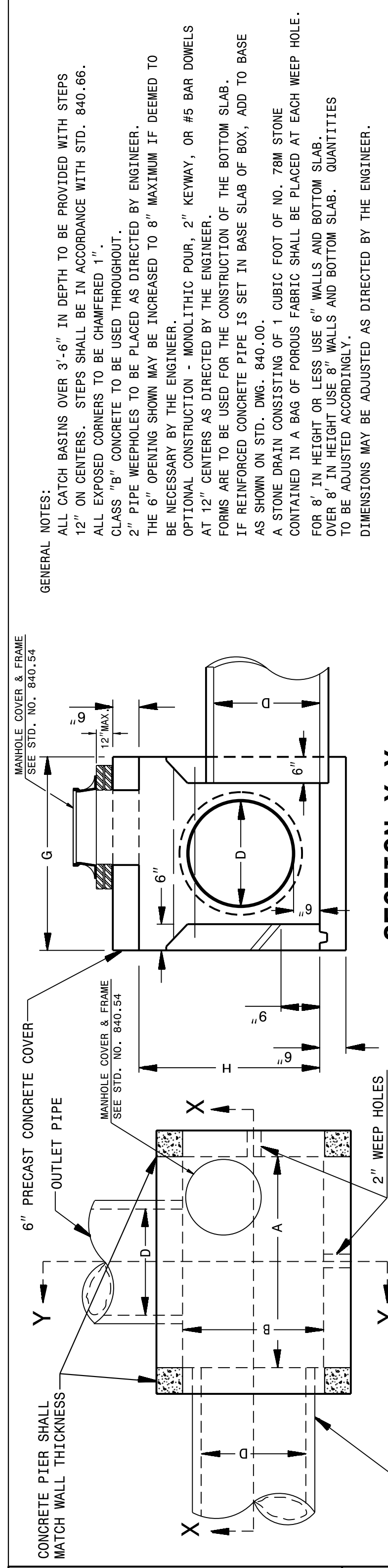


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 jhover-ton AT CSD-292595

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STATE OF
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 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

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



SECTION Y-Y

SECTION X-X

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

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

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

PART SECTION Y-Y
 SHOWING METHOD OF CONSTRUCTION FOR 6" OPENING

PART SECTION Y-Y
 SHOWING METHOD OF CONSTRUCTION IF INCREASED OPENING IS USED

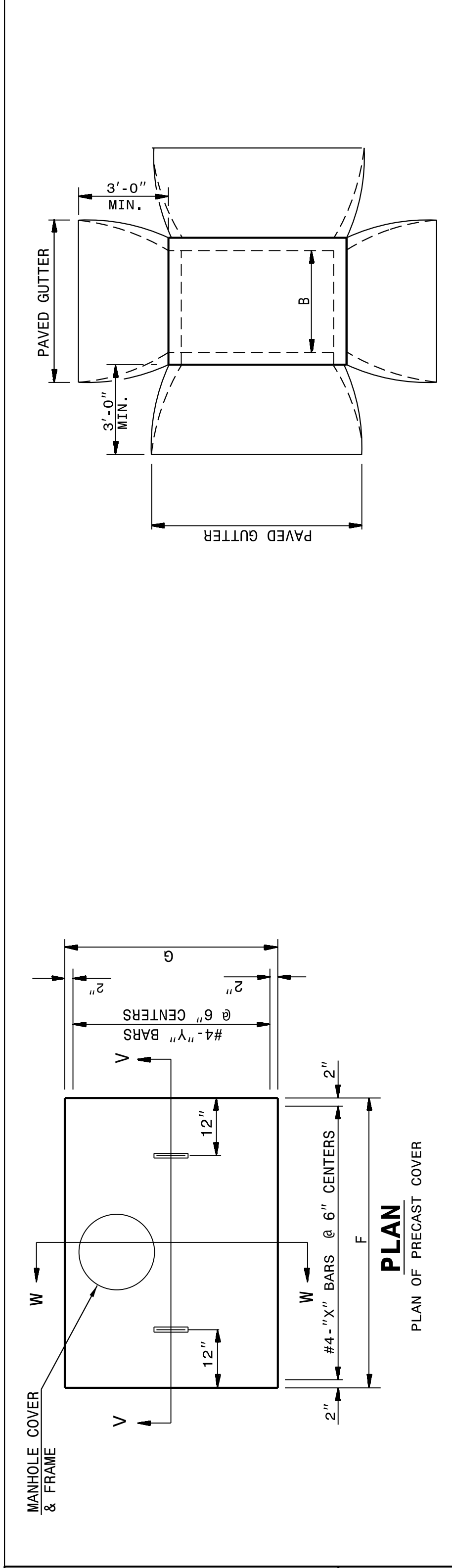
PIPE DIM'S OF BOX & PIPE	MIN. DIMENSIONS AND QUANTITIES FOR CONCRETE CATCH BASIN (BASED ON MIN. HEIGHT, H)				TOTAL QUANTITIES				DEDUCT ONE 6" THROAT OPENING						
	SPAN		HEIGHT		BOX & SLABS		ONE PIPE			R. C.					
D	A	B	H	NO. BARS	LENGTH	NO. BARS	LENGTH	CU. YDS. CONC.	TOP & BOT. SLAB DIMENSIONS		DED. ONE 6" THROAT OPENING				
12"	3'-6"	2'-3"	1'-10"	4	3'-0"	6	4'-3"	0.181	0.271	0.250	27	1.046	0.015	0.032	0.046
15"	3'-6"	2'-3"	2'-1"	4	3'-0"	6	4'-3"	0.181	0.271	0.250	27	1.108	0.023	0.036	0.046
18"	4'-0"	2'-8"	2'-4"	5	3'-5"	7	4'-9"	0.226	0.340	0.284	35	1.379	0.033	0.049	0.053
24"	4'-0"	2'-8"	2'-10"	5	3'-5"	7	4'-9"	0.226	0.340	0.284	35	1.521	0.059	0.085	0.083
30"	4'-0"	3'-6"	3'-4"	5	4'-3"	9	4'-9"	0.278	0.417	0.315	43	1.916	0.092	0.127	0.053
36"	4'-0"	4'-6"	4'-4"	5	5'-3"	12	5'-9"	0.340	0.510	0.352	51	2.390	0.132	0.178	0.069
42"	5'-0"	4'-6"	4'-4"	5	5'-3"	12	5'-9"	0.407	0.611	0.389	64	2.914	0.180	0.243	0.066
48"	5'-0"	5'-0"	4'-10"	5	5'-9"	13	5'-9"	0.444	0.666	0.407	68	3.298	0.235	0.317	0.066

SHEET 1 OF 2
840D04

SHEET 1 OF 2
840D04

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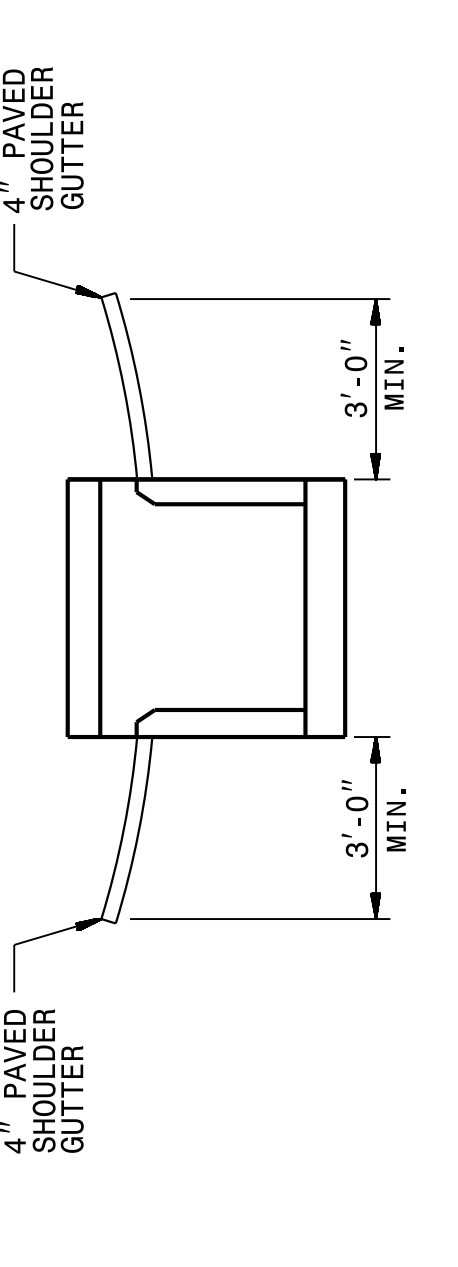


PLAN
 PLAN OF PRECAST COVER

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

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

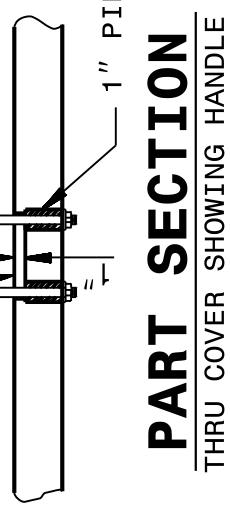
PLAN OF CATCH BASIN IN MEDIAN STRIP



SECTION V-V

SECTION W-W

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



PART SECTION
 THROUGH COVER SHOWING HANDLE

SHEET 2 OF 2
840D04

SHEET 2 OF 2
840D04

SEE PLATE FOR TITLE

ORIGINAL BY: _____ DATE: _____
 MODIFIED BY: rnbritt DATE: 07-03-2014
 CHECKED BY: _____ DATE: _____
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ENGLISH DETAIL DRAWING FOR
MINIMUM DEPTH CONCRETE DROP INLET
12" THRU 30" PIPE

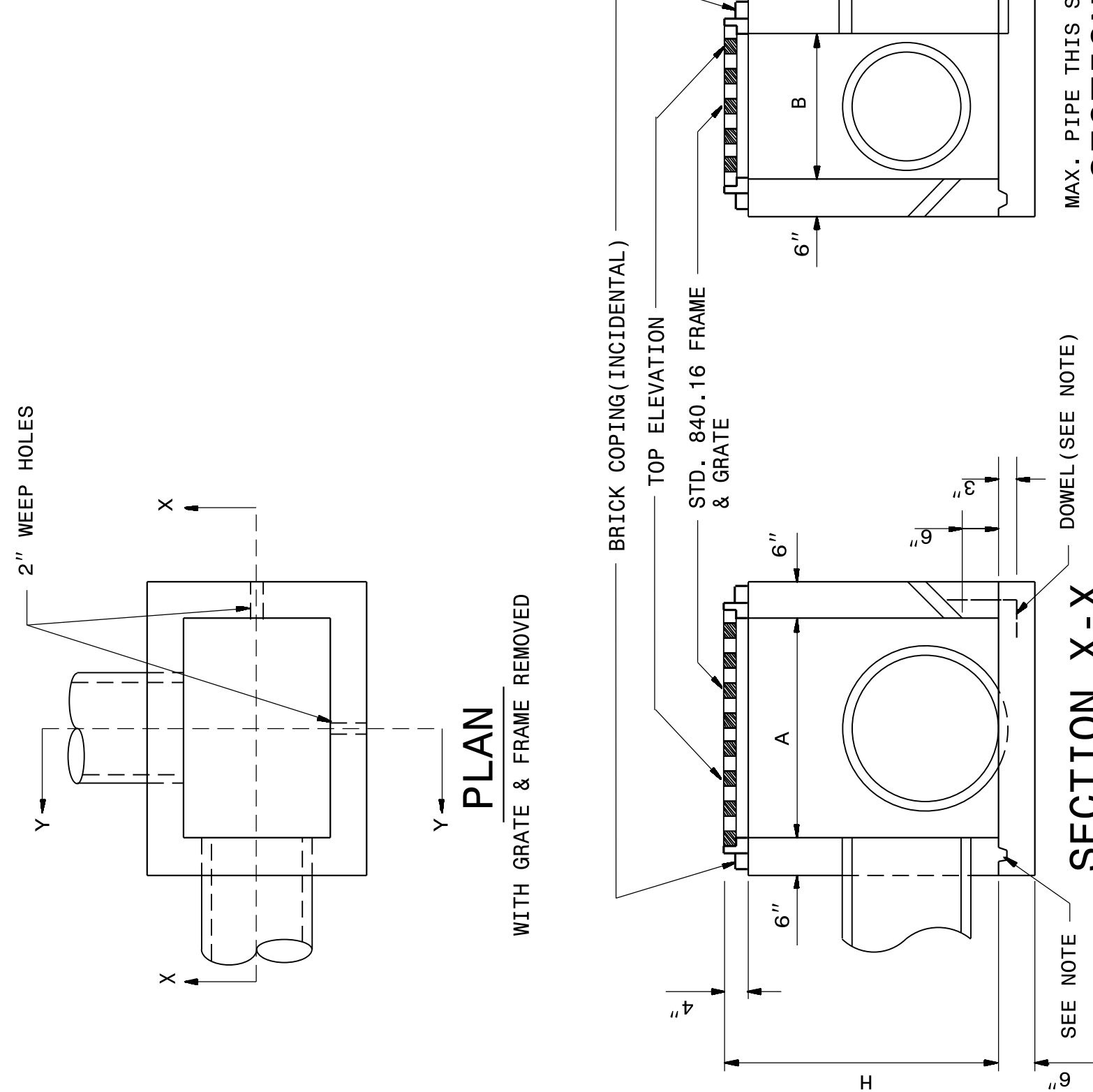
SHEET 1 OF 1
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ENGLISH DETAIL DRAWING FOR
MINIMUM DEPTH CONCRETE DROP INLET
12" THRU 30" PIPE

SHEET 1 OF 1
840D14

GENERAL NOTES:
 USE CLASS "B" CONCRETE THROUGHOUT.
 OPTIONAL CONSTRUCTION - MONOLITHIC POUR 2" KEYWAY OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
 USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
 IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
 CONSTRUCT WITH PIPE CROWNS MATCHING.
 INSTALL 2" WEEPHOLES AS DIRECTED BY THE ENGINEER.
 INSTALL STONE DRAINS OF A MINIMUM OF 1 CUBIC FOOT OF NO. 76M STONE IN A POROUS FABRIC BAG OR WRAP, AT EACH WEEP HOLE OR AS DIRECTED BY THE ENGINEER.
 CHAMFER ALL EXPOSED CORNERS 1".
 DRAWING NOT TO SCALE.



DIMENSIONS OF BOX & PIPE		CUBIC YARDS CONC. IN BOX		DEDUCTIONS FOR ONE PIPE				
PIPE	SPAN	WIDTH	MIN. HEIGHT	BOTTOM SLAB	WALL PER FT. HT.	TOTAL CONCRETE FOR MINIMUM WALL PER FT. HT.	C.M.	R.C.
12"	3'-0"	2'-0"	1'-8"	0.222	0.222	0.555	0.015	0.026
15"	3'-0"	2'-0"	1'-11"	0.222	0.222	0.611	0.023	0.036
18"	3'-0"	2'-0"	2'-1"	0.222	0.222	0.667	0.033	0.049
24"	3'-0"	2'-0"	2'-9"	0.222	0.222	0.814	0.059	0.085
30"	3'-0"	2'-0"	3'-2"	0.222	0.222	0.925	0.092	0.127

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ENGLISH DETAIL DRAWING FOR
MINIMUM DEPTH BRICK DROP INLET
12" THRU 30" PIPE

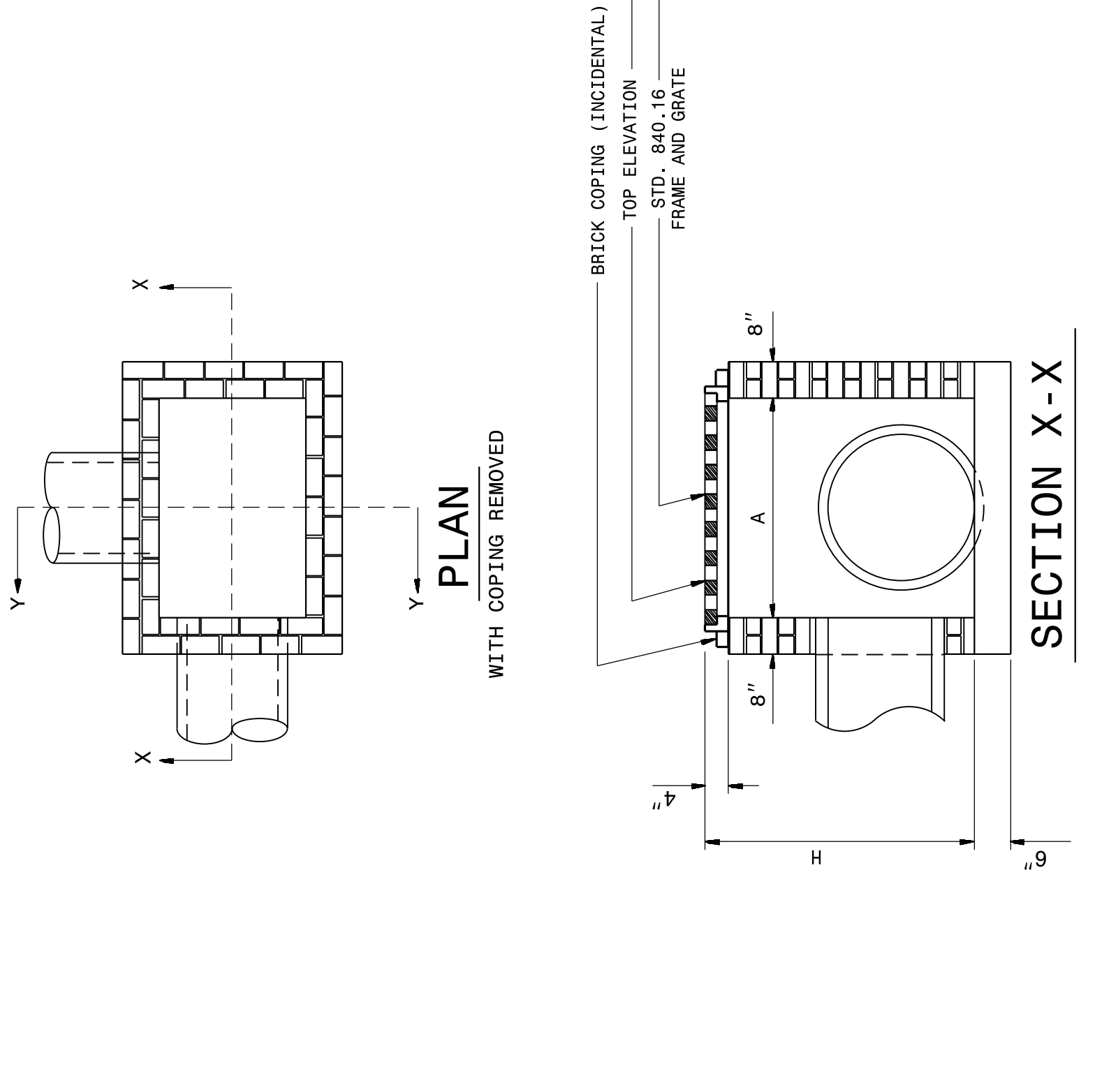
SHEET 1 OF 1
840D15

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ENGLISH DETAIL DRAWING FOR
MINIMUM DEPTH BRICK DROP INLET
12" THRU 30" PIPE

SHEET 1 OF 1
840D15

GENERAL NOTES:
 MORTAR JOINTS 1/2" TO 1/8" THICK.
 USE CLASS "B" CONCRETE THROUGHOUT.
 USE FORMS FOR CONSTRUCTION OF THE BOTTOM SLAB.
 DEDUCT FOR PIPE(S) FROM TOTAL CU. YDS. OF BRICK MASONRY.
 USE BRICK OR CONCRETE BLOCK WHICH COMPLIES WITH THE REQUIREMENTS OF SECTION 840 OF THE STANDARD SPECIFICATIONS.
 IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
 CONSTRUCT WITH PIPE CROWNS MATCHING.
 DO NOT USE BRICK MASONRY DROP INLET IN LOCATIONS SUBJECT TO TRAFFIC.
 CHAMFER ALL EXPOSED CORNERS 1".
 DRAWING NOT TO SCALE.

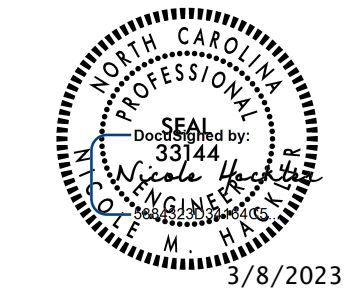


DIMENSIONS OF BOX & PIPE		CUBIC YARDS CONCRETE		CUBIC YARDS BRICK MASONRY		DEDUCTIONS FOR ONE PIPE		
PIPE	SPAN	WIDTH	MIN. HEIGHT	BOTTOM SLAB	WALL PER FOOT HT.	TOTAL BRICK MASONRY MIN. HEIGHT, H	C.S.	R.C.
12"	3'-0"	2'-0"	1'-8"	0.268	0.313	0.470	0.020	0.032
15"	3'-0"	2'-0"	1'-11"	0.268	0.313	0.548	0.031	0.047
18"	3'-0"	2'-0"	2'-1"	0.268	0.313	0.626	0.044	0.065
24"	3'-0"	2'-0"	2'-9"	0.268	0.313	0.835	0.078	0.113
30"	3'-0"	2'-0"	3'-2"	0.268	0.313	0.991	0.122	0.170

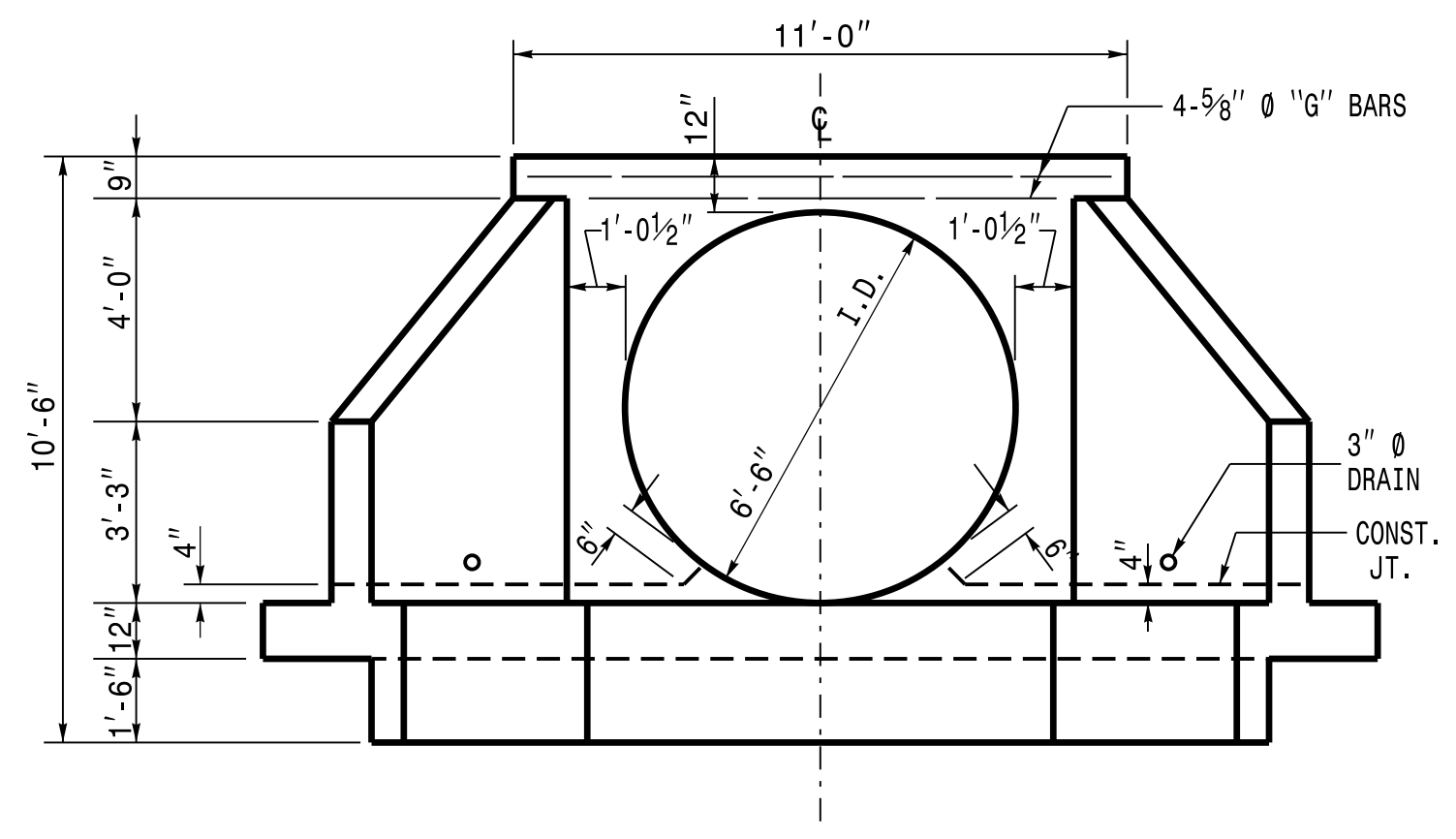
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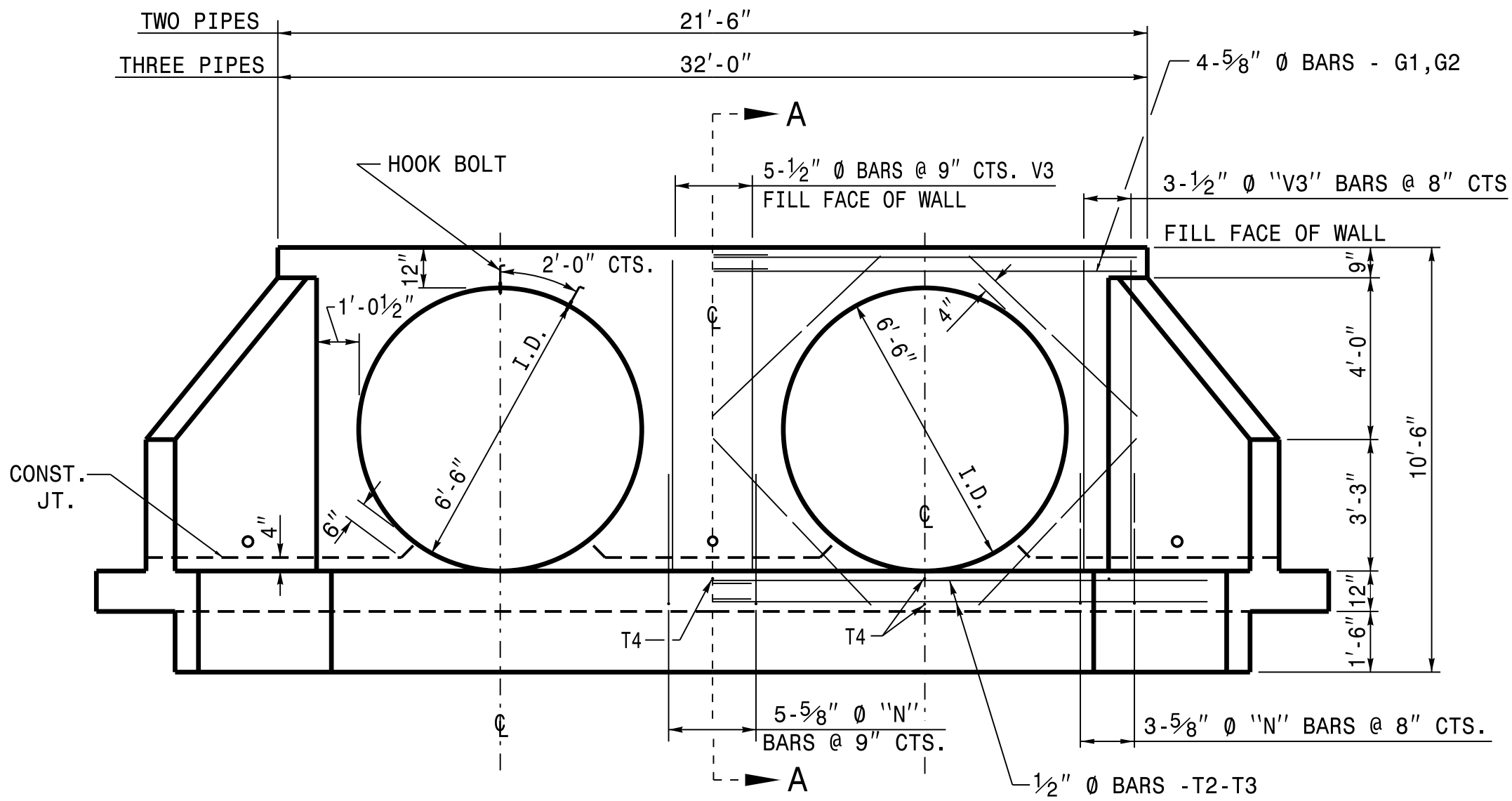
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 CHECKED BY: _____ DATE: _____
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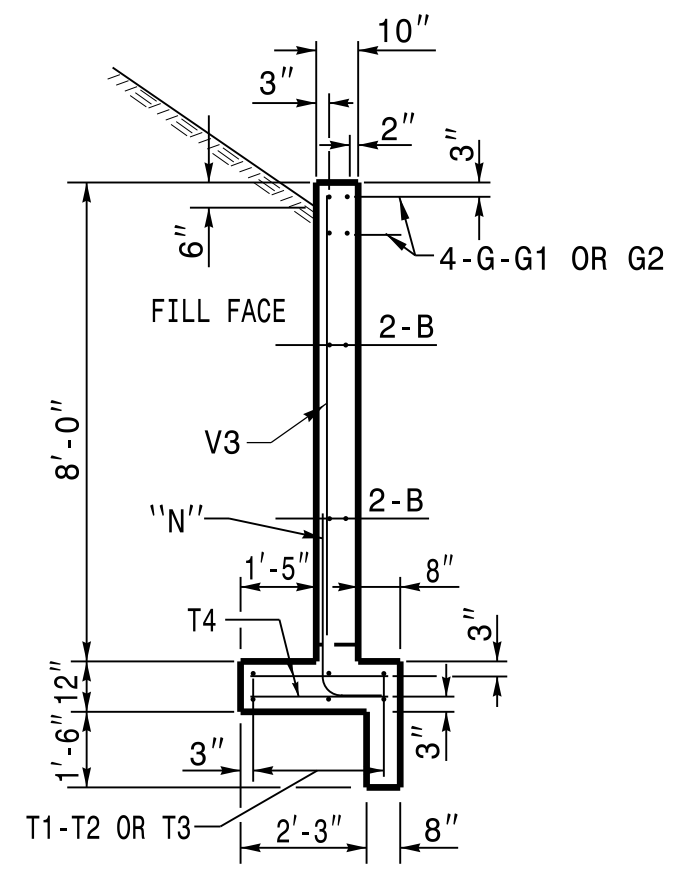
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END ELEVATION



END ELEVATION



**SECTION A-A
FOR ALL ENDWALLS**

NOTES:

USE CLASS 'A' CONCRETE.

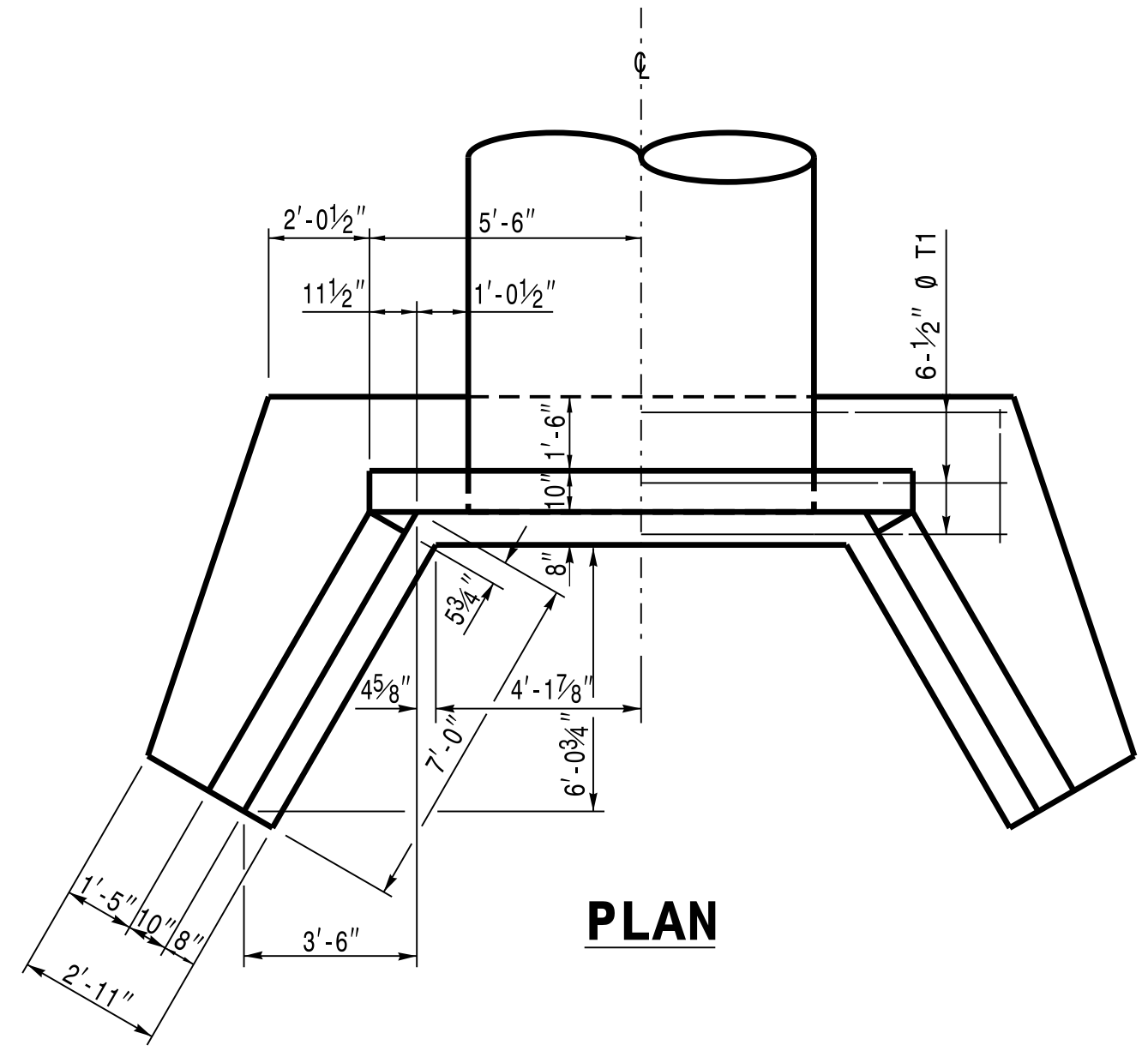
USE ASTM A615-GRADE 60 REINFORCING STEEL.

USE DEFORMED BARS FOR ALL REINFORCING STEEL. WHERE SPLICING OF REINFORCEMENT IS NECESSARY, BARS ARE TO BE LAPPED 45 DIAMETERS. ALL DIMENSIONS RELATIVE TO REINFORCEMENT ARE TO CENTERS OF BARS.

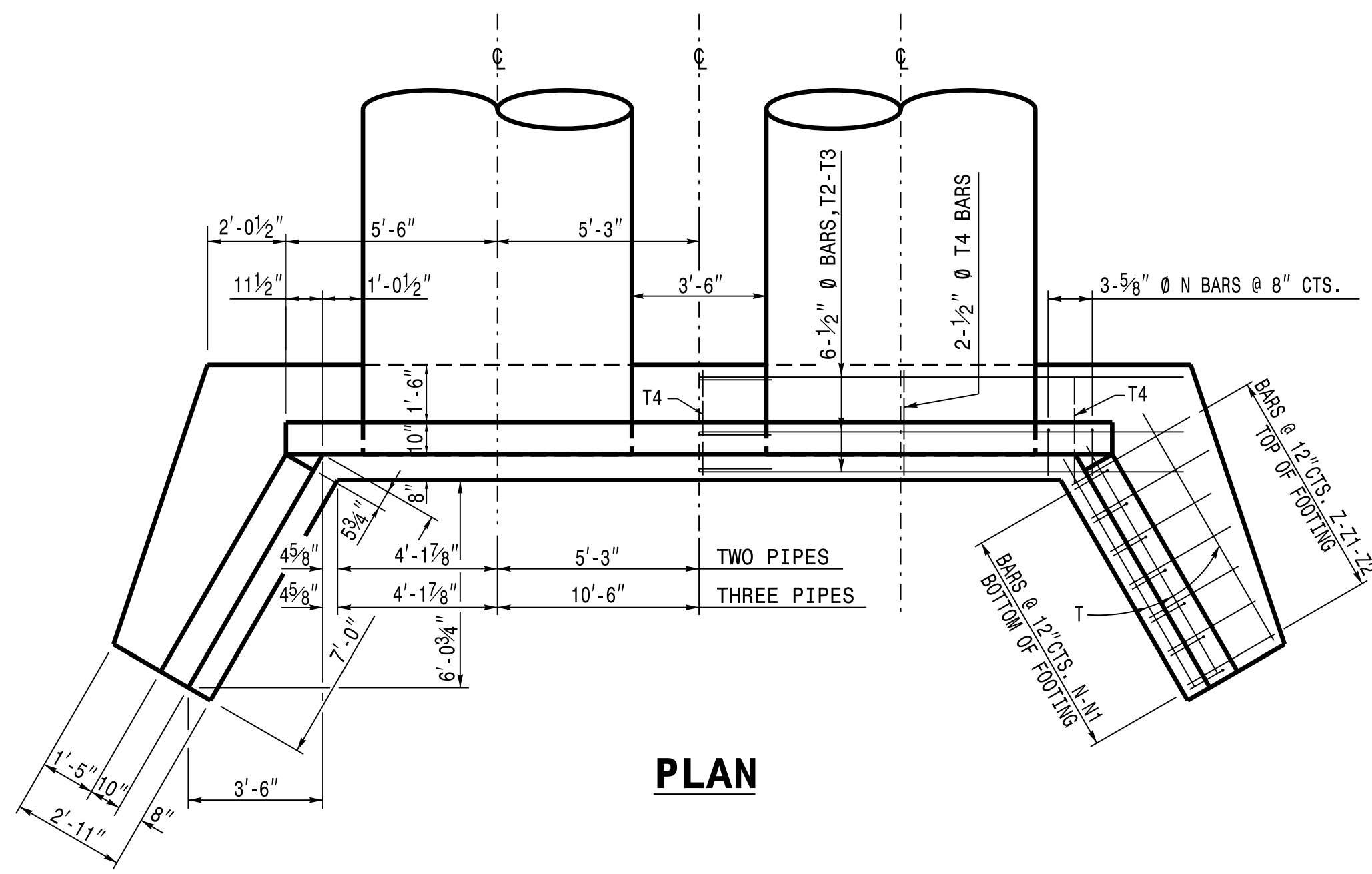
THE FOOTING, CURTAIN WALL AND 4" OF WALL ARE TO BE POURED IN ONE OPERATION ALLOWING NO TIME FOR INITIAL SET TO TAKE PLACE BETWEEN THEM. POUR THE REMAINING WALL IN ONE OPERATION.

CHAMFER ALL EXPOSED CORNERS 1".

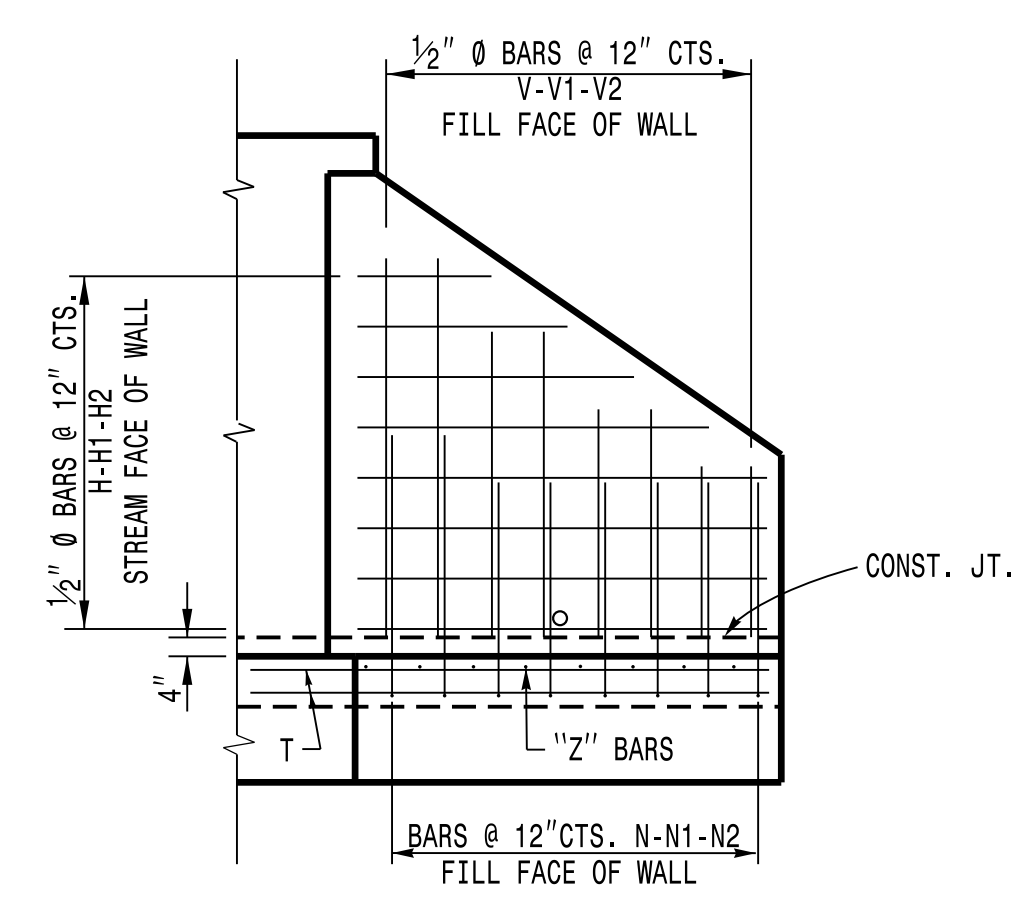
PLACE 3" DIAMETER DRAINS IN WALL AS SHOWN 6" ABOVE NORMAL FLOW LINE.



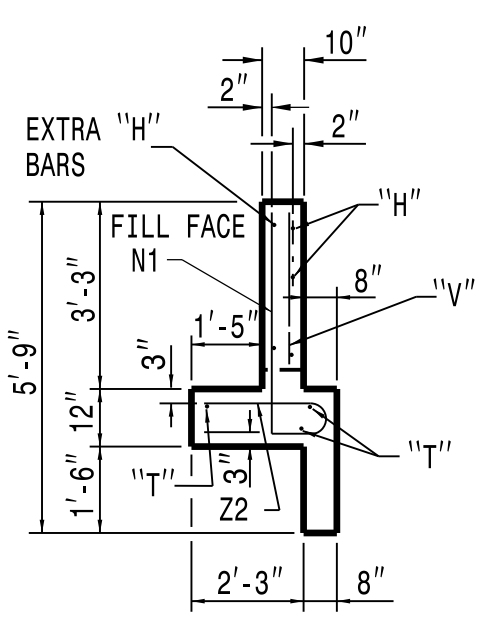
PLAN



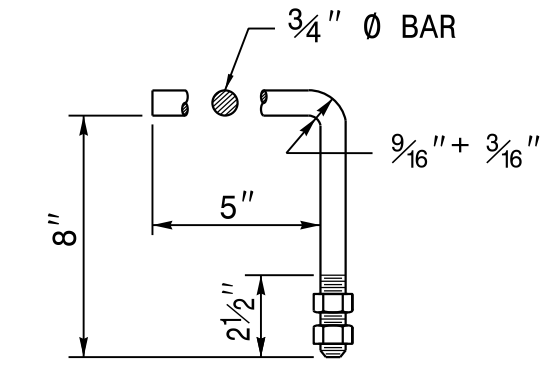
PLAN



**ELEVATION OF WING
SHOWING REINFORCEMENT**

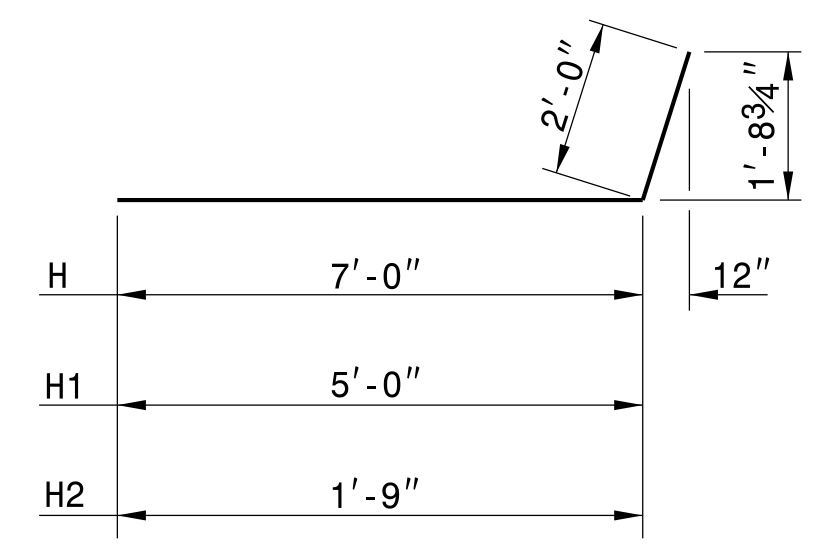


END OF WING

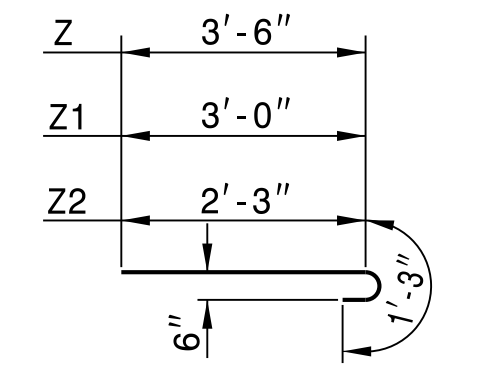


HOOK BOLT

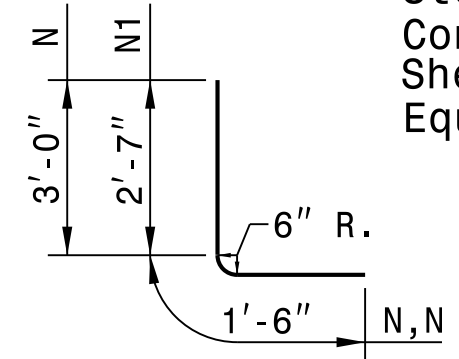
HOOK BOLTS (CONSTRUCT ANCHORS AT 2'-0" CTS. ALONG THE CIRCUMFERENCE OF THE 6'-6" CSP. EMBED THE HOOK BOLTS IN THE CONCRETE ENDWALL 8" IN DEPTH. THE GALVANIZED 3/4" DIA. HOOK BOLTS MUST MEET ASTM A-307 OR ASTM A-836. BOTH BOLTS AND NUTS MUST BE IN ACCORDANCE WITH ASTM A-153 FOR GALVANIZING.



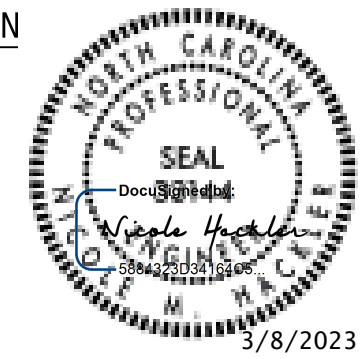
BARS H-H1-H2



BARS Z-Z1-Z2



BARS N-N1



BILL OF MATERIAL FOR ONE ENDWALL

REINFORCING STEEL	1 PIPE	2 PIPES	3 PIPES
BAR #4	NO. 8	NO. 16	NO. 24
WEIGHT	32	64	96
G #5	NO. 4	NO. 8	NO. 8
LENGTH	10'-9"	11'-9"	17'-0"
WEIGHT	45	98	142
H #4	NO. 10	NO. 10	NO. 10
LENGTH	9'-0"	7'-0"	3'-9"
WEIGHT	60	28	10
H1 #4	NO. 6	NO. 6	NO. 6
LENGTH	7'-0"	7'-0"	7'-0"
WEIGHT	28	28	28
H2 #4	NO. 4	NO. 4	NO. 4
LENGTH	3'-9"	3'-9"	3'-9"
WEIGHT	10	10	10
N #5	NO. 10	NO. 15	NO. 20
LENGTH	4'-6"	4'-1"	4'-1"
WEIGHT	47	70	94
N1 #4	NO. 10	NO. 10	NO. 10
LENGTH	4'-1"	4'-1"	4'-1"
WEIGHT	27	27	27
T #4	NO. 6	NO. 6	NO. 6
LENGTH	6'-6"	6'-6"	6'-6"
WEIGHT	26	26	26
T1 #4	NO. 6	NO. 6	NO. 6
LENGTH	15'-0"	15'-0"	15'-0"
WEIGHT	60	60	60
T2 #4	NO. 12	NO. 12	NO. 12
LENGTH	13'-9"	13'-9"	13'-9"
WEIGHT	110	110	110
T3 #4	NO. 19	NO. 19	NO. 19
LENGTH	19'-0"	19'-0"	19'-0"
WEIGHT	152	152	152
T4 #4	NO. 4	NO. 7	NO. 10
LENGTH	2'-9"	2'-9"	2'-9"
WEIGHT	7	13	18
V #4	NO. 6	NO. 6	NO. 6
LENGTH	5'-9"	5'-9"	5'-9"
WEIGHT	23	23	23
V1 #4	NO. 6	NO. 6	NO. 6
LENGTH	4'-6"	4'-6"	4'-6"
WEIGHT	18	18	18
V2 #4	NO. 8	NO. 8	NO. 8
LENGTH	2'-9"	2'-9"	2'-9"
WEIGHT	15	15	15
V3 #4	NO. 6	NO. 11	NO. 16
LENGTH	7'-6"	7'-6"	7'-6"
WEIGHT	30	55	80
Z #5	NO. 4	NO. 4	NO. 4
LENGTH	4'-9"	4'-9"	4'-9"
WEIGHT	20	20	20
Z1 #4	NO. 4	NO. 4	NO. 4
LENGTH	4'-3"	4'-3"	4'-3"
WEIGHT	11	11	11
Z2 #4	NO. 6	NO. 6	NO. 6
LENGTH	3'-6"	3'-6"	3'-6"
WEIGHT	14	14	14
TOTAL REINF. STEEL (lbs.)	473	662	834
CLASS "A" CONC. (cu. yds.)	7.9	10.8	13.8

DESIGN DATA

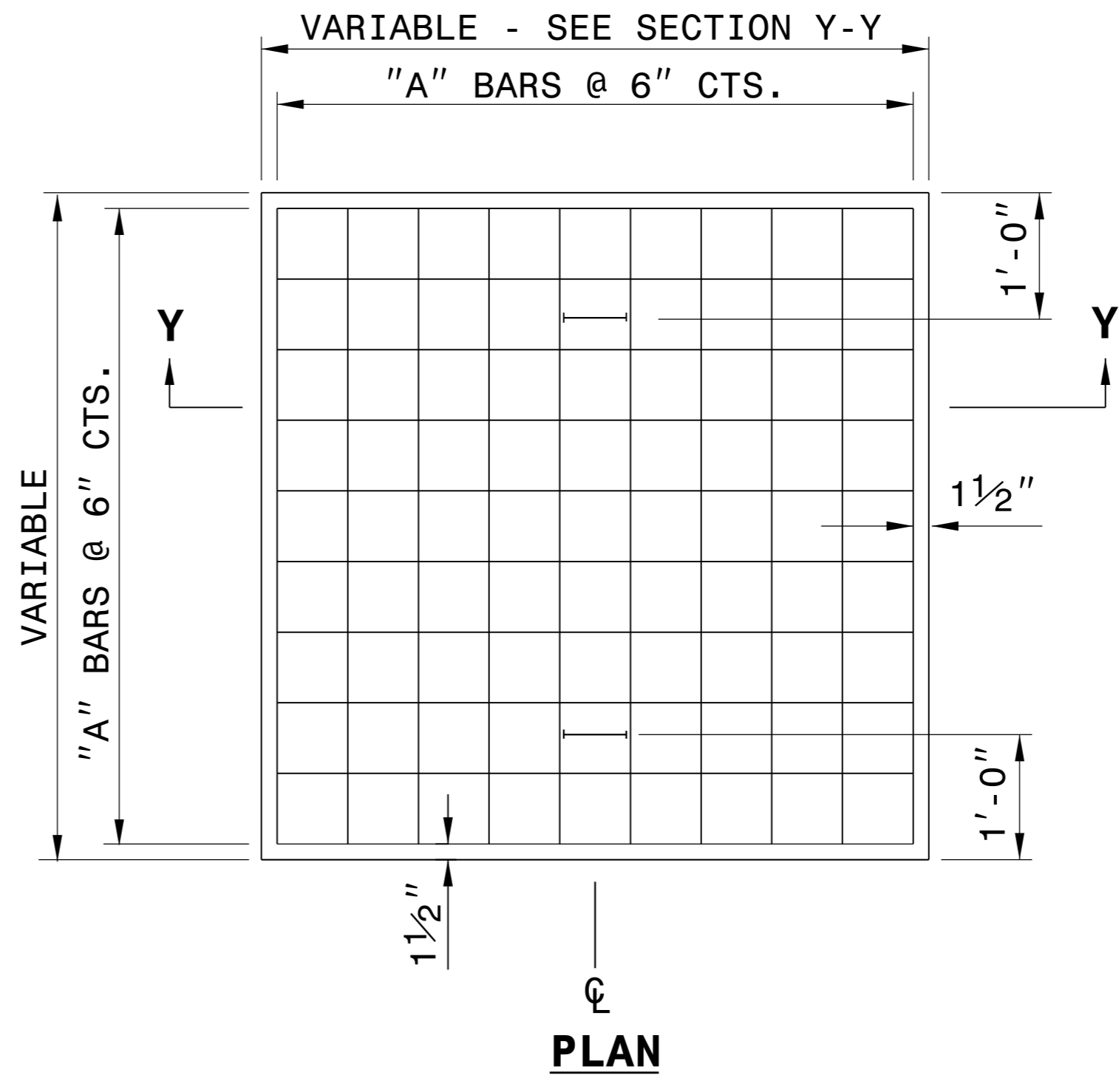
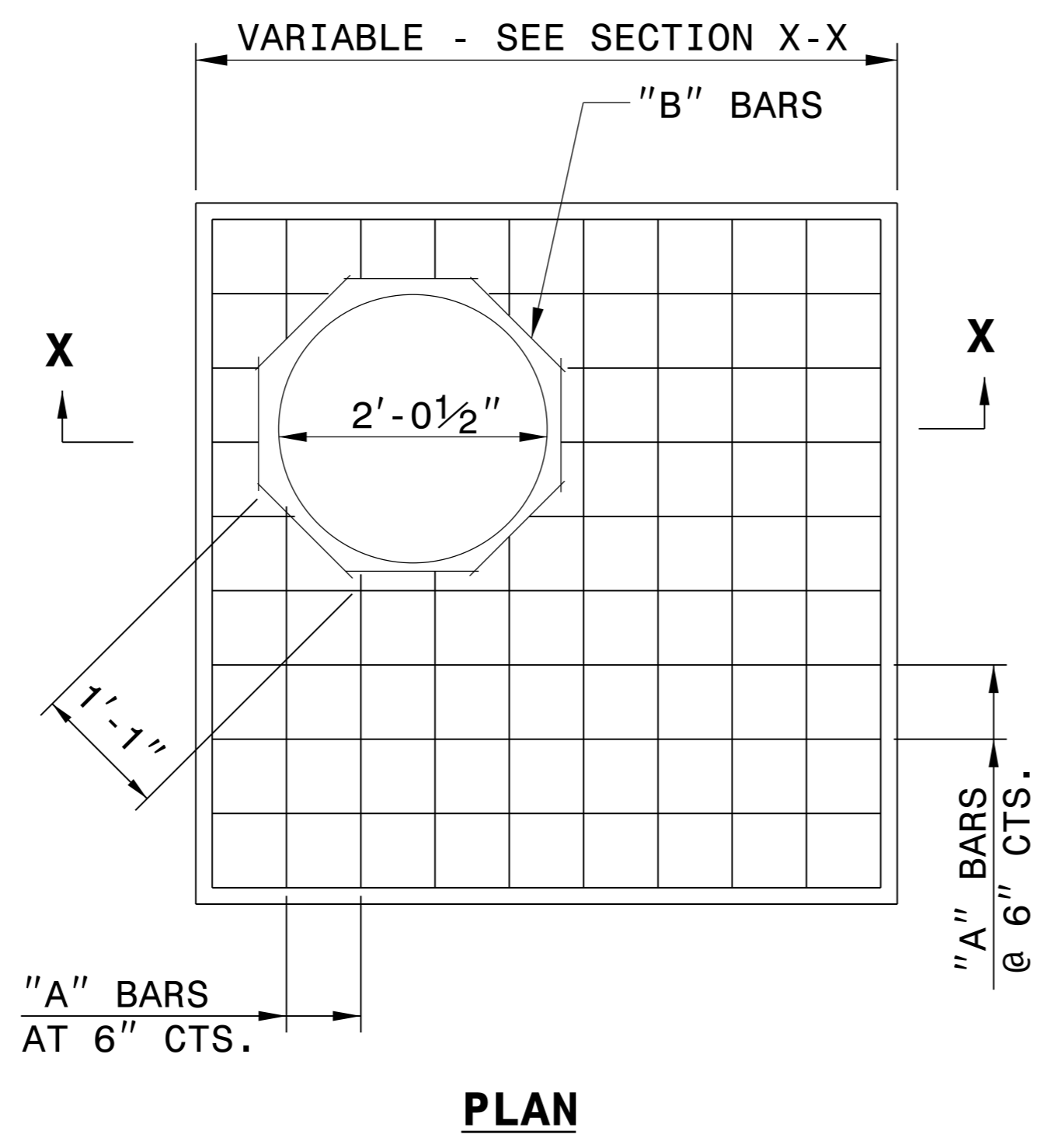
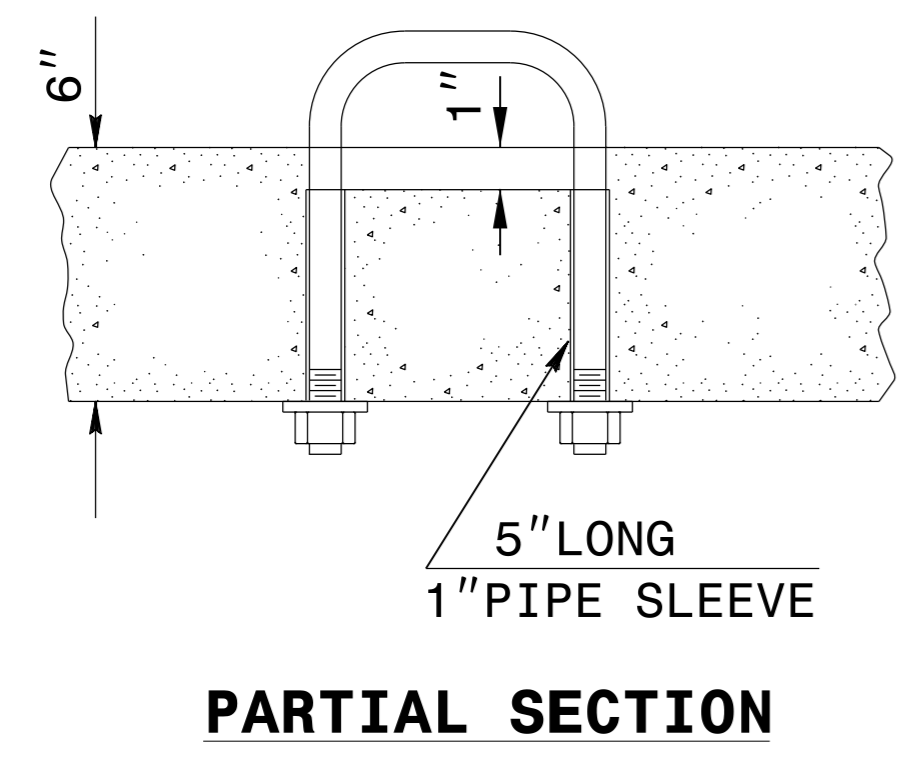
Specifications Steel in tension A.A.S.H.T.O. (1977)
 Concrete in compression 20,000 LBS. PER SQ. IN.
 Shear Class "A" Concrete 1,200 LBS. PER SQ. IN.
 Equiv. fluid pressure of earth SEE A.A.S.H.T.O. 30 LBS. PER CU. FT.

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**DETAIL OF REINFORCED
CONCRETE ENDWALL FOR
78" DIAMETER PIPE - 90° SKEW**

ORIGINAL BY: _____ DATE: _____
 MODIFIED BY: R.E.D.&T.S.S. DATE: 6-96 & 5-00
 CHECKED BY: _____ DATE: _____
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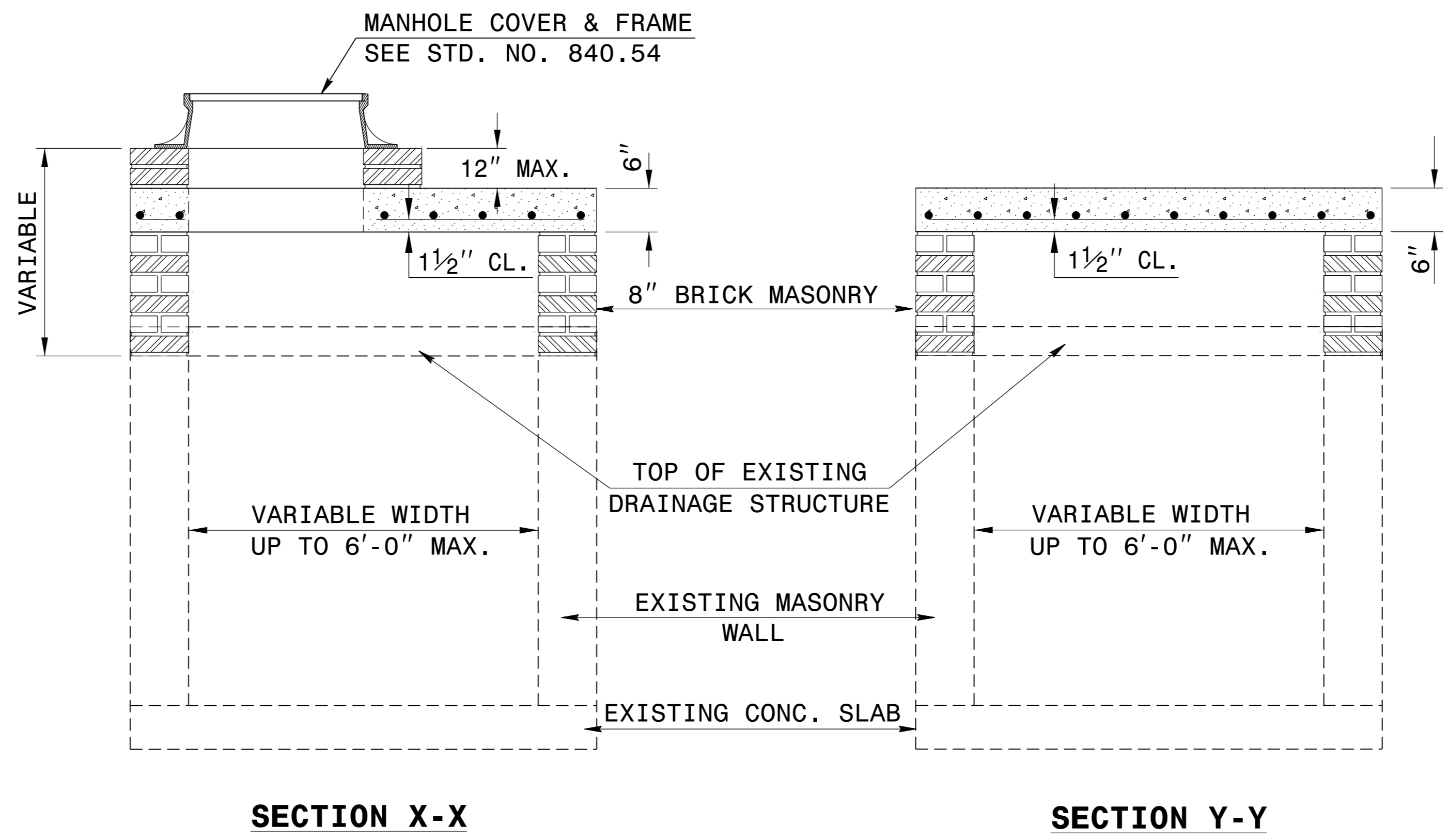
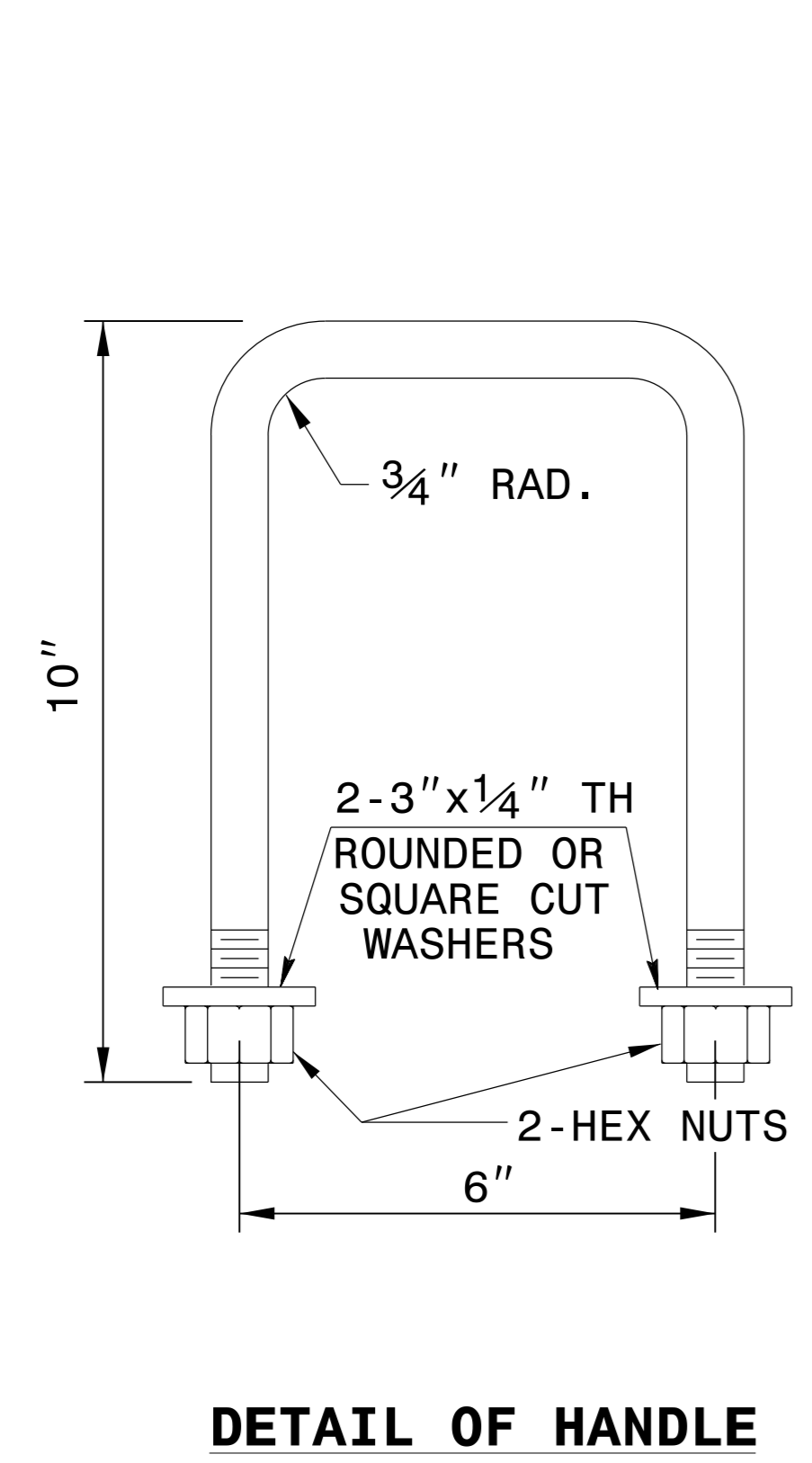
GENERAL NOTES:

CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.

THE DIMENSIONS FOR THE EXISTING BOXES ARE APPROXIMATE AND MAY VARY SLIGHTLY.

DETAIL INTENDED FOR NON-TRAFFIC BEARING DRAINAGE STRUCTURES.

BILL OF MATERIALS				
REINFORCING STEEL				
CODE	SIZE	QTY.	LENGTH	REINF. STEEL LBS.
A	#4	20	4'-6"	60.12
B	#4	8	1'-1"	5.79
TOTAL				65.91 *
MASONRY				CU YDS
TOP SLAB CONCRETE CLASS "B"				.4326 *
BRICK MASONRY PER FT HT (MIN)				.4111



*** NOTE:**
 QUANTITIES BASED ON 3'-6" X 3'-6" DRAINAGE STRUCTURE. ADJUST QUANTITIES FOR LARGER STRUCTURES AND MANHOLE CONSTRUCTION.



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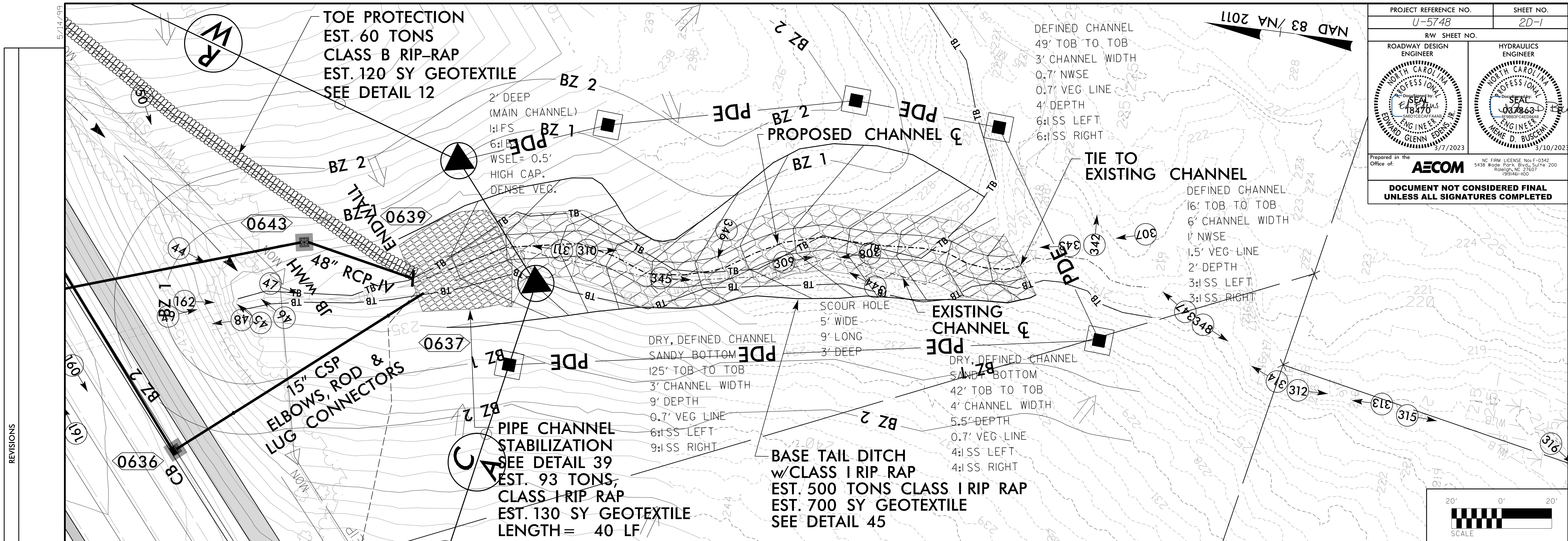
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DETAIL TO CONVERT EXISTING DI, CB, OTCB or GI TO JUNCTION BOX (MANHOLE OPTIONAL)

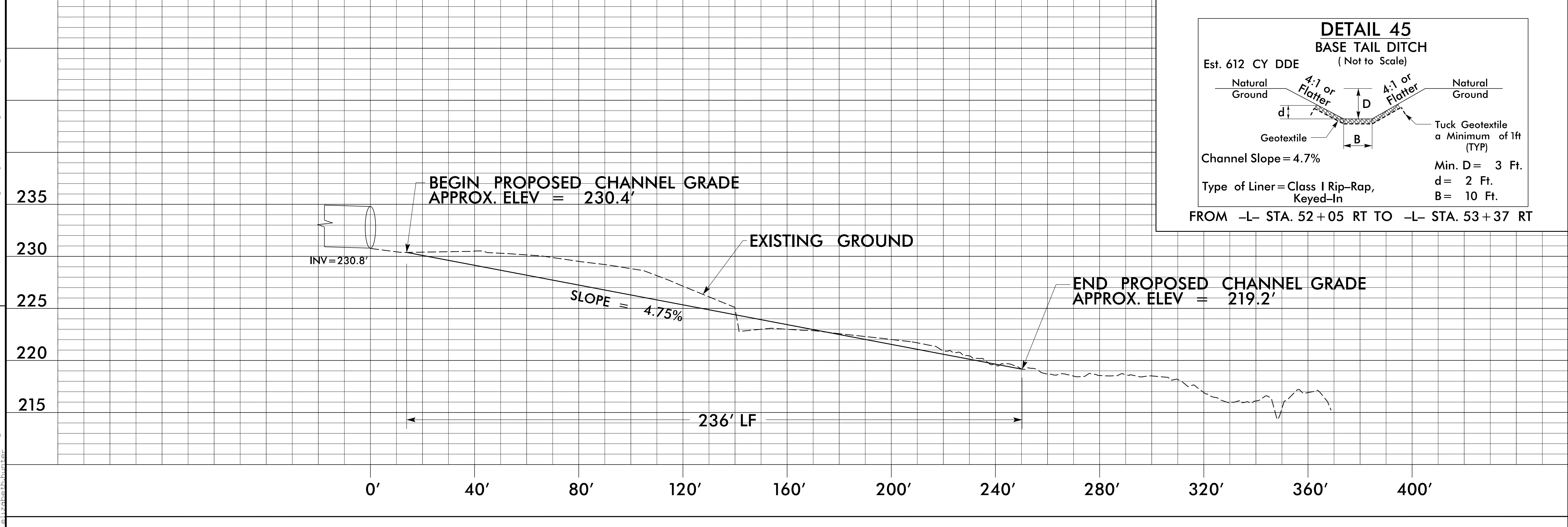
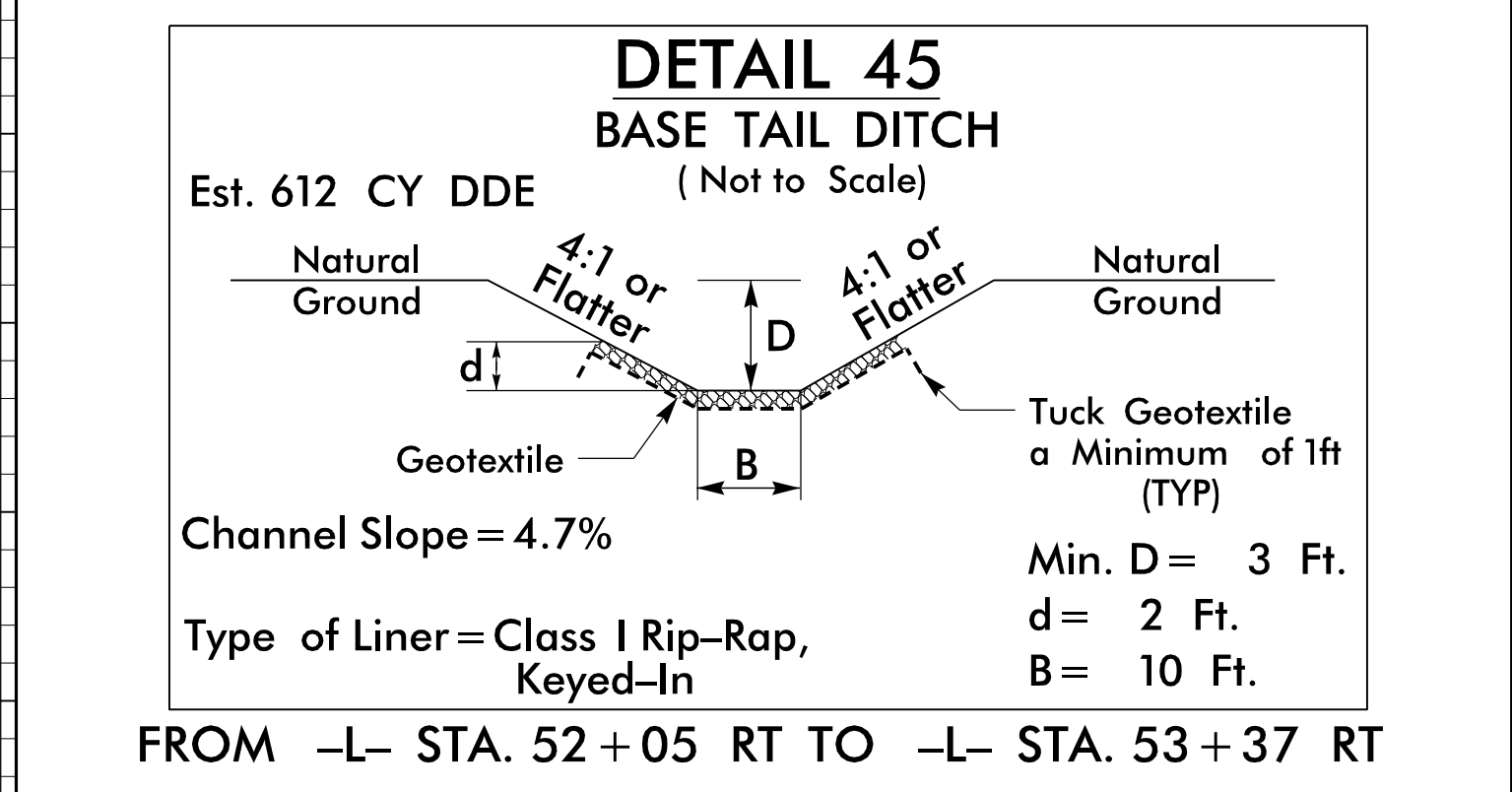
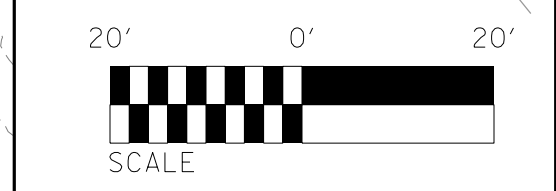
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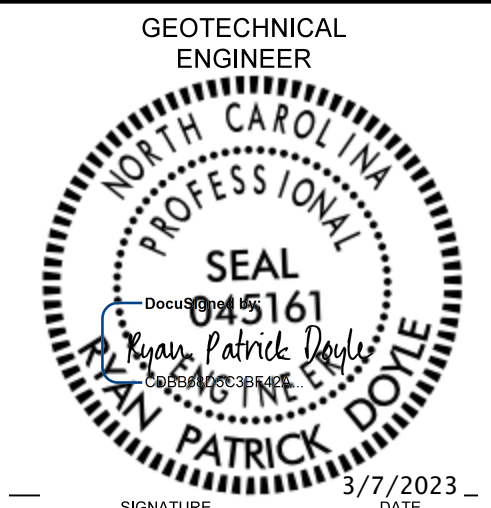
PROJECT REFERENCE NO. U-5748	SHEET NO. 2D-1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
Prepared in the Office of: AECOM	
<small>NC FIRM LICENSE No. F-0342 5438 Wade Park Blvd., Suite 200 Raleigh, NC 27607 199461-000</small>	
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REVISIONS



1/17/2023
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 elcarthburter

PROJECT REFERENCE NO. U-5748	SHEET NO. 2G-2
GEOTECHNICAL ENGINEER  ENGINEER SIGNATURE: _____ DATE: _____ SIGNATURE: _____ DATE: _____	DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

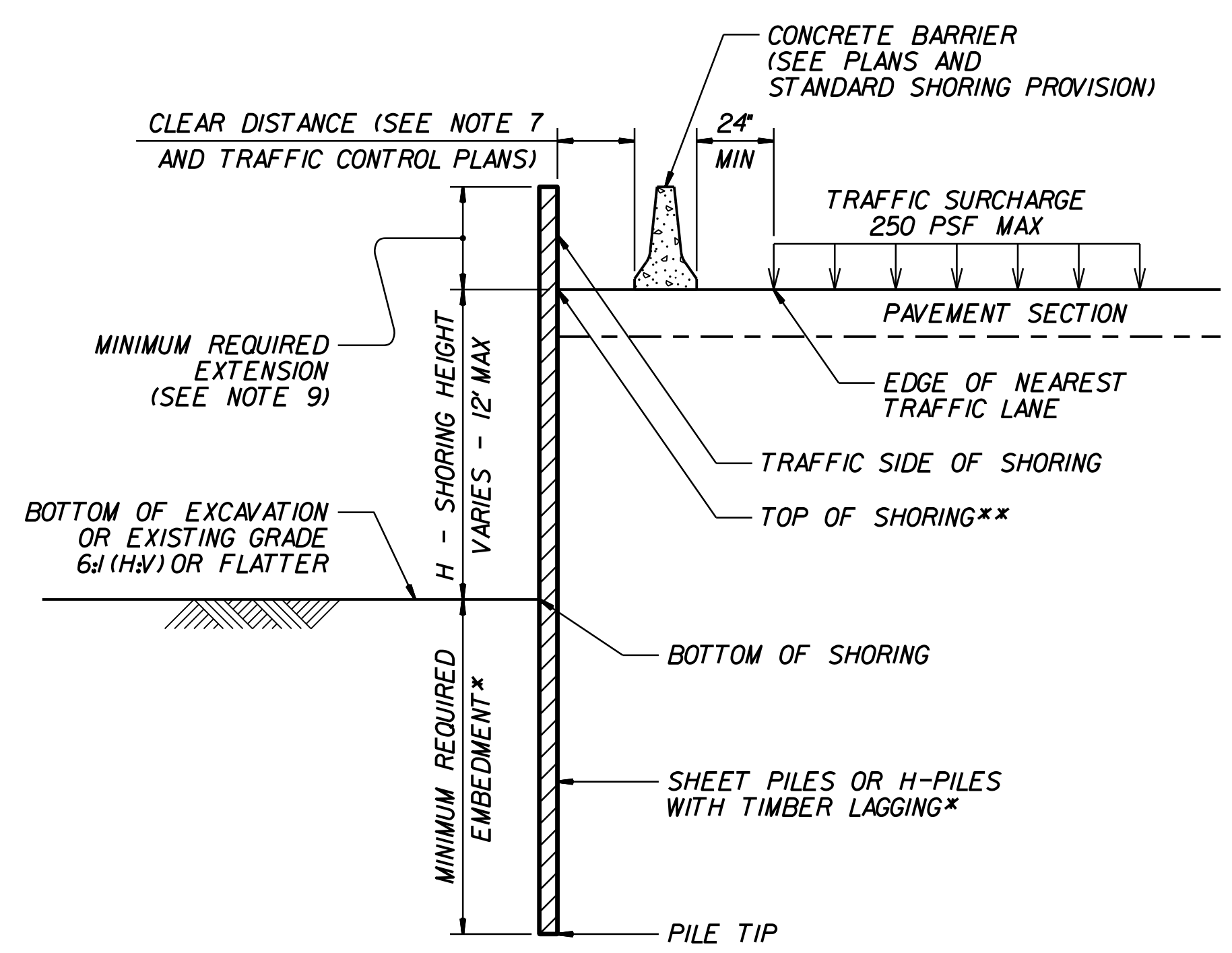
GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT						SURCHARGE CASE WITH TRAFFIC IMPACT					
		SHEET PILES		H-PILES WITH TIMBER LAGGING				SHEET PILES		H-PILES WITH TIMBER LAGGING			
		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS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

NOTES:

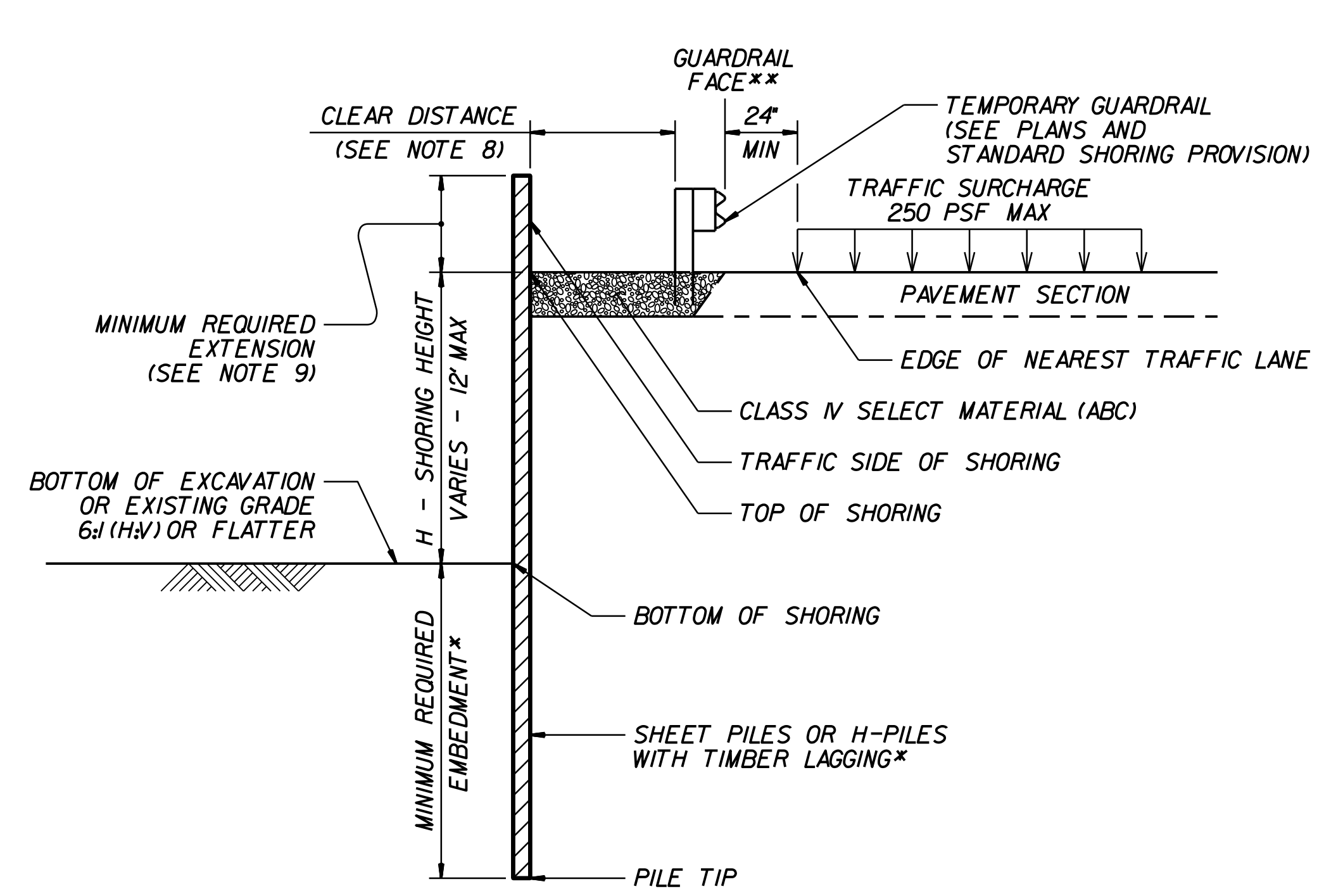
- AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING AS NOTED IN THE PLANS.
- FOR STANDARD TEMPORARY SHORING, SEE STANDARD SHORING PROVISION.
- STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
UNIT WEIGHT, $\gamma = 120$ PCF
FRICTION ANGLE, $\phi = 30$ DEGREES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

MINIMUM REQUIRED EMBEDMENT AND SECTION MODULUS

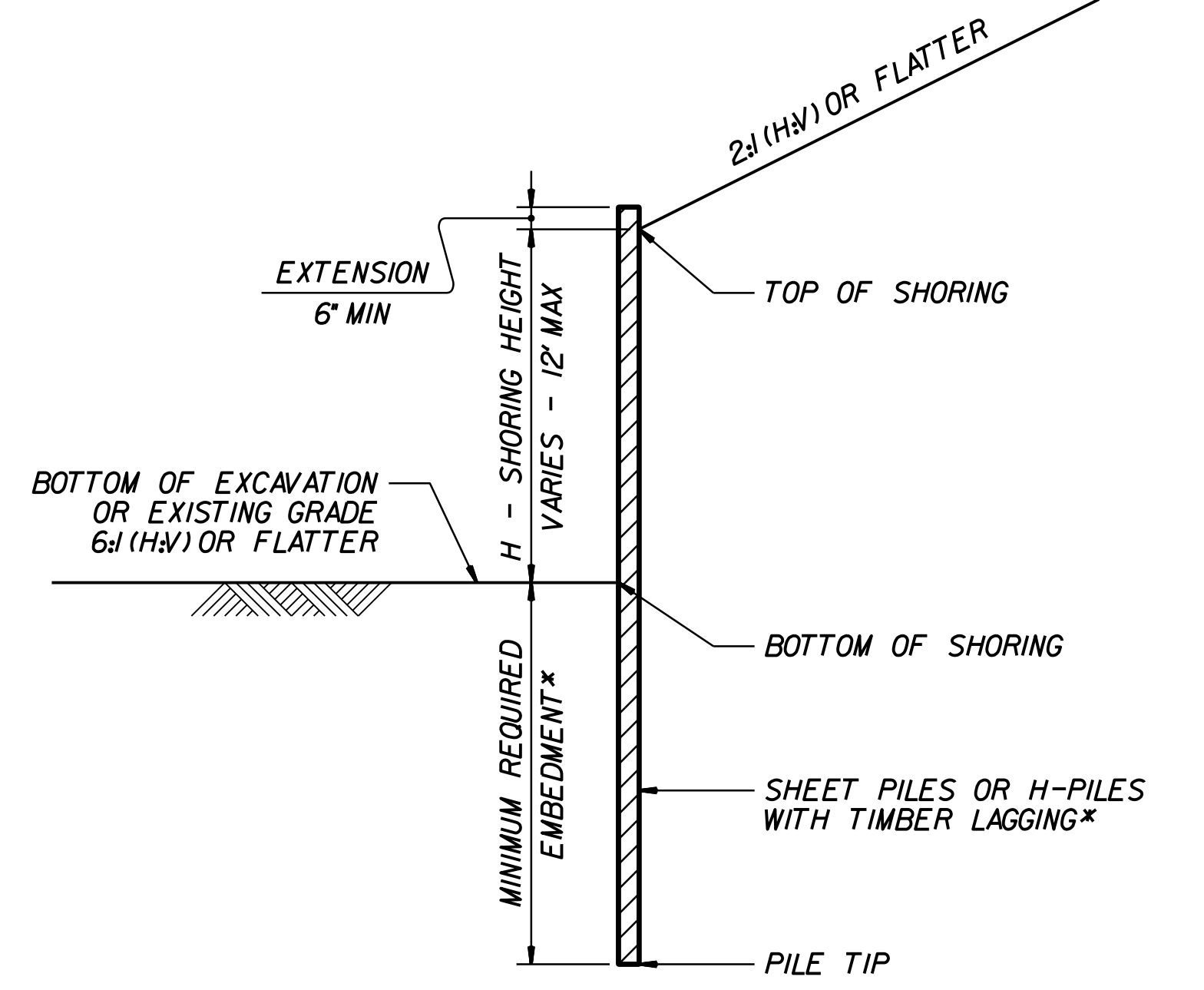
*DO NOT USE H-PILES WITH TIMBER LAGGING FOR GROUNDWATER CONDITION, SHORING HEIGHT AND H-PILE SIZE SHOWN IF MINIMUM REQUIRED EMBEDMENT IS "--".



CONCRETE BARRIER
**TOP OF SHORING = EDGE OF PAVEMENT

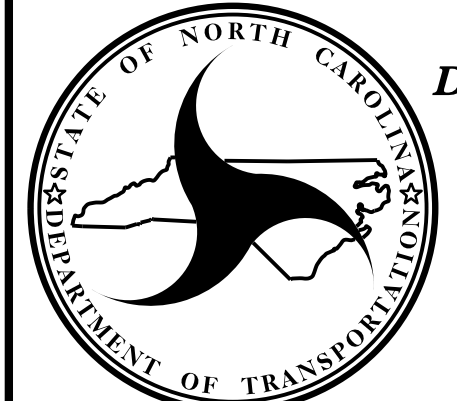


TEMPORARY GUARDRAIL
**GUARDRAIL FACE = EDGE OF PAVEMENT



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

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



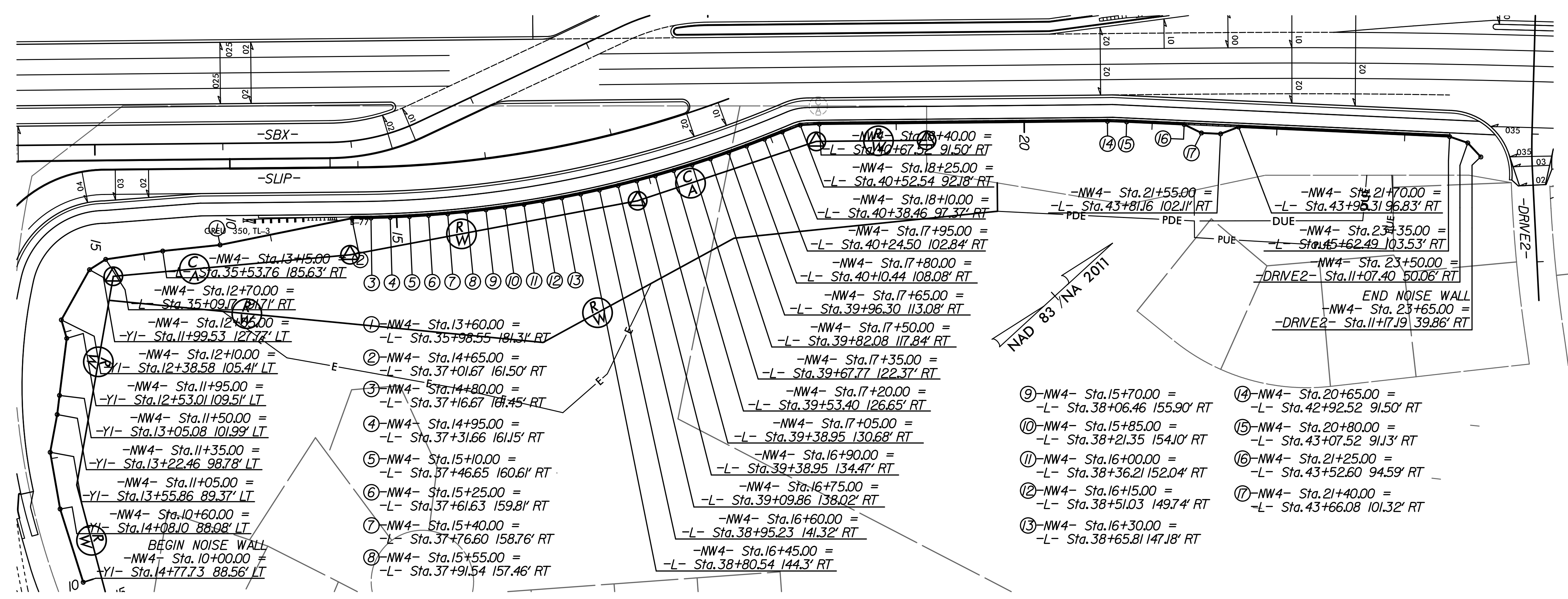
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

STANDARD DETAIL NO. 1801.01

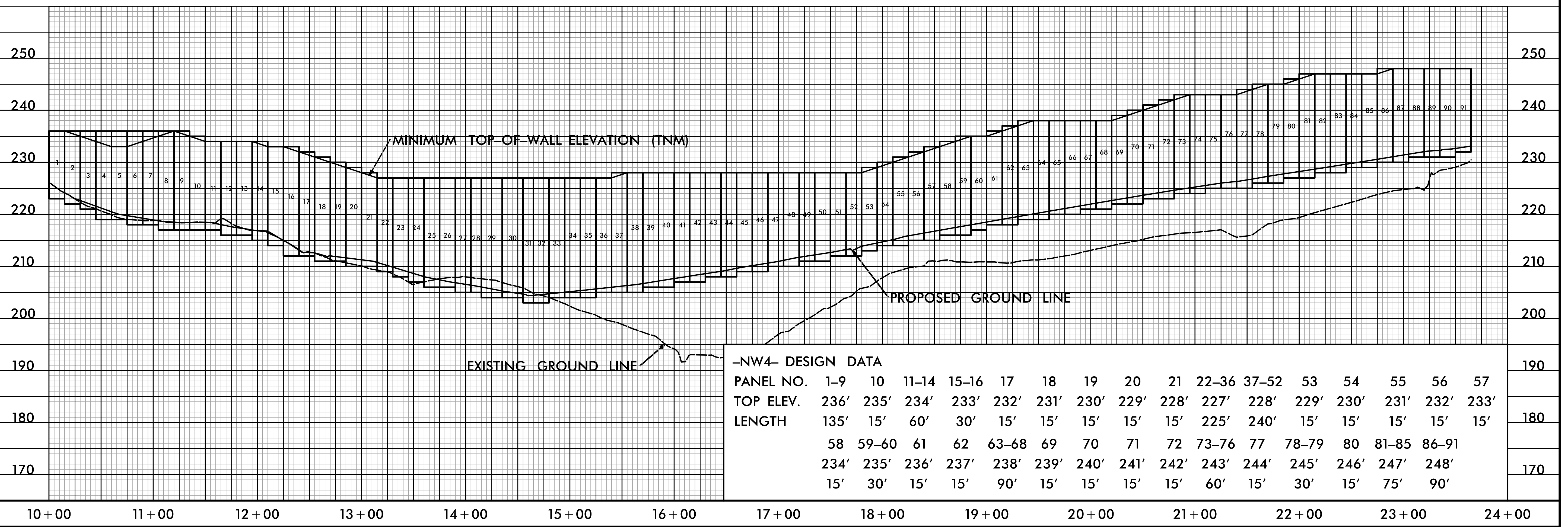
STANDARD TEMPORARY SHORING

DATE: 11-19-13

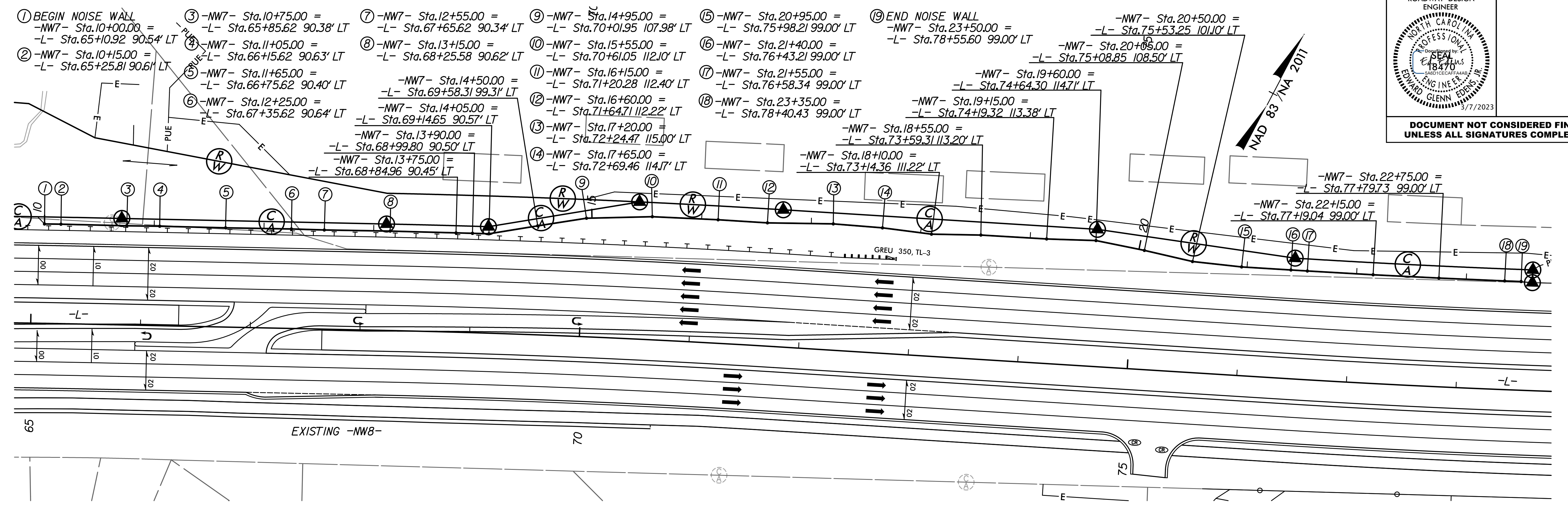
PROJECT REFERENCE NO. U-5748	SHEET NO. 2N-1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



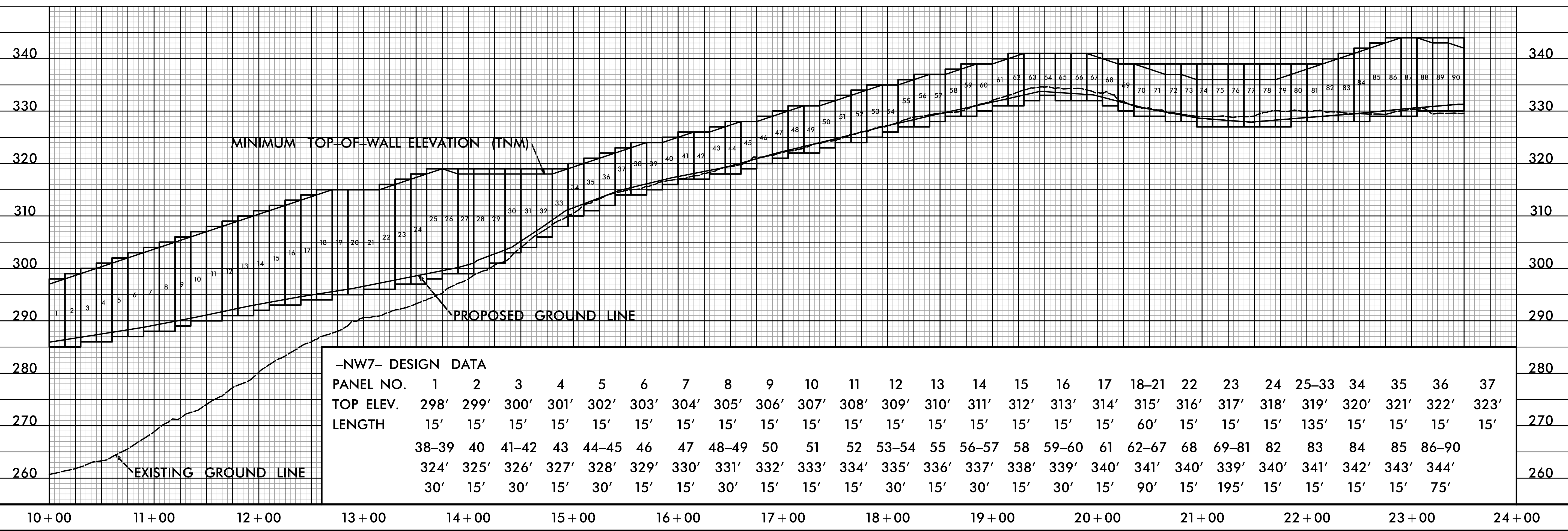
NOISE WALL -NW4- STA 10+00.00 TO -NW4- STA 23+65.00



PROJECT REFERENCE NO. U-5748	SHEET NO. 2N-3
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



NOISE WALL -NW7- STA 10+00.00 TO -NW7- STA 23+50.00



8/17/99
 REVISIONS
 4/24/28 PM
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 6/2/2020\Documents\60609754-U-5748 Ligon Mill\900-CAD GIS\911_Planning\911.5_Design_Noise_Report\Noise Walls\U5748_rdy_psh_02N-3.dgn

USRALG03VNH2

COMPUTED BY: MMK DATE: 02/22/2022
CHECKED BY: MDB DATE: 02/01/2023

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO. U-5748 SHEET NO. 3D-1

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

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

Main data table with columns for Line & Station, Offset, Structure Number, Top/Invert Elevation, Pipe Specifications (C.S. Pipe, R.C. Pipe Class IV/V), Quantities for Drainage Structures, Frame/Grates, and Remarks. Includes a 'SHEET TOTALS' row at the bottom.

ABBREVIATIONS table listing codes like C.A.A., C.B., D.I., G.D.I., H.D.P.E., J.B., M.H., N.S., P.V.C., R.C., T.B.D.I., T.B.J.B., W.S. and their corresponding material descriptions.

REMARKS

USRALG03VNH2

COMPUTED BY: MMK DATE: 02/22/2022
CHECKED BY: MDB DATE: 02/01/2023

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO. U-5748 SHEET NO. 3D-7

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

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

Table with columns: LINE & STATION, OFFSET, STRUCTURE NUMBER, TOP ELEVATION, INVERT ELEVATION, MINIMUM REQUIRED SLOPE, C.S. PIPE (15-48), R.C. PIPE CLASS IV (15-48), R.C. PIPE CLASS V (15-48), ENDWALLS, REINFORCED ENDWALLS, DRAINAGE STRUCTURE, QUANTITIES FOR DRAINAGE STRUCTURES, FRAME, GRATES, AND HOOD, CONCRETE TRANSITIONAL SECTION, and REMARKS. Includes a SHEET TOTALS row at the bottom.

ABBREVIATIONS table listing terms like C.A.A., C.B., C.S., D.I., G.D.I., H.D.P.E., J.B., M.H., N.S., P.V.C., R.C., T.B.D.I., T.B.J.B., W.S. and their corresponding descriptions.

USRALG03VNH2

COMPUTED BY: MMK DATE: 02/22/2022
CHECKED BY: MDB DATE: 02/01/2023

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO. U-5748 SHEET NO. 3D-8

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

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

Table with columns: LINE & STATION, OFFSET, STRUCTURE NUMBER, TOP ELEVATION, INVERT ELEVATION, MINIMUM REQUIRED SLOPE, C.S. PIPE, R.C. PIPE CLASS IV, R.C. PIPE CLASS V, ENDWALLS, REINFORCED ENDWALLS, DRAINAGE STRUCTURE, QUANTITIES FOR DRAINAGE STRUCTURES, FRAME, GRATES, AND HOOD, CONCRETE TRANSITIONAL SECTION, OPEN THROAT C.B., D.I., G.D.I., G.D.I. (W.S. FLAT), G.D.I. (W.S. SAG), DRIVEWAY D.I., FRAME W/ GRATE FOR DRIVEWAY, ANGLED VANE GRATES, T.B.J.B., T.B.D.I., STEEL FRAME WITH TWO GRATES, TEMP STEEL PLATE COVER MASONRY DRAINAGE, M.H., G.D.I. EXTRA DEPTH, CONVERT EXISTING C.B., CONVERT EXISTING D.I., CONVERT EXISTING J.B., ADJUST C.B., ADJUST D.I., 15" C.S. ELBOW, 24" C.S. ELBOW, 30" C.S. ELBOW, PREFORMED SCOUR HOLE, ENERGY DISSIPATION BASIN, FLOWABLE FILL, CONCRETE COLLARS, CONCRETE AND BRICK PIPE PLUG, PIPE REMOVAL, REMARKS.

SHEET TOTALS

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

USRALG03VNHZ

COMPUTED BY: MMK DATE: 02/22/2022
CHECKED BY: MDB DATE: 02/01/2023

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO. U-5748 SHEET NO. 3D-9

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

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

Table with columns for LINE & STATION, OFFSET, STRUCTURE NUMBER, TOP ELEVATION, INVERT ELEVATION, C.S. PIPE, R.C. PIPE CLASS IV, R.C. PIPE CLASS V, ENDWALLS, REINFORCED ENDWALLS, QUANTITIES FOR DRAINAGE STRUCTURES, FRAME, GRATES, AND HOOD, CONCRETE TRANSITIONAL SECTION, and REMARKS. Includes a SHEET TOTALS row at the bottom.

COMPUTED BY: Alex Lozada DATE: 9/30/2022
 CHECKED BY: Ryan Doyle DATE: 10/3/2022
 REVISED BY: Ryan Doyle DATE: 1/12/2023

(12-17-19)

PROJECT NO.	SHEET NO.
U-5748	3G-1

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
CONTINGENCY				SD	1000
				TOTAL LF:	1000

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

SUMMARY OF GEOTEXTILE
 FOR PAVEMENT STABILIZATION

LINE	Station	Station	Geotextile for Pavement Stabilization SY	Class IV Subgrade Stabilization TONS
-L-	Varies	Varies	5580	2512
-Y2-	24+00	25+50	990	446
-L1-	48+75	49+75	370	167
CONTINGENCY			0	0
TOTAL SY/TONS:			6940	3125*

*Total tons of "Class IV Subgrade Stabilization" is only the estimated quantity for pavement stabilization and may only represent a portion of the subgrade stabilization quantity shown in the Item Sheets of the Proposal.

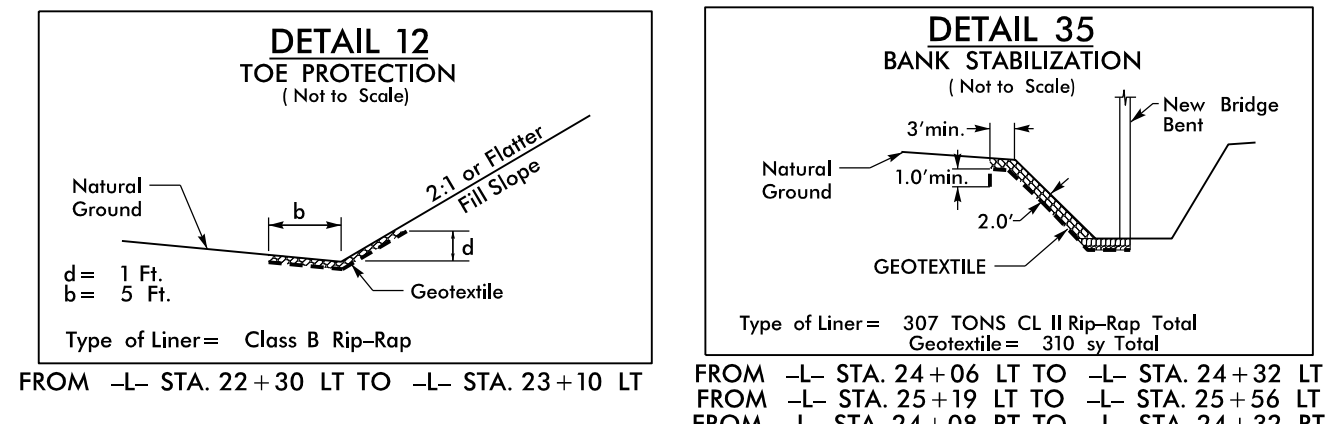
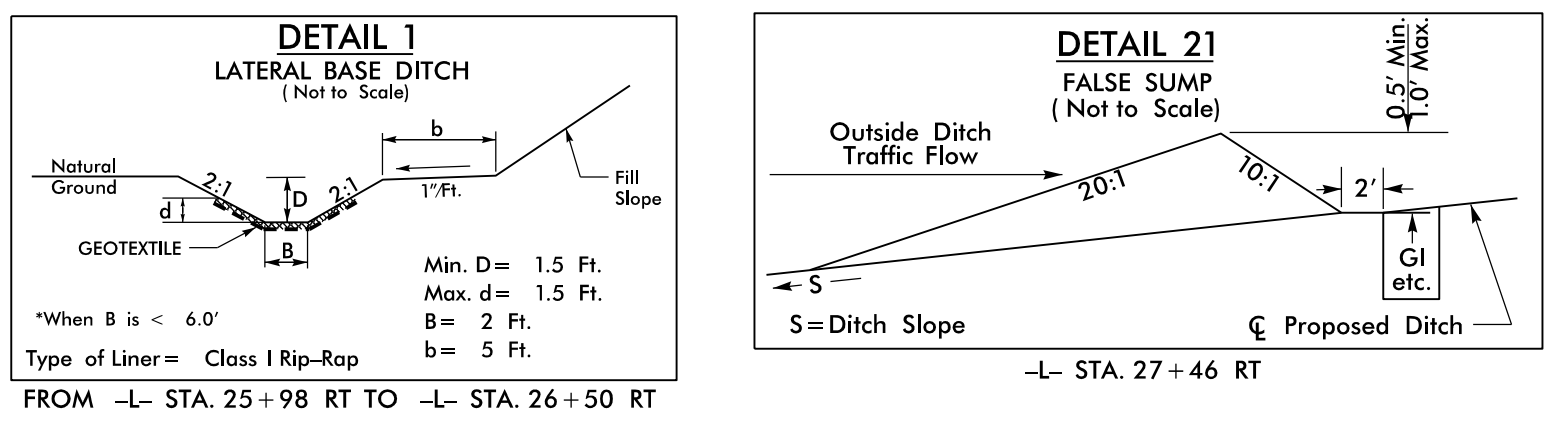
SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

LINE	Station	Station	Aggregate Type* ASU(1/2)/ AST	Aggregate Thickness INCHES [8" for ASU(2)]	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Soil Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
Varies	Varies	Varies	ASU 1	12"	1200	2350	3800		
-L- and -L1-	Varies	Varies	ASU 2	8"	6543	18600	43062		
CONTINGENCY			ASU 1	12"	500	750	2500	500	
CONTINGENCY			ASU 2	8"	2000	6000	10000		
TOTAL CY/TONS/SY:					10243	27700**	59362**	500	0

*ASU(1/2) = Aggregate Subgrade (Type 1 or 2)
 *AST = Aggregate Stabilization
 **Total tons of "Class IV Subgrade Stabilization" and total square yards of "Geotextile for Soil Stabilization" are only the estimated quantities for ASU(1/2)/AST and may only represent a portion of the subgrade stabilization and geotextile quantities shown in the Item Sheets of the Proposal.

5/14/99

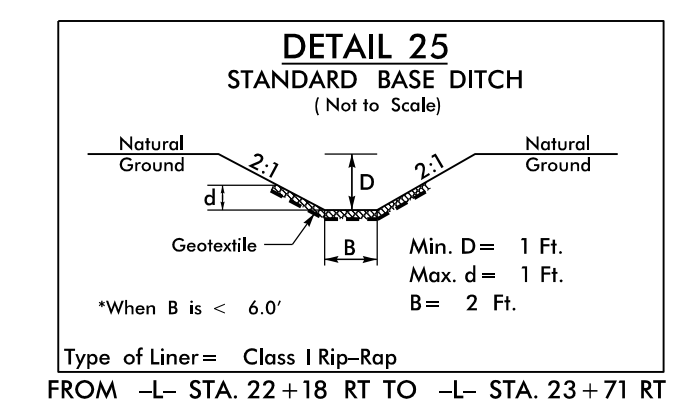
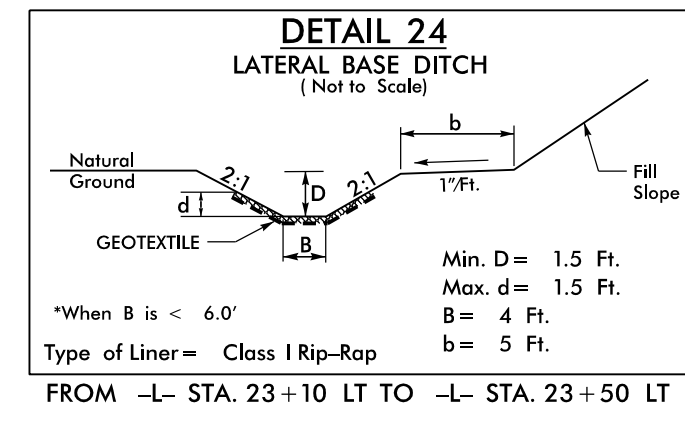
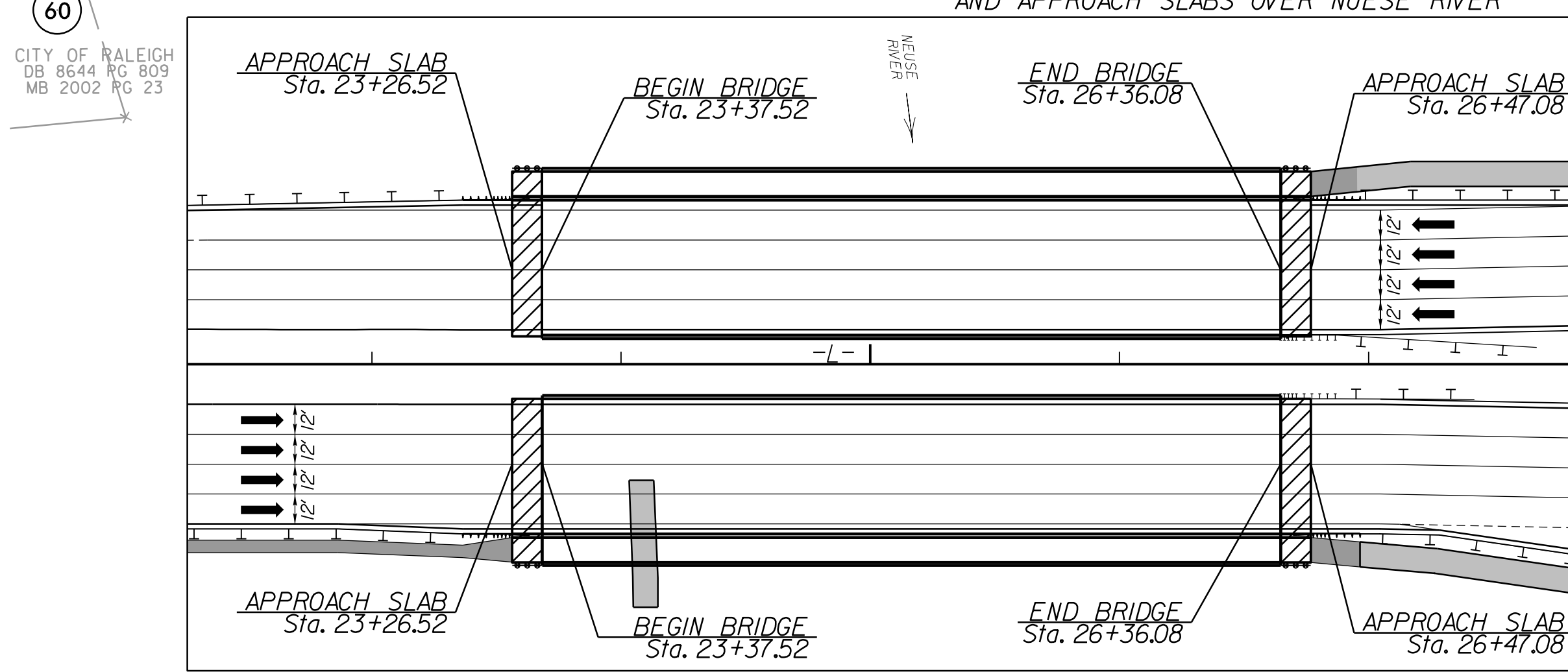
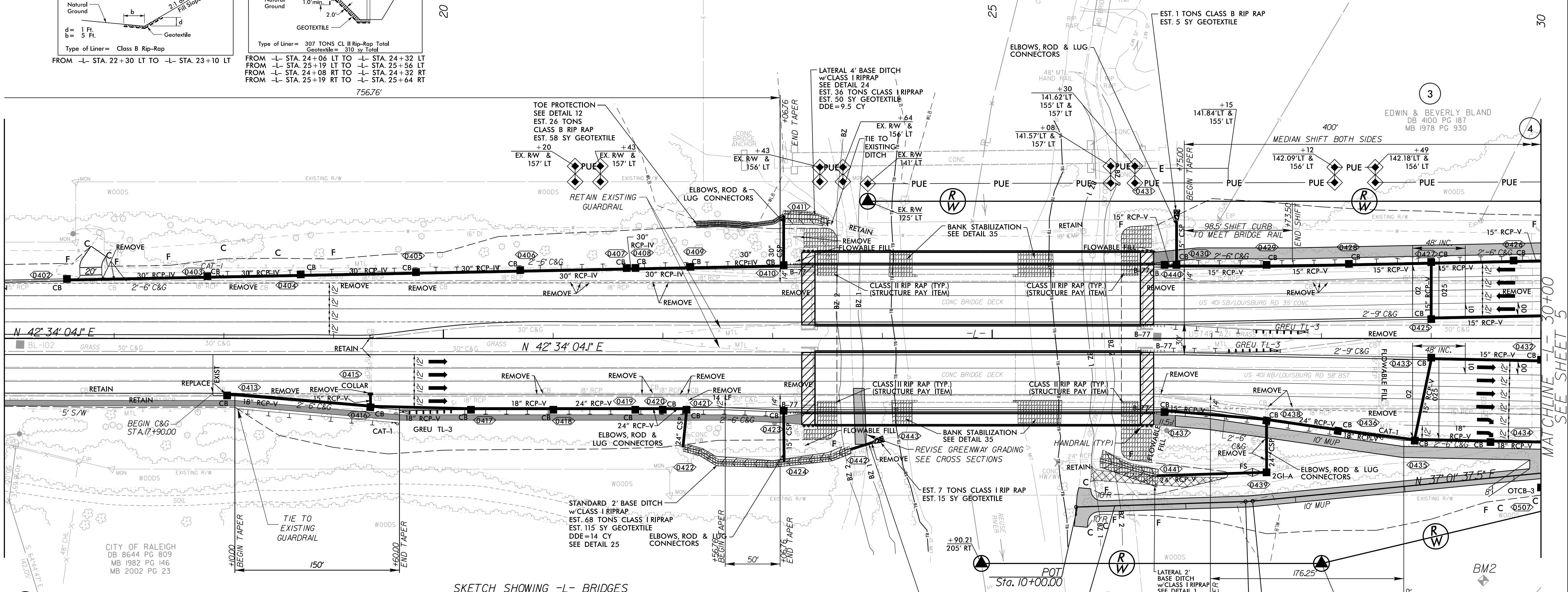
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RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
Prepared in the Office of: AECOM		
NC FIRM LICENSE No. F-0342 5438 Wade Park Blvd., Suite 200 Raleigh, NC 27607 199461-000		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		



MARY MURRAY
DB 12303 PG 95
MB 2003 PG 1404

MATCHLINE -L- 16+00
SEE SHEET 16

MATCHLINE 30+00
SEE SHEET 5



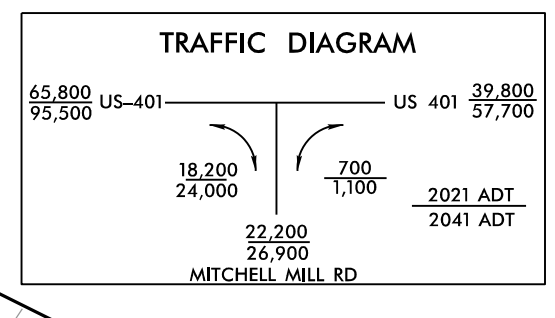
-MUI-
 PI Sta. 11+57.78
 $\Delta = 3' 40'' 59.4'' (LT)$
 $D = 57' 17'' 44.8''$
 $L = 6.43'$
 $T = 3.22''$
 $R = 100.00'$

ANABEL AREVALO
DB 674 PG 441
MB 1995 PG 986
MB 2007 PG 2256
MB 2013 PG 1355

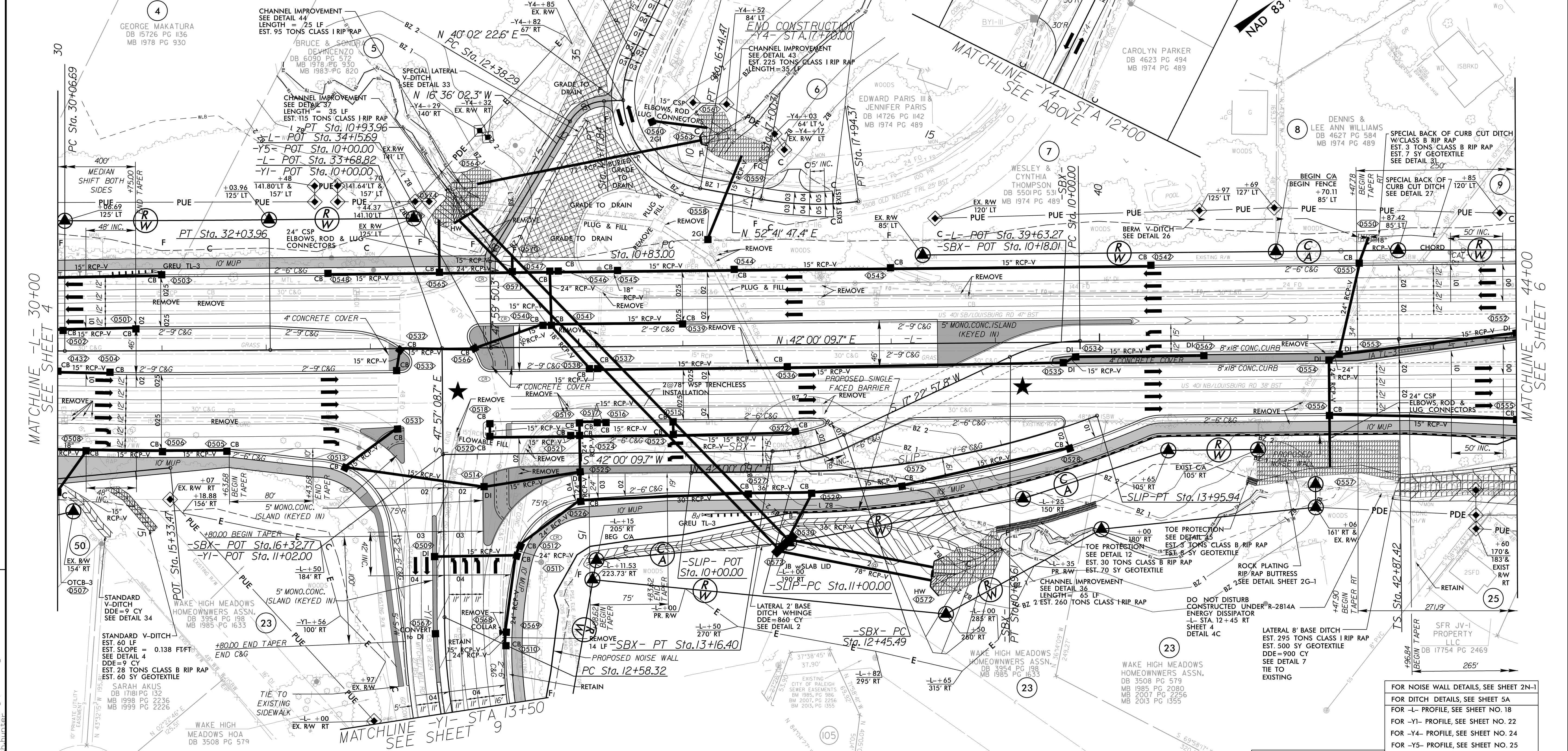
FOR -L- PROFILE, SEE SHEET NO. 17
FOR -MUI- PROFILE, SEE SHEET NO. 27

6/7/09 3:48_rdu_psh04.dgn
elizabeth.burton

PROJECT REFERENCE NO. U-5748		SHEET NO. 5	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		SEAL 1870 EDWARD GLENN EDWARDS, JR. 6/7/2023	
SEAL 1870 EDWARD GLENN EDWARDS, JR. 6/7/2023		SEAL 1870 D. BUSCHINI 6/9/2023	
Prepared in the Office of: AECOM NC FIRM LICENSE No. F-0342 5438 Wade Park Blvd., Suite 200 Raleigh, NC 27607 199461-000			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



-L- PI Sta 31+05.33 Δ = 0° 33' 54.4" (LT) D = 0° 17' 11.3" L = 197.26' T = 98.63' R = 20,000.00' e = NC	-Y4- PI Sta 44+20.76 Δ = 0° 54' 13.4" D = 200.00' L = 133.34' T = 66.67' R = 90.00'	-Y5- PI Sta 15+94.58 Δ = 106° 18' 22.6" (LT) D = 63° 39' 43.1" L = 166.99' T = 120.10' R = 90.00' R.O. = 60'	-Y1- PI Sta 17+47.92 Δ = 17° 44' 30.3" (LT) D = 18° 56' 54.4" L = 93.66' T = 47.21' R = 302.46' R.O. = 45'	-SLIP- PI Sta 12+49.48 Δ = 19° 56' 54.4" (LT) D = 6° 44' 26.4" L = 295.94' T = 149.48' R = 850.00' R.O. = 0.03 FT/FT
-SBX- PI Sta 12+81.50 Δ = 24° 37' 11.9" (RT) D = 34° 43' 29.0" L = 70.90' T = 36.01' R = 165.00'	-Y5- PI Sta 10+88.62 Δ = 31° 23' 48.0" (RT) D = 286° 28' 44.0" L = 10.96' T = 5.62' R = 20.00'	-Y1- PI Sta 14+64.69 Δ = 35° 44' 35.1" (LT) D = 8° 57' 08.9" L = 399.25' T = 206.36' R = 640.00' R.O. = 168'	-SLIP- PI Sta 12+49.48 Δ = 19° 56' 54.4" (LT) D = 6° 44' 26.4" L = 295.94' T = 149.48' R = 850.00' R.O. = 0.04 FT/FT	-SLIP- PI Sta 12+49.48 Δ = 19° 56' 54.4" (LT) D = 6° 44' 26.4" L = 295.94' T = 149.48' R = 850.00' R.O. = See Plans



REVISIONS

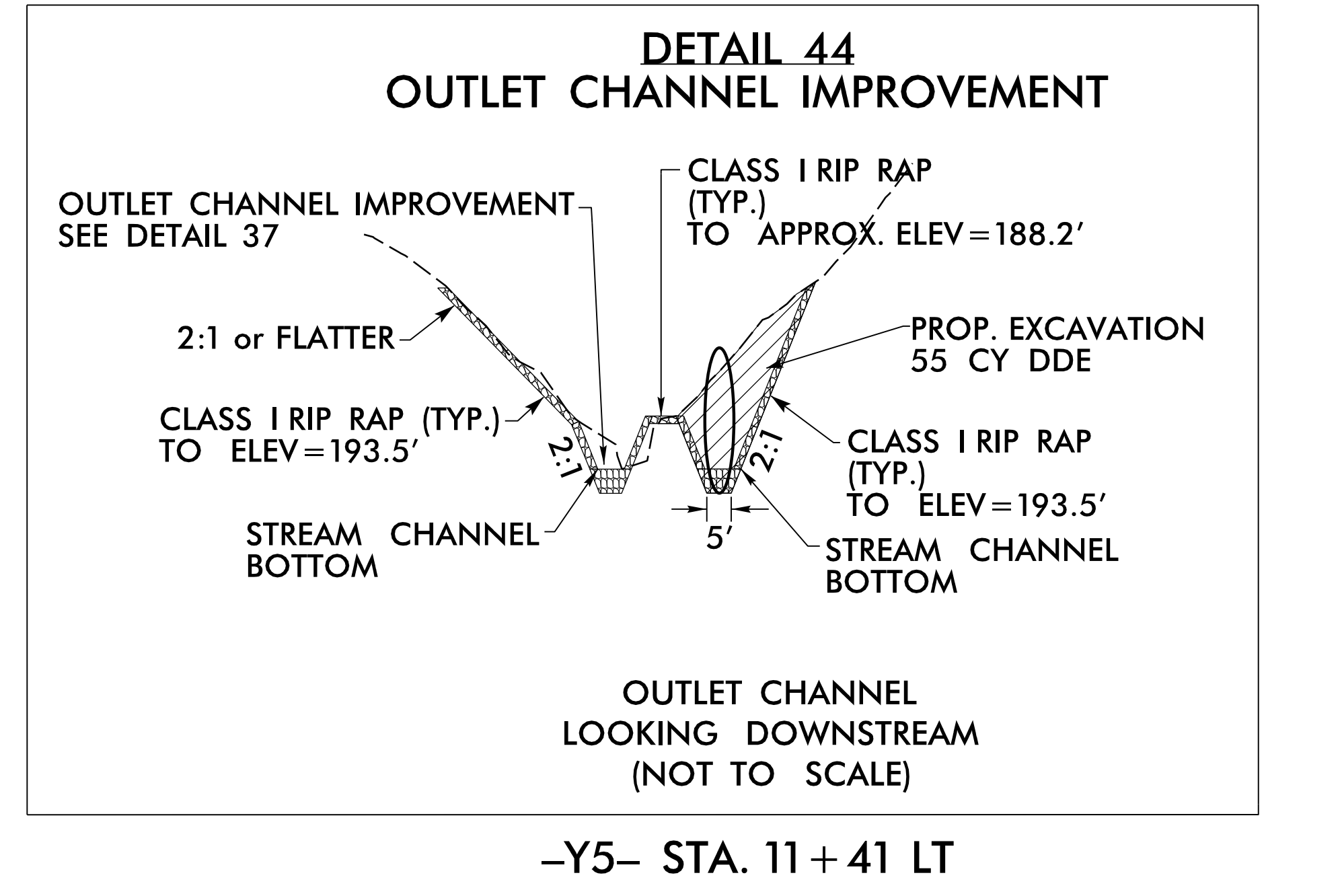
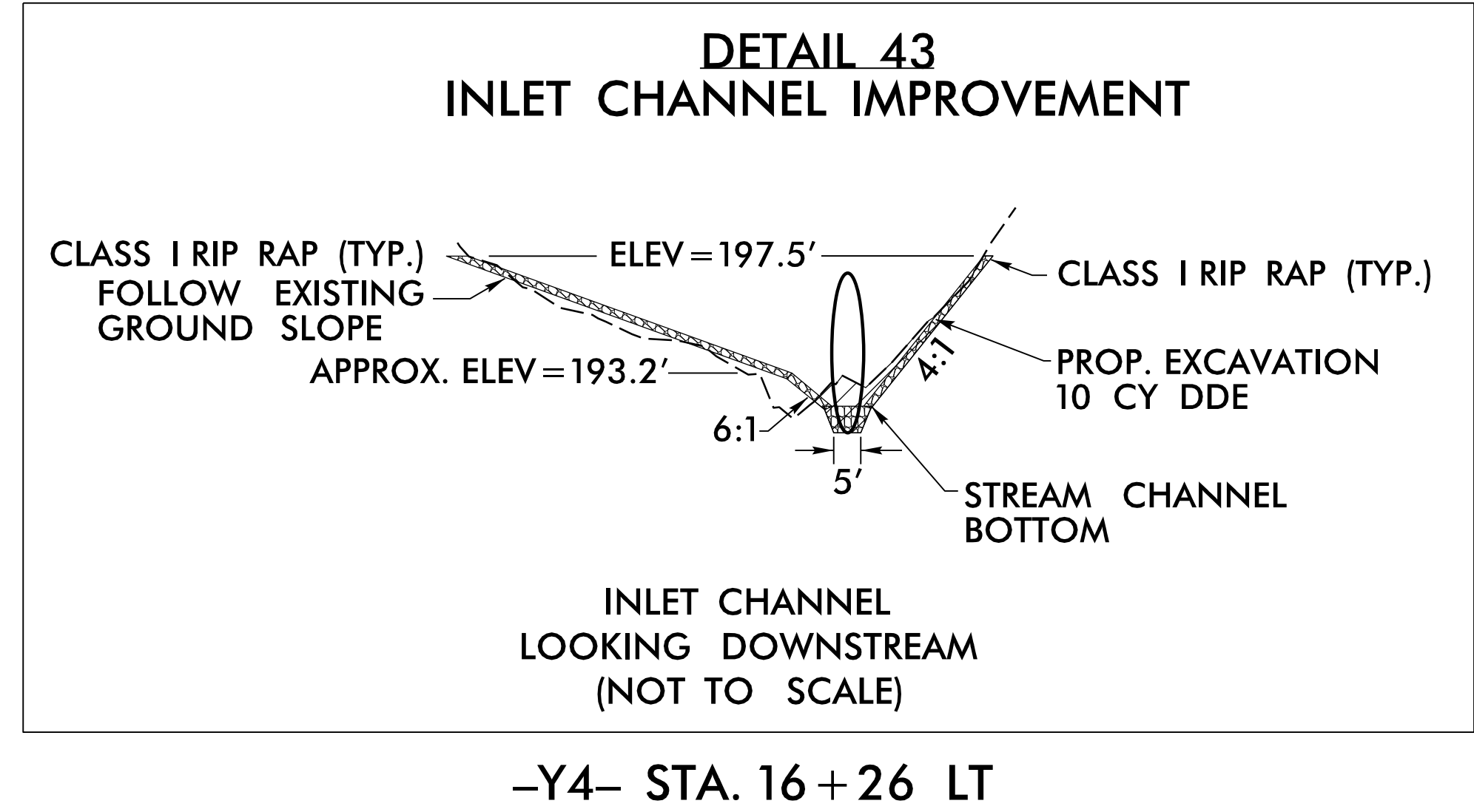
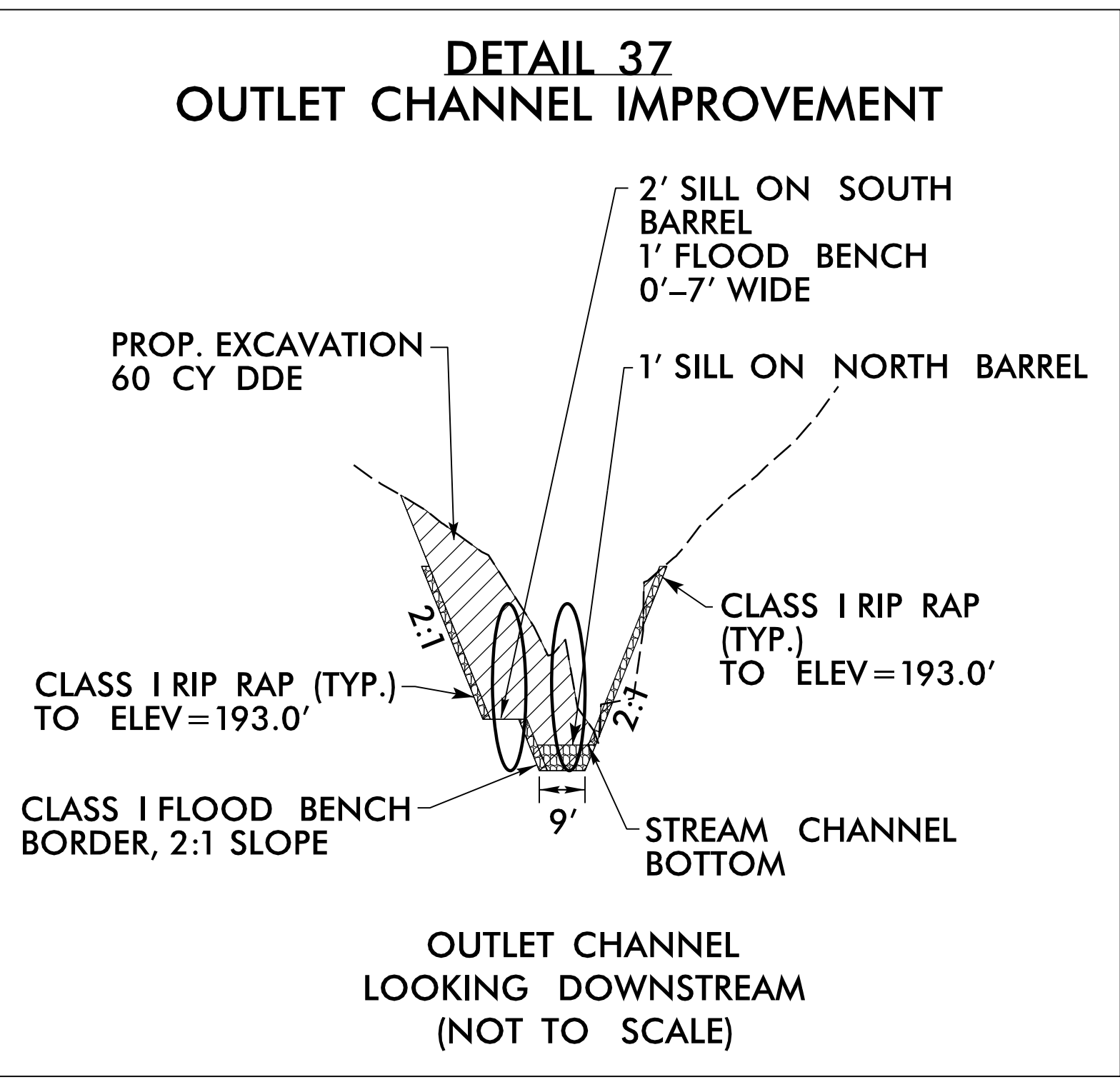
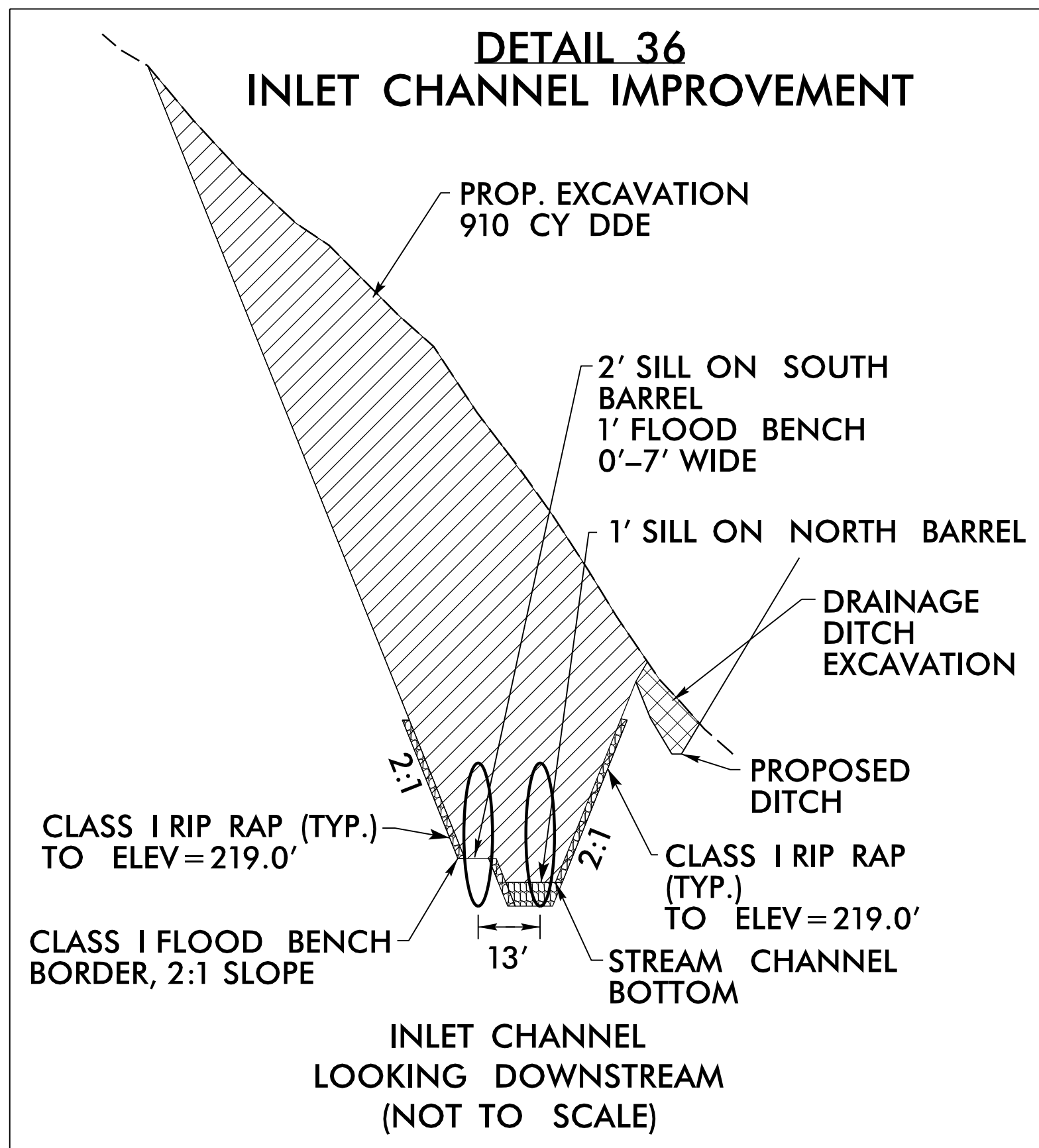
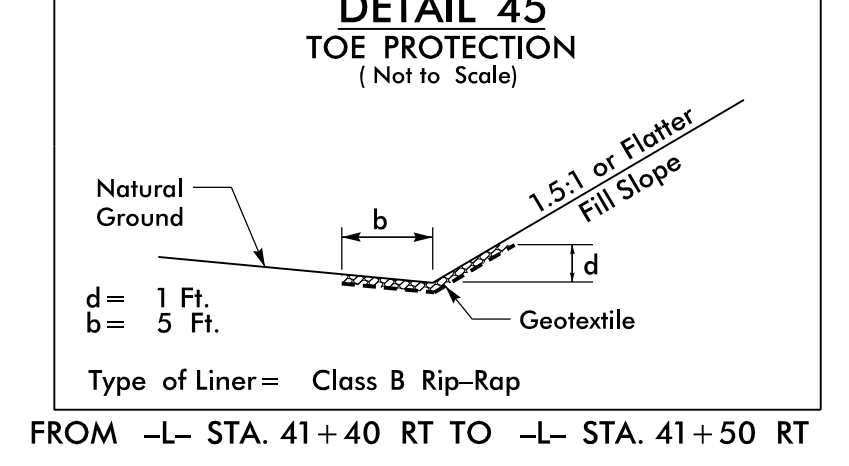
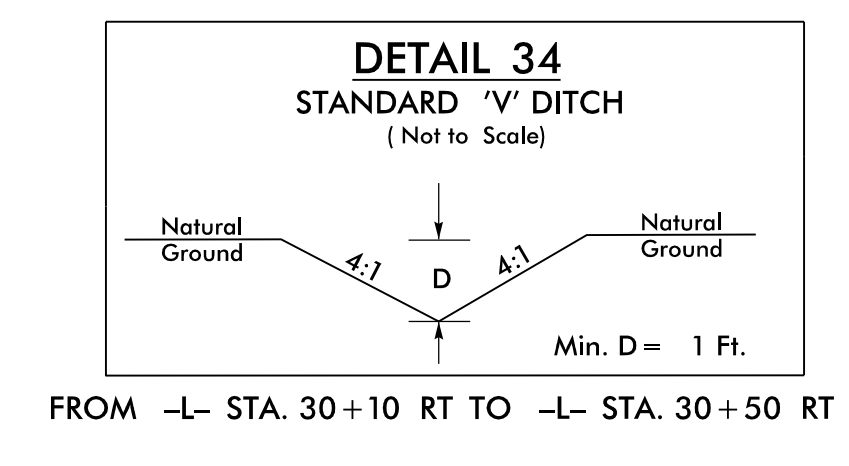
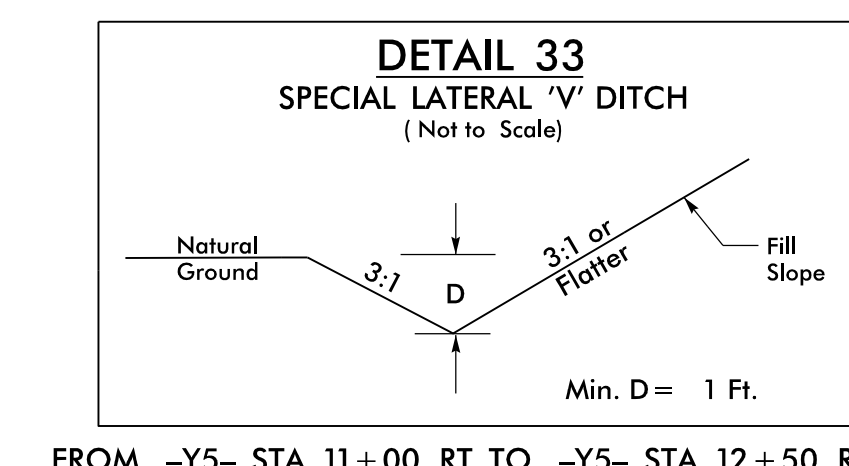
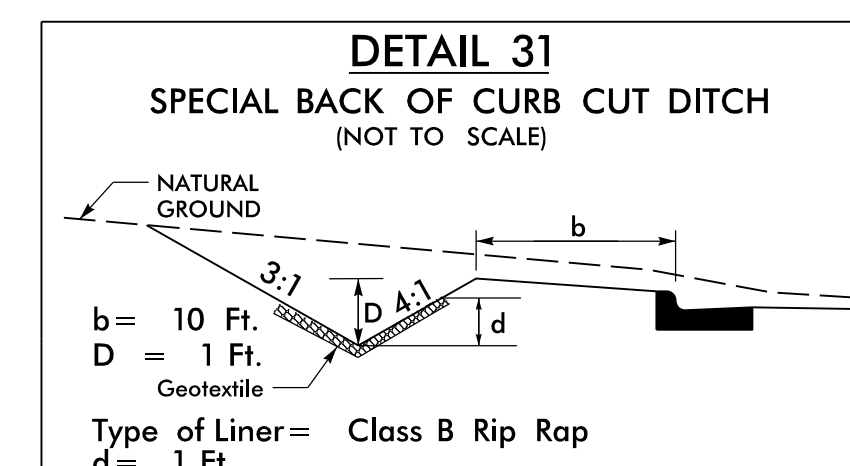
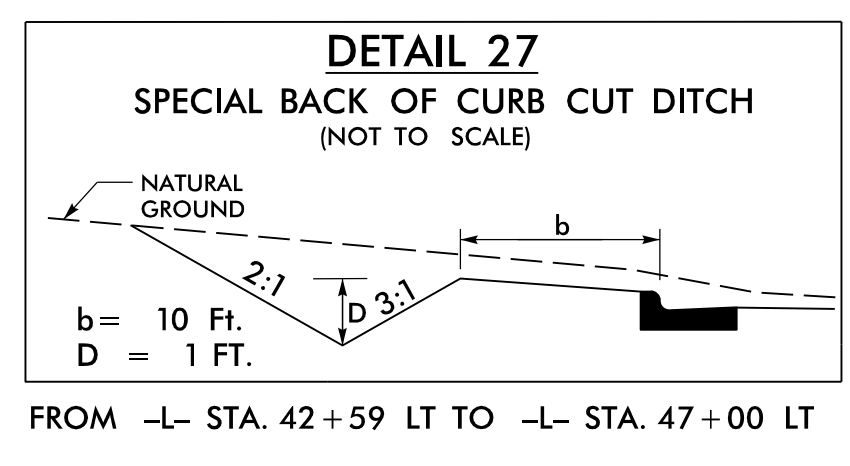
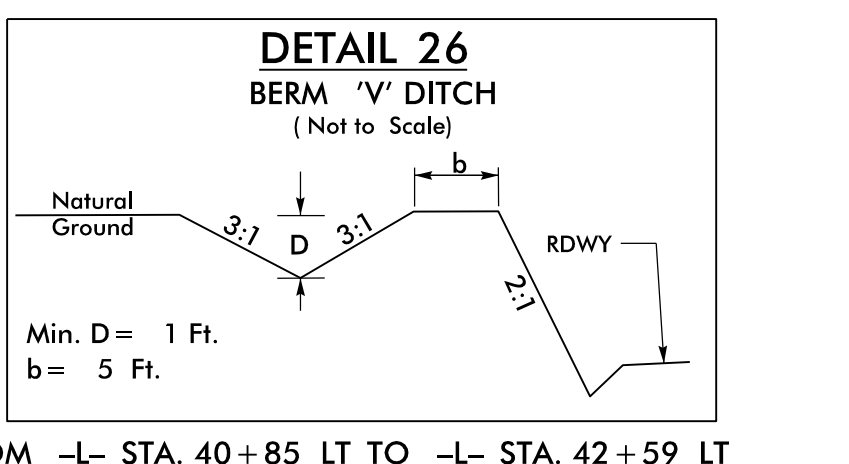
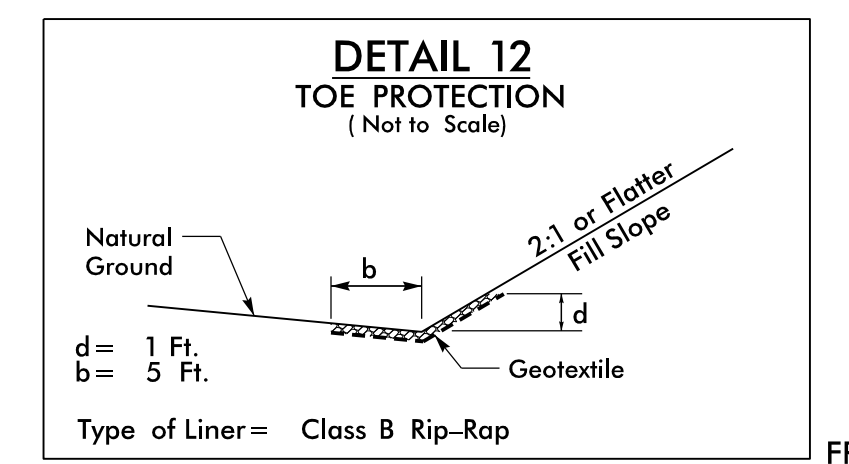
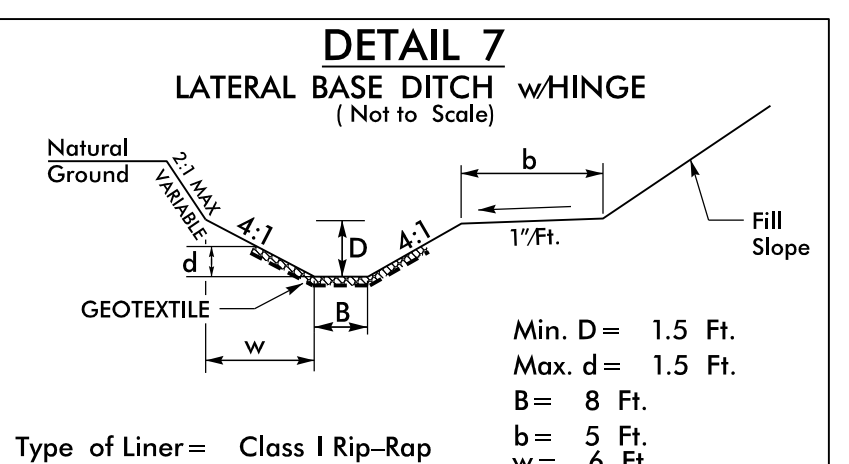
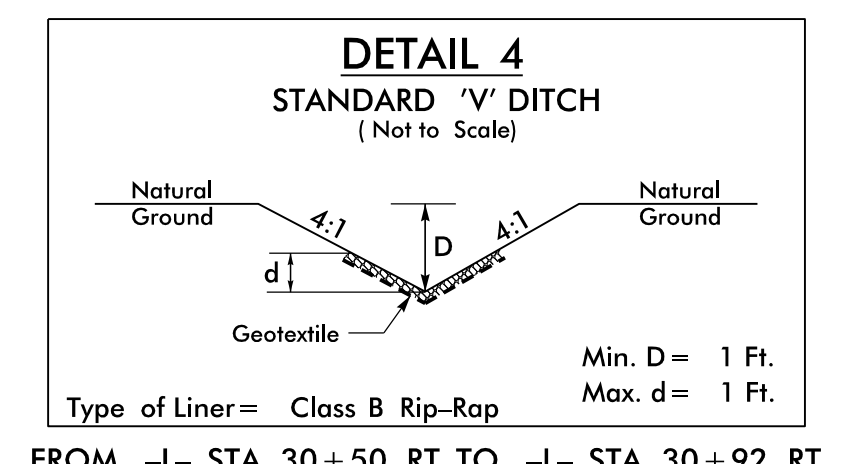
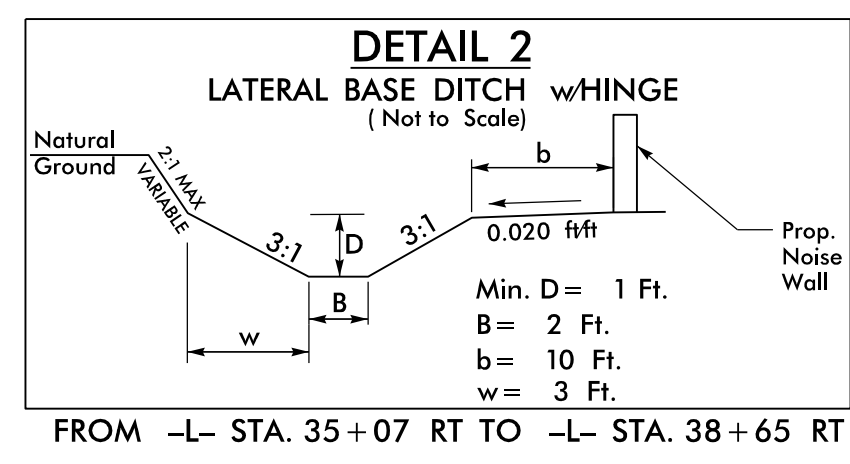
6/7/2023 3:48:45 PM r_dj_psh05.dgn
elizabeth.burkett

	PAVEMENT REMOVAL
	PROPOSED SIGNAL

FOR NOISE WALL DETAILS, SEE SHEET 2N-1
FOR DITCH DETAILS, SEE SHEET 5A
FOR -L- PROFILE, SEE SHEET NO. 18
FOR -Y1- PROFILE, SEE SHEET NO. 22
FOR -Y4- PROFILE, SEE SHEET NO. 24
FOR -Y5- PROFILE, SEE SHEET NO. 25
FOR -SLIP- PROFILE, SEE SHEET NO. 22
FOR -SBX- PROFILE, SEE SHEET NO. 25
FOR -MUI- PROFILE, SEE SHEET NO. 27

5/14/99

PROJECT REFERENCE NO. U-5748	SHEET NO. 5A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
Prepared in the Office of: AECOM	
NC FIRM LICENSE No. F-0342 5438 Wade Park Blvd., Suite 200 Raleigh, NC 27607 199461-000	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

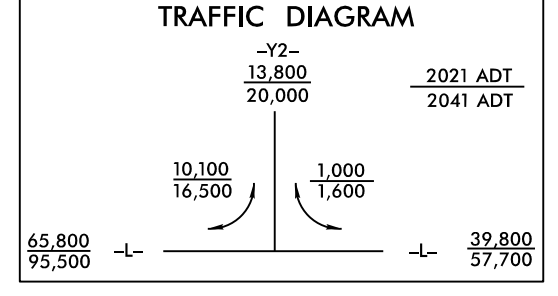
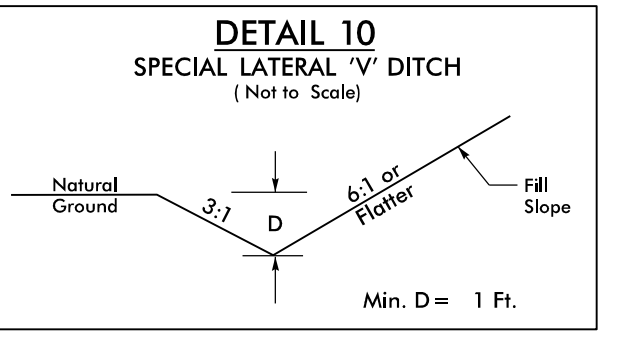
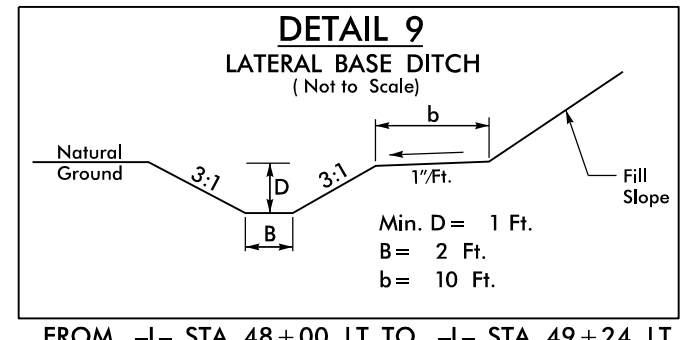


REVISIONS

2/3/2023 10:57:18 =du_psh05A.dgn

5/14/2019

PROJECT REFERENCE NO. U-5748		SHEET NO. 6	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
Prepared in the Office of: AECOM NC FIRM LICENSE No. F-0342 5438 Wade Park Blvd., Suite 200 Raleigh, NC 27617 199461-000			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

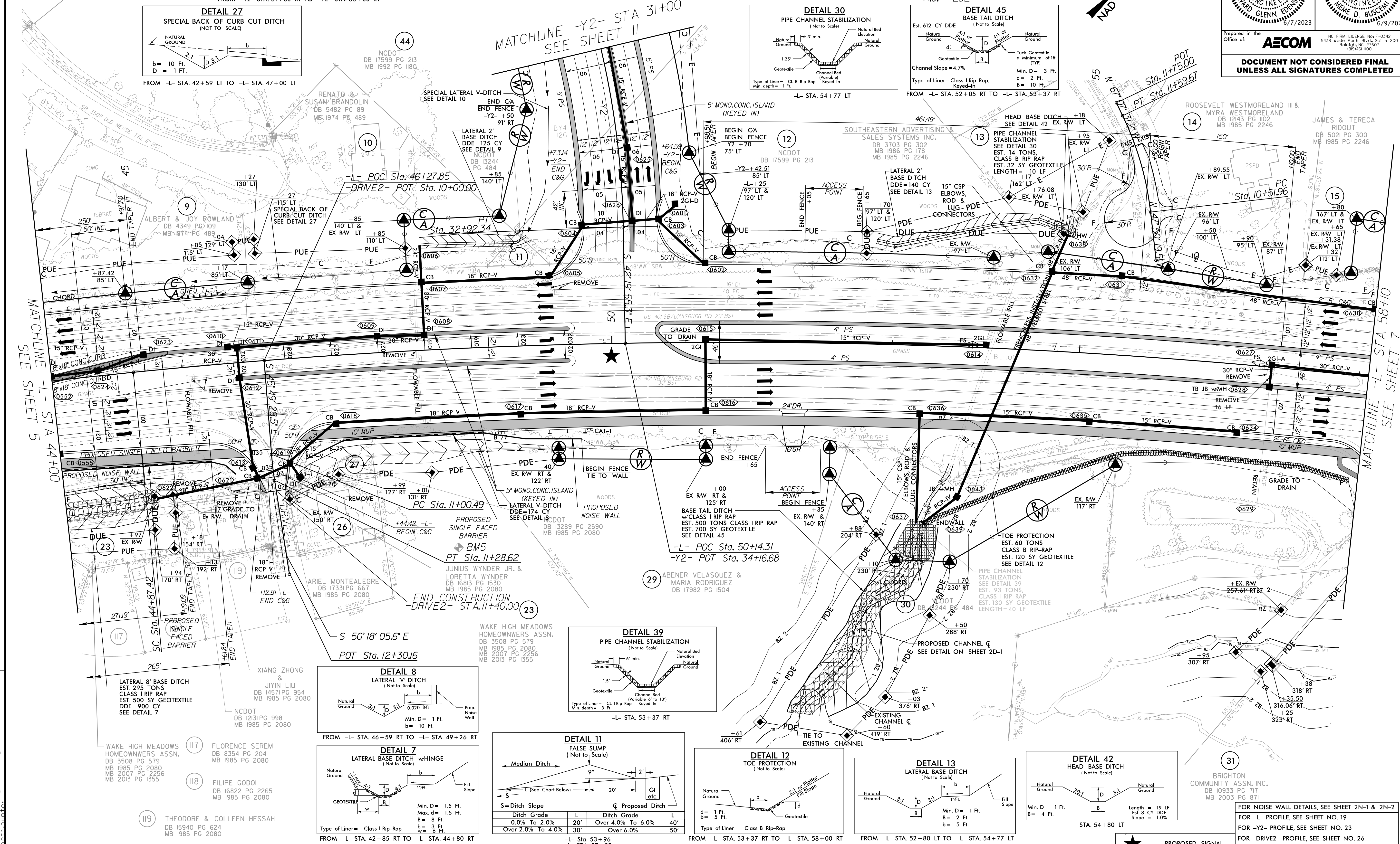
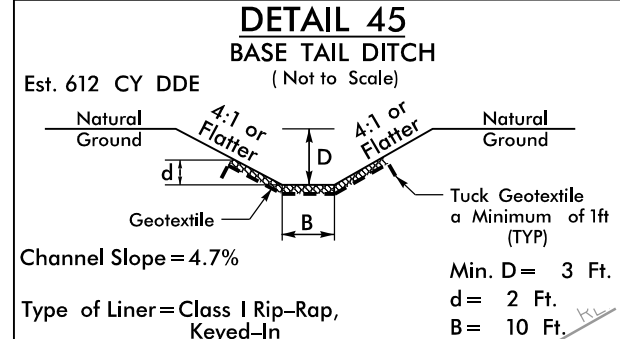
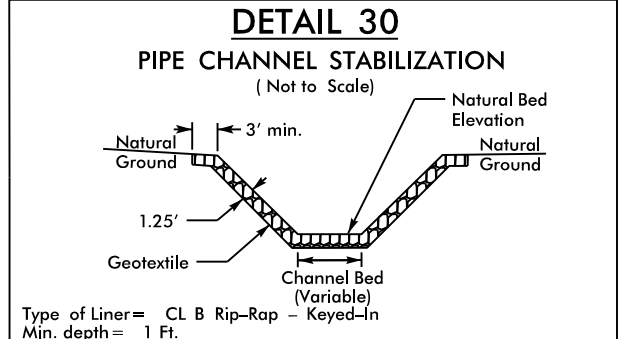
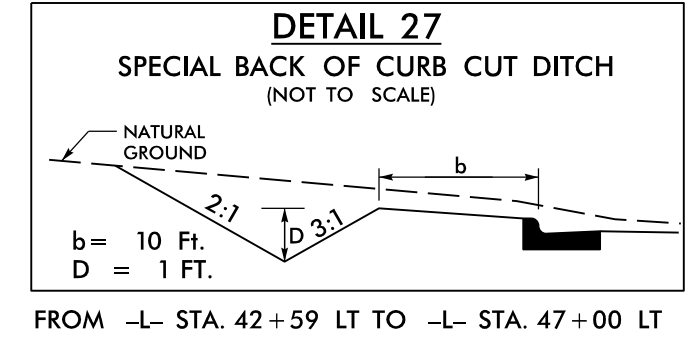
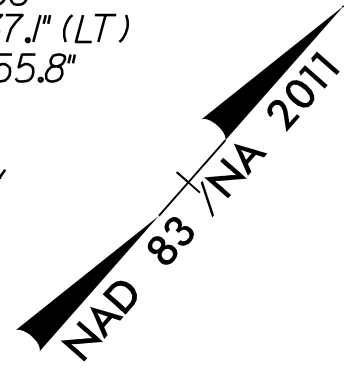


Pls Sta 44+20.76
 $\theta_s = 0^\circ 54' 13.4''$
 $L_s = 200.00'$
 $LT = 133.34'$
 $ST = 66.67'$

Pls Sta 52+57.33
 $\Delta = 13^\circ 50' 51.7''$ (RT)
 $D = 0^\circ 54' 13.4''$
 $L = 1,532.30'$
 $T = 769.90'$
 $R = 6,340.00'$
 $e = RC$

Pls Sta 30+82.49
 $\Delta = 27^\circ 14' 39.9''$ (RT)
 $D = 6^\circ 21' 58.3''$
 $L = 427.95'$
 $T = 218.10'$
 $R = 900.00'$
 $e = 0.06$ FT/FT
 $R.O. = 252'$

Pls Sta 11+14.56
 $\Delta = 4^\circ 28' 37.1''$ (LT)
 $D = 15^\circ 54' 55.8''$
 $L = 28.13'$
 $T = 14.07'$
 $R = 360.00'$



MATCHLINE -L- STA 44+00 SEE SHEET 5

MATCHLINE -L- STA 58+00 SEE SHEET 7

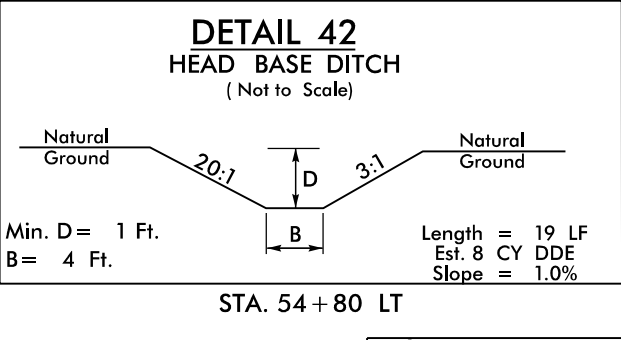
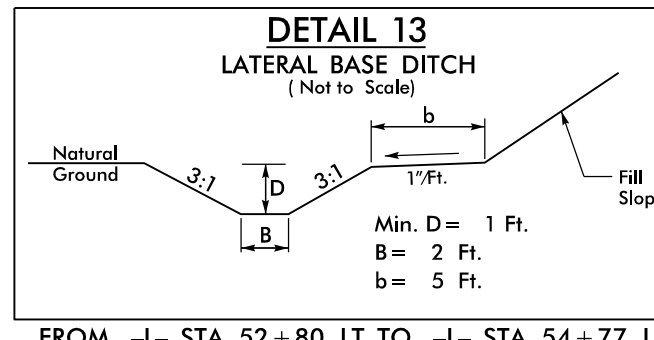
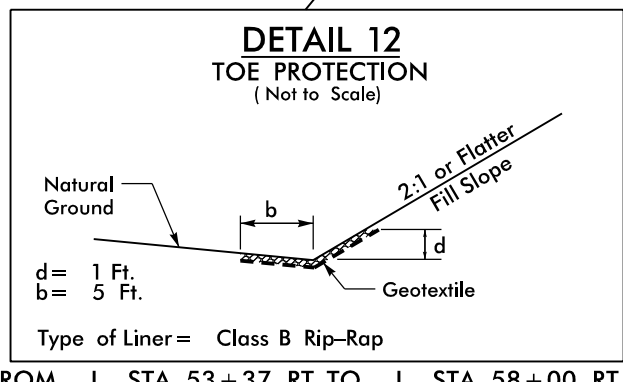
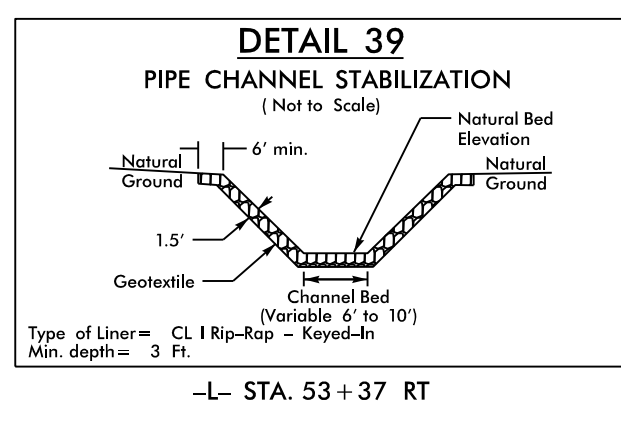
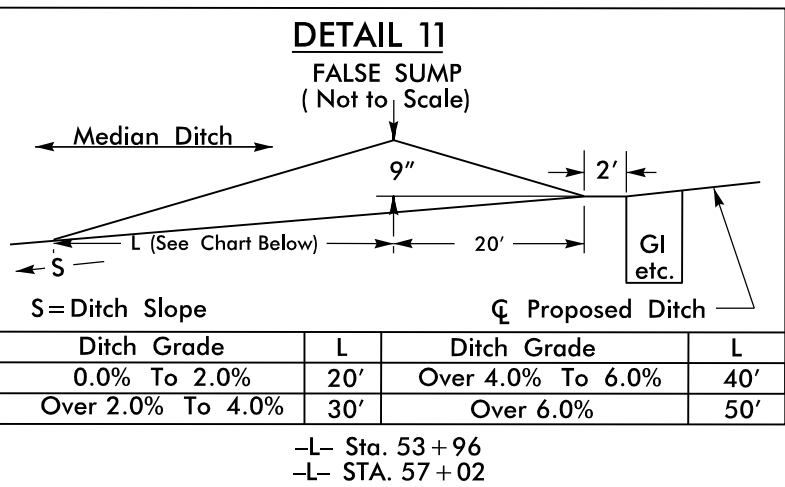
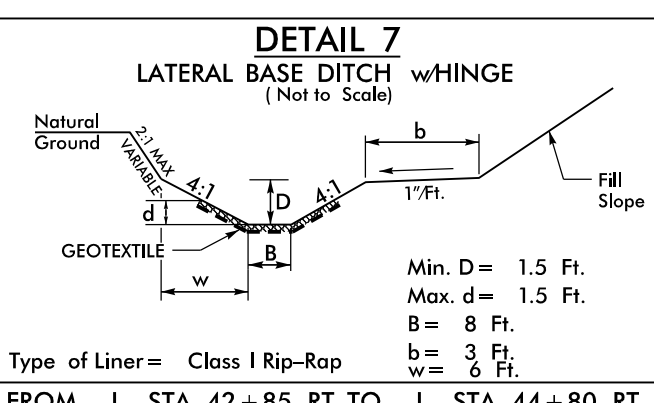
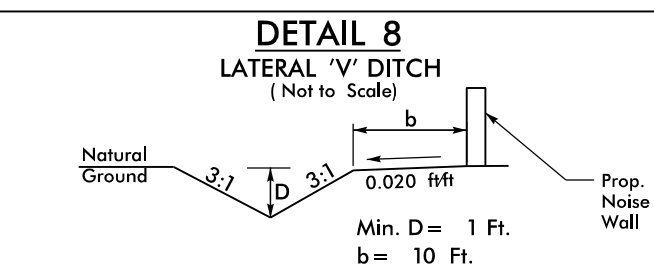
6/7/2023 8:48:45 am - rdy_psh06.dgn

WAKE HIGH MEADOWS HOMEOWNERS ASSN.
 DB 3508 PG 579
 MB 1985 PG 2080
 MB 2007 PG 2256
 MB 2013 PG 1355

FLORENCE SEREM
 DB 8354 PG 204
 MB 1985 PG 2080

FILPE GODOI
 DB 16822 PG 2265
 MB 1985 PG 2080

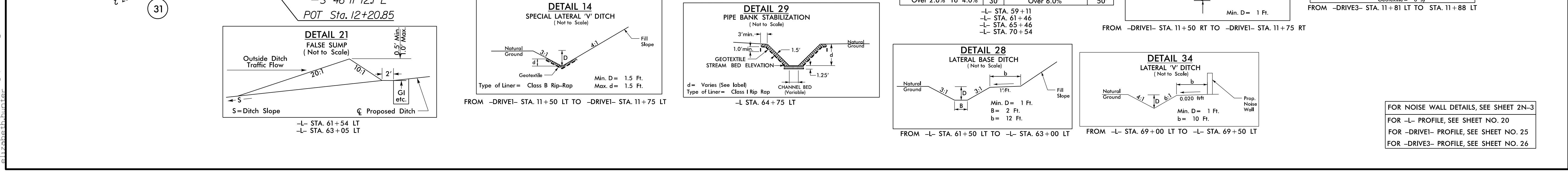
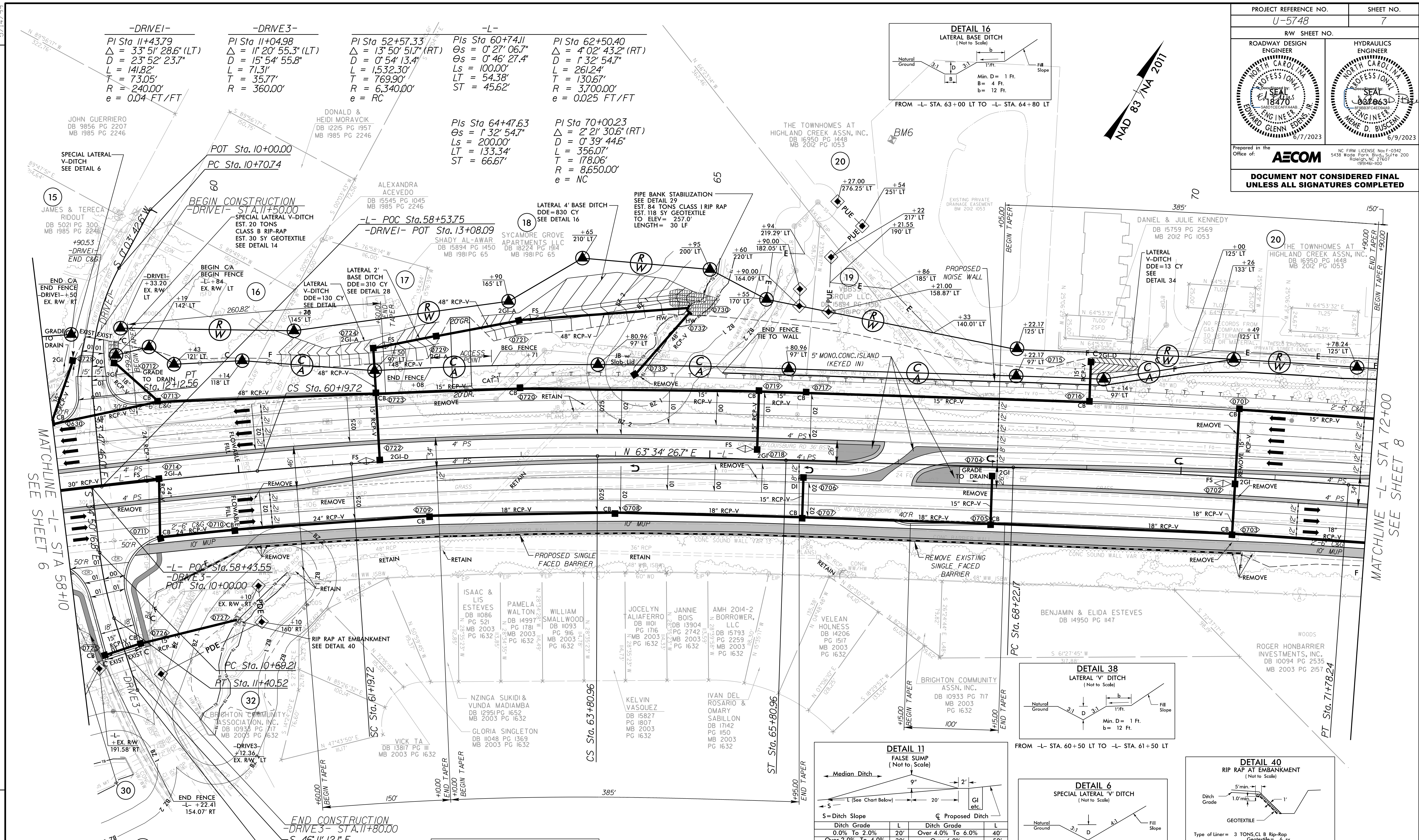
THEODORE & COLLEEN HESSAH
 DB 15940 PG 624
 MB 1985 PG 2080



★ PROPOSED SIGNAL

FOR NOISE WALL DETAILS, SEE SHEET 2N-1 & 2N-2
 FOR -L- PROFILE, SEE SHEET NO. 19
 FOR -Y2- PROFILE, SEE SHEET NO. 23
 FOR -DRIVE2- PROFILE, SEE SHEET NO. 26
 FOR -DRIVE4- PROFILE, SEE SHEET NO. 27

PROJECT REFERENCE NO. U-5748		SHEET NO. 7	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
Prepared in the Office of: AECOM NC FIRM LICENSE No. F-0342 5438 Wade Park Blvd., Suite 200 Raleigh, NC 27607 919461-000			
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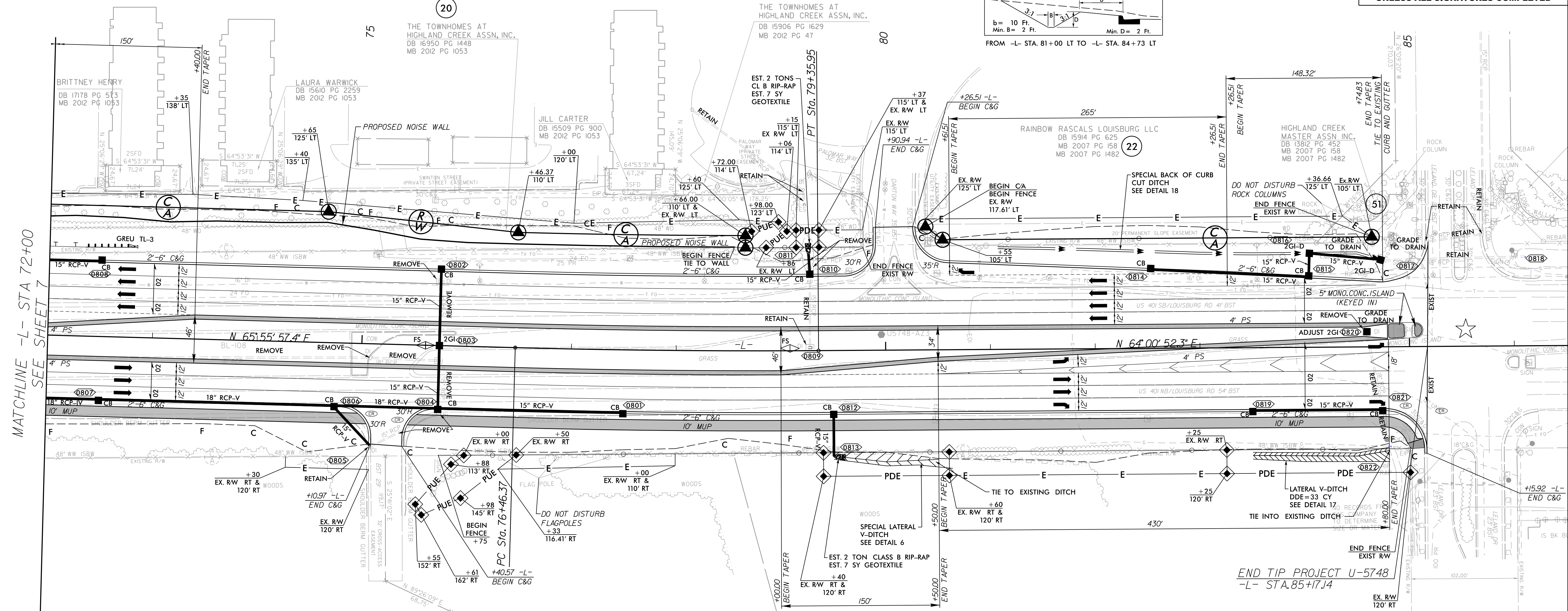
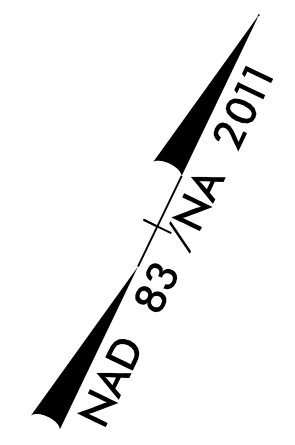
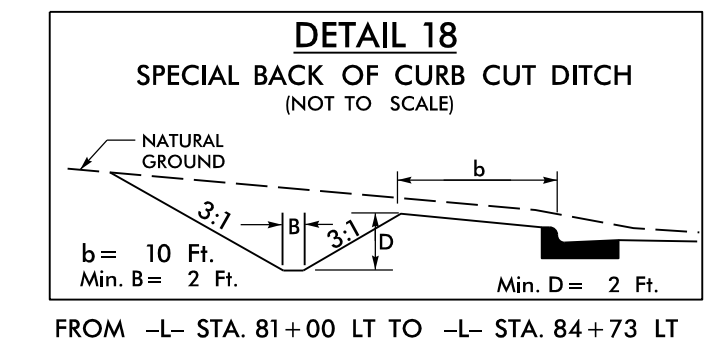
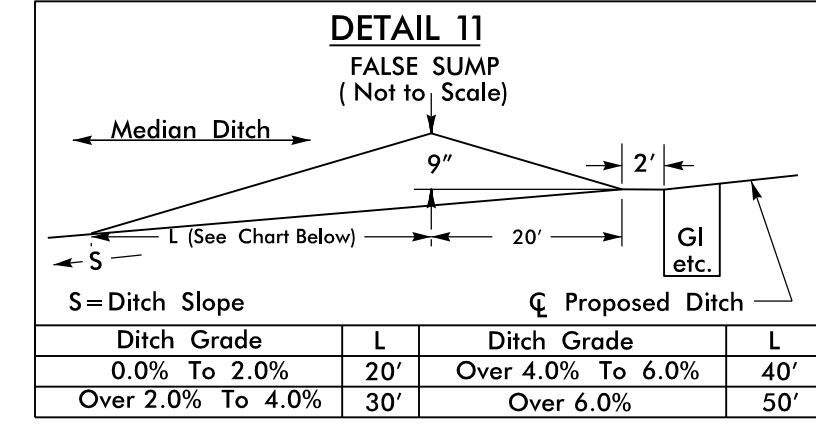
FOR NOISE WALL DETAILS, SEE SHEET 2N-3
 FOR -L- PROFILE, SEE SHEET NO. 20
 FOR -DRIVE- PROFILE, SEE SHEET NO. 25
 FOR -DRIVE-3- PROFILE, SEE SHEET NO. 26

5/14/99

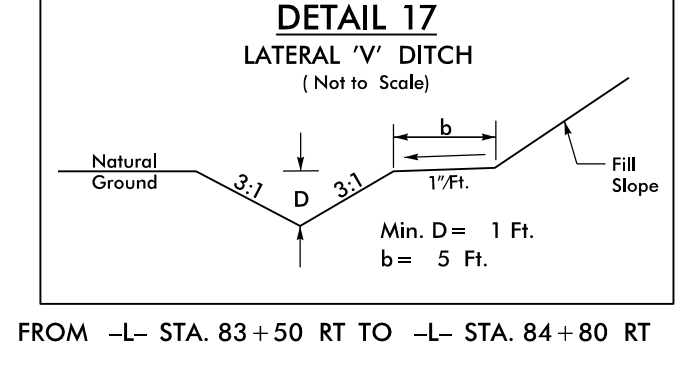
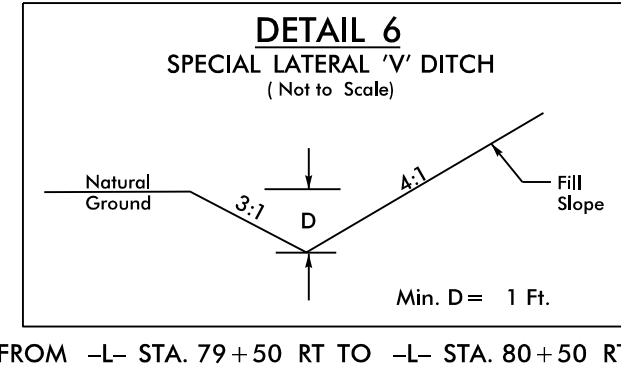
PROJECT REFERENCE NO. U-5748		SHEET NO. 8	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		PROFESSIONAL ENGINEER	
Prepared in the Office of: AECOM NC FIRM LICENSE No. F-0342 5438 Wade Park Blvd., Suite 200 Raleigh, NC 27617 199461-000			
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-L-

PI Sta. 77+91.7
 $\Delta = 1^{\circ} 55' 05.1''$ (LT)
 $D = 0^{\circ} 39' 44.6''$
 $L = 289.58'$
 $T = 144.80'$
 $R = 8,650.00'$
 $e = NC$



MATCHLINE -L- STA 72+00
 SEE SHEET 7



★ EXISTING SIGNAL

FOR NOISE WALL DETAILS, SEE SHEET 2N-3
FOR -L- PROFILE, SEE SHEET NO. 21

REVISIONS

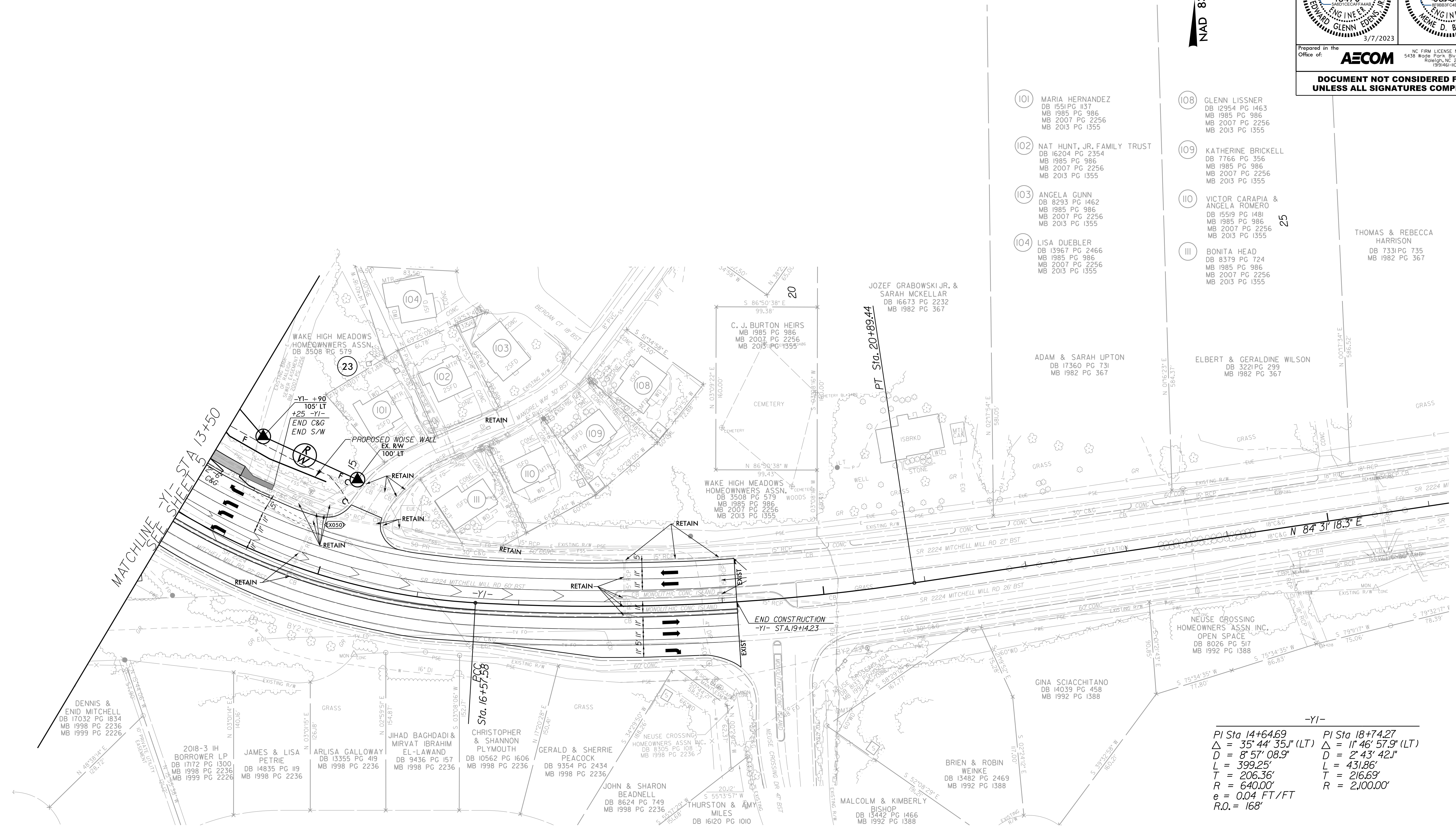
6/7/2023
 6/7/2023
 6/7/2023

5/14/99

REVISIONS

PROJECT REFERENCE NO. U-5748		SHEET NO. 9	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER		
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AECOM			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

NAD 83 / NA 2011



- 101 MARIA HERNANDEZ
DB 1551 PG 137
MB 1985 PG 986
MB 2007 PG 2256
MB 2013 PG 1355
- 102 NAT HUNT, JR. FAMILY TRUST
DB 16204 PG 2354
MB 1985 PG 986
MB 2007 PG 2256
MB 2013 PG 1355
- 103 ANGELA GUNN
DB 8293 PG 1462
MB 1985 PG 986
MB 2007 PG 2256
MB 2013 PG 1355
- 104 LISA DUEBLER
DB 13967 PG 2466
MB 1985 PG 986
MB 2007 PG 2256
MB 2013 PG 1355
- 108 GLENN LISSNER
DB 12954 PG 1463
MB 1985 PG 986
MB 2007 PG 2256
MB 2013 PG 1355
- 109 KATHERINE BRICKELL
DB 7766 PG 356
MB 1985 PG 986
MB 2007 PG 2256
MB 2013 PG 1355
- 110 VICTOR CARAPIA & ANGELA ROMERO
DB 15519 PG 1491
MB 1985 PG 986
MB 2007 PG 2256
MB 2013 PG 1355
- III BONITA HEAD
DB 8379 PG 724
MB 1985 PG 986
MB 2007 PG 2256
MB 2013 PG 1355


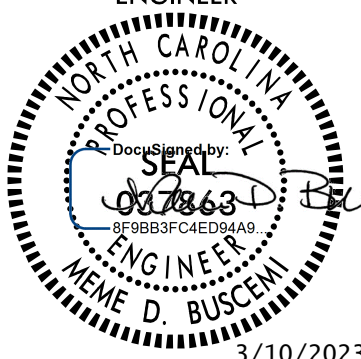
-YI-

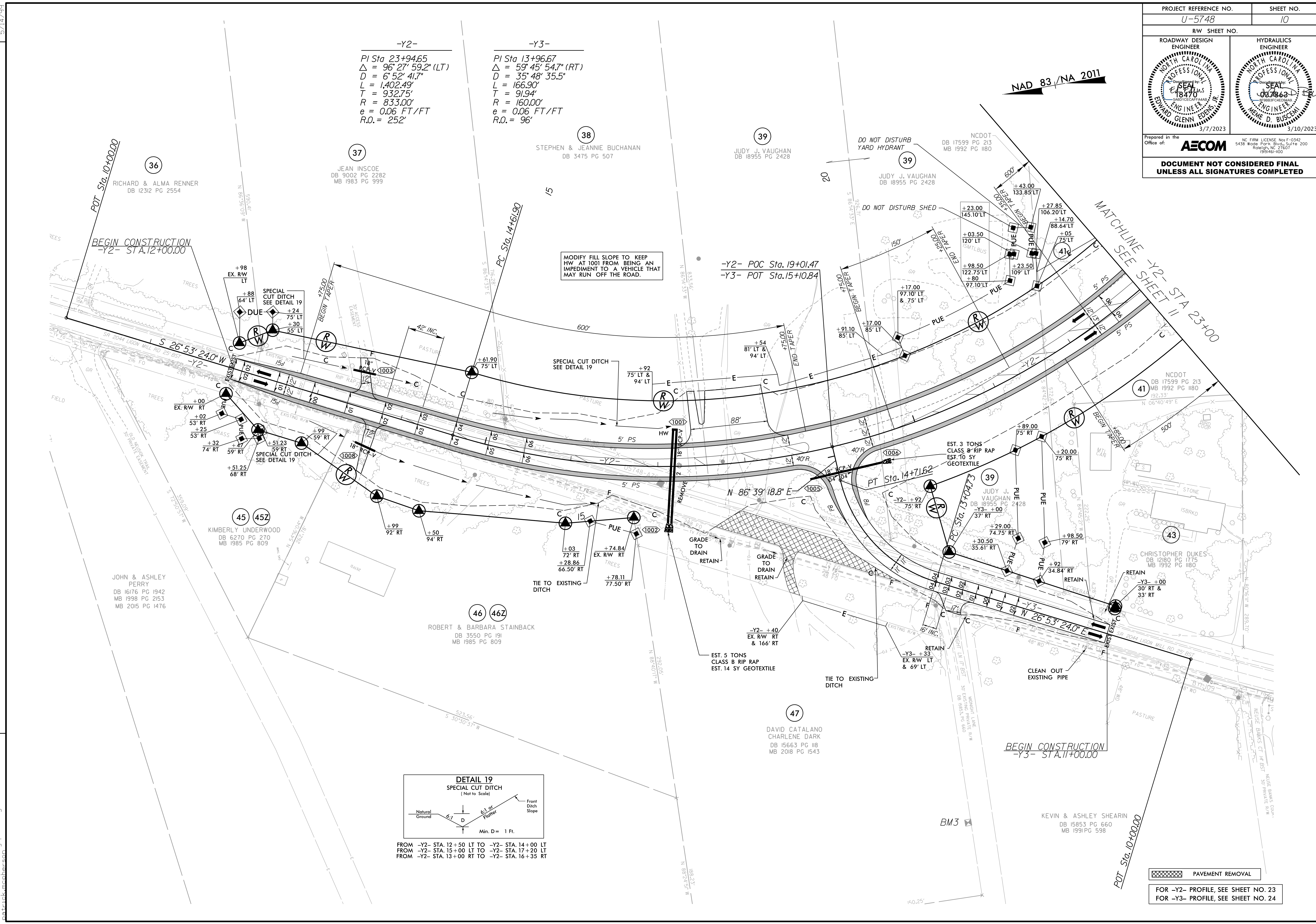
PI Sta 14+64.69	PI Sta 18+74.27
$\Delta = 35' 44' 35.1''$ (LT)	$\Delta = 11' 46' 57.9''$ (LT)
$D = 8' 57' 08.9''$	$D = 2' 43' 42.1''$
$L = 399.25'$	$L = 431.86'$
$T = 206.36'$	$T = 216.69'$
$R = 640.00'$	$R = 2,100.00'$
$e = 0.04$ FT/FT	
$R.O. = 168'$	

FOR NOISE WALL DETAILS, SEE SHEET 2N-1
FOR -YI- PROFILE, SEE SHEET NO. 22

2/3/2023 10:38_rdu_psh09.dgn
patrick.moehrs@aec.com

5/14/1999

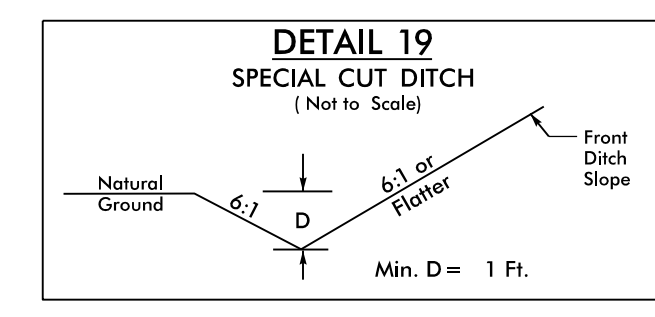
PROJECT REFERENCE NO. U-5748		SHEET NO. 10	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
			
Prepared in the Office of: AECOM			
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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			




-Y2-
 PI Sta 23+94.65
 $\Delta = 96^{\circ} 27' 59.2" (LT)$
 $D = 6^{\circ} 52' 41.7"$
 $L = 1,402.49'$
 $T = 932.75'$
 $R = 833.00'$
 $e = 0.06 \text{ FT/FT}$
 $R.O. = 252'$

-Y3-
 PI Sta 13+96.67
 $\Delta = 59^{\circ} 45' 54.7" (RT)$
 $D = 35^{\circ} 48' 35.5"$
 $L = 166.90'$
 $T = 91.94'$
 $R = 160.00'$
 $e = 0.06 \text{ FT/FT}$
 $R.O. = 96'$

MODIFY FILL SLOPE TO KEEP HW AT 1001 FROM BEING AN IMPEDIMENT TO A VEHICLE THAT MAY RUN OFF THE ROAD.



FROM -Y2- STA. 12+50 LT TO -Y2- STA. 14+00 LT
 FROM -Y2- STA. 15+00 LT TO -Y2- STA. 17+20 LT
 FROM -Y2- STA. 13+00 RT TO -Y2- STA. 16+35 RT

 PAVEMENT REMOVAL

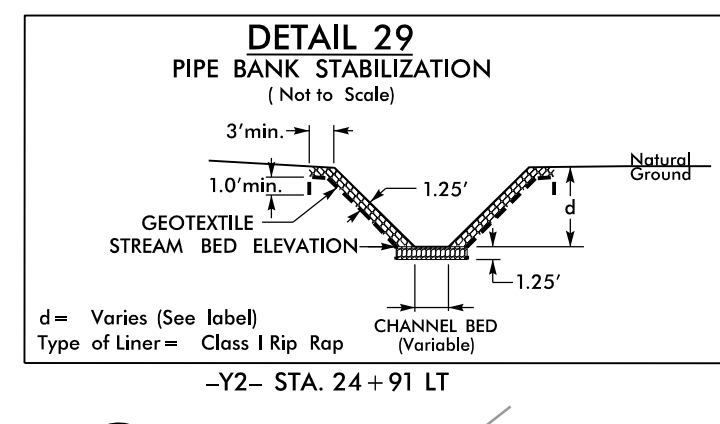
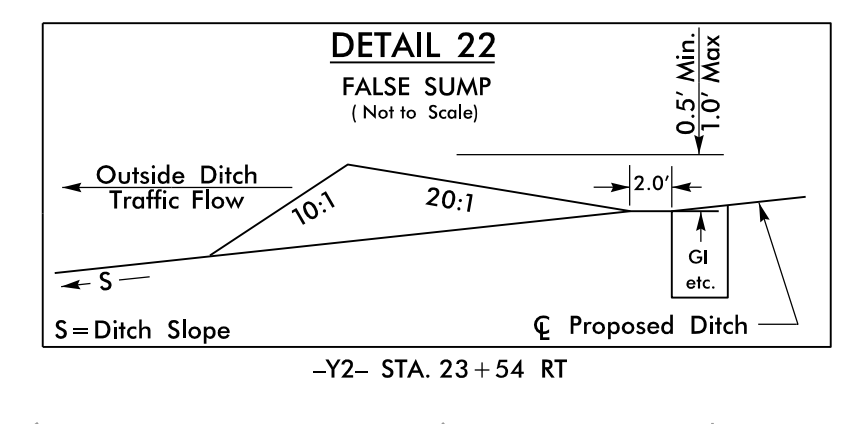
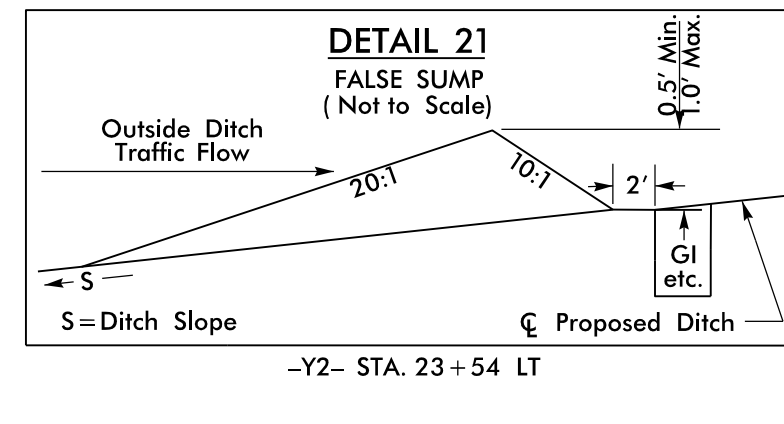
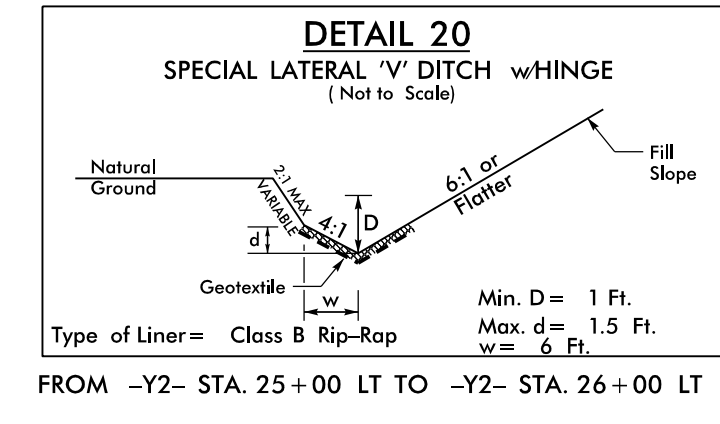
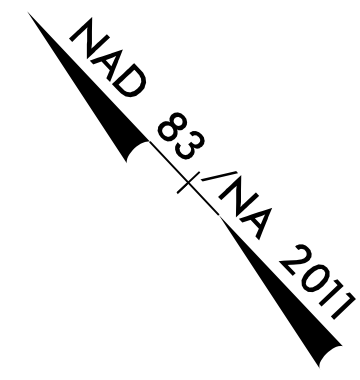
FOR -Y2- PROFILE, SEE SHEET NO. 23
 FOR -Y3- PROFILE, SEE SHEET NO. 24

REVISIONS

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patrick.mohr@aec.com

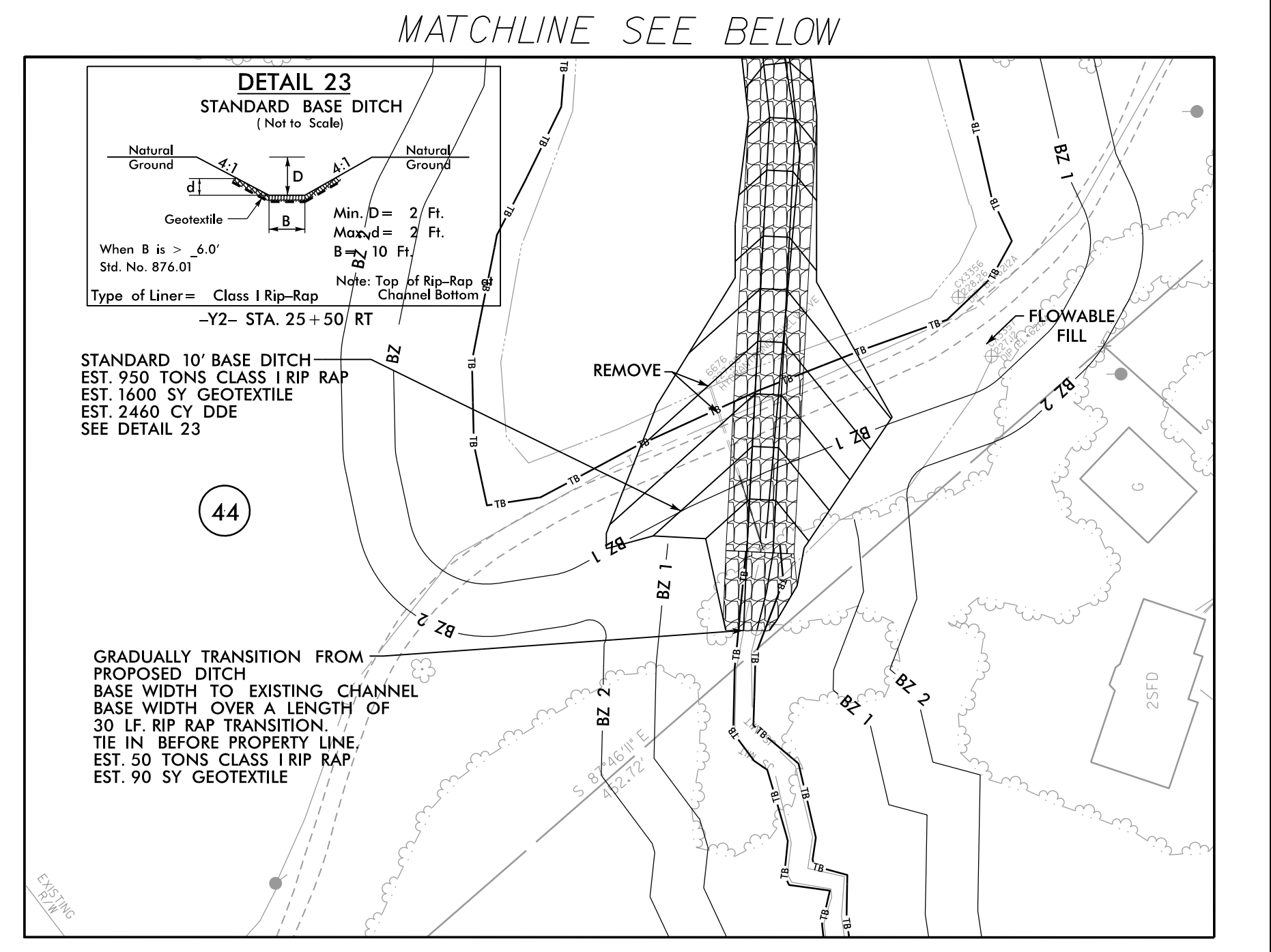
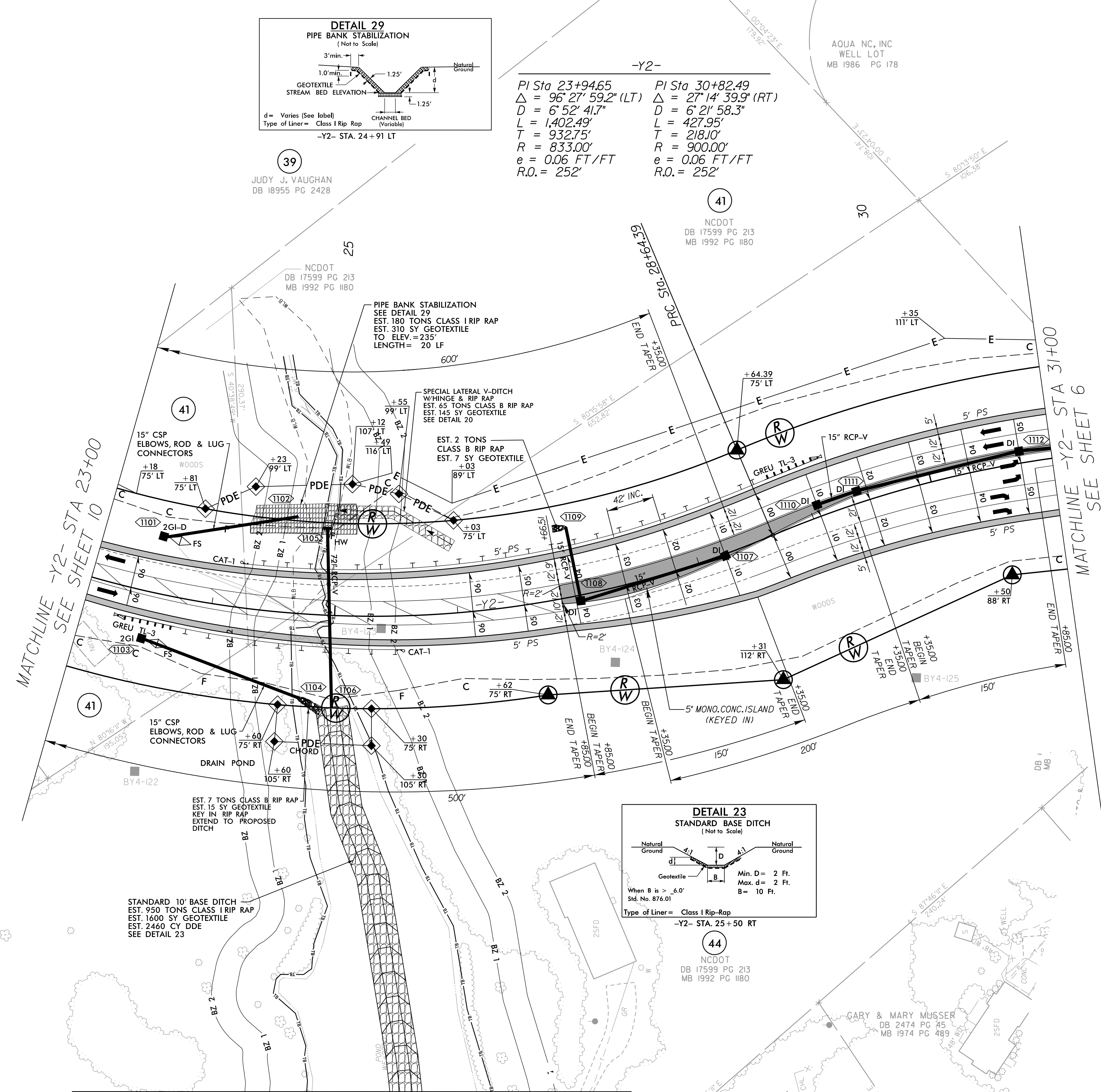
5/14/99

PROJECT REFERENCE NO. U-5748		SHEET NO. 11	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
Prepared in the Office of: AECOM			
NC FIRM LICENSE No. F-0342 5438 Wade Park Blvd., Suite 200 Raleigh, NC 27607 199461-000			
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-Y2-

PI Sta 23+94.65	PI Sta 30+82.49
$\Delta = 96^{\circ}27'59.2''$ (LT)	$\Delta = 27^{\circ}14'39.9''$ (RT)
D = 6'52" 41.7"	D = 6'21" 58.3"
L = 1,402.49'	L = 427.95'
T = 932.75'	T = 218.10'
R = 833.00'	R = 900.00'
e = 0.06 FT/FT	e = 0.06 FT/FT
R.O. = 252'	R.O. = 252'



REVISIONS

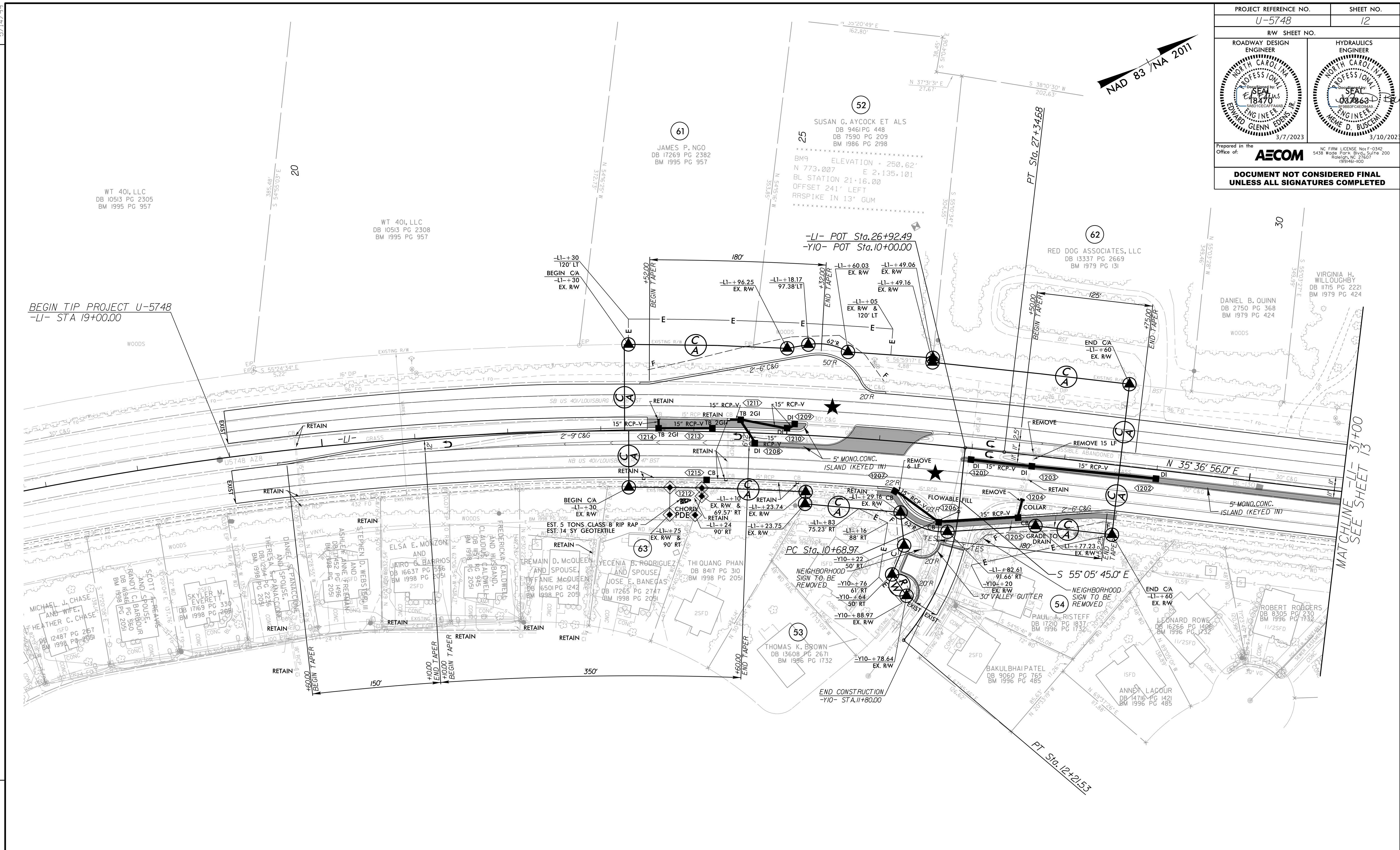
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SEE INSET (THIS SHEET)

FOR -Y2- PROFILE, SEE SHEET NO. 23

5/14/99

PROJECT REFERENCE NO. U-5748		SHEET NO. 12	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		PROFESSIONAL ENGINEER	
Prepared in the Office of:		NC FIRM LICENSE No. F-0342 5438 Wade Park Blvd., Suite 200 Raleigh, NC 27607 199461-000	
AECOM			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



BEGIN TIP PROJECT U-5748
-LI- STA 19+00.00

-LI- POT Sta. 26+92.49
-Y10- POT Sta. 10+00.00

PC Sta. 10+68.97

END CONSTRUCTION
-Y10- STA. 11+80.00

MATCHLINE - SEE SHEET 13

-LI-	-Y10-
PI Sta 21+32.83	PI Sta 11+47.63
$\Delta = 20^\circ 30' 59.4''$ (RT)	$\Delta = 34^\circ 22' 23.2''$ (RT)
D = 1' 41' 09.6"	D = 22' 31' 50.8"
L = 1216.87'	L = 152.56'
T = 615.02'	T = 78.65'
R = 3,398.32'	R = 254.30'
e = EXIST.	e = EXIST.

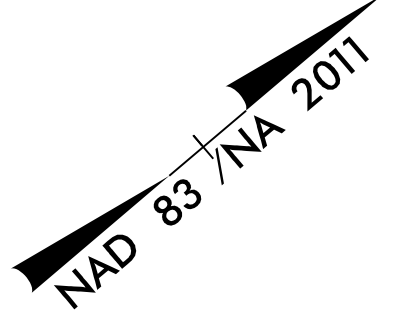
★ PROPOSED SIGNAL
 FOR -LI- PROFILE, SEE SHEET NO. 28
 FOR -Y10- PROFILE, SEE SHEET NO. 31

REVISIONS

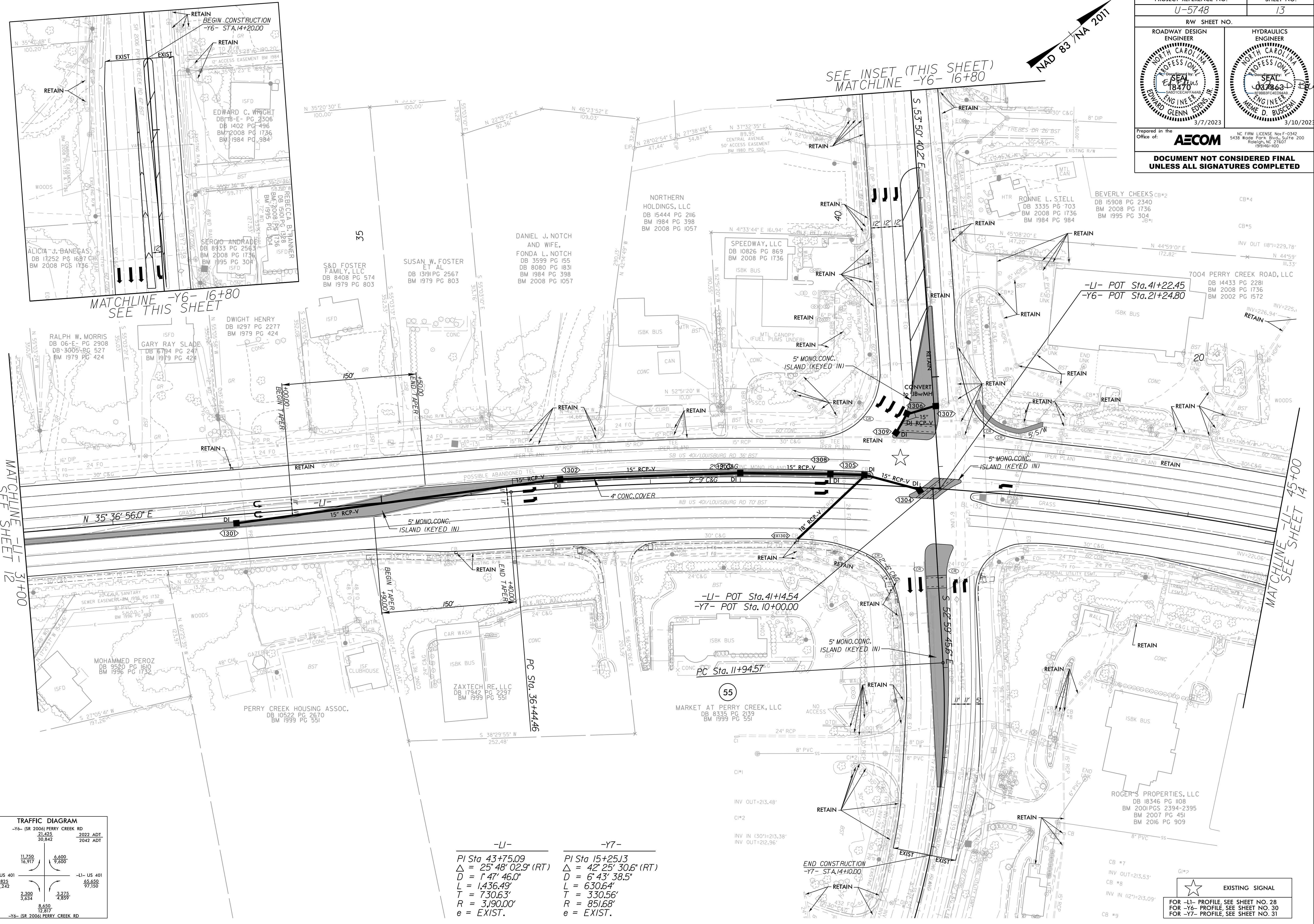
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patrick.moehrierson

5/14/2011

PROJECT REFERENCE NO. U-5748		SHEET NO. 13	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
Prepared in the Office of:			
<p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p>			



SEE INSET (THIS SHEET) MATCHLINE -Y6- 16+80



MATCHLINE -Y6- 16+80 SEE THIS SHEET

MATCHLINE -LI- 3+00 SEE SHEET 12

MATCHLINE -LI- 45+00 SEE SHEET 14

TRAFFIC DIAGRAM
-Y6- (SR 2006) PERRY CREEK RD

21,425	2022 ADT
30,842	2042 ADT

11,750	6,600
16,917	9,500

69,825	69,690
103,242	97,150

2,300	3,275
3,634	4,859

8,650
12,817

-Y6- (SR 2006) PERRY CREEK RD

<p>-LI-</p> <p>PI Sta 43+75.09 $\Delta = 25^\circ 48' 02.9''$ (RT) $D = 1^\circ 47' 46.0''$ $L = 1,436.49'$ $T = 730.63'$ $R = 3,190.00'$ $e = EXIST.$</p>	<p>-Y7-</p> <p>PI Sta 15+25.13 $\Delta = 42^\circ 25' 30.6''$ (RT) $D = 6^\circ 43' 38.5''$ $L = 630.64'$ $T = 330.56'$ $R = 851.68'$ $e = EXIST.$</p>
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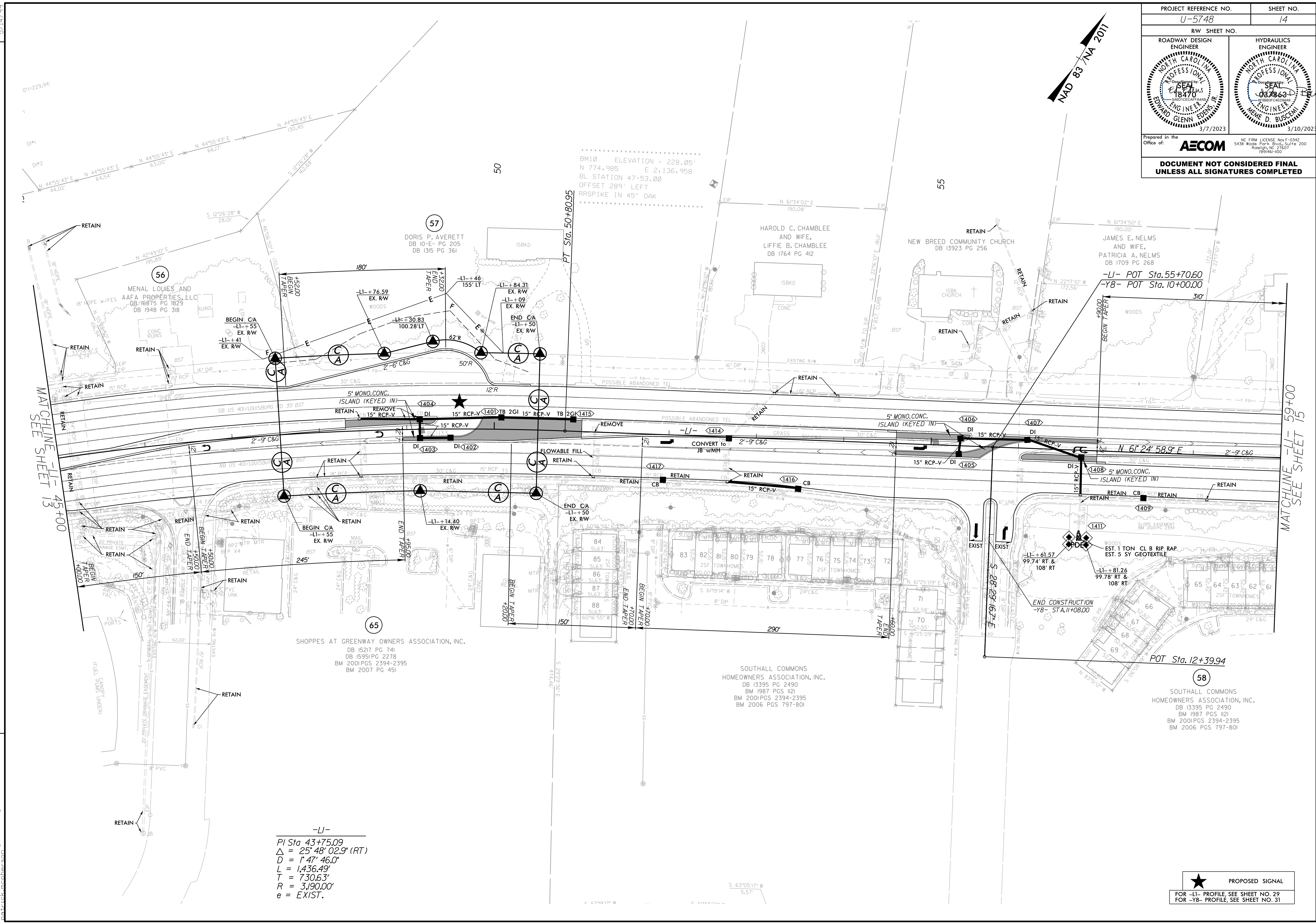
★ EXISTING SIGNAL

FOR -LI- PROFILE, SEE SHEET NO. 28
 FOR -Y6- PROFILE, SEE SHEET NO. 30
 FOR -Y7- PROFILE, SEE SHEET NO. 31

REVISIONS

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PROJECT REFERENCE NO. U-5748		SHEET NO. 14	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
Prepared in the Office of:		AECOM <small>NC FIRM LICENSE No. F-0342 5438 Wade Park Blvd., Suite 200 Raleigh, NC 27607 199461-000</small>	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



REVISIONS

MATCHLINE - LI- 45+00
SEE SHEET 13

MATCHLINE - LI- 59+00
SEE SHEET 15

-LI-

PI Sta 43+75.09
 $\Delta = 25' 48'' 02.9''$ (RT)
 $D = 1' 47'' 46.0''$
 $L = 1,436.49'$
 $T = 730.63'$
 $R = 3,190.00'$
 $e = EXIST.$

★ PROPOSED SIGNAL

FOR -LI- PROFILE, SEE SHEET NO. 29
 FOR -Y8- PROFILE, SEE SHEET NO. 31

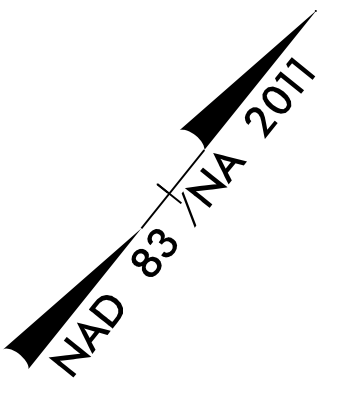
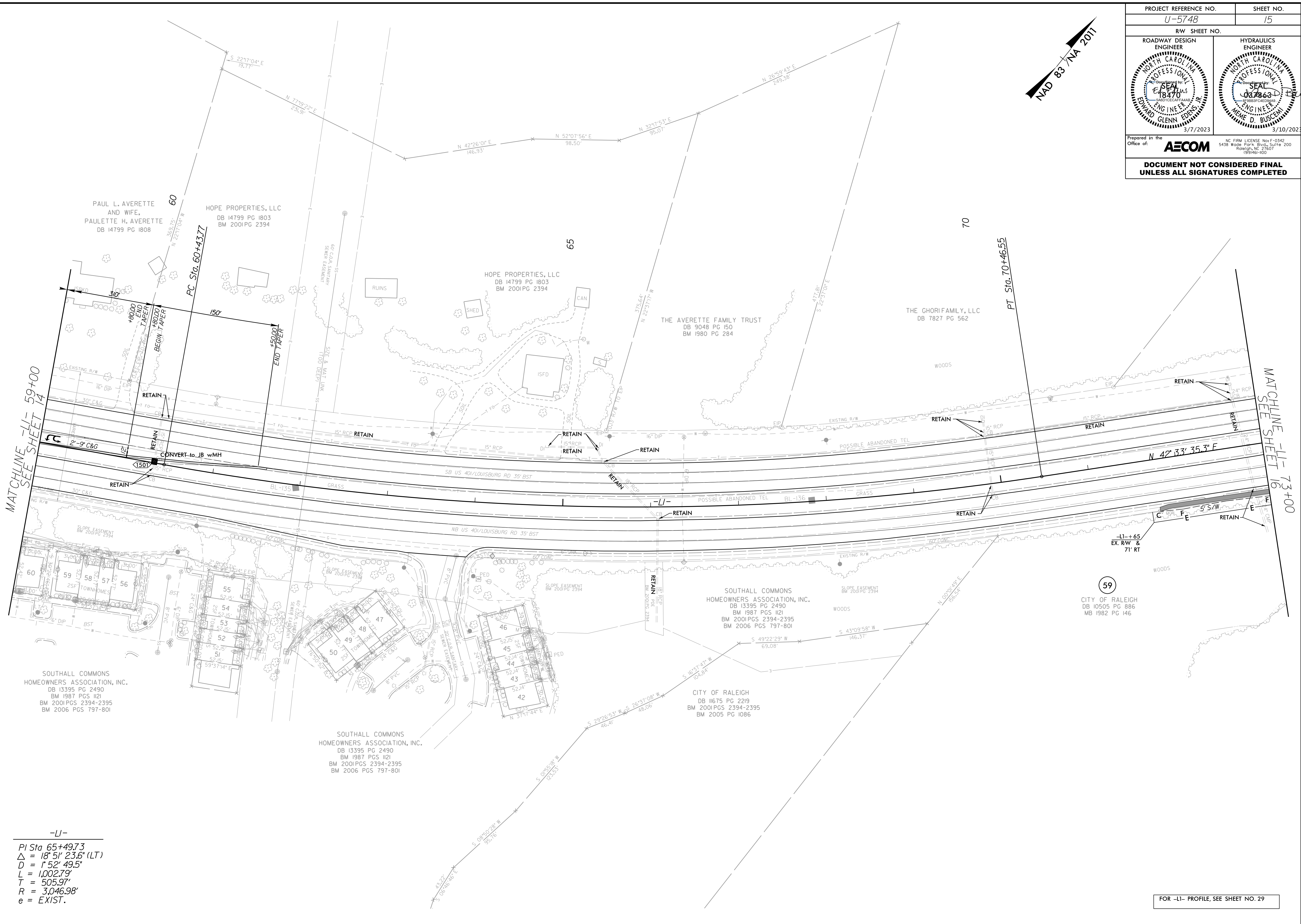
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battick.mohenson

5/14/99

5/14/99

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patrick.mohr@sonnet.com



PROJECT REFERENCE NO. U-5748		SHEET NO. 15	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER SEAL 18470 EDWARD GLENN EDEBIS, JR. 3/7/2023		HYDRAULICS ENGINEER SEAL 087863 D. BUSCH 3/10/2023	
Prepared in the Office of: AECOM		NC FIRM LICENSE No: F-0342 5438 Wade Park Blvd., Suite 200 Raleigh, NC 27607 199461-000	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

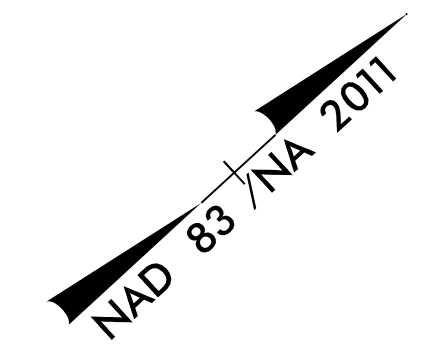
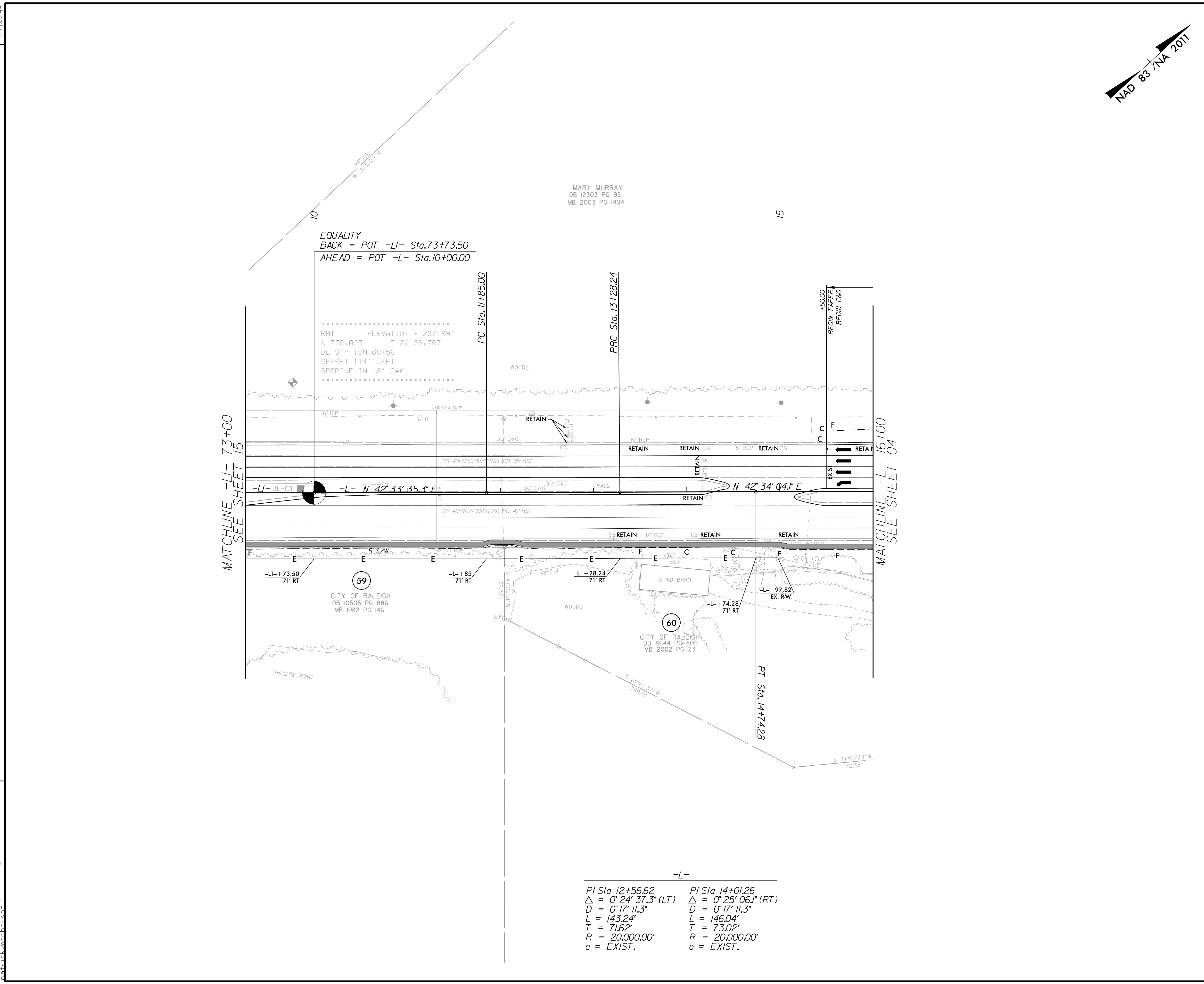
-LI-
 PI Sta 65+497.3
 $\Delta = 18' 51" 23.6" (LT)$
 $D = 1' 52' 49.5"$
 $L = 1,002.79'$
 $T = 505.97'$
 $R = 3,046.98'$
 $e = EXIST.$

FOR -LI- PROFILE, SEE SHEET NO. 29

5/14/99

REVISIONS

2/3/2023
62748_rdu_psh16.dgn
patrick.moehrsen



PROJECT REFERENCE NO. <i>U-5748</i>	SHEET NO. <i>16</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER <i>SEA</i> 18470 EDWARD GLENN EDERS JR. 3/7/2023	HYDRAULICS ENGINEER <i>SEA</i> 087863 MEME D. BUSCH 3/10/2023
Prepared in the Office of: AECOM	
NC FIRM LICENSE No: F-0342 5438 Wade Park Blvd., Suite 200 Raleigh, NC 27607 199461-000	
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-L-	-L-
PI Sta 12+56.62	PI Sta 14+01.26
$\Delta = 0^\circ 24' 37.3''$ (LT)	$\Delta = 0^\circ 25' 06.1''$ (RT)
D = 0' 17' 11.3"	D = 0' 17' 11.3"
L = 143.24'	L = 146.04'
T = 71.62'	T = 73.02'
R = 20,000.00'	R = 20,000.00'
e = EXIST.	e = EXIST.

FOR -L- PROFILE, SEE SHEET NO. 17
FOR -L1- PROFILE, SEE SHEET NO. 30

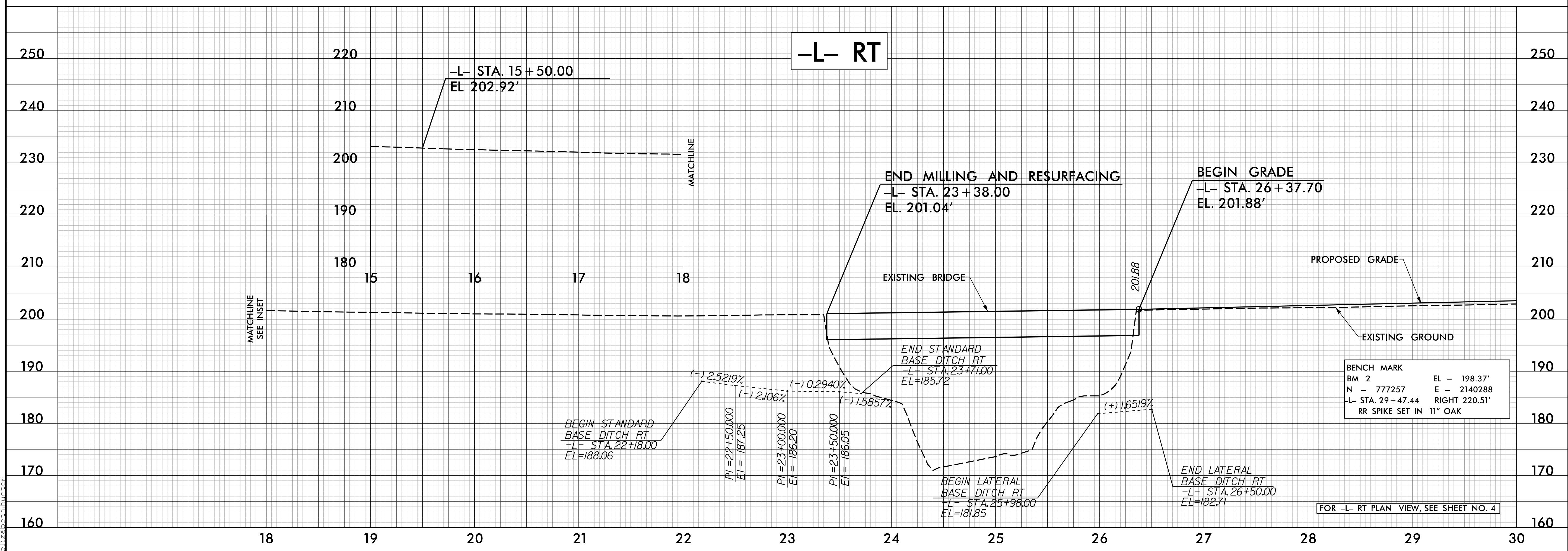
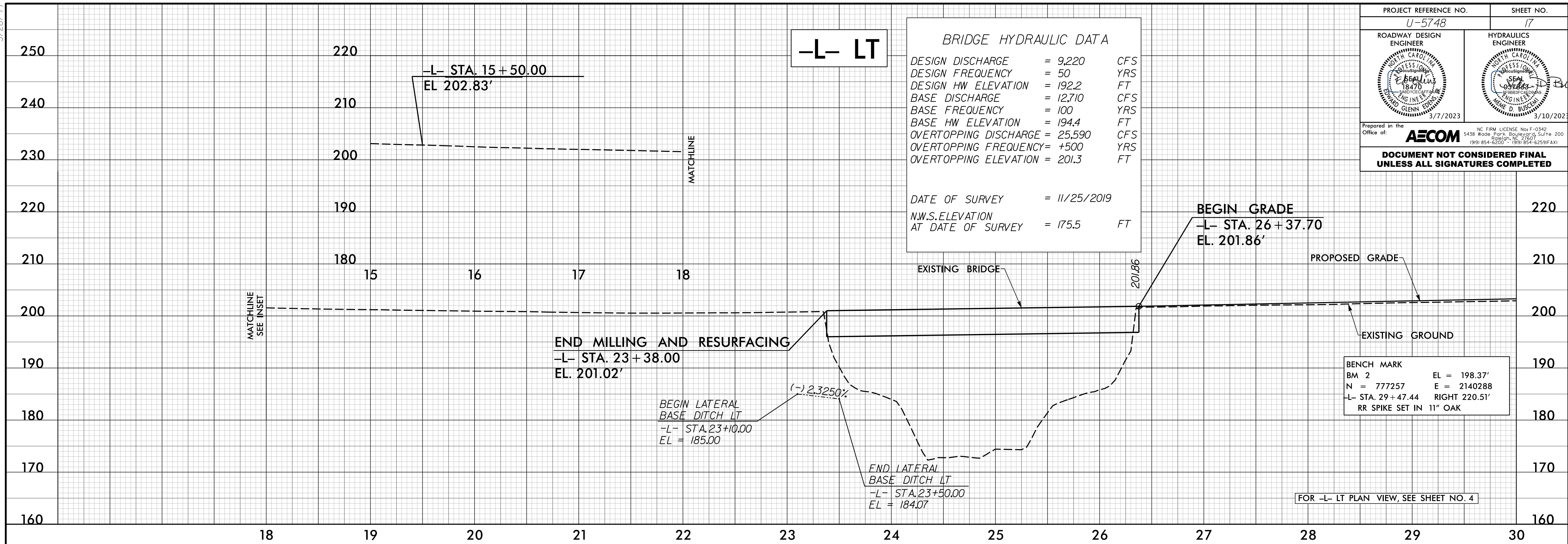
5/28/99

PROJECT REFERENCE NO. <i>U-5748</i>	SHEET NO. <i>17</i>
ROADWAY DESIGN ENGINEER <i>[Signature]</i> 3/7/2023	HYDRAULICS ENGINEER <i>[Signature]</i> 3/10/2023
Prepared in the Office of: AECOM NC FIRM LICENSE No: F-0342 5438 Wade Park Boulevard, Suite 200 Raleigh, NC 27607 (919) 854-6200 • (919) 854-6259(FAX)	
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BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE = 9,220 CFS
 DESIGN FREQUENCY = 50 YRS
 DESIGN HW ELEVATION = 192.2 FT
 BASE DISCHARGE = 12,710 CFS
 BASE FREQUENCY = 100 YRS
 BASE HW ELEVATION = 194.4 FT
 OVERTOPPING DISCHARGE = 25,590 CFS
 OVERTOPPING FREQUENCY = +500 YRS
 OVERTOPPING ELEVATION = 201.3 FT

DATE OF SURVEY = 11/25/2019
 N.W.S. ELEVATION AT DATE OF SURVEY = 175.5 FT



1/5/2023 10:48:23 am elizabeth.hunter

5/28/23

NOTE: DATA BOX CORRESPONDS TO OPEN ENDED INLET UPSTREAM OF ROADWAY DRAINAGE SYSTEM THEREFORE NO PIPE IS SHOWN ON THE PROFILE

PIPE HYDRAULIC DATA
-L- Sta. 48+00 LT

DRAINAGE AREA	= 3.7	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 15.0	CFS
DESIGN HW ELEVATION	= 236.6	FT
100 YEAR DISCHARGE	= 16.0	CFS
100 YEAR HW ELEVATION	= 236.7	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 49.0	CFS
OVERTOPPING ELEVATION	= 242.9	FT

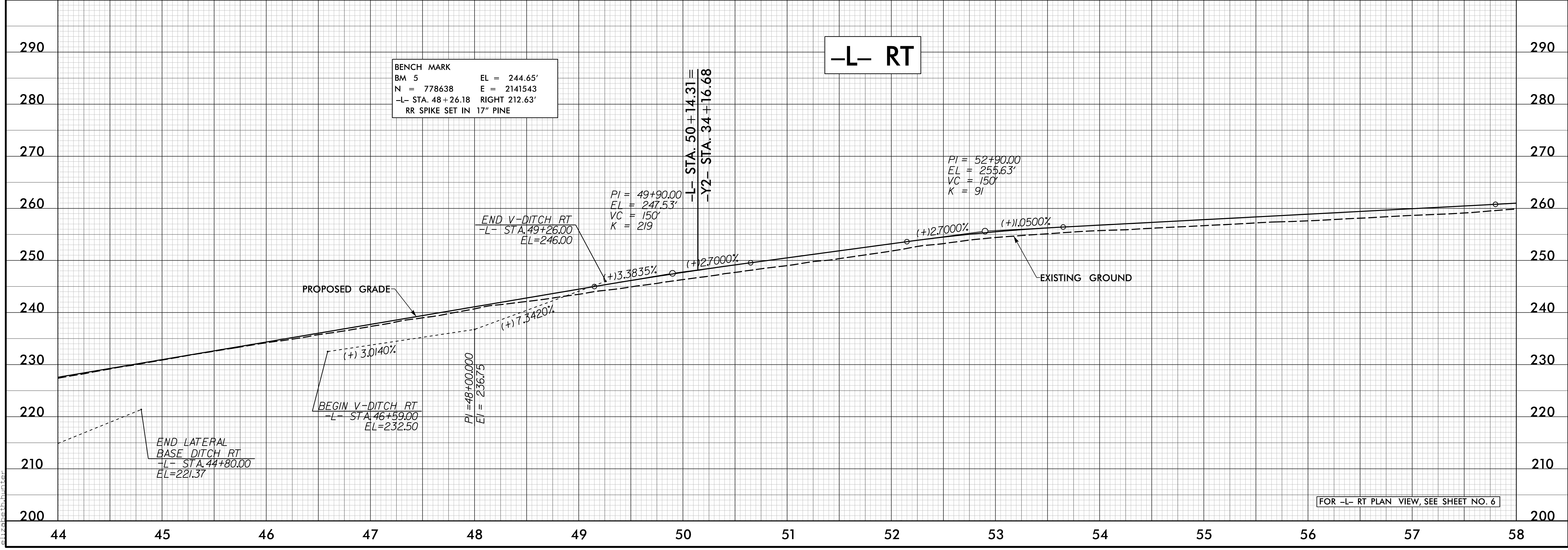
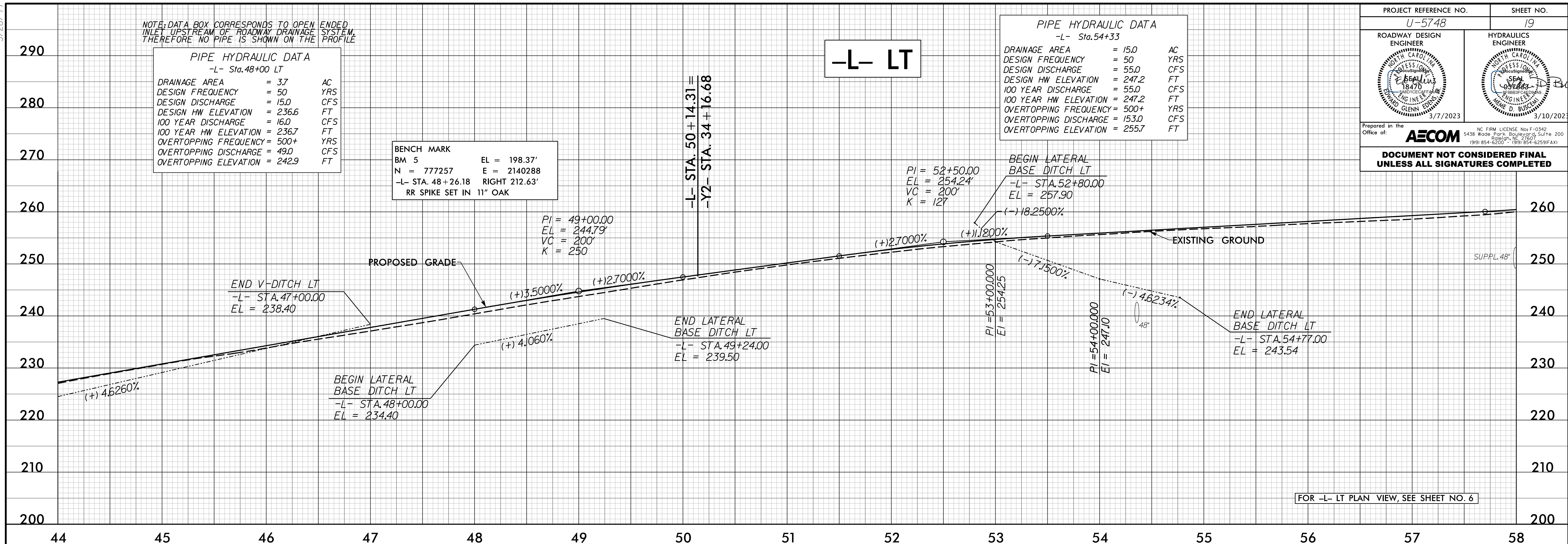
BENCH MARK
BM 5

EL	= 198.37'
N	= 777257
E	= 2140288
-L- STA. 48+26.18 RIGHT 212.63'	
RR SPIKE SET IN 11" OAK	

PIPE HYDRAULIC DATA
-L- Sta. 54+33

DRAINAGE AREA	= 15.0	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 55.0	CFS
DESIGN HW ELEVATION	= 247.2	FT
100 YEAR DISCHARGE	= 55.0	CFS
100 YEAR HW ELEVATION	= 247.2	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 153.0	CFS
OVERTOPPING ELEVATION	= 255.7	FT

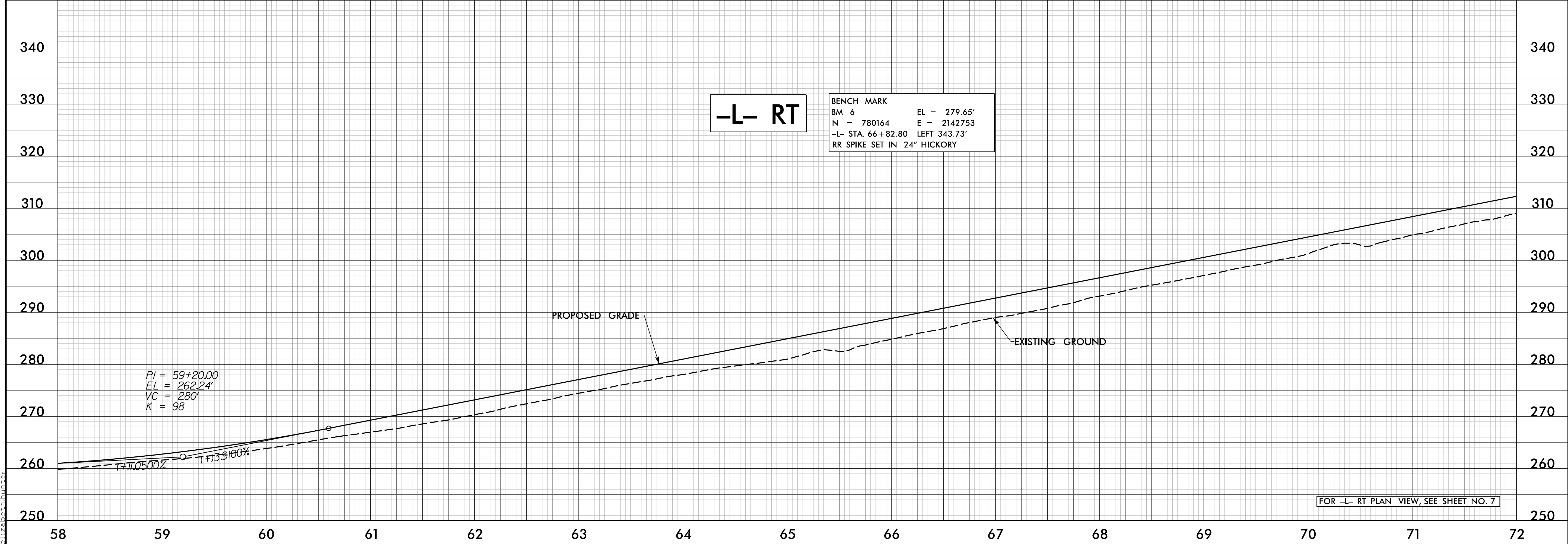
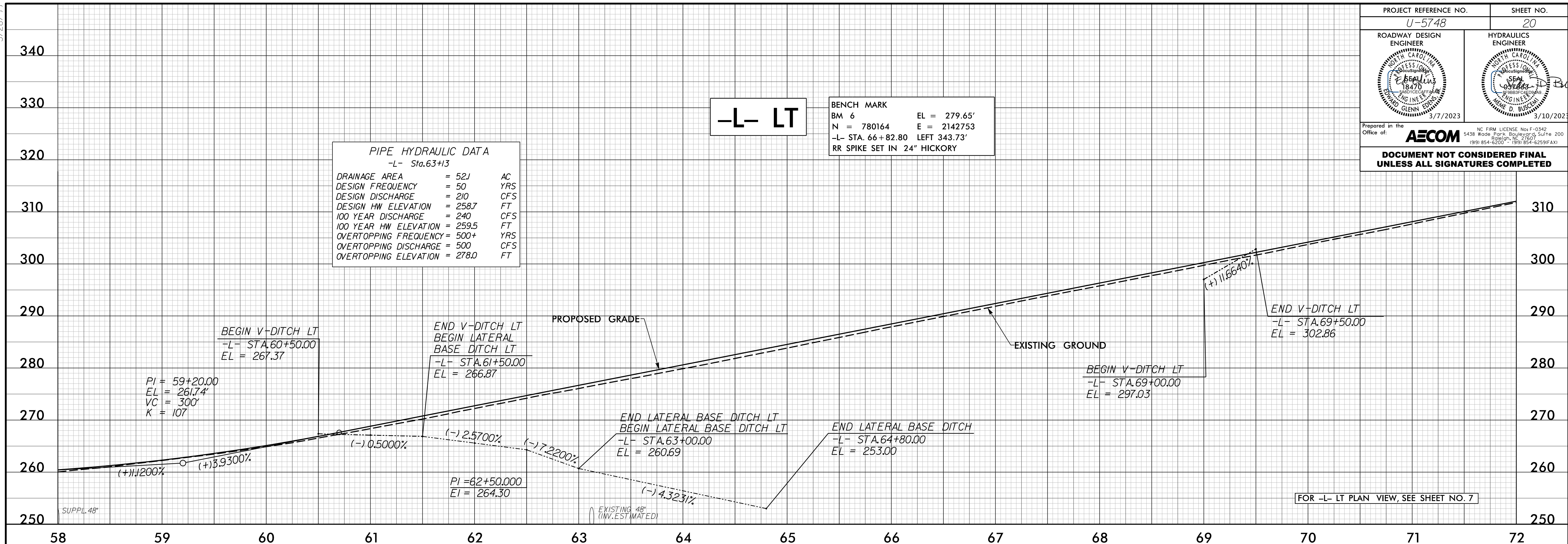
PROJECT REFERENCE NO.	U-5748	SHEET NO.	19
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
Prepared in the Office of: AECOM			
NC FIRM LICENSE No. F-0342 5438 Wade Park Boulevard, Suite 200 Raleigh, NC 27617 (919) 854-6200 • (919) 854-6259 FAX1			
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5/28/23

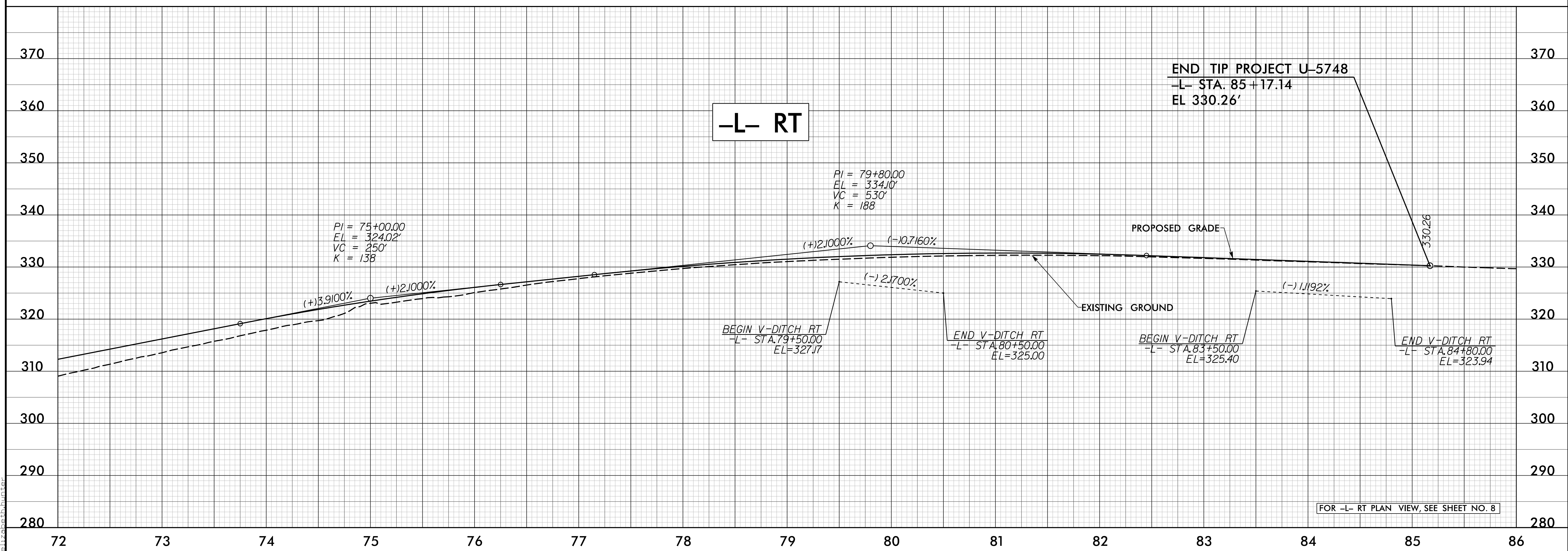
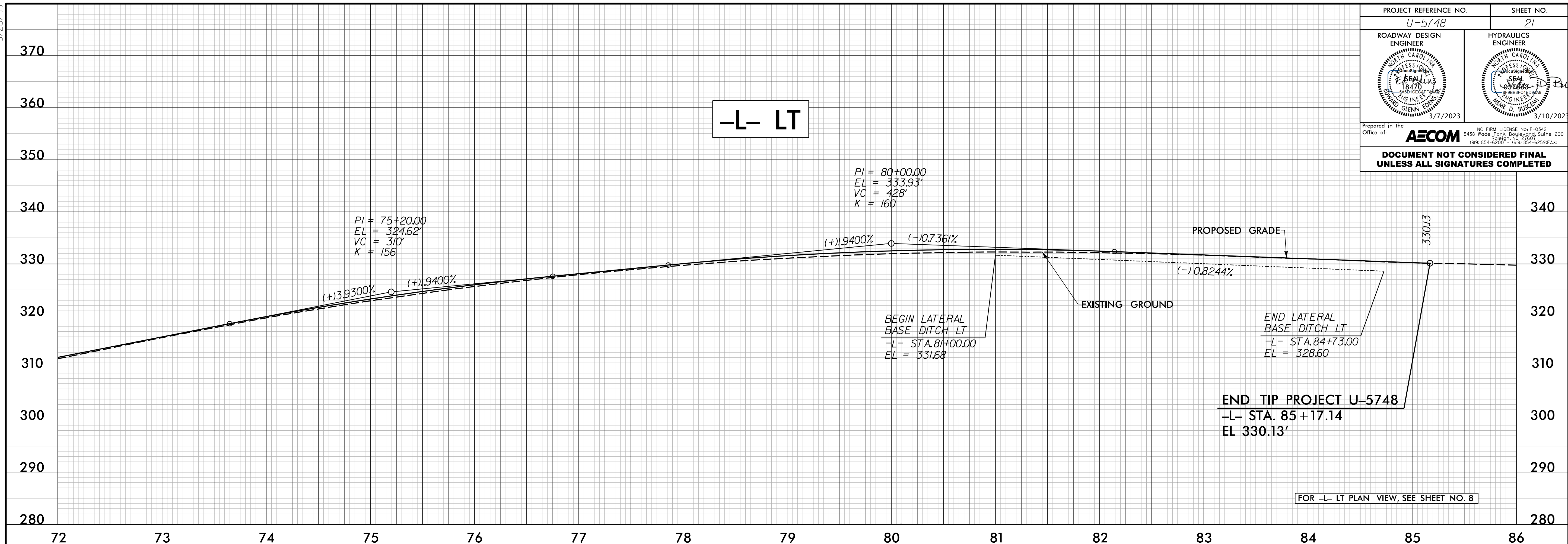
PROJECT REFERENCE NO. U-5748	SHEET NO. 20
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER
Prepared in the Office of: AECOM	
<small>NC FIRM LICENSE No. F-0342 5438 Wade Park Boulevard, Suite 200 Charlotte, NC 27207 (919) 854-6200 • (919) 854-6259 FAX</small>	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



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5/28/23

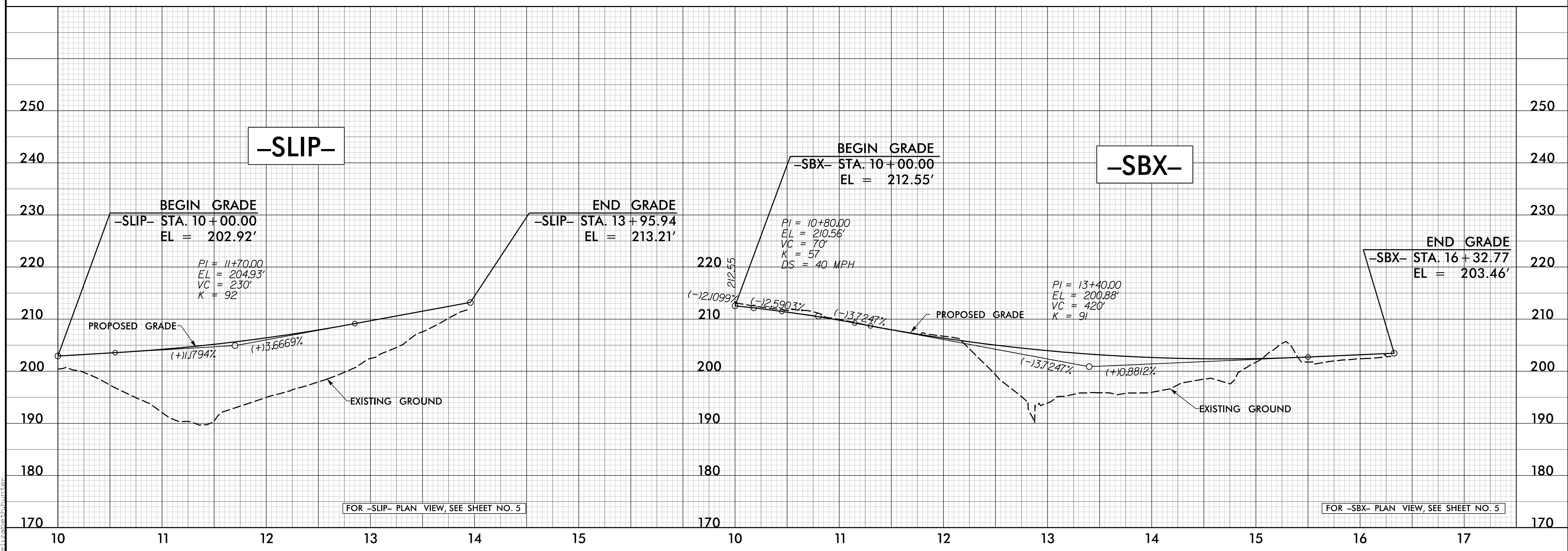
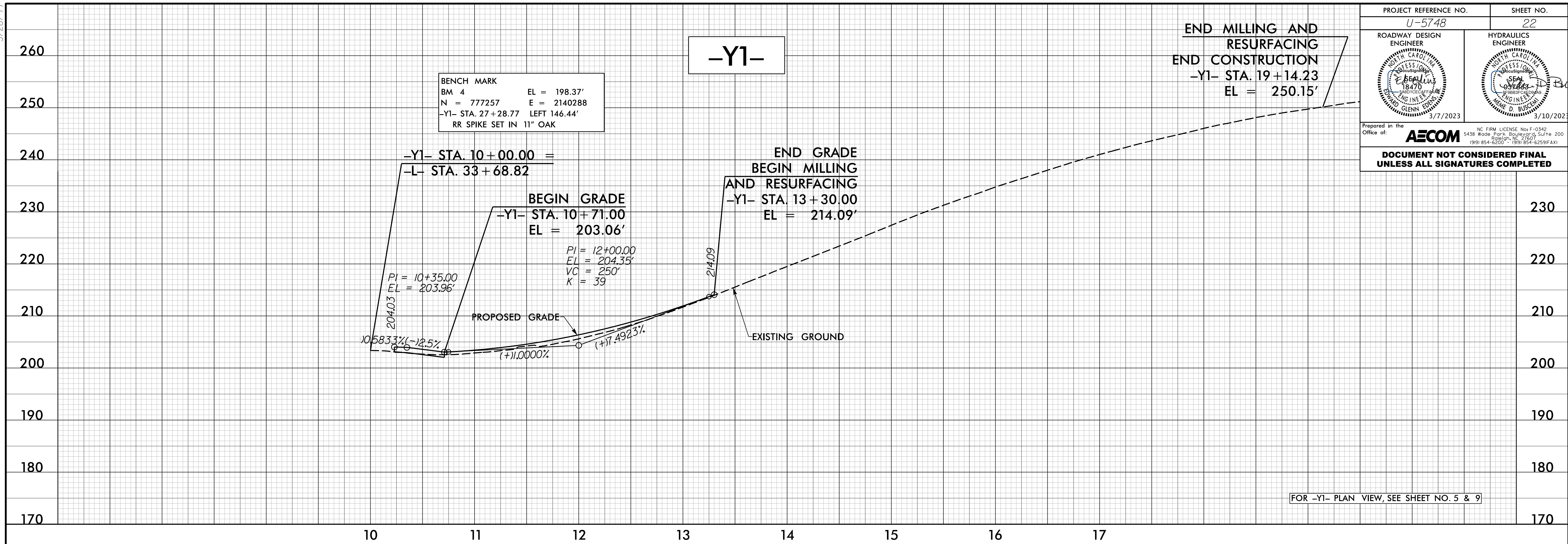
PROJECT REFERENCE NO. U-5748	SHEET NO. 21
ROADWAY DESIGN ENGINEER <i>[Signature]</i> 3/7/2023	HYDRAULICS ENGINEER <i>[Signature]</i> 3/10/2023
Prepared in the Office of: AECOM NC FIRM LICENSE Nos F-0342 5438 Wade Park Boulevard, Suite 200 Raleigh, NC 27617 (919) 854-6200 • (919) 854-6259 FAX1	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



1/5/2023
15/48.dwg of 121.dgn
elizabeth.hunter

5/28/23

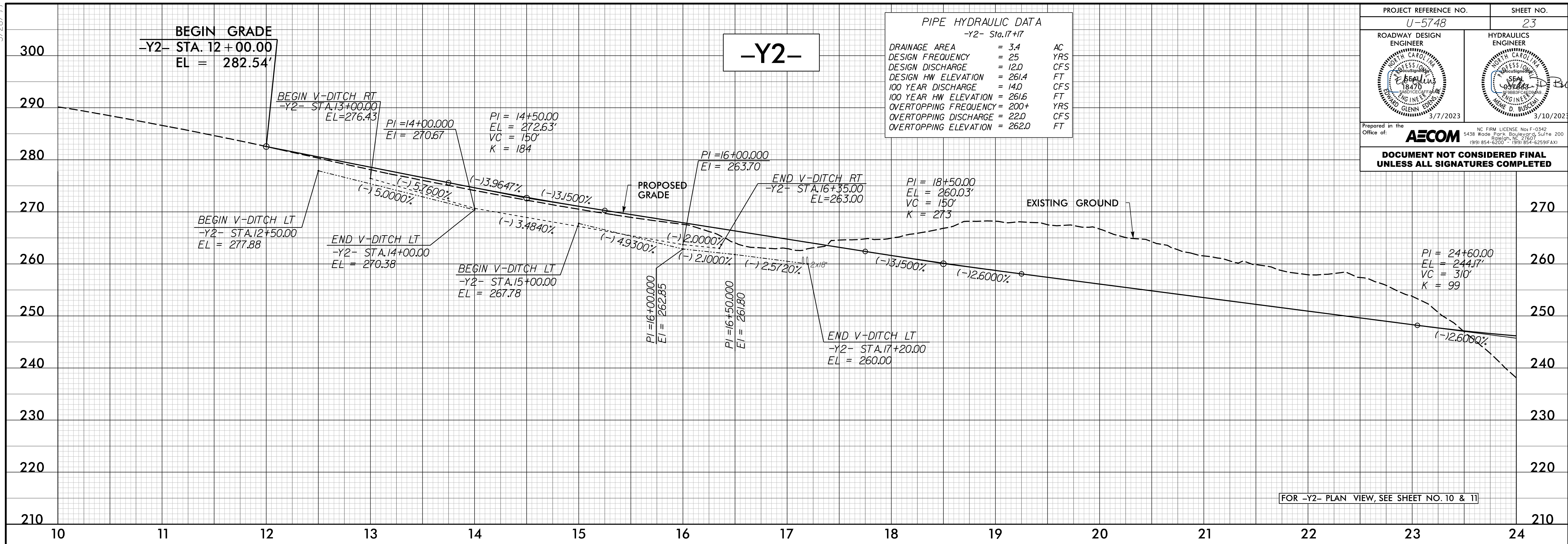
PROJECT REFERENCE NO. U-5748	SHEET NO. 22
ROADWAY DESIGN ENGINEER <i>[Signature]</i> 3/7/2023	HYDRAULICS ENGINEER <i>[Signature]</i> 3/10/2023
Prepared in the Office of: AECOM 5438 Wade Park Boulevard, Suite 200 Raleigh, NC 27617 (919) 854-6200 • (919) 854-6259(FAX)	
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1/5/2023 10:48:00 a.m. of 122.dgn elizabeth.hunter

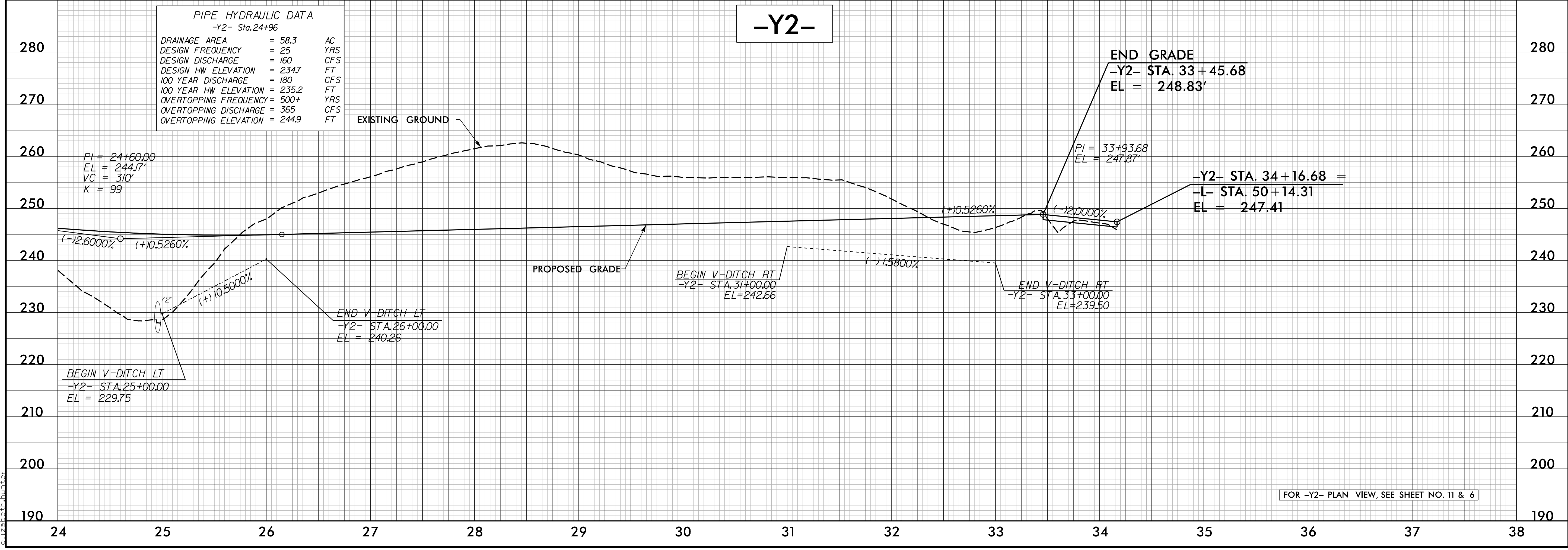
5/28/23

PROJECT REFERENCE NO. U-5748		SHEET NO. 23	
ROADWAY DESIGN ENGINEER <i>[Signature]</i> 3/7/2023		HYDRAULICS ENGINEER <i>[Signature]</i> 3/10/2023	
Prepared in the Office of: AECOM NC FIRM LICENSE No: F-0342 5438 Wade Park Boulevard, Suite 200 Raleigh, NC 27617 (919) 854-6200 • (919) 854-6259 FAX			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



PIPE HYDRAULIC DATA
-Y2- Sta. 17+17

DRAINAGE AREA	= 3.4	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 12.0	CFS
DESIGN HW ELEVATION	= 261.4	FT
100 YEAR DISCHARGE	= 14.0	CFS
100 YEAR HW ELEVATION	= 261.6	FT
OVERTOPPING FREQUENCY	= 200+	YRS
OVERTOPPING DISCHARGE	= 22.0	CFS
OVERTOPPING ELEVATION	= 262.0	FT



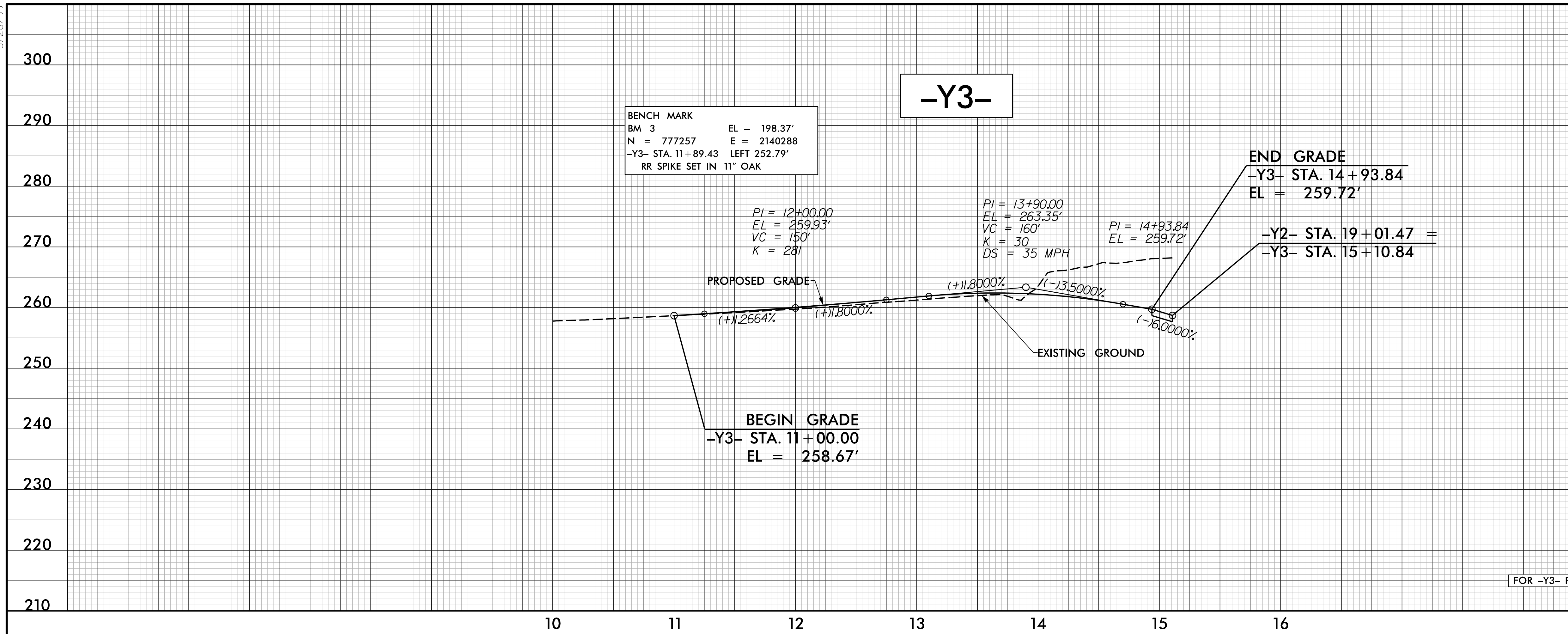
PIPE HYDRAULIC DATA
-Y2- Sta. 24+96

DRAINAGE AREA	= 58.3	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 160	CFS
DESIGN HW ELEVATION	= 234.7	FT
100 YEAR DISCHARGE	= 180	CFS
100 YEAR HW ELEVATION	= 235.2	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 365	CFS
OVERTOPPING ELEVATION	= 244.9	FT

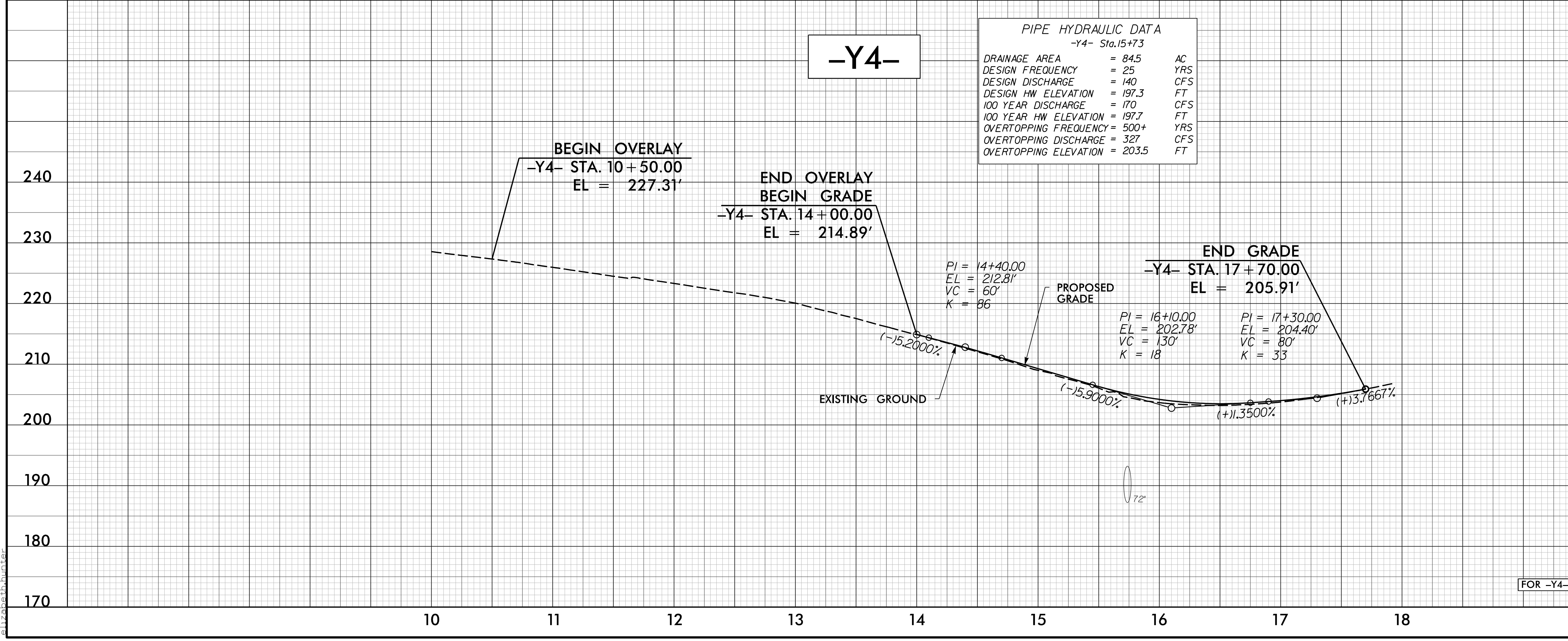
1/5/2023
15748.dwg of 123.dgn
elizabeth.hunter

5/28/23

PROJECT REFERENCE NO. U-5748	SHEET NO. 24
ROADWAY DESIGN ENGINEER <i>[Signature]</i> 3/7/2023	HYDRAULICS ENGINEER <i>[Signature]</i> 3/10/2023
Prepared in the Office of: AECOM 5438 Wade Park Boulevard, Suite 200 Raleigh, NC 27612 (919) 854-6200 • (919) 854-6259 FAX	
NC FIRM LICENSE No. F-0342	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

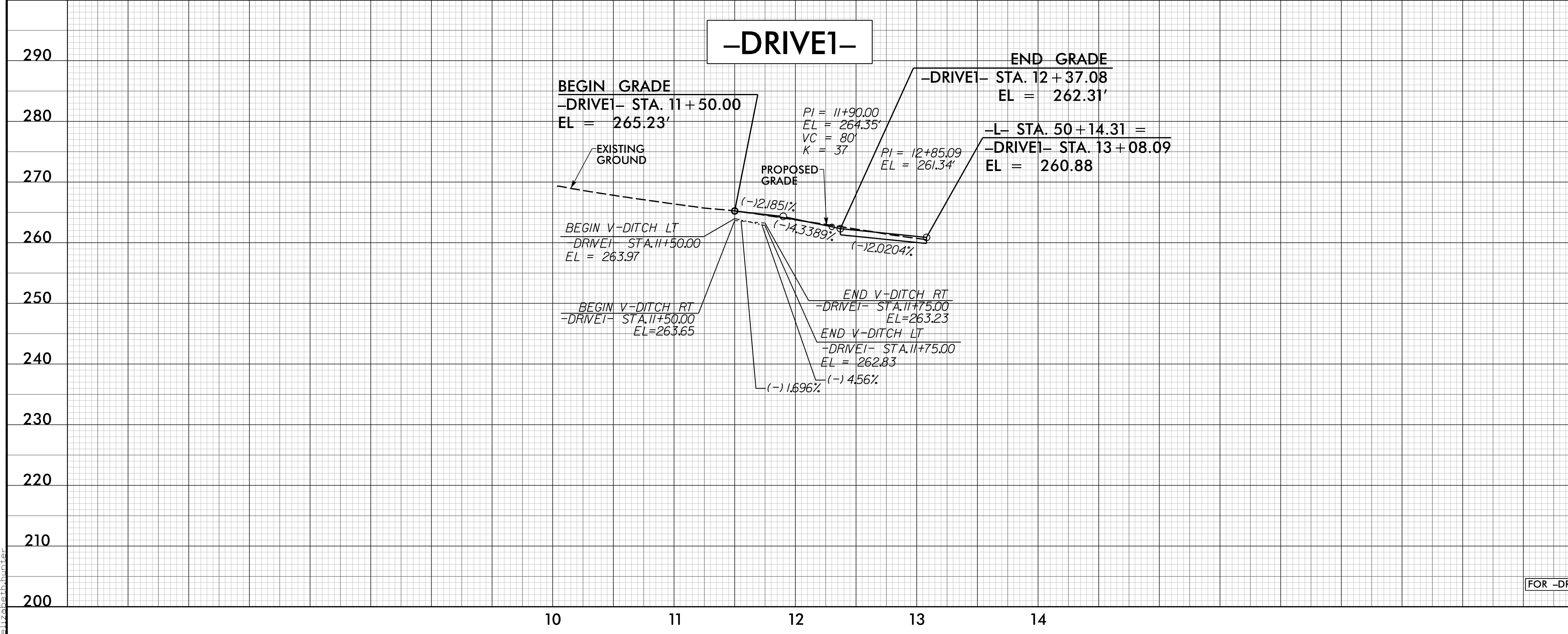
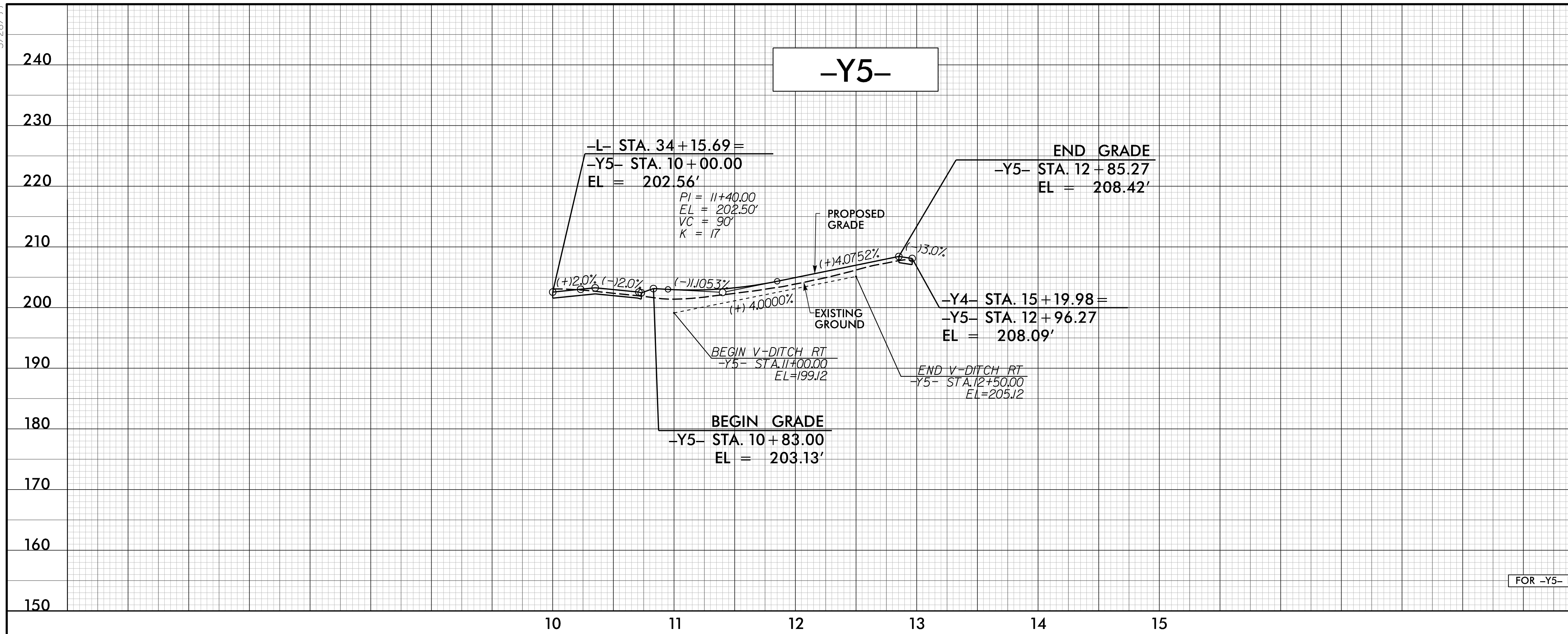


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5/28/23

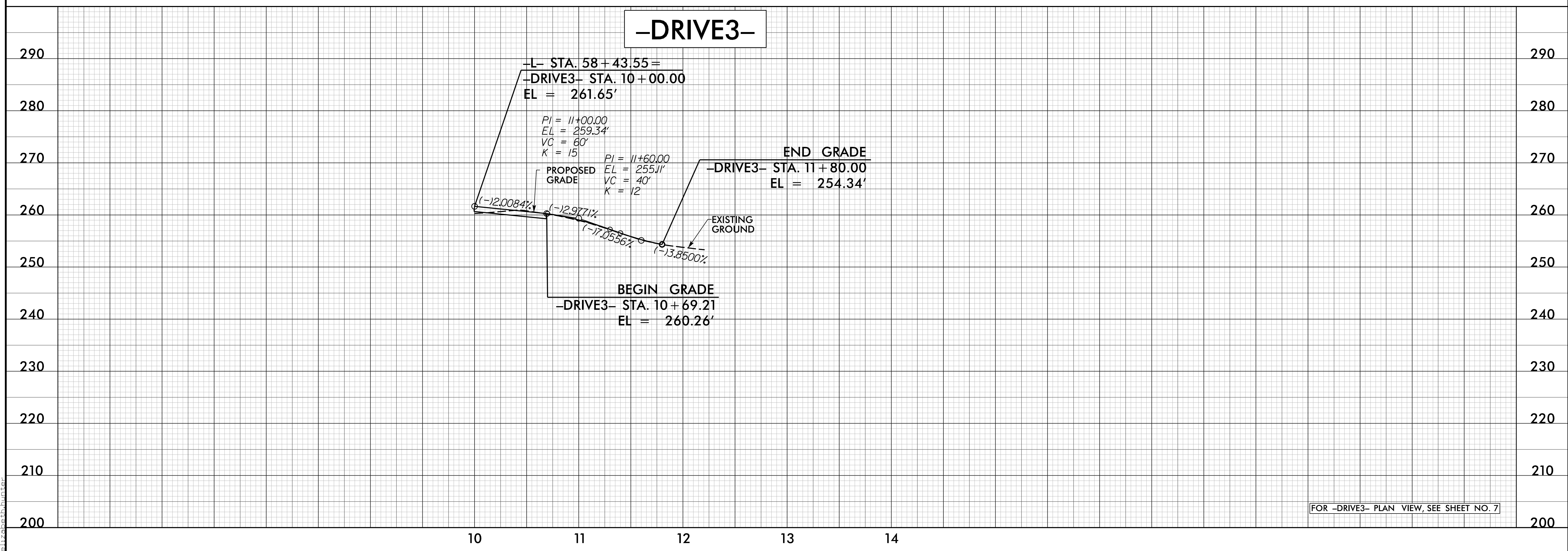
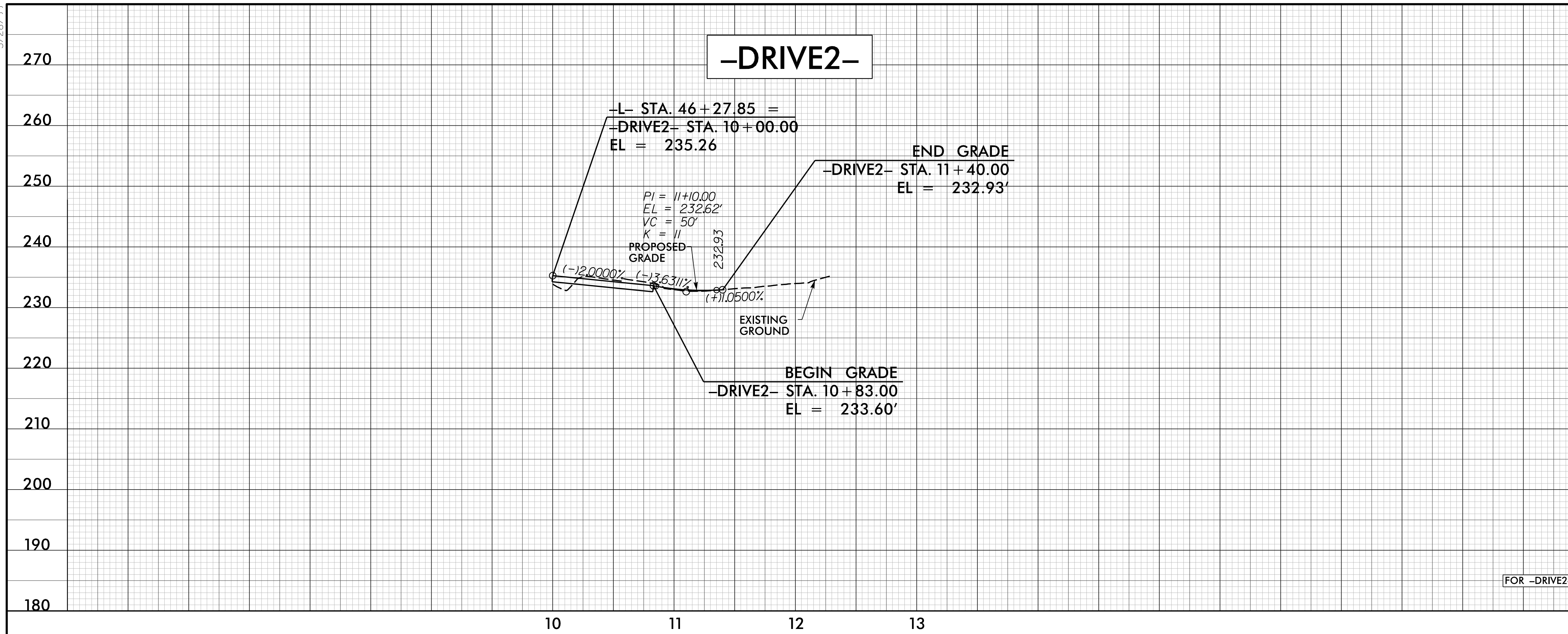
PROJECT REFERENCE NO. U-5748		SHEET NO. 25	
ROADWAY DESIGN ENGINEER <i>[Signature]</i> 3/7/2023		HYDRAULICS ENGINEER <i>[Signature]</i> 3/10/2023	
Prepared in the Office of: AECOM		NC FIRM LICENSE Nos F-0342 5438 Wade Park Boulevard, Suite 200 Raleigh, NC 27617 (919) 854-6200 • (919) 854-6259(FAX)	
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elizabeth.hunter

5/28/23

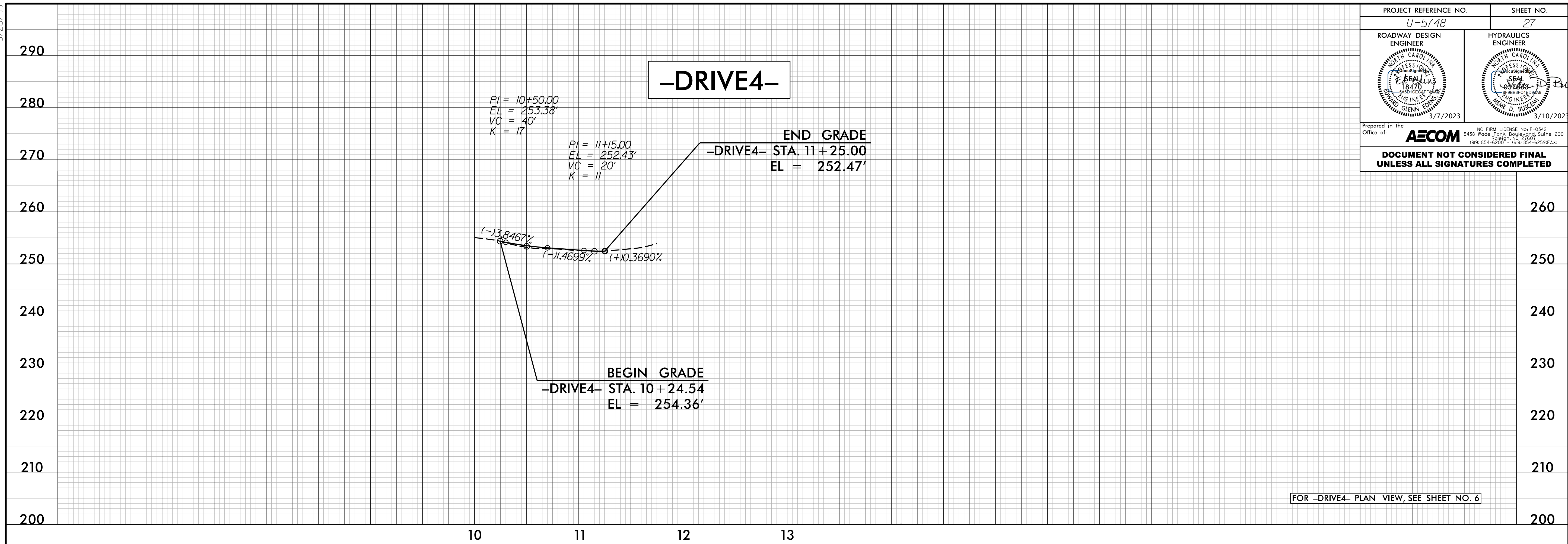
PROJECT REFERENCE NO. U-5748	SHEET NO. 26
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER
Prepared in the Office of: AECOM	NC FIRM LICENSE Nos F-0342 5438 Wade Park Boulevard, Suite 200 Raleigh, NC 27617 (919) 854-6200 • (919) 854-6259 FAX1
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



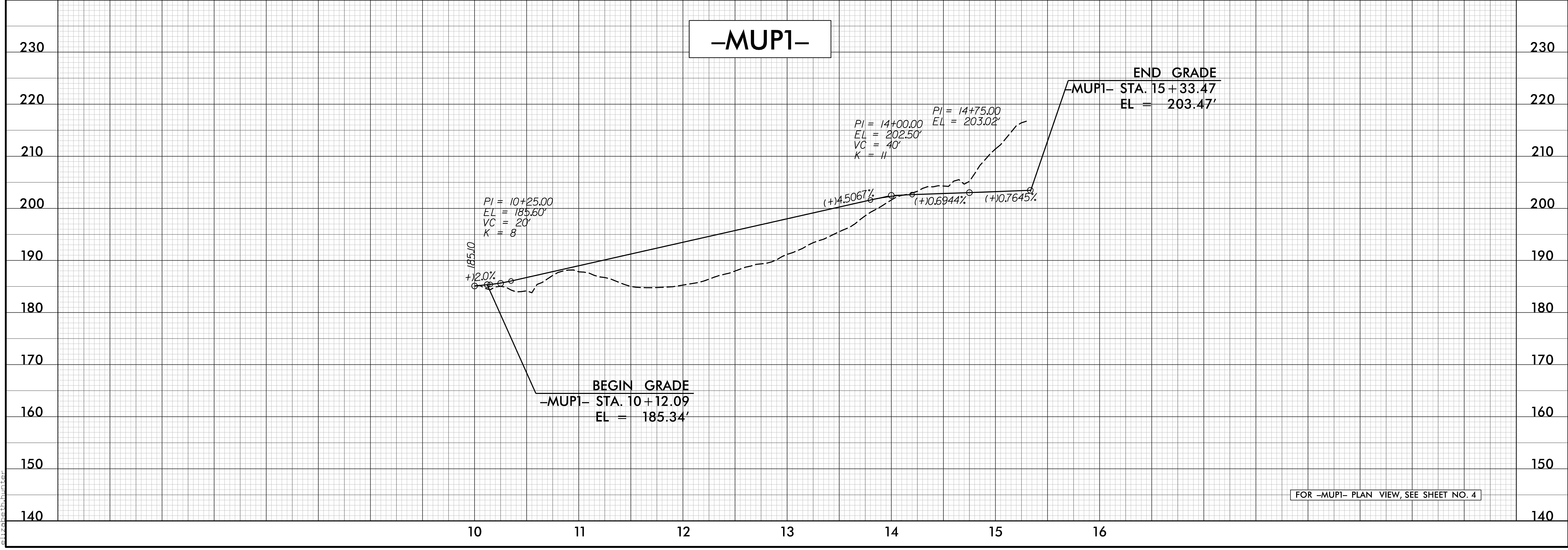
1/5/2023 10:12:26 AM
elizabeth.hunter

5/28/23

PROJECT REFERENCE NO. U-5748	SHEET NO. 27
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER
Prepared in the Office of: AECOM	NC FIRM LICENSE No. F-0342 5438 Wade Park Boulevard, Suite 200 Raleigh, NC 27617 (919) 854-6200 • (919) 854-6259 FAX
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

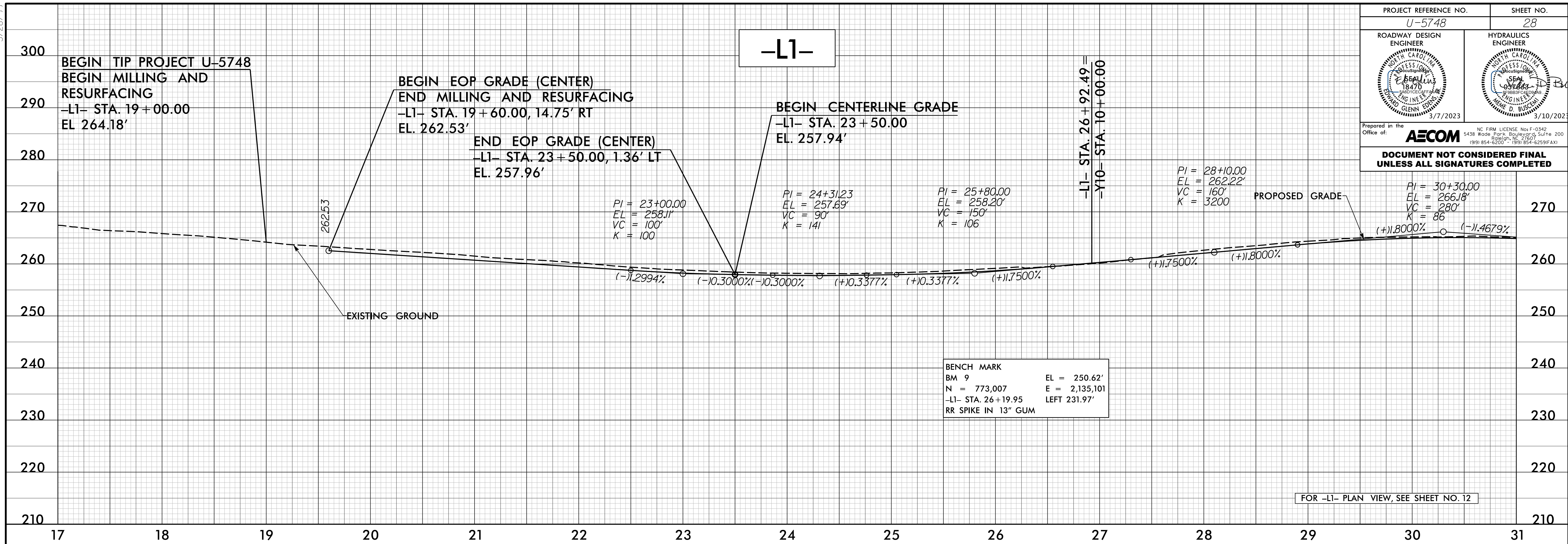


1/5/2023 10:48:48 am elizabeth.hester



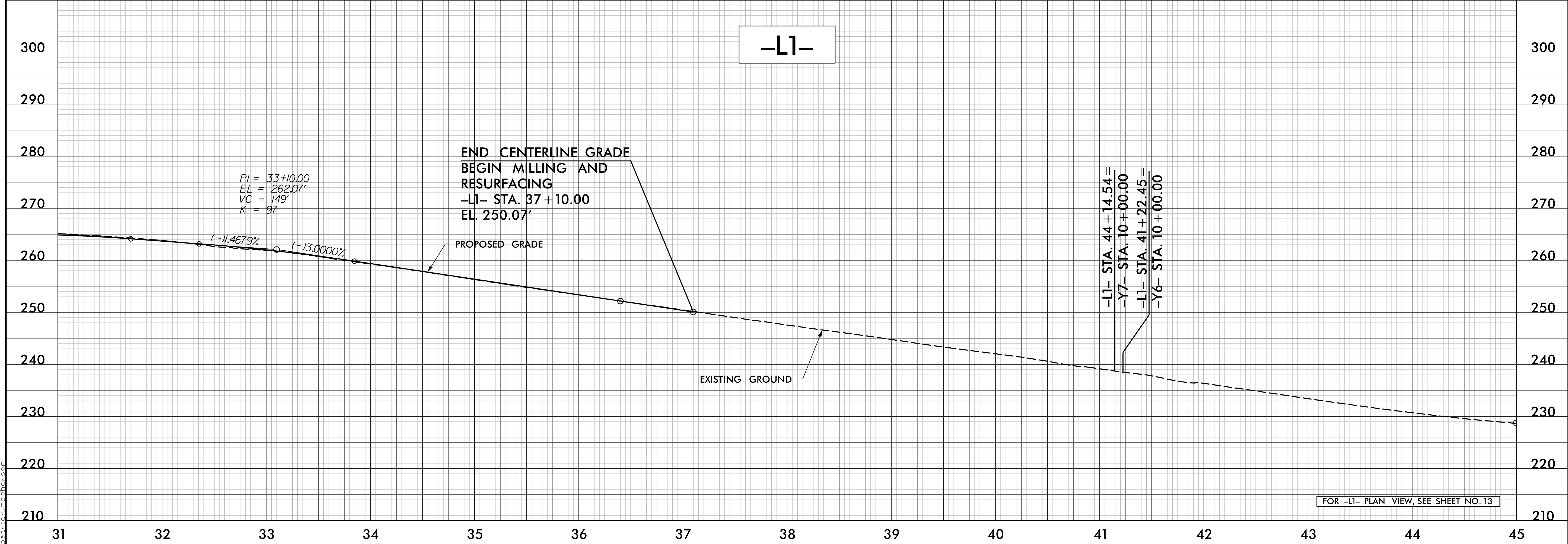
5/28/23

PROJECT REFERENCE NO. U-5748		SHEET NO. 28	
ROADWAY DESIGN ENGINEER <i>[Signature]</i> 3/7/2023		HYDRAULICS ENGINEER <i>[Signature]</i> 3/10/2023	
Prepared in the Office of: AECOM NC FIRM LICENSE No. F-0342 5438 Wade Park Boulevard, Suite 200 Raleigh, NC 27617 (919) 854-6200 • (919) 854-6259 FAX			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



FOR -L1- PLAN VIEW, SEE SHEET NO. 12

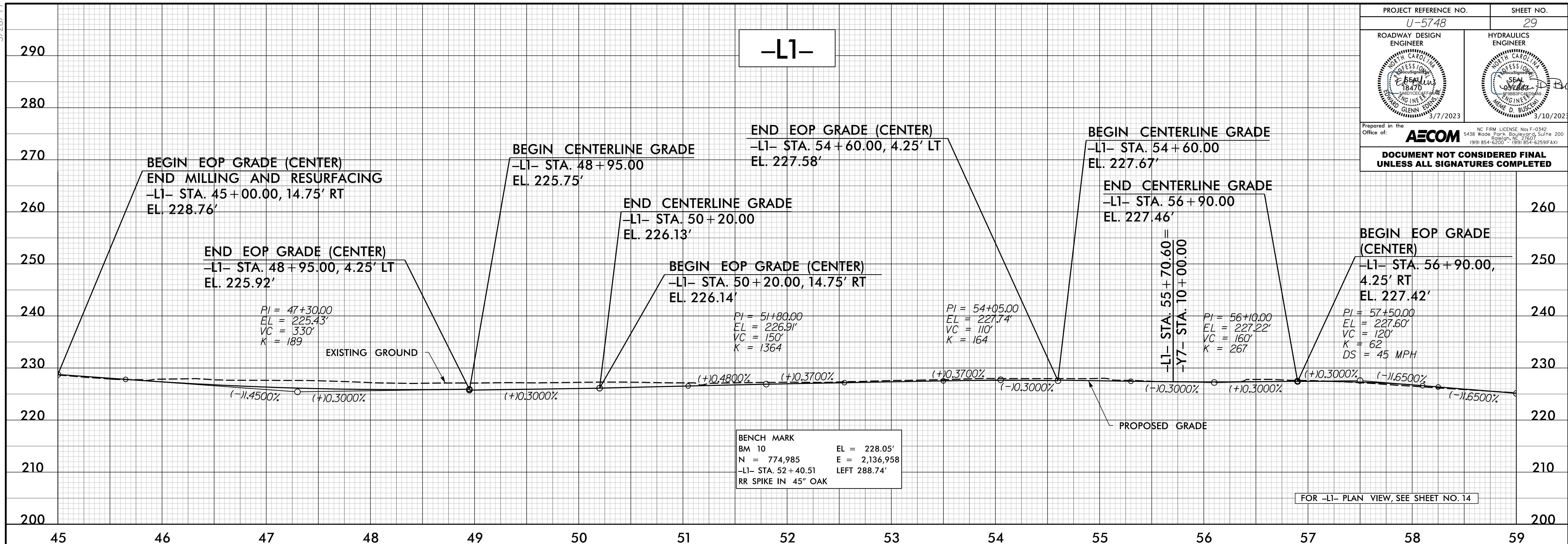
2/6/2023
06:37:48
patrick.mph...@aecom.com



FOR -L1- PLAN VIEW, SEE SHEET NO. 13

5/28/23

PROJECT REFERENCE NO. U-5748		SHEET NO. 29	
ROADWAY DESIGN ENGINEER 		HYDRAULICS ENGINEER 	
Prepared in the Office of: AECOM NC FIRM LICENSE No. F-0342 5438 Wade Park Boulevard, Suite 200 Raleigh, NC 27617 (919) 854-6200 • (919) 854-6259 FAX			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



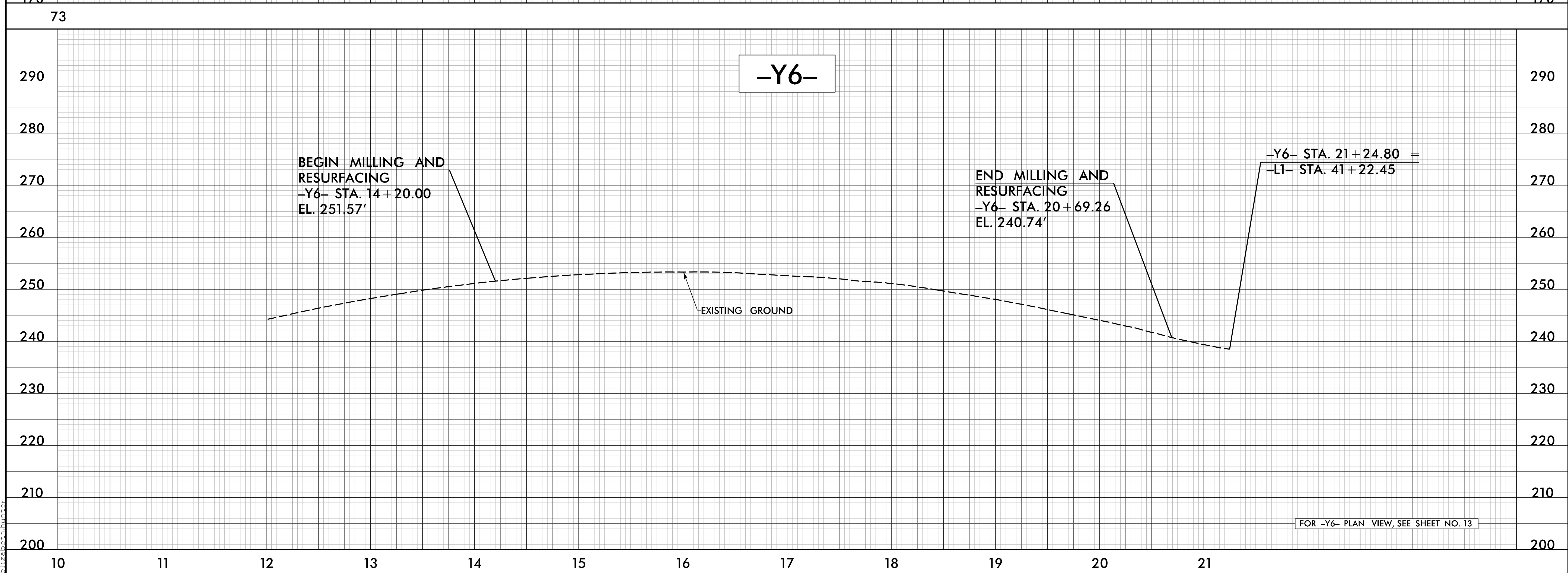
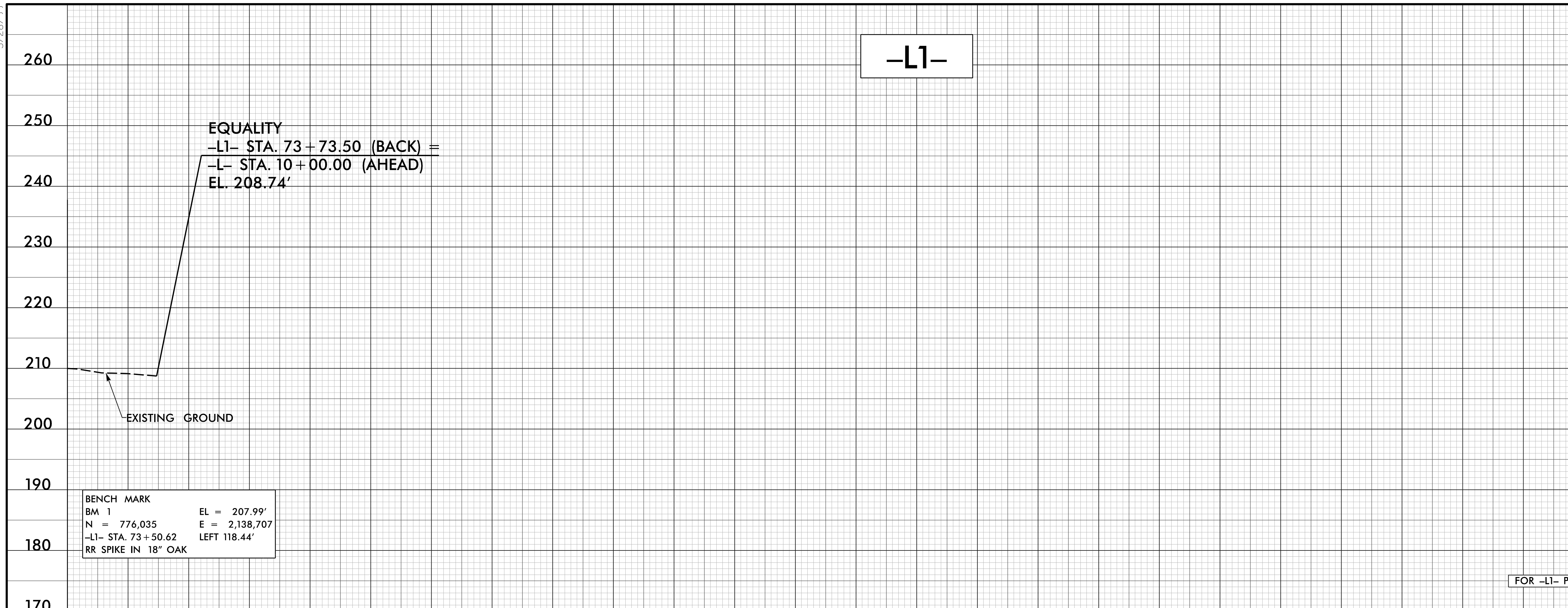
BENCH MARK
 BM 10 EL = 228.05'
 N = 774,985 E = 2,136,958
 -L1- STA. 52+40.51 LEFT 288.74'
 RR SPIKE IN 45" OAK



1/5/2023 10:48:00 am of 129.dgn elizabeth.hunter

5/28/23

PROJECT REFERENCE NO. <i>U-5748</i>	SHEET NO. <i>30</i>
ROADWAY DESIGN ENGINEER <i>[Signature]</i> 3/7/2023	HYDRAULICS ENGINEER <i>[Signature]</i> 3/10/2023
Prepared in the Office of: AECOM NC FIRM LICENSE Nos F-0342 5438 Wade Park Boulevard, Suite 200 Raleigh, NC 27617 (919) 854-6200 • (919) 854-6259(FAX)	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



1/5/2023 10:13:00.dgn
elizabeth.hunter