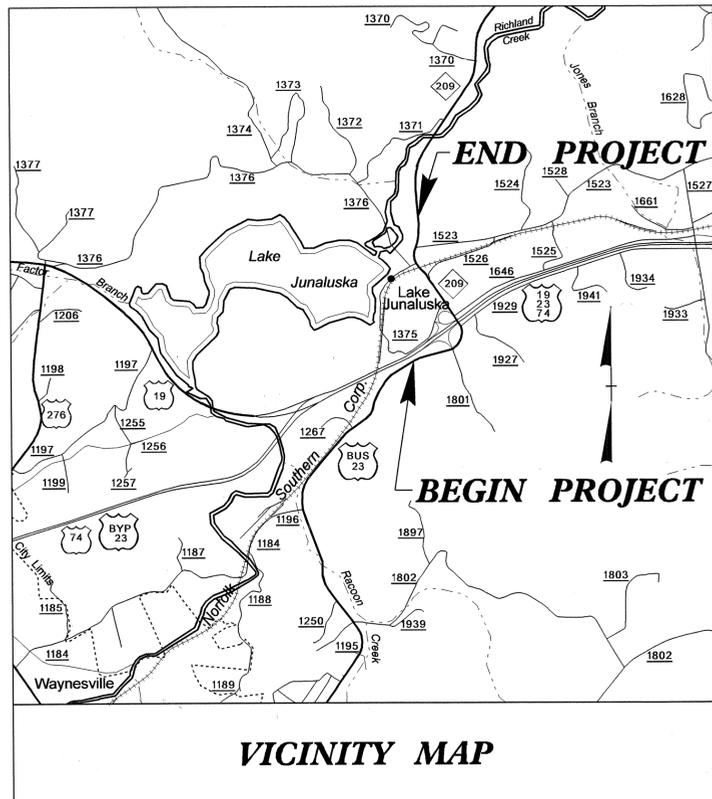


See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HAYWOOD COUNTY

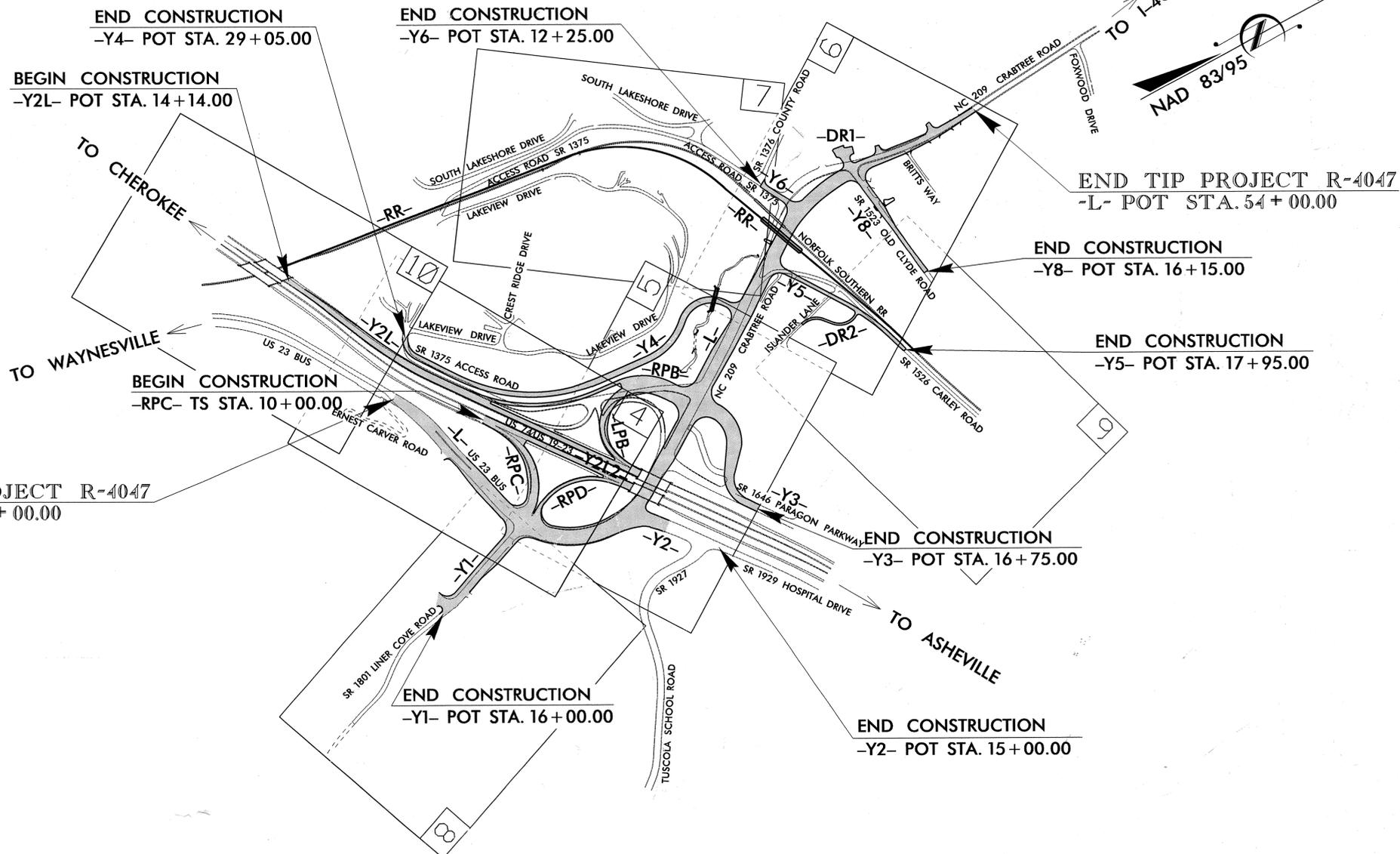
LOCATION: NC 209 FROM US 23 BUS. TO NORTH OF SR 1523 (OLD CLYDE RD.)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, RAILROAD REALIGNMENT, RETAINING WALL, CULVERT, SIGNALS AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-4047	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34599.1.1	STP-209(2)	PE	
34599.3.1	STP-209(6)	RW & UTL.	
34599.2.FRI	STP-209(6)	CONST.	

TIP PROJECT: R-4047

CONTRACT: C203393



BEGIN TIP PROJECT R-4047
-L- POT STA. 13+00.00

BEGIN CONSTRUCTION
-RPC- TS STA. 10+00.00

BEGIN CONSTRUCTION
-Y2L- POT STA. 14+14.00

END CONSTRUCTION
-Y4- POT STA. 29+05.00

END CONSTRUCTION
-Y6- POT STA. 12+25.00

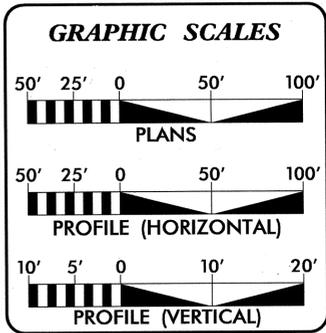
END CONSTRUCTION
-Y1- POT STA. 16+00.00

END CONSTRUCTION
-Y2- POT STA. 15+00.00

END CONSTRUCTION
-Y8- POT STA. 16+15.00

END CONSTRUCTION
-Y5- POT STA. 17+95.00

END TIP PROJECT R-4047
-L- POT STA. 54+00.00



DESIGN DATA

ADT 2014 =	21,650
ADT 2034 =	28,650
K =	10 %
D =	60 %
T =	5 % *
V =	35 MPH
FUNC. CLASS. =	COLLECTOR
* TTST 1 %	DUAL 4 %
STATEWIDE TIER	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-4047 =	0.777 MI.
TOTAL LENGTH OF TIP PROJECT R-4047 =	0.777 MI.

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
APRIL 12, 2011

LETTING DATE:
JUNE 17, 2014

REKHA PATEL, P.E.
PROJECT ENGINEER

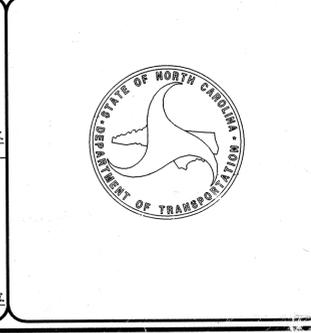
MICHAEL W. LITTLE, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

Signature 1/22/14
SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER
AMY A. BILLINGS
20329

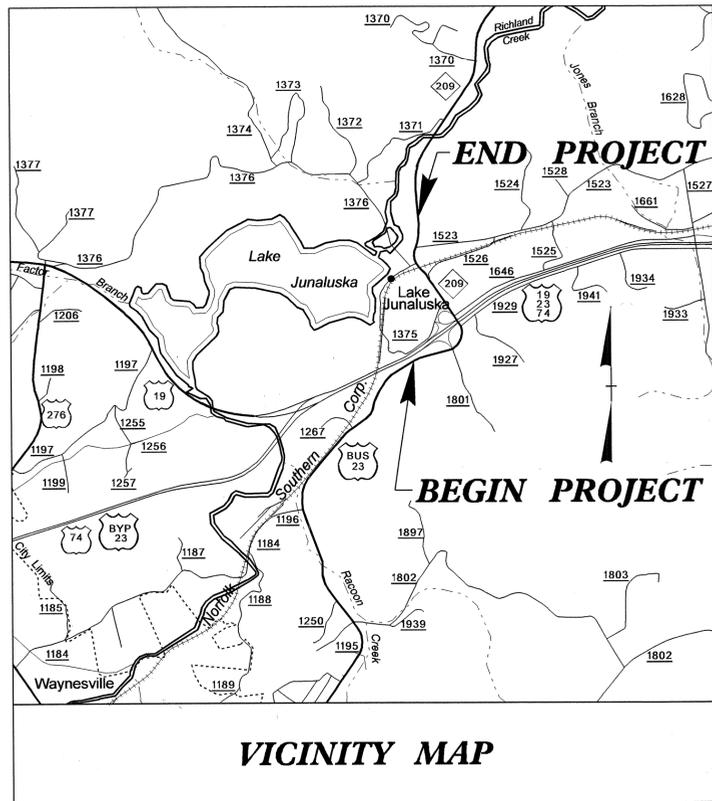
ROADWAY DESIGN ENGINEER

Signature 1/22/14
SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER
MICHAEL W. LITTLE
22557



21-JAN-2014 12:20 4047_rdy_tsh.dgn

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



VICINITY MAP

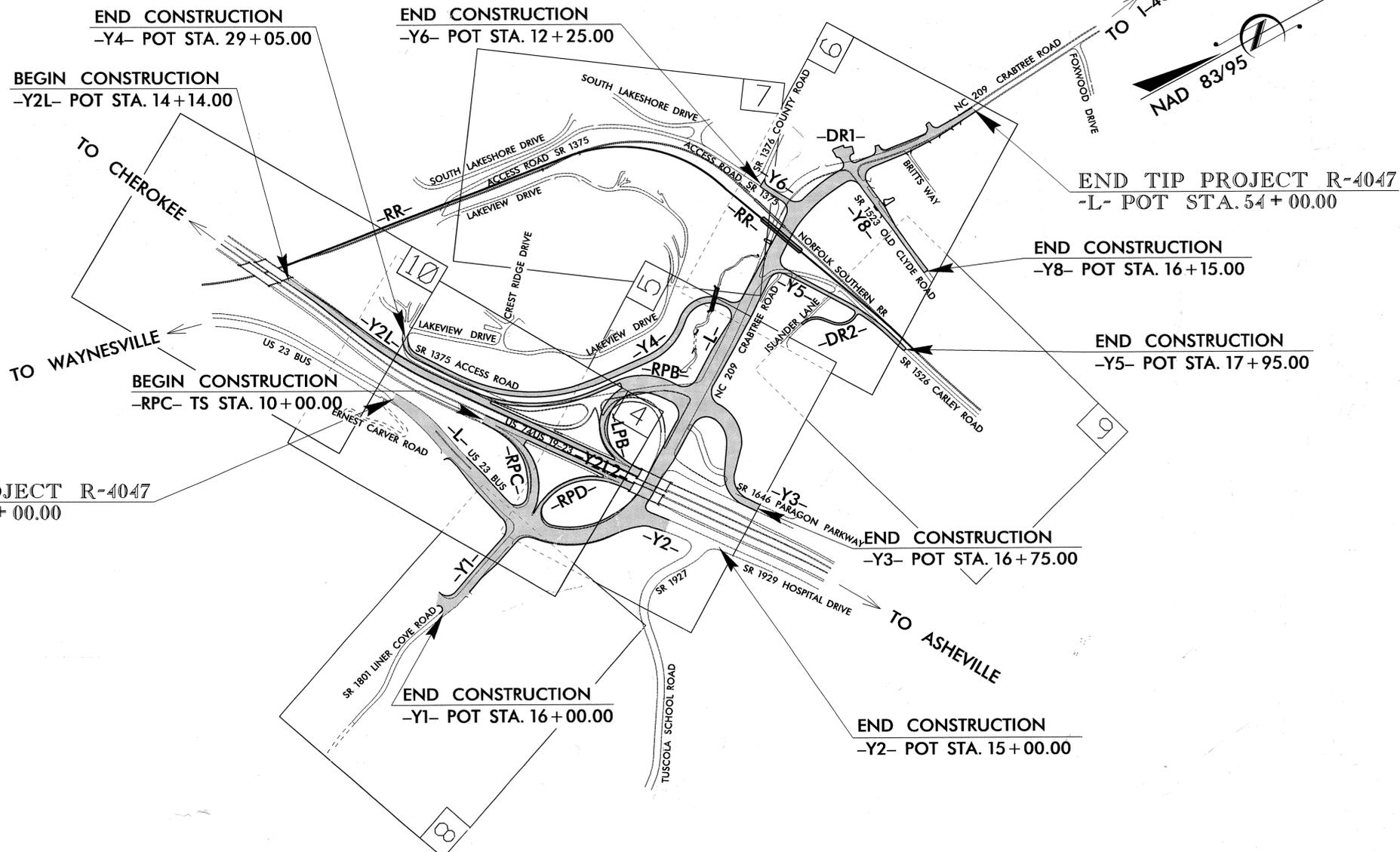
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HAYWOOD COUNTY

LOCATION: NC 209 FROM US 23 BUS. TO NORTH OF SR 1523 (OLD CLYDE RD.)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, RAILROAD REALGNMENT, RETAINING WALL, CULVERT, SIGNALS AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-4047	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34599.1.1	STP-209(2)	PE	
34599.3.1	STP-209(6)	RW & UTL.	
34599.2.FRI	STP-209(6)	CONST.	

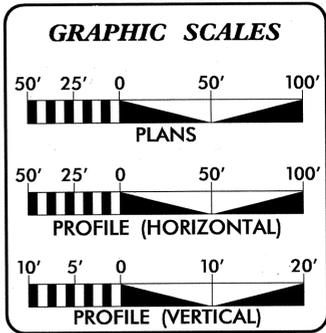


BEGIN TIP PROJECT R-4047
-L- POT STA. 13+00.00

TIP PROJECT: R-4047

CONTRACT: C203393

Part 1 of 2



DESIGN DATA

ADT 2014 = 21,650
ADT 2034 = 28,650

K = 10 %
D = 60 %
T = 5 % *
V = 35 MPH

FUNC. CLASS. = COLLECTOR
* TTST 1 % DUAL 4 %
STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-4047 = 0.777 MI.
TOTAL LENGTH OF TIP PROJECT R-4047 = 0.777 MI.

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
APRIL 12, 2011

LETTING DATE:
JUNE 17, 2014

REKHA PATEL, P.E.
PROJECT ENGINEER

MICHAEL W. LITTLE, P.E.
PROJECT DESIGN ENGINEER

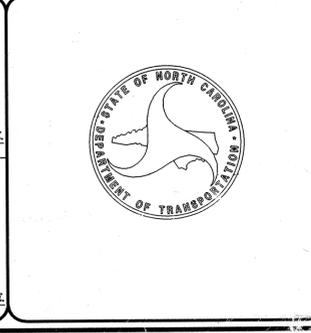
HYDRAULICS ENGINEER

Signature 1/22/14

ROADWAY DESIGN ENGINEER

Signature 1/22/14

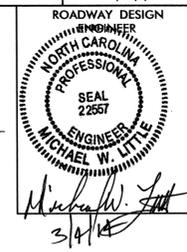
Professional Engineer Seals for Amy A. Billings and Michael W. Little.



21-JAN-2014 12:20 4047_rdy_tsh.dgn

5/28/99

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS



2012 ROADWAY ENGLISH STANDARD DRAWINGS EFF. 01-17-2012 REV. 10-30-2012

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2012 are applicable to this project and by reference hereby are considered a part of these plans:

Table listing standards by STD. NO. and TITLE, including sections for Earthwork, Pipe Culverts, Subgrade, Asphalt Bases, Incidentals, and Drainage structures.

INDEX OF SHEETS table with columns for SHEET NUMBER and SHEET, listing sheets 1 through W-2 and their corresponding titles.

GENERAL NOTES: 2012 SPECIFICATIONS EFFECTIVE: 01-17-2012 REVISED: 07-30-2012. 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...

01-MAR-2014 10:02 AM N:\4047_rdu_tsh.dgn

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○
Property Corner	⊕
Property Monument	□
Parcel/Sequence Number	⑫③
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	-WLB-
Proposed Wetland Boundary	-WLB-
Existing Endangered Animal Boundary	-EAB-
Existing Endangered Plant Boundary	-EPB-
Known Soil Contamination: Area or Site	☠
Potential Soil Contamination: Area or Site	☠?

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○
Well	⊕
Small Mine	⊗
Foundation	□
Area Outline	□
Cemetery	⊕
Building	□
School	□
Church	⊕
Dam	▬

HYDROLOGY:

Stream or Body of Water	~~~~~
Hydro, Pool or Reservoir	□
Jurisdictional Stream	-JS-
Buffer Zone 1	-BZ 1-
Buffer Zone 2	-BZ 2-
Flow Arrow	→
Disappearing Stream	→
Spring	○
Wetland	⊕
Proposed Lateral, Tail, Head Ditch	→
False Sump	▽

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	CSX TRANSPORTATION MILEPOST 35
Switch	SWITCH
RR Abandoned	-----
RR Dismantled	-----

RIGHT OF WAY:

Baseline Control Point	◆
Existing Right of Way Marker	△
Existing Right of Way Line	-----
Proposed Right of Way Line	-----
Proposed Right of Way Line with Iron Pin and Cap Marker	-----
Proposed Right of Way Line with Concrete or Granite RW Marker	-----
Proposed Control of Access Line with Concrete C/A Marker	-----
Existing Control of Access	-----
Proposed Control of Access	-----
Existing Easement Line	-----
Proposed Temporary Construction Easement	-----
Proposed Temporary Drainage Easement	TDE
Proposed Permanent Drainage Easement	PDE
Proposed Permanent Drainage / Utility Easement	DUE
Proposed Permanent Utility Easement	PUE
Proposed Temporary Utility Easement	TUE
Proposed Aerial Utility Easement	AUE
Proposed Permanent Easement with Iron Pin and Cap Marker	-----

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	-C-
Proposed Slope Stakes Fill	-F-
Proposed Curb Ramp	CR
Existing Metal Guardrail	-----
Proposed Guardrail	-----
Existing Cable Guiderail	-----
Proposed Cable Guiderail	-----
Equality Symbol	⊕
Pavement Removal	⊗

VEGETATION:

Single Tree	○
Single Shrub	○
Hedge	~~~~~
Woods Line	~~~~~

Orchard	⊕
Vineyard	Vineyard

EXISTING STRUCTURES:

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

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	A/G Water

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	A/G Gas

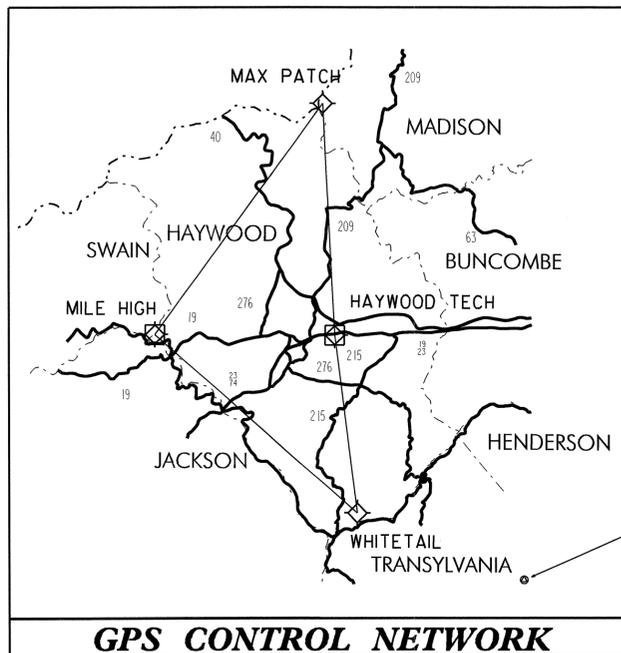
SANITARY SEWER:

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

MISCELLANEOUS:

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

SURVEY CONTROL SHEET R-4047



GPS CONTROL NETWORK

NCDOT GPS STATION R4047 GPS-100
LOCALIZED PROJECT COORDINATES
N = 667,317.2130
E = 820,034.5390
ELEV. = 2,632.78'

NCDOT GPS STATION R4047 GPS-101
LOCALIZED PROJECT COORDINATES
N = 667,652.8200
E = 820,758.9870
ELEV. = 2,649.60'

NCDOT GPS STATION R4047 GPS-104
LOCALIZED PROJECT COORDINATES
N = 670,495.8470
E = 821,983.0560
ELEV. = 2,546.87'

NCDOT GPS STATION R4047 GPS-105
LOCALIZED PROJECT COORDINATES
N = 670,653.9050
E = 822,888.4120
ELEV. = 2,576.90'

NCDOT GPS STATION R2210-A7
LOCALIZED PROJECT COORDINATES
N = 669,371.9460
E = 823,074.9810
ELEV. = 2,650.31'

NCDOT GPS STATION R2210-A5
LOCALIZED PROJECT COORDINATES
N = 668,066.1250
E = 822,756.8620
ELEV. = 2,626.66'

NCDOT GPS STATION R4047 GPS-103
LOCALIZED PROJECT COORDINATES
N = 670,650.7720
E = 828,137.0840
ELEV. = 2,629.50'

NCDOT GPS STATION R4047 GPS-102
LOCALIZED PROJECT COORDINATES
N = 670,585.9170
E = 826,615.2480
ELEV. = 2,611.00'

BEGIN PROJECT R-4047
-L- POT STA. 13+00.00

END PROJECT R-4047
-L- POT STA. 54+00.00

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "R2210A5"
WITH NAD 83/95 STATE PLANE GRID COORDINATES OF
NORTHING: 668066.125(±) EASTING: 822756.862(±)
ELEVATION: 2626.66(±)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9997641
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "R2210A5" TO -L- STATION 13+00.00 IS
S 88°14' 41" W 860.91'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: GEOID99 (CONUS)
NOTE: DRAWING NOT TO SCALE

NOTES:

1. THE SITE CALIBRATION SHOWN IS BASED UPON A NETWORK TIED TO THE HARN (HIGH ACCURACY REFERENCE NETWORK) NAD 83/95 ADJUSTMENT. THIS CALIBRATION WILL ALLOW THE END USER TO WORK WITHIN THE SAME COORDINATE SYSTEM WHEN USING RTK (REAL TIME KINEMATIC) GPS AND A LOCAL BASE STATION. IF ANOTHER SYSTEM SUCH AS VRS (VIRTUAL REFERENCE STATION) IS USED, ADDITIONAL FIELD TIES MAY BE NEEDED TO REDUCE POSSIBLE ERRORS, OR BIASES.
2. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
[HTTP://WWW.NCDOT.ORG/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.ncdot.org/doh/preconstruct/highway/location/project/)

THE FILES TO BE FOUND ARE AS FOLLOWS:

R4047_LS_GPSCALIB.HTML
R4047_LS_WGS84.TXT
R4047_LS_LOCAL.TXT
R4047_LS_CONTROL.TXT

THE WGS84 AND LOCAL FILES ARE COMMA DELIMITED AND CAN BE USED TO REPRODUCE THE SITE CALIBRATION FOR THE END USER'S GPS EQUIPMENT. 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.

SURVEY CONTROL SHEET R-4047

PROJECT REFERENCE NO.	SHEET NO.
R-4047	I-D
Location and Surveys	

GPS CALIBRATION REPORT

PROJECT # R4047SITECALIBRATION090601

TIP NUMBER R-4047

USER NAME RMC DONALD DATE & TIME 2:34:58 PM 6/1/2009

COORDINATE SYSTEM US STATE PLANE ZONE NORTH CAROLINA 1983(AT GROUND) 3200
 HORIZONTAL DATUM NAD 1983 (CONUS)
 VERTICAL DATUM NAVD88 GEOID MODEL GEOID99 (CONUS)
 COORDINATE UNITS US SURVEY FEET
 DISTANCE UNITS US SURVEY FEET
 HEIGHT UNITS US SURVEY FEET

LOCAL SITE INFORMATION

LOCALIZED AROUND R2210A-5
 LATITUDE 35°31'16.10937"N
 LONGITUDE 82°57'26.75433"W
 SITE SCALE FACTOR 1.0002359560
 HEIGHT 2531.6895FT

THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION USES A LOCALIZED COORDINATE SYSTEM WHICH IS VERY SIMILAR TO NORTH CAROLINA ZONE 3200 FROM WHICH IT IS DERIVED. PLEASE TAKE CARE IN UTILIZING THESE COORDINATES TO ELIMINATE CONFUSION OF THE TWO SYSTEMS. THIS FILE IS TO AID IN THE USE OF REAL TIME KINEMATIC (RTK) GPS DURING CONSTRUCTION LAYOUT.

DATUM TRANSFORMATION PARAMETERS

DATUM TRANSFORMATION COMPUTATION NOT REQUESTED

UPDATED DEFAULT PROJECTION (TRANSVERSE MERCATOR) DEFINITION

UPDATED DEFAULT PROJECTION NOT REQUESTED

HORIZONTAL ADJUSTMENT PARAMETERS

NORTHING COORDINATE OF ROTATION CENTER 670724.3175FT
 EASTING COORDINATE OF ROTATION CENTER 820102.1405FT
 ROTATION ABOUT THE CENTER POINT 0°00'00"
 TRANSLATION NORTH -0.0035FT
 TRANSLATION EAST -0.0155FT
 SCALE FACTOR 1.00000009

VERTICAL ADJUSTMENT PARAMETERS

NORTHING COORDINATE OF ORIGIN POINT 667317.2105FT
 EASTING COORDINATE OF ORIGIN POINT 820034.5425FT
 VERTICAL SEPARATION AT ORIGIN -0.4475FT
 SLOPE NORTH -0.953PPM
 SLOPE EAST -2.137PPM

GEOID MODEL DEFINITION

GEOID99 (CONUS)

RESIDUAL DIFFERENCES BETWEEN GPS (WGS84) AND LOCAL COORDINATES

SUMMARY

	MAXIMUM ERROR	ROOT MEAN SQUARE ERROR	POINT
HORIZONTAL	0.0275FT	0.004	WHITETAIL WGS84
VERTICAL	0.5935FT	0.093	WHITETAIL WGS84
THREE-DIMENSIONAL	0.5945FT	0.093	WHITETAIL WGS84

POINT RESIDUALS

WGS84 COORDINATES		CALCULATED POINT FOR DISPLAY ONLY		LOCAL COORDINATES	
POINT	GPS100 WGS84	NORTHING	667317.2105FT	POINT	GPS100 LOCAL
LATITUDE	35°31'07.63539"N	EASTING	820034.5425FT	NORTHING	667317.2135FT
LONGITUDE	82°57'59.29449"W	ELEVATION	2632.9965FT	EASTING	820034.5395FT
HEIGHT	2538.5485FT	HORZ ERROR	0.0045FT	ELEVATION	2632.7845FT
		VERT ERROR	0.2125FT	UTILIZED HORZ AND VERT	
		3D ERROR	0.2125FT	SURVEY QUALITY	
POINT	GPS101 WGS84	NORTHING	667652.8175FT	POINT	GPS101 LOCAL
LATITUDE	35°31'11.23753"N	EASTING	820758.9895FT	NORTHING	667652.8205FT
LONGITUDE	82°57'50.70106"W	ELEVATION	2649.8295FT	EASTING	820758.9875FT
HEIGHT	2555.3595FT	HORZ ERROR	0.0045FT	ELEVATION	2649.5955FT
		VERT ERROR	0.2345FT	UTILIZED HORZ AND VERT	
		3D ERROR	0.2345FT	SURVEY QUALITY	

POINT	GPS102 WGS84	NORTHING	670585.9165FT	POINT	GPS102 LOCAL
LATITUDE	35°31'42.52525"N	EASTING	826615.2475FT	NORTHING	670585.9175FT
LONGITUDE	82°56'41.33185"W	ELEVATION	2611.2265FT	EASTING	826615.2485FT
HEIGHT	2516.5805FT	HORZ ERROR	0.0025FT	ELEVATION	2610.9995FT
		VERT ERROR	0.2275FT	UTILIZED HORZ AND VERT	
		3D ERROR	0.2275FT	SURVEY QUALITY	

POINT	GPS103 WGS84	NORTHING	670650.7705FT	POINT	GPS103 LOCAL
LATITUDE	35°31'43.76354"N	EASTING	828137.0805FT	NORTHING	670650.7725FT
LONGITUDE	82°56'22.96812"W	ELEVATION	2629.7295FT	EASTING	828137.0845FT
HEIGHT	2535.0545FT	HORZ ERROR	0.0045FT	ELEVATION	2629.5035FT
		VERT ERROR	0.2265FT	UTILIZED HORZ AND VERT	
		3D ERROR	0.2265FT	SURVEY QUALITY	

POINT	GPS104 WGS84	NORTHING	670495.8445FT	POINT	GPS104 LOCAL
LATITUDE	35°31'39.81192"N	EASTING	821983.0585FT	NORTHING	670495.8475FT
LONGITUDE	82°57'37.27860"W	ELEVATION	2546.0595FT	EASTING	821983.0565FT
HEIGHT	2451.5085FT	HORZ ERROR	0.0045FT	ELEVATION	2545.8715FT
		VERT ERROR	0.1885FT	UTILIZED HORZ AND VERT	
		3D ERROR	0.1885FT	SURVEY QUALITY	

POINT	GPS105 WGS84	NORTHING	670653.9045FT	POINT	GPS105 LOCAL
LATITUDE	35°31'41.73061"N	EASTING	822888.4115FT	NORTHING	670653.9055FT
LONGITUDE	82°57'26.41171"W	ELEVATION	2577.1085FT	EASTING	822888.4125FT
HEIGHT	2482.5345FT	HORZ ERROR	0.0025FT	ELEVATION	2576.8955FT
		VERT ERROR	0.2135FT	UTILIZED HORZ AND VERT	
		3D ERROR	0.2135FT	SURVEY QUALITY	

POINT	R2210A1 WGS84	NORTHING	659736.6665FT	POINT	R2210A1 LOCAL
LATITUDE	35°29'51.20893"N	EASTING	816180.6135FT	NORTHING	659736.6705FT
LONGITUDE	82°58'42.19822"W	ELEVATION	2639.0015FT	EASTING	816180.6165FT
HEIGHT	2544.7985FT	HORZ ERROR	0.0055FT	ELEVATION	2638.9625FT
		VERT ERROR	0.0395FT	UTILIZED HORZ AND VERT	
		3D ERROR	0.0395FT	SURVEY QUALITY	

POINT	R2210A5 WGS84	NORTHING	668066.1235FT	POINT	R2210A5 LOCAL
LATITUDE	35°31'16.10937"N	EASTING	822756.8615FT	NORTHING	668066.1255FT
LONGITUDE	82°57'26.75417"W	ELEVATION	2626.8705FT	EASTING	822756.8625FT
HEIGHT	2532.3515FT	HORZ ERROR	0.0035FT	ELEVATION	2626.6625FT
		VERT ERROR	0.2085FT	UTILIZED HORZ AND VERT	
		3D ERROR	0.2085FT	SURVEY QUALITY	

POINT	R2210A7 WGS84	NORTHING	669371.9475FT	POINT	R2210A7 LOCAL
LATITUDE	35°31'29.13735"N	EASTING	823074.9805FT	NORTHING	669371.9465FT
LONGITUDE	82°57'23.53870"W	ELEVATION	2650.5235FT	EASTING	823074.9815FT
HEIGHT	2555.9695FT	HORZ ERROR	0.0015FT	ELEVATION	2650.3075FT
		VERT ERROR	0.2165FT	UTILIZED HORZ AND VERT	
		3D ERROR	0.2165FT	SURVEY QUALITY	

POINT	HAYWOOD TECH WGS	NORTHING	670301.6875FT	POINT	HAYWOOD
LATITUDE	35°31'42.03001"N	EASTING	832518.2965FT	NORTHING	670301.6915FT
LONGITUDE	82°55'29.84359"W	ELEVATION	2691.5925FT	EASTING	832518.3095FT
HEIGHT	2596.8455FT	HORZ ERROR	0.0145FT	ELEVATION	2692.0695FT
		VERT ERROR	0.4775FT	UTILIZED HORZ AND VERT	
		3D ERROR	0.4785FT	SURVEY QUALITY	

POINT	MAX PATCH WGS84	NORTHING	768511.0505FT	POINT	MAX PATCH LOCAL
LATITUDE	35°47'50.19659"N	EASTING	826933.7555FT	NORTHING	768511.0405FT
LONGITUDE	82°57'24.68614"W	ELEVATION	4629.6915FT	EASTING	826933.7355FT
HEIGHT	4532.1695FT	HORZ ERROR	0.0225FT	ELEVATION	4630.1195FT
		VERT ERROR	0.4285FT	UTILIZED HORZ AND VERT	
		3D ERROR	0.4295FT	SURVEY QUALITY	

POINT	MILE HIGH WGS84	NORTHING	670081.5615FT	POINT	MILE HIGH LOCAL
LATITUDE	35°31'09.38682"N	EASTING	757006.7585FT	NORTHING	670081.5735FT
LONGITUDE	83°10'42.37199"W	ELEVATION	5229.7295FT	EASTING	757006.7695FT
HEIGHT	5136.2825FT	HORZ ERROR	0.0165FT	ELEVATION	5229.9935FT
		VERT ERROR	0.2645FT	UTILIZED HORZ AND VERT	
		3D ERROR	0.2655FT	SURVEY QUALITY	

POINT	WHITETAIL WGS84	NORTHING	595990.5875FT	POINT	WHITETAIL LOCAL
LATITUDE	35°19'31.59985"N	EASTING	842439.0405FT	NORTHING	595990.5625FT
LONGITUDE	82°52'54.78327"W	ELEVATION	5810.3475FT	EASTING	842439.0315FT
HEIGHT	5715.9145FT	HORZ ERROR	0.0275FT	ELEVATION	5810.9405FT
		VERT ERROR	0.5935FT	UTILIZED HORZ AND VERT	
		3D ERROR	0.5945FT	SURVEY QUALITY	

BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
100	GPS-100		667317.2130	820034.5390	2632.78	30+85.53	3239.27 LT
101	GPS-101		667652.8200	820758.9870	2649.59	29+70.43	2449.20 LT
1	BL-1		667661.6090	821254.1190	2684.91		OUTSIDE PROJECT LIMITS
2	BL-2		667918.3640	821632.9700	2683.67	10+11.74	31.83 LT
3	BL-3		668042.8160	821952.4370	2668.76	13+50.90	25.19 RT
4	BL-4		668142.4200	822293.0730	2644.19	17+14.07	38.02 RT
5	BL-5		668242.0800	822785.8610	2615.99	21+92.24	84.71 RT
6	BL-6		668469.8390	822953.3430	2608.18	24+36.15	58.92 RT
7	BL-7		668753.9930	823011.1260	2605.40	26+89.14	79.95 RT
8	BL-8		669110.9810	822782.4950	2596.94	30+84.87	42.26 RT
9	BL-9		669397.2890	822523.5870	2582.64	34+66.26	17.92 LT
10	BL-10		669886.6400	822229.2400	2559.95	40+36.92	3.18 RT
11	BL-11		670179.1010	821914.4570	2546.83	44+26.86	125.13 LT
104	BL-104		670495.8470	821983.0560	2545.91	47+06.58	1.36 LT
39	BL-39		670989.4480	822045.0240	2551.70	52+01.46	24.59 RT
40	BL-40		671542.3700	822002.9820	2547.74	57+54.49	23.75 RT

BY	POINT	DESC.	NORTH	EAST	ELEVATION	Y1 STATION	OFFSET
155	BL-5		668242.0800	822785.8610	2615.99	10+80.67	29.54 LT
12	BY-12		667997.3020	822878.7530	2633.52	13+42.49	30.19 LT
13	BY-13		667728.2450	822949.1860	2639.63	16+17.62	14.17 LT
41	BY-41		667458.8250	822978.7920	2628.13		OUTSIDE PROJECT LIMITS
42	BY-42		667287.8010	823146.3490	2622.65		OUTSIDE PROJECT LIMITS
43	BY-43		666873.9760	823277.5860	2637.39		OUTSIDE PROJECT LIMITS

BY1	POINT	DESC.	NORTH	EAST	ELEVATION	Y2L STATION	OFFSET
177	BL-7		668753.9930	823011.1260	2605.40	21+24.24	221.38 RT
14	BY1-14		668996.5600	823139.7150	2624.55	23+71.84	182.76 RT
15	BY1-15		669363.4740	823641.4760	2675.27	30+00.30	94.69 RT
16	BY1-16		669550.7240	823977.3730	2703.65	33+98.19	96.33 RT
17	BY1-17		669721.0720	824348.7620	2711.22	38+13.22	84.03 RT
18	BY1-18		669893.0330	824908.6520	2692.69	44+02.97	100.91 RT
19	BY1-19		670087.0510	825508.9040	2657.80	50+33.78	102.95 RT

BY2	POINT	DESC.	NORTH	EAST	ELEVATION	Y2L STATION	OFFSET
301	GPS-101		667652.8200	820758.9870	2649.59		OUTSIDE PROJECT LIMITS
20	BY2-20		667860.6370	821181.5460	2648.34		OUTSIDE PROJECT LIMITS
21	BY2-21		668090.7940	821686.0630	2637.68		OUTSIDE PROJECT LIMITS
22	BY2-22		668641.3960	822503.8590	2608.08	16+49.40	10.38 RT
23	BY2-23		669471.7650	823615.3910	2679.33	30+36.61	5.82 LT
24	BY2-24		669636.1050	823931.3220	2691.57	33+92.53	0.51 LT
25	BY2-25		669828.9470	824546.0790	2693.96	40+37.99	49.04 RT
26	BY2-26		669979.3360	825001.7330	2680.53	45+18.24	47.78 RT
27	BY2-27		670200.6470	825677.6860	2643.25	52+29.50	47.42 RT

BY3	POINT	DESC.	NORTH	EAST	ELEVATION	Y2L STATION	OFFSET
188	BL-8		669110.9810	822782.4950	2596.94	21+52.53	201.50 LT
28	BY3-28		669512.6270	823423.9350	2659.78	29+02.36	144.94 LT
29	BY3-29		669703.9810	823886			

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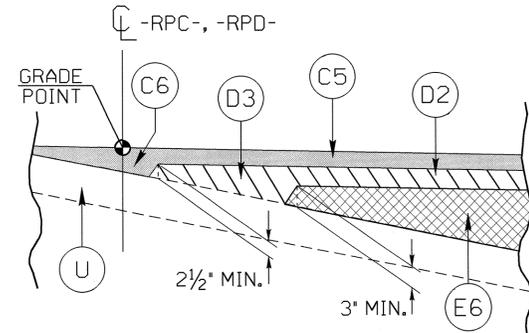
PAVEMENT SCHEDULE

(FINAL PAVEMENT DESIGN)

C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	E5	PROP. APPROX. 7½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 427.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	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.	E6	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 5½" IN DEPTH.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 1½" IN DEPTH OR GREATER THAN 2" IN DEPTH.	R1	2'-6" CONCRETE CURB AND GUTTER
C4	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	R2	SINGLE FACED CONCRETE BARRIER
C5	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.	R3	CONCRETE MEDIAN BARRIER, TYPE T1 OR T2 (SEE SUMMARY SHEET 3-J)
C6	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 1½" IN DEPTH OR GREATER THAN 2" IN DEPTH.	R4	5" MONOLITHIC CONCRETE ISLAND
D1	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.	R5	SHOULDER BERM GUTTER
D2	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	R6	3' WIDE x 6" DEEP CONCRETE PAD
D3	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 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.	T	EARTH MATERIAL
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	U	EXISTING PAVEMENT
E2	PROP. APPROX. 5½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.	V	MILLED ASPHALT PAVEMENT (SEE TABLE, SHEET 3-I)
E3	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)
E4	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	Y	PROPOSED MILLED RUMBLE STRIPS

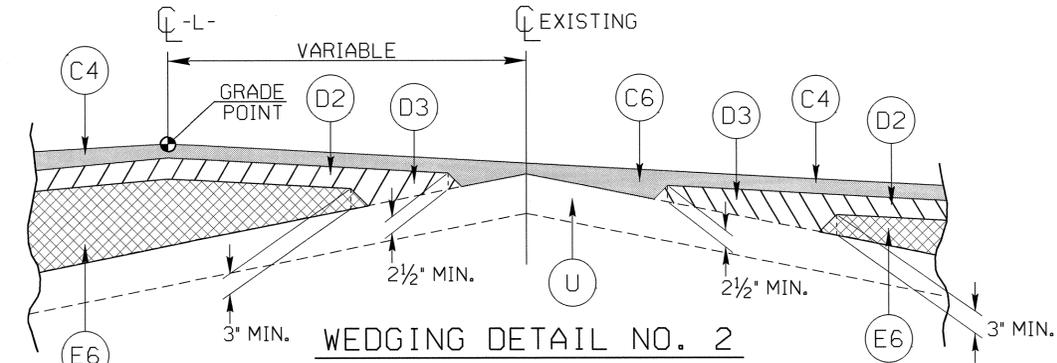
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE

PROJECT REFERENCE NO. R-4047	SHEET NO. 2
ROADWAY DESIGN NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22857 MICHAEL W. KITTLE	PAVEMENT DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 13368 CH. CHEN



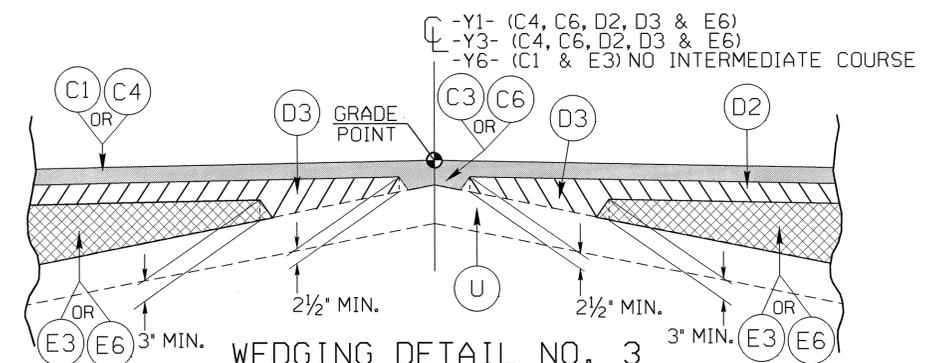
WEDGING DETAIL NO. 1

USE WITH TYPICAL SECTIONS NO.6 & 7



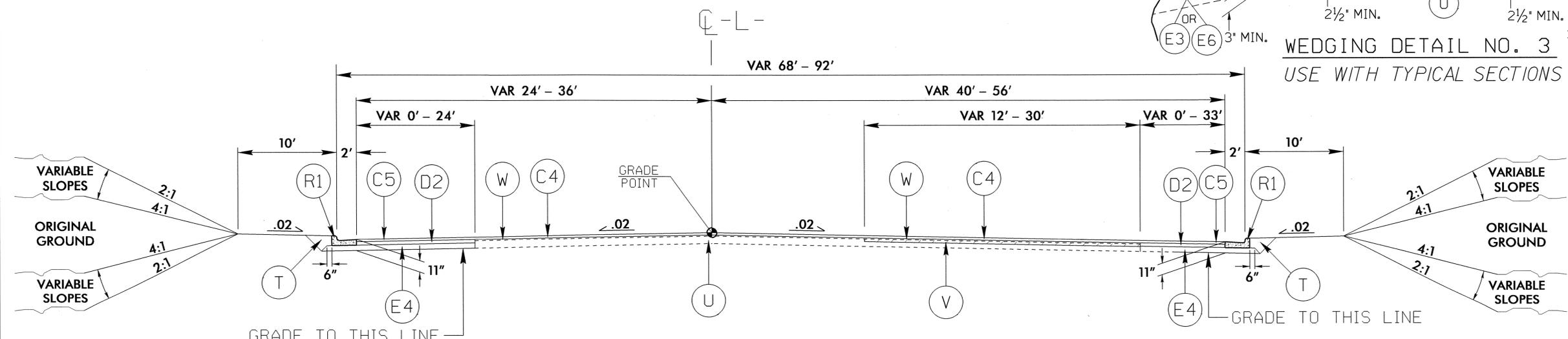
WEDGING DETAIL NO. 2

USE WITH TYPICAL SECTION NO.1



WEDGING DETAIL NO. 3

USE WITH TYPICAL SECTIONS NO.8,11 & 16



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 FOR:
-L- STA. 19+00.00 TO -L- STA. 39+00.00

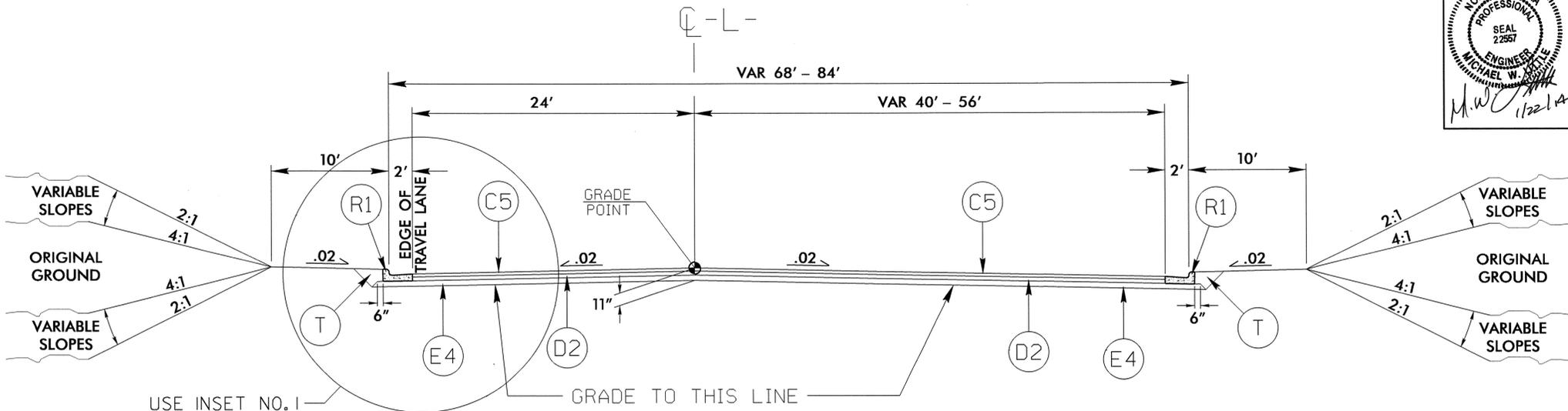
NOTES: RESURFACE WITH 1½" S9.5C FROM -L- STA. 13+00.00 TO -L- STA. 16+50.00
TRANSITION FROM EXISTING TO T.S. NO. 1 -L- STA. 16+50.00 TO -L- STA. 19+00.00
USE WEDGING DETAIL NO. 2

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6/2/09

PROJECT REFERENCE NO. R-4047	SHEET NO. 2-A

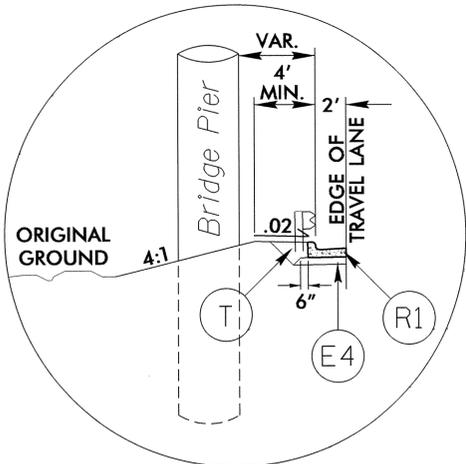
PAVEMENT SCHEDULE	
C5	3" S9.5C
D2	4" I19.0C
E4	4" B25.0C
R1	2'-6" CONC. CURB & GUTTER
T	EARTH MATERIAL



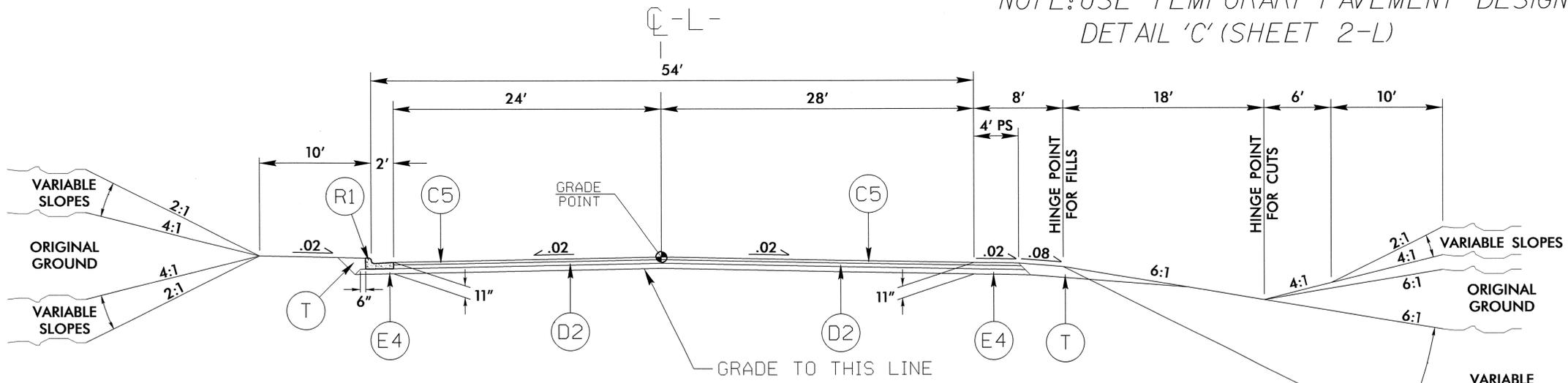
TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 FOR:
-L- STA. 39+00.00 TO -L- STA. 48+00.00

NOTE: USE TEMPORARY PAVEMENT DESIGN
DETAIL 'C' (SHEET 2-L)



INSET NO. 1



TYPICAL SECTION NO. 3

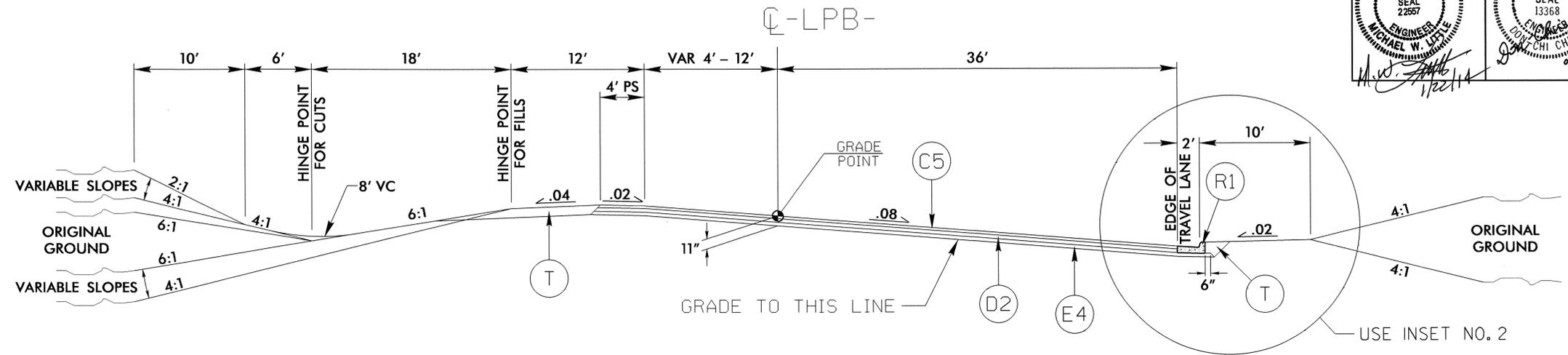
USE TYPICAL SECTION NO. 3 FOR:
-L- STA. 48+00.00 TO -L- STA. 50+00.00

NOTES: TRANSITION FROM T.S. NO. 3 TO EXISTING
-L- STA. 50+00.00 TO -L- STA. 54+00.00
RESURFACE & WIDEN
-L- STA. 50+00.00 TO -L- STA. 54+00.00
USE TEMPORARY PAVEMENT DESIGN
DETAIL 'B' (SHEET 2-L)

INSET NO. 1
Use with Typical Section No. 2
USE INSET NO. 1 AT THE FOLLOWING LOCATION:
-L- STA. 42+55.00 (LT.) TO -L- STA. 42+80.00 (LT.)

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PAVEMENT SCHEDULE	
C5	3" S9.5C
D2	4" I19.0C
E4	4" B25.0C
E6	VAR. DEPTH B25.0C
R1	2'-6" CONC. CURB & GUTTER
R5	SHOULDER BERM GUTTER
T	EARTH MATERIAL



TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4 FOR:

-LPB- STA. 13+74.99 TO -LPB- STA. 18+93.43

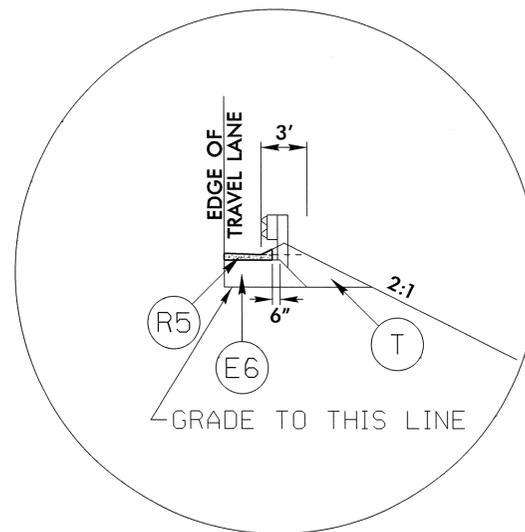
NOTES: TRANSITION FROM EXISTING TO T.S. NO. 4
 -LPB- STA. 10+35.96 TO -LPB- STA. 13+74.99
 USE TEMPORARY PAVEMENT DESIGN
 DETAIL 'A' AND DETAIL 'B' (SHEET 2-L)

INSET NO. 2

Use with Typical Section No. 4

USE INSET NO. 2 AT THE FOLLOWING LOCATION:

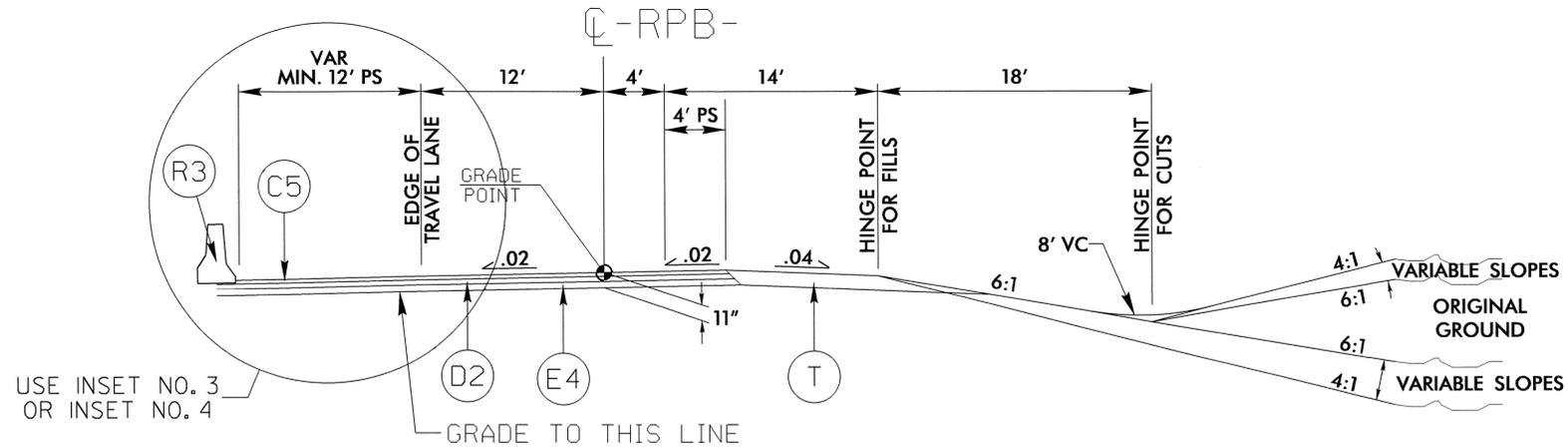
-LPB- STA. 10+35.96 (RT.) TO -LPB- STA. 12+07.00 (RT.)



INSET NO. 2

PROJECT REFERENCE NO. R-4047	SHEET NO. 2-B
ROADWAY DESIGN ENGINEER MICHAEL W. LITTLE SEAL 22557	PAVEMENT DESIGN ENGINEER DONG CHI CHEN SEAL 13368 01/23/14

PAVEMENT SCHEDULE	
C5	3" S9.5C
D2	4" I19.0C
E4	4" B25.0C
R1	2'-6" CONC. CURB & GUTTER
R3	CONC. MED. BARRIER, TYPE T1 OR T2 (SEE SUMMARY SHEET 3-J)
T	EARTH MATERIAL



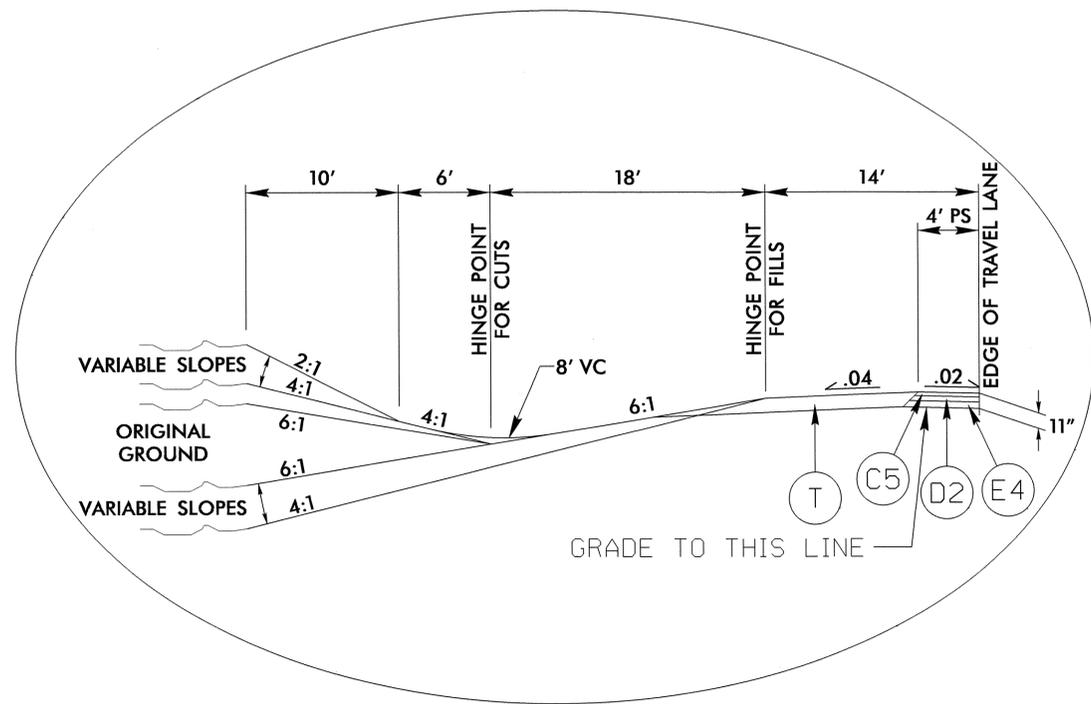
TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5 FOR:

-RPB- STA. 13+07.32 TO -RPB- STA. 22+34.27

NOTE: TIE GORE AREA TO T.S. NO. 21

-RPB- STA. 10+00.00 TO -RPB- STA. 13+07.32



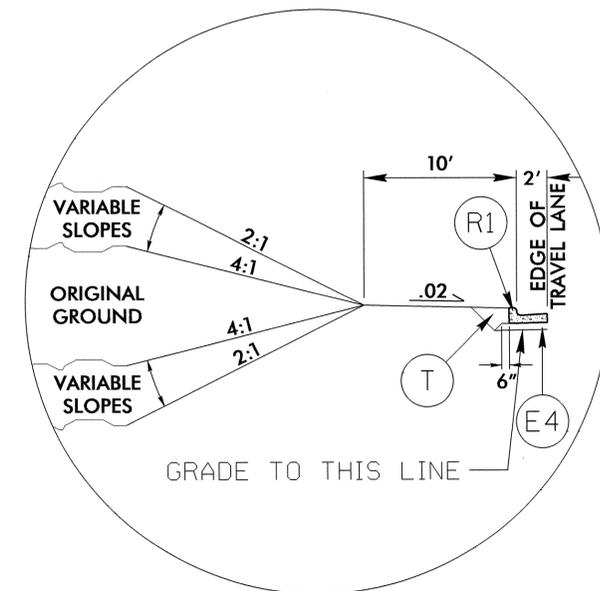
INSET NO. 3

INSET NO. 3

Use with Typical Section No. 5

USE INSET NO. 3 AT THE FOLLOWING LOCATION:

-RPB- STA. 19+75.00 TO -RPB- STA. 20+88.00



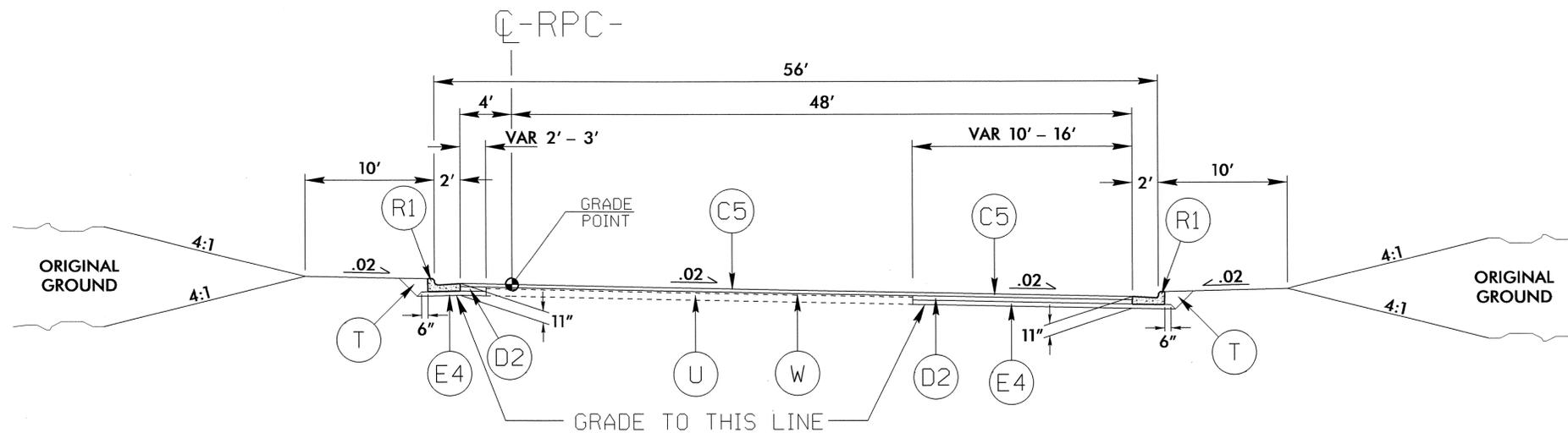
INSET NO. 4

INSET NO. 4

Use with Typical Section No. 5

USE INSET NO. 4 AT THE FOLLOWING LOCATION:

-RPB- STA. 20+88.00 TO -RPB- STA. 22+34.27



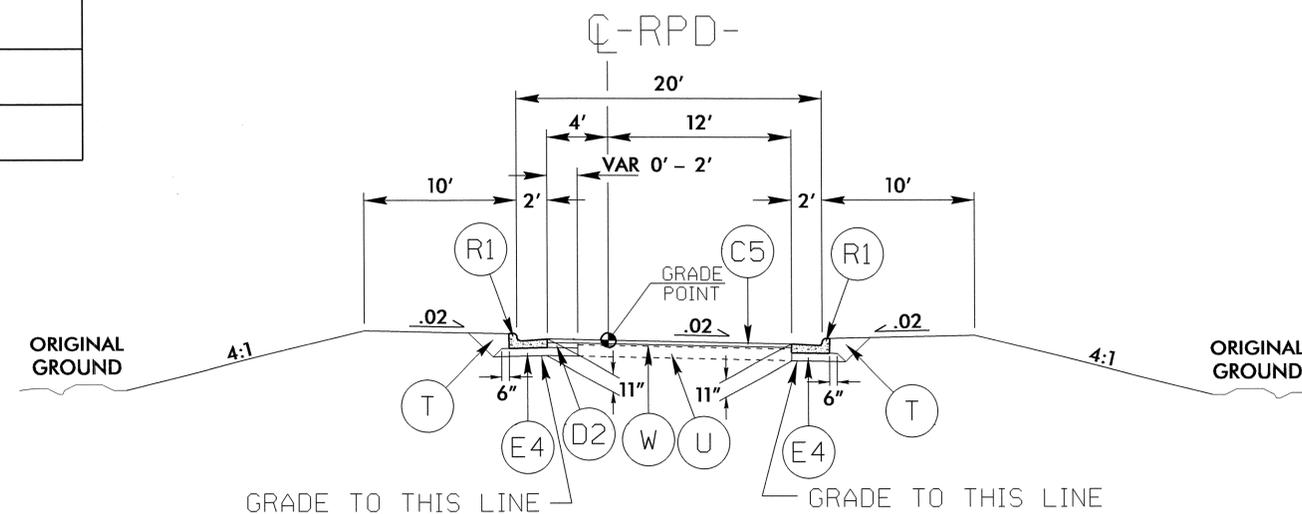
TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6 FOR:

-RPC- STA. 13+90.00 TO -RPC- STA. 16+00.74

NOTES: TRANSITION FROM EXISTING TO T.S. NO. 6
 -RPC- STA. 10+00.00 TO -RPC- STA. 13+90.00
 USE WEDGING DETAIL NO. 1

PAVEMENT SCHEDULE	
C5	3" S9.5C
D2	4" I19.0C
E4	4" B25.0C
R1	2'-6" CONG. CURB & GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING

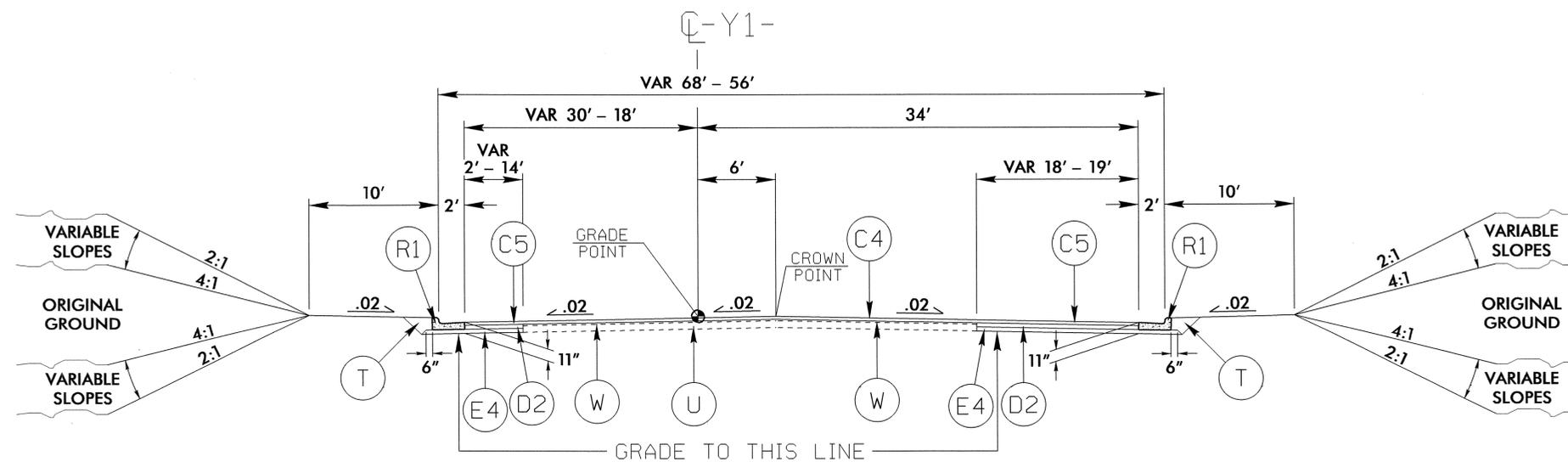


TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7 FOR:

-RPD- STA. 14+50.00 TO -RPD- STA. 15+79.46

NOTES: TRANSITION FROM EXISTING TO T.S. NO. 7
 -RPD- STA. 14+25.00 TO -RPD- STA. 14+50.00
 RESURFACE -RPD- STA. 10+07 +/- TO -RPD- STA. 14+25.00
 USE WEDGING DETAIL NO. 1



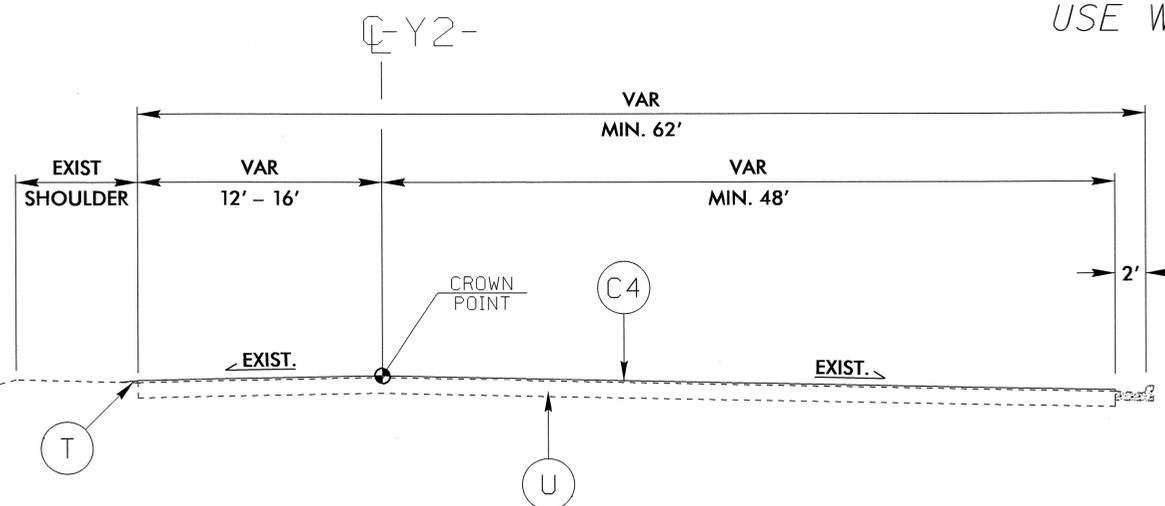
TYPICAL SECTION NO. 8

USE TYPICAL SECTION NO. 8 FOR:

-Y1- STA. 10+52.66 TO -Y1- STA. 14+50.00

NOTES: TRANSITION FROM T.S. NO. 8 TO EXISTING
-Y1- STA. 14+50.00 TO -Y1- STA. 16+00.00
USE WEDGING DETAIL NO. 3

PAVEMENT SCHEDULE	
C4	1 1/2" S9.5C
C5	3" S9.5C
D2	4" I19.0C
E4	4" B25.0C
R1	2'-6" CONC. CURB & GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING

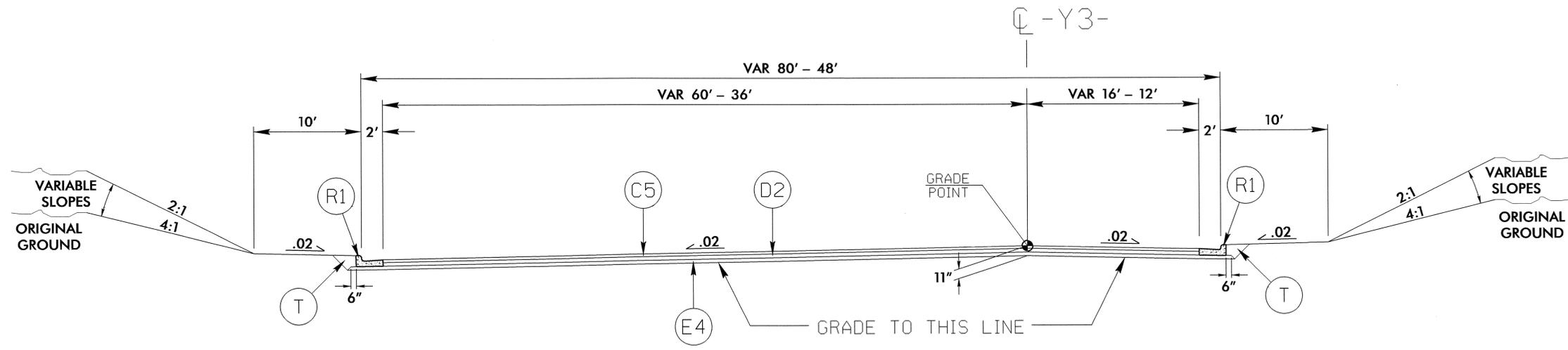


TYPICAL SECTION NO. 9

USE TYPICAL SECTION NO. 9 FOR:

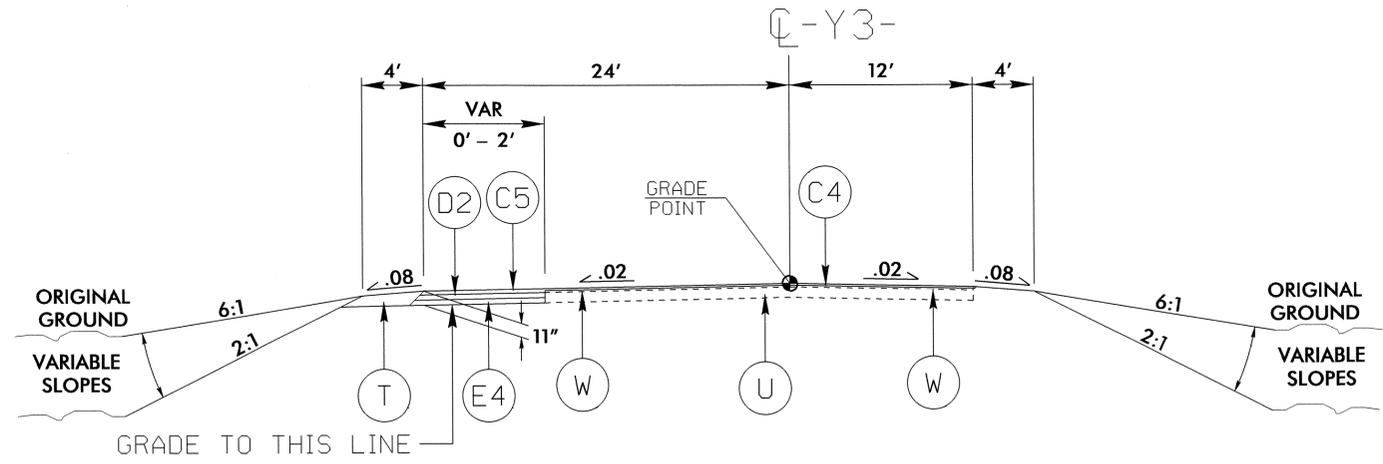
-Y2- STA. 10+45.17 TO -Y2- STA. 11+95.00

NOTE: RESURFACE -Y2-



TYPICAL SECTION NO. 10

USE TYPICAL SECTION NO. 10 FOR:
-Y3- STA. 10+57.04 TO -Y3- STA. 14+26.65

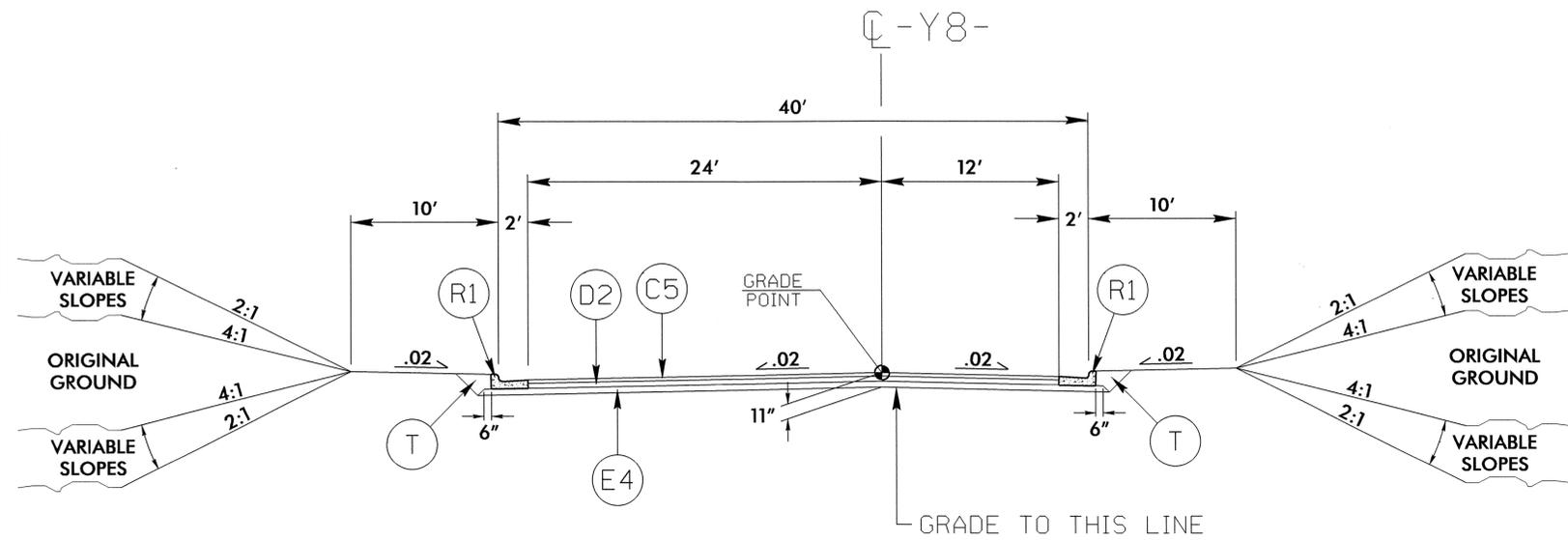


TYPICAL SECTION NO. 11

USE TYPICAL SECTION NO. 11 FOR:
-Y3- STA. 16+09.03 TO -Y3- STA. 16+25.00

PAVEMENT SCHEDULE	
C4	1 1/2" S9.5C
C5	3" S9.5C
D2	4" I19.0C
E4	4" B25.0C
R1	2'-6" CONC. CURB & GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING

NOTES: TRANSITION FROM T.S. NO. 10 TO T.S. NO. 11
-Y3- STA. 14+26.65 TO -Y3- STA. 16+09.03
TRANSITION FROM T.S. NO. 11 TO EXISTING
-Y3- STA. 16+25.00 TO -Y3- STA. 16+75.00
USE WEDGING DETAIL NO. 3



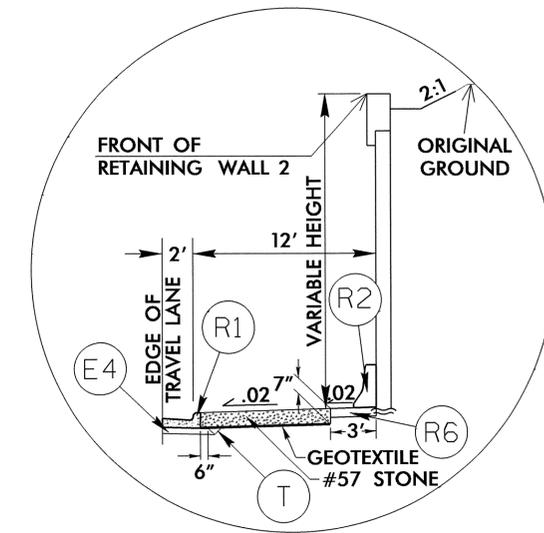
TYPICAL SECTION NO. 12

PAVEMENT SCHEDULE	
C5	3" S9.5C
D2	4" I19.0C
E4	4" B25.0C
R1	2'-6" CONC. CURB & GUTTER
R2	SINGLE FACED CONC. BARRIER
R6	3' WIDE x 6" DEEP CONC. PAD
T	EARTH MATERIAL

USE TYPICAL SECTION NO. 12 FOR:

-Y8- STA. 10+40.54 TO -Y8- STA. 12+45.00

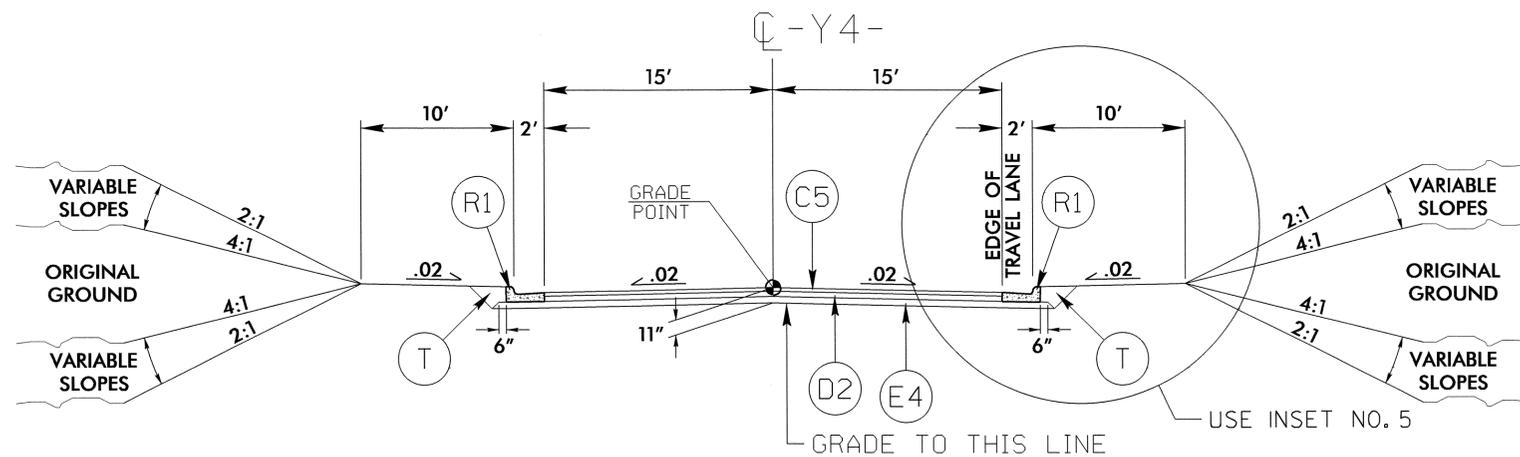
NOTES: TRANSITION FROM T.S. NO. 12 TO EXISTING
-Y8- STA. 12+45.00 TO -Y8- STA. 13+45.00
RESURFACE -Y8- STA. 13+45.00 TO
-Y8- STA. 16+15.00 WITH 1 1/2" S9.5C



INSET NO. 5

Use with Typical Section No. 13
Use with Typical Section No. 14 (Sheet 2-H)

USE INSET NO. 5 AT THE FOLLOWING LOCATION:
-Y4- STA. 12+00.00 RT. TO -Y4- STA. 18+77.57 RT.



TYPICAL SECTION NO. 13

USE TYPICAL SECTION NO. 13 FOR:

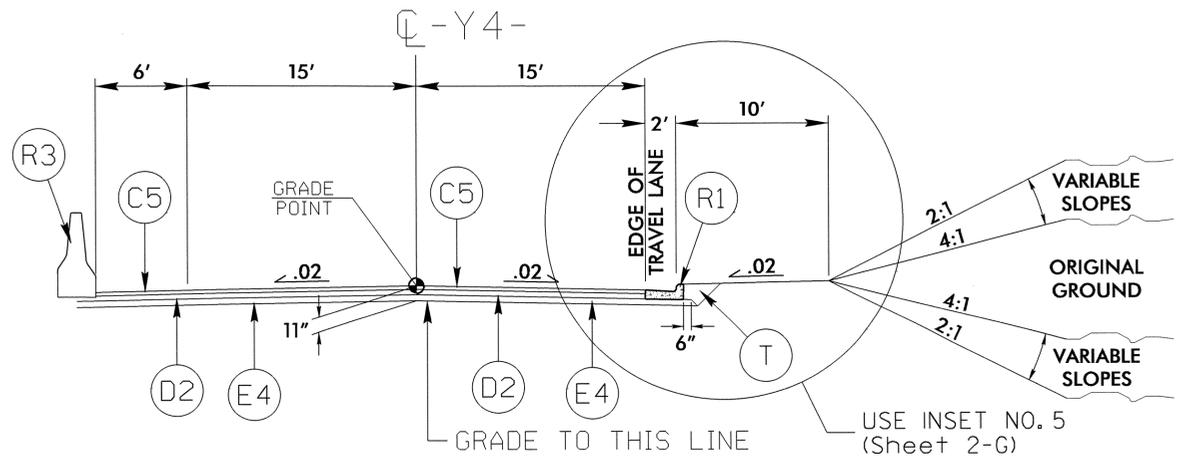
-Y4- STA. 10+24.00 TO -Y4- STA. 16+50.00
-Y4- STA. 28+08.60 TO -Y4- STA. 28+50.00

NOTE: TRANSITION FROM T.S. NO. 20 TO EXISTING
-Y4- STA. 28+50.00 TO -Y4- STA. 29+05.00

6/2/99

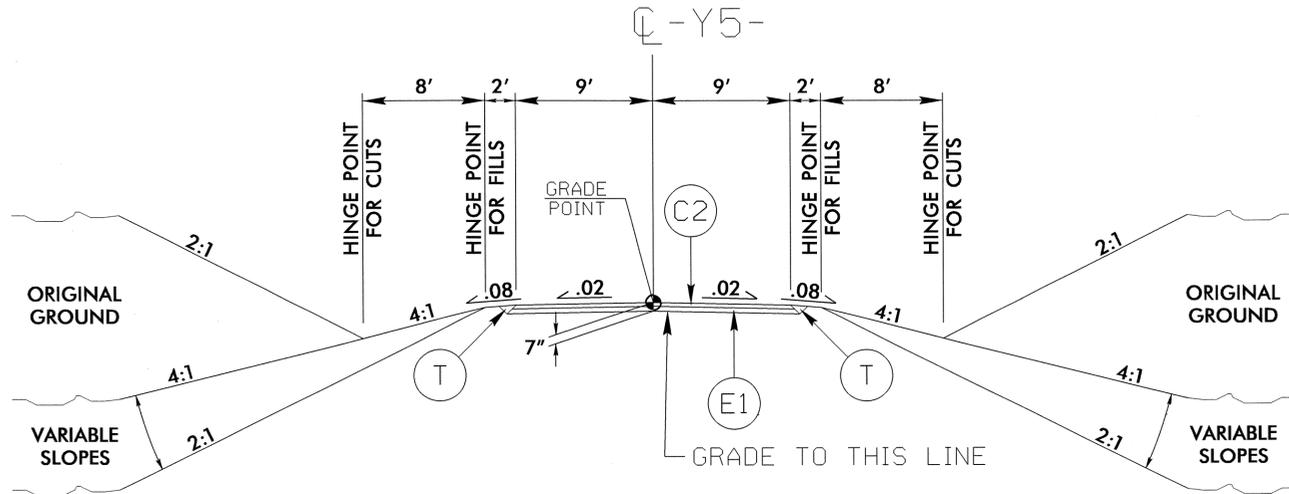
PROJECT REFERENCE NO. R-4047	SHEET NO. 2-H
ROADWAY DESIGN ENGINEER MICHAEL W. LITTLE SEAL 22557	PAVEMENT DESIGN ENGINEER DON-SHI CHEE SEAL 13368 01/23/14

PAVEMENT SCHEDULE	
C2	3" S9.5B
C5	3" S9.5C
D2	4" I19.0C
E1	4" B25.0B
E4	4" B25.0C
R1	2'-6" CONC. CURB & GUTTER
R3	CONC. MED. BARRIER, TYPE T1 OR T2 (SEE SUMMARY SHEET 3-J)
T	EARTH MATERIAL



TYPICAL SECTION NO. 14

USE TYPICAL SECTION NO. 14 FOR:
 -Y4- STA. 16+50.00 TO -Y4- STA. 26+03.12



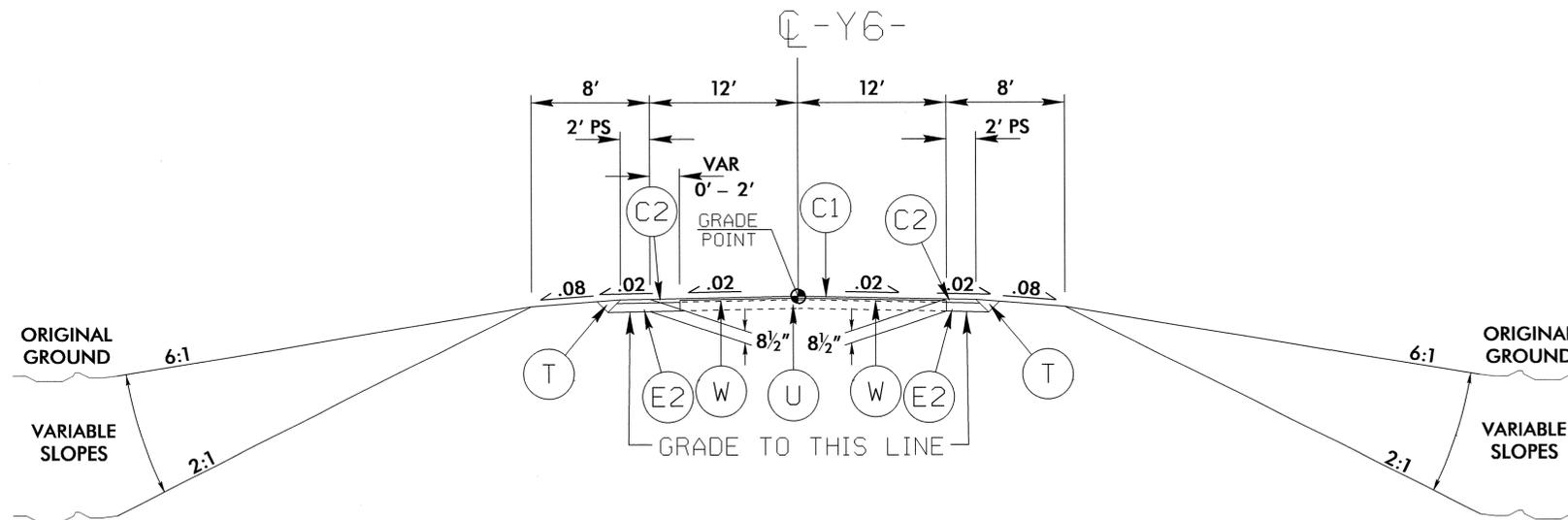
TYPICAL SECTION NO. 15

USE TYPICAL SECTION NO. 15 FOR:
 -Y5- STA. 10+47.62 TO -Y5- STA. 17+55.00

NOTE: TRANSITION FROM T.S. NO. 15 TO EXISTING
 -Y5- STA. 17+55.00 TO -Y5- STA. 17+95.00

21-JAN-2014 11:18
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 \$\$\$\$ UNPUBLISHED \$\$\$

PAVEMENT SCHEDULE	
C1	1½" S9.5B
C2	3" S9.5B
E1	4" B25.0B
E2	5½" B25.0B
R1	2'-6" CONC. CURB & GUTTER
R4	5" MONOLITHIC CONC. ISLAND
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING

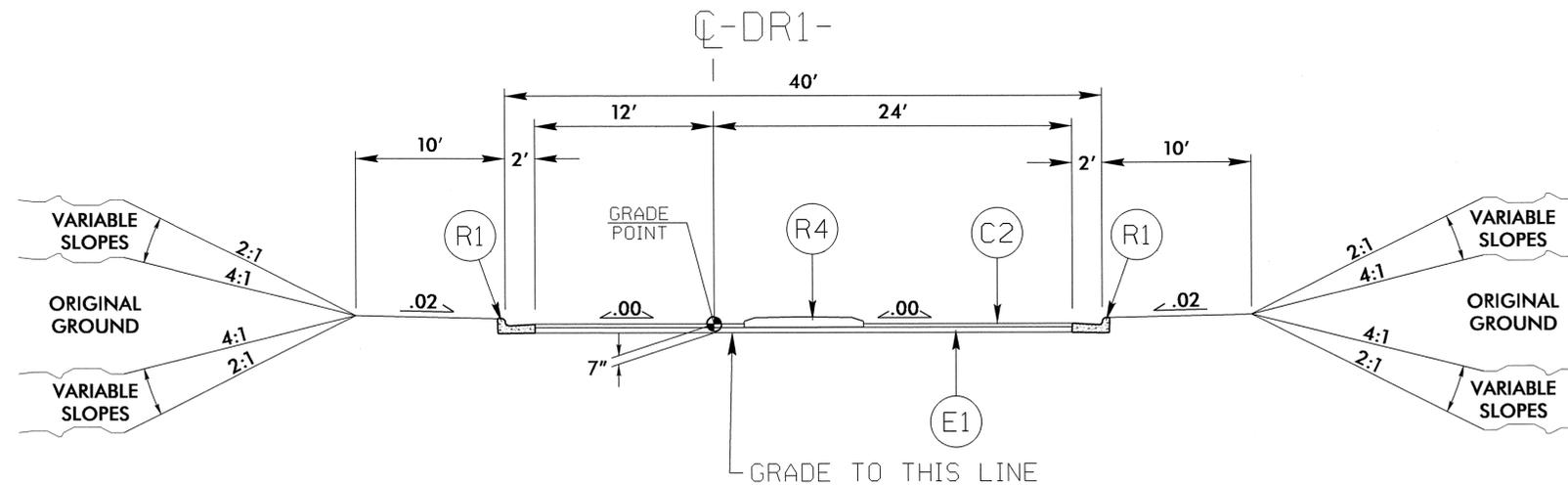


TYPICAL SECTION NO. 16

USE TYPICAL SECTION NO. 16 FOR:

-Y6- STA. 10+24.20 TO -Y6- STA. 12+25.00

NOTES: TIE SHOULDER TO EXISTING GROUND
USE WEDGING DETAIL NO. 3



TYPICAL SECTION NO. 17

USE TYPICAL SECTION NO. 17 FOR:

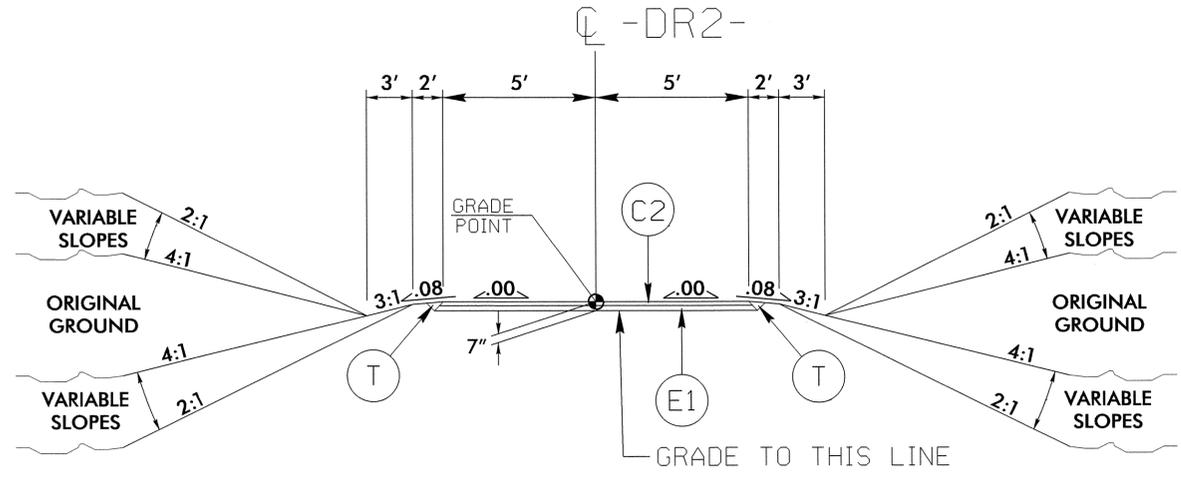
-DRI- STA. 10+24.30 TO -DRI- STA. 10+50.00

NOTE: TRANSITION FROM T.S. NO. 17 TO EXISTING
-DRI- STA. 10+50.00 TO -DRI- STA. 11+25.00

6/2/09

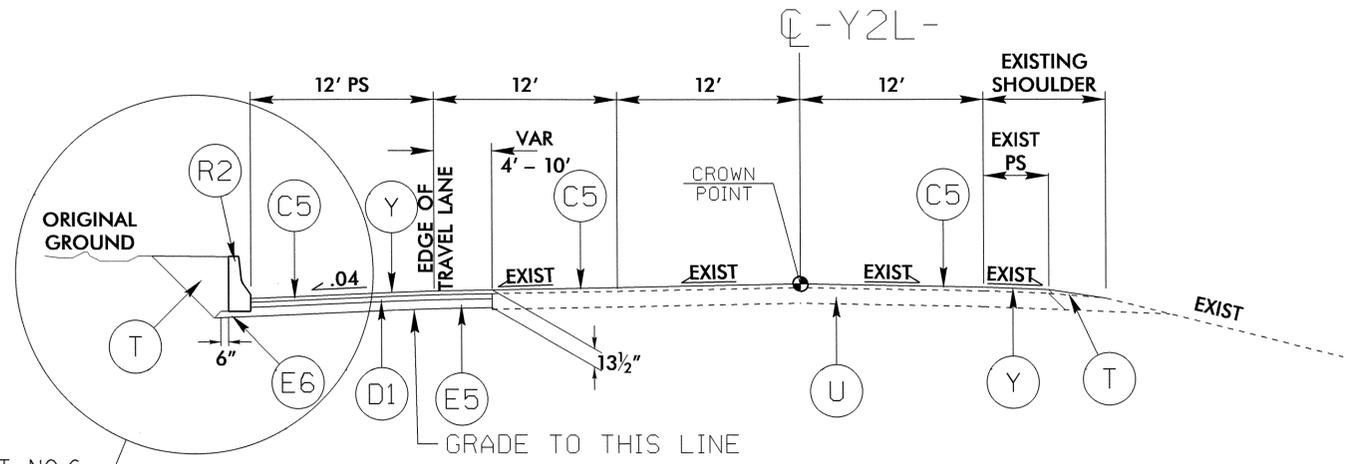
PROJECT REFERENCE NO. R-4047	SHEET NO. 2-J
ROADWAY DESIGN ENGINEER MICHAEL W. LITTLE SEAL 22557 01/23/14	PAVEMENT DESIGN ENGINEER DON-CHI CHEN SEAL 13368 01/23/14

PAVEMENT SCHEDULE	
C2	3" S9.5B
C5	3" S9.5C
D1	3" I19.0C
E1	4" B25.0B
E5	7½" B25.0C
E6	VAR. DEPTH B25.0C
R2	SINGLE FACED CONC. BARRIER
R5	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
Y	MILLED RUMBLE STRIPS



TYPICAL SECTION NO. 18

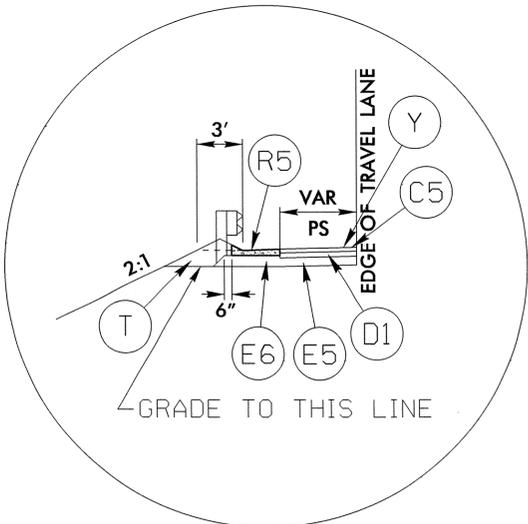
USE TYPICAL SECTION NO. 18 FOR:
-DR2- STA. 10+09.00 TO -DR2- STA. 13+10.00



USE INSET NO. 6

TYPICAL SECTION NO. 19

USE TYPICAL SECTION NO. 19 FOR:
-Y2L- STA. 17+60.00 TO -Y2L- STA. 21+10.00



INSET NO. 6

NOTES: TRANSITION FROM EXISTING TO T.S. NO. 19
-Y2L- STA. 15+00.00 TO -Y2L- STA. 17+60.00
USE MILLING BRIDGE APPROACHES DETAIL NO. 4 (SHEET 2-K)
-Y2L- STA. 14+14.00 +/- (LT.) TO -Y2L- STA. 15+64.00 +/- (LT.)
RESURFACE WITH 3" S9.5C
-Y2L- STA. 14+14.00 +/- (LT.) TO -Y2L- STA. 17+60.00 +/- (LT.)

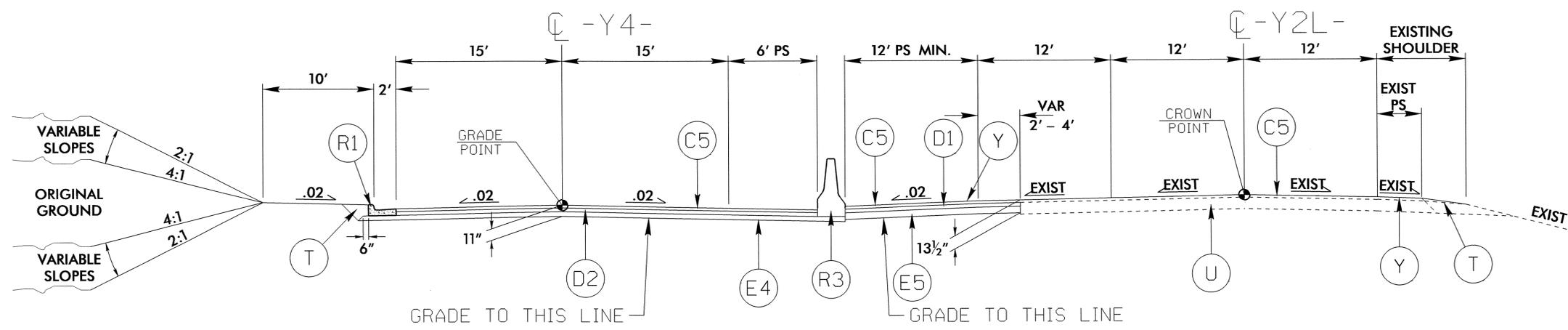
INSET NO. 6
Use with Typical Section No. 19

USE INSET NO. 6 AT THE FOLLOWING LOCATION:
-Y2L- STA. 15+00.00 (LT.) TO -Y2L- STA. 17+25.00 (LT.)

21-JAN-2014 09:37
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6/2/09

PROJECT REFERENCE NO. R-4047	SHEET NO. 2-K
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22557 MICHAEL W. LITTLE	PAVEMENT DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 13368 DAN-CHI CHEN

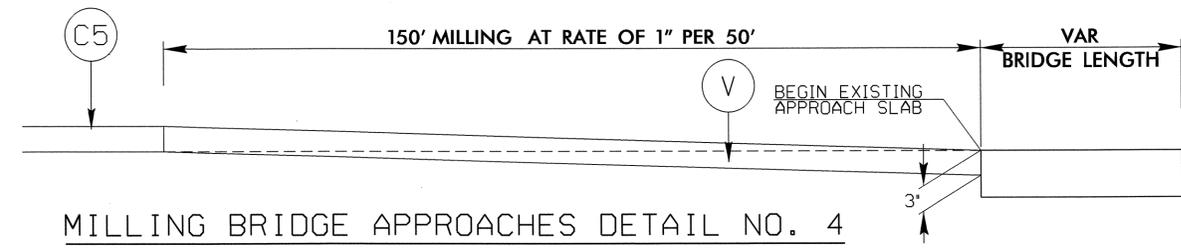


TYPICAL SECTION NO. 20

USE TYPICAL SECTION NO. 20 FOR:

-Y2L- STA. 21+10.00 TO -Y2L- STA. 23+24.32
 -Y4- STA. 26+03.12 TO -Y4- STA. 28+08.60

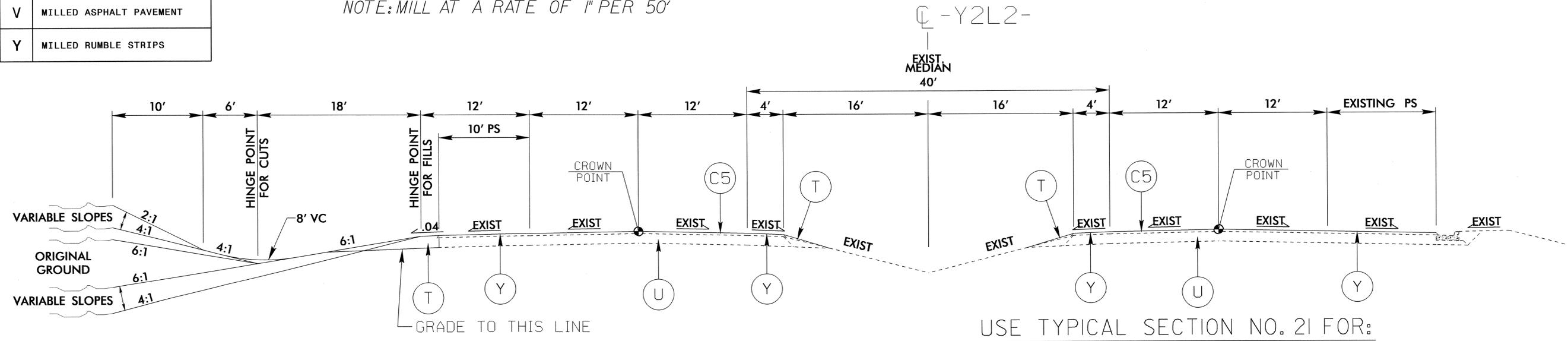
PAVEMENT SCHEDULE	
C5	3" S9.5C
D1	3" I19.0C
D2	4" I19.0C
E4	4" B25.0C
E5	7½" B25.0C
R1	2'-6" CONC. CURB & GUTTER
R3	CONC. MED. BARRIER, TYPE T1 OR T2 (SEE SUMMARY SHEET 3-J)
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLED ASPHALT PAVEMENT
Y	MILLED RUMBLE STRIPS



MILLING BRIDGE APPROACHES DETAIL NO. 4

USE WITH TYPICAL SECTIONS NO.19 & NO.21

NOTE: MILL AT A RATE OF 1" PER 50'



TYPICAL SECTION NO. 21

USE TYPICAL SECTION NO. 21 FOR:

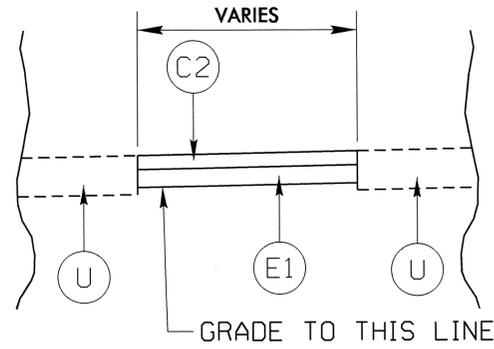
-Y2L2- STA. 10+00.00 TO -Y2L2- STA. 20+33 +/-

NOTES: BEGIN RESURFACING FOR RIGHT SIDE -Y2L2- STA. 12+40.42
 USE MILLING BRIDGE APPROACHES DETAIL NO. 4
 -Y2L2- STA. 18+83.25 +/- TO -Y2L2- STA. 20+33.25 +/-

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6/2/99

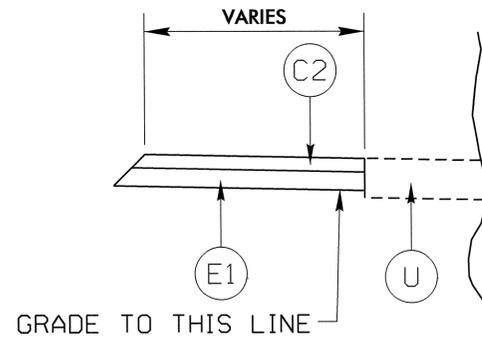
PAVEMENT SCHEDULE	
C2	3" S9.5B
D1	3" I19.0C
E1	4" B25.0B
U	EXISTING PAVEMENT



DETAIL 'A'

USE DETAIL 'A' (TEMPORARY PAVEMENT)
 -LPB- STA. 14+20 +/- TO -LPB- STA. 16+27 +/-

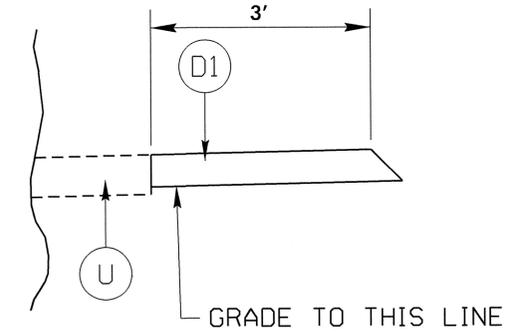
NOTE:
 SEE TRANSPORTATION MANAGEMENT PLANS FOR LOCATION
 AND TEMPORARY PAVEMENT TIES TO EXISTING PAVEMENT



DETAIL 'B'

USE DETAIL 'B' (TEMPORARY PAVEMENT)
 -LPB- STA. 13+63 +/- TO -LPB- STA. 14+10 +/- LT
 -LPB- STA. 16+27 +/- TO -LPB- STA. 17+42 +/- RT
 -L- STA. 47+58 +/- TO -L- STA. 48+83 +/- LT
 -L- STA. 49+06 +/- TO -L- STA. 51+58 +/- LT

NOTE:
 SEE TRANSPORTATION MANAGEMENT PLANS FOR LOCATION
 AND TEMPORARY PAVEMENT TIES TO EXISTING PAVEMENT



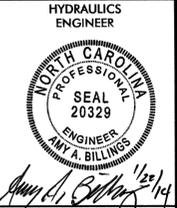
DETAIL 'C'

USE DETAIL 'C' (TEMPORARY PAVEMENT)
 -L- STA. 41+66 +/- TO -L- STA. 43+03 +/- LT

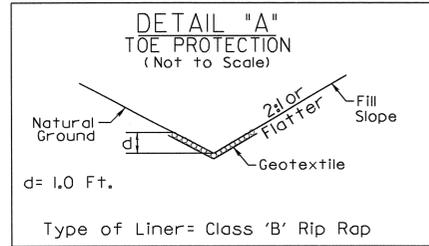
NOTE:
 SEE TRANSPORTATION MANAGEMENT PLANS FOR LOCATION
 AND TEMPORARY PAVEMENT TIES TO EXISTING PAVEMENT

PROJECT REFERENCE NO. R-4047	SHEET NO. 2-L
ROADWAY DESIGN ENGINEER MICHAEL W. LITTLE SEAL 2257 1/22/14	PAVEMENT DESIGN ENGINEER DONZ CHI CHEA SEAL 13368 01/23/14

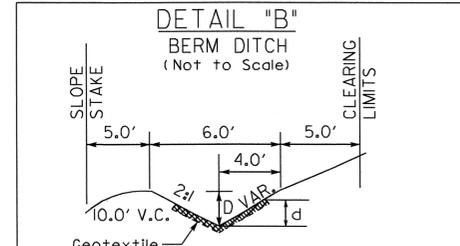
03 JAN-2014 15:19 C:\AN-2014\519\4047_rdy_tsup.dgn



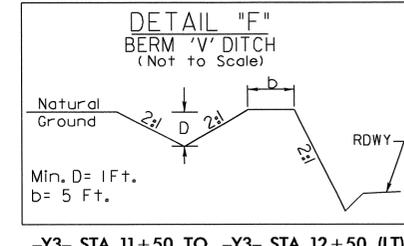
DRAINAGE DETAILS



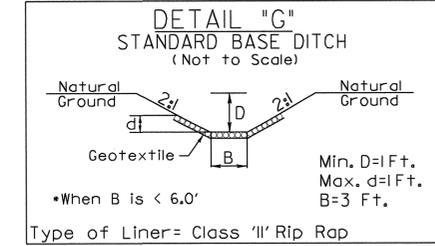
Type of Liner= Class 'B' Rip Rap
 -Y2L- STA. 15+50 TO -Y2L- STA. 17+25 (LT)
 -L- STA. 17+20 TO -L- STA. 21+00 (RT)



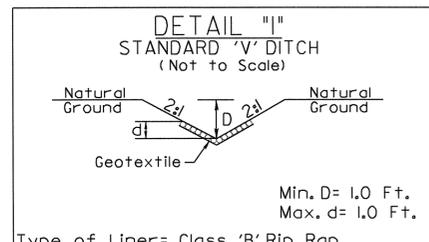
Type of Liner=CLASS 'I'
 Min. D= 1.0 Ft.
 Max. d= 1.0 Ft.
 -Y4- STA. 20+50 TO -Y4- STA. 21+20 (RT)



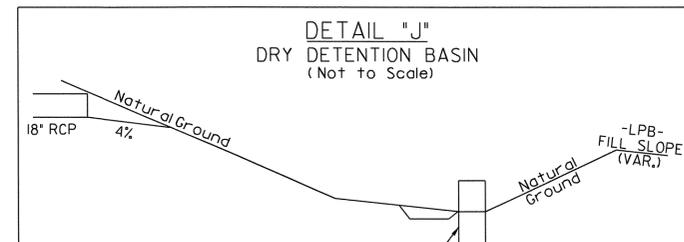
-Y3- STA. 11+50 TO -Y3- STA. 12+50 (LT)
 -L- STA. 35+50 TO -L- STA. 37+50 (RT)
 -L- STA. 38+50 TO -L- STA. 39+50 (RT)



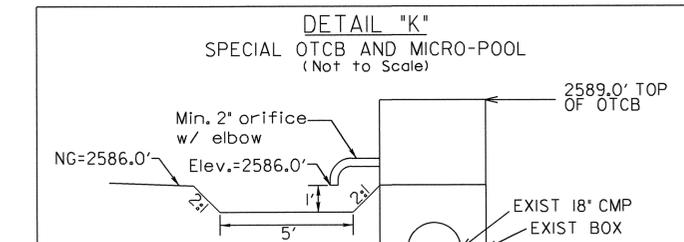
Type of Liner= Class 'II' Rip Rap
 Min. D=1 Ft.
 Max. d=1 Ft.
 B=3 Ft.
 *When B is < 6.0'
 -RPB- STA. 21+00 TO -RPB- STA. 21+50 (LT)



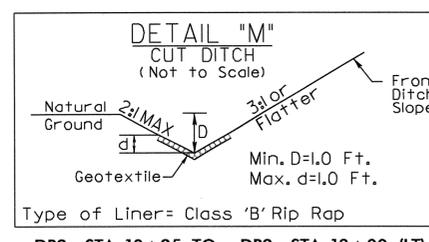
Type of Liner= Class 'B' Rip Rap
 Min. D= 1.0 Ft.
 Max. d= 1.0 Ft.
 -L- STA. 30+50 (LT)



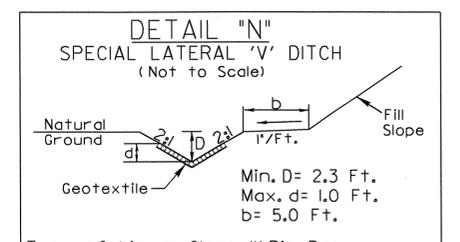
OUTLET STRUCTURE - SEE DETAIL 'K'
 -LPB- STA. 14+00 (RT)



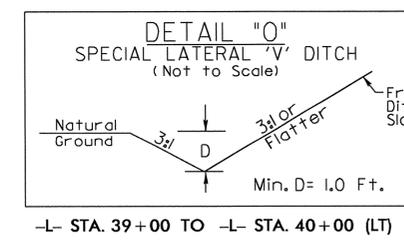
*Adapt detail from OTCB - NCDOT Std. 840.04
 -LPB- STA. 14+00 (RT)



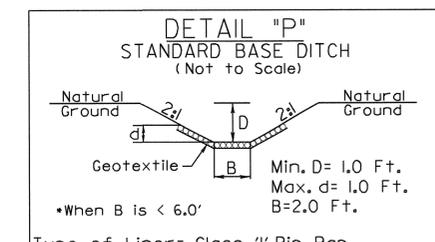
Type of Liner= Class 'B' Rip Rap
 Min. D=1.0 Ft.
 Max. d=1.0 Ft.
 -DR2- STA. 10+25 TO -DR2- STA. 13+00 (LT)
 -DR2- STA. 10+25 TO -DR2- STA. 13+00 (RT)



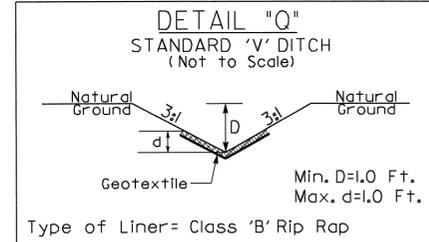
Type of Liner= Class 'I' Rip Rap
 Min. D= 2.3 Ft.
 Max. d= 1.0 Ft.
 b= 5.0 Ft.
 -Y4- STA. 11+00 TO -Y4- STA. 11+38 (RT)



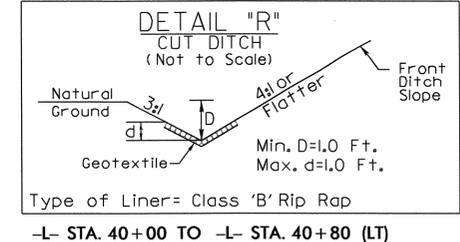
-L- STA. 39+00 TO -L- STA. 40+00 (LT)



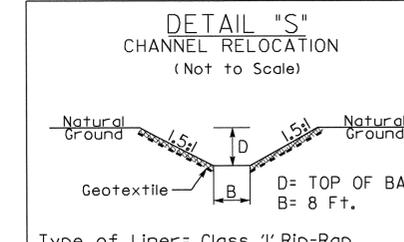
Type of Liner= Class 'I' Rip Rap
 Min. D= 1.0 Ft.
 Max. d= 1.0 Ft.
 B=2.0 Ft.
 *When B is < 6.0'
 -L- STA. 43+50 (LT)



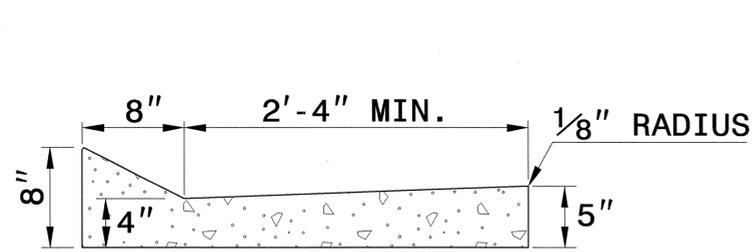
Type of Liner= Class 'B' Rip Rap
 Min. D=1.0 Ft.
 Max. d=1.0 Ft.
 -L- STA. 37+50 (LT)



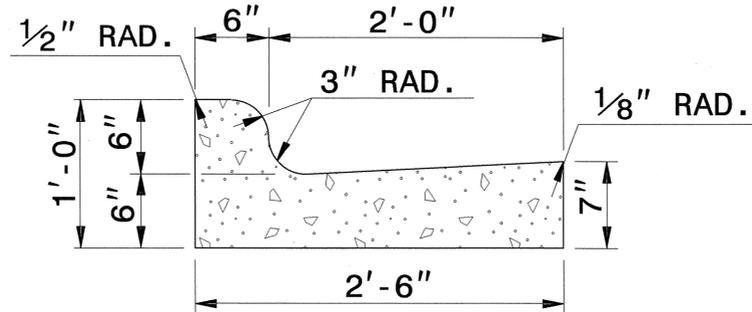
Type of Liner= Class 'B' Rip Rap
 Min. D=1.0 Ft.
 Max. d=1.0 Ft.
 -L- STA. 40+00 TO -L- STA. 40+80 (LT)



Type of Liner= Class 'I' Rip-Rap
 D= TOP OF BANK
 B= 8 Ft.
 -L- STA. 42+17 TO -L- STA. 43+69 (LT)

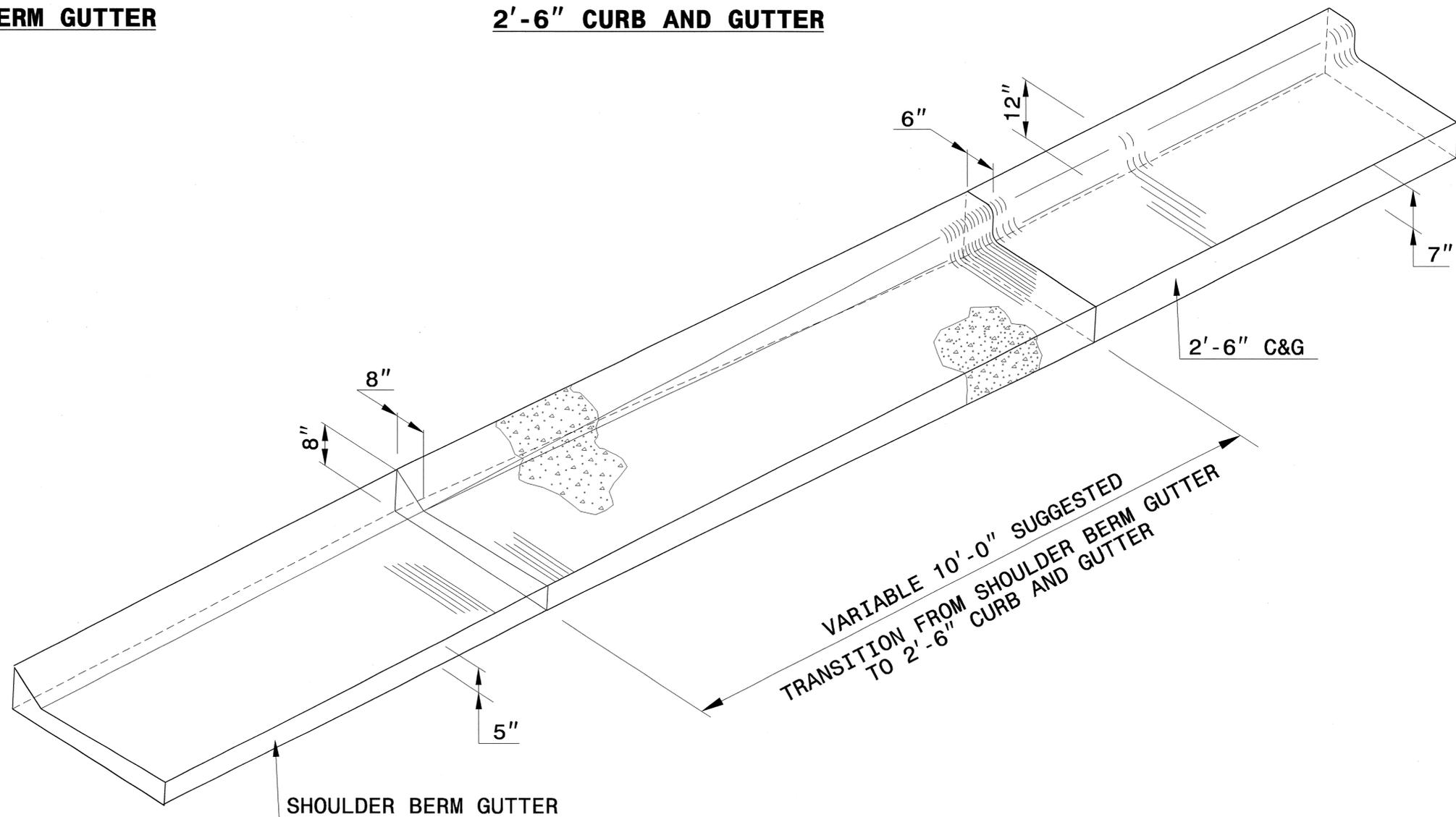


SHOULDER BERM GUTTER



2'-6" CURB AND GUTTER

*NOTE: SEE STD. DWG. 846.01 FOR GENERAL NOTES



SHOULDER BERM GUTTER

ISOMETRIC VIEW OF TRANSITION

VARIABLE 10'-0" SUGGESTED
TRANSITION FROM SHOULDER BERM GUTTER
TO 2'-6" CURB AND GUTTER

2'-6" C&G



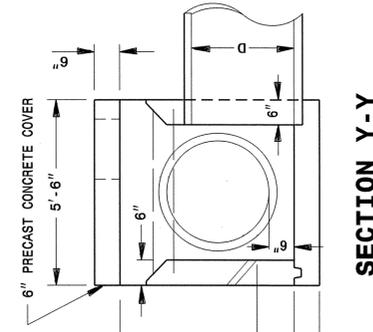
CONTRACT STANDARDS AND DEVELOPMENT UNIT	
Office 919-707-6950 FAX 919-250-4119	
DETAIL OF SHOULDER BERM GUTTER TO 2'-6" CURB & GUTTER TRANSITION SECTION	
ORIGINAL BY: E.E. WARD	DATE: 5-29-02
MODIFIED BY:	DATE:
CHECKED BY: <i>E.E. Ward</i>	DATE: 10/30/13
FILE SPEC.: /usr/details/stand/cgtransit.dgn	

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

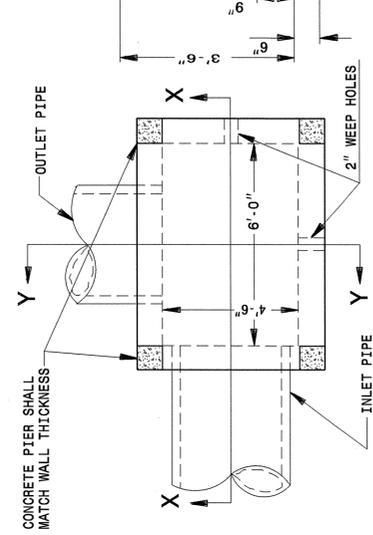
ENGLISH DETAIL DRAWING FOR
CONCRETE CATCH BASIN
(3 OR 4 SIDE OPEN THROAT)

SHEET 1 OF 2
840D04

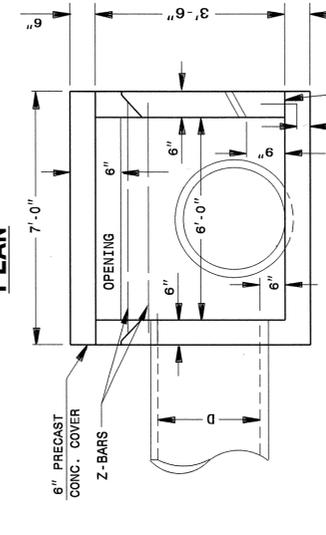
GENERAL NOTES:
ALL CATCH BASINS OVER 3'-6" IN DEPTH TO BE PROVIDED WITH STEPS 12" ON CENTERS. STEPS SHALL BE IN ACCORDANCE WITH STD. 840.66.
ALL EXPOSED CORNERS TO BE CHAMFERED 1".
CLASS "B" CONCRETE TO BE USED THROUGHOUT.
2" PIPE WEEPHOLES TO BE PLACED AS DIRECTED BY ENGINEER.
THE 6" OPENING SHOWN MAY BE INCREASED TO 8" MAXIMUM IF DEEMED TO BE NECESSARY BY THE ENGINEER.
OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #5 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
FORMS ARE TO BE USED FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
IF REINFORCED CONCRETE PIPE IS SET IN BASE SLAB OF BOX, ADD TO BASE AS SHOWN ON STD. DWG. 840.00.
A STONE DRAIN CONSISTING OF 1 CUBIC FOOT OF NO. 78M STONE CONTAINED IN A BAG OF POROUS FABRIC SHALL BE PLACED AT EACH WEEP HOLE.
FOR 8" IN HEIGHT OR LESS USE 6" WALLS AND BOTTOM SLAB.
OVER 8" IN HEIGHT USE 8" WALLS AND BOTTOM SLAB. QUANTITIES TO BE ADJUSTED ACCORDINGLY.



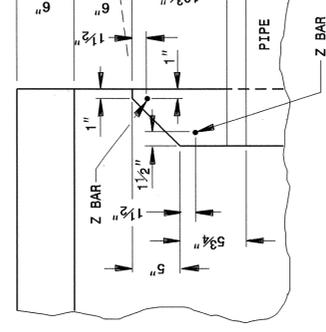
SECTION Y-Y



PLAN

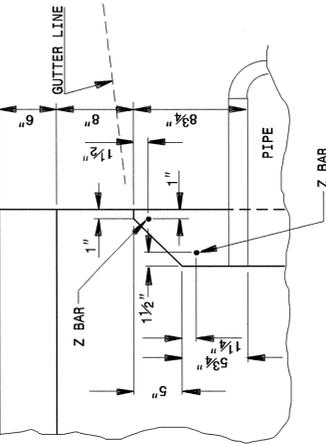


SECTION X-X



PART SECTION Y-Y

SHOWING METHOD OF CONSTRUCTION FOR 6" OPENING



PART SECTION Y-Y

SHOWING METHOD OF CONSTRUCTION IF INCREASED OPENING IS USED

BILL OF MATERIALS

REINFORCING STEEL		MASONRY			
CODE	SIZE	QTY.	LENGTH	CONCRETE CLASS "B"	FT ³
X	#4	13	5'-2"	TOTAL	2.66
Y	#4	9	6'-8"		40.08
Z1	#4	4	6'-8"		17.81
Z2	#4	4	5'-2"		13.81
TOTAL					116.57

NO DEDUCTIONS HAVE BEEN MADE FOR PIPES OR MANHOLES

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

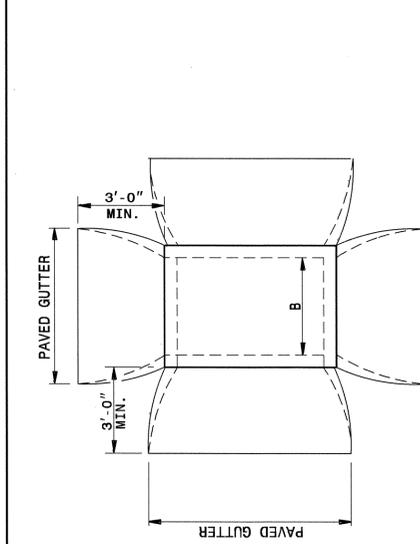
ENGLISH DETAIL DRAWING FOR
CONCRETE CATCH BASIN
(3 OR 4 SIDE OPEN THROAT)

SHEET 1 OF 2
840D04

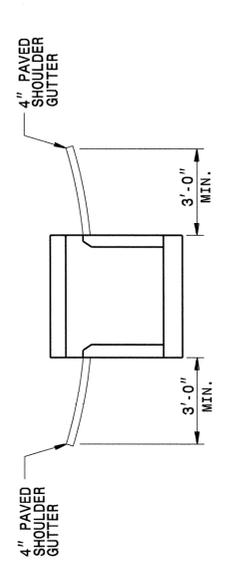
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
CONCRETE CATCH BASIN
(3 OR 4 SIDE OPEN THROAT)

SHEET 2 OF 2
840D04

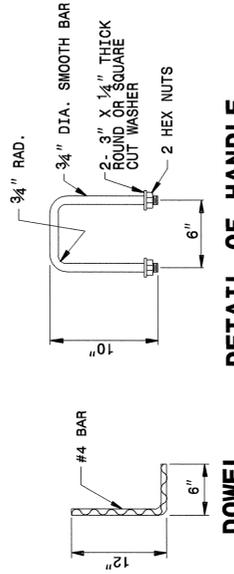


PLAN OF CATCH BASIN IN MEDIAN STRIP

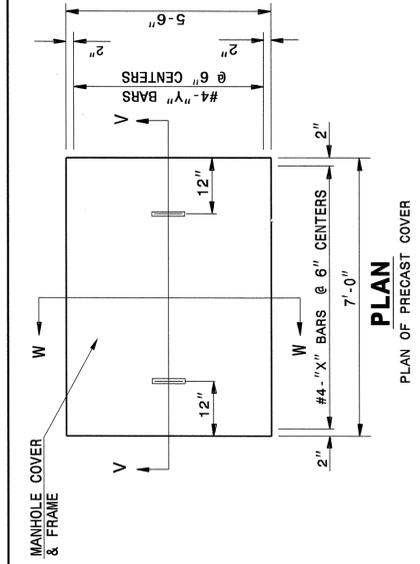


SECTION OF CATCH BASIN MEDIAN STRIP

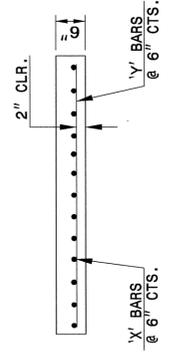
DETAIL SHOWING METHOD OF PLACING CATCH BASIN AND PAVED SHOULDER GUTTER



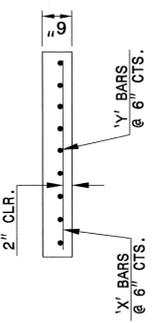
DETAIL OF HANDLE



PLAN OF PRECAST COVER

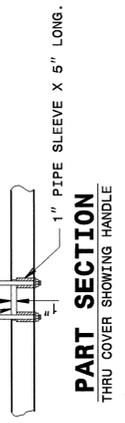


SECTION V-V



SECTION W-W

PART WHERE HANDLE IS LOCATED SHALL BE COUNTERSUNK 1" AND HANDLE SHALL BE FREE TO MOVE UP AND DOWN.



PART SECTION THRU COVER SHOWING HANDLE

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

ENGLISH DETAIL DRAWING FOR
CONCRETE CATCH BASIN
(3 OR 4 SIDE OPEN THROAT)

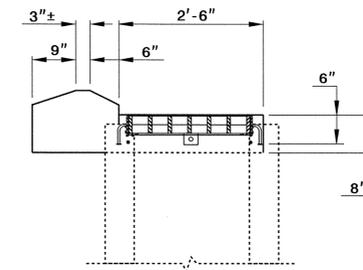
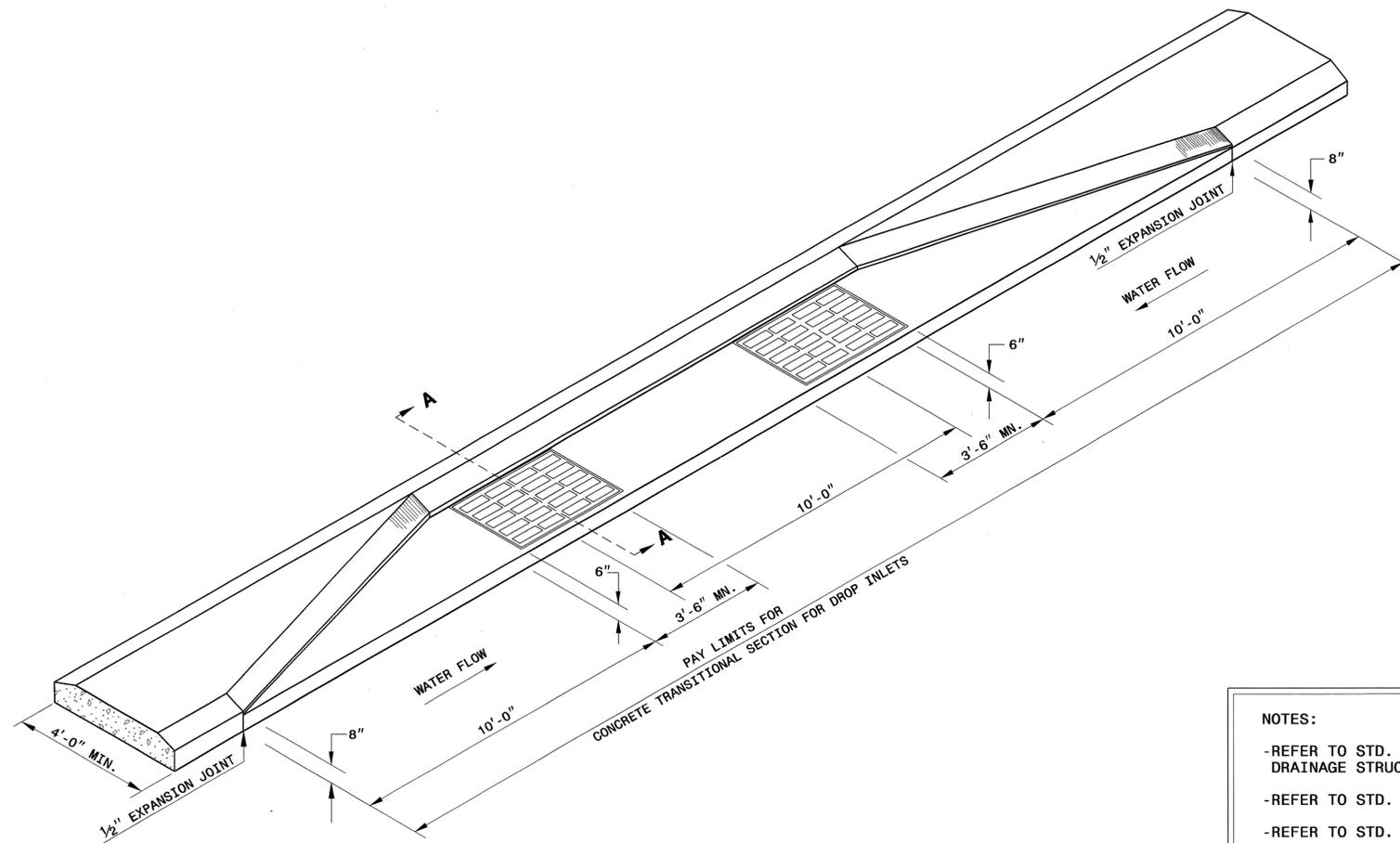
SHEET 2 OF 2
840D04

CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE PLATE FOR TITLE

ORIGINAL BY: E.E. WARD DATE: 8-21-03
MODIFIED BY: E.E. WARD DATE: 12/5/13
CHECKED BY: E.E. WARD DATE: 12/5/13
FILE SPEC.: \\ward\detail\metric\stand\840d04.dgn





SECTION - AA

NOTES:

- REFER TO STD. NO. 840.36 FOR TRAFFIC BEARING DRAINAGE STRUCTURE.
- REFER TO STD. NO. 840.37 FOR STEEL GRATE AND FRAME.
- REFER TO STD. NO. 852.01 FOR CONCRETE ISLAND.



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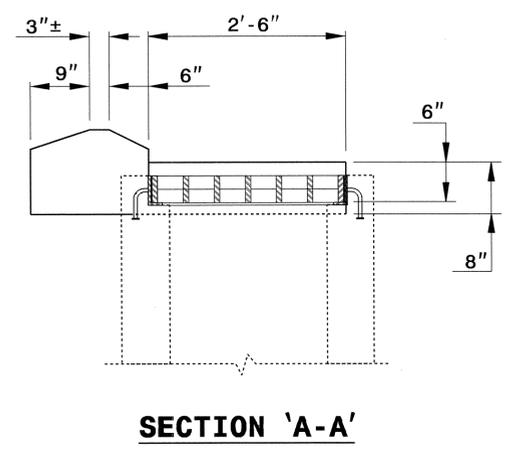
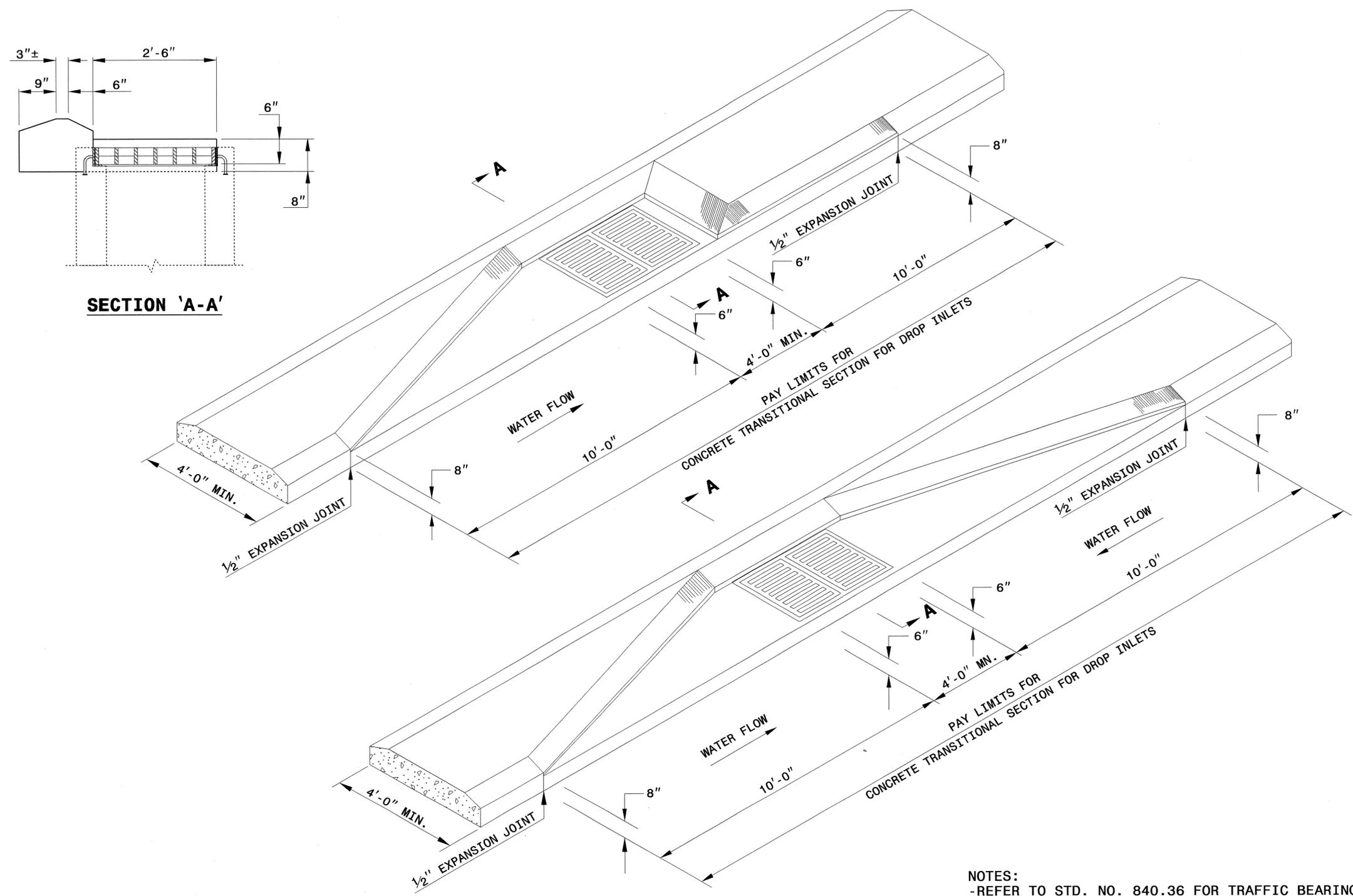
**METHOD FOR PLACEMENT
FOR DUAL DROP INLETS
IN CONCRETE ISLAND**

ORIGINAL BY: rnbritt DATE: 08-02-12
MODIFIED BY: rnbritt DATE: 12-16-13
CHECKED BY: *[Signature]* DATE: 12/30/12
FILE SPEC.: details/rnbritt/english/hydro/double di in island.dgn

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

ENGLISH DETAIL DRAWING FOR
**METHOD FOR PLACEMENT OF
 DROP INLETS IN CONCRETE ISLANDS**

SHEET 1 OF 1
852D06



NOTES:
 -REFER TO STD. NO. 840.36 FOR TRAFFIC BEARING DRAINAGE STRUCTURE.
 -REFER TO STD. NO. 840.37 FOR STEEL GRATE AND FRAME.

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

ENGLISH DETAIL DRAWING FOR
**METHOD FOR PLACEMENT OF
 DROP INLETS IN CONCRETE ISLANDS**

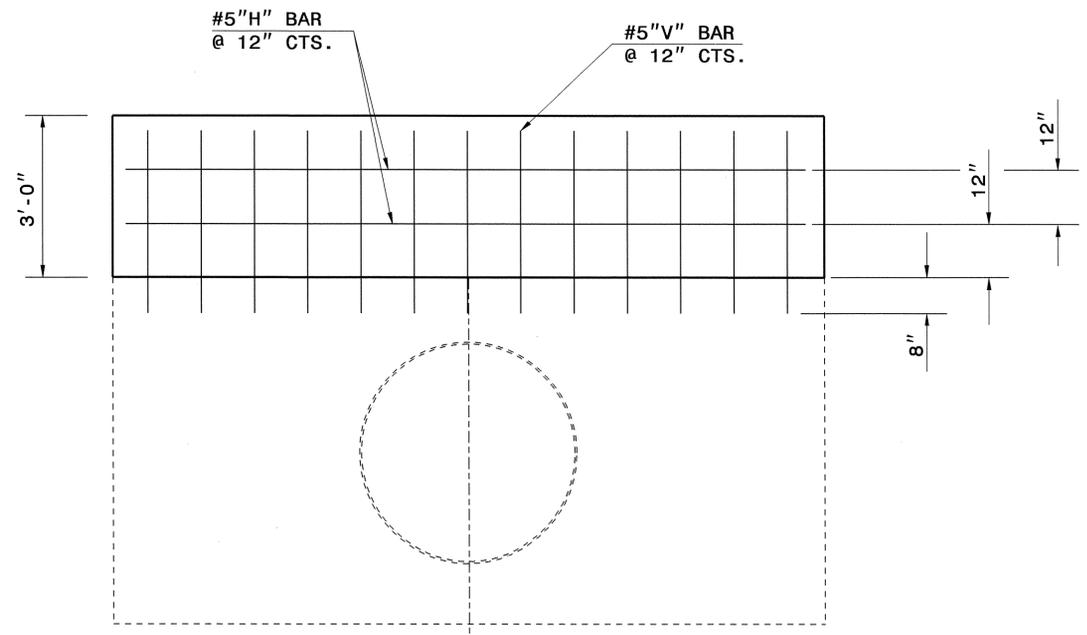
SHEET 1 OF 1
852D06



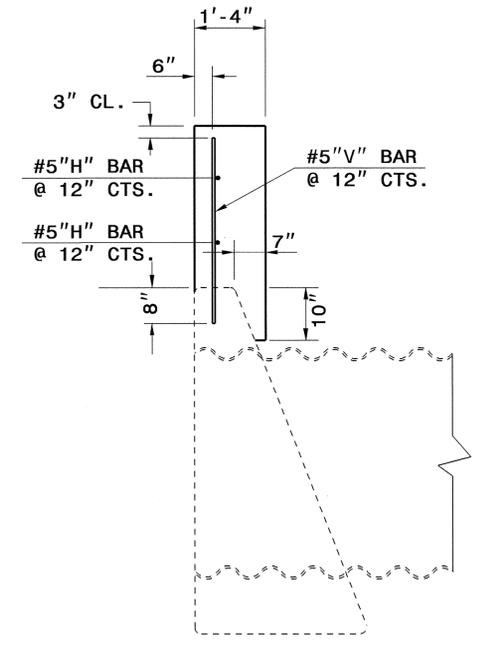
CONTRACT STANDARDS AND DEVELOPMENT UNIT
 Office 919-707-6950 FAX 919-250-4119

SEE TITLE PLATE

ORIGINAL BY: KKEMPF	DATE: 8/2/10
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.: KKEMPF\ENGLISH\852D0601.DGN	



ELEVATION



SECTION A-A

QUANTITIES				
BAR	NO.	SIZE	LENGTH	WEIGHT
H	2	#5	13'-0"	27.1
V	15	#5	3'-5"	53.3
TOTAL REINF. STEEL (lbs.)				80.4
CLASS "B" CONC. (cu. yds.)				2.2

- NOTES:**
1. VERIFY DIMENSIONS OF EXISTING ENDWALL.
 2. DRILL A MINIMUM 1 1/4" HOLE FOR PLACEMENT OF #5 BARS IN EXISTING ENDWALL.
 3. USE AN APPROVED EPOXY TO SECURE #5 BARS INTO TOP OF EXISTING WALL.
 4. KEEP A MINIMUM OF 2" OF COVER FOR ALL REBAR.
 5. QUANTITIES MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER.

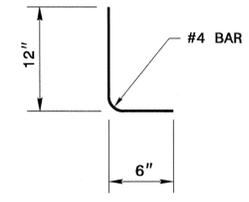
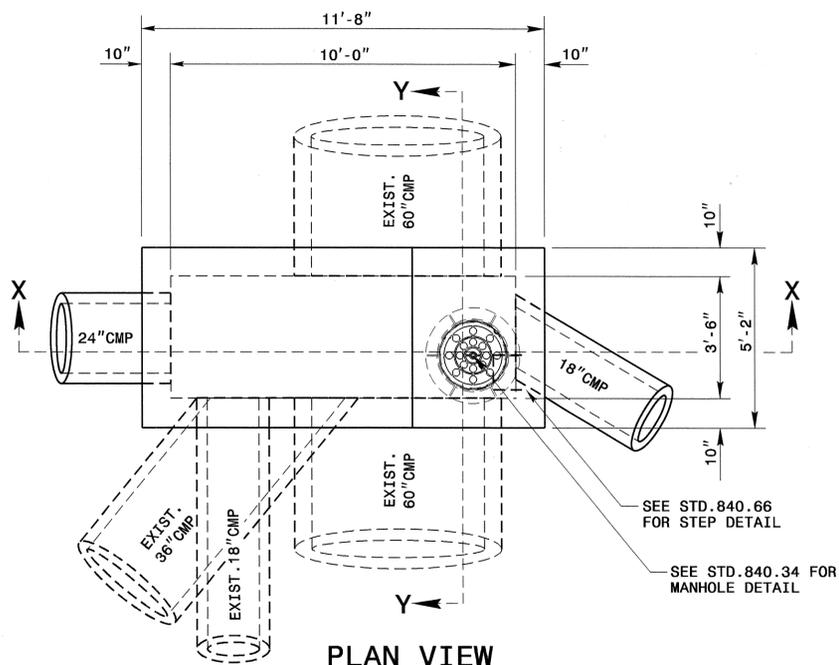


CONTRACT STANDARDS AND DEVELOPMENT UNIT
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ENDWALL EXTENSION

ORIGINAL BY: K. Kempf DATE: 5-24-13
 MODIFIED BY: [Signature] DATE: [Blank]
 CHECKED BY: [Signature] DATE: 3/29/13
 FILE SPEC.: details\kkempf\838d102extension.dgn

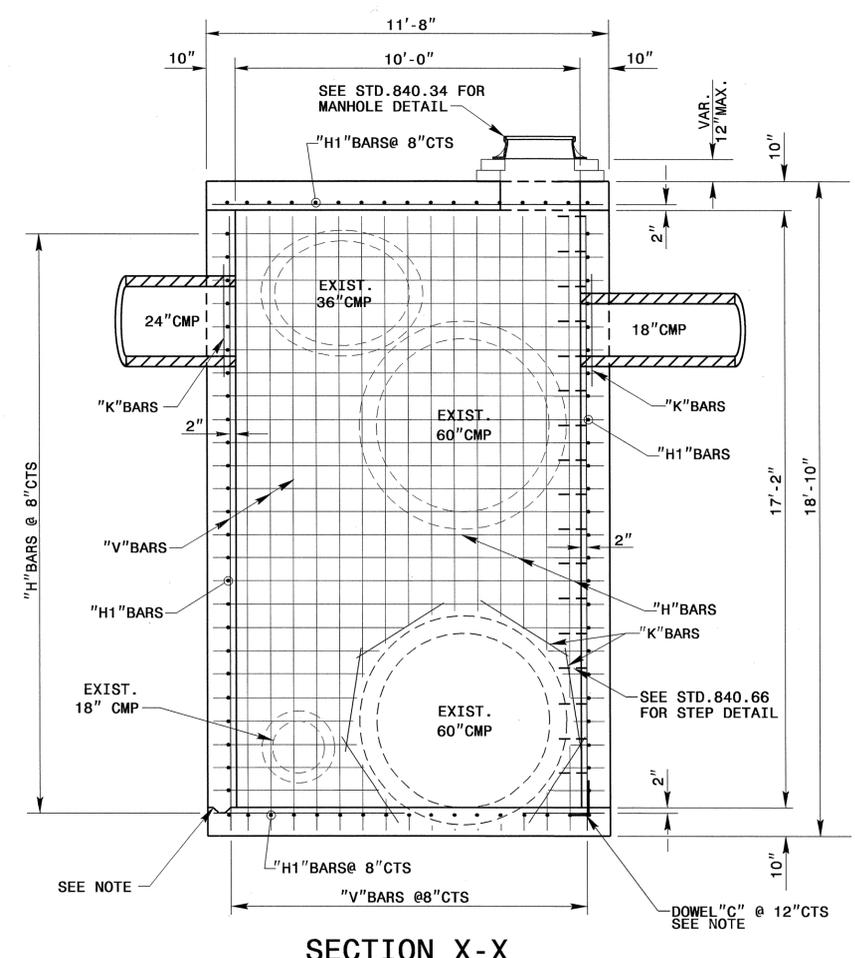
C:\MAY_2013_1433\contracts\Special Details\kempf\english\838d102extension.dgn
 \$\$\$USERNAME\$\$\$



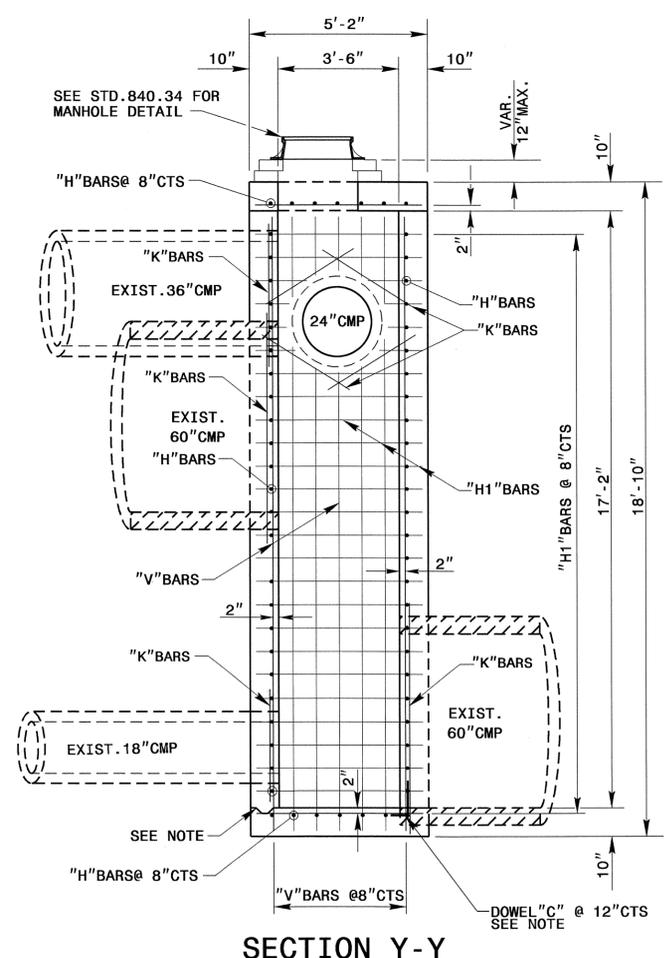
DOWEL "C"

GENERAL NOTES:

- THE BASE SLAB TO BE CONSTRUCTED BY FORMING.
- SEE STD. DWG. 840.00 FOR CONSTRUCTION OF BASE SLAB
- CLASS 'B' CONCRETE TO BE USED THROUGHOUT.
- CONSTRUCTION OPTIONS: MONOLITHIC POUR; 2" KEYWAY OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
- REINFORCING STEEL TO BE CUT, BENT OR RELOCATED TO POSITION PIPE AS DIRECTED BY THE ENGINEER.
- ALL EXPOSED CORNERS TO BE CHAMFERED 1".
- SEE STD. DRAWING 840.34 FOR CONSTRUCTION OF RISER AND MANHOLE.
- JUNCTION BOXES OVER 3'-6" IN DEPTH WITH MANHOLES WILL REQUIRE STEPS TO BE PLACED ON 12" CTRS. REFERENCE STD. NO. 840.66.
- MAINTAIN 2" MINIMUM CONCRETE COVERAGE ON ALL STEEL.



SECTION X-X



SECTION Y-Y

BILL OF MATERIAL					
CODE	BAR#	LENGTH	LBS/FT.	QTY.	LBS
H	4	11'-4"	0.668	64	485
H1	4	4'-10"	0.668	84	272
V	4	17'-8"	0.668	44	520
K	4	3'-0"	0.668	20	40
TOTAL WEIGHT STEEL					1317
MASONRY QUANTITIES					
CLASS "B" CONCRETE					19.8 CU.YDS.
PIPE DEDUCTIONS					
2-18" CMP					-0.1 CU.YD.
1-24" CMP					-0.1 CU.YD.
1-36" CMP					-0.3 CU.YD.
2-60" CMP					-1.2 CU.YD.
TOTAL CLASS "B" CONCRETE					18.1 CU.YDS.

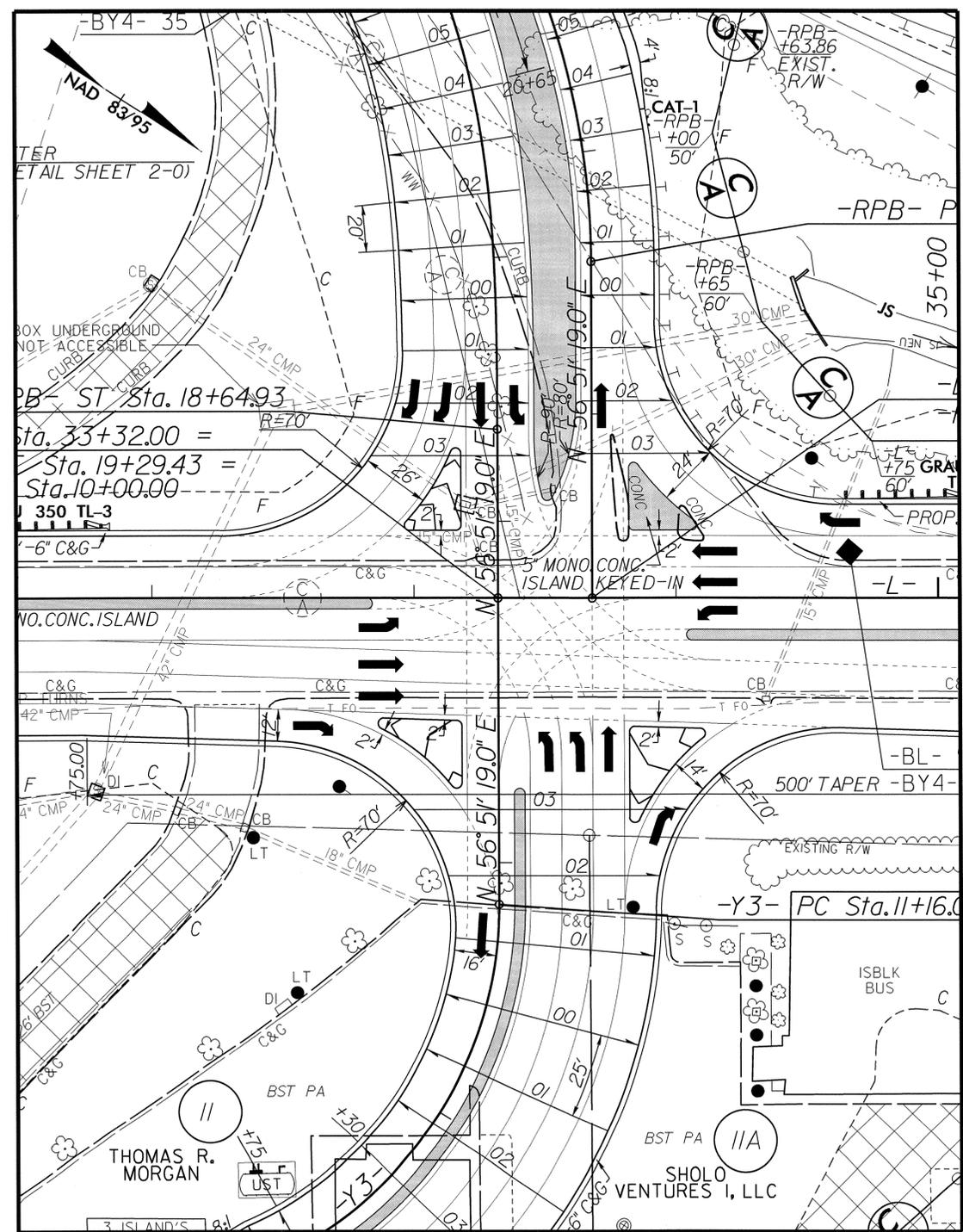
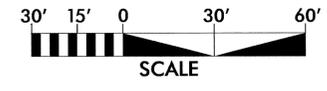
** 0.30 CU.YD. PER FOOT OF RISER HEIGHT.

STRUCTURE #0445
CONTRACT STANDARDS & DEVELOPMENT UNIT
STANDARDS AND SPECIAL DESIGN
 Office 919-707-6900 FAX 919-250-4119

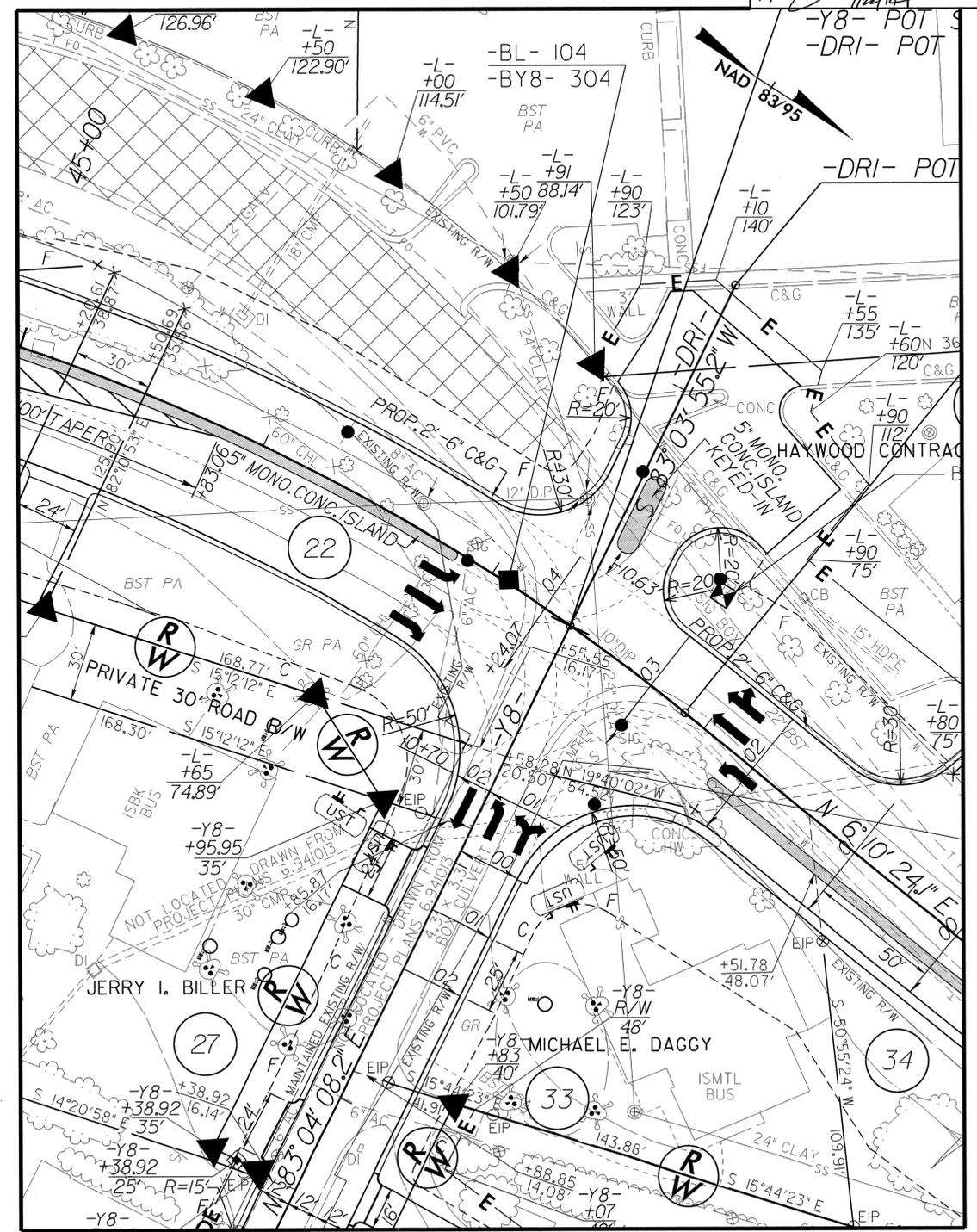


SPECIAL JUNCTION BOX DETAIL

ORIGINAL BY: mbritt DATE: 01/08/14
 MODIFIED BY: mbritt DATE: 11/13/14
 CHECKED BY: mbritt DATE: 11/13/14
 FILE SPEC.: g:\details\mbritt/english/rural/r-4047_jb.dgn



-L-, -Y3-, -RPB- & -LPB- INTERSECTION DETAIL



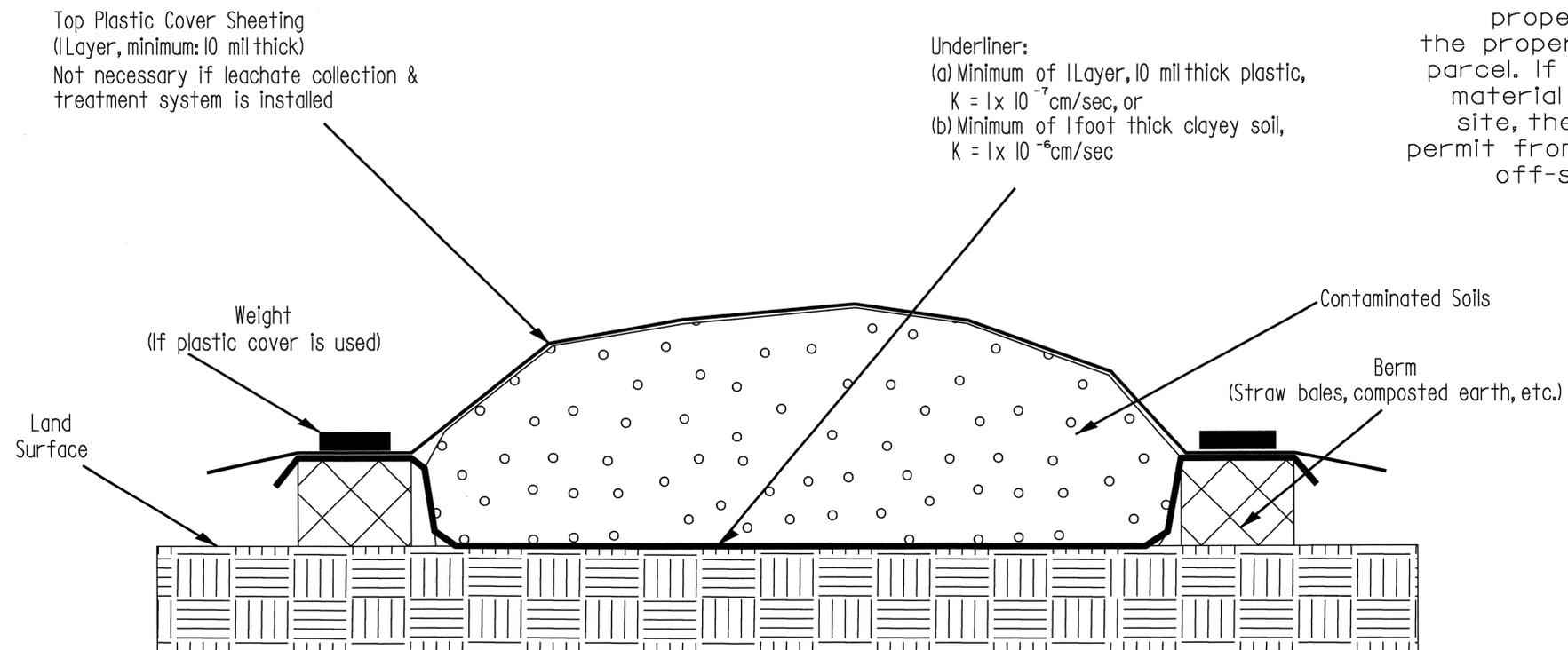
-L-, -Y8- & -DRI- INTERSECTION DETAIL

5/14/99
 15-JAN-2014 08:46 R:\15-JAN-2014_08:46_rdu_detail_2.v.dgn

PROJECT REFERENCE NO.	SHEET
R-4047	2-X

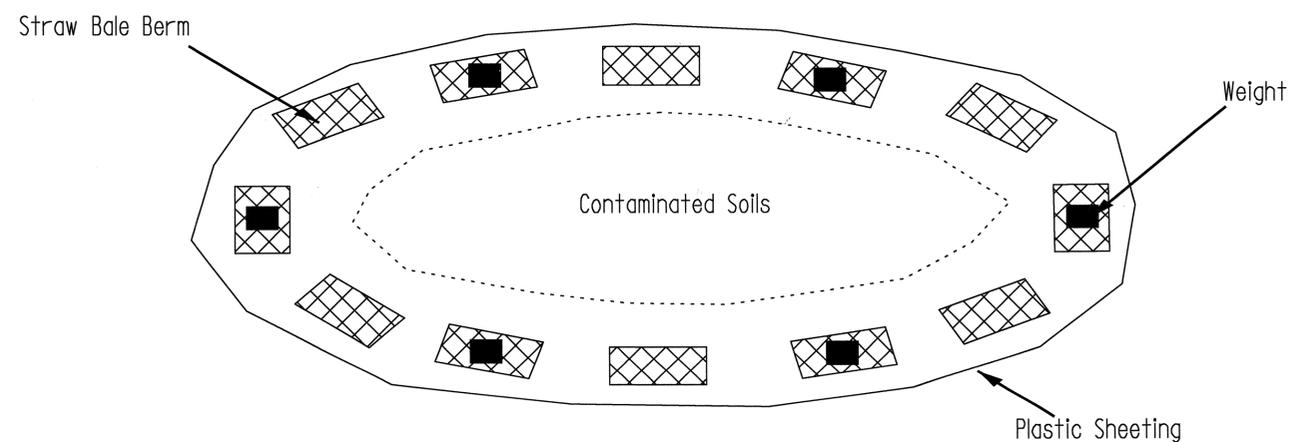
Detail for Temporary Containment of Contaminated Soil

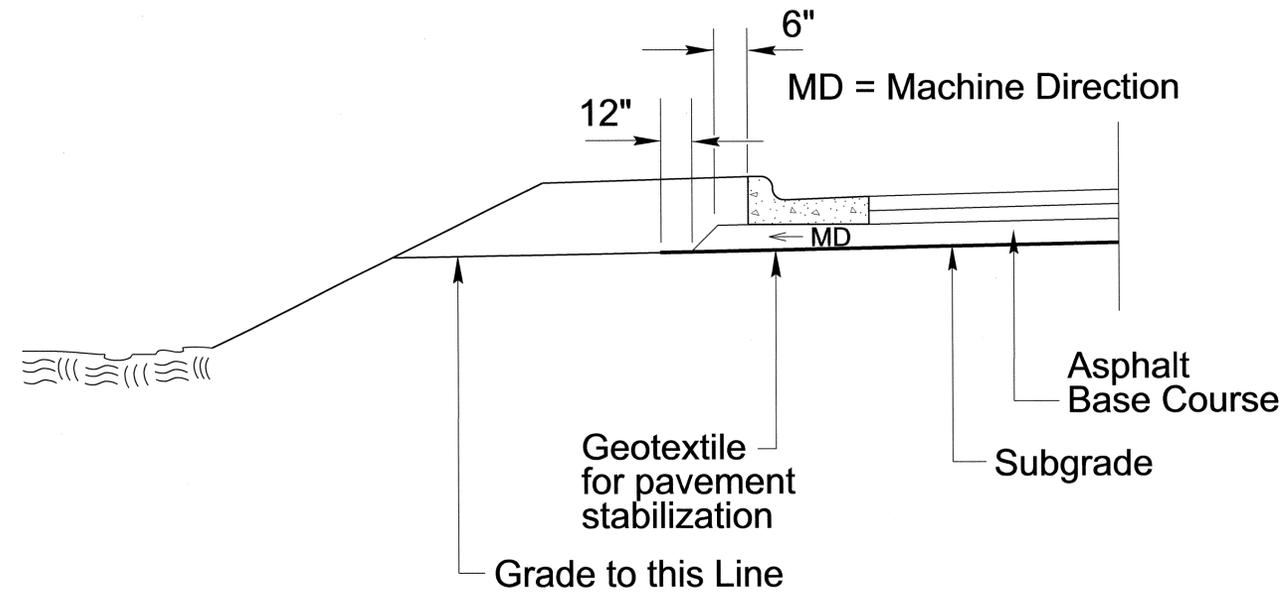
Cross-Section View



NOTE:
The Contractor shall stockpile all contaminated soil excavated from a property in a location within the property boundaries of the source parcel. If the volume of contaminated material exceeds available space on site, the Contractor shall obtain a permit from the NCDENR UST Section for off-site temporary storage.

Map View





DETAIL FOR PAVEMENT STABILIZATION
 NOTE: TO BE USED AT THE DISCRETION OF THE ENGINEER

6/2/99

28 JAN 2014 11:23 AM
 RD266401.r4047_rdy_tup.dgn

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

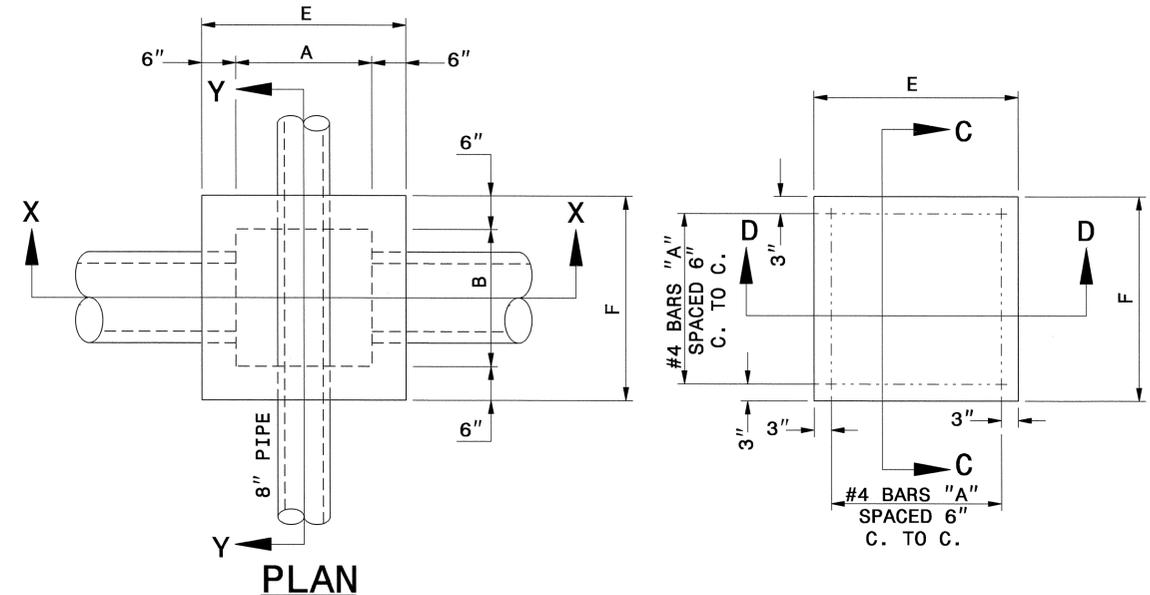
ENGLISH DETAIL DRAWING FOR
**CONCRETE JUNCTION BOX WITH
8" PIPE PASSING THRU
12" THRU 48" PIPE**

SHEET 1 OF 1
840D31

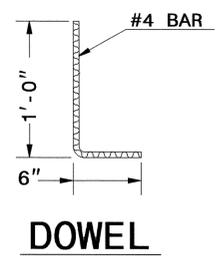
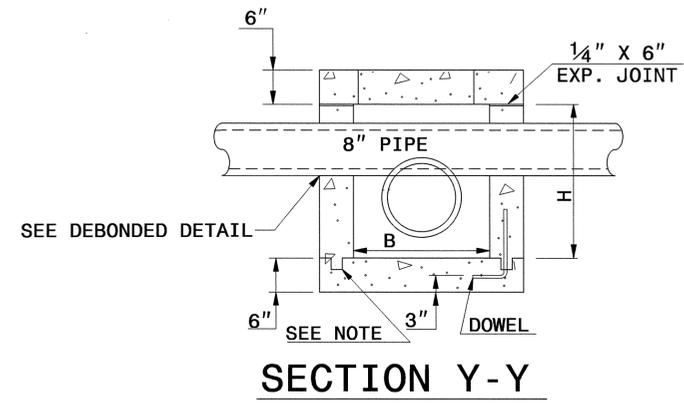
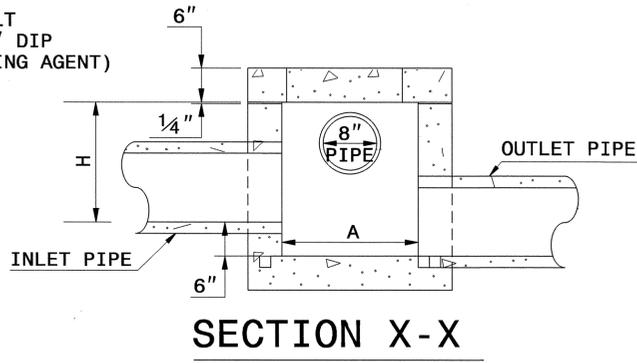
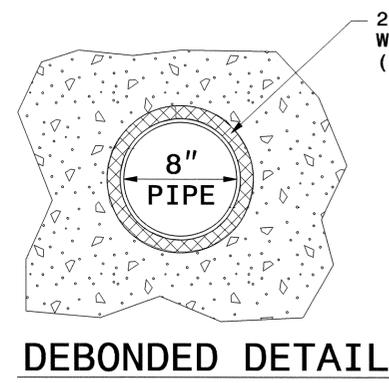
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
**CONCRETE JUNCTION BOX WITH
8" PIPE PASSING THRU
12" THRU 48" PIPE**

SHEET 1 OF 1
840D31



GENERAL NOTES:
USE CLASS "B" CONCRETE THROUGHOUT.
OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
USE FORMS TO CONSTRUCT THE BOTTOM SLAB.
IF REINFORCED CONCRETE PIPE IS SET IN BASE SLAB OF BOX, ADD TO BASE AS SHOWN ON STANDARD NO. 840.00.
REFER TO R.S.D.N. 840.31 FOR PLACEMENT OF MANHOLE COVER IN JUNCTION BOX.



DIMENSIONS AND QUANTITIES FOR CONCRETE JUNCTION BOXES														
DIMENSIONS OF BOX AND PIPE				REINFORCEMENT BARS "A"		COVER DIMENSIONS		CUBIC YARDS IN BOX			TOTAL QUANTITIES BOX AND COVER		DEDUCTIONS FOR ONE PIPE CU.YDS.	
PIPE	SPAN	WIDTH	HEIGHT	NO.	LENGTH	E	F	COVER	FLOOR	WALL/ FT. OF HT.	LBS. REINF	CU. YDS. MIN. "H"	C.S.	R.C.
12"	2'-0"	2'-0"	2'-3"	12	2'-9"	3'-0"	3'-0"	0.167	0.167	0.185	22	0.750	0.015	0.024
15"	2'-3"	2'-3"	2'-6"	12	3'-0"	3'-3"	3'-3"	0.196	0.196	0.204	24	0.902	0.023	0.036
18"	2'-6"	2'-6"	2'-9"	14	3'-3"	3'-6"	3'-6"	0.227	0.227	0.222	30	1.065	0.033	0.049
24"	3'-0"	3'-0"	3'-3"	16	3'-9"	4'-0"	4'-0"	0.296	0.296	0.259	40	1.434	0.059	0.085
30"	3'-6"	3'-6"	3'-9"	18	4'-3"	4'-6"	4'-6"	0.375	0.375	0.296	51	1.860	0.092	0.127
36"	4'-0"	4'-0"	4'-3"	20	4'-9"	5'-0"	5'-0"	0.463	0.463	0.333	64	2.341	0.132	0.178
42"	4'-6"	4'-6"	4'-9"	22	5'-3"	5'-6"	5'-6"	0.560	0.560	0.370	77	2.878	0.180	0.243
48"	5'-0"	5'-0"	5'-3"	24	5'-9"	6'-0"	6'-0"	0.667	0.667	0.407	92	3.471	0.235	0.317



CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE PLATE FOR TITLE

ORIGINAL BY: E.E. WARD DATE: 3-12-98
MODIFIED BY: DATE:
CHECKED BY: DATE: 3/3/14
FILE SPEC.: usf/details/stand/conflict_box.dgn

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

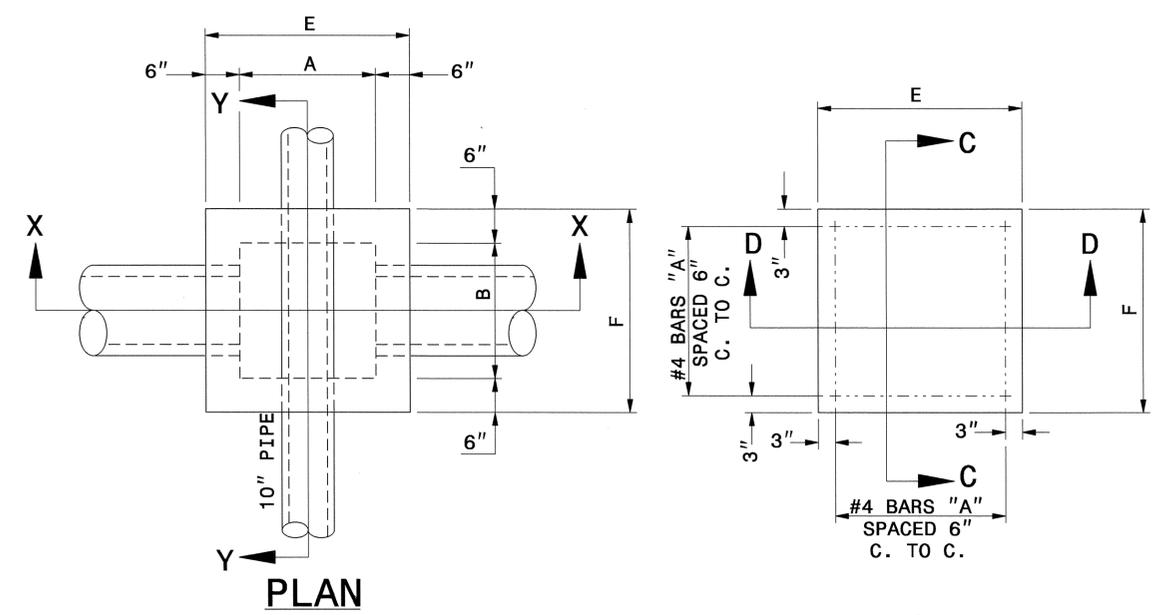
ENGLISH DETAIL DRAWING FOR
**CONCRETE JUNCTION BOX WITH
10" PIPE PASSING THRU
12" THRU 48" PIPE**

SHEET 1 OF 1
840D31

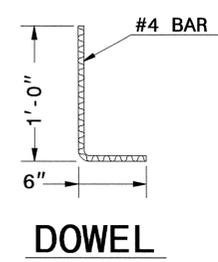
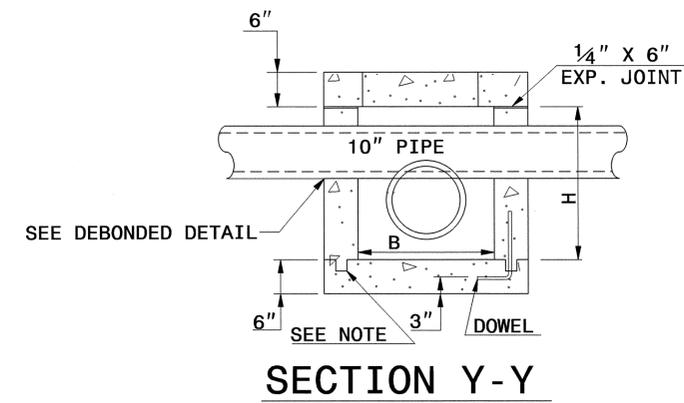
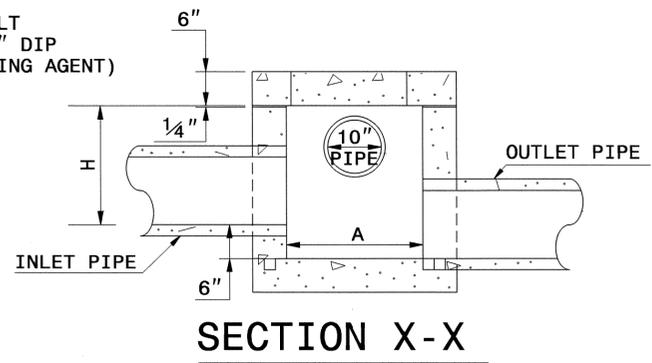
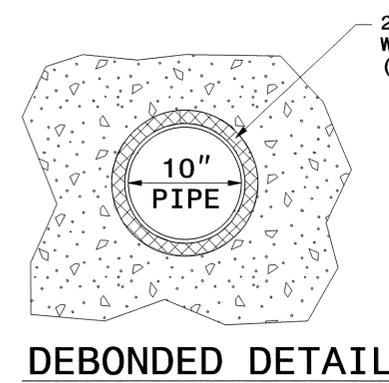
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
**CONCRETE JUNCTION BOX WITH
10" PIPE PASSING THRU
12" THRU 48" PIPE**

SHEET 1 OF 1
840D31



GENERAL NOTES:
USE CLASS "B" CONCRETE THROUGHOUT.
OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
USE FORMS TO CONSTRUCT THE BOTTOM SLAB.
IF REINFORCED CONCRETE PIPE IS SET IN BASE SLAB OF BOX, ADD TO BASE AS SHOWN ON STANDARD NO. 840.00.
REFER TO R.S.D.N. 840.31 FOR PLACEMENT OF MANHOLE COVER IN JUNCTION BOX.



DIMENSIONS AND QUANTITIES FOR CONCRETE JUNCTION BOXES															
DIMENSIONS OF BOX AND PIPE				REINFORCEMENT BARS "A"		COVER DIMENSIONS		CUBIC YARDS IN BOX			TOTAL QUANTITIES BOX AND COVER		DEDUCTIONS FOR ONE PIPE CU. YDS.		
PIPE	SPAN	WIDTH	HEIGHT	NO.	LENGTH	E	F	COVER	FLOOR	WALL/ FT. OF HT.	LBS. REINF.	CU. YDS. MIN. "H"	C.S.	R.C.	
12"	2'-0"	2'-0"	2'-3"	12	2'-9"	3'-0"	3'-0"	0.167	0.167	0.185	22	0.750	0.015	0.024	
15"	2'-3"	2'-3"	2'-6"	12	3'-0"	3'-3"	3'-3"	0.196	0.196	0.204	24	0.902	0.023	0.036	
18"	2'-6"	2'-6"	2'-9"	14	3'-3"	3'-6"	3'-6"	0.227	0.227	0.222	30	1.065	0.033	0.049	
24"	3'-0"	3'-0"	3'-3"	16	3'-9"	4'-0"	4'-0"	0.296	0.296	0.259	40	1.434	0.059	0.085	
30"	3'-6"	3'-6"	3'-9"	18	4'-3"	4'-6"	4'-6"	0.375	0.375	0.296	51	1.860	0.092	0.127	
36"	4'-0"	4'-0"	4'-3"	20	4'-9"	5'-0"	5'-0"	0.463	0.463	0.333	64	2.341	0.132	0.178	
42"	4'-6"	4'-6"	4'-9"	22	5'-3"	5'-6"	5'-6"	0.560	0.560	0.370	77	2.878	0.180	0.243	
48"	5'-0"	5'-0"	5'-3"	24	5'-9"	6'-0"	6'-0"	0.667	0.667	0.407	92	3.471	0.235	0.317	



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ORIGINAL BY: E.E. WARD DATE: 3-12-98
MODIFIED BY: [Signature] DATE: [Blank]
CHECKED BY: [Signature] DATE: 3/3/14
FILE SPEC.: us7/details/stand/conflict_box.dgn

COMPUTED BY: MJJ DATE: 12/18/13
 CHECKED BY: PWR DATE: 12/19/13

PROJECT REFERENCE NO. R-4047
 SHEET NO. 3-1

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

"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 SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS						IMPACT ATTENUATOR TYPE 350			REMOVE EXISTING GUARDRAIL	REMARKS			
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	GRAU 350 TL-3	CAT-1	B-77	AT-1	TES	NO.	G	NG						
-L-	17+40.00	18+40.00	LT	100.00'			17+40.00		2'		50'		1'		1												119'	
-L-	18+66.00	21+54.00	RT																								315'	REMOVE EXISTING GUARDRAIL
-L-	23+47.75	24+22.50	RT	81.25'			24+05.00	24+22.50	2'		50'		1'		1	1												
-L-	27+22.00	31+84.00	LT	456.25'			30+59.00	27+22.00	2'		50'		1'		1	1											328'	
-L-	27+87.00	29+84.00	RT																								246'	REMOVE EXISTING GUARDRAIL
-Y2-/-L-	10+98.27	28+21.00	RT	25.00'	50.00'		28+21.00		2'							1	1											
-LPB-	10+34.50	12+07.00	RT	175.00'			10+34.50	12+07.00	2.33'							1	1											
-L-/-RPB-	35+12.00	28+90.00	LT/LT	131.25'	112.50'		34+62.00	28+90.00	2'		50'		1'		1	1												
-Y4-/-L-	16+50.00	37+68.00	LT/LT	562.50'	62.50'		16+50.00	37+68.00	14'		100'		8.5'			1	1											
-Y4-	10+62.00	12+00.00	RT	143.75'			11+28.00	12+00.00	14'		50'		1'		1		1											
-L-/-Y6-	42+44.00	10+92.92	LT/LT	125.00'	62.50'		42+20.00	42+44.00	2'																			
-Y2L-	14+51.00	17+60.00	LT	318.75'			17+60.00	14+51.00	10'		241.25'		2'				1											
-Y2L-	19+64.00	20+26.50	LT	62.50'																								
-Y2L-/-Y2L2-	14+51.00	14+90.00	LT																								1,360'	REMOVE EXISTING GUARDRAIL
-L-	47+63.00	50+00.00	RT																								265'	REMOVE EXISTING GUARDRAIL
SUBTOTAL				2,181.25 Ft.	287.50 Ft.									TOTALS	5	6	5	2	2								2,633'	

LESS ANCHOR DEDUCTIONS			
GRAU-350 TL-3	5 @ 50.00 Ft.	250.00 Ft.	
CAT-1	6 @ 6.25 Ft.	37.50 Ft.	
B-77	5 @ 18.75 Ft.	93.75 Ft.	
AT-1	2 @ 6.25 Ft.	12.50 Ft.	
SUBTOTAL		-393.75 Ft.	
PROJECT TOTAL			
		1,787.50 Ft.	287.50 Ft.
SAY			
		1,800.00 Ft.	300.00 Ft.
ADDITIONAL GUARDRAIL POSTS			
		20 EA.	

SUMMARY OF MILLING IN SQUARE YARDS

TYPE OF MILLING	STATION	OFFSET (FROM)	OFFSET (TO)	LOCATION	LENGTH (FT)	WIDTH (FT)	AREA (SY)
SECTION 1							
ASPHALT PAVEMENT, 3" DEPTH	-L- STA. 25+25.00	36	48	RT	N/A	12.00	N/A
ASPHALT PAVEMENT, 3" DEPTH	-L- STA. 25+50.00	36	48	RT	25.00	12.00	33.00
ASPHALT PAVEMENT, 3" DEPTH	-L- STA. 26+00.00	36	48	RT	50.00	12.00	66.67
ASPHALT PAVEMENT, 3" DEPTH	-L- STA. 26+25.00	36	48	RT	25.00	12.00	33.33
						ASPHALT PAVEMENT, 3" DEPTH TOTAL	133.00
						ASPHALT PAVEMENT, 3" DEPTH SAY	140.00
SECTION 1							
ASPHALT PAVEMENT, 5.5" DEPTH	-L- STA. 30+50.00	6	36	RT	N/A	30.00	N/A
ASPHALT PAVEMENT, 5.5" DEPTH	-L- STA. 31+00.00	6	36	RT	50.00	30.00	167.00
						ASPHALT PAVEMENT, 5.5" DEPTH TOTAL	167.00
						ASPHALT PAVEMENT, 5.5" DEPTH SAY	170.00
SECTION 1							
ASPHALT PAVEMENT, 0" TO 5.5" DEPTH	-L- STA. 30+00.00	6	36	RT	N/A	30.00	N/A
ASPHALT PAVEMENT, 0" TO 5.5" DEPTH	-L- STA. 30+50.00	6	36	RT	50.00	30.00	167.00
SECTION 2							
ASPHALT PAVEMENT, 5.5" TO 0" DEPTH	-L- STA. 31+00.00	6	36	RT	N/A	30.00	N/A
ASPHALT PAVEMENT, 5.5" TO 0" DEPTH	-L- STA. 31+75.00	6	36	RT	75.00	30.00	250.00
						ASPHALT PAVEMENT, 0" TO 5.5" DEPTH TOTAL	417.00
						ASPHALT PAVEMENT, 0" TO 5.5" DEPTH SAY	420.00

SUMMARY OF MILLING BRIDGE APPROACHES IN SQUARE YARDS

TYPE OF MILLING	LINE	STATION	STATION	LOCATION	LENGTH (FT)	WIDTH (FT)	AREA (SY)
ASPHALT PAVEMENT, 0" TO 3" DEPTH	-Y2L-	14+14.00	15+64.00	LT	150.00	35.00	583.00
ASPHALT PAVEMENT, 0" TO 3" DEPTH	-Y2L2-	18+83.25	20+33.25	LT	150.00	40.00	667.00
ASPHALT PAVEMENT, 0" TO 3" DEPTH	-Y2L2-	18+83.25	20+33.25	RT	150.00	40.00	667.00
						ASPHALT PAVEMENT, 0" TO 3" DEPTH TOTAL	1,917.00
						ASPHALT PAVEMENT, 0" TO 3" DEPTH SAY	2,000.00

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SUMMARY OF PAVEMENT REMOVAL IN SQUARE YARDS

BEGIN STATION	END STATION	LOCATION	ASPHALT REMOVAL
-L- STA. 39+00.00	-L- STA. 50+00.00		4,356.00
-Y3- STA. 10+35.00	-Y3- STA. 16+00.00	RT	2,107.00
-Y3- STA. 11+18.00	-Y3- STA. 15+10.00	RT/LT	7,060.00
-L- STA. 29+40.00	-LPB- STA. 13+00.00	LT/LT	1,629.00
-RPB- STA. 12+35.00	-RPB- STA. 17+30.00	RT	1,039.00
-L- STA. 34+56.00	-Y4- STA. 28+93.00	LT/LT	4,477.00
-Y5- STA. 10+00.00	-Y5- STA. 17+00.00		1,508.00
-Y6- STA. 10+92.00	-Y6- STA. 11+50.00	LT	39.00
-Y6- STA. 11+05.00	-Y6- STA. 12+22.00	RT	68.00
-Y8- STA. 10+00.00	-Y8- STA. 12+50.00	CL	768.00
REMOVAL OF TEMPORARY PAVEMENT USED FOR TRAFFIC CONTROL			
-LPB- STA. 17+42.00	-LPB- STA. 14+10.74		696.00
-L- STA. 41+66.00	-L- STA. 43+03.00	RT	31.00
-L- STA. 47+58.00	-L- STA. 51+58.00	LT	689.00
TOTAL			24,467.00
SAY			24,500.00

SUMMARY OF CONCRETE BARRIER IN FEET

BEGIN STATION	END STATION	LOCATION	LENGTH				TRANSITION FROM SFCB TO TYPE T2 (SEE DETAIL 2-N)
			DOUBLE FACED TYPE T	DOUBLE FACED TYPE T1	DOUBLE FACED TYPE T2	PRECAST CONC SINGLE FACED	
-L- STA. 28+21.00	-L- STA. 29+50.00	RT				129.00	
-Y2L- STA. 17+60.00	-Y2L- STA. 20+50.00	LT				290.00	
-Y2L- STA. 20+50.00	-Y2L- STA. 21+00.00	LT					50.00
-Y2L- STA. 21+00.00	-Y2L- STA. 23+24.32	LT			224.32		
-Y4- STA. 16+50.00	-Y4- STA. 26+01.87	LT		960.00			
-Y4- STA. 12+00.00	-Y4- STA. 18+77.57	RT				677.57	
TOTAL			0	960.00	224.32	1,096.57	50.00
SAY			0	960.00	230.00	1,100.00	50.00

**SUMMARY OF SUBSURFACE DRAINAGE
 IN FEET**

BEGIN STATION	END STATION	LOCATION	DRAIN TYPE * UD / BD / SD	LENGTH (FT)
CONTINGENCY			SD	500.00
TOTAL			SD	500.00

- * UD = UNDERDRAIN
- * BD = BLIND DRAIN
- * SD = SUBSURFACE DRAIN

**SUMMARY OF GEOTEXTILE
 FOR PAVEMENT STABILIZATION
 IN SQUARE YARDS**

BEGIN STATION	END STATION	AREA (SY)
CONTINGENCY		5,000.00
TOTAL		5,000.00

SUMMARY OF AGGREGATE SUBGRADE / STABILIZATION

BEGIN STATION	END STATION	AGGREGATE TYPE * ASU / AST	AGGREGATE THICKNESS (INCHES)	SHALLOW UNDERCUT (CY)	CLASS IV SUBGRADE STABILIZATION (TONS)	GEOTEXTILE FOR SOIL STABILIZATION (SY)	STABILIZER AGGREGATE (TONS)	CLASS IV AGGREGATE STABILIZATION (TONS)
	CONTINGENCY	AST					1,500.00	
	CONTINGENCY	ASU		100.00	100.00	100.00		0
TOTAL (CY, TONS or SY)				100.00	100.00	100.00	1,500.00	0

- * ASU = AGGREGATE SUBGRADE
- * AST = AGGREGATE STABILIZATION

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK
 IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT + %	BORROW	TOTAL WASTE
-L- STA. 16+50.00 TO -L- STA. 29+00.00 (LT.)	39		1,067	1,028	
-RPC- STA. 10+00.00 TO -RPC- STA. 16+00.74	645		367		278
-RPD- STA. 14+25.00 TO -RPD- STA. 15+79.47	44		76	32	
SUBTOTAL 1	728		1,510	1,060	278
-L- STA. 16+50.00 TO -L- STA. 29+00.00 (RT.)	411		739	328	
-Y1- STA. 10+52.66 TO -Y1- STA. 15+50.00	1,016		1,012		4
SUBTOTAL 2	1,427		1,751	328	4
-L- STA. 29+00.00 TO -L- STA. 42+50.00 (LT.)	380		2,456	2,076	
-LPB- STA. 10+35.96 TO -LPB- STA. 15+00.00	1,426		1,515	89	
-RPB- STA. 10+00.00 TO -RPB- STA. 22+34.27	31,193		859		30,334
-Y4- STA. 10+24.00 TO -Y4- STA. 16+16.64	14,438		6,282		8,156
-Y4- STA. 28+21.80 TO -Y4- STA. 29+05.00	82		63		19
-Y2L- STA. 15+00.00 TO -Y2L- STA. 23+24.32	1,168		2,655	1,487	
-Y2L2- STA. 13+50.00 TO -Y2L2- STA. 18+50.00	738				738
-RR- STA. 20+66.00 TO -RR- STA. 29+00.00	12,235		11,011		1,224
SUBTOTAL 3	61,660		24,841	3,652	40,471
-L- STA. 29+00.00 TO -L- STA. 42+50.00 (RT.)	49,411		122		49,289
-Y3- STA. 10+57.04 TO -Y3- STA. 16+75.00	68,540		47		68,493
-Y5- STA. 10+47.62 TO -Y5- STA. 17+95.00	37,242		6		37,236
-DR2- STA. 10+09.00 TO -DR2- STA. 13+10.00	4,143				4,143
-RR- STA. 11+00.00 TO -RR- STA. 17+86.75	17,827		36		17,791
SUBTOTAL 4	177,163		211		176,952
-L- STA. 42+50.00 TO -L- STA. 54+00.00 (LT.)	1,927		2,009	82	
-Y6- STA. 10+24.20 TO -Y6- STA. 12+25.00	6		380	374	
-DR1- STA. 10+24.30 TO -DR1- STA. 11+00.00	4		321	317	
SUBTOTAL 5	1,937		2,710	773	
-L- STA. 42+50.00 TO -L- STA. 54+00.00 (RT.)	13,036		2,693		10,343
-Y8- STA. 10+40.54 TO -Y8- STA. 13+45.00	808		20		788
SUBTOTAL 6	13,844		2,713		11,131
PROJECT SUBTOTAL	256,759		33,736	5,813	228,836
LOSS DUE TO CLEARING AND GRUBBING (TRACKWORK)	-435				-435
LOSS DUE TO CLEARING AND GRUBBING	-700				-700
ROCK WASTE TO REPLACE BORROW				-3,863	-3,863
ADJUST FOR ROCK SWELL			-773	-773	
ELIMINATE EARTH SHRINKAGE			-695	-695	
WASTE IN LIEU OF BORROW				-482	-482
PROJECT TOTAL	255,624		32,268	0	223,356
GRAND TOTAL	255,624			0	
SAY	260,000 CY				

-L-, -Y3-, -Y4- & -RPB- PAVEMENT STRUCTURE VOLUME = 6,650 CY
 EST. DDE = 1000 CY
 EST. SHOULDER BORROW = 900 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.

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- NOTES: (1) SEE SHEET II FOR -L- PROFILE
 (2) SEE SHEET 13 FOR -LPB- & -RPB- PROFILES
 (3) SEE SHEET 14 FOR -RPD- PROFILE
 (4) SEE SHEET 15 FOR -Y2- & -Y3- PROFILES
 (5) SEE SHEET 16 FOR -Y4- PROFILE
 (6) SEE SHEET 18 FOR -Y2L2- EXISTING PROFILE
 (7) SEE SHEET 2-M FOR DRAINAGE DETAILS
 (8) SEE SHEET 2-P FOR TRAFFIC DIAGRAM
 (9) SEE SHEET 2-V FOR INTERSECTION DETAIL
 (10) SEE SHEETS C-1 TO C-5 FOR CULVERT DETAILS
 (11) 5' MONO.CONC.ISLANDS WILL USE 2' RADII UNLESS OTHERWISE SHOWN ON PLANS
 (12) MONO.CONC.ISLANDS TO BE KEYED-IN
 (13) SEE RETAINING WALL DETAILS

PROJECT REFERENCE NO. R-4047	SHEET NO. 5
ROADWAY DESIGN NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22527 MICHAEL W. LITTLE	HYDRAULICS NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20329 AMY A. BILLINGS

-L- CURVE DATA
 PI Sta 26+50.89
 $\Delta = 109^{\circ}14'18.3"$ (LT)
 $D = 13^{\circ}38'30.7"$
 $L = 800.76'$
 $T = 591.42'$
 $R = 420.00'$
 $S.E. = .04$
 RUNOFF = 200'

-Y2- CURVE DATA
 PI Sta 11+88.83
 $\Delta = 8^{\circ}03'50.7"$ (RT)
 $D = 6^{\circ}00'00.0"$
 $L = 134.40'$
 $T = 67.31'$
 $R = 954.93'$

-RPD- CURVE DATA

PIs Sta 11+00.33 $\Theta_s = 14^{\circ}14'59.4"$ $L_s = 150.00'$ $LT = 100.33'$ $ST = 50.30'$	PI Sta 13+67.25 $\Delta = 71^{\circ}32'24.9"$ (LT) $D = 18^{\circ}59'59.3"$ $L = 376.53'$ $T = 217.25'$ $R = 301.56'$
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-LPB- CURVE DATA

PIs Sta 11+60.12 $\Theta_s = 28^{\circ}38'52.4"$ $L_s = 200.00'$ $LT = 135.12'$ $ST = 68.30'$	PI Sta 16+17.79 $\Delta = 126^{\circ}01'57.2"$ (RT) $D = 28^{\circ}38'52.4"$ $L = 439.94'$ $T = 392.80'$ $R = 200.00'$ S.E. = SEE PLANS	PIs Sta 17+33.23 $\Theta_s = 28^{\circ}38'52.4"$ $L_s = 200.00'$ $LT = 135.12'$ $ST = 68.30'$
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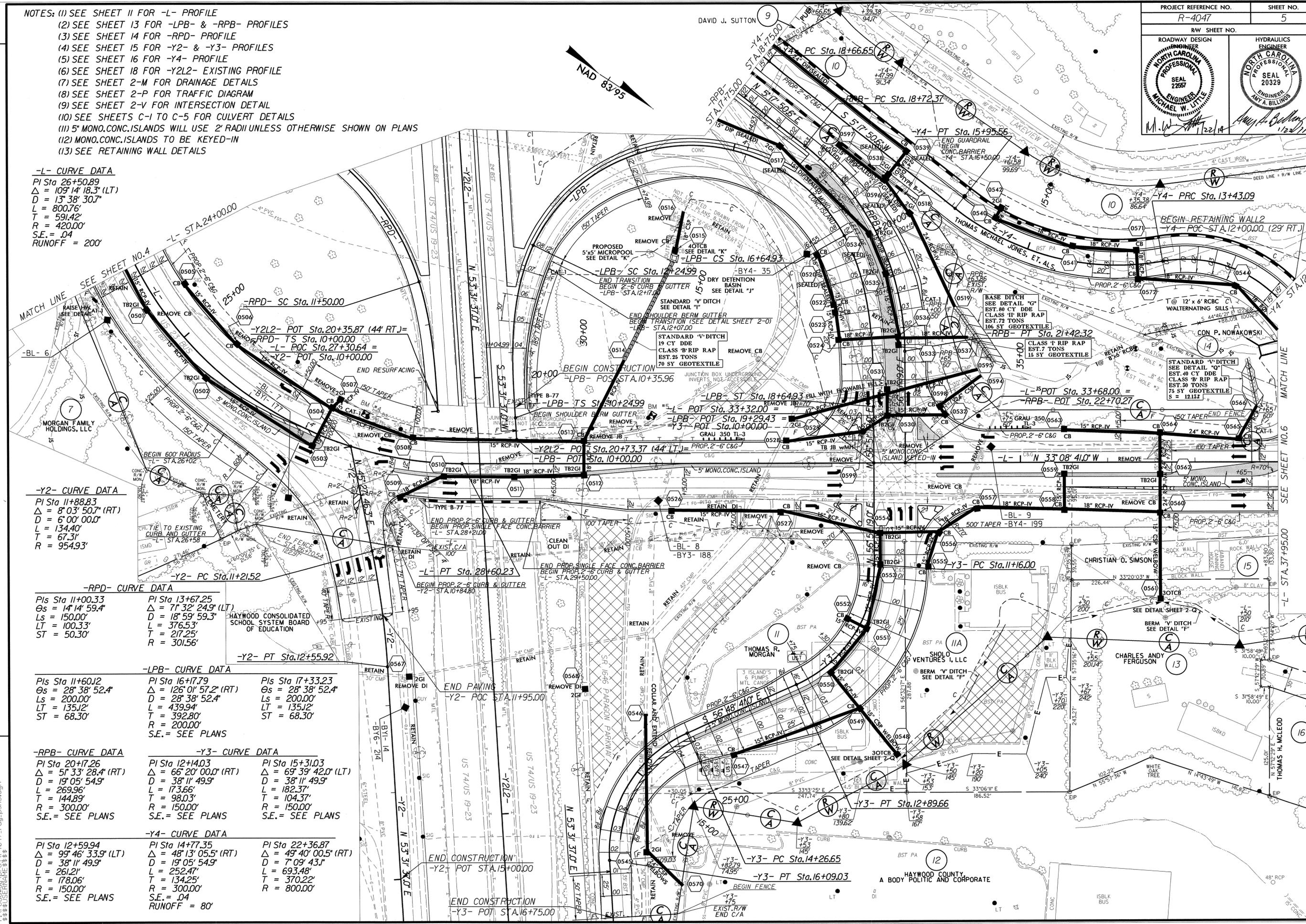
-RPB- CURVE DATA
 PI Sta 20+17.26
 $\Delta = 51^{\circ}33'28.4"$ (RT)
 $D = 19^{\circ}05'54.9"$
 $L = 269.96'$
 $T = 144.89'$
 $R = 300.00'$
 S.E. = SEE PLANS

-Y3- CURVE DATA

PI Sta 12+14.03 $\Delta = 66^{\circ}20'00.0"$ (RT) $D = 38^{\circ}11'49.9"$ $L = 173.66'$ $T = 98.03'$ $R = 150.00'$ S.E. = SEE PLANS	PI Sta 15+31.03 $\Delta = 69^{\circ}39'42.0"$ (LT) $D = 38^{\circ}11'49.9"$ $L = 182.37'$ $T = 104.37'$ $R = 150.00'$ S.E. = SEE PLANS
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-Y4- CURVE DATA

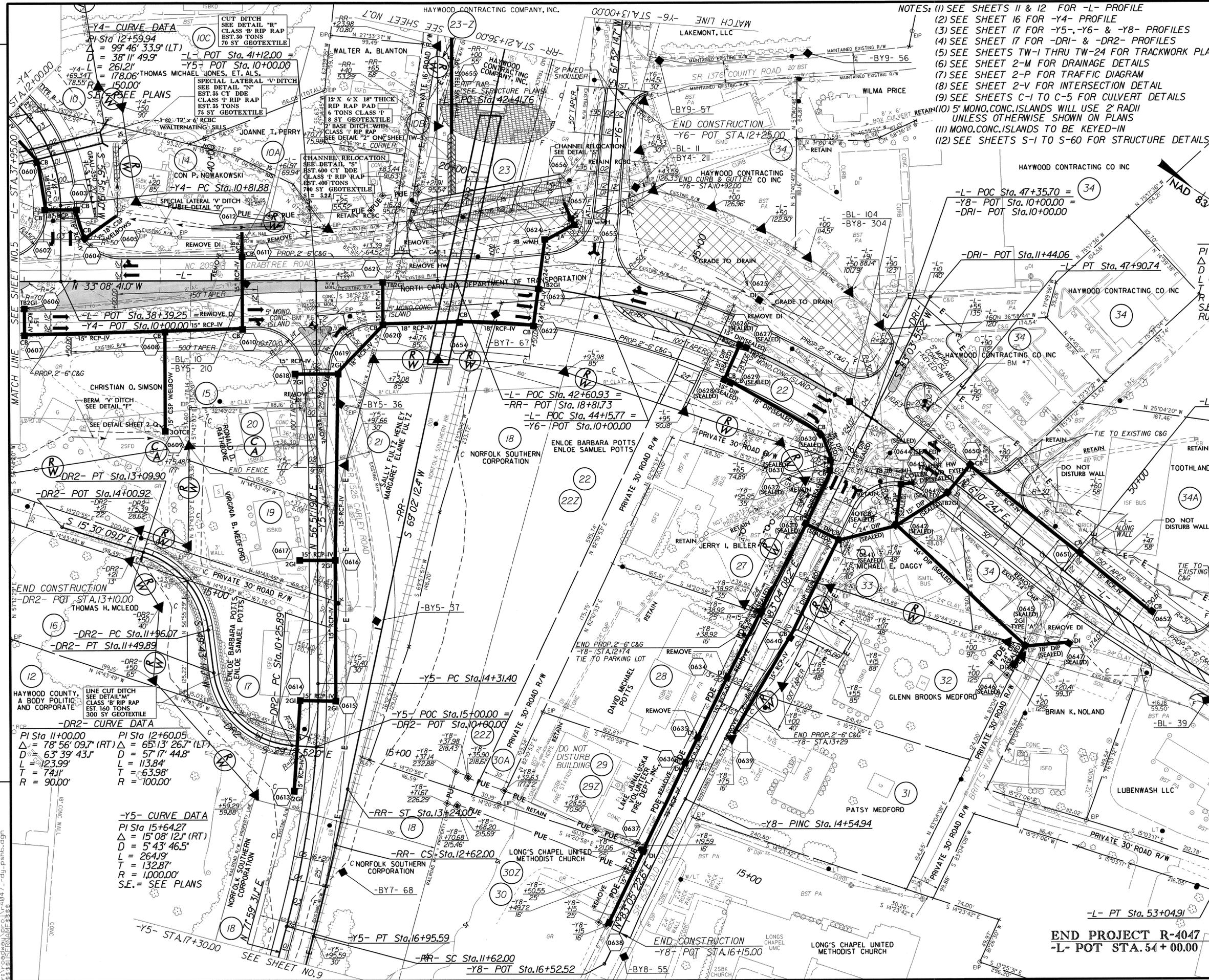
PI Sta 12+59.94 $\Delta = 99^{\circ}46'33.9"$ (LT) $D = 38^{\circ}11'49.9"$ $L = 261.21'$ $T = 178.06'$ $R = 150.00'$ S.E. = SEE PLANS	PI Sta 14+77.35 $\Delta = 48^{\circ}13'05.5"$ (RT) $D = 19^{\circ}05'54.9"$ $L = 252.47'$ $T = 134.25'$ $R = 300.00'$ S.E. = .04 RUNOFF = 80'	PI Sta 22+36.87 $\Delta = 49^{\circ}40'00.5"$ (RT) $D = 7^{\circ}09'43.1"$ $L = 693.48'$ $T = 370.22'$ $R = 800.00'$
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- NOTES: (1) SEE SHEETS 11 & 12 FOR -L- PROFILE
 (2) SEE SHEET 16 FOR -Y4- PROFILE
 (3) SEE SHEET 17 FOR -Y5-, -Y6- & -Y8- PROFILES
 (4) SEE SHEET 17 FOR -DRI- & -DR2- PROFILES
 (5) SEE SHEETS TW-1 THRU TW-24 FOR TRACKWORK PLANS
 (6) SEE SHEET 2-M FOR DRAINAGE DETAILS
 (7) SEE SHEET 2-P FOR TRAFFIC DIAGRAM
 (8) SEE SHEET 2-V FOR INTERSECTION DETAIL
 (9) SEE SHEETS C-1 TO C-5 FOR CULVERT DETAILS
 (10) 5' MONO.CONC.ISLANDS WILL USE 2' RADII UNLESS OTHERWISE SHOWN ON PLANS
 (11) MONO.CONC.ISLANDS TO BE KEYED-IN
 (12) SEE SHEETS S-1 TO S-60 FOR STRUCTURE DETAILS



-L- CURVE DATA
 PI Sta 45+27.56 Δ = 39°19'05.1" (RT)
 D = 7°09'43.1" L = 548.98'
 T = 285.80' R = 800.00'
 S.E. = .04 RUNOFF = 200'

PI Sta 51+51.13 Δ = 10°46'37.6" (LT)
 D = 3°29'37.1" L = 308.48'
 T = 154.69' R = 1640.00'
 S.E. = .03 RUNOFF = 150'

-Y4- CURVE DATA
 PI Sta 12+59.94 Δ = 95°46'33.9" (LT)
 D = 38°11'49.9" L = 261.21'
 T = 178.06' R = 1500.00'

-DR2- CURVE DATA
 PI Sta 11+00.00 Δ = 78°56'09.7" (RT)
 D = 63°39'43.1" L = 123.99'
 T = 74.11' R = 90.00'

PI Sta 12+60.05 Δ = 65°13'26.7" (LT)
 D = 57°17'44.8" L = 113.84'
 T = 63.98' R = 100.00'

-Y5- CURVE DATA
 PI Sta 15+64.27 Δ = 15°08'12.1" (RT)
 D = 5°43'46.5" L = 264.19'
 T = 132.87' R = 1,000.00'
 S.E. = SEE PLANS

-RR- CS- CURVE DATA
 PI Sta 12+62.00 Δ = 15°08'12.1" (RT)
 D = 5°43'46.5" L = 264.19'
 T = 132.87' R = 1,000.00'
 S.E. = SEE PLANS

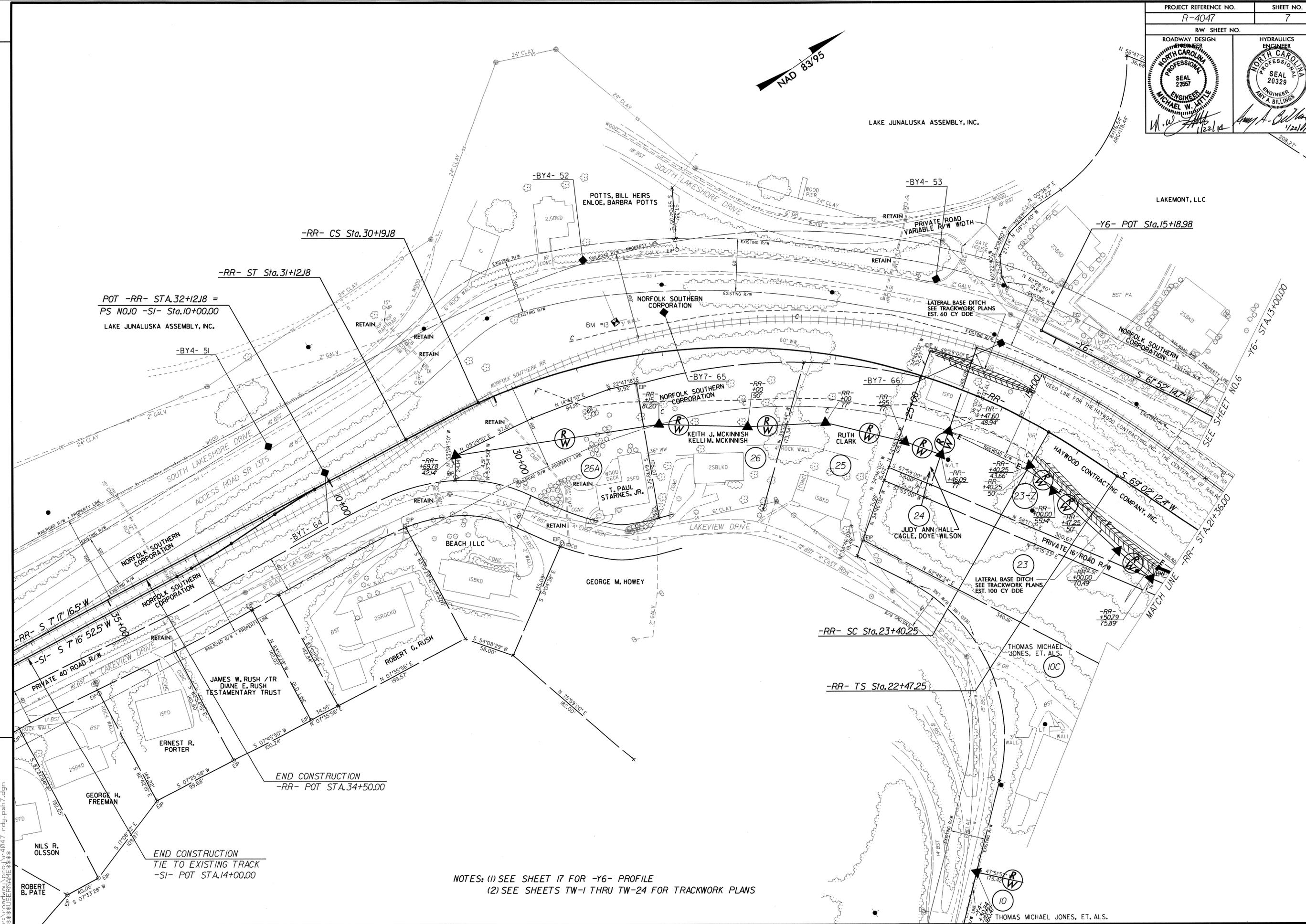
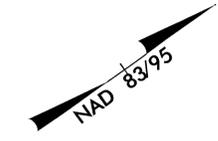
-Y5- CURVE DATA
 PI Sta 15+64.27 Δ = 15°08'12.1" (RT)
 D = 5°43'46.5" L = 264.19'
 T = 132.87' R = 1,000.00'
 S.E. = SEE PLANS

-Y5- CURVE DATA
 PI Sta 15+64.27 Δ = 15°08'12.1" (RT)
 D = 5°43'46.5" L = 264.19'
 T = 132.87' R = 1,000.00'
 S.E. = SEE PLANS

END PROJECT R-4047
 -L- POT STA. 54 + 00.00

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POT -RR- STA. 32+12J8 =
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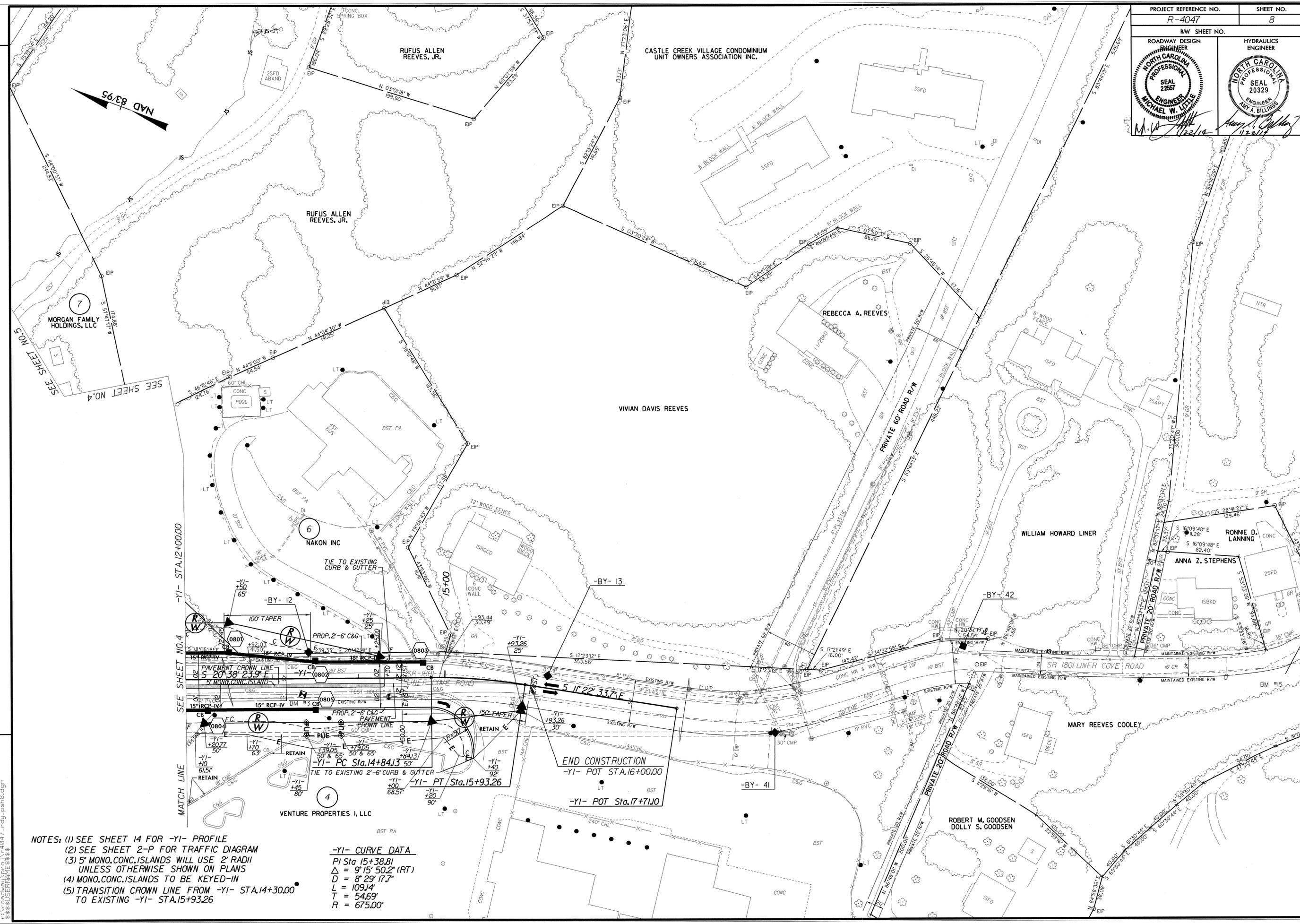
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END CONSTRUCTION
-RR- POT STA. 34+50.00

END CONSTRUCTION
TIE TO EXISTING TRACK
-SI- POT STA. 14+00.00

NOTES: (1) SEE SHEET 17 FOR -Y6- PROFILE
(2) SEE SHEETS TW-1 THRU TW-24 FOR TRACKWORK PLANS

THOMAS MICHAEL JONES, ET. ALS.

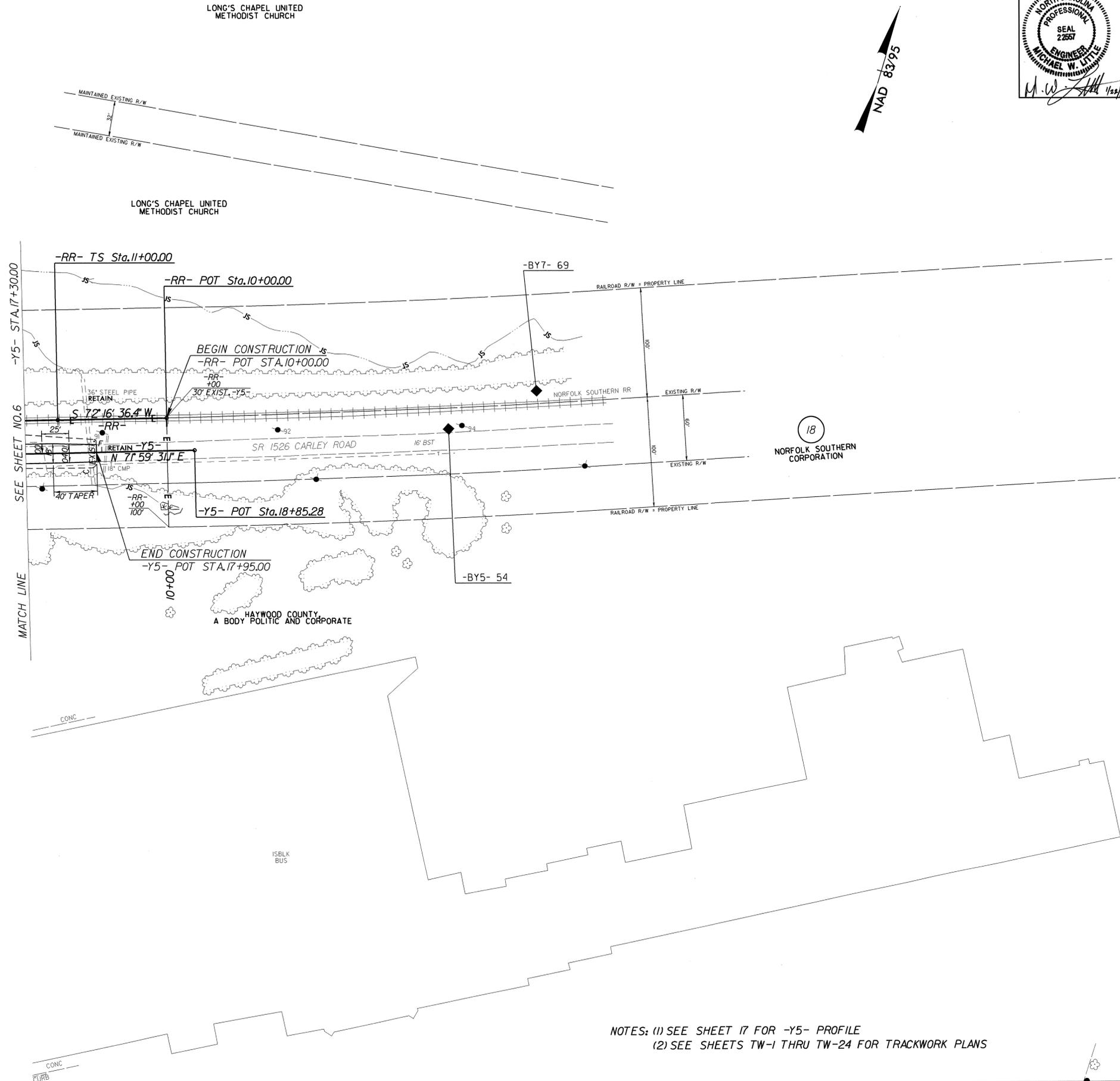


NOTES: (1) SEE SHEET 14 FOR -YI- PROFILE
 (2) SEE SHEET 2-P FOR TRAFFIC DIAGRAM
 (3) 5' MONO.CONC.ISLANDS WILL USE 2' RADII UNLESS OTHERWISE SHOWN ON PLANS
 (4) MONO.CONC.ISLANDS TO BE KEYED-IN
 (5) TRANSITION CROWN LINE FROM -YI- STA.14+30.00 TO EXISTING -YI- STA.15+93.26

-YI- CURVE DATA
 PI Sta 15+38.81
 $\Delta = 9^{\circ}15'50.2''$ (RT)
 D = 8'29'17.7"
 L = 109.14'
 T = 54.69'
 R = 675.00'

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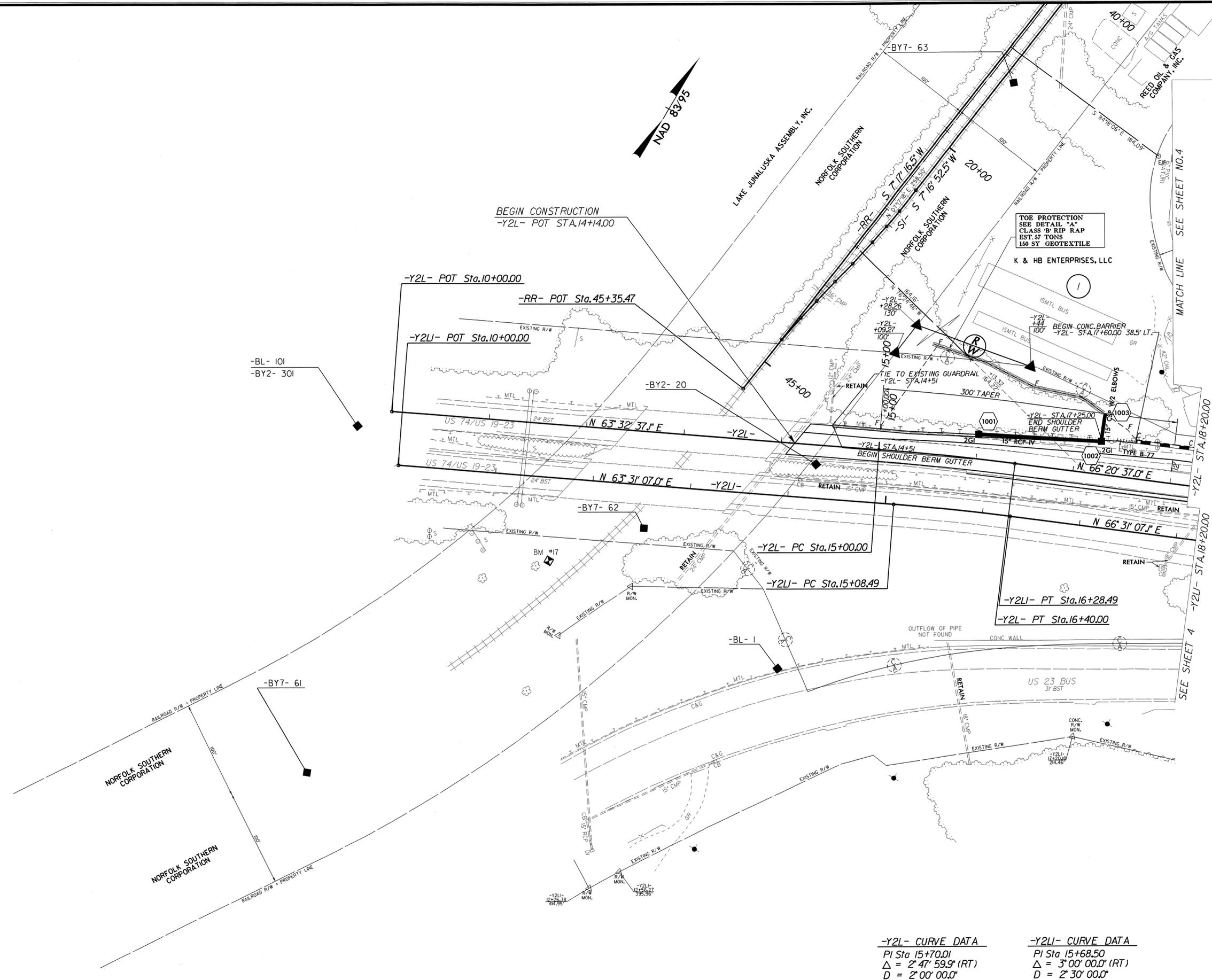
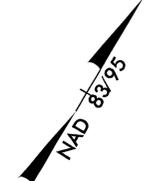


NOTES: (1) SEE SHEET 17 FOR -Y5- PROFILE
 (2) SEE SHEETS TW-1 THRU TW-24 FOR TRACKWORK PLANS

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N 04°03'37" W
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-BL- 101
-BY2- 301

TOE PROTECTION
SEE DETAIL "A"
CLASS "B" RIP RAP
EST. 57 TONS
160 SY GEOTEXTILE

-Y2LI- PT Sta. 16+28.49
-Y2L- PT Sta. 16+40.00

-Y2L- CURVE DATA
 PI Sta 15+70.01
 $\Delta = 2^\circ 47' 59.9''$ (RT)
 D = 2' 00" 00.0"
 L = 140.00'
 T = 70.01'
 R = 2,864.79'

-Y2LI- CURVE DATA
 PI Sta 15+68.50
 $\Delta = 3^\circ 00' 00.0''$ (RT)
 D = 2' 30" 00.0"
 L = 120.00'
 T = 60.01'
 R = 2,291.83'

NOTES: (1) SEE SHEET 18 FOR -Y2L- EXISTING PROFILE
 (2) SEE SHEET 2-M FOR DRAINAGE DETAILS

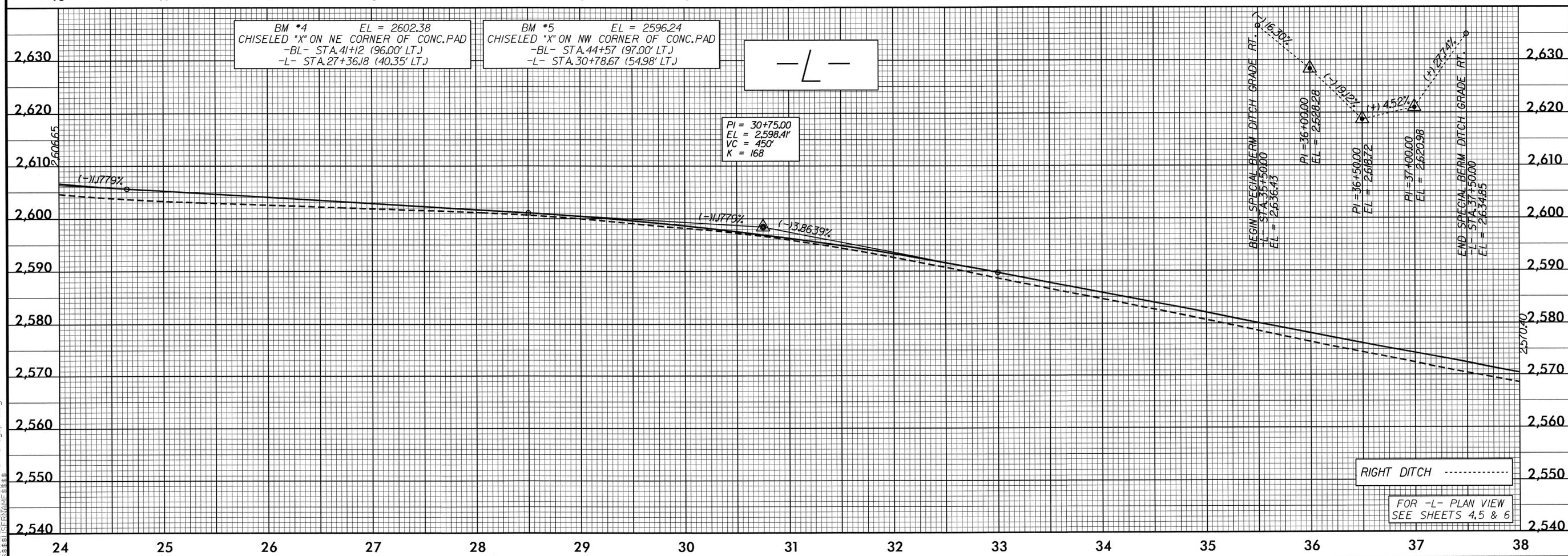
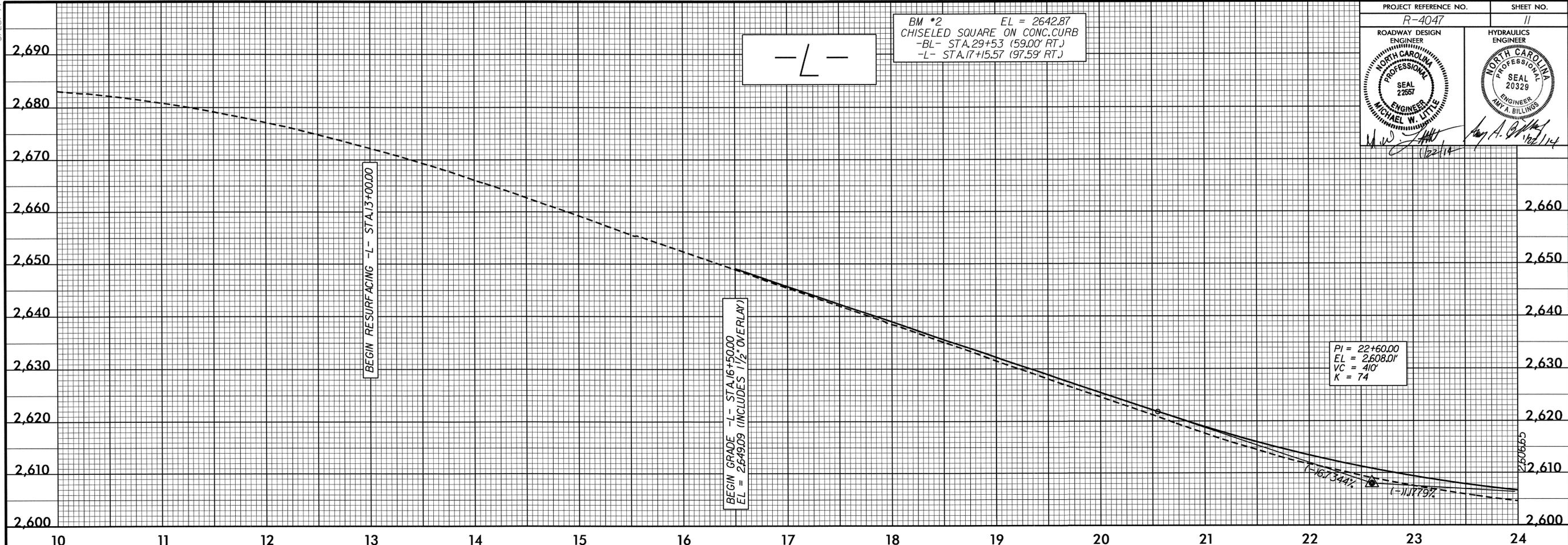
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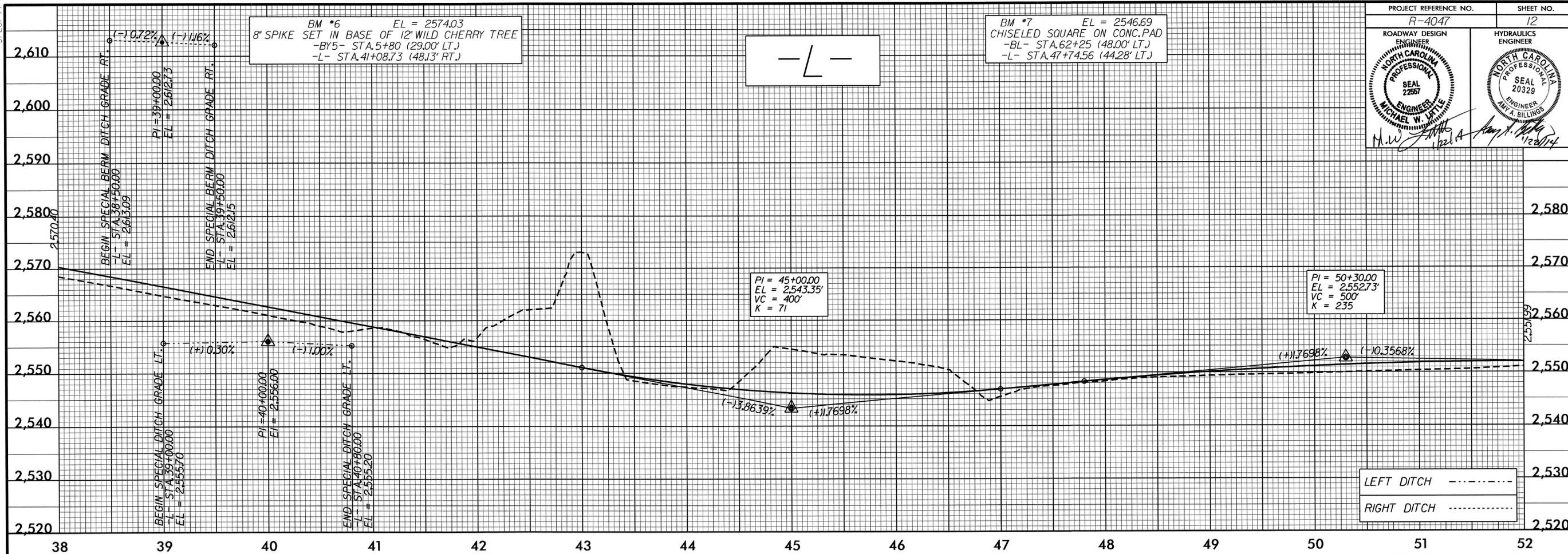
PROJECT REFERENCE NO. R-4047	SHEET NO. 11
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<i>Michael W. Little</i>	<i>Amy A. Billings</i>



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PROJECT REFERENCE NO. R-4047	SHEET NO. 12
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 20329 MICHAEL W. LITTLE	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 20329 AMY L. BILLINGS



BM *6 EL = 2574.03
8" SPIKE SET IN BASE OF 12" WILD CHERRY TREE
-BY5- STA.5+80 (29.00' LT.)
-L- STA.41+08.73 (48.13' RT.)

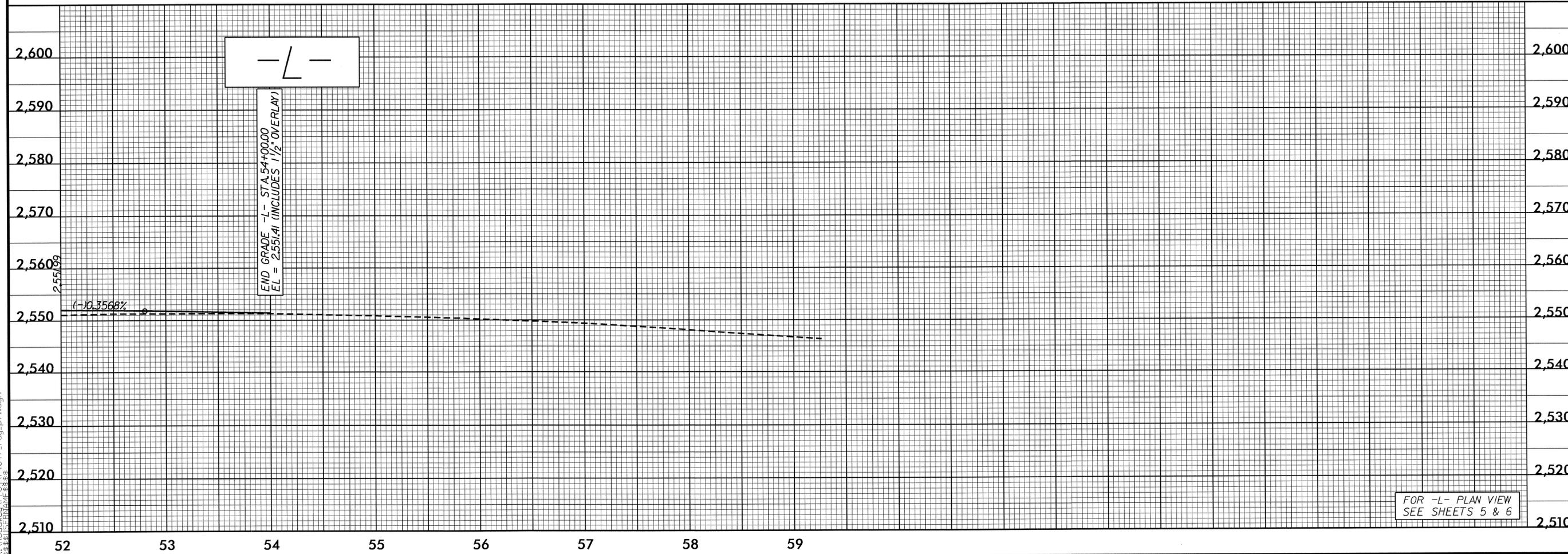
BM *7 EL = 2546.69
CHISELED SQUARE ON CONC. PAD
-BL- STA.62+25 (48.00' LT.)
-L- STA.47+74.56 (44.28' LT.)

-L-

PI = 45+00.00
EL = 2543.35'
VC = 400'
K = 71

PI = 50+30.00
EL = 2552.73'
VC = 500'
K = 235

LEFT DITCH - - - - -
RIGHT DITCH - - - - -



-L-

END GRADE -L- STA. 54+00.00
EL = 2551.41 (INCLUDES 1/2 OVERLAY)

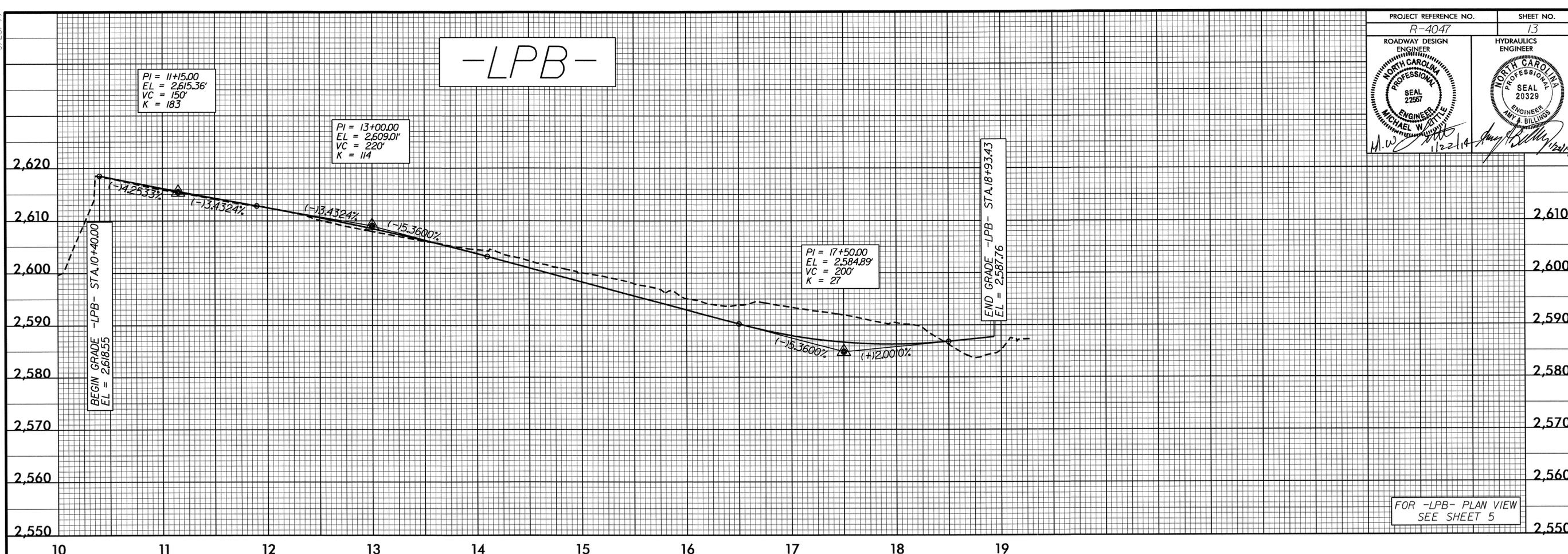
FOR -L- PLAN VIEW
SEE SHEETS 5 & 6

14-JAN-2014 09:53 \\s-1047_r.dwg-pfl.dgn

5/28/99

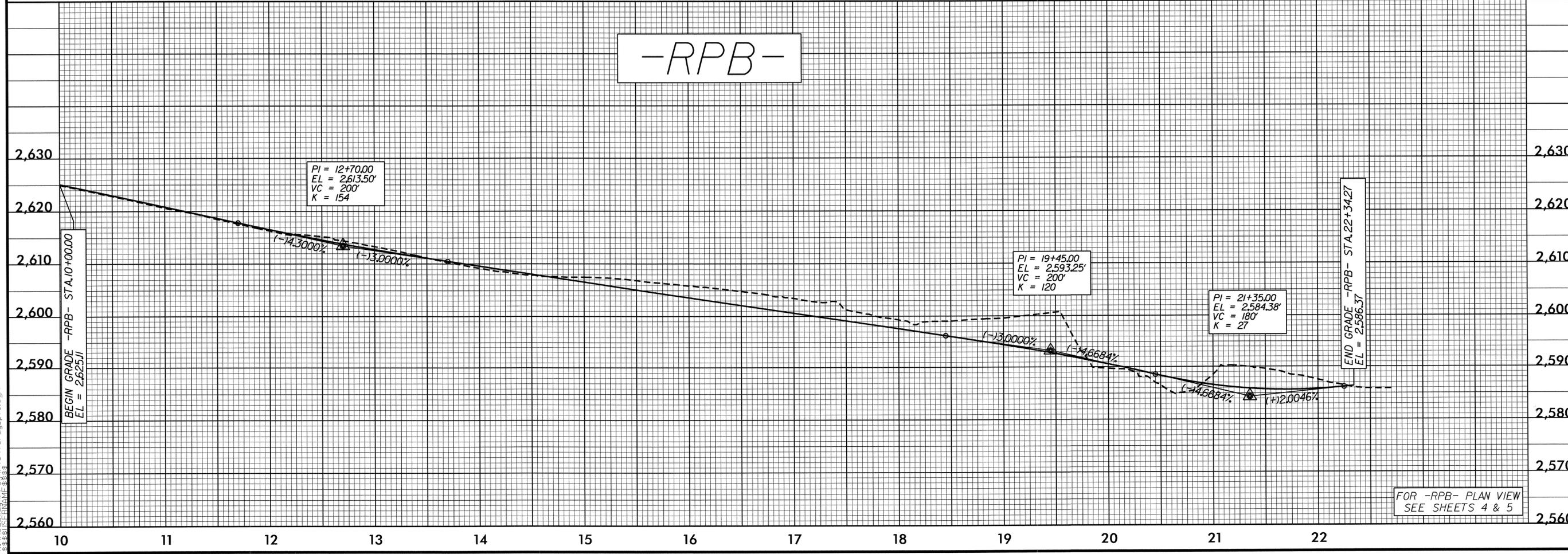
PROJECT REFERENCE NO. R-4047	SHEET NO. 13
ROADWAY DESIGN ENGINEER MICHAEL W. STITILE SEAL 20327	HYDRAULICS ENGINEER AMY A. BILLINGS SEAL 20329

-LPB-



FOR -LPB- PLAN VIEW
SEE SHEET 5

-RPB-

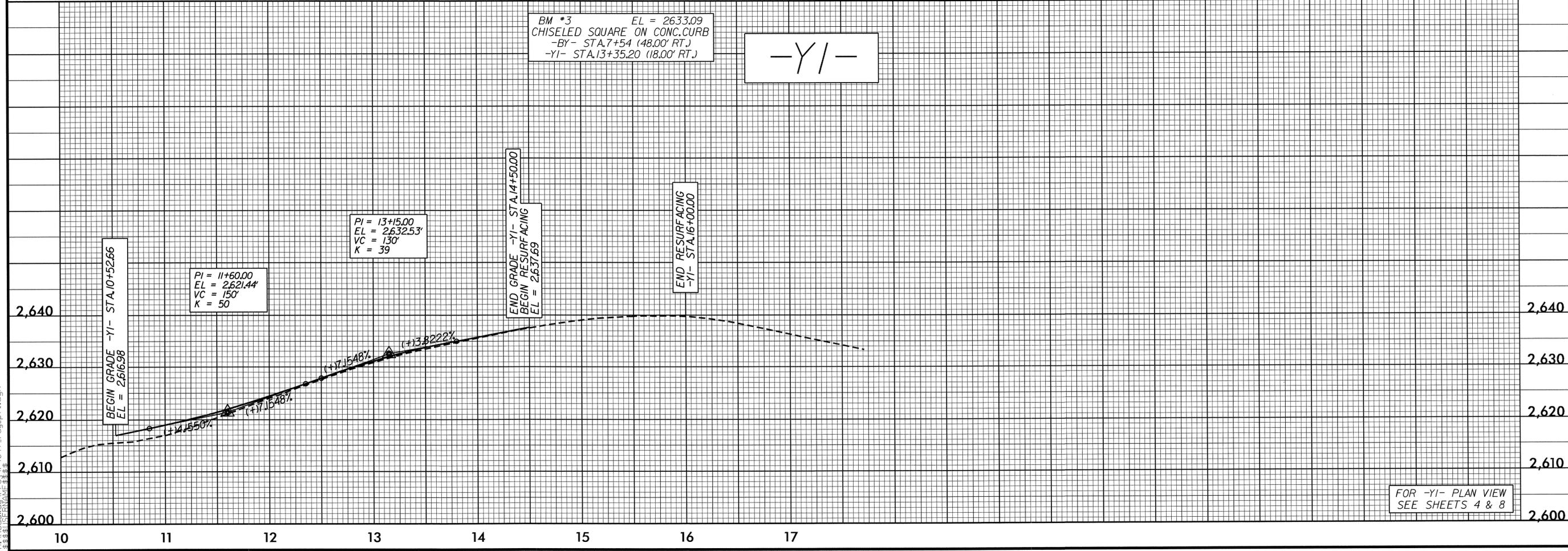
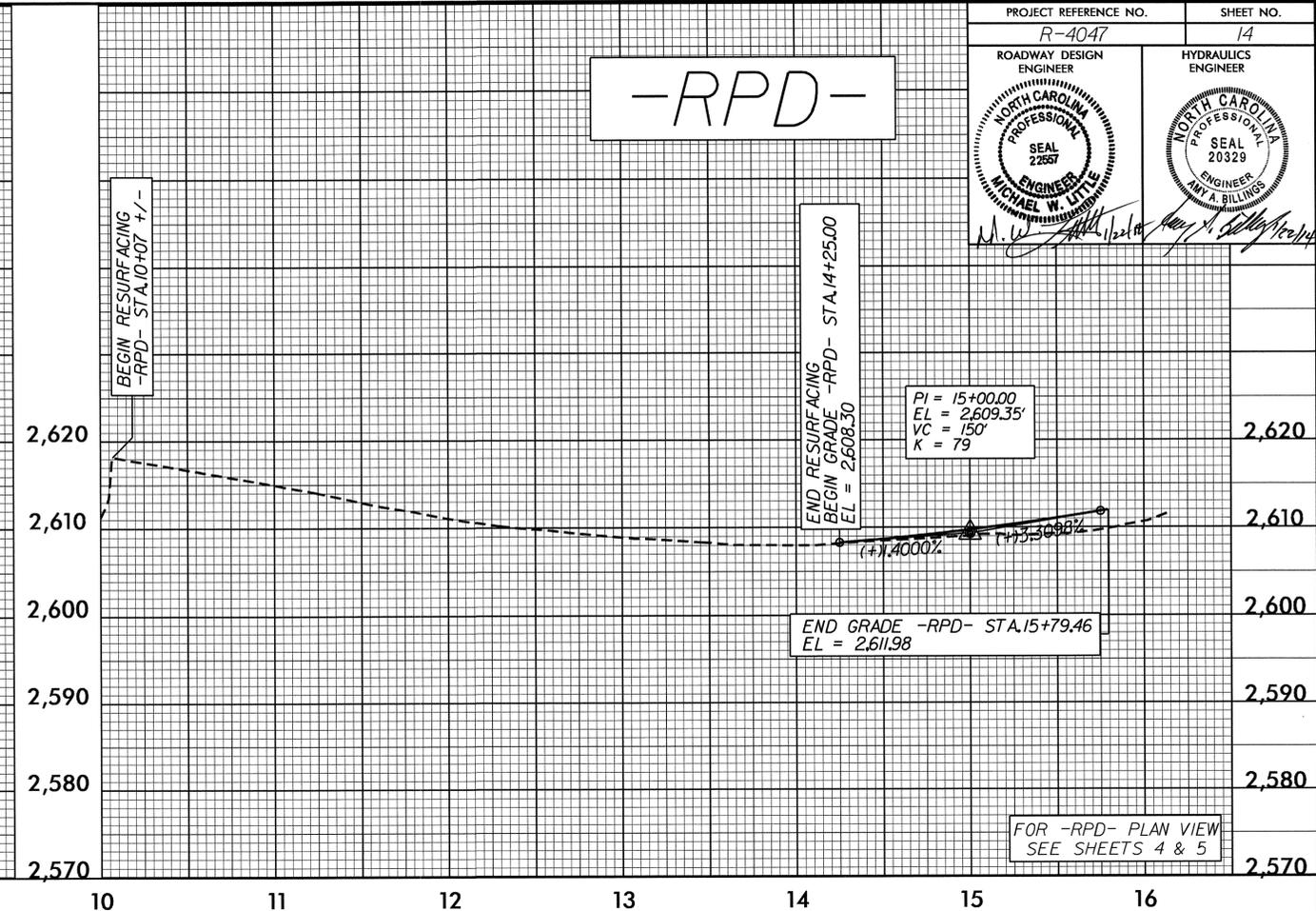
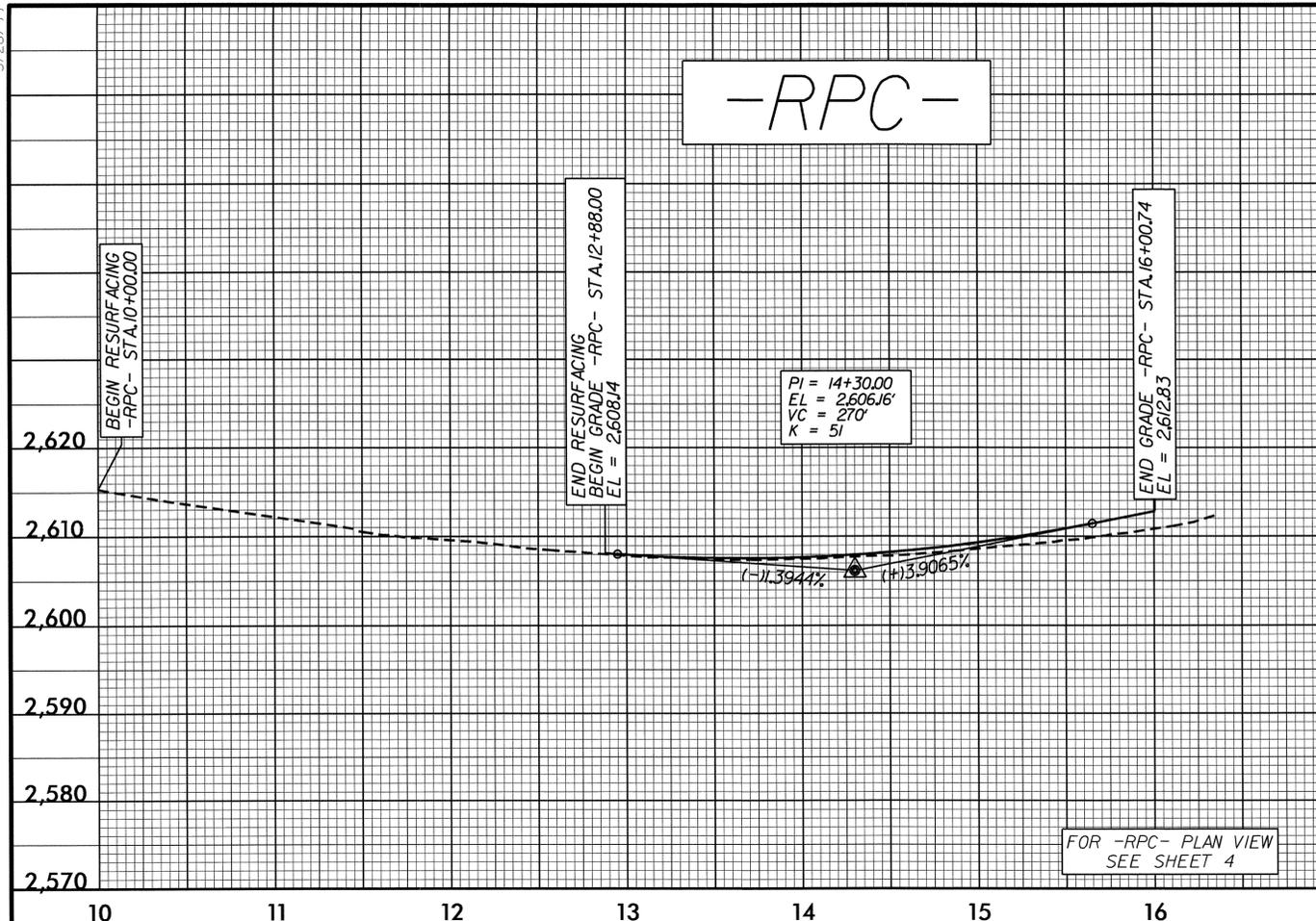


FOR -RPB- PLAN VIEW
SEE SHEETS 4 & 5

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5/26/99

PROJECT REFERENCE NO. R-4047	SHEET NO. 14
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

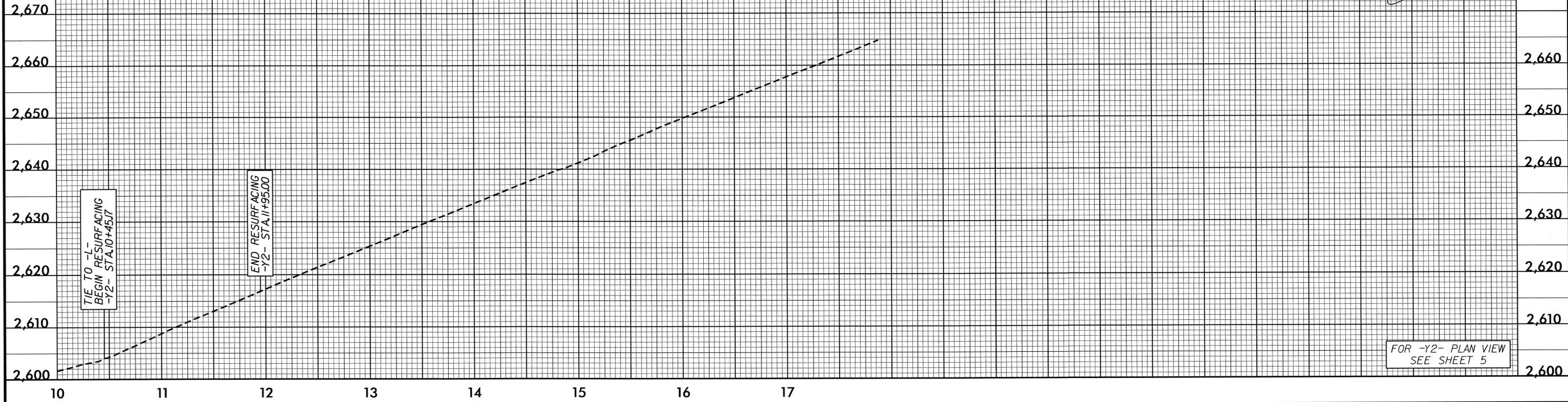


03-JAN-2014 15:18 S:\PROJECTS\14047_rdy-pl.dgn

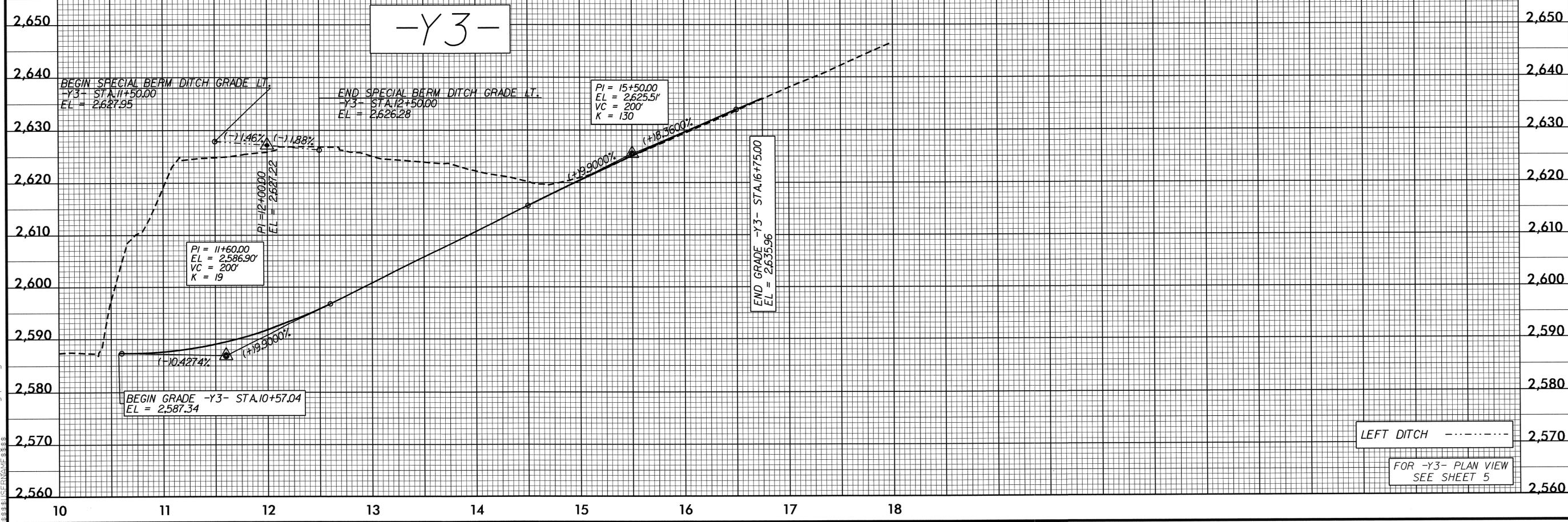
5/28/99

PROJECT REFERENCE NO. R-4047	SHEET NO. 15
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 2857 MICHAEL W. LITTLE	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 20329 TAY A. BILLINGS

-Y2-



-Y3-



14-JAN-2014 08:46 P:\03\04047_rdy_pf1.dgn

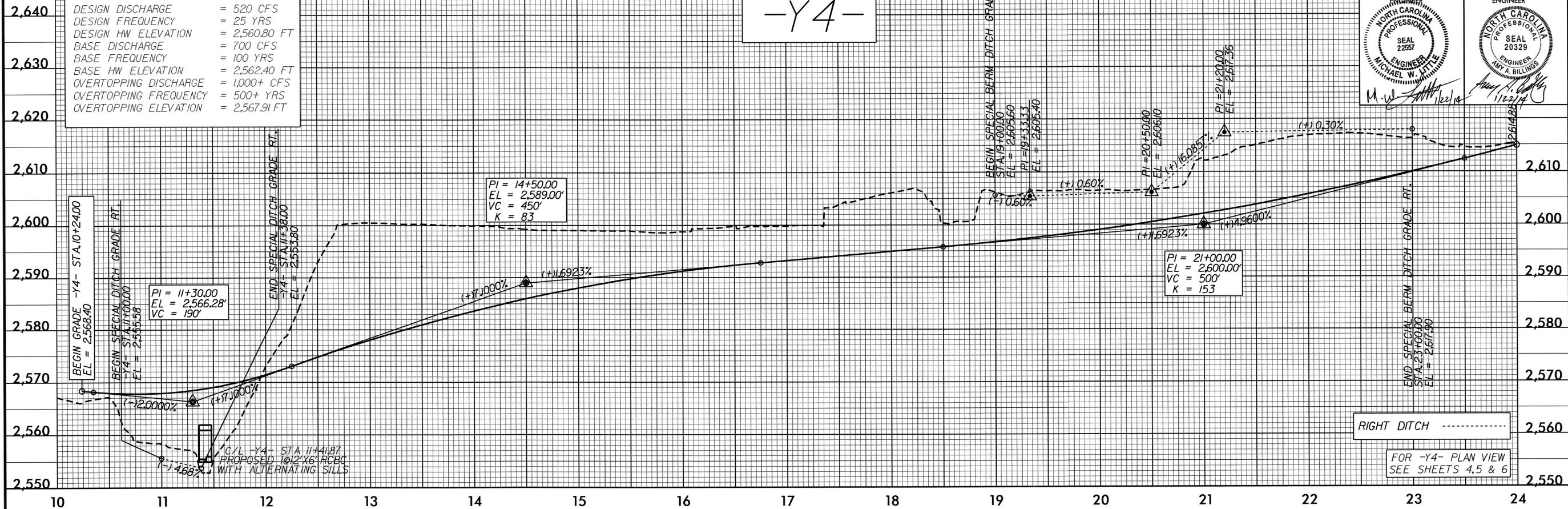
5/28/99

CULVERT HYDRAULIC DATA

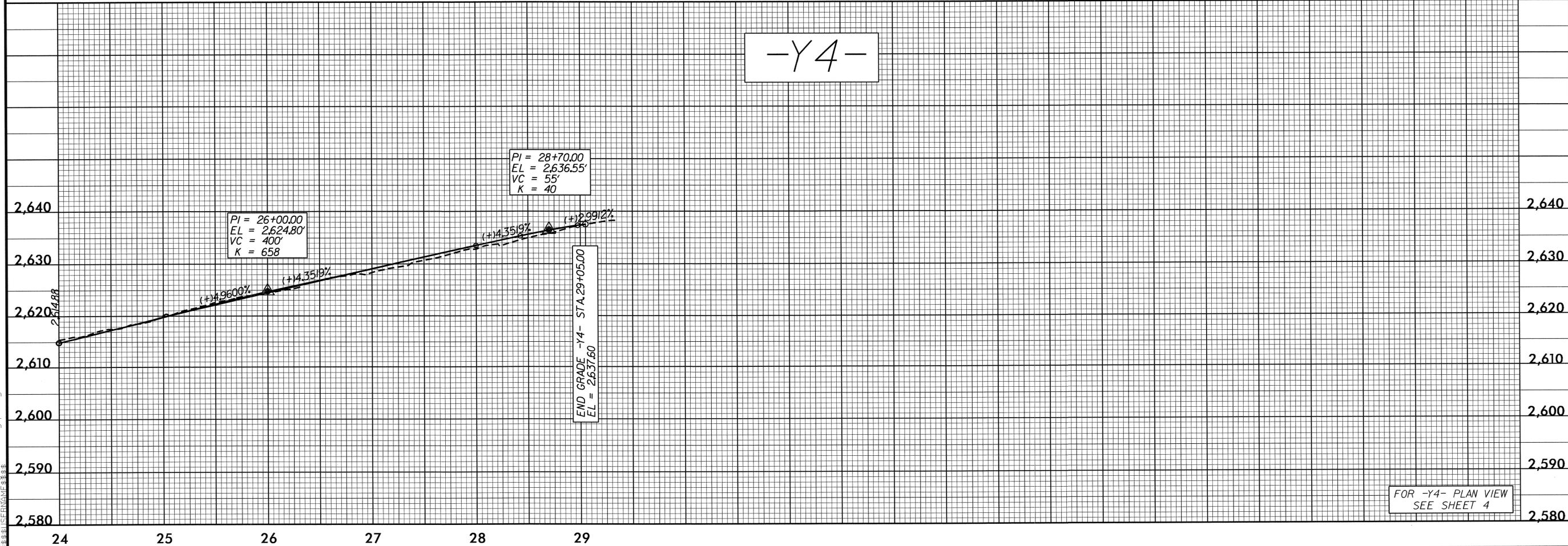
DESIGN DISCHARGE = 520 CFS
 DESIGN FREQUENCY = 25 YRS
 DESIGN HW ELEVATION = 2,560.80 FT
 BASE DISCHARGE = 700 CFS
 BASE FREQUENCY = 100 YRS
 BASE HW ELEVATION = 2,562.40 FT
 OVERTOPPING DISCHARGE = 1,000+ CFS
 OVERTOPPING FREQUENCY = 500+ YRS
 OVERTOPPING ELEVATION = 2,567.91 FT

PROJECT REFERENCE NO. R-4047	SHEET NO. 16
ROADWAY DESIGN NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22857 MICHAEL W. LITTLE 1/22/14	HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20329 AMY A. BILLINGS 1/22/14

-Y4-

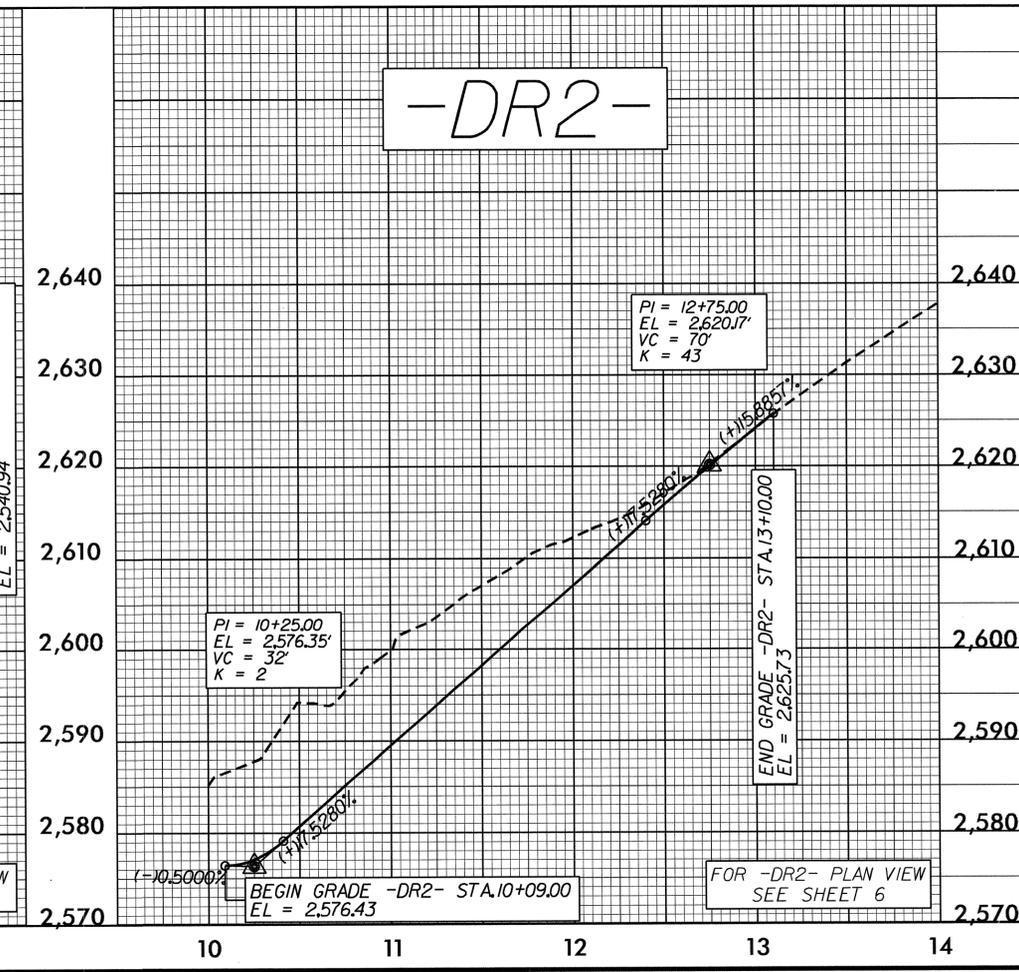
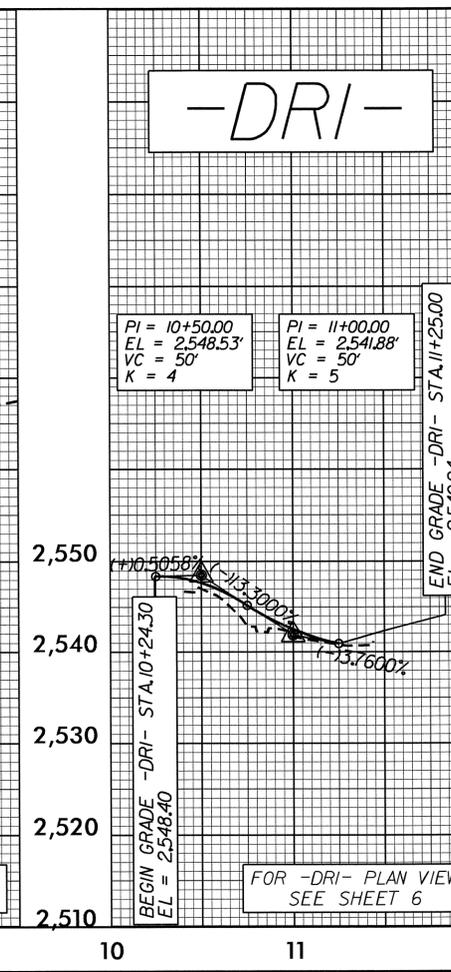
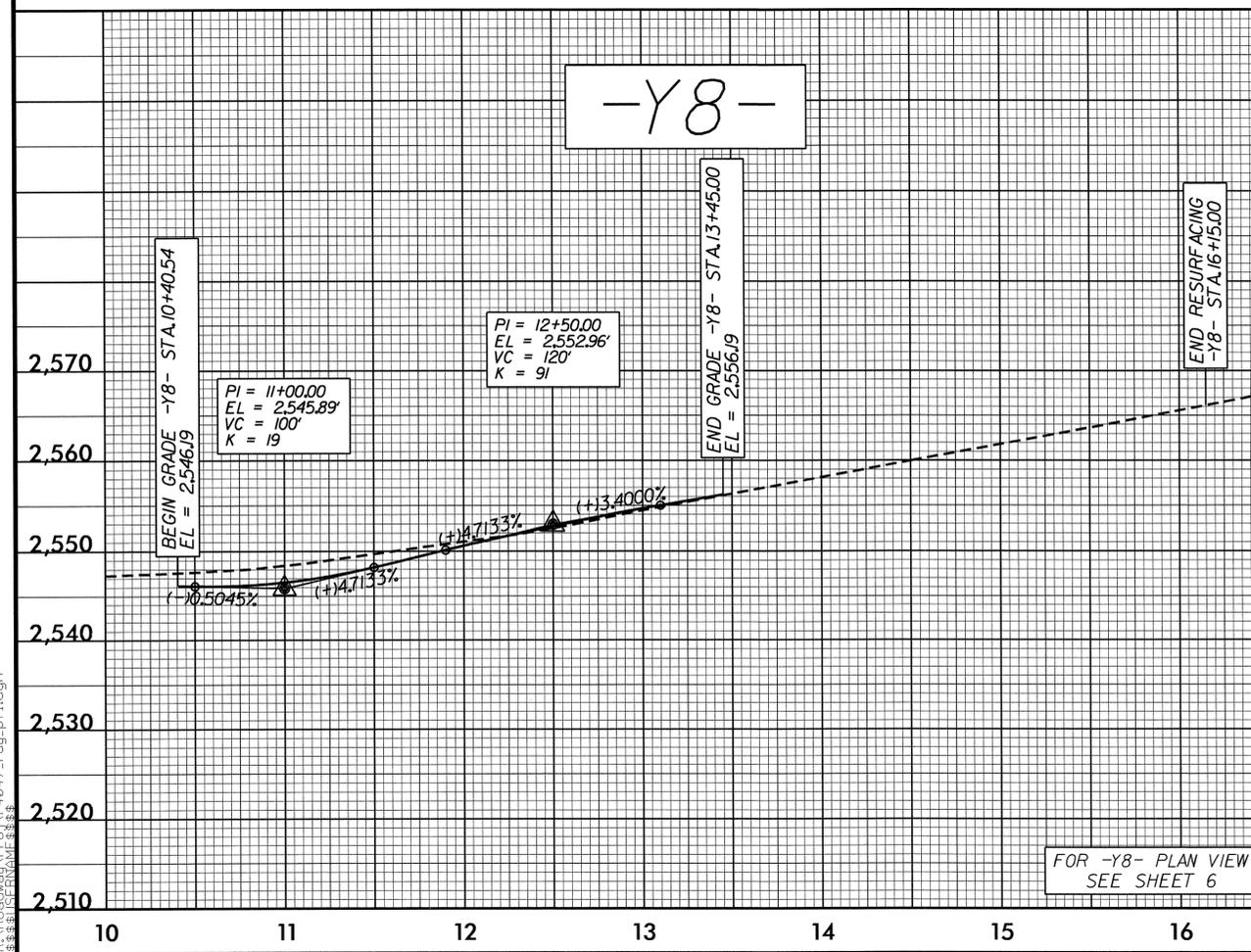
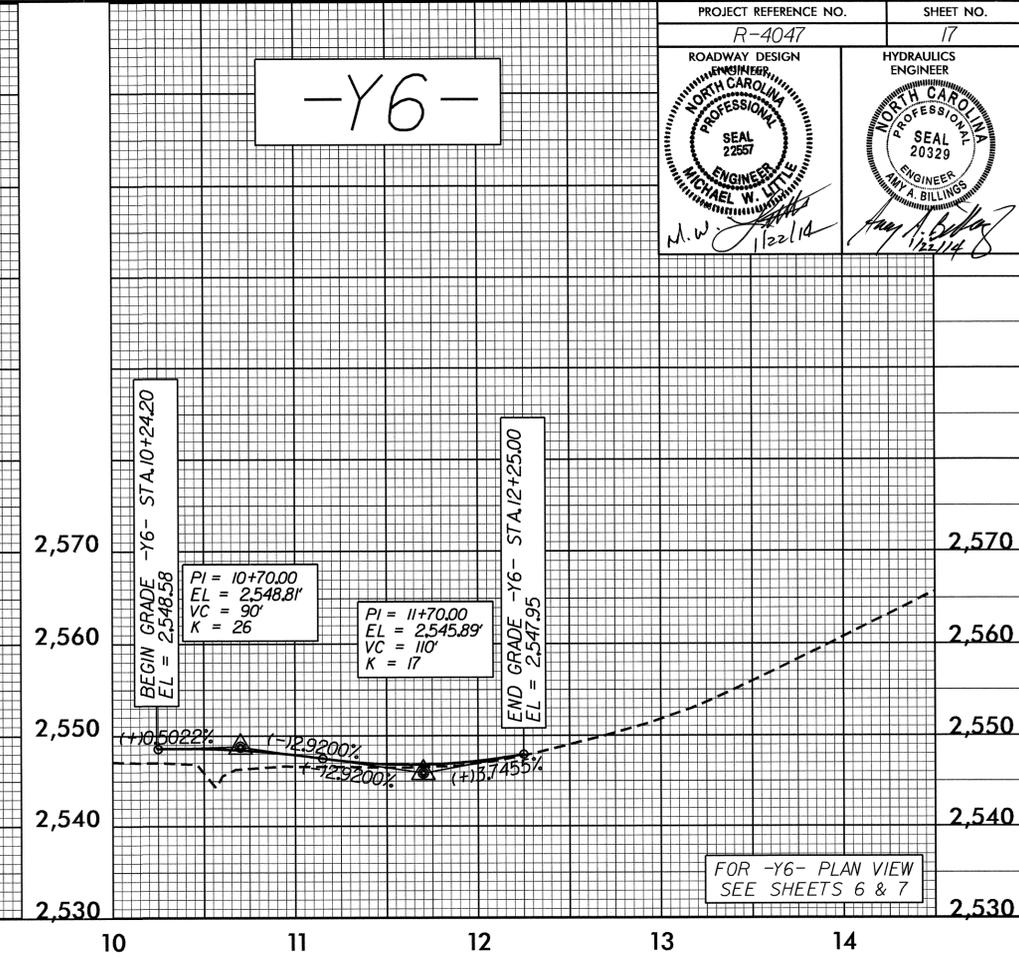
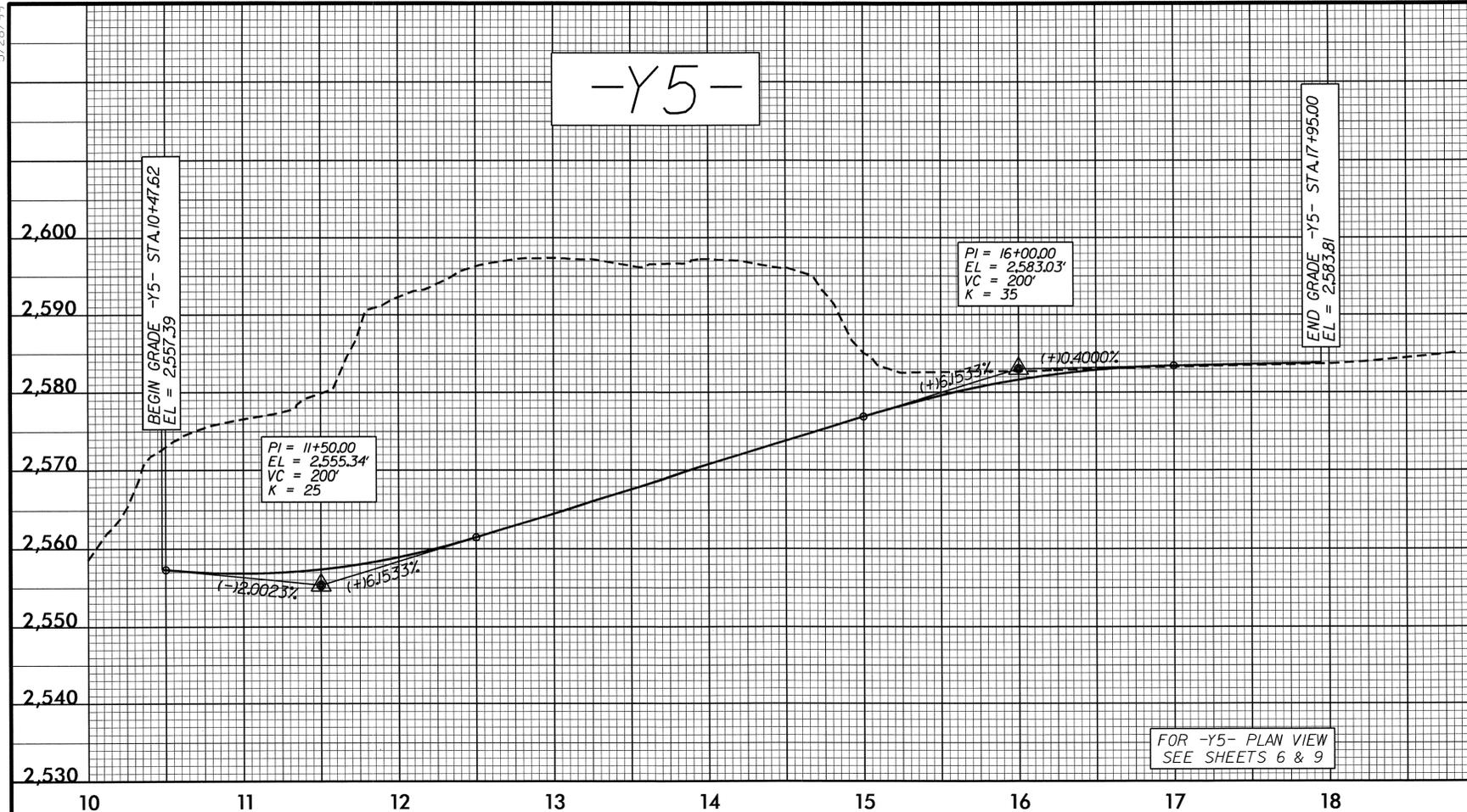


-Y4-



R:\PLAN_2014_08\46_r4047_rdy.plt.dgn

5/28/99



03 JAN 2014 15:18 \\s18\4047_rdy.plt.dgn

5/28/99

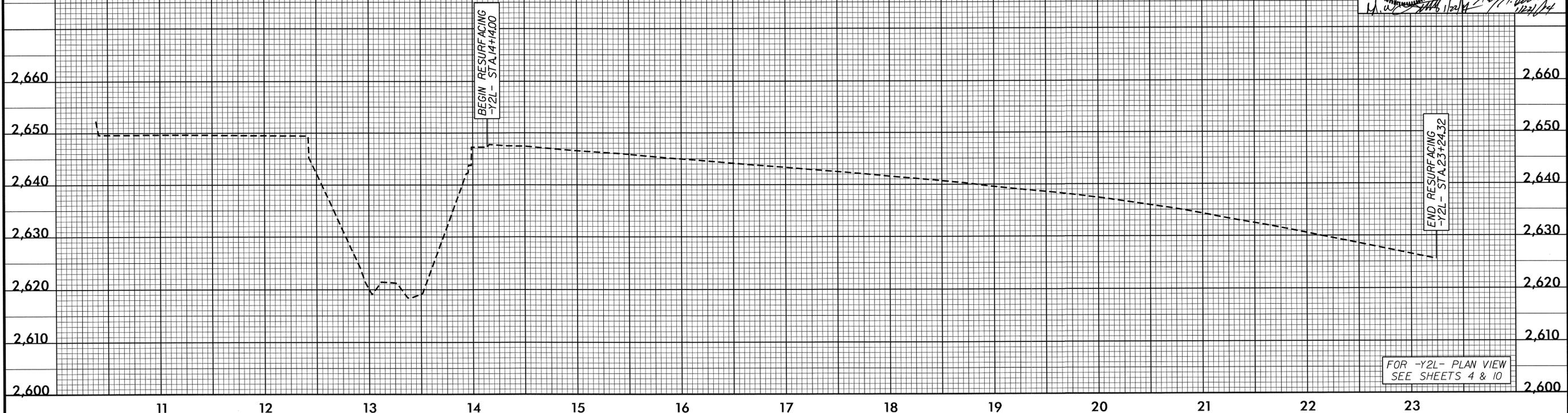
BM *1 EL = 2674.22
PUNCH-HOLE IN DIME ON SE CORNER OF CONC.PAD
-BL- STA.16+15 (531.00' RT.)
-Y2L- STA.10+23.61 (633.07' RT.)

BM *17 EL = 2633.91
8" SPIKE IN ROOT OF A 32' WILD CHERRY TREE
-BY7- STA.8+27 (30.00' LT.)
-Y2L- STA.11+71.36 (138.32' RT.)

BM *12 EL = 2634.39
CHISELED "X" ON CONC.PAD
-BY4- STA.19+82 (50.00' LT.)
-Y2L- STA.20+85.00 (401' LT.)

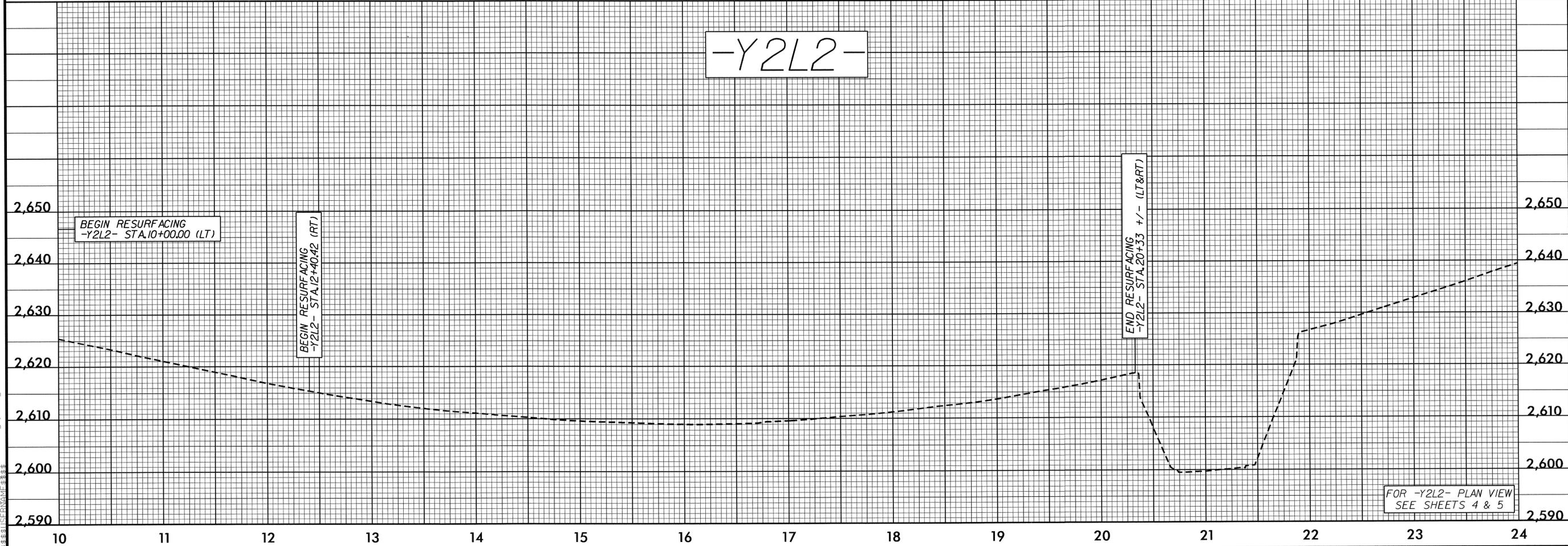
PROJECT REFERENCE NO. R-4047	SHEET NO. 18
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-Y2L-



FOR -Y2L- PLAN VIEW
SEE SHEETS 4 & 10

-Y2L2-



FOR -Y2L2- PLAN VIEW
SEE SHEETS 4 & 5

03 JAN 2014 15:18 \\s18\p1\4047_rdy_p1.dgn