TIP PROJECT: R-5745

CONTRACT: DK00232

6/13/2017
X:\NCDOT\R-5745\Roadway\Proj\R-5745_Rdy_tsh.dgn
User:smelvin

See Sheet 1-A For Index of Sheets

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

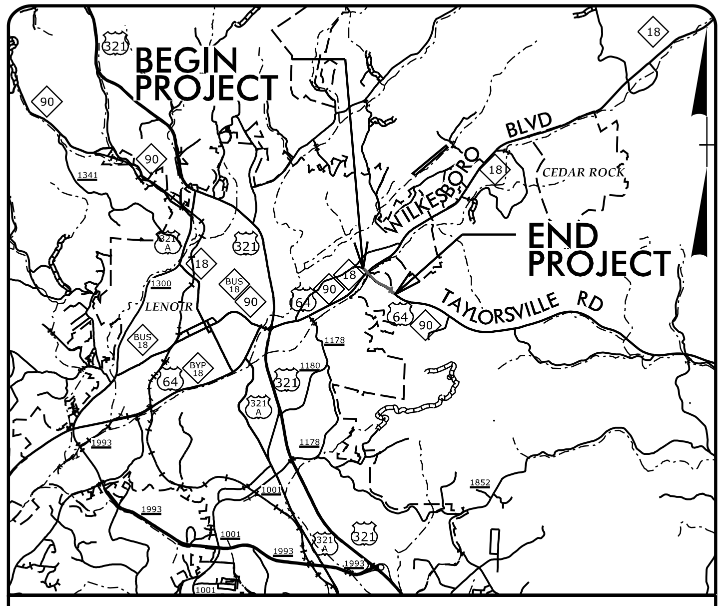
CALDWELL COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5745	1	

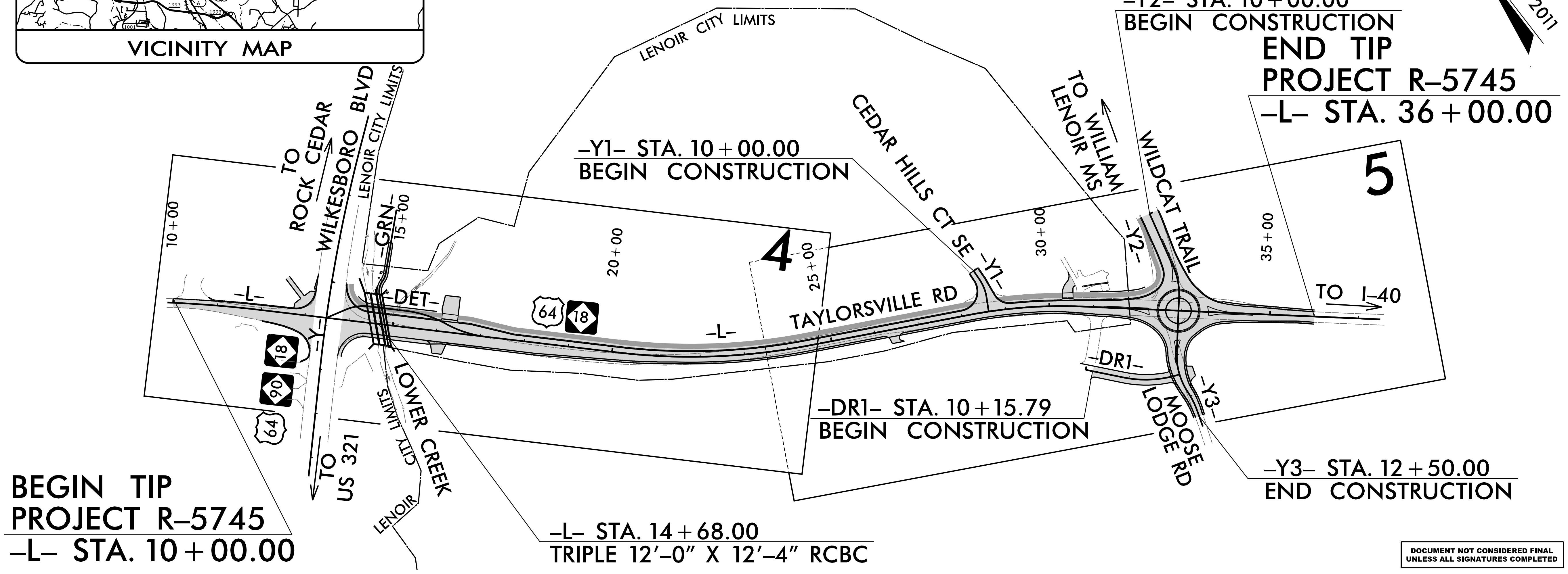
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
50200.1.1	N/A	PE
50200.2.1	N/A	R/W, UTIL.
50200.3.1	N/A	CONST.

LOCATION: IMPROVEMENTS OF INTERSECTION OF US64/NC90/NC18 (WILKESBORO BOULEVARD) AND US64/NC90 (TAYLORSVILLE ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, CURB AND GUTTER, SIGNALS, AND STRUCTURE

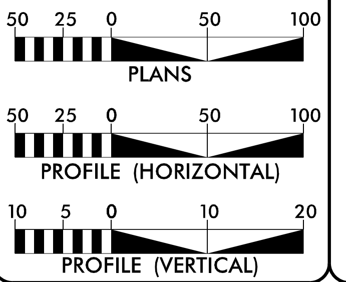


VICINITY MAP



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

ADT 2015 = 7900
ADT 2040 = 10100
K = 10 %
D = 60 %
T = 4 % *
V = 40 MPH
*TTST =2% DUAL =2%
FUNC CLASS = URBAN COLLECTOR
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-5745	=	0.492 MILES
TOTAL LENGTH TIP PROJECT R-5745	=	0.492 MILES

NCDOT CONTACT: JOE L. LAWS, PE

PLANS PREPARED BY:

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

PLANS PREPARED FOR:

NORTH CAROLINA DEPARTMENT OF TRANSPORATION
DIVISION 11
801 Statesville Rd
North Wilkesboro, NC 28659

RIGHT OF WAY DATE:
JUNE 1, 2016

LETTING DATE:
JULY 27, 2017

2012 STANDARD SPECIFICATIONS

JIMMY L. TERRY, PE
PROJECT ENGINEER

SANDRA G. MELVIN
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

DocuSigned by:
Thomas Fletcher
6/13/2017
651811DF92C445B...
SEAL 036194
SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

DocuSigned by:
Jimmy Terry
6/13/2017
FD39F38882E94D0...
SEAL 35018
SIGNATURE: *P.E.*

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-5745	1A

ROADWAY DESIGN
ENGINEER

DocuSigned by:
Jimmy Terry
FD39F38882E94D0...
SEAL
35018
6/13/2017

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

INDEX OF SHEETS

SHEET NO.	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
1-C AND 1-D	SURVEY CONTROL SHEETS
2A-1 THRU 2A-3	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2B-1	ROUNDABOUT LAYOUT DETAIL
2B-2	DETOUR LAYOUT DETAIL
2C-1	DETAIL OF PIPE HANDRAIL MOUNTED ON RETAINING WALL
2C-2	DETAIL OF PROPOSED PEDESTRIAN SAFETY RAIL
2C-3	CURB RAMP DETAILS
2C-4	ROCK PLATING DETAIL
2D-1	DRAINAGE DETAILS
2D-2	DETAIL OF CONCRETE FLUME
3B-1	SUMMARY OF GUARDRAIL, EARTHWORK SUMMARY AND ASPHALT PAVEMENT REMOVAL SUMMARY
3D-1 AND 3D-2	SUMMARY OF DRAINAGE QUANTITIES
3G-1	GEOTECHNICAL SUMMARIES
3P-1	PARCEL INDEX SHEET
4 THRU 6	PLAN AND PROFILE SHEETS
TMP-1 THRU TMP-7	TRAFFIC MANAGEMENT PLANS
PMP-1 THRU PMP-5	PAVEMENT MARKING PLAN
EC-1 THRU EC-10	EROSION CONTROL PLANS
RF-1 AND RF-2	REFORESTATION PLANS
SIGN-1 THRU SIGN-5	SIGNING PLANS
SIG-1.0 THRU SIG-4.1	SIGNAL PLANS
UC-1 THRU UC-7	UTILITY CONSTRUCTION PLANS
U0-1 THRU UO-3	UTILITY BY OTHERS PLANS
X-INDEX	CROSS-SECTION INDEX
X-SUM	EARTHWORK VOLUME SUMMARY
X-1 THRU X-23	CROSS-SECTIONS
C-1 THRU C-21	CULVERT PLANS

GENERAL NOTES

GENERAL NOTES: 2012 SPECIFICATIONS
EFFECTIVE: 01-17-2012
REVISED: 10-31-2014

GRADE LINE:
GRADING AND SURFACING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

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

SIDE ROADS:

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

BERM DITCHES:

BERM DITCHES SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 240.01 AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

SUBSURFACE DRAINS:

SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 AT LOCATIONS DIRECTED BY THE ENGINEER.

DRIVEWAYS:

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

STREET TURNOUT:

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

GUARDRAIL:

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

TEMPORARY SHORING:

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

SUBSURFACE PLANS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE DUKE ENERGY, CHARTER COMMUNICATION, PIEDMONT NATURAL GAS, CITY OF LENOIR, CALDWELL COUNTY - WATER, SPIRIT COMMUNICATION, AT&T

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

RIGHT-OF-WAY MARKERS:

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

CURB RAMPS

CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. CONSTRUCT ALL CURB RAMPS ACCORDANCE WITH STD 848.05 and/or 848.06.

STANDARD DRAWINGS

EFF. 01-17-2012
REV. 02-29-2016

2012 ROADWAY ENGLISH STANDARD DRAWINGS

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

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
225.06	Method of Grading Sight Distance at Intersections
240.01	Guide for Berm Ditch Construction
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
815.02	Subsurface Drain
838.04	Conc. Endwall for Single & Double Pipe Culverts - 17"x13" thru 71"x47" Arch 90 Skew
838.14	Brick Endwall for Single & Double Pipe Culverts - 17"x13" thru 71"x47" Arch 90 Skew
840.00	Concrete Base Pad for Drainage Structures
840.01	Brick Catch Basin - 12" thru 54" Pipe
840.02	Concrete Catch Basin - 12" thru 54" Pipe
840.03	Frame, Grates and Hood - for Use on Standard Catch Basin
840.14	Concrete Drop Inlet - 12" thru 30" Pipe
840.15	Brick Drop Inlet - 12" thru 30" Pipe
840.16	Drop Inlet Frame and Grates - for use with Std. Dwg 840.14 and 840.15
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.24	Frames and Narrow Slot Sag Grates
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.34	Traffic Bearing Junction Box - for Use with Pipes 42" and Under
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
848.01	Concrete Sidewalk
848.02	Driveway Turnout - Radius Type
848.04	Street Turnout
848.05	Curb Ramp - Proposed Curb & Gutter
850.01	Concrete Paved Ditches
850.10	Guide for Berm Drainage Outlet - 15" and 18" Pipe
852.01	Concrete Islands
852.06	Method for Placement of Drop Inlets in Concrete Islands
862.01	Guardrail Placement
862.02	Guardrail Installation
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

04/06/15

PROJECT REFERENCE NO.	SHEET NO.
R-5745	IB

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	EIP
Property Corner	
Property Monument	ECM
Parcel/Sequence Number	(123)
Existing Fence Line	
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
Existing Historic Property Boundary	HPB
Known Contamination Area: Soil	
Potential Contamination Area: Soil	
Known Contamination Area: Water	
Potential Contamination Area: Water	
Contaminated Site: Known or Potential	

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	
Sign	S
Well	W
Small Mine	
Foundation	
Area Outline	
Cemetery	
Building	
School	
Church	
Dam	

HYDROLOGY:

Stream or Body of Water	
Hydro, Pool or Reservoir	
Jurisdictional Stream	JS
Buffer Zone 1	BZ 1
Buffer Zone 2	BZ 2
Flow Arrow	
Disappearing Stream	
Spring	
Wetland	
Proposed Lateral, Tail, Head Ditch	FLOW
False Sump	

RAILROADS:

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

RIGHT OF WAY:

Baseline Control Point	
Existing Right of Way Marker	
Existing Right of Way Line	
Proposed Right of Way Line	R/W
Proposed Right of Way Line with Iron Pin and Cap Marker	R/W
Proposed Right of Way Line with Concrete or Granite R/W Marker	R/W
Proposed Control of Access Line with Concrete C/A Marker	C/A
Existing Control of Access	C/A
Proposed Control of Access	C/A
Existing Easement Line	E
Proposed Temporary Construction Easement	E
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	S

UTILITIES:

POWER:

Existing Power Pole	
Proposed Power Pole	
Existing Joint Use Pole	
Proposed Joint Use Pole	
Power Manhole	Ⓟ
Power Line Tower	
Power Transformer	
U/G Power Cable Hand Hole	
H-Frame Pole	
U/G Power Line LOS B (S.U.E.*)	P
U/G Power Line LOS C (S.U.E.*)	P
U/G Power Line LOS D (S.U.E.*)	P

TELEPHONE:

Existing Telephone Pole	
Proposed Telephone Pole	
Telephone Manhole	Ⓣ
Telephone Pedestal	T
Telephone Cell Tower	
U/G Telephone Cable Hand Hole	HH
U/G Telephone Cable LOS B (S.U.E.*)	T
U/G Telephone Cable LOS C (S.U.E.*)	T
U/G Telephone Cable LOS D (S.U.E.*)	T
U/G Telephone Conduit LOS B (S.U.E.*)	TC
U/G Telephone Conduit LOS C (S.U.E.*)	TC
U/G Telephone Conduit LOS D (S.U.E.*)	TC
U/G Fiber Optics Cable LOS B (S.U.E.*)	T FO
U/G Fiber Optics Cable LOS C (S.U.E.*)	T FO
U/G Fiber Optics Cable LOS D (S.U.E.*)	T FO

WATER:

Water Manhole	Ⓦ
Water Meter	
Water Valve	
Water Hydrant	
U/G Water Line LOS B (S.U.E*)	W
U/G Water Line LOS C (S.U.E*)	W
U/G Water Line LOS D (S.U.E*)	W
Above Ground Water Line	A/G Water

TV:

TV Pedestal	C
TV Tower	
U/G TV Cable Hand Hole	HH
U/G TV Cable LOS B (S.U.E.*)	TV
U/G TV Cable LOS C (S.U.E.*)	TV
U/G TV Cable LOS D (S.U.E.*)	TV
U/G Fiber Optic Cable LOS B (S.U.E.*)	TV FO
U/G Fiber Optic Cable LOS C (S.U.E.*)	TV FO
U/G Fiber Optic Cable LOS D (S.U.E.*)	TV FO

GAS:

Gas Valve	
Gas Meter	
U/G Gas Line LOS B (S.U.E.*)	G
U/G Gas Line LOS C (S.U.E.*)	G
U/G Gas Line LOS D (S.U.E.*)	G
Above Ground Gas Line	A/G Gas

SANITARY SEWER:

Sanitary Sewer Manhole	
Sanitary Sewer Cleanout	
U/G Sanitary Sewer Line	SS
Above Ground Sanitary Sewer	A/G Sanitary Sewer
SS Forced Main Line LOS B (S.U.E.*)	FSS
SS Forced Main Line LOS C (S.U.E.*)	FSS
SS Forced Main Line LOS D (S.U.E.*)	FSS

MISCELLANEOUS:

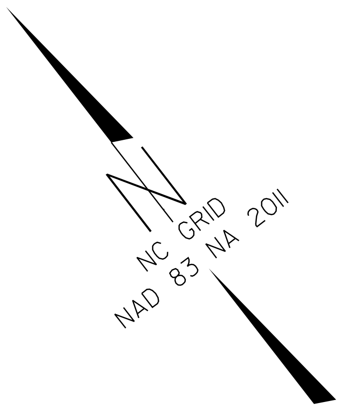
Utility Pole	●
Utility Pole with Base	
Utility Located Object	
Utility Traffic Signal Box	S
Utility Unknown U/G Line LOS B (S.U.E.*)	?UTL
U/G Tank; Water, Gas, Oil	
Underground Storage Tank, Approx. Loc.	UST
A/G Tank; Water, Gas, Oil	
Geoenvironmental Boring	
U/G Test Hole LOS A (S.U.E.*)	
Abandoned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

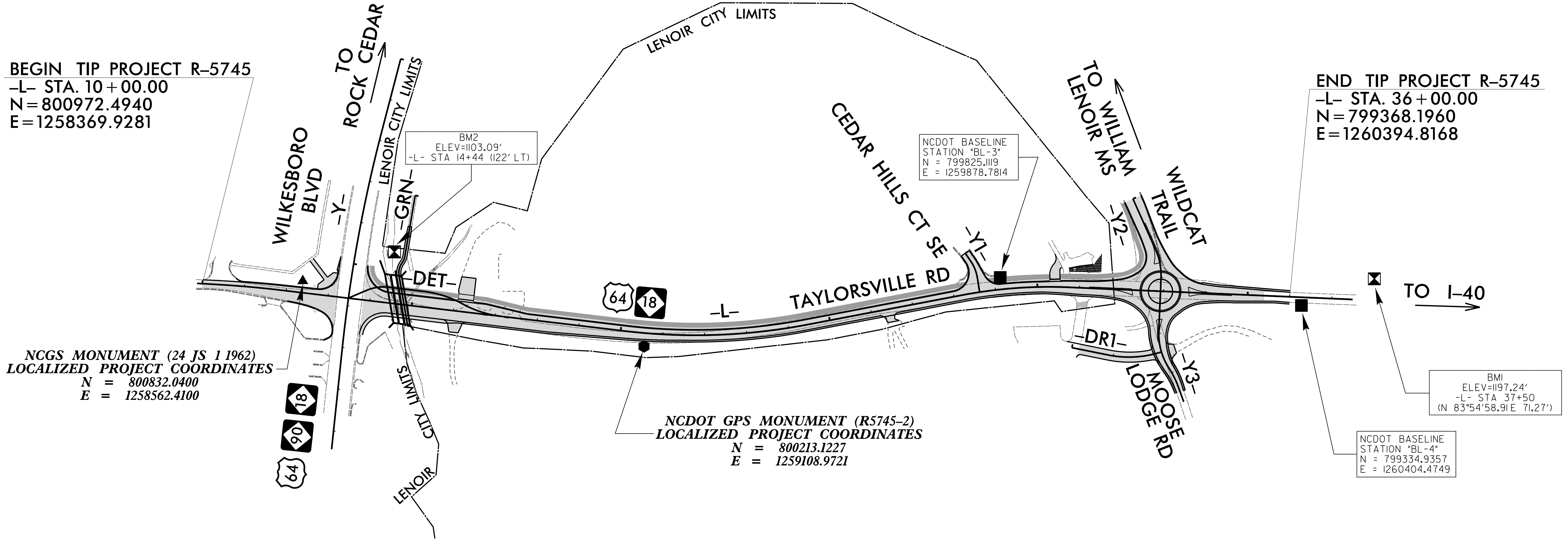
PROJECT REFERENCE NO.	SHEET NO.
R-5745	1-C
Location and Surveys	

SURVEY CONTROL SHEET R-5745

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	NCDOT 24 GS 1 1	800832.0400	1258562.4100	1115.40	12+35.91	27.70 LT
2	R5745-2	800213.1227	1259108.9721	1124.05	20+58.51	31.69 RT
3	BL-3	799825.1119	1259878.7814	1161.04	29+14.47	28.27 LT
4	BL-4	799334.9357	1260404.4749	1187.66	36+28.83	19.19 RT





BEGIN TIP PROJECT R-5745
-L- STA. 10+00.00
N=800972.4940
E=1258369.9281

BM2
ELEV=1103.09'
-L- STA 14+44 (122' LT)

NCDOT BASELINE
STATION "BL-3"
N = 799825.1119
E = 1259878.7814

END TIP PROJECT R-5745
-L- STA. 36+00.00
N=799368.1960
E=1260394.8168

NCGS MONUMENT (24 JS 1 1962)
LOCALIZED PROJECT COORDINATES
N = 800832.0400
E = 1258562.4100

NCDOT GPS MONUMENT (R5745-2)
LOCALIZED PROJECT COORDINATES
N = 800213.1227
E = 1259108.9721

BM1
ELEV=1197.24'
-L- STA 37+50
(N 83°54'58.91E 71.27')

NCDOT BASELINE
STATION "BL-4"
N = 799334.9357
E = 1260404.4749

NOTES:

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/

THE FILES TO BE FOUND ARE AS FOLLOWS:
r5745_ls_control.txt

SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

▲ ⬢ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.*

PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

NETWORK ESTABLISHED FROM NCGS VIRTUAL REFERENCE NETWORK.

NOTE: DRAWING NOT TO SCALE

* *

BM1 ELEVATION = 1197.24
N 799279 E 1260580
L STATION 37+50.00
N 83°54'58.91" E DIST 71.27
RR SPIKE IN 14" SYCAMORE

* *

* *

BM2 ELEVATION = 1103.09
N 800753 E 1258777
L STATION 14+44.00 122 LEFT
RR SPIKE IN 16" SYCAMORE

* *

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "24 JS 1 1962"
WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 800832.04(ft) EASTING: 1258562.41(ft)
ELEVATION: 1115.40(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99989319
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "24 JS 1 1962" TO -L- STATION 10+00.00 IS
N 53°52'54.4" E 238.28 (ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

5/30/2017
X:\NCDOT\R-5745\Roadway\Proj\r5745_ls_1c.dgn
User:smelvin

PROJECT REFERENCE NO.	SHEET NO.
R-5745	1-D
Location and Surveys	

SURVEY CONTROL SHEET R-5745

CENTERLINE COORDINATE LIST

-L- Alignment

Point	Station	Northing (Y)	Easting (X)
PC	9+87.26	800,980.7212	1,258,360.2023
PT	11+93.51	800,841.9849	1,258,512.7440
PC	20+13.21	800,267.6500	1,259,097.6027
PT	24+43.27	800,017.8037	1,259,445.5603
PC	28+18.68	799,848.0728	1,259,780.4133
PT	30+73.48	799,707.7012	1,259,992.3687
POT	37+49.62	799,271.7235	1,260,509.1749

-Y- Alignment

Point	Station	Northing (Y)	Easting (X)
POT	10+00.00	801,107.1532	1,259,069.1886
PC	11+77.99	800,998.3437	1,258,928.3326
PT	17+01.86	800,648.3129	1,258,539.2232
POT	19+43.65	800,473.6143	1,258,372.0529

-Y1- Alignment

Point	Station	Northing (Y)	Easting (X)
POT	10+00.00	799,921.4532	1,259,848.1027
PC	10+22.34	799,899.1441	1,259,846.8782
PT	10+67.71	799,855.9360	1,259,834.3753
POT	11+00.00	799,827.7330	1,259,818.6546

-Y2- Alignment

Point	Station	Northing (Y)	Easting (X)
POT	10+00.00	799,780.2448	1,260,242.4260
PC	11+32.41	799,651.5828	1,260,211.1247
PT	12+01.73	799,590.3204	1,260,180.0281
POT	12+33.02	799,566.4087	1,260,159.8562

-Y3- Alignment

Point	Station	Northing (Y)	Easting (X)
POT	10+00.00	799,566.4087	1,260,159.8562
PC	10+94.58	799,494.1178	1,260,098.8715
PCC	11+88.82	799,408.2600	1,260,063.9176
PT	12+36.90	799,361.1825	1,260,054.7325
POT	12+75.00	799,324.9343	1,260,043.0058

-DR1- Alignment

Point	Station	Northing (Y)	Easting (X)
POT	10+00.00	799,589.0012	1,259,911.5915
PC	10+87.71	799,522.6482	1,259,968.9574
PT	12+11.03	799,452.5883	1,260,068.9275
POT	12+15.81	799,450.8869	1,260,073.3851

-GRN- Alignment

Point	Station	Northing (Y)	Easting (X)
POT	10+00.00	800,829.3229	1,258,897.9796
PC	11+45.21	800,730.7370	1,258,791.3682
PCC	11+63.85	800,721.6645	1,258,775.2709
PT	11+96.00	800,701.9397	1,258,750.9795
POT	13+14.95	800,596.8164	1,258,695.3250

-DET- Alignment

Point	Station	Northing (Y)	Easting (X)
POT	10+00.00	800,733.3216	1,258,623.3984
PC	10+47.21	800,721.5184	1,258,669.1041
PT	10+99.56	800,696.0445	1,258,714.1660
PC	11+84.56	800,636.4938	1,258,774.8078
PCC	12+81.34	800,557.1654	1,258,829.1861
PT	13+78.12	800,477.8369	1,258,883.5644

NOTES:

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
HTTP://WWW.DOH.DOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/

THE FILES TO BE FOUND ARE AS FOLLOWS:
r5745_ls_control.txt

SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

▲ ⬢ *INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.*

PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
NETWORK ESTABLISHED FROM NCGS VIRTUAL REFERENCE NETWORK.

NOTE: DRAWING NOT TO SCALE

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT
IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY
NCGS FOR MONUMENT "24 JS 1 1962"
WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 800832.04(ft) EASTING: 1258562.41(ft)
ELEVATION: 1115.40(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT
(GROUND TO GRID) IS: 0.99989319
THE N.C. LAMBERT GRID BEARING AND
LOCALIZED HORIZONTAL GROUND DISTANCE FROM
"24 JS 1 1962" TO -L- STATION 10+00.00 IS
N 53°52'54.4" E 238.28 (ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

PROJECT REFERENCE NO.	SHEET NO.
R-5745	2A-1

ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
DocuSigned by: Jimmy Terry FD39F38882E94D0... SEAL 35018 JIMMY L. TERRY 6/13/2017	

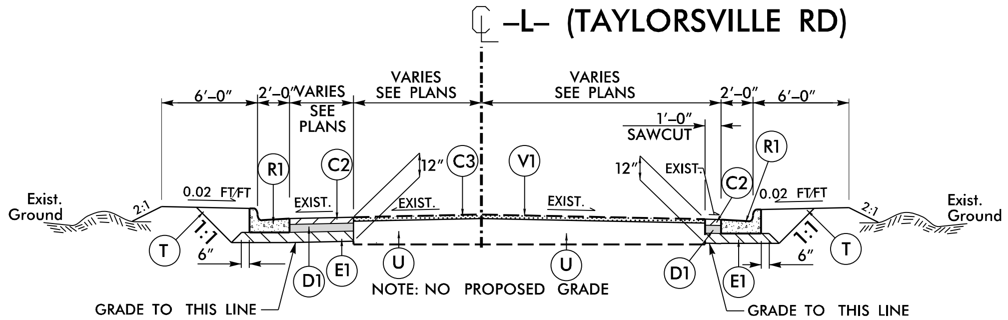
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

PAVEMENT SCHEDULE

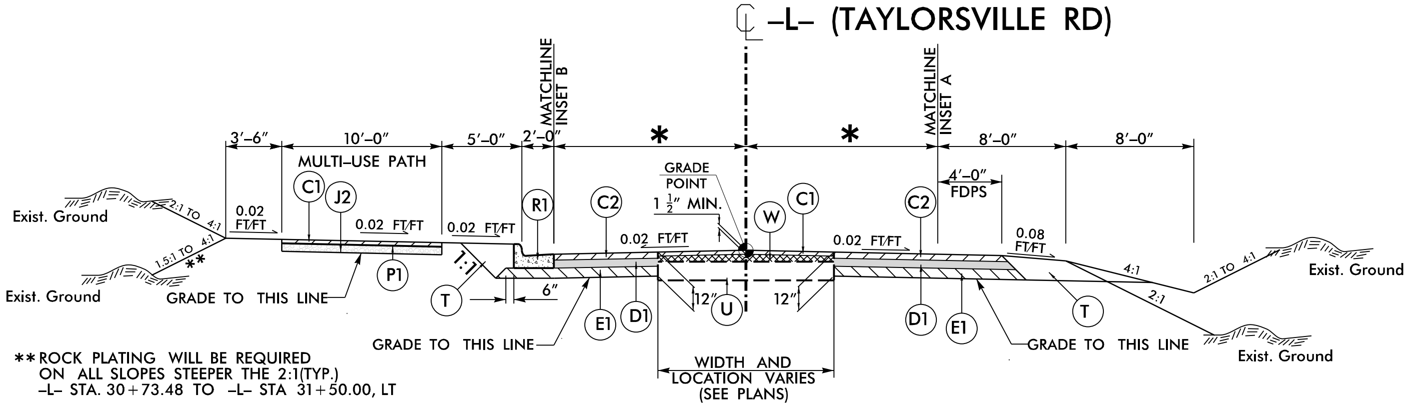
C1	PROP. APPROX. 1 ½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
C4	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5½" IN DEPTH.
J1	PROP. 10" AGGREGATE BASE COURSE.
J2	PROP. 8" AGGREGATE BASE COURSE.
J3	PROP. 4" AGGREGATE BASE COURSE.
P1	PRIME COAT AT THE RATE OF .35 GAL. PER SQ. YD.
R1	2'-6" CONCRETE CURB AND GUTTER.
R2	EXPRESSWAY GUTTER
R3	7" MONOLITHIC CONCRETE TRUCK APRON.
R4	9" X 18" CONCRETE CURB
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V1	MILL , 2" DEPTH
V2	MILLING EXISTING PAVEMENT, SEE SHEET 2A-2 FOR DETAIL
W	WEDGING EXISTING PAVEMENT, SEE SHEET 2A-2 FOR DETAILS

PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1
-L- STA. 10+00.00 TO -L- STA. 13+21.52
NOTE: MAINTAIN EXISTING CURB AND GUTTER
-L- STA. 10+00.00 TO 12+05.35 RT



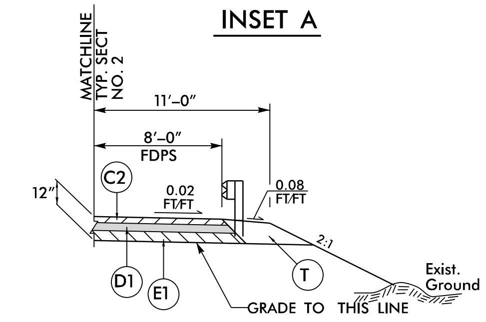
**ROCK PLATING WILL BE REQUIRED ON ALL SLOPES STEEPER THE 2:1(TYP.)
-L- STA. 30+73.48 TO -L- STA 31+50.00, LT

TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2

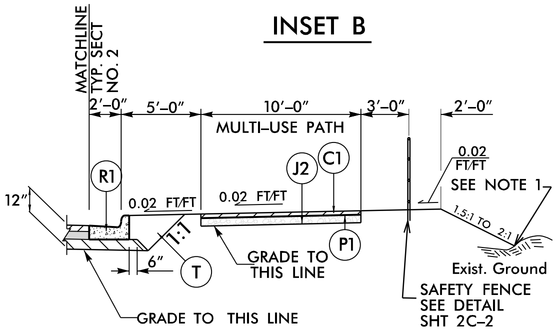
*	STA. TO STA.
24'-0"	-L- STA. 13+81.11 TO -L- STA. 16+75.00 LT -L- STA. 13+81.11 TO -L- STA. 18+25.00 RT
12'-0" TO 24'-0"	-L- STA. 16+75.00 TO -L- STA. 17+75.00 LT -L- STA. 18+25.00 TO -L- STA. 21+45.00 RT
12'-0"	-L- STA. 17+75.00 TO -L- STA. 30+10.16 LT -L- STA. 21+45.00 TO -L- STA. 30+10.16 RT
12'-0" TO 16'-0"	-L- STA. 30+10.16 TO -L- STA. 31+10.16
VARIES (SEE PLANS)	-L- STA. 31+10.16 TO -L- STA. 32+27.60

INSET A



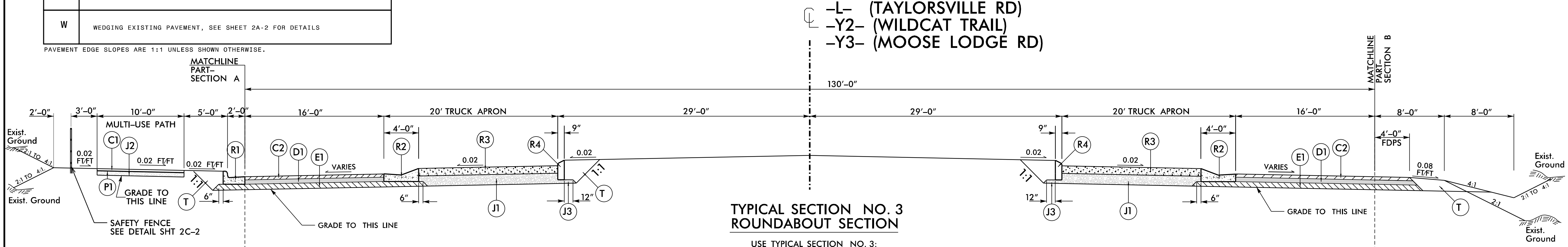
USE INSET A
-L- STA. 13+81.11 TO 15+81.62 RT

INSET B



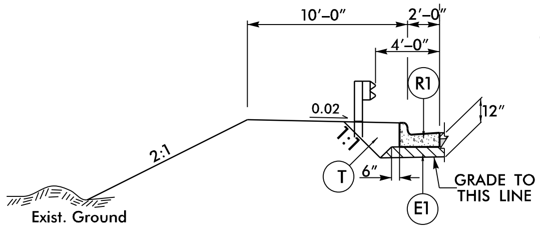
USE INSET B
-L- STA. 14+15.00 TO -L- STA. 15+95.00 LT
-L- STA. 30+90.00 TO -L- STA. 32+15.00 LT

NOTE 1:
FROM -L- STA. 30+73.48 TO -L- STA. 31+30.77 LT
PLACE 2' VALLEY GUTTER (SEE PLAN AND XS-SECTIONS)



TYPICAL SECTION NO. 3
ROUNDABOUT SECTION

USE TYPICAL SECTION NO. 3:
-L- STA. 32+27.60 TO -L- STA. 33+57.60
-Y2- STA. 11+67.84 TO -Y2- STA. 12+33.02
-Y3- STA. 10+00.00 TO -Y3- STA. 10+65.00

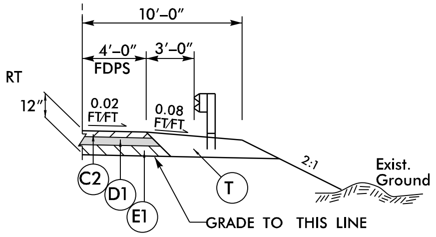


PART-SECTION A

PART-SECTION A
-L- STA. 32+92.60 TO 33+57.60 LT

PART-SECTION B

PART-SECTION B
-L- STA. 32+92.60 TO 33+57.60 RT



5/30/2017
X:\NCDOT\R-5745\Roadway\Proj\R-5745_Rdy-typ.dgn
User:smelvin

PROJECT REFERENCE NO.	SHEET NO.
R-5745	2A-2

ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
DocuSigned by: Jimmy Terry FD39F38882E94D0... SEAL 35018 JIMMY TERRY 6/13/2017	

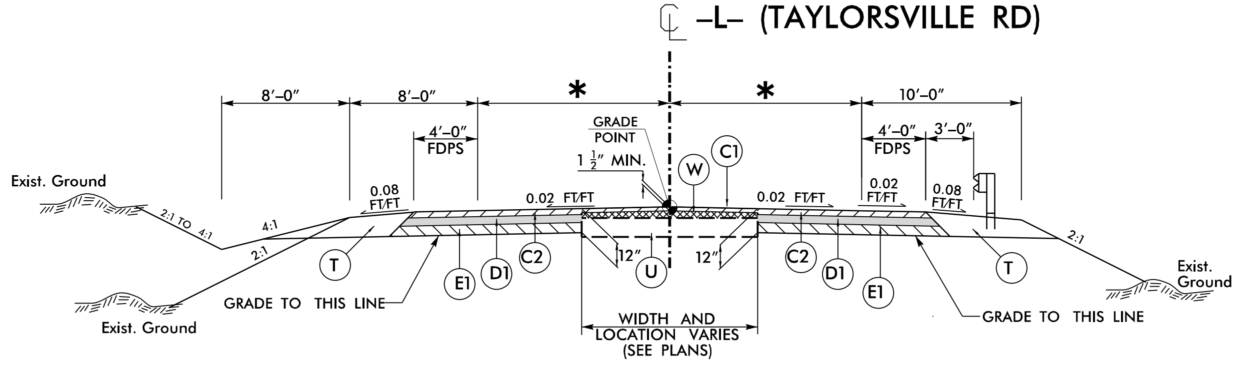
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1½″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B
C2	PROP. APPROX. 3″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B
C4	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B
D1	PROP. APPROX. 4″ ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B
D2	PROP. VAR. DEPTH ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B
E1	PROP. APPROX. 5″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0B
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B
P1	PRIME COAT AT THE RATE OF .35 GAL. PER SQ. YD.
R1	2′-6″ CONCRETE CURB AND GUTTER.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V2	MILLING EXISTING PAVEMENT, SEE THIS SHEET FOR DETAIL
W	WEDGING EXISTING PAVEMENT, SEE THIS SHEET FOR DETAILS

PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



TYPICAL SECTION NO. 4

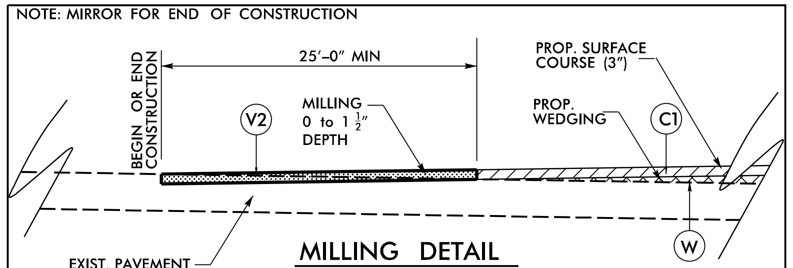
USE TYPICAL SECTION NO. 4

*	STA. TO STA.
VARIES (SEE PLANS)	-L- STA. 33+57.60 TO -L- STA. 34+62.27
12′-0″ TO 16′-0″	-L- STA. 34+62.27 TO -L- STA. 35+62.27

NOTE: TRANSITION BETWEEN TYP. SECT. NO. 4 AND EXISTING AS FOLLOWS:

-L- STA. 35+62.27 TO -L- STA. 36+00.00

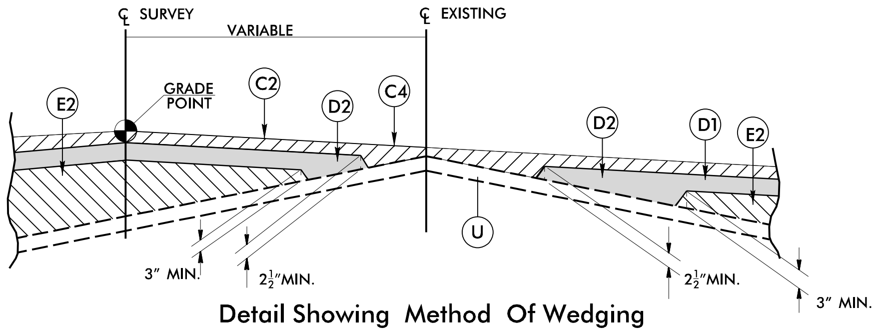
NOTE: MIRROR FOR END OF CONSTRUCTION



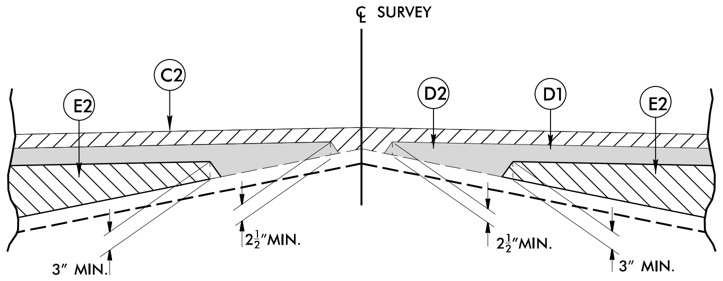
MILLING DETAIL

USE MILLING DETAIL

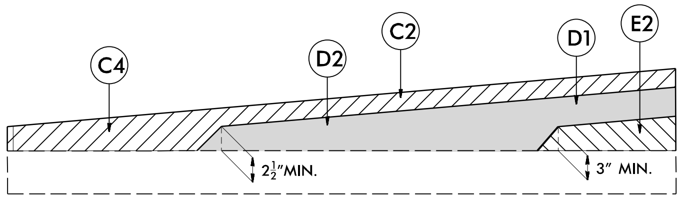
-L- STA. 35+75.00 TO 36+00.00
-Y1- STA. 10+00.00 TO 10+25.00
-Y2- STA. 10+00.00 TO 10+25.00
-Y3- STA. 12+25.00 TO 12+50.00



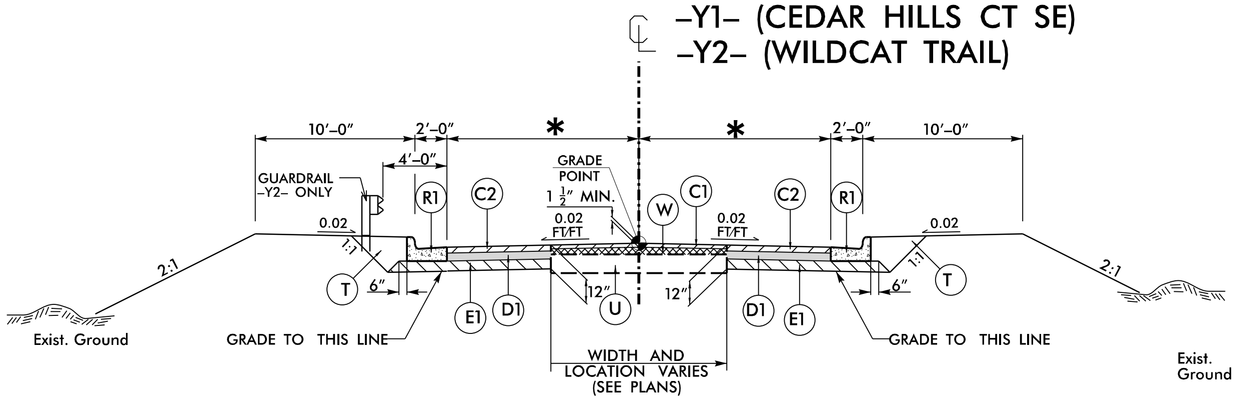
Detail Showing Method Of Wedging



Detail Showing Method of Wedging



Wedging Detail For Resurfacing



TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5

*	STA. TO STA.
11′-1″	-Y1- STA. 10+24.02 TO -Y1- STA. 10+88.00 RT -Y1- STA. 10+25.80 TO -Y1- STA. 10+88.00 LT
20′-0″ TO 20′-3″	-Y2- STA. 10+27.05 TO -Y2- STA. 10+74.18 RT
16′-0″ TO 20′-2″	-Y2- STA. 10+20.76 TO -Y2- STA. 11+01.44 LT
VARIES (SEE PLANS)	-Y2- STA. 10+74.18 TO -Y2- STA. 11+67.84 RT -Y2- STA. 10+01.44 TO -Y2- STA. 11+67.84 LT

NOTE: TRANSITION BETWEEN TYP. SECT. NO. 5 AND EXISTING AS FOLLOWS:

-Y1- STA. 10+00.00 TO -Y1- STA. 10+24.02 RT
-Y1- STA. 10+00.00 TO -Y1- STA. 10+25.80 LT

-Y2- STA. 10+00.00 TO -Y2- STA. 10+27.05 RT
-Y2- STA. 10+00.00 TO -Y2- STA. 10+20.76 LT

PROJECT REFERENCE NO.	SHEET NO.
R-5745	2A-3

ROADWAY DESIGN ENGINEER

DocuSigned by:
Jimmy Terry
FD89F38882E94D0...
SEAL 25018
JIMMY L. TERRY
6/13/2017

PAVEMENT DESIGN ENGINEER

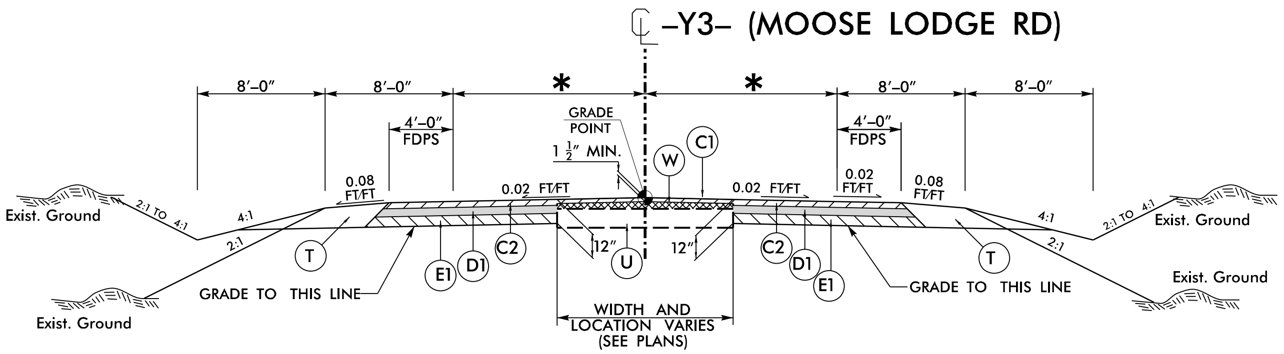
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B
C3	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B
D1	PROP. APPROX. 4" ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B
J2	PROP. 8" AGGREGATE BASE COURSE
P1	PRIME COAT AT THE RATE OF .35 GAL. PER SQ. YD.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	WEDGING EXISTING PAVEMENT, SEE SHEET 2A-2 FOR DETAILS

PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



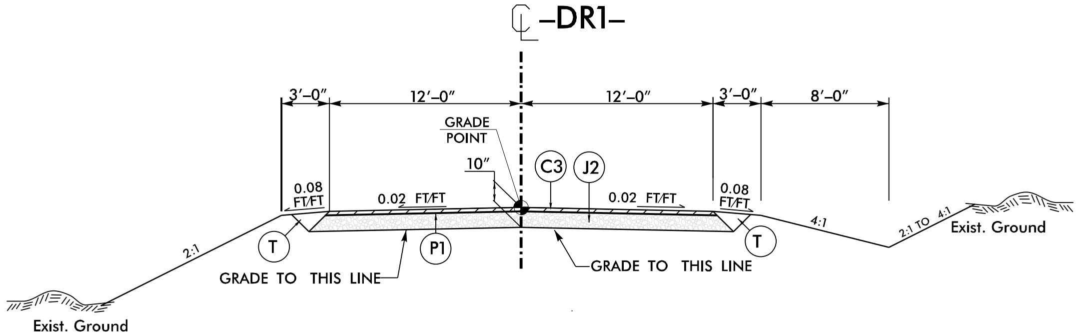
TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6

*	STA. TO STA.
VARIES (SEE PLANS)	-Y3- STA. 10+65.00 TO -Y2- STA. 10+99.72 RT -Y3- STA. 10+65.00 TO -Y2- STA. 11+24.72 LT
12'-0" TO 20'-0"	-Y3- STA. 10+99.72 TO -Y3- STA. 11+74.72 RT
12'-0" TO 16'-0"	-Y3- STA. 11+24.72 TO -Y3- STA. 11+74.72 LT

NOTE: TRANSITION BETWEEN TYP. SECT. NO. 6 AND EXISTING AS FOLLOWS:

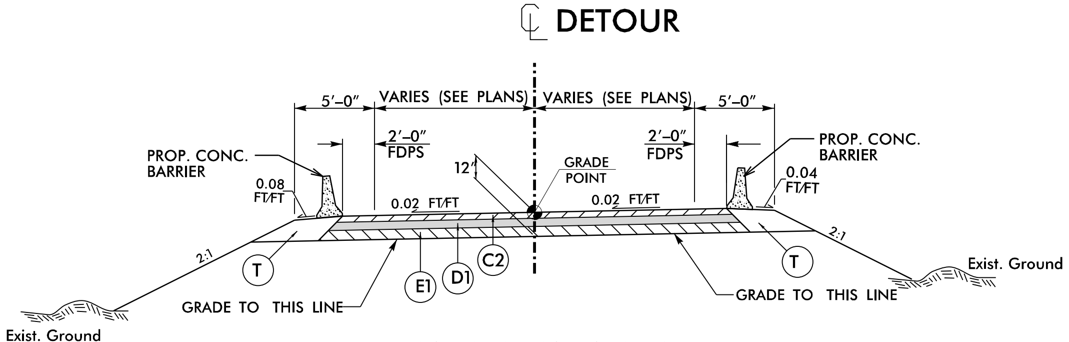
-Y3- STA. 11+74.42 TO -Y3- STA. 12+50.00



TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7

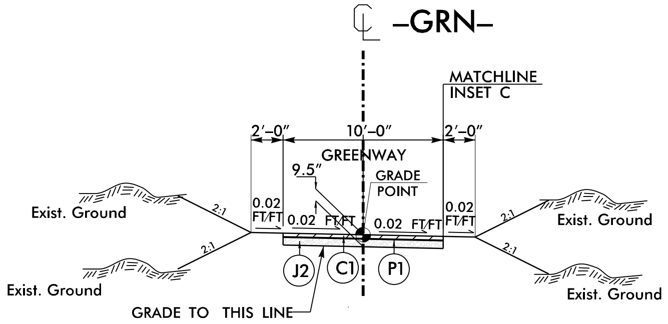
-DR1- STA. 10+15.79 TO -DR1- STA. 12+00.61



TYPICAL SECTION NO. 8

USE TYPICAL SECTION NO. 8

-DET- STA. 10+37.88 TO -DET- STA. 13+19.70

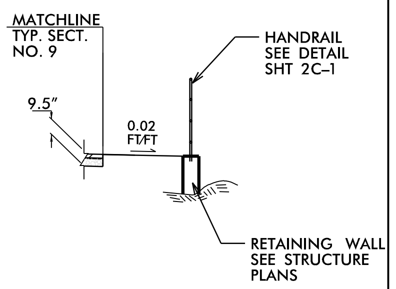


TYPICAL SECTION NO. 9

USE TYPICAL SECTION NO. 9

-GRN- STA. 10+75.00 TO -GRN- STA. 11+96.00 (AT CULVERT)

INSET C



USE INSET C

-GRN- STA. 11+80.00 TO -GRN- STA. 11+96.00 (AT CULVERT)

6/2/9

5/30/2017
X:\NCDOT\R-5745\Roadway\Proj\R-5745_Rdy_typ.dgn
User:smelvin

PROJECT REFERENCE NO.	SHEET NO.
R-5745	2B-1

R/W SHEET NO.

ROADWAY DESIGN ENGINEER

DocuSigned by:
Jimmy Terry
FD39F38882E94D0...
SEAL 35018
JIMMY L. TERRY
6/13/2017

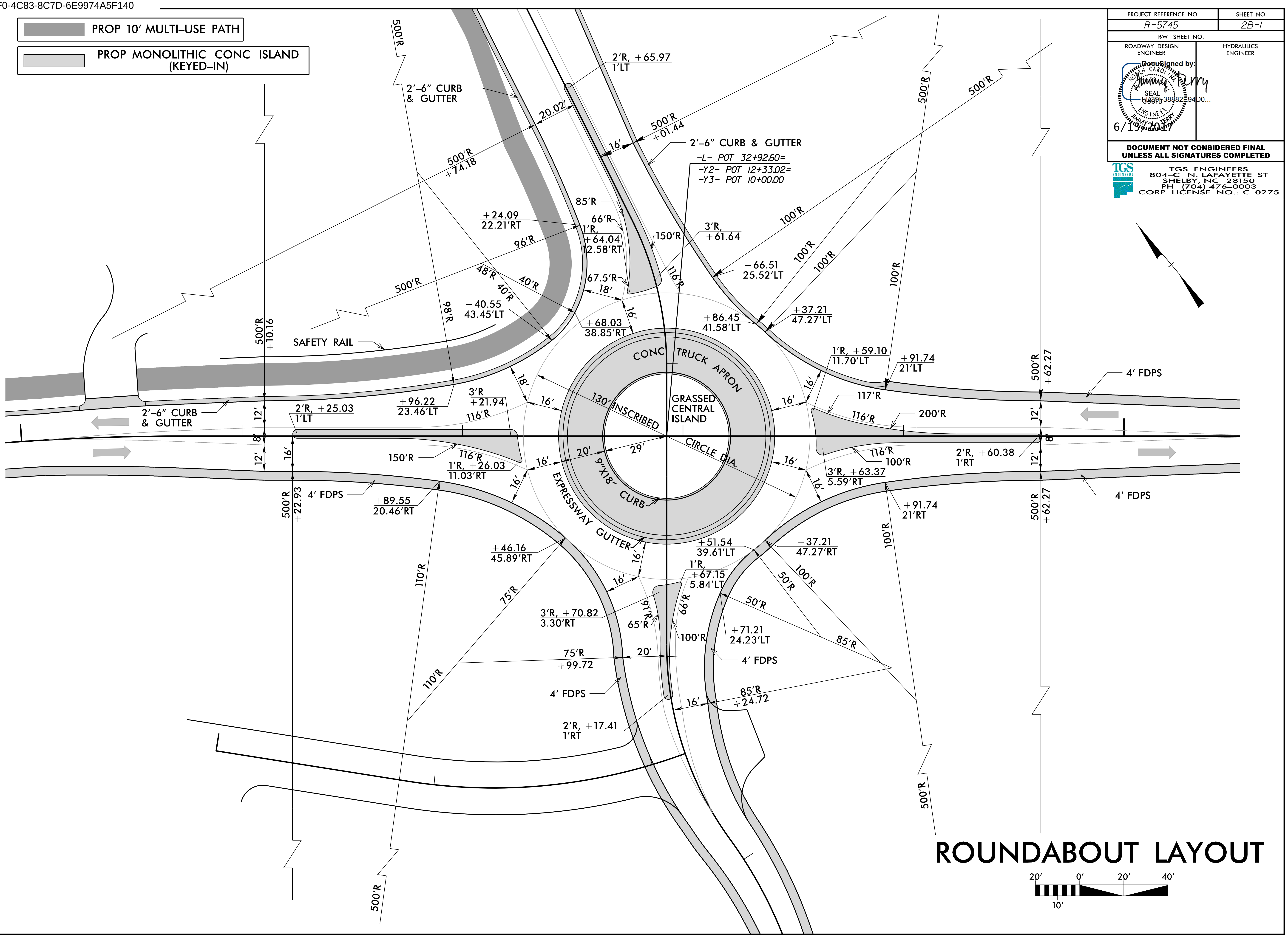
HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

8/17/99

REVISIONS



ROUNDABOUT LAYOUT

5/30/2017
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User:smelvin

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-5745	2B-2
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DocuSigned by: Jimmy Terry FD395388882E94D0... SEAL JIMMY TERRY 6/13/2017	DocuSigned by: Thomas Fletcher 651811DF92C445B... SEAL THOMAS FLETCHER 6/13/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

DETOUR CURVE DATA

PI Sta 10+74.00	PI Sta 12+33.56	PI Sta 13+30.34
△ = 30° 00' 00.0" (RT)	△ = 22° 10' 49.3" (RT)	△ = 22° 10' 49.3" (LT)
D = 57° 17' 44.8"	D = 22° 55' 05.9"	D = 22° 55' 05.9"
L = 52.36'	L = 96.78'	L = 96.78'
T = 26.79'	T = 49.00'	T = 49.00'
R = 100.00'	R = 250.00'	R = 250.00'
SE = SEE PLAN	SE = 0.02	SE = 0.03
	DS= 20 MPH	DS= 20 MPH
① DET PC 10+47.21	③ DET PC 11+84.56	④ DET PRC 12+81.34
② DET PT 10+99.56	④ DET PRC 12+81.34	

-GRN- POT 10+00.00

-L- CURVE DATA

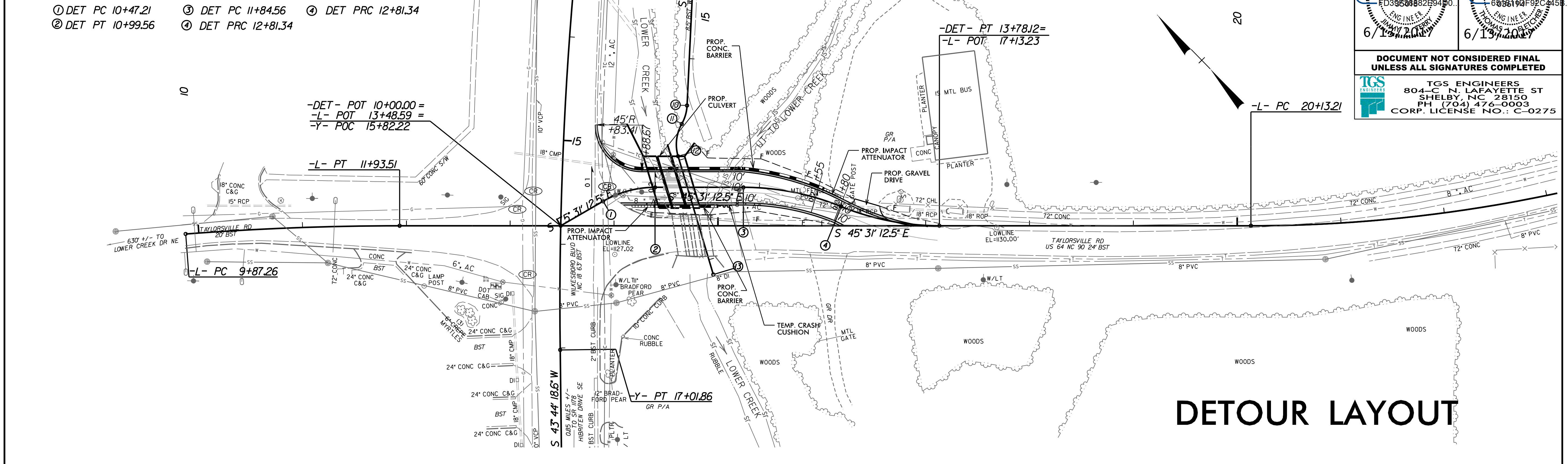
PI Sta 10+90.43	PI Sta 22+29.95
△ = 4° 23' 12.6" (RT)	△ = 17° 36' 00.9" (LT)
D = 2° 07' 37.2"	D = 4° 05' 33.2"
L = 206.25'	L = 430.06'
T = 103.17'	T = 216.73'
R = 2,693.75'	R = 1,400.00'
SE = EXIST.	SE = 0.04
	DS= 55MPH

-Y- CURVE DATA

PI Sta 14+40.41
△ = 8° 34' 33.1" (LT)
D = 1° 38' 13.3"
L = 523.87'
T = 262.43'
R = 3,500.00'

-GRN- CURVE DATA

PI Sta 11+54.70	PI Sta 11+80.85
△ = 26° 42' 31.6" (RT)	△ = 46° 03' 03.0" (LT)
D = 143° 14' 22.0"	D = 143° 14' 22.0"
L = 18.65'	L = 32.15'
T = 9.50'	T = 17.00'
R = 40.00'	R = 40.00'
⑩ -GRN- PC 11+45.21	⑫ -GRN- PT 11+96.00
⑪ -GRN- PRC 11+63.85	⑬ -GRN- POT 13+14.95

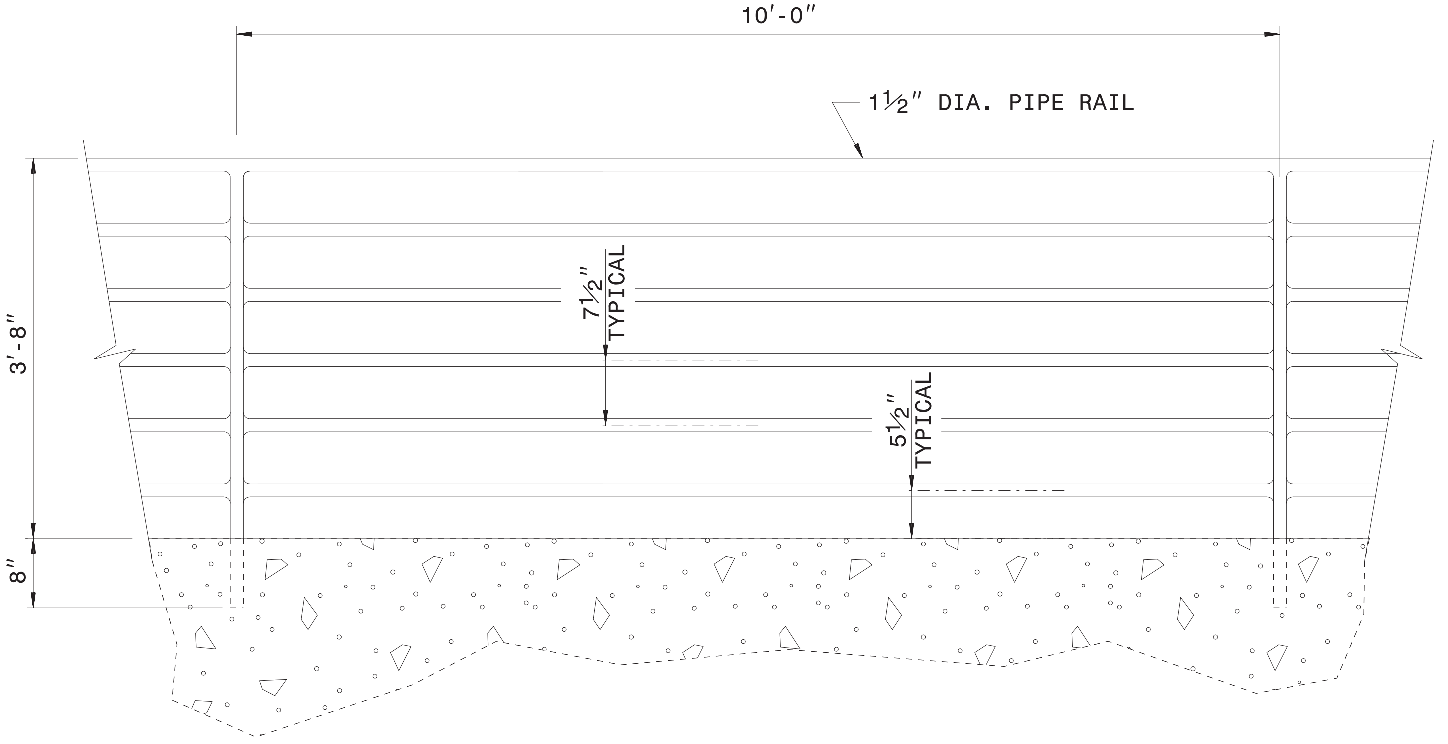


DETOUR LAYOUT

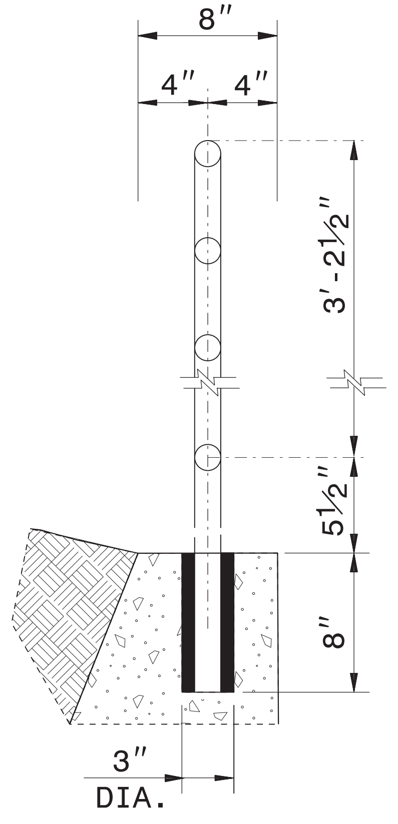
REVISIONS

6/6/2017
X:\NCDOT\R-5745\Roadway\Proj\R-5745_Rdy_Detail 2B.2(Detour).dgn

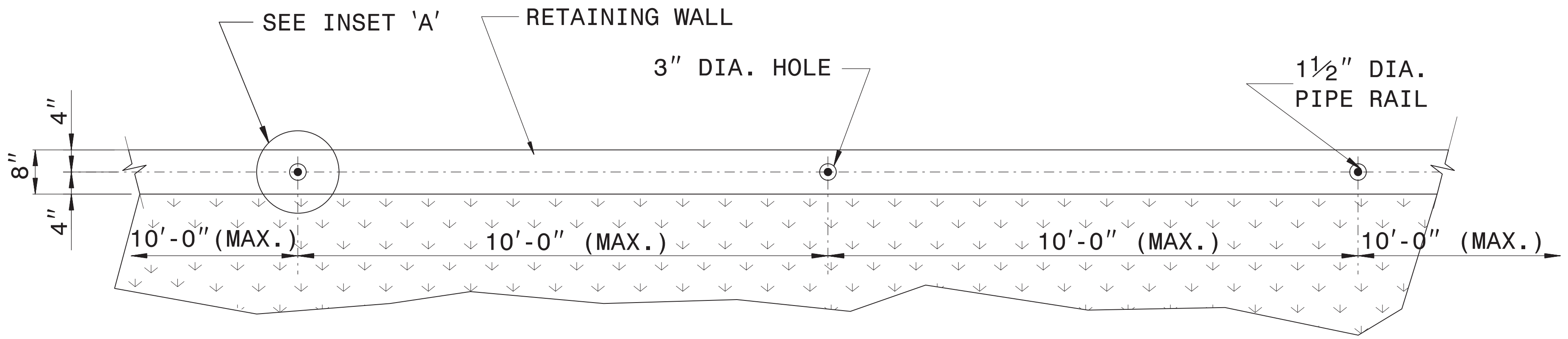
PROJECT REFERENCE NO.	SHEET NO.
R-5745	2C-1



ELEVATION OF HANDRAIL



INSET ‘A’



PLAN VIEW

NOTES:

CONSTRUCT THE PROPOSED STEEL PIPE RAIL OF 1½″ DIAMETER SCHEDULE 40 PLAIN END GALVANIZED STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A53.

EMBED THE PIPE RAIL 8″ INTO PROPOSED WALL WITH CHEMICAL OR CONCRETE GROUT ANCHORING SYSTEM AS DIRECTED BY THE ENGINEER.

REPAIR GALVANIZING IN ACCORDANCE WITH SECTION 1076 OF THE NCDOT STANDARD SPECIFICATIONS.

PAINT, IF REQUIRED BY THE ENGINEER, THE RAIL IN ACCORDANCE WITH SECTION 1080 OF THE STANDARD SPECIFICATIONS.

CENTER THE PROPOSED RAILING ON TOP OF THE WALL WITH POST SPACING SYMMETRICAL ABOUT THE CENTER-LINE OF THE WALL.

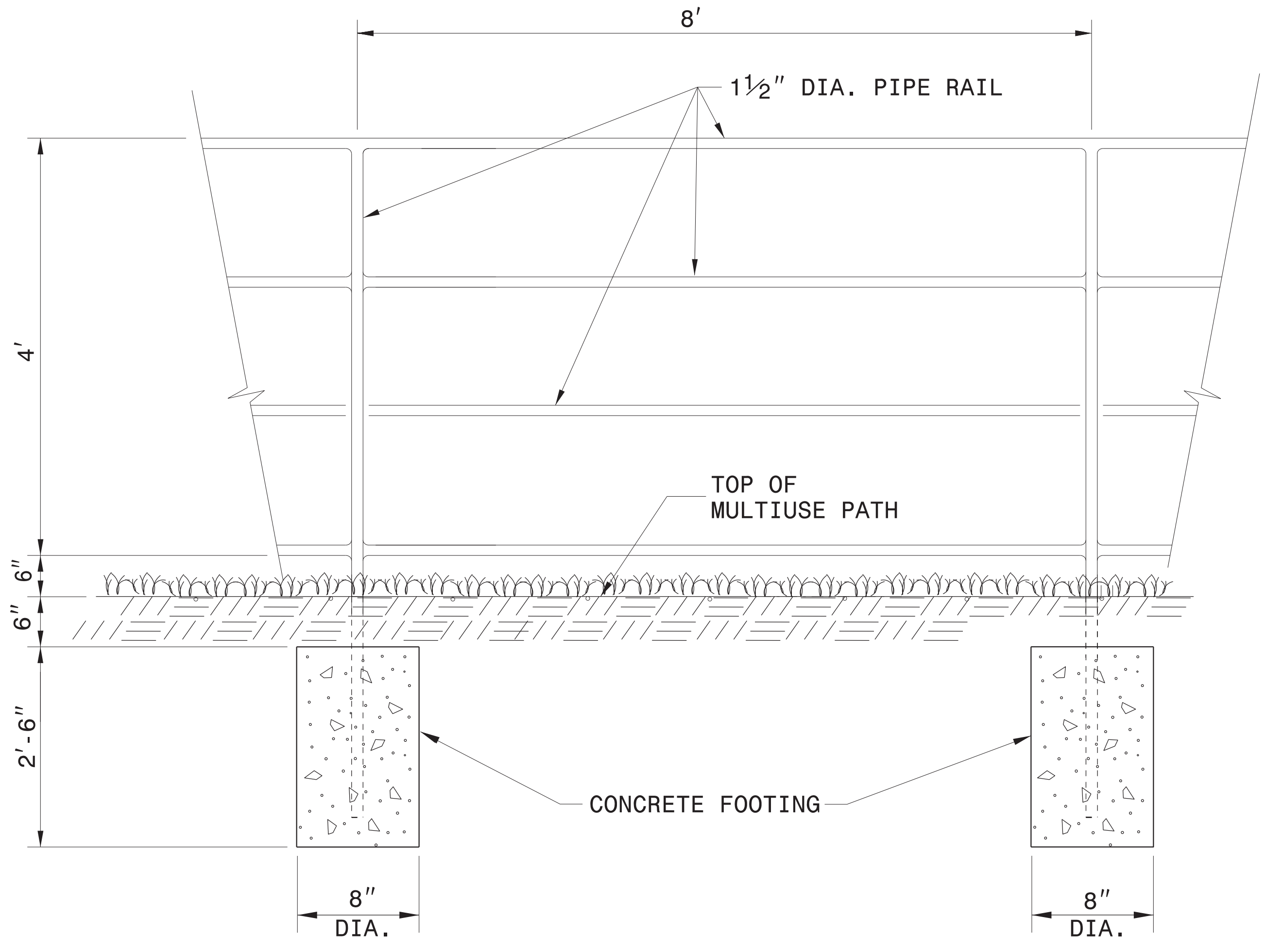
HOLES FOR EMBEDMENT OF RAIL IN WALL SHALL BE MADE WITH A ROTARY DRILL ONLY (NO ROTARY-IMPACT DRILLS).

WELD AS NEEDED IN ACCORDANCE WITH ARTICLE 1072-18 OF THE STANDARD SPECIFICATIONS.

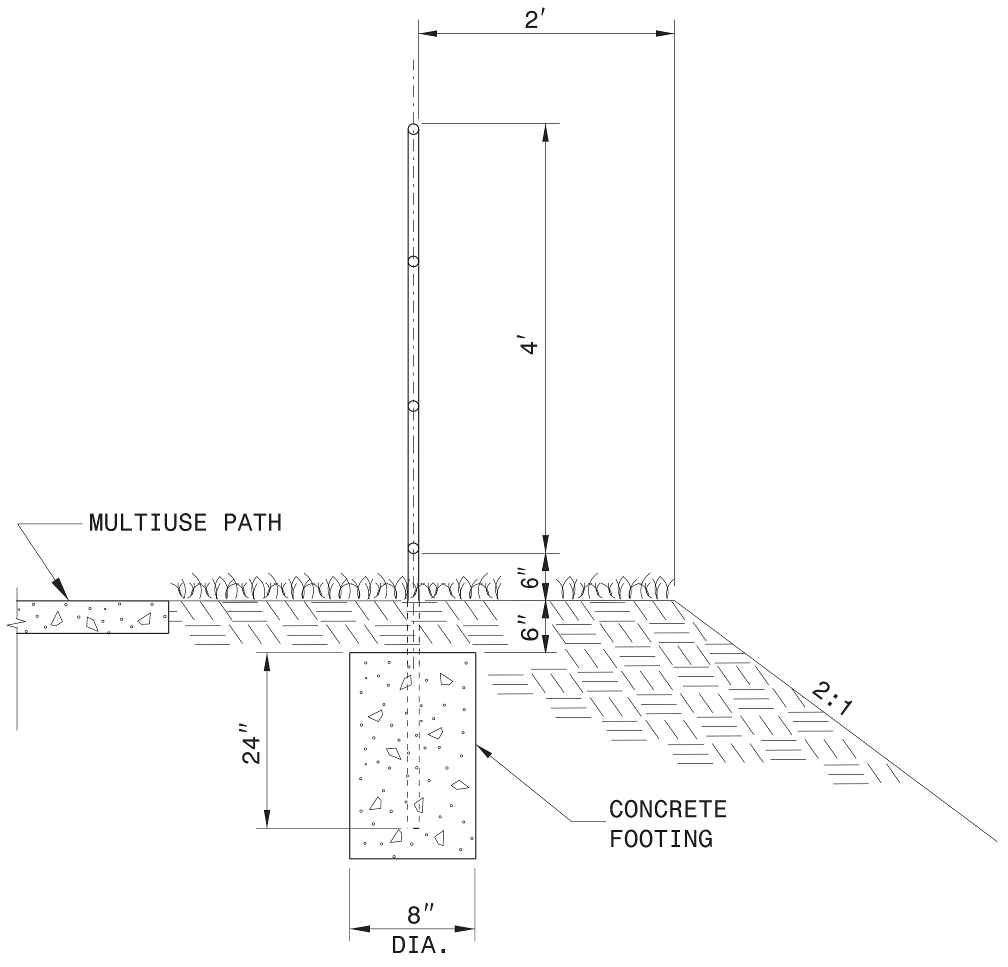
CONTRACT STANDARDS
AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

DETAIL OF PIPE HANDRAIL MOUNTED ON RETAINING WALL

ORIGINAL BY: E.E. WARD DATE: 12-99
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: ds172:/usr/details/stand/metric/0842d03.dgn



ELEVATION OF PROPOSED PEDESTRIAN HANDRAIL



SECTION VIEW

NOTES:

CONSTRUCT PROPOSED STEEL PIPE RAIL OF 1½″ DIAMETER SCHEDULE 40 PLAIN END GALVANIZED STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A53.

REPAIR GALVANIZING IN ACCORDANCE WITH SECTION 1076 OF THE NCDOT STANDARD SPECIFICATIONS.

PAINT, IF REQUIRED BY THE ENGINEER, IN ACCORDANCE WITH SECTION 1080 OF THE STANDARD SPECIFICATIONS.

WELD IN ACCORDANCE WITH ARTICLE 1072-20 OF THE STANDARD SPECIFICATIONS.

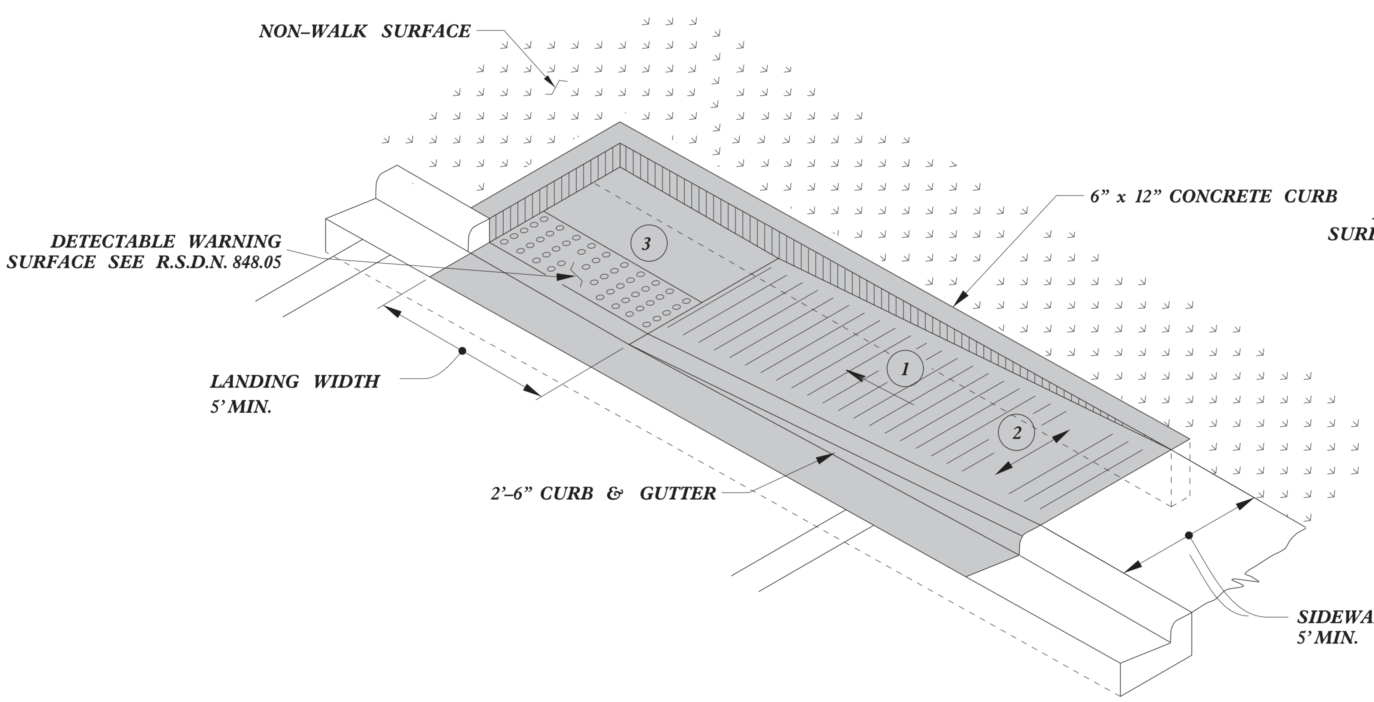
USE CLASS ′B′ CONCRETE FOR HANDRAIL FOOTINGS.

PLACEMENT OF HANDRAIL IN RELATION TO SHOULDER BREAK POINT AND SIDEWALK MAY BE MODIFIED AS DIRECTED BY THE ENGINEER.

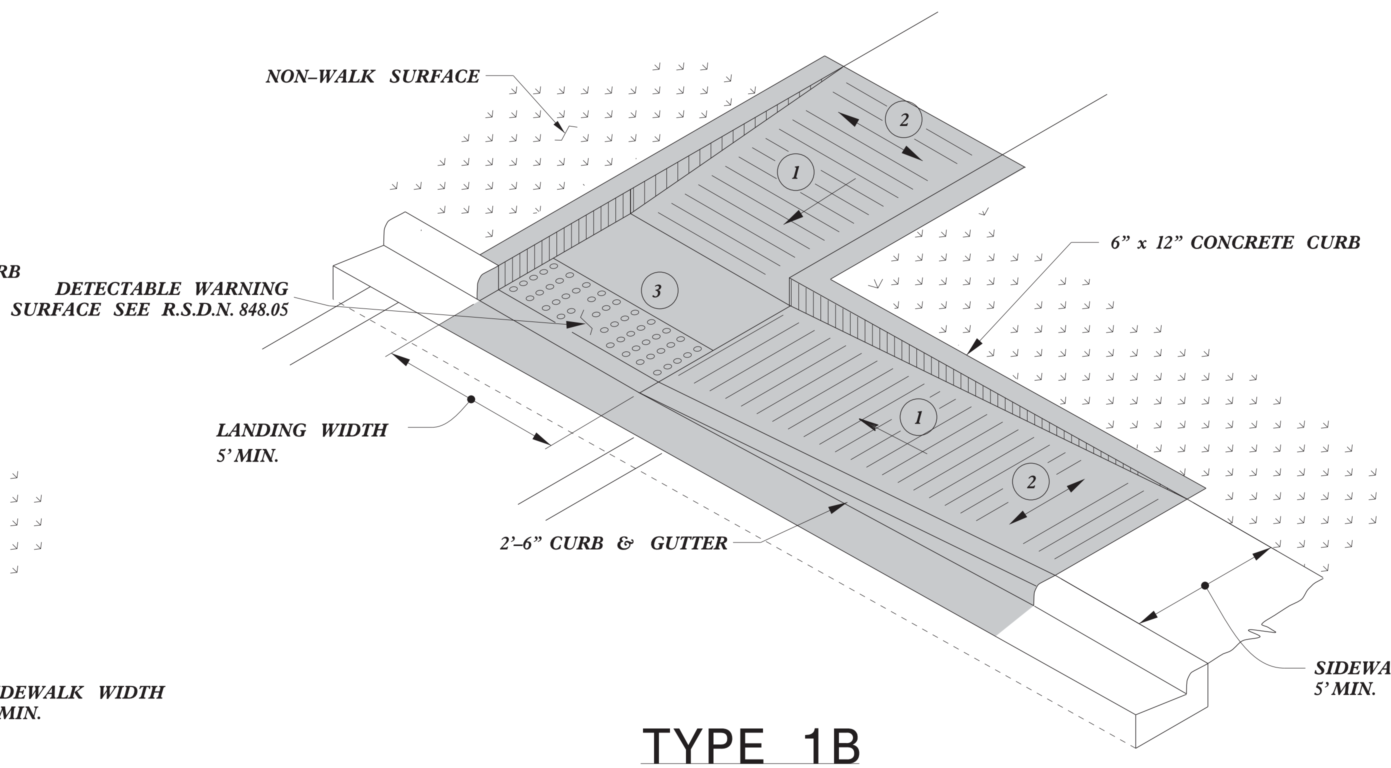
CONTRACT STANDARDS
AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

PROPOSED PEDESTRIAN
SAFETY RAIL

ORIGINAL BY: E.E.WARD DATE: 12-99
MODIFIED BY: T.S.Spell DATE: 1-4-05
CHECKED BY: DATE:
FILE SPEC.: w:jhowerton\handrail adjacent to sidewalk.dgn



TYPE 1A



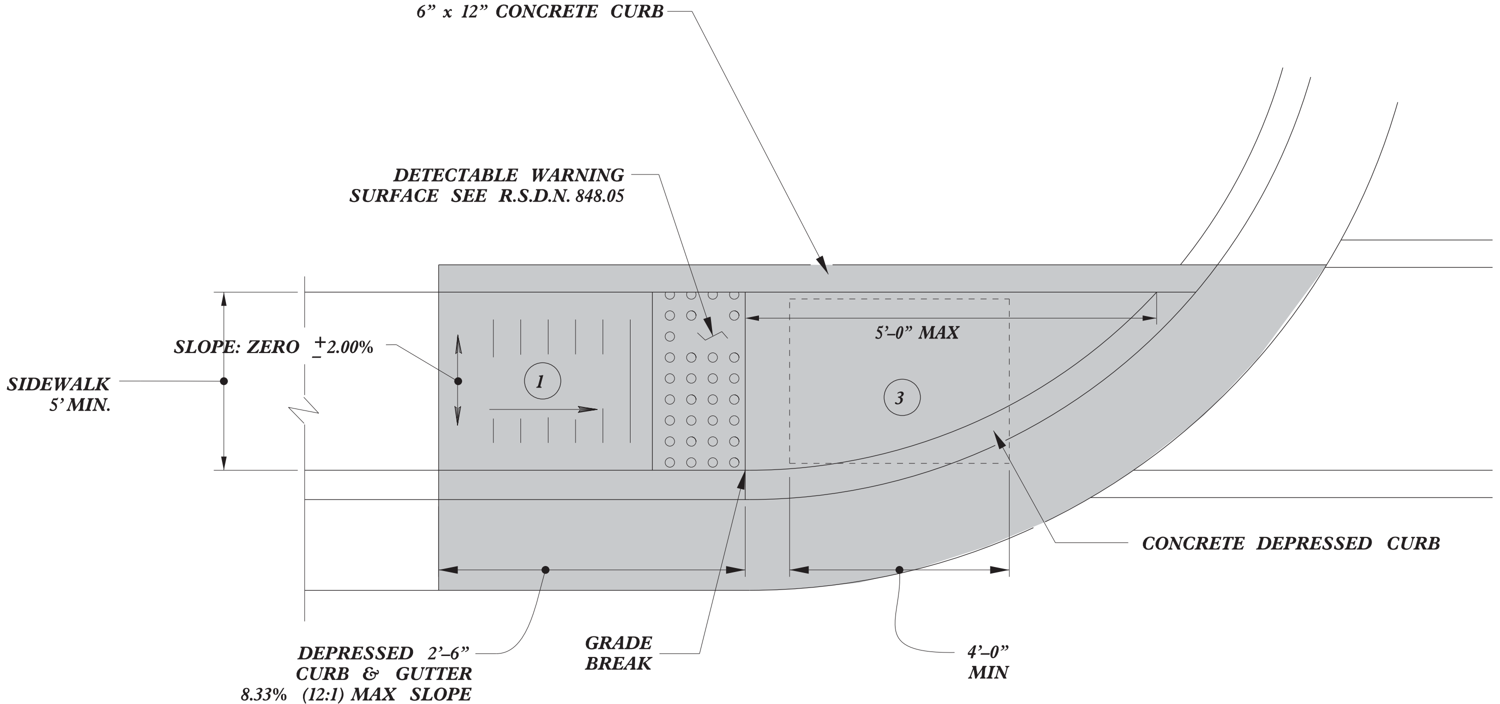
TYPE 1B

▨ PAY LIMITS FOR 1 CURB RAMP

① 8.33% (12:1) MAX RAMP SLOPE

② CROSS SLOPE: 2.00%

③ CURB RAMPS REQUIRE A (4'–0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.



TYPE 1

Joel S. Howerton
SEAL 022966

REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

CURB RAMPS

Directional Ramps

ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC. :stds/2012CurbRamp/CurbRampDetails.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-5745	2C-4

R/W SHEET NO.

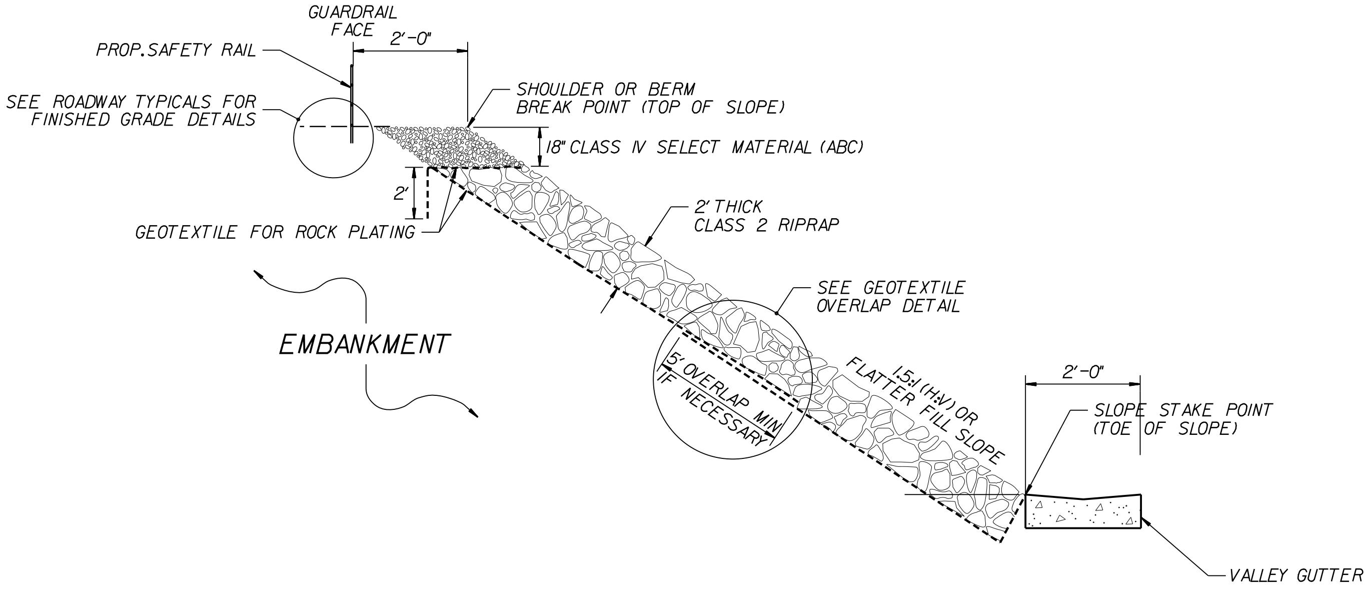
ROADWAY DESIGN ENGINEER

DocuSigned by:
Jimmy Terry
FD39F38882E94D0...

SEAL 35018
JIMMY TERRY

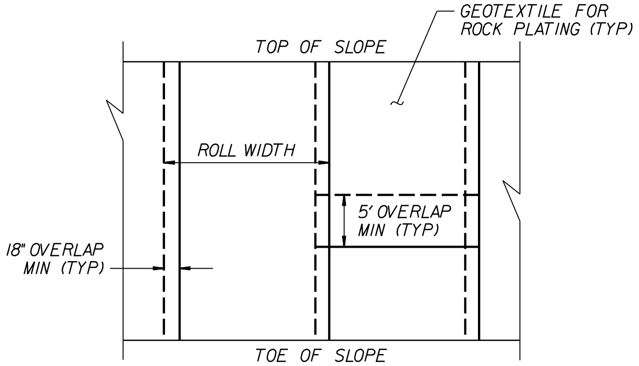
6/13/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



ROCK PLATING DETAIL - TYPICAL SECTION

USE ROCK PLATING DETAIL
WHERE FILL SLOPES ARE STEEPER THAN 2:1
AS DIRECTED ON PLANS
-L- STA. 30+70.48 TO 31+50.00, LT



GEOTEXTILE OVERLAP DETAIL

(PLAN VIEW)

NOTES:

1. *SEE ROADWAY PLANS AND SUMMARY SHEETS FOR ROCK PLATING LOCATIONS.*
2. *FOR STANDARD ROCK PLATING, SEE SECTION 275 OF THE STANDARD SPECIFICATIONS.*
3. *USE CLASS 1,2 OR B RIPRAP UNLESS REQUIRED OTHERWISE IN THE ROADWAY SUMMARY SHEETS.*

TOTAL BILL OF MATERIAL	
ROCK PLATING	EST. 150 SQ. YDS.

PROJECT NO.: R-5745
CALDWELL ***COUNTY***
STATION: -L- 13+73.48 TO 31+50.00, LT
SHEET 1 OF 1

ROCK PLATING

DocuSign Envelope ID: 77862A25-D3F0-4C83-8C7D-6E9974A5F140

PROJECT REFERENCE NO.	SHEET NO.
R-5745	2D-1
R/W SHEET NO.	

HYDRAULICS
ENGINEER

DocuSigned by:
Thomas Fletcher
6518191DF92C445B...
SEAL
THOMAS FLETCHER
6/13/2017

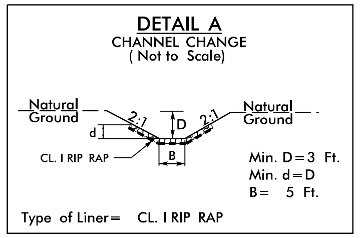
**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

REVISIONS

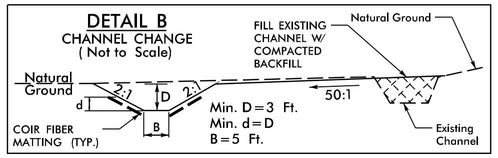
DRAINAGE DETAILS

DETAIL A
CHANNEL CHANGE
(Not to Scale)



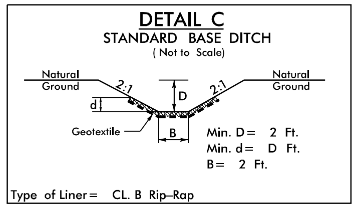
FROM -L- STA. 14+40 TO 14+55 LT
EST. DDE = 20 CY
EST. CL. I RIP RAP = 30 TONS
EST. GEOTEXTILE = 50 SY

DETAIL B
CHANNEL CHANGE
(Not to Scale)



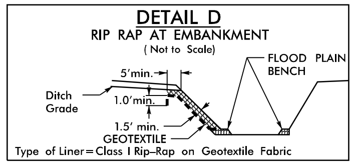
FROM -L- STA. 14+99 TO 16+05 LT
EST. COIR FIBER MATTING 250 SY, DDE: 220 CY, FILL: 210 CY

DETAIL C
STANDARD BASE DITCH
(Not to Scale)



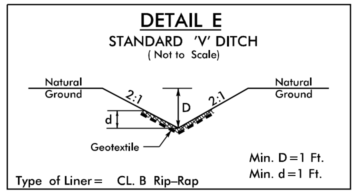
FROM -L- STA. 15+17@140'LT TO 15+25@63'LT
EST. DDE = 120 CY
EST. CL. B RIP RAP = 55 TONS
EST. GEOTEXTILE = 140 SY
SLOPE = 1%

DETAIL D
RIP RAP AT EMBANKMENT
(Not to Scale)



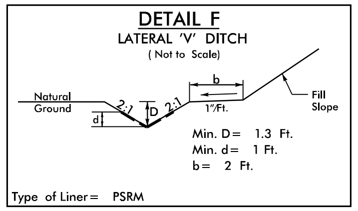
FROM -L- STA. 15+04 TO 15+19 RT
EST. CL I: 25 TONS,EST. GEOTEXTILE: 35 SY

DETAIL E
STANDARD 'V' DITCH
(Not to Scale)



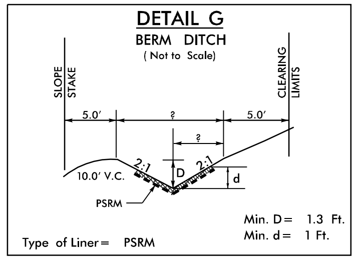
FROM -L- STA. 15+07 TO 15+85 RT
EST. DDE = 20 CY
EST. RIP RAP = 30 TONS
EST. GEOTEXTILE = 90 SY

DETAIL F
LATERAL 'V' DITCH
(Not to Scale)



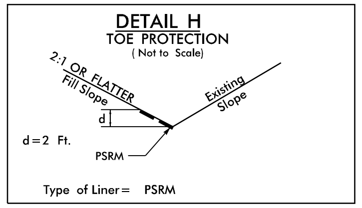
FROM -L- STA. 20+13 TO 20+50 LT
FROM -L- STA. 21+50 TO 22+00 LT
EST. DDE = 20 CY
EST. PSRM = 80 SY

DETAIL G
BERM DITCH
(Not to Scale)



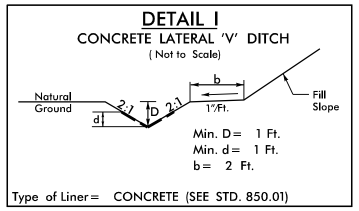
FROM -L- STA. 20+50 TO 21+50 LT
EST. DDE = 20 CY
EST. PSRM = 60 SY

DETAIL H
TOE PROTECTION
(Not to Scale)



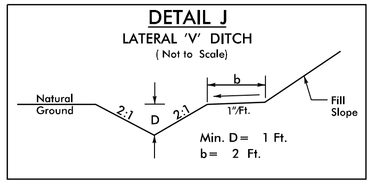
FROM -L- STA. 28+45 TO 30+80 RT
EST. PSRM = 120 SY

DETAIL I
CONCRETE LATERAL 'V' DITCH
(Not to Scale)



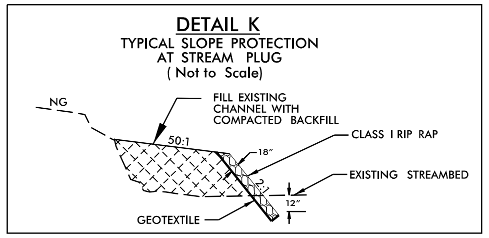
FROM -L- STA. 31+31 TO 31+50 LT
EST. CONC. PAVED DITCH = 30 SY

DETAIL J
LATERAL 'V' DITCH
(Not to Scale)



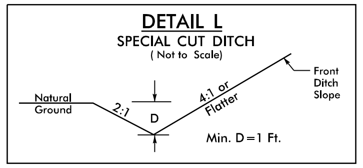
FROM -L- STA. 33+80 TO 35+00 RT
EST. DDE = 30 CY

DETAIL K
TYPICAL SLOPE PROTECTION
AT STREAM PLUG
(Not to Scale)



FROM -L- STA. 15+64 TO 16+11 LT
EST. CL. I RIP RAP = 40 TONS
EST. GEOTEXTILE = 60 SY

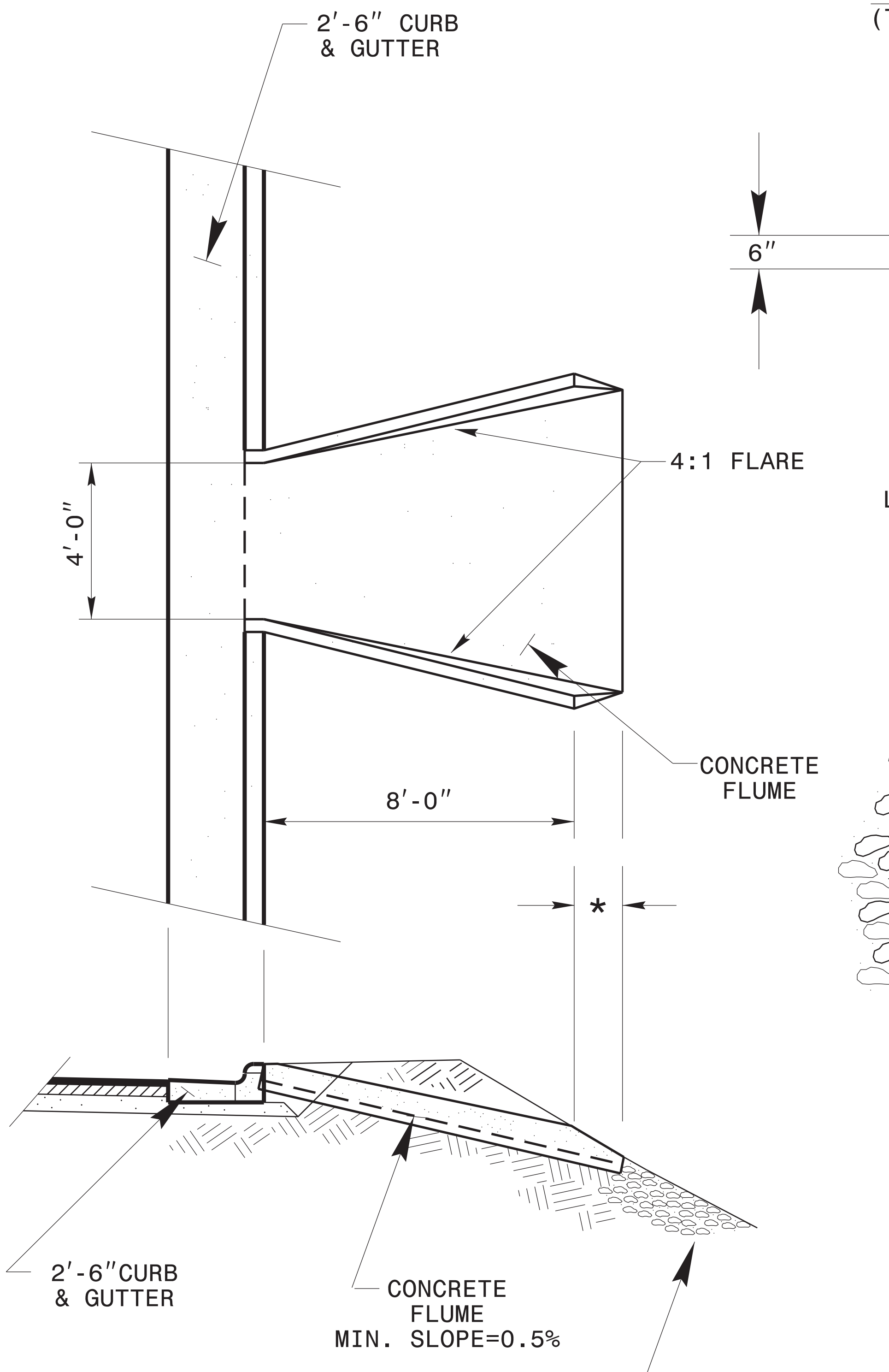
DETAIL L
SPECIAL CUT DITCH
(Not to Scale)



FROM -L- STA. 26+59 TO 27+00 RT

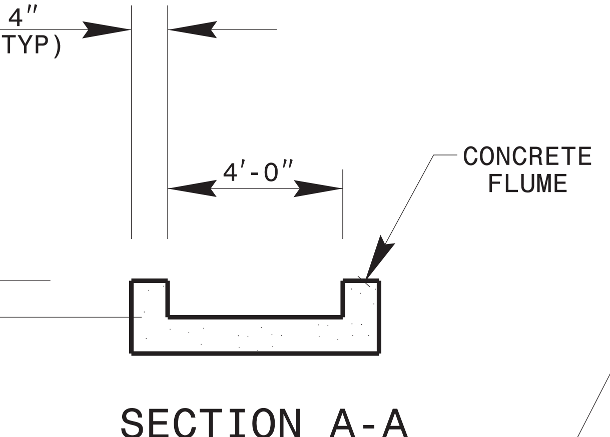
6/6/2017
X:\NCDOT\R-5745\Roadway\Proj\R-5745 DETAIL_2D_1(Drainage Details).dgn
Usersmelvin

PROJECT REFERENCE NO.	SHEET NO.
R-5745	2D-2



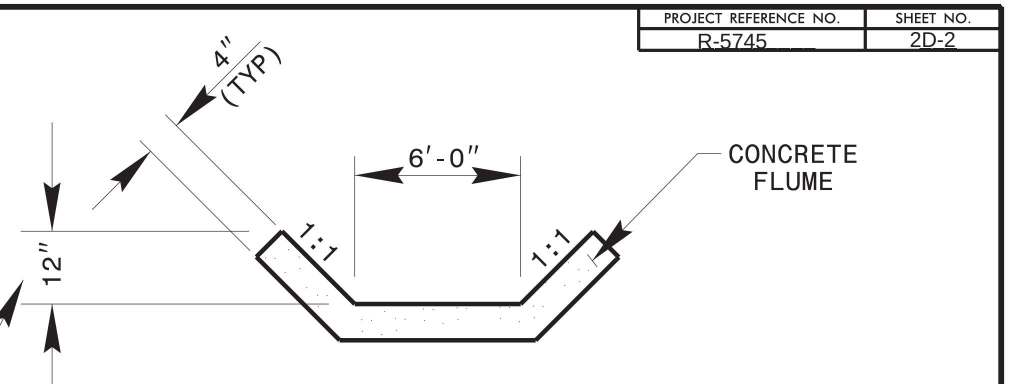
ELEVATION

* LENGTH VARIABLE WITH DITCH SLOPE

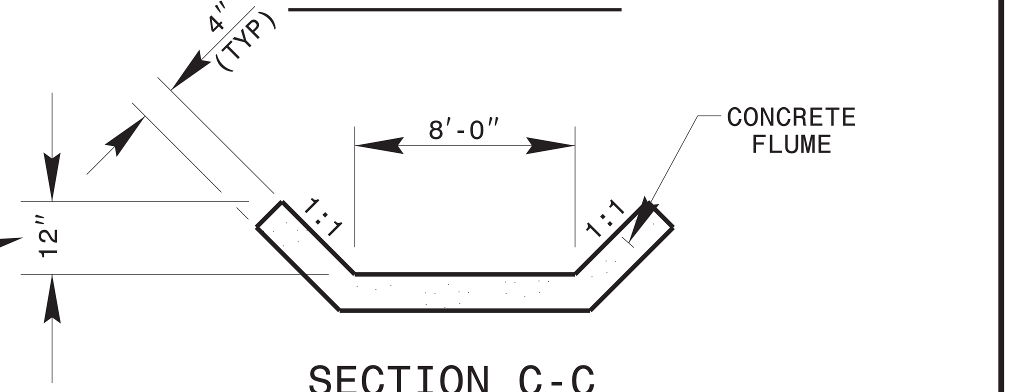


SECTION A-A

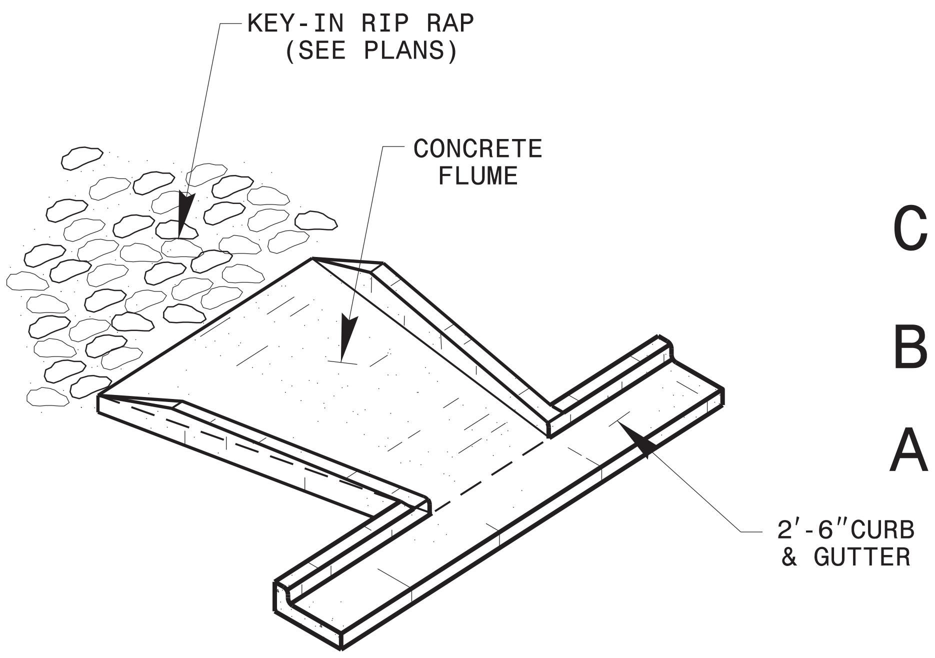
FLUME SIDES SHOULD BE FLUSH WITH ADJACENT GROUND LINE TO A MAX. HEIGHT OF 12"



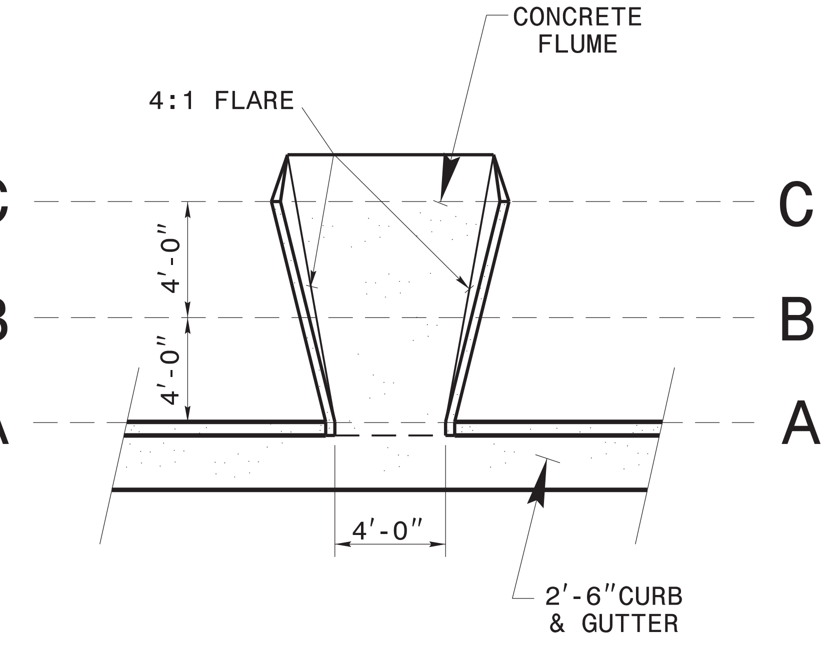
SECTION B-B



SECTION C-C



PERSPECTIVE



PLAN

NOTES:

- CONSTRUCT CONCRETE FLUME IN ACCORDANCE WITH THIS DETAIL.
- RIP RAP LINED DITCH WILL BE THE TYPE AND LENGTH SPECIFIED BY THE ROADWAY PLANS. PLACE RIP-RAP AT THE END OF THE DITCH AS INDICATED BY STD. DWG. 876.02 FOR AN 18" PIPE.
- MODIFICATIONS MAY BE MADE AS DIRECTED BY THE ENGINEER.

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

CONCRETE FLUME

ORIGINAL BY: DATE:
MODIFIED BY: nbritt DATE: 05-11-04
CHECKED BY: DATE:
FILE SPEC.: details\nbritt\metric\r2201modifiedflume.dgn

COMPUTED BY: SGM DATE: 5/18/2017
CHECKED BY: JLT DATE: 5/28/2017

PROJECT NO.	SHEET NO.
R-5745	3B-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

Station	Station	Uncl. Excav.	Embank. +%	Borrow	Waste
-DET- 10+37.88	-DET- 13+67.13	53	1,716	1,663	
-L- 10+00.00	-L- 13+21.52	81	72		9
-L-13+81.11	-L- 32+92.60	2,426	4,931	2,505	
-GRN- 10+75.00	-GRN- 11+96.00	417			417
-Y1- 10+00.00	-Y1- 10+88.00	26	23		3
SUBTOTALS 1		**3,003**	**6,742**	**4,168**	**429**
-L- 32+92.60	-L- 36+00.00	69	3,042	2,973	
-Y2- 10+00.00	-Y2- 11+83.99	33	2,257	2,224	
-Y3- 10+49.00	-Y3- 12+50.00	70	470	400	
-DR1- 10+15.79	-DR1- 12+00.61	277	104		173
SUBTOTALS 2		**449**	**5,873**	**5,597**	**173**
TOTALS		**3,452**	**12,615**	**9,765**	**602**
MATERIAL FOR SHOULDER CONSTRUCTION			668	668	
LOSS DUE TO CLEARING & GRUBBING		-650		650	
WASTE IN LIEU OF BORROW				-602	-602
PROJECT TOTALS:		**2,802**	**13,283**	**10,481**	**0**
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT				524	
GRAND TOTALS:		2,802	13,283	11,005	0
SAY:		**2,900**		**11,400**	

EST. DDE = 600 CUBIC YARDS
TOTAL SHALLOW UNDERCUT = 2,000 CUBIC YARDS
CLASS IV SUBGRADE STABILIZATION = 4,000 TONS
PER GEOTECH RECOMMENDATION, ESTIMATED 500 CUBIC YARDS OF UNDERCUT TO BE USED IN THE DISCRETION OF THE RESIDENT ENGINEER.

PAVEMENT REMOVAL SUMMARY

IN SQUARE YARDS

SURVEY LINE	Station	Station	LOCATION LT/RT/CL	ASPHALT REMOVAL	ASPHALT BREAKUP	CONCRETE REMOVAL	CONCRETE BREAKUP
-L-	16+26	22+74	RT	400.71			
-L-	22+53	28+32	LT	457.8			
-Y1-	10+24	10+79	LT & RT	104.41			
-L-	28+89	31+87	LT	216.23			
-L-	27+64	30+94	RT	132.27			
-Y2-	10+34	11+81	RT	141.09			
-Y3-	11+20	12+10	LT	31.41			
-L-	31+10		RT	118.62			
-L-	33+60	35+19	LT	103.81			
-L-	37+49	35+90	RT	20.15			
-DET-	10+38	13+20	CL	930.03			
			TOTAL:	2,656.53			
			SAY:	**2,660**			

Note: Approximate quantities only. Unclassified excavation, borrow excavation, fine grading, clearing and grubbing, and removal of existing pavement will be paid for at the lump sum price for "Grading".

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

GUARDRAIL SUMMARY

"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

LINE	BEG. STA.	END STA.	LOC.	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHLDR WIDTH	FLAIR LENGTH		W		ANCHORS							IMP. ATTEN. TYPE 350			REMOVE EXISTING GUARDRAIL		REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPR. END	TRAIL. END			APPR. END	TRAIL. END	APPR. END	TRAIL. END		AT-1	GREU TL3					EA	G	NG			
-Y-/-L-	17+15.93 -Y-	15+81.62	RT	187.50	81.25		14+52.33	15+11.19	8'	11'	50'	50'	1'	1'			2										
-Y3-/-L-	10+75 -Y3-	36+00.00	LT/RT	206.25	87.50				7'	10'						1									365.4		
-Y2-/-L-	10+25.00	33+87 -L-	LT	137.50	87.50				4'	10' Berm						1									67.9		
SUB-TOTALS:				531.25	256.25											2	2								433.3		
	LESS ANCHOR DEDUCTIONS																										
	AT-1	2@6.25 ft			12.5																						
	GREU TL-3	2@50.00 ft		100																							
	ANCHOR TOTALS			100	12.5																						
GRAND TOTALS				**431.25**	**243.75**											**2**	**2**								**433.3**		
SAY				**437.50**	**250.00**																				**434**		

ADDITIONAL GUARDRAIL POSTS = 10 EA

ATURNER.LAPTOP

COMPUTED BY: Austin R. Turner, EI **DATE:** 05/16/2017

CHECKED BY: Ben Henegar, PE **DATE:** 05/30/2017

PROJECT NO.	SHEET NO.
R-5745	3D-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

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

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12	15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	C. S. PIPE 12 .064	15 .064	18 .064	24 .064	30 .079	36 .079	42 .109	48 .109
L 12+65	28 LT	0401		1113.0																								
		0401	0402		1110.8	1110.0			52																			
Y 15+23	42 LT	0403		1110.3																								
		0403	0404		1105.0	1095.0	1.0																36					
L 14+99	140 LT	0405																										
L 15+18		0407		1107.4																								
		0407	0408		1103.8	1103.7																						
L 15+26	26 LT	0408		1107.4																								
		0408	0406		1103.7	1097.3	3.7																	40				
L 16+05	42 RT	0409							44																			
L 16+52	26 LT	0410		1108.5																								
		0410	0408		1104.8	1103.7	0.8																					
L 17+68	15 LT	0411		1111.5																								
		0411	0410		1107.8	1104.8	0.8																					
L 17+68	39 LT	0412		1111.2																								
		0412	0411		1109.9	1108.5			24																			
L 20+13	14 LT	0413		1121.0																								
		0413	0411		1117.3	1107.8	0.6																					
L 20+13	38 LT	0414		1121.2																								
		0414	0413		1119.2	1117.3					24																	
L 21+70	28 RT	0416		1126.4																								
		0416	0415		1123.3	1120.0	1.1			64																		
L 23+00	14 LT	0417		1133.0																								
		0417	0413		1129.8	1117.8																						
L 14+35	27 LT	0418		1108.9																								
		0418	0403		1105.9	1105.4																						
L 26+25	14 LT	0501		1147.2																								
		0501	0417		1144.0	1129.8																						
L 26+23	66 LT	0502		1165.7																								
		0502	0501		1164.4	1144.2																52						
L 26+62	28 RT	0503		1146.9																								
		0503	0416		1143.9	1123.4	1.0			492							X	X										
L 28+19	28 RT	0505		1153.5																								
		0505	0503		1150.8	1144.2	0.4		156								X	X										
		0506	0505		1173.0	1150.8																44						
L 28+00	14 LT	0507		1155.3																								
		0507	0501		1152.2	1144.2																						
Y1 10+30	14 RT	0508		1159.7																								
		0508	0507		1156.6	1152.2																						
Y1 10+30	13 LT	0509		1160.2																								
		0509	0508		1157.1	1156.7																						
Y1 10+53	28 LT	0510		1160.4																								
		0510	0509		1158.2	1157.2			32																			
L 31+35	19 LT	0511		1168.5																								
		0511	0512		1165.5	1148.0																72						
L 32+36	52 RT	0513	0514							16																		
Y3 11+10	2 RT	0515		1170.0																								
		0515	0516		1167.3	1166.0																						
Y3 10+46	44 LT	0518		1161.7																								
		0517	0518		1160.5	1157.4				52																		
SHEET TOTALS									308	624	24											168	36	40				

LINE & STATION	OFFSET	FROM	TO	R. C. PIPE CLASS III 12	15	18	24	30	36	42	48	R. C. PIPE CLASS IV 12	15	18	24	30	36	42	48	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	57"x38" C.S. PIPE ARCH CULVERTS, 0.109" THICK	CONCRETE ENDWALL STD. 838.04 CY	REINFORCED ENDWALLS CY	DRAINAGE STRUCTURE MASONRY CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	
L 12+65	28 LT	0401																								1							
		0401	0402																														
Y 15+23	42 LT	0403																								1	0.3		1			1	
		0403	0404																														
L 14+99	140 LT	0405																				45	3.290										
L 15+18		0407																								1			1			1	
		0407	0408										4																				
L 15+26	26 LT	0408																								1			1	1			
		0408	0406																														
L 16+05	42 RT	0409																															
L 16+52	26 LT	0410																								1			1		1		
		0410	0408												124																		
L 17+68	15 LT	0411																								1			1		1		
		0411	0410												116																		
L 17+68	39 LT	0412																															
		0412	0411																														
L 20+13	14 LT	0413																								1			1		1		
		0413	0411												244																		
L 20+13	38 LT	0414																															
		0414	0413																														
L 21+70	28 RT	0416																								1							
		0416	0415																														
L 23+00	14 LT	0417																								1			1		1		
		0417	0413											284																			
L 14+35	27 LT	0418																								1			1			1	
		0418	0403										52																				
L 26+25	14 LT	0501																								1			1		1		
		0501	0417											324																			
L 26+23	66 LT	0502																															
		0502	0501																														
L 26+62	28 RT	0503																								1							
		0503	0416																														
L 28+19	28 RT	0505																								1							
		0505	0503																														
		0506	0505																														
L 28+00	14 LT	0507																								1			1		1		
		0507	0501										176																				
Y1 10+30	14 RT	0508																								1			1		1		
		0508	0507										68																				
Y1 10+30	13 LT	0509																								1			1			1	
		0509	0508										24																				
Y1 10+53	28 LT	0510																								1							
		0510	0509																														
L 31+35	19 LT	0511																								1			1		1		
		0511	0512																														
L 32+36	52 RT	0513	0514																														
Y3 11+10	2 RT	0515																								1							
		0515	0516										36																				
Y3 10+46	44 LT	0518																								1							
		0517	0518																														
SHEET TOTALS													360	608	484							45	3.290			20	0.3		13	1	8	4	

LINE & STATION	OFFSET	FROM	TO	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	CONCRETE TRANSITIONAL SECTION C.B. STD. 852.05	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.2	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	15" C.S. ELBOW	18" C.S. ELBOW	24" C.S. ELBOW	30" C.S. ELBOW	BERM DITCH OUTLET STD. 850.10 (PER EACH)	BERM DITCH OUTLET STD. 850.11 (PER EACH)	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
L 12+65	28 LT	0401						1	1																			
		0401	0402																									
Y 15+23	42 LT	0403																										
		0403	0404																2									
L 14+99	140 LT	0405																										
L 15+18		0407																										
		0407	0408																									
L 15+26	26 LT	0408																										
		0408	0406																	2								
L 16+05	42 RT	0409																										
L 16+52	26 LT	0410																										
		0410	0408																									
L 17+68	15 LT	0411																										
		0411	0410																									
L 17+68	39 LT	0412																										
		0412	0411																									
L 20+13	14 LT	0413																										
		0413	0411																									
L 20+13	38 LT	0414																										
		0414	0413																									
L 21+70	28 RT	0416								1	1																	
		0416	0415																									
L 23+00	14 LT	0417																										
		0417	0413																									
L 14+35	27 LT	0418																										
		0418	0403																									
L 26+25	14 LT	0501																										
		0501	0417																									
L 26+23	66 LT	0502																							0.3990			
		0502	0501															2										
L 26+62	28 RT	0503				1					1																	
		0503	0416																									
L 28+19	28 RT	0505								1	1																	
		0505	0503																									
		0506	0505															1				1						
L 28+00	14 LT	0507																										
		0507	0501																									
Y1 10+30	14 RT	0508																										
		0508	0507																									
Y1 10+30	13 LT	0509																										
		0509	0508																									
Y1 10+53	28 LT	0510						1	1																			
		0510	0509																									
L 31+35	19 LT	0511																										
		0511	0512															2										
L 32+36	52 RT	0513	0514																						0.4465			
Y3 11+10	2 RT	0515						1	1																			
		0515	0516																									
Y3 10+46	44 LT	0518														1												
		0517	0518																									
SHEET TOTALS						1		3	3	2	3				1			5	2	2		1			0.8455			

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

ATURNERLAPTOP

COMPUTED BY:	Austin R. Turner, EI	**DATE:**	05/16/2017
CHECKED BY:	Ben Henegar, PE	**DATE:**	05/30/2017

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
R-5745	3D-2

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

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

LINE & STATION	OFFSET	STRUCTURE NUMBER		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	MINIMUM REQUIRED SLOPE	Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC)												C. S. PIPE								R. C. PIPE CLASS III								R. C. PIPE CLASS IV								15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	57"x38" C.S. PIPE ARCH CULVERTS, 0.109" THICK	CONCRETE ENDWALL STD. 838.04	REINFORCED ENDWALLS	DRAINAGE STRUCTURE	QUANTITIES FOR DRAINAGE STRUCTURES NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)			C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03				CONCRETE TRANSITIONAL SECTION		G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.2	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	15" C.S. ELBOW	18" C.S. ELBOW	24" C.S. ELBOW	30" C.S. ELBOW	BERM DITCH OUTLET STD. 850.10 (PER EACH)	BERM DITCH OUTLET STD. 850.11 (PER EACH)	FLOWABLE FILL	CONCRETE COLLARS CL. "B" STD. 840.72	CONCRETE AND BRICK PIPE PLUG STD. 840.71	PIPE REMOVAL	REMARKS
SIZE								12	15	18	24	30	36	42	48						12	15	18	24	30	36	42	48	12	15	18	24	30	36	42	48	12	15	18	24	30	36	42	48								A	B		GRATE TYPE				D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05																							
THICKNESS OR GAUGE		FROM	TO	FT.	FT.	FT.	%									DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	.064	.064	.064	.064	.079	.079	.109	.109																				CY	CY	MASONRY CY	0' THRU 5' EACH	5' THRU 10' LIN. FT.	10' AND ABOVE LIN. FT.		E	F	G																						CY	CY	CY	LIN. FT.	
DR1 11+86	0 CL	0519							52																																																																														
Y2 10+85	0 CL	0520		1167.9																																															1												1	1																			
		0520	0521		1164.9	1164.0																																20																																																
Y2 10+85	22 RT	0521		1167.0																																															1			1			1																											
		0521	0522		1164.0	1157.1																																72																																																
Y2 10+10	23 RT	0522		1160.1																																															1			1			1																											
		0522	0523		1157.1	1156.9																																44																																																
Y2 10+10	22 LT	0523		1160.1																																															1			1		1																												
		0523	0524		1156.8	1140.0															60																																																		2										
Y2 11+41	78 LT	0525	0526																																			16																																													0.4465			
Y 15+23	47 LT																																																																																			10	
L 16+45	18 LT																																																																																		37	
L 17+02	15 LT																																																																																		37	
L 17+48	13 LT																																																																																		25	
L 26+44	21 RT																																																																																		29	
L 26+61	37 RT																																																																																		29	
L 28+14	44 LT																																																																																		122	
L 28+58	65 LT																																																																																		33	
L 29+09	39 LT																																																																																		85	
L 31+04	29 RT																																																																																		46	
SHEET TOTALS									52													60																136	16												4			3		1	2						1	1									2							0.4465		453	
PROJECT TOTALS									360	624	24											228	36	40														496	624	484							45	3.290			24	0.3		16	1	9	6				1		4	4	2	3				1			7	2	2		1			1.2920		453	

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

COMPUTED BY: JP Rogers DATE: 3/15/2016
CHECKED BY: JSF DATE: 3/31/2016

(11-19-13)

PROJECT NO.	SHEET NO.
R-5745	3G-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
CONTINGENCY				SD	600
				TOTAL LF:	600

***UD = Underdrain**
***BD = Blind Drain**
***SD = Subsurface Drain**

SUMMARY OF BRIDGE WAITING PERIODS

Bridge Description	End Bent/ Bent No.	MONTHS

SUMMARY OF SETTLEMENT GAUGES

Gauge No.	LINE	Approx. Station	Approx. Offset
		TOTAL GAUGES (EACH):	

SUMMARY OF ROCK PLATING

LINE	Beginning Slope	Approx. Station	Ending Slope	Approx. Station	Location LT/RT	Rock Plating Detail No. 1/2/3/4	Riprap Class* 1/2/B	SY
							TOTAL SY:	0

***Use Class 1, 2 or B riprap if riprap class is not shown for rock plating location.**

SUMMARY OF EMBANKMENT WAITING PERIODS

LINE	Station	Station	MONTHS

SUMMARY OF SURCHARGES AND SURCHARGE WAITING PERIODS

LINE	Station	Station	Surcharge Height FT	MONTHS

SUMMARY OF REINFORCED SOIL SLOPES (RSS)

LINE	Beginning Slope	Approx. Station	Ending Slope	Approx. Station	Location LT/RT	SY
					TOTAL SY:	0

SUMMARY OF GEOTEXTILE FOR PAVEMENT STABILIZATION

LINE	Station	Station	SY
CONTINGENCY			
		TOTAL SY:	0

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

LINE	Station	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			ASU		2000	4000	6000		
				TOTAL CY/TONS/SY:	2000	4000	6000	0	0

***ASU = Aggregate Subgrade**
***AST = Aggregate Stabilization**

PROJ. REFERENCE NO.	SHEET NO.
R-5745	3P-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
1	4	CALDWELL COUNTY
2	4	STEPHEN A. PHILYAW
3	4	ROY R. & DEBRA K. POPE
4	4	JOEL D. BARLOW
5	4 & 5	STEVENS ENTERPRISES
6		NUMBER NOT USED
7	5	CHRISTOPHER D. & LISA T. EVANS
8	5	CALDWELL COUNTY
9	5	CALDWELL COUNTY BOARD OF EDUCATION
10	5	ELIZABETH ANN BARLOW GRAGG
11	4	MARTIN FAMILY MOTORPLEX, LLC
12	4	RA PROPERTY, LLC

PARCEL No.	SHEET No.	PROPERTY OWNER NAME

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

PROJECT REFERENCE NO.	SHEET NO.
R-5745	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DocuSigned by: Jimmy Terry FD39F38882E94D0... NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 33018 JIMMY TERRY 6/13/2017	DocuSigned by: Thomas Fletcher 651814DF92C445B... NORTH CAROLINA PROFESSIONAL ENGINEER SEAL THOMAS FLETCHER 6/13/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-L- CURVE DATA

PI Sta 10+90.43
△ = 4° 23′ 12.6″ (RT)
D = 2° 07′ 37.2″
L = 206.25′
T = 103.17′
R = 2,693.75′
SE = EXIST.

PI Sta 22+29.95
△ = 17° 36′ 00.9″ (LT)
D = 4° 05′ 33.2″
L = 430.06′
T = 216.73′
R = 1,400.00′
SE = 0.04
DS= 55MPH

-Y- CURVE DATA

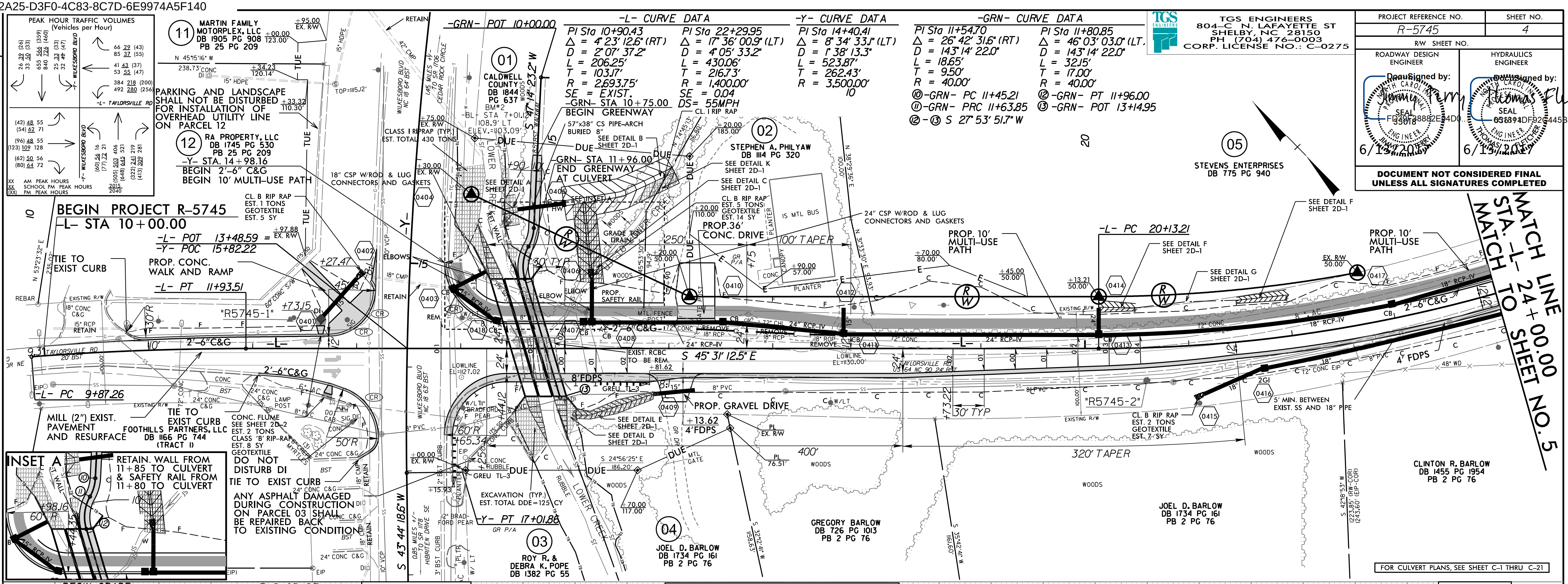
PI Sta 14+40.41
△ = 8° 34′ 33.1″ (LT)
D = 1° 38′ 13.3″
L = 523.87′
T = 262.43′
R = 3,500.00′
10

-GRN- CURVE DATA

PI Sta 11+54.70
△ = 26° 42′ 31.6″ (RT)
D = 143° 14′ 22.0″
L = 18.65′
T = 9.50′
R = 40.00′

PI Sta 11+80.85
△ = 46° 03′ 03.0″ (LT)
D = 143° 14′ 22.0″
L = 32.15′
T = 17.00′
R = 40.00′

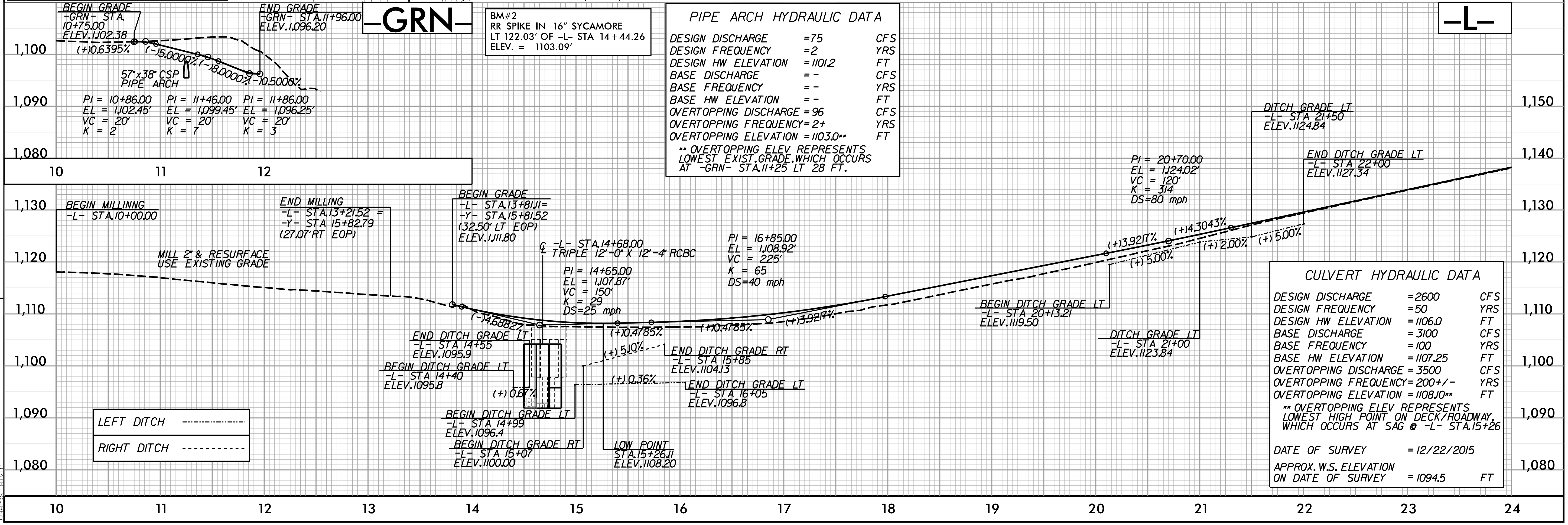
⑩-GRN- PC 11+45.21
⑪-GRN- PRC 11+63.85
⑫-⑬ S 27° 53′ 51.7″ W
⑫-GRN- PT 11+96.00
⑬-GRN- POT 13+14.95



BM#2
RR SPIKE IN 16″ SYCAMORE
LT 122.03′ OF -L- STA 14+44.26
ELEV. = 1103.09′

PIPE ARCH HYDRAULIC DATA

DESIGN DISCHARGE =75 CFS
DESIGN FREQUENCY =2 YRS
DESIGN HW ELEVATION =1101.2 FT
BASE DISCHARGE =- CFS
BASE FREQUENCY =- YRS
BASE HW ELEVATION =- FT
OVERTOPPING DISCHARGE =96 CFS
OVERTOPPING FREQUENCY=2+ YRS
OVERTOPPING ELEVATION =1103.0** FT
** OVERTOPPING ELEV REPRESENTS LOWEST EXIST.GRADE.WHICH OCCURS AT -GRN- STA.11+25 LT 28 FT.



CULVERT HYDRAULIC DATA

DESIGN DISCHARGE =2600 CFS
DESIGN FREQUENCY =50 YRS
DESIGN HW ELEVATION =1106.0 FT
BASE DISCHARGE = 3100 CFS
BASE FREQUENCY = 100 YRS
BASE HW ELEVATION = 1107.25 FT
OVERTOPPING DISCHARGE = 3500 CFS
OVERTOPPING FREQUENCY= 200+/- YRS
OVERTOPPING ELEVATION = 1108.10** FT
** OVERTOPPING ELEV REPRESENTS LOWEST HIGH POINT ON DECK/ROADWAY, WHICH OCCURS AT SAG @ -L- STA.15+26

DATE OF SURVEY = 12/22/2015

APPROX. W.S. ELEVATION ON DATE OF SURVEY = 1094.5 FT

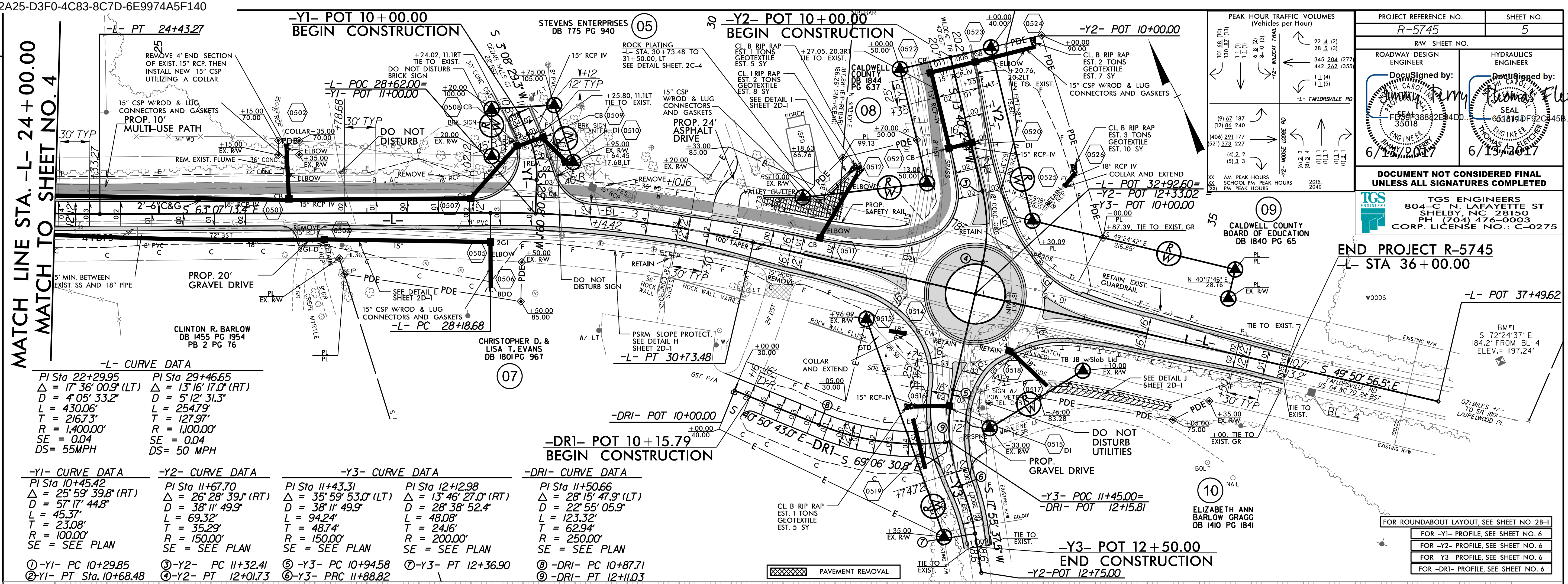
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-5745	5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DocuSigned by: Jimmy Terry FD39F38882E94D0... SEAL 35018 JIMMY TERRY 6/13/2017	DocuSigned by: Thomas Fletcher 6518114DF92C445B... SEAL THOMAS L. FLETCHER 6/13/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275



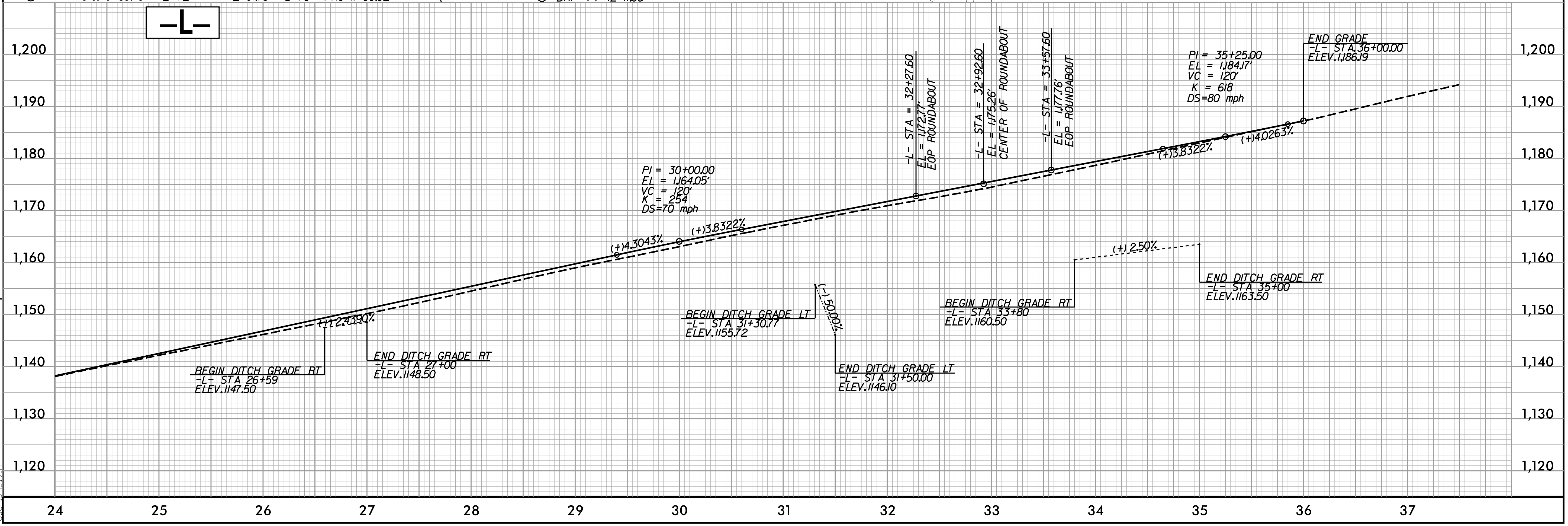
-L- CURVE DATA

PI Sta 22+29.95	PI Sta 29+46.65
△ = 17° 36' 00.9" (LT)	△ = 13° 16' 17.0" (RT)
D = 4° 05' 33.2"	D = 5° 12' 31.3"
L = 430.06'	L = 254.79'
T = 216.73'	T = 127.97'
R = 1,400.00'	R = 1,100.00'
SE = 0.04	SE = 0.04
DS= 55MPH	DS= 50 MPH

-Y1- CURVE DATA	-Y2- CURVE DATA	-Y3- CURVE DATA		-DRI- CURVE DATA
PI Sta 10+45.42	PI Sta 11+67.70	PI Sta 11+43.31	PI Sta 12+12.98	PI Sta 11+50.66
△ = 25° 59' 39.8" (RT)	△ = 26° 28' 39.1" (RT)	△ = 35° 59' 53.0" (LT)	△ = 13° 46' 27.0" (RT)	△ = 28° 15' 47.9" (LT)
D = 57° 17' 44.8"	D = 38° 11' 49.9"	D = 38° 11' 49.9"	D = 28° 38' 52.4"	D = 22° 55' 05.9"
L = 45.37'	L = 69.32'	L = 94.24'	L = 48.08'	L = 123.32'
T = 23.08'	T = 35.29'	T = 48.74'	T = 24.16'	T = 62.94'
R = 100.00'	R = 150.00'	R = 150.00'	R = 200.00'	R = 250.00'
SE = SEE PLAN	SE = SEE PLAN	SE = SEE PLAN	SE = SEE PLAN	SE = SEE PLAN

① -Y1- PC 10+29.85
② -Y1- PT Sta. 10+68.48
③ -Y2- PC 11+32.41
④ -Y2- PT 12+01.73
⑤ -Y3- PC 10+94.58
⑥ -Y3- PRC 11+88.82
⑦ -Y3- PT 12+36.90
⑧ -DRI- PC 10+87.71
⑨ -DRI- PT 12+11.03

REVISIONS



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TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

PROJECT REFERENCE NO.	SHEET NO.
R-5745	6

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DocuSigned by: Jimmy Terry FD39F88882E94D0... SEAL JIMMY TERRY 6/13/2017	

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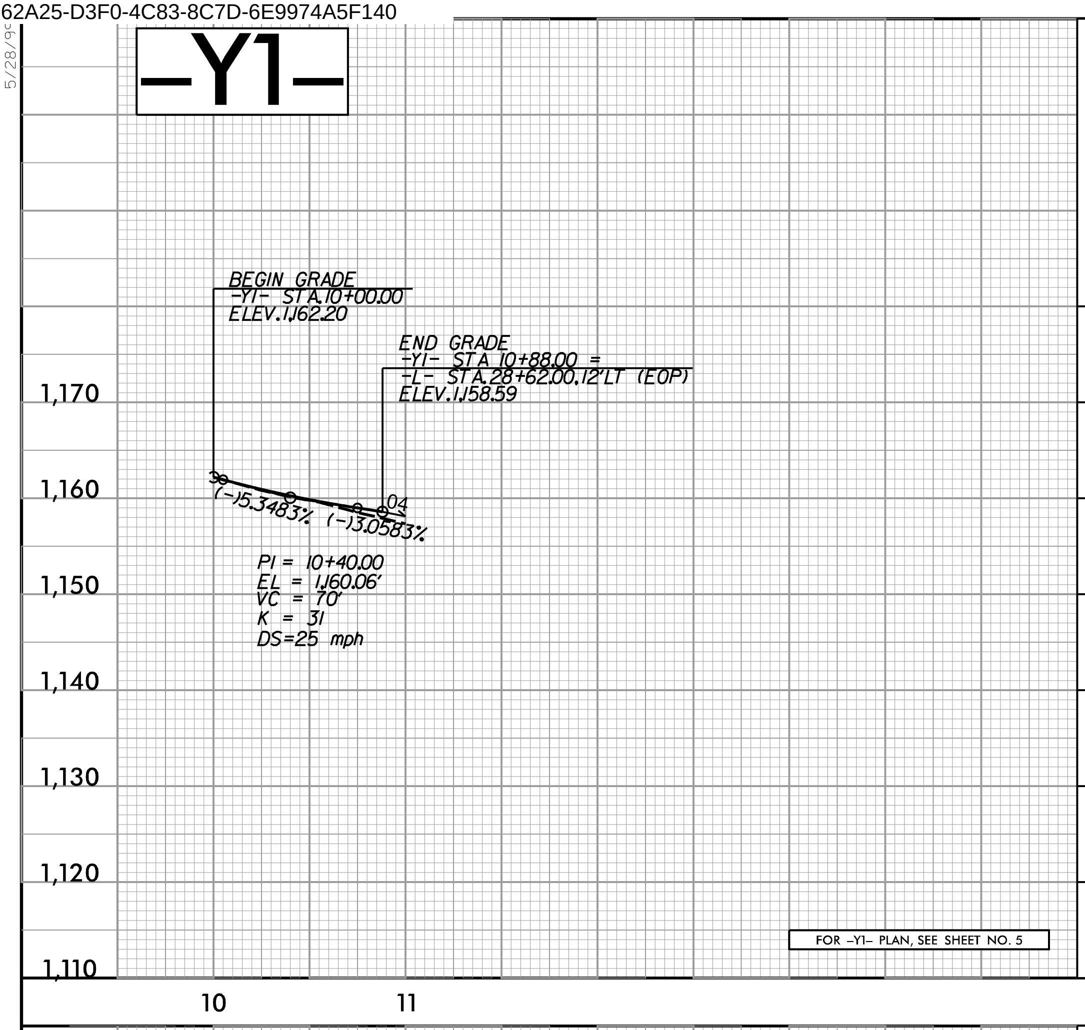
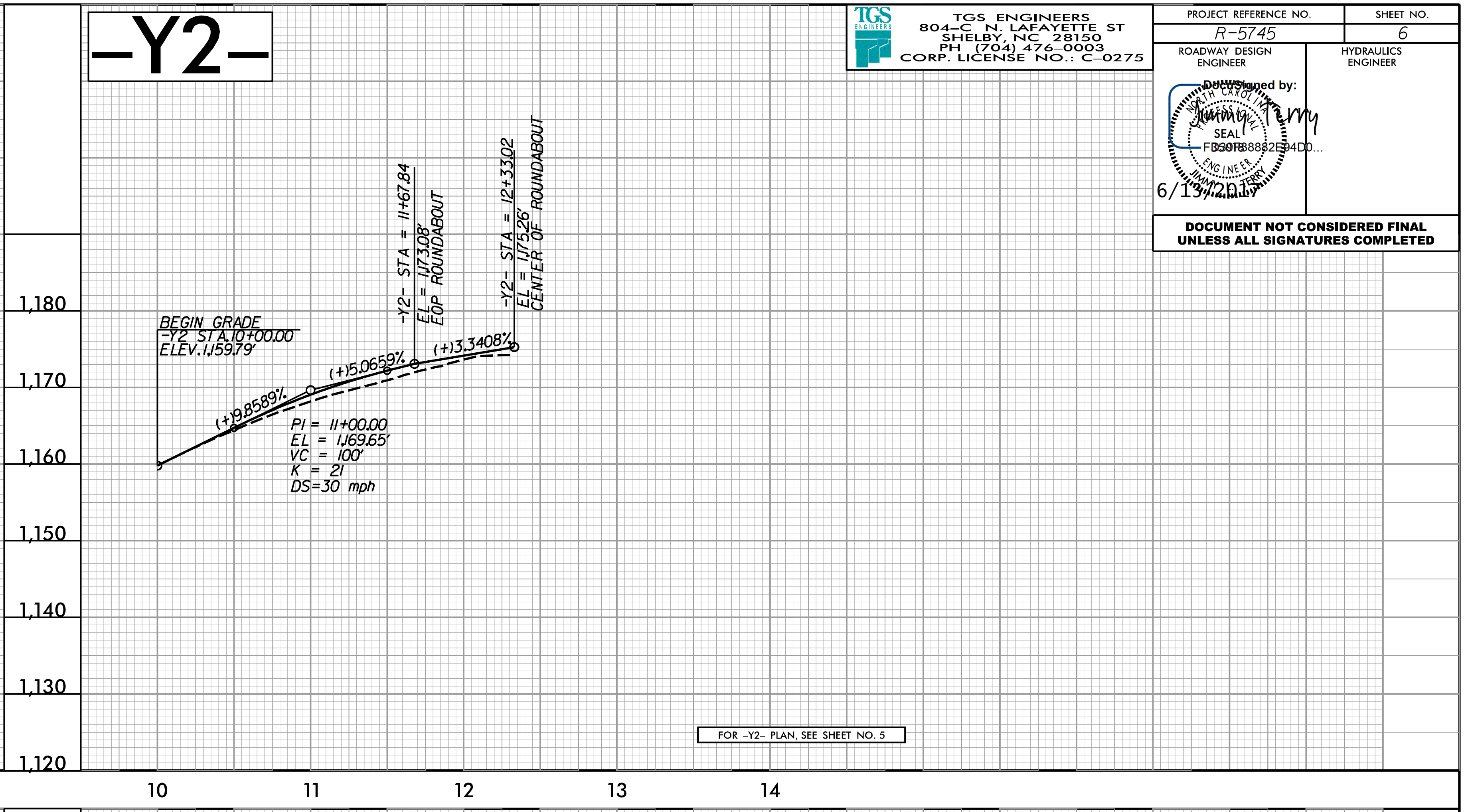
-Y1-



FOR -Y1- PLAN, SEE SHEET NO. 5

-Y2-



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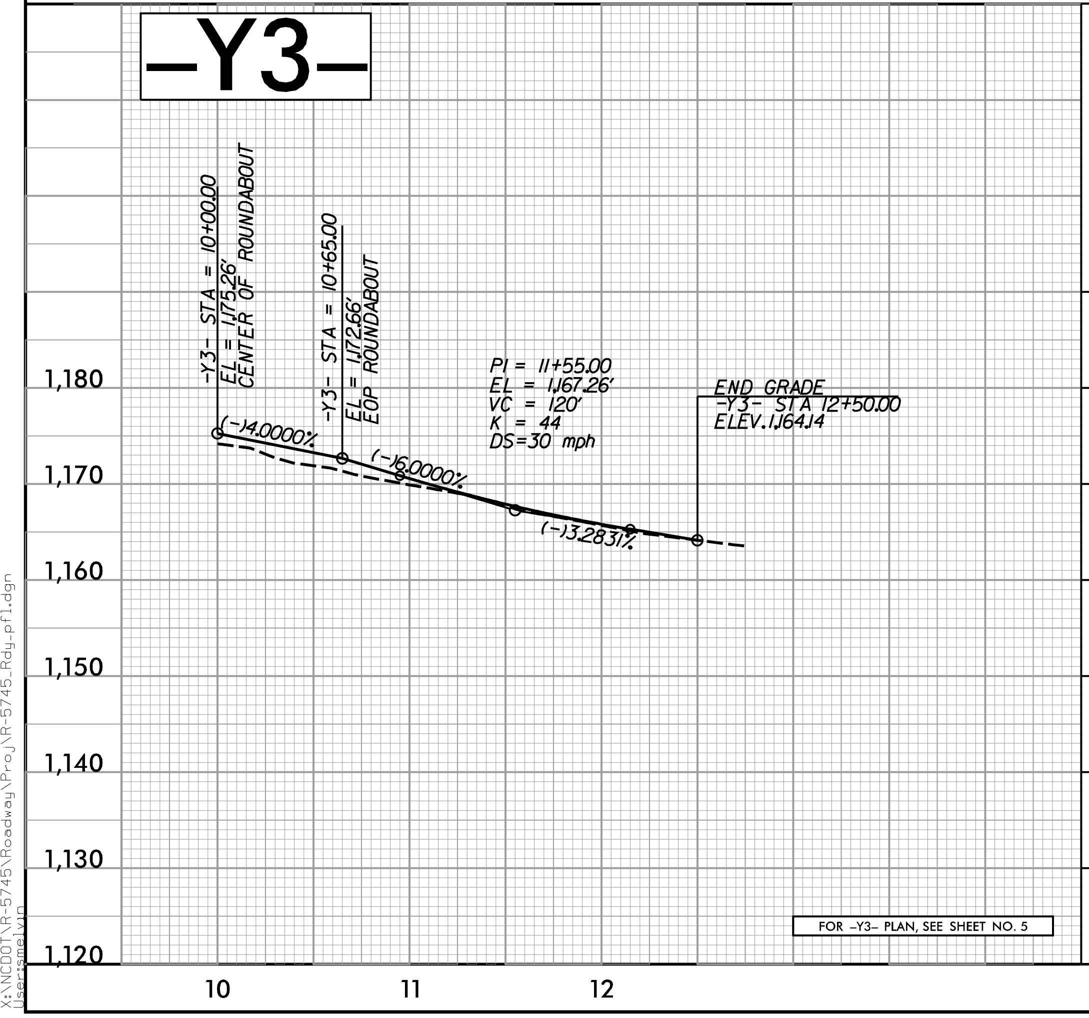
-Y3-



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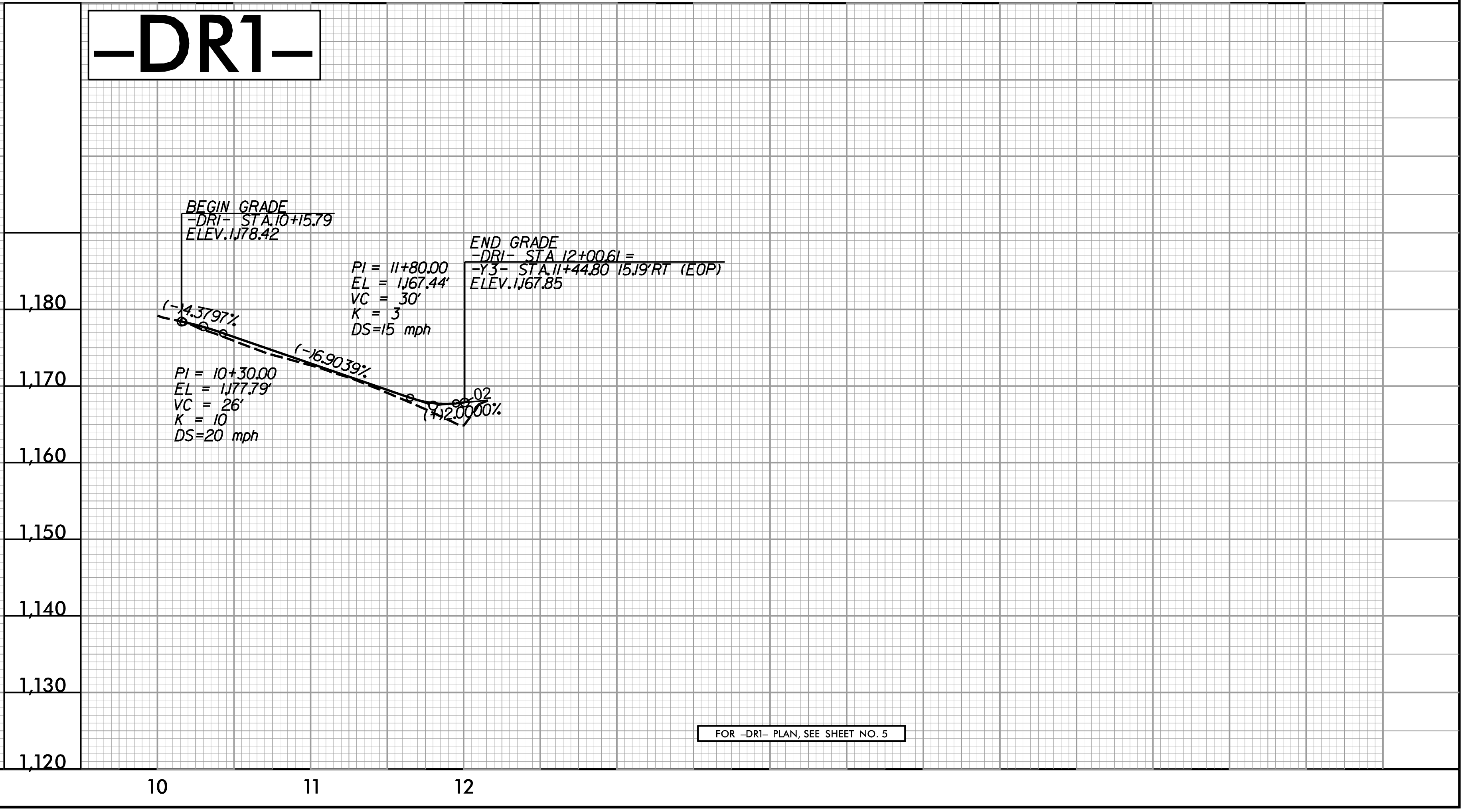
-DR1-



FOR -DR1- PLAN, SEE SHEET NO. 5

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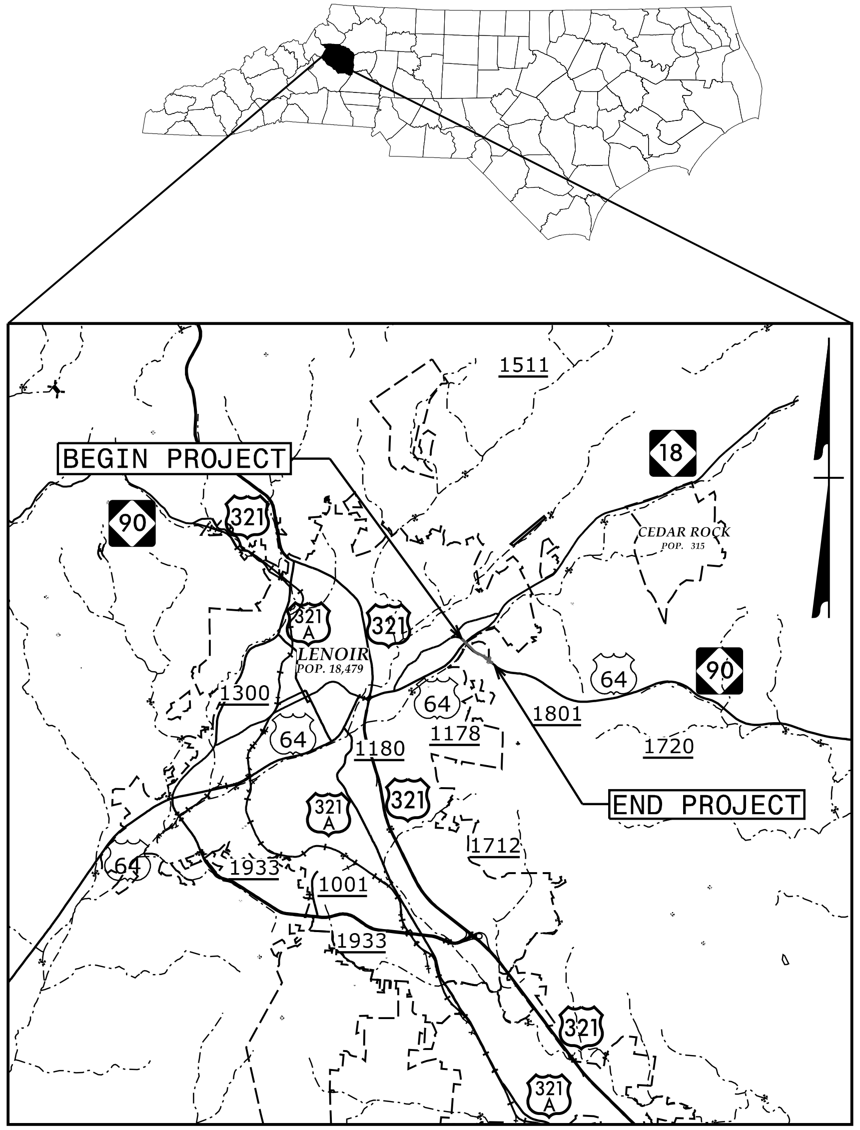
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

CALDWELL COUNTY



VICINITY MAP

INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND
TMP-1B	TRANSPORTATION OPERATIONS PLAN: (MANAGEMENT STRATEGIES, GENERAL NOTES, AND LOCAL NOTES)
TMP-2	PHASING
TMP-3	PHASE I OVERVIEW
TMP-4	PHASE I TEMPORARY PAVEMENT MARKINGS
TMP-5	PHASE II OVERVIEW
TMP-6	PHASE III OVERVIEW
TMP-7	PHASE IV OVERVIEW

SHEET NO.
TMP-1

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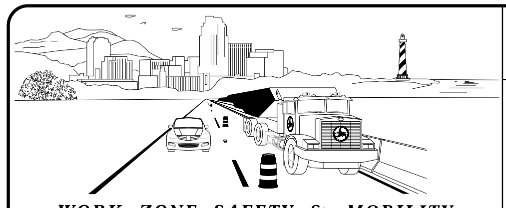

WORK ZONE SAFETY & MOBILITY
"from the MOUNTAINS to the COAST"

PLAN PREPARED FOR N.C.D.O.T. BY:

TGS ENGINEERS
TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

JIMMY L. TERRY, PE — *PROJECT ENGINEER*
SANDRA G. MELVIN — *DESIGN TECHNICIAN*

DIVISION OF HIGHWAYS — WORK ZONE TRAFFIC CONTROL

APPROVED:
DATE:

DocuSigned by:
Jimmy Terry
FD39F38882E94D0...

SEAL
6/13/2017

SEAL
35018
JIMMY L. TERRY

TIP PROJECT: R-5745

5/22/2017
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PROJ. REFERENCE NO.	SHEET NO.
R-5745	TMP-1A

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CORP. LICENSE NO.: C-0275

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - 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:

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUM
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1160.01	TEMPORARY CRASH CUSHION
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION
1170.01	POSITIVE PROTECTION
1180.01	SKINNY-DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1205.10	PAVEMENT MARKINGS - SCHOOL AREAS
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

LEGEND

GENERAL

⬅	DIRECTION OF TRAFFIC FLOW
↔	DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- - - -	EXIST. PVMT.
➝	NORTH ARROW
──	PROPOSED PVMT.
∿∿	TEMP. SHORING (LOCATION PURPOSES ONLY)
▒	WORK AREA
▨	REMOVAL
☐	USER DEFINED (IF NEEDED)
☐	USER DEFINED (IF NEEDED)

SIGNALS

◎ EXISTING	◎ PROPOSED	◎ T E M P TEMPORARY

PAVEMENT MARKINGS

──	EXISTING LINES
━━	TEMPORARY LINES

TRAFFIC CONTROL DEVICES

▨	BARRICADE (TYPE III)
▲	CONE
●	DRUM
◉	SKINNY DRUM
◎	TUBULAR MARKER
∿	TEMPORARY CRASH CUSHION
●	FLASHING ARROW BOARD
■	FLAGGER
⊛	LAW ENFORCEMENT
▯	TRUCK MOUNTED ATTENUATOR (TMA)
◁	CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

⊲	PORTABLE SIGN
⊢	STATIONARY SIGN
○	STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

□	CRYSTAL/CRYSTAL
◧	CRYSTAL/RED
◆	YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

↑↰↱	PAVEMENT MARKING SYMBOLS

APPROVED: ____________________

DATE: ____________________

DocuSigned by:
Jimmy Terry
FD39F88882E94D0...

SEAL
JIMMY L. TERRY

SEAL
6/13/2017

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

DIVISION OF HIGHWAYS
WORK ZONE TRAFFIC CONTROL

ROADWAY STANDARD
DRAWINGS & LEGEND

5/22/2017
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PROJ. REFERENCE NO.	SHEET NO.
R-5745	TMP-1B

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PH (704) 476–0003
CORP. LICENSE NO.: C–0275

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

TIME RESTRICTIONS

A) DO NOT CLOSE OR NARROW TRAVEL LANES AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS	
TAYLORSVILLE RD	MONDAY TO FRIDAY	6:00 AM TO 9:00 AM
NC 18/WILKESBORO BLVD	MONDAY TO FRIDAY	2:00 PM TO 6:00 PM

B) DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AND SPECIAL EVENTS AS FOLLOWS:

ROAD NAME

TAYLORSVILLE RD
NC 18/ WILKESBORO BLVD

HOLIDAY

1. FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.

2. FOR NEW YEAR'S, BETWEEN THE HOURS OF 4:00 P.M. DECEMBER 31st TO 9:00 A.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 9:00 A.M. THE FOLLOWING TUESDAY.

3. FOR EASTER, BETWEEN THE HOURS OF 2:00 P.M. THURSDAY AND 9:00 A.M. MONDAY.

4. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 2:00 P.M. FRIDAY TO 9:00 A.M. TUESDAY.

5. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 4:00 P.M. THE DAY BEFORE INDEPENDENCE DAY AND 9:00 A.M. THE DAY AFTER INDEPENDENCE DAY.

   IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 4:00 P.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 9:00 A.M. THE TUESDAY AFTER INDEPENDENCE DAY.

6. FOR LABOR DAY, BETWEEN THE HOURS OF 2:00 P.M. FRIDAY AND 9:00 A.M. TUESDAY.

7. FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 2:00 P.M. TUESDAY TO 9:00 A.M. MONDAY.

8. FOR CHRISTMAS, BETWEEN THE HOURS OF 2:00 P.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 9:00 A.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

LANE AND SHOULDER CLOSURE REQUIREMENTS

C) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.

D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.

E) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

F) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.

G) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

PAVEMENT EDGE DROP OFF REQUIREMENTS

H) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.

I) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

J) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

K) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.

L) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

M) INSTALL BLACK ON ORANGE ''DIP'' SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

TRAFFIC BARRIER

N) INSTALL TEMPORARY BARRIER ACCORDING TO THE TRANSPORTATION MANAGEMENT PLANS A MAXIMUM OF TWO (2) WEEKS PRIOR TO BEGINNING WORK IN ANY LOCATION. ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION PROCEED IN A CONTINUOUS MANNER TO COMPLETE THE PROPOSED WORK IN THAT LOCATION UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE.

ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION AND NO WORK IS PERFORMED BEHIND THE TEMPORARY BARRIER FOR A PERIOD LONGER THAN TWO (2) MONTHS, REMOVE / RESET TEMPORARY BARRIER AT NO COST TO THE DEPARTMENT UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS, TEMPORARY BARRIER IS PROTECTING A HAZARD, OR AS DIRECTED BY THE ENGINEER.

INSTALL TEMPORARY BARRIER WITH THE TRAFFIC FLOW BEGINNING WITH THE UPSTREAM SIDE OF TRAFFIC. REMOVE TEMPORARY BARRIER AGAINST THE TRAFFIC FLOW BEGINNING WITH THE DOWNSTREAM SIDE OF TRAFFIC.

INSTALL AND SPACE DRUMS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH) TO CLOSE OR KEEP THE SECTION OF THE ROADWAY CLOSED UNTIL THE TEMPORARY BARRIER CAN BE PLACED OR AFTER THE TEMPORARY BARRIER IS REMOVED.

O) PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER AT ALL TIMES DURING THE INSTALLATION AND REMOVAL OF THE BARRIER BY EITHER A TRUCK MOUNTED ATTENUATOR (MAXIMUM 72 HOURS) OR A TEMPORARY CRASH CUSHION.

PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER FROM ONCOMING TRAFFIC AT ALL TIMES BY A TEMPORARY CRASH CUSHION UNLESS THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER IS OFFSET FROM ONCOMING TRAFFIC AS FOLLOWS OR AS SHOWN IN THE PLANS: (SEE ALSO 1101.05)

POSTED SPEED LIMIT	MINIMUM OFFSET
40 OR LESS	15 FT
45 - 50	20 FT
55	25 FT
60 MPH or HIGHER	30 FT

TRAFFIC CONTROL DEVICES

P) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.

Q) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

PAVEMENT MARKINGS AND MARKERS

R) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER
TAYLORSVILLE RD	PAINT	NONE
WILKESBORO BLVD	PAINT	NONE
WILDCAT TRAIL	PAINT	NONE
MOOSE LODGE RD	PAINT	NONE

S) PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.

T) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

U) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

V) TRACE THE PROPOSED MONOLITHIC ISLAND LOCATIONS WITH PROPER COLOR PAVEMENT MARKINGS PRIOR TO INSTALLATION. PLACE DRUMS TO DELINEATE ANY PROPOSED MONOLITHIC ISLANDS BEFORE INSTALLATION

MISCELLANEOUS

W) LAW ENFORCEMENT MAY BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND/OR INTERSECTIONS AS DIRECTED BY THE ENGINEER.

X) IN THE EVENT A TIE-IN CANNOT BE MADE IN ONE DAY'S TIME, BRING THE TIE-IN AREA TO AN APPROPRIATE ROADWAY ELEVATION AS DETERMINED BY THE ENGINEER. PLACE BLACK ON ORANGE "LOOSE GRAVEL" SIGNS (W8-7) AND BLACK ON ORANGE ''PAVEMENT ENDS'' SIGNS (W8-3) AND RESPECTIVELY IN ADVANCE OF THE UNEVEN AREAS. USE DRUMS TO DELINEATE THE EDGE OF ROADWAY ALONG UNPAVED AREAS.

Y) ALL CURB RAMP LOCATIONS SHALL BE DERIVED FROM STATIONING SHOWN ON PAVEMENT MARKING PLANS OR AS DIRECTED BY THE ENGINEER IN COORDINATION WITH THE SIGNING AND DELINEATION UNIT.

LOCAL NOTES

UNLESS OTHERWISE NOTED PROVIDE ACCESS TO ALL DRIVES AT ALL TIMES.

TWO WAY THROUGH TRAFFIC SHALL BE MAINTAINED ON TWO 10FT (MIN.) LANES AT ALL TIMES WHILE FLAGGERS ARE NOT AT WORK.

MANAGEMENT STRATEGIES

THE PROPOSED TAYLORSVILLE ROAD (-L-) WILL BE CONSTRUCTED USING A COMBINATION OF TEMPORARY LANE CLOSURES UTILIZING FLAGGERS AS NEEDED, AND A ON- SITE DETOUR.

APPROVED: ____________________

DATE: ____________________

DocuSigned by:
Jimmy Terry
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SEAL
35018
JIMMY L. TERRY

SEAL
6/13/2017

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DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WORK ZONE TRAFFIC CONTROL

TRANSPORTATION
OPERATIONS
PLAN

5/22/2017
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PROJ. REFERENCE NO.	SHEET NO.
R-5745	TMP-2

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

PHASE I

NOTE:
UNLESS OTHERWISE NOTED PROVIDE ACCESS TO ALL DRIVE AT ALL TIMES.
TWO WAY THROUGH TRAFFIC SHALL BE MAINTAINED ON TWO 10 FT (MIN.) LANES AT ALL TIMES WHILE FLAGGERS ARE NOT AT WORK.

STEP 1:
INSTALL ALL ADVANCED WORK ZONE WARNING SIGNS ON -L- AND ALL Y- LINES IN ACCORDANCE WITH NCDOT RDY STD DRAWING 1101.01,SHEET 3 OF 3.

STEP 2: (SEE TMP-3)
WITH TRAFFIC IN ITS EXISTING PATTERN CONSTRUCT THE ONSITE DETOUR FROM DET- STA. 10+38+/- TO DET- STA. 13+20+/- AS SHOWN ON PLAN .
TIE THE EXISTING DRIVE AT DET- STA. 13+03+/- RT TO THE DETOUR.
USING TEMPORARY LANE CLOSURES (NCDOT RDY STD DRAWING 1101.02, SHEET 3 OF 15) CONSTRUCT THE TIE-IN BETWEEN THE DETOUR AND WILKESBORO BLVD (-Y-).

BEGIN CONSTRUCTION OF THE PROPOSED CULVERT (STAGE 1) .

PLACE TEMPORARY CONCRETE BARRIER ALONG THE DETOUR AS SHOWN ON PLAN.

BEGIN ROADWAY DRAINAGE CONSTRUCTION (SEE ROADWAY PLANS).

USING TEMPORARY LANE CLOSURES (NCDOT RDY STD DRAWING 1101.02, SHEET 1 OF 15) AND FLAGGERS AS NEEDED CONSTRUCT THE FOLLOWING:

PLACE CURB & GUTTER ALONG BOTH SIDES, CONSTRUCT THE NORTHSIDE WIDENING AND WEDGE THE EXISTING PAVEMENT UP TO AND INCLUDING THE FINAL LAYER OF SURFACE COURSE FROM -L- STA. 10+00/- LT TO -L- STA. 13+22+/- LT. PLACE TEMPORARY PAVEMENT FROM -L- STA. 12+00+/- LT TO -L- STA. 12+73+/-LT AS SHOWN ON PLANS.

CONSTRUCT THE NORTHSIDE WIDENING UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE FROM -L- STA. 18+00+/-LT TO 28+02+/- LT, AND FROM -L- STA 29+14+/- LT TO -L- STA. 31+80+/- LT, INCLUDING THE ADJACENT CURB AND GUTTER. CONSTRUCT THE DRIVE AT -L- STA. 30+41+/-, LT.
CONSTRUCT CEDAR HILLS CT SE (-Y1-) FROM -Y1- STA. 10+00+/- TO -Y1- STA. 10+88+/- AS SHOWN ON PLANS

CONSTRUCT THE SOUTHSIDE WIDENING UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE FROM -L- STA. STA. 16+15+/- RT TO -L- STA. 31+50+.RT. CONSTRUCT THE DRIVE AT -L- STA. 26+41, RT.

START WITH THE ROUNDABOUT CONSTRUCTION AS FOLLOWS:
IN THE NORTHWEST QUADRANT CONSTRUCT THE WIDENING FROM -L- STA. 31+80+/- LT TO -Y2- STA. 10+00+/- RT AS SHOWN ON PLANS. CLOSE THE EXISTING WALK TO PEDESTRIANS.

IN THE NORTHEAST QUADRANT CONSTRUCT THE WIDENING FROM -Y2- STA. 10+00+/- LT TO -L- STA. 36+00+/- LT, INCLUDING THE ADJACENT CURB AND GUTTER, PAVED SHOULDER, AND GUARDRAIL AS SHOWN ON PLANS.

IN THE SOUTHWEST QUADRANT CONSTRUCT THE WIDENING FROM -L- STA. 31+50+/- RT TO -Y3- STA. 12+50+/-RT, INCLUDING THE ADJACENT PAVED SHOULDER. CONSTRUCT THE NEW DRIVE FROM -DR1- STA. 10+16+/- TO -DR1- STA. 12+00 UP TO AND INCLUDING THE FINAL LAYER OF SURFACE COURSE

IN THE SOUTHEAST QUADRANT CONSTRUCT THE WIDENING FROM -Y3- STA. 12+50+/- LT TO -L- STA. 36+00+/- RT, INCLUDING THE ADJACENT PAVED SHOULDER AND GUARDRAIL AS SHOWN ON PLANS.

CONSTRUCT THE MULTI-USE PATH FROM L- STA. 18+00+/- TO Y2- STA. 10+00+/-, INCLUDING SAFETY RAIL AS SHOWN ON PLANS.

STEP 3: (SEE TMP-3)
USING TEMPORARY LANE CLOSURES (NCDOT RDY STD DRAWING 1101.02, SHEET 1 OF 15) , FLAGGERS, AND SHIFTING TRAFFIC ONTO THE NEWLY WIDENED PAVEMENT IF NECESSARY, WEDGE THE EXISTING PAVEMENT UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE FROM -L- STA. 16+15+/- TO -L- STA 36+00+/-, FROM -Y2- STA. 10+00+/- TO -Y2- STA. 12+33+/-, AND FROM -Y3- STA. 10+00+/- TO -Y3- STA. 12+50+/- AS SHOWN ON PLANS.

MILL EXISTING PAVEMENT IF NECESSARY.

CLOSE THE EXISTING DRIVES AT -L- STA. 31+07+/- RT AND AT -Y3- STA. 10+75+/-RT TO TRAFFIC AND OPEN THE NEW DRIVEWAY -DR1-.

AT THE ROUNDABOUT DELINEATE THE SPLITTER ISLANDS AND THE CENTRAL ISLAND AND BEGIN OPERATING THE INTERSECTION AS A ROUNDABOUT.

STEP 4: (SEE TMP-4)
USING TEMPORARY LANE CLOSURES (NCDOT RDY STD DRAWING 1101.02, SHEET 1 OF 15) AND FLAGGERS PLACE TEMPORARY PAVEMENT MARKINGS AS SHOWN ON PLANS .
REMOVE CONFLICTING EXISTING MARKINGS.

INSTALL TEMPORARY SIGNAL AT THE INTERSECTION OF TAYLOSRVILLE RD(-L-) AND WILKESBORO BLVD (-Y-) (SEE SIGNAL PLANS FOR PHASING SEQUENCE).

PHASE II

STEP 1: (SEE TMP-5)
ACTIVATE THE TEMPORARY SIGNAL SYSTEM.

OPEN DETOUR TO TRAFFIC.

BEGIN STAGE 2 OF CULVERT CONSTRUCTION.

USING TEMPORARY LANE CLOSURES (NCDOT RDY STD DRAWING 1101.02, SHEET 1 OF 15) AND FLAGGERS AS NEEDED CONSTRUCT THE FOLLOWING UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE:
-L- STA. 13+81+/- TO -L- STA. 16+15+/- INCLUDING THE SOUTH SIDE PAVED SHOULDER AND THE DRIVE AT -L- STA. 16+06+/-RT.
USING TEMPORARY LANE CLOSURES (NCDOT RDY STD DRAWING 1102.02, SHEET 3 OF15) CONSTRUCT THE TIE-IN BETWEEN TAYLORSVILLE RD (-L-) AND WILKESBORO BLVD (-Y-)

AT THE ROUNDABOUT CONSTRUCT THE CENTRAL ISLAND.

STEP 2: (SEE TMP-5)
AFTER PLACING TEMPORARY PAVEMENT MARKINGS AND REMOVING CONFLICTING MARKINGS AS NEEDED, OPEN THE NEWLY CONSTRUCTED SECTION FROM -L- STA. 13+81+/- TO -L- STA. 16+15+/- TO TRAFFIC AND CLOSE THE DETOUR.

REMOVE THE DETOUR PAVEMENT.

REMOVE TEMPORARY PAVEMENT FROM -L- STA. 12+00+/- LT TO -L- STA. 12+73+/-LT AS SHOWN ON PLANS.

PHASE III

STEP1: (SEE TMP-6)
USING TEMPORARY LANE CLOSURES (NCDOT RDY STD DRAWING 1101.02, SHEET 1 OF 15) AND FLAGGERS AS NEEDED CONSTRUCT TAYLORSVILLE ROAD (-L-) FROM L- STA 13+81+/- TO L- STA. 18+00+/- UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE. PLACE THE ADJACENT CURB AND GUTTER AND MULTI-USE PATH.USING TEMPORARY LANE CLOSURES (NCDOT RDY STD DRAWING 1102.02, SHEET 3 OF15) CONSTRUCT THE TIE-IN BETWEEN TAYLORSVILLE RD (-L-) AND WILKESBORO BLVD (-Y-)

CONSTRUCT WALK AND RAMP AT -L- STA. 13+05+/- LT AS SHOWN ON PLANS.

INSTALL NEW SIGNAL SYSTEM AT THE INTERSECTION OF TAYLOSRVILLE RD(-L-) AND WILKESBORO BLVD (-Y-) (SEE SIGNAL PLANS FOR PHASING SEQUENCE).

-

PHASE IV

STEP 1: (SEE TMP-7)
OPEN MULTI-USE PATH TO PEDESTRIAN AND BICYCLE TRAFFIC.

ACTIVATE NEW SIGNAL SYSTEM.

USING TEMPORARY LANE CLOSURES (NCDOT RDY STD DRAWING 1101.02, SHEET 1 OF 15) AND FLAGGERS AS NEEDED CONSTRUCT THE FINAL LAYER OF SURFACE COURSE AS FOLLOWS :
-L- STA 13+81+/- TO L- STA 36+00+/- (USING NCDOT RDY STD DRAWING 1102.02, SHHET 3 OF 15 TO CONSTRUCT TIE-IN TO WILKESBORO BLVD)
-Y1- STA. 10+00+/- TO Y1- STA. 10+88+/-
-Y2- STA. 10+00+/- TO 12+33+/-
-Y3- STA. 10+00+/- TO Y3- STA. 12+50+/-
AT ROUNDABOUT PLACE SPLITTER ISLANDS AS SHOWN ON PLANS (SEE ROUNDABOUT LAYOUT SHEET (SHT 2B-1) FOR LAYOUT).

STEP 2: (SEE PAVEMENT MARKING PLANS)
USING TEMPORARY LANE CLOSURES (NCDOT RDY STD DRAWING 1101.02, SHEET 1 OF 15) AND FLAGGERS AS NEEDED PLACE THE FINAL PAVEMENT MARKINGS AND PAVEMENT MARKERS.

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DATE: ____________________

SEAL
6/13/2017

JIMMY L. TERRY
35018

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Jimmy Terry
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DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WORK ZONE TRAFFIC CONTROL

PHASING

5/22/2017
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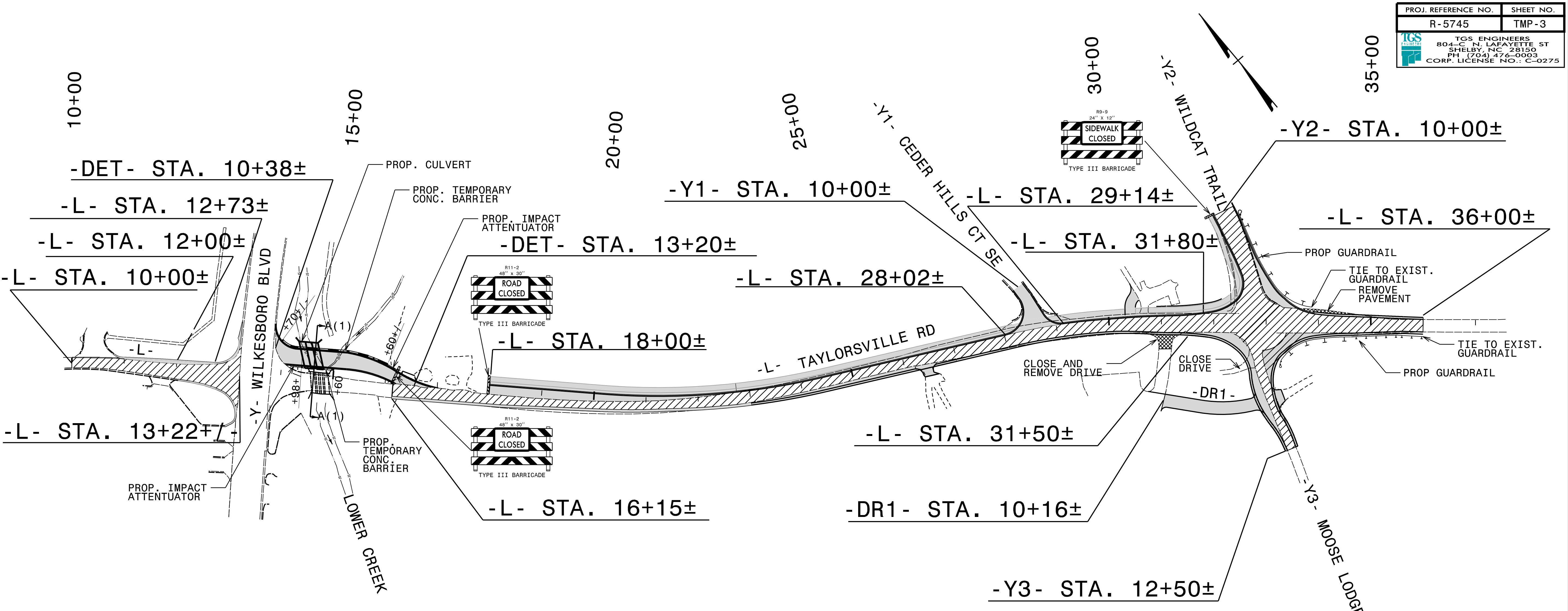
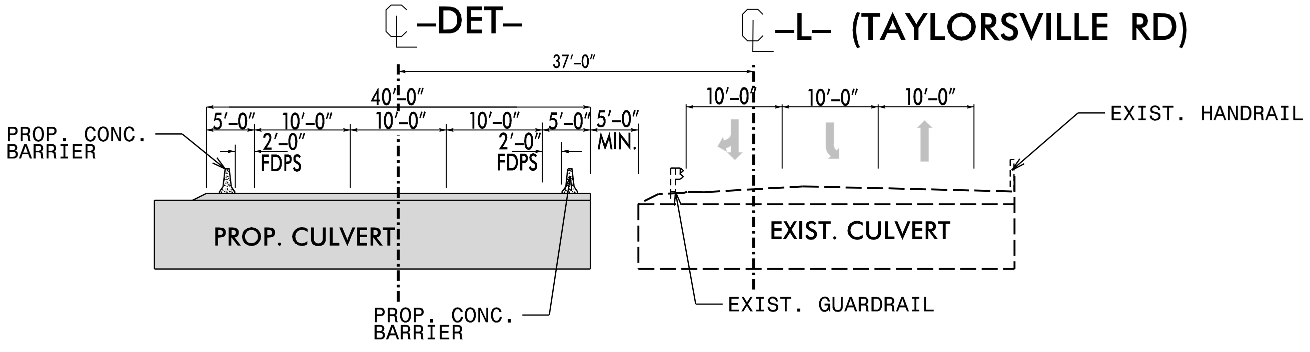
User:smelvin

PROJ. REFERENCE NO.	SHEET NO.
R-5745	TMP-3

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275





SECTION A(1) - A(1)

LEGEND

PROP. CONSTRUCTION	▒
PROP. WEDGING	▨
TEMP. PAVEMENT	░
REMOVAL	▩

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PHASE I

5/22/2017
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PROJ. REFERENCE NO.	SHEET NO.
R-5745	TMP-4

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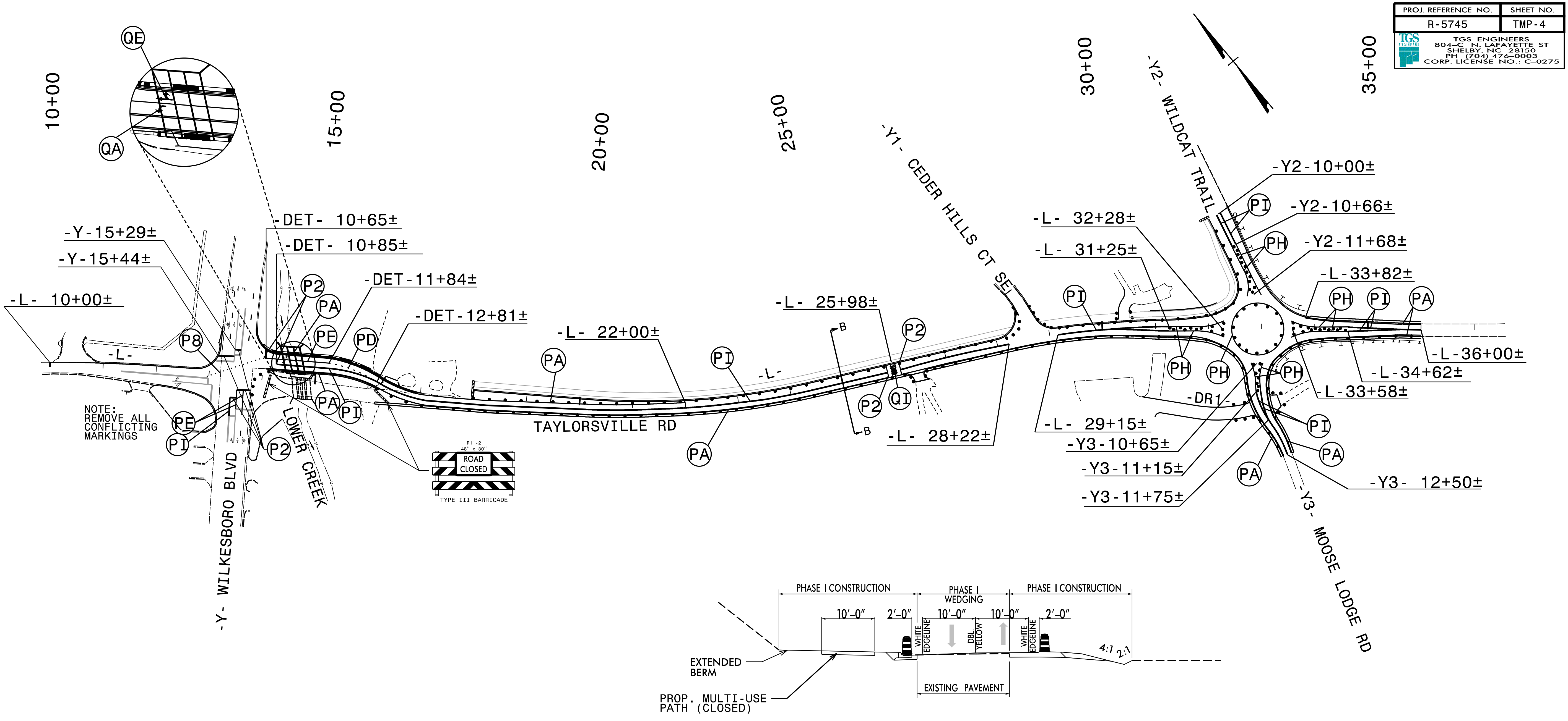

SECTION B - B

TEMPORARY PAVEMENT SCHEDULE

SYMBOL	DESCRIPTION
	PAINT(24")
P2	WHITE STOPBAR
	PAINT(4")
P8	2 FT. - 6 FT./SP WHITE MINISKIP
PA	WHITE EDGELINE
PD	3 FT. - 9 FT./SP WHITE MINISKIP
PE	WHITE SOLID LANE LINE
PH	YELLOW SINGLE CENTER
PI	YELLOW DOUBLE CENTER

SYMBOL	DESCRIPTION
	PAINTMARKING CHARACTERS
QI	ALPHANUMERIC CHARACTERS
	PAINTMARKING SYMBOLS
QA	LEFT TURN ARROW
QE	COMBO.STRAIGHT/RIGHT

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PHASE I
TEMPORARY PAVEMENT MARKING PLAN

PROJ. REFERENCE NO.	SHEET NO.
R-5745	TMP-5

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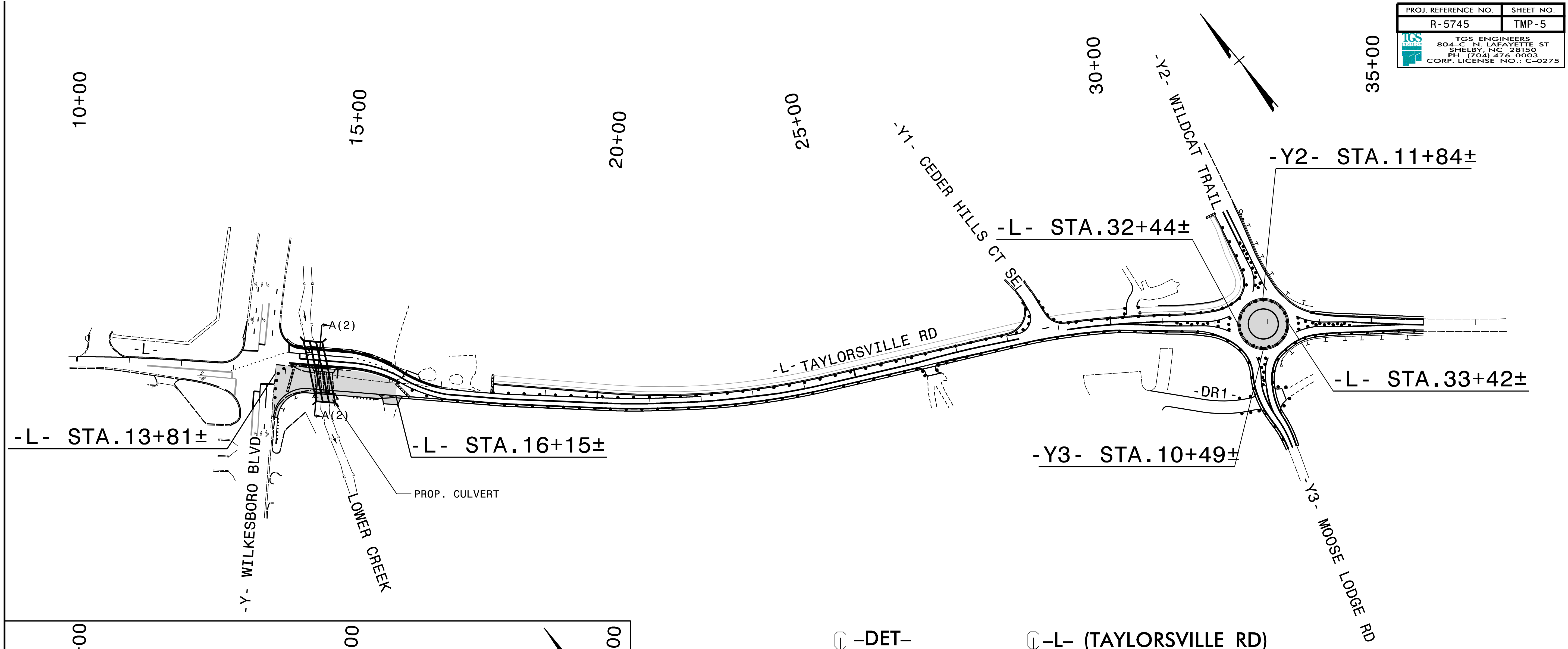
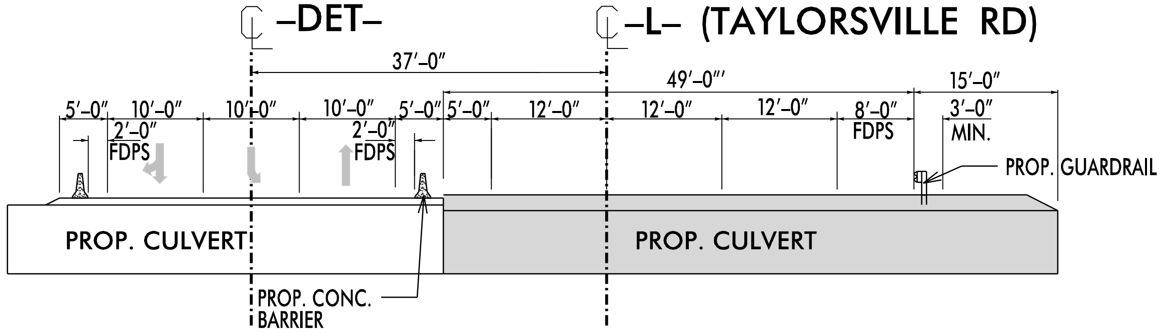
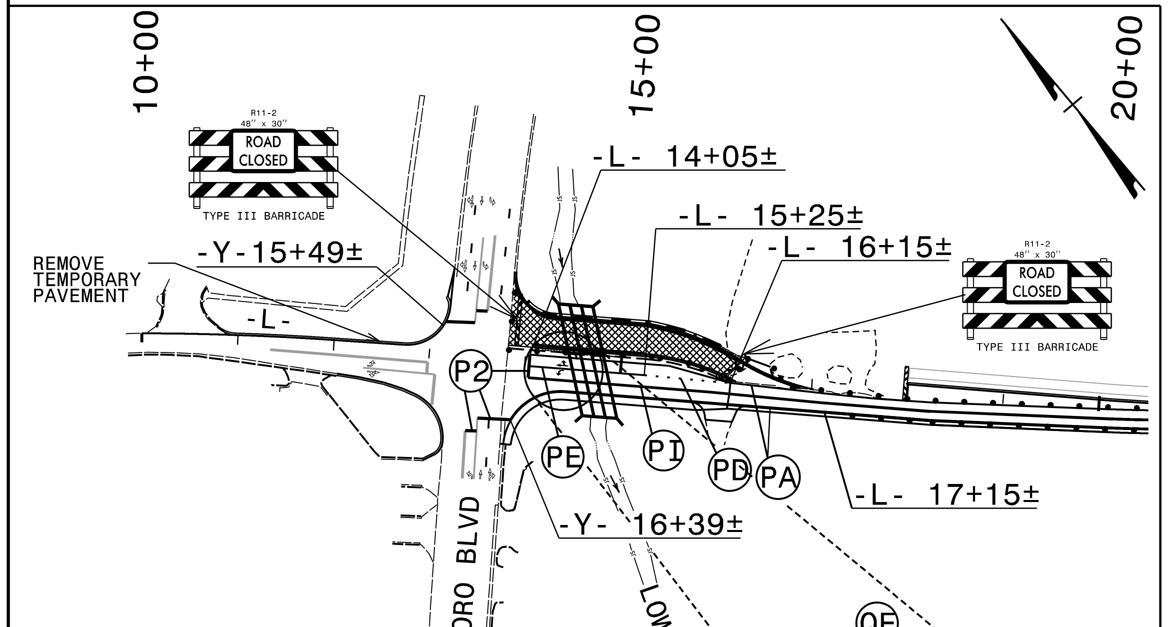




SECTION A(2) - A(2)

LEGEND

PROP. CONSTRUCTION	▨
REMOVAL	▩



SEE TMP-4 FOR TEMPORARY
PAVEMENT SCHEDULE.

PHASE II
STEP 2

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PROJ. REFERENCE NO.	SHEET NO.
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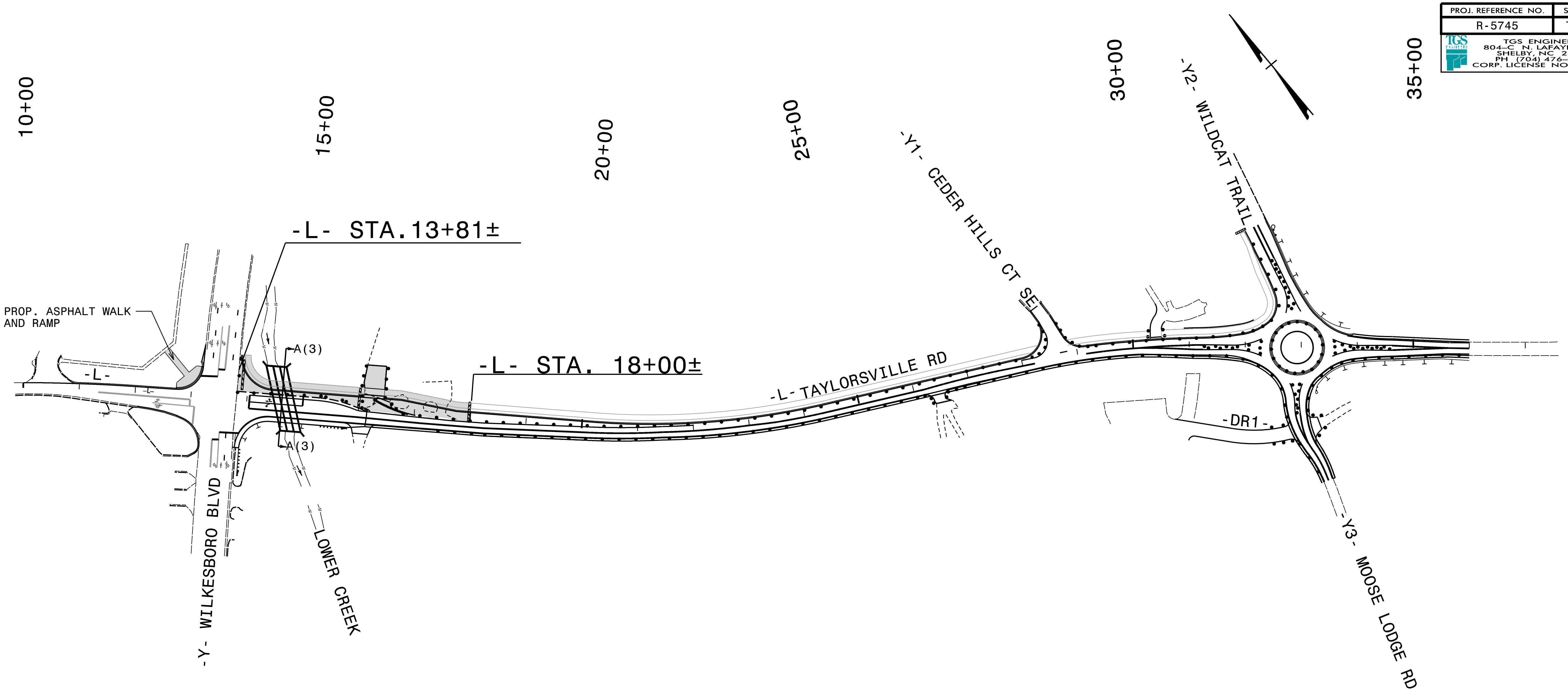

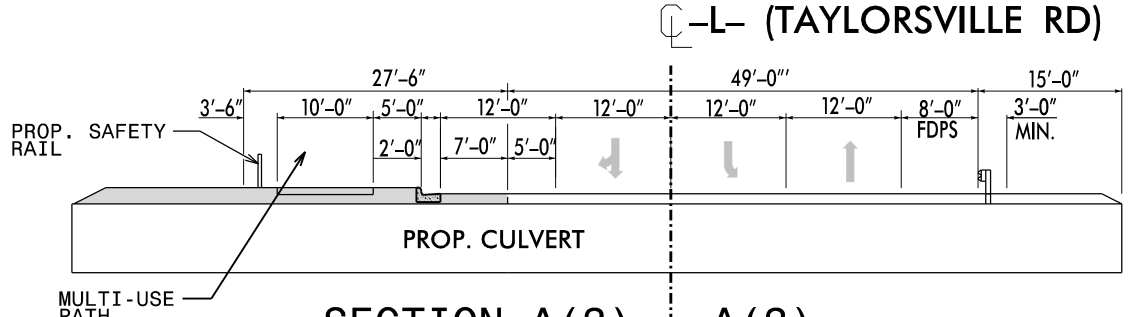

SECTION A(3) A(3)

LEGEND

PROP. CONSTRUCTION	░
REMOVAL	▩

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PHASE III

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PROJ. REFERENCE NO.	SHEET NO.
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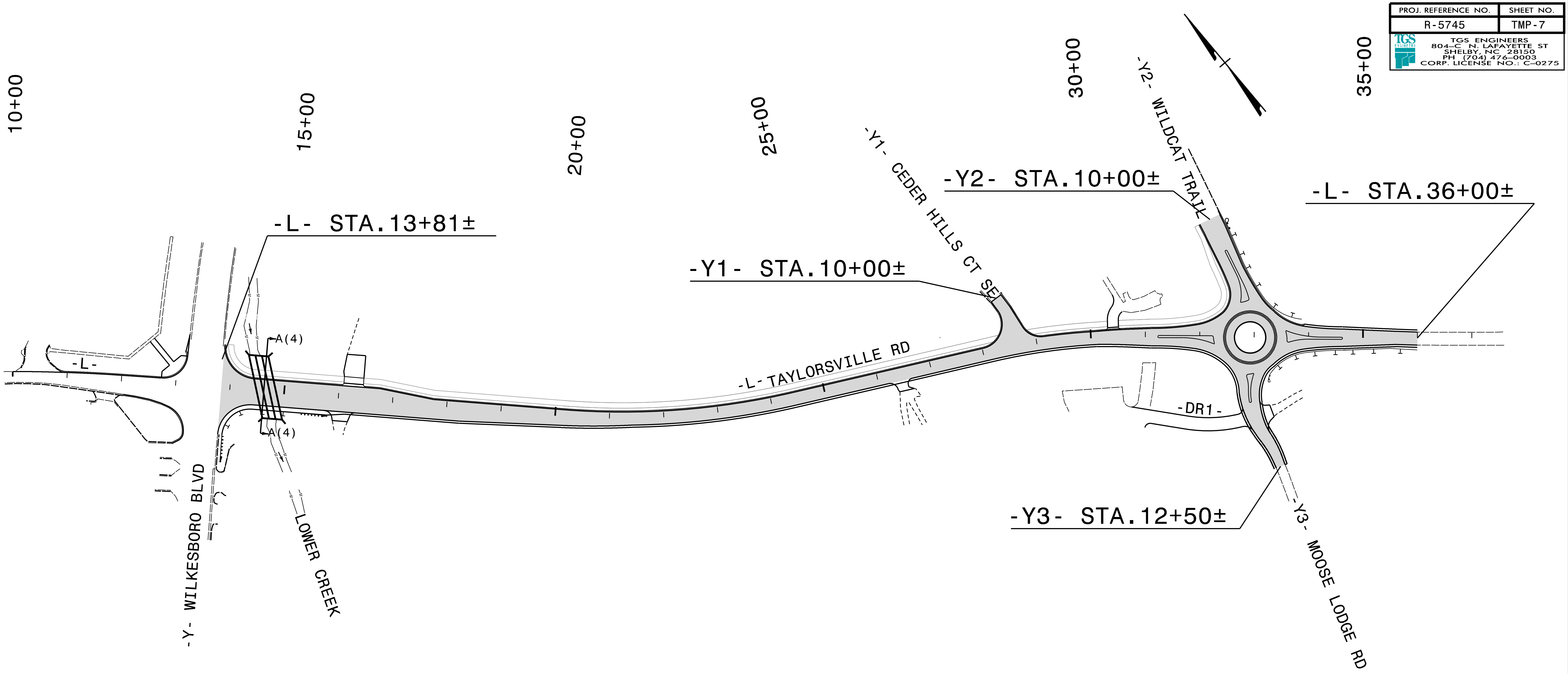

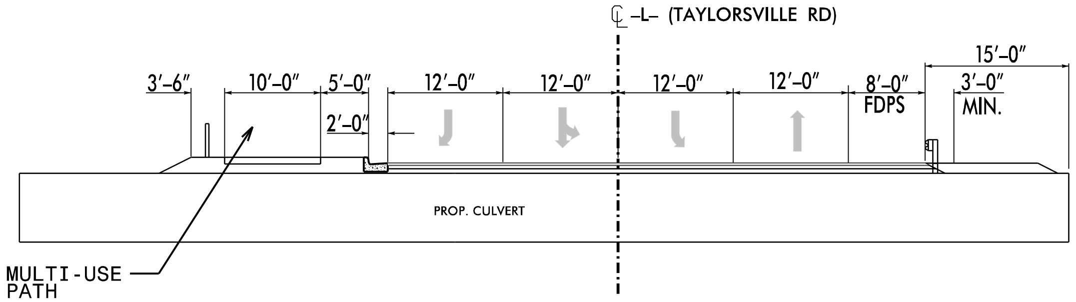

SECTION A(4) - A(4)

LEGEND

PROP. CONSTRUCTION ▨

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DIVISION OF HIGHWAYS
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PHASE IV

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T.I.P.: R-5745

TIP NO.	SHEET NO.
R-5745	PMP-1

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN

CALDWELL COUNTY

LOCATION: INTERSECTION OF US64/NC90/NC18 (WILKESBORO BLVD) AND US64/NC90 (TAYLORSVILLE RD)

ROADWAY STANDARD DRAWING

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - 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:

STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1205.10	PAVEMENT MARKINGS - SCHOOL AREAS
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1253.01	RAISED PAVEMENT MARKERS - SNOWPLOWABLE
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION
1264.01	OBJECT MARKERS - TYPES
1264.02	OBJECT MARKERS - INSTALLATION

INDEX

PLAN PREPARED FOR N.C.D.O.T. BY:

TGS ENGINEERS
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SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

JIMMY L. TERRY, PE — PROJECT ENGINEER
SANDRA MELVIN — DESIGN TECHNICIAN

GENERAL NOTES

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT, EXCEPT WHEN OTHERWISE NOTED IN THE PLAN, OR DIRECTED BY THE ENGINEER.

A) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	MARKER
TAYLORSVILLE RD	THERMOPLASTIC	SNOWPLOWABLE RAISED
WILKESBORO BLVD	THERMOPLASTIC	SNOWPLOWABLE RAISED
WILDCAT TRAIL	THERMOPLASTIC	
MOOSE LODGE RD	THERMOPLASTIC	

B) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

C) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.

D) PASSING ZONES WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.

E) UNLESS OTHERWISE SPECIFIED, HEATED-IN-PLACE THERMOPLASTIC MAY BE USED IN LIEU OF EXTRUDED THERMOPLASTIC FOR STOP BARS, SYMBOLS, CHARACTERS AND DIAGONALS. IF HEATED-IN-PLACE IS USED, IT SHALL BE PAID FOR USING THE EXTRUDED THERMOPLASTIC PAY ITEM.

F) SEE ROADWAY PLANS FOR ALTERNATE CURB RAMP DESIGNS WHEN INDICATED ON PAVEMENT MARKING DETAIL SHEETS.

5/30/2017
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SEAL 035918

6/13/2017

REVISIONS

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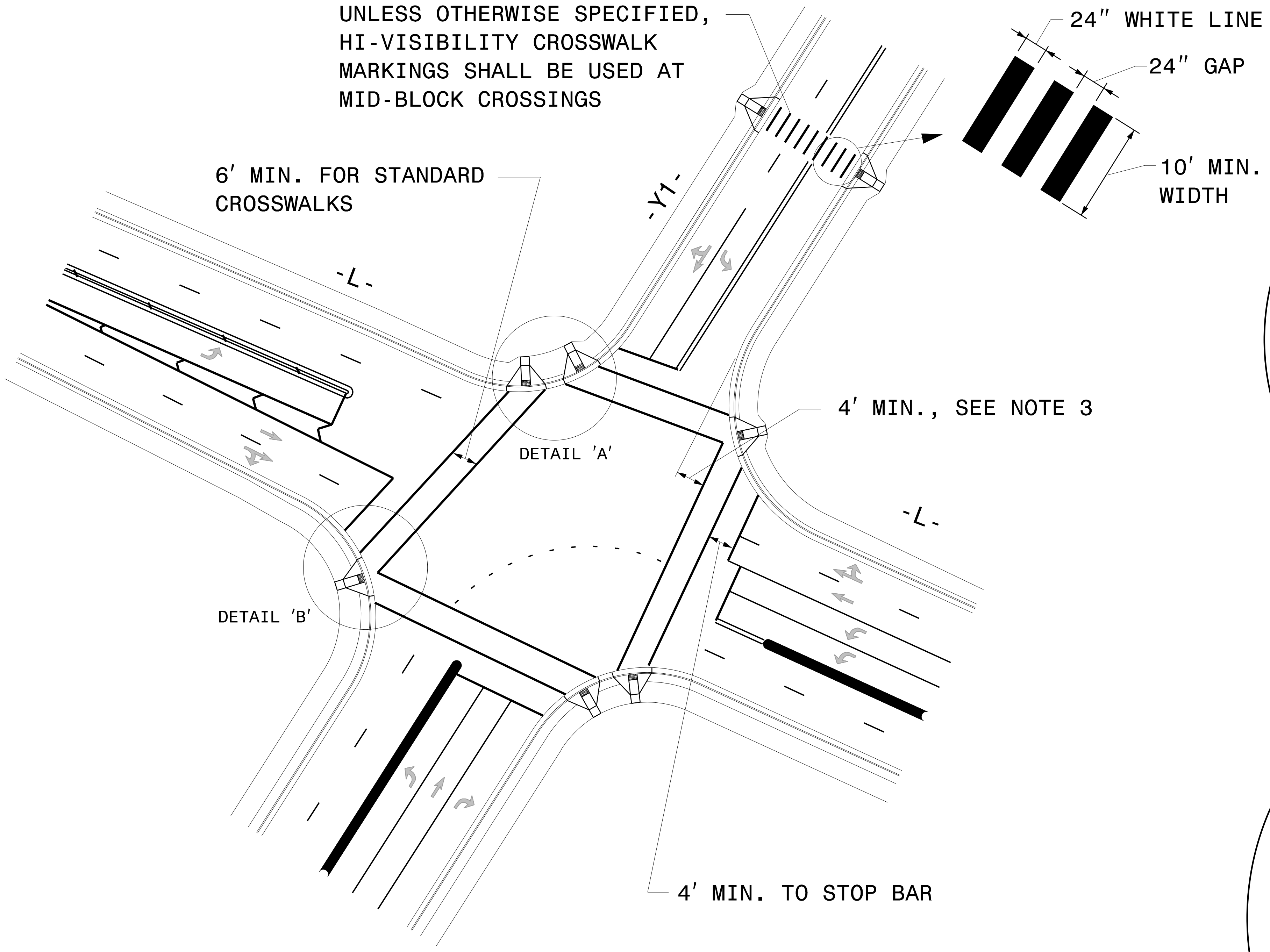
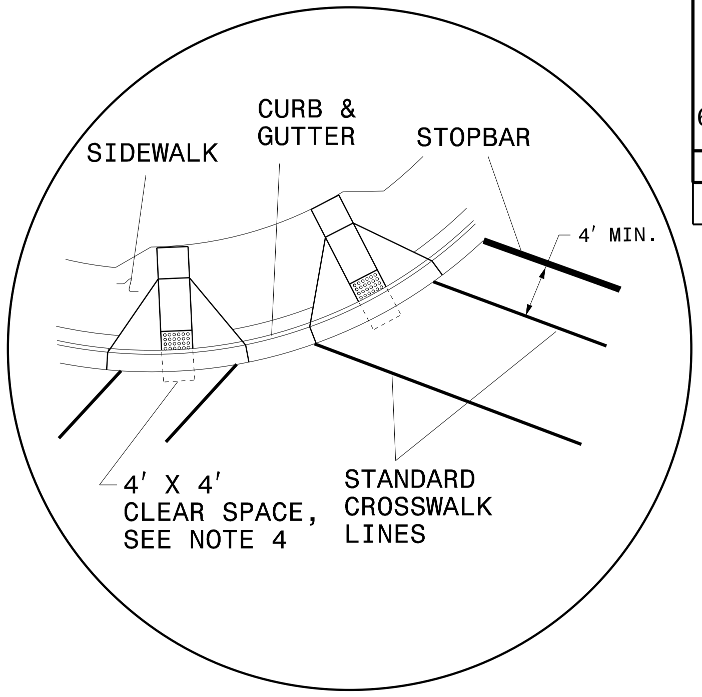
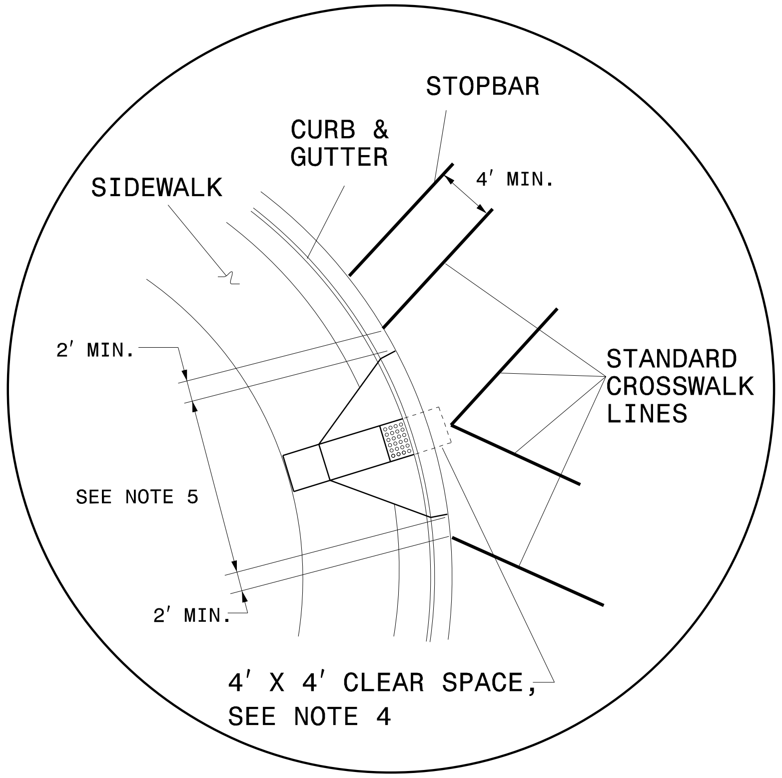


GUIDANCE DETAIL FOR CROSSWALK MARKINGS



DETAIL 'A'- DUAL CURB RAMPS



DETAIL 'B'- SINGLE DIAGONAL CURB RAMP

NOTES:

1. USE THE DETAILS ABOVE AND THE FOLLOWING NOTES FOR GUIDANCE IN PLACING CROSSWALK MARKINGS NOT STATIONED ON THE DETAIL SHEETS OR WHEN FIELD ADJUSTMENTS REQUIRED MOVING STATIONED MARKINGS AS DIRECTED BY THE ENGINEER. REFER TO NCDOT ROADWAY STANDARD DRAWINGS, MUTCD AND ADA STANDARDS FOR ADDITIONAL GUIDANCE.

2. THE CROSSWALK MARKINGS SHOWN ON THE ABOVE DETAILS ARE FOR REFERENCE ONLY. ONLY INSTALL CROSSWALK MARKINGS WHERE SHOWN ON THE DETAIL SHEETS OR AS DIRECTED BY THE ENGINEER. THE CROSSWALK MARKING TYPE, STANDARD OR HI-VISIBILITY, SHALL BE INSTALL AS SPECIFIED ON THE DETAIL SHEETS OR AS DIRECTED BY THE ENGINEER.

3. SET BACK DISTANCE FROM INSIDE CROSSWALK MARKING TO NEAREST EDGE OF TRAVEL IS 4' MIN.

4. BEYOND THE BOTTOM GRADE BRAKE, A CLEAR SPACE OF 4' X 4' MINIMUM SHALL BE PROVIDED WITHIN THE MARKINGS.

5. SINGLE DIAGONAL CURB RAMPS WITH FLARED SIDES SHALL HAVE A SEGMENT OF CURB 2 FEET LONG MINIMUM LOCATED ON EACH SIDE OF THE CURB RAMP AND WITHIN THE MARKED CROSSING, SEE DETAIL 'B'.

6. CURB RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE TO THE LATEST NCDOT ROADWAY STANDARD DRAWINGS.

CROSSWALK PAVEMENT MARKING GUIDANCE DETAIL

5/30/2017
X:\NCDOT\R-5745\Traffic\TrafficControl\TCP\R-5745_TC_PMP_02(Crosswalk Guidance Detail.dgn
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JIMMY L. TERRY

6/13/2017

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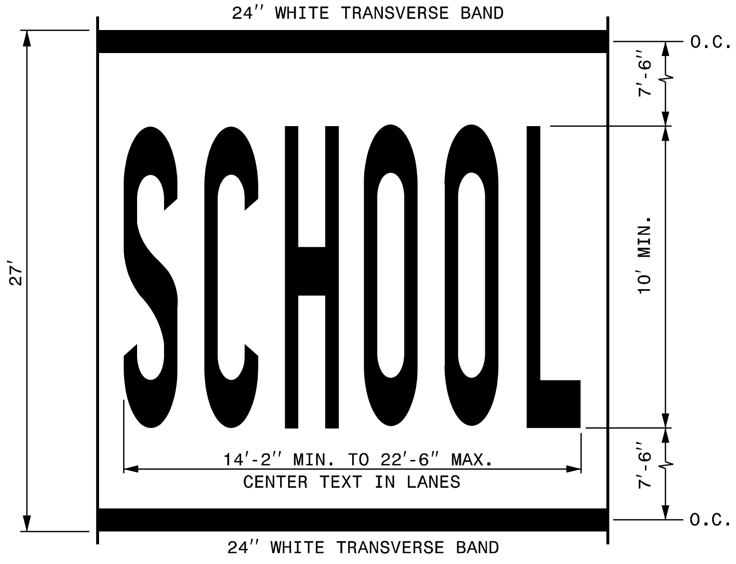
RALEIGH, N.C.

1-12

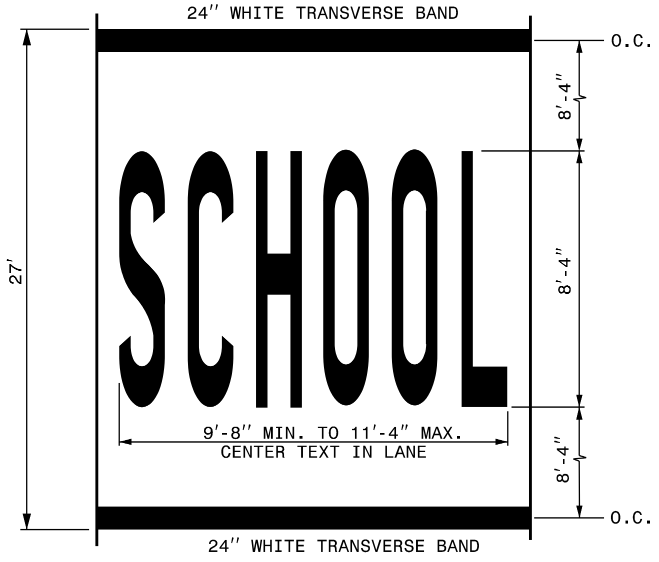
MULTI-LANE WIDTH "SCHOOL"



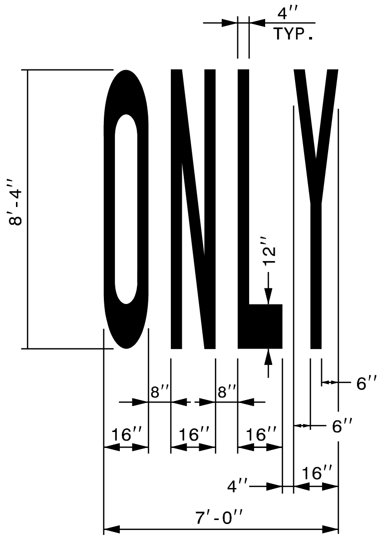
LETTER HEIGHT = 10' MIN.
LETTER WIDTH = 20"
SPACING = 10" MIN./30" MAX. (USE EQUAL SPACING BETWEEN LETTERS)

NOTE: THE TWO-LANE PAVEMENT MARKING DIMENSIONS OF "SCHOOL" SHOWN IN PART 7 OF THE MUTCD MAY ALSO BE USED.

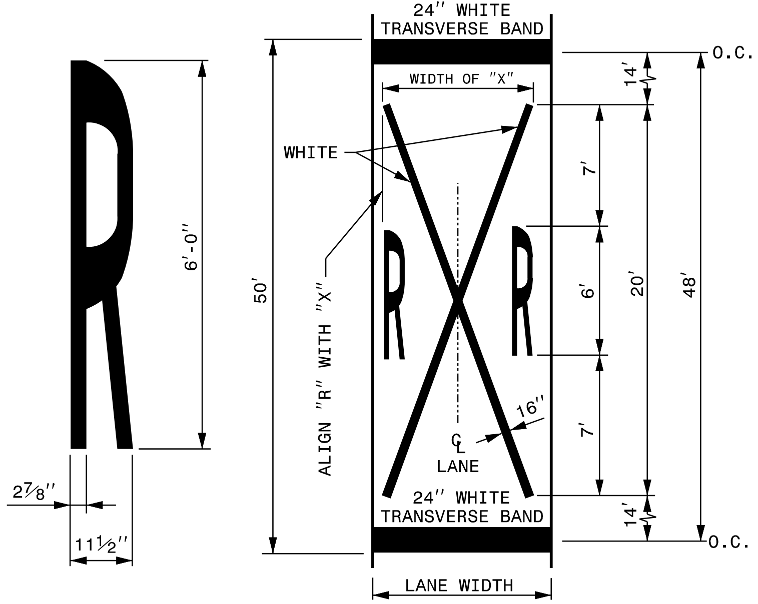
SINGLE LANE WIDTH "SCHOOL"



LETTER HEIGHT = 8'-4"
LETTER WIDTH = 16"
SPACING = 4" MIN./8" MAX. (USE EQUAL SPACING BETWEEN LETTERS)



RAILROAD RXR SYMBOL



LANE WIDTH (FEET)	WIDTH OF "X" (FEET)
8'≤W≤9'	7'
9'<W≤12'	8'
W>12'	10'

GENERAL NOTES:

1- THE SCHOOL PAVEMENT MARKING CONSISTS OF SIX (6) CHARACTERS. THE TWO (2) 24" TRANSVERSE BANDS WILL BE PAID FOR UNDER A SEPARATE PAY ITEM. REFER TO ROADWAY STANDARD DRAWING 1205.10 FOR ADDITIONAL PAVEMENT MARKING GUIDANCE.

2- PAVEMENT MARKING IN ADVANCE OF A HIGHWAY-RAIL CROSSING SHALL CONSIST OF TWO (2) CHARACTERS AND TWO (2) 16" LINES (FORMING AN X) WHICH ARE PAID FOR UNDER TWO SEPARATE PAY ITEMS. THE TWO (2) 24" TRANSVERSE BANDS WILL BE PAID FOR UNDER A SEPARATE PAY ITEM. REFER TO ROADWAY STANDARD DRAWING 1205.11 FOR ADDITIONAL PAVEMENT MARKING GUIDANCE.

ENGLISH DETAIL DRAWING FOR
PAVEMENT MARKINGS
SYMBOLS AND WORD MESSAGES

SHEET 3 OF 8

1205D08

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

1-12

ENGLISH DETAIL DRAWING FOR
PAVEMENT MARKINGS
SYMBOLS AND WORD MESSAGES

SHEET 3 OF 8

1205D08

REVISED PAVEMENT MARKING
ROADWAY STANDARD DRAWING

5/30/2017
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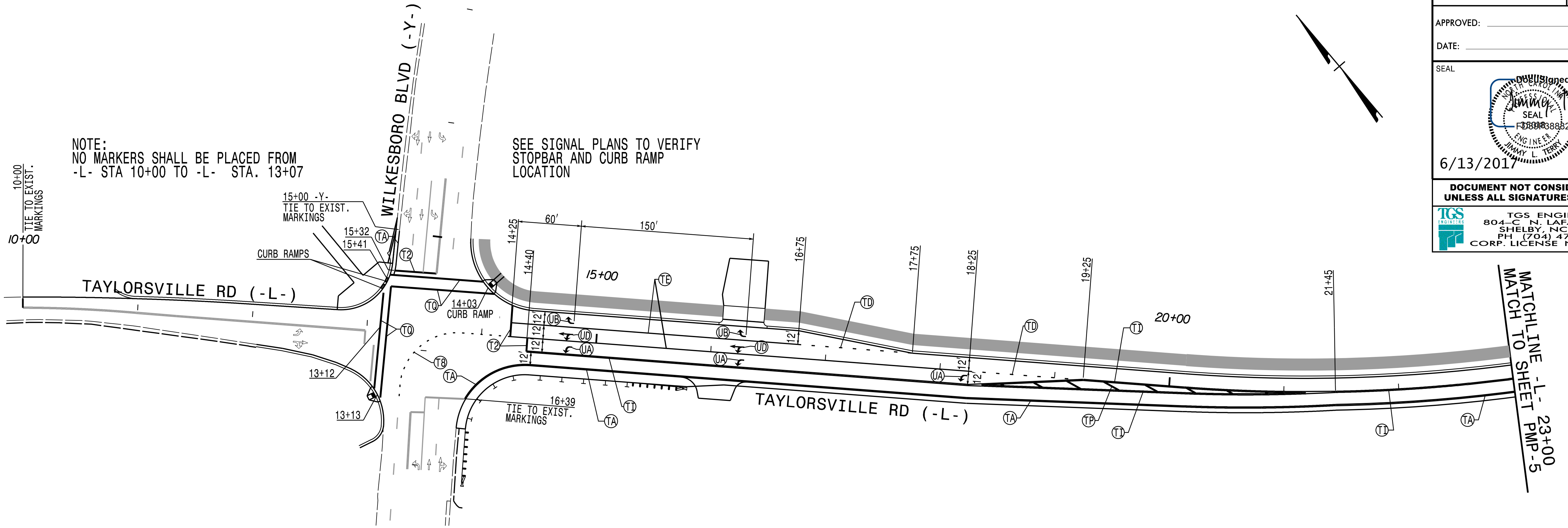
NOTE:
NO MARKERS SHALL BE PLACED FROM
-L- STA 10+00 TO -L- STA. 13+07

SEE SIGNAL PLANS TO VERIFY
STOPBAR AND CURB RAMP
LOCATION



FINAL PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION
	PAVEMENT MARKINGS
	THERMOPLASTIC(12", 120 MILS)
T10	3 FT. - 3 FT./SP WHITE MINISKIP
	THERMOPLASTIC(24", 120 MILS)
T2	WHITE STOPBAR
	THERMOPLASTIC(4", 120 MILS)
T8	2 FT. - 6 FT./SP WHITE MINISKIP
TD	3 FT. - 9 FT./SP WHITE MINISKIP
TE	WHITE SOLID LANE LINE
TH	YELLOW SINGLE CENTER
TI	YELLOW DOUBLE CENTER
	THERMOPLASTIC(4", 90 MILS)
TA	WHITE EDGELINE
	THERMOPLASTIC(8", 120 MILS)
TQ	WHITE CROSSWALK LINE
	THERMOPLASTIC(8", 90 MILS)
TN	WHITE GORELINE
TP	YELLOW DIAGONAL

SYMBOL	DESCRIPTION
	THERMOPLASTIC PAVEMENT MARKING CHARACTER (120 MILS)
UI	ALPHANUMERIC CHAR.
	THERMOPLASTIC PAVEMENT MARKING SYMBOLS (90 MILS)
UA	LEFT TURN ARROW
UB	RIGHT TURN ARROW
UD	COMBO STRAIGHT/LEFT
UN	24" YIELD LINE TRIANGLE
	MARKERS
	SNOWPLOWABLE RAISED PAVEMENT MARKERS
ME	YELLOW & YELLOW
MF	CRYSTAL & RED

5/30/2017
X:\NCDOT\R-5745\Traffic\TrafficControl\TCP\R-5745_TC_PMP_04.dgn
User:smelvin

FINAL PAVEMENT MARKING PLAN
FINAL PAVEMET MARKING SCHEDULE

TIP NO.	SHEET NO.
R-5745	PMP-5

APPROVED:

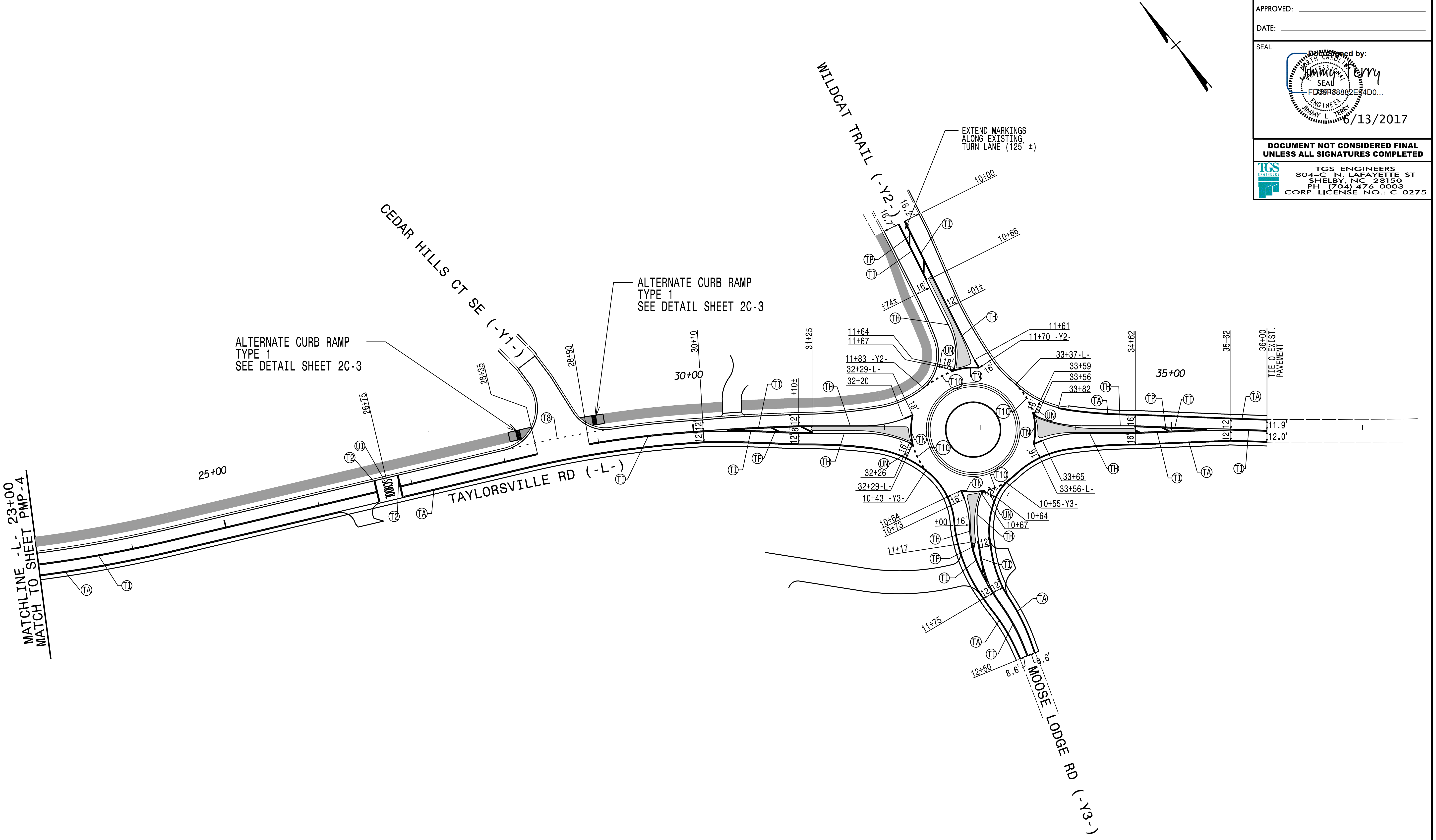
DATE:

SEAL

DocuSigned by:
Jimmy Terry
FD3F8882E54D0...
JIMMY L. TERRY
6/13/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275



SEE SHEET PMP-2 FOR
FINAL PAVEMENT SCHEDULE

FINAL PAVEMENT MARKING PLAN

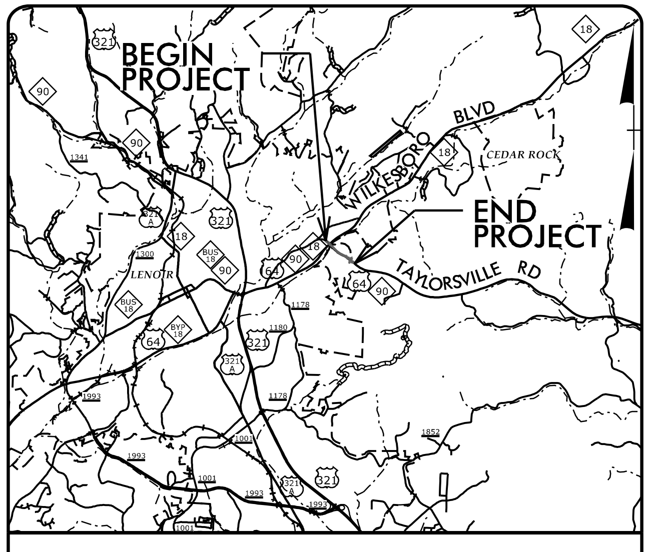
5/30/2017
X:\NCDOT\R-5745\Traffic\TrafficControl\TCP\R-5745_TC_PMP_05.dgn
User:smelvin

PROJECT: R-5745

CONTRACT: DK00232

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5745	EC-1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
50200.1.1	N/A	PE
50200.2.1	N/A	R/W, UTIL.
50200.3.1	N/A	CONST.



VICINITY MAP

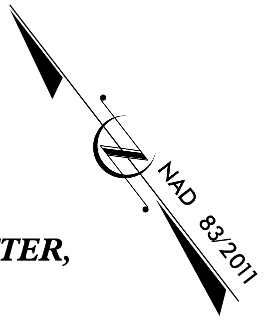
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

CALDWELL COUNTY

LOCATION: IMPROVEMENTS OF INTERSECTION OF US64/NC90/NC18 (WILKESBORO BOULEVARD) AND US64/NC90 (TAYLORSVILLE ROAD)

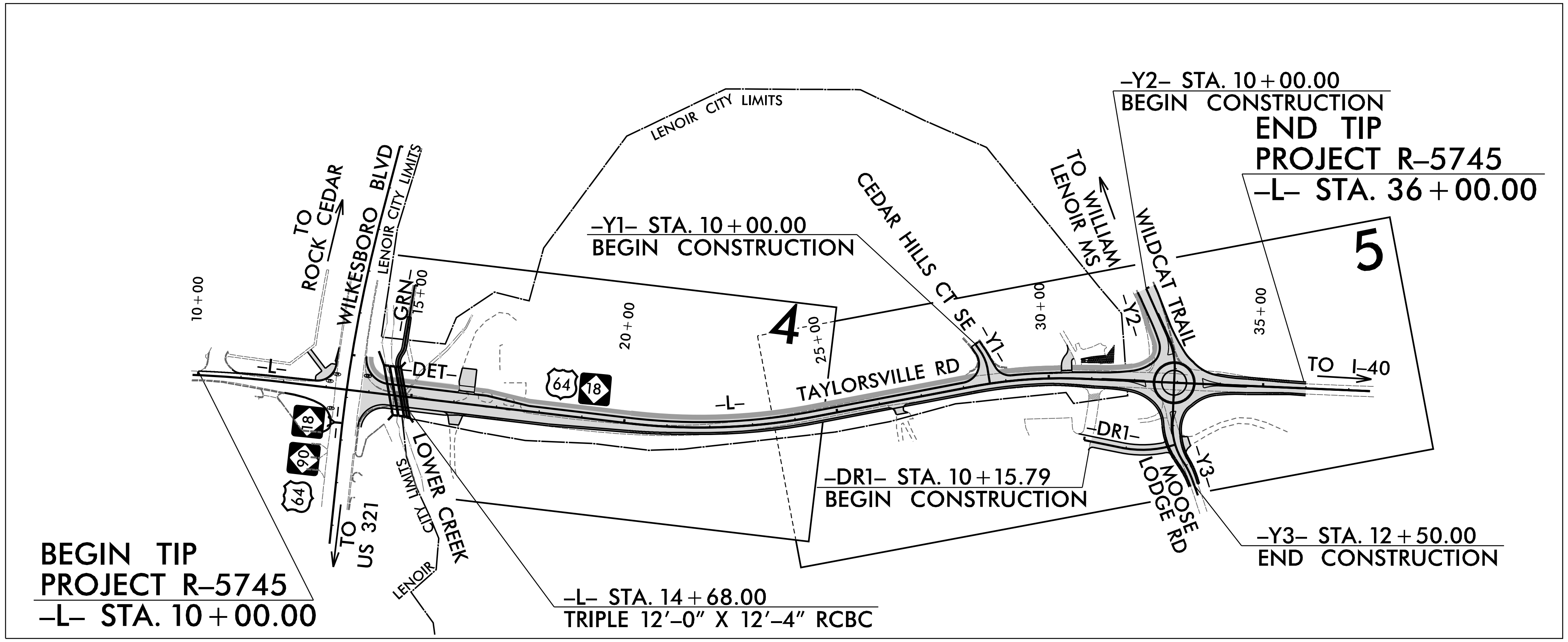
TYPE OF WORK: GRADING, DRAINAGE, PAVING, CURB AND GUTTER, SIGNALS, AND STRUCTURE



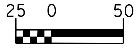
EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TSD
1630.05	Temporary Diversion	→ TD →
1605.01	Temporary Silt Fence	─╫─╫─╫─
1606.01	Special Sediment Control Fence	╱╲╱╲╱╲
1622.01	Temporary Berms and Slope Drains	← ←
1630.02	Silt Basin Type B	▨
1633.01	Temporary Rock Silt Check Type-A	▩
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	▩
1633.02	Temporary Rock Silt Check Type-B	▶
	Wattle/ Coir Fiber Wattle	) EW CFW
	Wattle/ Coir Fiber Wattle with Polyacrylamide (PAM)	)
1634.01	Temporary Rock Sediment Dam Type-A	▩
1634.02	Temporary Rock Sediment Dam Type-B	D
1635.01	Rock Pipe Inlet Sediment Trap Type-A	U
1635.02	Rock Pipe Inlet Sediment Trap Type-B	U
1630.04	Stilling Basin	▭
1630.06	Special Stilling Basin	⊠
	Rock Inlet Sediment Trap:	
1632.01	Type A	A ▣
1632.02	Type B	B ▣
1632.03	Type C	C ▣
	Skimmer Basin	▭
	Tiered Skimmer Basin	▭ ▭
	Infiltration Basin	▭

THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.



GRAPHIC SCALE



PLANS

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER RESOURCES.

Prepared in the Office of:

TGS ENGINEERS

804-C N. LAFAYETTE ST.
SHELBY, NC 28150

2012 STANDARD SPECIFICATIONS

Designed by:

ANDREW H. COCHRANE, PE *3015*
NAME *LEVEL III CERTIFICATION NO.*

Reviewed in the Office of:

ROADSIDE ENVIRONMENTAL UNIT

1 South Wilmington St.
Raleigh, NC 27611

2012 STANDARD SPECIFICATIONS

Reviewed by:

JEREMY GOODWIN, PE

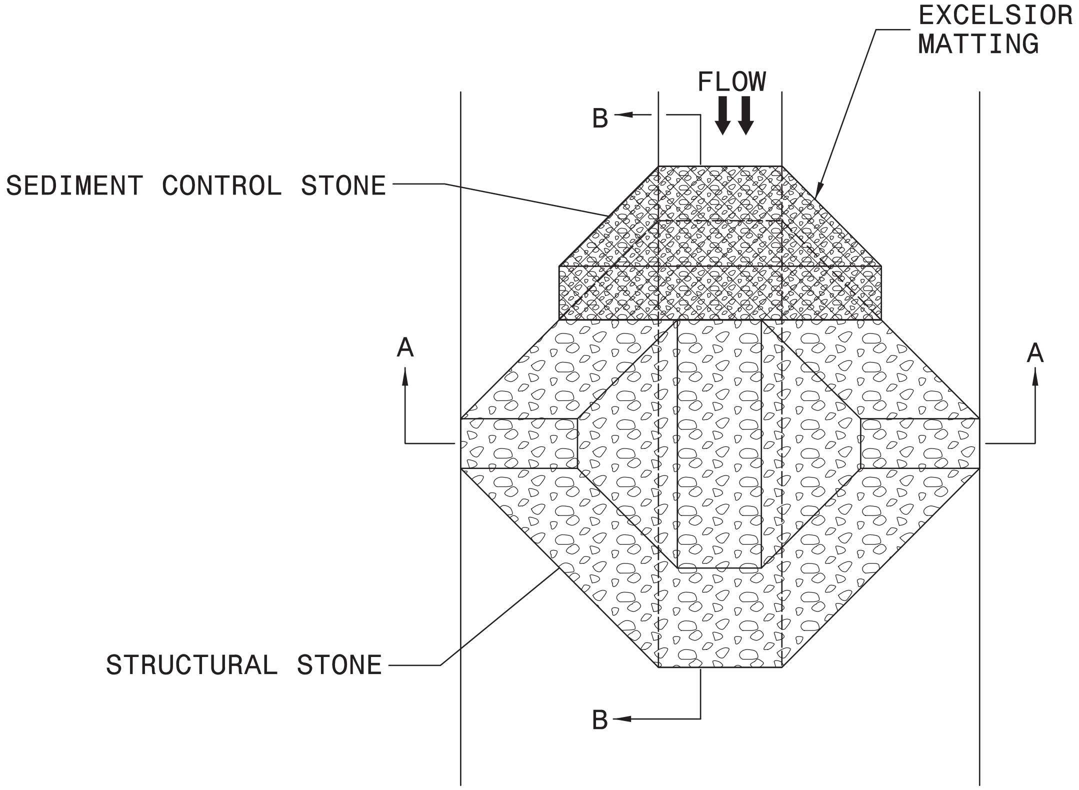
Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2012 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01	Railroad Erosion Control Detail
1605.01	Temporary Silt Fence
1606.01	Special Sediment Control Fence
1607.01	Gravel Construction Entrance
1622.01	Temporary Berms and Slope Drains
1630.01	Riser Basin
1630.02	Silt Basin Type B
1630.03	Temporary Silt Ditch
1630.04	Stilling Basin
1630.05	Temporary Diversion
1630.06	Special Stilling Basin
1631.01	Matting Installation
1632.01	Rock Inlet Sediment Trap Type A
1632.02	Rock Inlet Sediment Trap Type B
1632.03	Rock Inlet Sediment Trap Type C
1633.01	Temporary Rock Silt Check Type A
1633.02	Temporary Rock Silt Check Type B
1634.01	Temporary Rock Sediment Dam Type A
1634.02	Temporary Rock Sediment Dam Type B
1635.01	Rock Pipe Inlet Sediment Trap Type A
1635.02	Rock Pipe Inlet Sediment Trap Type B
1640.01	Coir Fiber Baffle
1645.01	Temporary Stream Crossing

PROJECT REFERENCE NO.	SHEET NO.
R-5745	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TEMPORARY ROCK SILT CHECK TYPE 'A' WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM)



PLAN

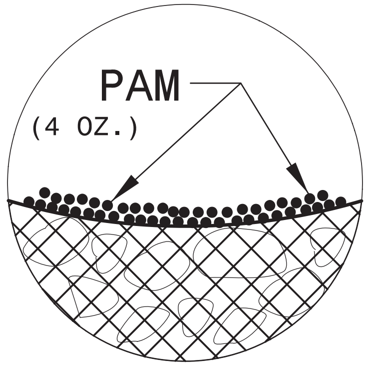
NOTES:

INSTALL TEMPORARY ROCK SILT CHECK TYPE A IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1633.01.

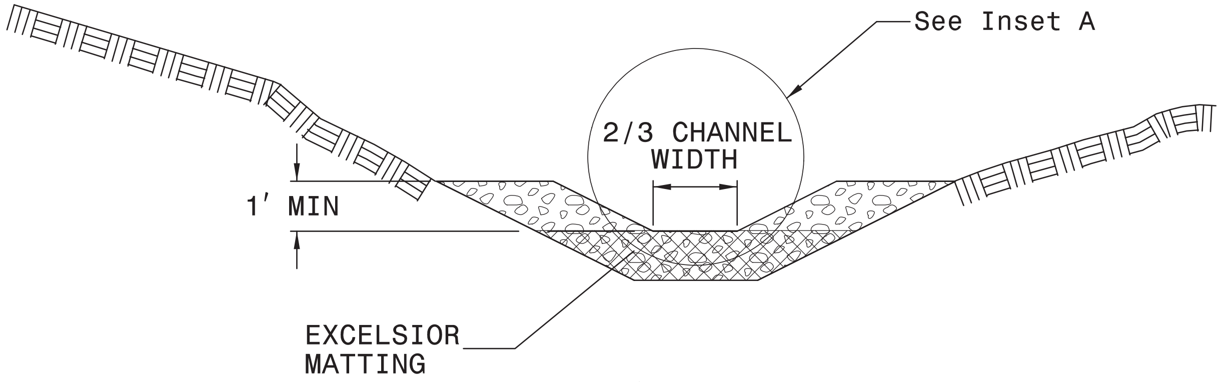
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH ROCK SILT CHECK.

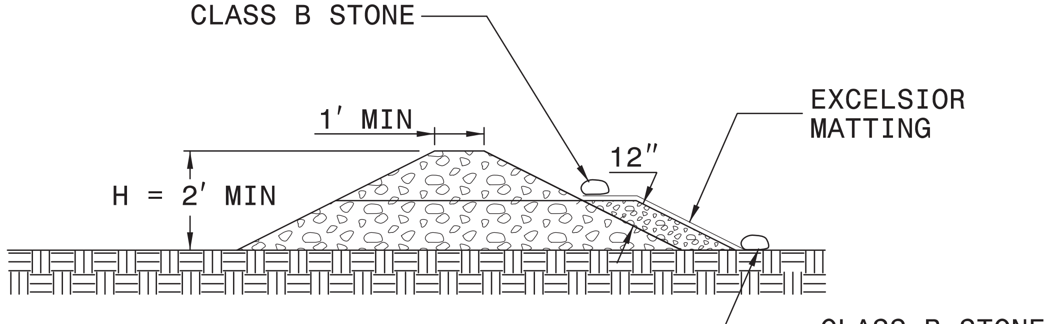
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A



SECTION B-B

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
R-5745	EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

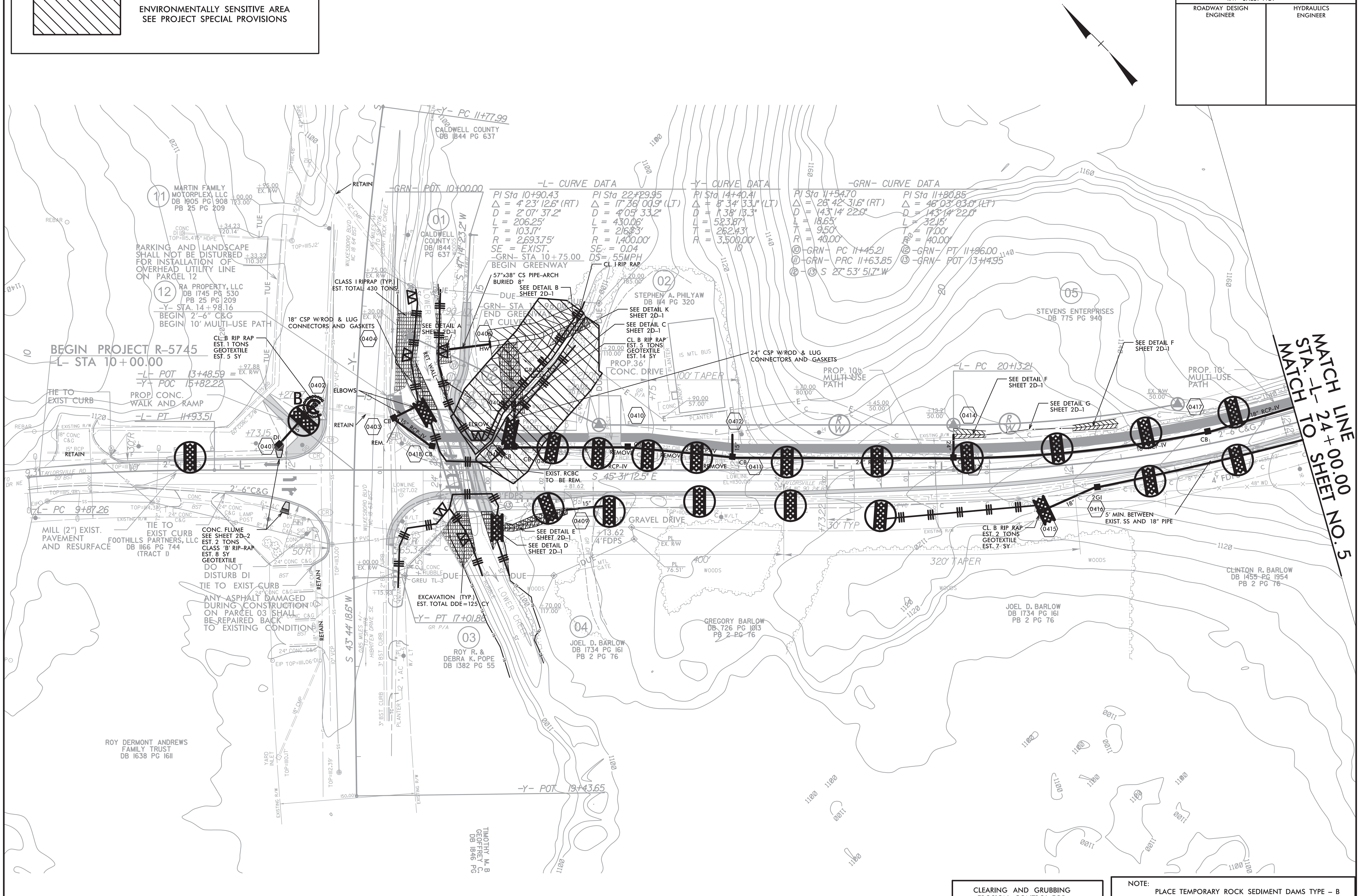
SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

▨ ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-5745	EC-04/CONST.4

R/W SHEET NO.

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



-L- CURVE DATA

PI Sta 10+90.43
Δ = 4°23'12.6" (RT)
D = 2°07'37.2"
L = 206.25'
T = 103.17'
R = 2,693.75'
SE = EXIST.

PI Sta 22+29.95
Δ = 17°36'00.9" (LT)
D = 4°05'33.2"
L = 430.06'
T = 216.63'
R = 1,400.00'
SE = 0.04
DS = 55MPH

-Y- CURVE DATA

PI Sta 14+40.41
Δ = 8°34'33.1" (LT)
D = 1°38'13.3"
L = 523.87'
T = 262.43'
R = 3,500.00'

-GRN- CURVE DATA

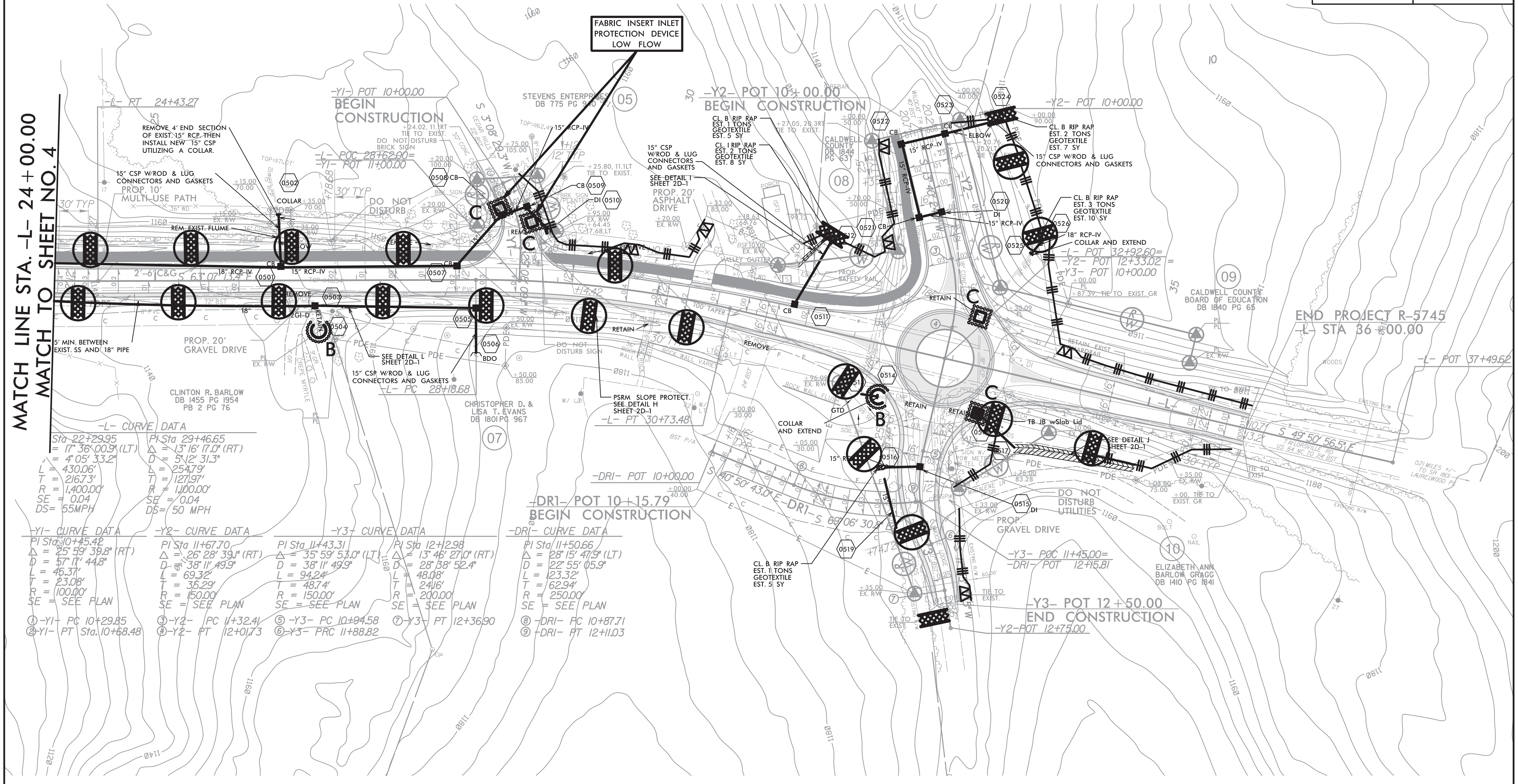
PI Sta 11+54.70
Δ = 26°42'31.6" (RT)
D = 143°14'22.0"
L = 18.65'
T = 9.50'
R = 40.00'
⑩ -GRN- PC 11+45.21
⑪ -GRN- PRC 11+63.85
⑫ - ⑬ S 27°53'51.7" W

PI Sta 11+80.85
Δ = 46°03'03.0" (LT)
D = 143°14'22.0"
L = 32.15'
T = 17.00'
R = 40.00'
⑫ -GRN- PT 11+96.00
⑬ -GRN- POT 13+14.95

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE – B AND TEMPORARY ROCK SILT CHECKS TYPE – A AT DRAINAGE OUTLETS.

PROJECT REFERENCE NO.	SHEET NO.
R-5745	EC-05/CONST.5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



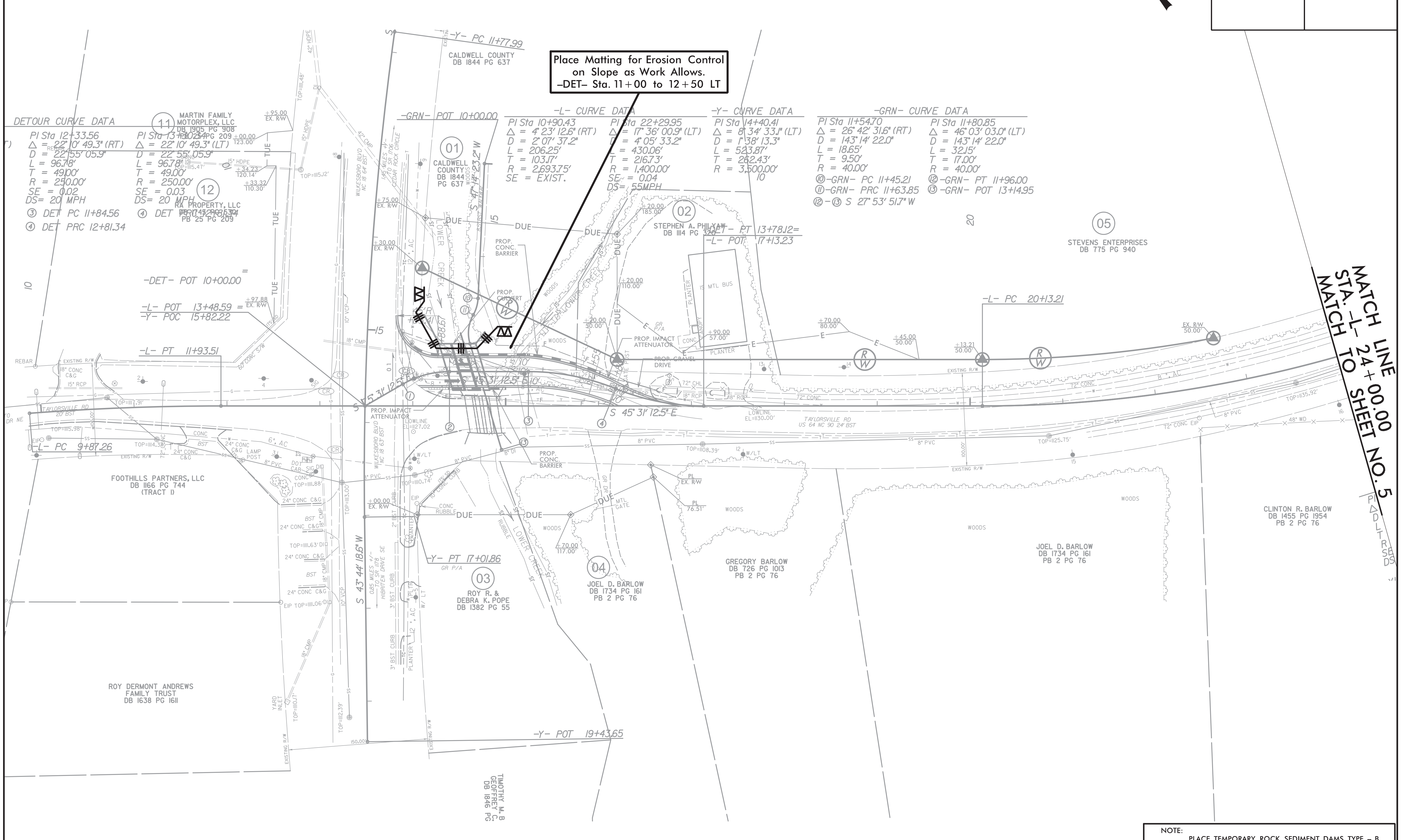
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 5

NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE – B AND TEMPORARY ROCK SILT CHECKS TYPE – A AT DRAINAGE OUTLETS.

PROJECT REFERENCE NO.	SHEET NO.
R-5745	EC-06/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DETOUR

UTILIZE PERIMETER EROSION CONTROL MEASURES AS SHOWN ON SHEETS EC–04 & EC–09.



NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE – B AND TEMPORARY ROCK SILT CHECKS TYPE – A AT DRAINAGE OUTLETS.

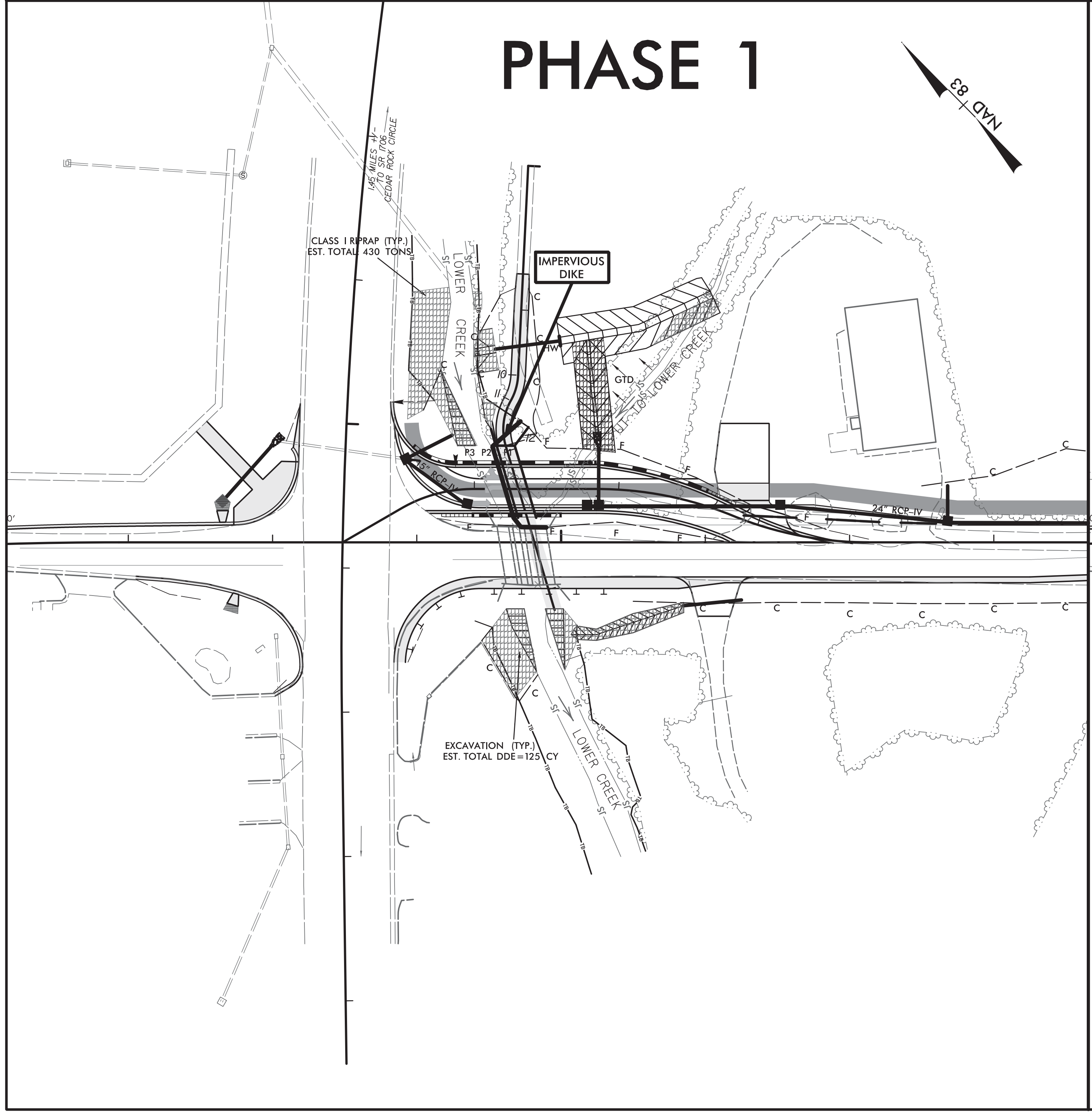
PROJECT REFERENCE NO.	SHEET NO.
R-5745	EC-07/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CULVERT CONSTRUCTION SEQUENCE STA. 14+68 –L–

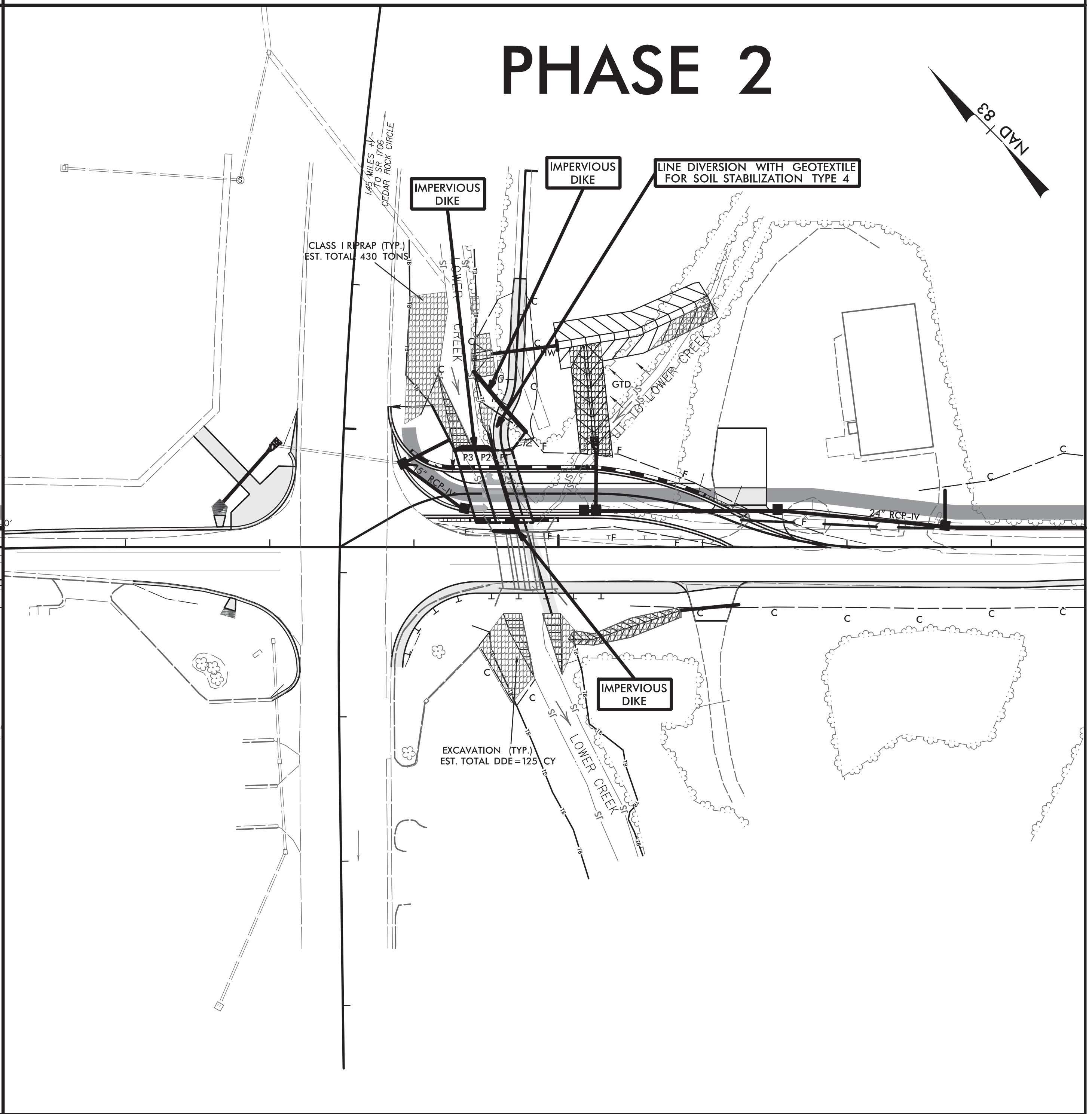
1. CONSTRUCT CHANNEL CHANGE & PIPE–ARCH TO DIVERT JS AS SHOWN ON PLANS.
2. INSTALL IMPERVIOUS DIKE FOR CONSTRUCTION OF EASTERNMOST CULVERT BARREL (P1).
3. CONSTRUCT P1 (UPSTREAM PORTION), BUT DO NOT CONSTRUCT 4′ SILL OR BACKFILL UNTIL PHASE 4.
4. DEWATER WORK SITE AS NEEDED INTO SPECIAL STILLING BASIN.

1. INSTALL IMPERVIOUS DIKES AS SHOWN TO DIVERT WATER INTO NEWLY CONSTRUCTED P1.
2. CONSTRUCT CULVERT BARRELS P2 & P3 (UPSTREAM PORTIONS OF THE TWO WESTERNMOST BARRELS).
3. UPON COMPLETION OF P2 & P3, COMPLETE DETOUR ROADWAY AND DIVERT TRAFFIC.
4. REMOVE REMAINING EXISTING CULVERT TO 1′ ABOVE WATER SURFACE.
5. DEWATER WORK SITE AS NEEDED INTO SPECIAL STILLING BASIN.

PHASE 1



PHASE 2



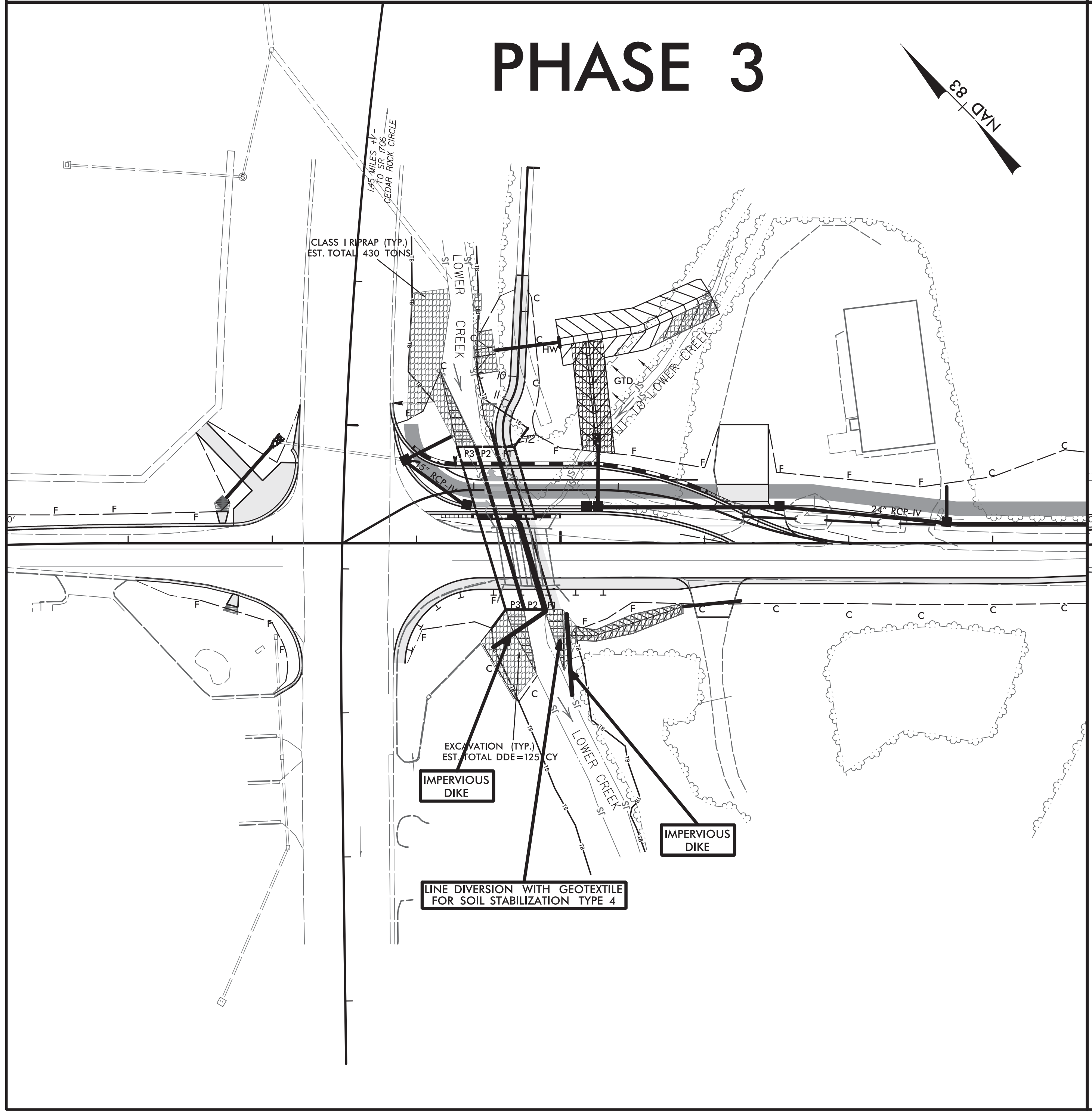
PROJECT REFERENCE NO.	SHEET NO.
R-5745	EC-08/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

CULVERT CONSTRUCTION SEQUENCE STA. 14+68 –L–

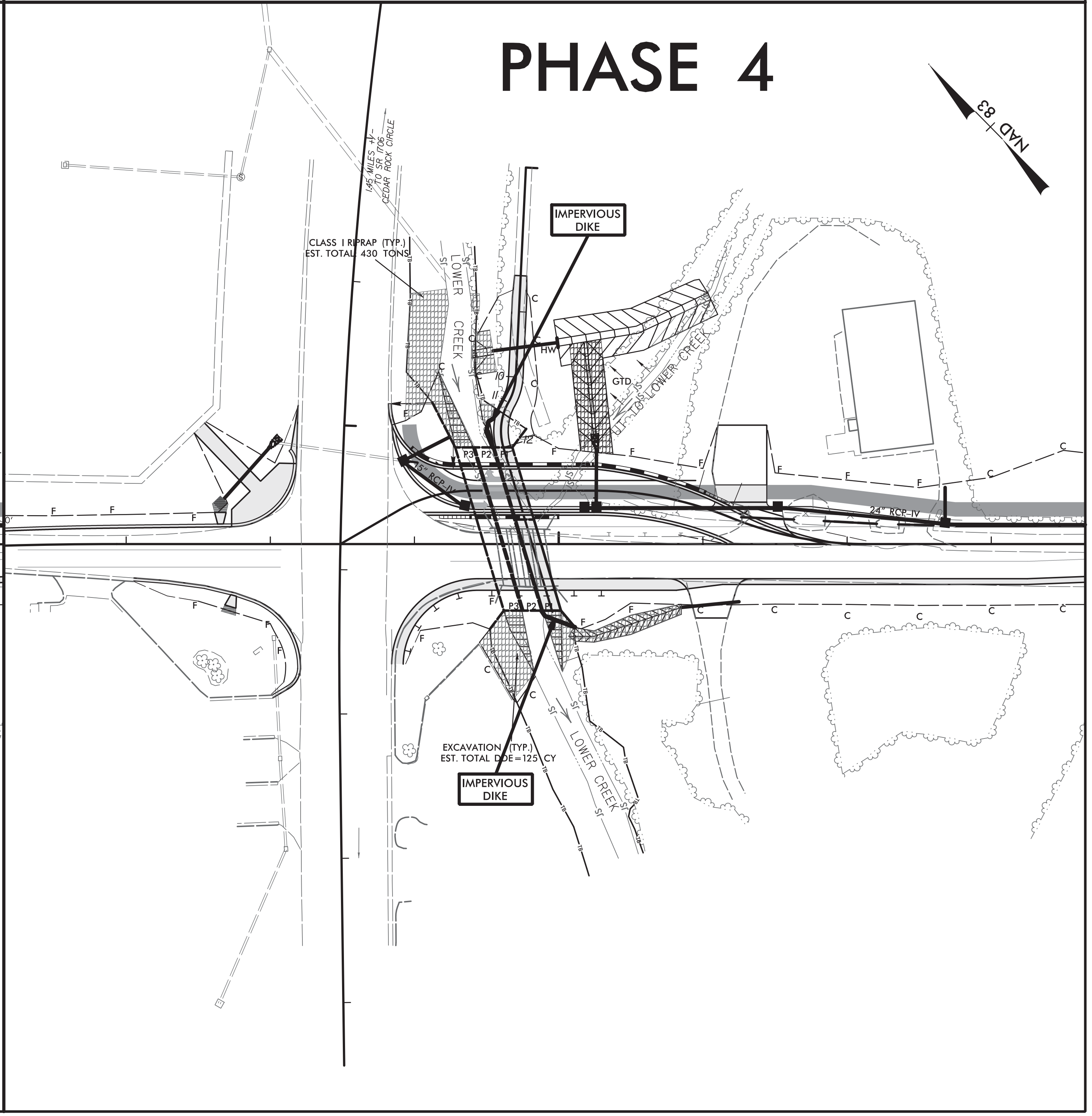
1. UPON REMOVAL OF EXISTING CULVERT TO 1′ ABOVE WATER SURFACE, MAINTAIN FLOW THRU P1 AND INSTALL IMPERVIOUS DIKE AS SHOWN.
2. REMOVE REMAINDER OF EXIST. CULVERT FOR P2 & P3 AND CONSTRUCT REMAINDER OF P2 & P3.
3. DEWATER WORK SITE AS NEEDED INTO SPECIAL STILLING BASIN.

1. UPON COMPLETION OF BARRELS P2 & P3. DIVERT FLOW TO THESE BARRELS.
2. INSTALL IMPERVIOUS DIKES AS SHOWN IN ORDER TO COMPLETE CONSTRUCTION OF P1 AND RETAINING WALL AT UPSTREAM END.
3. UPON COMPLETION OF CULVERT RESTABLISH STREAM ACCORDING TO CONST. PLANS.
4. DEWATER WORK SITE AS NEEDED INTO SPECIAL STILLING BASIN.

PHASE 3



PHASE 4



PROJECT REFERENCE NO.	SHEET NO.
R-5745	EC-09/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Install matting for erosion control on entire slope as work allows for slopes 10 feet or greater.

Place Matting for Erosion Control on Slope as Work Allows.
–L– Sta. 14+50 to 16+00 LT

-L- CURVE DATA

PI Sta 10+90.43
Δ = 4° 23′ 12.6″ (RT)
D = 2° 07′ 37.2″
L = 206.25′
T = 103.17′
R = 2,693.75′
SE = EXIST.

PI Sta 22+29.95
Δ = 17° 36′ 00.9″ (LT)
D = 4° 05′ 33.2″
L = 430.06′
T = 216.73′
R = 1,400.00′
SE = 0.04
DS = 55MPH

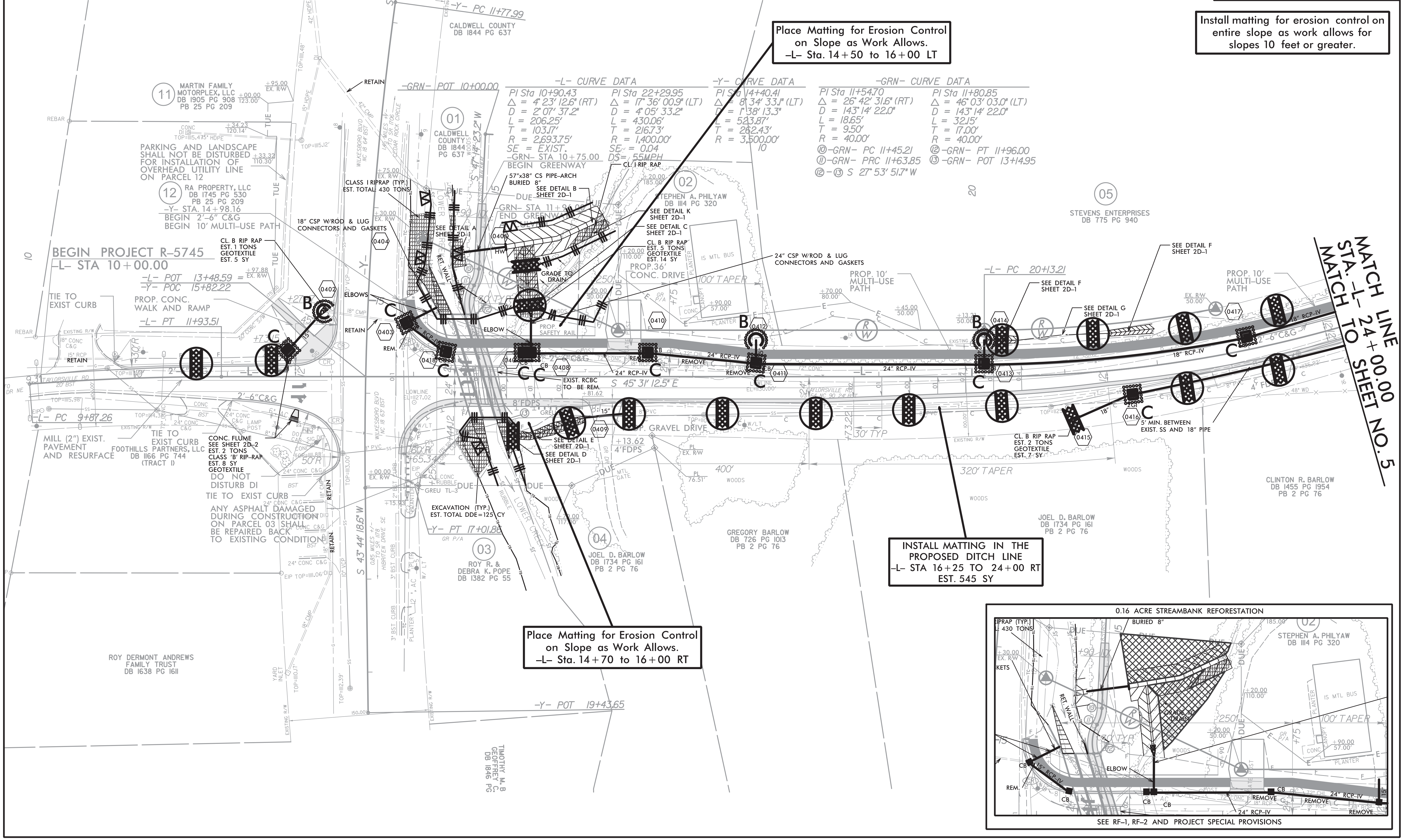
-Y- CURVE DATA

PI Sta 14+40.41
Δ = 8° 34′ 33.1″ (LT)
D = 1° 38′ 13.3″
L = 523.87′
T = 262.43′
R = 3,500.00′

-GRN- CURVE DATA

PI Sta 11+54.70
Δ = 26° 42′ 31.6″ (RT)
D = 143° 14′ 22.0″
L = 18.65′
T = 9.50′
R = 40.00′
⑩ -GRN- PC 11+45.21
⑪ -GRN- PRC 11+63.85
⑫ - ⑬ S 27° 53′ 51.7″ W

PI Sta 11+80.85
Δ = 46° 03′ 03.0″ (LT)
D = 143° 14′ 22.0″
L = 32.15′
T = 17.00′
R = 40.00′
⑫ -GRN- PT 11+96.00
⑬ -GRN- POT 13+14.95



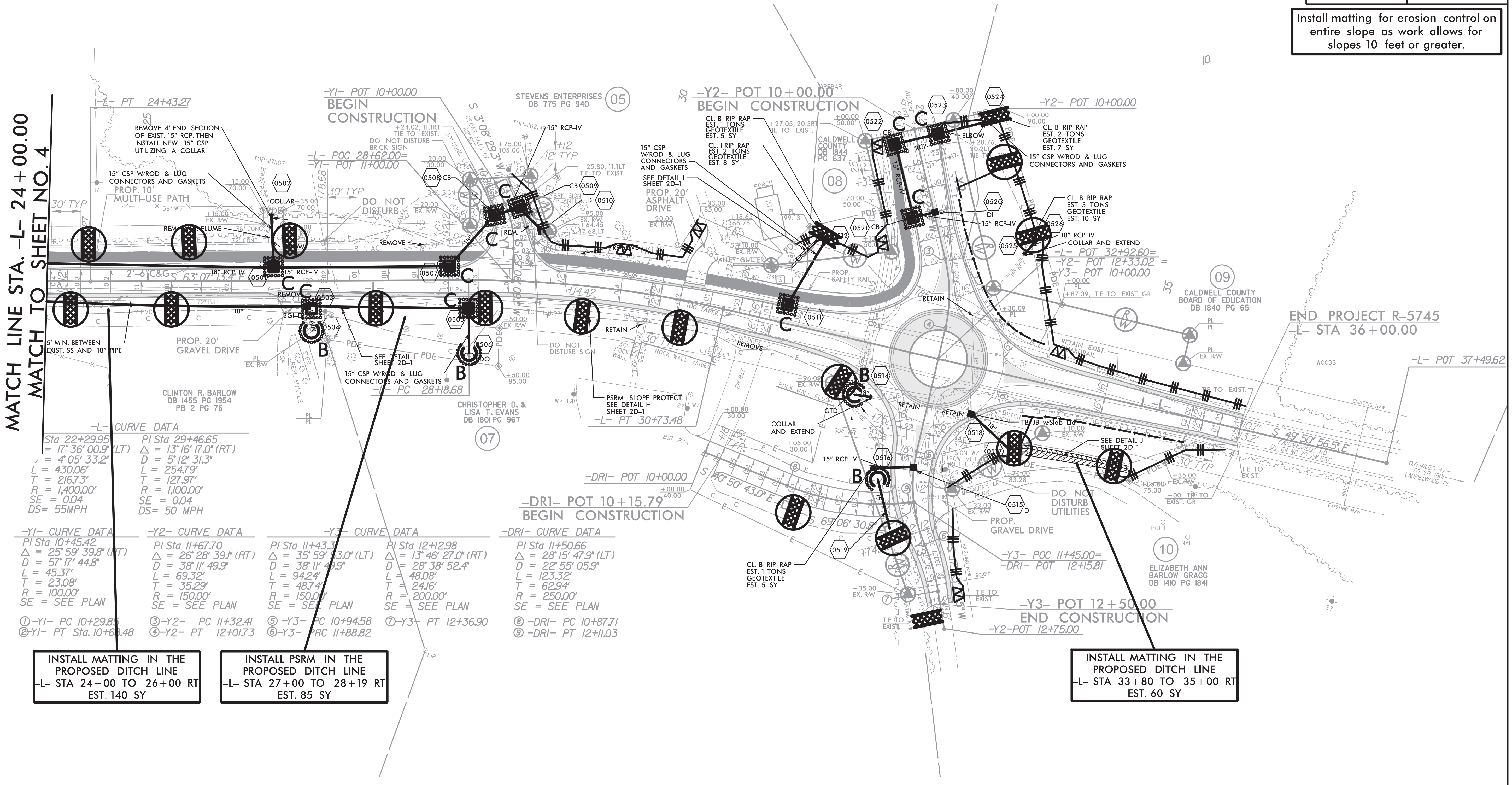
Place Matting for Erosion Control on Slope as Work Allows.
–L– Sta. 14+70 to 16+00 RT

INSTALL MATTING IN THE PROPOSED DITCH LINE
–L– STA 16+25 TO 24+00 RT
EST. 545 SY

PROJECT REFERENCE NO.	SHEET NO.
R-5745	EC-10/CONST.5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Place Matting for Erosion Control on Slope as Work Allows.
–L– Sta. 30+73 to 32+28 LT
–L– Sta. 32+00 to 32+50 RT
–L– Sta. 33+00 to 34+00 LT
–L– Sta. 33+00 to 35+50 RT
–Y2– Sta. 10+50 to 12+00 LT
–Y2– Sta. 10+50 to 11+00 RT
–Y3– Sta. 10+65 to 11+00 LT

Install matting for erosion control on entire slope as work allows for slopes 10 feet or greater.



INSTALL MATTING IN THE PROPOSED DITCH LINE
–L– STA 24+00 TO 26+00 RT
EST. 140 SY

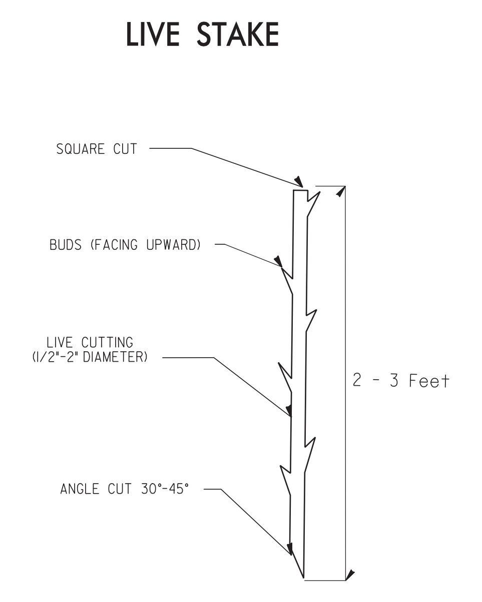
INSTALL PSRM IN THE PROPOSED DITCH LINE
–L– STA 27+00 TO 28+19 RT
EST. 85 SY

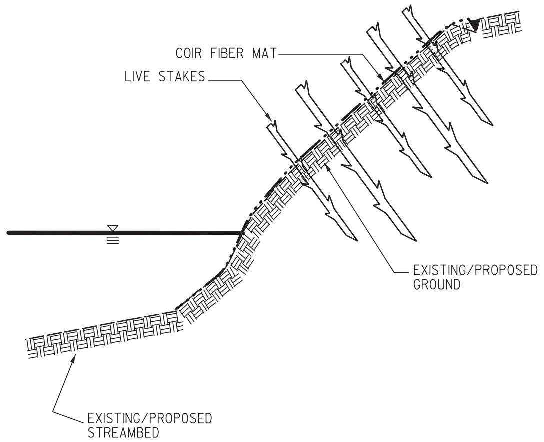
INSTALL MATTING IN THE PROPOSED DITCH LINE
–L– STA 33+80 TO 35+00 RT
EST. 60 SY

PROJECT REFERENCE NO.	SHEET NO.
R-5745	RF-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PLANTING DETAILS

LIVE STAKES PLANTING DETAIL

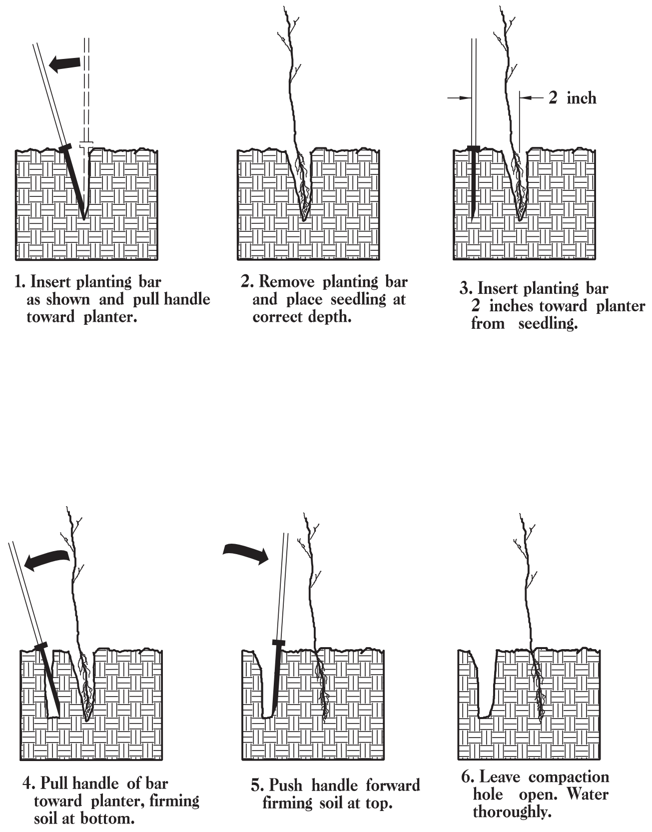




BANK STABILIZATION WITH LIVE STAKES

NOTE:
LIVE STAKES SHALL BE SPACED APPROXIMATELY 4 FEET ON CENTER
LIVE STAKES SHALL BE DRIVEN UNTIL APPROXIMATELY 3/4 OF LIVE STAKE IS WITHIN GROUND

BAREROOT PLANTING DETAIL
DIBBLE PLANTING METHOD
USING THE KBC PLANTING BAR



1. Insert planting bar as shown and pull handle toward planter.
2. Remove planting bar and place seedling at correct depth.
3. Insert planting bar 2 inches toward planter from seedling.
4. Pull handle of bar toward planter, firming soil at bottom.
5. Push handle forward firming soil at top.
6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

PLANTING BAG
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.

KBC PLANTING BAR
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.

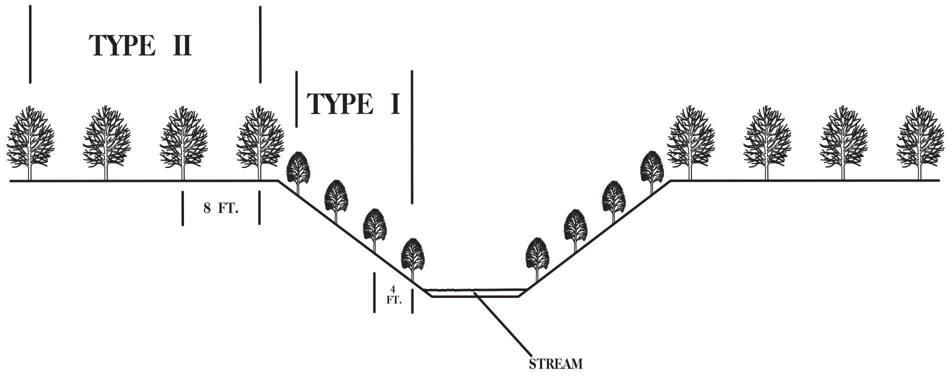
ROOT PRUNING
All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.

☐ TYPE 1 STREAMBANK REFORESTATION SHALL BE PLANTED 3 FT. TO 5 FT. ON CENTER, RANDOM SPACING, AVERAGING 4 FT. ON CENTER, APPROXIMATELY 2724 PLANTS PER ACRE.

☐ TYPE 2 STREAMBANK REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

☐ NOTE: TYPE 1 AND TYPE 2 STREAMBANK REFORESTATION SHALL BE PAID FOR AS "STREAMBANK REFORESTATION"

STREAMBANK REFORESTATION TYPICAL



STREAMBANK REFORESTATION

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

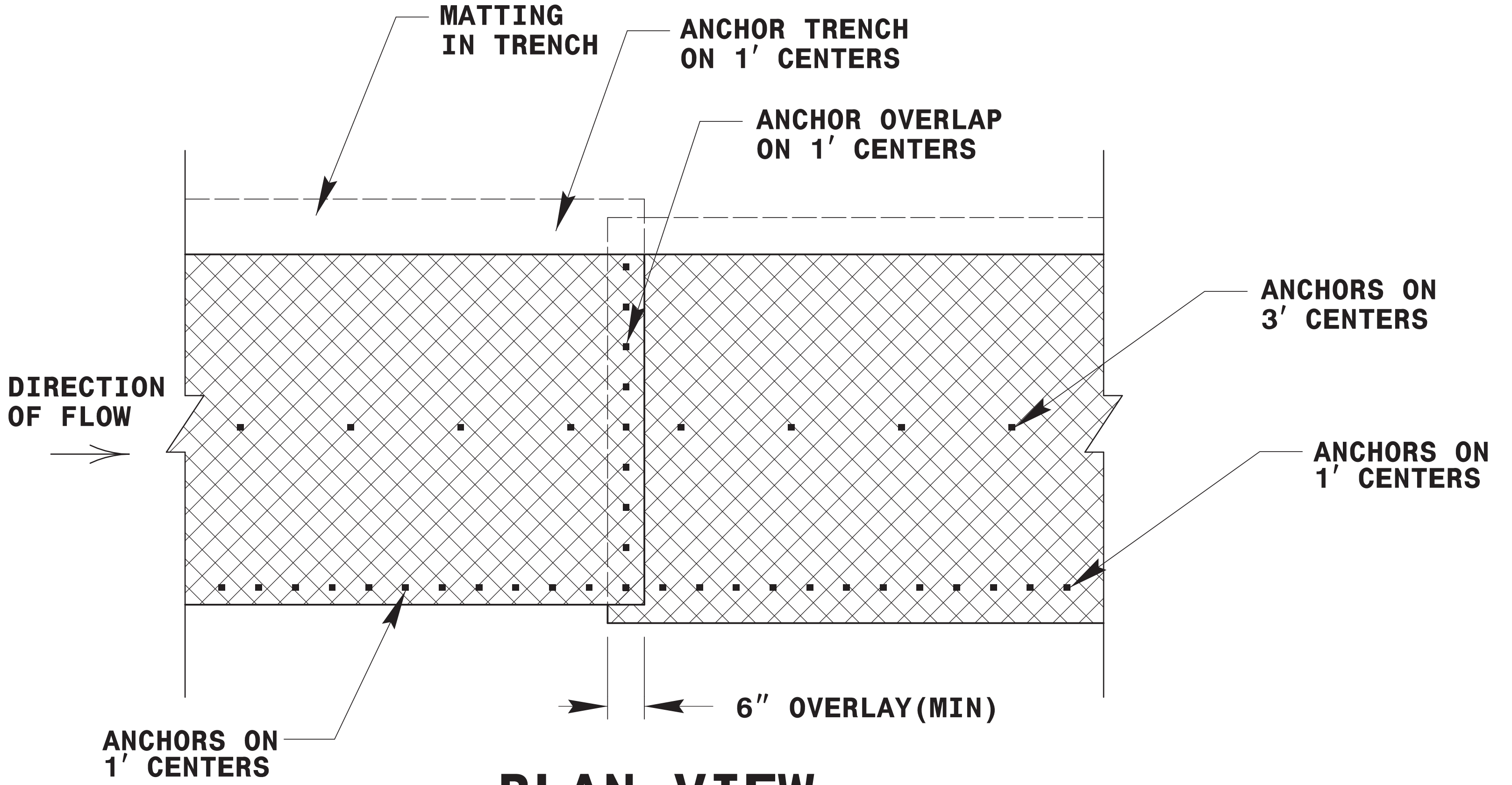
TYPE 1		
50% SALIX NIGRA	BLACK WILLOW	2 ft - 3 ft LIVE STAKES
50% CORNUS AMOMUM	SILKY DOGWOOD	2 ft - 3 ft LIVE STAKES
TYPE 2		
25% LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in - 18 in BR
25% PLATANUS OCCIDENTALIS	SYCAMORE	12 in - 18 in BR
25% PRUNUS SEROTINA	BLACK CHERRY	12 in - 18 in BR
25% BETULA NIGRA	RIVER BIRCH	12 in - 18 in BR

☐ SEE PLAN SHEETS FOR AREAS TO BE PLANTED

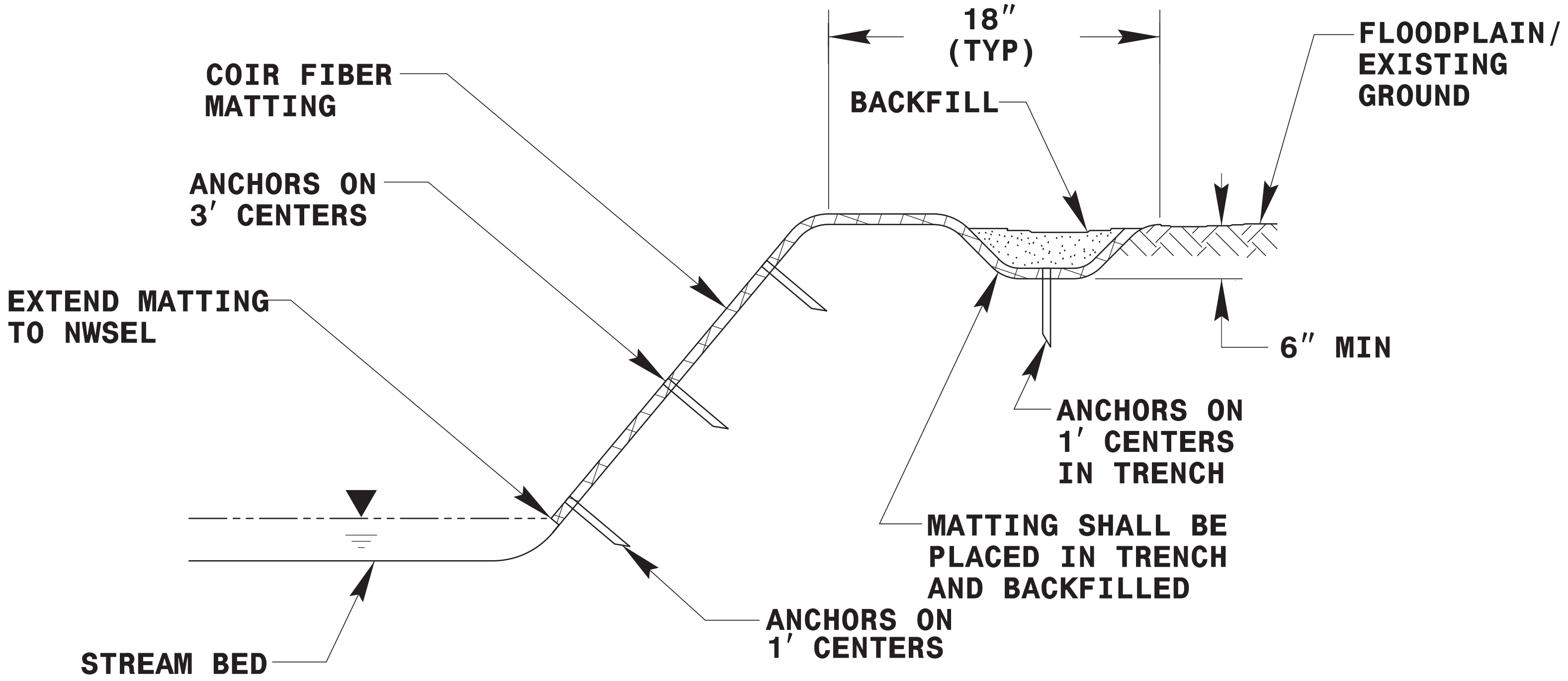
STREAMBANK REFORESTATION
DETAIL SHEET 1 OF 2

N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT

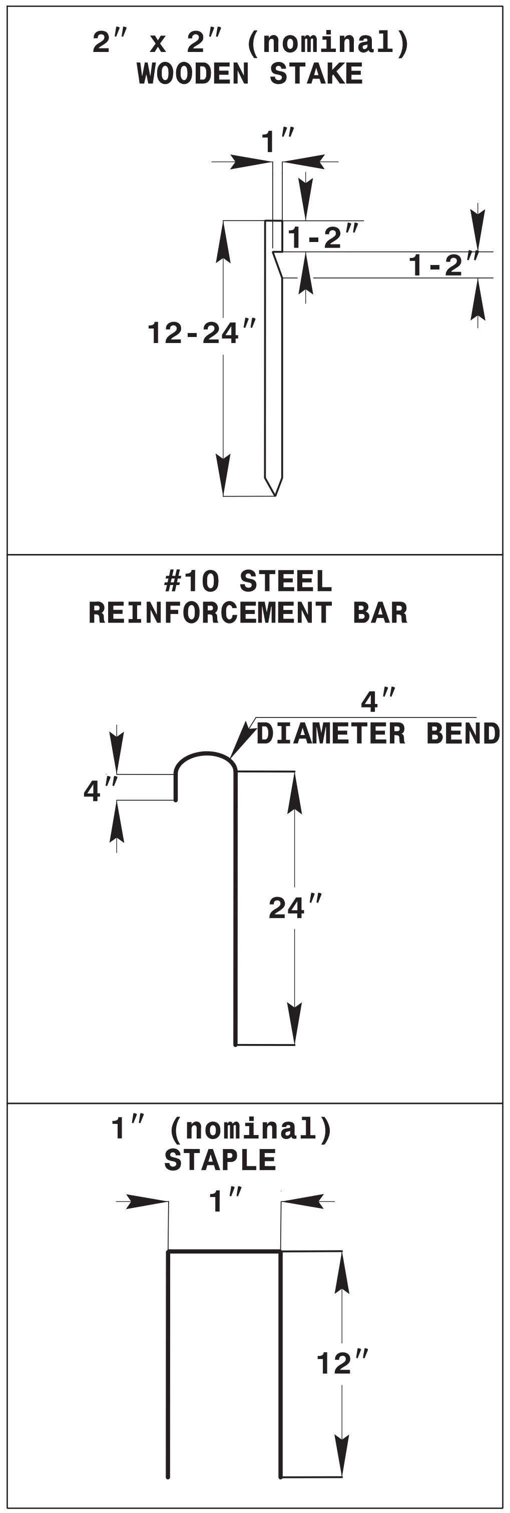
PROJECT REFERENCE NO.	SHEET NO.
R-5745	RF-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



PLAN VIEW



TYPICAL CROSS SECTION



ANCHOR OPTIONS

COIR FIBER MATTING DETAIL

NOT TO SCALE

STREAMBANK REFORESTATION
DETAIL SHEET 2 OF 2
N.C.D.O.T.- ROADSIDE ENVIRONMENTAL UNIT

T.I.P.: R-5745

PROJECT REFERENCE NO.	SHEET NO.
R-5745	SIGN-1

APPROVED: ____________________

DATE: ____________________

SEAL

DocuSigned by:
Jimmy Terry
FD39F38882E94D0...

SEAL 35018
JIMMY L. TERRY

6/13/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

SIGNING PLAN
CALDWELL COUNTY

LOCATION: INTERSECTION OF US64/NC90/NC18 (WILKESBORO BLVD)
AND US64/NC90 (TAYLORSVILLE RD)

ROADWAY STANDARD DRAWING

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - 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:

STD. NO.	TITLE
901.50	ARROWS AND SHIELDS
903.10	GROUND MOUNTED SIGN SUPPORTS
904.10	ORIENTATION OF GROUND MOUNTED SIGNS
904.50	MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON 'U' CHANNEL POSTS

GENERAL NOTES

- SIGNS FURNISHED BY CONTRACTOR
- ALL TYPE 'D' SIGNS SHALL BE MOUNTED ON TWO U-CHANNEL POSTS UNLESS OTHERWISE INDICATED ON THE PLANS.
- IF REMOVAL OR RELOCATION OF SIGNS ON PRIVATE STREET (NON-STATE MAINTAINED) IS REQUIRED DUE TO CONSTRUCTION, THE CONTRACTOR SHALL INFORM THE ENGINEER. THE WORK WILL BE COMPLETED BY OTHERS.
- WHEN NOT STATIONED OR DIMENSIONED ON PLANS, ALL 'E' AND 'F' SIGNS SHALL BE FIELD LOCATED BY THE ENGINEER
- ALL EXISTING SIGNS ON "U" CHANNEL POST WITHIN THE PROJECT LIMITS SHALL BE REMOVED AND DISPOSED OF UNLESS OTHERWISE NOTED ON PLANS.
- WHEN EXISTING SIGNS ARE REMOVED AND INSTALLED ON NEW SUPPORTS, THE RE-ERECTION SHALL IMMEDIATELY FOLLOW THE REMOVAL.
- THE BACKGROUND FOR TYPE E & F SIGNS SHALL BE TYPE C REFLECTIVE SHEETING.
- SEE ROADWAY PLANS FOR GUARD/GUIDE RAIL DETAILS.

SUMMARY OF QUANTITIES

ITEM NO.		ITEM DESCRIPTION	QUANTITY	UNIT
DESC. NO.	SECT. NO.			
4025000000	901	CONTRACTOR FURNISHED, TYPE D SIGN	30	S.F.
4025000000	901	CONTRACTOR FURNISHED, TYPE E SIGN	155	S.F.
4025000000	901	CONTRACTOR FURNISHED, TYPE F SIGN	95	S.F.
4072000000	903	SUPPORTS, 3 LB STEEL U-CHANNEL	610	L.F.
4096000000	904	SIGN ERECTION, TYPE D	3	EA.
4102000000	904	SIGN ERECTION, TYPE E	21	EA.
4108000000	904	SIGN ERECTION, TYPE F	5	EA.
4116100000	904	SIGN ERECTION, RELOCATE SIGN TYPE E (GROUND MOUNTED)	6	EA.
4155000000	907	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	9	EA.
4158000000	907	DISPOSAL OF SIGN SYSTEM, WOOD	1	EA.
4192000000	907	DISPOSAL OF SUPPORT, U-CHANNEL	6	EA.
4237000000	907	STOCKPILE SIGN, D, E OR F	10	EA.

INDEX

PLANS PREPARED FOR N.C.D.O.T. BY:

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

JIMMY L. TERRY, PE — *PROJECT ENGINEER*
SANDRA G. MELVIN — *DESIGN TECHNICIAN*

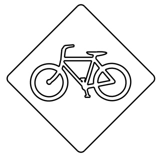
5/22/2017
X:\NCDOT\R-5745\Traffic\Signing\CADD\Signing Layout Plans\R5745 _SGN_Sgn01(Title Sht).dgn
User:smelvin

(401) QUANTITY REQ'D 2

24 X 30
R2-1

ONE "U" POSTS PER SIGN

(402) QUANTITY REQ'D 1



30 X 30
W11-1

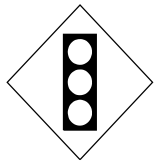
ONE "U" POST PER SIGN

(403) QUANTITY REQ'D 1

18 X 24
W16-1P

MOUNT BELOW SIGN 402
IN ONE INSTALLATION

(404) QUANTITY REQ'D 1



36 X 36
W3-3

ONE "U" POST PER SIGN

(405) QUANTITY REQ'D 1

36 X 36
S1-1

YELLOW/GREEN REFLECTIVE SHEETING

ONE "U" POSTS PER SIGN

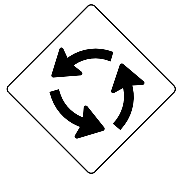
(406) QUANTITY REQ'D 1

24 X 8
S4-3

YELLOW/GREEN REFLECTIVE SHEETING

MOUNT BELOW SIGN 405
IN ONE INSTALLATIONS

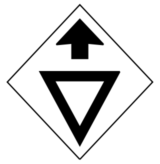
(407) QUANTITY REQ'D 4



30 X 30
W2-6

ONE "U" POST PER SIGN

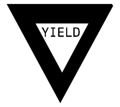
(408) QUANTITY REQ'D 4



30 X 30
W3-2

ONE "U" POST PER SIGN

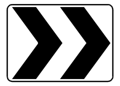
(409) QUANTITY REQ'D 4



36 X 36 X 36
R1-2

ONE "U" POST PER SIGN

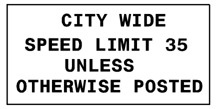
(410) QUANTITY REQ'D 4



30 X 24
R6-4

ONE "U" POST PER SIGN

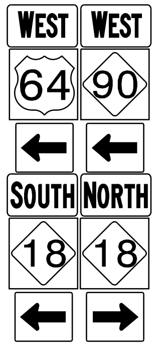
(411) QUANTITY REQ'D 1



24 X 30
R2-27

MOUNT BELOW SIGN 303
IN ONE INSTALLATIONS

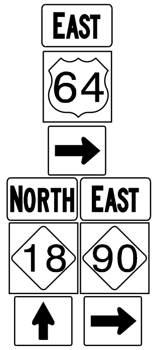
(501) QUANTITY REQ'D



2 - 24" x 12"
2 - 24" x 24"
2 - 21" x 15"
2 - 24" x 12"
2 - 24" x 24"
2 - 21" x 15"

TWO "U" POSTS

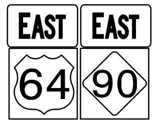
(502) QUANTITY REQ'D



1 - 24" x 12"
1 - 24" x 24"
1 - 21" x 15"
2 - 24" x 12"
2 - 24" x 24"
2 - 21" x 15"

TWO "U" POSTS

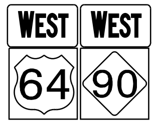
(503) QUANTITY REQ'D



2 - 24" x 12"
2 - 24" x 24"

ONE "U" POSTS

(504) QUANTITY REQ'D



2 - 24" x 12"
2 - 24" x 24"

ONE "U" POSTS

PROJECT REFERENCE NO.	SHEET NO.
R-5745	SIGN-2

APPROVED: ______________

DATE: ______________

SEAL

DocuSigned by:
Jimmy Terry
FD39F38882E94D0...
SEAL 35018
JIMMY L. TERRY
6/13/2017

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UNLESS ALL SIGNATURES COMPLETED**

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

TYPE "E" AND "F" SIGNS

5/22/2017
X:\NCDOT\R-5745\Traffic\Signing\CADD\Signing Layout Plans\R5745 _SGN_Sgn02(E&F Signs).dgn
User:smelvin

TIP NO.	SHEET NO.
R-5745	SIGN-3

APPROVED: ______________________

DATE: ______________________

SEAL

DocuSigned by:
Jimmy Terry
FD39F38882E94D0...
JIMMY L. TERRY
6/13/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

SIGN NUMBER: 301
TYPE: D
QUANTITY: 1
BACKG COLOR: Green
COPY COLOR: White

SIGN WIDTH: 6'-0"
HEIGHT: 1'-6"
TOTAL AREA: 9.0 Sq.Ft.

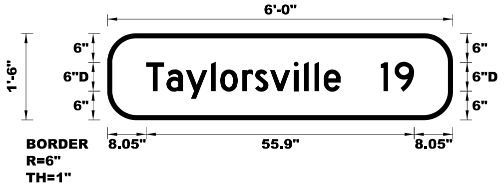
BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 1"
RADII: 6"

NO. Z BARS:
LENGTH:

SYMBOL	X	Y	WID	HT

MAT'L: 0.125" (3.2 mm) ALUMINUM

DESIGN BY: none
PROJECT ID: ID
CHECKED BY:
LOCATION:
May 19, 2016
DIV: DIV



BORDER
R=6"
TH=1"

Panel Style: Standard 6 Inch_D.ssi
M.U.T.C.D.: 2009 Edition

USE NOTES:

1. Legend and border(except those that are colored black) shall be direct applied Grade B sheeting.
2. Background shall be Grade C reflective sheeting.
3. Shields; A, B, and C type arrows shall be on 0.032" (0.8mm) aluminum and demountable.

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter locations are panel edge to lower left corner

												Series/Size Text Length
T	a	y	l	o	r	s	v	i	l	l	e	D 2000
8.1	12.3	16.4	21.6	23.5	28.1	30.8	33.9	38.9	41	43.2	45.1	40.6
1	9											D 2000
57	59.9											6.9

FILENAME: R5745_SGN_Sgn03(Design)

NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: 303
TYPE: D
QUANTITY: 1
BACKG COLOR: Green
COPY COLOR: White

SIGN WIDTH: 3'-0"
HEIGHT: 2'-0"
TOTAL AREA: 6.0 Sq.Ft.

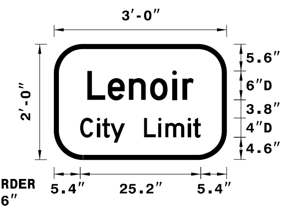
BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 1"
RADII: 6"

NO. Z BARS:
LENGTH:

SYMBOL	X	Y	WID	HT

MAT'L: 0.125" (3.2 mm) ALUMINUM

DESIGN BY: SGM
PROJECT ID: R-5745
CHECKED BY:
LOCATION: LENOIR, NC
Apr 28, 2016
DIV: 11



BORDER
R=6"
TH=1"

Panel Style: Standard 6 Inch_D.ssi
M.U.T.C.D.: 2009 Edition

USE NOTES:

1. Legend and border(except those that are colored black) shall be direct applied Grade B sheeting.
2. Background shall be Grade C reflective sheeting.
3. Shields; A, B, and C type arrows shall be on 0.032" (0.8mm) aluminum and demountable.

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter locations are panel edge to lower left corner

										Series/Size Text Length
L	e	n	o	i	r					D 2000
6.9	11.2	15.6	20	24.6	26.8					22.1
C	i	t	y		L	i	m	i	t	D 2000
5.4	8.9	10	11.7	14.7	18.7	21.7	23.2	27.9	29	25.2

FILENAME: R-5745_Sgn_SGN_design

NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN NUMBER: 302
TYPE: D
QUANTITY: 1
BACKG COLOR: Green / Green
COPY COLOR: White

SIGN WIDTH: 5'-6"
HEIGHT: 2'-6"
TOTAL AREA: 13.8 Sq.Ft.

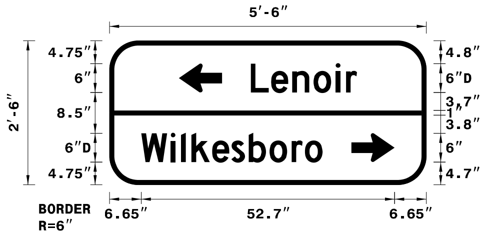
BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 1"
RADII: 6"

NO. Z BARS:
LENGTH:

SYMBOL	X	Y	WID	HT
AR_Type D	14.4	19.3	6	9
AR_Type D	50.4	4.7	6	9

MAT'L: 0.125" (3.2 mm) ALUMINUM

DESIGN BY: SGM
PROJECT ID: R-5745
CHECKED BY:
LOCATION: LENOIR, NC
Apr 28, 2016
DIV: 11



BORDER
R=6"
TH=1"

Panel Style: Standard 6 Inch_D.ssi
M.U.T.C.D.: 2009 Edition

USE NOTES:

1. Legend and border(except those that are colored black) shall be direct applied Grade B sheeting.
2. Background shall be Grade C reflective sheeting.
3. Shields; A, B, and C type arrows shall be on 0.032" (0.8mm) aluminum and demountable.

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter locations are panel edge to lower left corner

										Series/Size Text Length
L	e	n	o	i	r					D 2000
29.4	33.7	38.1	42.5	47.1	49.3					22.1
W	i	l	k	e	s	b	o	r	o	D 2000
6.6	12.7	14.9	17.1	21.4	25.4	29	33.3	37.9	40.7	37.7

FILENAME: R-5745_Sgn_SGN_design

NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN DESIGN

TIP NO.	SHEET NO.
R-5745	SIGN-4

APPROVED: ______

DATE: ______

SEAL

DocuSigned by:
Jimmy Terry
F3B9B38882E94D0...
6/13/2017

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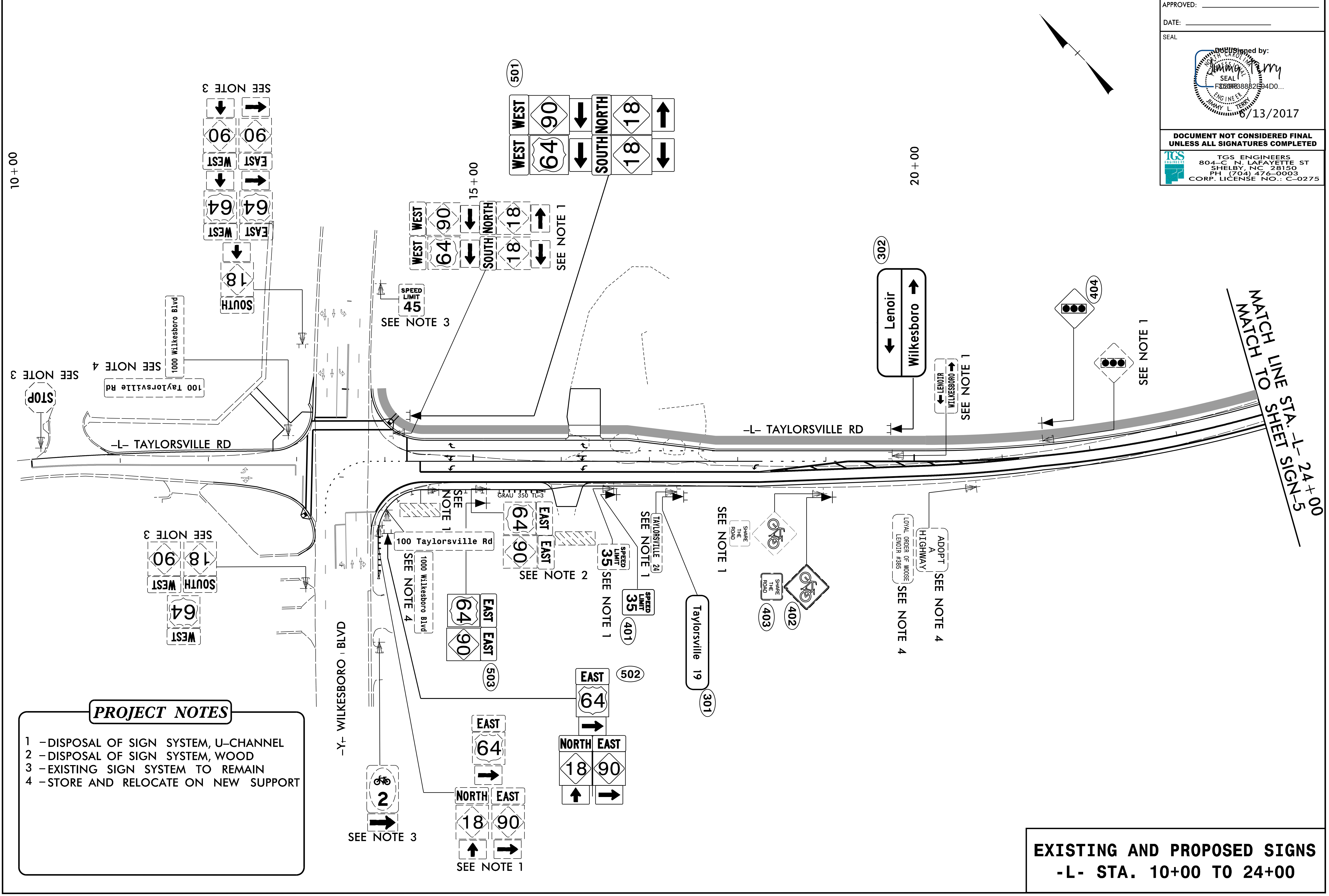
TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275



PROJECT NOTES

1 –DISPOSAL OF SIGN SYSTEM, U–CHANNEL
2 –DISPOSAL OF SIGN SYSTEM, WOOD
3 –EXISTING SIGN SYSTEM TO REMAIN
4 –STORE AND RELOCATE ON NEW SUPPORT

EXISTING AND PROPOSED SIGNS
-L- STA. 10+00 TO 24+00

5/22/2017
X:\NCDOT\R-5745\Traffic\Signing\CADD\Signing Layout Plans\R5745_SGN_Sgn04.dgn
User:smelvin

TIP NO.	SHEET NO.
R-5745	SIGN-5

APPROVED: ______________________

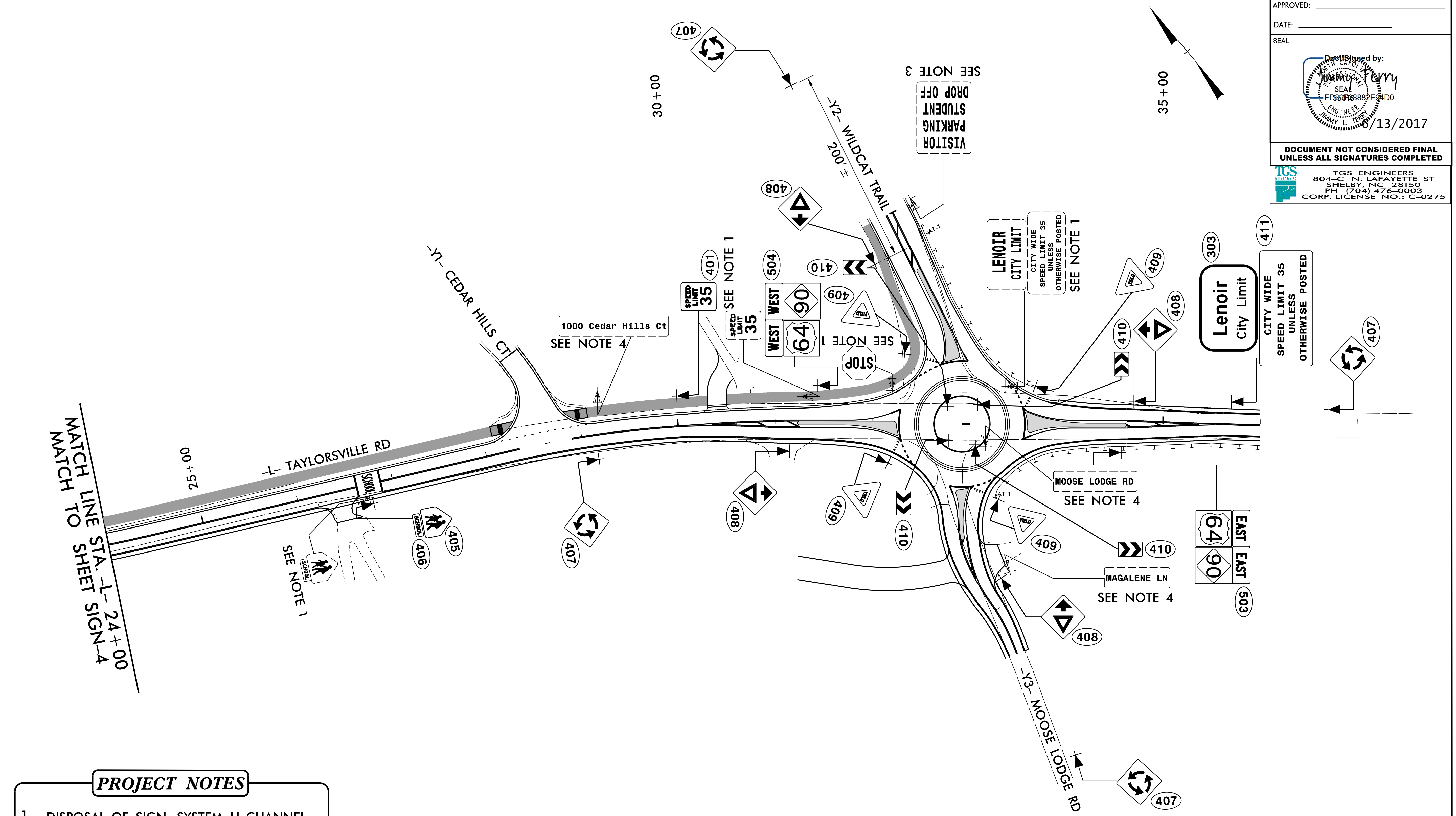
DATE: ____________________

SEAL

DocuSigned by:
Jimmy Terry
FD39F38882E94D0...
JIMMY L. TERRY
6/13/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275



PROJECT NOTES

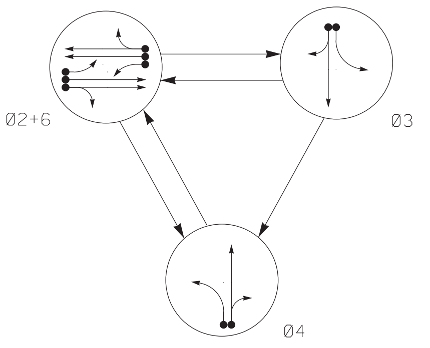
1 -DISPOSAL OF SIGN SYSTEM, U-CHANNEL
3 -EXISTING SIGN SYSTEM TO REMAIN
4 -STORE AND RELOCATE ON NEW SUPPORT

EXISTING AND PROPOSED SIGNS
-L- STA. 24+00 TO 37+00

5/22/2017
X:\NCDOT\R-5745\Traffic\Signing\CADD\Signing Layout Plans\R5745_SGN_Sgn05.dgn
User:smelvin

PROJECT REFERENCE NO.	SHEET NO.
R-5745	Sig. 1.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

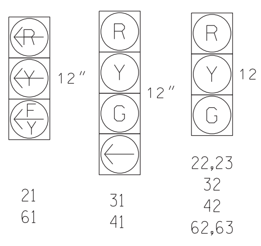
←●	DETECTED MOVEMENT
←	UNDETECTED MOVEMENT (OVERLAP)
← – –	UNSIGNALIZED MOVEMENT
← – – →	PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø 2 + 6	Ø 3	Ø 4	FLASH
21	←F/Y	←R	←R	←Y
22,23	G	R	R	Y
31	R	G ←	R	R
32	R	G	R	R
41	R	R	G ←	R
42	R	R	G	R
61	←F/Y	←R	←R	←Y
62,63	G	R	R	Y

SIGNAL FACE I.D.

All Heads L.E.D.



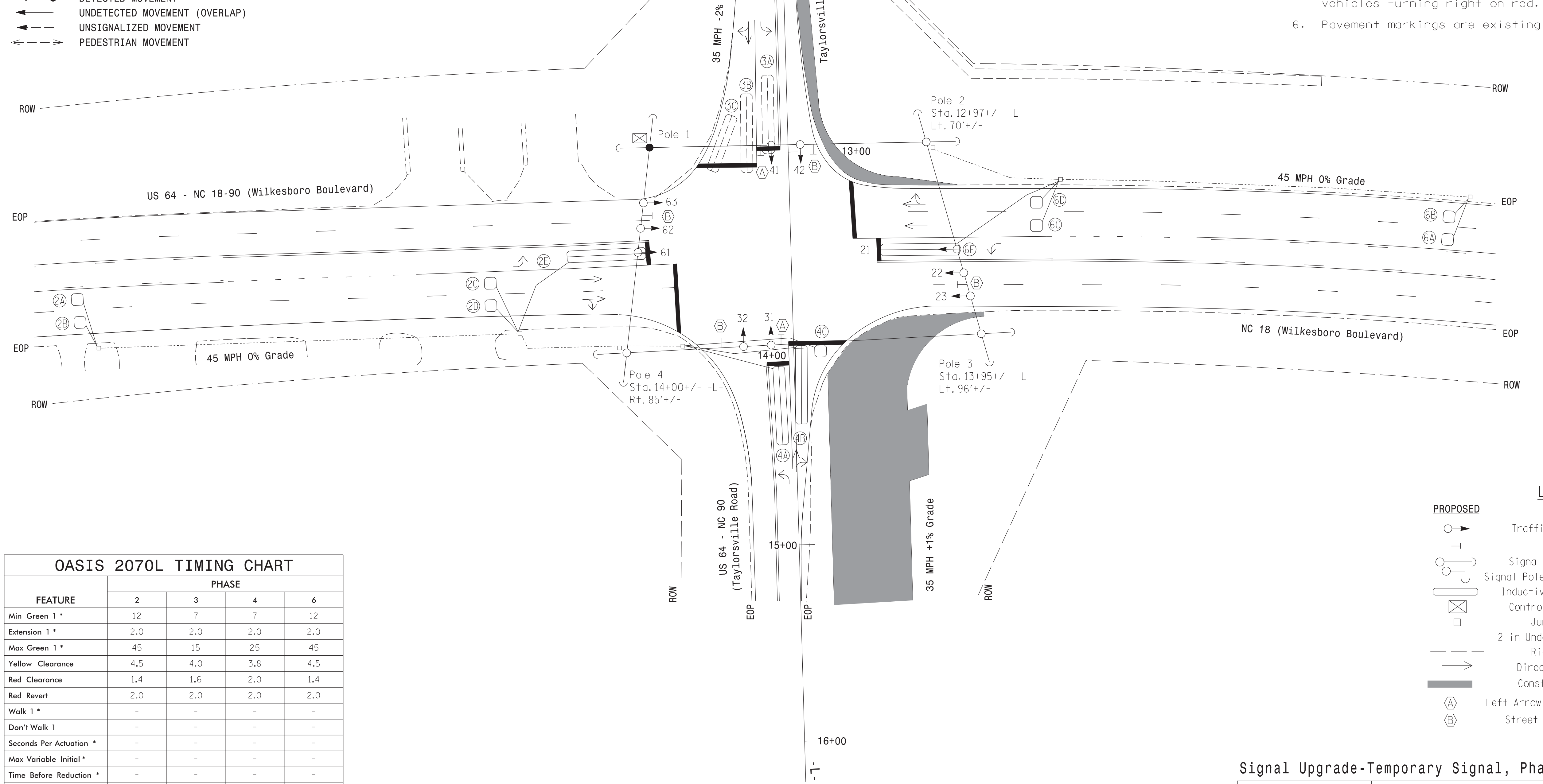
OASIS 2070L LOOP & DETECTOR INSTALLATION CHART

INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A,2B	6X6	300	5	Y	2	Y	Y	-	1.6	-	-	Y
2C,2D	6X6	90	4	Y	2	Y	Y	-	-	-	-	Y
2E	6X40	0	2-4-2	Y	2	Y	Y	-	-	-	-	Y
3A	6X40	+5	EXIST	-	3	Y	Y	-	-	3	-	Y
3B	6X40	+5	EXIST	-	3	Y	Y	-	-	10	-	Y
3C	6X30	+5	EXIST	-	3	Y	Y	-	-	15	-	Y
4A	6X40	0	2-4-2	Y	4	Y	Y	-	-	3	-	Y
4B	6X40	0	2-4-2	Y	4	Y	Y	-	-	10	-	Y
4C	6X6	0	4	Y	4	Y	Y	-	-	15	-	Y
6A,6B	6X6	300	5	Y	6	Y	Y	-	1.6	-	-	Y
6C,6D	6X6	90	4	Y	6	Y	Y	-	-	-	-	Y
6E	6X40	0	2-4-2	Y	6	Y	Y	-	-	-	-	Y

3 Phase
Fully Actuated
Isolated

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012 and all applicable sections of the latest version of the generic Project Special Provisions. The PSP can be accessed at the following website: http://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. The order of phase 3 and phase 4 may be reversed.
4. Set all detector units to presence mode.
5. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
6. Pavement markings are existing.



OASIS 2070L TIMING CHART

FEATURE	PHASE 2	3	4	6
Min Green 1 *	12	7	7	12
Extension 1 *	2.0	2.0	2.0	2.0
Max Green 1 *	45	15	25	45
Yellow Clearance	4.5	4.0	3.8	4.5
Red Clearance	1.4	1.6	2.0	1.4
Red Revert	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	-	-	-	-
Max Variable Initial *	-	-	-	-
Time Before Reduction *	-	-	-	-
Time To Reduce *	-	-	-	-
Minimum Gap	-	-	-	-
Recall Mode	MIN RECALL	-	-	MIN RECALL
Vehicle Call Memory	YELLOW	-	-	YELLOW
Dual Entry	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
⊣	Sign	⊣
○—	Signal Pole with Guy	●—
○—	Signal Pole with Sidewalk Guy	●—
▭	Inductive Loop Detector	▭
☒	Controller & Cabinet	☒
□	Junction Box	■
- - - -	2-in Underground Conduit	- · - · -
— — —	Right of Way	— — —
→	Directional Arrow	→
▬	Construction Zone	N/A
Ⓐ	Left Arrow "ONLY" Sign (R3-5L)	Ⓐ
Ⓑ	Street Name Sign (D3-1)	Ⓑ

NC Dept of Transportation
Division of Highways
Final Drawing Date: 4/26/2017
DocuSigned by:
R.N. Zinser
ITS & Signals Unit

vhb
940 Main Campus Drive, Suite 500
Raleigh, NC 27606
NC License No. C-3705
919.829.0328

Signal Upgrade-Temporary Signal, Phase I

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:
Transportation Mobility and Safety Division
Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

SCALE
0 30
1"=30'

US 64 - NC 18-90 /
NC 18 (Wilkesboro Boulevard) at
US 64 - NC 90 / Taylorsville Road

Division 11 Caldwell County Lenoir

PLAN DATE:	Apr. 2017	REVIEWED BY:	J. L. Lewis
PREPARED BY:	J. Ma	VHB PROJECT NO.:	38536.03

REVISIONS	INIT.	DATE

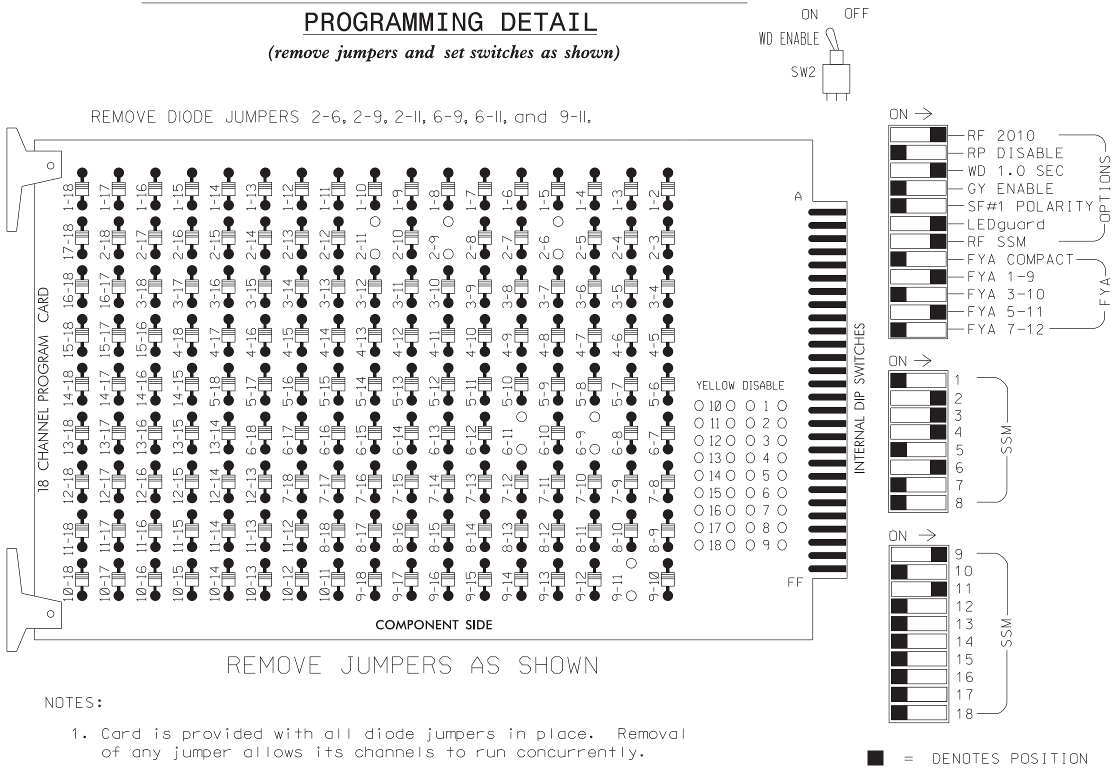
SEAL
SEAL 033108
JIANXIN MA
Jianxin Ma 2017.04.10 15:17:55 -04'00'
SIGNATURE DATE
SIG. INVENTORY NO. 11-0836T1

PROJECT REFERENCE NO.	SHEET NO.
R-5745	Sig. 1.1

EDI MODEL 2018ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 2-6, 2-9, 2-11, 6-9, 6-11, and 9-11.



REMOVE JUMPERS AS SHOWN

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
3. Ensure that Red Enable is active at all times during normal operation.
4. Connect serial cable from conflict monitor to comm. port 1 of 2070 controller. Ensure conflict monitor communicates with 2070.

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Enable Simultaneous Gap-Out for all phases.
3. Program phases 2 and 6 for Start Up In Green.
4. Program phases 2 and 6 for Yellow Flash, and overlap 1 as Wag Overlaps.

EQUIPMENT INFORMATION

CONTROLLER..............2070
CABINET.................332 /W/ AUX
SOFTWARE................ECONOLITE OASIS
CABINET MOUNT...........BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED......S2,S4,S5,S8,AUX S1,AUX S4.
PHASES USED.............2,3,4,6.
OVERLAP "A".............2
OVERLAP "B".............NOT USED
OVERLAP "C".............6
OVERLAP "D".............NOT USED

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4		S5		S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3		4		14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3		4		4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	NU	22,23	NU	31	32	41	42	NU	NU	62,63	NU	NU	NU	NU	61★	NU	NU	21★	NU	NU
RED		128		116	116	101	101			134										
YELLOW		129		117	117	102	102			135										
GREEN		130		118	118	103	103			136										
RED ARROW															A121			A114		
YELLOW ARROW															A122			A115		
FLASHING YELLOW ARROW															A123			A116		
GREEN ARROW				118		103														

NU = Not Used

★ See pictorial of head wiring in detail below.

INPUT FILE POSITION LAYOUT

(front view)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	SLOT EMPTY	ϕ 2 2A,2B	ϕ 2 2E	SLOT EMPTY	ϕ 3 3C	ϕ 3 3A	ϕ 4 4A	ϕ 4 4C	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
	L		ϕ 2 2C,2D	NOT USED		NOT USED	ϕ 3 3B	ϕ 4 4B	NOT USED						ST DC ISOLATOR
FILE "J"	U	SLOT EMPTY	ϕ 6 6A,6B	ϕ 6 6E	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L		ϕ 6 6C,6D	NOT USED											

EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

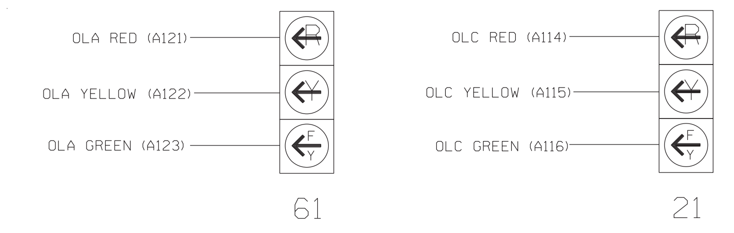
LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
2A, 2B	TB2-5,6	I2U	39	1	2	2	Y	Y		1.6	
2C, 2D	TB2-7,8	I2L	43	5	12	2	Y	Y			
2E	TB2-9,10	I3U	63	25	32	2	Y	Y			
3C	TB4-5,6	I5U	58	20	3	3	Y	Y			15
3A	TB4-9,10	I6U	41	3	4	3	Y	Y			3
3B	TB4-11,12	I6L	45	7	14	3	Y	Y			10
4A	TB6-1,2	I7U	65	27	34	4	Y	Y			3
4B	TB6-3,4	I7L	78	40	44	4	Y	Y			10
4C	TB6-5,6	I8U	49	11	24	4	Y	Y			15
6A, 6B	TB3-5,6	J2U	40	2	6	6	Y	Y		1.6	
6C, 6D	TB3-7,8	J2L	44	6	16	6	Y	Y			
6E	TB3-9,10	J3U	64	26	36	6	Y	Y			

INPUT FILE POSITION LEGEND: J2L

FILE J
SLOT 2
LOWER

3 SECTION FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS).

```
 PAGE 1: VEHICLE OVERLAP 'A' SETTINGS
 PHASE:           ¦12345678910111213141516
VEH OVL PARENTS:¦ X
VEH OVL NOT VEH:¦
VEH OVL NOT PED:¦
VEH OVL GRN EXT:¦
STARTUP COLOR: _ RED   _ YELLOW   _ GREEN
FLASH COLORS:   _ RED   _ YELLOW   X GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

← NOTICE GREEN FLASH

PRESS '+' TWICE

```
 PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
 PHASE:           ¦12345678910111213141516
VEH OVL PARENTS:¦      X
VEH OVL NOT VEH:¦
VEH OVL NOT PED:¦
VEH OVL GRN EXT:¦
STARTUP COLOR: _ RED   _ YELLOW   _ GREEN
FLASH COLORS:   _ RED   _ YELLOW   X GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

← NOTICE GREEN FLASH

OVERLAP PROGRAMMING COMPLETE

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 11-0836T1
DESIGNED: Apr. 2017
SEALED: 04/10/2017
REVISED: N/A

NC Dept of Transportation
Division of Highways
Final Drawing Date: 4/26/2017
DocuSigned by:
R.N. Zinser
ITS & Signals Unit

940 Main Campus Drive, Suite 500
Raleigh, NC 27606
NC License No. C-3705
919.829.0328

Electrical Detail-Temporary Signal, Phase I

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:
Transportation Mobility and Safety Division
Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 64-NC 18-90/
NC 18 (Wilkesboro Boulevard)
at
US 64-NC 90/Taylorsville Road

Division 11 Caldwell County Lenoir

PLAN DATE:	Apr. 2017	REVIEWED BY:	J. L. Lewis
PREPARED BY:	J. Ma	VHB PROJECT NO.:	38536.03

REVISIONS	INIT.	DATE

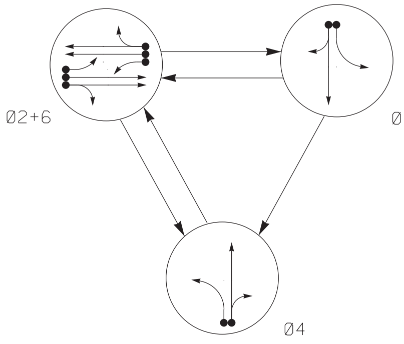
SEAL
SEAL 033108
Jianxin Ma 2017.04.10 15:22:19 -04'00'
SIGNATURE DATE
SIG. INVENTORY NO. 11-0836T1

4/10/2017
**vhb*proj*Raleigh*38536.03 R-5745_Lenoir_TGS*NCDOT*Traffic*Signals*Design*Signals*110836_temp Phase 1-sm_ele_20170410.dgn
User:jma

PROJECT REFERENCE NO.	SHEET NO.
R-5745	Sig. 2.0

3 Phase
Fully Actuated
Isolated

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

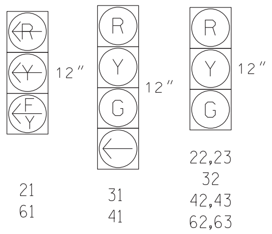
- ◄——● DETECTED MOVEMENT
- ◄——— UNDETECTED MOVEMENT (OVERLAP)
- ◄— — UNSIGNALIZED MOVEMENT
- ◄- - -► PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø2+6	Ø3	Ø4	FLASH
21	←F/Y	←R	←R	←Y
22,23	G	R	R	Y
31	R	←G	R	R
32	R	G	R	R
41	R	R	←G	R
42,43	R	R	G	R
61	←F/Y	←R	←R	←Y
62,63	G	R	R	Y

SIGNAL FACE I.D.

All Heads L.E.D.

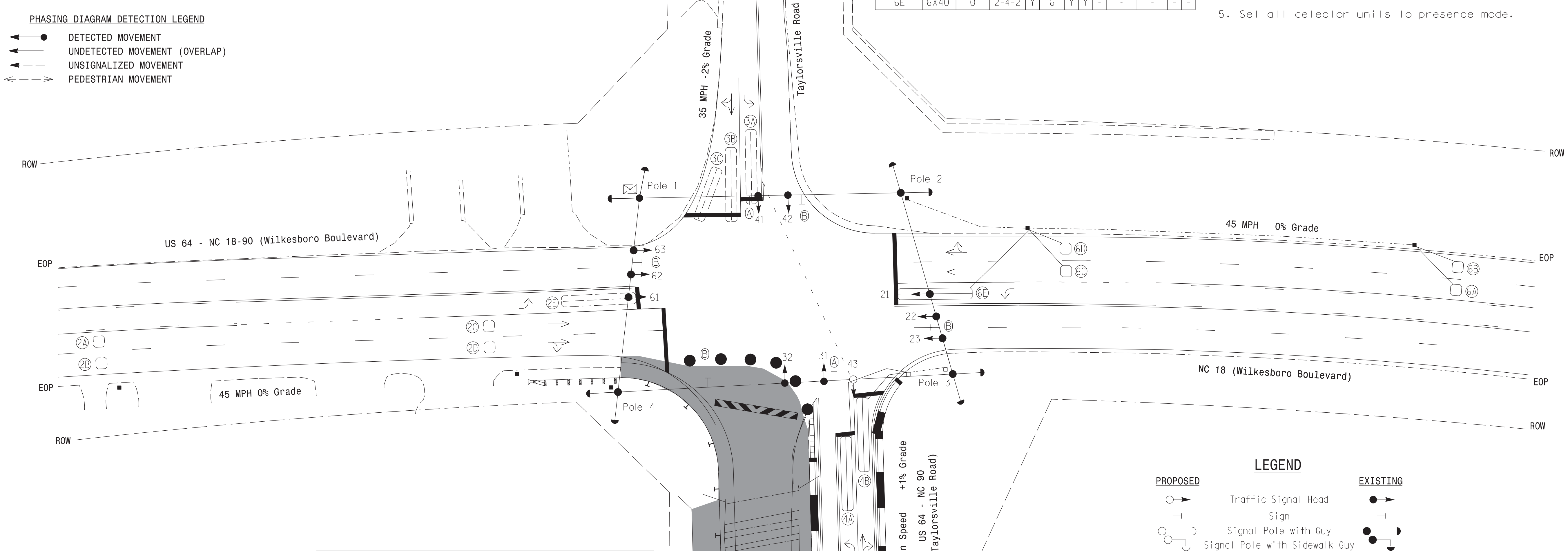


OASIS 2070L LOOP & DETECTOR INSTALLATION CHART

INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A,2B	6X6	300	EXIST	-	2	Y	Y	-	1.6	-	-	-
2C,2D	6X6	90	EXIST	-	2	Y	Y	-	-	-	-	-
2E	6X40	0	EXIST	-	2	Y	Y	-	-	-	-	-
3A	6X40	+5	EXIST	-	3	Y	Y	-	-	3	-	-
3B	6X40	+5	EXIST	-	3	Y	Y	-	-	10	-	-
3C	6X30	+5	EXIST	-	3	Y	Y	-	-	15	-	-
4A	6X40	0	2-4-2	Y	4	Y	Y	-	-	3	-	-
4B	6X40	0	2-4-2	Y	4	Y	Y	-	-	10	-	-
6A,6B	6X6	300	5	Y	6	Y	Y	-	1.6	-	-	-
6C,6D	6X6	90	4	Y	6	Y	Y	-	-	-	-	-
6E	6X40	0	2-4-2	Y	6	Y	Y	-	-	-	-	-

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012 and all applicable sections of the latest version of the generic Project Special Provisions.
   The PSP can be accessed at the following website: http://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. The order of phase 3 and phase 4 may be reversed.
4. Reposition existing signal heads numbered 31, 32, 41, and 42.
5. Set all detector units to presence mode.



LEGEND

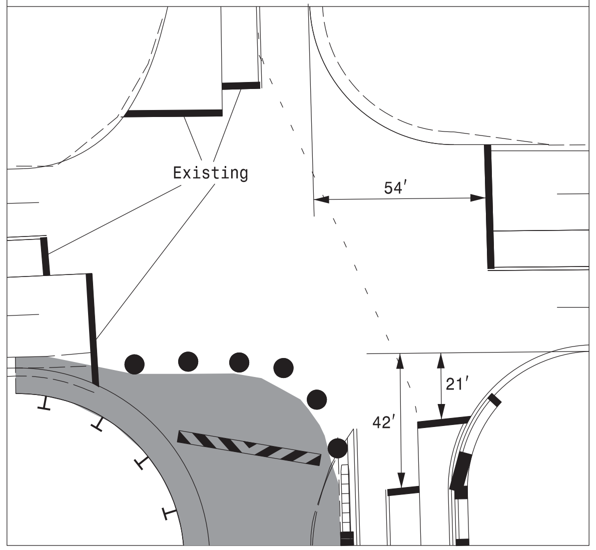
PROPOSED		EXISTING
○→	Traffic Signal Head	●→
⊣	Sign	⊣
○——◗	Signal Pole with Guy	●——◗
○——◗	Signal Pole with Sidewalk Guy	●——◗
▭	Inductive Loop Detector	▭
☒	Controller & Cabinet	☒
□	Junction Box	■
- - -	2-in Underground Conduit	- - -
— —	Right of Way	— —
——→	Directional Arrow	——→
⊥ ⊥	Guard Rail	⊥ ⊥
▬	Construction Zone	N/A
●	Traffic Control Drum	●
Ⓐ	Left Arrow "ONLY" Sign (R3-5L)	Ⓐ
Ⓑ	Street Name Sign (D3-1)	Ⓑ

OASIS 2070L TIMING CHART

FEATURE	PHASE 2	3	4	6
Min Green 1 *	12	7	7	12
Extension 1 *	2.0	2.0	2.0	2.0
Max Green 1 *	45	15	25	45
Yellow Clearance	4.5	4.0	3.0	4.5
Red Clearance	1.9	2.3	4.4	1.9
Red Revert	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	-	-	-	-
Max Variable Initial *	-	-	-	-
Time Before Reduction *	-	-	-	-
Time To Reduce *	-	-	-	-
Minimum Gap	-	-	-	-
Recall Mode	MIN RECALL	-	-	MIN RECALL
Vehicle Call Memory	YELLOW	-	-	YELLOW
Dual Entry	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

STOP BAR LOCATIONS



NC Dept of Transportation
Division of Highways

Final Drawing Date: 4/26/2017

DocuSigned by:
R.N. Linser

ITS & Signals Unit

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919.829.0328

Signal Upgrade-Temporary Signal, Phase II

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:
Transportation Mobility and Safety Division
Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 64 - NC 18-90 /
NC 18 (Wilkesboro Boulevard) at
US 64 - NC 90 / Taylorsville Road

Division 11 Caldwell County Lenoir

PLAN DATE:	Apr. 2017	REVIEWED BY:	J. L. Lewis
PREPARED BY:	J. Ma	VHB Project No.:	38536.03

SCALE
0 30
1"=30'

REVISIONS	INIT.	DATE

SEAL
SEAL 033108
JIANXIN MA

Jianxin Ma 2017.04.10 15:23:35 -04'00'
SIGNATURE DATE

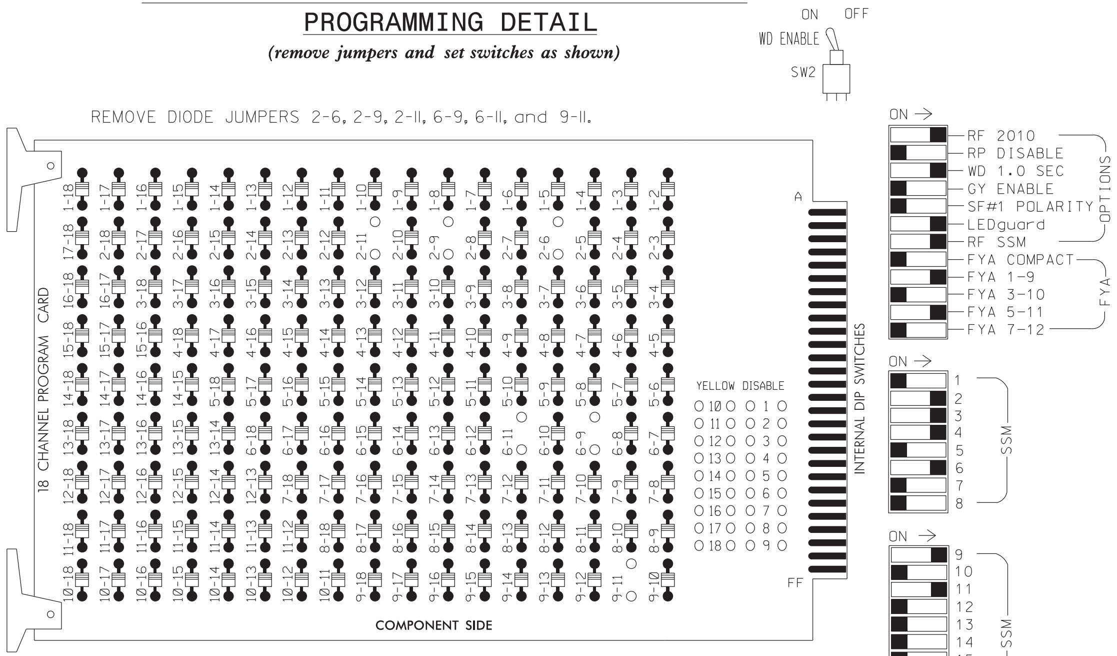
SIG. INVENTORY NO. 11-0836T2

PROJECT REFERENCE NO.	SHEET NO.
R-5745	Sig. 2.1

EDI MODEL 2018ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 2-6, 2-9, 2-11, 6-9, 6-11, and 9-11.



REMOVE JUMPERS AS SHOWN

■ = DENOTES POSITION OF SWITCH

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
3. Ensure that Red Enable is active at all times during normal operation.
4. Connect serial cable from conflict monitor to comm. port 1 of 2070 controller. Ensure conflict monitor communicates with 2070.

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Enable Simultaneous Gap-Out for all phases.
3. Program phases 2 and 6 for Start Up In Green.
4. Program phases 2 and 6 for Yellow Flash, and overlap 1 as Wag Overlaps.

EQUIPMENT INFORMATION

CONTROLLER..............2070
CABINET.................332 /W/ AUX
SOFTWARE................ECONOLITE OASIS
CABINET MOUNT...........BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED......S2,S4,S5,S8,AUX S1,AUX S4.
PHASES USED.............2,3,4,6.
OVERLAP "A".............2
OVERLAP "B".............NOT USED
OVERLAP "C".............6
OVERLAP "D".............NOT USED

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4		S5		S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3		4		14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3		4		4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	NU	22,23	NU	31	32	41	42,43	NU	NU	62,63	NU	NU	NU	NU	61 ★	NU	NU	21 ★	NU	NU
RED		128		116	116	101	101			134										
YELLOW		129		117	117	102	102			135										
GREEN		130		118	118	103	103			136										
RED ARROW															A121			A114		
YELLOW ARROW															A122			A115		
FLASHING YELLOW ARROW															A123			A116		
GREEN ARROW				118		103														

NU = Not Used

★ See pictorial of head wiring in detail below.

INPUT FILE POSITION LAYOUT

(front view)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	SLOT EMPTY	ø 2 2A,2B	ø 2 2E	SLOT EMPTY	ø 3 3C	ø 3 3A	ø 4 4A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
	L		ø 2 2C,2D	NOT USED		NOT USED	ø 3 3B	ø 4 4B							ST DC ISOLATOR
FILE "J"	U	SLOT EMPTY	ø 6 6A,6B	ø 6 6E	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L		ø 6 6C,6D	NOT USED											

EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

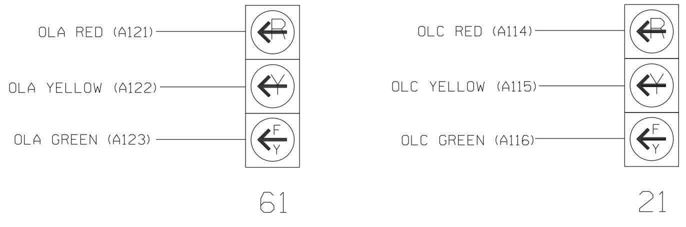
LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
2A, 2B	TB2-5,6	I2U	39	1	2	2	Y	Y		1.6	
2C, 2D	TB2-7,8	I2L	43	5	12	2	Y	Y			
2E	TB2-9,10	I3U	63	25	32	2	Y	Y			
3C	TB4-5,6	I5U	58	20	3	3	Y	Y			15
3A	TB4-9,10	I6U	41	3	4	3	Y	Y			3
3B	TB4-11,12	I6L	45	7	14	3	Y	Y			10
4A	TB6-1,2	I7U	65	27	34	4	Y	Y			3
4B	TB6-3,4	I7L	78	40	44	4	Y	Y			10
6A, 6B	TB3-5,6	J2U	40	2	6	6	Y	Y		1.6	
6C, 6D	TB3-7,8	J2L	44	6	16	6	Y	Y			
6E	TB3-9,10	J3U	64	26	36	6	Y	Y			

INPUT FILE POSITION LEGEND: J2L

FILE J
SLOT 2
LOWER

3 SECTION FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS).

```
 PAGE 1: VEHICLE OVERLAP 'A' SETTINGS
 PHASE:           ¦12345678910111213141516
VEH OVL PARENTS:¦ X
VEH OVL NOT VEH:¦
VEH OVL NOT PED:¦
VEH OVL GRN EXT:¦
STARTUP COLOR: _ RED   _ YELLOW   _ GREEN
FLASH COLORS:  _ RED   _ YELLOW   X GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

← NOTICE GREEN FLASH

PRESS '+' TWICE

```
 PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
 PHASE:           ¦12345678910111213141516
VEH OVL PARENTS:¦     X
VEH OVL NOT VEH:¦
VEH OVL NOT PED:¦
VEH OVL GRN EXT:¦
STARTUP COLOR: _ RED   _ YELLOW   _ GREEN
FLASH COLORS:  _ RED   _ YELLOW   X GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

← NOTICE GREEN FLASH

OVERLAP PROGRAMMING COMPLETE

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 11-0836T2
DESIGNED: Apr. 2017
SEALED: 04/10/2017
REVISED: N/A

NC Dept of Transportation
Division of Highways
Final Drawing Date: 4/26/2017
DocuSigned by:
R.N. Zinser
ITS & Signals Unit

940 Main Campus Drive, Suite 500
Raleigh, NC 27606
NC License No. C-3705
919.829.0328

Electrical Detail-Temporary Signal, Phase II

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:
Transportation Mobility and Safety Division
Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 64-NC 18-90/
NC 18 (Wilkesboro Boulevard)
at
US 64-NC 90/Taylorsville Road

Division 11 Caldwell County Lenoir

PLAN DATE:	Apr. 2017	REVIEWED BY:	J. L. Lewis
PREPARED BY:	J. Ma	VHB PROJECT NO.:	38536.03

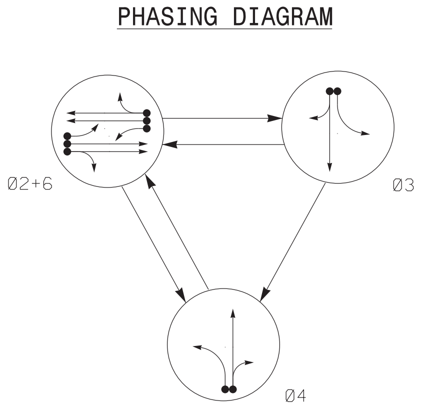
REVISIONS	INIT.	DATE

SEAL
SEAL 033108
JIANXIN MA
Jianxin Ma 2017.04.10 15:25:27 -04'00'
SIGNATURE DATE

SIG. INVENTORY NO. 11-0836T2

PROJECT REFERENCE NO.	SHEET NO.
R-5745	Sig. 3.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

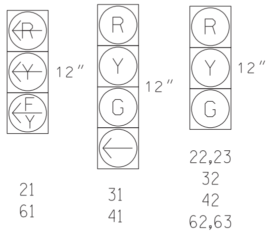
- ◄——● DETECTED MOVEMENT
- ◄—— UNDETECTED MOVEMENT (OVERLAP)
- ◄– – UNSIGNALIZED MOVEMENT
- <– – –> PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø 2 + 6	Ø 3	Ø 4	FLASH
21	←F/Y	←R	←R	←Y
22,23	G	R	R	Y
31	R	G←	R	R
32	R	G	R	R
41	R	R	G←	R
42	R	R	G	R
61	←F/Y	←R	←R	←Y
62,63	G	R	R	Y

SIGNAL FACE I.D.

All Heads L.E.D.



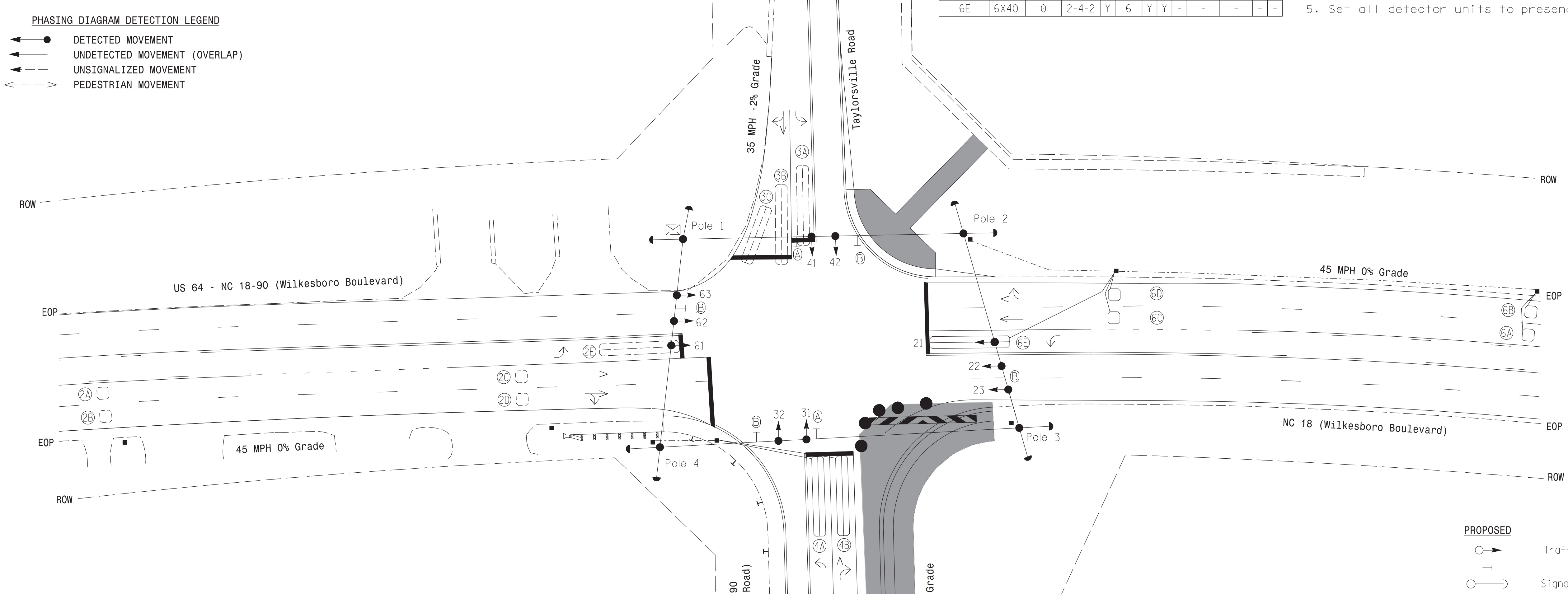
OASIS 2070L LOOP & DETECTOR INSTALLATION CHART

INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A,2B	6X6	300	EXIST	-	2	Y	Y	-	1.6	-	-	-
2C,2D	6X6	90	EXIST	-	2	Y	Y	-	-	-	-	-
2E	6X40	0	EXIST	-	2	Y	Y	-	-	-	-	-
3A	6X40	+5	EXIST	-	3	Y	Y	-	-	3	-	-
3B	6X40	+5	EXIST	-	3	Y	Y	-	-	10	-	-
3C	6X30	+5	EXIST	-	3	Y	Y	-	-	15	-	-
4A	6X40	0	2-4-2	Y	4	Y	Y	-	-	3	-	-
4B	6X40	0	2-4-2	Y	4	Y	Y	-	-	10	-	-
6A,6B	6X6	300	5	Y	6	Y	Y	-	1.6	-	-	-
6C,6D	6X6	90	4	Y	6	Y	Y	-	-	-	-	-
6E	6X40	0	2-4-2	Y	6	Y	Y	-	-	-	-	-

3 Phase
Fully Actuated
Isolated

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012 and all applicable sections of the latest version of the generic Project Special Provisions. The PSP can be accessed at the following website: http://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. The order of phase 3 and phase 4 may be reversed.
4. Reposition existing signal heads numbered 31, 32, 41, 42, and Sign A. Remove signal head 43.
5. Set all detector units to presence mode.

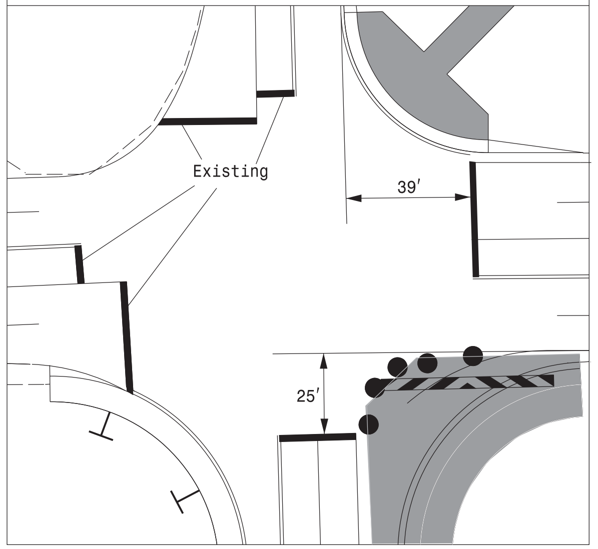


OASIS 2070L TIMING CHART

FEATURE	PHASE 2	3	4	6
Min Green 1 *	12	7	7	12
Extension 1 *	2.0	2.0	2.0	2.0
Max Green 1 *	45	15	25	45
Yellow Clearance	4.5	4.0	3.8	4.5
Red Clearance	1.6	1.5	2.0	1.6
Red Revert	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	-	-	-	-
Max Variable Initial *	-	-	-	-
Time Before Reduction *	-	-	-	-
Time To Reduce *	-	-	-	-
Minimum Gap	-	-	-	-
Recall Mode	MIN RECALL	-	-	MIN RECALL
Vehicle Call Memory	YELLOW	-	-	YELLOW
Dual Entry	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

STOP BAR LOCATIONS



LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
⊣	Sign	⊣
○—○	Signal Pole with Guy	●—●
▭	Inductive Loop Detector	▭
☒	Controller & Cabinet	☒
□	Junction Box	■
–·–·–	2-in Underground Conduit	–·–·–
— —	Right of Way	— —
→	Directional Arrow	→
⊥ ⊥	Guard Rail	⊥ ⊥
▬	Construction Zone	N/A
●	Traffic Control Drum	●
Ⓐ	Left Arrow "ONLY" Sign (R3-5L)	Ⓐ
Ⓑ	Street Name Sign (D3-1)	Ⓑ

NC Dept of Transportation
Division of Highways

Final Drawing Date: 4/26/2017

DocuSigned by:
R.N. Zinser

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Signal Upgrade-Temporary Signal, Phase III

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Prepared for the Offices of:
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Signals Management Section
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at
US 64 - NC 90 / Taylorsville Road

Division 11 Caldwell County Lenoir

PLAN DATE:	Apr. 2017	REVIEWED BY:	J. L. Lewis
PREPARED BY:	J. Ma	REVIEWED BY:	

SCALE
0 30
1"=30'

REVISIONS	INIT.	DATE

SEAL
SEAL 033108
JIANXIN MA

Jianxin Ma 2017.04.10 15:26:43 -04'00'

SIGNATURE	DATE

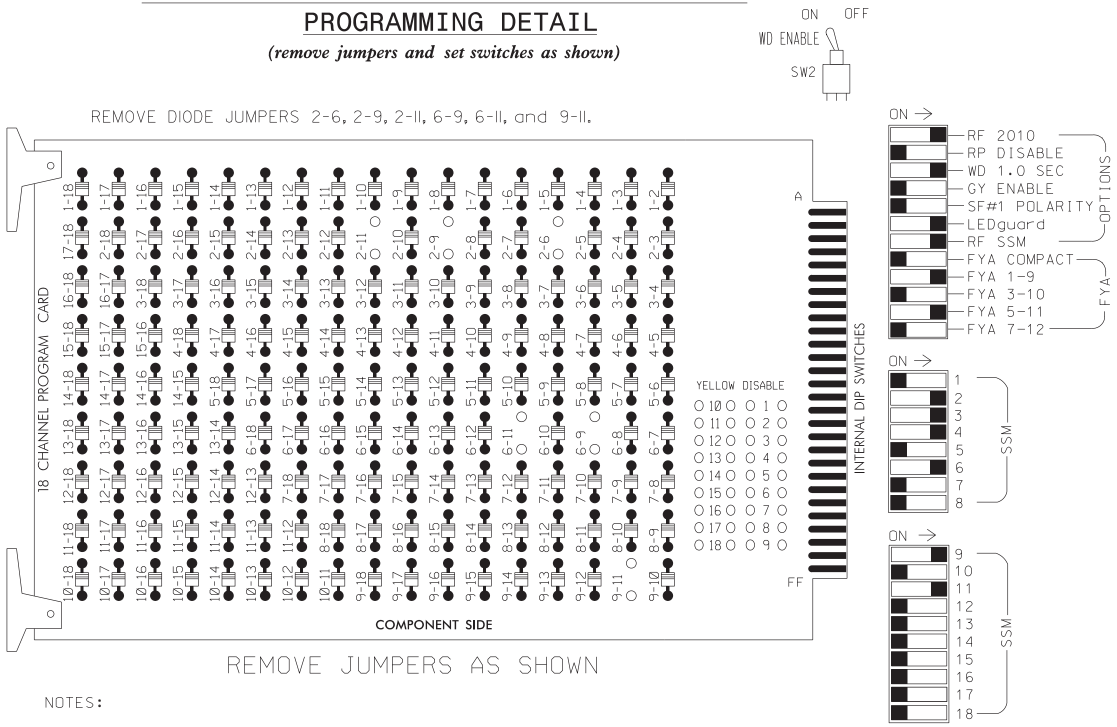
SIG. INVENTORY NO. 11-0836T3

PROJECT REFERENCE NO.	SHEET NO.
R-5745	Sig. 3.1

EDI MODEL 2018ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 2-6, 2-9, 2-11, 6-9, 6-11, and 9-11.



REMOVE JUMPERS AS SHOWN

■ = DENOTES POSITION OF SWITCH

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
3. Ensure that Red Enable is active at all times during normal operation.
4. Connect serial cable from conflict monitor to comm. port 1 of 2070 controller. Ensure conflict monitor communicates with 2070.

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Enable Simultaneous Gap-Out for all phases.
3. Program phases 2 and 6 for Start Up In Green.
4. Program phases 2 and 6 for Yellow Flash, and overlap 1 as Wag Overlaps.

EQUIPMENT INFORMATION

CONTROLLER..............2070
CABINET.................332 /W/ AUX
SOFTWARE................ECONOLITE OASIS
CABINET MOUNT...........BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED......S2,S4,S5,S8,AUX S1,AUX S4.
PHASES USED.............2,3,4,6.
OVERLAP "A".............2
OVERLAP "B".............NOT USED
OVERLAP "C".............6
OVERLAP "D".............NOT USED

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4		S5		S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3		4		14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3		4		4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	NU	22,23	NU	31	32	41	42	NU	NU	62,63	NU	NU	NU	NU	61★	NU	NU	21★	NU	NU
RED		128		116	116	101	101			134										
YELLOW		129		117	117	102	102			135										
GREEN		130		118	118	103	103			136										
RED ARROW															A121			A114		
YELLOW ARROW															A122			A115		
FLASHING YELLOW ARROW															A123			A116		
GREEN ARROW				118		103														

NU = Not Used

★ See pictorial of head wiring in detail below.

INPUT FILE POSITION LAYOUT

(front view)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	SLOT EMPTY	Ø 2 2A,2B	Ø 2 2E	SLOT EMPTY	Ø 3 3C	Ø 3 3A	Ø 4 4A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
	L		Ø 2 2C,2D	NOT USED		NOT USED	Ø 3 3B	Ø 4 4B							ST DC ISOLATOR
FILE "J"	U	SLOT EMPTY	Ø 6 6A,6B	Ø 6 6E	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L		Ø 6 6C,6D	NOT USED											

EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME

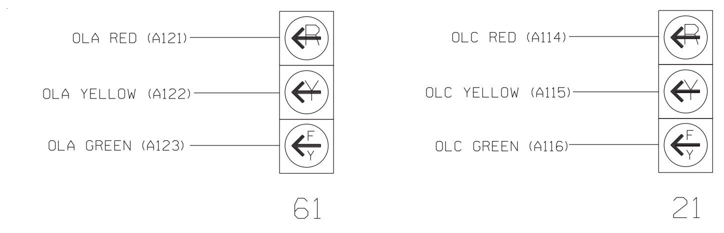
INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
2A, 2B	TB2-5,6	I2U	39	1	2	2	Y	Y		1.6	
2C, 2D	TB2-7,8	I2L	43	5	12	2	Y	Y			
2E	TB2-9,10	I3U	63	25	32	2	Y	Y			
3C	TB4-5,6	I5U	58	20	3	3	Y	Y			15
3A	TB4-9,10	I6U	41	3	4	3	Y	Y			3
3B	TB4-11,12	I6L	45	7	14	3	Y	Y			10
4A	TB6-1,2	I7U	65	27	34	4	Y	Y			3
4B	TB6-3,4	I7L	78	40	44	4	Y	Y			10
6A, 6B	TB3-5,6	J2U	40	2	6	6	Y	Y		1.6	
6C, 6D	TB3-7,8	J2L	44	6	16	6	Y	Y			
6E	TB3-9,10	J3U	64	26	36	6	Y	Y			

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

3 SECTION FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS).

```
 PAGE 1: VEHICLE OVERLAP 'A' SETTINGS
 PHASE:           ¦12345678910111213141516
VEH OVL PARENTS:¦ X
VEH OVL NOT VEH:¦
VEH OVL NOT PED:¦
VEH OVL GRN EXT:¦
STARTUP COLOR: _ RED   _ YELLOW  _ GREEN
FLASH COLORS:  _ RED   _ YELLOW  X GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

← NOTICE GREEN FLASH

PRESS '+' TWICE

```
 PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
 PHASE:           ¦12345678910111213141516
VEH OVL PARENTS:¦      X
VEH OVL NOT VEH:¦
VEH OVL NOT PED:¦
VEH OVL GRN EXT:¦
STARTUP COLOR: _ RED   _ YELLOW  _ GREEN
FLASH COLORS:  _ RED   _ YELLOW  X GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

← NOTICE GREEN FLASH

OVERLAP PROGRAMMING COMPLETE

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 11-0836T3
DESIGNED: Apr. 2017
SEALED: 04/10/2017
REVISED: N/A

NC Dept of Transportation
Division of Highways
Final Drawing Date: 4/26/2017
DocuSigned by:
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Electrical Detail-Temporary Signal, Phase III

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REVISIONS	INIT.	DATE

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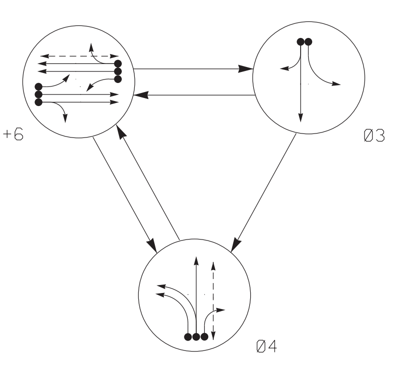
PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

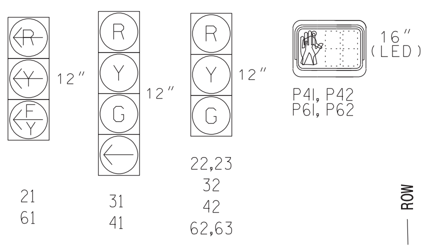
◀——●	DETECTED MOVEMENT
◀——	UNDETECTED MOVEMENT (OVERLAP)
◀– –	UNSIGNALIZED MOVEMENT
◀- - -▶	PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø2+6	Ø3	Ø4	FLASH
21	←F/Y	←R	←R	←Y
22,23	G	R	R	Y
31	R	←G	R	R
32	R	G	R	R
41	R	R	←G	R
42	R	R	G	R
61	←F/Y	←R	←R	←Y
62,63	G	R	R	Y
P41, P42	DW	DW	W	DRK
P61, P62	W	DW	DW	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



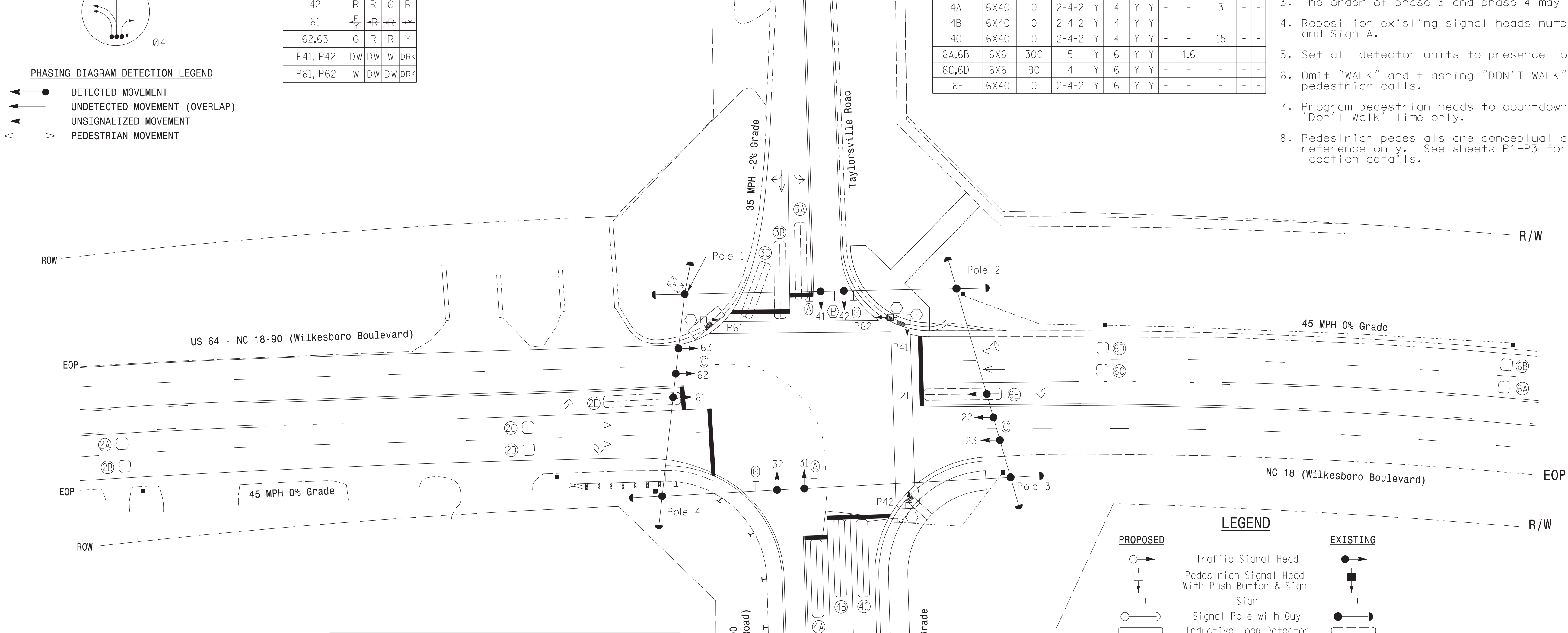
OASIS 2070L LOOP & DETECTOR INSTALLATION CHART

INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A,2B	6X6	300	EXIST	-	2	Y	Y	-	1.6	-	-	-
2C,2D	6X6	90	EXIST	-	2	Y	Y	-	-	-	-	-
2E	6X40	0	EXIST	-	2	Y	Y	-	-	-	-	-
3A	6X40	+5	EXIST	-	3	Y	Y	-	-	3	-	-
3B	6X40	+5	EXIST	-	3	Y	Y	-	-	10	-	-
3C	6X30	+5	EXIST	-	3	Y	Y	-	-	15	-	-
4A	6X40	0	2-4-2	Y	4	Y	Y	-	-	3	-	-
4B	6X40	0	2-4-2	Y	4	Y	Y	-	-	-	-	-
4C	6X40	0	2-4-2	Y	4	Y	Y	-	-	15	-	-
6A,6B	6X6	300	5	Y	6	Y	Y	-	1.6	-	-	-
6C,6D	6X6	90	4	Y	6	Y	Y	-	-	-	-	-
6E	6X40	0	2-4-2	Y	6	Y	Y	-	-	-	-	-

3 Phase
Fully Actuated
Isolated

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012 and all applicable sections of the latest version of the generic Project Special Provisions.
   The PSP can be accessed at the following website:
   http://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. The order of phase 3 and phase 4 may be reversed.
4. Reposition existing signal heads numbered 41, 42, and Sign A.
5. Set all detector units to presence mode.
6. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
7. Program pedestrian heads to countdown the flashing 'Don't Walk' time only.
8. Pedestrian pedestals are conceptual and shown for reference only. See sheets P1-P3 for pushbutton location details.



LEGEND

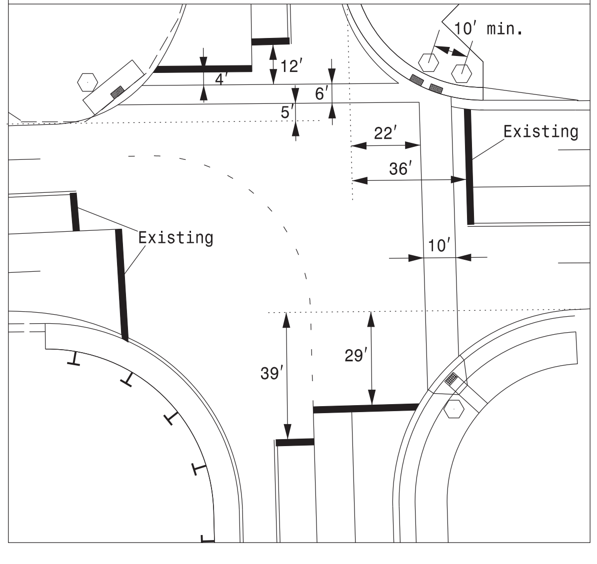
PROPOSED		EXISTING
○→	Traffic Signal Head	●→
□	Pedestrian Signal Head With Push Button & Sign	■
⊣	Sign	⊣
○——)	Signal Pole with Guy	●——◗
▭	Inductive Loop Detector	⬚
☒	Controller & Cabinet	☒
□	Junction Box	■
⬡	Type II Signal Pedestal	⬢
- - - - - -	2-in Underground Conduit	-·-·-·-
—— ——	Right of Way	—— ——
→	Directional Arrow	→
—┬——┬—	Guard Rail	—┬—┬—
⏃	Curb Ramp	⏃
A	Left Arrow "ONLY" Sign (R3-5L)	Ⓐ
B	Combined Through and Left Arrow Sign (R3-6L)	Ⓑ
C	Street Name Sign (D3-1)	Ⓒ

OASIS 2070L TIMING CHART

FEATURE	PHASE 2	3	4	6
Min Green 1 *	12	7	7	12
Extension 1 *	2.0	2.0	2.0	2.0
Max Green 1 *	45	15	25	45
Yellow Clearance	4.5	4.0	3.8	4.5
Red Clearance	1.6	1.8	2.5	1.6
Red Revert	2.0	2.0	2.0	2.0
Walk 1 *	-	-	7	7
Don't Walk 1	-	-	22	25
Seconds Per Actuation *	-	-	-	-
Max Variable Initial *	-	-	-	-
Time Before Reduction *	-	-	-	-
Time To Reduce *	-	-	-	-
Minimum Gap	-	-	-	-
Recall Mode	MIN RECALL	-	-	MIN RECALL
Vehicle Call Memory	YELLOW	-	-	YELLOW
Dual Entry	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

STOP BARS & CROSSWALK LOCATION



NC Dept of Transportation
Division of Highways

Final Drawing Date: 4/26/2017

DocuSigned by:
R.N. Ziner

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Signal Upgrade-Final Signal

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PREPARED BY:	J. Ma	VHB Project No.:	38536.03

SCALE
0 30
1"=30'

REVISIONS	INIT.	DATE

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JIANXIN MA

Jianxin Ma 2017.04.10 15:29:03 -04'00'
SIGNATURE DATE

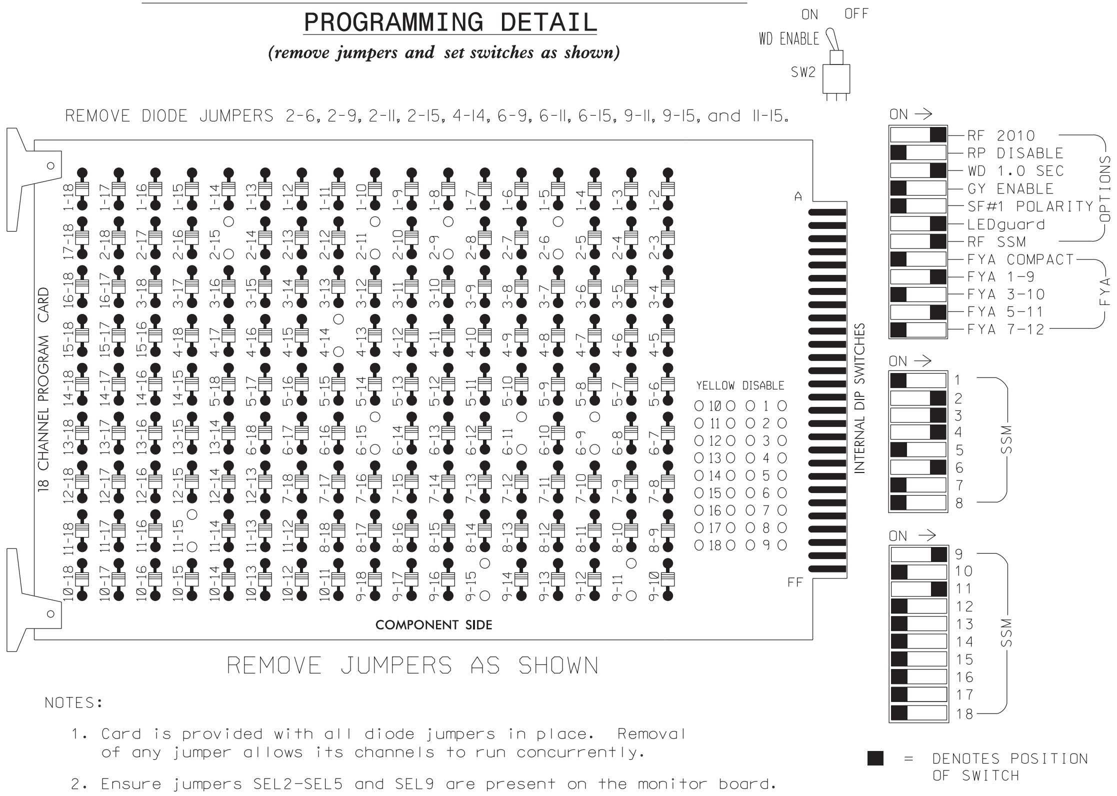
SIG. INVENTORY NO. 11-0836

PROJECT REFERENCE NO.	SHEET NO.
R-5745	Sig. 4.1

EDI MODEL 2018ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 2-6, 2-9, 2-11, 2-15, 4-14, 6-9, 6-11, 6-15, 9-11, 9-15, and 11-15.



REMOVE JUMPERS AS SHOWN

■ = DENOTES POSITION OF SWITCH

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
3. Ensure that Red Enable is active at all times during normal operation.
4. Connect serial cable from conflict monitor to comm. port 1 of 2070 controller. Ensure conflict monitor communicates with 2070.

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Enable Simultaneous Gap-Out for all phases.
3. Program phases 2 and 6 for Start Up In Green.
4. Program phases 4 and 6 for "STARTUP PED CALL".
5. Program phases 2 and 6 for Yellow Flash, and overlap 1 as Wag Overlaps.

EQUIPMENT INFORMATION

CONTROLLER..............2070
CABINET.................332 /W/ AUX
SOFTWARE................ECONOLITE OASIS
CABINET MOUNT...........BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED......S2,S4,S5,S6,S8,S9, AUX S1,AUX S4.
PHASES USED.............2,3,4,4PED,6,6PED.
OVERLAP "A".............2
OVERLAP "B".............NOT USED
OVERLAP "C".............6
OVERLAP "D".............NOT USED

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4		S5		S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3		4		14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3		4		4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	NU	22,23	NU	31	32	41	42	P41, P42	NU	62,63	P61, P62	NU	NU	NU	61 ★	NU	NU	21 ★	NU	NU
RED		128		116	116	101	101			134										
YELLOW		129		117	117	102	102			135										
GREEN		130		118	118	103	103			136										
RED ARROW															A121			A114		
YELLOW ARROW															A122			A115		
FLASHING YELLOW ARROW															A123			A116		
GREEN ARROW				118		103														
✋								104			119									
🚶								106			121									

NU = Not Used

★ See pictorial of head wiring in detail below.

INPUT FILE POSITION LAYOUT

(front view)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	SLOT EMPTY	∅ 2 2A,2B	∅ 2 2E	SLOT EMPTY	∅ 3 3C	∅ 3 3A	∅ 4 4A	∅ 4 4C	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	NOT USED	∅6PED DC ISOLATOR	FS DC ISOLATOR
	L		∅ 2 2C,2D	NOT USED		NOT USED	∅ 3 3B	∅ 4 4B	NOT USED				∅4PED DC ISOLATOR	NOT USED	ST DC ISOLATOR
FILE "J"	U	SLOT EMPTY	∅ 6 6A,6B	∅ 6 6E	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L		∅ 6 6C,6D	NOT USED											

EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
2A, 2B	TB2-5,6	I2U	39	1	2	2	Y	Y		1.6	
2C, 2D	TB2-7,8	I2L	43	5	12	2	Y	Y			
2E	TB2-9,10	I3U	63	25	32	2	Y	Y			
3C	TB4-5,6	I5U	58	20	3	3	Y	Y			15
3A	TB4-9,10	I6U	41	3	4	3	Y	Y			3
3B	TB4-11,12	I6L	45	7	14	3	Y	Y			10
4A	TB6-1,2	I7U	65	27	34	4	Y	Y			3
4B	TB6-3,4	I7L	78	40	44	4	Y	Y			
4C	TB6-5,6	I8U	49	11	24	4	Y	Y			15
6A, 6B	TB3-5,6	J2U	40	2	6	6	Y	Y		1.6	
6C, 6D	TB3-7,8	J2L	44	6	16	6	Y	Y			
6E	TB3-9,10	J3U	64	26	36	6	Y	Y			
PED PUSH BUTTONS											
P41,P42	TB8-5,6	I12L	69	31	PED 4	4 PED					
P61,P62	TB8-7,9	I13U	68	30	PED 6	6 PED					

NOTE: Install DC Isolators in Input File Slots I12 and I13.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS).

```
 PAGE 1: VEHICLE OVERLAP 'A' SETTINGS
 PHASE:         ¦12345678910111213141516
VEH OVL PARENTS:¦ X
VEH OVL NOT VEH:¦
VEH OVL NOT PED:¦
VEH OVL GRN EXT:¦
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  X GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

← NOTICE GREEN FLASH

PRESS '+' TWICE

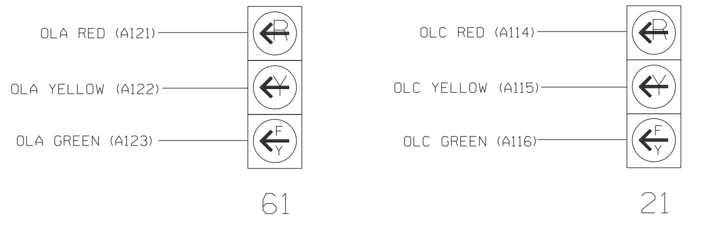
```
 PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
 PHASE:         ¦12345678910111213141516
VEH OVL PARENTS:¦     X
VEH OVL NOT VEH:¦
VEH OVL NOT PED:¦
VEH OVL GRN EXT:¦
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  X GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

← NOTICE GREEN FLASH

OVERLAP PROGRAMMING COMPLETE

3 SECTION FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



COUNTDOWN PEDESTRIAN SIGNAL OPERATION

Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 11-0836
DESIGNED: Apr. 2017
SEALED: 04/10/2017
REVISED: N/A

NC Dept of Transportation
Division of Highways
Final Drawing Date: 4/26/2017
DocuSigned by:
R.N. Ziner
ITS & Signals Unit

940 Main Campus Drive, Suite 500
Raleigh, NC 27606
NC License No. C-3705
919.829.0328

Electrical Detail-Signal Upgrade-Final Signal

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:
Transportation Mobility and Safety Division
Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 64-NC 18-90/
NC 18 (Wilkesboro Boulevard)
at
US 64-NC 90/Taylorsville Road

Division 11 Caldwell County Lenoir

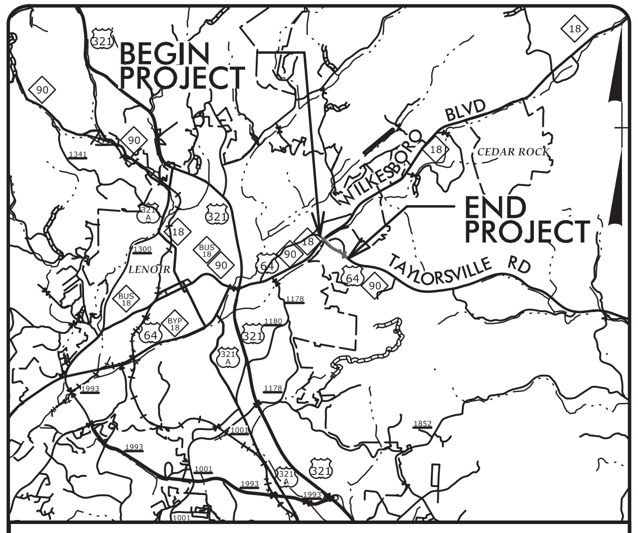
PLAN DATE:	Apr. 2017	REVIEWED BY:	J. L. Lewis
PREPARED BY:	J. Ma	VHB PROJECT NO.:	38536.03

REVISIONS	INIT.	DATE

SEAL
SEAL 033108
JIANXIN MA
Jianxin Ma 2017.04.10 15:30:25 -04'00'
SIGNATURE DATE
SIG. INVENTORY NO. 11-0836

PROJECT: R-5745

T.I.P. NO.	SHEET NO.
R-5745	UC-1

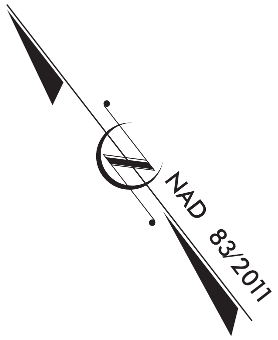


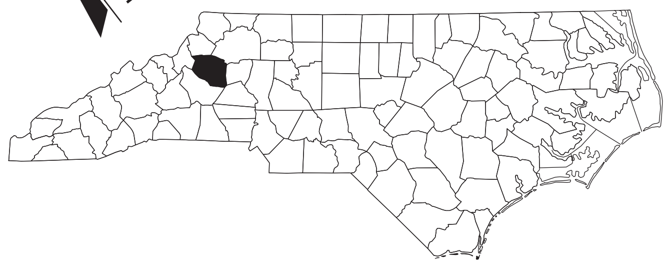
VICINITY MAP
NOT TO SCALE

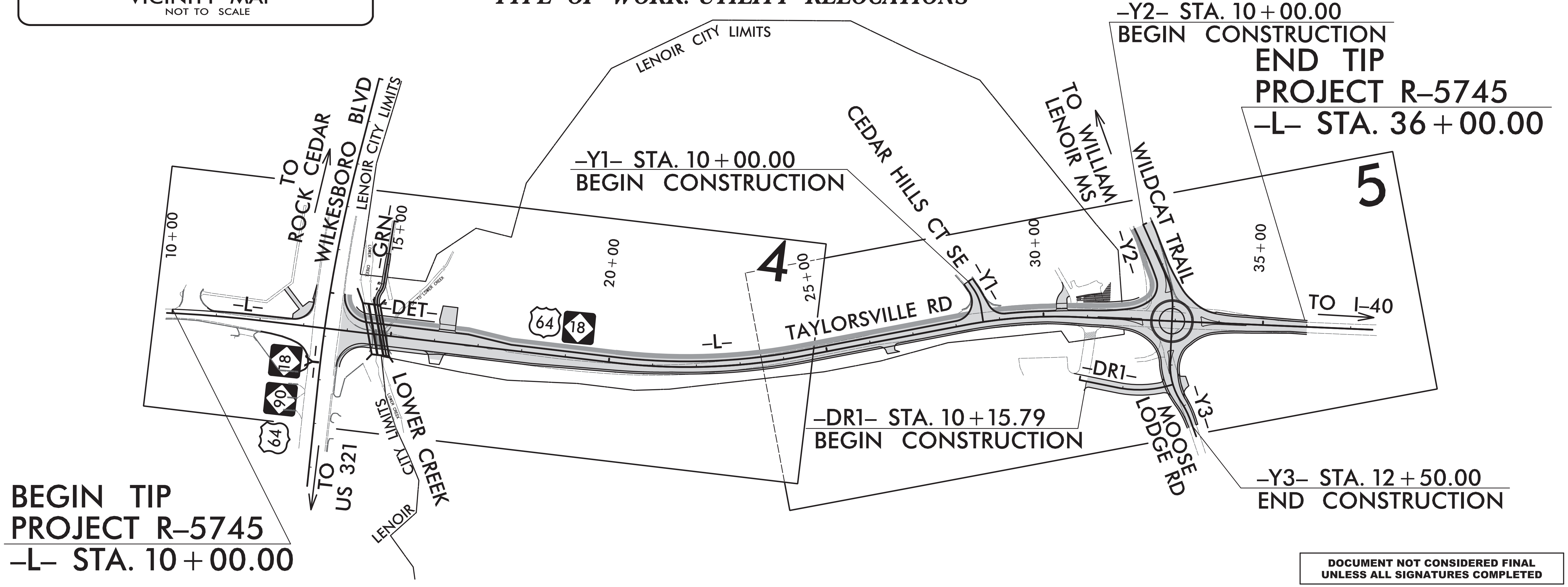
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITY CONSTRUCTION PLANS
CALDWELL COUNTY

LOCATION: IMPROVEMENTS OF INTERSECTION OF
US64/NC90/NC18 (WILKESBORO BOULEVARD)
AND US64/NC90 (TAYLORSVILLE ROAD)
TYPE OF WORK: UTILITY RELOCATIONS

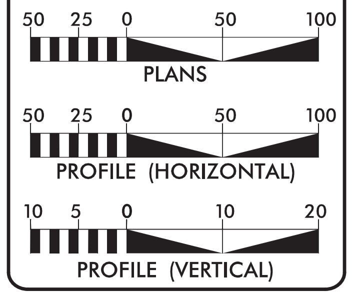






DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



INDEX OF SHEETS

UTILITY OWNER ON PROJECT

(1) WATER: CALDWELL COUNTY WATER SYSTEM
(1) WATER: CITY OF LENOIR WATER SYSTEM
(1) SEWER: CITY OF LENOIR SEWER SYSTEM

SEAL

DocuSigned by:
Andrew Cochrane
0E3D8277186940F...
041996
ANDREW H COCHRANE
6/13/2017

PREPARED IN THE OFFICE OF:
DIVISION OF HIGHWAYS
UTILITIES UNIT
UTILITIES ENGINEERING

1555 MAIL SERVICES CENTER
RALEIGH NC 27699–1555
PHONE (919) 707–6690
FAX (919) 250–4151

Roger Worthington, P.E. *UTILITIES SECTION ENGINEER*

5/31/2017
X:\NCDOT\R-5745\Utilities\Rdy_Ut\Proj\R-5745_Ut_tsh_UC01.dgn
User:acochrane

PROJECT REFERENCE NO.	SHEET NO.
R-5745	UC-2

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

Water Line (Sized as Shown)	—— 12" WL ——
11¼ Degree Bend	+•⁄
22½ Degree Bend	+•⁄
45 Degree Bend	+•×
90 Degree Bend	+•+
Plug	▌
Tee	┼
Cross	╬
Reducer	▶•
Gate Valve	GV ⧓
Butterfly Valve	BV ⧓
Tapping Valve	TGV ⧓
Line Stop	LS ▮
Line Stop with Bypass	LS/BP ▮
Blow Off	BO ■
Fire Hydrant	PFH ◆
Relocate Fire Hydrant	RFH ◆
Remove Fire Hydrant	REM FH •
Water Meter	PWM ▮
Relocate Water Meter	RWM ▮
Remove Water Meter	REM WM •
Water Pump Station	PS(W)
RPZ Backflow Preventer	PRPZ ☒
DCV Backflow Preventer	PBFP ☒
Relocate RPZ Backflow Preventer	RRPZ ☒
Relocate DCV Backflow Preventer	RBFP ☒

PROPOSED SEWER SYMBOLS

Gravity Sewer Line (Sized as Shown)	—— 12" SS ——
Force Main Sewer Line (Sized as Shown)	—— 12" FSS ——
Manhole (Sized per Note)	●
Sewer Pump Station	PS(SS)

PROPOSED MISCELLANOUS UTILITIES SYMBOLS

Power Pole	ọ
Telephone Pole	-o-
Joint Use Pole	-ọ-
Telephone Pedestal	TEL PED ⊙
Utility Line by Others (Type as Shown)	—— PROP O/H POW LINES ——
Trenchless Installation	—— 12" TL INSTALL ——
Encasement by Open Cut	24" ENCAS BY OC ▭
Encasement	24" ENCASEMENT ▭

Thrust Block	▌
Air Release Valve	AR ●
Utility Vault	UV ■
Concrete Pier	CP ■
Steel Pier	SP □
Plan Note	↖ NOTE
Pay Item Note	↖ PAY ITEM

EXISTING UTILITIES SYMBOLS

Power Pole	•
Telephone Pole	-•-
Joint Use Pole	-•-
Utility Pole	●
Utility Pole with Base	□
H-Frame Pole	●—●
Power Transmission Line Tower	☒
Water Manhole	Ⓦ
Power Manhole	Ⓟ
Telephone Manhole	Ⓣ
Sanitary Sewer Manhole	⊕
Hand Hole for Cable	HH
Power Transformer	◩
Telephone Pedestal	T
CATV Pedestal	C
Gas Valve	◇
Gas Meter	◈
Located Miscellaneous Utility Object	⊙
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

*Underground Power Line	——
*Underground Telephone Cable	——
*Underground Telephone Conduit	——
*Underground Fiber Optics Telephone Cable	——
*Underground TV Cable	——
*Underground Fiber Optics TV Cable	——
*Underground Gas Pipeline	——
Aboveground Gas Pipeline	—— A/G Gas ——
*Underground Water Line	——
Aboveground Water Line	—— A/G Water ——
*Underground Gravity Sanitary Sewer Line	—— SS ——
Aboveground Gravity Sanitary Sewer Line	—— A/G Sanitary Sewer ——
*Underground SS Forced Main Line	——
Underground Unknown Utility Line	——
SUE Test Hole	●
Water Meter	⬭
Water Valve	⊗
Fire Hydrant	◈
Sanitary Sewer Cleanout	⊕

*For Existing Utilities

Utility Line Drawn from Record (Type as Shown)	——
Designated Utility Line (Type as Shown)	——

REV: 2/1/2012

5/14/99

5/31/2017
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User:acochrane

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-5745	UC-3

DESIGNED BY: AHC
DRAWN BY: AHC
CHECKED BY: BCH
APPROVED BY: JLL
REVISED:

NORTH CAROLINA
DEPARTMENT OF
TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
FAX:(919)250-4151

DocuSigned by:
Andrew Cochran
0E3D8277186940F...

6/13/2017

UTILITY CONSTRUCTION
PLANS ONLY

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

UTILITY CONSTRUCTION

GENERAL NOTES:

1. THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2012.

2. WATER AND SEWER LINES ON THIS PROJECT BELONG TO EITHER CALDWELL COUNTY OR THE CITY OF LENOIR.

3. ALL WATER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL AND NATURAL RESOURCES, DIVISION OF WATER RESOURCES, PUBLIC WATER SUPPLY SECTION. PERFORM ALL WORK IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODES.

4. THE UTILITY OWNER OWNS THE EXISTING UTILITY FACILITIES AND WILL OWN THE NEW UTILITY FACILITIES AFTER ACCEPTANCE BY THE DEPARTMENT. THE DEPARTMENT OWNS THE CONSTRUCTION CONTRACT AND HAS ADMINISTRATIVE AUTHORITY. COMMUNICATIONS AND DECISIONS BETWEEN THE CONTRACTOR AND UTILITY OWNER ARE NOT BINDING UPON THE DEPARTMENT OR THIS CONTRACT UNLESS AUTHORIZED BY THE ENGINEER. AGREEMENTS BETWEEN THE UTILITY OWNER AND CONTRACTOR FOR THE WORK THAT IS NOT PART OF THIS CONTRACT OR IS SECONDARY TO THIS CONTRACT ARE ALLOWED, BUT ARE NOT BINDING UPON THE DEPARTMENT.

5. PROVIDE ACCESS FOR THE DEPARTMENT PERSONNEL AND THE OWNER'S REPRESENTATIVES TO ALL PHASES OF CONSTRUCTION. NOTIFY DEPARTMENT PERSONNEL AND THE UTILITY OWNER TWO WEEKS PRIOR TO COMMENCEMENT OF ANY WORK AND ONE WEEK PRIOR TO SERVICE INTERRUPTION. KEEP UTILITY OWNERS' REPRESENTATIVES INFORMED OF WORK PROGRESS AND PROVIDE OPPORTUNITY FOR INSPECTION OF CONSTRUCTION AND TESTING.

6. THE PLANS DEPICT THE BEST AVAILABLE INFORMATION FOR THE LOCATION, SIZE, AND TYPE OF MATERIAL FOR ALL EXISTING UTILITIES. MAKE INVESTIGATIONS FOR DETERMINING THE EXACT LOCATION, SIZE, AND TYPE MATERIAL OF THE EXISTING FACILITIES AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED UTILITIES AND FOR AVOIDING DAMAGE TO EXISTING FACILITIES. REPAIR ANY DAMAGE INCURRED TO EXISTING FACILITIES TO THE ORIGINAL OR BETTER CONDITION AT NO ADDITONAL COST TO THE DEPARTMENT.

7. MAKE FINAL CONNECTIONS OF THE NEW WORK TO THE EXISTING SYSTEM WHERE INDICATED ON THE PLANS, AS REQUIRED TO FIT THE ACTUAL CONDITIONS, OR AS DIRECTED.

8. ALL UTILITY MATERIALS SHALL BE APPROVED PRIOR TO DELIVERY TO THE PROJECT. SEE 1500-7, " SUBMITTALS AND RECORDS" IN SECTION 1500 OF THE STANDARD SPECIFICATIONS.

9. MAKE CONNECTIONS BETWEEN EXISTING AND PROPOSED UTILITIES AT TIMES MOST CONVENIENT TO THE PUBLIC, WITHOUT ENDANGERING THE UTILITY SERVICE, AND IN ACCORDANCE WITH THE UTILITY OWNER'S REQUIREMENTS. MAKE CONNECTIONS ON WEEKENDS, AT NIGHT, AND ON HOLIDAYS IF NECESSARY.

PROJECT SPECIFIC NOTES:

1. ALL WATER LINE, 4-INCHES THROUGH 12-INCHES SHALL BE DUCTILE IRON MINIMUM PRESSURE CLASS 350.

2. ALL WATER SERVICE LINES SHALL BE ¾ -INCH OR 1-INCH TYPE "K" COPPER PIPE UNLESS OTHERWISE NOTED.

3. ALL WATER LINE FITTINGS 4-INCHES THROUGH 12- INCHES IN DIAMETER, SHALL BE PRESSURE CLASS 350 DUCTILE IRON RESTRAINED JOINT IN ACCORDANCE WITH ANSI A21.10 / AWWA C110 AND ANSI A21.4 / AWWA C104 UTILIZING RIGID MECHANICAL JOINT CONNECTIONS.

4. PROVIDE THRUST RESTRAINT ON THE EXISTING WATER LINE WHERE TIE-INS ARE MADE AS NECESSARY.

6. WORK ON THE 8" WATER LINE ALONG TAYLORSVILLE RD SHOULD BE COMPLETED AND THE LINE PLACED INTO SERVICE BEFORE THE 12" WATER LINE ALONG WILKESBORO BLVD IS TAKEN OUT OF SERVICE.

7. CONNECTIONS BETWEEN EXISTING AND PROPOSED IMPROVEMENTS ARE TO BE "WET" TAPS WITH NO DISRUPTION TO WATER SERVICE.

8. ALL SANITARY GRAVITY SEWER PIPE SHALL BE DUCTILE IRON MINIMUM PRESSURE CLASS 350 UTILIZING RIGID MECHANICAL JOINT CONNECTIONS.

9. AERIAL SANITARY GRAVITY SEWER UTILIZING MECHANICAL JOINTS SHALL BE TYTON JOINT, HP LOK, TR FLEX, USIFLEX, MJ HARNESS LOK, OR EQUIVALENT. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FROM THE PIPE MANUFACTURER FOR THE LONG SPAN PIPE.

10. ALL VALVES 12" AND UNDER SHALL BE RESILIENT WEDGE GATE VALVES.

11. CONTRACTOR SHALL NOT OPERATE ANY VALVES ON THE EXISTING UTILITY SYSTEMS. CONTRACTOR SHALL CONTACT THE UTILITY OWNER TO CONDUCT STRATEGIC OPERATION OF VALVES FOR SERVICE INTERRUPTION IN ORDER TO PERFORM SPECIFIC WORK.

5/31/2017
tilities\Rdy_Ut\Proj\R-5745_Ut_notes_UC03 & details_UC(03a-03c).dgn
User:acochrane

5/14/96

UTILITY DETAILS

PROJECT REFERENCE NO.	SHEET NO.
R-5745	UC-3A

DESIGNED BY: AHC
DRAWN BY: AHC
CHECKED BY: BCH
APPROVED BY: JLL
REVISED:

NORTH CAROLINA
DEPARTMENT OF
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FAX:(919)250-4151

DocuSigned by:
Andrew Cochrane
0E3D8277186940F...
SEAL
ANDREW COCHRANE
6/13/2017

UTILITY CONSTRUCTION
PLANS ONLY

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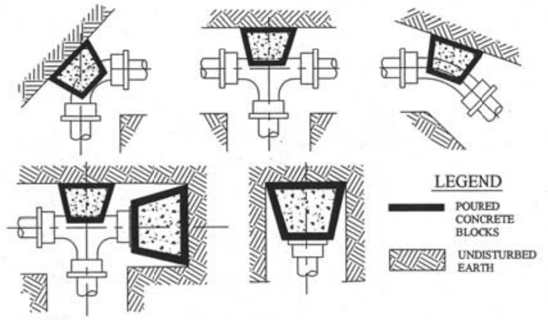
TGS ENGINEERS
TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275



NOTES:
1. POURED IN PLACE CONCRETE SHALL BE 3000 PSI.
2. LEAVE JOINTS CLEAR OF CONCRETE FOR EASY ACCESS.
3. POLYETHYLENE SHALL BE WRAPPED AROUND FITTINGS WHERE CONCRETE BLOCKING WILL EVENTUALLY BE REMOVED.

AREA OF BLOCK FACE
REQ'D FOR WORKING PRESSURES
BELOW 125 PSIG

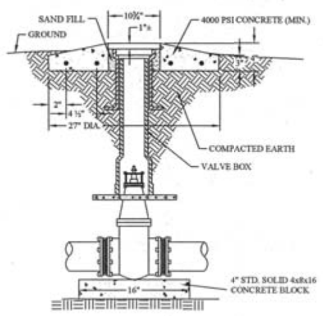
PIPE SIZE	90° BEND	45° BEND	22½° BEND	11¼° BEND	TEE	PLUG
3	0.7	0.4	0.2	0.2	0.5	0.5
4	1.1	0.6	0.3	0.2	0.8	0.8
6	2.5	1.4	0.7	0.4	1.8	1.8
8	4.5	2.4	1.3	0.7	3.2	3.2
10	6.9	3.8	1.9	1.0	4.9	4.9
12	9.9	5.5	2.8	1.5	7.1	7.1
14	10.1	7.4	3.8	1.9	9.6	9.6
16	13.2	9.7	4.9	2.6	12.6	12.6
18	16.7	12.2	6.2	3.3	15.9	15.9
20	20.6	15.1	7.7	4.1	19.6	19.6
22	24.9	18.3	9.3	5.0	23.7	23.7
24	29.6	21.8	11.1	6.0	28.2	28.2

CONCRETE BLOCKING DETAIL NO SCALE

Rothrock Engineering
Phone: 828\757-9834 • Fax: 828\758-0275
Email: rothrockengr@twave.net
4779 Kirby Mountain Road • Lenoir, North Carolina 28645

CITY OF LENOIR
CONCRETE BLOCKING

Scale:	Date:	Figure:
NTS	11/29/00	SD-1

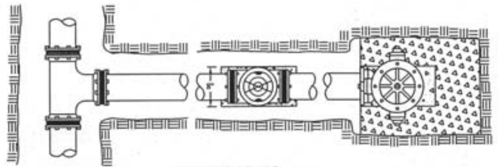


STANDARD GATE
VALVE DETAIL
NO SCALE

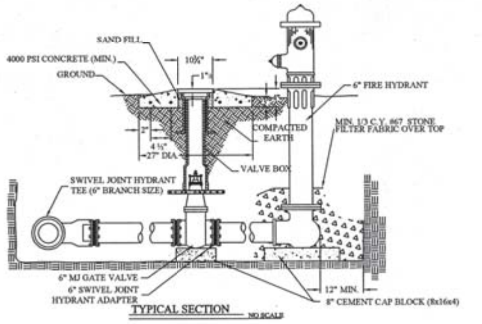
Rothrock Engineering
Phone: 828\757-9834 • Fax: 828\758-0275
Email: rothrockengr@twave.net
4779 Kirby Mountain Road • Lenoir, North Carolina 28645

CITY OF LENOIR
STANDARD GATE
VALVE DETAIL

Scale:	Date:	Figure:
NTS	11/29/00	SD-4



TYPICAL PLAN NO SCALE



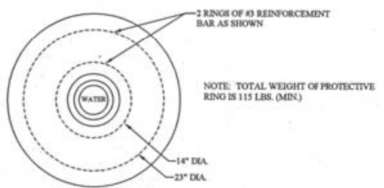
TYPICAL SECTION NO SCALE

STANDARD FIRE HYDRANT DETAIL NTS

Rothrock Engineering
Phone: 828\757-9834 • Fax: 828\758-0275
Email: rothrockengr@twave.net
4779 Kirby Mountain Road • Lenoir, North Carolina 28645

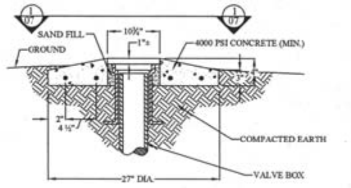
CITY OF LENOIR
STANDARD FIRE
HYDRANT DETAIL

Scale:	Date:	Figure:
NTS	11/29/00	SD-5



NOTE: TOTAL WEIGHT OF PROTECTIVE RING IS 115 LBS. (MIN.)

PLAN 1-1

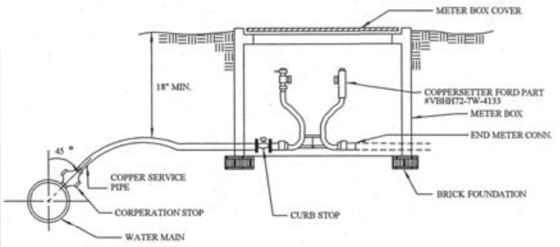


PROTECTIVE RING DETAIL NO SCALE

Rothrock Engineering
Phone: 828\757-9834 • Fax: 828\758-0275
Email: rothrockengr@twave.net
4779 Kirby Mountain Road • Lenoir, North Carolina 28645

CITY OF LENOIR
PROTECTIVE RING DETAIL

Scale:	Date:	Figure:
NTS	11/29/00	SD-7

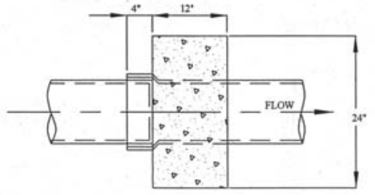


STANDARD SERVICE TAP DETAIL NO SCALE

Rothrock Engineering
Phone: 828\757-9834 • Fax: 828\758-0275
Email: rothrockengr@twave.net
4779 Kirby Mountain Road • Lenoir, North Carolina 28645

CITY OF LENOIR
STANDARD SERVICE TAP

Scale:	Date:	Figure:
NTS	11/29/00	SD-8



MAX. SEPARATION FOR SLOPE BLOCKING

% GRADE	MAX. SEPARATION
0-20%	NOT REQUIRED
20.01-35.0%	36'
35.01-50.0%	24'
OVER 50.01%	16'

TYPICAL SLOPE BLOCKING NTS

Rothrock Engineering
Phone: 828\757-9834 • Fax: 828\758-0275
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CITY OF LENOIR
TYPICAL SLOPE BLOCKING

Scale:	Date:	Figure:
NTS	11/29/00	SD-1

5/31/2017
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User:acochrane

PROJECT REFERENCE NO.	SHEET NO.
R-5745	UC-3B

DESIGNED BY: AHC
DRAWN BY: AHC
CHECKED BY: BCH
APPROVED BY: JLL
REVISED:

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0E3D8277186940F...
041596
6/13/2017

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TGS ENGINEERS
TGS ENGINEERS
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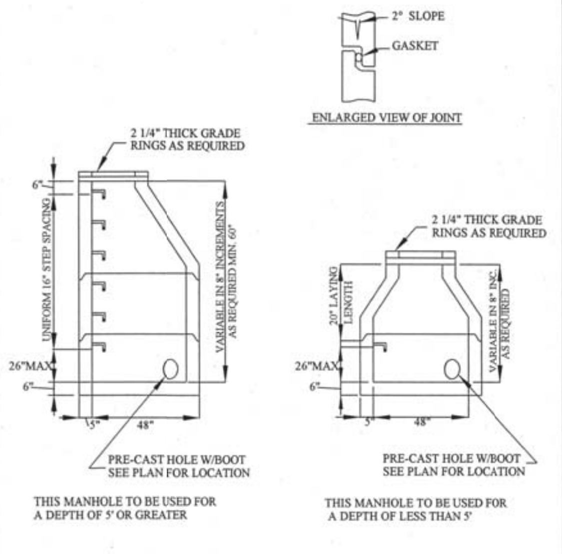
CORP. LICENSE NO.: C-0275

UTILITY DETAILS

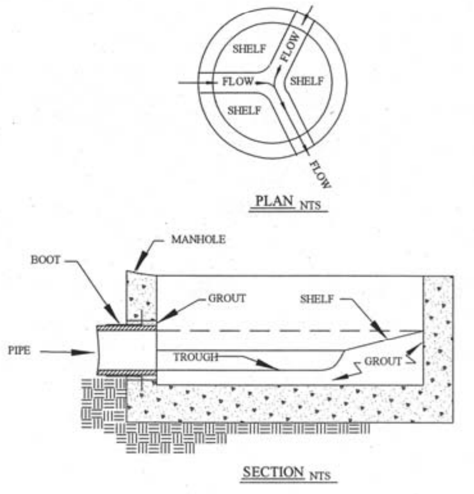


TYPICAL MANHOLE DETAIL NTS

Rothrock Engineering
Phone: 828\757-9834 • Fax: 828\758-0275
Email: rothrockengr@twave.net
4779 Kirby Mountain Road • Lenoir, North Carolina 28645

CITY OF LENOIR
TYPICAL MANHOLE DETAIL

Scale:	Date:	Figure:
NTS	11/29/00	SD-14



NOTE:

ALL M.H. INVERTS AT LOW END OF SEWER LINES WITH SLOPES OF 18.5% OR GREATER SHALL BE ARMORED IN ACCORDANCE WITH SECTION 15300, 2.03, F, 5.

MANHOLE TROUGH DETAIL NTS

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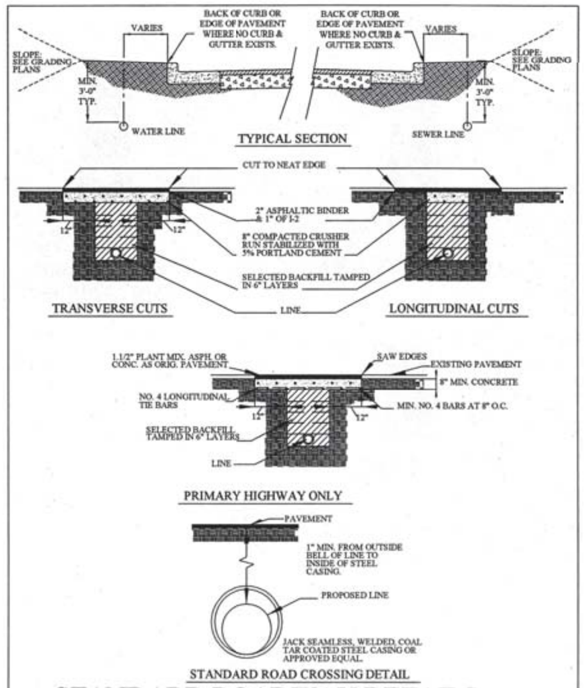
4779 Kirby Mountain Road • Lenoir, North Carolina 28645

CITY OF LENOIR
MANHOLE TROUGH DETAIL

Scale:	Date:	Figure:
NTS	11/29/00	SD-15



STANDARD ROADWAY DETAILS NO SCALE

Rothrock Engineering
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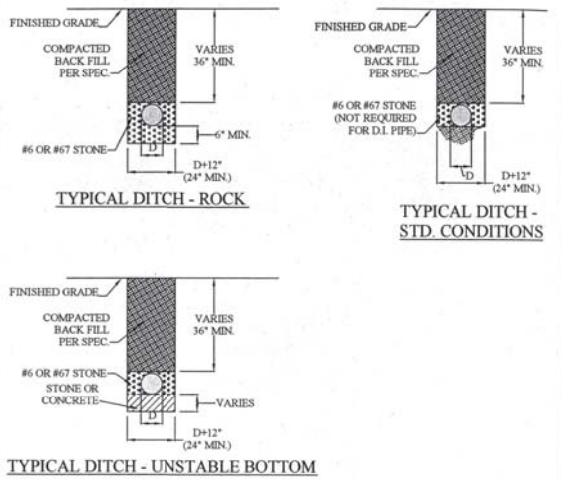
4779 Kirby Mountain Road • Lenoir, North Carolina 28645

CITY OF LENOIR
ROADWAY DETAILS

Scale:	Date:	Figure:
NTS	11/29/00	SD-17



TYPICAL DITCH NO SCALE

Rothrock Engineering
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Email: rothrockengr@twave.net
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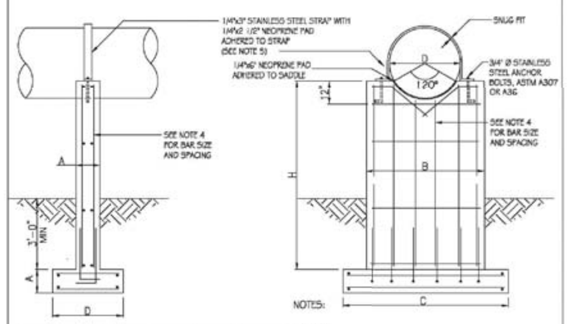
CITY OF LENOIR
TYPICAL DITCH

Scale:	Date:	Figure:
NTS	11/29/00	SD-18



CASING PIPE DIA. "D" (IN.)	"H" (FT.)	THICKNESS "A" (IN.)	PIER WIDTH "B" (FT.)	FOOTING LENGTH "C" (FT.)	FOOTING WIDTH "D" (FT.)
6-12	≤6	12	2'-4"	5'-6"	3'-0"
	8	12	2'-4"	6'-3"	3'-0"
	10	12	2'-4"	6'-8"	3'-0"
	12	12	2'-4"	7'-2"	3'-0"
14-20	≤6	12	3'-0"	8'-0"	3'-0"
	8	12	3'-0"	9'-0"	3'-0"
	10	12	3'-0"	9'-10"	3'-0"
	12	14	3'-0"	10'-6"	3'-0"
22-28	≤6	14	3'-8"	8'-8"	4'-0"
	8	14	3'-8"	10'-0"	4'-0"
	10	14	3'-8"	11'-0"	4'-0"
	12	14	3'-8"	11'-10"	4'-0"
30-36	≤6	18	4'-4"	9'-0"	4'-0"
	8	18	4'-4"	10'-6"	4'-0"
	10	18	4'-4"	11'-6"	4'-0"
	12	18	4'-4"	12'-4"	4'-0"
38-48	≤6	18	5'-4"	9'-6"	5'-0"
	8	18	5'-4"	11'-0"	5'-0"
	10	18	5'-4"	12'-0"	5'-0"
	12	18	5'-4"	12'-10"	5'-0"
51-56	≤6	18	6'-4"	9'-10"	5'-0"
	8	18	6'-4"	11'-4"	5'-0"
	10	18	6'-4"	12'-4"	5'-0"
	12	18	6'-4"	13'-2"	5'-0"

NOTES:

1. SHALLOW FOUNDATION DESIGN SHOWN ON THIS DETAIL IS BASED ON THE FOLLOWING PARAMETERS:
   ALLOWABLE SOIL BEARING CAPACITY = 2000 PSF
   CONCRETE COMPRESSIVE STRENGTH = 4000 PSI
   GRADE 60 REINFORCING STEEL
   MAXIMUM STREAM VELOCITY = 10 FT/SEC
   MAXIMUM SUPPORT HEIGHT (H) = 12'-0"
   IF FIELD CONDITIONS REQUIRE ANY DEVIATION FROM THESE PARAMETERS, THE FOUNDATION DESIGN SHALL BE REVIEWED BY THE ENGINEER.
2. IF SUBGRADE AT LOCATION OF SUPPORTS IS DEEMED UNABLE TO WITHSTAND 2000 PSF BEARING PRESSURE, A PILE SUPPORTED FOUNDATION SHALL BE UTILIZED AS PER DRAWING S-15.
3. IF BEDROCK IS ENCOUNTERED WHICH WILL PREVENT 3-FEET MINIMUM COVER OVER FOOTING, DOWELS SHALL BE DRILLED INTO BEDROCK PRIOR TO PLACING FOUNDATION. SEE DRAWING S-17.
4. TWELVE-INCH AND FOURTEEN-INCH THICK PIERS AND FOOTINGS SHALL BE REINFORCED WITH #5 BARS AT 12 INCHES OC IN EACH DIRECTION ON EACH FACE. EIGHTEEN-INCH WIDE PIERS AND FOOTINGS SHALL BE REINFORCED WITH #7 BARS AT 12 INCHES OC IN EACH DIRECTION ON EACH FACE.
5. EIGHTEEN-INCH THICK PIERS SHALL REQUIRE TWO STRAPS OVER THE PIPE INSTEAD OF ONE (AS SHOWN).
6. WHEN CONCRETE SUPPORTS ARE REQUIRED TO BE LOCATED WITHIN A STREAM AND ARE NOT COVERED WITH BACKFILL, SEE DRAWING S-19 FOR MODIFICATIONS TO UPSTREAM FACE OF SUPPORT.

AERIAL PIPE CROSSING
CONCRETE PIER DETAIL

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-14	ORIG.	6/1/08		

5/14/96

PROJECT REFERENCE NO.	SHEET NO.
R-5745	UC-3C

DESIGNED BY: AHC
DRAWN BY: AHC
CHECKED BY: BCH
APPROVED BY: JLL
REVISED:

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FAX:(919)250-4151

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Andrew Cochrane
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SEAL
ANDREW H. COCHRANE
ENGINEER
6/13/2017

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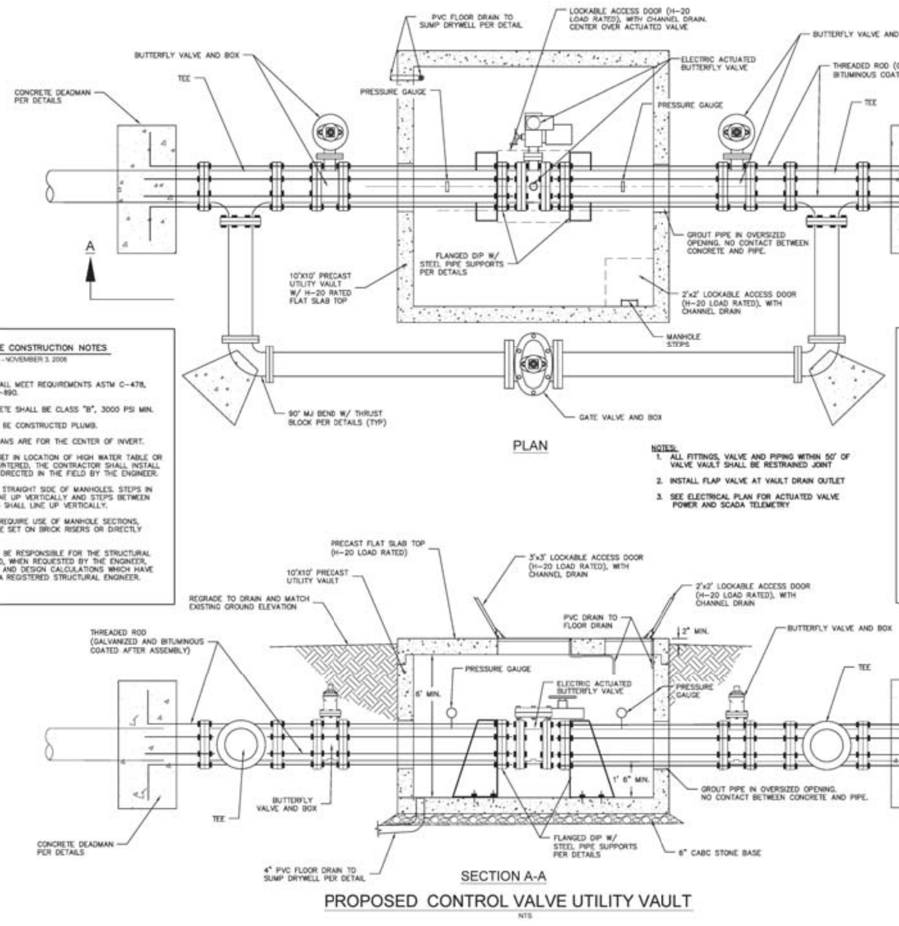
TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

UTILITY DETAILS



PLAN

NOTES:
1. ALL FITTINGS, VALVE AND PIPING WITHIN 50' OF VALVE VAULT SHALL BE RESTRAINED JOINT
2. INSTALL FLAP VALVE AT VAULT DRAIN OUTLET
3. SEE ELECTRICAL PLAN FOR ACTUATED VALVE POWER AND SCADA TELEMETRY

SECTION A-A

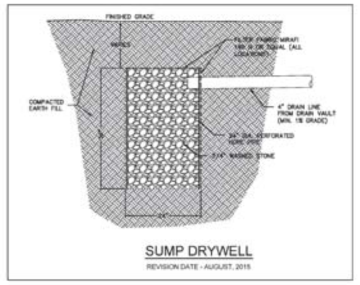
PROPOSED CONTROL VALVE UTILITY VAULT

NTS

PRECAST CONCRETE CONSTRUCTION NOTES

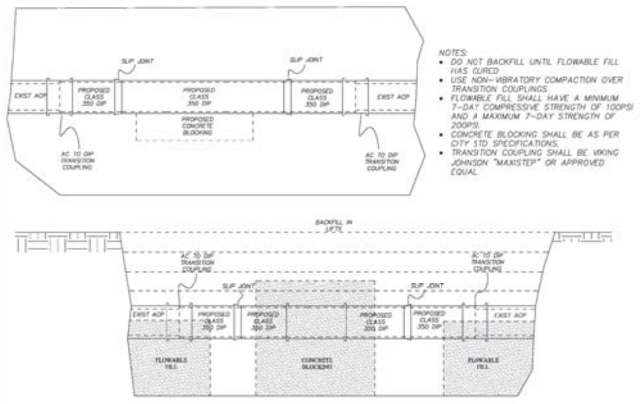
REVISION DATE - NOVEMBER 3, 2008

1. ALL PRE CAST COMPONENTS SHALL MEET REQUIREMENTS ASTM C-478, LATEST REVISION, AND ASTM C-890.
2. ALL "FORMED IN PLACE" CONCRETE SHALL BE CLASS "B", 3000 PSI MIN.
3. ALL PRE CAST SECTIONS SHALL BE CONSTRUCTED PLUMB.
4. ALL GRADES SHOWN ON THE PLANS ARE FOR THE CENTER OF INVERT.
5. IF MANHOLES OR VAULTS ARE SET IN LOCATION OF HIGH WATER TABLE OR UNDERGROUND WATER IS ENCOUNTERED, THE CONTRACTOR SHALL INSTALL UNDER DRAINS AND STONE AS DIRECTED IN THE FIELD BY THE ENGINEER.
6. STEPS SHALL BE INSTALLED ON STRAIGHT SIDE OF MANHOLES. STEPS IN EACH VAULT SECTION SHALL LINE UP VERTICALLY AND STEPS BETWEEN MANHOLE AND VAULT SECTIONS SHALL LINE UP VERTICALLY.
7. IF DEPTH OF VAULT DOES NOT REQUIRE USE OF MANHOLE SECTIONS, MANHOLE LID AND FRAME TO BE SET ON BRICK RISERS OR DIRECTLY ON FLAT SLAB TOP.
8. THE PRE CAST SUPPLIER SHALL BE RESPONSIBLE FOR THE STRUCTURAL DESIGN OF THE STRUCTURE AND, WHEN REQUESTED BY THE ENGINEER, SHALL SUBMIT SHOP DRAWINGS AND DESIGN CALCULATIONS WHICH HAVE BEEN SIGNED AND SEALED BY A REGISTERED STRUCTURAL ENGINEER.



SUMP DRYWELL

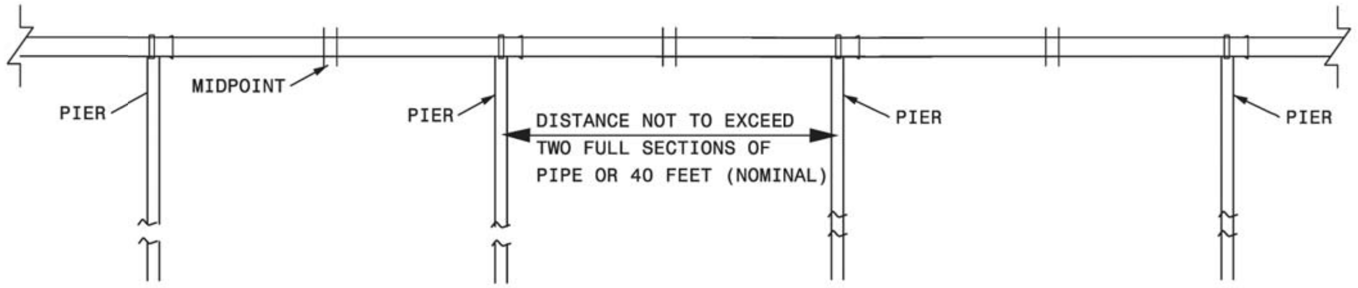
REVISION DATE - AUGUST, 2015



NOTES:
- DO NOT BACKFILL UNTIL FLOWABLE FILL HAS CURED
- USE NON-VIBRATORY COMPACTION OVER TRANSITION COUPLINGS
- FLOWABLE FILL SHALL HAVE A MINIMUM 7-DAY COMPRESSIVE STRENGTH OF 100PSI AND A MAXIMUM 7-DAY STRENGTH OF 200PSI.
- CONCRETE BLOCKING SHALL BE AS PER CITY STD SPECIFICATIONS.
- TRANSITION COUPLING SHALL BE VIKING JOHNSON "MAXISTEP" OR APPROVED EQUAL.

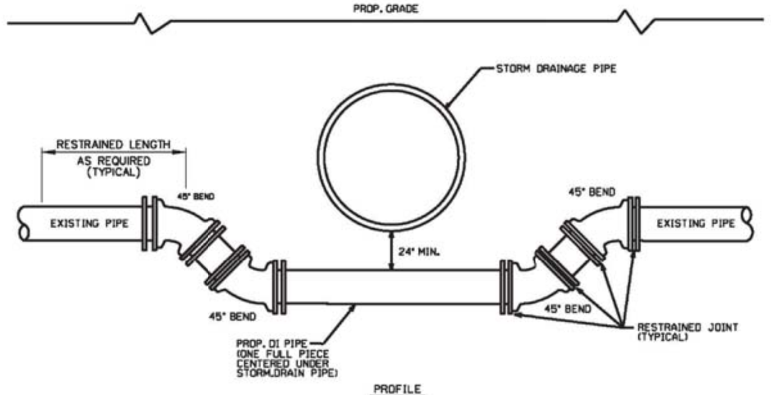
CONNECTING DIP TO
EXISTING ACP

NOTE: A MINIMUM HEIGHT OF 6'-0" FROM BOTTOM OF D. I. PIPE TO BOTTOM OF EXISTING STREAM SHALL BE MAINTAINED BETWEEN THE LONG-SPAN PIPE PIERS.



⊏⊐-FLEXIBLE RESTRAINED JOINT CONNECTION
||-FLANGED JOINT CONNNECTION

FLEXIBLE RESTRAINED JOINT & FLANGED
LONG-SPAN PIPE DETAIL



PROFILE

NTS

NOTES:
1. ALL FITTINGS AND JOINTS SHALL BE RESTRAINED JOINT DESIGN.
2. PROVIDE APPROPRIATE RESTRAINED LENGTH AS PER TABLE HEREIN.

FORCE MAIN / WATER MAIN CROSSING
UNDER STORM DRAINAGE PIPE

5/31/2017
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User:acochrane

5/14/96

UTILITY DETAILS

PROJECT REFERENCE NO.	SHEET NO.
R-5745	UC-3D

DESIGNED BY: AHC
DRAWN BY: AHC
CHECKED BY: BCH
APPROVED BY: JLL
REVISED:

NORTH CAROLINA
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UTILITIES ENGINEERING SEC.
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FAX:(919)250-4151

DocuSigned by:
Andrew Cochran
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Andrew H. Cochran
6/13/2017

UTILITY CONSTRUCTION
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804-C N. LAFAYETTE ST
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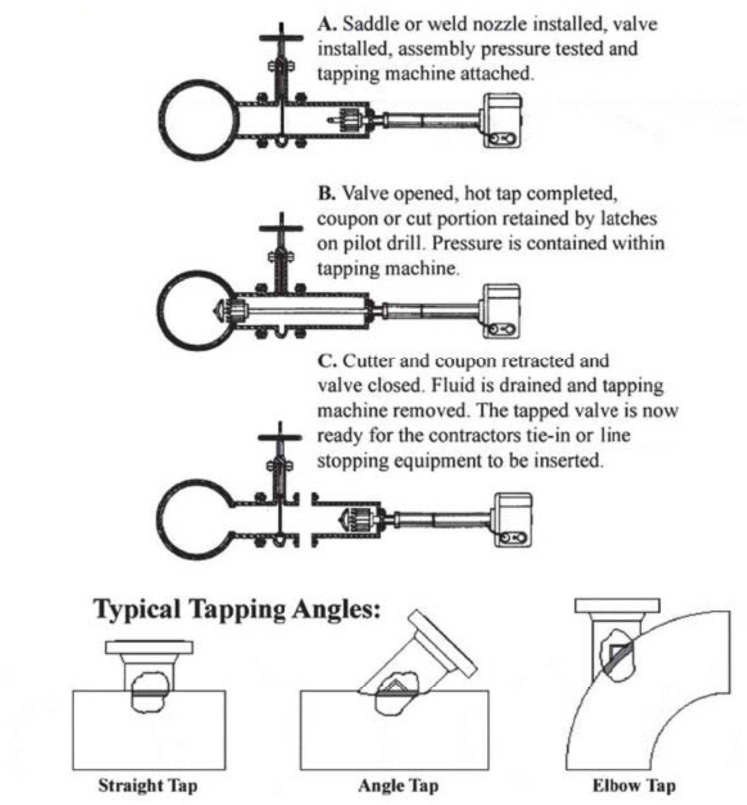
CORP. LICENSE NO.: C-0275

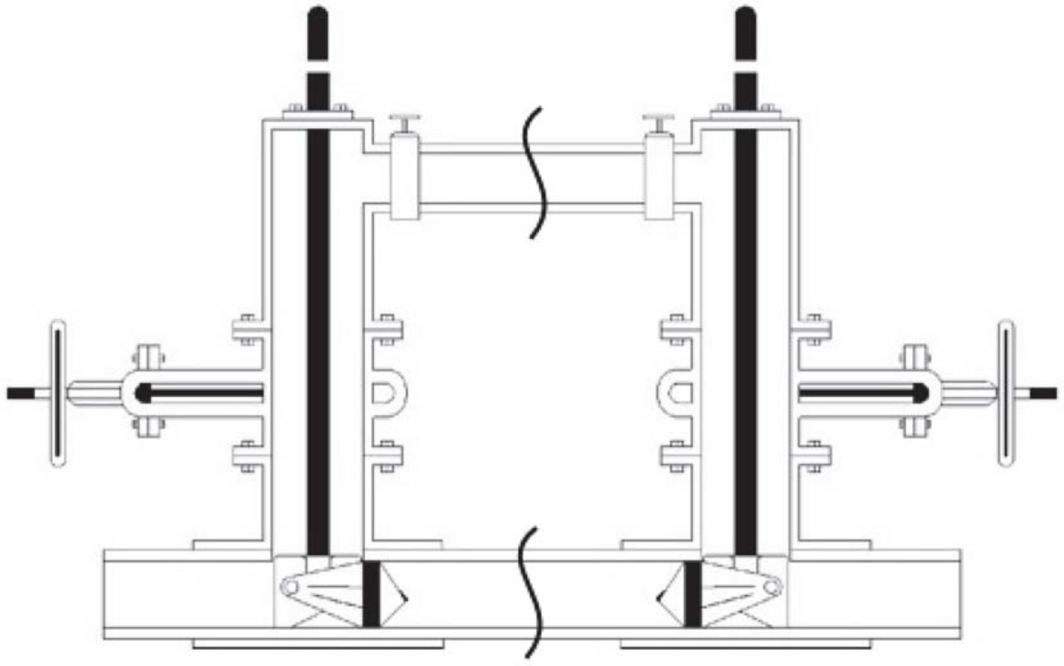


A. Saddle or weld nozzle installed, valve installed, assembly pressure tested and tapping machine attached.

B. Valve opened, hot tap completed, coupon or cut portion retained by latches on pilot drill. Pressure is contained within tapping machine.

C. Cutter and coupon retracted and valve closed. Fluid is drained and tapping machine removed. The tapped valve is now ready for the contractors tie-in or line stopping equipment to be inserted.

Tapping Valve Installation Detail



Double Linestop Detail

Listed below are the standard cutter sizes used when performing hot taps. This list is meant for reference only and does not reflect the actual size used on any particular hot tap. Various conditions will determine the size necessary to complete the hot tap successfully.

NOMINAL HOT TAP SIZE	NOMINAL CUTTER SIZE
3/4"	5/8"
1"	3/4"
1-1/4"	1-1/8"
1-1/2"	1-1/4"
2"	1-3/4"
2-1/2"	2-1/4"
3"	2-1/2"
4"	3-1/2"
6"	5-1/4"
8"	7-1/4"
10"	9-1/2"
12"	11-1/4"

Standard Cutter Sizes
for Hot Tapping

5/31/2017
tilities\Rdy_Ut\Proj\R-5745_Ut_notes_UC03 & details_UC(03a-03c).dgn
User:acochrane

UTILITY CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
R-5745	UC-04

DESIGNED BY: AHC
DRAWN BY: AHC
CHECKED BY: BCH
APPROVED BY: JLL
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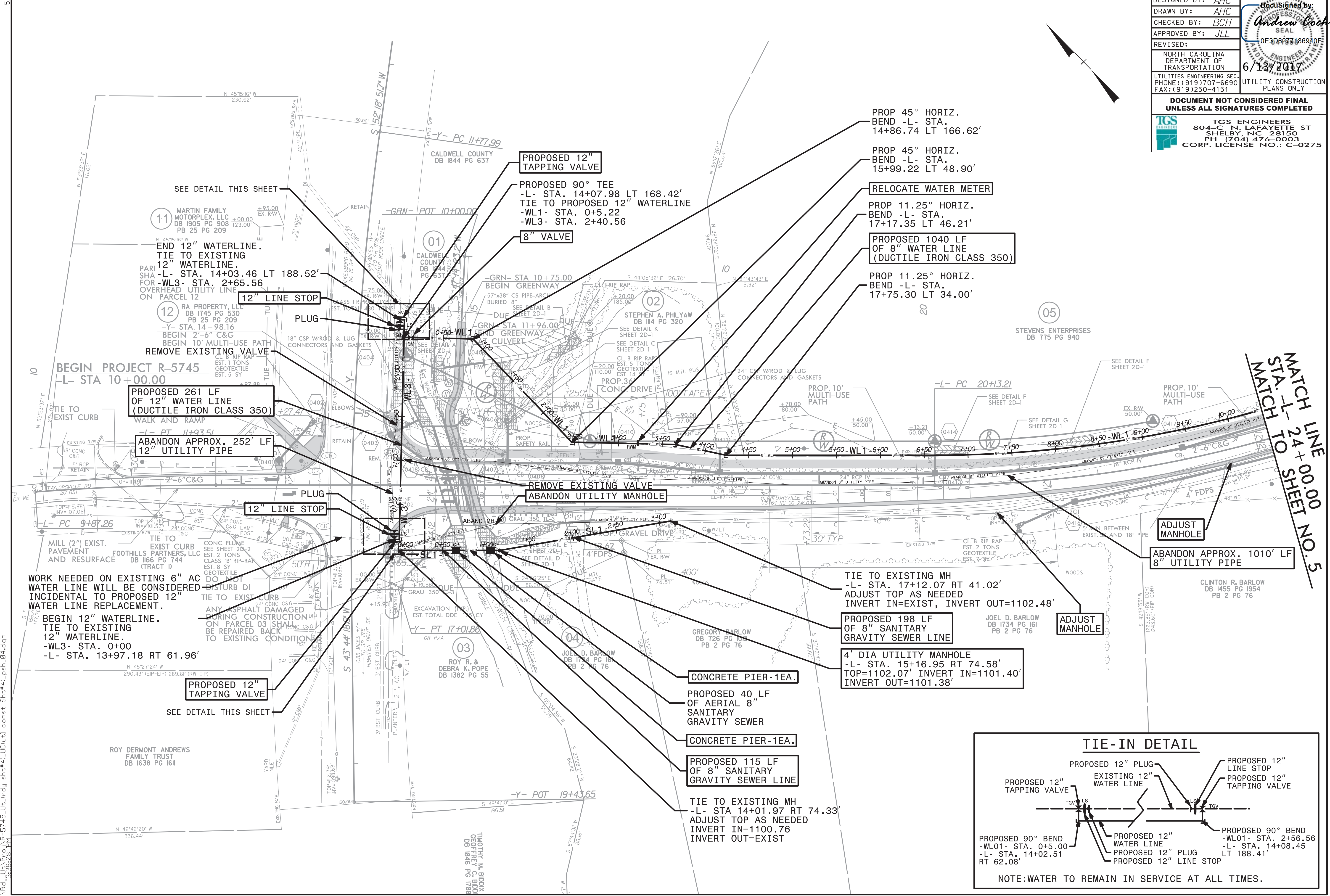
CORP. LICENSE NO.: C-0275



UTILITY CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
R-5745	UC-05

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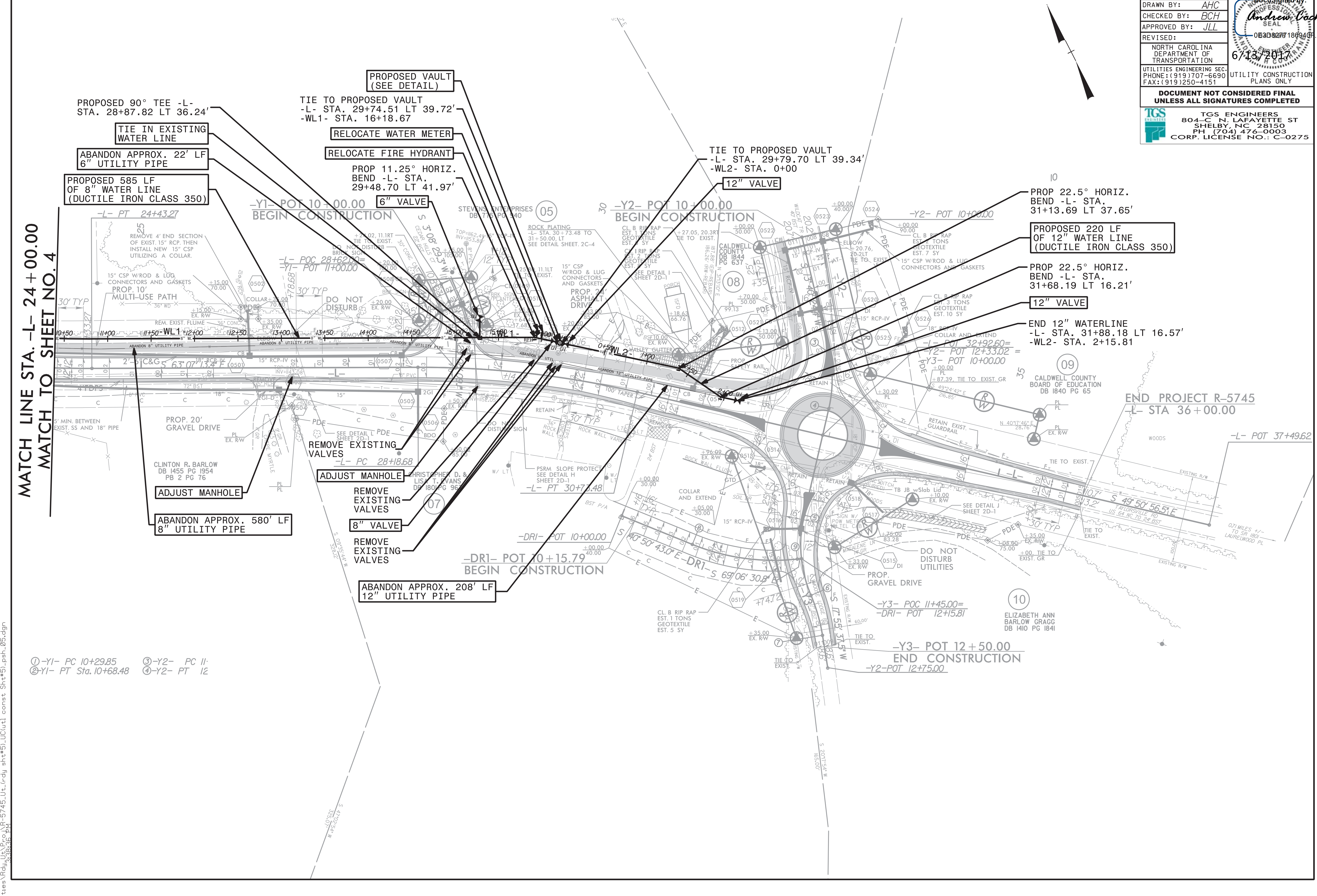

MATCH LINE STA. -L- 24+00.00
MATCH TO SHEET NO. 4

PROPOSED 90° TEE -L- STA. 28+87.82 LT 36.24′

TIE IN EXISTING WATER LINE

ABANDON APPROX. 22′ LF 6″ UTILITY PIPE

PROPOSED 585 LF OF 8″ WATER LINE (DUCTILE IRON CLASS 350)

PROPOSED VAULT (SEE DETAIL)

TIE TO PROPOSED VAULT
-L- STA. 29+74.51 LT 39.72′
-WL1- STA. 16+18.67

RELOCATE WATER METER

RELOCATE FIRE HYDRANT

PROP 11.25° HORIZ. BEND -L- STA. 29+48.70 LT 41.97′

6″ VALVE

TIE TO PROPOSED VAULT
-L- STA. 29+79.70 LT 39.34′
-WL2- STA. 0+00

12″ VALVE

PROP 22.5° HORIZ. BEND -L- STA. 31+13.69 LT 37.65′

PROPOSED 220 LF OF 12″ WATER LINE (DUCTILE IRON CLASS 350)

PROP 22.5° HORIZ. BEND -L- STA. 31+68.19 LT 16.21′

12″ VALVE

END 12″ WATERLINE
-L- STA. 31+88.18 LT 16.57′
-WL2- STA. 2+15.81

REMOVE EXISTING VALVES

ADJUST MANHOLE

ADJUST MANHOLE

REMOVE EXISTING VALVES

ABANDON APPROX. 580′ LF 8″ UTILITY PIPE

8″ VALVE

REMOVE EXISTING VALVES

ABANDON APPROX. 208′ LF 12″ UTILITY PIPE

-Y1- POT 10+00.00
BEGIN CONSTRUCTION

-Y2- POT 10+00.00
BEGIN CONSTRUCTION

-DR1- POT 10+15.79
BEGIN CONSTRUCTION

-Y3- POT 12+50.00
END CONSTRUCTION
-Y2-POT 12+75.00

END PROJECT R-5745
-L- STA 36+00.00

-L- POT 37+49.62

① -Y1- PC 10+29.85
② -Y1- PT Sta. 10+68.48
③ -Y2- PC 11·
④ -Y2- PT 12

UTILITY CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
R-5745	UC-06

DESIGNED BY: AHC
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041996
6/13/2017

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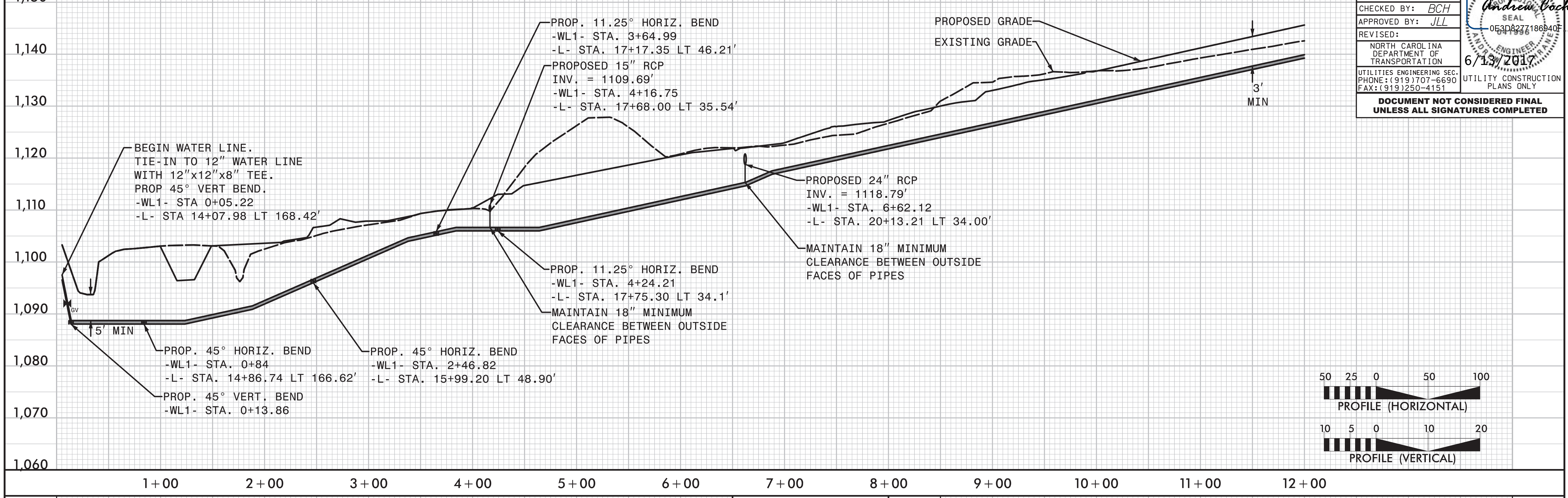
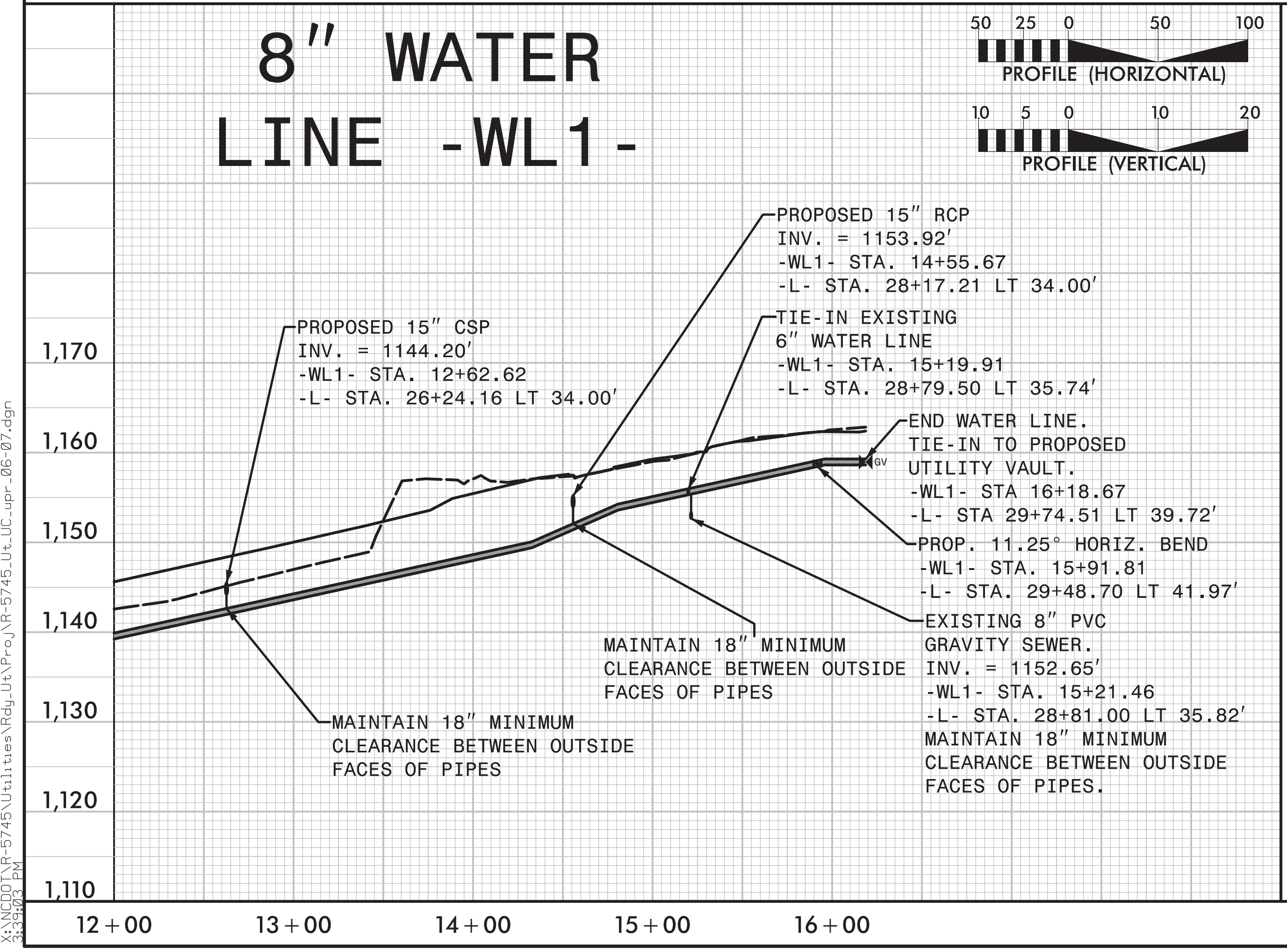
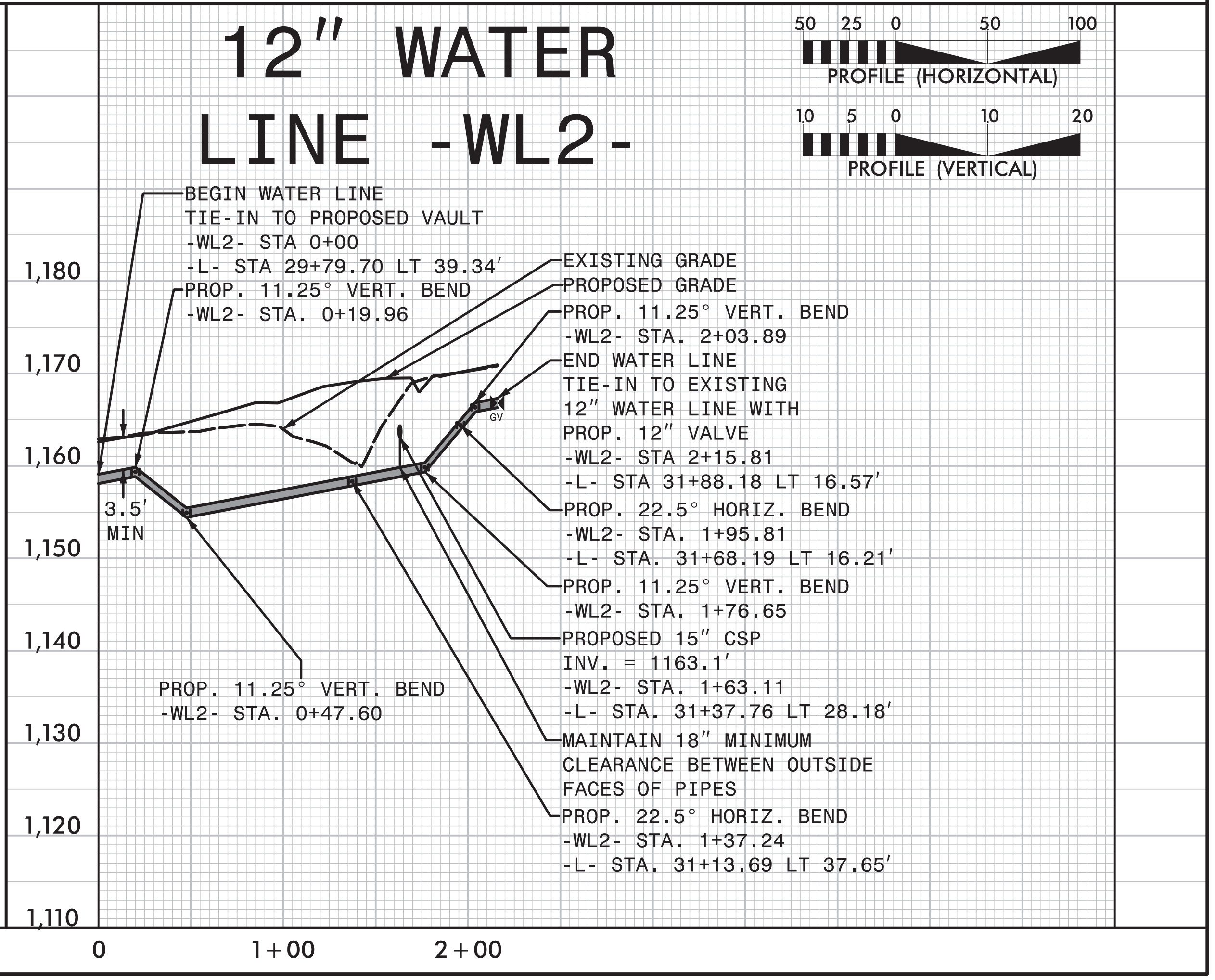
8" WATER LINE -WL1-



8" WATER LINE -WL1-



12" WATER LINE -WL2-



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UTILITY CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
R-5745	UC-07

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DRAWN BY: AHC
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6/13/2017

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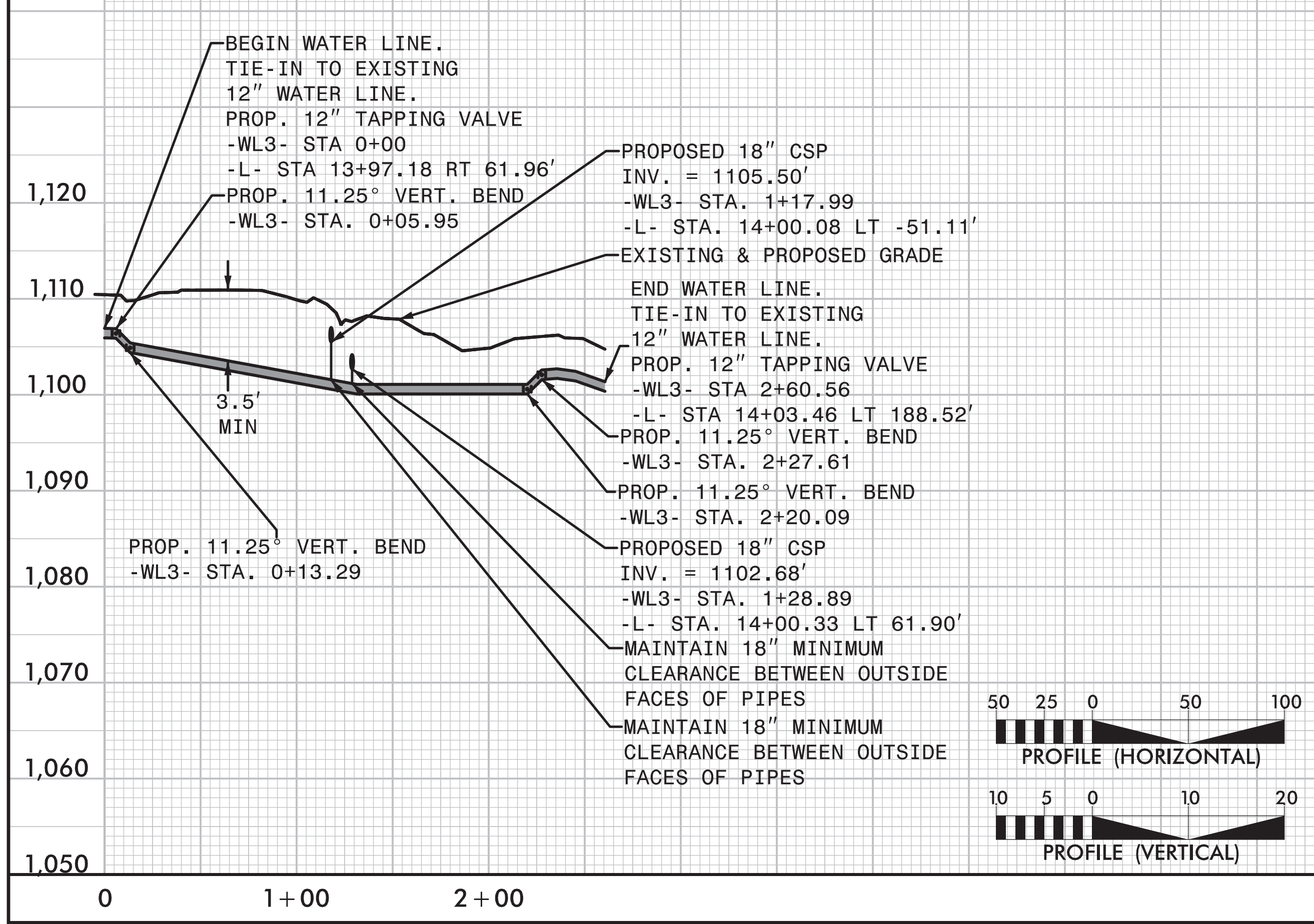
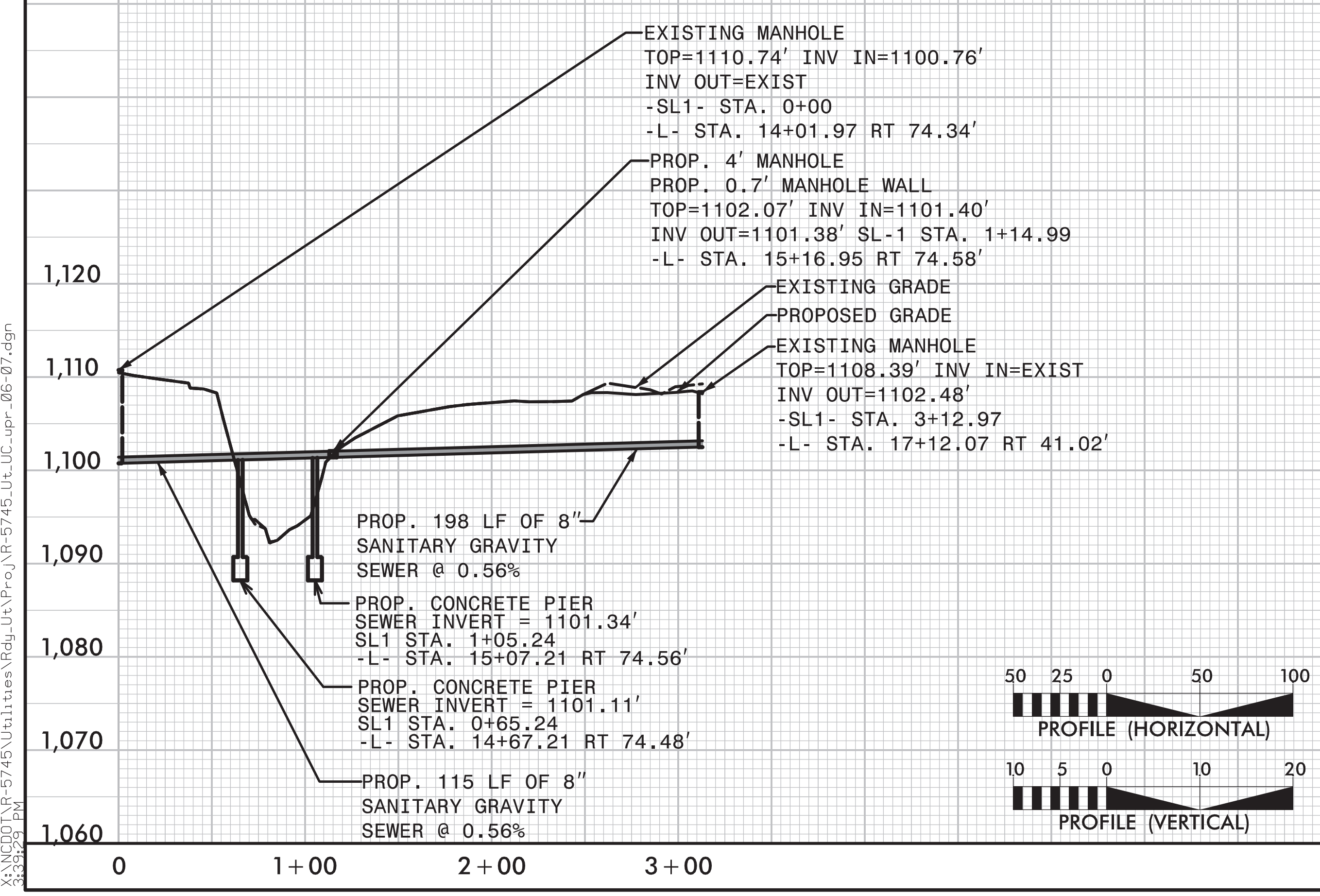
UNLESS ALL SIGNATURES COMPLETED

12" WATER LINE -WL3-



8" SEWER LINE -SL1-



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09/08/9

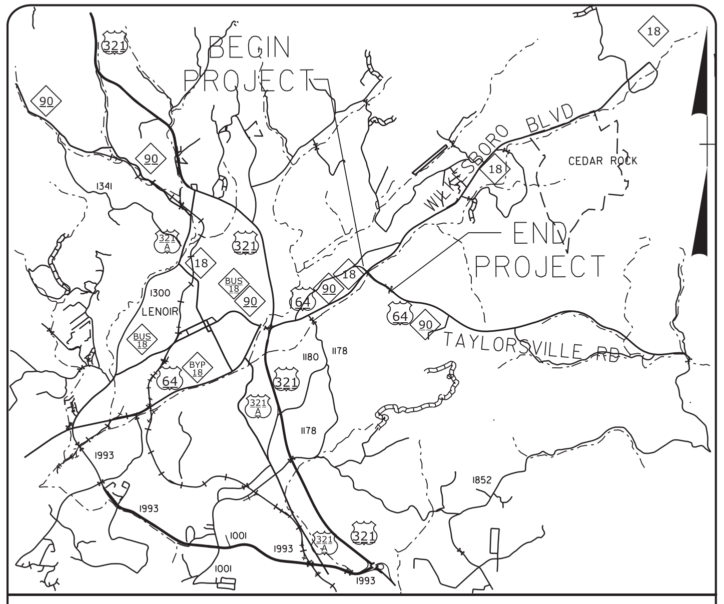
TIP PROJECT: R–5745

T.I.P. NO.	SHEET NO.
R–5745	UO–1

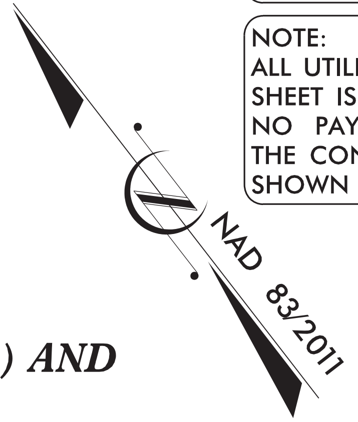
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES BY OTHERS PLANS
CALDWELL COUNTY

NOTE:
ALL UTILITY WORK SHOWN ON THIS SHEET IS DONE BY OTHERS.
NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR UTILITY WORK SHOWN ON THIS SHEET.

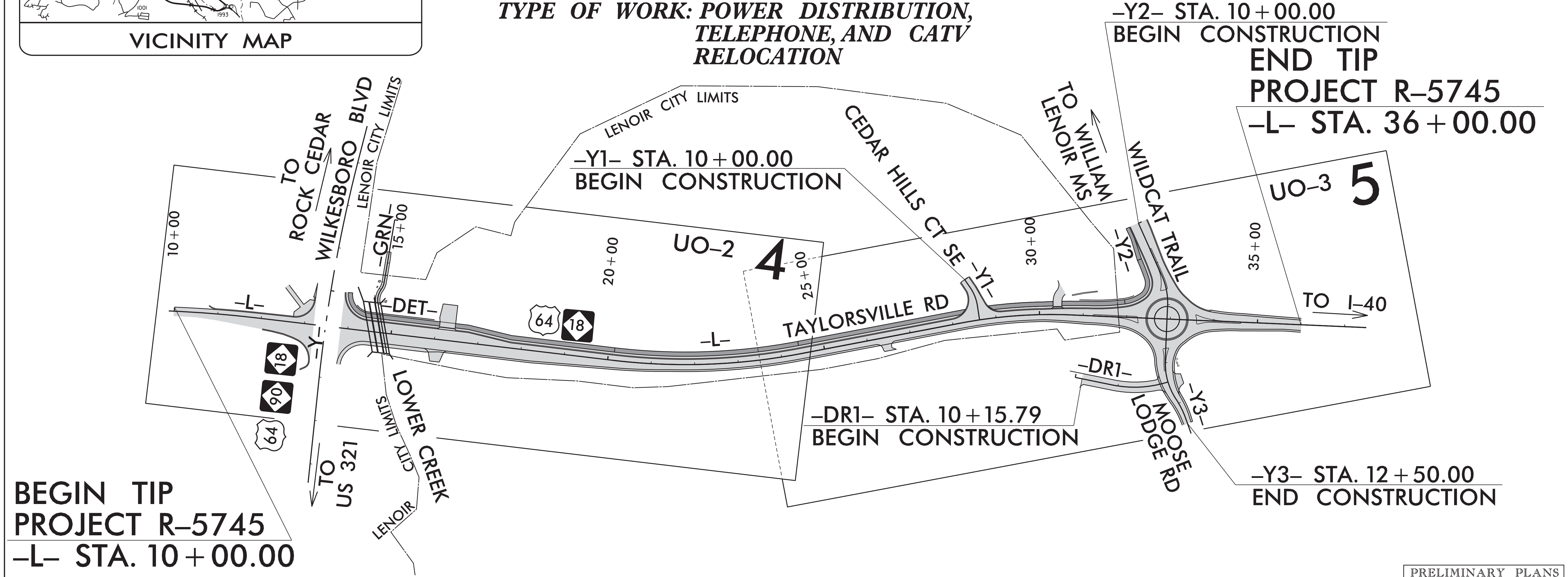


VICINITY MAP



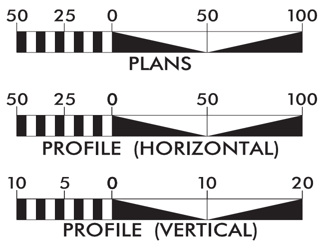
LOCATION: IMPROVEMENTS OF INTERSECTION OF US64/NC90/NC18 (WILKESBORO BOULEVARD) AND US64/NC90 (TAYLORSVILLE ROAD)

TYPE OF WORK: POWER DISTRIBUTION, TELEPHONE, AND CATV RELOCATION



PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES



INDEX OF SHEETS

SHEET NO.:	DESCRIPTION:
UO–1	TITLE SHEET
UO–2 THRU UO–3	UBO PLAN SHEETS

UTILITY OWNERS WITH CONFLICTS

(A) POWER DISTRIBUTION – DUKE ENERGY
(B) CATV – CHARTER COMMUNICATIONS
(C) COMMUNICATIONS – AT&T
(D) COMMUNICATIONS – SPIRIT COMMUNICATIONS

PREPARED IN THE OFFICE OF:

TELICS

849 SOUTH LAUREL ST
LINCOLNTON, NC 28092
PHONE (704) 732-3241

STEVE MODE	UTILITY PROJECT MANAGER
DANNY LITTLE	PROJECT UTILITY COORDINATOR
	PROJECT UTILITY XXXX

DIVISION OF HIGHWAYS
UTILITIES UNIT
1555 MAIL SERVICES CENTER
RALEIGH NC 27699–1555
PHONE (919) 707–6690
FAX (919) 250–4151

VACANT	UTILITIES REGIONAL ENGINEER
VACANT	UTILITIES ENGINEER
AMY G. DUPREE	UTILITIES AREA COORDINATOR
SUSAN O. HUFFMAN	UTILITIES COORDINATOR

08-JUN-2017 14:25
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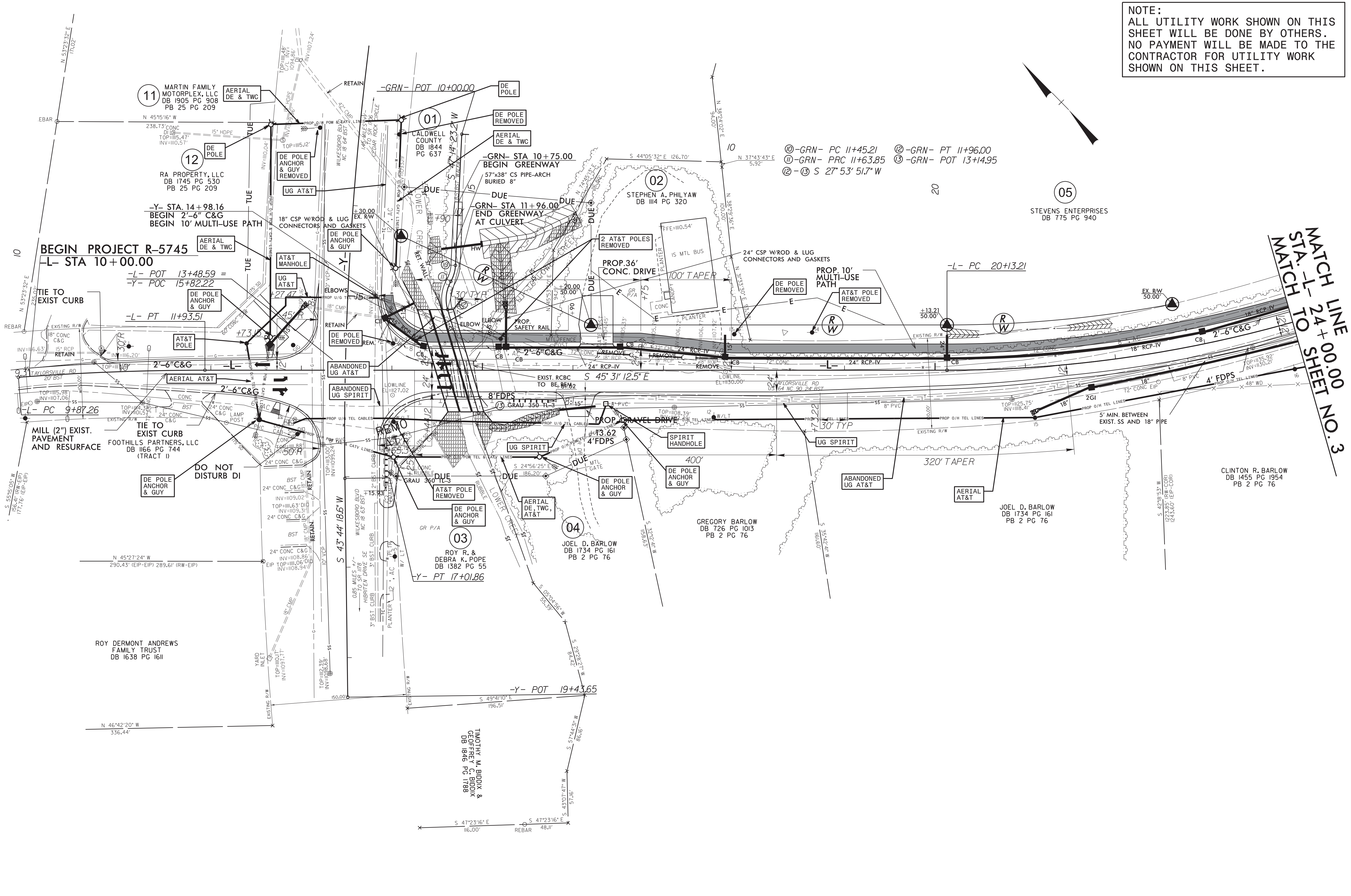
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-5745	UO-2

UTILITIES BY OTHERS

NOTE:
ALL UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR UTILITY WORK SHOWN ON THIS SHEET.



PROJECT REFERENCE NO.	SHEET NO.
R-5745	U0-3

UTILITIES BY OTHERS

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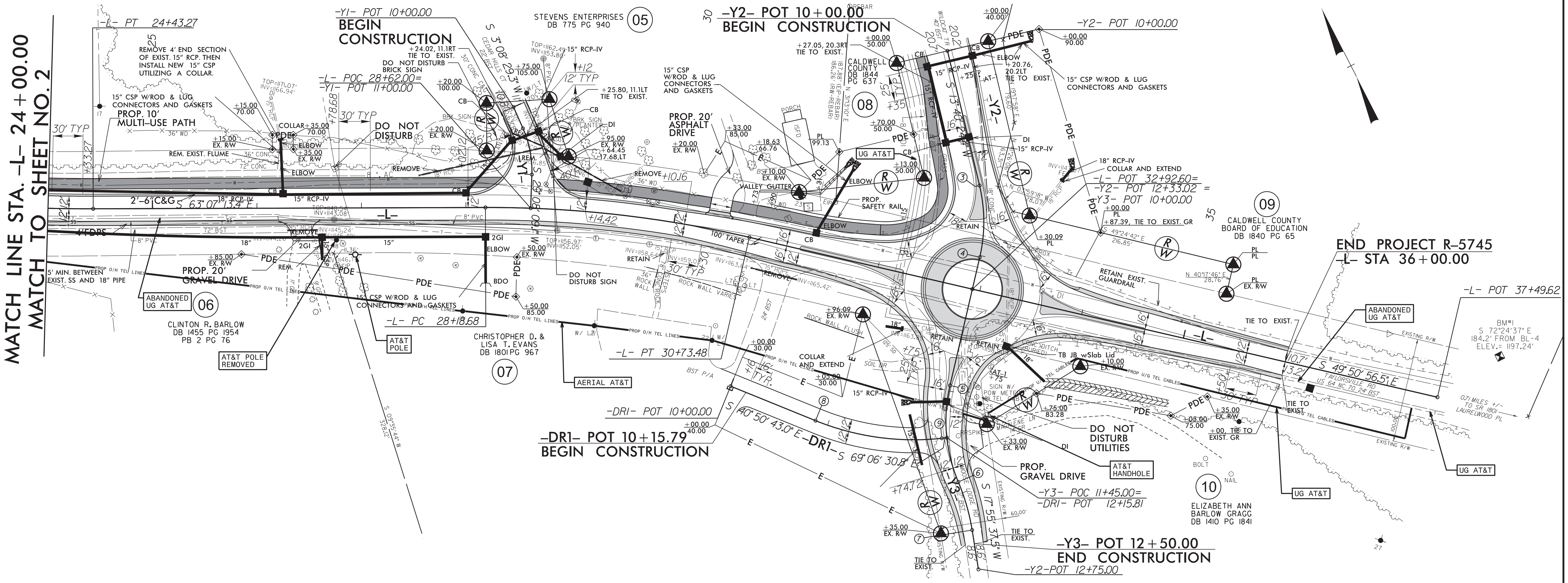

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5/14/99

8/17/99

REVISIONS

R-5745
CROSS-SECTION INDEX

5/30/2017
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PROJ. REFERENCE NO.	SHEET NO.
R-5745	X-SUM

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT

CROSS-SECTION SUMMARY

Station	Uncl. Exc.	Embt
Detour	(cu. yd.)	(cu. yd.)
10+37.88	0	0
11+00.00	0	205
11+50.00	0	540
12+00.00	0	516
12+50.00	2	186
13+00.00	22	45
13+50.00	27	0
13+67.13	2	0

Station	Uncl. Exc.	Embt
L	(cu. yd.)	(cu. yd.)
10+00.00	0	0
11+00.00	7	15
11+50.00	9	10
11+93.51	11	5
12+00.00	2	1
12+50.00	15	13
13+00.00	24	15
13+21.52	13	4

Station	Uncl. Exc.	Embt
L	(cu. yd.)	(cu. yd.)
13+81.11	0	0
14+00.00	0	30
14+50.00	11	72
14+70.00	8	119
15+00.00	12	231
15+50.00	12	181
16+00.00	7	148
16+25.00	7	84
16+50.00	6	65
17+00.00	6	89
17+50.00	10	86
18+00.00	91	60
18+50.00	363	32
19+00.00	478	35
19+50.00	225	36
20+00.00	48	42
20+13.21	11	13
20+50.00	31	43
21+00.00	43	56
21+50.00	52	54
22+00.00	54	56
22+50.00	59	57
23+00.00	50	62
23+50.00	27	67
24+00.00	30	72
24+43.27	29	63
24+50.00	4	10
25+00.00	24	76
25+50.00	14	84

Station	Uncl. Exc.	Embt
L	(cu. yd.)	(cu. yd.)
26+00.00	11	90
26+50.00	10	83
27+00.00	42	80
27+50.00	163	62
28+00.00	244	39
28+18.68	82	14
28+50.00	63	15
29+00.00	1	24
29+50.00	3	49
29+95.00	3	53
30+00.00	0	6
30+41.00	8	43
30+50.00	3	9
30+73.48	7	32
31+00.00	11	71
31+30.77	12	145
31+50.00	4	200
32+00.00	13	504
32+27.60	10	129
32+92.60	24	617

Station	Uncl. Exc.	Embt
L	(cu. yd.)	(cu. yd.)
32+92.60	0	0
33+57.60	12	1304
34+00.00	7	704
34+50.00	13	315
35+00.00	12	218
35+50.00	16	101
36+00.00	9	3

Station	Uncl. Exc.	Embt
Y1	(cu. yd.)	(cu. yd.)
10+00.00	0	0
10+22.34	5	1
10+50.00	10	4
10+67.71	6	6
10+88.00	6	10

Station	Uncl. Exc.	Embt
Y2	(cu. yd.)	(cu. yd.)
10+00.00	0	0
10+50.00	8	298
11+00.00	12	564
11+32.41	5	435
11+50.00	3	281
11+67.84	3	228
11+83.99	2	157

Station	Uncl. Exc.	Embt
Y3	(cu. yd.)	(cu. yd.)
10+49.00	0	0
10+65.00	0	166
11+00.00	2	203
11+50.00	16	35
12+00.00	32	5
12+50.00	20	1

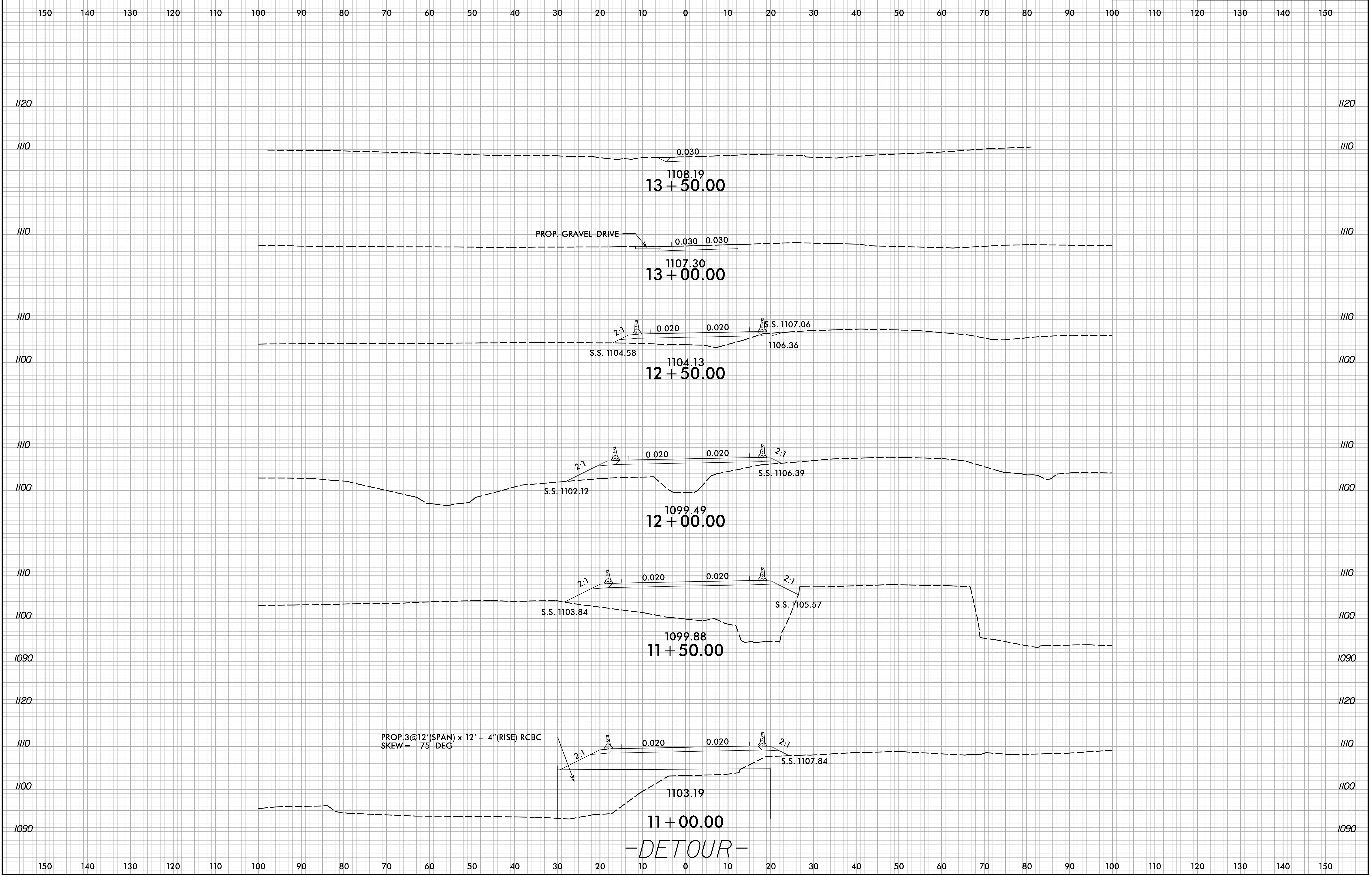
Station	Uncl. Exc.	Embt
Dr1	(cu. yd.)	(cu. yd.)
10+15.79	0	0
10+25.00	8	1
10+50.00	38	4
11+00.00	87	14
11+50.00	97	15
11+75.00	36	12
11+92.00	10	25
12+00.61	1	19

Station	Uncl. Exc.	Embt
Grn	(cu. yd.)	(cu. yd.)
10+75.00	0	0
10+90.00	3	0
11+20.00	47	0
11+50.00	125	0
11+80.00	165	0
11+92.00	59	0
11+96.00	18	0

Approximate quantities only. Unclassified excavation, borrow excavation, fine grading, clearing and grubbing, and removal of existing pavement will be paid for at the lump sum price for "Grading".

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
R-5745	X-1



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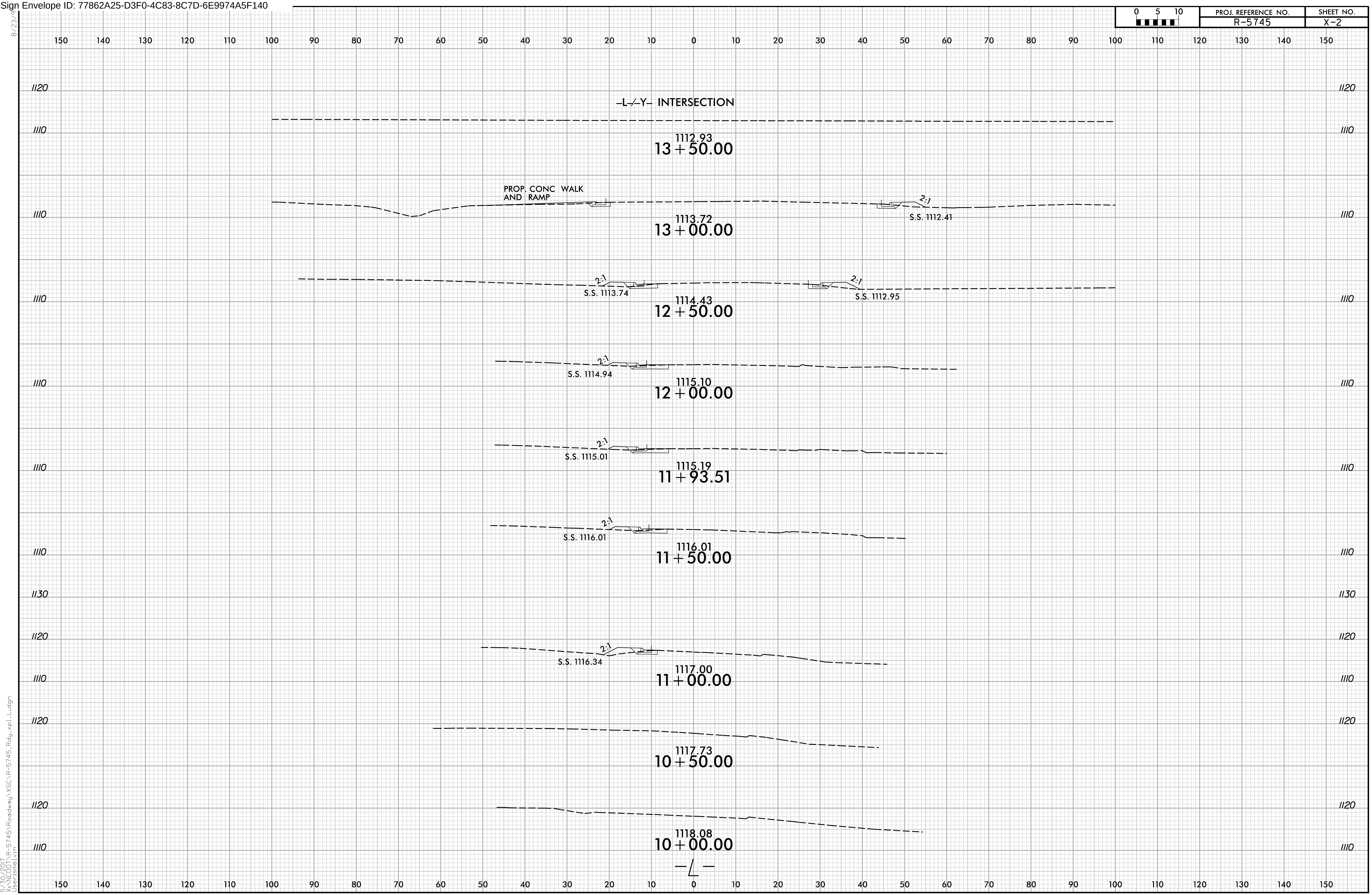

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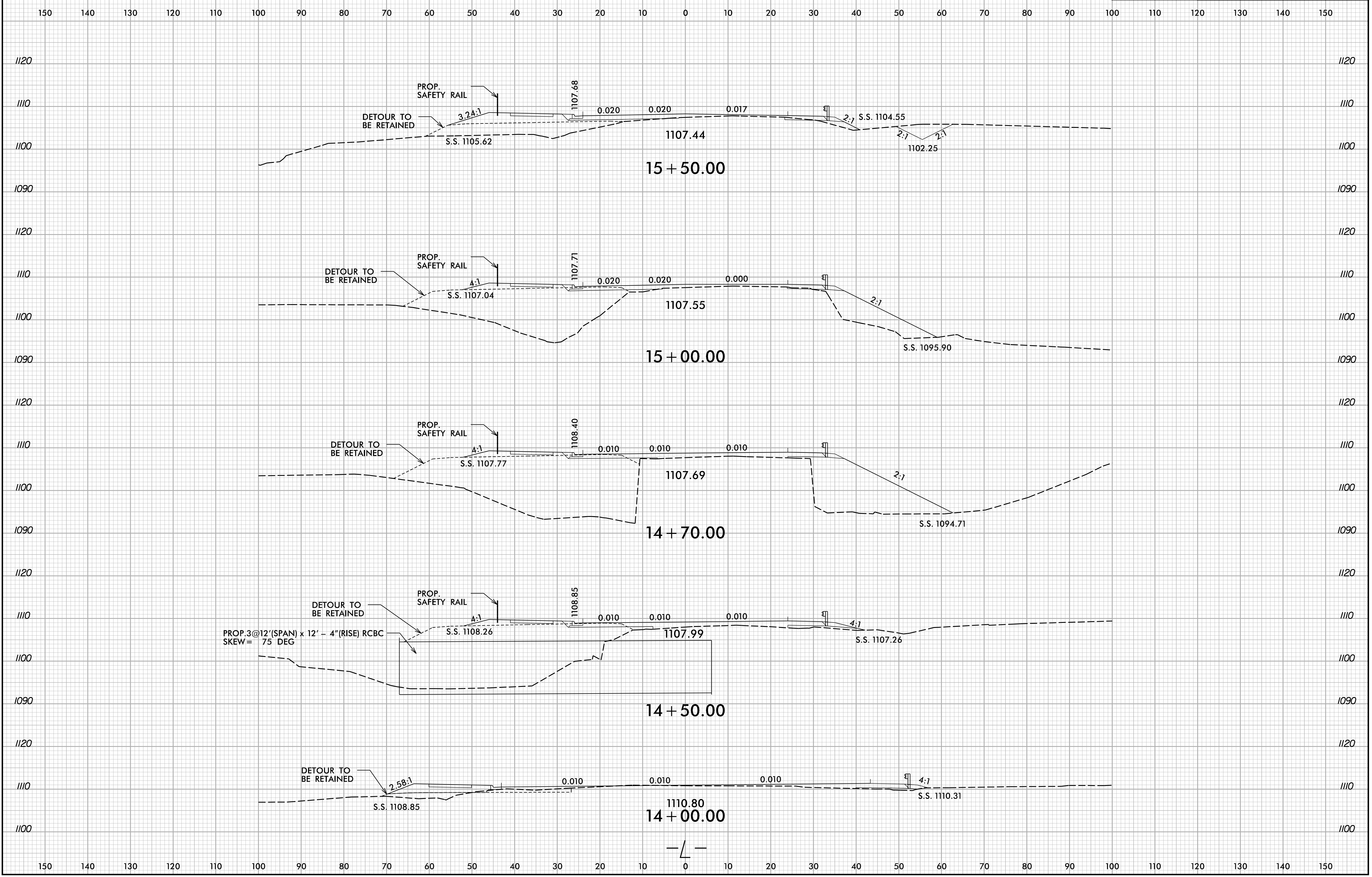
8/23/9



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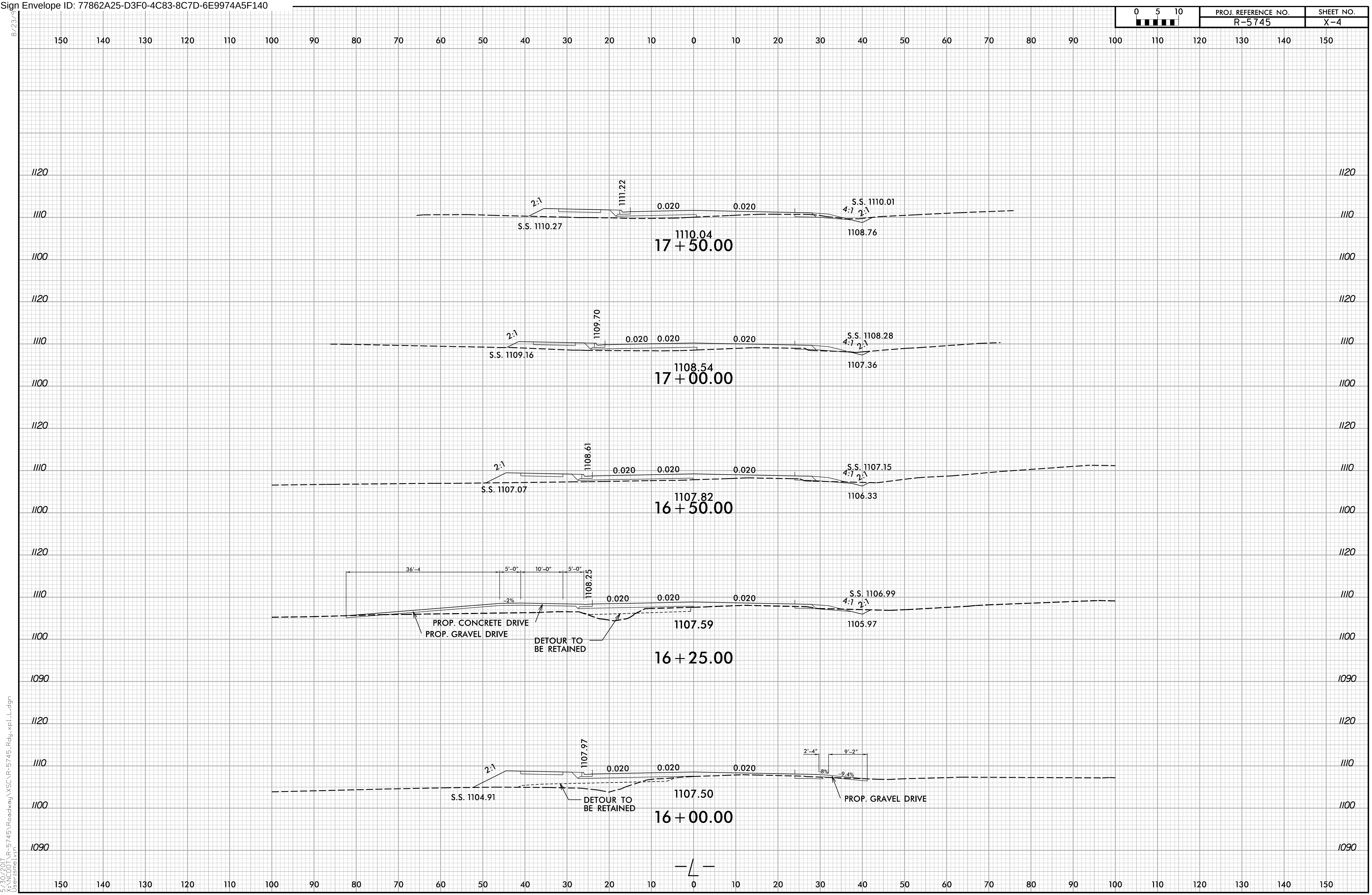

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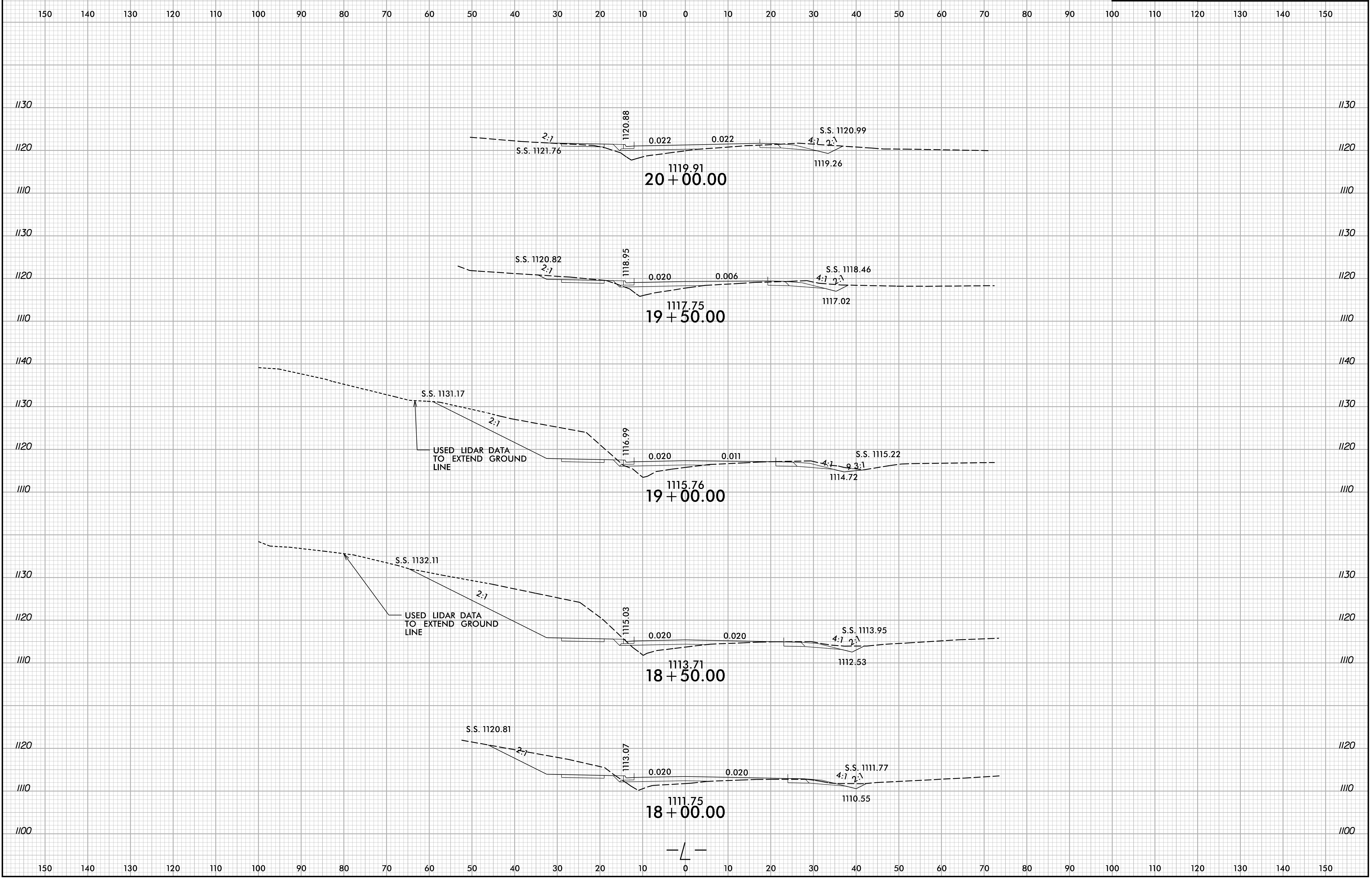

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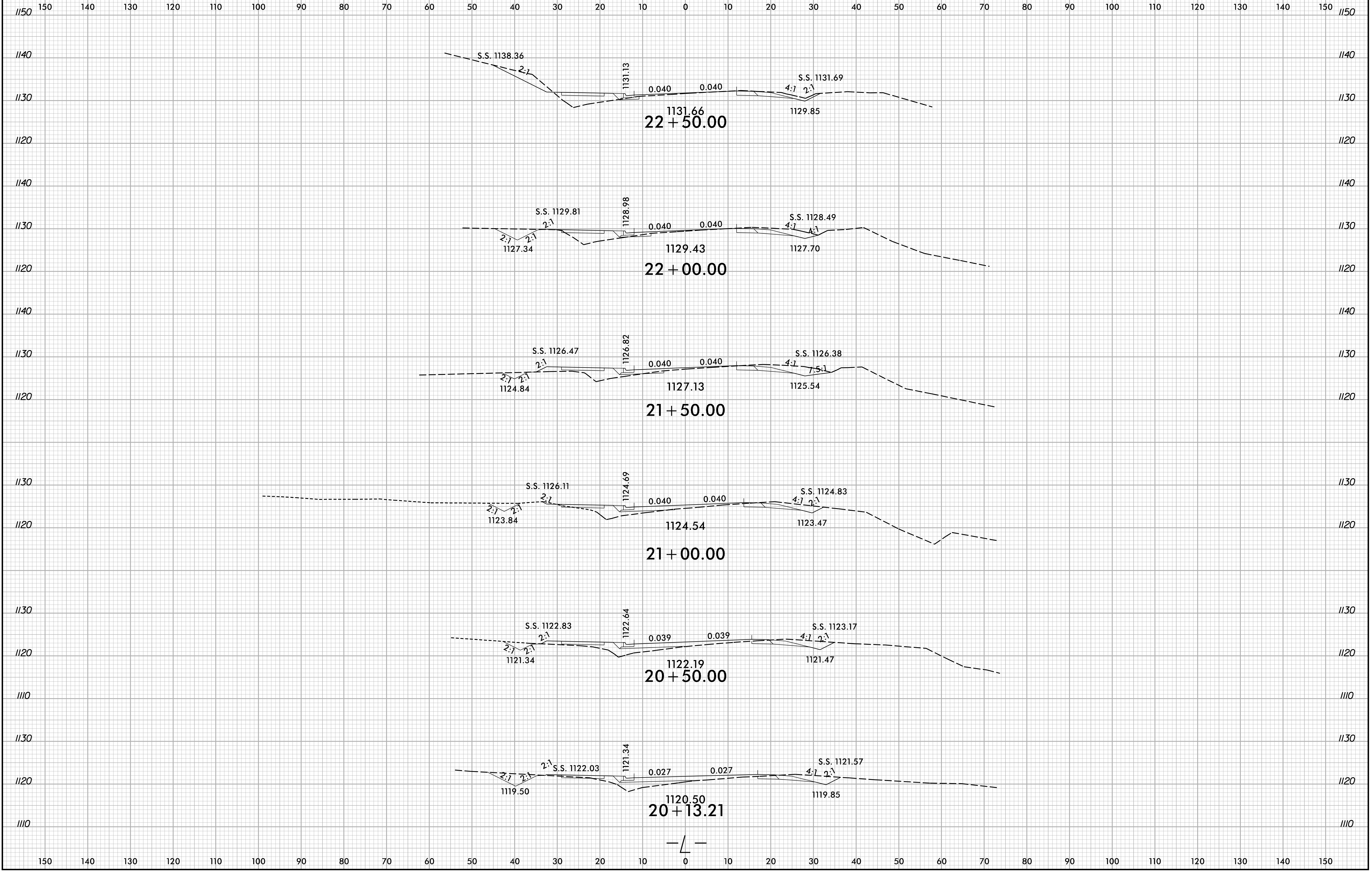

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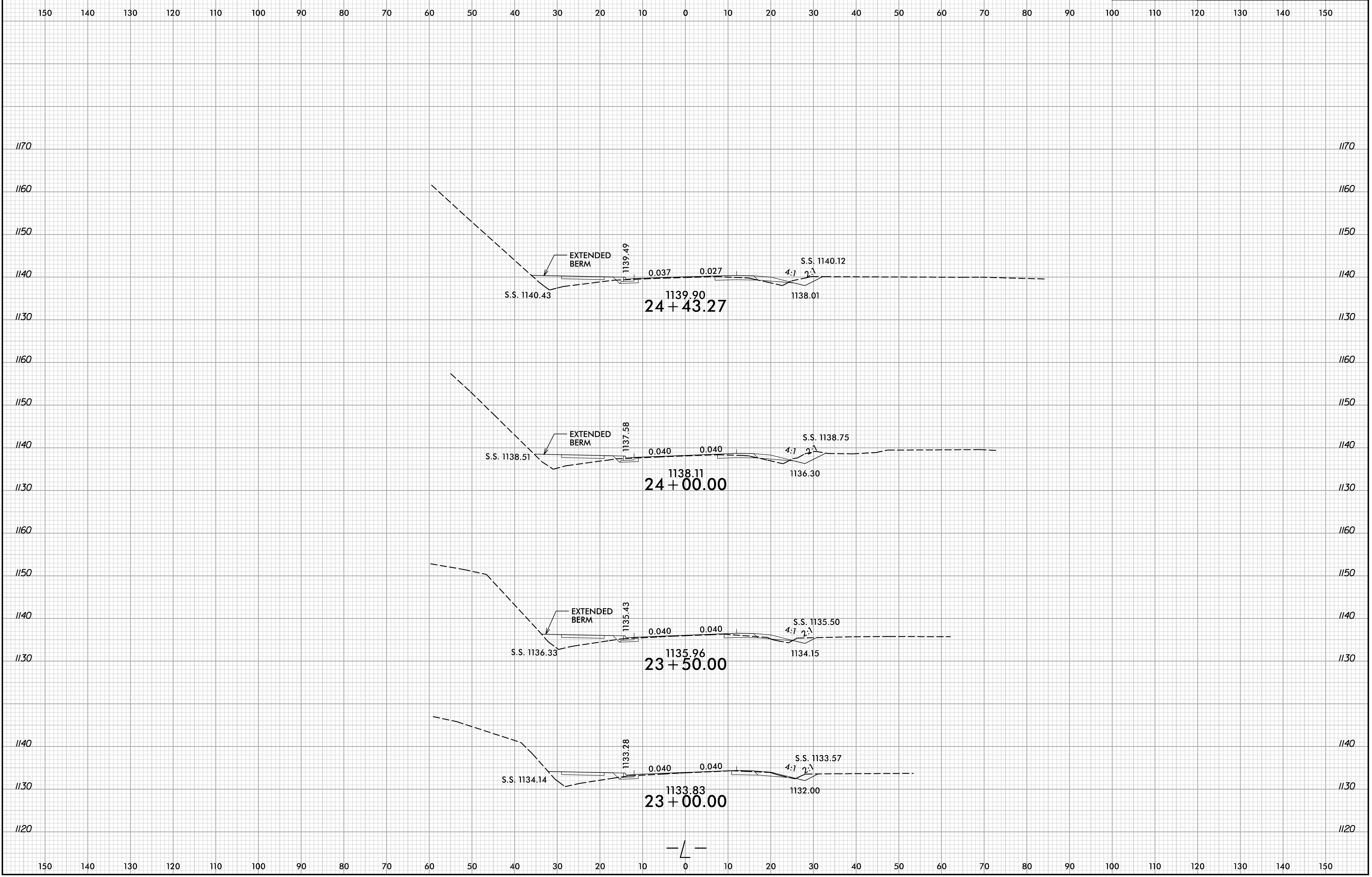

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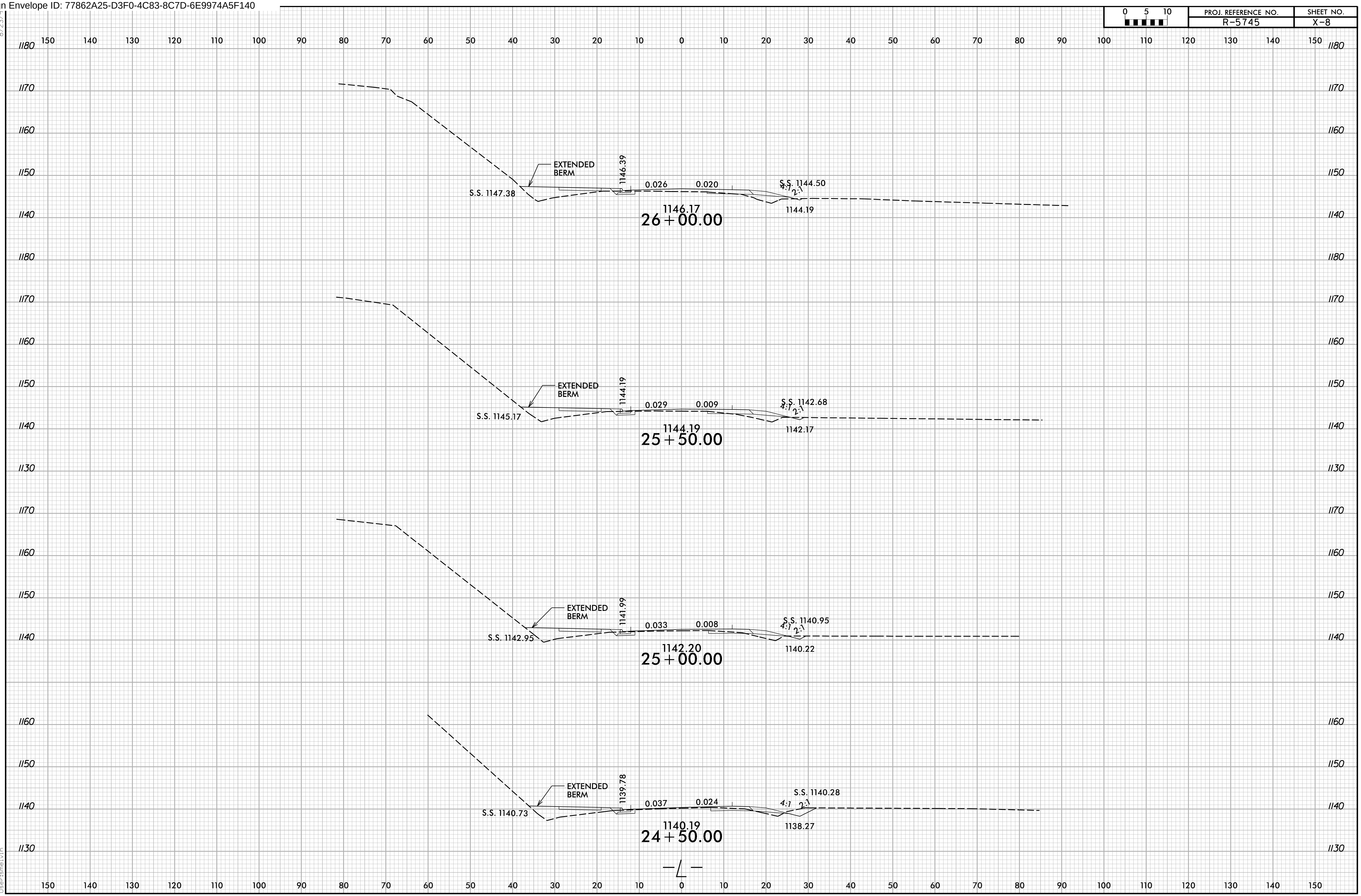

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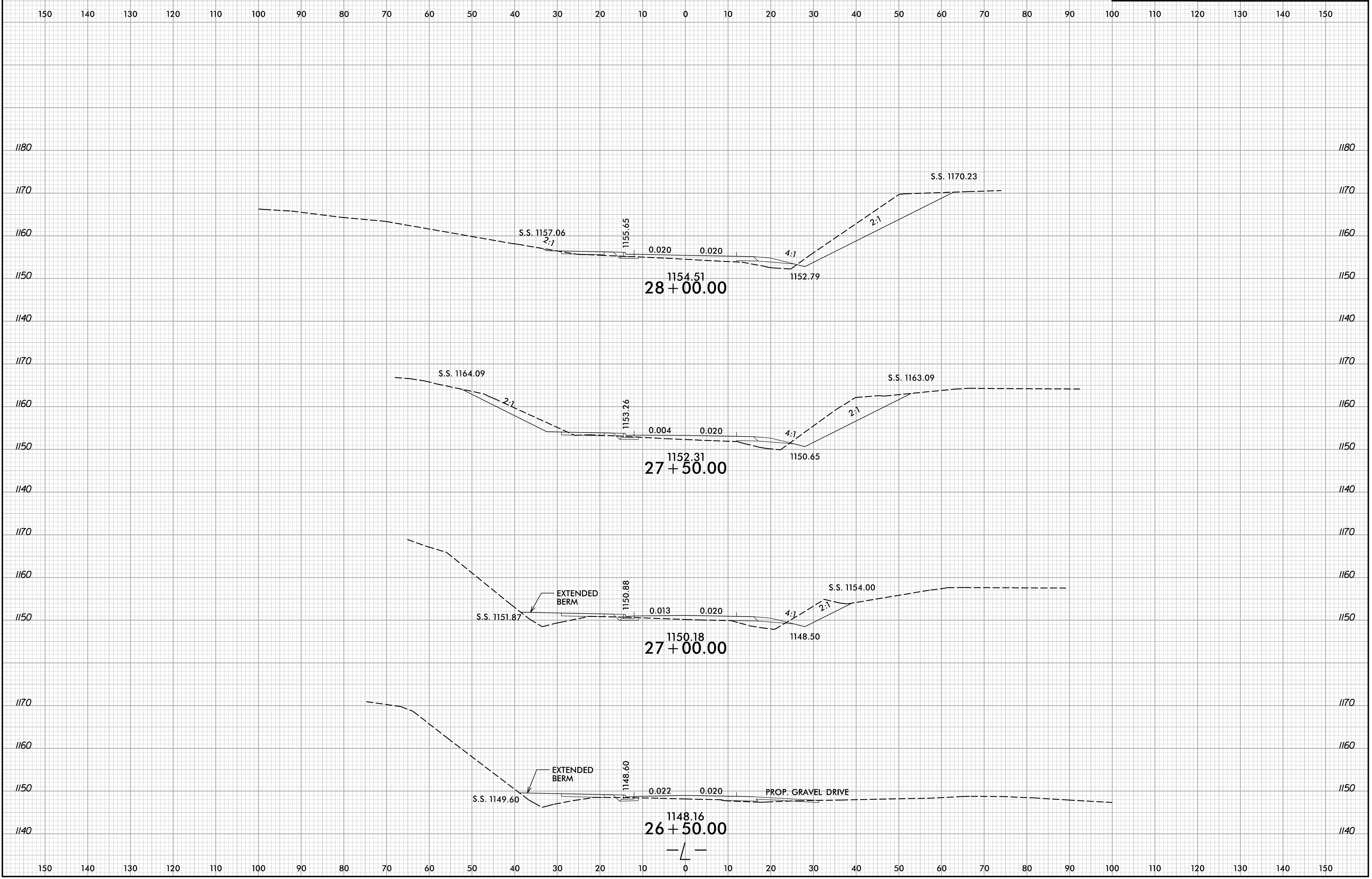

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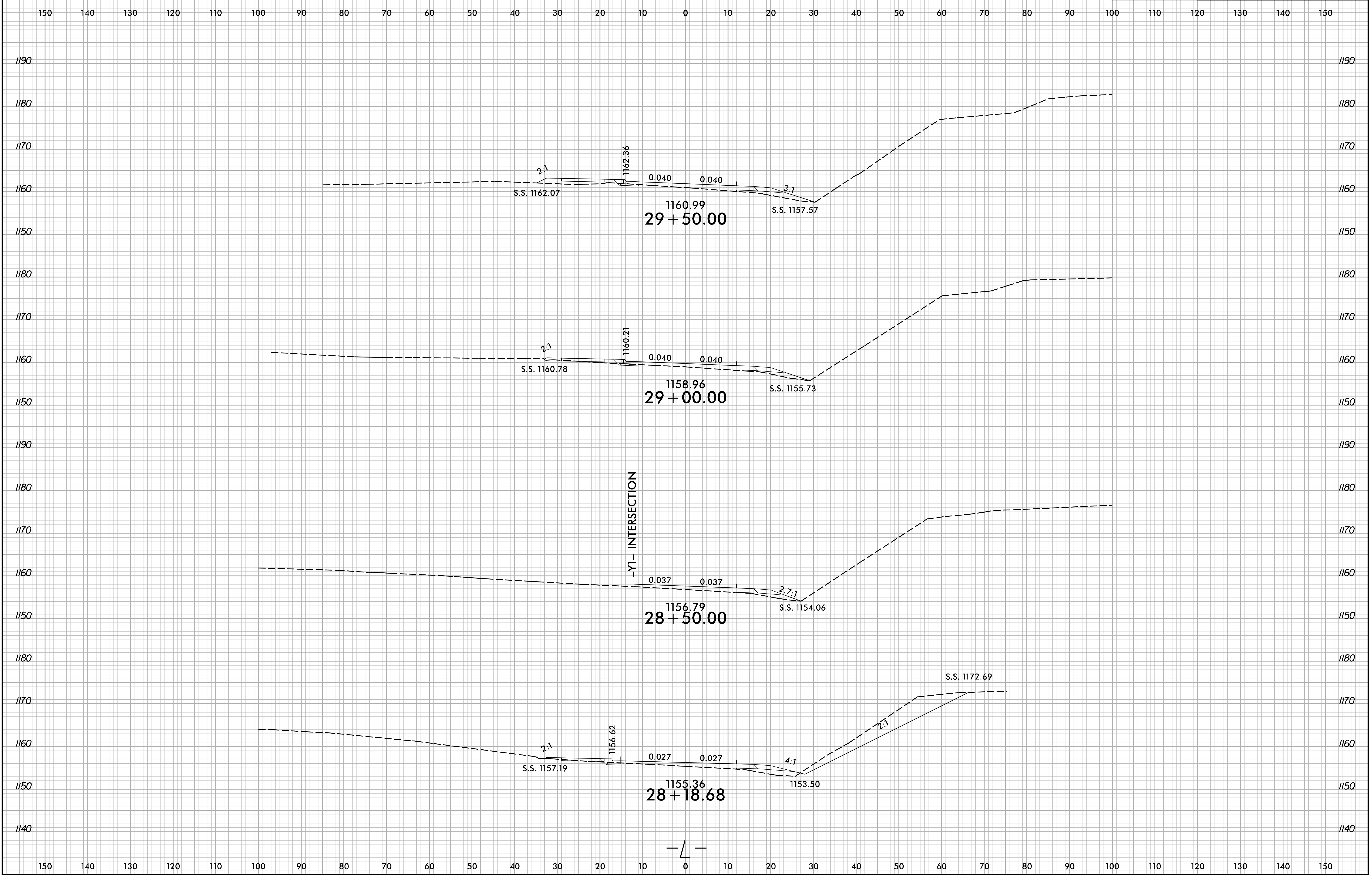

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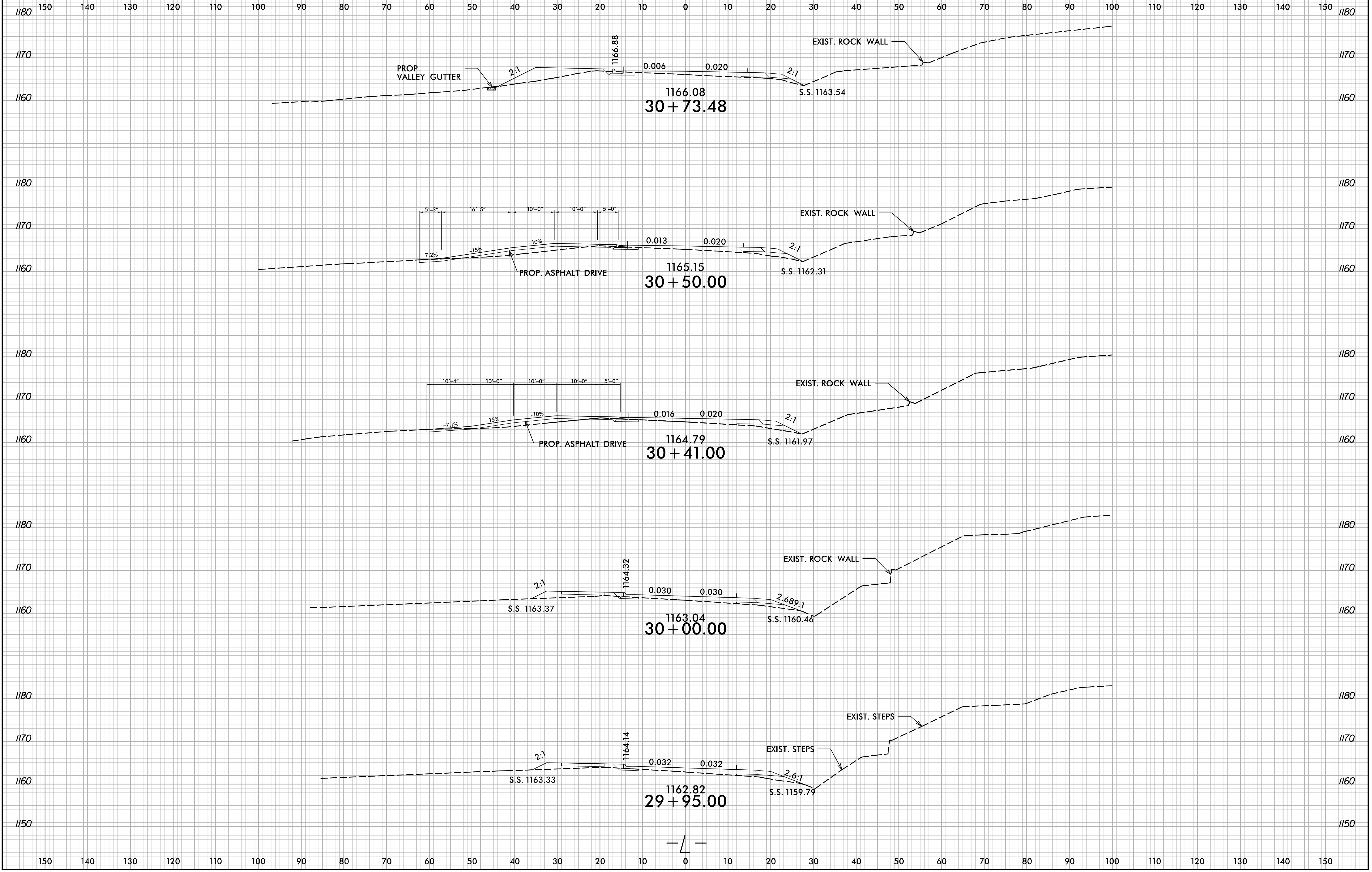

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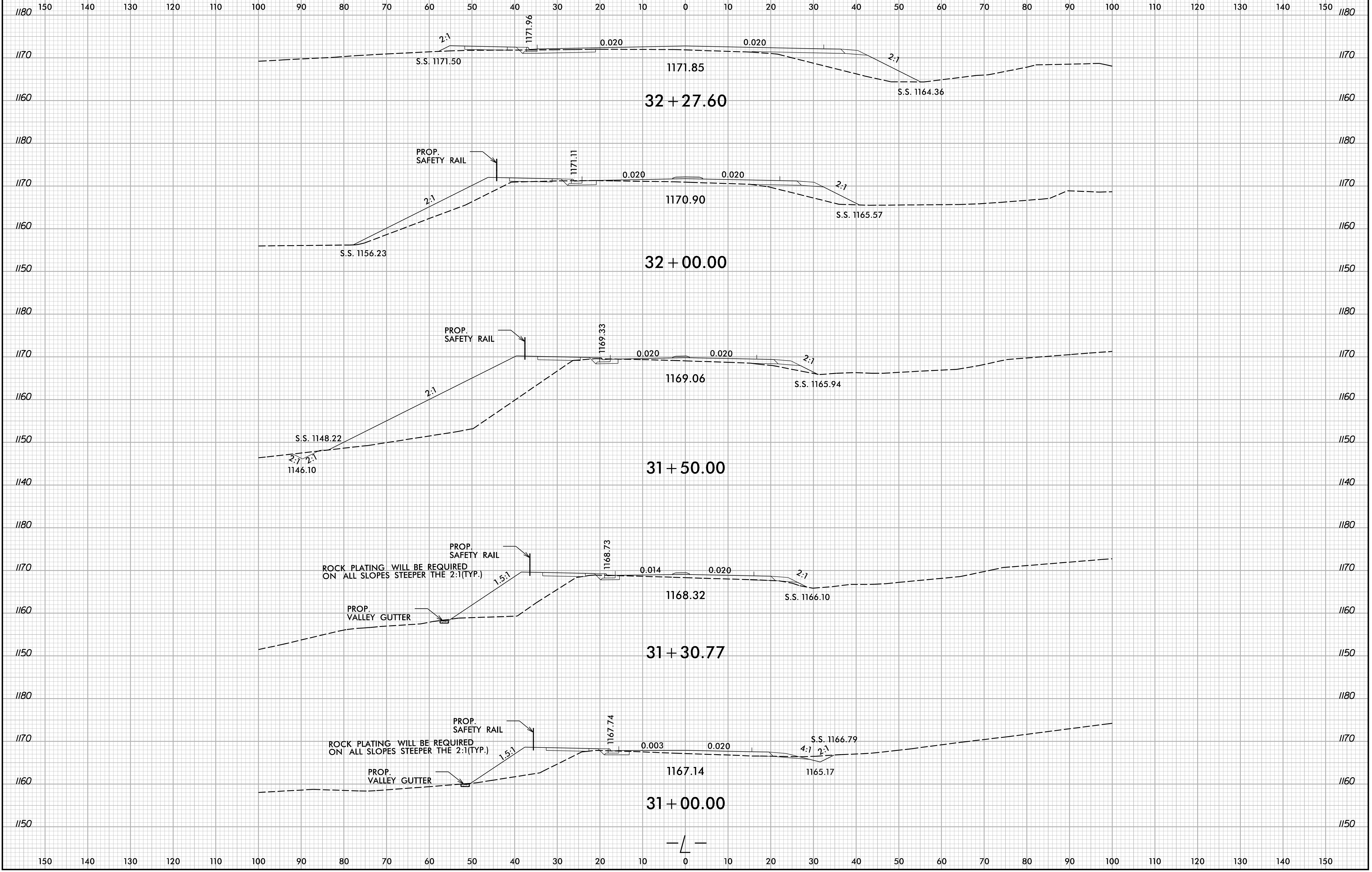

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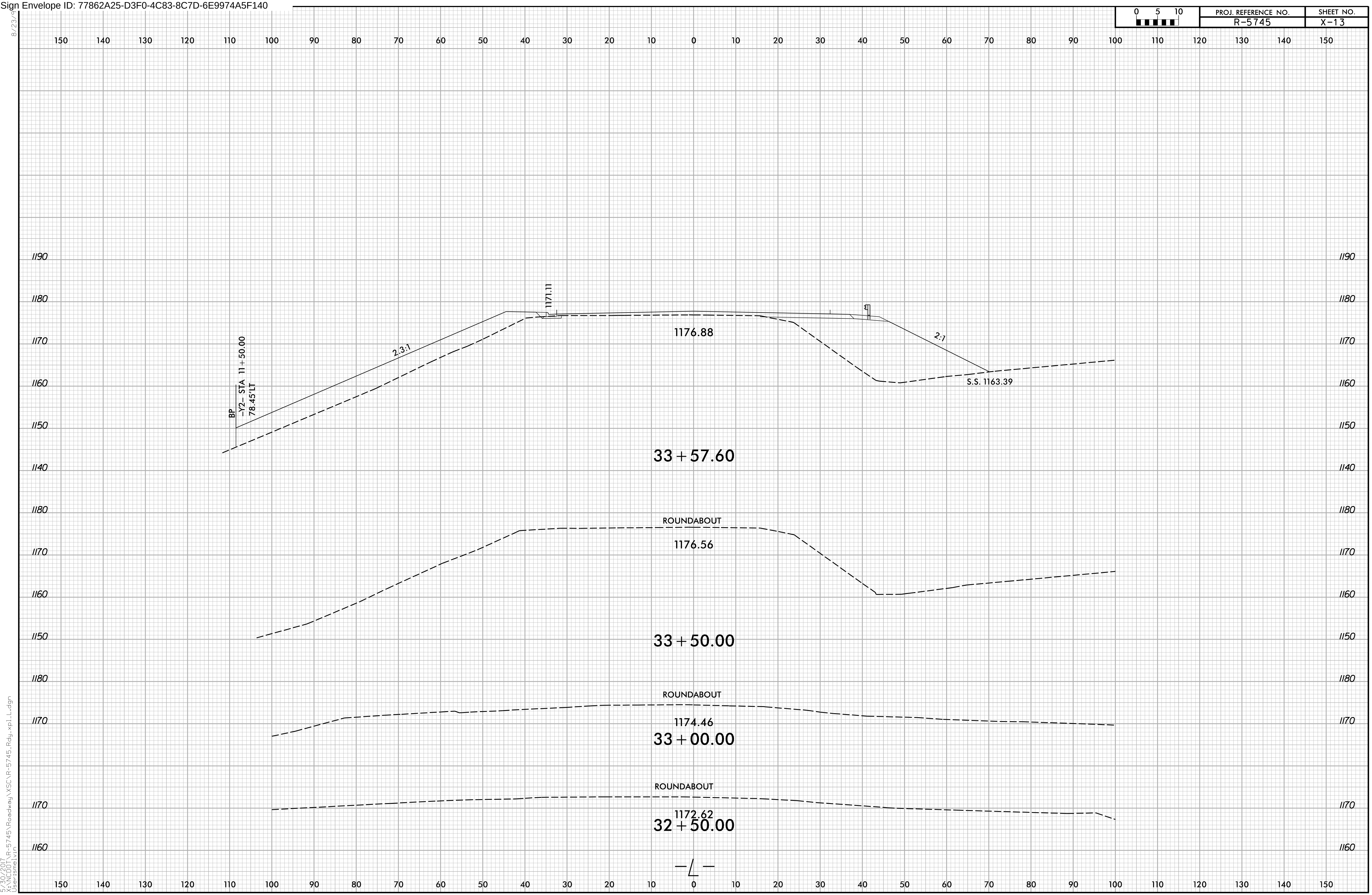

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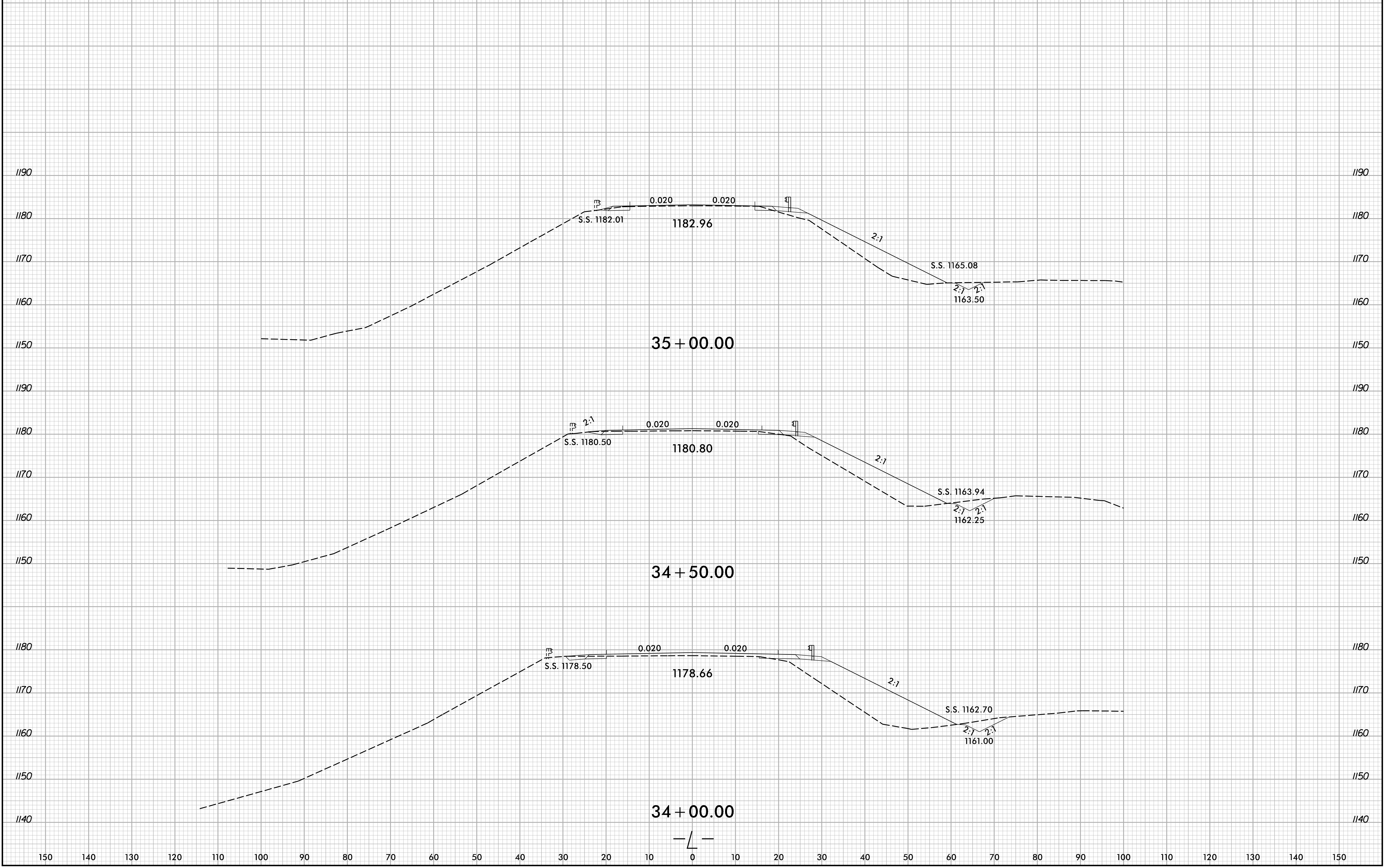

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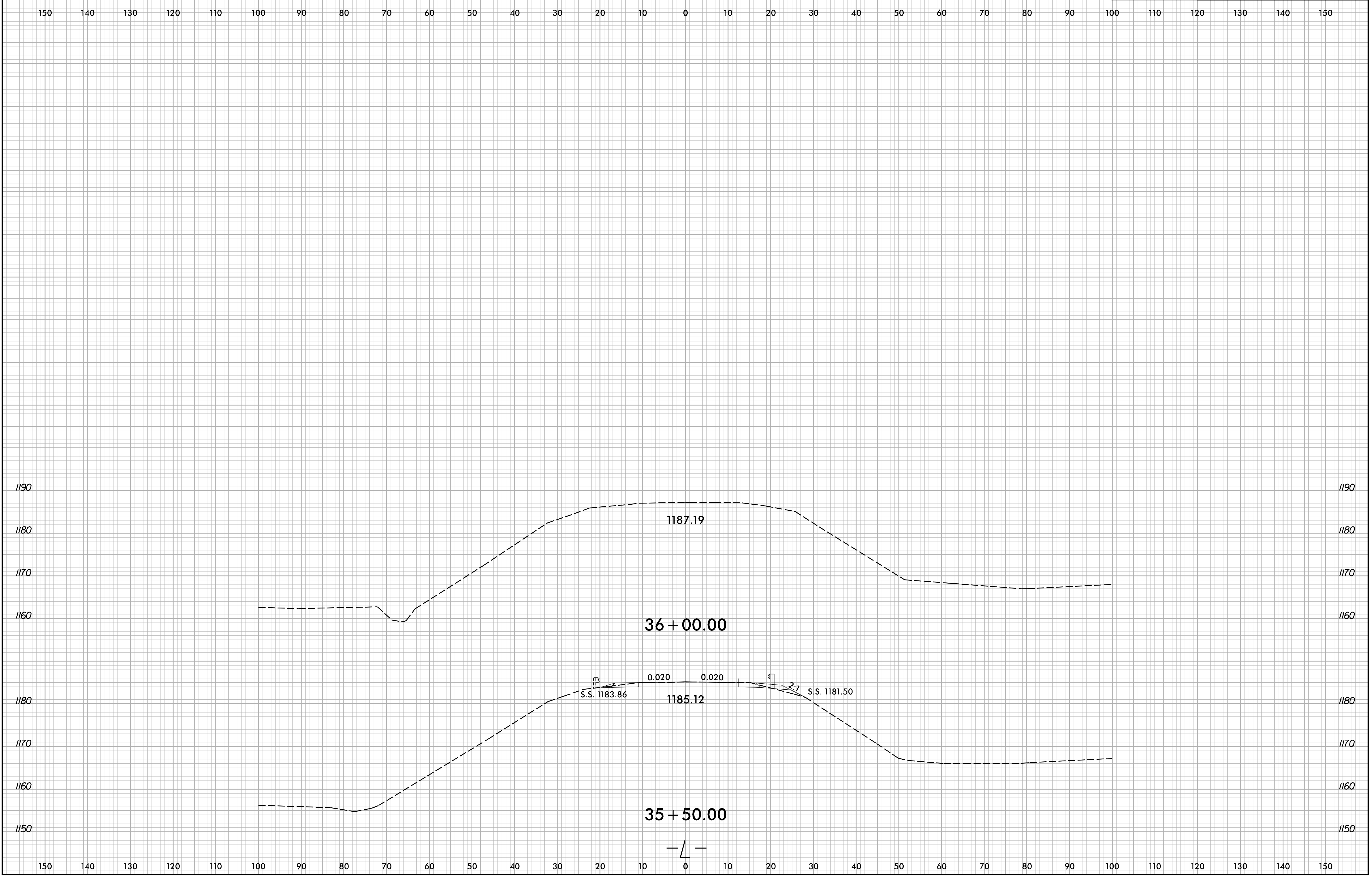

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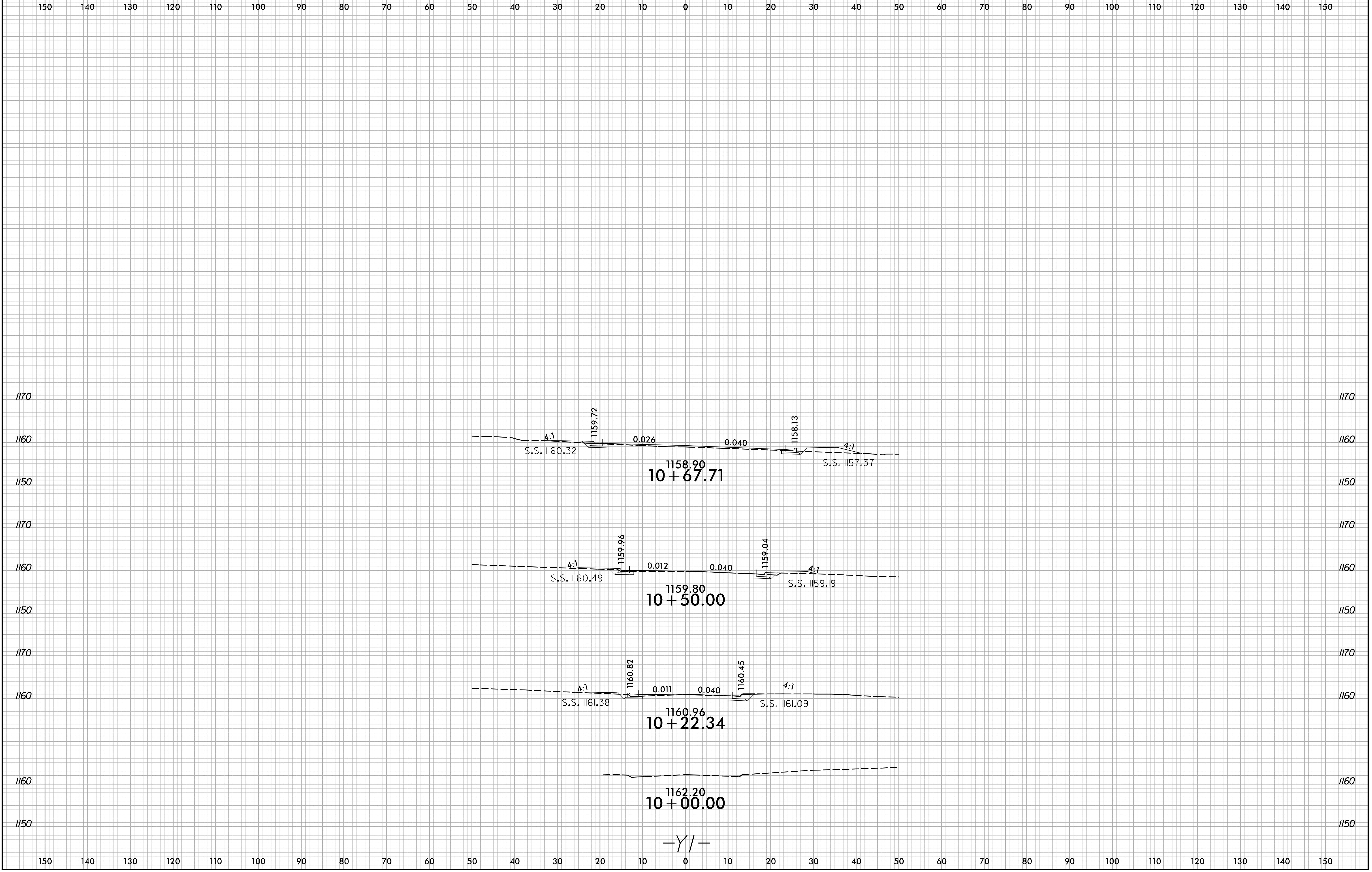

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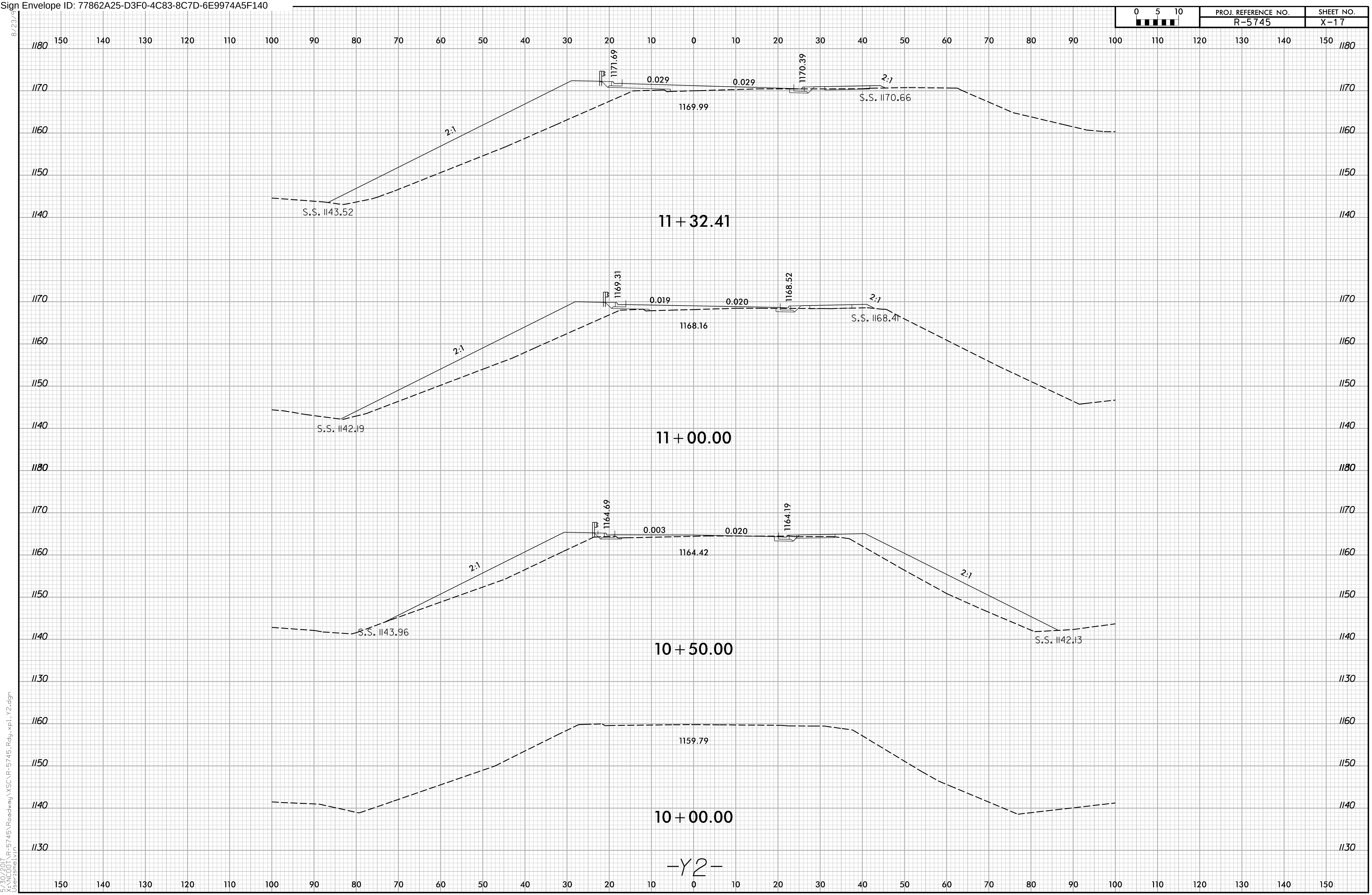

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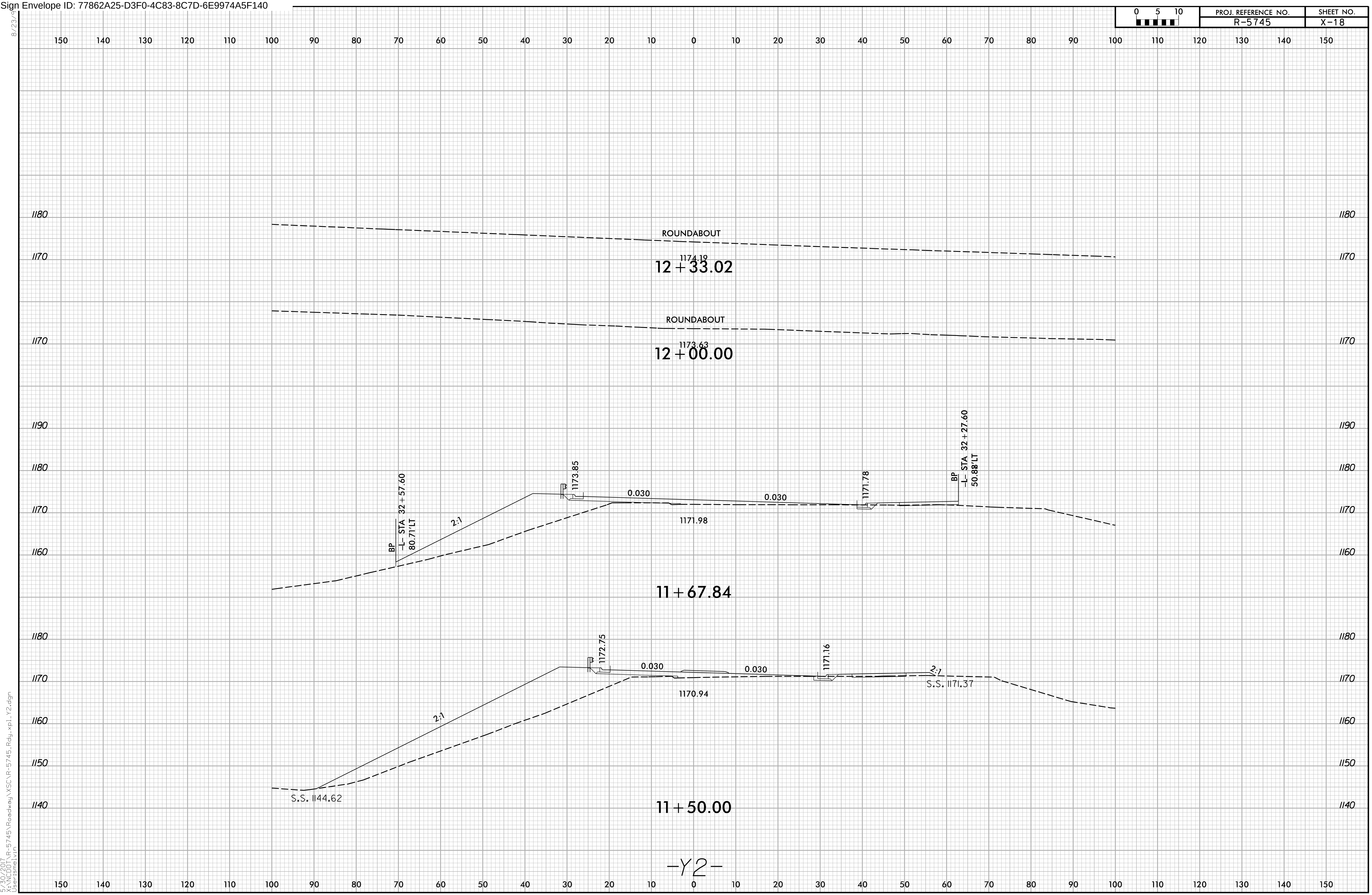

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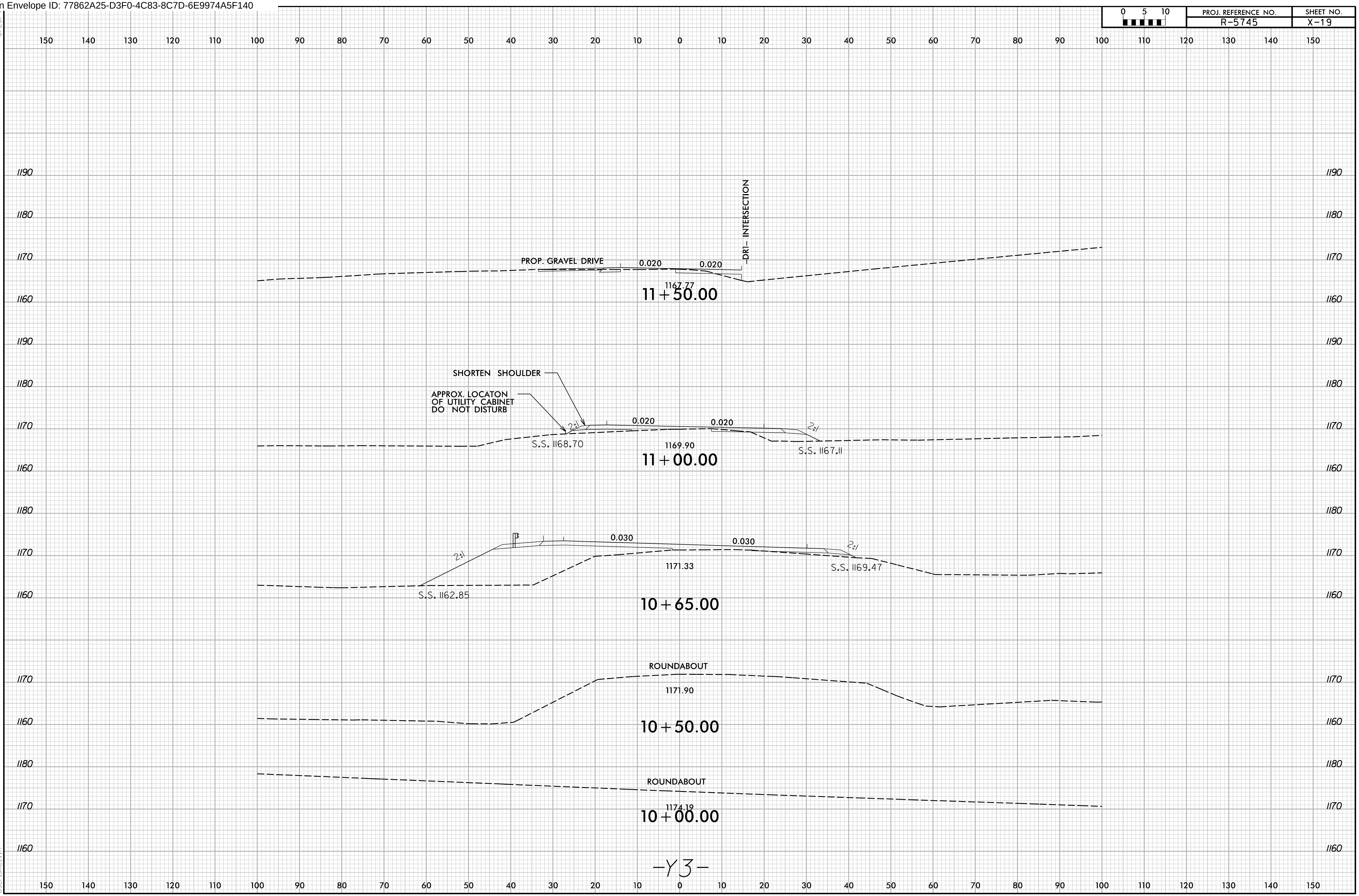

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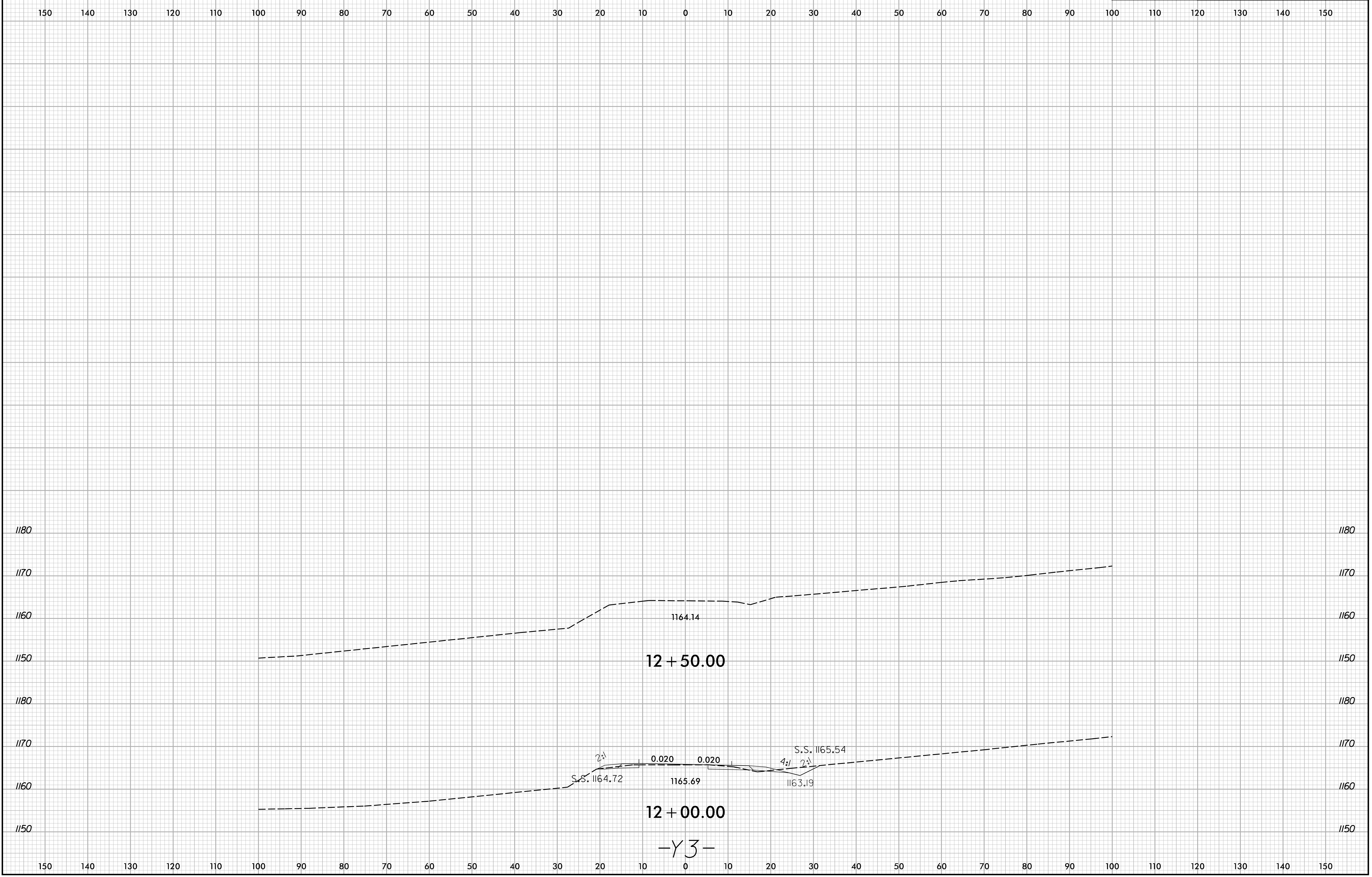

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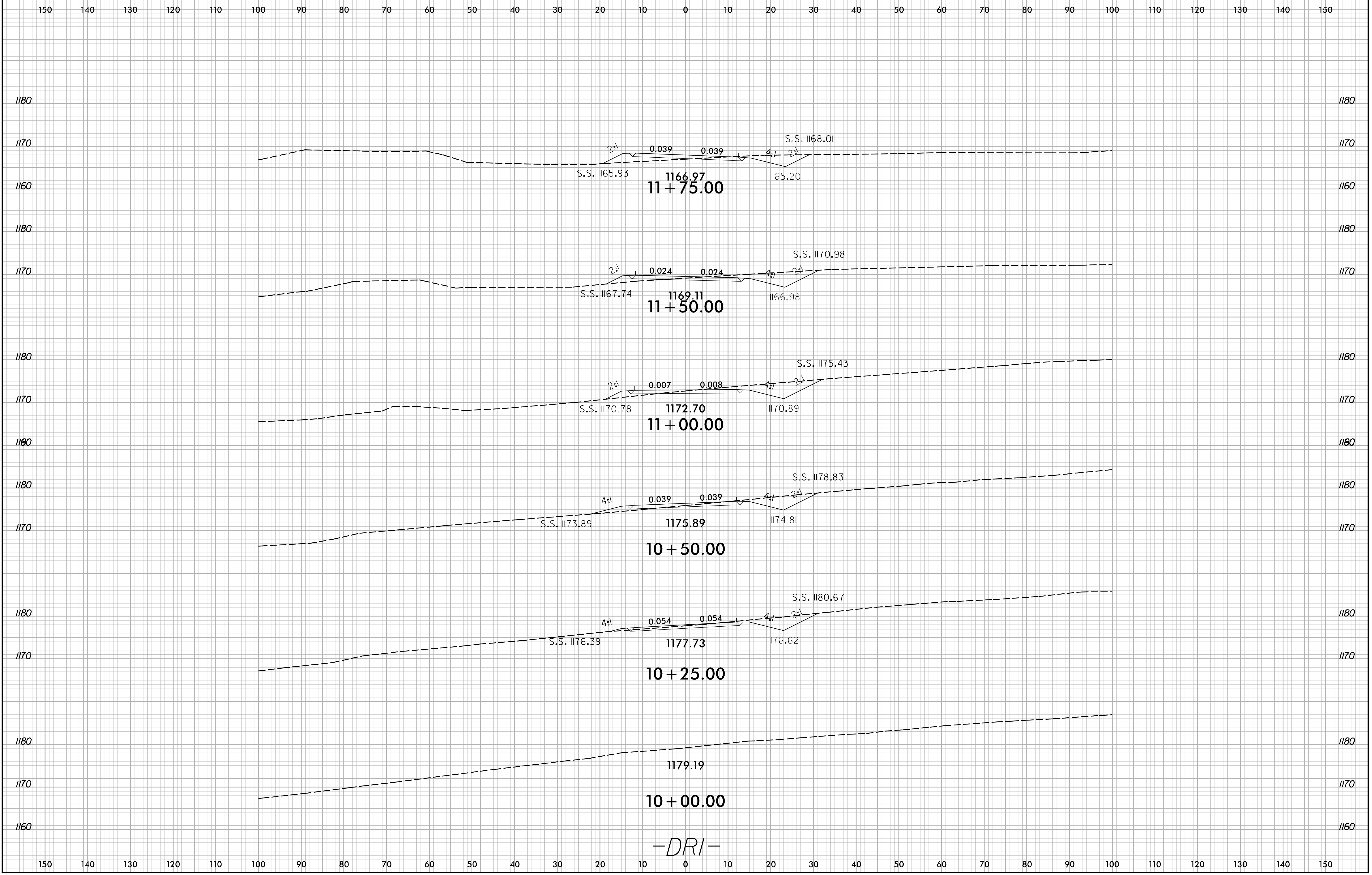

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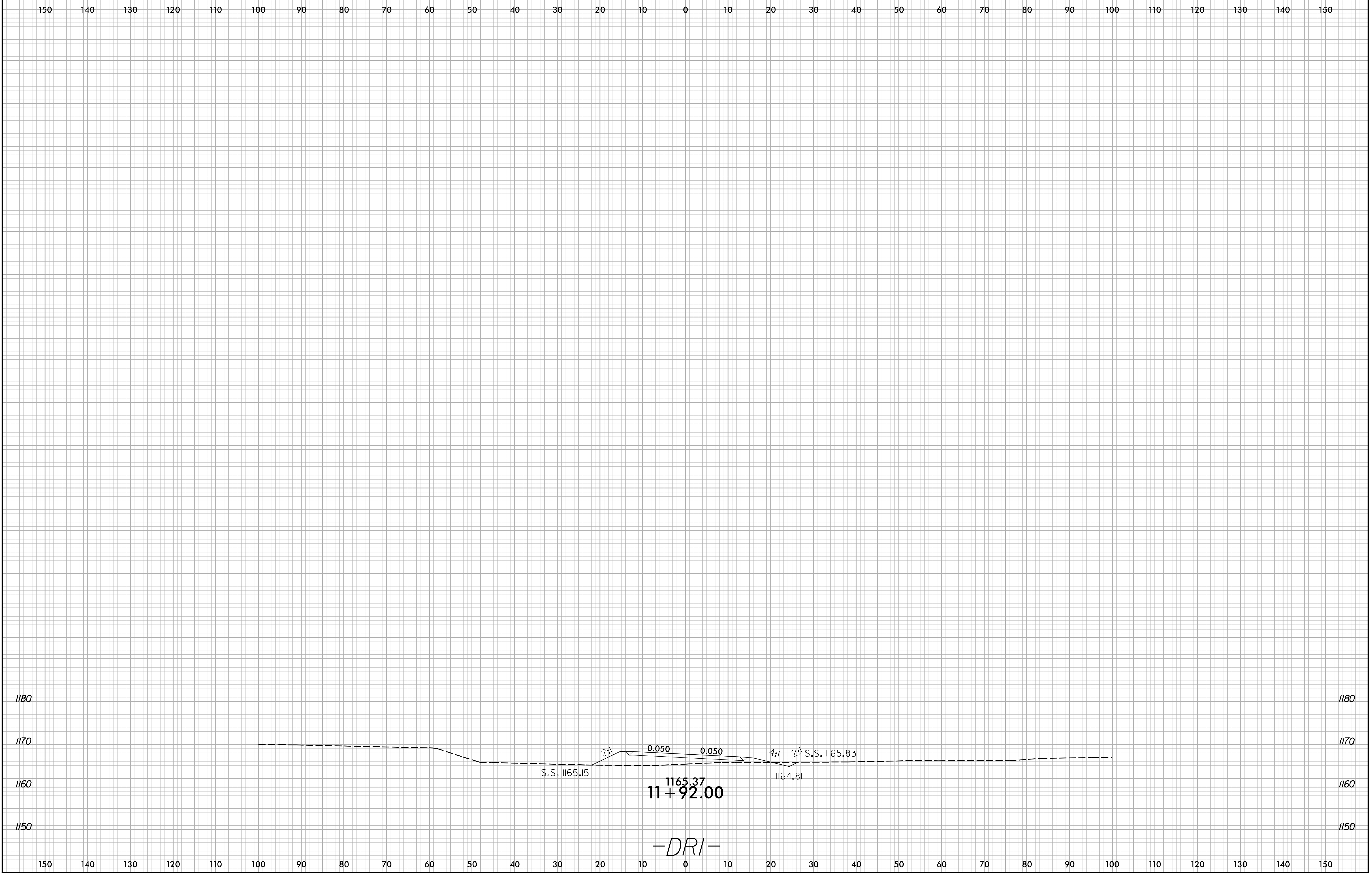

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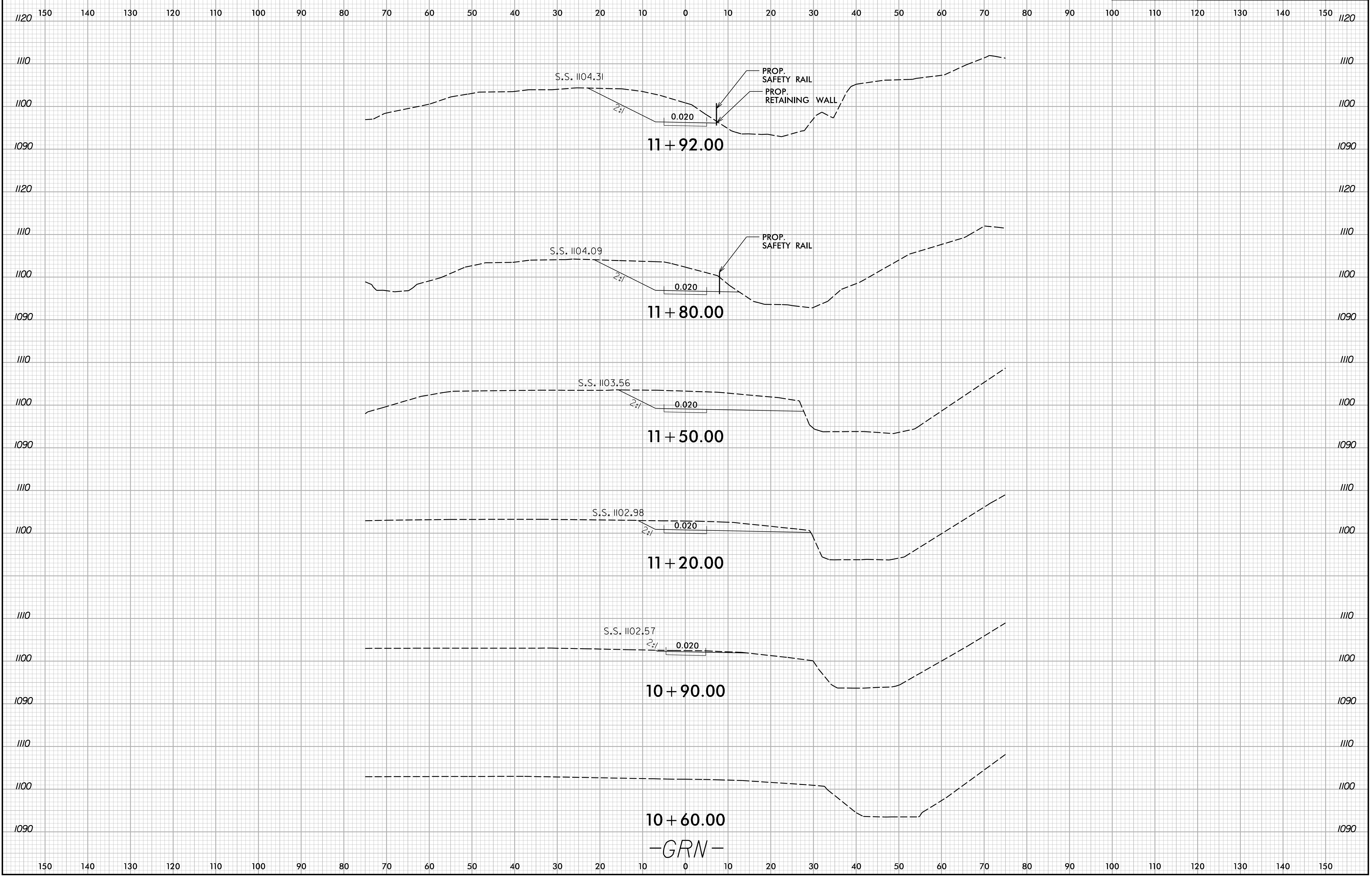
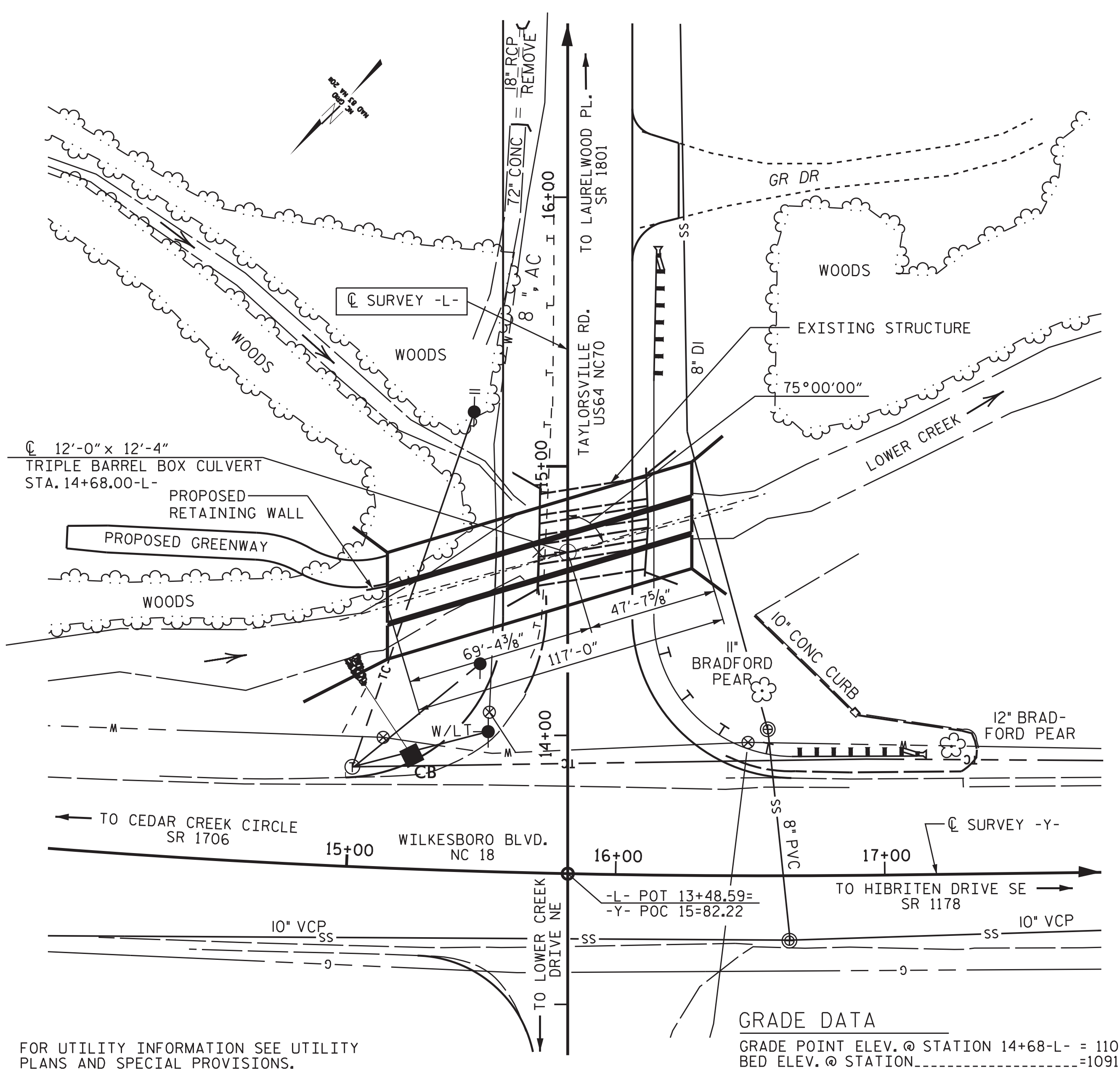


BENCH MARK #1: RR SPIKE IN THE BASE OF 16" SYCAMORE TREE 14+44.26-L-, 122.03' LT ELEV.= 1103.09' (NAVD 88)

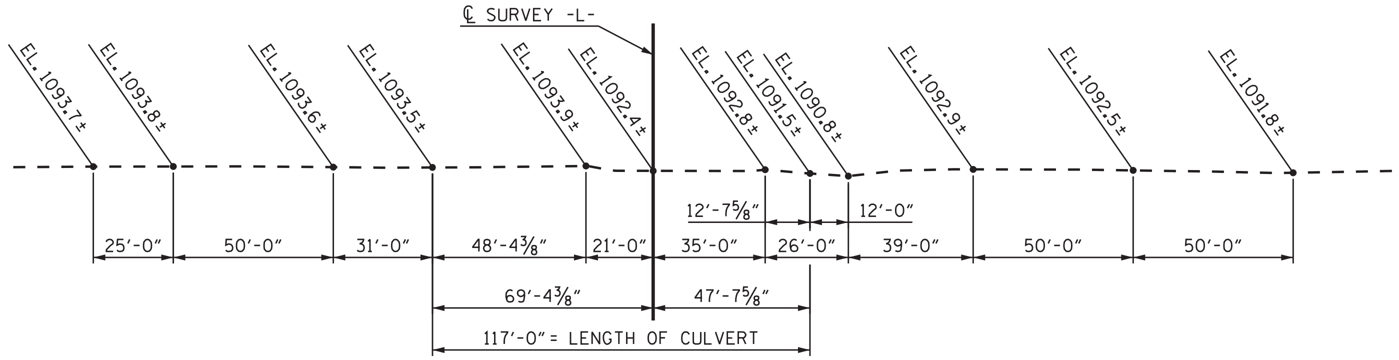


FOR UTILITY INFORMATION SEE UTILITY PLANS AND SPECIAL PROVISIONS.

GRADE DATA

GRADE POINT ELEV. @ STATION 14+68-L- = 1108.78'
BED ELEV. @ STATION =1091.84'
ROADWAY SLOPES =2:1 (MAX.)

LOCATION SKETCH



PROFILE ALONG ℄ CULVERT

DRAWN BY :	NMW	DATE :	5/17
CHECKED BY :	RDE	DATE :	5/17
DESIGN ENGINEER OF RECORD :	RDE	DATE :	5/17

NOTES:

ASSUMED LIVE LOAD ----------HL-93 OR ALTERNATE LOADING.

DESIGN FILL-----------------2.0 FT. (MIN) OR 5.0 FT. (MAX.)

FOR OTHER DESIGN DATA AND NOTES SEE STANDARD NOTE SHEET.

3" Ø WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.

CONCRETE IN CULVERTS TO BE POURED IN THE FOLLOWING ORDER:

1. WING FOOTINGS AND FLOOR SLAB INCLUDING 4" OF ALL VERTICAL WALLS.
2. THE REMAINING PORTIONS OF THE WALLS AND WINGS FULL HEIGHT.
3. ROOF SLAB AND HEADWALLS.

THE RESIDENT ENGINEER SHALL CHECK THE LENGTH OF CULVERT BEFORE STAKING IT OUT TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.

DIMENSIONS FOR WING LAYOUT AS WELL ADDITIONAL REINFORCING STEEL EMBEDDED IN BARREL ARE SHOWN ON WING SHEET.

TRANSVERSE CONSTRUCTION JOINTS SHALL BE USED IN THE BARREL, SPACED TO LIMIT THE POURS TO A MAXIMUM OF 70 FT. LOCATION OF JOINTS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER.

AT THE CONTRACTOR'S OPTION, HE MAY SPLICE THE VERTICAL REINFORCING STEEL IN THE INTERIOR FACE OF EXTERIOR WALL AND BOTH FACES OF INTERIOR WALLS ABOVE LOWER WALL CONSTRUCTION JOINT. THE SPLICE LENGTH SHALL BE AS PROVIDED IN THE SPLICE LENGTH CHART SHOWN ON THE PLANS. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.

BED MATERIAL PLACED BETWEEN SILLS IN THE CULVERT SHALL PROVIDE A CONTINUOUS LOW FLOW CHANNEL BETWEEN THE THE LOWER SILLS. THE MATERIAL SHALL BE NATURAL STONE WITH A GRADUATION SIZE SIMILAR TO THAT OF CLASS B RIP RAP. STONES LARGER THAN 12" SHALL NOT BE PLACED WITHIN THE LOW FLOW CHANNEL. BED MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER.

FOR PLACING LOAD ON STRUCTURE MEMBERS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR ASBESTOS ASSESSEMENT, SEE SPECIAL PROVISIONS.

NO PRECAST REINFORCED BOX CULVERT OPTION WILL BE ALLOWED.

A THREE FOOT STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF EACH WING COVERING THE ENTIRE LENGTH OF THE EXPANSION JOINT.

TOTAL STRUCTURE QUANTITIES

CLASS A CONCRETE
CULVERT 777.4 C.Y.
RETAINING WALL 3.0 C.Y.
TOTAL 780.4 C.Y.

REINFORCING STEEL
CULVERT 122,843 LBS.
RETAINING WALL 365 LBS.
TOTAL 123,208 LBS.

FOUNDATION CONDITIONING MATERIAL 332 TONS

PLAIN RIP RAP, CLASS B 591 TONS

CULVERT EXCAVATION LUMP SUM

REMOVAL OF EXISTING STRUCTURES LUMP SUM

ASBESTOS ASSESSMENT LUMP SUM

HYDRAULIC DATA

DESIGN DISCHARGE = 2600 CFS
FREQUENCY OF DESIGN FLOOD = 50 YRS
DESIGN HIGH WATER ELEVATION = 1106.0'
DRAINAGE AREA = 10.6 SQ. MILES
BASE DISCHARGE (Q100) = 3100 CFS
BASE HIGH WATER ELEVATION = 1107.25'

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = 3500 CFS
FREQUENCY OF OVERTOPPING FLOOD = 200+ YRS
OVERTOPPING FLOOD ELEVATION = 1108.10' *

* OVERTOPPING ELEVATION REPRESENTS C/L SAG ELEVATION @ -L-STA. 15+26.11

PROJECT NO. R-5745
CALDWELL COUNTY
STATION: 14+68.00-L-

REPLACES BRIDGE NO. 39

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TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR CULVERT ON US 64/NC 90
OVER LOWER CREEK BETWEEN
NC 18 AND SR 1801

REVISIONS

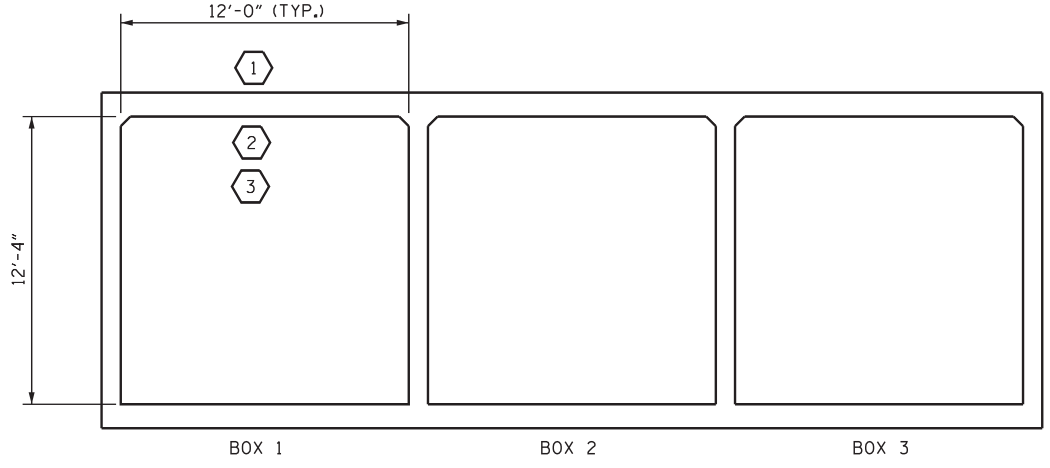
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. C-1

TOTAL SHEETS 21

LOAD AND RESISTANCE FACTOR RATING (LRFR)
SUMMARY FOR REINFORCED CONCRETE BOX CULVERTS

LEVEL		VEHICLE	WEIGHT (W) (TONS)	# CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE									COMMENT NUMBER
								MOMENT				SHEAR				
							LIVE-LOAD FACTORS (γ_{LL})	RATING FACTOR	BOX NO.	ELEMENT TYPE	DISTANCE FROM LEFT END OF ELEMENT (ft)	RATING FACTOR	BOX NO.	ELEMENT TYPE	DISTANCE FROM LEFT END OF ELEMENT (ft)	
DESIGN LOAD RATING		HL-93 (INVENTORY)	N/A	1	1.55	--	1.75	1.55	1	TOP SLAB	4.8′	1.86	1	TOP SLAB	10.2	
		HL-93 (OPERATING)	N/A		2.01	--	1.35	2.01	1	TOP SLAB	4.8′	2.41	1	TOP SLAB	10.2	
		HS-20 (INVENTORY)	36.000	2	1.55	55	1.75	1.55	1	TOP SLAB	4.8′	1.86	1	TOP SLAB	10.2	
		HS-20 (OPERATING)	36.000		2.01	72	1.35	2.01	1	TOP SLAB	4.8′	2.41	1	TOP SLAB	10.2	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		2.79	37	1.40	2.79	1	TOP SLAB	4.8′	3.51	1	TOP SLAB	10.2	
		SNGARBS2	20.000		2.61	52	1.40	2.61	1	TOP SLAB	4.8′	3.14	1	FLOOR SLAB	10.8	
		SNAGRIS2	22.000		2.79	61	1.40	2.79	1	TOP SLAB	4.8′	3.00	1	FLOOR SLAB	10.8	
		SNCOTTS3	27.250	3	1.63	44	1.40	1.63	1	TOP SLAB	4.8′	1.93	1	TOP SLAB	10.2	
		SNAGGRS4	34.925		1.84	64	1.40	1.92	1	TOP SLAB	4.8′	1.84	1	FLOOR SLAB	10.8	
		SNS5A	35.550		1.83	65	1.40	1.83	1	TOP SLAB	4.8′	1.94	1	FLOOR SLAB	10.8	
		SNS6A	39.950		1.83	73	1.40	1.83	1	TOP SLAB	4.8′	1.84	1	FLOOR SLAB	10.8	
		SNS7B	42.000		1.83	76	1.40	1.83	1	TOP SLAB	4.8′	1.88	1	FLOOR SLAB	10.8	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		2.17	71	1.40	2.39	1	FLOOR SLAB	4.8′	2.17	1	FLOOR SLAB	10.8	
		TNT4A	33.075		1.93	63	1.40	1.93	1	TOP SLAB	4.8′	2.03	1	FLOOR SLAB	10.8	
		TNT6A	41.600		1.87	77	1.40	1.87	1	TOP SLAB	4.8′	1.98	1	FLOOR SLAB	10.8	
		TNT7A	42.000		1.85	77	1.40	2.01	1	FLOOR SLAB	4.8′	1.85	1	FLOOR SLAB	10.8	
		TNT7B	42.000		1.84	77	1.40	1.86	1	TOP SLAB	4.8′	1.84	1	FLOOR SLAB	10.8	
		TNAGRIT4	43.000		1.74	74	1.40	1.93	1	TOP SLAB	4.8′	1.74	1	FLOOR SLAB	10.8	
		TNAGT5A	45.000		1.88	84	1.40	1.94	1	TOP SLAB	4.8′	1.86	1	FLOOR SLAB	10.8	
		TNAGT5B	45.000		1.64	73	1.40	1.76	2	TOP SLAB	0.0	1.64	1	FLOOR SLAB	10.8	



LRFR SUMMARY

(LOOKING DOWNSTREAM)

LOAD FACTORS:

DESIGN LOAD RATING FACTORS

LOAD TYPE	MAX FACTOR	MIN FACTOR
DC	1.25	0.90
DW	1.50	0.65
EV	1.30	0.90
EH	1.35	0.90
ES	1.35	0.90
LS	1.75	--
WA	1.00	--

NOTE:

RATING FACTORS ARE BASED ON THE STRENGTH I LIMIT STATE.

COMMENTS:

1.
2.
3.
4.

CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)
2 DESIGN LOAD RATING (HS-20)
3 LEGAL LOAD RATING ✱✱
✱✱ SEE CHART FOR VEHICLE TYPE

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CALDWELL COUNTY
STATION: 14+68.00-L-

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

LRFR SUMMARY FOR
REINFORCED CONCRETE
BOX CULVERTS
(NON-INTERSTATE TRAFFIC)

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. C-2
TOTAL SHEETS 21

DRAWN BY : RTJ DATE : 5/17
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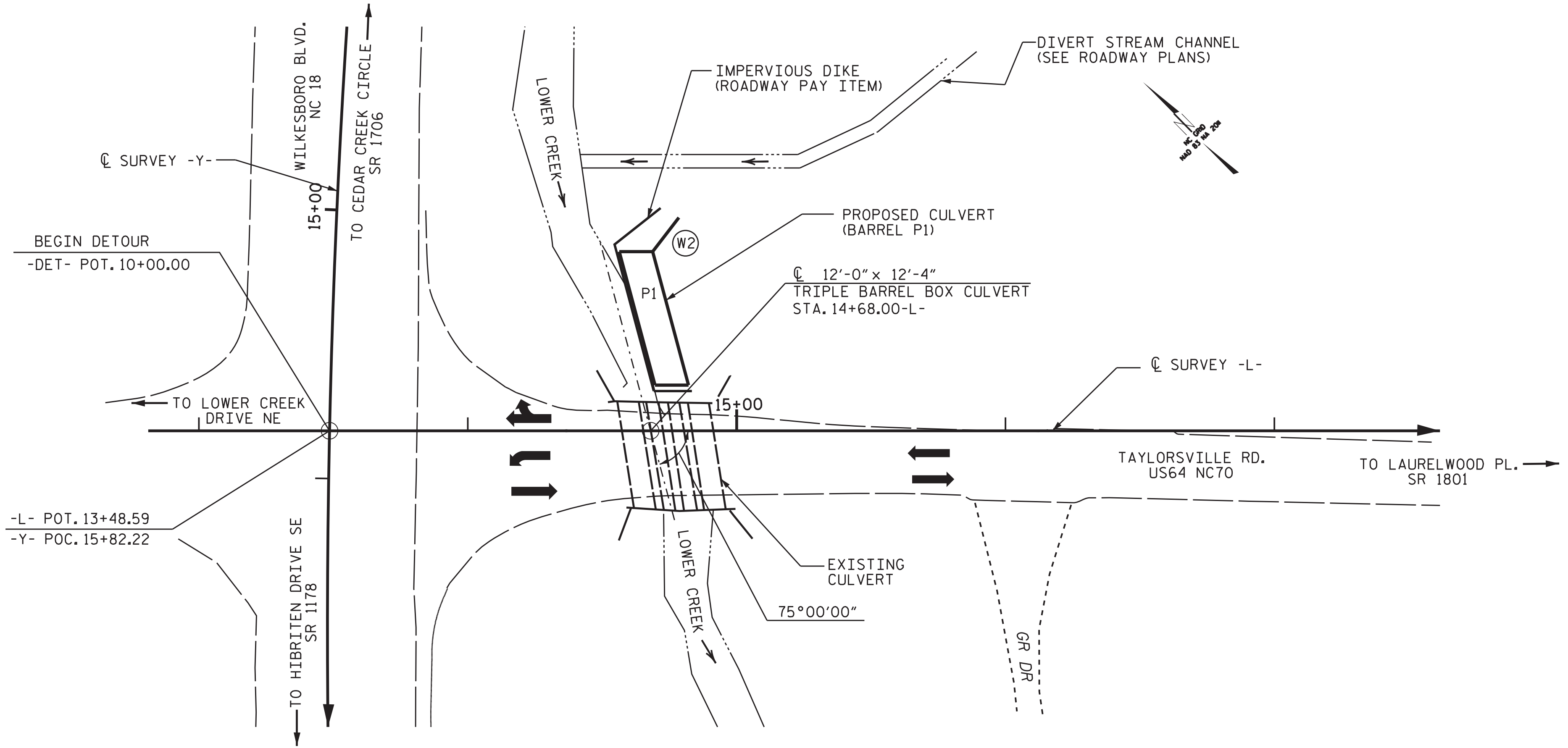
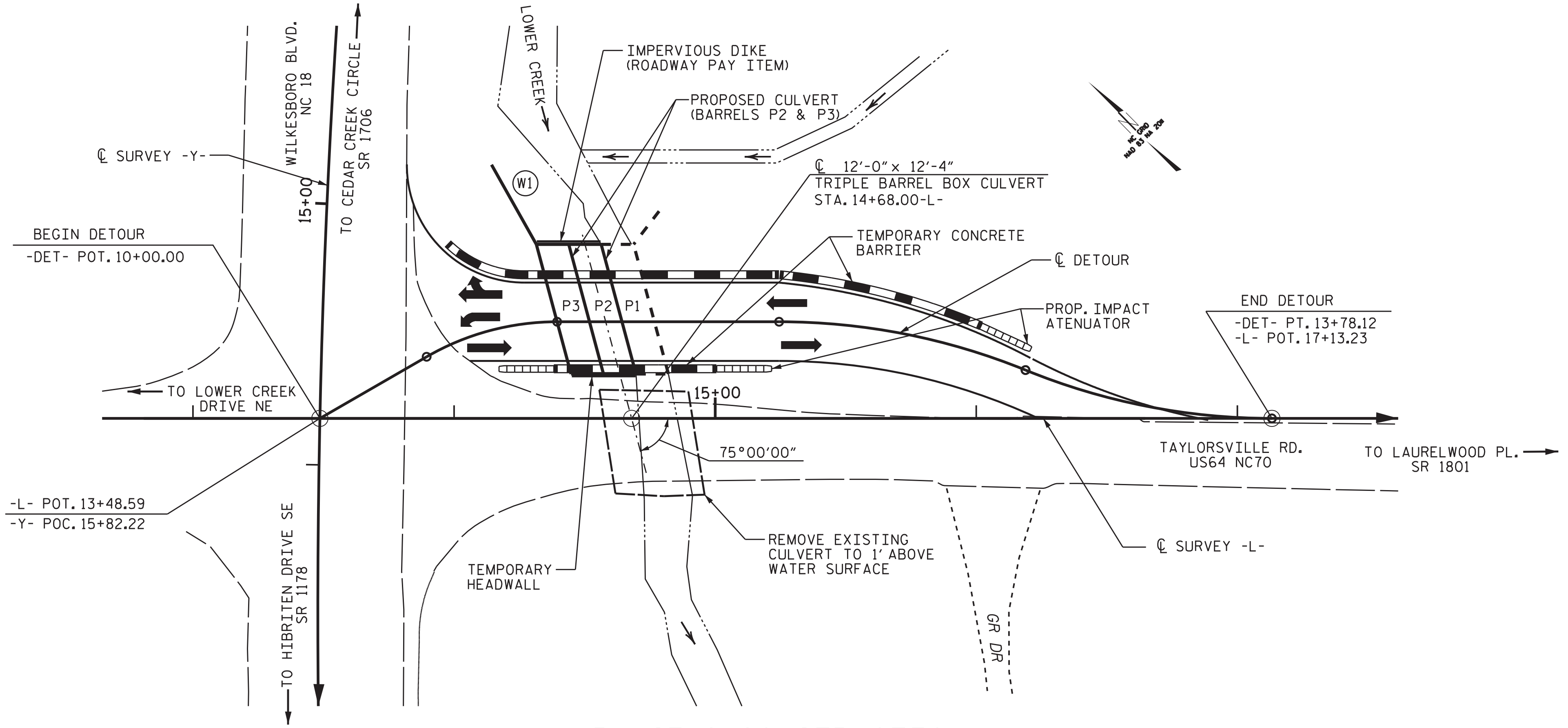


PHASE 1 CONSTRUCTION



PHASE 2 CONSTRUCTION

CONSTRUCTION SEQUENCE - PHASE 1

1. AFTER RELOCATING STREAM CHANNEL(S), INSTALL IMPERVIOUS DIKE FOR CONSTRUCTION OF UPSTREAM CULVERT BARREL P1.
2. CONSTRUCT UPSTREAM CULVERT BARREL P1. DO NOT CONSTRUCT 4' SILL OR BACKFILL UNTIL PHASE 4.
3. PUMP EFFLUENT INTO SPECIAL STILLING BASIN AS SHOWN ON ROADWAY PLANS.

CONSTRUCTION SEQUENCE - PHASE 2

1. INSTALL IMPERVIOUS DIKES TO DIVERT WATER INTO NEWLY CONSTRUCTED CULVERT BARREL P1.
2. CONSTRUCT UPSTREAM CULVERT BARRELS P2 AND P3.
3. CONSTRUCT TEMPORARY HEADWALL ON P1, P2 AND P3 TO RETAIN DETOUR ROADWAY FILL.
4. UPON CONSTRUCTION OF P2, P3 AND TEMPORARY HEADWALL COMPLETE DETOUR ROADWAY AND DIVERT TRAFFIC.
5. REMOVE REMAINING EXISTING CULVERT TO 1' ABOVE WATER SURFACE.
6. PUMP EFFLUENT INTO SPECIAL STILLING BASIN.

NOTE:

THE EXACT PHASING LENGTHS OF THE CULVERTS WILL BE DETERMINED BY THE CONTRACTOR FOR SPECIFIC STRUCTURE. FOR ADDITIONAL INFORMATION ON TRAFFIC PHASING SEE THE ROADWAY PLANS.

PROJECT NO. R-5745

CALDWELL COUNTY

STATION: 14+68.00-L-

SHEET 1 OF 2

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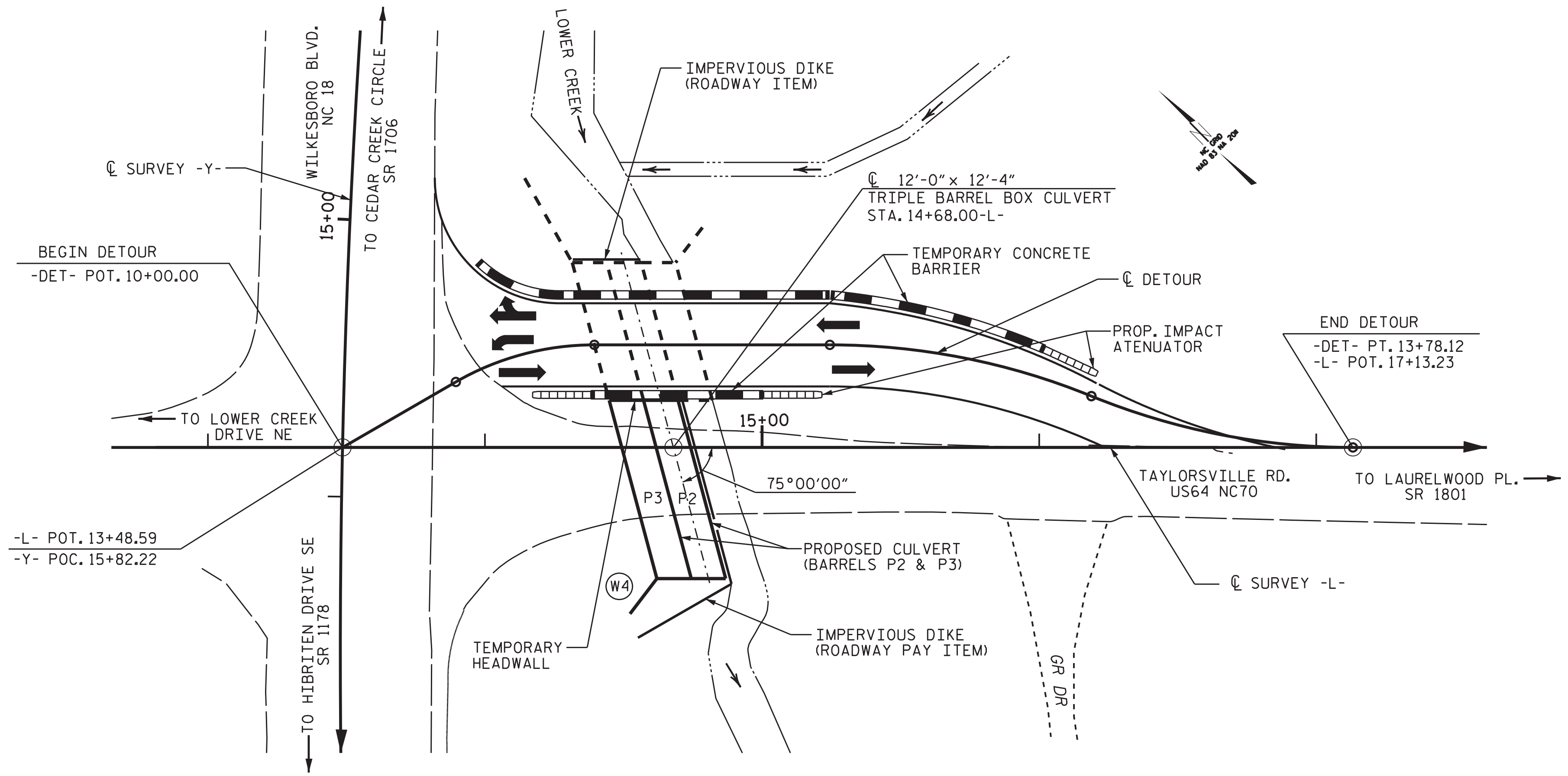
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TRIPLE BARREL
12'-0" X 12'-4"
CONCRETE BOX CULVERT
75° SKEW
SEQUENCE OF CONSTRUCTION

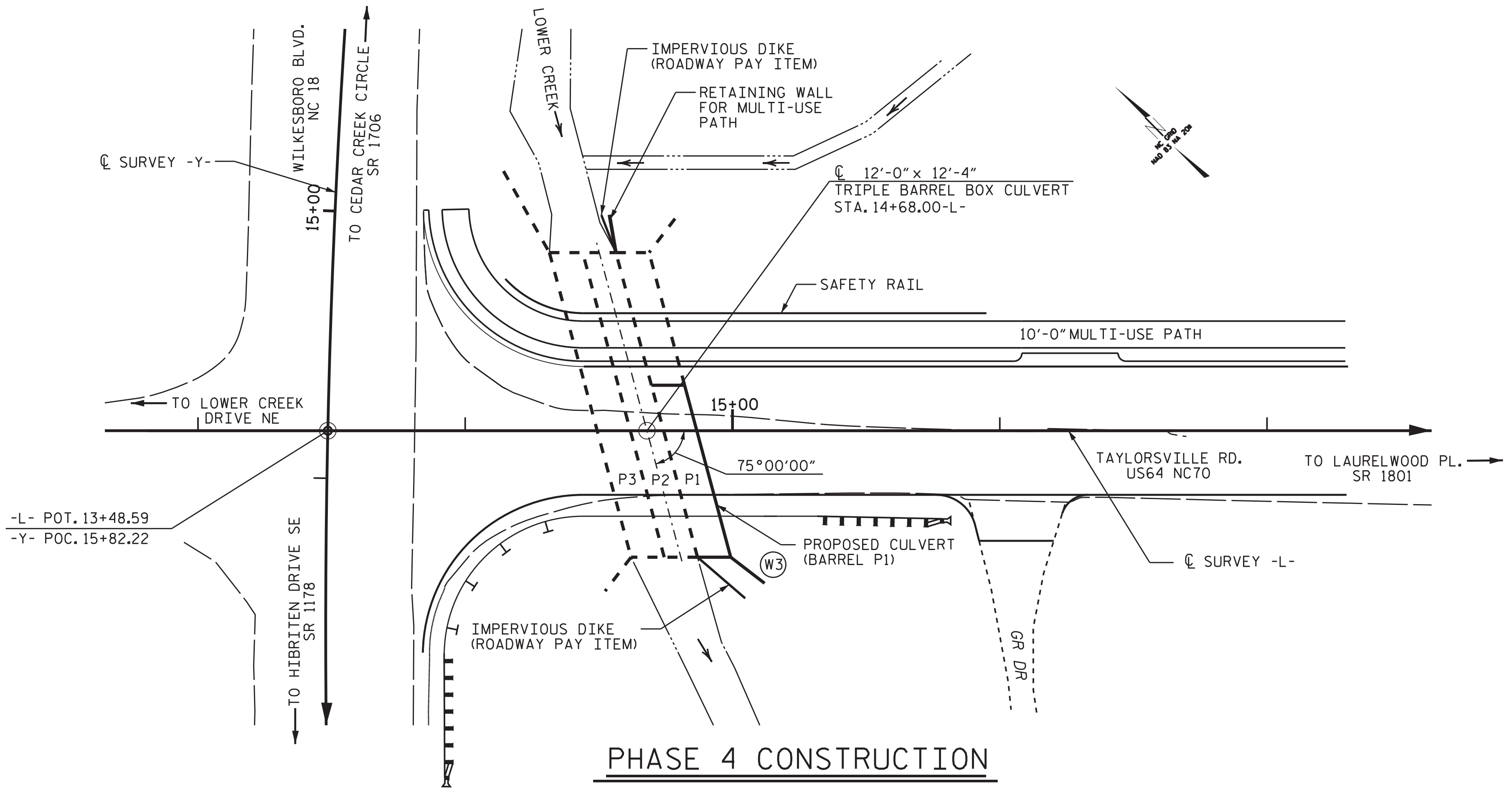
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. C-3

TOTAL SHEETS 21



PHASE 3 CONSTRUCTION



PHASE 4 CONSTRUCTION

CONSTRUCTION SEQUENCE - PHASE 3

1. UPON REMOVAL OF EXISTING CULVERT TO 1' ABOVE WATER SURFACE, MAINTAIN FLOW THRU P1 AND INSTALL IMPERVIOUS DIKE AS SHOWN IN ROADWAY PLANS.
2. REMOVE REMAINDER OF EXISTING CULVERT FOR P2 AND P3 BARRELS AND CONSTRUCT REMAINDER OF P2 AND P3.
3. PUMP EFFLUENT INTO SPECIAL STILLING BASIN AS SHOWN ON ROADWAY PLANS.

CONSTRUCTION SEQUENCE - PHASE 4

1. UPON COMPLETION OF BARRELS P2 AND P3, DIVERT FLOW TO THESE BARRELS.
2. INSTALL IMPERVIOUS DIKES AS SHOWN IN ROADWAY DRAWINGS IN ORDER TO COMPLETE CONSTRUCTION OF P1 INCLUDING THE DOWNSTREAM SILL.
3. CONSTRUCT SILL ON EXISTING UPSTREAM END OF P1 (PHASE 1) USE ADHESIVELY ANCHORED D1 DOWELS.
4. BEFORE COMPLETION OF FINAL ROADWAY, REMOVE TEMPORARY HEADWALL TO 1'± ABOVE CULVERT ROOF SLAB.
5. UPON CONSTRUCTION OF CULVERT RESTABLISH STREAM ACCORDING TO ROADWAY PLANS.
6. PUMP EFFLUENT INTO SPECIAL STILLING BASIN.

NOTE:

THE EXACT PHASING LENGTHS OF THE CULVERTS WILL BE DETERMINED BY THE CONTRACTOR FOR SPECIFIC STRUCTURE. FOR ADDITIONAL INFORMATION ON TRAFFIC PHASING SEE THE ROADWAY PLANS.

PROJECT NO. R-5745
CALDWELL COUNTY
STATION: 14+68.00-L-
SHEET 2 OF 2

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PH (704) 476-0003
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TRIPLE BARREL
12'-0" X 12'-4"
CONCRETE BOX CULVERT
75° SKEW
SEQUENCE OF CONSTRUCTION

REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO.
C-4
TOTAL SHEETS
21

DRAWN BY :	RTJ	DATE :	5/17
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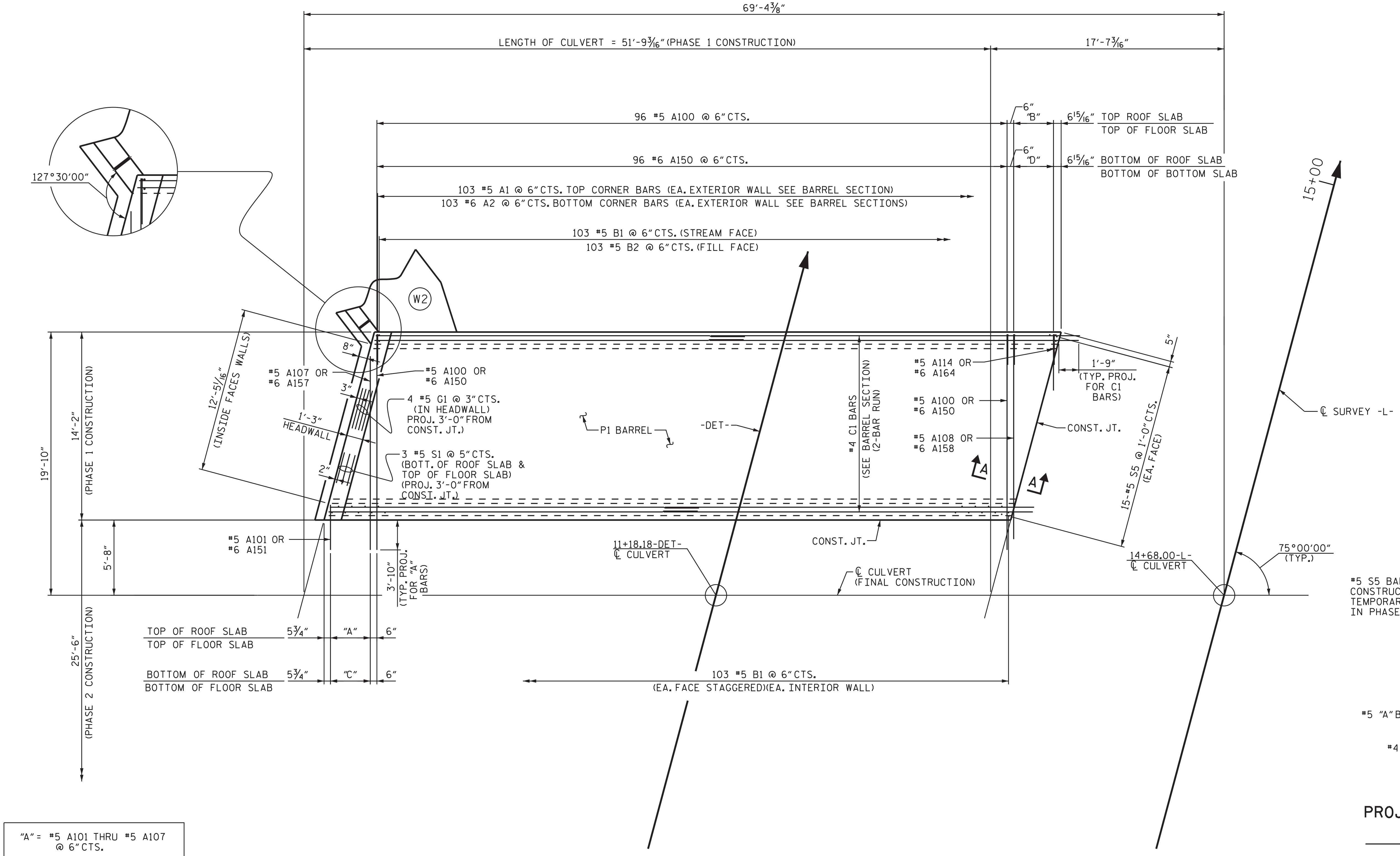
DESIGN ENGINEER OF RECORD :	RDE	DATE :	5/17



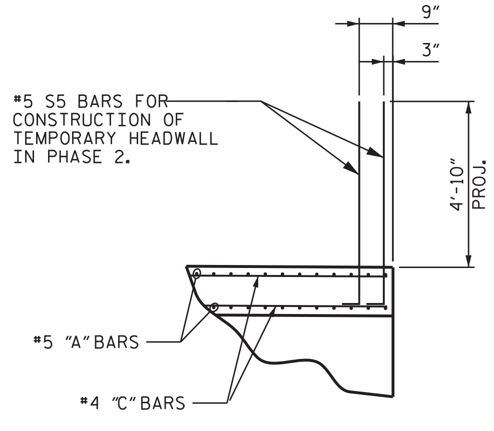
"A" = #5 A101 THRU #5 A107 @ 6" CTS.

"B" = #5 A108 THRU #5 A114 @ 6" CTS.

"C" = #6 A151 THRU #6 A157 @ 6" CTS.

"D" = #6 A158 THRU #6 A164 @ 6" CTS.

PLAN VIEW OF PHASE 1 CONSTRUCTION



SECTION A-A

PROJECT NO. R-5745

CALDWELL COUNTY

STATION: 14+68.00-L-

SHEET 1 OF 4

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TRIPLE BARREL
12'-0" X 12'-4"
CONCRETE BOX CULVERT
75° SKEW
PHASE 1 PLAN

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-5
1			3			TOTAL SHEETS
2			4			21

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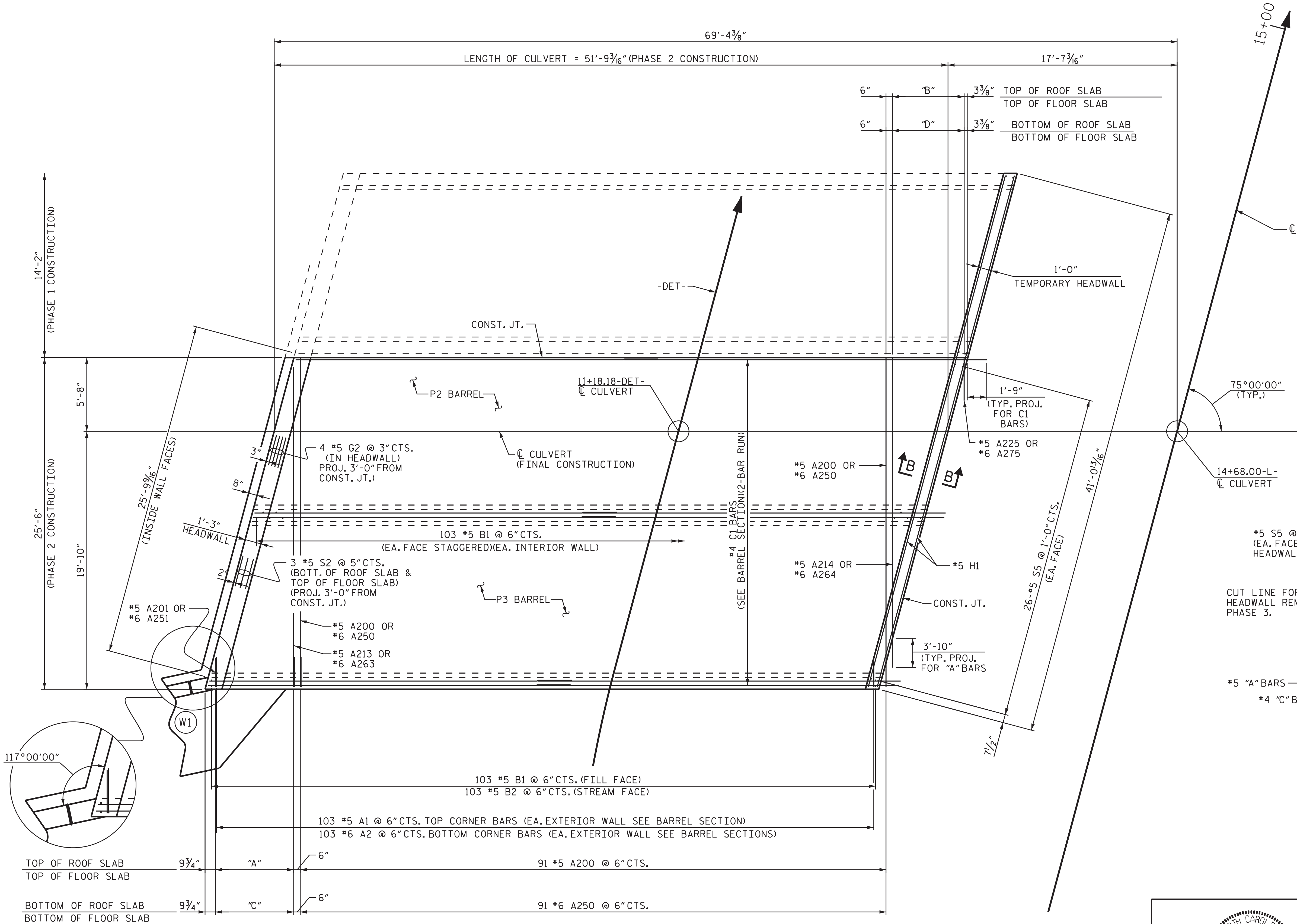
DESIGN ENGINEER OF RECORD : RDE DATE : 5/17



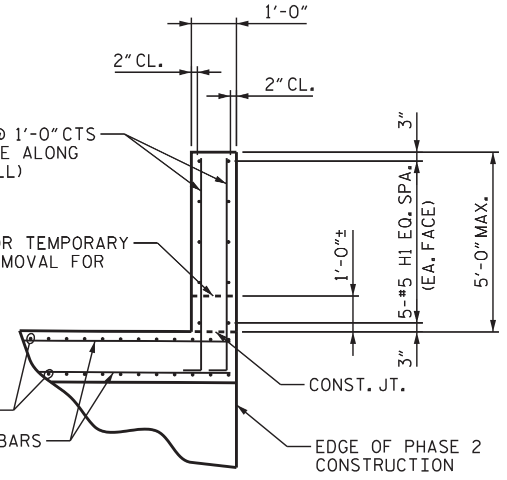
"A" = #5 A201 THRU #5 A213 @ 6" CTS.

"B" = #5 A214 THRU #5 A225 @ 6" CTS.

"C" = #6 A251 THRU #6 A263 @ 6" CTS.

"D" = #6 A264 THRU #6 A275 @ 6" CTS.

PLAN VIEW OF PHASE 2 CONSTRUCTION



SECTION B-B

PROJECT NO. R-5745

CALDWELL COUNTY

STATION: 14+68.00-L-

SHEET 2 OF 4

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TRIPLE BARREL
12'-0" X 12'-4"
CONCRETE BOX CULVERT
75° SKEW
PHASE 2 PLAN

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. C-6
TOTAL SHEETS 21

DRAWN BY : JLA DATE : 5/17
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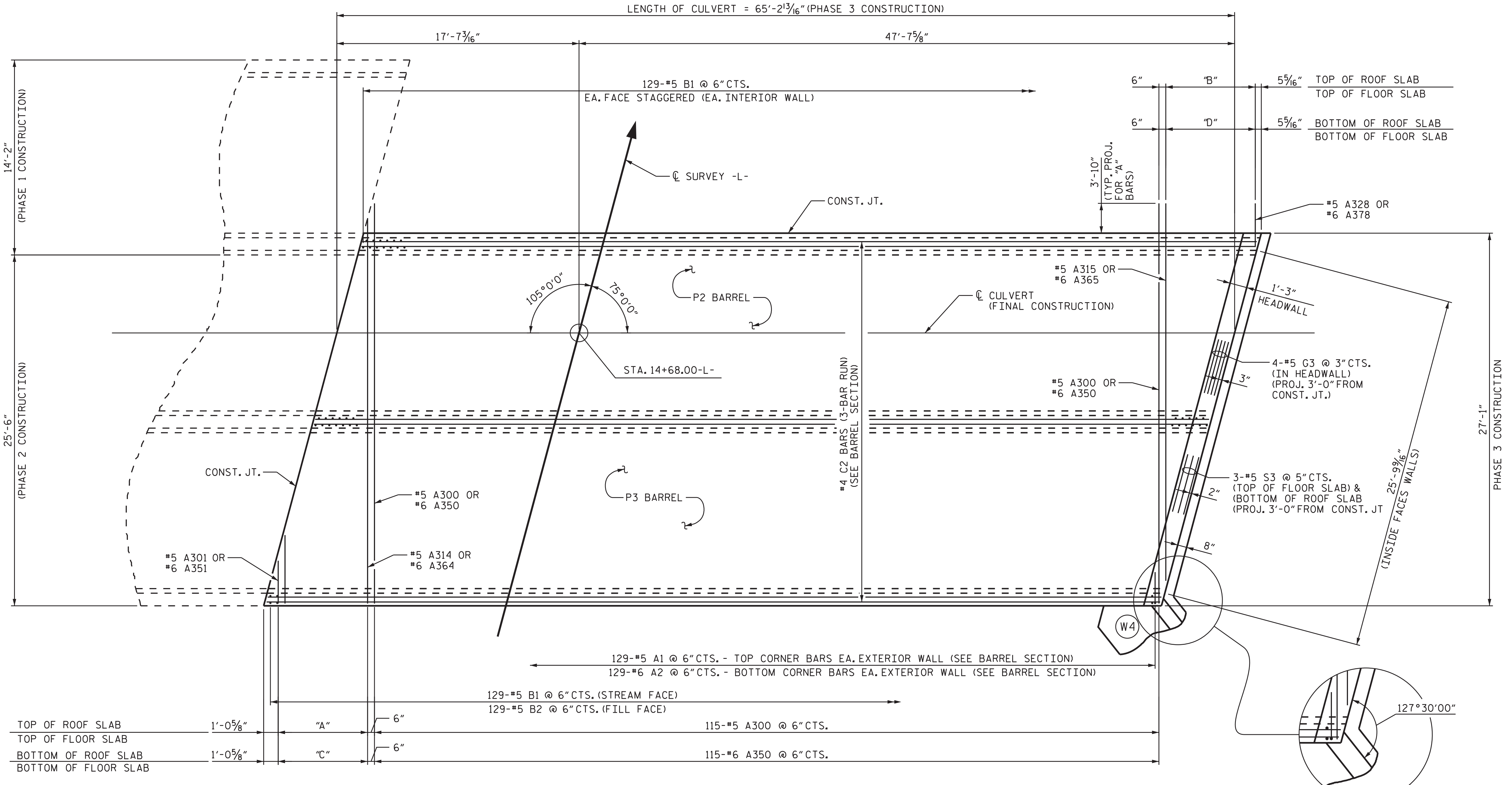
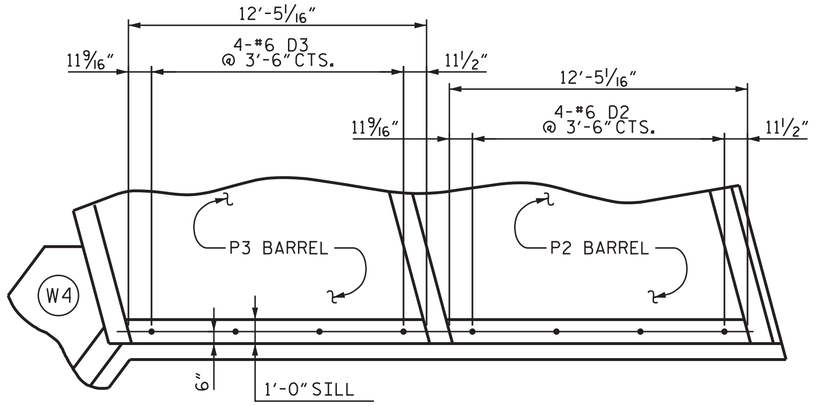
DESIGN ENGINEER OF RECORD : RDE DATE : 5/17



CULVERT PLAN - PHASE 3 CONSTRUCTION



SILL PLAN - PHASE 3 CONSTRUCTION

NOTE: DOWNSTREAM SILL SHOWN; UPSTREAM SILL SIMILAR.

"A" = #5 A301 THRU #5 A314 @ 6" CTS.

"B" = #5 A315 THRU #5 A328 @ 6" CTS.

"C" = #6 A351 THRU #6 A364 @ 6" CTS.

"D" = #6 A365 THRU #6 A378 @ 6" CTS.

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CHECKED BY : RDE DATE : 5/17
DESIGN ENGINEER OF RECORD : RDE DATE : 5/17

PROJECT NO. R-5745
CALDWELL COUNTY
STATION: 14+68.00-L-
SHEET 3 OF 4

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

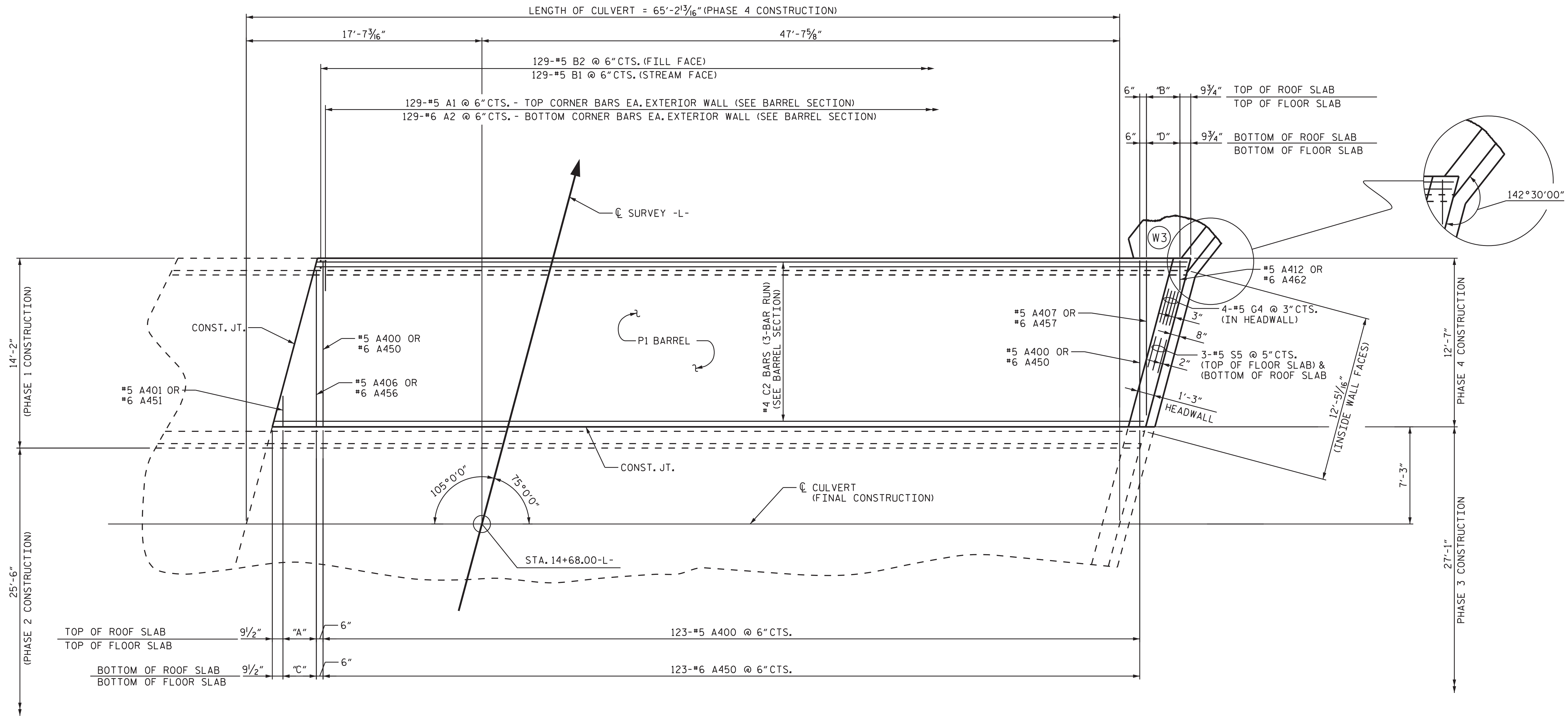
TRIPLE BARREL
12'-0" X 12'-4"
CONCRETE BOX CULVERT
75° SKEW
PHASE 3 PLAN

REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO.
C-7

TOTAL SHEETS
21



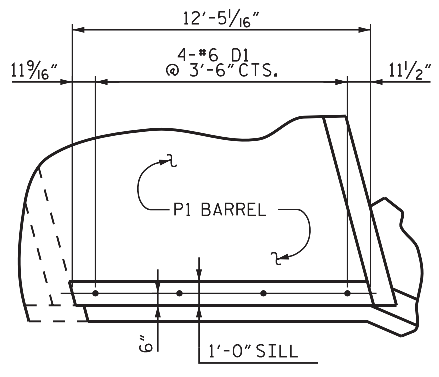
CULVERT PLAN - PHASE 4 CONSTRUCTION

"A" = #5 A401 THRU #5 A406
@ 6" CTS.

"B" = #5 A407 THRU #5 A412
@ 6" CTS.

"C" = #6 A451 THRU #6 A456
@ 6" CTS.

"D" = #6 A457 THRU #6 A462
@ 6" CTS.



SILL PLAN - PHASE 4 CONSTRUCTION

NOTE: DOWNSTREAM SILL SHOWN; UPSTREAM SILL SIMILAR.

DRAWN BY :	RTJ	DATE :	5/17
CHECKED BY :	RDE	DATE :	5/17
DESIGN ENGINEER OF RECORD :	RDE	DATE :	5/17

PROJECT NO. R-5745
CALDWELL COUNTY
STATION: 14+68.00-L-
SHEET 4 OF 4

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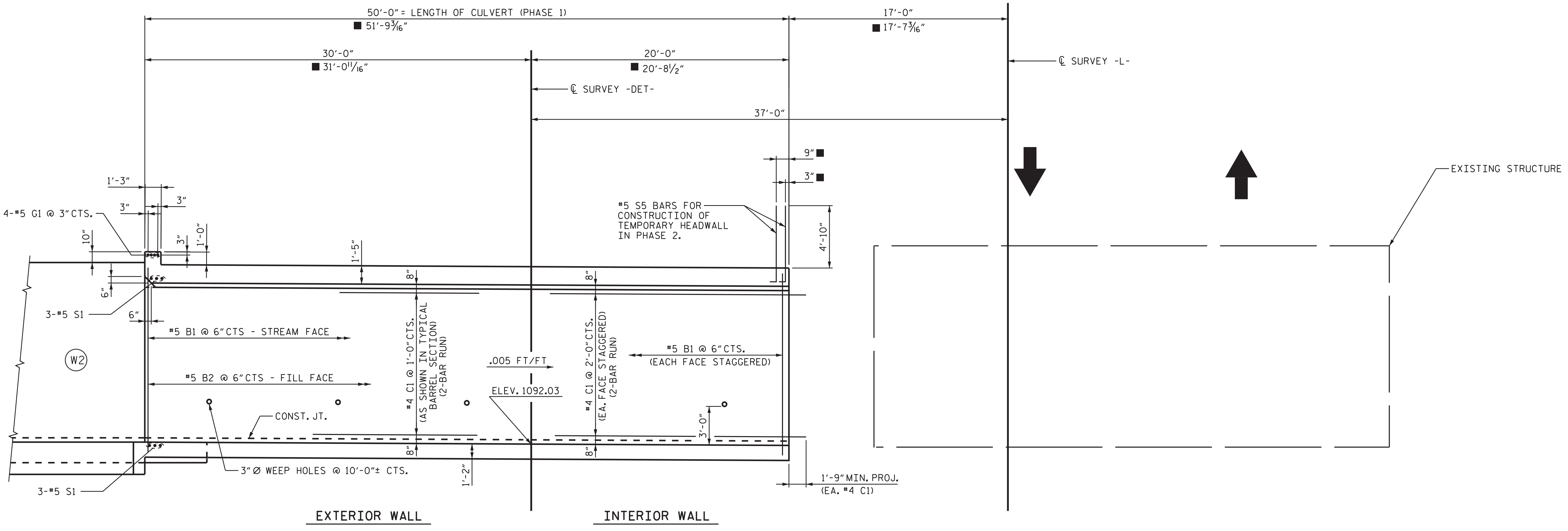
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TRIPLE BARREL
12'-0" X 12'-4"
CONCRETE BOX CULVERT
75° SKEW
PHASE 4 PLAN

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO.
C-8
TOTAL SHEETS
21



CULVERT SECTION NORMAL TO ROADWAY - PHASE 1
P1 BARREL AND WING W2 CONSTRUCTION

NOTES:

DIMENSIONS NORMAL TO -L- UNLESS OTHERWISE NOTED.

■ DIMENSIONS ALONG SKEW.

PROJECT NO. R-5745

CALDWELL COUNTY

STATION: 14+68.00-L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TRIPLE BARREL
12'-0" X 12'-4"
CONCRETE BOX CULVERT
75° SKEW
PHASE 1 SECTION

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22992

6/13/2017

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TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

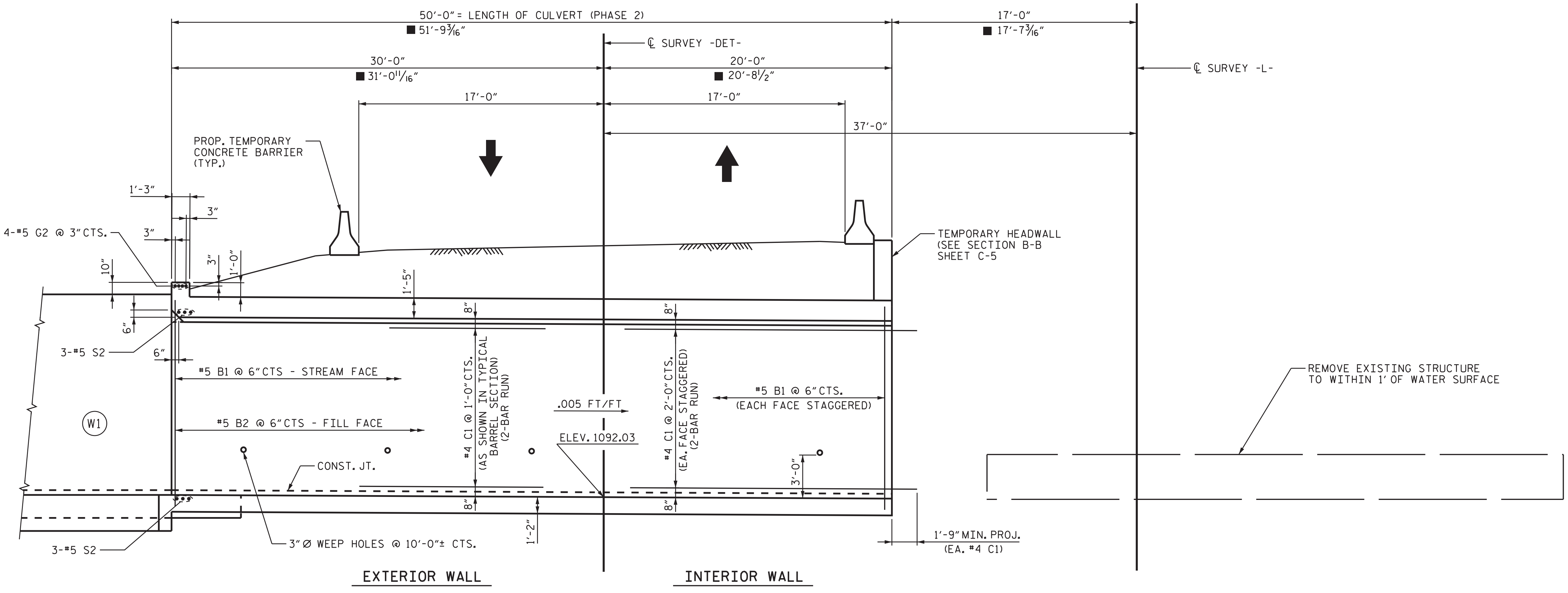
REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. C-9

TOTAL SHEETS 21

DRAWN BY :	RTJ	DATE :	5/17
CHECKED BY :	RDE	DATE :	5/17
DESIGN ENGINEER OF RECORD :	RDE	DATE :	5/17



CULVERT SECTION NORMAL TO ROADWAY - PHASE 2
P2 & P3 BARREL AND WING W1 CONSTRUCTION

NOTES:

DIMENSIONS NORMAL TO -L- UNLESS OTHERWISE NOTED.

■ DIMENSIONS ALONG SKEW.

PROJECT NO. R-5745
CALDWELL COUNTY
STATION: 14+68.00-L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TRIPLE BARREL
12'-0" X 12'-4"
CONCRETE BOX CULVERT
75° SKEW
PHASE 2 SECTION

22492
DocuSigned by:
Ray D. Elliott
4576ADA7F49D43D...
6/13/2017

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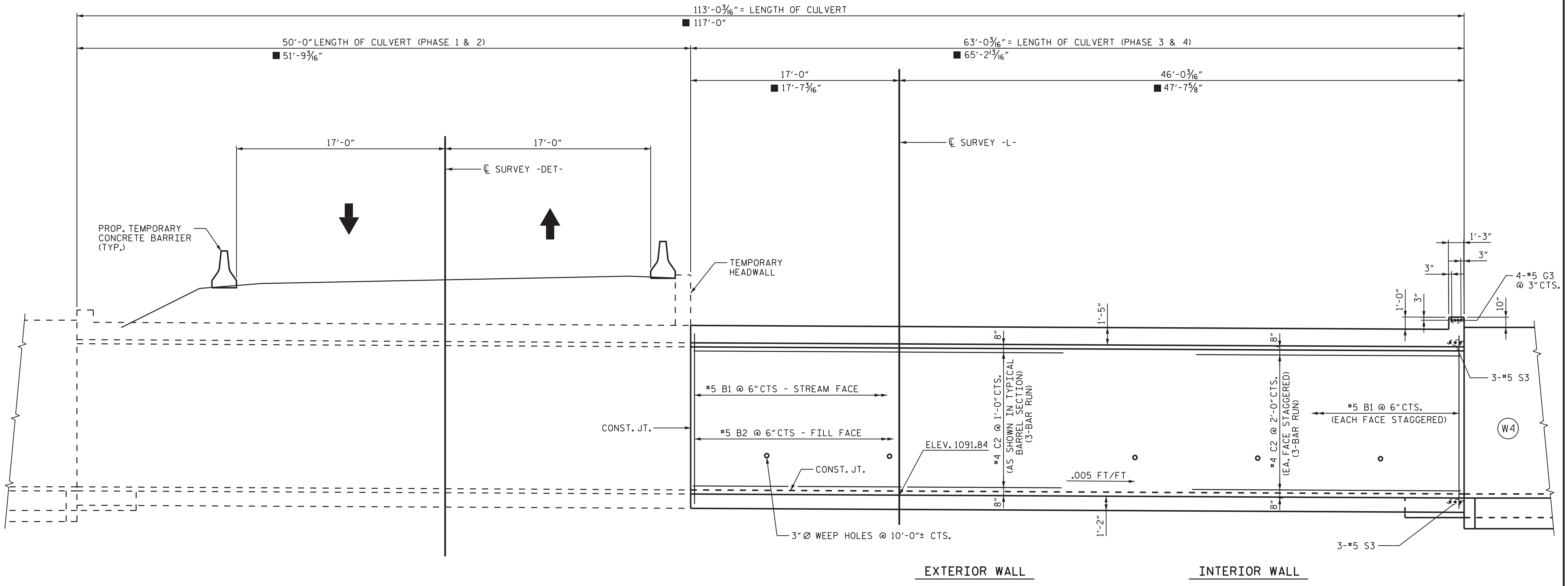
TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. C-10
TOTAL SHEETS 21

DRAWN BY :	RTJ	DATE :	5/17
CHECKED BY :	RDE	DATE :	5/17
DESIGN ENGINEER OF RECORD :	RDE	DATE :	5/17



NOTES:

DIMENSIONS NORMAL TO -L- UNLESS OTHERWISE NOTED.

■ DIMENSIONS ALONG SKEW.

CULVERT SECTION NORMAL TO ROADWAY - PHASE 3
P2 & P3 BARREL AND WING W4 CONSTRUCTION

PROJECT NO. R-5745
CALDWELL COUNTY
STATION: 14+68.00-L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TRIPLE BARREL
12'-0" X 12'-4"
CONCRETE BOX CULVERT
75° SKEW
PHASE 3 SECTION

DocuSigned by:
Ray D. Elliott
4576ADA7F49D43D...
SEAL 22992
RAY D. ELLIOTT

6/13/2017

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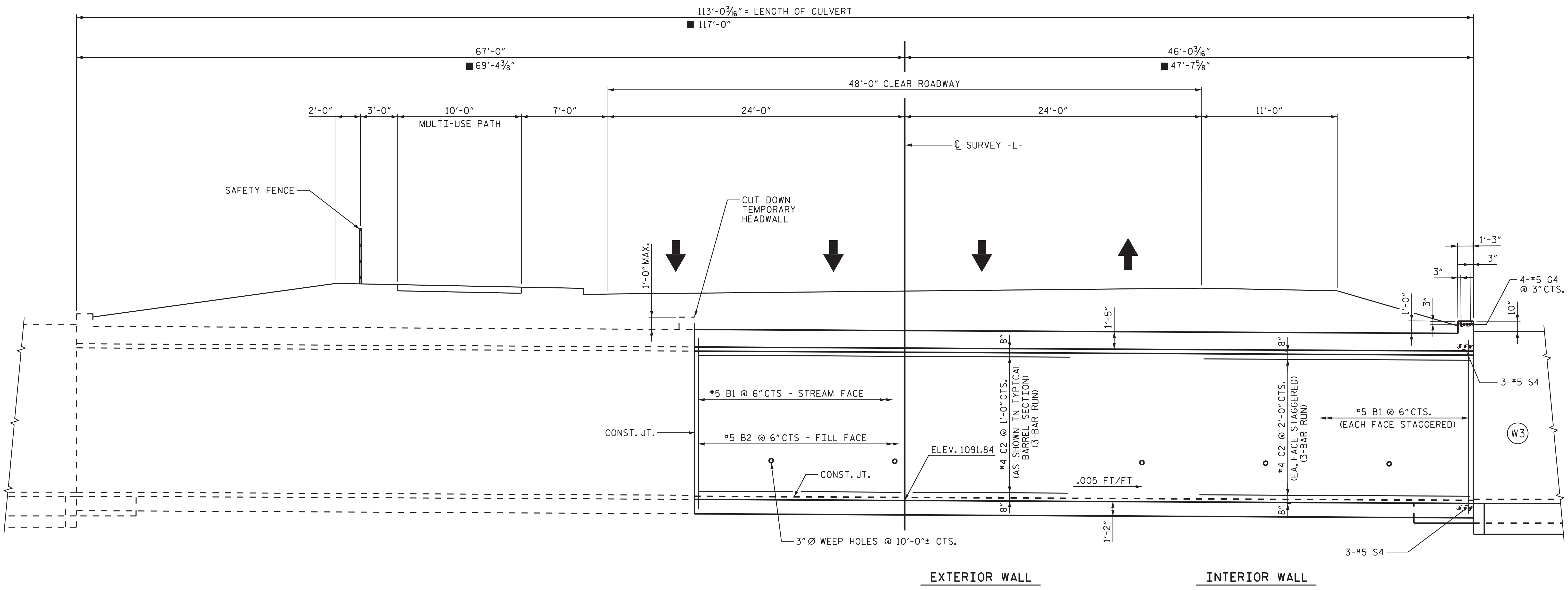
TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. C-11
TOTAL SHEETS 21

DRAWN BY :	RTJ	DATE :	5/17
CHECKED BY :	RDE	DATE :	5/17
DESIGN ENGINEER OF RECORD :	RDE	DATE :	5/17



NOTES:

DIMENSIONS NORMAL TO -L- UNLESS OTHERWISE NOTED.

■ DIMENSIONS ALONG SKEW.

CULVERT SECTION NORMAL TO ROADWAY - PHASE 4
P1 BARREL AND WING W3 CONSTRUCTION

PROJECT NO. R-5745

CALDWELL COUNTY

STATION: 14+68.00-L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TRIPLE BARREL
12'-0" X 12'-4"
CONCRETE BOX CULVERT
75° SKEW
PHASE 4 SECTION

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22492
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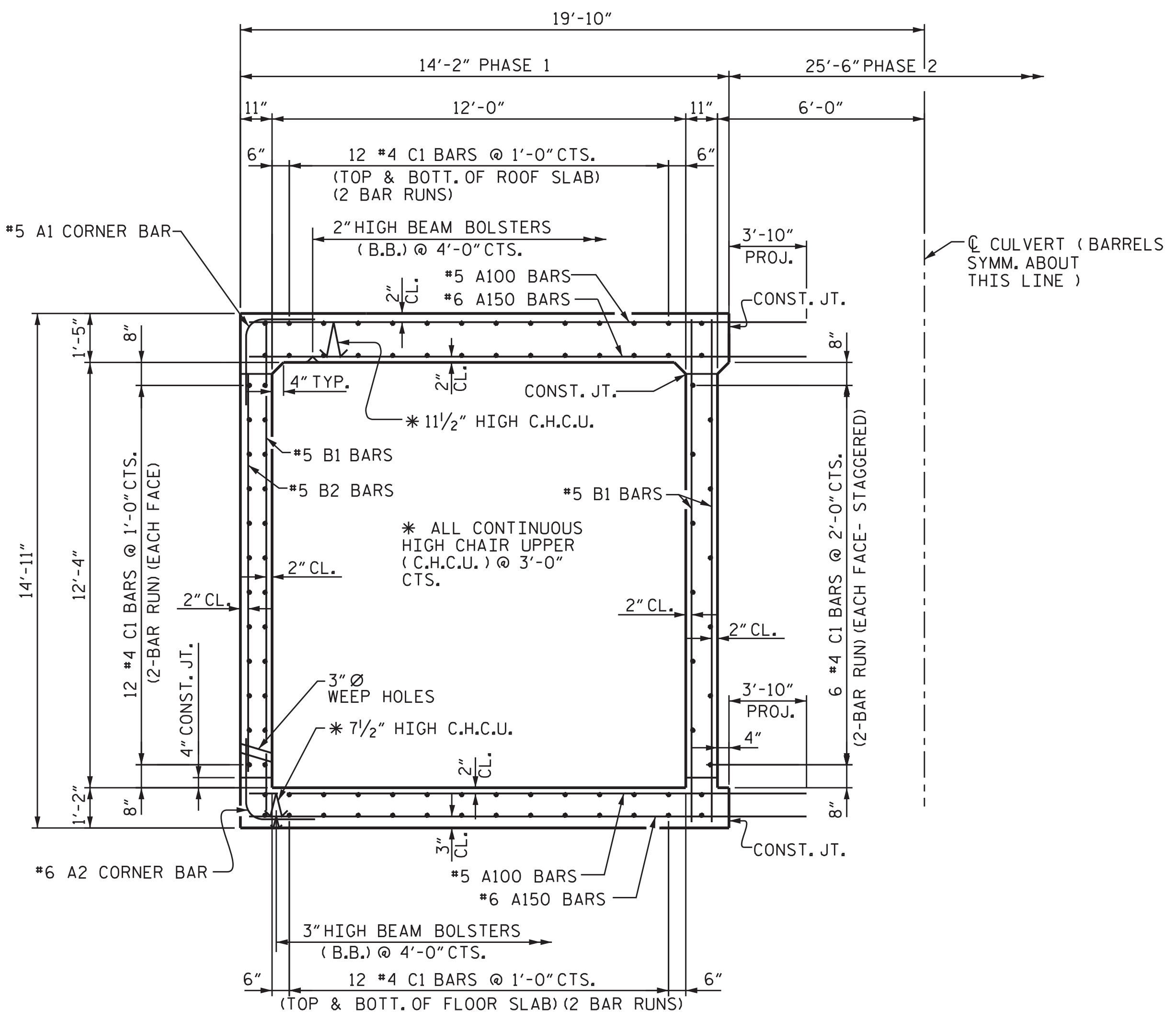
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. C-12

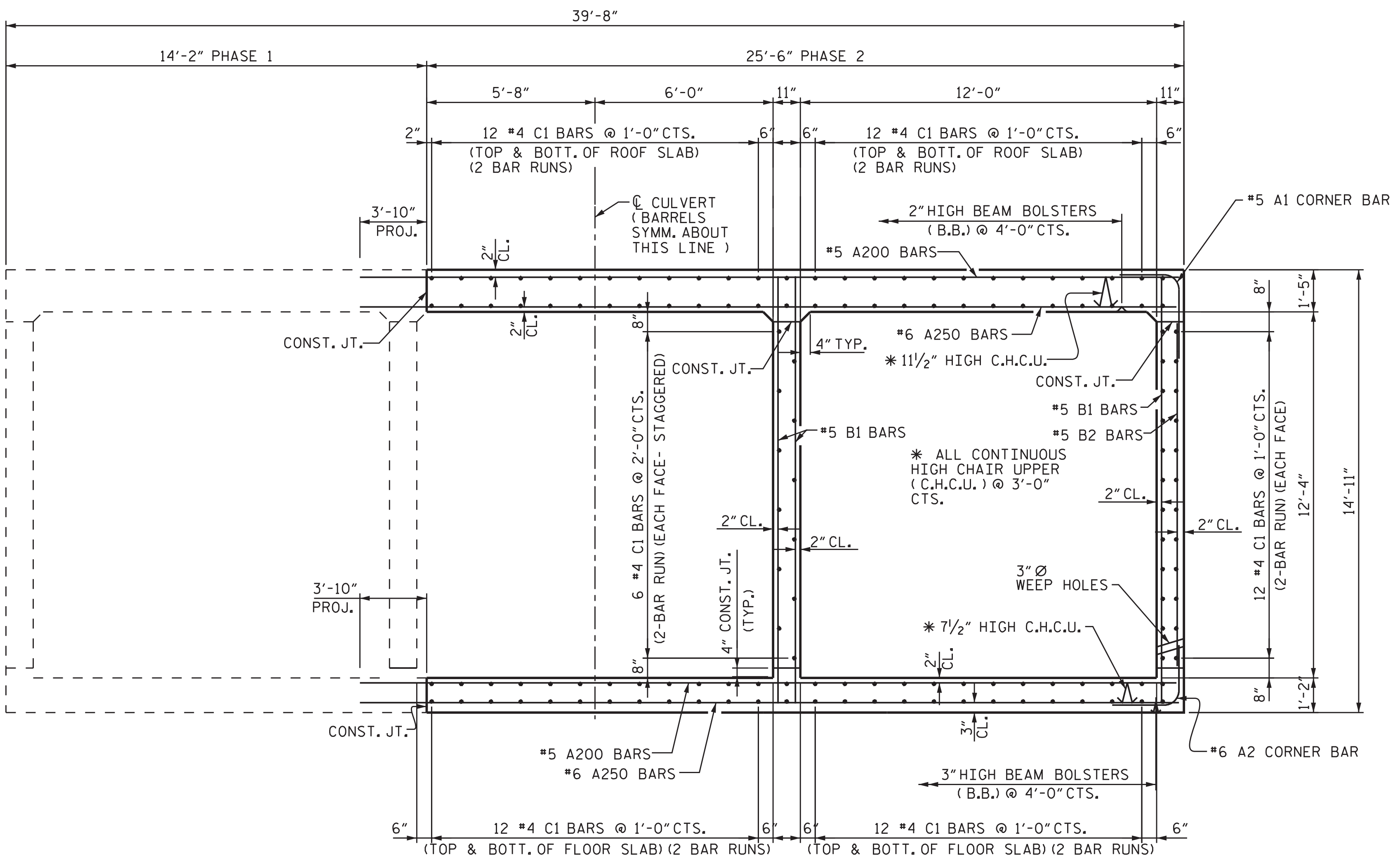
TOTAL SHEETS 21

DRAWN BY :	RTJ	DATE :	5/17
CHECKED BY :	RDE	DATE :	5/17
DESIGN ENGINEER OF RECORD :	RDE	DATE :	5/17



RIGHT ANGLE SECTION OF BARREL PHASE 1 CONSTRUCTION

THERE ARE 92 C1 BARS IN PHASE 1 SECTION OF BARREL.



RIGHT ANGLE SECTION OF BARREL PHASE 2 CONSTRUCTION

THERE ARE 140 C1 BARS IN PHASE 2 SECTION OF BARREL.

PROJECT NO. R-5745
CALDWELL COUNTY
STATION: 14+68.00-L-
SHEET 1 OF 3

22992
RAY D. ELLIOTT
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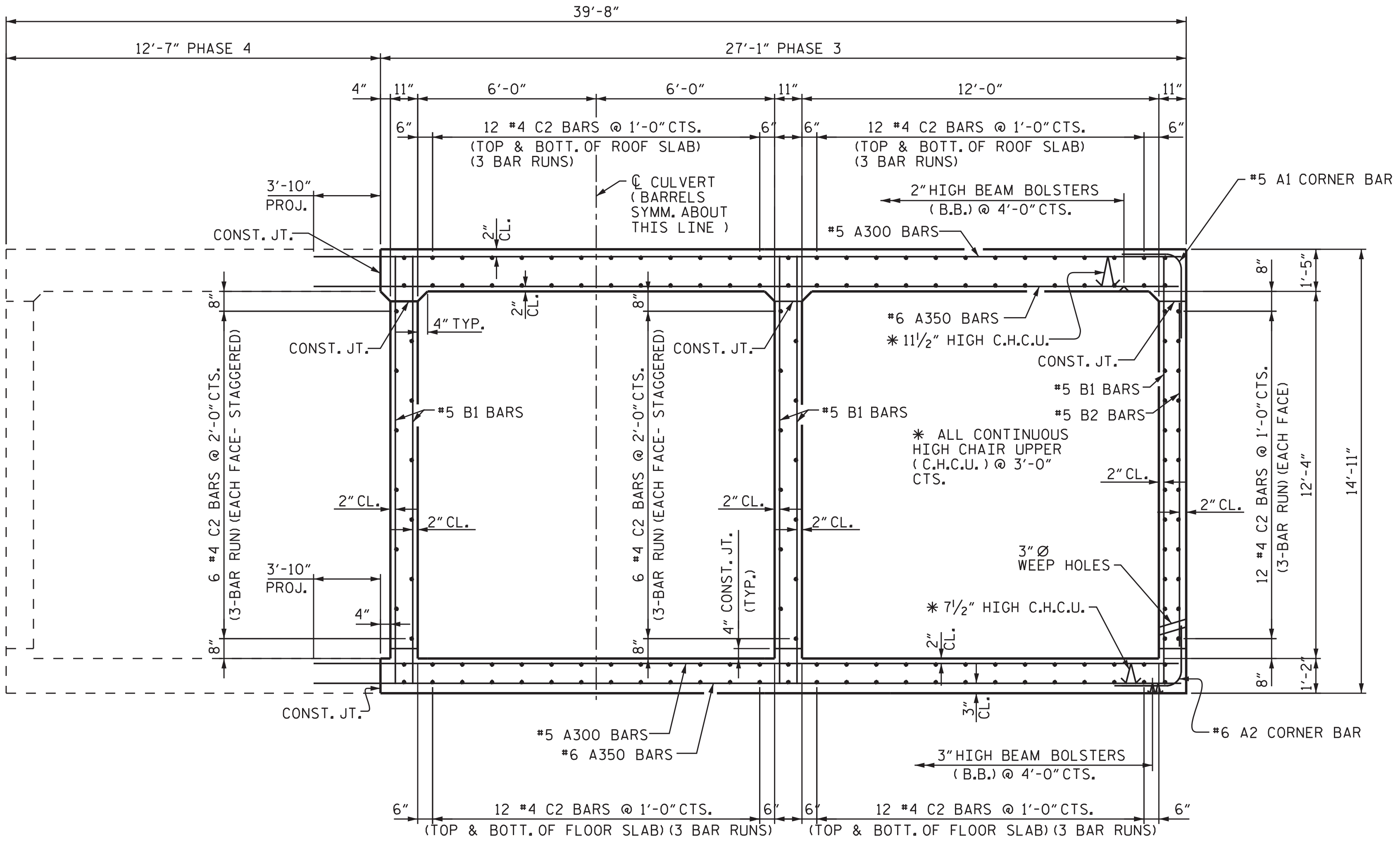
TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TRIPLE BARREL
12'-0" X 12'-4"
CONCRETE BOX CULVERT
75° SKEW
BARREL DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-13
1			3			TOTAL SHEETS
2			4			21

DRAWN BY :	NMW	DATE :	5/17
CHECKED BY :	RDE	DATE :	5/17
DESIGN ENGINEER OF RECORD :	RDE	DATE :	5/17



RIGHT ANGLE SECTION OF BARREL PHASE 3 CONSTRUCTION

THERE ARE 156 C2 BARS IN PHASE 3 SECTION OF BARREL.

PROJECT NO. R-5745

CALDWELL COUNTY

STATION: 14+68.00-L-

SHEET 2 OF 3

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SEAL
22992

6/13/2017

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SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

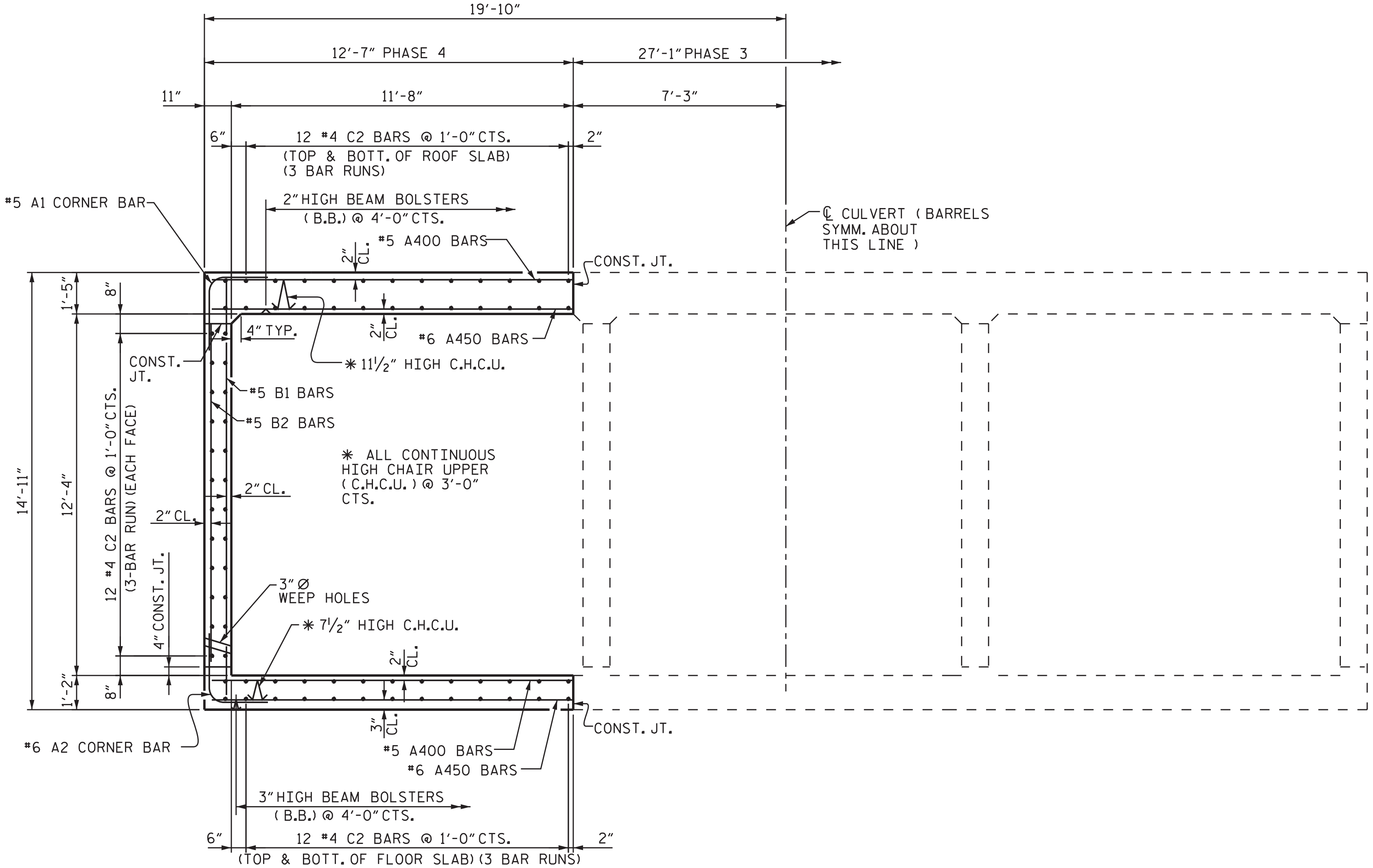
TRIPLE BARREL
12'-0" X 12'-4"
CONCRETE BOX CULVERT
75° SKEW
BARREL DETAILS

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO.
C-14

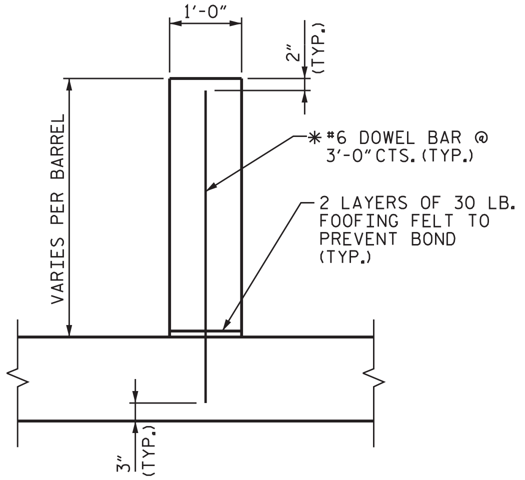
TOTAL SHEETS
21

DRAWN BY :	NMW	DATE :	5/17
CHECKED BY :	RDE	DATE :	5/17
DESIGN ENGINEER OF RECORD :	JBW	DATE :	5/17



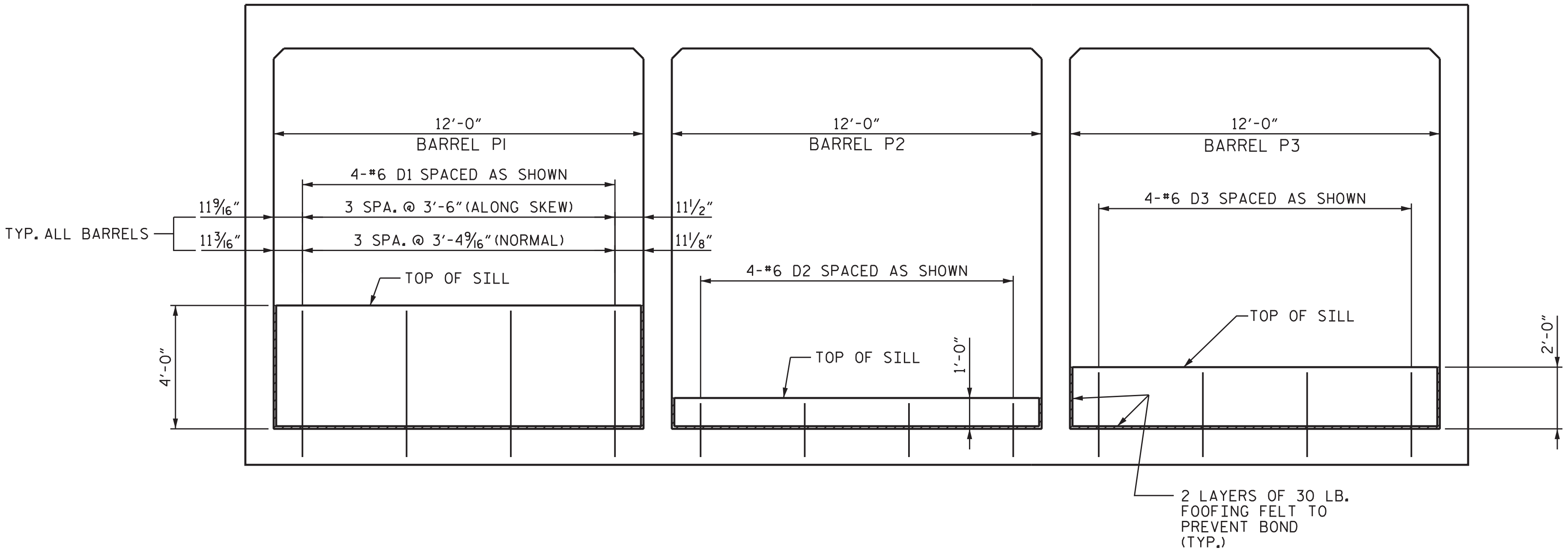
RIGHT ANGLE SECTION OF BARREL PHASE 4 CONSTRUCTION

THERE ARE 76 C2 BARS IN PHASE 4 SECTION OF BARREL.



TYPICAL SECTION THROUGH SILL

✱ DOWELS MAY BE PUSHED INTO GREEN CONCRETE AFTER SLAB HAS BEEN FLOAT FINISHED, EXCEPT AT UPSTREAM END OF BARREL P1 DURING PHASE 4 CONSTRUCTION, WHICH WILL BE ADHESIVELY ANCHORED.



CULVERT INLET & OUTLET SECTION LOOKING DOWNSTREAM

PROJECT NO. R-5745

CALDWELL COUNTY

STATION: 14+68.00-L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TRIPLE BARREL
12'-0" X 12'-4"
CONCRETE BOX CULVERT
75° SKEW
BARREL DETAILS

DocuSigned by:
Ray D. Elliott
22992
4976ADA7F4D043D...

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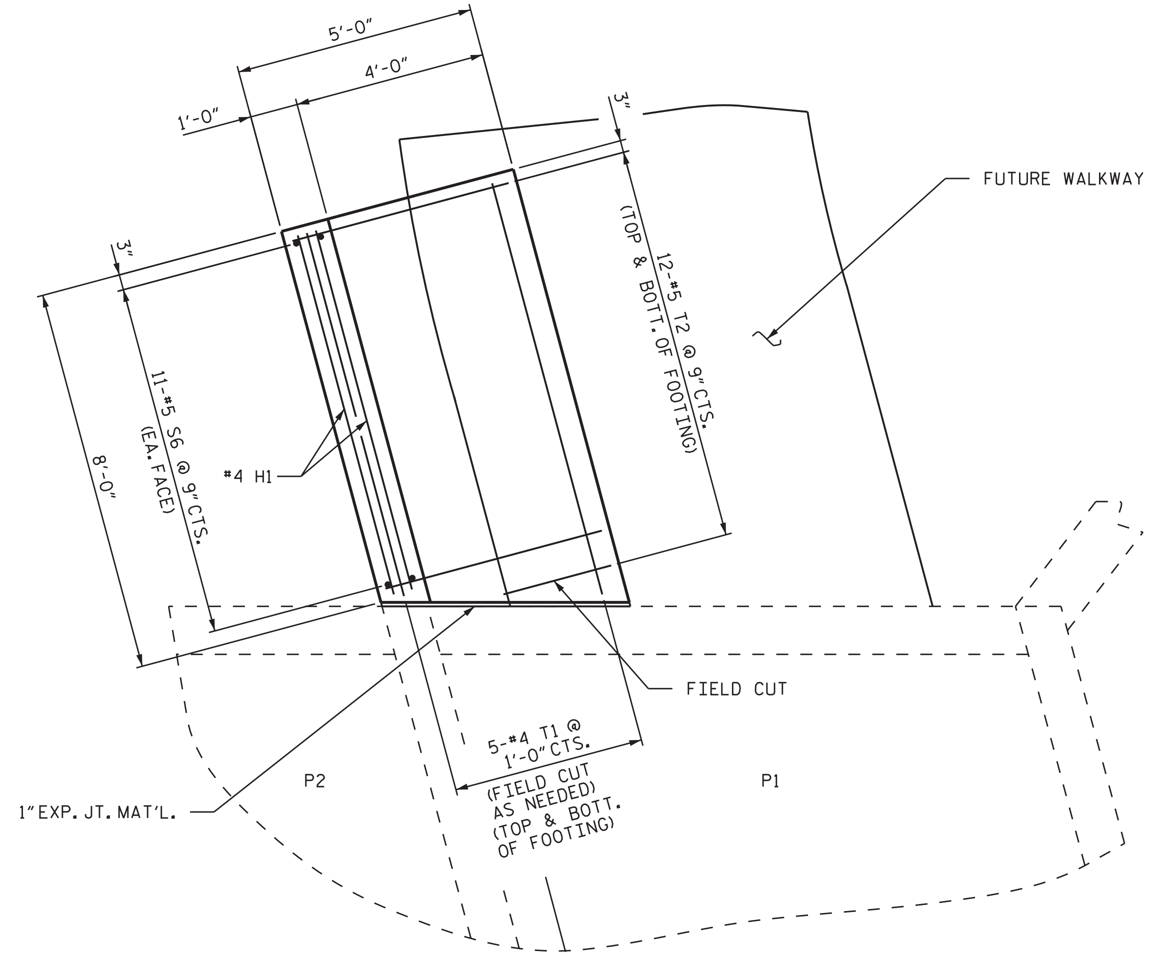
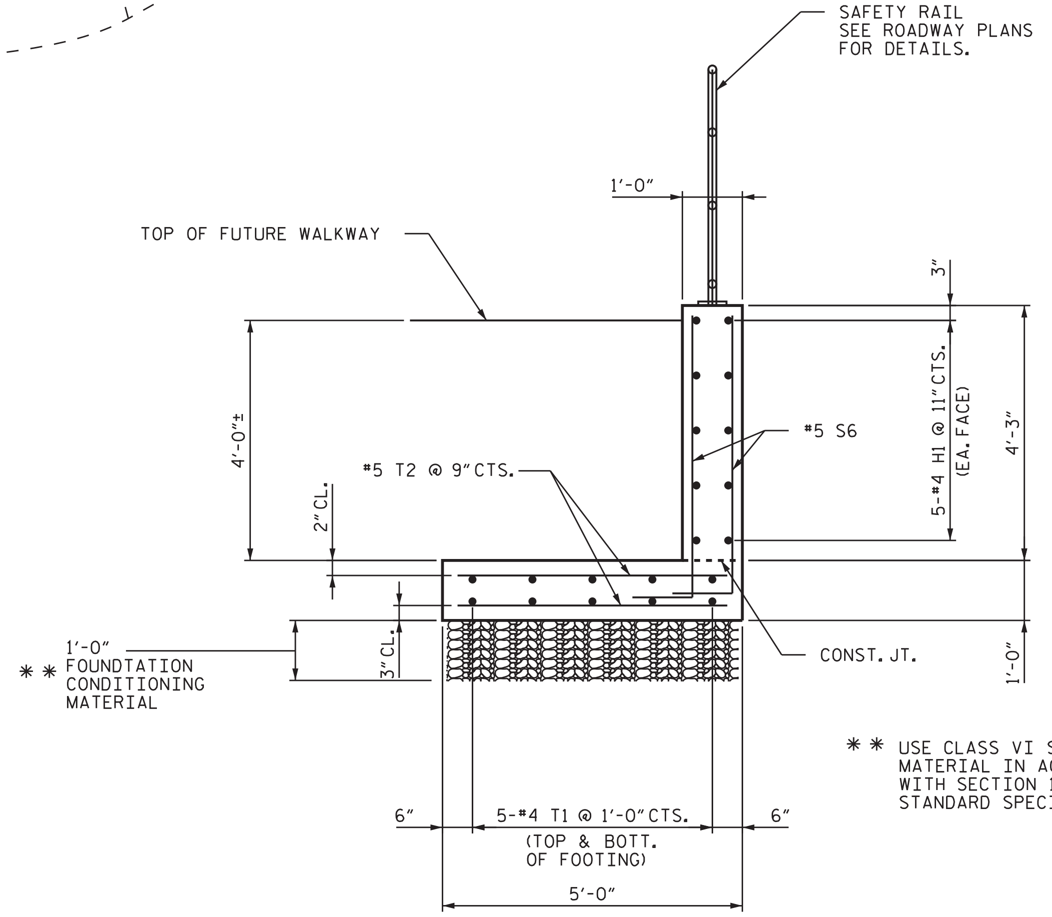
TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-15
1			3			TOTAL SHEETS
2			4			21

DRAWN BY :	NMW	DATE :	5/17
CHECKED BY :	RDE	DATE :	5/17
DESIGN ENGINEER OF RECORD :	JBW	DATE :	5/17



RETAINING WALL PLAN



** USE CLASS VI SELECT MATERIAL IN ACCORDANCE WITH SECTION 1016 OF THE STANDARD SPECIFICATIONS.

RETAINING WALL ELEVATION

PROJECT NO. R-5745
CALDWELL COUNTY
STATION: 14+68.00-L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TRIPLE BARREL
12'-0" X 12'-4"
CONCRETE BOX CULVERT
75° SKEW
RETAINING WALL DETAILS

NORTH CAROLINA PROFESSIONAL ENGINEER 22992
DocuSigned by:
Ray D. Elliott
4576ADA7E49D43D...
6/13/2017

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TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

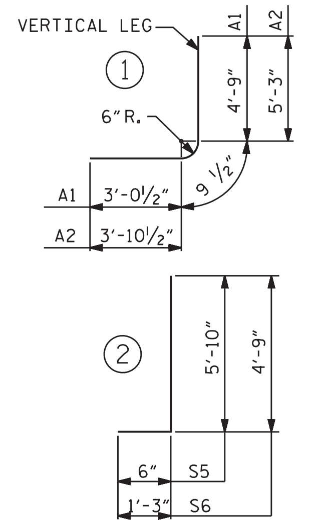
REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. C-16
TOTAL SHEETS 21

DRAWN BY :	RTJ	DATE :	5/17
CHECKED BY :	RDE	DATE :	5/17
DESIGN ENGINEER OF RECORD :	RDE	DATE :	5/17

BAR TYPE



BAR DIMENSIONS ARE OUT TO OUT

BARREL PI
REINFORCING STEEL SCHEDULE
PHASE I CONSTRUCTION

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	103	#5	1	8′-7″	922
A2	103	#6	1	9′-11″	1,534
A100	192	#5	STR	17′-10″	3,571
A101	2	#5	STR	5′-0″	10
A102	2	#5	STR	6′-11″	14
A103	2	#5	STR	8′-9″	18
A104	2	#5	STR	10′-7″	22
A105	2	#5	STR	12′-6″	26
A106	2	#5	STR	14′-4″	30
A107	2	#5	STR	16′-3″	34
A108	2	#5	STR	17′-1″	36
A109	2	#5	STR	15′-2″	32
A110	2	#5	STR	13′-4″	28
A111	2	#5	STR	11′-6″	24
A112	2	#5	STR	9′-7″	20
A113	2	#5	STR	7′-8″	16
A114	2	#5	STR	5′-10″	12
A150	192	#6	STR	17′-10″	5,143
A151	2	#6	STR	5′-0″	15
A152	2	#6	STR	6′-11″	21
A153	2	#6	STR	8′-9″	26
A154	2	#6	STR	10′-7″	32
A155	2	#6	STR	12′-6″	38
A156	2	#6	STR	14′-4″	43
A157	2	#6	STR	16′-3″	49
A158	2	#6	STR	17′-1″	51
A159	2	#6	STR	15′-2″	46
A160	2	#6	STR	13′-4″	40
A161	2	#6	STR	11′-6″	35
A162	2	#6	STR	9′-7″	29
A163	2	#6	STR	7′-8″	23
A164	2	#6	STR	5′-10″	18
B1	309	#5	STR	14′-5″	4,646
B2	103	#5	STR	11′-8″	1,253
C1	184	#4	STR	27′-10″	3,421
G1	4	#5	STR	17′-6″	73
S1	6	#5	STR	17′-6″	110
S5	30	#5	2	6′-4″	198
				TOTAL LBS. =	21,659
CLASS A CONCRETE BARREL					152.7 C.Y.

BARREL P2 & P3
REINFORCING STEEL SCHEDULE
PHASE 2 CONSTRUCTION

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	103	#5	1	8′-7″	922
A2	103	#6	1	9′-11″	1,534
A200	182	#5	STR	25′-4″	4,809
A201	2	#5	STR	2′-2″	5
A202	2	#5	STR	4′-1″	9
A203	2	#5	STR	5′-11″	12
A204	2	#5	STR	7′-9″	16
A205	2	#5	STR	9′-8″	20
A206	2	#5	STR	11′-6″	24
A207	2	#5	STR	13′-5″	28
A208	2	#5	STR	15′-3″	32
A209	2	#5	STR	17′-1″	36
A210	2	#5	STR	19′-0″	40
A211	2	#5	STR	20′-11″	44
A212	2	#5	STR	22′-9″	47
A213	2	#5	STR	24′-7″	51
A214	2	#5	STR	25′-2″	52
A215	2	#5	STR	23′-4″	49
A216	2	#5	STR	21′-6″	45
A217	2	#5	STR	19′-7″	41
A218	2	#5	STR	17′-9″	37
A219	2	#5	STR	15′-11″	33
A220	2	#5	STR	14′-1″	29
A221	2	#5	STR	12′-2″	25
A222	2	#5	STR	10′-4″	22
A223	2	#5	STR	8′-6″	18
A224	2	#5	STR	6′-7″	14
A225	2	#5	STR	4′-9″	10
A250	182	#6	STR	25′-4″	6,925
A251	2	#6	STR	2′-2″	7
A252	2	#6	STR	4′-1″	12
A253	2	#6	STR	5′-11″	18
A254	2	#6	STR	7′-9″	23
A255	2	#6	STR	9′-8″	29
A256	2	#6	STR	11′-6″	35
A257	2	#6	STR	13′-5″	40
A258	2	#6	STR	15′-3″	46
A259	2	#6	STR	17′-1″	51
A260	2	#6	STR	19′-0″	57
A261	2	#6	STR	20′-11″	63
A262	2	#6	STR	22′-9″	68
A263	2	#6	STR	24′-7″	74
A264	2	#6	STR	25′-2″	76
A265	2	#6	STR	23′-4″	70
A266	2	#6	STR	21′-6″	65
A267	2	#6	STR	19′-7″	59
A268	2	#6	STR	17′-9″	53
A269	2	#6	STR	15′-11″	48
A270	2	#6	STR	14′-1″	42
A271	2	#6	STR	12′-2″	37
A272	2	#6	STR	10′-4″	31
A273	2	#6	STR	8′-6″	26
A274	2	#6	STR	6′-7″	20
A275	2	#6	STR	4′-9″	14
B1	309	#5	STR	14′-5″	4,646
B2	103	#5	STR	11′-8″	1,253
C1	280	#4	STR	27′-10″	5,206
D2	4	#6	STR	1′-9″	11
D3	4	#6	STR	2′-9″	17
G2	4	#5	STR	26′-2″	109
H1	10	#5	STR	40′-8″	424
S2	6	#5	STR	26′-2″	164
S5	52	#5	2	6′-4″	344
				TOTAL LBS. =	28,167
CLASS A CONCRETE					
BARREL					227.8 C.Y.
TEMPORARY RETAINING WALL					7.7 C.Y.
TOTAL					235.5 C.Y.

BARREL P2 & P3
REINFORCING STEEL SCHEDULE
PHASE 3 CONSTRUCTION

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	129	#5	1	8′-7″	1,155
A2	129	#6	1	9′-11″	1,921
A300	230	#5	STR	30′-9″	7,377
A301	2	#5	STR	3′-1″	6
A302	2	#5	STR	4′-11″	10
A303	2	#5	STR	6′-11″	14
A304	2	#5	STR	8′-10″	18
A305	2	#5	STR	10′-9″	22
A306	2	#5	STR	12′-8″	26
A307	2	#5	STR	14′-7″	30
A308	2	#5	STR	16′-6″	34
A309	2	#5	STR	18′-5″	38
A310	2	#5	STR	20′-4″	42
A311	2	#5	STR	22′-3″	46
A312	2	#5	STR	24′-2″	50
A313	2	#5	STR	26′-1″	54
A314	2	#5	STR	28′-0″	58
A315	2	#5	STR	29′-2″	61
A316	2	#5	STR	27′-3″	57
A317	2	#5	STR	25′-5″	53
A318	2	#5	STR	23′-6″	49
A319	2	#5	STR	21′-8″	45
A320	2	#5	STR	19′-10″	41
A321	2	#5	STR	17′-11″	37
A322	2	#5	STR	16′-1″	34
A323	2	#5	STR	14′-2″	30
A324	2	#5	STR	12′-4″	26
A325	2	#5	STR	10′-6″	22
A326	2	#5	STR	8′-7″	18
A327	2	#5	STR	6′-9″	14
A328	2	#5	STR	4′-11″	10
A350	230	#6	STR	30′-9″	10,623
A351	2	#6	STR	3′-1″	9
A352	2	#6	STR	4′-11″	15
A353	2	#6	STR	6′-11″	21
A354	2	#6	STR	8′-10″	27
A355	2	#6	STR	10′-9″	32
A356	2	#6	STR	12′-8″	38
A357	2	#6	STR	14′-7″	44
A358	2	#6	STR	16′-6″	50
A359	2	#6	STR	18′-5″	55
A360	2	#6	STR	20′-4″	61
A361	2	#6	STR	22′-3″	67
A362	2	#6	STR	24′-2″	73
A363	2	#6	STR	26′-1″	78
A364	2	#6	STR	28′-0″	84
A365	2	#6	STR	29′-2″	88
A366	2	#6	STR	27′-3″	82
A367	2	#6	STR	25′-5″	76
A368	2	#6	STR	23′-6″	71
A369	2	#6	STR	21′-8″	65
A370	2	#6	STR	19′-10″	60
A371	2	#6	STR	17′-11″	54
A372	2	#6	STR	16′-1″	48
A373	2	#6	STR	14′-2″	43
A374	2	#6	STR	12′-4″	37
A375	2	#6	STR	10′-6″	32
A376	2	#6	STR	8′-7″	26
A377	2	#6	STR	6′-9″	20
A378	2	#6	STR	4′-11″	15
B1	645	#5	STR	14′-5″	9,699
B2	129	#5	STR	11′-8″	1,570
C2	468	#4	STR	23′-0″	7,190
D2	4	#6	STR	1′-9″	11
D3	4	#6	STR	2′-9″	17
G3	4	#5	STR	30′-11″	129
S3	6	#5	STR	30′-11″	193
				TOTAL LBS. =	42,201
CLASS A CONCRETE					
BARREL					183.9 C.Y.
SILLS					2.8 C.Y.
TOTAL					186.7 C.Y.

BARREL PI
REINFORCING STEEL SCHEDULE
PHASE 4 CONSTRUCTION

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	129	#5	1	8′-7″	1,155
A2	129	#6	1	9′-11″	1,921
A400	246	#5	STR	12′-5″	3,186
A401	2	#5	STR	2′-3″	5
A402	2	#5	STR	4′-2″	9
A403	2	#5	STR	6′-0″	13
A404	2	#5	STR	7′-11″	17
A405	2	#5	STR	9′-9″	20
A406	2	#5	STR	11′-7″	24
A407	2	#5	STR	11′-6″	24
A408	2	#5	STR	9′-8″	20
A409	2	#5	STR	7′-9″	16
A410	2	#5	STR	5′-11″	12
A411	2	#5	STR	4′-1″	9
A412	2	#5	STR	2′-2″	5
A450	246	#6	STR	12′-5″	4,588
A451	2	#6	STR	2′-3″	7
A452	2	#6	STR	4′-2″	13
A453	2	#6	STR	6′-0″	18
A454	2	#6	STR	7′-11″	24
A455	2	#6	STR	9′-9″	29
A456	2	#6	STR	11′-7″	35
A457	2	#6	STR	11′-6″	35
A458	2	#6	STR	9′-8″	29
A459	2	#6	STR	7′-9″	23
A460	2	#6	STR	5′-11″	18
A461	2	#6	STR	4′-1″	12
A462	2	#6	STR	2′-2″	7
B1	129	#5	STR	14′-5″	1,940
B2	129	#5	STR	11′-8″	1,570
C2	228	#4	STR	23′-0″	3,503
■ D1	8	#6	STR	4′-9″	57
G4	4	#5	STR	12′-10″	53
S4	6	#5	STR	12′-10″	80
TOTAL REINFORCING STEEL					18,650 LBS.
CLASS A CONCRETE					
BARREL					77.5 C.Y.
SILLS					3.7 C.Y.
TOTAL					81.2 C.Y.

■ NOTE:
THERE ARE 4-#6 D1 IN THE UPSTREAM SIDE OF PHASE 1 BARREL P1 AND 4-#6 D1 IN THE DOWNSTREAM SIDE OF PHASE 4 BARREL P1.

BARREL PI
REINFORCING STEEL SCHEDULE
WALKWAY RETAINING WALL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	10	#4	STR	7′-8″	51
S6	22	#5	2	6′-0″	138
T1	10	#4	STR	8′-10″	59
T2	24	#5	STR	4′-8″	117
TOTAL REINFORCING STEEL					365 LBS.
CLASS A CONCRETE					3.0 C.Y.

PROJECT NO. R-5745
CALDWELL COUNTY
STATION: 14+68.00-L-

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TGS ENGINEERS
804-C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TRIPLE BARREL
12′-0″X 12′-4″
CONCRETE BOX CULVERT
75° SKEW
BILL OF MATERIAL

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO.
C-17
TOTAL 22
21

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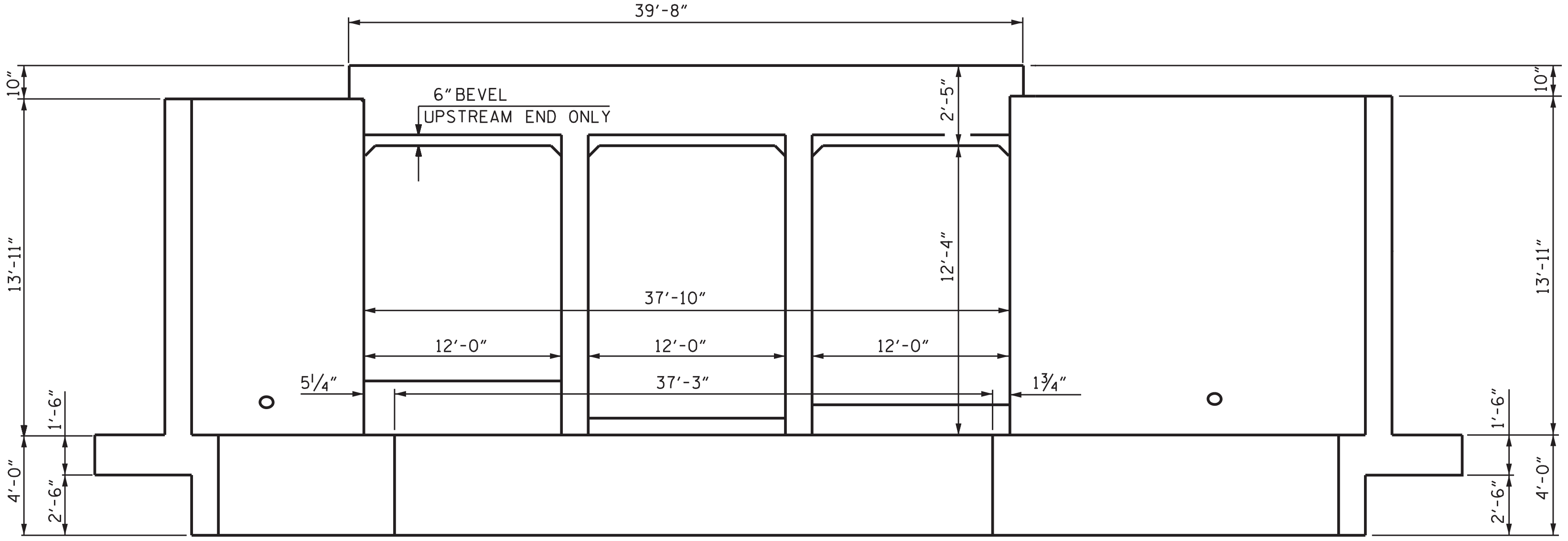
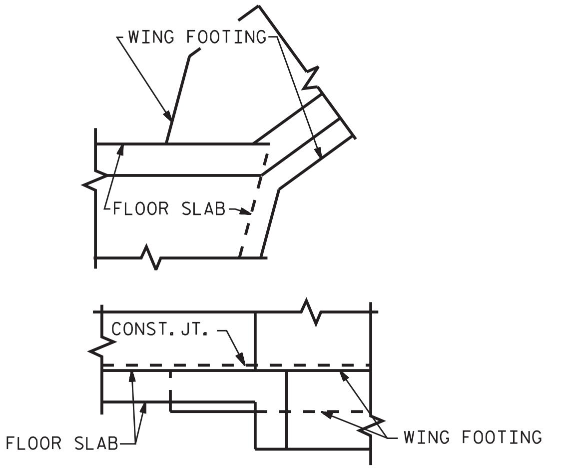
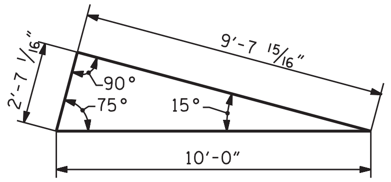


END ELEVATION NORMAL TO SKEW



DETAIL

CONNECTION OF WING FOOTING AND FLOOR SLAB WHEN FOOTING IS THICKER THAN SLAB



SKEW TRIANGLE

PROJECT NO. R-5745

CALDWELL COUNTY

STATION: 14+68.00-L-

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TRIPLE BARREL
12'-0"X 12'-4"
CONCRETE BOX CULVERT
75° SKEW
END ELEVATION

REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO.
C-18

TOTAL SHEETS
21

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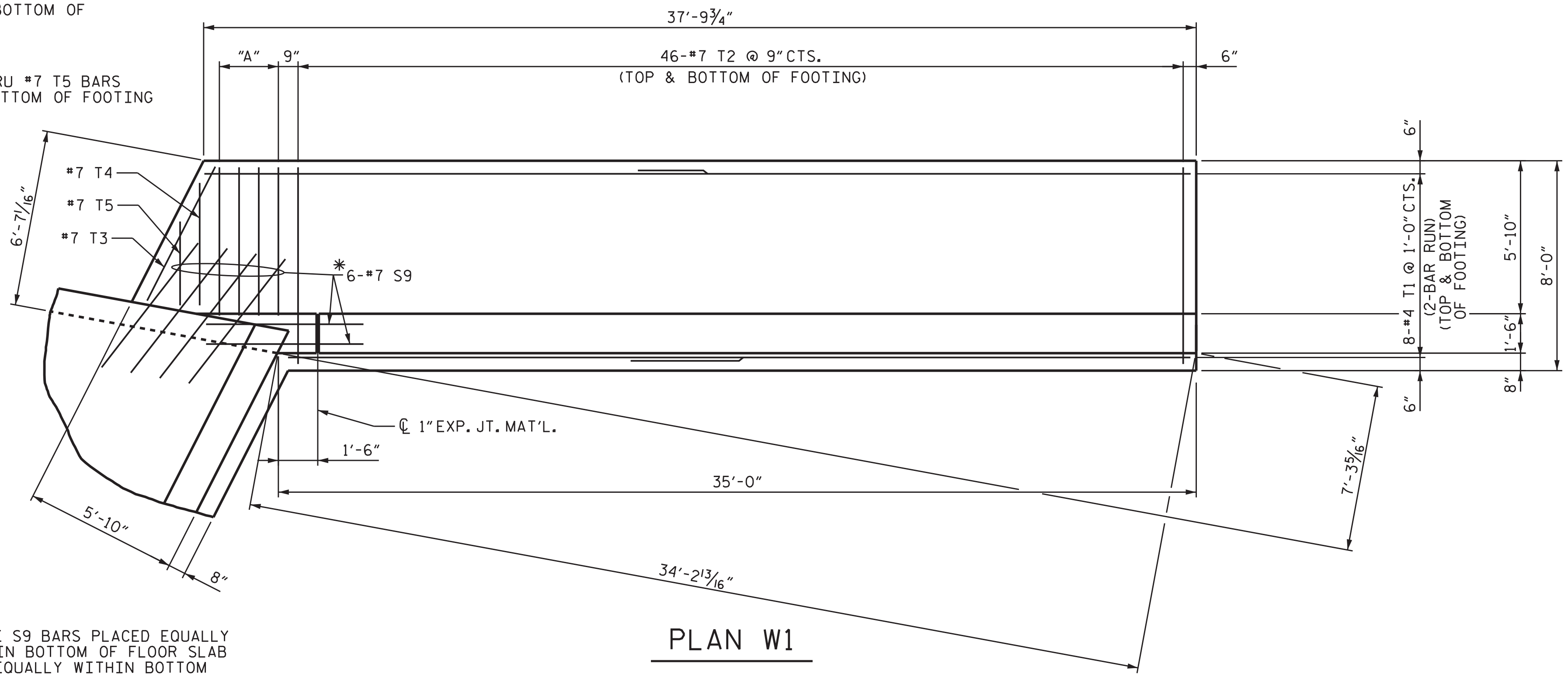
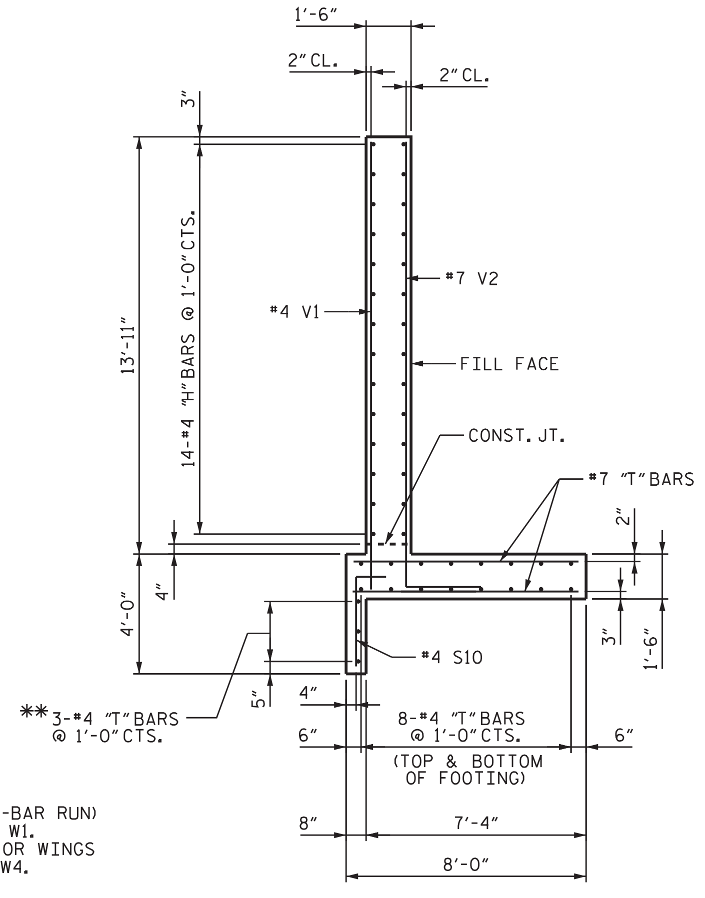
"A" = 4-#7 T3 @ 9" CTS.
(TOP & BOTTOM OF FOOTING)

NOTE:
#7 T3 THRU #7 T5 BARS TOP & BOTTOM OF FOOTING



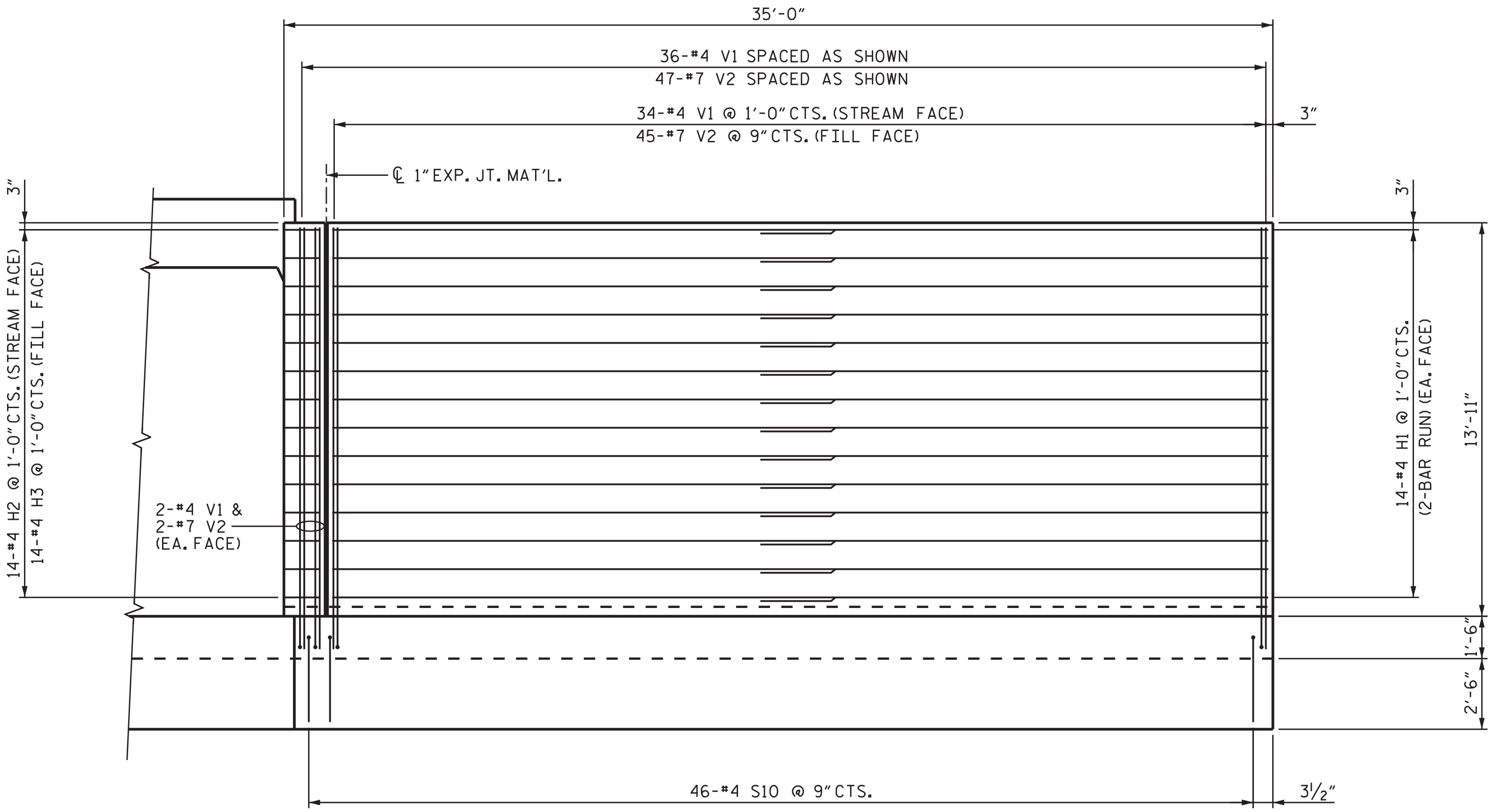
PLAN W1

* PLACE S9 BARS PLACED EQUALLY WITHIN BOTTOM OF FLOOR SLAB AND EQUALLY WITHIN BOTTOM OF FOOTING.



** 3-#4 T1 (2-BAR RUN) FOR WING W1.
3-#4 T6 FOR WINGS W2, W3 & W4.

TYPICAL WING SECTION



ELEVATION W1

PROJECT NO. R-5745
CALDWELL COUNTY
STATION: 14+68.00-L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TRIPLE BARREL
12'-0" X 12'-4"
CONCRETE BOX CULVERT
75° SKEW
WING DETAILS

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-19
1			3			TOTAL SHEETS
2			4			21

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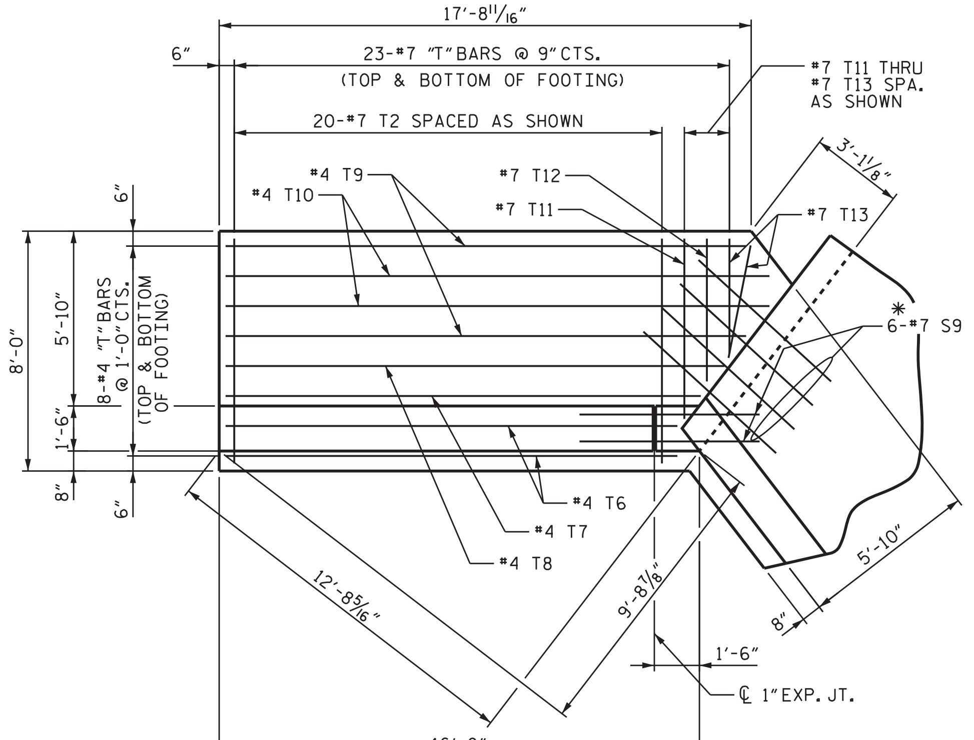
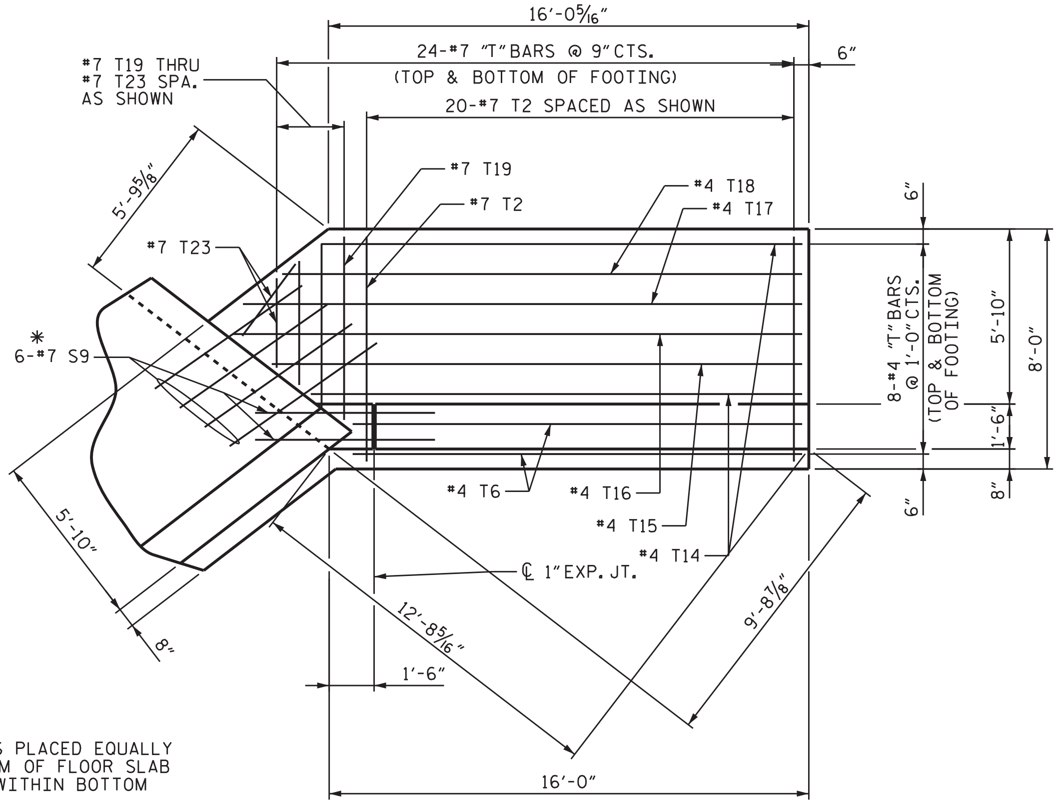
DESIGN ENGINEER OF RECORD :	RDE	DATE :	5/17

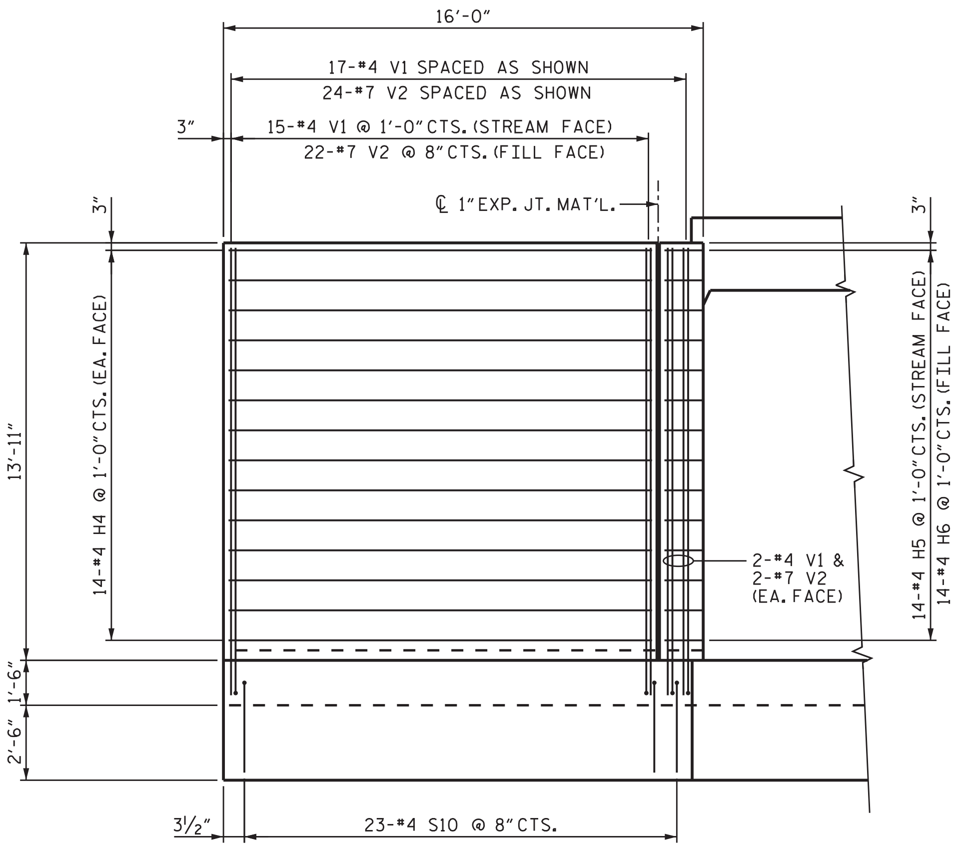


* PLACE S9 BARS PLACED EQUALLY
WITHIN BOTTOM OF FLOOR SLAB
AND EQUALLY WITHIN BOTTOM
OF FOOTING.

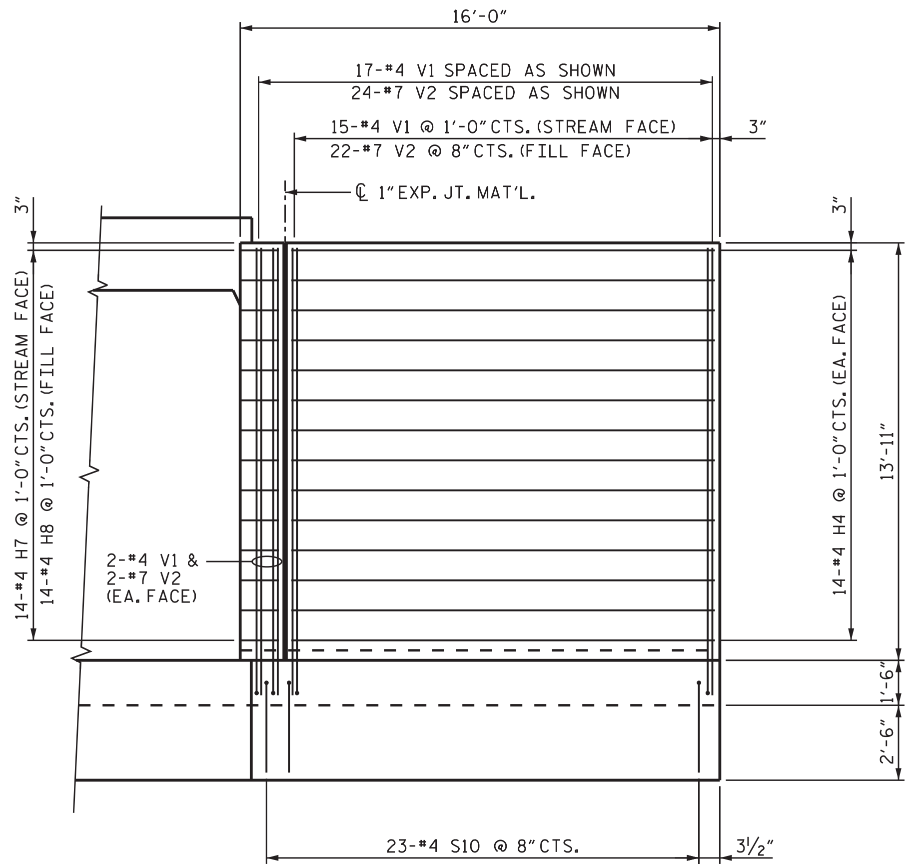
PLAN W2 OR W4



PLAN W3



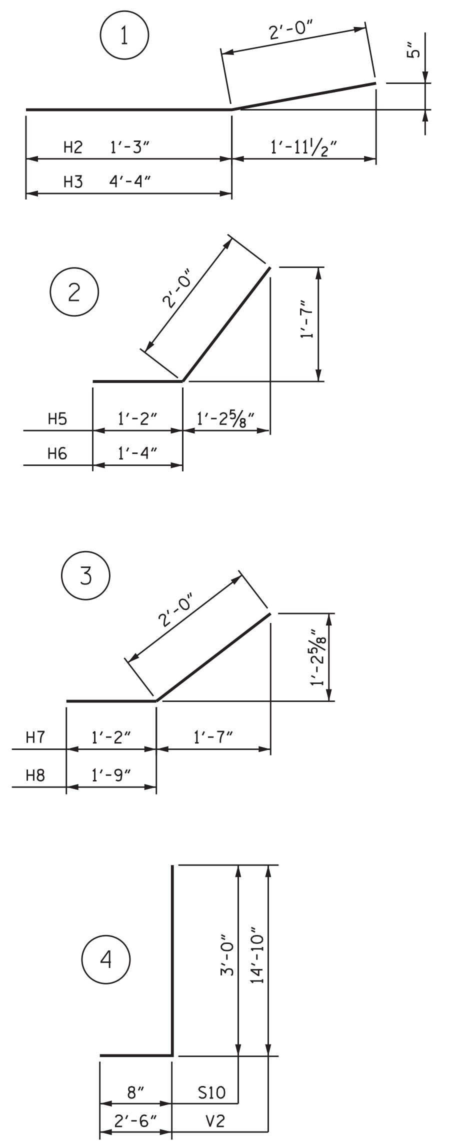
ELEVATION W2 OR W4



ELEVATION W3

BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT.



BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	56	#4	STR	18′-0″	673
H2	14	#4	1	3′-3″	30
H3	14	#4	1	6′-4″	59
H4	84	#4	STR	14′-1″	790
H5	28	#4	2	3′-2″	59
H6	28	#4	2	3′-4″	62
H7	14	#4	3	3′-2″	30
H8	14	#4	3	3′-9″	35
S9	24	#7	STR	6′-0″	294
S10	115	#4	4	3′-8″	282
T1	38	#4	STR	20′-1″	510
T2	212	#7	STR	7′-6″	3250
T3	10	#7	STR	5′-7″	114
T4	2	#7	STR	4′-8″	19
T5	2	#7	STR	3′-2″	13
T6	21	#4	STR	15′-0″	210
T7	4	#4	STR	15′-10″	42
T8	4	#4	STR	16′-7″	44
T9	8	#4	STR	17′-4″	93
T10	8	#4	STR	18′-1″	97
T11	4	#7	STR	6′-0″	49
T12	4	#7	STR	4′-9″	39
T13	8	#7	STR	3′-9″	61
T14	4	#4	STR	16′-2″	43
T15	2	#4	STR	17′-8″	24
T16	2	#4	STR	19′-0″	25
T17	2	#4	STR	18′-10″	25
T18	2	#4	STR	17′-6″	23
T19	2	#4	STR	6′-1″	25
T20	2	#7	STR	5′-4″	22
T21	2	#7	STR	4′-2″	17
T22	2	#7	STR	3′-1″	13
T23	4	#7	STR	1′-11″	16
V1	87	#4	STR	14′-10″	862
V2	119	#7	4	17′-4″	4216

REINFORCING STEEL FOR 4 WINGS	12,166 LBS
CLASS A CONCRETE	
4 WINGS	109.5 CY
2 HEADWALLS	4.0 CY
2 END CURTAIN WALLS	7.8 CY
TOTAL	121.3 CY

PROJECT NO. R-5745
CALDWELL COUNTY
STATION: 14+68.00-L-
SHEET 2 OF 2

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CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TRIPLE BARREL
12′-0″ X 12′-4″
CONCRETE BOX CULVERT
75° SKEW
WING DETAILS

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. C-20
TOTAL SHEETS 21

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STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS - - - - - - - - - - - - - - - -	A.A.S.H.T.O. (CURRENT)
LIVE LOAD - - - - - - - - - - - - - - - - - -	SEE PLANS
IMPACT ALLOWANCE - - - - - - - - - - - - - -	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF	
STRUCTURAL STEEL - AASHTO M270 GRADE 36 -	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W -	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50 -	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION	
GRADE 60 - -	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION - - - - - - - - - -	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR - - - - - - - - - - - - -	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR	
UNTREATED - EXTREME FIBER STRESS - - - - -	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER - - - -	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH - - - - -	30 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2012 ``STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE ¾" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE

BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

PROJECT NO. R-5745
CALDWELL COUNTY
STATION: 14+68-L-

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD NOTES

REVISIONS					
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1			3		
2			4		

SHEET NO. C-21
TOTAL SHEETS 21

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