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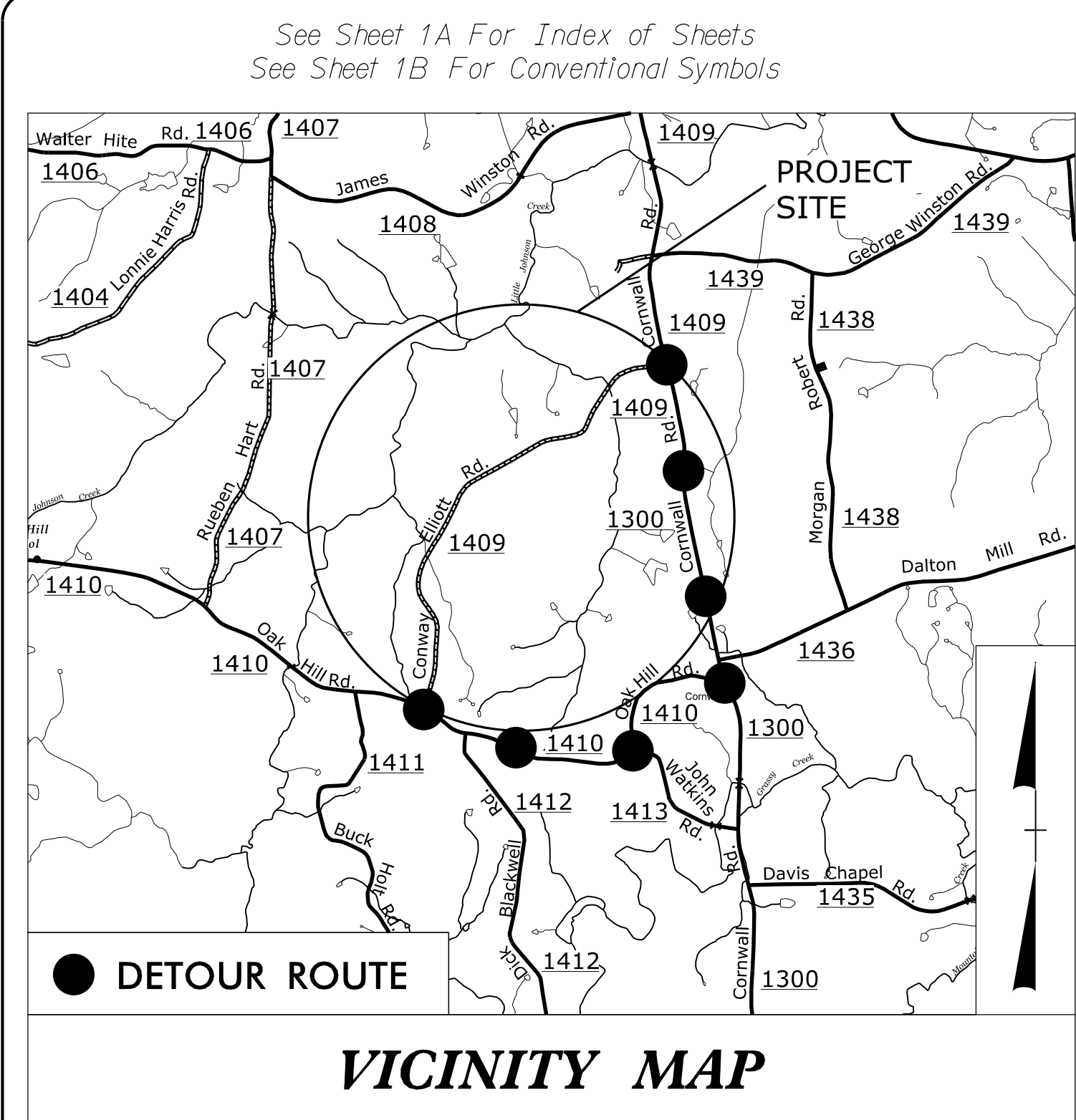
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09/08/2011

**PROJECT: 5C.039062**



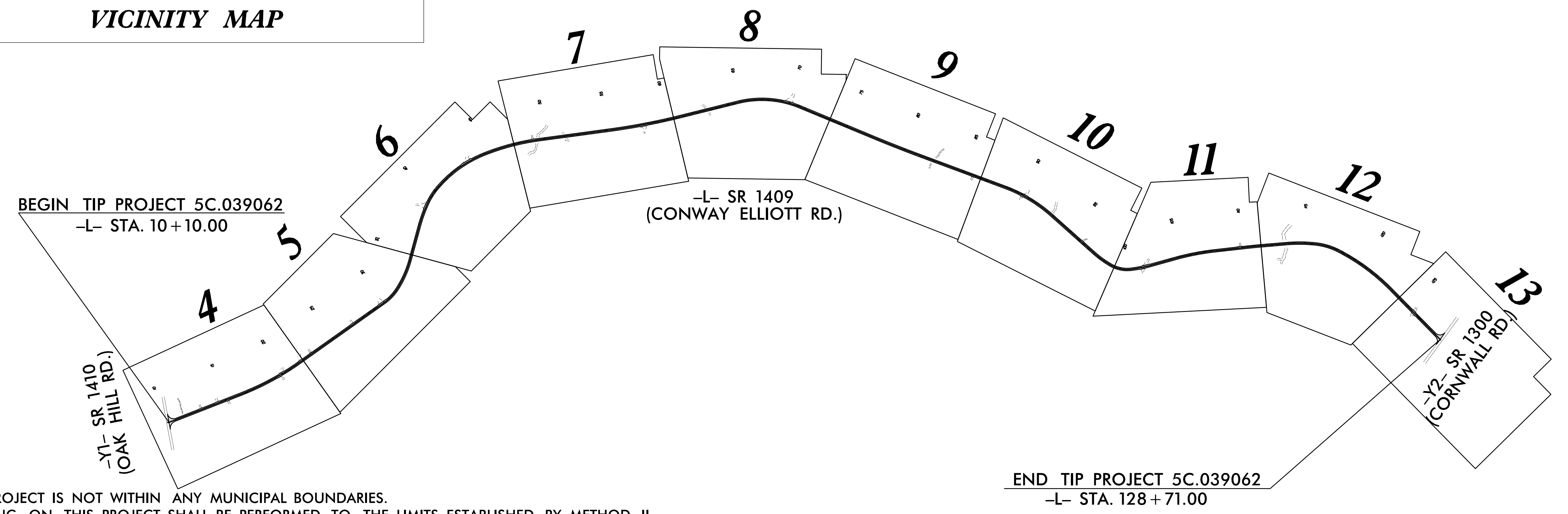
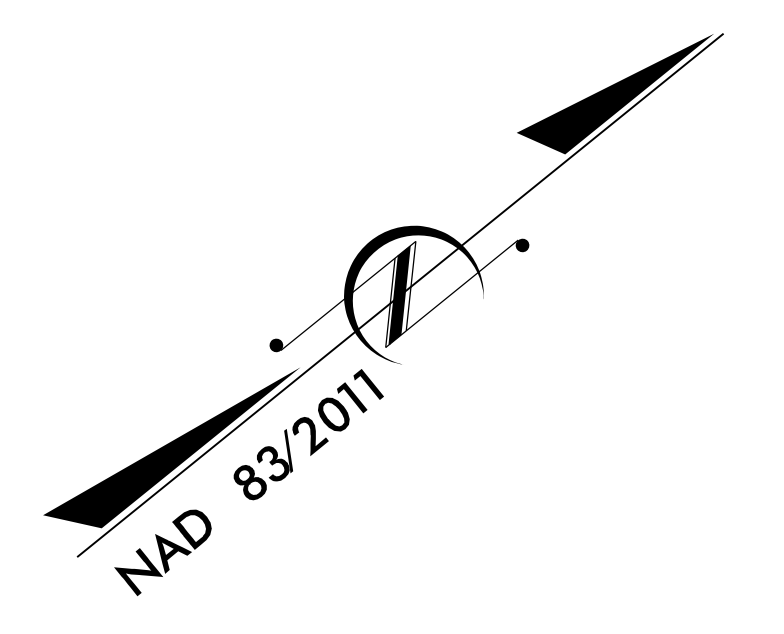
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# GRANVILLE COUNTY

**LOCATION: CONWAY ELLIOTT RD (SR 1409) FROM OAK HILL RD (SR 1410)  
TO CORNWALL RD (SR 1300).**

**TYPE OF WORK: GRADING, DRAINAGE & PAVING.**

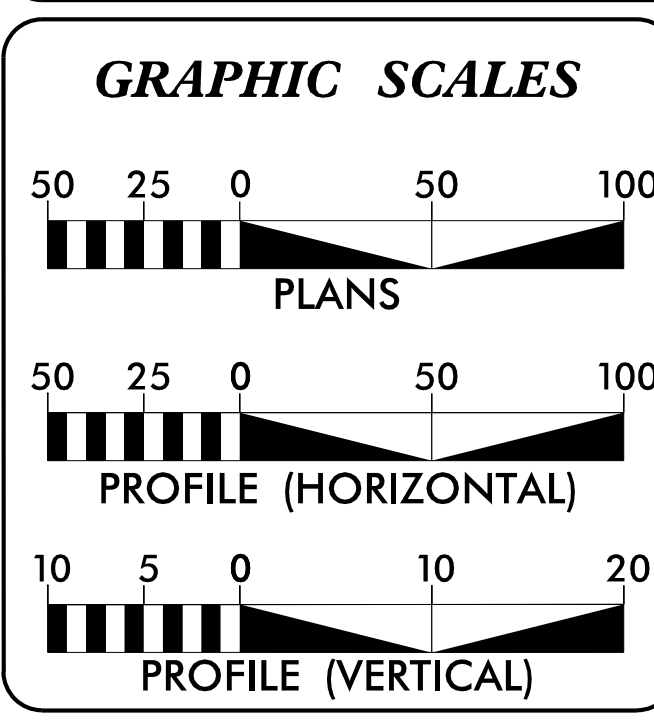
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	5C.039062	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
5C.039062	NA	PE	



THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II. DESIGN ELEMENTS NOT MEETING DESIGN SPEED (HORIZONTAL AND VERTICAL CURVES AND STOPPING SIGHT DISTANCE) WILL NEED TO BE REVIEWED AND COORDINATED WITH THE DIVISION TRAFFIC ENGINEER UPON COMPLETION OF CONSTRUCTION TO DETERMINE WHAT MEASURES ARE AVAILABLE TO MITIGATE THE SUBSTANDARD DESIGN ELEMENTS. ANY SIGNING OR OTHER DEVICES DEEMED NECESSARY SHALL BE INSTALLED BY THE CONTRACTOR AND PAID FOR BY THE DEPARTMENT.

DOCUMENT NOT CONSIDERED FINAL  
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**CONTRACT:**



**DESIGN DATA**

V = 60 MPH  
FUNC CLASS = LOCAL

**PROJECT LENGTH**

LENGTH ROADWAY PROJECT = 2.246 MILES  
TOTAL LENGTH PROJECT = 2.246 MILES

**NCDOT CONTACT:** JOHN E. SANDOR, PE  
DISTRICT ENGINEER (DISTRICT 2)

Prepared in the Office of:

320 Executive Ct.  
Hillsborough, NC 27278-8551  
Voice: (919) 732-3883  
Fax: (919) 732-6776  
www.summitde.net

2018 STANDARD SPECIFICATIONS

**RIGHT OF WAY DATE:** REID ELMORE  
PROJECT MANAGER

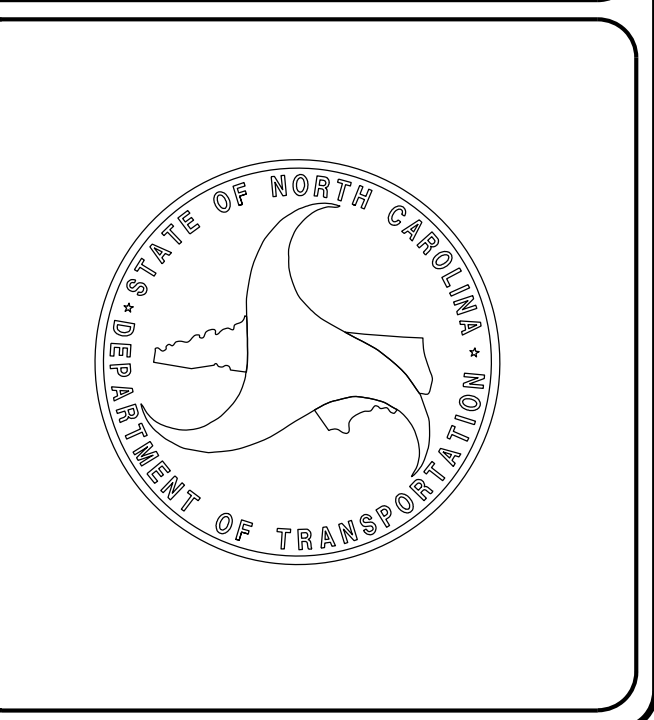
**LETTING DATE:** BRANDON W. JOHNSON, PE  
PROJECT ENGINEER  
JULY 2022

**HYDRAULICS ENGINEER**  
7/8/2022

DocuSigned by:  
Patrick Hartnett  
SIGNATURE:

**ROADWAY DESIGN ENGINEER**  
7/8/2022

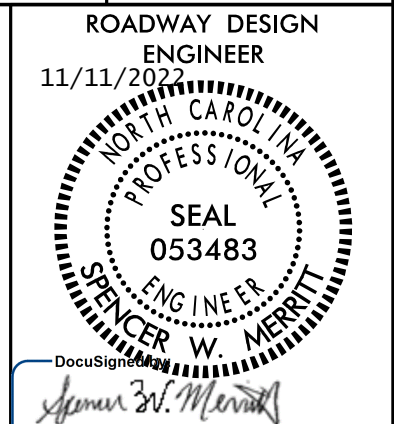
DocuSigned by:  
Brandon W. Johnson  
SIGNATURE:





8/17/99

PROJECT REFERENCE NO.	SHEET NO.
5C.039062	1A



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SHEET NUMBER	INDEX OF SHEETS SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
3B-1	ROADWAY SUMMARIES AND PAVEMENT MARKING DETAILS
3D-1	DRAINAGE SUMMARIES
4 THRU 13	PLAN SHEETS
14 THRU 18	PROFILE SHEETS
RW-1	SURVEY CONTROL SHEET
EC-1 THRU EC-23	EROSION CONTROL PLANS
X-1 THRU X-45	CROSS-SECTIONS
C1-1 THRU C1-2	CULVERT PLANS (87" X 63" ALUMINUM PIPE ARCH)
C1-1 THRU C2-2	CULVERT PLANS (15'-4" X 6'-5" ALUMINUM BOX CULVERT)
SN	CULVERT STANDARD NOTES

**GENERAL NOTES:**

2018 SPECIFICATIONS  
EFFECTIVE: 01-16-2018  
REVISED:

**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 11.

**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

**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.

**UTILITIES:**

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

**TRAFFIC CONTROL:**

TRAFFIC CONTROL SHALL BE PERFORMED IN ACCORDANCE WITH THE 2018 NCDOT STANDARDS AND SPECIFICATIONS. CONTRACTOR SHALL COORDINATE WITH NCDOT WITH ANY LANE CLOSURES AND OFFSITE DETOURS. TRAFFIC CONTROL SHALL BE PAID LUMP SUM.

**PAVEMENT MARKINGS:**

PAVEMENT MARKINGS SHALL BE PLACED BY THE CONTRACTOR IN ACCORDANCE TO THE 2018 NCDOT STANDARDS AND SPECIFICATIONS. SEE INSET DETAILS ON SHEET 3B-1 FOR GUIDANCE OR AS DIRECTED BY ENGINEER.

2018 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, 2018 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 11
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
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 1
DIVISION 8 - INCIDENTALS	
838.01	Concrete Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
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

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# 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	--- WLB ---
Proposed Lateral, Tail, Head Ditch	--- FLOW ---
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	○ R W
New Right of Way Line with Pin and Cap	○ R W ◆
New Right of Way Line with Concrete or Granite R/W Marker	△ R W
New Control of Access Line with Concrete C/A Marker	△ C/A
Existing Control of Access	△ C/A
New Control of Access	△ C/A
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	--- T ---
Proposed Guardrail	--- T ---
Existing Cable Guiderail	--- T ---
Proposed Cable Guiderail	--- T ---
Equality Symbol	⊕
Pavement Removal	⊠

### VEGETATION:

Single Tree	○
Single Shrub	○

*Note: Not to Scale*      \*S.U.E. = *Subsurface Utility Engineering*

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	○ S
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.*)	--- 7UTL ---
U/G Tank; Water, Gas, Oil	□
Underground Storage Tank, Approx. Loc.	⊕
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.

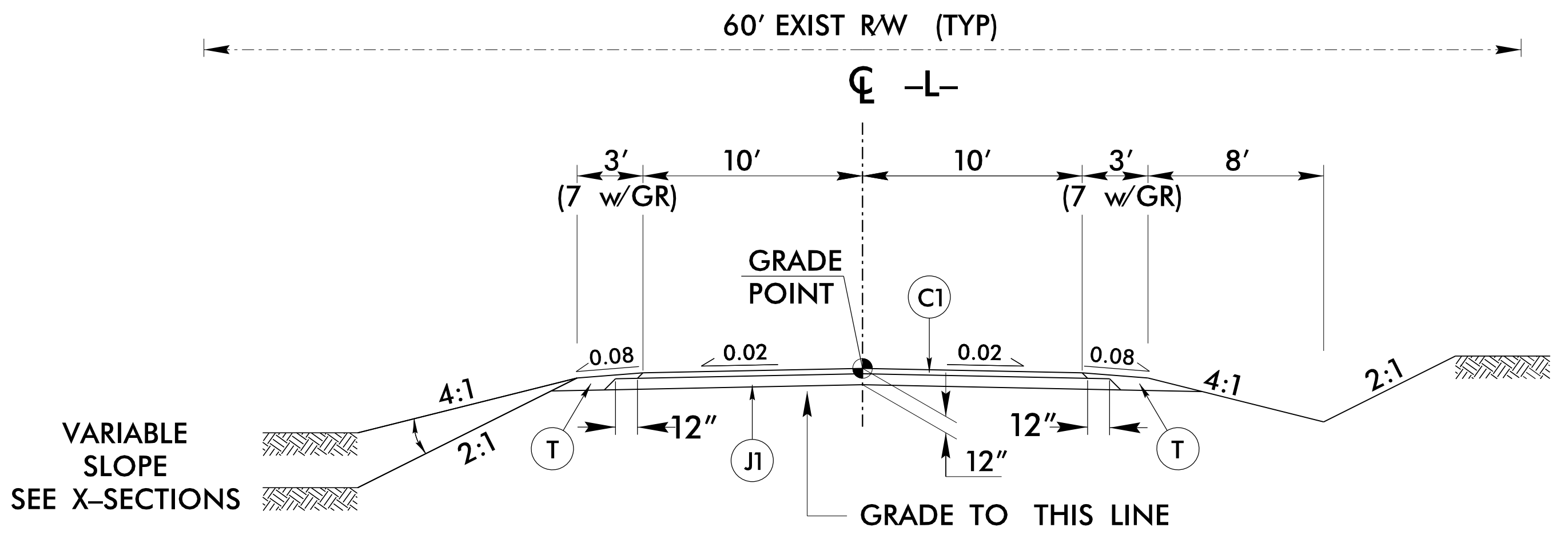


6/2/2019

ASSUMED PAVEMENT SCHEDULE	
C1	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
J1	PROP 10" AGGREGATE BASE COURSE
T	EARTH MATERIAL

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

PROJECT REFERENCE NO. 5C.039062	SHEET NO. 2A-1
Prepared in the Office of: <b>SUMMIT</b> ROADWAY DESIGN ENGINEER	
7/8/2022	
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TYPICAL SECTION NO. 1  
-L- (SR 1409)

USE TYPICAL SECTION NO. 1  
-L- STA 10+10.00 TO STA 128+71.00

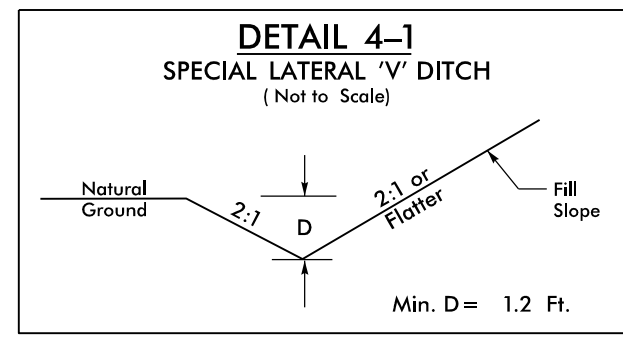
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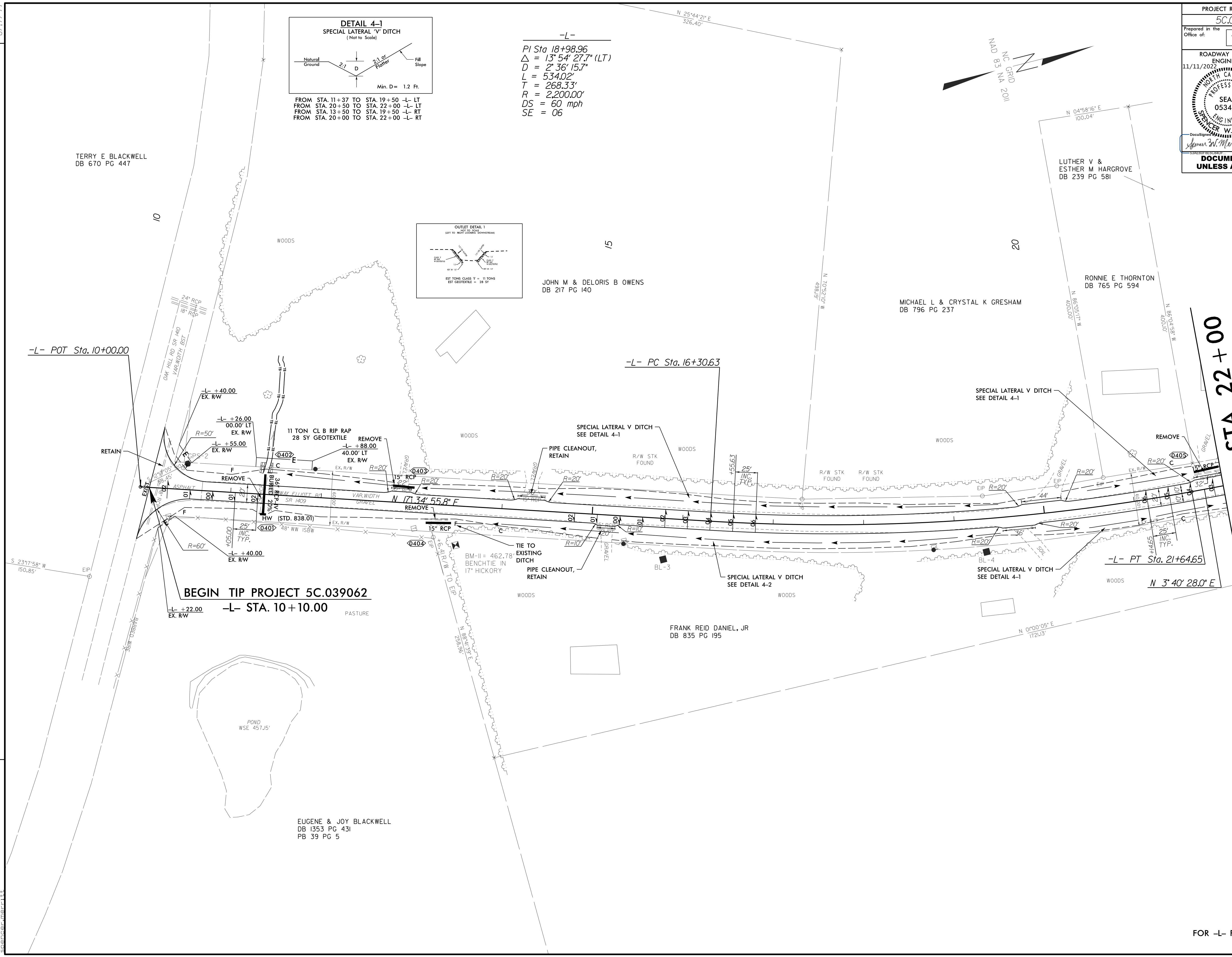
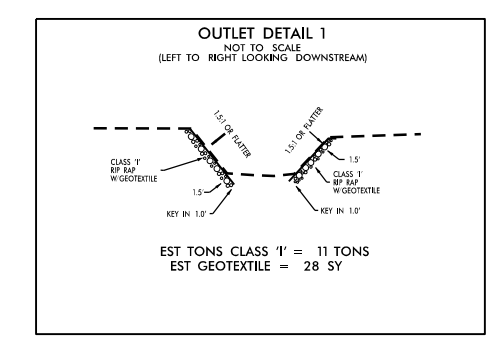


PROJECT REFERENCE NO. <b>5C.039062</b>	SHEET NO. <b>4</b>
Prepared in the Office of: <b>SUMMIT</b> ROADWAY DESIGN ENGINEER 11/11/2022	NC FIRM LICENSE No: P-0339 300 Executive Ct. Hillsborough, NC 27278 (919) 332-3883 (919) 732-6676 (FAX)
ROADWAY DESIGN ENGINEER SEAL 053483 W. MORRIS	HYDRAULICS ENGINEER SEAL 053755 PATRICK M. HARTNETT
<p><b>DOCUMENT NOT CONSIDERED FINAL</b> <b>UNLESS ALL SIGNATURES COMPLETED</b></p>	



FROM STA. 11+37 TO STA. 19+50 -L- LT  
 FROM STA. 20+50 TO STA. 22+00 -L- LT  
 FROM STA. 13+50 TO STA. 19+50 -L- RT  
 FROM STA. 20+00 TO STA. 22+00 -L- RT

-L-  
 PI Sta 18+98.96  
 $\Delta = 13^{\circ}54'27.7''$  (LT)  
 $D = 2^{\circ}36'15.7''$   
 $L = 534.02'$   
 $T = 268.33'$   
 $R = 2,200.00'$   
 $DS = 60$  mph  
 $SE = 06$



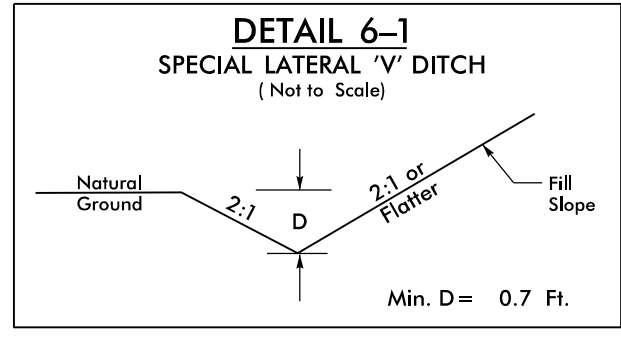
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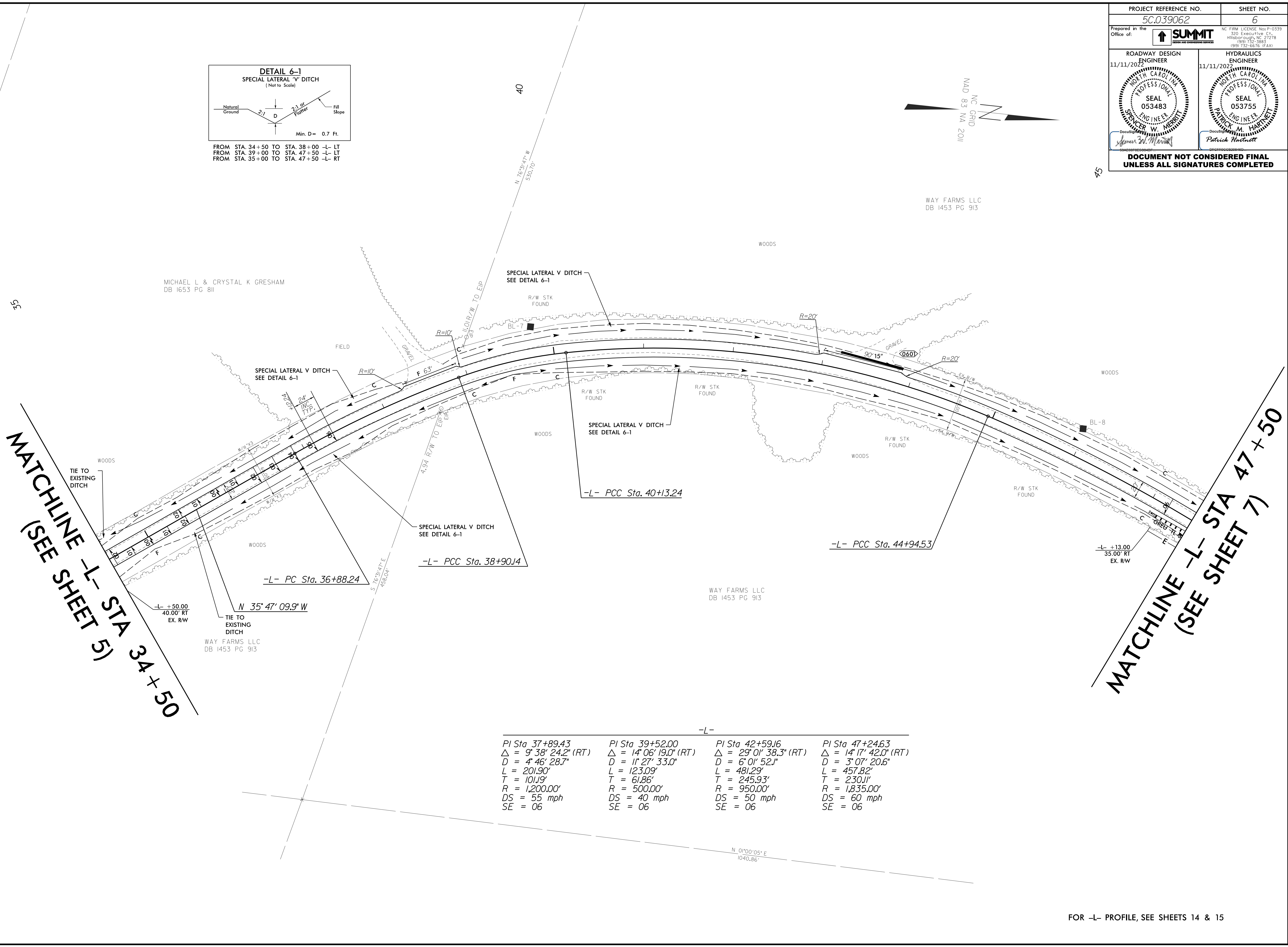
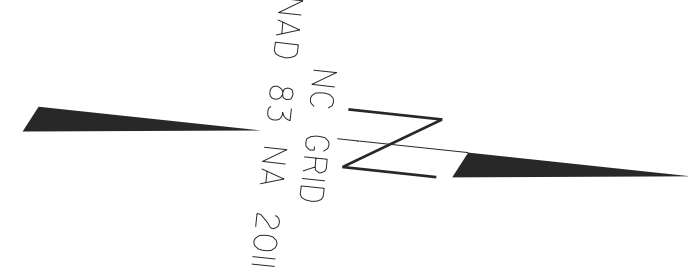




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Prepared in the Office of: <b>SUMMIT</b> ENGINEERING	NC FIRM LICENSE No: P-0339 300 Executive Ct. Hillsborough, NC 27278 (919) 332-3883 (919) 732-6676 (FAX)
ROADWAY DESIGN ENGINEER 11/11/2022 SEAL 053483 SPENCER W. MORRIS	HYDRAULICS ENGINEER 11/11/2022 SEAL 053755 PATRICK M. HARTNETT
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FROM STA. 34+50 TO STA. 38+00 -L- LT  
 FROM STA. 39+00 TO STA. 47+50 -L- LT  
 FROM STA. 35+00 TO STA. 47+50 -L- RT



-L-			
PI Sta 37+89.43	PI Sta 39+52.00	PI Sta 42+59.16	PI Sta 47+24.63
$\Delta = 9' 38' 24.2''$ (RT)	$\Delta = 14' 06' 19.0''$ (RT)	$\Delta = 29' 01' 38.3''$ (RT)	$\Delta = 14' 17' 42.0''$ (RT)
$D = 4' 46' 28.7''$	$D = 11' 27' 33.0''$	$D = 6' 01' 52.1''$	$D = 3' 07' 20.6''$
$L = 201.90'$	$L = 123.09'$	$L = 481.29'$	$L = 457.82'$
$T = 101.19'$	$T = 61.86'$	$T = 245.93'$	$T = 230.11'$
$R = 1,200.00'$	$R = 500.00'$	$R = 950.00'$	$R = 1,835.00'$
$DS = 55$ mph	$DS = 40$ mph	$DS = 50$ mph	$DS = 60$ mph
$SE = 06$	$SE = 06$	$SE = 06$	$SE = 06$

REVISIONS

MATCHLINE -L- STA 34+50  
 (SEE SHEET 5)

MATCHLINE -L- STA 47+50  
 (SEE SHEET 7)

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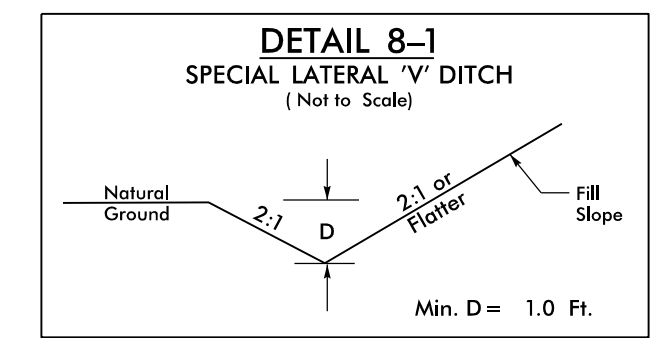




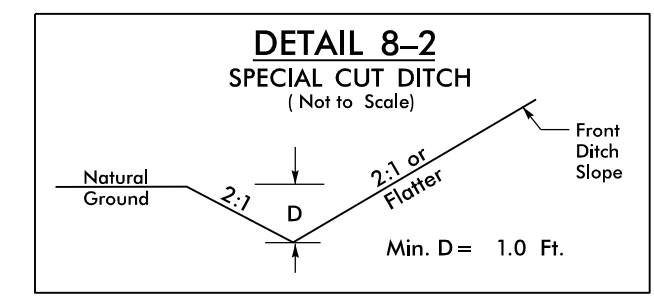
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Prepared in the Office of: <b>SUMMIT</b> ROADWAY DESIGN ENGINEER 11/11/2022	NC FIRM LICENSE No: P-0339 300 Executive Ct. Hillsborough, NC 27278 (919) 732-3883 (919) 732-6676 (FAX)
ROADWAY DESIGN ENGINEER 11/11/2022 SEAL 053483 SPENCER W. MORRIS	HYDRAULICS ENGINEER 11/11/2022 SEAL 053755 PATRICK M. HARTNETT
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

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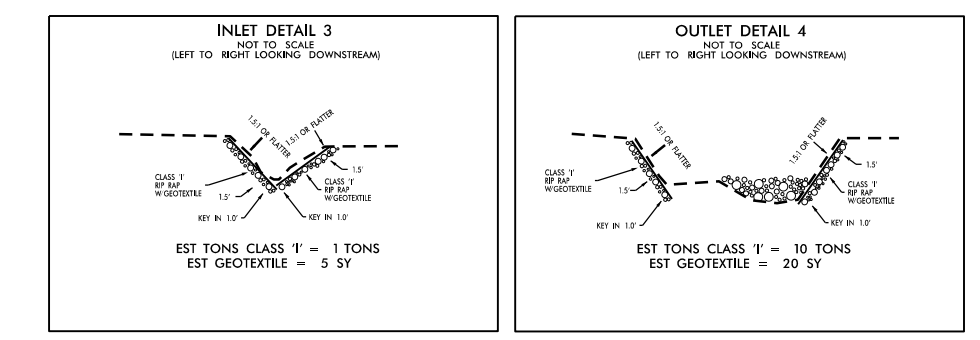
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FROM STA. 60+50 TO STA. 63+18 -L- LT  
FROM STA. 67+00 TO STA. 73+50 -L- LT  
FROM STA. 64+50 TO STA. 65+50 -L- RT  
FROM STA. 67+00 TO STA. 73+00 -L- RT

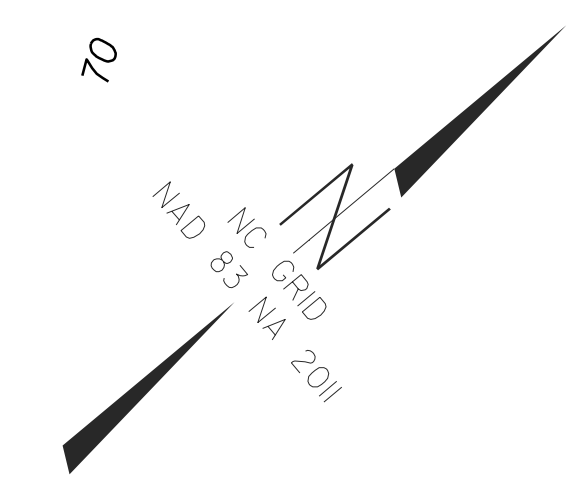
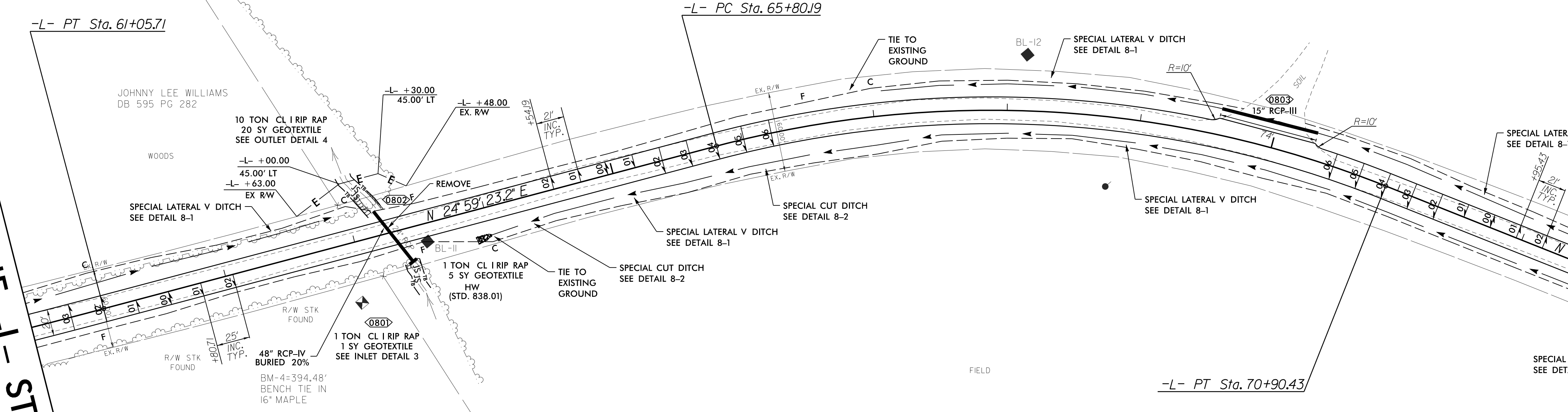


FROM STA. 64+00 TO STA. 64+50 -L- RT  
FROM STA. 65+50 TO STA. 67+00 -L- RT  
FROM STA. 73+00 TO STA. 73+50 -L- RT



MATCHLINE -L- STA 60+50  
(SEE SHEET 7)

MATCHLINE -L- STA 73+50  
(SEE SHEET 9)



WM E & MELBA HOBGOOD,  
TRUSTEES  
DB I292 PG 396

WM E & MELBA HOBGOOD,  
TRUSTEES  
DB I292 PG 396

JOHNNY LEE WILLIAMS  
DB 595 PG 282

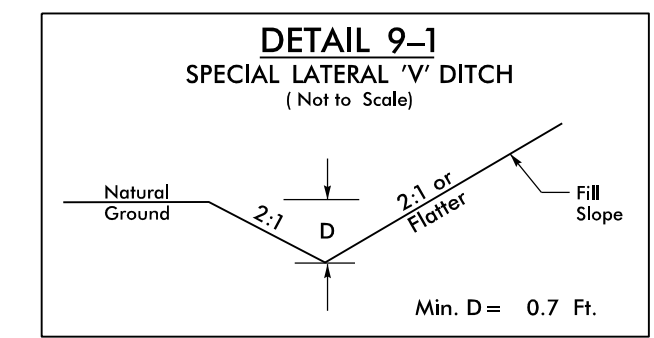
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SPEC:RMB/PLT

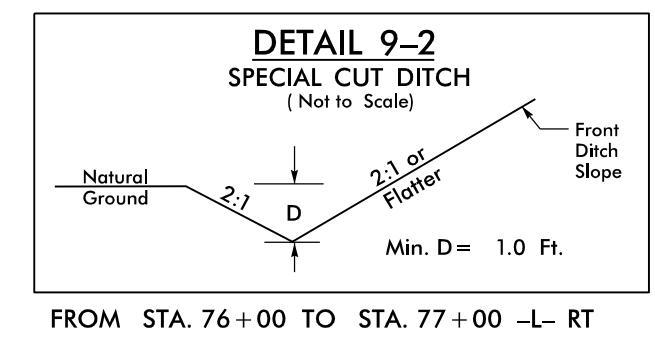


8/17/99

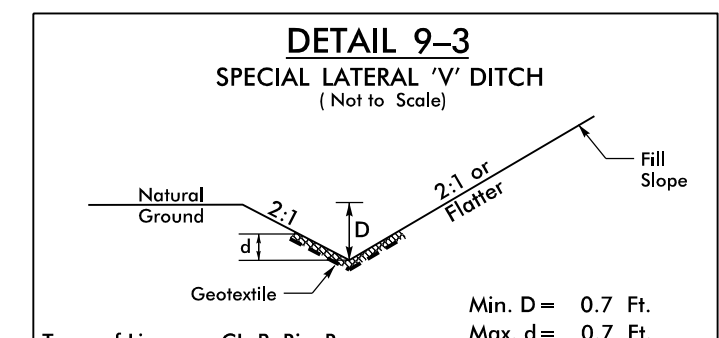
PROJECT REFERENCE NO. <b>5C.039062</b>	SHEET NO. <b>9</b>
Prepared in the Office of: <b>SUMMIT</b> ROADWAY DESIGN ENGINEER	NC FIRM LICENSE No: P-0339 300 Executive Ct. Hillsborough, NC 27278 (919) 732-3883 (919) 732-6676 (FAX)
11/11/2022	11/11/2022
<b>SEAL 053483</b> W. MERRITT ROADWAY DESIGN ENGINEER	<b>SEAL 053755</b> PATRICK M. HARTNETT HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



FROM STA. 73+50 TO STA. 75+50 -L- LT  
 FROM STA. 77+50 TO STA. 82+00 -L- LT  
 FROM STA. 73+50 TO STA. 76+00 -L- RT  
 FROM STA. 84+50 TO STA. 85+50 -L- RT

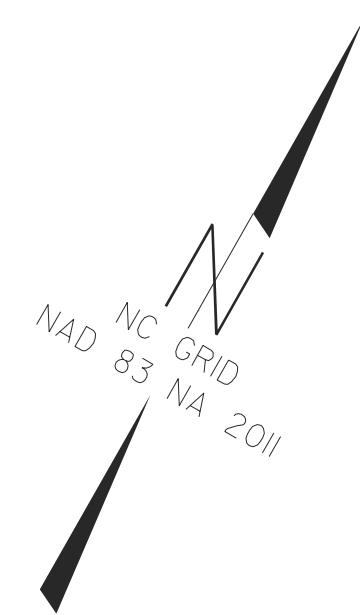


FROM STA. 76+00 TO STA. 77+00 -L- RT



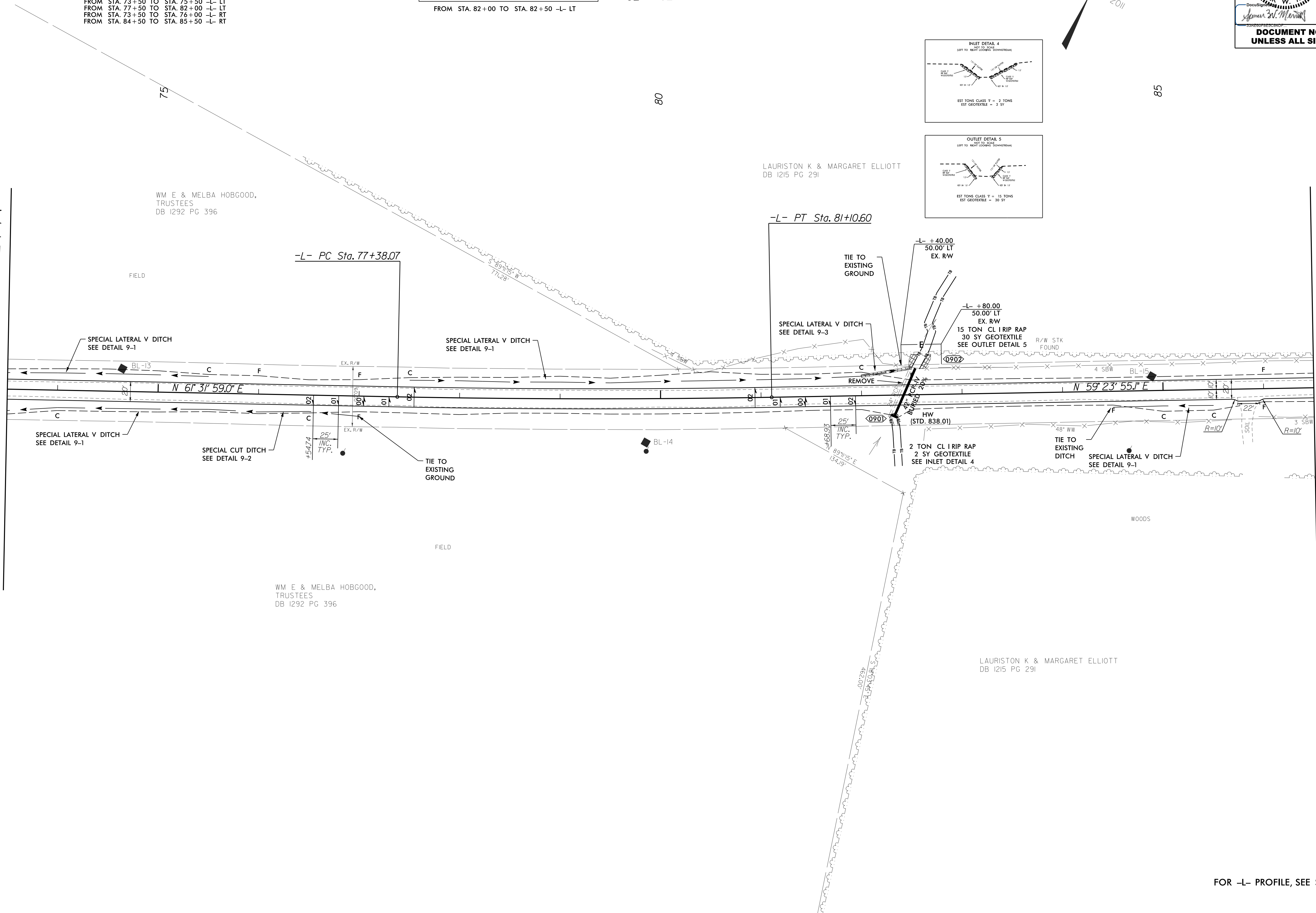
Type of Liner = CL B Rip-Rap  
 FROM STA. 82+00 TO STA. 82+50 -L- LT

-L-  
 PI Sta 79+24.36  
 $\Delta = 2' 08' 03.9''$  (LT)  
 $D = 0' 34' 22.6''$   
 $L = 372.53'$   
 $T = 186.28'$   
 $R = 10,000.00'$   
 $DS = 60$  mph  
 $SE = 02$



REVISIONS

MATCHLINE -L- STA 73+50  
(SEE SHEET 8)



MATCHLINE -L- STA 86+50  
(SEE SHEET 10)

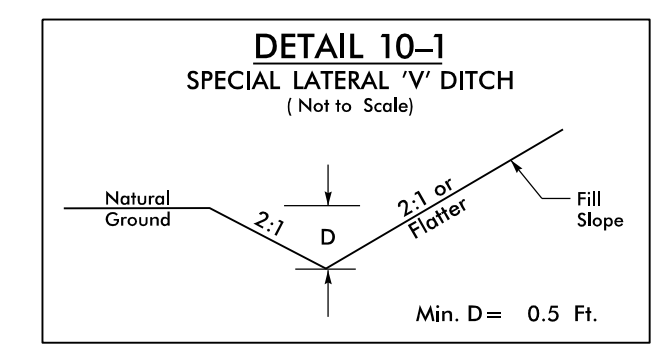
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 Compu-Tag  
 SPACEDRUM.PLT



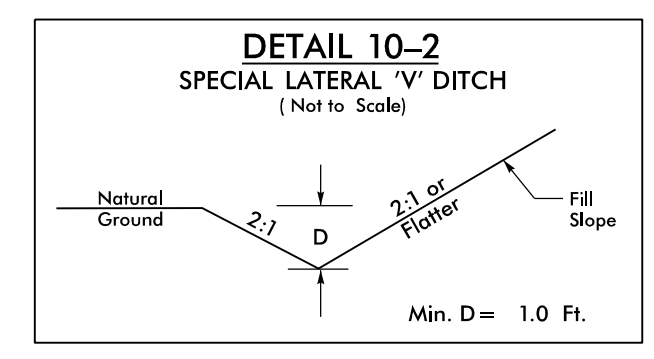
8.17.17.99

PROJECT REFERENCE NO. <b>5C.039062</b>	SHEET NO. <b>10</b>
Prepared in the Office of: <b>SUMMIT</b> ROADWAY DESIGN ENGINEER	NC FIRM LICENSE No: P-0339 300 Executive Ct. Hillsborough, NC 27278 (919) 732-3883 (919) 732-6676 (FAX)
11/11/2022 SEAL 053483 SPENCER W. MORRIS	11/11/2022 SEAL 053755 PATRICK M. HARTNETT
<p><b>DOCUMENT NOT CONSIDERED FINAL</b> <b>UNLESS ALL SIGNATURES COMPLETED</b></p>	

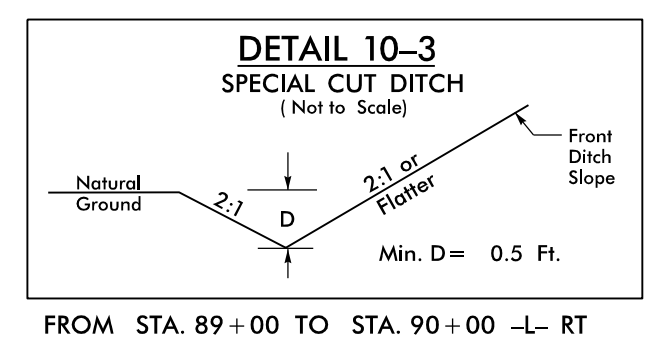
-L-		
<i>PI Sta 90+79.99</i>	<i>PI Sta 98+37.99</i>	<i>PI Sta 100+07.09</i>
$\Delta = 21^{\circ}17'03.0''$ (RT)	$\Delta = 11^{\circ}57'24.1''$ (LT)	$\Delta = 36^{\circ}34'43.6''$ (LT)
$D = 4^{\circ}52'34.5''$	$D = 7^{\circ}09'43.1''$	$D = 22^{\circ}02'12.6''$
$L = 436.49'$	$L = 166.95'$	$L = 165.99'$
$T = 220.79'$	$T = 83.78'$	$T = 85.93'$
$R = 1,175.00'$	$R = 800.00'$	$R = 260.00'$
$DS = 55$ mph	$DS = 45$ mph	$DS = 30$ mph
$SE = 06$	$SE = 06$	$SE = 06$



FROM STA. 87+50 TO STA. 90+00 -L- LT  
 FROM STA. 90+50 TO STA. 92+50 -L- LT  
 FROM STA. 87+50 TO STA. 89+00 -L- RT



FROM STA. 98+50 TO STA. 99+50 -L- LT  
 FROM STA. 90+50 TO STA. 99+50 -L- RT

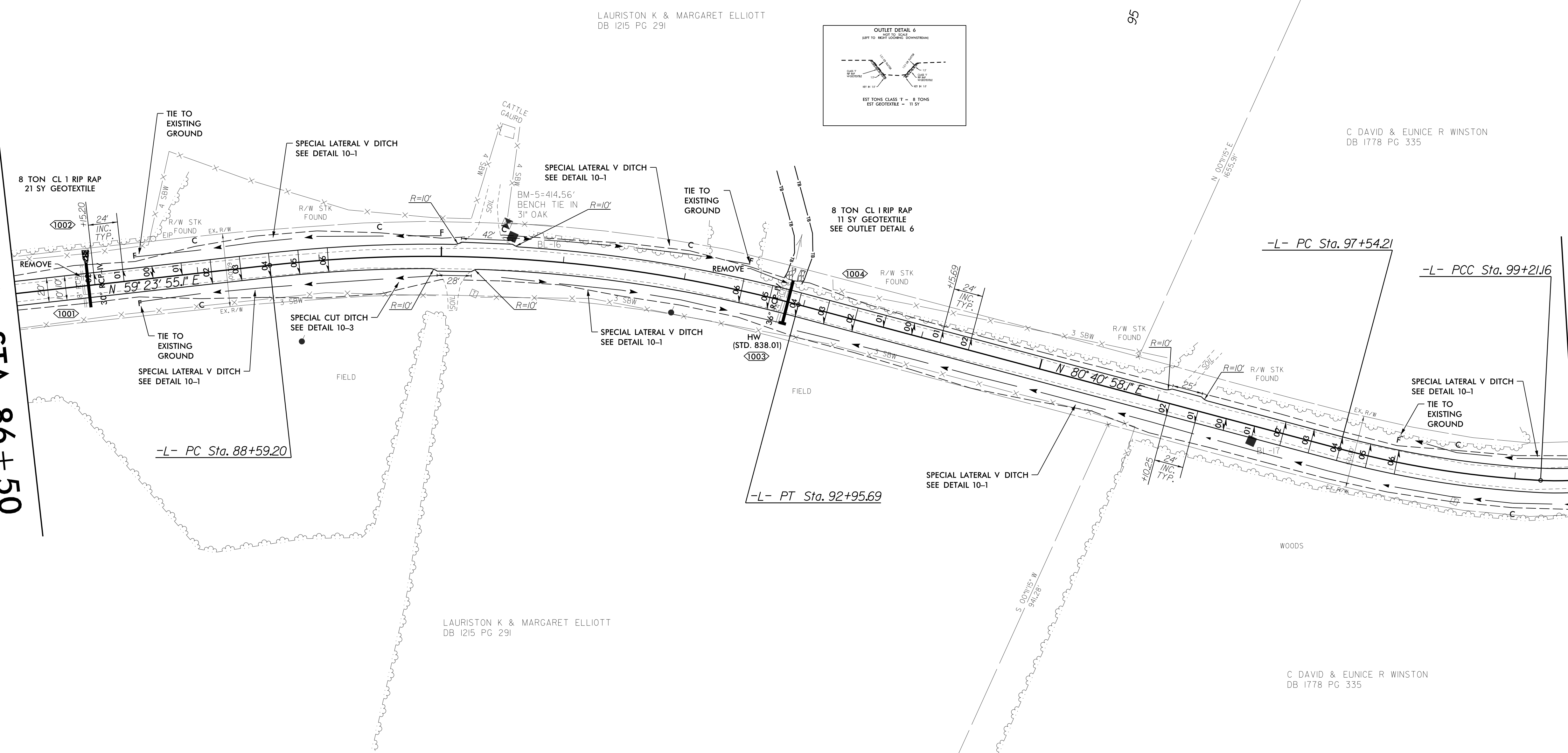


FROM STA. 89+00 TO STA. 90+00 -L- RT



**MATCHLINE -L- STA 86+50**  
**(SEE SHEET 9)**

**MATCHLINE -L- STA 99+50**  
**(SEE SHEET 11)**



LAURISTON K & MARGARET ELLIOTT  
DB 1215 PG 291

C DAVID & EUNICE R WINSTON  
DB 1778 PG 335

LAURISTON K & MARGARET ELLIOTT  
DB 1215 PG 291

C DAVID & EUNICE R WINSTON  
DB 1778 PG 335

REVISIONS

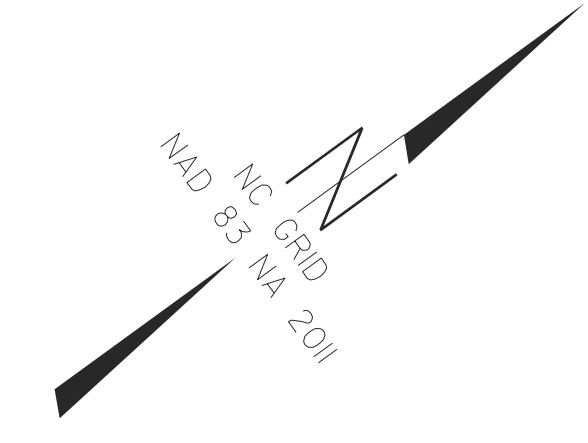
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8/17/99

REVISIONS

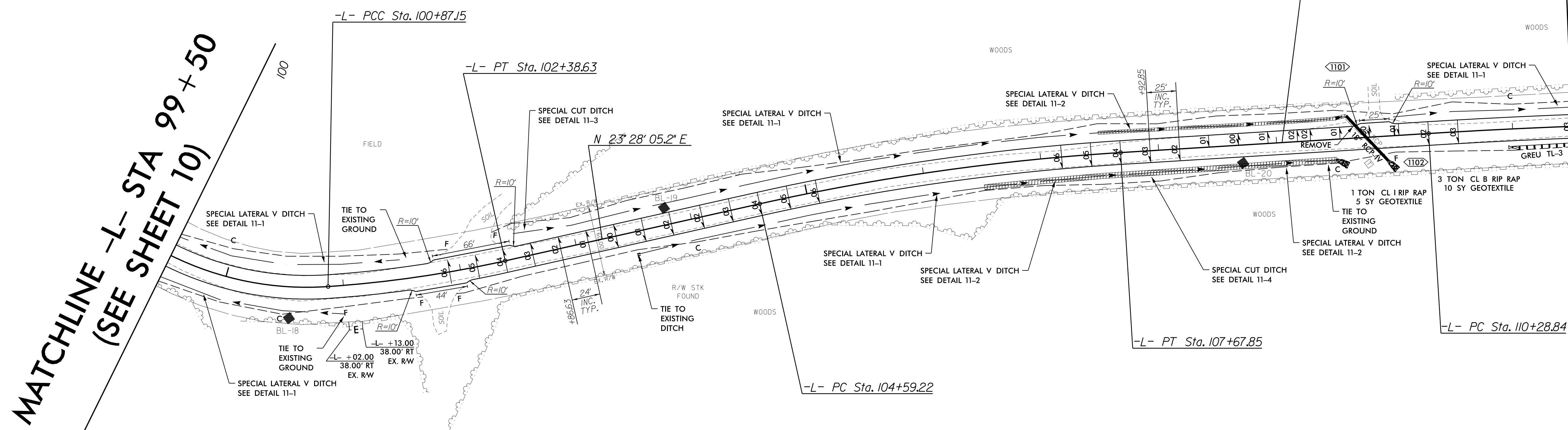
PROJECT REFERENCE NO. 5C.039062	SHEET NO. 11
Prepared in the Office of: <b>SUMMIT</b> ENGINEERS, INC.	NC FIRM LICENSE NO: P-0339 300 Executive Ct. Hillsborough, NC 27278 (919) 732-3883 (919) 732-6676 (FAX)
ROADWAY DESIGN ENGINEER 11/11/2022	HYDRAULICS ENGINEER 11/11/2022
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

-L-			
PI Sta 100+07.09	PI Sta 101+63.04	PI Sta 106+13.86	PI Sta 111+01.99
$\Delta = 36^{\circ} 34' 43.6''$ (LT)	$\Delta = 8^{\circ} 40' 45.1''$ (LT)	$\Delta = 9^{\circ} 04' 06.2''$ (RT)	$\Delta = 1^{\circ} 40' 34.9''$ (RT)
$D = 22^{\circ} 02' 12.6''$	$D = 5^{\circ} 43' 46.5''$	$D = 2^{\circ} 56' 17.7''$	$D = 1^{\circ} 08' 45.3''$
$L = 165.99'$	$L = 151.48'$	$L = 308.63'$	$L = 146.29'$
$T = 85.93'$	$T = 75.89'$	$T = 154.64'$	$T = 73.15'$
$R = 260.00'$	$R = 1,000.00'$	$R = 1,950.00'$	$R = 5,000.00'$
$DS = 30$ mph	$DS = 55$ mph	$DS = 60$ mph	$DS = 60$ mph
$SE = 06$	$SE = 06$	$SE = 06$	$SE = 03$



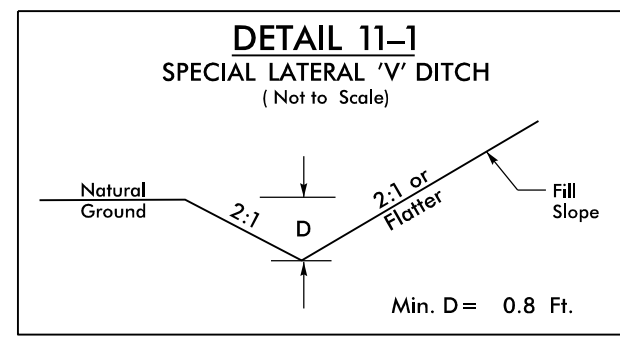
MATCHLINE -L- STA 99+50  
(SEE SHEET 10)

MATCHLINE -L- STA 111+50  
(SEE SHEET 12)

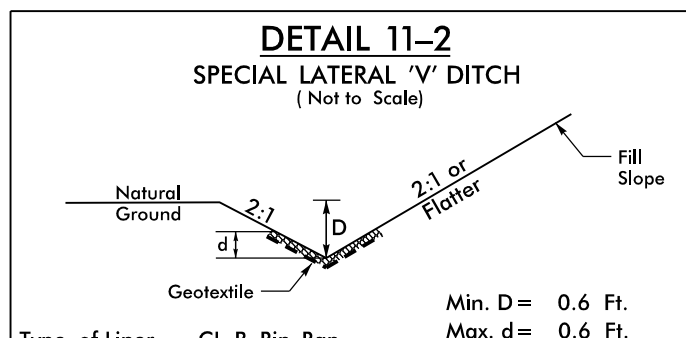


C DAVID & EUNICE R WINSTON  
DB 1778 PG 335

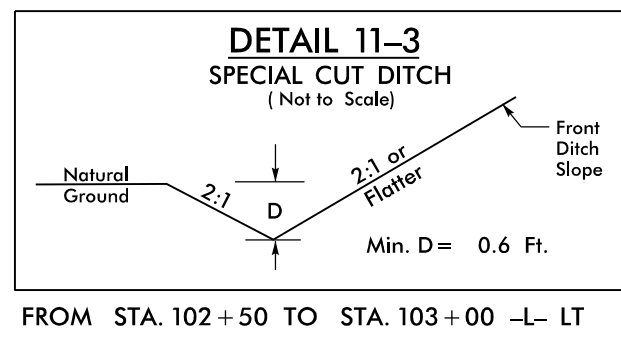
C DAVID & EUNICE R WINSTON  
DB 1778 PG 335



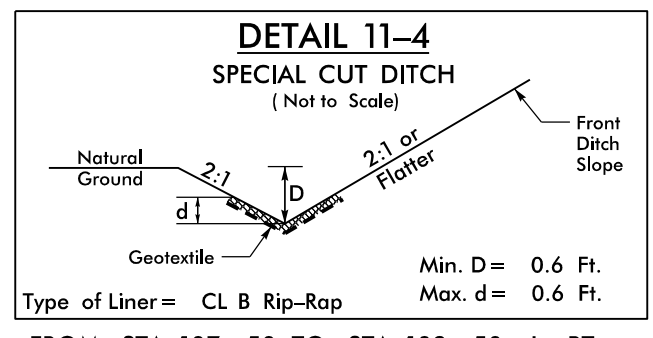
FROM STA. 99+50 TO STA. 101+50 -L- LT  
FROM STA. 103+00 TO STA. 109+60 -L- LT  
FROM STA. 110+00 TO STA. 111+50 -L- LT  
FROM STA. 99+50 TO STA. 101+00 -L- RT  
FROM STA. 103+50 TO STA. 106+50 -L- RT



FROM STA. 107+50 TO STA. 109+60 -L- LT  
FROM STA. 108+50 TO STA. 107+50 -L- RT  
FROM STA. 108+50 TO STA. 109+50 -L- RT



FROM STA. 102+50 TO STA. 103+00 -L- LT



FROM STA. 107+50 TO STA. 108+50 -L- RT

FOR -L- PROFILE, SEE SHEET 17

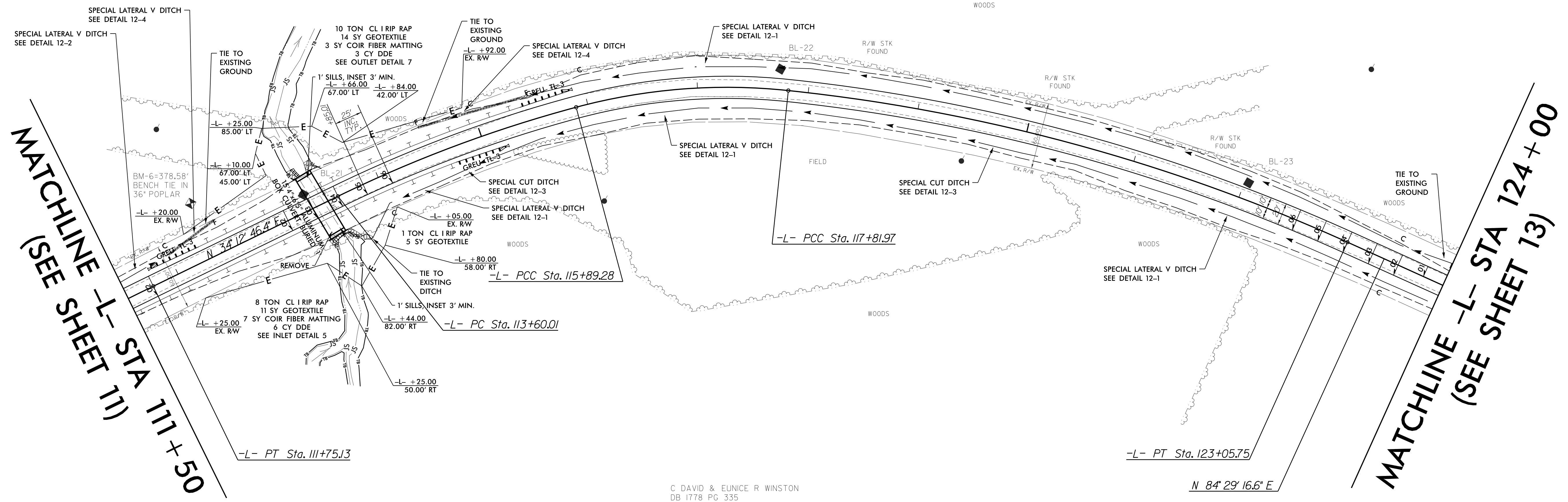
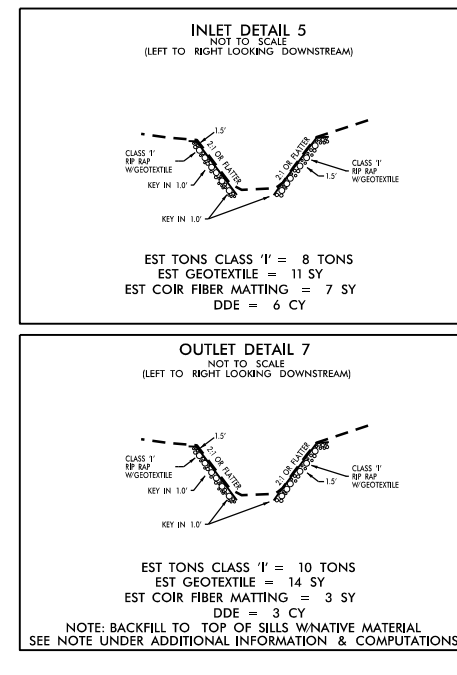
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SPENCER.MERRITT



8/17/99

PROJECT REFERENCE NO. 5C.039062	SHEET NO. 12
Prepared in the Office of: <b>SUMMIT</b> ENGINEERING & CONSTRUCTION	NC FIRM LICENSE No: P-0339 300 Executive Ct. Hillsborough, NC 27278 (919) 332-3883 (919) 732-6676 (FAX)
ROADWAY DESIGN ENGINEER 11/11/2022 SEAL 053483 W. MORRIS	HYDRAULICS ENGINEER 11/11/2022 SEAL 053755 PATRICK M. HARTNETT
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

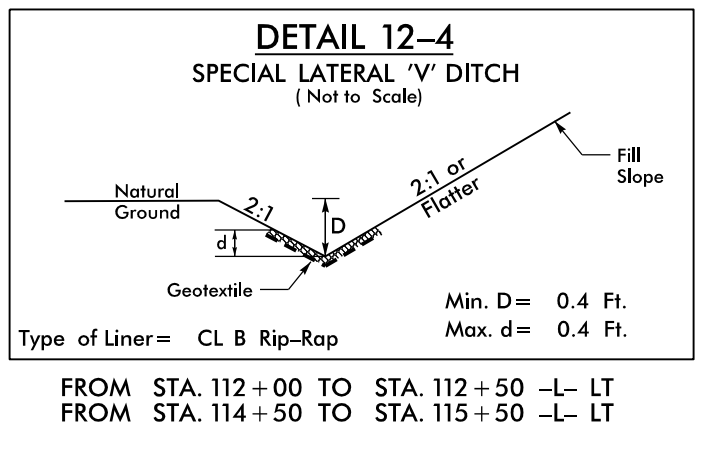
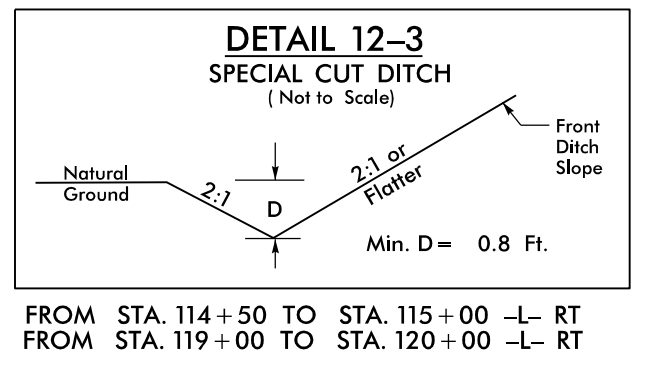
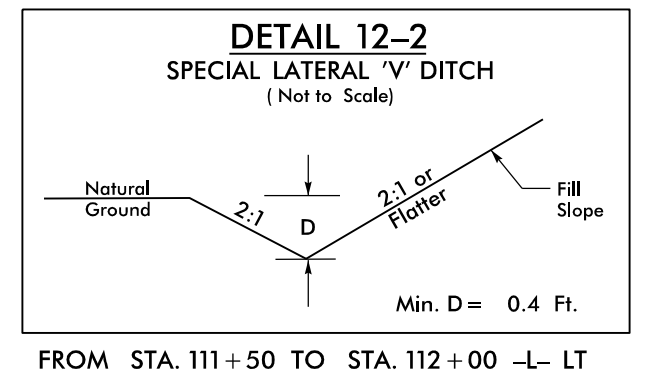
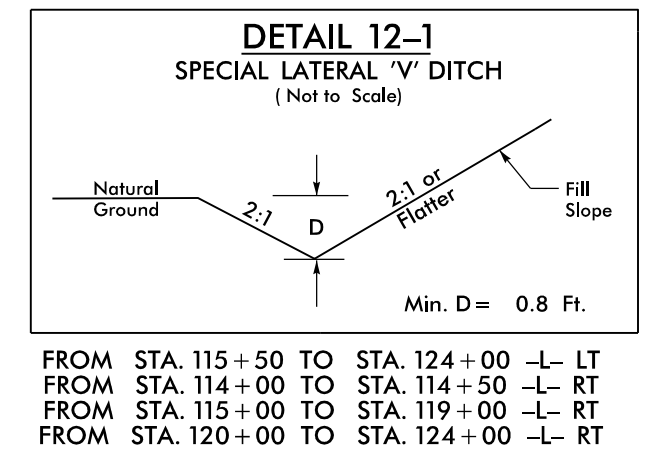
-L-			
PI Sta 111+01.99	PI Sta 114+74.99	PI Sta 116+86.72	PI Sta 120+46.11
$\Delta = 1^{\circ} 40' 34.9" (RT)$	$\Delta = 10^{\circ} 56' 49.8" (RT)$	$\Delta = 21^{\circ} 01' 44.5" (RT)$	$\Delta = 18^{\circ} 17' 55.8" (RT)$
D = 1' 08" 45.3"	D = 4' 46" 28.7"	D = 10' 54" 48.5"	D = 3' 29" 37.1"
L = 146.29'	L = 229.28'	L = 192.69'	L = 523.77'
T = 73.15'	T = 114.99'	T = 97.44'	T = 264.14'
R = 5,000.00'	R = 1,200.00'	R = 525.00'	R = 1,640.00'
DS = 60 mph	DS = 55 mph	DS = 40 mph	DS = 60 mph
SE = 03	SE = 06	SE = 06	SE = 06



REVISIONS

MATCHLINE -L- STA 111+50  
(SEE SHEET 11)

MATCHLINE -L- STA 124+00  
(SEE SHEET 13)

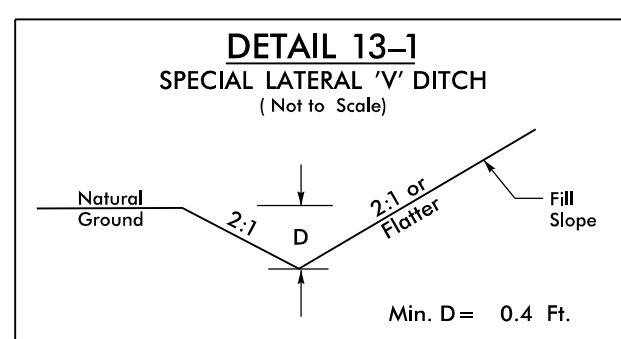


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SUMMIT



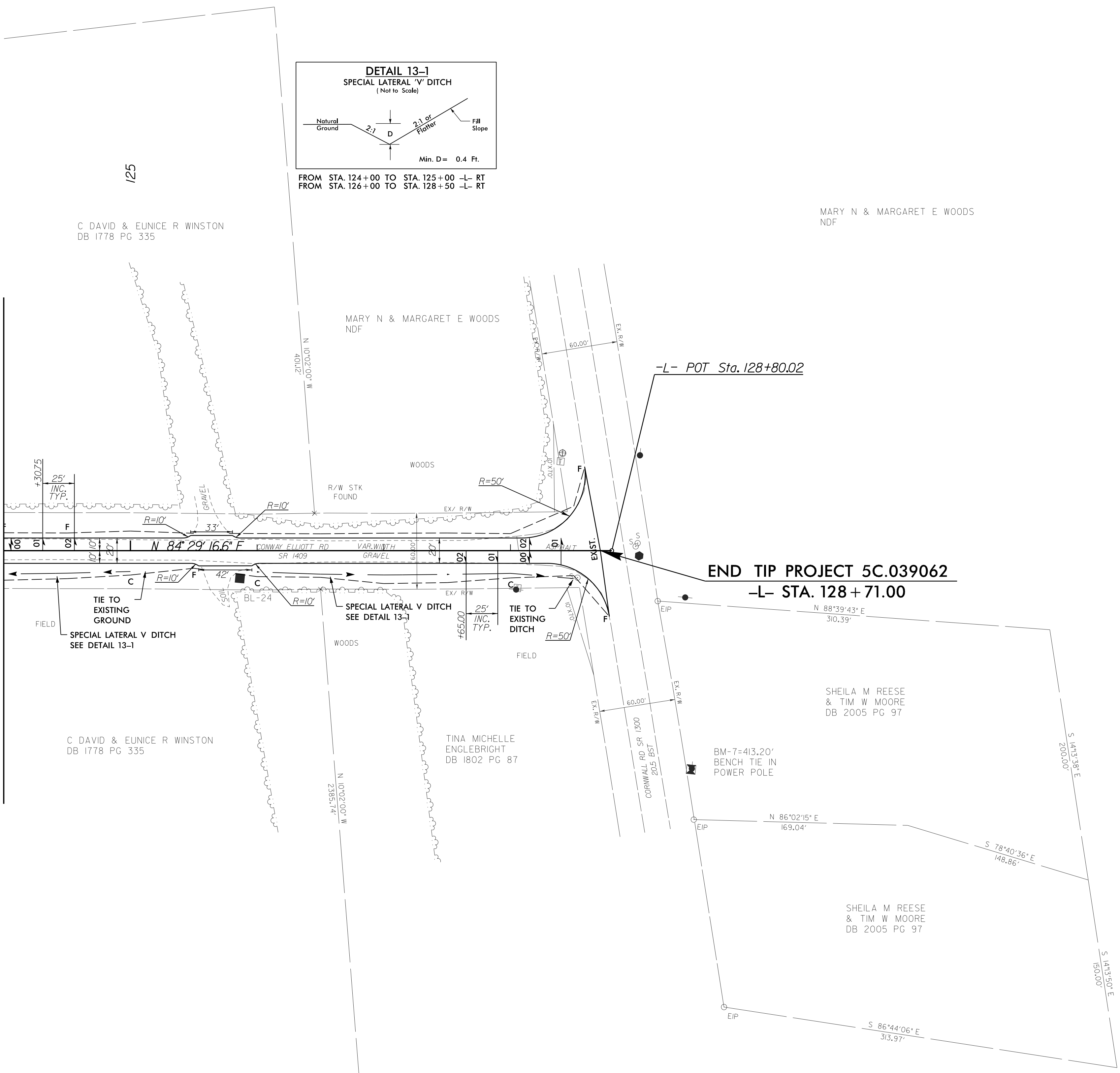
8/17/99

PROJECT REFERENCE NO. <b>5C.039062</b>	SHEET NO. <b>13</b>
Prepared in the Office of: <b>SUMMIT</b> www.summit-engineers.com	NC FIRM LICENSE NO: P-0339 300 Executive Ct. Hillsborough, NC 27278 (919) 332-3883 (919) 732-6676 (FAX)
ROADWAY DESIGN ENGINEER 11/11/2022	HYDRAULICS ENGINEER 11/11/2022
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



FROM STA. 124+00 TO STA. 125+00 -L- RT  
FROM STA. 126+00 TO STA. 128+50 -L- RT

MATCHLINE -L- STA 124+00  
(SEE SHEET 12)



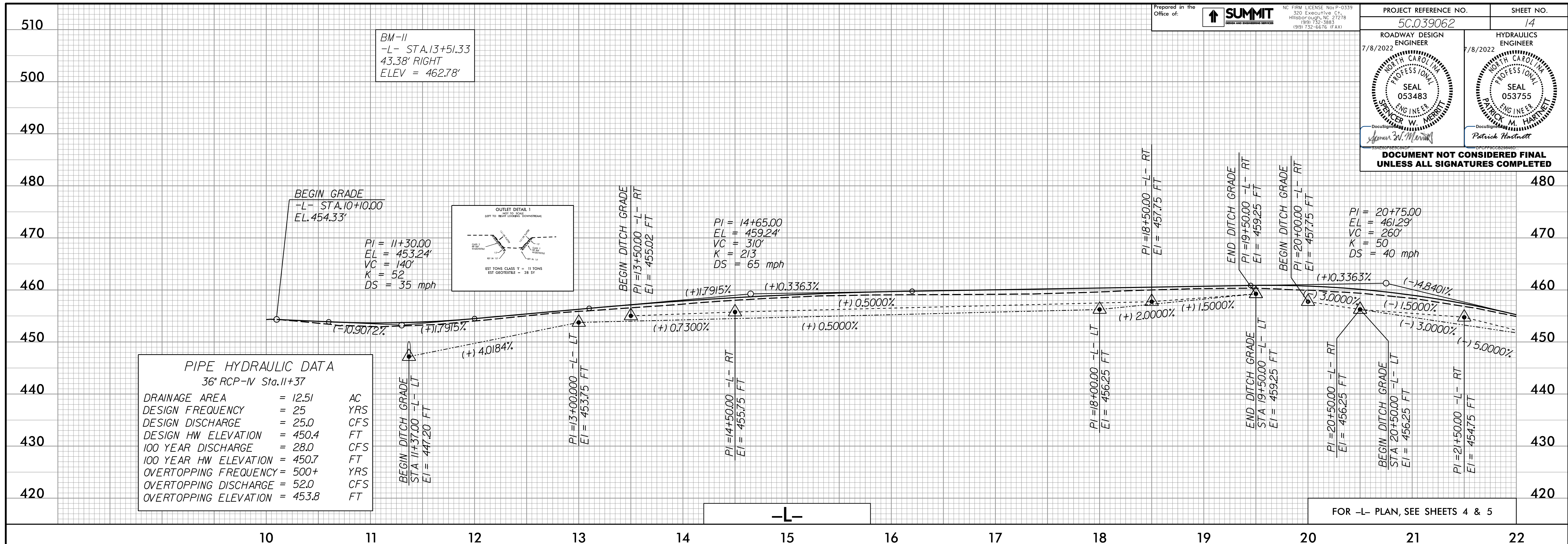
-L- POT Sta. 128+80.02

END TIP PROJECT 5C.039062  
-L- STA. 128+71.00

REVISIONS

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SPENCER MERRITT

PROJECT REFERENCE NO. <b>5C.039062</b>	SHEET NO. <b>14</b>
ROADWAY DESIGN ENGINEER 7/8/2022	HYDRAULICS ENGINEER 7/8/2022
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	



**PIPE HYDRAULIC DATA**  
36" RCP-IV Sta. 11+37

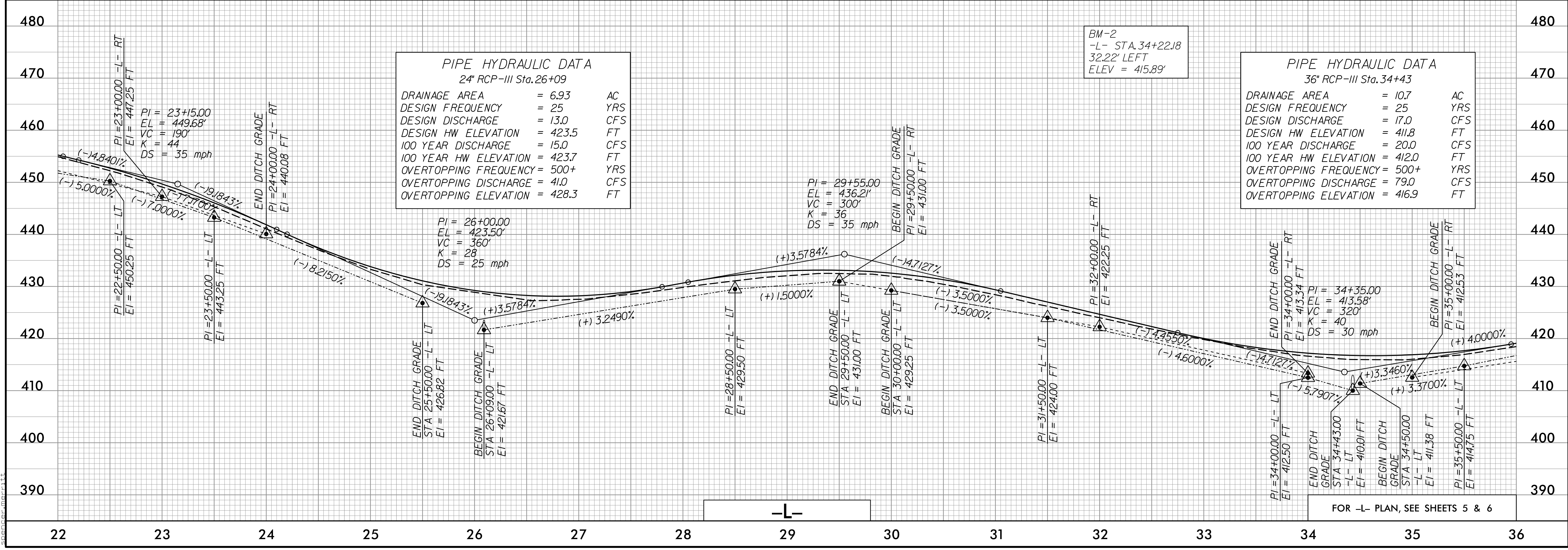
DRAINAGE AREA	= 12.51	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 25.0	CFS
DESIGN HW ELEVATION	= 450.4	FT
100 YEAR DISCHARGE	= 28.0	CFS
100 YEAR HW ELEVATION	= 450.7	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 52.0	CFS
OVERTOPPING ELEVATION	= 453.8	FT

**PIPE HYDRAULIC DATA**  
24" RCP-III Sta. 26+09

DRAINAGE AREA	= 6.93	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 13.0	CFS
DESIGN HW ELEVATION	= 423.5	FT
100 YEAR DISCHARGE	= 15.0	CFS
100 YEAR HW ELEVATION	= 423.7	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 41.0	CFS
OVERTOPPING ELEVATION	= 428.3	FT

**PIPE HYDRAULIC DATA**  
36" RCP-III Sta. 34+43

DRAINAGE AREA	= 10.7	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 17.0	CFS
DESIGN HW ELEVATION	= 411.8	FT
100 YEAR DISCHARGE	= 20.0	CFS
100 YEAR HW ELEVATION	= 412.0	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 79.0	CFS
OVERTOPPING ELEVATION	= 416.9	FT



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spencer.merritt

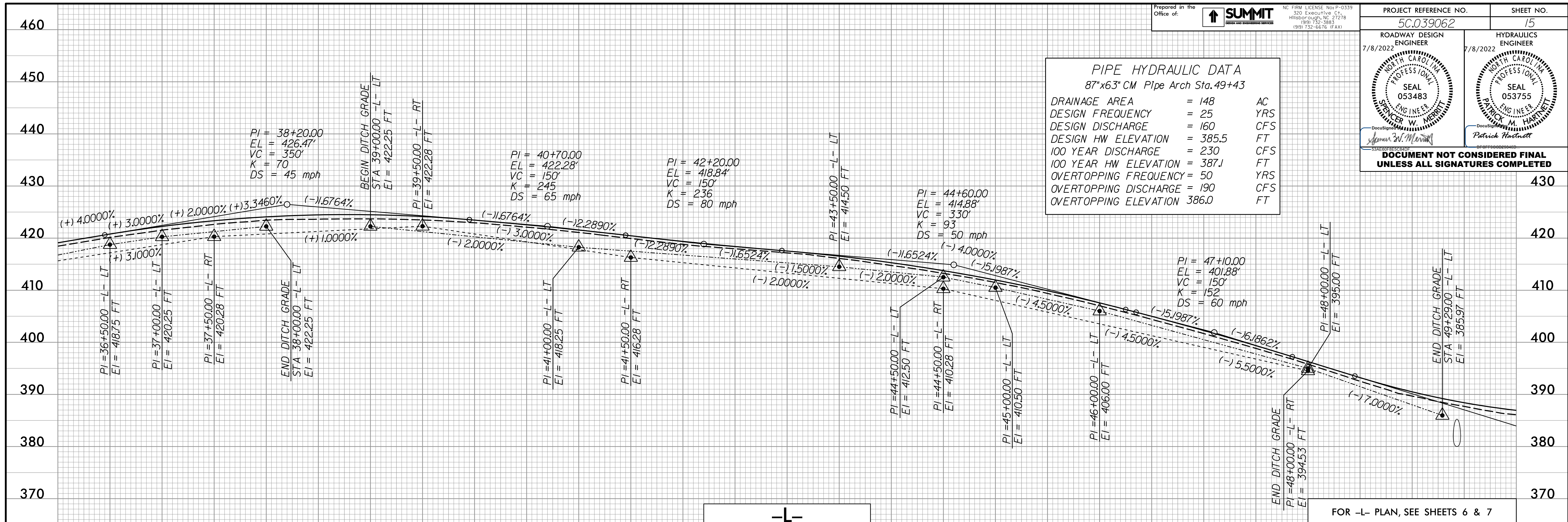


PROJECT REFERENCE NO. <b>5C.039062</b>	SHEET NO. <b>15</b>
ROADWAY DESIGN ENGINEER 7/8/2022	HYDRAULICS ENGINEER 7/8/2022

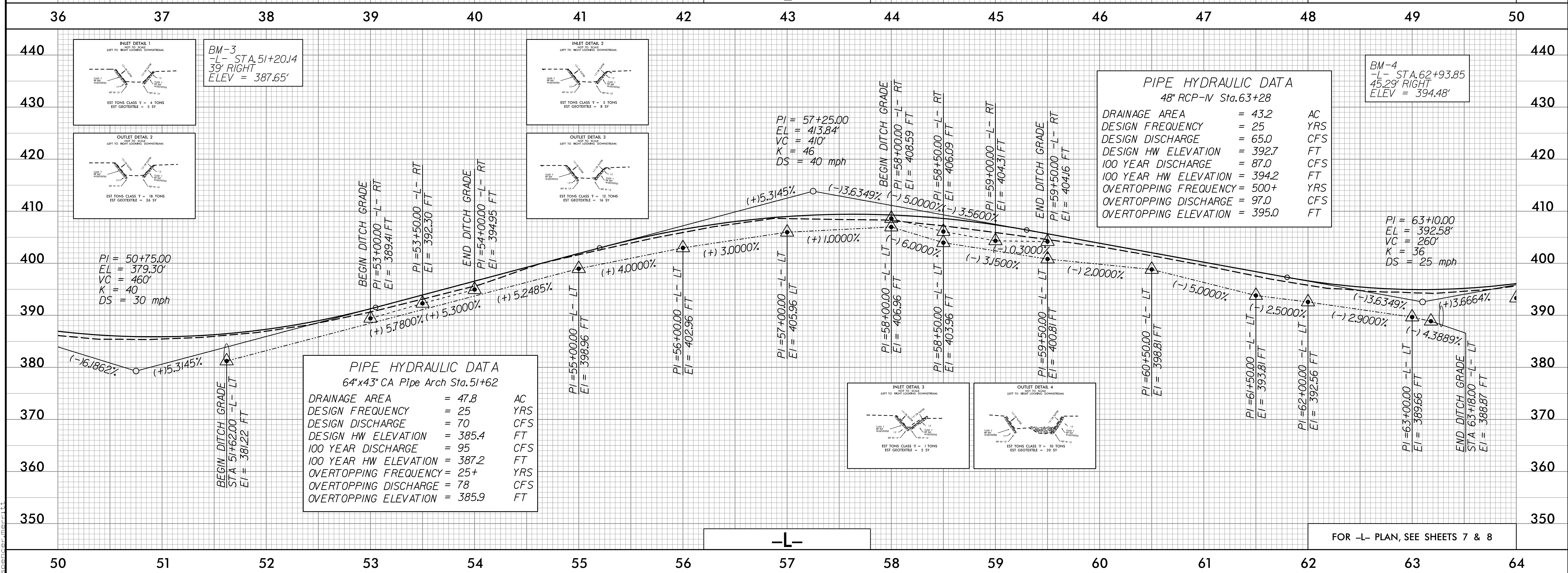
**PIPE HYDRAULIC DATA**  
87"x63" CM Pipe Arch Sta.49+43

DRAINAGE AREA	= 148	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 160	CFS
DESIGN HW ELEVATION	= 385.5	FT
100 YEAR DISCHARGE	= 230	CFS
100 YEAR HW ELEVATION	= 387.1	FT
OVERTOPPING FREQUENCY	= 50	YRS
OVERTOPPING DISCHARGE	= 190	CFS
OVERTOPPING ELEVATION	= 386.0	FT

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



FOR -L- PLAN, SEE SHEETS 6 & 7



**PIPE HYDRAULIC DATA**  
48" RCP-M Sta.63+28

DRAINAGE AREA	= 43.2	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 65.0	CFS
DESIGN HW ELEVATION	= 392.7	FT
100 YEAR DISCHARGE	= 87.0	CFS
100 YEAR HW ELEVATION	= 394.2	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 97.0	CFS
OVERTOPPING ELEVATION	= 395.0	FT

**PIPE HYDRAULIC DATA**  
64"x43" CA Pipe Arch Sta.51+62

DRAINAGE AREA	= 47.8	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 70	CFS
DESIGN HW ELEVATION	= 385.4	FT
100 YEAR DISCHARGE	= 95	CFS
100 YEAR HW ELEVATION	= 387.2	FT
OVERTOPPING FREQUENCY	= 25+	YRS
OVERTOPPING DISCHARGE	= 78	CFS
OVERTOPPING ELEVATION	= 385.9	FT

BM-3  
-L- STA.51+20.14  
39' RIGHT  
ELEV = 387.65'

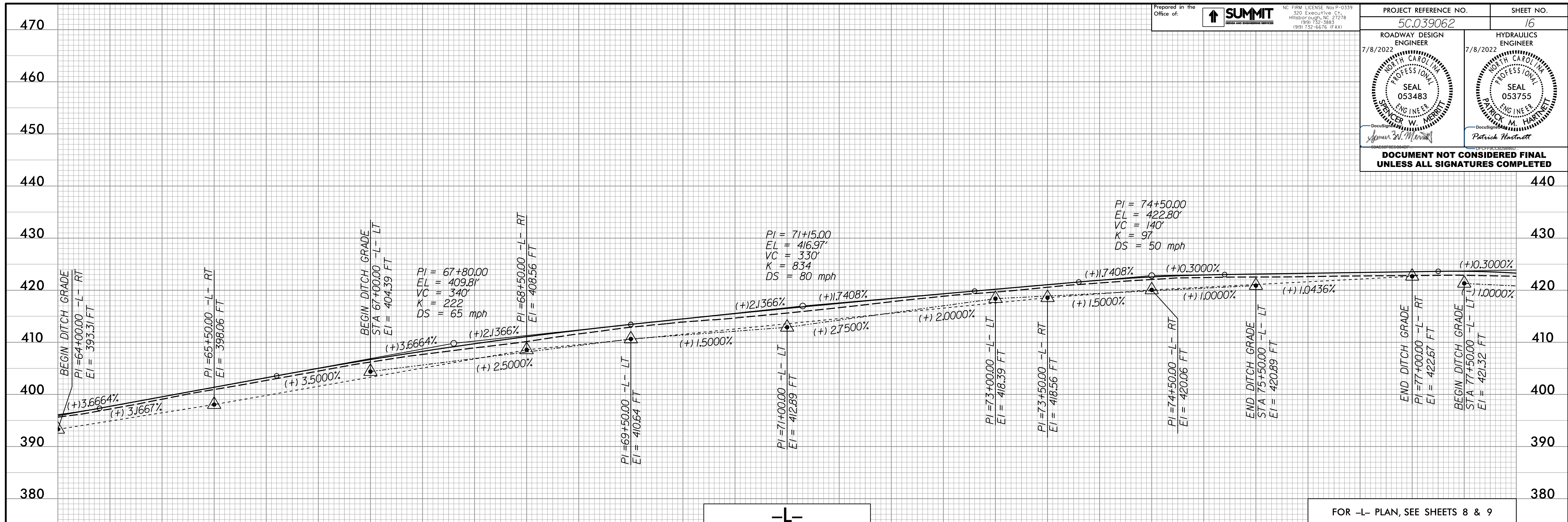
BM-4  
-L- STA.62+93.85  
45.29' RIGHT  
ELEV = 394.48'

FOR -L- PLAN, SEE SHEETS 7 & 8

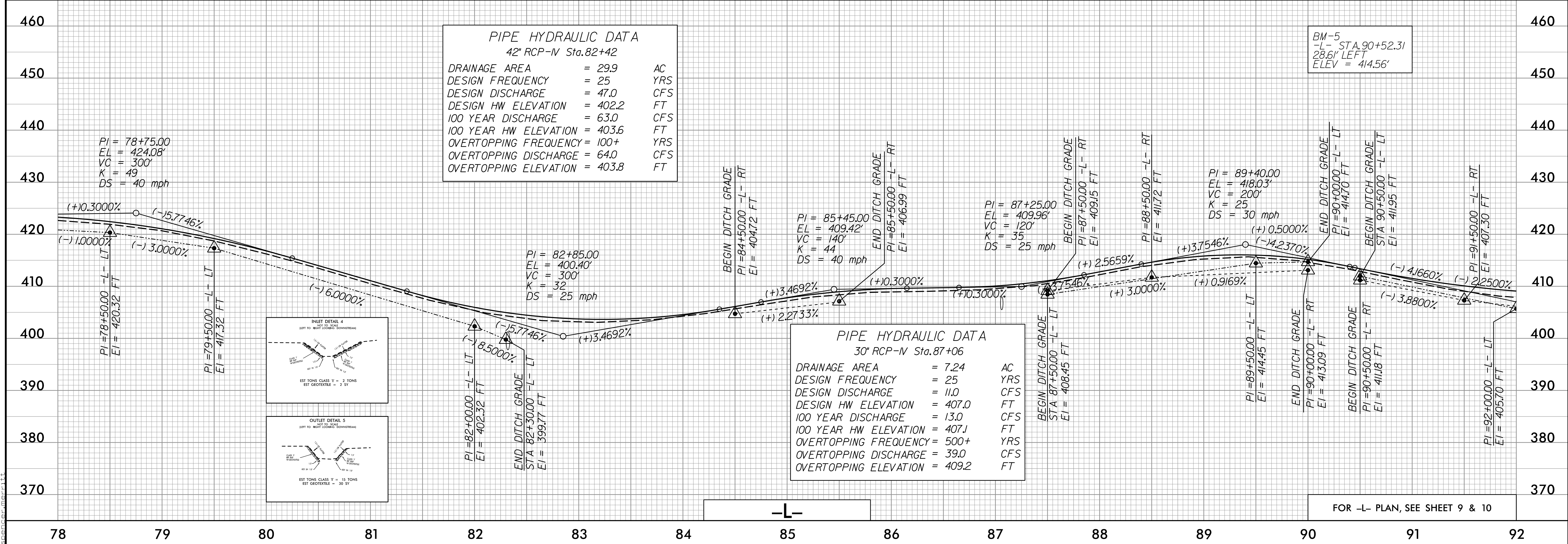
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SPENCER.MERRITT



PROJECT REFERENCE NO. <b>5C.039062</b>		SHEET NO. <b>16</b>
ROADWAY DESIGN ENGINEER 7/8/2022	HYDRAULICS ENGINEER 7/8/2022	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>		



64 65 66 67 68 69 70 71 72 73 74 75 76 77 78



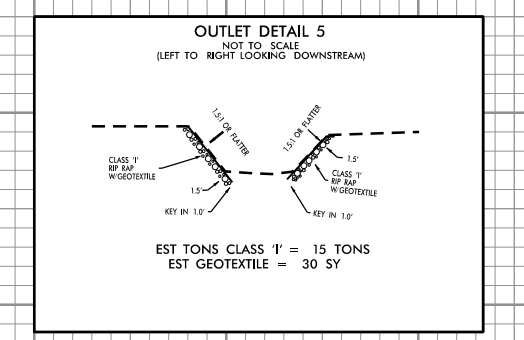
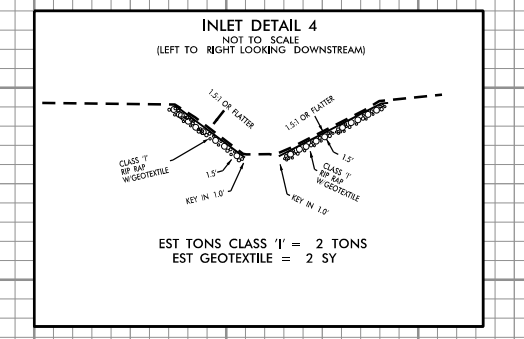
78 79 80 81 82 83 84 85 86 87 88 89 90 91 92

**PIPE HYDRAULIC DATA**  
42" RCP-IV Sta. 82+42

DRAINAGE AREA	= 29.9	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 47.0	CFS
DESIGN HW ELEVATION	= 402.2	FT
100 YEAR DISCHARGE	= 63.0	CFS
100 YEAR HW ELEVATION	= 403.6	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 64.0	CFS
OVERTOPPING ELEVATION	= 403.8	FT

**PIPE HYDRAULIC DATA**  
30" RCP-IV Sta. 87+06

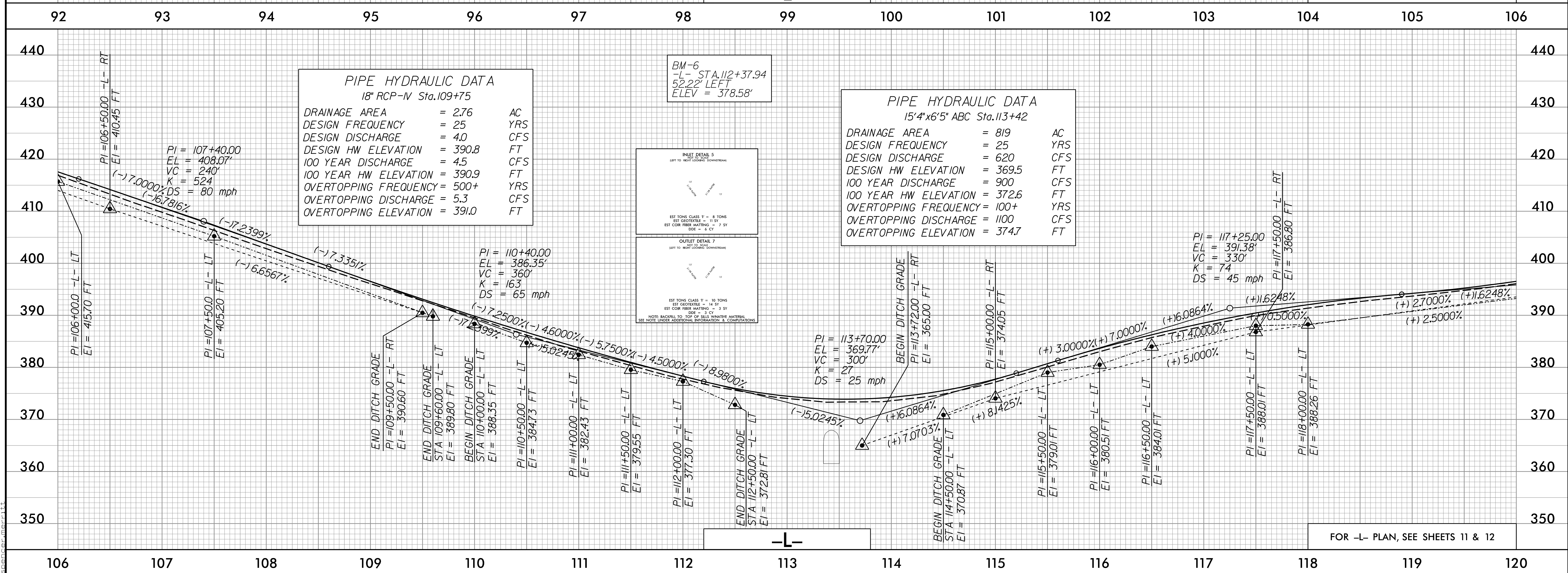
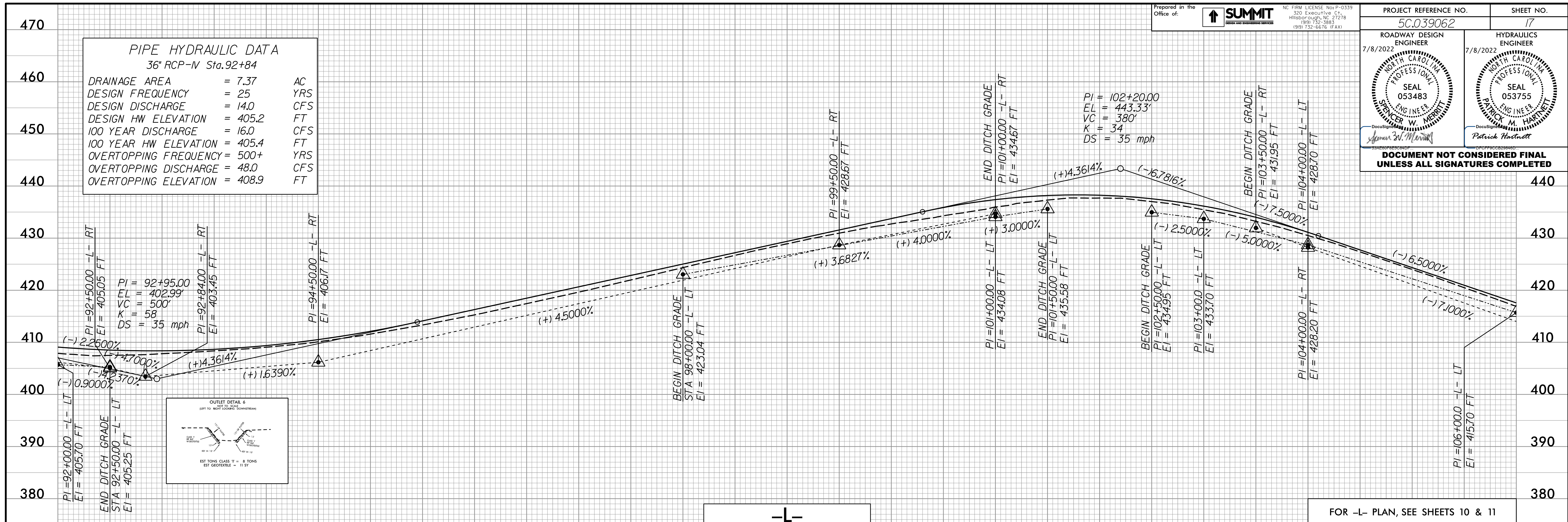
DRAINAGE AREA	= 7.24	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 11.0	CFS
DESIGN HW ELEVATION	= 407.0	FT
100 YEAR DISCHARGE	= 13.0	CFS
100 YEAR HW ELEVATION	= 407.1	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 39.0	CFS
OVERTOPPING ELEVATION	= 409.2	FT



07-JUL-2022 16:54  
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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

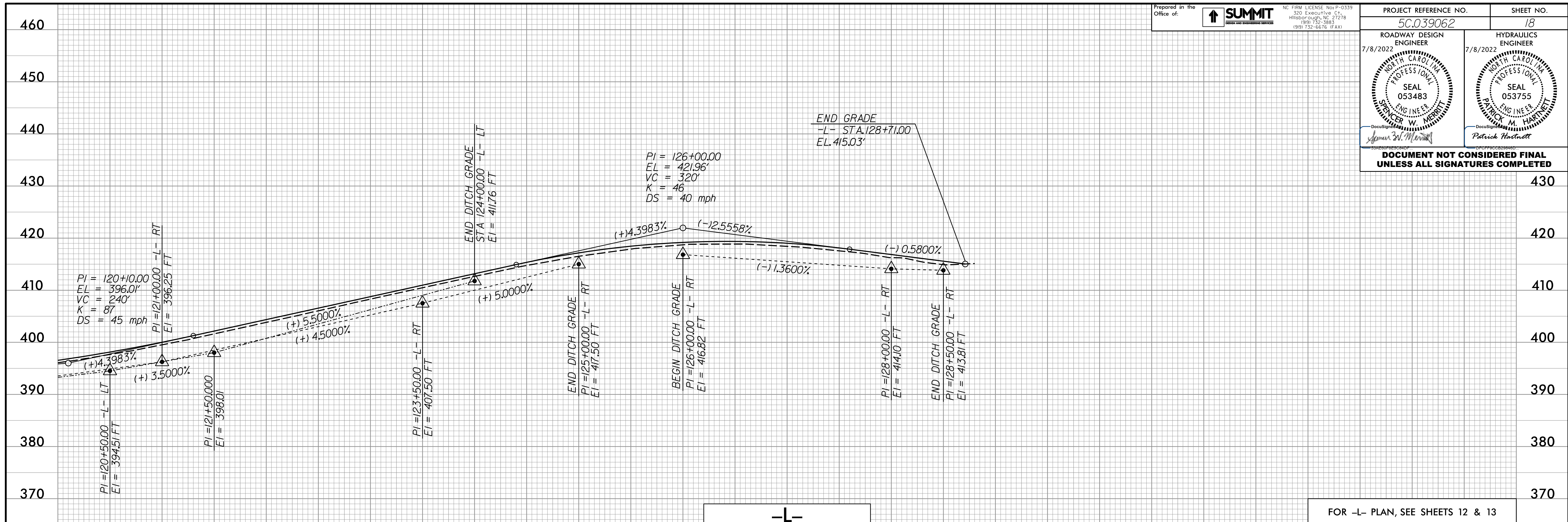


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spencer.merritt



PROJECT REFERENCE NO. <b>5C.039062</b>		SHEET NO. <b>18</b>	
ROADWAY DESIGN ENGINEER 7/8/2022		HYDRAULICS ENGINEER 7/8/2022	
<p>DocuSign <i>Spencer W. Merritt</i> DocuSign <i>Patrick M. Hartnett</i></p>			

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



**-L-**

FOR -L- PLAN, SEE SHEETS 12 & 13

07-JUL-2022 16:54  
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spencer.merritt

# SURVEY CONTROL SHEET 5C.039062

## GRANVILLE COUNTY SR 1409

### (CONWAY ELLIOT RD)

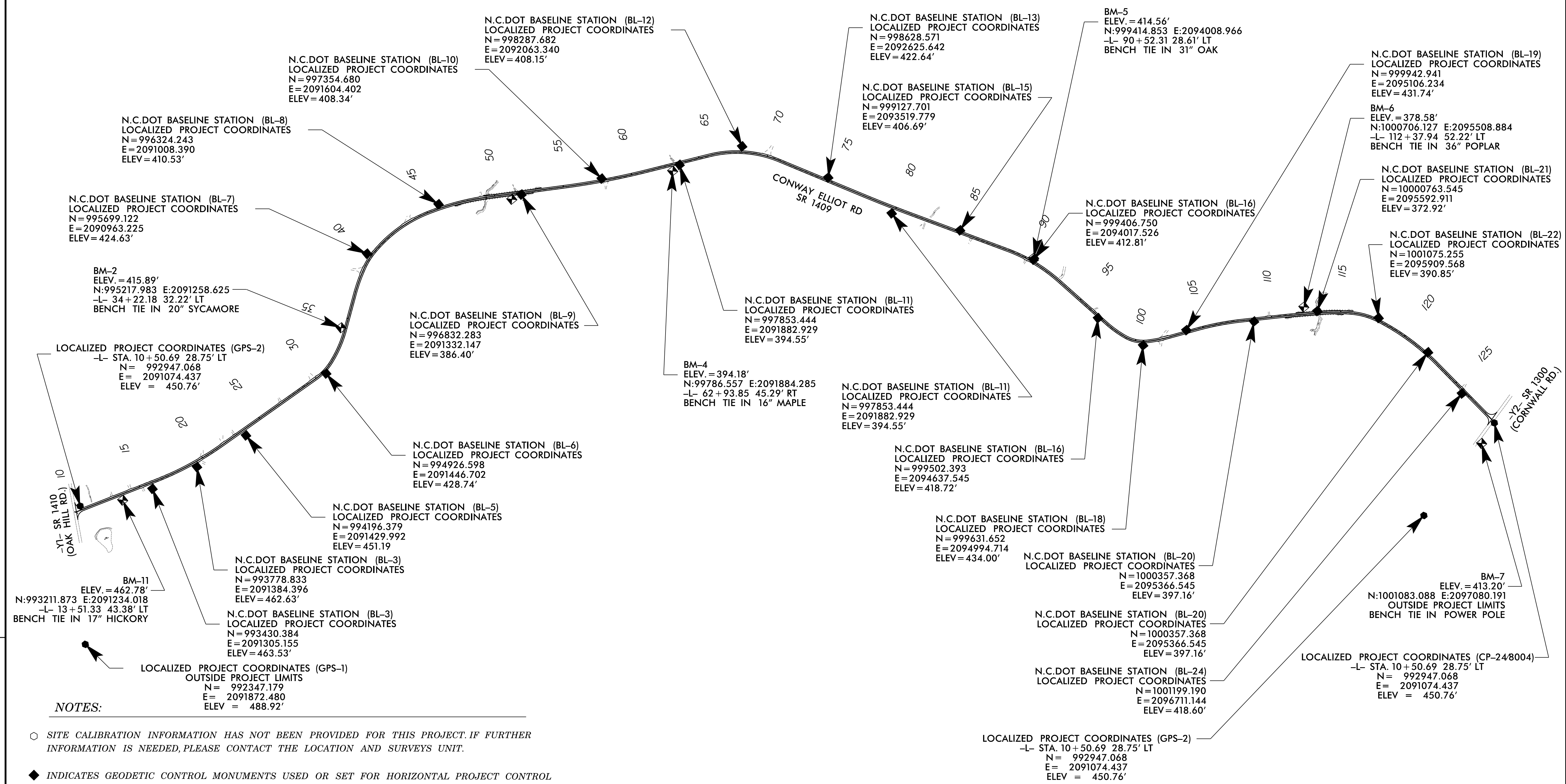
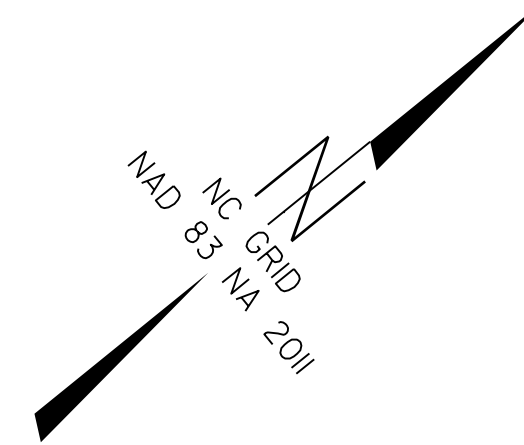
**DATUM DESCRIPTION**

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "GPS-2" WITH NAD 83/NSRS 2011 STATE PLANE GRID COORDINATES OF NORTHING: 992947.0680 (ft) EASTING: 2091074.4370 (ft) ELEVATION: 450.76 (ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.000090300 (1/X= 0.999909708)

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS-2" TO EX. PK IS  
 S 12°17'05" E 58.45 (ft)

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



**NOTES:**

- 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.
- INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR VERTICAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT. PROJECT CONTROL ESTABLISHED USING GNSS (GLOBAL NAVIGATION SATELLITE SYSTEM).

NOTE: DRAWING NOT TO SCALE

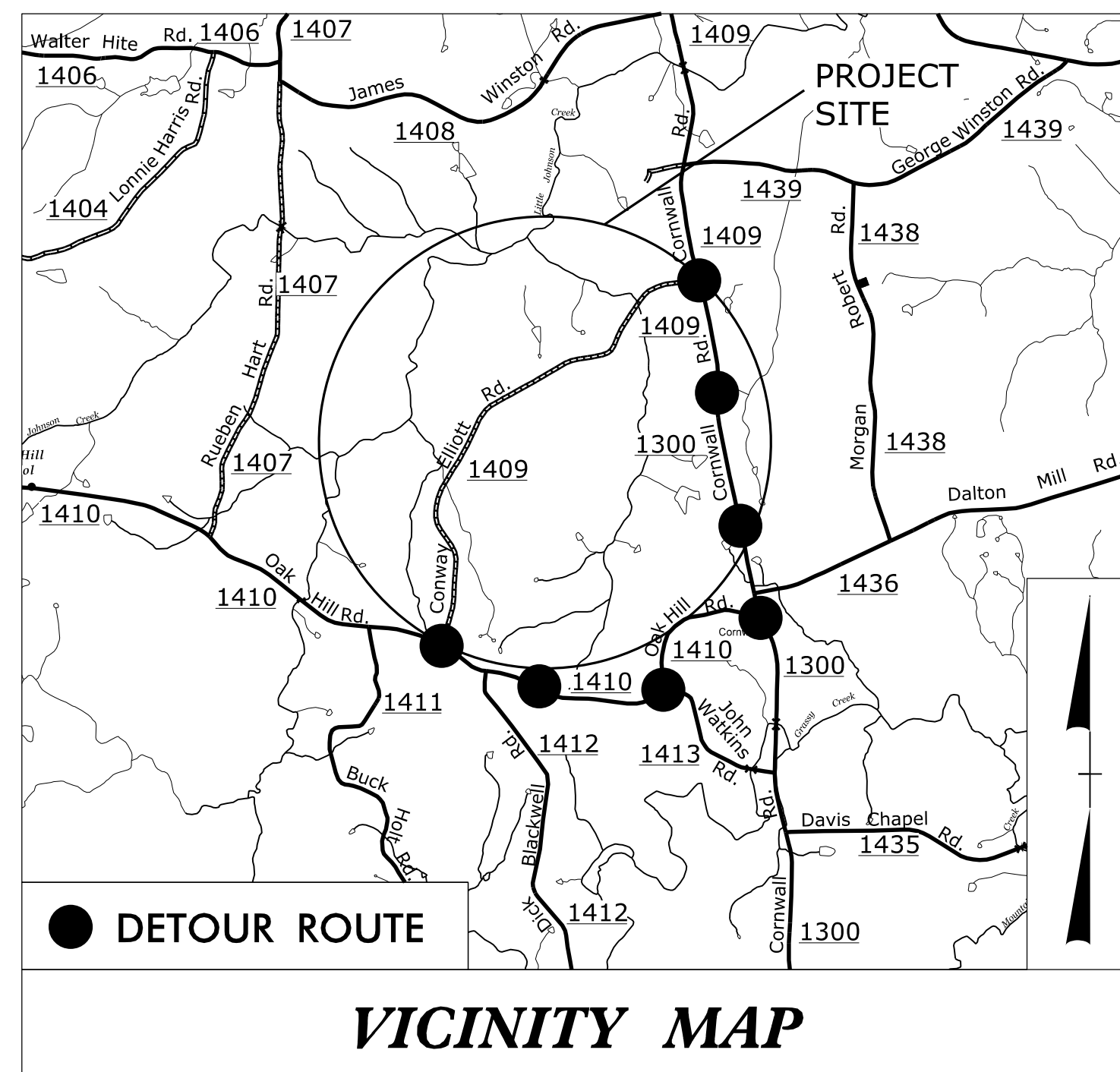
REVISIONS

07-JUL-2022, IT-33  
 Conway 2022 RW-1.dwg  
 Spencer, Merritt



**TIP PROJECT: 5C.039062**

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



THE CONTRACTOR MAY SUBMIT PLANS TO UTILIZE DIKE AND PUMP-AROUND OPERATION. PLANS MUST BE REVIEWED AND APPROVED BY NCDOT. AN ADEQUATE PUMP SIZE AND TYPE MUST BE SPECIFIED ON THE PLANS. PLANS MUST BE PREPARED BY AN NCDOT LEVEL III CERTIFIED DESIGNER.

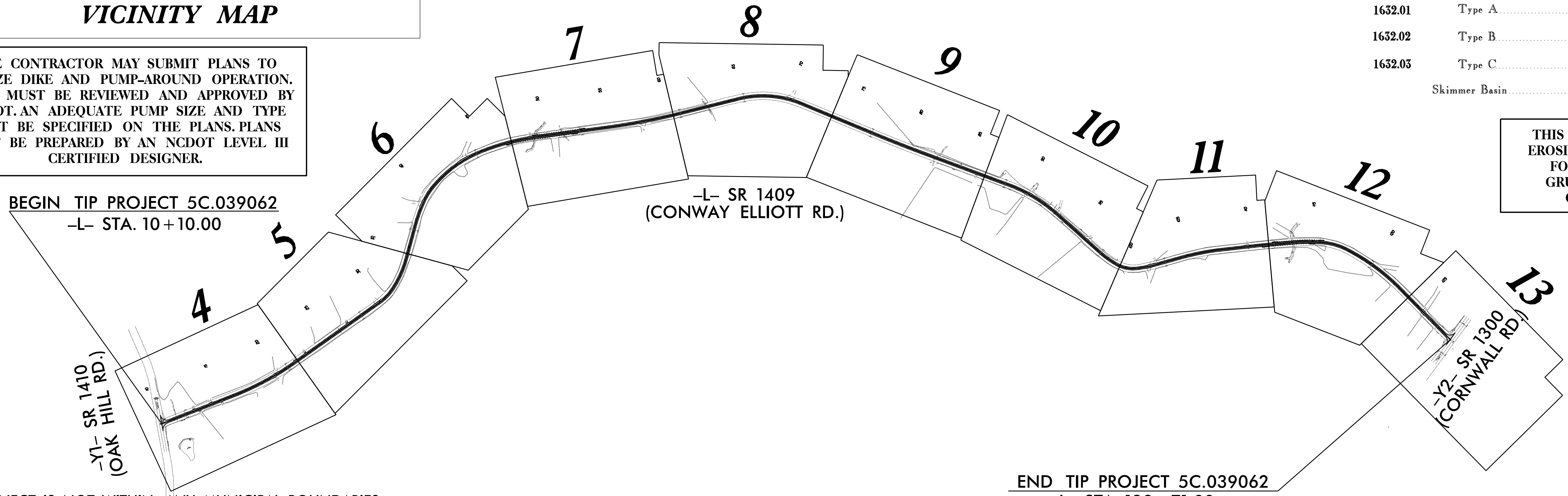
# PLAN FOR PROPOSED ROADWAY EROSION CONTROL GRANVILLE COUNTY

**LOCATION: CONWAY ELLIOTT RD (SR 1409) FROM OAK HILL RD (SR 1410)  
TO CORNWALL RD (SR 1300).**

**TYPE OF WORK: GRADING, DRAINAGE & PAVING.**



**VICINITY MAP**



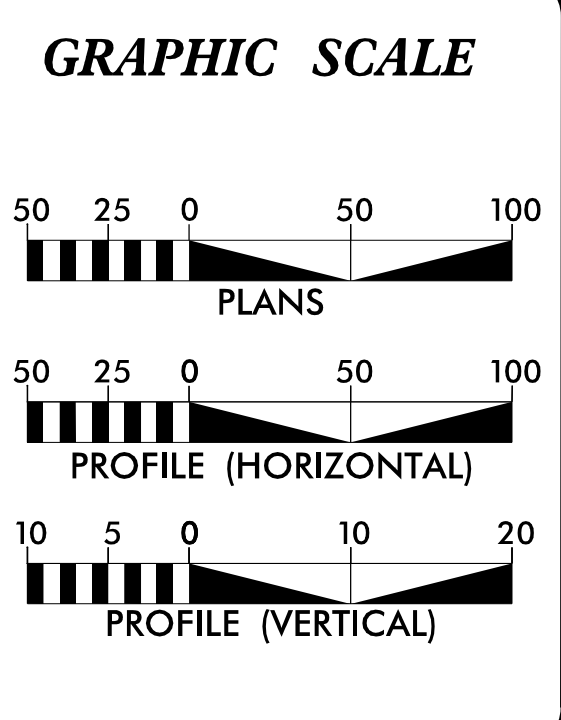
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.  
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	5C.039062	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

**EROSION AND SEDIMENT CONTROL MEASURES**

Sed. #	Description	Symbol
1630.05	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	SB
1633.01	Temporary Rock Silt Check Type-A	RS
1633.02	Temporary Rock Silt Check Type-B with Matting and Polyacrylamide (PAM)	RS
1633.02	Temporary Rock Silt Check Type-B	RS
1633.02	Wattle / Coir Fiber Wattle	W
1635.01	Rock Pipe Inlet Sediment Trap Type-A	RP
1635.02	Rock Pipe Inlet Sediment Trap Type-B	RP
1630.04	Stilling Basin	SB
1630.06	Special Stilling Basin	SB
Rock Inlet Sediment Trap:		
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	SB

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



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.



Prepared in the Office of:  
**100 East Six Forks Rd.  
Raleigh, NC 27609**  
Voice: (919)322-0115  
Fax: (919)732-6676  
www.summitde.net

Designed by:  
**PATRICK HARTNETT** 4124  
NAME LEVEL III CERTIFICATION NO.

Roadway Standard Drawings

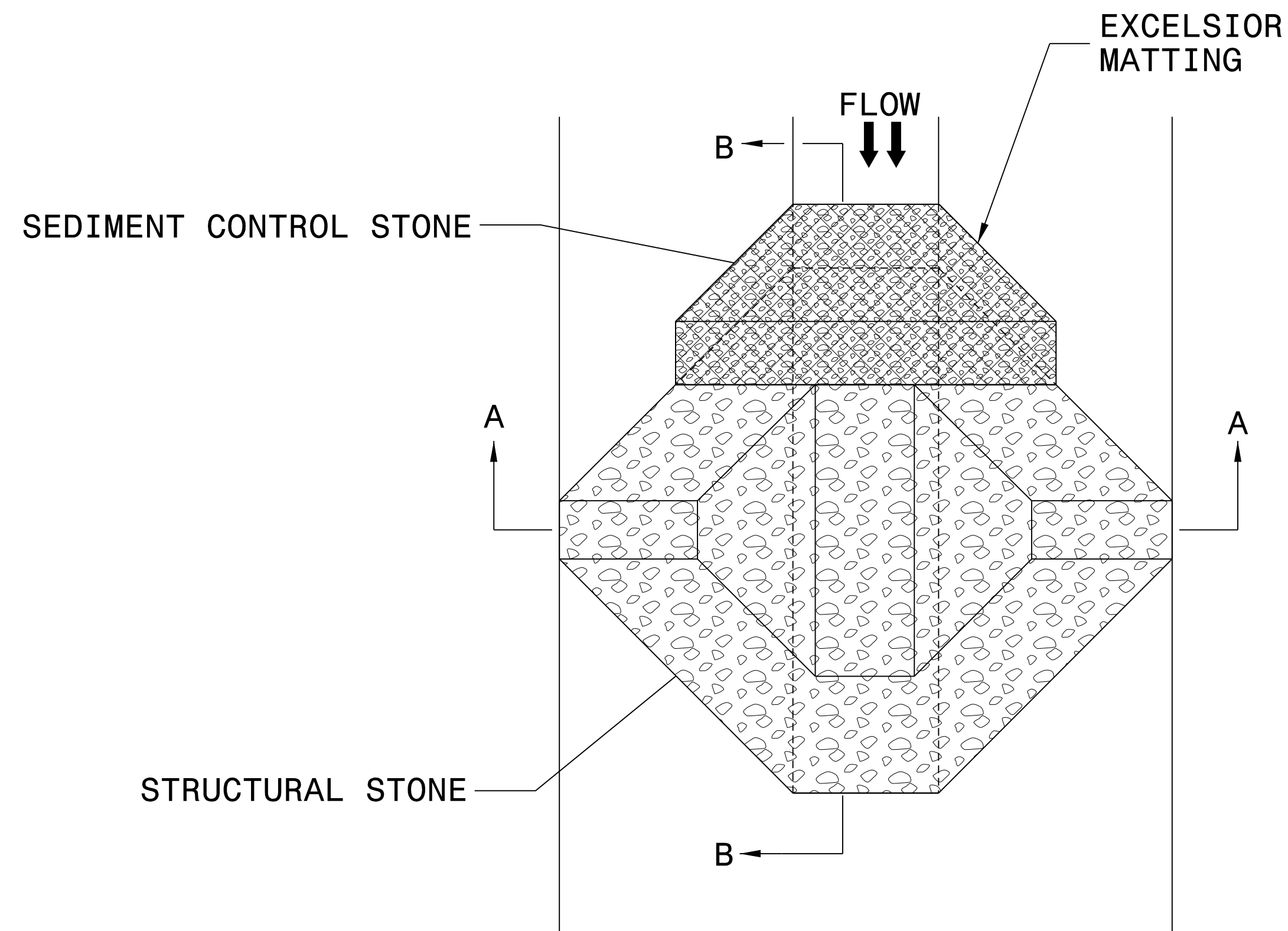
The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2018 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

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 Silt 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	

I:\20-03-AUG-2022-1143-Secondary Rd Maint\Site 6 - Conway Elliott\_Rd\Design\Environmental\Design\Conway\_EC.tah.dgn

PROJECT REFERENCE NO. 5C.039062	SHEET NO. EC-2
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



PLAN

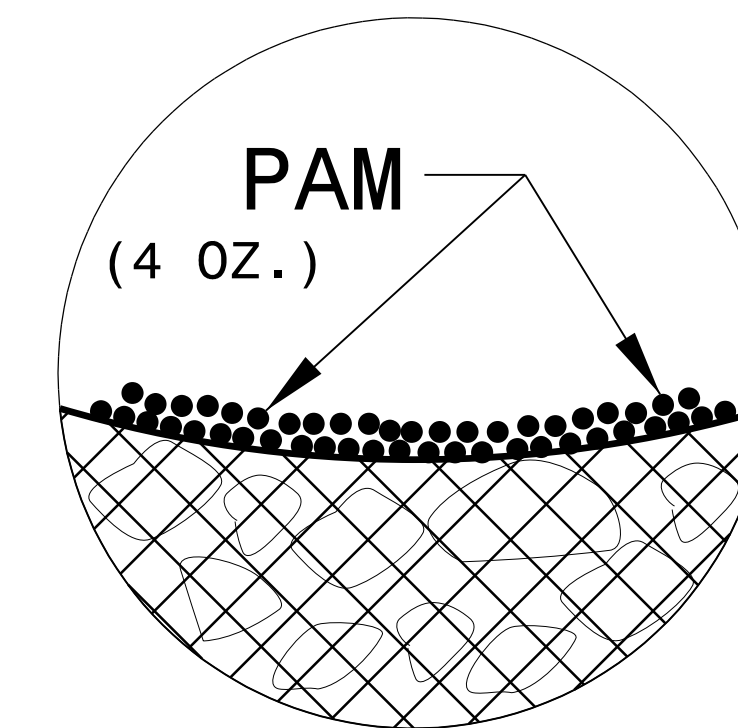
**NOTES:**

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

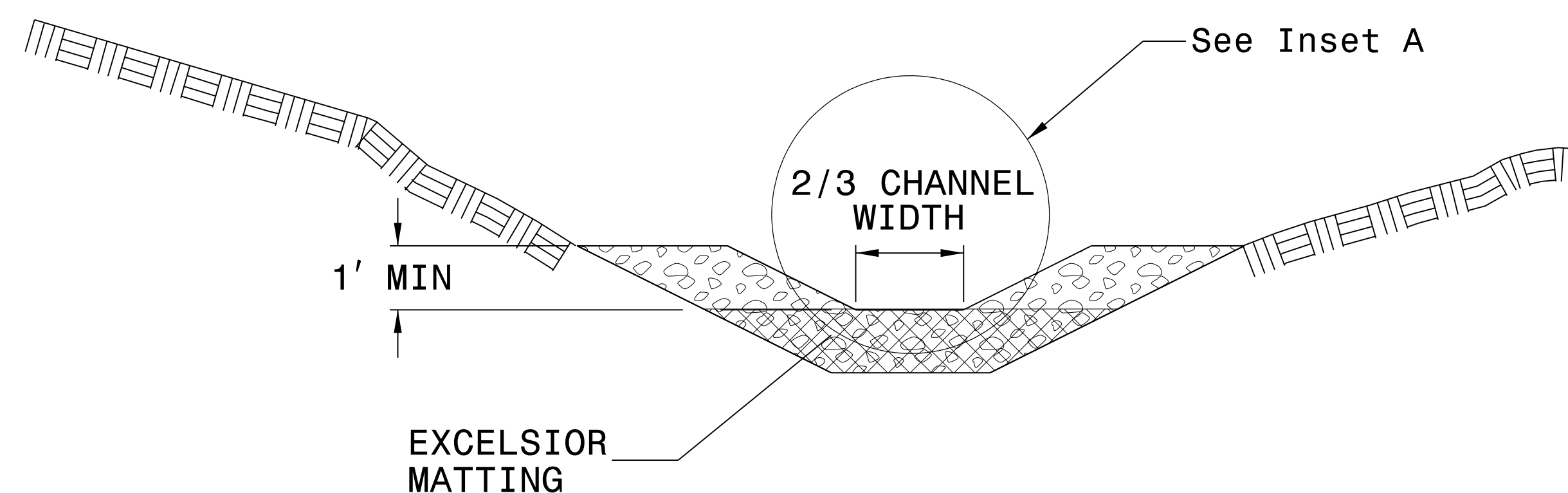
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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.

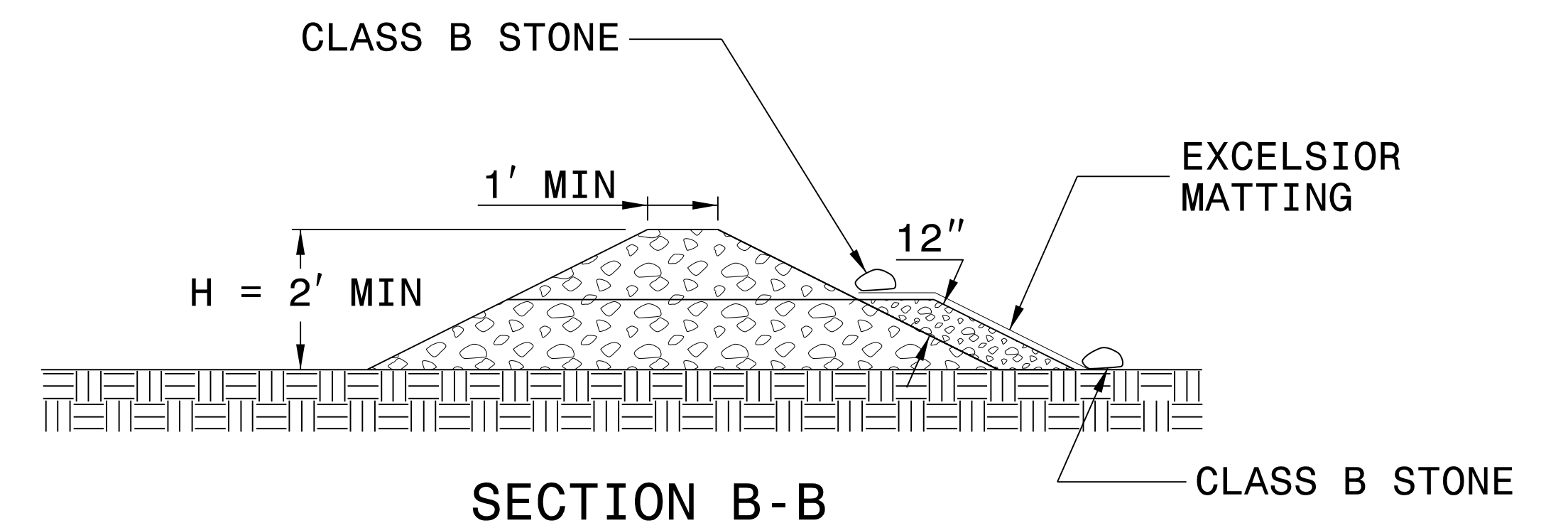
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A



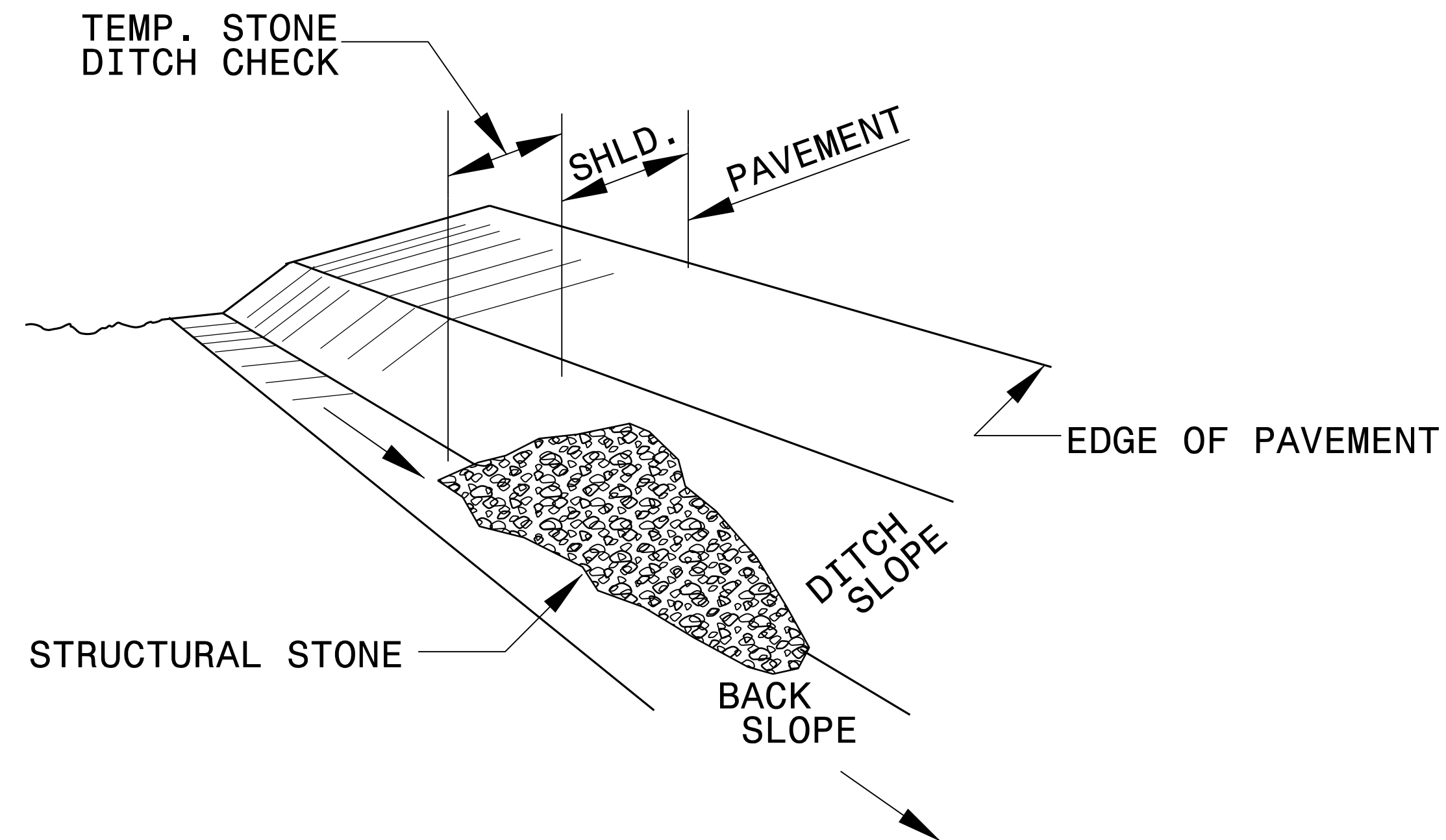
SECTION B-B

NOT TO SCALE



PROJECT REFERENCE NO. 5C.039062	SHEET NO. EC-2A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

# TEMPORARY ROCK SILT CHECK TYPE 'B' DETAIL

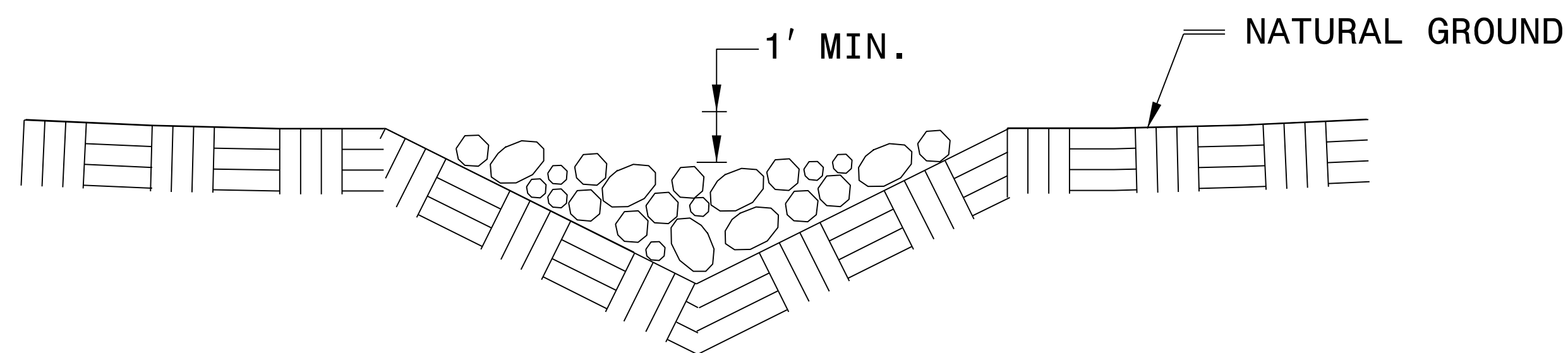


**ISOMETRIC VIEW**

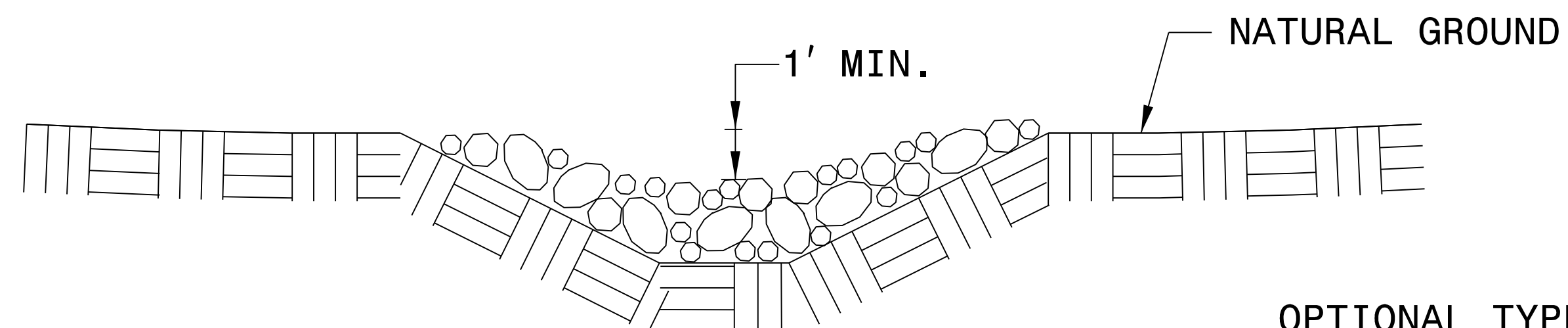
**NOTES:**

USE CLASS 'B' EROSION CONTROL STONE FOR STRUCTURAL STONE.

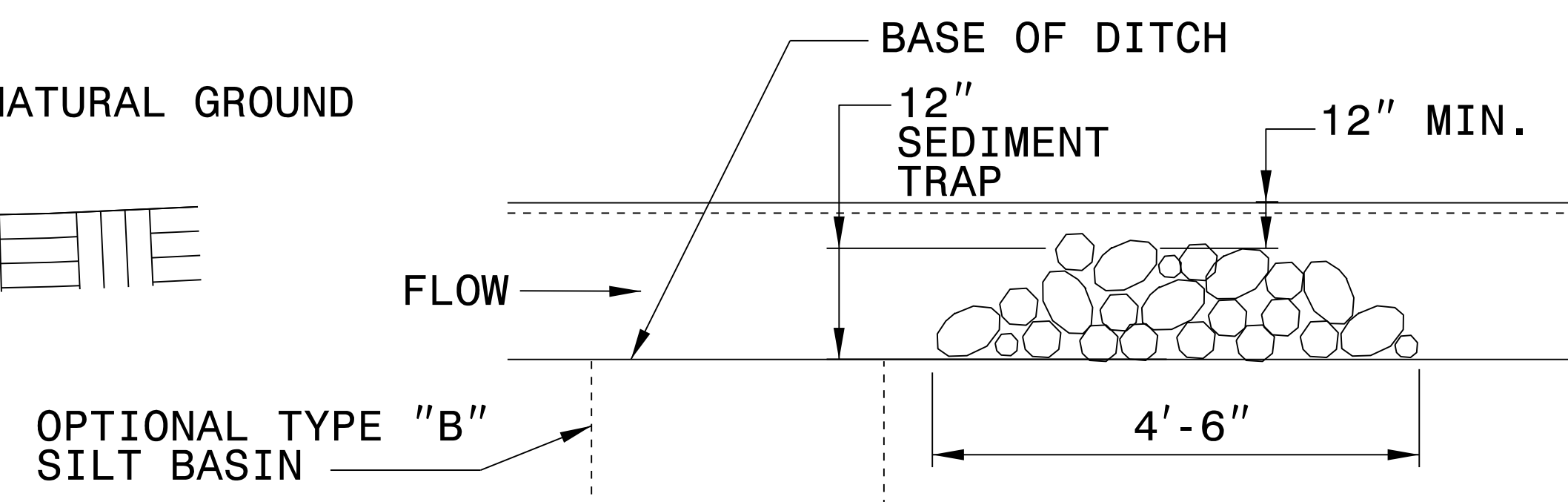
THE ENGINEER MAY DIRECT THE OPTION OF CLASS "A" STONE FOR SITES HAVING LESS THAN ONE (1) ACRE DRAINAGE AREA AND A DITCH GRADE LESS THAN 3%.



**CROSS SECTION  
VEE DITCH**



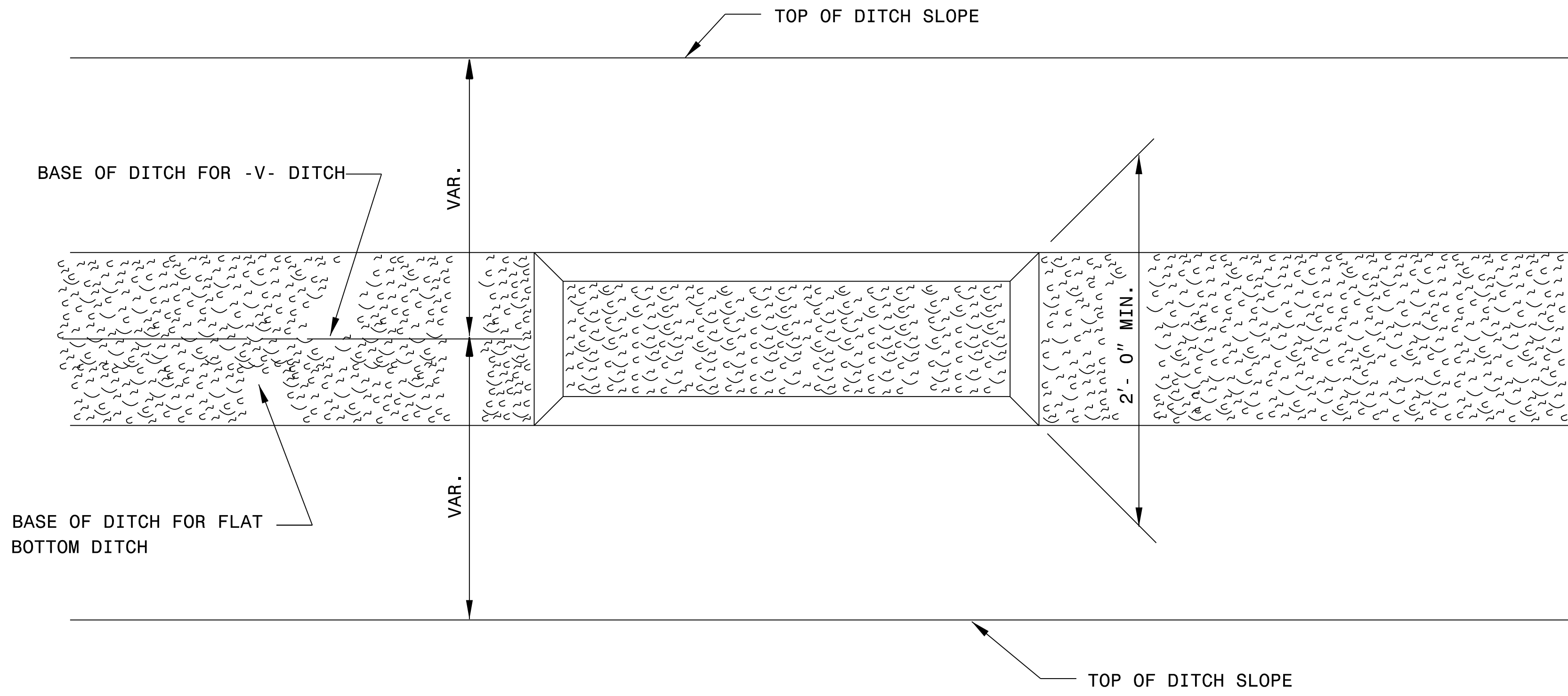
**CROSS SECTION  
TRAPEZOIDAL DITCH**



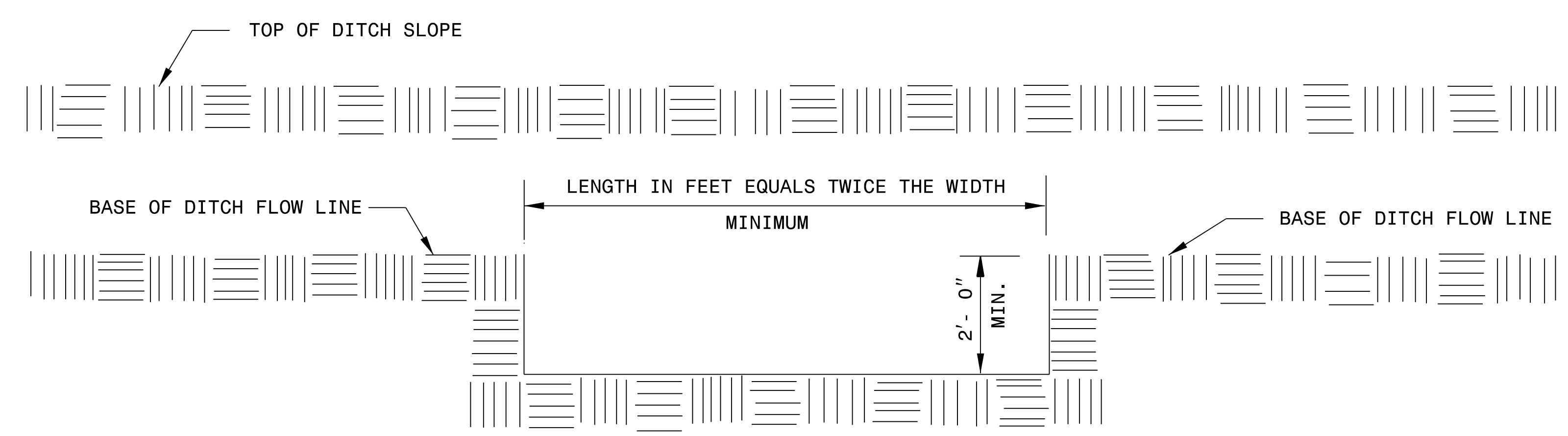
**ELEVATION VIEW**

PROJECT REFERENCE NO. 5C.039062	SHEET NO. EC-2C
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

# SILT BASIN TYPE 'B'



PLAN



ELEVATION



DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

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PROJECT REFERENCE NO. 5C.039062	SHEET NO. EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

# 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.

DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO. 5C.039062	SHEET NO. EC-3A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**SOIL STABILIZATION SUMMARY SHEET**

**MATTING FOR EROSION CONTROL**

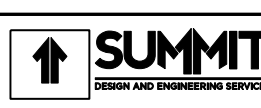
CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	13+00	19+50	LT	390
	-L-	20+50	22+50	LT	120
	-L-	26+09	29+50	LT	105
	-L-	30+50	31+50	LT	30
	-L-	34+50	38+00	LT	125
	-L-	39+00	44+50	LT	195
	-L-	55+00	58+00	LT	105
	-L-	58+50	60+50	LT	70
	-L-	61+50	63+00	LT	75
	-L-	67+00	75+50	LT	390
	-L-	77+50	79+50	LT	70
	-L-	87+50	89+50	LT	50
	-L-	98+00	101+50	LT	140
	-L-	102+50	103+00	LT	15
	-L-	115+50	116+00	LT	20
	-L-	117+50	121+50	LT	160
			SUBTOTAL		2,060
	ADDITIONAL MATTING TO BE INSTALLED AS DIRECTED BY ENGINEER				0
			TOTAL		*SEE EC-3B
			SAY		*SEE EC-3B

**PERMANENT SOIL REINFORCEMENT MAT**

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	11+37	13+00	LT	100
	-L-	22+50	23+50	LT	30
	-L-	31+50	34+43	LT	90
	-L-	44+50	49+00	LT	170
	-L-	51+62	55+00	LT	120
	-L-	58+00	58+50	LT	20
	-L-	60+50	61+50	LT	50
	-L-	63+00	63+18	LT	10
	-L-	79+50	82+00	LT	90
	-L-	90+50	92+00	LT	40
	-L-	103+00	107+50	LT	180
	-L-	110+50	112+00	LT	50
	-L-	116+00	117+50	LT	60
	-L-	121+50	124+00	LT	100
			SUBTOTAL		1,110
	ADDITIONAL PSRM TO BE INSTALLED				0
			TOTAL		*SEE EC-3B
			SAY		*SEE EC-3B

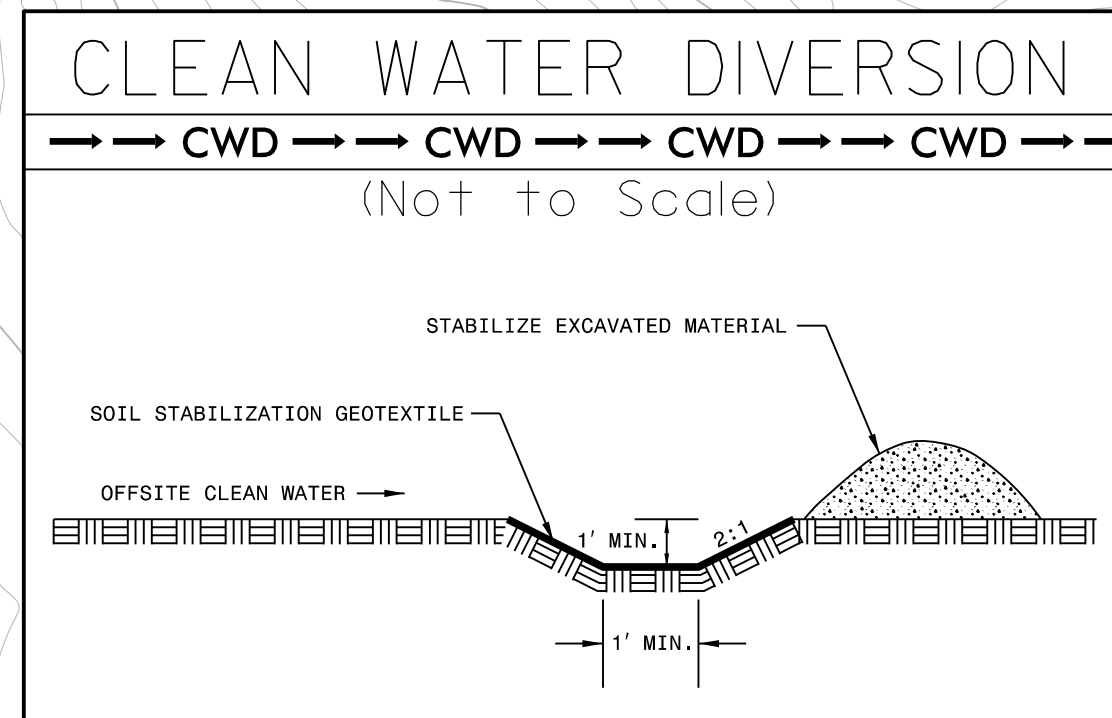
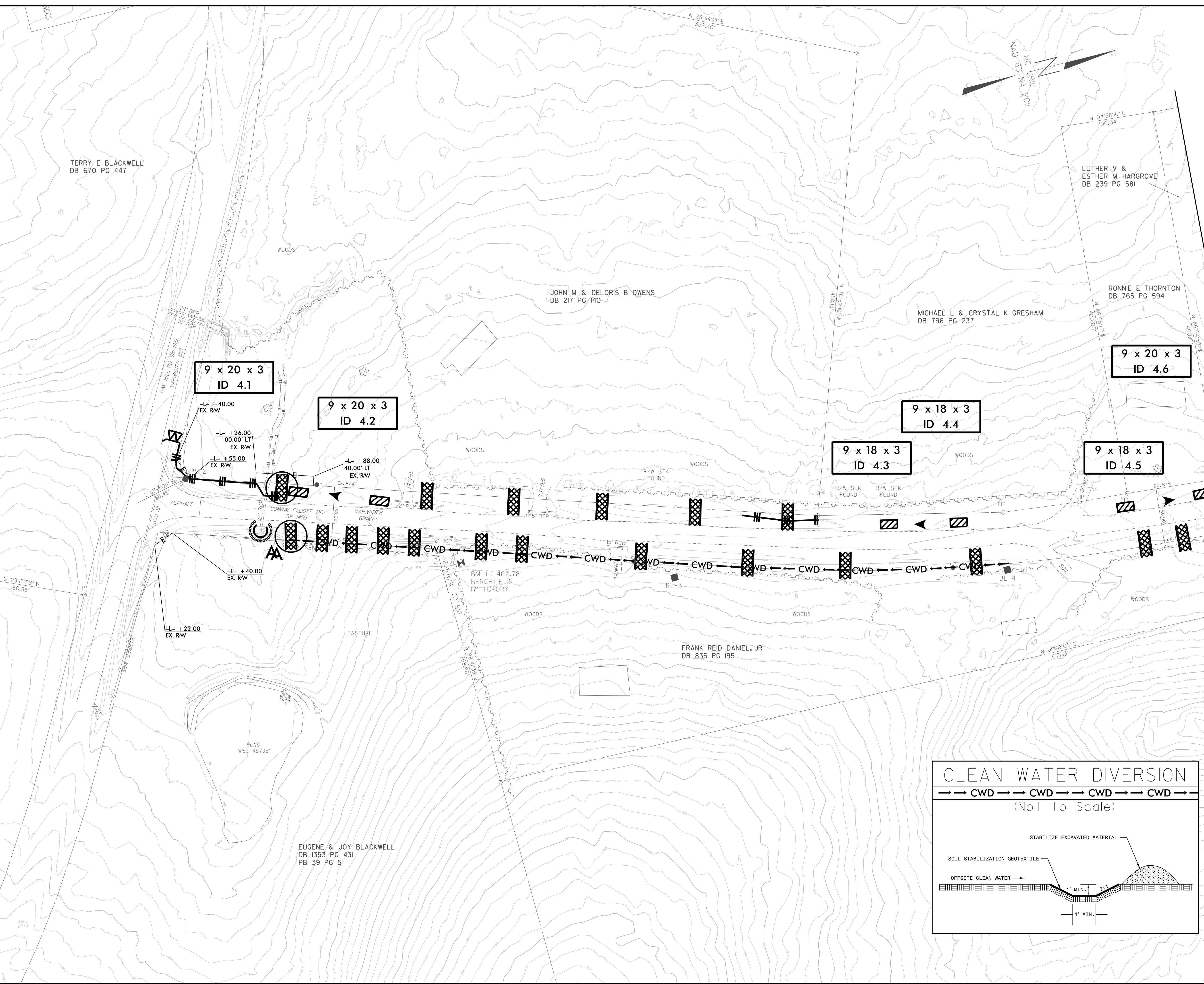




PROJECT REFERENCE NO. 5C.039062	SHEET NO. EC-4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	
Prepared in the Office of:	 <small>NC FIRM LICENSE No. P-0339 320 Executive Ct. Hillsborough, NC 27278 (919) 532-3668 (919) 732-6676 (FAX)</small>

CLEARING AND GRUBBING  
EROSION CONTROL FOR  
CONSTRUCTION SHEET 4


8/17/99  
 REVISIONS  
 03-AUG-2022 11:47  
 03-2020 03-0300.000 NCDOT 2020 Statewide CEI Services\Transportation\20-0300.015 Division 5 Secondary Rd Maint\Site 6 - Conway Elliott Rd\Design\Environmental\Design\Conway-EC-4.C6.dgn  
 \$\$\$\$\$\$ USE CARE \$\$\$\$\$\$



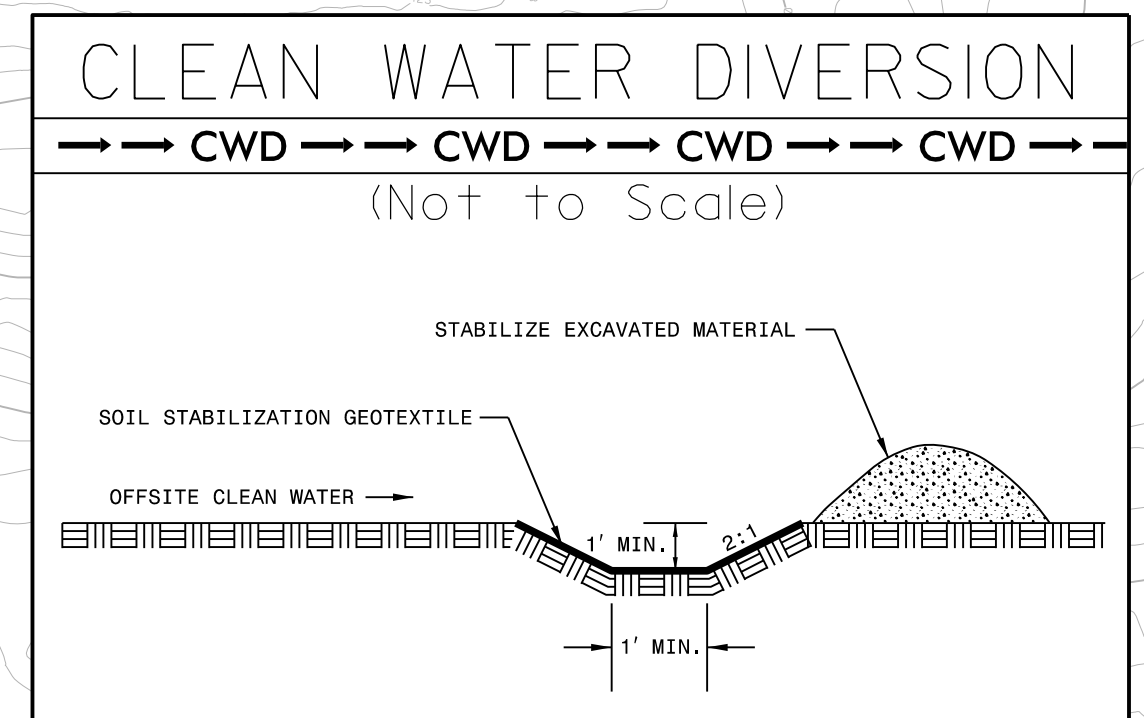
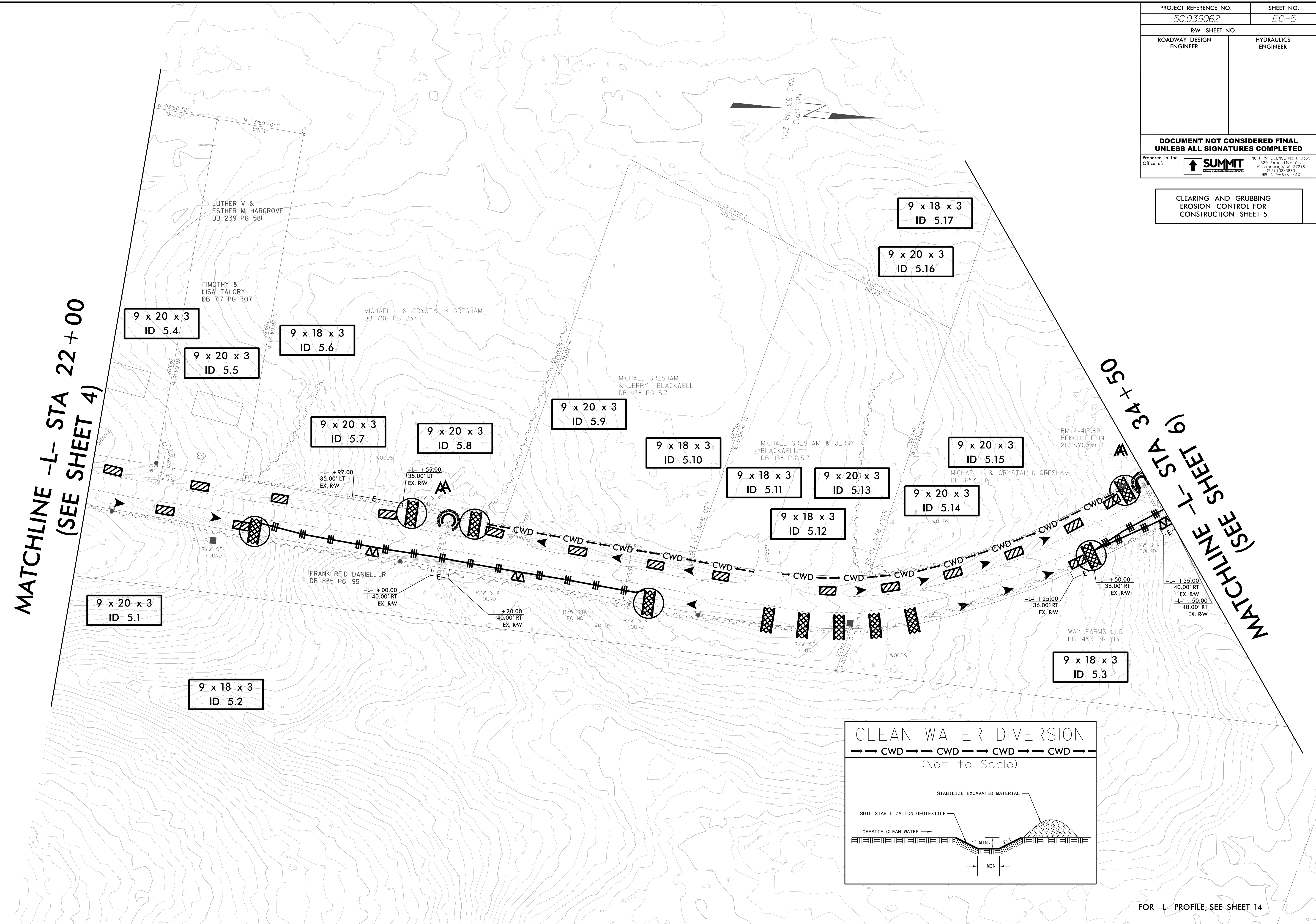
**MATCHLINE -L- STA 22+00  
(SEE SHEET 5)**

FOR -L- PROFILE, SEE SHEET 14




PROJECT REFERENCE NO. 5C.039062	SHEET NO. EC-5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	
Prepared in the Office of:	 <small>NC FIRM LICENSE No. P-0339 320 Executive Ct. Hillsborough, NC 27278 (919) 332-3663 (919) 732-6676 (FAX)</small>
CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 5	

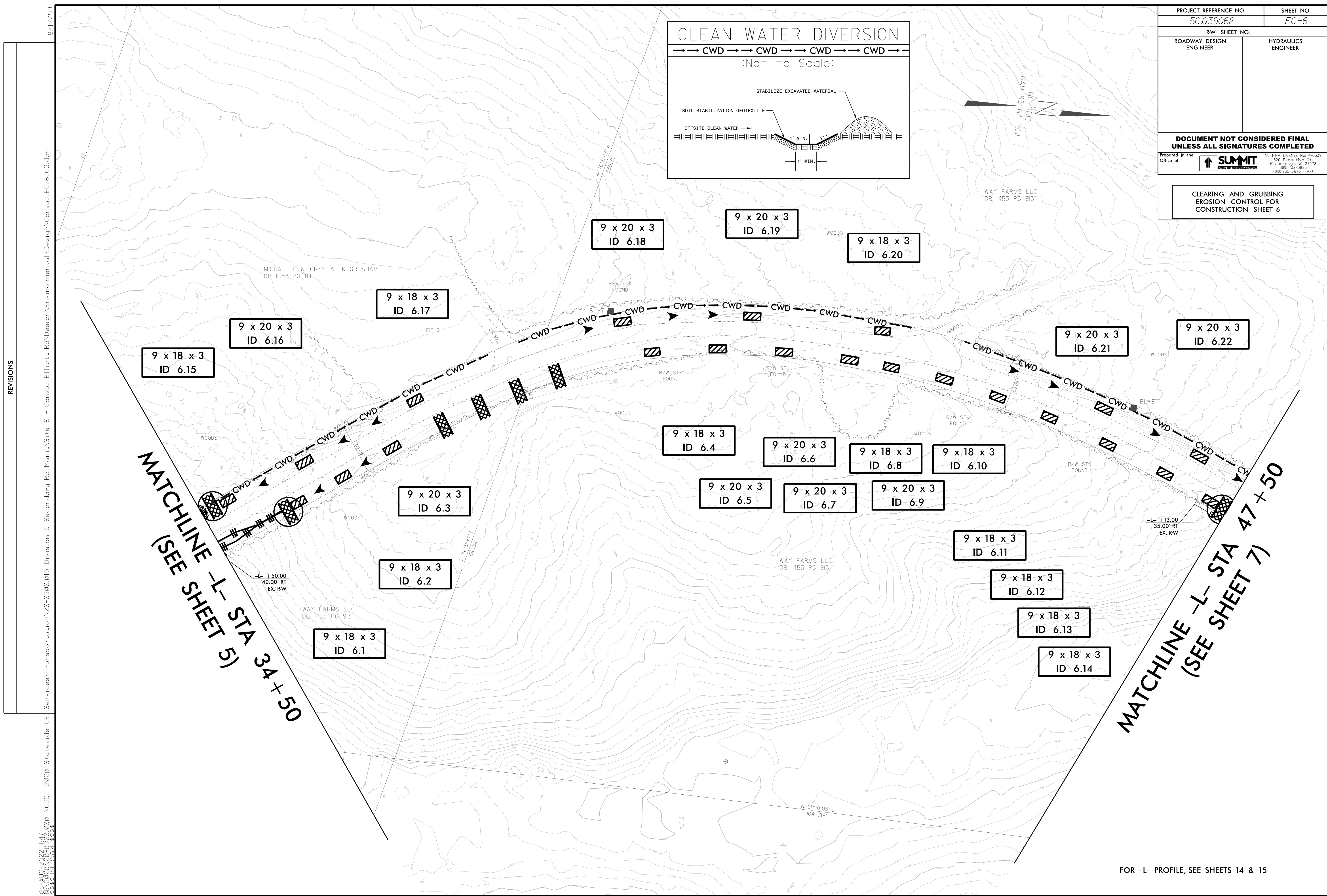
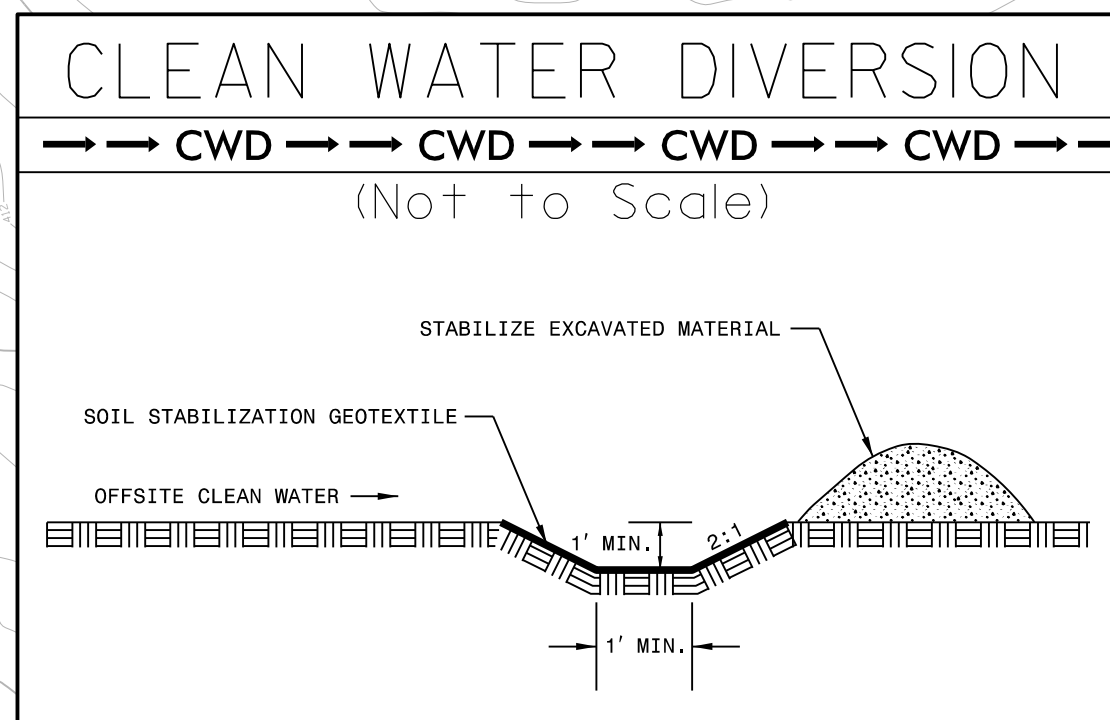
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 \$\$\$\$\$\$ USE \$\$\$\$\$\$



FOR -L- PROFILE, SEE SHEET 14



PROJECT REFERENCE NO. 5C.039062	SHEET NO. EC-6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	
Prepared in the Office of:	 <small>NC FIRM LICENSE No. P-0339 320 Executive Ct. Hillsborough, NC 27278 (919) 332-3663 (919) 732-6676 (FAX)</small>
CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 6	



REVISIONS

8/17/19  
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MATCHLINE -L- STA 34+50  
(SEE SHEET 5)


MATCHLINE -L- STA 47+50  
(SEE SHEET 7)

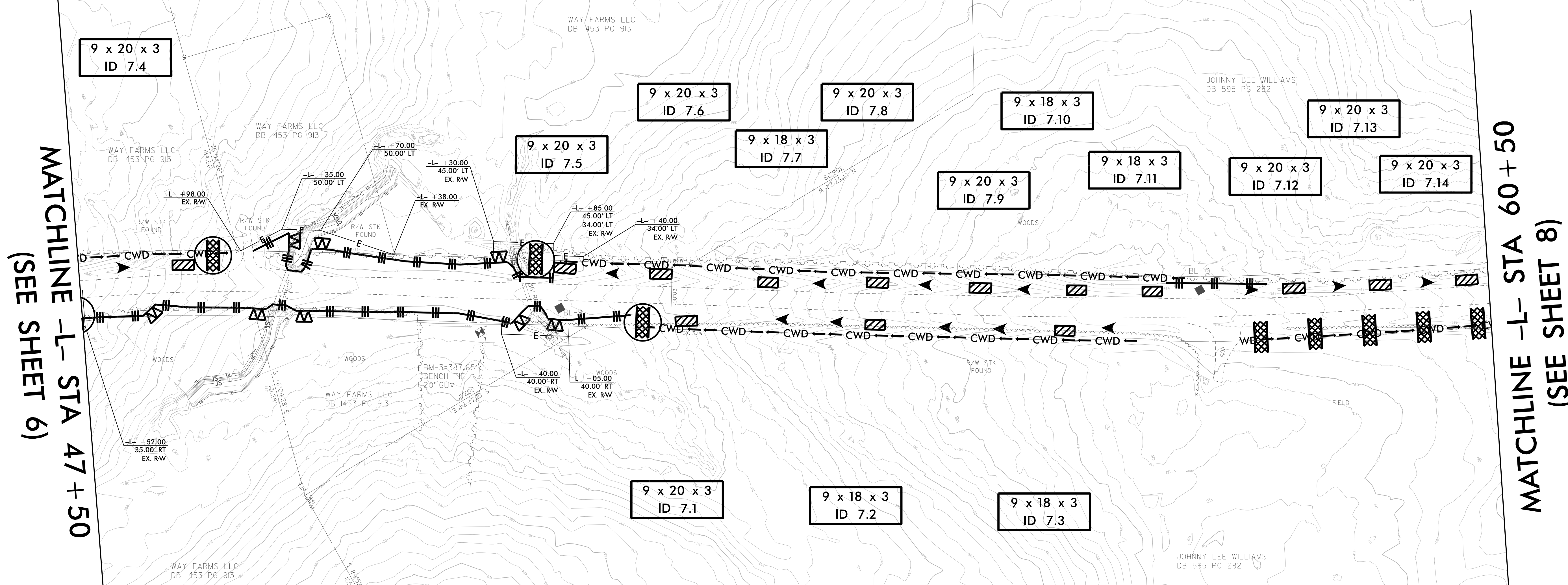
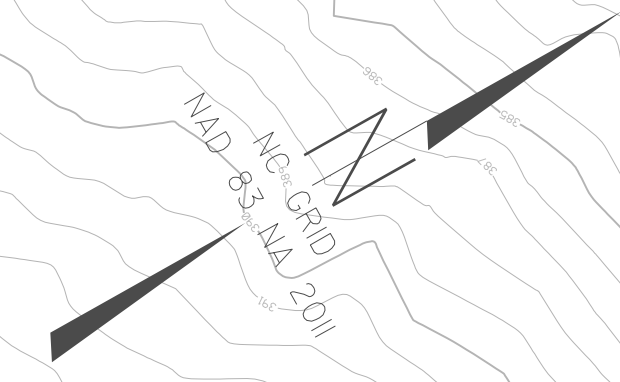
FOR -L- PROFILE, SEE SHEETS 14 & 15



8/17/99

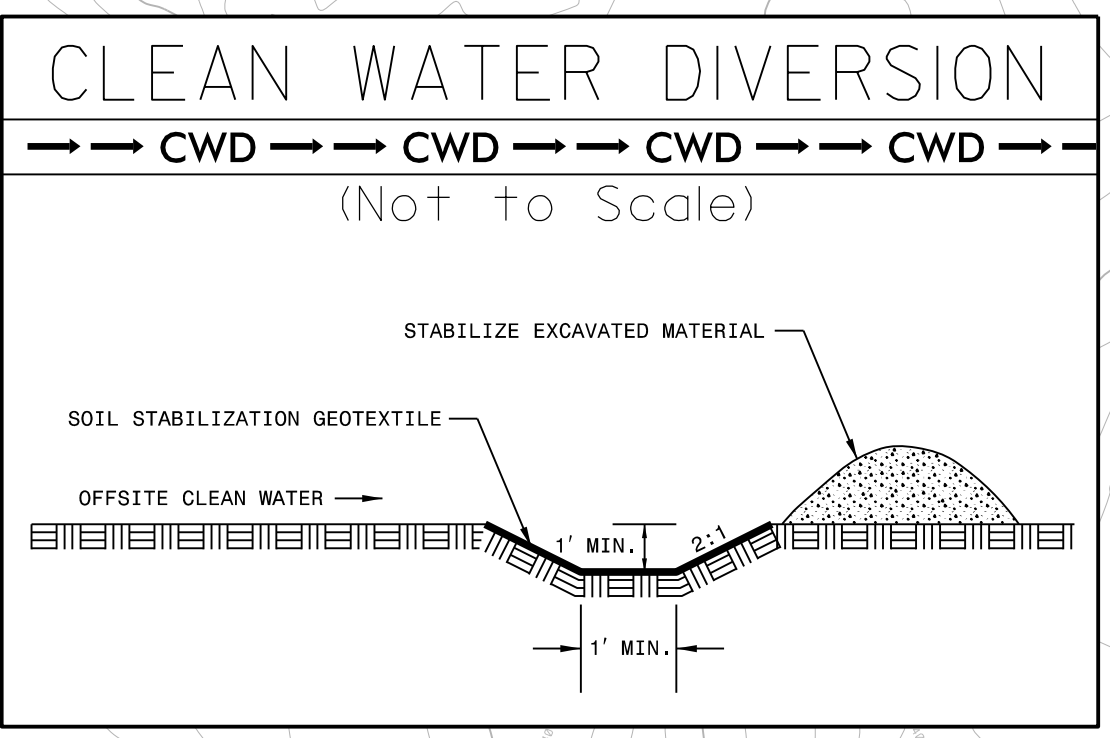
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REVISIONS

PROJECT REFERENCE NO. 5C.039062	SHEET NO. EC-7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	
Prepared in the Office of: 	NC FIRM LICENSE No: P-0339 320 Executive Ct. Hillsborough, NC 27278 (919) 332-3663 (919) 732-6676 (FAX)
CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 7	



MATCHLINE -L- STA 47+50  
 (SEE SHEET 6)

MATCHLINE -L- STA 60+50  
 (SEE SHEET 8)




FOR -L- PROFILE, SEE SHEET 15



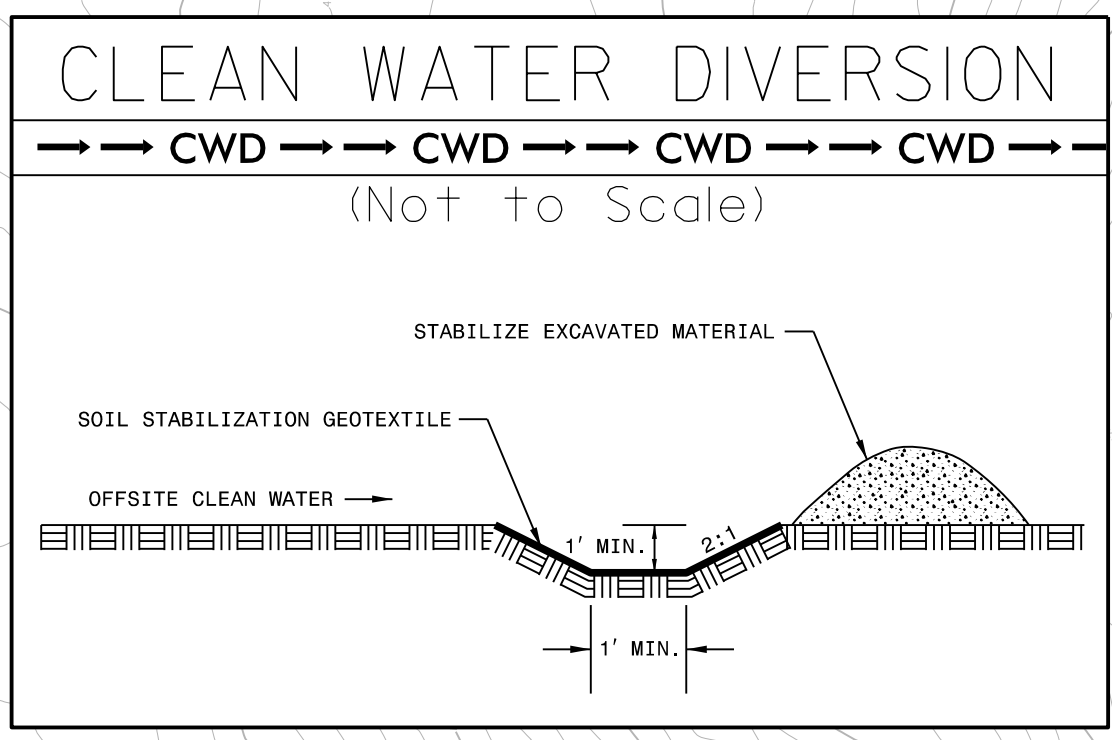
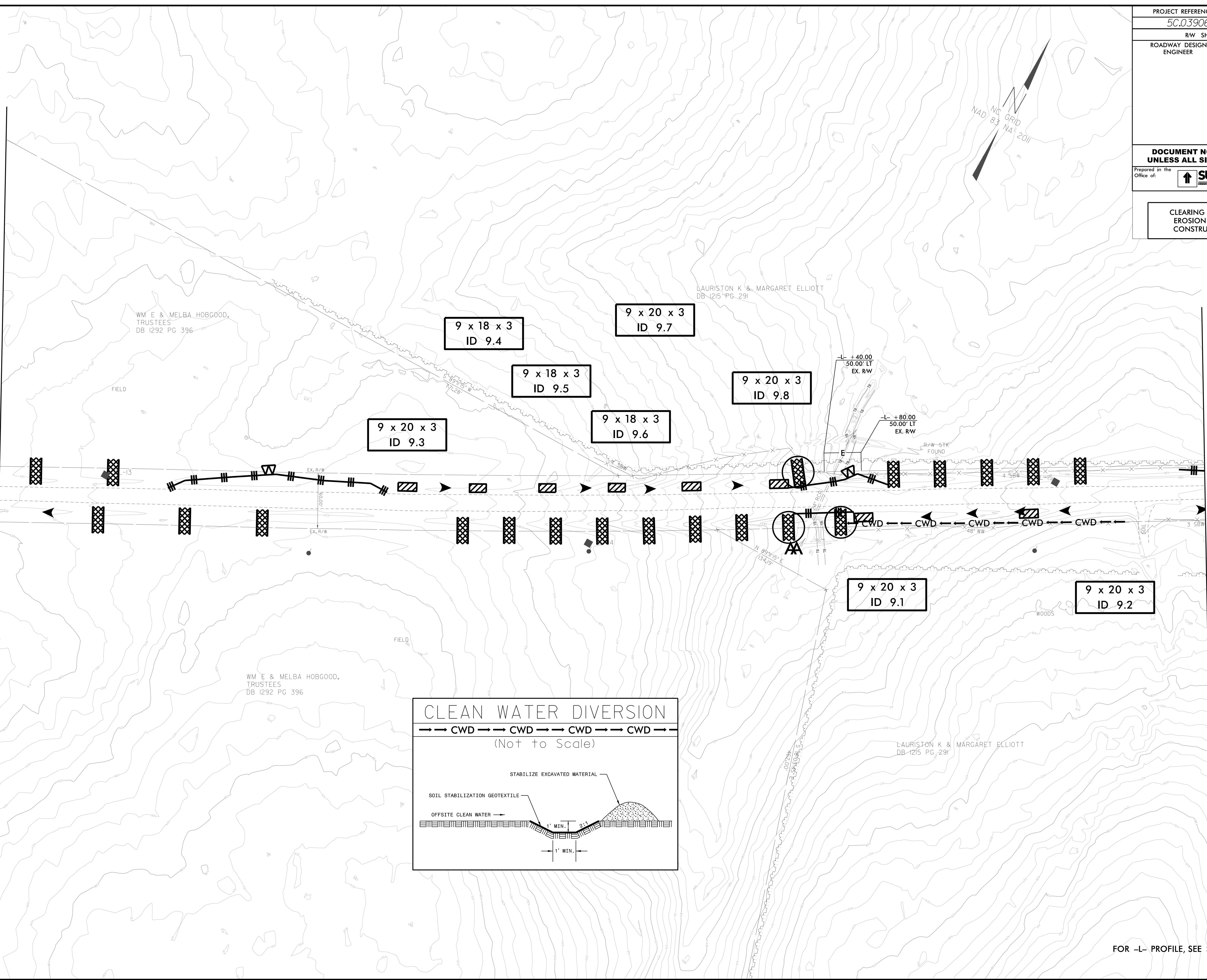





PROJECT REFERENCE NO. 5C.039062	SHEET NO. EC-9
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	
Prepared in the Office of:	 <small>NC FIRM LICENSE No. P-0339 320 Executive Ct. Hillsborough, NC 27278 (919) 332-3663 (919) 732-6676 (FAX)</small>
CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 9	

8/17/99  
 REVISIONS  
 03-AUG-2002 JLH/7  
 03-2000 5C-0300.000 NCDOT 2020 Statewide CE Services\Transportation\20-0300.015 Division 5 Secondary Rd Maint\Site 6 - Conway Elliott Rd\Design\Environmental\Design\Conway\_EC\_9\_CG.dgn  
 \$\$\$USE THESE LINES\$\$\$

MATCHLINE -L- STA 73+50  
 (SEE SHEET 8)



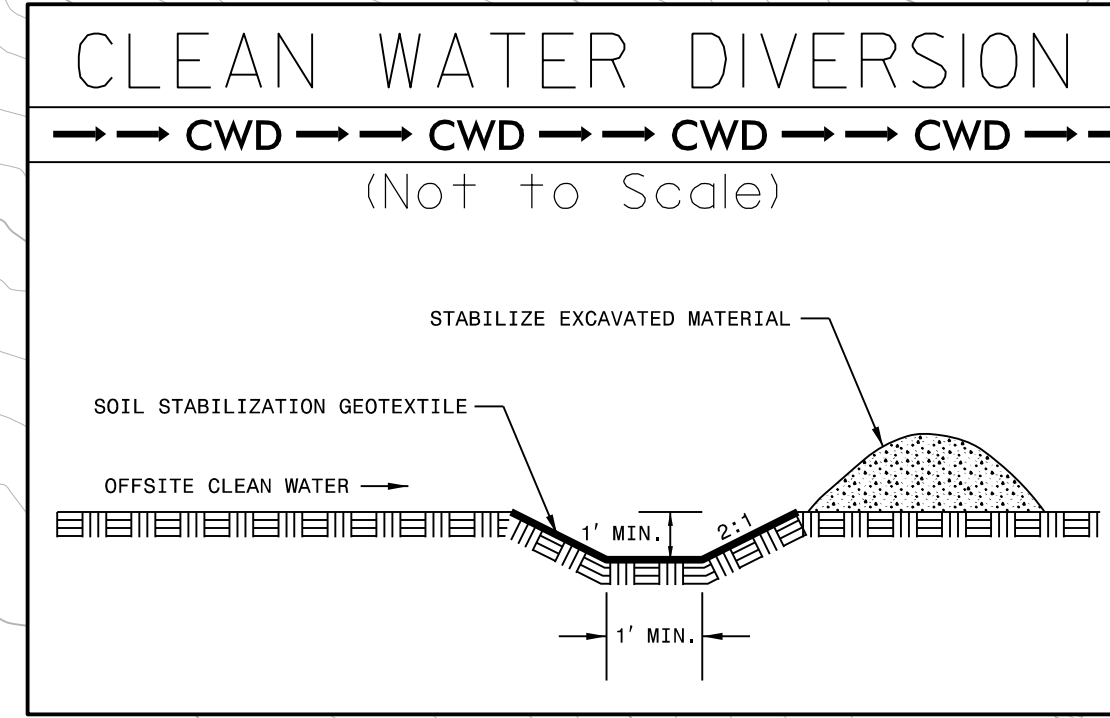
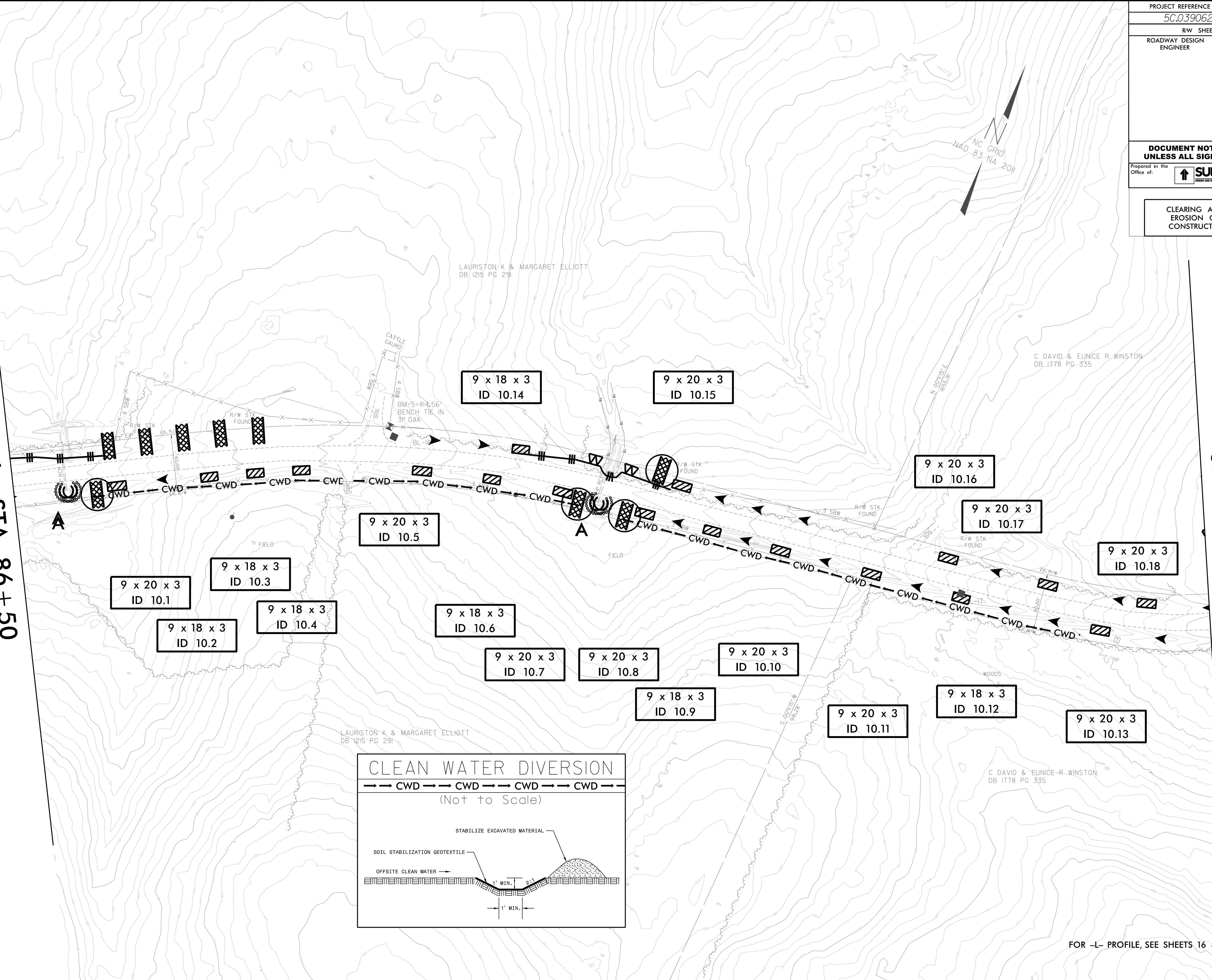
FOR -L- PROFILE, SEE SHEET 16

PROJECT REFERENCE NO. 5C.039062	SHEET NO. EC-10
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	
Prepared in the Office of:	 <small>NC FIRM LICENSE No. P-0339 320 Executive Ct. Hillsborough, NC 27278 (919) 332-3663 (919) 732-6676 (FAX)</small>
CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 10	

8/17/99  
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MATCHLINE -L- STA 86+50  
 (SEE SHEET 9)

MATCHLINE -L- STA 99+50  
 (SEE SHEET 11)



FOR -L- PROFILE, SEE SHEETS 16 & 17

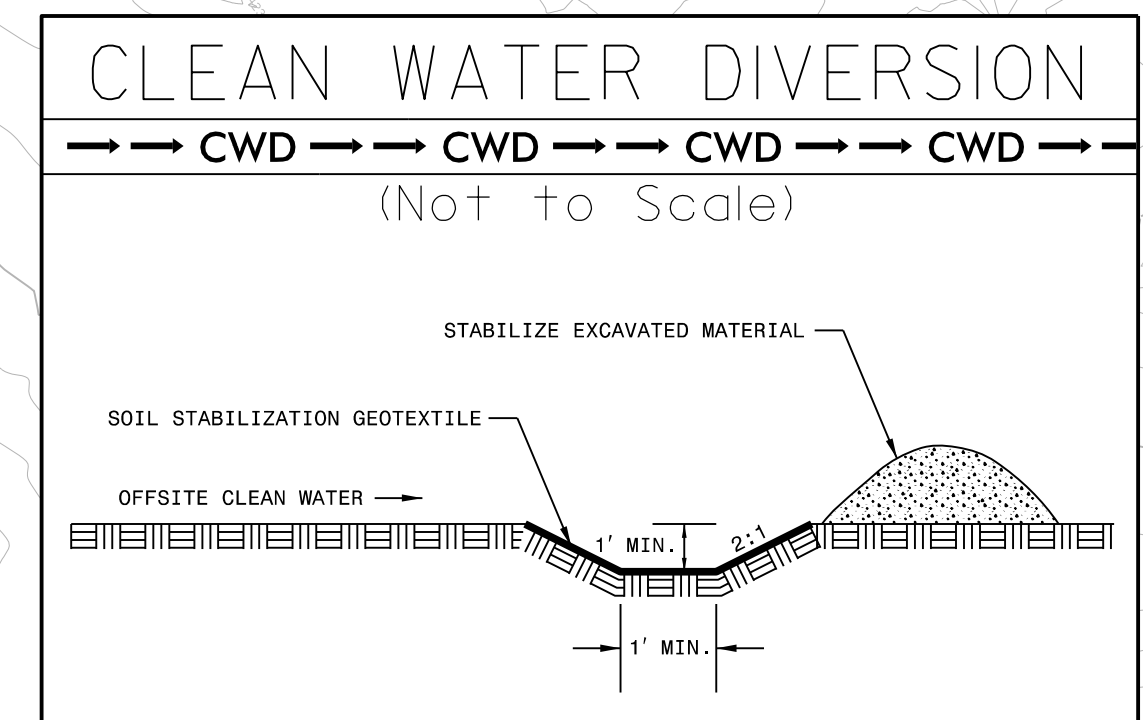
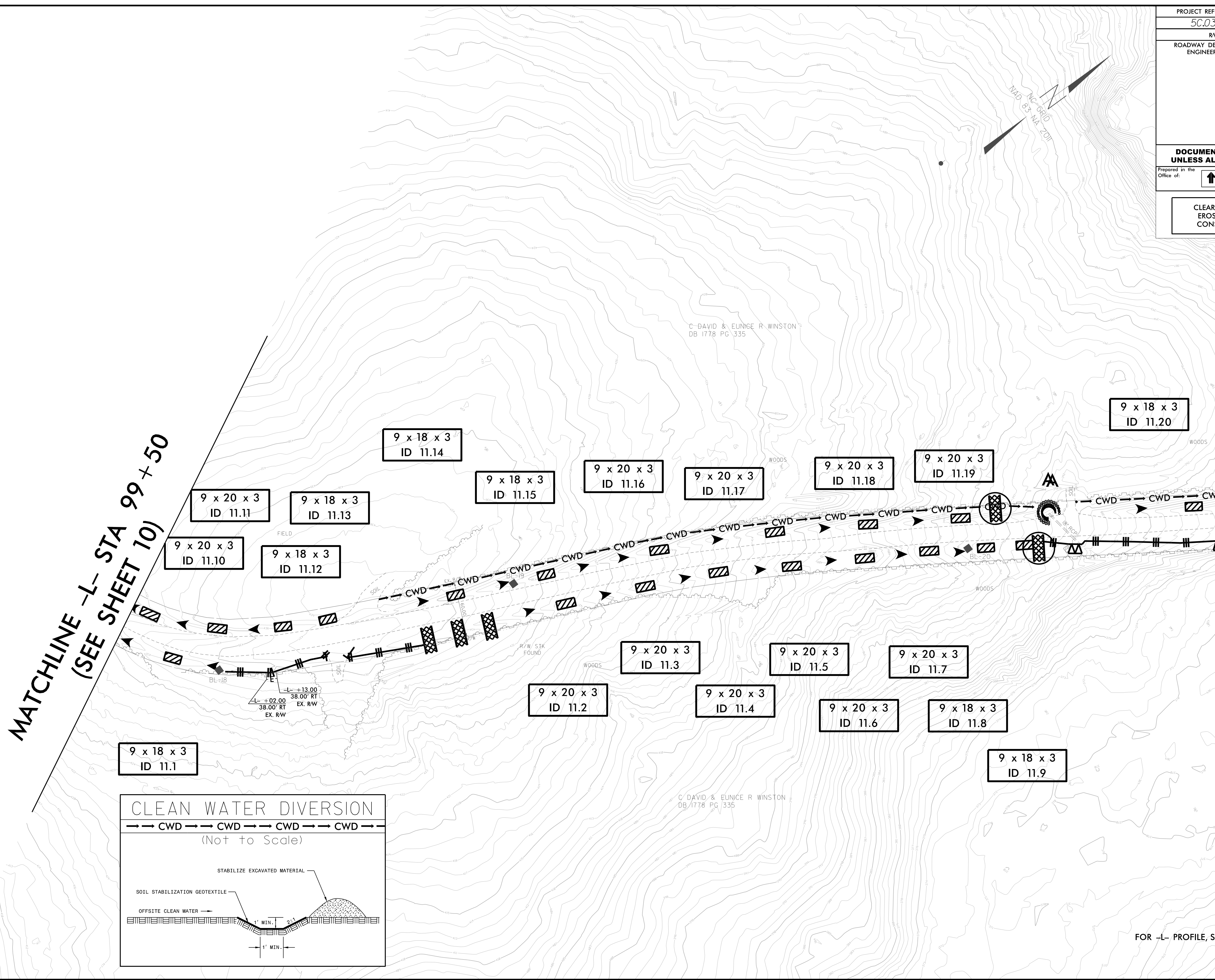


PROJECT REFERENCE NO. 5C.039062		SHEET NO. EC-11	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>			
Prepared in the Office of:		 <small>NC FIRM LICENSE No. P-0339 320 Executive Ct. Hillsborough, NC 27278 (919) 332-3663 (919) 732-6676 (FAX)</small>	
CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 11			

8/17/99  
 REVISIONS  
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 \$\$\$\$\$\$ USE \$\$\$\$\$\$


**MATCHLINE -L- STA 99+50**  
 (SEE SHEET 10)

**MATCHLINE -L- STA 111+50**  
 (SEE SHEET 12)

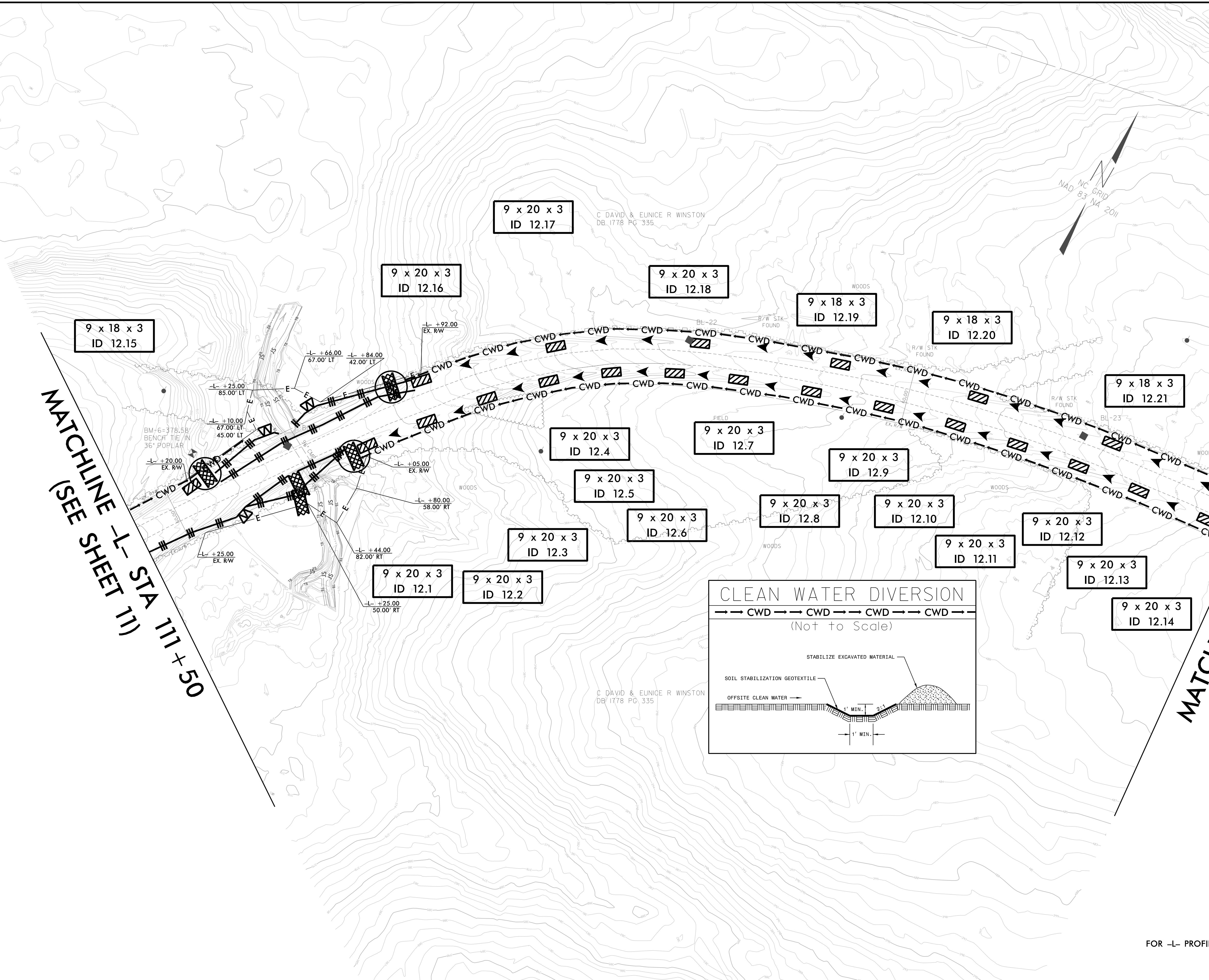


FOR -L- PROFILE, SEE SHEET 17



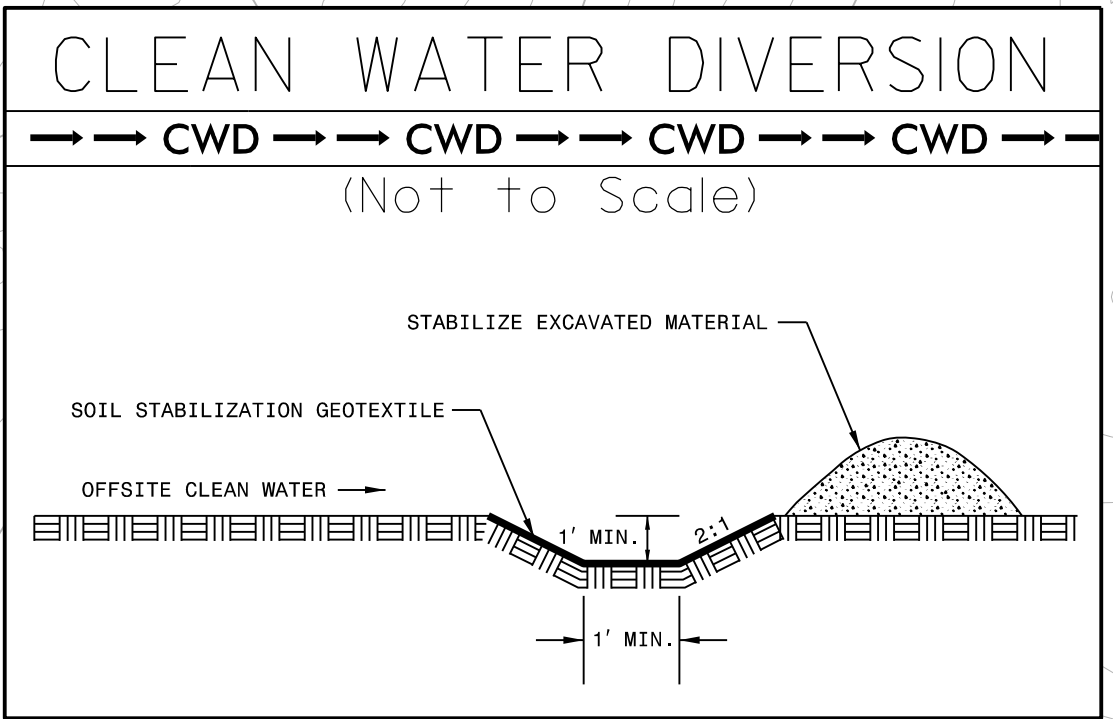
PROJECT REFERENCE NO. 5C.039062	SHEET NO. EC-12
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	
Prepared in the Office of:	 <small>NC FIRM LICENSE No. P-0339 320 Executive Ct. Hickory, NC 27278 (81) 332-3883 (919) 732-6676 (FAX)</small>
CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 12	

8/17/99  
 REVISIONS  
 03-AUG-2022 JLH  
 03-2020 20-0300.015 Division 5 Secondary Rd Maint/Ste 6 - Conway Elliott Rd\Design\Environmental\Design\Conway\_EC\_12.CG.dgn  
 2020 Statewide CEI Services\Transportation\20-0300.015 Division 5 Secondary Rd Maint/Ste 6 - Conway Elliott Rd\Design\Environmental\Design\Conway\_EC\_12.CG.dgn




**MATCHLINE -L- STA 111+50**  
 (SEE SHEET 11)

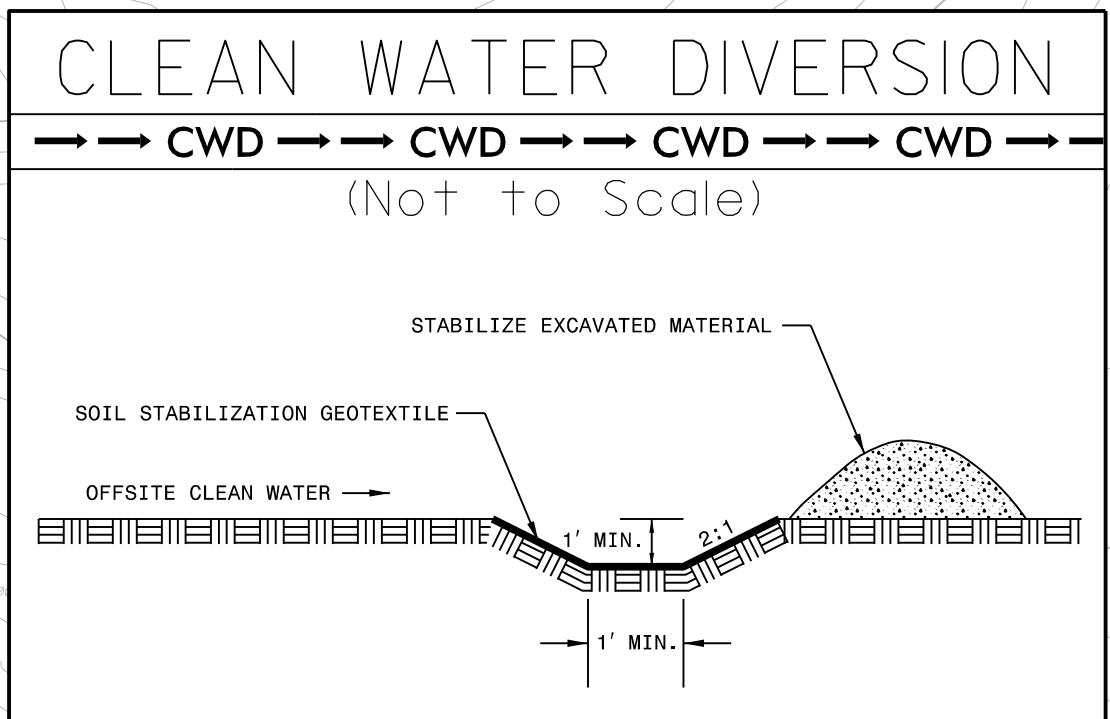
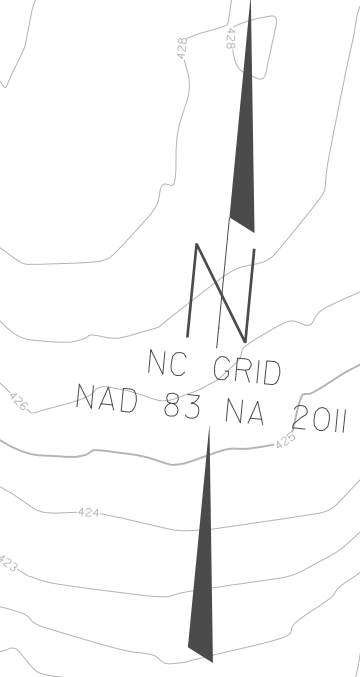
**MATCHLINE -L- STA 124+00**  
 (SEE SHEET 13)



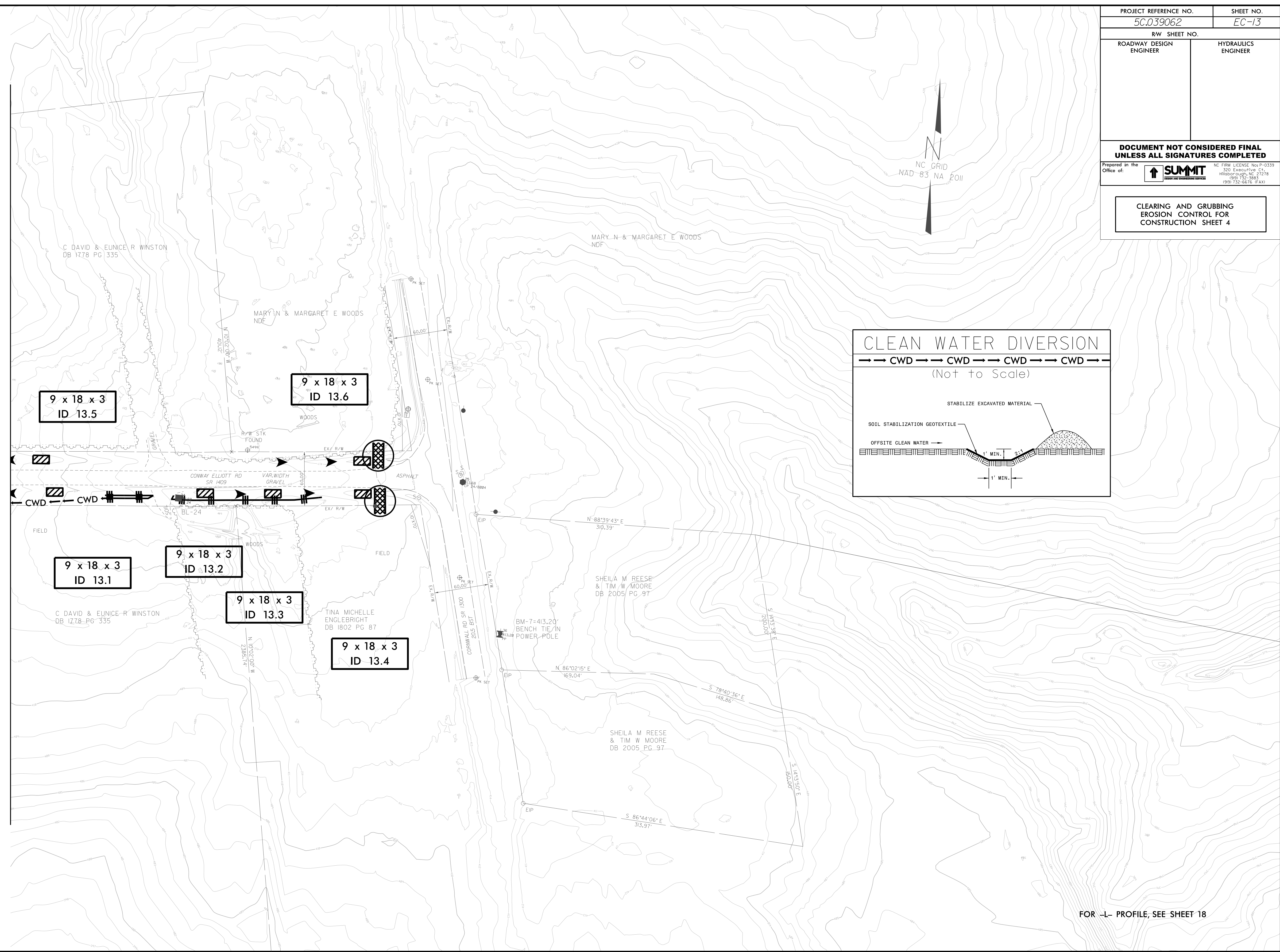
FOR -L- PROFILE, SEE SHEETS 17 & 18




PROJECT REFERENCE NO. 5C.039062	SHEET NO. EC-13
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	
Prepared in the Office of:	 <small>NC FIRM LICENSE No: P-0339 320 Executive Ct Hillsborough, NC 27278 (919) 332-3663 (919) 732-6676 (FAX)</small>
<b>CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 4</b>	

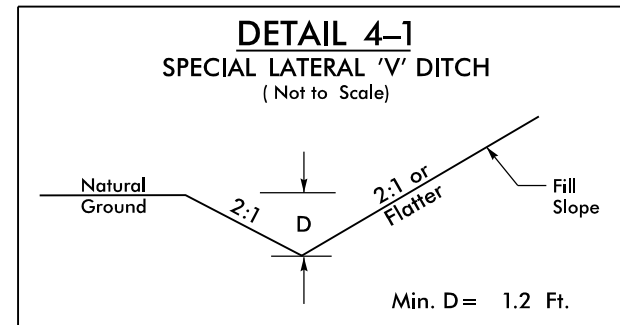


**MATCHLINE -L- STA 124+00  
(SEE SHEET 12)**



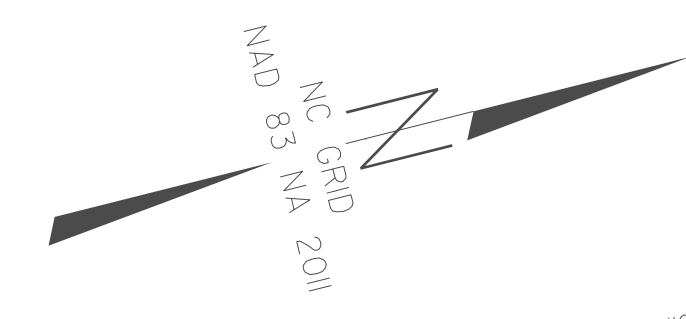
FOR -L- PROFILE, SEE SHEET 18

PROJECT REFERENCE NO. 5C.039062	SHEET NO. EC-14
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	
Prepared in the Office of:	 <small>NC FIRM LICENSE No. P-0339 320 Executive Ct. Hillsborough, NC 27278 (919) 732-3668 (919) 732-6676 (FAX)</small>

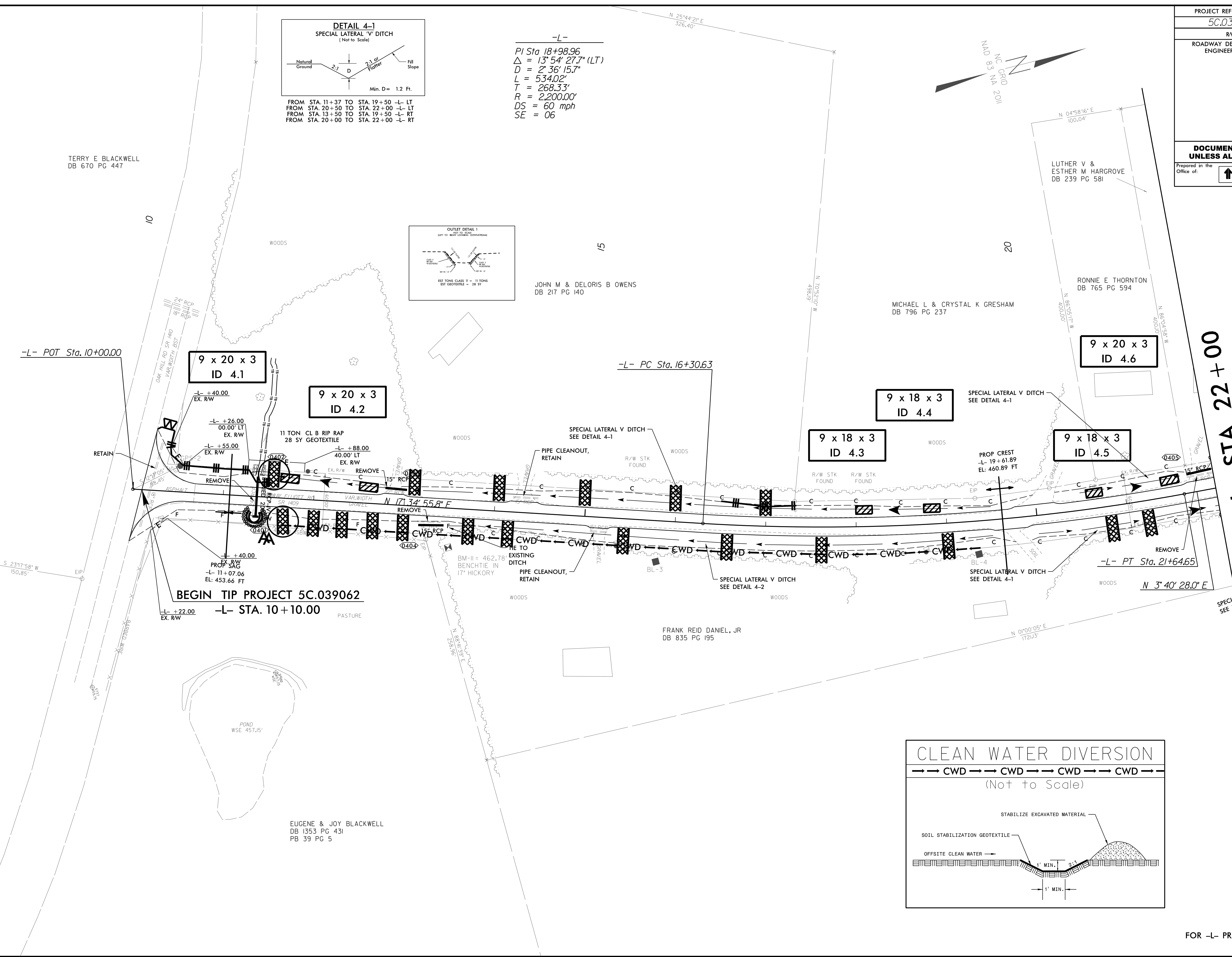


FROM STA. 11+37 TO STA. 19+50 -L- LT  
 FROM STA. 20+50 TO STA. 22+00 -L- LT  
 FROM STA. 13+50 TO STA. 19+50 -L- RT  
 FROM STA. 20+00 TO STA. 22+00 -L- RT

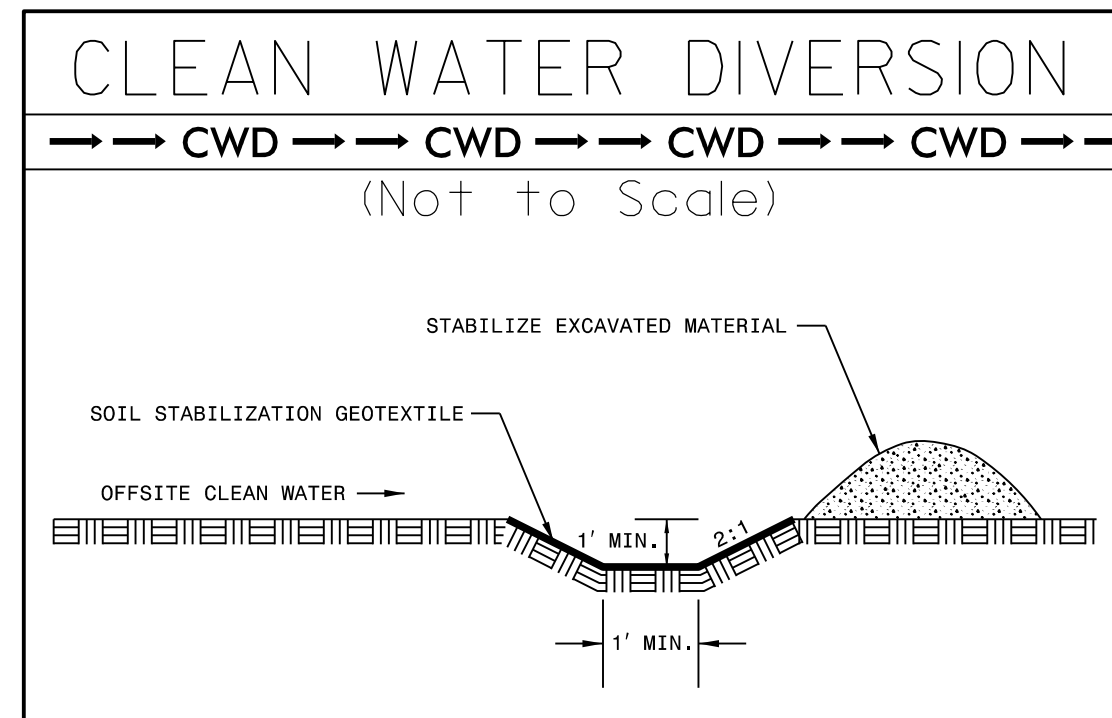
-L-  
 PI Sta 18+98.96  
 $\Delta = 13^{\circ} 54' 27.7''$  (LT)  
 $D = 2^{\circ} 36' 15.7''$   
 $L = 534.02'$   
 $T = 268.33'$   
 $R = 2,200.00'$   
 $DS = 60$  mph  
 $SE = 06$



8/17/99  
 REVISIONS  
 03-AUG-2002 11:48  
 03-2020 03:00:000 NCDOT 2020 Statewide CEI Services\Transportation\20-03000\015 Division 5 Secondary Rd Maint\Ste 6 - Conway Elliott Rd\Design\Environmental\Design\Conway\_EC-14\_Final.dgn  
 03-2020 03:00:000 NCDOT 2020 Statewide CEI Services\Transportation\20-03000\015 Division 5 Secondary Rd Maint\Ste 6 - Conway Elliott Rd\Design\Environmental\Design\Conway\_EC-14\_Final.dgn




**MATCHLINE -L- STA 22+00  
 (SEE SHEET 5)**



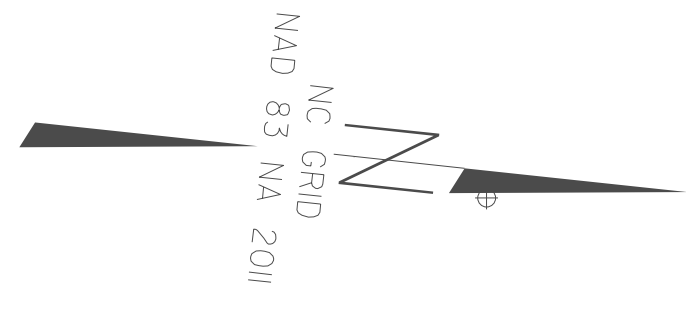
FOR -L- PROFILE, SEE SHEET 14



PROJECT REFERENCE NO. 5C.039062	SHEET NO. EC-15
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	
Prepared in the Office of:	 <small>NC FIRM LICENSE No. P-0339 320 Executive Ct. Hillsborough, NC 27278 (919) 332-3883 (919) 732-6676 (FAX)</small>

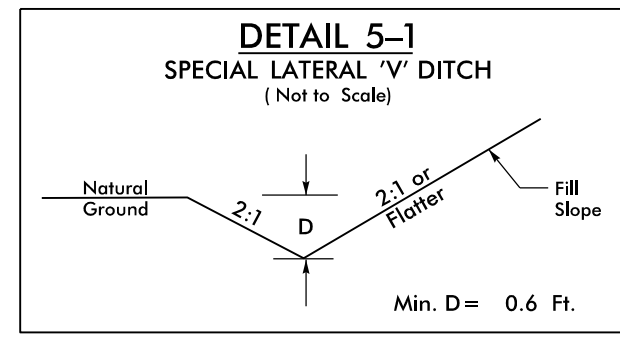
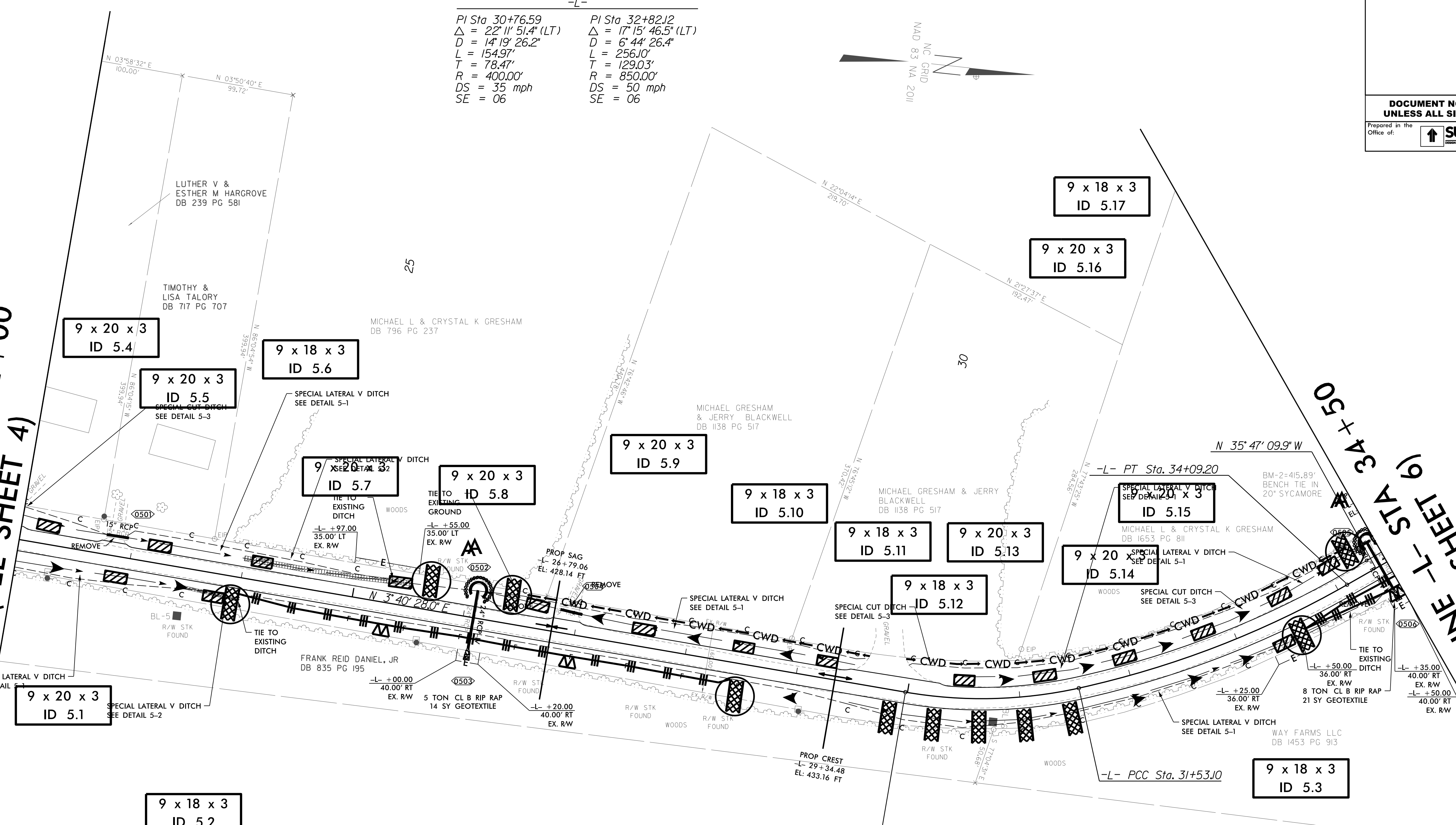
-L-

PI Sta 30+76.59	PI Sta 32+82.12
$\Delta = 22^\circ 11' 51.4" (LT)$	$\Delta = 17^\circ 15' 46.5" (LT)$
$D = 14' 19" 26.2"$	$D = 6' 44" 26.4"$
$L = 154.97'$	$L = 256.10'$
$T = 78.47'$	$T = 129.03'$
$R = 400.00'$	$R = 850.00'$
$DS = 35 \text{ mph}$	$DS = 50 \text{ mph}$
$SE = 06$	$SE = 06$

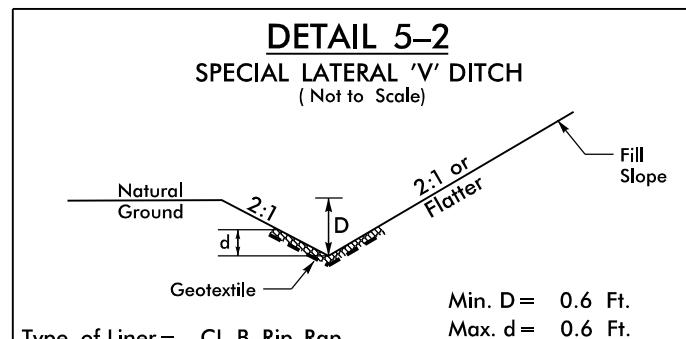


MATCHLINE -L- STA 22+00  
(SEE SHEET 4)

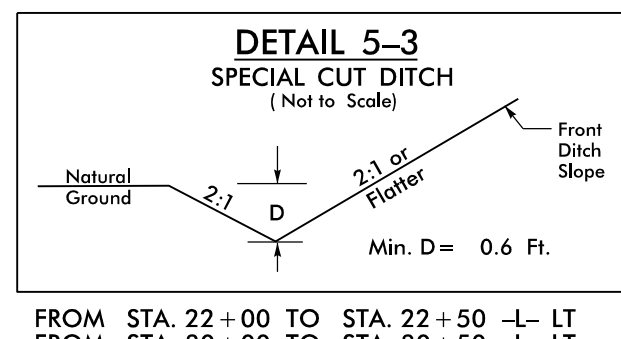
MATCHLINE -L- STA 34+50  
(SEE SHEET 14)



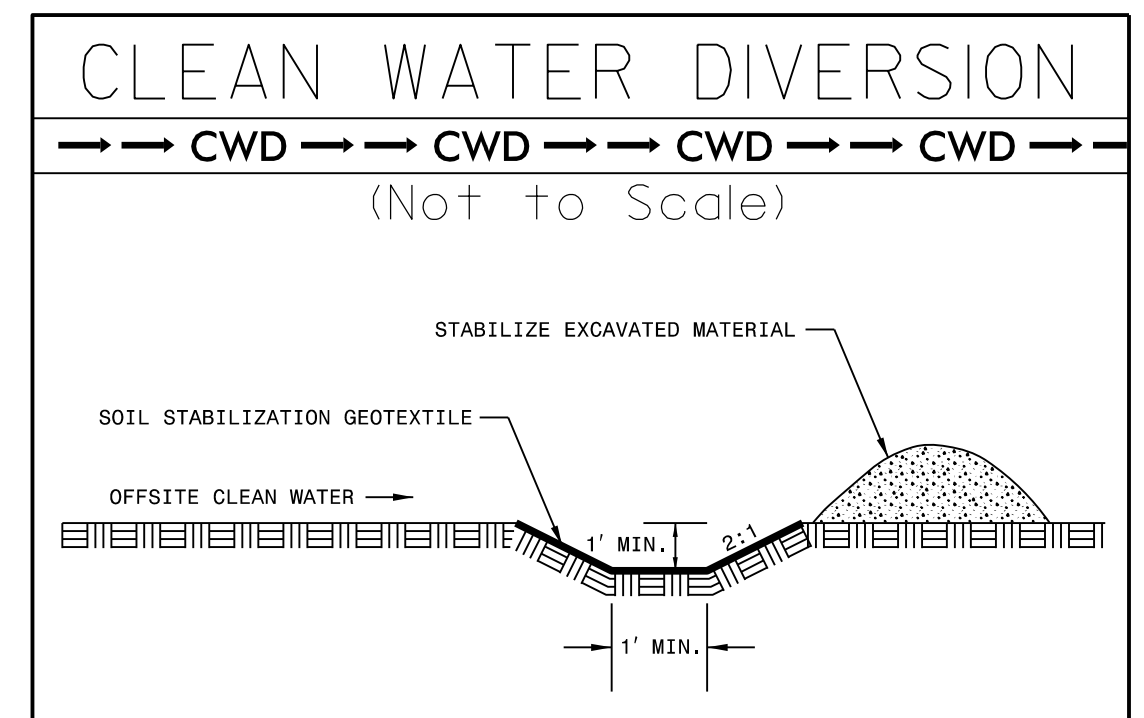
FROM STA. 22+50 TO STA. 24+00 -L- LT  
FROM STA. 26+09 TO STA. 29+50 -L- LT  
FROM STA. 30+50 TO STA. 32+00 -L- LT  
FROM STA. 34+00 TO STA. 34+43 -L- LT  
FROM STA. 22+00 TO STA. 23+50 -L- RT  
FROM STA. 29+50 TO STA. 34+00 -L- RT



FROM STA. 24+00 TO STA. 25+50 -L- LT  
FROM STA. 23+50 TO STA. 24+00 -L- RT

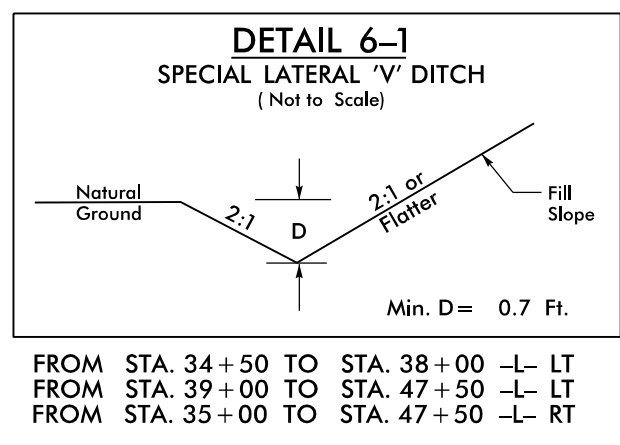
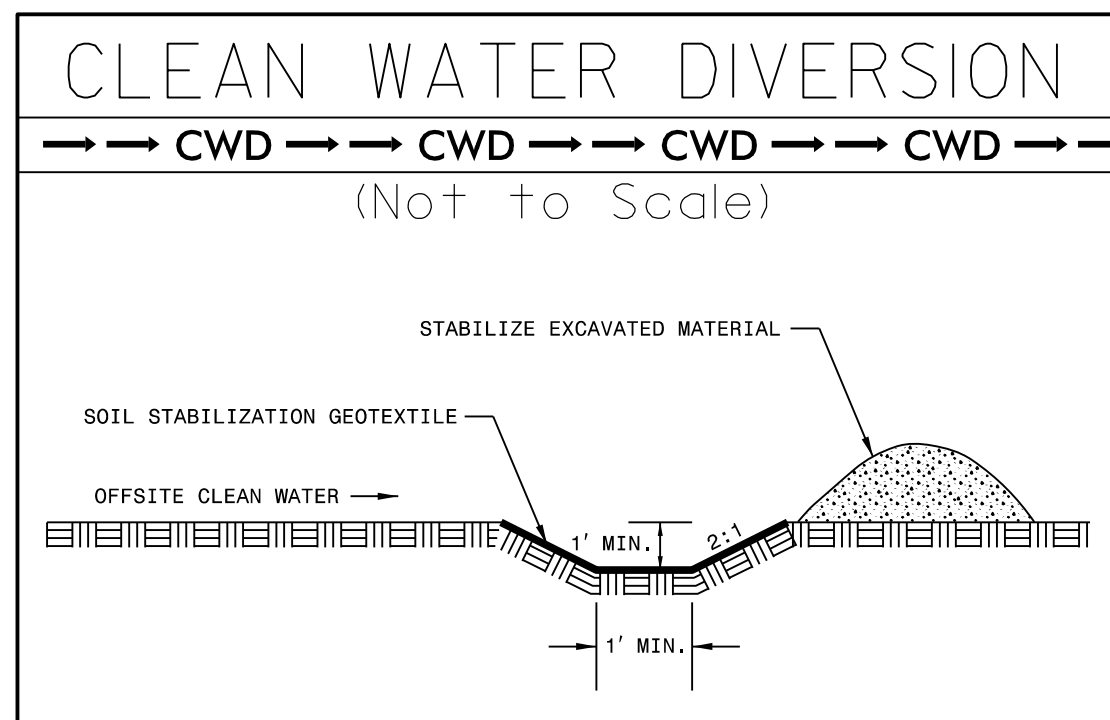


FROM STA. 22+00 TO STA. 22+50 -L- LT  
FROM STA. 30+00 TO STA. 30+50 -L- LT  
FROM STA. 32+50 TO STA. 34+00 -L- LT

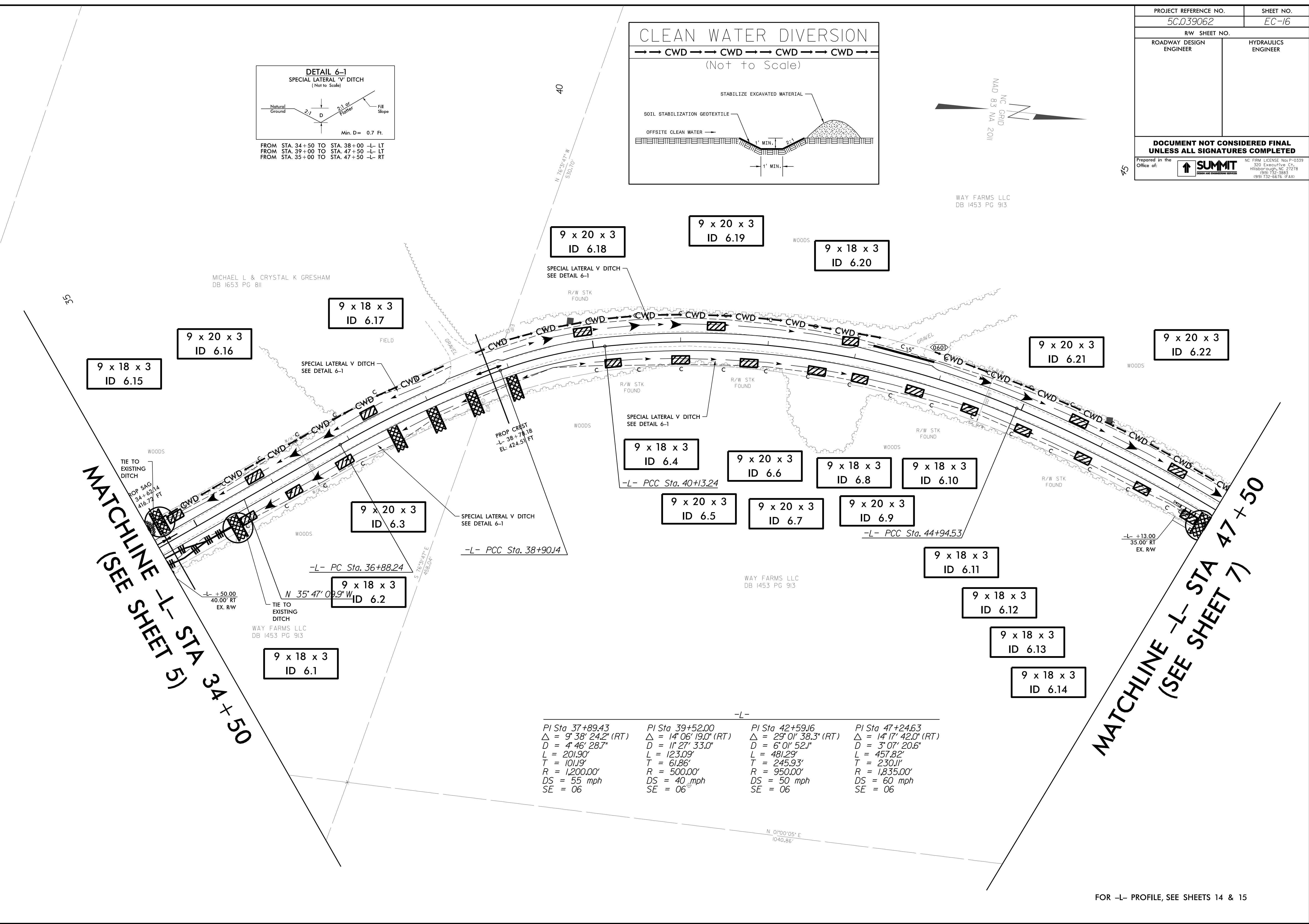


FOR -L- PROFILE, SEE SHEET 14

REVISIONS  
 8/17/99  
 03-AUG-2002 11:48  
 03-2020 03:00:00 NCDOT 2020 Statewide CEI Services\Transportation\20-0300\015 Division 5 Secondary Rd Maint\Site 6 - Conway Elliott Rd\Design\Environmental\Design\Conway\_EC\_15\_Final.dgn  
 \$\$\$\$\$\$



FROM STA. 34+50 TO STA. 38+00 -L- LT  
 FROM STA. 39+00 TO STA. 47+50 -L- LT  
 FROM STA. 35+00 TO STA. 47+50 -L- RT




-L-			
PI Sta 37+89.43	PI Sta 39+52.00	PI Sta 42+59.16	PI Sta 47+24.63
$\Delta = 9' 38' 24.2''$ (RT)	$\Delta = 14' 06' 19.0''$ (RT)	$\Delta = 29' 01' 38.3''$ (RT)	$\Delta = 14' 17' 42.0''$ (RT)
D = 4' 46' 28.7"	D = 11' 27' 33.0"	D = 6' 01' 52.1"	D = 3' 07' 20.6"
L = 201.90'	L = 123.09'	L = 481.29'	L = 457.82'
T = 101.19'	T = 61.86'	T = 245.93'	T = 230.11'
R = 1,200.00'	R = 500.00'	R = 950.00'	R = 1,835.00'
DS = 55 mph	DS = 40 mph	DS = 50 mph	DS = 60 mph
SE = 06	SE = 06	SE = 06	SE = 06

REVISIONS  
 03-AUG-2022 JLK  
 03-2020 2020 NCDOT 2020 Statewide CEI Services\Transportation\20-0300\015 Division 5 Secondary Rd Maint\Site 6 - Conway Elliott Rd\Design\Environmental\Design\Conway\_EC\_16\_Final.dgn  
 8/17/19

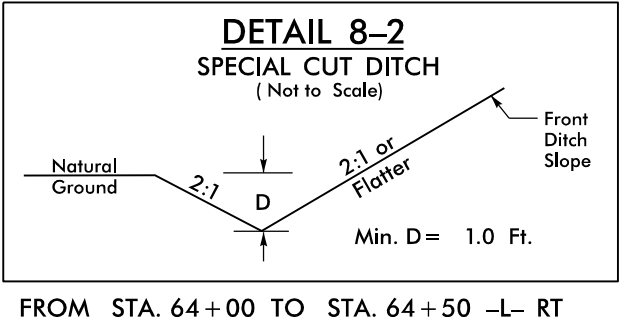
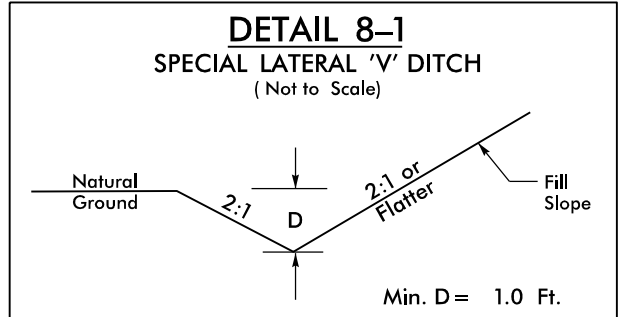




PROJECT REFERENCE NO. 5C.039062	SHEET NO. EC-18
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	
Prepared in the Office of:	 <small>NC FIRM LICENSE No. P-0339 320 Executive Ct. Hillsborough, NC 27278 (919) 732-3663 (919) 732-6676 (FAX)</small>

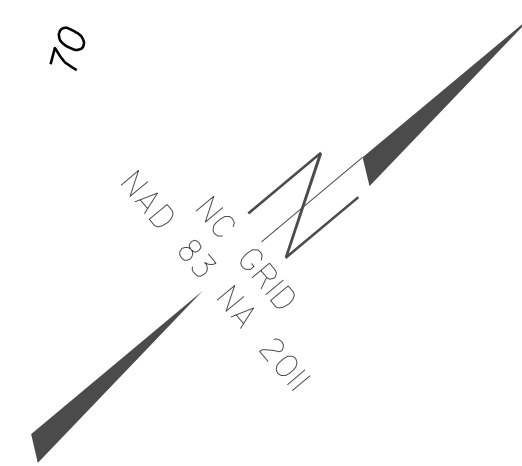
-L-

<i>PI Sta 58+17.74</i> $\Delta = 6' 17' 30.4" (LT)$ $D = 1' 05' 28.9"$ $L = 576.5'$ $T = 288.55'$ $R = 5,250.00'$ $DS = 60 \text{ mph}$ $SE = 03$	<i>PI Sta 68+44.33</i> $\Delta = 36' 32' 35.8" (RT)$ $D = 7' 09' 43.1"$ $L = 510.24'$ $T = 264.14'$ $R = 800.00'$ $DS = 45 \text{ mph}$ $SE = 06$
--	--



FROM STA. 60+50 TO STA. 63+18 -L- LT  
 FROM STA. 67+00 TO STA. 73+50 -L- LT  
 FROM STA. 64+50 TO STA. 65+50 -L- RT  
 FROM STA. 67+00 TO STA. 73+00 -L- RT

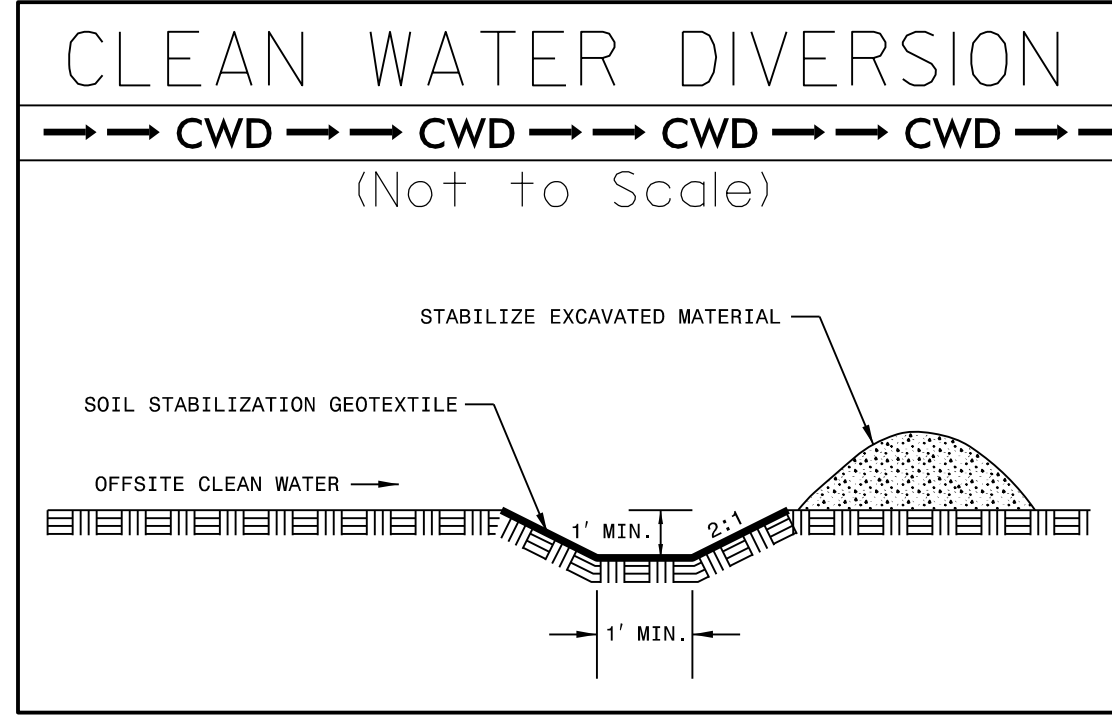
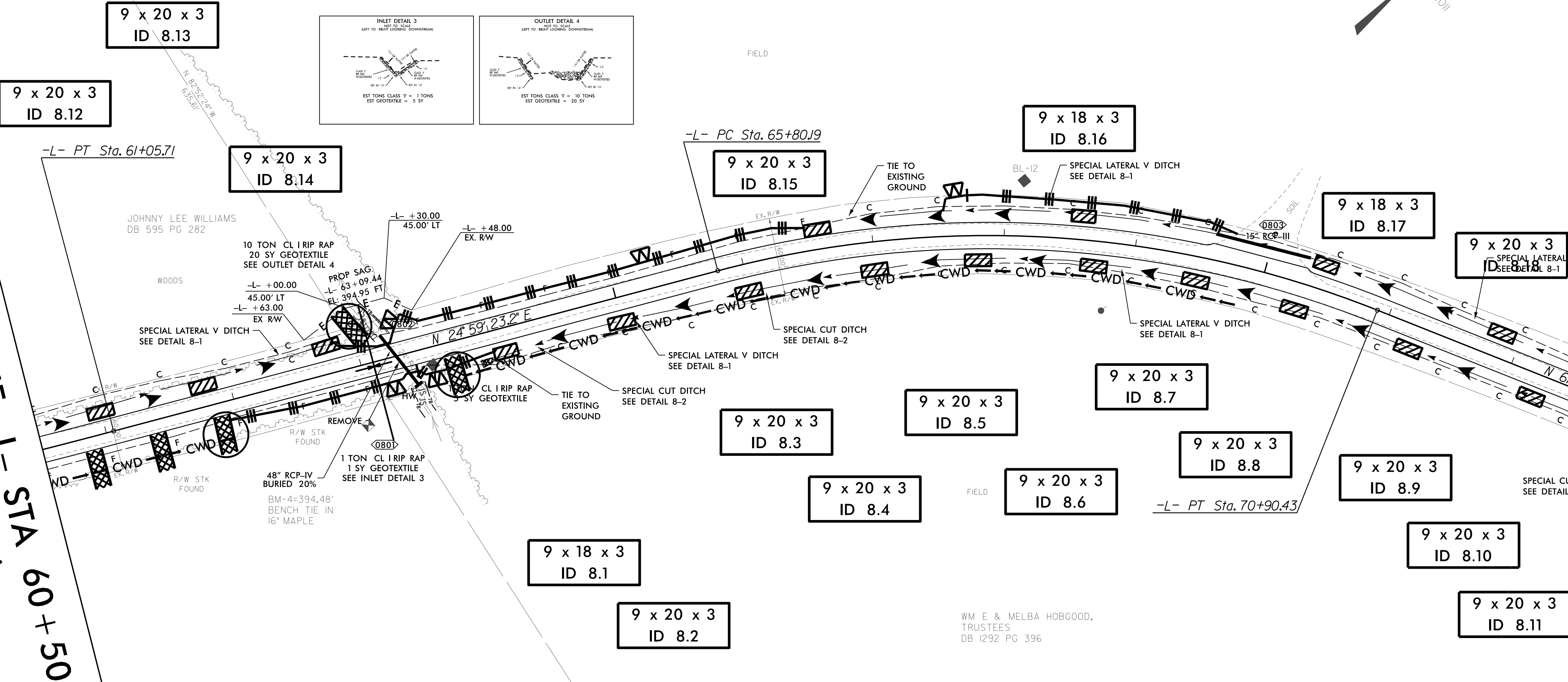
FROM STA. 64+00 TO STA. 64+50 -L- RT  
 FROM STA. 65+50 TO STA. 67+00 -L- RT  
 FROM STA. 73+00 TO STA. 73+50 -L- RT



WM E & MELBA HOBGOOD,  
TRUSTEES  
DB 1292 PG 396

MATCHLINE -L- STA 60+50  
(SEE SHEET 7)


MATCHLINE -L- STA 73+50  
(SEE SHEET 9)

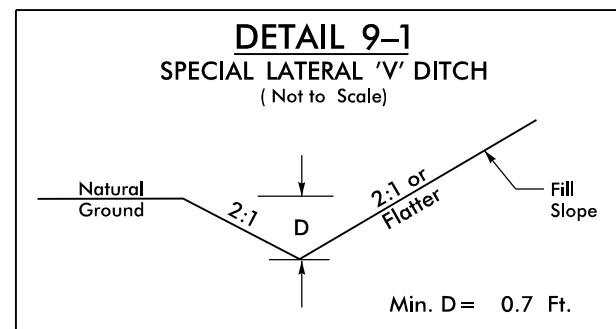


FOR -L- PROFILE, SEE SHEETS 15 & 16

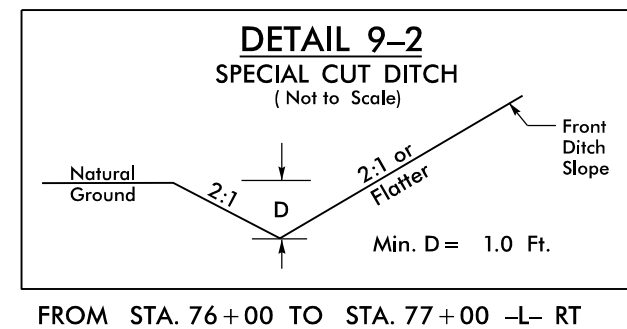
REVISIONS  
 03-AUG-2022 JLH  
 03-2020-03-03-0000 NCDOT 2020 Statewide CEI Services\Transportation\20-03000\015 Division 5 Secondary Rd Maint\Site 6 - Conway Elliott Rd\Design\Environmental\Design\Conway\_EC-18\_Final.dgn  
 8/17/99



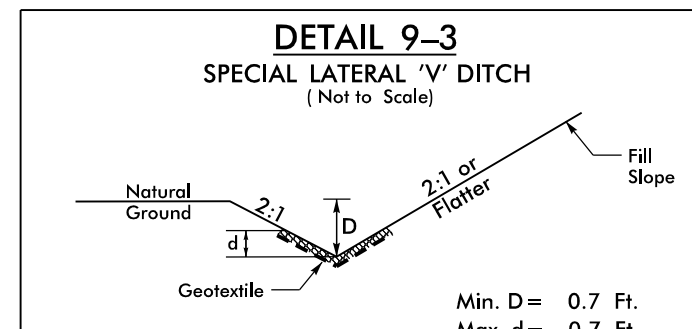
PROJECT REFERENCE NO. 5C.039062	SHEET NO. EC-19
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	
Prepared in the Office of:	 <small>NC FIRM LICENSE No. P-0339 320 Executive Ct. Hillsborough, NC 27278 (919) 332-3883 (919) 732-6676 (FAX)</small>



FROM STA. 73+50 TO STA. 75+50 -L- LT  
 FROM STA. 77+50 TO STA. 82+00 -L- LT  
 FROM STA. 73+50 TO STA. 76+00 -L- RT  
 FROM STA. 84+50 TO STA. 85+50 -L- RT



FROM STA. 76+00 TO STA. 77+00 -L- RT



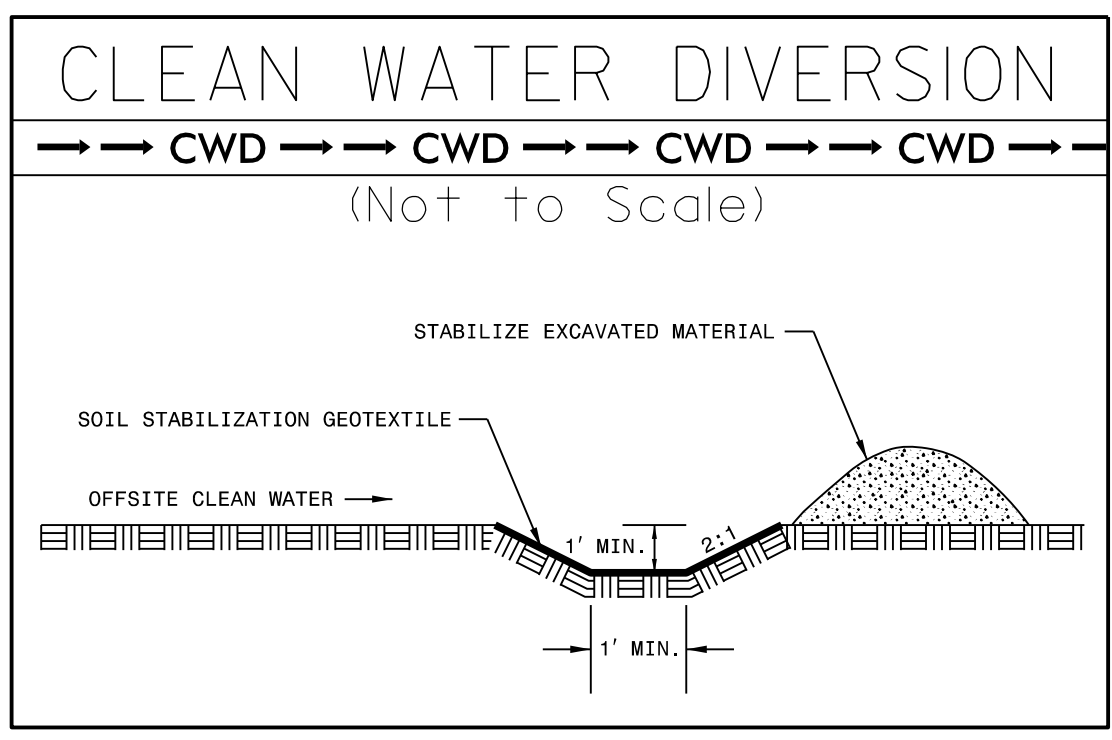
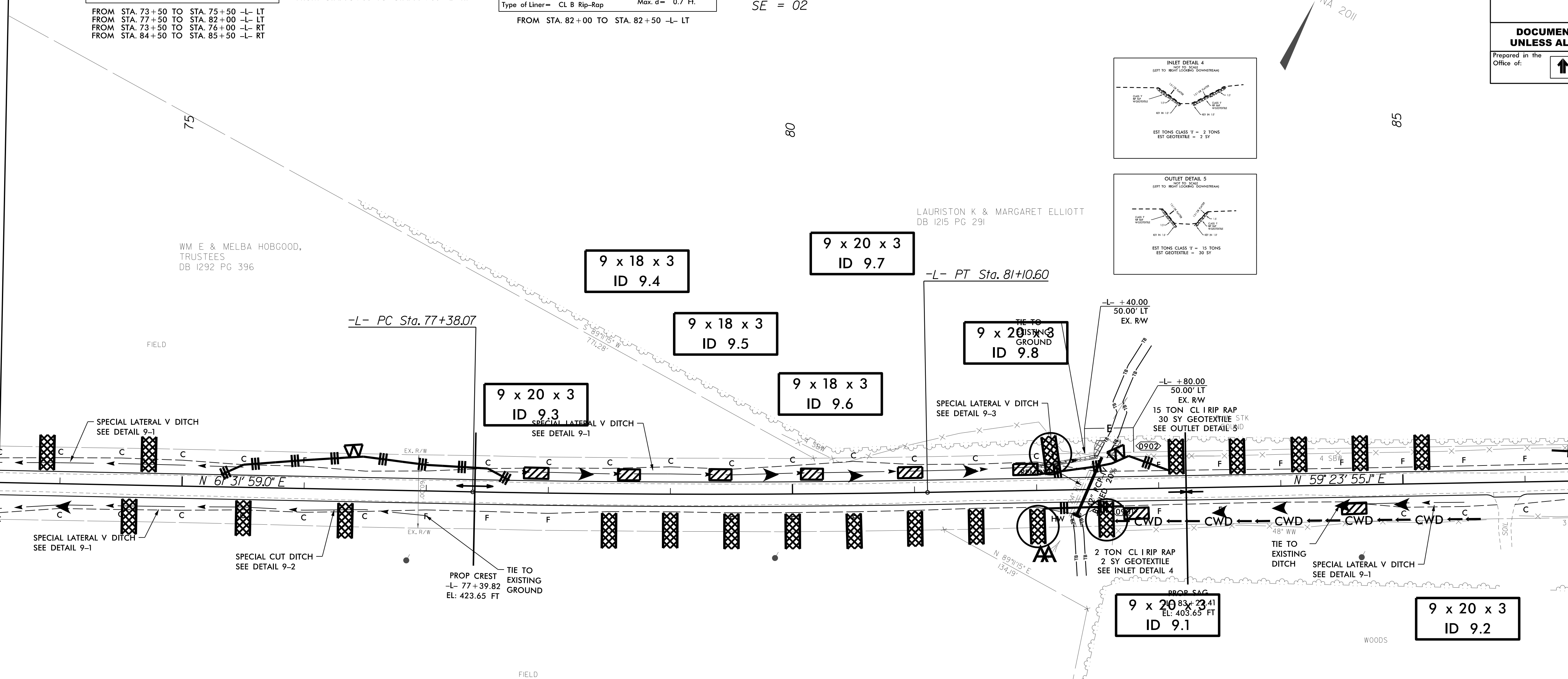
FROM STA. 82+00 TO STA. 82+50 -L- LT  
 Type of Liner = CL B Rip-Rap

-L-  
 PI Sta 79+24.36  
 $\Delta = 2' 08'' 039'' (LT)$   
 $D = 0' 34'' 226''$   
 $L = 372.53'$   
 $T = 186.28'$   
 $R = 10,000.00'$   
 $DS = 60 \text{ mph}$   
 $SE = 02$




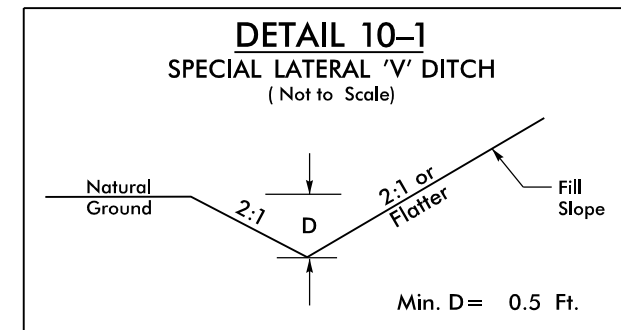
REVISIONS  
 8/17/99  
 C:\Users\jch\Documents\2020-03000\015 Division 5 Secondary Rd Maint\Sta 6 - Conway Elliott Rd\Design\Environmental\Design\Conway\_EC-19\_Final.dgn  
 03-AUG-2022 11:48  
 03-2020-03000-0000 NCDOT 2020 Statewide CEI Services\Transportation\20-03000\015 Division 5 Secondary Rd Maint\Sta 6 - Conway Elliott Rd\Design\Environmental\Design\Conway\_EC-19\_Final.dgn

MATCHLINE -L- STA 73+50  
 (SEE SHEET 8)

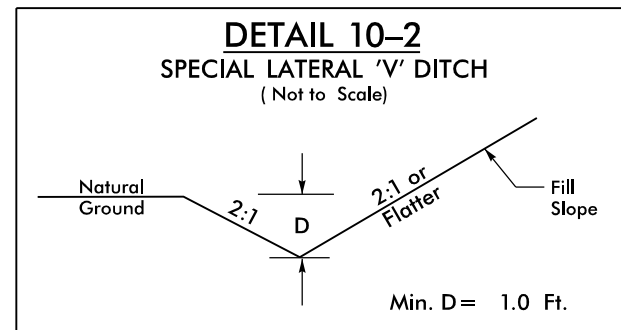


MATCHLINE -L- STA 86+50  
 (SEE SHEET 10)

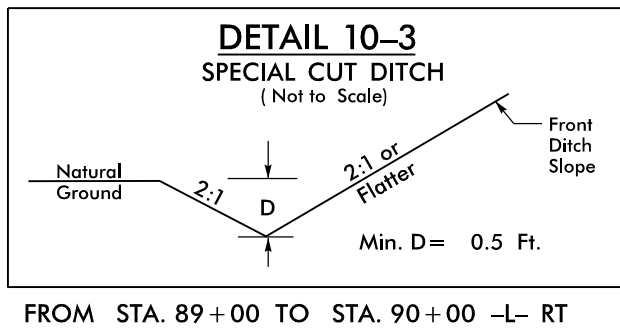
PROJECT REFERENCE NO. 5C.039062	SHEET NO. EC-20
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	
Prepared in the Office of:	 <small>NC FIRM LICENSE No. P-0339 320 Executive Ct. Hillsborough, NC 27278 (919) 332-3883 (919) 732-6676 (FAX)</small>



FROM STA. 87+50 TO STA. 90+00 -L- LT  
FROM STA. 90+50 TO STA. 92+50 -L- LT  
FROM STA. 87+50 TO STA. 89+00 -L- RT



FROM STA. 98+50 TO STA. 99+50 -L- LT  
FROM STA. 90+50 TO STA. 99+50 -L- RT



FROM STA. 89+00 TO STA. 90+00 -L- RT

*PI Sta 90+79.99*  
 $\Delta = 21^{\circ}17'03.0''$  (RT)  
 $D = 4'52'34.5''$   
 $L = 436.49'$   
 $T = 220.79'$   
 $R = 1,175.00'$   
 $DS = 55$  mph  
 $SE = 06$

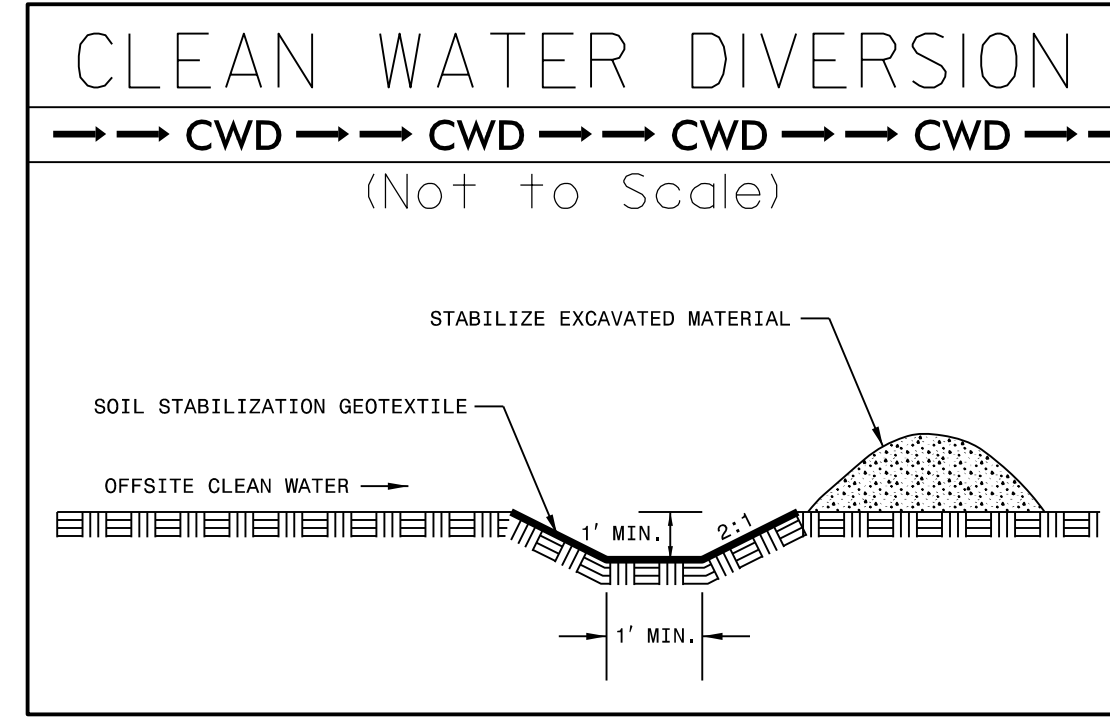
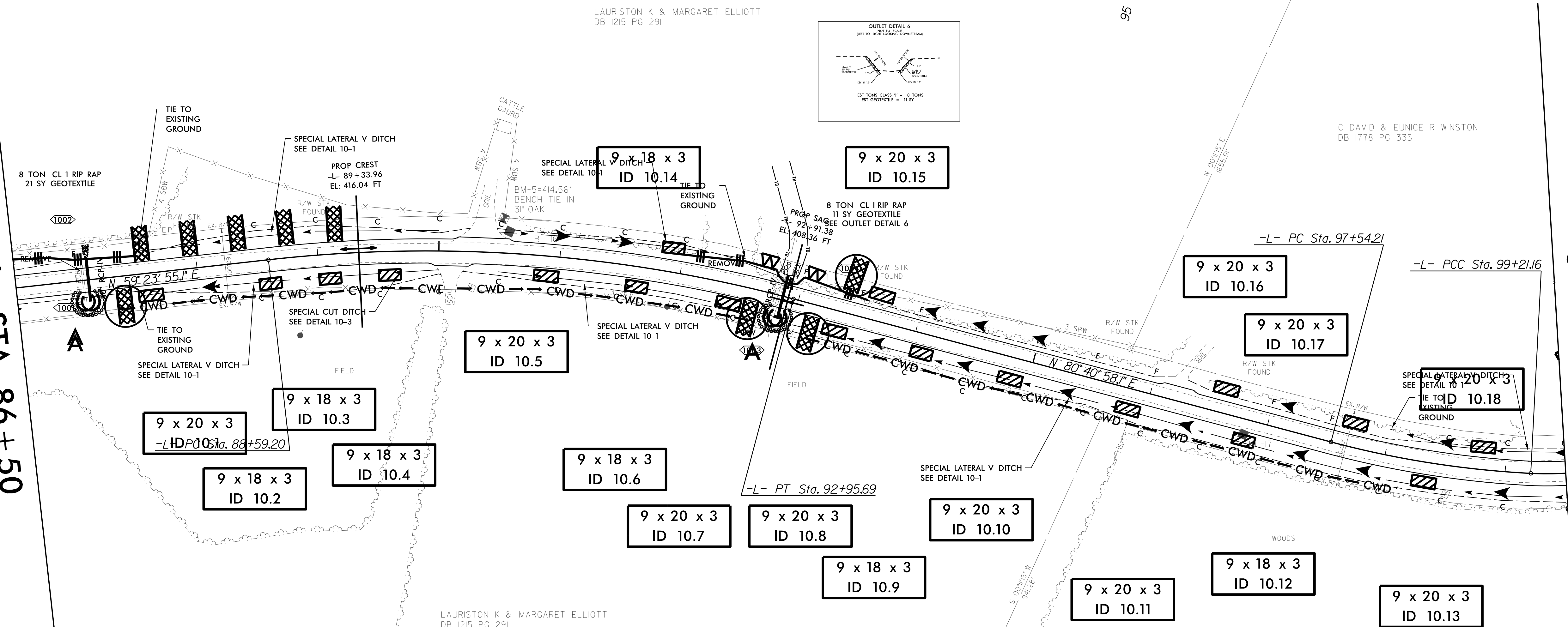
*PI Sta 98+37.99*  
 $\Delta = 11^{\circ}57'24.1''$  (LT)  
 $D = 7'09'43.1''$   
 $L = 166.95'$   
 $T = 83.78'$   
 $R = 800.00'$   
 $DS = 45$  mph  
 $SE = 06$

*PI Sta 100+07.09*  
 $\Delta = 36^{\circ}34'43.6''$  (LT)  
 $D = 22'02'12.6''$   
 $L = 165.99'$   
 $T = 85.93'$   
 $R = 260.00'$   
 $DS = 30$  mph  
 $SE = 06$



MATCHLINE -L- STA 86+50  
(SEE SHEET 9)


MATCHLINE -L- STA 99+50  
(SEE SHEET 11)



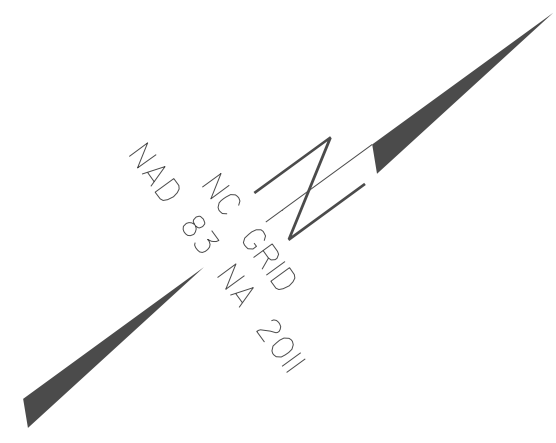
FOR -L- PROFILE, SEE SHEETS 16 & 17

REVISIONS  
 8/17/99  
 03-AUG-2002 11:48  
 03-2020 03:00:00 NCDOT 2020 Statewide CEI Services\Transportation\20-03000\015 Division 5 Secondary Rd Maint\Ste 6 - Conway Elliott Rd\Design\Environmental\Design\Conway\_EC\_20\_F.mxd.dgn



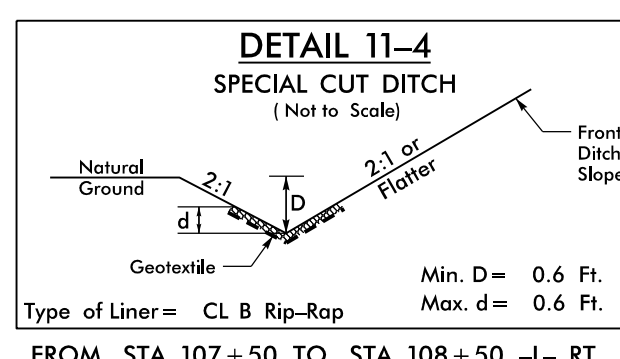
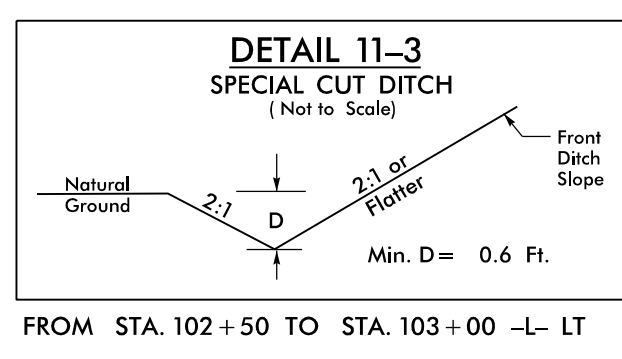
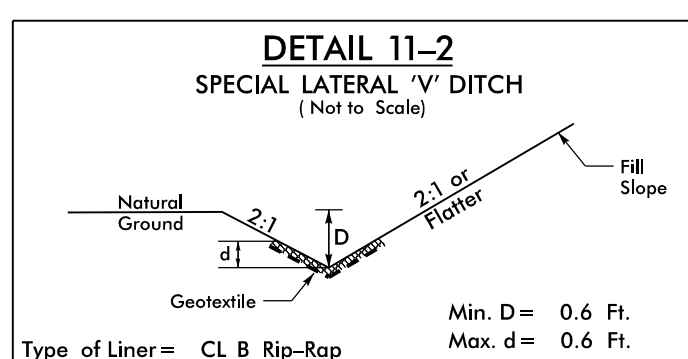
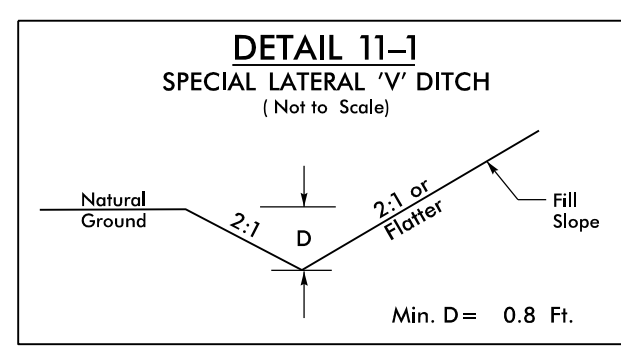
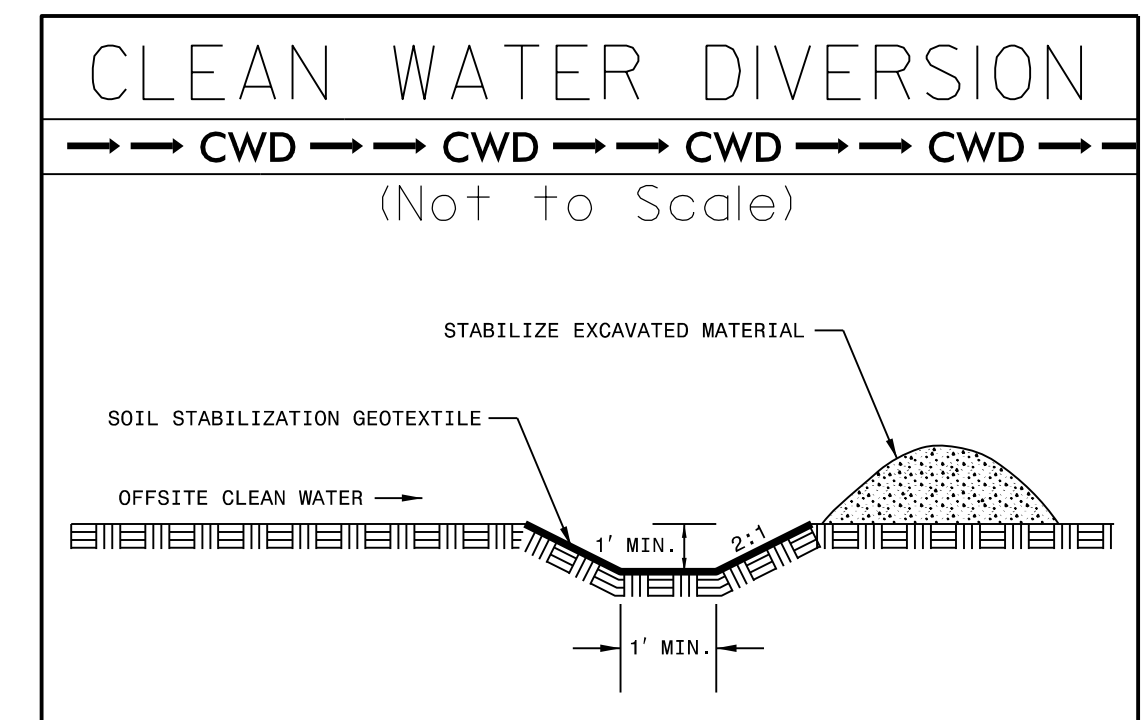
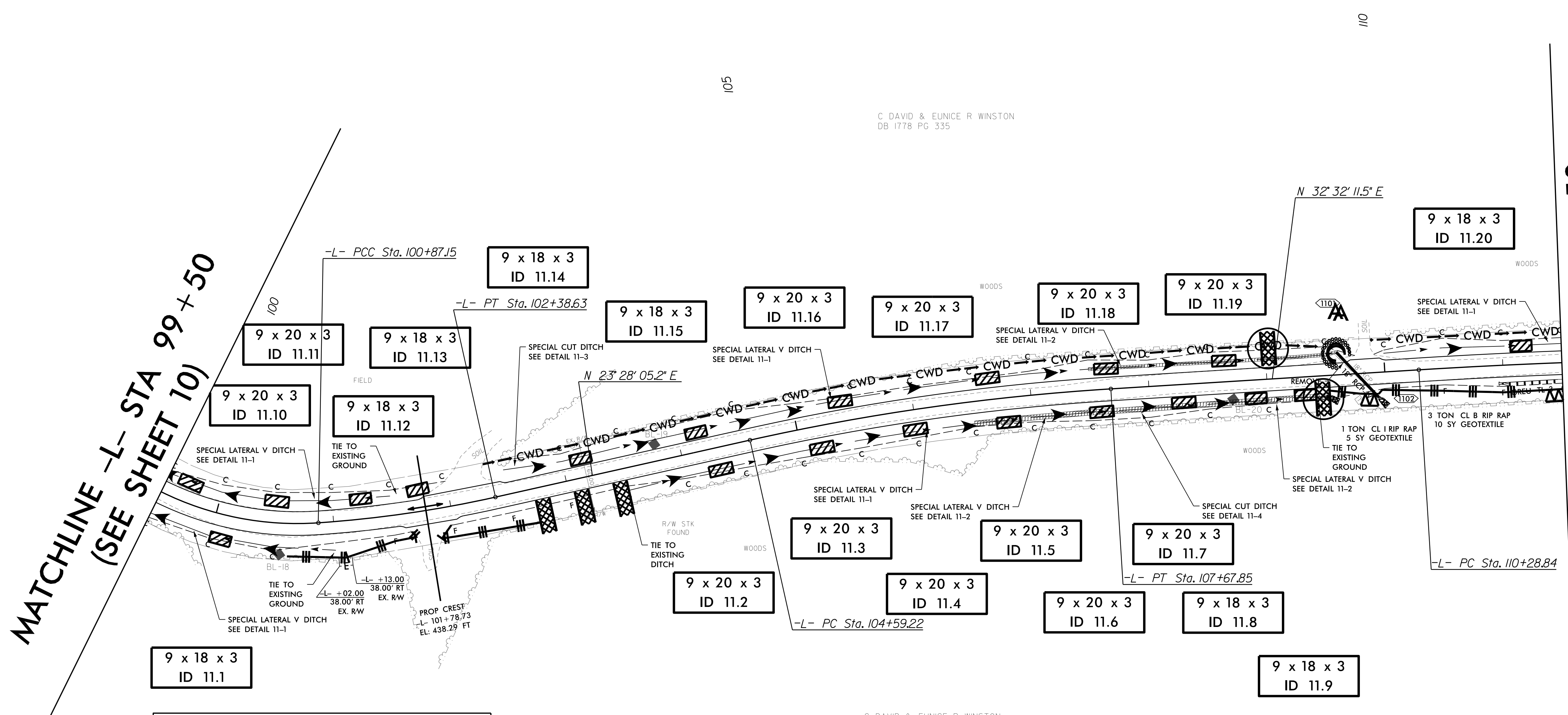
PROJECT REFERENCE NO. 5C.039062	SHEET NO. EC-21
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	
Prepared in the Office of:	 <small>NC FIRM LICENSE No. P-0339 320 Executive Ct. Hillsborough, NC 27278 (919) 332-3883 (919) 732-6676 (FAX)</small>

-L-			
PI Sta 100+07.09 Δ = 36° 34' 43.6" (LT) D = 22° 02' 12.6" L = 165.99' T = 85.93' R = 260.00' DS = 30 mph SE = 06	PI Sta 101+63.04 Δ = 8° 40' 45.1" (LT) D = 5° 43' 46.5" L = 151.48' T = 75.89' R = 1,000.00' DS = 55 mph SE = 06	PI Sta 106+13.86 Δ = 9° 04' 06.2" (RT) D = 2° 56' 17.7" L = 308.63' T = 154.64' R = 1,950.00' DS = 60 mph SE = 06	PI Sta 111+01.99 Δ = 1° 40' 34.9" (RT) D = 1° 08' 45.3" L = 146.29' T = 73.15' R = 5,000.00' DS = 60 mph SE = 03



MATCHLINE -L- STA 99+50  
(SEE SHEET 10)

MATCHLINE -L- STA 111+50  
(SEE SHEET 12)



FROM STA. 99+50 TO STA. 101+50 -L- LT  
FROM STA. 103+00 TO STA. 109+60 -L- LT  
FROM STA. 110+00 TO STA. 111+50 -L- RT  
FROM STA. 99+50 TO STA. 101+00 -L- RT  
FROM STA. 103+50 TO STA. 106+50 -L- RT

FROM STA. 107+50 TO STA. 109+60 -L- LT  
FROM STA. 106+50 TO STA. 107+50 -L- RT  
FROM STA. 108+50 TO STA. 109+50 -L- RT

FROM STA. 102+50 TO STA. 103+00 -L- LT

FROM STA. 107+50 TO STA. 108+50 -L- RT

FOR -L- PROFILE, SEE SHEET 17

REVISIONS  
 03-AUG-2022 11:48  
 03-2020 03:00  
 8/17/99  
 Services\Transportation\20-0300\015 Division 5 Secondary Rd Maint\Site 6 - Conway Elliott Rd\Design\Environmental\Design\Conway\_EC-21\_Final.dgn






8/17/99

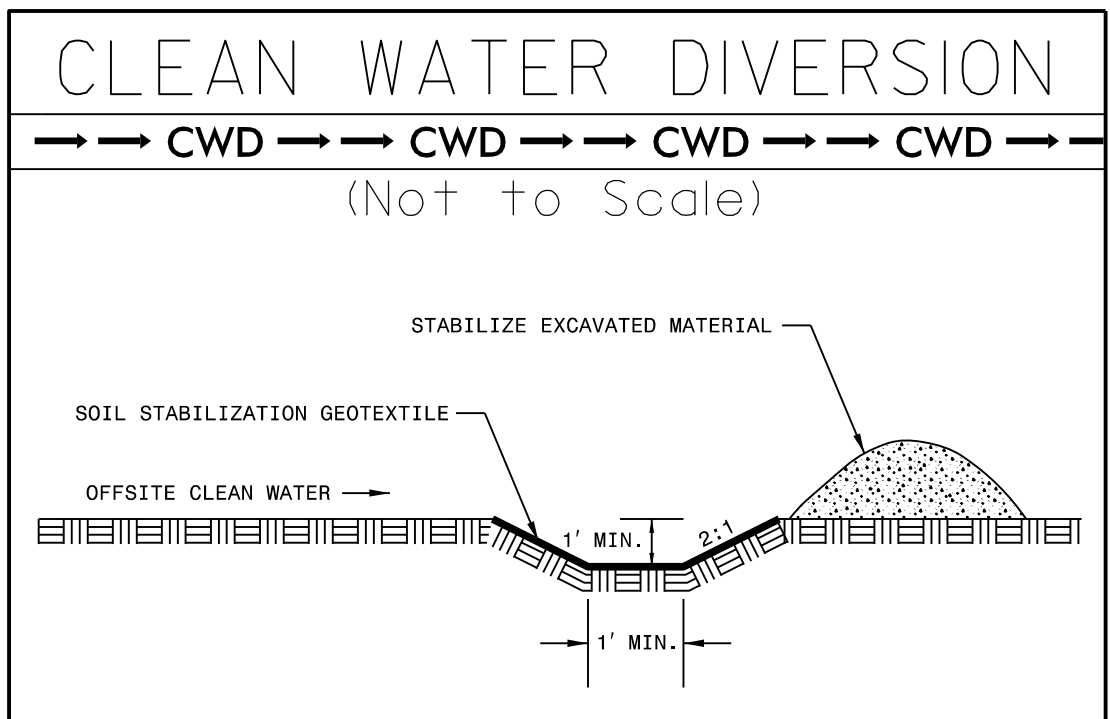
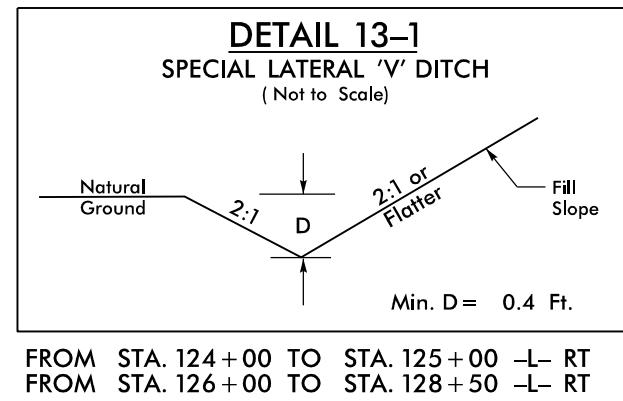
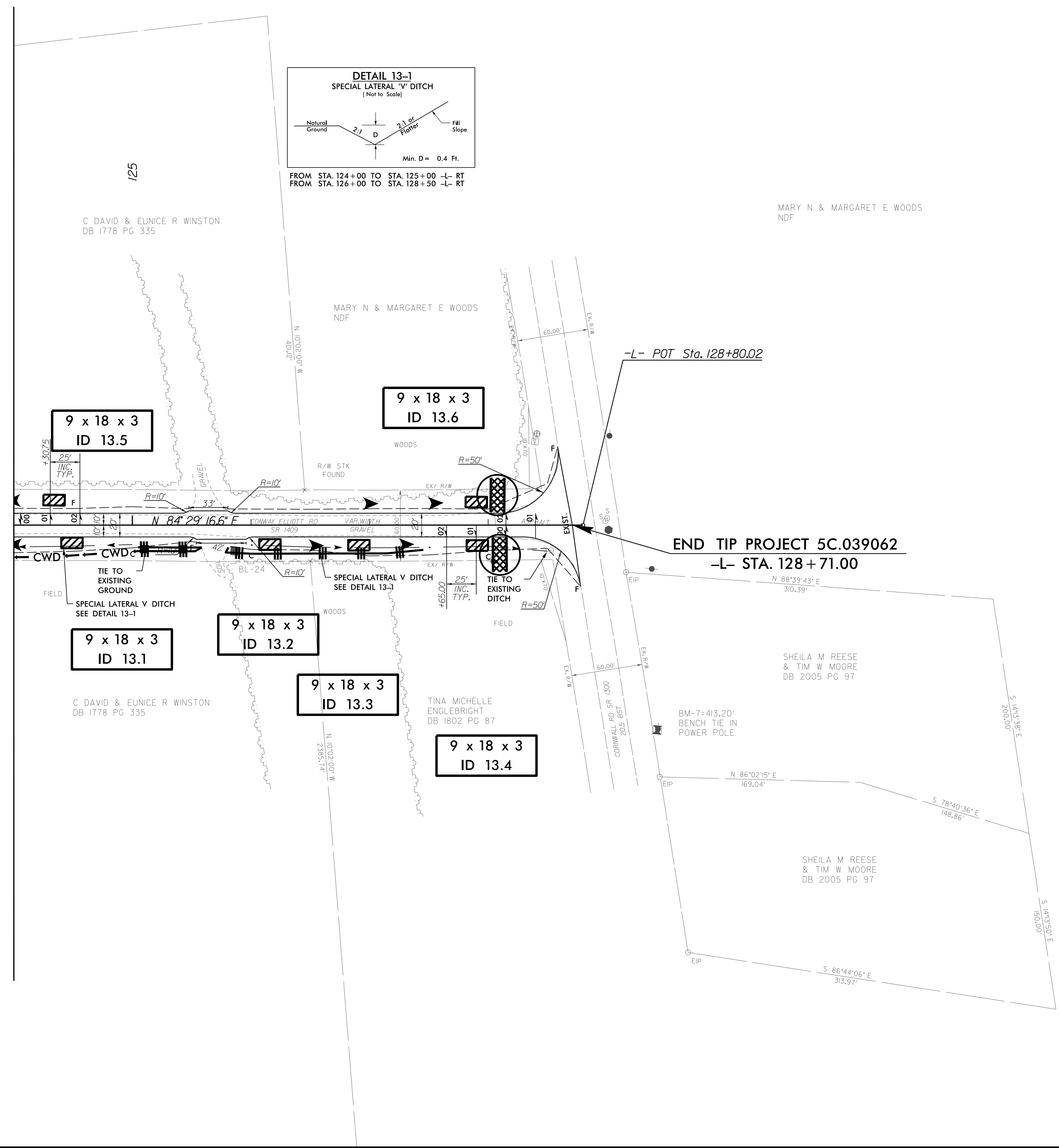
REVISIONS

03-AUG-2022 11:48  
03-2020 03:00:000 NCDOT 2020 Statewide CE Services\Transportation\20-03000\015 Division 5 Secondary Rd Maint\Site 6 - Conway Elliott Rd\Design\Environmental\Design\Conway\_EC\_23\_Final.dgn  
\$\$\$\$\$

PROJECT REFERENCE NO. 5C.039062		SHEET NO. EC-23	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
Prepared in the Office of:		 NC FIRM LICENSE No: P-0339 320 Executive Ct. Hillsborough, NC 27278 (919) 332-3883 (919) 732-6676 (FAX)	



MATCHLINE -L- STA 124+00  
 (SEE SHEET 12)



FOR -L- PROFILE, SEE SHEET 18

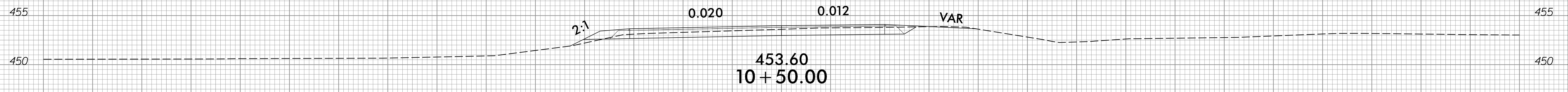
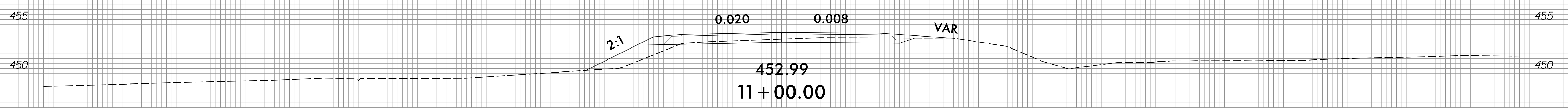
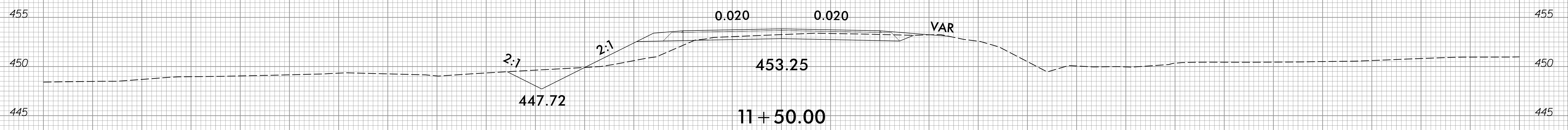
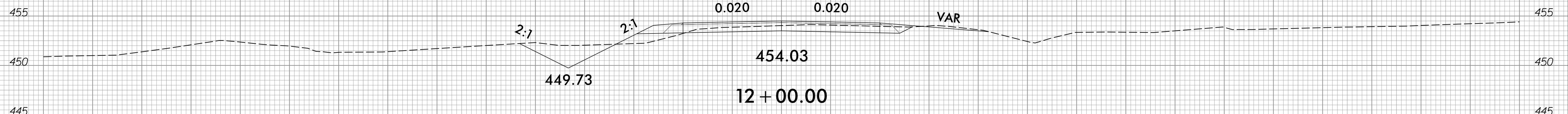
6/23/16



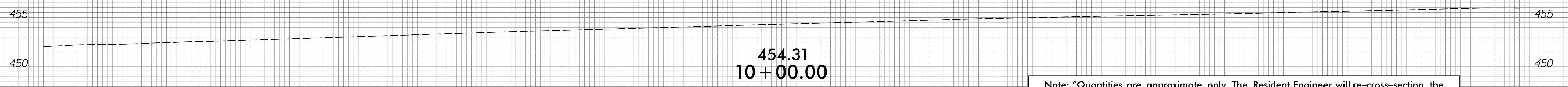
PROJ. REFERENCE NO.  
5C.039062

SHEET NO.  
X-1

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75



BEGIN PROJECT -L- STA. 10+10.00



Note: "Quantities are approximate only. The Resident Engineer will re-cross-section the work accurately when the project is staked out. These cross-section notes will be used in computing the final quantities for which the contractor will be paid."

07-JUL-2022 16:54  
Conway\_Hdly\_xpl.dgn  
Spencer.mbr 1:1

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

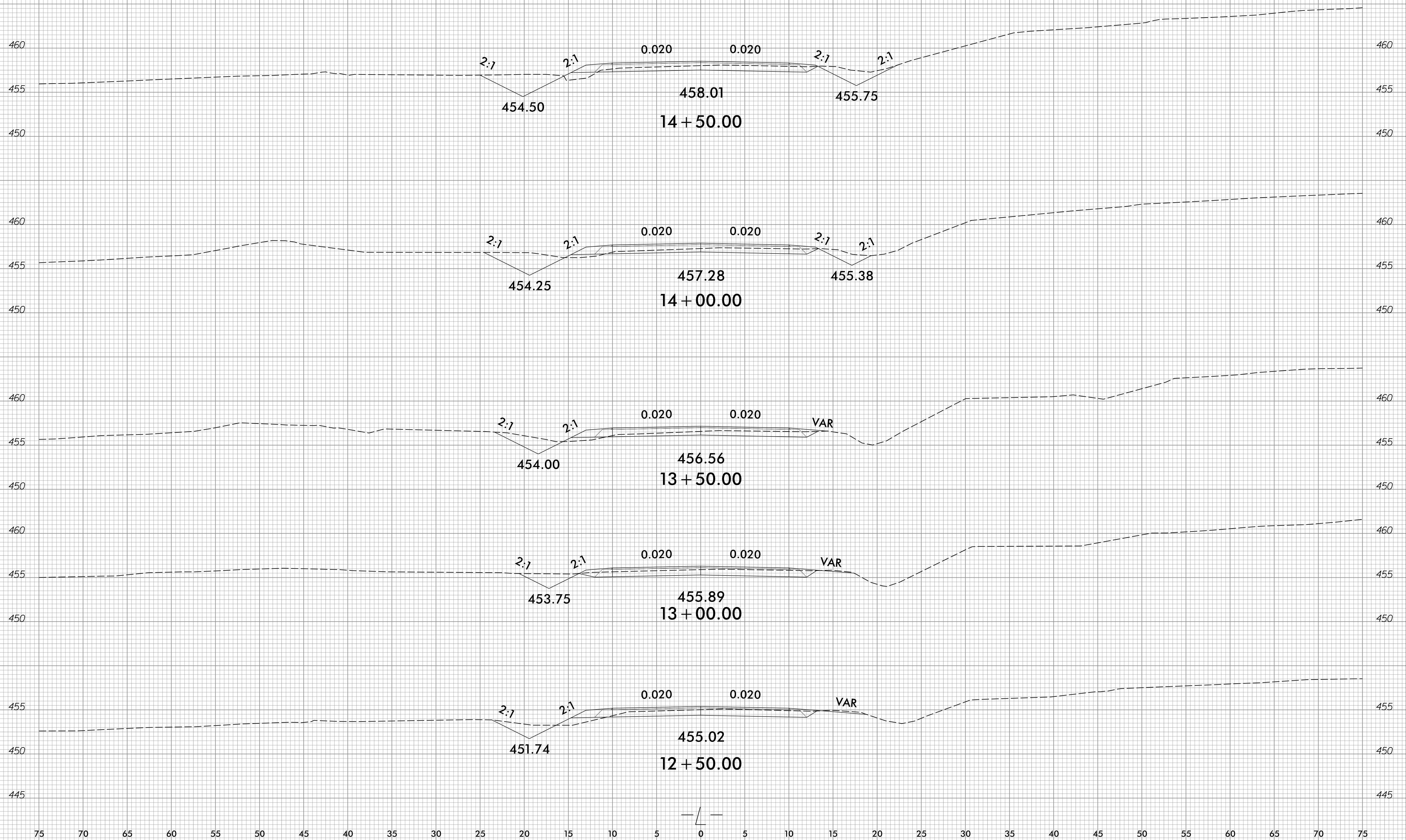


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PROJ. REFERENCE NO.	SHEET NO.
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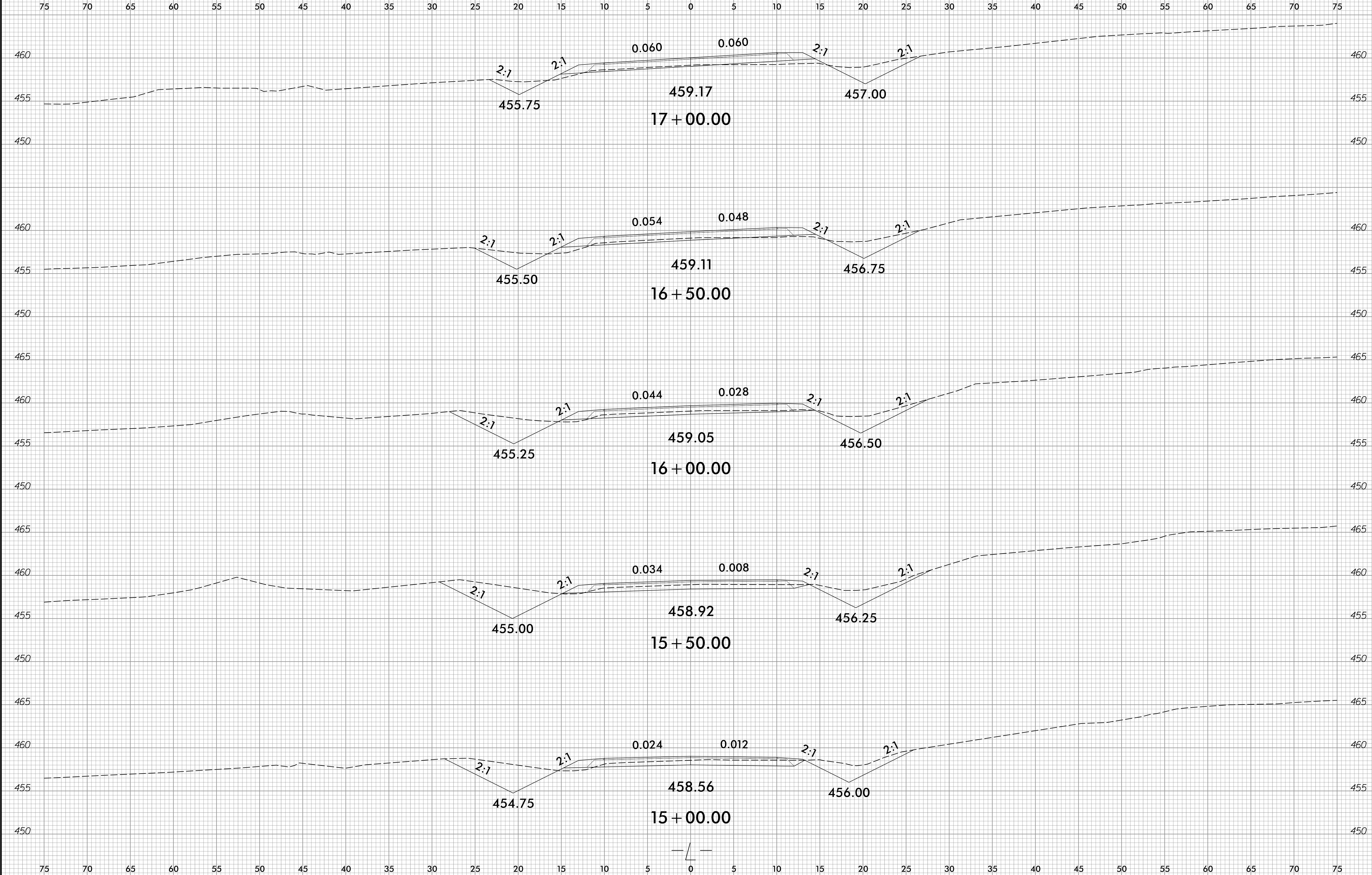
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 Spencer.mbr/ljt

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PROJ. REFERENCE NO.  
5C.039062

SHEET NO.  
X-3



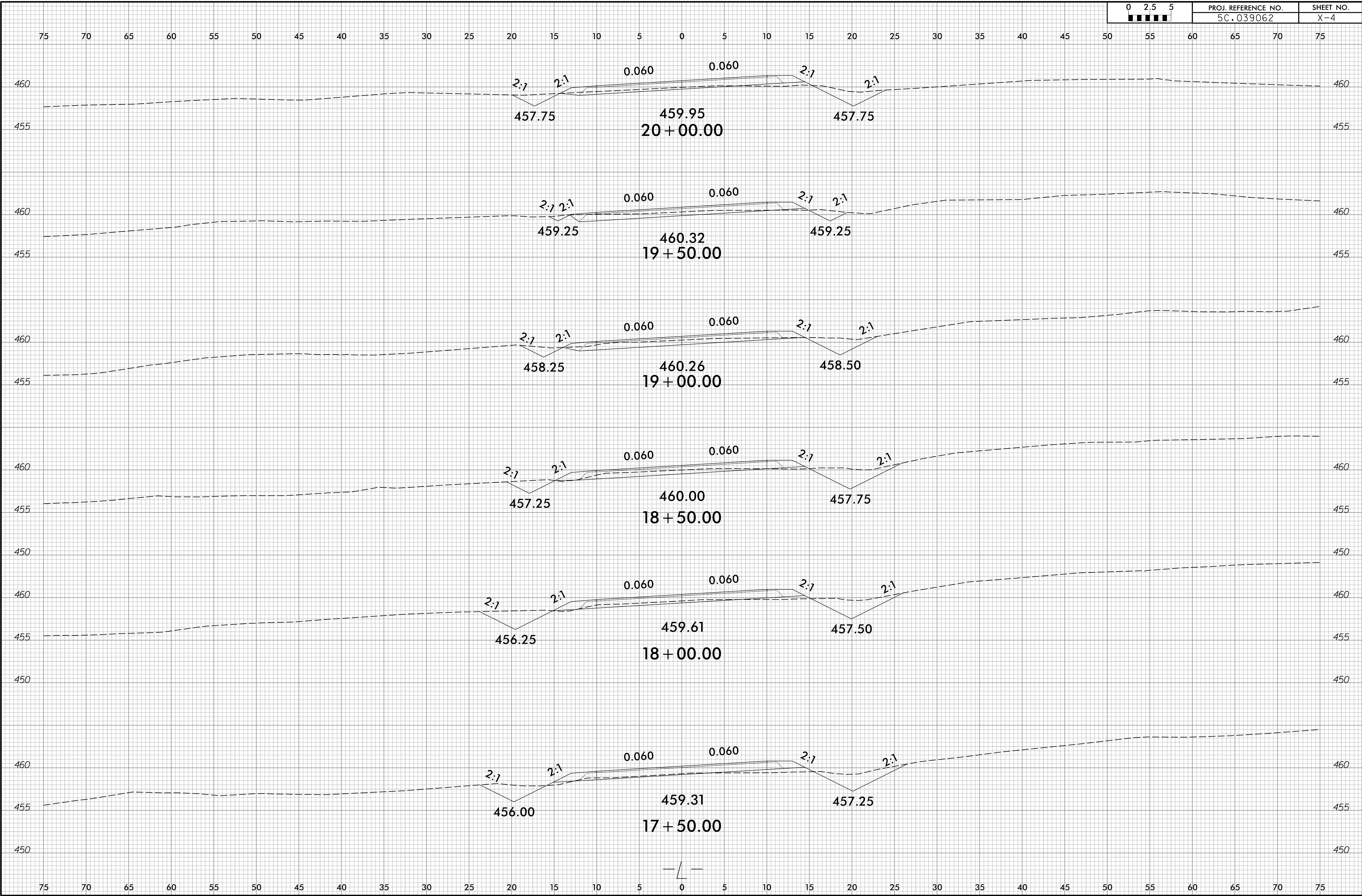
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spencer.miller@tt



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PROJ. REFERENCE NO.	SHEET NO.
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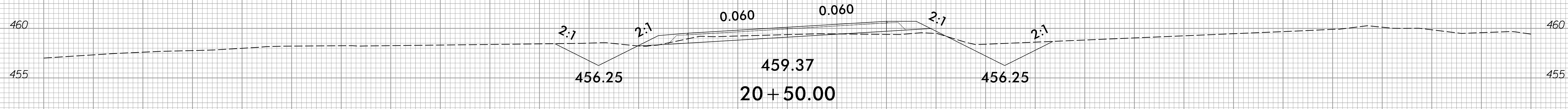
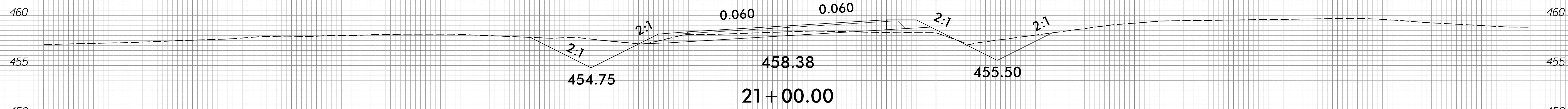
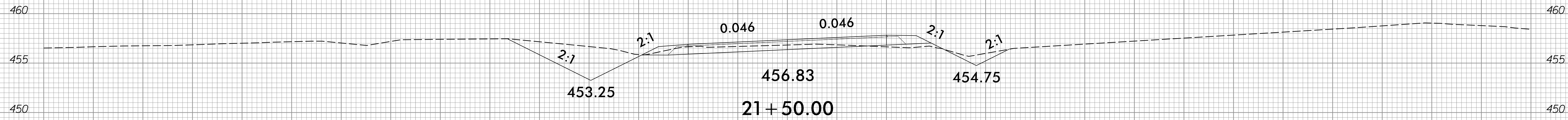
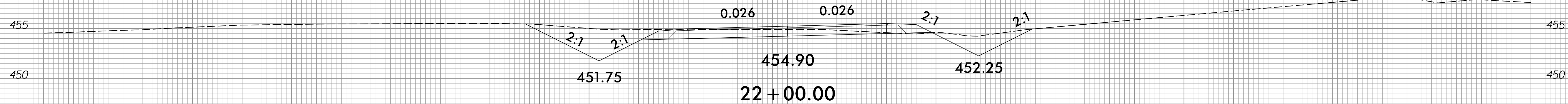
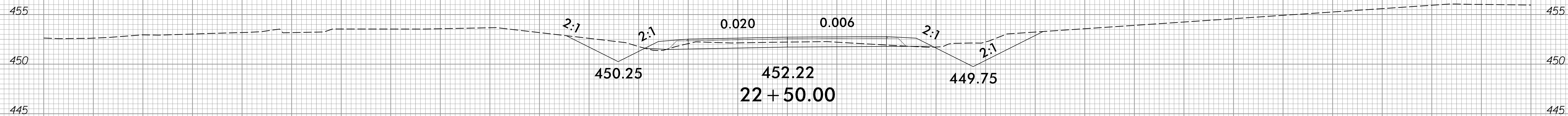
6/23/16



PROJ. REFERENCE NO.  
5C.039062

SHEET NO.  
X-5

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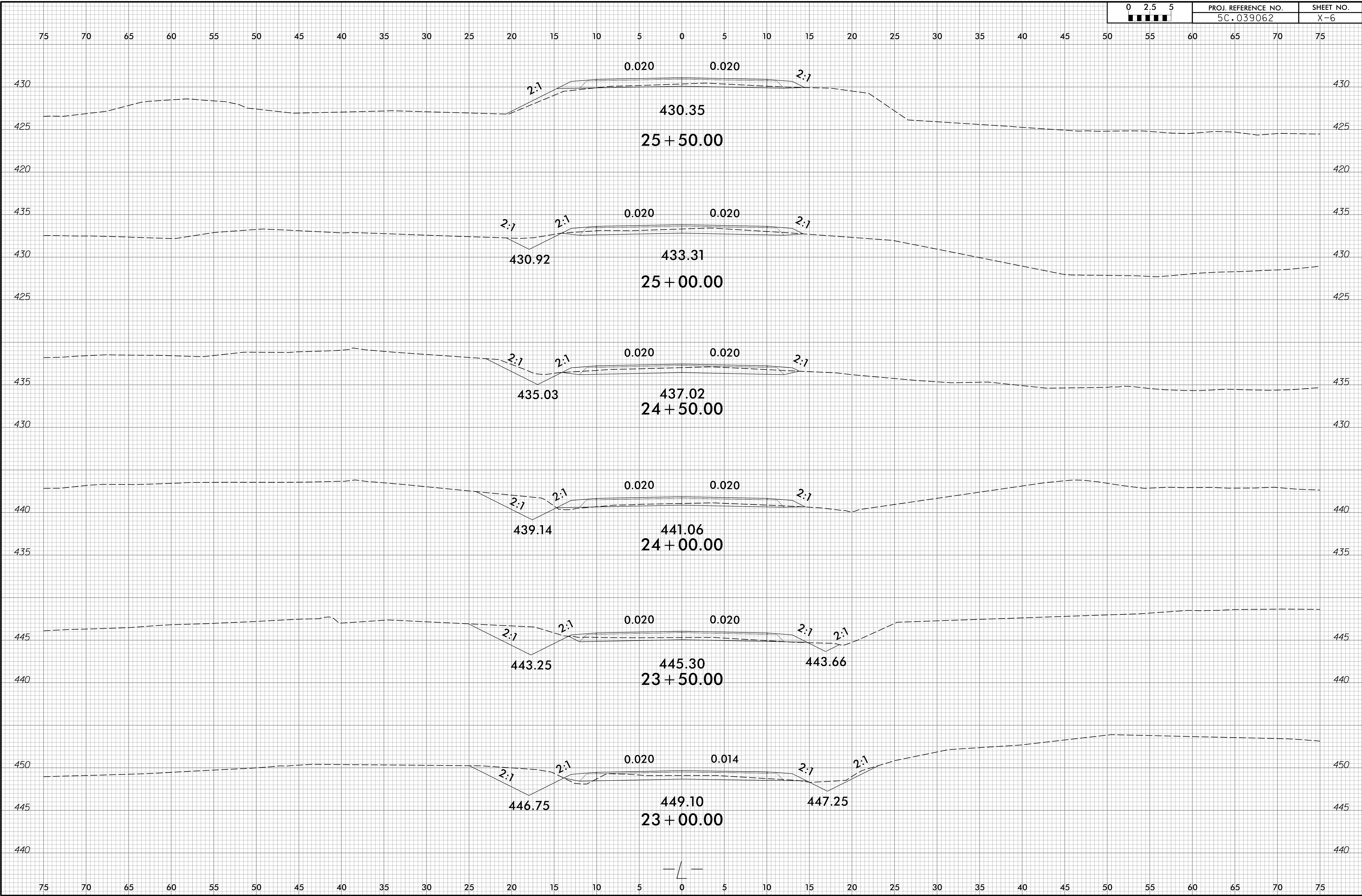
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Conway\_Hdly\_xpl.dgn  
Spencer.mbr



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PROJ. REFERENCE NO.	SHEET NO.
5C.039062	X-6



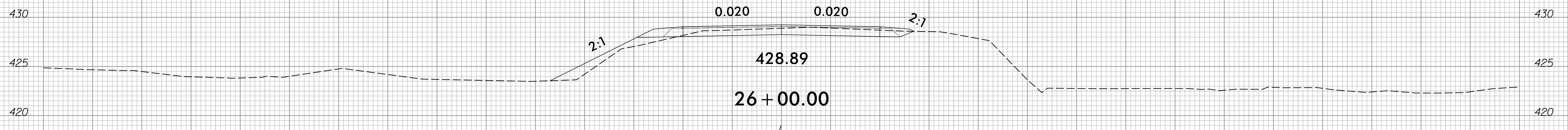
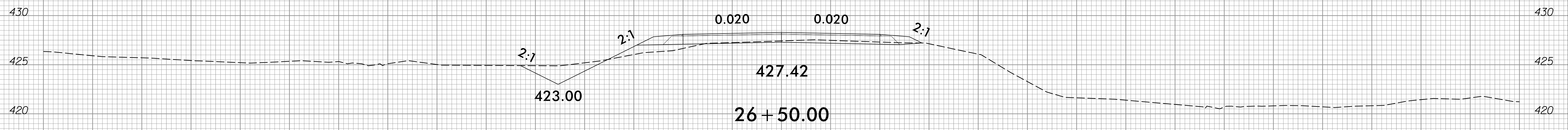
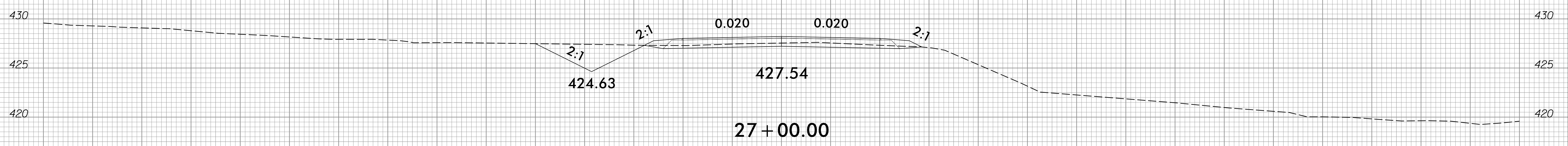
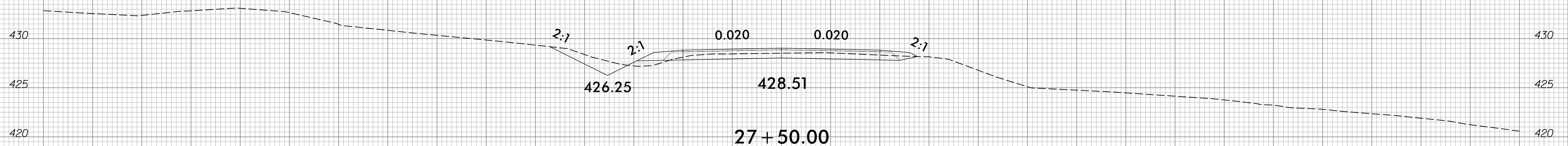
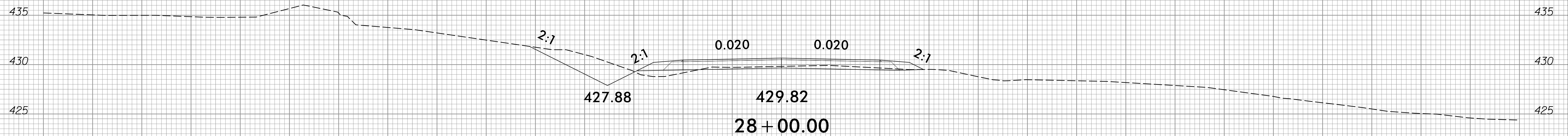
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 Conway\_Hdly\_xpl.dgn  
 Spencer.mbr

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PROJ. REFERENCE NO.	SHEET NO.
5C.039062	X-7

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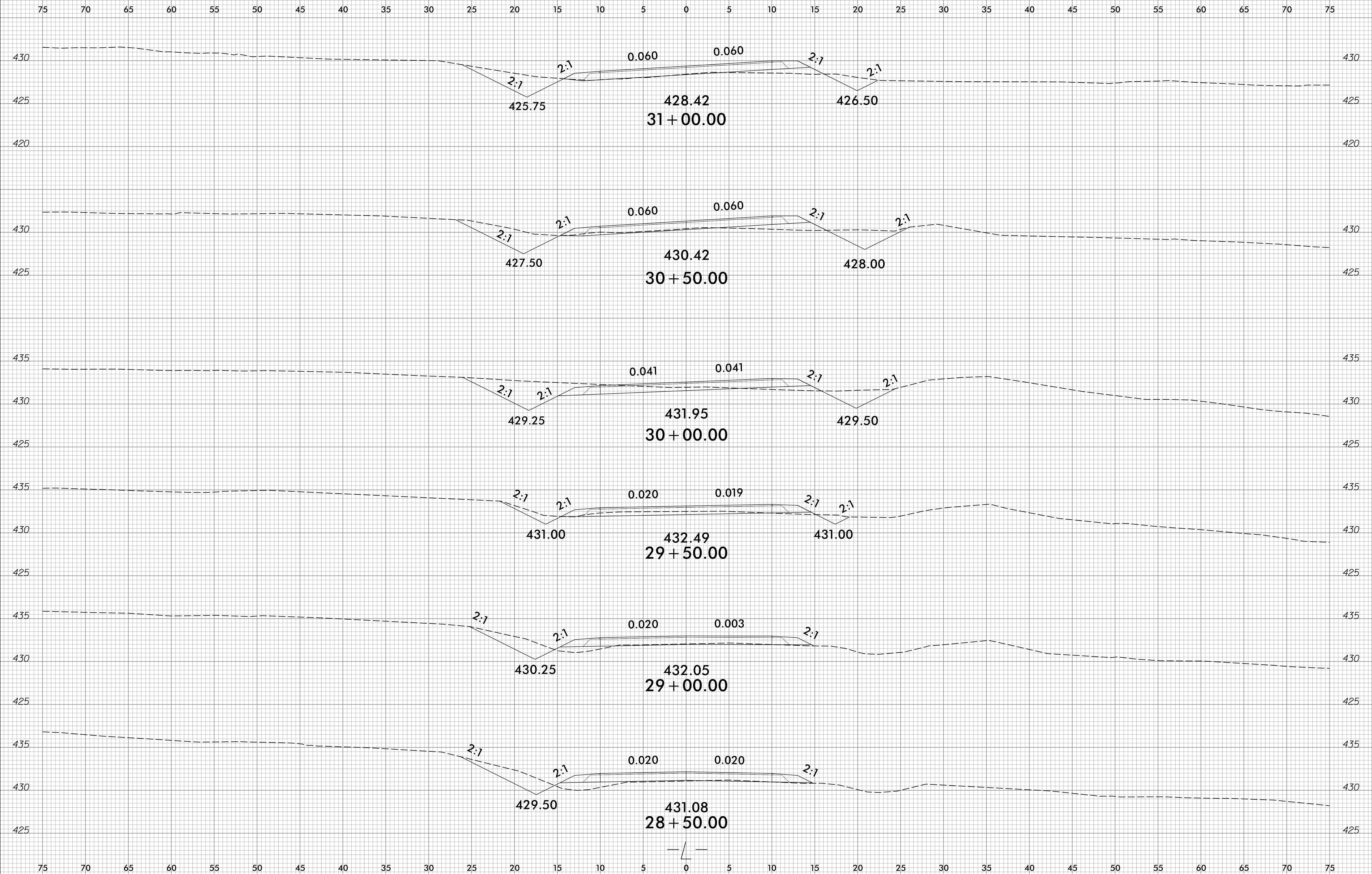
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Spencer.mbr/ljt



6/23/16



PROJ. REFERENCE NO.	SHEET NO.
5C.039062	X-8



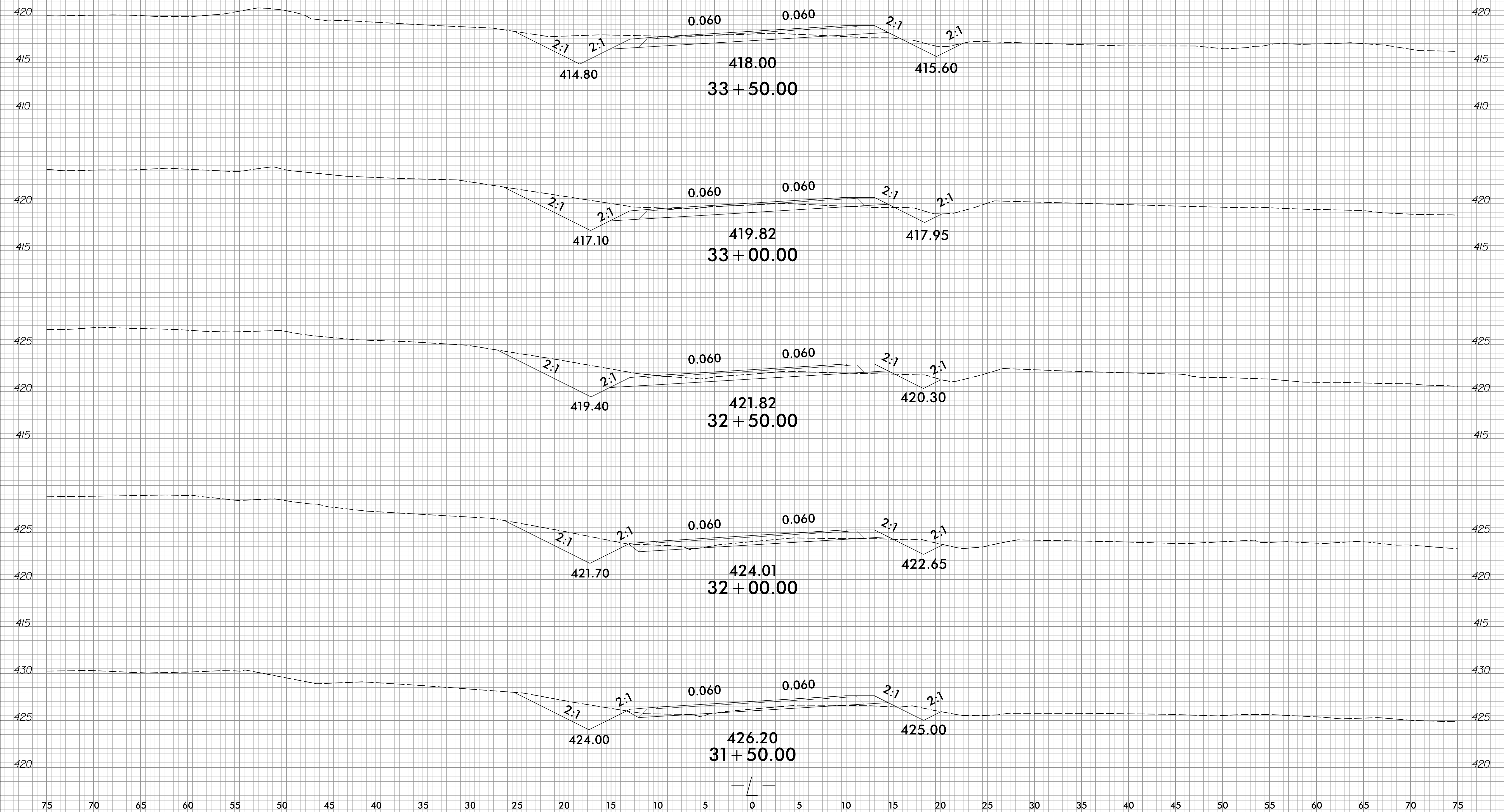
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Spencer\_number.rvt

6/23/16



PROJ. REFERENCE NO.	SHEET NO.
5C.039062	X-9

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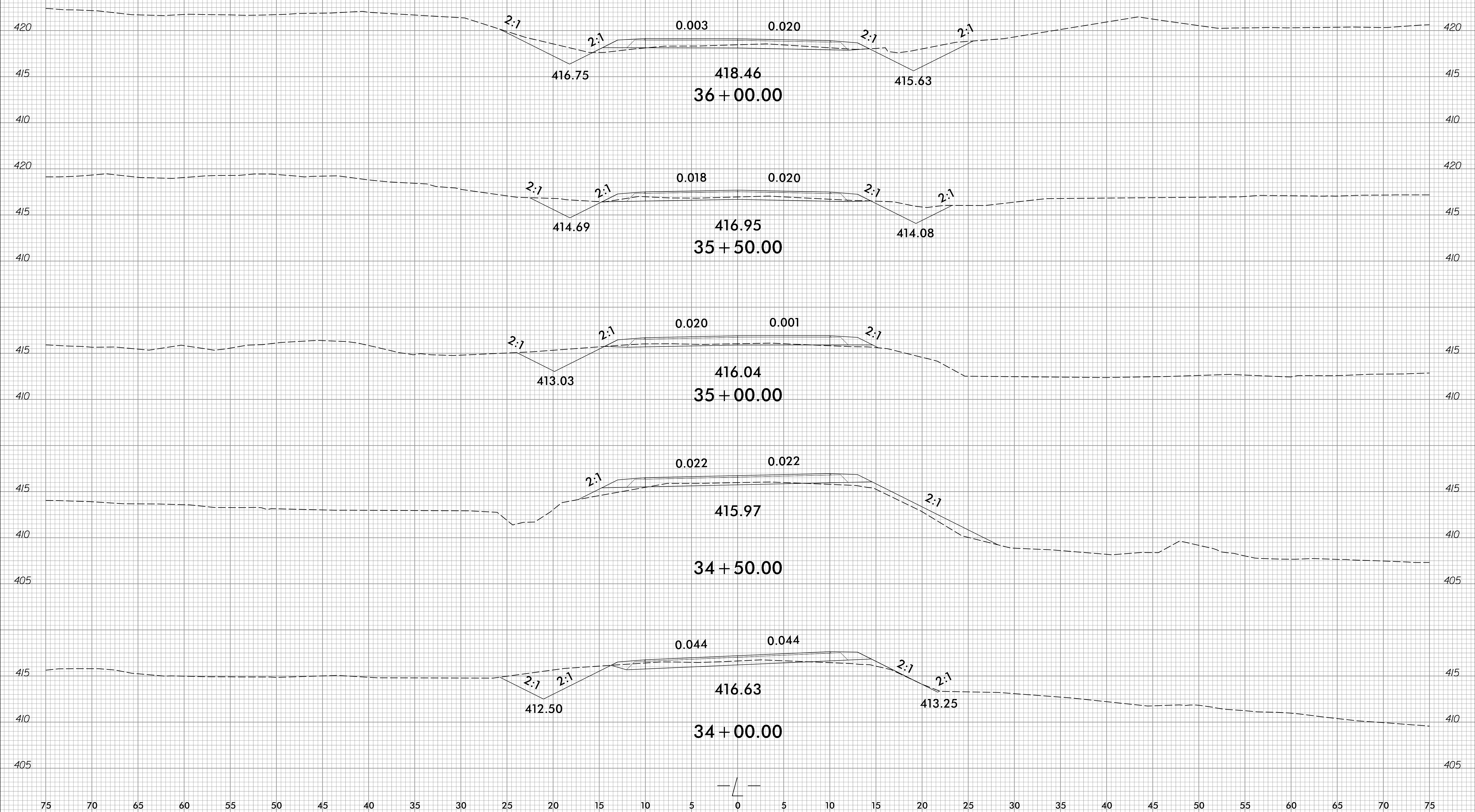
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 Spencer.mbr 1:1

6/23/16



PROJ. REFERENCE NO.	SHEET NO.
5C.039062	X-10

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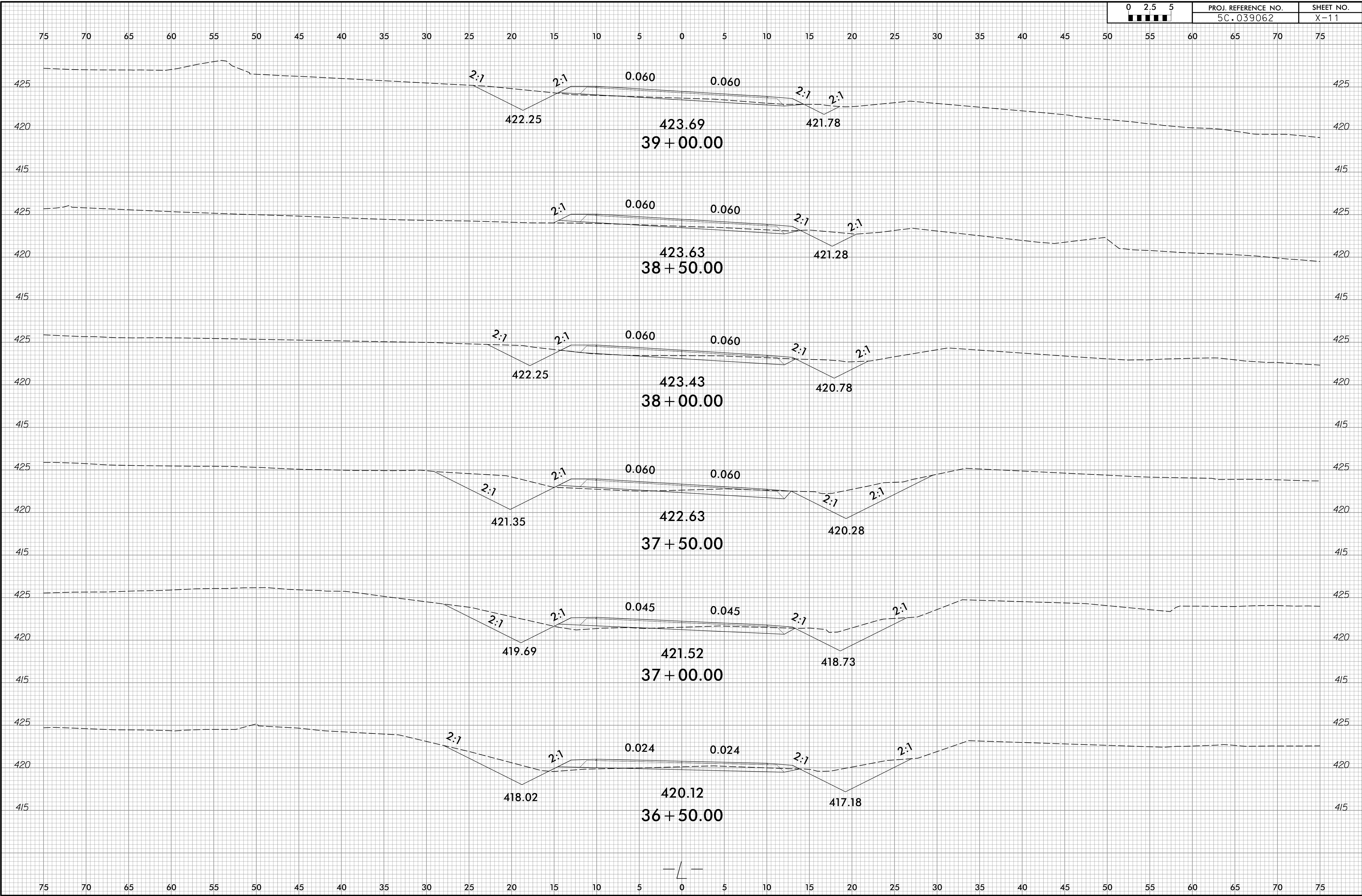
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 Spencer.mbr



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PROJ. REFERENCE NO.	SHEET NO.
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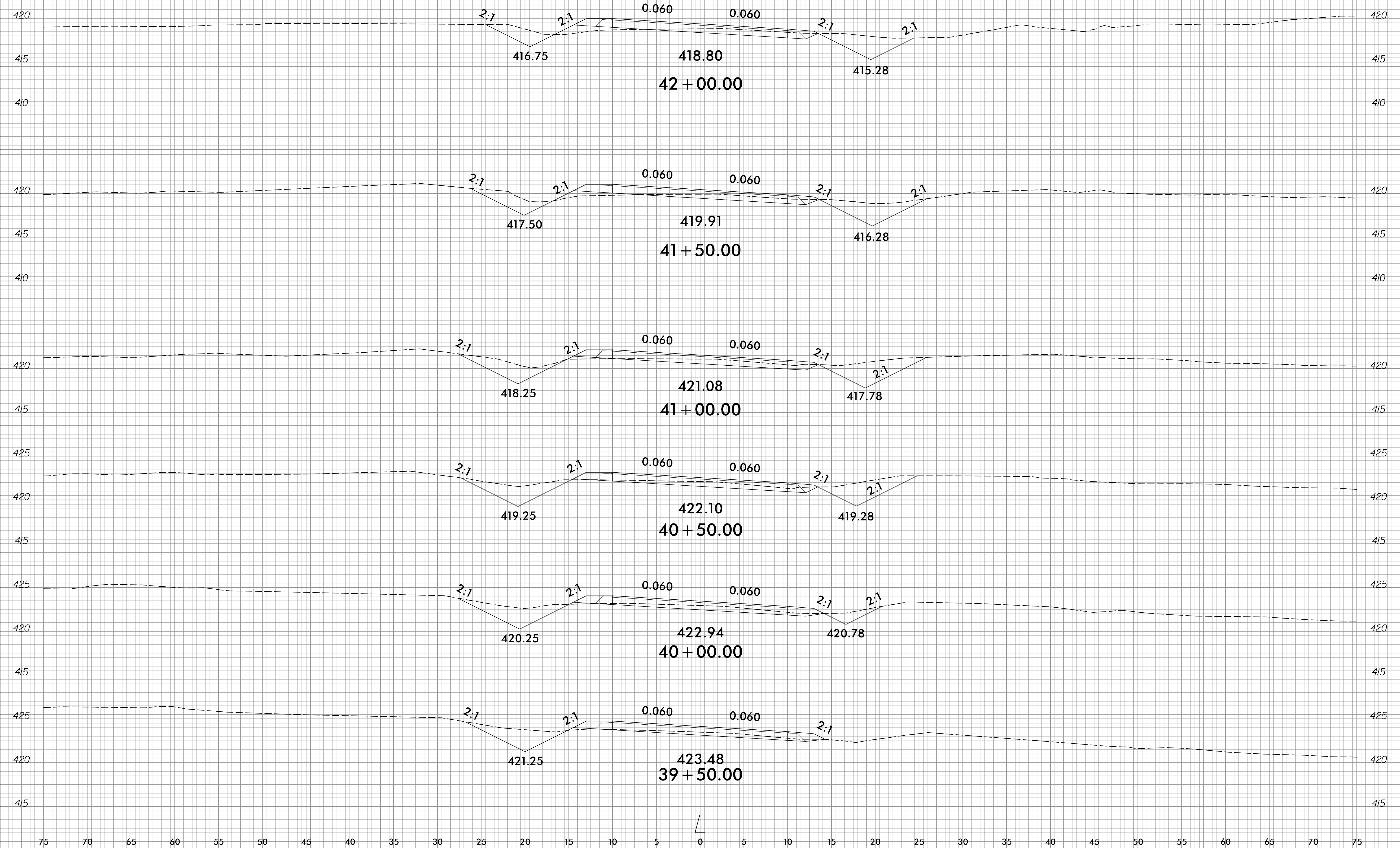
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Spencer.mbr

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PROJ. REFERENCE NO.	SHEET NO.
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07-JUL-2022 16:54  
 Conway\_Hdly\_xpl.dgn  
 Spencer, Jennifer, LLC

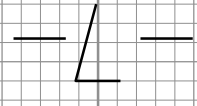
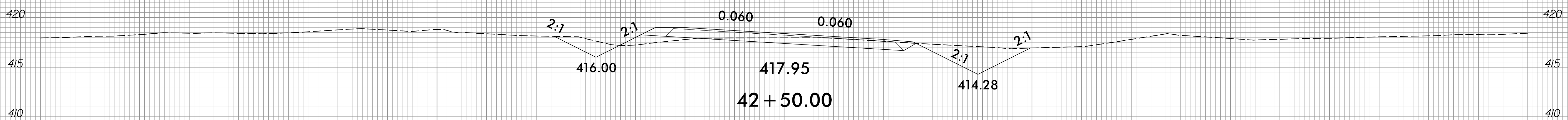
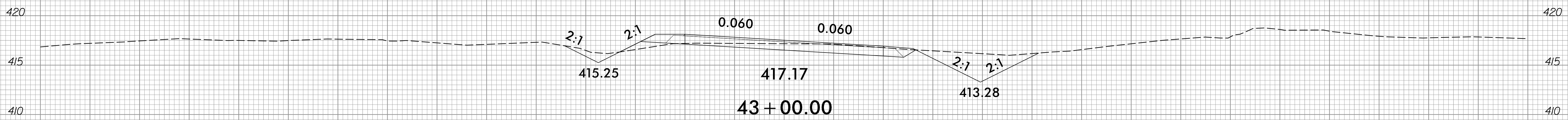
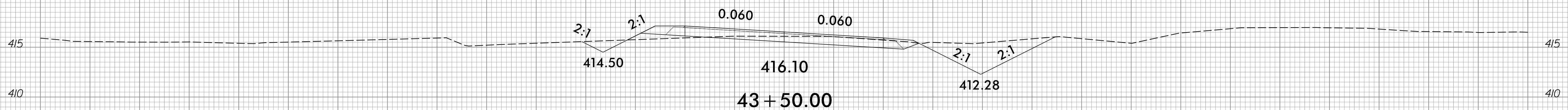
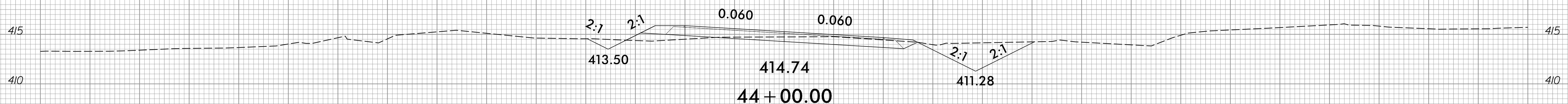
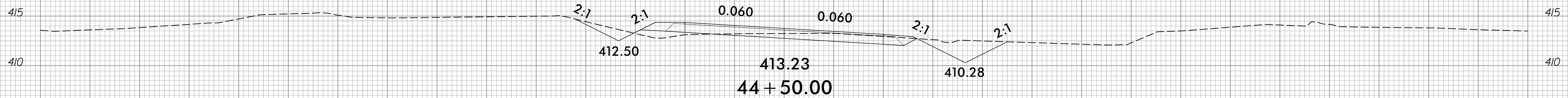
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PROJ. REFERENCE NO.  
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SHEET NO.  
X-13

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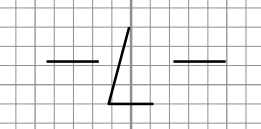
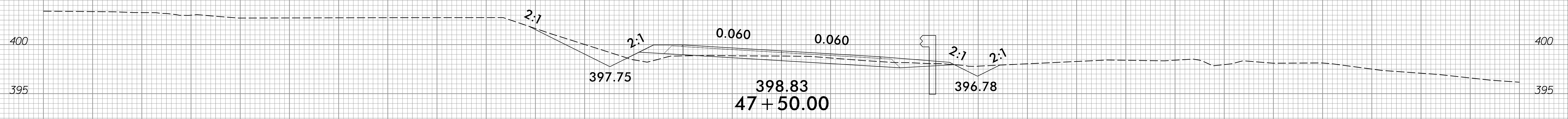
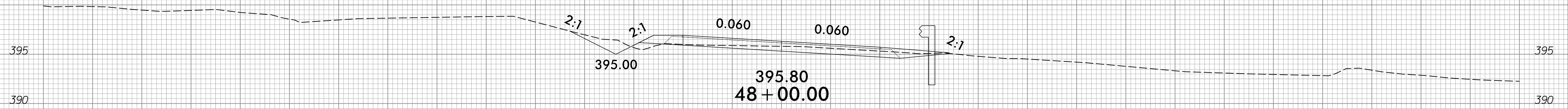
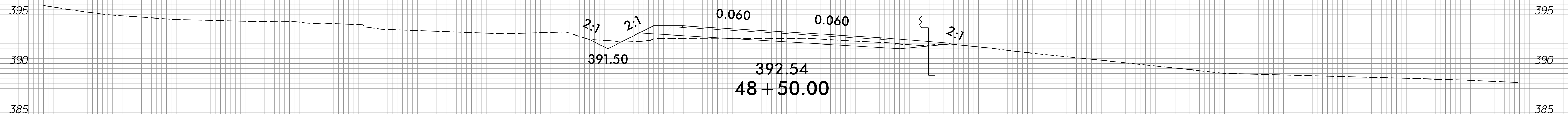
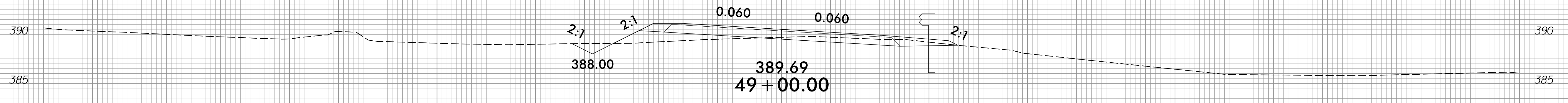
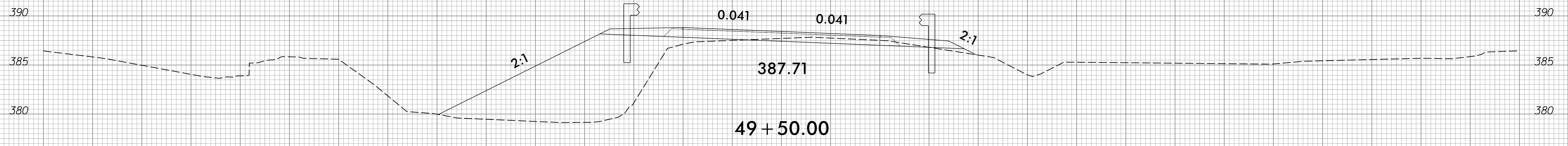


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PROJ. REFERENCE NO.	SHEET NO.
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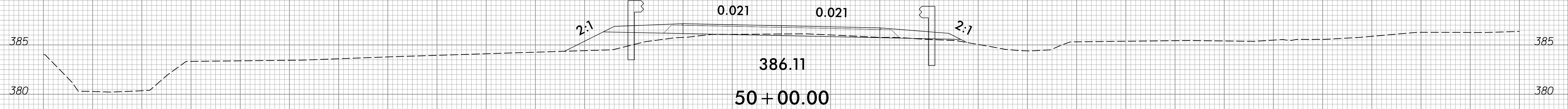
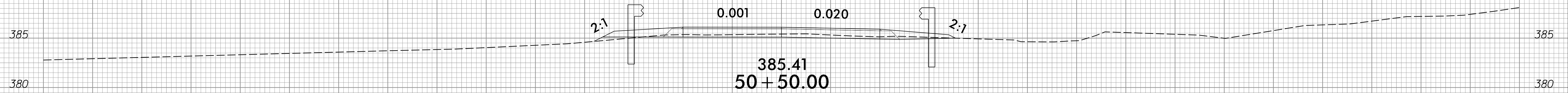
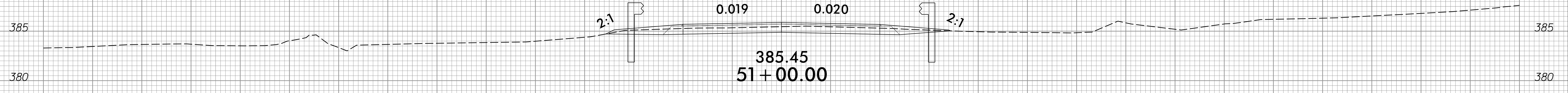
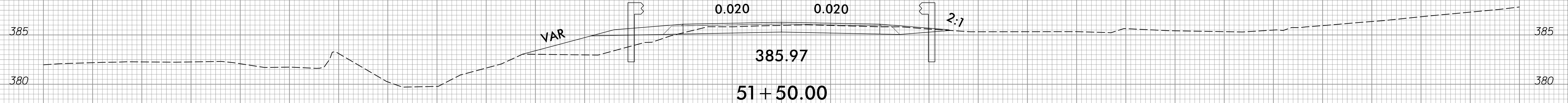
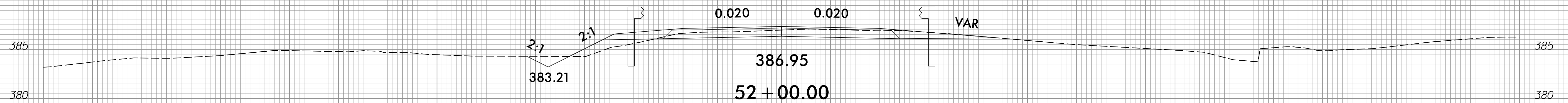
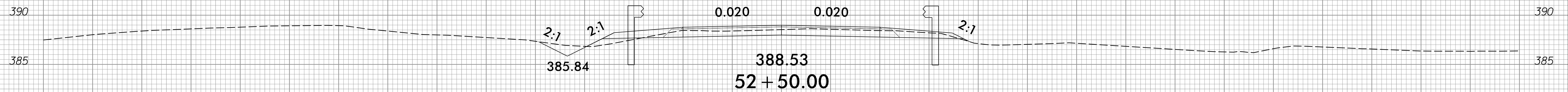
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6/23/16



PROJ. REFERENCE NO.	SHEET NO.
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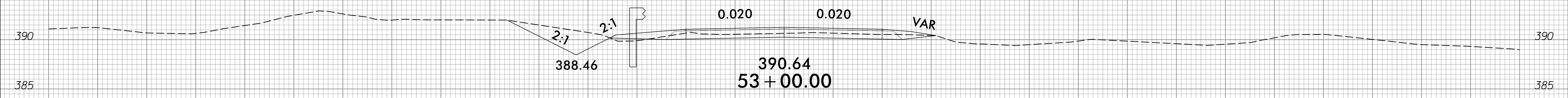
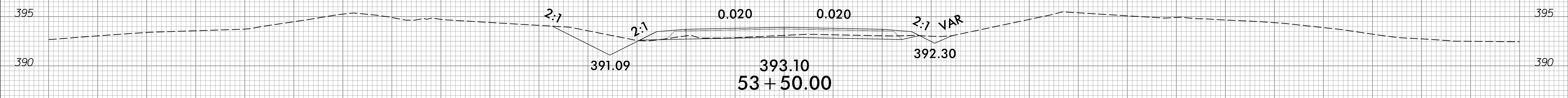
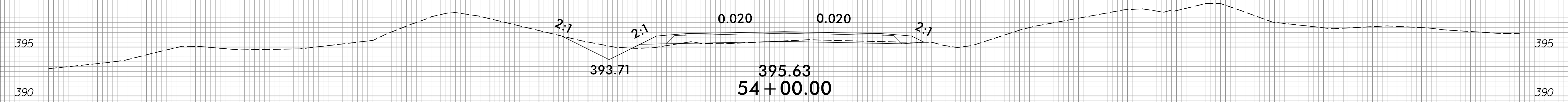
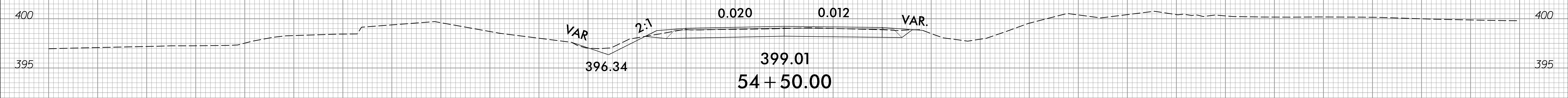
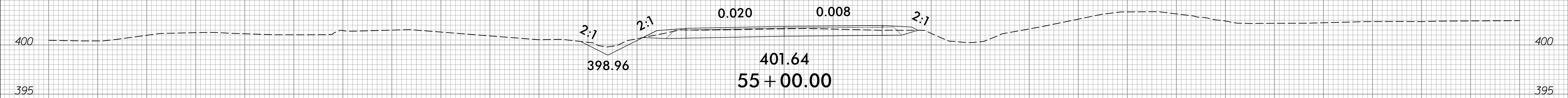
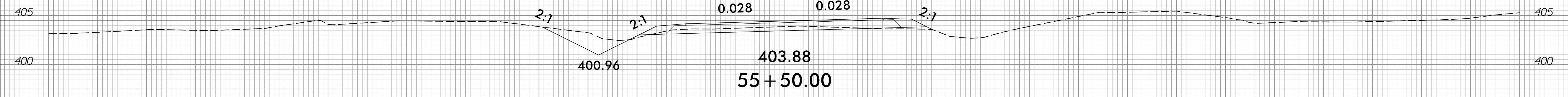


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PROJ. REFERENCE NO.	SHEET NO.
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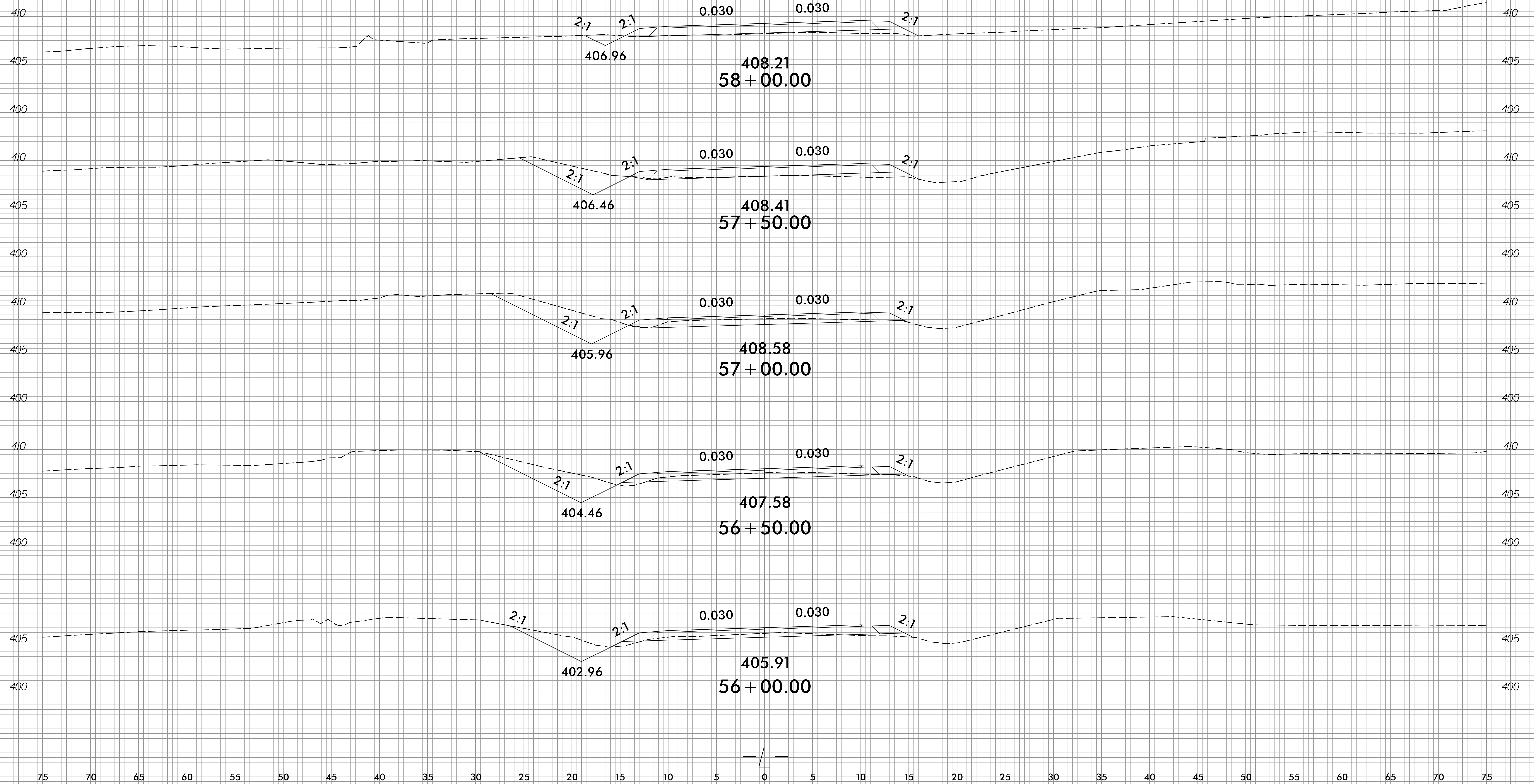
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PROJ. REFERENCE NO.	SHEET NO.
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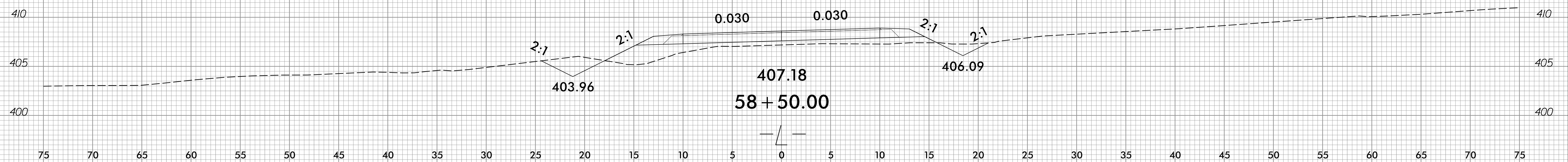
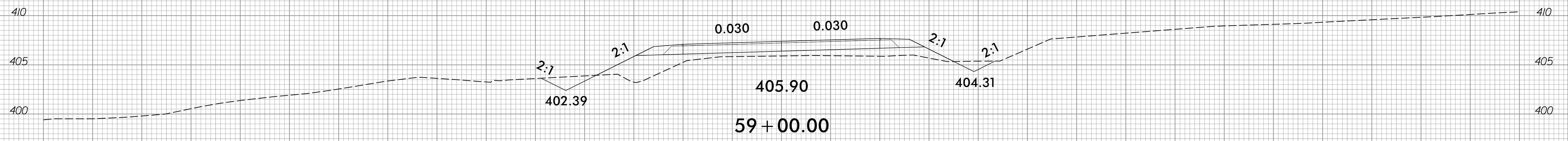
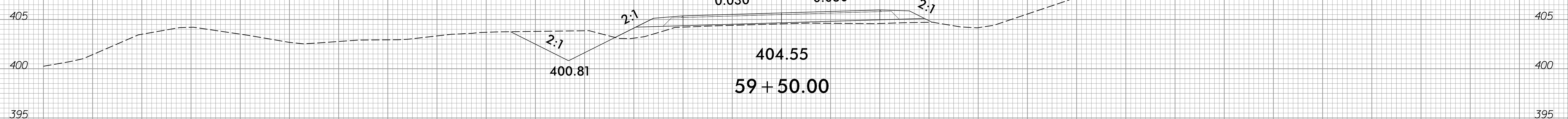
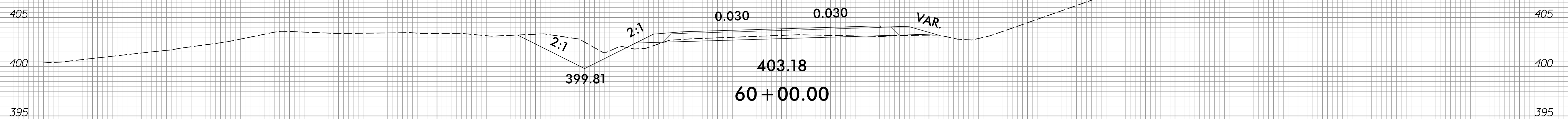
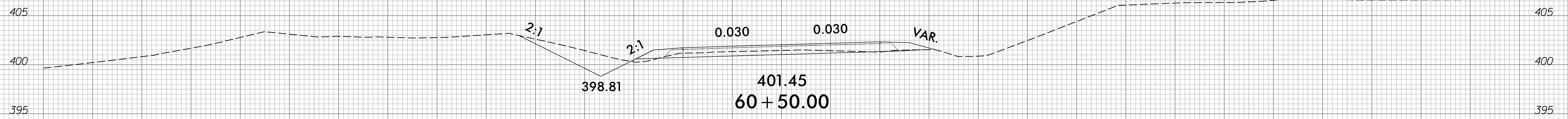
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6/23/16



PROJ. REFERENCE NO.	SHEET NO.
5C.039062	X-19

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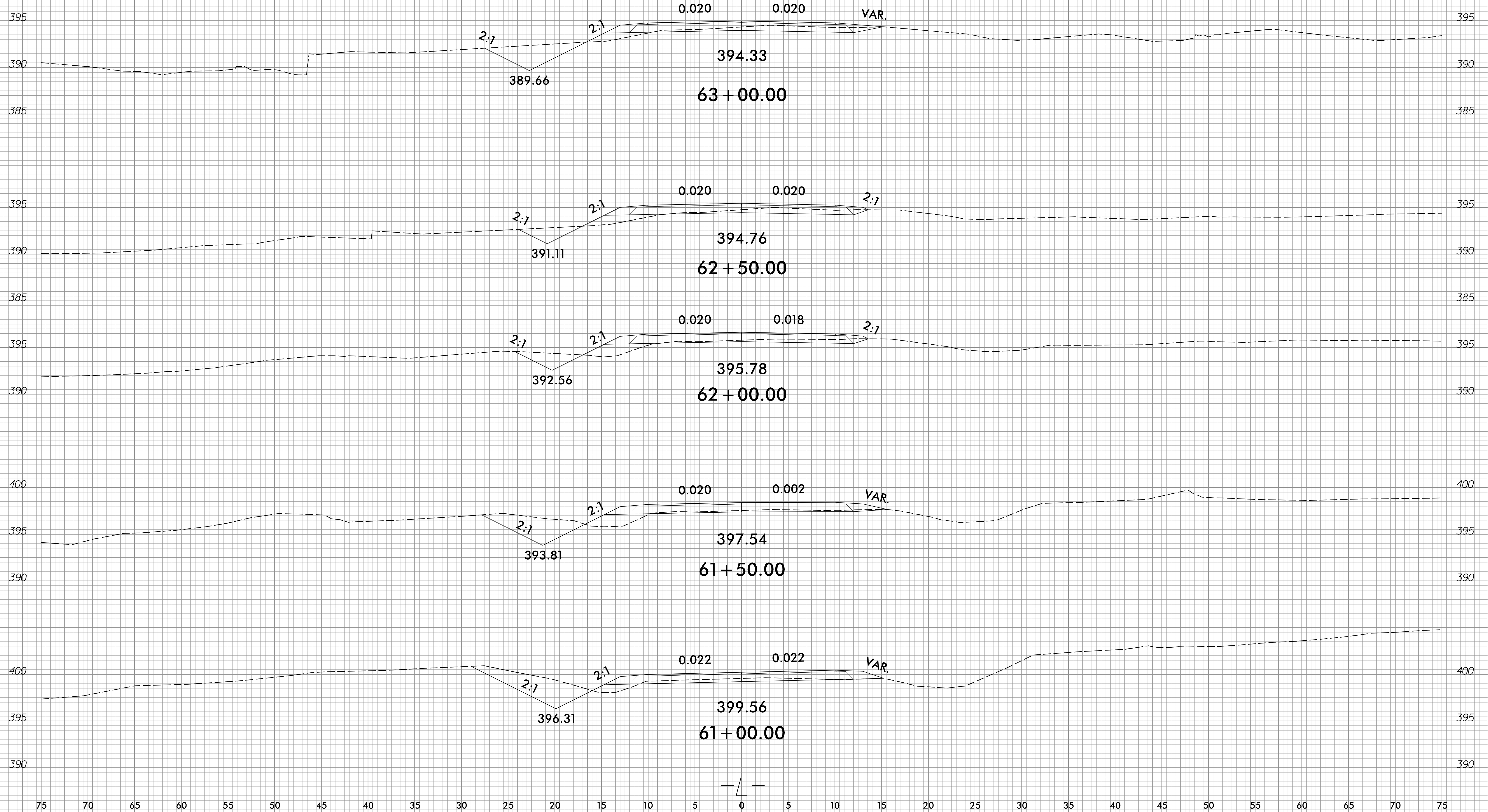


6/23/16



PROJ. REFERENCE NO.	SHEET NO.
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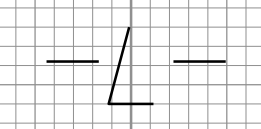
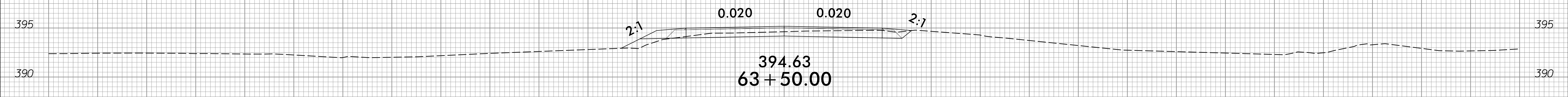
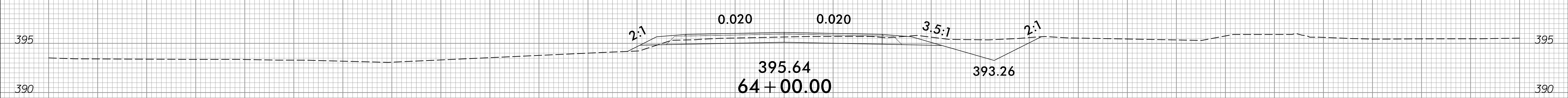
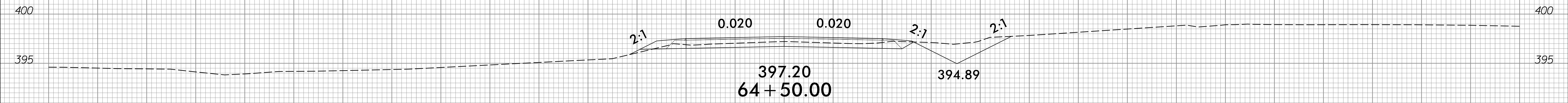
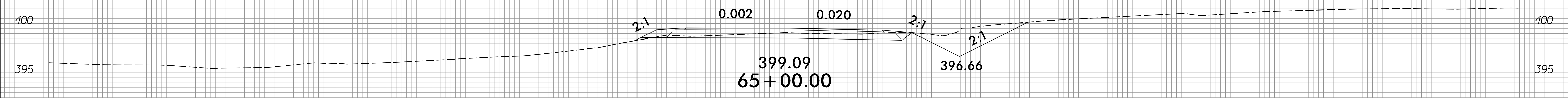
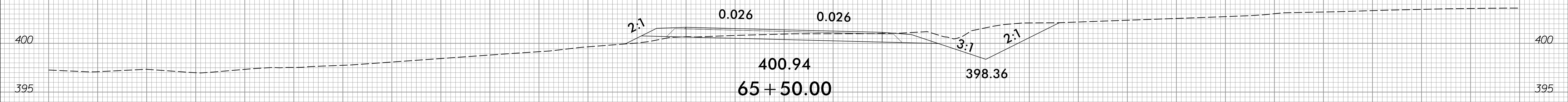
6/23/16



PROJ. REFERENCE NO.  
5C.039062

SHEET NO.  
X-21

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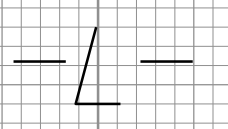
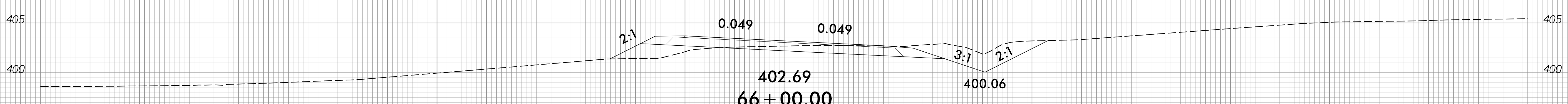
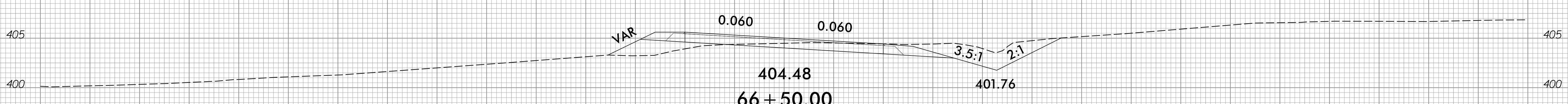
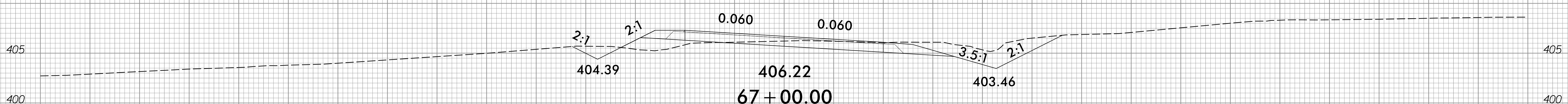
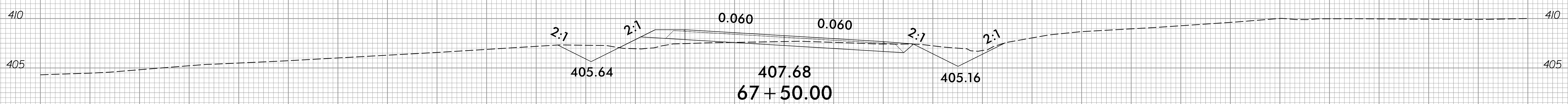
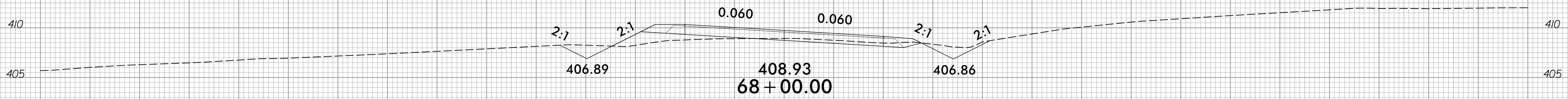
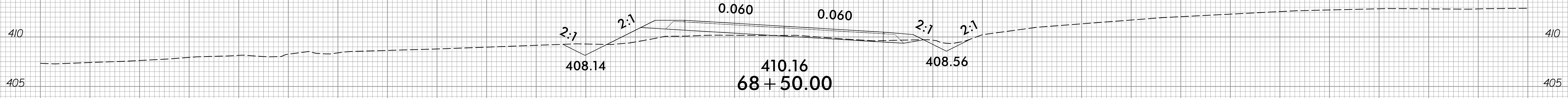
6/23/16



PROJ. REFERENCE NO.  
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SHEET NO.  
X-22

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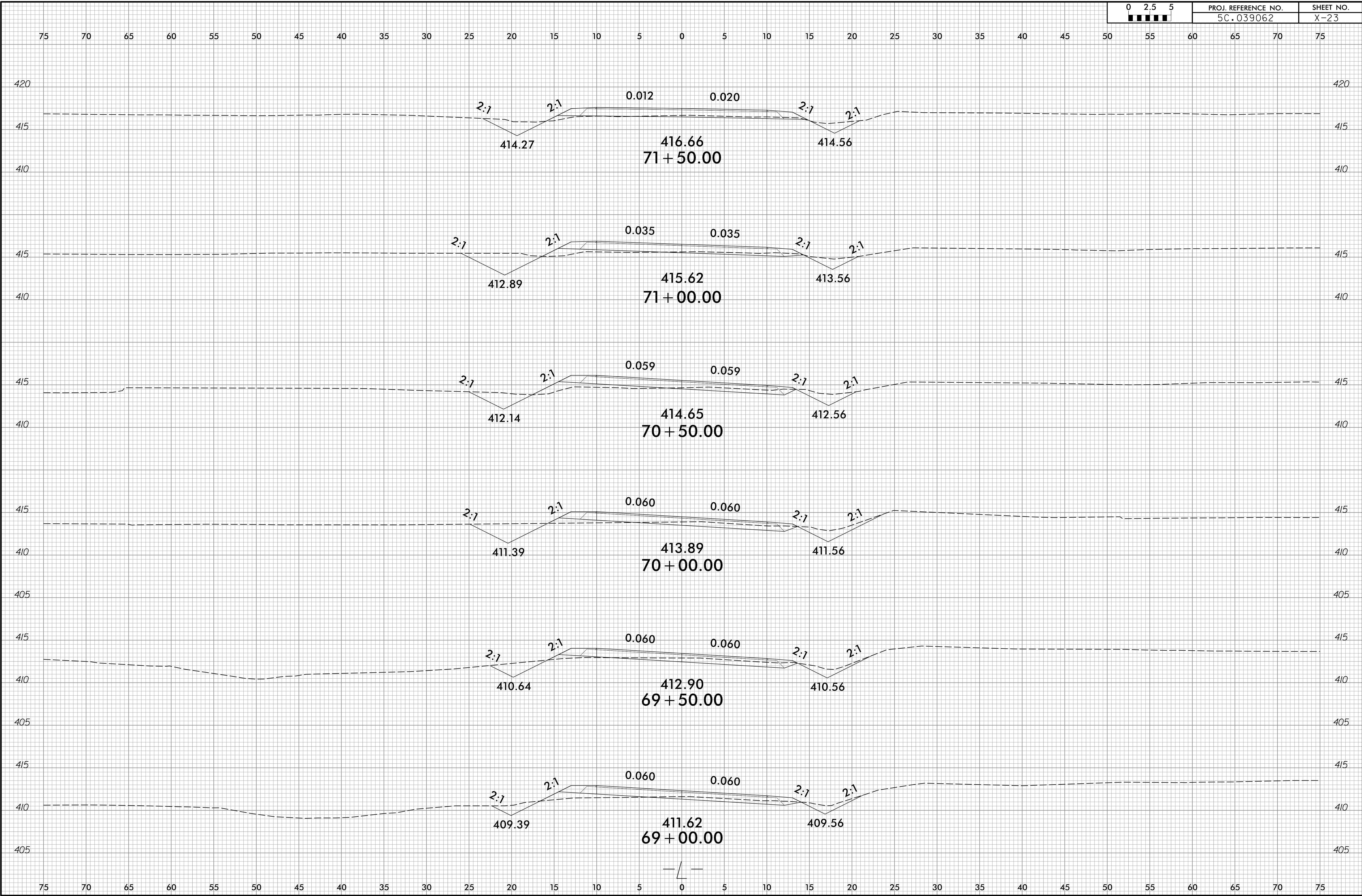
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PROJ. REFERENCE NO.	SHEET NO.
5C.039062	X-23



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 Spencer.mbr fct

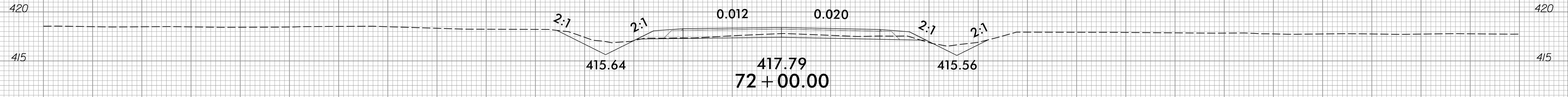
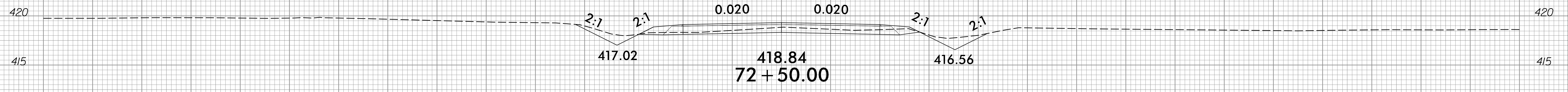
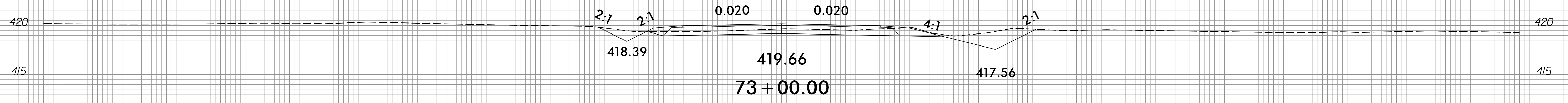
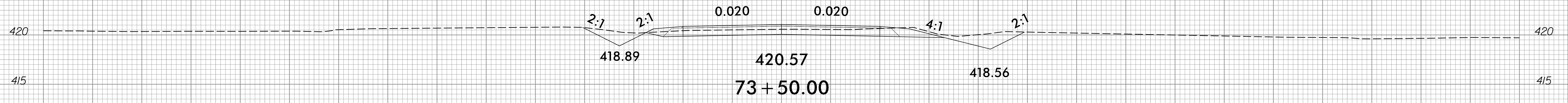
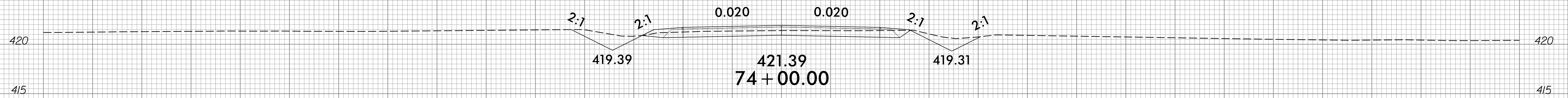
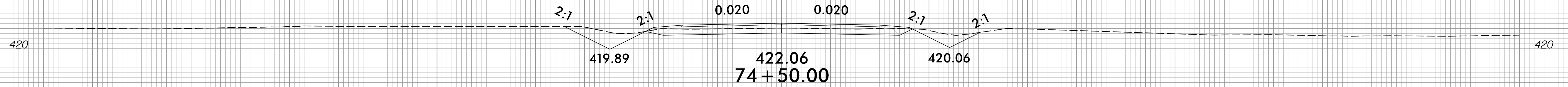
6/23/16



PROJ. REFERENCE NO.  
5C.039062

SHEET NO.  
X-24

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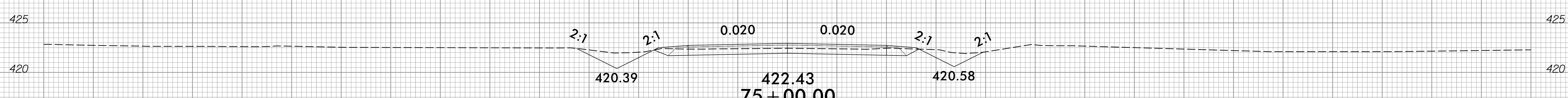
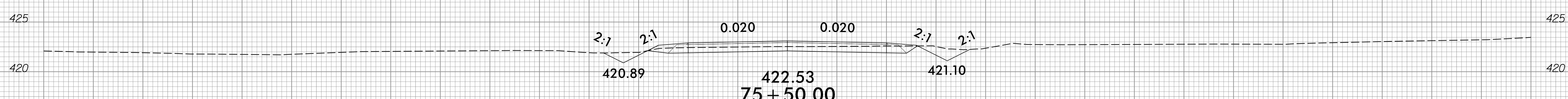
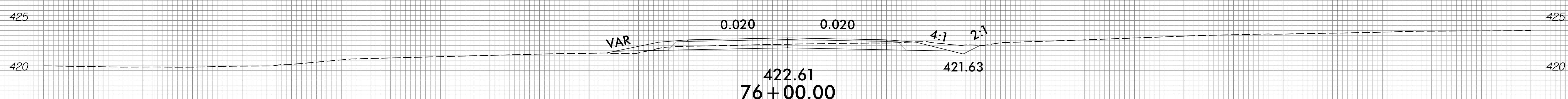
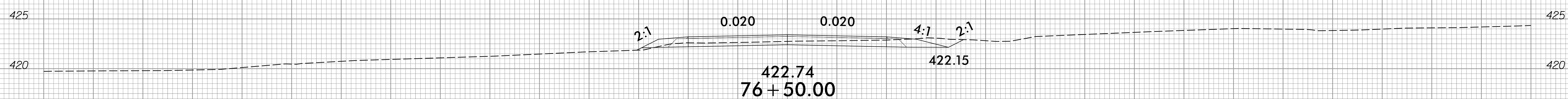
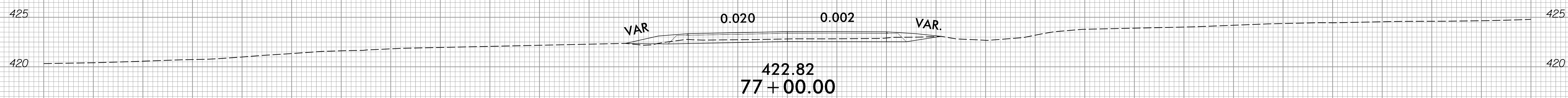
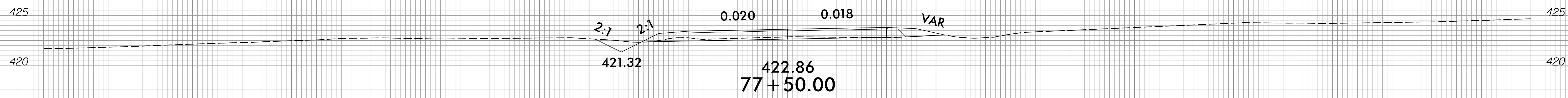
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Conway\_Hdly\_xpl.dgn  
Spencer.mbr 1:1

6/23/16



PROJ. REFERENCE NO.	SHEET NO.
5C.039062	X-25

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75



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07-JUL-2022 16:54  
Conway\_Hdly\_xpl.dgn  
Spencer, Amber L



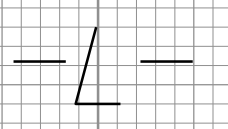
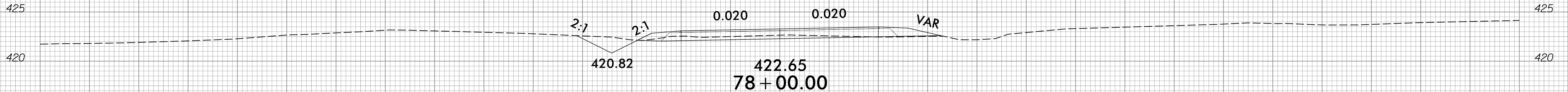
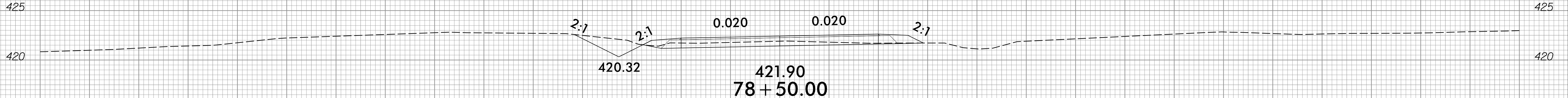
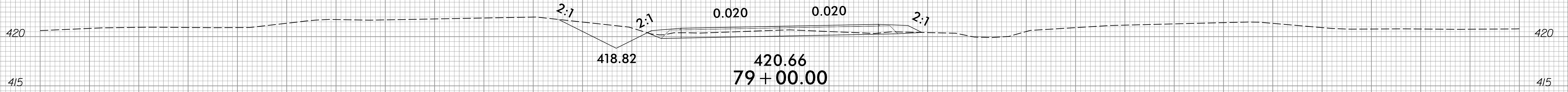
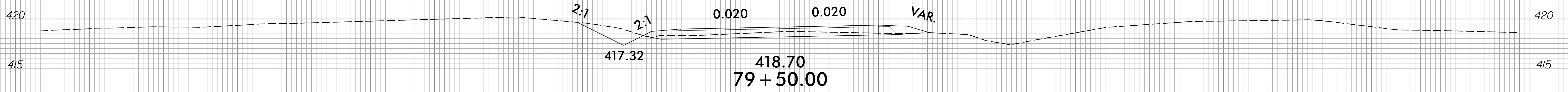
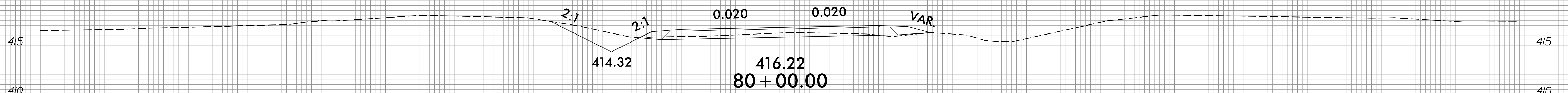
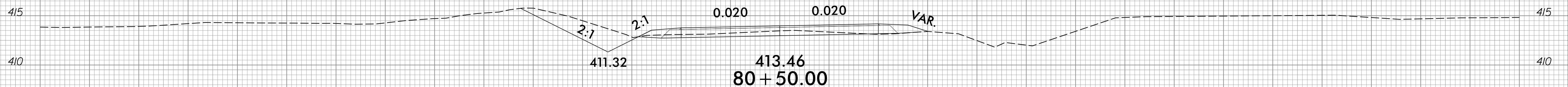
6/23/16



PROJ. REFERENCE NO.  
5C.039062

SHEET NO.  
X-26

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07-JUL-2022 16:54  
Conway\_Hdly\_xpl.dgn  
Spencer, Amber LTT

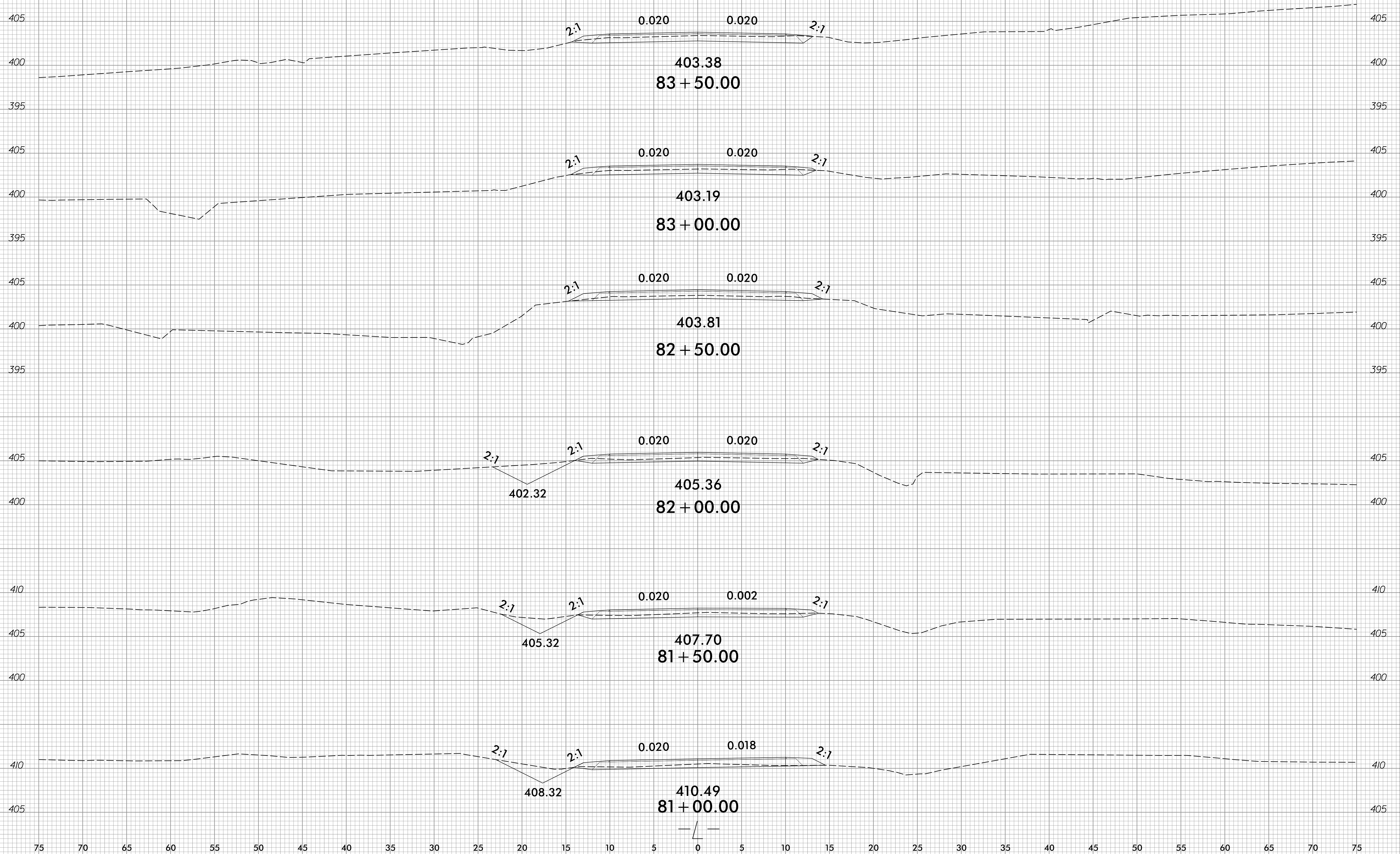
75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

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PROJ. REFERENCE NO.	SHEET NO.
5C.039062	X-27

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75



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 Spencer.mbr/ljt

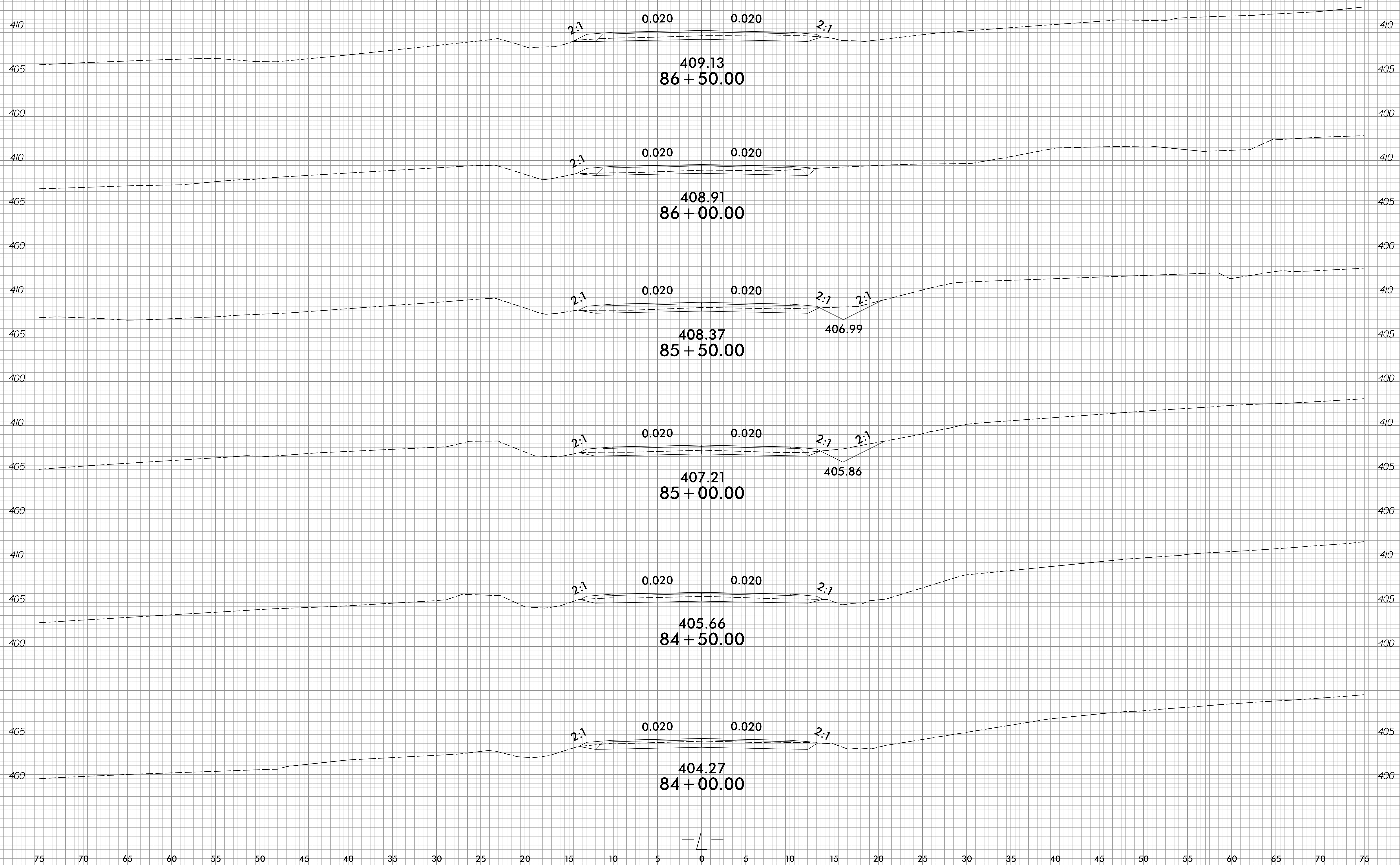
6/23/16



PROJ. REFERENCE NO.  
5C.039062

SHEET NO.  
X-28

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75



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Conway\_Hd1\_xpl.dgn  
Spencer.mbr

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

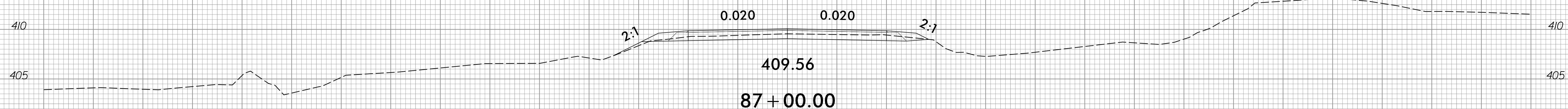
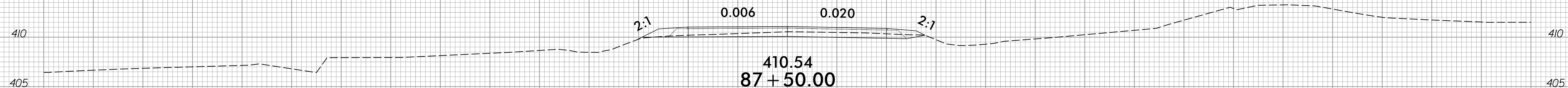
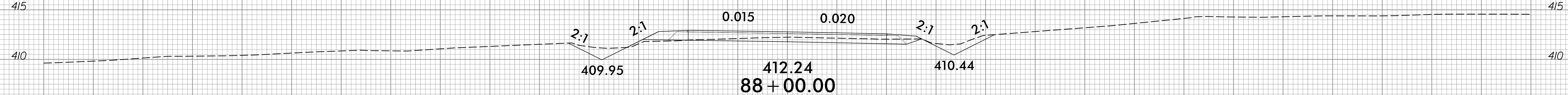
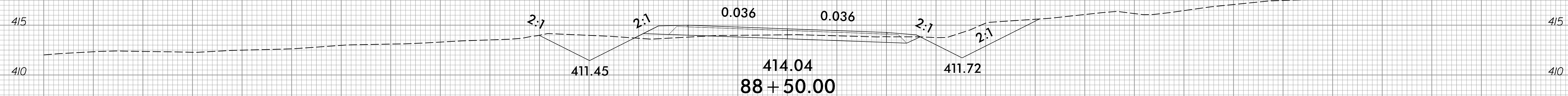
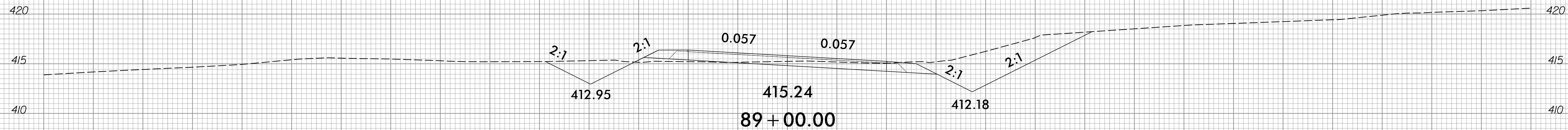


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PROJ. REFERENCE NO.	SHEET NO.
5C.039062	X-29

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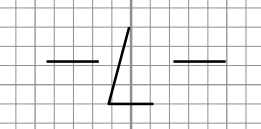
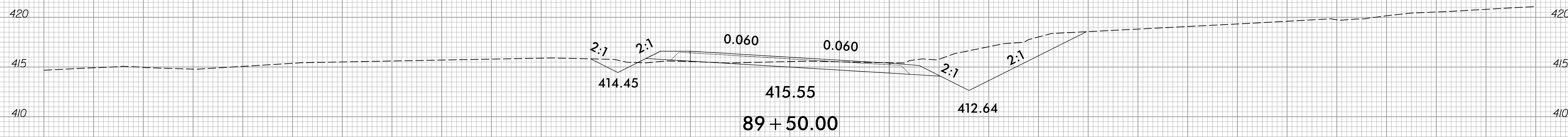
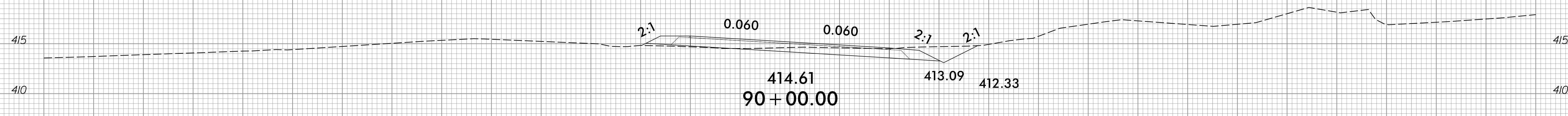
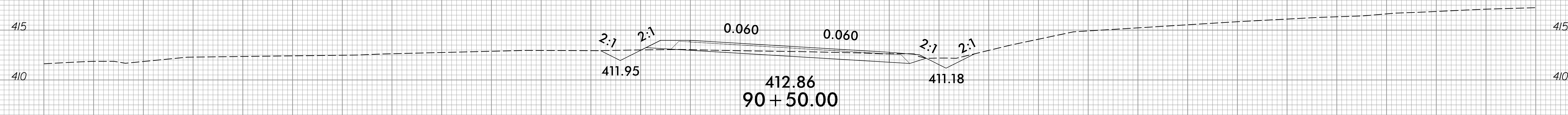
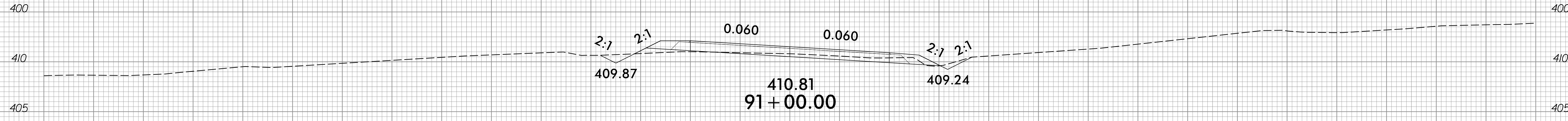
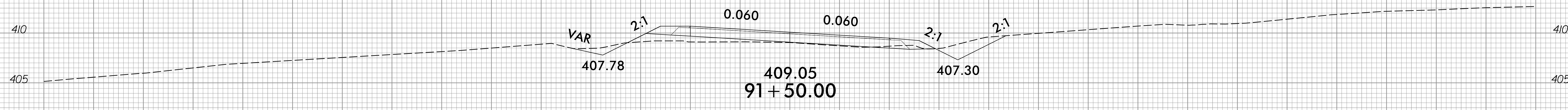
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PROJ. REFERENCE NO.	SHEET NO.
5C.039062	X-30

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75



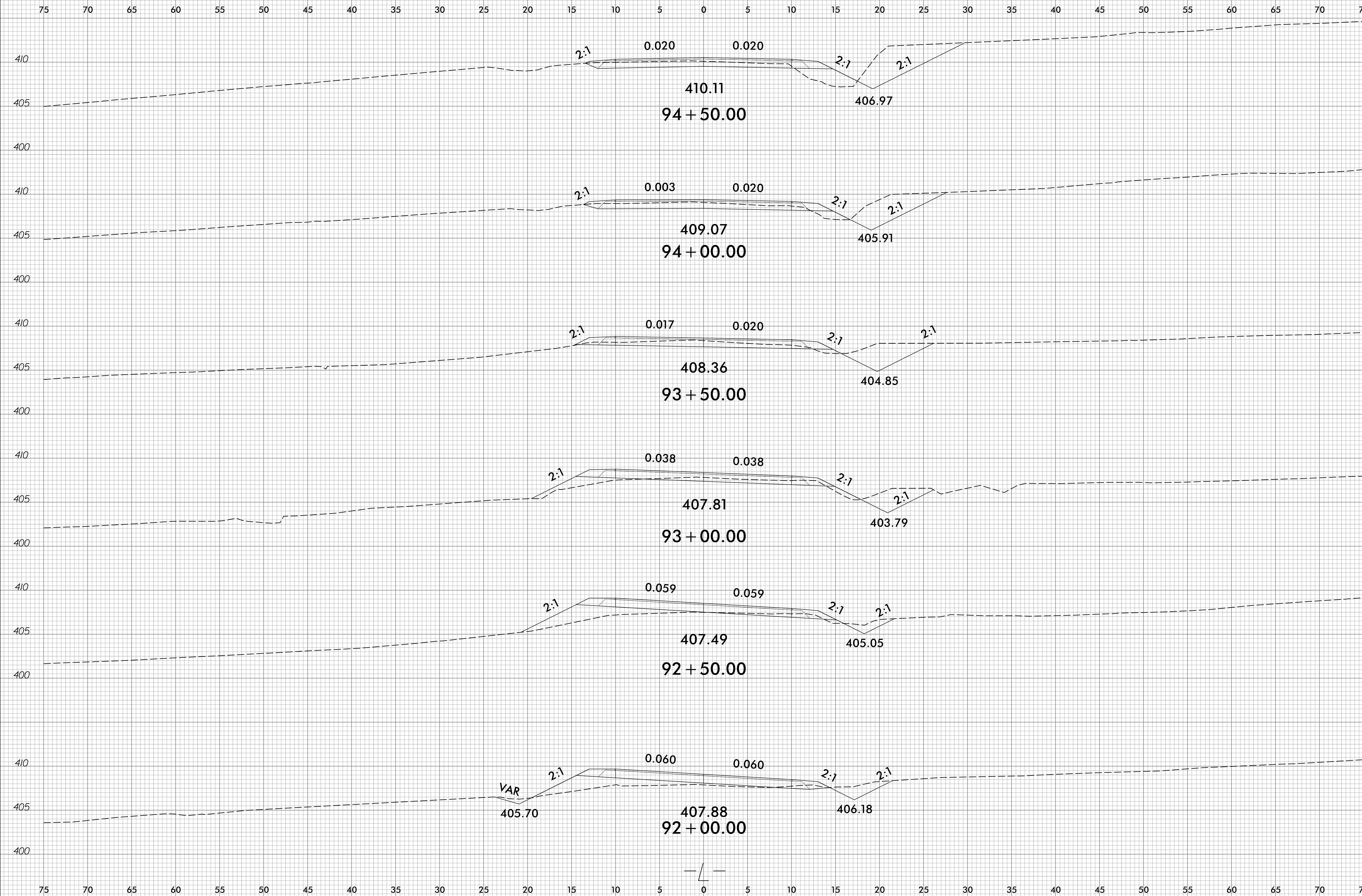
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Conway\_Hdly\_xpl.dgn  
Spencer.mbr 1:1

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PROJ. REFERENCE NO.	SHEET NO.
5C.039062	X-31



07-JUL-2022 16:55  
Conway\_Hdly\_xpl.dgn  
spencer.mbr@ttt

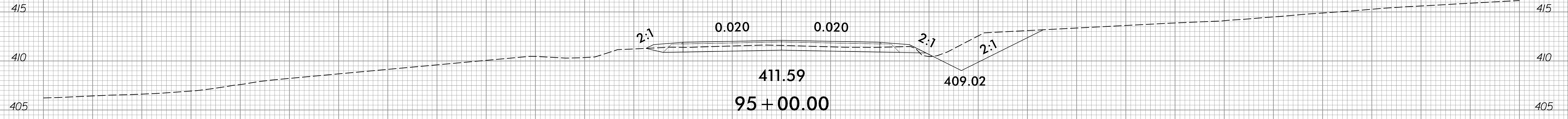
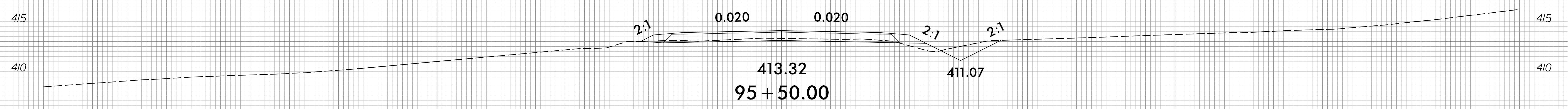
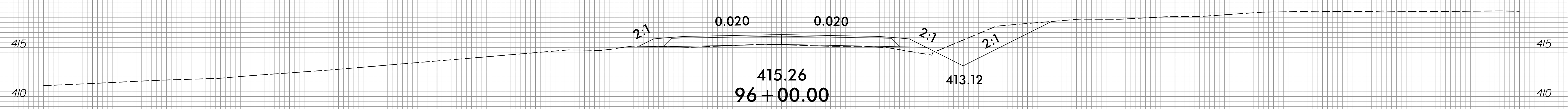
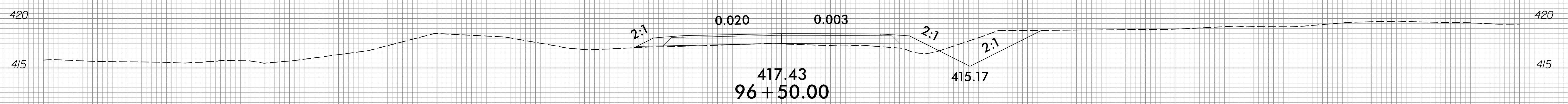
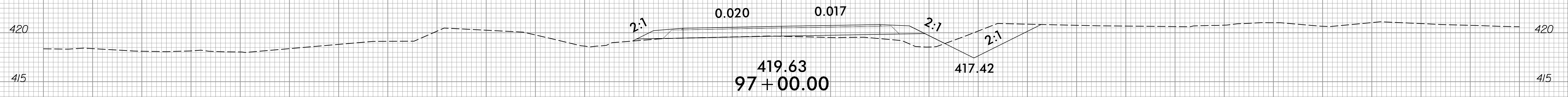


6/23/16



PROJ. REFERENCE NO.	SHEET NO.
5C.039062	X-32

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75



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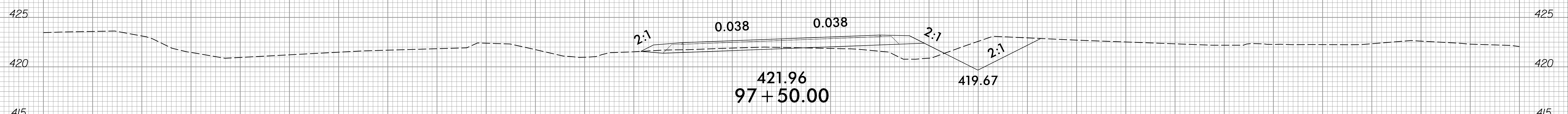
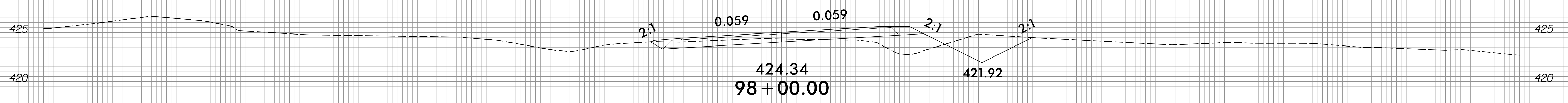
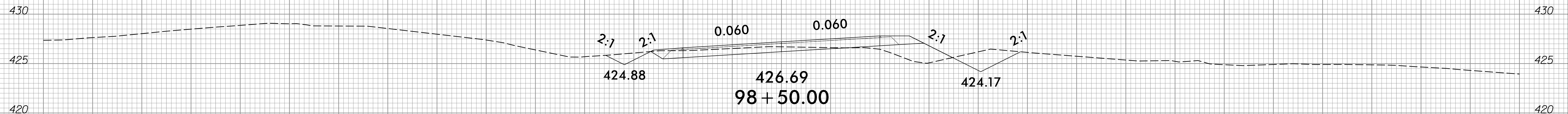
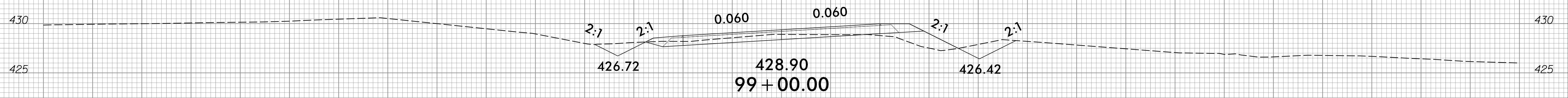
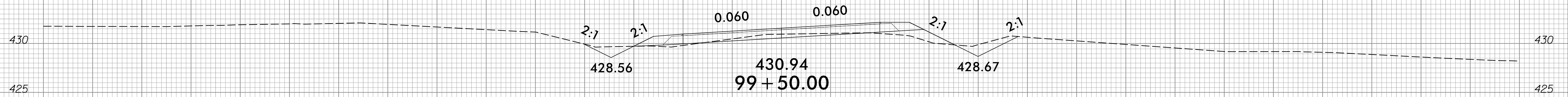
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Conway\_Hdly\_xpl.dgn  
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PROJ. REFERENCE NO.	SHEET NO.
5C.039062	X-33

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75



75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

07-JUL-2022 16:55  
 Conway\_Hdr\_xpl.dgn  
 Spencer.mbr 1:1

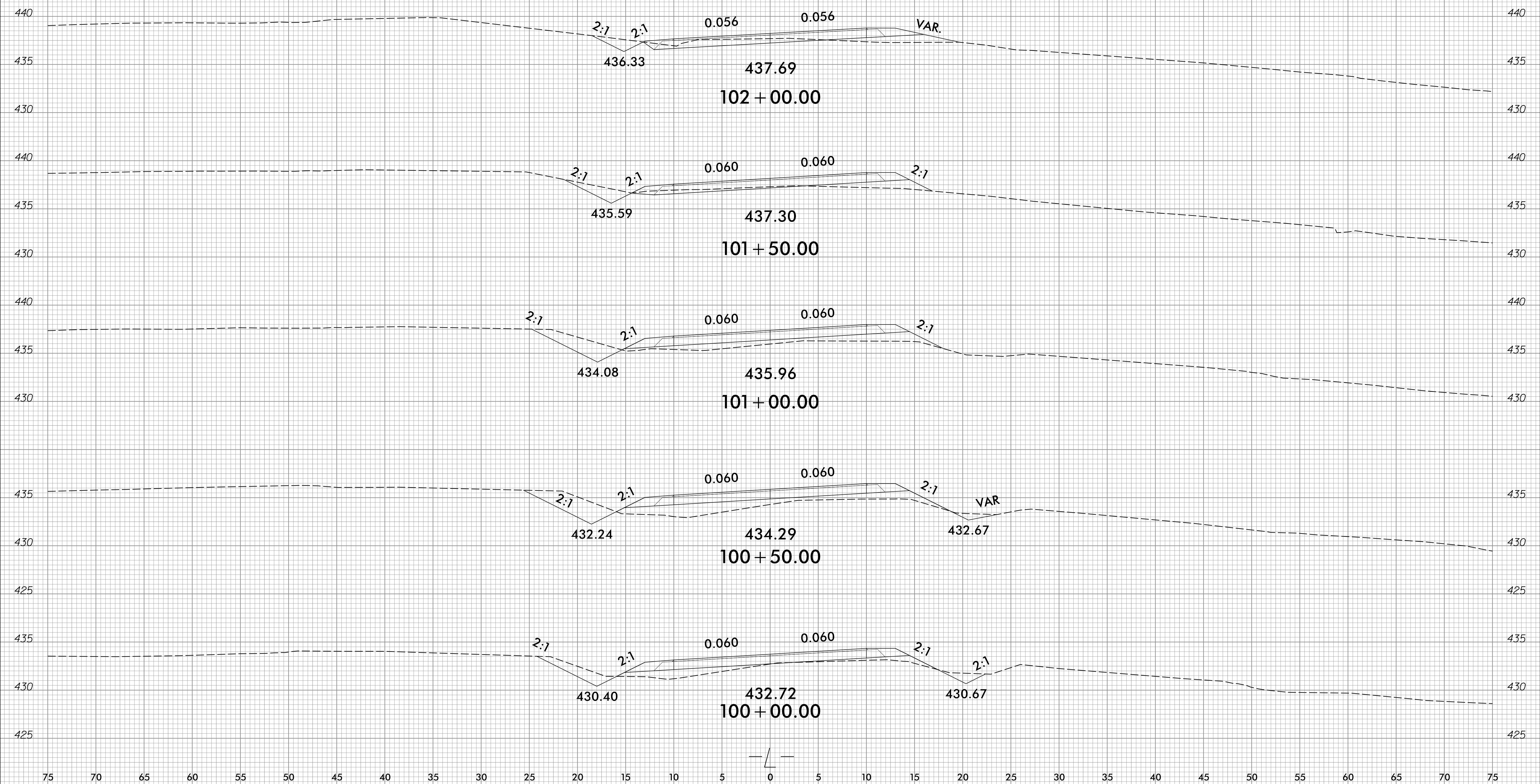
6/23/16



PROJ. REFERENCE NO.  
5C.039062

SHEET NO.  
X-34

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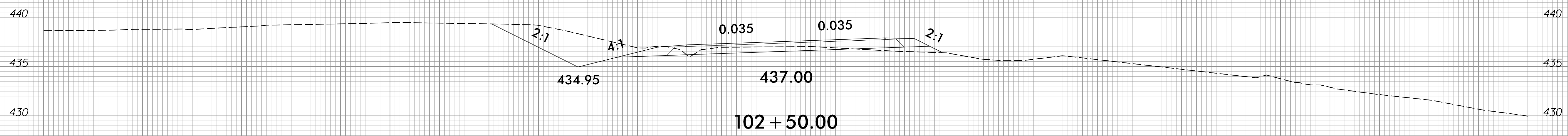
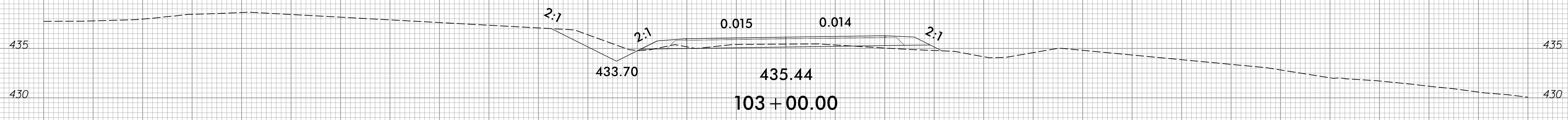
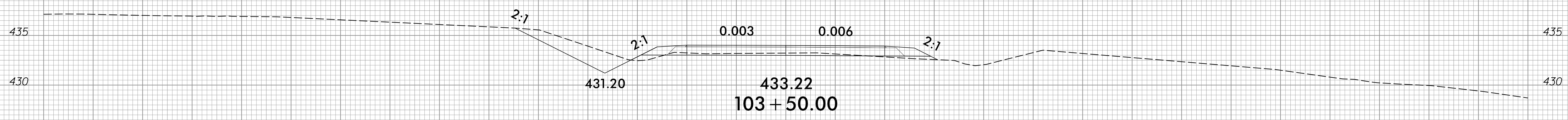
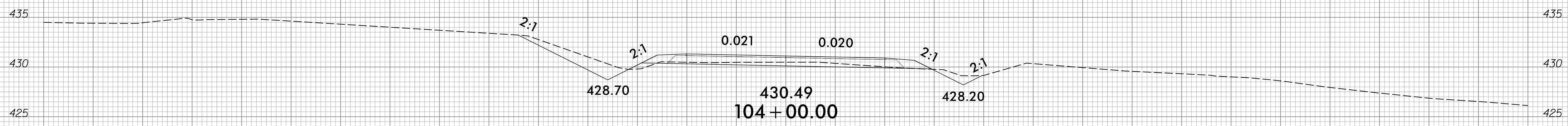
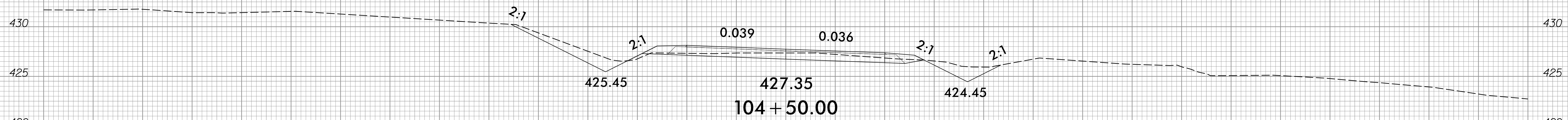


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Conway\_Hdly\_xpl.dgn  
Spencer.mbr





75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75



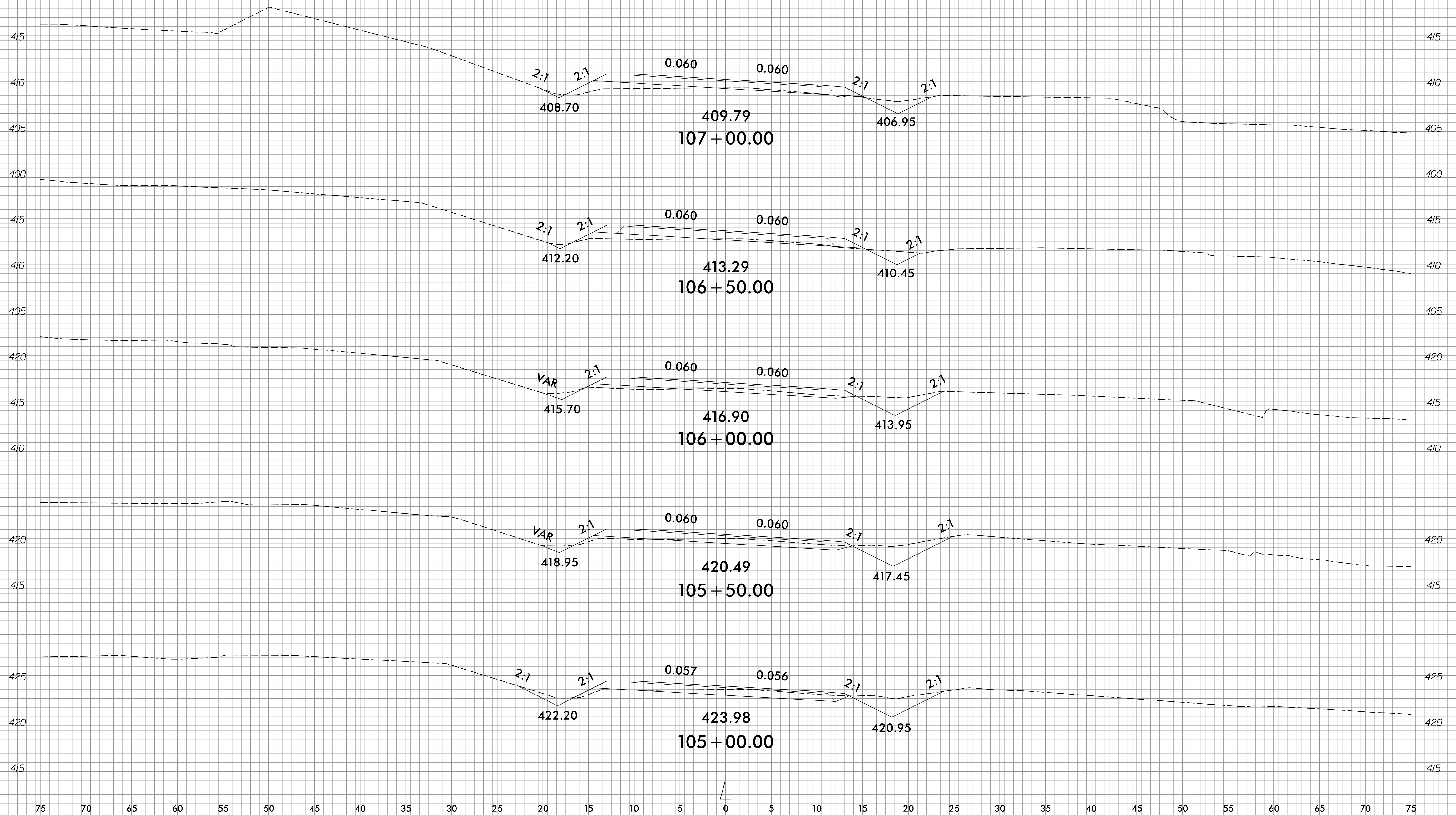
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PROJ. REFERENCE NO.	SHEET NO.
5C.039062	X-36

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75



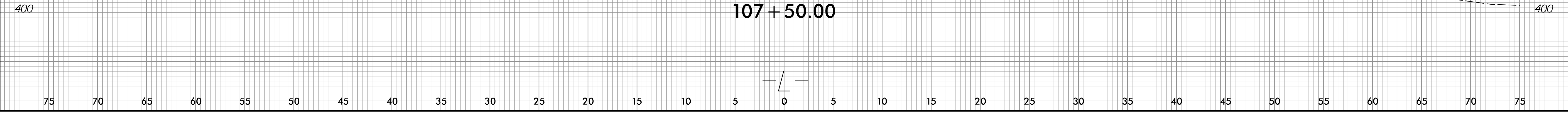
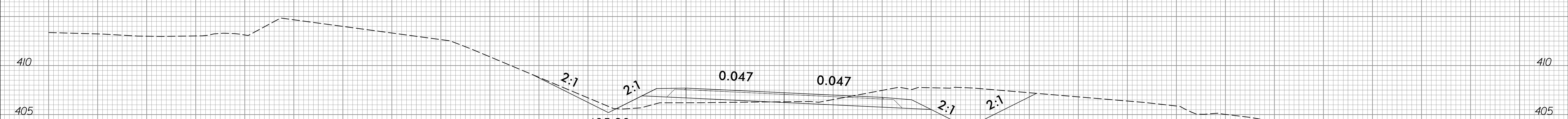
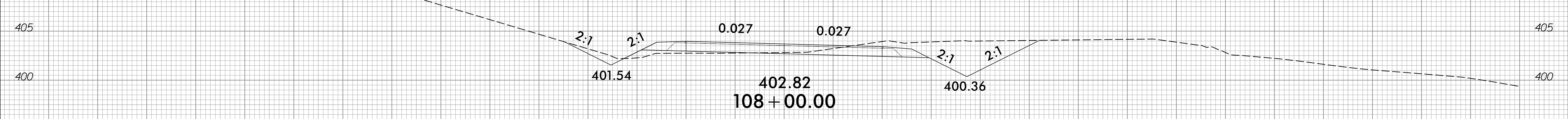
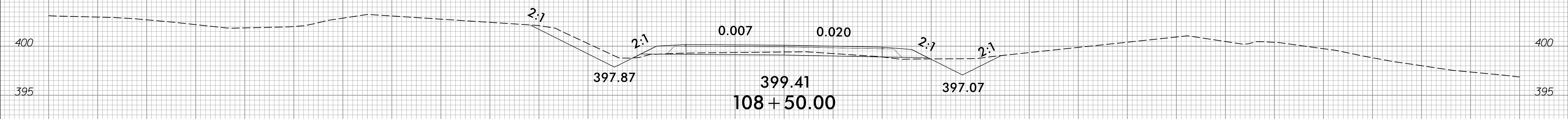
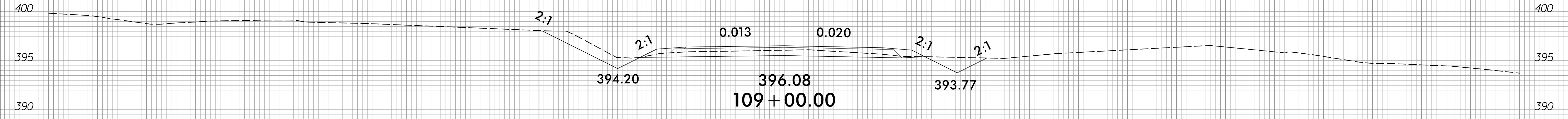
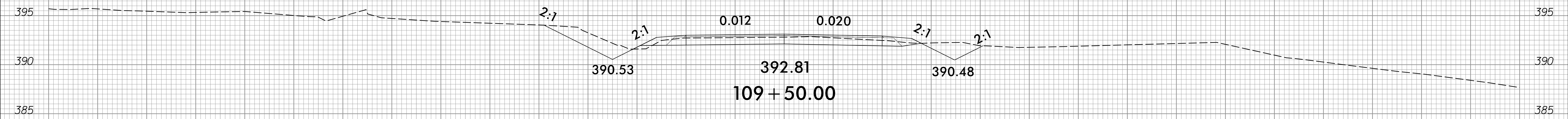
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 Spencer.mbr 1:1

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PROJ. REFERENCE NO.	SHEET NO.
5C.039062	X-37

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 Conway\_Hdly\_xpl.dgn  
 Spencer.mbr 1:1

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

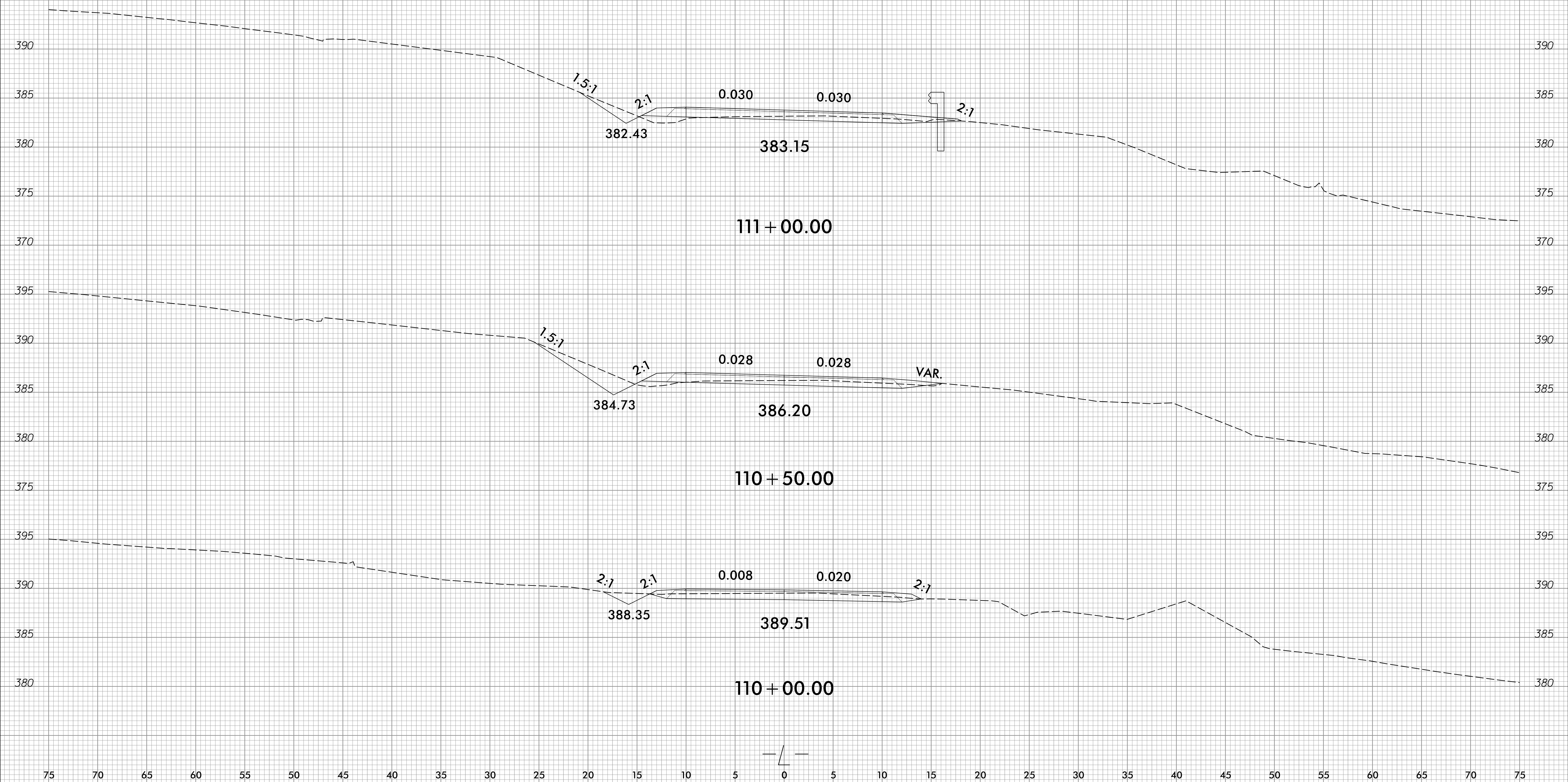


6/23/16

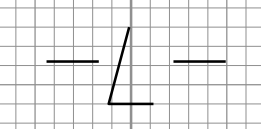


PROJ. REFERENCE NO.	SHEET NO.
5C.039062	X-38

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75



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 Spencer.mbr 1:1

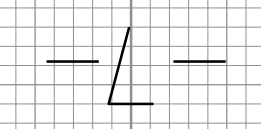
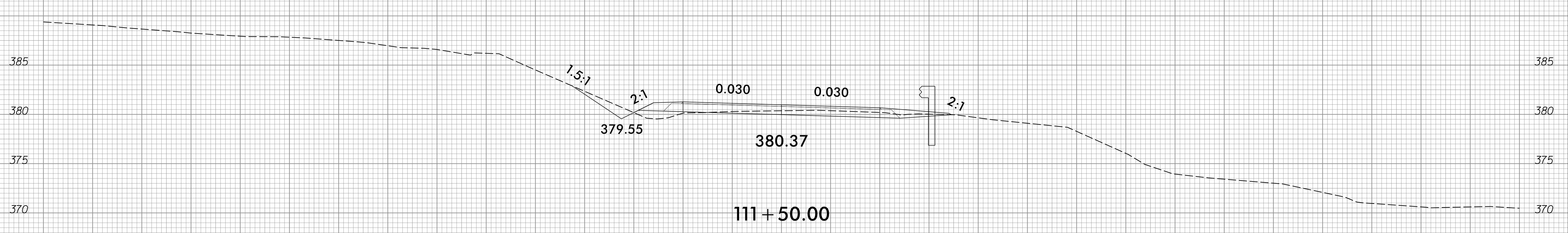
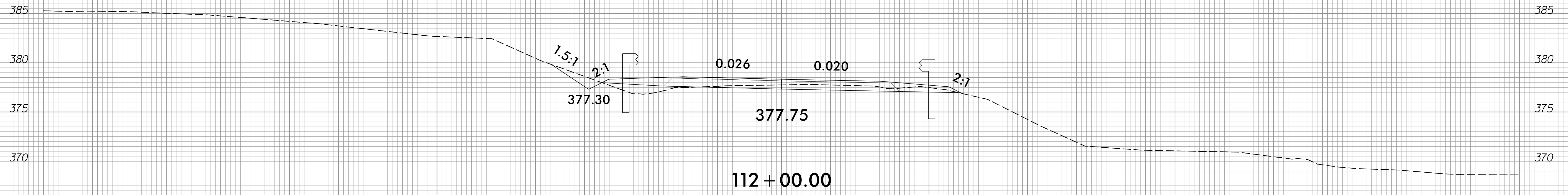
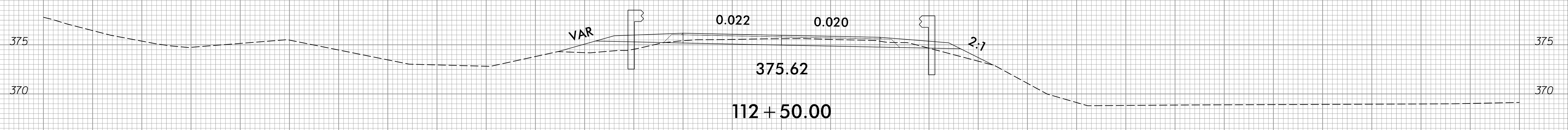
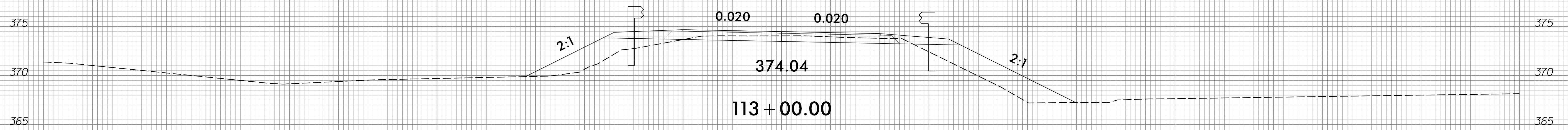


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PROJ. REFERENCE NO.	SHEET NO.
5C.039062	X-39

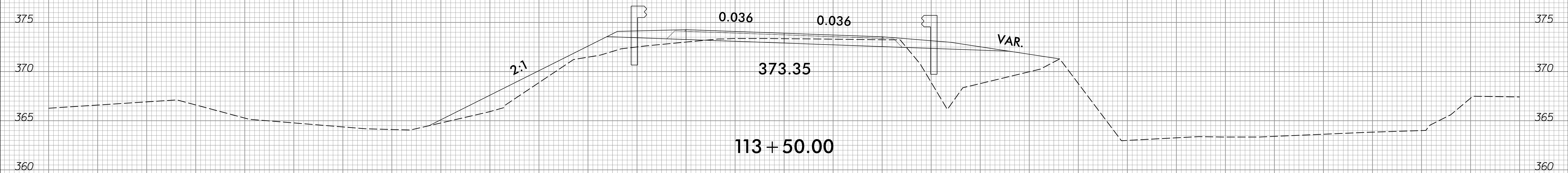
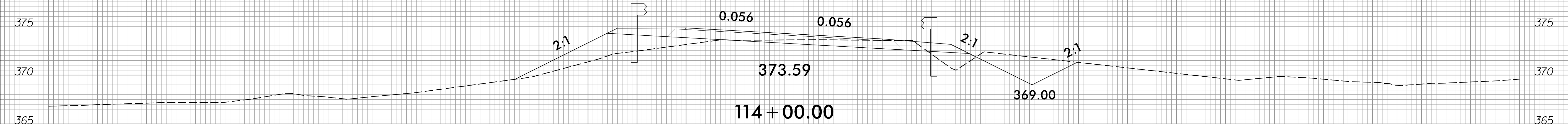
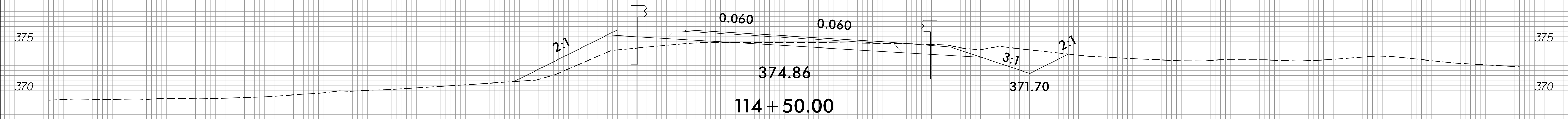
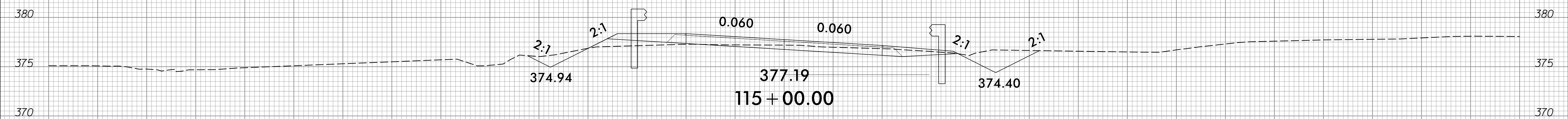
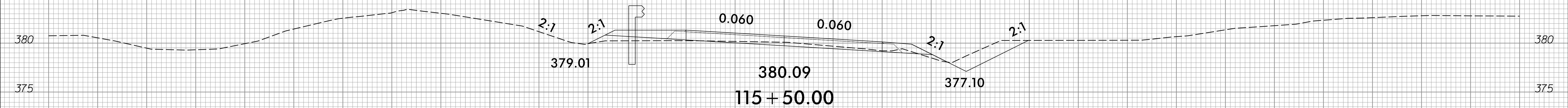
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Conway\_Hdly\_xpl.dgn  
Spencer, Amber LTT



75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75



75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

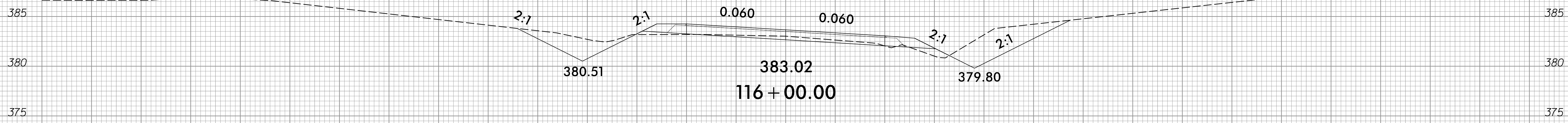
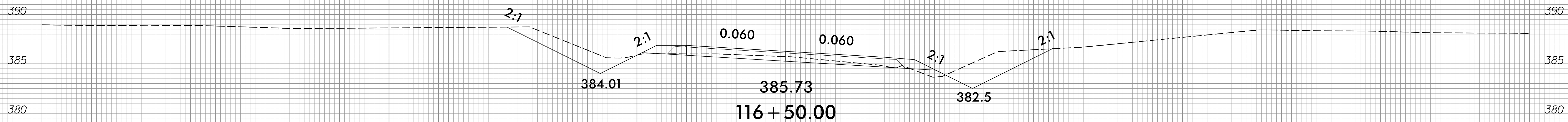
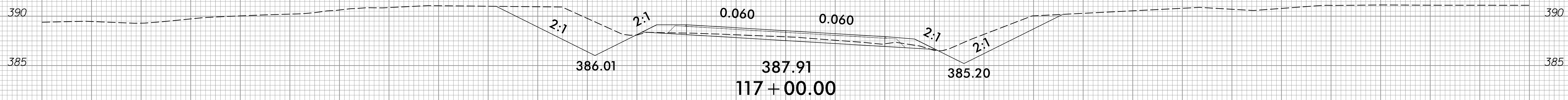
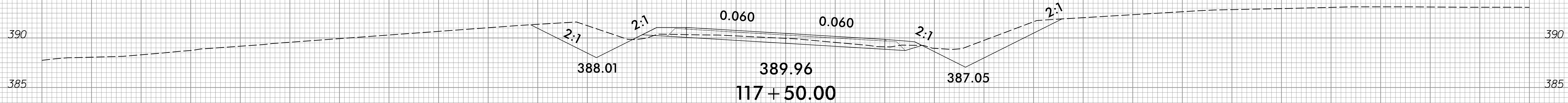
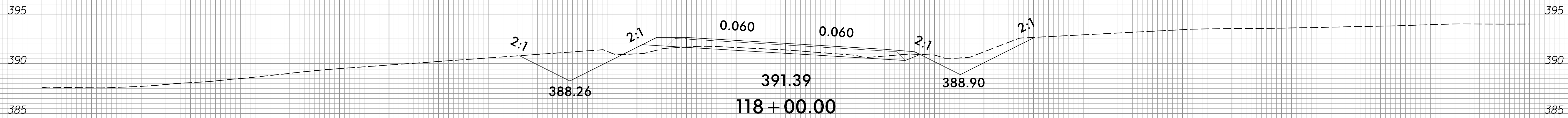


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PROJ. REFERENCE NO.	SHEET NO.
5C.039062	X-41

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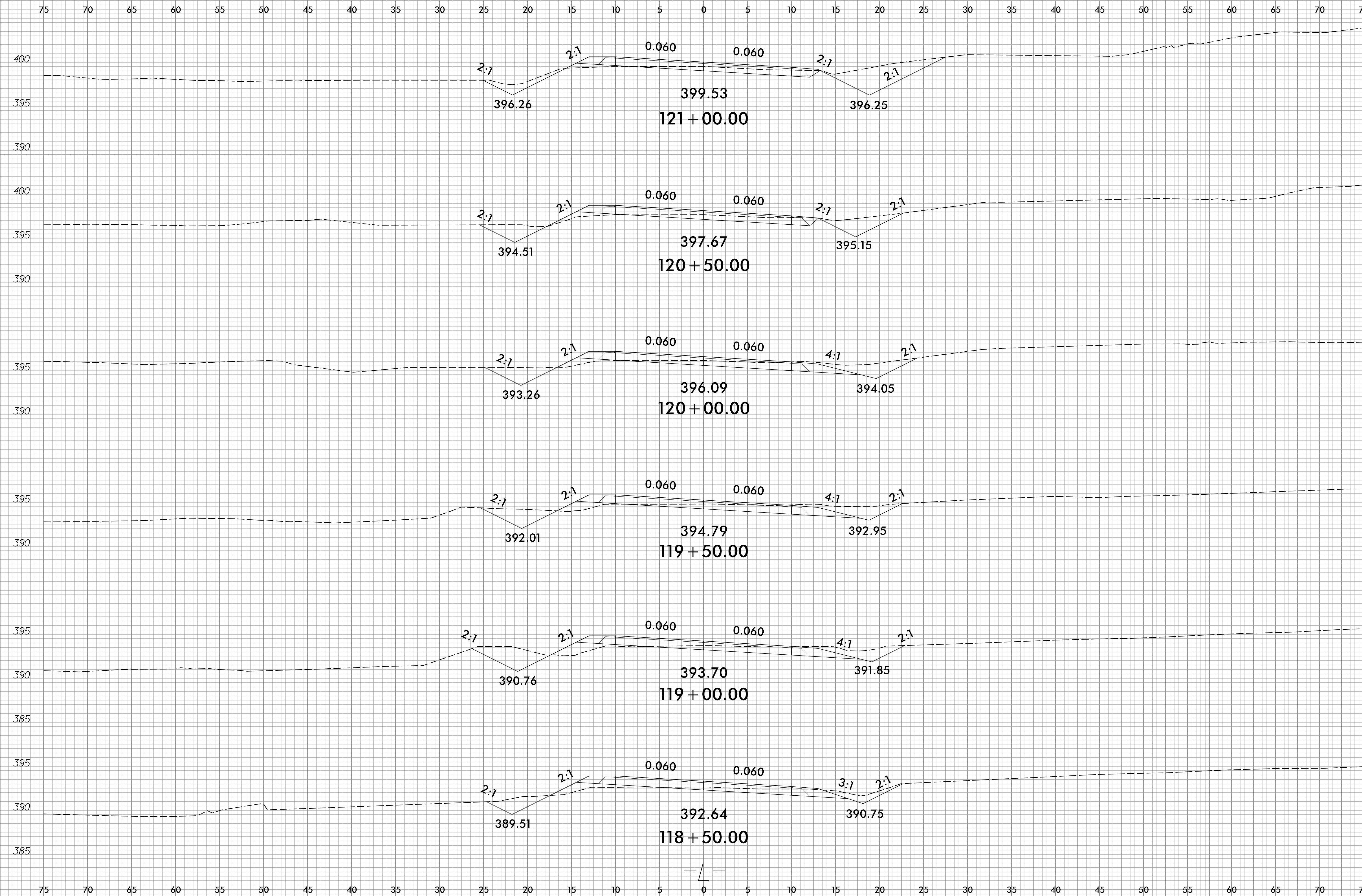
75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

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6/23/16



PROJ. REFERENCE NO.	SHEET NO.
5C.039062	X-42



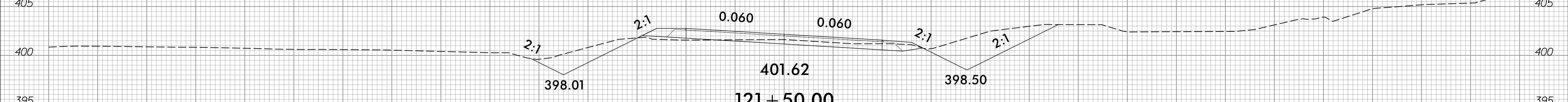
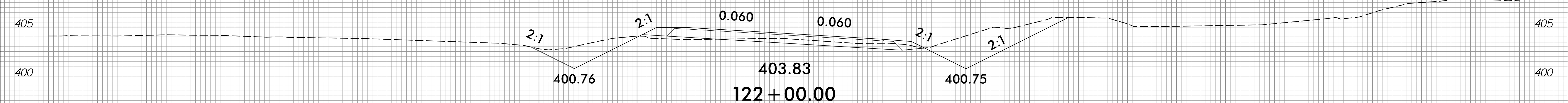
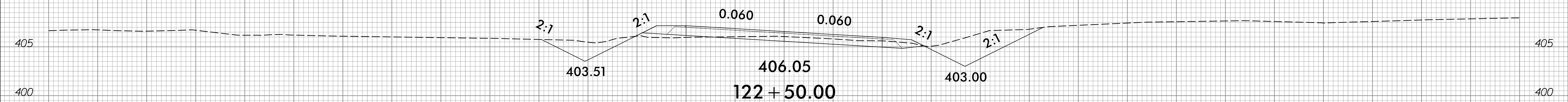
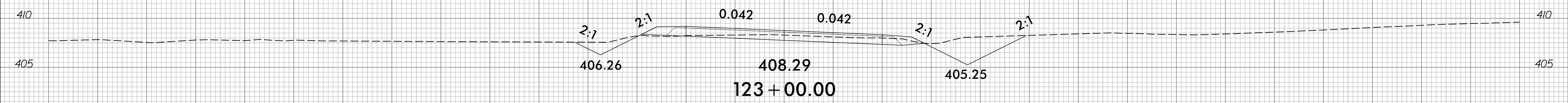
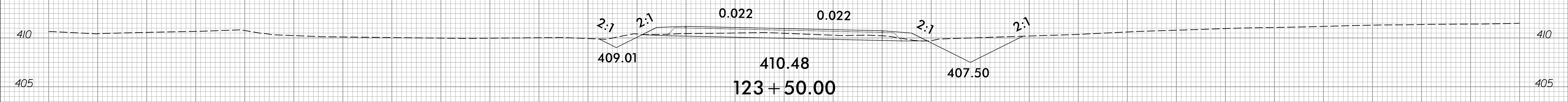
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6/23/16



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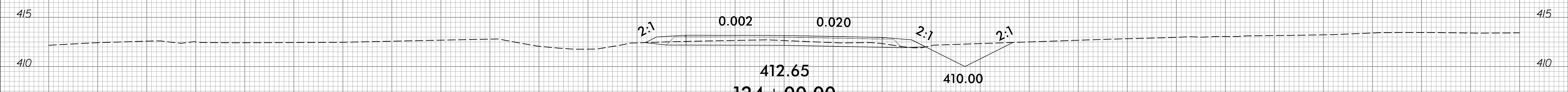
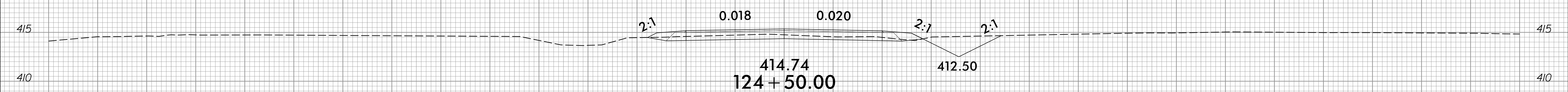
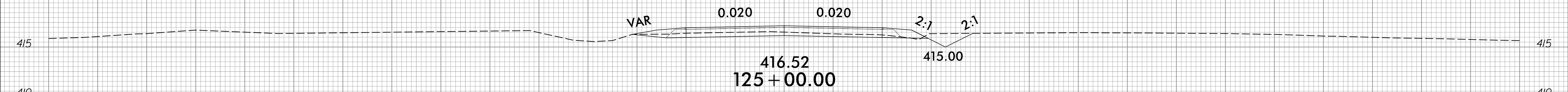
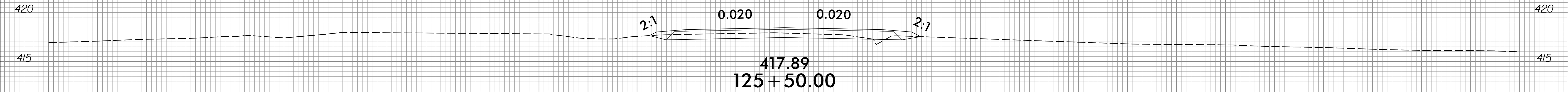
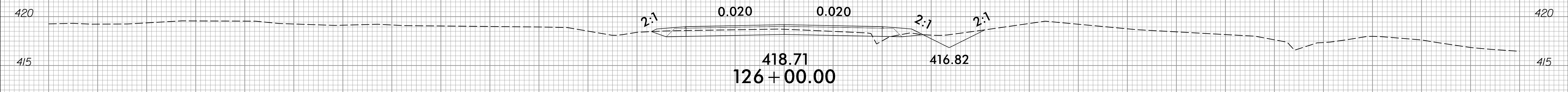
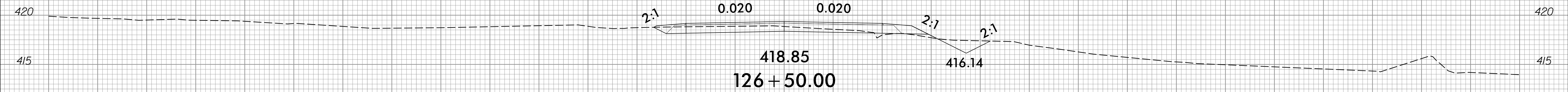
6/23/16



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5C.039062

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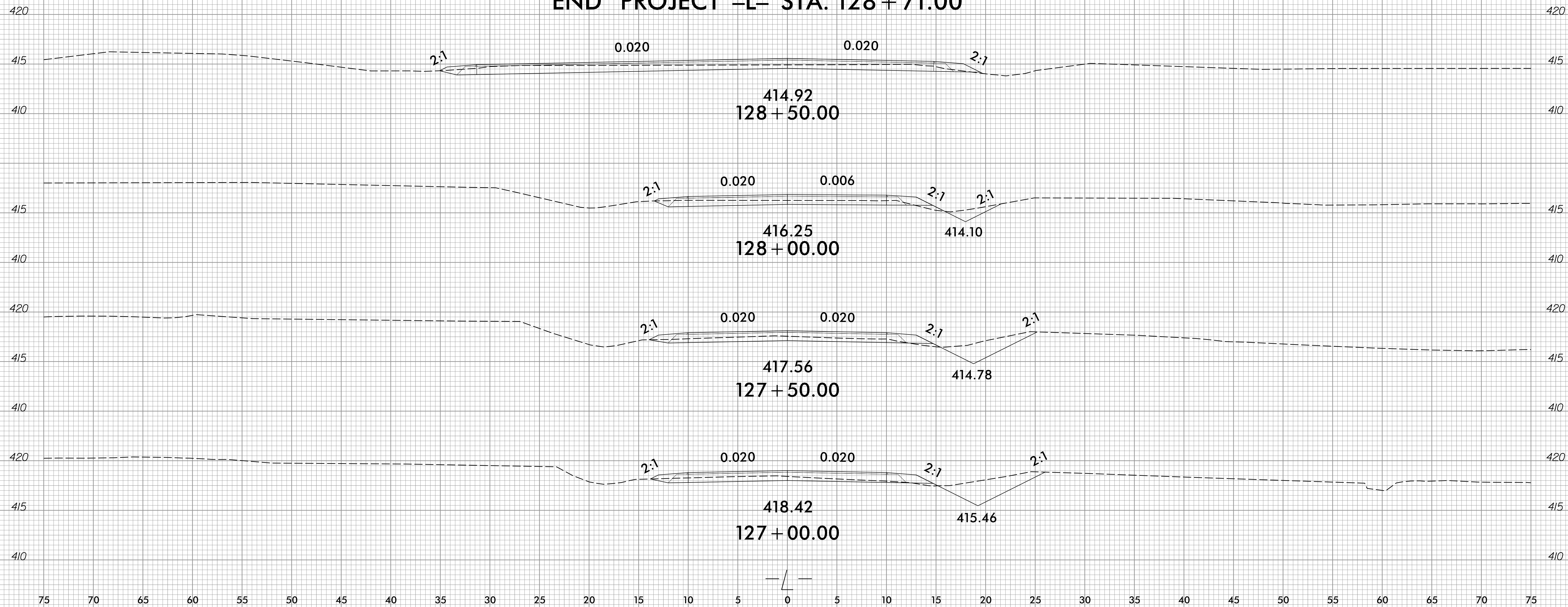
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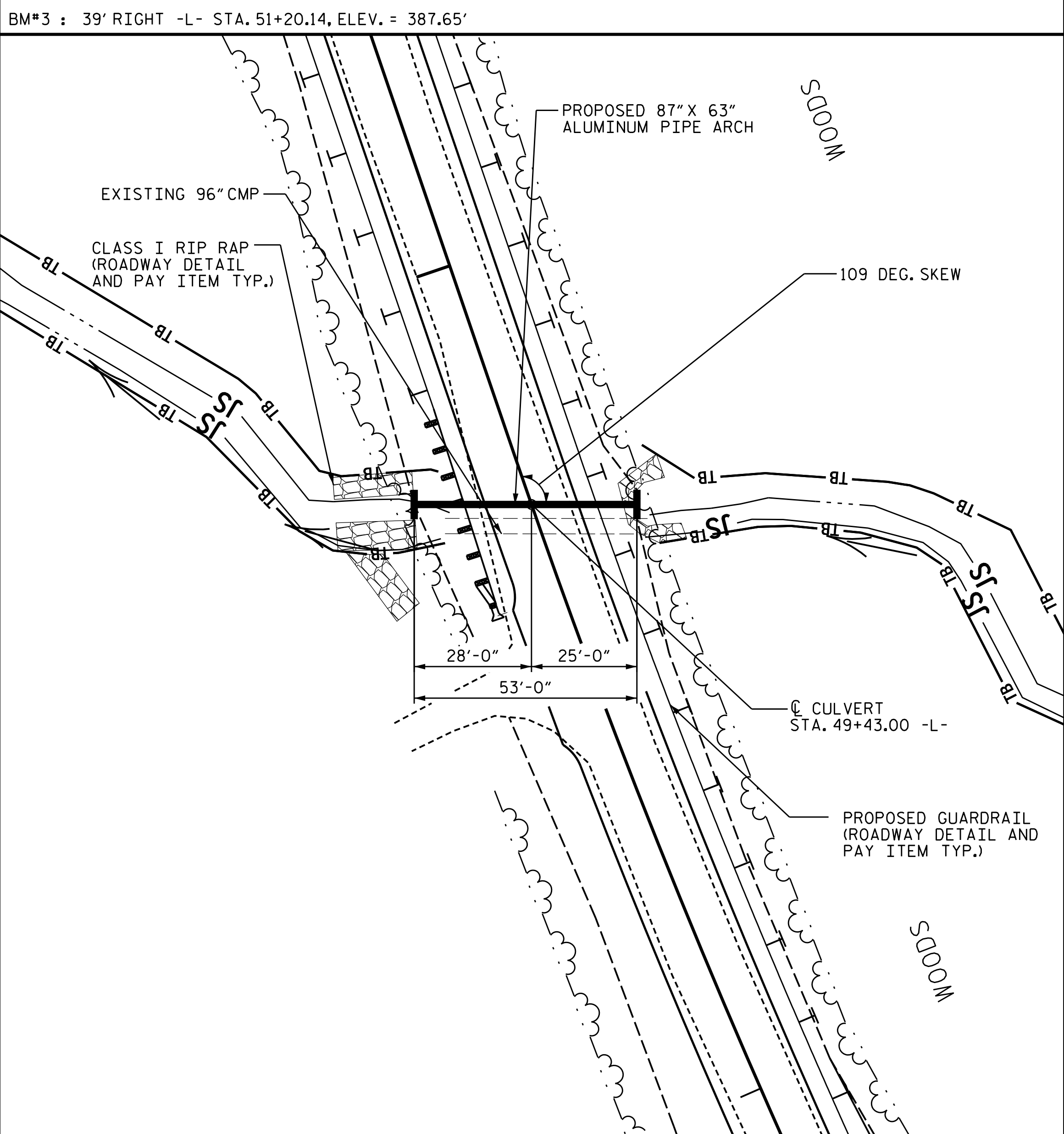
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### END PROJECT -L- STA. 128 + 71.00



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 Spencer.mbr 1:1



LOCATION SKETCH

**NOTES**

ASSUMED LIVE LOAD -----HL-93 OR ALTERNATE LOADING.  
 MAXIMUM DESIGN FILL----- 5.0'  
 MINIMUM DESIGN FILL----- 3.4'  
 MATERIALS SHALL MEET THE REQUIREMENTS OF THE NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES DATED JANUARY 2018.  
 THE DETAILS SHOWN ARE FOR GENERAL LAYOUT ONLY. THE SUPPLIER SHALL PROVIDE DESIGNS AND DETAILS THAT MEET THE REQUIREMENTS OF AASHTO SECTION 12 AND ARE SEALED BY A NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER.  
 UNLESS OTHERWISE INDICATED, NCDOT SHALL FURNISH ALL STRUCTURAL ELEMENTS AND HARDWARE.  
 THE RESIDENT ENGINEER SHALL CHECK THE LENGTH OF THE CULVERT BEFORE STAKING IT OUT TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.  
 THE EXISTING STRUCTURE CONSISTING OF 42\"/>

**HYDRAULIC DATA**

DESIGN DISCHARGE \_\_\_\_\_ = 160 CFS  
 FREQUENCY OF DESIGN FLOOD \_\_\_\_\_ = 25 YRS.  
 DESIGN HIGH WATER ELEVATION \_\_\_\_\_ = 385.5  
 DRAINAGE AREA \_\_\_\_\_ = 147.98 ACRES  
 BASIC DISCHARGE (Q100) \_\_\_\_\_ = 230 CFS  
 BASIC HIGH WATER ELEVATION \_\_\_\_\_ = 387.1

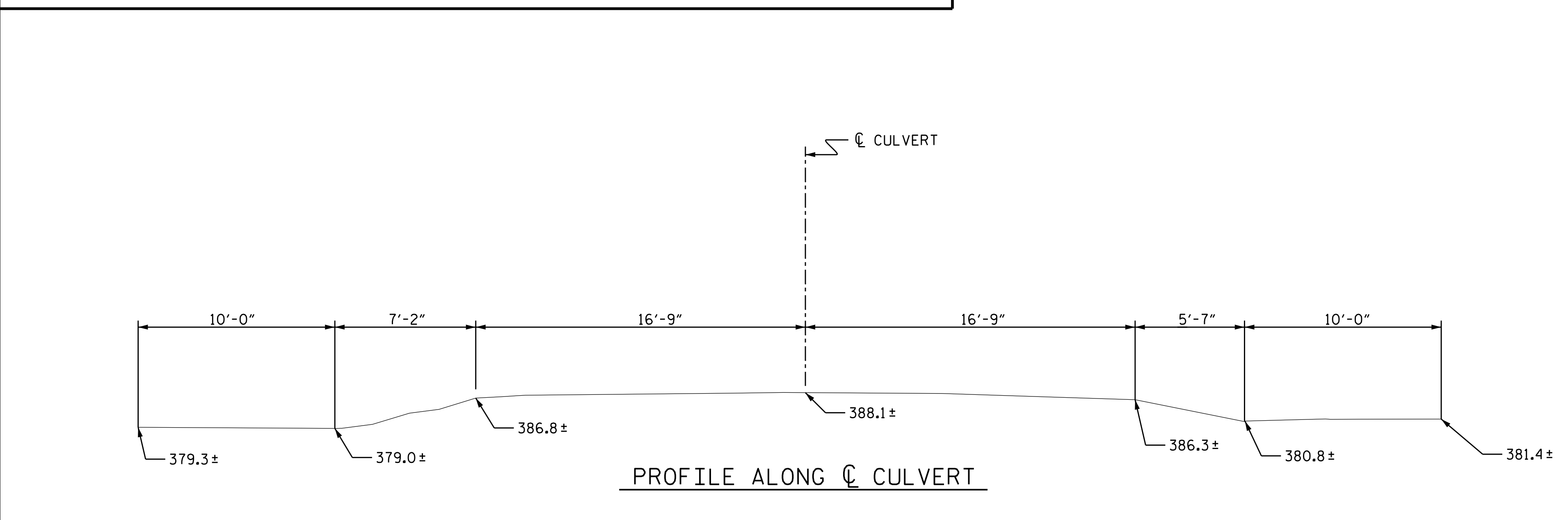
**OVERTOPPING FLOOD DATA**

OVERTOPPING DISCHARGE \_\_\_\_\_ = 190 CFS  
 FREQUENCY OF OVERTOPPING FLOOD \_\_\_\_\_ = 50 YRS.  
 OVERTOPPING FLOOD ELEVATION \_\_\_\_\_ = 386.0

**GRADE DATA**

PI = 50+75.00  
 EL = 379.30  
 VC = 460'  
 G1 = (-) 6.1862%  
 G2 = (+) 5.3145%

TOTAL STRUCTURE QUANTITIES	
REMOVAL OF EXISTING STRUCTURE	LUMP SUM
CULVERT EXCAVATION	LUMP SUM
FOUNDATION CONDITIONING MATERIAL	42 TONS
INSTALLATION OF STATE SUPPLIED PIPE	LUMP SUM
CULVERT BACKFILL	210 TONS



PROFILE ALONG CULVERT

Prepared in the Office of: **SUMMIT** DESIGN AND ENGINEERING SERVICES  
 PROJECT NO. 5C.039062  
GRANVILLE COUNTY  
 STATION: 49+43.00 -L-  
 SHEET 1 OF 2

NC FIRM LICENSE No: P-0339  
 1110 Havaho Drive, Suite 600  
 Raleigh, NC 27609  
 Ph: 919-322-0115 Fax: 919-322-0116  
 www.summitde.net  
 (919) 732-6676 (FAX)



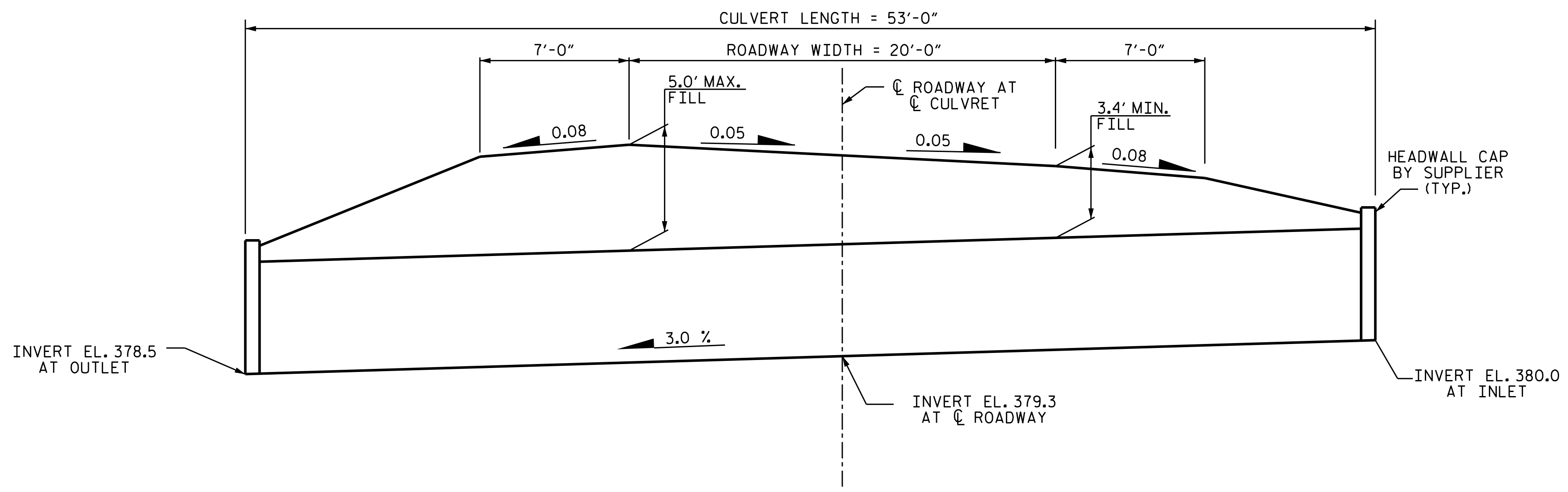
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SINGLE  
 87" x 63"  
 CORRUGATED ALUMINUM  
 PIPE ARCH  
 109° SKEW**

DRAWN BY : G. DICKEY DATE : 11/8/2022  
 CHECKED BY : J. MCROY DATE : 11/8/2022  
 DESIGN ENGINEER OF RECORD: G. DICKEY DATE : 11/8/2022

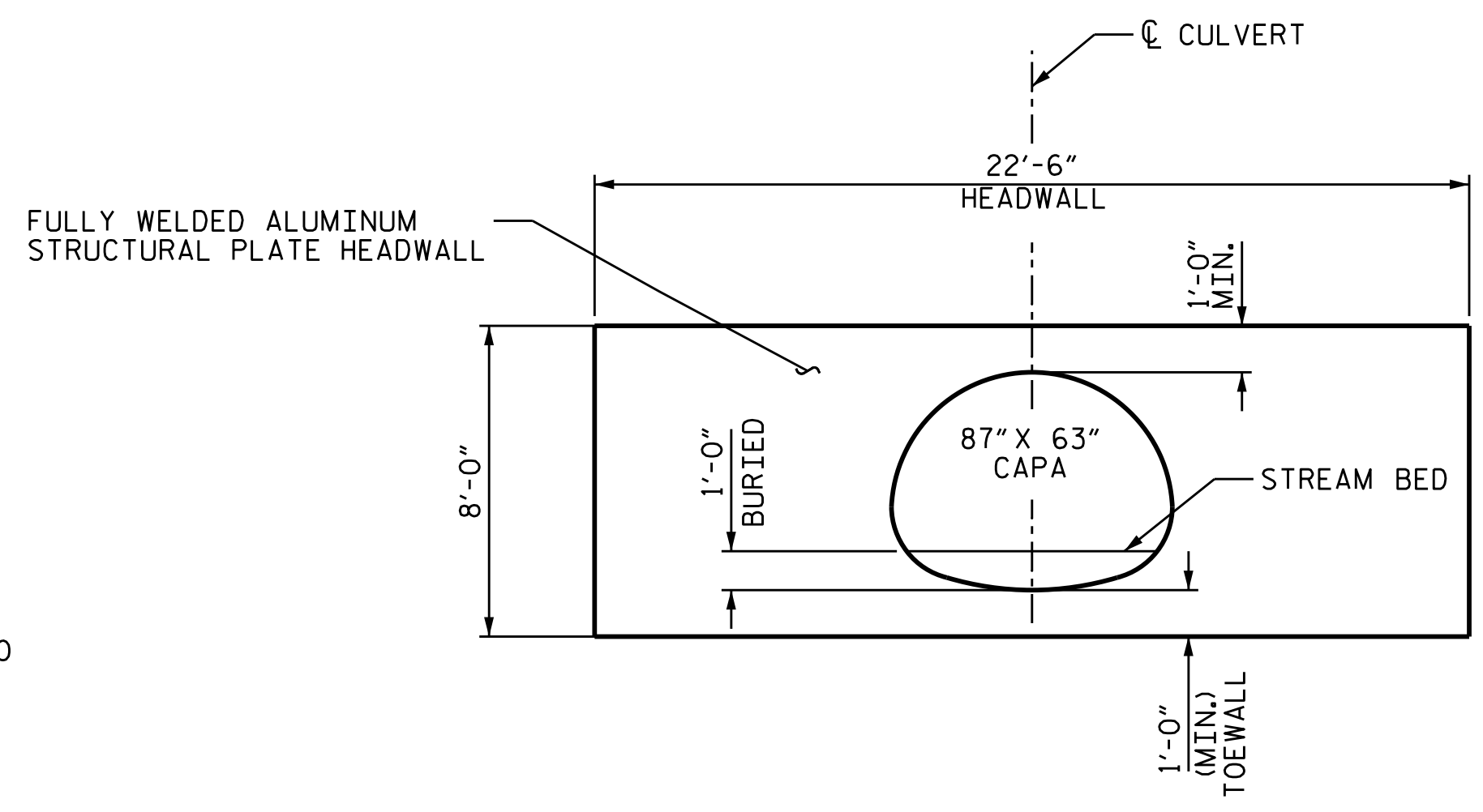
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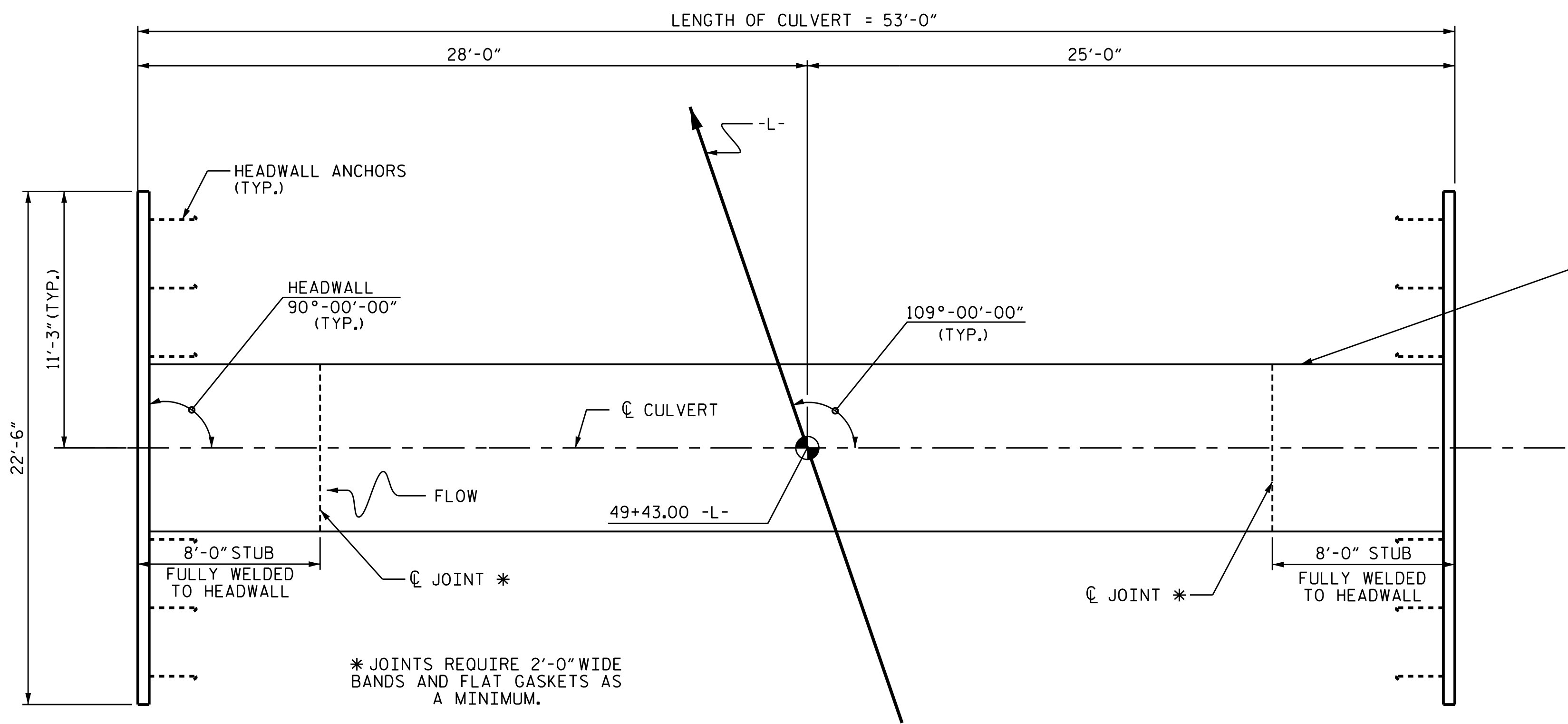




CULVERT SECTION NORMAL TO ROADWAY



END ELEVATION NORMAL TO SKEW  
INLET SHOWN, OUTLET SIMILAR

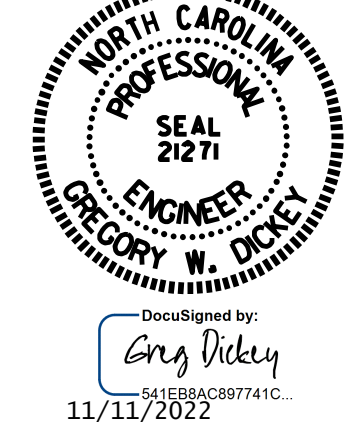


LENGTH OF ALUMINUM BOX CULVERT

87" X 63" CORRUGATED ALUMINUM PIPE ARCH (CAPA)  
3" X 1" CORRUGATION, MINIMUM OF 12 GAGE THICKNESS,  
WITH FULLY WELDED HEADWALLS TO 8'-0" SECTIONS AT EACH END.

Prepared in the Office of:  
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PROJECT NO. 5C.039062  
GRANVILLE COUNTY  
STATION: 49+43.00 -L-  
SHEET 2 OF 3



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SINGLE  
87" x 63"  
CORRUGATED ALUMINUM  
PIPE ARCH  
109° SKEW

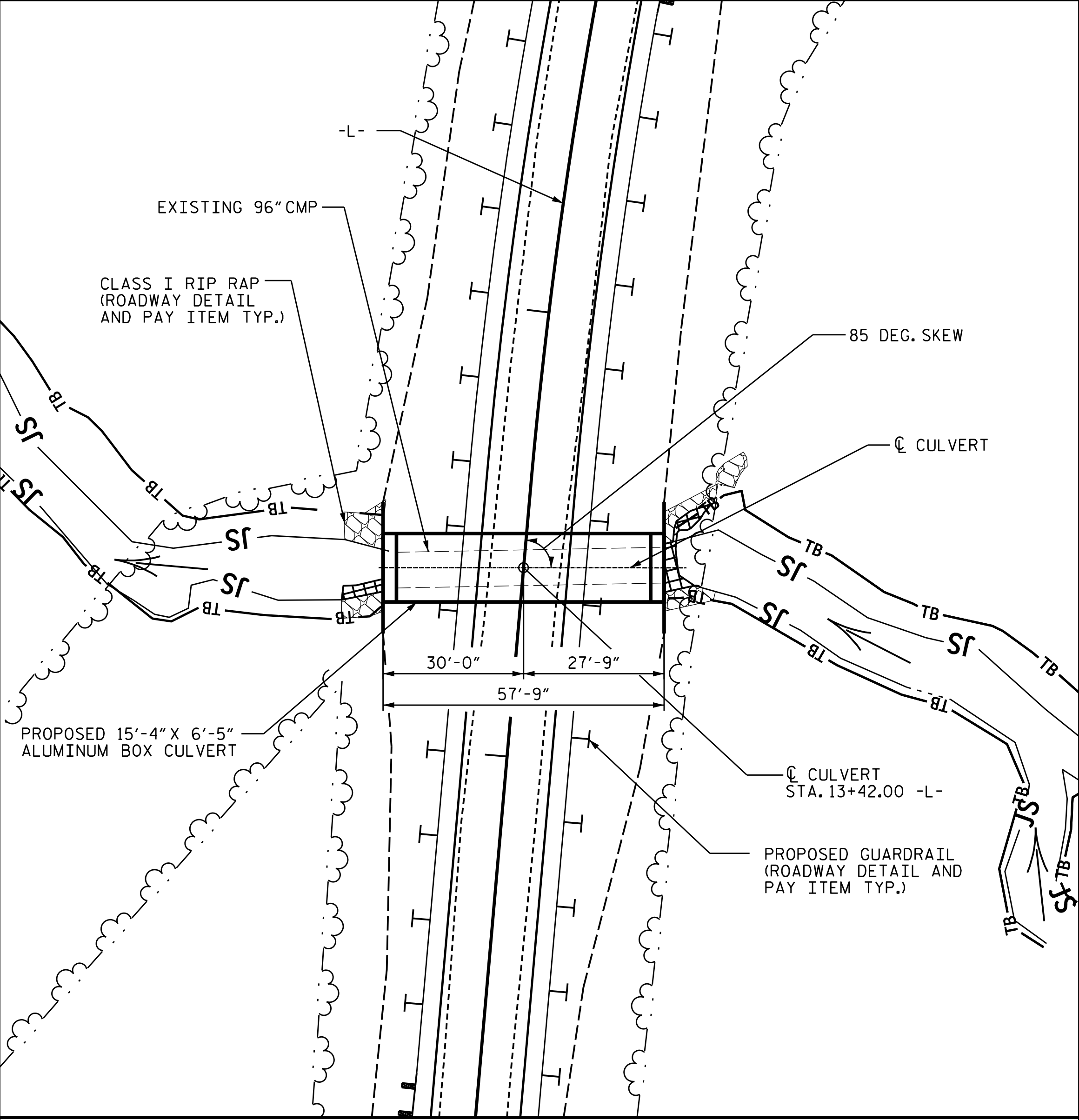
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2			4			2

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DRAWN BY : G. DICKEY DATE : 11/9/22  
CHECKED BY : J. MCROY DATE : 11/9/22  
DESIGN ENGINEER OF RECORD: G. DICKEY DATE : 11/9/22

BM\*6 : 52.22' LEFT -L- STA. 112+37.94, ELEV. = 378.58'



LOCATION SKETCH

**NOTES**

ASSUMED LIVE LOAD -----HL-93 OR ALTERNATE LOADING.  
 MAXIMUM DESIGN FILL----- 6.5'  
 MINIMUM DESIGN FILL----- 5.8'  
 MATERIALS SHALL MEET THE REQUIREMENTS OF THE NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES DATED JANUARY 2018.  
 THE DETAILS SHOWN ARE FOR GENERAL LAYOUT ONLY. THE SUPPLIER SHALL PROVIDE DESIGNS AND DETAILS THAT MEET THE REQUIREMENTS OF AASHTO SECTION 12 AND ARE SEALED BY A NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER.  
 UNLESS OTHERWISE INDICATED, NCDOT SHALL FURNISH ALL STRUCTURAL ELEMENTS AND HARDWARE.  
 THE RESIDENT ENGINEER SHALL CHECK THE LENGTH OF THE CULVERT BEFORE STAKING IT OUT TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.  
 THE EXISTING STRUCTURE CONSISTING OF 96" CMP SHALL BE REMOVED.  
 FOR OTHER DESIGN DATA AND NOTES, SEE SHEET SN.  
 FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.  
 FOR PLACEMENT OF NATURAL STREAM BED MATERIAL, SEE SPECIAL PROVISIONS.  
 FOR INSTALLATION OF STATE SUPPLIED PIPE, SEE SPECIAL PROVISIONS.  
 FOR CULVERT BACKFILL, SEE SPECIAL PROVISIONS.  
 EXCAVATE 1 FOOT BELOW CULVERT AND REPLACE WITH FOUNDATION CONDITIONING MATERIAL IN ACCORDANCE WITH ARTICAL 414 OF THE STANDARD PROVISIONS.  
 THE ALUMINUM BOX CULVERT SHALL BE INSTALLED ACCORDING TO SECTION 300 OF THE STANDARD SPECIFICATIONS AND ACCORDING TO THE MANUFACTURES RECOMMENDATIONS. THE CULVERT IS TO BE PLACED ON THE STANDARD 1.0 FOOT BLANKET OF FOUNDATION CONDITIONING MATERIAL WHICH MAY BE SELECT, CLASS V OR VI.  
 MATERIAL AND GEOMETRIC REQUIREMENTS SHALL CONFORM TO AASHTO M219 AND ASTM B864. GEOMETRIC REQUIREMENTS SHALL ALSO CONFORM TO FIGURE 12.9.4.1-1 AND TABLE 12.9.4.1-1 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS. BOLTS AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 OR ASTM A449 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153.  
 STRUCTURAL CALCULATIONS, INCLUDING THE DETERMINATION OF FOOTING REACTIONS, SHALL BE IN ACCORDANCE WITH THE CURRENT VERSION OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

**HYDRAULIC DATA**

DESIGN DISCHARGE \_\_\_\_\_ = 620 CFS  
 FREQUENCY OF DESIGN FLOOD \_\_\_\_\_ = 25 YRS.  
 DESIGN HIGH WATER ELEVATION \_\_\_\_\_ = 369.5  
 DRAINAGE AREA \_\_\_\_\_ = 819 ACRES  
 BASIC DISCHARGE (Q100) \_\_\_\_\_ = 900 CFS  
 BASIC HIGH WATER ELEVATION \_\_\_\_\_ = 372.6

**OVERTOPPING FLOOD DATA**

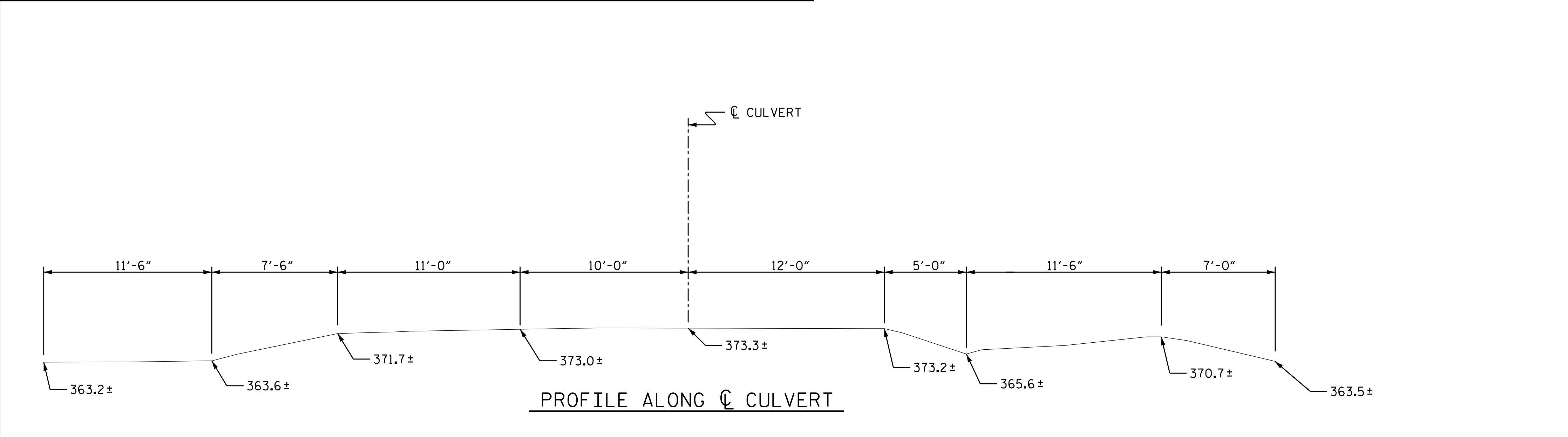
OVERTOPPING DISCHARGE \_\_\_\_\_ = 1100 CFS  
 FREQUENCY OF OVERTOPPING FLOOD \_\_\_\_\_ = 100+ YRS.  
 OVERTOPPING FLOOD ELEVATION \_\_\_\_\_ = 374.7

**GRADE DATA**

PI = 113+70.00  
 EL = 369.77  
 VC = 300'  
 G1 = (-) 5.0245%  
 G2 = (+) 6.0864%

**TOTAL STRUCTURE QUANTITIES**

REMOVAL OF EXISTING STRUCTURE	LUMP SUM
CULVERT EXCAVATION	LUMP SUM
FOUNDATION CONDITIONING MATERIAL	78.7 TONS
INSTALLATION OF STATE SUPPLIED PIPE	LUMP SUM
CULVERT BACKFILL	354 TONS



PROFILE ALONG CULVERT

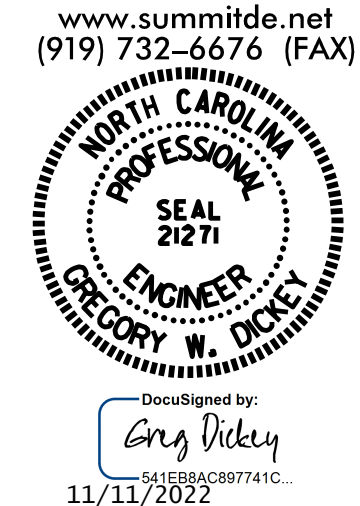
Prepared in the Office of:  
  
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PROJECT NO. 5C.039062

GRANVILLE COUNTY

STATION: 113+42.00 -L-

SHEET 1 OF 2



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

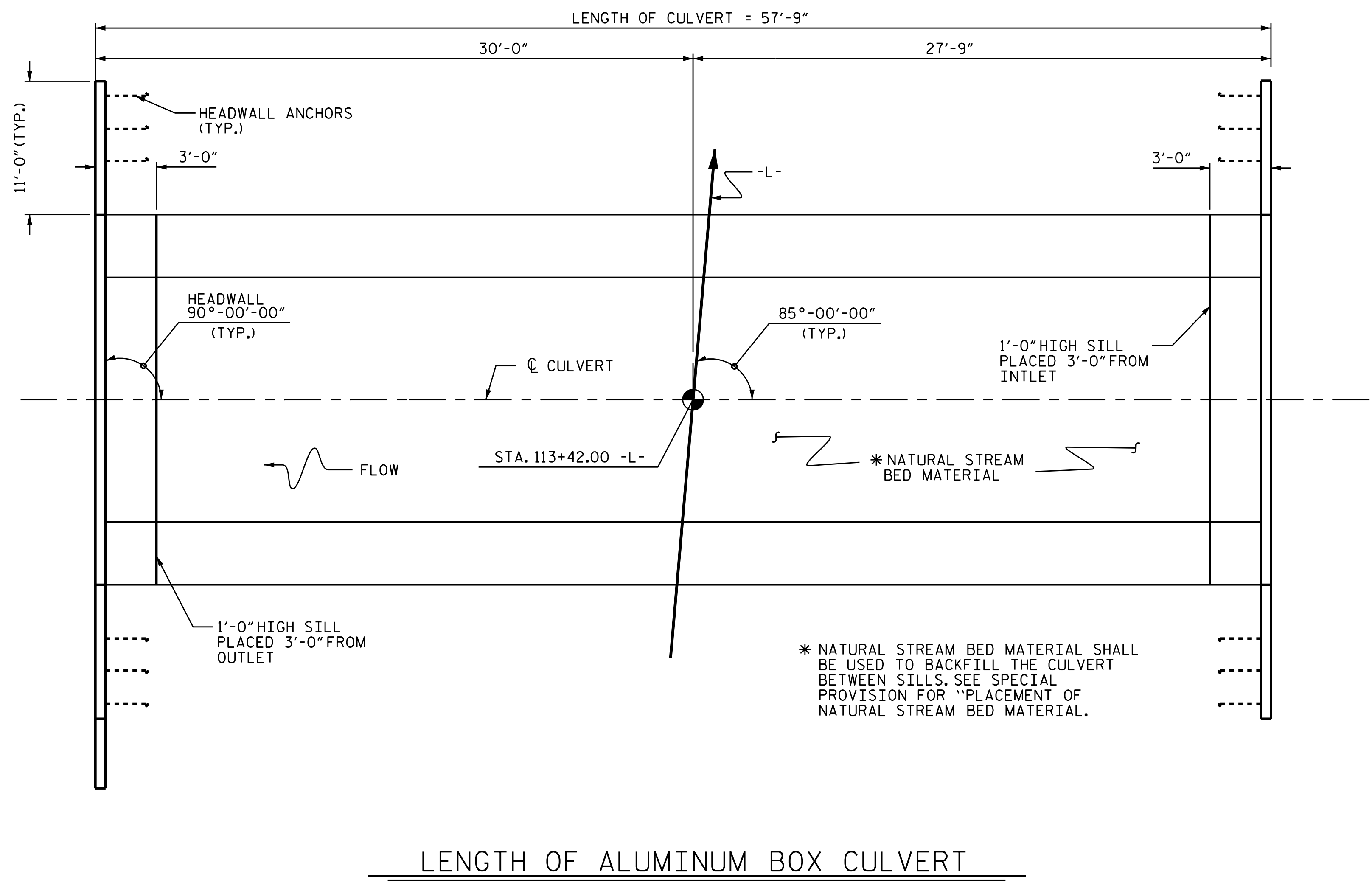
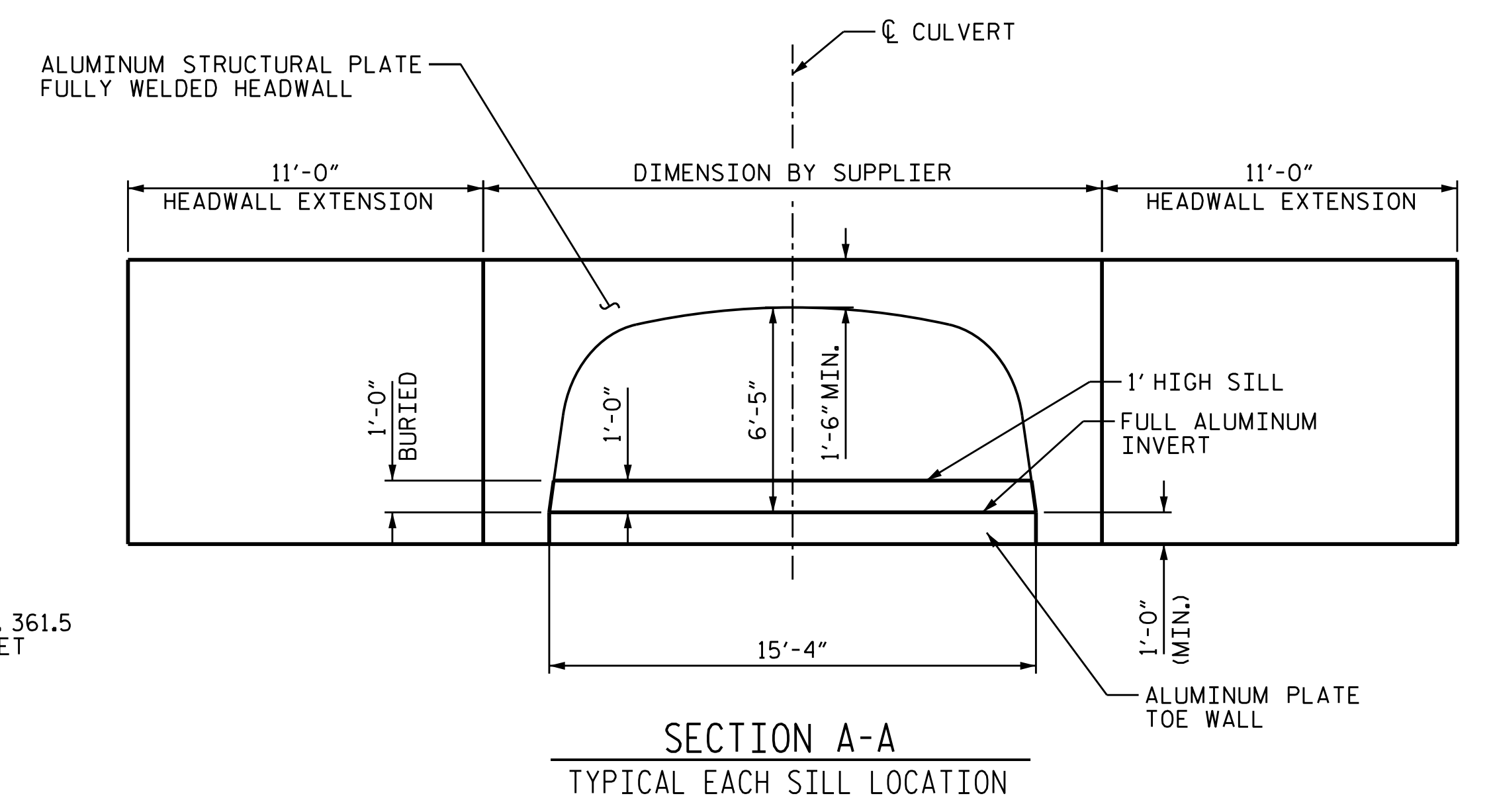
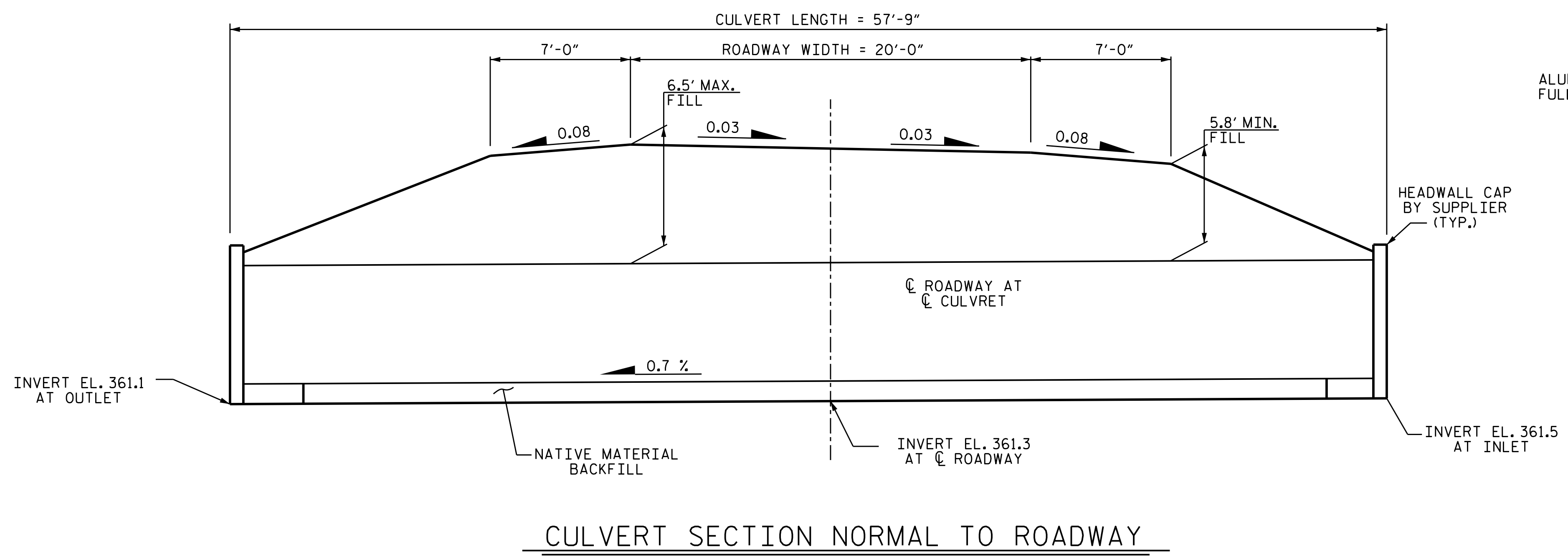
**SINGLE**  
**15'-4" x 6'-5"**  
**ALUMINUM BOX CULVERT**  
**85° SKEW**

DRAWN BY : G. DICKEY DATE : 11/8/2022  
 CHECKED BY : J. MCROY DATE : 11/8/2022  
 DESIGN ENGINEER OF RECORD: G. DICKEY DATE : 11/8/2022

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TOTAL SHEETS: 2



Prepared in the Office of: **SUMMIT** DESIGN AND ENGINEERING SERVICES

PROJECT NO. 5C.039062

GRANVILLE COUNTY

STATION: 113+42.00 -L-

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SHEET 2 OF 2



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**SINGLE**  
15'-4" x 6'-5"  
ALUMINUM BOX CULVERT  
85° SKEW

REVISIONS						SHEET NO.
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\$LASTSAVEDDATE\$ TIME\$ FILE\$  
 DRAWN BY : G. DICKEY DATE : 11/9/22  
 CHECKED BY : J. MCROY DATE : 11/9/22  
 DESIGN ENGINEER OF RECORD: G. DICKEY DATE : 11/9/22



## 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.
	- -	27,000 LBS. PER SQ. IN.
	- -	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 2018 "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  $\frac{3}{4}$ " WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO  $\frac{1}{2}$ " RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A  $\frac{1}{4}$ " 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  $\frac{1}{4}$ " 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  $\frac{7}{8}$ "  $\emptyset$  SHEAR STUDS FOR THE  $\frac{3}{4}$ "  $\emptyset$  STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 -  $\frac{7}{8}$ "  $\emptyset$  STUDS FOR 4 -  $\frac{3}{4}$ "  $\emptyset$  STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF  $\frac{7}{8}$ "  $\emptyset$  STUDS ALONG THE BEAM AS SHOWN FOR  $\frac{3}{4}$ "  $\emptyset$  STUDS BASED ON THE RATIO OF 3 -  $\frac{7}{8}$ "  $\emptyset$  STUDS FOR 4 -  $\frac{3}{4}$ "  $\emptyset$  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  $\frac{3}{16}$ " 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  $\frac{1}{16}$ " 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 REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL 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.

# ENGLISH

JANUARY, 1990

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