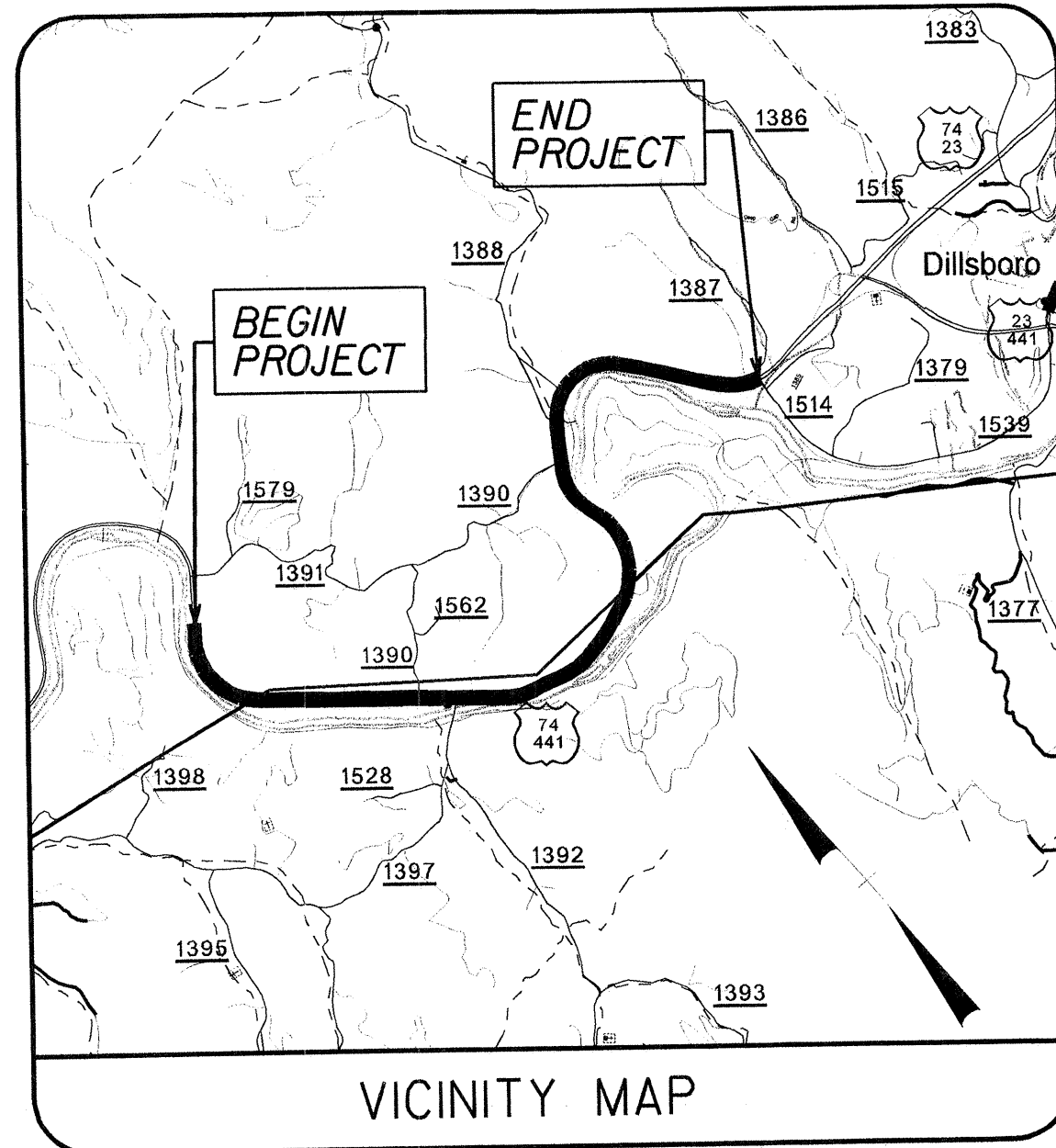


CONTRACT: C201796
TIP PROJECT: W-4713

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

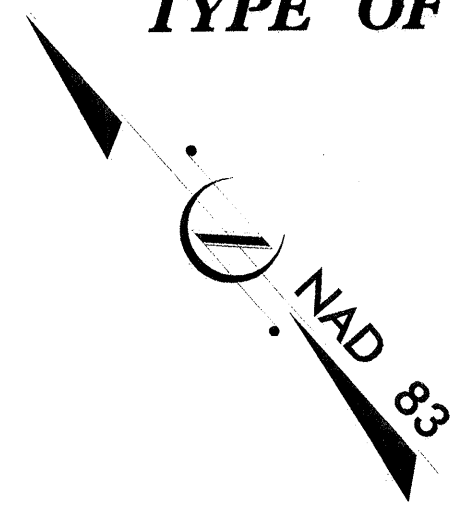


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

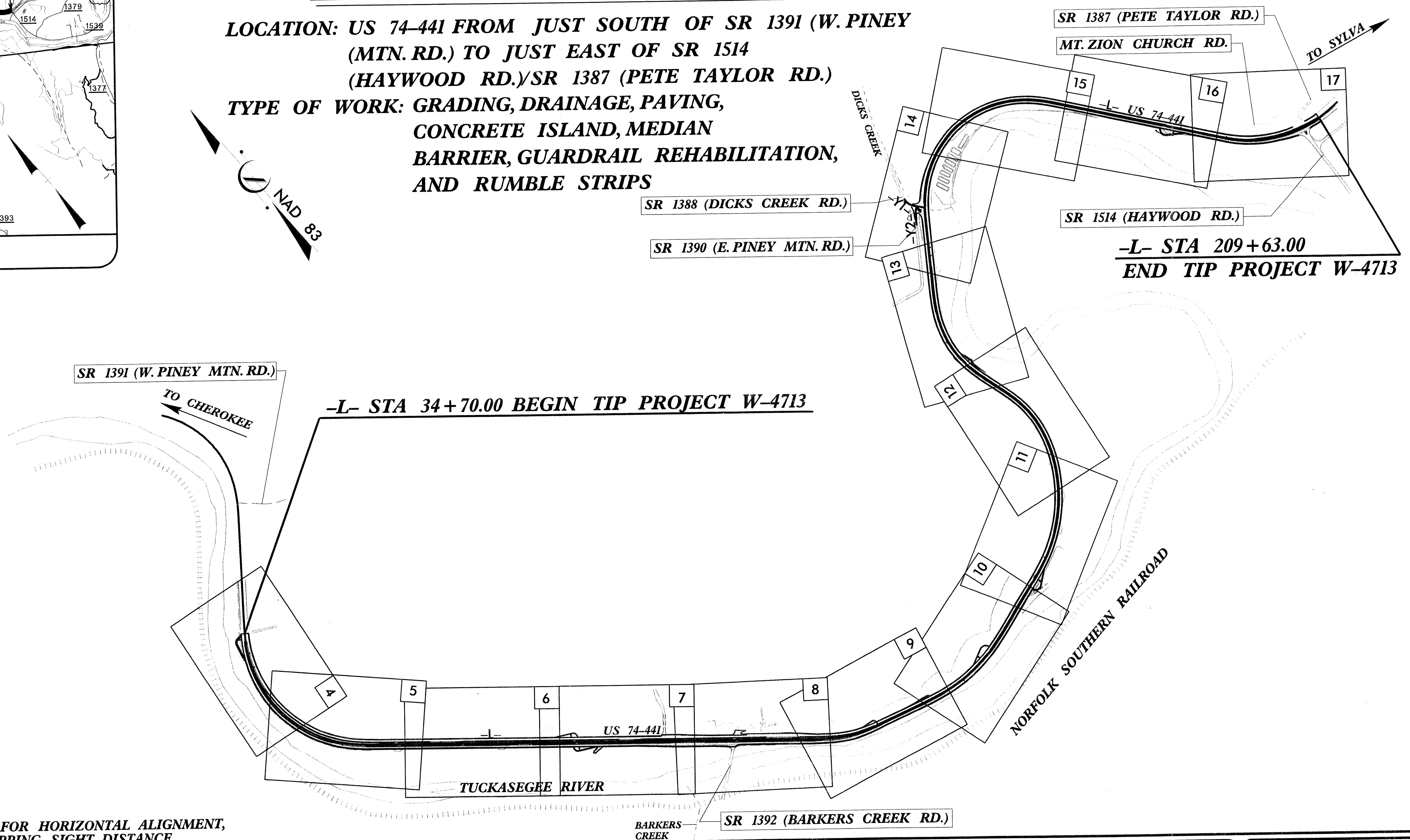
JACKSON COUNTY

LOCATION: US 74-441 FROM JUST SOUTH OF SR 1391 (W. PINEY (MTN. RD.) TO JUST EAST OF SR 1514 (HAYWOOD RD.)/SR 1387 (PETE TAYLOR RD.)

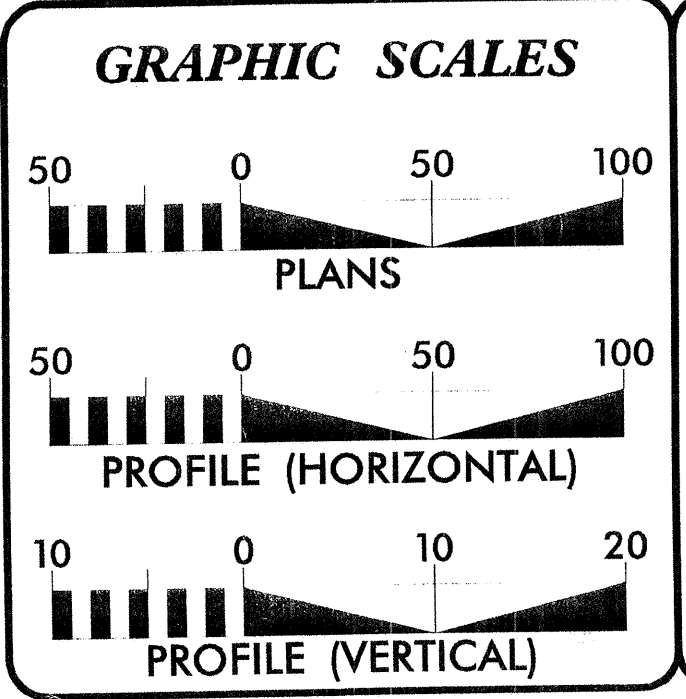
TYPE OF WORK: GRADING, DRAINAGE, PAVING, CONCRETE ISLAND, MEDIAN BARRIER, GUARDRAIL REHABILITATION, AND RUMBLE STRIPS



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-4713	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
37735.3.1	STPNHS-7467	P.E.	



DESIGN EXCEPTION REQUIRED FOR HORIZONTAL ALIGNMENT, VERTICAL ALIGNMENT, AND STOPPING SIGHT DISTANCE.



DESIGN DATA

ADT 2005 =	23,500
ADT 2025 =	35,000
DHV =	10 %
D =	60 %
T =	7 %
V =	60 MPH

PROJECT LENGTH

<i>Length Roadway</i>	
TIP Project W-4713	3.313 Mi.
<i>Length Structure</i>	
TIP Project W-4713	0.000 Mi.
TOTAL LENGTH TIP	
Project W-4713	3.313 Mi.

PLANS PREPARED BY :
RUMMEL, KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE, SUITE 350
RALEIGH, NORTH CAROLINA 27609
(919) 878-9560
FOR

DIVISION OF HIGHWAYS

2006 STANDARD SPECIFICATIONS

LETTING DATE:
MAY 15, 2007

B. Keith Skinner, P.E.
PROJECT ENGINEER

Brandon J. McInnis, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

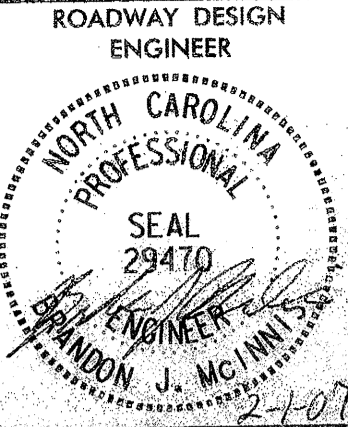
11/16/06
SIGNATURE: [Signature]

ROADWAY DESIGN ENGINEER

11/16/06
SIGNATURE: [Signature]

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

art miller
STATE HIGHWAY DESIGN ENGINEER



8/17/99

EFF. 07-18-06

SHEET NUMBER	INDEX OF SHEETS SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
2 THRU 2-B	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2-C THRU 2-D	WALL ENVELOPES
2-E	ASPHALT SHOULDERS MILLED RUMBLE STRIPS DETAIL
2-F	GUARDRAIL ANCHOR UNIT TYPE B-77 SHOP CURVED DETAIL
2-G	MEDIAN BARRIER SINGLE SLOPE DETAIL
3	SUMMARY OF QUANTITIES
3-A THRU 3-C	SUMMARY OF DRAINAGE QUANTITIES SUMMARY OF GUARDRAIL, EARTHWORK SUMMARY, AND ASPHALT PAVEMENT REMOVAL SUMMARY
4 THRU 17	PLAN SHEET
18 THRU 24	PROFILE SHEET
TCP-1 THRU TCP-27	TRAFFIC CONTROL PLANS
PM-1 THRU PM-2	PAVEMENT MARKING PLANS
EC-1 THRU EC-30	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-18	SIGNING PLANS
UO-1 THRU UO-4	UTILITIES BY OTHERS PLANS
X-1A THRU X-1B	CROSS-SECTION SUMMARY SHEET
X-1 THRU X-86	CROSS-SECTIONS
S-1 THRU S-7	STRUCTURE PLANS (GABION WALL DETAIL AND PILE PANEL WALL DETAIL)

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

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 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 11.

SAFETY CLEARING:
THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE AREAS IN THE PLANS DESIGNATED SAFETY CLEARING. THE LIMITS ARE AS SHOWN AND THE CLEARING AND GRUBBING IS CONSIDERED A PART OF THE LUMP SUM ITEM FOR "CLEARING AND GRUBBING".

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

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

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

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

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

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

UTILITIES:
UTILITY OWNERS ON THIS PROJECT ARE
TELEPHONE/FIBER OPTIC - VERIZON
NATURAL GAS - PSNC
POWER - DUKE ENERGY
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

2006 ROADWAY STANDARD DRAWINGS

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

STD. NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method 11
225.01	Guide for Grading Subgrade - Interstate and Freeway
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superlevation - Two Lane Pavement
225.05	Method of Obtaining Superlevation - Divided Highways
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation - Method 'A'
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method 1
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.24	Frames and Narrow Slot Sag Grates
840.25	Anchorage for Frames - Brick or Concrete
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.29	Frames and Narrow Slot Flat Grates
840.34	Traffic Bearing Junction Box - for Use with Pipes 42" and Under
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.54	Manhole Frame and Cover
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
850.01	Concrete Paved Ditches
852.01	Concrete Islands
854.01	Double Faced Concrete Barrier - Types I, II, III & IV
857.01	Precast Reinforced Concrete Barrier - 41" Single Faced
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
862.04	Anchoring End of Guardrail - B-77 and B-83 Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets

2/1/2007
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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	○ EIP
Property Corner	-----
Property Monument	□ ECM
Parcel/Sequence Number	⑫③
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	-WLB-
Proposed Wetland Boundary	-WLB-
Existing Endangered Animal Boundary	-EAB-
Existing Endangered Plant Boundary	-EPB-

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○ S
Well	○ W
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	○
Swamp Marsh	-----
Proposed Lateral, Tail, Head Ditch	-----
False Sump	-----

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○ 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	○ CA
Proposed Control of Access	○ CA
Existing Easement Line	----- E
Proposed Temporary Construction Easement	----- E
Proposed Temporary Drainage Easement	----- TDE
Proposed Permanent Drainage Easement	----- PDE
Proposed Permanent Utility Easement	----- PUE

ROADS AND RELATED FEATURES:

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

VEGETATION:

Single Tree	○
Single Shrub	○
Hedge	-----
Woods Line	-----
Orchard	-----
Vineyard	----- 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	○ S
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	-----
Designated U/G Water Line (S.U.E.*)	-----
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

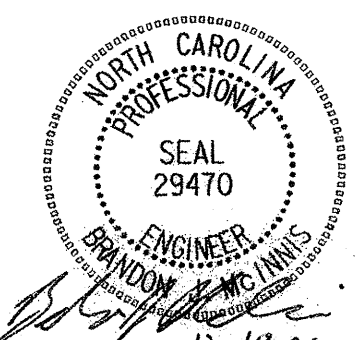
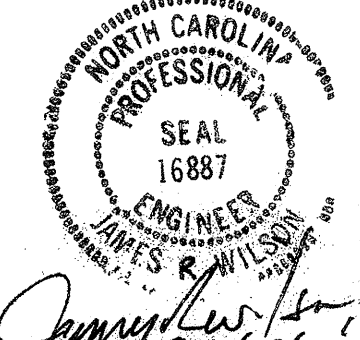
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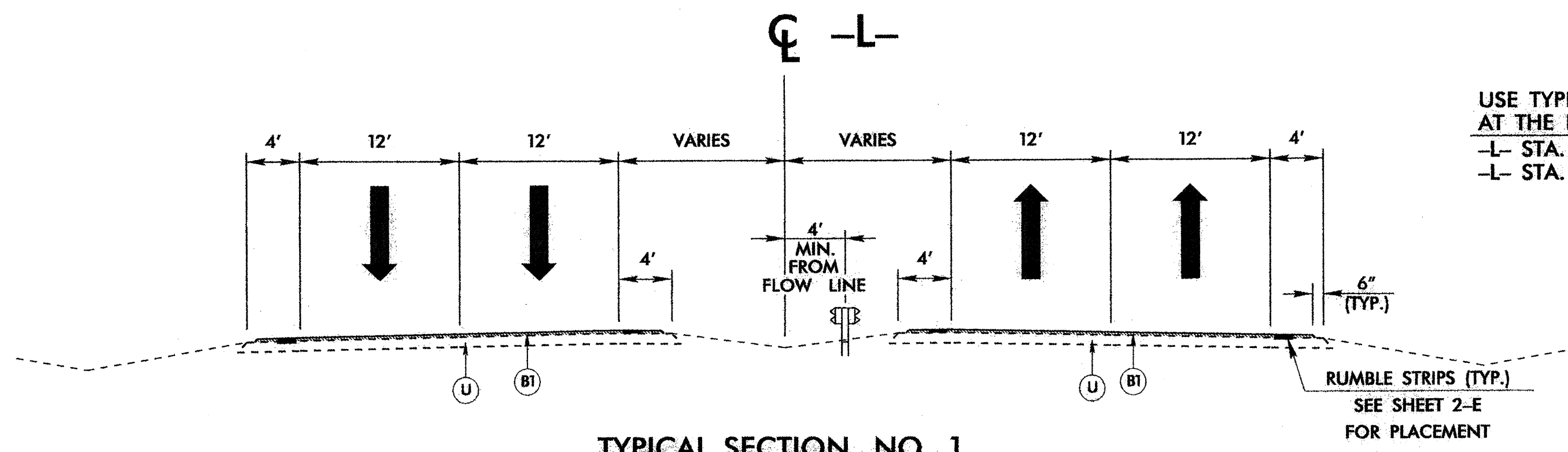
Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	⊕
Utility Unknown U/G Line	----- 7U/L
U/G Tank; Water, Gas, Oil	▭
A/G Tank; Water, Gas, Oil	▭
U/G Test Hole (S.U.E.*)	⊕
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

6/2/09
 13-DEC-2006 10:23
 D:\Users\jsets\Public\Construction\Projects\W-4713\w-4713_r-dj_tup.dgn
 14400221393

PAVEMENT SCHEDULE	
B1	PROP. APPROX. 5/8" OPEN-GRADED ASPHALT FRICTION COURSE, TYPE FC-1 MODIFIED, AT AN AVERAGE RATE OF 75 LBS. PER SQ. YD.
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. 1 1/2" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
D1	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
J1	PROP. 8" COMPACTED AGGREGATE BASE COURSE.
R	MEDIAN CONCRETE BARRIER.
T	SHOULDER MATERIAL.
U	EXISTING PAVEMENT.

NOTES:
 PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.
 SEE PLANS FOR LOCATION AND SIZE OF CONCRETE ISLANDS.

PROJECT REFERENCE NO. W-4713	SHEET NO. 2
ROADWAY DESIGN ENGINEER 	PAVEMENT DESIGN ENGINEER 

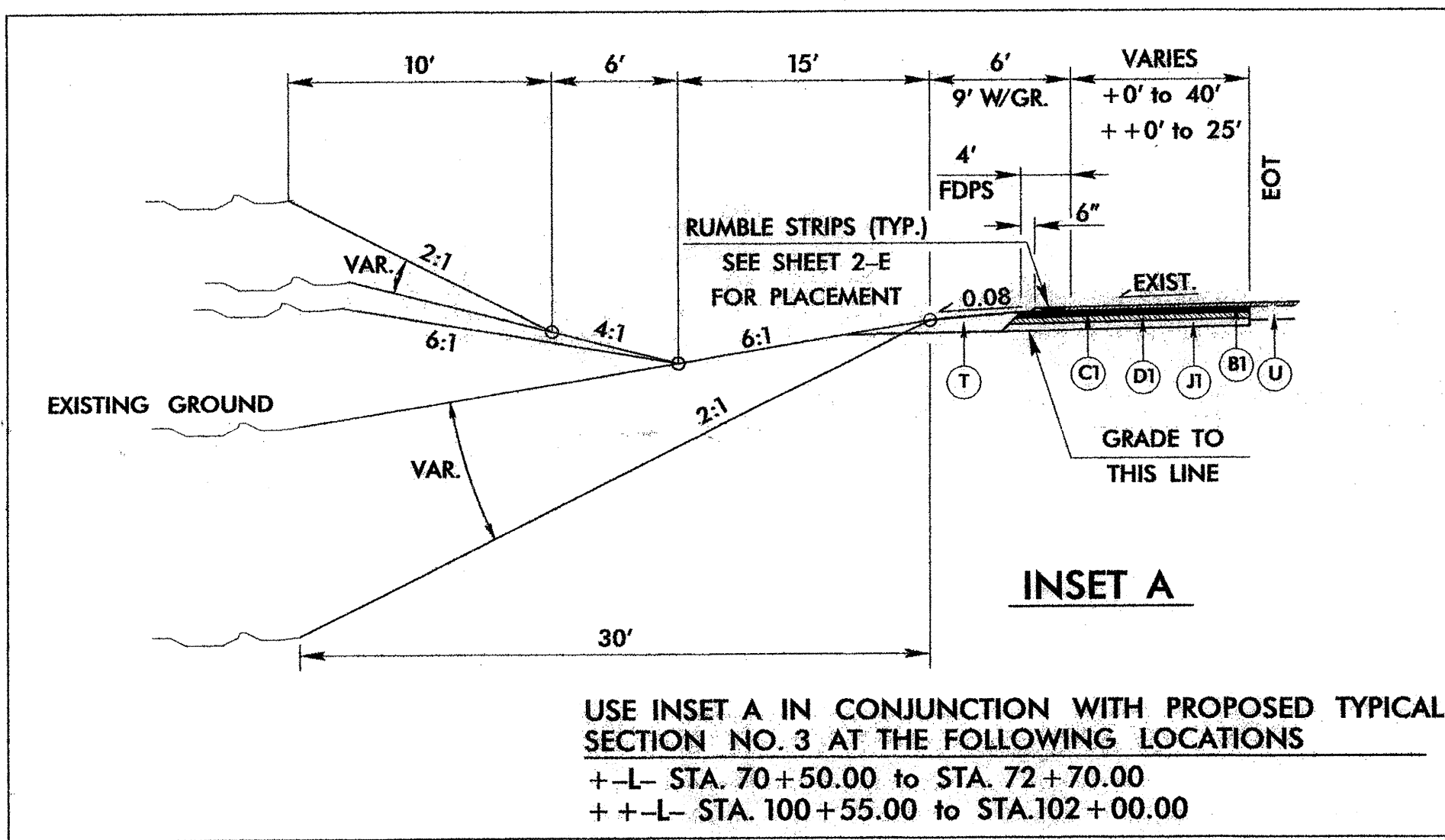


USE TYPICAL SECTION NO. 1
 AT THE FOLLOWING LOCATIONS
 -L- STA. 41+20.00 to STA. 48+85.00
 -L- STA. 94+35.00 to STA. 95+75.00

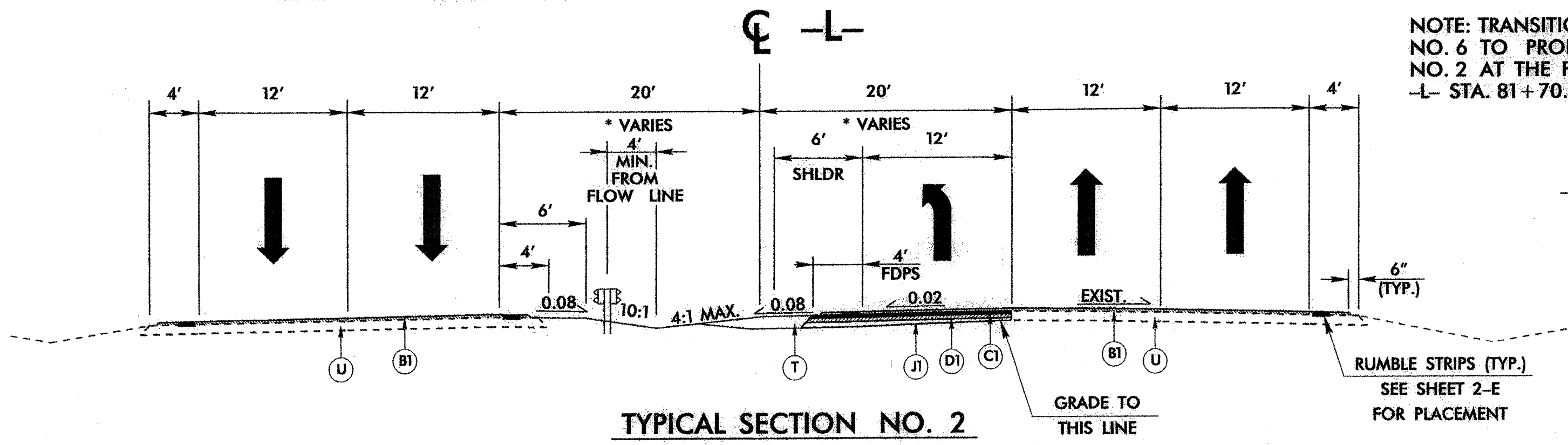
NOTE: TRANSITION FROM PROPOSED TYPICAL SECTION NO. 1 TO PROPOSED TYPICAL SECTION NO. 2 AT THE FOLLOWING LOCATIONS:
 -L- STA. 48+85.00 to STA. 49+85.00
 -L- STA. 95+75.00 to STA. 96+75.00

NOTE: TRANSITION FROM EXISTING TO PROPOSED TYPICAL SECTION NO. 2 AT THE FOLLOWING LOCATIONS:
 -L- STA. 66+05.00 to STA. 67+05.00

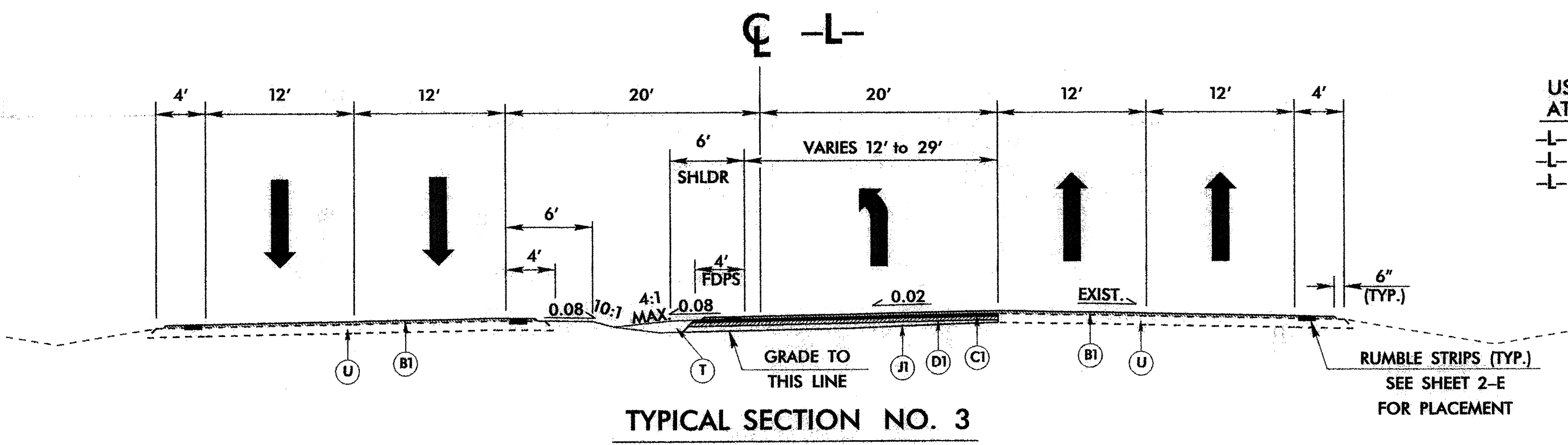
NOTE: TRANSITION FROM PROPOSED TYPICAL SECTION NO. 6 TO PROPOSED TYPICAL SECTION NO. 2 AT THE FOLLOWING LOCATIONS:
 -L- STA. 81+70.00 to STA. 82+70.00



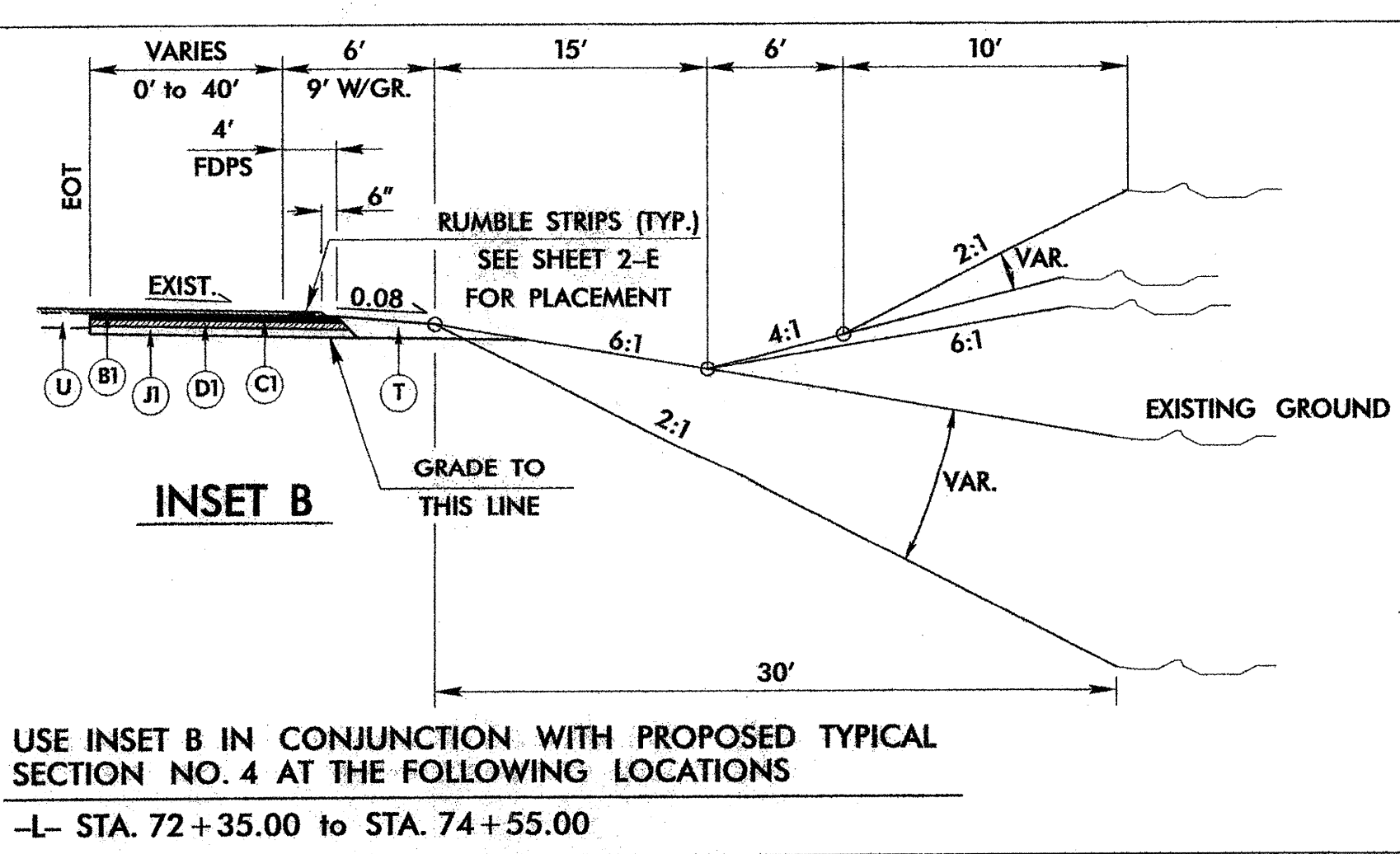
USE INSET A IN CONJUNCTION WITH PROPOSED TYPICAL SECTION NO. 3 AT THE FOLLOWING LOCATIONS
 +L- STA. 70+50.00 to STA. 72+70.00
 +-L- STA. 100+55.00 to STA. 102+00.00



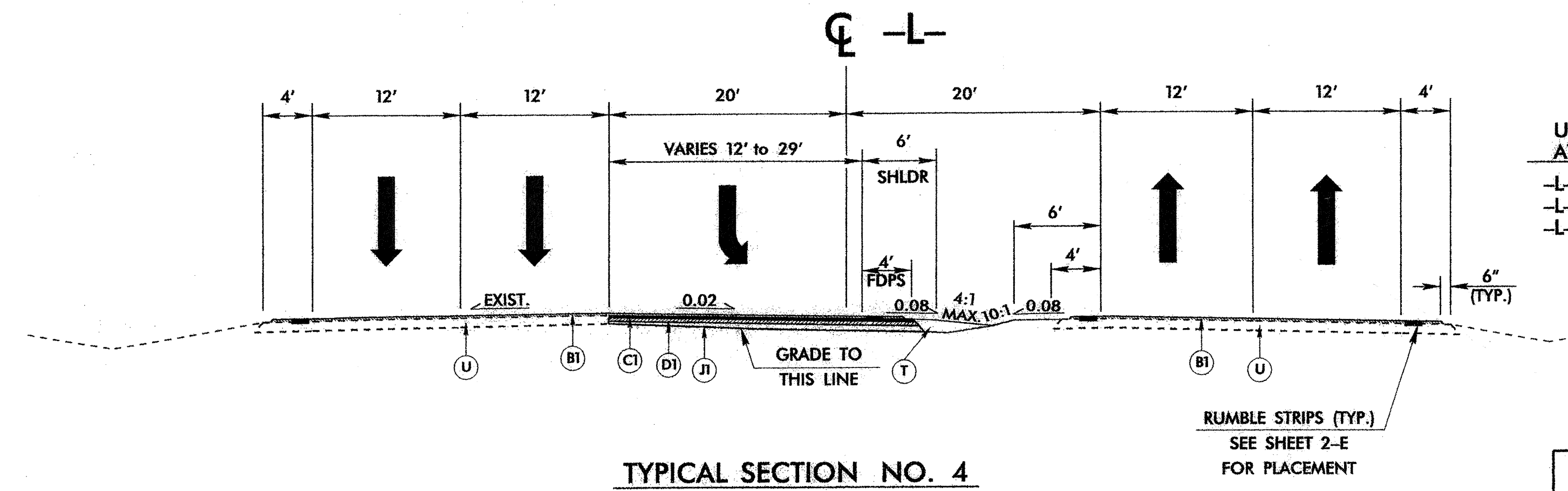
USE TYPICAL SECTION NO. 2
 AT THE FOLLOWING LOCATIONS
 ** -L- STA. 49+85.00 to STA. 52+15.00
 -L- STA. 67+05.00 to STA. 68+30.00
 -L- STA. 82+70.00 to STA. 85+00.00
 *** -L- STA. 96+75.00 to STA. 101+50.00
 ** USE GUARDRAIL AT THIS LOCATION



USE TYPICAL SECTION NO. 3
 AT THE FOLLOWING LOCATIONS
 -L- STA. 52+15.00 to STA. 54+60.00
 -L- STA. 68+30.00 to STA. 71+82.00
 -L- STA. 85+00.00 to STA. 87+45.00




USE INSET B IN CONJUNCTION WITH PROPOSED TYPICAL SECTION NO. 4 AT THE FOLLOWING LOCATIONS
 -L- STA. 72+35.00 to STA. 74+55.00



USE TYPICAL SECTION NO. 4
 AT THE FOLLOWING LOCATIONS
 -L- STA. 55+95.00 to STA. 58+40.00
 -L- STA. 73+20.00 to STA. 76+75.00
 -L- STA. 88+60.00 to STA. 91+05.00

PLANS PREPARED BY :



RUMMEL • KLEPPER & KAHL, LLP
 consulting engineers
 900 RIDGEFIELD DRIVE SUITE 350
 RALEIGH, NORTH CAROLINA 27609-3960
 (919) 878-9560
 FOR
 DIVISION OF HIGHWAYS

6/2/06

PAVEMENT SCHEDULE

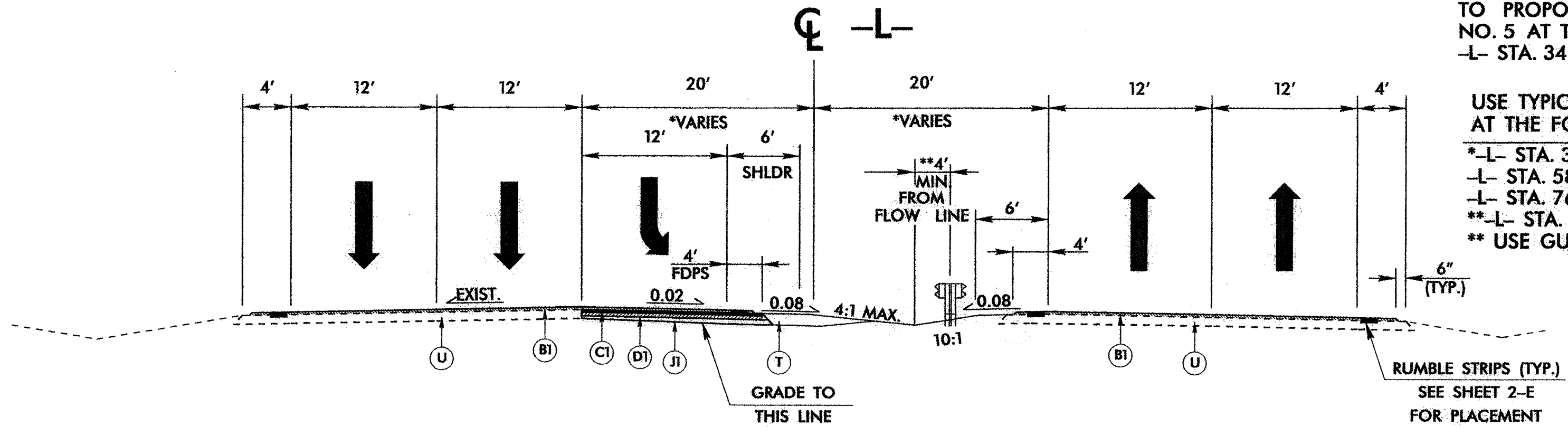
B1	PROP. APPROX. 5/8" OPEN-GRADED ASPHALT FRICTION COURSE, TYPE FC-1 MODIFIED, AT AN AVERAGE RATE OF 75 LBS. PER SQ. YD.
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
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D1	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
J1	PROP. 8" COMPACTED AGGREGATE BASE COURSE.
R	MEDIAN CONCRETE BARRIER.
T	SHOULDER MATERIAL.
U	EXISTING PAVEMENT.

NOTES:
PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.
SEE PLANS FOR LOCATION AND SIZE OF CONCRETE ISLANDS.

PROJECT REFERENCE NO. W-4713	SHEET NO. 2A
ROADWAY DESIGN ENGINEER 	PAVEMENT DESIGN ENGINEER

NOTE: TRANSITION FROM EXISTING TO PROPOSED TYPICAL SECTION NO. 5 AT THE FOLLOWING LOCATIONS:
-L- STA. 34+87.00 to STA. 37+00.00

USE TYPICAL SECTION NO. 5 AT THE FOLLOWING LOCATIONS:
*L- STA. 37+00.00 to STA. 40+20.00
-L- STA. 58+40.00 to STA. 60+70.00
-L- STA. 76+75.00 to STA. 78+00.00
**L- STA. 91+05.00 to STA. 93+35.00
** USE GUARDRAIL AT THIS LOCATION

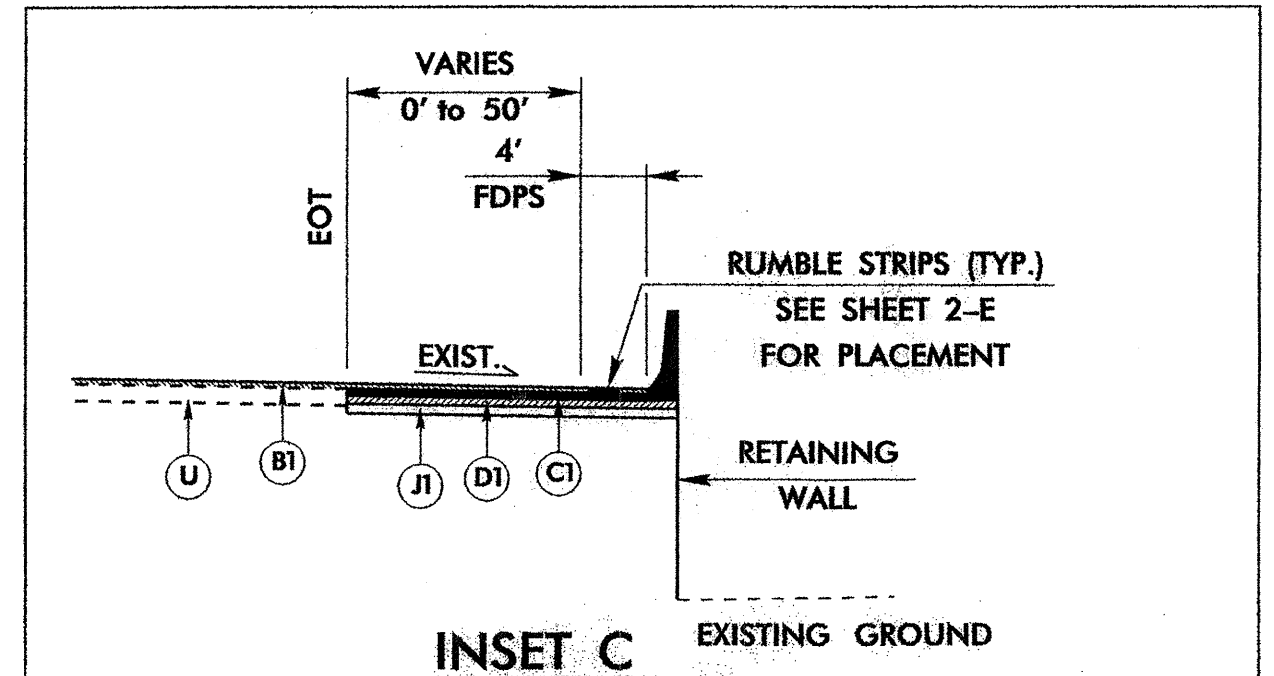


TYPICAL SECTION NO. 5

NOTE: TRANSITION FROM PROPOSED TYPICAL SECTION NO. 5 TO EXISTING AT THE FOLLOWING LOCATIONS:
-L- STA. 60+70.00 to STA. 61+70.00

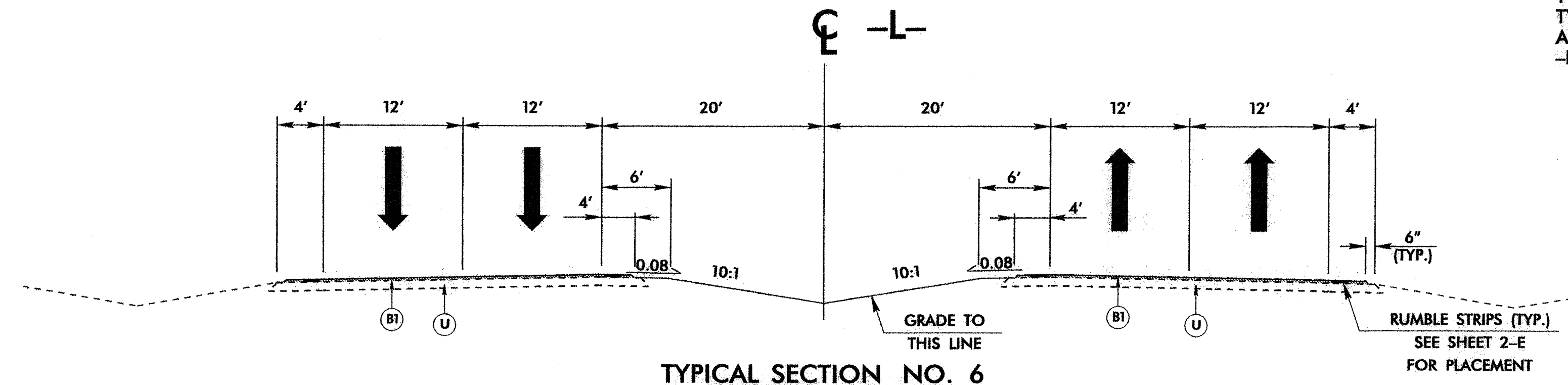
NOTE: TRANSITION FROM PROPOSED TYPICAL SECTION NO. 5 TO PROPOSED TYPICAL SECTION NO. 1 AT THE FOLLOWING LOCATIONS:
-L- STA. 40+20.00 to STA. 41+20.00
-L- STA. 93+35.00 to STA. 94+35.00

NOTE: TRANSITION FROM PROPOSED TYPICAL SECTION NO. 5 TO PROPOSED TYPICAL SECTION NO. 6 AT THE FOLLOWING LOCATIONS:
-L- STA. 78+00.00 to STA. 79+00.00



INSET C

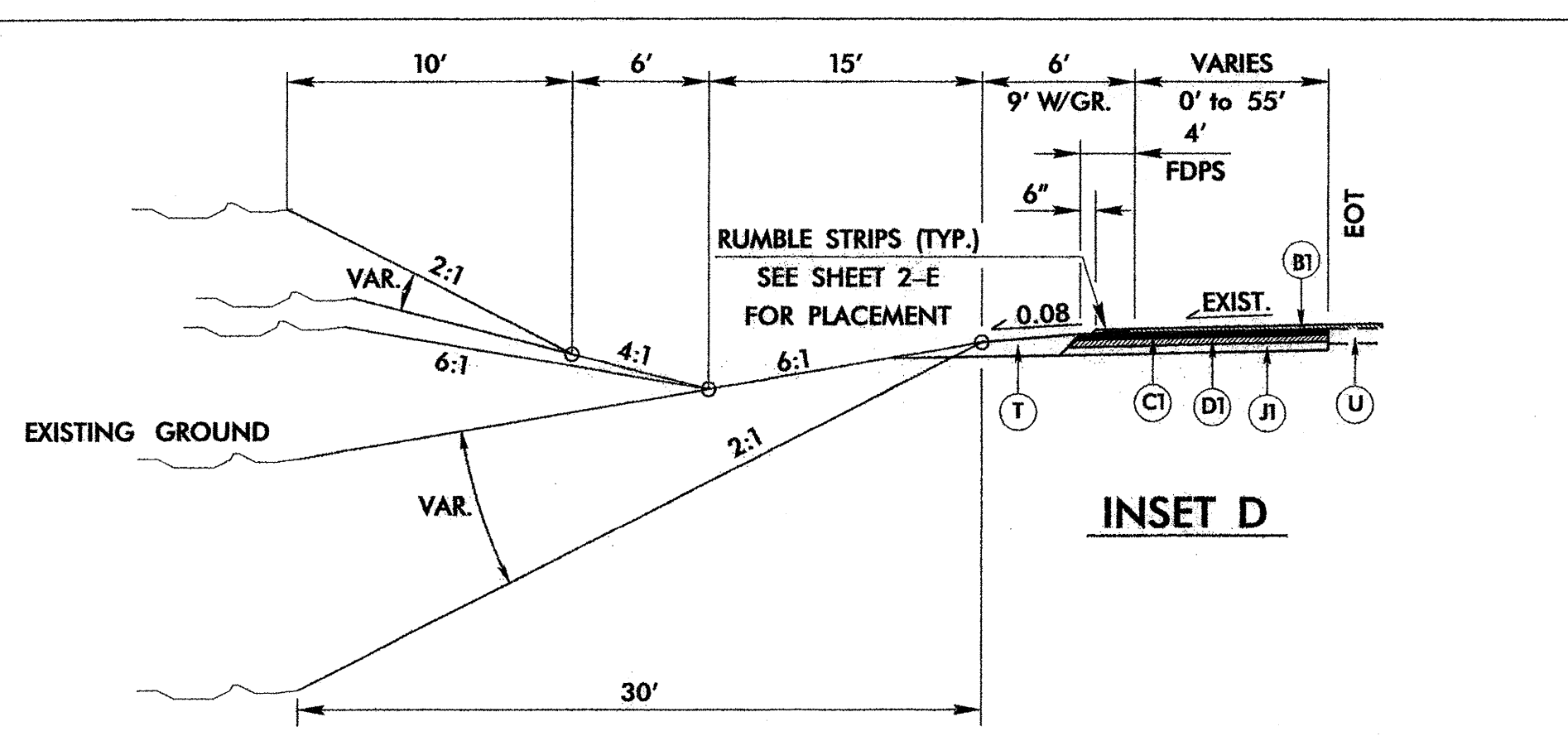
USE IN CONJUNCTION WITH PROPOSED TYPICAL SECTION NO. 5 AT THE FOLLOWING LOCATIONS
-L- STA. 34+98.00 to STA. 37+30.00



TYPICAL SECTION NO. 6

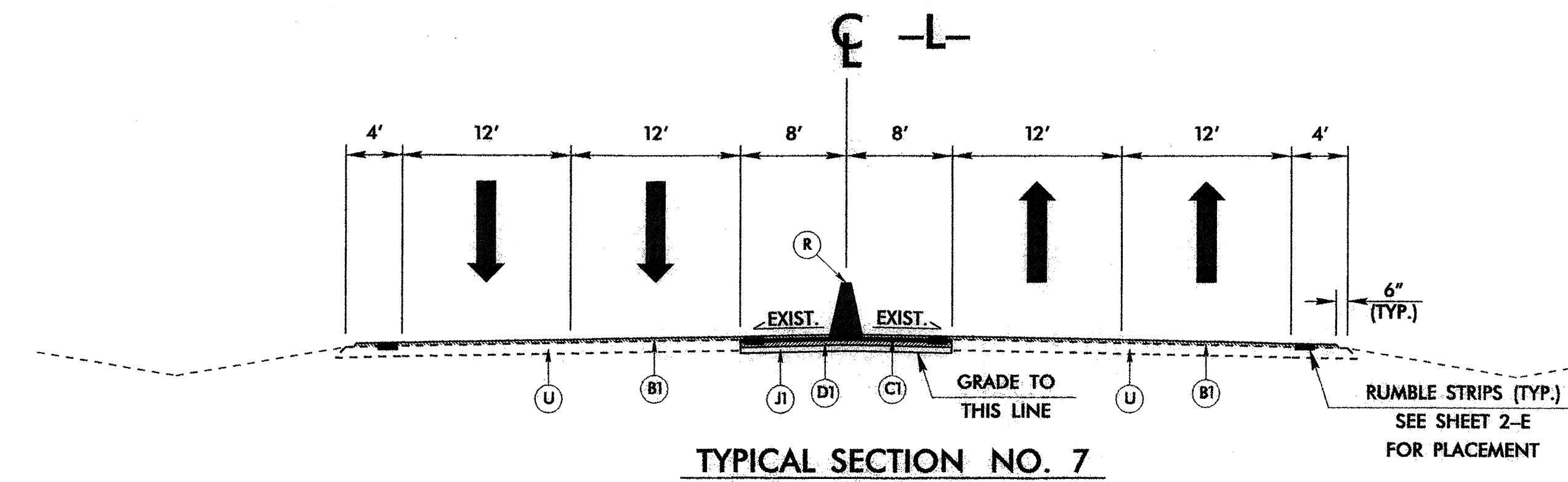
USE TYPICAL SECTION NO. 6 AT THE FOLLOWING LOCATIONS
-L- STA. 79+00.00 to STA. 81+70.00

NOTE: TRANSITION FROM PROPOSED TYPICAL SECTION NO. 2 TO PROPOSED TYPICAL SECTION NO. 7 AT THE FOLLOWING LOCATIONS:
-L- STA. 101+50.00 to STA. 102+34.00



INSET D

USE IN CONJUNCTION WITH PROPOSED TYPICAL SECTION NO. 8 AT THE FOLLOWING LOCATIONS
-L- STA. 113+10.00 to STA. 115+46.00

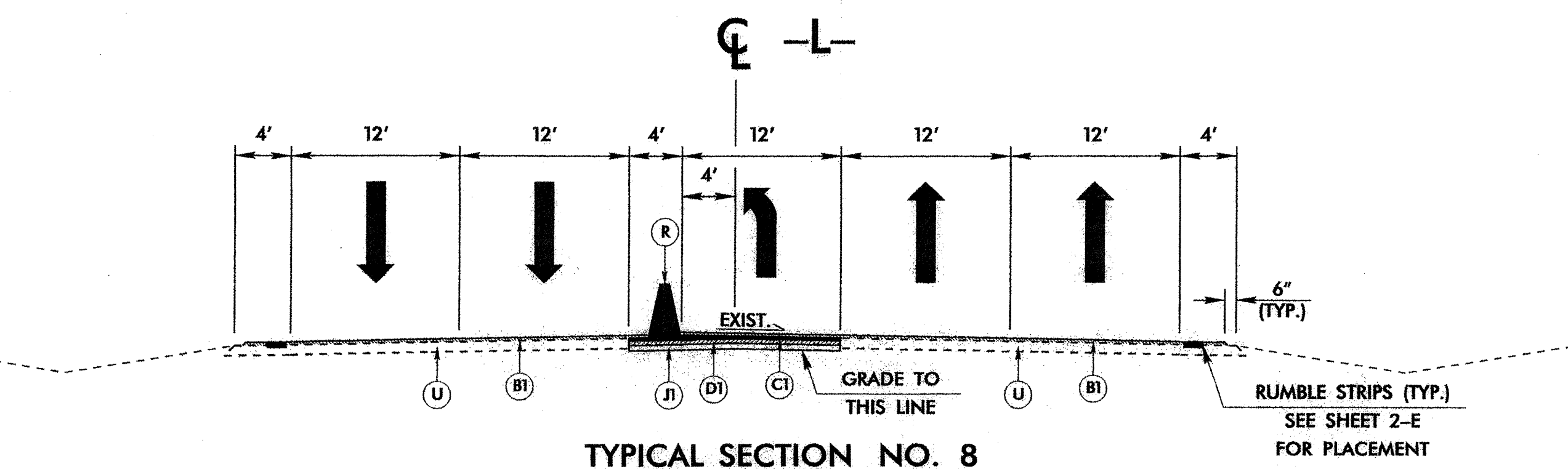


TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7 AT THE FOLLOWING LOCATIONS
-L- STA. 102+34.00 to STA. 109+15.00
-L- STA. 115+60.00 to STA. 122+25.00
-L- STA. 128+55.00 to STA. 147+75.00
-L- STA. 154+40.00 to STA. 158+55.00
-L- STA. 165+20.00 to STA. 187+34.00
-L- STA. 194+00.00 to STA. 209+21.00

NOTE: TRANSITION FROM PROPOSED TYPICAL SECTION NO. 7 TO EXISTING AT THE FOLLOWING LOCATIONS:
-L- STA. 209+21.00 to STA. 209+63.00

NOTE: TRANSITION FROM PROPOSED TYPICAL SECTION NO. 7 TO PROPOSED TYPICAL SECTION NO. 8 AT THE FOLLOWING LOCATIONS:
-L- STA. 109+15.00 to STA. 110+15.00
-L- STA. 158+55.00 to STA. 159+55.00



TYPICAL SECTION NO. 8

USE TYPICAL SECTION NO. 8 AT THE FOLLOWING LOCATIONS
-L- STA. 110+15.00 to STA. 114+70.00
-L- STA. 159+55.00 to STA. 164+30.00

PLANS PREPARED BY :

RUMMEL • KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 360
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560

FOR
DIVISION OF HIGHWAYS

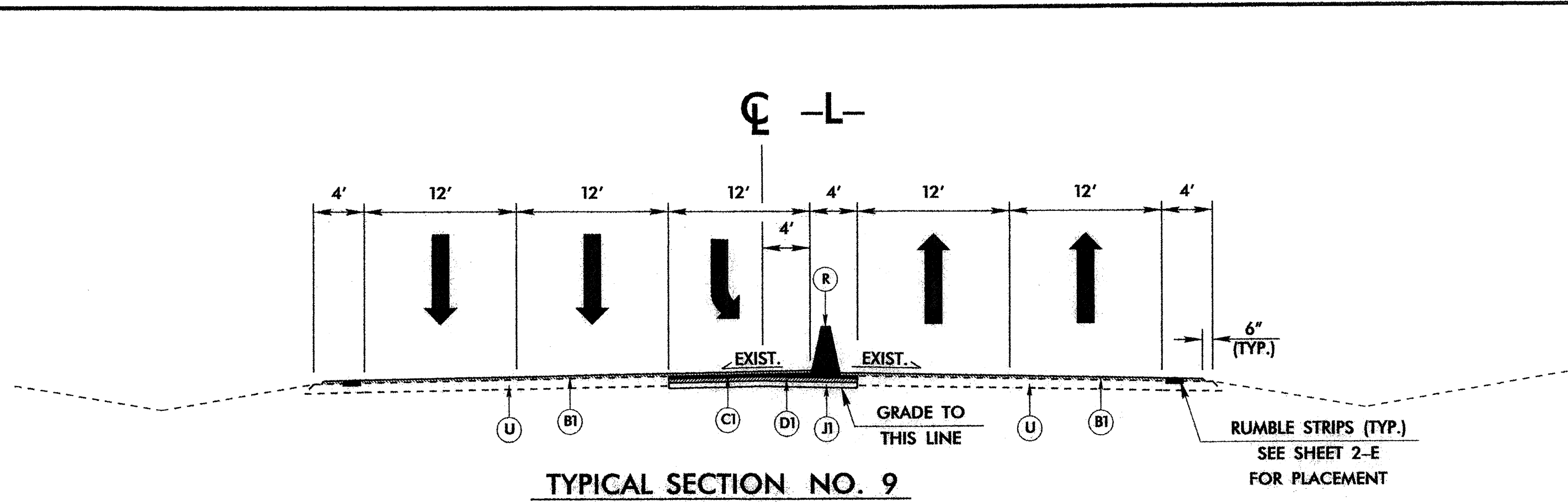
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6/2/06

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PAVEMENT SCHEDULE	
B1	PROP. APPROX. 5/8" OPEN-GRADED ASPHALT FRICTION COURSE, TYPE FC-1 MODIFIED, AT AN AVERAGE RATE OF 75 LBS. PER SQ. YD.
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. 1 1/2" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
D1	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
J1	PROP. 8" COMPACTED AGGREGATE BASE COURSE.
R	MEDIAN CONCRETE BARRIER.
T	SHOULDER MATERIAL.
U	EXISTING PAVEMENT.

NOTES:
 PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.
 SEE PLANS FOR LOCATION AND SIZE OF CONCRETE ISLANDS.

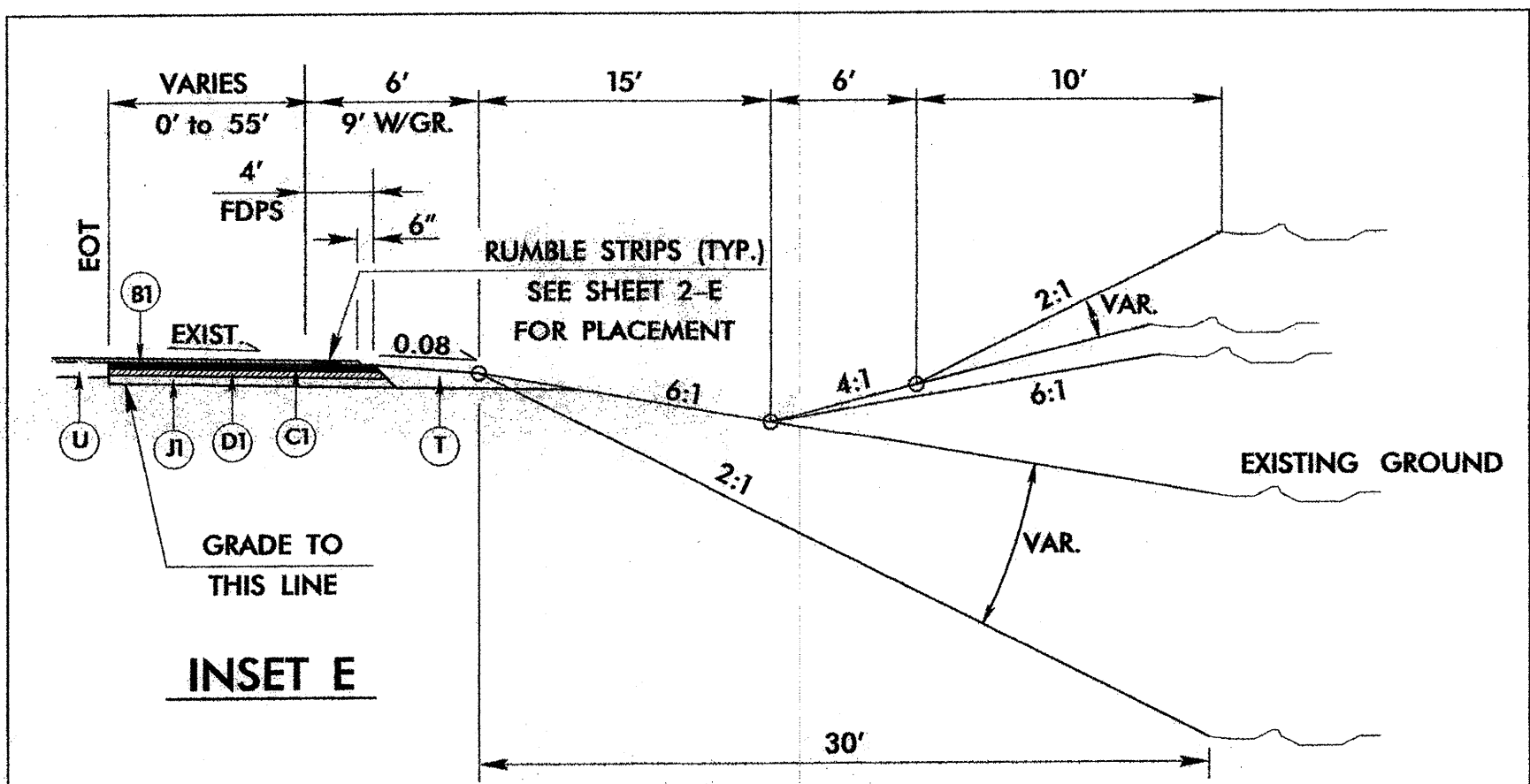


TYPICAL SECTION NO. 9

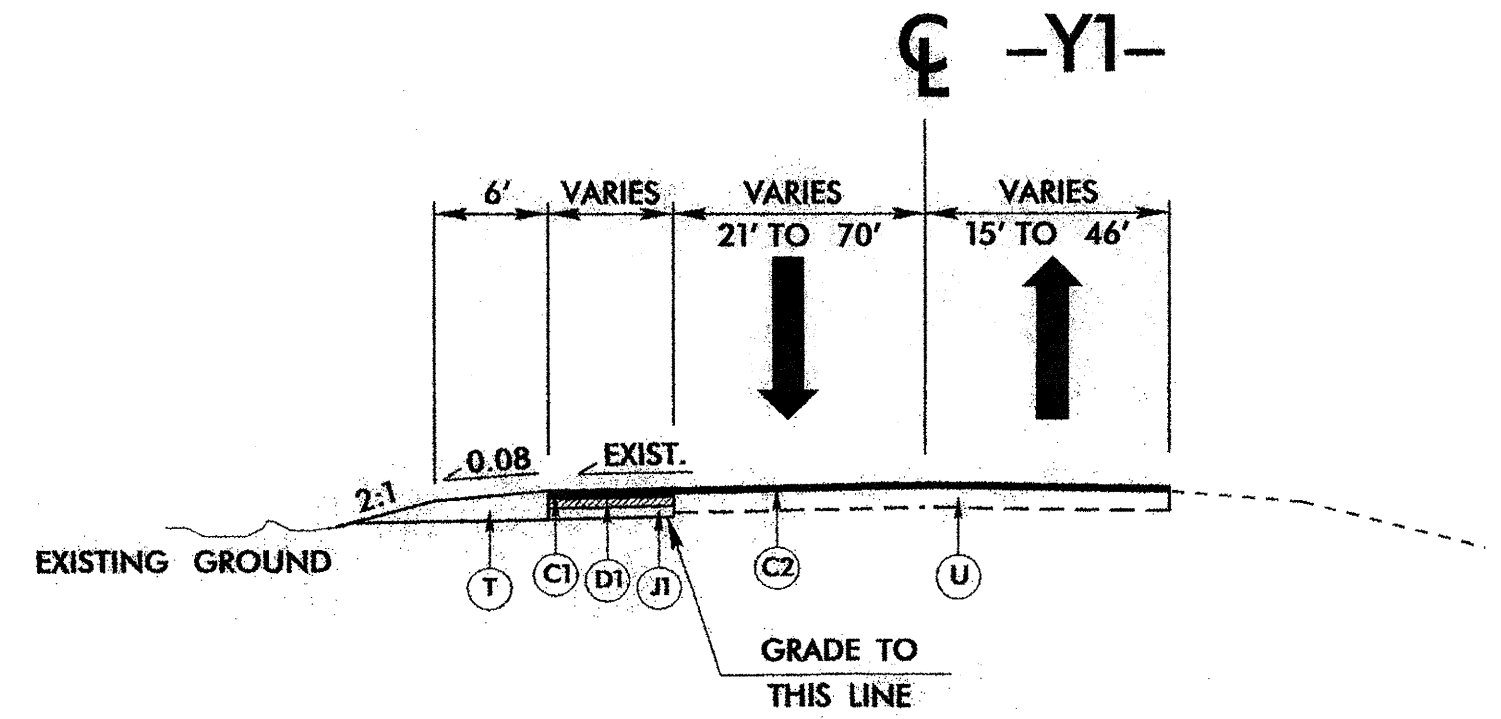
USE TYPICAL SECTION NO. 9
 AT THE FOLLOWING LOCATIONS
 -L- STA. 123+15.00 to STA. 127+55.00
 -L- STA. 148+65.00 to STA. 153+40.00
 -L- STA. 194+49.00 to STA. 202+25.00

NOTE: TRANSITION FROM PROPOSED TYPICAL SECTION NO. 9 TO PROPOSED TYPICAL SECTION NO. 7 AT THE FOLLOWING LOCATIONS:
 -L- STA. 127+55.00 to STA. 128+55.00
 -L- STA. 153+40.00 to STA. 154+40.00
 -L- STA. 202+25.00 to STA. 203+25.00

PROJECT REFERENCE NO. W-4713	SHEET NO. 2B
ROADWAY DESIGN ENGINEER 	PAVEMENT DESIGN ENGINEER

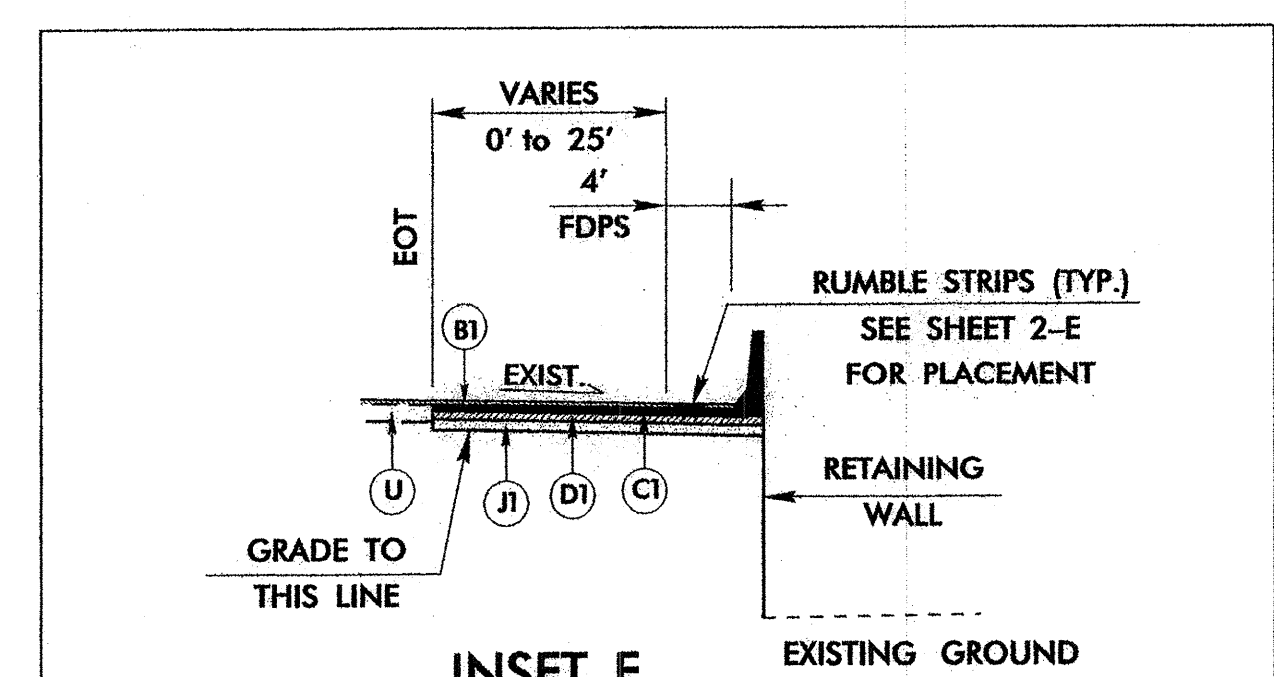


USE INSET IN CONJUNCTION WITH PROPOSED TYPICAL SECTION NO. 9 AT THE FOLLOWING LOCATIONS
 -L- STA. 122+40.00 to STA. 124+75.00
 -L- STA. 143+75.00 to STA. 196+10.00

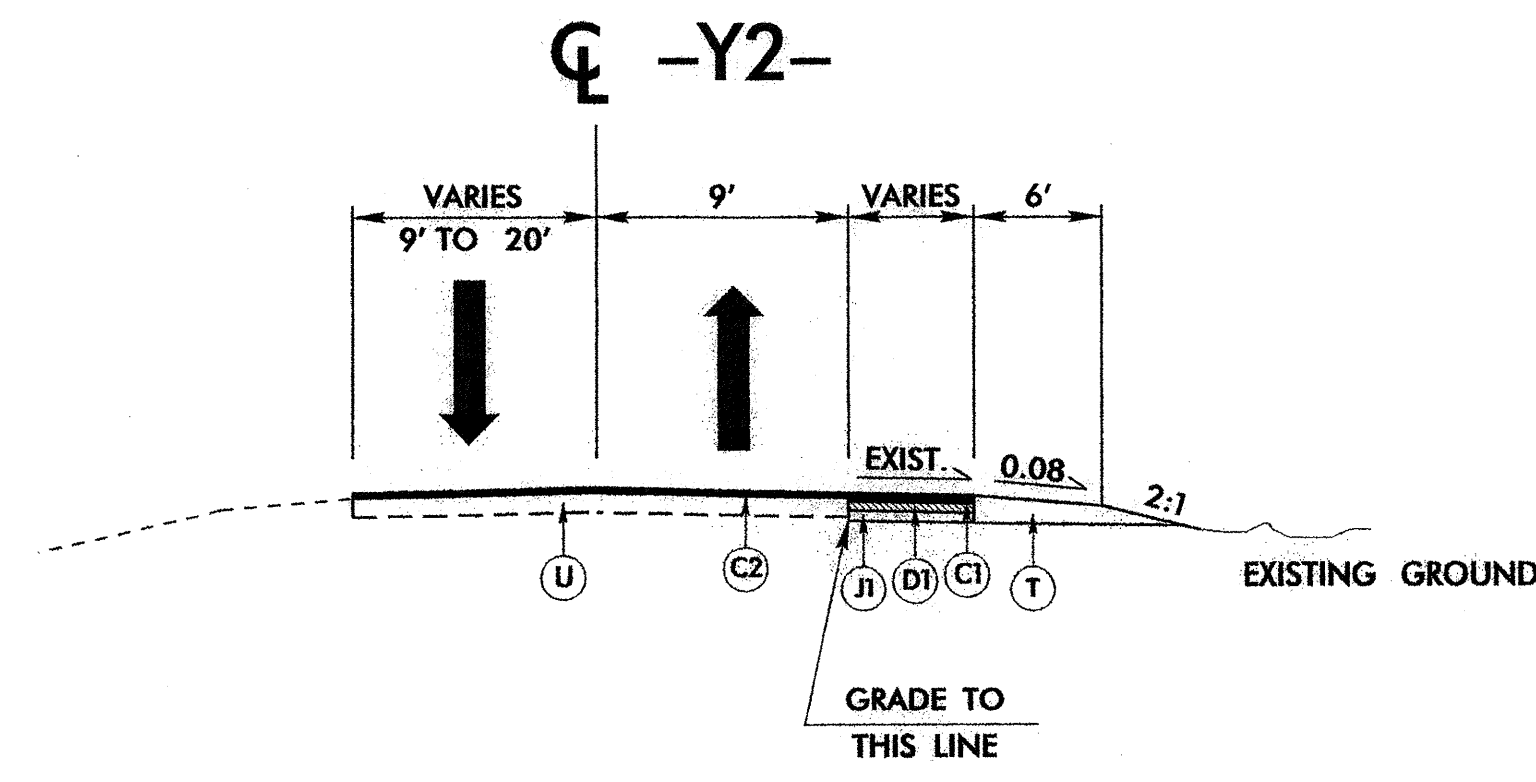


TYPICAL SECTION NO. 10

USE PROPOSED TYPICAL SECTION NO. 10
 AT THE FOLLOWING LOCATIONS
 -Y1- STA. 10+32.92 to STA. 11+25.00



USE IN CONJUNCTION WITH PROPOSED TYPICAL SECTION NO. 9 AT THE FOLLOWING LOCATIONS
 -L- STA. 148+04.00 to STA. 149+50.00

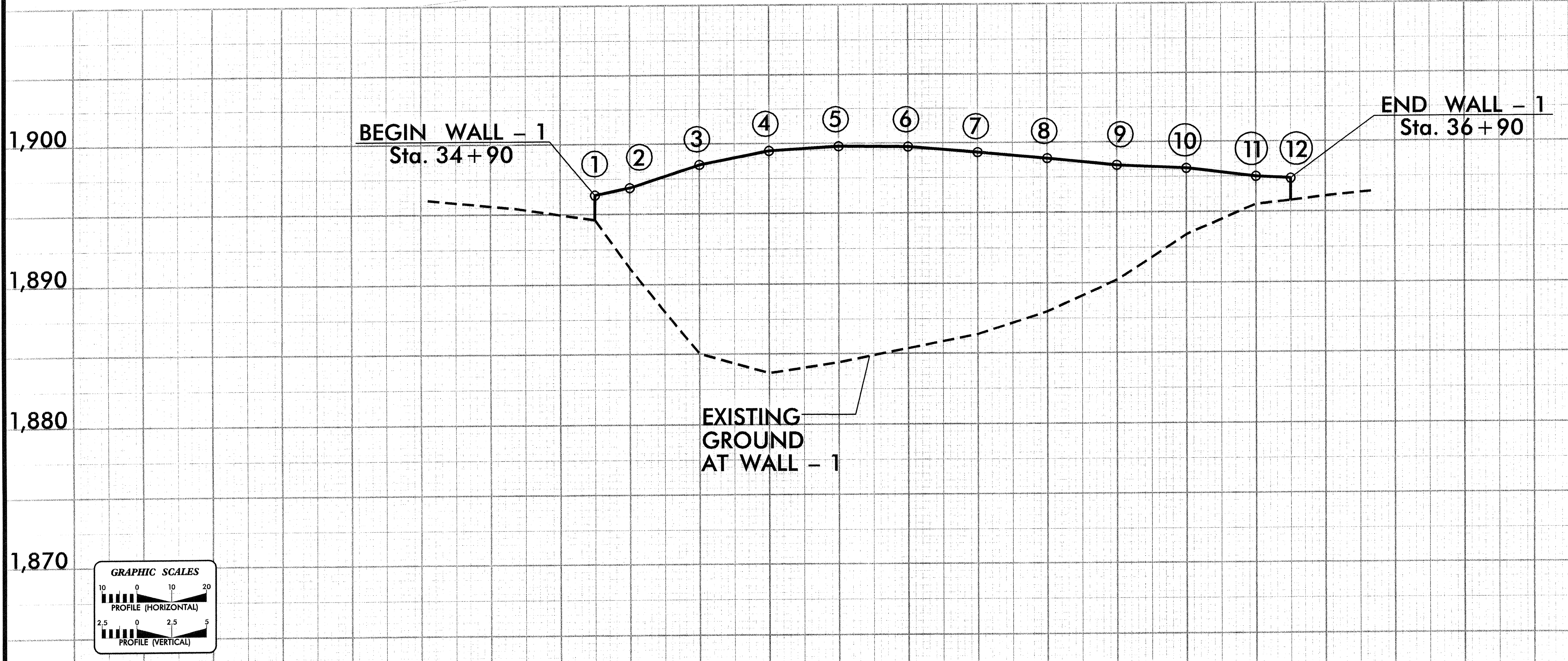
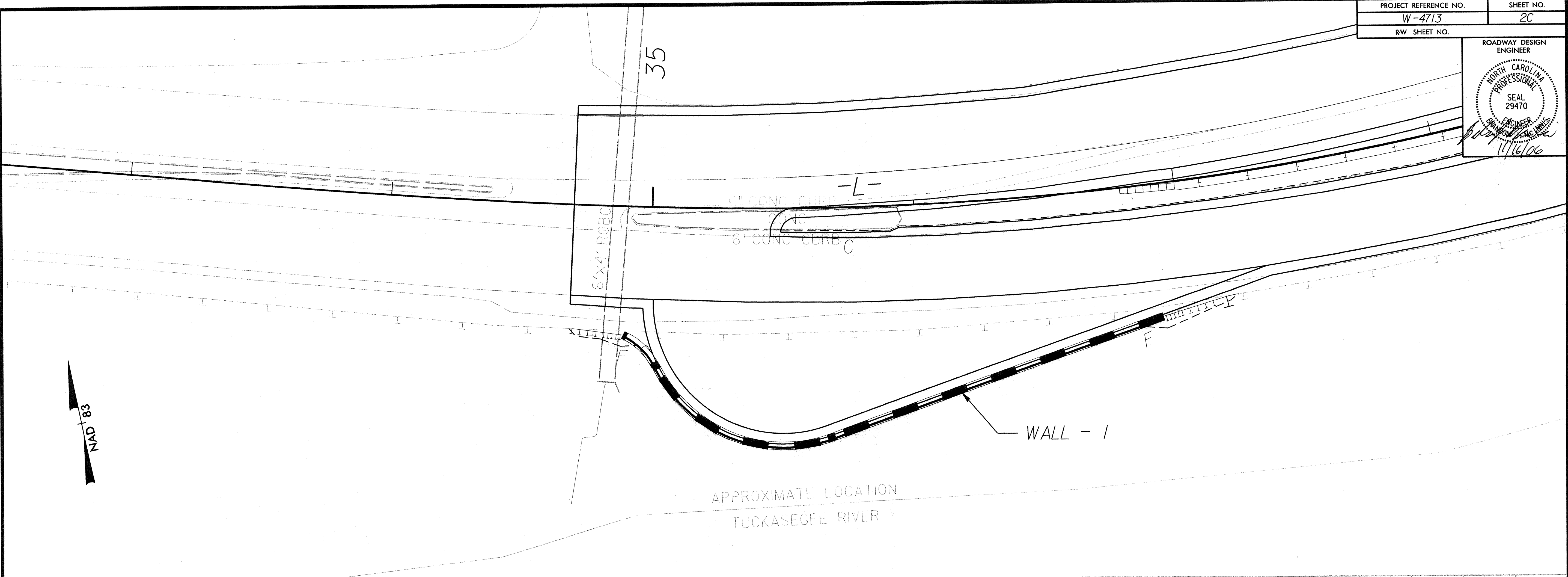
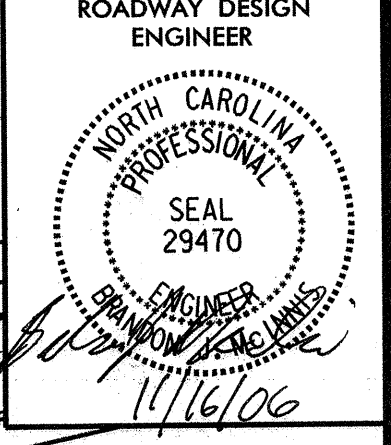


TYPICAL SECTION NO. 11

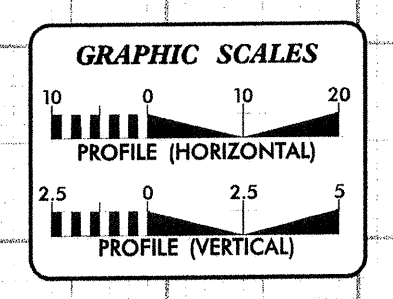
USE PROPOSED TYPICAL SECTION NO. 11
 AT THE FOLLOWING LOCATIONS
 -Y2- STA. 10+60.00 to STA. 11+46.00

PLANS PREPARED BY :

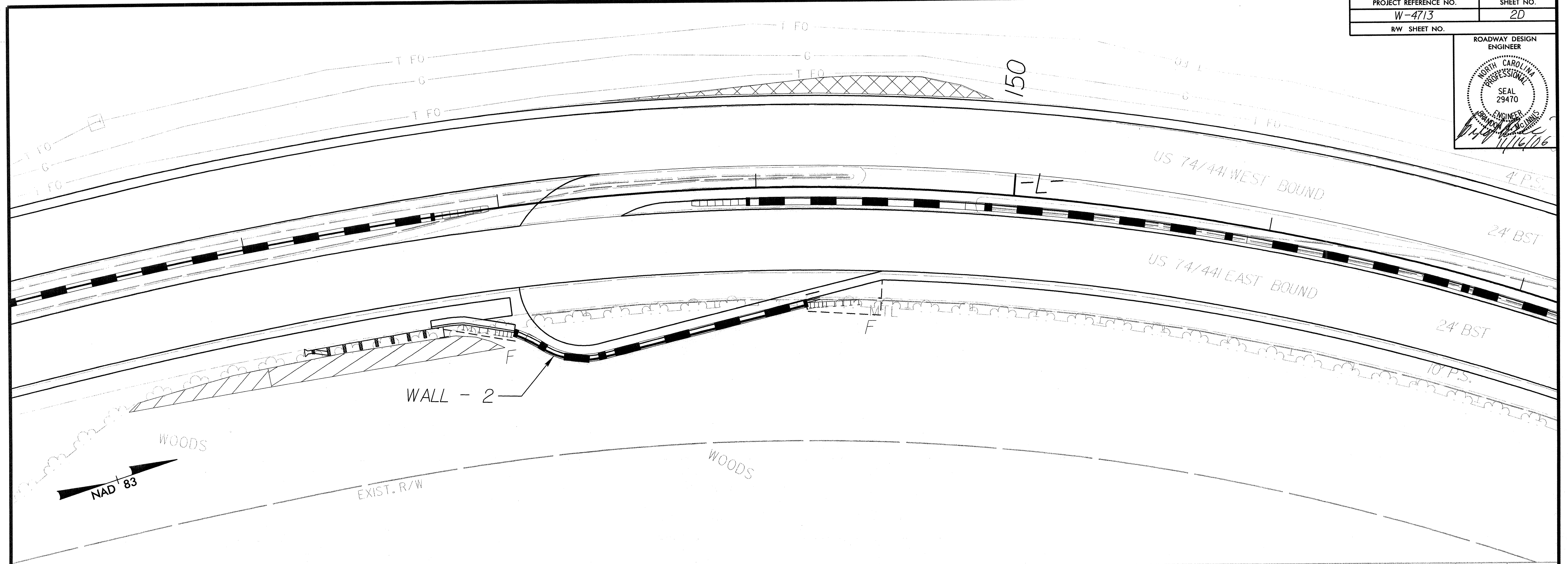
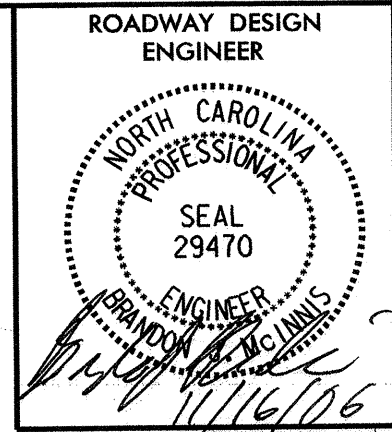
RUMMEL • KLEPPER & KAHL, LLP
 consulting engineers
 900 RIDGEFIELD DRIVE SUITE 350
 RALEIGH, NORTH CAROLINA 27609-3980
 (919) 878-9560
 FOR
 DIVISION OF HIGHWAYS



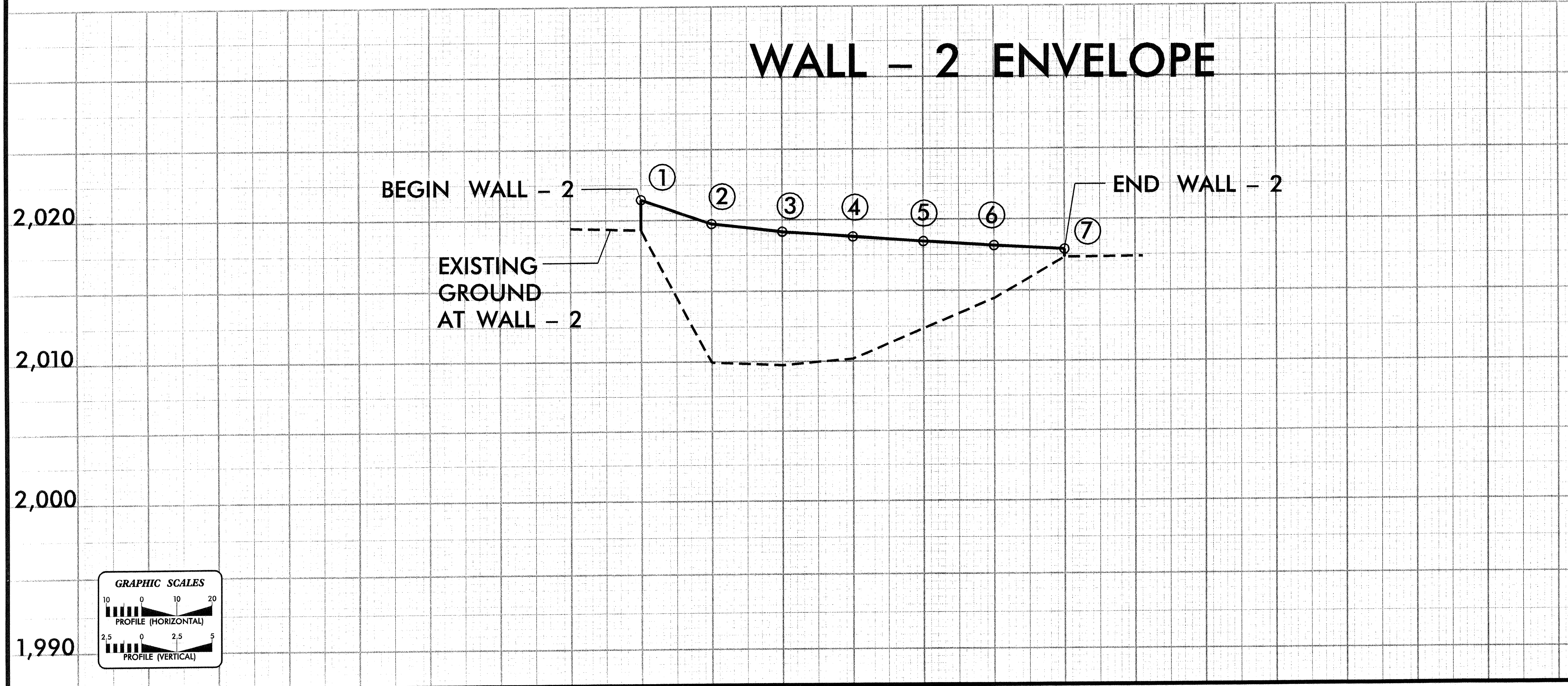
PI#	-L- STA.	-L- OFFSET	ELEVATION
1	34+90	49.79'	1,896.33'
2	35+00	57.77'	1,896.86'
3	35+20	81.86'	1,898.50'
4	35+40	90.47'	1,899.47'
5	35+60	90.47'	1,899.78'
6	35+80	83.91'	1,899.73'
7	36+00	77.13'	1,899.31'
8	36+20	70.77'	1,898.85'
9	36+40	64.85'	1,898.34'
10	36+60	59.35'	1,898.09'
11	36+80	54.26'	1,897.49'
12	36+90	51.87'	1,897.34'



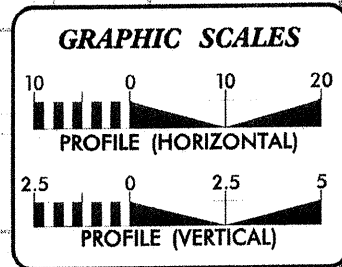
PLANS PREPARED BY:
RK & K RUMMEL • KLEPPER & KAHL, LLP
consulting engineers
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
(919) 878-9560
FOR
DIVISION OF HIGHWAYS



WALL - 2 ENVELOPE



PI#	-L- STA.	-L- OFFSET	ELEVATION
1	148+00	49.77'	2021.45'
2	148+20	60.97'	2019.72'
3	148+40	61.36'	2019.15'
4	148+60	58.04'	2018.80'
5	148+80	54.29'	2018.45'
6	149+00	50.11'	2018.14'
7	149+20	45.50'	2017.87'



PLANS PREPARED BY :
RK & K
 RUMMEL • KLEPPER & KAHL, LLP
consulting engineers
 900 RIDGEFIELD DRIVE SUITE 350
 RALEIGH, NORTH CAROLINA 27609-3960
 (919) 878-9560
FOR
 DIVISION OF HIGHWAYS

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

ENGLISH DETAIL DRAWING FOR **ASPHALT SHOULDERS MILLED RUMBLE STRIPS**

SHEET 1 OF 2

PLAN VIEW PAVED SHOULDER

NOTE: RUMBLE STRIP TO BE BRUSHED, THEN VACUUMED IN THE SAME OPERATION BEFORE PAVEMENT MARKINGS ARE APPLIED.

2" TO 4" TO SHOULDER AND TRAVEL LANE JOINT

VARIES 0 TO 2"

6" POLYUREA

12" TYP

7" TYP

16"

PLAN VIEW MILLING DETAIL

7"

16"

SECTION A-A

SECTION B-B

ASPHALT PAVEMENT

ASPHALT PAVEMENT

ASPHALT PAVEMENT

1 1/2"

7"

16"

ENGLISH DETAIL DRAWING FOR **ASPHALT SHOULDERS MILLED RUMBLE STRIPS**

SHEET 1 OF 2

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

ENGLISH DETAIL DRAWING FOR **ASPHALT SHOULDERS MILLED RUMBLE STRIPS**

SHEET 2 OF 2

TREATMENT AT RAMP TERMINALS

BEGIN RUMBLE STRIPS ON RAMP SHOULDER

ACCELERATION RAMP

END RUMBLE STRIPS ON MAINLINE SHOULDER

MEDIAN

DECELERATION RAMP

END RUMBLE STRIPS ON RAMP SHOULDER

50'

BEGIN RUMBLE STRIPS ON LOOP PAVEMENT WHERE TRANSITION BECOMES 4'-0"

ACCELERATION LOOP

END RUMBLE STRIPS ON MAINLINE SHOULDER

MEDIAN

DECELERATION LOOP

BEGIN RUMBLE STRIPS ON MAINLINE SHOULDER

END RUMBLE STRIPS ON MAINLINE SHOULDER

TAPER TO CURB & GUTTER

TREATMENT AT LOOP TERMINALS

* TERMINATE AT DRIVEWAYS AS DIRECTED BY THE ENGINEER.

TREATMENT AT INTERSECTIONS (ROADWAY OR DRIVEWAY)

END RUMBLE STRIPS 25' BEFORE RADIUS

25'

25'

RADIUS

ROADWAY

25'

BEGIN RUMBLE STRIPS 25' AFTER RADIUS

* DRIVEWAY

MEDIAN

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

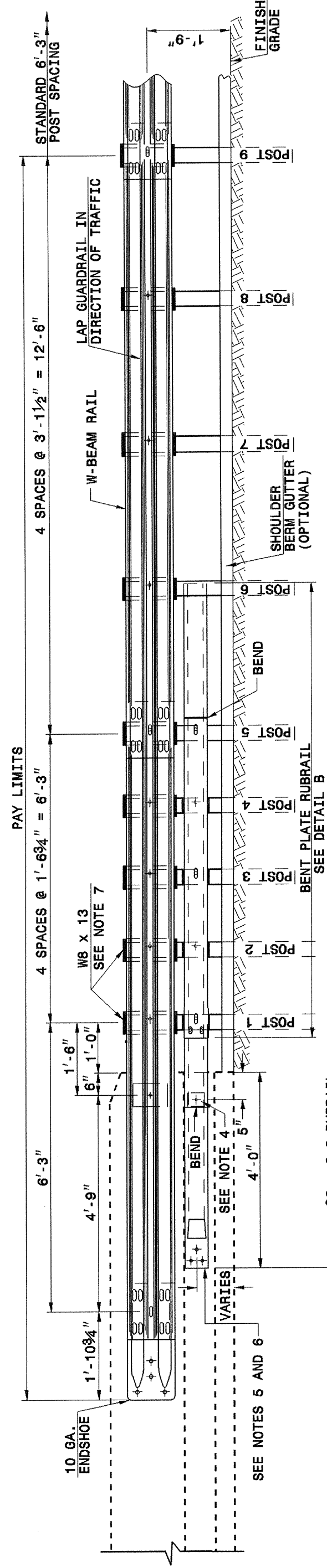
ENGLISH DETAIL DRAWING FOR **ASPHALT SHOULDERS MILLED RUMBLE STRIPS**

SHEET 2 OF 2

Professional Engineer Seal for J. S. Hunt, No. 022868, dated 11/30/10.

7/16/2006 12:00:00 PM [C:\p0606\pfr01\w-4713_rdy_bsh_2s_v7.dgn]

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



ELEVATION

SEE ROADWAY PLANS FOR END TREATMENT

- GENERAL NOTES:
- 1) POSTS 1 THROUGH 5 REQUIRE AN ADDITIONAL HOLE TO ATTACH LOWER BLOCKOUTS AND/OR RUBRAIL.
- 2) RUBRAIL BLOCKOUTS LOCATED ON POSTS 1 THROUGH 4 ARE OFFSET DRILLED AND SECURED WITH 5/8\"/>
- 3) WITH A 3/4\"/>
- 4) ATTACH TUBE TO GUARDRAIL ONLY WITH 3/4\"/>
- 5) SHOP FABRICATE THE C6 X 8.2 RUBRAIL BLOCKOUT. BLOCKOUT IS ATTACHED TO RAIL ELEMENT ONLY. USE 3/8\"/>
- 6) ANCHOR EXISTING BRIDGE RAIL AND NEW OR EXISTING BARRIERS. RUBRAIL SHALL BE ANCHORED USING THREE 5/8\"/>
- 7) AT EXISTING BRIDGE RAIL AND NEW OR EXISTING BARRIERS, THE W-BEAM END SHOE SHALL BE ANCHORED USING A 4\"/>
- 8) AT NEW BRIDGE RAIL, THE W-BEAM END SHOE SHALL BE ANCHORED USING A 4\"/>
- 9) POSTS 1 AND 2 ARE W8 X 13, 7'-6\"/>
- 10) RUBRAIL OFFSET BLOCK (TYP.) 6\"/>
- 11) UPPER OFFSET BLOCK (TYP.) 6\"/>

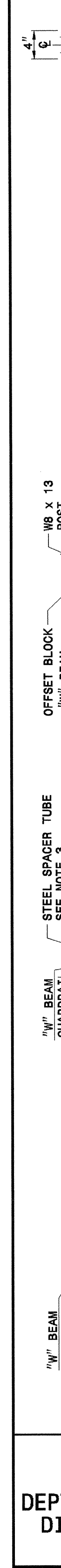
ENGLISH DETAIL DRAWING FOR GUARDRAIL ANCHOR UNIT TYPE B-77 SHOP CURVED

SHEET 1 OF 2 B-77SC

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

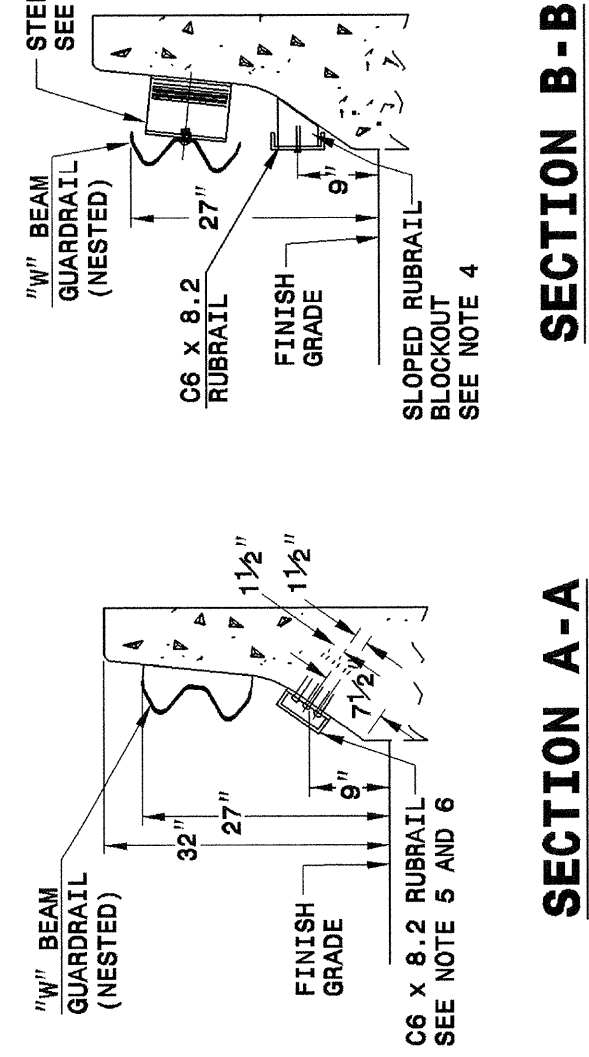
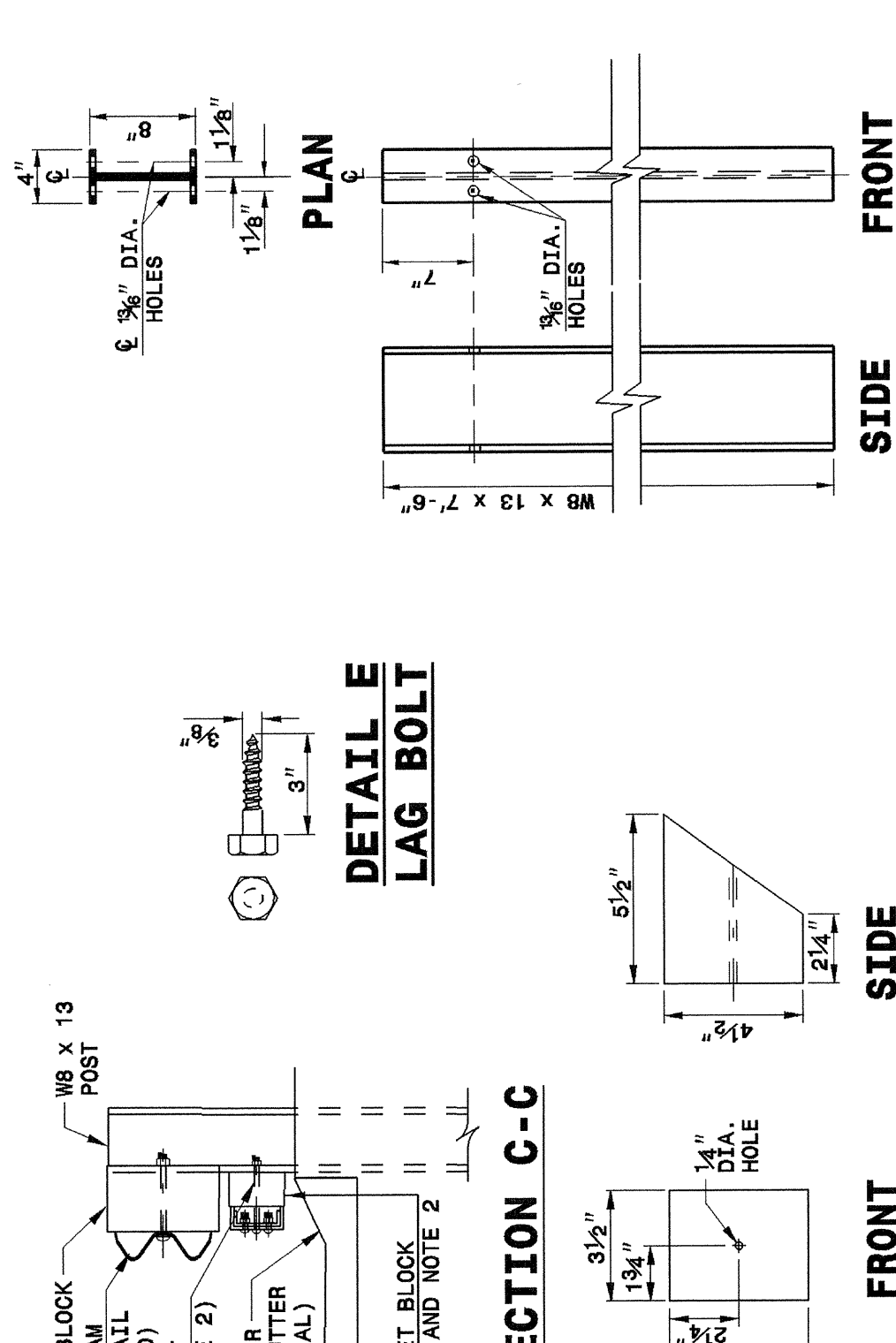
ENGLISH DETAIL DRAWING FOR GUARDRAIL ANCHOR UNIT TYPE B-77 SHOP CURVED

SHEET 1 OF 2 B-77SC



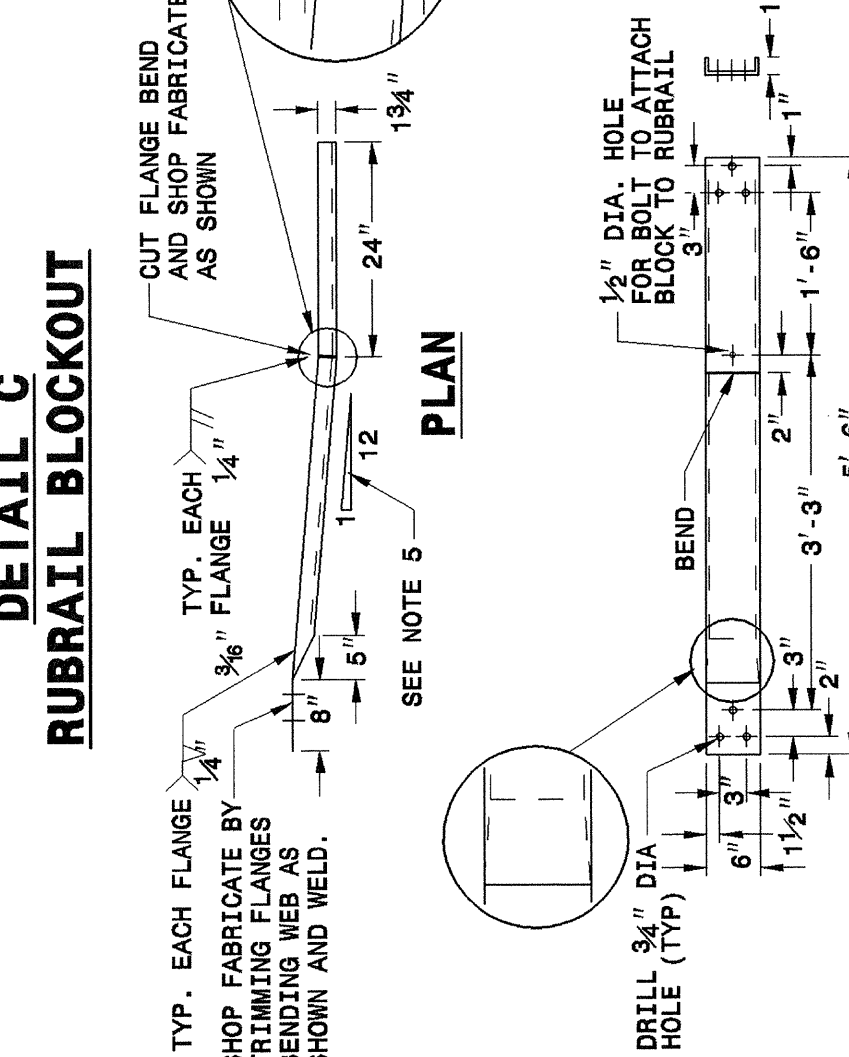
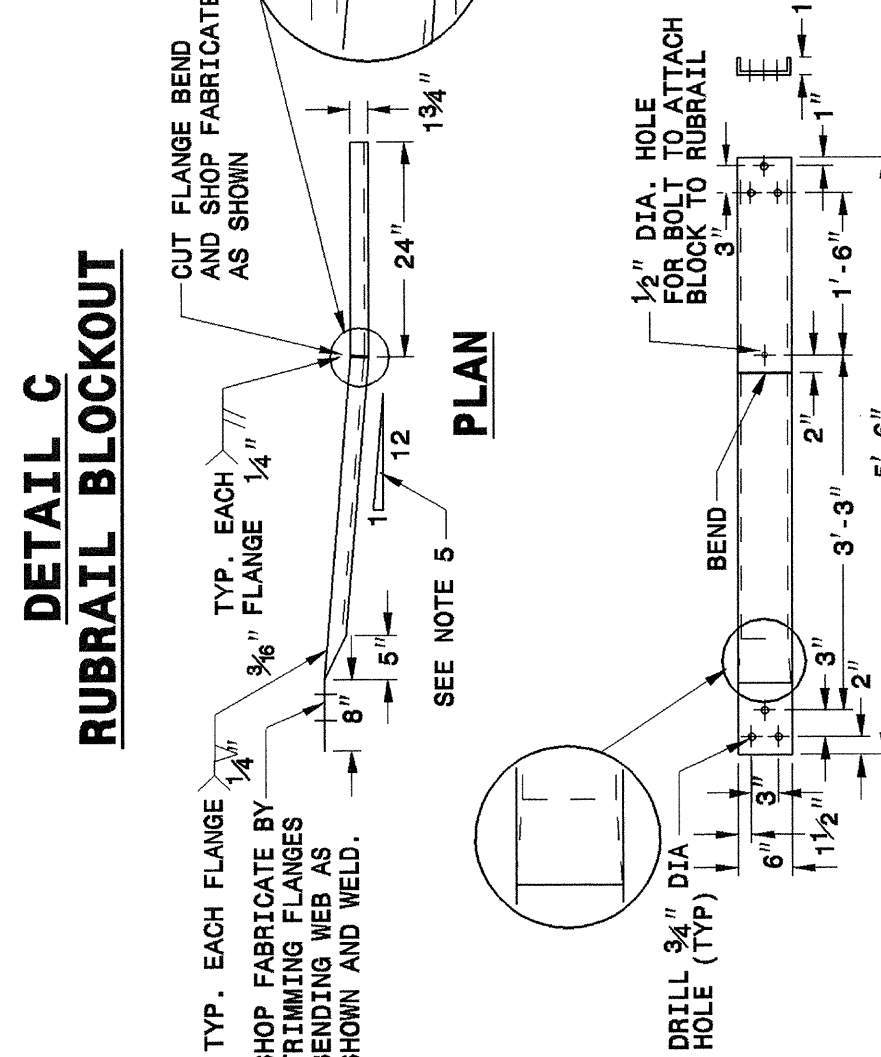
PLAN

GUARDRAIL ANCHOR UNIT TYPE B-77



POST	RUBRAIL BLOCKS 7\"/>	HIGH X 4\"/>	WIDE
1	4 1/2"	9"	5"
2	3 1/2"	5"	6"
3	2"	3"	6"
4	1"	3"	6"

* BOLTS FOR POSTS 2 AND 4 ARE USED TO ATTACH BLOCK TO POST. RUBRAIL NOT ATTACHED TO BLOCK.

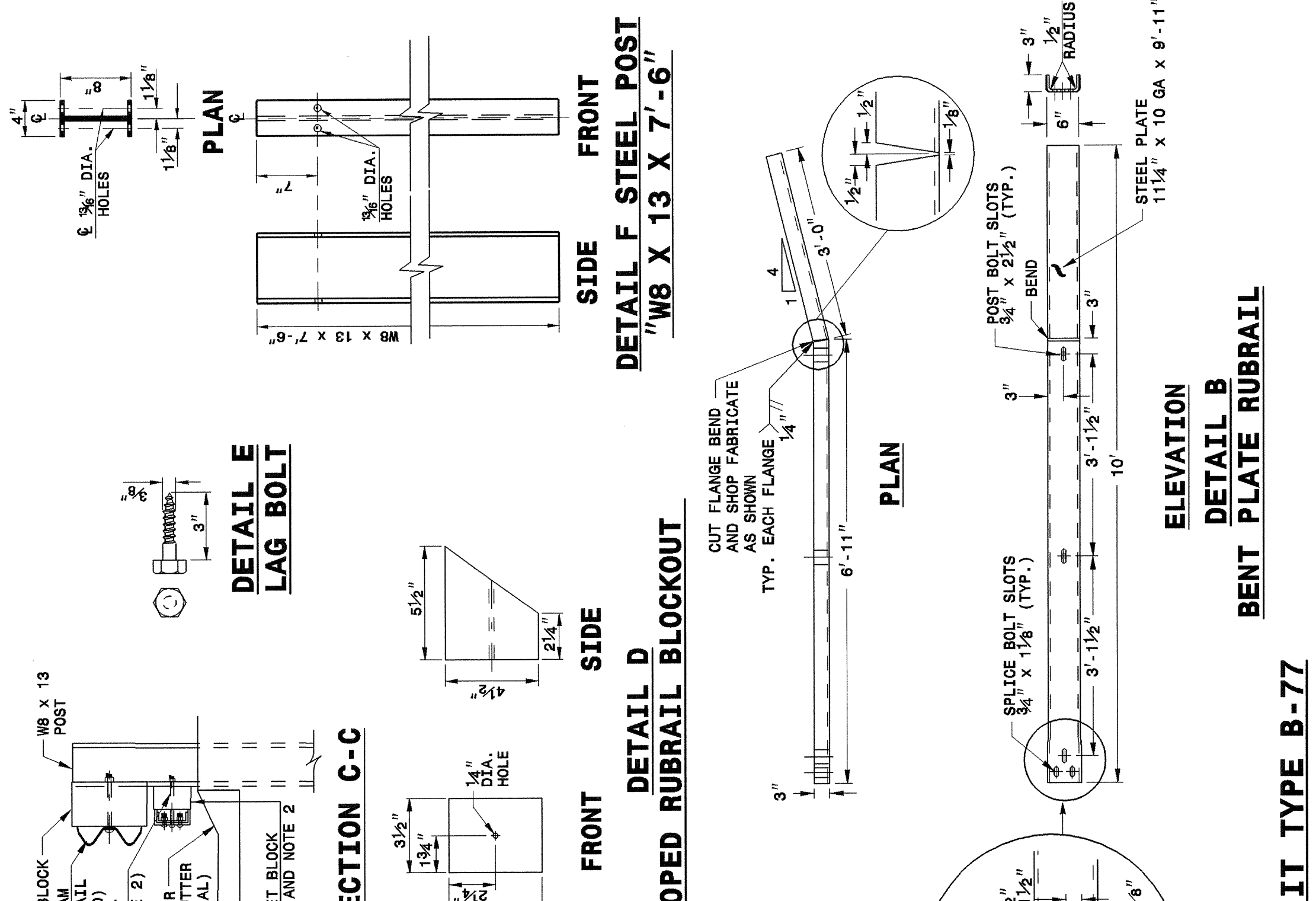
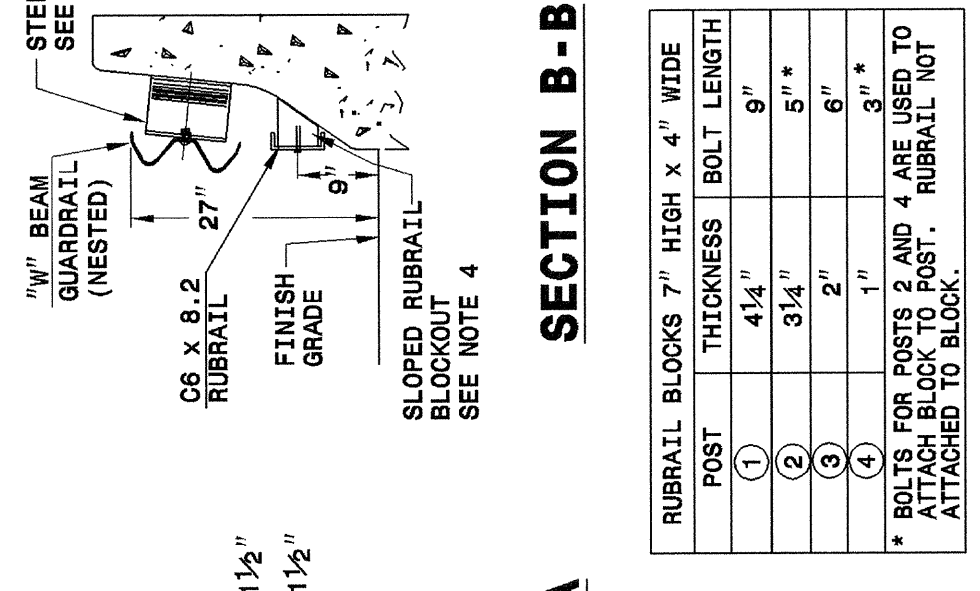
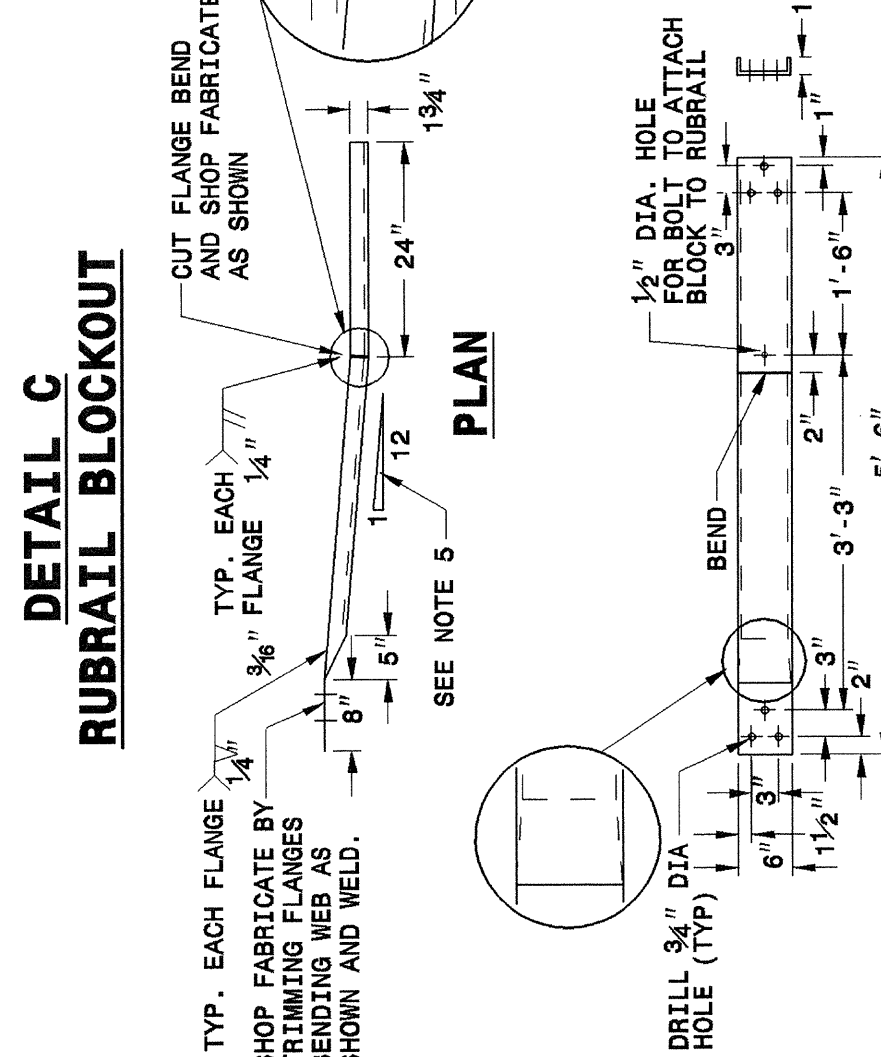
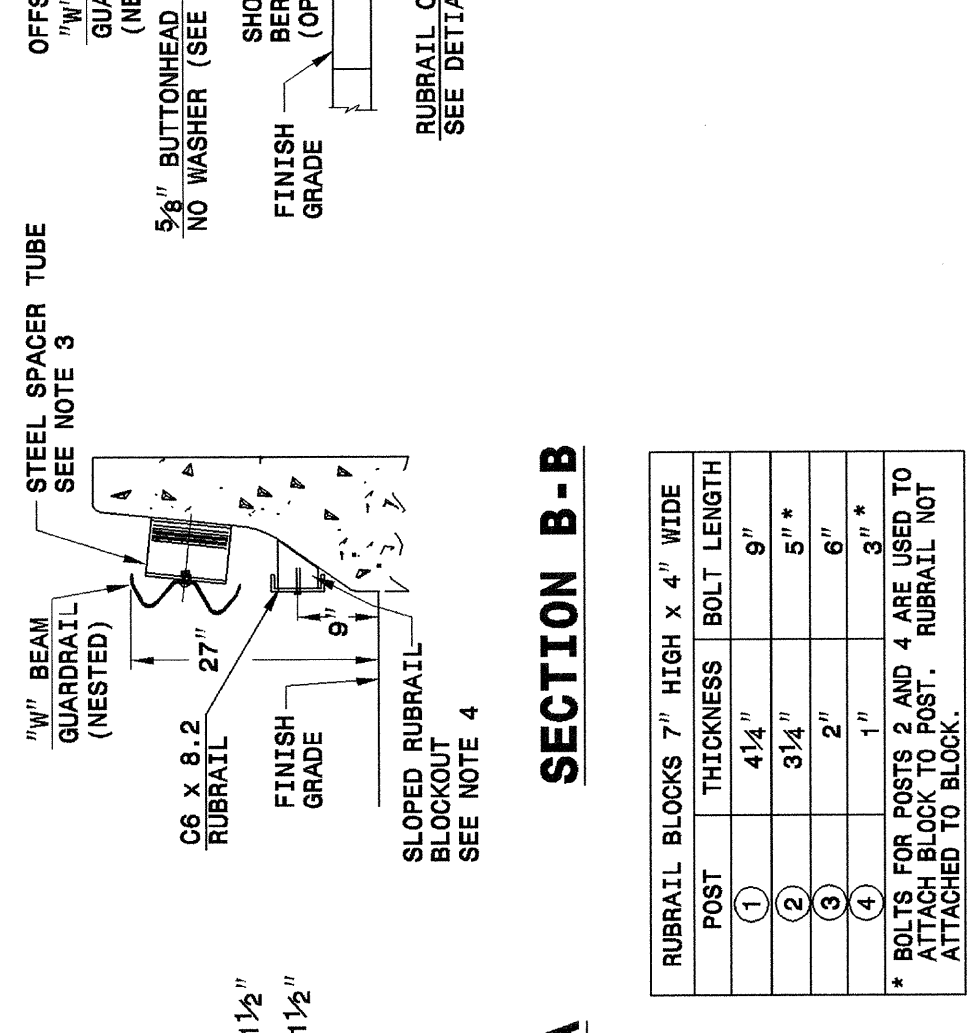
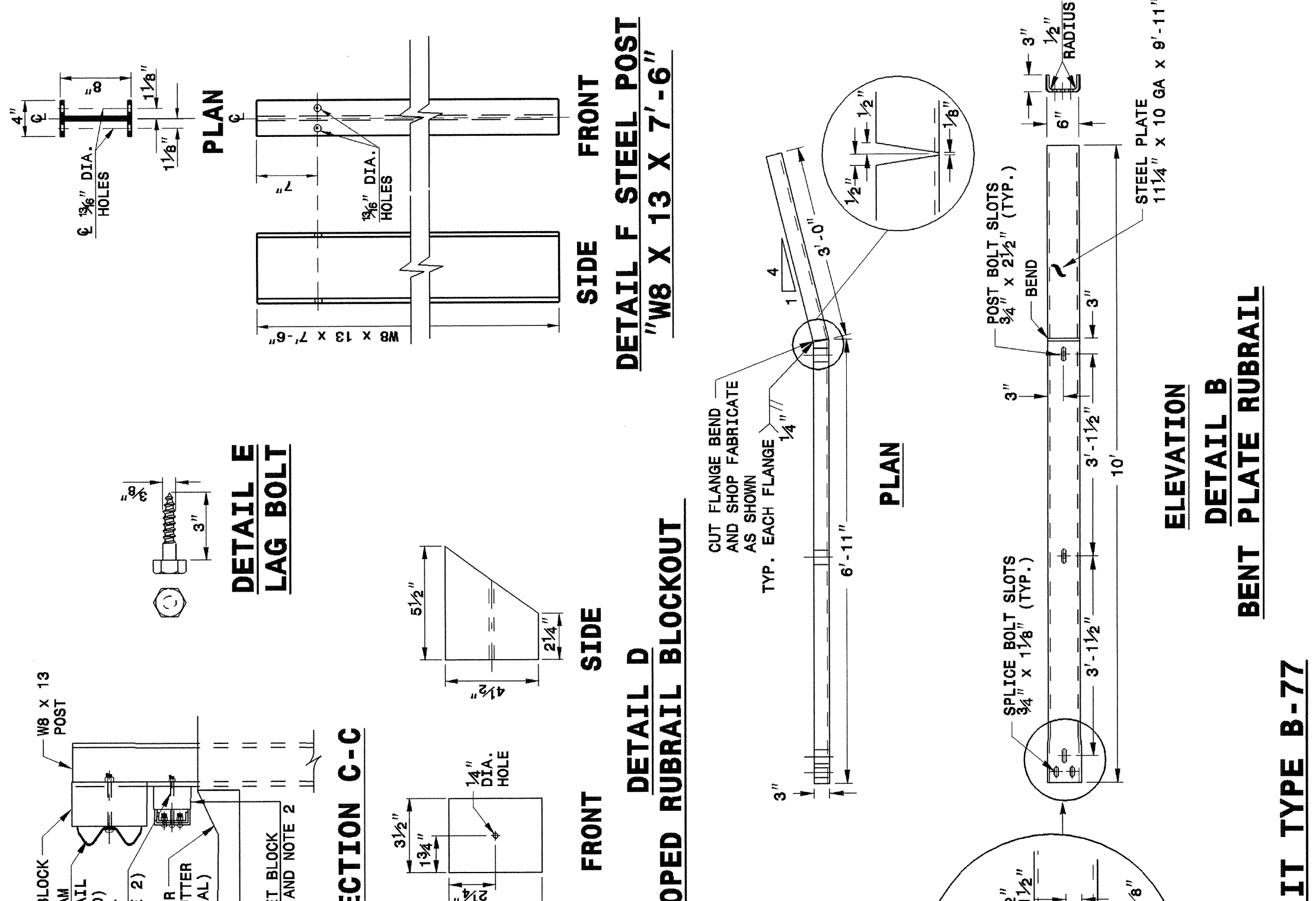


ELEVATION

DETAIL A C6 X 8.2 RUBRAIL

ELEVATION

DETAIL B BENT PLATE RUBRAIL



SHEET 2 OF 2 B-77SC

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

ENGLISH DETAIL DRAWING FOR GUARDRAIL ANCHOR UNIT TYPE B-77 SHOP CURVED

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

ENGLISH DETAIL DRAWING FOR GUARDRAIL ANCHOR UNIT TYPE B-77 SHOP CURVED

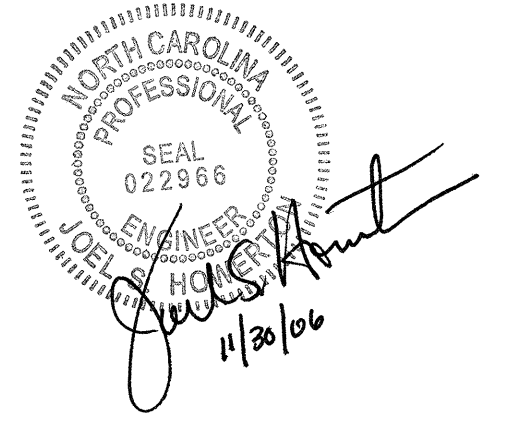
SHEET 2 OF 2 B-77SC

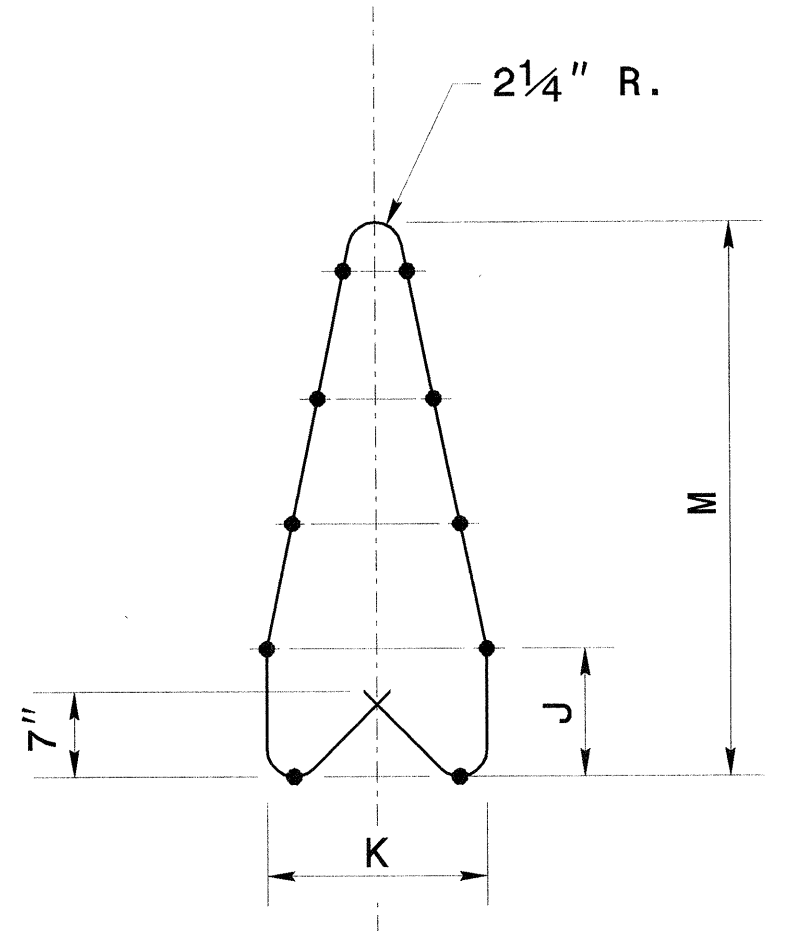
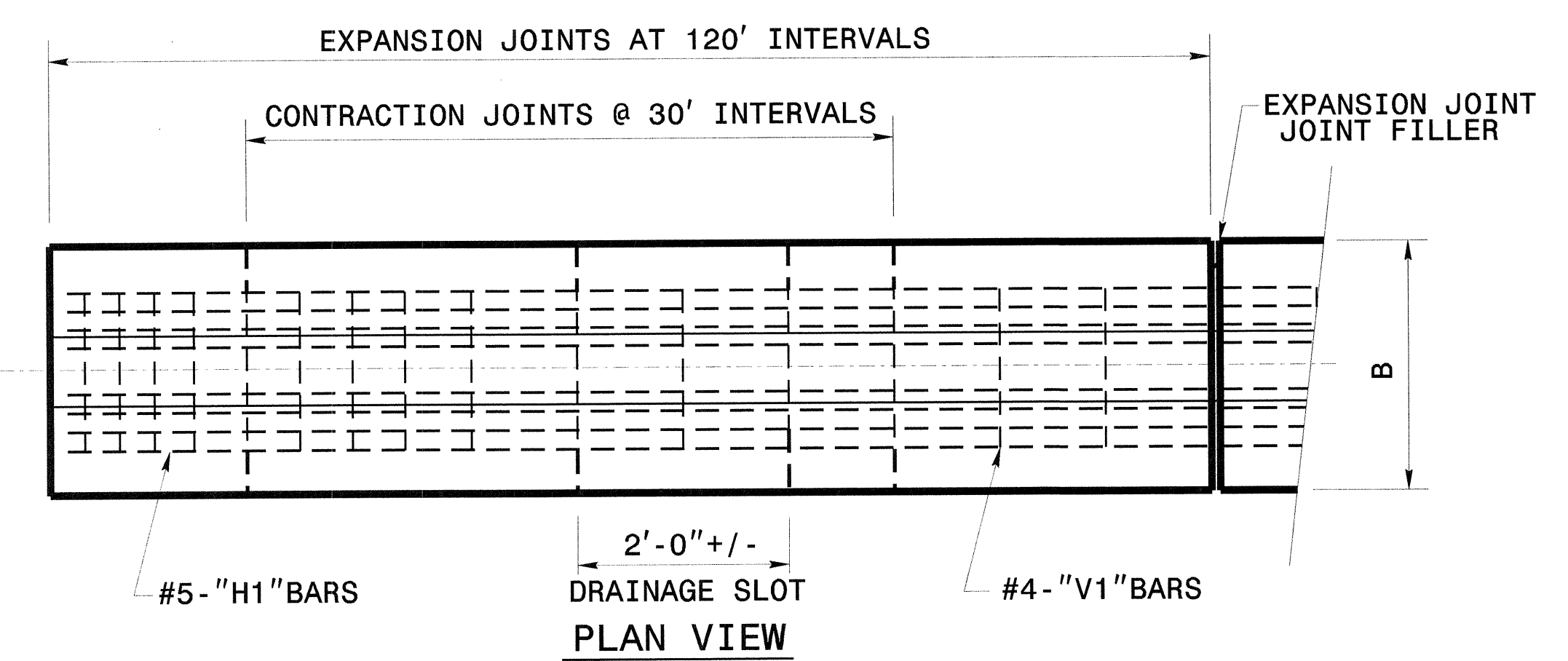
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PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4119

SEE PLATE FOR TITLE

ORIGINAL BY: E.E. WARD DATE: 06-04-04
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC: .miscguardrail\NCHRP350approved\B-77.dgn

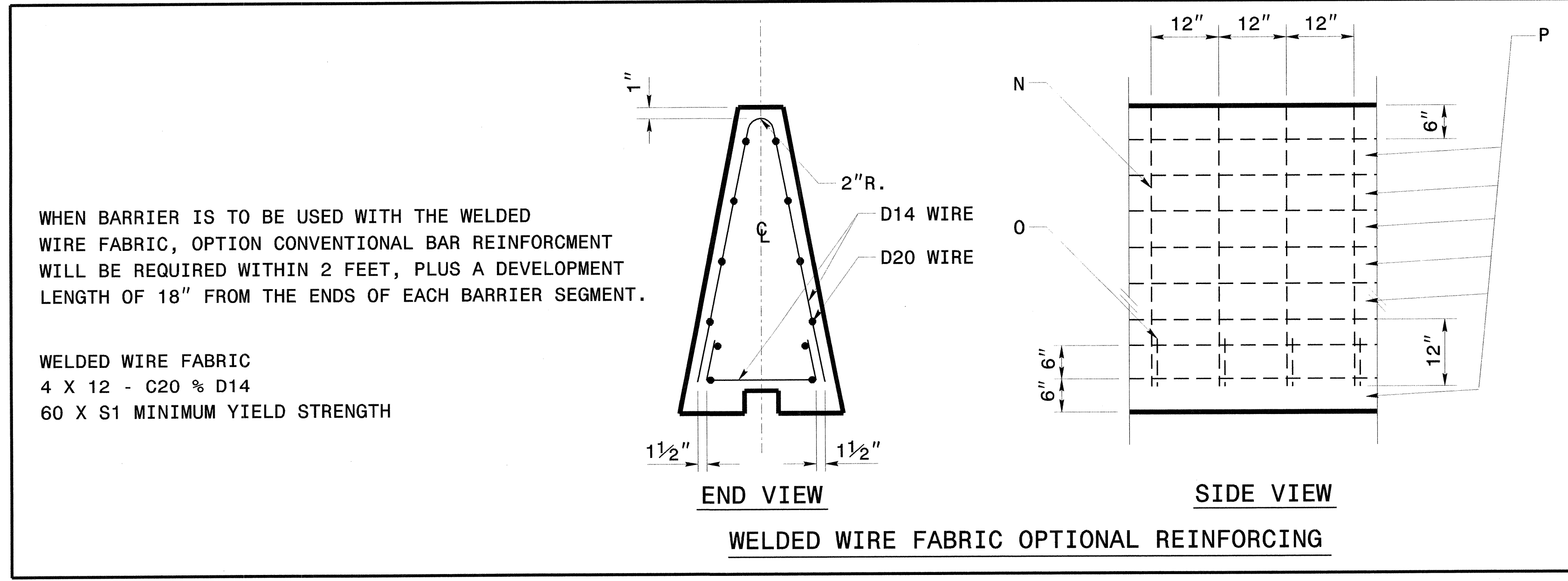
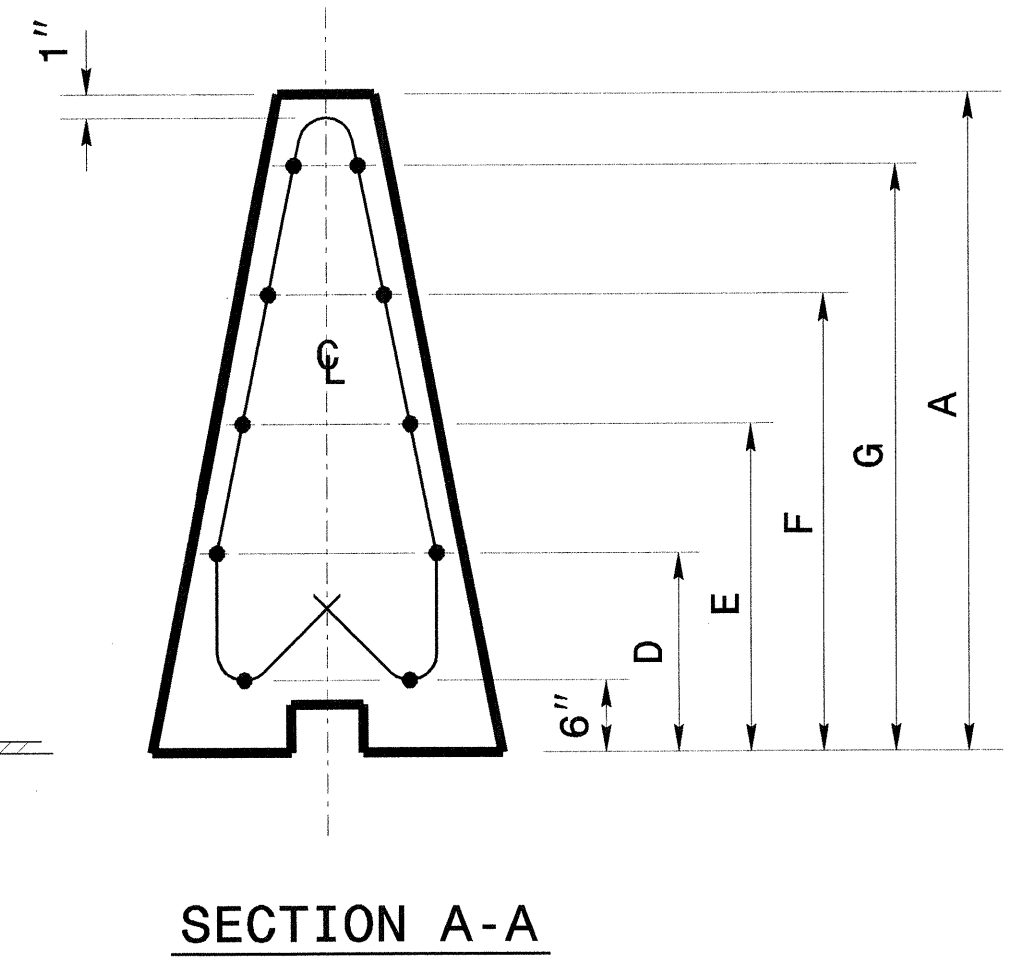
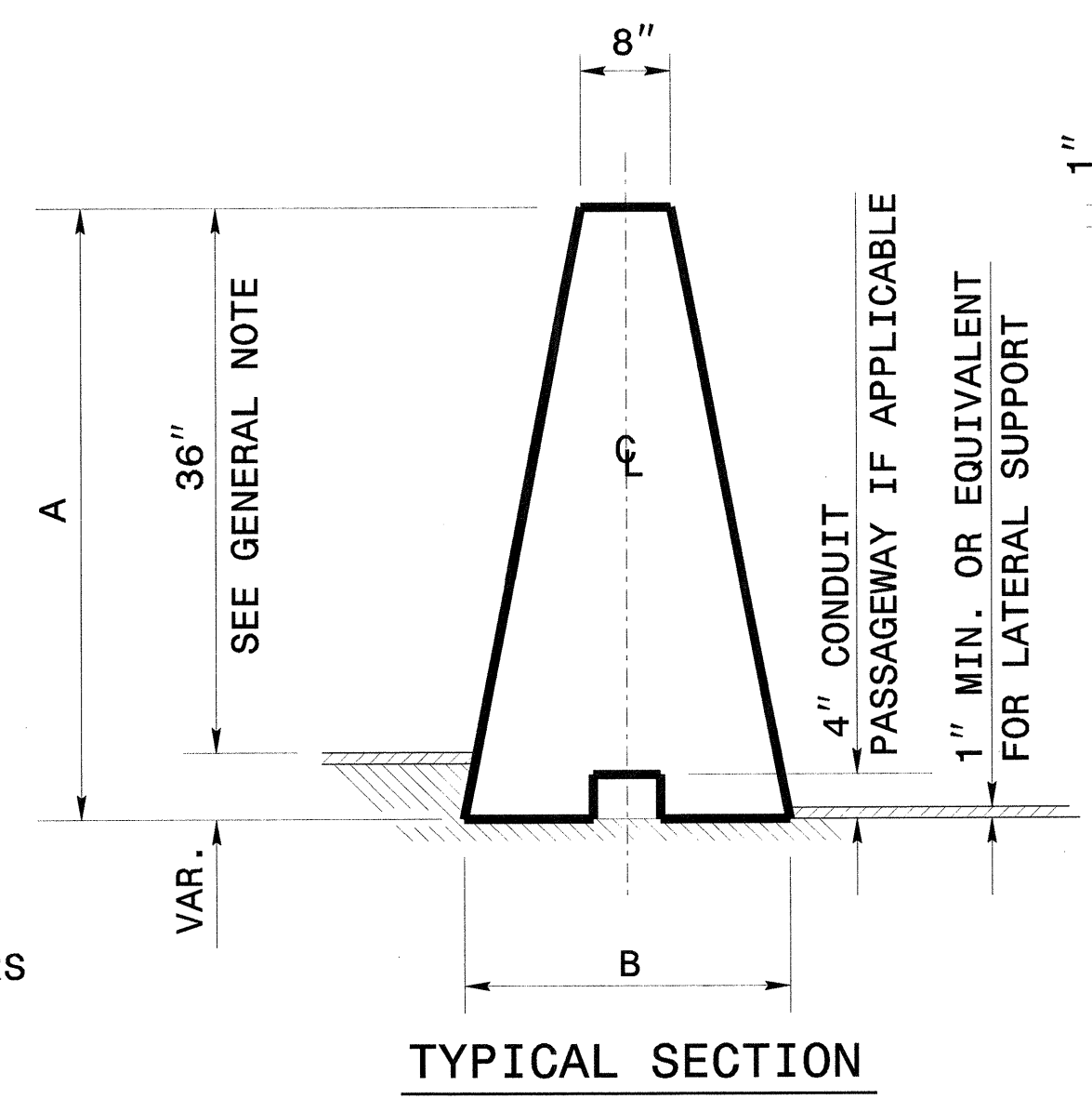
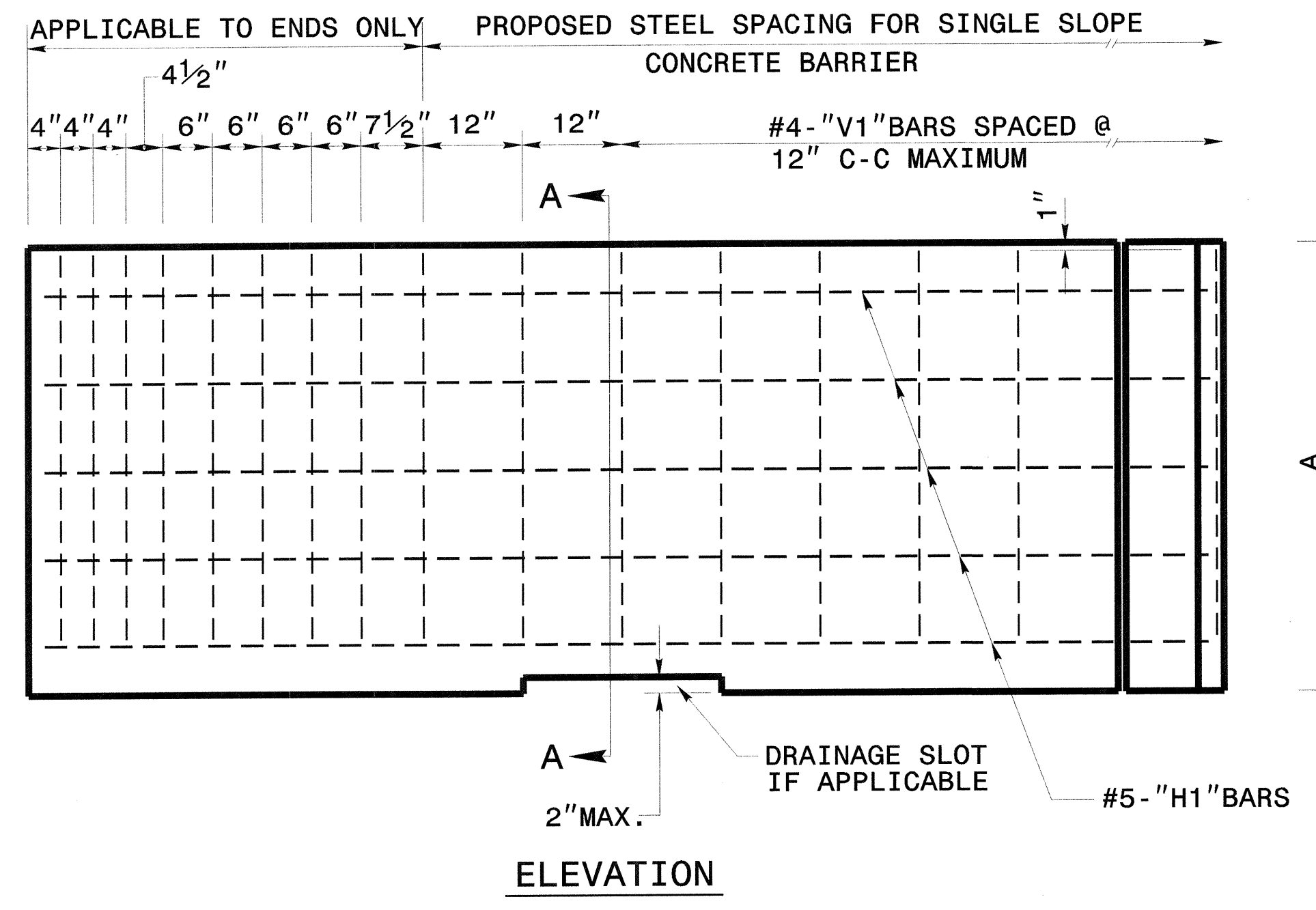




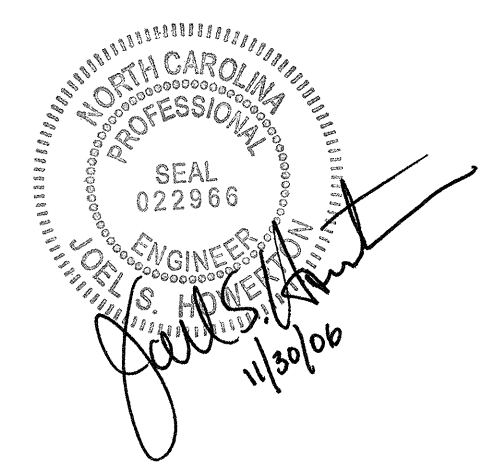
GENERAL NOTES:

- USE CLASS "AA" CONCRETE.
- CHAMFER TOP AND ENDS OF BARRIER 1/2 INCH.
- USE BAR SPLICE LENGTHS A MINIMUM OF 20 TIMES THE NORMAL DIAMETER OF THE BAR. ANY METHOD DEvised BY THE CONTRACTOR AND APPROVED BY THE ENGINEER THAT WILL ASSURE THE LONGITUDINAL ROADWAY STEEL WILL BE POSITIONED +/- 1/2 INCH AS DIMENSIONED WILL BE SATISFACTORY.

WELDED WIRE FABRIC MAY BE USED AS AN OPTION TO CONVENTIONAL REINFORCEMENT FOR CAST-IN-PLACE BARRIER. WELDED WIRE FABRIC SHALL BE MADE IN ACCORDANCE WITH ASTM A497. CONDUIT TO BE PROVIDED ONLY WHEN CALLED FOR ELSEWHERE IN THE PLANS. POSITION OF THE CONDUIT CONDUIT PASSAGEWAY MAY BE ADJUSTED TO FACILITATE CONSTRUCTION, SUBJECT TO APPROVAL BY THE ENGINEER.
- A 36 INCH MINIMUM HEIGHT DIFFERENTIAL BETWEEN TOP OF BARRIER AND TOP OF PAVEMENT SHALL BE REQUIRED AT PLACEMENT IN ORDER TO ALLOW FOR UP TO 6 INCHS OF FUTURE OVERLAYS WHILE MAINTAINING A 30 INCH MINIMUM FUTURE EFFECTIVE HEIGHT OF BARRIER. TOTAL MINIMAL BARRIER HEIGHT FOR DESIGN IS THEREFORE DICTATED BY ALLOWANCE FOR FUTURE OVERLAYS PLUS EXISTING STAIRSTEP DIMENSION (VARIABLE). DIMENSIONS TYPICALLY ROUNDED TO 42 INCHES, 48 INCHES OR 54 INCHES TO FACILITATE PRECASTING.
- REFER TO ROADWAY STANDARD DRAWING NO.854.01 FOR EXPANSION AND CONTRACTION JOINT, FILLER AND OTHER SPECIFICATIONS.



BARRIER HEIGHT (IN.)	DIMENSIONS												
	A	B	D	E	F	G	K	L	M	N	O	P	
42"	42	24	13 1/2	21	28 1/2	36	15	9 1/4	36	72	28	4	
48"	48	26	9/32	15	24	33	42	17 1/2	10 3/4	42	84	31 1/2	5
52"	54	28 9/16	16 1/2	27	37 1/2	48	19 1/2	12 1/4	48	96	34 3/4	6	



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

SINGLE SLOPE CONCRETE BARRIER

ORIGINAL BY: _____ DATE: _____
MODIFIED BY: rnbritt DATE: 08-18-06
CHECKED BY: _____ DATE: _____
FILE SPEC.: details/rbritt/english/guardrail1/single_slope.dgn

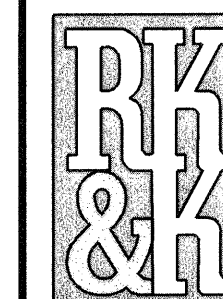
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C201796

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING
0043000000-N	226	Lump Sum		GRADING
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING
0318000000-E	300	140	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS
0366000000-E	310	948	LF	15" RC PIPE CULVERTS, CLASS III
0372000000-E	310	72	LF	18" RC PIPE CULVERTS, CLASS III
0708000000-E	310	172	LF	15" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK
0714000000-E	310	100	LF	18" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK
0720000000-E	310	24	LF	24" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK
0806000000-E	310	4	EA	15" BIT COAT CS PIPE ELBOWS, TYPE B 0.064" THICK
0995000000-E	340	55	LF	PIPE REMOVAL
1121000000-E	520	15,280	TON	AGGREGATE BASE COURSE
1220000000-E	545	500	TON	INCIDENTAL STONE BASE
1330000000-E	607	80	SY	INCIDENTAL MILLING
1498000000-E	610	5,650	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE 119.0B
1519000000-E	610	6,320	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B
1560000000-E	620	650	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
1570000000-E	620	360	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 76-22
1662000000-E	650	5,720	TON	OPEN-GRADED ASPHALT FRICTION COURSE, TYPE FC-1 MODIFIED
1693000000-E	654	100	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR
1840000000-E	665	62,320	LF	MILLED RUMBLE STRIPS (ASPHALT CEMENT CONCRETE)
2253000000-E	840	12.98	CY	PIPE COLLARS
2286000000-N	840	43	EA	MASONRY DRAINAGE STRUCTURES
2308000000-E	840	83.5	LF	MASONRY DRAINAGE STRUCTURES
2366000000-N	840	11	EA	FRAME WITH TWO GRATES, STD 840.24
2367000000-N	840	28	EA	FRAME WITH TWO GRATES, STD 840.29
2396000000-N	840	4	EA	FRAME WITH COVER, STD 840.54
2473000000-N	SP	1	EA	GENERIC DRAINAGE ITEM BOLT DOWN RING AND COVER
2542000000-E	846	120	LF	1'-6" CONCRETE CURB & GUTTER
2556000000-E	846	40	LF	SHOULDER BERM GUTTER
2619000000-E	850	10	SY	4" CONCRETE PAVED DITCH
2647000000-E	852	1,290	SY	5" MONOLITHIC CONCRETE ISLANDS (SURFACE MOUNTED)
2703000000-E	854	10,640	LF	CONCRETE BARRIER, TYPE ***** (SINGLE SLOPE)
2724000000-E	857	460	LF	PRECAST REINFORCED CONCRETE BARRIER, SINGLE FACED
2815000000-N	858	1	EA	ADJUSTMENT OF DROP INLETS
3000000000-N	SP	15	EA	IMPACT ATTENUATOR UNIT, TYPE 350
3030000000-E	862	137.5	LF	STEEL BM GUARDRAIL
3045000000-E	862	50	LF	STEEL BM GUARDRAIL, SHOP CURVED
3060000000-E	862	2,487.5	LF	STEEL BM GUARDRAIL, DOUBLE FACED
3150000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
3210000000-N	862	2	EA	GUARDRAIL ANCHOR UNITS, TYPE CAT-1
3270000000-N	SP	1	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3317000000-N	862	6	EA	GUARDRAIL ANCHOR UNITS, TYPE B-77
3360000000-E	863	410	LF	REMOVE EXISTING GUARDRAIL
3649000000-E	876	10	TON	RIP RAP, CLASS B
3656000000-E	876	25	SY	FILTER FABRIC FOR DRAINAGE

ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description
4400000000-E	1110	604	SF	WORK ZONE SIGNS (STATIONARY)	4905000000-N	1253	1,096	EA	SNOWFLOWABLE PAVEMENT MARKERS
4405000000-E	1110	104	SF	WORK ZONE SIGNS (PORTABLE)	6000000000-E	1605	1,940	LF	TEMPORARY SILT FENCE
4410000000-E	1110	40	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)	6006000000-E	1610	45	TON	STONE FOR EROSION CONTROL, CLASS A
4415000000-N	1115	2	EA	FLASHING ARROW PANELS, TYPE C	6009000000-E	1610	50	TON	STONE FOR EROSION CONTROL, CLASS B
4422000000-N	1120	2	DAY	CHANGEABLE MESSAGE SIGN (SHORT TERM)	6012000000-E	1610	140	TON	SEDIMENT CONTROL STONE
4430000000-N	1130	160	EA	DRUMS	6015000000-E	1615	3.5	ACR	TEMPORARY MULCHING
4435000000-N	1135	160	EA	CONES	6018000000-E	1620	150	LB	SEED FOR TEMPORARY SEEDING
4445000000-E	1145	120	LF	BARRICADES (TYPE III)	6021000000-E	1620	0.5	TON	FERTILIZER FOR TEMPORARY SEEDING
4450000000-N	1150	960	HR	FLAGGER	6030000000-E	1630	620	CY	SILT EXCAVATION
4465000000-N	1160	2	EA	TEMPORARY CRASH CUSHIONS	6036000000-E	1631	8,770	SY	MATTING FOR EROSION CONTROL
4480000000-N	1165	2	EA	TMA	6042000000-E	1632	905	LF	1/4" HARDWARE CLOTH
4520000000-N	1266	60	EA	TUBULAR MARKERS (FIXED)	6084000000-E	1660	3.5	ACR	SEEDING & MULCHING
4590000000-E	SP	400	LF	GENERIC TRAFFIC CONTROL ITEM DEPARTMENT FURNISHED PORTABLE CONCRETE BARRIER	6087000000-E	1660	2.5	ACR	MOWING
4650000000-N	1251	360	EA	TEMPORARY RAISED PAVEMENT MARKERS	6090000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
4810000000-E	1205	159,878	LF	PAINT PAVEMENT MARKING LINES (4")	6093000000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
4820000000-E	1205	980	LF	PAINT PAVEMENT MARKING LINES (8")	6096000000-E	1662	100	LB	SEED FOR SUPPLEMENTAL SEEDING
4835000000-E	1205	120	LF	PAINT PAVEMENT MARKING LINES (24")	6108000000-E	1665	2.5	TON	FERTILIZER TOPDRESSING
4847000000-E	1205	84,452	LF	POLYUREA PAVEMENT MARKING LINES (4", *****) (HIGHLY REFLECTIVE ELEMENTS)	6114000000-N	SP	1	HR	SPECIALIZED HAND MOWING
4847110000-E	1205	1,600	LF	POLYUREA PAVEMENT MARKING LINES (8", *****) (HIGHLY REFLECTIVE ELEMENTS)	6117000000-N	SP	12	EA	RESPONSE FOR EROSION CONTROL
4847140000-E	1205	60	LF	POLYUREA PAVEMENT MARKING LINES (24", *****) (HIGHLY REFLECTIVE ELEMENTS)	8802012000-E	SP	924	SF	PILE PANEL RETAINING WALLS
4847220000-N	1205	45	EA	POLYUREA PAVEMENT MARKING SYMBOL (***** (HIGHLY REFLECTIVE ELEMENTS)	8847000000-E	SP	2,844	SF	GENERIC RETAINING WALL ITEM GABION AND RENO MATTRESS RETAINING WALLS
4850000000-E	1205	900	LF	REMOVAL OF PAVEMENT MARKING LINES (4")					



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FOR
DIVISION OF HIGHWAYS

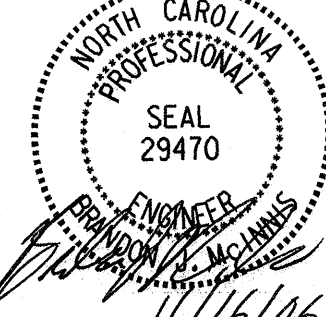
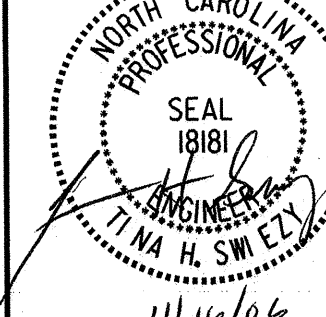
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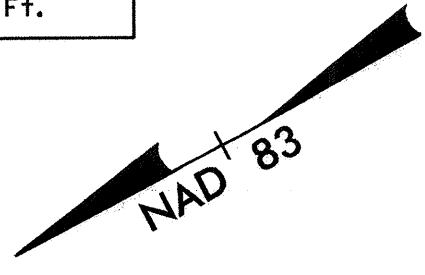
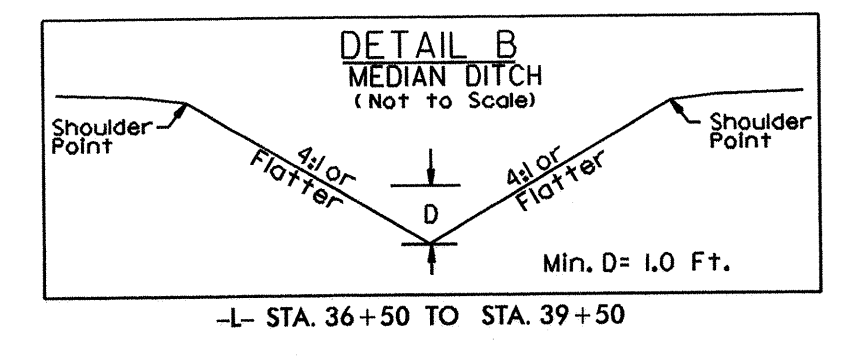
**STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS**

PROJECT NO. SHEET NO.
 W-4713 3B

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

STATION	STRUCTURE NO.	TOP ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE)																BITUMINOUS COATED C.S. PIPE TYPE B (UNLESS NOTED OTHERWISE)																CLASS III R.C. PIPE OR C.S. PIPE, TYPE IR ALUMINIZED OR HDPE PIPE, TYPE S OR D																ENDWALLS		
					12"	15"	18"	24"	30"	36"	42"	48"	12"	15"	18"	24"	30"	36"	42"	48"	12"	15"	18"	24"	30"	36"	42"	48"	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE																								
SIZE	LOCATION (L.T. OR C.I.)	FROM	TO						0.064				0.079				0.109							TYPE OF GRATE	FRAME, GRATES, AND HOOD STANDARD 840.03																														
THICKNESS OR GAUGE																																																							
SHEET 11																																																							
-L-122+32	MRT 30		2004.4	1996.2					8																																														
-L-124+60	RT 31	32	1998.6	2013.0	244																																																		
-L-124+60	RT 32		2015.7																																																				
-L-123+49	MRT 33		2010.6	2004.4					4																																														
-L-124+66	MRT 34		2016.7	2012.5					4																																														
-L-127+70	MRT 35		2033.1	2028.0	4																																																		
-L-132+63	MRT 36		2056.5	2053.0	4																																																		
SHEET 12																																																							
-L-140+64	MRT 37		2049.0	2045.5	4																																																		
-L-144+64	MRT 38		2035.6	2027.4	4																																																		
SHEET 13																																																							
-L-147+53	MLT 39		2026.8	2017.5	4																																																		
-L-149+19	RT 40		2017.9																																																				
-L-149+19	RT 40	41	2015.1	1990.0	36																																																		
-L-152+84	MLT 42	43	2002.1	2000.9	8																																																		
-L-152+84	MLT 43		2008.6																																																				
-L-155+95	MLT 44		1997.1	1990.0	4																																																		
SHEET 14																																																							
-L-163+92	MLT 45		1971.6																																																				
-L-163+92	MLT 45	46	1968.8	1940.0	108																																																		
-L-170+39	MLT 47		1957.1		4																																																		
-L-170+83	MLT 47	48	1952.0	1954.5	44																																																		
-L-170+83	MLT 48		1957.2																																																				
SHEET 15																																																							
-L-174+84	MLT 49		1963.2	1957.3	4																																																		
-L-178+25	MLT 50		1972.4	1958.2	4																																																		
-L-180+01	MLT 51		1977.4	1964.8	4																																																		
-L-182+53	MLT 52		1984.6	1979.0	4																																																		
SHEET 17																																																							
-L-198+59	MRT 53		2024.3						4																																														
-L-199+25	MRT 53	54	2020.4	2022.5	68																																																		
-L-199+25	MRT 54		2025.5																																																				
-L-200+00	MRT 54	55	2022.8	2024.2	76																																																		
-L-200+00	MRT 55		2027.0																																																				
-L-203+36	MRT 56		2033.8																																																				
-L-203+36	MRT 56	57	2028.8	2028.6	4																																																		
-L-207+19	MRT 58		2042.0																																																				
-L-207+19	MRT 58	59	2039.2	2036.0	72																																																		
SHEET TOTALS					456 72																152 40 4																24 24.5 6.8																		
PROJECT TOTALS					948 72																172 100 24																49 57.0 20.4																		

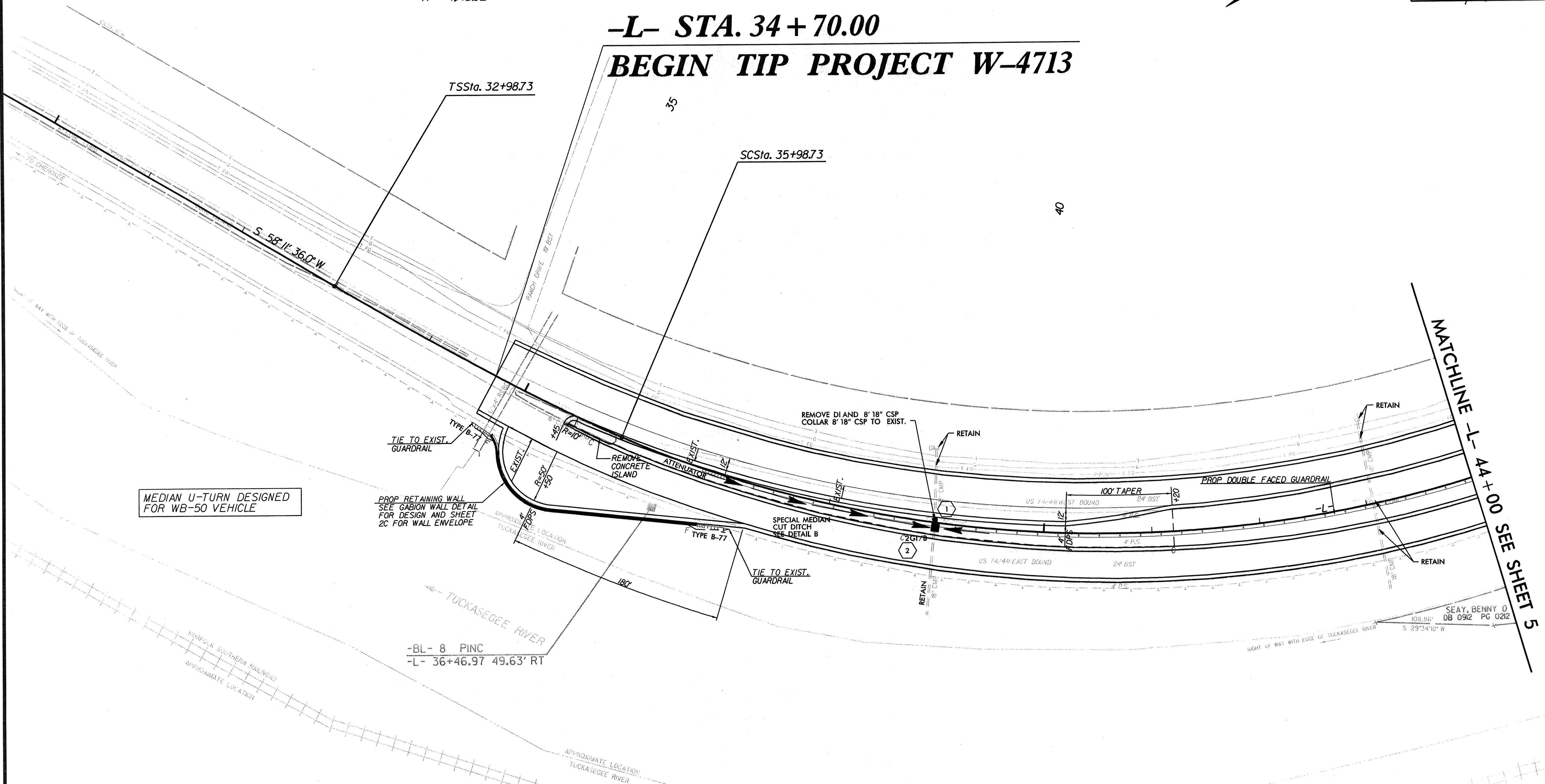
PROJECT REFERENCE NO. W-4713	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	



-L-

PIs Sta 34+98.91	PI Sta 44+42.00
$\theta_s = 7^\circ 30' 00.0''$	$\Delta = 72^\circ 41' 52.0''$ (LT)
$L_s = 300.00'$	$D = 5^\circ 00' 00.0''$
$LT = 200.18'$	$L = 1,453.96'$
$ST = 100.16'$	$T = 843.27'$
	$R = 1,145.92'$

**-L- STA. 34+70.00
BEGIN TIP PROJECT W-4713**

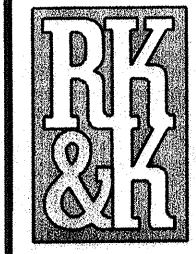


MEDIAN U-TURN DESIGNED FOR WB-50 VEHICLE

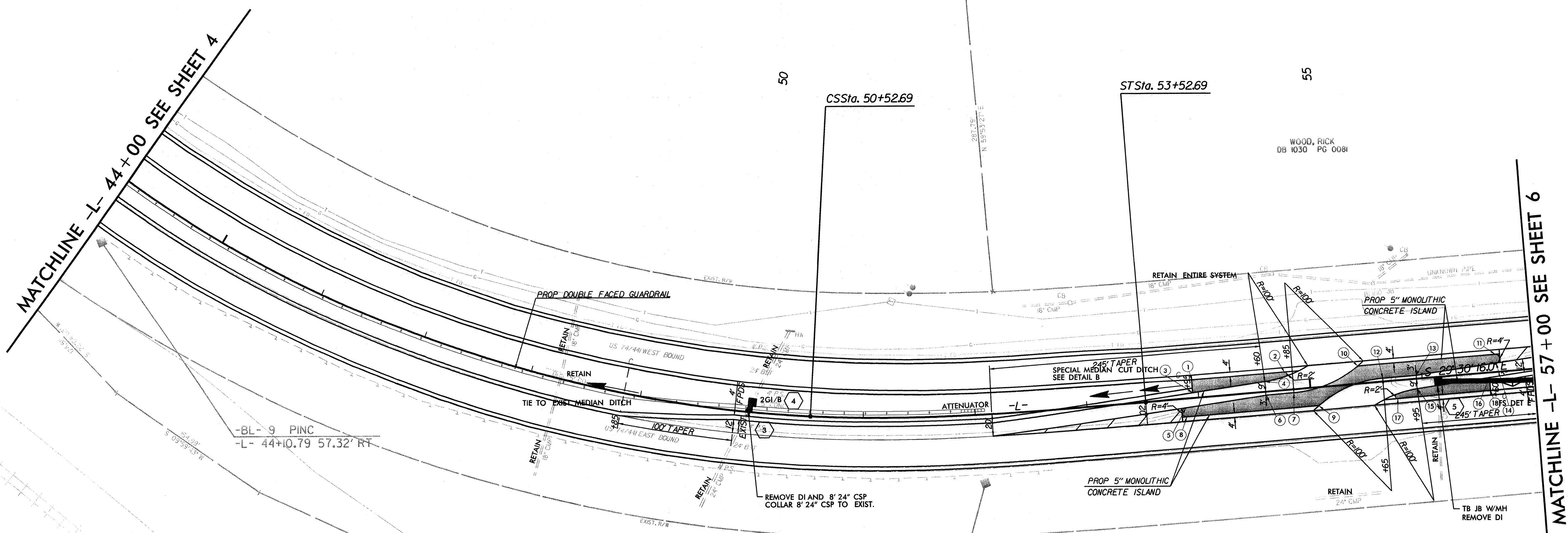
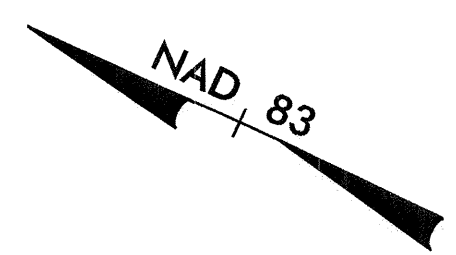
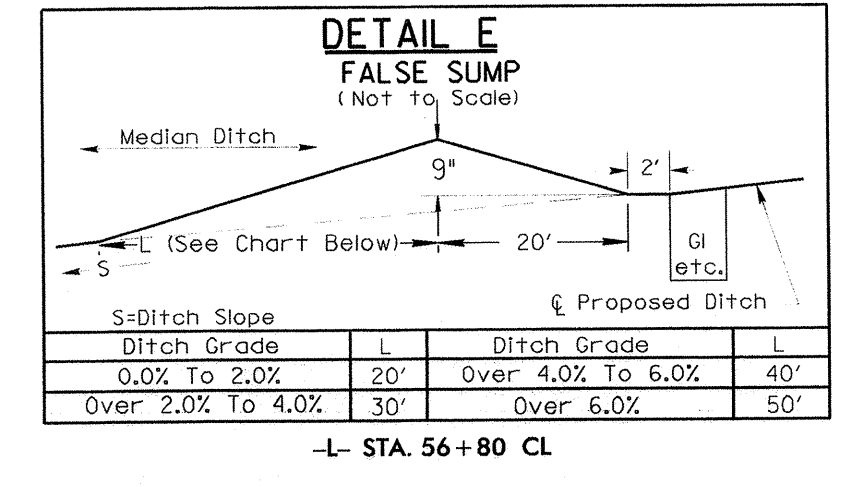
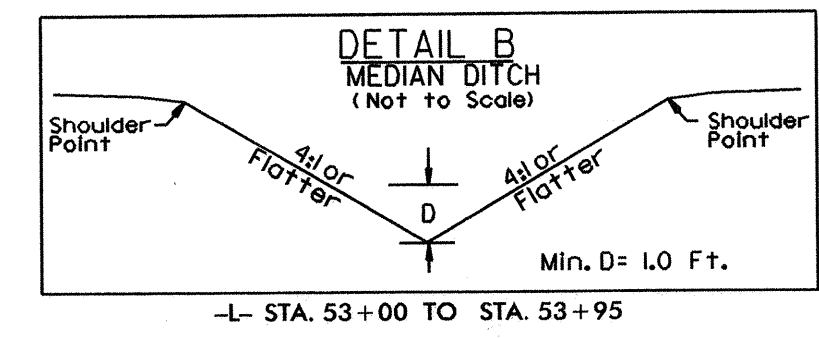
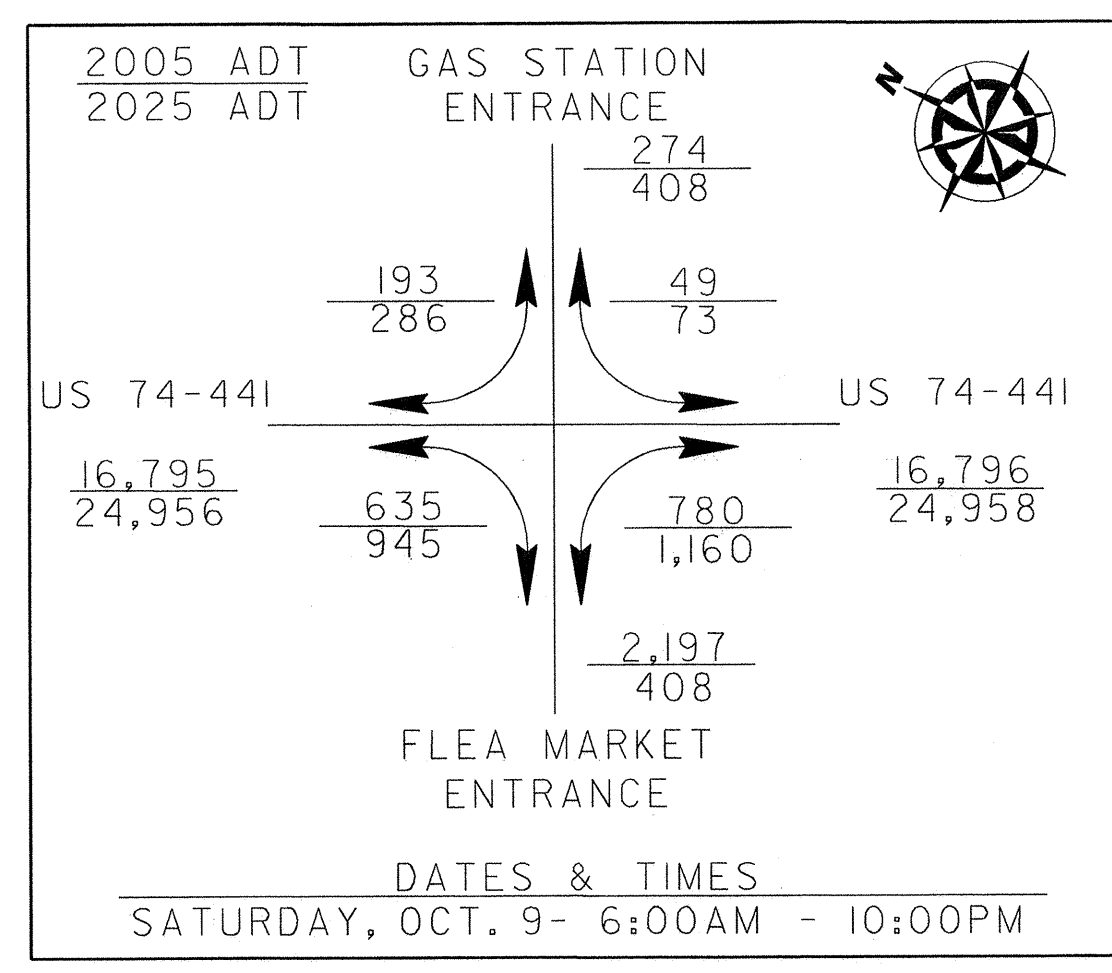
DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY OTHERS FOR MONUMENT "W4713 GPS-4" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 622700.186(±) EASTING: 721431.816(±) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999783565 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "W4713 GPS-4" TO -L- STATION 32+00.00 IS N 13° 26' 45" W 4,890.82'. ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

SEE SHEETS 2-E TO 2-F FOR RUMBLE STRIP DETAIL. RUMBLE STRIPS TO BE CONSTRUCTED ON INSIDE AND OUTSIDE SHOULDERS FROM -L- STA. 34+70.00 TO -L- STA. 209+63.00

PLANS PREPARED BY :
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FOR
DIVISION OF HIGHWAYS

SEE SHEET 18 FOR -L- EXISTING GROUND PROFILE.



CONCRETE ISLAND COORDINATES

POINT NUMBER	NORTHING	EASTING	POINT NUMBER	NORTHING	EASTING
1	719797.39	625623.91	10	719870.60	625494.54
2	719838.31	625551.59	11	719931.11	625387.61
3	719787.40	625618.25	12	719869.80	625469.55
4	719823.31	625563.89	13	719884.37	625443.80
5	719772.97	625618.31	14	719924.29	625383.43
6	719813.07	625557.62	15	719874.13	625437.53
7	719825.18	625536.22	16	719910.07	625383.18
8	719766.15	625614.14	17	719859.14	625449.81
9	719824.38	625511.23	18	719900.05	625377.51

-L-

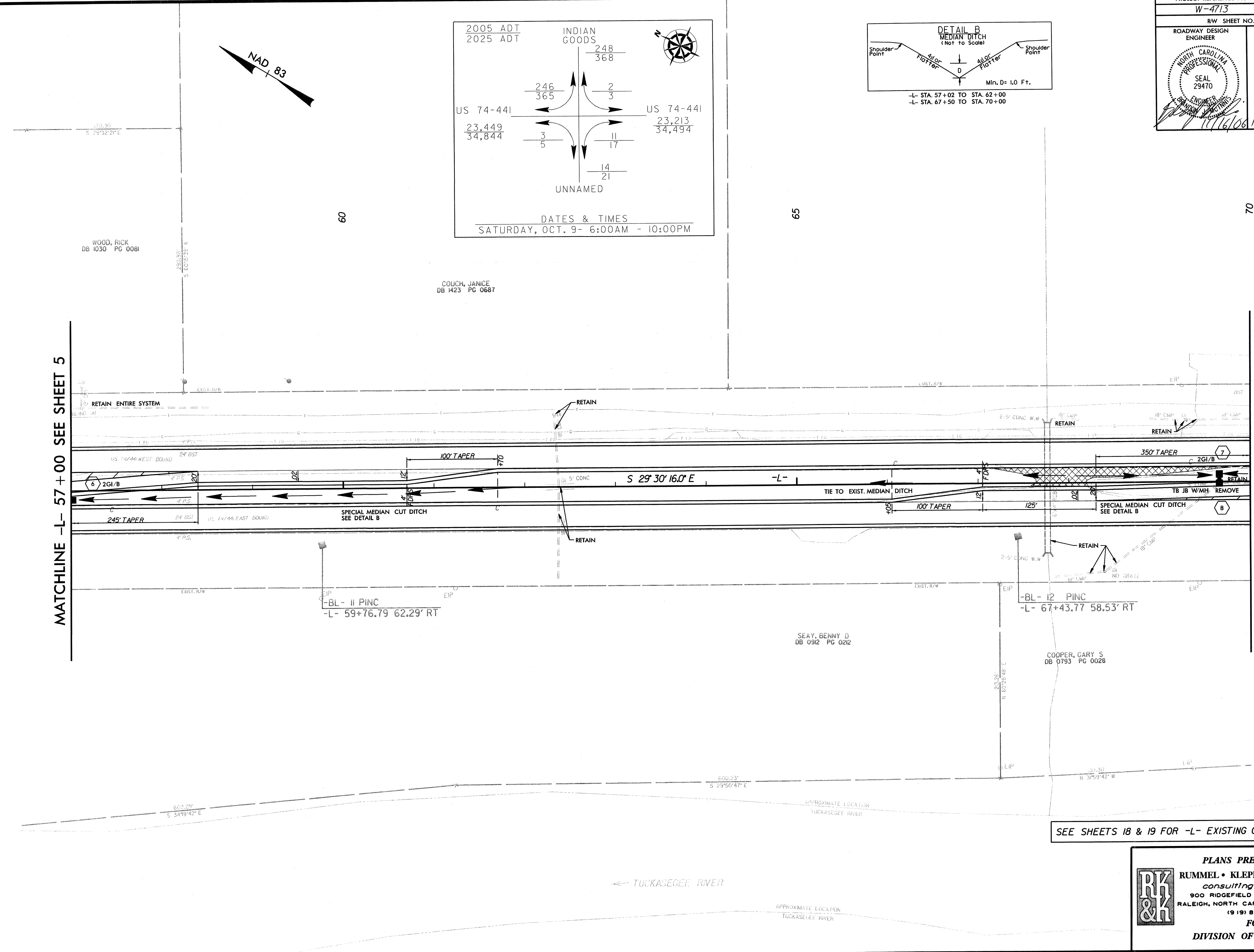
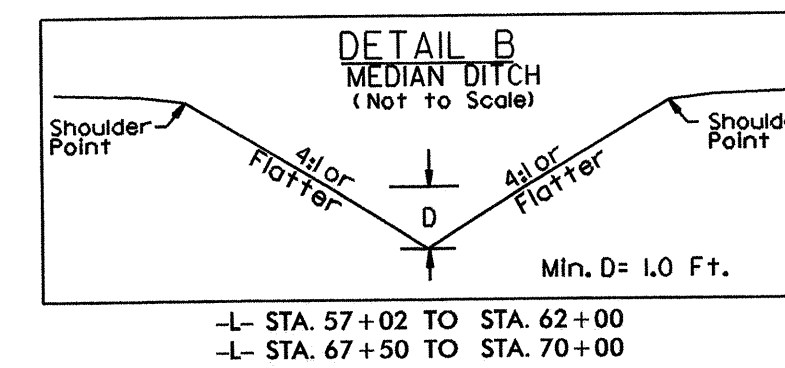
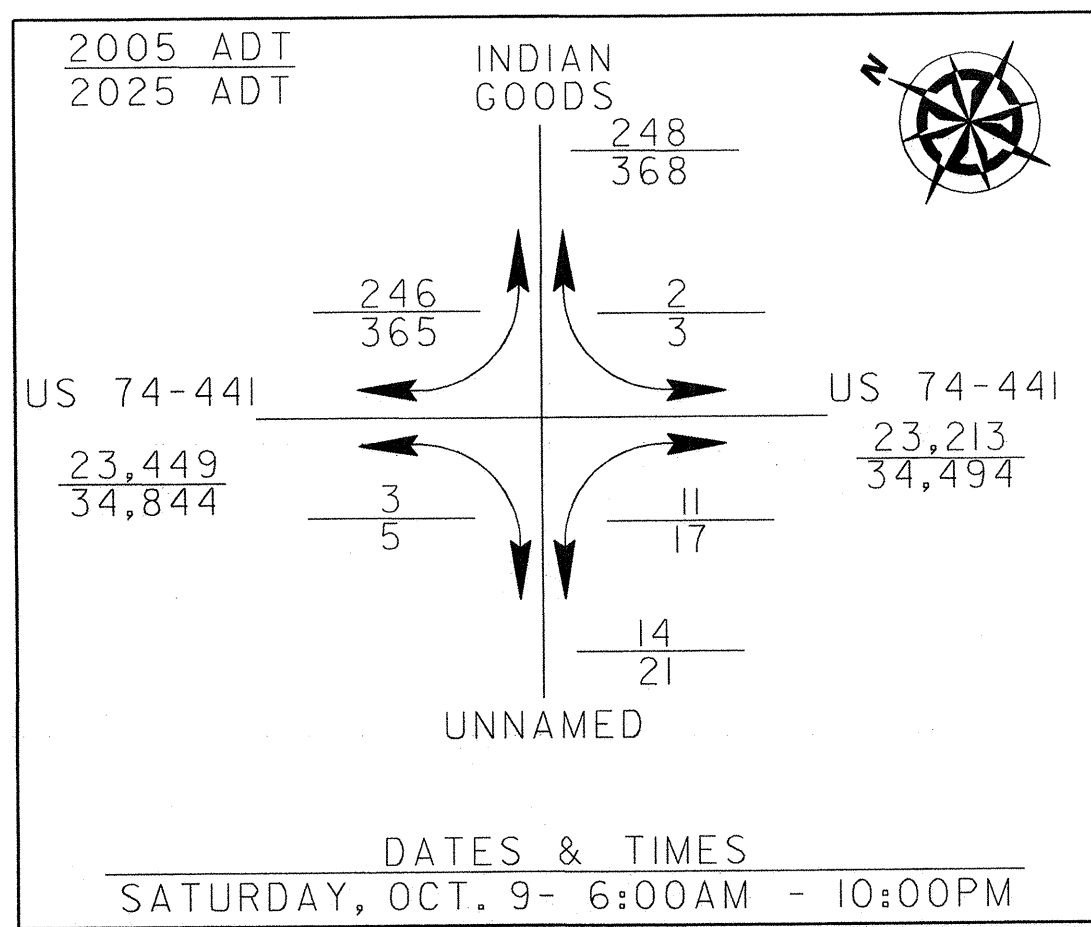
PI Sta 44+42.00	PIs Sta 51+52.85
$\Delta = 72^\circ 41' 52.0''$ (LT)	$\Theta_s = 7^\circ 30' 00.0''$
$D = 5^\circ 00' 00.0''$	$L_s = 300.00'$
$L = 1,453.96'$	$LT = 200.18'$
$T = 843.27'$	$ST = 100.16'$
$R = 1,145.92'$	

SEE SHEET 18 FOR -L- EXISTING GROUND PROFILE.

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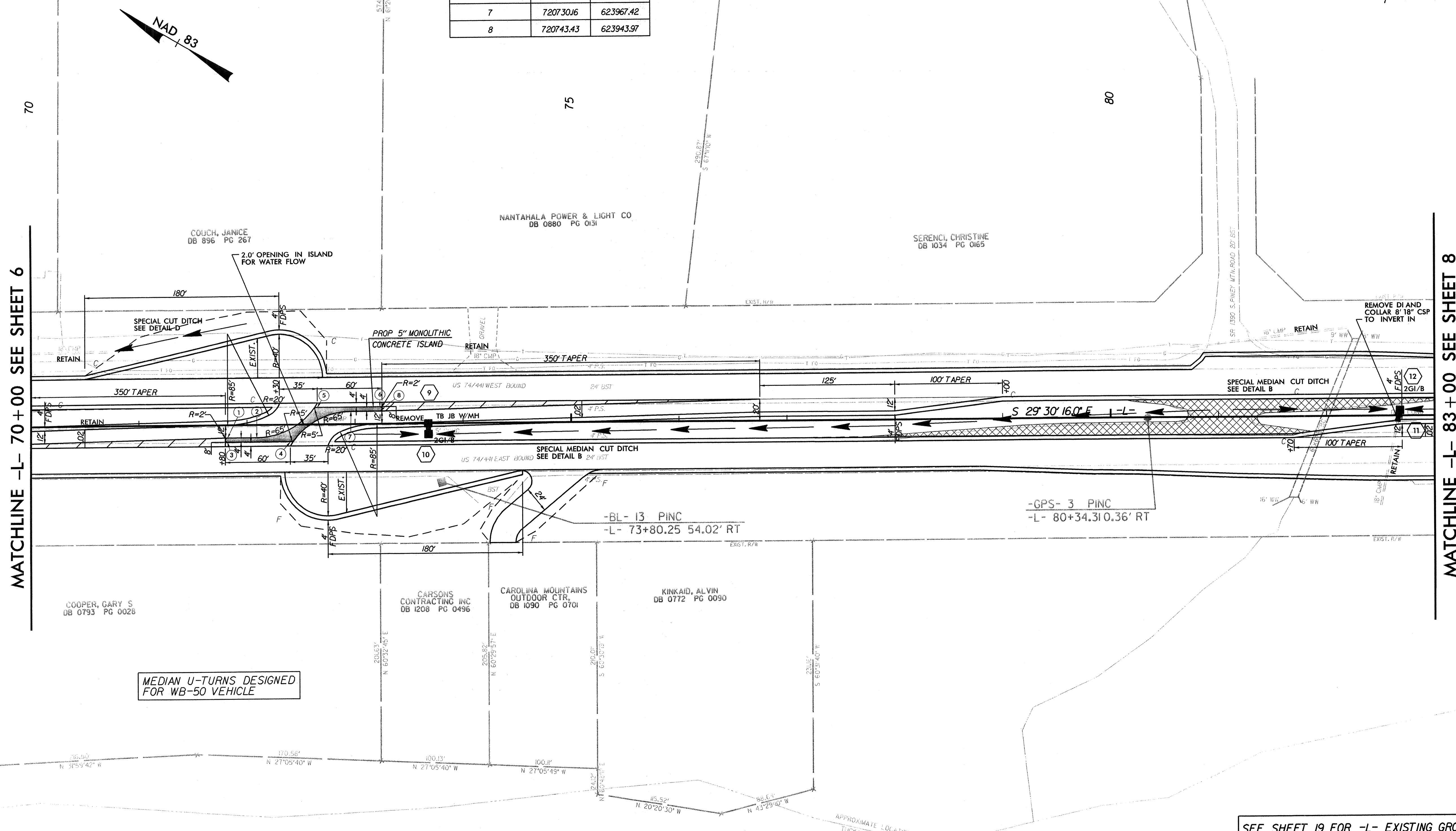
MATCHLINE -L- 57+00 SEE SHEET 5

MATCHLINE -L- 70+00 SEE SHEET 7

SEE SHEETS 18 & 19 FOR -L- EXISTING GROUND PROFILE.

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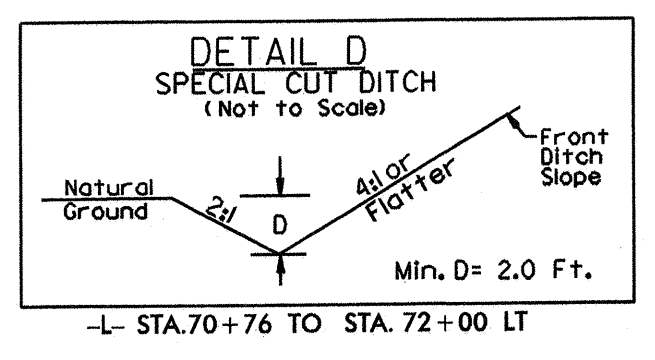
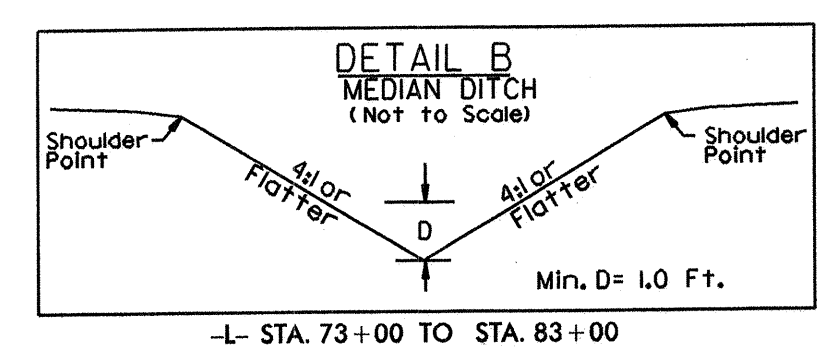
CONCRETE ISLAND COORDINATES		
POINT NUMBER	NORTHING	EASTING
1	720653.11	624054.86
2	720666.38	624031.40
3	720649.62	624052.89
4	720666.38	624031.40
5	720718.33	623996.45
6	720746.92	623945.94
7	720730.16	623967.42
8	720743.43	623943.97



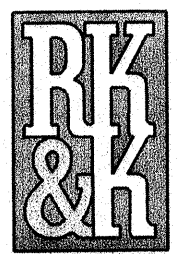
MATCHLINE -L- 70+00 SEE SHEET 6

MATCHLINE -L- 83+00 SEE SHEET 8

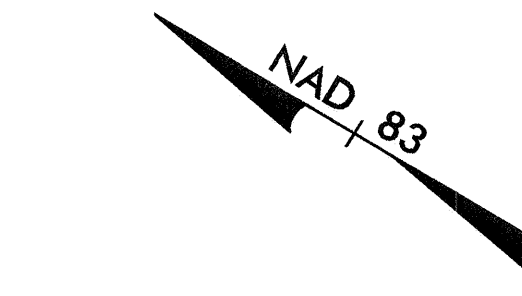
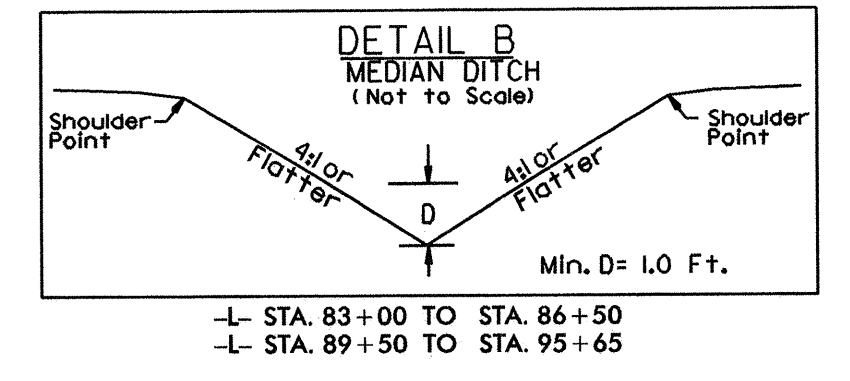
MEDIAN U-TURNS DESIGNED FOR WB-50 VEHICLE



SEE SHEET 19 FOR -L- EXISTING GROUND PROFILE.

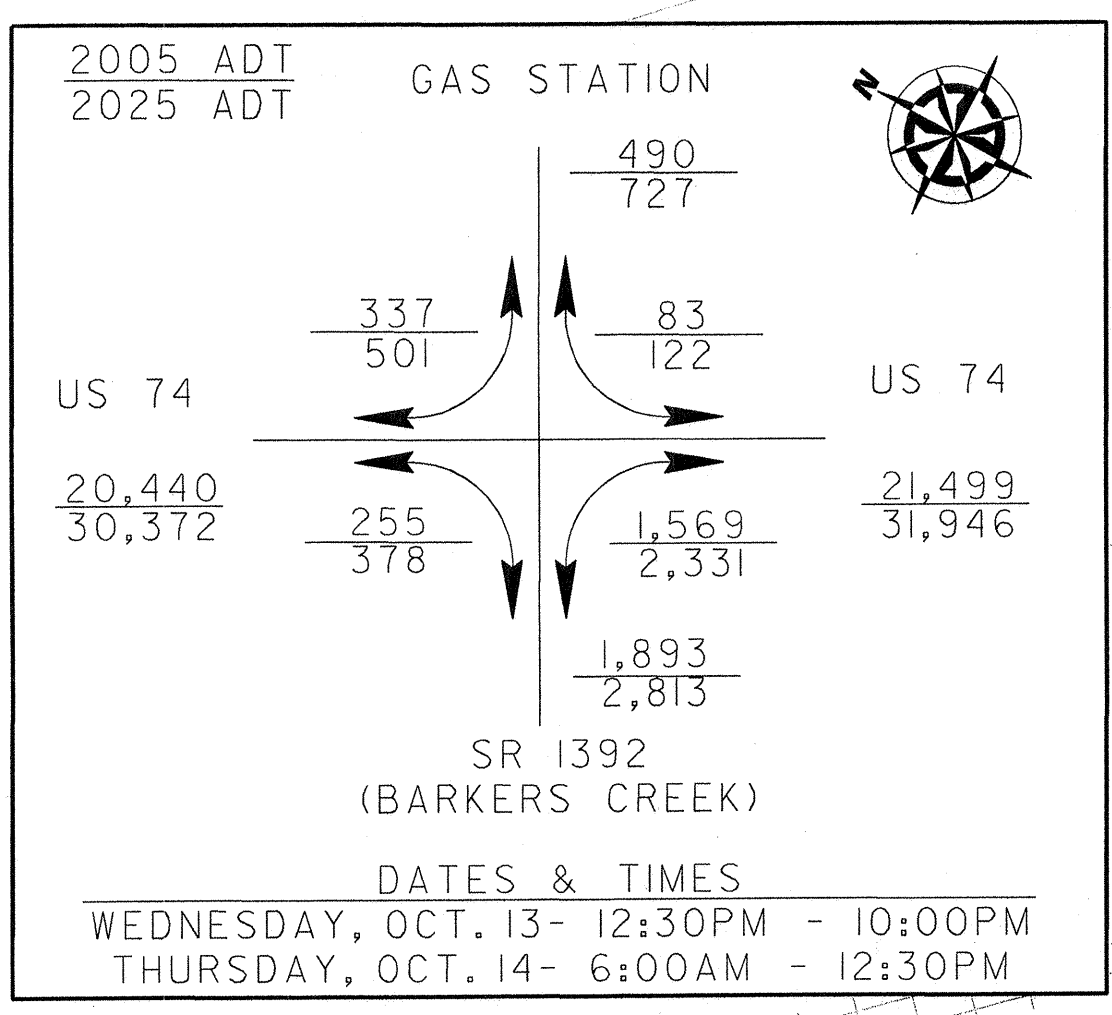
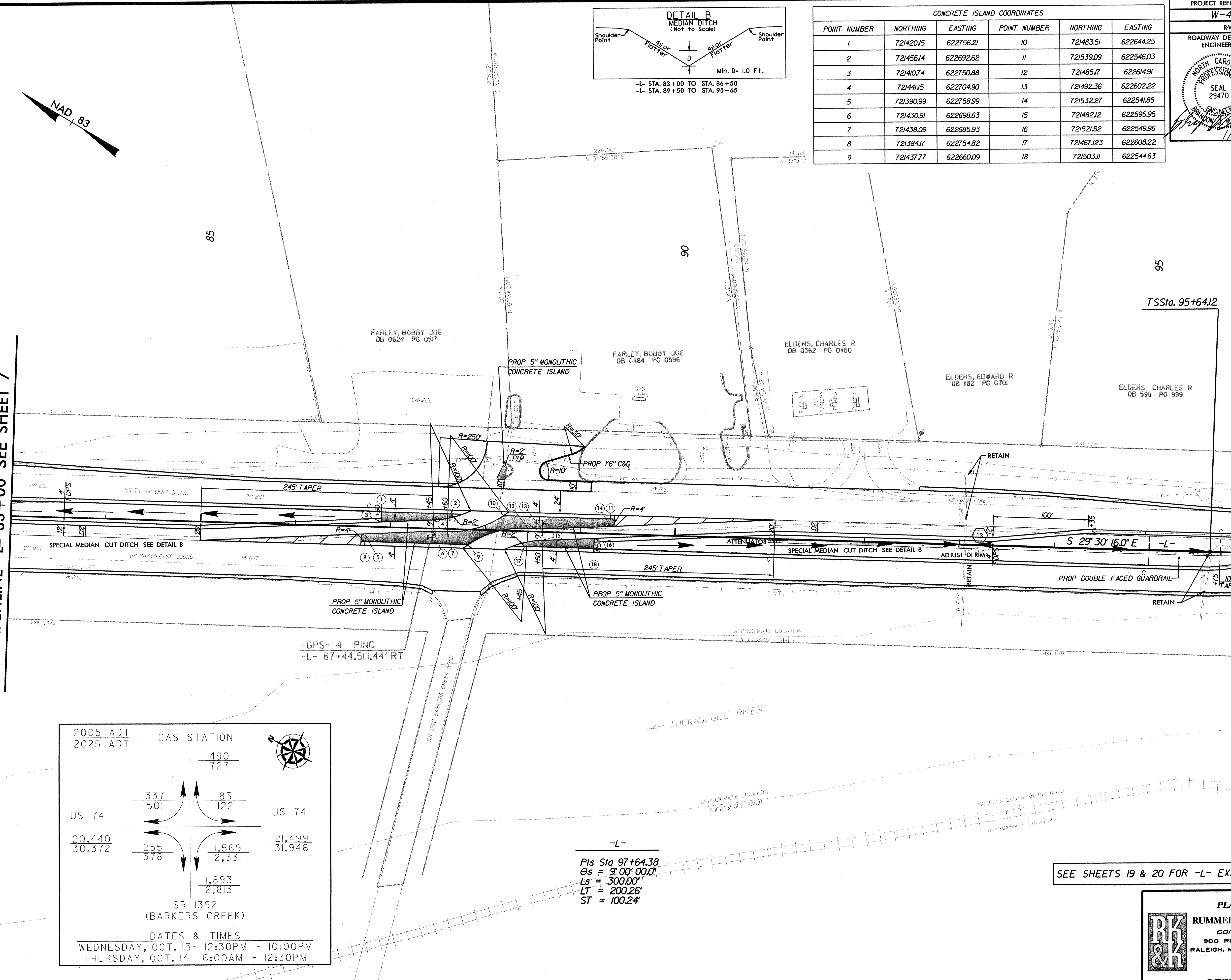
PLANS PREPARED BY :

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 (919) 878-9560
FOR
DIVISION OF HIGHWAYS

CONCRETE ISLAND COORDINATES					
POINT NUMBER	NORTHING	EASTING	POINT NUMBER	NORTHING	EASTING
1	721420.5	622756.21	10	721483.51	622644.25
2	721456.14	622692.62	11	721539.09	622546.03
3	721410.74	622750.88	12	721485.17	622614.91
4	721441.5	622704.90	13	721492.36	622602.22
5	721390.99	622758.99	14	721532.27	622541.85
6	721430.91	622698.63	15	721482.12	622595.95
7	721438.09	622685.93	16	721521.52	622549.96
8	721384.17	622754.82	17	721467.123	622608.22
9	721437.77	622660.09	18	721503.11	622544.63



MATCHLINE -L- 83+00 SEE SHEET 7

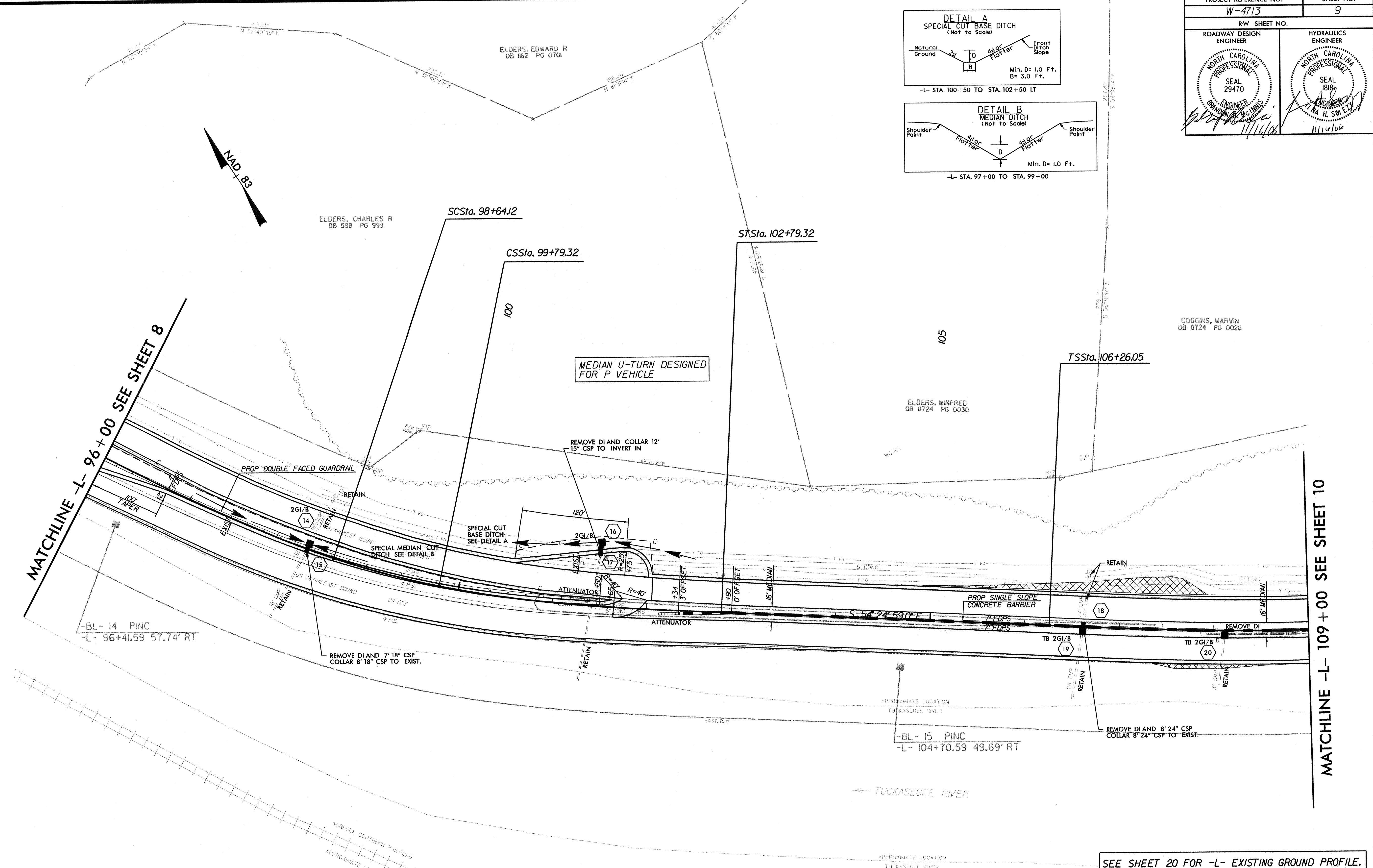
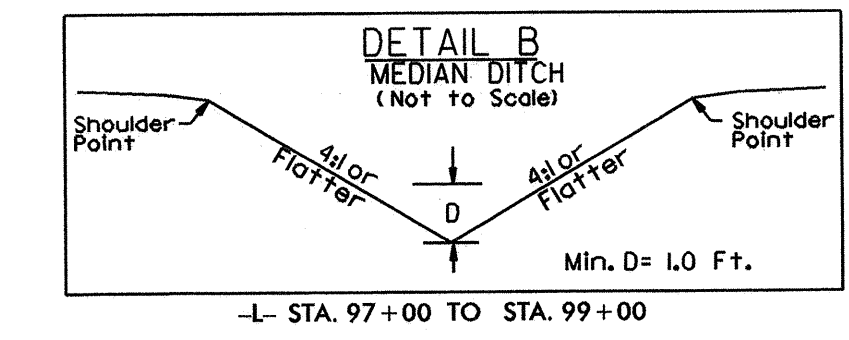
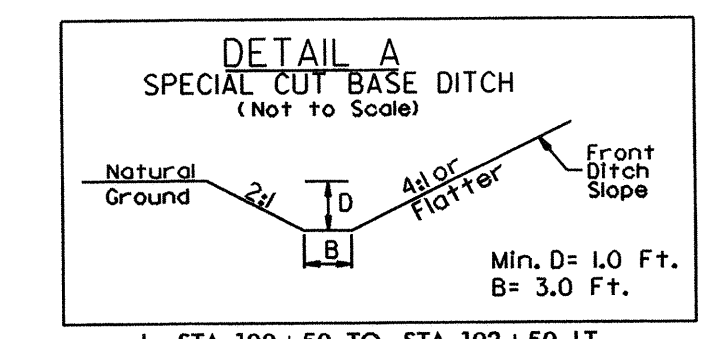
MATCHLINE -L- 96+00 SEE SHEET 9



-L-
 PIs Sta 97+64.38
 Os = 9' 00" 00.0"
 Ls = 300.00'
 LT = 200.26'
 ST = 100.24'

SEE SHEETS 19 & 20 FOR -L- EXISTING GROUND PROFILE.

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 FOR
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MATCHLINE -L- 96+00 SEE SHEET 8

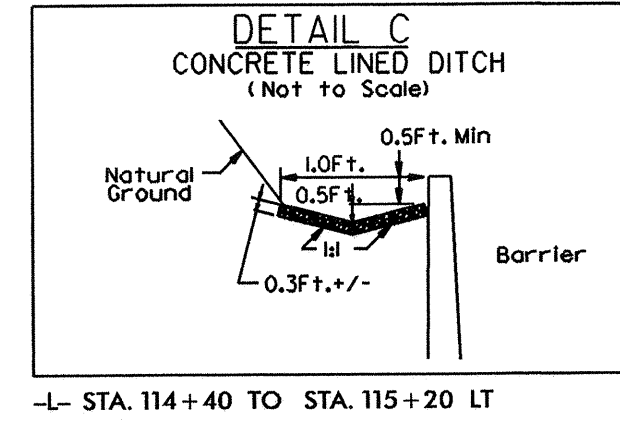
MATCHLINE -L- 109+00 SEE SHEET 10

SEE SHEET 20 FOR -L- EXISTING GROUND PROFILE.

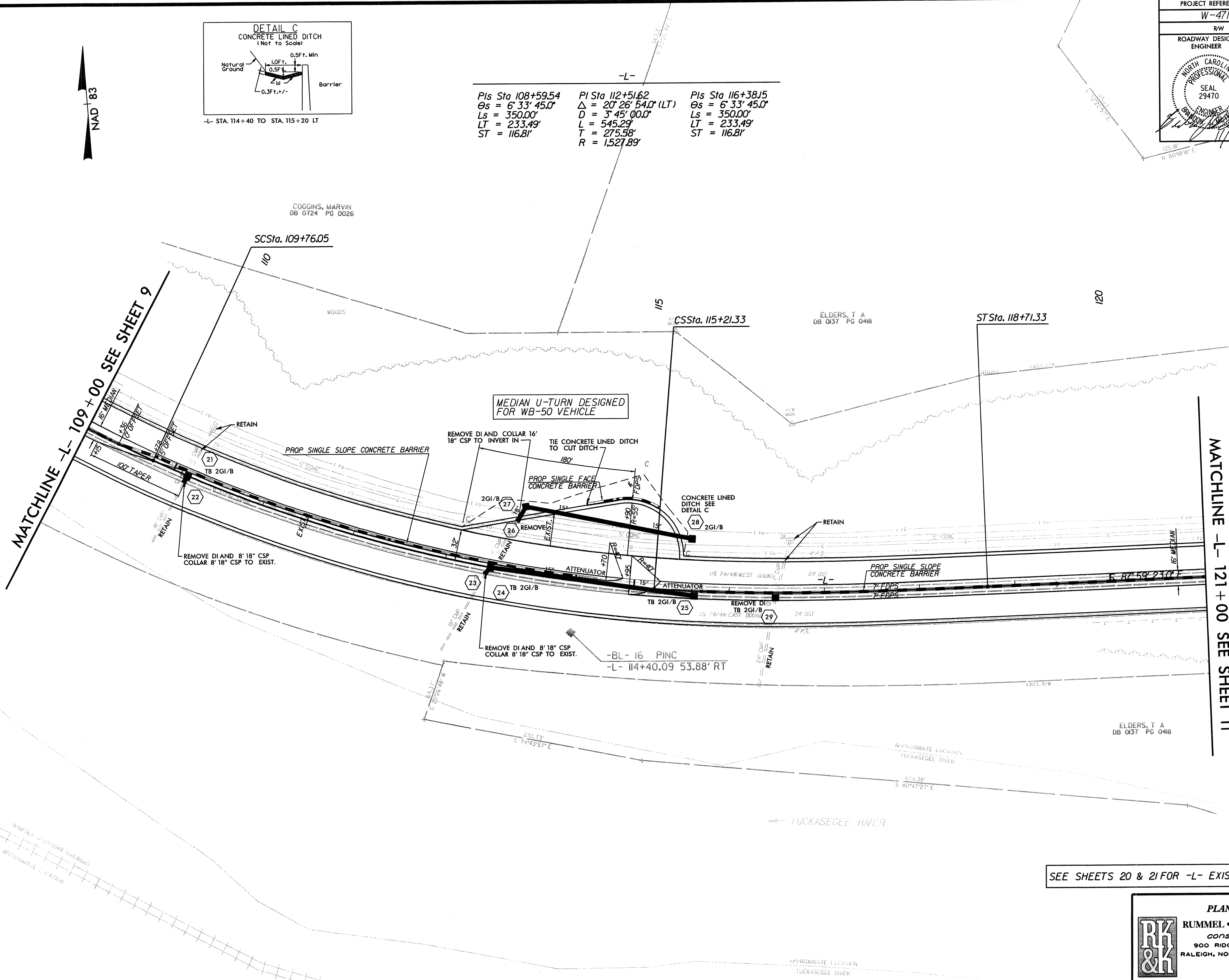
Pls Sta 97+64.38 $\theta_s = 9^{\circ}00'00.0''$ $L_s = 300.00'$ $LT = 200.26'$ $ST = 100.24'$	Pls Sta 99+21.79 $\Delta = 6^{\circ}54'43.0''$ (LT) $D = 6^{\circ}00'00.0''$ $L = 115.20'$ $T = 57.67'$ $R = 954.93'$	Pls Sta 100+79.56 $\theta_s = 9^{\circ}00'00.0''$ $L_s = 300.00'$ $LT = 200.26'$ $ST = 100.24'$	Pls Sta 108+59.54 $\theta_s = 6^{\circ}33'45.0''$ $L_s = 350.00'$ $LT = 233.49'$ $ST = 116.81'$
--	--	---	---

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Pls Sta 108+59.54 $\Theta_s = 6' 33' 45.0''$ $L_s = 350.00'$ $LT = 233.49'$ $ST = 116.81'$	Pl Sta 112+51.62 $\Delta = 20' 26' 54.0''$ (LT) $D = 3' 45' 00.0''$ $L = 545.29'$ $T = 275.58'$ $R = 1,527.89'$	Pls Sta 116+38.15 $\Theta_s = 6' 33' 45.0''$ $L_s = 350.00'$ $LT = 233.49'$ $ST = 116.81'$
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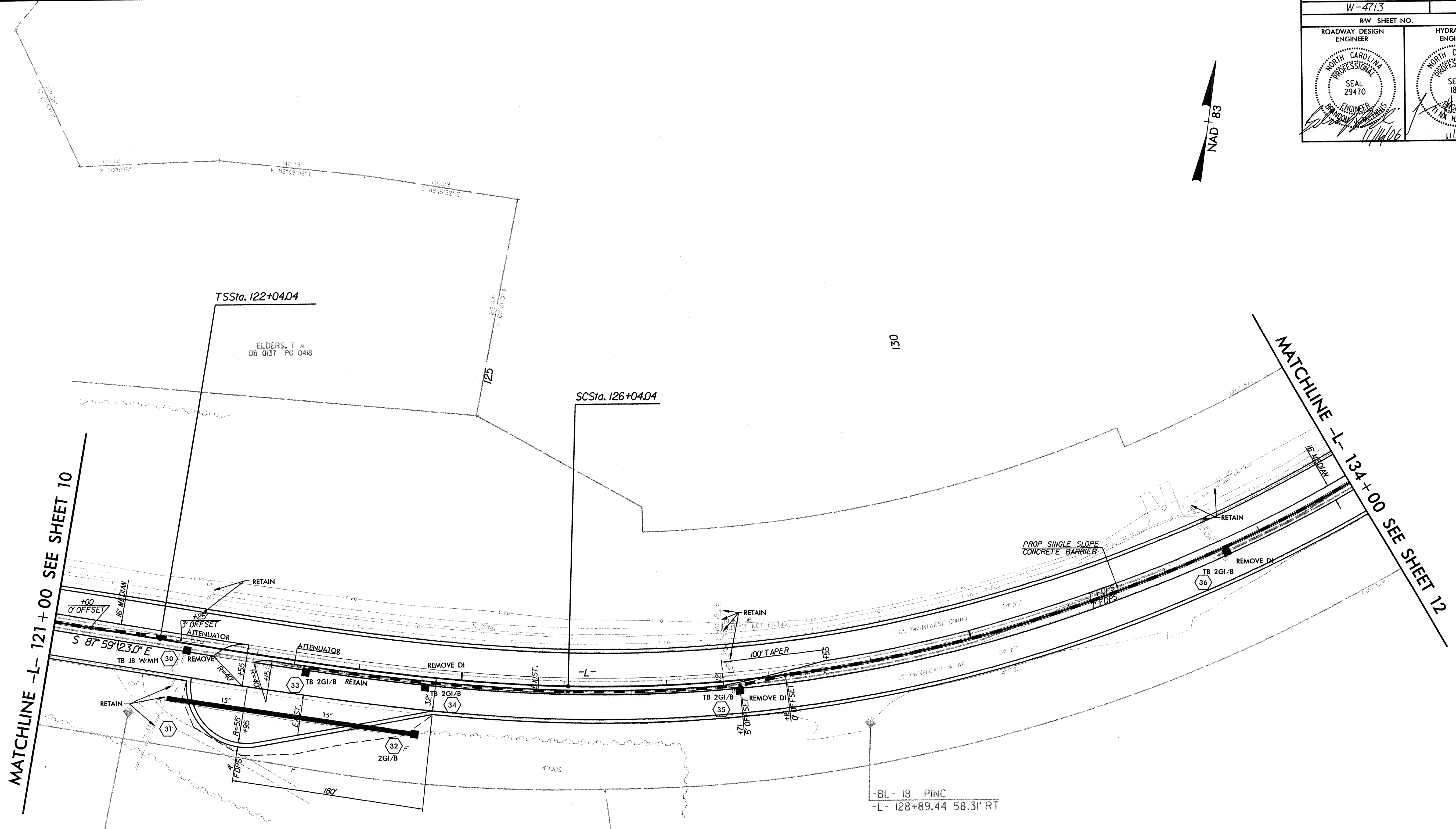
SEE SHEETS 20 & 21 FOR -L- EXISTING GROUND PROFILE.

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MATCHLINE -L- 121+00 SEE SHEET 10

MATCHLINE -L- 134+00 SEE SHEET 12

MEDIAN U-TURN DESIGNED FOR WB-50 VEHICLE

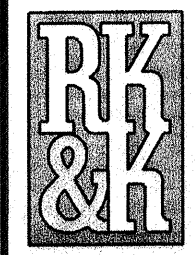
ELDERS, T A
DB 0137 PG 0418

-L-

PIs Sta 124+70.98	PI Sta 130+80.45
Os = 8' 00' 00.0"	Δ = 36' 47' 38.8" (LT)
Ls = 400.00'	D = 4' 00' 00.0"
LT = 266.94'	L = 919.85'
ST = 133.58'	T = 476.41'
	R = 1,432.39'

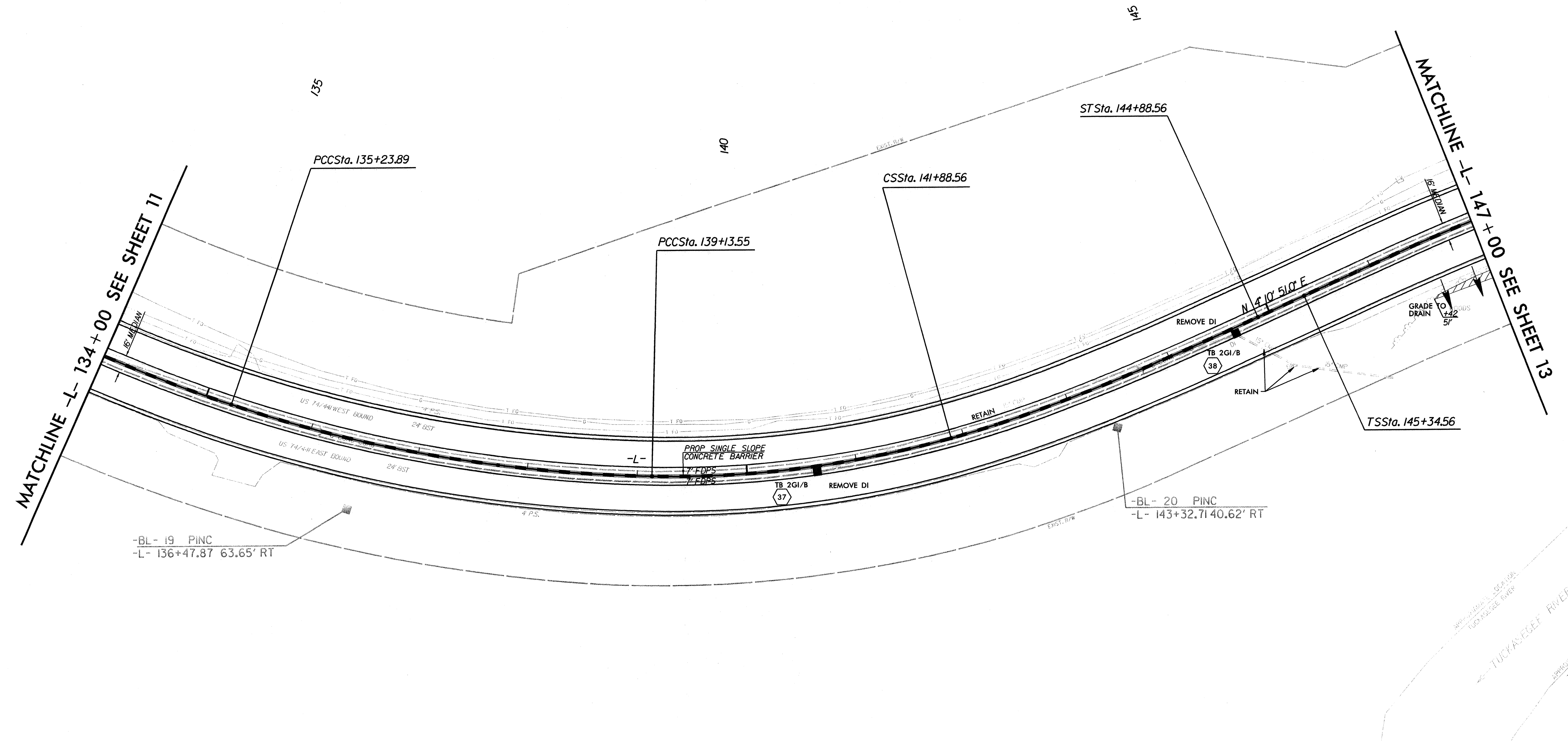
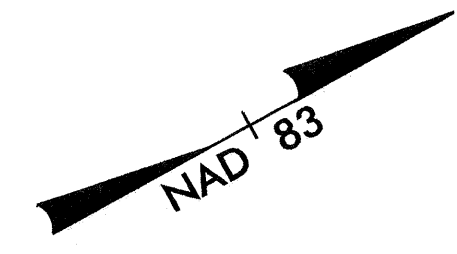
SEE SHEET 21 FOR -L- EXISTING GROUND PROFILE.

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-BL- 19 PINC
-L- 136+47.87 63.65' RT

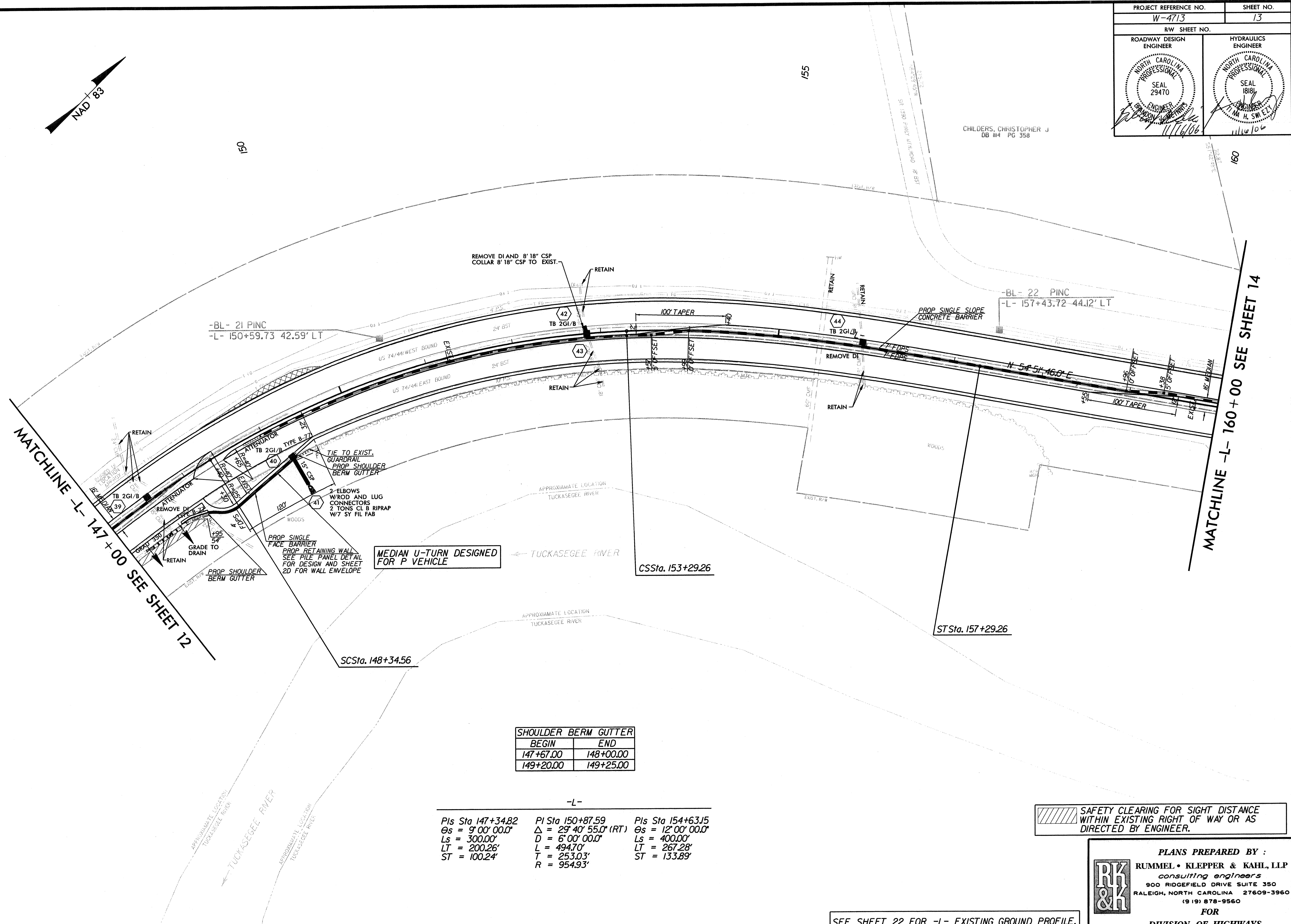
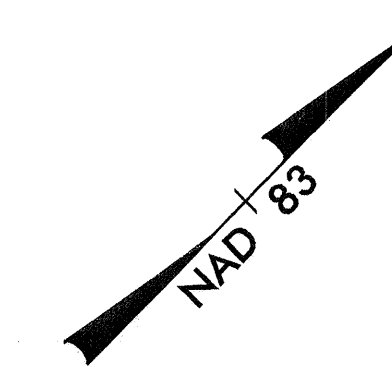
-BL- 20 PINC
-L- 143+32.71 40.62' RT

-L-					
PI Sta 130+80.45	PI Sta 137+20.26	PI Sta 140+52.02	PIs Sta 142+88.80	PIs Sta 147+34.82	
$\Delta = 36^{\circ} 47' 38.8''$ (LT)	$\Delta = 17^{\circ} 32' 05.3''$ (LT)	$\Delta = 16^{\circ} 30' 01.9''$ (LT)	$\Theta_s = 9^{\circ} 00' 00.0''$	$\Theta_s = 9^{\circ} 00' 00.0''$	
$D = 4^{\circ} 00' 00.0''$	$D = 4^{\circ} 30' 00.0''$	$D = 6^{\circ} 00' 00.0''$	$L_s = 300.00'$	$L_s = 300.00'$	
$L = 919.85'$	$L = 389.66'$	$L = 275.01'$	$LT = 200.26'$	$LT = 200.26'$	
$T = 476.41'$	$T = 196.37'$	$T = 138.46'$	$ST = 100.24'$	$ST = 100.24'$	
$R = 1,432.39'$	$R = 1,273.24'$	$R = 954.93'$			

SAFETY CLEARING FOR SIGHT DISTANCE WITHIN EXISTING RIGHT OF WAY OR AS DIRECTED BY ENGINEER.

SEE SHEETS 21 & 22 FOR -L- EXISTING GROUND PROFILE.

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MATCHLINE -L- 147+00 SEE SHEET 12

MATCHLINE -L- 160+00 SEE SHEET 14

MEDIAN U-TURN DESIGNED FOR P VEHICLE

SHOULDER BERM GUTTER	
BEGIN	END
147+67.00	148+00.00
149+20.00	149+25.00

-L-

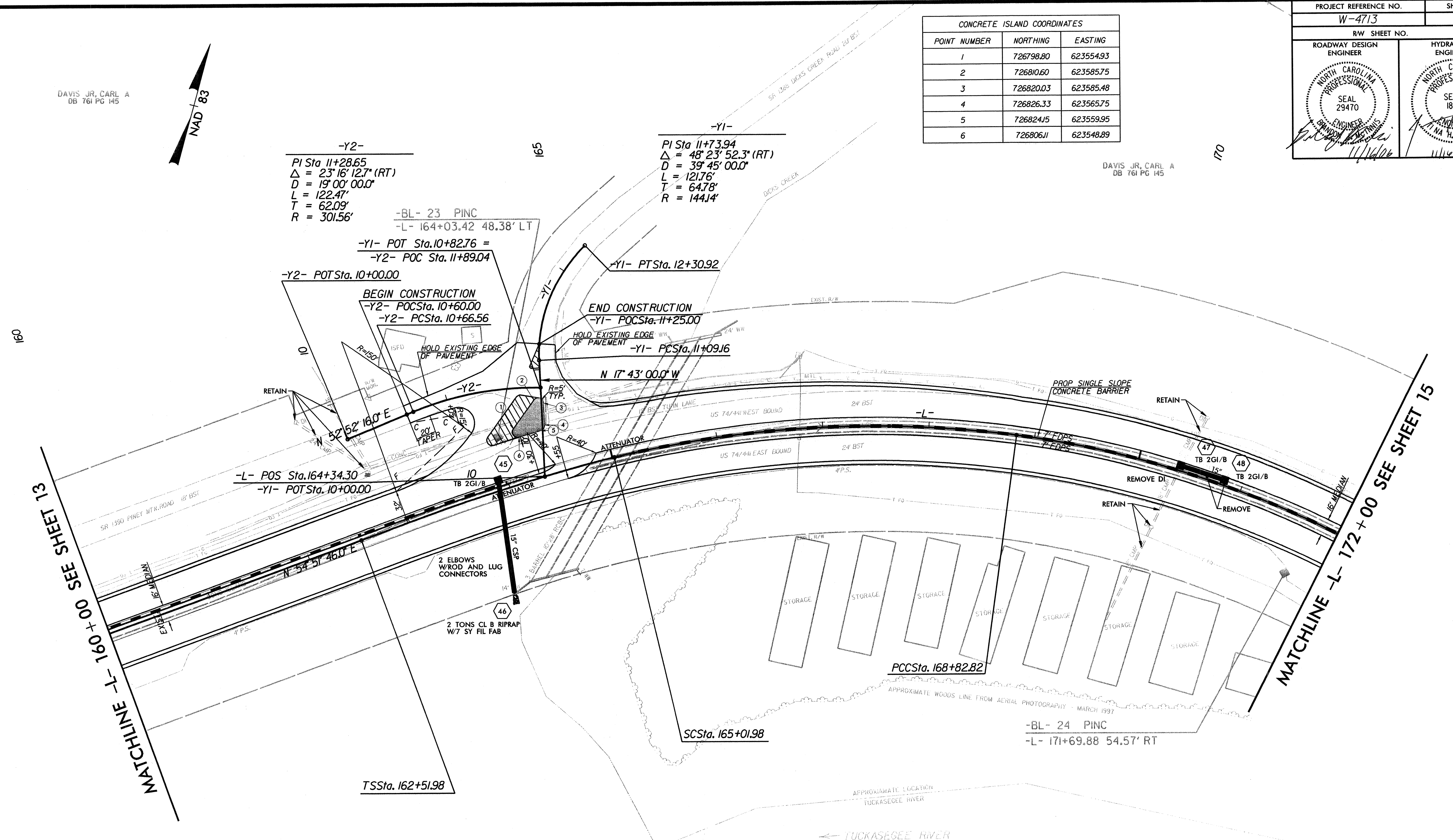
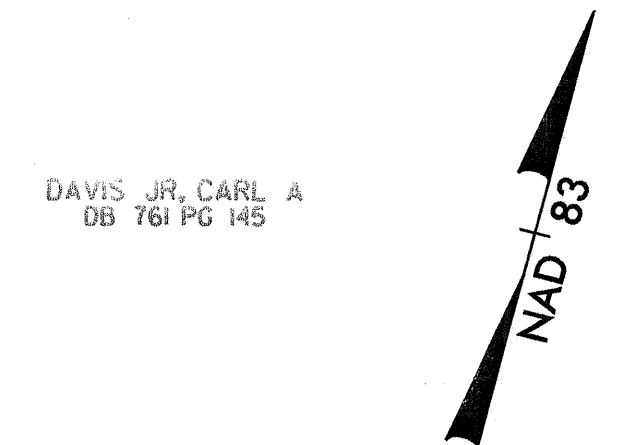
PIs Sta 147+34.82 θs = 9° 00' 00.0" Ls = 300.00' LT = 200.26' ST = 100.24'	PI Sta 150+87.59 Δ = 29° 40' 55.0" (RT) D = 6° 00' 00.0" L = 494.70' T = 253.03' R = 954.93'	PIs Sta 154+63.15 θs = 12° 00' 00.0" Ls = 400.00' LT = 267.28' ST = 133.89'
--	---	---

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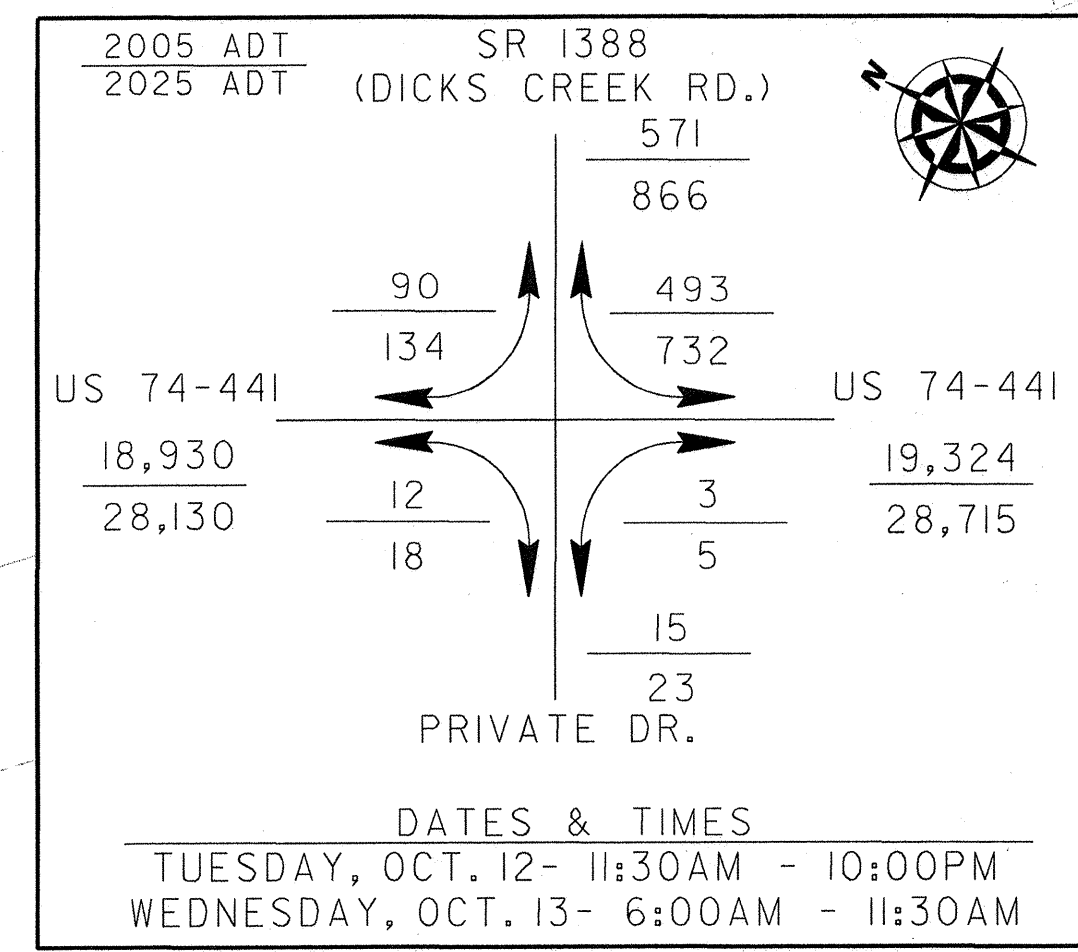
SEE SHEET 22 FOR -L- EXISTING GROUND PROFILE.

CONCRETE ISLAND COORDINATES		
POINT NUMBER	NORTHING	EASTING
1	726798.80	623554.93
2	726810.60	623585.75
3	726820.03	623585.48
4	726826.33	623565.75
5	726824.15	623559.95
6	726806.11	623548.89



MATCHLINE -L- 160+00 SEE SHEET 13

MATCHLINE -L- 172+00 SEE SHEET 15



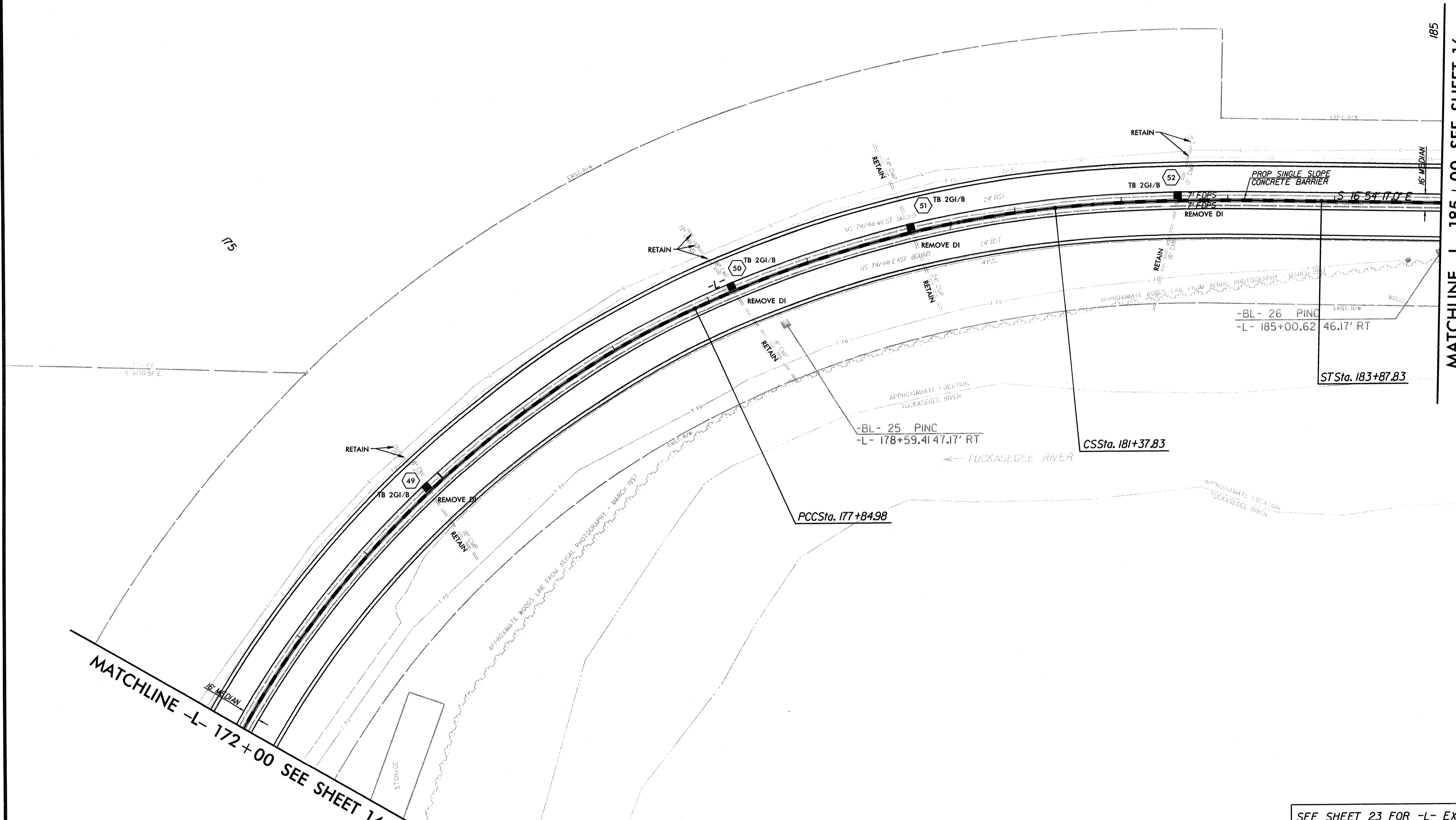
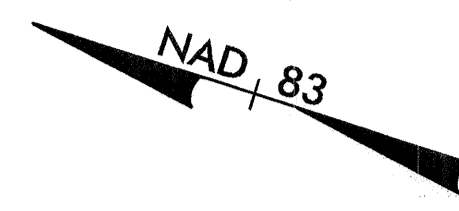
PIs Sta 164+18.77 $\Delta = 6^{\circ}52'30.0''$ $L_s = 250.00'$ $LT = 166.79'$ $ST = 83.45'$	PI Sta 166+94.55 $\Delta = 20^{\circ}56'46.9''$ (RT) $D = 5^{\circ}30'00.0''$ $L = 380.84'$ $T = 192.57'$ $R = 1,041.74'$	PI Sta 173+70.74 $\Delta = 54^{\circ}07'45.7''$ (RT) $D = 6^{\circ}00'00.0''$ $L = 902.16'$ $T = 487.92'$ $R = 954.93'$
--	--	--

SEE SHEETS 22 & 23 FOR -L- EXISTING GROUND PROFILE.

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MATCHLINE -L- 185 + 00 SEE SHEET 16

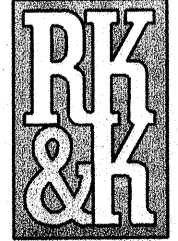
MATCHLINE -L- 172 + 00 SEE SHEET 14

SEE SHEET 23 FOR -L- EXISTING GROUND PROFILE.

-L-

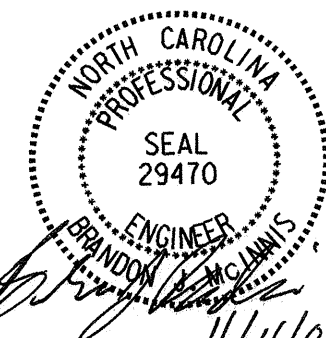
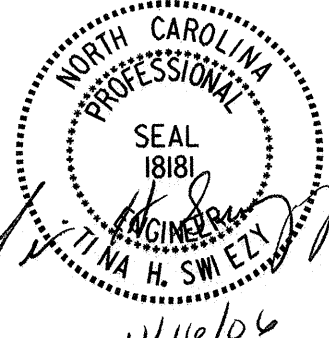
PI Sta 173+70.74 Δ = 54°07'45.7" (RT) D = 6°00'00.0" L = 902.16' T = 487.92' R = 954.93'	PI Sta 179+63.11 Δ = 19°24'24.5" (RT) D = 5°30'00.0" L = 352.85' T = 178.13' R = 1,041.74'	PIs Sta 182+21.28 θs = 6°52'30.0" Ls = 250.00' LT = 166.79' ST = 83.45'
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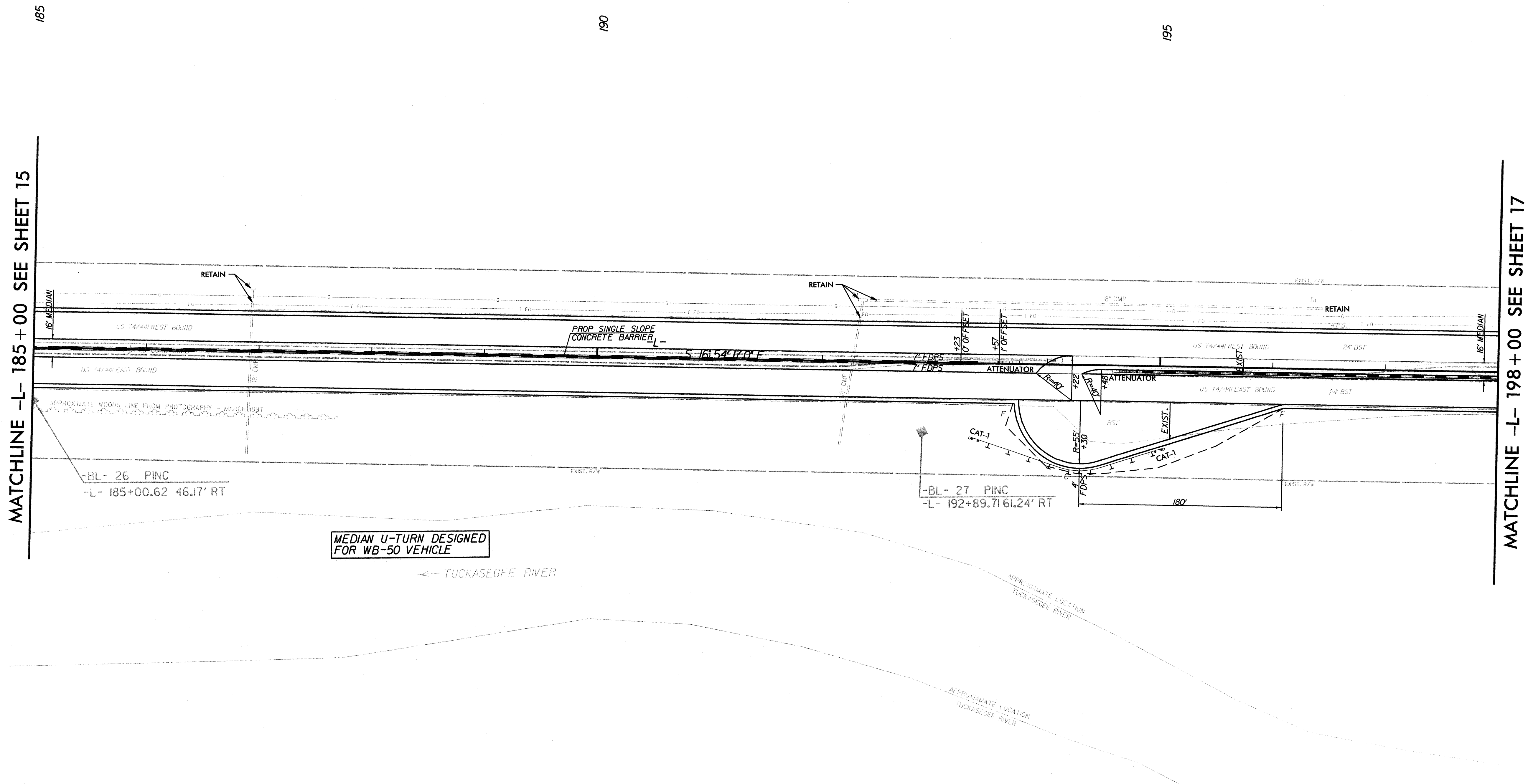
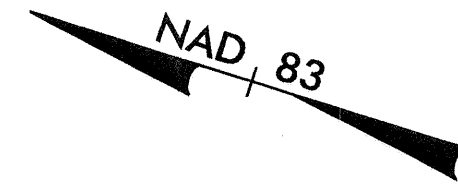
PLANS PREPARED BY :



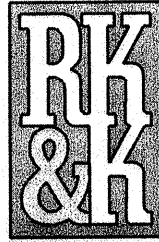
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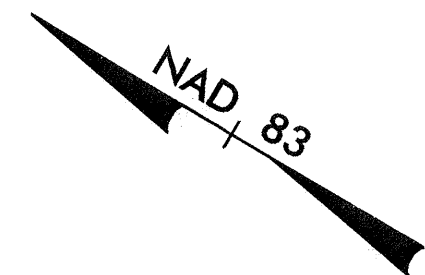
PROJECT REFERENCE NO. W-4713	SHEET NO. 16
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	



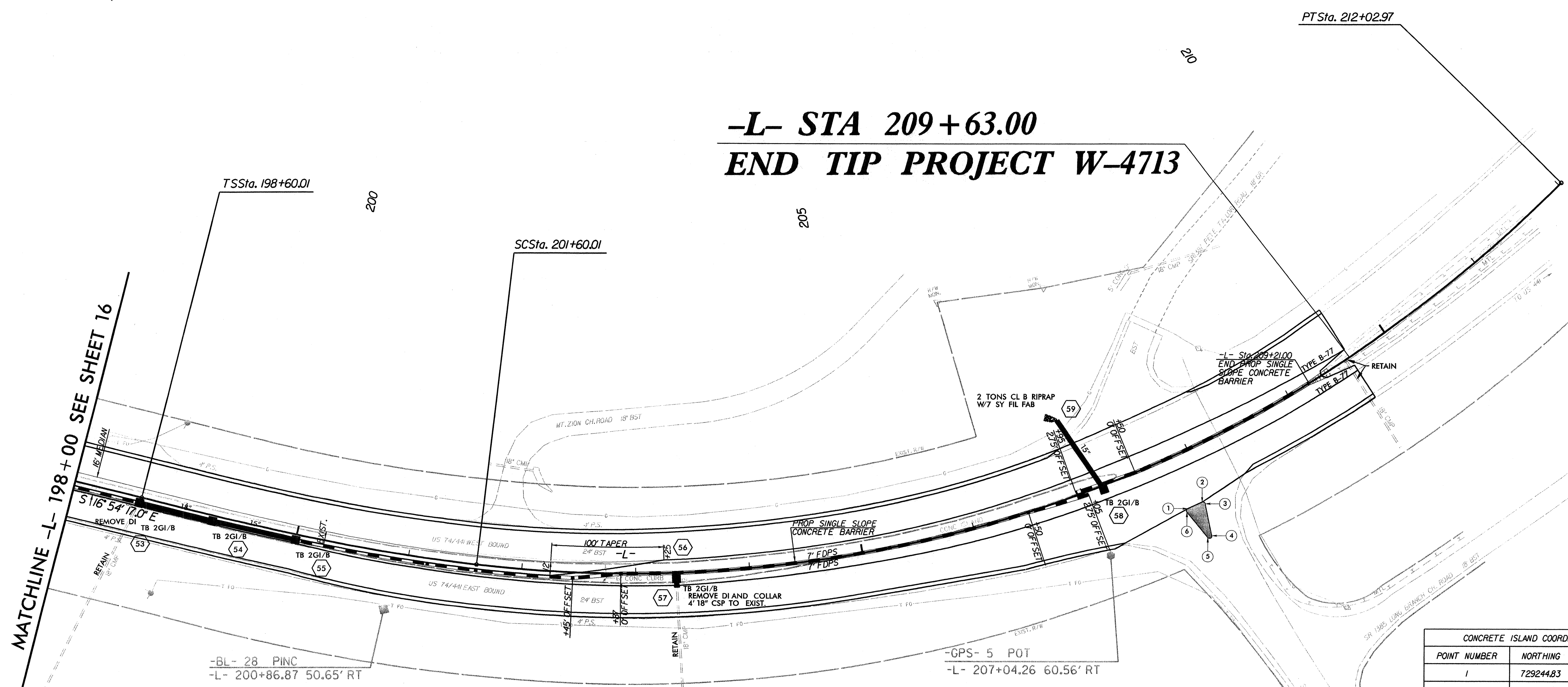
SEE SHEETS 23 & 24 FOR -L- EXISTING GROUND PROFILE.



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-L- STA 209+63.00 END TIP PROJECT W-4713

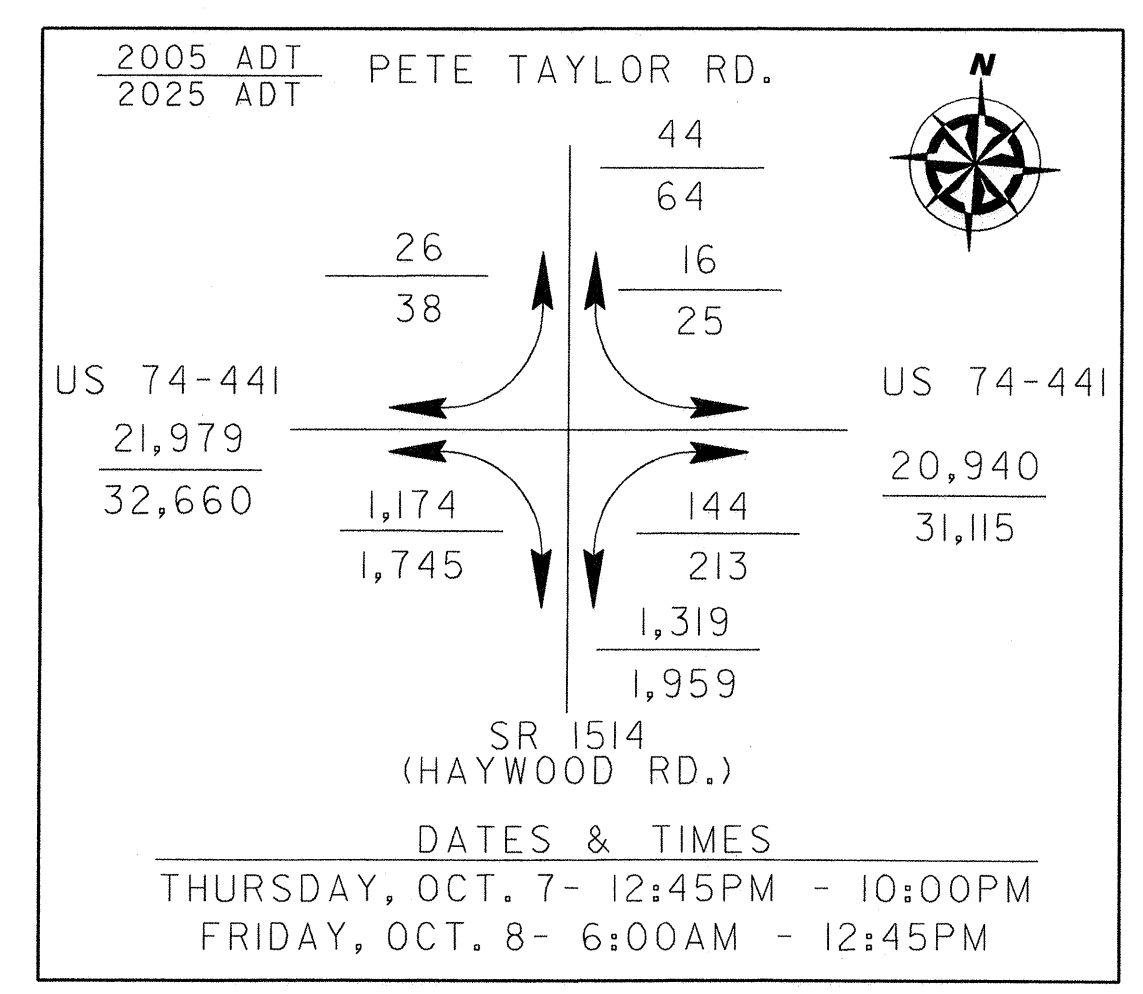


MATCHLINE -L- 198+00 SEE SHEET 16

-BL- 28 PINC
-L- 200+86.87 50.65' RT

-GPS- 5 POT
-L- 207+04.26 60.56' RT

CONCRETE ISLAND COORDINATES		
POINT NUMBER	NORTHING	EASTING
1	729244.83	620647.83
2	729256.11	620639.50
3	729256.33	620636.39
4	729235.13	620616.84
5	729231.89	620618.99
6	729241.81	620646.37



-L-

PIs Sta 200+60.19	PI Sta 207+20.74
Θs = 7° 30' 00.0"	Δ = 52° 08' 51.7" (LT)
Ls = 300.00'	D = 5° 00' 00.0"
LT = 200.18'	L = 1,042.95'
ST = 100.16'	T = 560.73'
	R = 1,445.92'

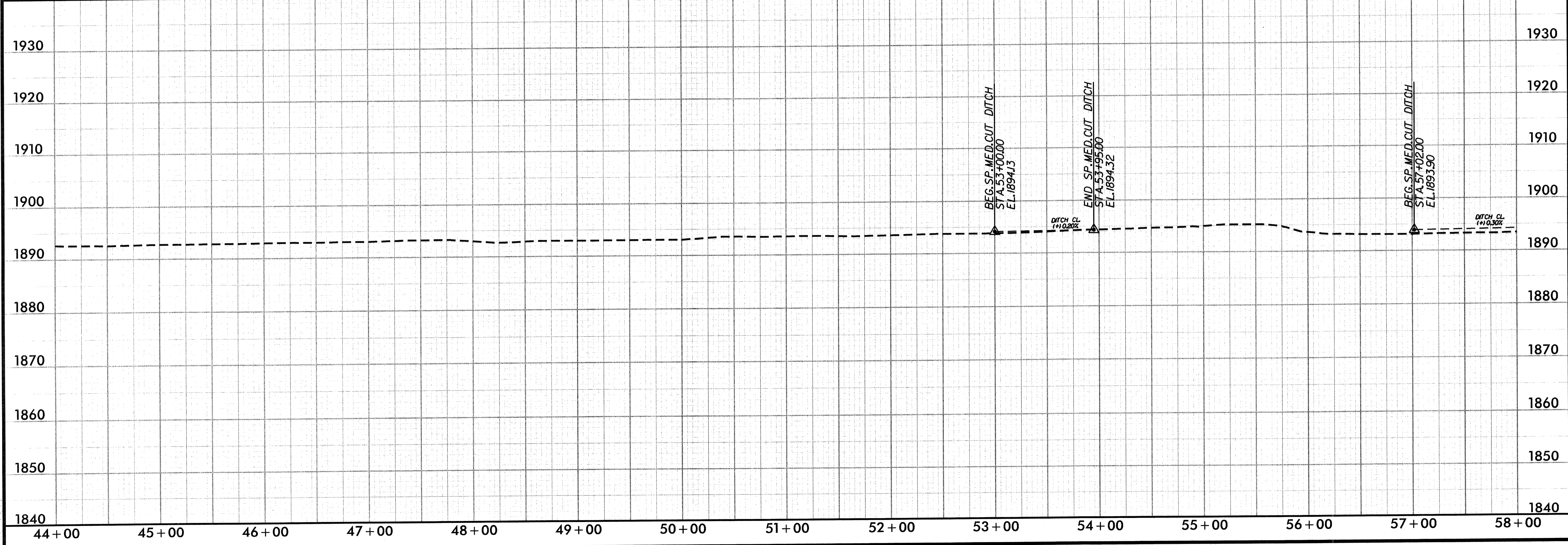
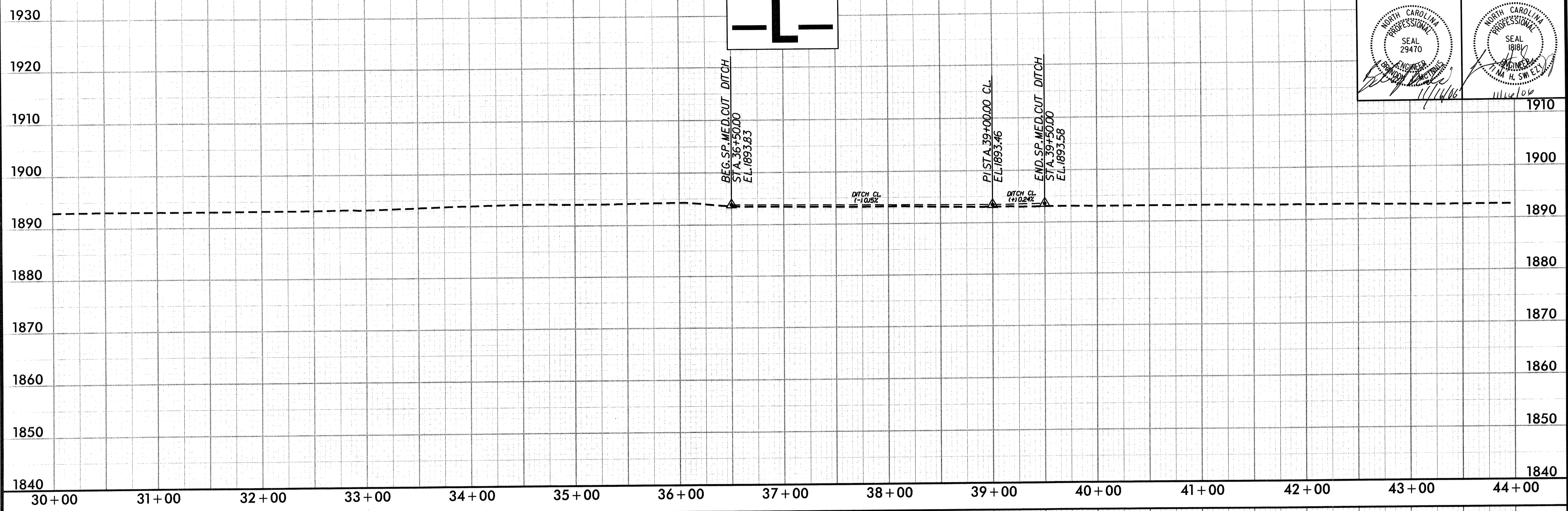
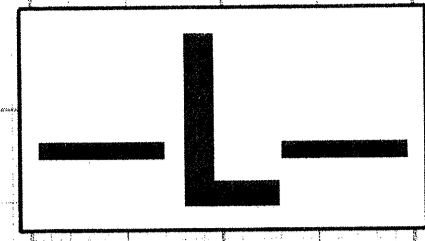
SEE SHEET 24 FOR -L- EXISTING GROUND PROFILE.

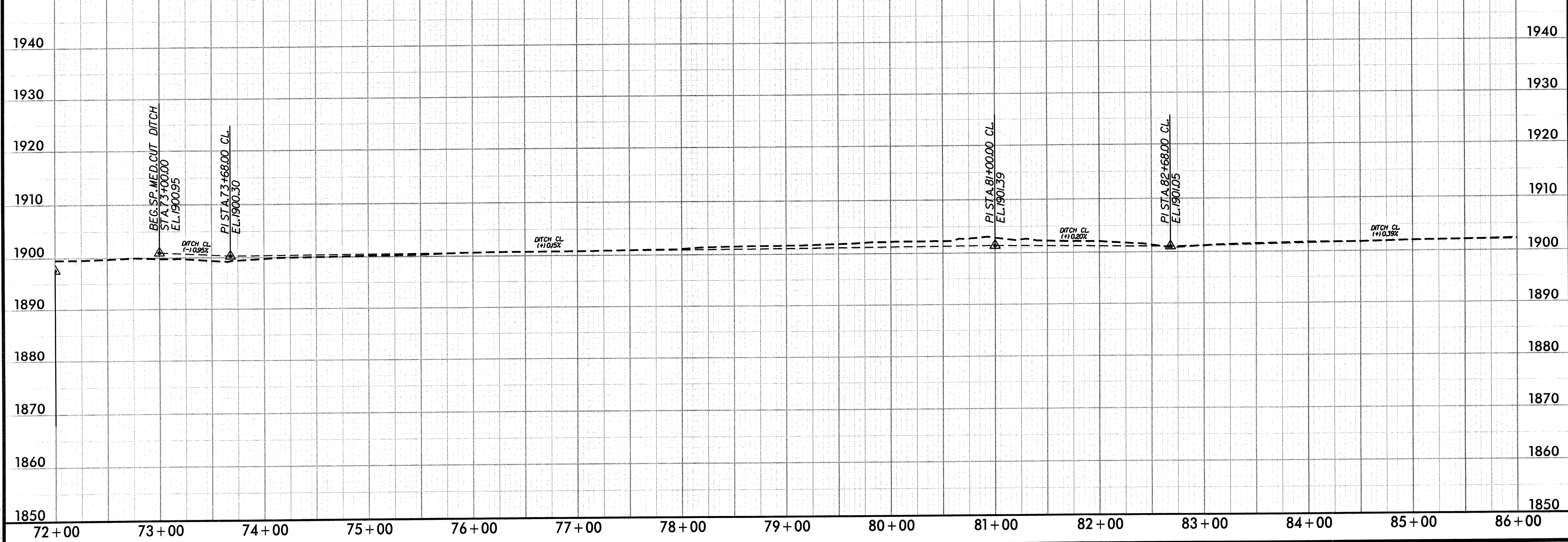
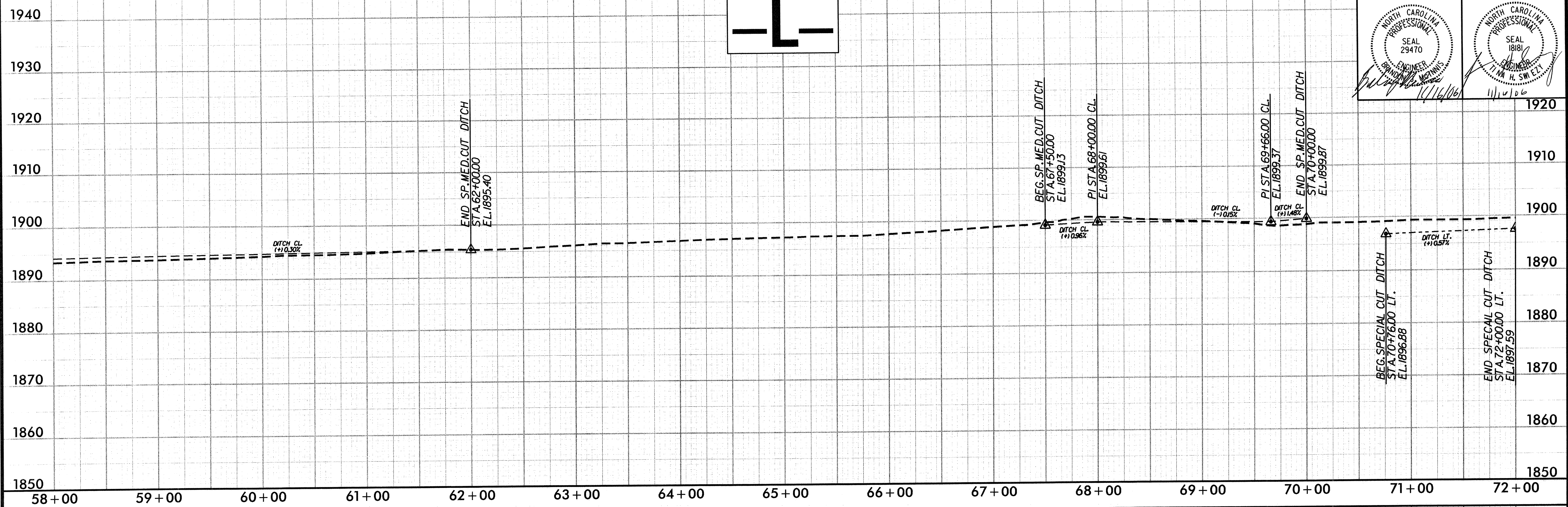
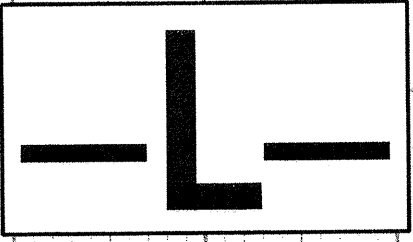
PLANS PREPARED BY :

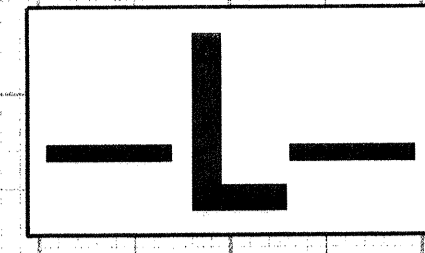
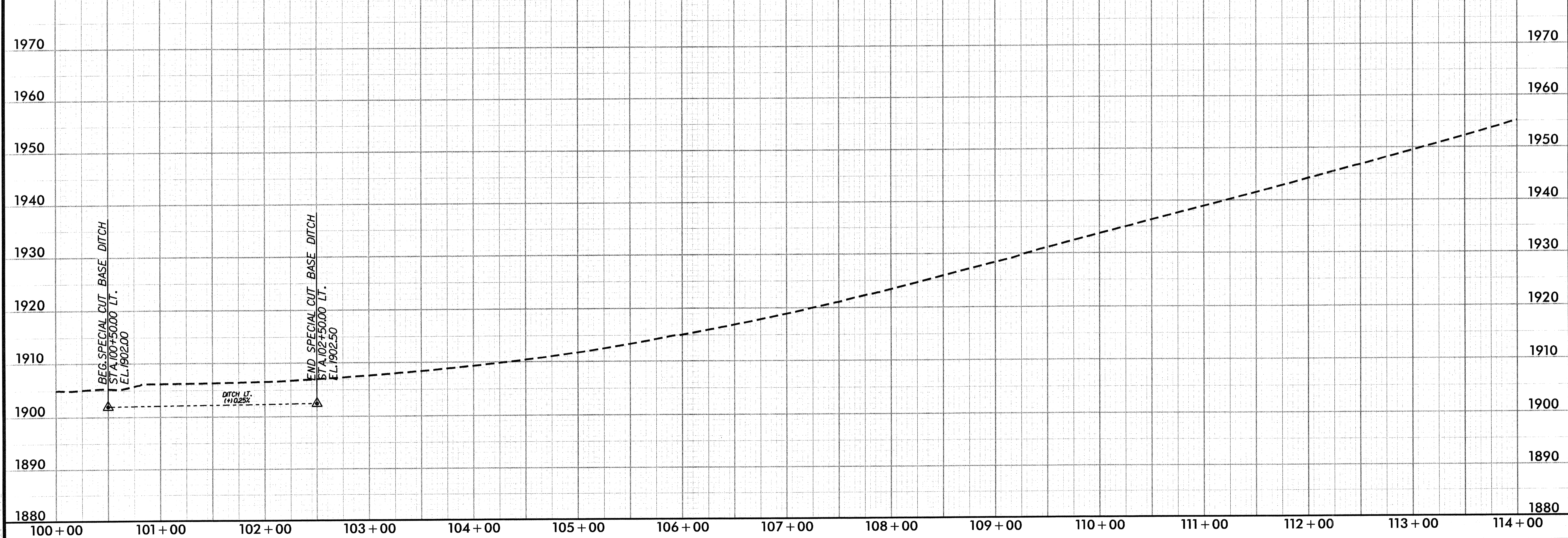
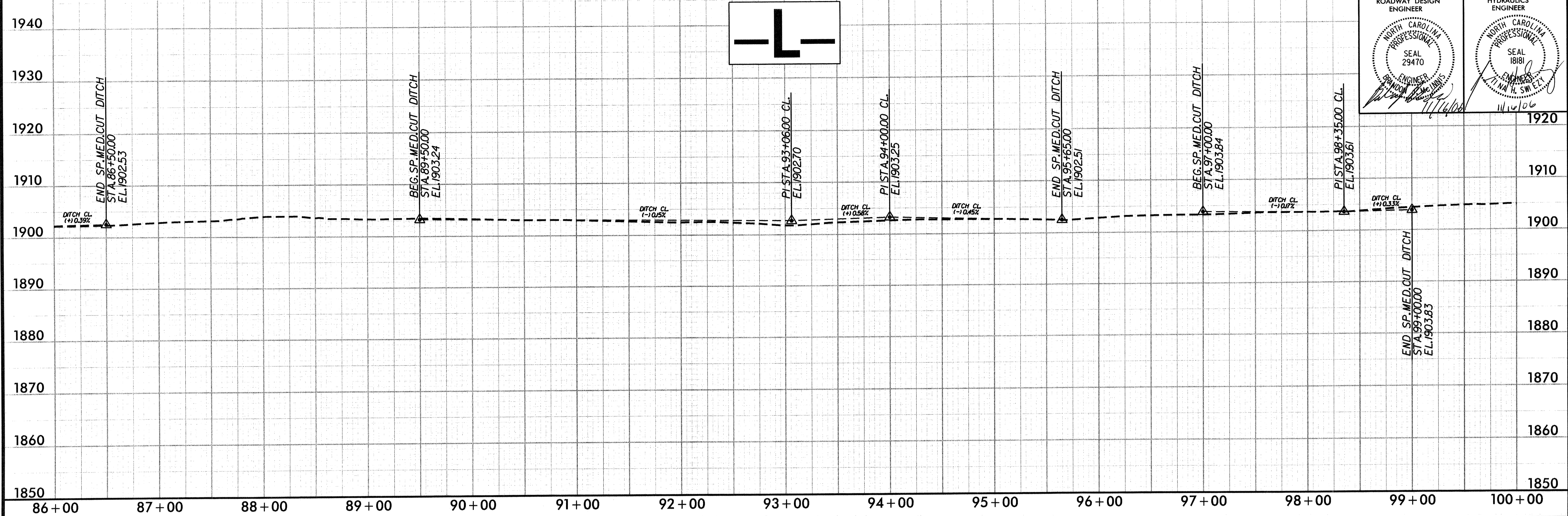
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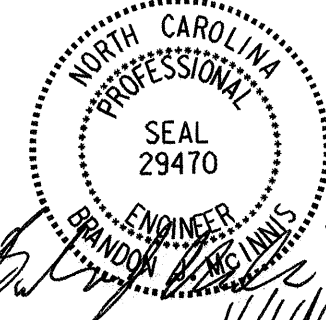
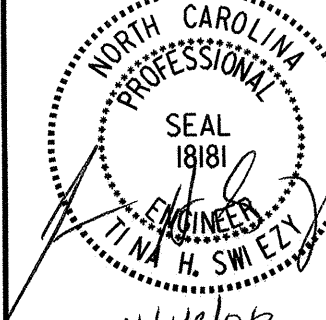
FOR
DIVISION OF HIGHWAYS

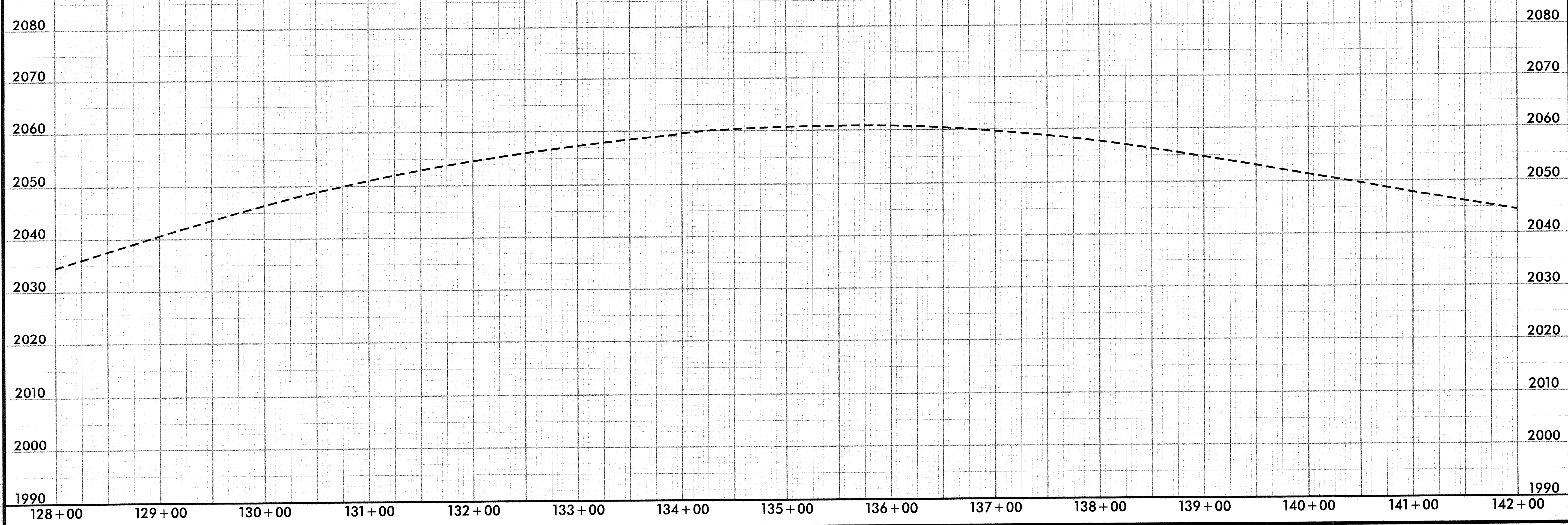
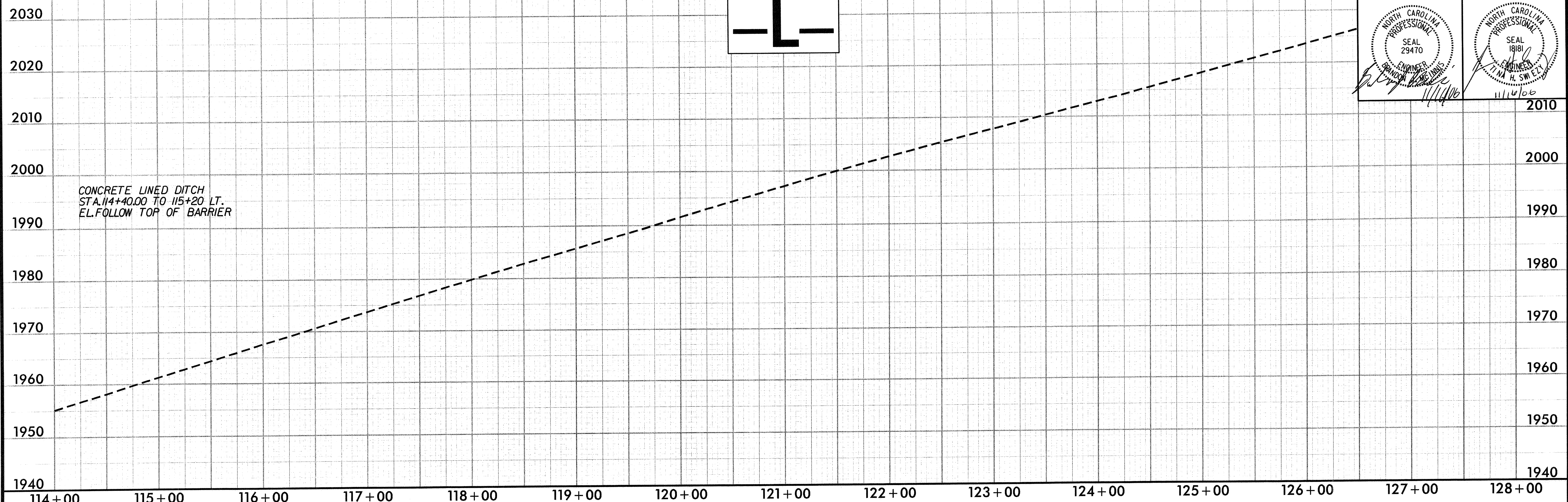
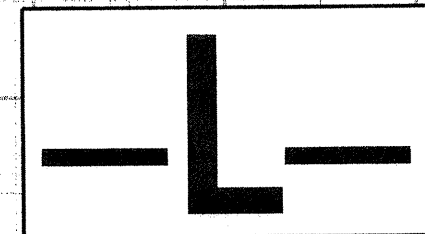
APPROXIMATE LOCATION
TUCKASEGEE RIVER

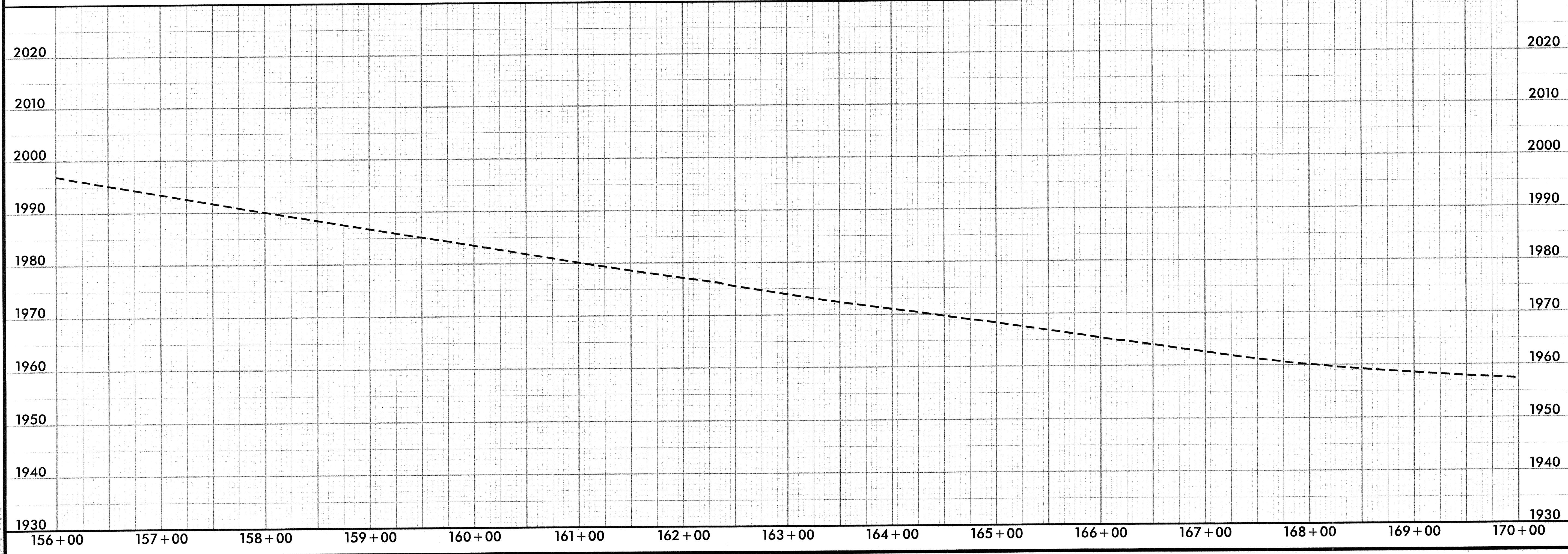
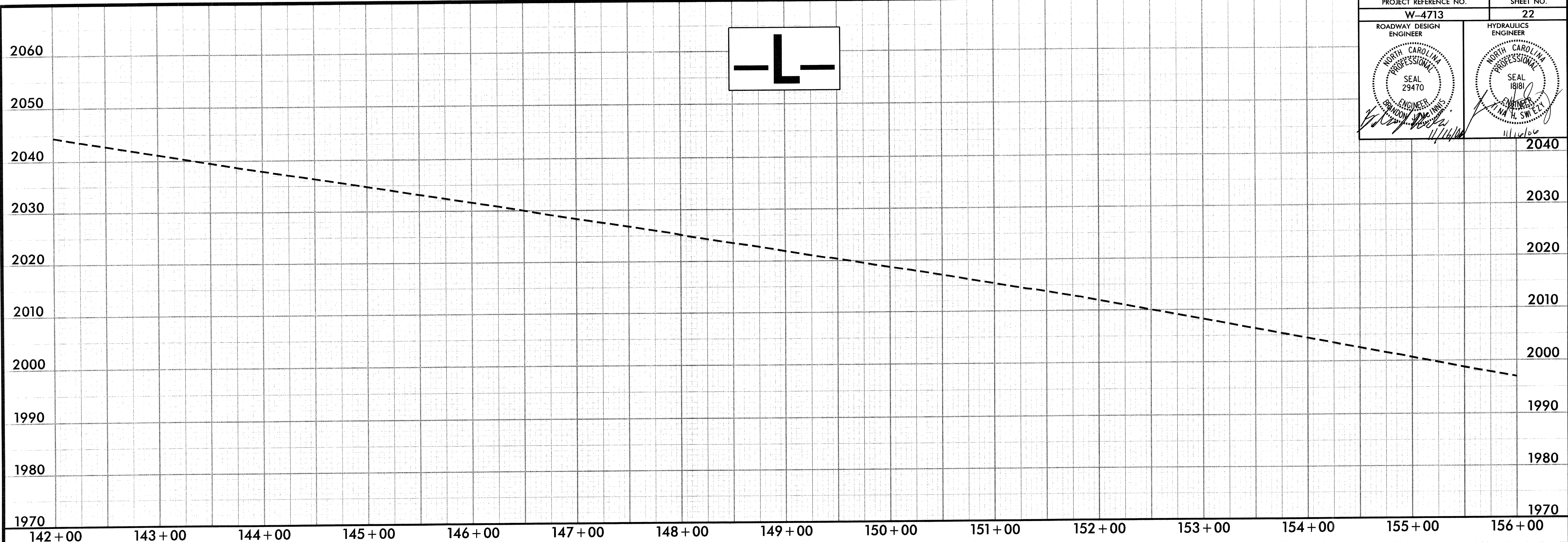
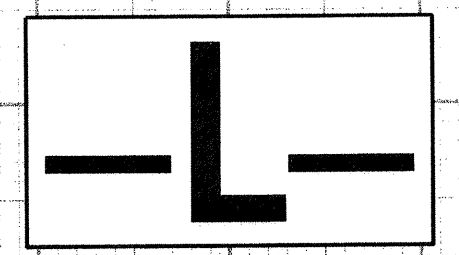


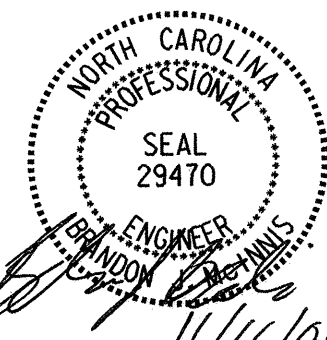
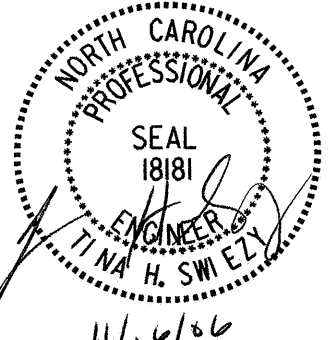


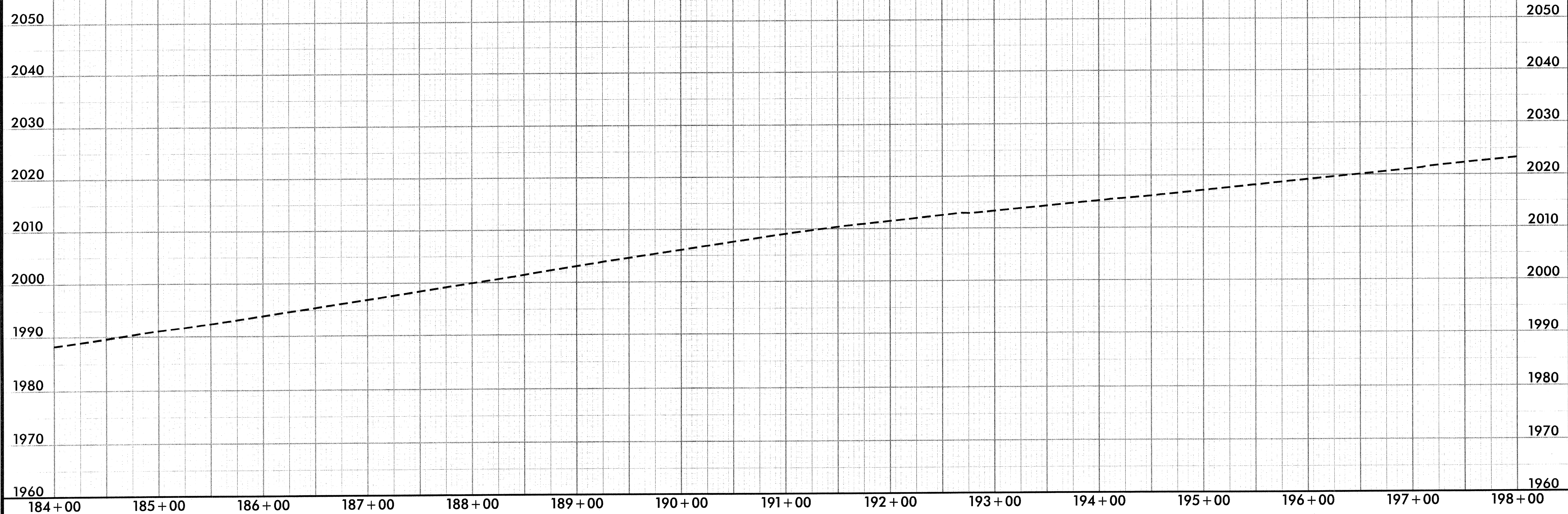
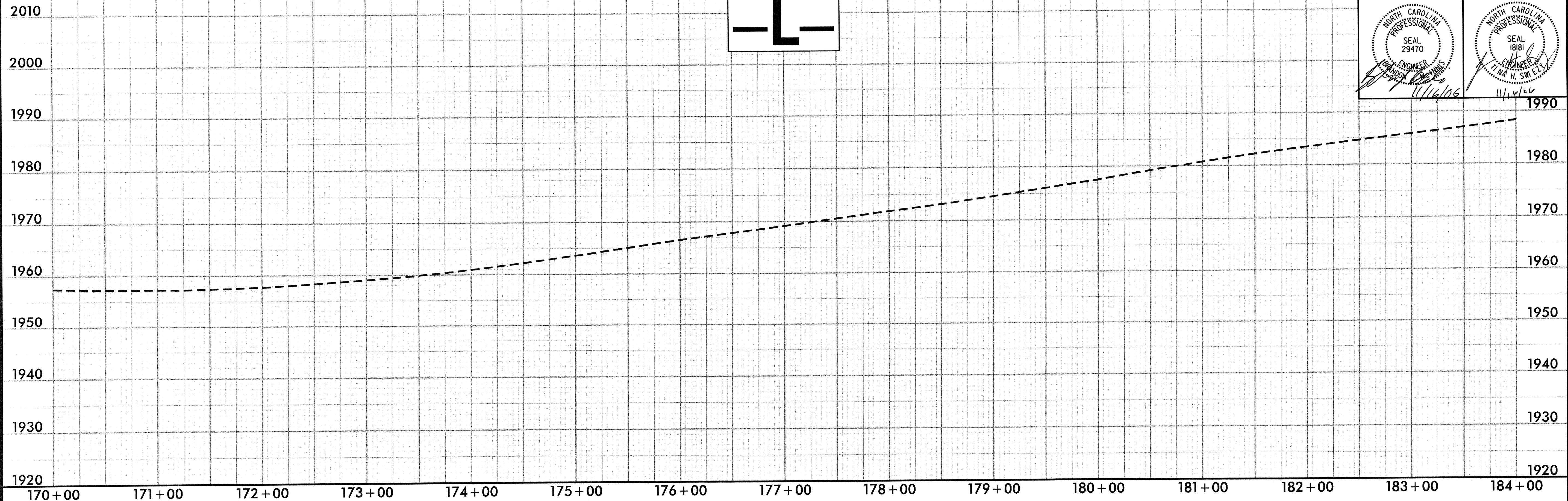
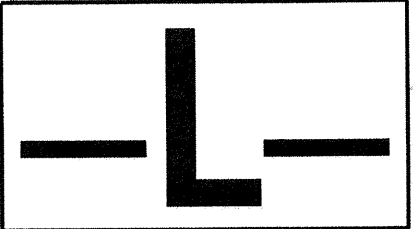


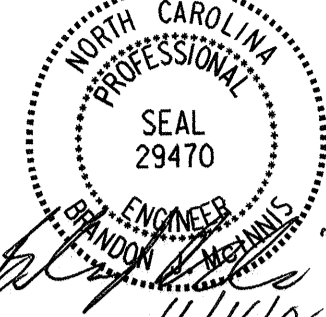
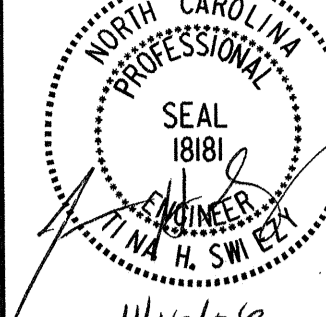
PROJECT REFERENCE NO. W-4713	SHEET NO. 21
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	





PROJECT REFERENCE NO.	SHEET NO.
W-4713	23
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 29470 11/16/06	 NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 18181 11/16/06



PROJECT REFERENCE NO. W-4713	SHEET NO. 24
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 SEAL 29470 11/16/06	 SEAL 18181 11/16/06

