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09/08/99

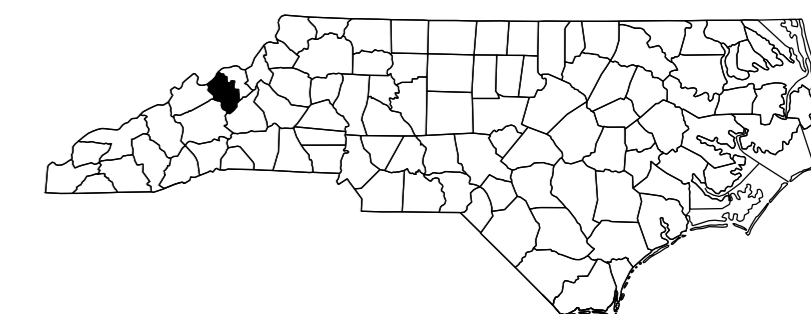
See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols
See Sheet 1C-1 & 1C-2 For Survey Control Sheets

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

YANCEY COUNTY

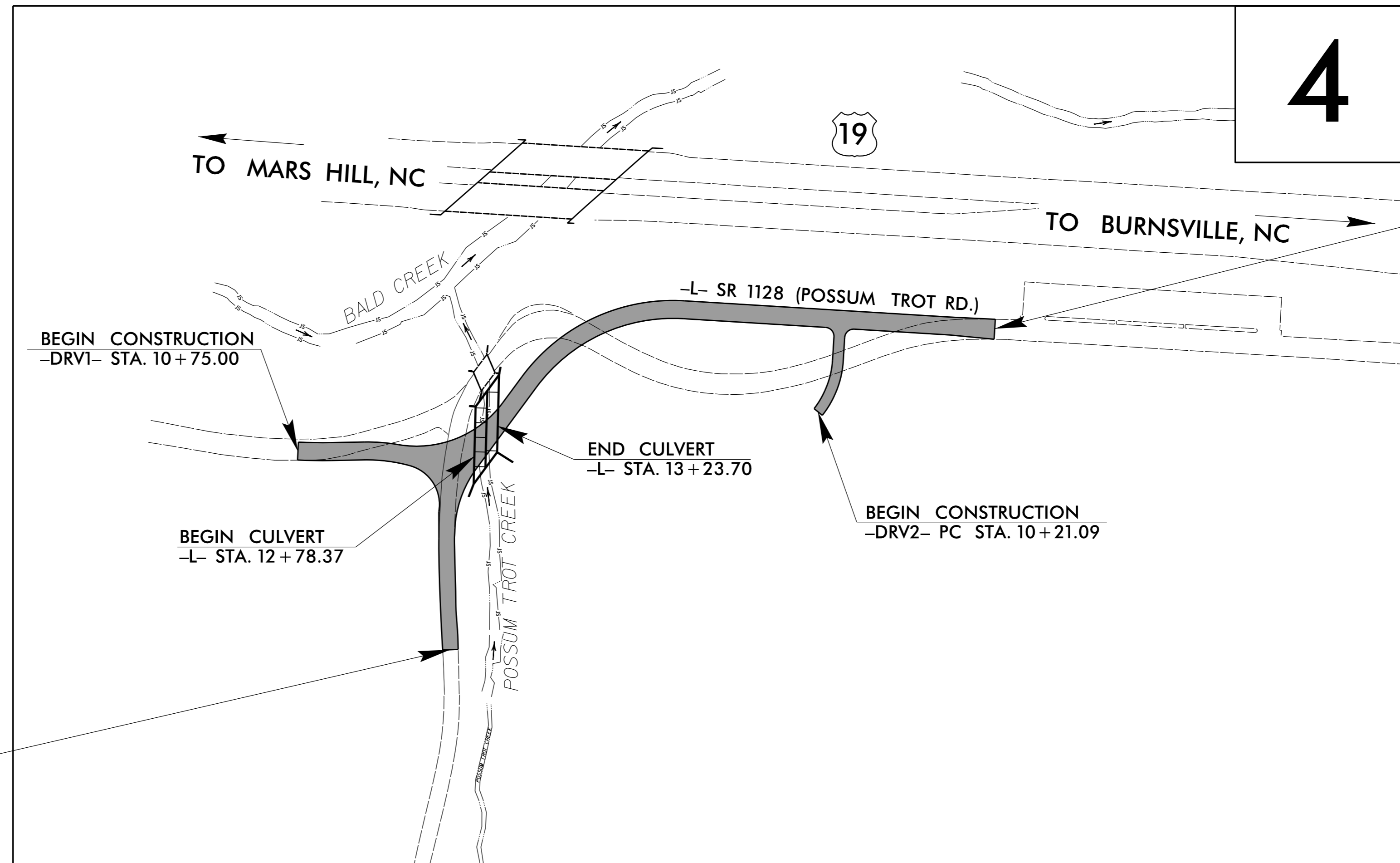
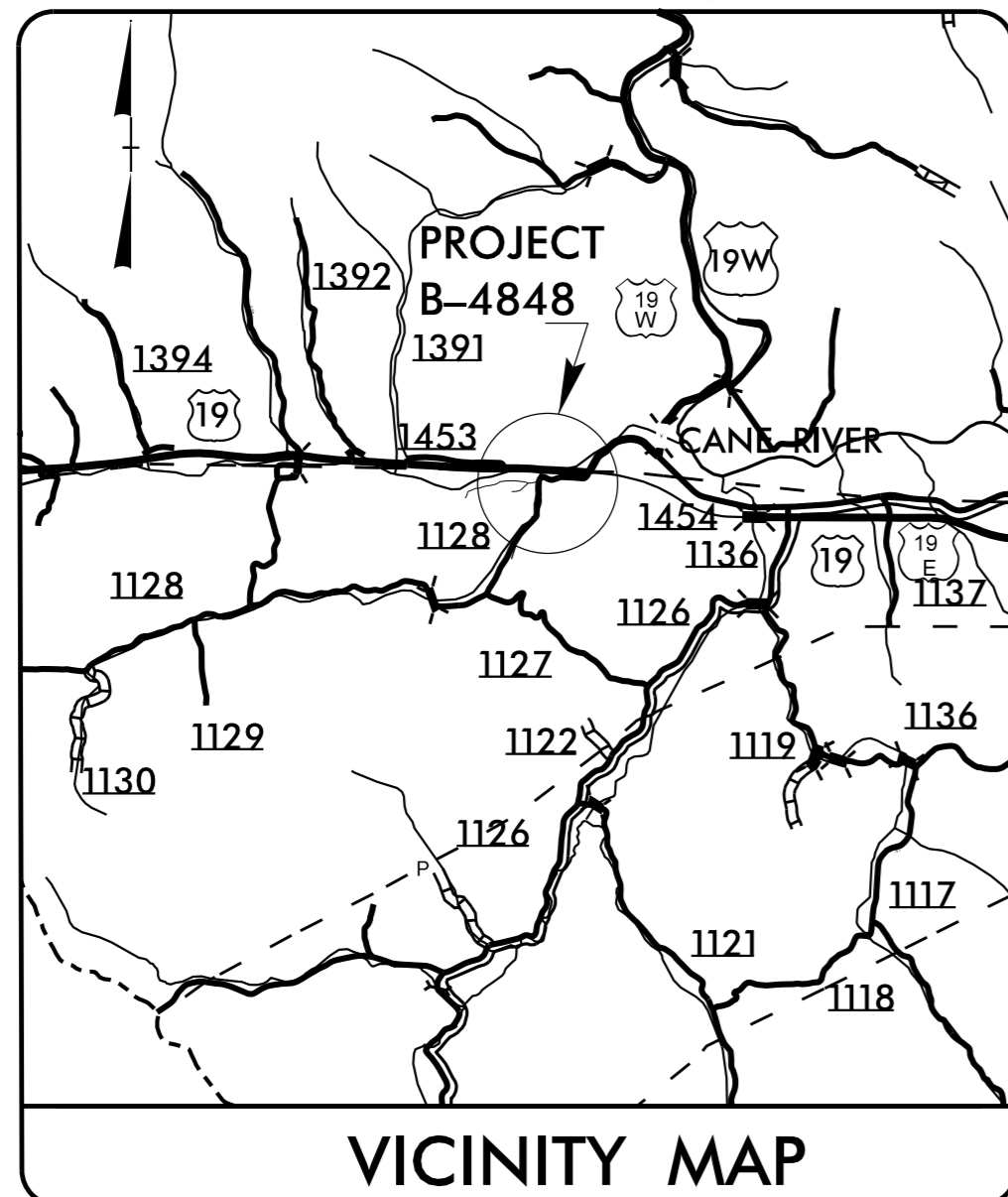
**LOCATION: REPLACE BRIDGE 3 OVER POSSUM TROT CREEK
ON SR 1128**
TYPE OF WORK: GRADING, PAVING, DRAINAGE AND CULVERT

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4848	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
38618.1.1	BRZ-1128(7)	PE	
38618.1.2		RW & UTILITIES	
38618.3.1		CONST	



TIP PROJECT: B-4848

CONTRACT: C204011



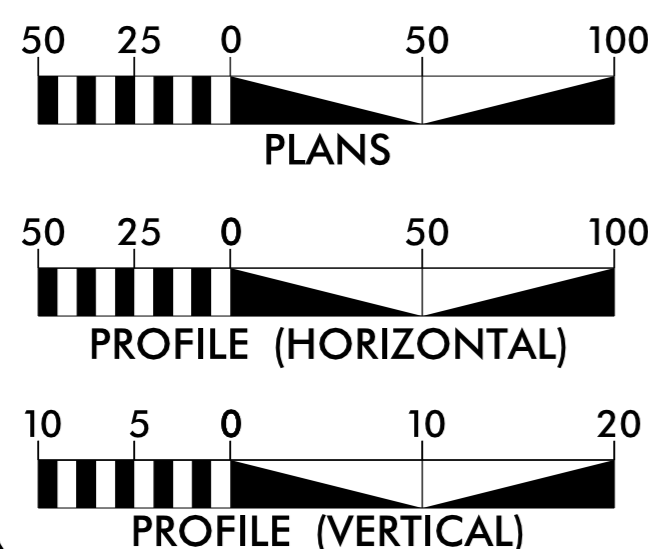
END TIP PROJECT B-4848
-L- STA. 19+25.00

BEGIN TIP PROJECT B-4848
-L- STA. 10+50.00



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

ADT 2018 = 1274
ADT 2040 = 1600
K = 10 %
D = 55 %
T = 10 % *
V = 25 MPH
* TTST 1% DUAL 9%
FUNC CLASS = LOCAL
SUBREGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP NO. B-4848 = 0.158 MILE
LENGTH OF STRUCTURE TIP NO. B-4848 = 0.008 MILE
TOTAL LENGTH OF TIP NO. B-4848 = 0.166 MILE

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

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JANUARY 26, 2017

LETTING DATE:
JANUARY 16, 2018

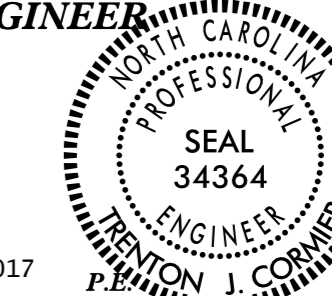
KEVIN E. MOORE, PE
PROJECT ENGINEER

BRYAN KEY, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

DocuSigned by:
Kevin E. Moore
11/16/2017

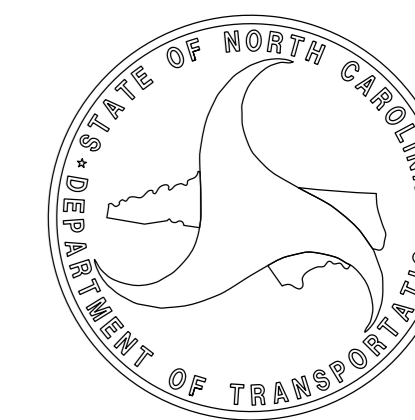
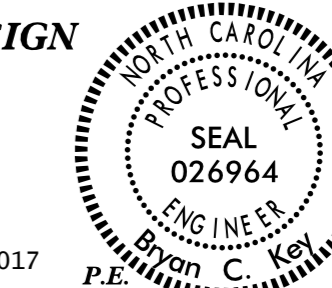
SIGNATURE:



ROADWAY DESIGN ENGINEER

DocuSigned by:
Bryan Key
11/17/2017

SIGNATURE:



12-OCT-2017 15:03
R:\Roadway\Proj\B4848_Rdy_tsh.dgn
\$\$\$\$\$USERNAME\$\$\$\$\$

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

12/2/2016

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EIP
Computed Property Corner	----->
Property Monument	□ ECM
Parcel/Sequence Number	⑫③
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	----- WLB
Proposed Wetland Boundary	----- WLB
Existing Endangered Animal Boundary	----- EAB
Existing Endangered Plant Boundary	----- EPB
Existing Historic Property Boundary	----- HPB
Known Contamination Area: Soil	☠-S-☠
Potential Contamination Area: Soil	??-S-??
Known Contamination Area: Water	☠-W-☠
Potential Contamination Area: Water	??-W-??
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	-----
False Sump	-----

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○ MILEPOST 35
Switch	□ SWITCH
RR Abandoned	-----
RR Dismantled	-----

RIGHT OF WAY & PROJECT CONTROL:

Secondary Horiz and Vert Control Point	◆
Primary Horiz Control Point	○
Primary Horiz and Vert Control Point	◆
Exist Permanent Easement Pin and Cap	◇
New Permanent Easement Pin and Cap	◆
Vertical Benchmark	⊠
Existing Right of Way Marker	△
Existing Right of Way Line	-----
New Right of Way Line	-----
New Right of Way Line with Pin and Cap	-----
New Right of Way Line with Concrete or Granite R/W Marker	-----
New Control of Access Line with Concrete C/A Marker	-----
Existing Control of Access	-----
New Control of Access	-----
Existing Easement Line	----- E
New Temporary Construction Easement	----- E
New Temporary Drainage Easement	----- TDE
New Permanent Drainage Easement	----- PDE
New Permanent Drainage / Utility Easement	----- DUE
New Permanent Utility Easement	----- PUE
New Temporary Utility Easement	----- TUE
New Aerial Utility Easement	----- AUE

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	☼

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

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	⊙
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	□
Telephone Cell Tower	⊠
U/G Telephone Cable Hand Hole	-----
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

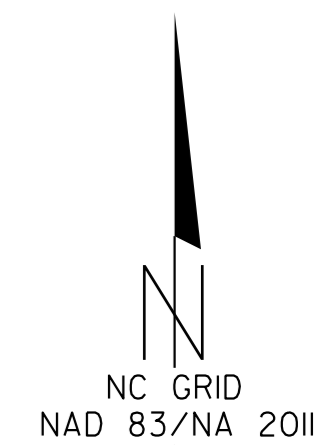
MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	⊠
Utility Unknown U/G Line LOS B (S.U.E.*)	----- ?UL
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.

SURVEY CONTROL SHEET B-4848

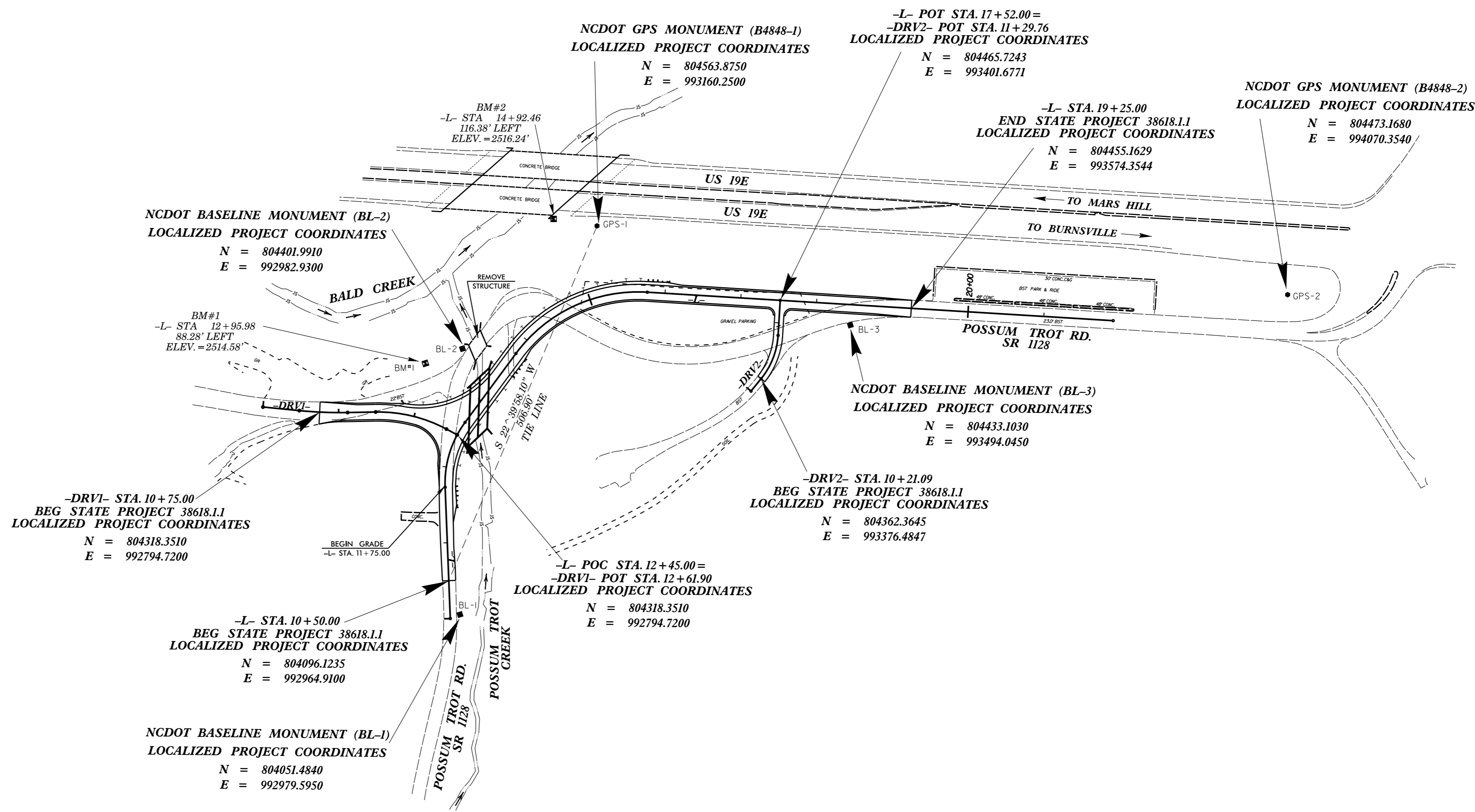
PROJECT REFERENCE NO.	SHEET NO.
B-4848	1C-1
Location and Surveys	

BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
	1	BL1	804051.4840	992979.5950	2527.09	10+04.82	12.92 RT
	2	BL2	804401.9910	992982.9300	2515.47	13+40.60	60.48 LT
	3	BL3	804433.1030	993494.0450	2514.68	18+46.19	26.92 RT
	GPS1	B4848-1	804563.8750	993160.2500	2513.86	15+27.06	92.10 RT
	GPS2	B4848-2	804473.1680	994070.3540	2522.31	OUTSIDE PROJECT LIMITS	



 BM1 ELEVATION = 2514.58
 N 804383 E 992934
 L STATION 12+95.98 88.28' LEFT
 SPIKE SET IN UTILITY POLE

 BM2 ELEVATION = 2516.24
 N 804573 E 993103
 L STATION 14+92.46 116.38' LEFT
 NCGS (YAN23) MONUMENT SET IN WINGWALL



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/](http://www.doh.dot.state.nc.us/preconstruct/highway/location/project/)
 THE FILES TO BE FOUND ARE AS FOLLOWS:
B4848_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 NGS ONLINE POSITIONING SERVICE (OPUS)

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4848-1" WITH NAD 83/NA 2011 STATE PLANE COORDINATES OF NORTHING: 804563.875(ft) EASTING: 993160.250(ft) ELEVATION: 2513.86(ft)
 THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99982386
 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4848-1" TO -L- STATION 10+50.00 IS S 22°39'58.10" W 506.90'
 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

5/14/99
 26-SEP-2017 11:14
 S:\GIS\PROJECTS\B4848-1s-1c-1.dgn

SURVEY CONTROL SHEET B-4848 PRELIMINARY

PROJECT REFERENCE NO. B-4848	SHEET NO. 1C-2
Location and Surveys	

(DESIGN ALIGNMENTS)

TYPE	STATION	NORTH	EAST
POT	10+00.00	804046.1620	992966.8730
PC	11+73.29	804219.3136	992960.0699
PT	12+64.43	804304.7847	992986.3489
PC	13+77.28	804395.5839	993053.3686
PT	15+76.49	804476.4391	993226.4922
POT	21+91.52	804438.8919	993840.3821

DRV1			
TYPE	STATION	NORTH	EAST
POT	10+00.00	804325.0647	992720.0291
PC	10+48.08	804320.3360	992767.8760
PT	11+11.90	804317.7880	992831.6067
PC	11+48.82	804318.4744	992868.5245
PT	12+45.82	804295.9757	992961.8020
POT	12+61.90	804288.3804	992975.9750

DRV2			
TYPE	STATION	NORTH	EAST
POT	10+00.00	804346.0313	993363.1425
PC	10+21.09	804362.3622	993376.4829
PT	10+83.47	804419.5206	993398.8511
POT	11+29.76	804465.7243	993401.6771

(ROW MARKERS)

ROW MARKER CONCRETE OR GRANITE -E-				
ALIGN	STATION	OFFSET	NORTH	EAST
L	11+26.19	23.59	804173.18407	992985.48841
L	11+66.81	23.59	804213.77332	992983.89365
L	11+75.00	-17.80	804220.55458	992942.21847
L	12+08.07	-175.14	804291.80319	992792.19070
L	12+11.93	-97.82	804281.53643	992869.21125
L	12+16.58	-44.21	804274.39226	992922.80637
L	12+30.59	-186.22	804345.31655	992797.28904
L	12+35.44	-154.08	804342.78370	992831.14198
L	12+64.43	61.41	804268.31848	993035.75390
L	12+91.00	-50.59	804356.20343	992961.42611
L	13+77.28	43.10	804369.98604	993088.04902
L	14+71.96	43.10	804417.29009	993144.40975
L	15+17.51	38.31	804434.10356	993176.81852
L	15+76.49	38.31	804438.20203	993224.15350
L	17+38.08	38.31	804428.33687	993385.44713

NOTES:

1. 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:
[B4848_LS_CONTROL_DATE.HTML](#)

SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
- INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION
SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4848-1"
WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 804563.875(±) EASTING: 993160.250(±)
ELEVATION: 2513.86(±)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99982386
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4848-1" TO -L- STATION 10+50.00 IS
S 22°39'58.10" W 506.90'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTE: DRAWING NOT TO SCALE

6/2/09

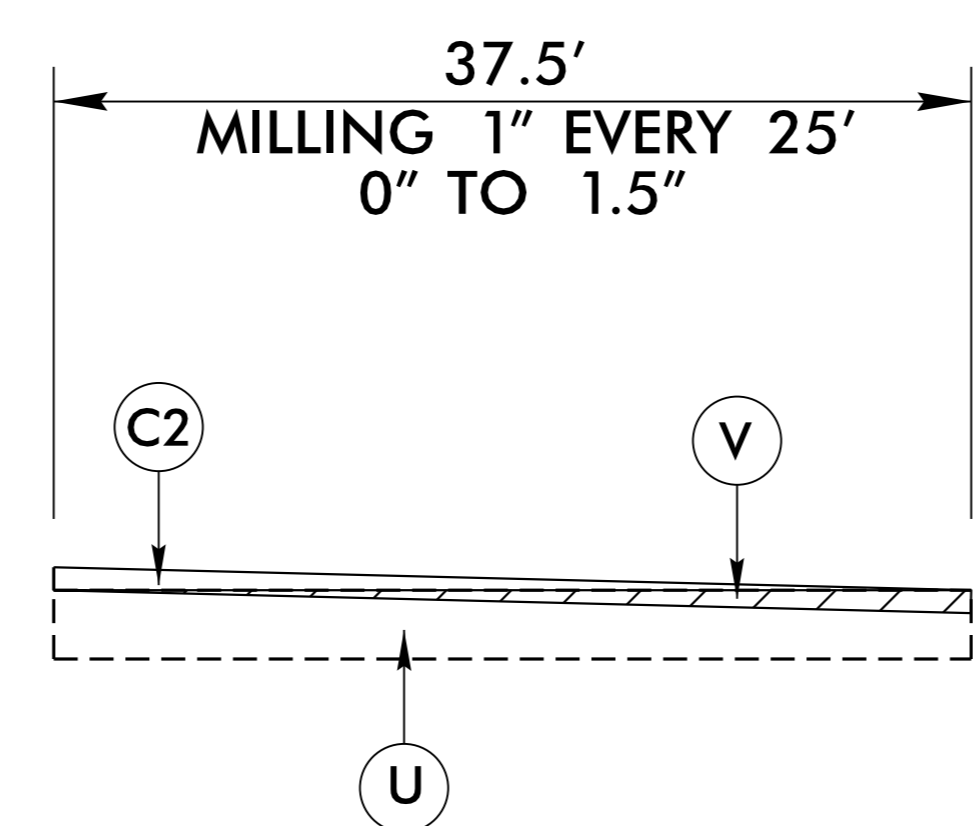
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6/2/09

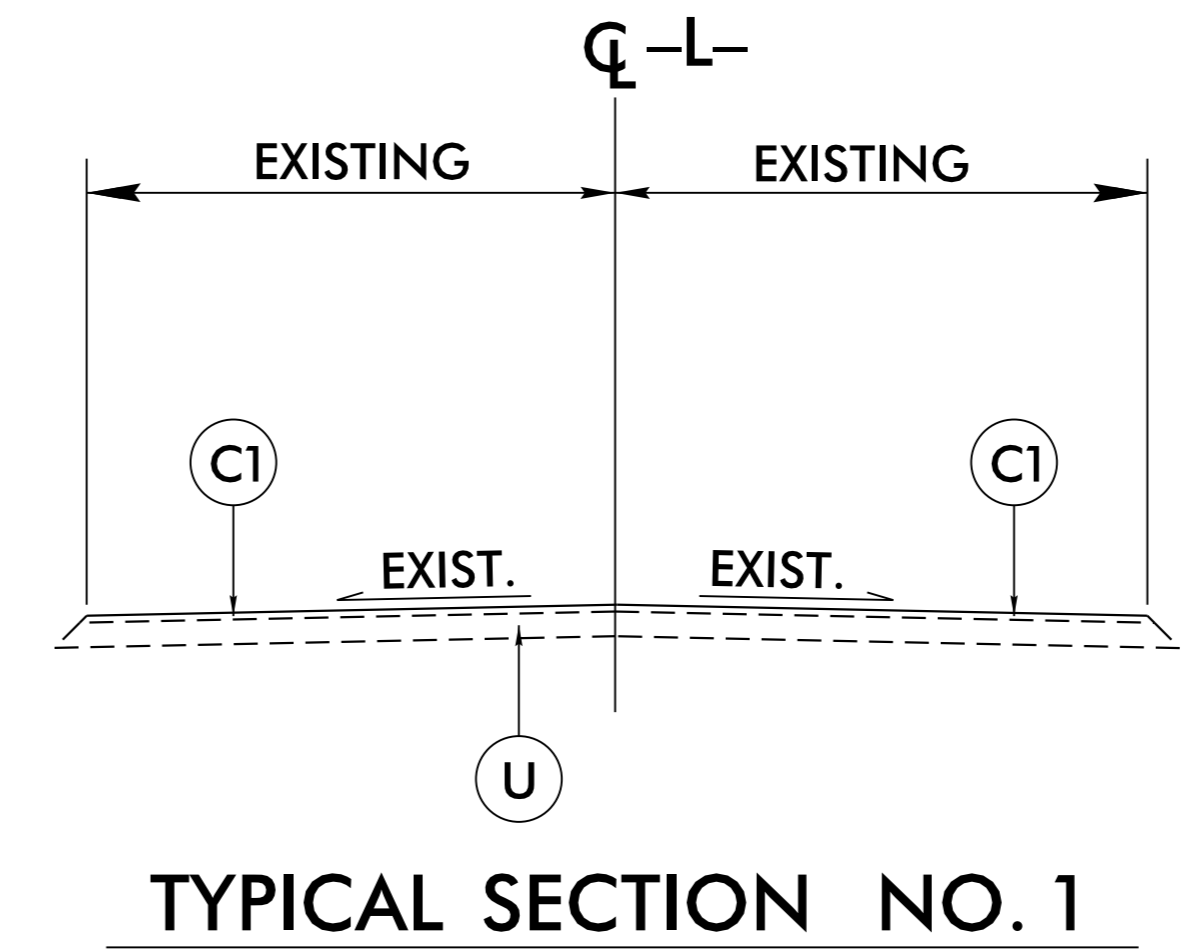
PROJECT REFERENCE NO. B-4848	SHEET NO. 2A-1
ROADWAY DESIGN ENGINEER 	PAVEMENT DESIGN ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
E1	PROP. APPROX. 5½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 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.
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING ASPHALT PAVEMENT, VARIABLE DEPTH
W	WEDGING

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



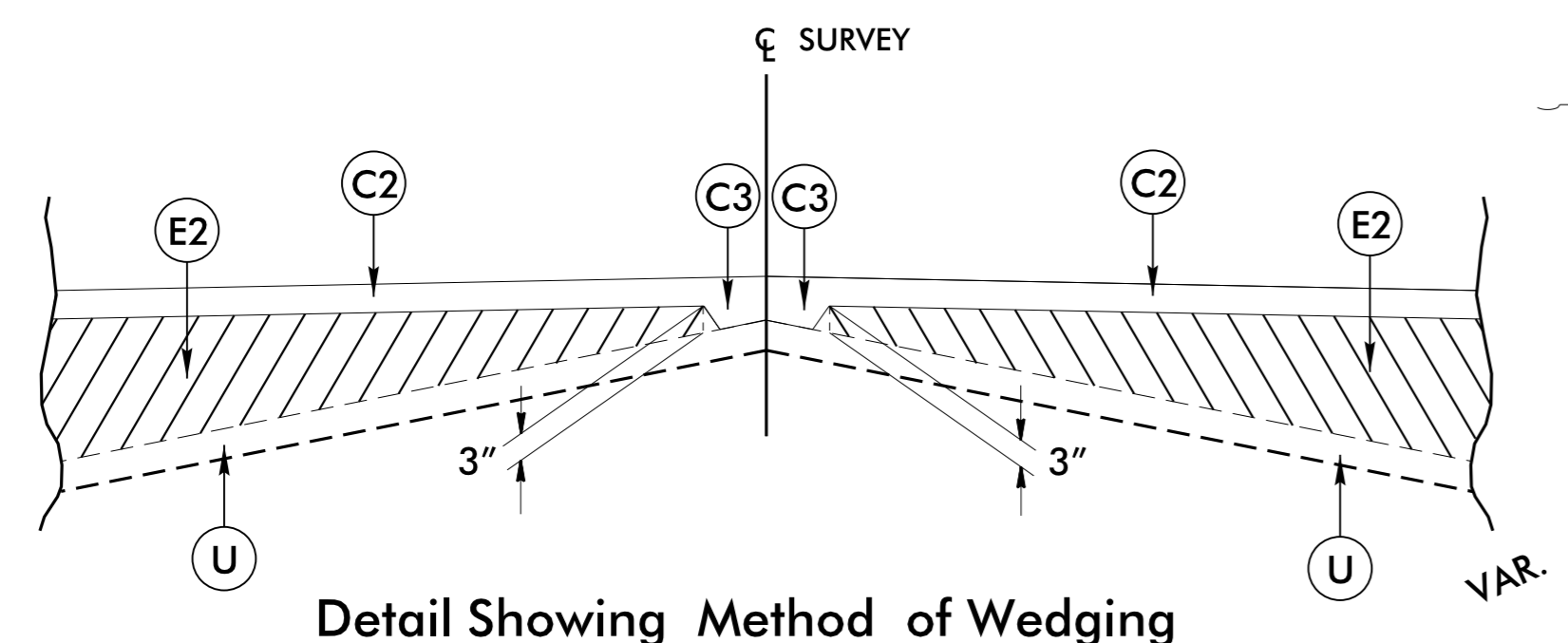
INCIDENTAL MILLING DETAIL



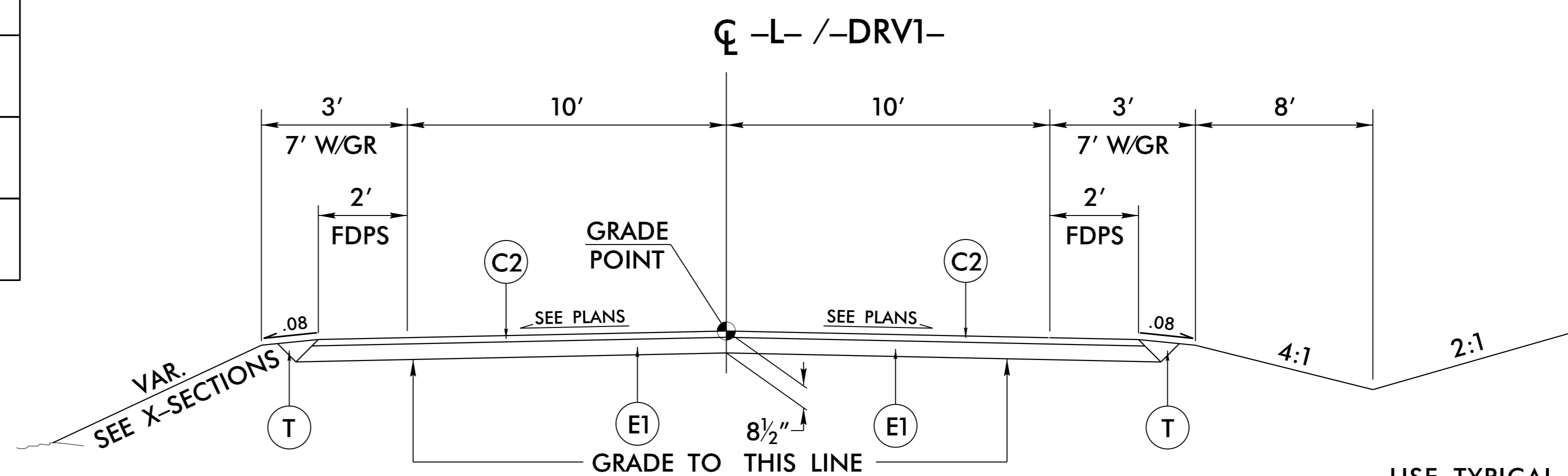
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 AS FOLLOWS
-L- STA 10+50.00 TO STA 11+75.00

NOTE: MILLING REQUIRED FOR PAVEMENT TIE-IN



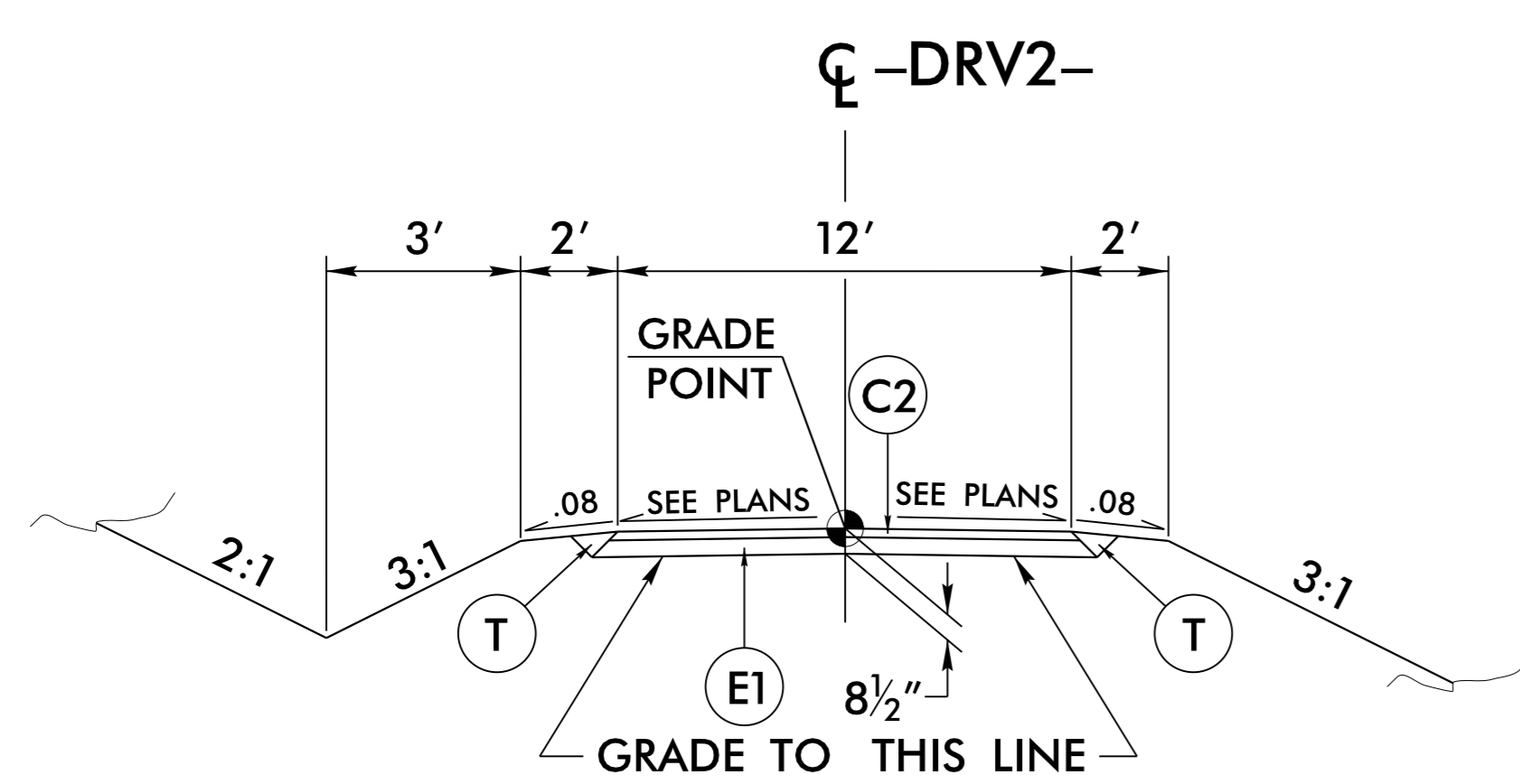
Detail Showing Method of Wedging



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2 AS FOLLOWS

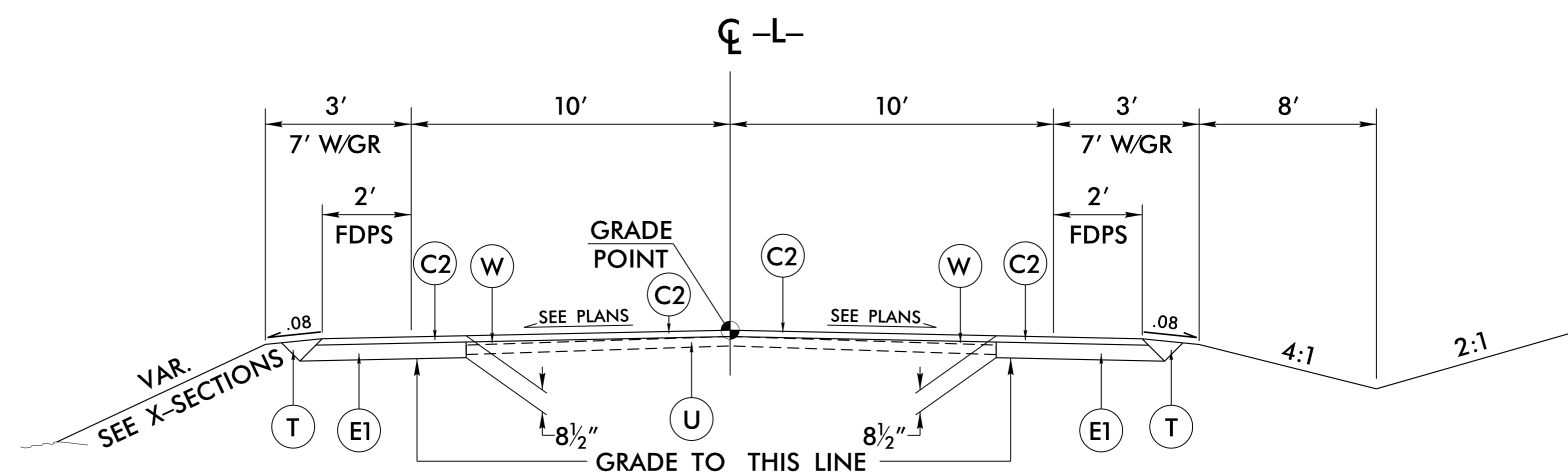
-L- STA 12+62.00 TO STA 18+09.00
-DRV1- STA 11+45.23 TO 12+51.97



TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4 AS FOLLOWS

-DRV2- STA 10+21.09 TO STA 11+19.76



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3 AS FOLLOWS

-L- STA 11+75.00 TO STA 12+62.00
-L- STA 18+09.00 TO STA 19+25.00
-DRV1- STA 10+75.00 TO 11+45.23

NOTE: TRANSITION FROM TYPICAL SECTION NO. 1 TO TYPICAL SECTION NO. 3
-L- STA. 11+50.00 TO STA. 11+75.00

NOTE: TRANSITION FROM TYPICAL SECTION NO. 3 TO EXISTING
-L- STA. 19+00.00 TO STA. 19+25.00

NOTE: MILLING REQUIRED FOR PAVEMENT TIE-IN

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15:24 11/17/2017

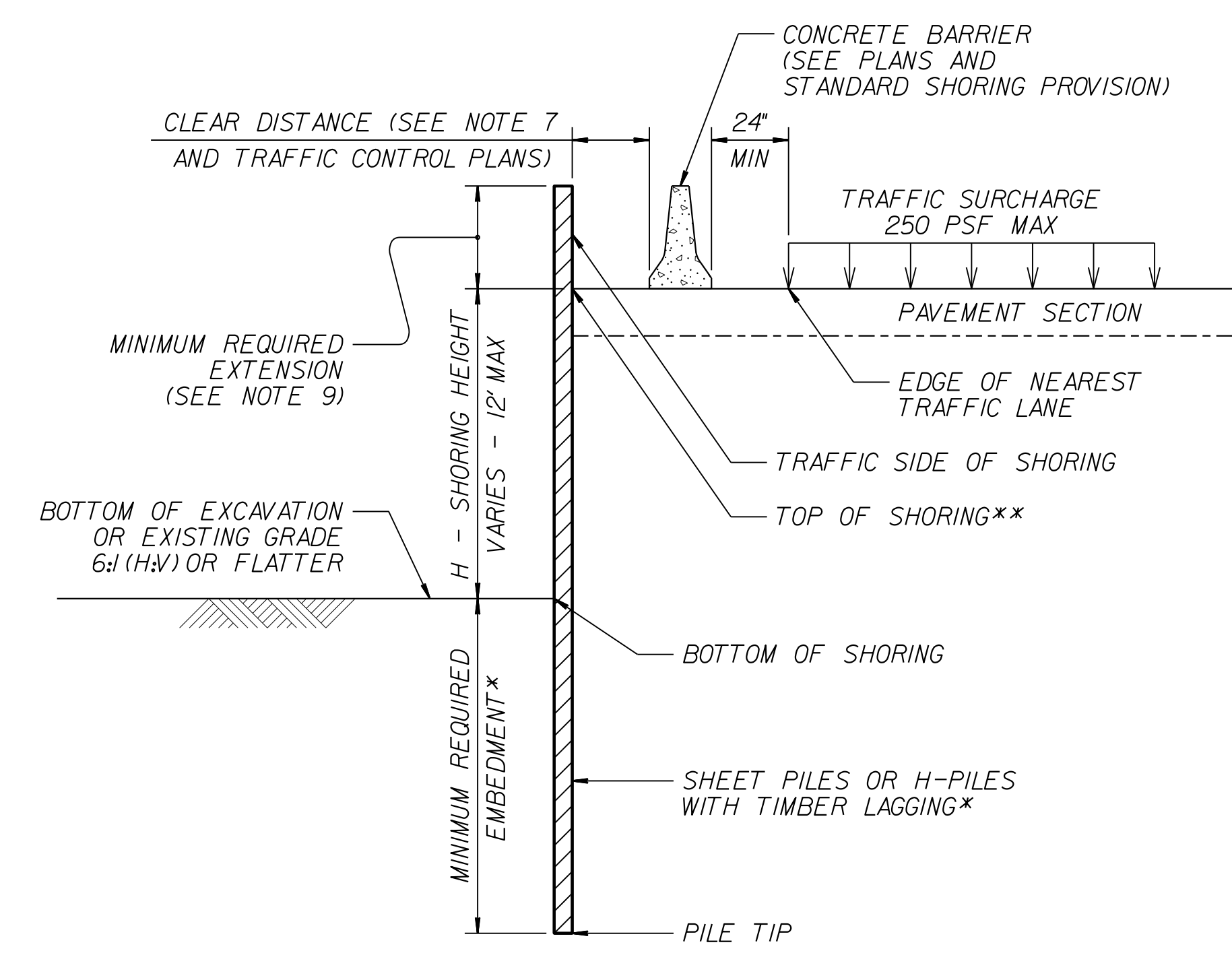
GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H-PILES WITH TIMBER LAGGING			SHEET PILES		H-PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN ³ /FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)			MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN ³ /FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)		
				HP 10x42	HP 12x53	HP 14x73			HP 10x42	HP 12x53	HP 14x73
GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP	< 6	11.5	4.5	11.5	11.5	11.5	16.0	12.0	13.0	13.0	13.0
	7	13.0	7.0	13.0	13.0	13.0	17.0	14.5	14.5	14.5	14.5
	8	15.0	10.0	--	15.0	15.0	18.0	17.0	--	15.5	15.5
	9	17.0	14.0	--	17.0	17.0	19.0	20.0	--	17.0	17.0
	10	18.5	19.5	--	--	18.5	20.0	23.5	--	--	18.5
	11	20.5	26.0	--	--	--	21.0	28.0	--	--	20.0
12	22.5	33.0	--	--	--	22.0	33.0	--	--	21.5	
GROUNDWATER ELEVATION BELOW PILE TIP	< 6	7.5	3.0	8.0	8.0	8.0	11.0	10.0	9.5	9.5	9.5
	7	8.5	4.5	9.5	9.5	9.5	12.0	12.0	10.5	10.5	10.5
	8	10.0	6.5	10.5	10.5	10.5	12.5	14.0	11.5	11.5	11.5
	9	11.0	9.5	--	12.0	12.0	13.5	16.5	--	12.5	12.5
	10	12.5	13.0	--	--	13.5	14.0	19.5	--	13.5	13.5
	11	13.5	17.0	--	--	14.5	15.0	22.5	--	--	14.5
12	15.0	21.5	--	--	16.0	16.0	25.5	--	--	15.5	

MINIMUM REQUIRED EMBEDMENT AND SECTION MODULUS

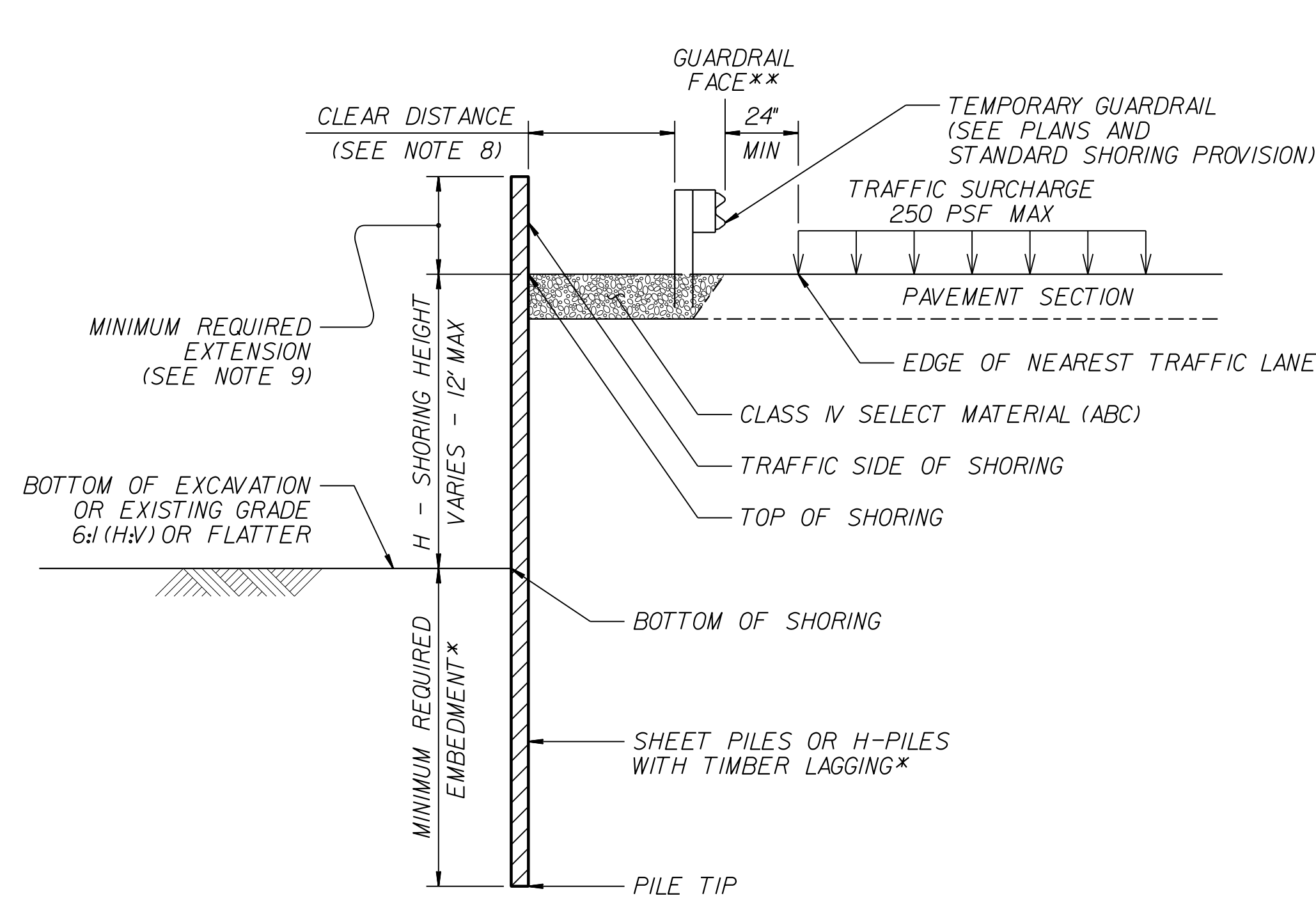
*DO NOT USE H-PILES WITH TIMBER LAGGING FOR GROUNDWATER CONDITION, SHORING HEIGHT AND H-PILE SIZE SHOWN IF MINIMUM REQUIRED EMBEDMENT IS "--".

NOTES:

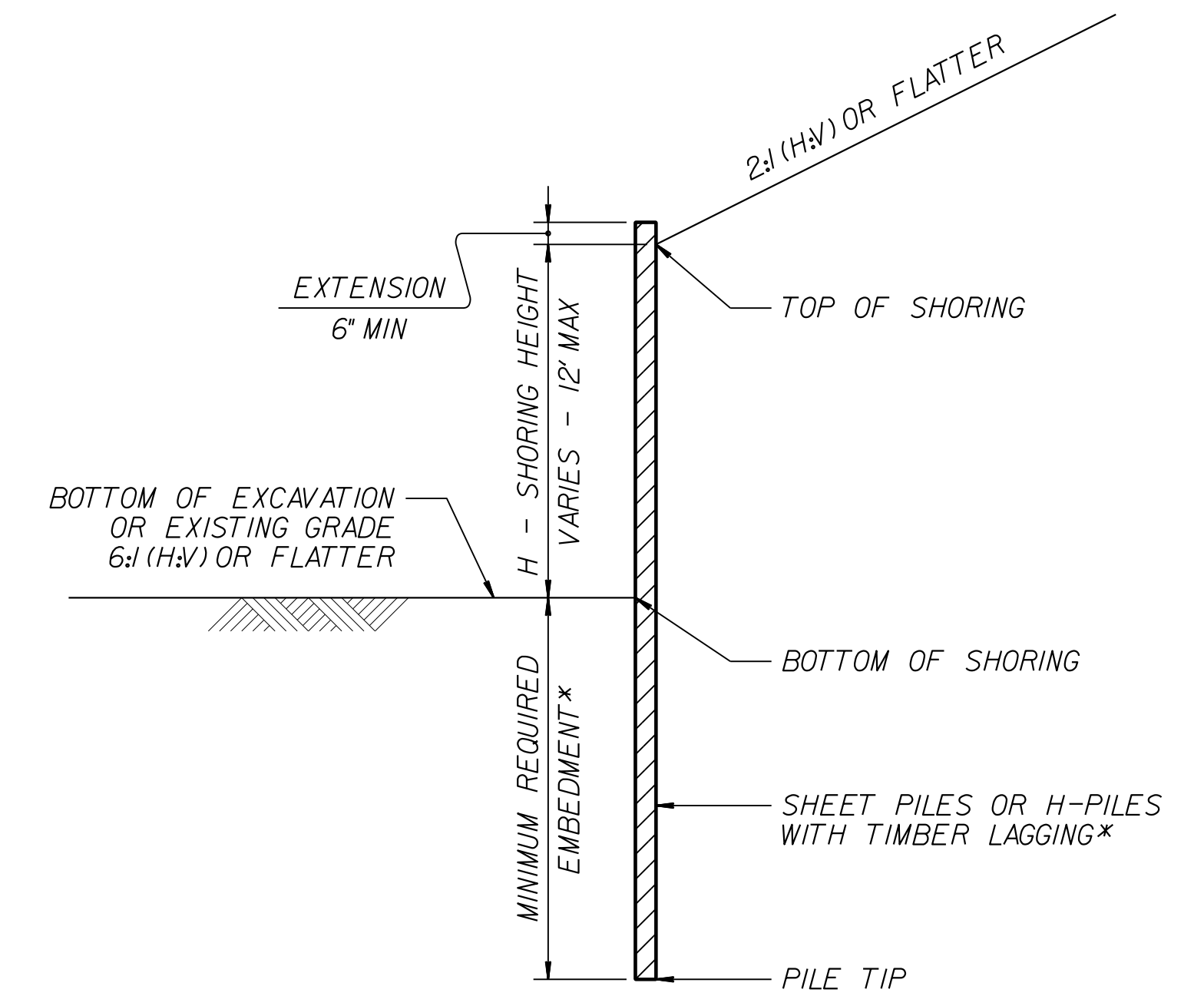
- AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING AS NOTED IN THE PLANS.
- FOR STANDARD TEMPORARY SHORING, SEE STANDARD SHORING PROVISION.
- STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
UNIT WEIGHT, $\gamma = 120$ PCF
FRICTION ANGLE, $\phi = 30$ DEGREES
COHESION, $c = 0$ PSF
- DO NOT USE STANDARD TEMPORARY SHORING IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
- DO NOT USE STANDARD TEMPORARY SHORING WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS WITHIN THE EMBEDMENT DEPTH.
- USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, USE "GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP" FOR GROUNDWATER CONDITION. DO NOT USE STANDARD TEMPORARY SHORING IF GROUNDWATER IS ABOVE BOTTOM OF SHORING.
- AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN THE MINIMUM REQUIRED FOR CONCRETE BARRIER, SET BARRIER NEXT TO AND UP AGAINST TRAFFIC SIDE OF PILES AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
- AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN 4' FOR TEMPORARY GUARDRAIL, ATTACH GUARDRAIL TO TRAFFIC SIDE OF PILES AS SHOWN IN THE PLANS AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
- MINIMUM REQUIRED EXTENSION IS 6" FOR "SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT" AND 32" FOR "SURCHARGE CASE WITH TRAFFIC IMPACT".
- MINIMUM REQUIRED EMBEDMENT FOR H-PILES WITH TIMBER LAGGING IS BASED ON DRIVEN H-PILES AT MAXIMUM 6' SPACING. AT THE CONTRACTOR'S OPTION, EMBEDMENT DEPTHS MAY BE REDUCED BY 25% FOR DRILLED-IN H-PILES.
- SUBMIT A "STANDARD TEMPORARY SHORING SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY SHORING CONSTRUCTION. UP TO 3 SHORING LOCATIONS MAY BE INCLUDED ON EACH FORM. STANDARD SHORING SELECTION FORMS ARE AVAILABLE FROM:
connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx
- CONTACT THE ENGINEER IF PILES DO NOT ATTAIN THE MINIMUM REQUIRED EMBEDMENT.



CONCRETE BARRIER
**TOP OF SHORING =
EDGE OF PAVEMENT



TEMPORARY GUARDRAIL
**GUARDRAIL FACE =
EDGE OF PAVEMENT



STANDARD TEMPORARY SHORING
(SLOPE CASE)
*SEE TABLE ABOVE.

STANDARD TEMPORARY SHORING
(SURCHARGE CASE)
*SEE TABLE ABOVE.



NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

**GEOTECHNICAL
ENGINEERING UNIT**

STANDARD DETAIL NO. 1801.01

STANDARD
TEMPORARY SHORING

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

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

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS						IMPACT ATTENUATOR TYPE 350		SINGLE FACED CONCRETE BARRIER	REMOVE EXISTING GUARDRAIL	REMOVE & STOCKPILE EXISTING GUARDRAIL	REMARKS	
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	GREU TL-2	AT-1	G	NG									
-L-	11+45.53	13+79.71	RT	162.5	62.5				4	7																	
DRV1/L	11+79.51	16+05.45	LT	287.5	131.25				4	7																	
-L-	13+94.79	14+52.63	LT																					78			
			SUBTOTAL	450.00	193.75																						
			DEDUCTIONS FOR GUARDRAIL ANCHORS																								
			GREU TL-2	3 @ 25.00	-75																						
			AT-1	1 @ 6.25	-6.25																						
			TOTAL		-81.25																						
			GRAND TOTAL	368.75	193.75																				78		
			SAY	387.5	200																				78		
			ADDITIONAL GUARDRAIL POSTS	5 EA																							

PAVEMENT REMOVAL SUMMARY
 IN SQUARE YARDS

SURVEY LINE	Station	Station	LOCATION LT/RT/CL	ASPHALT REMOVAL	ASPHALT BREAKUP	CONCRETE REMOVAL	CONCRETE BREAKUP
-L-	11+75.00	13+42.00	LT /CL	817.9			
-L-	13+64.00	19+25.00	LT & RT	1,672.7			
			TOTAL:	2,490.7			
			SAY:	2,500			

EARTHWORK SUMMARY
 IN CUBIC YARDS

Station	Station	Uncl. Excav.	Embank. +%	Borrow	Waste	
-L- 11+50.00	-L- 19+25.00	432	1,608	1,176		
		SUBTOTALS:	432	1,608	1,176	0
-DRV1- 10+75.00	-DRV1- 11+85.00	36	63	27		
-DRV2- 10+21.09	-DRV2- 11+09.00	23			23	
		SUBTOTALS:	59	63	27	23
		PROJECT TOTALS:	491	1,671	1,203	23
		Loss due to Clearing and Grubbing	-10		10	
		Waste in Lieu on Borrow			-23	-23
		PROJECT TOTALS:	481	1,671	1,190	0
		Est. 5% to Replace Topsoil on Borrow Pit			60	
		GRAND TOTALS:	481		1,250	
		SAY:	530		1,380	

Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Fine Grading, Clearing and Grubbing and Removal of Existing Pavement will be paid for at the contract lump sum price for grading.

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

COMPUTED BY: _____ PQL 11/30/2015
 CHECKED BY: DK DATE: 5/10/17

PROJECT NO. SHEET NO.
 B-4848 3-G

**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	100
				TOTAL LF:	100

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

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		50	80	100		
					TOTAL CY/TONS/SY:	50	80	100	0

*ASU = Aggregate Subgrade
 *AST = Aggregate Stabilization

PROJECT REFERENCE NO. B-4848	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

-L-

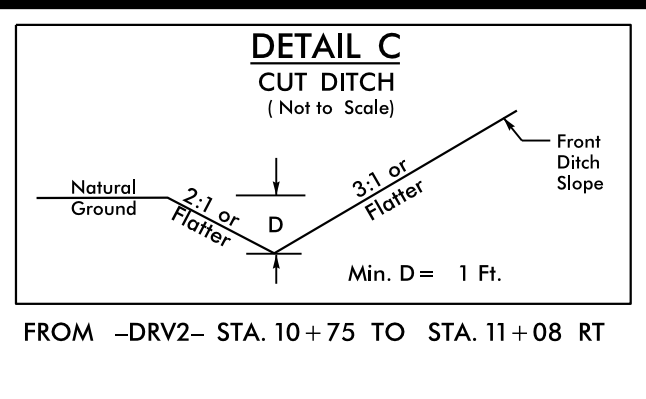
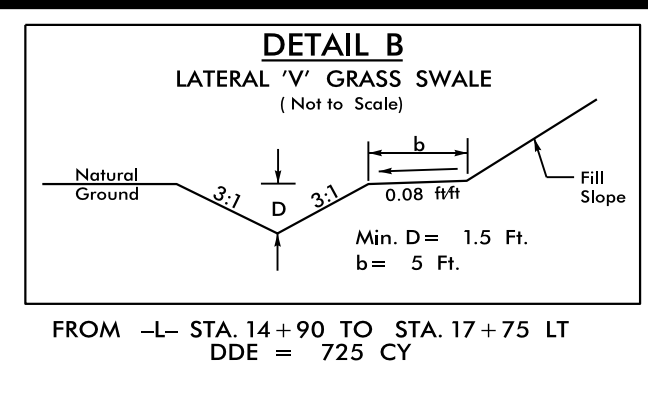
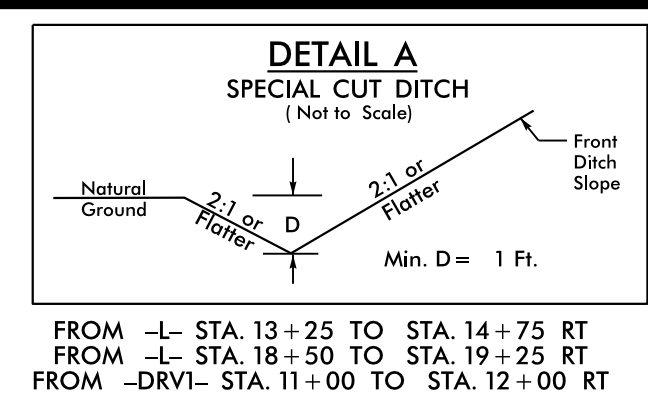
PI Sta 12+20.67 Δ = 38° 40' 52.8" (RT) D = 42' 26" 28.7" L = 91.4' T = 47.38' R = 135.00' SE = SEE PLANS	PI Sta 14+86.03 Δ = 57° 04' 07.2" (RT) D = 28' 38" 52.4" L = 199.2' T = 108.75' R = 200.00' SE = SEE PLANS
--	--

-DRVI-

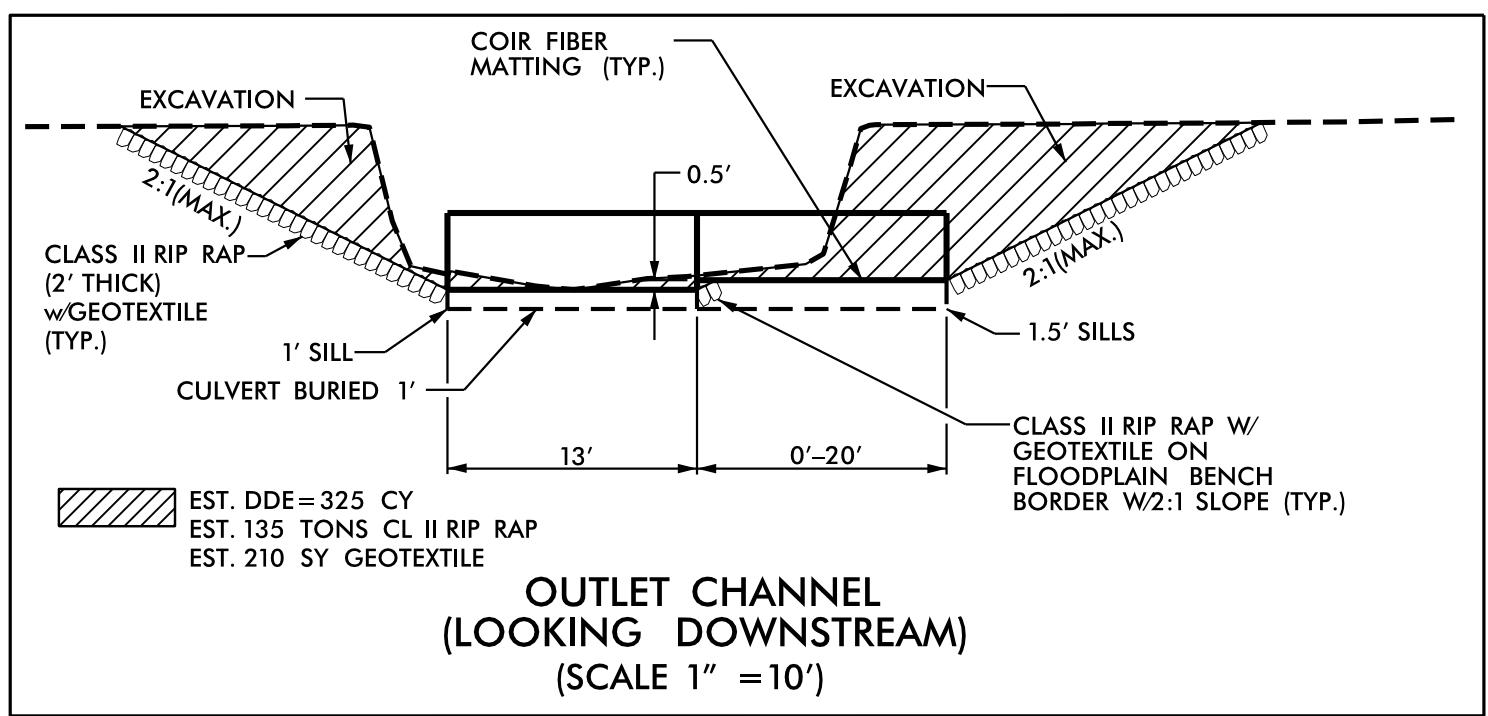
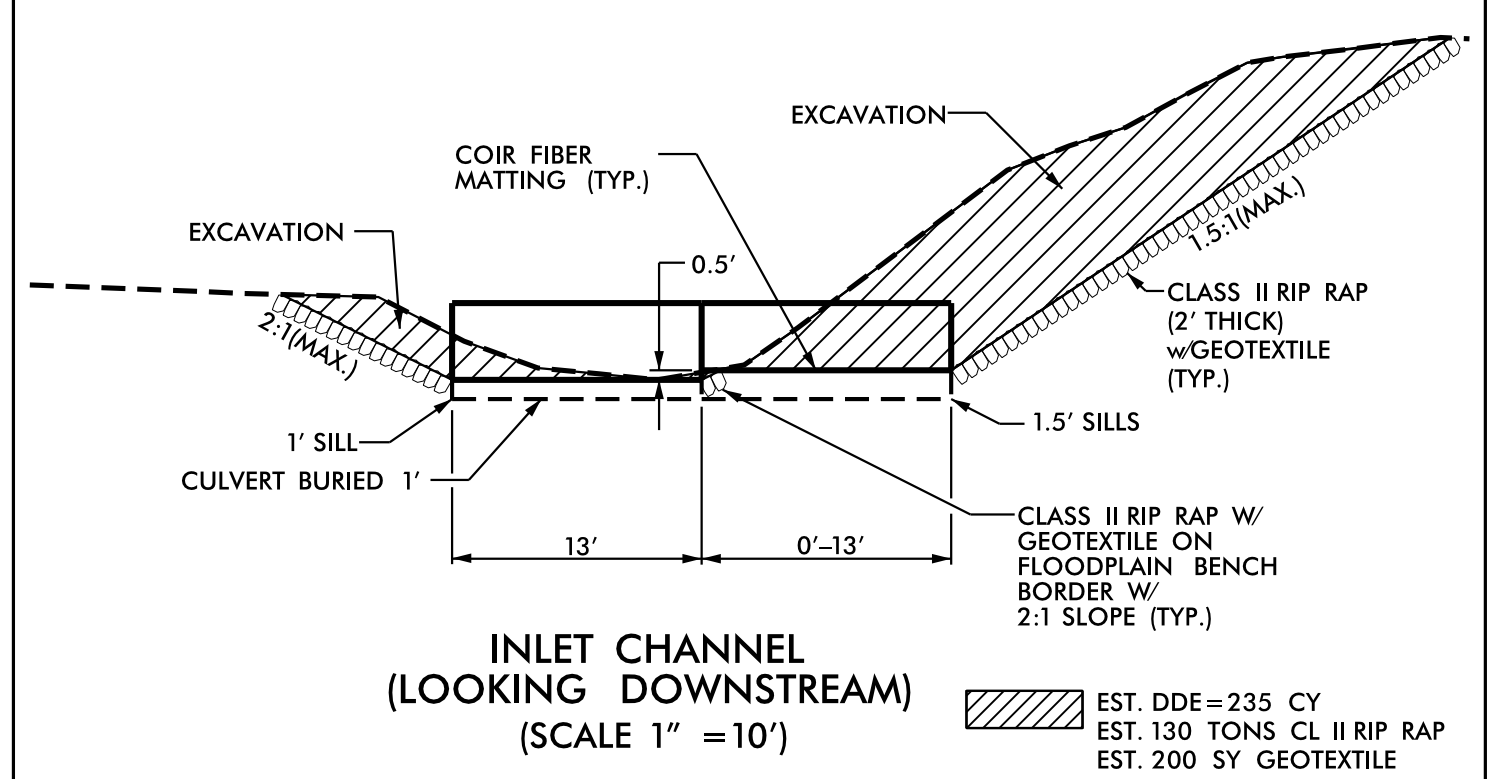
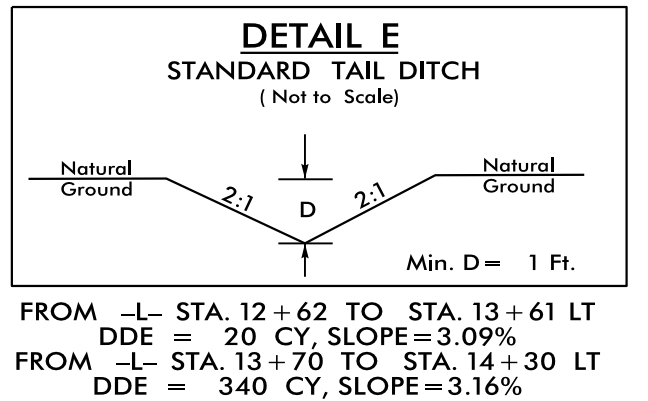
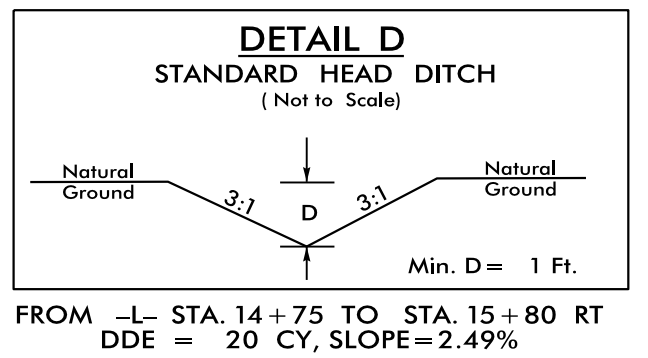
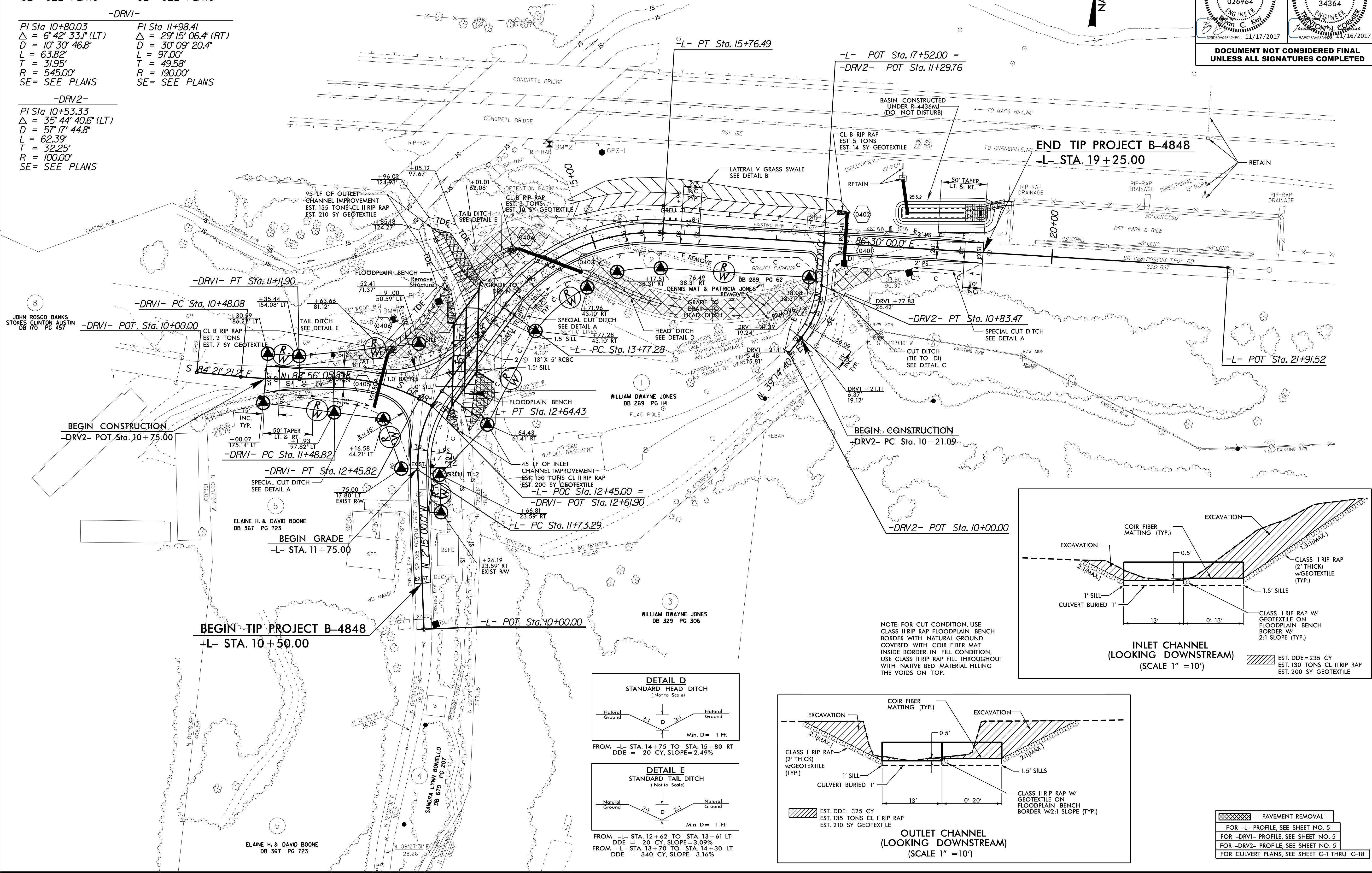
PI Sta 10+80.03 Δ = 6° 42' 33.1" (LT) D = 10' 30" 46.8" L = 63.82' T = 31.95' R = 545.00' SE = SEE PLANS	PI Sta 11+98.41 Δ = 29° 15' 06.4" (RT) D = 30' 09" 20.4" L = 97.00' T = 49.58' R = 190.00' SE = SEE PLANS
--	---

-DRV2-

PI Sta 10+53.33 Δ = 35° 44' 40.6" (LT) D = 57' 17" 44.8" L = 62.39' T = 32.25' R = 100.00' SE = SEE PLANS



NAD 83/2011


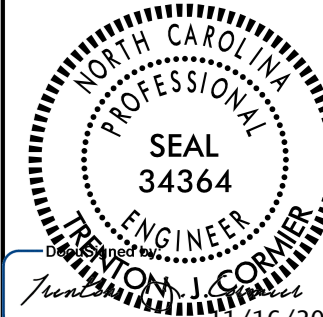


	PAVEMENT REMOVAL
	FOR -L- PROFILE, SEE SHEET NO. 5
	FOR -DRVI- PROFILE, SEE SHEET NO. 5
	FOR -DRV2- PROFILE, SEE SHEET NO. 5
	FOR CULVERT PLANS, SEE SHEET C-1 THRU C-18

REVISIONS

8/17/99
12-OCT-2017 15:02 B:\4848_Rdy_psh_04.dgn
3:44:58 PM

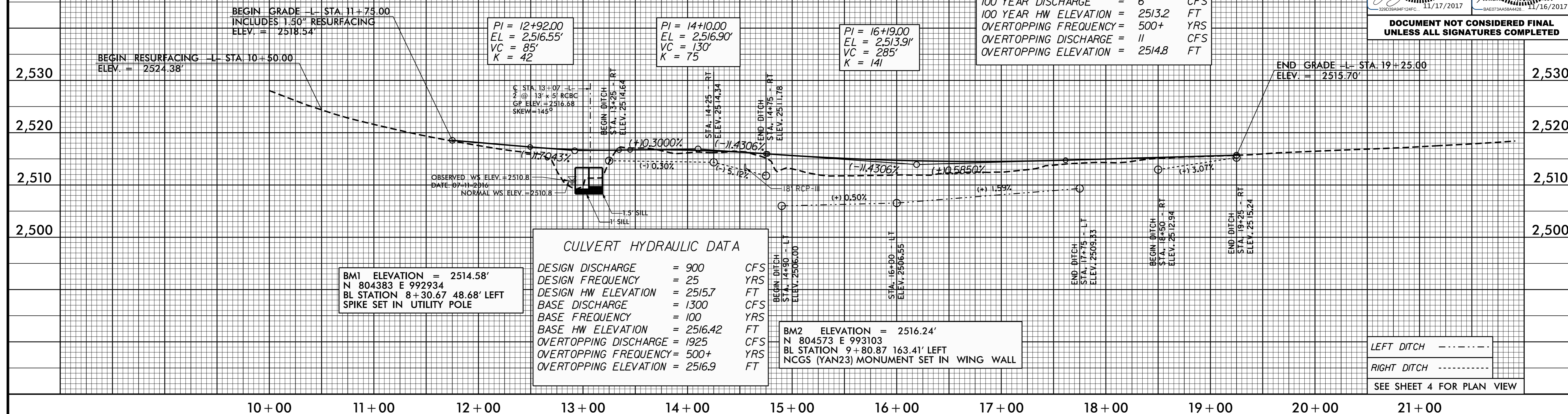
5/28/99

PROJECT REFERENCE NO. B-4848	SHEET NO. 5
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER 

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PIPE HYDRAULIC DATA
18" RCP-III Sta. 14+55

DRAINAGE AREA	= 2.0	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 5	CFS
DESIGN HW ELEVATION	= 2513.1	FT
100 YEAR DISCHARGE	= 6	CFS
100 YEAR HW ELEVATION	= 2513.2	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 11	CFS
OVERTOPPING ELEVATION	= 2514.8	FT



CULVERT HYDRAULIC DATA

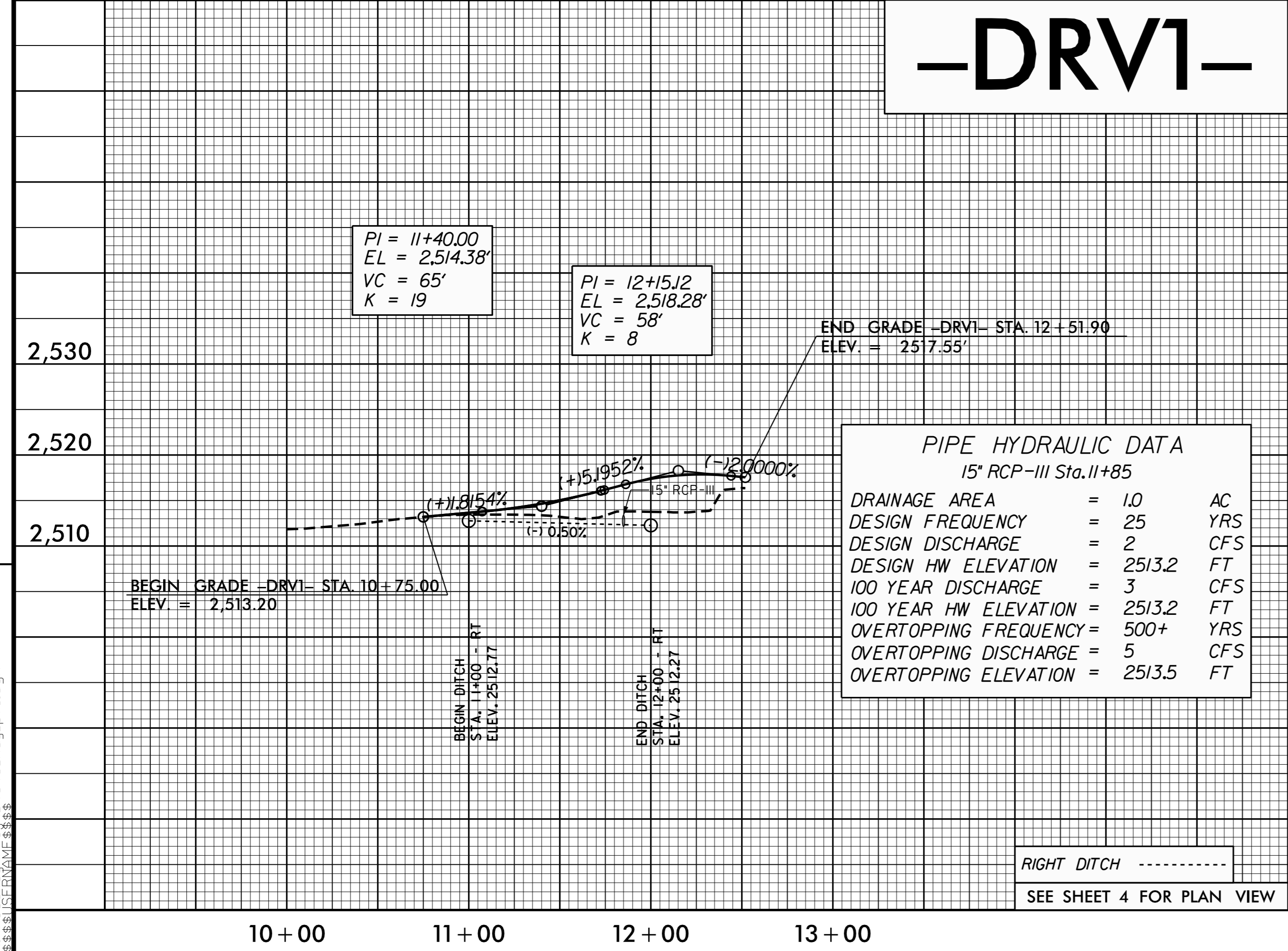
DESIGN DISCHARGE	= 900	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 2515.7	FT
BASE DISCHARGE	= 1300	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 2516.42	FT
OVERTOPPING DISCHARGE	= 1925	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 2516.9	FT

BM1 ELEVATION = 2514.58'
N 804383 E 992934
BL STATION 8+30.67 48.68' LEFT
SPIKE SET IN UTILITY POLE

BM2 ELEVATION = 2516.24'
N 804573 E 993103
BL STATION 9+80.87 163.41' LEFT
NCGS (YAN23) MONUMENT SET IN WING WALL

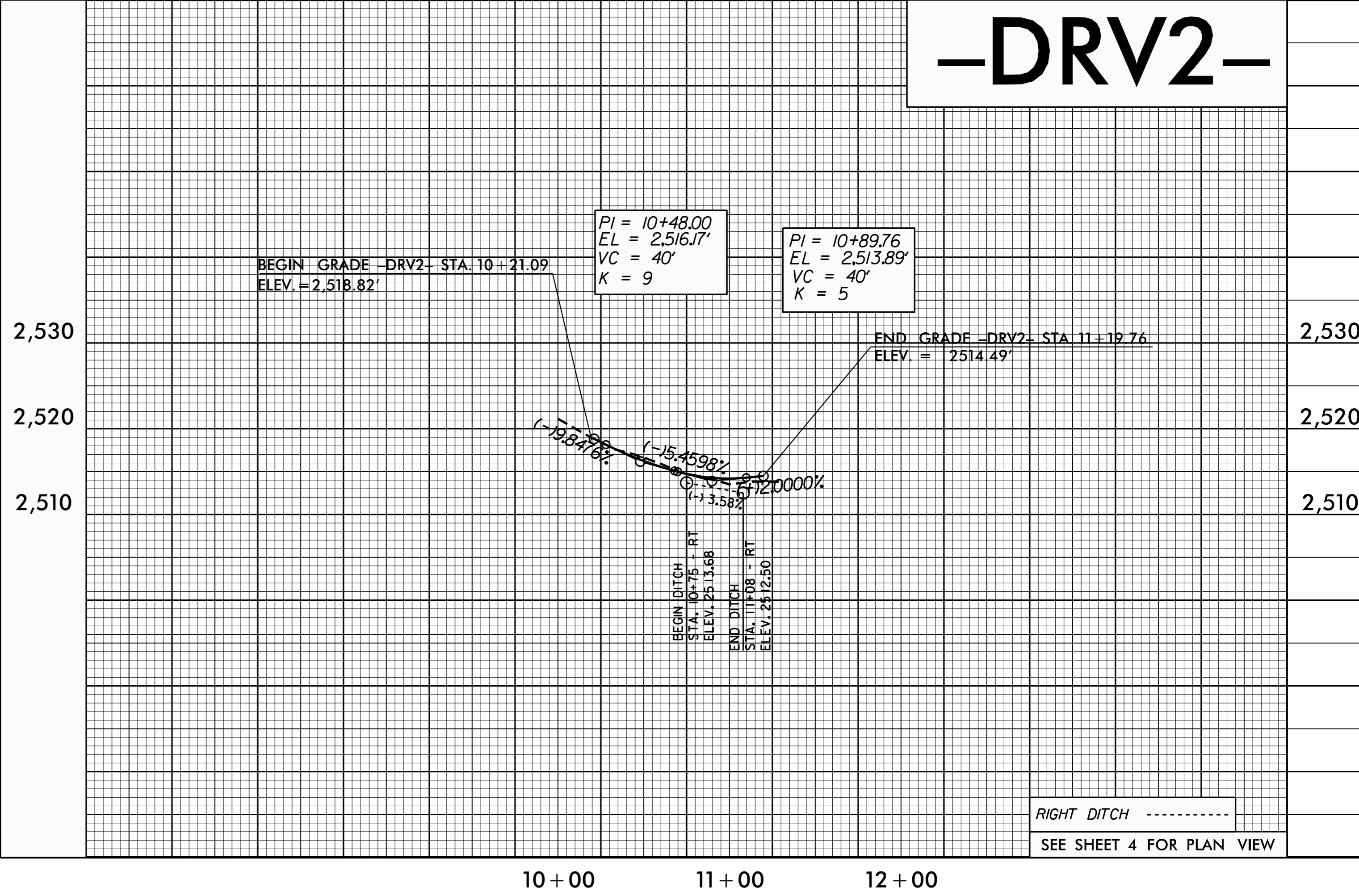
-DRV1-

-DRV2-



PIPE HYDRAULIC DATA
15" RCP-III Sta. 12+85

DRAINAGE AREA	= 1.0	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 2	CFS
DESIGN HW ELEVATION	= 2513.2	FT
100 YEAR DISCHARGE	= 3	CFS
100 YEAR HW ELEVATION	= 2513.2	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 5	CFS
OVERTOPPING ELEVATION	= 2513.5	FT



RIGHT DITCH -----
SEE SHEET 4 FOR PLAN VIEW

RIGHT DITCH -----
SEE SHEET 4 FOR PLAN VIEW

REVISIONS

05-NOV-2017 08:33 24848-Rdy-p1.dgn