

**This electronic collection of documents is provided
for the convenience of the user
and is Not a Certified Document –**

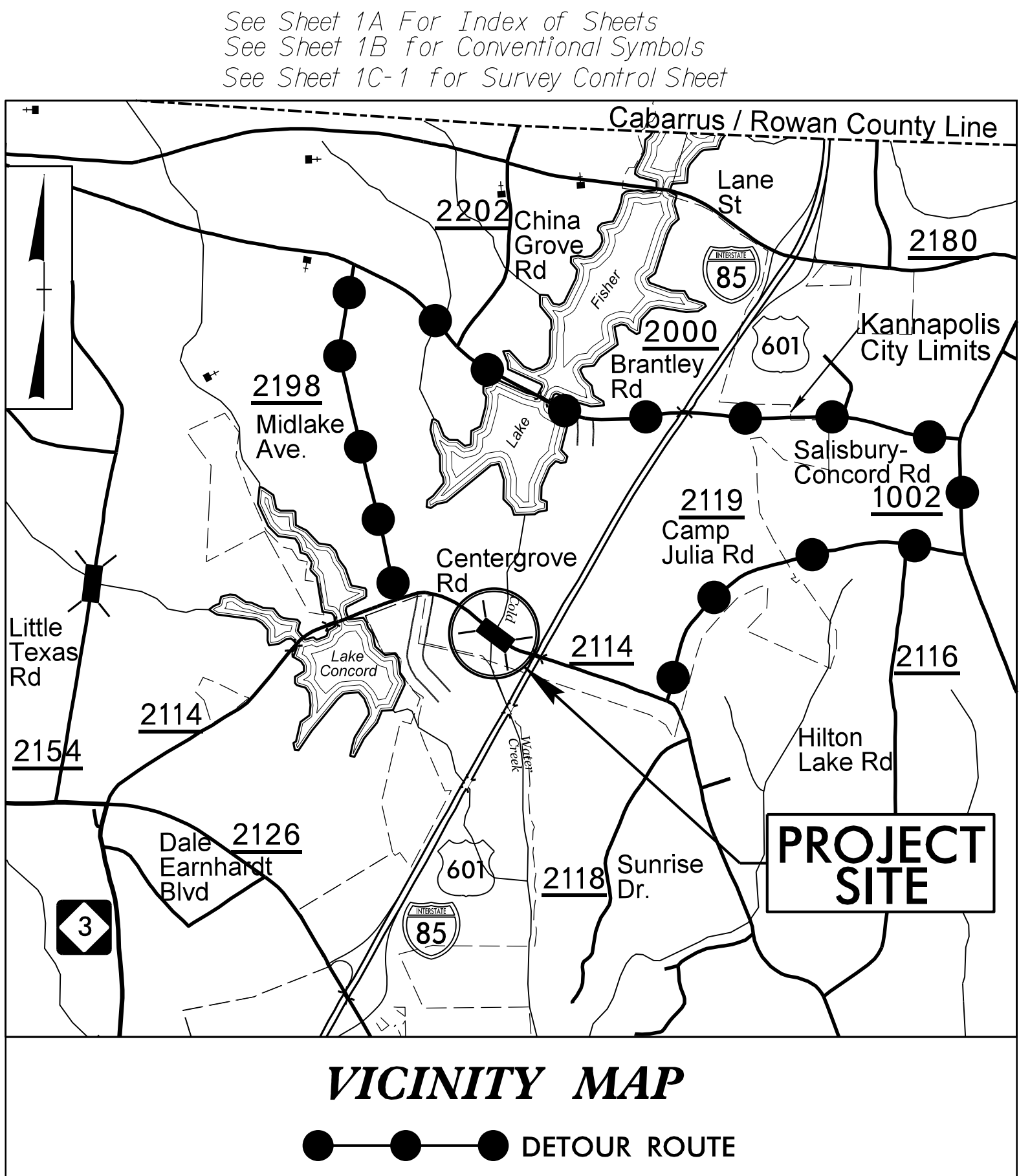
**The documents contained herein were originally issued
and sealed by the individuals whose names and license
numbers appear on each page, on the dates appearing
with their signature on that page.**

**This file or an individual page
shall not be considered a certified document.**

09.08/299

STATE PROJECT: 17BP.10.R.144

CONTRACT: DJ00372

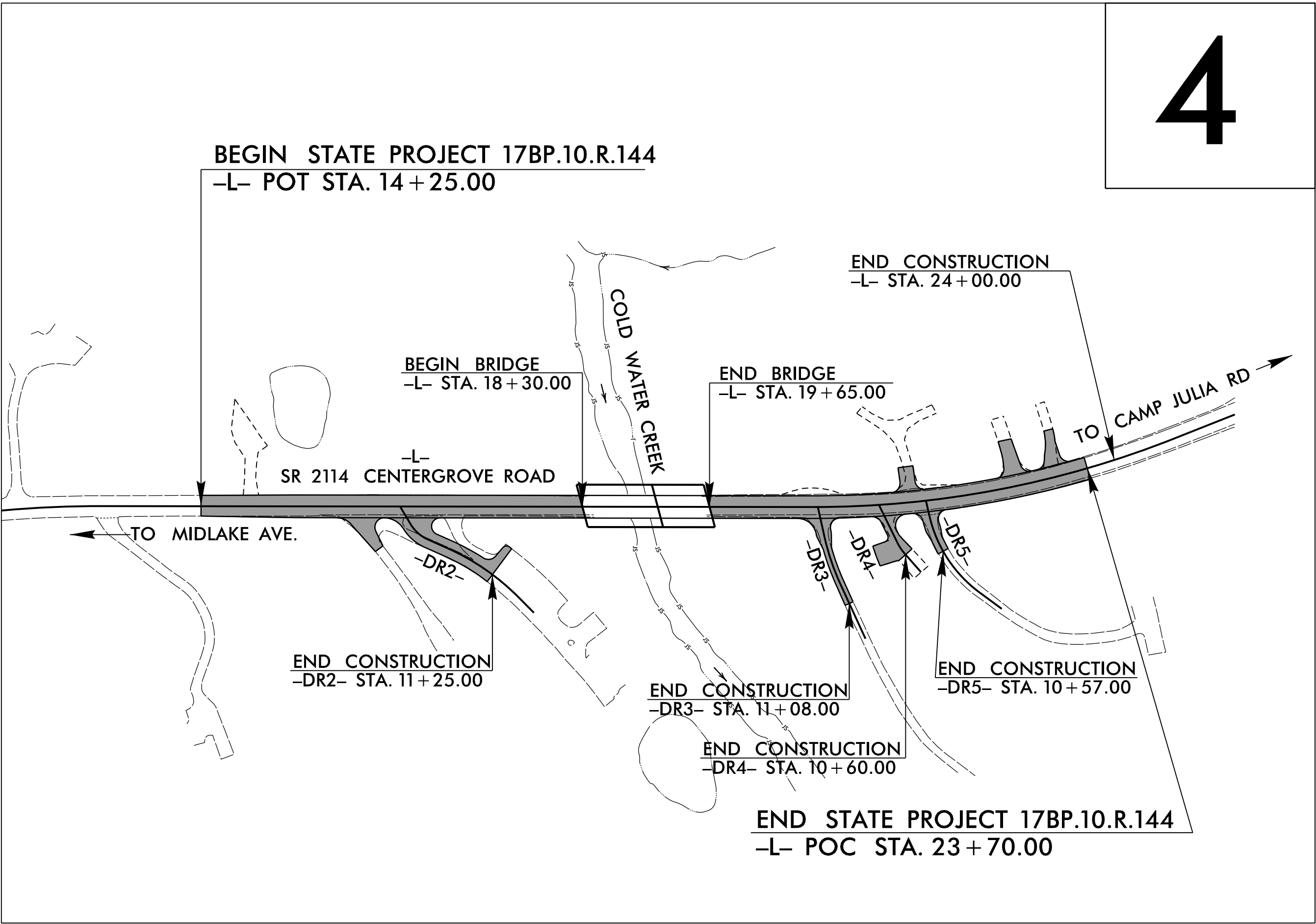


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CABARRUS COUNTY

**LOCATION: BRIDGE NO. 53 OVER COLD WATER CREEK
ON SR 2114 (CENTERGROVE ROAD)**

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

vhb VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

GRAPHIC SCALES



DESIGN DATA

ADT 2018 = 3,005
ADT 2038 = 3,825
K = 9 %
D = 60 %
T = 5 % *
V = 45 MPH
* (TTST = 1% DUAL = 4%)
FUNC CLASS = MAJOR COLLECTOR
SUB-REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT 17BP.10.R.144 = 0.153 MILES
LENGTH OF STRUCTURE PROJECT 17BP.10.R.144 = 0.026 MILES
TOTAL LENGTH OF PROJECT 17BP.10.R.144 = 0.179 MILES

Prepared in the Office of:

KCI Associates of N.C., P.A.
4505 Falls of Neuse Road, Suite 400
Raleigh, NC 27609
Phone (919) 783-9214
Fax (919) 783-9266

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

MARCH 17, 2017

LETTING DATE:

APRIL 21, 2021

NCDOT CONTACT:

Plans Prepared For:

DIVISION OF HIGHWAYS
DIVISION 10
716 W. Main St.
Albemarle, NC 28001

DEWAYNE L. SYKES, P.E.
PROJECT ENGINEER

BARRY C. SMITH, P.E.
PROJECT DESIGN ENGINEER

GARLAND HAYWOOD, P.E.
DIVISION 10 BRIDGE PROGRAM MANAGER

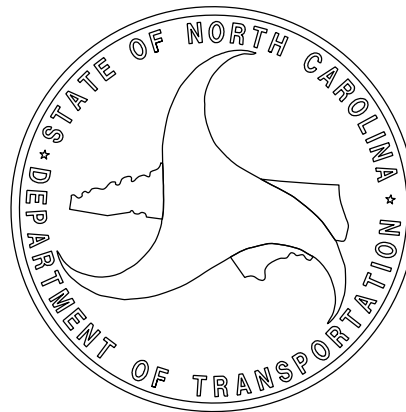
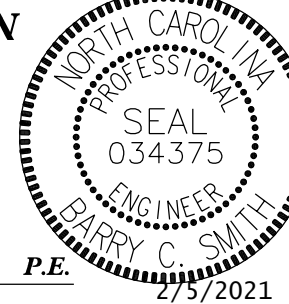
HYDRAULICS ENGINEER

DocuSigned by:
Frank Fleming
1804187707E08A
SIGNATURE:



ROADWAY DESIGN ENGINEER

DocuSigned by:
Barry Smith
023104102872A93
SIGNATURE:



STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS
CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

PROJECT REFERENCE NO.	SHEET NO.
17BPJ0.RJ.44	1B

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EIP
Property Corner	-----X
Property Monument	□ EDM
Parcel/Sequence Number	(123)
Existing Fence Line	-X-X-X-
Proposed Woven Wire Fence	-----○-----
Proposed Chain Link Fence	-----□-----
Proposed Barbed Wire Fence	-----◇-----
Existing Wetland Boundary	-----WLB-----
Proposed Wetland Boundary	-----WLB-----
Existing Endangered Animal Boundary	-----EAB-----
Existing Endangered Plant Boundary	-----EPB-----
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	○
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	-----
False Sump	-----

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	-----
Switch	-----
RR Abandoned	-----
RR Dismantled	-----

RIGHT OF WAY:

Baseline Control Point	◆
Existing Right of Way Marker	△
Existing Right of Way Line	-----
Proposed Right of Way Line	-----
Proposed Right of Way Line with Iron Pin and Cap Marker	-----
Proposed Right of Way Line with Concrete or Granite RW Marker	-----
Proposed Control of Access Line with Concrete C/A Marker	-----
Existing Control of Access	-----
Proposed Control of Access	-----
Existing Easement Line	-----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	-----

EXISTING STRUCTURES:

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

UTILITIES:

POWER:	
Existing Power Pole	-----●-----
Proposed Power Pole	-----○-----
Existing Joint Use Pole	-----●-----
Proposed Joint Use Pole	-----○-----
Power Manhole	-----P-----
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	-----T-----
Telephone Pedestal	-----T-----
Telephone Cell Tower	-----T-----
U/G Telephone Cable Hand Hole	-----T-----
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	-----
TV Tower	-----
U/G TV Cable Hand Hole	-----
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:

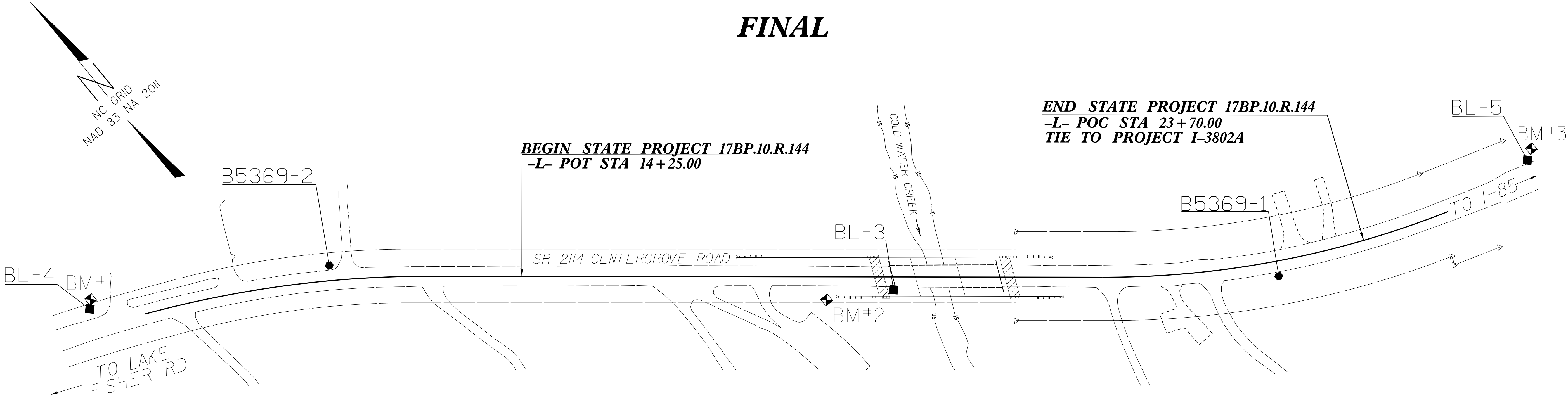
Utility Pole	-----●-----
Utility Pole with Base	-----
Utility Located Object	-----
Utility Traffic Signal Box	-----
Utility Unknown U/G Line LOS B (S.U.E.*)	-----ZUTL-----
U/G Tank; Water, Gas, Oil	-----
Underground Storage Tank, Approx. Loc.	-----UST-----
A/G Tank; Water, Gas, Oil	-----
Geoenvironmental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

6/2/99

28-OCT-2019 09:49
\\fs1\2015\20150702 B-5369\LocationSurveys\B5369-1s-1C-1.dgn
B5369-1S-1C-1.dgn

PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.144	1C-1
Location and Surveys	

SURVEY CONTROL
FINAL



BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
4	BL-4		634317.5530	1528950.0140	682.93	OUTSIDE PROJECT LIMITS	
2	B5369-2		634184.8310	1529187.6050	660.77	12+11.06	16.93 LT
3	BL-3		633763.0760	1529657.5340	618.63	18+40.56	14.34 RT
1	B5369-1		633501.2070	1529999.7520	645.85	22+69.18	16.90 RT
5	BL-5		633424.6630	1530296.9000	670.67	25+73.50	20.68 LT

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B5369-1"

WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 633501.207(±) EASTING: 1529999.752(±)
ELEVATION: 645.85(±)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999853

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B5369-1" TO -L- STATION 14+25.00 IS
N 50°34'09" W 846.18'

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

BM1 ELEVATION = 683.28
N 634325 E 1528958
L STATION 38+58.00
N 62°48'45.96" W DIST 2872.98
RR SPIKE IN BASE OF POWER POLE

BM2 ELEVATION = 618.97
N 633802 E 1529593
L STATION 17+66.00 26 RIGHT
PP SPIKE IN BASE OF POWER POLE

BM3 ELEVATION = 672.54
N 633432 E 1530308
L STATION 25+82.00 31 LEFT
RR SPIKE IN BASE OF TREE

NOTE: DRAWING NOT TO SCALE

NOTES:

- THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
[HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/](https://connect.ncdot.gov/resources/location/)

THE FILES TO BE FOUND ARE AS FOLLOWS:
B5369_LS_PAN-LOCAL_130225.TXT
B5369_LS_BASELINE.TXT
- SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
- PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM, UTILIZING THE NCGS RTN SYSTEM (VRS).

MONUMENTS USED OR SET FOR PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT:
 - INDICATES GEODETIC CONTROL MONUMENTS FOR HORIZONTAL CONTROL
 - INDICATES BASELINE MONUMENTS FOR HORIZONTAL PROJECT CONTROL
 - ⊠ INDICATES BENCHMARKS FOR VERTICAL CONTROL

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
17BP.10.R.144	1C-2
Location and Surveys	

SURVEY CONTROL

FINAL

L			
TYPE	STATION	NORTH	EAST
PC	10+00.00	634273.8952	1528994.1870
PT	13+21.50	634104.5449	1529266.3418
PC	20+74.20	633625.4047	1529846.8517
PT	24+70.16	633436.5725	1530192.1876
POT	38+57.51	633012.3569	1531513.0845

ROW MARKER CONCRETE OR GRANITE E-				
ALIGN	STATION	OFFSET	NORTH	EAST
L	14+25.00	50.00	634000.09701	1529314.33966
L	14+25.00	29.48	634015.92075	1529327.40023
L	15+00.00	-50.00	634029.47828	1529435.83756
L	15+00.00	-30.63	634014.53692	1529423.50529
L	19+77.45	50.00	633648.43087	1529740.40633
L	19+77.47	-50.00	633725.54155	1529804.07691

ROW MARKER PERMANENT EASEMENT E-				
ALIGN	STATION	OFFSET	NORTH	EAST
L	14+25.00	-30.52	634062.19460	1529365.59366
L	14+25.00	-56.00	634081.84740	1529381.81465
L	14+33.00	-63.00	634082.15356	1529392.44038
L	14+43.00	-51.00	634066.53323	1529392.51401
L	15+03.00	50.00	633950.44561	1529374.49560
L	15+27.00	-59.00	634019.23233	1529462.38978
L	15+32.00	-50.00	634009.10848	1529460.51693
L	15+35.00	-64.00	634017.99603	1529471.74241
L	15+37.00	88.00	633899.49594	1529376.52828
L	15+43.00	-50.00	634002.10636	1529469.00046
L	15+75.00	-50.00	633981.73655	1529493.67982
L	15+80.00	54.00	633898.34584	1529431.33409
L	16+12.00	50.00	633881.06095	1529458.55968
L	16+16.00	55.00	633874.65857	1529458.46182
L	16+18.00	-72.00	633971.33168	1529540.84695
L	16+25.00	-79.00	633972.27439	1529550.70146
L	16+29.00	-60.00	633955.07480	1529541.69181
L	16+40.00	-62.00	633949.61514	1529551.44845
L	16+51.00	174.50	633760.21710	1529409.38637
L	16+55.00	-65.00	633942.38048	1529564.92657
L	16+60.00	55.00	633846.65009	1529492.39594
L	16+68.00	164.00	633757.49356	1529429.18113
L	16+68.00	144.00	633772.91816	1529441.91226
L	17+30.00	90.00	633775.09808	1529524.10257
L	17+39.00	80.00	633777.08137	1529537.40921
L	17+59.00	57.00	633782.08853	1529567.47461
L	17+65.00	50.00	633783.66781	1529576.55788
L	18+05.00	-75.00	633854.60931	1529686.97665
L	18+06.00	153.00	633678.13229	1529542.61300
L	18+30.00	134.00	633677.50831	1529573.21709
L	18+30.00	-61.00	633827.89817	1529697.34561
L	18+50.00	-50.00	633806.68351	1529705.76809
L	20+24.00	-88.00	633725.22942	1529864.15127
L	20+28.00	-72.00	633710.34352	1529857.05129
L	20+34.00	-90.00	633720.40632	1529873.13668
L	20+39.00	-73.00	633704.11263	1529866.17137
L	20+55.00	67.00	633585.95551	1529789.39315
L	20+55.00	48.42	633600.28411	1529801.21966
L	21+55.00	-76.00	633638.61213	1529954.79426
L	21+77.00	-92.00	633640.34039	1529980.52785
L	22+81.00	196.00	633337.61197	1529925.71607
L	22+96.00	73.00	633438.54762	1529998.01349
L	23+04.00	200.00	633321.40844	1529948.12358
L	23+09.00	-72.00	633561.82788	1530075.44296
L	23+12.00	-50.10	633540.98037	1530068.17622
L	23+23.00	71.00	633427.40257	1530024.71105
L	23+68.00	48.79	633427.74509	1530077.21505

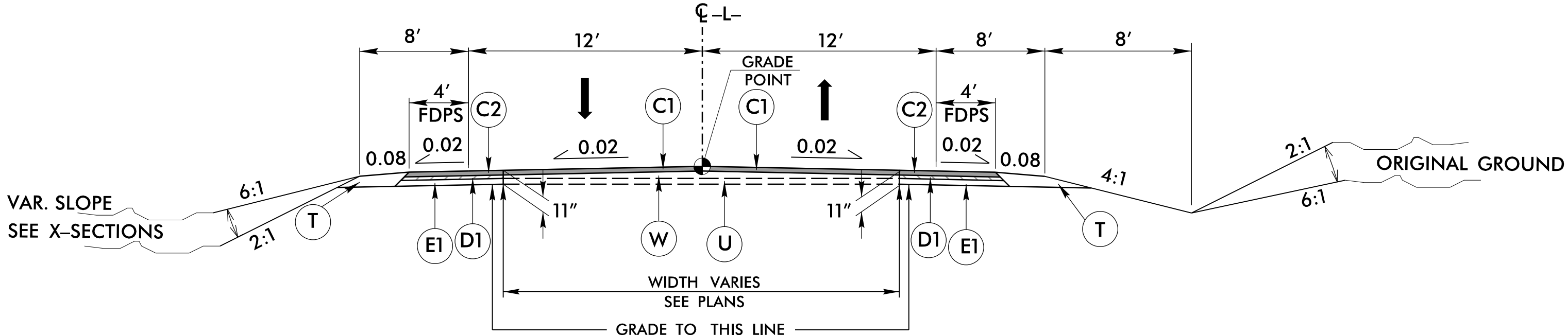
NOTE: DRAWING NOT TO SCALE

28-OCT-2019 09:49
M:\2015\20150702 B-5369\LocationSurveys\B5369_1s_1C-2.dgn
\$\$\$\$\$

6/2/99

FINAL PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 2½" OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 3" OR GREATER THAN 5½" IN DEPTH.
J1	PROP. 6" AGGREGATE BASE COURSE.
S	6" CONCRETE DRIVEWAY
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	INCIDENTAL MILLING.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE DETAIL SHOWING METHOD OF WEDGING).

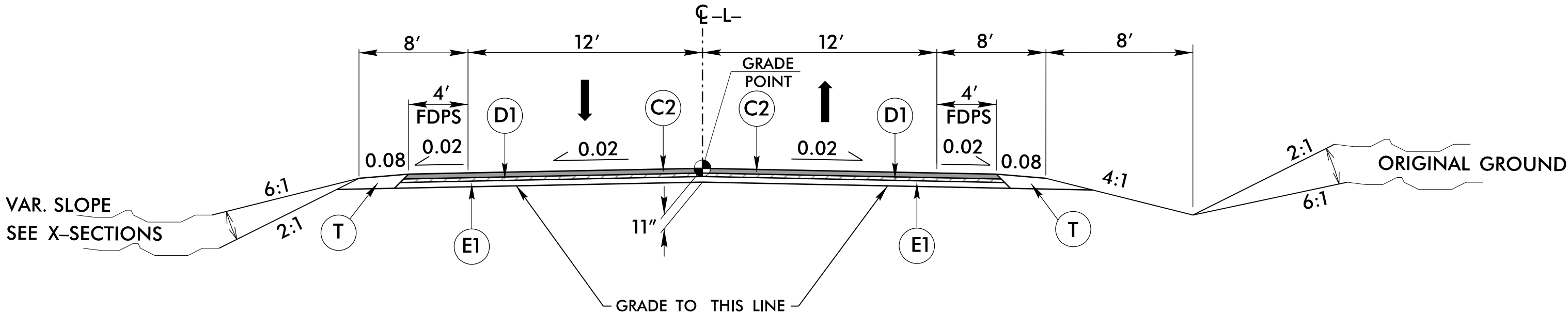
ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.



ROADWAY TYPICAL SECTION NO. 1

ROADWAY TYPICAL SECTION NO. 1

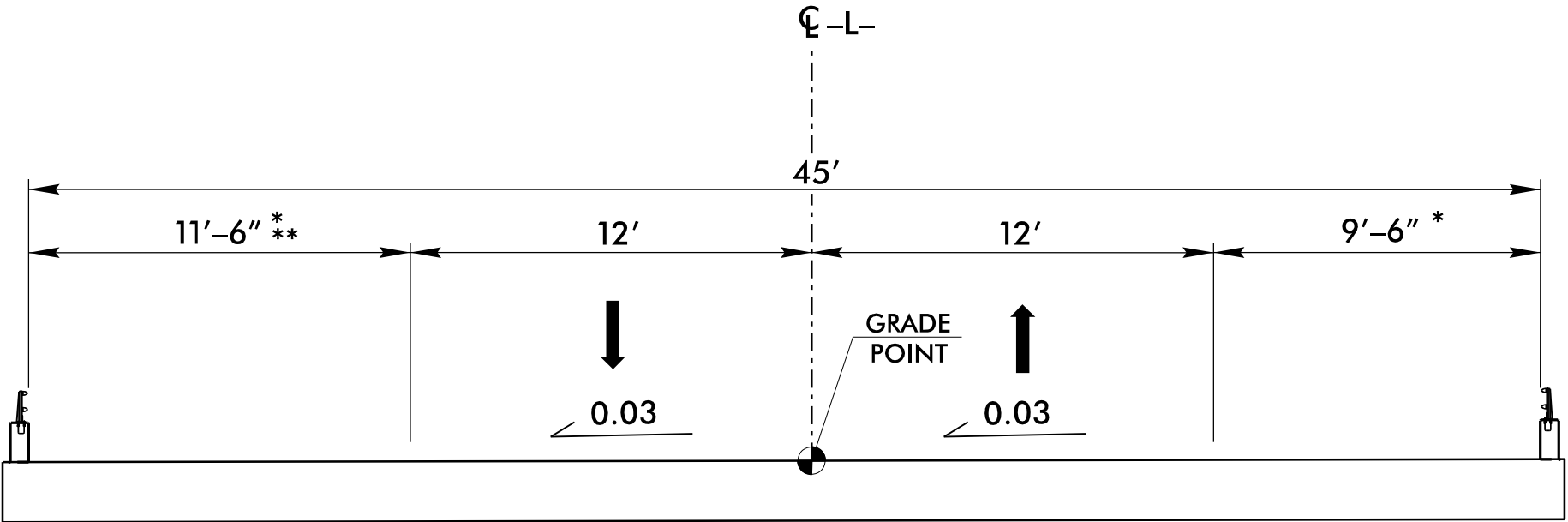
-L- STA. 14+25.00 TO STA. 15+00.00



ROADWAY TYPICAL SECTION NO. 2

ROADWAY TYPICAL SECTION NO. 2

-L- STA. 15+00.00 TO STA. 18+30.00 (BEG. BRIDGE)
-L- STA. 19+65.00 (END BRIDGE) TO STA. 23+70.00

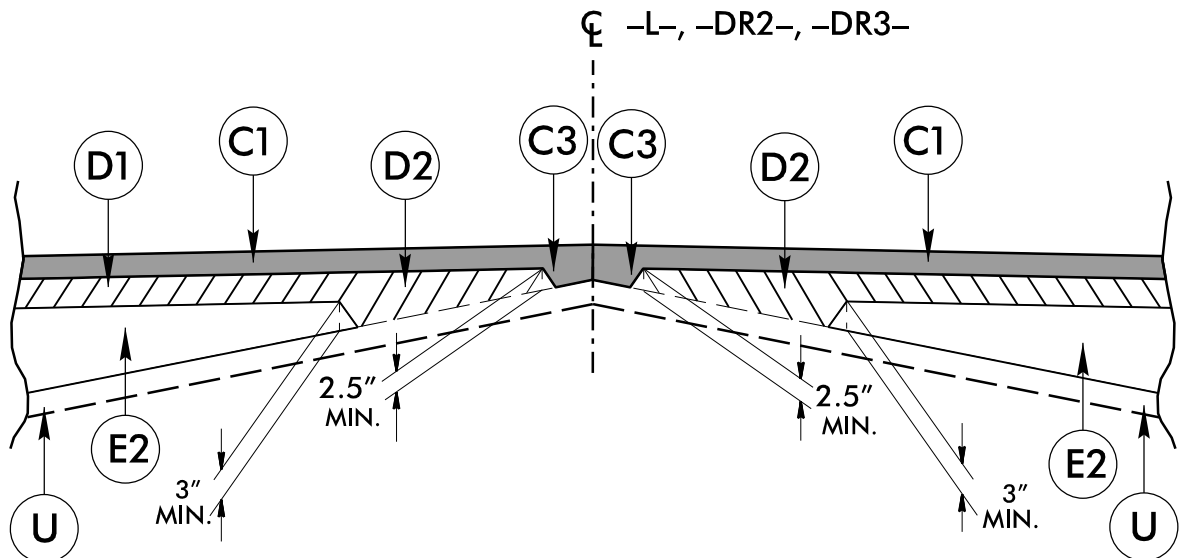


TYPICAL SECTION ON STRUCTURE

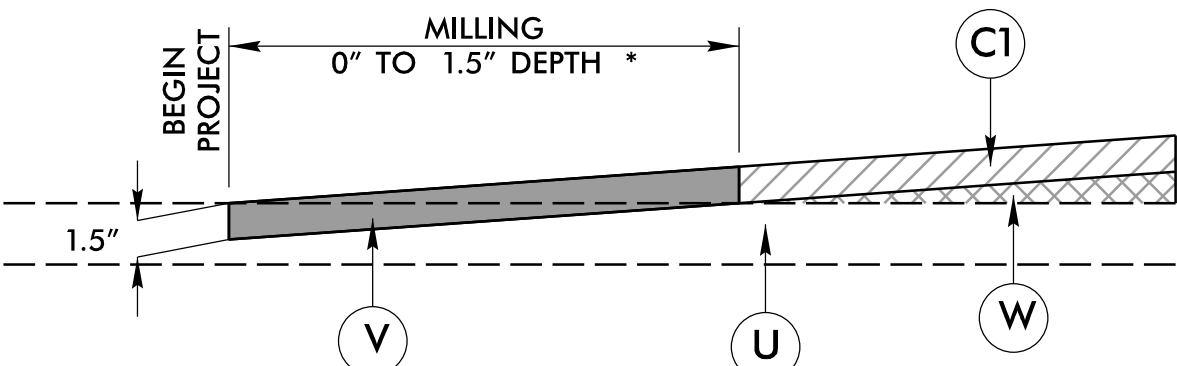
-L- STA. 18+30+/- TO STA. 19+65+/-

* NOTE: ACCOMODATES FUTURE SIDEWALK

** NOTE: 2' ADDITIONAL FOR HYDRAULIC SPREAD



Detail Showing Method of Wedging

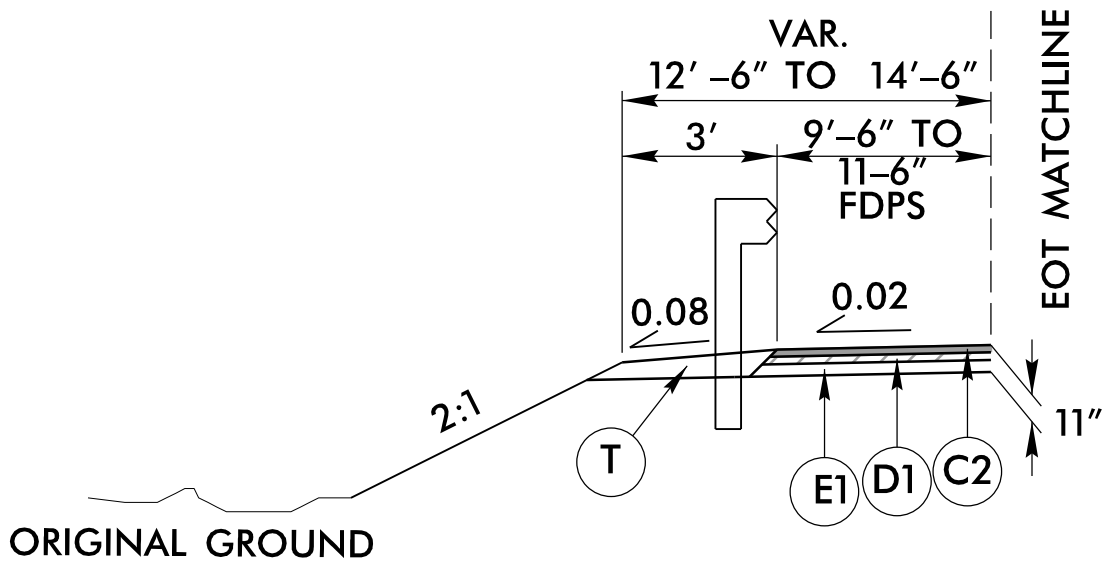


NOTE: MIRROR FOR END PROJECT

* MILL DEPTH AS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER

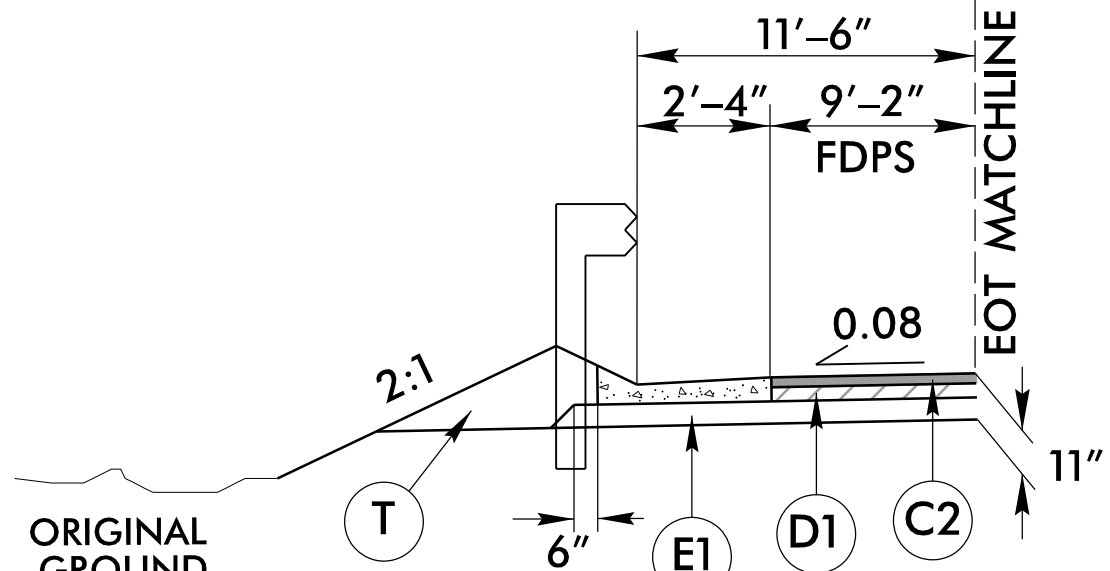
PAVEMENT MILLING DETAIL KEY-IN (TIE-IN)

-L- STA. 14+25.00 TO STA. 14+50+/-
-L- STA. 23+45+/- TO STA. 23+70.00



INSET A

USE IN GUARDRAIL LOCATIONS



INSET B

SHOULDER BERM GUTTER DETAIL

PROJECT REFERENCE NO. 17BP10.R144	SHEET NO. 2A-1
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 034375 Brent C. Smith	PAVEMENT DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 022896 C. J. Thompson
2/5/2021	2/15/2021
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
KCI Engineers • Planners • Scientists • Construction Managers 4505 Falls of Neuse Road, Suite 400 Raleigh, NC 27609-6270 Phone (919) 783-9214 • Fax (919) 783-9266	

04-DEC-2020 14:40
M:\2015\2015570.02 B-5369\Roadway\Proj\17BP10.R144_Rdy.typ.dgn
\$\$\$\$\$ UNPLANNED \$\$\$

ALL PAVEMENT EDGE SLOPES ARE
1:1 UNLESS OTHERWISE NOTED.



ROADWAY TYPICAL SECTION NO. 3

-DR2- STA. 10+14.00 TO STA. 11+00.00
-DR3- STA. 10+12.29 TO STA. 10+85.00

ROADWAY TYPICAL SECTION NO. 4

-DR2- STA. 11+00.00 TO STA. 11+25.00
-DR3- STA. 10+85.00 TO STA. 11+08.00

ROADWAY TYPICAL SECTION NO. 5

-DR4- STA. 10+12.96 TO STA. 10+60.00

ROADWAY TYPICAL SECTION NO. 6

-DR5- STA. 10+12.08 TO STA. 10+57.00

8/17/99

I9-NOV-2020 10:48
M:\2015\22151570.02 B-5369-Roadway\Proj\B5369-Rdy_psh_2B-1.dgn
B-5369-Roadway.dwg

PROPOSED HORIZONTAL ALIGNMENT DATA

PROJECT REFERENCE NO.
17BP.10.R.144

SHEET NO.
2B-1

R/W SHEET NO.

ROADWAY DESIGN ENGINEER

NORTH CAROLINA
PROFESSIONAL
SEAL
034375

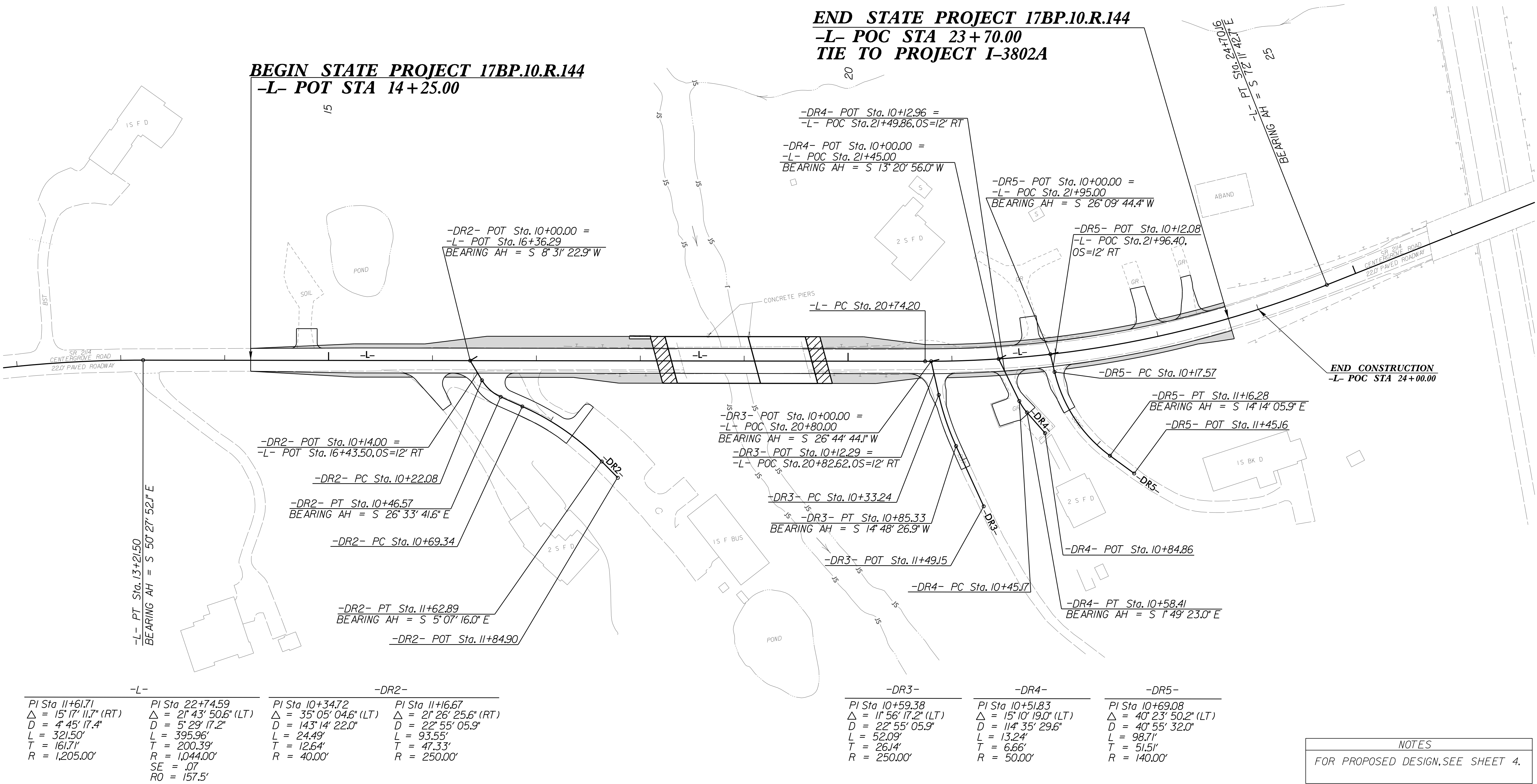
BRADLEY C. SMITH
827.104.1111

2/5/2021

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

KCI

Engineers • Planners • Scientists • Construction Managers
4601 Falls of Neuse Road, Suite 400
Raleigh, NC 27609-6270
Phone (919) 783-9214 • Fax (919) 783-9266



NOTES
FOR PROPOSED DESIGN, SEE SHEET 4.

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

SUMMARY OF EARTHWORK IN CUBIC YARDS

STATION	STATION	UNCL. EXCAV.	UNDERCUT EXCAV.	EMBANK. + %	BORROW	WASTE
-L- 14 + 25.00	18 + 30.00	516		4,370	3,854	
-DR2- 10 + 14.00	11 + 25.00	3		152	149	
SUBTOTAL:		519		4,522	4,003	
-L- 19 + 65.00	23 + 70.00	996		3,524	2,528	
-DR3- 10 + 12.29	11 + 08.00	2		289	287	
-DR4- 10 + 12.96	10 + 60.00	3		85	82	
-DR5- 10 + 12.08	10 + 57.00	2		38	36	
SUBTOTAL:		1,003		3,936	2,933	
TOTALS:		1,522		8,458	6,936	
MATERIAL FOR SHOULDER CONSTRUCTION				288	288	
PROJECT TOTAL:		1,522		8,746	7,224	
EST 5% TO REPLACE TOP SOIL ON BORROW PIT					361	
GRAND TOTAL:		1,522			7,585	
SAY:		1,600			7,965	

EST. DDE = 180 CY
 PER GEOTECH RECOMMENDATION: EST. SELECT GRANULAR MATERIAL = 300 CY
 PER GEOTECH RECOMMENDATION: EST. SHALLOW UNDERCUT = 100 CY
 PER GEOTECH RECOMMENDATION: EST. CLASS IV SUBGRADE STABILIZATION = 200 TON
 PER GEOTECH RECOMMENDATION: EST. UNDERCUT EXCAVATION = 300 CY

NOTE:
THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA
PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.

APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, FINE GRADING, CLEARING AND GRUBBING, SHOULDER BORROW, AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE LUMP SUM PRICE FOR "GRADING".

SHOULDER BERM GUTTER

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	LF
-L-	17 + 90.00	18 + 13 +/-	LT	24
			TOTAL:	24
			SAY:	25

EXISTING ASPHALT PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION L/R/T/CL	YD ²
-L-	15 + 00	15 + 57	CL	139.67
-L-	18 + 00	18 + 40	CL	96.78
-L-	19 + 59	19 + 95	CL	88.57
-DR2-	10 + 51	11 + 17	LT	75.35
-DR2-	10 + 70	11 + 00	RT	44.73
-DR3-	10 + 75	11 + 08	CL	32.23
			TOTAL:	477.31
			SAY:	505

4 STRAND BARBED WIRE FENCE SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	LF
-L-	15+00	17+10	LT	231
	POSTS:	25	TOTAL:	231
			SAY:	250

EXISTING CONCRETE PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD ¹
-DR5-	10 + 15	10 + 57	CL	59.09
			TOTAL:	59.09
			SAY:	65

EXISTING ASPHALT PAVEMENT BREAKUP SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD ²
-L-	15 + 57	18 + 00	CL	608.42
-L-	19 + 95	23 + 70	CL	983.83
-DR2-	10 + 15	10 + 70	RT	160.49
-DR3-	10 + 13	10 + 75	CL	78.59
			TOTAL:	1,831.34
			SAY:	1,925

GUARDRAIL SUMMARY

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

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS									TEMP. CRASH CUSHIONS				SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	XI MOD	B-77	GRAU 350	M-350	TEMP. W-BEAM RETROFIT	TYPE III	VI MOD	GREU TL-2	AT-1	EA	G	NG					
-L-	16 + 49.24	18 + 24.24 (BR.)	LEFT	175.00'				17 + 50.00	9.50'	12.50'		25'		0.5'						1		1						110.05'			
-L-	17 + 79.51	18 + 35.76 (BR.)	RIGHT	56.25'			18 + 35.76 (BR.)		9.50'	12.50'	25'		0.5'						1		1						84.79'				
-L-	19 + 59.24 (BR.)	20 + 15.49	LEFT	56.25'			19 + 59.24 (BR.)		9.50'	12.50'	25'		0.5'						1		1						85.93'				
-L-	19 + 70.76 (BR.)	20 + 27.01	RIGHT	56.25'				19 + 70.76 (BR.)	9.50'	12.50'		25'		0.5'					1		1						86.76'				
			SUBTOTAL	343.75'																											
			LESS ANCHOR DEDUCTIONS:																												
			GREU TL-2	4 @ 25.00' =	-100.00'																										
			TYPE III	4 @ 18.75' =	-75.00'																										
			ANCHOR DEDUCTION TOTAL:	-175.00'																											
			PROJECT TOTAL	168.75'																4		4						367.53'			
			SAY	175.00'																4		4						370.00'			
			ADDITIONAL GUARDRAIL POST =	5 EA																											

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA

**SUB-REGIONAL & REGIONAL
LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)**

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

[illegible]

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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		100	200	200		
			TOTAL CY/TONS/SY:		100	200	200*		

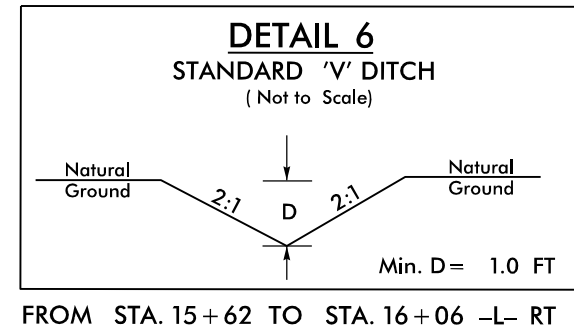
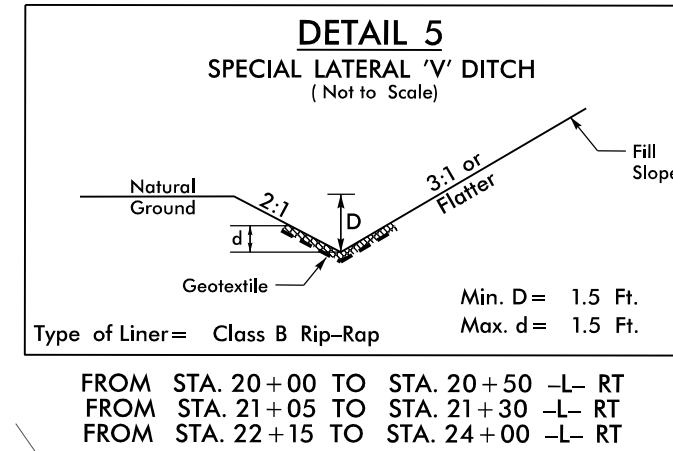
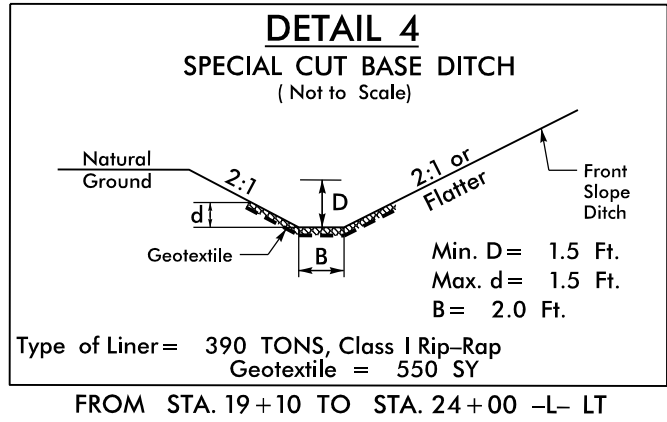
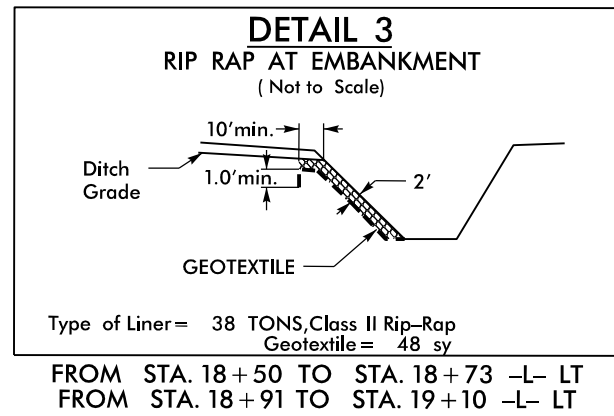
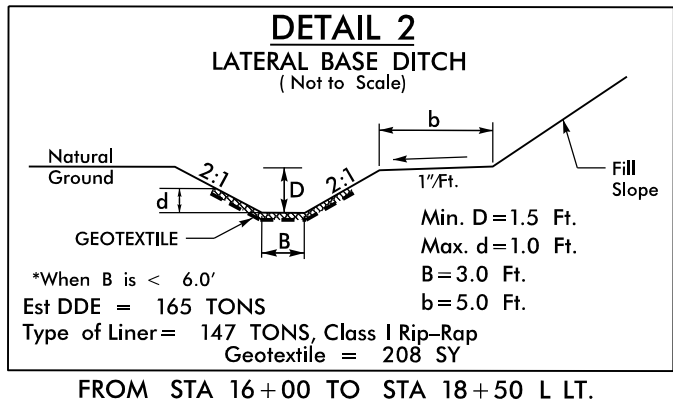
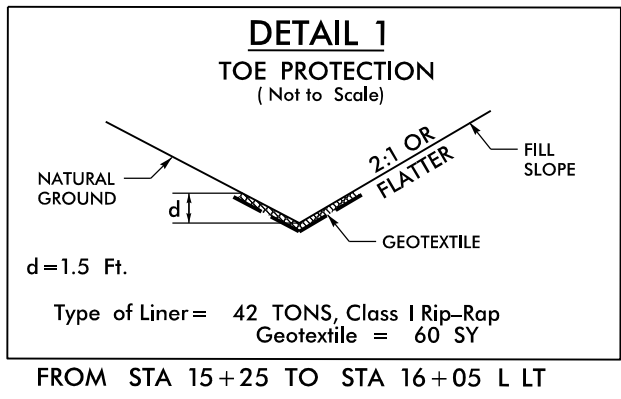
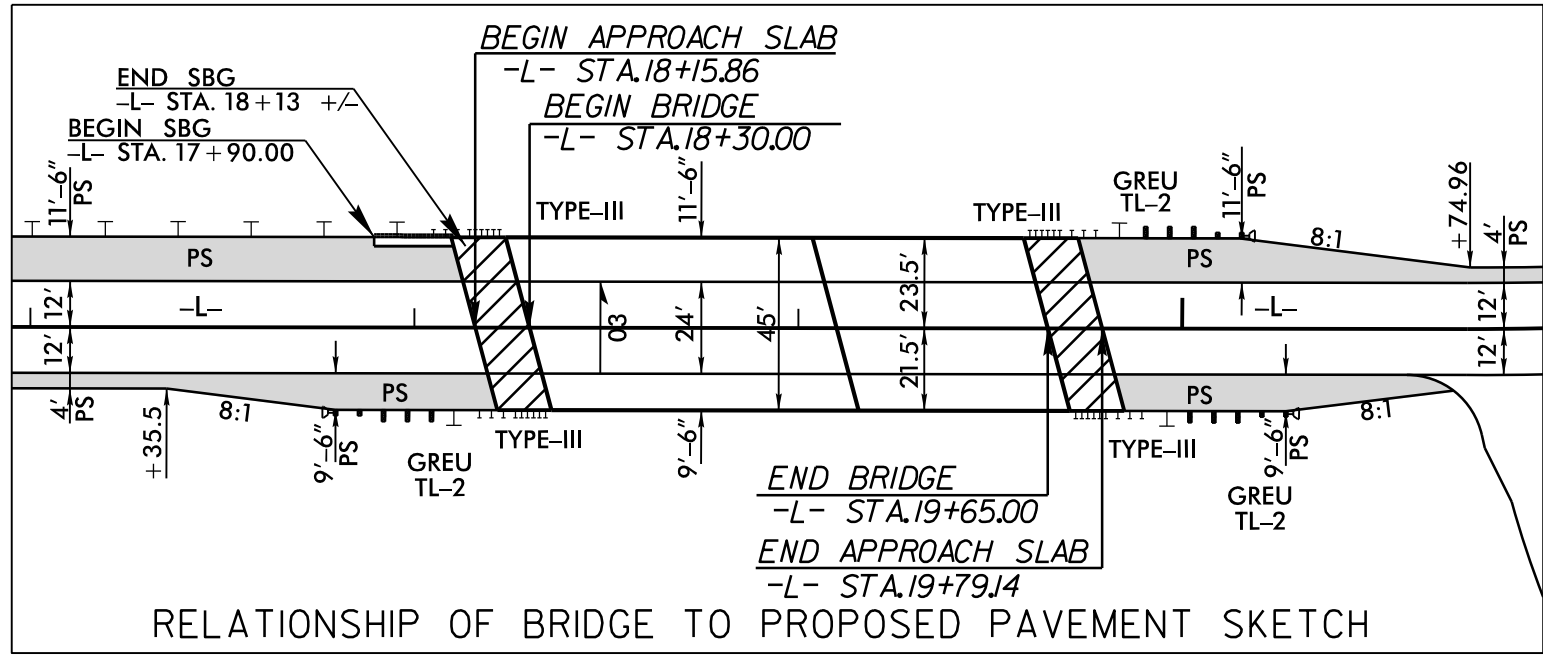
ASU = Aggregate Subgrade, AST = Aggregate Stabilization
*Total square yards of Geotextile for Soil Stabilization is only the estimated quantity for ASU/AST and may only represent a portion of the geotextile quantity shown in the Item Sheets of the Proposal.

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
CONTINGENCY				SD	200
				TOTAL LF:	200

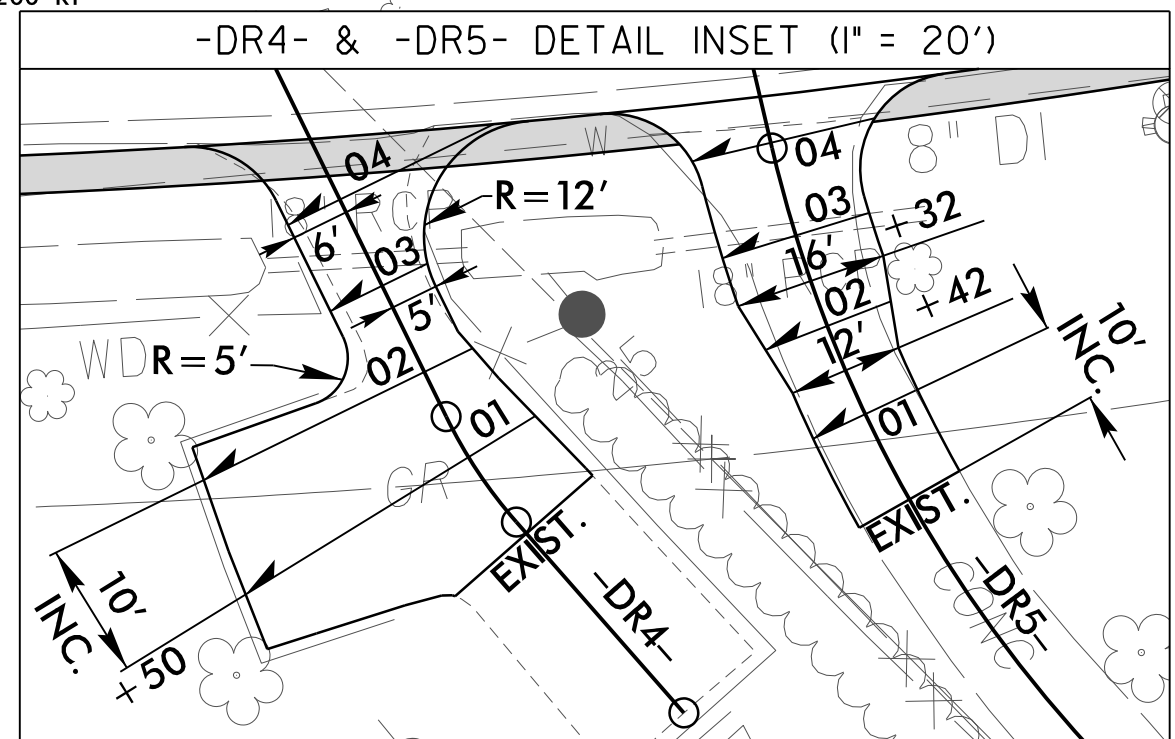
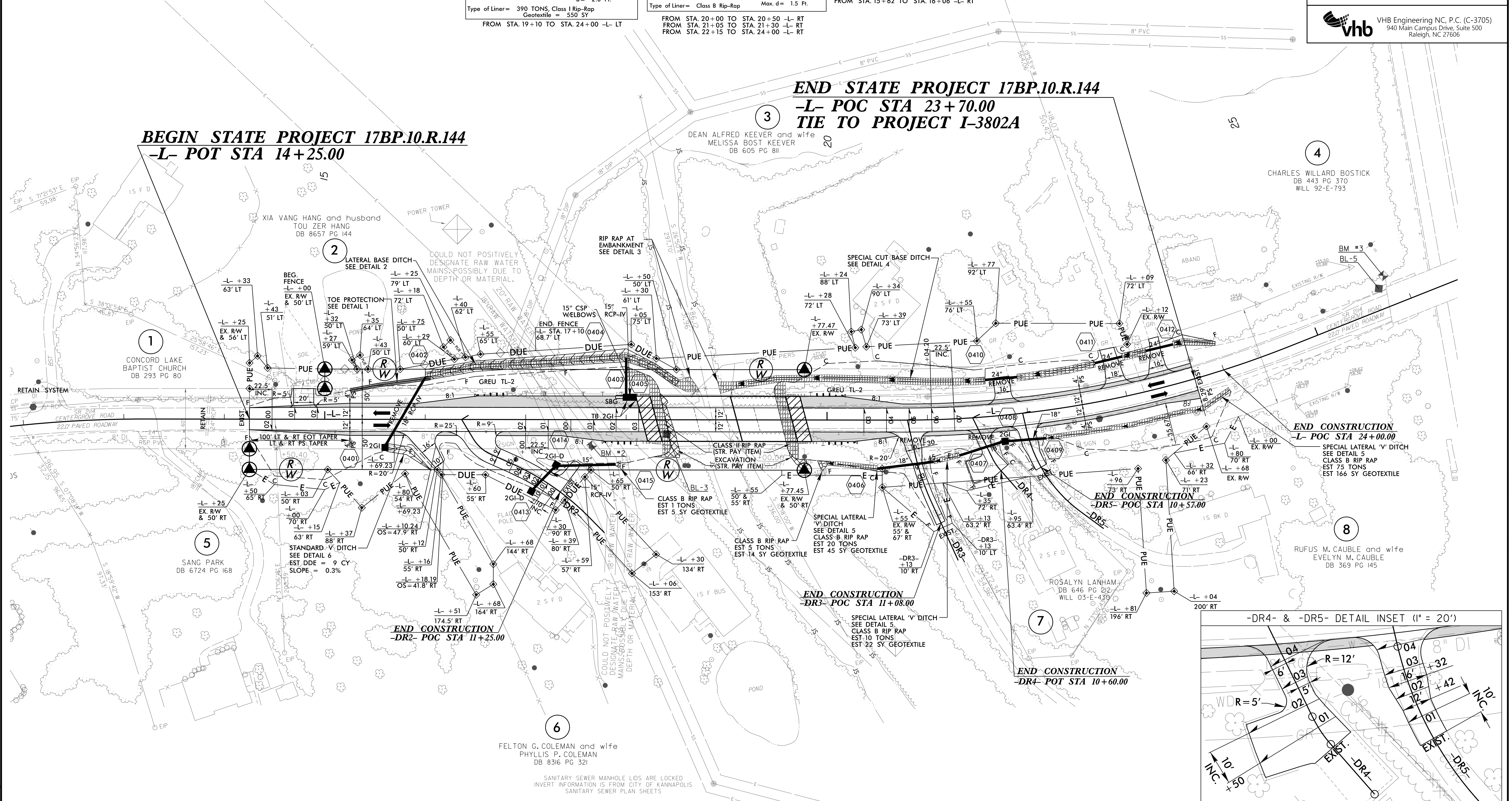
*UD = Underdrain
*BD = Blind Drain
*SD = Subsurface Drain

8/17/99



NAD 83/NA 2011

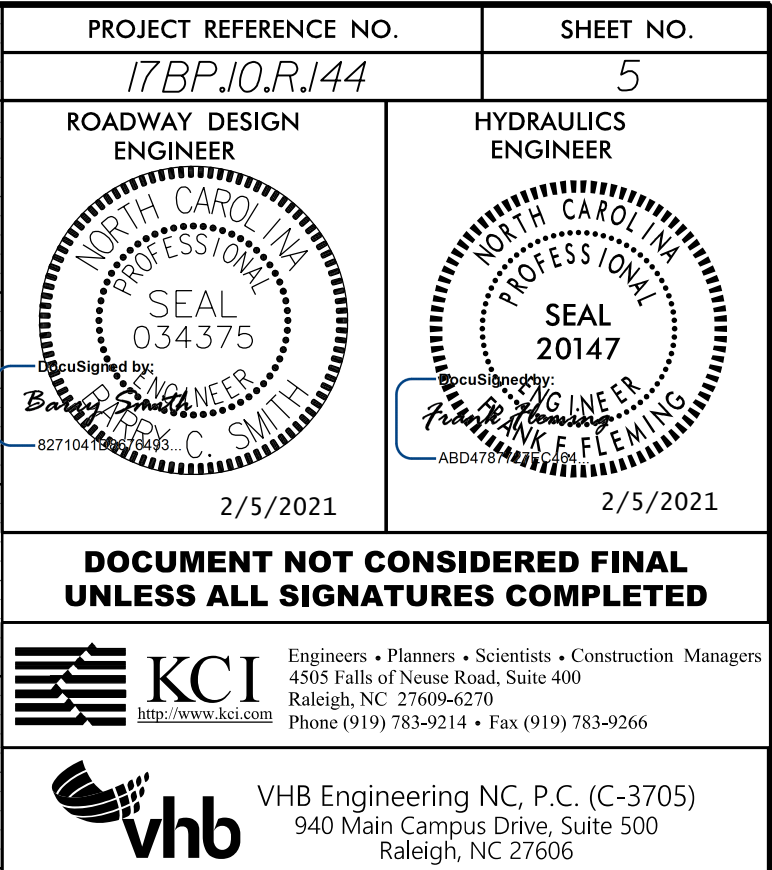
PROJECT REFERENCE NO. 17BP.10.R.144		SHEET NO. 4	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 034375 BRIAN J. HARRIS, P.E. 827161		HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 20147 RICHARD F. FLEMING, P.E. AB04016	
2/5/2021		2/5/2021	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
KCI Engineers • Planners • Scientists • Construction Managers 4505 Falls of Neuse Road, Suite 400 Raleigh, NC 27609-6270 Phone (919) 783-9214 • Fax (919) 783-9266			
vhb VHB Engineering NC, P.C. (C-3705) 940 Main Campus Drive, Suite 500 Raleigh, NC 27606			

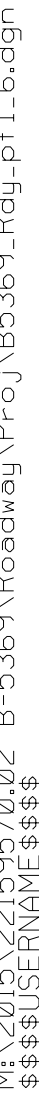
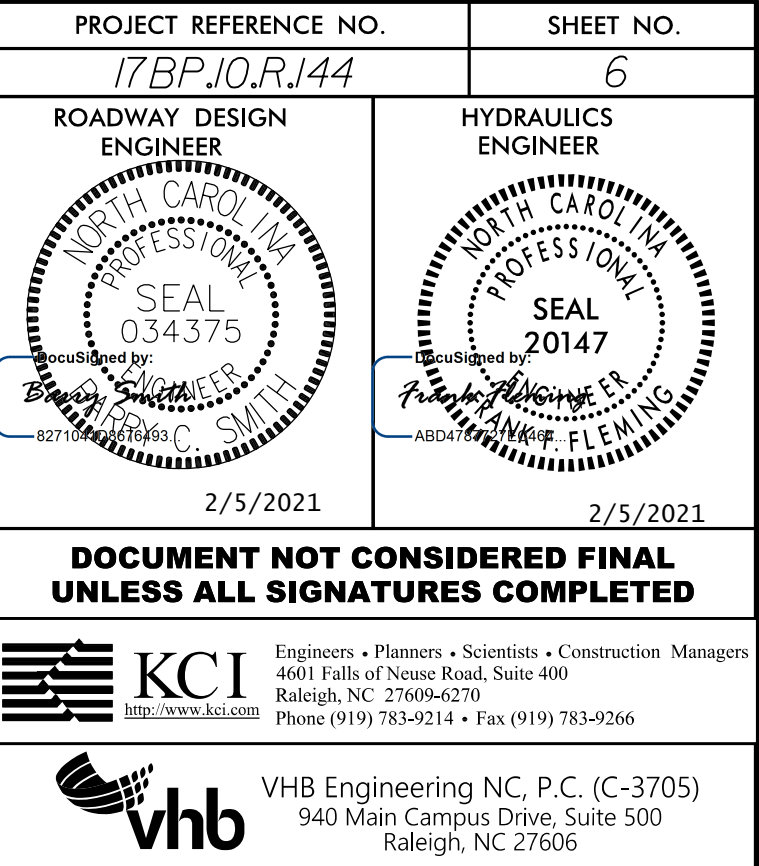


NOTES
1) FOR PROP. HORIZONTAL ALIGNMENT DATA, SEE SHEET 2B-I.
2) ALL DRIVEWAY RADII ARE 10' UNLESS OTHERWISE STATED.

FOR -L- PROFILE, SEE SHEET 5
FOR -DR2-, -DR3-, -DR4-, -DR5- PROFILE, SEE SHEET 6
FOR STRUCTURE PLANS, SEE SHEETS S-I TO S-N

19-NOV-2020 10:48
M:\2015\2020\15570.02 B-5369 Roadway\Proj\B5369.Rdy.psh_4.dgn
\$\$\$\$\$ KCI PLANNING \$\$\$\$\$

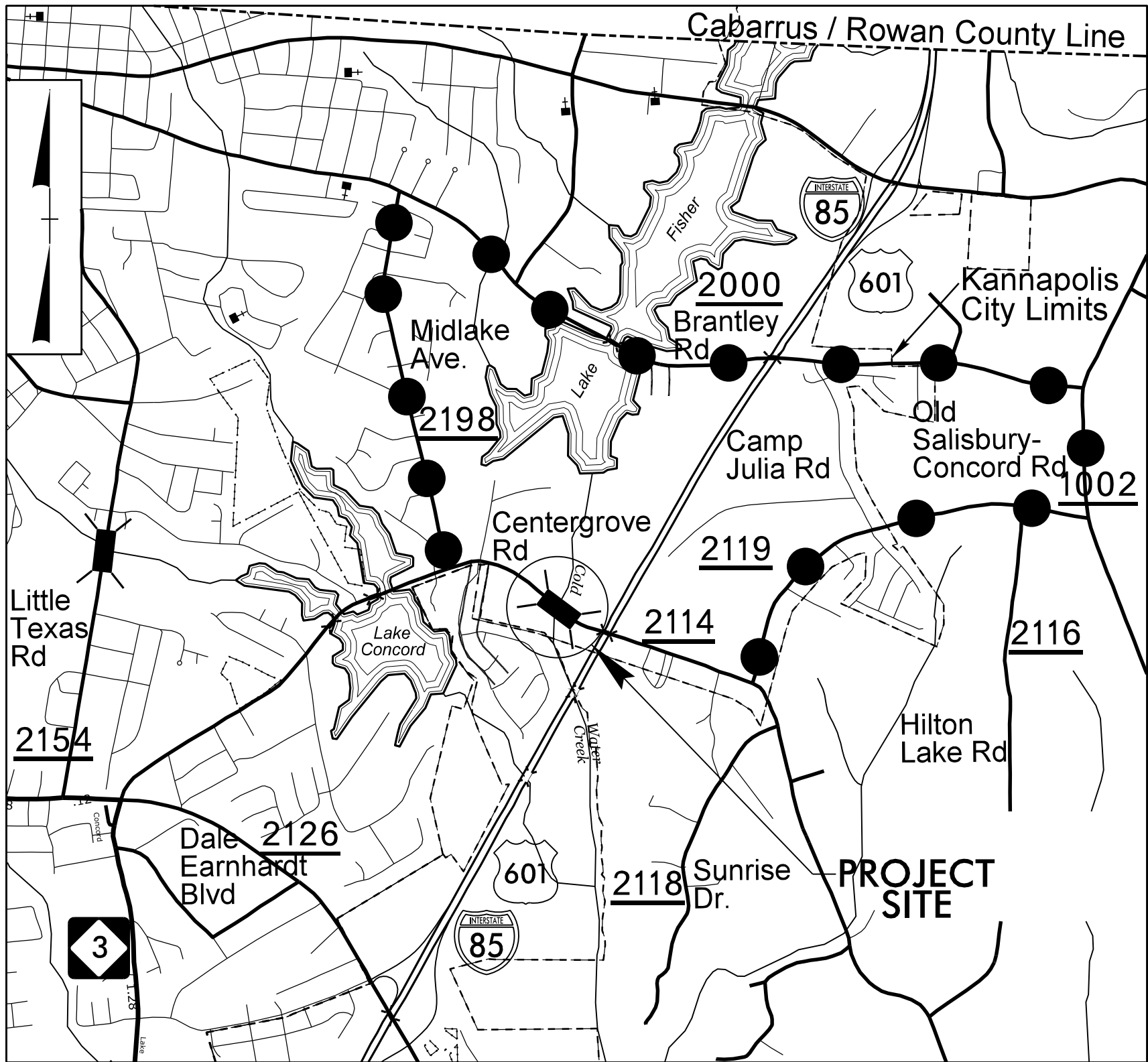
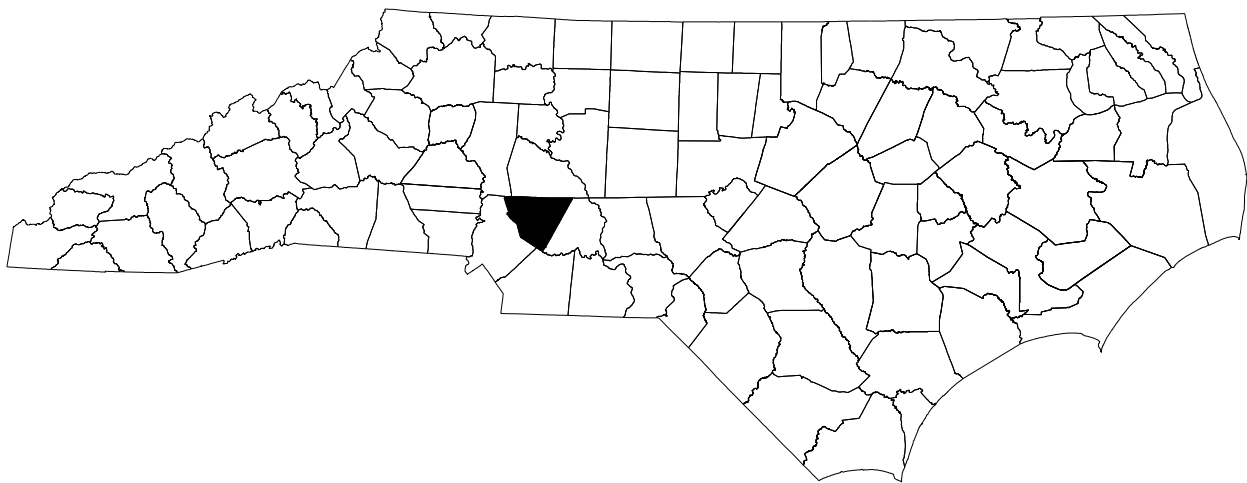




STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

CABARRUS COUNTY



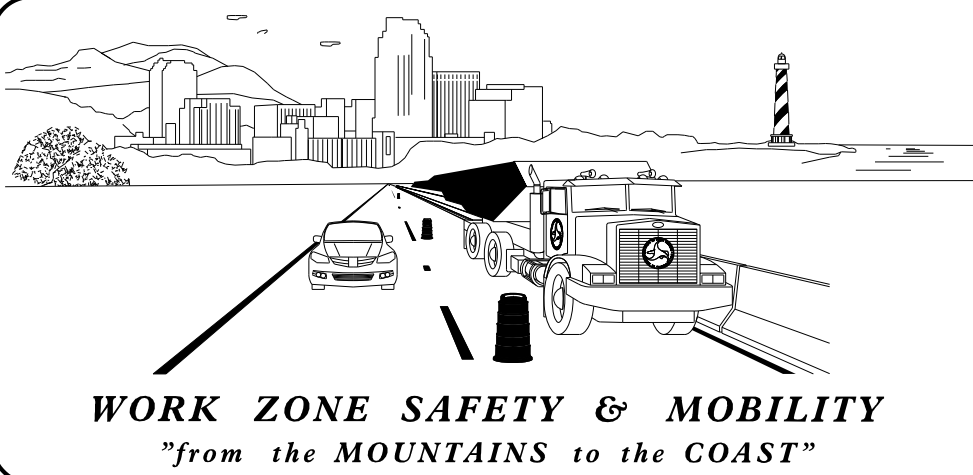
VICINITY MAP



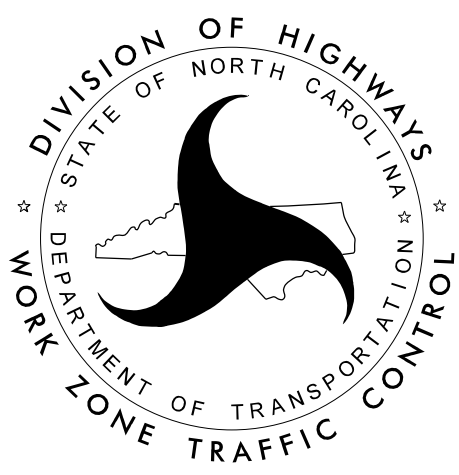
OFFSITE DETOUR ROUTE

LOCATION: BRIDGE NO.53 OVER
COLD WATER CREEK ON
SR 2114 (CENTERGROVE RD)

TYPE OF WORK: GRADING, DRAINAGE,
PAVING, AND
STRUCTURE



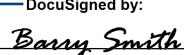
N.C.D.O.T. WORK ZONE TRAFFIC CONTROL 1561 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699-1561 750 N. GREENFIELD PARKWAY, GARNER, NC 27529 (DELIVERY) PHONE: (919) 773-2800 FAX: (919) 771-2745	
J. E. HUMMER, P.E.	STATE TRAFFIC MANAGEMENT ENGINEER
D. A. PARKER, P.E.	TRAFFIC CONTROL PROJECT ENGINEER
K. C. THORNEWELL, JR., P.E.	TRAFFIC CONTROL PROJECT DESIGN ENGINEER
S. B. COATS	TRAFFIC CONTROL DESIGN ENGINEER



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, LOCAL NOTES, AND TEMPORARY TRAFFIC CONTROL PHASING)
TMP-2	SPECIAL SIGN DESIGN
TMP-3	OFFSITE DETOUR

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

APPROVED: 
DATE: 10/31/2019

SEAL



STATE PROJECT: 17BP.10.R.144

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
1101.05	WORK ZONE VEHICLE ACCESSES
1101.06	WARNING SIGNS FOR BLASTING ZONES
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
1205.03	PAVEMENT MARKINGS - EXITS AND ENTRANCE RAMPS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.06	PAVEMENT MARKINGS - LANE DROPS
1205.07	PAVEMENT MARKINGS - PEDESTRIAN CROSSWALKS
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1205.10	PAVEMENT MARKINGS - SCHOOL AREAS
1205.11	PAVEMENT MARKINGS - RAILROAD CROSSINGS
1205.12	PAVEMENT MARKINGS - BRIDGES
1205.13	PAVEMENT MARKINGS - LANE REDUCTIONS
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY
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

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
- 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

28-OCT-2019 14:09
M:\2015\22159570.02 B-5369\TrafficControl\TCP\B5369_TC_TMP_01A.dgn
\$\$\$\$\$USERNAME\$\$\$\$\$

PROJ. REFERENCE NO.	SHEET NO.
17BP.10.R.144	TMP-1B

MANAGEMENT STRATEGIES

- CLOSE SR 2114 (CENTERGROVE ROAD) AND DETOUR TRAFFIC OFF-SITE VIA SR 2119, SR 1002, SR 2000, AND SR 2198.
- LOCAL ACCESS TO ALL RESIDENCES AND BUSINESSES WILL BE MAINTAINED BETWEEN CLOSURE POINTS AT ALL TIMES DURING CONSTRUCTION.

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.

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

- B) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC MANAGEMENT PLANS.

PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC MANAGEMENT PLANS.

- C) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.

COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.

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

TRAFFIC CONTROL DEVICES

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

PAVEMENT MARKINGS AND MARKERS

- F) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS SHOWN IN THE FINAL PAVEMENT MARKING PLAN.

- G) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

PHASING

NOTE: BEFORE BEGINNING CONSTRUCTION THE CONTRACTOR SHALL PLACE ADVANCE WORK ZONE WARNING SIGNS ALONG CENTERGROVE ROAD. (SEE RSD 1101.01, SHEET 3 OF 3)

STEP 1) USING ROADWAY STD. DRAWING 1101.03, SHEET 1 OF 9, CLOSE CENTERGROVE ROAD (SR 2114) AND DETOUR TRAFFIC OFF-SITE AS SHOWN ON TMP-3.

STEP 2) REMOVE THE EXISTING STRUCTURE.

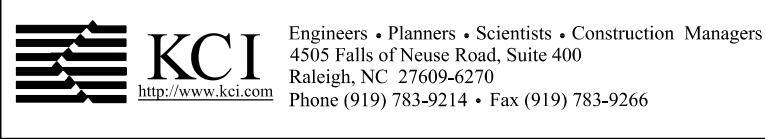
STEP 3) CONSTRUCT THE PROPOSED STRUCTURE AND ROADWAY -L- UP TO BUT NOT INCLUDING THE FINAL LIFT OF SURFACE COURSE.

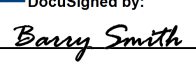
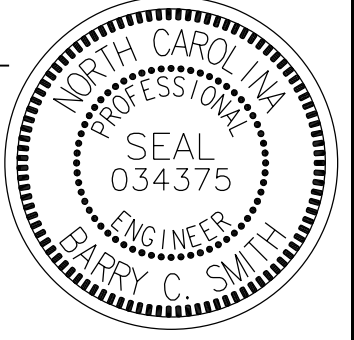
STEP 4) PLACE THE FINAL LIFT OF SURFACE COURSE.

STEP 5) PLACE FINAL PAVEMENT MARKINGS AND MARKERS ACCORDING TO THE FINAL PAVEMENT MARKING PLANS.

STEP 6) REMOVE ALL WORK ZONE TRAFFIC CONTROL DEVICES AND SIGNING. OPEN CENTERGROVE ROAD (SR 2114) AND PLACE TRAFFIC ONTO THE FINAL PATTERN.

28-OCT-2019 14:09
M:\2015\22159570.02 B-5369\TrafficControl\TCP\B5369_TC_TMP_01B.dgn
\$\$\$\$\$USERNAME\$\$\$\$\$



APPROVED:  DATE: 10/31/2019	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



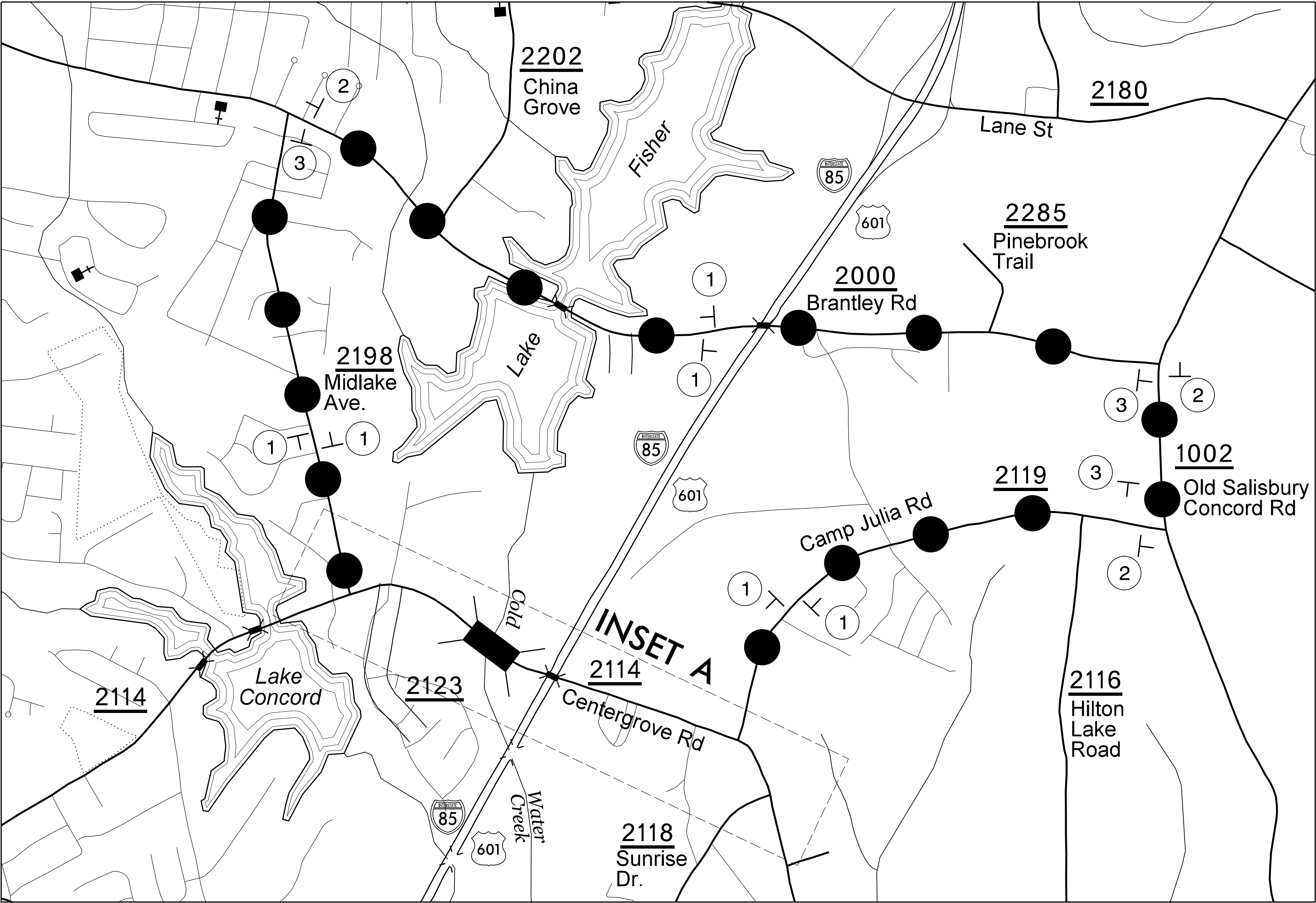
TRANSPORTATION
OPERATIONS
PLAN

 **KCI**
<http://www.kci.com>

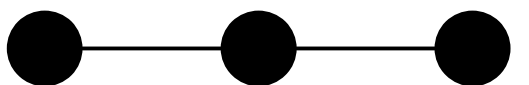
Engineers • Planners • Scientists • Construction Managers
4505 Falls of Neuse Road, Suite 400
Raleigh, NC 27609-6270
Phone (919) 783-9214 • Fax (919) 783-9266

SPECIAL SIGN DESIGN

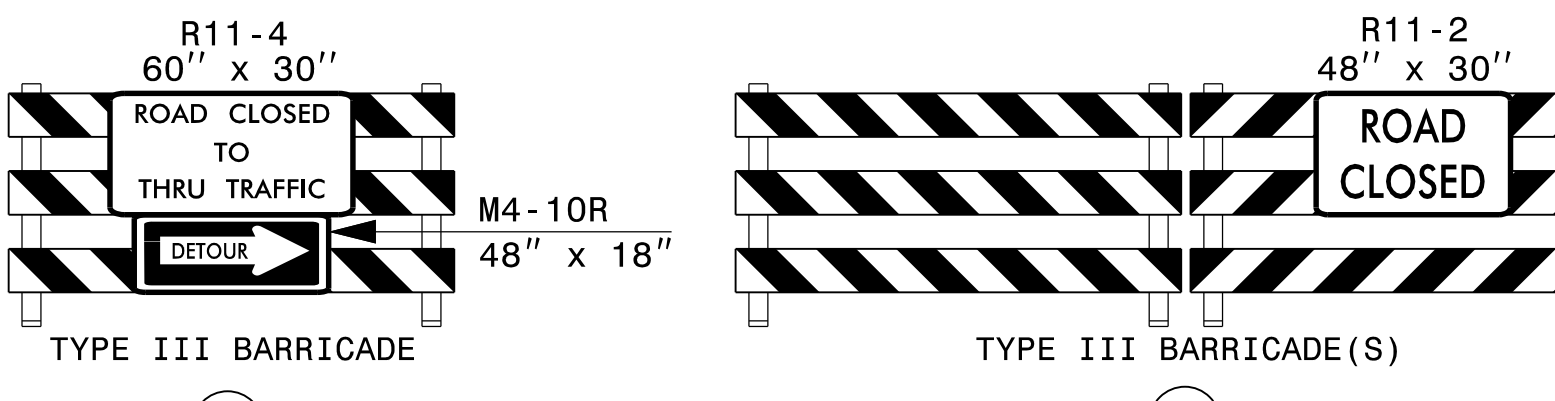
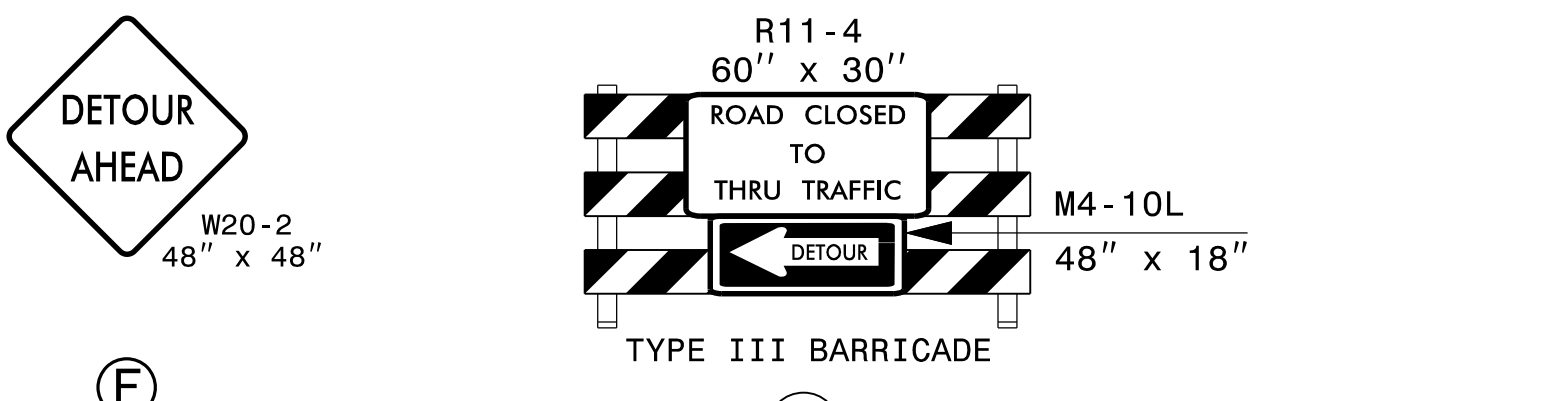
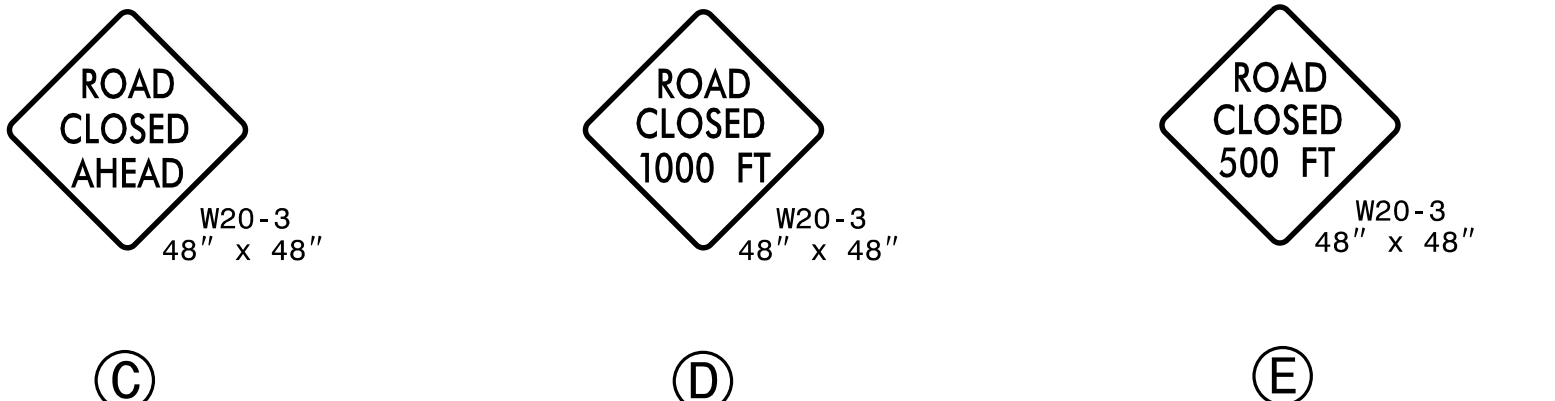
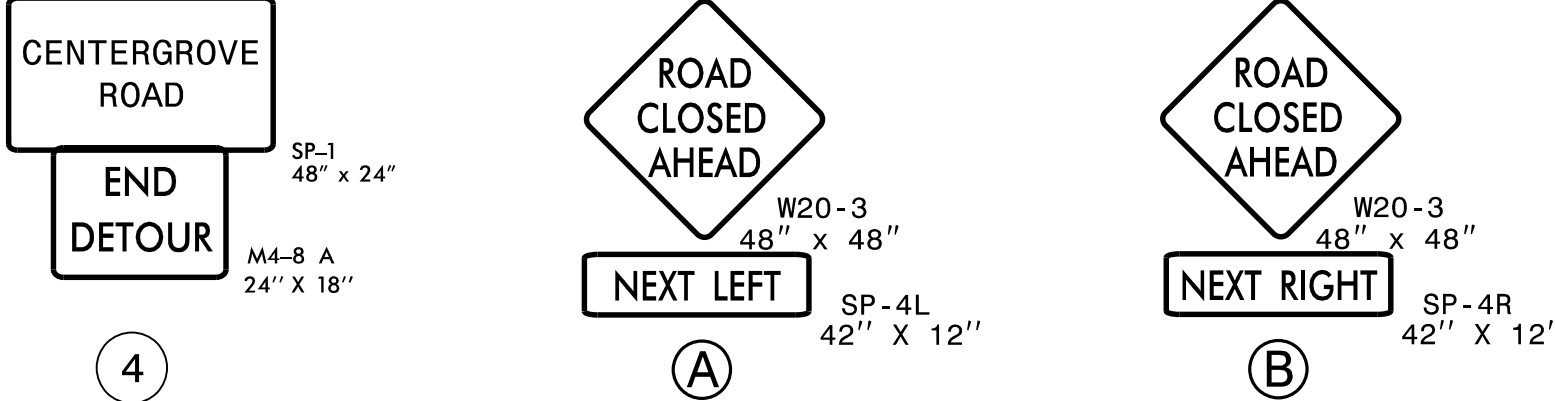
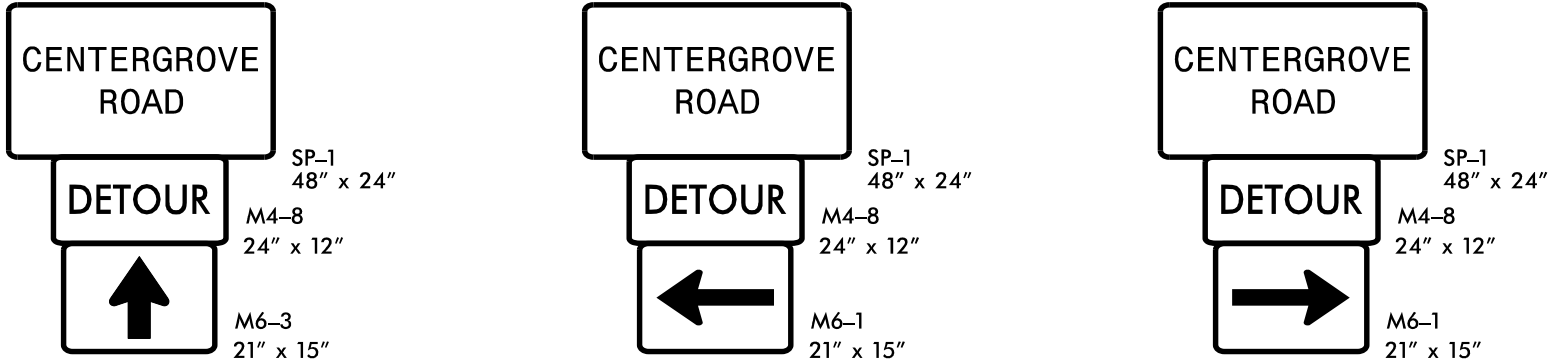
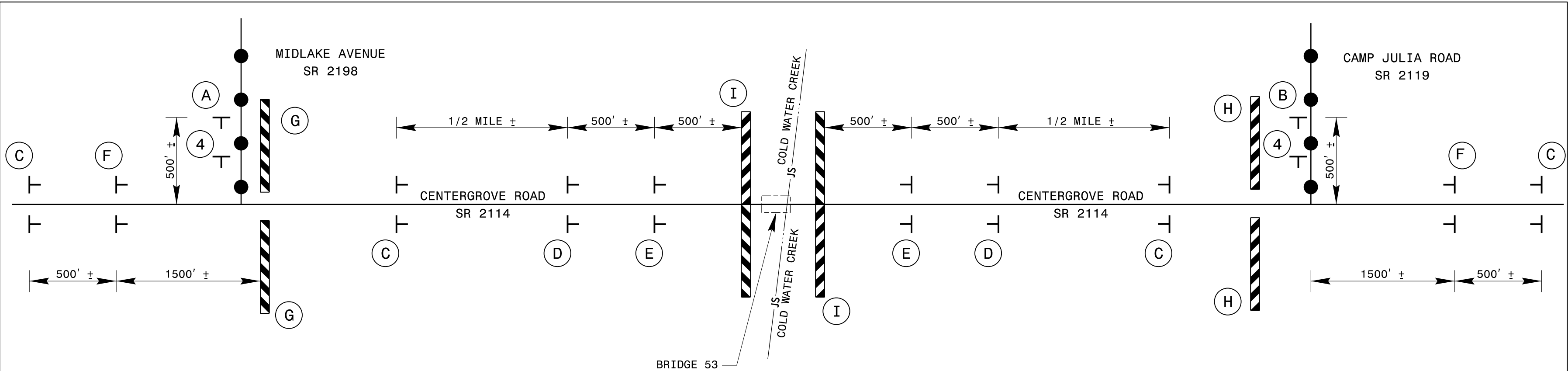
PROJ. REFERENCE NO.	SHEET NO.
17BP.10.R.144	TMP-3



DETOUR ROUTE



INSET A



- NOTES:
1. REFER TO ROADWAY STANDARD DRAWING 1101.03, SHEET 1 OF 9 FOR APPLICABLE NOTES.
 2. SEE SHEET TMP-2 FOR THE SPECIAL SIGN DESIGN
 3. ALL DETOUR SIGN LOCATIONS ARE APPROXIMATE.
 4. ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE. FIELD ADJUST AS NECESSARY OR AS DIRECTED BY THE ENGINEER.

KCI Engineers • Planners • Scientists • Construction Managers
4505 Falls of Neuse Road, Suite 400
Raleigh, NC 27609-6270
Phone (919) 783-9214 • Fax (919) 783-9266

APPROVED: *Barry Smith*
DATE: 10/31/2019
SEAL
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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

OFFSITE DETOUR ROUTE

PROJECT: 17BP.10.R.144

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PAVEMENT MARKING PLAN

CABARRUS COUNTY

LOCATION: BRIDGE No. 53 ON SR 2114 (CENTERGROVE ROAD)
OVER COLD WATER CREEK

PROJECT REFERENCE NO.
17BP.10.R.144

SHEET NO.
PMP-1

DocuSigned by:
Barry Smith
6271041D8B76493...

APPROVED:

DATE: 2/5/2021

SEAL:



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

 KCI

Engineers • Planners • Scientists • Construction Managers
4505 Falls of Neuse Road, Suite 400
Raleigh, NC 27609-6270
<http://www.kci.com> Phone (919) 783-9214 • Fax (919) 783-9266

ROADWAY STANDARD DRAWING

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 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
1205.12	PAVEMENT MARKINGS - BRIDGES
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

PAVEMENT MARKING SCHEDULE

FINAL PAVEMENT MARKING	
SYMBOL	DESCRIPTION
T1	THERMOPLASTIC (4", 90 MILS) WHITE EDGELINE
T13	THERMOPLASTIC (4", 90 MILS) YELLOW DOUBLE CENTER
V1	POLYUREA (4", 20 MILS) WHITE EDGELINE
V13	POLYUREA (4", 20 MILS) YELLOW DOUBLE CENTER

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:
- | BRIDGE # | MARKING | MARKER |
|------------------------------|--|--------|
| No. 120053 ASPHALT SURFACES | THERMOPLASTIC | NONE |
| No. 120053 CONCRETE SURFACES | POLYUREA WITH HIGHLY REFLECTIVE ELEMENTS | NONE |
- 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) REMOVE ALL RESIDUE AND SURFACE LAITANCE BY ACCEPTABLE METHODS ON CONCRETE BRIDGE DECKS PRIOR TO PLACING (POLYUREA) PAVEMENT MARKING MATERIAL.

INDEX

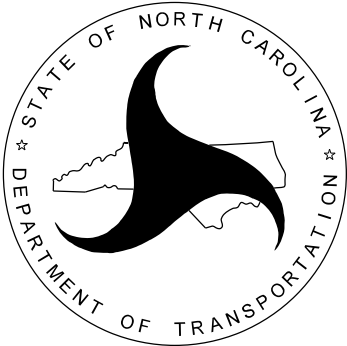
SHEET NO.	DESCRIPTION
PMP-1	PAVEMENT MARKING PLAN TITLE AND SCHEDULE SHEET
PMP-2	PAVEMENT MARKING DETAIL

KELVIN L. JORDAN

SIGNING & DELINEATION REGIONAL ENGINEER

RENEE B. ROACH, PE, CPM

STATE SIGNING & DELINEATION ENGINEER



PROJECT REFERENCE NO.
17BP.10.R.144

SHEET NO.
PMP-2

DocuSigned by:
Barry Smith
527104108678493...

APPROVED:

DATE: 2/5/2021

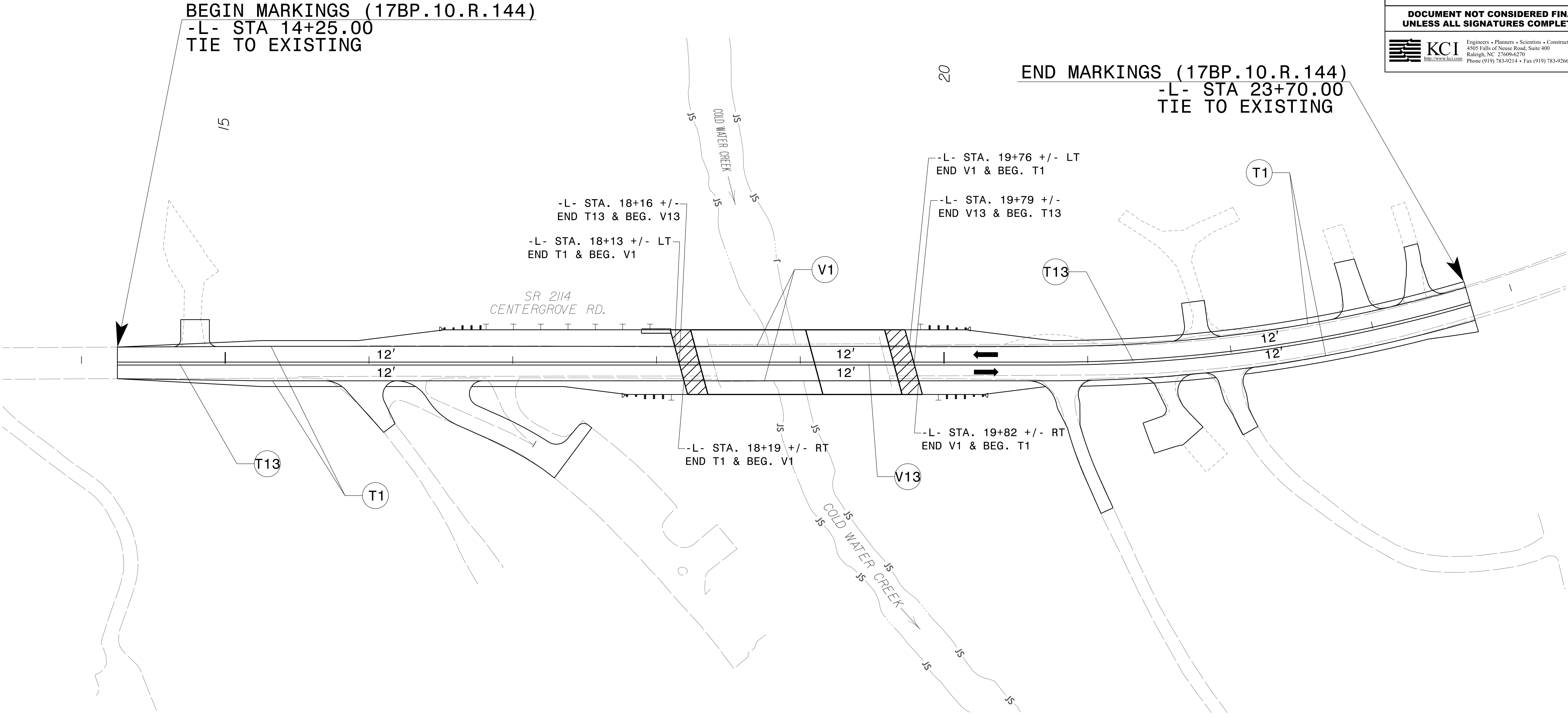
SEAL:



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

 KCI

Engineers • Planners • Scientists • Construction Managers
4515 Falls of Neuse Road, Suite 400
Raleigh, NC 27609-6270
Phone (919) 783-9214 • Fax (919) 783-9266



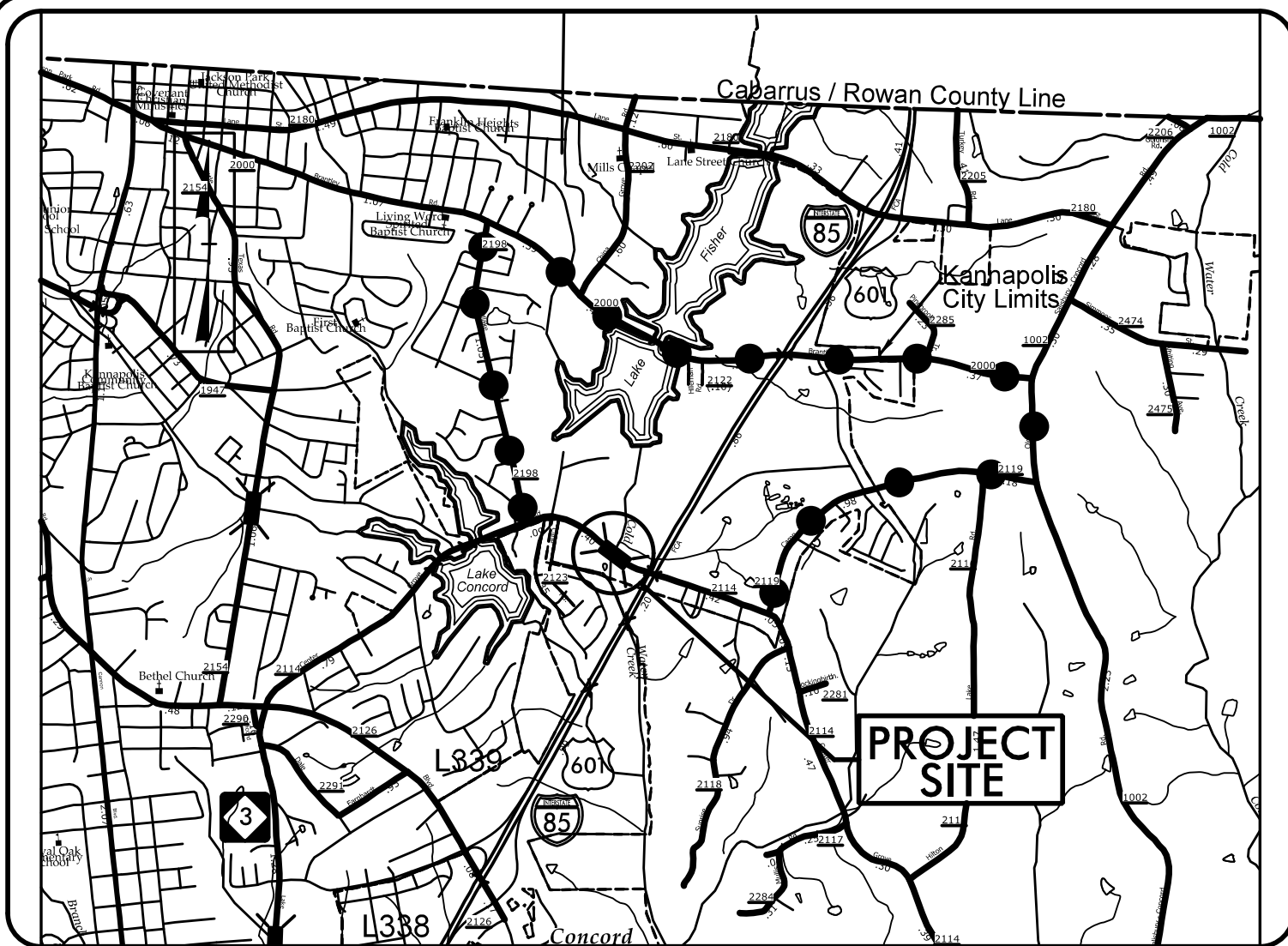
PAVEMENT MARKING LEGEND	
THERMO (4", 90 MIL)	
T1	WHITE EDGELINE
T13	YELLOW DOUBLE CENTER
POLYUREA (4", 20 MIL)	
V1	WHITE EDGELINE
V13	YELLOW DOUBLE CENTER

PAVEMENT MARKING DETAIL
(NOT TO SCALE)

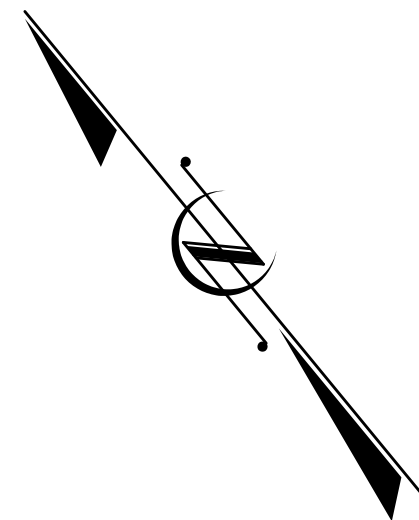
04-JAN-2021 16:02
M:\2015\22159570.02 B-5369\Traffic\Pavement\Working\17BP.10.R.144_Bridge_53_PMP_02.dgn
\$\$\$\$\$USERNAME\$\$\$\$\$

104559.RN
10/19/2018
R:\Enviromental\Design\B-5369_REU\EC-TSH.dgn

STATE PROJECT: 17BP.10.R.144



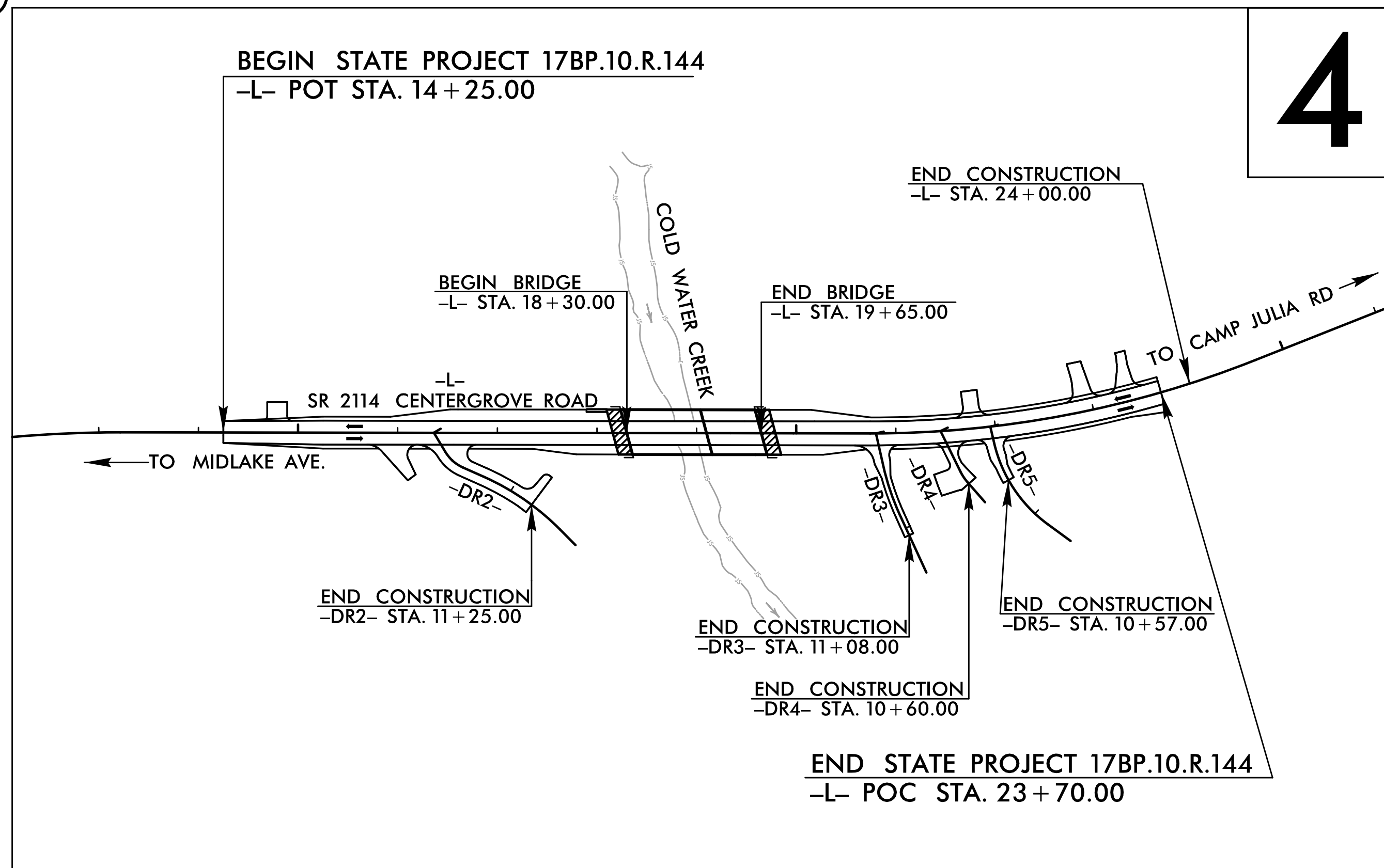
VICINITY MAP
NOT TO SCALE



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

CABARRUS COUNTY

LOCATION: BRIDGE NO. 53 OVER COLD WATER CREEK
ON SR 2114 (CENTERGROVE ROAD)
TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.10.R.144	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
46084.1.1*	BRSTP-2114(1)	P.E.	
46084.1.1*		R/W, UTIL.	
17BP.10.R.144		CONSTR.	

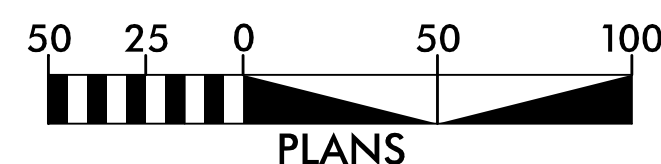
*FORMERLY STIP PROJECT B-5369

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	III III III
1606.01	Special Sediment Control Fence	III III III
1622.01	Temporary Berms and Slope Drains	TD
1630.02	Silt Basin Type B	III III III
1633.01	Temporary Rock Silt Check Type-A	III III III
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	III III III
1633.02	Temporary Rock Silt Check Type-B	III III III
	Wattle / Coir Fiber Wattle	III III III
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	III III III
1634.01	Temporary Rock Sediment Dam Type-A	III III III
1634.02	Temporary Rock Sediment Dam Type-B	III III III
1635.01	Rock Pipe Inlet Sediment Trap Type-A	III III III
1635.02	Rock Pipe Inlet Sediment Trap Type-B	III III III
1630.04	Stilling Basin	III III III
1630.06	Special Stilling Basin	III III III
	Rock Inlet Sediment Trap:	III III III
1632.01	Type A	III III III
1632.02	Type B	III III III
1632.03	Type C	III III III
	Skimmer Basin	III III III
	Tiered Skimmer Basin	III III III
	Infiltration Basin	III III III

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

GRAPHIC SCALE



THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH
THE APPLICABLE REGULATIONS SET FORTH BY THE NCG-010000
GENERAL CONSTRUCTION PERMIT EFFECTIVE APRIL 1, 2019
AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF
ENVIRONMENTAL QUALITY DIVISION OF WATER RESOURCES.



VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606



VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

Prepared In the Office of:

Designed by:

REID ROBOL, PE
NAME

3409
LEVEL III CERTIFICATION NO.

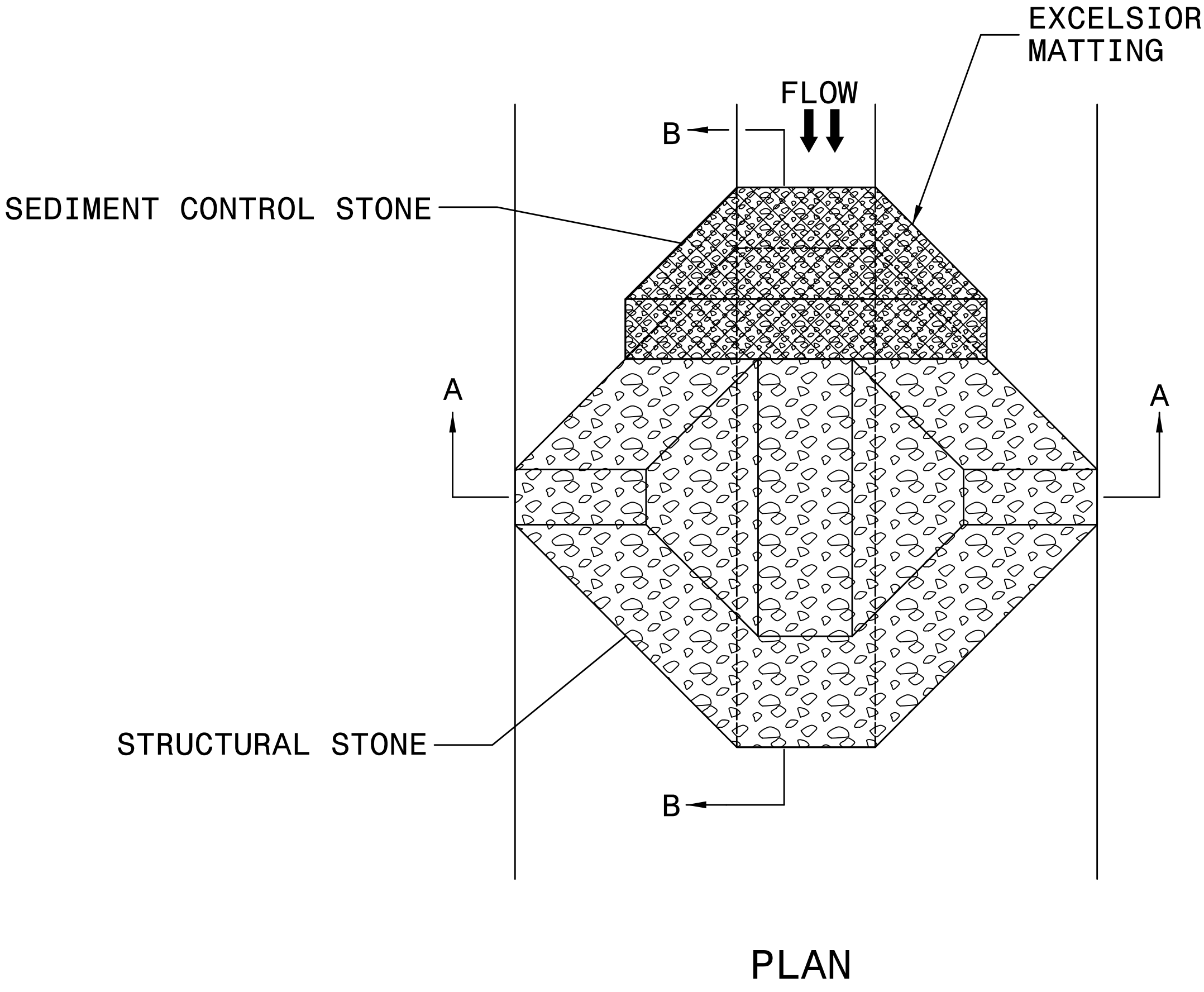
Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2018 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

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

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

PROJECT REFERENCE NO.	SHEET NO.
17BP10.R144	EC-02
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



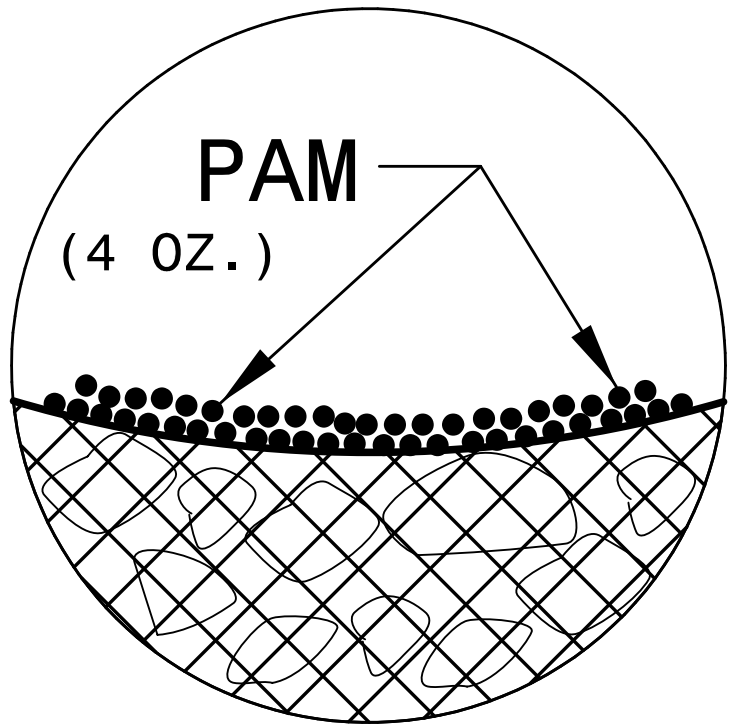
NOTES:

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

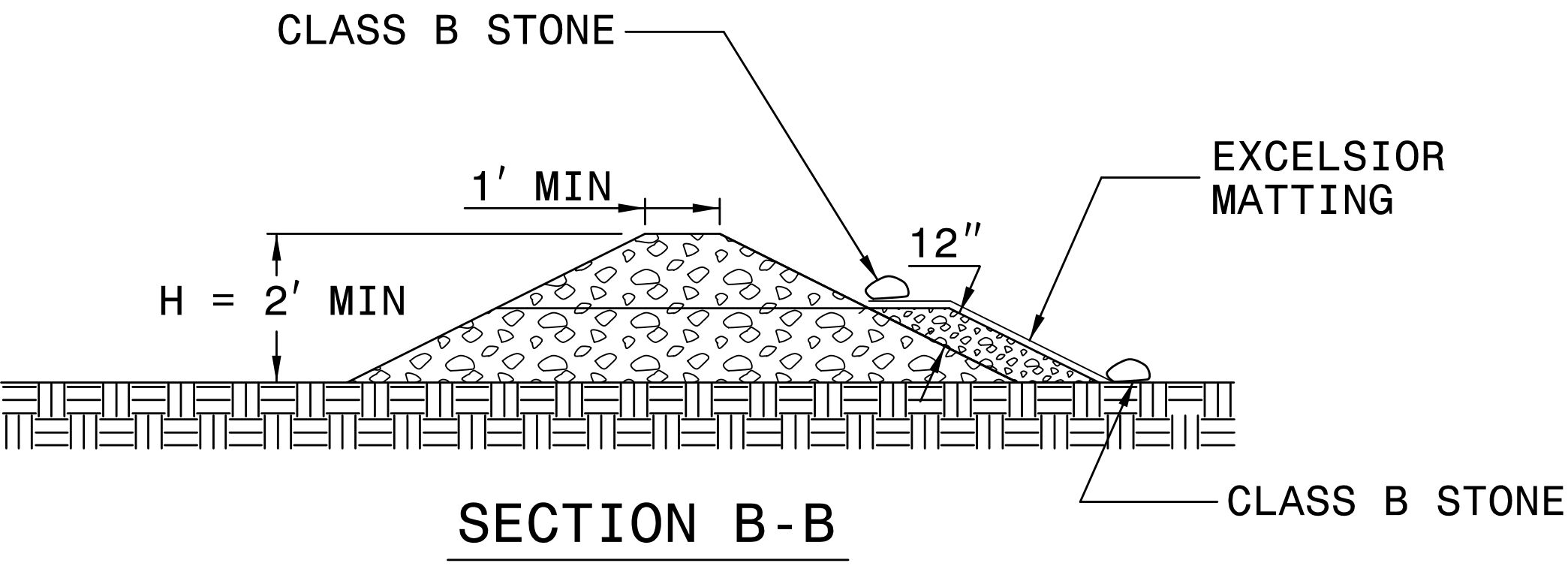
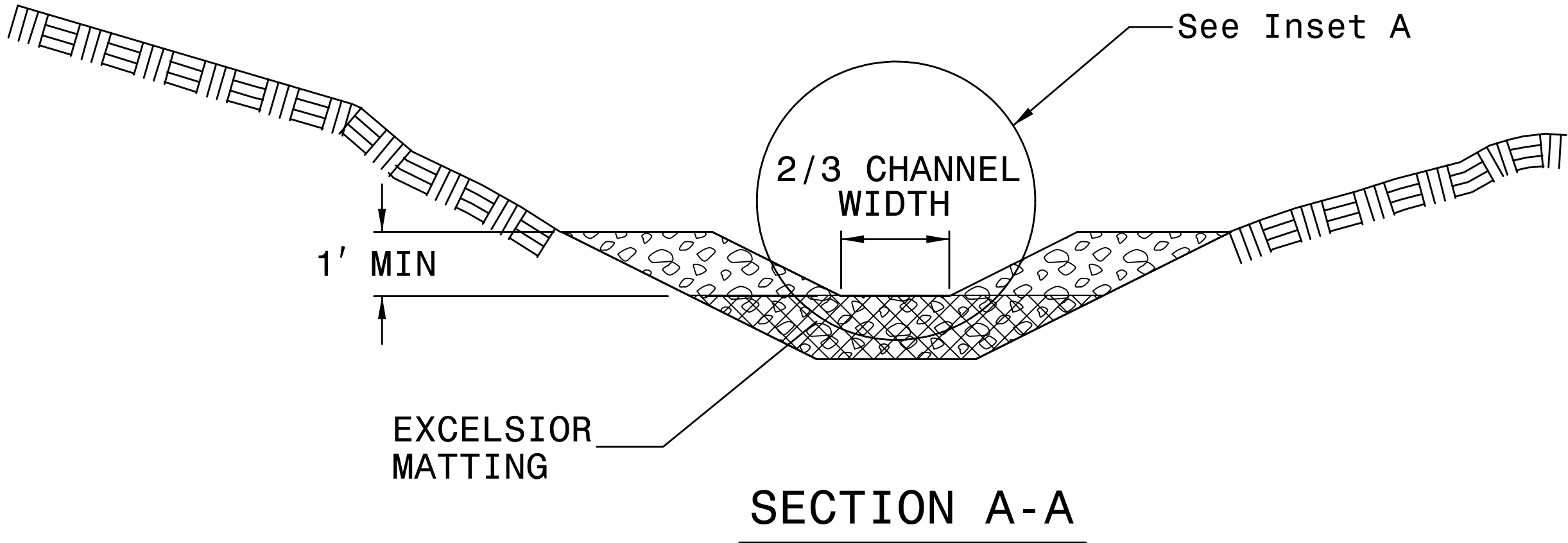
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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



NOT TO SCALE

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.

DETAIL 1
TOE PROTECTION
(Not to Scale)

NATURAL GROUND

2:1 OR FLATTER

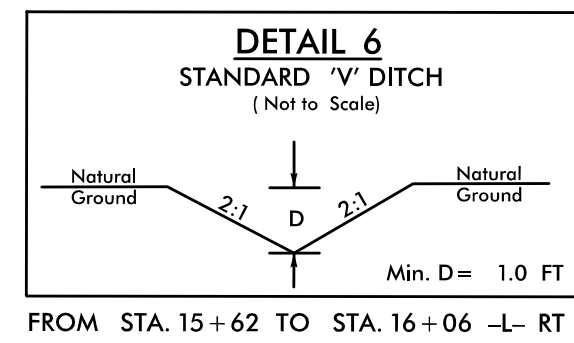
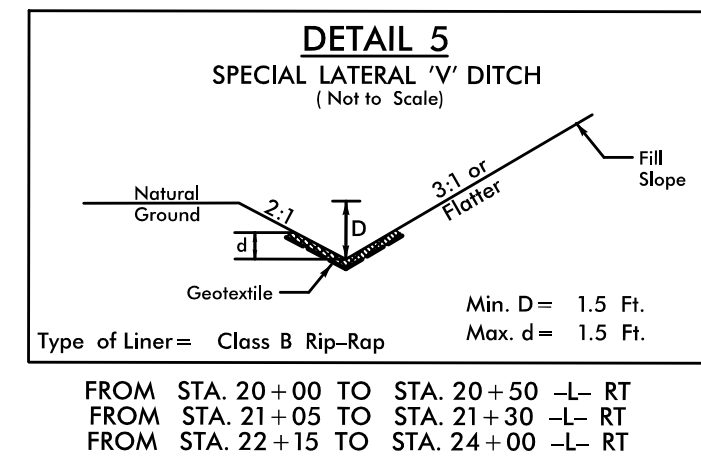
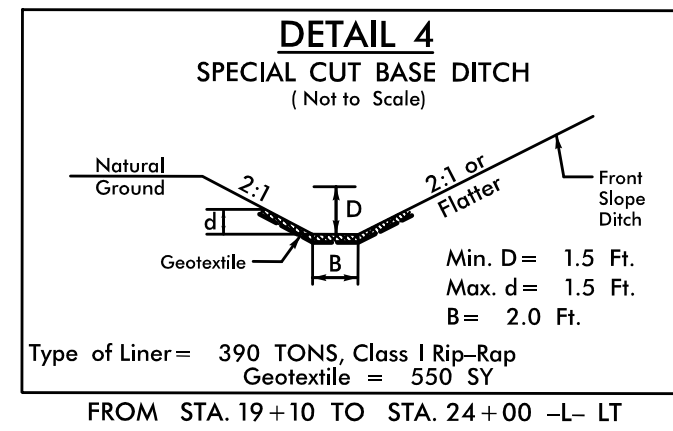
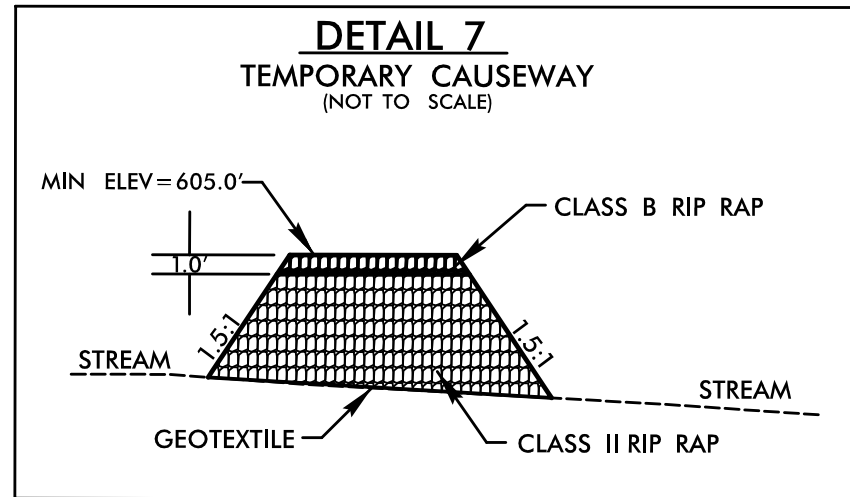
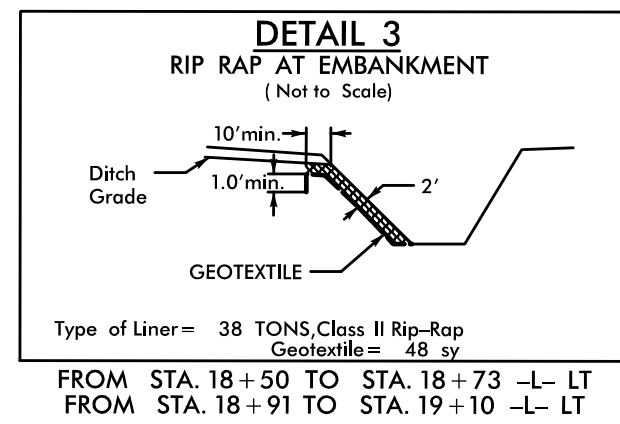
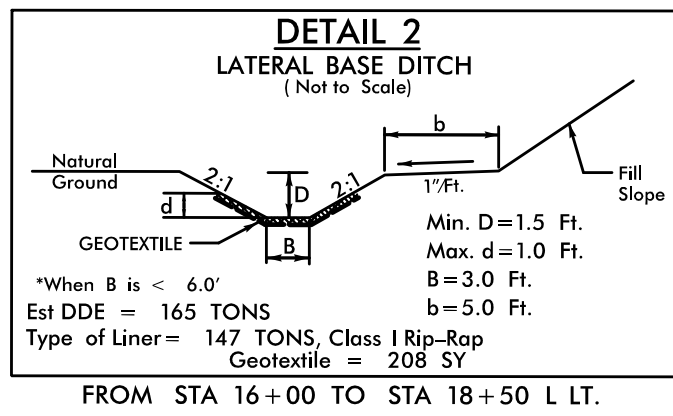
FILL SLOPE

GEOTEXTILE

d = 1.5 Ft.

Type of Liner = 42 TONS, Class 1 Rip-Rap
Geotextile = 60 SY

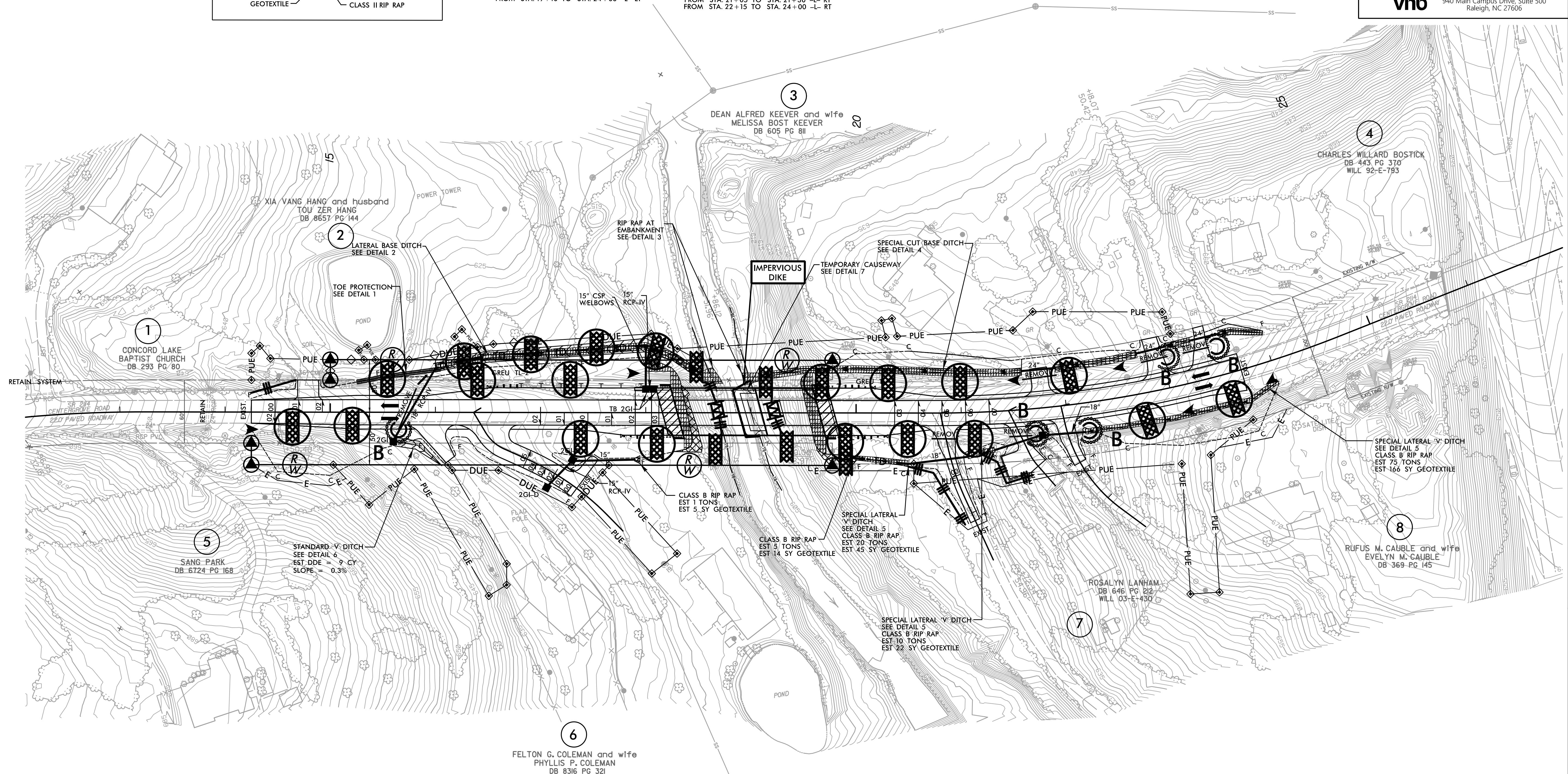
FROM STA 15+25 TO STA 16+05 L LT

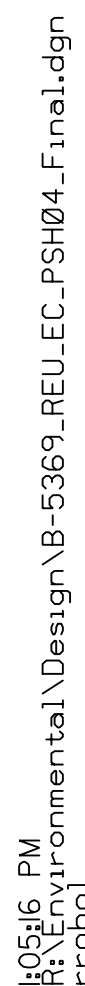
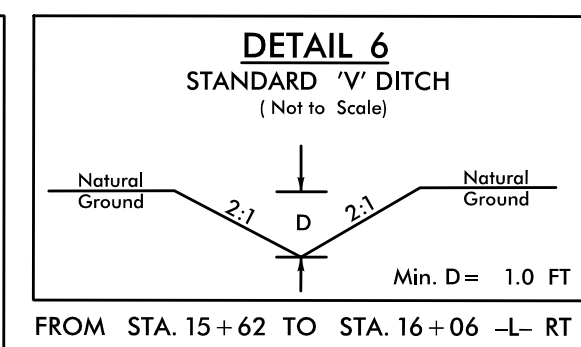
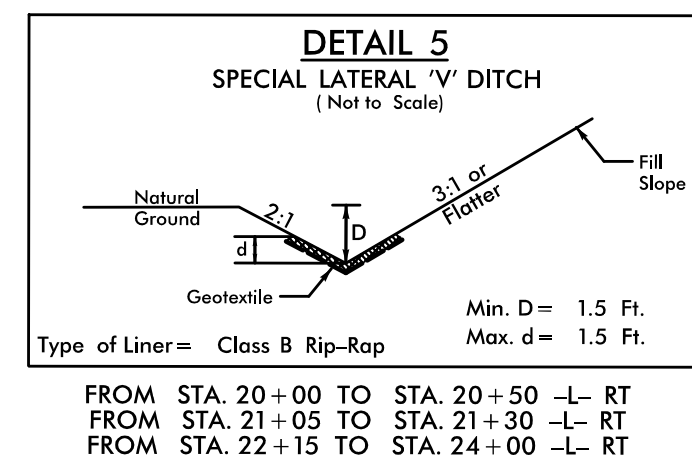
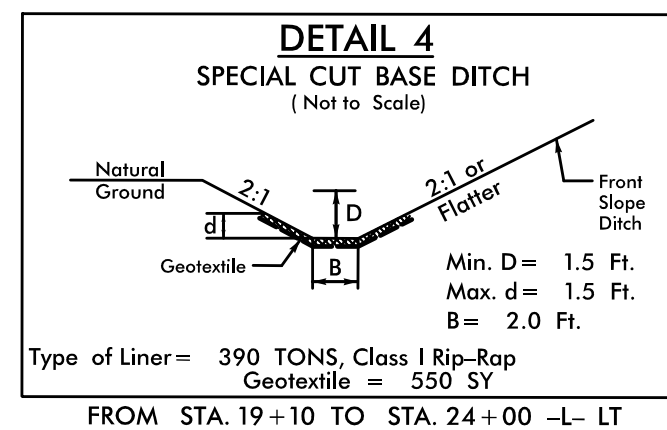
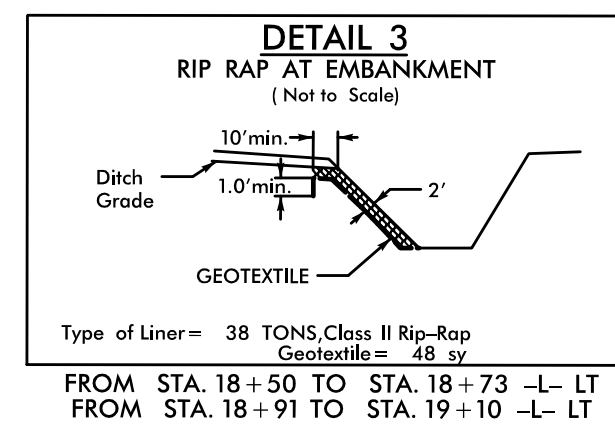


NAD 83/NA 2011

KCI Engineers • Planners • Scientists • Construction Managers
4505 Falls of Neuse Road, Suite 400
Raleigh, NC 27609-6270
<http://www.kci.com> Phone (919) 783-9214 • Fax (919) 783-9266

 VHB Engineering NC, P.C. (C-3705)
940 Main Campus Drive, Suite 500
Raleigh, NC 27606

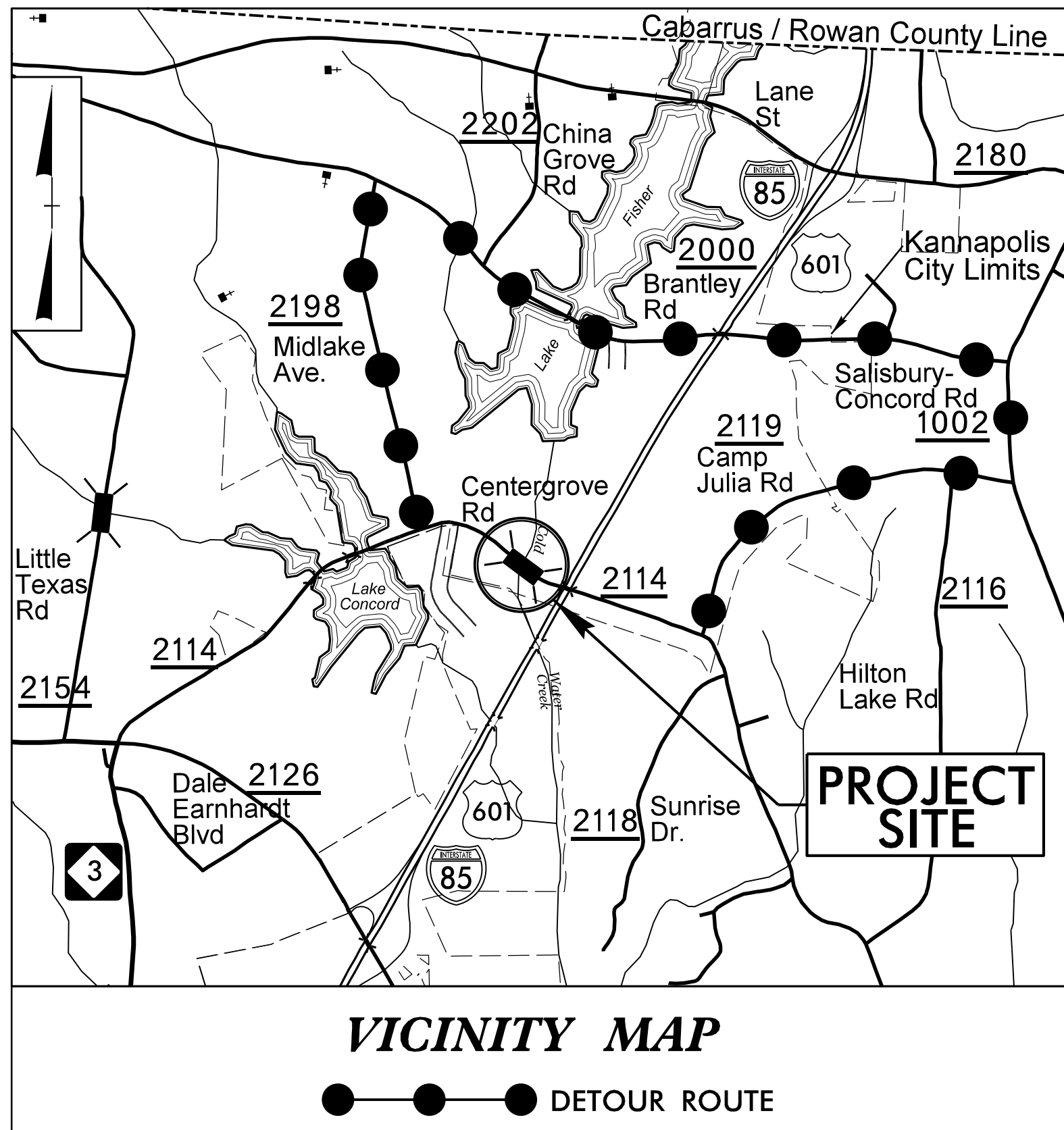




09.08/99

TIP PROJECT: 17BP.10.R.144

See Sheet 1A For Index of Sheets
See Sheet 1B for Conventional Symbols
See Sheet 1C-1 for Survey Control Sheet



VICINITY MAP

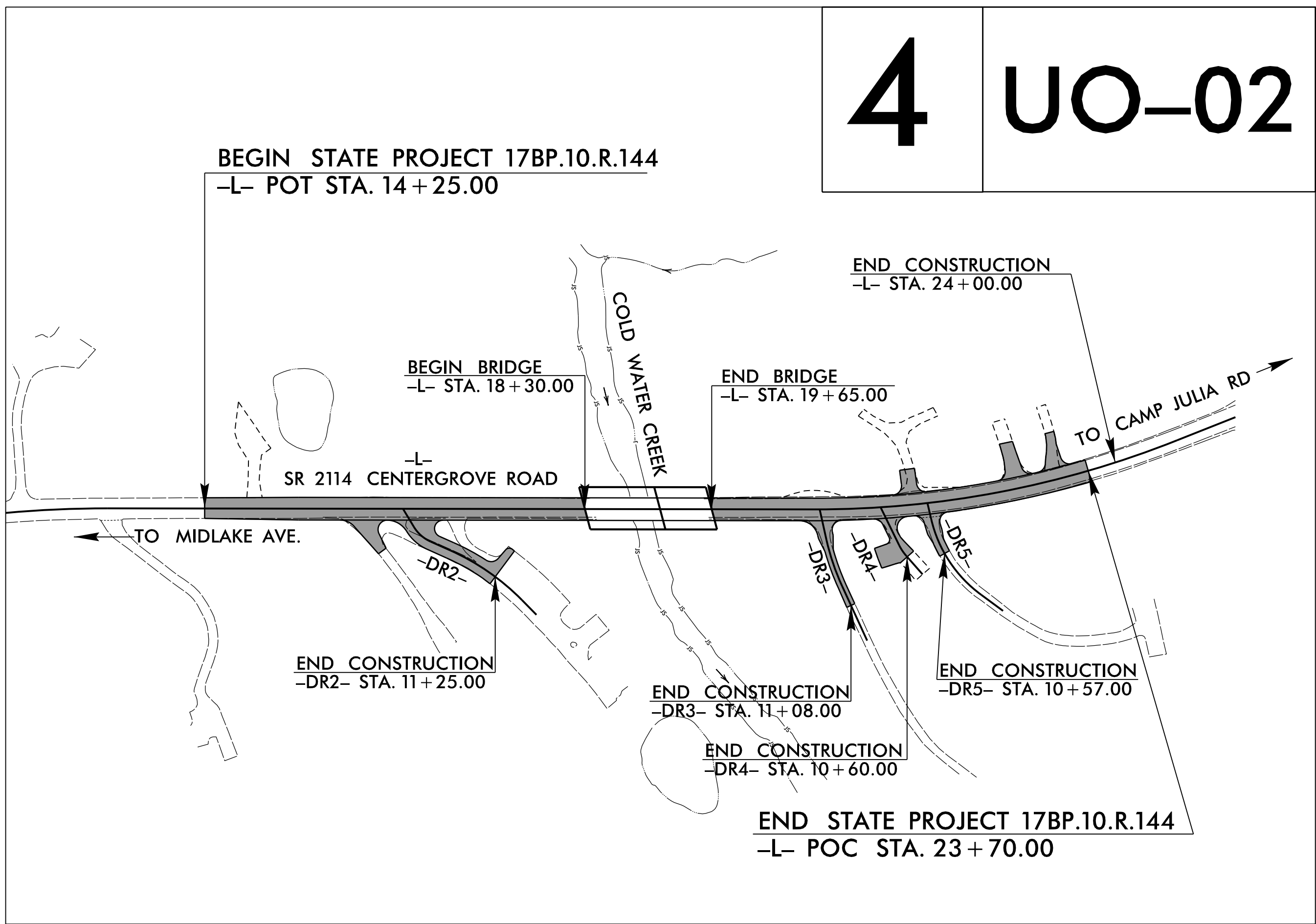
● — ● — ● DETOUR ROUTE

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

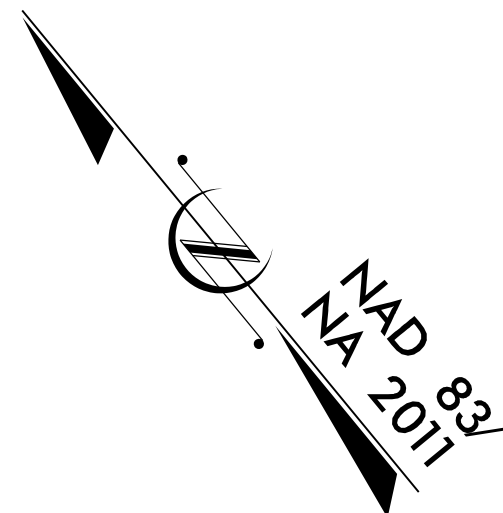
UTILITIES BY OTHERS PLANS CABARRUS COUNTY

LOCATION: BRIDGE NO. 23 OVER COLD WATER CREEK
ON SR 2114 (CENTERGROVE ROAD)

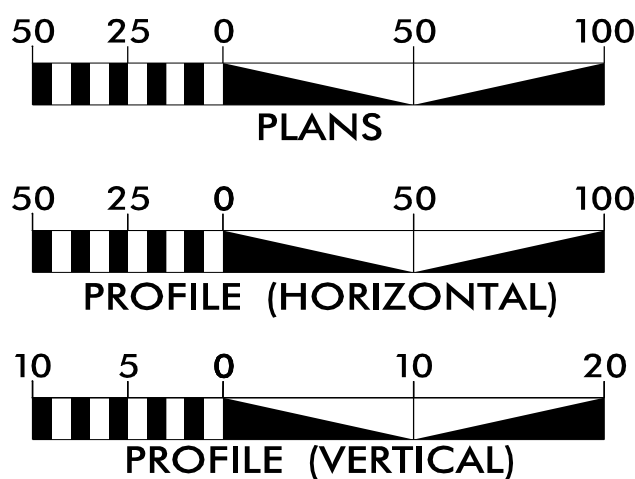
TYPE OF WORK: OVERHEAD POWER, OVERHEAD COMMUNICATIONS AND
WATER AND SEWER RELOCATIONS



4 UO-02



GRAPHIC SCALES



INDEX OF SHEETS

SHEET NO.:

UO-1

UO-2

DESCRIPTION:

TITLE SHEET

UBO PLAN SHEETS

UTILITY OWNERS WITH CONFLICTS

- (A) DUKE - POWER (DISTRIBUTION)
- (B) CITY OF CONCORD - POWER (DISTRIBUTION)
- (C) WINDSTREAM - COMMUNICATIONS
- (D) TIME WARNER CABLE - COMMUNICATIONS
- (E) CITY OF KANNAPOLIS - WATER & SEWER

PREPARED IN THE OFFICE OF:



JOHN FAISON UTILITY PROJECT MANAGER
JOSH BARBOUR PROJECT UTILITY COORDINATOR
JOSH BARBOUR PROJECT UTILITY DESIGNER

Prepared In the Office of:
KCI Associates of N.C., P.A.
4505 Falls of Neuse Road, Suite 400
Raleigh, NC 27609
Phone (919) 783-9214
Fax (919) 783-9266

Plans Prepared For:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr.
Raleigh NC, 27610

RIGHT OF WAY DATE:
MARCH 17, 2017
LETTING DATE:
APRIL 21, 2021

DEWAYNE L. SYKES, P.E.
PROJECT ENGINEER
BARRY C. SMITH, P.E.
PROJECT DESIGN ENGINEER

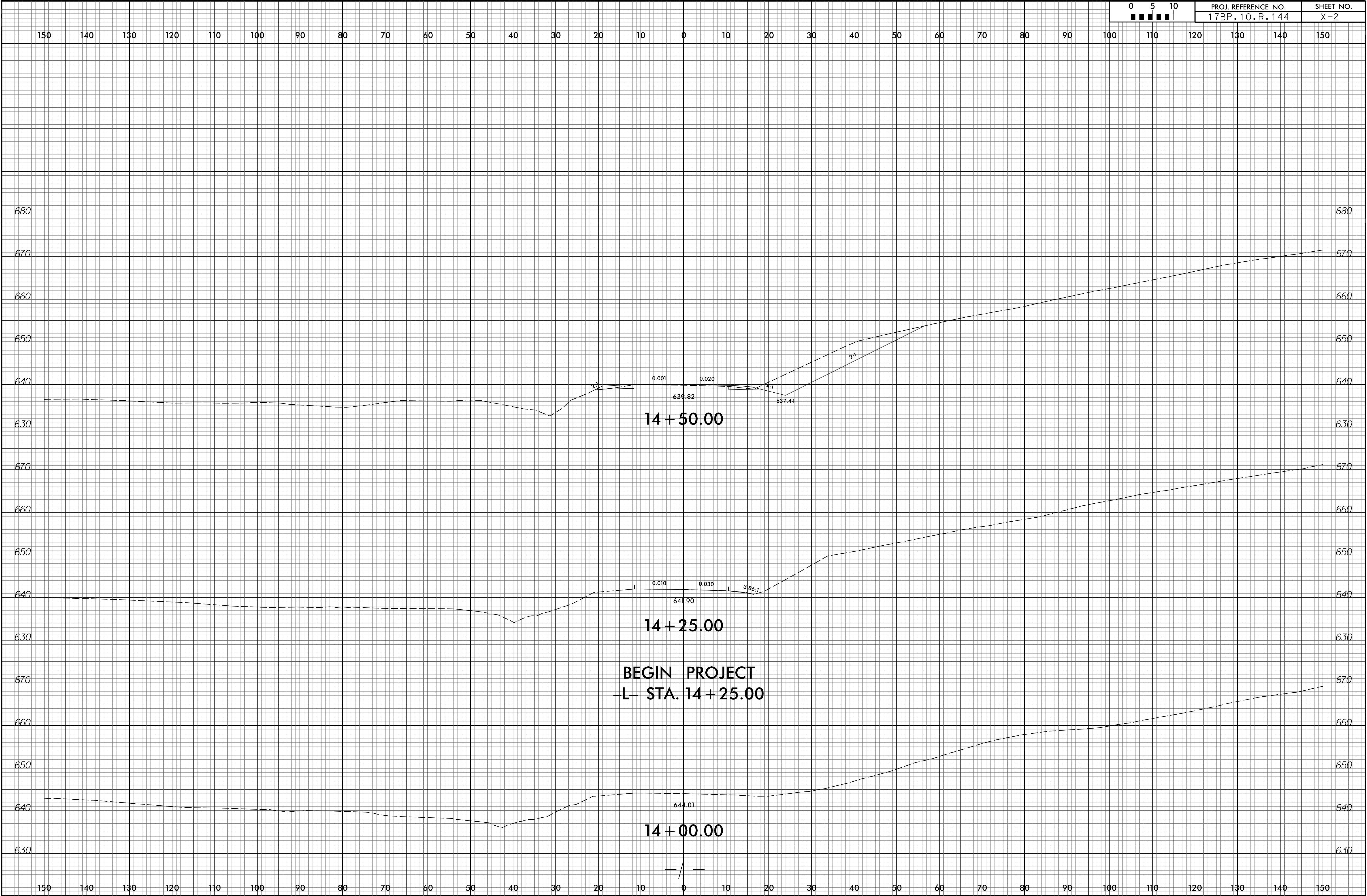
NCDOT CONTACT: GARLAND HAYWOOD, P.E.
DIVISION 10 BRIDGE PROGRAM MANAGER

[illegible]

8/23/99

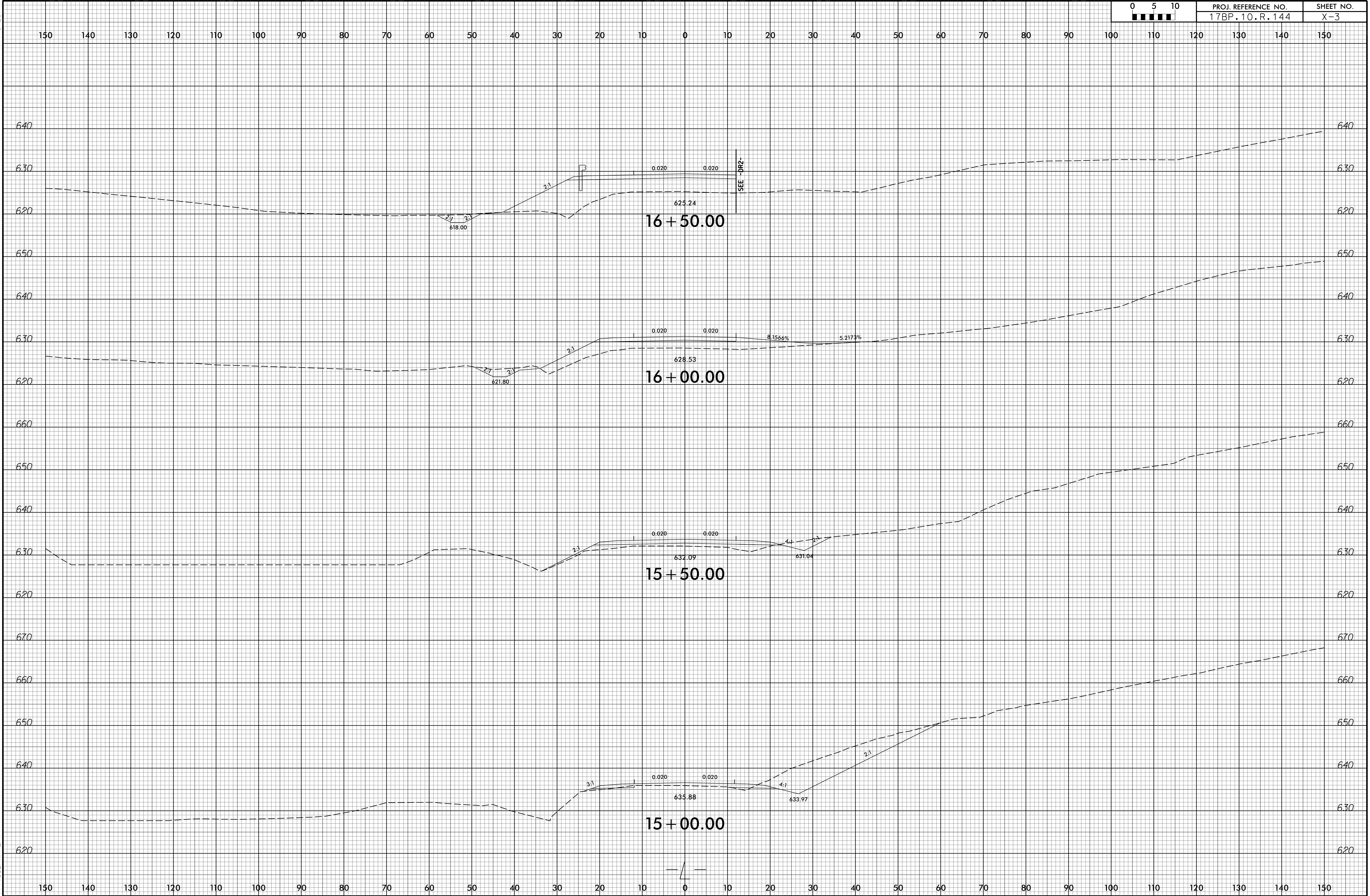
I:\NOV-2020_10\53
M:\2015\2255570\02 B-5369\Roadway\CorridorModeling\B5369_Rdy_cm_xpl.dgn
\$\$\$\$USERNAME\$\$\$\$

0510	PROJ. REFERENCE NO.	SHEET NO.
■■■■■	17BP.10.R.144	X-2



8/23/99

9-NOV-2020 10:53
M:\2015\22155570\02 B-5369\Roadway\CorridorModeling\B5369_Rdy_cm.xpl.dgn
\$\$\$\$\$USERNAME\$\$\$\$\$

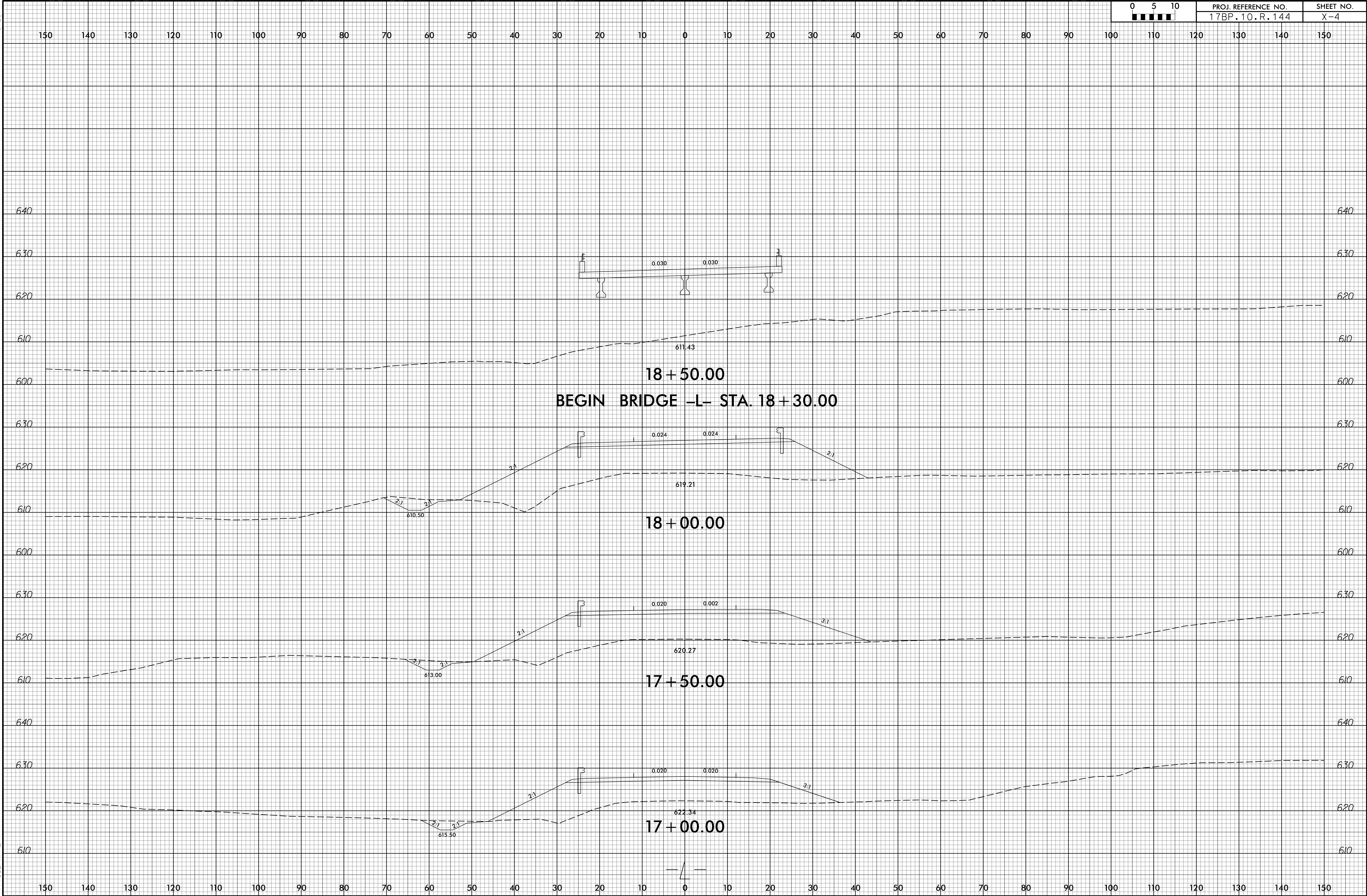


0 5 10 ■■■■■	PROJ. REFERENCE NO. 17BP.10.R.144	SHEET NO. X-3
-----------------	--------------------------------------	------------------

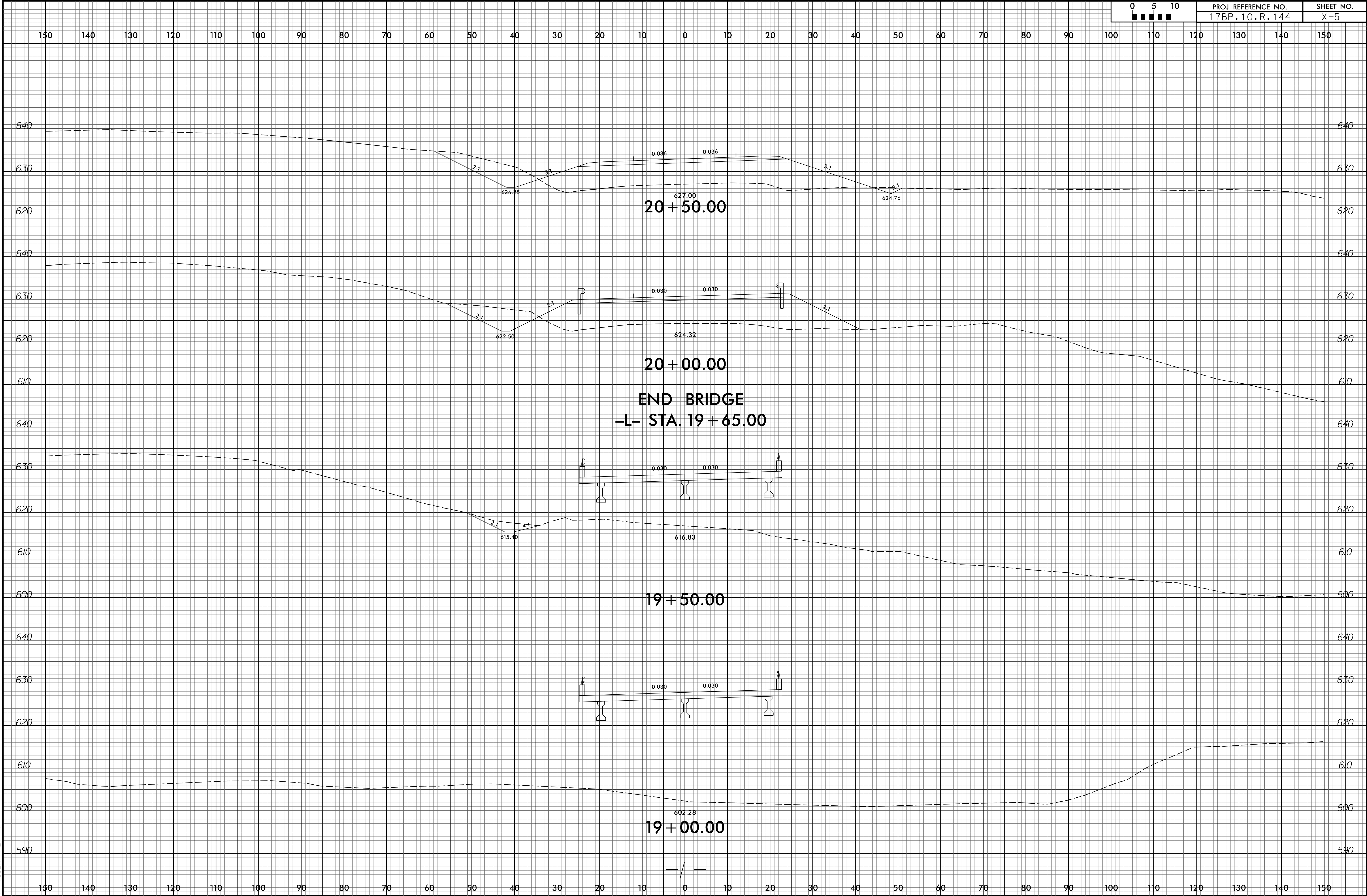
8/23/99

9-NOV-2020 10:53
M:\2015\22155570\02 B-5369\Roadway\CorridorModeling\B5369_Rdy_cm_xpl.dgn
\$\$\$\$\$USERNAME\$\$\$\$\$

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
■■■■■	17BP.10.R.144	X-4

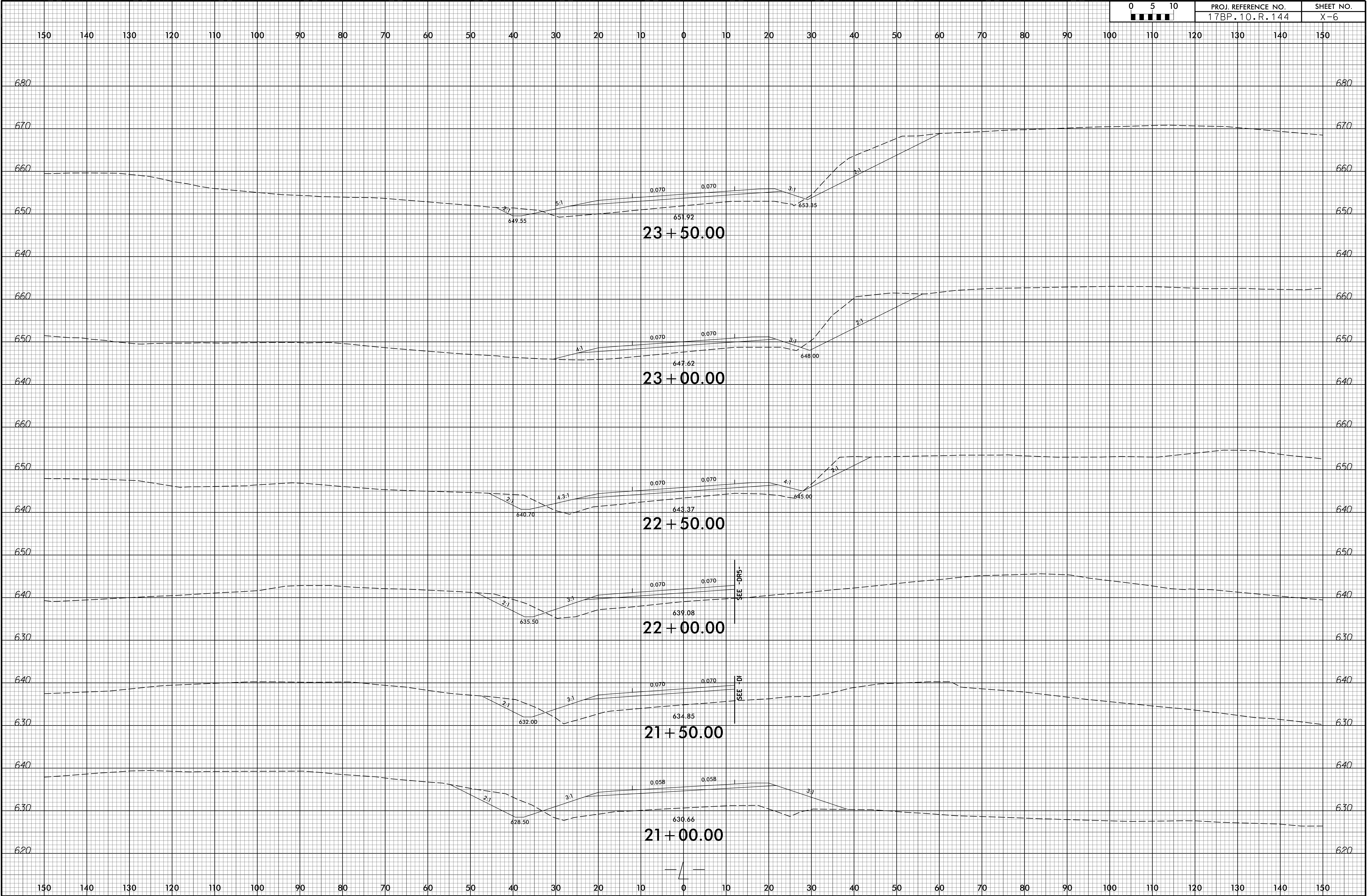


8/23/99



8/23/99

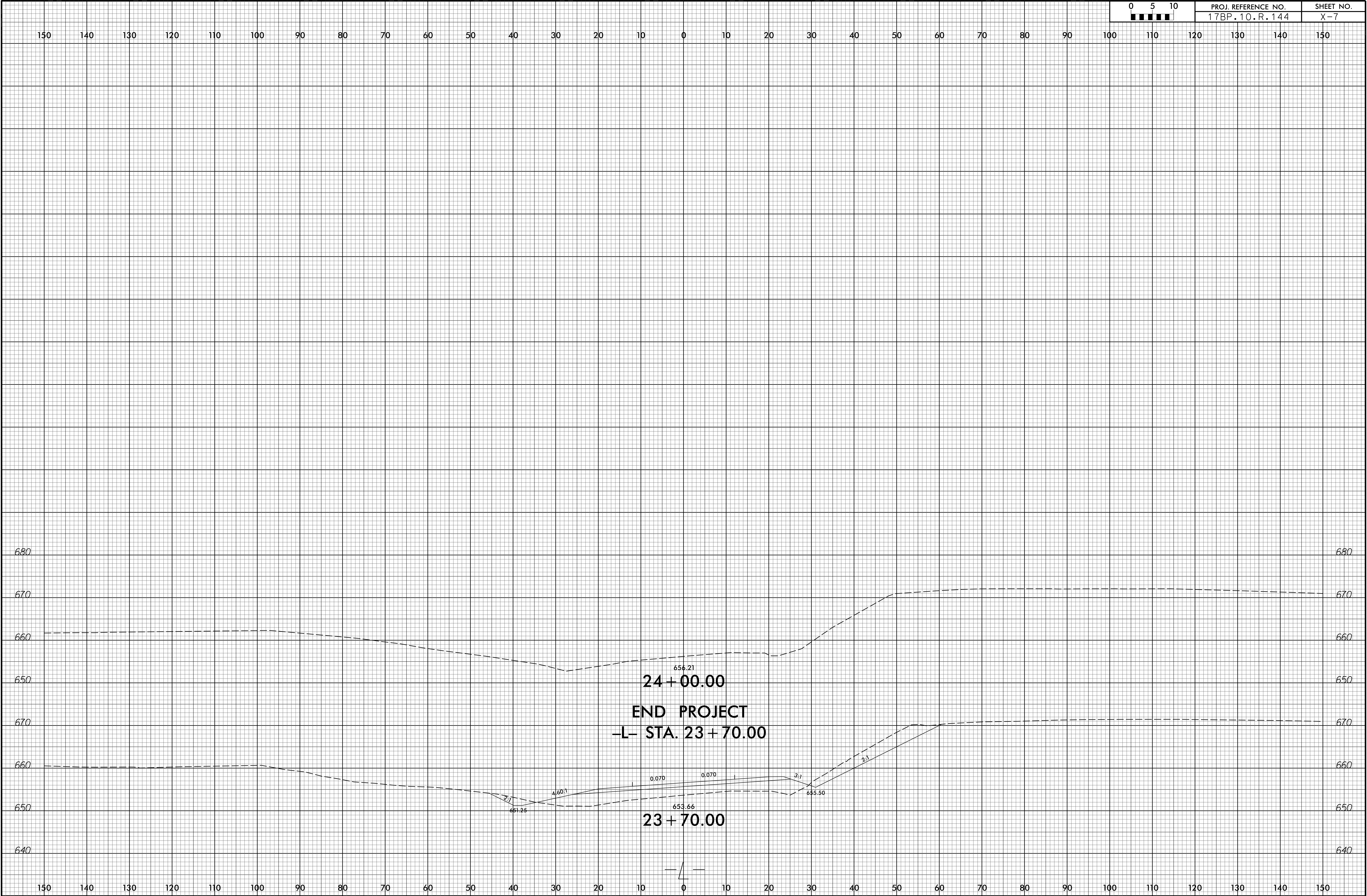
9-NOV-2020 10:53
M:\2015\22155570\02 B-5369\Roadway\CorridorModeling\B5369_Rdy_cm_xpl.dgn
\$\$\$\$\$USERNAME\$\$\$\$\$



8/23/99

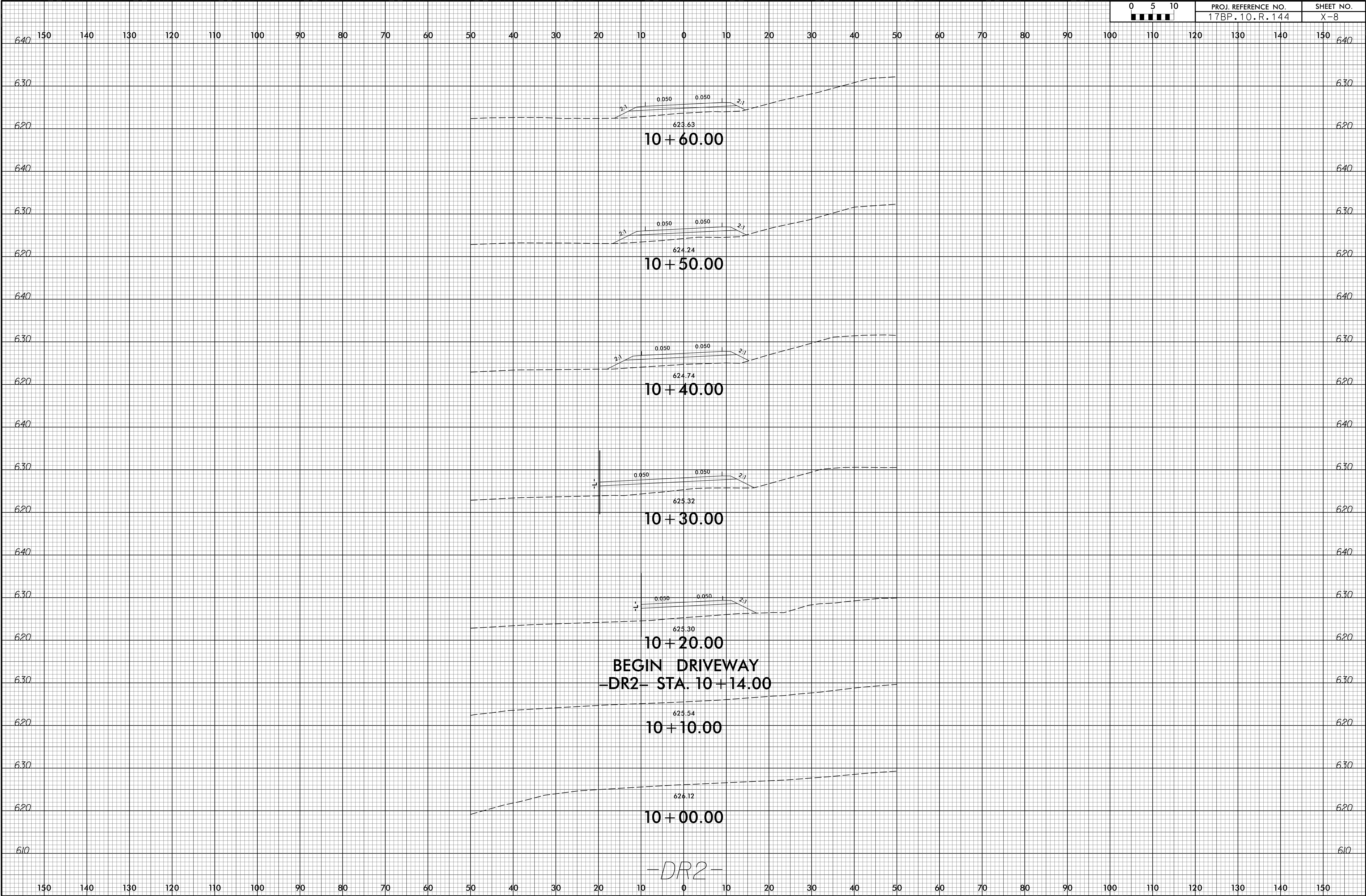
I:\NOV-2020_10\53
M:\2015\22155570.02
B-5369\Roadway\CorridorModeling\B5369_Rdy_cm_xpl.dgn
\$\$\$\$USERNAME\$\$\$\$

0510	PROJ. REFERENCE NO.	SHEET NO.
■■■■■	17BP.10.R.144	X-7



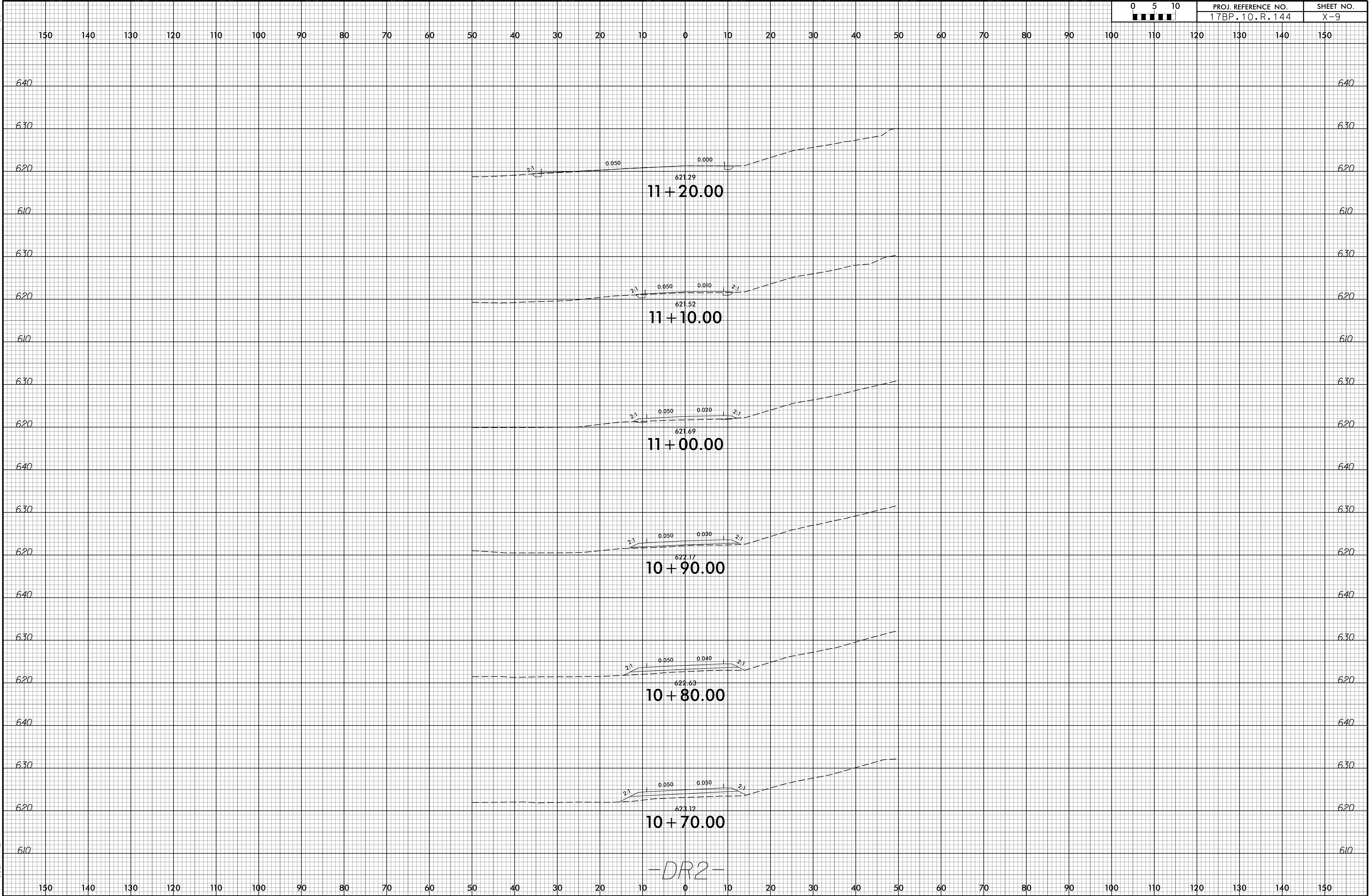
8/23/99

05	PROJ. REFERENCE NO.	SHEET NO.
0 5 10	17BP.10.R.144	X-8

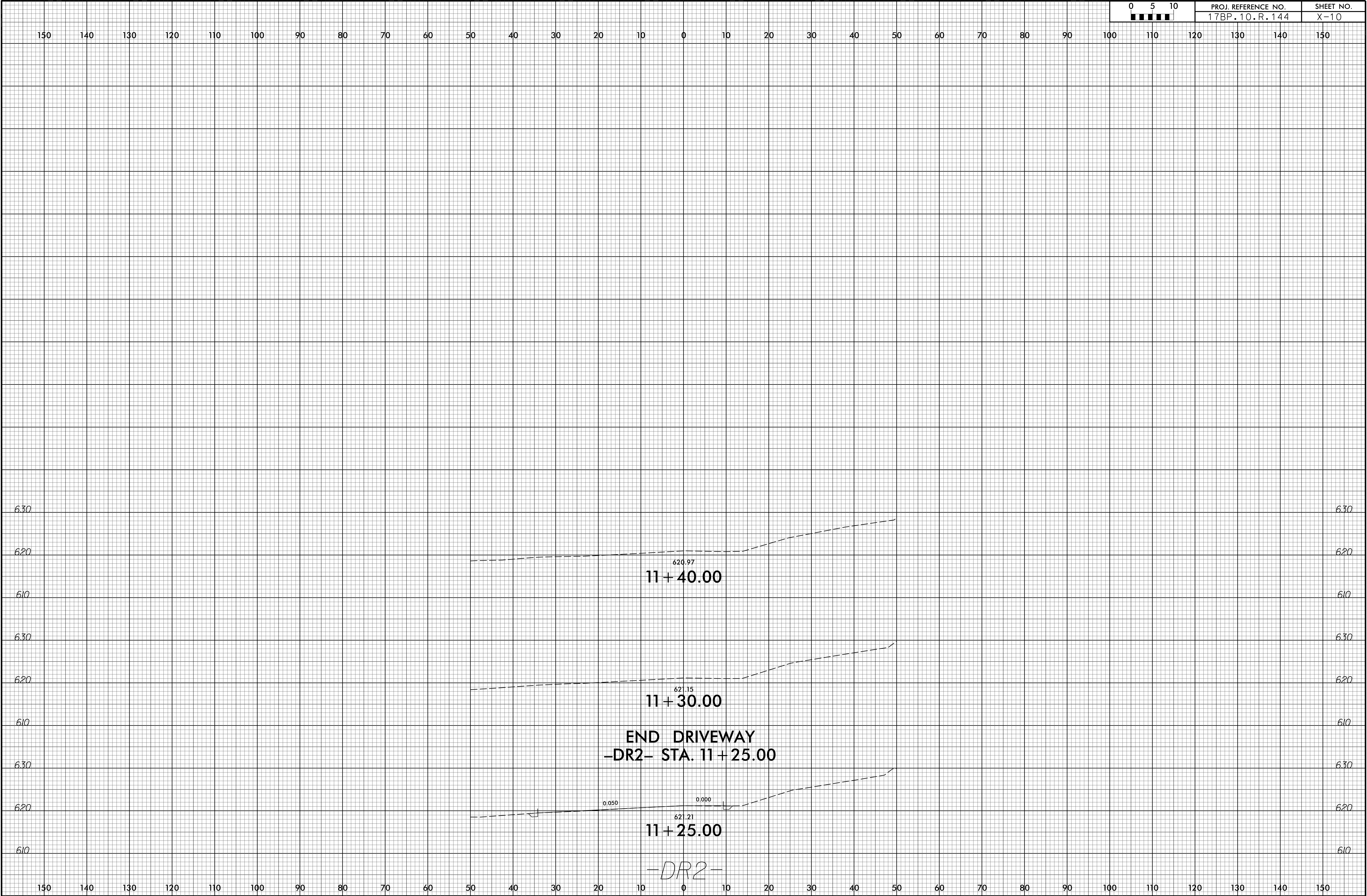


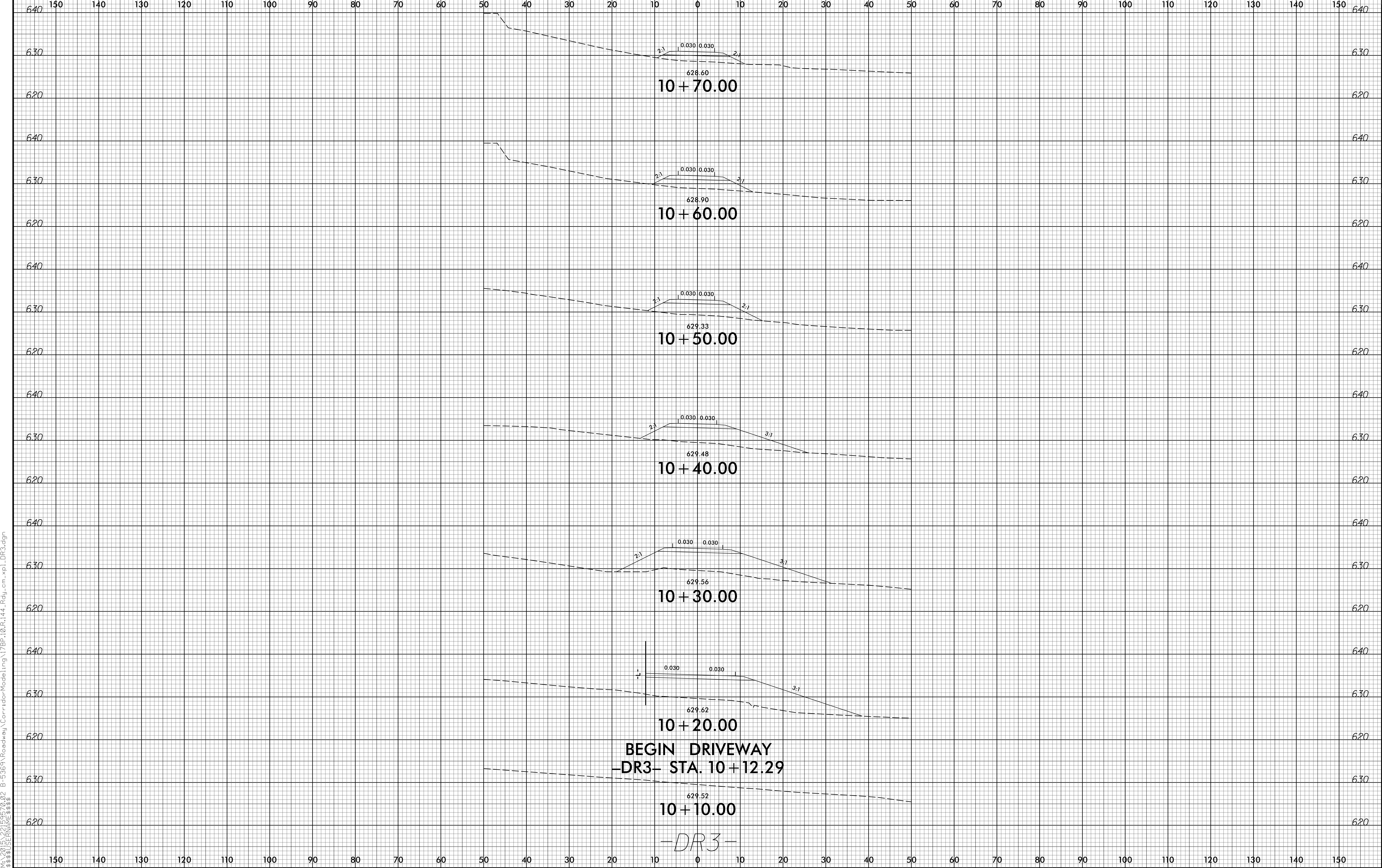
8/23/99

04-DEC-2020 15:06
M:\2015\22155570_02 B-5369\Roadway\CorridorModeling\7BP.10.R.144_RdJ.cm_xpl_DR2.dgn
\$\$\$\$USERNAME\$\$\$\$



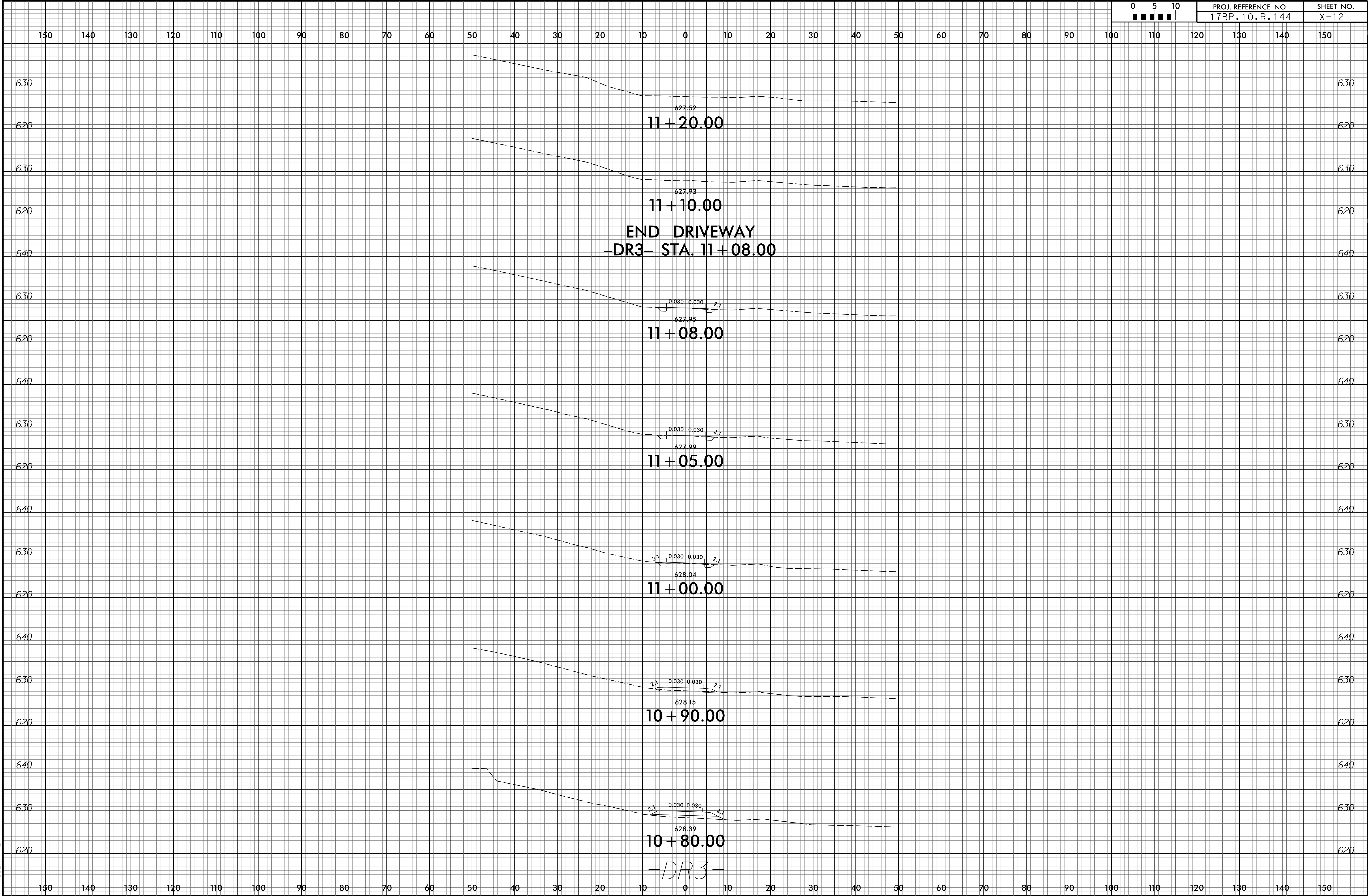
0510	PROJ. REFERENCE NO.	SHEET NO.
■■■■■	17BP.10.R.144	X-10

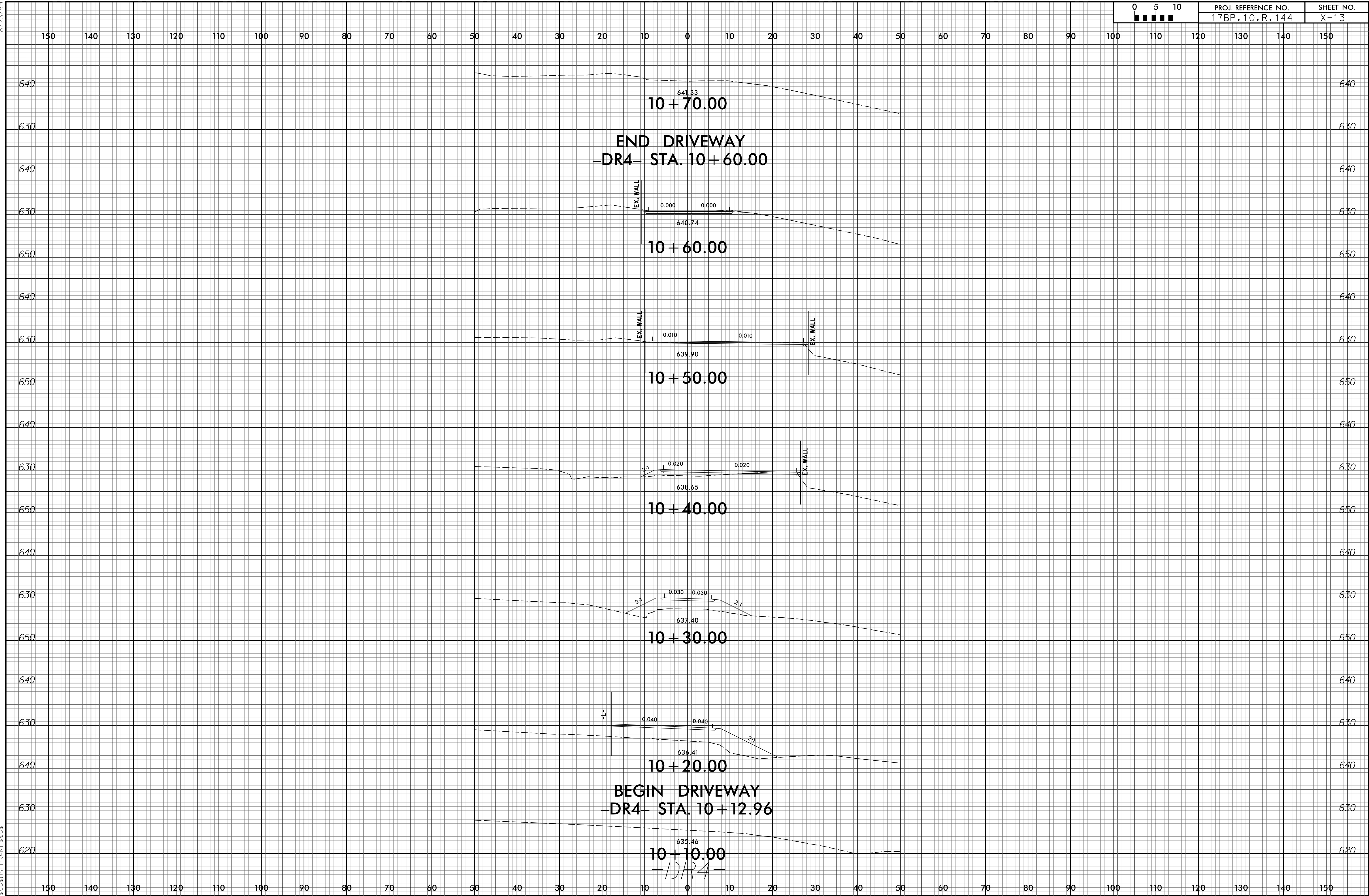




8/23/99

04-DEC-2020 15:13
M:\2015\22155570.02 B-5369\Roadway\CorridorModeling\7BP.10.R.144_RdLcm.xpl_DR3.dgn
\$\$\$\$\$USERNAME\$\$\$\$\$





8/23/99

I:\NOV-2020_10\53
M:\2015\22155570\02 B-5369\Roadway\CorridorModeling\B5369_Rdy_cm_xpl_DR5.dgn
\$\$\$\$\$USERNAME\$\$\$\$\$

