

09/08/09

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

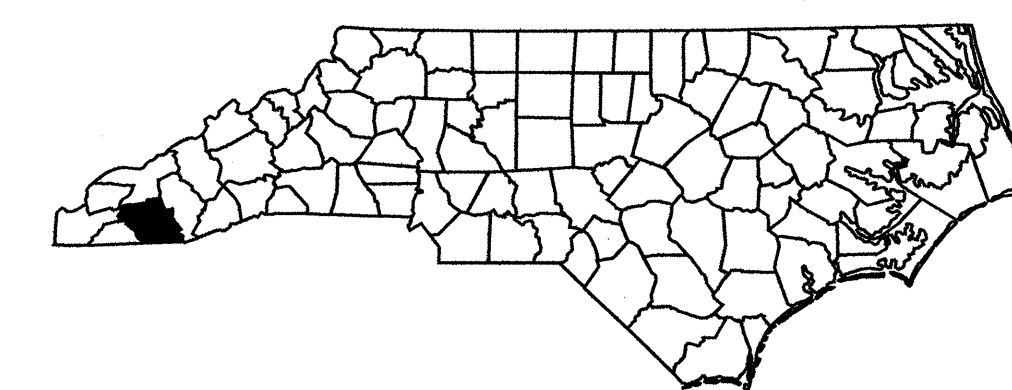
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**MACON COUNTY**

**LOCATION: SR 1323 (RIVERVIEW ST.)  
FROM DEPOT ST. EXTENSION TO NC 28**

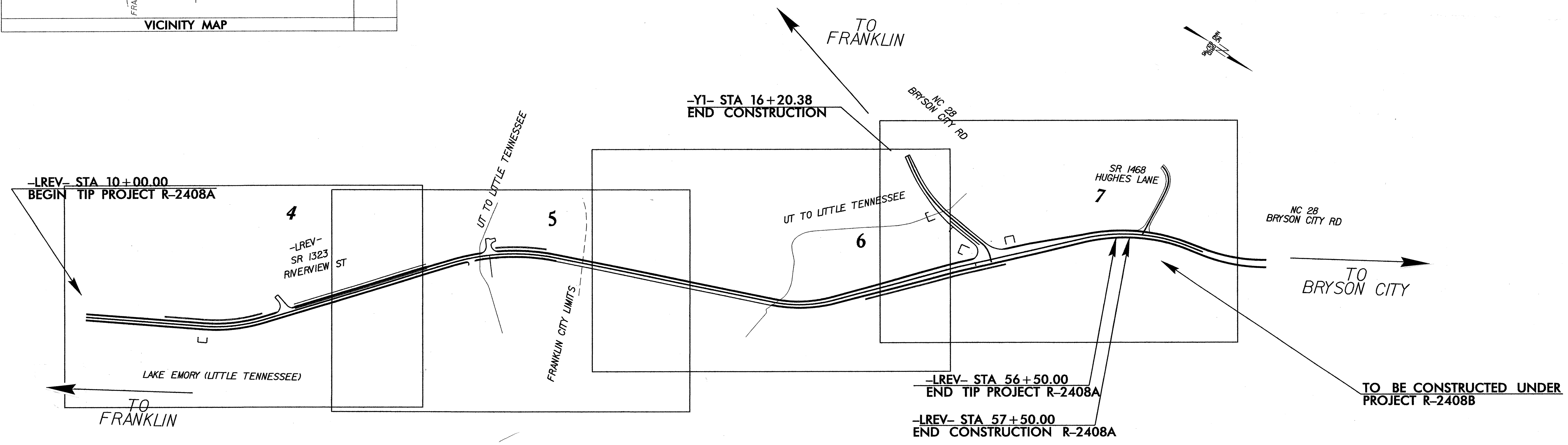
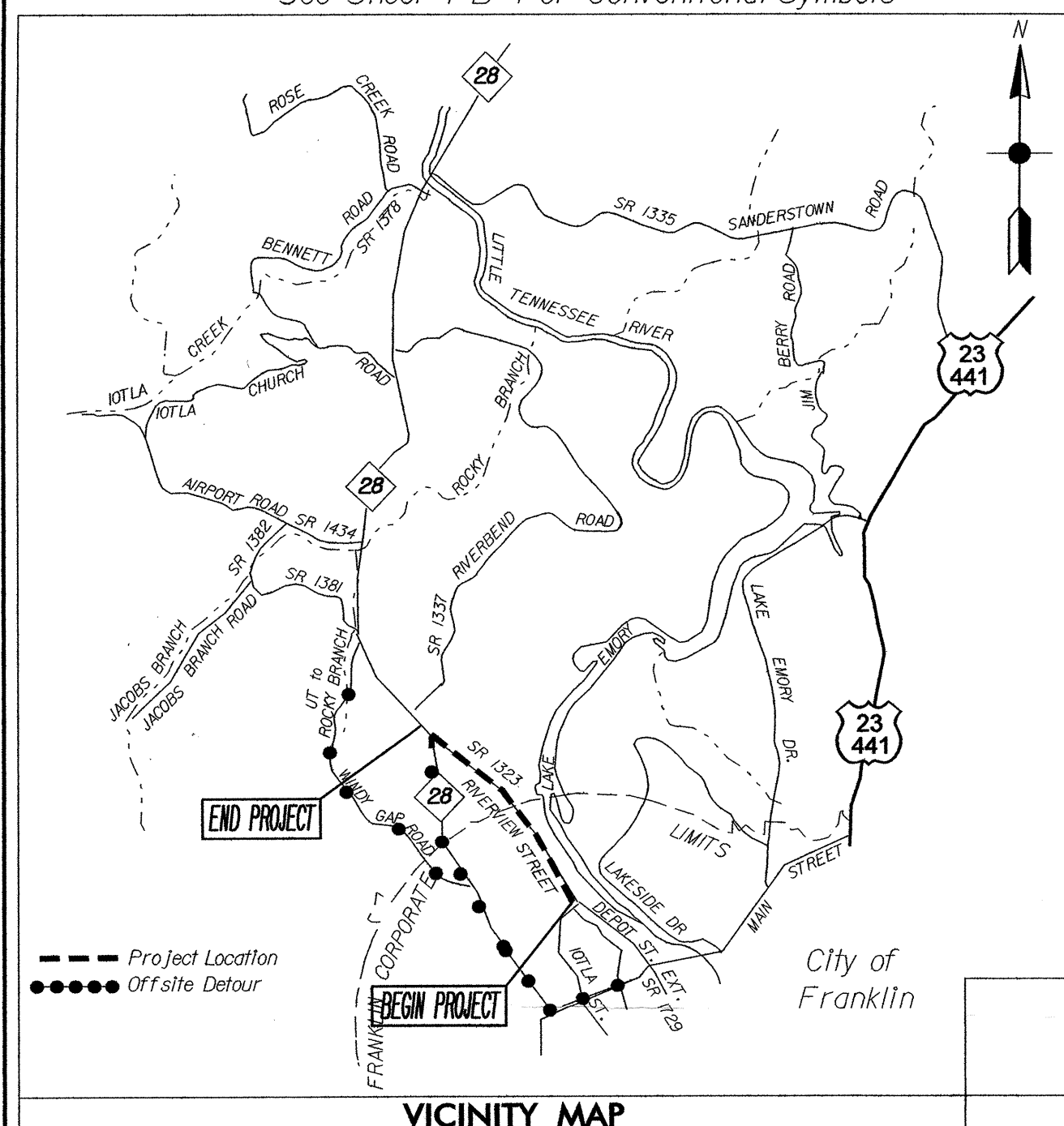
**TYPE OF WORK: DRAINAGE, GRADING, PAVING, AND SIGNAL**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2408A	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34427.1.1		P.E.	
34427.2.1		R /W	
34427.3.1		CONST.	

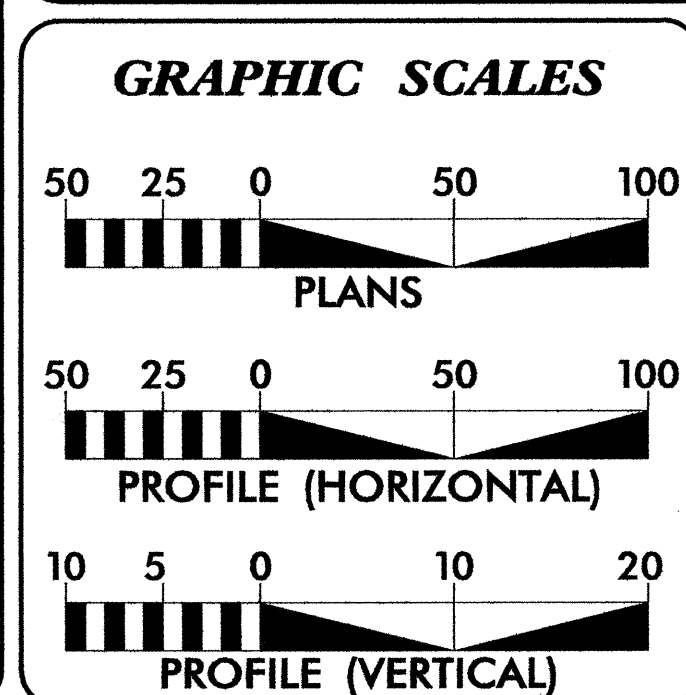


**TIP PROJECT: R-2408A**

**CONTRACT: C201777**



A DESIGN EXCEPTION EXISTS FOR THE RADIUS OF THE CURVE AT STA. 42+76.13.  
A DESIGN EXCPETION EXISTS FOR THE SAG VERTICAL K AT STA. 43+00 AND 45+50.



**DESIGN DATA**

ADT 2007 = 6,072  
ADT 2028 = 9,600

DHV = 9%  
D = 65%  
T = 6% \*  
V = 35-45 MPH

\* TTST 2% DUAL 4%

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT R-2408A = 0.881 MI.  
TOTAL LENGTH TIP PROJECT R-2408A = 0.881 MI.

Prepared In the Office of:  
**DIVISION OF HIGHWAYS**  
Division 14 - 253 Webster Road, Sylva, NC 28779

2006 STANDARD SPECIFICATIONS

**RIGHT OF WAY DATE:**  
JANUARY 31, 2006

**LETTING DATE:**  
October 21, 2008

**JAMIE WILSON, PE**  
DIVISION CONSTRUCTION ENGINEER

**PAUL WHITE, PE**  
DIVISION DESIGN ENGINEER

**HYDRAULICS ENGINEER**

**PAUL WHITE, PE**  
SEAL 14447  
SIGNATURE: [Signature] 6-24-08

**PAUL WHITE, PE**  
SEAL 14447  
SIGNATURE: [Signature] 6-24-08

**DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA**

STATE DESIGN ENGINEER

DIVISION ADMINISTRATOR

DATE

04-JUN-2008 15:39  
i:\r-2408a\roadway\titlesheet\vr2408a\_rdy\_tsh.dgn  
pfspringer AT D:\CAD\239690



3/15/06

**Note: Not to Scale**

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

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# CONVENTIONAL PLAN SHEET SYMBOLS

**BOUNDARIES AND PROPERTY:**

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○
Property Corner	✕
Property Monument	◻
Parcel/Sequence Number	②③
Existing Fence Line	-----
Proposed Woven Wire Fence	-----
Proposed Chain Link Fence	-----
Proposed Barbed Wire Fence	-----
Existing Wetland Boundary	-----
Proposed Wetland Boundary	-----
Existing Endangered Animal Boundary	-----
Existing Endangered Plant Boundary	-----

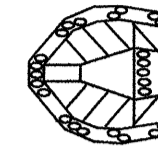
**BUILDINGS AND OTHER CULTURE:**

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	-----
Buffer Zone 1	-----
Buffer Zone 2	-----
Flow Arrow	←
Disappearing Stream	-----
Spring	○
Wetland	-----
Proposed Lateral, Tail, Head Ditch	-----
False Sump	▽

Energy Dissipator Basin



**RAILROADS:**

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

**RIGHT OF WAY:**

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

**ROADS AND RELATED FEATURES:**

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

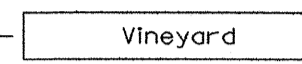
**VEGETATION:**

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

Orchard



Vineyard



**EXISTING STRUCTURES:**

MAJOR:	
Bridge, Tunnel or Box Culvert	-----
Bridge Wing Wall, Head Wall and End Wall	-----
MINOR:	
Head and End Wall	-----
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	□
Paved Ditch Gutter	-----
Storm Sewer Manhole	○
Storm Sewer	-----

**UTILITIES:**

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

**TELEPHONE:**

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	○
Telephone Booth	□
Telephone Pedestal	⊕
Telephone Cell Tower	⊗
U/G Telephone Cable Hand Hole	⊗
Recorded U/G Telephone Cable	-----
Designated U/G Telephone Cable (S.U.E.*)	-----
Recorded U/G Telephone Conduit	-----
Designated U/G Telephone Conduit (S.U.E.*)	-----
Recorded U/G Fiber Optics Cable	-----
Designated U/G Fiber Optics Cable (S.U.E.*)	-----

**WATER:**

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

**TV:**

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

**GAS:**

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

**SANITARY SEWER:**

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

**MISCELLANEOUS:**

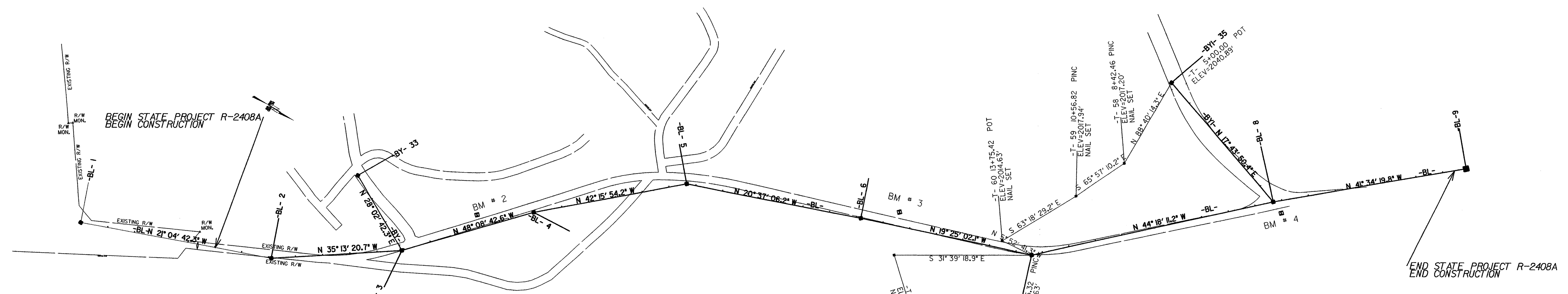
Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	⊕
Utility Unknown U/G Line	-----
U/G Tank; Water, Gas, Oil	▭
A/G Tank; Water, Gas, Oil	▭
U/G Test Hole (S.U.E.*)	⊕
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

# SURVEY CONTROL SHEET R-2408A

## CENTERLINE CONTROL DATA

Description	North	East	Elevation	Station	Offset
BL1	N 552916.52	E 691237.09	Elev. 2019.32	LRev1 Off Chain	Off Chain
BL2	N 553579.82	E 690981.43	Elev. 2018.13	LRev1 13+81.08	17.16
BL3	N 553971.62	E 690704.81	Elev. 2027.28	LRev1 18+60.39	11.9
BL4	N 554308.31	E 69038.98	Elev. 2035.23	LRev1 23+64.92	4.32
BL5	N 554730.85	E 689944.96	Elev. 2021.28	LRev1 29+42.14	18.13
BL6	N 555340.31	E 689715.66	Elev. 2015.53	LRev1 35+98.59	18.05
BL7	N 555945.52	E 689502.32	Elev. 2014.63	LRev1 42+37.63	18.23
BL8	N 556596.52	E 688866.97	Elev. 2054.56	LRev1 51+44.52	0.61
BL9	N 557133.76	E 688390.45	Elev. 2087.11	LRev1 58+56.36	-35.05
BY33	N 553688.48	E 690553.98	Elev. 2033.97	LRev1 17+64.90	-297.96
BY1 35	N 556048.76	E 688691.83	Elev. 2040.89	LRev1 48+82.85	-505.6

BM # 1  
 -BL- STA. 9+12.49  
 226.50 RT.  
 ELEV. = 2005.08'  
  
 BM # 2  
 -BL- STA. 19+93.22  
 49.88 LT.  
 ELEV. = 2039.10'  
  
 BM # 3  
 -BL- STA. 35+54.91  
 52.04 LT.  
 ELEV. = 2029.73'  
  
 BM # 4  
 -BL- STA. 49+92.61  
 42.45 RT.  
 ELEV. = 2059.82'



**DATUM DESCRIPTION**

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NAD 83 FOR MONUMENT "SPS-105" WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF NORTING 590435.80(1) EASTING 696152.22(1). THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS 0.99977466. THE NAD 83/95 GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "SPS-105" TO THIS STATION (applying by roadway) IS ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES. VERTICAL DATUM USED IS NAVD 88.

NOTE: DRAWING NOT TO SCALE

REVISIONS

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 8/17/09



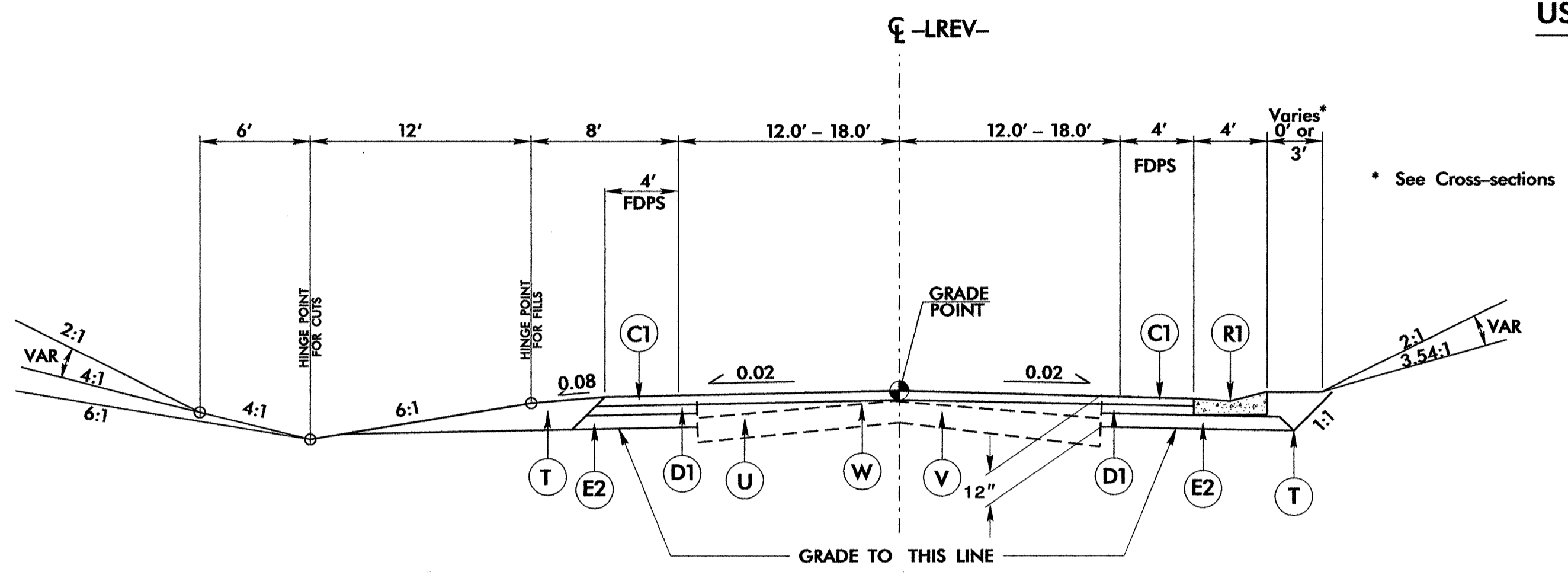


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KACSON

PROJECT REFERENCE NO. R-2408B	SHEET NO. 2-B
ROADWAY DESIGN ENGINEER PAUL RODNEY WHITE NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 14447	PAVEMENT DESIGN ENGINEER CLARK S. MORRISON NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22896
5-8-08	6/2/08

PAVEMENT SCHEDULE	
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.
C2	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
E3	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
R1	EXPRESSWAY GUTTER
R2	2'-6" CURB AND GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL SHEET No. 2)
V	2½" DEPTH MILLING BITUMINOUS PAVEMENT

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

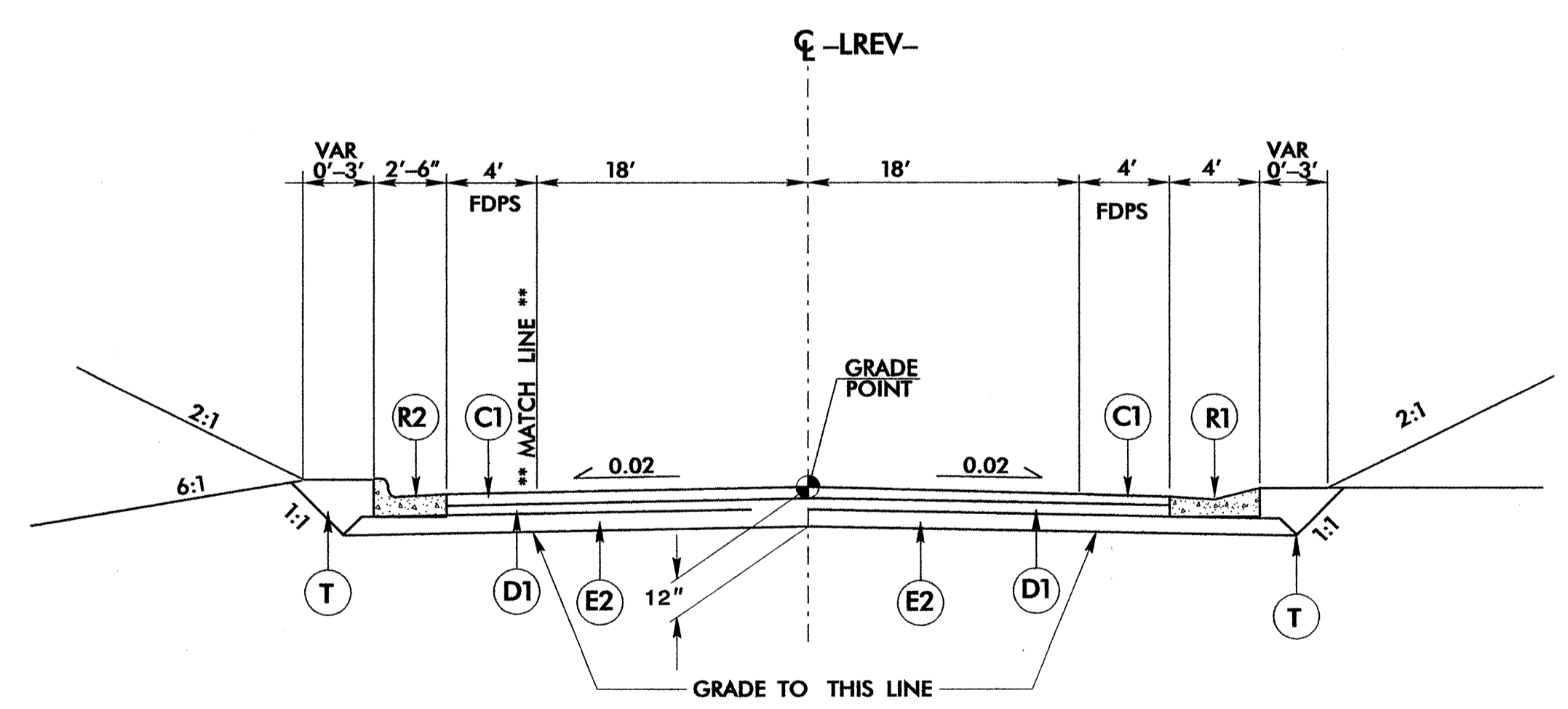


TYPICAL SECTION No. 5

NOTE: MILL EXISTING PAVEMENT 2 1/2" AND REPLACE W/I19.0B

USE TYPICAL SECTION No. 5

-LREV- STA 42+70.00 TO 48+70.00  
NOTE: 1 SEE PLANS FOR TRANSITION



TYPICAL SECTION No. 6

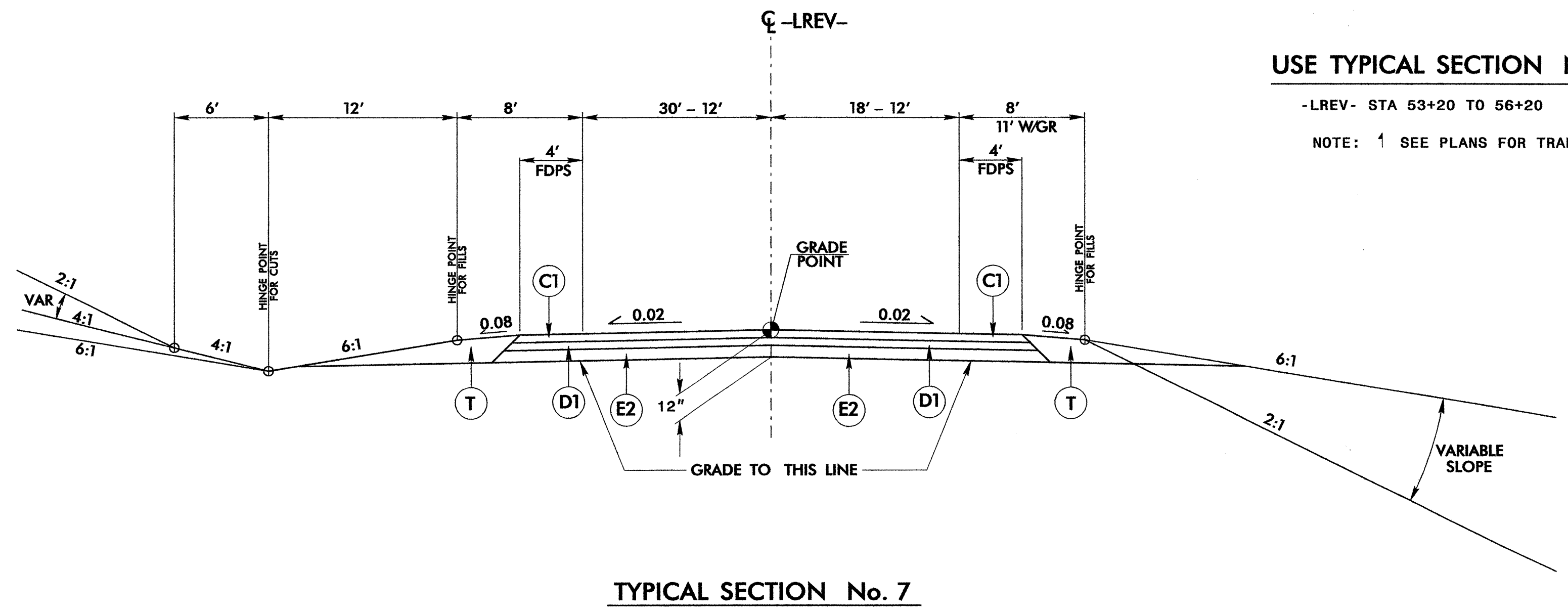
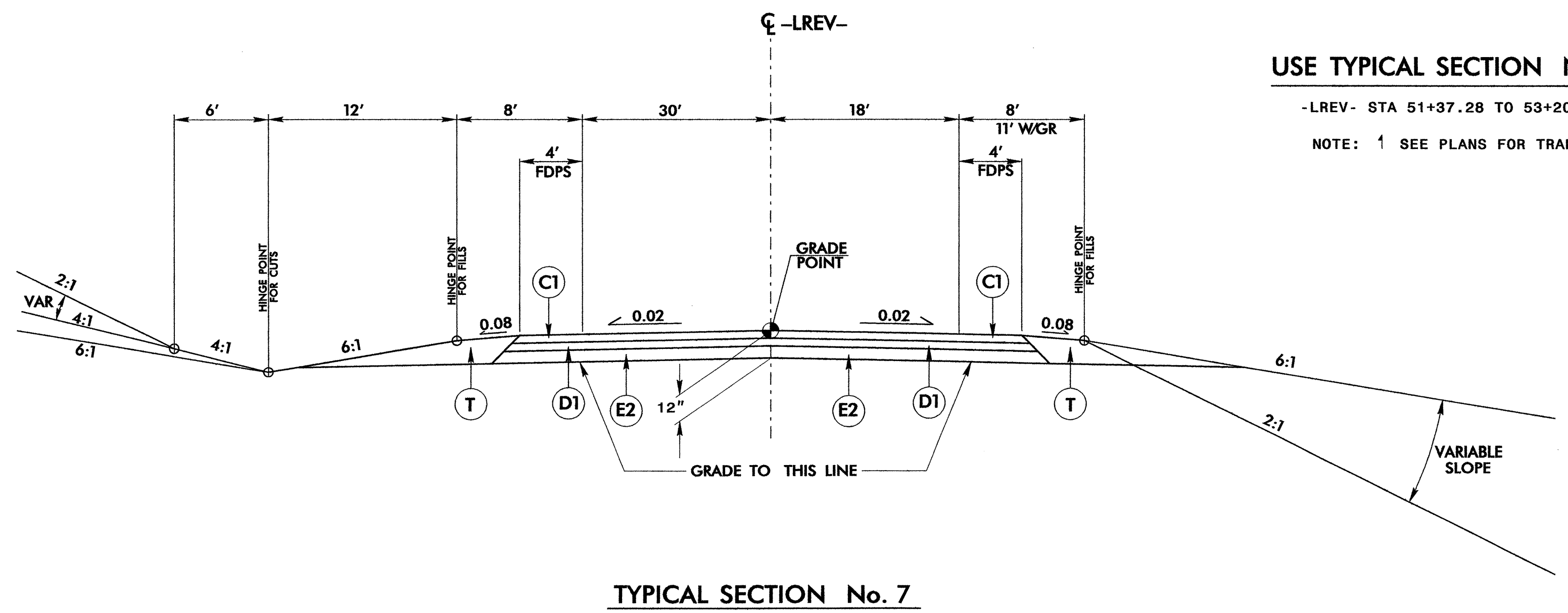
USE TYPICAL SECTION No. 6

-LREV- STA 48+70.00 TO 51+37.28  
NOTE: 1 SEE PLANS FOR TRANSITION

PROJECT REFERENCE NO. R-2408A	SHEET NO. 2-C
ROADWAY DESIGN ENGINEER PAUL RODNEY WHITE 14447 NORTH CAROLINA PROFESSIONAL ENGINEERS	PAVEMENT DESIGN ENGINEER CLARK S. MORRISON 22896 NORTH CAROLINA PROFESSIONAL ENGINEERS
5-8-08	12/27/08

PAVEMENT SCHEDULE	
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.
C2	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
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E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
E3	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
R1	EXPRESSWAY GUTTER
R2	2'-6" CURB AND GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL SHEET No. 2)
V	2½" DEPTH MILLING BITUMINOUS PAVEMENT

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



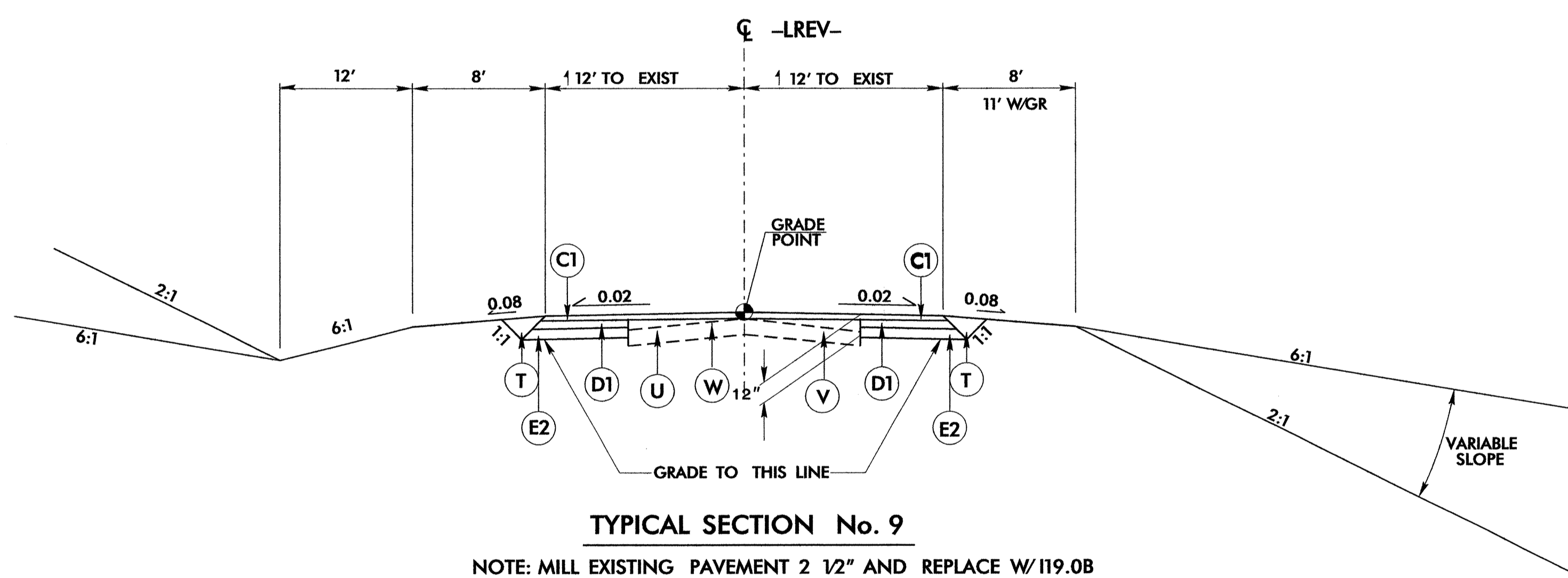
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PAVEMENT SCHEDULE	
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
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U	EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL SHEET No. 2)
V	2½" DEPTH MILLING BITUMINOUS PAVEMENT

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

USE TYPICAL SECTION No. 9  
-LREV- STA 56+20 TO 57+50

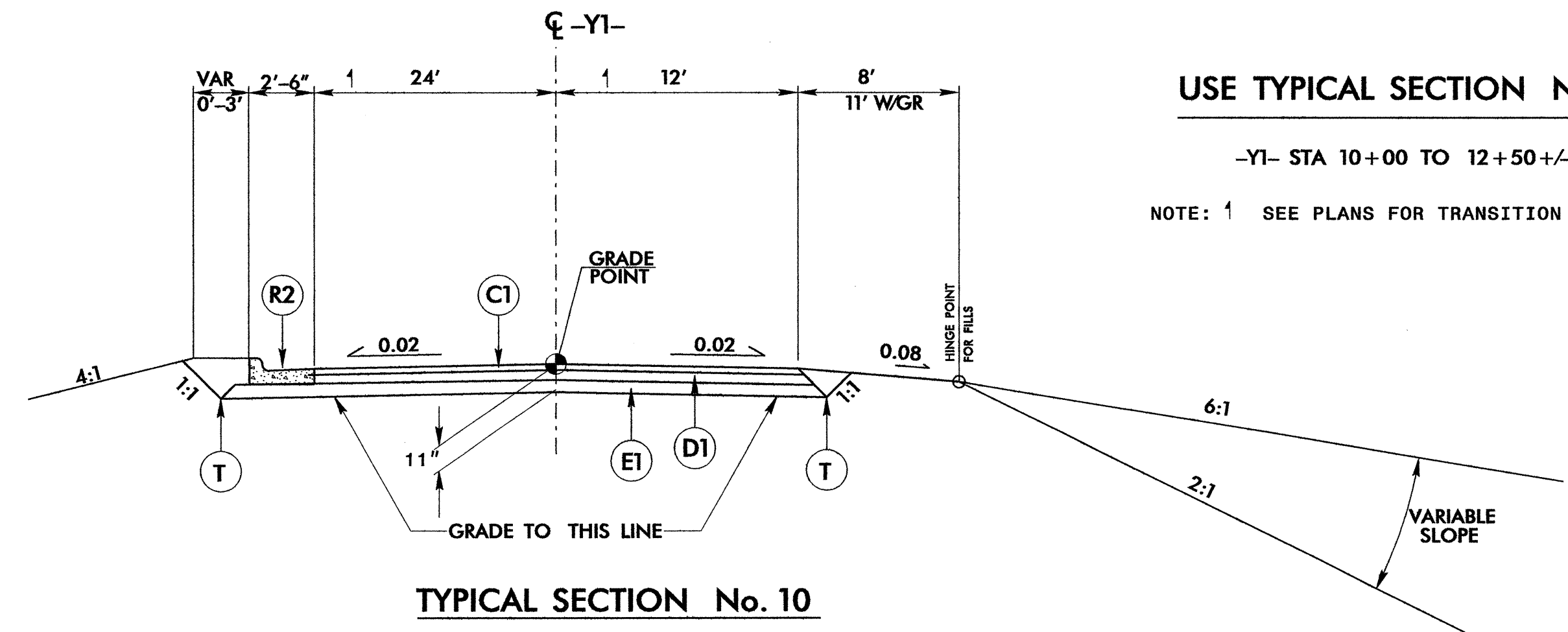


TYPICAL SECTION No. 9  
NOTE: MILL EXISTING PAVEMENT 2 ½" AND REPLACE W/I19.0B

6/2/99  
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1453

PAVEMENT SCHEDULE	
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.
C2	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
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V	2½" DEPTH MILLING BITUMINOUS PAVEMENT

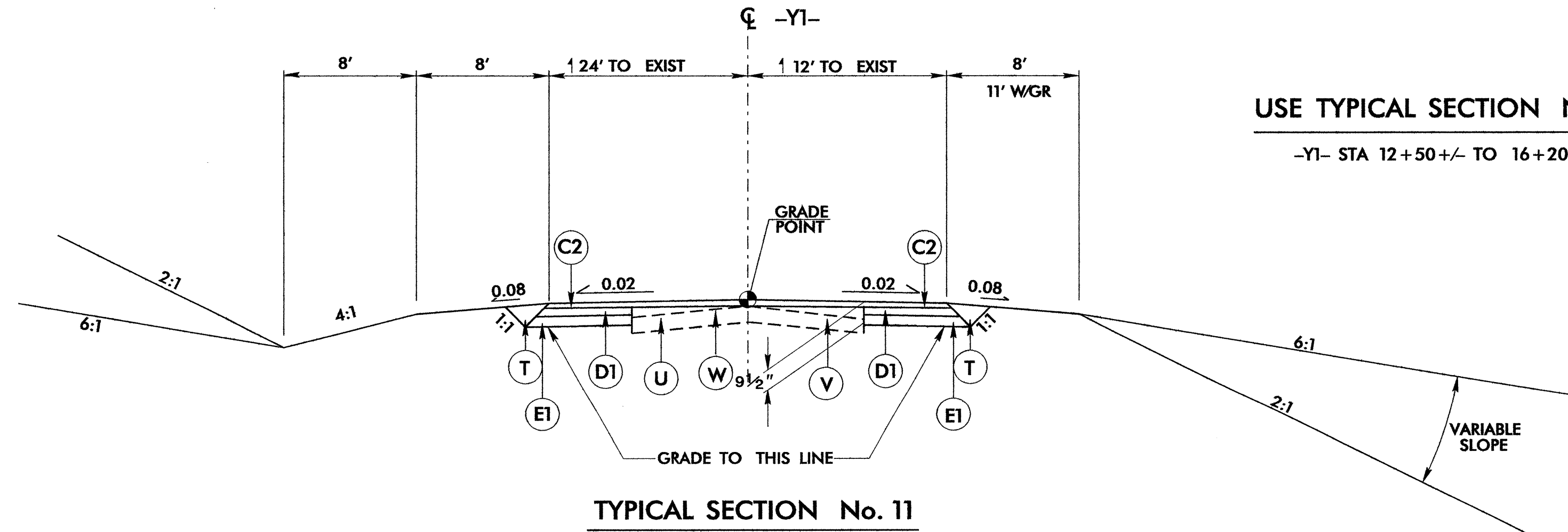
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



USE TYPICAL SECTION No. 10

-Y1- STA 10+00 TO 12+50+/-

NOTE: 1 SEE PLANS FOR TRANSITION AT INTERSECTION



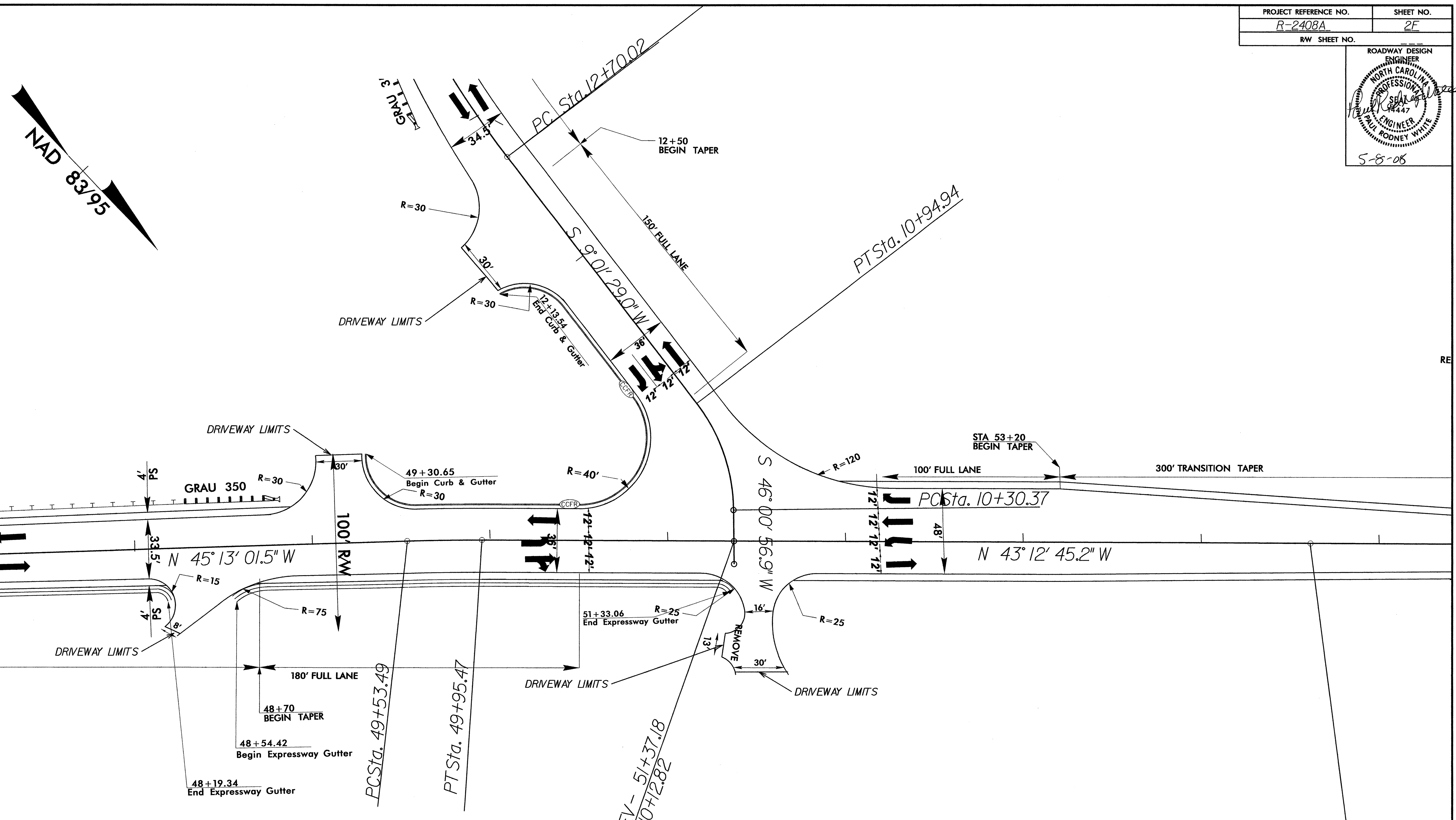
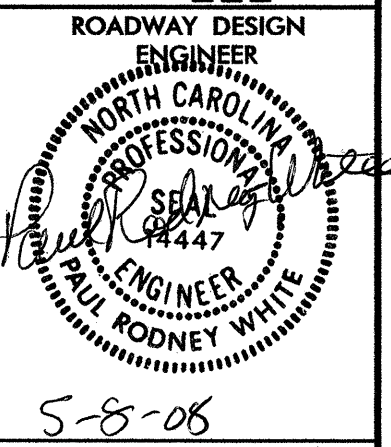
USE TYPICAL SECTION No. 11

-Y1- STA 12+50+/- TO 16+20.38

NOTE: MILL EXISTING PAVEMENT 2 1/2" AND REPLACE W/ I19.0B

8/17/99

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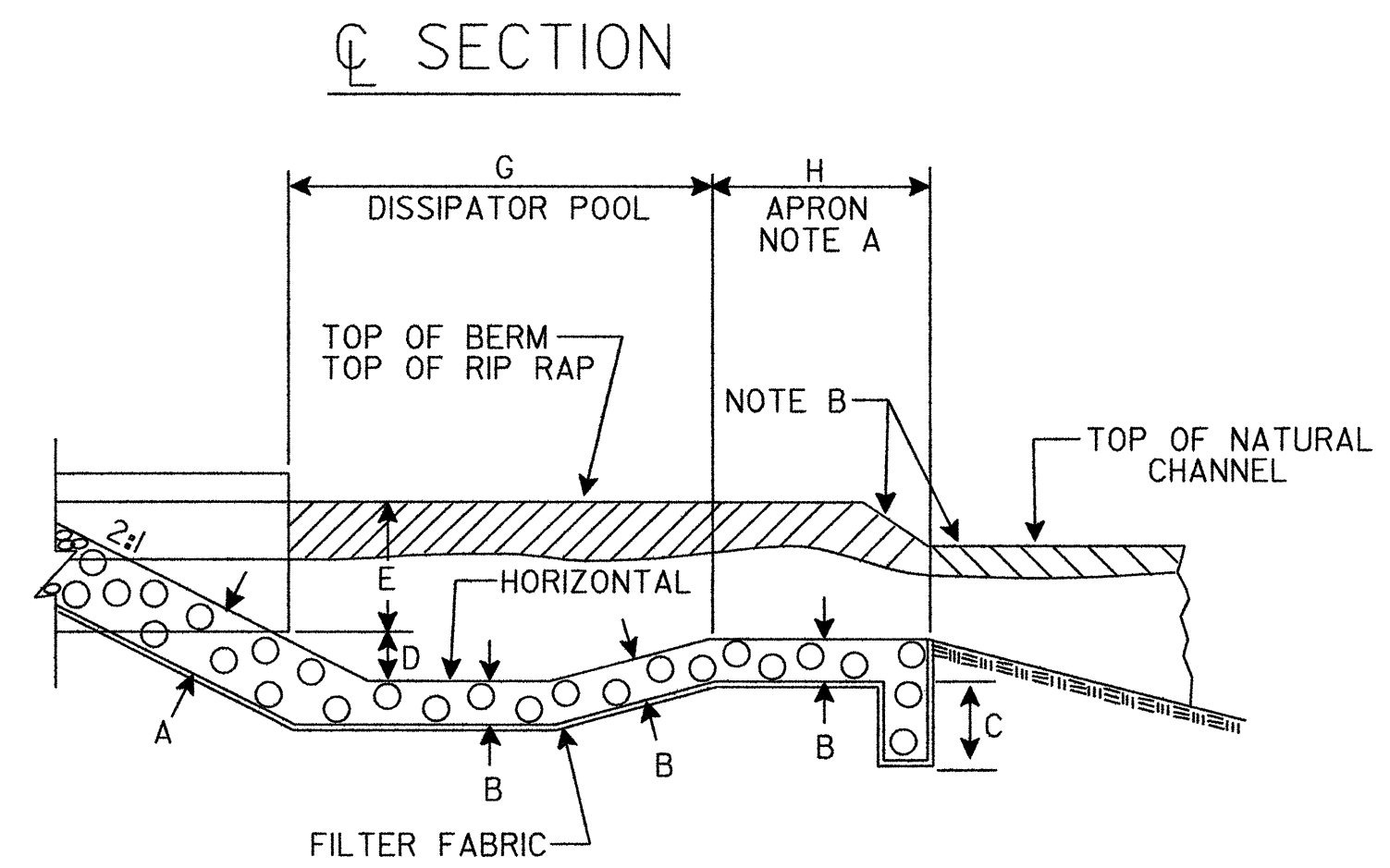
INTERSECTION OF  
 -YI- (NC 28 BRYSON CITY ROAD)  
 AND -LREV- (SR 1323 RVERVIEW STREET / NC 28 BRYSON CITY ROAD)  
 (SEE SHEET 7)

5/14/09  
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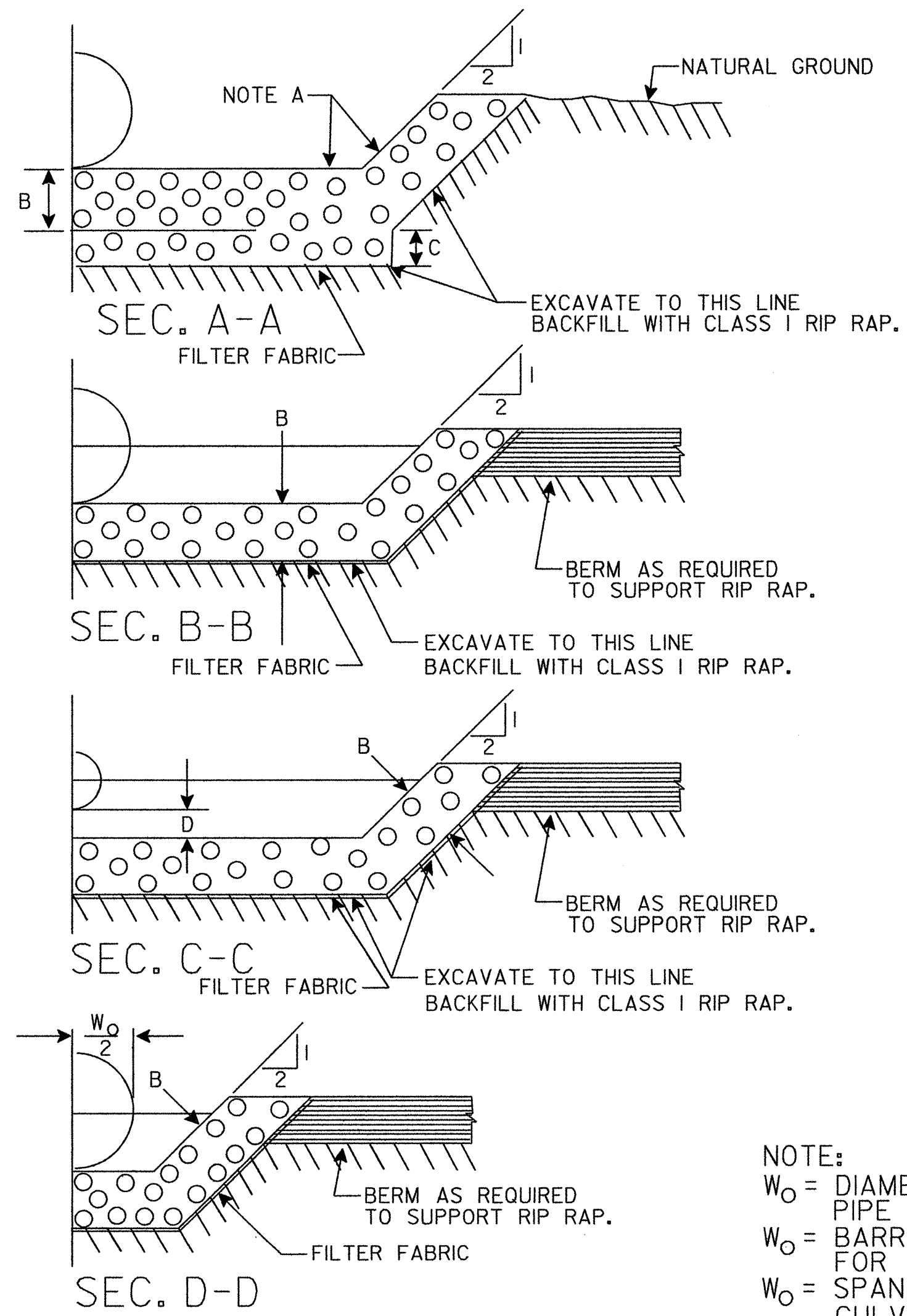
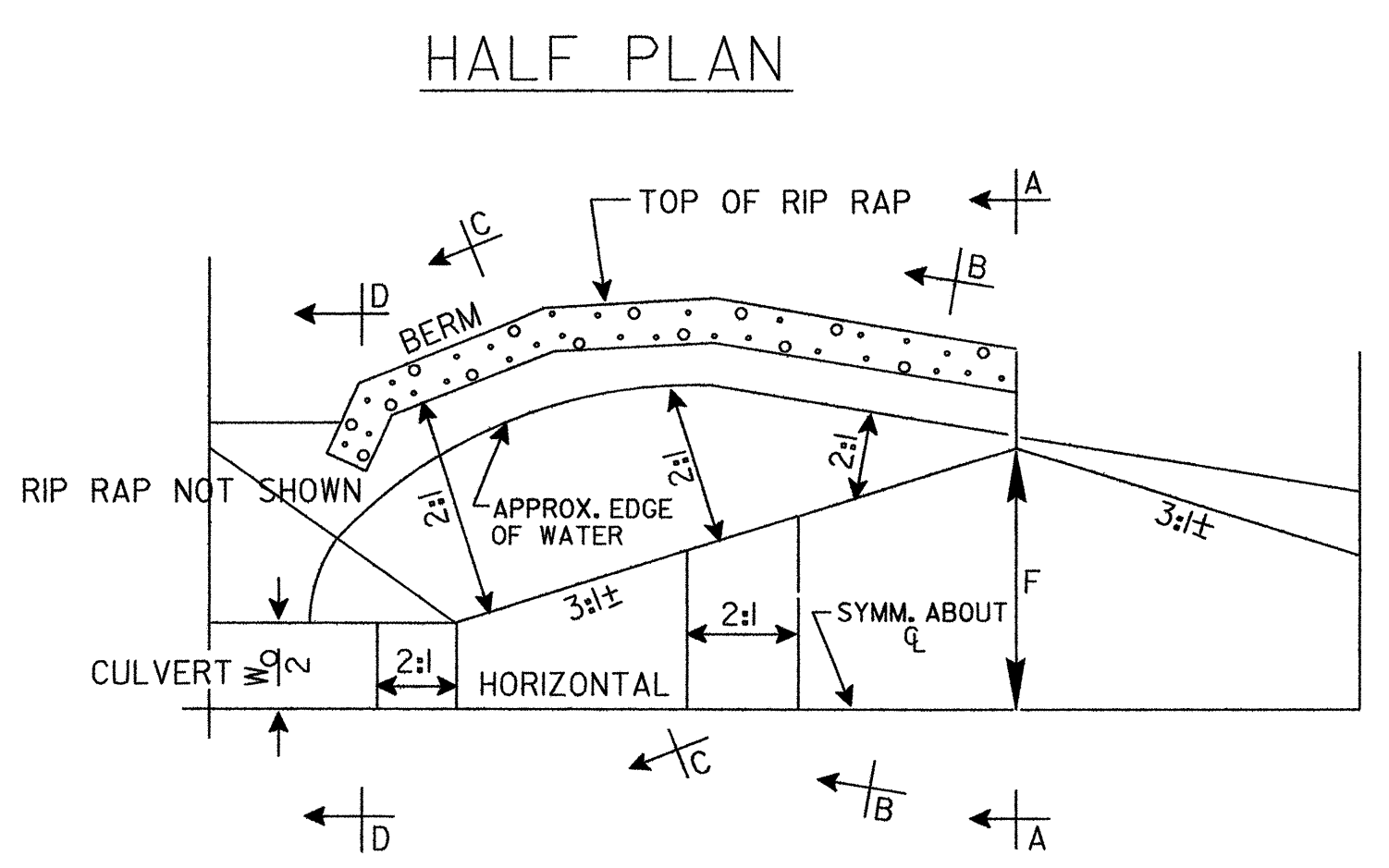
Wanda H. Austin  
5-12-08

### RIP-RAPPED ENERGY DISSIPATOR BASIN



NOTE A IF EXIT VELOCITY OF BASIN IS SPECIFIED, EXTEND BASIN AS REQUIRED TO OBTAIN SUFFICIENT CROSS SECTIONAL AREA AT SECTION A-A SUCH THAT  $Q_{des} / (\text{CROSS SECTION AREA AT SEC. A-A}) = \text{SPECIFIED EXIT VELOCITY}$ .

NOTE B WARP BASIN TO CONFORM TO NATURAL STREAM CHANNEL. TOP OF RIPRAP IN FLOOR OF BASIN SHOULD BE AT SAME ELEVATION OR LOWER THAN NATURAL CHANNEL BOTTOM AT SEC. A-A. PROVIDE SMOOTH TRANSITION FROM END OF APRON TO NATURAL CHANNEL WIDTH.



DIM.	RIP RAP BASIN #							
	1	2	3	4	5	6	7	8
A	2.50							
B	1.25							
C	1.25							
D	0.00							
E	1.25							
F	3.00							
G	24.30							
H	1.00							

BASIN #	LOCATION (AT OUTLET)
1	13+23 -Y1-
2	
3	
4	
5	
6	
7	
8	

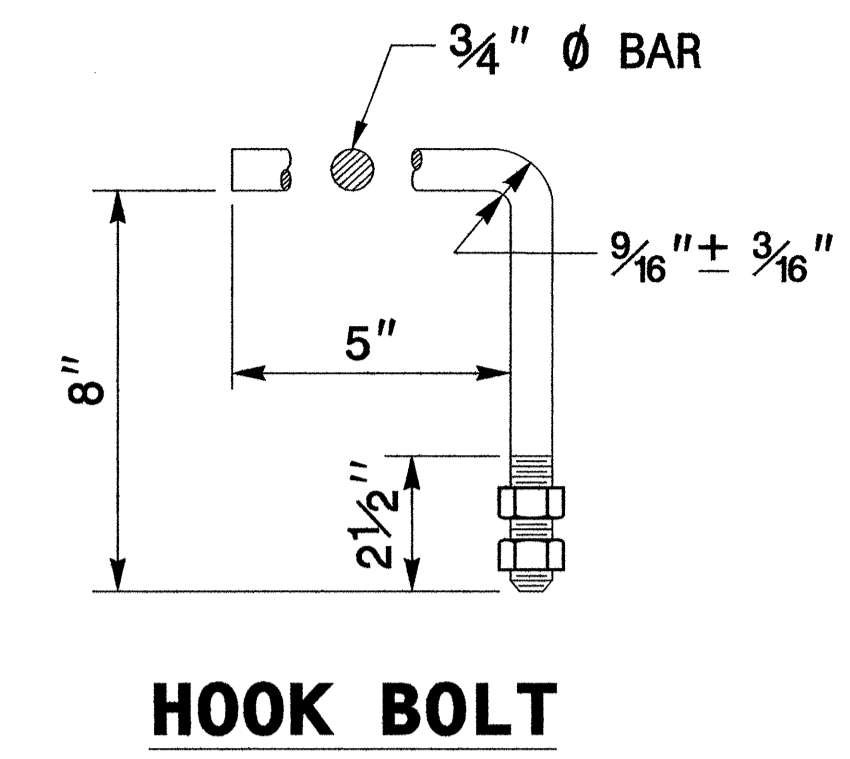
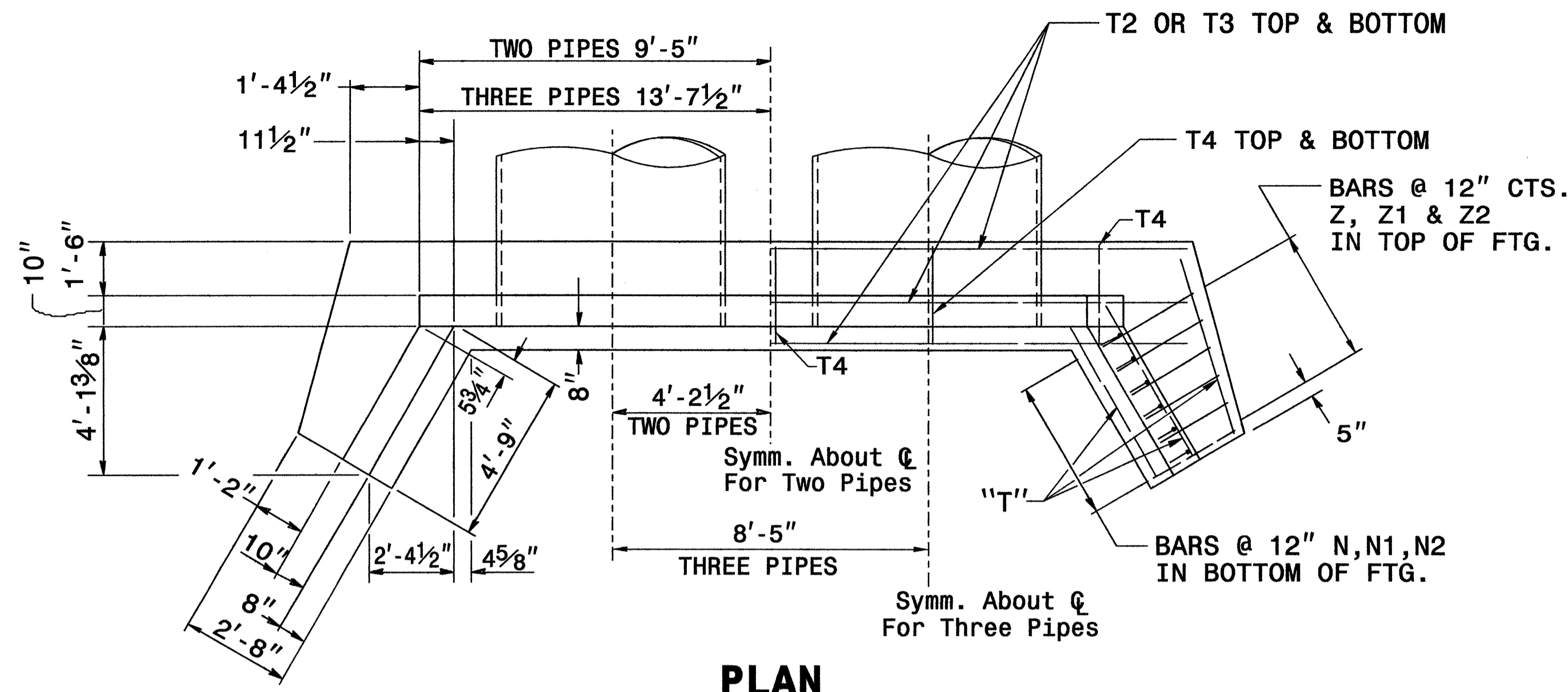
\*ALL DIMENSIONS APPROXIMATE IN FT

NOTE:  
 $W_0$  = DIAMETER FOR PIPE CULVERT  
 $W_0$  = BARREL WIDTH FOR BOX CULVERT  
 $W_0$  = SPAN OF PIPE-ARCH CULVERT

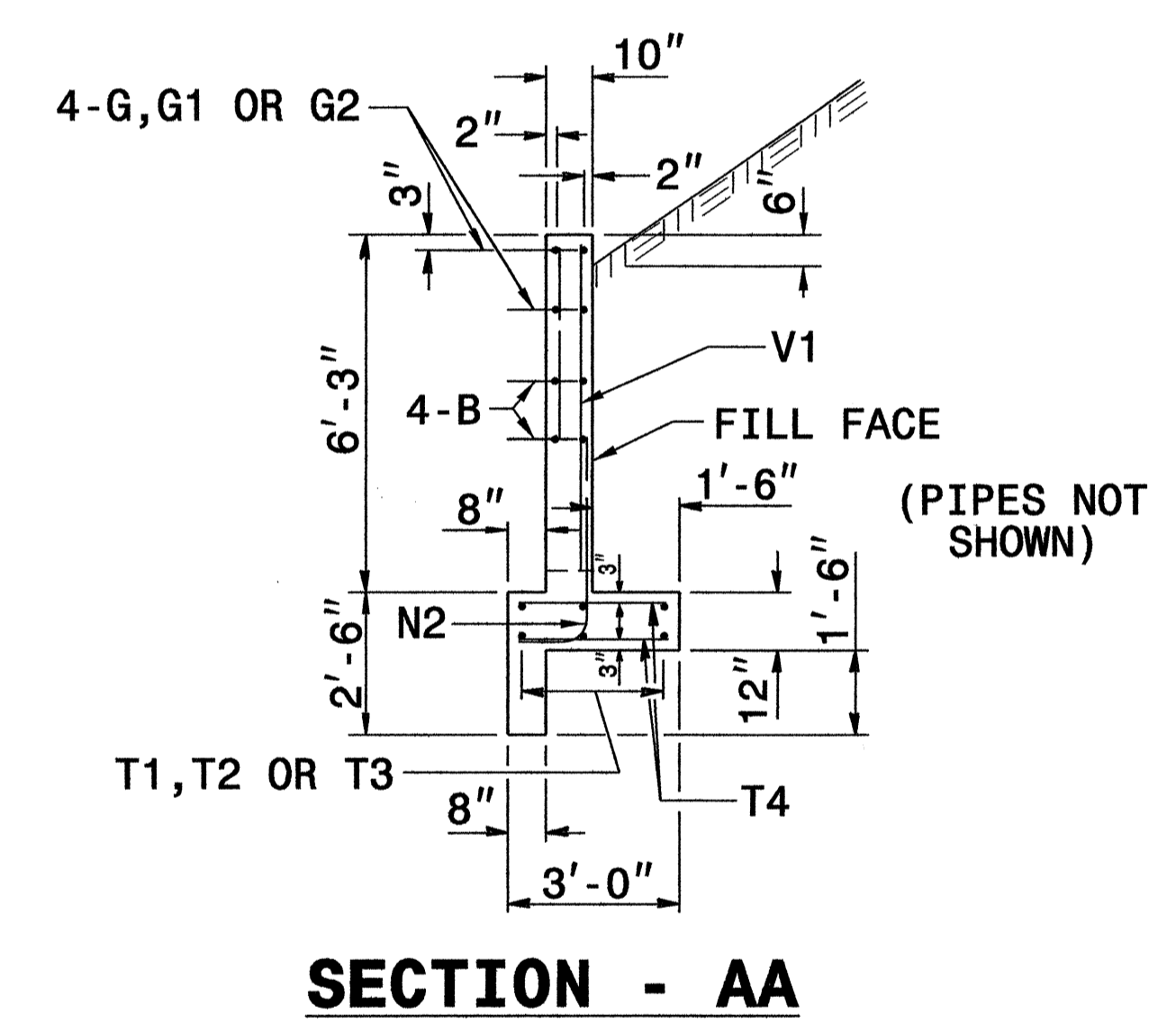
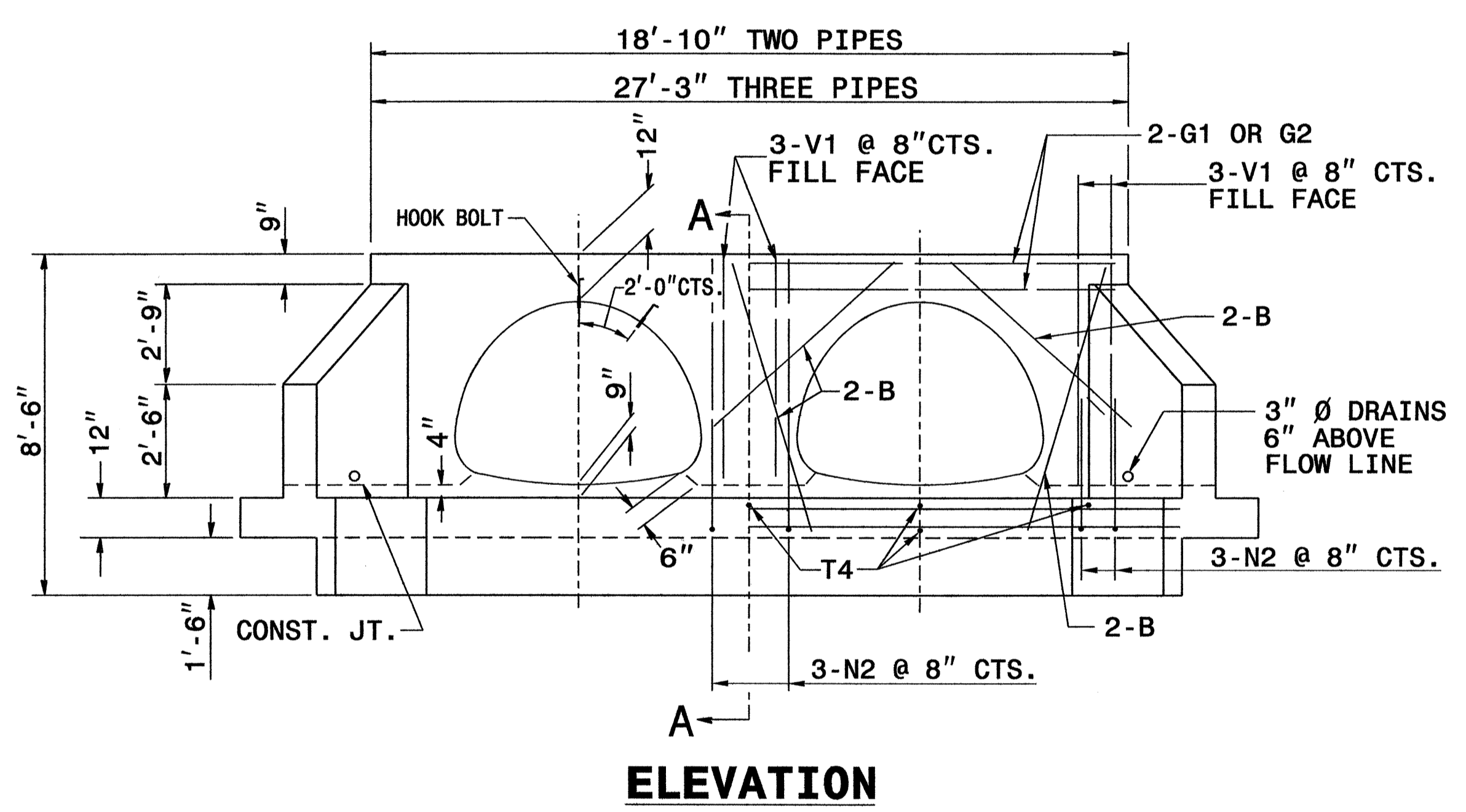
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 W. Austin AT D:\CAD\2008\59

**NOTES:**

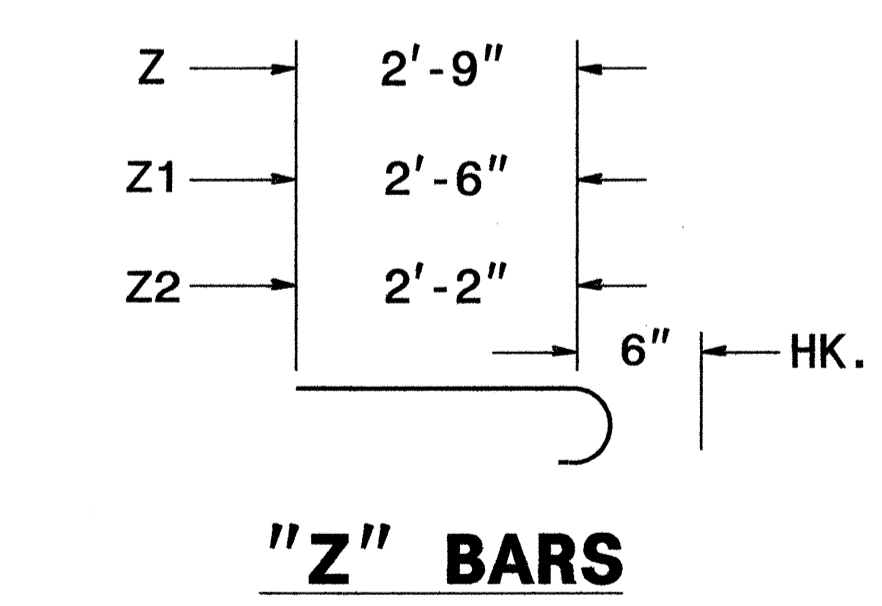
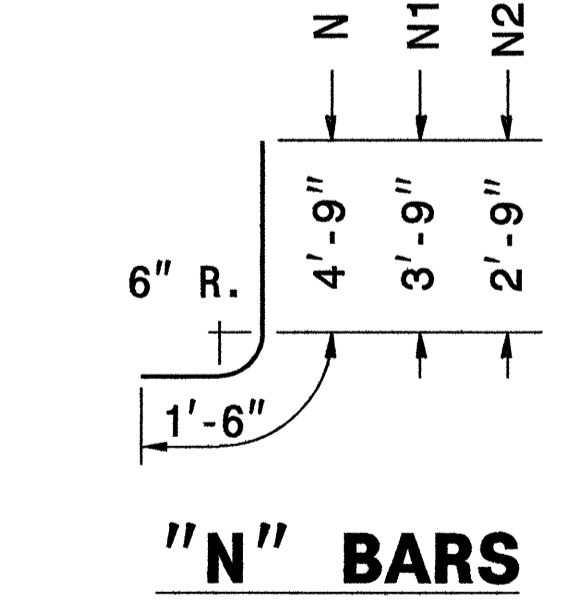
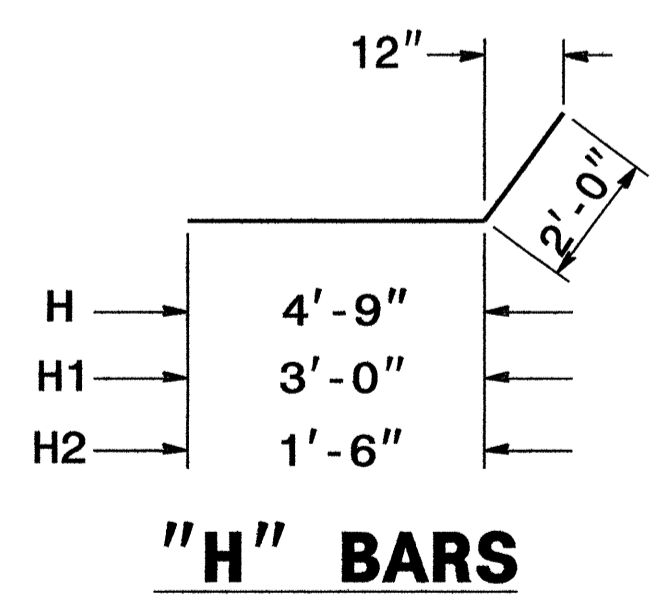
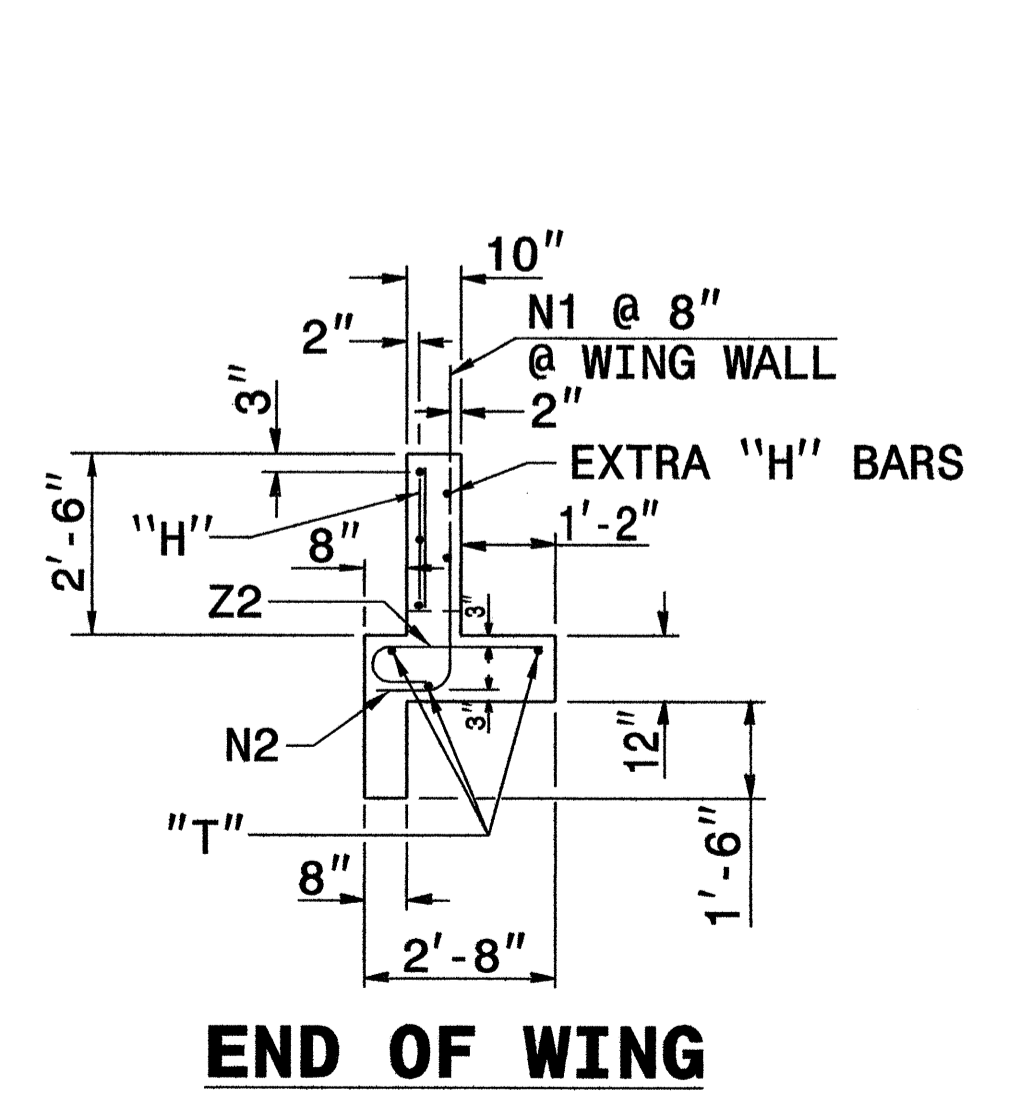
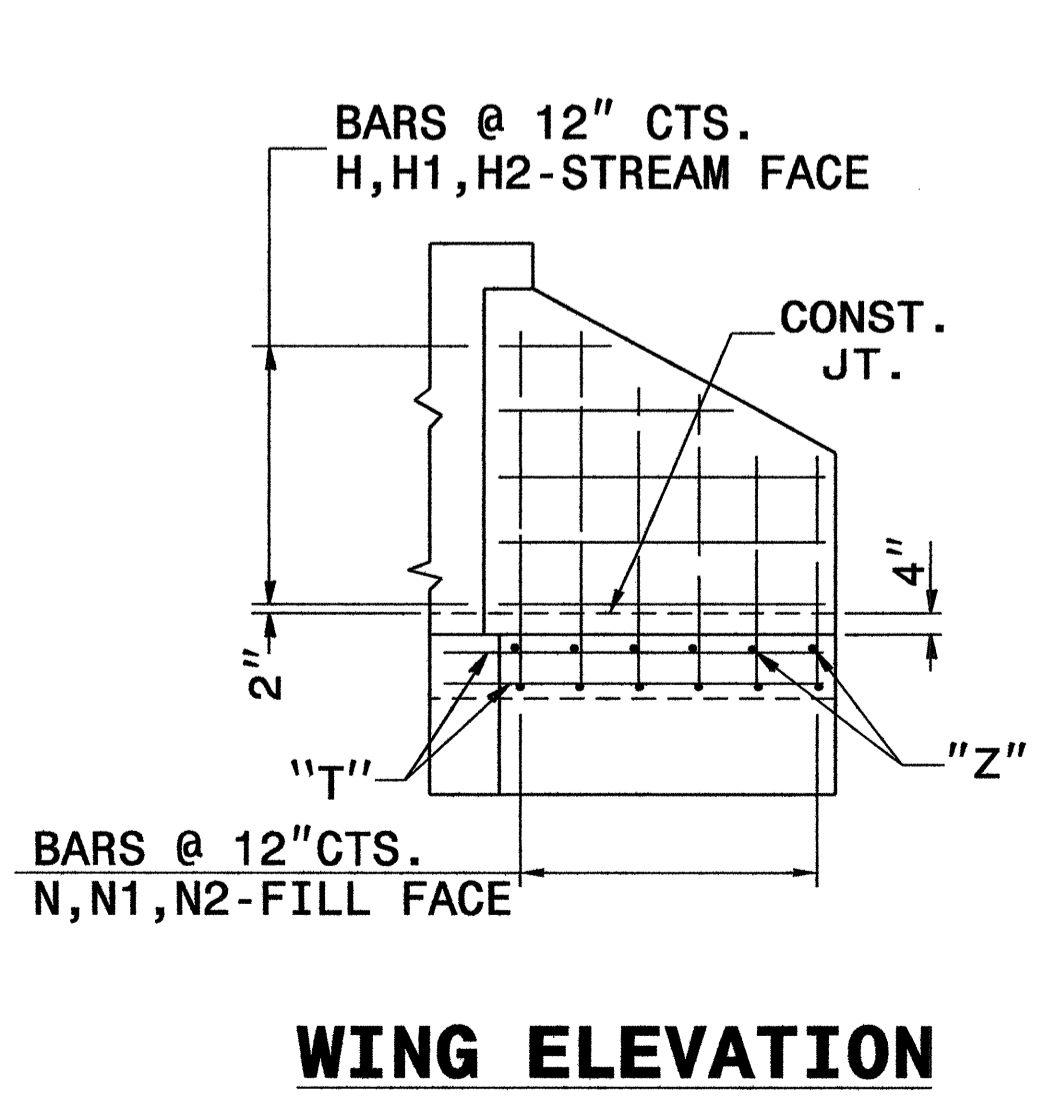
- ALL CONCRETE TO BE CLASS "A".
- ALL REINFORCING STEEL SHALL BE ASTM A615-GRADE 60.
- ALL REINFORCING STEEL SHALL BE DEFORMED BARS. WHERE SPLICING OF REINFORCEMENT IS NECESSARY, BARS ARE TO BE LAPPED 45 DIAMETERS. ALL DIMENSIONS RELATIVE TO REINFORCEMENT ARE TO CENTERS OF BARS.
- THE FOOTING, CURTAIN WALL AND 4" OF WALL ARE TO BE POURED IN ONE OPERATION ALLOWING NO TIME FOR INITIAL SET TO TAKE PLACE BETWEEN THEM. THE REMAINING WALL SHALL THEN BE POURED IN ONE OPERATION.
- ALL EXPOSED CORNERS ARE TO BE CHAMFERED 1".
- 3" DIAMETER DRAINS SHALL BE PLACED IN WALL AS SHOWN AND BE 6" ABOVE NORMAL FLOW LINE.
- ALL MATERIAL AND WORKMANSHIP AS PER N.C. DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.
- THE FOLLOWING EXTRA BARS ARE PROVIDED FOR HOLDING REINFORCING STEEL IN CORRECT POSITION IN WING: 4H-4V-6T



NOTE: CONSTRUCT HOOK BOLTS (ANCHORS) AT 2'-0" CTS. ALONG THE CIRCUMFERENCE OF THE 73"X55" CSPA. EMBED THE HOOK BOLTS 8" DEPTH. THE GALVANIZED 3/4" DIA. HOOK BOLTS MUST MEET ASTM A-307 OR ASTM A-836. BOTH BOLTS AND NUTS MUST BE IN ACCORDANCE WITH ASTM A-153 FOR GALVANIZING.



BILL OF MATERIAL FOR ENDWALL								
REIN. STEEL			1 PIPES		2 PIPES		3 PIPES	
BAR	SIZE	LENGTH	NO.	WEIGHT	NO.	WEIGHT	NO.	WEIGHT
B	#4	6'-2"	8	33	16	66	24	99
G	#5	10'-2"	4	42	-	-	-	-
G1	#5	18'-6"	-	-	4	77	-	-
G2	#5	14'-6"	-	-	-	-	8	121
H	#4	6'-9"	10	45	10	45	10	45
H1	#4	5'-0"	2	7	2	7	2	7
H2	#4	3'-6"	2	5	2	5	2	5
N	#4	6'-3"	2	8	2	8	2	8
N1	#4	5'-3"	4	14	4	14	4	14
N2	#4	4'-3"	10	28	13	37	16	45
T	#4	4'-6"	6	18	6	18	6	18
T1	#4	19'-0"	6	52	-	-	-	-
T2	#4	21'-3"	-	-	6	85	-	-
T3	#4	16'-0"	-	-	-	-	12	128
T4	#4	2'-9"	4	7	7	13	10	18
V	#4	3'-0"	4	8	4	8	4	8
V1	#4	5'-6"	6	22	9	33	12	44
Z	#4	4'-0"	4	11	4	11	4	11
Z1	#4	3'-9"	2	5	2	5	2	5
Z2	#4	3'-5"	4	9	4	9	4	9
REIN. STEEL LBS.			374	441	535			
CON./R.C. CU. YDS			5.3	7.4	9.5			



"H", "N", & "Z" BAR DIMENSIONS ARE OUT TO OUT.

**DESIGN DATA**

Specifications  
Steel in tension 20,000 LBS. PER SQ. IN.  
Concrete in compression 1,200 LBS. PER SQ. IN.  
Shear Class "A" Concrete SEE A.A.S.H.T.O.  
Equiv. fluid pressure of earth 30 LBS. PER CU. FT.

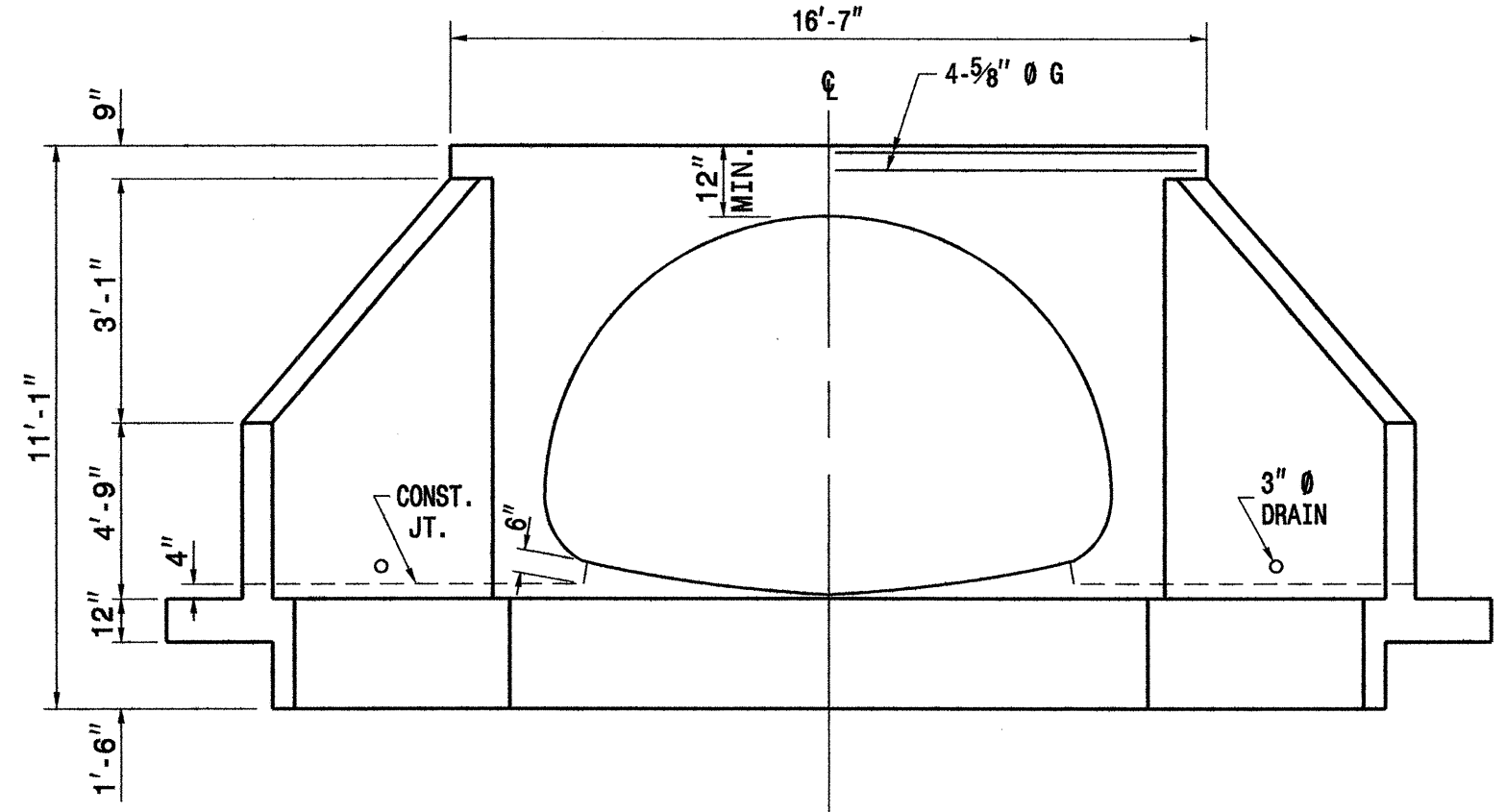
A.A.S.H.T.O. (1977)  
20,000 LBS. PER SQ. IN.  
1,200 LBS. PER SQ. IN.  
SEE A.A.S.H.T.O.



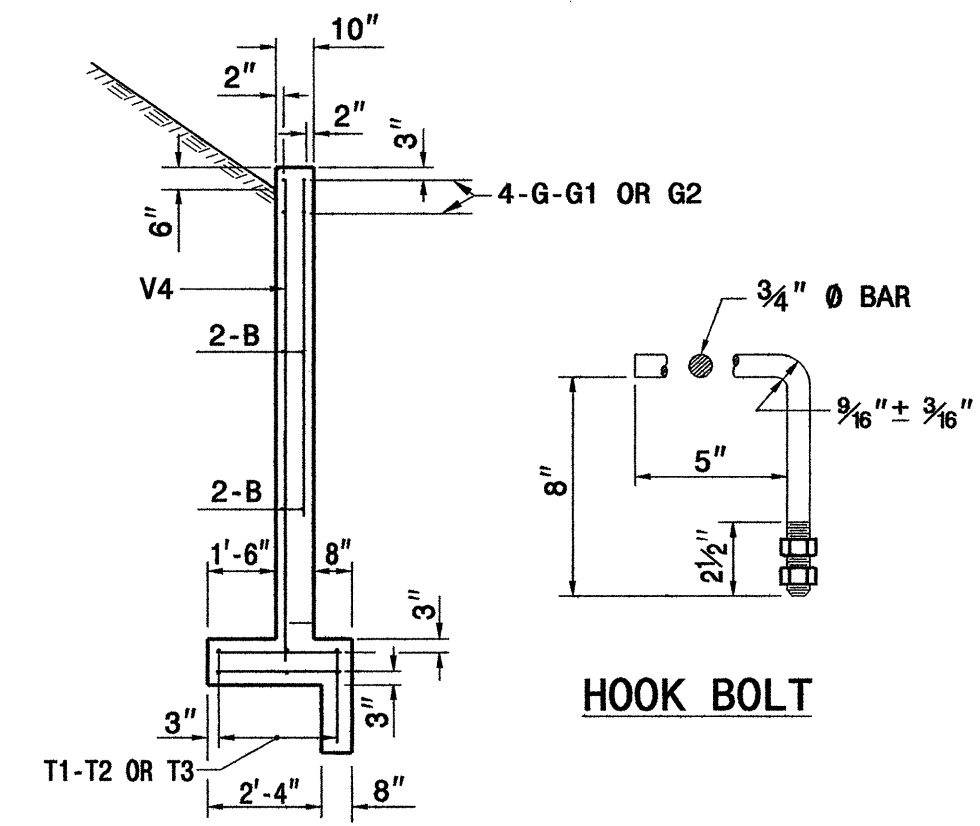
**PROJECT SERVICES UNIT  
STANDARDS AND SPECIAL DESIGN**  
Office 919-250-4128 FAX 919-250-4119

**DETAIL OF REINFORCED  
CONCRETE ENDWALL  
FOR 73" X 55" (Pipe Arch)-90°**

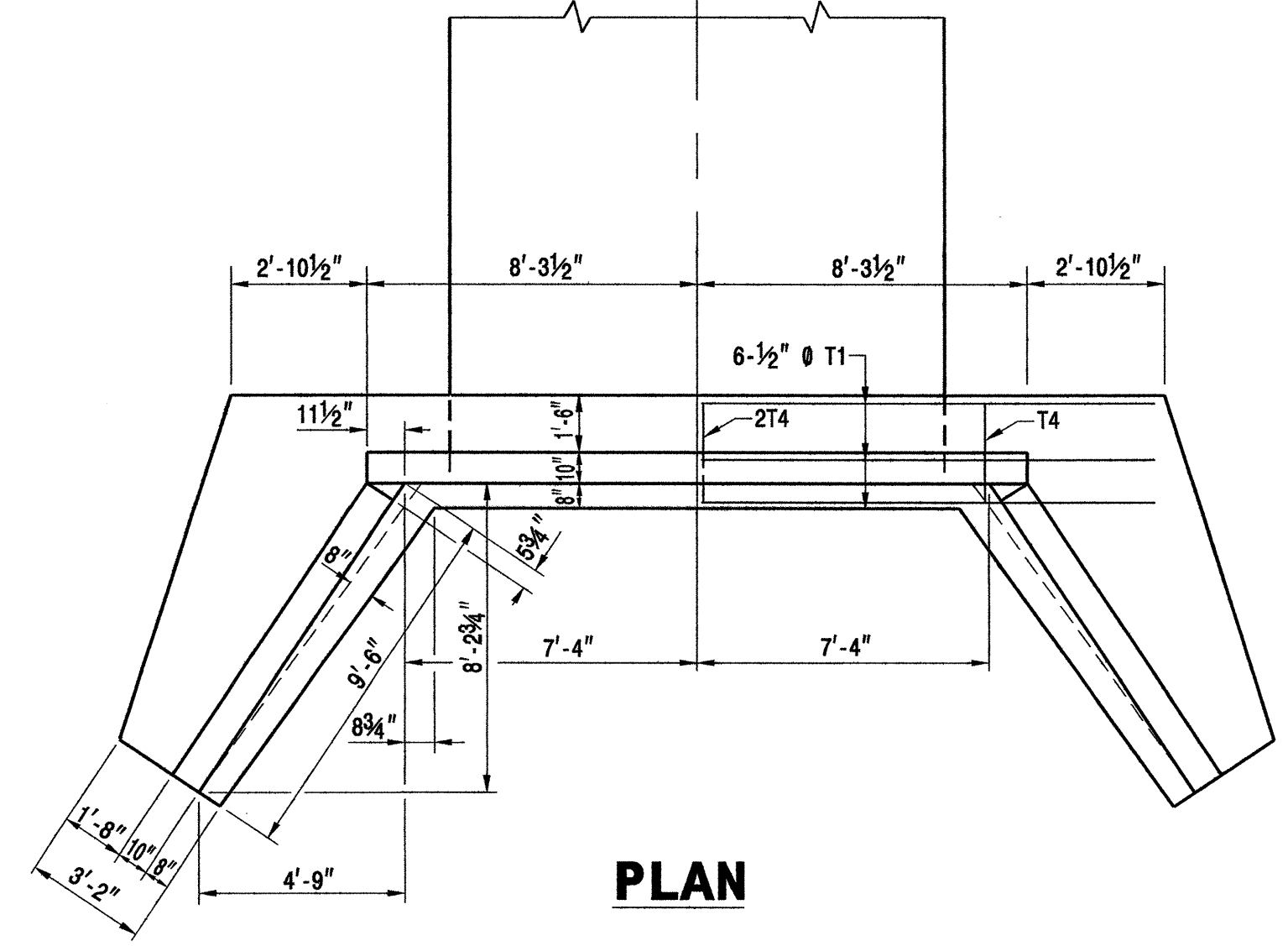
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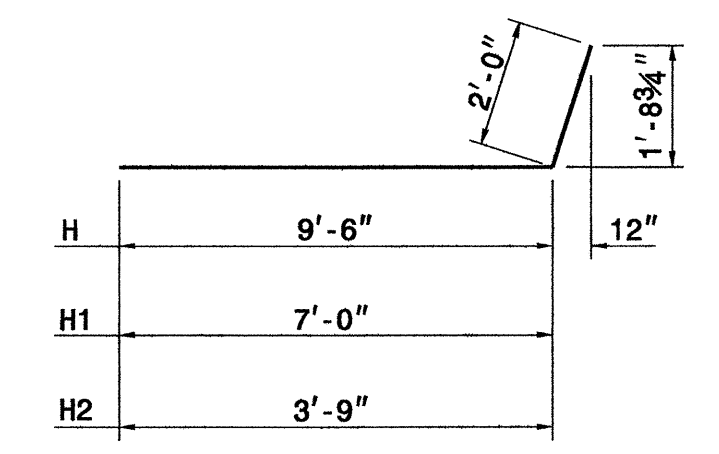
**END ELEVATION**



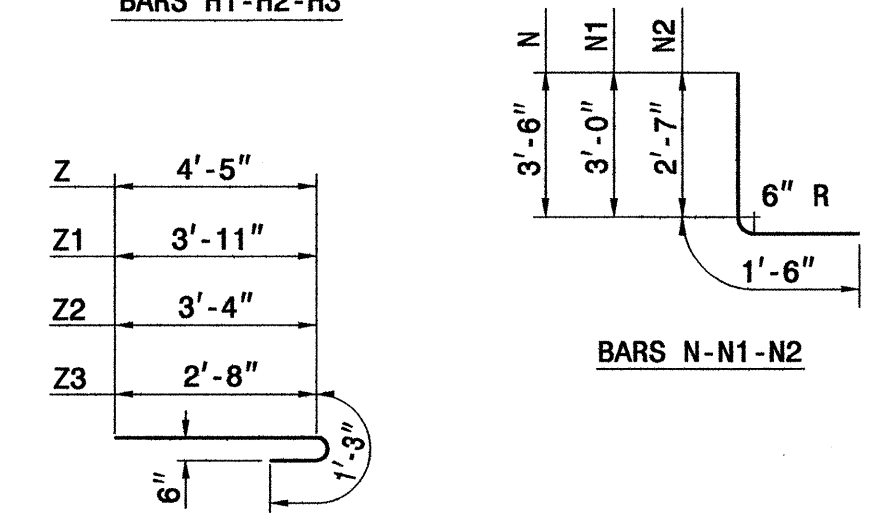
**SECTION A-A FOR ALL ENDWALLS**



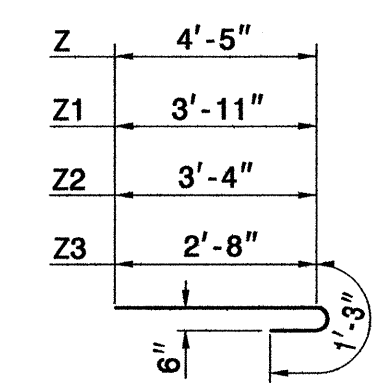
**PLAN**



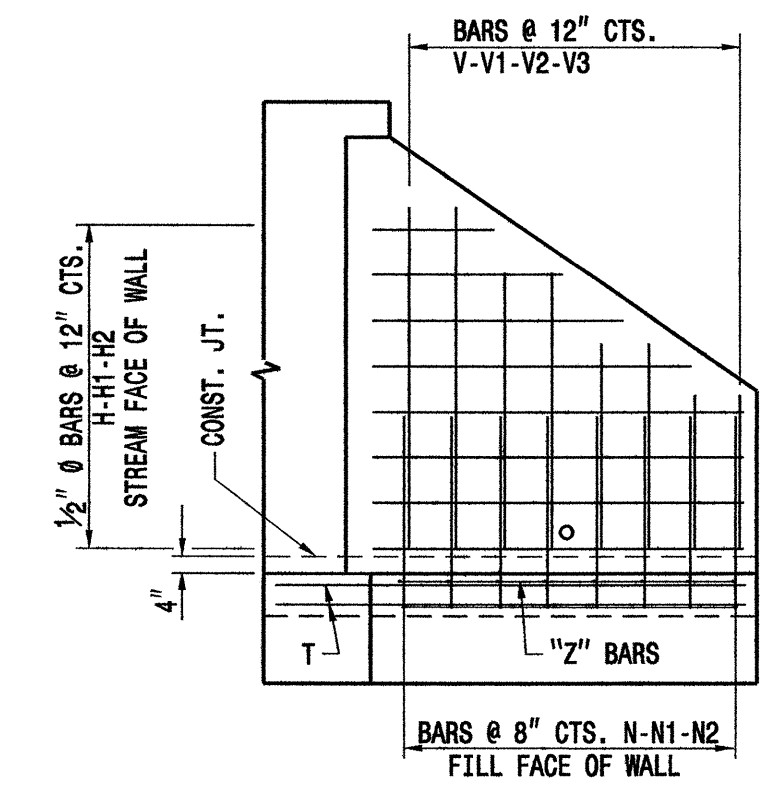
**BARS H1-H2-H3**



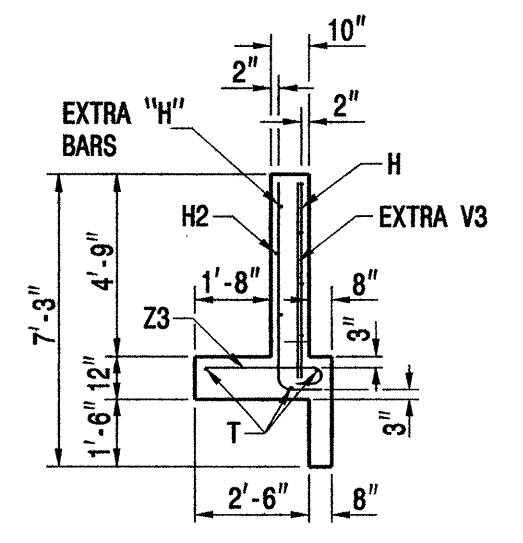
**BARS N-N1-N2**



**BARS Z-Z1-Z2-Z3**



**ELEVATION OF WING SHOWING REINFORCEMENT**



**END OF WING**

**SHOWING REINFORCEMENT**

**GENERAL NOTES**

ALL CONCRETE TO BE CLASS "A".  
 ALL REINFORCING STEEL SHALL BE ASTM A615-GRADE 60.  
 ALL REINFORCING STEEL SHALL BE DEFORMED BARS. WHERE SPLICING OF REINFORCEMENT IS NECESSARY, BARS ARE TO BE LAPPED 45 DIAMETERS. ALL DIMENSIONS RELATIVE TO REINFORCEMENT ARE TO CENTERS OF BARS.  
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 3" DIAMETER DRAINS SHALL BE PLACED IN WALL AS SHOWN AND BE 6" ABOVE NORMAL FLOW LINE.  
 ALL MATERIAL AND WORKMANSHIP AS PER SPECIFICATIONS OF THE N.C. DEPARTMENT OF TRANSPORTATION.  
 THE FOLLOWING EXTRA BARS ARE PROVIDED FOR HOLDING REINFORCING STEEL IN CORRECT POSITION IN WINGS:  
 2H-1H2-2H4-1H6-3T-3T1-2V-1V1-2V2.

**BILL OF MATERIAL**

BAR	SIZE	LENGTH	NO.	WEIGHT
B	#4	10'-0"	8	53
G	#5	17'-0"	4	71
G1	#5	18'-3"	-	-
G2	#5	18'-9"	-	-
H	#4	11'-6"	12	92
H1	#4	9'-0"	4	24
H2	#4	5'-9"	6	23
N	#6	5'-0"	12	90
N1	#5	4'-6"	6	28
N2	#4	4'-1"	16	44
T	#4	9'-6"	6	38
T1	#4	23'-0"	6	92
T2	#4	20'-11"	-	-
T3	#4	20'-5"	-	-
T4	#4	2'-9"	4	7
V	#5	8'-0"	8	67
V1	#4	6'-0"	10	40
V2	#4	4'-9"	6	19
V3	#4	3'-9"	6	15
V4	#4	9'-10"	6	39
Z	#6	5'-8"	6	51
Z1	#5	5'-2"	6	32
Z2	#4	4'-7"	8	24
Z3	#4	3'-11"	8	21
TOTAL REINF. STEEL (lbs.)				870
CLASS "A" CONC. (cu. yds.)				13.0

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

**DETAIL OF  
 REINFORCED CONCRETE ENDWALL  
 FOR 142" X 91"  
 PIPE ARCH - 90°**

ORIGINAL BY: T. Spell DATE: Oct. 1998  
 MODIFIED BY: T. Spell DATE: Nov. 2007  
 CHECKED BY: DATE:  
 FILE SPEC.: ds174:usr/details/stand/endwpiparch.dgn

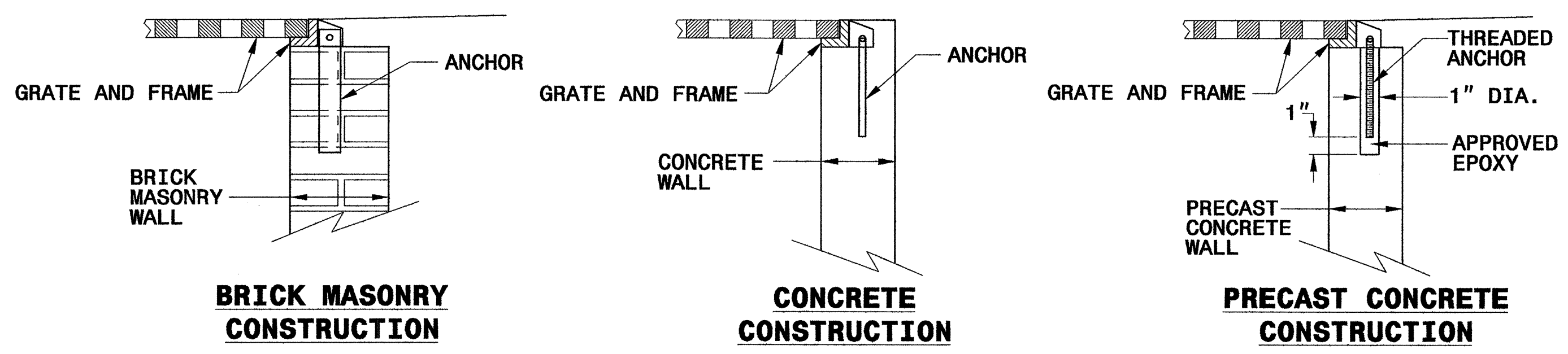
PROJECT REFERENCE NO. SHEET NO.

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

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

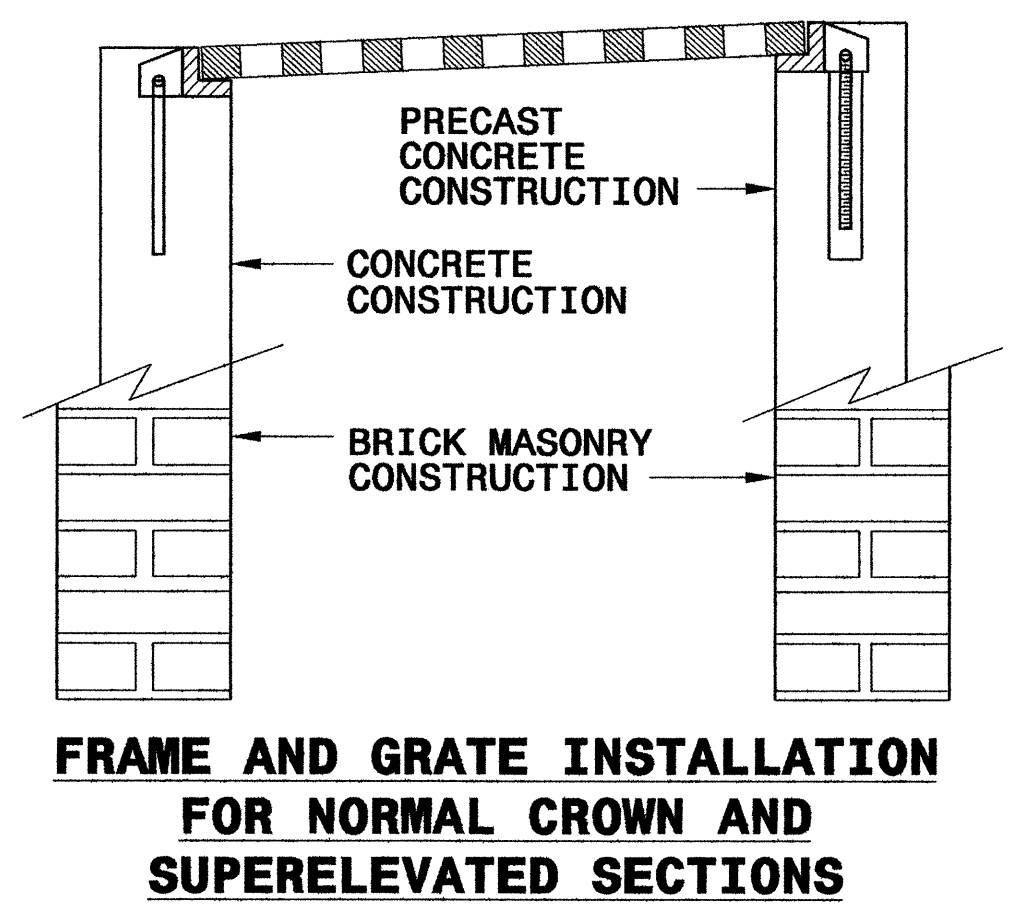
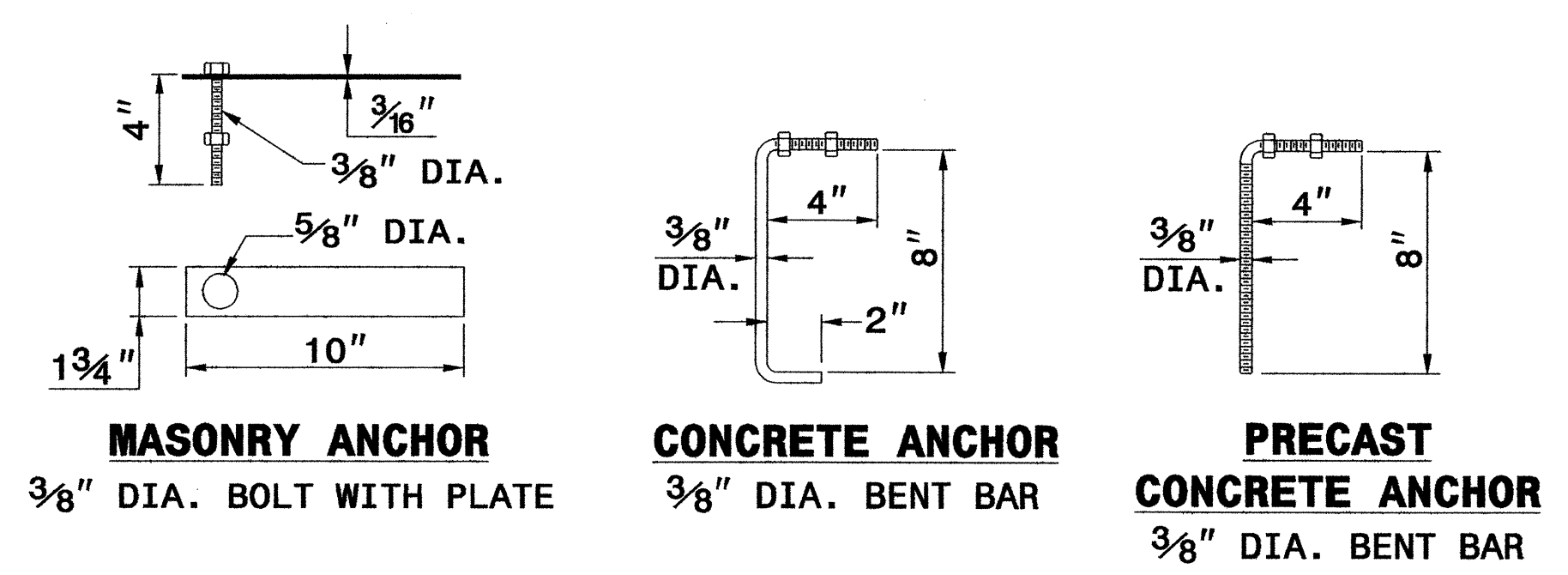
STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

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



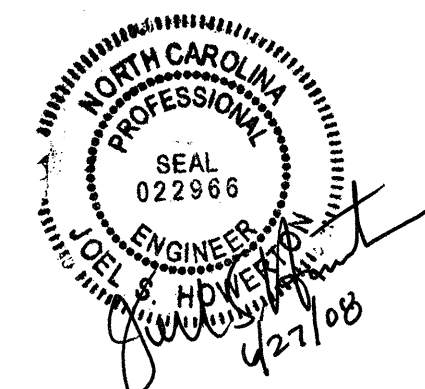
**DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET**

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



SHEET 1 OF 1  
**840D25**

SHEET 1 OF 1  
**840D25**



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

**SEE PLATE FOR TITLE**

ORIGINAL BY: 2008 STD 840.25 DATE: 07/19/06  
MODIFIED BY: E.E. WARD DATE: 9/25/06  
CHECKED BY: DATE:  
FILE SPEC.:

21 SEP 2006 09:59 S:\cadd\p25\1\840D25\Special Details\840D25 Anchorage for Frames\840D25.dgn

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201777

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# SUMMARY OF QUANTITIES

ItemNumber	Sec #	Quantity	Unit	Description
000100000-N	800	Lump Sum		MOBILIZATION
004300000-N	226	Lump Sum		GRADING
005000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING
005700000-E	226	4,100	CY	UNDERCUT EXCAVATION
008000000-E	SP	3,000	TON	CLASS IV SUBGRADE STABILIZATION
013400000-E	240	90	CY	DRAINAGE DITCH EXCAVATION
014100000-E	240	5,400	LF	BERM DITCH CONSTRUCTION
019500000-E	265	3,000	CY	SELECT GRANULAR MATERIAL
019600000-E	270	4,500	SY	FABRIC FOR SOIL STABILIZATION
031800000-E	300	170	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS
034300000-E	310	140	LF	15" SIDE DRAIN PIPE
034400000-E	310	275	LF	18" SIDE DRAIN PIPE
037200000-E	310	810	LF	18" RC PIPE CULVERTS, CLASS III
037800000-E	310	75	LF	24" RC PIPE CULVERTS, CLASS III
039600000-E	310	100	LF	42" RC PIPE CULVERTS, CLASS III
090800000-E	310	92	LF	**** X **** BIT COAT CS PIPE ARCH CULVERTS, TYPE B ***** THICK (142" X 91", 0.138")
090800000-E	310	100	LF	**** X **** BIT COAT CS PIPE ARCH CULVERTS, TYPE B ***** THICK (64" X 43", 0.109")
090800000-E	310	126	LF	**** X **** BIT COAT CS PIPE ARCH CULVERTS, TYPE B ***** THICK (73" X 55", 0.109")
099500000-E	340	545	LF	PIPE REMOVAL
122000000-E	545	493	TON	INCIDENTAL STONE BASE
129700000-E	607	6,950	SY	MILLING ASPHALT PAVEMENT, **** DEPTH (2-1/2")
148900000-E	610	3,710	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
149800000-E	610	3,530	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE H9.0B
151900000-E	610	2,980	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B
156000000-E	620	505	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
202200000-E	815	224	CY	SUBDRAIN EXCAVATION
203300000-E	815	168	CY	SUBDRAIN FINE AGGREGATE
204400000-E	815	1,000	LF	6" PERFORATED SUBDRAIN PIPE
205500000-E	815	30	EA	6" SUBDRAIN PIPE WYES, TEES, & ELBOWS
206600000-N	815	2	EA	CONCRETE PAD FOR SUBDRAIN PIPE OUTLET
207700000-E	815	12	LF	6" OUTLET PIPE (SUBDRAINS)
220900000-E	838	4.2	CY	ENDWALLS
222000000-E	838	18.3	CY	REINFORCED ENDWALLS
227500000-E	SP	10	CY	FLOWABLE FILL
228600000-N	840	10	EA	MASONRY DRAINAGE STRUCTURES
229700000-E	840	5	CY	MASONRY DRAINAGE STRUCTURES
235400000-N	840	1	EA	FRAME WITH GRATE, STD 840.22
236500000-N	840	3	EA	FRAME WITH TWO GRATES, STD 840.22
236700000-N	840	9	EA	FRAME WITH TWO GRATES, STD 840.29
254900000-E	846	310	LF	2'-6" CONCRETE CURB & GUTTER
257700000-E	846	2,730	LF	CONCRETE EXPRESSWAY GUTTER
261200000-E	848	10	SY	6" CONCRETE DRIVEWAY
303000000-E	862	3,162.5	LF	STEEL BM GUARDRAIL
304500000-E	862	87.5	LF	STEEL BM GUARDRAIL, SHOP CURVED
315000000-N	862	18	EA	ADDITIONAL GUARDRAIL POSTS
319500000-N	862	2	EA	GUARDRAIL ANCHOR UNITS, TYPE AT-1
327000000-N	SP	16	EA	GUARDRAIL ANCHOR UNITS, TYPE 350

ItemNumber	Sec #	Quantity	Unit	Description
362800000-E	876	50	TON	RIP RAP, CLASS I
363500000-E	876	40	TON	RIP RAP, CLASS II
364900000-E	876	40	TON	RIP RAP, CLASS B
365600000-E	876	210	SY	FILTER FABRIC FOR DRAINAGE
440000000-E	1110	1,536	SF	WORK ZONE SIGNS (STATIONARY)
440500000-E	1110	144	SF	WORK ZONE SIGNS (PORTABLE)
441000000-E	1110	314	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
443000000-N	1130	225	EA	DRUMS
443500000-N	1135	125	EA	CONES
444500000-E	1145	208	LF	BARRICADES (TYPE III)
445500000-N	1150	480	MD	FLAGGER
465000000-N	1251	96	EA	TEMPORARY RAISED PAVEMENT MARKERS
468500000-E	1205	9,947	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)
468600000-E	1205	12,638	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)
469500000-E	1205	547	LF	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)
471000000-E	1205	91	LF	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)
472500000-E	1205	18	EA	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)
481000000-E	1205	32,800	LF	PAINT PAVEMENT MARKING LINES (4")
490500000-N	1253	208	EA	SNOWPLOWABLE PAVEMENT MARKERS
532500000-E	1510	1,826	LF	6" WATER LINE
554000000-E	1515	5	EA	6" VALVE
564800000-N	1515	3	EA	RELOCATE WATER METER
566600000-E	1515	1	EA	FIRE HYDRANT
567200000-N	1515	1	EA	RELOCATE FIRE HYDRANT
569130000-E	1520	768.8	LF	8" SANITARY GRAVITY SEWER
577500000-E	1525	7	EA	4" DIA UTILITY MANHOLE

ItemNumber	Sec #	Quantity	Unit	Description
578100000-E	1525	27	LF	UTILITY MANHOLE WALL, 4" DIA
580100000-E	1530	619	LF	ABANDON 8" UTILITY PIPE
581600000-N	1530	2	EA	ABANDON UTILITY MANHOLE
600000000-E	1605	670	LF	TEMPORARY SILT FENCE
600600000-E	1610	160	TON	STONE FOR EROSION CONTROL, CLASS A
600900000-E	1610	430	TON	STONE FOR EROSION CONTROL, CLASS B
601200000-E	1610	495	TON	SEDIMENT CONTROL STONE
601500000-E	1615	15.5	ACR	TEMPORARY MULCHING
601800000-E	1620	550	LB	SEED FOR TEMPORARY SEEDING
602100000-E	1620	2.25	TON	FERTILIZER FOR TEMPORARY SEEDING
602400000-E	1622	470	LF	TEMPORARY SLOPE DRAINS
602700000-N	1622	13	EA	INLET PROTECTION AT TEMPORARY SLOPE DRAINS
602900000-E	SP	1,800	LF	SAFETY FENCE
603000000-E	1630	2,520	CY	SILT EXCAVATION
603600000-E	1631	5,290	SY	MATTING FOR EROSION CONTROL
603700000-E	SP	100	SY	COIR FIBER MAT
603800000-E	SP	1,395	SY	PERMANENT SOIL REINFORCEMENT MAT
604200000-E	1632	820	LF	1/4" HARDWARE CLOTH
604500000-E	SP	45	LF	*** TEMPORARY PIPE (18")
607103000-E	SP	405	LF	COIR FIBER BAFFLES
607105000-E	SP	16	EA	*** SKIMMER (3")
608400000-E	1660	15.5	ACR	SEEDING & MULCHING
608700000-E	1660	9.5	ACR	MOWING
609000000-E	1661	150	LB	SEED FOR REPAIR SEEDING
609300000-E	1661	0.5	TON	FERTILIZER FOR REPAIR SEEDING
609600000-E	1662	375	LB	SEED FOR SUPPLEMENTAL SEEDING
610800000-E	1665	11.5	TON	FERTILIZER TOPDRESSING
611400000-N	SP	7.5	HR	SPECIALIZED HAND MOWING
611700000-N	SP	36	EA	RESPONSE FOR EROSION CONTROL
706000000-E	1705	810	LF	SIGNAL CABLE
712000000-E	1705	8	EA	VEHICLE SIGNAL HEAD (12", 3 SECTION)
728800000-E	1715	30	LF	PAVED TRENCHING (***** (1, 2")
730000000-E	1715	660	LF	UNPAVED TRENCHING (***** (1, 2")
730100000-E	1715	200	LF	DIRECTIONAL DRILL (***** (2, 2")
732400000-N	1716	8	EA	JUNCTION BOX (STANDARD SIZE)
744400000-E	1725	625	LF	INDUCTIVE LOOP SAWCUT
745600000-E	1726	1,150	LF	LEAD-IN CABLE (***** (14-2)
758800000-N	SP	2	EA	METAL POLE WITH SINGLE MAST ARM
759000000-N	SP	1	EA	METAL POLE WITH DUAL MAST ARM
761300000-N	SP	3	EA	SOIL TEST
761410000-E	SP	18	CY	DRILLED PIER FOUNDATION
763100000-N	SP	3	EA	MAST ARM WITH METAL POLE DESIGN
763600000-N	1745	1	EA	SIGN FOR SIGNALS
768400000-N	1750	1	EA	SIGNAL CABINET FOUNDATION
775600000-N	1751	1	EA	CONTROLLER WITH CABINET (TYPE 2070L, BASE MOUNTED)
778000000-N	1751	3	EA	DETECTOR CARD (TYPE 2070L)
790100000-N	1753	1	EA	CABINET BASE EXTENDER

5/28/99  
 12-FEB-2008 15:28  
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 AT 01:40:22







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

IN CUBIC YARDS

LOCATION		EXCAVATION		EMBANKMENT	BORROW	WASTE
STATION	STATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBANKMENT +%		
LREV 10+00	28+00	2,653		10,134	7,481	
	Subtotal	2,653		10,134	7,481	
LREV 28+00	41+50	4,001		4,537	536	
	Subtotal	4,001		4,537	536	
LREV 41+50	51+50	877		6,233	5,356	
	Subtotal	877		6,233	5,356	
LREV 51+50	56+50	2,969		3,688	719	
Y1 10+00	13+25	5		2,348	2,343	
Y1 13+25	16+00	7,524		309		7,215
	Subtotal	10,498		6,346	3,062	7,215
TOTAL		18,029		27,250	16,436	7,215
LOSS DUE TO CLEARING AND GRUBBING		-1,500			1,500	
ESTIMATED SHOULDER MATERIAL				1,967	1,967	
EARTH WASTE TO REPLACE BORROW					-7,215	-7,215
PROJECT TOTALS		16,529		29,217	12,688	
ESTIMATE FOR REPLACING TOPSOIL ON BORROW PITS					634	
GRAND TOTALS		16,529			13,323	
SAY		16,600			13,400	

ESTIMATED DDE MATERIAL	90	
ADDITIONAL UNDERCUT		4100

**SUMMARY OF ASPHALT PAVEMENT REMOVAL**  
 IN SQUARE YARDS

LINE	Station	Station	LOC LT/RT/CL	YD <sup>2</sup>
-LREV-	23+00	25+50	LT	194
			TOTAL:	194
			SAY:	194

NOTE: Approximate quantities only. Unclassified Excavation, Borrow excavation, Fine Grading, Clearing and Grubbing, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."  
 Earthwork quantities are calculated by the Division Design Unit.

23-JULY-2008 15:49  
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 5/9/06

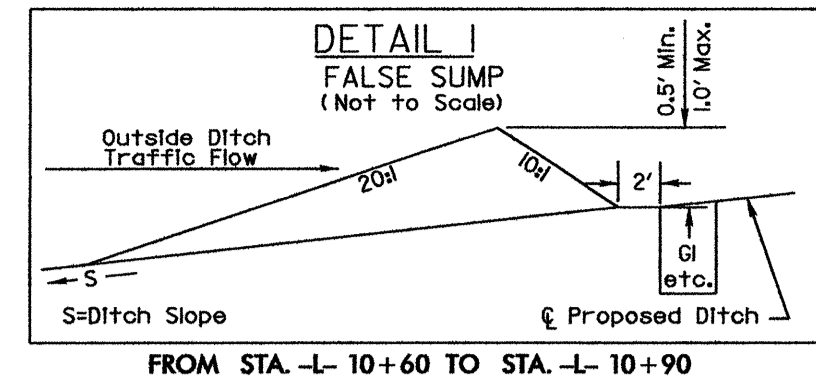
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# PARCEL INDEX SHEET

PARCEL NO.	SHEET NO.	PROPERTY OWNER NAME
1	4	DONALD & BARBARA RUSTER
2	4	BROWN BRANCH, LLC.
3	4, 5, 6	MACON COUNTY
4	4	MICHAEL A. & JANE S. WEBSTER
5	4	VESTA LYONS
6	4, 5	DANIEL Q. REESE
7	4	SALLY S. GATES
8	4	BOBBY LEE & CAROLYN HARTSELL
9	5	LAWRENCE C. JR. & MARGARET HOWARD
10	5	BENNIE LEE COLLETT
11	5	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
12	5	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
13	5	DAISY M. CORDER
14	5	WILLIAM MARTIN ET. AL.
15	5	LESLIE T. EVERETT
16	5, 6	MARY JOE ZEHNTNER TRUSTEE
17	6	TOWN OF FRANKLIN
18	6	LOUISE M. ARVEY
19	6	WILLIAM V. CANSLER
20	6, 7	LOLITA B. WEST
21	6	MELANIE C. DOWNS
22	6	CATHY S. CONNER
23	6, 7	THEODORE TALLENT
24	7	KHANS OF FRANKLIN, INC.
25	7	NORA JEAN B. & JAMES L. KINSLAND
25Z	7	NORA JEAN B. & JAMES L. KINSLAND
28	7	ARTHUR D. HALEY
29	7	EVELYN C. GREER
30	7	HARLEY CARPENTER, JR.
32	7	MARK ROBERT NOWICKI

6/16/99

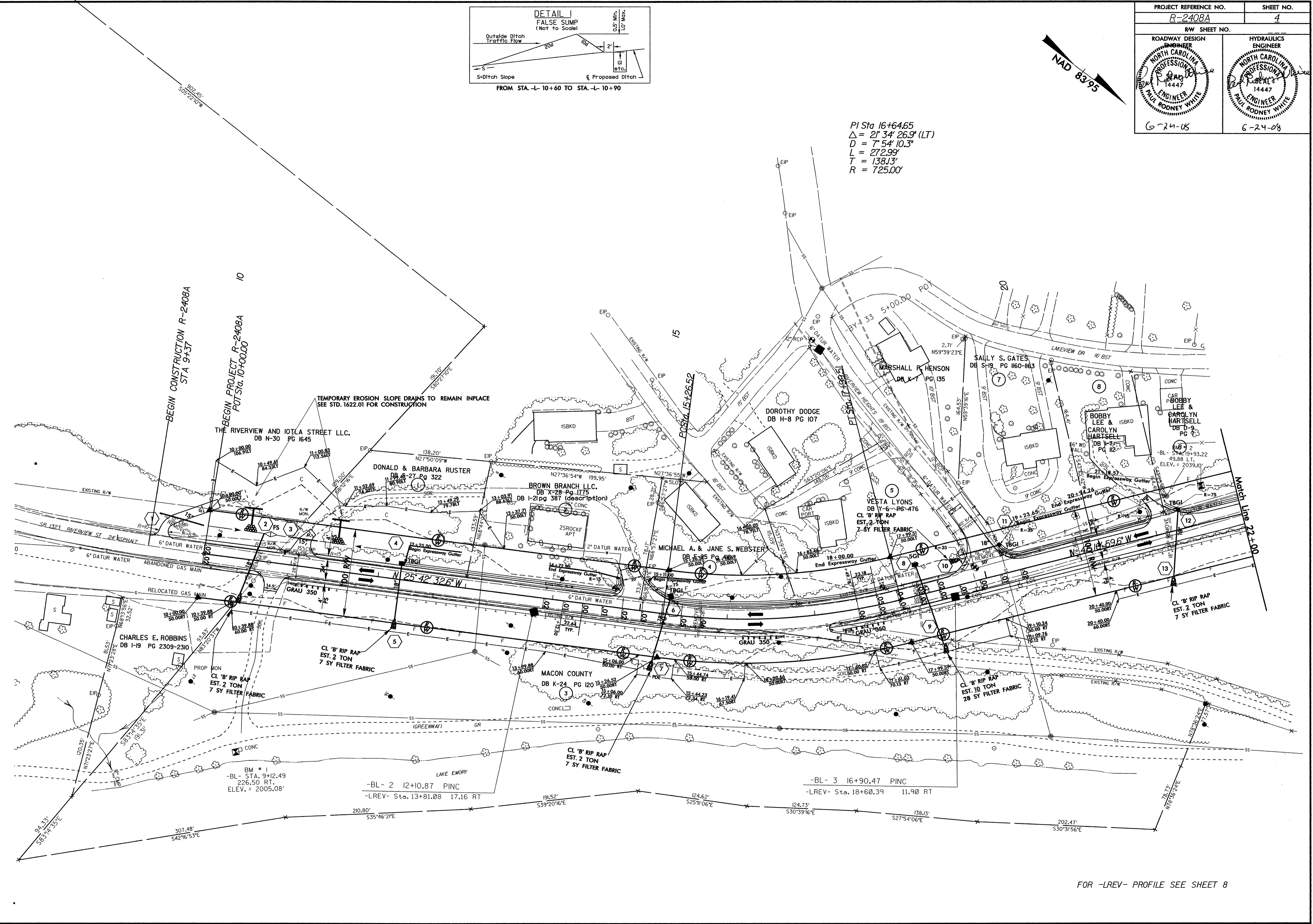
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12-FEB-2008 15:50  
K:\mccall\AT\0140.dwg



PROJECT REFERENCE NO. <b>R-2408A</b>	SHEET NO. <b>4</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER <b>PAUL RODNEY WHITE</b> NORTH CAROLINA PROFESSIONAL ENGINEER 14447	HYDRAULICS ENGINEER <b>PAUL RODNEY WHITE</b> NORTH CAROLINA PROFESSIONAL ENGINEER 14447
6-24-08	6-24-08


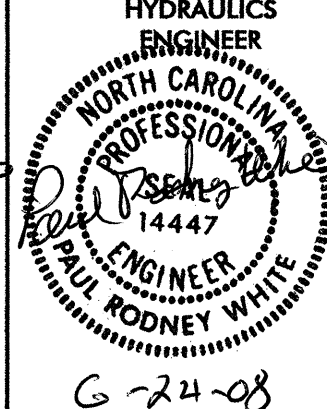
NAD 83/95

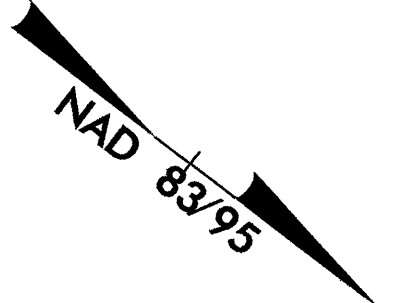
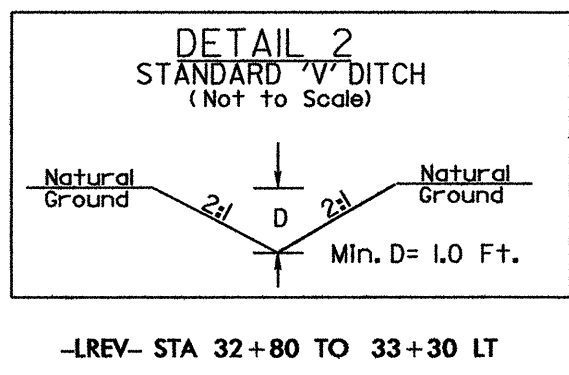
PI Sta 16+64.65  
 $\Delta = 21^\circ 34' 26.9"$  (LT)  
 $D = 7' 54" 10.3"$   
 $L = 272.99'$   
 $T = 138.13'$   
 $R = 725.00'$



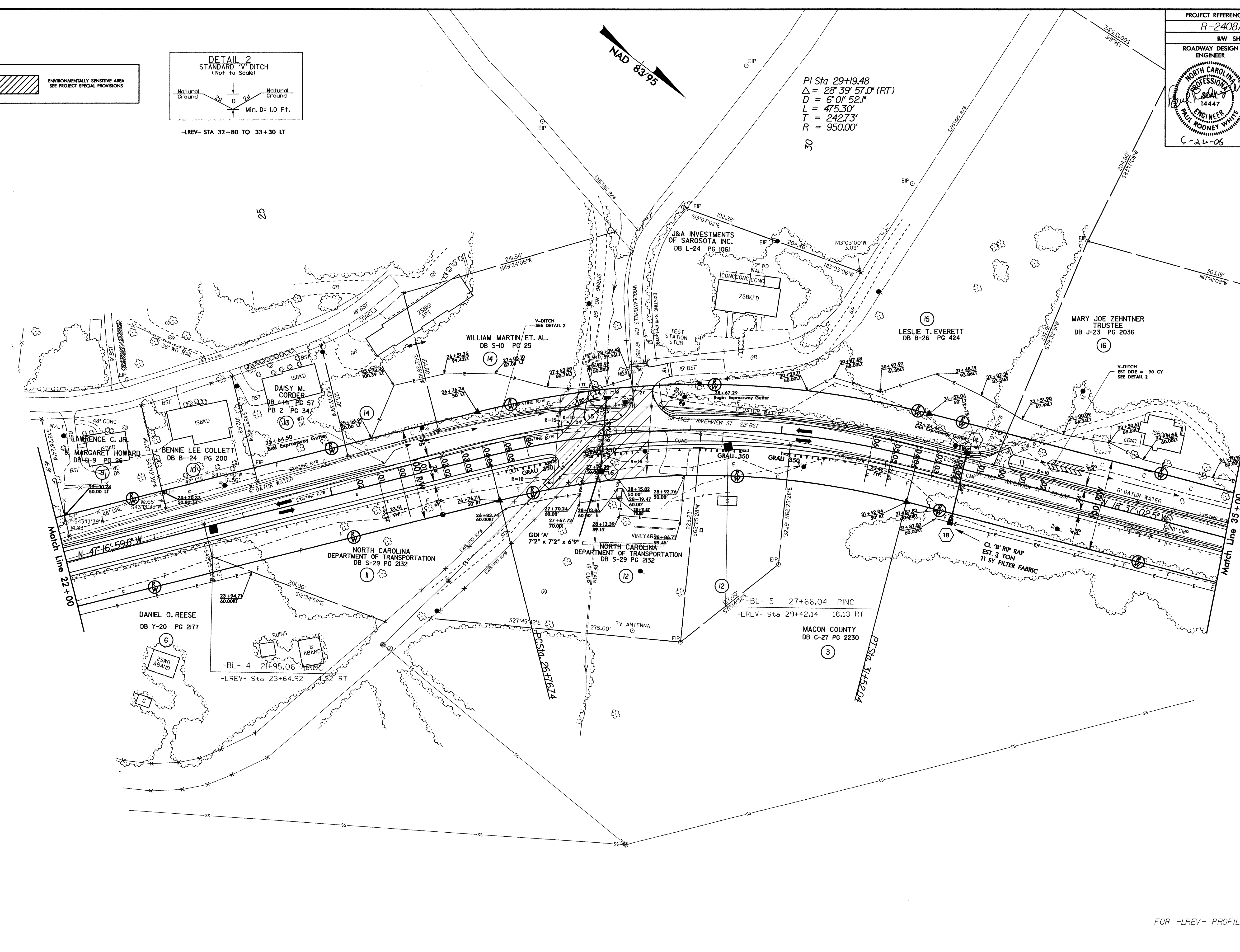
FOR -LREV- PROFILE SEE SHEET 8

8/17/99

PROJECT REFERENCE NO. R-2408A		SHEET NO. 5	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
 PAUL RODNEY WHITE 14447 6-24-08		 PAUL RODNEY WHITE 14447 6-24-08	



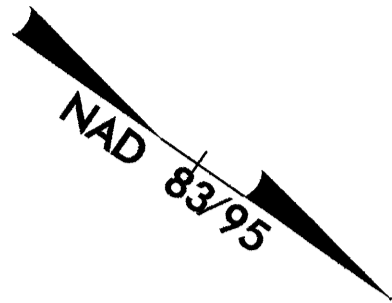
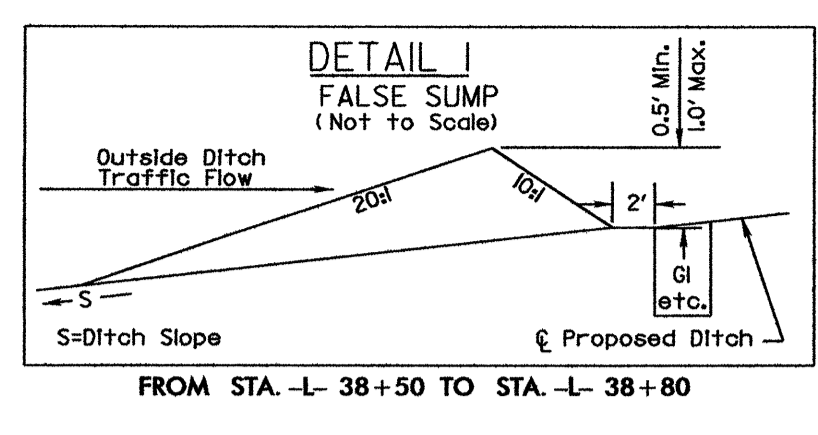
PI Sta 29+19.48  
 $\Delta = 28^\circ 39' 57.0''$  (RT)  
 D = 6' 01" 52.1"  
 L = 475.30'  
 T = 242.73'  
 R = 950.00'



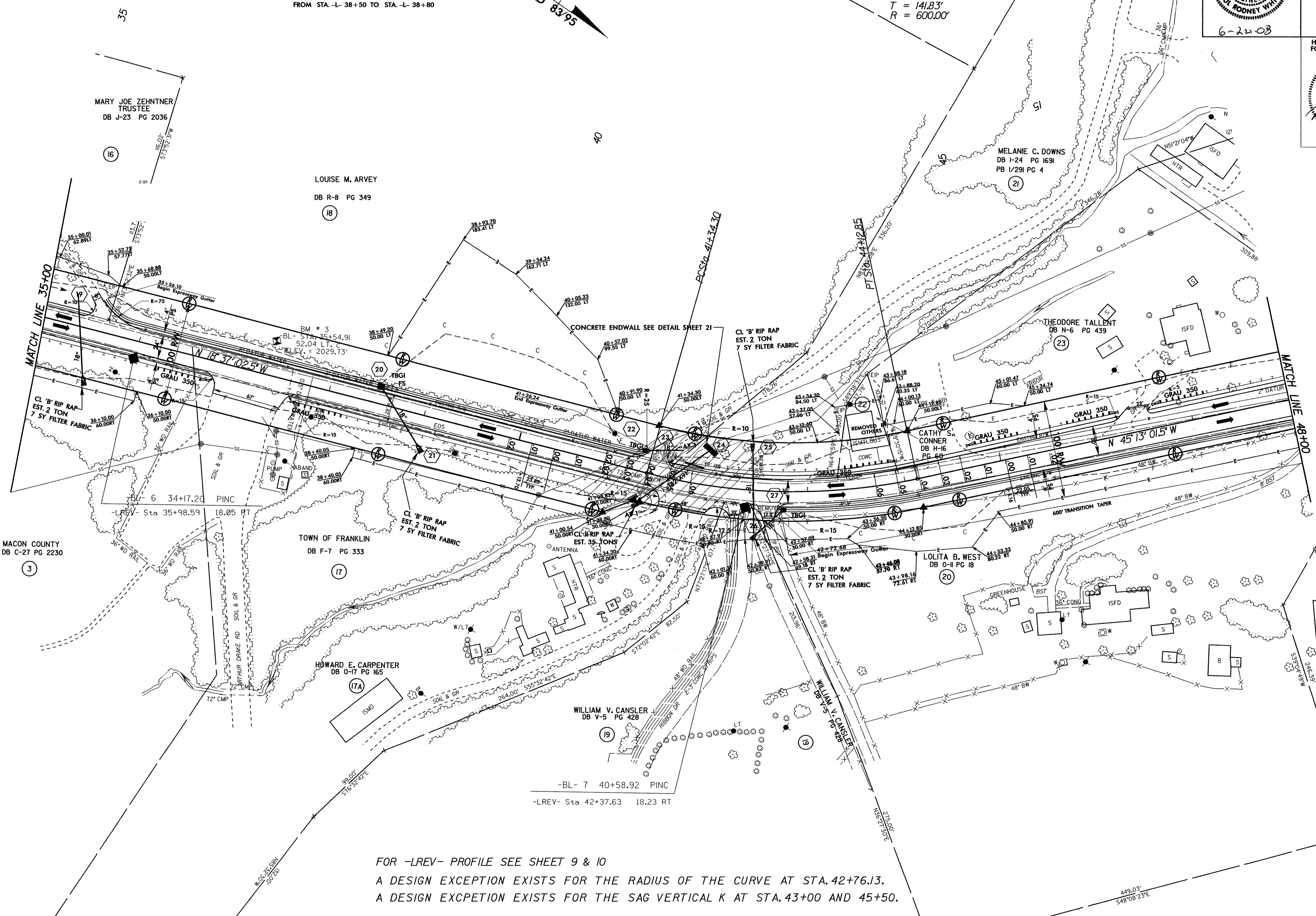
FOR -LREV- PROFILE SEE SHEET 8 & 9

8/17/99

PROJECT REFERENCE NO. R-2408A	SHEET NO. 6
RW SHEET NO.	
ROADWAY AND HYDRAULICS DESIGN ENGINEER	
HYDRAULICS ENGINEER FOR PIPE NO. 24 ONLY	



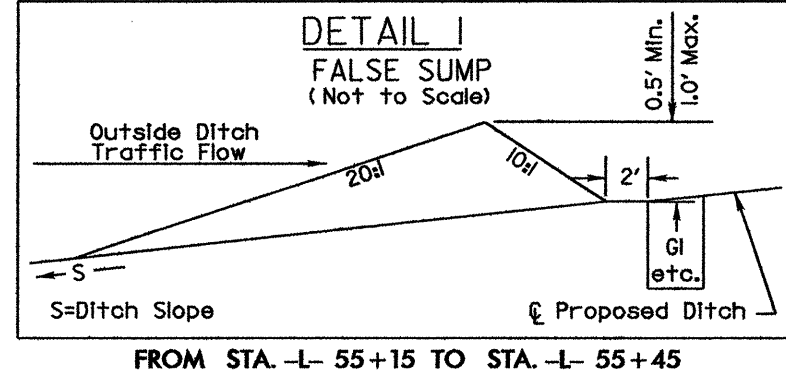
PI Sta 42+76.13  
 $\Delta = 26^\circ 35' 59.0''$  (LT)  
 $D = 9^\circ 32' 57.5''$   
 $L = 278.55'$   
 $T = 141.83'$   
 $R = 600.00'$



FOR -LREV- PROFILE SEE SHEET 9 & 10  
 A DESIGN EXCEPTION EXISTS FOR THE RADIUS OF THE CURVE AT STA.42+76.13.  
 A DESIGN EXCPETION EXISTS FOR THE SAG VERTICAL K AT STA.43+00 AND 45+50.

PROJECT REFERENCE NO. R-2408A	SHEET NO. 7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER PAUL RODNEY WHITE NORTH CAROLINA PROFESSIONAL ENGINEER 6-22-08	HYDRAULICS ENGINEER PAUL RODNEY WHITE NORTH CAROLINA PROFESSIONAL ENGINEER 1447 6-24-08

HYDRAULICS ENGINEER FOR PIPE NO. 32 ONLY  
 NORTH CAROLINA PROFESSIONAL ENGINEER  
 MARC T. SHOWN  
 C-27-28



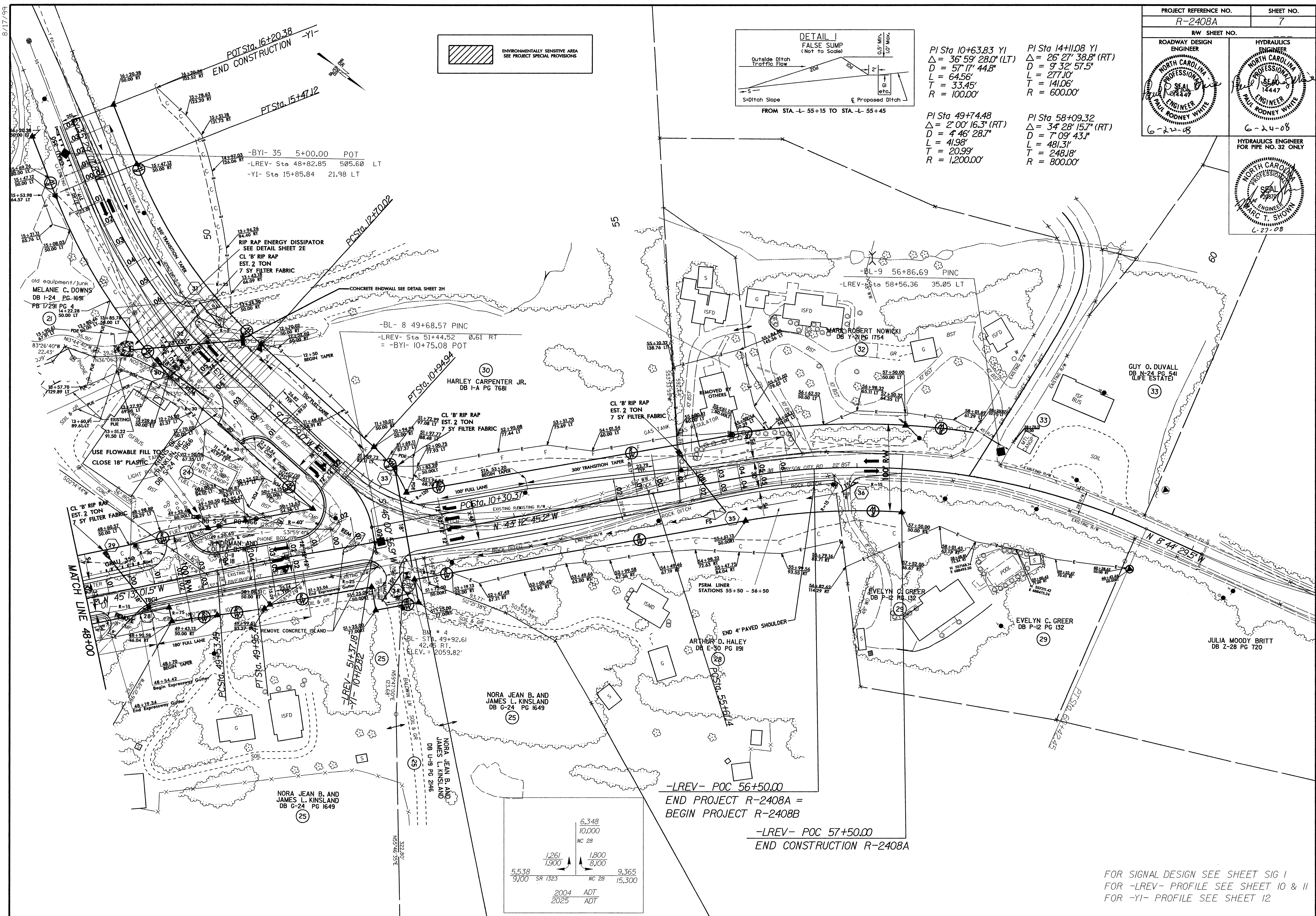
PI Sta 10+63.83 YI  
 $\Delta = 36' 59" 28.0" (LT)$   
 $D = 57' 17" 44.8"$   
 $L = 64.56'$   
 $T = 33.45'$   
 $R = 100.00'$

PI Sta 14+11.08 YI  
 $\Delta = 26' 27" 38.8" (RT)$   
 $D = 9' 32' 57.5"$   
 $L = 277.10'$   
 $T = 141.06'$   
 $R = 600.00'$

PI Sta 49+74.48  
 $\Delta = 2' 00" 16.3" (RT)$   
 $D = 4' 46" 28.7"$   
 $L = 41.98'$   
 $T = 20.99'$   
 $R = 1,200.00'$

PI Sta 58+09.32  
 $\Delta = 34' 28" 15.7" (RT)$   
 $D = 7' 09" 43.1"$   
 $L = 481.31'$   
 $T = 248.18'$   
 $R = 800.00'$

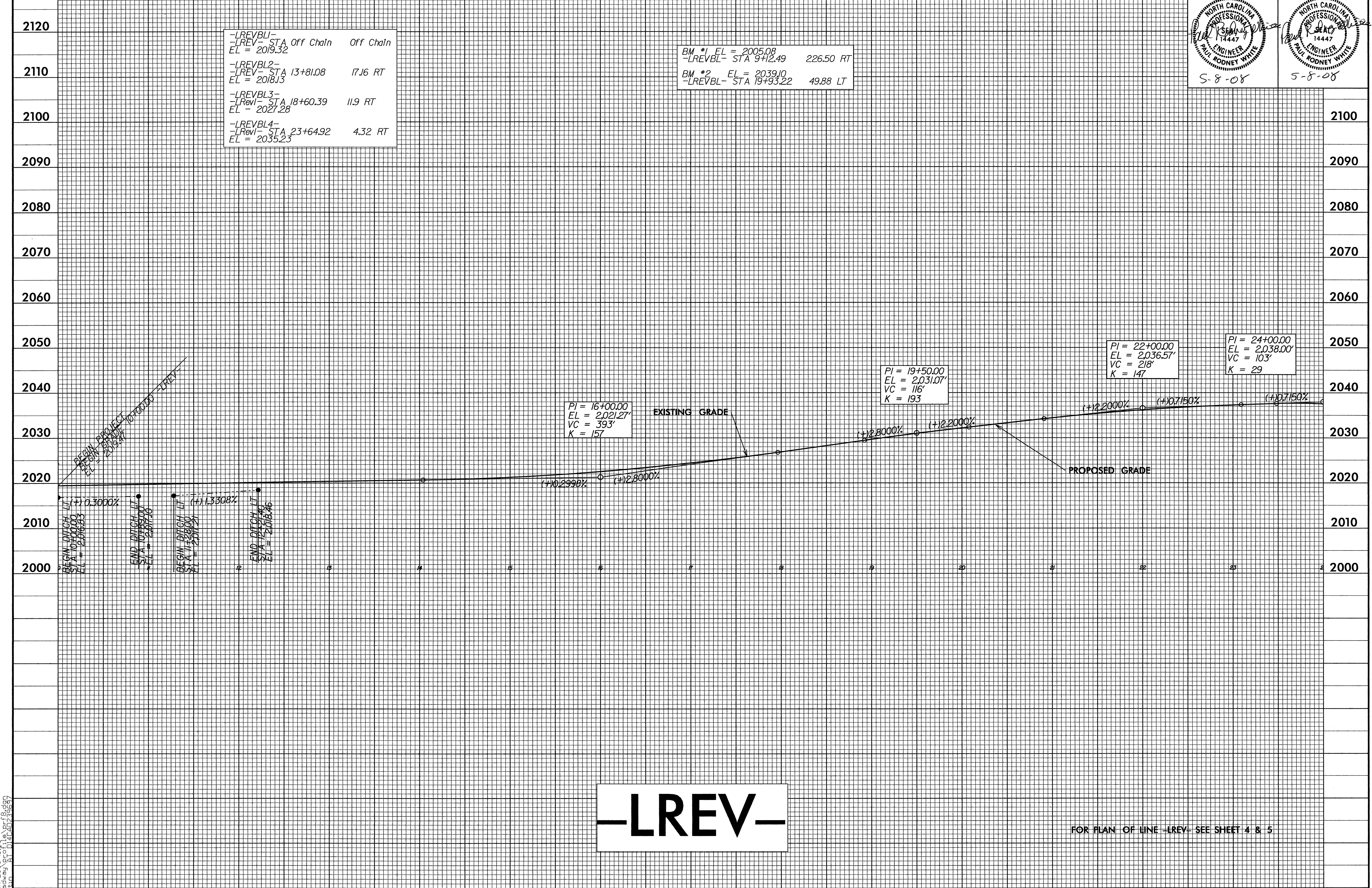
ENVIRONMENTALLY SENSITIVE AREA  
 SEE PROJECT SPECIAL PROVISIONS



FOR SIGNAL DESIGN SEE SHEET SIG 1  
 FOR -LREV- PROFILE SEE SHEET 10 & 11  
 FOR -YI- PROFILE SEE SHEET 12



5/14/99



-LREVBL1-  
-LREV- STA Off Chain Off Chain  
EL = 2019.32

-LREVBL2-  
-LREV- STA 13+81.08 17.16 RT  
EL = 2018.13

-LREVBL3-  
-LREV- STA 18+60.39 11.9 RT  
EL = 2027.28

-LREVBL4-  
-LREV- STA 23+64.92 4.32 RT  
EL = 2035.23

BM #1 EL = 2005.08  
-LREVBL- STA 9+12.49 226.50 RT

BM #2 EL = 2039.10  
-LREVBL- STA 19+93.22 49.88 LT

PI = 16+00.00  
EL = 2021.27'  
VC = 393'  
K = 157

PI = 19+50.00  
EL = 2031.07'  
VC = 116'  
K = 193

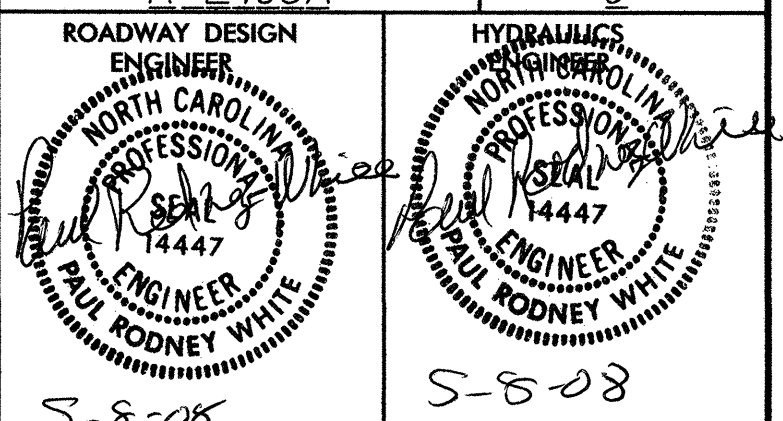
PI = 22+00.00  
EL = 2036.57'  
VC = 218'  
K = 147

PI = 24+00.00  
EL = 2038.00'  
VC = 103'  
K = 29

**-LREV-**

FOR PLAN OF LINE -LREV- SEE SHEET 4 & 5

OG-MAP-2008 13.76  
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whaustan AT D:\CADD\23657

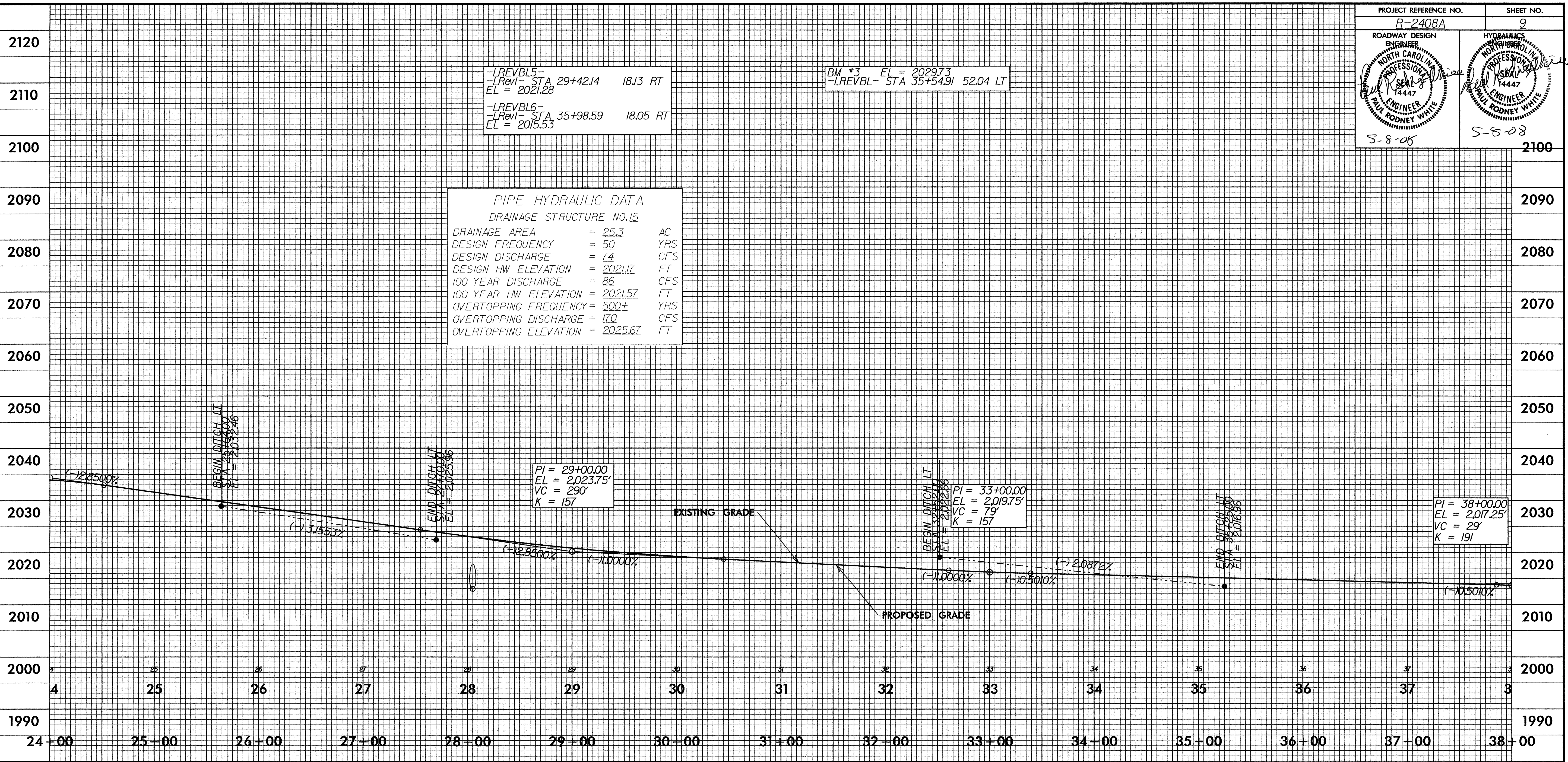


-LREVBL5-  
-LREV- STA 29+42.14 18.13 RT  
EL = 2021.28  
-LREVBL6-  
-LREV- STA 35+98.59 18.05 RT  
EL = 2015.53

BM \*3 EL = 2029.73  
-LREVBL- STA 35+54.91 52.04 LT

PIPE HYDRAULIC DATA  
DRAINAGE STRUCTURE NO. 15

DRAINAGE AREA	= 25.3	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 74	CFS
DESIGN HW ELEVATION	= 2021.7	FT
100 YEAR DISCHARGE	= 86	CFS
100 YEAR HW ELEVATION	= 2021.57	FT
OVERTOPPING FREQUENCY	= 500±	YRS
OVERTOPPING DISCHARGE	= 170	CFS
OVERTOPPING ELEVATION	= 2025.67	FT



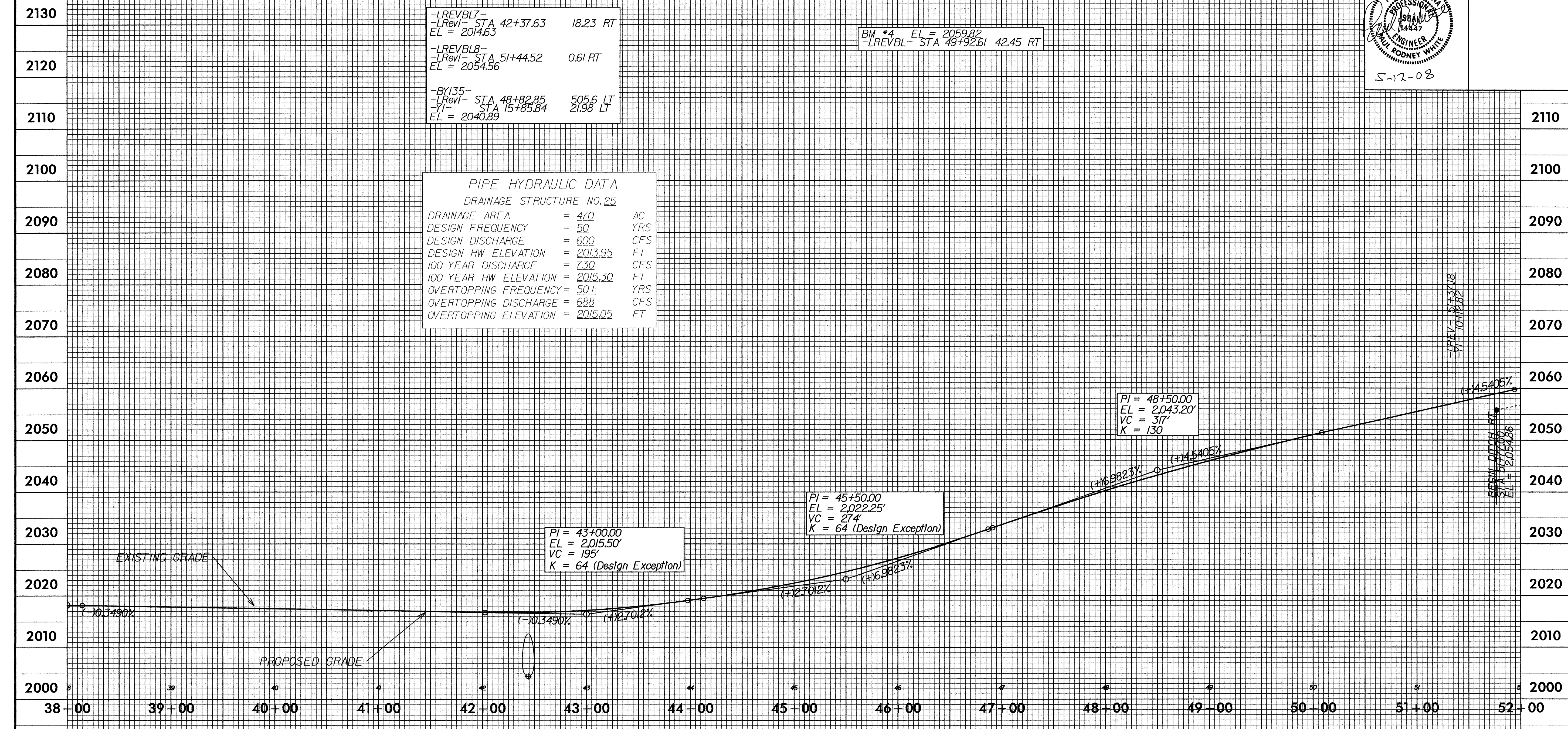
**-LREV-**

FOR PLAN OF LINE -LREV- SEE SHEET 5 & 6

5/14/09

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whaustad BT-D:\C:\0023687

5/14/09



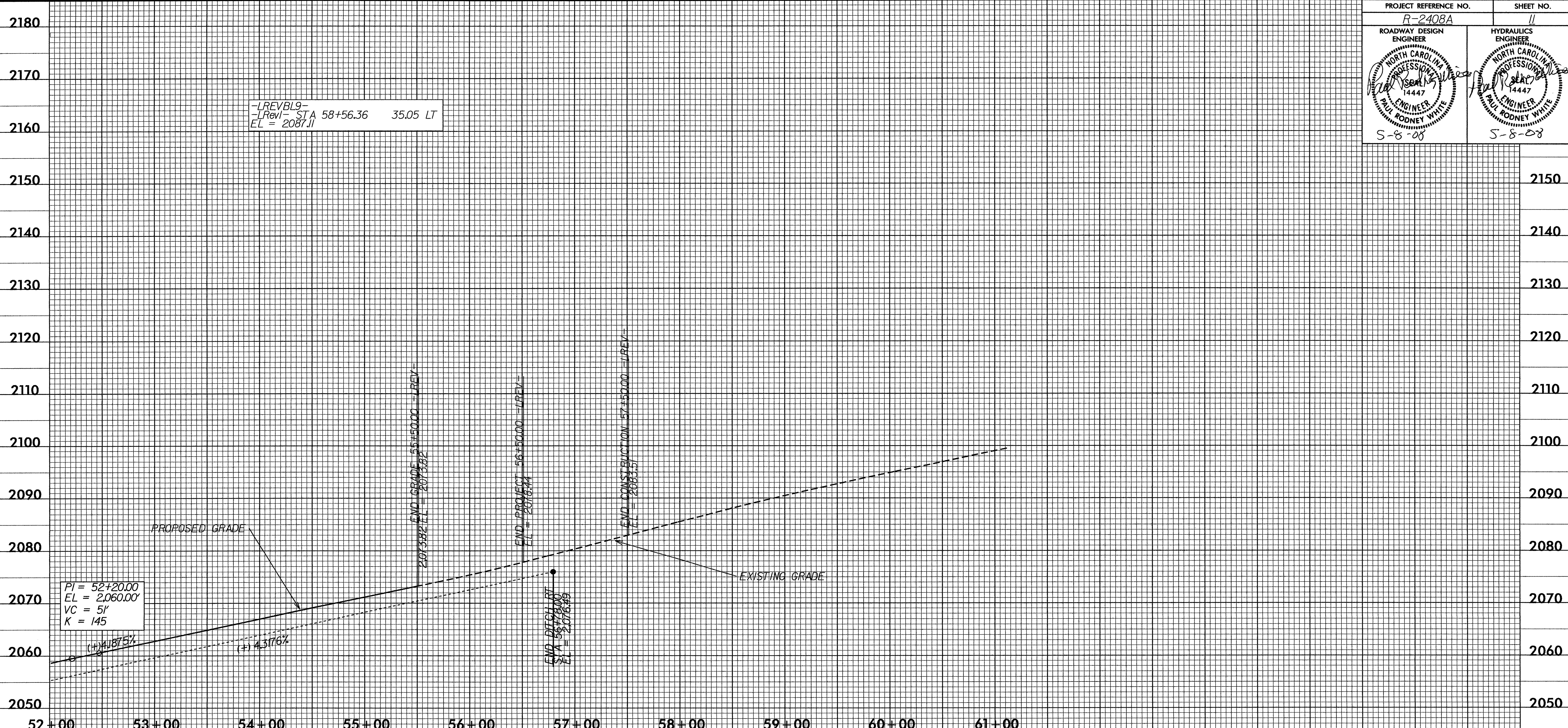
**-LREV-**

FOR PLAN OF LINE -LREV- SEE SHEET 6 & 7  
 FOR PLAN OF LINE -YI- SEE SHEET 7

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 rodwhite

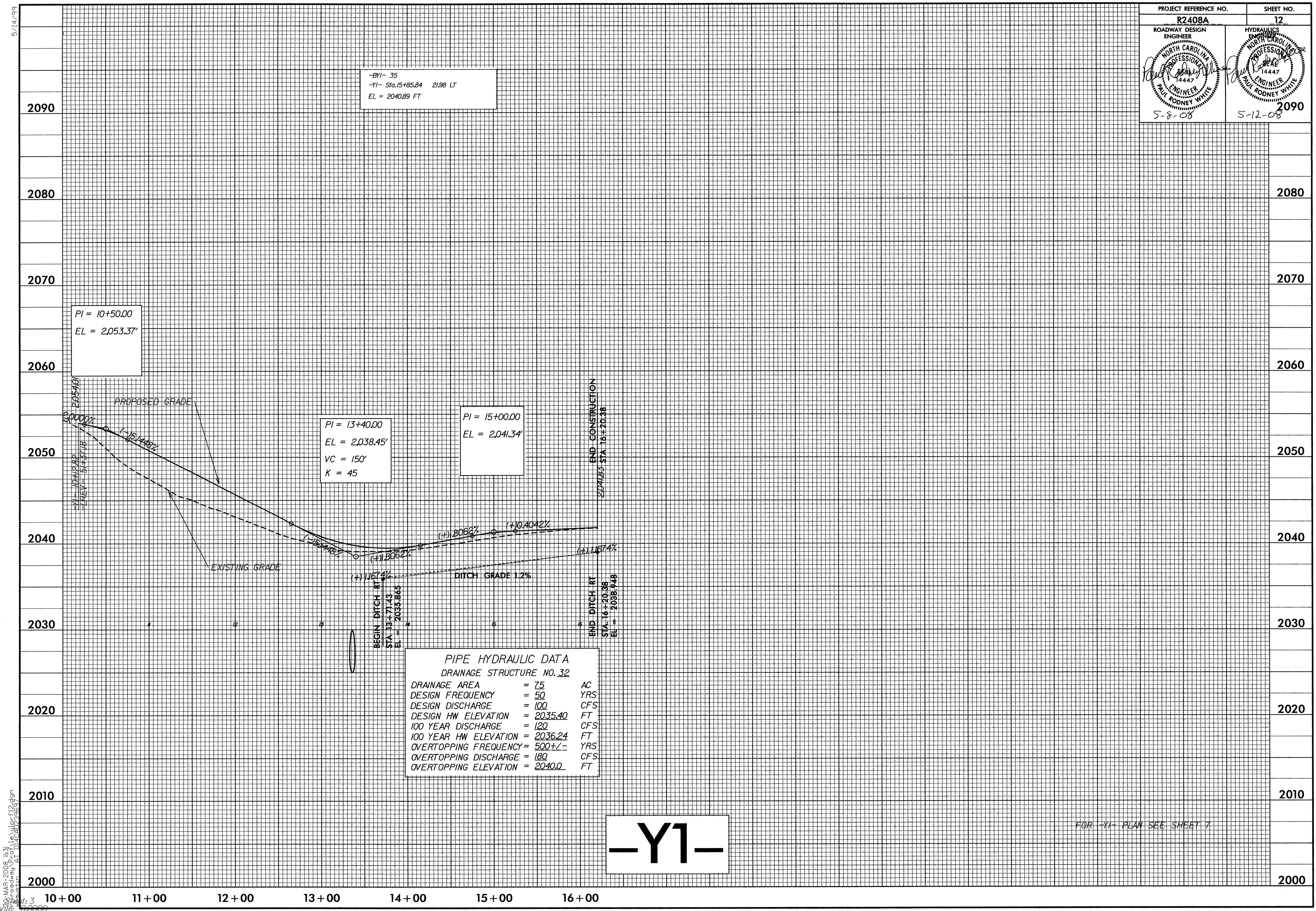
5/14/99

PROJECT REFERENCE NO. R-2408A	SHEET NO. 11
ROADWAY DESIGN ENGINEER PAUL RODNEY WHITE 14447	HYDRAULICS ENGINEER PAUL RODNEY WHITE 14447
5-8-08	5-8-08



06-MAR-2008 13:33  
c:\roadway\cor11e\grf11.dgn  
maustin

FOR PLAN OF LINE -LREV- SEE SHEET 7



**-Y1-**

FOR -Y1- PLAN SEE SHEET 7

5/14/99  
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 Angle: 0.0000  
 Align: Y1