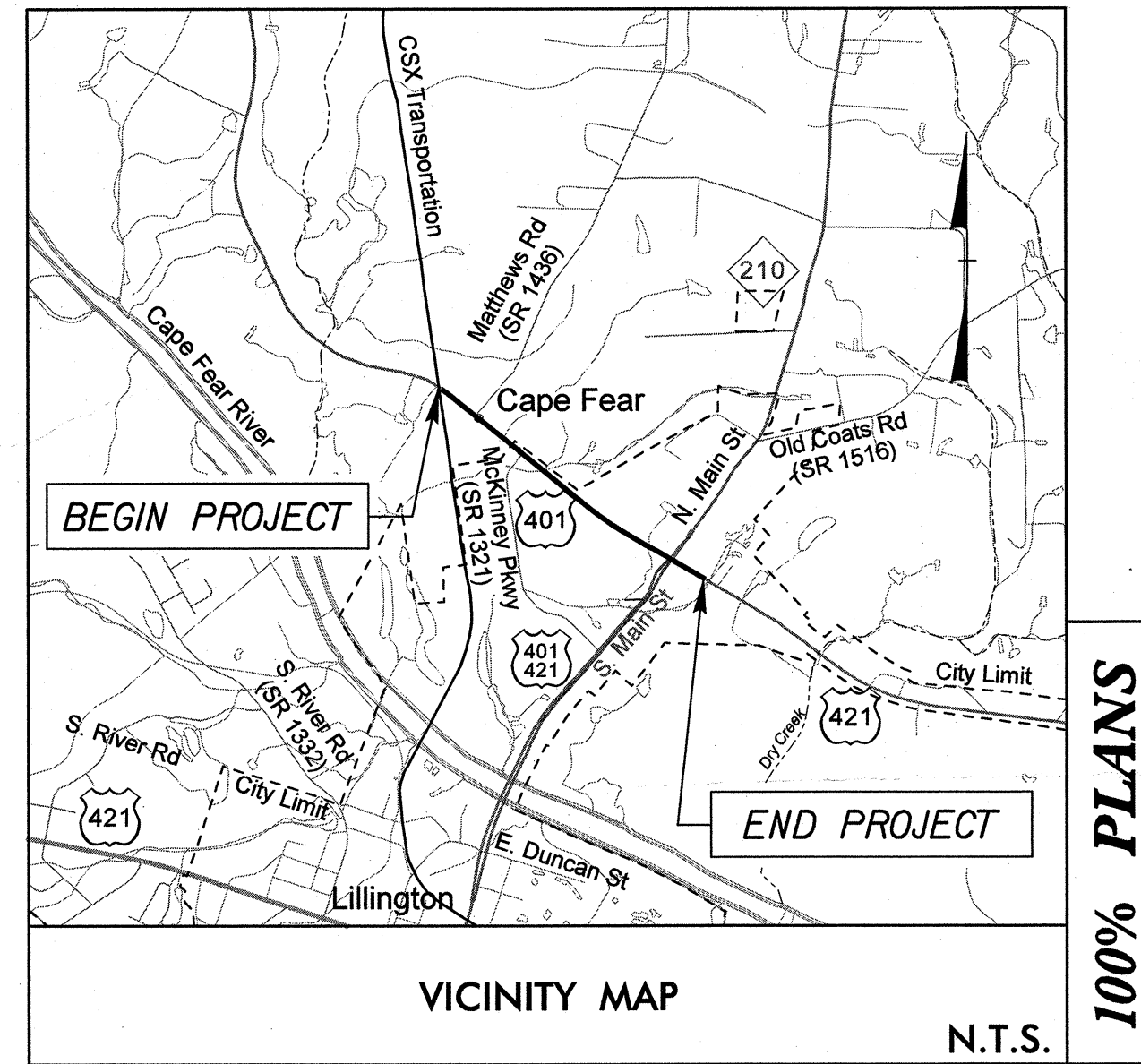


TIP PROJECT: R-5185

CONTRACT: C202597

See Sheet 1A For Index of Sheets
See Sheet 1B For Standard Symbology Sheet



VICINITY MAP

N.T.S.

100% PLANS

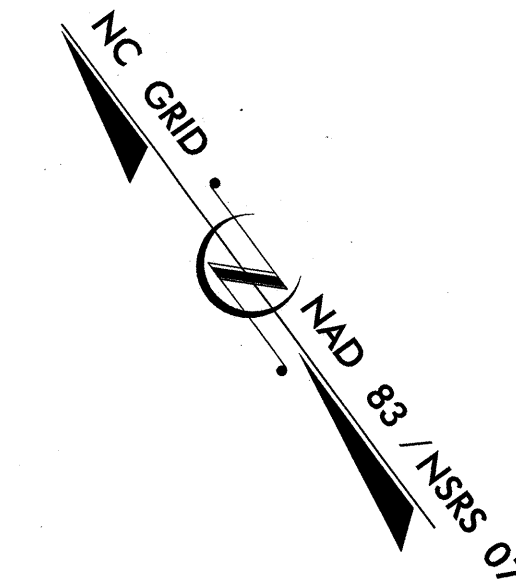
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HARNETT COUNTY

LOCATION: US 401 IN LILLINGTON FROM NORTH OF MATTHEWS RD (SR 1436) TO NC 210

TYPE OF WORK: GRADING, PAVING, DRAINAGE, CULVERTS, SIGNALS & SIGNING

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5185	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
45222.1.1	HPP-0401(207)	P.E.	
45222.2.1		RW & Utility	
45222.3.1	HPP-0401(218)	Const.	



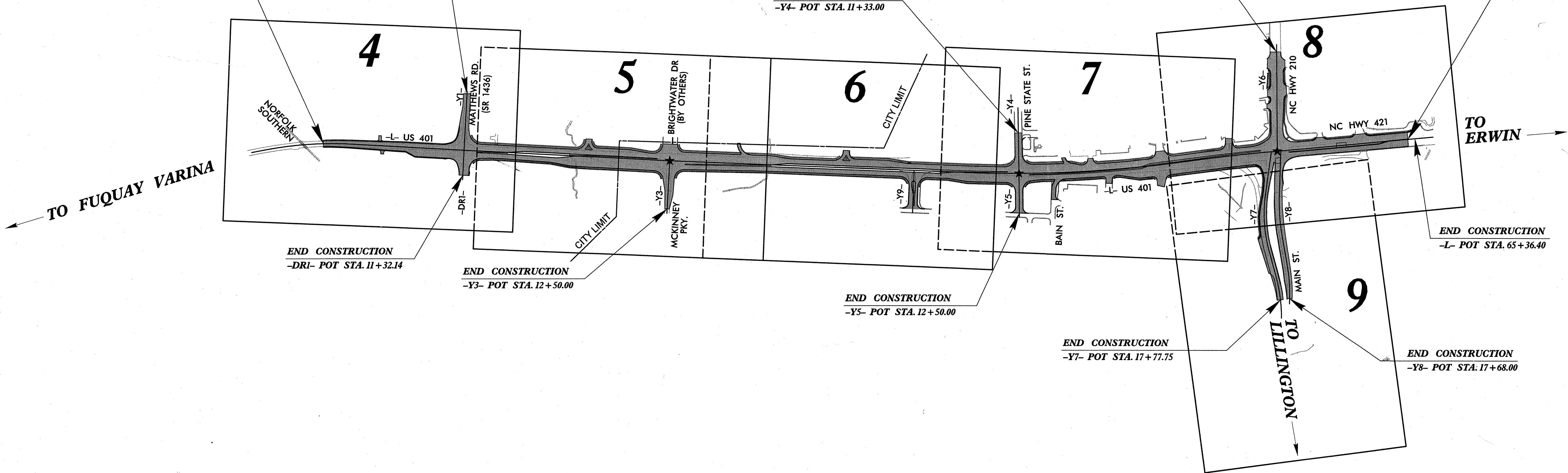
BEGIN TIP PROJECT R-5185
-L- STA. 8+75.00

BEGIN CONSTRUCTION
-Y1- POT STA. 10+13.12

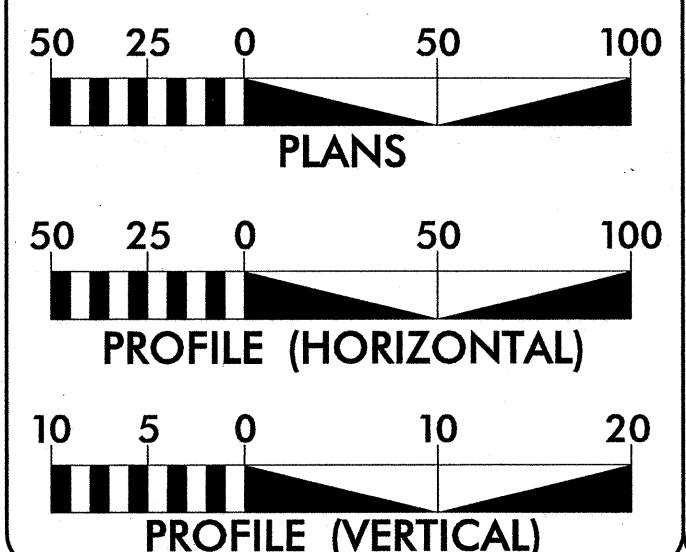
BEGIN CONSTRUCTION
-Y4- POT STA. 11+33.00

BEGIN CONSTRUCTION
-Y6- POT STA. 10+40.00

END TIP PROJECT R-5185
-L- STA. 65+00.00



GRAPHIC SCALES



DESIGN DATA

ADT 2009 = 11,000
ADT 2030 = 20,500
DHV = N/A
D = N/A
T = N/A
V = 50 MPH
FUNC. CLASS:
RURAL ARTERIAL
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-5185 = 1.07 Miles
TOTAL LENGTH TIP PROJECT R-5185 = 1.07 Miles

NCDOT CONTACT: JERRY BRADLEY
Project Engineer - Division 6 Project Manager

Prepared In the Office of:
ST/RALPH WHITEHEAD ASSOCIATES, INC.
1000 West Morehead St., Ste. 200, Charlotte NC, 28208
NC License Number F-0991
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
SEPTEMBER 1, 2010

LETTING DATE:
OCTOBER 18, 2011

JOSEPH A. FREEMAN, PE
PROJECT ENGINEER

NIKKI HONEYCUTT, EIT
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

Edward J. Vance
SEAL 029388
ENGINEER
EDWARD J. VANCE
6-19-11

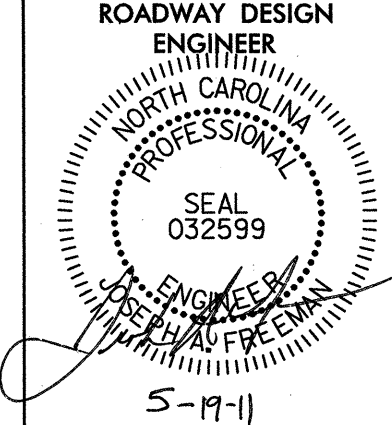
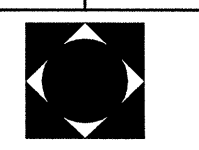
ROADWAY DESIGN ENGINEER

Joseph A. Freeman
SEAL 032599
ENGINEER
JOSEPH A. FREEMAN
6-17-11

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

Art McMiller
SEAL 032599
ENGINEER
ART MCMILLER
6-17-11

STATE HIGHWAY DESIGN ENGINEER

PROJECT REFERENCE NO. R-5185	SHEET NO. 1-A
RW SHEET NO.	
	
	
STV / Ralph Whitehead Associates, Inc. 1000 West Morehead St., Ste. 200 Charlotte, NC 28208 NC License Number F-0991	

INDEX OF SHEETS

1.....	TITLE SHEET
1-A.....	GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
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1-C.....	SURVEY CONTROL SHEET
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2-E THRU 2-O.....	DETAIL DRAWINGS
3.....	SUMMARY OF QUANTITIES
3-A THRU 3-F.....	SUMMARY OF DRAINAGE QUANTITIES
3-G.....	SUMMARY OF GUARDRAIL, EARTHWORK SUMMARY, AND ASPHALT PAVEMENT REMOVAL SUMMARY
3-H.....	ROW PARCEL INDEX SHEET
4 THRU 9.....	PLAN SHEET
10 THRU 13.....	PROFILE SHEET
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PMP-1 THRU PMP-6.....	PAVEMENT MARKING PLANS
EC-1 THRU EC-17.....	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-10.....	SIGNING PLANS
SIG-1 THRU SIG-38.....	SIGNAL PLANS
UC-1 THRU UC-8.....	UTILITY CONSTRUCTION PLANS
UO-1 THRU UO-7.....	UTILITY BY OTHERS PLANS
X-0A.....	CROSS SECTIONS EARTHWORK SUMMARY SHEET
X-1 THRU X-21.....	L- CROSS-SECTIONS
X-22.....	-Y1- CROSS-SECTIONS
X-23.....	-DR1- CROSS-SECTIONS
X-24.....	-Y3- CROSS-SECTIONS
X-25.....	-Y5- CROSS-SECTIONS
X-26 THRU X-27.....	-Y6- CROSS-SECTIONS
X-28 THRU X-29.....	-Y7-/Y8- CROSS-SECTIONS
X-30.....	-Y9- CROSS-SECTIONS
C-1 THRU C-4	Aluminum Box Culvert Plans

GENERAL NOTES

- GENERAL NOTES:** 2006 SPECIFICATIONS
 EFFECTIVE: 07-18-06
 REVISED: 07-30-08
- GRADING AND SURFACING:**
 THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED 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 III.
- 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' RADII OR RADII 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 RADII 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 NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".
- UTILITIES:**
 UTILITY OWNERS ON THIS PROJECT ARE:

 HARNETT COUNTY
 TOWN OF LILLINGTON
 PROGRESS ENERGY CAROLINAS, INC.
 TIME WARNER CABLE
 CENTURY LINK
 PIEDMONT NATURAL GAS COMPANY
- 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 OTHERS.

STANDARD DRAWINGS

2006 ROADWAY ENGLISH 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		
200.03	Method of Clearing - Method III	
225.01	Guide for Grading Subgrade - Interstate and Freeway	
225.01	Guide for Grading Subgrade - Secondary and Local	
225.04	Method of Obtaining Superelevation - Two Lane Pavement	
225.05	Method of Obtaining Superelevation - Divided Highways	
225.06	Method of Grading Sight Distance at Intersections	
DIVISION 3 - PIPE CULVERTS		
310.10	Driveway Pipe Construction	
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS		
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I	
DIVISION 6 - ASPHALT BASES AND PAVEMENTS		
654.01	Pavement Repairs	
DIVISION 7 - CONCRETE PAVEMENTS AND SHOULDERS		
700.05	Tying Proposed Pavement to Existing	
DIVISION 8 - INCIDENTALS		
815.03	Pipe Underdrain and Blind Drain	848.02 Driveway Turnout - Radius Type
840.00	Concrete Base Pad for Drainage Structures	848.04 Street Turnout
840.01	Brick Catch Basin - 12" thru 54" Pipe	852.01 Concrete Islands
840.02	Concrete Catch Basin - 12" thru 54" Pipe	852.04 Method for Placement of Drop Inlets in Grassed Median - Using 1'-6" Curb and Gutter
840.03	Frame, Grates and Hood - for Use on Standard Catch Basin	852.05 Median Curb for Catch Basin - for Use with 1'-6" Curb and Gutter
840.14	Concrete Drop Inlet - 12" thru 30" Pipe	852.06 Method for Placement of Drop Inlets in Concrete Islands
840.15	Brick Drop Inlet - 12" thru 30" Pipe	852.10 Median Construction - with Curb and Gutter
840.31	Concrete Junction Box - 12" thru 66" Pipe	862.01 Guardrail Placement
840.32	Brick Junction Box - 12" thru 66" Pipe	862.02 Guardrail Installation
840.51	Brick Manhole - 12" thru 36" Pipe	862.03 Structure Anchor Units
840.54	Manhole Frame and Cover	876.01 Rip Rap in Channels
840.66	Drainage Structure Steps	876.02 Guide for Rip Rap at Pipe Outlets
840.71	Concrete and Brick Pipe Plug	876.04 Drainage Ditches with Class 'B' Rip Rap
846.01	Concrete Curb, Gutter and Curb & Gutter	
848.01	Concrete Sidewalk	
840.16	Drop Inlet Frame & Grates	

8/17/99
5/19/2011
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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:

Table listing symbols for boundaries and property: State Line, County Line, Township Line, City Line, Reservation Line, Property Line, Existing Iron Pin, Property Corner, Property Monument, Parcel/Sequence Number, Existing Fence Line, Proposed Woven Wire Fence, Proposed Chain Link Fence, Proposed Barbed Wire Fence, Existing Wetland Boundary, Proposed Wetland Boundary, Existing Endangered Animal Boundary, Existing Endangered Plant Boundary.

BUILDINGS AND OTHER CULTURE:

Table listing symbols for buildings and other culture: Gas Pump Vent or U/G Tank Cap, Sign, Well, Small Mine, Foundation, Area Outline, Cemetery, Building, School, Church, Dam.

HYDROLOGY:

Table listing symbols for hydrology: Stream or Body of Water, Hydro, Pool or Reservoir, Jurisdictional Stream, Buffer Zone 1, Buffer Zone 2, Flow Arrow, Disappearing Stream, Spring, Wetland, Proposed Lateral, Tail, Head Ditch, False Sump.

RAILROADS:

Table listing symbols for railroads: Standard Gauge, RR Signal Milepost, Switch, RR Abandoned, RR Dismantled.

RIGHT OF WAY:

Table listing symbols for 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.

Table listing symbols for easements: 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, Proposed Temporary Utility Easement, Proposed Permanent Easement with Iron Pin and Cap Marker.

ROADS AND RELATED FEATURES:

Table listing symbols for roads and related features: Existing Edge of Pavement, Existing Curb, Proposed Slope Stakes Cut, Proposed Slope Stakes Fill, Proposed Wheel Chair Ramp, Existing Metal Guardrail, Proposed Guardrail, Existing Cable Guiderail, Proposed Cable Guiderail, Equality Symbol, Pavement Removal.

VEGETATION:

Table listing symbols for vegetation: Single Tree, Single Shrub, Hedge, Woods Line, Orchard, Vineyard.

EXISTING STRUCTURES:

Table listing symbols for existing structures: Bridge, Tunnel or Box Culvert, Bridge Wing Wall, Head Wall and End Wall, Head and End Wall, Pipe Culvert, Footbridge, Drainage Box: Catch Basin, DI or JB, Paved Ditch Gutter, Storm Sewer Manhole, Storm Sewer.

UTILITIES:

Table listing symbols for utilities: 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:

Table listing symbols for 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:

Table listing symbols for 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:

Table listing symbols for 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:

Table listing symbols for gas: Gas Valve, Gas Meter, Recorded U/G Gas Line, Designated U/G Gas Line (S.U.E.*), Above Ground Gas Line.

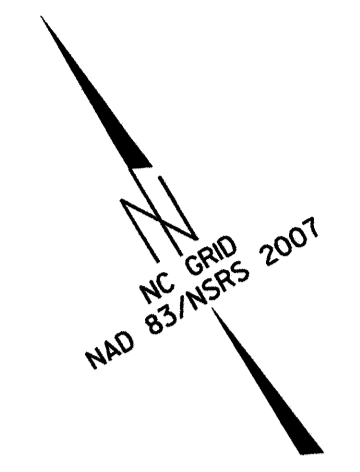
SANITARY SEWER:

Table listing symbols for 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:

Table listing symbols for 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.

SURVEY CONTROL SHEET R-5185



BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
BL1	R5185 BL-1	610219.6190	2054292.5660	156.79	5+38.76	17.33 RT
BL2	R5185 BL-2	609933.2160	2054732.2450	159.82	10+69.85	21.03 RT
BL3	R5185 BL-3	609590.1050	2055163.6230	159.77	16+20.98	12.94 RT
BL4	R5185 BL-4	609243.8870	2055598.9460	155.74	21+77.13	4.75 RT
BL5	R5185 BL-5	608894.2700	2056034.9770	158.13	27+35.99	0.43 RT
BL6	R5185 BL-6	608439.9220	2056611.0500	159.15	34+69.67	3.31 LT
BL7	R5185 BL-7	607987.3460	2057268.9640	168.28	43+28.10	20.50 RT
BL8	R5185 BL-8	607483.1840	2057821.8710	176.72	50+09.53	43.73 RT
GPS103	R5185-3	607112.7470	2058466.7780	177.98	57+53.09	47.04 RT
BL9	R5185 BL-9	606817.2534	2059132.9911	174.02	64+76.43	43.52 LT

BY POINT	DESC.	NORTH	EAST	ELEVATION	Y6 STATION	OFFSET
BY10	R5185 BY-10	607507.2389	2058868.3336	184.44	10+54.41	29.08 LT
BY103	R5185-3	607112.7470	2058466.7780	177.98	OUTSIDE PROJECT LIMITS	

BM1 ELEVATION = 152.96
N 609864 E 2054967
L STATION 12+95.00 74 LEFT
RR SPIKE IN BRSE OF 10' PINE

TYPE	STATION	NORTH	EAST
POT	5+00.00	610251.8654	2054264.9401
PC	5+64.86	610224.1269	2054323.5686
PT	10+17.53	609982.6467	2054705.1147
PC	25+57.28	609006.5755	2055895.9660
PT	41+77.61	608937.7369	2055981.1359
PC	52+94.14	607378.4215	2058091.0793
PC	54+56.31	607300.5145	2058233.3017
PT	57+84.26	607137.1877	2058517.6174
POT	66+30.50	606700.4753	2059242.5186

TYPE	STATION	NORTH	EAST
POT	10+00.00	609848.0403	2055354.1419
POT	13+07.32	609610.2360	2055159.4732

TYPE	STATION	NORTH	EAST
POT	10+00.00	608935.8562	2055983.4955
POT	12+72.98	608725.0194	2055810.0967

TYPE	STATION	NORTH	EAST
POT	10+00.14	607133.7955	2058523.1164
PC	12+29.21	606969.5371	2058363.4488
PT	15+08.24	606736.4658	2058213.4243
PC	16+54.18	606600.5429	2058160.2947
PT	18+72.84	606409.6605	2058054.9363

TYPE	STATION	NORTH	EAST
POT	10+00.00	607108.5939	2058564.9563
PC	12+31.24	606927.1471	2058421.6020
PT	14+37.83	606753.0121	2058311.1243
PC	15+94.95	606612.3688	2058241.0814
PT	17+60.44	606472.3274	2058153.3981
POT	17+94.02	606445.7308	2058132.8944

TYPE	STATION	NORTH	EAST
POT	10+00.00	608147.1195	2056973.1179
POT	12+17.83	607976.7745	2056837.3517

TYPE	STATION	NORTH	EAST
POT	10+00.00	608094.4528	2057600.9964
POT	13+43.73	607814.1682	2057402.0482

TYPE	STATION	NORTH	EAST
POT	10+00.00	607814.1682	2057402.0482
POT	12+25.19	607631.7531	2057269.9792

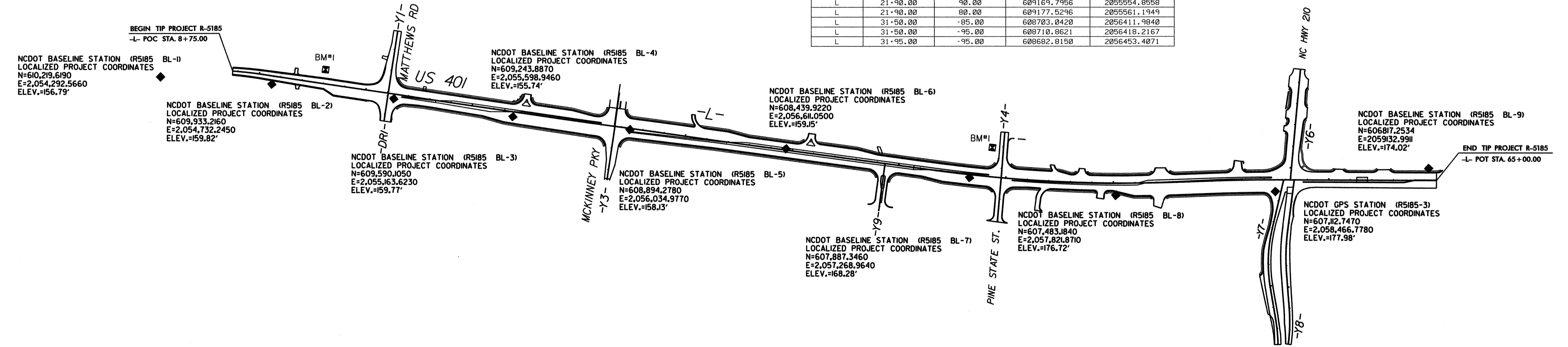
TYPE	STATION	NORTH	EAST
POT	10+00.00	607568.3451	2058549.3731
POT	15+56.81	607117.9801	2058549.3731

ALIGN	STATION	OFFSET	NORTH	EAST
L	12+24.21	47.77	609814.6824	2054834.6762
L	14+70.00	70.00	609641.6813	2055010.6832
L	20+50.00	70.00	609274.0115	2055459.2575
L	20+50.00	90.00	609258.5434	2055446.5792
L	25+57.28	75.00	608948.5712	2055848.4224
L	25+80.00	75.00	608934.0606	2055866.1774
L	27+60.00	75.00	608820.9947	2056007.2778
L	30+94.18	75.00	608612.7188	2056268.6811
L	32+70.00	70.00	608507.0385	2056409.2187
L	41+77.61	70.00	607941.3539	2057118.9792
L	43+76.83	-70.18	607931.0046	2057361.6756
L	46+95.77	70.00	607631.5951	2057541.1200
L	14+87.85	-57.12	609228.6834	2055105.0688
L	25+60.00	-74.29	609062.3293	2055945.1440
L	26+28.60	-110.00	609047.3037	2056020.2968
L	27+09.13	-110.00	608997.3719	2056082.8015
L	27+80.00	-74.56	608925.4893	2056116.1351
L	45+78.00	-63.16	607808.0663	2057519.4518
L	15+55.07	95.03	609568.3988	2055068.6083
L	15+55.09	140.03	609533.5780	2055032.1037
L	16+55.09	139.97	609470.2344	2055109.4832
L	16+55.08	109.97	609493.4483	2055128.4862
L	16+88.00	70.00	609503.4882	2055179.2853
L	32+70.00	85.00	608495.3084	2056399.8697
L	30+94.18	85.00	608604.8937	2056262.3737
L	19+25.00	-66.22	609458.6080	2055448.9306
L	19+25.00	-90.00	609476.9953	2055464.0082
L	23+00.02	-90.01	609239.2693	2055754.0958
L	23+00.02	-71.20	609224.7259	2055742.1394
L	30+10.00	-74.08	608781.7570	2056295.6944
L	30+10.00	-85.00	608790.2994	2056302.5028
L	34+50.00	-90.00	608519.9719	2056649.7031
L	39+25.02	-90.01	608223.9114	2057021.1824
L	39+25.02	-72.58	608210.2789	2057010.3172
L	46+97.01	59.99	607639.1856	2057547.7478
L	48+29.52	59.99	607565.5840	2057659.4002
L	13+50.00	70.00	609717.7509	2054917.8747
L	24+50.00	80.00	609012.7121	2055762.2800
L	21+90.00	90.00	609169.7956	2055554.8558
L	21+90.00	80.00	609177.5296	2055561.1949
L	31+50.00	-95.00	608703.0420	2056411.9840
L	31+50.00	-95.00	608710.8621	2056418.2167
L	31+95.00	-95.00	608682.8150	2056453.4071

ALIGN	STATION	OFFSET	NORTH	EAST
Y6	12+82.19	46.75	607367.5941	2058673.0476
Y6	11+31.68	54.02	607493.5990	2058755.6810
Y6	11+47.02	-42.82	607474.1376	2058756.3681
Y6	11+16.71	-59.98	607438.6768	2058856.6955
Y6	11+45.02	-42.83	607425.8591	2058826.1731
Y6	12+91.00	-45.34	607306.3174	2058742.3534
Y6	12+79.00	-51.00	607312.6924	2058753.9914
Y6	12+06.00	-54.00	607369.9725	2058799.3455
Y6	11+89.17	-43.60	607389.6984	2058800.8315

ALIGN	STATION	OFFSET	NORTH	EAST
DR1	10+95.00	50.00	609568.3988	2055060.6083
DR1	11+40.00	50.00	609533.5780	2055032.1037
DR1	11+40.00	-50.00	609470.2344	2055109.4832
DR1	11+10.00	-50.00	609493.4483	2055128.4862

ALIGN	STATION	OFFSET	NORTH	EAST
Y1	11+97.45	55.00	609730.0972	2055186.5145
Y1	10+15.00	55.00	609871.2723	2055302.0817
Y1	10+15.00	30.03	609855.4546	2055321.4843
Y1	10+15.00	-30.14	609817.3415	2055367.9626
Y1	10+15.00	-50.00	609804.7615	2055383.3302
Y1	12+23.26	-50.00	609643.6890	2055261.4092

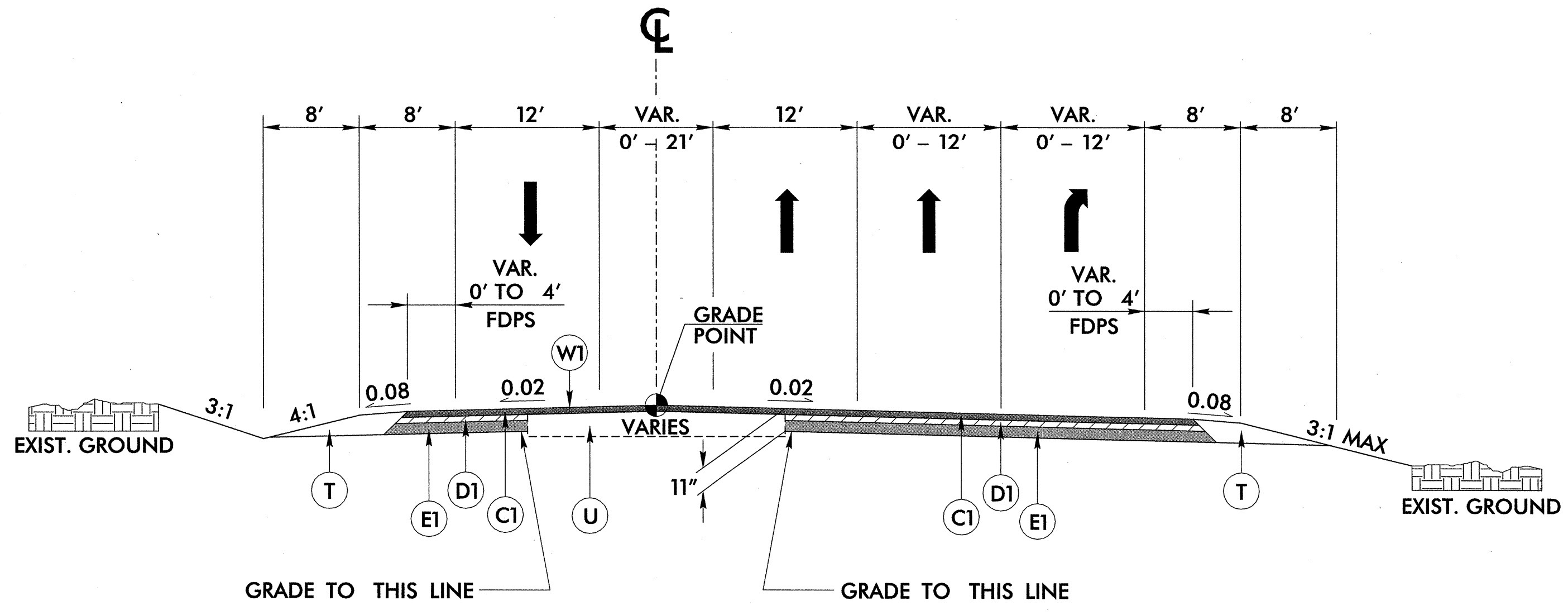
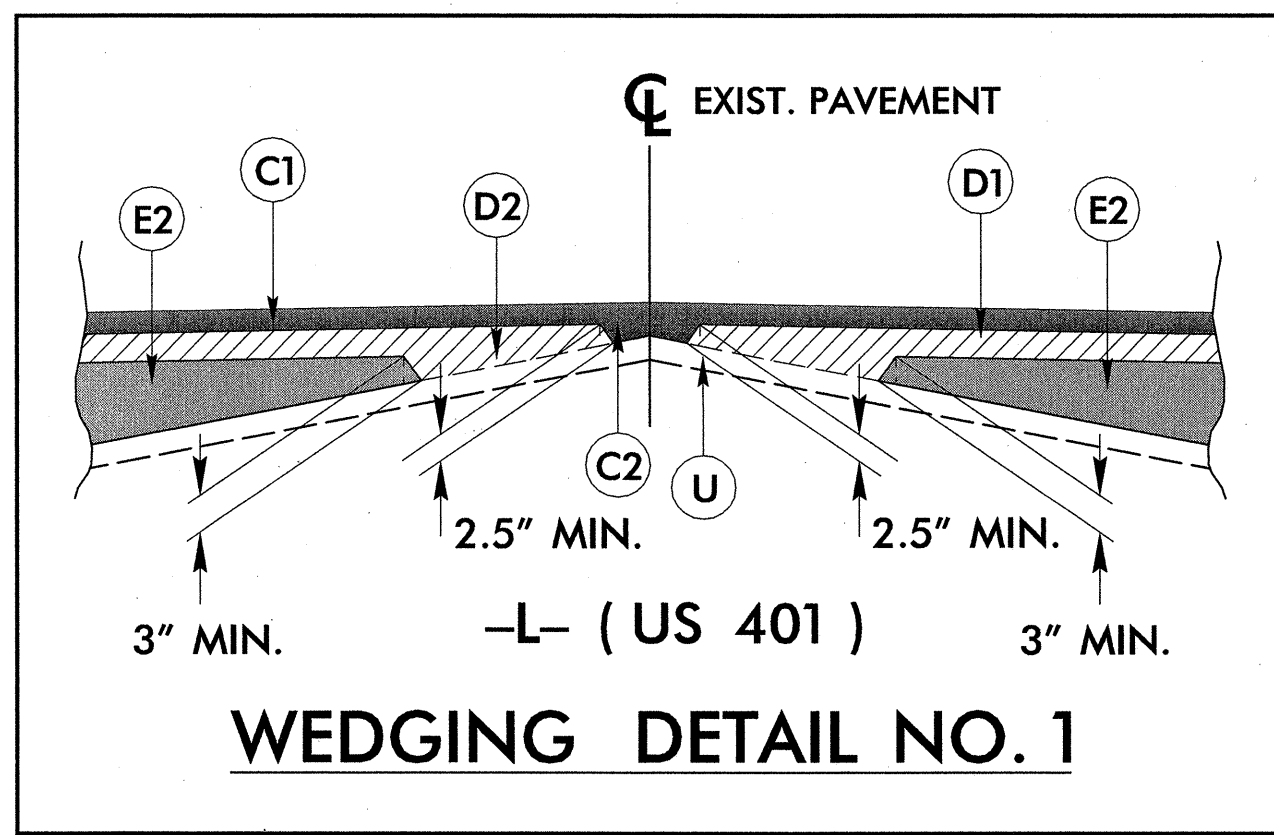


DATUM DESCRIPTION
 THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "R-5185-2"
 WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 610137.8282(±ft) EASTING: 205456.3064(±ft) ELEVATION: 159.51(±ft)
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999874446
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "R-5185-2" TO -L- STATION 8+75.00 IS S 33°10'07.5"E 82.62'
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

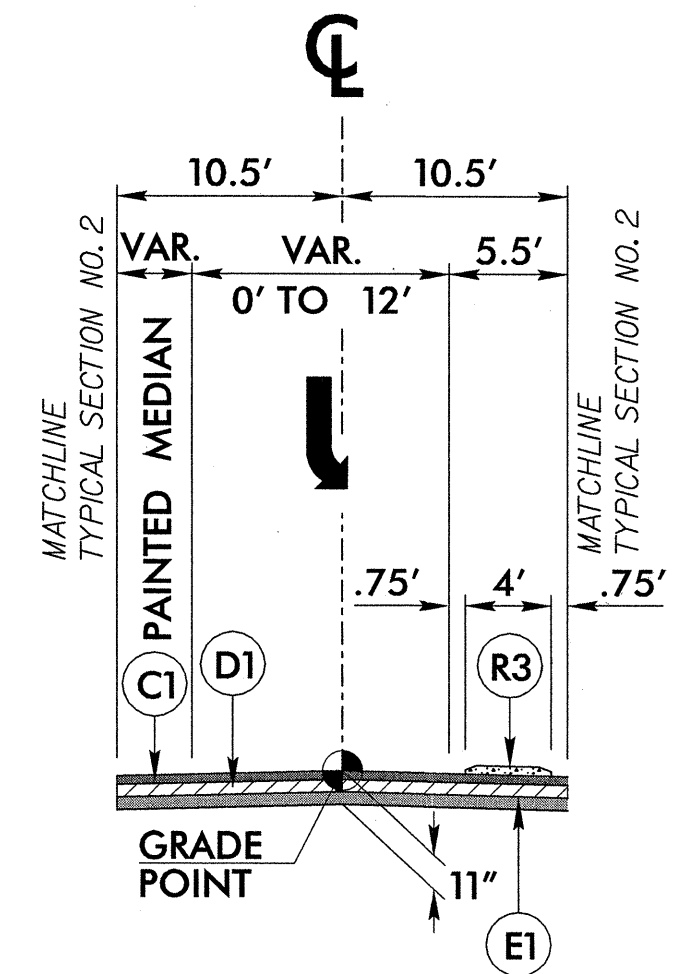
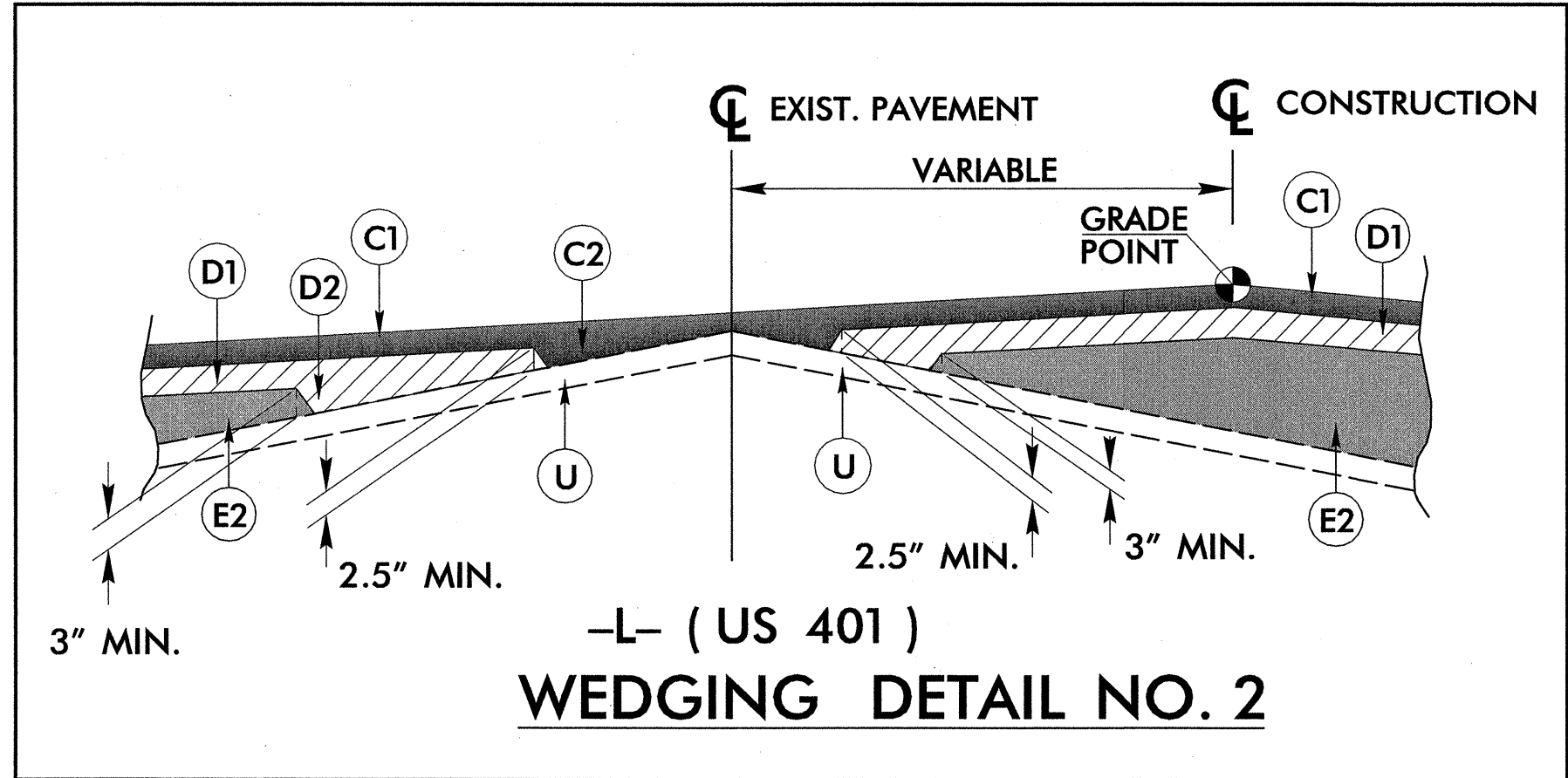
NOTES:
 1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
[HTTP://WWW.NCDOT.ORG/DOH/RECONSTRUCTHIGHWAYLOCATIONPROJECT/](http://www.ncdot.org/DOH/RECONSTRUCTHIGHWAYLOCATIONPROJECT/)
 THE FILES TO BE FOUND ARE AS FOLLOWS:
 TIP###_LS_CONTROL_DATA.HTML
 SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
 © INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
 PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
 NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION
 SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

NOTE: DRAWING NOT TO SCALE

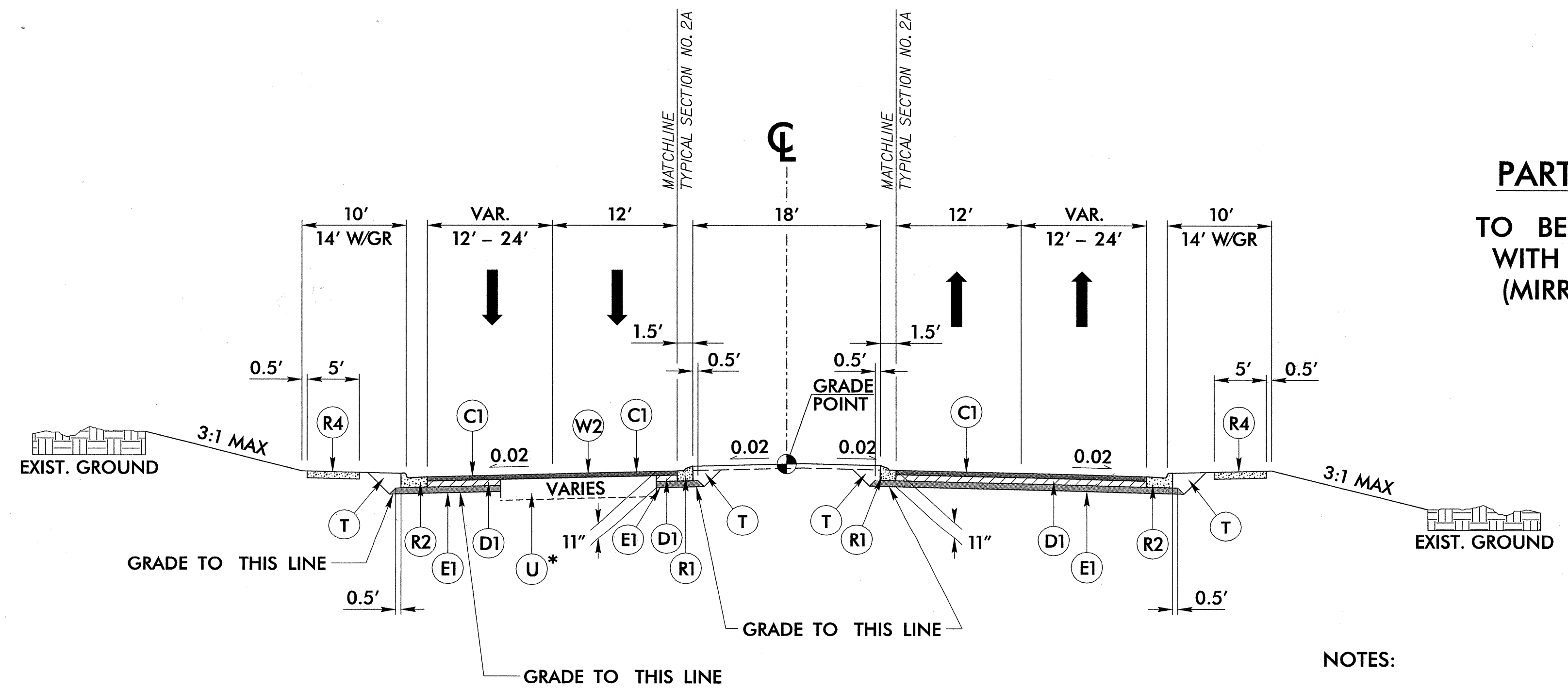
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 6/2/09



TYPICAL SECTION NO. 1
-L- STA. 8+75.00 TO STA. 16+05.01



PARTIAL TYPICAL NO. 2A
TO BE USED IN CONJUNCTION
WITH TYPICAL SECTION NO. 2
(MIRROR TYPICAL AS NEEDED)



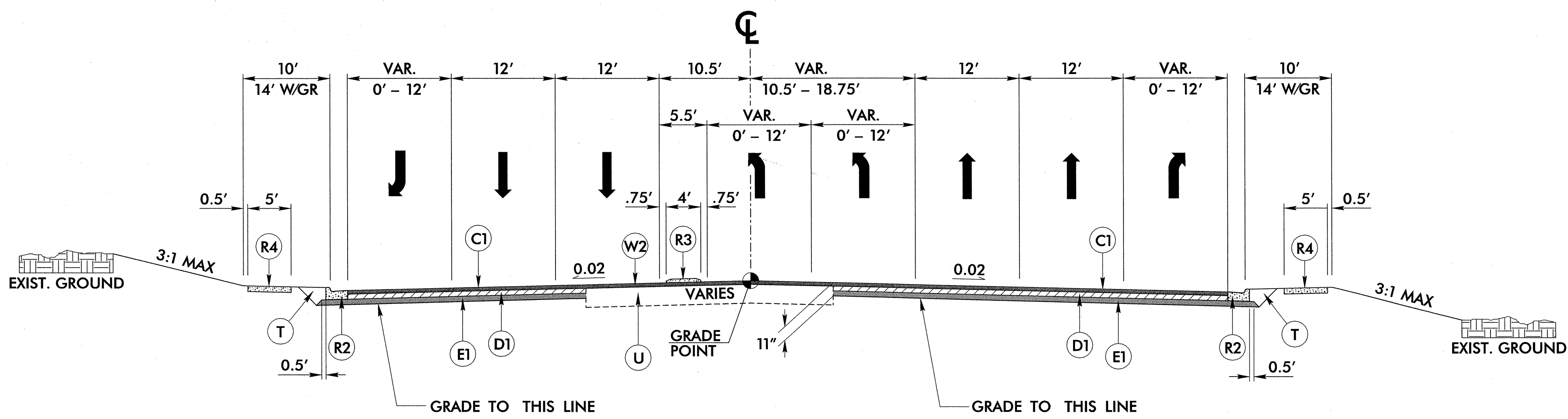
TYPICAL SECTION NO. 2
-L- STA. 16+05.01 TO STA. 18+20.00
-L- STA. 31+93.81 TO STA. 50+25.00
*SEE NOTES

NOTES:
TYPICAL SECTIONS SHOWN FOR TANGENT SECTIONS ONLY. SEE PLANS AND STANDARD DRAWINGS FOR SUPERELEVATION DETAILS AND WIDENING/LANE ADDITIONS AT INTERSECTION. MAXIMUM SHOULDER ROLLOVER IS 6%.
ALL PAVEMENT EDGES SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1.5" IN DEPTH OR GREATER THAN 2" IN DEPTH.
C3	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2.5" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, 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 5.5" IN DEPTH.
M	1.5" MILLING
R1	PROPOSED 1'-6" CONCRETE CURB AND GUTTER
R2	PROPOSED 2'-6" CONCRETE CURB AND GUTTER
R3	PROPOSED 5" MONOLITHIC CONCRETE ISLAND
R4	PROPOSED 4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W1	PAVEMENT WEDGING (SEE WEDGING DETAIL NO. 1)
W2	OFFSET PAVEMENT WEDGING (SEE WEDGING DETAIL NO. 2)

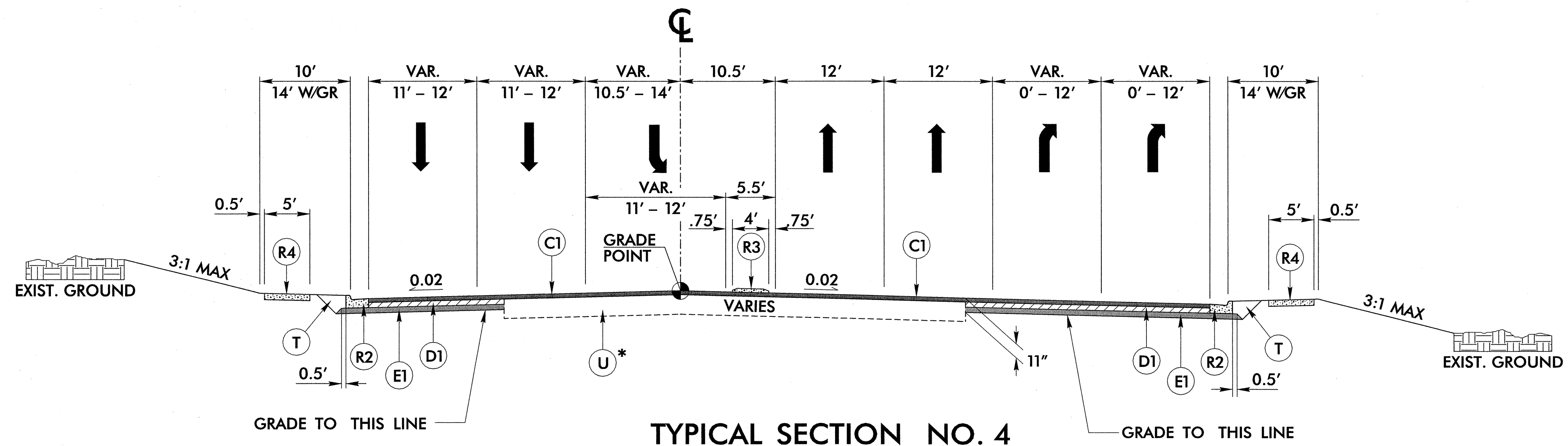
NOTES:
1) EXISTING PAVEMENT FOR RIGHT TURN LANE AND PAVED SHOULDER FROM -L- STA. 45+00 LT TO STA. 49+00 LT SHALL BE REMOVED AND REPLACED.
2) EXISTING PAVEMENT FOR RIGHT TURN LANE FROM -L- STA. 49+00 RT TO STA. 50+25 RT SHALL BE REMOVED AND REPLACED.

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TYPICAL SECTION NO. 3

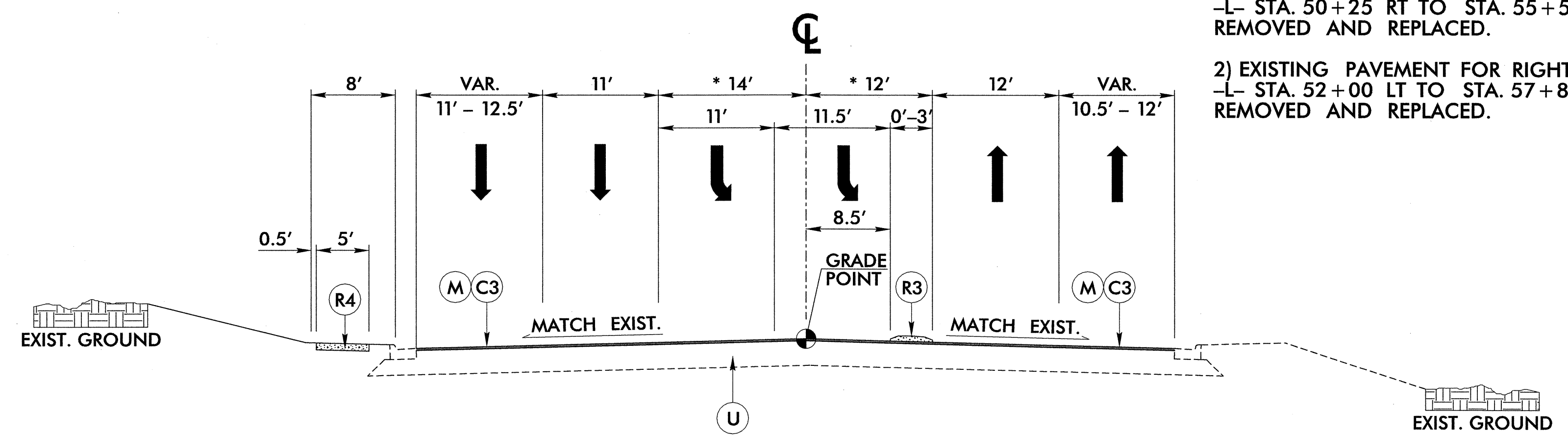
-L- STA. 18+20.00 TO STA. 31+93.81



TYPICAL SECTION NO. 4

-L- STA. 50+25.00 TO STA. 58+21.33
*SEE NOTES

- NOTES:
- EXISTING PAVEMENT FOR RIGHT TURN LANE FROM -L- STA. 50+25 RT TO STA. 55+50 RT SHALL BE REMOVED AND REPLACED.
 - EXISTING PAVEMENT FOR RIGHT TURN LANE FROM -L- STA. 52+00 LT TO STA. 57+80 LT SHALL BE REMOVED AND REPLACED.



TYPICAL SECTION NO. 5

-L- STA. 58+21.33 TO STA. 65+00.00

* MILLING AND OVERLAY OF EXIST ASPHALT PVMT SHALL MATCH EDGE AND ELEVATION OF EXISTING CONCRETE PAVEMENT FROM STA. 58+82.00 TO STA. 61+29.50


NOTES:

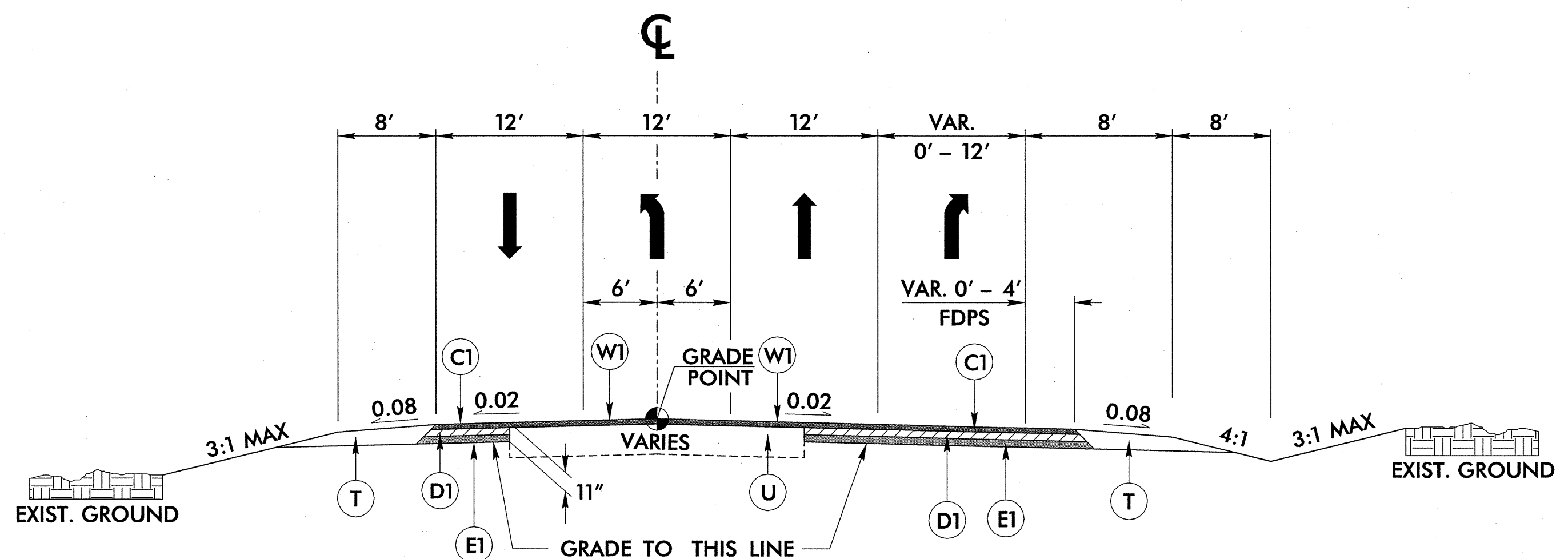
TYPICAL SECTIONS SHOWN FOR TANGENT SECTIONS ONLY. SEE PLANS AND STANDARD DRAWINGS FOR SUPERELEVATION DETAILS AND WIDENING/LANE ADDITIONS AT INTERSECTION. MAXIMUM SHOULDER ROLLOVER IS 6%.

ALL PAVEMENT EDGES SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

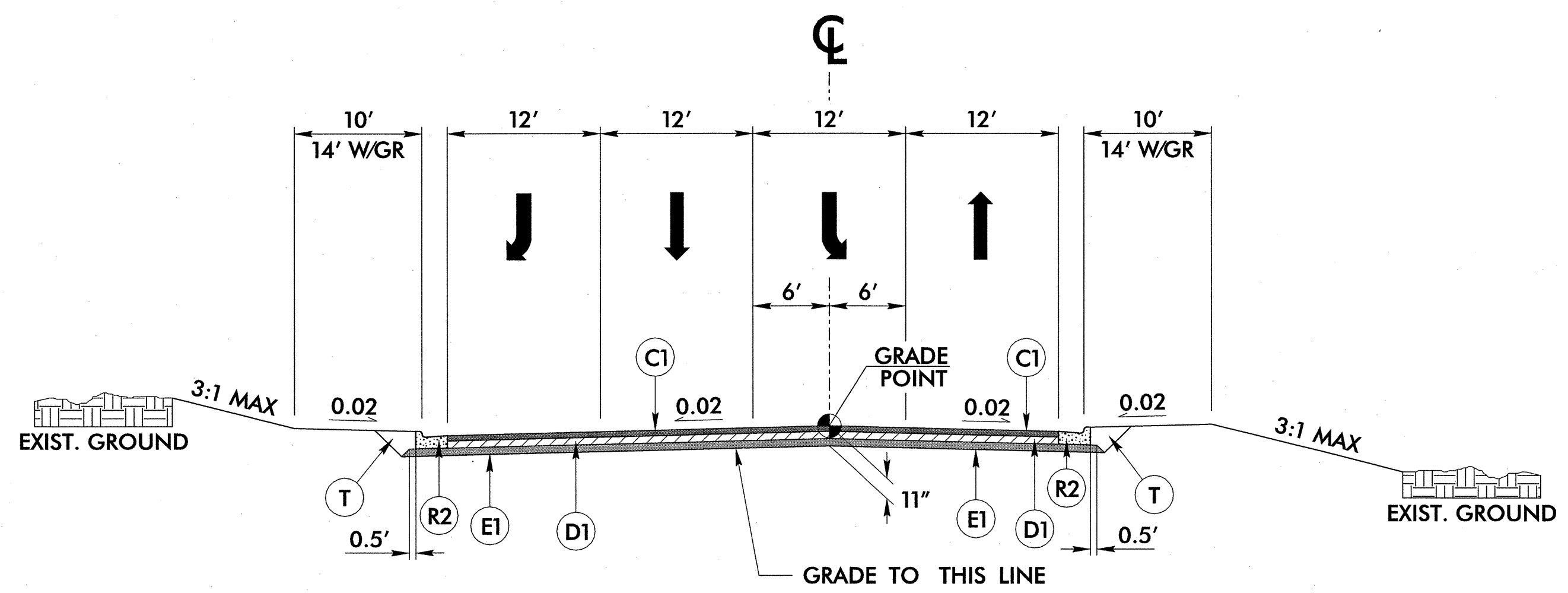
PAVEMENT SCHEDULE	
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1.5" IN DEPTH OR GREATER THAN 2" IN DEPTH.
C3	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2.5" IN DEPTH OR GREATER THAN 4" IN DEPTH.
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M	1.5" MILLING
R1	PROPOSED 1'-6" CONCRETE CURB AND GUTTER
R2	PROPOSED 2'-6" CONCRETE CURB AND GUTTER
R3	PROPOSED 5" MONOLITHIC CONCRETE ISLAND
R4	PROPOSED 4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W1	PAVEMENT WEDGING (SEE WEDGING DETAIL NO. 1)
W2	OFFSET PAVEMENT WEDGING (SEE WEDGING DETAIL NO. 2)

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6/14/2011
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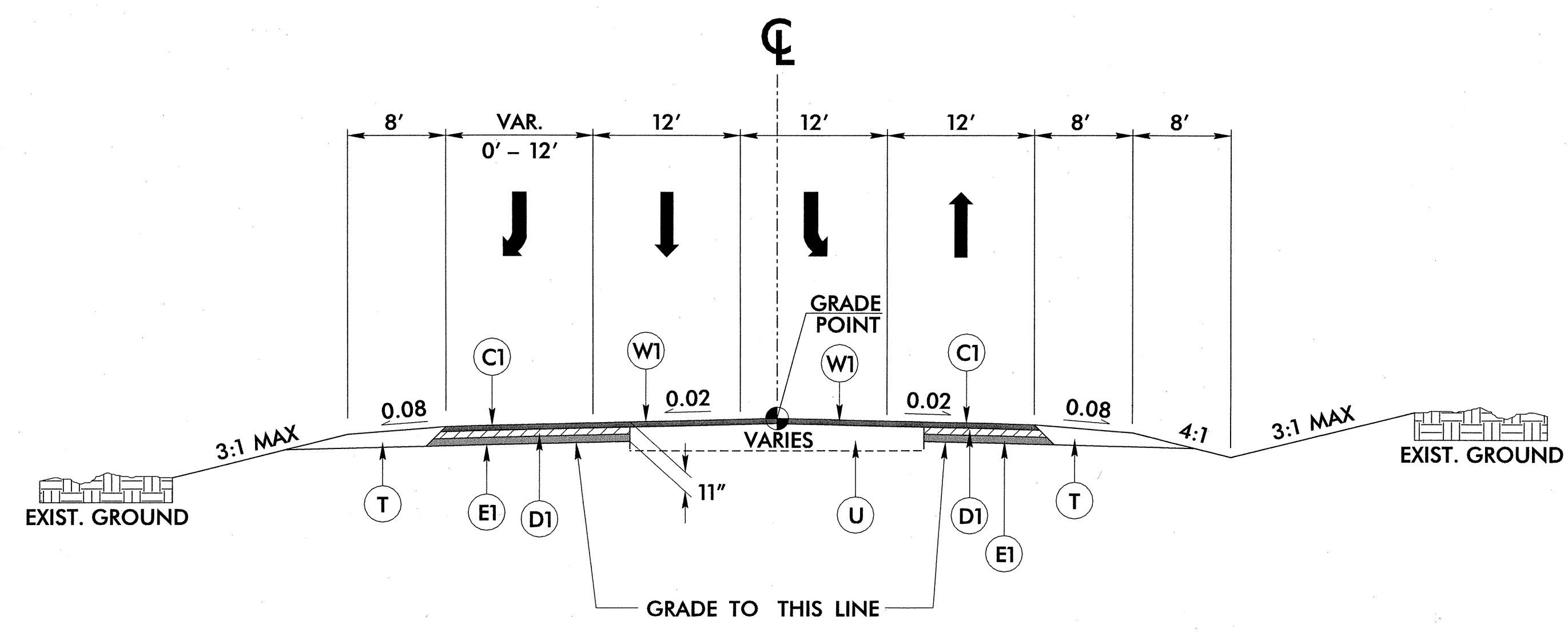
PROJECT REFERENCE NO. R-5185	SHEET NO. 2-B
ROADWAY DESIGN ENGINEER SEAL 032599 PHILIP A. FREEMAN 03-09-11	PAVEMENT DESIGN ENGINEER SEAL 22898 CLARK S. MORRISON 02/21/11
 STV / Ralph Whitehead Associates, Inc. 1000 West Morehead St., Ste. 200 Charlotte, NC 28208 NC License Number F-0991	



TYPICAL SECTION NO. 6
 -Y1- STA. 10+13.12 TO STA. 12+72.82



TYPICAL SECTION NO. 7
 -DR1- STA. 10+34.50 TO STA. 11+32.14




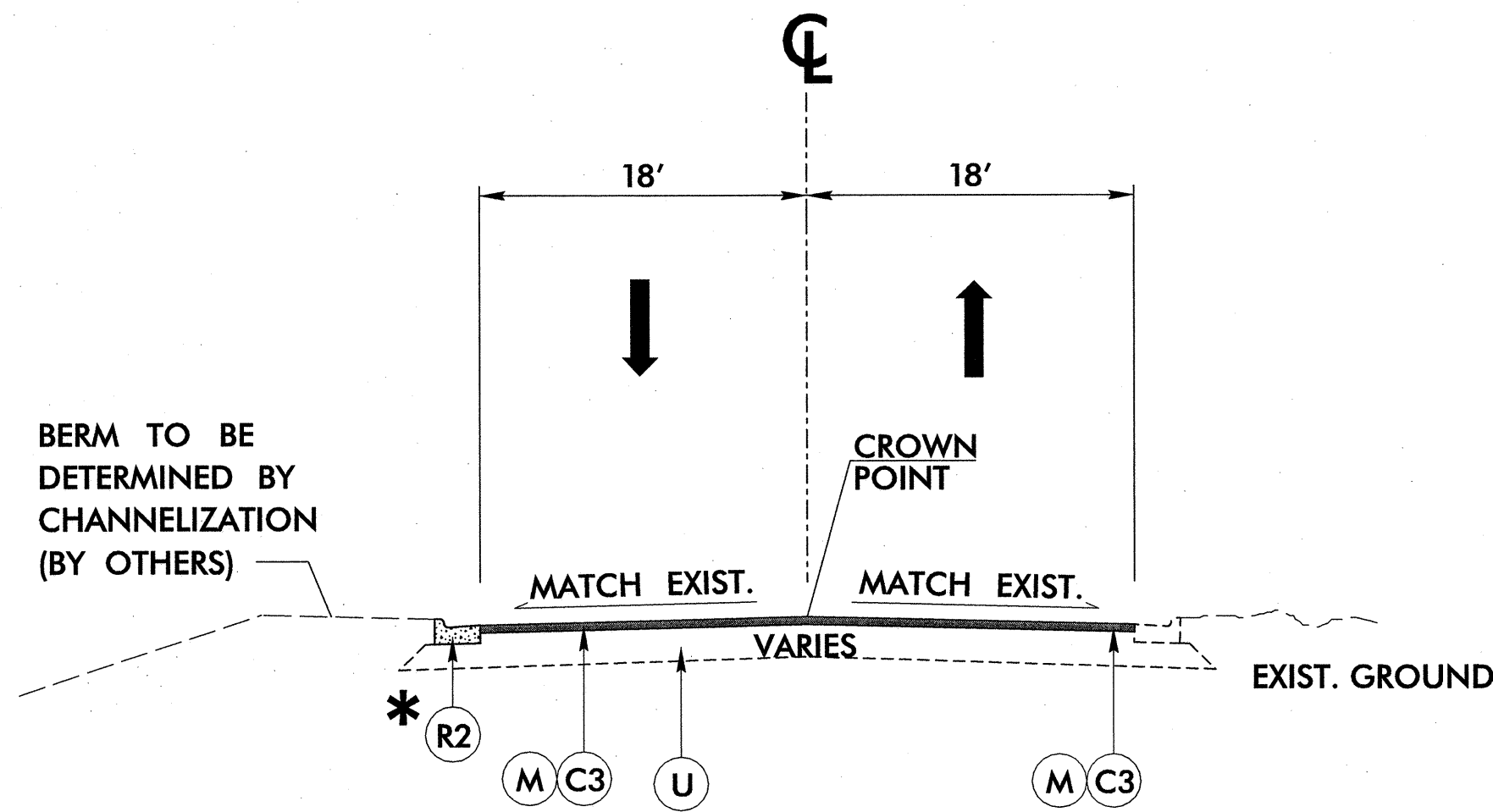
TYPICAL SECTION NO. 8
 -Y3- STA. 10+54.76 TO STA. 12+50.00

NOTES:
 TYPICAL SECTIONS SHOWN FOR TANGENT SECTIONS ONLY. SEE PLANS AND STANDARD DRAWINGS FOR SUPERELEVATION DETAILS AND WIDENING/LANE ADDITIONS AT INTERSECTION. MAXIMUM SHOULDER ROLLOVER IS 6%.
 ALL PAVEMENT EDGES SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

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R4	PROPOSED 4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W1	PAVEMENT WEDGING (SEE WEDGING DETAIL NO. 1)
W2	OFFSET PAVEMENT WEDGING (SEE WEDGING DETAIL NO. 2)

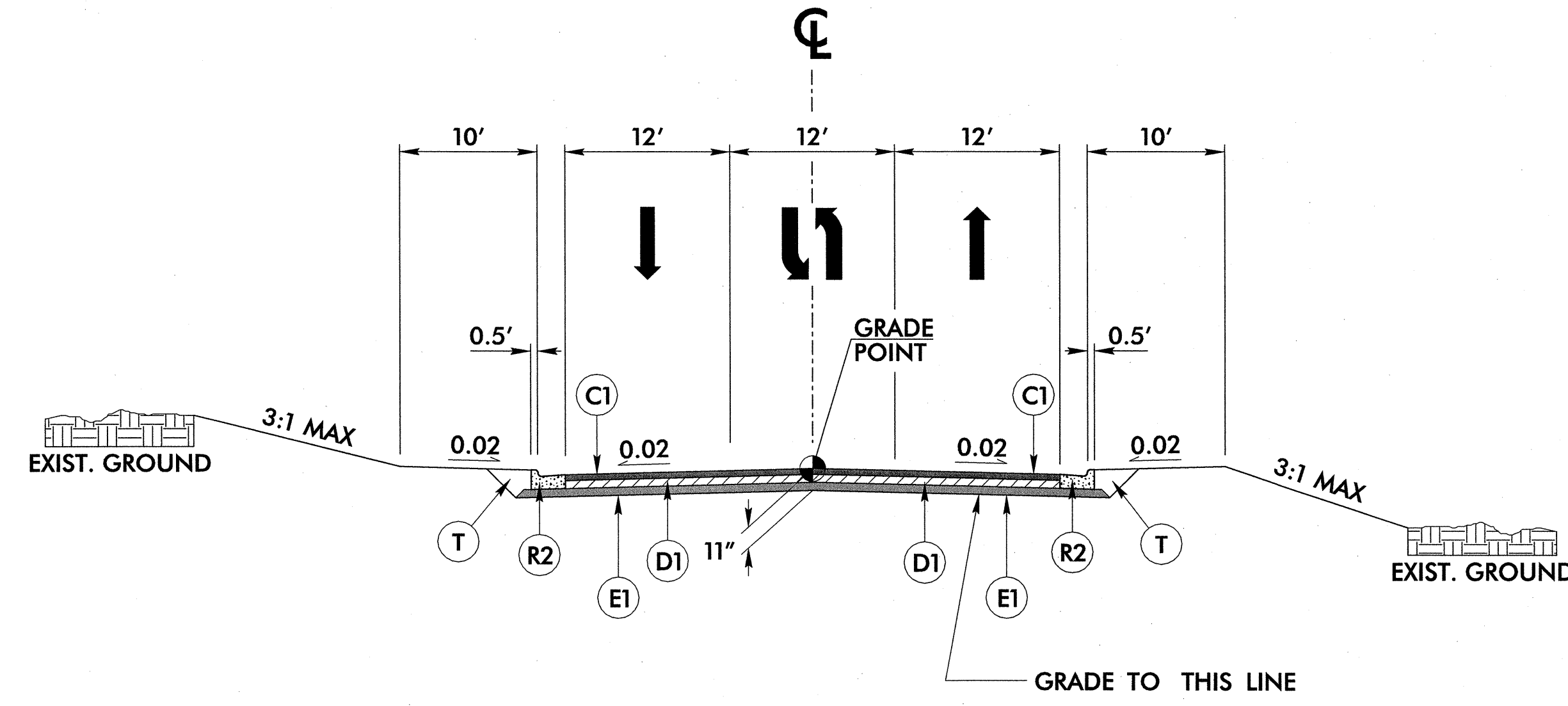
6/2/99
 3/9/2011
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PROJECT REFERENCE NO. R-5185	SHEET NO. 2-C
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22599 JOSEPH A. FREEMAN	PAVEMENT DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22896 CLARK S. MORRISON
 STV / Ralph Whitehead Associates, Inc. 1000 West Morehead St., Ste. 200 Charlotte, NC 28208 NC License Number F-0991	



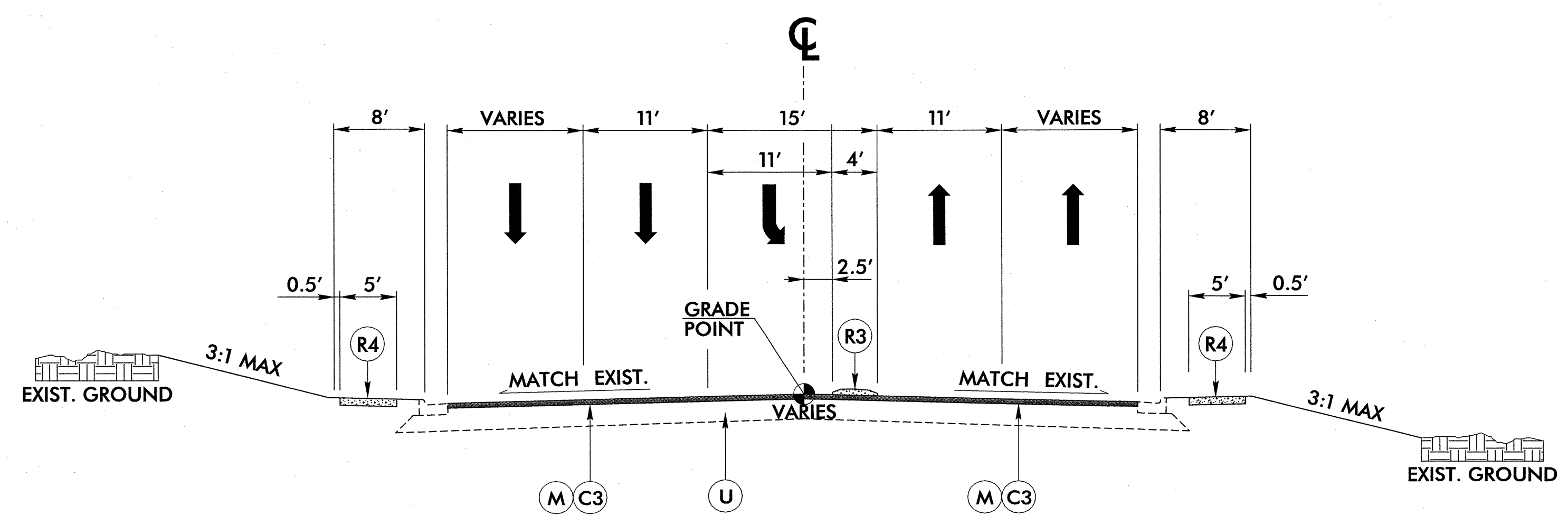
TYPICAL SECTION NO. 9

-Y4- STA. 11+33.00 TO STA. 12+83.00
 * PROPOSED CURB AND GUTTER
 -Y4- STA. 12+04.23 TO STA. 12+56.78



TYPICAL SECTION NO. 10

-Y5- STA. 10+34.50 TO STA. 12+05.03



TYPICAL SECTION NO. 11

-Y6- STA. 10+40.00 TO STA. 15+20.78

NOTES:
 TYPICAL SECTIONS SHOWN FOR TANGENT SECTIONS ONLY. SEE PLANS AND STANDARD DRAWINGS FOR SUPERELEVATION DETAILS AND WIDENING/LANE ADDITIONS AT INTERSECTION. MAXIMUM SHOULDER ROLLOVER IS 6%.
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R4	PROPOSED 4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W1	PAVEMENT WEDGING (SEE WEDGING DETAIL NO. 1)
W2	OFFSET PAVEMENT WEDGING (SEE WEDGING DETAIL NO. 2)

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

7-06 ENGLISH DETAIL DRAWING FOR METHOD OF PIPE INSTALLATION

FLEXIBLE PIPE

SHEET 1 OF 3
300D01

GENERAL NOTES:
 I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.
 O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.
 H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.
 TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.
 LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

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

--- SPRINGLINE OF PIPE
 [Hatched pattern] SELECT BACKFILL MATERIAL CLASS III OR CLASS II, TYPE 1 ABOVE AND BELOW SPRINGLINE.
 [Dotted pattern] APPROVED SUITABLE LOCAL MATERIAL.
 [Horizontal lines] UNDISTURBED EARTH MATERIAL
 [Cross-hatched pattern] SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH ENGINEERING FABRIC AS DIRECTED BY THE ENGINEER.

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

7-06 ENGLISH DETAIL DRAWING FOR METHOD OF PIPE INSTALLATION

RIGID PIPE

SHEET 2 OF 3
300D01

GENERAL NOTES:
 I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.
 O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.
 H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.
 TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.
 LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

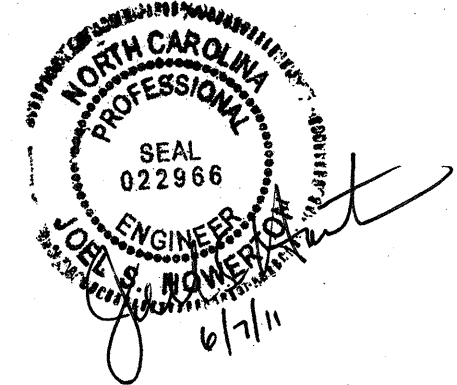
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 [Hatched pattern] SELECT BACKFILL MATERIAL CLASS III OR CLASS II, TYPE 1 BELOW SPRINGLINE.
 [Dotted pattern] APPROVED SUITABLE LOCAL MATERIAL ABOVE SPRINGLINE.
 [Horizontal lines] UNDISTURBED EARTH MATERIAL
 [Cross-hatched pattern] SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH ENGINEERING FABRIC AS DIRECTED BY THE ENGINEER.

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

SEE PLATE FOR TITLE

ORIGINAL BY: KKemp DATE: 5-15-09
 MODIFIED BY: _____ DATE: _____
 CHECKED BY: _____ DATE: _____
 FILE SPEC: e:\ricoward\stds\stdstodetails\30001\03000d01.dgn

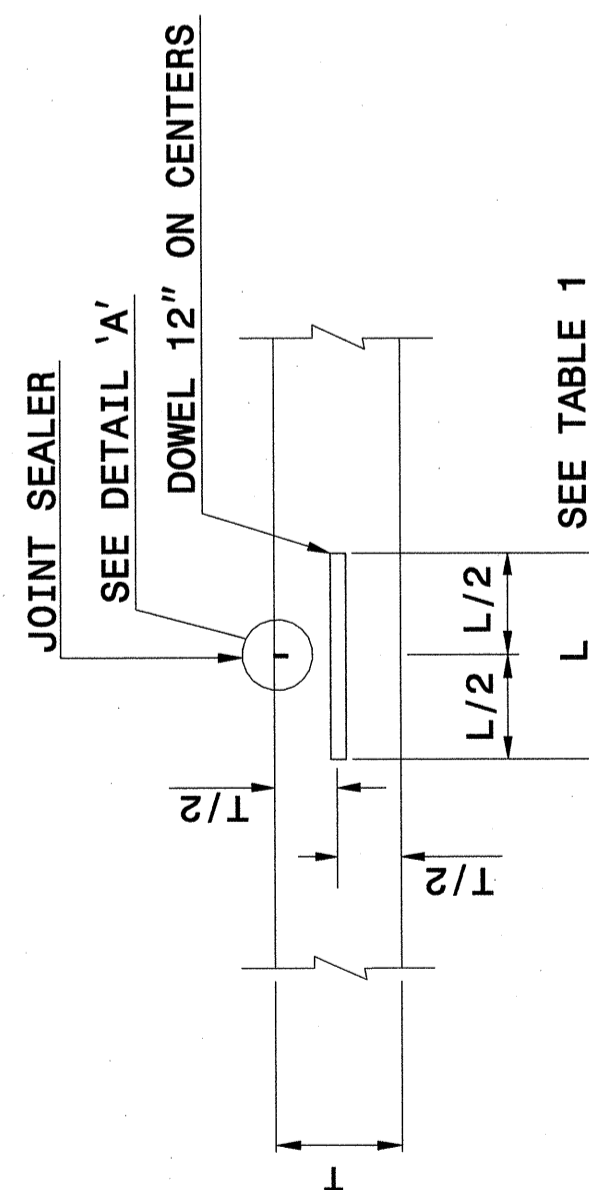


STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

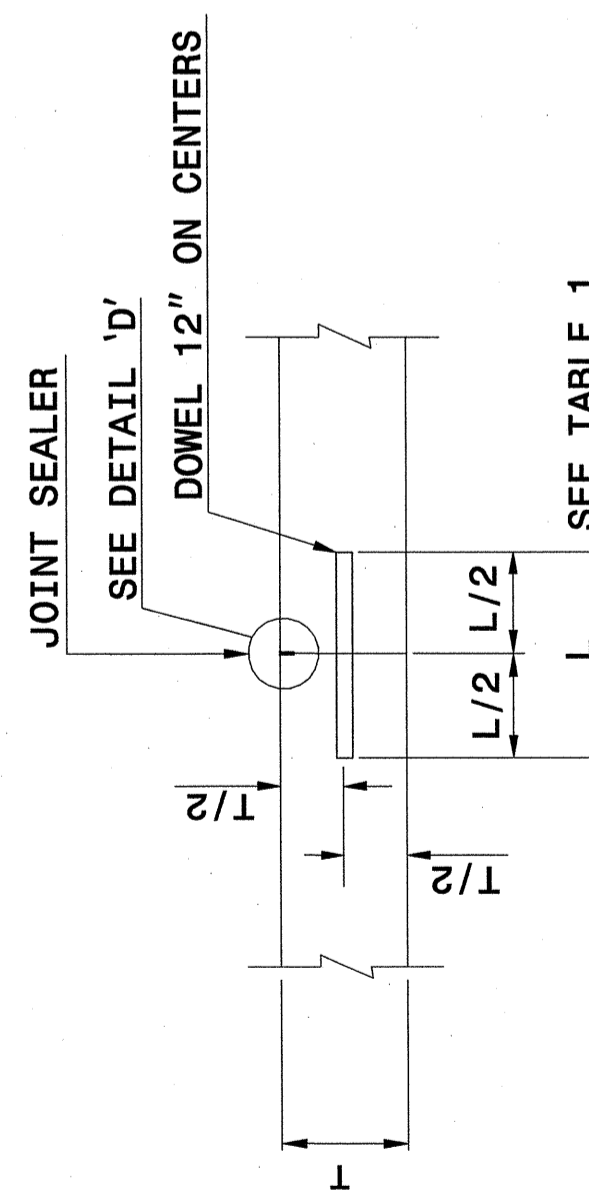
ENGLISH DETAIL DRAWING FOR
CONCRETE PAVEMENT JOINTS
CONSTRUCTION AND CONTRACTION JOINTS

SHEET 1 OF 2
700D01

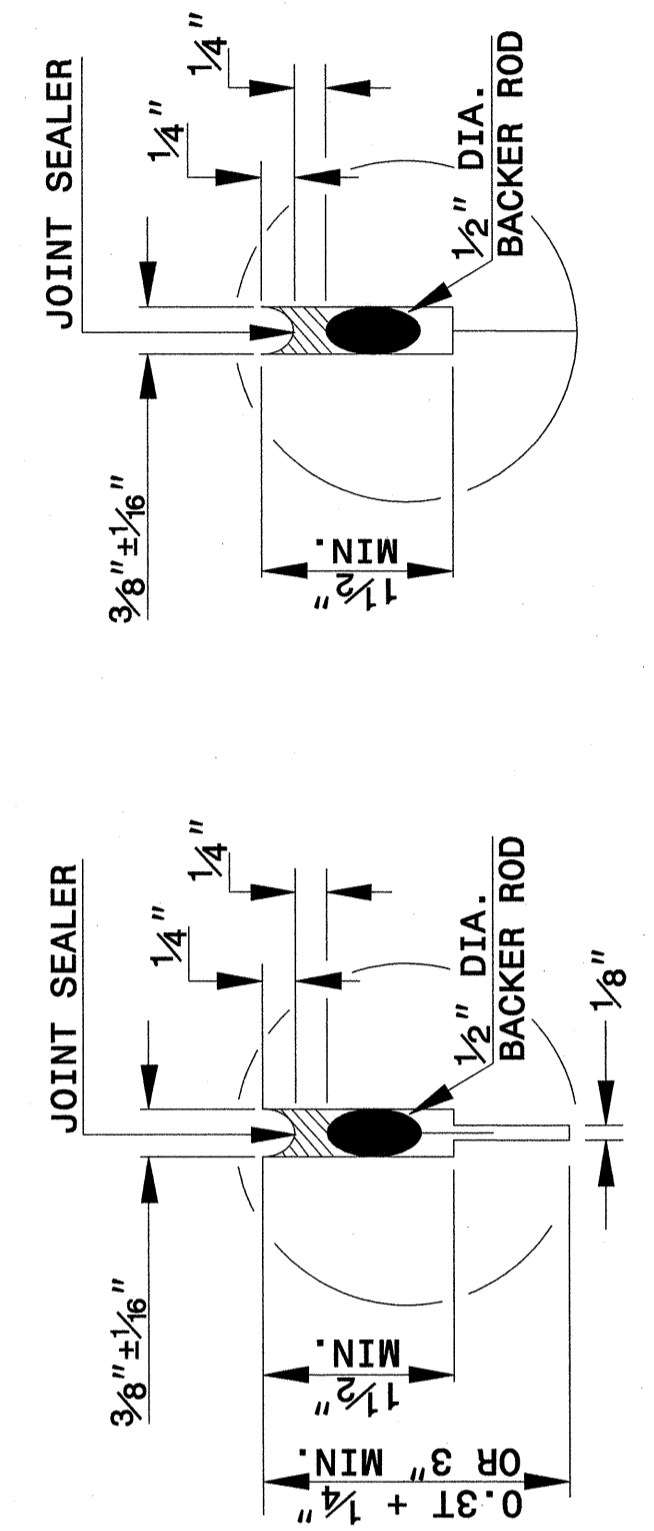
- GENERAL NOTES:
-FORM TRANSVERSE CONTRACTION JOINTS BY SAWING WITH APPROVED EQUIPMENT.
-SPACE TRANSVERSE CONTRACTION JOINTS AT INTERVALS OF 15' IN ALL TRANSVERSE CONTRACTION JOINTS.
-DOWEL ASSEMBLIES ARE COVERED IN DETAIL 700D03.
-PROVIDE SMOOTH DOWEL BARS. PROVIDE DEFORMED TIE BARS. WHEN UTILIZING AN EARLY ENTRY SAW, CUT THE JOINT TO A MINIMUM DEPTH OF 3".



TRANSVERSE CONTRACTION JOINT



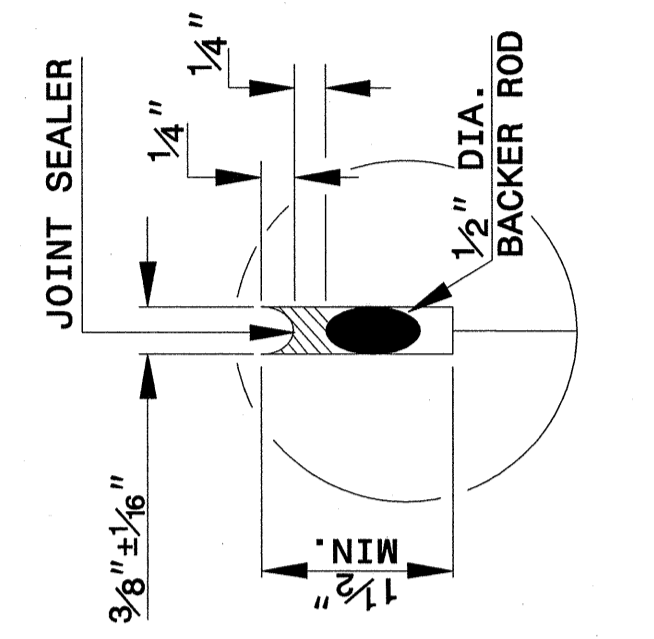
PLANNED TRANSVERSE CONSTRUCTION JOINT



DETAIL 'A'

TABLE I - DOWEL BARS

SLAB THICKNESS	DOWEL BAR "D"	DOWEL LENGTH "L"
8" OR LESS	1"	14"
8 1/2" TO 9 1/2"	1 1/8"	16"
10" TO 10 1/2"	1 1/4"	18"
11" AND ABOVE	1 1/2"	18"



DETAIL 'D'

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

ENGLISH DETAIL DRAWING FOR
CONCRETE PAVEMENT JOINTS
CONSTRUCTION AND CONTRACTION JOINTS

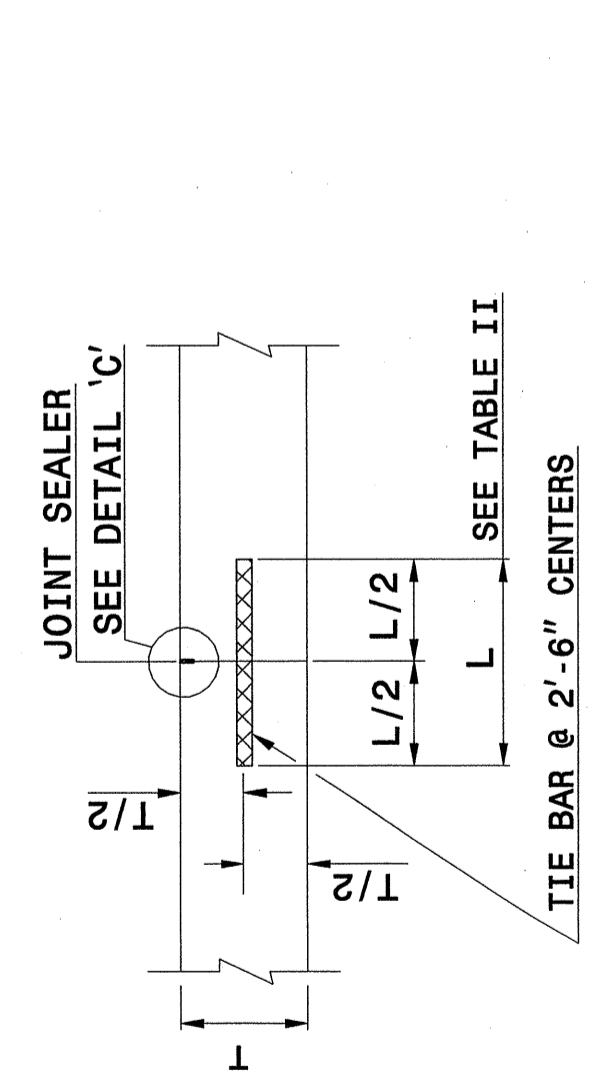
SHEET 1 OF 2
700D01

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

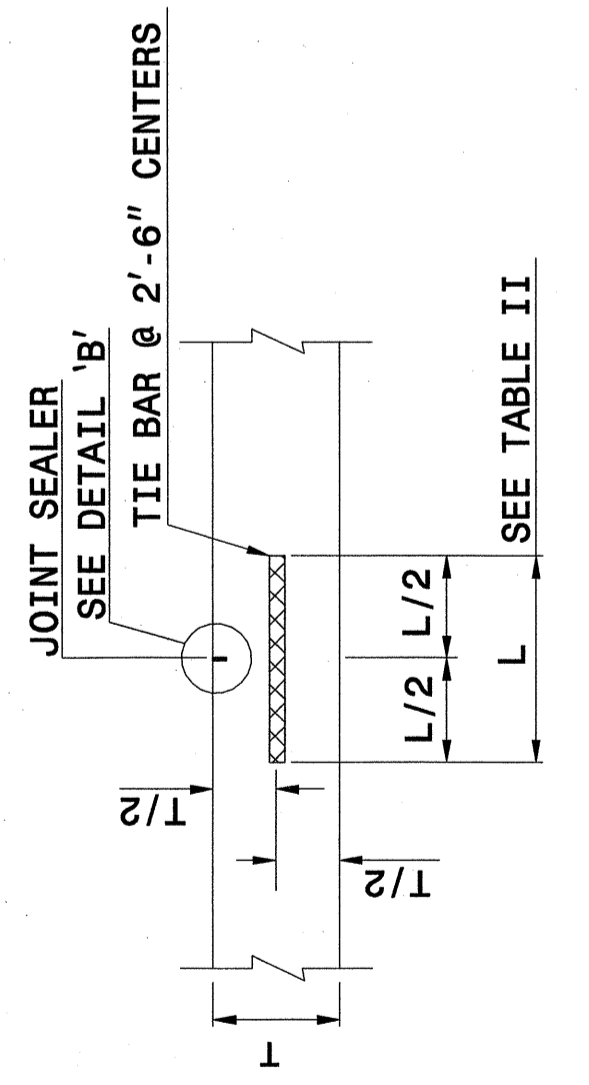
ENGLISH DETAIL DRAWING FOR
CONCRETE PAVEMENT JOINTS
CONSTRUCTION AND CONTRACTION JOINTS

SHEET 2 OF 2
700D01

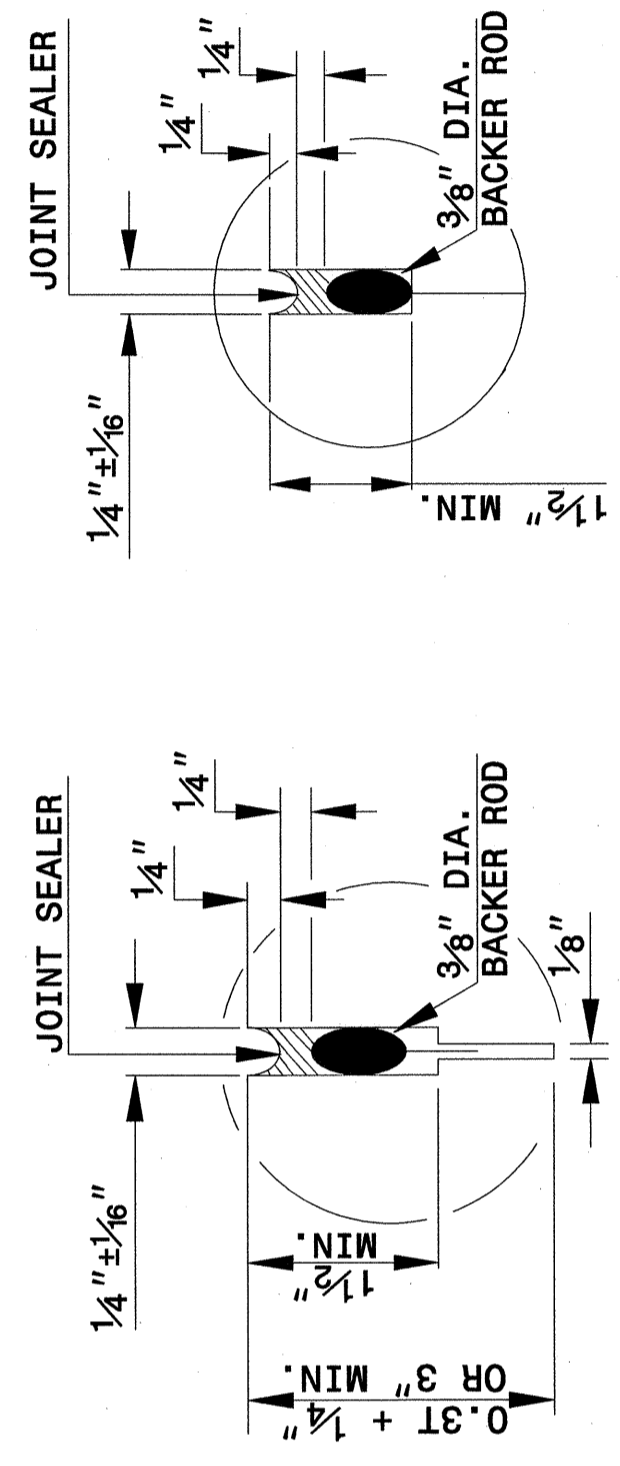
- GENERAL NOTES:
-CONSTRUCT TRANSVERSE CONTRACTION JOINTS AT THE END OF EACH DAY'S OPERATION (PLANNED JOINT) OR WHEN THE PLACING OF CONCRETE IS SUSPENDED FOR MORE THAN 30 MINUTES (EMERGENCY JOINT).
-USE AN APPROVED HEADER AT EMERGENCY JOINTS STD. DWG. 700.04 AND DESIGNED TO PERMIT THE PLACEMENT OF AND CORRECTLY HOLD IN PLACE TIE BARS.
-USE TIE BARS OF THE SAME DIAMETER AS DOWEL BARS FOR EMERGENCY TRANSVERSE CONTRACTION JOINTS.
-LOCATE PLANNED TRANSVERSE CONTRACTION JOINTS AT THE SPACING REQUIRED FOR CONTRACTION JOINTS. USE AN APPROVED METHOD OF INSTALLING DOWELS IN ALL PLANNED TRANSVERSE CONTRACTION JOINTS.
-DO NOT LOCATE EMERGENCY TRANSVERSE CONTRACTION JOINTS LESS THAN 6' FROM ANY CONTRACTION JOINT OR PLANNED CONTRACTION JOINT.
-DO NOT PLACE TIE BARS IN LONGITUDINAL JOINTS WITHIN 1'-4" OF A TRANSVERSE JOINT.
-WHEN UTILIZING AN EARLY ENTRY SAW, CUT THE JOINT TO A MINIMUM DEPTH OF 3".



LONGITUDINAL CONSTRUCTION JOINT



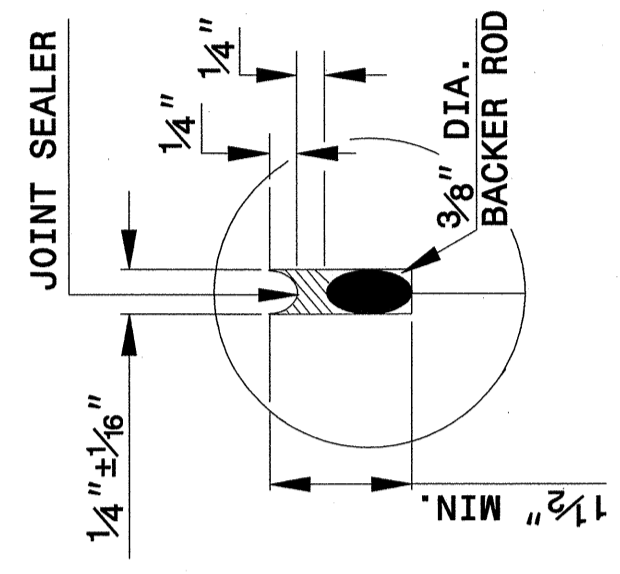
EMERGENCY TRANSVERSE CONSTRUCTION JOINT



DETAIL 'B'

TABLE II - LONGITUDINAL TIE BARS

SLAB THICKNESS	TIE BAR DIA. "D"	TIE BAR LENGTH "L"
8 1/2" OR LESS	1/2"	30"
9" OR ABOVE	5/8"	30"



DETAIL 'C'

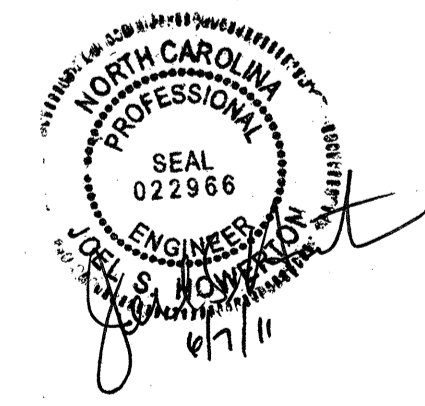
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
CONCRETE PAVEMENT JOINTS
CONSTRUCTION AND CONTRACTION JOINTS

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

SEE PLATE FOR TITLE

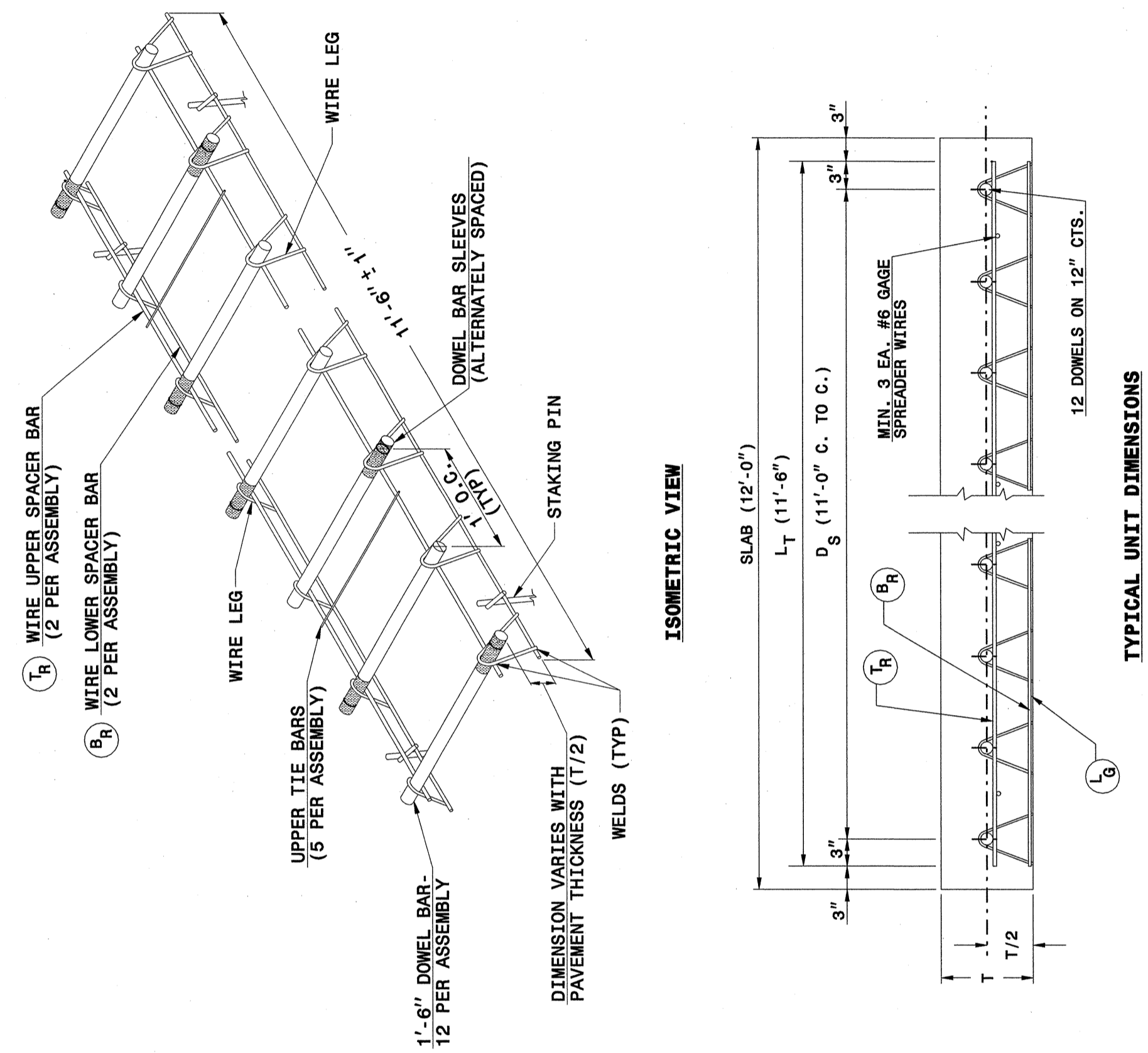
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MODIFIED BY: E.E. WARD DATE: 09-26-06
CHECKED BY: DATE:
FILE SPEC.: stds/06stdstodetails/english/700d01.dgn



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

ENGLISH DETAIL DRAWING FOR DOWEL ASSEMBLY

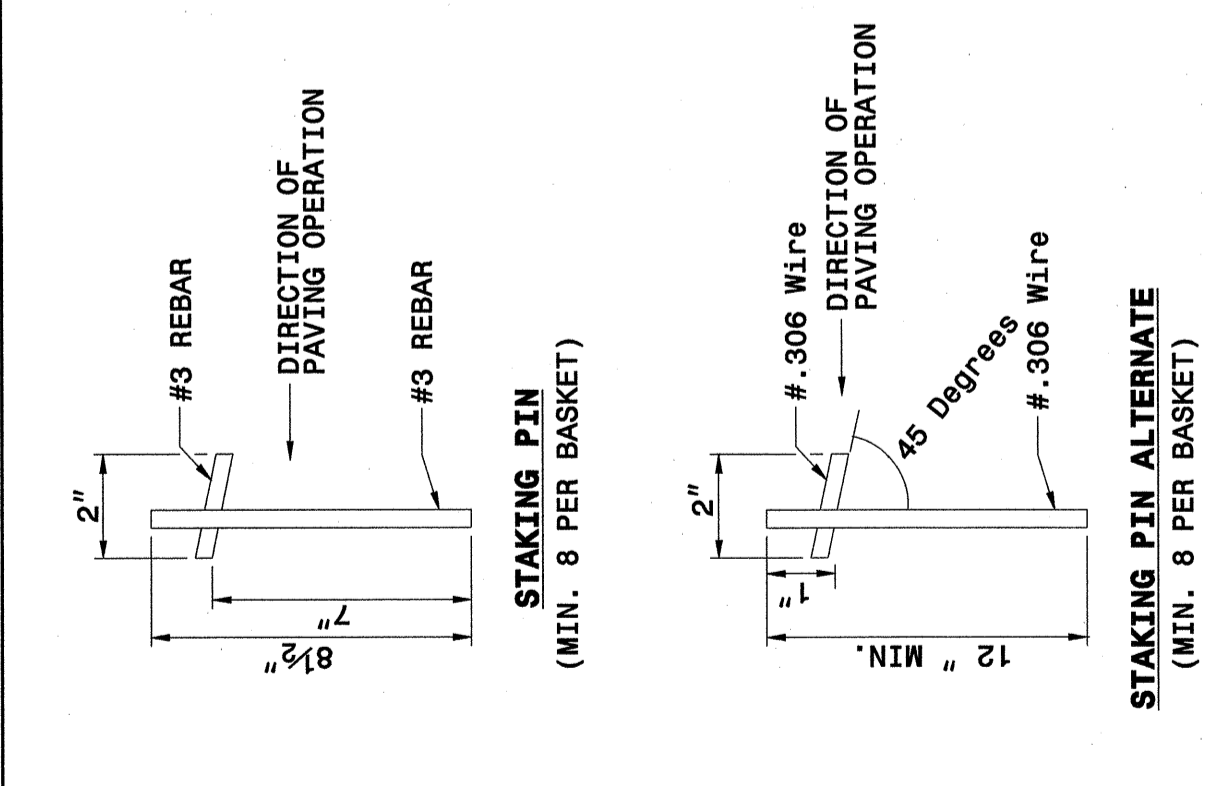
SHEET 1 OF 2 700D03



TYPICAL UNIT DIMENSIONS

GENERAL NOTES:
 -USE RIGID CONSTRUCTED DOWEL ASSEMBLY CAPABLE OF HOLDING THE DOWEL BAR IN PROPER POSITION DURING PLACEMENT OF CONCRETE AND DESIGNED AS TO PERMIT UNRESTRICTED MOVEMENT OF THE SLAB. USE DOWEL ASSEMBLY APPROVED BY THE ENGINEER PRIOR TO USE.
 -USE DOWEL ASSEMBLIES MANUFACTURED WITH DOWELS ALTERNATELY WELDED TO FRAME MEMBERS.
 -SAW CUT EPOXY COATED DOWELS ALTERNATELY WELDED TO FRAME MEMBERS AS NECESSARY TO FACILITATE PROPER WELDING OF THE DOWEL TO THE ASSEMBLY FRAME.
 -TOUCH UP OF THE BUFFED AREA WILL NOT BE REQUIRED.
 -RESISTANCE WELD FRAME MEMBERS; DOWELS AND SPREADER WIRES MAY BE ARC WELDED. WELD IN ACCORDANCE WITH AWS WELDING CODE.
 -FULLY DIP THE DOWEL ASSEMBLIES TO ASSURE A COMPLETE COATING OF MAX.
 -SEE DETAIL 700D01 FOR DOWEL BAR SIZES.

SLAB THICKNESS	"V" LEG ONLY WIRE GAGE	
	TR	LG
8" OR LESS	2	2
8 1/2" - 10"	0	2
10 1/2" & ABOVE	2/0's	2/0's



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

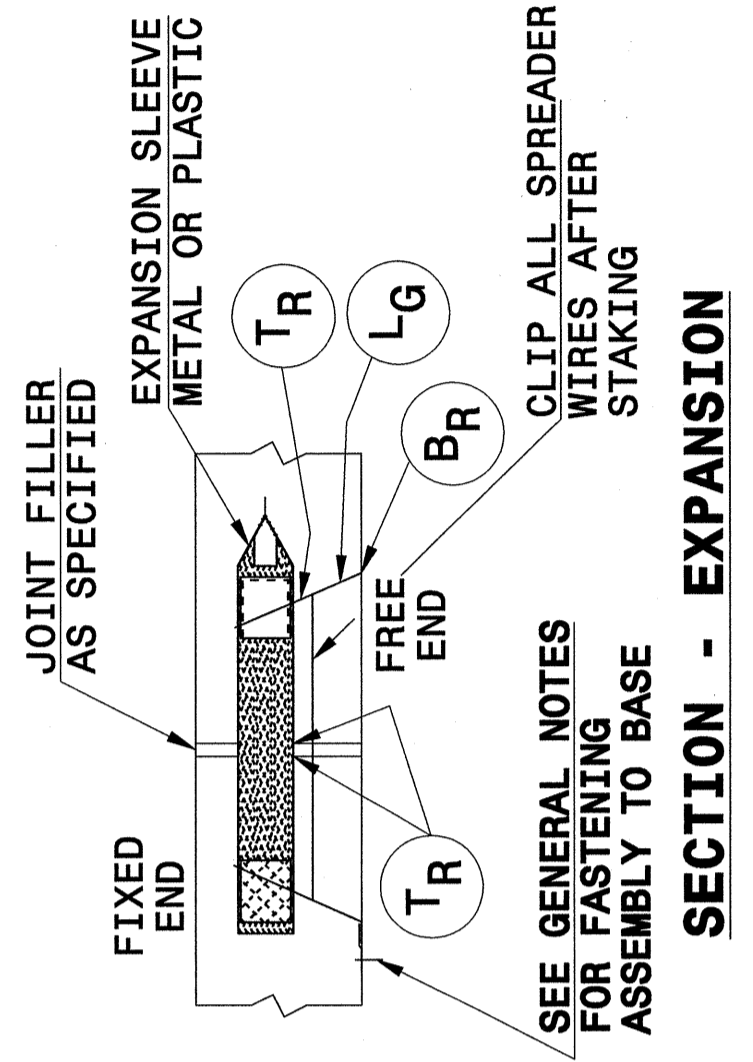
ENGLISH DETAIL DRAWING FOR DOWEL ASSEMBLY

SHEET 1 OF 2 700D03

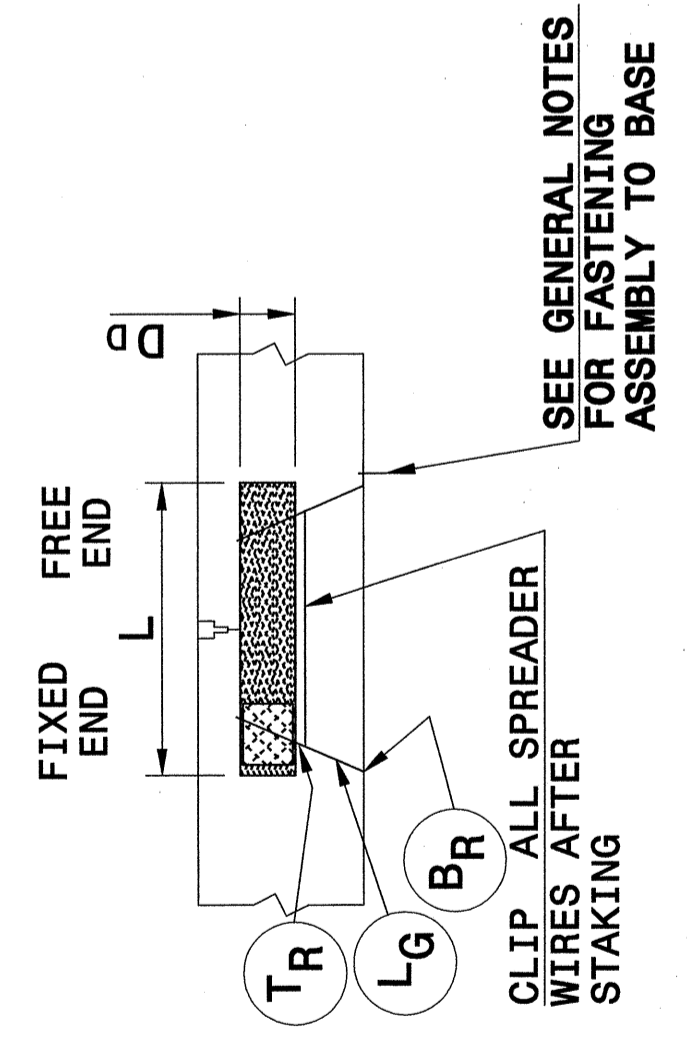
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

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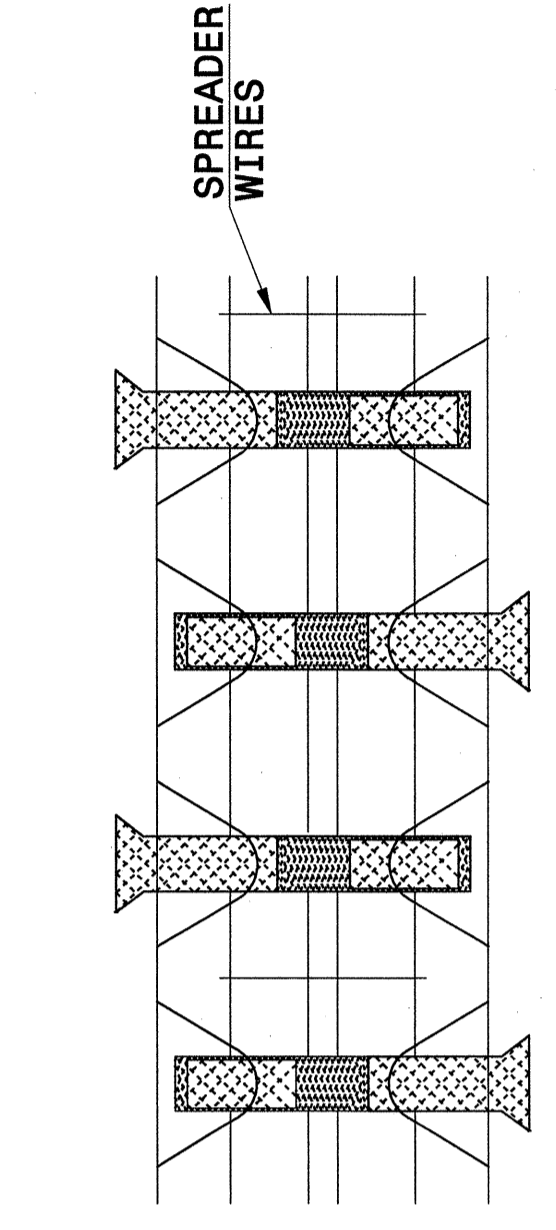
SHEET 2 OF 2 700D03



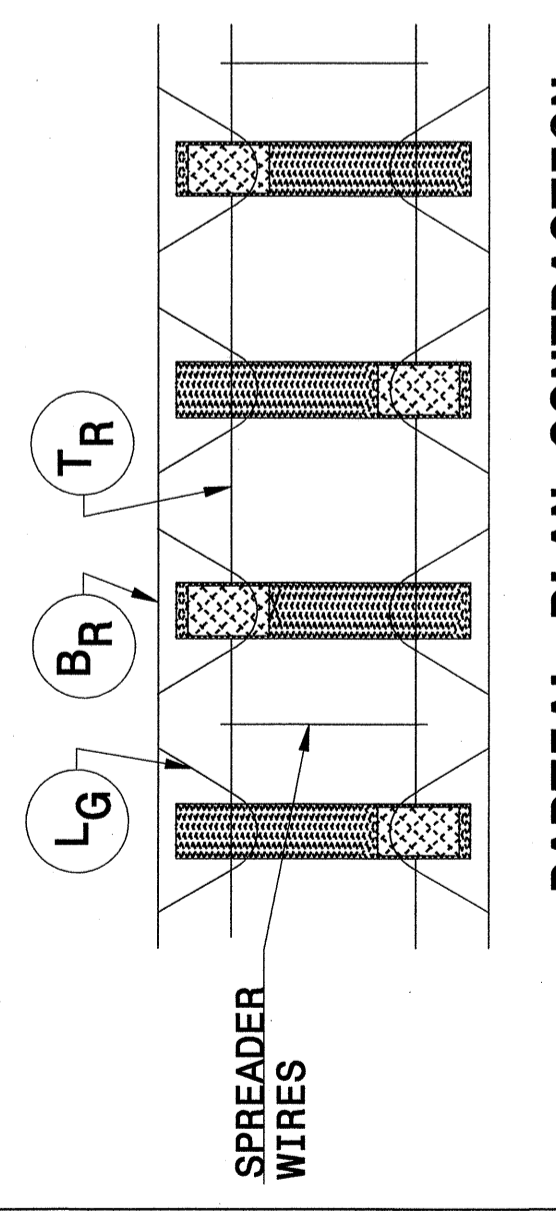
SECTION - EXPANSION



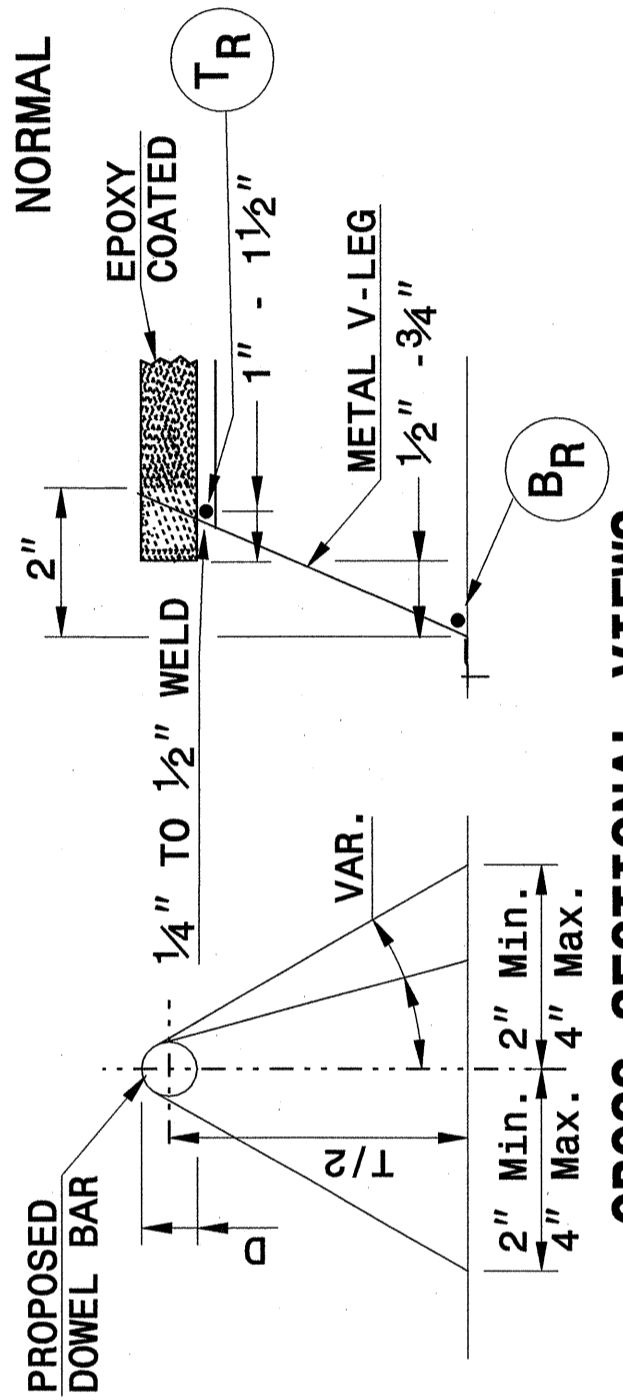
SECTION - CONTRACTION



PARTIAL PLAN EXPANSION



PARTIAL PLAN CONTRACTION

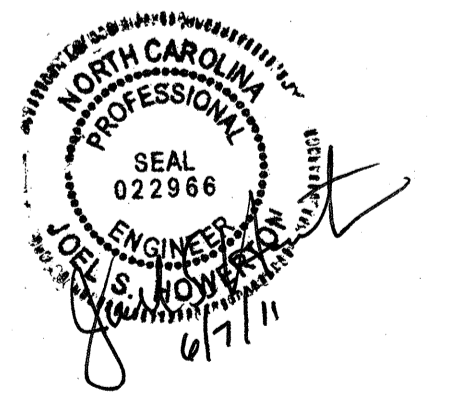


CROSS SECTIONAL VIEWS

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

ENGLISH DETAIL DRAWING FOR DOWEL ASSEMBLY

SHEET 2 OF 2 700D03



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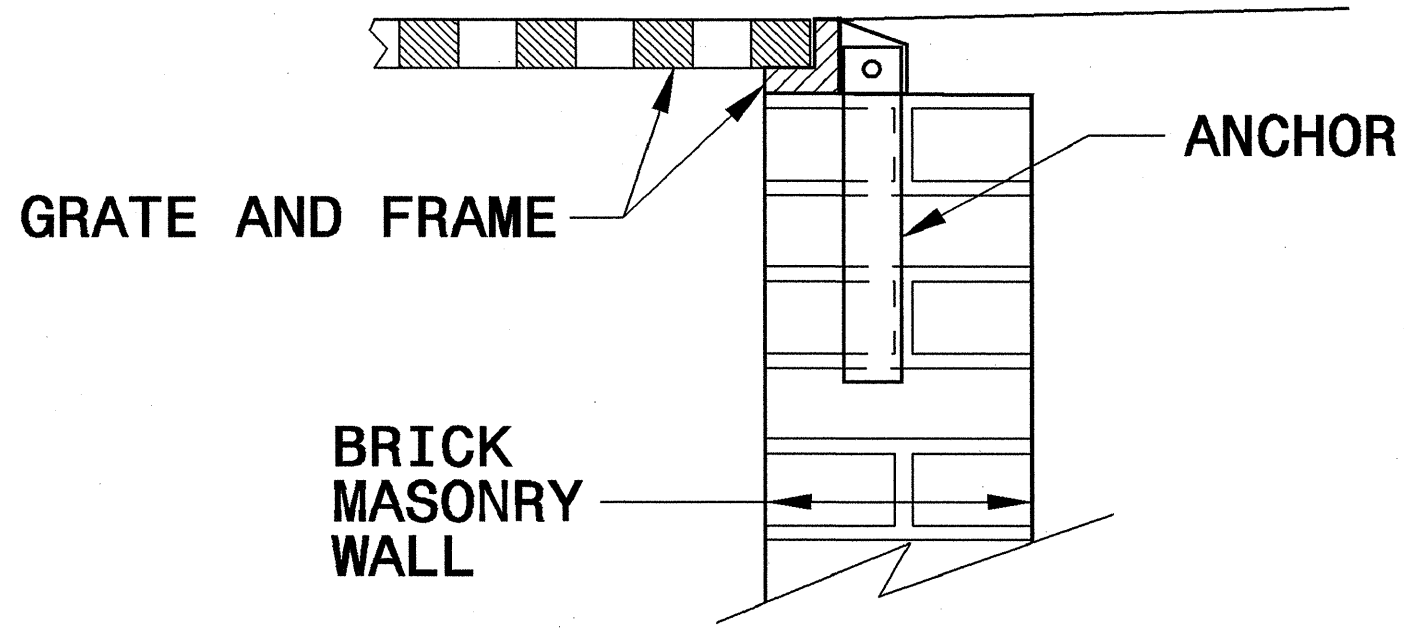
SEE PLATE FOR TITLE

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 MODIFIED BY: E.E. WARD DATE: 12-15-05
 CHECKED BY: DATE:
 FILE SPEC.:stds/02stdstodetails/english/700d01.dgn

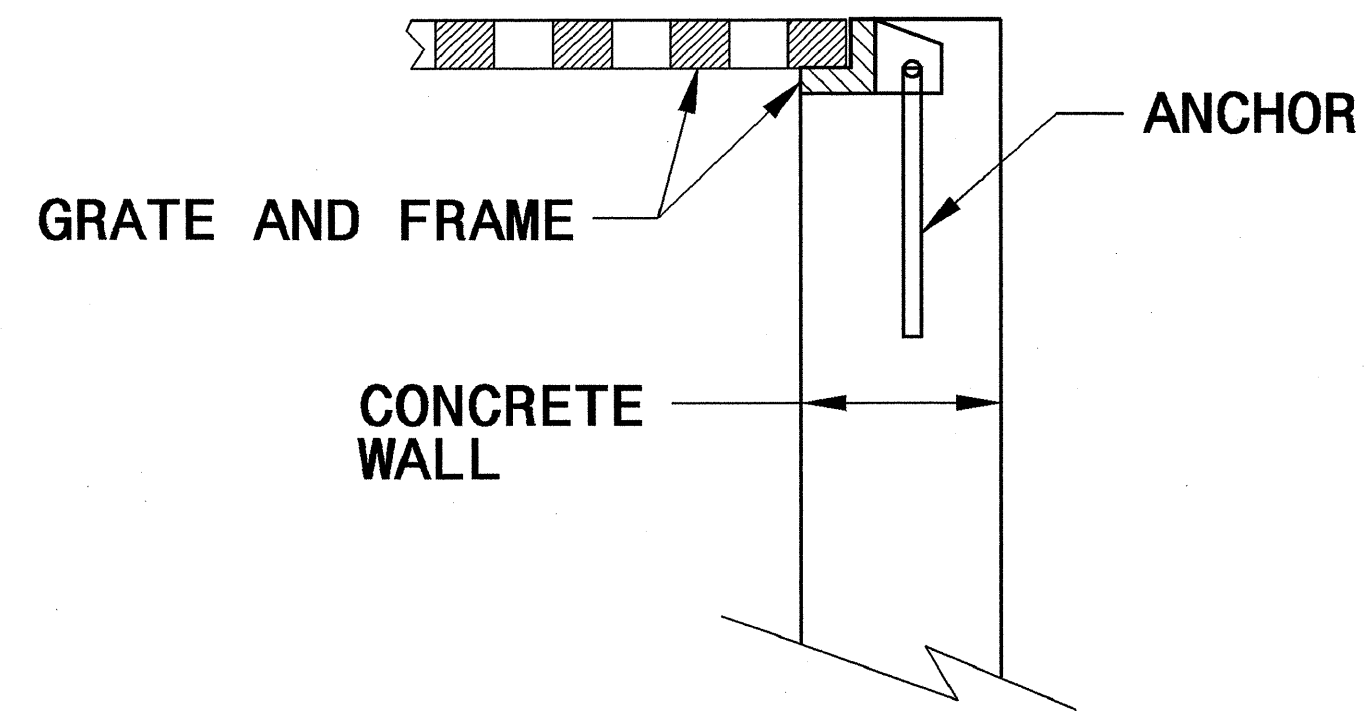
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

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

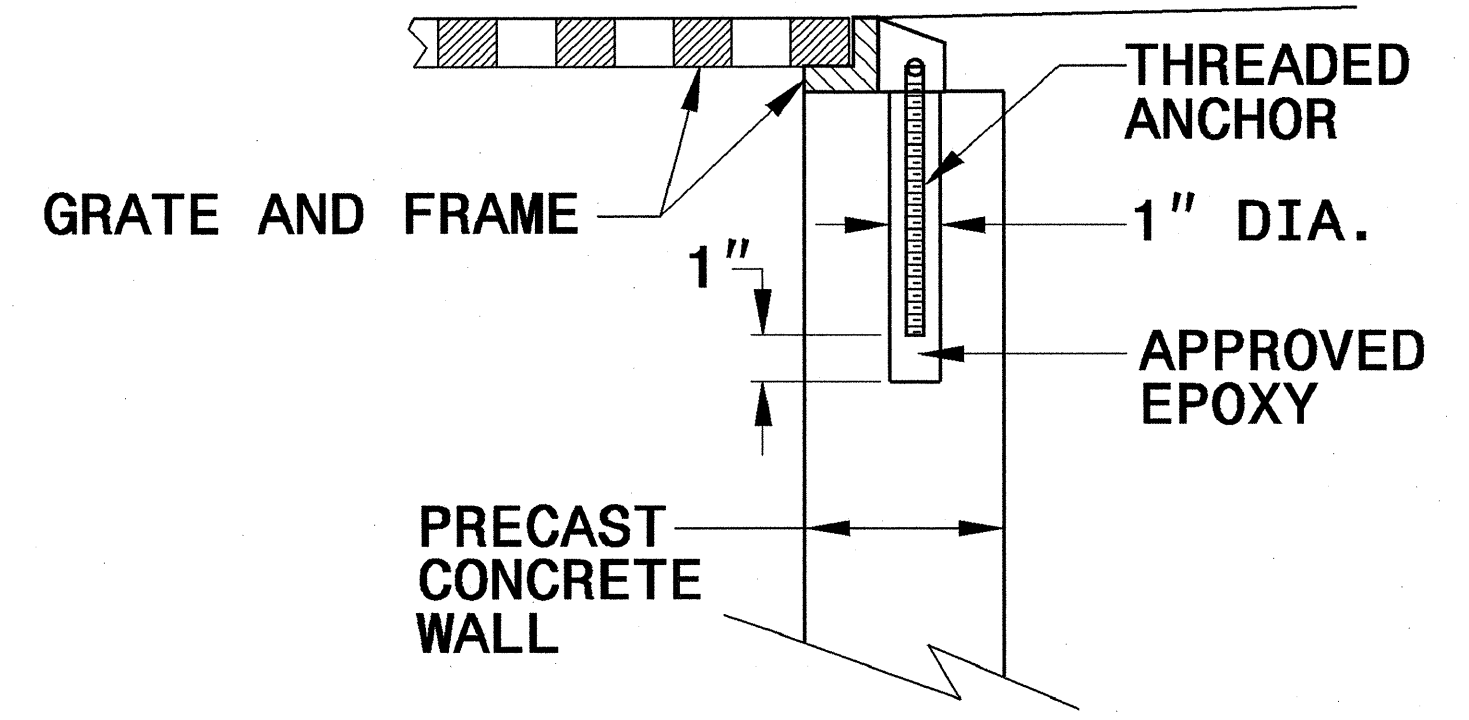
SHEET 1 OF 1
840D25



BRICK MASONRY CONSTRUCTION



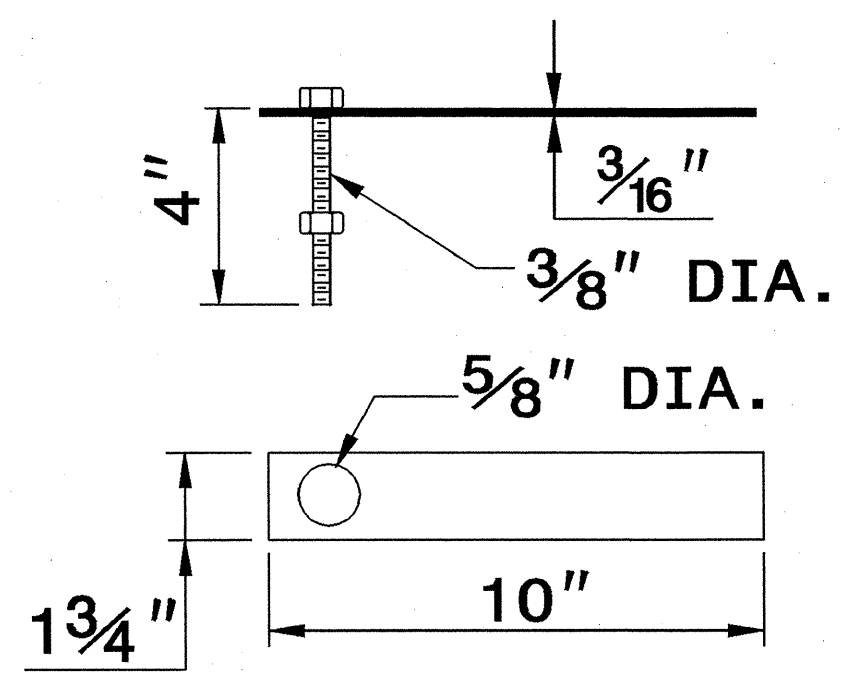
CONCRETE CONSTRUCTION



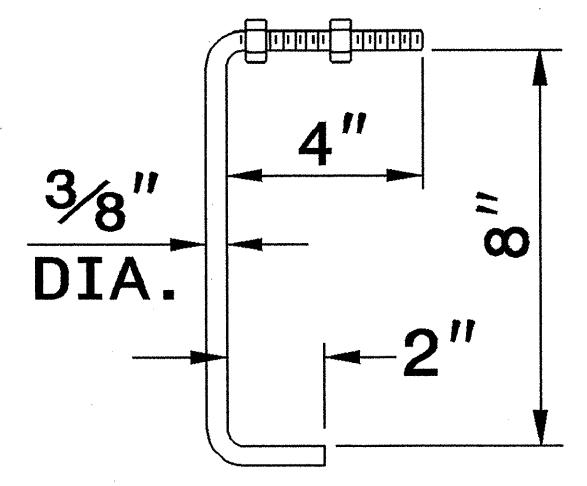
PRECAST CONCRETE CONSTRUCTION

DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET

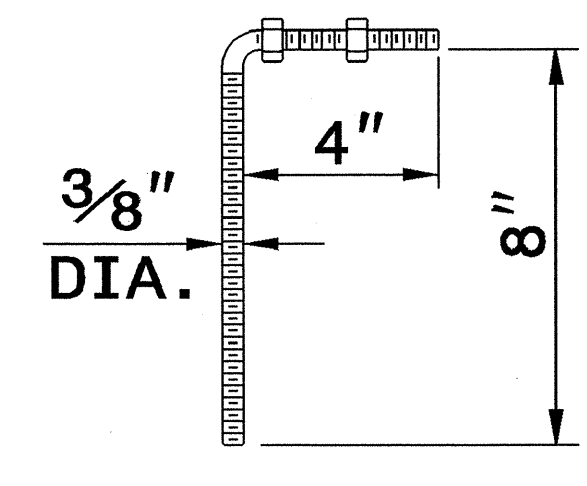
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



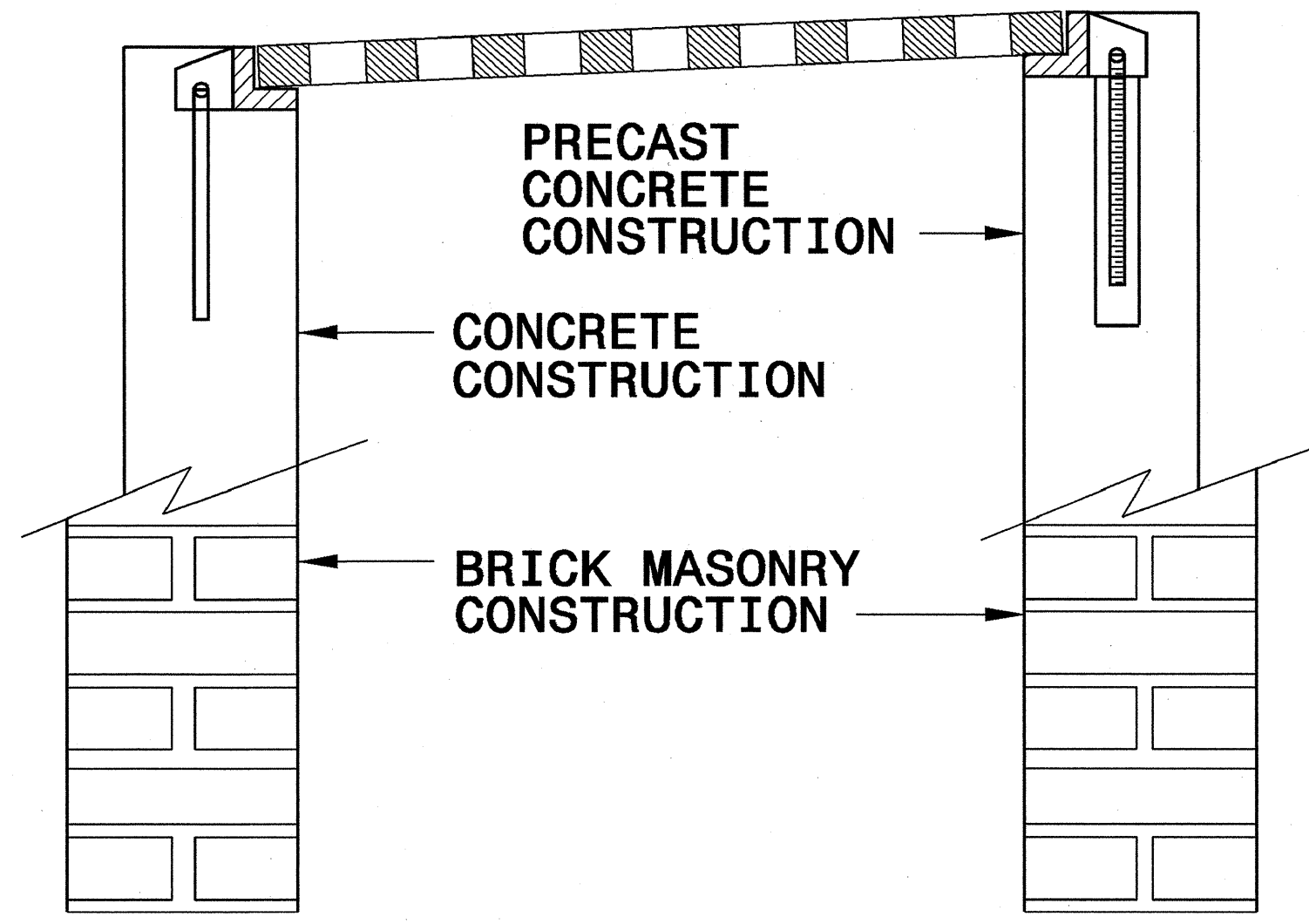
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



CONCRETE ANCHOR
3/8" DIA. BENT BAR



PRECAST CONCRETE ANCHOR
3/8" DIA. BENT BAR



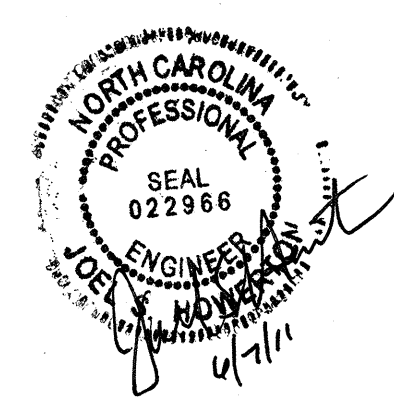
FRAME AND GRATE INSTALLATION FOR NORMAL CROWN AND SUPERELEVATED SECTIONS

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

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

SHEET 1 OF 1
840D25

27 SEP 2006 08:59 C:\projects\Special Details\vertical\stds\06\stds to Special Details\84025 Anchorage for Frames\0840d25.dgn



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

SEE PLATE FOR TITLE

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

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202597																			
ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description	ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION	0995000000-E	340	1,048	LF	PIPE REMOVAL	2374000000-N	840	30	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G)	3659000000-N	SP	2	EA	PREFORMED SCOUR HOLES WITH LEVEL SPREADER APRON
0001000000-E	200	Lump Sum		CLEARING & GRUBBING .. ACRE(S)	1011000000-N	500	Lump Sum		FINE GRADING	2396000000-N	840	4	EA	FRAME WITH COVER, STD 840.54	4048000000-E	902	2	CY	REINFORCED CONCRETE SIGN FOUNDATIONS
0008000000-E	200	1	ACR	SUPPLEMENTARY CLEARING & GRUBBING	1110000000-E	510	500	TON	STABILIZER AGGREGATE	2440000000-N	852	1	EA	CONCRETE TRANSITIONAL SECTION FOR CATCH BASIN	4057000000-E	SP	34	CY	OVERHEAD FOOTING
0022000000-E	225	3,300	CY	UNCLASSIFIED EXCAVATION	1121000000-E	520	85	TON	AGGREGATE BASE COURSE	2451000000-N	852	15	EA	CONCRETE TRANSITIONAL SECTION FOR DROP INLETS	4060000000-E	903	1,463	LB	SUPPORTS, BREAKAWAY STEEL BEAM
0036000000-E	225	650	CY	UNDERCUT EXCAVATION	1297000000-E	607	16,330	SY	MILLING ASPHALT PAVEMENT, **** DEPTH (1-1/2")	2542000000-E	846	2,410	LF	1'-6" CONCRETE CURB & GUTTER	4072000000-E	903	818	LF	SUPPORTS, 3-LB STEEL U-CHANNEL
0038000000-E	SP	300	CY	SHALLOW UNDERCUT	1308000000-E	607	780	SY	MILLING ASPHALT PAVEMENT, **** TO ***** DEPTH (0" TO 1 1/2" DEPTH)	2549000000-E	846	10,650	LF	2'-6" CONCRETE CURB & GUTTER	4082000000-N	SP	Lump Sum		SUPPORTS, OVERHEAD SIGN STRUCTURE AT STA ***** (55+13 -L-)
0080000000-E	SP	600	TON	CLASS IV SUBGRADE STABILIZATION	1491000000-E	610	10,860	TON	ASPHALT CONC BASE COURSE, TYPE B25.0C	2591000000-E	848	5,030	SY	4" CONCRETE SIDEWALK	4082100000-N	SP	Lump Sum		SUPPORTS, OVERHEAD SIGN STRUCTURE AT STA ***** (63+11 -L-)
0106000000-E	230	40,000	CY	BORROW EXCAVATION	1503000000-E	610	10,290	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0C	2612000000-E	848	50	SY	6" CONCRETE DRIVEWAY	4082100000-N	SP	Lump Sum		SUPPORTS, OVERHEAD SIGN STRUCTURE AT STA ***** (63+11 -L-)
0134000000-E	240	2,140	CY	DRAINAGE DITCH EXCAVATION	1523000000-E	610	9,740	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5C	2647000000-E	852	2,040	SY	5" MONOLITHIC CONCRETE ISLANDS (SURFACE MOUNTED)	4096000000-N	904	13	EA	SIGN ERECTION, TYPE D
0156000000-E	250	550	SY	REMOVAL OF EXISTING ASPHALT PAVEMENT	1575000000-E	SP	1,550	TON	ASPHALT BINDER FOR PLANT MIX	2655000000-E	852	210	SY	5" MONOLITHIC CONCRETE ISLANDS (KEYED IN)	4102000000-N	904	64	EA	SIGN ERECTION, TYPE E
0177000000-E	250	2,100	SY	BREAKING OF EXISTING ASPHALT PAVEMENT	1891000000-E	SP	219	SY	GENERIC PAVING ITEM (9" PORT CEM CONC PAVEMENT)	2759000000-N	SP	60	EA	GENERIC PAVING ITEM CONCRETE CURB RAMPS	4108000000-N	904	5	EA	SIGN ERECTION, TYPE F
0195000000-E	SP	300	CY	SELECT GRANULAR MATERIAL	2022000000-E	SP	130	CY	SUBDRAIN EXCAVATION	3030000000-E	862	762.5	LF	STEEL BM GUARDRAIL	4110000000-N	904	3	EA	SIGN ERECTION, TYPE *** (GROUND MOUNTED) (A)
0196000000-E	270	1,400	SY	FABRIC FOR SOIL STABILIZATION	2033000000-E	SP	100	CY	SUBDRAIN FINE AGGREGATE	3045000000-E	862	115	LF	STEEL BM GUARDRAIL, SHOP CURVED	4116100000-N	904	3	EA	SIGN ERECTION, RELOCATE, TYPE **** (GROUND MOUNTED) (D)
0199000000-E	SP	784	SF	TEMPORARY SHORING	2044000000-E	SP	550	LF	6" PERFORATED SUBDRAIN PIPE	3150000000-N	862	10	EA	ADDITIONAL GUARDRAIL POSTS	4155000000-N	907	61	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
0318000000-E	SP	970	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS	2070000000-N	SP	2	EA	SUBDRAIN PIPE OUTLETS	3195000000-N	862	2	EA	GUARDRAIL ANCHOR UNITS, TYPE AT-1	4400000000-E	1110	270	SF	WORK ZONE SIGNS (STATIONARY)
0320000000-E	SP	2,740	SY	FOUNDATION CONDITIONING FABRIC	2077000000-E	SP	20	LF	6" OUTLET PIPE (SUBDRAINS)	3210000000-N	862	7	EA	GUARDRAIL ANCHOR UNITS, TYPE CAT-1	4405000000-E	1110	368	SF	WORK ZONE SIGNS (PORTABLE)
0335200000-E	SP	3,874	LF	15" DRAINAGE PIPE	2264000000-E	840	0.63	CY	PIPE PLUGS	3270000000-N	SP	5	EA	GUARDRAIL ANCHOR UNITS, TYPE 350	4410000000-E	1110	220	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
0335300000-E	SP	1,545	LF	18" DRAINAGE PIPE	2275000000-E	SP	54	CY	FLOWABLE FILL	3380000000-E	862	190	LF	TEMPORARY STEEL BM GUARDRAIL	4420000000-N	1120	2	EA	CHANGEABLE MESSAGE SIGN
0335400000-E	SP	451	LF	24" DRAINAGE PIPE	2286000000-N	840	93	EA	MASONRY DRAINAGE STRUCTURES	3387000000-N	862	2	EA	GUARDRAIL ANCHOR UNITS, TYPE ***** TEMPORARY (CAT-1)	4422000000-N	1120	25	DAY	CHANGEABLE MESSAGE SIGN (SHORT TERM)
0335500000-E	SP	593	LF	30" DRAINAGE PIPE	2308000000-E	840	33	LF	MASONRY DRAINAGE STRUCTURES	3389100000-N	SP	1	EA	GUARDRAIL ANCHOR UNITS, TYPE 350 TEMPORARY	4430000000-N	1130	350	EA	DRUMS
0335600000-E	SP	47	LF	36" DRAINAGE PIPE	2364000000-N	840	24	EA	FRAME WITH TWO GRATES, STD 840.16	3628000000-E	876	140	TON	RIP RAP, CLASS I	4445000000-E	1145	420	LF	BARRICADES (TYPE III)
0335700000-E	SP	74	LF	42" DRAINAGE PIPE	2374000000-N	840	7	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E)	3649000000-E	876	90	TON	RIP RAP, CLASS B	4455000000-N	1150	300	MD	FLAGGER
0448200000-E	SP	968	LF	15" RC PIPE CULVERTS, CLASS IV	2374000000-N	840	28	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F)	3656000000-E	876	155	SY	FILTER FABRIC FOR DRAINAGE	4465000000-N	1160	8	EA	TEMPORARY CRASH CUSHIONS
0448300000-E	SP	327	LF	18" RC PIPE CULVERTS, CLASS IV															
0448400000-E	SP	416	LF	24" RC PIPE CULVERTS, CLASS IV															
0973100000-E	SP	96	LF	*** WELDED STEEL PIPE, ***** THICK GRADE ** IN SOIL (42", 0.625", B)															

DIVISION OF HIGHWAYS
 STATE OF NORTH CAROLINA

SUMMARY OF EARTHWORK
 IN CUBIC YARDS

**SUMMARY OF PAVEMENT
 BREAKING**

CHAIN	STATION - STATION	SIDE	AREA (SY)
-L-	31+00 - 37+00	LT	2084.00
		TOTAL :	2084.00
		SAY :	2100.00

**SUMMARY OF PAVEMENT
 REMOVAL**

CHAIN	STATION - STATION	SIDE	AREA (SY)
-L-	56+27 - 57+22	RT	550
		TOTAL :	550
		SAY :	550

CHAIN	FROM STATION	TO STATION	SIDE	UNCL. EXCAVATION	UNDERCUT	EMBT + %	BORROW	WASTE
-L-	8+75.00	38+50.00	RT	248		21,355	21,107	
-DR1-	10+42.32	11+32.14	RT	27		179	152	
-Y3-	10+54.76	12+50.00	RT	47		468	421	
SUBTOTAL SUMMARY NO. 1				322		22,001	21,679	
-L-	38+50.00	56+93.28	RT	222		6,750	6,528	
-Y9-	10+34.50	11+97.94	RT	569				569
-Y5-	10+40.15	12+05.03	RT	251		530	279	
-Y7-	10+59.81	17+77.75	RT	155		64		91
-Y8-	10+54.86	17+68.00	RT	375		114		261
SUBTOTAL SUMMARY NO. 2				1,572		7,458	6,807	922
-L-	8+75.00	38+50.00	LT	1,063		7,956	6,893	
-Y1-	10+13.12	12+72.82	LT	316		220		96
SUBTOTAL SUMMARY NO. 3				1,379		8,176	6,893	96
-L-	38+50.00	58+21.00	LT	140		1,629	1,489	
-Y6-	10+40.00	14+95.72	LT	50		61	11	
-L-	58+21.00	65+36.40	LT	21		10		11
SUBTOTAL SUMMARY NO. 4				211		1,700	1,500	11
SUBTOTAL SUMMARY 1-4				3,484		39,335	36,880	1,029
LOSS DUE TO CLEARING AND GRUBBING				-200			200	
ADDITIONAL UNDERCUT								
PROJECT TOTAL				3,284		39,335	36,051	1,029
WASTE IN LIEU OF BORROW							-1,029	-1,029
ESTIMATE 5% FOR TOPSOIL ON BORROW PITS							1,803	
GRAND TOTAL				3,284		39,335	37,854	
SAY				3,300			40,000	

TEMPORARY GUARDRAIL

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH	ANCHORS	
				STRAIGHT	GRAU 350	CAT-1
-L-	21+80.00	22+26.25	RT	46.25		1
-L-	31+70.00	32+16.25	RT	46.25		1
-L-	31+90.00	33+50.00	RT	160.00		1
TOTAL:				252.50	1	2
TOTAL ANCHOR LENGTH:				62.50		
TOTAL GUARDRAIL LENGTH:				190.00		
SAY:				190.00		

EST. DDE = 2,140 CY
 UNDERCUT EXCAVATION = 650 CY
 SHALLOW UNDERCUT = 300 CY

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

* IN AREAS WHERE SHOULDER IS PRESENT (SEE PLANS FOR LOCATIONS)
 "N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL
 TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
 FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL
 W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL
 G = GATING IMPACT ATTENUATOR TYPE 350
 NG = NON-GATING IMPACT ATTENUATOR TYPE 350

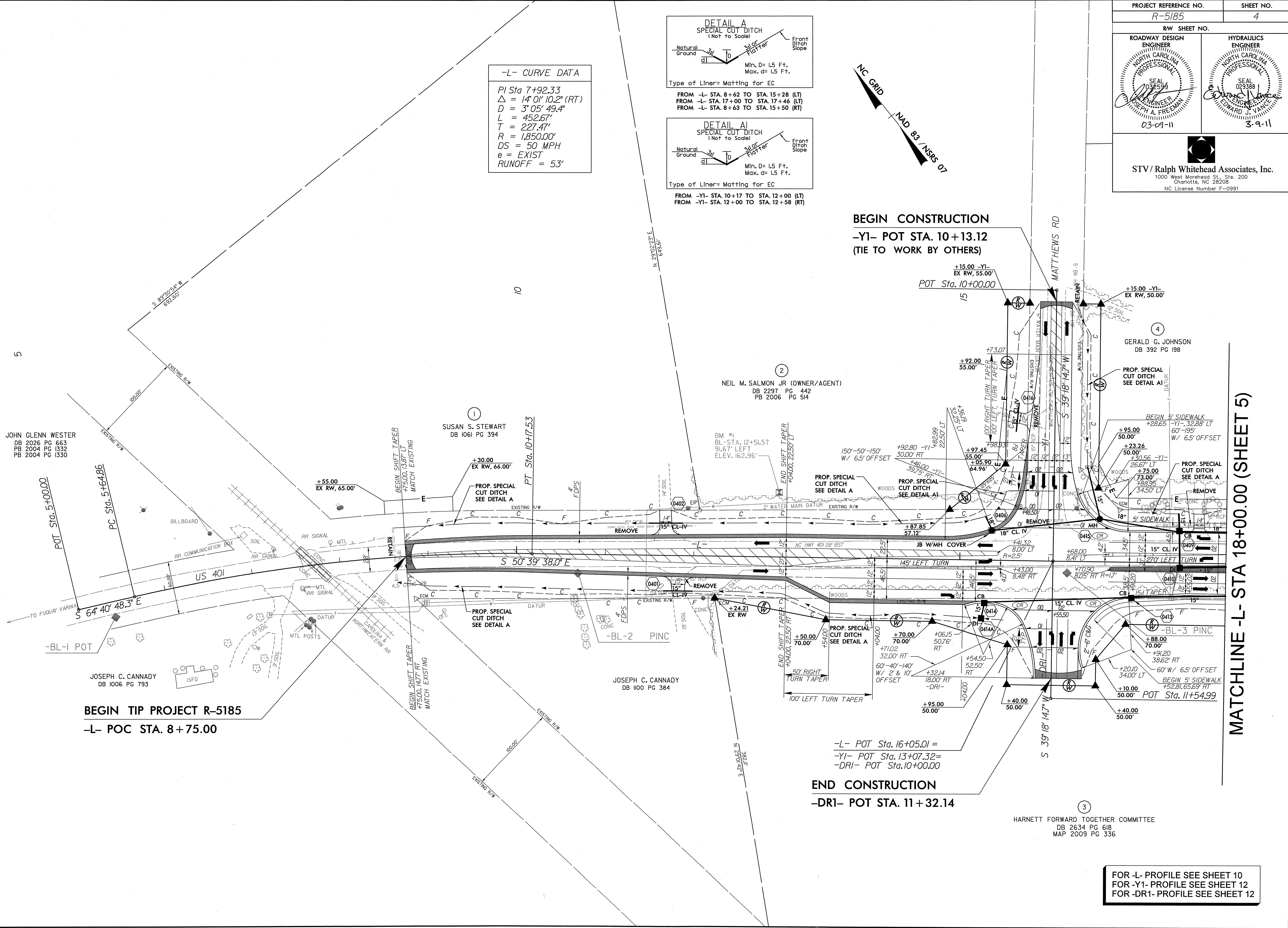
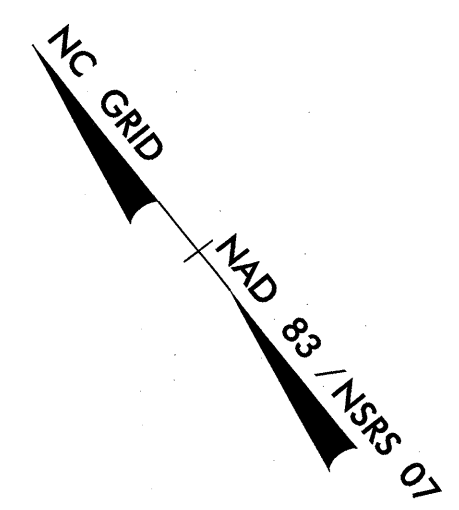
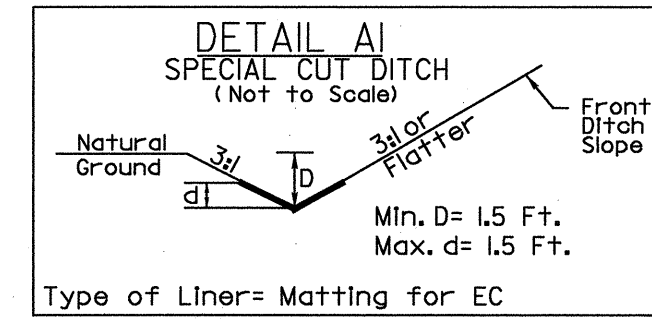
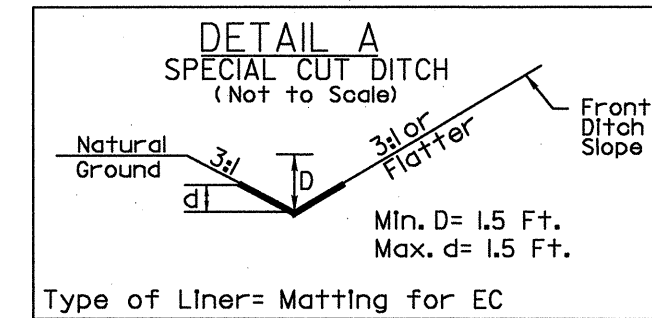
GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS								REMARKS							
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	XI MOD	B-77	GRAU 350	M-350	TYPE III	CAT-1	VI MOD	BIC		AT-1						
-L-	19+50.32	22+01.53	RT	252.2			21+65.00		14'	16'	50'		1'																	
-L-	21+19.89	22+18.00	LT	60.5	62.7		21+65.00		14'	16'																				
-L-	29+51.93	31+91.03	RT	239.2			31+64.00		14'	16'	50'		1'																	
-L-	31+37.79	34+15.04	LT	278.0			31+64.00		14'	16'			1'																	
-L-	54+22.78	55+42.24	RT	118.8			55+36.00		12.83'	14.83'	50'		1'																	
-L-	55+16.27	55+48.69	LT		50.0		55+36.00		14'	16'																				
-L-	63+04.83	64+23.40	LT	118.8			63+11.00		2'	4'	50'		1'																	
TOTAL:				1067.50	112.7																									
TOTAL ANCHOR LENGTH:				306.25																										
TOTAL GUARDRAIL LENGTH:				761.25	112.7																									
SAY:				762.50	115.0																									

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-L- CURVE DATA

PI Sta 7+92.33
 $\Delta = 14^{\circ} 01' 10.2" (RT)$
 $D = 3^{\circ} 05' 49.4"$
 $L = 452.67'$
 $T = 227.47'$
 $R = 1,850.00'$
 $DS = 50 \text{ MPH}$
 $e = \text{EXIST}$
 $\text{RUNOFF} = 53'$



BEGIN CONSTRUCTION
 -Y1- POT STA. 10+13.12
 (TIE TO WORK BY OTHERS)

END CONSTRUCTION
 -DR1- POT STA. 11+32.14

BEGIN TIP PROJECT R-5185
 -L- POC STA. 8+75.00

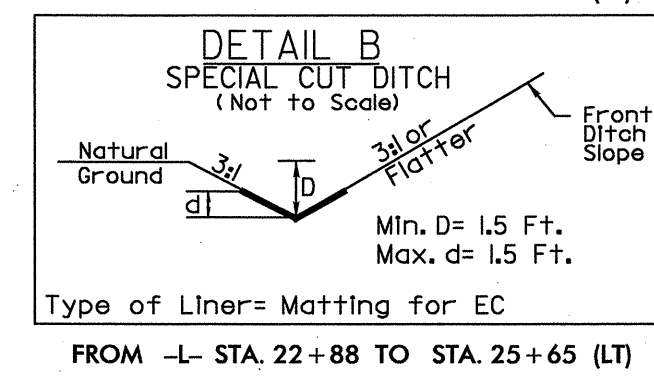
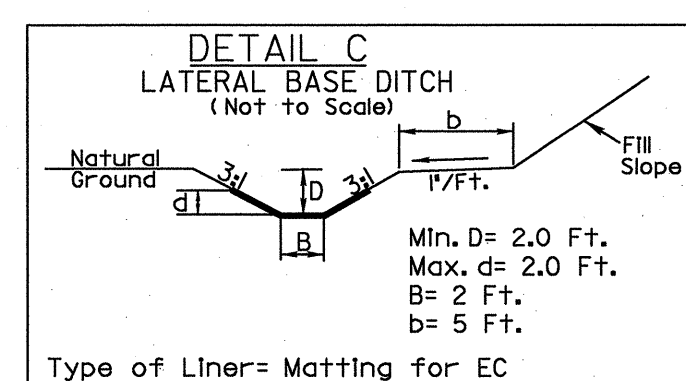
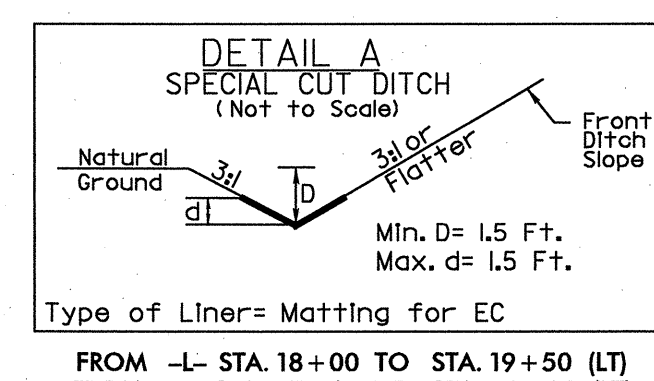
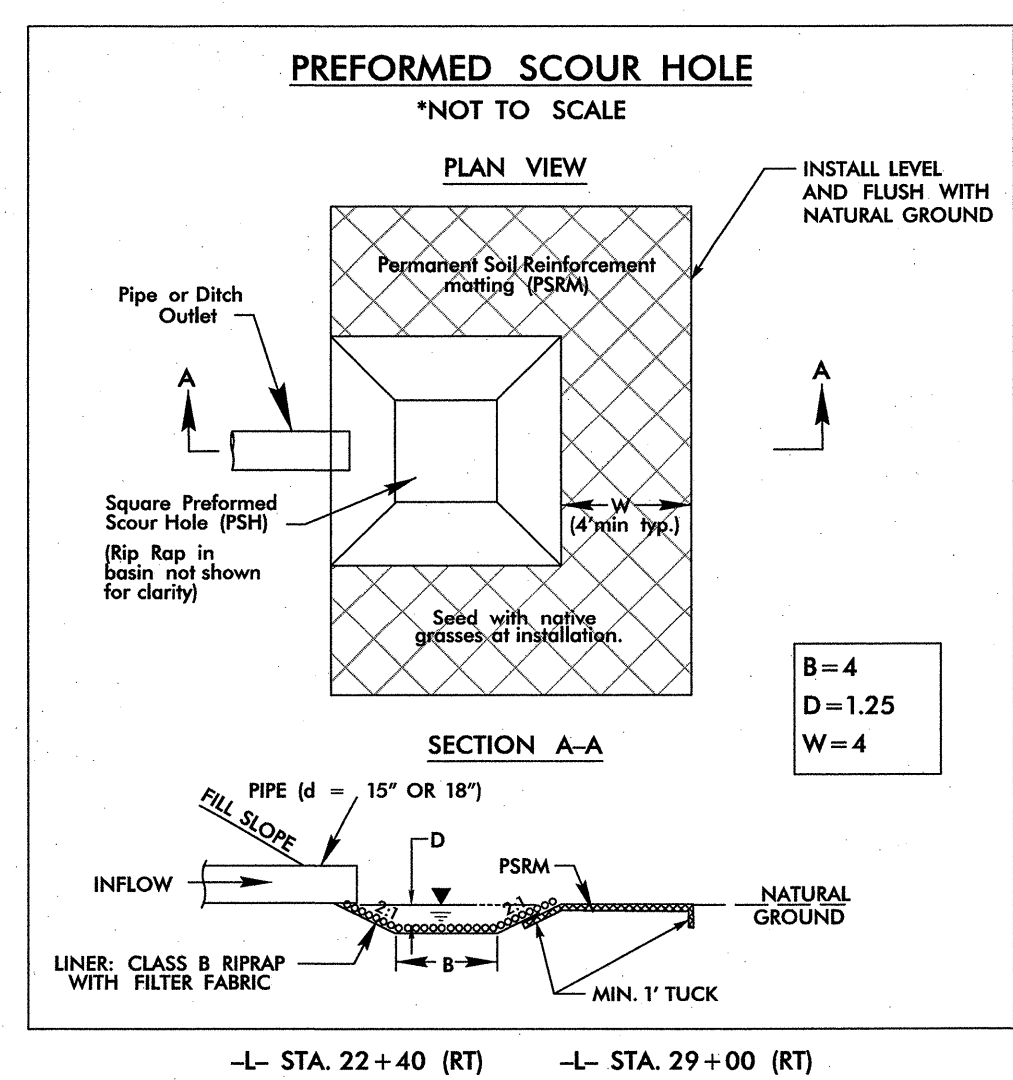
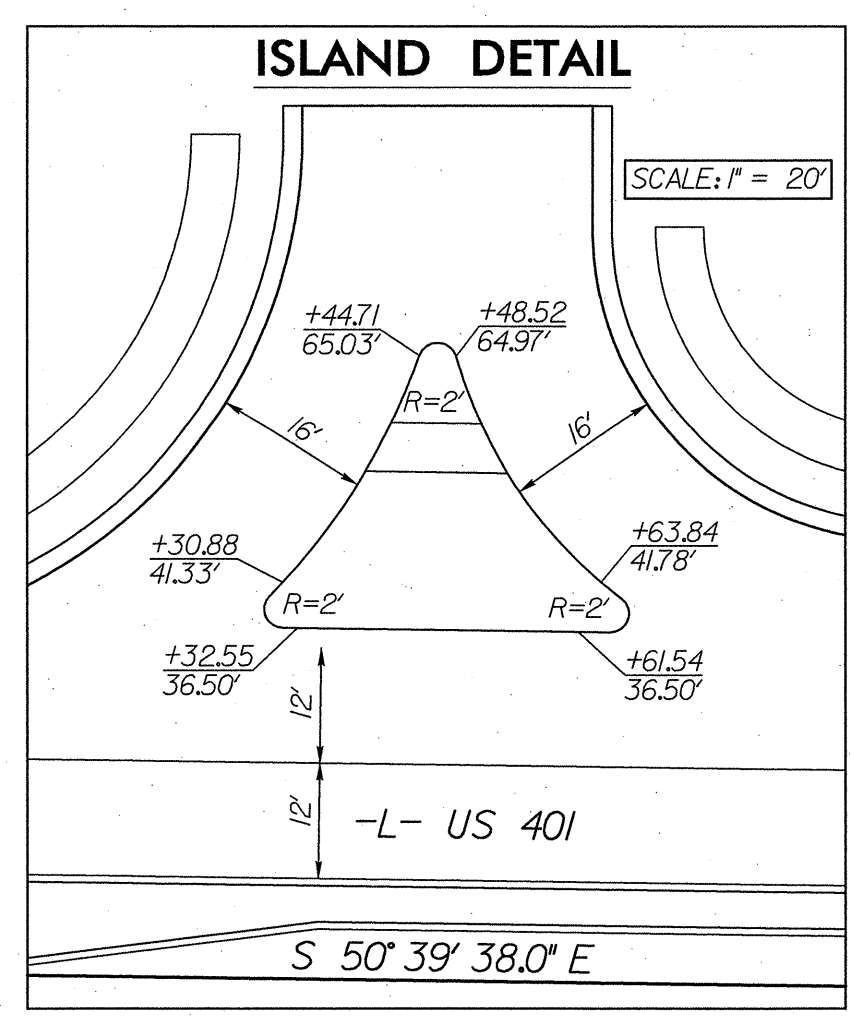
MATCHLINE -L- STA 18+00.00 (SHEET 5)

FOR -L- PROFILE SEE SHEET 10
 FOR -Y1- PROFILE SEE SHEET 12
 FOR -DR1- PROFILE SEE SHEET 12


8/17/09
3/9/2010 \\hwy\proj\RE185_rfd\psh4.dgn

8/17/09

3/9/2011
C:\Roadway\proj\185185_r.dwg_psh5.dgn
D:\185185

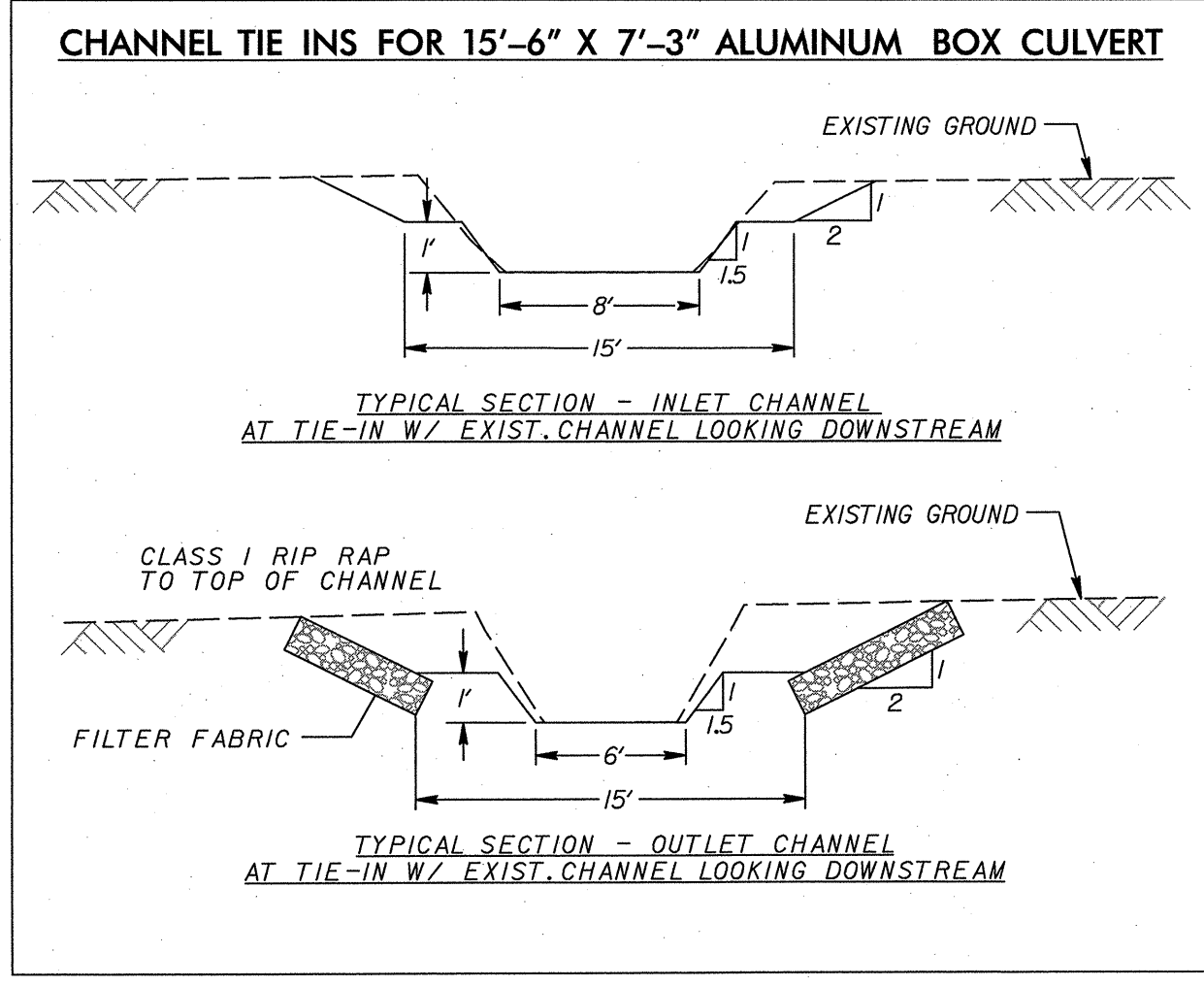
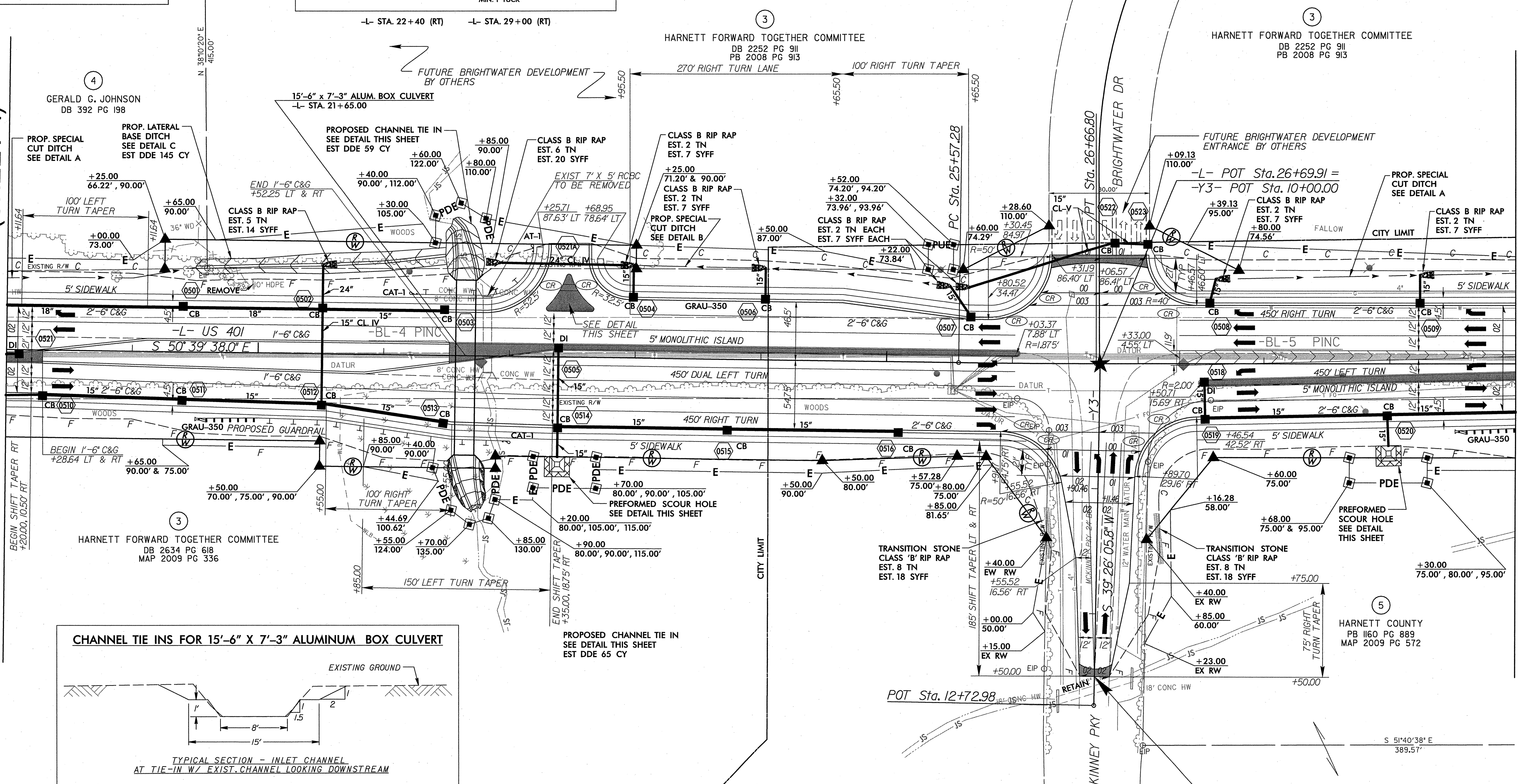


-L- CURVE DATA
 PI Sta 26+12.04
 $\Delta = 0^\circ 47' 03.6\"/>$

PROJECT REFERENCE NO. R-5185	SHEET NO. 5
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 082599 JOSEPH A. FREEMAN	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 08388 EDWARD J. VANCE 3-9-11
 STV / Ralph Whitehead Associates, Inc. 1000 West Morehead St., Ste. 200 Charlotte, NC 28208 NC License Number F-0991	


MATCHLINE -L- STA 18+00.00 (SHEET 4)

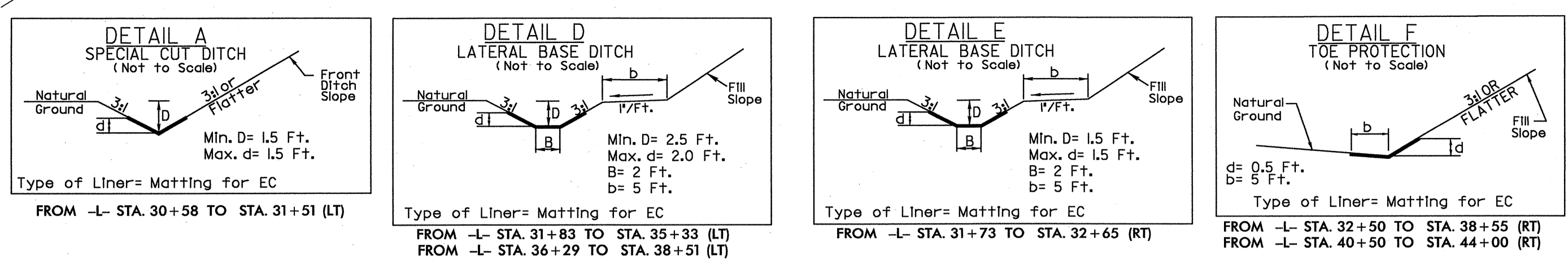
MATCHLINE -L- STA 30+00.00 (SHEET 6)



END CONSTRUCTION
 -Y3- POT STA. 12+50.00

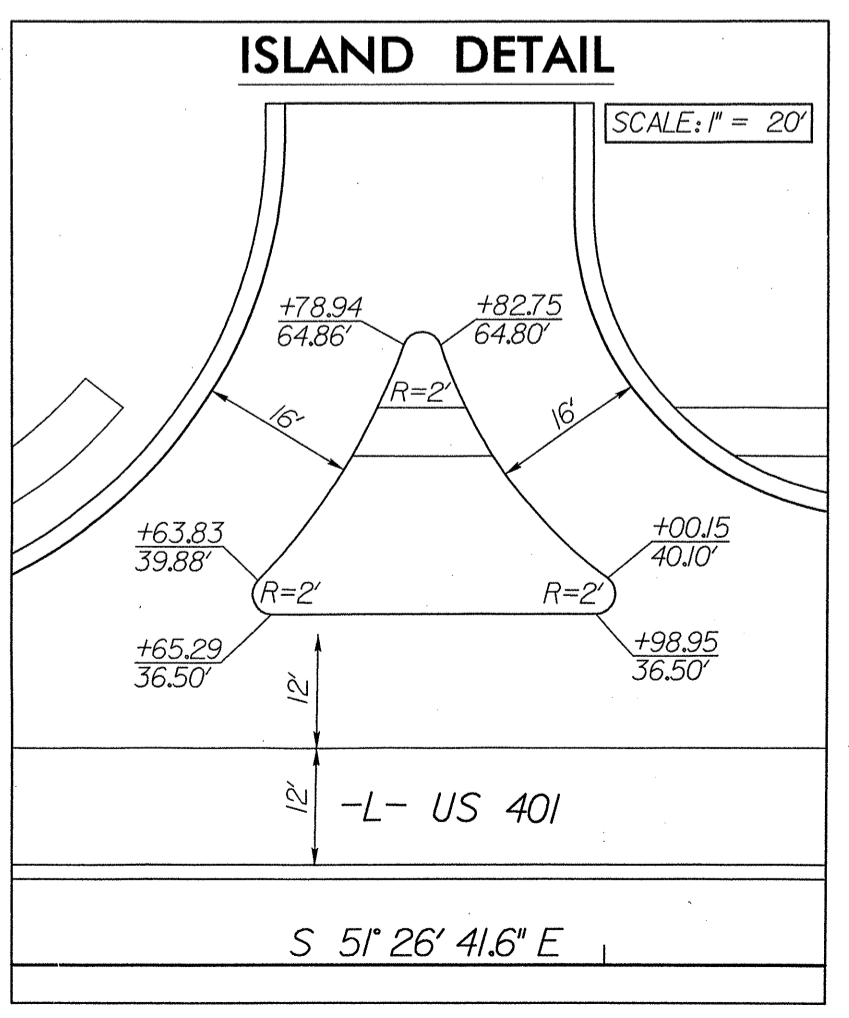
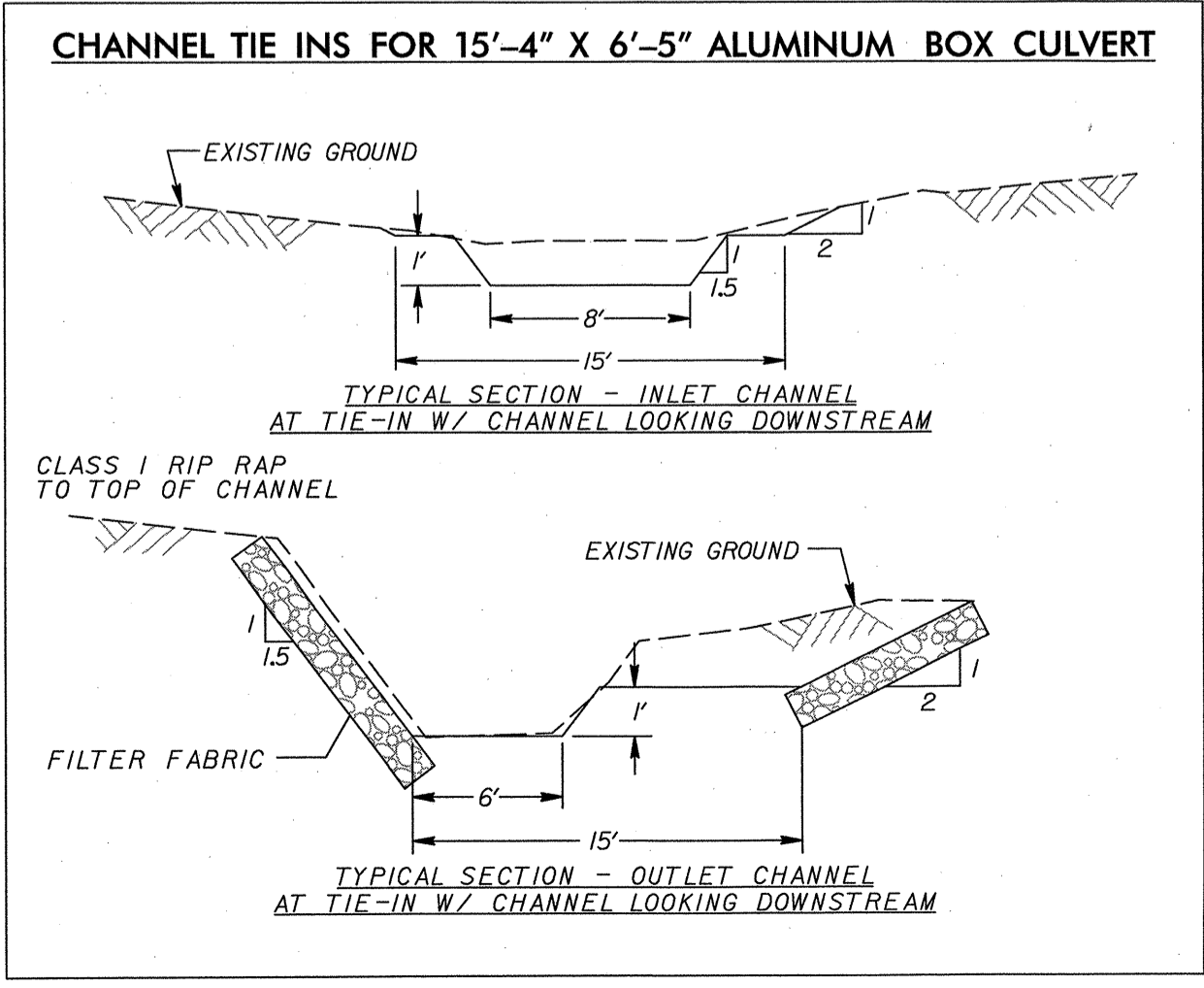
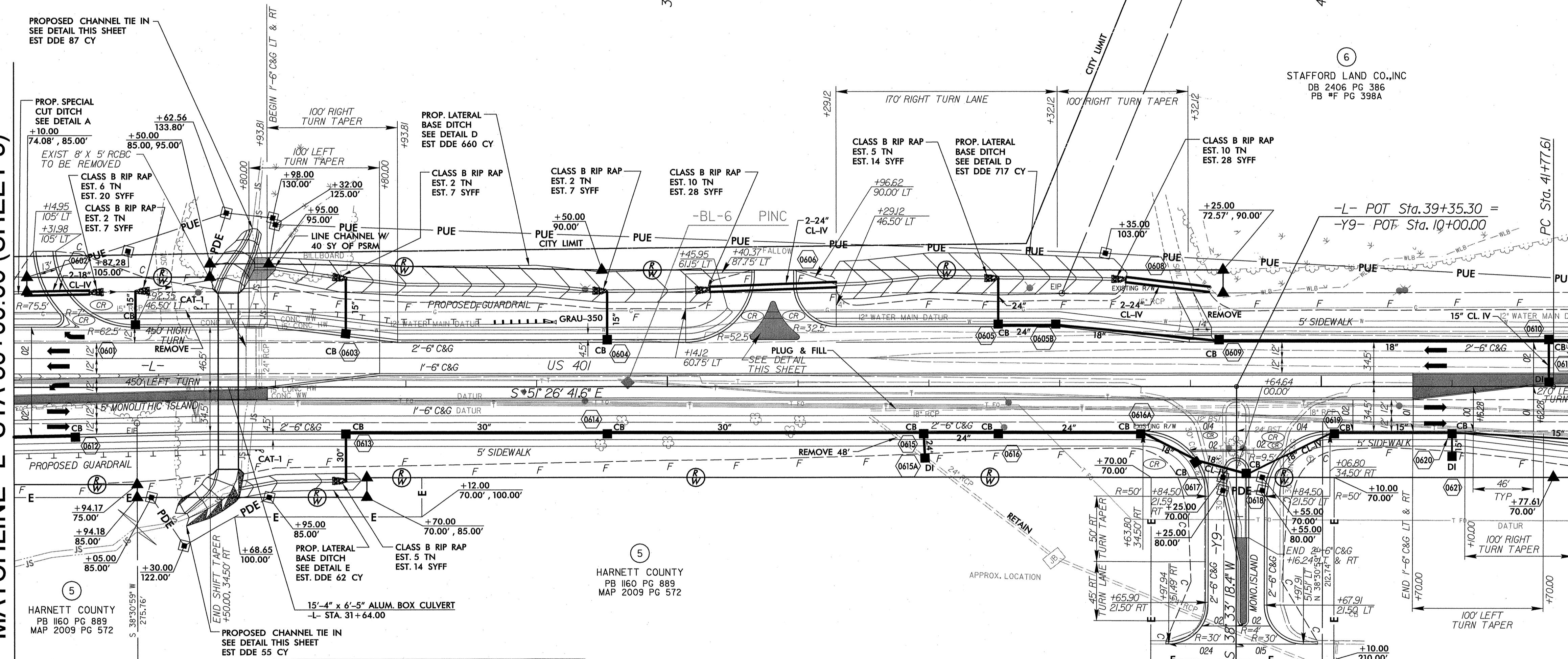
FOR -L- PROFILE SEE SHEET 10
 FOR -Y3- PROFILE SEE SHEET 13
 FOR CULVERT PLANS SEE SHEETS C1-C4

PROJECT REFERENCE NO. R-5185	SHEET NO. 6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 03-09-11	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 3-9-11
 STV/Ralph Whitehead Associates, Inc. 1000 West Morehead St., Ste. 200 Charlotte, NC 28208 NC License Number F-0991	



MATCHLINE -L- STA 30+00.00 (SHEET 5)

MATCHLINE -L- STA 42+00.00 (SHEET 7)




FOR -L- PROFILE SEE SHEET 11
SEE SHEETS C1-C4 FOR CULVERT PLANS

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3/9/2011
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11/03/00

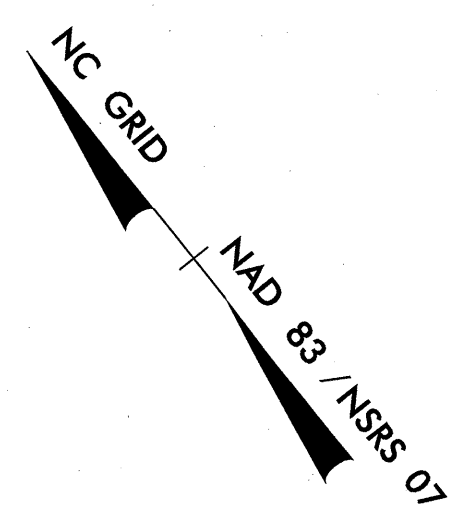
8/17/99

3/9/2011 10:51:00 AM \\proj\185\rdy\psh7.dgn

PROJECT REFERENCE NO. R-5185	SHEET NO. 7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 03-09-11	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 03-09-11
 STV / Ralph Whitehead Associates, Inc. 1000 West Morehead St., Ste. 200 Charlotte, NC 28208 NC License Number F-0991	

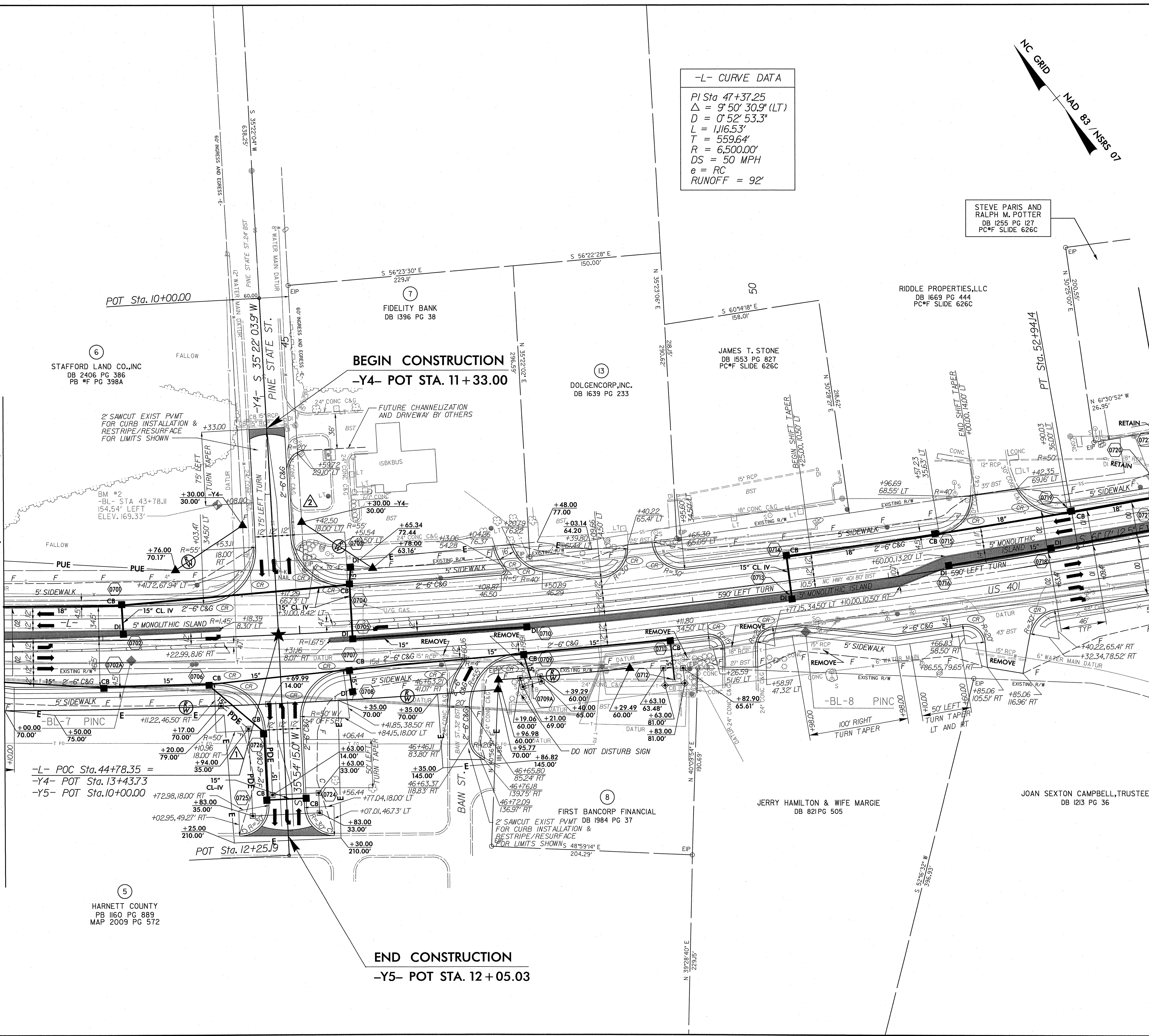
-L- CURVE DATA

PI Sta 47+37.25
 $\Delta = 9^{\circ} 50' 30.9" (LT)$
 $D = 0^{\circ} 52' 53.3"$
 $L = 1,116.53'$
 $T = 559.64'$
 $R = 6,500.00'$
 $DS = 50 MPH$
 $e = RC$
 $RUNOFF = 92'$



MATCHLINE -L- STA 42+00.00 (SHEET 6)

MATCHLINE -L- STA 54+00.00 (SHEET 8)



BEGIN CONSTRUCTION
 -Y4- POT STA. 11+33.00

END CONSTRUCTION
 -Y5- POT STA. 12+05.03

-L- POC Sta. 44+78.35 =
 -Y4- POT Sta. 13+43.73
 -Y5- POT Sta. 10+00.00

STEVE PARIS AND
 RALPH M. POTTER
 DB 1255 PG 127
 PC*F SLIDE 626C

RIDDLE PROPERTIES, LLC
 DB 1669 PG 444
 PC*F SLIDE 626C

JAMES T. STONE
 DB 1553 PG 827
 PC*F SLIDE 626C

DOLGENCORP, INC.
 DB 1639 PG 233

FIDELITY BANK
 DB 1396 PG 38

STAFFORD LAND CO., INC.
 DB 2406 PG 386
 PB *F PG 398A

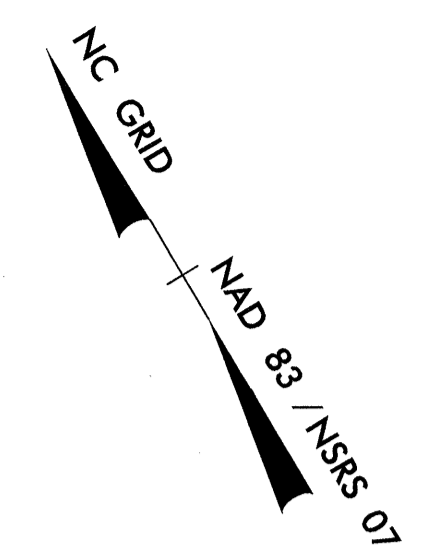
HARNETT COUNTY
 PB 1160 PG 889
 MAP 2009 PG 572

JERRY HAMILTON & WIFE MARGIE
 DB 821 PG 505

JOAN SEXTON CAMPBELL, TRUSTEE
 DB 1213 PG 36

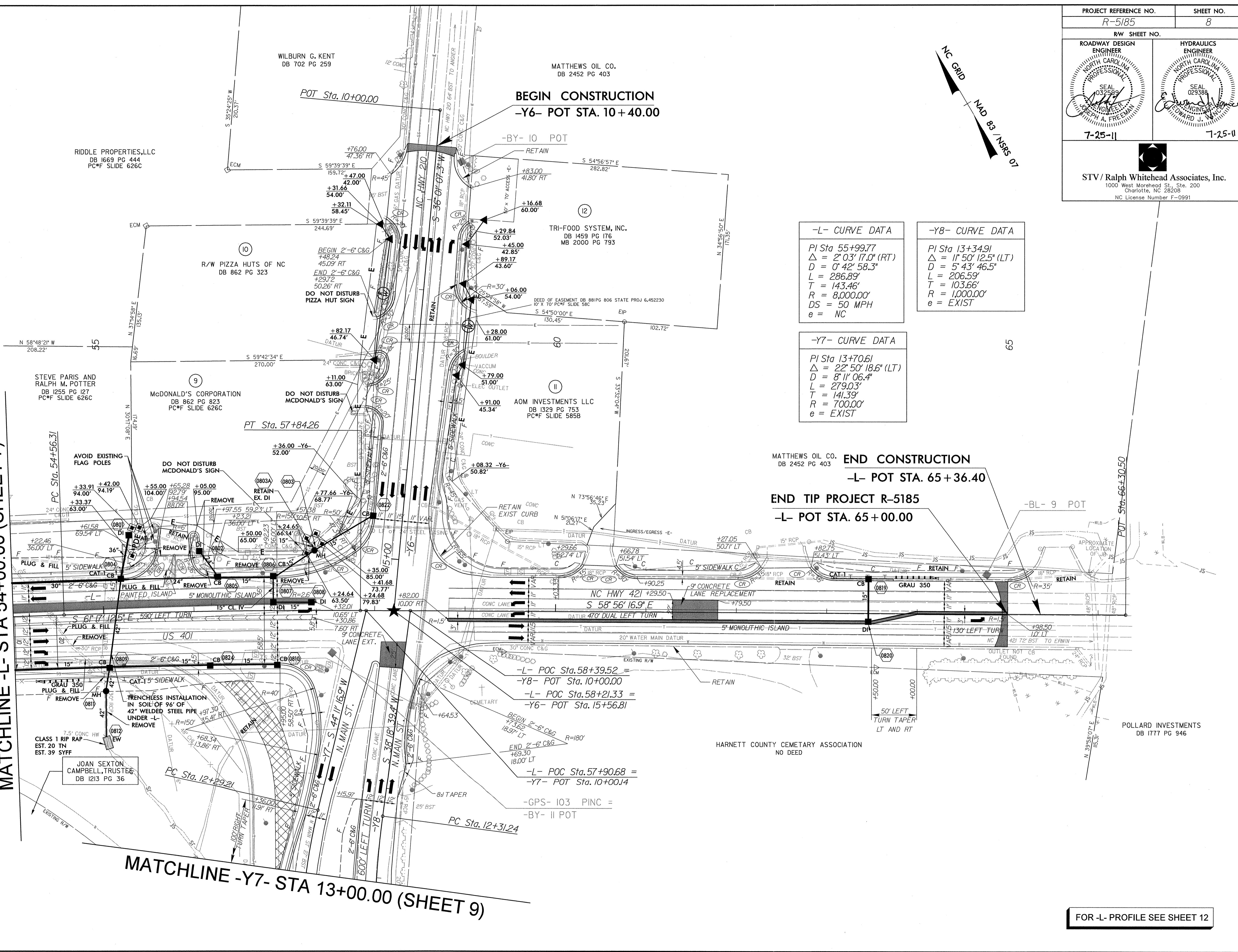
FIRST BANCORP FINANCIAL
 2' SAWCUT EXIST PVMT FOR CURB INSTALLATION & RESTRIPE/RESURFACE FOR LIMITS SHOWN'S
 48°59'14" E
 204.29'

FOR -L- PROFILE SEE SHEET 11
 FOR -Y5- PROFILE SEE SHEET 13



MATCHLINE -L- STA 54+00.00 (SHEET 7)

MATCHLINE -Y7- STA 13+00.00 (SHEET 9)




-L- CURVE DATA	-Y8- CURVE DATA
PI Sta 55+99.77 $\Delta = 2' 03'' 17.0'' (RT)$ $D = 0' 42'' 58.3''$ $L = 286.89'$ $T = 143.46'$ $R = 8,000.00'$ $DS = 50 MPH$ $e = NC$	PI Sta 13+34.91 $\Delta = 11' 50'' 12.5'' (LT)$ $D = 5' 43'' 46.5''$ $L = 206.59'$ $T = 103.66'$ $R = 1,000.00'$ $e = EXIST$
-Y7- CURVE DATA	
PI Sta 13+70.61 $\Delta = 22' 50'' 18.6'' (LT)$ $D = 8' 11'' 06.4''$ $L = 279.03'$ $T = 141.39'$ $R = 700.00'$ $e = EXIST$	

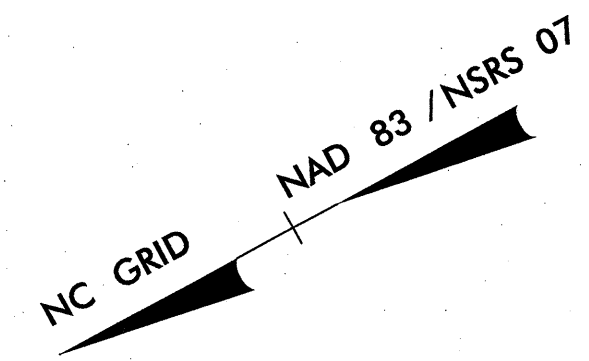
MATTHEWS OIL CO. DB 2452 PG 403 **END CONSTRUCTION**
-L- POT STA. 65+36.40
END TIP PROJECT R-5185
-L- POT STA. 65+00.00

- L- POC Sta. 58+39.52 =
- Y8- POT Sta. 10+00.00
- L- POC Sta. 58+21.33 =
- Y6- POT Sta. 15+56.81
- L- POC Sta. 57+90.68 =
- Y7- POT Sta. 10+00.14
- GPS- 103 PINC =
- BY- II POT

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 7/25/2011
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 L:\esmon

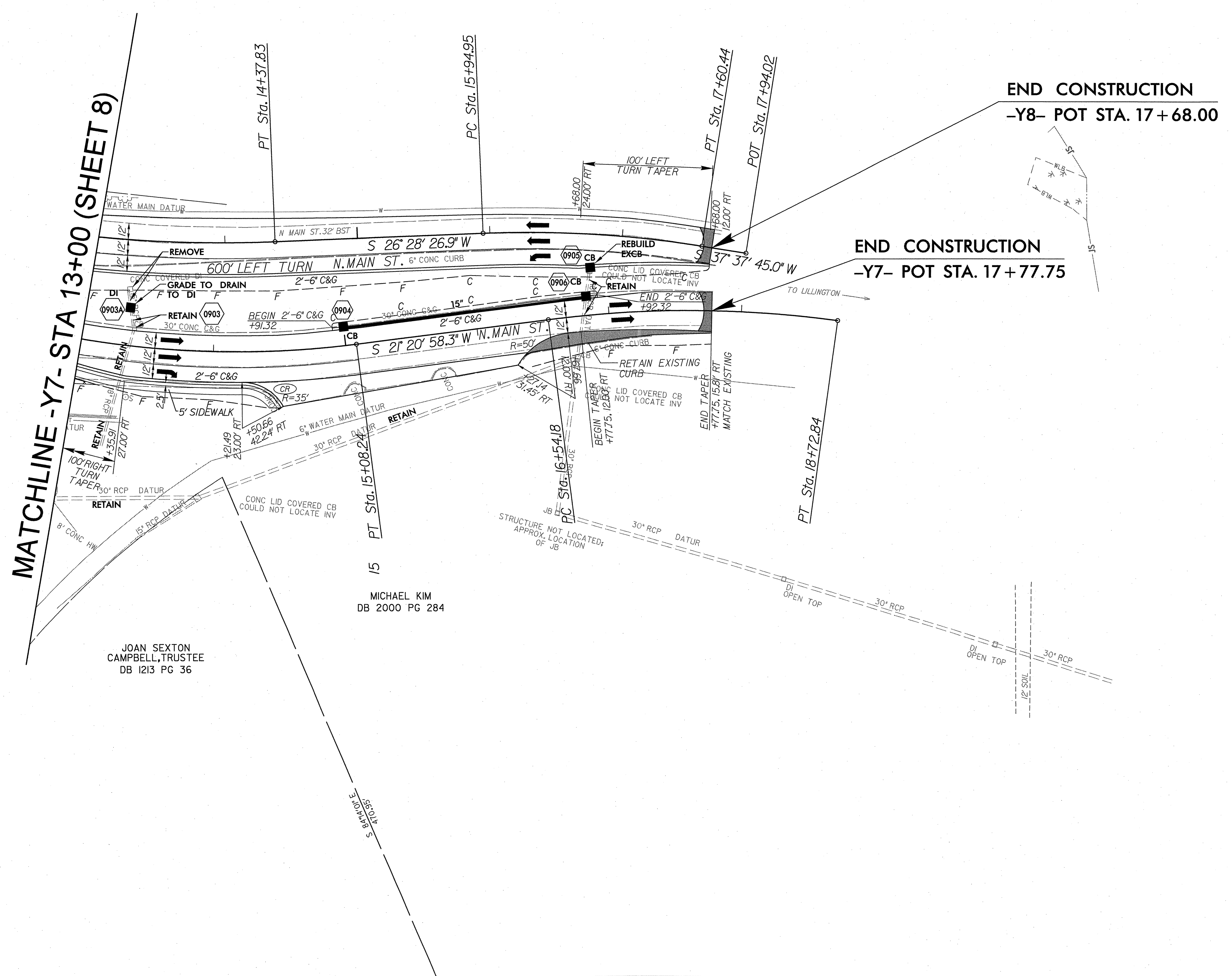
FOR -L- PROFILE SEE SHEET 12

PROJECT REFERENCE NO. R-5185	SHEET NO. 9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 032599 JOSEPH A. FREEMAN	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 029388 EDWARD J. VAN... 3-9-11
 STV / Ralph Whitehead Associates, Inc. 1000 West Morehead St., Ste. 200 Charlotte, NC 28208 NC License Number F-0991	



-Y7- CURVE DATA	
PI Sta 13+70.61	PI Sta 17+64.15
$\Delta = 22^\circ 50' 18.6''$ (LT)	$\Delta = 15^\circ 05' 39.7''$ (RT)
D = 8' 11' 06.4"	D = 6' 54' 11.2"
L = 279.03'	L = 218.66'
T = 141.39'	T = 109.97'
R = 700.00'	R = 830.00'
e = EXIST	e = EXIST

-Y8- CURVE DATA	
PI Sta 13+34.91	PI Sta 16+77.96
$\Delta = 11^\circ 50' 12.5''$ (LT)	$\Delta = 11^\circ 09' 18.1''$ (RT)
D = 5' 43' 46.5"	D = 6' 44' 26.4"
L = 206.59'	L = 165.49'
T = 103.66'	T = 83.01'
R = 1,000.00'	R = 850.00'
e = EXIST	e = EXIST



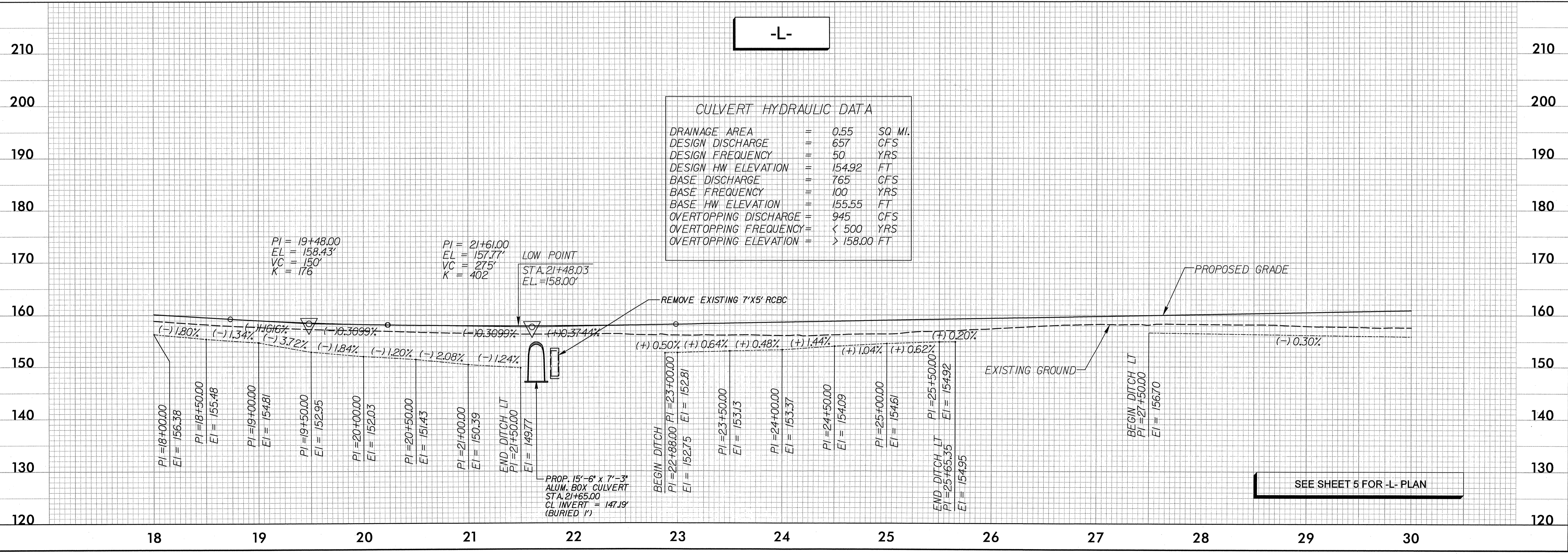
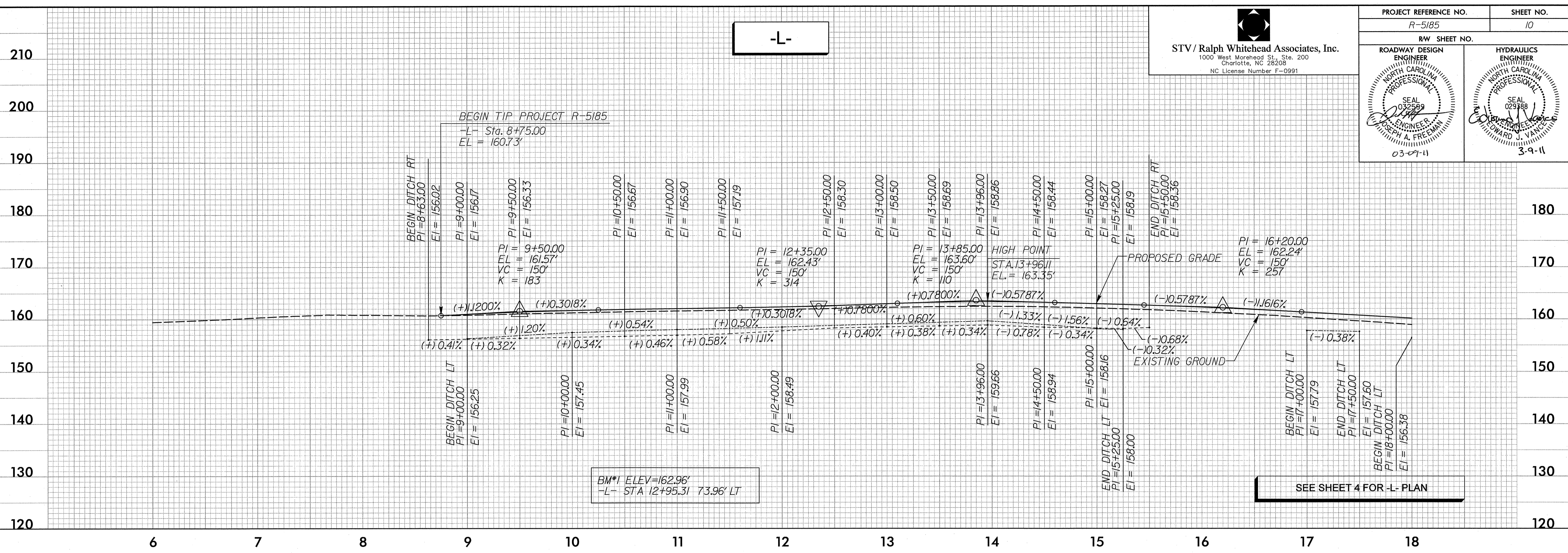
END CONSTRUCTION
-Y8- POT STA. 17 + 68.00

END CONSTRUCTION
-Y7- POT STA. 17 + 77.75

MICHAEL KIM
DB 2000 PG 284

JOAN SEXTON
CAMPBELL, TRUSTEE
DB 1213 PG 36

STV / Ralph Whitehead Associates, Inc.
1000 West Morehead St., Ste. 200
Charlotte, NC 28203
NC License Number F-0991

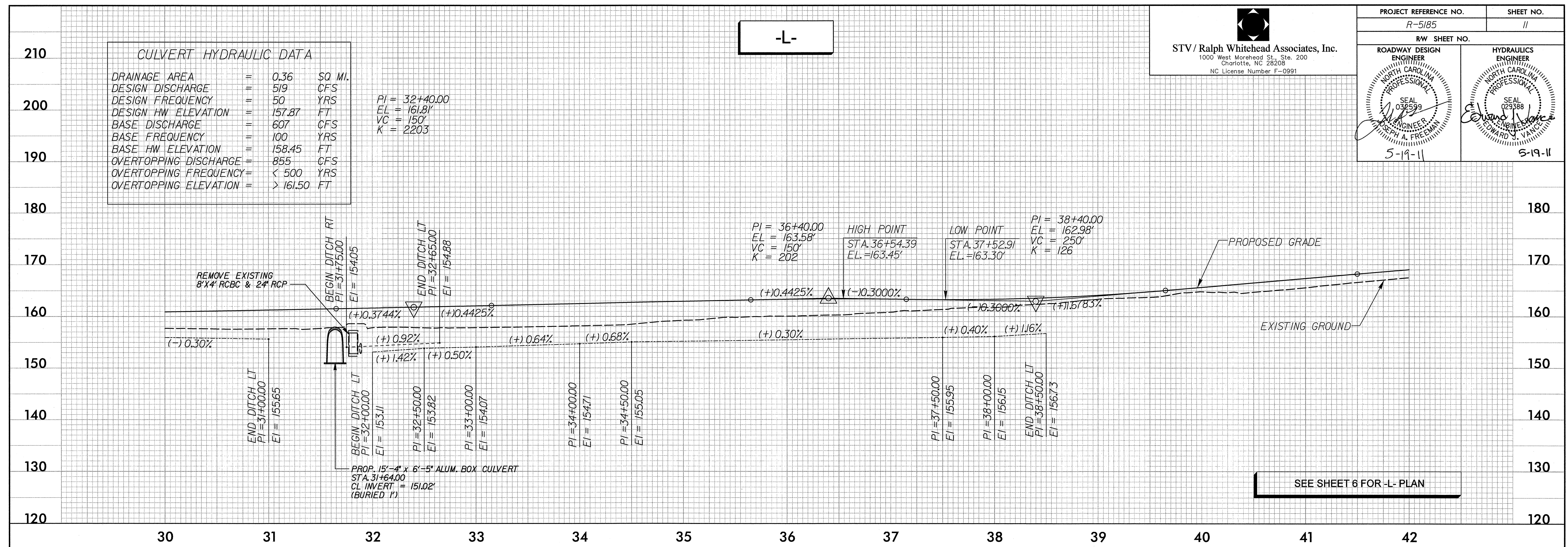


3/9/2011
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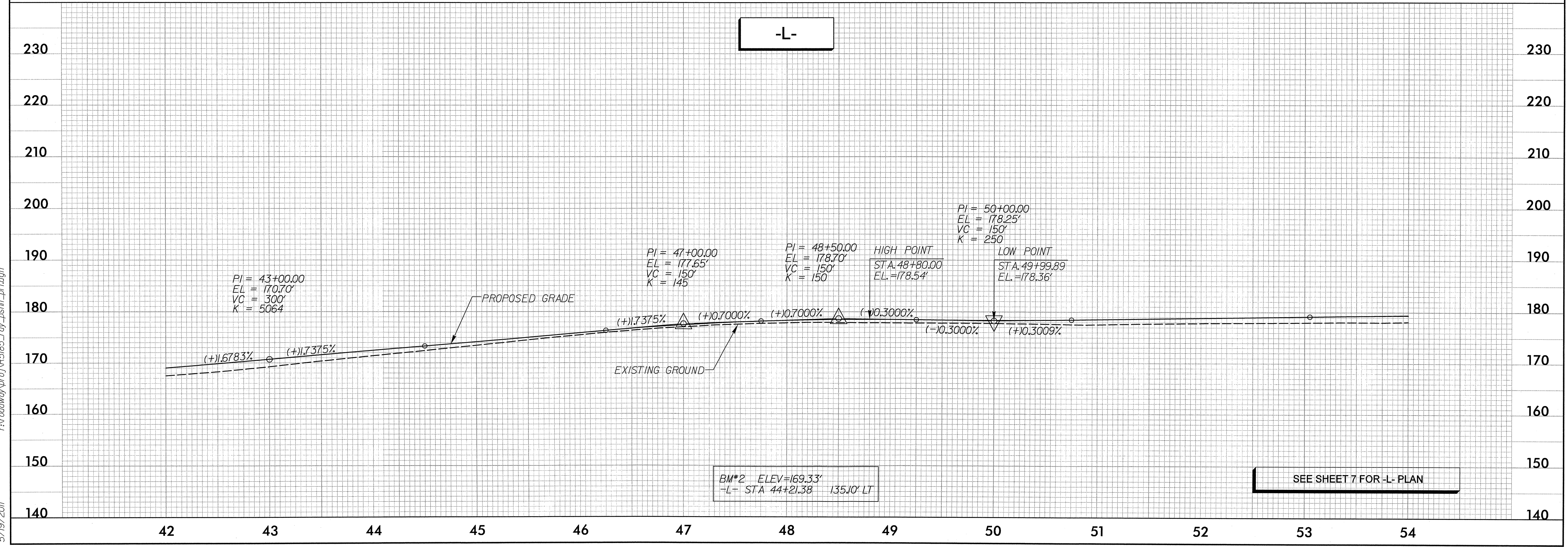
CULVERT HYDRAULIC DATA

DRAINAGE AREA	=	0.36	SQ MI.
DESIGN DISCHARGE	=	519	CFS
DESIGN FREQUENCY	=	50	YRS
DESIGN HW ELEVATION	=	157.87	FT
BASE DISCHARGE	=	607	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	158.45	FT
OVERTOPPING DISCHARGE	=	855	CFS
OVERTOPPING FREQUENCY	=	< 500	YRS
OVERTOPPING ELEVATION	=	> 161.50	FT

PI = 32+40.00
 EL = 161.81'
 VC = 150'
 K = 2203



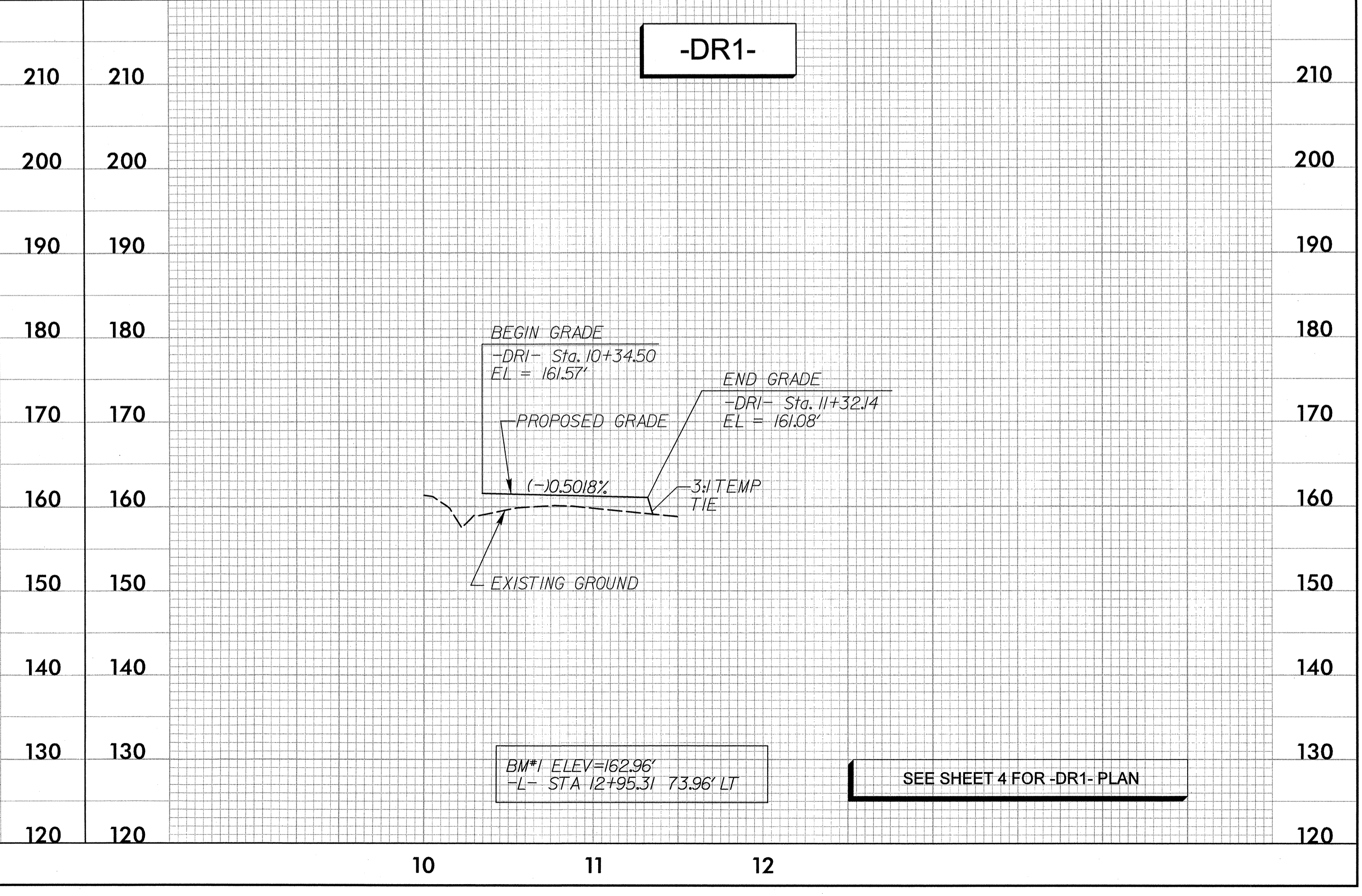
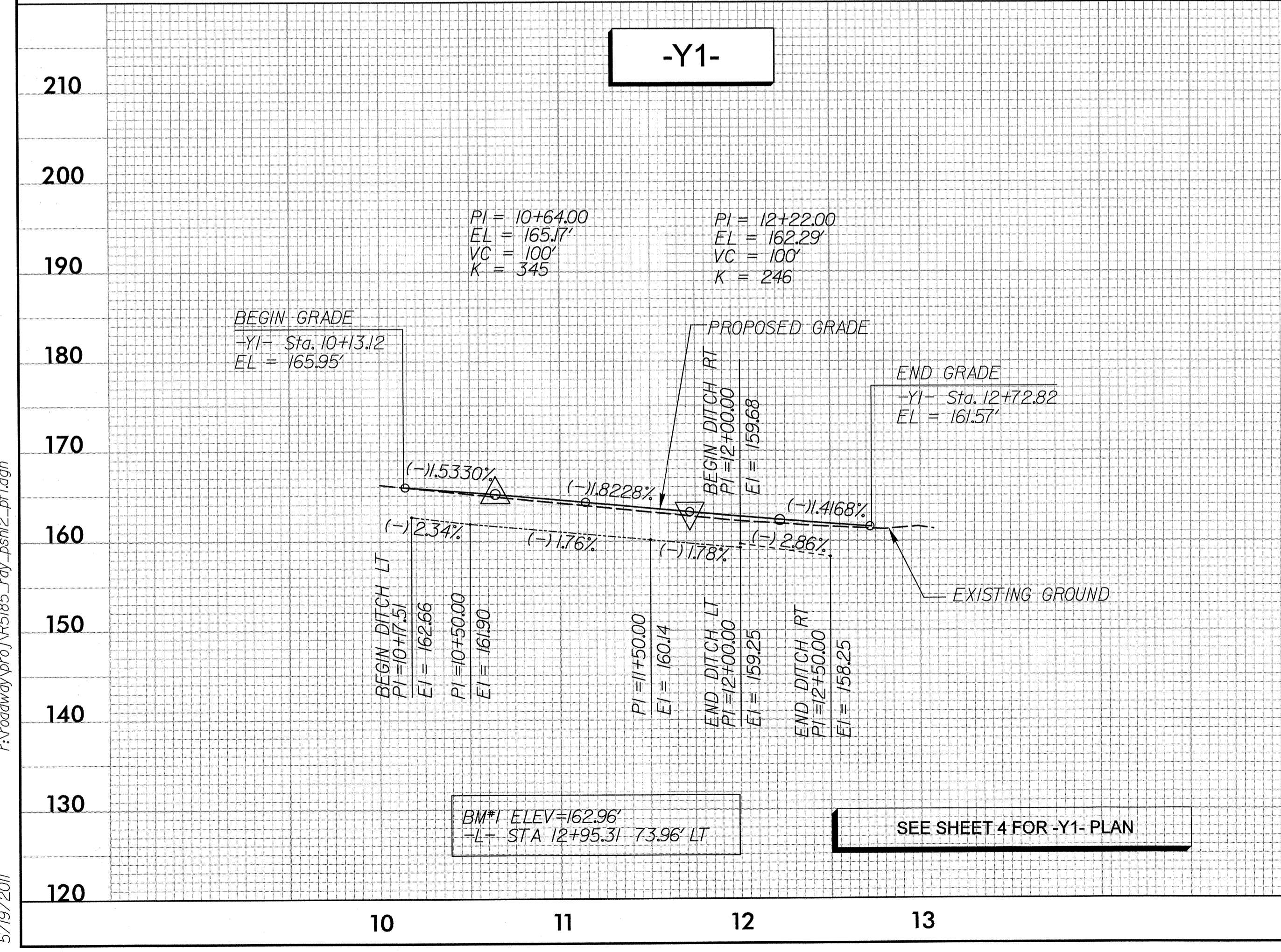
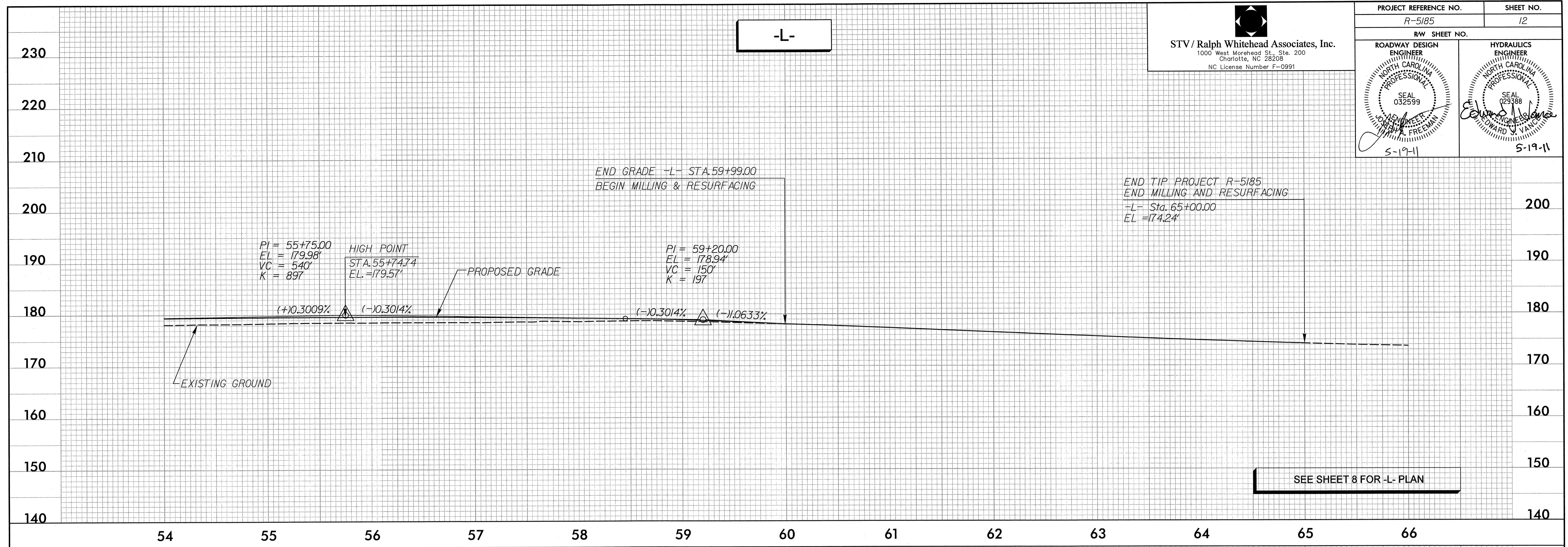
SEE SHEET 6 FOR -L- PLAN



BM*2 ELEV=169.33'
 -L- STA 44+21.38 135.10' LT

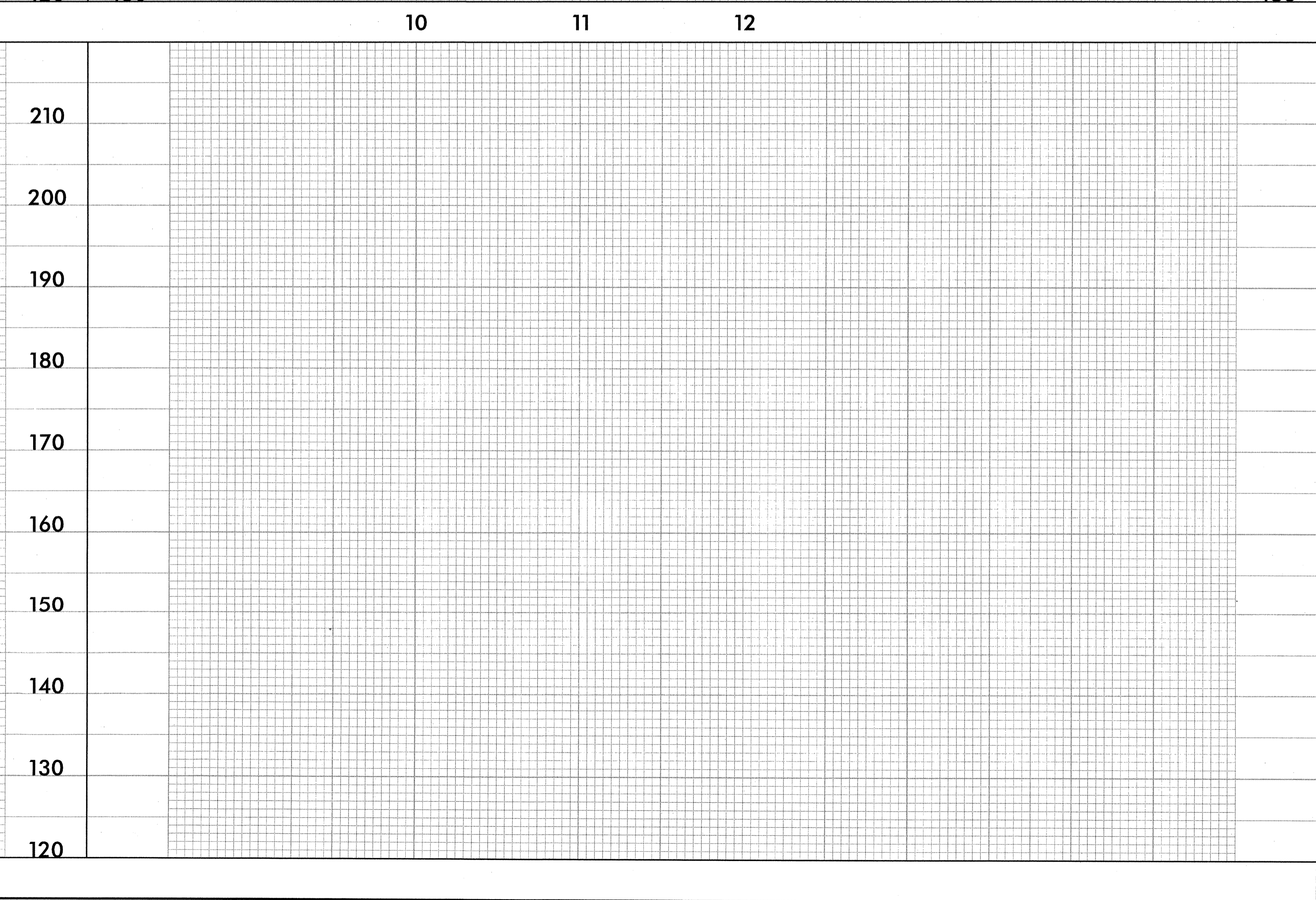
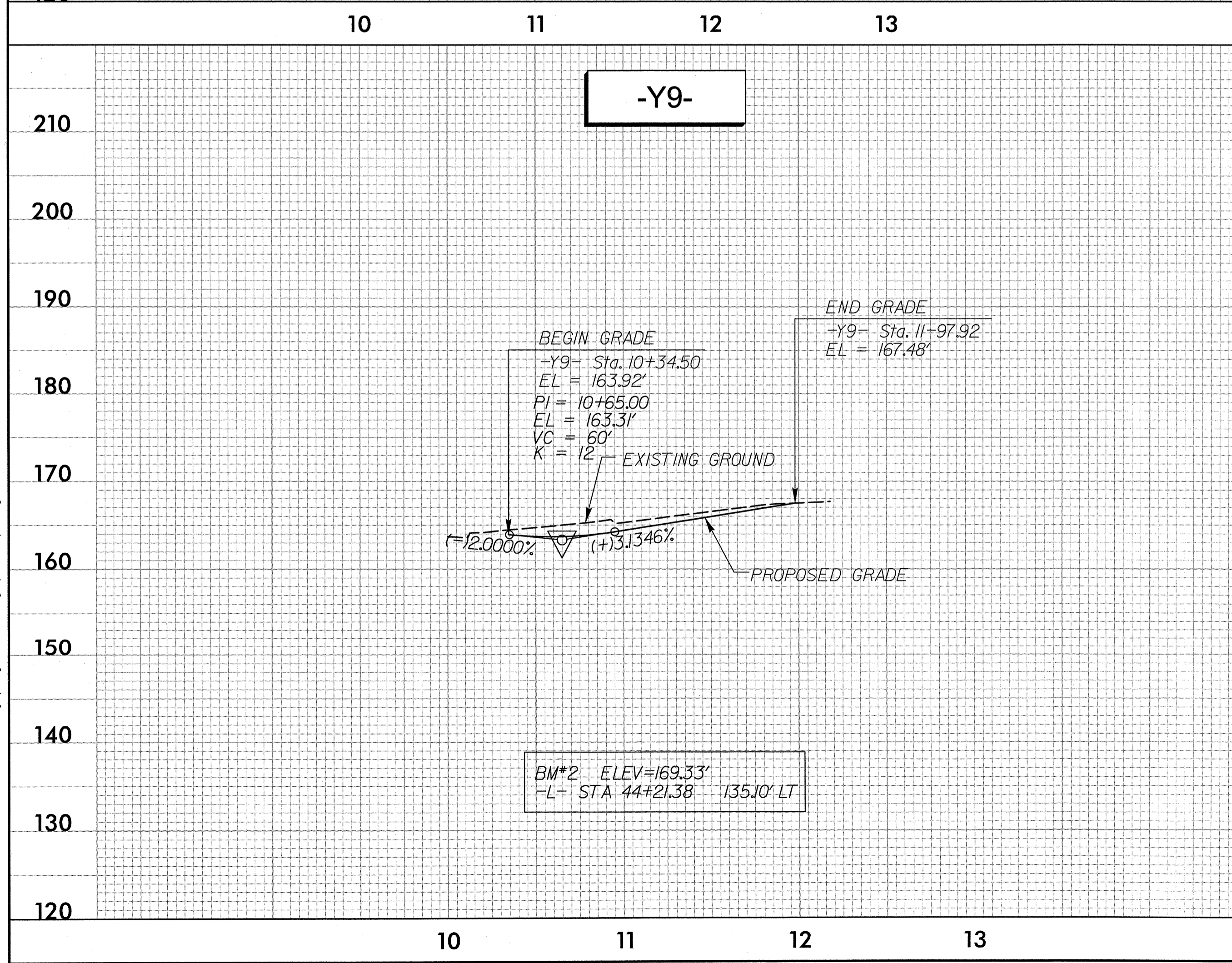
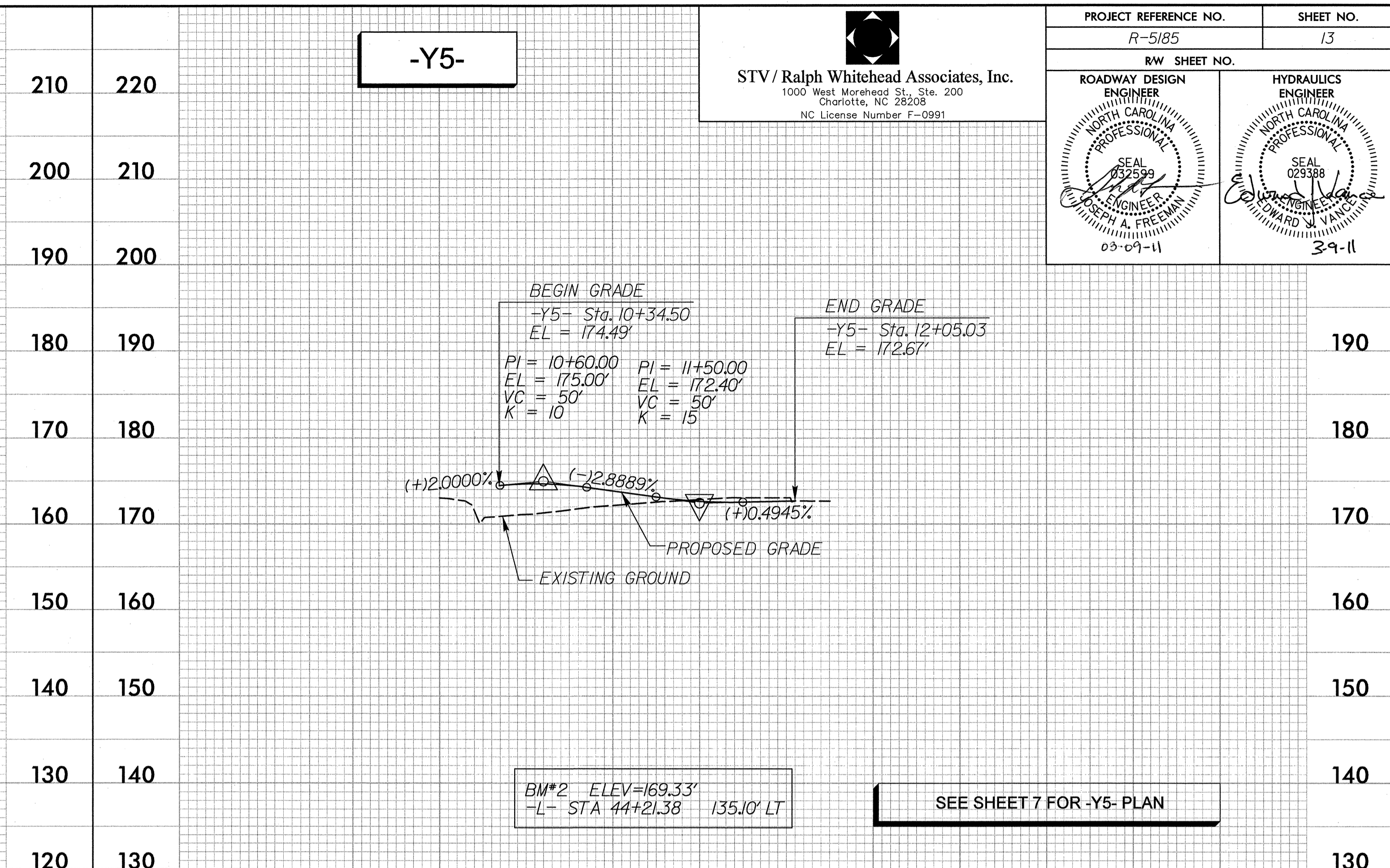
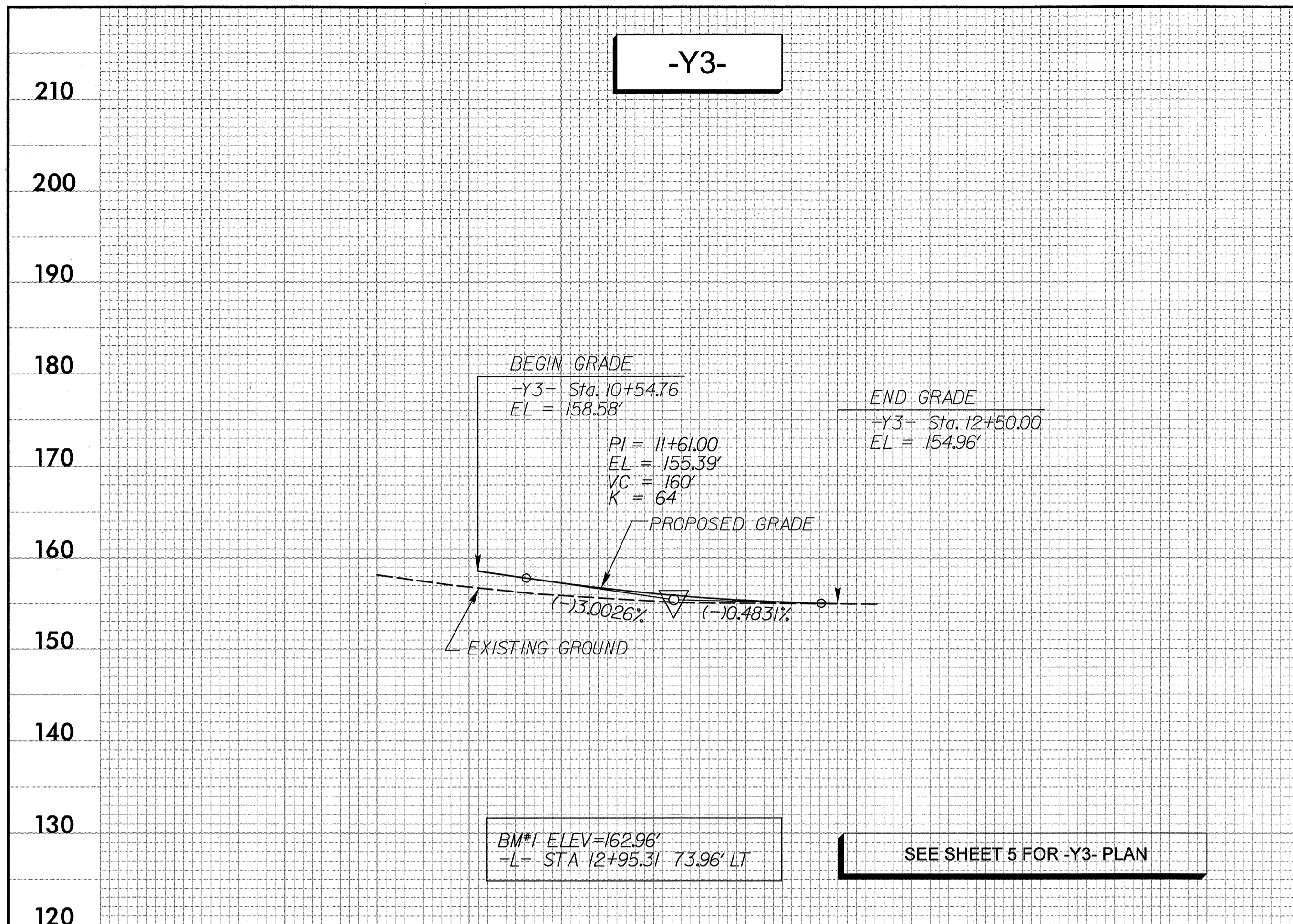
SEE SHEET 7 FOR -L- PLAN

5/19/2011
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5/19/2011 F:\roadway\proj\R5185_rdy_psh12_pf1.dgn

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3/9/2011