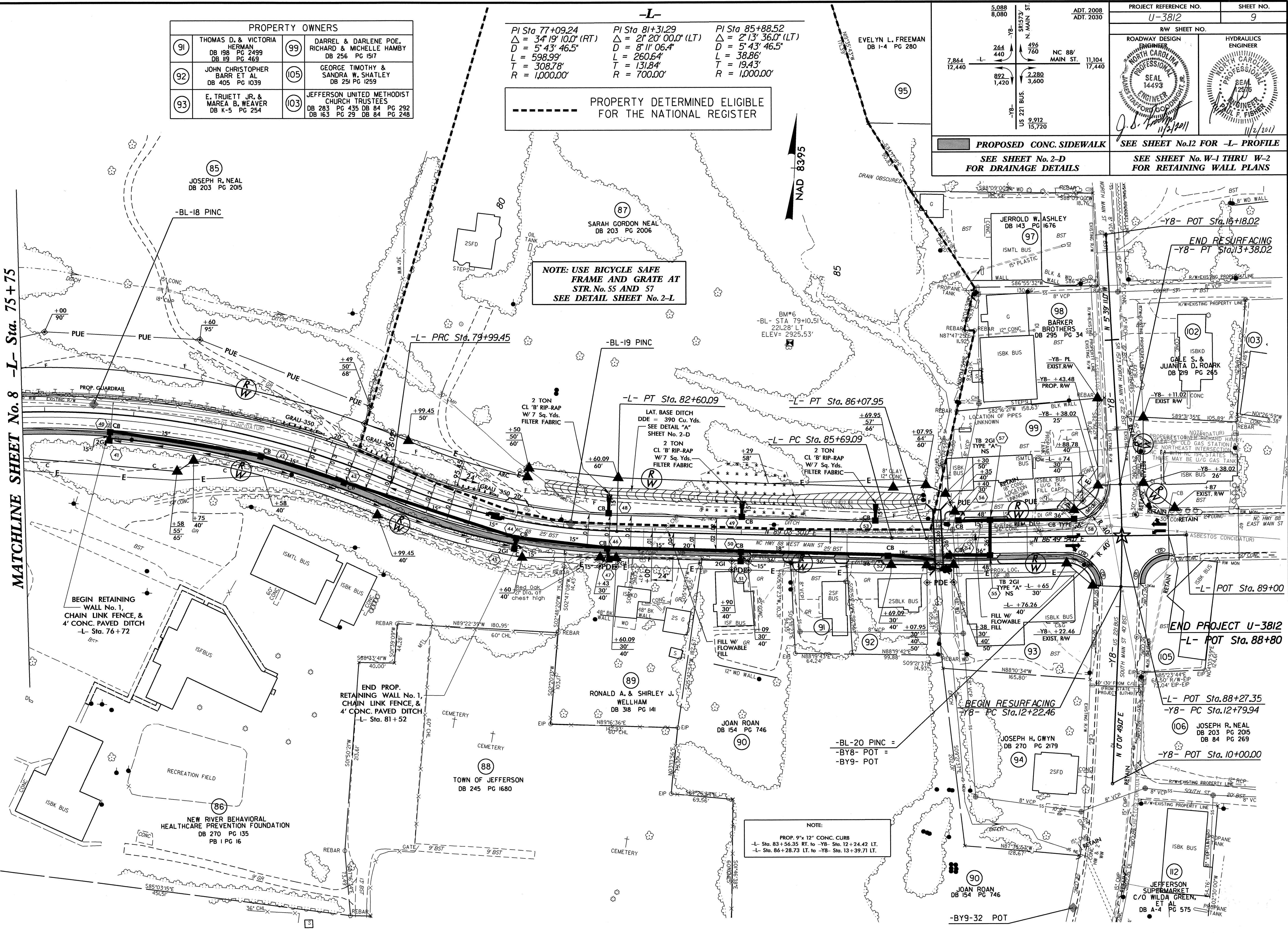
PI Sta 77+09.24 Δ = 34° 19' 10.0" (RT) D = 5' 43' 46.5" L = 598.99' T = 308.78' R = 1,000.00'	PI Sta 81+31.29 Δ = 21° 20' 00.0" (LT) D = 8' 11' 06.4" L = 260.64' T = 131.84' R = 700.00'	PI Sta 85+88.52 Δ = 2° 13' 36.0" (LT) D = 5' 43' 46.5" L = 38.86' T = 19.43' R = 1,000.00'
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----- PROPERTY DETERMINED ELIGIBLE FOR THE NATIONAL REGISTER

NOTE: USE BICYCLE SAFE FRAME AND GRATE AT STR. No. 55 AND 57
SEE DETAIL SHEET No. 2-L

PROJECT REFERENCE NO. U-3812	SHEET NO. 9
ADT. 2008 ADT. 2030	
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 14493 J. S. [Signature]	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 12875 P. L. FISHER
PROPOSED CONC. SIDEWALK SEE SHEET No. 2-D FOR DRAINAGE DETAILS	SEE SHEET No. 12 FOR -L- PROFILE SEE SHEET No. W-1 THRU W-2 FOR RETAINING WALL PLANS

MATCHLINE SHEET No. 8 -L- Sta. 75+75



NOTE:
PROP. 9" x 12" CONC. CURB
-L- Sta. 83+56.35 RT. to -YB- Sta. 12+24.42 LT.
-L- Sta. 86+28.73 LT. to -YB- Sta. 13+39.71 LT.

BEGIN RETAINING WALL No. 1, CHAIN LINK FENCE, & 4' CONC. PAVED DITCH -L- Sta. 76+72

END PROP. RETAINING WALL No. 1, CHAIN LINK FENCE, & 4' CONC. PAVED DITCH -L- Sta. 81+52

BEGIN RESURFACING -YB- PC Sta. 12+22.46

END PROJECT U-3812 -L- POT Sta. 88+80

-L- POT Sta. 88+27.35
-YB- PC Sta. 12+79.94

-YB- POT Sta. 10+00.00

JOAN ROAN DB 154 PG 746
JEFFERSON SUPERMARKET C/O WILDA GREEN, ET AL DB A-4 PG 575

-BY9-32 POT

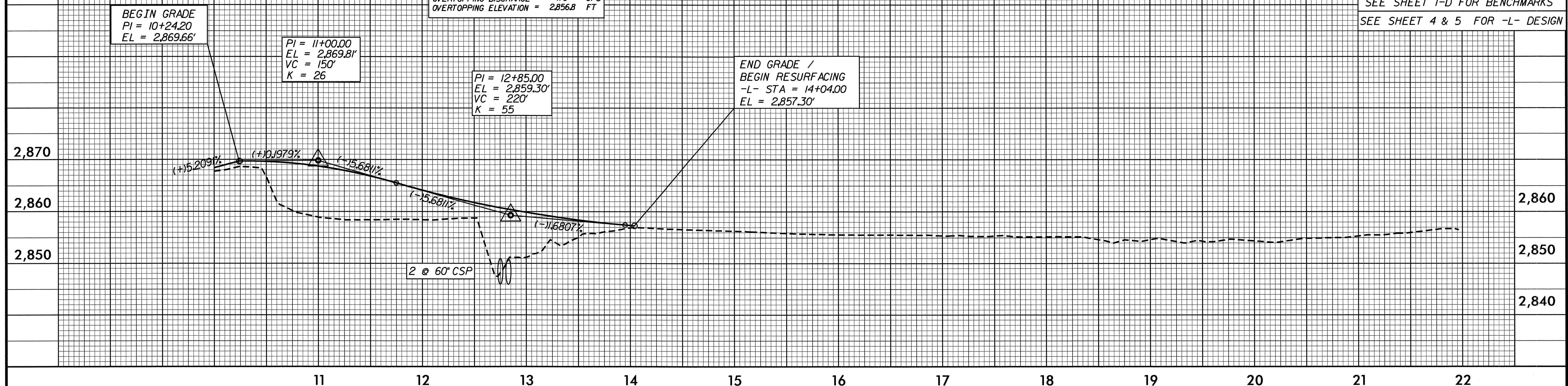
5/28/99

PROJECT REFERENCE NO. U-3812	SHEET NO. 10
ROADWAY DESIGN ENGINEER SEAL 33298 9-26-11	HYDRAULICS ENGINEER SEAL 12679 9-26-11

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO's. 11 AND 12

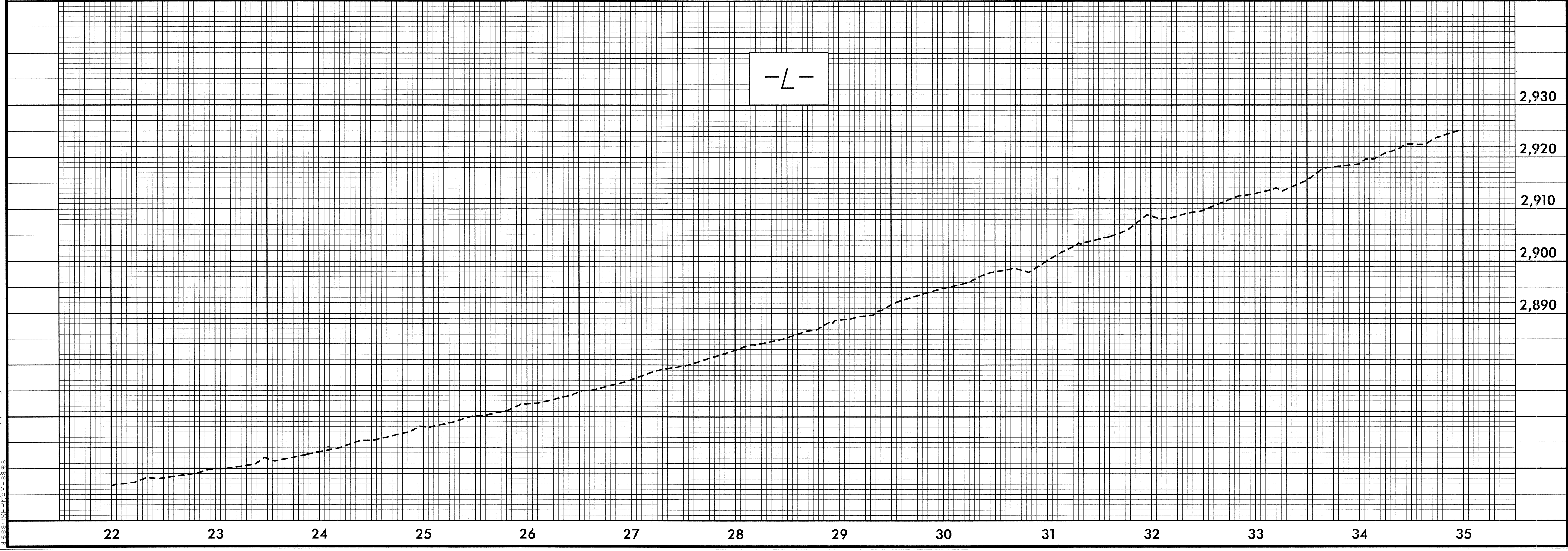
DRAINAGE AREA	=	322	AC
DESIGN FREQUENCY	=	50	YRS
DESIGN DISCHARGE	=	280	CFS
DESIGN HW ELEVATION	=	2,853.3	FT
100 YEAR DISCHARGE	=	340	CFS
100 YEAR HW ELEVATION	=	2,854.2	FT
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING DISCHARGE	=	470	CFS
OVERTOPPING ELEVATION	=	2,856.8	FT

-L-



SEE SHEET I-D FOR BENCHMARKS
SEE SHEET 4 & 5 FOR -L- DESIGN

-L-

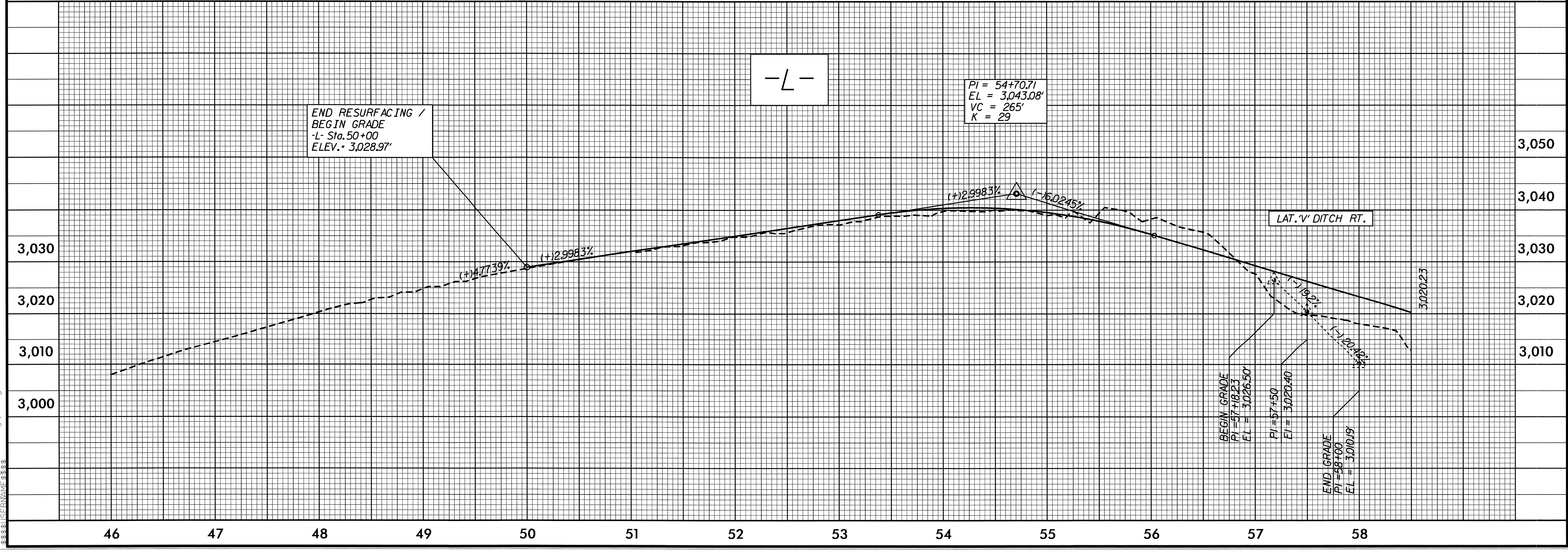
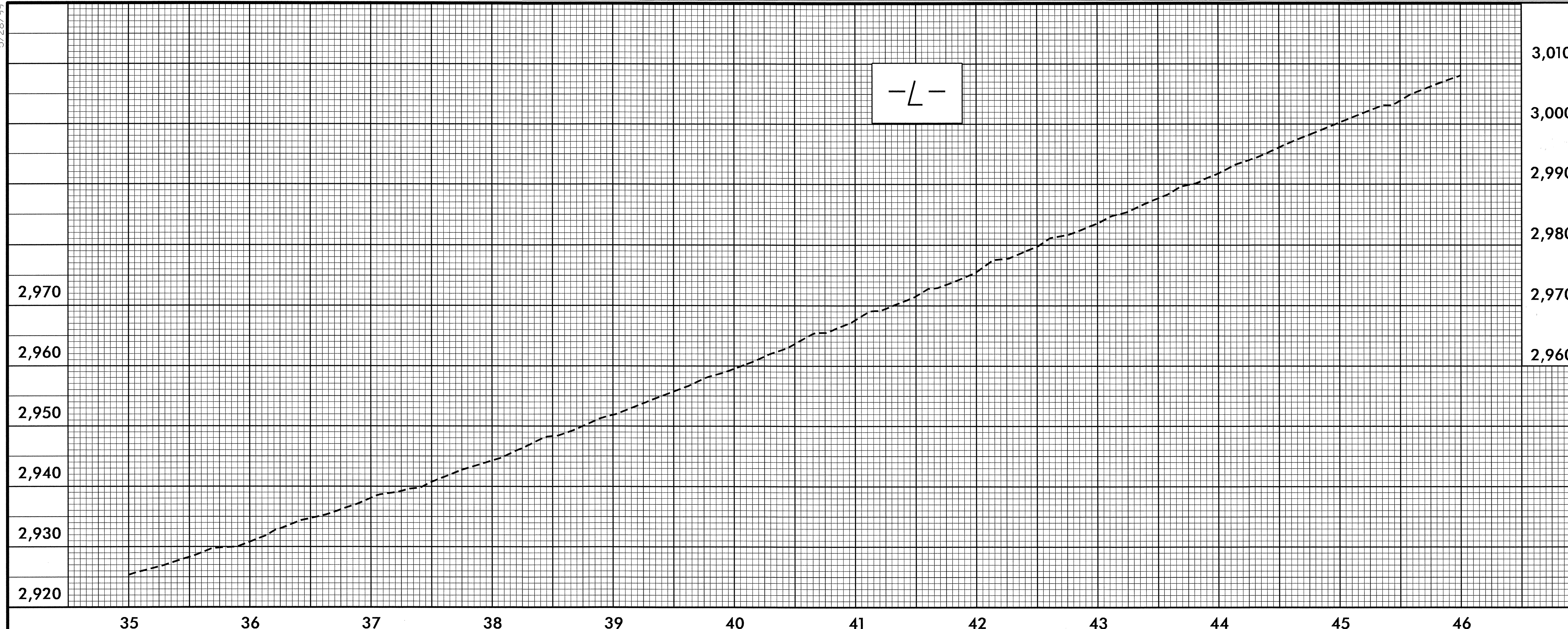


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5/28/09

PROJECT REFERENCE NO. U-3812	SHEET NO. 11
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 33296 ENGINEER STEVEN D. KENDALL 9-26-11	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 12576 ENGINEER PAUL E. FISHER 9-26-11

SEE SHEET I-D FOR BENCHMARKS
 SEE SHEET 5,6,& 7 FOR -L- DESIGN



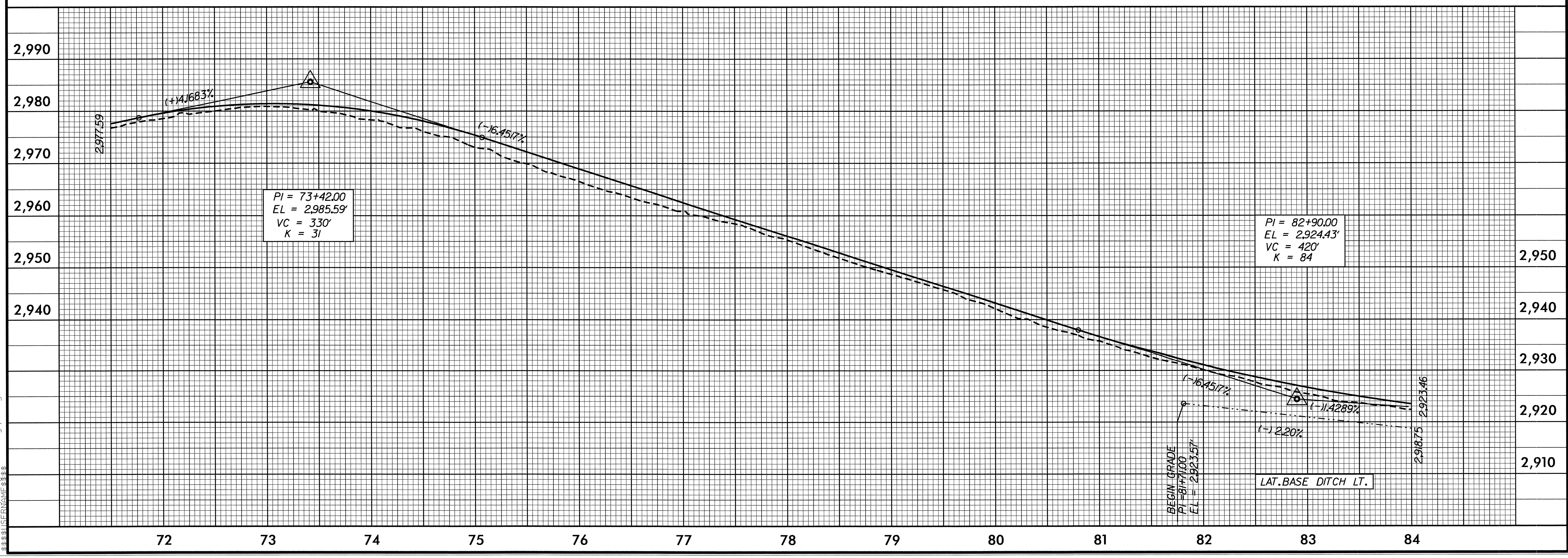
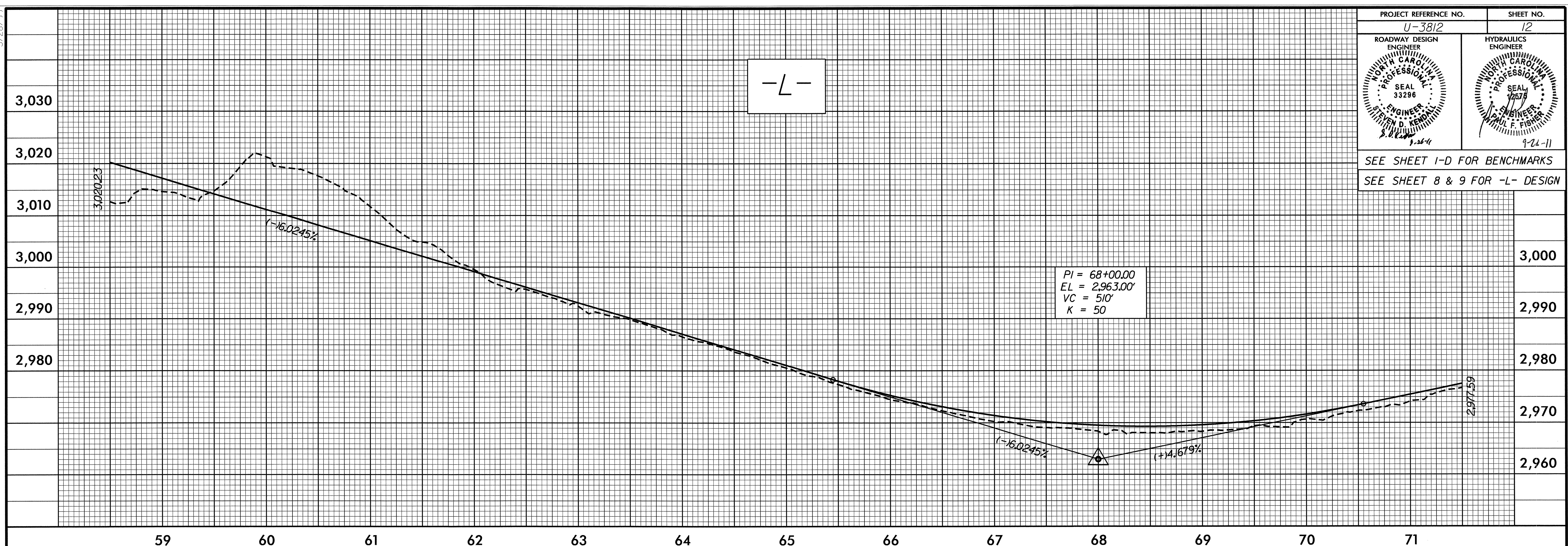
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5/28/99

PROJECT REFERENCE NO. U-3812	SHEET NO. 12
ROADWAY DESIGN ENGINEER SEAL 33296 STEVEN D. KENDALL 9-26-11	HYDRAULICS ENGINEER SEAL 12578 PAUL E. FISHER 9-26-11

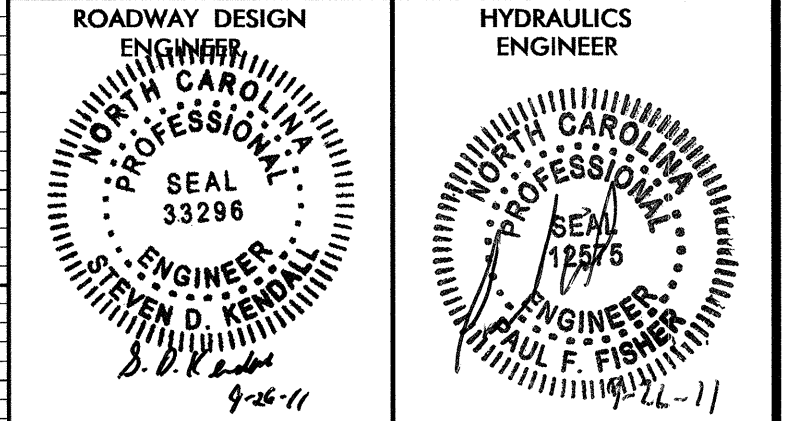
SEE SHEET I-D FOR BENCHMARKS
SEE SHEET 8 & 9 FOR -L- DESIGN

-L-



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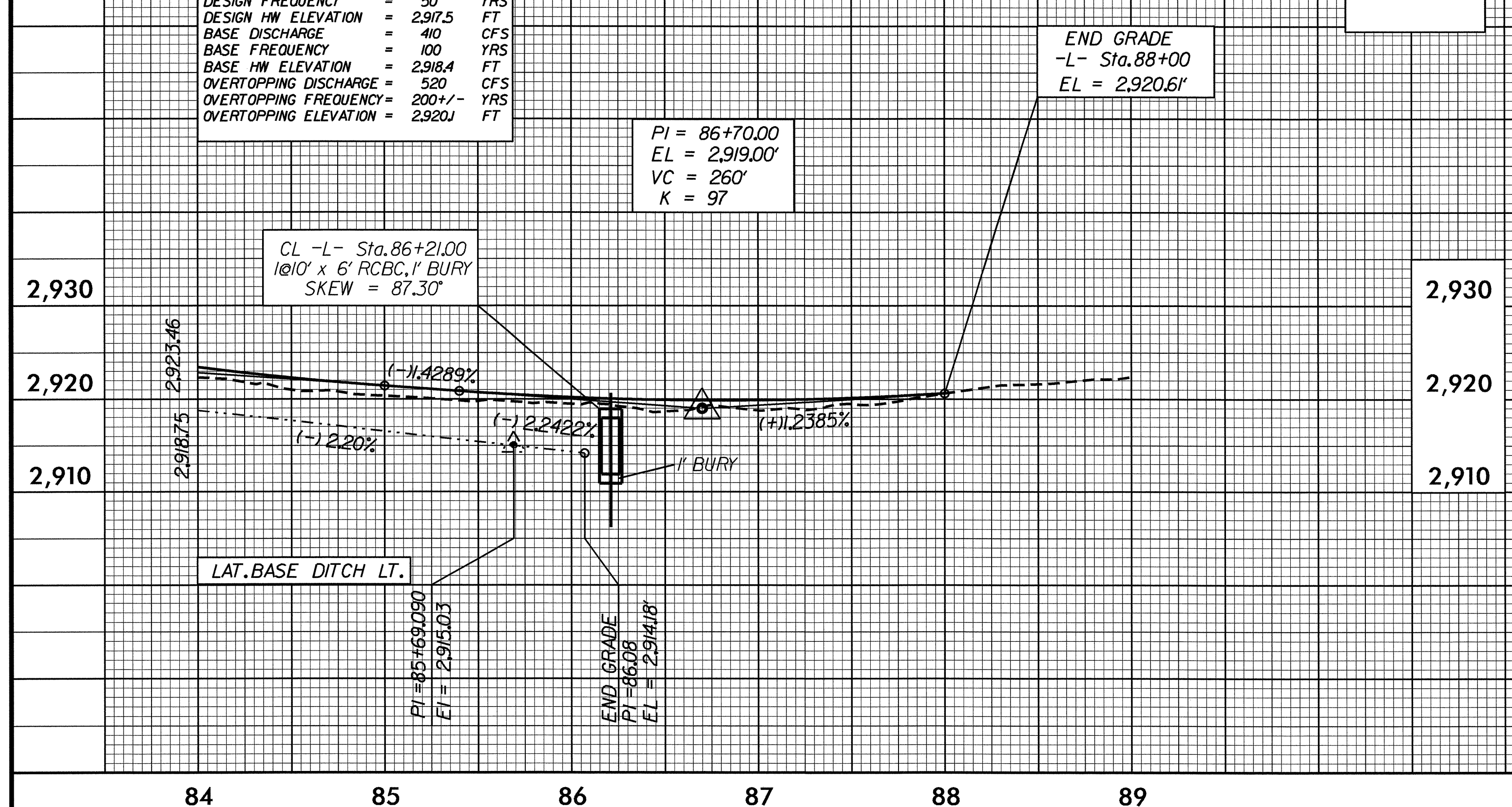


SEE SHEET I-D FOR BENCHMARKS
SEE SHEET 9 FOR -L- DESIGN
SEE SHEET C-1 THRU C-99 FOR CULVERT DESIGN

CULVERT HYDRAULIC DATA

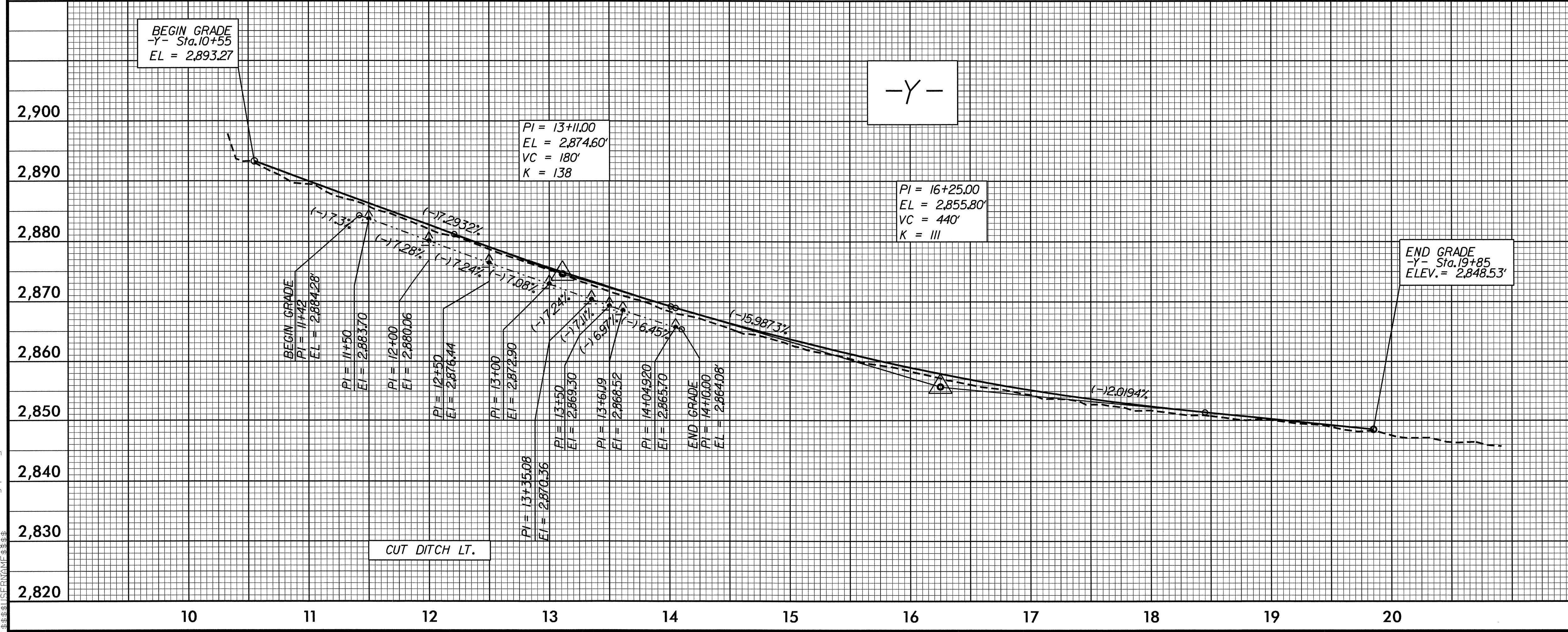
DESIGN DISCHARGE	=	340	CFS
DESIGN FREQUENCY	=	50	YRS
DESIGN HW ELEVATION	=	2917.5	FT
BASE DISCHARGE	=	410	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	2918.4	FT
OVERTOPPING DISCHARGE	=	520	CFS
OVERTOPPING FREQUENCY	=	200+/-	YRS
OVERTOPPING ELEVATION	=	2920J	FT

-L-



SEE SHEET 4 FOR -Y- DESIGN

-Y-

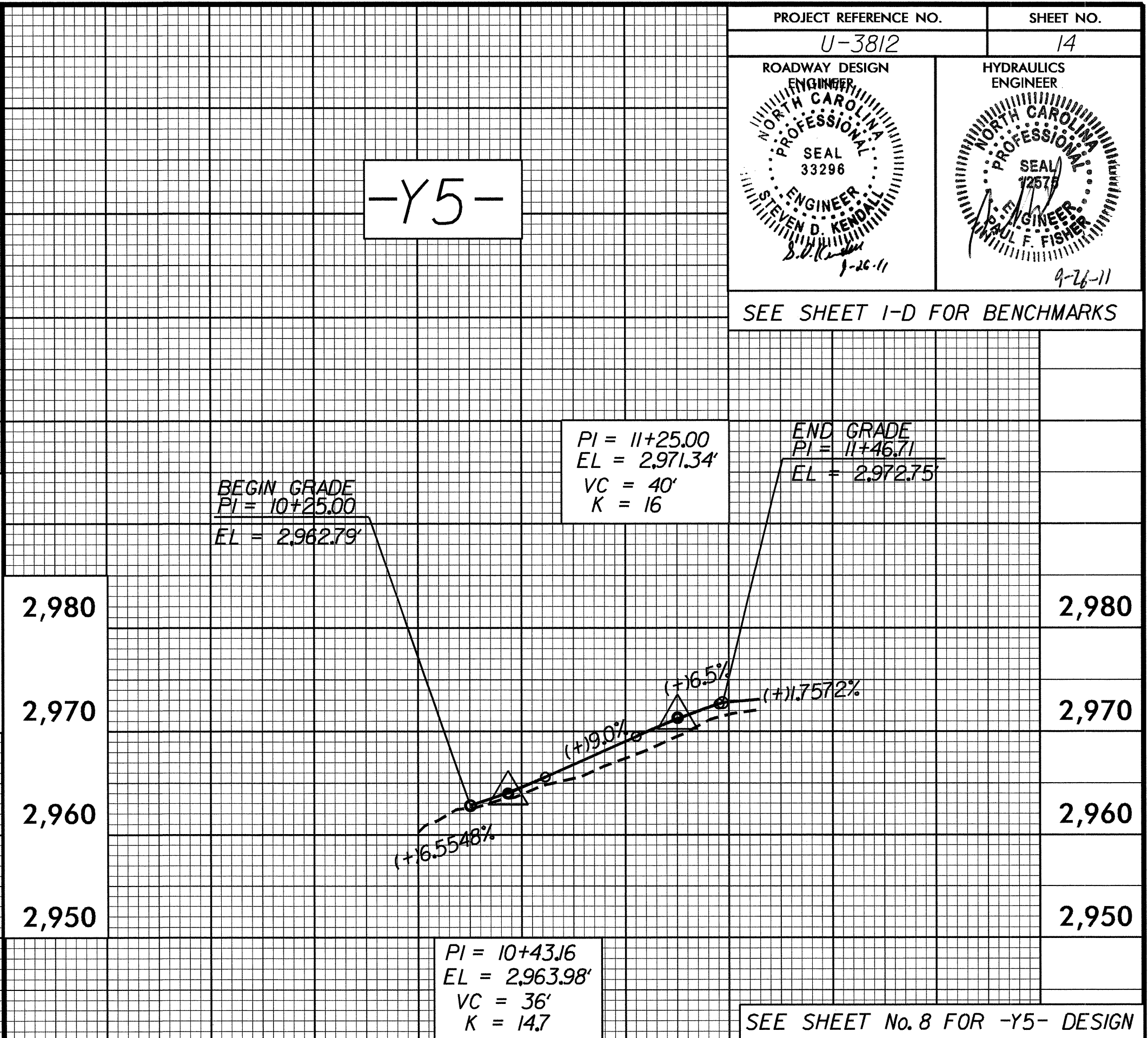
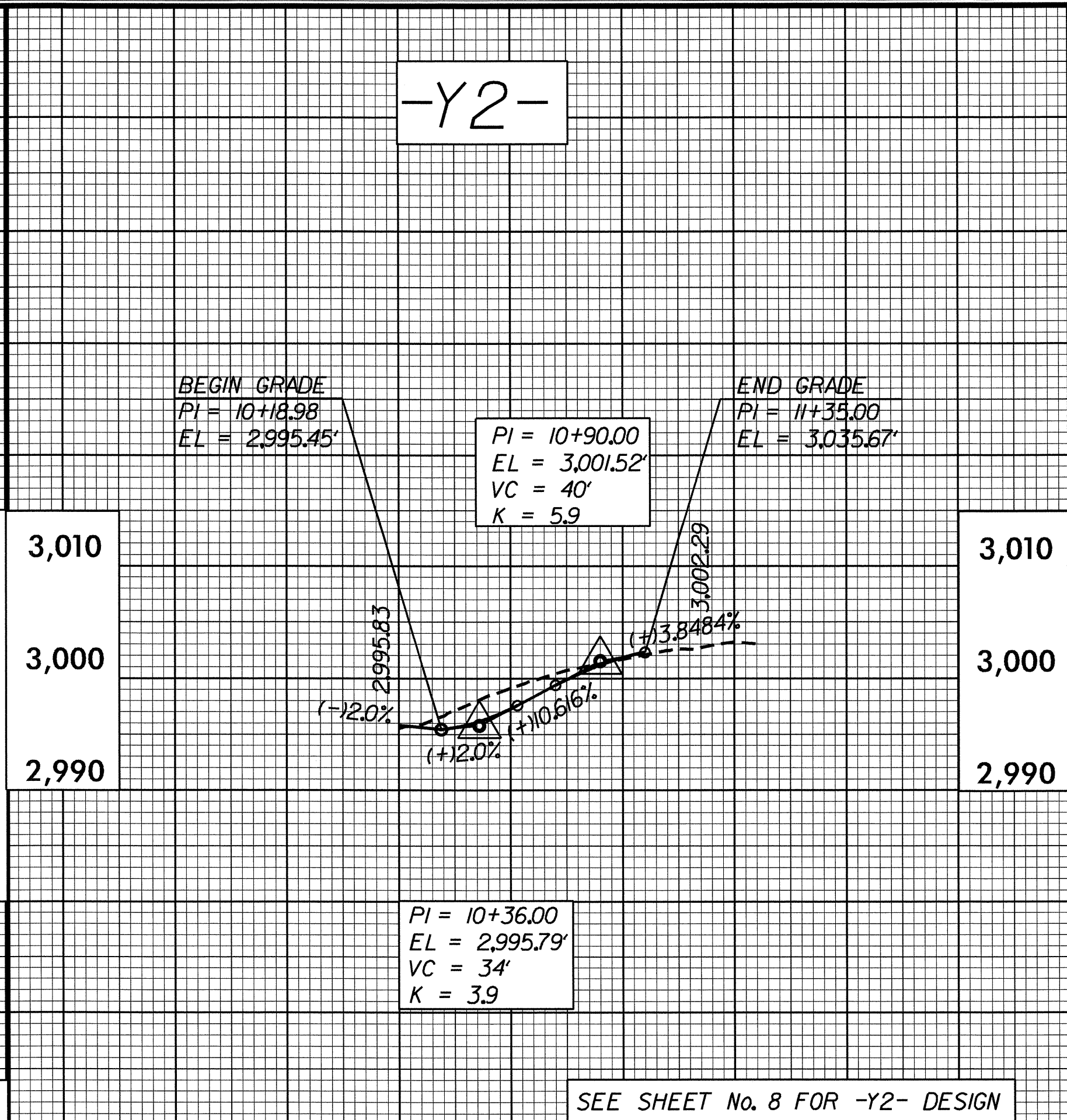
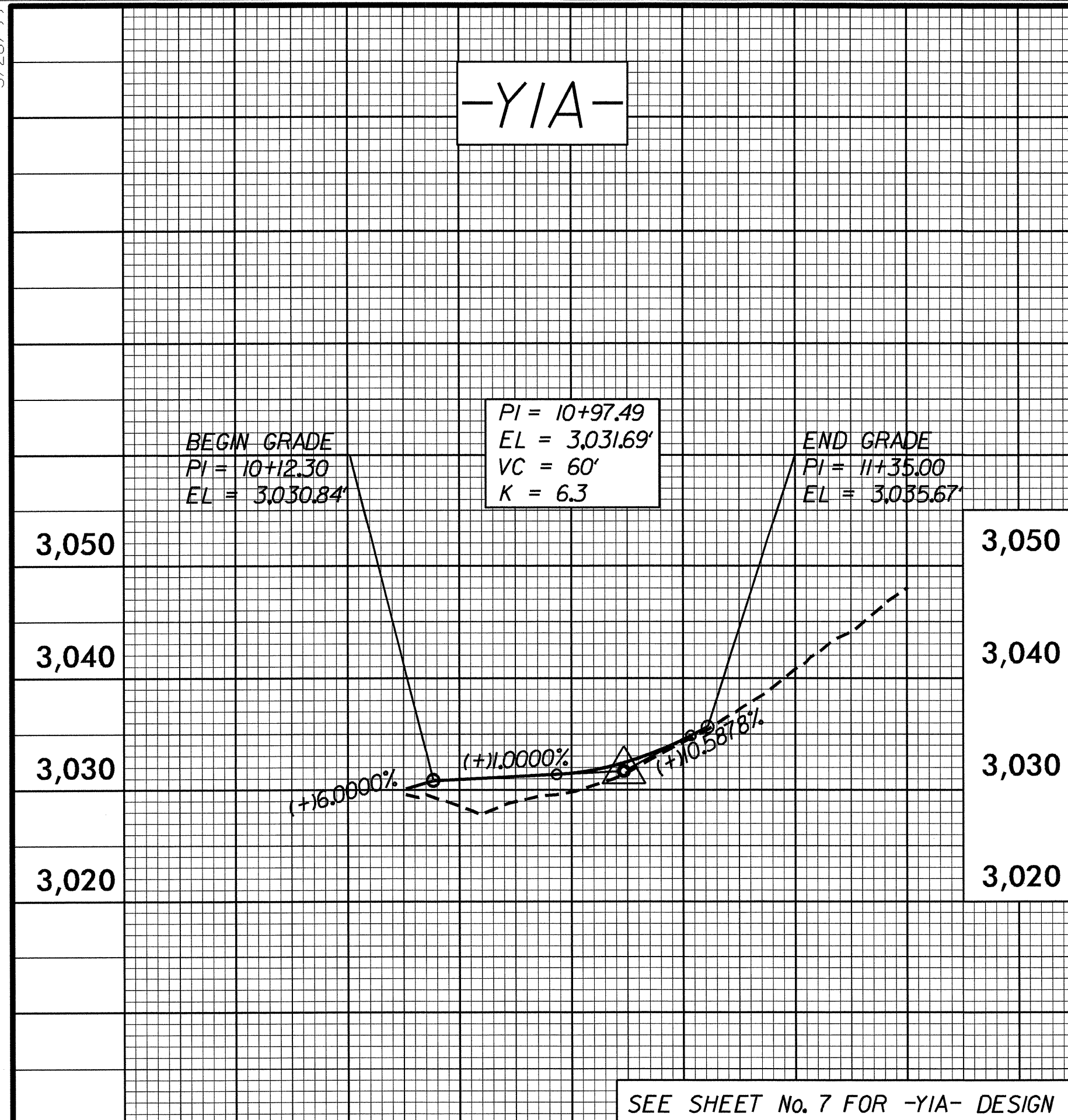


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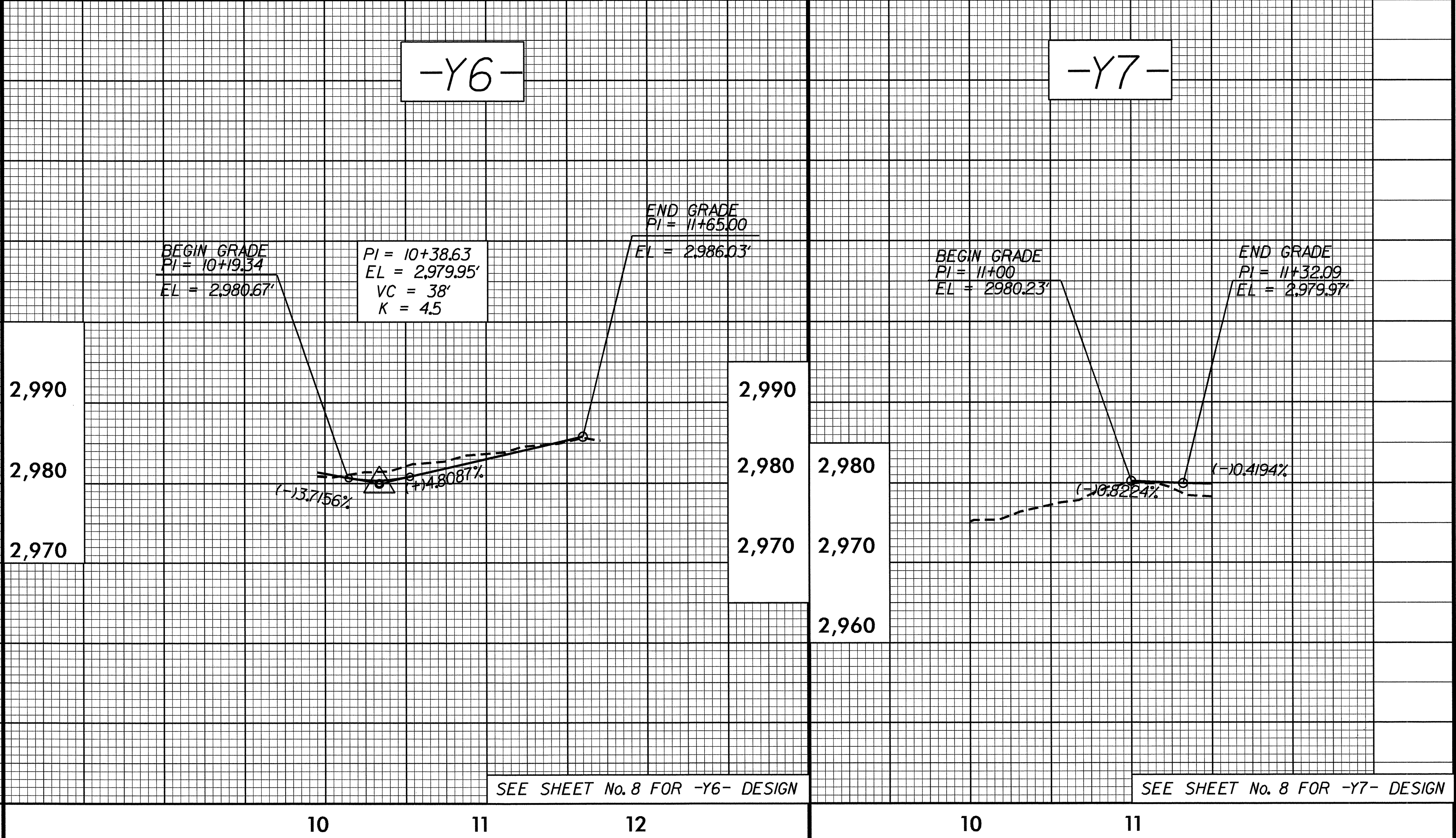
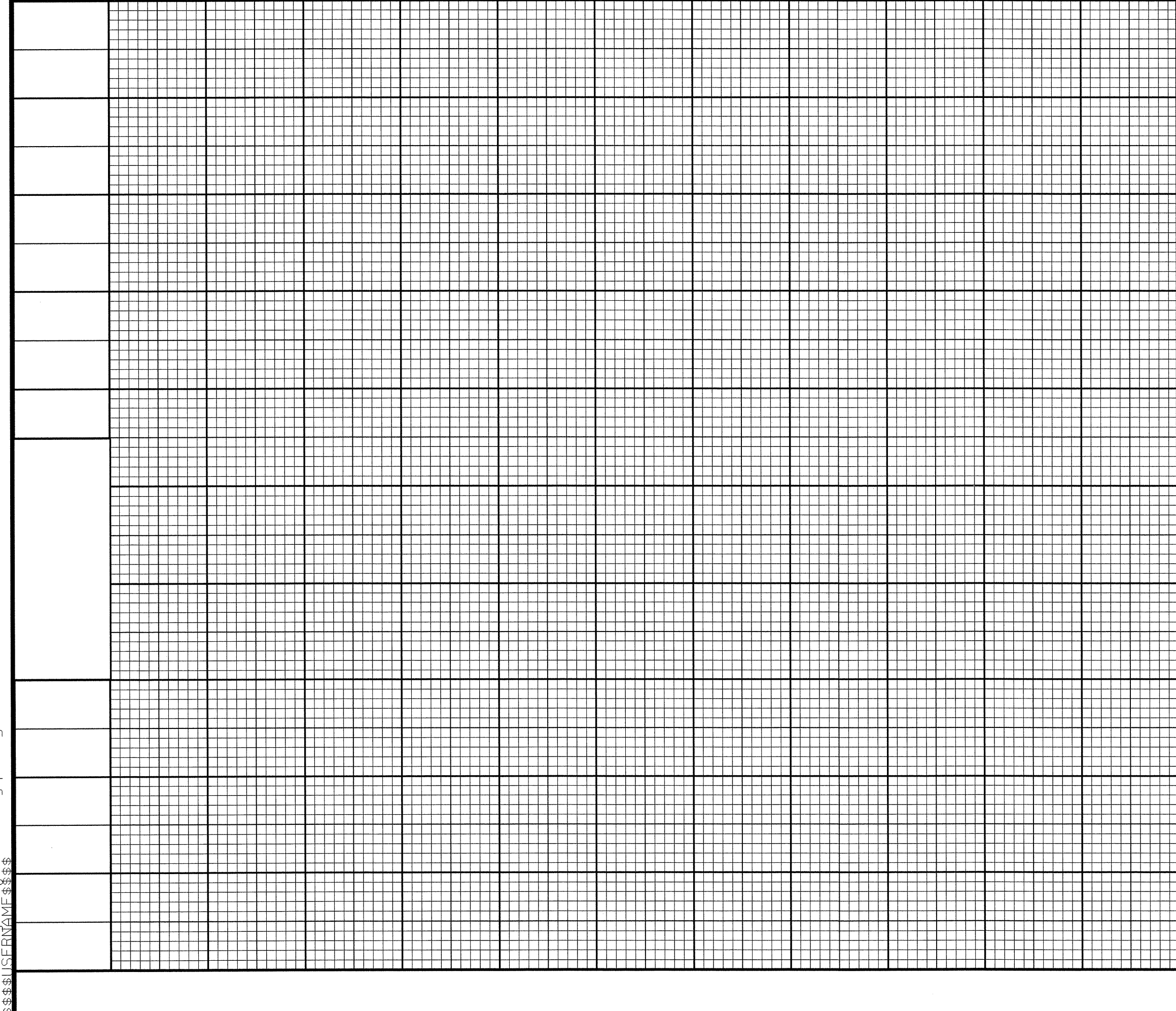
5/28/99

PROJECT REFERENCE NO. U-3812	SHEET NO. 14
ROADWAY DESIGN ENGINEER SEAL 33296 NORTH CAROLINA PROFESSIONAL ENGINEER TIMOTHY D. KENDALL 9-26-11	HYDRAULICS ENGINEER SEAL 12571 NORTH CAROLINA PROFESSIONAL ENGINEER PAUL F. FISHER 9-16-11

SEE SHEET I-D FOR BENCHMARKS



10 11 12 10 11 10 11



10 11 12 10 11

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