

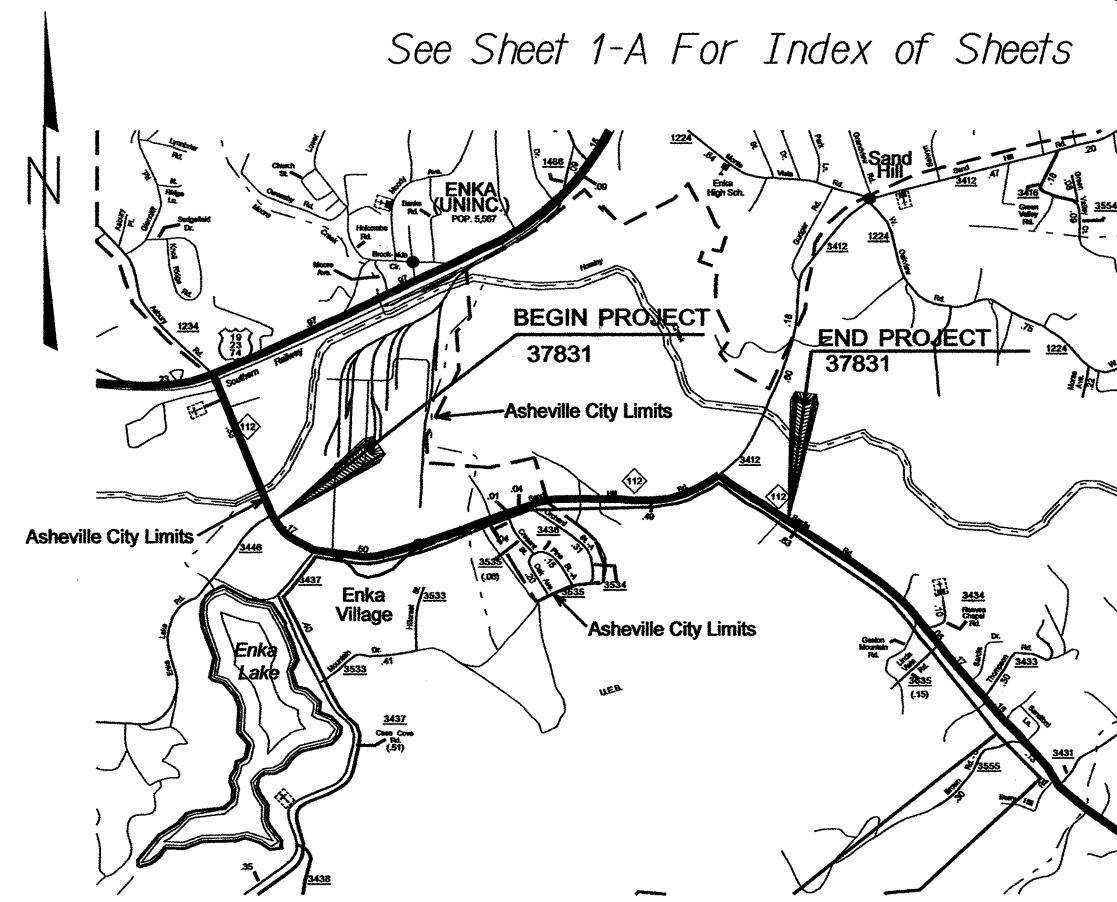
WBS 37831

C202011

PROJECT: MAI3028R

30-JAN-2008 11:57 r:\nc\_moving\_ch\head\rev\_ncl12\_mai3026r\and28r\13028r-ddc-tsh\_040513.dgn \$\$\$USERNAME\$\$\$

See Sheet 1-A For Index of Sheets



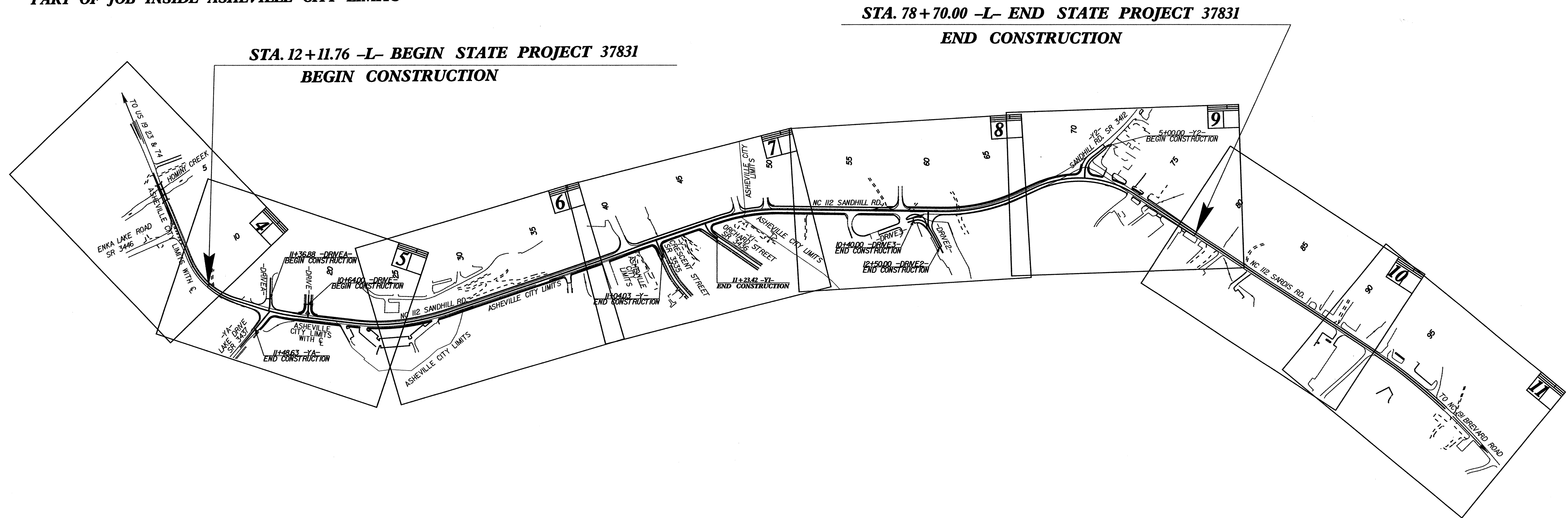
SEE SHEET 1-A FOR INDEX OF SHEETS  
PART OF JOB INSIDE ASHEVILLE CITY LIMITS

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

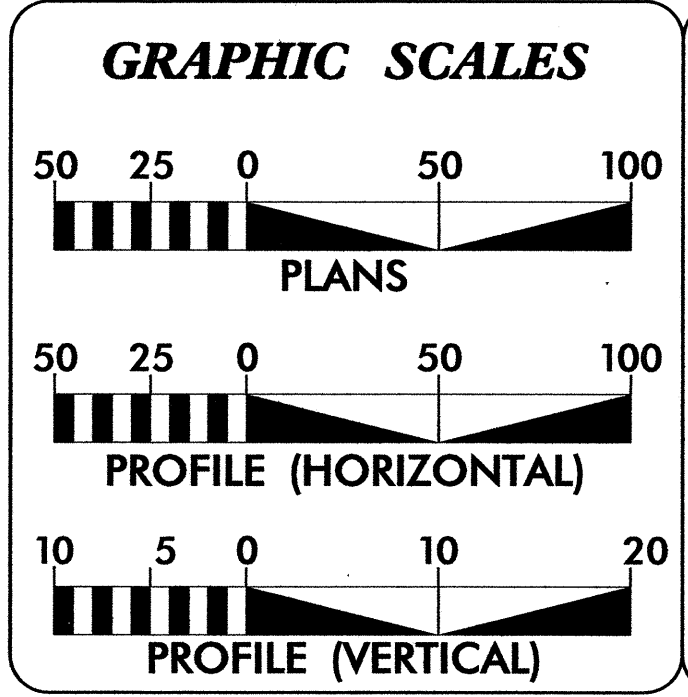
# BUNCOMBE

**LOCATION: NC 112 SAND HILL ROAD AND SARDIS ROAD FROM WEST OF SR 3437 LAKE DRIVE TO 850' EAST OF INTERSECTION OF SAND HILL RD. SR 3412 WITH SARDIS RD NC 112**  
**TYPE OF WORK: GRADING, DRAINAGE, WIDENING, CURB AND GUTTER, AND PAVING**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	37831	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
37831		P.E., RW, UTILITY AND CONST.	
37831			



NOTE: SHEET 10 AND 11 IS SHOWN BECAUSE OF PREVIOUS LENGTH OF PROJECT, CONSTRUCTION ENDS AT -L- STA 78+70.00 SHEET 9



**DESIGN DATA**

ADT 2002 =	12,000
ADT 2022 =	18,000
DHV =	10 %
D =	10 %
T =	5 % *
V =	35 & 45 MPH
* TTST 2	DUAL 3

**PROJECT LENGTH**

TOTAL LENGTH OF STATE PROJECT 37831 = 1.261 MILES

Prepared In the Office of:  
**DIVISION OF HIGHWAYS**  
55 Orange Street, Asheville, NC 28802

2006 STANDARD SPECIFICATIONS

**RIGHT OF WAY DATE:**  
MARCH 21, 2006

**LETTING DATE:**  
APRIL 15, 2008

**K. A. WILSON, PE**  
OPERATIONS ENGINEER

**M. K. PENLAND**  
DIVISION DESIGN ENGINEER

**HYDRAULICS ENGINEER**

W. Herbert  
SIGNATURE: 2-6-08

**DIVISION OPERATIONS ENGINEER**

Kenneth A. Wilson  
SIGNATURE: 1-30-08

**DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA**

P.E.

STATE DESIGN ENGINEER

**DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION**

APPROVED  
DIVISION ADMINISTRATOR

DATE

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

## INDEX OF SHEETS

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1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF ROADWAY STANDARDS
1-B	CONVENTIONAL SYMBOLS
1-C	SURVEY CONTROL AND CENTERLINE COORDINATE LIST
2 THRU 2-C	TYPICAL SECTIONS, PAVEMENT SCHEDULE, WEDGING DETAIL, AND TRANSITION AT END OF 2'6" CONCRETE CURB AND GUTTER
2-D THRU 2-G	INTERSECTION DETAILS
2-H	CONCRETE ENDWALL FOR TAPERED INLET
2-I	DETAIL OF REINFORCED TAPERD INLET 24" THRU 72" DIAMETER
2-J	HDPE PIPE LINER INSIDE CORRUGATED STEEL PIPE
2-K THRU 2-L	DETAIL FOR EXTRA LENGTH GUARDRAIL POST
2-M THRU 2-N	DETAIL FOR LOCATION OF TELEPHONE CONDUIT ENCASEMENTS
2-O	DETAIL OF BOX EXPANSION
2-P	DETAIL FOR APRON AROUND DROP INLETS
2-Q	DETAIL TO CONVERT EXISTING DROP INLET OR CATCH BASIN TO JUNCTION BOX (MANHOLE OPTIONAL)
2-R	DETAIL OF TEMPORARY 1" STEEL COVER OVER DRAINAGE STRUCTURE
2-S	DRAINAGE STRUCTURE WITH SLUICE GATE
3 ( 2 SHEETS )	SUMMARY OF QUANTITIES
3-A THRU 3-D	SUMMARY OF DRAINAGE
3-E	SUMMARY OF GUARDRAIL
3-F	SUMMARIES OF PROPOSED RADIUS TYPE DRIVES IN C&G STAND. 848.02, SANITARY SEWER MANHOLE ADJUSTMENTS, REMOVAL OF EXISTING ASPHALT PAVEMENT, BREAKING OF EXISTING ASPHALT PAVEMENT, PIPE REMOVAL, PIPE PLUG AND FLOWABLE FILL
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3-I	PARCEL INDEX SHEET
4 THRU 11	PLAN SHEETS
12 THRU 16	GRADE AND PROFILE SHEETS
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PM-1 THRU PM-4	PAVEMENT MARKING PLANS
EC-1 THRU EC-14	EROSION CONTROL PLANS
SIG-1 THRU SIG-13	SIGNAL PLANS
UC-1 THRU UC-13	UTILITY CONSTRUCTION PLANS
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X-A	CROSS-SECTION SUMMARY
X-1 THRU X-65	PLAN CROSS-SECTION
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## GENERAL NOTES

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

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.

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.

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

DRIVEWAYS:  
DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 3' RADIUS OR RADIUS AS SHOWN ON THE PLANS. LOCATIONS OF DRIVES WILL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

STREET TURNOUT:  
STREET RETURNS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.04 USING THE RADIUS NOTED ON PLANS.

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

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

UTILITIES:  
UTILITY OWNERS ON THIS PROJECT ARE PROGRESS ENERGY, AT & T, BELL SOUTH, ASHEVILLE WATER AND SEWER AND STORM, CHARTER COMMUNICATION, PUBLIC SERVICE NC ENERGY, AND METROPOLITAN SEWER DISTRICT. ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

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

WHEELCHAIR RAMPS:  
WHEELCHAIR RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. THE CONSTRUCTION OF ALL WHEELCHAIR RAMPS SHALL BE IN ACCORDANCE WITH DETAILS IN PLANS.

## LIST OF STANDARDS

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

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 II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation - Method 'A'
310.10	Driveway Pipe Construction
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
815.03	Pipe Underdrain and Blind Drain
838.01	Concrete Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.11	Reinforced Concrete Endwall - for Single 54" Pipe 90 Skew
838.21	Reinforced Brick Endwall - for Single 54" Pipe 90 Skew
838.51	Precast Endwalls - 12" thru 72" Pipe 90 Skew
838.80	Brick Catch Basin - 12" thru 54" Pipe
840.01	Concrete Catch Basin - 12" thru 54" Pipe
840.02	Frame, Grates and Hood - for Use on Standard Catch Basin
840.03	Concrete Open Throat Catch Basin - 12" thru 48" Pipe
840.04	Concrete Drop Inlet - 12" thru 30" Pipe
840.14	Brick Drop Inlet - 12" thru 30" Pipe
840.15	Drop Inlet Frame and Grates - for use with Std. Dwg 840.14 and 840.15
840.16	Concrete Junction Box - 12" thru 66" Pipe
840.31	Brick Junction Box - 12" thru 66" Pipe
840.32	Traffic Bearing Junction Box - for Use with Pipes 42" and Under
840.34	Manhole Frame and Cover
840.54	Drainage Structure Steps
840.66	Concrete and Brick Pipe Plug
840.71	Pipe Collar
840.72	Concrete Curb, Gutter and Curb & Gutter
846.01	Concrete Sidewalk
848.01	Driveway Turnout - Radius Type
848.02	Street Turnout
848.04	Wheelchair Ramp - Curb Cut
848.05	Concrete Islands
852.01	Guardrail Placement
862.01	Guardrail Installation
862.02	Chain Link Fence - 4', 5' and 6' High Fence
866.01	Rip Rap in Channels
876.01	Guide for Rip Rap at Pipe Outlets
876.02	Drainage Ditches with Class 'B' Rip Rap

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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	○ EF
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 High Quality Wetland Boundary	-HQ 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	-----
River Basin Buffer	----- RBB
Flow Arrow	←
Disappearing Stream	-----
Spring	○-----
Swamp Marsh	-----
Proposed Lateral, Tail, Head Ditch	----- PLM
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	-----
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	-----
Curb Cut for Future Wheel Chair Ramp	-----
Existing Metal Guardrail	-----
Proposed Guardrail	-----
Existing Cable Guiderail	-----
Proposed Cable Guiderail	-----
Equaility 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	-----
End of Information	-----

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

DATUM DESCRIPTION  
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE NAD83 STATE PLANE COORDINATES FOR NCGS MONUMENT "DEWEESE" WITH A NORTHING OF 673169.352(FIT), EASTING OF 911534.643(FIT). THE AVERAGE COMBINED FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS 0.999783068. ALL LINEAR DISTANCES ARE LOCALIZED HORIZONTAL DISTANCES. THE VERTICAL DATUM IS BASED ON (NAVD 1988) NCGS STATION "Y38" (ELEV 2059.17 FT.)

Inverse 6000(DEWEESE) to 2203(-L- 12+11.76) S 36° 01' 02.15" E Distance 2,174.3330

CENTERLINE COORDINATE LIST

Project Tip No.: WBS 37831  
File Location/Name: SHEET 1C XY COORD.LXS  
Date:

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

Point #	Chain	Station	Northing (Y)	Easting (X)
----- Beginning chain -BL- description -----				
Point 1	N	671,195.4070	E 914,313.3700	ELE.2083.5485 Sta 5+00.00
Course from 1 to 2 N 66° 58' 54.83" E Dist 599.9893				
Point 2	N	671,430.0160	E 914,865.5890	ELE.2090.6640 Sta 10+99.99
Course from 2 to 3 N 77° 46' 40.68" E Dist 468.4445				
Point 3	N	671,529.1860	E 915,323.4160	ELE.2084.6850 Sta 15+68.43
Course from 3 to 4 N 63° 45' 31.05" E Dist 414.2677				
Point 4	N	671,712.3560	E 915,694.9890	ELE.2089.2385 Sta 19+82.70
Course from 4 to 5 N 65° 38' 57.66" E Dist 277.0276				
Point 5	N	671,826.5800	E 915,947.3720	ELE.2103.4460 Sta 22+59.73
Course from 5 to 6 N 78° 17' 43.80" E Dist 424.0473				
Point 6	N	671,912.6040	E 916,362.6020	ELE.2125.9325 Sta 26+83.78
Course from 6 to 7 S 89° 24' 35.53" E Dist 341.7631				
Point 7	N	671,909.0840	E 916,704.3470	ELE.2131.5760 Sta 30+25.54
Course from 7 to 8 S 89° 41' 11.14" E Dist 422.9963				
Point 8	N	671,906.7690	E 917,127.3370	ELE.2126.0860 Sta 34+48.54
Course from 8 to 9 S 83° 41' 16.89" E Dist 412.3627				
Point 9	N	671,861.4330	E 917,537.2000	ELE.2119.5820 Sta 38+60.90
Course from 9 to 10 N 81° 09' 53.12" E Dist 401.0255				
Point 10	N	671,923.0280	E 917,933.4670	ELE.2108.4990 Sta 42+61.92
Course from 10 to 11 N 66° 13' 15.59" E Dist 558.7114				
Point 11	N	672,148.3060	E 918,444.7480	ELE.2079.0165 Sta 48+20.64
Course from 11 to 12 S 64° 37' 40.76" E Dist 581.1356				
Point 12	N	671,899.2930	E 918,969.8300	ELE.2057.7325 Sta 54+01.77
Course from 12 to 16 S 53° 07' 33.9" E Dist 1007.97				
Point 16	N	671,294.4570	E 919,776.1608	ELE.2071.4027 Sta 64+09.74
Course from 16 to 17 S 62° 50' 44.4" E Dist 616.42				
Point 17	N	671,013.1320	E 920,324.6340	ELE.2067.1776 Sta 70+26.15
Course from 17 to 18 S 51° 34' 00.5" E Dist 578.06				
Point 18	N	670,653.8070	E 920,777.4500	ELE.2070.2825 Sta 76+04.21
----- Ending chain BL description -----				
Chain -BY- contains:				
4	13	Beginning chain BY description		
Point 4	N	671,712.3560	E 915,694.9890	ELE.2089.2385 Sta 5+00.00
Course from BL-4 to 13 S 28° 59' 29.57" E Dist 157.5367				
Point 13	N	671,574.5600	E 915,771.3440	ELE.2099.4370 Sta 6+57.54
----- Ending chain BY description -----				
Chain -BY1- contains:				
5	14	Beginning chain BY-1 description		
Point 5	N	671,826.5800	E 915,947.3720	ELE.2103.4460 Sta 5+00.00
Course from BL-5 to 14 S 49° 34' 12.87" E Dist 209.0051				
Point 14	N	671,691.0370	E 916,106.4670	ELE.2113.8295 Sta 7+09.01
----- Ending chain BY-1 description -----				
Chain -BY2- contains:				
15	11	Beginning chain BY-2 description		
Point 15	N	672,283.9140	E 918,604.1930	ELE.2072.2320 Sta 5+00.00
Course from 15 to BL-11 S 49° 37' 07.79" W Dist 209.3137				
Point 11	N	672,148.3060	E 918,444.7480	ELE.2079.0165 Sta 7+09.31
----- Ending chain BY-2 description -----				
BENCHMARKS:				
BM #1 ELEV. = 2075.933				
N = 671059.2270 E = 913915.4970				
BL- STAT. 00+80.56 30.24 LEFT				
CHISELED SQUARE AT SE CORNER OF CONC. MAILBOX BASE				
BM #2 ELEV. = 2083.079				
N = 671778.8810 E = 915568.5910				
BL- STAT. 18+96.75 115.24 LEFT				
NAIL WITH DISC IN CENTER OF CONC. PAD				
BM #3 ELEV. = 2122.914				
N = 671847.4400 E = 917122.2800				
BL- STAT. 35+39.49 49.63 RIGHT				
CHISELED SQUARE AT NE SECTION OF CONC. OVAL VALVE PAD				
BM #4 ELEV. = 2070.395				
N = 672354.7750 E = 918762.2370				
BL- STAT. 49+65.27 297.10 LEFT				
CHISELED SQUARE IN NE CORNER OF CONC. BOX				
BM #5 ELEV. = 2058.542				
N = 671540.5850 E = 919363.1550				
BL- STAT. 59+31.66 30.93 RIGHT				
CHISELED SQUARE ON SW CORNER OF CONC. SIGNPOST				
BM #6 ELEV. = 2069.667				
N = 670898.3300 E = 920318.2710				
BL- STAT. 70+92.88 93.60 RIGHT				
CHISELED SQUARE ON NW CORNER OF CONC. WATER VALVE BOX				
END BENCHMARK DESCRIPTION				

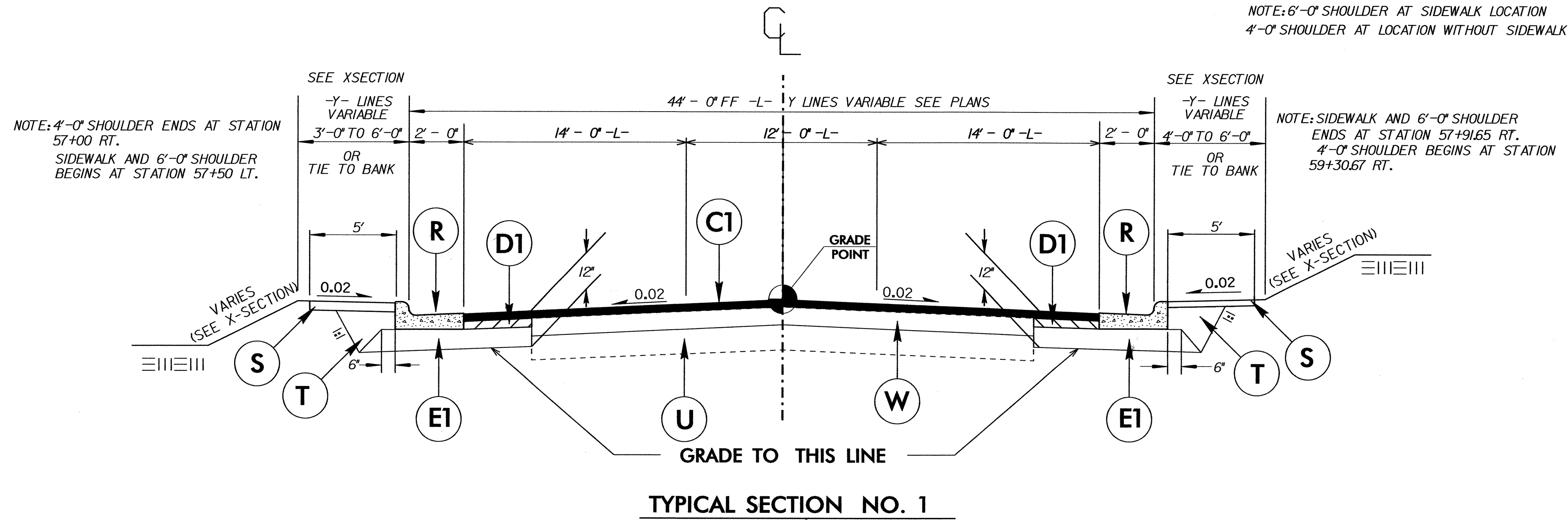
Point #	Chain	Station	Northing (Y)	Easting (X)
L		4+00.00	672133.3044	912455.7681
L		5+00.00	672041.2772	912494.8960
L		6+00.00	671949.2500	912534.0240
L		7+00.00	671857.2228	912573.1519
L		8+00.00	671765.1956	912612.2798
L		9+00.00	671673.1684	912651.4077
L		10+00.00	671581.1412	912690.5356
L		11+00.00	671493.8678	912738.9800
L		12+00.00	671418.5737	912804.5109
L		13+00.00	671358.5496	912884.2643
L		14+00.00	671316.4188	912974.7547
L		15+00.00	671285.4680	913069.9086
L		16+00.00	671255.3363	913165.1955
L		17+00.00	671230.4280	913262.0200
L		18+00.00	671212.7637	913360.4242
L		19+00.00	671200.8406	913459.7081
L		20+00.00	671189.3469	913559.0454
L		21+00.00	671177.8531	913658.3827
L		22+00.00	671166.3594	913757.7199
L		23+00.00	671158.6471	913857.3964
L		24+00.00	671158.7779	913957.3706
L		25+00.00	671166.7523	914057.0263
L		26+00.00	671182.3484	914155.7812
L		27+00.00	671204.2045	914253.3476
L		28+00.00	671231.9762	914349.3977
L		29+00.00	671264.0932	914444.0987
L		30+00.00	671296.4468	914538.7202
L		31+00.00	671328.8004	914633.3418
L		32+00.00	671361.1540	914727.9634
L		33+00.00	671393.5076	914822.5850
L		34+00.00	671425.8612	914917.2066
L		35+00.00	671458.2148	915011.8282
L		36+00.00	671490.5684	915106.4498
L		37+00.00	671522.9220	915201.0714
L		38+00.00	671555.2756	915295.6929
L		39+00.00	671587.7507	915390.2726
L		40+00.00	671621.8389	915484.8281
L		41+00.00	671656.8195	915577.9625
L		42+00.00	671690.2387	915672.2116
L		43+00.00	671722.6144	915766.8257
L		44+00.00	671754.9731	915861.4455
L		45+00.00	671787.3318	915956.0653
L		46+00.00	671819.6905	916050.6852
L		47+00.00	671850.7253	916145.7343
L		48+00.00	671874.5529	916242.8252
L		49+00.00	671890.3377	916341.5431
L		50+00.00	671897.9734	916441.2230
L		51+00.00	671898.1042	916541.2101
L		52+00.00	671896.8147	916641.2018
L		53+00.00	671895.5251	916741.1935
L		54+00.00	671894.2355	916841.1851
L		55+00.00	671892.9460	916941.1768
L		56+00.00	671891.6564	917041.1685
L		57+00.00	671890.3668	917141.1602
L		58+00.00	671889.0773	917241.1519
L		59+00.00	671887.7877	917341.1436
L		60+00.00	671886.4981	917441.1353
L		61+00.00	671885.2086	917541.1269
L		62+00.00	671887.7746	917641.0629
L		63+00.00	671899.0253	917740.3961
L		64+00.00	671918.8907	917838.3707
L		65+00.00	671947.2195	917934.2411
L		66+00.00	671983.7962	918027.2776
L		67+00.00	672025.3634	918118.2288
L		68+00.00	672063.9097	918210.4414
L		69+00.00	672089.1674	918307.1043
L		70+00.00	672099.8599	918406.4388
L		71+00.00	672095.7524	918506.2627
L		72+00.00	672076.9351	918604.3829
L		73+00.00	672043.8215	918698.6440
L		74+00.00	671997.1388	918786.9752
L		75+00.00	671942.5043	918870.7304
L		76+00.00	671887.7693	918954.4208
L		77+00.00	671833.0344	919038.1112
L		78+00.00	671778.2994	919121.8016
L		78+70.00	671,739.9849	919,180.3849
YA		10+00.00	671242.8564	913210.0046
YA		11+00.00	671166.0467	913145.9713
YA		12+00.00	671089.2370	913081.9379
YA		13+00.00	671012.4272	913017.9046
Y		10+00.00	671700.3153	915701.6212
Y		11+00.00	671608.4303	915740.8093
Y		11+21.95	671588.7070	915750.4400
Y1		10+00.00	671808.0784	916016.7304
Y1		11+00.00	671729.7343	916075.3880
Y1		11+28.49	671713.9510	916099.1110
Y2		5+00.00	672301.9710	918595.5400
Y2		6+00.00	672237.9429	918518.7636
Y2		7+00.00	672155.1421	918467.8086
Y2		7+55.97	672099.2818	918464.4180

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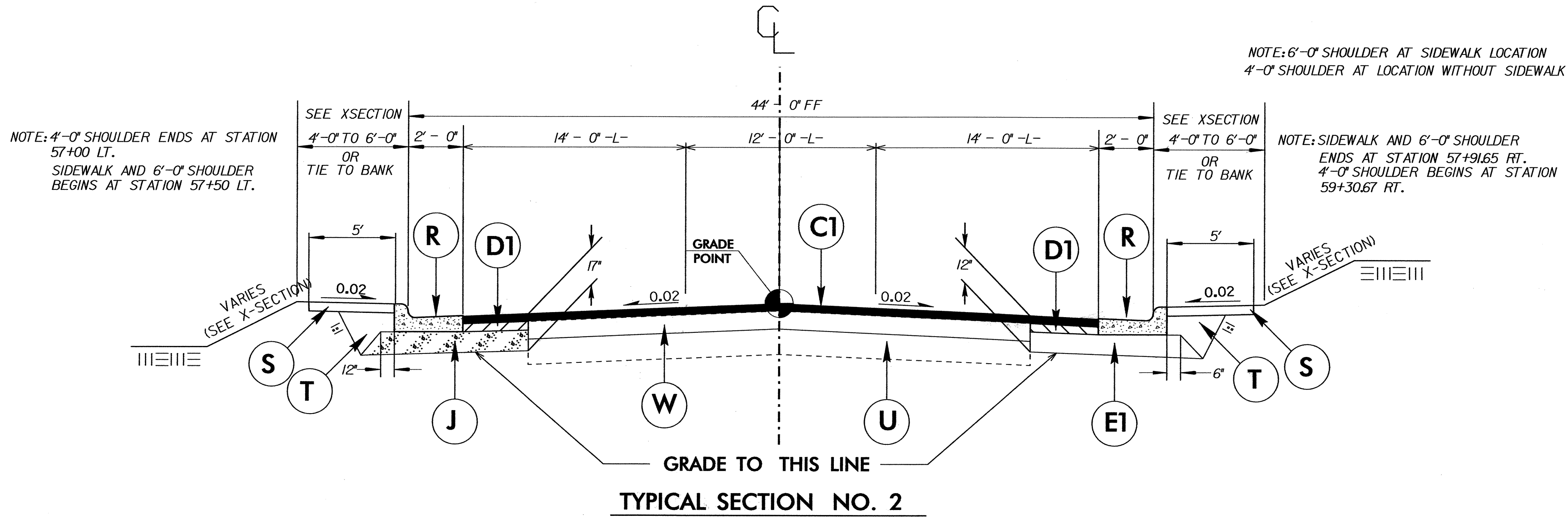
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

PROJECT REFERENCE NO. 37831	SHEET NO. 2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER



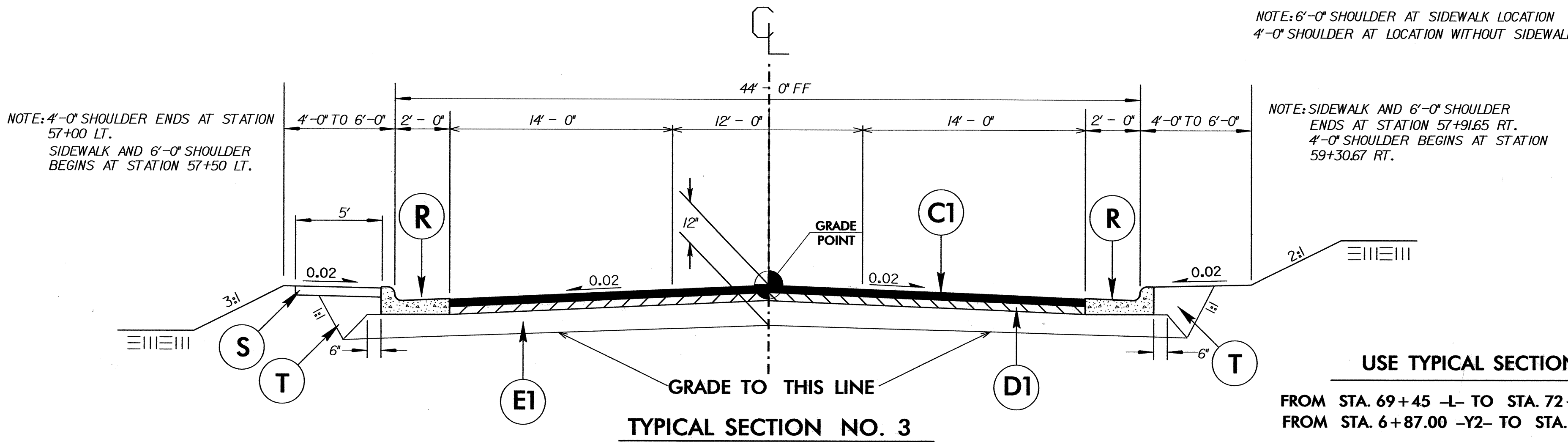
**USE TYPICAL SECTION NO. 1**

- FROM STA. 16+30 -L- TO STA. 40+50 -L-
- FROM STA. 68+00.00 -L- TO STA. 69+45.00 -L-
- FROM STA. 72+06.00 -L- TO STA. 75+40.65 -L-
- FROM STA. 10+20 -Y- TO STA. 11+04.03 -Y-
- FROM STA. 10+20.02 -Y1- TO STA. 11+23.42 -Y1-
- FROM STA. 6+76.65 -Y2- TO STA. 6+87.00 -Y2-
- FROM STA. 10+64 -DRIVE- TO STA. 11+29.42 -DRIVE-



**USE TYPICAL SECTION NO. 2**

- FROM STA. 40+50 -L- TO STA. 68+00 -L-



**USE TYPICAL SECTION NO. 3**

- FROM STA. 69+45 -L- TO STA. 72+06 -L-
- FROM STA. 6+87.00 -Y2- TO STA. 7+35.97 -Y2-

**PAVEMENT SCHEDULE**

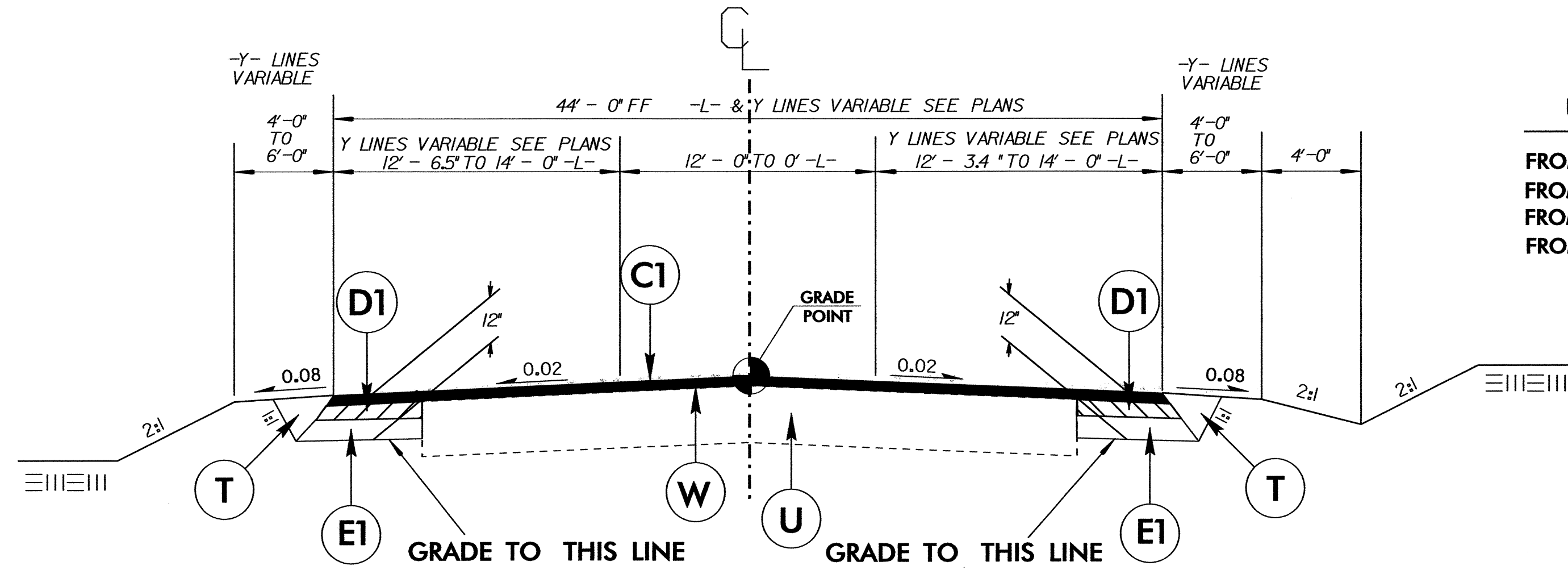
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1 1/2" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/4" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD. IN
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
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R	2'-6" CONCRETE CURB AND GUTTER.
S	4" CONCRETE SIDEWALK.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL SHEET No. 2-C)

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

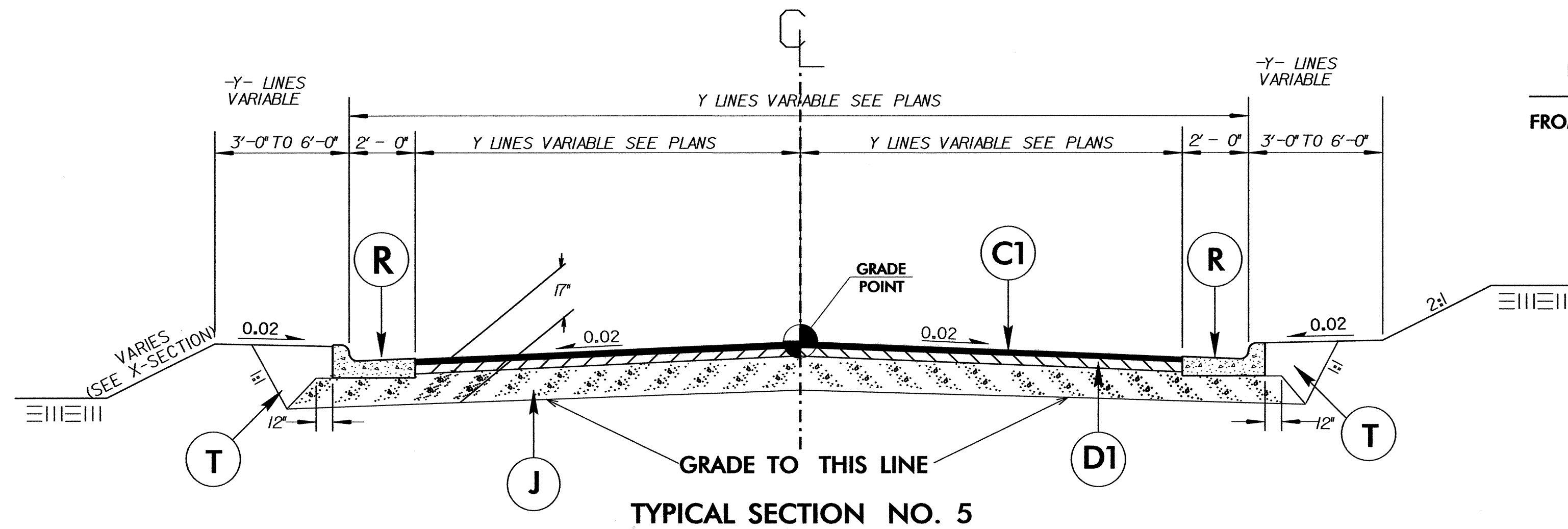
PROJECT REFERENCE NO. 37831	SHEET NO. 2-A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER



**USE TYPICAL SECTION NO. 4**

FROM STA. 12+11.76 -L- TO STA. 16+30 -L-  
 FROM STA. 11+32.57 -YA- TO STA. 11+48.63 -YA-  
 FROM STA. 5+00.00 -Y2- TO STA. 6+76.65 -Y2-  
 FROM STA. 11+36.88 -DRIVEA- TO STA. 11+56.88 -DRIVEA-

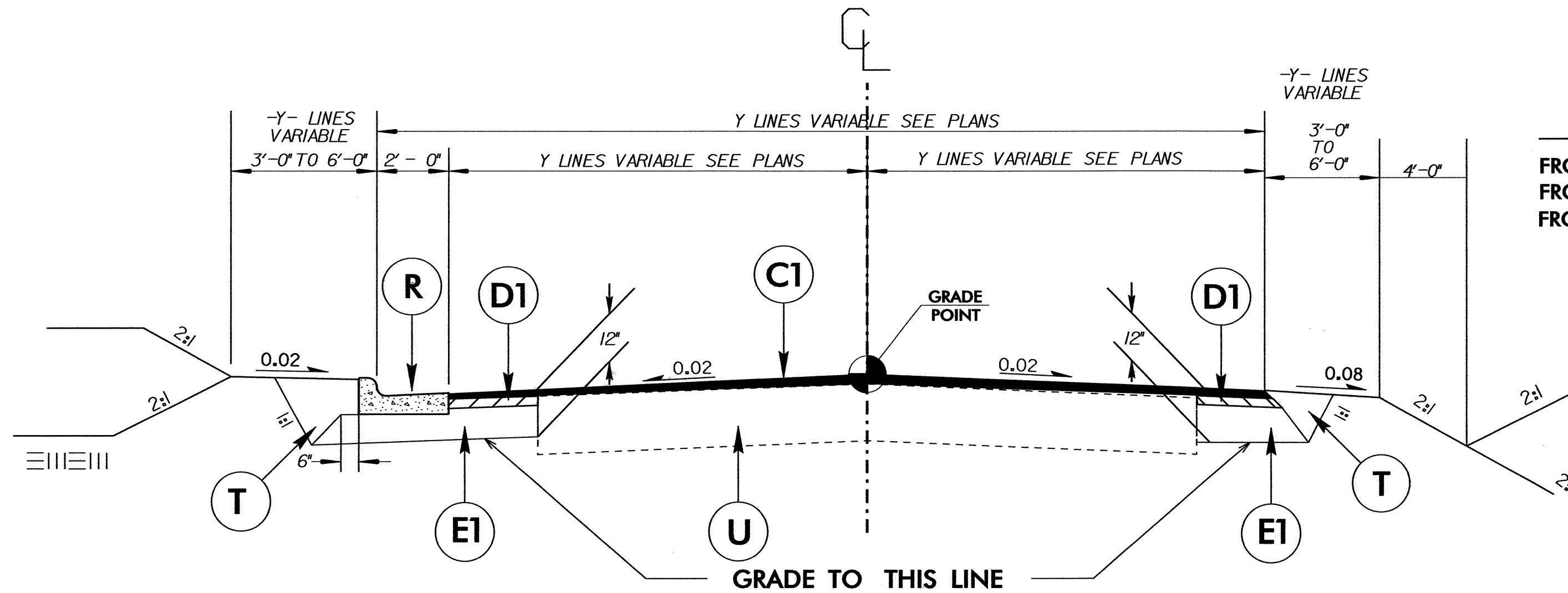
**TYPICAL SECTION NO. 4**



**USE TYPICAL SECTION NO. 5**

FROM STA. 10+20 -DRIVE2- TO STA. 10+32 RT. AND 10+72.52 LT -DRIVE2-

**TYPICAL SECTION NO. 5**



**USE TYPICAL SECTION NO. 6**

FROM STA. 10+40 -DRIVE3- TO STA. 10+80 -DRIVE3-  
 FROM STA. 11+56.88 -DRIVEA- TO STA. 11+94.93 -DRIVEA-  
 FROM STA. 10+22 -YA- TO STA. 11+32.57 -YA-

**TYPICAL SECTION NO. 6**

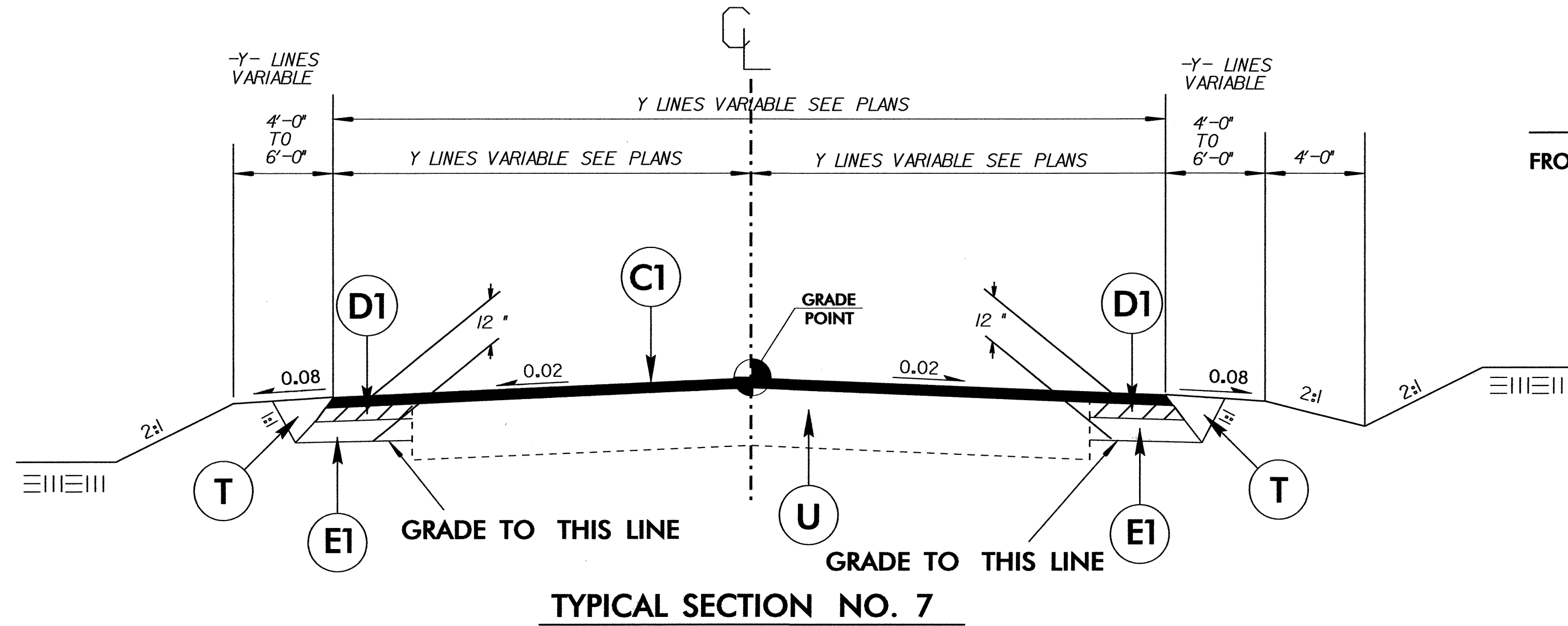
**PAVEMENT SCHEDULE**

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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S	4" CONCRETE SIDEWALK.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL SHEET No. 2-C)

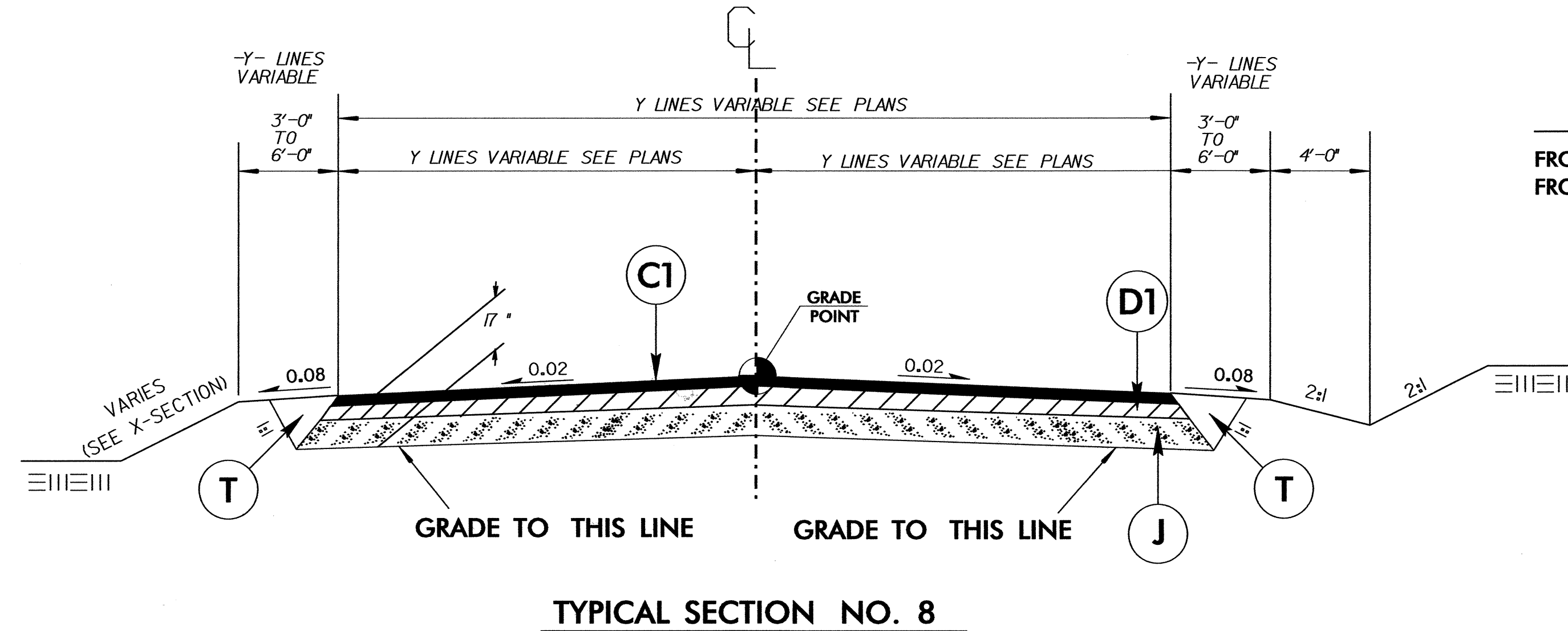
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NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

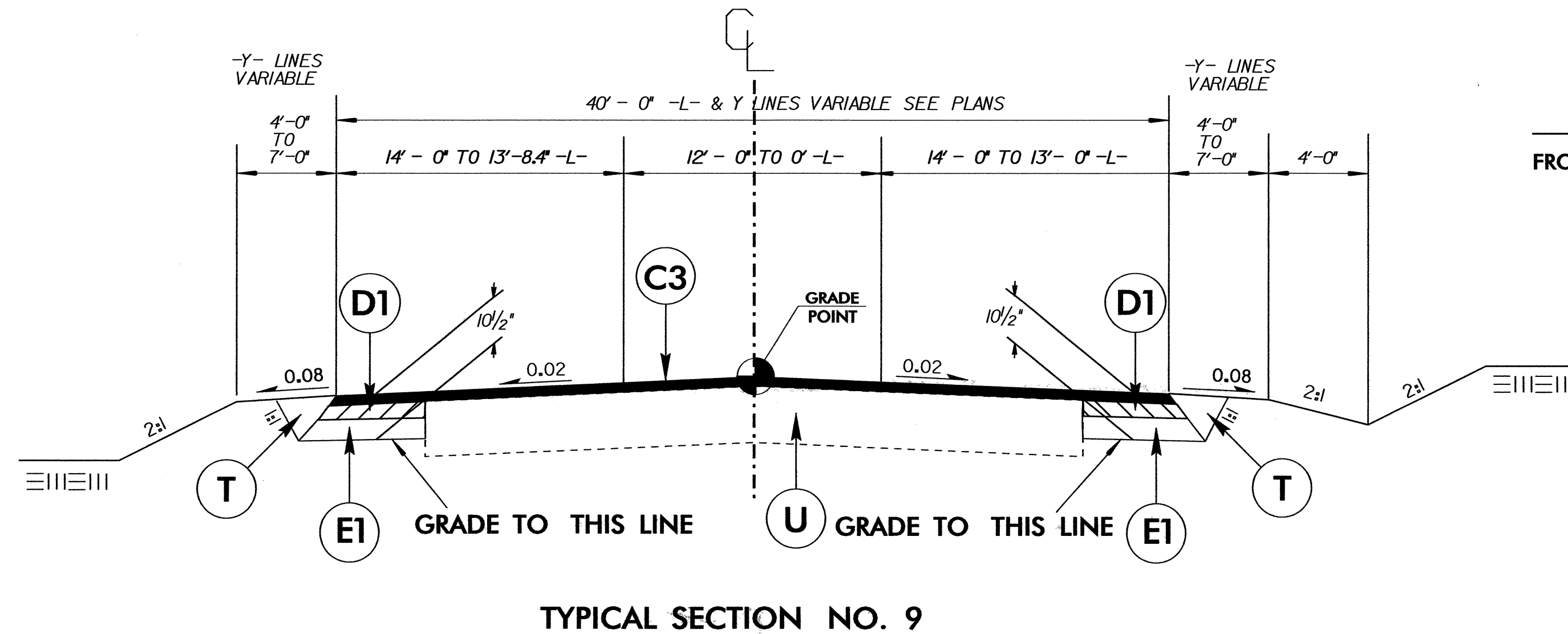
PROJECT REFERENCE NO. 37831	SHEET NO. 2-B
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER



**USE TYPICAL SECTION NO. 7**  
FROM STA. 11+70 -DRIVE2- TO 12+50 -DRIVE2-



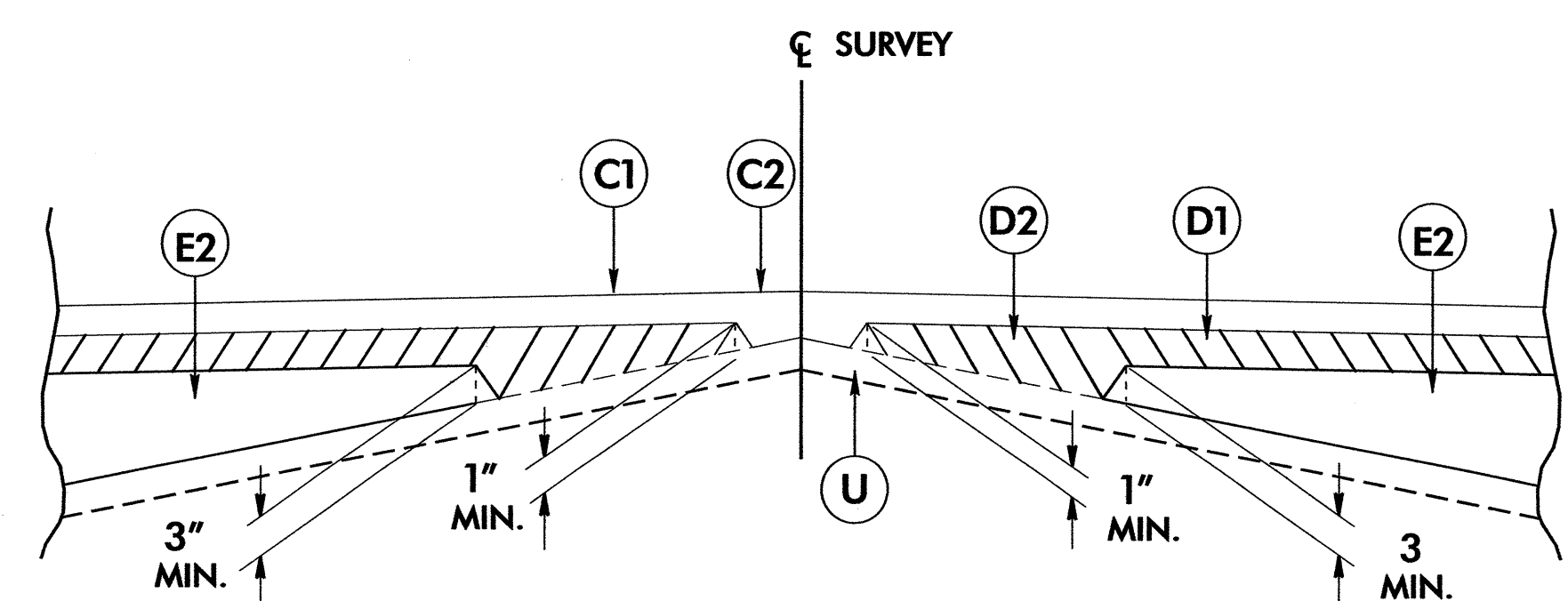
**USE TYPICAL SECTION NO. 8**  
FROM STA. 10+32 RT -DRIVE2- AND STA. 10+72.52 LT TO 11+70 -DRIVE2-  
FROM STA. 10+80 -DRIVE3- TO STA. 11+66.87 -DRIVE3-



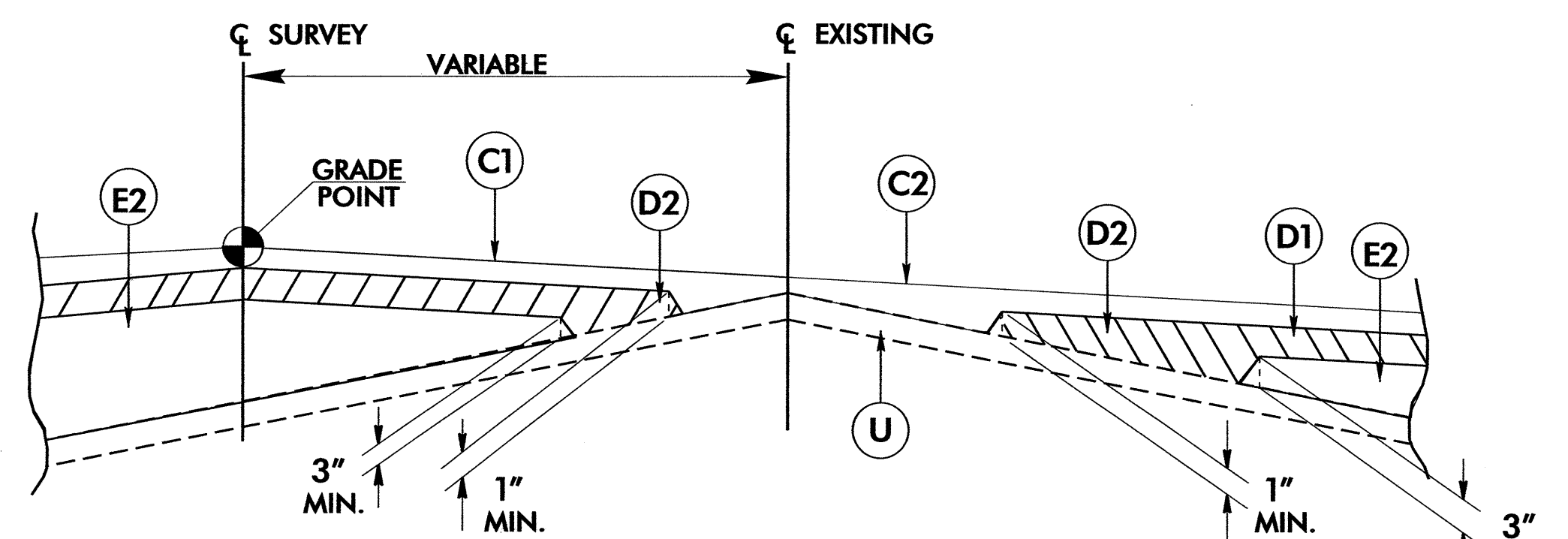
**USE TYPICAL SECTION NO. 9**  
FROM STA. 75+40.65 -L- TO STA. 78+70.00 -L-

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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W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL SHEET NO. 2-C)

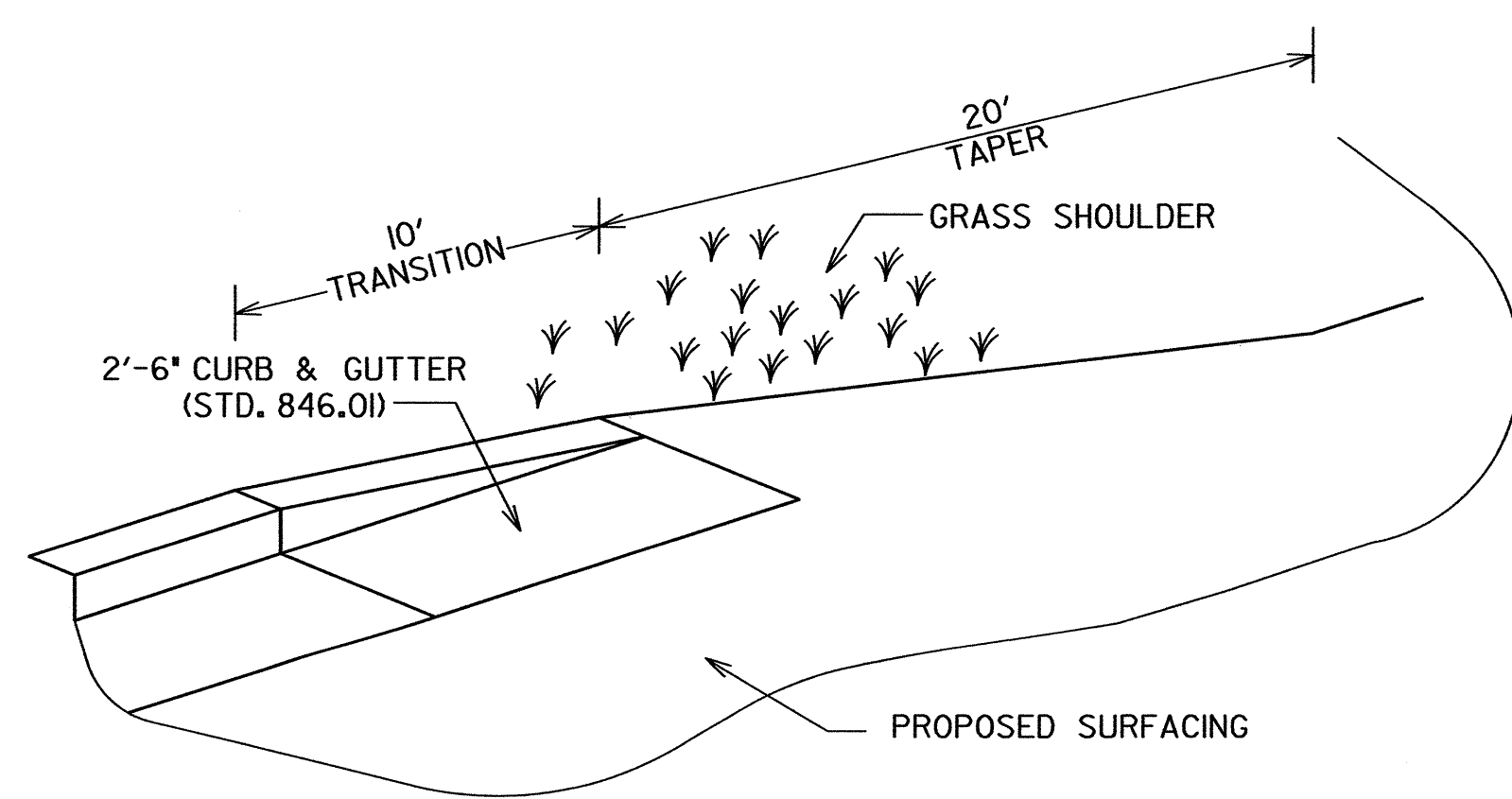
PROJECT REFERENCE NO. 37831	SHEET NO. 2-C
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER



Detail Showing Method of Wedging



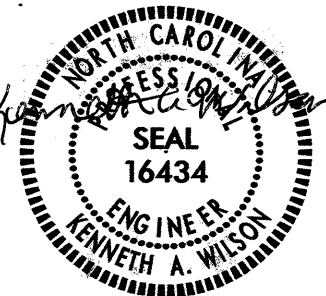
Detail Showing Method Of Wedging



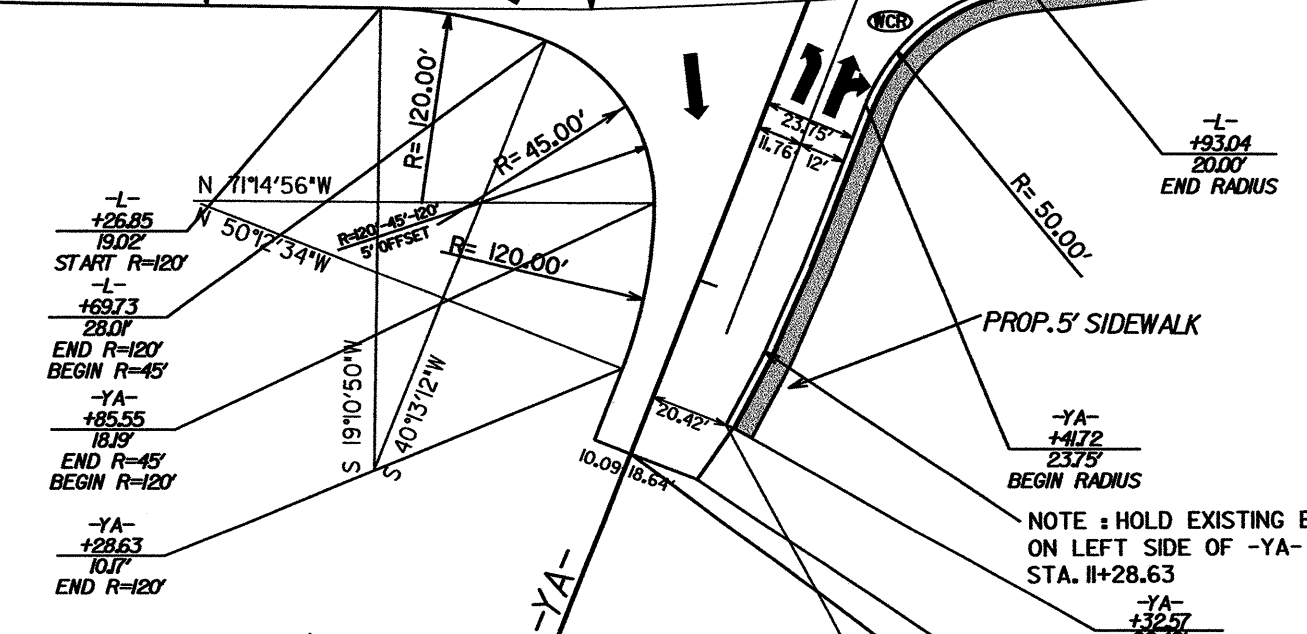
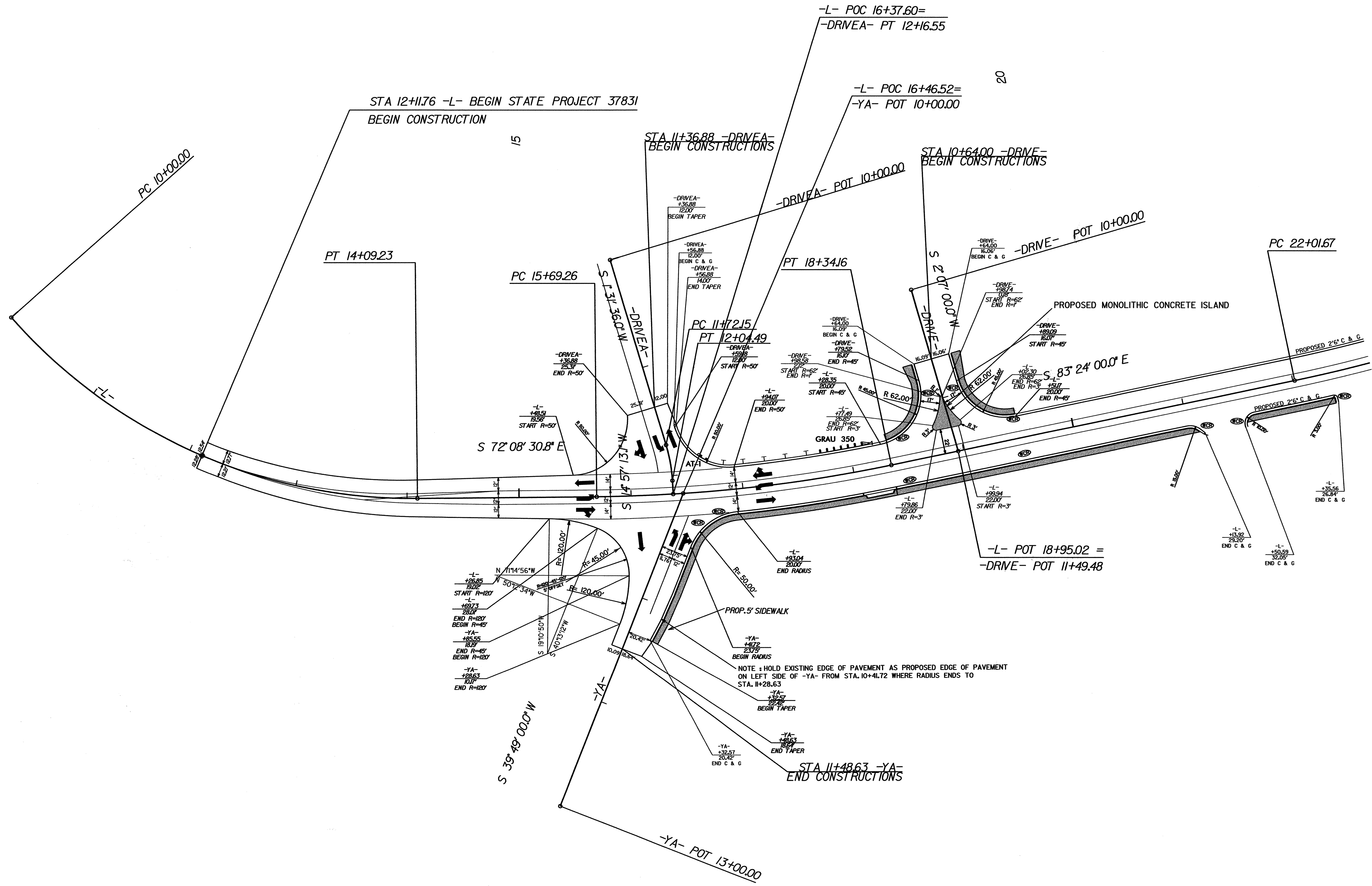
DETAIL FOR TRANSITION AT END OF 2'-6"  
 CONCRETE CURB & GUTTER

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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T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL SHEET No. 2-C)



PROJECT REFERENCE NO. 37831	SHEET NO. 2-D
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	
	
1-10-08	

# INTERSECTION DETAIL



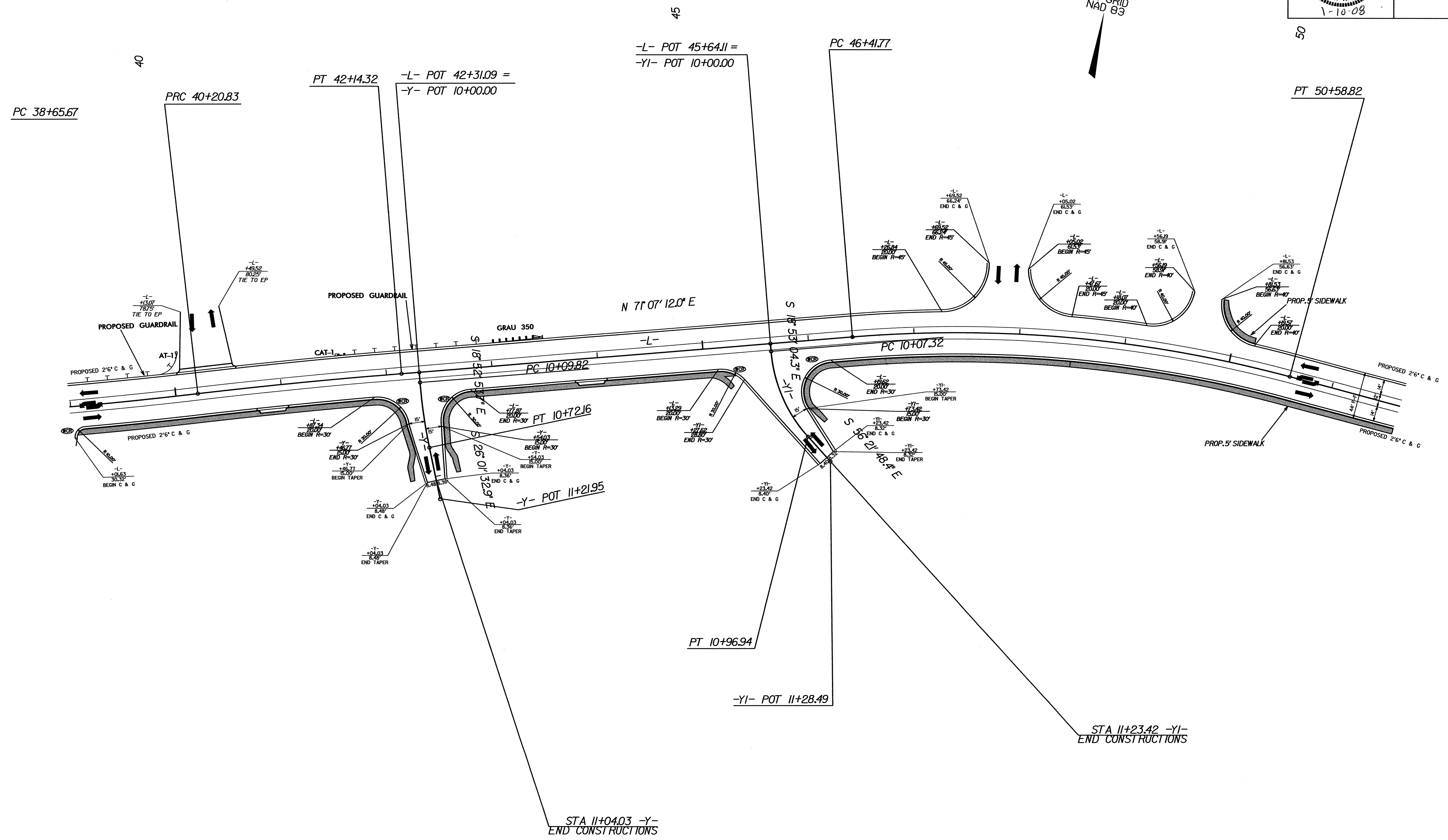
NOTE: HOLD EXISTING EDGE OF PAVEMENT AS PROPOSED EDGE OF PAVEMENT ON LEFT SIDE OF -YA- FROM STA. 10+41.72 WHERE RADIUS ENDS TO STA. 11+28.63

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# INTERSECTION DETAIL

PROJECT REFERENCE NO. 37831	SHEET NO. 2-E
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	



50

40

45

N 71°07'12.0\"/>

S 18°53'04.3\"/>

S 16°21'48.4\"/>

STA 11+04.03 -Y-  
END CONSTRUCTIONS

STA 11+23.42 -Y-  
END CONSTRUCTIONS

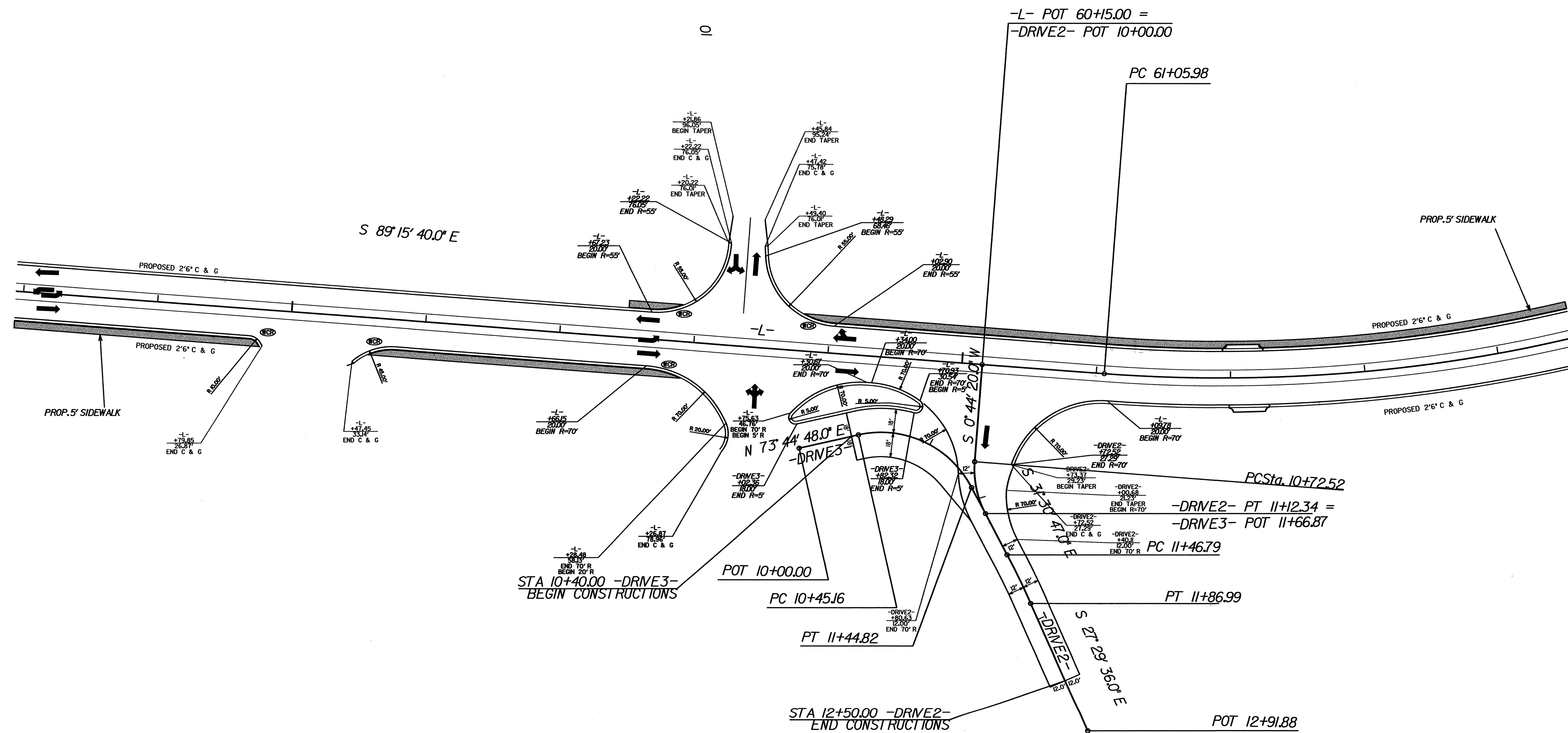
# INTERSECTION DETAIL



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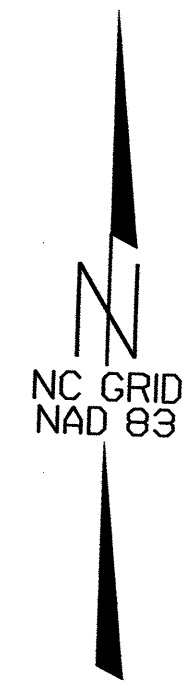
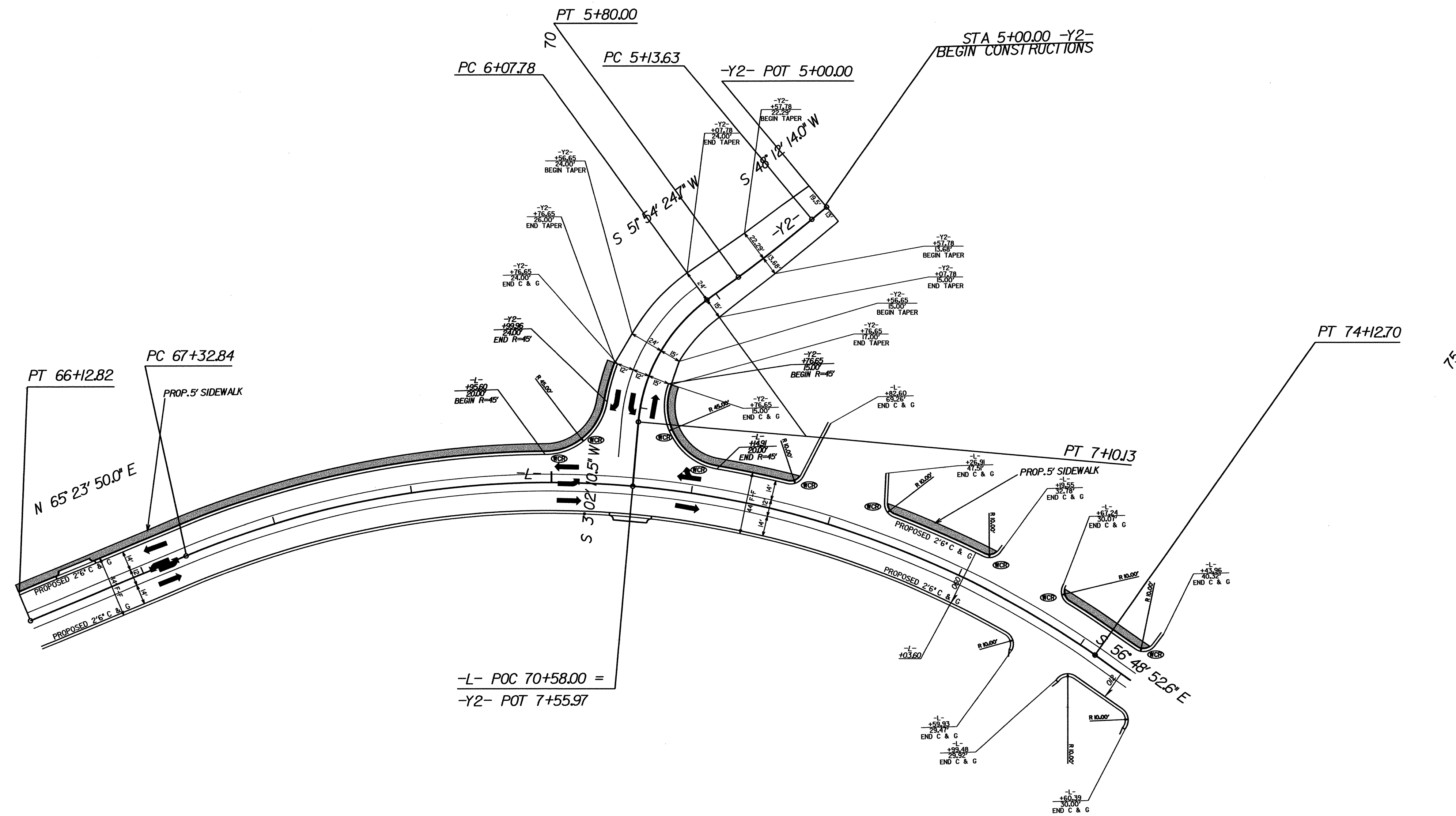
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# INTERSECTION DETAIL

PROJECT REFERENCE NO. 37831	SHEET NO. 2-G
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	

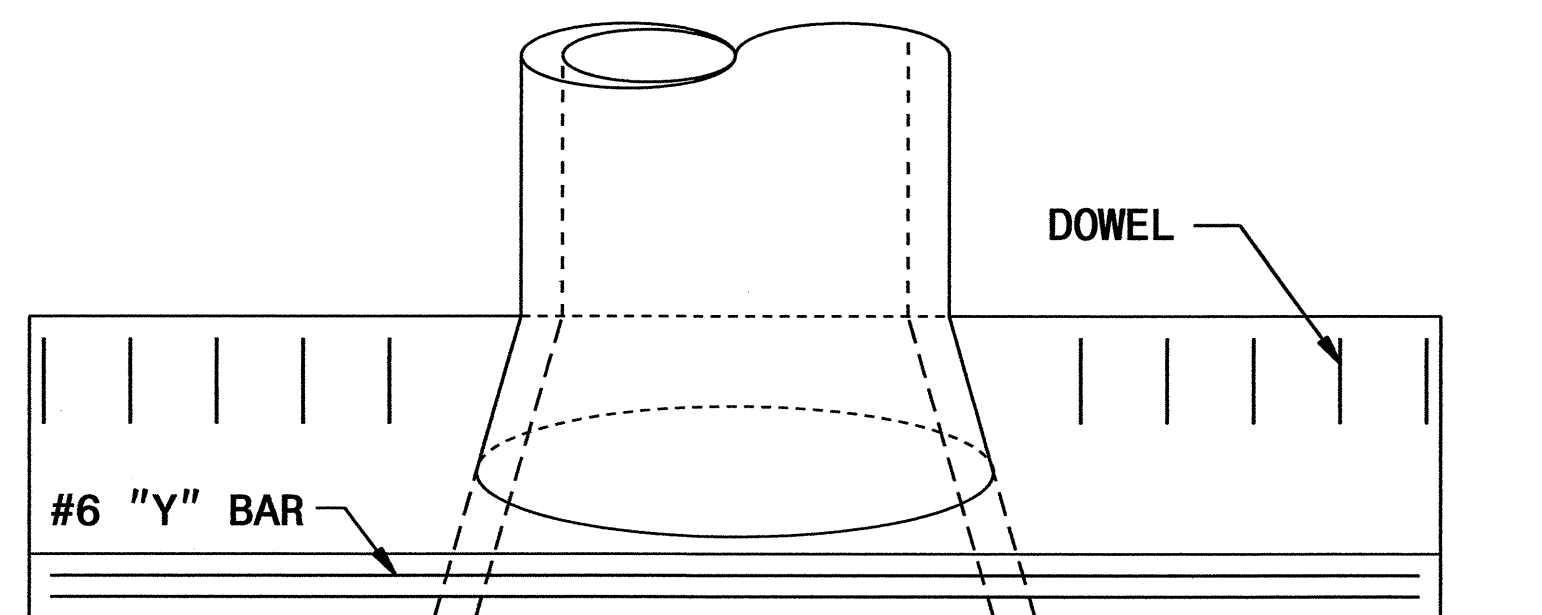


STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

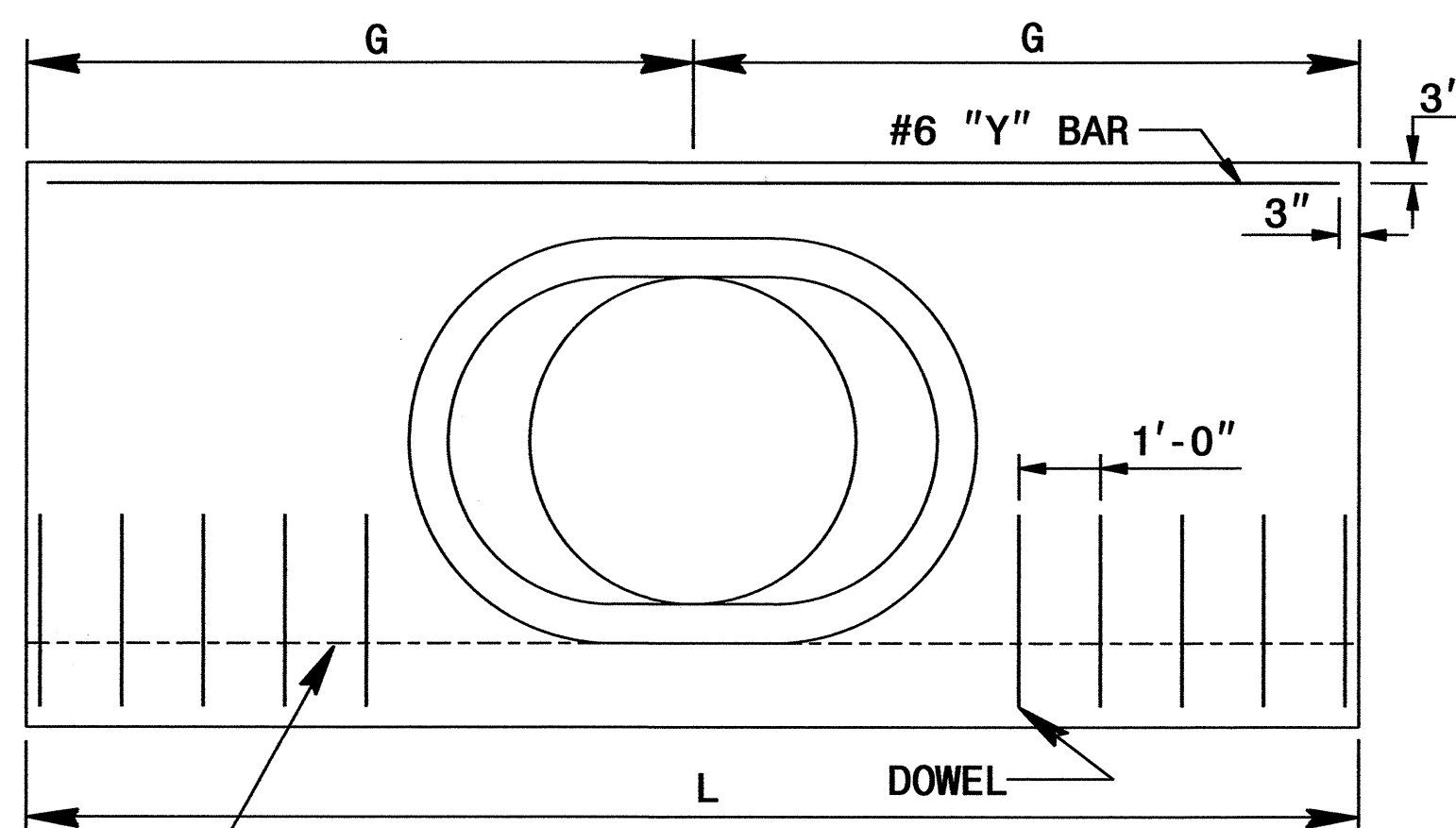
ENGLISH DETAIL DRAWING FOR  
**CONCRETE ENDWALL FOR TAPERED INLET**

SHEET 1 OF 2

**ENDTAP**

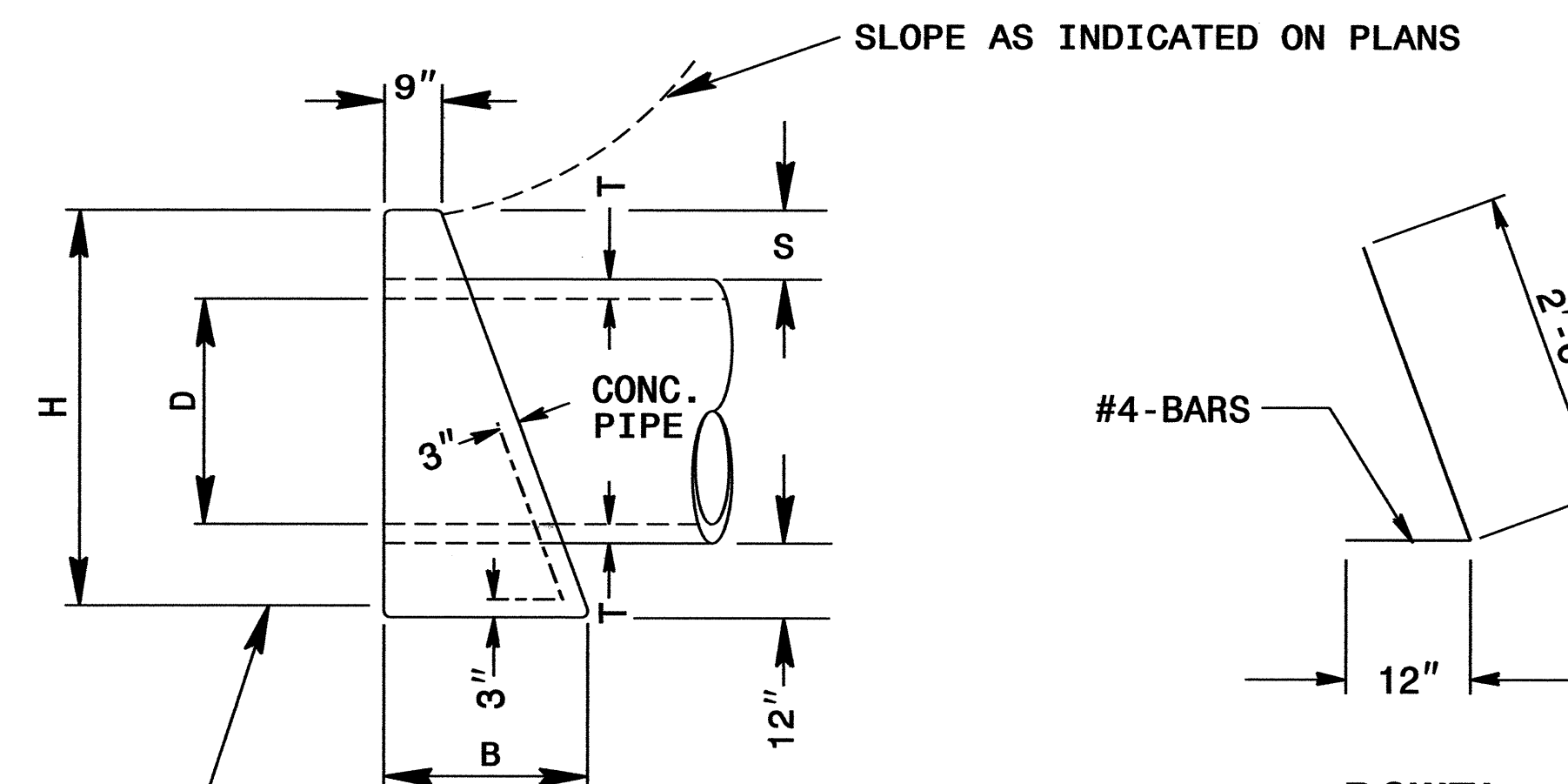


**PLAN**



**ELEVATION**

DIMENSIONS AND CONCRETE QUANTITIES							
CONCRETE PIPE	COMMON DIMENSIONS						
	D	H	B	L	G	T	S
24"x48"	4'-6"	2'-2"	9'-8"	4'-10"	3"	11½"	2.3
30"x54"	5'-1"	2'-6"	11'-4"	5'-8"	3½"	11½"	3.5
36"x60"	5'-8"	2'-10"	13'-0"	6'-6"	4"	11½"	4.9
42"x66"	6'-4"	3'-2"	14'-8"	7'-4"	5¼"	11½"	6.7
48"x72"	6'-11"	3'-6"	16'-4"	8'-2"	5¾"	11½"	9.2



**END ELEVATION**

**DOWEL  
BAR - "X"**

FOOTING  
(IF CONST. JOINT IS USED)

**GENERAL NOTES:**

- ALL EXTERIOR CORNERS SHALL BE CHAMFERED 1" OR HAVE A RADIUS OF 1".
- THE CONTRACTOR WILL BE REQUIRED TO PLACE 2 #6 "Y" BARS IN THE TOP OF ALL ENDWALL FOR PIPE CULVERTS 42" AND OVER WITH A MINIMUM OF 3" COVER AND A LENGTH OF 6" LESS THAN ENDWALL LENGTH. FORMS ARE TO BE USED FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
- WALL THICKNESS (T) SHOWN IS NOT TO BE INTERPRETED TO MEAN THE THICKNESS ACCEPTABLE, BUT IS USED IN COMPUTING ENDWALL QUANTITIES.
- WHEN THE CONTRACTOR ELECTS TO USE A CONSTRUCTION JOINT AT THE BOTTOM OF THE PIPE, BAR X DOWELS SHALL BE PLACED IN THE BASE AS SHOWN ON PLANS. SPACING OF BARS IS TO BE APPROXIMATELY 12" CENTERS UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- WHEN THE CONTRACTOR ELECTS TO USE A CONSTRUCTION JOINT AT THE BOTTOM OF THE PIPE AND POUR THE BASE SEPARATELY, THE POUR SHALL BE LEFT ROUGH.
- CLASS "B" CONCRETE SHALL BE USED.

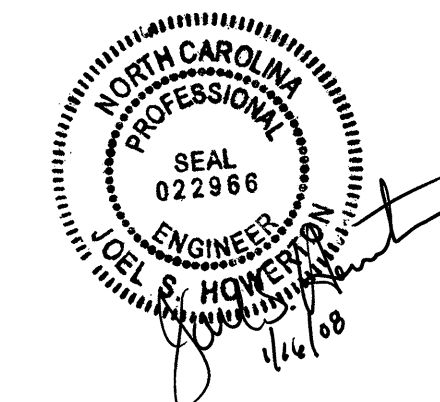
DOWELS IN ENDWALL WITH REINFORCED CONCRETE PIPE											
LOC.	PIPE DIA.	SINGLE PIPE									
		24"x48"		30"x54"		36"x60"		42"x66"		48"x72"	
		"X"	Y*	"X"	Y*	"X"	Y*	"X"	Y*	"X"	Y*
G	QTY.	3		4		4		5		5	
G	QTY.	3		4		4		5	2	5	2
TOT.	LBS.	14		19		19		64		69	

ENGLISH DETAIL DRAWING FOR  
**CONCRETE ENDWALL FOR TAPERED INLET**

SHEET 1 OF 2

**ENDTAP**

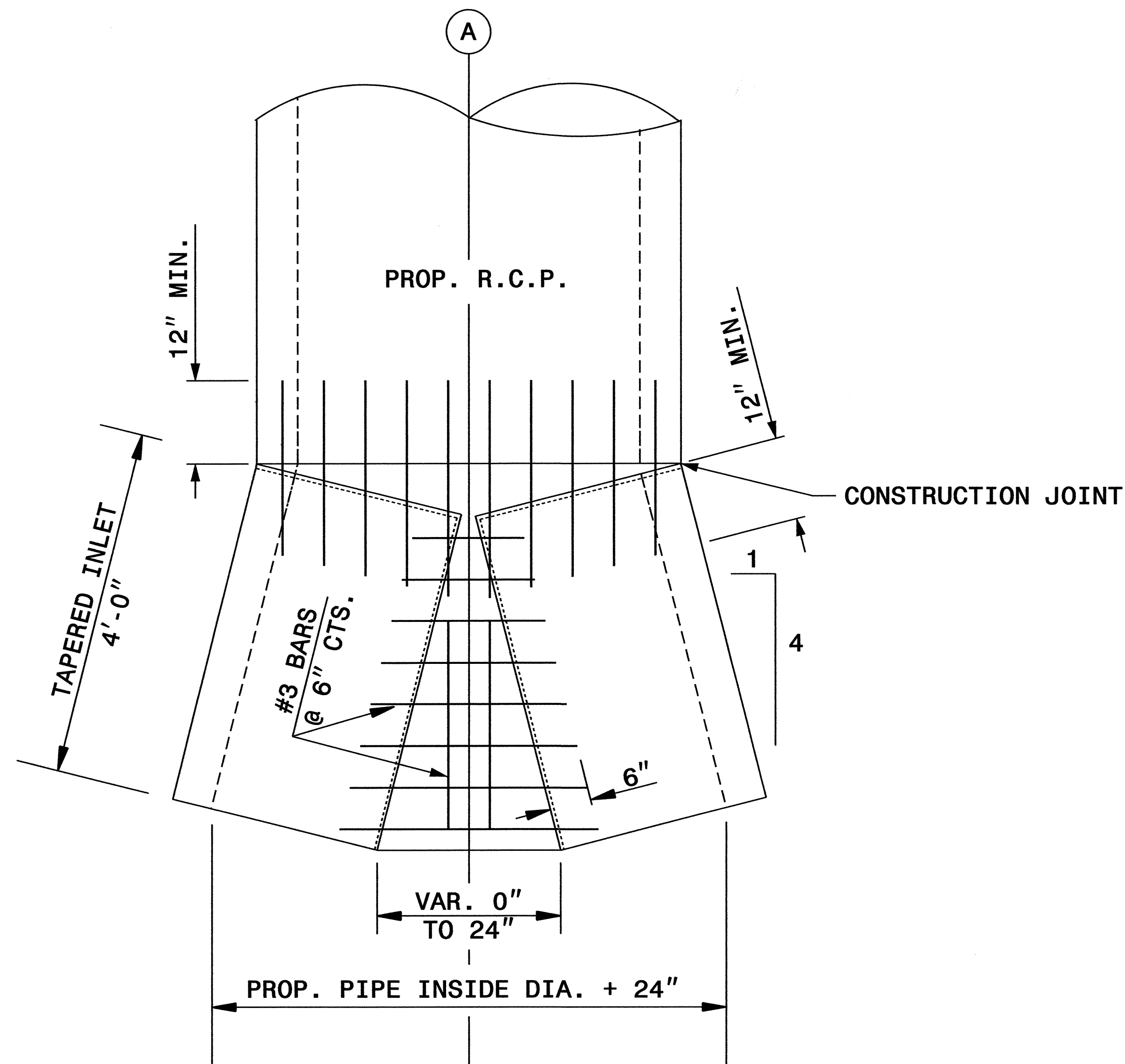
STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.



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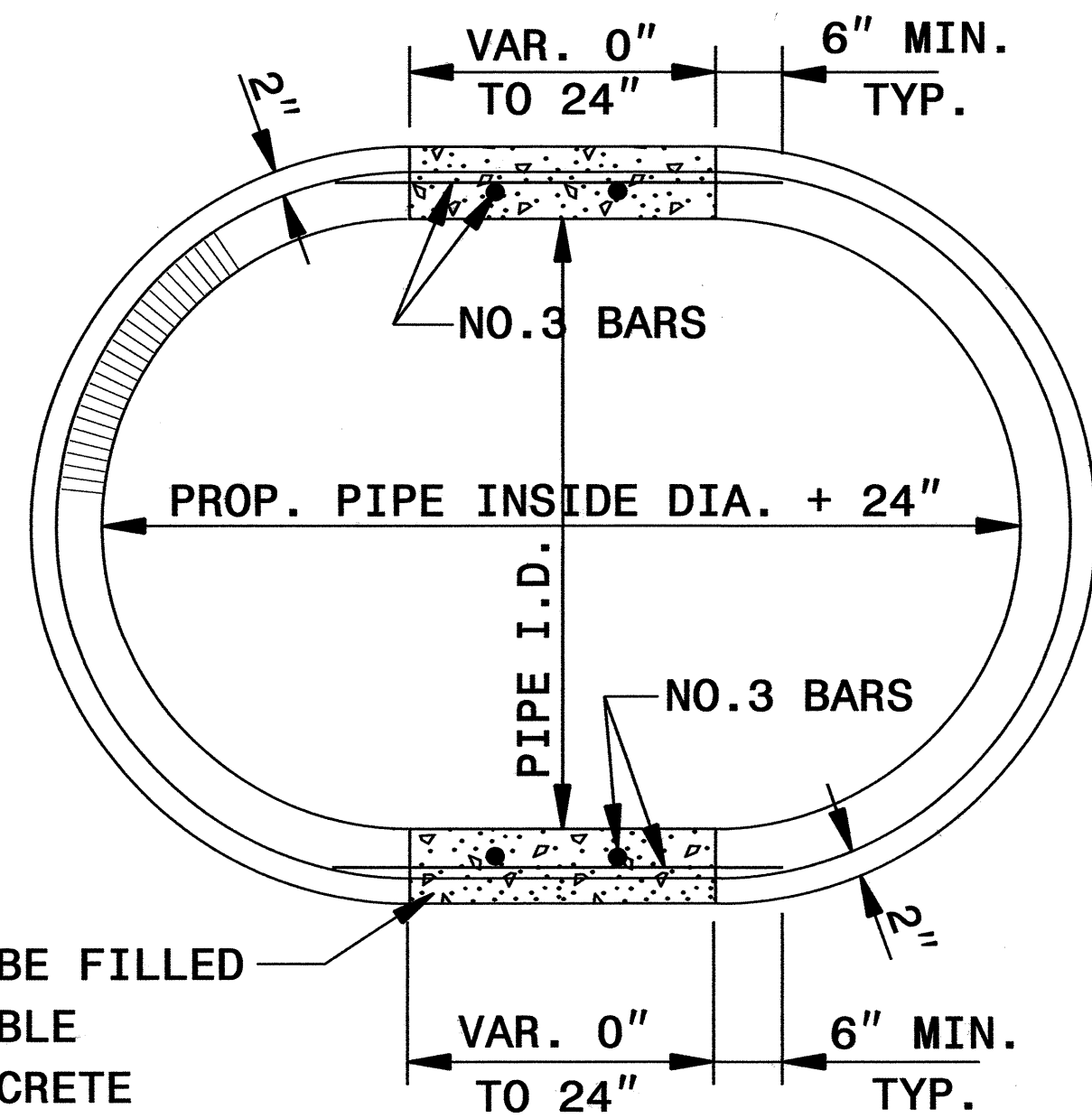
**SEE PLATE FOR TITLE**

ORIGINAL BY: T. SPELL DATE: 10-5-98  
MODIFIED BY: E.E. WARD DATE: 10-11-04  
CHECKED BY: DATE:  
FILE SPEC.: usr/details/stand/endwalltaper.dgn



**PLAN**

SHOWING PLACEMENT OF REINFORCING STEEL

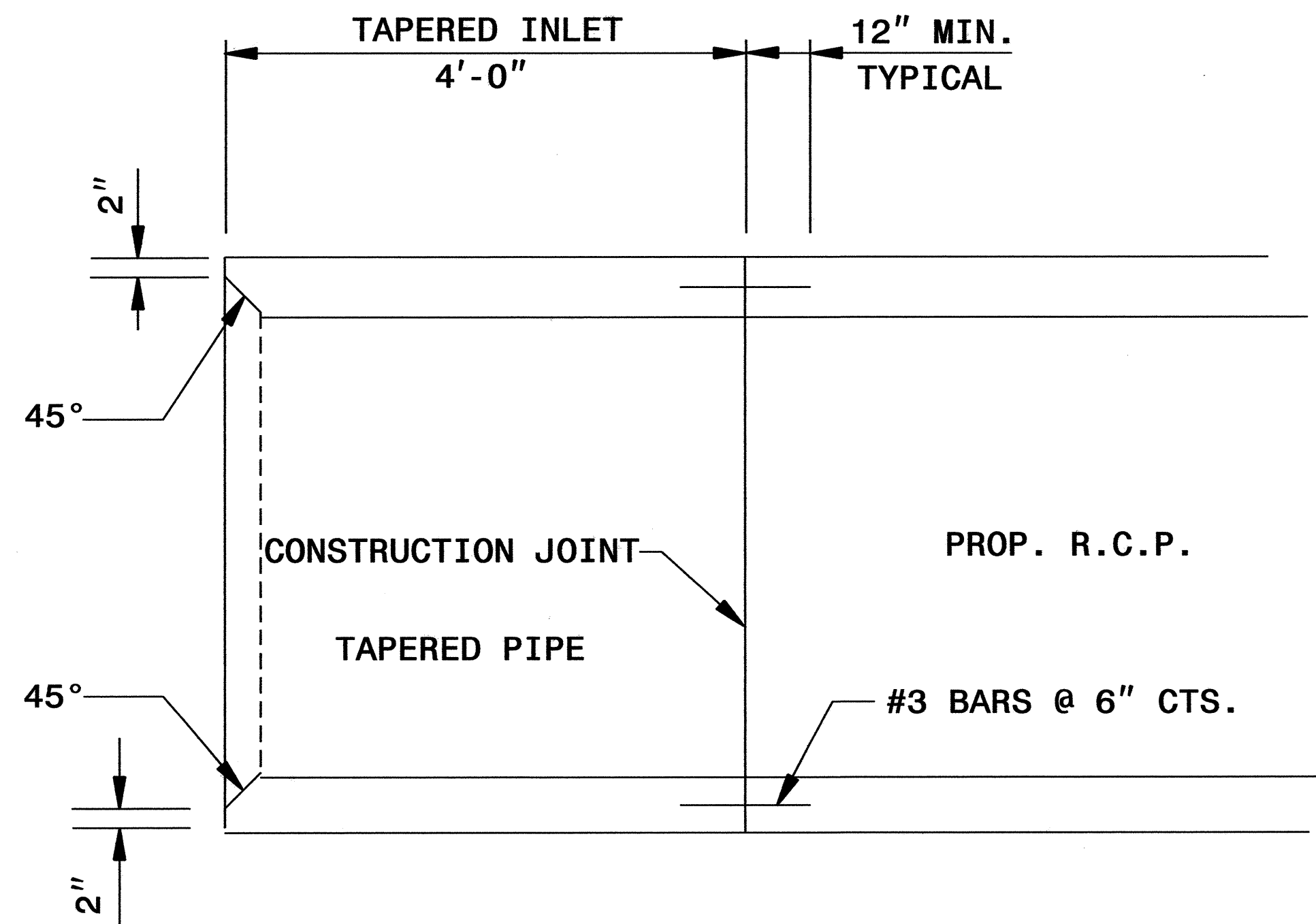


VOIDS SHALL BE FILLED WITH COMPARABLE STRENGTH CONCRETE

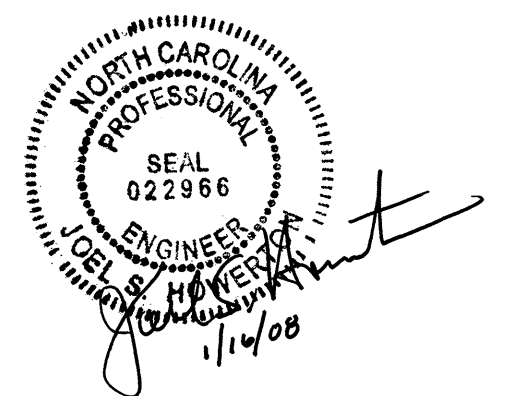
**END VIEW**

**GENERAL NOTES:**

- \* CONSTRUCT SPECIAL REINFORCED CONCRETE TAPERED INLET IN ACCORDANCE WITH DETAIL AND SECTION 310 OF THE STANDARD ROADWAY SPECIFICATIONS.
- \* CONSTRUCT THE TAPERED INLET FROM CLASS III REINFORCED CONCRETE PIPE.
- \* EMBED ALL REINFORCING STEEL UNLESS SHOWN OTHERWISE.
- \* CONSTRUCT THE TAPERED INLET AS DIRECTED BY THE ENGINEER.



**SECTION A-A**

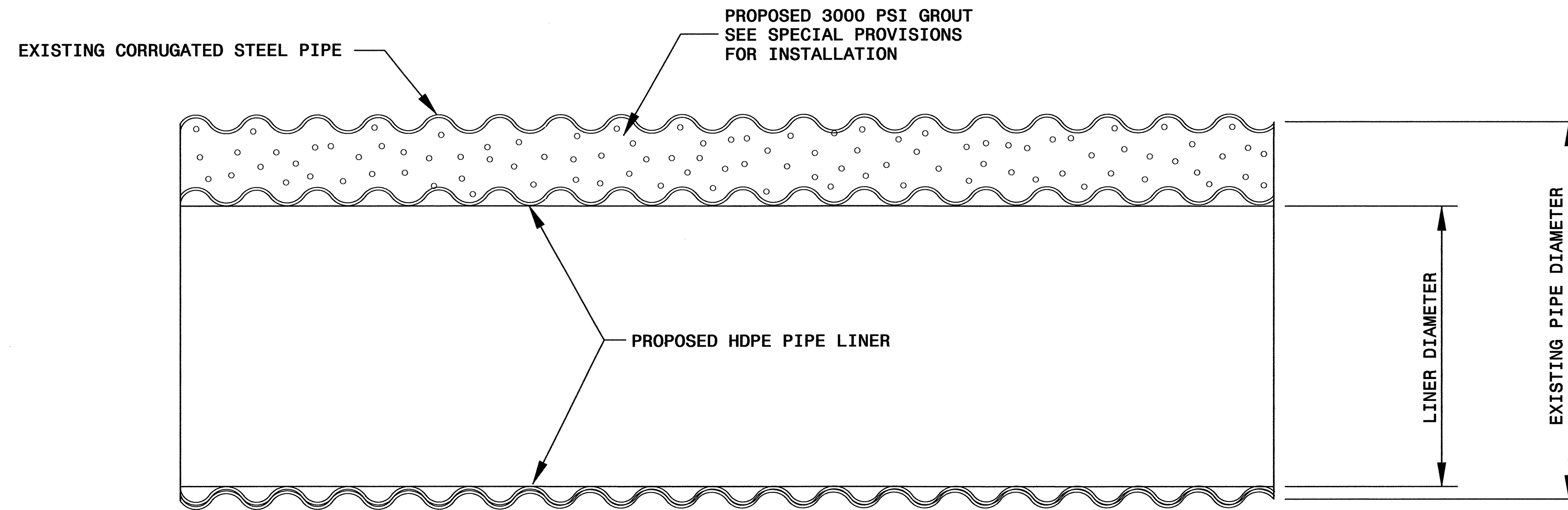


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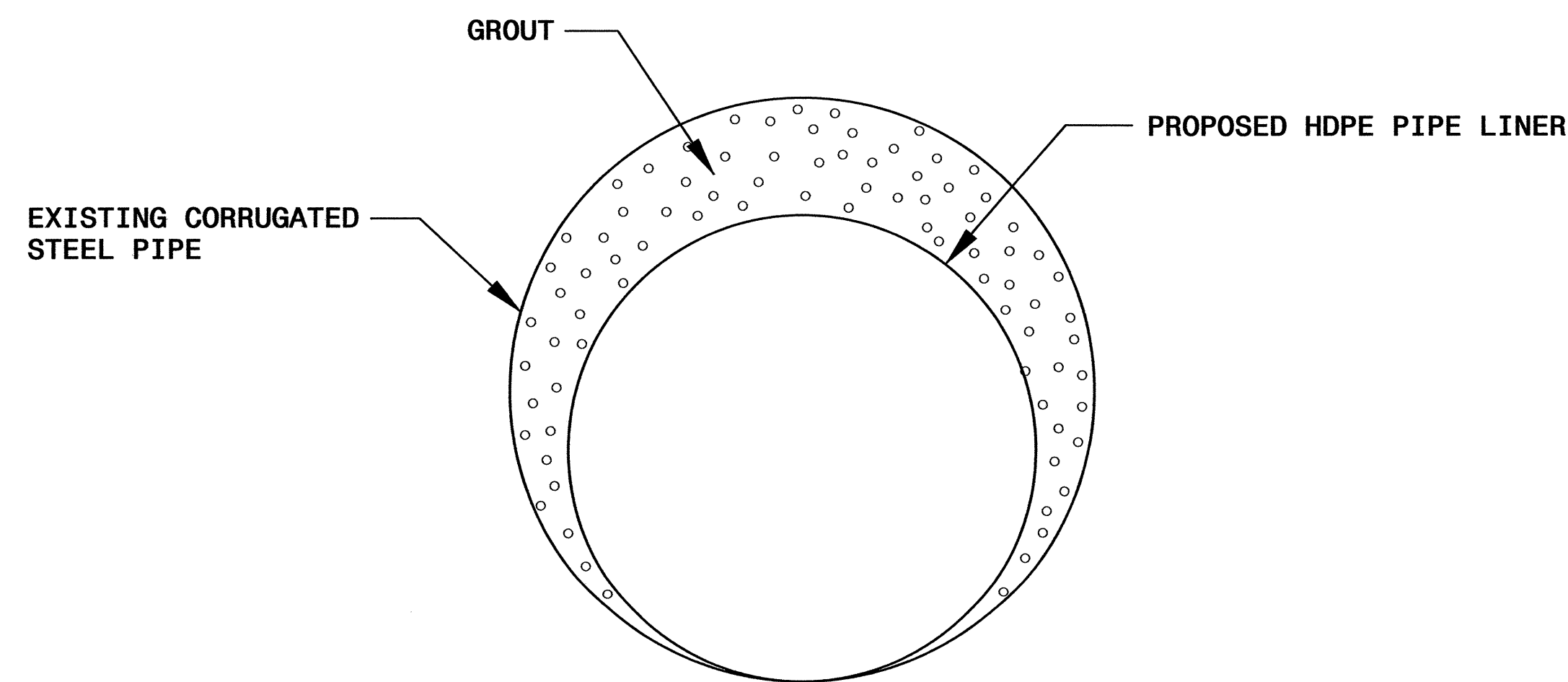
**DETAIL OF  
REINFORCED TAPERED INLET  
24" THRU 72" DIAMETER**

ORIGINAL BY: ERIC E. WARD DATE: 11-26-97  
 MODIFIED BY: DATE:  
 CHECKED BY: DATE:  
 FILE SPEC.: ds172:/usr/details/metric/stand/tapin1.dgn

5/14/99  
 31-DEC-2007 10:25  
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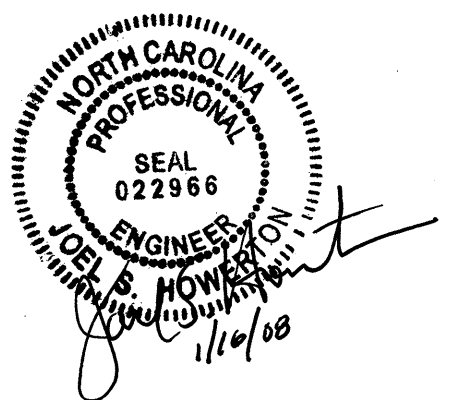
**ELEVATION**



**END ELEVATION**

<b>GROUT QUANTITIES PER FOOT</b>		
EXISTING CSP SIZE (IN.)	HDPE LINER SIZE (IN.)	GROUT (YDS. <sup>3</sup> / FT.)
48	42	0.11
60	54	0.14
66	60	0.15
96	84	0.44

NOTE: SEE PLANS FOR PIPE LENGTHS AND LOCATIONS.



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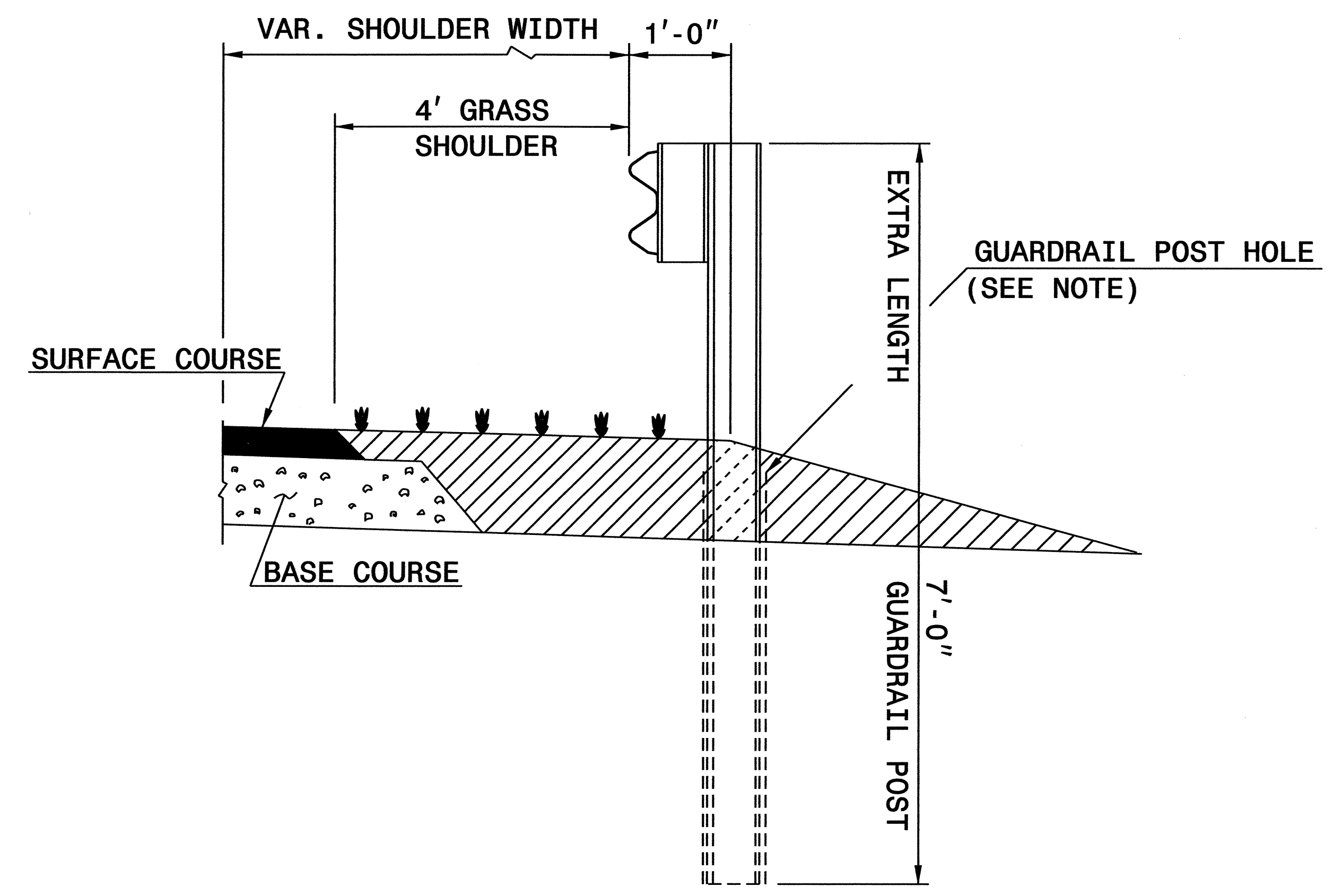
**HDPE PIPE LINER INSIDE  
A CORRUGATED STEEL PIPE**

ORIGINAL BY: T.Spell DATE: May 19, 1999  
 MODIFIED BY: DATE:  
 CHECKED BY: DATE:  
 FILE SPEC.: \_DS174:usr/details/metric/stand/liner.dgn

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ENGLISH DETAIL DRAWING FOR  
**GUARDRAIL PLACEMENT FOR 1' SHOULDER  
BREAK POINT BEHIND FACE OF GUARDRAIL**

SHEET 1 OF 1  
**7'GRPOST**



**FLEXIBLE PAVED SHOULDER**

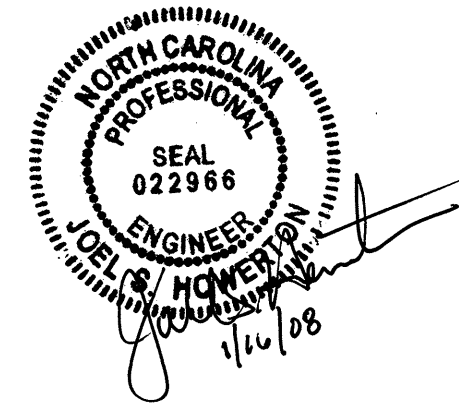
 EARTH MATERIAL

- NOTE:
- 1) WHEN WOODEN GUARDRAIL POSTS ARE USED, DRILL HOLES THROUGH EARTH MATERIAL AND BASE COURSE. THE POST MAY THEN BE DRIVEN TO THE PROPER DEPTH. DRILL HOLE TO ACCOMMODATE THE PARTICULAR POST BEING USED. BACKFILL & TAMP HOLES USING THE EXCAVATED MATERIAL.
  - 2) USE EXTRA LENGTH GUARDRAIL POST - 7'- 0" TYPICAL
  - 3) SEE ROADWAY PLANS FOR LOCATION
  - 4) REFER TO 862D01 FOR GUARDRAIL PLACEMENT DETAILS

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ENGLISH DETAIL DRAWING FOR  
**GUARDRAIL PLACEMENT FOR 1' SHOULDER  
BREAK POINT BEHIND FACE OF GUARDRAIL**

SHEET 1 OF 1  
**7'GRPOST**



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**SEE PLATE FOR TITLE**

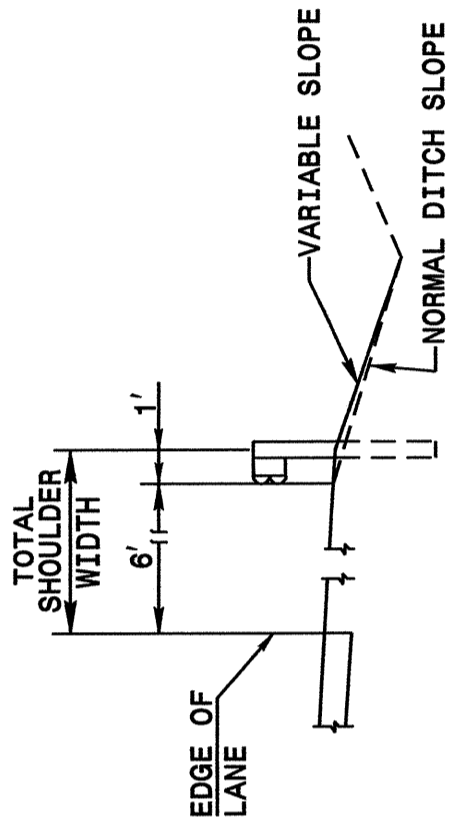
ORIGINAL BY: STD. 862D01 DATE: \_\_\_\_\_  
 MODIFIED BY: E.E. WARD DATE: 11-16-99  
 CHECKED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
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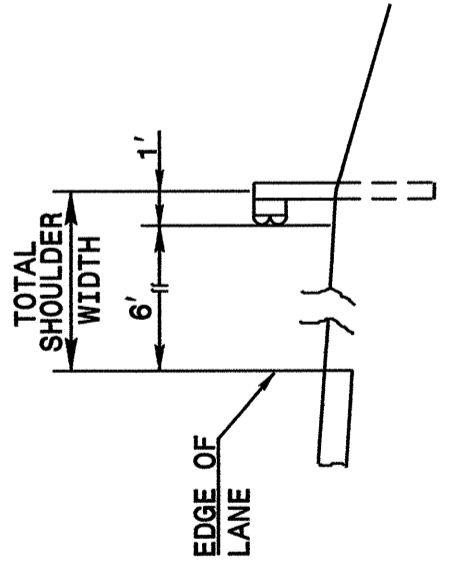
STATE OF NORTH CAROLINA  
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ENGLISH DETAIL DRAWING FOR  
GUARDRAIL ANCHOR UNIT TYPE 350  
6' SHOULDER WITH 1' SHOULDER BREAK POINT  
BEHIND FACE OF GUARDRAIL (W/O 50:1 TAPER)

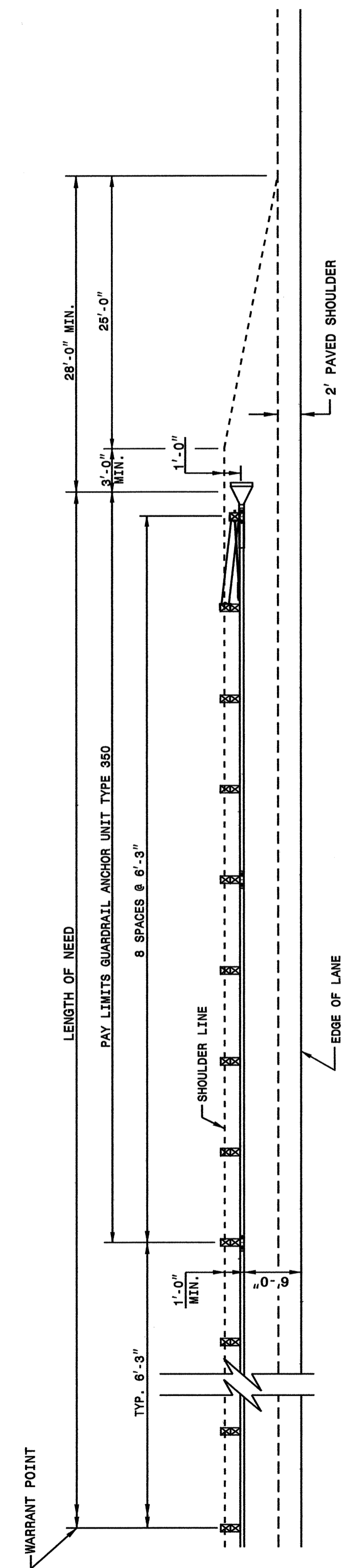
SHEET 1 OF 2  
**862D01**



**CUT SECTION**



**FILL SECTION**



**DETAIL OF BEGINNING/ENDING OF GUARDRAIL IN CUT OR FILL SECTION**

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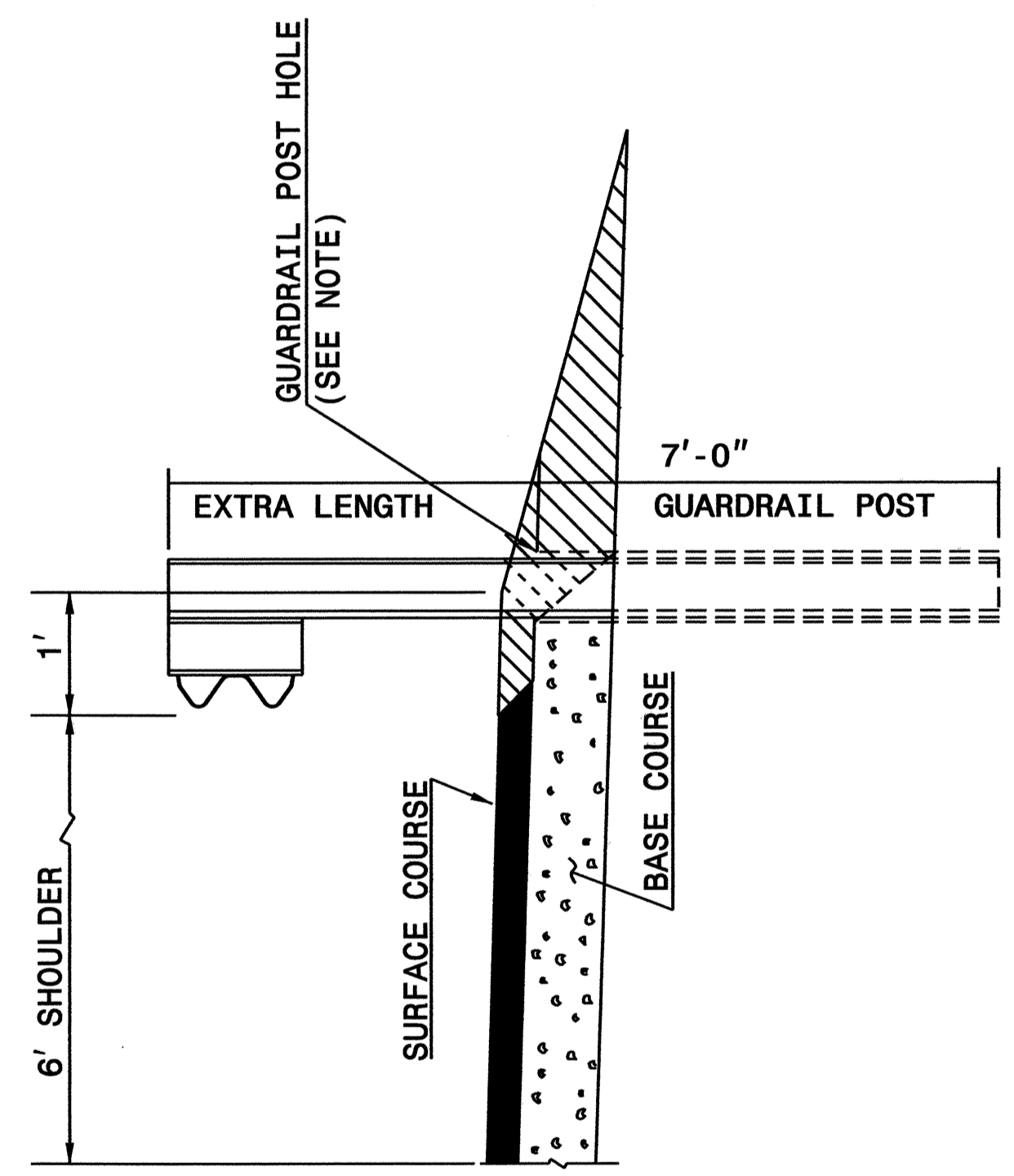
ENGLISH DETAIL DRAWING FOR  
GUARDRAIL ANCHOR UNIT TYPE 350  
6' SHOULDER WITH 1' SHOULDER BREAK POINT  
BEHIND FACE OF GUARDRAIL (W/O 50:1 TAPER)

SHEET 1 OF 2  
**862D01**

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ENGLISH DETAIL DRAWING FOR  
GUARDRAIL PLACEMENT FOR  
6' SHOULDER WITH 1' SHOULDER BREAK POINT  
BEHIND FACE OF GUARDRAIL

SHEET 2 OF 2  
**862D01**



**FLEXIBLE PAVED SHOULDER**

▨ EARTH MATERIAL

NOTE:  
1) WHEN WOODEN GUARDRAIL POSTS ARE USED, HOLES SHALL BE DRILLED THROUGH EARTH MATERIAL AND BASE COURSE. THE POST MAY THEN BE DRIVEN TO THE PROPER DEPTH. THE HOLE SHALL BE OF SUFFICIENT SIZE TO ACCOMMODATE THE PARTICULAR POST BEING USED. HOLES SHALL BE BACKFILLED AND TAMPED USING THE EXCAVATED MATERIAL.

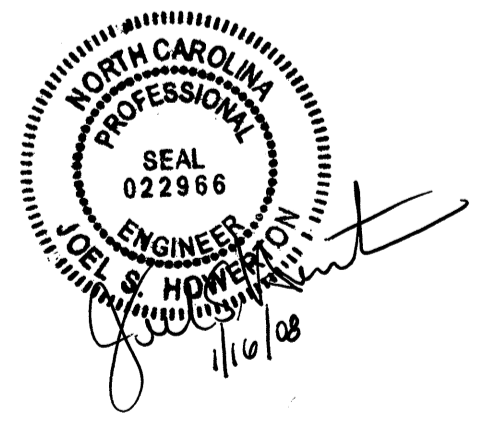
2) USE EXTRA LENGTH GUARDRAIL POST - 7'-0" TYPICAL

3) SEE ROADWAY PLANS FOR LOCATION

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DIVISION OF HIGHWAYS  
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ENGLISH DETAIL DRAWING FOR  
GUARDRAIL PLACEMENT FOR  
6' SHOULDER WITH 1' SHOULDER BREAK POINT  
BEHIND FACE OF GUARDRAIL

SHEET 2 OF 2  
**862D01**

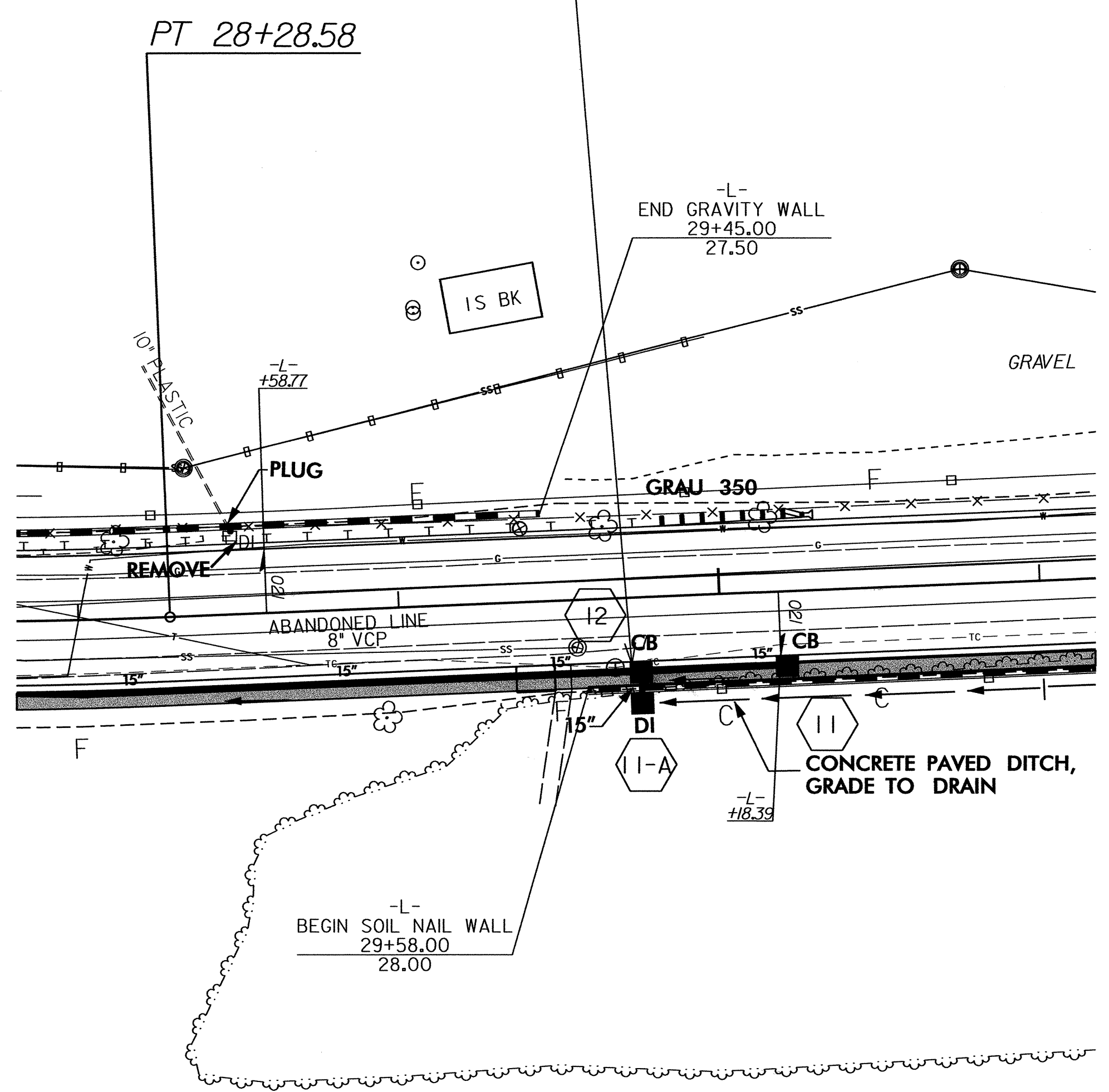


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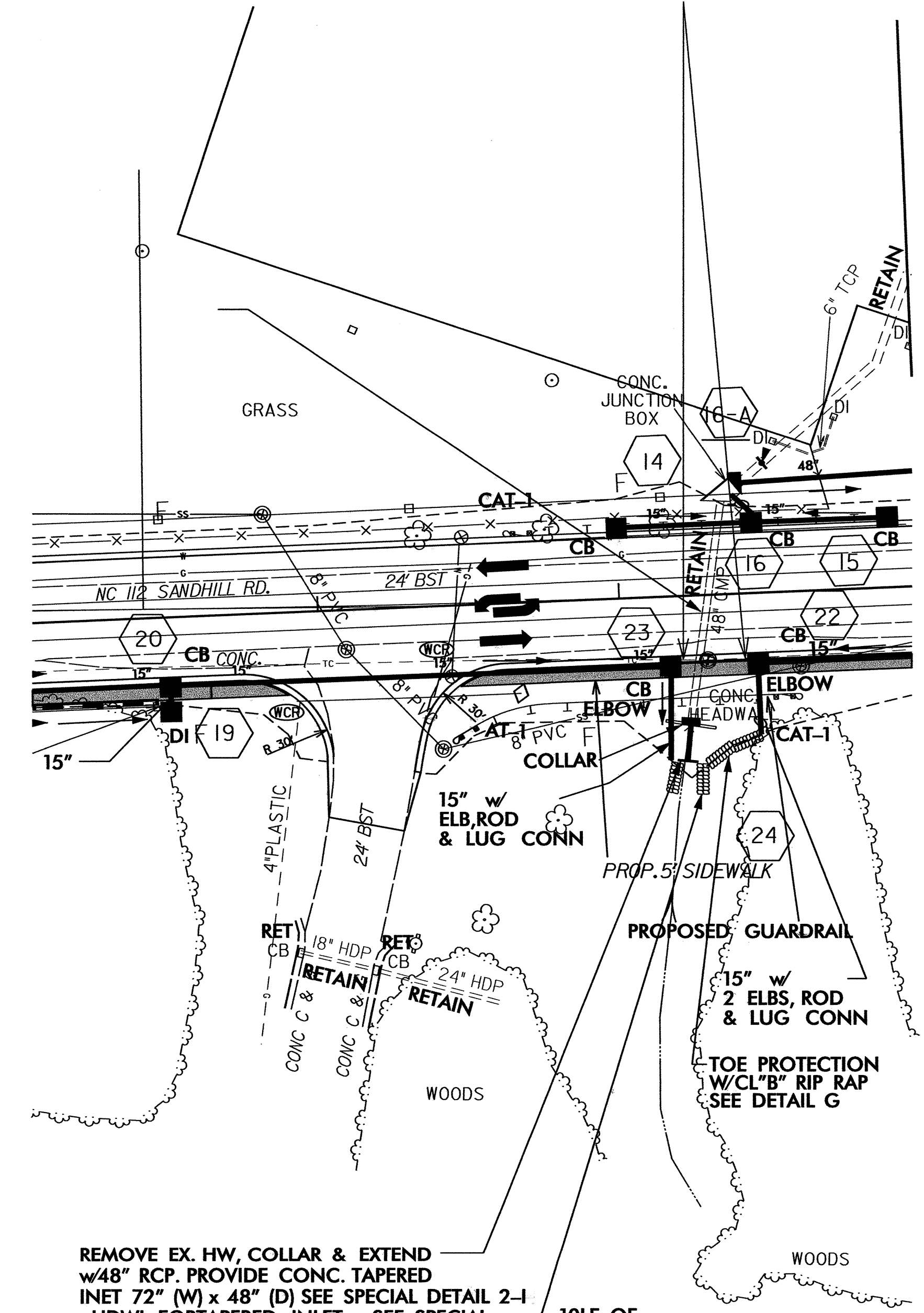
**SEE PLATE FOR TITLE**

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MODIFIED BY: E.E. WARD DATE: 6-25-99  
CHECKED BY: DATE:  
FILE SPEC.: ds172:/usr/details/stand/86201/862d0105.dgn

STRUCTURE 12 AREA WHERE  
TELEPHONE CONDUIT MAY NEED  
ENCASEMENT OR STRUCTURE 12  
MAY NEED TO BE SUPPORTED




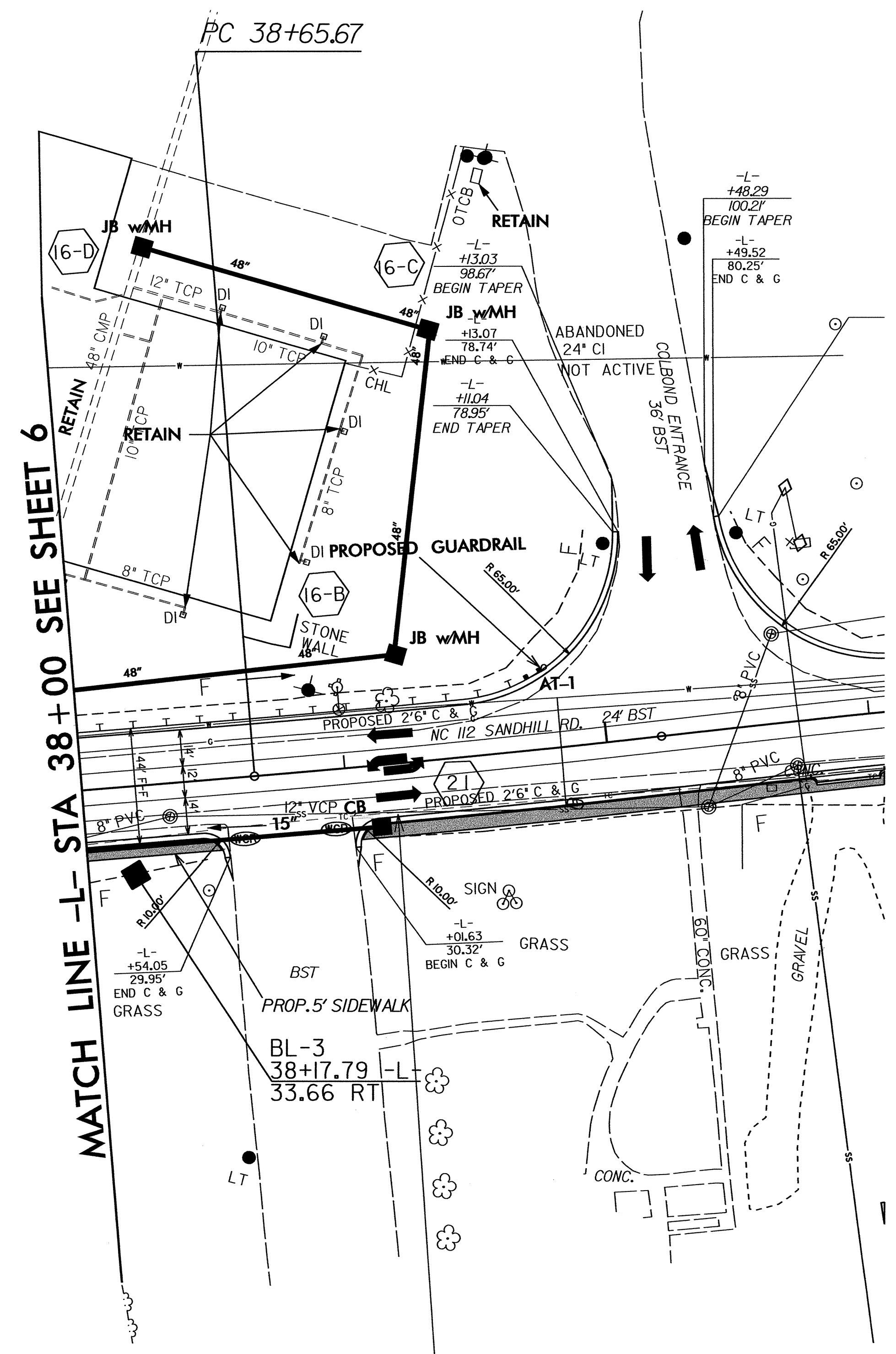
STRUCTURE 22 AND 23 AREA WHERE  
TELEPHONE CONDUIT MAY NEED  
ENCASEMENT OR STRUCTURE 22 AND 23  
MAY NEED TO BE SUPPORTED



8/17/09

3-DEC-2007 10:25  
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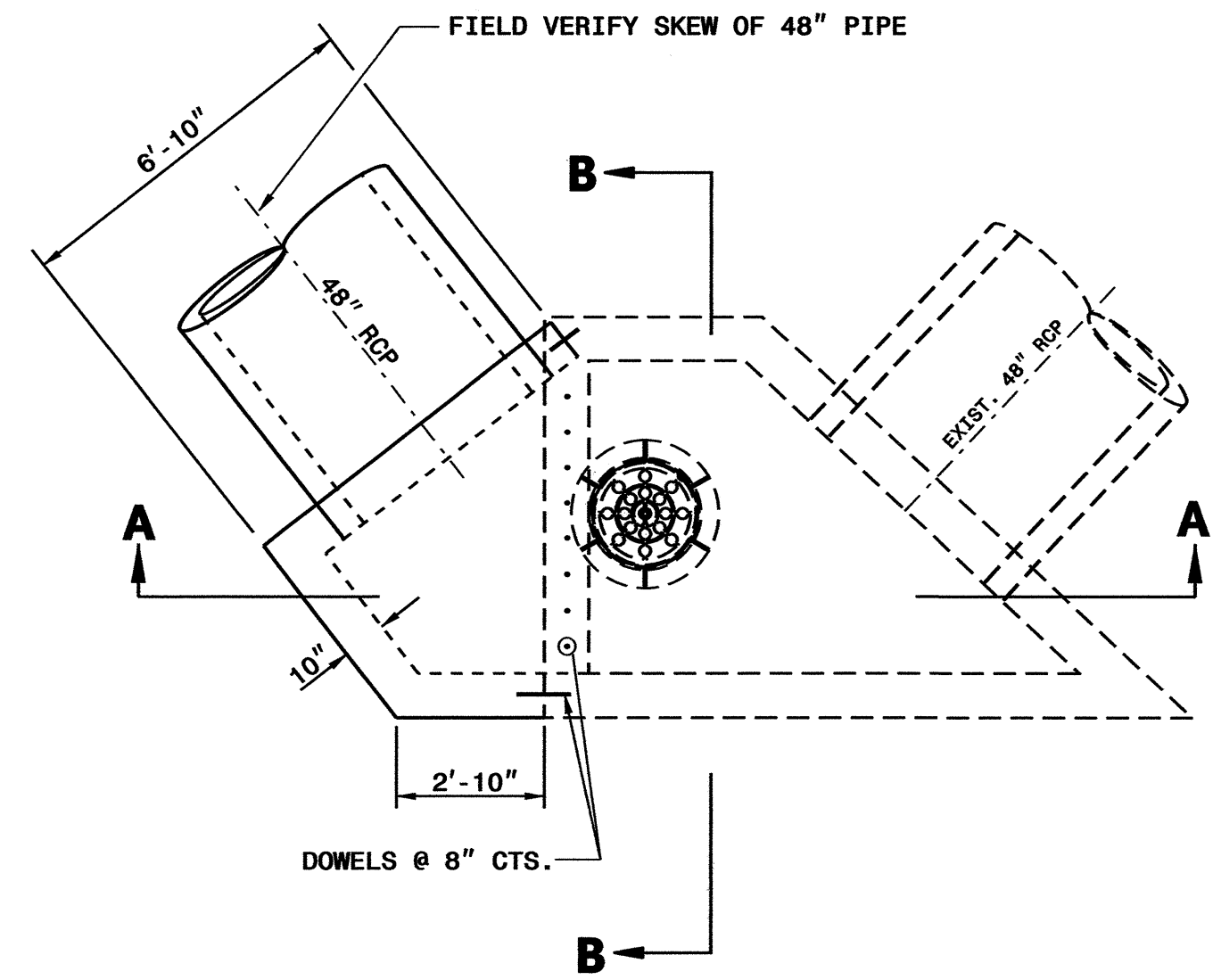
PROJECT REFERENCE NO. 37831	SHEET NO. 2-N
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
	
1-10-08	



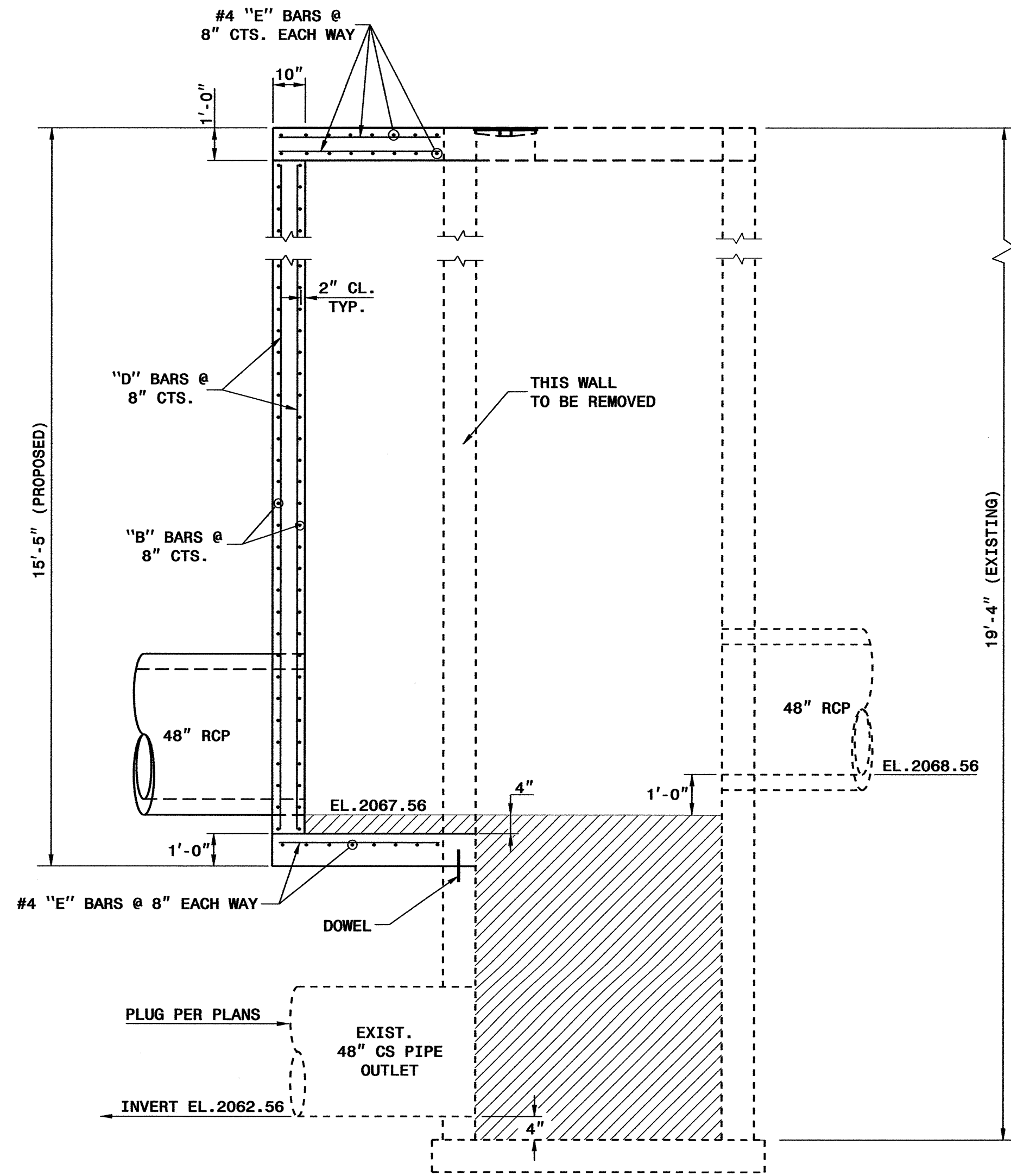
MATCH LINE -L- STA 38+00 SEE SHEET 6

STRUCTURE 21 AREA WHERE TELEPHONE CONDUIT MAY NEED ENCASEMENT OR STRUCTURE 21 MAY NEED TO BE SUPPORTED

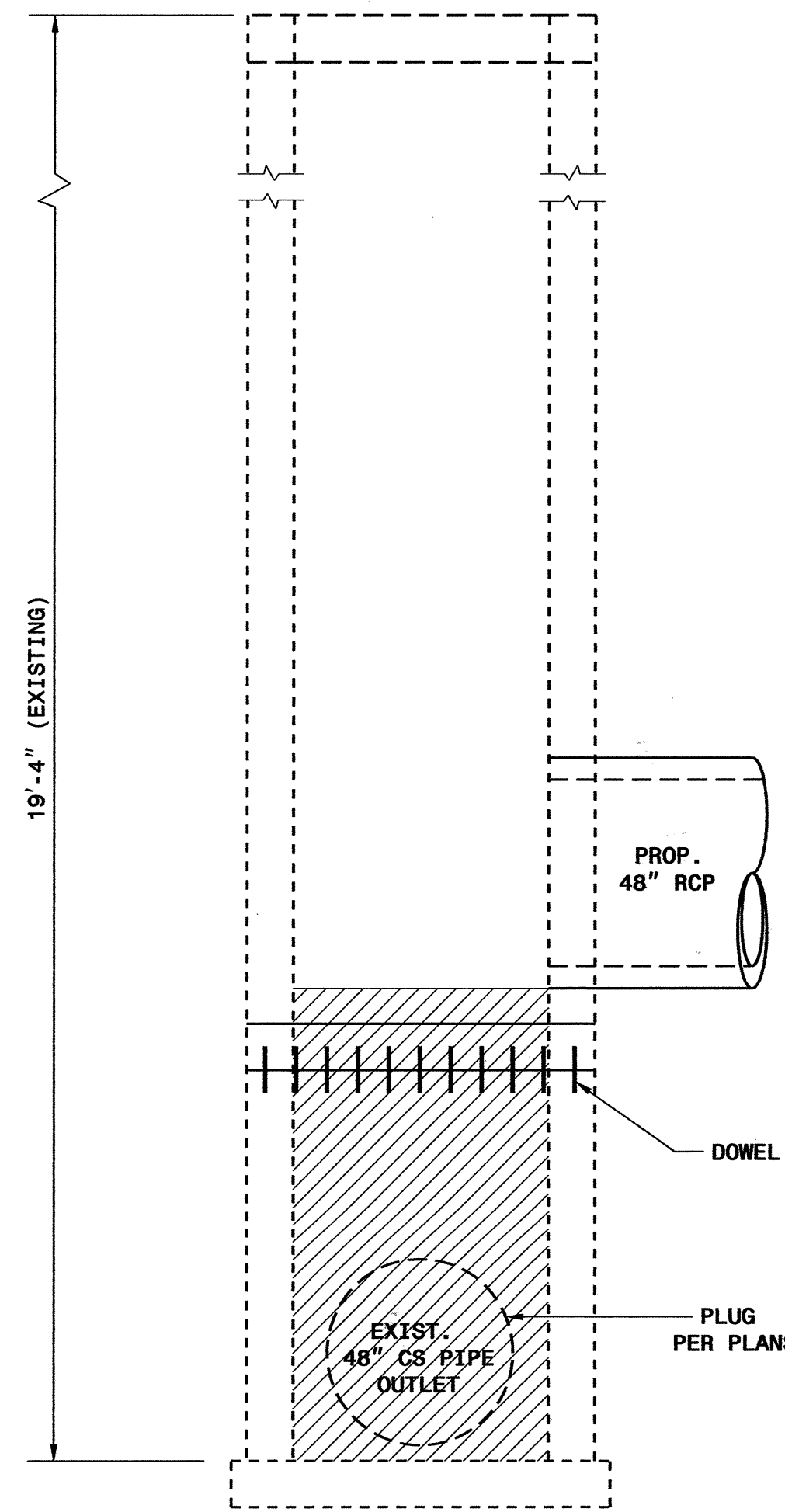
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**PLAN**



**SECTION A-A**



**SECTION B-B**

**NOTES:**

1. USE CLASS "B" CONCRETE THROUGHOUT.
2. CONSTRUCT CONCRETE BOX IN ACCORDANCE WITH SECTION 825 OF THE STANDARD SPECIFICATIONS AND ADJUST TO FIT PIPE CONDITION.
3. USE FORMS TO CONSTRUCT THE BOTTOM SLAB.
4. ADJUST LENGTH OF STEEL BARS AS NEEDED TO COMPENSATE FOR PIPES AND MANHOLE OPENINGS.
5. CONFORM REINFORCING STEEL TO ASTM A 615, GRADE 60.
6. CUT OR BEND STEEL BARS AS NEEDED TO PROVIDE 2" CLEARANCE AROUND PIPES OR AS DIRECTED BY THE ENGINEER.

**BILL OF MATERIALS**

BAR NO.	SIZE	LENGTH	WEIGHT
A	19 #5	2'-6"	50
B	19 #4	3'-8"	72
C	19 #4	6'-6"	129
D	44 #4	14'-4"	421
E	50 #4	6'-3"	209
G	4 #4	3'-0"	8
DOWEL	11 #4	8"	5
TOTAL REINF. STEEL (LBS.)			894
TOTAL CONC. (CU. YDS.)			7.3

NO DEDUCTIONS HAVE BEEN MADE TO ACCOMMODATE PIPES.



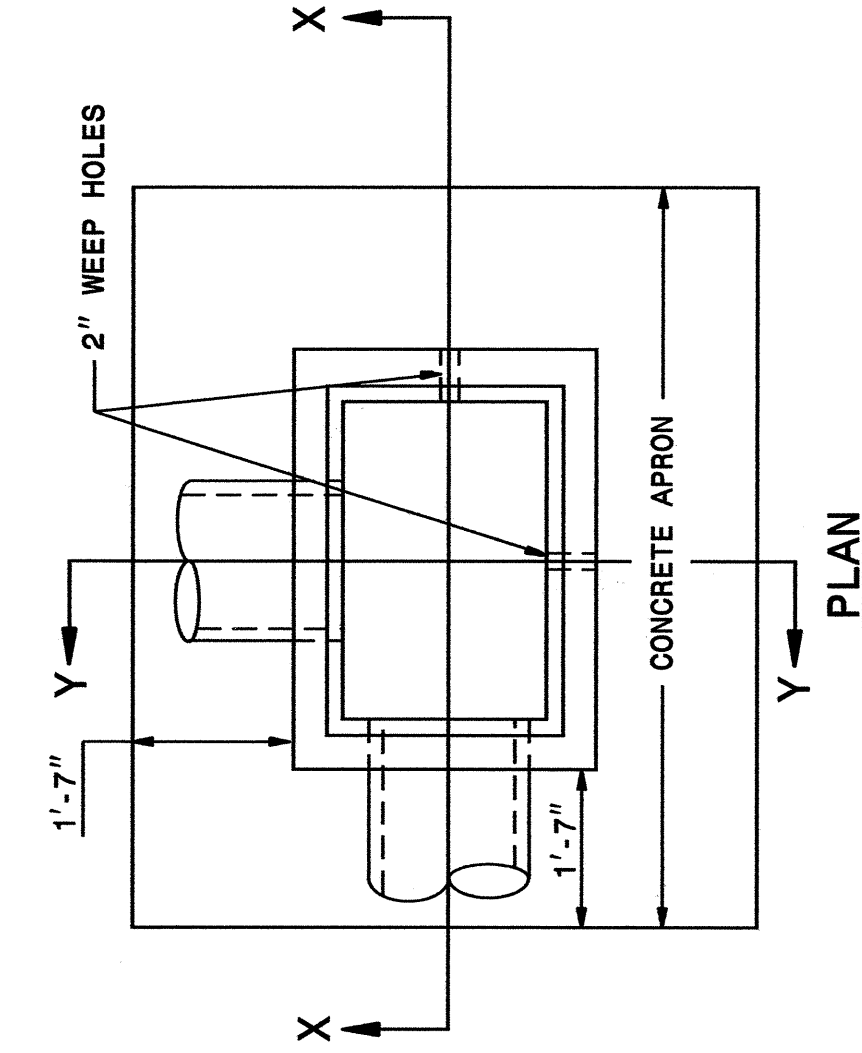
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**SPECIAL  
DETAIL OF BOX  
EXPANSION**

ORIGINAL BY: T. Spell DATE: MAR. 15, 2007  
 MODIFIED BY: DATE: \_\_\_\_\_  
 CHECKED BY: DATE: \_\_\_\_\_  
 FILE SPEC.: \_\_\_\_\_

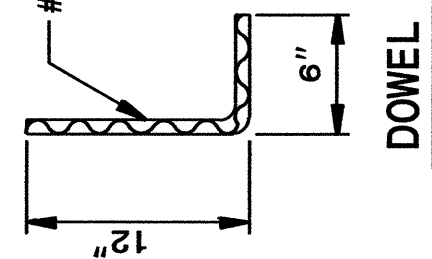
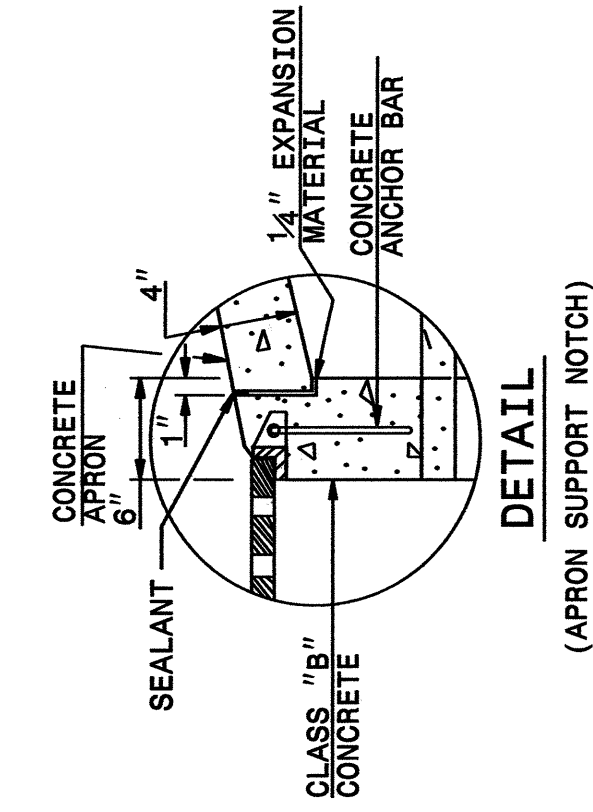
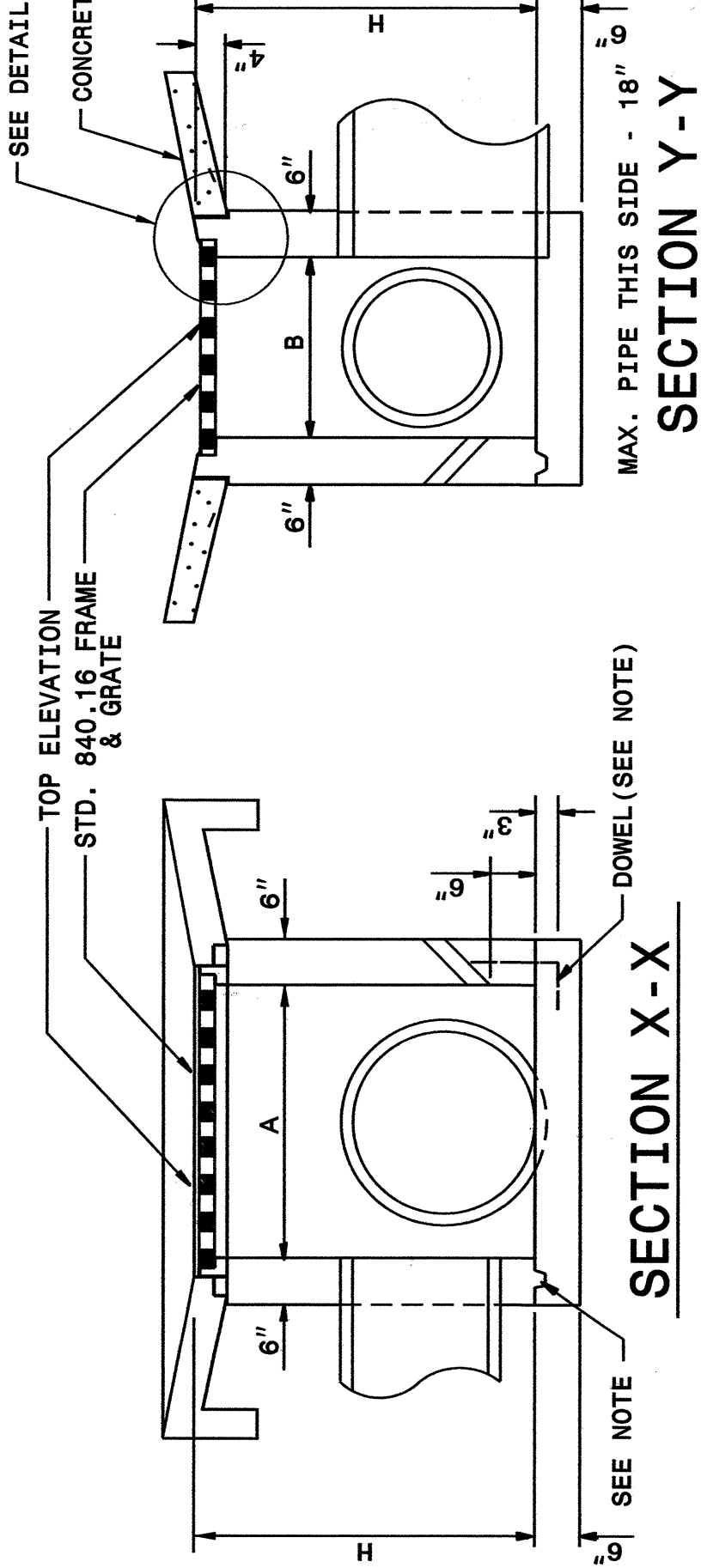
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**GENERAL NOTES:**  
 USE CLASS "B" CONCRETE THROUGHOUT.  
 PROVIDE ALL DROP INLETS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.  
 OPTIONAL CONSTRUCTION - MONOLITHIC POUR 2" KEYWAY OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.  
 USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.  
 IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.  
 CONSTRUCT WITH PIPE CROWNS MATCHING.  
 INSTALL 2" WEEPHOLES AS DIRECTED BY THE ENGINEER.  
 INSTALL STONE DRAINS OF A MINIMUM OF 1 CUBIC FOOT OF NO. 78M STONE IN A POROUS FABRIC BAG OR WRAP, AT EACH WEEP HOLE OR AS DIRECTED BY THE ENGINEER.  
 CHAMFER ALL EXPOSED CORNERS 1".  
 CONCRETE QUANTITY FOR THE APRON IS 0.111 SQ. YDS. PER SQ. FT. AND CONCRETE TOE IS INCIDENTAL TO CONSTRUCTION.  
 WHEN PAYMENT FOR THE DROP INLET IS MADE ON A PER EACH BASIS, THE CONCRETE APRON WILL BE CONSIDERED PART OF THE DROP INLET.  
 DRAWING NOT TO SCALE.

ENGLISH STANDARD DRAWING FOR  
**CONCRETE DROP INLET**  
 12" THRU 30" PIPE



DIMENSIONS OF BOX & PIPE		CUBIC YARDS DEDUCTIONS FOR ONE PIPE							
PIPE D	SPAN	WIDTH	MIN. HEIGHT	CONC. IN BOX	WALL PER FT. HT.	BOTTOM SLAB	TOTAL CONCRETE HEIGHT, H	C.M.	R.C.
12"	3'-0"	2'-0"	2'-0"	0.222	0.222	0.592	0.648	0.015	0.026
15"	3'-0"	2'-3"	2'-3"	0.222	0.222	0.703	0.703	0.023	0.036
18"	3'-0"	2'-6"	2'-6"	0.222	0.222	0.814	0.814	0.033	0.049
24"	3'-0"	3'-0"	3'-0"	0.222	0.222	0.925	0.925	0.059	0.085
30"	3'-0"	3'-6"	3'-6"	0.222	0.222	1.036	1.036	0.092	0.127

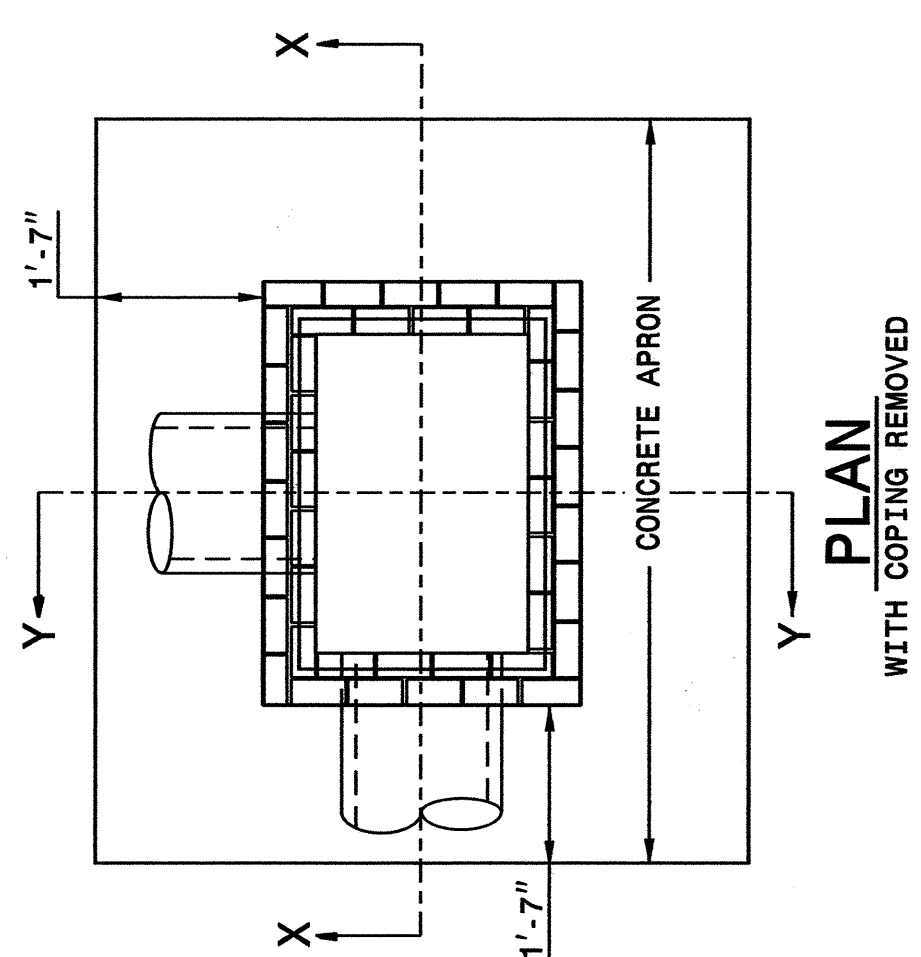
SHEET 1 OF 1  
**840D14**

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

ENGLISH STANDARD DRAWING FOR  
**CONCRETE DROP INLET**  
 12" THRU 30" PIPE

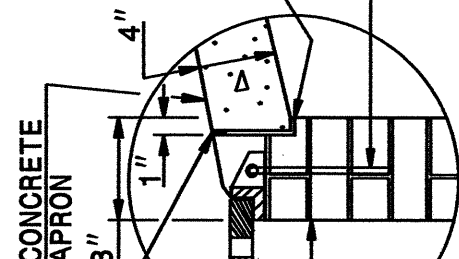
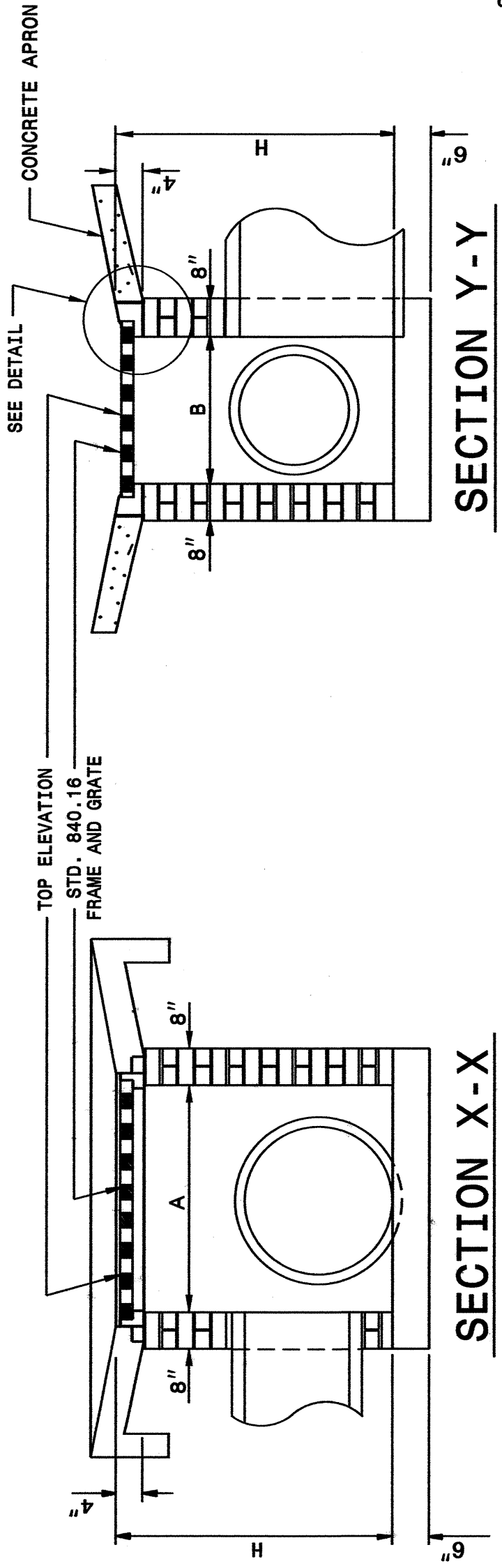
SHEET 1 OF 1  
**840D14**

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**GENERAL NOTES:**  
 MORTAR JOINTS 1/2" TO 3/8" THICK.  
 USE CLASS "B" CONCRETE THROUGHOUT.  
 USE FORMS FOR CONSTRUCTION OF THE BOTTOM SLAB.  
 DEDUCT FOR PIPE(S) FROM TOTAL CU. YDS. OF BRICK MASONRY.  
 PROVIDE ALL CATCH BASINS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.  
 USE BRICK OR CONCRETE BLOCK WHICH COMPLIES WITH THE REQUIREMENTS OF SECTION 840 OF THE STANDARD SPECIFICATIONS.  
 IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.  
 FOR 6'-0" IN HEIGHT OR LESS, USE 8" WALL OVER 8'-0" IN HEIGHT, USE 12" WALL TO 6'-0" FROM TOP OF WALL AND 8" WALL FOR THE REMAINING 6'-0". QUANTITIES TO BE ADJUSTED ACCORDINGLY.  
 CONSTRUCT WITH PIPE CROWNS MATCHING.  
 DO NOT USE BRICK MASONRY DROP INLET IN LOCATIONS SUBJECT TO TRAFFIC.  
 CHAMFER ALL EXPOSED CORNERS 1".  
 WHEN PAYMENT FOR THE DROP INLET IS MADE ON A PER EACH BASIS, THE CONCRETE APRON WILL BE CONSIDERED PART OF THE DROP INLET.  
 DRAWING NOT TO SCALE.

ENGLISH STANDARD DRAWING FOR  
**BRICK DROP INLET**  
 12" THRU 30" PIPE



DIMENSIONS OF BOX & PIPE		CUBIC YARDS DEDUCTIONS FOR ONE PIPE							
PIPE D	SPAN	WIDTH	MIN. HEIGHT	CONCRETE	BRICK MASONRY	WALL PER FOOT HT.	TOTAL BRICK MIN. HEIGHT, H	C.S.	R.C.
12"	3'-0"	2'-0"	2'-0"	0.268	0.313	0.522	0.600	0.020	0.032
15"	3'-0"	2'-3"	2'-3"	0.268	0.313	0.600	0.678	0.031	0.047
18"	3'-0"	2'-6"	2'-6"	0.268	0.313	0.678	0.756	0.044	0.065
24"	3'-0"	3'-0"	3'-0"	0.268	0.313	0.756	0.835	0.078	0.113
30"	3'-0"	3'-6"	3'-6"	0.268	0.313	0.835	0.914	0.122	0.170

SHEET 1 OF 1  
**840D15**

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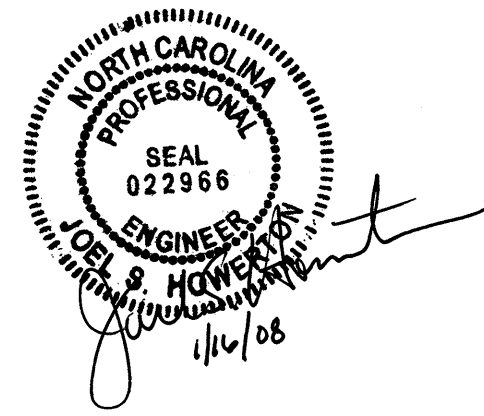
ENGLISH STANDARD DRAWING FOR  
**BRICK DROP INLET**  
 12" THRU 30" PIPE

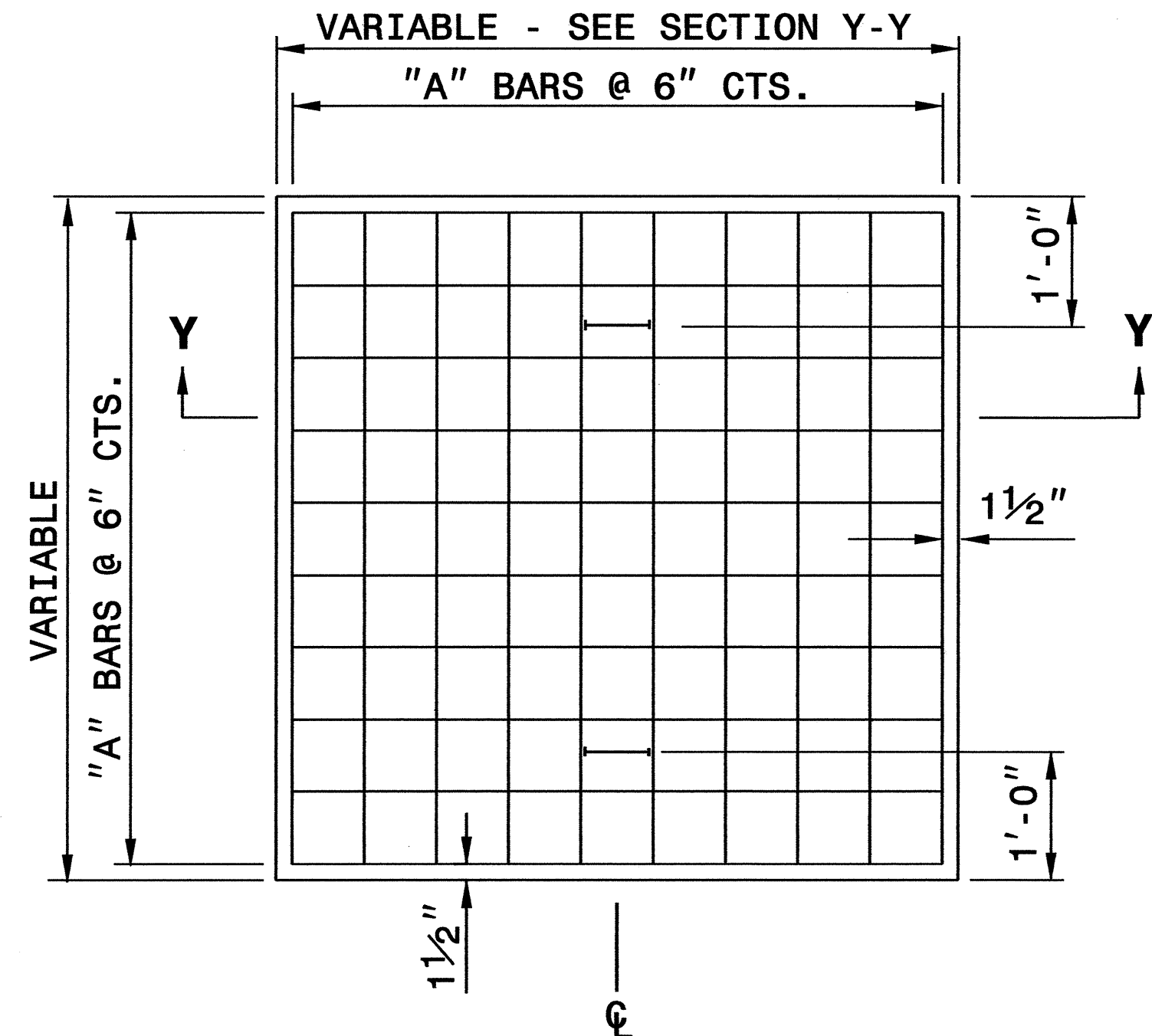
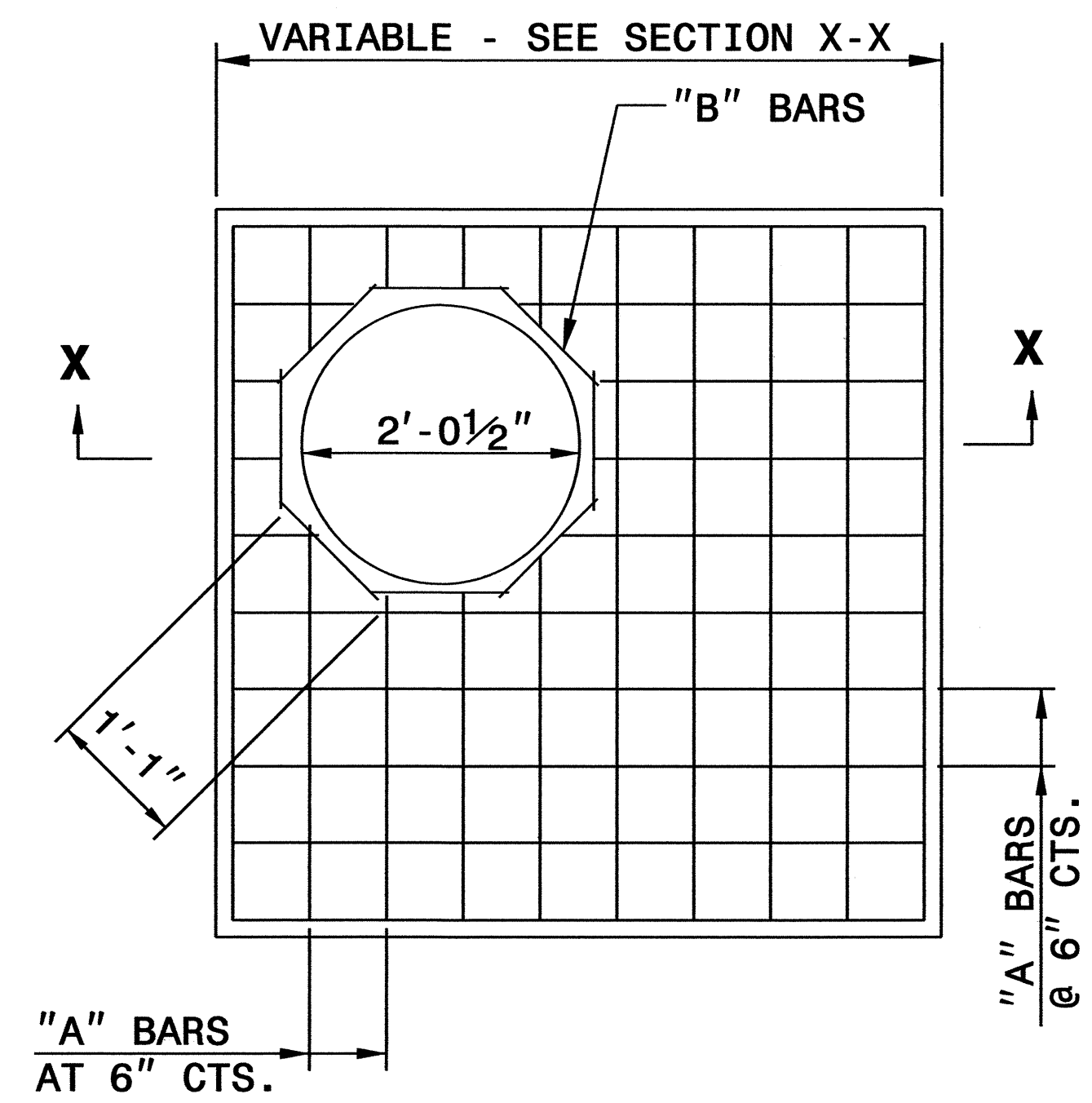
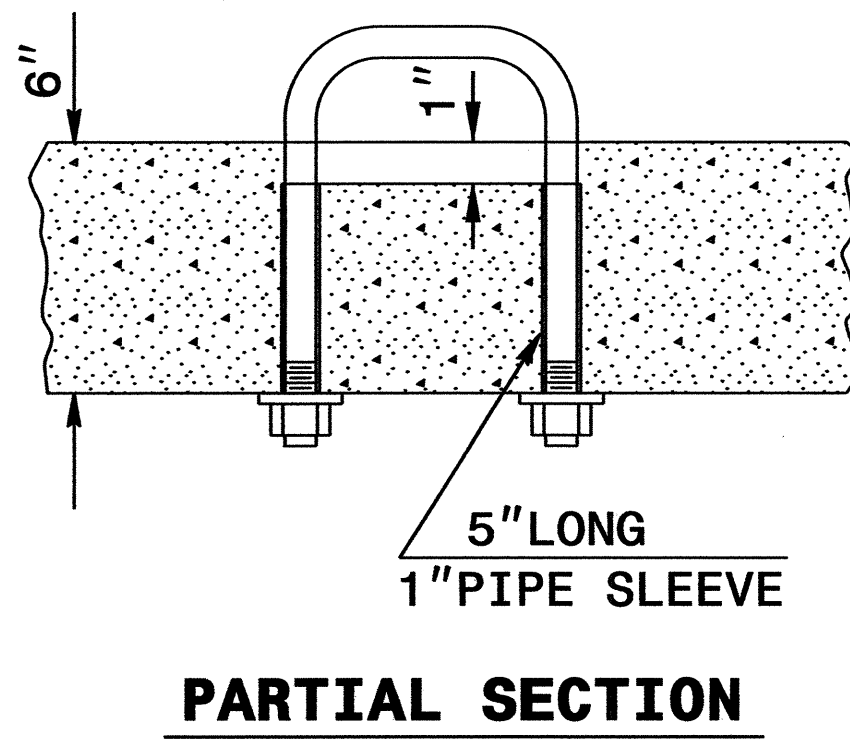
SHEET 1 OF 1  
**840D15**

DESIGN SERVICES UNIT  
 STANDARDS AND SPECIAL DESIGN  
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**SEE PLATE FOR TITLE**

ORIGINAL BY: Std.No.840.14&840.15 DATE:  
 MODIFIED BY: T.S.Spec11 DATE: 6-18-02  
 CHECKED BY: DATE:  
 FILE SPEC.: w:usr/stand/840d14&15&19.dgn



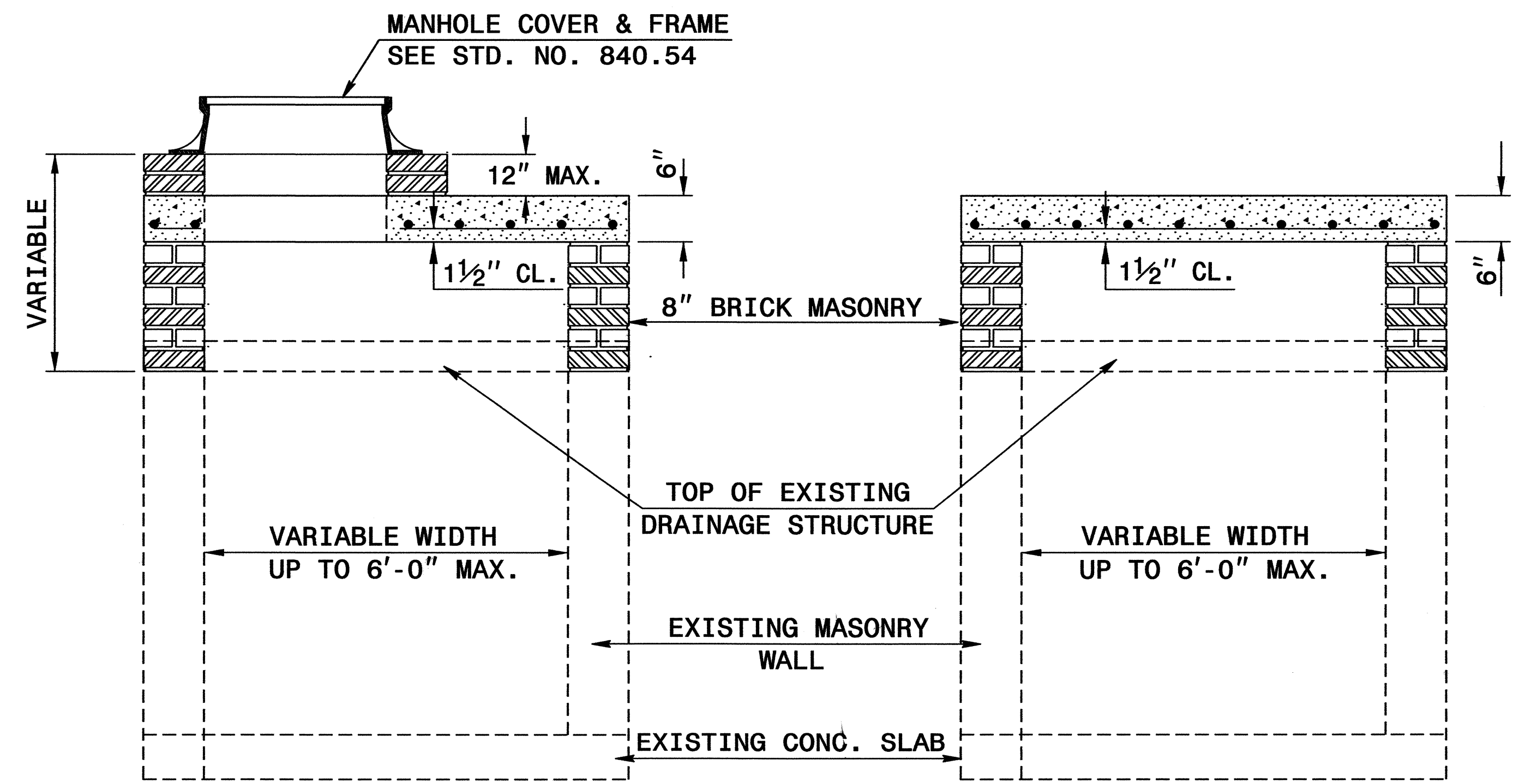
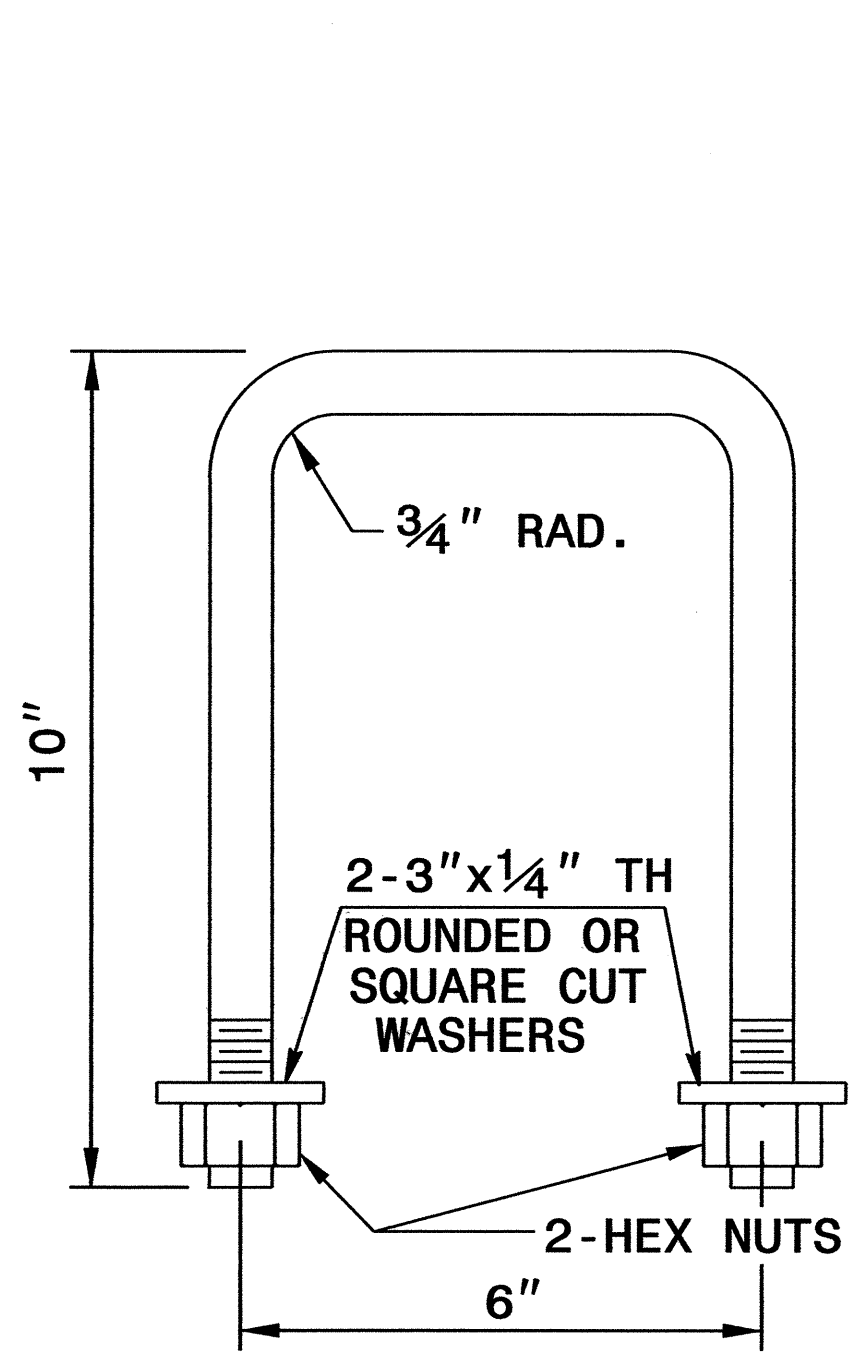


**GENERAL NOTES:**

CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.

THE DIMENSIONS FOR THE EXISTING BOXES ARE APPROXIMATE AND MAY VARY SLIGHTLY.

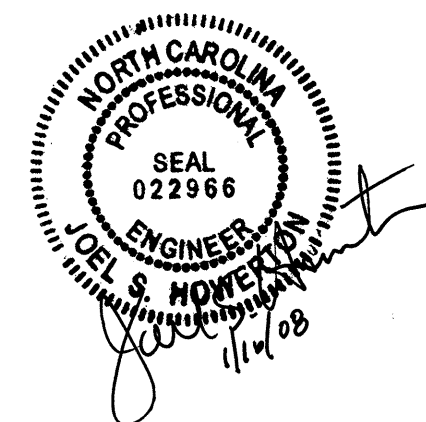
DETAIL INTENDED FOR NON-TRAFFIC BEARING DRAINAGE STRUCTURES.



**BILL OF MATERIALS**

REINFORCING STEEL				
CODE	SIZE	QTY.	LENGTH	REINF. STEEL LBS.
A	#4	20	4'-6"	60.12
B	#4	8	1'-1"	5.79
TOTAL				65.91 *
MASONRY				CU YDS
TOP SLAB CONCRETE CLASS "B"				.4326 *
BRICK MASONRY PER FT HT (MIN)				.4111

**\* NOTE:**  
 QUANTITIES BASED ON 3'-6" X 3'-6" DRAINAGE STRUCTURE. ADJUST QUANTITIES FOR LARGER STRUCTURES AND MANHOLE CONSTRUCTION.

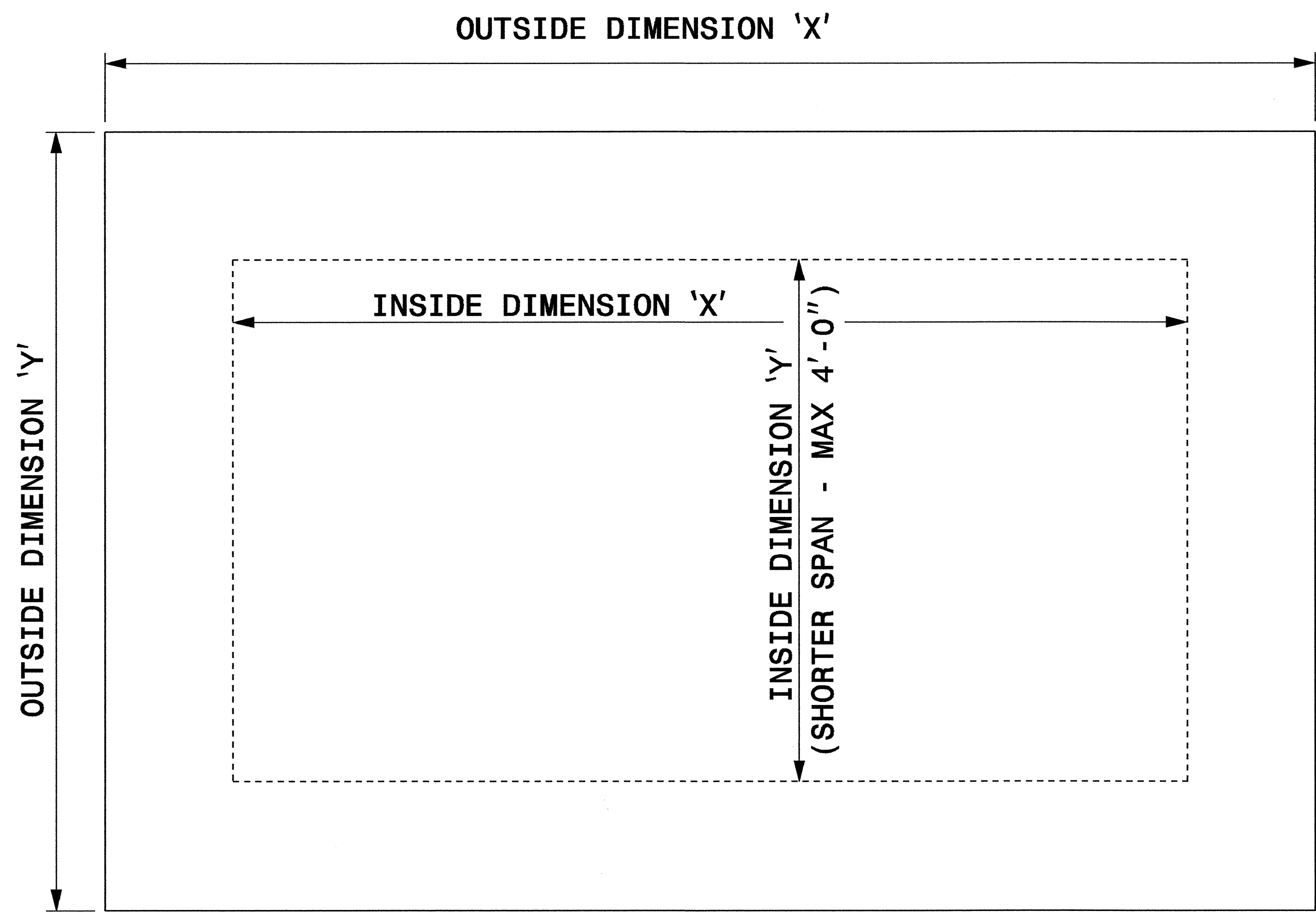


**PROJECT SERVICES UNIT  
 STANDARDS AND SPECIAL DESIGN**  
 Office 919-250-4128 FAX 919-250-4119

**DETAIL TO CONVERT EXISTING  
 DROP INLET OR CATCH BASIN  
 TO JUNCTION BOX  
 (MANHOLE OPTIONAL)**

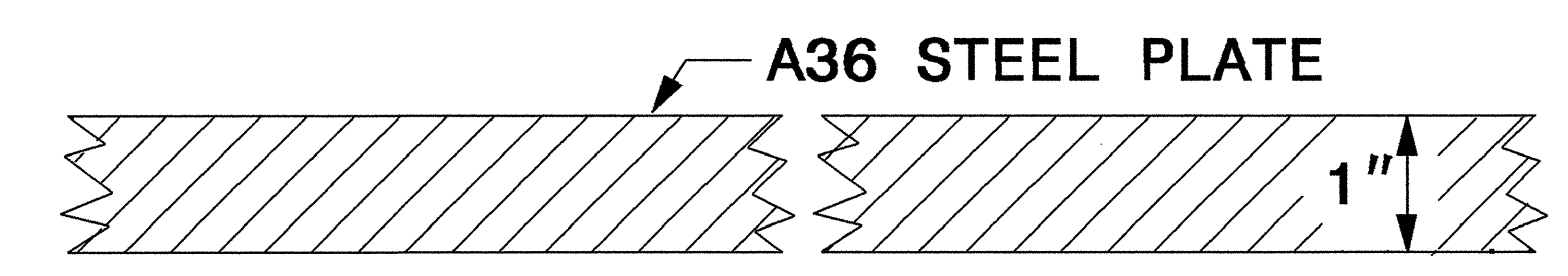
ORIGINAL BY: T.S.S. DATE: NOV. 1997  
 MODIFIED BY: T.S.S. DATE: FEB. 2000  
 CHECKED BY: DATE:  
 FILE SPEC.: ds174:/usr/details/stand/boxtojbe.dgn

31-DEC-2007 10:25  
 P:\NO MOVING\ahed\rev.nci12.mca13026r-std26r-13026r-ddc-dtl.2q.dgn  
 \$\$\$USERNAME\$\$\$



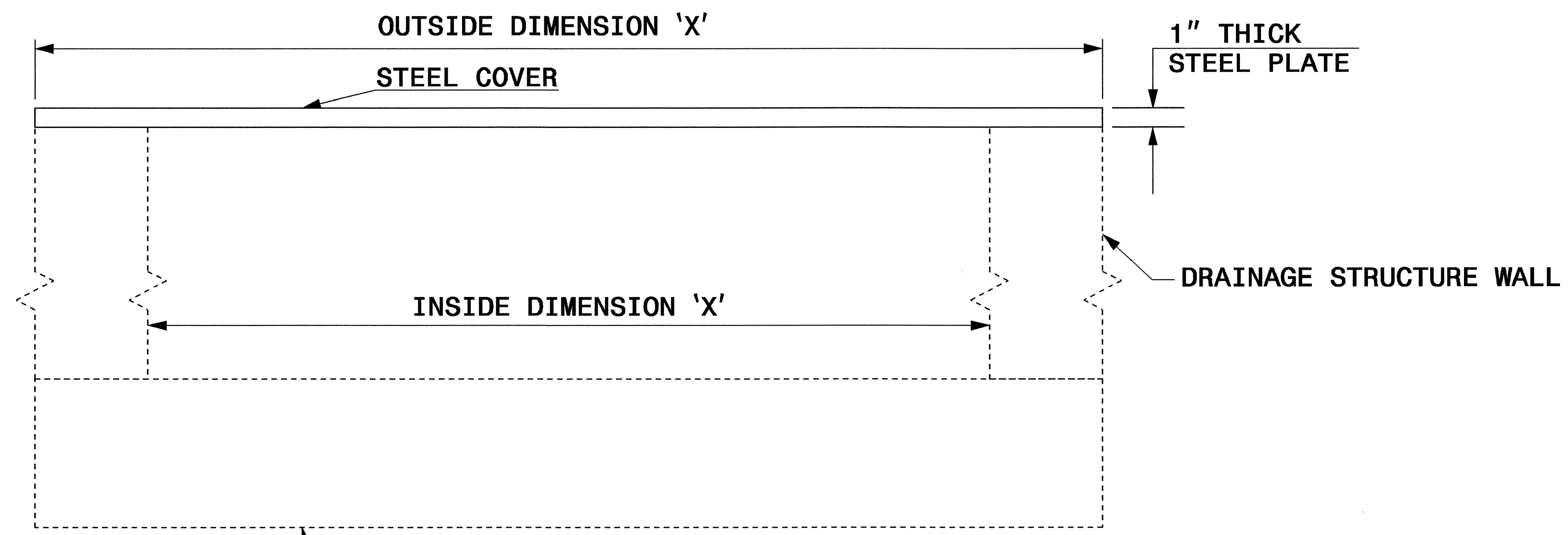
**GENERAL NOTES:**

- USE GRADE A36 STEEL
- STEEL COVERS ARE FOR TEMPORARY USE DURING PHASE CONSTRUCTION.
- FILL SHALL BE PLACED DIRECTLY OVER THE STEEL PLATES.
- SEE ROADWAY PLANS AND PROVISIONS FOR LOCATIONS
- QUANTITIES TO BE PAID FOR AT THE UNIT PRICE BID PER EACH.

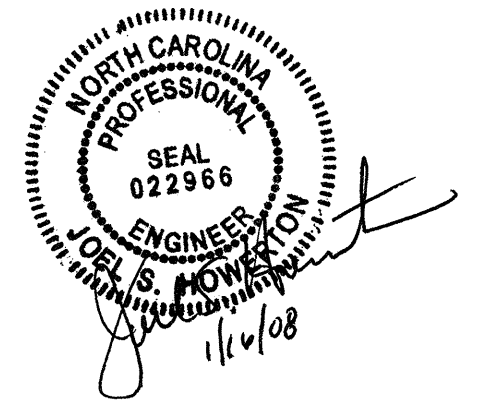


**SECTION VIEW OF STEEL TOP PLATE**

**PLAN VIEWS**



**ELEVATION VIEWS**



<b>PROJECT SERVICES UNIT STANDARDS AND SPECIAL DESIGN</b>	
Office 919-250-4128 FAX 919-250-4119	
<b>DETAIL OF TEMPORARY 1" STEEL COVER OVER DRAINAGE STRUCTURE</b>	
ORIGINAL BY: E.E. WARD	DATE: 2-2-98
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.: eric:/usr/details/metric/stand/st1cvr2.dgn	

06-FEB-2006 10:59  
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 ericward A1 PS222293

5/14/99

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.	<b>7-06</b> ENGLISH DETAIL DRAWING FOR <b>CONCRETE OPEN THROAT CATCH BASIN</b> 30" PIPE	<b>7-06</b> ENGLISH DETAIL DRAWING FOR <b>CONCRETE OPEN THROAT CATCH BASIN</b> 30" PIPE	SHEET 1 OF 2 <b>840D04</b>
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**PLAN**

**SECTION X-X**

**SLUDGE GATE DETAIL**

**SECTION Y-Y**

**PART SECTION Y-Y**  
SHOWING DETAILS AT OPENING

**NOTES:**

USE CLASS "B" CONCRETE THROUGHOUT.

PROVIDE ALL CATCH BASINS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.066.

OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.

USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.

IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.

FOR 6'-0" IN HEIGHT OR LESS USE 6" WALLS AND BOTTOM SLAB. OVER 6'-0" IN HEIGHT USE 8" WALLS AND BOTTOM SLAB. ADJUST QUANTITIES ACCORDINGLY.

CONSTRUCT WITH PIPE CROWNS MATCHING.

INSTALL 2" WEEPHOLES AS DIRECTED BY THE ENGINEER.

INSTALL STONE DRAINS OF A MINIMUM OF 1 CUBIC FOOT OF NO. 75M STONE IN A POROUS FABRIC BAG OR WRAP, AT EACH WEEP HOLE OR AS DIRECTED BY THE ENGINEER. CHAMFER ALL EXPOSED CORNERS 1".

DRAWING NOT TO SCALE. ADJUST DIMENSIONS AS DIRECTED BY THE ENGINEER.

\* INCREASE THE SIZE OF THE 6" OPENING TO 8" MAX. AS DIRECTED BY THE ENGINEER BY ADDING 2" TO THE WALL HEIGHT ABOVE THE TOP ELEVATION. ADJUST QUANTITIES ACCORDINGLY.

INSTALL THE SLUDGE GATE IN ACCORDANCE WITH THE MANUFACTURER'S DIMENSIONS AND SPECIFICATIONS.

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.	<b>7-06</b> ENGLISH DETAIL DRAWING FOR <b>CONCRETE OPEN THROAT CATCH BASIN</b> 30" PIPE	<b>7-06</b> ENGLISH DETAIL DRAWING FOR <b>CONCRETE OPEN THROAT CATCH BASIN</b> 30" PIPE	SHEET 2 OF 2 <b>840D04</b>
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**PLAN**

**SECTION W-W**

**SECTION V-V**

**DETAIL OF HANDLE**

**PART SECTION**  
THRU COVER SHOWING HANDLE

**DOWEL**

**NOTES:**

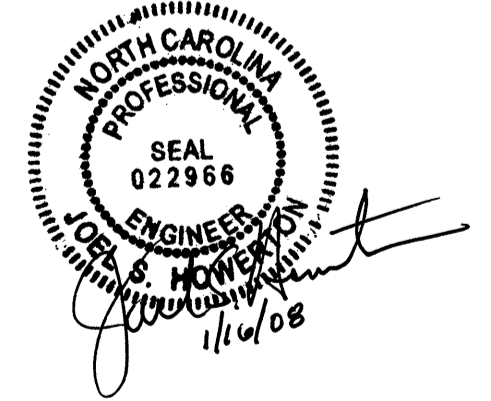
PRECAST OR CAST IN PLACE TOP SLAB

COUNTERSINK PART WHERE HANDLE IS LOCATED 1" AND ALLOW HANDLE TO MOVE VERTICALLY.

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

**DETAIL OF CONCRETE  
OPEN THROAT CATCH BASIN  
30" PIPE**

ORIGINAL BY:	DATE:
MODIFIED BY: rnbritt	DATE: 09-13-07
CHECKED BY:	DATE:
FILE SPEC: details/rnbritt/english/hydro/open_throat_sludge.dgn	





STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202011

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0004000000-N	801	Lump Sum		CONSTRUCTION SURVEYING
0001000000-E	200	Lump Sum		CLEARING & GRUBBING .. ACRE(S)
0008000000-E	200	1	ACR	SUPPLEMENTARY CLEARING & GRUBBING
0022000000-E	225	5,000	CY	UNCLASSIFIED EXCAVATION
0036000000-E	225	90	CY	UNDERCUT EXCAVATION
0106000000-E	230	11,500	CY	BORROW EXCAVATION
0134000000-E	240	780	CY	DRAINAGE DITCH EXCAVATION
0156000000-E	250	1,250	SY	REMOVAL OF EXISTING ASPHALT PAVEMENT
0177000000-E	250	250	SY	BREAKING OF EXISTING ASPHALT PAVEMENT
0195000000-E	265	100	CY	SELECT GRANULAR MATERIAL
0196000000-E	270	100	SY	FABRIC FOR SOIL STABILIZATION
0318000000-E	300	921	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS
0331000000-E	SP	9	CY	GENERIC DRAINAGE ITEM GROUT
0344000000-E	310	56	LF	18" SIDE DRAIN PIPE
0384000000-E	310	1,396	LF	30" RC PIPE CULVERTS, CLASS III
0402000000-E	310	438	LF	48" RC PIPE CULVERTS, CLASS III
0492000000-E	SP	1	EA	72"X 48" RC PIPE TAPERED INLET, CLASS III
0708000000-E	310	64	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
0732000000-E	310	24	LF	36" BIT COAT CS PIPE CULVERTS, TYPE B 0.079" THICK
0806000000-E	310	4	EA	15" BIT COAT CS PIPE ELBOWS, TYPE B 0.064" THICK
0973100000-E	330	72	LF	*** WELDED STEEL PIPE IN SOIL (30")
0986000000-E	SP	76	LF	GENERIC PIPE ITEM 42" HDPE PIPE LINER
0995000000-E	340	218.52	LF	PIPE REMOVAL
0996000000-N	350	2	EA	PIPE CLEAN-OUT
1011000000-N	500	Lump Sum		FINE GRADING
1121000000-E	520	2,200	TON	AGGREGATE BASE COURSE
1220000000-E	545	600	TON	INCIDENTAL STONE BASE
1489000000-E	610	5,120	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1498000000-E	610	6,380	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B
1519000000-E	610	7,020	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B
1560000000-E	620	945	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22
1693000000-E	654	2,007	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR
2000000000-N	806	64	EA	RIGHT OF WAY MARKERS
2022000000-E	815	11.2	CY	SUBDRAIN EXCAVATION
2033000000-E	815	8.4	CY	SUBDRAIN FINE AGGREGATE
2044000000-E	815	50	LF	6" PERFORATED SUBDRAIN PIPE
2055000000-E	815	2	EA	6" SUBDRAIN PIPE WYES, TEES, & ELBOWS
2066000000-N	815	1	EA	CONCRETE PAD FOR SUBDRAIN PIPE OUTLET
2077000000-E	815	6	LF	6" OUTLET PIPE (SUBDRAINS)
2190000000-N	828	6	EA	TEMPORARY STEEL PLATE COVERS FOR MASONRY DRAINAGE STRUCTURE
2209000000-E	838	9.2	CY	ENDWALLS
2253000000-E	840	2	CY	PIPE COLLARS
2264000000-E	840	0.55	CY	PIPE PLUGS
2275000000-E	SP	35	CY	FLOWABLE FILL
2286000000-N	840	56	EA	MASONRY DRAINAGE STRUCTURES
2308000000-E	840	85	LF	MASONRY DRAINAGE STRUCTURES
2364000000-N	840	6	EA	FRAME WITH TWO GRATES, STD 840.16

ItemNumber	Sec #	Quantity	Unit	Description
2374000000-N	840	4	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E)
2374000000-N	840	19	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F)
2374000000-N	840	19	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G)
2396000000-N	840	8	EA	FRAME WITH COVER, STD 840.54
2462000000-E	SP	1	EA	*** SLUICE GATE (30")
2549000000-E	846	12,500	LF	2'-6" CONCRETE CURB & GUTTER
2591000000-E	848	3,150	SY	4" CONCRETE SIDEWALK
2605000000-N	848	36	EA	CONCRETE WHEELCHAIR RAMPS
2612000000-E	848	165	SY	6" CONCRETE DRIVEWAY
2647000000-E	852	50	SY	5" MONOLITHIC CONCRETE ISLANDS (SURFACE MOUNTED)
2830000000-N	858	16	EA	ADJUSTMENT OF MANHOLES
2845000000-N	858	30	EA	ADJUSTMENT OF METER BOXES OR VALVE BOXES
2893000000-N	SP	1	EA	CONVERT EXISTING CATCH BASIN TO JUNCTION BOX WITH MANHOLE COVER
2938000000-N	SP	1	EA	CONVERT EXISTING DROP INLET TO JUNCTION BOX WITH MANHOLE COVER
3030000000-E	862	1,350	LF	STEEL BM GUARDRAIL
3045000000-E	862	100	LF	STEEL BM GUARDRAIL, SHOP CURVED
3090000000-N	862	2	EA	TRIPLE CORRUGATED GUARDRAIL TERMINAL SECTIONS
3150000000-N	862	10	EA	ADDITIONAL GUARDRAIL POSTS
3195000000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE AT-1
3210000000-N	862	6	EA	GUARDRAIL ANCHOR UNITS, TYPE CAT-1
3270000000-N	SP	4	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3360000000-E	863	152	LF	REMOVE EXISTING GUARDRAIL
3524000000-E	SP	590	LF	VINYL COATED CHAIN LINK FENCE, *** FABRIC (72")
3539000000-E	866	49	EA	METAL LINE POSTS FOR *** CHAIN LINK FENCE (72")
3545000000-E	866	2	EA	METAL TERMINAL POSTS FOR *** CHAIN LINK FENCE (72")
3557000000-E	866	1,920	LF	ADDITIONAL BARBED WIRE
3563000000-E	SP	1,920	LF	TEMP *** WOVEN WIRE FENCE, COMPLETE W/POSTS (48")
3572000000-E	867	2,030	LF	CHAIN LINK FENCE RESET
3628000000-E	876	40	TON	RIP RAP, CLASS I
3649000000-E	876	50	TON	RIP RAP, CLASS B
3656000000-E	876	570	SY	FILTER FABRIC FOR DRAINAGE
4400000000-E	1110	260	SF	WORK ZONE SIGNS (STATIONARY)
4405000000-E	1110	224	SF	WORK ZONE SIGNS (PORTABLE)
4410000000-E	1110	40	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4430000000-N	1130	200	EA	DRUMS
4435000000-N	1135	100	EA	CONES
4445000000-E	1145	132	LF	BARRICADES (TYPE III)
4455000000-N	1150	220	MD	FLAGGER
4507000000-E	SP	650	LF	WATER FILLED BARRIER
4508000000-E	SP	850	LF	RESET WATER FILLED BARRIER
4520000000-N	1266	30	EA	TUBULAR MARKERS (FIXED)
4650000000-N	1251	386	EA	TEMPORARY RAISED PAVEMENT MARKERS
4685000000-E	1205	914	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)
4686000000-E	1205	18,605	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)
4695000000-E	1205	412	LF	THERMOPLASTIC PAVEMENT MARKING LINES (8", 90 MILS)

ItemNumber	Sec #	Quantity	Unit	Description
4710000000-E	1205	414	LF	THERMOPLASTIC PAVEMENT MARKING LINES (24", 120 MILS)
4725000000-E	1205	58	EA	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS)
4810000000-E	1205	94,672	LF	PAINT PAVEMENT MARKING LINES (4")
4820000000-E	1205	284	LF	PAINT PAVEMENT MARKING LINES (8")
4835000000-E	1205	176	LF	PAINT PAVEMENT MARKING LINES (24")
4845000000-N	1205	40	EA	PAINT PAVEMENT MARKING SYMBOL
4850000000-E	1205	14,572	LF	REMOVAL OF PAVEMENT MARKING LINES (4")
4860000000-E	1205	57	LF	REMOVAL OF PAVEMENT MARKING LINES (8")
4870000000-E	1205	33	LF	REMOVAL OF PAVEMENT MARKING LINES (24")
4905000000-N	1253	171	EA	SNOWPLOWABLE PAVEMENT MARKERS
5325000000-E	1510	7	LF	*** WATER LINE (18")
5326000000-E	1510	215	LF	6" WATER LINE
5328000000-E	1510	482	LF	8" WATER LINE
5326000000-E	1510	216	LF	10" WATER LINE
5326000000-E	1510	38	LF	12" WATER LINE
5326000000-E	1510	75	LF	16" WATER LINE
5327400000-E	1510	5,836	LF	24" WATER LINE
5534000000-E	1515	1	EA	*** VALVE (18")
5540000000-E	1515	5	EA	6" VALVE
5546000000-E	1515	7	EA	8" VALVE
5552000000-E	1515	3	EA	10" VALVE
5558000000-E	1515	1	EA	12" VALVE
5558600000-E	1515	1	EA	16" VALVE
5559400000-E	1515	6	EA	24" VALVE
5571000000-E	1515	1	EA	*** TAPPING VALVE (18")
5589200000-E	1515	2	EA	2" AIR RELEASE VALVE
5643000000-E	1515	1	EA	*** WATER METER (1")
5648000000-N	1515	4	EA	RELOCATE WATER METER
5649000000-N	1515	3	EA	RECONNECT WATER METER
5666000000-E	1515	3	EA	FIRE HYDRANT
5672000000-N	1515	13	EA	RELOCATE FIRE HYDRANT
5691300000-E	1520	555	LF	8" SANITARY GRAVITY SEWER
5768000000-N	1520	2	EA	SANITARY SEWER CLEAN-OUT
5775000000-E	1525	2	EA	4" DIA UTILITY MANHOLE
5781000000-E	1525	6	LF	UTILITY MANHOLE WALL, 4" DIA
5801000000-E	1530	240	LF	ABANDON 8" UTILITY PIPE
5811000000-E	1530	5,840	LF	ABANDON 18" UTILITY PIPE
5816000000-N	1530	1	EA	ABANDON UTILITY MANHOLE
5882000000-N	SP	1	EA	GENERIC UTILITY ITEM 2" BALL VALVE
5882000000-N	SP	1	EA	GENERIC UTILITY ITEM REMOVE EXISTING WATER VAULT
5894000000-E	SP	7	CY	GENERIC UTILITY ITEM CLASS B CONCRETE FOR PROTECTING CONDUIT
6000000000-E	1605	3,995	LF	TEMPORARY SILT FENCE
6006000000-E	1610	320	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	1,205	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	895	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	14	ACR	TEMPORARY MULCHING
6018000000-E	1620	500	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	2	TON	FERTILIZER FOR TEMPORARY SEEDING
6029000000-E	SP	160	LF	SAFETY FENCE
6030000000-E	1630	4,180	CY	SILT EXCAVATION
6036000000-E	1631	4,755	SY	MATting FOR EROSION CONTROL

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

ItemNumber	Sec #	Quantity	Unit	Description
603800000-E	SP	225	SY	PERMANENT SOIL REINFORCEMENT MAT
604200000-E	1632	1,320	LF	1/4" HARDWARE CLOTH
607000000-N	SP	2	EA	SPECIAL STILLING BASINS
607103000-E	SP	415	LF	COIR FIBER BAFFLES
608400000-E	1660	14	ACR	SEEDING & MULCHING
608700000-E	1660	8.5	ACR	MOWING
609000000-E	1661	150	LB	SEED FOR REPAIR SEEDING
609300000-E	1661	0.5	TON	FERTILIZER FOR REPAIR SEEDING
609600000-E	1662	350	LB	SEED FOR SUPPLEMENTAL SEEDING
610800000-E	1665	10.5	TON	FERTILIZER TOPDRESSING
611100000-E	SP	50	LF	IMPERVIOUS DIKE
611400000-N	SP	4.5	HR	SPECIALIZED HAND MOWING
611700000-N	SP	24	EA	RESPONSE FOR EROSION CONTROL
700000000-E	1705	4	EA	PEDESTRIAN SIGNAL HEAD (**, ** SECTION) (16", 1 SECTION W/COUNTDOWN)
706000000-E	1705	2,950	LF	SIGNAL CABLE
712000000-E	1705	14	EA	VEHICLE SIGNAL HEAD (12", 3 SECTION)
713200000-E	1705	1	EA	VEHICLE SIGNAL HEAD (12", 4 SECTION)
714400000-E	1705	4	EA	VEHICLE SIGNAL HEAD (12", 5 SECTION)
726400000-E	1710	980	LF	MESSENGER CABLE (3/8")
728800000-E	1715	485	LF	PAVED TRENCHING (***** (2", 1)
730000000-E	1715	510	LF	UNPAVED TRENCHING (***** (2", 1)
732400000-N	1716	13	EA	JUNCTION BOX (STANDARD SIZE)
736000000-N	1720	3	EA	WOOD POLE
737200000-N	1721	8	EA	GUY ASSEMBLY
740800000-E	1722	1	EA	1" RISER WITH WEATHERHEAD
742000000-E	1722	6	EA	2" RISER WITH WEATHERHEAD

ItemNumber	Sec #	Quantity	Unit	Description
744400000-E	1725	2,830	LF	INDUCTIVE LOOP SAWCUT
745600000-E	1726	2,370	LF	LEAD-IN CABLE (***** (18-2)
745600000-E	1726	850	LF	LEAD-IN CABLE (***** (18-2, DIRECT BURY)
745600000-E	1726	1,280	LF	LEAD-IN CABLE (***** (18-4)
757600000-N	SP	4	EA	METAL STRAIN SIGNAL POLE
761300000-N	SP	4	EA	SOIL TEST
761410000-E	SP	32	CY	DRILLED PIER FOUNDATION
763600000-N	1745	3	EA	SIGN FOR SIGNALS
768400000-N	1750	2	EA	SIGNAL CABINET FOUNDATION
775600000-N	1751	2	EA	CONTROLLER WITH CABINET (TYPE 2070L, BASE MOUNTED)
778000000-N	1751	9	EA	DETECTOR CARD (TYPE 2070L)
790100000-N	1753	2	EA	CABINET BASE EXTENDER
798000000-N	SP	4	EA	GENERIC SIGNAL ITEM POWDER COAT FOR METAL STRAIN POLE
883200000-N	SP	Lump Sum		GENERIC RETAINING WALL ITEM SOIL NAIL RETAINING WALL AT STA 29+58 TO 35+46
884700000-E	SP	2,250	SF	GENERIC RETAINING WALL ITEM MODULAR BLOCK RETAINING WALL

***** BEGIN SCHEDULE AA *****				
***** (3 ALTERNATES) *****				
036600000-E	310	2,284	LF	15" RC PIPE CULVERTS, CLASS III
AA1				
037200000-E	310	40	LF	18" RC PIPE CULVERTS, CLASS III
AA1				
037800000-E	310	564	LF	24" RC PIPE CULVERTS, CLASS III
AA1				
*** OR ***				
036600000-E	310	2,176	LF	15" RC PIPE CULVERTS, CLASS III
AA2				
037800000-E	310	252	LF	24" RC PIPE CULVERTS, CLASS III
AA2				
053600000-E	SP	108	LF	*** HDPE PIPE CULVERTS (15")
AA2				

ItemNumber	Sec #	Quantity	Unit	Description
053600000-E	SP	40	LF	*** HDPE PIPE CULVERTS (18")
AA2				
053600000-E	SP	312	LF	*** HDPE PIPE CULVERTS (24")
AA2				
*** OR ***				
036600000-E	310	2,176	LF	15" RC PIPE CULVERTS, CLASS III
AA3				
037800000-E	310	252	LF	24" RC PIPE CULVERTS, CLASS III
AA3				
054000000-E	SP	108	LF	*** ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, ***** THICK (15", 0.064")
AA3				
054000000-E	SP	40	LF	*** ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, ***** THICK (18", 0.064")
AA3				
054000000-E	SP	312	LF	*** ALUMINIZED CORRUGATED STEEL PIPE CULVERTS, ***** THICK (24", 0.064")
AA3				
***** END SCHEDULE AA *****				











STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**SUMMARY OF PROPOSED RADIUS  
TYPE DRIVES IN C&G (STANDARD 848.02)**

Baseline	Station	Offset	Station	Offset	SY	Drive Width
L	18+07.60	20.00	18+31.17	20.00	15.02	24
L	40+06.25	-20.00	40+56.18	-20.00	29.47	50
L	40+77.61	20.00	41+01.70	20.00	15.02	24
L	43+80.25	20.00	44+04.25	20.00	15.02	24
L	52+17.44	20.00	52+33.44	20.00	10.58	16
L	61+97.08	-20.00	62+21.56	-20.00	15.02	24
L	62+01.96	20.00	62+25.46	19.75	15.02	24
L	65+05.14	20.00	65+28.70	20.00	15.02	24
L	66+44.95	-20.00	66+68.95	-20.00	15.02	24
L	70+45.59	20.00	70+70.51	20.00	15.02	24
Totals					Unit: SY	160.21
					SAY	165.00

**PIPE REMOVAL, PIPE PLUG  
AND FLOWABLE FILL**

LOCATION	LT /RT	PIPE REMOVABLE LENGTH (FEET)	PIPE PLUGS (CUBIC YDS)	FLOWABLE FILL (CUBIC YDS)
27+12 -L-	LT	40.00'		
43+47 -L-	RT	129.22'		
45+21 -L-	RT	21.56'		
45+95 -L-	RT	5.35'		
62+10 -L-	LT	22.39'		
37+40 -L-	LT			6.11
28+48 -L-	LT		0.029	
37+40 -L-	LT		0.465	
45+32 -L-	RT			3.13
49+26 -L-	LVRT			3.13
54+64 -L-	LVRT			3.13
6+88 -Y2-	LVRT			13.15
TOTAL		218.52'	0.494	28.65
SAY			0.55	35

**SUMMARY OF SANITARY  
SEWER MANHOLE ADJUSTMENTS**

ALIGNMENT	LOCATION	LT /RT
-L-	17+45.07	23.29 RT
-L-	21+72.94	14.29 RT
-L-	36+08.89	13.24 RT
-L-	38+32.50	12.60 RT
-L-	40+35.61	28.72 RT
-L-	40+66.34	33.95 LT
-L-	40+70.99	16.82 RT
-L-	45+59.30	18.35 RT
-L-	55+56.23	31.72 RT
-L-	57+74.93	32.06 RT
-L-	59+64.53	31.35 RT
-L-	61+64.55	33.44 RT
-L-	66+12.32	30.33 RT
-L-	69+76.52	12.86 LT
-Y2-	5+24.07	14.95 LT
PROJECT TOTAL		15 EACH

**REMOVAL OF EXISTING  
ASPHALT PAVEMENT**

LOCATION	LT /RT	SQUARE YARDS
69+09.52 TO 70+47.01 -L-	LT	674.34
70+80.84 TO 71+73.16 -L-	LT	494.71
72+30.16 TO 73+03.49 -L-	LT	70.93
TOTAL		1239.98
SAY		1250.00

**BREAKING OF EXISTING  
ASPHALT PAVEMENT**

LOCATION	LT /RT	SQUARE YARDS
68+48 TO 69+51 -L-	LT	88.3
6+26 TO 6+97 -Y2-	RT	59.3
6+13 TO 6+87 -Y2-	LT	37.1
71+63 TO 71+76 -L-	LT	8.4
72+30 TO 73+05 -L-	LT	36.8
TOTAL		229.9
SAY		250

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 \$\$\$SUSPENSE\$\$\$



**SUMMARY OF EARTHWORK  
IN CUBIC YARDS**

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

LOCATION	UNCLASSIFIED EXCAVATION	EMBT + %	BORROW	WASTE	UNDERCUT
<b>SUMMARY NO. 1 12+11.76 - 42+00.00</b>					
LEFT SIDE OF -L-					
-L- 12+11.76 TO 42+00 LT	578	987	409		
-DRIVEA- 11+36.88 TO 12+16.55 LT /RT	4	57	53		
RIGHT SIDE OF -L-					
-L- 12+11.76 TO 42+00 RT	1783	1489		294	
-YA- 10+00.00 TO 11+48.63 LT /RT	20	61	41		
<b>SUMMARY NO. 1 TOTAL</b>	<b>2385</b>	<b>2594</b>	<b>503</b>	<b>294</b>	
<b>SUMMARY NO. 2 42+00.00 - 72+00.00</b>					
LEFT SIDE OF -L-					
-L- 42+00.00 TO 72+00.00 LT	1629	3148	1519		
-Y2- 5+00.00 TO 7+55.97 LT /RT	62	1010	948		
RIGHT SIDE OF -L-					
-L- 42+00.00 TO 72+00.00 RT	940	5644	4704		
-Y- 10+00.00 TO 11+21.95 LT /RT	48	29		19	
-Y1- 10+00.00 TO 11+23.42 LT /RT	24	27	3		
-DRIVE2- 10+00.00 TO 12+50.00 LT /RT	9	1489	1480		
-DRIVE3- 10+40.00 TO 11+66.87 LT /RT	4	169	165		
<b>SUMMARY NO. 2 TOTAL</b>	<b>2716</b>	<b>11516</b>	<b>8819</b>	<b>19</b>	
<b>SUMMARY NO. 3 72+00.00 - 78+70.00</b>					
LEFT SIDE OF -L-					
-L- 72+00.00 - 78+70.00 LT	62	479	417		
RIGHT SIDE OF -L-					
-L- 72+00.00 - 78+70.00 RT	81	1161	1080		90
<b>SUMMARY NO. 3 TOTAL</b>	<b>143</b>	<b>1640</b>	<b>1497</b>		<b>90</b>
<b>SUMMARIES TOTAL</b>	<b>5244</b>	<b>15750</b>	<b>10819</b>	<b>313</b>	<b>90</b>
LOSS DUE TO CLEAR & GRUB.	-270		270		
USE SUITABLE WASTE IN LIEU OF BARROW			-313	-313	
<b>PROJECT TOTAL</b>	<b>4974</b>	<b>15750</b>	<b>10776</b>		<b>90</b>
EST. 5% TO REPLACE TOPSOIL ON BORROW PIT			540		
<b>PROJECT GRAND TOTAL</b>	<b>4974</b>		<b>11316</b>		<b>90</b>

LOCATION	UNCLASSIFIED EXCAVATION	EMBT + %	BORROW	WASTE	UNDERCUT
SAY	5000		11500		90
DRAINAGE DITCH EXCAVATION	780				

**WHEELCHAIR RAMPS**

LOCATION	LT /RT	NUMBER OF RAMPS
16+57 -L-	RT	1
16+77 -L-	RT	1
18+48 -L-	RT	1
18+49 -L-	LT	1
18+77 -L-	LT	1
19+05 -L-	LT	1
19+49 -L-	LT	1
19+52 -L-	RT	1
21+17 -L-	RT	1
21+44 -L-	RT	1
22+42 -L-	RT	1
22+78 -L-	RT	1
27+03 -L-	RT	1
27+34 -L-	RT	1
35+88 -L-	RT	1
36+39 -L-	RT	1
38+60 -L-	RT	1
38+95 -L-	RT	1
42+13 -L-	RT	1
42+53 -L-	RT	1
45+33 -L-	RT	1
46+02 -L-	RT	1
54+83 -L-	RT	1
55+63 -L-	RT	1
57+83 -L-	RT	1
57+91 -L-	LT	1
58+84 -L-	LT	1
70+04 -L-	LT	1
70+31 -L-	LT	1
70+76 -L-	LT	1
71+05 -L-	LT	1
71+80 -L-	LT	1
72+26 -L-	LT	1
73+23 -L-	LT	1
73+63 -L-	LT	1
74+41 -L-	LT	1
<b>PROJECT TOTAL</b>		<b>36</b>

**CONCRETE APRONS FOR  
DROP INLETS**

LOCATION	LT /RT	STRUCTURE NO.
44+15 -L-	RT	DS 31
71+67 -L-	LT	DS 51
<b>PROJECT TOTAL</b>		<b>2</b>

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STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

**RIGHT OF WAY AREA DATA SHEET**

PARCEL NO.	PROPERTY OWNERS NAME	TOTAL ACREAGE	AREA TAKEN	AREA REMAINING RIGHT	AREA REMAINING LEFT	CONSTR. EASEMENT	PERMANENT DRAINAGE EASEMENT	TEMPORARY DRAINAGE EASEMENT	PERMANENT UTILITY EASEMENT	PARCEL NO.	PROPERTY OWNERS NAME	TOTAL ACREAGE	AREA TAKEN	AREA REMAINING RIGHT	AREA REMAINING LEFT	CONSTR. EASEMENT	PERMANENT DRAINAGE EASEMENT	TEMPORARY DRAINAGE EASEMENT
1	THE TRUSTEES OF A-B TECH COMMUNITY COLLEGE	7.9 ACRES	0.39 ACRES		7.51 ACRES		0.72 ACRES											
2	FLETCHER PARTNERS INC	2.05 ACRES	564.41 SQ FT	2.04 ACRES		1451.94 SQ FT												
3	COLBOND INC.	141.21 ACRES	1.02ACRES		140.45 ACRES	0.98 ACRES	0.23 ACRES	0.34 ACRES										
4	FLETCHER PARTNERS INC	4.06 ACRES	3091.75 SQ FT	3.99 ACRES		0.20 ACRES	3163.53 SQ FT											
5	COUNTY OF BUNCOMBE	35719.20 SQ FT	2296.15 SQ FT	33423.05 SQ FT		2678.12 SQ FT	237.88 SQ FT											
6	FLETCHER PARTNERS INC	3.42 ACRES	0.17 ACRES	3.25 ACRES		0.19 ACRES	646.81 SQ FT											
7	BILTMORE LAKE ASSOC., INC.	56.54 ACRES	1.50 ACRES	55.04 ACRES		139.50 SQ FT												
8	ENKA BAPTIST CHURCH	2.17 ACRES	395.85 SQ FT	2.16 ACRES		3395.56 SQ FT												
9	FLETCHER PARTNERS INC	84.33 ACRES	0.16 ACRES		84.17 ACRES	0.35 ACRES												
10	BRENDA O. REESE	23086.80 SQ FT	87.65 SQ FT	22999.15 SQ FT		671.71 SQ FT												
11	ENKA PARK COMMONS	19166.40 SQ FT	112.82 SQ FT	19053.58 SQ FT		3267.06 SQ FT												
12	LAUADA J. PACE	17424 SQ FT	0.0 SQ FT	17424 SQ FT		636.17 SQ FT	154.35 SQ FT											
13	T & N ENTERPRISES	7.0 ACRES	0.17 ACRES		6.83 ACRES	0.17 ACRES												
14	AUDREY ANN ELDERS	14374.80 SQ FT	713.33 SQ FT	13661.47 SQ FT		3473.86 SQ FT												
15	STEPHEN THOMAS POOLE	56628.00 SQ FT	282.81 SQ FT	56345.19 SQ FT		0.16 ACRES												
16	JACOB HOLM INDUSTRIES INC.	22.72 ACRES	0.40 ACRES		22.32 ACRES	0.38 ACRES	256.00 SQ FT											
17	SOUTHEASTERN CONTAINER INC.	7.64 ACRES	0.12 ACRES	7.52 ACRES		0.24 ACRES	0.12 ACRES											
18	SCHWAN'S HOME SERVICES INC	5.16 ACRES	0.22 ACRES		4.94 ACRES	0.21 ACRES												
19	FLETCHER PARTNERS INC	10.46 ACRES	2572.26 SQ FT	10.40 ACRES		0.27 ACRES												
20	BANK-WEST INVESTMENTS LLC	17.34 ACRES	0.41 ACRES	16.93 ACRES		0.59 ACRES			0.21 ACRES									
21	BANK-WEST INVESTMENTS LLC	61.07 ACRES	NO CLAIM															
22	CHARLES A. LYNCH	2.23 ACRES	NO CLAIM															

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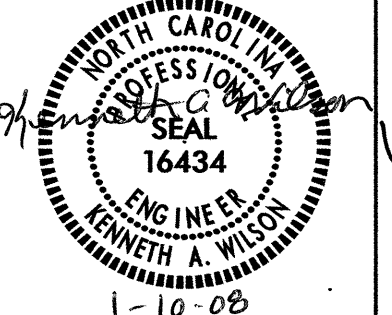
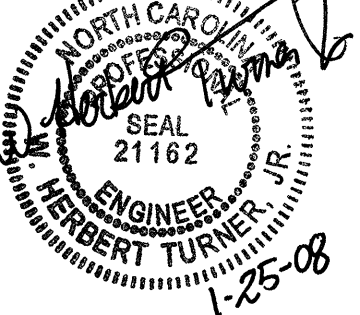
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

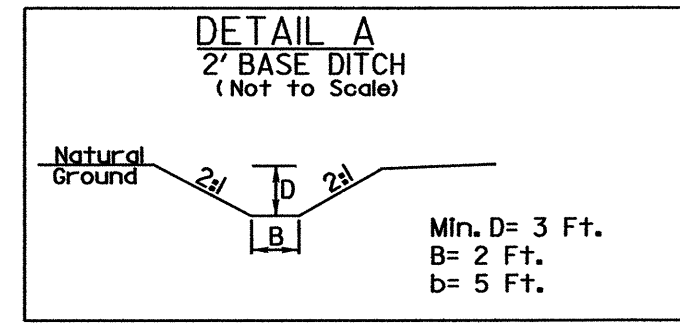
## PARCEL INDEX SHEET

PARCEL NO.	SHEET NO.	PROPERTY OWNERS NAME
1	4	THE TRUSTEES OF A-B TECH COMMUNITY COLLEGE
2	5	FLETCHER PARTNERS INC
3	5,6,7	COLBOND INC.
4	5	FLETCHER PARTNERS INC
5	5	COUNTY OF BUNCOMBE
6	6	FLETCHER PARTNERS INC
7	6,7	BILTMORE LAKE ASSOC., INC.
8	7	ENKA BAPTIST CHURCH
9	7,9	FLETCHER PARTNERS INC
10	7	BRENDA O. REESE
11	7	ENKA PARK COMMONS
12	7	LAUADA J. PACE
13	7	T & N ENTERPRISES
14	7	AUDREY ANN ELDERS
15	7	STEPHEN THOMAS POOLE
16	7,8	JACOB HOLM INDUSTRIES INC.
17	8	SOUTHEASTERN CONTAINER INC.
18	8	SCHWAN'S HOME SERVICES INC
19	8	FLETCHER PARTNERS INC
20	9	BANK-WEST INVESTMENTS LLC
21	10,11	BANK-WEST INVESTMENTS LLC
22	10	CHARLES A. LYNCH

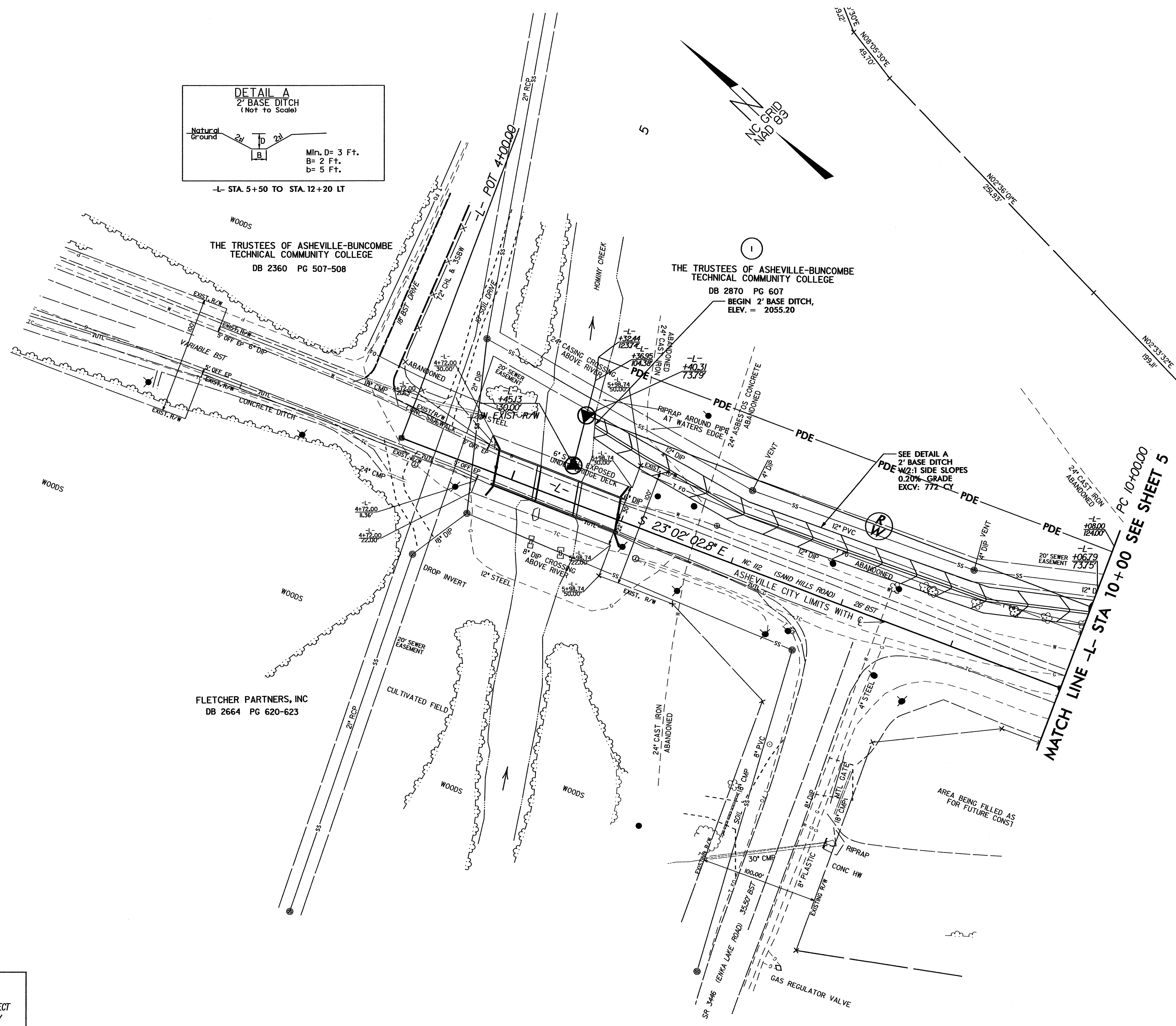
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PROJECT REFERENCE NO. 37831	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER 



-L- STA. 5+50 TO STA. 12+20 LT



**DATUM DESCRIPTION**

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NC83 FOR MONUMENT "DEWEESE"

WITH NAD 83 STATE PLANE GRID COORDINATES OF  
NORTHING: 673169.352(11) EASTING: 911534643(11)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999783068

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL DISTANCE FROM "DEWEESE" TO -L- STATION 12+1176 IS  
S 36°01'02" E 2,174.33'

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES  
VERTICAL DATUM USED IS NAVD 88

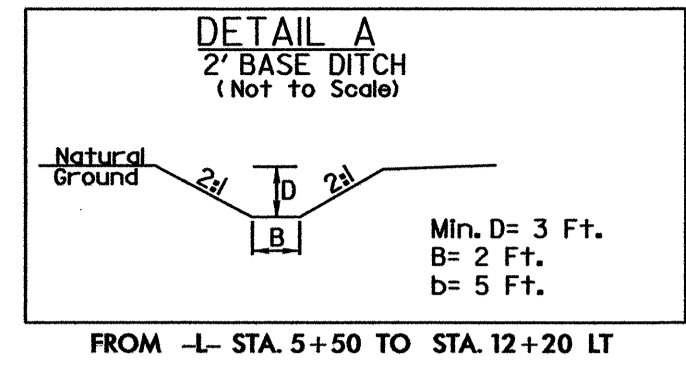
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 USER:KARLE

-L-

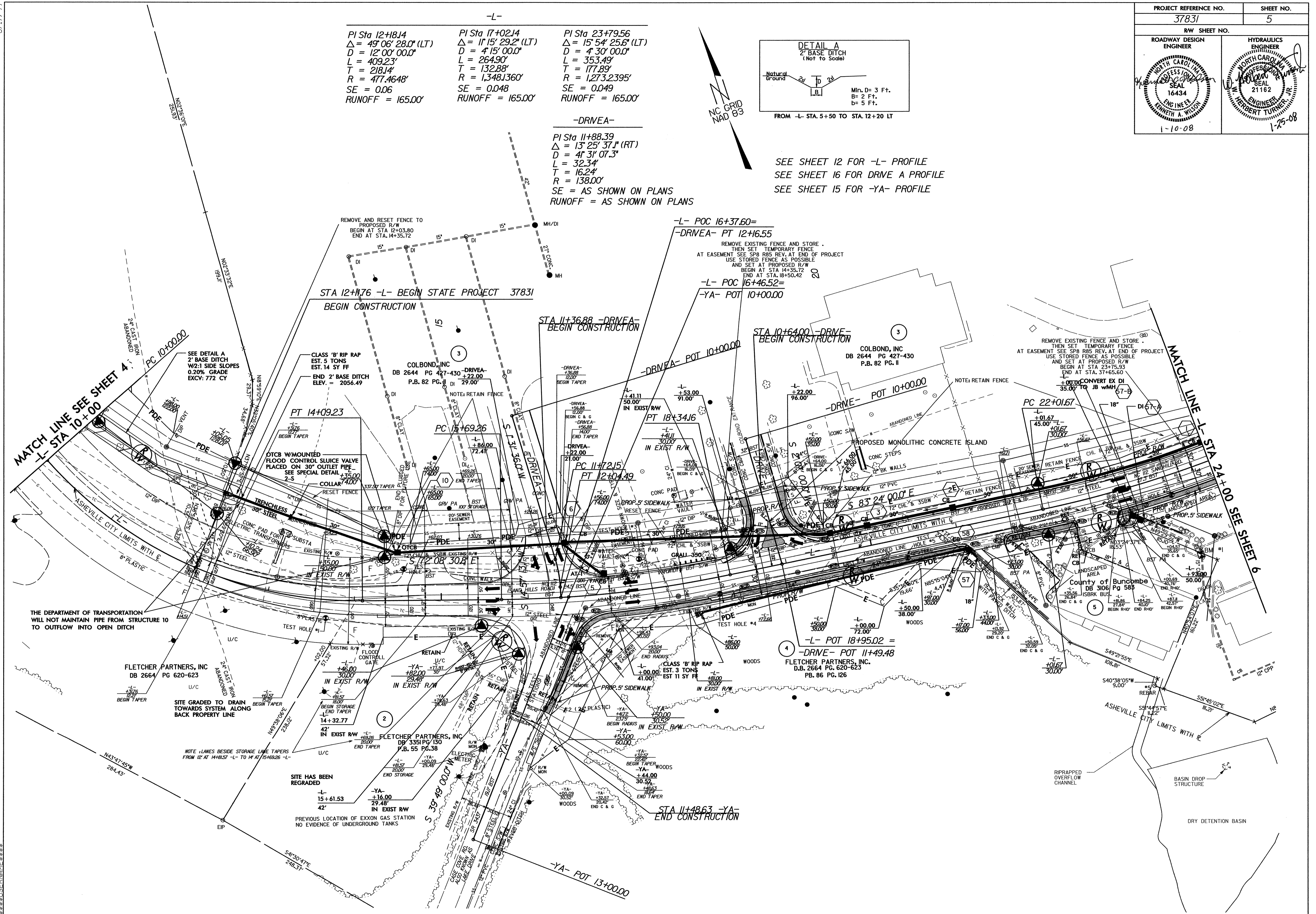
PI Sta 12+18.14 Δ = 49° 06' 28.0" (LT) D = 12' 00' 00.0" L = 409.23' T = 218.14' R = 477.4648' SE = 0.06 RUNOFF = 165.00'	PI Sta 17+02.14 Δ = 11° 15' 29.2" (LT) D = 4' 15' 00.0" L = 264.90' T = 132.88' R = 1,348.1360' SE = 0.048 RUNOFF = 165.00'	PI Sta 23+79.56 Δ = 15° 54' 25.6" (LT) D = 4' 30' 00.0" L = 353.49' T = 177.89' R = 1,273.2395' SE = 0.049 RUNOFF = 165.00'
--	--	--

-DRIVEA-

PI Sta 11+88.39  
Δ = 13° 25' 37.1" (RT)  
D = 41' 31' 07.3"  
L = 32.34'  
T = 16.24'  
R = 138.00'  
SE = AS SHOWN ON PLANS  
RUNOFF = AS SHOWN ON PLANS



SEE SHEET 12 FOR -L- PROFILE  
SEE SHEET 16 FOR DRIVE A PROFILE  
SEE SHEET 15 FOR -YA- PROFILE



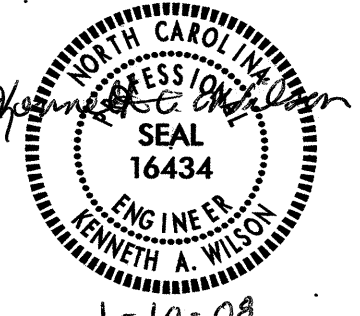
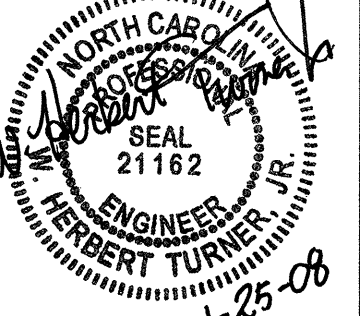
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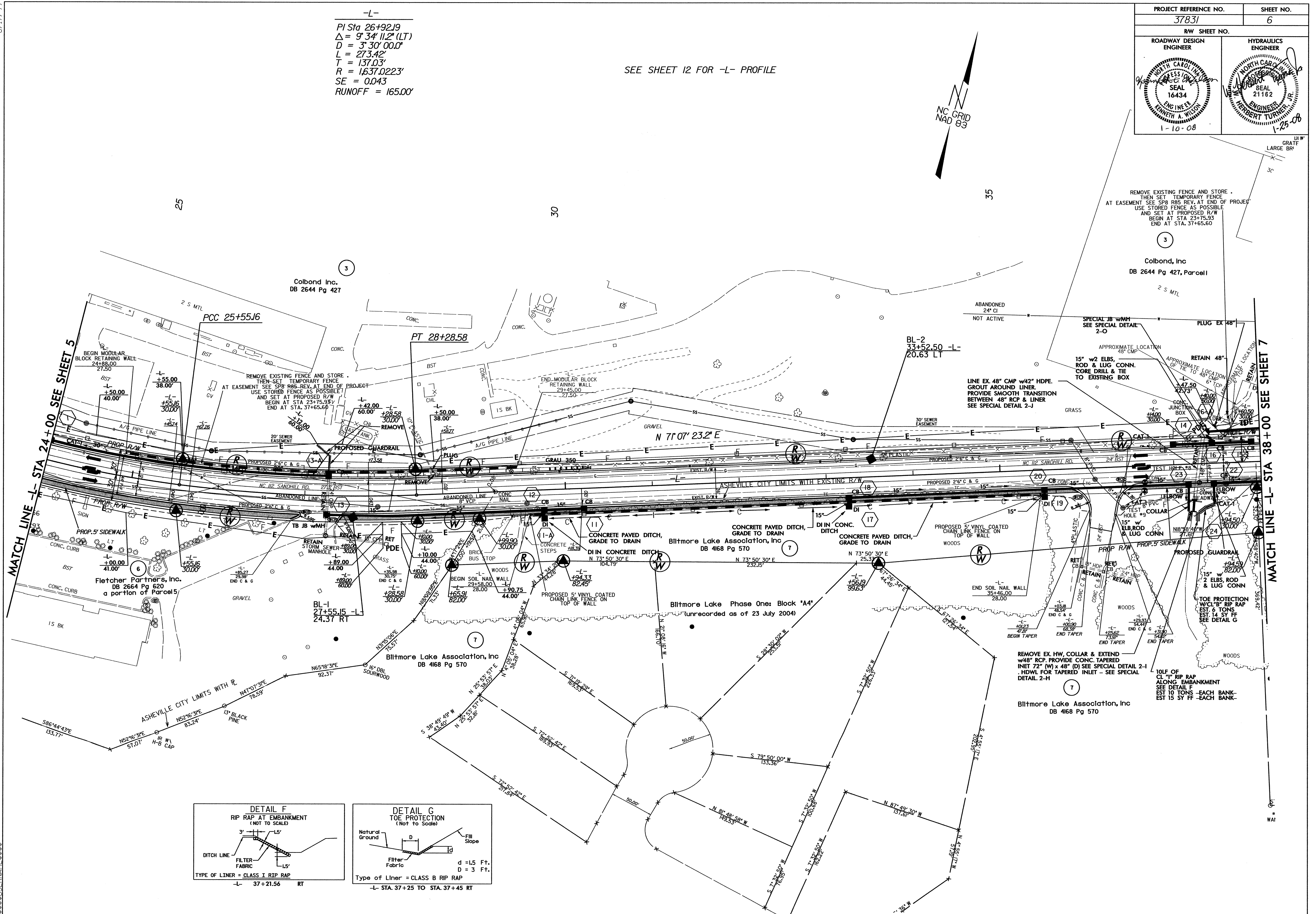
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\$\$\$\$\$BURNHAM\$\$\$\$\$

-L-  
PI Sta 26+92.19  
 $\Delta = 9' 34'' 11.2''$  (LT)  
 $D = 3' 30'' 00.0''$   
 $L = 273.42'$   
 $T = 137.03'$   
 $R = 1637.0223'$   
 $SE = 0.043$   
RUNOFF = 165.00'

SEE SHEET 12 FOR -L- PROFILE

PROJECT REFERENCE NO. 37831		SHEET NO. 6	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
			



REMOVE EXISTING FENCE AND STORE  
THEN SET TEMPORARY FENCE  
AT EASEMENT SEE SP8 R86 REV. AT END OF PROJECT  
USE STORED FENCE AS POSSIBLE  
AND SET AT PROPOSED R/W  
BEGIN AT STA 23+75.93  
END AT STA. 37+65.60

Colbond, Inc  
DB 2644 Pg 427, Parcel 1

ABANDONED  
24" CI  
NOT ACTIVE

SPECIAL JB WMH  
SEE SPECIAL DETAIL  
2-0

APPROXIMATE LOCATION  
OF IE TO 48" CMP

15" w2 ELBS.  
ROD & LUG CONN.  
CORE DRILL & TIE  
TO EXISTING BOX

RETAIN 48"

APPROXIMATE LOCATION  
OF IE TO 48" CMP

LINE EX. 48" CMP w42" HDPE.  
GROUT AROUND LINER.  
PROVIDE SMOOTH TRANSITION  
BETWEEN 48" RCP & LINER  
SEE SPECIAL DETAIL 2-J

CONCRETE PAVED DITCH,  
GRADE TO DRAIN

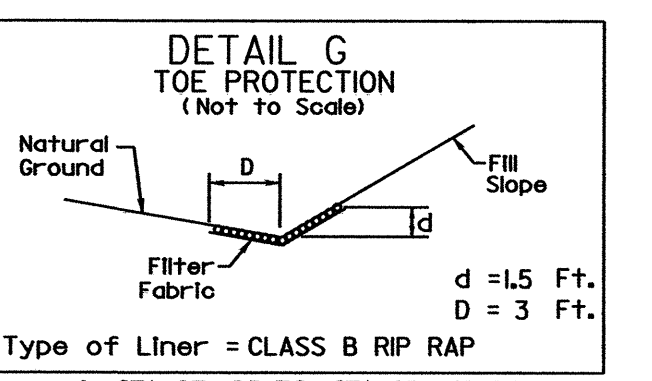
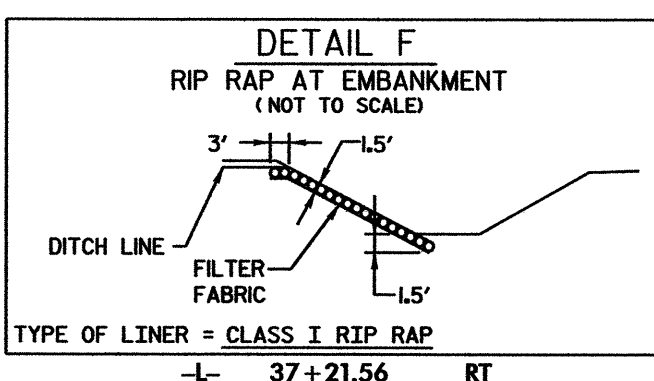
Blitmore Lake Association, Inc  
DB 4168 Pg 570

N 73° 50' 30" E  
25.3'

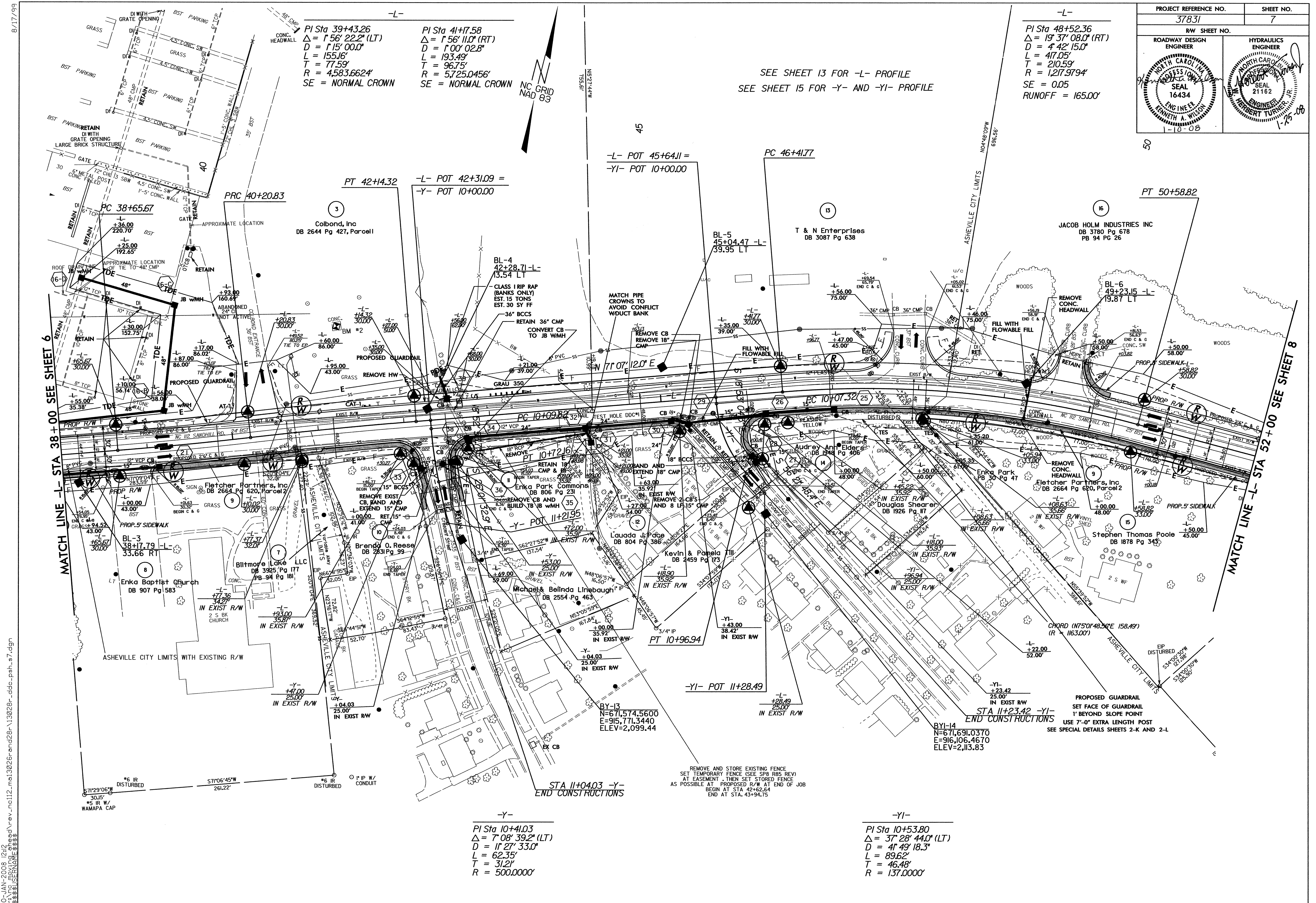
REMOVE EX. HW, COLLAR & EXTEND  
w48" RCP. PROVIDE CONC. TAPERED  
INLET 72" (W) x 48" (D) SEE SPECIAL DETAIL 2-I  
- HDWL FOR TAPERED INLET - SEE SPECIAL  
DETAIL 2-H

10LF OF  
CL 1" RIP RAP  
ALONG EMBANKMENT  
SEE DETAIL F  
EST 10 TONS - EACH BANK-  
EST 15 SY FF - EACH BANK-

Blitmore Lake Association, Inc  
DB 4168 Pg 570



PROJECT REFERENCE NO.	37831	SHEET NO.	7
RW SHEET NO.			
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER		



PI Sta 39+43.26  
 $\Delta = 1' 56'' 22.2''$  (LT)  
 $D = 1' 15'' 00.0''$   
 $L = 155.16'$   
 $T = 77.59'$   
 $R = 4,583.6624'$   
 SE = NORMAL CROWN

PI Sta 41+17.58  
 $\Delta = 1' 56'' 11.0''$  (RT)  
 $D = 1' 00'' 02.8''$   
 $L = 193.49'$   
 $T = 96.75'$   
 $R = 5,725.0456'$   
 SE = NORMAL CROWN

PI Sta 48+52.36  
 $\Delta = 19' 37'' 08.0''$  (RT)  
 $D = 4' 42'' 15.0''$   
 $L = 417.05'$   
 $T = 210.59'$   
 $R = 1,217.9794'$   
 SE = 0.05  
 RUNOFF = 165.00'

SEE SHEET 13 FOR -L- PROFILE  
 SEE SHEET 15 FOR -Y- AND -YI- PROFILE

MATCH LINE -L- STA 38+00 SEE SHEET 6

MATCH LINE -L- STA 52+00 SEE SHEET 8

STA 11+04.03 -Y-  
 END CONSTRUCTIONS

STA 11+23.42 -YI-  
 END CONSTRUCTIONS

-Y-  
 PI Sta 10+41.03  
 $\Delta = 7' 08'' 39.2''$  (LT)  
 $D = 11' 27'' 33.0''$   
 $L = 62.35'$   
 $T = 31.21'$   
 $R = 500.0000'$

-YI-  
 PI Sta 10+53.80  
 $\Delta = 37' 28'' 44.0''$  (LT)  
 $D = 41' 49'' 18.3''$   
 $L = 89.62'$   
 $T = 46.48'$   
 $R = 137.0000'$

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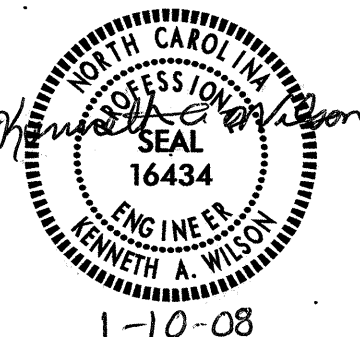

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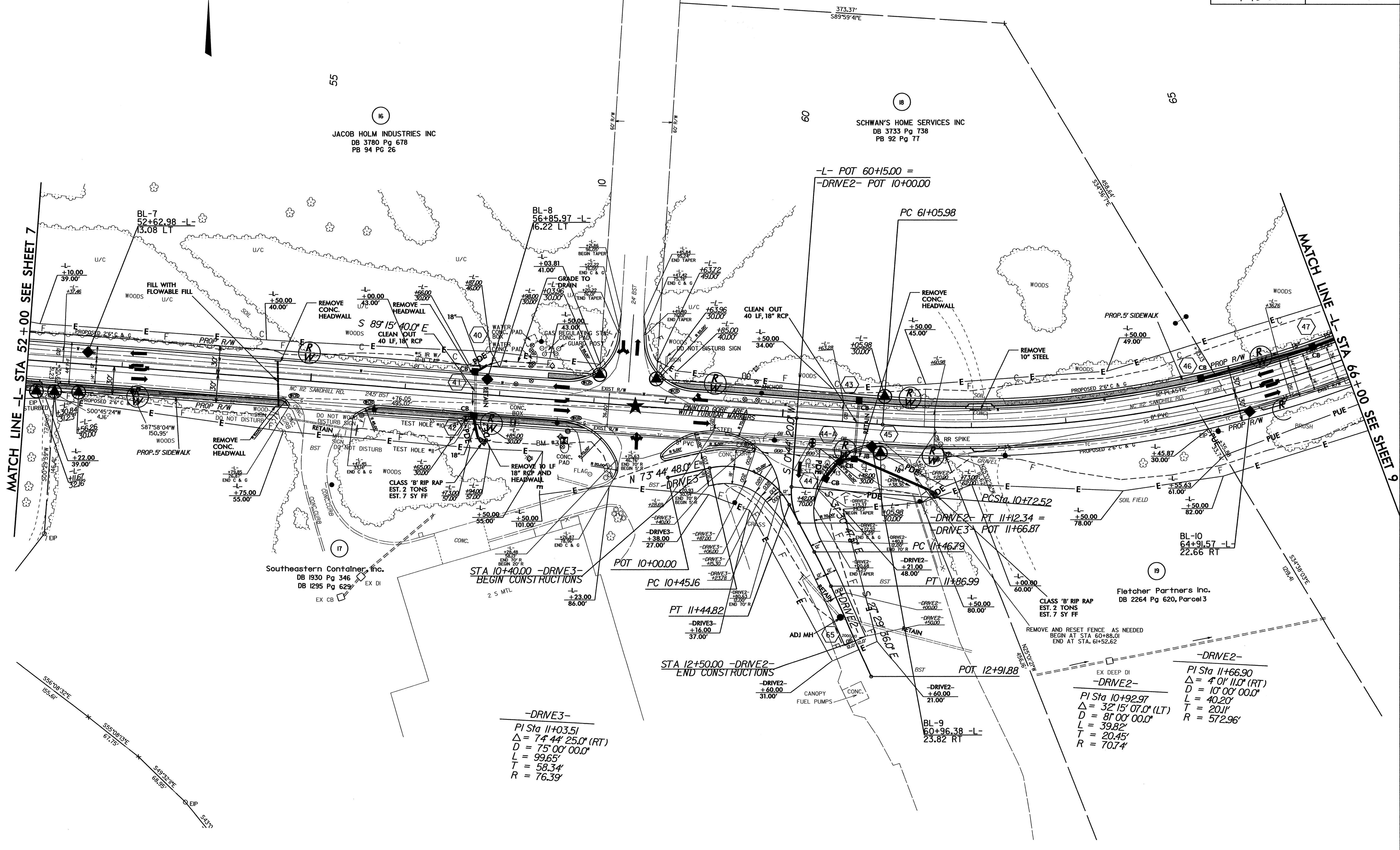
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SEE SHEET 13 FOR -L- PROFILE  
SEE SHEET 15 FOR -DRIVE2- PROFILE

-L-  
PI Sta 63+63.61  
 $\Delta = 25^{\circ} 20' 30.0''$  (LT)  
D = 5' 00' 00.0"  
L = 506.83'  
T = 257.63'  
R = 1,145.9156'  
SE = 0.051  
RUNOFF = 165.00'

PROJECT REFERENCE NO. 37831		SHEET NO. 8	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
			
1-10-08		1-25-08	



-DRIVE3-  
PI Sta 11+03.51  
 $\Delta = 74^{\circ} 44' 25.0''$  (RT)  
D = 75' 00' 00.0"  
L = 99.65'  
T = 58.34'  
R = 76.39'

-DRIVE2-  
PI Sta 11+66.90  
 $\Delta = 4^{\circ} 01' 11.0''$  (RT)  
D = 10' 00' 00.0"  
L = 40.20'  
T = 20.11'  
R = 572.96'

PI Sta 10+92.97  
 $\Delta = 32^{\circ} 15' 07.0''$  (LT)  
D = 81' 00' 00.0"  
L = 39.82'  
T = 20.45'  
R = 70.74'



PROJECT REFERENCE NO.	SHEET NO.
37831	9
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**-L-**

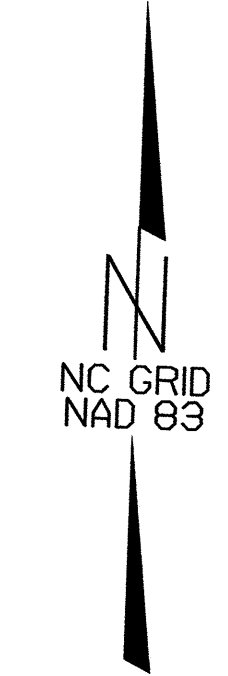
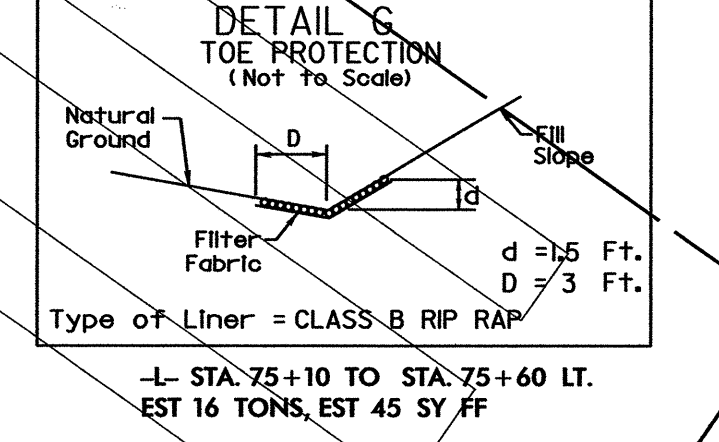
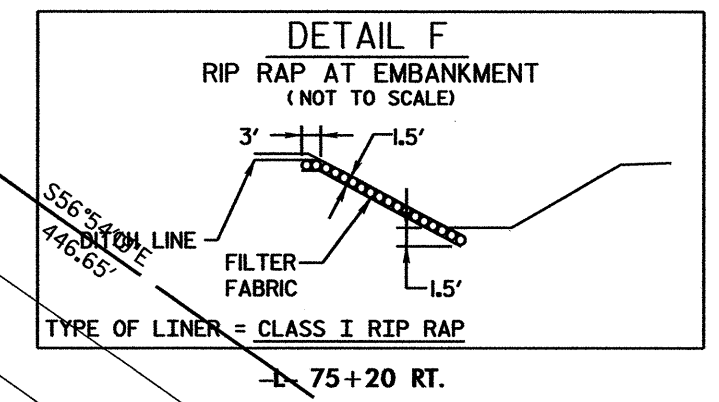
PI Sta 63+63.61  
 $\Delta = 25^{\circ} 20' 30.0"$  (LT)  
 $D = 5^{\circ} 00' 00.0"$   
 $L = 506.83'$   
 $T = 257.63'$   
 $R = 1,145.9156'$   
 $SE = 0.051$   
 $RUNOFF = 165.00'$

PI Sta 71+04.85  
 $\Delta = 57^{\circ} 47' 17.4"$  (RT)  
 $D = 8^{\circ} 30' 00.0"$   
 $L = 679.86'$   
 $T = 372.01'$   
 $R = 674.0680'$   
 $SE = 0.06$   
 $RUNOFF = 165.00'$

**-Y2-**

PI Sta 6+62.30  
 $\Delta = 48^{\circ} 52' 14.2"$  (LT)  
 $D = 47^{\circ} 45' 00.0"$   
 $L = 102.35'$   
 $T = 54.52'$   
 $R = 119.99'$

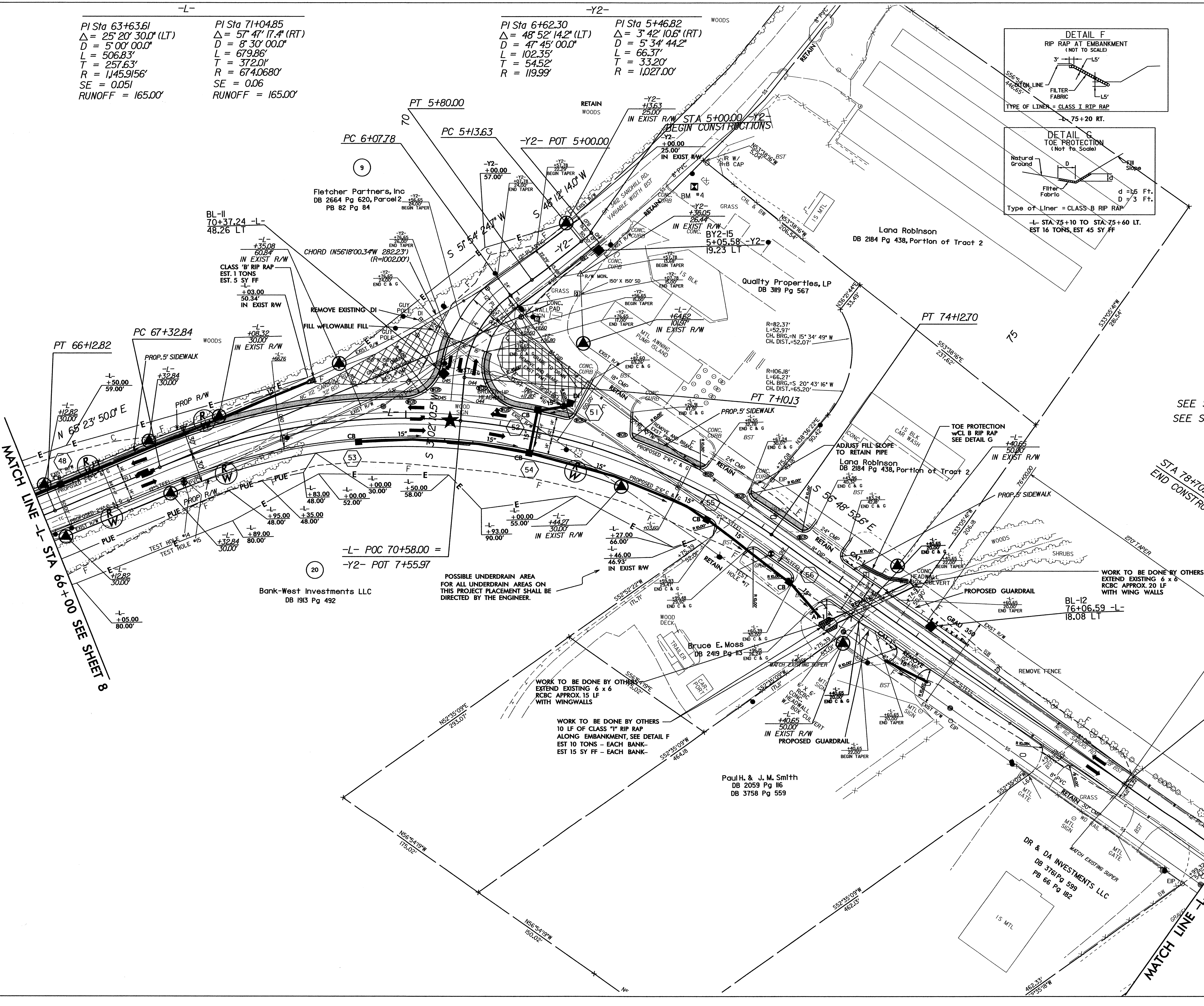
PI Sta 5+46.82  
 $\Delta = 3^{\circ} 42' 10.6"$  (RT)  
 $D = 5^{\circ} 34' 44.2"$   
 $L = 66.37'$   
 $T = 33.20'$   
 $R = 1,027.00'$



SEE SHEET 14 FOR -L- PROFILE  
 SEE SHEET 15 FOR -Y2- PROFILE

STA 78+70.00 -L- END STATE PROJECT 37831  
 END CONSTRUCTION

MATCH LINE -L- STA 80+00 SEE SHEET 10

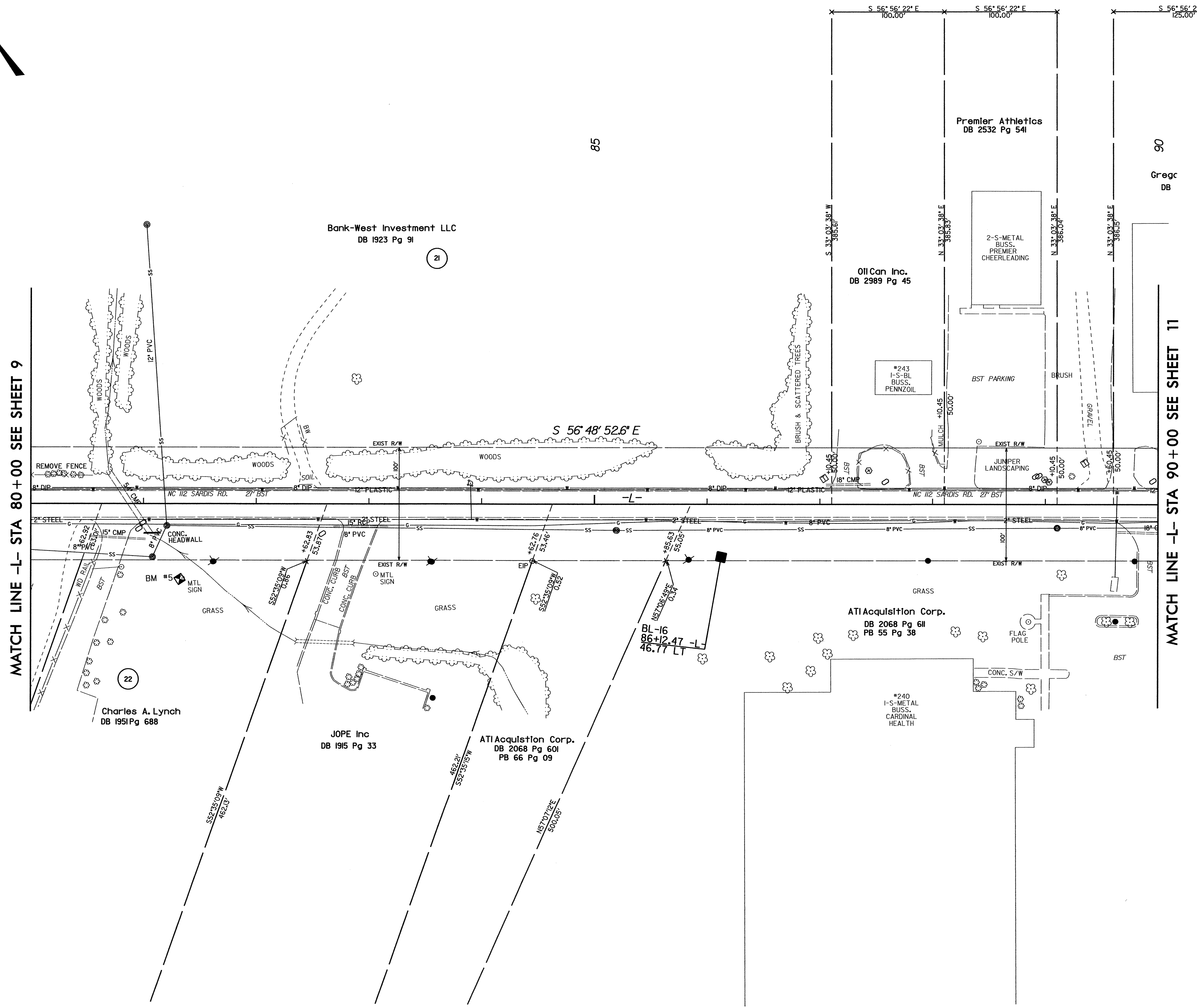


MATCH LINE -L- STA 66+00 SEE SHEET 8

8/17/99  
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 USER:R...

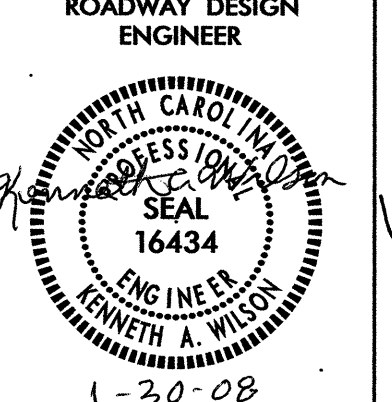
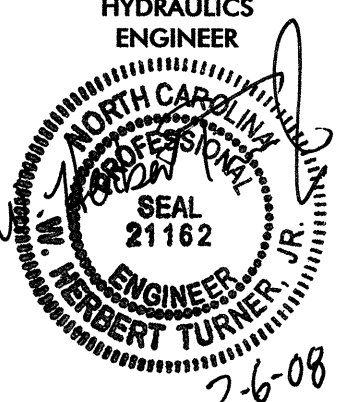
PROJECT REFERENCE NO. 37831	SHEET NO. 10
RW SHEET NO.	
ROADWAY DESIGN ENGINEER SEAL 16434 KENNETH A. WILSON 1-30-08	HYDRAULICS ENGINEER SEAL 21162 WENBERT TURNER 2-6-08

NOTE: SHEET 10 AND 11 IS SHOWN BECAUSE OF PREVIOUS LENGTH OF PROJECT,  
CONSTRUCTION ENDS AT -L- STA 78+70.00 SHEET 9

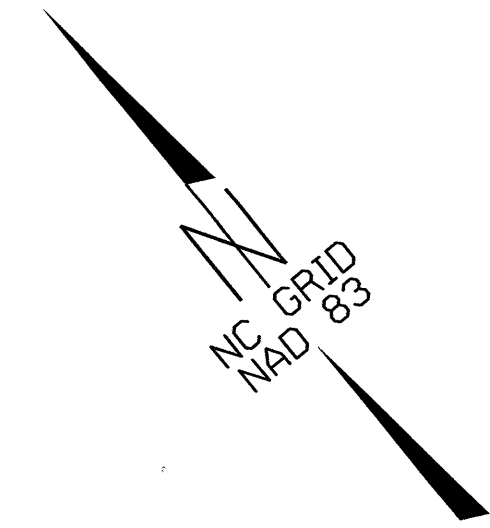


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 \$\$\$USERNAME\$\$\$

PROJECT REFERENCE NO.	SHEET NO.
37831	11
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	
1-30-08	2-6-08

NOTE: SHEET 10 AND 11 IS SHOWN BECAUSE OF PREVIOUS LENGTH OF PROJECT, CONSTRUCTION ENDS AT -L- STA 78+70.00 SHEET 9



-L-  
 PI Sta 94+86.47  
 $\Delta = 9^{\circ} 35' 56.6''$  (RT)  
 $D = 124' 00.0''$   
 $L = 685.65'$   
 $T = 343.63'$   
 $R = 4,092.5557'$

-Y3-  
 PI Sta 10+47.83  
 $\Delta = 10^{\circ} 14' 33.3''$  (RT)  
 $D = 38' 00' 00.0''$   
 $L = 26.95'$   
 $T = 13.51'$   
 $R = 150.7784'$

MATCH LINE -L- STA 90+00 SEE SHEET 10

90  
 Gregory Pressley  
 DB 2099 Pg 88

Bank-West Investment LLC  
 DB 1923 Pg 91

95  
 Penske Truck Leasing Co.  
 DB 1908 Pg 710

-L- POC 92+21.24 =  
 -Y3- POT 10+00.00

BL-17  
 92+25.10 -L-  
 18.83 LT  
 PC 91+42.84

BL-18  
 98+01.03 -L-  
 18.17 LT

PC 10+34.32

PT 10+61.27

STA 10+82.00 -Y3-  
 END CONSTRUCTIONS

Multimedia Inc.  
 DB 1404 Pg 74

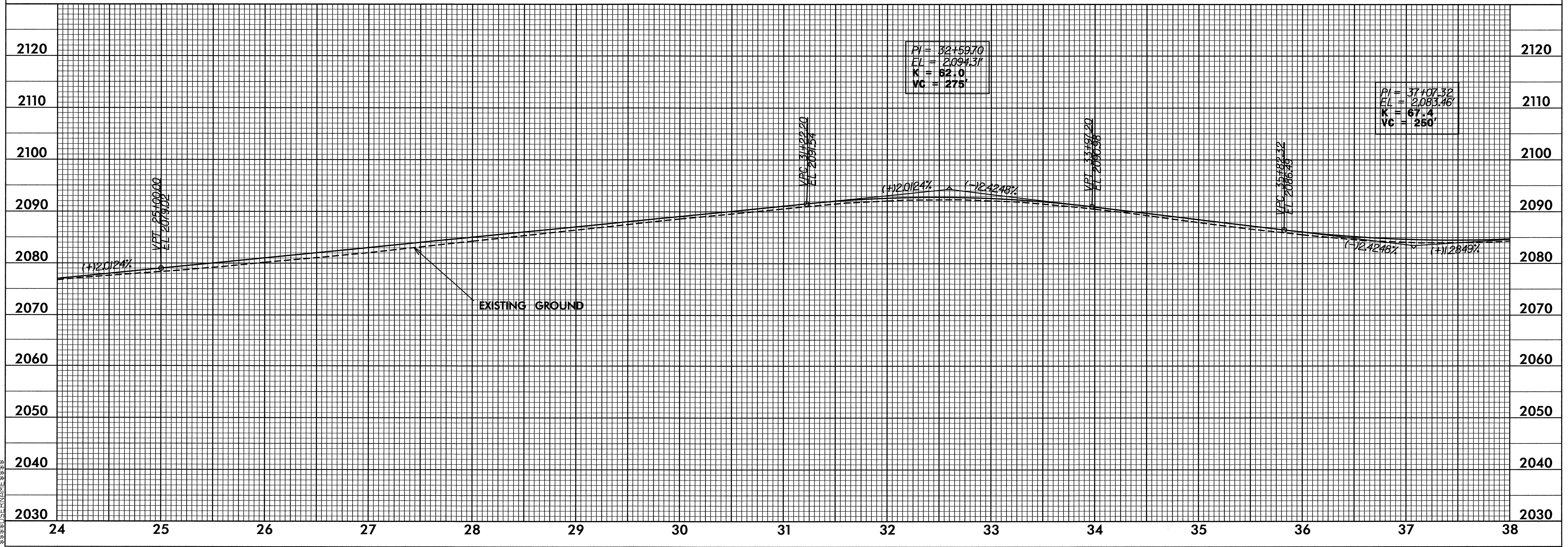
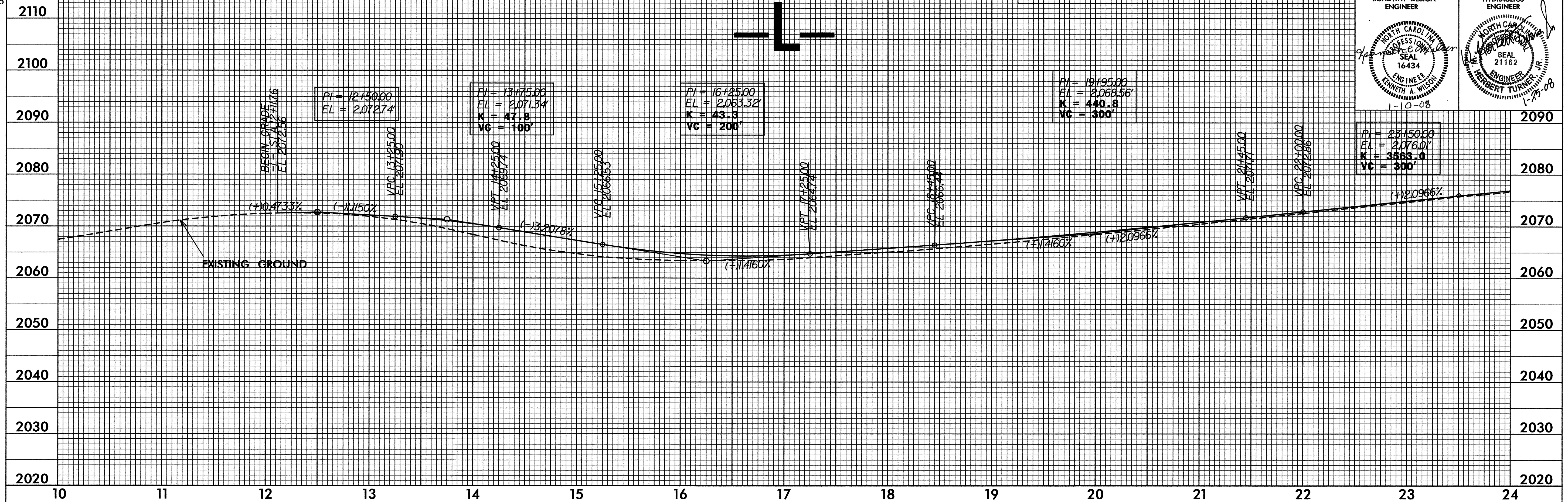
POT 11+21.17

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5/28/99

BM CHISELED SQUARE AT SE CORNER OF CONC MAILBOX BASE  
STA. 22+47.41 99 RT ELEV. = 2075.99

PROJECT REFERENCE NO. <b>37831</b>	SHEET NO. <b>12</b>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



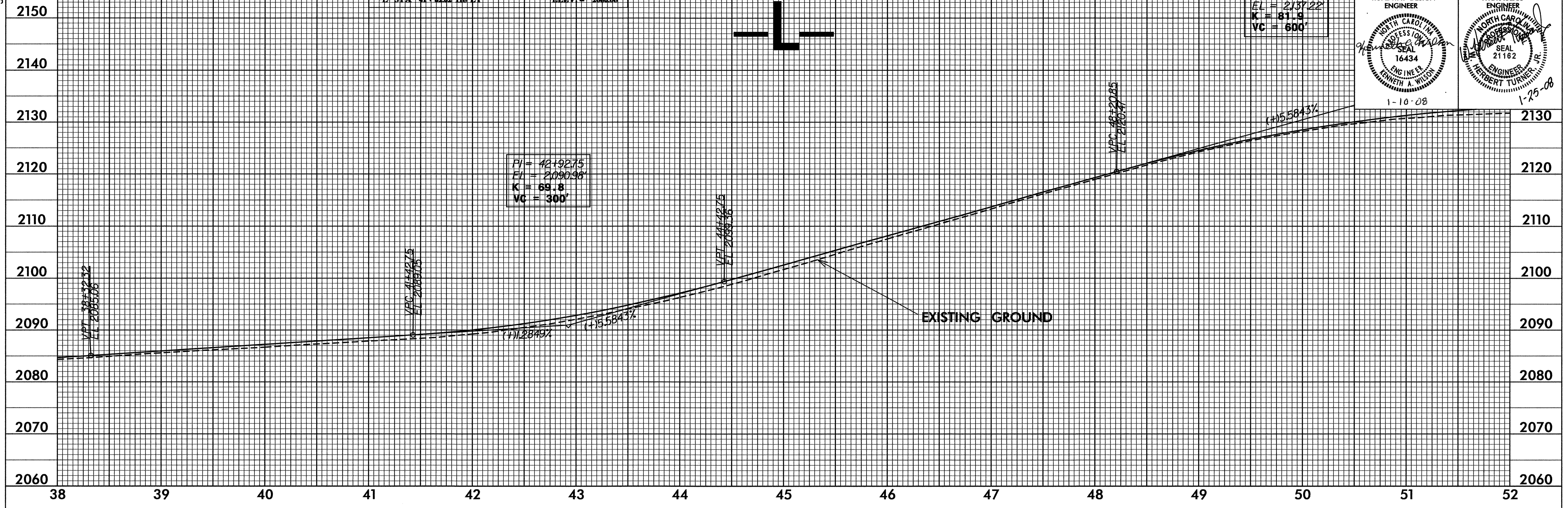
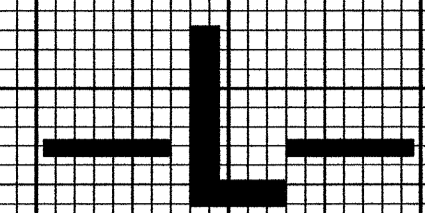
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5/28/99

PROJECT REFERENCE NO. <b>37831</b>	SHEET NO. <b>13</b>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

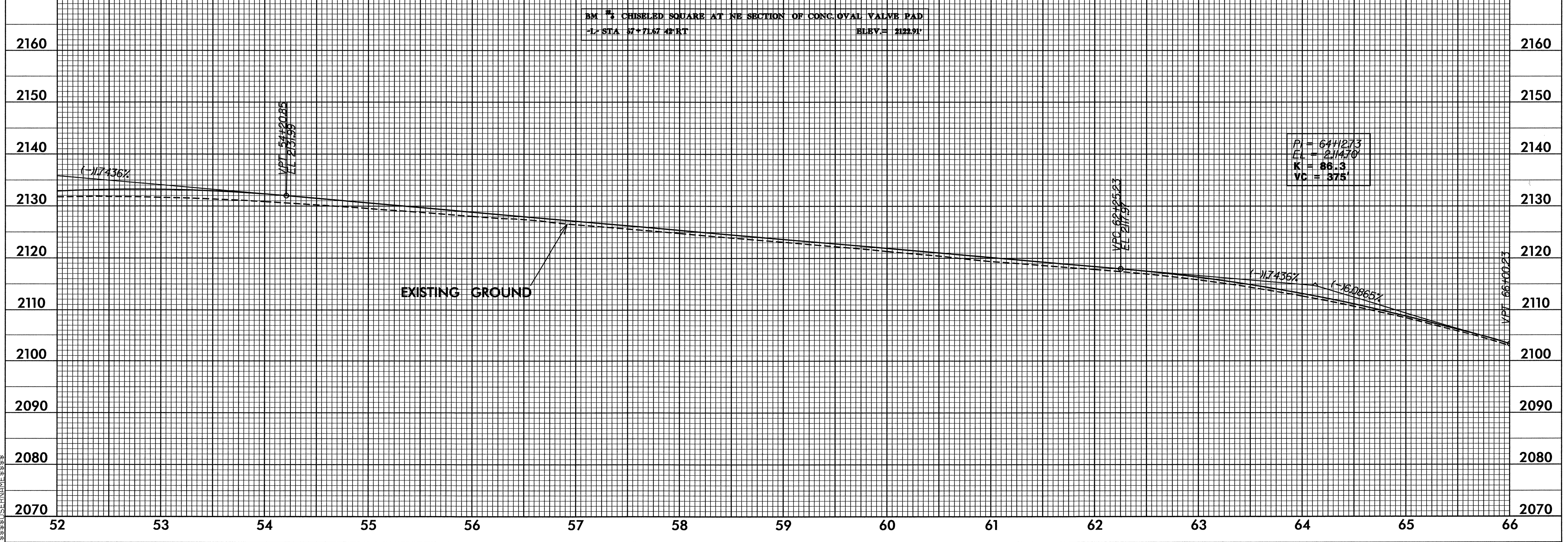
PI = 51+20.85  
 EL = 2137.22'  
 K = 81.9  
 VC = 600'

BM #2 NAIL WITH DISC IN CENTER OF CONC. PAD  
 STA 41+32.32 118' LT ELEV = 2083.08'



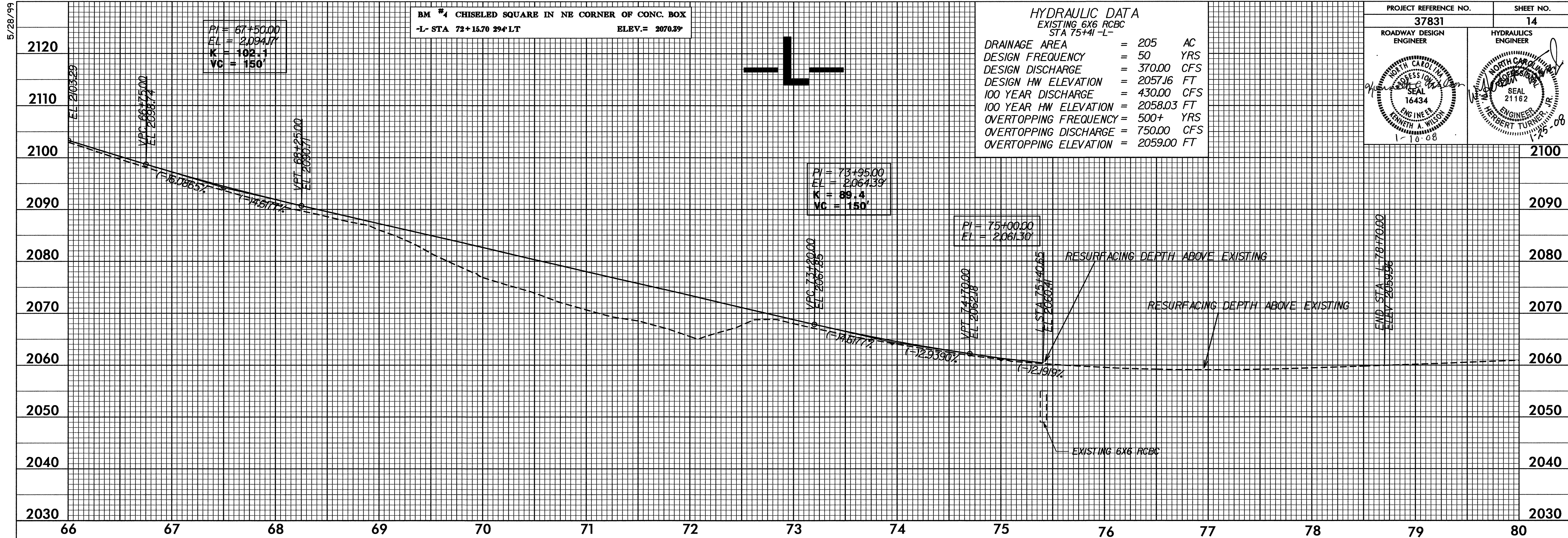
BM #3 CHISELED SQUARE AT NE SECTION OF CONC. OVAL VALVE PAD  
 STA 57+71.67 42' RT ELEV = 2122.91'

PI = 64+27.3  
 EL = 2114.70'  
 K = 86.3  
 VC = 375'



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 \$\$\$\$ SERNAME \$\$\$  
 13026-AND28-13028-ddc-pf113.dgn

5/28/99



PI = 67+50.00  
 EL = 2094.77  
 K = -192.1  
 VC = 150'

BM #4 CHISELED SQUARE IN NE CORNER OF CONC. BOX  
 -L- STA 72+15.70 29+LT ELEV. = 2070.39

**HYDRAULIC DATA**  
 EXISTING 6X6 RCBC  
 STA 75+41 -L-

DRAINAGE AREA = 205 AC  
 DESIGN FREQUENCY = 50 YRS  
 DESIGN DISCHARGE = 370.00 CFS  
 DESIGN HW ELEVATION = 2057.16 FT  
 100 YEAR DISCHARGE = 430.00 CFS  
 100 YEAR HW ELEVATION = 2058.03 FT  
 OVERTOPPING FREQUENCY = 500+ YRS  
 OVERTOPPING DISCHARGE = 750.00 CFS  
 OVERTOPPING ELEVATION = 2059.00 FT

PROJECT REFERENCE NO. <b>37831</b>	SHEET NO. <b>14</b>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

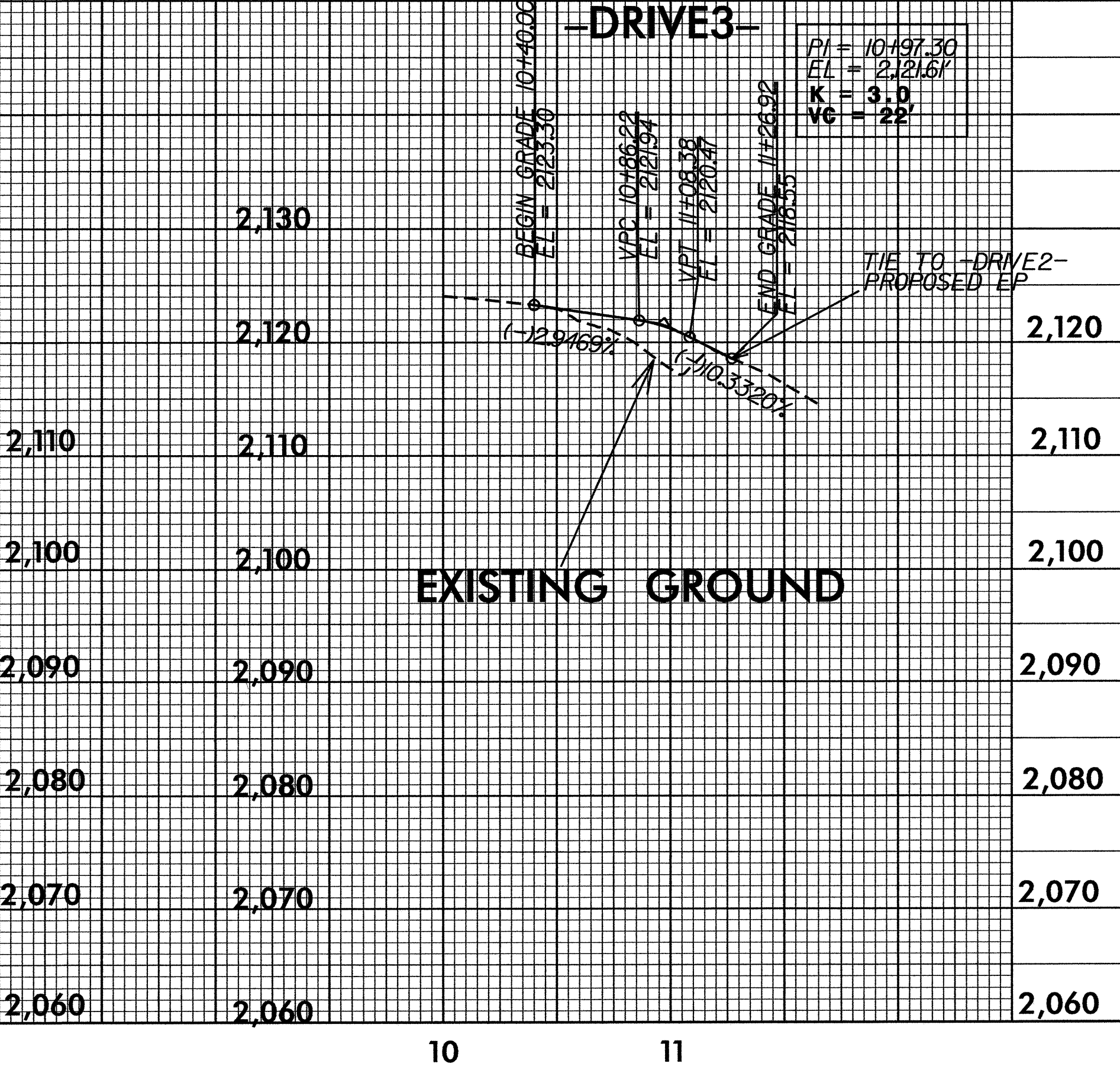
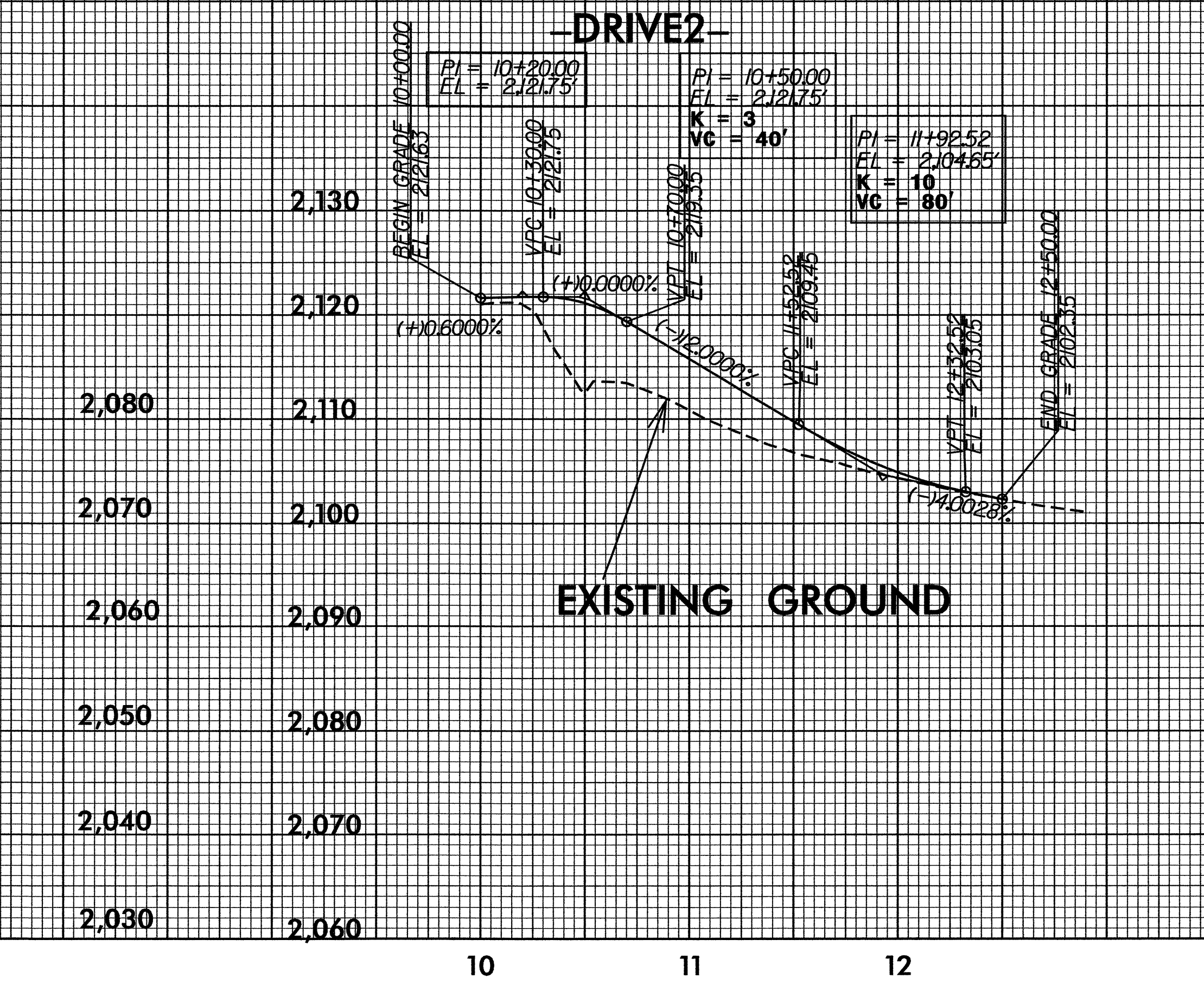
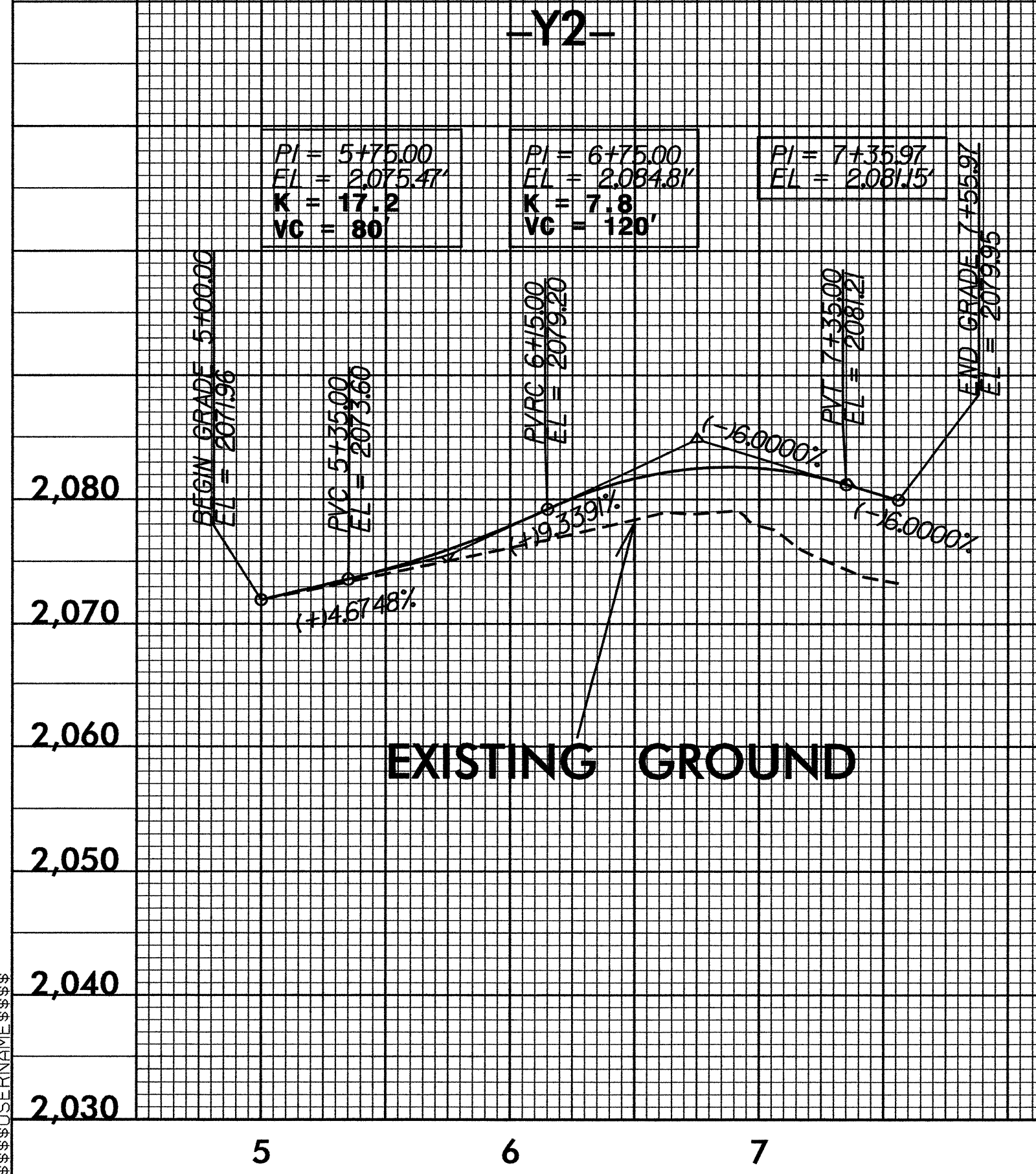
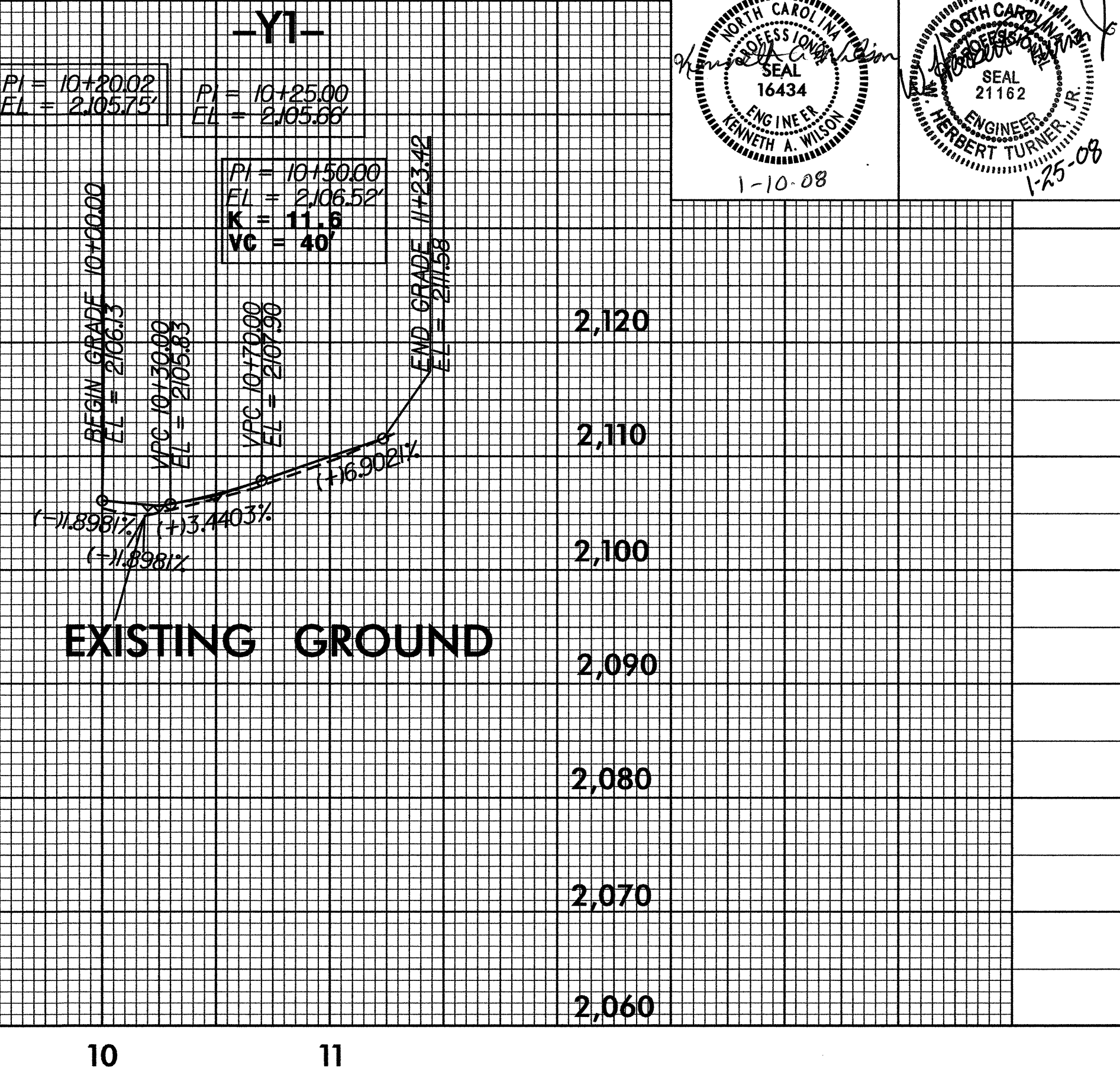
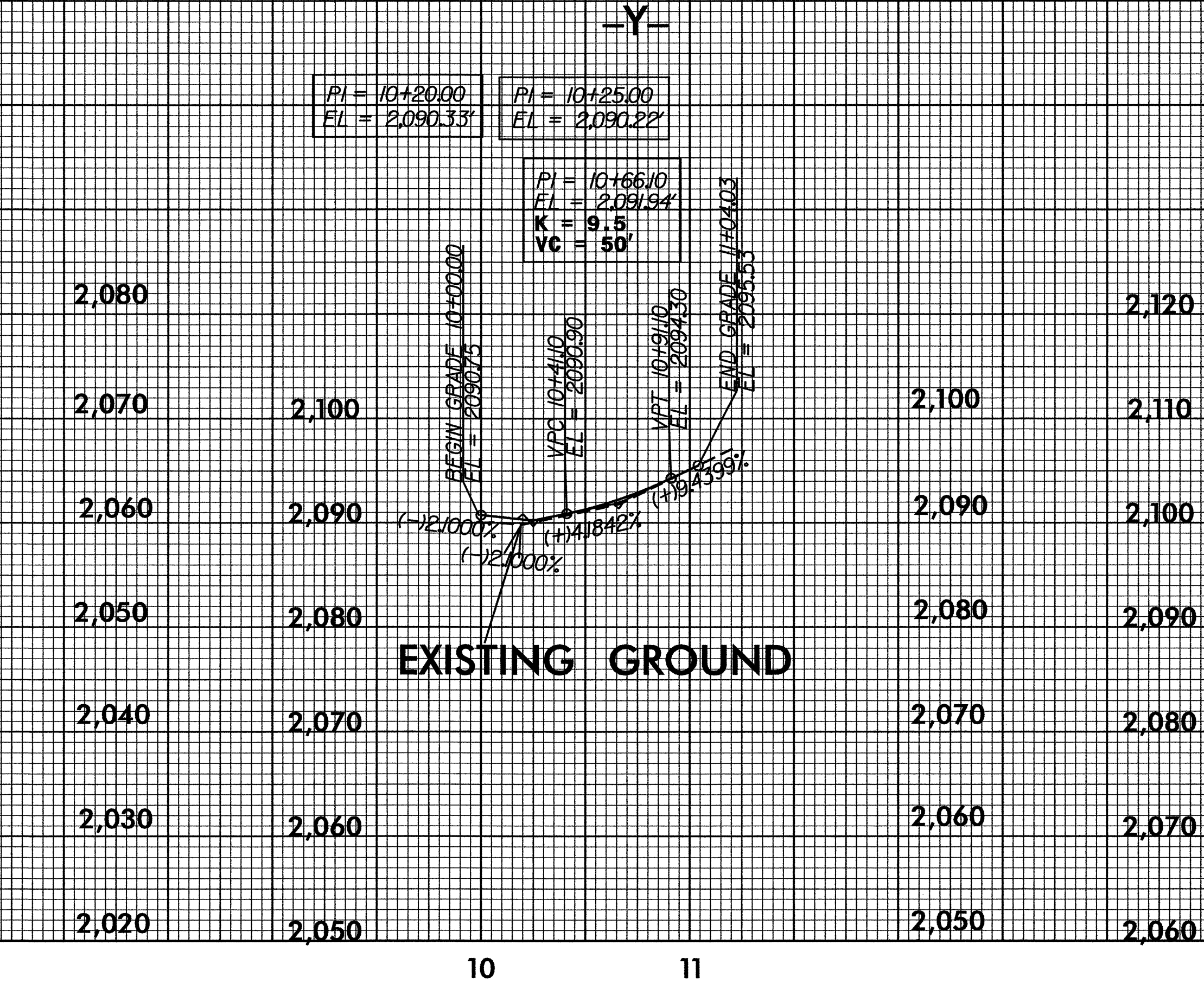
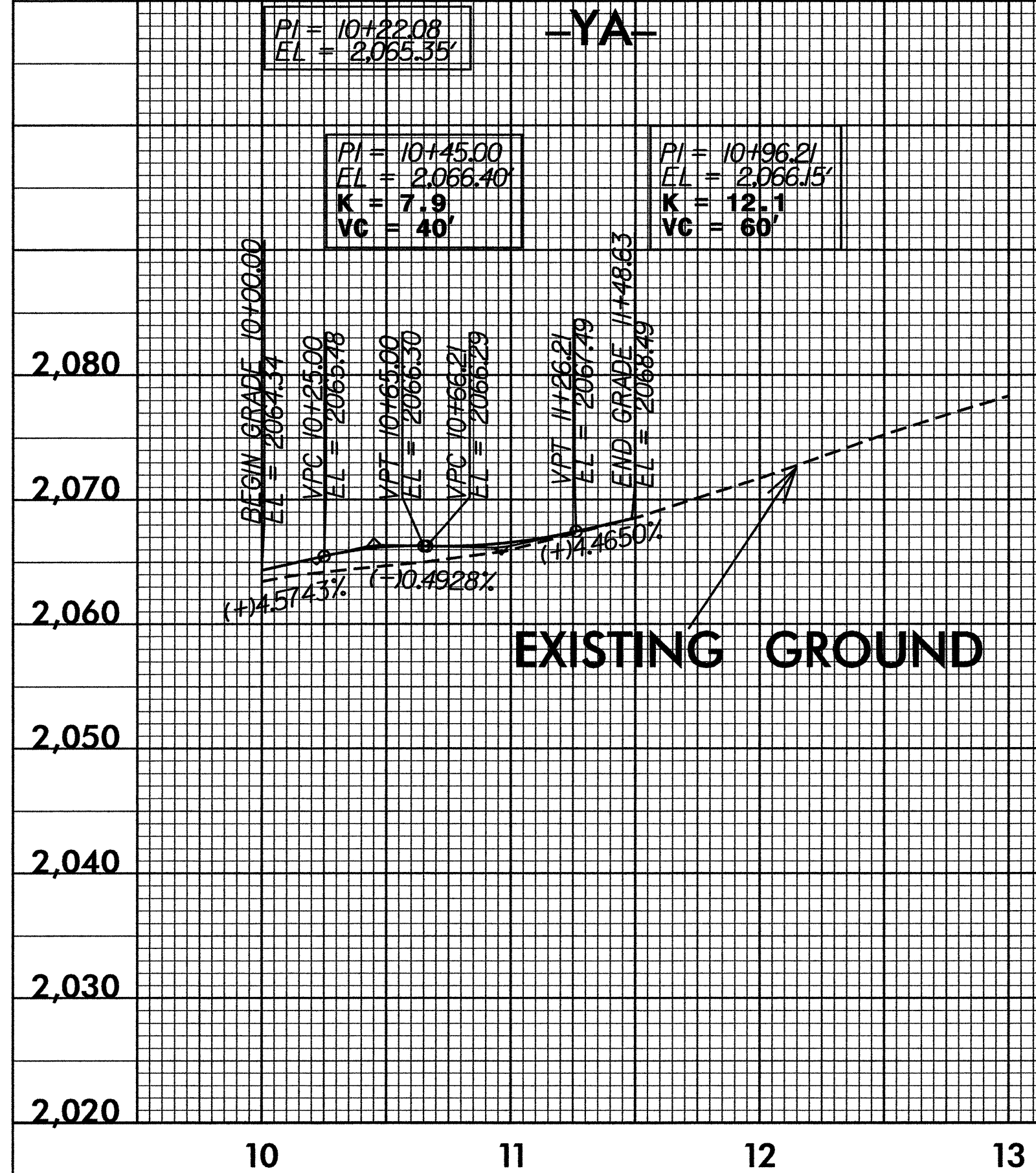
PI = 73+95.00  
 EL = 2064.39  
 K = 89.4  
 VC = 150'

PI = 75+00.00  
 EL = 2061.30

BM #5 CHISELED SQUARE ON SW CORNER OF CONC. SIGNPOST  
 -L- STA 81+32.10 57+RT ELEV. = 2066.64

BM #6 CHISELED SQUARE ON NW CORNER OF CONC. WATER VALVE BOX  
 -L- STA 92+86.14 79+RT ELEV. = 2069.67

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PROJECT REFERENCE NO. 37831	SHEET NO. 16
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

