PROJECT REFERENCE NO.	SHEET NO.
I-5987A	2D-4

STRUCTURE DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 019661 ENGINEER J. KEVIN AUSTIN
Digitally signed by J. Kevin Austin
5/6/2022

5/6/2022

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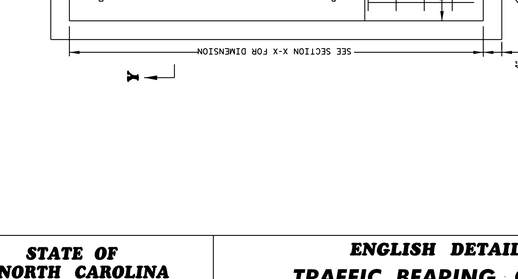
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR TRAFFIC BEARING GRATED INLET FOR 60" REINFORCED CONCRETE PIPE

SHEET 2 OF 2 — 840D36

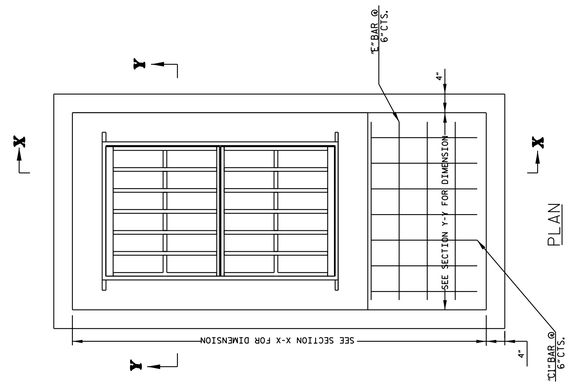


PLAN OF BASE

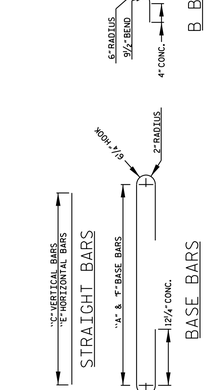
BILL OF MATERIALS

BAR	SIZE	LENGTH	QUANTITY	WEIGHT
A	#5	6'-3"	9	60
B	#5	6'-3"	22	184
C	#5	8'-6"	22	170
C1	#5	3'-2"	22	103
D	#5	7'-6"	64	503
E	#5	3'-0"	76	238
F	#5	10'-1"	4	46
G	#5	1'-7"	60	99
REINF. STEEL (TOTAL WEIGHT (LBS.)				1321
CONCRETE TOTAL (CU.YDS.) CLASS 'AA'				5.1
NO DEDUCTIONS HAVE BEEN MADE TO ACCOMMODATE PIPES				

FOR EVERY 1 FOOT OF RISER USE 0.41 CU.YDS CONCRETE AND 151 LBS STEEL.



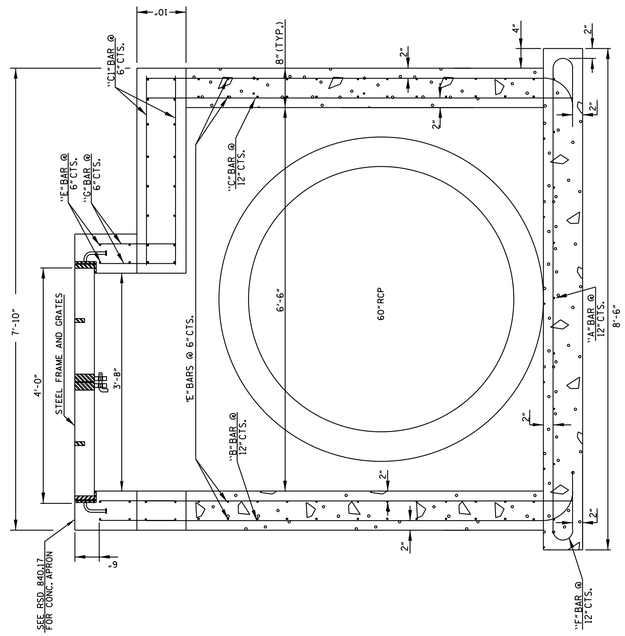
PLAN



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

ENGLISH DETAIL DRAWING FOR TRAFFIC BEARING GRATED INLET FOR 60" REINFORCED CONCRETE PIPE

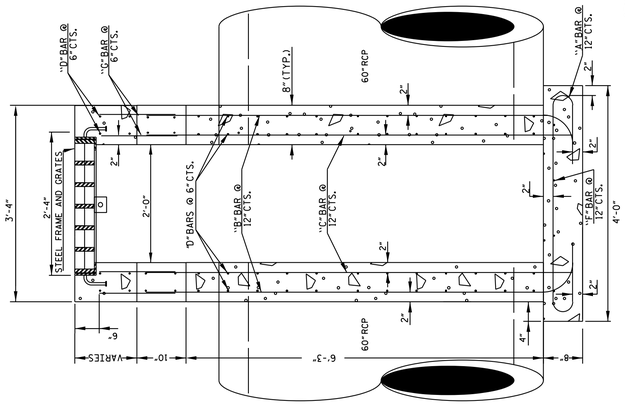
SHEET 1 OF 2 — 840D36



SECTION X-X

GENERAL NOTES:
-BUILD WITH CLASS 'AA' CONCRETE
-CHAMFER ALL EXPOSED CONCRETE CORNERS 3/4".
-USE FORMS TO CONSTRUCT THE BOTTOM SLAB.
-IF PIPES ARE SET IN THE BASE, FOLLOW CONSTRUCTION PROCEDURES SHOWN BY STD. DWG. 840.00.
-PRECAST UNITS CONCRETE MAY BE USED IN LIEU OF CAST IN PLACE CONCRETE.
-REFERENCE STD. DWG. 840.37 FOR FRAME ANCHORAGE.
-PROVIDE DROP INLETS OVER 3'-6" DEEP WITH STEPS AS DIRECTED BY STD. DWG. 840.66.
-FRAME AND GRATES ARE SEPARATE CONTRACT ITEM.

NOTES:
-HORIZONTAL (UP TO 10' MAX. IN BOTH DIRECTIONS) AND VERTICAL (UP TO 14' MAX.) DIMENSIONS MAY BE ADJUSTED AS THE FIELD CONDITIONS AND/OR ALTERNATE DESIGNS REQUIRE.
-ALL ADJUSTMENTS ARE TO BE MADE AS DIRECTED BY THE ENGINEER.



SECTION Y-Y

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

ENGLISH DETAIL DRAWING FOR TRAFFIC BEARING GRATED INLET FOR 60" REINFORCED CONCRETE PIPE

SHEET 1 OF 2 — 840D36

PROJECT REFERENCE NO.	SHEET NO.
I-5987A	2G-1

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

DocuSigned by: Scott A. Hidden 02/25/2022 F760CAEB96FC4D3...

SIGNATURE DATE

ENGINEER

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

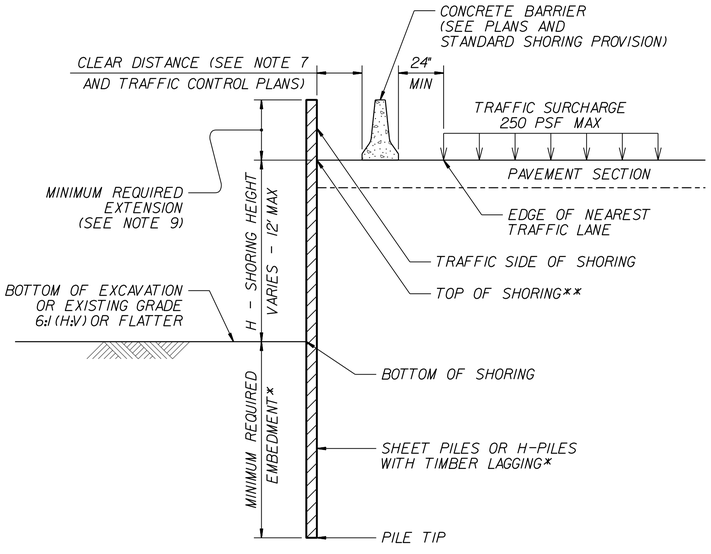
GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H-PILES WITH TIMBER LAGGING			SHEET PILES		H-PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS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

MINIMUM REQUIRED EMBEDMENT AND SECTION MODULUS

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

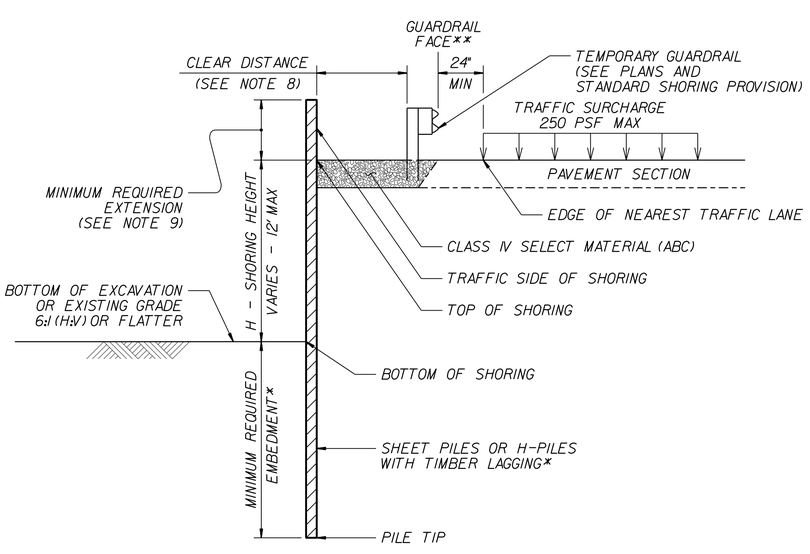
NOTES:

1. AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING AS NOTED IN THE PLANS.
2. FOR STANDARD TEMPORARY SHORING, SEE STANDARD SHORING PROVISION.
3. STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
   UNIT WEIGHT, γ = 120 PCF
   FRICTION ANGLE, ϕ = 30 DEGREES
   COHESION, c = 0 PSF
4. DO NOT USE STANDARD TEMPORARY SHORING IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
5. DO NOT USE STANDARD TEMPORARY SHORING WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS WITHIN THE EMBEDMENT DEPTH.
6. 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.
7. 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".
8. 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".
9. MINIMUM REQUIRED EXTENSION IS 6" FOR "SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT" AND 32" FOR "SURCHARGE CASE WITH TRAFFIC IMPACT".
10. 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.
11. 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
12. CONTACT THE ENGINEER IF PILES DO NOT ATTAIN THE MINIMUM REQUIRED EMBEDMENT.



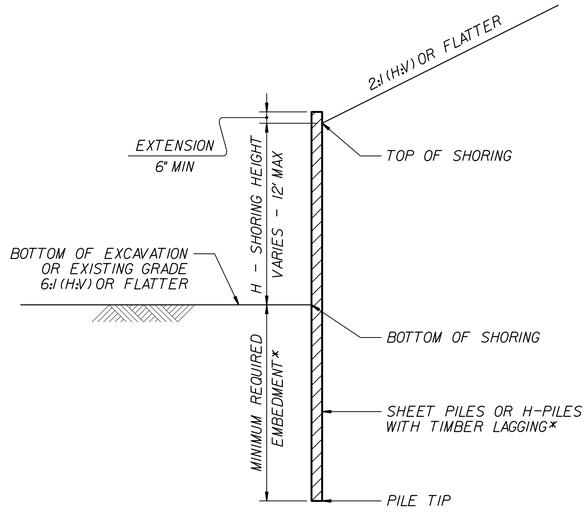
CONCRETE BARRIER

**TOP OF SHORING = EDGE OF PAVEMENT



TEMPORARY GUARDRAIL

**GUARDRAIL FACE = EDGE OF PAVEMENT



STANDARD TEMPORARY SHORING

(SLOPE CASE)

*SEE TABLE ABOVE.

STANDARD TEMPORARY SHORING

(SURCHARGE CASE)

*SEE TABLE ABOVE.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

STANDARD DETAIL NO. 1801.01

STANDARD TEMPORARY SHORING

DATE: 11-19-13

PROJECT REFERENCE NO.	SHEET NO.
I-5987A	2G-2

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

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ENGINEER

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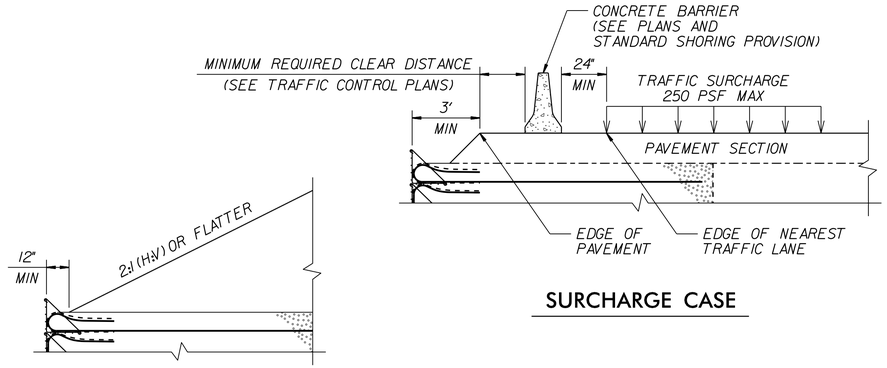
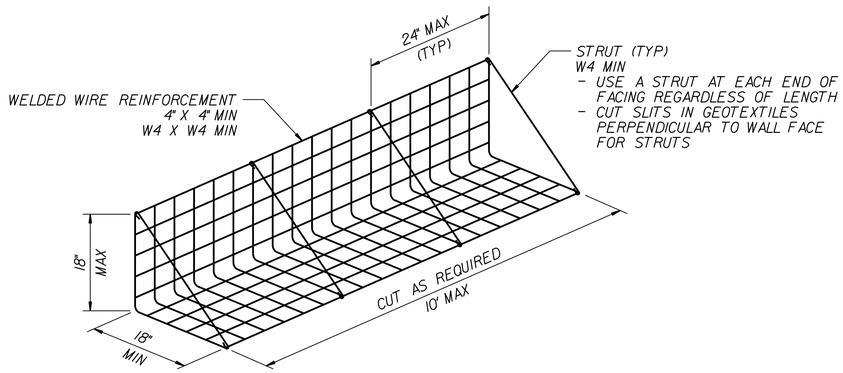
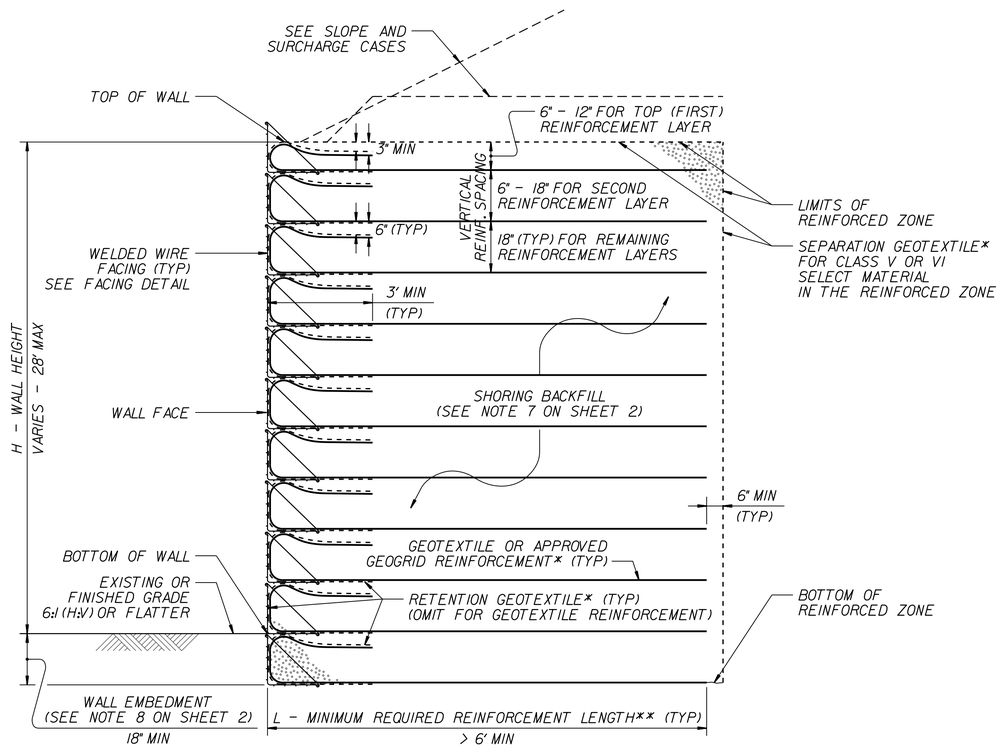


SURCHARGE CASE

SLOPE CASE

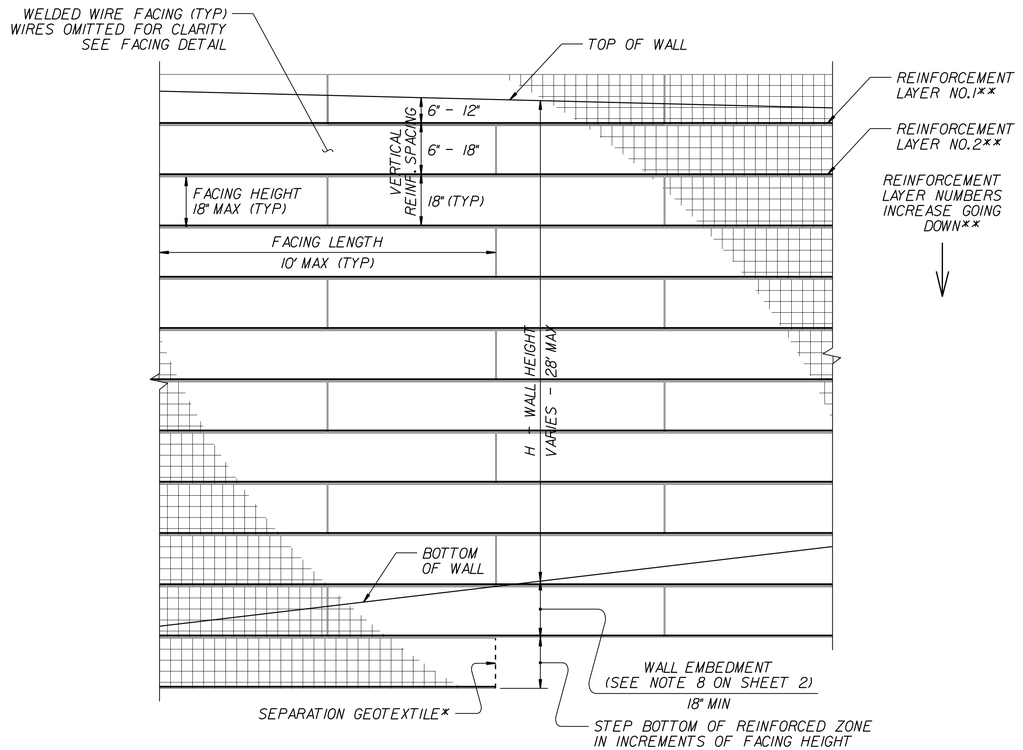


FACING DETAIL



STANDARD TEMPORARY WALL

(FOR STANDARD TEMPORARY WALLS ON STRUCTURES, SEE TEMPORARY WALL ON STRUCTURE DETAIL ON SHEET 2.)
*SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.
**SEE REINFORCEMENT TABLES ON SHEET 3.



STANDARD TEMPORARY WALL – PARTIAL ELEVATION

*SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.
**SEE REINFORCEMENT TABLES ON SHEET 3.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

STANDARD DETAIL NO. 1801.02

STANDARD
TEMPORARY WALL
SHEET 1 OF 3

DATE: 11-19-13

PROJECT REFERENCE NO.	SHEET NO.
I-5987A	2G-3

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

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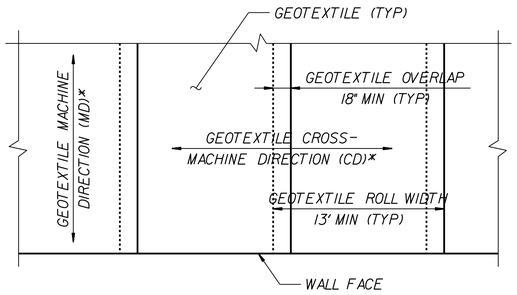
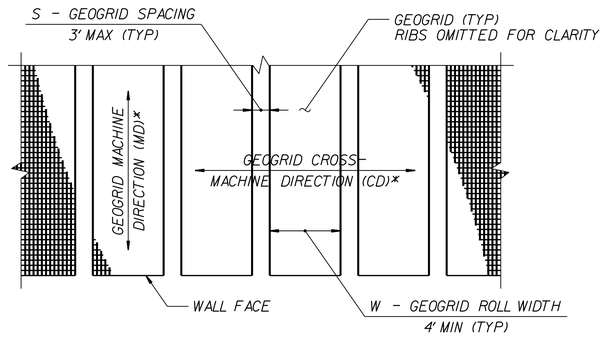


GEOTEXTILE PLACEMENT

(100% COVERAGE MIN FOR GEOTEXTILE REINFORCEMENT)

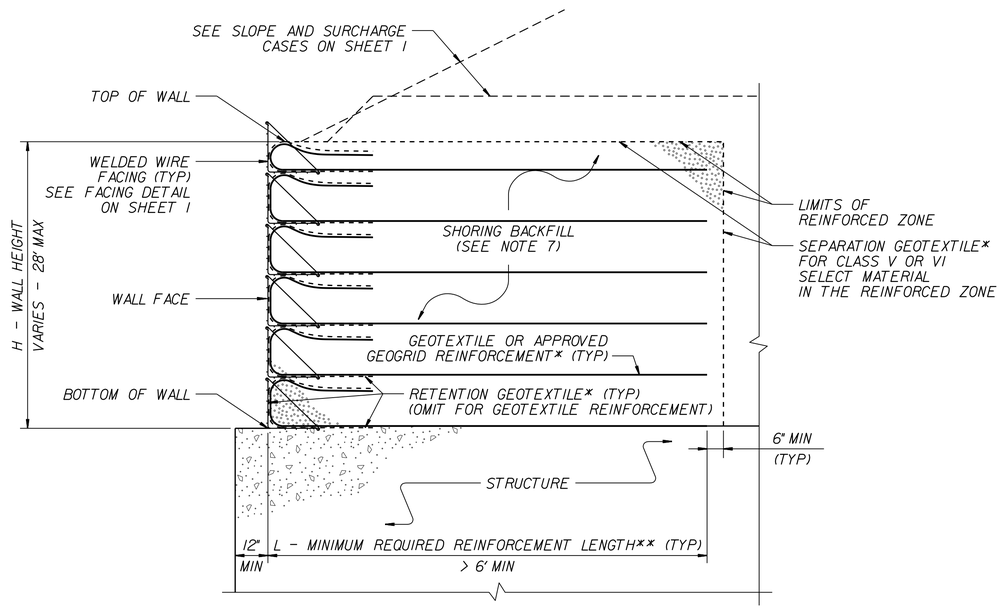


GEOGRID PLACEMENT

(80% COVERAGE MIN FOR GEOGRID REINFORCEMENT – $\frac{W}{W+S}$ x 100 $\geq$ 80%, SEE NOTE 11)

GEOSYNTHETIC PLACEMENT DETAILS

(PLAN VIEW)
*SEE NOTE 12.



TEMPORARY WALL ON STRUCTURE DETAIL

*SEE GEOSYNTHETIC PLACEMENT DETAILS.
**SEE REINFORCEMENT TABLES ON SHEET 3.

NOTES:

1. AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY WALLS AS NOTED IN THE PLANS.
2. FOR STANDARD TEMPORARY WALLS, SEE STANDARD SHORING PROVISION.
3. STANDARD TEMPORARY WALLS ARE BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
   UNIT WEIGHT, γ = 120 PCF
   FRICTION ANGLE, ϕ = 30 DEGREES
   COHESION, c = 0 PSF
4. DO NOT USE STANDARD TEMPORARY WALLS IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
5. DO NOT USE STANDARD TEMPORARY WALLS WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS BELOW TEMPORARY WALLS.
6. USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, ASSUME GROUNDWATER DEPTH IS LESS THAN 7' BELOW BOTTOM OF REINFORCED ZONE. DO NOT USE STANDARD TEMPORARY WALLS IF GROUNDWATER OR FLOOD ELEVATION IS ABOVE BOTTOM OF REINFORCED ZONE.
7. DO NOT USE A-2-4 SOIL FOR STANDARD TEMPORARY WALLS AROUND CULVERTS OR IN THE REINFORCED ZONE OF STANDARD TEMPORARY WALLS FOR SLOPE CASES. DO NOT USE CLASS VI SELECT MATERIAL IN THE REINFORCED ZONE OF STANDARD TEMPORARY WALLS WITH GEOTEXTILE REINFORCEMENT.
8. WALL EMBEDMENT IS NOT REQUIRED FOR STANDARD TEMPORARY WALLS ON STRUCTURES OR ROCK AS DETERMINED BY THE ENGINEER.
9. DO NOT USE MORE THAN 4 DIFFERENT REINFORCEMENT STRENGTHS FOR EACH STANDARD TEMPORARY WALL.
10. GEOGRIDS FOR GEOGRID REINFORCEMENT ARE APPROVED FOR SHORT TERM DESIGN STRENGTHS (3-YEAR DESIGN LIFE) IN THE MD AND CD BASED ON MATERIAL TYPE. THE LIST OF APPROVED GEOGRIDS WITH DESIGN STRENGTHS IS AVAILABLE FROM: connect.ncdot.gov/resources/Geological/Pages/Products.aspx
    DEFINE MATERIAL TYPE FROM THE WEBSITE ABOVE FOR SHORING BACKFILL AS FOLLOWS:

MATERIAL TYPE	SHORING BACKFILL
BORROW	A-2-4 SOIL
FINE AGGREGATE	CLASS II, TYPE I OR CLASS III SELECT MATERIAL
COARSE AGGREGATE	CLASS V OR VI SELECT MATERIAL

11. FOR GEOGRID REINFORCEMENT WITH LESS THAN 100% COVERAGE, STAGGER REINFORCEMENT SO GEOGRIDS ARE CENTERED OVER GAPS IN THE REINFORCEMENT LAYER BELOW.
12. AT THE CONTRACTOR'S OPTION, REINFORCEMENT MAY BE INSTALLED WITH THE MD PARALLEL TO THE WALL FACE IF BOTH OF THE FOLLOWING CONDITIONS OCCUR:
    - W (REINFORCEMENT ROLL WIDTH) $\geq$ (MINIMUM REQUIRED REINFORCEMENT LENGTH) + 4.5' AND
    - REINFORCEMENT STRENGTH IN CD $\geq$ MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD.
13. SUBMIT A "STANDARD TEMPORARY WALL SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY WALL CONSTRUCTION. STANDARD SHORING SELECTION FORMS ARE AVAILABLE FROM: connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx
14. DO NOT PLACE SHORING BACKFILL OR REINFORCEMENT UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.
15. FOR STANDARD TEMPORARY WALLS WITH PILE FOUNDATIONS IN THE REINFORCED ZONE, DRIVE PILES THROUGH REINFORCEMENT AFTER CONSTRUCTING TEMPORARY WALLS.
16. DO NOT SPLICE OR OVERLAP REINFORCEMENT SO SEAMS ARE PARALLEL TO THE WALL FACE.
17. CONTACT THE ENGINEER WHEN EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, PAVEMENTS, PIPES, INLETS OR UTILITIES WILL INTERFERE WITH REINFORCEMENT.
18. FOR STANDARD TEMPORARY WALLS WITH INTERIOR ANGLES LESS THAN 90 DEGREES, WRAP GEOSYNTHETICS AT ACUTE CORNERS AS DIRECTED BY THE ENGINEER.
19. FOR STANDARD TEMPORARY WALLS WITH TOP OF WALL WITHIN 5' OF FINISHED GRADE, REMOVE TOP FACING AND INCORPORATE TOP REINFORCEMENT LAYER INTO FILL WHEN PLACING FILL IN FRONT OF WALL.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

STANDARD DETAIL NO. 1801.02

STANDARD TEMPORARY WALL SHEET 2 OF 3

DATE: 10-19-21

PROJECT REFERENCE NO.	SHEET NO.
I-5987A	2G-4

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

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SIGNATURE DATE

ENGINEER

SIGNATURE DATE

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SLOPE OR SURCHARGE CASE	GROUNDWATER DEPTH BELOW BOTTOM OF REINFORCED ZONE (SEE NOTE 6 ON SHEET 2) (FT)	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)	H - WALL HEIGHT (FT)																								
			< 4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
SLOPE CASE	> 0	CLASS II,TYPE I, CLASS III,CLASS V OR CLASS VI SELECT MATERIAL	6	6	7	8	9	11	12	13	13	14	15	16	17	18	19	20	21	22	23	24	24	25	26	27	27
SURCHARGE CASE	> 0 TO 7 FOR H < 20' > 0 TO 10 FOR H ≥ 20'	ALL SHORING BACKFILL TYPES	6	7	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	17	17	18	19	19	20	21	22
	> 7 FOR H < 20' > 10 FOR H ≥ 20'	A-2-4 SOIL	6	6	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	16	17	18	18	19	20	20	21
		CLASS II,TYPE I OR CLASS III SELECT MATERIAL	6	6	7	7	8	8	9	10	10	11	11	12	12	13	14	15	15	16	16	17	17	18	18	19	20
		CLASS V OR CLASS VI SELECT MATERIAL	6	6	7	7	7	8	8	9	9	10	10	11	12	13	13	14	14	15	15	16	17	17	18	19	19

L – MINIMUM REQUIRED REINFORCEMENT LENGTH (FT)

(FOR ALL REINFORCEMENT TYPES)

REINFORCEMENT LAYER NUMBER*	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)				
	SLOPE CASE		SURCHARGE CASE		
	CLASS II,TYPE I OR CLASS III SELECT MATERIAL	CLASS V SELECT MATERIAL	A-2-4 SOIL	CLASS II,TYPE I OR CLASS III SELECT MATERIAL	CLASS V SELECT MATERIAL
1	2400	2400	2400	2400	2400
2	2400	2400	2400	2400	2400
3	2400	2400	2400	2400	2400
4	2400	2400	2500	2400	2400
5	2500	2400	3000	2400	2400
6	3000	2400	3500	2800	2400
7	3500	2700	4000	3200	2600
8	4000	3100	4500	3600	2900
9	4500	3500	5000	4000	3200
10	5000	3900	5500	4400	3500
11	5500	4300	6000	4800	3800
12	6000	4700	6500	5200	4100
13	6500	5100	7000	5600	4400
14	7000	5400	7500	6000	4700
15	7500	5800	8000	6400	5000
16	8000	6200	8500	6800	5300
17	8500	6600	9000	7200	5600
18	9000	7000	9500	7600	5900
19	9500	7400	10000	8000	6200
20	10000	7800	10500	8400	6500

GEOTEXTILE REINFORCEMENT
ULTIMATE TENSILE STRENGTH (LB/FT)

REINFORCEMENT LAYER NUMBER*	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)				
	SLOPE CASE		SURCHARGE CASE		
	CLASS II,TYPE I OR CLASS III SELECT MATERIAL	CLASS V OR CLASS VI SELECT MATERIAL	A-2-4 SOIL	CLASS II,TYPE I OR CLASS III SELECT MATERIAL	CLASS V OR CLASS VI SELECT MATERIAL
1	240	200	340	290	240
2	380	310	520	430	350
3	530	420	700	570	460
4	690	550	870	720	570
5	860	690	1050	860	680
6	1030	830	1220	1000	790
7	1200	970	1400	1150	900
8	1370	1110	1580	1290	1010
9	1550	1240	1750	1430	1120
10	1720	1380	1930	1580	1230
11	1890	1520	2100	1720	1340
12	2060	1660	2280	1860	1450
13	2240	1800	2450	2010	1560
14	2410	1940	2630	2150	1670
15	2580	2080	2800	2290	1780
16	2750	2220	2980	2440	1890
17	2930	2360	3160	2580	2000
18	3100	2500	3330	2720	2110
19	3270	2640	3510	2860	2220
20	3440	2780	3690	3000	2330

GEOGRID REINFORCEMENT
SHORT–TERM DESIGN STRENGTH (LB/FT)
(SEE NOTE 10 ON SHEET 2.)

WALL HEIGHT (H) + WALL EMBEDMENT (FT)	NUMBER OF REINFORCEMENT LAYERS*
2.5 - 4	3
4 - 5.5	4
5.5 - 7	5
7 - 8.5	6
8.5 - 10	7
10 - 11.5	8
11.5 - 13	9
13 - 14.5	10
14.5 - 16	11
16 - 17.5	12
17.5 - 19	13
19 - 20.5	14
20.5 - 22	15
22 - 23.5	16
23.5 - 25	17
25 - 26.5	18
26.5 - 28	19
28 - 29.5	20

*BASED ON VERTICAL REINFORCEMENT SPACING SHOWN ON SHEET 1.

MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD

(SEE NOTE 9 ON SHEET 2.)
*SEE PARTIAL ELEVATION ON SHEET 1
FOR REINFORCEMENT LAYER NUMBERING.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

STANDARD DETAIL NO. 1801.02

STANDARD
TEMPORARY WALL
SHEET 3 OF 3

DATE: 11-19-13

PROJECT REFERENCE NO.	SHEET NO.
I-5987A	2G-5

GEOTECHNICAL ENGINEER

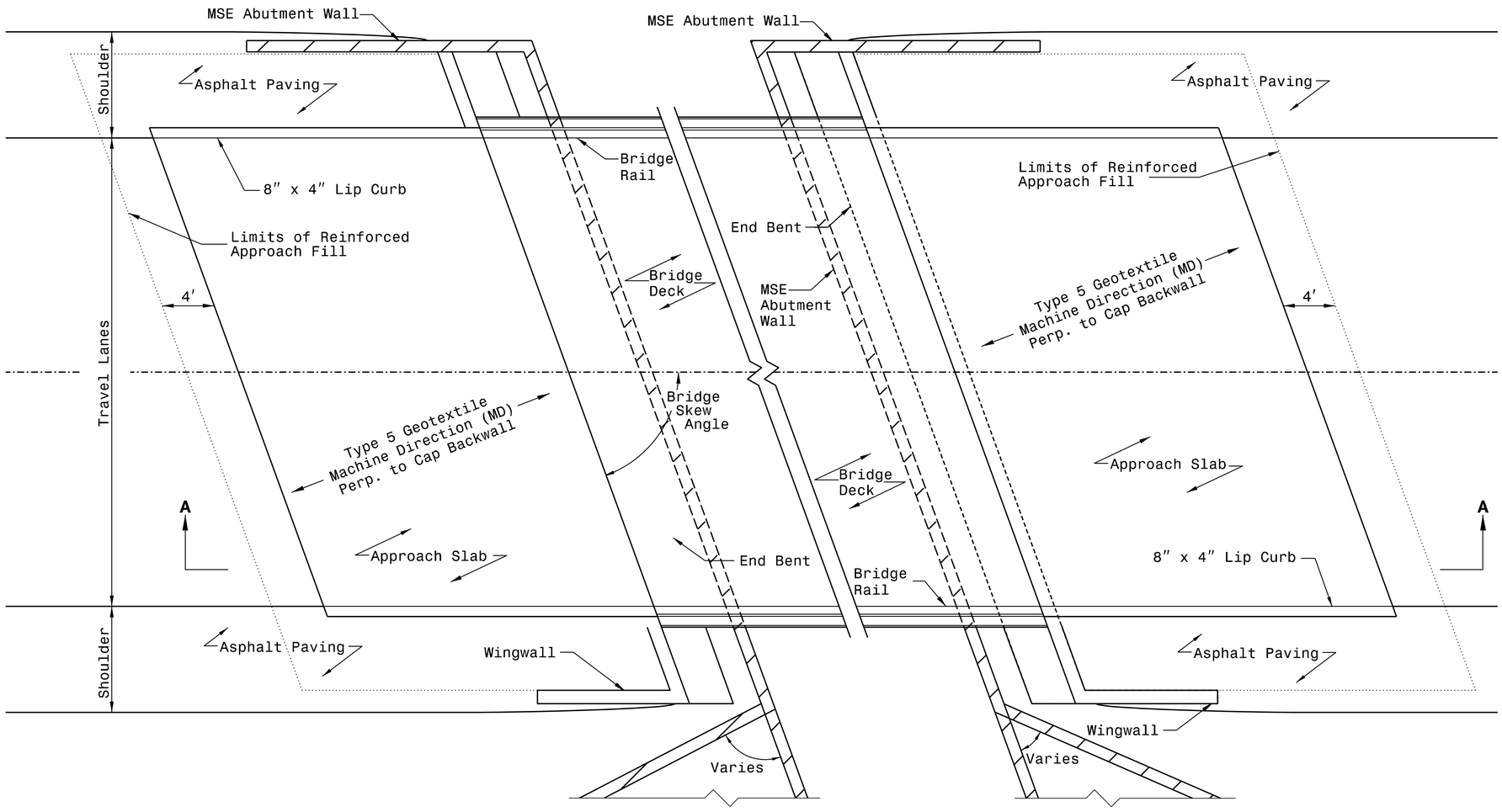
NORTH CAROLINA PROFESSIONAL SEAL 040231 ENGINEER MATTHEW J. ALEXANDER

DocuSigned by: Matt Alexander 04/08/2022
0FB0038EEA06452...
SIGNATURE DATE

ENGINEER

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



PLAN VIEW
APPROACH SLAB

PREPARED BY: ALEXANDER, M. J.	DATE: 03/2022
REVIEWED BY: RIGGS, A. F.	DATE: 03/2022

Prepared in the Office of:

Terracon
Consulting Engineers and Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
NC REGISTERED ENGINEERING FIRM: P-0869
NC REGISTERED GEOLOGIC FIRM: C-367

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

SPECIAL BRIDGE APPROACH FILLS
SHEET 1 OF 3

REVISIONS

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

PROJECT REFERENCE NO.	SHEET NO.
I-5987A	2G-6

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 040231 ENGINEER MATTHEW J. ALEXANDER

DocuSigned by: Matt Alexander 04/08/2022
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SIGNATURE DATE

ENGINEER

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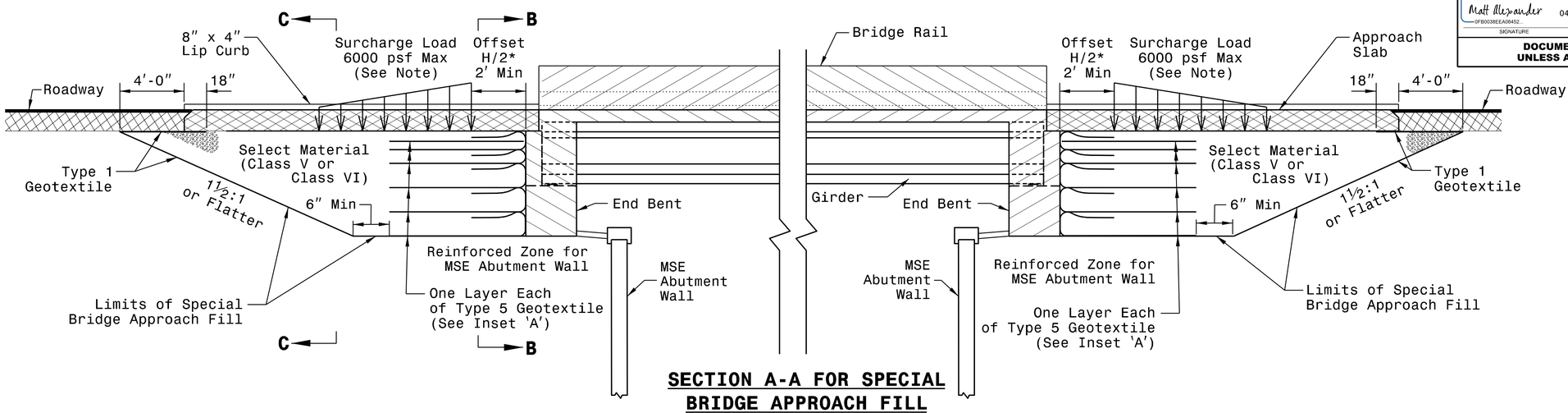
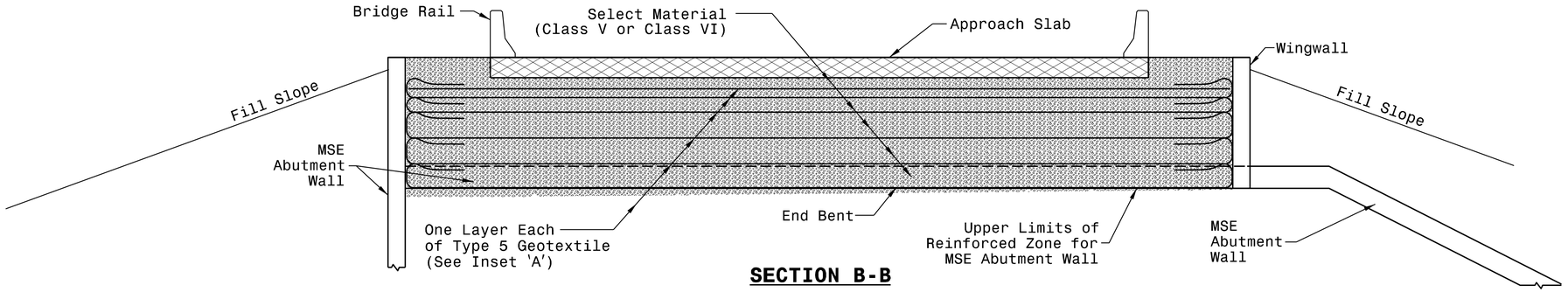
NOTE: Temporary geotextile walls are designed for a maximum eccentric surcharge pressure of 6000 psf for the offest shown. Surcharge loads from construction equipment, e.g., cranes that exceed 6000 psf are the Contractor's responsibility.

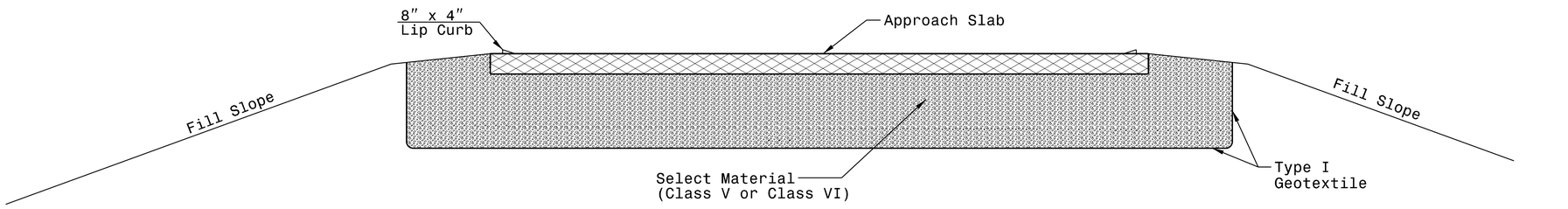


SECTION A-A FOR SPECIAL BRIDGE APPROACH FILL

(*H As Shown on Sheet 3 of 3)



SECTION B-B



SECTION C-C

PREPARED BY: ALEXANDER, M. J.	DATE: 03/2022
REVIEWED BY: RIGGS, A. F.	DATE: 03/2022

Prepared in the Office of:

Terracon
Consulting Engineers and Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
NC REGISTERED ENGINEERING FIRM: F-0869
NC REGISTERED GEOLOGIC FIRM: C-367

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

SPECIAL BRIDGE APPROACH FILLS
SHEET 2 OF 3

REVISIONS

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

PROJECT REFERENCE NO.	SHEET NO.
I-5987A	2G-7

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 040231 ENGINEER MATTHEW J. ALEXANDER

DocuSigned by: Matt Alexander 04/08/2022
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SIGNATURE DATE

ENGINEER

SIGNATURE DATE

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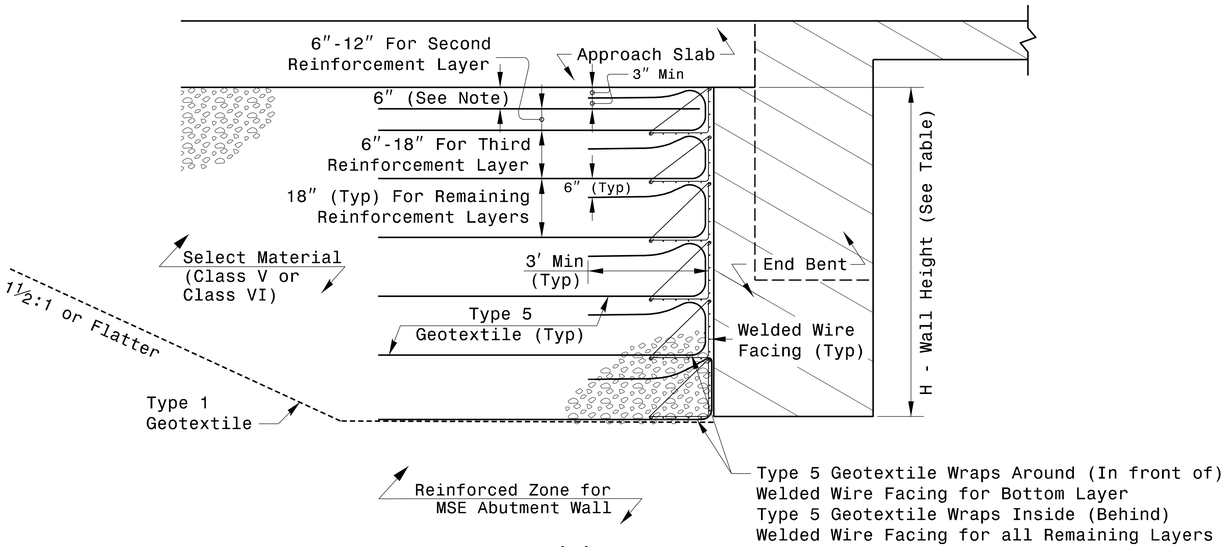


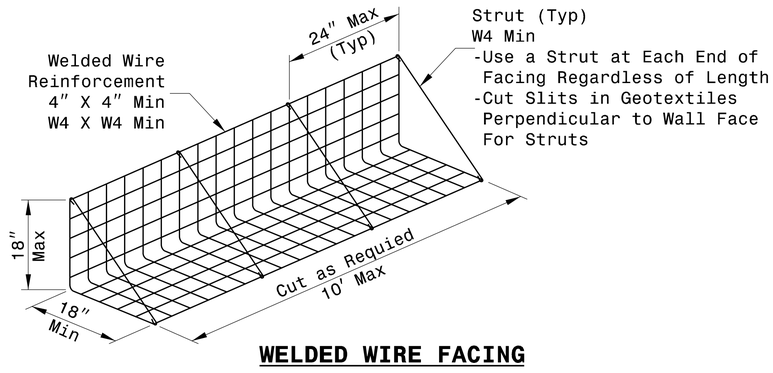
INSET 'A'

NOTE: Place top (first) reinforcement layer 6″ below top of wall regardless of vertical spacing for underlying reinforcement layers. As shown in insets above, it is not necessesary to wrap the top layer of geotextile reinforcement at the wall face.

NOTE: Use temporary geotextile wall to construct approach embankments to finished grade before observing waiting periods, driving bridge foundation piles, or constructing end bent caps.

TEMPORARY GEOTEXTILE WALL DETAILS

GEOTEXTILE REINFORCEMENT (TYPE 5 GEOTEXTILE)		
WALL HEIGHT H (ft)	REINF. LENGTH L (ft)	WIDE WIDTH TENSILE STRENGTH @ ULTIMATE (MD) (lb/ft)
< 8	8	5000
8 TO 12	= H	



WELDED WIRE FACING

PREPARED BY: ALEXANDER, M. J.	DATE: 03/2022
REVIEWED BY: RIGGS, A. F.	DATE: 03/2022

Prepared in the Office of:

Terracon
Consulting Engineers and Scientists
2401 BRENTWOOD ROAD, SUITE 107
RALEIGH, NORTH CAROLINA 27604
NC REGISTERED ENGINEERING FIRM: F-0869
NC REGISTERED GEOLOGIC FIRM: C-367

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

SPECIAL BRIDGE APPROACH FILLS
SHEET 3 OF 3

REVISIONS

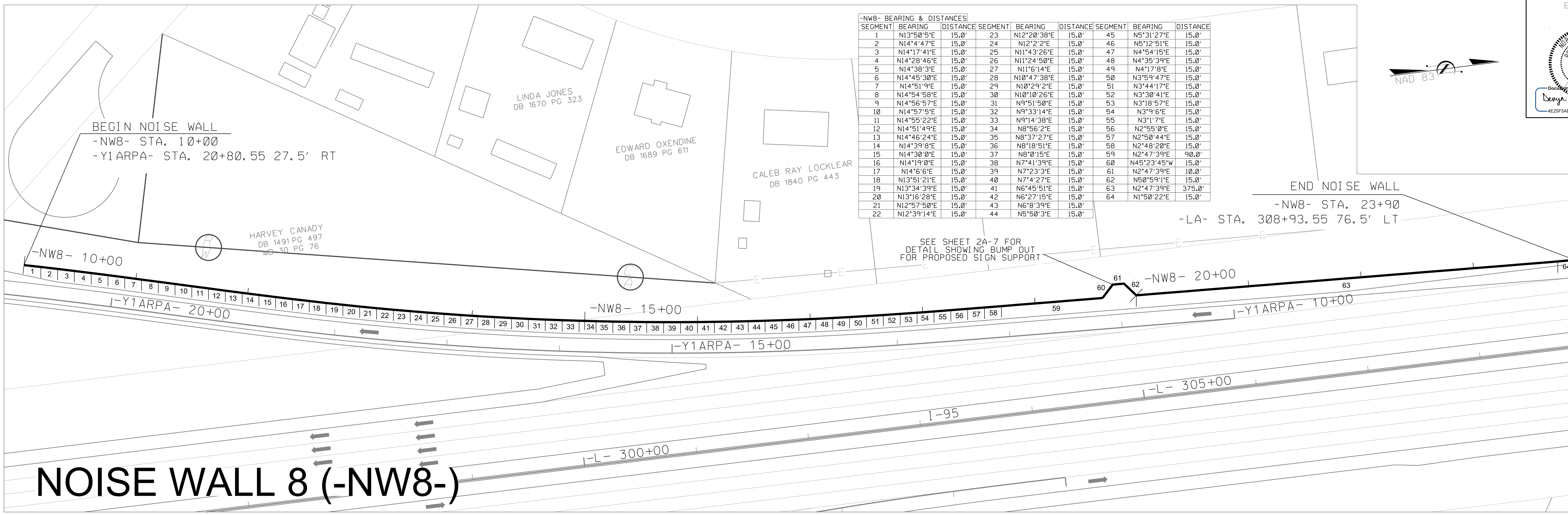
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

NOISE QUALITY ENGINEER

7/13/2022

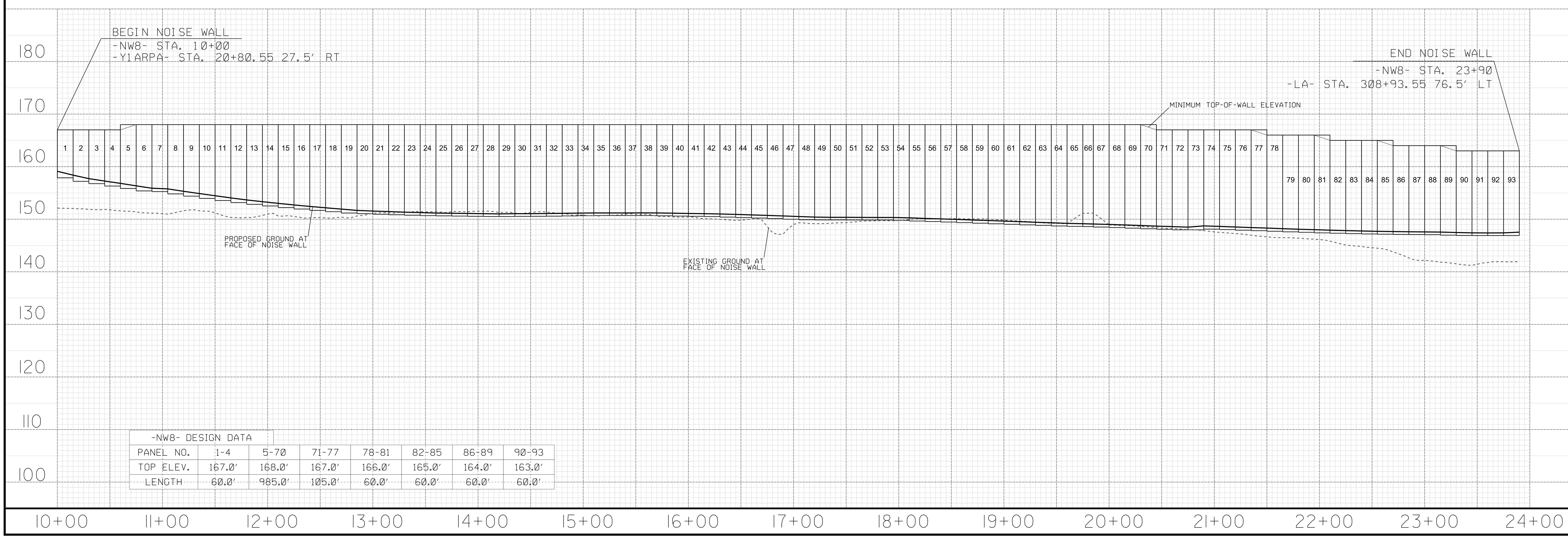
SEAL 049150

NOISE WALL 8 (-NW8-)



-NW8- BEARING & DISTANCES

SEGMENT	BEARING	DISTANCE	SEGMENT	BEARING	DISTANCE	SEGMENT	BEARING	DISTANCE
1	N13°50'5"E	15.0'	23	N12°20'38"E	15.0'	45	N5°31'27"E	15.0'
2	N14°4'47"E	15.0'	24	N12°2'2"E	15.0'	46	N5°12'51"E	15.0'
3	N14°17'41"E	15.0'	25	N11°43'26"E	15.0'	47	N4°54'15"E	15.0'
4	N14°28'46"E	15.0'	26	N11°24'50"E	15.0'	48	N4°35'39"E	15.0'
5	N14°38'3"E	15.0'	27	N11°6'14"E	15.0'	49	N4°17'8"E	15.0'
6	N14°45'30"E	15.0'	28	N10°47'38"E	15.0'	50	N3°59'47"E	15.0'
7	N14°51'9"E	15.0'	29	N10°29'2"E	15.0'	51	N3°44'17"E	15.0'
8	N14°54'58"E	15.0'	30	N10°10'26"E	15.0'	52	N3°30'41"E	15.0'
9	N14°56'57"E	15.0'	31	N9°51'50"E	15.0'	53	N3°18'57"E	15.0'
10	N14°57'5"E	15.0'	32	N9°33'14"E	15.0'	54	N3°9'6"E	15.0'
11	N14°55'22"E	15.0'	33	N9°14'38"E	15.0'	55	N3°1'7"E	15.0'
12	N14°51'49"E	15.0'	34	N8°56'2"E	15.0'	56	N2°55'0"E	15.0'
13	N14°46'24"E	15.0'	35	N8°37'27"E	15.0'	57	N2°50'44"E	15.0'
14	N14°39'8"E	15.0'	36	N8°18'51"E	15.0'	58	N2°48'20"E	15.0'
15	N14°30'0"E	15.0'	37	N8°0'15"E	15.0'	59	N2°47'39"E	90.0'
16	N14°19'0"E	15.0'	38	N7°41'39"E	15.0'	60	N45°23'45"W	15.0'
17	N14°6'6"E	15.0'	39	N7°23'3"E	15.0'	61	N2°47'39"E	10.0'
18	N13°51'21"E	15.0'	40	N7°4'27"E	15.0'	62	N50°59'1"E	15.0'
19	N13°34'39"E	15.0'	41	N6°45'51"E	15.0'	63	N2°47'39"E	375.0'
20	N13°16'28"E	15.0'	42	N6°27'15"E	15.0'	64	N1°50'22"E	15.0'
21	N12°57'50"E	15.0'	43	N6°8'39"E	15.0'			
22	N12°39'14"E	15.0'	44	N5°50'3"E	15.0'			



-NW8- DESIGN DATA

PANEL NO.	1-4	5-70	71-77	78-81	82-85	86-89	90-93
TOP ELEV.	167.0'	168.0'	167.0'	166.0'	165.0'	164.0'	163.0'
LENGTH	60.0'	985.0'	105.0'	60.0'	60.0'	60.0'	60.0'

COMPUTED BY: ESM DATE: 4/11/2022
COMPUTED BY: CA DATE: 4/11/2022

PROJECT NO.	SHEET NO.
I-5987A	3B-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK (IN CUBIC YARDS)

Station	Station	Uncl. Excav.	Undercut	Embank. +25%	Borrow	Waste
PHASE I -L-						
-L- 67+00 SR6	-L- 91+00 SR6	113		4,399	4,339	53
-L- 340+00 MED RT	-L- 370+00 MED RT	130		3,491	3,361	
-L- 370+00 MED RT	-L- 400+00 MED RT	192		1,578	1,386	
-L- 400+00 MED RT	-L- 430+00 MED RT	206		2,004	1,798	
-L- 430+00 MED RT	-L- 460+00 MED RT	120		5,035	4,915	
-L- 460+00 MED RT	-L- 469+00 MED RT	24		1,946	1,922	
-L- 469+00 MED LT TO OUT RT	-L- 483+80 MED LT TO OUT RT	2,435		11,244	9,249	440
-L- 483+80	-L- 495+00	2,803		10,139	7,336	
SUBTOTALS:		**6,023**	**0**	**39,835**	**34,305**	**493**
PHASE I -Y-						
-Y3- 23+40	-Y3- 28+71.69 OUT LT TO SHLD RT			30,618	30,618	
-Y3- 31+36.53 OUT LT TO SHLD RT	-Y3- 37+30 OUT LT TO SHLD RT			35,645	35,645	
-Y2- 17+50	-Y2- 28+80.29	676	2,707	71,558	70,882	2,707
-Y2- 30+71.29	-Y2- 34+00	79		17,098	17,093	74
-Y1A- 24+00	-Y1A- 40+34.41	351		122,978	122,627	
-Y1ARPA- 19+00	-Y1ARPA- 29+00	17		65,178	65,161	
-Y1ARPB- 24+00	-Y1ARPB- 28+00	66		54,740	54,674	
-SR1- 10+78.13	-SR1- 13+48.26	3,283		653	0	2,630
-SR2- 22+00	-SR2- 30+50	269		10,325	10,129	73
-SR2- 39+00	-SR2- 44+55.96	406	985	2,269	1,863	985
-DR9- 10+12.00	-DR9- 11+71.00	3		2,185	2,182	
-DR10- 10+13.68	-DR10- 11+32	6		84	78	
SUBTOTALS:		**5,156**	**3,692**	**413,328**	**410,949**	**6,469**
PHASE II -L-						
-L- 67+00 LT	-L- 91+50 LT	1,402		5,134	3,842	110
-L- 91+50 LT	-L- 115+00 LT	4,443		6,131	3,469	1,781
-L- 297+00 LT	-L- 300+00 LT	390		1,796	1,406	
-L- 67+00 RT	-L- 97+00 RT	3,493		3,666	820	647
-L- 97+00 RT	-L- 115+50 RT	5,300		7,131	3,740	1,909
-L- 265+00 RT	-L- 273+00 RT	1,133		2,831	1,698	
-L- 298+50 RT	-L- 340+00 RT	10,378	2,437	28,976	19,337	3,176
-L- 120+00 MED	-L- 150+00 MED	265		17,866	17,601	
-L- 150+00 MED	-L- 180+00 MED	1		58,455	58,454	
-L- 180+00 MED	-L- 210+00 MED	676		8,525	7,849	
-L- 210+00 MED	-L- 240+00 MED	12		48,256	48,246	2
-L- 240+00 MED	-L- 259+50 MED	4		34,524	34,520	
-L- 340+00 RT	-L- 370+00 RT	4,896		22,333	18,064	627
-L- 370+00 RT	-L- 400+00 RT	4,782		17,553	14,770	1,999
-L- 400+00 RT	-L- 430+00 RT	14,090		18,854	13,809	9,045
-L- 430+00 RT	-L- 460+00 RT	6,325		9,436	4,230	1,119
-L- 460+00 RT	-L- 469+00 RT	546		1,768	1,580	358
SUBTOTALS:		**58,136**	**2,437**	**293,235**	**253,435**	**20,773**

Station	Station	Uncl. Excav.	Undercut	Embank. +25%	Borrow	Waste
PHASE IIA -L-						
-L- 272+50 RT	-L- 282+00 RT	1,683		6,394	4,711	
-L- 282+00 RT	-L- 299+50 RT	7,146		17,623	10,820	343
SUBTOTALS:		**8,829**	**0**	**24,016**	**15,530**	**343**
PHASE IIB -L-						
-L- 281+00 RT	-L- 283+00 RT	2,994		579	0	2,415
-L- 67+00 MED	-L- 97+00 MED	3,278		7,319	4,041	
-L- 97+00 MED	-L- 115+00 MED	1,937		3,850	1,913	
-L- 115+00 MED	-L- 120+00 MED	46		803	757	
-L- 259+00 MED	-L- 265+00 MED	27		3,415	3,388	
-L- 265+00 MED	-L- 273+00 MED	136		1,816	1,680	
-L- 273+00 MED	-L- 281+50 MED	220		425	205	
-L- 283+00 MED	-L- 299+00 MED	447		681	234	
-L- 299+00 MED	-L- 340+00 MED	1,004		2,634	1,630	
-L- 340+00 MED LT	-L- 370+00 MED LT	122		3,614	3,492	
-L- 370+00 MED LT	-L- 400+00 MED LT	308		1,120	812	
-L- 400+00 MED LT	-L- 430+00 MED LT	82		3,256	3,174	
-L- 430+00 MED LT	-L- 460+00 MED LT	74		6,420	6,346	
-L- 460+00 MED LT	-L- 469+00 MED LT	20		2,005	1,985	
SUBTOTALS:		**10,695**	**0**	**37,936**	**29,657**	**2,415**
PHASE II -Y-						
-Y3- 16+50	-Y3- 23+40	672		5,116	4,444	
-Y3- 37+30	-Y3- 43+50	421		5,391	5,212	242
-Y3- 23+40 RT	-Y3- 28+71.69 RT	4,859		2,191		2,668
-Y3- 31+36.53 RT	-Y3- 37+30 RT	289		5,541	5,252	
-Y1RPA- 18+50	-Y1RPA- 18+82	17		26	9	
-Y1RPB- 16+00	-Y1RPB- 19+60	295		498	300	97
-Y1RPC- 18+50	-Y1RPC- 18+70	17		3		14
-Y1RPD- 16+00	-Y1RPD- 19+60	152		780	628	
-DR1- 10+10.00	-DR1- 12+56.49	5		2,413	2,408	
SUBTOTALS:		**6,727**	**0**	**21,959**	**18,253**	**3,021**
SHEET 3B-1 TOTALS:		**95,566**	**6,129**	**830,309**	**762,129**	**33,514**

COMPUTED BY: ESM DATE: 4/11/2022
COMPUTED BY: CA DATE: 4/11/2022

PROJECT NO.	SHEET NO.
I-5987A	3B-2

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK (IN CUBIC YARDS)

Station	Station	Uncl. Excav.	Undercut	Embank. +25%	Borrow	Waste
PHASE IIA -Y-						
-Y2- 12+15	-Y2- 17+50	295		1,551	1,436	180
-Y2- 34+00	-Y2- 39+00	85		3,606	3,521	
-Y2- 22+00 -DR3-	-Y2- 28+00 -DR3-	147	100	6,448	6,301	100
-Y1A- 42+03.64	-Y1A- 56+35	611		88,596	88,364	379
-Y1ARPC- 18+50	-Y1ARPC- 23+00	1,307		23,409	22,102	
-Y1ARPC- 26+00	-Y1ARPC- 26+50			4,373	4,373	
-Y1ARPD- 21+50	-Y1ARPD- 26+00			38,498	38,498	
-SR2- 17+60	-SR2- 22+00	118		616	498	
-Y1ADET- 13+27.00	-Y1ADET- 21+12.72	244		11,666	11,422	
-SR2DET- 12+08.72	-SR2DET- 15+50.00			20,208	20,208	
-DR2- 10+35.00	-DR2- 11+73.45	5		854	849	
-DR4- 10+12.00	-DR4- 12+55.00	81		459	378	
-DR7- 10+15.75	-DR7- 10+95.00	10		528	518	
-DR8- 10+14.18	-DR8- 10+80.00	10		170	160	
SUBTOTALS:		**2,913**	**100**	**200,980**	**198,626**	**659**
DETOUR REMOVAL						
-Y1ADET- 13+27.00	-Y1ADET- 21+12.72	11,666				11,666
-SR2DET- 12+08.72	-SR2DET- 15+50.00	20,208				20,208
SUBTOTALS:		**31,874**	**0**	**0**	**0**	**31,874**
PHASE IIB -Y-						
-Y1A- 17+65	-Y1A- 24+00	651		1,165	514	
-Y1ARPC- 23+00	-Y1ARPC- 26+00	66		21,720	21,654	
-SR2- 30+50	-SR2- 39+00	145		25,395	25,250	
-DR5- 10+20.00	-DR5- 10+96.25	8		35	27	
-DR6- 10+15.00	-DR6- 11+02.37	26		35	9	
SUBTOTALS:		**896**	**0**	**48,350**	**47,454**	**0**
PHASE III -L-						
-L- 115+00 LT	-L- 120+00 LT	646		2,500	1,854	
-L- 120+00 LT	-L- 150+00 LT	4,058		5,869	2,138	327
-L- 150+00 LT	-L- 180+00 LT	5,467		1,849		3,618
-L- 180+00 LT	-L- 210+00 LT	5,244		7,939	4,727	2,032
-L- 210+00 LT	-L- 240+00 LT	4,521		4,123		399
-L- 240+00 LT	-L- 259+50 LT	3,668		4,459	791	
-L- 259+50 LT	-L- 297+00 LT	11,361		43,986	32,625	
-L- 300+00 LT	-L- 340+00 LT	5,941	1,284	21,358	15,589	1,456
-L- 115+00 RT	-L- 120+00 RT	585		2,576	1,991	
-L- 120+00 RT	-L- 150+00 RT	3,561		5,578	2,638	621
-L- 150+00 RT	-L- 180+00 RT	7,545		1,699		5,846
-L- 180+00 RT	-L- 210+00 RT	5,146		12,736	8,769	1,179
-L- 210+00 RT	-L- 240+00 RT	4,722		3,514		1,208
-L- 240+00 RT	-L- 259+50 RT	3,307		598		2,709
-L- 259+50 RT	-L- 265+50 RT	254		949	695	
-L- 340+00 LT	-L- 370+00 LT	3,510	523	23,648	20,559	944
-L- 370+00 LT	-L- 400+00 LT	5,878		16,095	12,595	2,378
-L- 400+00 LT	-L- 430+00 LT	7,844		15,088	12,499	5,255
-L- 430+00 LT	-L- 460+00 LT	5,259		8,558	3,751	452
-L- 460+00 LT	-L- 469+00 LT	674		1,284	1,014	404
SUBTOTALS:		**89,191**	**1,807**	**184,402**	**122,233**	**28,828**

Station	Station	Uncl. Excav.	Undercut	Embank. +25%	Borrow	Waste
PHASE III -Y-						
-Y1ARPADET- 10+00.00	-Y1ARPADET- 21+49.65	3,109		1,225		1,884
SUBTOTALS:		**3,109**	**0**	**1,225**	**0**	**1,884**
PHASE IV -L-						
-L- 469+00 LT	-L- 483+80 LT	1,082		3,691	2,609	
SUBTOTALS:		**1,082**	**0**	**3,691**	**2,609**	**0**
SHEET 3B-2 TOTALS:		**129,065**	**1,907**	**438,648**	**370,922**	**63,245**
SHEET 3B-1 TOTALS:		**95,566**	**6,129**	**830,309**	**762,129**	**33,514**
TOTAL:		**224,631**	**8,036**	**1,268,957**	**1,133,051**	**96,759**
Material For Shoulder Construction				29,448	29,448	
Loss Due to Clearing & Grubbing		-26,500			26,500	
Additional Undercut			3,000	3,750	3,750	3,750
Waste in Lieu of Borrow					-52,919	-52,919
PROJECT TOTALS:		198,131	11,036	1,302,154	1,139,830	47,590
Est. 5% To Replace Top Soil on Borrow Pit					56,991	
GRAND TOTALS:		198,131	11,036	1,302,154	1,196,821	47,590
SAY:		**198,200**	**11,100**		**1,196,900**	

*UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN TOP 3' OF EMBANKMENT OR BACKFILL -L- 67+75 TO 68+25 (15 CY), -L- 68+75 TO 69+25 (10 CY), -L- 70+25 TO 71+25 (75 CY), -L- 72+25 TO 74+25 (110 CY), -L- 74+75 TO 81+25 (300 CY), -L- 81+75 TO 82+25 (70 CY), -L- 83+25 TO 84+75 (31 CY), -L- 86+25 TO 87+25 (12 CY), -L- 94+75 TO 96+75 (320 CY), -L- 101+75 TO 110+25 (100 CY), -L- 156+75 TO 158+25 (70 CY), -L- 169+25 TO 185+75 (3,800 CY), -L- 200+75 TO 204+25 (730 CY), -L- 213+75 TO 216+25 (285 CY), -L- 265+25 TO 270+25 (530 CY), 284+75 TO 285+75 (8 CY), -L- 353+25 TO 357+75 (1,470 CY), -L- 358+25 TO 361+75 (195 CY), -L- 364+25 TO 365+25 (470 CY), -L- 366+75 TO 368+75 (120 CY), -L- 373+25 TO 385+25 (4,160 CY), -L- 411+75 TO 413+75 (245 CY), -L- 416+75 TO 421+25 (3,555 CY), -L- 431+25 TO 436+75 (3,140 CY), -L- 441+25 TO 443+25 (480 CY), -L- 446+25 TO 454+75 (1,130 CY), -L- 486+75 TO 495+00 (1,625 CY), -Y1RPA- 10+00 TO 18+82 (485 CY), -Y1RPB- 10+00 TO 11+53 (8 CY), -Y1RPC- 10+00 TO 11+31 (30 CY), -Y1RPC- 12+81 TO 13+81 (55 CY), -Y1RPD- 10+00 TO 15+17 (425 CY), -Y1ARPC- 10+00 TO 10+33 (5 CY), -Y2- 36+25 TO 38+75 (100 CY), -Y3- 16+25 TO 22+25 (1,305 CY), -SR2- 38+75 TO 43+25 (515 CY), -SR6- 34+42 TO 35+42 (3 CY), -SR6- 35+92 TO 37+42 (7 CY), -SR6- 46+92 TO 48+42 (6 CY)

Est. DDE = 5,980 CY

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

PAVEMENT STRUCTURE VOLUME = 292,750 CY

COMPUTED BY: ESM DATE: 3/22/2022
ECKED BY: CA DATE: 3/22/2022

PROJECT NO.	SHEET NO.
I-5987A	3B-3

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WOVEN WIRE FENCE

SURVEY LINE	Station	Station	LOCATION LT/RT/CL	FABRIC L.F.	END BRACE	CORNER BRACE	LINE BRACE	4" POSTS	5" POSTS
-L-	109+75.00	110+42.77	LT	69.31	1	1		2	5
-L-	110+74.11	113+00.00	LT	226.97	1	0	0	15	2
-L-	108+00.00	111+81.58	RT	382.33	1	0	1	25	5
-L-	112+09.94	117+00.00	RT	491.6	1	0	1	32	5
-L-	188+90.00	193+50.00	RT	461.23			1	31	3
-L-	201+70.00	203+86.00	RT	216.01				15	0
-L-	208+96.56	209+83.02	LT	101.13	1	1		5	5
-L-	210+20.42	211+54.00	LT	144.52	1	1		8	5
-L-	209+11.57	209+99.58	RT	99.9	1	1		4	5
-L-	210+36.98	211+55.00	RT	129.45	1	1		7	5
-L-	243+18.03	243+33.81	LT	46.27	1	1		1	5
-L-	243+73.71	244+33.68	LT	75.87	1	1		3	5
-L-	240+89.41	241+90.00	RT	107.41	1	1		5	5
-L-	242+40.86	243+13.28	RT	92.56	1	1		4	5
-L-	264+50.00	268+10.00	LT	358.62			1	24	3
-L-	304+21.87	310+21.49	RT	608.33	2	3	1	35	16
-L-	305+91.23	308+32.00	LT	249.61		2	1	13	9
-L-	308+39.09	310+42.41	LT	106.92	1	1		5	5
-L-	311+11.61	312+30.74	LT	121.48	1	1		6	5
-L-	310+94.69	311+28.33	RT	37.3	1	1		0	5
-Y1RPA-	11+50.00	16+75.00	RT	510.6			1	35	3
-Y1RPB-	13+76.90	16+01.45	RT	220.12	1			15	2
-Y1RPC-	16+11.48	17+38.74	RT	129.5	2			7	4
-Y1A-	33+40.00	34+64.02	LT	588.02	1	2	1	36	11
-Y1A-	33+40.00	33+40.00	RT	211.29	1	1		12	5
-Y1A-	44+16.00	47+93.18	RT	558.23	1	1	1	36	8
-Y1ARPA-	10+00.00	27+94.00	RT	1803.68	1		5	120	17
-Y1ARPB-	12+18.86	25+62.81	LT	1332.9		1	4	87	15
-Y1ARPC-	10+12.00	24+42.05	RT	1327.39		1	4	87	15
-Y1ARPD-	10+00.00	24+15.90	RT	1400.68	1		4	92	14
-L-	353+16.00	353+42.00	LT	37.3245	1	1		0	5
-L-	353+73.00	354+03.00	LT	42.2456	1	1	0	0	5
-L-	365+64.00	365+90.00	LT	35.45	1	1	0	0	5
-L-	366+41.00	366+71.00	LT	36.9784	1	1		0	5
-L-	385+43.00	385+84.00	LT	41.78	0	0	0	3	0
-L-	389+50.00	394+00.00	LT	450	0	0	1	31	3
-L-	403+31.00	407+60.00	LT	457.6036	0	4	1	24	15
-L-	420+00.00	424+00.00	LT	400.992	0	0	1	27	3
-L-	454+50.00	458+75.00	LT	461.6607	1	2	1	27	11
-L-	459+05.00	462+26.00	LT	379.7702	1	2		23	8
-L-	462+80.00	463+58.00	LT	95.2656	1	1		4	5
-L-	340+85.00	350+87.00	RT	1002			3	67	9
-L-	354+16.00	354+37.00	RT	32.9711	1	1		0	5
-L-	354+70.00	358+50.00	RT	390.9629	1	1	1	24	8
-L-	465+18.00	366+21.00	RT	112.1668	1	1		5	5
-L-	366+64.00	367+38.00	RT	82.931	1	1		3	5
-L-	385+44.00	394+00.00	RT	855.76	2	0	3	54	13
-L-	400+50.00	438+32.00	RT	3779.35		1	12	249	39
-L-	452+50.00	453+77.00	RT	138.1916	1	1		7	5
-L-	454+29.00	455+50.00	RT	141.0152	1	1		7	5
-L-	463+50.00	464+26.00	RT	93.6345	1			6	2
-L-	464+81.00	467+24.00	RT	249.9211	1			17	2
-L-	482+00.00	483+00.00	RT	100				7	0
			TOTAL:	21,627.20				1349	360
			SAY:	21,630				1349	360

TEMPORARY GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH	WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL WIDTH	FLARE LENGTH		W		ANCHORS	
				STRAIGHT	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	GREU, TL 2	CAT-1
-Y1ADET-	13+27.00	14+66.59	LT	139.59	13+30		3	6	25		1		1	
-Y1ADET-	13+27.00	14+45.65	RT	118.65		12+91	3	6						1
LESS ANCHOR DEDUCTION														
TYPE III		0.00	@ 18.75'	0.00										
B-77		0.00	@ 22.875'	0.00										
GREU TL-3		0.00	@ 50.00'	0.00										
GREU TL-2		1.00	@ 25.00'	-25.00										
CAT-1		1.00	@ 6.25'	-6.25										
TOTAL				258.24									1	1
TOTAL MINUS DEDUCTION				226.99										
SAY				227.00									1	1

PAVEMENT REMOVAL & BREAKING SUMMARY

IN SQUARE YARDS

SURVEY LINE	Station	Station	LOCATION LT/RT/CL	ASPHALT REMOVAL	ASPHALT BREAKUP	CONCRETE REMOVAL	CONCRETE BREAKUP
-L-	67+00.00	97+00.00	LT	3,270.44			
-L-	97+00.00	127+00.00	LT	4,064.89			
-L-	127+00.00	157+00.00	LT	3,519.89			
-L-	157+00.00	184+83.50	LT	3,171.11			
-L-	184+84.00	216+00.00	LT	3,482.56			
-L-	216+00.00	246+00.00	LT	3,330.44			
-L-	246+00.00	276+00.00	LT	7,167.89			
-L-	276+00.00	306+05.00	LT	3,300.33			
-L-	306+05.00	340+00.00	LT	3,948.56			
-L- (-Y1ARPADET-)	299+16.00	307+38.00	LT	2,112.00			
-L-	67+00.00	97+00.00	RT	4,050.44			
-L-	97+00.00	127+00.00	RT	2,932.67			
-L-	127+00.00	157+00.00	RT	3,545.33			
-L-	157+00.00	184+83.50	RT	3,276.11			
-L-	184+84.00	216+00.00	RT	3,417.56			
-L-	216+00.00	246+00.00	RT	3,141.22			
-L-	246+00.00	276+00.00	RT	3,394.78			
-L-	276+00.00	306+05.00	RT	6,231.67			
-L-	306+05.00	340+00.00	RT	4,202.56			
-L-	67+00.00	97+00.00	MED LT	4,374.67			
-L-	97+00.00	127+00.00	MED LT	3,037.33			
-L-	127+00.00	157+00.00	MED LT	1,149.67			
-L-	157+00.00	184+83.50	MED LT	1,043.33			
-L-	184+84.00	216+00.00	MED LT	1,869.67			
-L-	216+00.00	246+00.00	MED LT	1,196.11			
-L-	246+00.00	276+00.00	MED LT	1,141.44			
-L-	276+00.00	306+05.00	MED LT	1,126.00			
-L-	306+05.00	340+00.00	MED LT	1,388.89			
-L-	67+00.00	97+00.00	MED RT	4,290.22			
-L-	97+00.00	127+00.00	MED RT	2,966.33			
-L-	127+00.00	157+00.00	MED RT	1,234.78			
-L-	157+00.00	184+83.50	MED RT	1,139.56			
-L-	184+84.00	216+00.00	MED RT	1,290.00			
-L-	216+00.00	246+00.00	MED RT	1,011.11			
-L-	246+00.00	276+00.00	MED RT	1,152.33			
-L-	276+00.00	306+05.00	MED RT	1,203.22			
-L-	306+05.00	340+00.00	MED RT	1,447.22			
-Y2-	12+15.00	28+45.00	CL	3,365.78			
-Y2-	30+95.00	39+00.00	CL	1,474.22			
-Y1A-	17+65.00	40+34.00	CL	8,858.44			
-Y1A-	42+04.00	56+35.00	CL	5,217.44			
-SR2-	17+60.00	37+61.00	CL	4,569.89			
-SR6-	30+67.00	56+00.00	CL	487.00			
-L-	340+00.00	495+00.00	LT	18,428.97			
-L-	340+00.00	495+00.00	MED LT	6,416.56			
-L-	340+00.00	495+00.00	MED RT	6,715.53			
-L-	340+00.00	495+00.00	RT	18,736.37			
-Y3-	22+15.00	27+85.00	CL	1,279.39			
-Y3-	31+17.00	36+00.00	CL	1,059.03			
-L- (TEMP)	62+30.00	117+83.00	MED	11,395.11			
-L- (TEMP)	105+39.00	112+40.00	LT	460.56			
-L- (TEMP)	113+03.00	145+50.00	RT	5,467.11			
-L- (TEMP)	113+47.00	145+50.00	LT	5,412.33			
-L- (TEMP)	181+00.00	265+50.00	RT	17,029.00			
-L- (TEMP)	181+00.00	261+51.00	LT	15,684.22			
-L- (TEMP)	258+39.00	340+00.00	LT	5,428.56			
-L- (TEMP)	263+00.00	279+50.00	RT	1,414.89			
-L- (TEMP)	281+83	340+00.00	RT	6,393.44			
-L- (TEMP)	285+23.00	289+62.00	LT	180.78			
-L- (TEMP)	108+95.00	114+45.00	RT	432.44			
-L- (TEMP)	259+00.00	270+10.00	LT/RT	5,466.00			
-Y1RPA- (TEMP)	16+06.00	18+82.00	LT	279.33			
-Y2- (TEMP)	15+99.00	28+20.00	LT	814.00			
-Y2- (TEMP)	31+26.00	35+83.00	LT	259.89			
-Y1RPD- (TEMP)	14+02.00	19+60.00	LT	531.33			
-Y1A- (TEMP)	23+98.00	25+84.00	RT	999.56			
-SR2- (TEMP)	34+21.00	34+77.00	LT/RT	177.00			
-L- (TEMP)	340+00.00	462+00.00	MED	19,573.67			
-L- (TEMP)	340+00.00	462+00.00	MED	10,843.33			
-L- (TEMP)	340+00.00	495+00.00	LT	8,034.56			
-L- (TEMP)	458+00.00	468+00.00	RT	681.67			
-L- (TEMP)	458+00.00	468+00.00	LT	453.89			
-L- (TEMP)	464+00.00	477+00.00	MED	5,426.11			
-L- (TEMP)	464+00.00	477+00.00	MED	2,352.78			
-L- (TEMP)	465+50.00	495+00.00	LT	1,966.44			
-L- (TEMP)	477+00.00	495+00.00	RT	2,322.89			
-L- (TEMP)	477+00.00	495+00.00	RT	1,600.00			
-L- (TEMP)	480+30.00	495+00.00	LT	781.89			
-L- (TEMP)	480+30.00	495+00.00	LT	1,306.67			
-L- (TEMP)	477+00.00	495+00.00	MED	7,603.89			
-Y1ARPADET-	10+00.00	21+50.00	CL	3,842.22			
-Y1ADET- & -SR2DET-	13+27.00	21+13.00	CL	2,880.11			
-Y1A-	45+20.00	50+35.00	CL		613.11		
-Y2-	14+25.00	16+40.00	CL		291.77		
-Y2-	34+80.00	37+35.00	CL		468.31		
-SR2-	19+80.00	20+90.00	CL		141.36		
-Y3-	19+60.00	22+15.00	CL		528.79		
-Y3-	36+00	40+75.00	CL		979.40		
-WSRPA-	15+10.00	16+90.00	CL			323.89	
-WSRPB-	15+65.00	15+95.00	CL			53.89	
-WSRPC-	15+28.00	16+50.00	CL			215.11	
-WSRPD-	15+78.00	16+00.00	CL			39.22	
		TOTAL:		327,726.63	3,022.75	632.11	
		SAY:		327,750	3,030	650	

COMPUTED BY: ESM DATE: 3/22/2022
ECKED BY: CA DATE: 3/22/2022

PROJECT NO.	SHEET NO.
I-5987A	3B-4

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF CONCRETE BARRIER

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	LENGTH, TYPE T	LENGTH, TYPE T1	LENGTH, TYPE T2	CONCRETE TRANSITION	MEDIAN HAZARD PROTECTION	LENGTH, SINGLE SLOPE BARRIER 2'-7" MAX BIFURCATION	LENGTH, SINGLE SLOPE BARRIER 2'-7" TO 6'-0" BIFURCATION
-L-	355+80.00	366+50.00	CL	1,070.00						
-L-	448+70.00	461+30.00	CL	1,260.00						
-L-	490+00.00	495+00.00	CL	500.00						
-L-	97+91.00	108+50.00	CL		1,059.00					
-L-	111+00.00	137+50.00	CL		2,650.00					
-L-	171+50.00	172+50.00	CL		100.00					
-L-	177+50.00	186+50.00	CL		900.00					
-L-	189+50.00	250+50.00	CL		6,100.00					
-L-	255+50.00	269+00.00	CL		1,350.00					
-L-	273+00.00	340+00.00	CL		6,700.00					
-L-	340+00.00	355+80.00	CL		1,580.00					
-L-	366+50.00	448+70.00	CL		8,220.00					
-L-	461+30.00	462+72.20	CL		142.20					
-L-	464+34.02	490+00.00	CL		2,565.98					
-L-	108+50.00	111+00.00	CL			250.00				
-L-	137+50.00	171+50.00	CL			3,400.00				
-L-	172+50.00	177+50.00	CL			500.00				
-L-	186+50.00	189+50.00	CL			300.00				
-L-	250+50.00	255+50.00	CL			500.00				
-L-	269+00.00	273+00.00	CL			400.00				
-L-	95+23.67	95+73.67	CL				1			
-L-	97+41.30	97+91.30	CL				1			
-L-	209+41.05	209+91.05	CL				1			
-L-	210+28.95	210+78.95	CL				1			
-L-	285+99.73	286+49.73	CL				1			
-L-	287+00.27	287+50.27	CL				1			
-L-	462+72.20	463+22.20	CL				1			
-L-	463+84.02	464+34.02	CL				1			
-L-	95+73.00	97+42.00						169.00		
-L-	209+91.00	210+29.00						38.00		
-L-	286+49.00	287+01.00						52.00		
-L-	463+22.00	463+84.00	CL					62.00		
-L-	67+00.00	82+00.00	CL						1,499.24	
-L-	67+00.00	89+45.00	CL						2,248.99	
-L-	67+00.00	95+24.00	CL						2,824.00	
-L-	82+00.00	89+73.00	LT							774.85
-L-	461+10.58	464+25.83	LT							315.25
-L-	462+78.88	466+04.38	RT							325.50
			TOTAL	**2,830.00**	**31,367.18**	**5,350.00**	**8**	**321**	**6,572.23**	**1,415.60**
			SAY	**2,830**	**31,370**	**5,350**	**8**	**325**	**6,580**	**1,420**

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LENGTH
-L-	9419.56	9454.94	35.4
-L-	9865.35	9900.73	35.4
-L-	10788.4	11249.52	461.1
-L-	10993.95	11386.83	392.9
-L-	129+15.50	131+78.00	262.5
-L-	134+70.00	137+32.50	262.5
-L-	161+70.00	164+32.50	262.5
-L-	169+67.62	172+29.87	262.3
-L-	181+92.27	189+10.34	718.1
-L-	190+72.50	193+35.00	262.5
-L-	203+64.53	209+24.91	560.4
-L-	211+01.10	211+36.47	35.4
-L-	241+84.99	246+37.24	452.2
-L-	243+27.08	246+14.58	287.5
-L-	251+69.99	254+32.49	262.5
-L-	269+07.10	269+91.34	84.2
-L-	285+55.78	285+91.16	35.4
-L-	287+57.84	287+93.22	35.4
-L-	308+93.55	313+91.43	497.9
-L-	307+84.43	311+84.42	400.0
-L-	330+70.16	333+32.66	262.5
-L-	353+19.00	360+06.00	687.0
-L-	365+94.00	368+68.00	274.0
-L-	382+07.00	384+18.00	211.0
-L-	440+80.00	441+53.00	73.0
-L-	455+26.07	461+10.58	584.5
-L-	352+03.00	354+69.00	266.0
-L-	363+77.00	366+88.00	311.0
-L-	451+43.00	454+59.00	316.0
-L-	461+94.17	462+78.88	84.7
-Y2-	23+46.93	28+67.07	520.1
-Y2-	23+18.96	28+64.51	537.5
-Y2-	30+87.07	33+92.41	305.3
-Y2-	30+84.51	31+29.72	45.2
-Y1A-	33+90.42	37+11.63	340.9
-Y1A-	40+16.16	40+23.62	7.5
-Y1A-	40+08.14	40+16.42	8.3
-Y1A-	42+21.62	42+29.91	8.3
-Y1A-	42+14.42	42+21.89	7.5
-Y1A-	45+45.53	48+40.00	294.5
-Y3-	21+80.00	28+74.50	694.5
-Y3-	31+66.23	38+22.00	655.8
-Y3-	21+10.00	28+41.99	732.0
-Y3-	31+33.71	32+85.00	151.3
-Y1RPA-	10+00.00	15+10.64	507.3
-Y1RPB-	14+08.57	14+44.58	36.0
-Y1RPD-	10+00.00	13+43.31	339.4
-WSRPD-	10+00.00	12+37.72	235.5
-Y1ARPA-	20+80.55	28+59.67	784.6
-Y1ARPB-	21+59.49	27+09.49	550.0
-Y1ARPC-	19+26.15	26+34.47	708.3
-Y1ARPD-	20+25.03	25+25.03	500.0
		TOTAL:	16,645.31
		SAY:	**16,650**

COMPUTED BY:	DM	DATE:	3/10/2022
CHECKED BY:	CA	DATE:	3/17/2022

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
I-5987A	3B-5

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL

GUARDRAIL SUMMARY

G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL WIDTH	FLARE LENGTH		W		ANCHORS								IMPACT ATTENUATOR		SINGLE FACED CONCRETE BARRIER	REMOVE EXISTING GUIDERAIL	REMOVE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	Type III	B-77	GREU, TL-3	GREU, TL-2	CAT-1	AT-1	Type III SC	B-77 SC	G	NG				
-Y1RPB-	14+08.57	14+95.48	LT	86.91			14+08.57		14	17	50		1			1	1											
-L-	93+69.57	94+54.94	RT	85.37			94+54.94	97+73.64	12	15	50		1			1	1											
-L-	94+54.94	97+73.64	RT				94+54.95	97+73.64	12																318.7			BARRIER FOR EXISTING RETAINING WALL
-L-	95+73.21	98+65.35	LT				98+65.35	95+73.21	12																292.14			BARRIER FOR EXISTING RETAINING WALL
-L-	98+65.35	99+50.72	LT	85.37			98+65.35	95+73.21	12	15	50		1			1	1											
-Y1RPD-	10+00.00	13+94.22	LT	394.22					14	17	50		1				1											BOX CULVERT
-L-	107+88.40	112+55.77	RT	467.37			111+87.12	111+95.59	14	17									1									
-Y1RPA-	10+00.00	15+17.01	RT	517.01					14	17									1									BOX CULVERT
-L-	109+94.04	114+36.82	LT	442.78			110+62.97	110+54.50	14	17	50		1				1											BOX CULVERT
-L-	111+76.69	112+32.07	CL																							111.82		
-L-	114+32.74	121+15.54	CL																						682.82			CABLE RAIL
-L-	121+97.43	125+28.91	CL																						331.51			CABLE RAIL
-L-	124+92.90	180+76.55	CL																							5589.12		
-L-	127+25.06	181+70.52	CL																							5440.89		
-L-	128+65.50	131+84.25	RT	318.75			131+50.00		14	17	50		1				1		1									ITS SUPPORT
-L-	134+63.75	137+82.50	LT	318.75			135+00.00		14	17	50		1				1		1									SIGN SUPPORT
-L-	161+63.75	164+82.50	LT	318.75			162+00.00		14	17	50		1				1		1									SIGN SUPPORT
-L-	169+17.62	172+36.08	RT	318.46			172+00.00		17	17	50		1				1		1									SIGN SUPPORT
-L-	180+36.48	207+70.93	CL																						2804.04			CABLE RAIL
-L-	181+42.76	189+16.53	RT	773.77			183+47.00		14	17	50		1				1		1									ITS SUPPORT
-L-	190+66.26	193+85.00	LT	318.74			191+00.00		14	17	50		1				1		1									ITS SUPPORT
-L-	197+32.35	199+45.92	RT																							213.62		
-L-	203+14.53	209+24.91	RT	610.38			206+00.01	208+90.00	14	17	50		1			1	1											SIGN SUPPORT AND RETAINING WALL
-L-	207+80.00	211+20.00	CL																							714.06		Y2 EXISTING BRIDGE PROTECTION BELOW
-L-	209+24.91	211+09.91	RT				208+90.00	211+25.00	14																185			BARRIER FOR RETAINING WALL
-L-	209+01.10	211+01.10	LT				211+20.00	208+85.00	14																200			BARRIER FOR RETAINING WALL
-L-	211+44.14	220+45.54	CL																						902.37			CABLE RAIL
-L-	211+01.10	211+86.47	LT	85.37			215+00.00		14	17	50		1			1	1											
-WSRPD-	10+00.00	12+88.51	RT	288.51					14	17	50		1				1											SIGN SUPPORT AND RETAINING WALL
-L-	220+69.62	263+74.11	CL																							4305.65		
-L-	221+78.77	264+67.03	CL																							4288.23		
-L-	241+84.99	246+43.48	RT	458.49			242+20.51	246+00.01	14	17									1									BOX CULVERT AND SIGN SUPPORT
-L-	243+20.83	246+64.57	LT	343.74			243+51.68		14	17	50		1				1		1									BOX CULVERT
-L-	251+63.75	254+82.49	LT	318.74			252+00.00		14	17	50		1				1		1									SIGN SUPPORT
-L-	263+50.62	278+98.33	CL																						1547.98			CABLE RAIL
-L-	268+57.23	269+91.34	RT	134.11			271+50.00		14	17	50		1				1											SIGN SUPPORT
-Y1ARPC-	10+00.00	12+48.70	RT	248.7			11+60.00												1									SIGN SUPPORT
-L-	279+50.00	282+60.00	CL																							725.21		Y1A EXISTING BRIDGE PROTECTION BELOW
-Y1ARPB-	18+51.04	22+59.81	RT/LT																							963.58		Y1A EXISTING BRIDGE PROTECTION ABOVE
-Y1ARPC-	22+36.35	26+37.57	RT/LT																							844.27		Y1A EXISTING BRIDGE PROTECTION ABOVE
-L-	283+71.75	340+00.00	RT																						5792.69			CABLE RAIL
-L-	285+05.79	285+91.16	RT	85.37			285+95.00		14	17	50		1			1	1											RETAINING WALL
-L-	285+91.16	287+84.32	RT				285+95.00	287+80.00	14																193.16			BARRIER FOR RETAINING WALL
-L-	285+64.18	287+57.84	LT				287+50.00	285+65.00	14																193.66			BARRIER FOR RETAINING WALL
-L-	287+57.84	288+43.22	LT	85.38			287+50.00		14	17	50		1			1	1											RETAINING WALL
-L-	307+50.29	314+65.96	RT																							715.83		
-L-	307+34.43	311+90.66	RT	456.23			310+48.91	310+86.95	14	17	50		1				1		1									BOX CULVERT
-L-	308+64.89	315+77.90	LT																							713.01		
-L-	308+93.55	314+41.42	LT	547.87			310+96.39	308+93.55	14	17	50		1			1	1											BOX CULVERT AND NOISE WALL
-L-	330+63.91	333+82.65	LT	318.74			331+00.16		14	17	50		1				1		1									SIGN SUPPORT
-L-	305+88.00	308+93.55	LT						14																304.75			BARRIER FOR NOISE WALL
SHEET TOTAL				8427.88												8	22		14						1687.41	12061.41	24625.29	

COMPUTED BY: DM DATE: 3/10/2022

CHECKED BY: CA DATE: 3/17/2022

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
I-5987A	3B-6

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL

GUARDRAIL SUMMARY

G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL WIDTH	FLARE LENGTH		W		ANCHORS									IMPACT ATTENUATOR		SINGLE FACED CONCRETE BARRIER	REMOVE EXISTING GUIDERAIL	REMOVE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	Type III	B-77	GREU, TL-3	GREU, TL-2	CAT-1	AT-1	Type III SC	B-77 SC		G	NG				
-Y1ARPA-	10+00.00	20+80.00	RT																							1080			BARRIER FOR NOISE WALL
-Y1ARPA-	20+80.55	29+38.78	RT	858.23			20+80.55	25+00.00	14	17							1												NOISE WALL AND HEIGHT OF FILL
-Y1A-	33+43.88	38+10.64	LT	466.76			34+50.00		10	13	50		1				1												HEIGHT OF FILL
-Y1ARPB-	21+53.24	27+59.48	LT	606.24			22+00.00		14	17	50		1				1		1										HEIGHT OF FILL
-Y1ARPC-	18+76.59	27+13.57	RT	836.98			21+00.00		14	17	50		1				1												HEIGHT OF FILL
-Y1A-	44+27.41	48+89.71	RT	462.3			47+50.00		10	13	50		1				1												HEIGHT OF FILL
-Y1ARPD-	20+18.78	25+75.03	LT	556.25			23+00.00		14	17	50		1				1		1										HEIGHT OF FILL
-Y1A-	38+98.97	40+39.04	LT	140.07				40+39.32	VAR	VAR						1			1									BRIDGE
-Y1A-	39+32.63	40+31.01	RT	98.38			40+30.73		VAR	VAR						1		1											BRIDGE
-Y1A-	42+07.04	43+05.42	LT	98.38			42+07.32		VAR	VAR						1		1											BRIDGE
-Y1A-	41+99.01	43+39.14	RT	140.13				41+98.73	VAR	VAR						1			1										BRIDGE
-Y2-	22+90.42	32+76.54	RT																								1290.27		Y2 EXISTING BRIDGE PROTECTION ABOVE
-Y2-	22+96.94	28+82.28	LT	585.34				28+82.42	8	11	50		1		1		1												BRIDGE
-Y2-	22+68.96	28+79.30	RT	610.34			28+79.16		8	11	50		1		1		1												BRIDGE
-Y2-	30+72.28	34+41.60	LT	369.32			30+72.42		8	11	50		1		1		1												BRIDGE
-Y2-	30+69.30	31+79.66	RT	110.36				30+69.16	5.75	8.75	50		1		1		1												BRIDGE
-L-	353+12.71	360+56.46	LT	743.75			35800	35337	14	17	50		1				1		1										WINGWALL - SIGN SUPPORT
-L-	365+87.39	369+18.64	LT	331.25			36642	36587.39	14	17	50		1				1		1										CULVERT HEADWALL
-L-	440+73.00	442+04.25	LT	131.25			44073		14	17	50		1				1		1										ITS CAMERA
-L-	455+18.96	461+10.58	LT	592			45589	45518.96	14	17						1			1										CULVERT HEADWALL
-L-	461+10.58	464+25.83	LT																							315.25			RETAINING WALL
-L-	464+25.83	465+11.20	LT	85.38			46426		14	17	50		1			1	1												RETAINING WALL
-L-	351+44.69	354+75.94	RT	331.25			35437	35475.94	14	17	50		1				1		1										CULVERT HEADWALL
-L-	363+26.74	366+95.49	RT	368.75			36607	36695.49	14	17	50		1				1		1										CULVERT HEADWALL / HYDRO DRAINAGE
-L-	382+00.00	384+68.75	LT	368.75			38200	38200	14	17	50		1				1		1										DMS
-L-	450+85.19	454+66.44	RT	381.25			45377	45466.44	14	17	50		1				1		1										CULVERT HEADWALL / HYDRO DRAINAGE
-L-	461+43.51	462+78.88	RT	135.38			46273		14	17	50		1			1	1												RETAINING WALL / HYDRO DRAINAGE
-L-	462+78.88	466+04.38	RT																							325.5			RETAINING WALL
-Y3-	21+19.04	28+92.28	LT	772.88				2260	6	9	50		1			1	1												FILL
-Y3-	31+54.01	38+75.32	LT	722.88			3730		6	9	50		1			1	1												FILL
-Y3-	20+57.07	28+54.21	RT	797.88			2190		6	9	50		1			1	1												FILL
-Y3-	31+15.93	33+38.79	RT	222.88				3200	6	9	50		1			1	1												FILL
-L-	352+98.69	354+68.88	LT																								170.65		
-L-	365+66.09	367+35.93	LT																								170.27		
-L-	384+76.39	386+08.50	LT/MED																								132.31		
-L-	385+14.33	387+04.36	LT																								192.01		
-L-	403+55.88	404+84.98	LT																								129.4		
-L-	455+38.42	456+91.29	LT																								152.87		
-L-	462+34.55	463+41.37	LT																								106.83		
-L-	462+86.40	464+51.98	LT/MED																								165.76		
-L-	353+10.91	354+64.09	RT																								153.63		
-L-	364+96.17	366+63.05	RT																								167.14		
-L-	384+53.72	385+82.62	RT/MED																								128.91		
-L-	384+25.44	385+94.94	RT																								171.2		
-L-	402+92.85	403+95.00	RT																								102.68		
-L-	452+54.18	454+30.17	RT																								175.99		
-L-	461+17.00	462+82.30	RT/MED																								165.42		
-L-	462+26.86	463+34.83	RT																								108.01		
SHEET TOTAL				11924.61											4	11	23	2	12							1720.75		3683.35	

COMPUTED BY: DM DATE: 3/10/2022

CHECKED BY: CA DATE: 3/17/2022

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
I-5987A	3B-7

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL

GUARDRAIL SUMMARY

G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL WIDTH	FLARE LENGTH		W		ANCHORS									IMPACT ATTENUATOR		SINGLE FACED CONCRETE BARRIER	REMOVE EXISTING GUIDERAIL	REMOVE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	Type III	B-77	GREU, TL-3	GREU, TL-2	CAT-1	AT-1	Type III SC	B-77 SC		G	NG				
-Y3-	27+00.33	28+02.50	LT																								102.47	
-Y3-	31+37.07	33+77.00	LT																								240.16	
-Y3-	25+15.59	27+65.50	RT																								249.93	
-Y3-	31+00.95	32+02.96	RT																								102.19	
-L-	340+00.00	342+43.85	MED																							243.88		
-L-	341+60.42	361+45.23	MED																							1984.89		
-L-	360+67.58	377+75.55	MED																							1708.13		
-L-	376+96.55	384+99.85	MED																							803.36		
-L-	385+76.67	406+33.31	MED																							2056.68		
-L-	405+50.55	437+25.21	MED																							3174.43		
-L-	425+24.96	426+08.45	MED																							83.52		
-L-	437+64.90	462+70.05	MED																							2505.17		
-L-	453+06.03	453+56.82	MED																							50.9		
-L-	463+20.62	495+00.00	MED																							3179.42		
-L-	470+58.07	471+08.60	LT/MED																							50.71		
-L-	487+97.09	488+47.51	LT/MED																							50.53		
-L-	67+00.00	67+00.00	LT/MED/RT																					3				
SHEET TOTAL																								3		15891.62	694.75	
SHEET 1 TOTAL				8427.88												8	22		14						1687.41	12061.41	24625.29	
SHEET 2 TOTAL				11924.61											4	11	23	2	12						1720.75		3683.35	
LESS ANCHOR DEDUCTION																												
TYPE III		4	@ 18.75'	-75																								
B-77		19	@ 22.875'	-434.625																								
GREU TL-2		2	@ 25.00'	-50																								
GREU TL-3		45	@ 50.00'	-2250																								
CAT-1		26	@ 6.25'	-162.5																								
PROJECT TOTAL				17380.365											4	19	45	2	26					3	3408.16	27953.03	29003.39	
SAY				**17400**											**4**	**19**	**45**	**2**	**26**					**3**	**3410**	**27960**	**29010**	
ADDITIONAL GUARDRAIL POSTS				**10**																								

COMPUTED BY: CJH DATE: 3/11/2022

CHECKED BY: WJW DATE: 5/4/2022

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
I-5987A	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)

| LINE & STATION | OFFSET | STRUCTURE NUMBER | | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | MINIMUM REQUIRED SLOPE | Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) | | | | | | | | | | | C. S. PIPE | | | | | | | R. C. PIPE CLASS III | | | | | | | R. C. PIPE CLASS IV | | | | | | | 16" WELDED STEEL PIPE 0.25" THICK, GRADE B IN SOIL | 18" WELDED STEEL PIPE 0.25" THICK, GRADE B IN SOIL | 24" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL | 30" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL | 36" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL | 42" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL | 48" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL | 16" WELDED STEEL PIPE 0.25" THICK, GRADE B NOT IN SOIL | 18" WELDED STEEL PIPE 0.25" THICK, GRADE B NOT IN SOIL | 24" WELDED STEEL PIPE 0.50" THICK, GRADE B NOT IN SOIL | 30" WELDED STEEL PIPE 0.50" THICK, GRADE B NOT IN SOIL | 36" WELDED STEEL PIPE 0.50" THICK, GRADE B NOT IN SOIL | 42" WELDED STEEL PIPE 0.625" THICK, GRADE B NOT IN SOIL | 48" WELDED STEEL PIPE 0.625" THICK, GRADE B NOT IN SOIL | ENDWALLS STD. 838.01 OR STD.838.11 (UNLESS OTHERWISE NOTED) | REINFORCED ENDWALLS | QUANTITIES FOR DRAINAGE STRUCTURES *TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') | | | C.B. STD. 840.01 OR STD. 840.02 | FRAME, GRATES, AND HOOD STANDARD 840.03 | | | CONCRETE TRANSITIONAL SECTION | | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME AND GRATE STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR 840.26 | G.D.I. TYPE "B" STD. 840.18 OR 840.27 | G.D.I. TYPE "D" STD. 840.19 OR 840.28 | G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20 | G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22 | G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24 | J.B. STD. 840.31 OR 840.32 | T.B.J.B. STD. 840.34 | T.B.D.I. STD. 840.35 | T.B.D.I. FOR STEEL GRATES STD. 840.36 | STEEL FRAME AND TWO GRATES STD. 840.37 | M.H. STD. 840.51, STD. 840.52, OR STD.53 | M.H. FRAME AND COVER STD. 840.54 | TEMP STEEL PLATE COVER MASONRY DRAINAGE | 15" C.S. ELBOW | 15" SIDE DRAIN PIPE ELBOW | FLOWABLE FILL, C.Y. | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---

COMPUTED BY: CJH DATE: 3/11/2022

CHECKED BY: WJW DATE: 5/4/2022

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
I-5987A	3D-2

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

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

LINE & STATION	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) SIZE 15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
								THICKNESS OR GAUGE										
		426	425		124.80	124.50												
LA 72+13		427		128.20														
	20 LT	427	421		122.80	122.70	.4											
LA 72+13		428		127.50														
	20 RT	428	427		122.90	122.80	.3											
LA 72+37		429		127.50														
	72 LT	429	428		123.00	122.90												
SR6 36+10		430		127.09														
	79 RT	430	422		123.90	123.40												
SR6 36+10		431		127.09														
	79 RT	431	423		123.90	123.20												
LA 72+50		432		128.10														
	74 RT	432	424		124.00	123.80												
LA 72+50		433		128.80														
	42 LT	433	425		124.80	124.50												
LA 72+50		434		129.00														
	42 LT	434	433		124.90	124.80												
LA 72+50		435		128.40														
	49 LT	435	427		124.40	124.00												
LA 73+15	40 LT	436		128.20														
		436	429		123.60	123.30												
SR6 37+66	20 LT	437		127.79														
		437	409		121.10	120.80												
SR6 37+50	20 RT	438		127.93														
		438	431		124.60	123.90												
SR6 28+69	72 LT	439		125.40														
SR6 34+75		440		127.00														
	3 LT	440	401		120.60	120.30												
SR6 28+69		441		125.40														
SR6 31+09	3 RT	442		128.20														
		442	451		120.60	120.10												
LA 67+40	74 RT	443		128.50														
		443	404		121.00	120.80												
LA 67+40	79 RT	444		128.60														
		444	443		121.10	121.00	.3											
LA 67+40	72 LT	445		127.90														
		445	444		121.30	121.10												
SR6 31+90	3 LT	446		125.70														
		446	401		122.70	122.60	.6											
SR6 34+75	74 RT	447		124.90														
		447	440		121.90	121.80	.4											
SR6 35+78	20 LT	448		125.40														
		448	408		122.40	122.30												
SR6 29+07	20 RT	449		126.50														
		449	439		120.10	120.00												
SR6 29+01	72 LT	450		127.00														
		450	410		120.10	120.00												
SR6 28+95	4 LT	451		127.50														
		451	441		120.10	120.00												
SR6 39+00	3 RT	501		128.90														
SHEET TOTAL																		

LINE & STATION	OFFSET	C. S. PIPE SIZE 15	18	24	30	36	42	48	R. C. PIPE CLASS III SIZE 15	18	24	30	36	42	48	R. C. PIPE CLASS IV SIZE 15	18	24	30	36	42	48	16" WELDED STEEL PIPE 0.25" THICK, GRADE B IN SOIL	18" WELDED STEEL PIPE 0.25" THICK, GRADE B IN SOIL	24" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL	30" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL	36" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL	42" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL	48" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL	16" WELDED STEEL PIPE 0.25" THICK, GRADE B NOT IN SOIL	18" WELDED STEEL PIPE 0.25" THICK, GRADE B NOT IN SOIL	24" WELDED STEEL PIPE 0.50" THICK, GRADE B NOT IN SOIL	30" WELDED STEEL PIPE 0.50" THICK, GRADE B NOT IN SOIL	36" WELDED STEEL PIPE 0.50" THICK, GRADE B NOT IN SOIL	42" WELDED STEEL PIPE 0.625" THICK, GRADE B NOT IN SOIL	48" WELDED STEEL PIPE 0.625" THICK, GRADE B NOT IN SOIL	ENDWALLS STD. 838.01 OR STD.838.11 (UNLESS OTHERWISE NOTED) CY	REINFORCED ENDWALLS CY
		0.064	0.064	0.064	0.079	0.079	0.109	0.109																												
																8																					
LA 72+13																																				
	20 LT																			16																
LA 72+13																																				
	20 RT																			8																
LA 72+37																																				
	72 LT																			24																
SR6 36+10																																				
	79 RT															36																				
SR6 36+10																																				
	79 RT															36																				
LA 72+50																																				
	74 RT															40																				
LA 72+50																																				
	42 LT															36																				
LA 72+50																																				
	42 LT															8																				
LA 72+50																																				
	49 LT																																			
LA 73+15	40 LT															36																				
				76																																
SR6 37+66	20 LT																																			
																				132																
SR6 37+50	20 RT																																			
																140																				
SR6 28+69	72 LT																																			
SR6 34+75																																				
	3 LT																			288																
SR6 28+69																																				
SR6 31+09	3 RT																																			
																				216																
LA 67+40	74 RT																																			
																				72																
LA 67+40	79 RT																																			
																				8																
LA 67+40	72 LT																																			
																				72																
SR6 31+90	3 LT																																			
																8																				
SR6 34+75	74 RT																																			
																8																				
SR6 35+78	20 LT																																			
																8																				
SR6 29+07	20 RT																																			
																				40																
SR6 29+01	72 LT																																			
				36																																
SR6 28+95	4 LT																																			
																				32																
SR6 39+00	3 RT																																			
SHEET TOTAL				76	36	48	80	780								364																				

LINE & STATION	OFFSET	QUANTITIES FOR DRAINAGE STRUCTURES *TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN.FT. A	B	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	STEEL FRAME AND TWO GRATES STD. 840.37	M.H. STD. 840.51, STD. 840.52, OR STD.53	M.H. FRAME AND COVER STD. 840.54	TEMP STEEL PLATE COVER MASONARY DRAINAGE	15" C.S. ELBOW	15" SIDE DRAIN PIPE ELBOW	FLOWABLE FILL, C.Y.	PIPE REMOVAL LIN. FT.	REMARKS
		PER EACH (0' THRU 5.0')	5.0' THRU 10.0'	10.0' AND ABOVE																												
LA 72+13		1	0.4																													T.B. PRECAST DRAINAGE STRUCTURE (STD. 840.46)
	20 LT																															
LA 72+13		1																												9.6		T.B. PRECAST DRAINAGE STRUCTURE (STD. 840.46)
	20 RT																															
LA 72+37		1																														T.B. PRECAST DRAINAGE STRUCTURE (STD. 840.46)
	72 LT																															
SR6 36+10		1		1		1																										
	79 RT																															
SR6 36+10		1		1			1																									
	79 RT																															
LA 72+50		1																														
	74 RT																															
LA 72+50		1																														
	42 LT																															
LA 72+50		1																														
	42 LT																															
LA 72+50		1																														
	49 LT																															
LA 73+15	40 LT	1									1		1																			SEE SPECIAL DETAIL SHEET 2C-12
SR6 37+66	20 LT	1	1.7		1		1																									
SR6 37+50	20 RT	1			1			1																								
SR6 28+69	72 LT																															SEE SPECIAL DETAIL SHEET 2C-8 (SEE TOTAL QUANITITY AT STRUCTURE # 0410)
SR6 34+75		1	1.4																1					1							
	3 LT																														284	
SR6 28+69																																SEE SPECIAL DETAIL SHEET 2C-8 (SEE TOTAL QUANITITY AT STRUCTURE # 0410)
SR6 31+09	3 RT	1	2.6																1					1							
LA 67+40	74 RT	1	2.5																					1	1							T.B. PRECAST DRAINAGE STRUCTURE (STD. 840.46)
LA 67+40	79 RT	1	2.5																					1	1							T.B. PRECAST DRAINAGE STRUCTURE (STD. 840.46)
LA 67+40	72 LT	1	1.6																					1	1							T.B. PRECAST DRAINAGE STRUCTURE (STD. 840.46)
SR6 31+90	3 LT	1																			1	1										
SR6 34+75	74 RT	1																			1	1										
SR6 35+78	20 LT	1																			1	1										
SR6 29+07	20 RT	1	1.4																1					1							
SR6 29+01	72 LT	1	1.9																1					1							
SR6 28+95	4 LT	1	2.4																1					1							
SR6 39+00	3 RT	1			1			1																								
SHEET TOTAL		24	18.4		5		2	3			3	3	1			1			5			10	10		5				9.6	284	

ABBREVIATIONS

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

COMPUTED BY: CJH DATE: 3/11/2022

CHECKED BY: WJW DATE: 5/4/2022

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
I-5987A	3D-3

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

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

LINE & STATION	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) SIZE 15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
								THICKNESS OR GAUGE										
		501	438		125.70	124.60												
SR6 41+50	20 LT	502		128.68														
		502	542		122.60	122.50												
SR6 41+80	20 RT	503		128.59														
		503	509		125.40	124.90												
LA 78+50	84 LT	504		128.40														
		504	544		124.30	123.90												
LA 78+50	3 LT	505		129.50														
		505	506		125.40	125.30												
LA 78+50	3 RT	506		129.60														
		506	510		125.30	125.10												
LA 78+50	74 RT	507		128.80														
		507	511		124.70	124.30												
SR6 42+34	20 LT	508		128.48														
		508	502		122.80	122.60												
SR6 42+34	20 RT	509		128.49														
		509	508		122.90	122.80												
LA 78+83	3 RT	510		129.50														
		510	538		125.10	124.80												
LA 78+83	74 RT	511		128.80														
		511	539		124.30	124.10												
SR6 42+72	20 RT	512		128.55														
		512	509		123.00	122.90												
LA 79+05	84 LT	513		128.35														
		513	512		123.10	123.00												
LA 79+05	3 LT	514		129.43														
		514	513		123.30	123.10												
LA 79+50	84 LT	515		128.38														
		515	513		123.80	123.60	.7											
LA 79+50	3 LT	516		129.46														
		516	517		125.40	125.30												
LA 79+50	3 RT	517		129.56														
		517	538		125.30	124.80	.4											
LA 79+50	74 RT	518		128.84														
		518	539		124.70	124.10												
SR6 43+32	33 LT	519		128.62														
		519	508		125.40	124.50												
LA 81+00	76 RT	520		129.43														
		520	518		125.40	124.70												
SR6 44+85	32 LT	521		129.95														
		521	519		126.70	125.40												
SR6 45+00	20 RT	522		130.33														
		522	512		127.10	124.20												
LA 82+00	84 LT	523		129.19														
		523	515		125.10	123.80												
LA 83+00	3 LT	524		130.45														
		524	516		126.40	125.40												
SR6 48+61	20 LT	525		131.22														
		525	526		128.00	127.80												
SR6 48+61	20 RT	526		131.22														
						SHEET TOTAL												

C. S. PIPE SIZE 15	18	24	30	36	42	48	0.064	0.064	0.064	0.079	0.079	0.109	0.109
THICKNESS OR GAUGE													

COMPUTED BY: CJH DATE: 3/11/2022

CHECKED BY: WJW DATE: 5/4/2022

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
I-5987A	3D-4

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

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

LINE & STATION	OFFSET		STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) SIZE 15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
									THICKNESS OR GAUGE										
			526	527		127.80	125.80	.5											
LA 85+00	84	LT	527		129.87														
			527	546		125.50	124.50	.4											
LA 85+00	3	RT	528		130.52														
			528	530		126.40	126.00												
Y1RPC 10+50	25	RT	529		129.82														
			529	533		126.70	126.60												
LA 85+73	3	RT	530		130.44														
			530	532		125.70	124.90												
SR6 49+50	20	LT	531		131.38														
			531	525		128.50	128.00												
LA 86+96	3	RT	532		130.65														
			532	547		124.00	123.90												
Y1RPC 10+50	32	RT	533		130.16														
			533	535		126.60	126.10												
Y1RPC 13+50	32	RT	534		130.20														
			534	545		125.00	124.80												
LA 83+00	89	RT	535		130.09														
			535	536		126.10	125.10	.3											
LA 80+50	79	RT	536		128.23														
			536	537		125.10	124.40												
LA 79+05	79	RT	537		132.05														
			537	539		123.90	123.80												
LA 79+05	3	RT	538		129.51														
			538	514		123.40	123.30												
LA 79+05	74	RT	539		128.71														
			539	538		123.50	123.40												
SR6 38+68	42	LT	540		129.33														
			540	541		121.40	121.30	.4											
SR6 38+68	32	LT	541		128.63														
			541	437		121.30	121.10												
SR6 41+18	20	LT	542		129.10														
			542	543		122.50	122.20												
SR6 39+98	32	LT	543		129.55														
			543	541		122.20	121.70												
LA 78+94	84	LT	544		128.35														
			544	513		123.90	123.80												
Y1RPC 13+50	25	RT	545		128.17														
			545	532		124.80	124.40	.4											
Y1RPB 11+25	23	LT	546		130.10														
			546	601		123.10	122.50												
LA 86+96	3	LT	547		131.58														
			547	546		123.90	123.50												
Y1RPB 12+70	23	LT	601		128.96														
			601	604		122.50	122.10												
Y1RPC 14+46	25	RT	602		127.45														
			602	545		125.40	125.10												
Y1RPC 15+00	25	RT	603		127.60														
			603	602		125.60	125.40												
Y1RPB 13+75	23	LT	604		128.17														
SHEET TOTAL																			

C. S. PIPE SIZE 15	18	24	30	36	42	48	16" WELDED STEEL PIPE 0.25" THICK, GRADE B IN SOIL	18" WELDED STEEL PIPE 0.25" THICK, GRADE B IN SOIL	24" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL	30" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL	36" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL	42" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL	48" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL
THICKNESS OR GAUGE 0.064	0.064	0.064	0.079	0.079	0.109	0.109							

COMPUTED BY: CJH DATE: 3/11/2022

CHECKED BY: WJW DATE: 5/4/2022

PROJECT NO.	SHEET NO.
I-5987A	3D-5

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

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

LINE & STATION	OFFSET		STRUCTURE NUMBER		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	MINIMUM REQUIRED SLOPE	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC)							DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	C. S. PIPE							R. C. PIPE CLASS III							R. C. PIPE CLASS IV							16" WELDED STEEL PIPE 0.25" THICK, GRADE B IN SOIL	18" WELDED STEEL PIPE 0.25" THICK, GRADE B IN SOIL	24" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL	30" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL	36" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL	42" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL	48" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL	16" WELDED STEEL PIPE 0.25" THICK, GRADE B NOT IN SOIL	18" WELDED STEEL PIPE 0.25" THICK, GRADE B NOT IN SOIL	24" WELDED STEEL PIPE 0.50" THICK, GRADE B NOT IN SOIL	30" WELDED STEEL PIPE 0.50" THICK, GRADE B NOT IN SOIL	36" WELDED STEEL PIPE 0.50" THICK, GRADE B NOT IN SOIL	42" WELDED STEEL PIPE 0.625" THICK, GRADE B NOT IN SOIL	48" WELDED STEEL PIPE 0.625" THICK, GRADE B NOT IN SOIL	ENDWALLS STD. 838.01 OR STD.838.11 (UNLESS OTHERWISE NOTED)	REINFORCED ENDWALLS	QUANTITIES FOR DRAINAGE STRUCTURES *TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B')			C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03			CONCRETE TRANSITIONAL SECTION		D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	STEEL FRAME AND TWO GRATES STD. 840.37	M.H. STD. 840.51, STD. 840.52, OR STD.53	M.H. FRAME AND COVER STD. 840.54	TEMP STEEL PLATE COVER MASONARY DRAINAGE	15" C.S. ELBOW	15" SIDE DRAIN PIPE ELBOW	FLOWABLE FILL, C.Y.	PIPE REMOVAL LIN. FT.	REMARKS
SIZE									15	18	24	30	36	42	48					15	18	24	30	36	42	48	15	18	24	30	36	42	48	15	18	24	30	36	42	48																	PER EACH (0' THRU 5.0')	LIN.FT. A 5.0' THRU 10.0'	LIN.FT. B 10.0' AND ABOVE		TYPE OF GRATE			D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05																					
THICKNESS OR GAUGE			FROM	TO	FT.	FT.	FT.	%												0.064	0.064	0.064	0.079	0.079	0.109	0.109																															CY	CY					E	F	G																							
			604	605		122.10	121.90																															60																																															129	
Y1RPB 14+36	23	LT	605		128.03																																																				1	1.2																				1	1								
			605	636		121.90	121.60																															80																																																
LA 95+00	3	LT	606		130.85																																																			1																					1	1								
			606	610		126.50	125.50	.3																										36																																																				
LA 95+00	3	RT	607		130.72																																																			1																					1	1								
			607	606		126.60	126.50																											8																																																				
LA 95+35	3	RT	608		130.70																																																			1	0.5																				1	1								
			608	610		125.20	125.10																												12																																																		
LA 95+35	70	RT	609		130.17																																																			1																					1	1								
			609	608		125.60	125.20																												68																																																	116	
LA 95+35	3	LT	610		130.81																																																			1	0.8																				1	1								
			610	648		125.10	125.00	.4																											24																																																	84	
LA 95+80	70	LT	611		130.12																																																			1	0.8																				1	1								
			611	638		124.40	124.20																													40																																															41	
LA 96+00	70	RT	612		130.29																																																			1																					1	1								
			612	609		126.20	125.90																											68																																																				
LA 96+50	4	LT	613		130.92																																																			1																					1	1								
			613	648		126.80	125.50	.3																										96																																																			311	
LA 96+50	3	RT	614		130.93																																																			1																					1	1								
			614	613		126.90	126.80																											12																																																		8.6		
LA 101+00	3	LT	615		132.48																																																			1																					1	1								
			615	639		128.30	126.90																																		48							48																																									
LA 101+00	3	RT	616		132.50																																																			1																					1	1								
			616	615		128.40	128.30																											8																																																				
LA 105+50	3	RT	617		133.64																																																			1																					1	1								
			617	618		129.60	129.40																											40																																																				
LA 105+93	3	RT	618		133.60																																																			1																					1	1								
			618	619		129.10	129.00																												8																																																		
LA 105+93	3	LT	619		133.72																																																			1																					1	1								
			619	621		129.00	128.60																												84																																																		
LA 106+78	3	RT	620		133.76																																																			1																					1	1								
			620	621		129.70	129.00																											8																																																					
LA 106+78	3	LT	621		133.61																																																			1	0.1																				1	1								
			621	656		128.60	126.00																																			52							52																																							
LA 107+50	3	LT	622		133.69																																																			1																					1	1								
			622	621		129.60	129.00																											72																																																					
LA 113+00	3	RT	623		135.58																																																			1																					1	1								
			623	626		131.50	130.90																											48																																																						
LA 113+48	3	LT	625		135.86																																																			1	0.4																				1	1								
			625	624		130.50	126.00	.4																																		56							56																																			6.2		
LA 113+48	3	RT	626		135.54																																																			1																					1	1								
			626	625		130.60	130.50																												8																																																		
LA 114+00	3	RT	627		135.59																																																			1																					1	1								
			627	626		131.40	130.90																											48																																																						
LA 110+00	3	LT	628		134.57																																																			1																					1	1								
			628	647		130.50	129.90																																		44							44																																				13.6	231	
Y1RPC 14+59	32	RT	631		130.30																																																			1																					1	1								
			631	534		125.70	125.00																													104																																																		
Y1RPB 20+40	134	LT	632		124.90																																															6.0																																	
SHEET TOTAL																																		444	204	144		140			92	108						92	108						6.0		24	3.8																				24	24						28.4	912	

ABBREVIATIONS

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

COMPUTED BY: CJH DATE: 3/11/2022

CHECKED BY: WJW DATE: 5/4/2022

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
I-5987A	3D-6

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

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

LINE & STATION	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) SIZE 15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
								THICKNESS OR GAUGE										
Y1RPB 20+25	107 LT	633		129.62														
		633	632		119.60	119.50												
Y1RPB 18+55	60 LT	634		128.44														
		634	633		120.00	119.60												
Y1RPC 16+50	44 RT	635		127.09														
		635	645		124.80	124.30												
Y1RPB 15+18	35 LT	636		126.80														
		636	655		120.60	120.30												
LA 91+00	90 LT	637		128.50														
		637	636		122.00	121.60												
LA 95+50	93 LT	638		127.03														
		638	661		123.70	123.00												
LA 101+00	95 LT	639		128.90														
		639	640		126.20	125.60												
LA 103+00	91 LT	640		130.36														
		640	641		125.60	125.30	.4											
LA 101+00	106 RT	642		128.50														
		642	643		126.70	126.10	.5											
Y1RPD 16+64	57 LT	643		132.50														
		643	644		125.60	124.80												
LA 91+00	99 RT	645		127.10														
		645	637		123.30	122.50												
Y1RPB 14+36	33 LT	646		126.60														
		646	605		123.60	123.50												
LA 110+00	86 LT	647		134.00														
		647	629		129.90	129.00	.4											
LA 95+58	3 LT	648		130.80														
		648	611		124.70	124.40												
SR6 54+34	37 LT	649		129.50														
SR6 54+34	49 LT	650		130.50														
		650	649		127.50	127.00												
SR6 53+08	38 LT	651		131.50														
SR6 53+07	49 LT	652		128.90														
		652	651		125.90	125.50												
SR6 50+90	40 LT	653		131.50														
SR6 50+90	49 LT	654		129.00														
		654	653		126.00	125.50												
Y1RPB 16+90	44 LT	655		129.10														
		655	634		120.30	120.00												
LA 106+79	99 RT	656		131.70														
		656	630		126.00	124.70	.5											
Y1RPD 13+32	24 LT	657		130.70														
		657	658		127.70	124.80	.9											
LA 107+50	87 LT	659		133.30														
		659	660		130.30	124.20	1.1											
LA 93+00	92 LT	661		127.85														
		661	637		123.00	122.50												
LA 93+00	93 RT	662		127.70														
		662	645		123.85	123.30												
LA 99+50	86 LT	663		129.35														
						SHEET TOTAL												

C. S. PIPE THICKNESS OR GAUGE	15	18	24	30	36	42	48
	0.064	0.064	0.064	0.079	0.079	0.109	0.109
							52
							204
							168

COMPUTED BY: CJH DATE: 3/11/2022

CHECKED BY: WJW DATE: 5/4/2022

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
I-5987A	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)

LINE & STATION	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) SIZE 15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
								THICKNESS OR GAUGE										
		663	639		127.40	126.90												
LA 112+47	86 RT	664		134.69														
		664	665		130.20	124.35												
Y1RPA 14+40	24 RT	667		130.20														
		667	668		127.40	125.00												
LA 117+00	3 RT	701		137.02														
		701	627		132.90	131.40												
LA 123+50	3 LT	702		137.57														
		702	703		133.50	133.00												
LA 124+28	3 LT	703		137.48														
		703	710		131.90	130.00												
LA 124+27	3 RT	704		137.75														
		704	703		133.70	133.40												
LA 124+92	3 RT	705		137.69														
		705	706		133.10	133.00												
LA 124+92	3 LT	706		137.54														
		706	703		133.00	132.40												
LA 125+50	3 RT	707		137.74														
		707	705		133.70	133.40												
LA 129+50	3 LT	708		139.49														
		708	711		134.80	132.10	.8											
LA 129+50	3 RT	709		139.31														
		709	708		135.20	134.80												
LA 129+18	74 RT	712		138.46														
		712	713		134.40	131.40												
LA 139+00	3 LT	801		141.41														
		801	803		137.30	137.00												
LA 139+00	3 RT	802		143.22														
		802	801		137.80	137.30												
LA 139+65	3 LT	803		141.35														
		803	806		136.70	136.00												
LA 140+50	3 LT	804		141.46														
		804	806		137.40	136.00	.5											
LA 140+07	105 LT	805		136.30														
LA 139+93	3 LT	806		141.36														
		806	805		132.40	132.00												
LA 139+93	105 RT	807		137.10														
		807	806		132.80	132.40												
LA 133+00	3 LT	808		141.05														
		808	708		136.60	134.80												
LA 133+00	3 RT	809		140.75														
		809	808		136.70	136.60												
LA 140+50	3 RT	810		143.84														
		810	804		137.60	137.40												
LA 134+72	74 LT	811		141.00														
		811	812		136.90	134.40												
LA 137+30	74 LT	813		141.20														
		813	814		137.00	133.70												
LA 146+00	3 LT	901		143.61														
		901	905		139.50	135.70												
				SHEET TOTAL														

C. S. PIPE SIZE 15	18	24	30	36	42	48	0.064	0.064	0.064	0.079	0.079	0.109	0.109
THICKNESS OR GAUGE													
							42						
							18						

COMPUTED BY: CJH DATE: 3/11/2022

CHECKED BY: WJW DATE: 5/4/2022

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
I-5987A	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)

LINE & STATION	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) SIZE 15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
								THICKNESS OR GAUGE										
LA 146+00	3 RT	902		146.11														
		902	901		140.00	139.50												
LA 155+00	3 LT	903		147.18														
		903	906		143.10	139.40	.4											
LA 155+00	3 RT	904		149.83														
		904	903		143.60	143.10												
LA 150+00	3 LT	908		145.19														
		908	907		141.10	137.30	.4											
LA 150+00	3 RT	909		147.76														
		909	908		141.50	141.10												
LA 163+00	3 RT	1001		150.70														
		1001	1003		146.60	145.40												
LA 166+40	3 LT	1002		147.27														
		1002	1011		137.50	137.00												
LA 165+50	3 RT	1003		149.74														
		1003	1004		145.40	145.00												
LA 166+10	3 RT	1004		149.69														
		1004	1005		144.70	144.30												
LA 166+40	3 RT	1005		149.70														
		1005	1002		137.70	137.50												
LA 167+00	3 LT	1006		147.16														
		1006	1002		141.30	141.00												
LA 167+40	3 LT	1007		147.14														
		1007	1006		141.70	141.30												
LA 168+00	3 LT	1008		147.19														
		1008	1007		142.30	142.00												
LA 171+00	3 LT	1009		148.22														
		1009	1013		143.80	138.70												
LA 171+00	3 RT	1010		148.00														
		1010	1009		143.90	143.80												
LA 166+52	112 LT	1011		140.80														
LA 166+32	137 RT	1012		142.00														
		1012	1005		138.20	137.70												
LA 164+30	74 LT	1014		147.19														
		1014	1015		143.00	137.80												
LA 173+50	3 RT	1101		147.49														
		1101	1102		143.40	142.80												
LA 174+17	3 RT	1102		147.39														
		1102	1103		142.50	140.00	.4											
LA 174+75	3 RT	1104		147.47														
		1104	1102		143.10	142.80												
LA 176+00	3 RT	1105		147.86														
		1105	1104		143.80	143.10												
LA 178+00	3 LT	1106		148.91														
		1106	1107		144.80	143.50												
LA 180+50	3 LT	1107		148.11														
		1107	1109		143.50	143.20												
LA 180+50	3 RT	1108		147.97														
		1108	1107		143.90	143.80												
LA 180+95	3 LT	1109		148.08														
SHEET TOTAL								39										

C. S. PIPE SIZE 15	18	24	30	36	42	48	0.064	0.064	0.064	0.079	0.079	0.109	0.109
THICKNESS OR GAUGE													

COMPUTED BY: CJH DATE: 3/11/2022

CHECKED BY: WJW DATE: 5/4/2022

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
I-5987A	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)

LINE & STATION	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) SIZE 15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
								THICKNESS OR GAUGE										
		1109	1116		143.20	143.00												
LA 181+05	3 RT	1110		147.93														
		1110	1116		137.80	137.70												
LA 181+50	3 LT	1111		148.12														
		1111	1116		143.40	143.00	.5											
LA 181+50	3 RT	1112		147.96														
		1112	1111		143.90	143.80												
LA 183+00	3 LT	1113		148.55														
		1113	1111		144.20	143.40												
LA 183+00	3 RT	1114		148.38														
		1114	1113		144.30	144.20												
LA 181+00	105 LT	1115		142.30														
LA 181+05	3 LT	1116		148.10														
		1116	1115		137.70	137.00												
LA 181+00	118 RT	1117		143.50														
		1117	1110		138.20	137.80												
		1118	1119		138.00	137.00												
LA 172+28	74 RT	1118		148.00														
		1118	1119		143.50	142.10												
LA 181+94	74 RT	1120		147.59														
		1120	1121		143.40	141.50												
LA 184+83	120 RT	1122		143.00														
LA 182+58	105 LT	1123		142.30														
LA 187+00	3 RT	1201		148.50														
		1201	1213		144.40	139.30												
LA 189+00	3 RT	1202		147.86														
		1202	1203		143.40	142.70												
LA 190+50	3 RT	1203		147.53														
		1203	1205		142.70	142.50												
LA 191+00	3 LT	1204		147.63														
		1204	1207		142.40	142.00	.5											
LA 191+00	3 RT	1205		147.49														
		1205	1204		142.50	142.40												
LA 191+74	3 RT	1206		147.45														
		1206	1207		143.10	143.00												
LA 191+83	3 LT	1207		147.38														
		1207	1221		141.50	140.90												
LA 192+50	3 LT	1208		147.44														
		1208	1207		142.50	142.00												
LA 192+50	3 RT	1209		147.52														
		1209	1208		143.50	143.40												
LA 195+00	3 LT	1210		148.25														
		1210	1214		143.70	141.90	.9											
LA 195+00	3 RT	1211		148.28														
		1211	1210		144.00	143.70												
LA 199+30	104 LT	1215		146.50														
LA 199+59	108 RT	1216		147.00														
		1216	1217		141.70	141.50												
LA 199+44	3 RT	1217		150.51														
		1217	1218		141.50	141.40												
				SHEET TOTAL														

C. S. PIPE THICKNESS OR GAUGE	15	18	24	30	36	42	48
	0.064	0.064	0.064	0.079	0.079	0.109	0.109

COMPUTED BY: CJH DATE: 3/11/2022

CHECKED BY: WJW DATE: 5/4/2022

PROJECT NO.	SHEET NO.
I-5987A	3D-10

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

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

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	C. S. PIPE 15 (0.064)	18 (0.064)	24 (0.064)	30 (0.079)	36 (0.079)	42 (0.109)	48 (0.109)	R. C. PIPE CLASS III 15	18	24	30	36	42	48	R. C. PIPE CLASS IV 15	18	24	30	36	42	48	16" WELDED STEEL PIPE 0.25" THICK, GRADE B IN SOIL	18" WELDED STEEL PIPE 0.25" THICK, GRADE B IN SOIL	24" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL	30" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL	36" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL	42" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL	48" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL	16" WELDED STEEL PIPE 0.25" THICK, GRADE B NOT IN SOIL	18" WELDED STEEL PIPE 0.25" THICK, GRADE B NOT IN SOIL	24" WELDED STEEL PIPE 0.50" THICK, GRADE B NOT IN SOIL	30" WELDED STEEL PIPE 0.50" THICK, GRADE B NOT IN SOIL	36" WELDED STEEL PIPE 0.50" THICK, GRADE B NOT IN SOIL	42" WELDED STEEL PIPE 0.625" THICK, GRADE B NOT IN SOIL	48" WELDED STEEL PIPE 0.625" THICK, GRADE B NOT IN SOIL	ENDWALLS STD. 838.01 OR STD.838.11 (UNLESS OTHERWISE NOTED) CY	REINFORCED ENDWALLS CY	QUANTITIES FOR DRAINAGE STRUCTURES (*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B')) PER EACH (0' THRU 5.0')	LIN.FT. A 5.0' THRU 10.0'	LIN.FT. B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	STEEL FRAME AND TWO GRATES STD. 840.37	M.H. STD. 840.51, STD. 840.52, OR STD.53	M.H. FRAME AND COVER STD. 840.54	TEMP STEEL PLATE COVER MASONARY DRAINAGE	15" C.S. ELBOW	15" SIDE DRAIN PIPE ELBOW	FLOWABLE FILL, C.Y.	PIPE REMOVAL LIN. FT.	REMARKS
LA 199+43	3 LT	1218		150.50																																																			1	4.1																			1	1								T.B. PRECAST DRAINAGE STRUCTURE (STD. 840.46)
		1218	1215		141.40	141.20																																							52							52																																
LA 189+08	74 RT	1219		147.36																																																			1																				1	1								
		1219	1220		143.20	139.60													36																																																																		
LA 191+83	74 LT	1221		146.66																																																			1	0.8																			1	1								
		1221	1212		140.90	140.70																																				12							12																																			
LA 209+00	3 LT	1301		148.99																																																			1																				1	1								
		1301	1302		144.10	143.90																												40																																																						
LA 208+67	3 RT	1302		148.94																																																			1	0.4																			1	1								
		1302	1313		143.50	143.10																																				44							44																																			
LA 208+30	2 LT	1303		149.06																																																			1																				1	1								
		1303	1304		144.80	144.70																											8																																																								
LA 208+30	3 RT	1304		148.96																																																			1																				1	1								
		1304	1302		144.70	144.30	.5																										40																																																						
LA 209+30	2 LT	1305		149.00																																																			1																				1	1								
		1305	1301		144.70	144.40	.4																										36																																																							
LA 209+30	3 RT	1306		148.99																																																			1																				1	1								
		1306	1305		144.80	144.70																											8																																																							
LA 213+62	132 LT	1307		146.80																																																		4.9																																
Y2 31+00	15 LT	1308		170.69																																																			1																				1	1								
		1308	1310		167.00	145.50													108																																																												2				
Y2 31+00	17 RT	1309		170.69																																																			1																				1	1								
		1309	1308		167.30	167.00																											32																																																					177	
LA 208+67	86 RT	1313		148.04																																																			1											1			1																
		1313	1314		143.10	142.90																													28																																																					
LA 209+00	85 LT	1315		148.09																																																			1												1		1															
		1315	1316		144.00	143.80	.5												48																																																																			
LA 213+56	3 LT	1317		150.69																																																			1	3.8																			1	1								T.B. PRECAST DRAINAGE STRUCTURE (STD. 840.46)
		1317	1323		141.90	141.60																																							44							44																													11.1		
LA 213+54	117 RT	1318		146.30																																																		6.0																																
		1318	1317		142.30	141.90																																							60							60																													11.9		
LA 205+60	3 LT	1319		149.84																																																			1																				1	1								
		1319	1320		145.60	145.50																											8																																																								
LA 205+60	3 RT	1320		149.69																																																			1																				1	1								
		1320	1304		145.50	144.70																											268																																																								
LA 207+00	86 RT	1321		148.23																																																			1																				1	1								
		1321	1325		144.30	142.71																											24																																																								
LA 211+22	86 LT	1322		148.45																																																			1																				1	1								
		1322	1324		144.60	143.00																											44																																																							
LA 213+60	86 LT	1323		149.69																																																				1	3.1																			1	1								T.B. PRECAST DRAINAGE STRUCTURE (STD. 840.46)
		1323	1307		141.60	141.50																																							24							24																															
DR3 12+62	15 LT	1326			143.70	143.60		36																																																																														24	
DR3 11+38	15 LT	1327			144.10	144.00		36																																																																													22	
LA 227+15	3 LT	1401		150.66																																																			1																				1	1								
		1401	1402		146.20	146.00																												8																																																							
LA 227+09	3 RT	1402		150.69																																																			1																				1	1								
		1402	1416		145.70	141.20	1.0																																		96							96																																			14.8		
LA 241+98	3 LT	1403		152.54																																																			1																				1	1								
		1403	1404		148.00	147.50																												28																																																							
LA 241+73	3 RT	1404		152.89																																																			1	0.4																			1	1								
							SHEET TOTAL	72											192														468	76	28						96	56				180		96	56				180	10.9		23	12.6										1	1		2						21	21				2		37.8	223	

ABBREVIATIONS

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

COMPUTED BY: CJH DATE: 3/11/2022

CHECKED BY: WJW DATE: 5/4/2022

PROJECT NO.	SHEET NO.
I-5987A	3D-11

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

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

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	C. S. PIPE 15 (0.064)	18 (0.064)	24 (0.064)	30 (0.079)	36 (0.079)	42 (0.109)	48 (0.109)	R. C. PIPE CLASS III 15	18	24	30	36	42	48	R. C. PIPE CLASS IV 15	18	24	30	36	42	48
		1404	1428		147.50	146.50	.7																																
LA 214+80	3 LT	1405		151.63																																			
		1405	1317		146.80	146.00																											112						
LA 214+80	3 RT	1406		151.62																																			
		1406	1405		146.90	146.80																											8						
LA 226+65	3 LT	1407		150.71																																			
		1407	1408		146.50	146.40																											8						
LA 226+65	3 RT	1408		150.72																																			
		1408	1402		146.40	146.00	.3																										44						
LA 227+65	3 LT	1409		150.70																																			
		1409	1410		146.50	146.40																											8						
LA 227+65	3 RT	1410		150.74																																			
		1410	1402		146.40	146.00	1.0																										60						
LA 241+25	3 LT	1411		152.65																																			
		1411	1412		148.50	148.40																											8						
LA 241+25	3 RT	1412		152.94																																			
		1412	1404		148.40	147.80	.3																										48						
LA 242+50	3 LT	1413		152.60																																			
		1413	1403		148.70	148.30	.4																										52						
LA 242+50	3 RT	1414		153.01																																			
		1414	1413		148.80	148.70																											8						
LA 232+65	3 LT	1417		153.54																																			
		1417	1418		149.40	149.30																											8						
LA 232+65	3 RT	1418		152.88																																			
		1418	1410		149.30	146.40																											504						
LA 224+57	146 RT	1421		142.50																																			
LA 227+35	177 LT	1422		142.80																																			
		1422	1423		139.30	139.23																																	
LA 226+68	99 LT	1423		147.50																																			
		1423	1421		139.23	139.00																																	
LA 229+25	119 LT	1424		143.20																																			
		1424	1423		141.20	140.00	1.7																											260					
LA 222+00	3 LT	1425		152.13																																			
		1425	1426		148.00	147.90																											8						
LA 222+00	3 RT	1426		152.23																																			
		1426	1427		147.90	145.50																																	
LA 241+73	87 RT	1428		152.37																																			
		1428	1415		146.50	145.00	1.3																											56					
LA 247+35	3 LT	1501		154.13																																			
		1501	1504		150.20	148.20																											360						
LA 247+35	3 RT	1502		154.47																																			
		1502	1501		150.30	150.20																											8						
LA 253+00	3 LT	1503		153.95																																			
		1503	1504		149.20	148.20																											208						
LA 250+92	3 LT	1504		154.49																																			
		1504	1505		143.20	141.80																																	
LA 250+53	150 RT	1505		145.60																																			
LA 251+21	119 LT	1506		147.30																																			
		1506	1504		144.30	143.20																																	
LA 243+75	85 LT	1507		151.98																																			
SHEET TOTAL																																	1452	316					

QUANTITIES FOR DRAINAGE STRUCTURES — *TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B')

FRAME, GRATES, AND HOOD STANDARD 840.03 — TYPE OF GRATE (E, F, G)

CONCRETE TRANSITIONAL SECTION — D.I. STD. 852.04 OR STD. 852.06; C.B. STD. 852.05

FROM	TO	16" WELDED STEEL PIPE 0.25" THICK, GRADE B IN SOIL	18" WELDED STEEL PIPE 0.25" THICK, GRADE B IN SOIL	24" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL	30" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL	36" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL	42" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL	48" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL	16" WELDED STEEL PIPE 0.25" THICK, GRADE B NOT IN SOIL	18" WELDED STEEL PIPE 0.25" THICK, GRADE B NOT IN SOIL	24" WELDED STEEL PIPE 0.50" THICK, GRADE B NOT IN SOIL	30" WELDED STEEL PIPE 0.50" THICK, GRADE B NOT IN SOIL	36" WELDED STEEL PIPE 0.50" THICK, GRADE B NOT IN SOIL	42" WELDED STEEL PIPE 0.625" THICK, GRADE B NOT IN SOIL	48" WELDED STEEL PIPE 0.625" THICK, GRADE B NOT IN SOIL	ENDWALLS STD. 838.01 OR STD.838.11 (UNLESS OTHERWISE NOTED) CY	REINFORCED ENDWALLS CY	PER EACH (0' THRU 5.0')	LIN.FT. A 5.0' THRU 10.0'	LIN.FT. B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	E	F	G	D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	STEEL FRAME AND TWO GRATES STD. 840.37	M.H. STD. 840.51, STD. 840.52, OR STD.53	M.H. FRAME AND COVER STD. 840.54	TEMP STEEL PLATE COVER MASONARY DRAINAGE	15" C.S. ELBOW	15" SIDE DRAIN PIPE ELBOW	FLOWABLE FILL, C.Y.	PIPE REMOVAL LIN. FT.	REMARKS
1404	1428		44							44																																					
1405																		1																				1	1								
1405	1317																																														
1406																		1																				1	1								
1406	1405																																														
1407																		1																				1	1								
1407	1408																																														
1408																		1																				1	1								
1408	1402																																														
1409																		1																				1	1								
1409	1410																																														
1410																		1																				1	1								
1410	1402																																														
1411																		1																				1	1								
1411	1412																																														
1412																		1																				1	1								
1412	1404																																														
1413																		1																				1	1								
1413	1403																																														
1414																		1																				1	1								
1414	1413																																														
1417																		1																				1	1								
1417	1418																																												6.4		
1418																		1																				1	1								
1418	1410																																														
1421																4.5																															
1422																4.5																															
1422	1423						52							52																																	
1423																		1	3.3																		1										
1423	1421						164							164																															77.5		
1424																		1													1		1														
1424	1423																																													243	
1425																		1																				1	1								
1425	1426																																														
1426																		1																				1	1								
1426	1427	60							60																																				6.9		
1428																		1	0.9																			1	1								
1428	1415																																												7.9		
1501																		1																				1	1								
1501	1504																																														
1502																		1																				1	1								
1502	1501																																														
1503																		1																				1	1								
1503	1504																																														
1504																		1	5.0	1.3																		1	1								
1504	1505			80							80																																		7.7		
1505																2.0																															
1506																2.0																															
1506	1504			60							60																																		7.4		
1507																		1																				1	1								
SHEET TOTAL		60	44	140			216		60	44	140			216		13.0		22	9.2	1.3											1		1			1		20	20						113.8	243	

ABBREVIATIONS

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

COMPUTED BY: CJH DATE: 3/11/2022

CHECKED BY: WJW DATE: 5/4/2022

PROJECT NO.	SHEET NO.
I-5987A	3D-12

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

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

LINE & STATION	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 15	Side Drain Pipe 18	Side Drain Pipe 24	Side Drain Pipe 30	Side Drain Pipe 36	Side Drain Pipe 42	Side Drain Pipe 48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	C. S. PIPE 15 (0.064)	C. S. PIPE 18 (0.064)	C. S. PIPE 24 (0.064)	C. S. PIPE 30 (0.079)	C. S. PIPE 36 (0.079)	C. S. PIPE 42 (0.109)	C. S. PIPE 48 (0.109)	R. C. PIPE CLASS III 15	R. C. PIPE CLASS III 18	R. C. PIPE CLASS III 24	R. C. PIPE CLASS III 30	R. C. PIPE CLASS III 36	R. C. PIPE CLASS III 42	R. C. PIPE CLASS III 48	R. C. PIPE CLASS IV 15	R. C. PIPE CLASS IV 18	R. C. PIPE CLASS IV 24	R. C. PIPE CLASS IV 30	R. C. PIPE CLASS IV 36	R. C. PIPE CLASS IV 42	R. C. PIPE CLASS IV 48	16" WELDED STEEL PIPE 0.25" THICK, GRADE B IN SOIL	18" WELDED STEEL PIPE 0.25" THICK, GRADE B IN SOIL	24" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL	30" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL	36" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL	42" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL	48" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL	16" WELDED STEEL PIPE 0.25" THICK, GRADE B NOT IN SOIL	18" WELDED STEEL PIPE 0.25" THICK, GRADE B NOT IN SOIL	24" WELDED STEEL PIPE 0.50" THICK, GRADE B NOT IN SOIL	30" WELDED STEEL PIPE 0.50" THICK, GRADE B NOT IN SOIL	36" WELDED STEEL PIPE 0.50" THICK, GRADE B NOT IN SOIL	42" WELDED STEEL PIPE 0.625" THICK, GRADE B NOT IN SOIL	48" WELDED STEEL PIPE 0.625" THICK, GRADE B NOT IN SOIL	ENDWALLS STD. 838.01 OR STD.838.11 (UNLESS OTHERWISE NOTED) CY	REINFORCED ENDWALLS CY	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	LIN.FT. A 5.0' THRU 10.0'	LIN.FT. B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	STEEL FRAME AND TWO GRATES STD. 840.37	M.H. STD. 840.51, STD. 840.52, OR STD.53	M.H. FRAME AND COVER STD. 840.54	TEMP STEEL PLATE COVER MASONARY DRAINAGE	15" C.S. ELBOW	15" SIDE DRAIN PIPE ELBOW	FLOWABLE FILL, C.Y.	PIPE REMOVAL LIN. FT.	REMARKS
		1507	1508		147.50	144.00																											32																																																			314	
LA 243+50	87 RT	1509		151.23																																																				1																				1	1								
		1509	1510		149.40	148.99																											24																																																				
LA 254+30	85 LT	1511		152.49																																																				1																				1	1								
		1511	1512		148.30	144.57													32																																																																		
LA 257+69	3 LT	1601		152.57																																																				1	0.3																			1	1								
		1601	1602		147.30	147.00																												36																																																	
LA 258+03	3 RT	1602		152.72																																																				1	0.8																			1	1								
		1602	1613		147.00	146.00	.4																																		56							56																																						4.5		
LA 264+79	3 LT	1603		152.71																																																				1																				1	1								
		1603	1604		148.30	148.00																												8																																																	
LA 264+79	3 RT	1604		152.55																																																				1	0.3																			1	1								
		1604	1614		147.30	146.20	.3																																		48							48																																						5.2		
LA 257+25	3 LT	1605		152.60																																																				1																				1	1								
		1605	1601		148.10	147.60	.4																										44																																																		
LA 257+25	3 RT	1606		152.87																																																				1																				1	1								
		1606	1605		148.20	148.10																											8																																																		
LA 258+50	3 LT	1607		152.67																																																				1																				1	1								
		1607	1608		148.00	147.90																											8																																																		
LA 258+50	3 RT	1608		152.77																																																				1																				1	1								
		1608	1602		147.90	147.30																											48																																																			
LA 264+29	3 LT	1609		152.76																																																				1																				1	1								
		1609	1610		148.60	148.40																											8																																																			
LA 264+29	3 RT	1610		152.59																																																				1																				1	1								
		1610	1604		147.90	147.60																											48																																																			
LA 265+29	3 LT	1611		152.74																																																				1																				1	1								
		1611	1612		148.60	148.40																											8																																																			
LA 265+29	3 RT	1612		152.58																																																				1																				1	1								
		1612	1604		147.90	147.60																											48																																																			
LA 272+35	3 LT	1701		153.39																																																				1	0.8																			1	1								
		1701	1719		147.60	147.40																											8																																																			
LA 271+85	3 RT	1702		152.03																																																				1																				1	1								
		1702	1789		147.00	146.80																																			44							44																																								
LA 278+18	3 LT	1703		151.76																																																				1	3.1																			1	1								
		1703	1704		143.70	143.60	.5																													8																																																	
LA 278+18	3 RT	1704		151.75																																																				1	3.2																			1	1								
		1704	1718		143.60	143.30																																							60							60																																			15	
LA 278+18	120 RT	1718		146.00																																																			3.6																																	
LA 291+11	3 LT	1707		153.34																																																				1																				1	1								
		1707	1717		149.00	148.30																												236																																																3.3	56	
LA 291+11	3 RT	1708		153.73																																																				1																				1	1								
		1708	1707		149.10	149.00																												8																																																	53	
LA 296+56	3 LT	1709		154.04																																																				1	2.3																			1	1								
		1709	1807		146.80	145.10																															556																																																
LA 296+56	3 RT	1710		153.89																																																				1																				1	1								
		1710	1709		149.80	149.50																											8																																																			
LA 283+38	3 LT	1711		152.27																																																				1																				1	1								
		1711	1712		148.10	148.00																											8																																																			
LA 283+38	3 RT	1712		152.28																																																				1																				1	1								
		1712	1706		148.00	147.50	.4																										52																																																	27.2		
						SHEET TOTAL													32														352	288		8	556				148			60				148			60			3.6		24	10.8																				24	24						40.2	438	

ABBREVIATIONS

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

COMPUTED BY: CJH DATE: 3/11/2022

CHECKED BY: WJW DATE: 5/4/2022

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
I-5987A	3D-13

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

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

LINE & STATION	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) SIZE 15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
								THICKNESS OR GAUGE										
LA 277+68	3 LT	1713		151.81														
		1713	1714		147.10	147.00												
LA 277+68	3 RT	1714		151.79														
		1714	1704		147.00	146.50												
LA 278+68	3 LT	1715		151.80														
		1715	1716		147.10	147.00												
LA 278+68	3 RT	1716		151.80														
		1716	1704		147.00	146.50												
LA 293+50	3 LT	1717		154.17														
		1717	1709		147.70	146.80												
LA 272+35	3 RT	1719		152.37														
		1719	1702		147.40	147.10												
LA 271+35	3 RT	1720		152.07														
		1720	1702		147.40	147.10												
Y1A 39+42	25 RT	1722		175.50														
		1722	1731		171.80	171.00												
Y1A 39+42	25 LT	1723		175.50														
		1723	1722		172.30	171.80												
Y1A 42+96	25 LT	1724		175.50														
		1724	1725		172.30	171.80												
Y1A 42+96	25 RT	1725		175.50														
		1725	1728		171.80	171.00												
Y1A 42+20	21 RT	1728		176.37														
		1728	1748		171.00	149.00	.9											
Y1A 42+27	21 LT	1729		176.25														
		1729	1728		173.00	172.50												
Y1A 40+20	21 LT	1730		176.39														
		1730	1731		173.10	172.50												
Y1A 40+13	21 RT	1731		176.28														
		1731	1747		171.00	146.50	.9											
LA 278+18	93 LT	1734		148.64														
		1734	1703		144.00	143.70	.5											
LA 293+50	93 LT	1736		151.80														
		1736	1717		148.00	147.70	.4											
Y1ARPB 18+75	70 LT	1738		147.50														
		1738	1788		144.50	144.30												
Y1A 48+14	79 LT	1739		150.80														
		1739	1786		147.70	146.70												
LA 283+00	104 RT	1740		146.80														
		1740	1735		144.60	144.50	1.1											
SR2 40+13	32 RT	1741		149.40														
SR2 39+95	30 LT	1742		149.10														
		1742	1741		145.80	145.60	.3											
Y1A 45+17	18 RT	1743		174.51														
		1743	1783		170.60	169.40												
Y1A 45+43	18 LT	1744		173.39														
		1744	1727		167.80	149.80	.4											
Y1A 37+52	19 LT	1745		174.58														
		1745	1769		170.90	149.10												
Y1A 36+65	18 RT	1746		171.96														
				SHEET TOTAL														

C. S. PIPE SIZE 15	18	24	30	36	42	48	0.064	0.064	0.064	0.079	0.079	0.109	0.109
THICKNESS OR GAUGE													

COMPUTED BY: CJH DATE: 3/11/2022

CHECKED BY: WJW DATE: 5/4/2022

PROJECT NO.	SHEET NO.
I-5987A	3D-14

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

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

LINE & STATION (SIZE / THICKNESS OR GAUGE)	OFFSET		STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	C. S. PIPE 15 (0.064)	18 (0.064)	24 (0.064)	30 (0.079)	36 (0.079)	42 (0.109)	48 (0.109)
			1746	1726		167.10	148.30													100						
SR2 37+99	32	LT	1749		149.40																					
			1749	1742		147.20	146.20	.4																		
SR2 25+45	31	LT	1754		150.30																					
SR2 25+45	32	RT	1755		150.00																					
			1754	1755		146.80	146.50																			
Y1ARPD 20+70	65	RT	1756		150.90																					
Y1ARPD 20+50	68	LT	1757		150.50																					
			1756	1757		147.40	147.00																			
Y1A 28+07	32	LT	1758		151.00																					
Y1A 28+95	34	RT	1759		150.50																					
			1758	1759		147.50	147.00																			
Y1A 32+45	57	LT	1760		152.00																					
Y1A 32+55	48	RT	1761		151.50																					
			1760	1761		147.00	146.50																			
Y1A 35+11	82	LT	1762		151.80																					
Y1A 35+26	89	RT	1763		151.30																					
			1762	1763		147.30	146.80																			
LA 282+40	3	LT	1764		152.30																					
			1764	1765		148.10	148.00																			
LA 282+40	3	RT	1765		152.27																					
			1765	1706		148.00	147.50																			
Y1A 32+05	1	LT	1766		155.30																					
			1766	1767		151.00	150.50																			
Y1A 31+50	1	LT	1767		154.28																					
			1767	1768		149.10	146.80																			
Y1ARPA 26+50	26	RT	1770		171.20																					
			1770	1772		167.30	150.00													72						
Y1ARPA 28+50	26	RT	1771		173.26																					
			1771	1770		169.40	167.30																			
Y1ARPB 21+62	23	LT	1773		165.44																					
			1773	1778		161.50	147.90	.7												60						
Y1A 26+51	40	RT	1774			147.60	147.50		60																	
SR2 39+90	43	RT	1775			147.20	147.10		20																	
Y1A 27+12	35	LT	1776			147.70	147.60		40																	
Y1ARPD 20+28	23	LT	1779		159.81																					
			1779	1780		155.90	147.00	.6												40						
Y1ARPC 26+00	26	RT	1781		172.80																					
			1781	1782		168.90	150.10													72						
Y1A 45+43	25	RT	1783		173.34																					
			1783	1744		169.40	167.80																			
Y1A 31+86	49	LT	1784			147.60	148.40		28																	
Y1A 30+20	34	LT	1785			148.00	147.90		32																	
Y1A 48+22		CL	1786		159.65																					
			1786	1742		146.70	145.80																			
Y1A 47+40	2	RT	1787		163.95																					
			1787	1786		158.00	146.70																			
LA 276+00	87	LT	1788		149.64																					
			1788	1734		144.30	143.90																			
LA 271+85	89	RT	1789		149.94																					
SHEET TOTAL									180											344						

FROM	TO	R. C. PIPE CLASS III 15	18	24	30	36	42	48	R. C. PIPE CLASS IV 15	18	24	30	36	42	48	16" WELDED STEEL PIPE 0.25" THICK, GRADE B IN SOIL	18" WELDED STEEL PIPE 0.25" THICK, GRADE B IN SOIL	24" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL	30" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL	36" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL	42" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL	48" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL	16" WELDED STEEL PIPE 0.25" THICK, GRADE B NOT IN SOIL	18" WELDED STEEL PIPE 0.25" THICK, GRADE B NOT IN SOIL	24" WELDED STEEL PIPE 0.50" THICK, GRADE B NOT IN SOIL	30" WELDED STEEL PIPE 0.50" THICK, GRADE B NOT IN SOIL	36" WELDED STEEL PIPE 0.50" THICK, GRADE B NOT IN SOIL	42" WELDED STEEL PIPE 0.625" THICK, GRADE B NOT IN SOIL	48" WELDED STEEL PIPE 0.625" THICK, GRADE B NOT IN SOIL	ENDWALLS STD. 838.01 OR STD.838.11 (UNLESS OTHERWISE NOTED) CY	REINFORCED ENDWALLS CY
1746	1726																														
1749																															
1749	1742									192																					
1754																														2.3	
1755																														2.3	
1754	1755											64																			
1756																														2.3	
1757																														2.3	
1756	1757											132																			
1758																														3.4	
1759																														3.4	
1758	1759												116																		
1760																														6.0	
1761																														6.0	
1760	1761														104																
1762																														4.5	
1763																														4.5	
1762	1763													172																	
1764																															
1764	1765								8																						
1765																															
1765	1706								48																						
1766																															
1766	1767									52																					
1767																															
1767	1768									48																					
1770																															
1770	1772																														
1771																															
1771	1770								200																						
1773																															
1773	1778																														
1774																															
1775																															
1776																															
1779																															
1779	1780																														
1781																															
1781	1782																														
1783																															
1783	1744								40																						
1784																															
1785																															
1786																															
1786	1742											72																			
1787																															
1787	1786								88																						
1788																															
1788	1734											216																			
1789																															
SHEET TOTAL									384	292		484	116	172	104															37.0	

FROM	TO	QUANTITIES FOR DRAINAGE STRUCTURES (*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B')) PER EACH (0' THRU 5.0')	LIN.FT. A 5.0' THRU 10.0'	LIN.FT. B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	CONCRETE TRANSITIONAL SECTION C.B. STD. 852.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	STEEL FRAME AND TWO GRATES STD. 840.37	M.H. STD. 840.51, STD. 840.52, OR STD.53	M.H. FRAME AND COVER STD. 840.54	TEMP STEEL PLATE COVER MASONARY DRAINAGE	15" C.S. ELBOW	15" SIDE DRAIN PIPE ELBOW	FLOWABLE FILL, C.Y.	PIPE REMOVAL LIN. FT.	REMARKS
1746	1726																										2				
1749		1													1		1														
1749	1742																														
1754																															
1755																															
1754	1755																														
1756																															
1757																															
1756	1757																														
1758																															
1759																															
1758	1759																														
1760																															
1761																															
1760	1761																														
1762																															
1763																															
1762	1763																														
1764		1																				1	1								
1764	1765																														
1765		1																				1	1								
1765	1706																														
1766		1							1		1	1																			
1766	1767																														
1767		1	0.2						1		1	1																			
1767	1768																														
1770		1																				1	1								
1770	1772																										2				
1771		1																				1	1								
1771	1770																														
1773		1																				1	1								
1773	1778																										2				
1774																															
1775																															
1776																															
1779		1																				1	1								
1779	1780																														
1781		1																				1	1								
1781	1782																										2			26	
1783		1																				1	1								
1783	1744																														
1784																															
1785																															
1786		1	5.0	3.0																1					1						
1786	1742																														
1787		1	0.9						1		1	1																			
1787	1786																														
1788		1	0.3										1				1														
1788	1734																														
1789		1																				1	1								
SHEET TOTAL		15	6.4	3.0					3		3	3	1		1		2			1		9	9		1		8			26	

ABBREVIATIONS

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

COMPUTED BY: CJH DATE: 3/11/2022

CHECKED BY: WJW DATE: 5/4/2022

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
I-5987A	3D-15

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

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

LINE & STATION	OFFSET		STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) SIZE 15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
									THICKNESS OR GAUGE										
			1789	1721		146.80	146.70												
SR2 19+02	24	RT	1790			147.70	147.50		44										
LA 308+65	3	LT	1801		148.64														
			1801	1802		144.20	143.80												
LA 308+62	3	RT	1802		148.80														
			1802	1822		142.00	140.00	.4											
LA 308+15	3	LT	1803		148.62														
			1803	1804		144.50	144.40												
LA 308+15	3	RT	1804		148.85														
			1804	1802		144.40	144.00	.6											
LA 309+15	3	LT	1805		148.70														
			1805	1806		144.50	144.40												
LA 309+15	3	RT	1806		148.87														
			1806	1802		144.40	144.00												
LA 302+15	3	LT	1807		153.24														
			1807	1808		144.80	144.70												
LA 302+15	5	RT	1808		153.29														
			1808	1810		144.70	144.50												
LA 302+15	131	RT	1810		149.30														
Y1ARPA 16+50	24	RT	1811		152.33														
			1811	1813		148.30	148.20												
Y1ARPA 17+00	24	RT	1812		151.87														
			1812	1811		148.40	148.30												
Y1ARPA 13+50	23	RT	1814		151.09														
			1814	1815		147.70	147.70												
Y1ARPA 10+00	24	RT	1816		149.32														
			1816	1817		146.00	145.90	.4											
LA 308+00	74	LT	1818		148.10														
			1818	1819		144.20	143.80												
LA 308+65	72	LT	1819		148.07														
			1819	1820		141.00	140.80	.3											
LA 309+65	71	LT	1821		148.29														
			1821	1819		144.40	143.80												
LA 308+62	87	RT	1822		147.80														
			1822	1809		140.00	138.00	.7											
LA 305+15	3	LT	1823		150.71														
			1823	1824		145.80	145.70												
LA 305+15	3	RT	1824		150.90														
			1824	1804		145.70	144.40												
LA 314+65	3	LT	1901		147.90														
			1901	1902		143.40	143.00												
LA 314+65	3	RT	1902		147.90														
			1902	1913		142.00	141.90	.3											
LA 314+15	3	LT	1903		147.91														
			1903	1904		143.70	143.60												
LA 314+15	3	RT	1904		147.94														
			1904	1913		143.60	143.00												
LA 315+15	3	LT	1905		147.91														
			1905	1906		143.70	143.50												
LA 315+15	3	RT	1906		147.94														
							SHEET TOTAL		44										

C. S. PIPE THICKNESS OR GAUGE	15 0.064	18 0.064	24 0.064	30 0.079	36 0.079	42 0.109	48 0.109

COMPUTED BY: CJH DATE: 3/11/2022

CHECKED BY: WJW DATE: 5/4/2022

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
I-5987A	3D-16

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

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

LINE & STATION	OFFSET		STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	C. S. PIPE 15 (0.064)	18 (0.064)	24 (0.064)	30 (0.079)	36 (0.079)	42 (0.109)	48 (0.109)
			1906	1902		142.70	142.30																			
LA 320+50	3	LT	1907		149.70																					
			1907	1908		145.60	145.50																			
LA 320+50	3	RT	1908		149.93																					
			1908	1910		145.50	143.70	.3																		
LA 313+87	72	LT	1911		147.38																					
			1911	1912		139.50	138.60																			
LA 314+58	3	RT	1913		148.58																					
			1913	1909		141.90	139.50	.3																		
LA 325+00	3	LT	1914		152.91																					
			1914	1915		148.00	147.90																			
LA 325+00	3	RT	1915		153.08																					
			1915	1908		147.90	145.50																			
LA 331+86	3	LT	2001		153.21																					
			2001	2005		148.20	148.00																			
LA 331+57	3	RT	2002		153.23																					
			2002	2003		148.50	148.40																			
LA 331+57	3	LT	2003		153.15																					
			2003	2001		148.40	148.20																			
LA 331+00	3	RT	2004		153.28																					
			2004	2002		149.10	148.80																			
LA 332+10	3	LT	2005		153.22																					
			2005	2007		145.40	144.80																			
LA 332+10	3	RT	2006		153.27																					
			2006	2005		145.50	145.40																			
LA 332+10	105	LT	2007		148.60																					
LA 332+10	100	RT	2008		148.60																					
			2008	2006		146.10	145.50																			
LA 338+98	103	RT	2009		145.70																					
			2009	2010		142.20	142.00																			
LA 338+98	3	RT	2010		152.26																					
			2010	2011		142.00	141.90																			
LA 338+98	3	LT	2011		152.22																					
			2011	2012		141.90	141.70																			
LA 338+98	105	LT	2012		146.50																					
LA 331+86	73	LT	2013		152.58																					
			2013	2014		148.70	144.90														30						
Y2 17+28	43	LT	3301		141.70																					
Y2 17+33	43	RT	3302		141.30																					
			3301	3302		137.20	136.80																			
Y2 14+61	34	RT	3303			144.00	143.90			80																
Y2 20+23	68	RT	3304			141.30	141.20			64																
Y2 22+03	91	RT	3305			142.40	142.30																			
Y2 22+04	90	LT	3306			143.30	142.60			32																
Y2 23+51	20	RT	3307		164.17																					
			3307	3308		160.00	159.60																			
Y2 23+51	18	LT	3308		164.20																					
			3308	3310		159.60	143.50														64						
SHEET TOTAL										176										94						

STRUCTURE NUMBER FROM	TO	R. C. PIPE CLASS III 15	18	24	30	36	42	48	R. C. PIPE CLASS IV 15	18	24	30	36	42	48	16" WELDED STEEL PIPE 0.25" THICK, GRADE B IN SOIL	18" WELDED STEEL PIPE 0.25" THICK, GRADE B IN SOIL	24" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL	30" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL	36" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL	42" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL	48" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL	16" WELDED STEEL PIPE 0.25" THICK, GRADE B NOT IN SOIL	18" WELDED STEEL PIPE 0.25" THICK, GRADE B NOT IN SOIL	24" WELDED STEEL PIPE 0.50" THICK, GRADE B NOT IN SOIL	30" WELDED STEEL PIPE 0.50" THICK, GRADE B NOT IN SOIL	36" WELDED STEEL PIPE 0.50" THICK, GRADE B NOT IN SOIL	42" WELDED STEEL PIPE 0.625" THICK, GRADE B NOT IN SOIL	48" WELDED STEEL PIPE 0.625" THICK, GRADE B NOT IN SOIL
1906	1902								52																				
1907																													
1907	1908									8																			
1908																													
1908	1910															56							56						
1911																													
1911	1912								36																				
1913																													
1913	1909																52							52					
1914																													
1914	1915								8																				
1915																													
1915	1908								448																				
2001																													
2001	2005									24																			
2002																													
2002	2003									8																			
2003																													
2003	2001									28																			
2004																													
2004	2002								60																				
2005																													
2005	2007																		52							52			
2006																													
2006	2005											8																	
2007																													
2008																													
2008	2006																		48							48			
2009																													
2009	2010																				52							52	
2010																													
2010	2011													8															
2011																													
2011	2012																				52							52	
2012																													
2013																													
2013	2014																												
3301																													
3302																													
3301	3302														172														
3303																													
3304																													
3305										136																			
3306																													
3307																													
3307	3308								36																				
3308																													
3308	3310																												
SHEET TOTAL									640	204		8		8	172	56	52		100		104		56	52		100		104	

STRUCTURE NUMBER FROM	TO	ENDWALLS STD. 838.01 OR STD.838.11 (UNLESS OTHERWISE NOTED) CY	REINFORCED ENDWALLS CY	QUANTITIES FOR DRAINAGE STRUCTURES (*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B')) PER EACH (0' THRU 5.0')	LIN.FT. A 5.0' THRU 10.0'	LIN.FT. B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	STEEL FRAME AND TWO GRATES STD. 840.37	M.H. STD. 840.51, STD. 840.52, OR STD.53	M.H. FRAME AND COVER STD. 840.54	TEMP STEEL PLATE COVER MASONARY DRAINAGE	15" C.S. ELBOW	15" SIDE DRAIN PIPE ELBOW	FLOWABLE FILL, C.Y.	PIPE REMOVAL LIN. FT.	REMARKS
1906	1902																														4.6		
1907				1																				1	1								
1907	1908																																
1908				1																				1	1								
1908	1910																																
1911				1	2.9																			1	1								
1911	1912																																
1913				1	1.7														1					1										
1913	1909																																
1914				1																				1	1								
1914	1915																																
1915				1	0.2																			1	1								
1915	1908																																
2001				1	0.0																			1	1								
2001	2005																																
2002				1																				1	1								
2002	2003																																
2003				1																				1	1								
2003	2001																																
2004				1																				1	1								
2004	2002																																
2005				1	2.8																			1	1								
2005	2007																														9.9		
2006				1	2.8																			1	1								
2006	2005																																
2007		2.0																															
2008		2.0																															
2008	2006																																
2009		3.8																															
2009	2010																														34.8		
2010				1	5.0	0.3																		1	1								T.B. PRECAST DRAINAGE STRUCTURE (STD. 840.46)
2010	2011																																
2011				1	5.0	0.3																		1	1								T.B. PRECAST DRAINAGE STRUCTURE (STD. 840.46)
2011	2012																																
2012		3.8																															
2013				1																				1	1								
2013	2014																																
3301		8.0																															
3302		8.0																															
3301	3302																															120	
3303																																	
3304																																	
3305																																21	
3306																																	
3307				1																				1	1								
3307	3308																																
3308				1																				1	1								
3308	3310																												2				
SHEET TOTAL		27.6		17	20.3	0.6													1					1	16	16				2		49.3	141	

ABBREVIATIONS

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

COMPUTED BY: CJH DATE: 3/11/2022

CHECKED BY: WJW DATE: 5/4/2022

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
I-5987A	3D-17

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

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

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	C. S. PIPE 15 (0.064)	18 (0.064)	24 (0.064)	30 (0.079)	36 (0.079)	42 (0.109)	48 (0.109)	R. C. PIPE CLASS III 15	18	24	30	36	42	48	R. C. PIPE CLASS IV 15	18	24	30	36	42	48
DR4 11+50	18 RT	3401			146.20	146.00		76																															
Y1A 19+18	43 LT	3501		150.90																																			
Y1A 19+18	42 RT	3502		150.40																																			
		3501	3502		146.90	146.60																															84		
Y1A 22+50	71 RT	3503			148.90	148.70			100																														
Y1A 22+50	35 LT	3504			148.30	148.20			32																														
Y1A 18+05	36 LT	3505			148.20	148.10		36																															
Y1A 55+15	33 LT	3701			147.80	147.50		36																															
Y1A 55+56	33 LT	3702			147.40	147.10		28																															
Y1A 54+92	32 RT	3703			148.10	148.00		32																															
Y1A 55+45	31 RT	3704			147.80	147.70		40																															
SR2 41+65	29 RT	3705			148.70	148.80		24																															
Y1A 49+35	54 LT	3706		151.80																																			
		3706	1739		149	149																										120						
SHEET TOTAL								272	132																								120				84		

LINE & STATION (STRUCTURE)	16" WELDED STEEL PIPE 0.25" THICK, GRADE B IN SOIL	18" WELDED STEEL PIPE 0.25" THICK, GRADE B IN SOIL	24" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL	30" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL	36" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL	42" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL	48" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL	16" WELDED STEEL PIPE 0.25" THICK, GRADE B NOT IN SOIL	18" WELDED STEEL PIPE 0.25" THICK, GRADE B NOT IN SOIL	24" WELDED STEEL PIPE 0.50" THICK, GRADE B NOT IN SOIL	30" WELDED STEEL PIPE 0.50" THICK, GRADE B NOT IN SOIL	36" WELDED STEEL PIPE 0.50" THICK, GRADE B NOT IN SOIL	42" WELDED STEEL PIPE 0.625" THICK, GRADE B NOT IN SOIL	48" WELDED STEEL PIPE 0.625" THICK, GRADE B NOT IN SOIL	ENDWALLS STD. 838.01 OR STD.838.11 (UNLESS OTHERWISE NOTED) CY	REINFORCED ENDWALLS CY	QUANTITIES FOR DRAINAGE STRUCTURES (*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B')) PER EACH (0' THRU 5.0')	LIN.FT. A 5.0' THRU 10.0'	LIN.FT. B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	STEEL FRAME AND TWO GRATES STD. 840.37	M.H. STD. 840.51, STD. 840.52, OR STD.53	M.H. FRAME AND COVER STD. 840.54	TEMP STEEL PLATE COVER MASONARY DRAINAGE	15" C.S. ELBOW	15" SIDE DRAIN PIPE ELBOW	FLOWABLE FILL, C.Y.	PIPE REMOVAL LIN. FT.	REMARKS
DR4 11+50 (3401)																																														
Y1A 19+18 (3501)															3.4																															
Y1A 19+18 (3502)															3.4																															
(3501 – 3502)																																											9.9	60	
Y1A 22+50 (3503)																																														
Y1A 22+50 (3504)																																														
Y1A 18+05 (3505)																																														
Y1A 55+15 (3701)																																												20	
Y1A 55+56 (3702)																																												17	
Y1A 54+92 (3703)																																												21	
Y1A 55+45 (3704)																																											34.8	24	
SR2 41+65 (3705)																																														
Y1A 49+35 (3706)																	1												1				1													
(3706 – 1739)																																														
SHEET TOTAL															6.8		1												1				1										44.7	142	

ABBREVIATIONS

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

COMPUTED BY: LMJ DATE: 3/9/2022

CHECKED BY: WKJ DATE: 5/4/2022

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
I-5987A	3D-18

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

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

LINE & STATION	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) SIZE 15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
								THICKNESS OR GAUGE										
		2101	2102		149.10	146.40		28										
LA2 352+12	73 RT	2101		153.20														
		2103	2104		148.80	148.80												
LA2 350+25	5 LT	2103		152.80														
		2104	2105		148.80	144.10												
LA2 350+25	2 RT	2104		152.90														
		2106	2107		139.90	139.10	.3											
LA2 347+78	105 RT	2106		143.40														
LA2 347+78	105 LT	2107		142.60														
		2109	2110		146.50	146.50												
LA2 345+68	5 LT	2109		150.50														
		2110	2116		146.50	146.10												
LA2 345+68	2 RT	2110		150.60														
		2111	2112		146.70	146.70												
LA2 344+00	5 LT	2111		150.70														
		2112	2114		146.70	146.30												
LA2 344+00	2 RT	2112		150.70														
		2113	2114		146.50	146.50												
LA2 344+68	5 LT	2113		150.50														
		2114	2116		146.30	146.10												
LA2 344+68	2 RT	2114		150.50														
		2115	2116		146.50	146.40												
LA2 345+05	5 LT	2115		150.50														
		2116	2117		146.10	142.70	.5											
LA2 345+05	2 RT	2116		150.50														
		2118	2119		140.80	139.80												
LA2 342+97	97 RT	2118		144.80														
LA2 342+97	98 LT	2119		143.80														
		2120	2121		146.80	146.70												
LA2 346+50	5 LT	2120		150.80														
		2121	2122		146.70	143.20												
LA2 346+50	2 RT	2121		150.90														
		2201	2202		146.30	144.00		28										
LA2 365+97	73 RT	2201		151.30														
		2203	2204		147.20	147.10												
LA2 366+62	73 RT	2203		151.20														
		2204	2205		146.20	143.30		32										
LA2 366+80	73 RT	2204		151.20														
		2206	2207		148.20	148.20												
LA2 365+07	2 RT	2206		152.30														
		2207	2208		148.00	144.00												
LA2 365+07	5 LT	2207		152.30														
LA2 366+07	CL																	
LA2 365+14	CL																	
		2209	2210		147.90	147.90												
LA2 366+47	2 RT	2209		151.90														
		2210	2212		147.90	147.80												
LA2 366+46	5 LT	2210		151.90														
		2211	2212		147.90	147.90												
LA2 366+73	2 RT	2211		151.90														
				SHEET TOTAL				88										

C. S. PIPE 15	18	24	30	36	42	48	0.064	0.064	0.064	0.079	0.079	0.109	0.109

COMPUTED BY: LMJ DATE: 3/9/2022

CHECKED BY: WKJ DATE: 5/4/2022

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
I-5987A	3D-19

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

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

LINE & STATION	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) SIZE 15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
								THICKNESS OR GAUGE										
		2212	2214		147.10	146.80												
LA2 366+73	73 RT	2212		151.90														
		2213	2214		147.20	147.00												
LA2 366+38	5 LT	2213		151.30														
		2214	2215		146.80	145.20	.5		24									
LA2 366+73	2 RT	2214		151.20														
		2216	2217		150.30	146.00		28										
LA2 356+01	105 RT	2216		154.30														
	105 LT	2218	2219		149.70	145.10		36										
LA2 353+28		2218		153.80														
LA2 353+86	5 LT																	
LA2 353+93																		
	2 RT	2220	2221		149.80	149.70												
LA2 360+00		2220		153.80														
	5 LT	2221	2222		149.50	147.00												
LA2 360+00		2221		153.80														
	2 RT	2301	2302		147.50	147.20												
LA2 379+26		2301		150.00														
	5 LT	2302	2304		147.20	147.00						104						
LA2 379+26		2302		156.10														
	2 RT	2303	2304		152.10	151.70												
LA2 378+20		2303		156.10														
	5 LT	2304	2305		147.00	146.70						96						
LA2 378+20		2304		155.70														
LA2 378+20	2 RT	2305		149.20														
		2306	2307		150.50	150.30												
LA2 374+07	97 RT	2306		154.50														
	98 LT	2307	2308		150.00	146.00												
LA2 374+07		2307		154.30														
	5 LT	2309	2310		148.60	148.60												
LA2 369+15		2309		152.70														
	2 RT	2310	2312		148.60	147.60												
LA2 369+15		2310		152.60														
	73 RT	2311	2312		148.00	147.90												
LA2 367+17		2311		152.00														
	73 RT	2312	2212		147.60	147.40	.5											
LA2 367+17		2312		152.00														
	73 RT	2313	2214		147.20	147.00												
LA2 367+17		2313		151.30														
	2 RT	2401	2402		150.00	149.40												
LA2 390+33		2401		154.00														
LA2 390+33	5 LT	2402		153.40														
	CL	2403	2404		155.60	155.00												
LA2 387+60	CL	2403		159.60														
		2404	2406		155.00	154.30												
LA2 387+60	2 RT	2404		159.00														
		2405	2406		151.40	151.10												
LA2 386+38	5 LT	2405		151.40														
		2406	2407		151.10	151.10						8						
LA2 386+38	2 RT	2406		158.60														
SHEET TOTAL								64	24			8	200					

C. S. PIPE SIZE 15	18	24	30	36	42	48
THICKNESS OR GAUGE 0.064	0.064	0.064	0.079	0.079	0.109	0.109

COMPUTED BY: LMJ DATE: 3/9/2022

CHECKED BY: WKJ DATE: 5/4/2022

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
I-5987A	3D-20

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

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

LINE & STATION	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) SIZE 15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
								THICKNESS OR GAUGE										
		2407	2408		151.10	150.80												
LA2 386+38	2 RT	2407		159.20														
		2411	2412		153.20	152.80												
LA2 381+30	2 RT	2411		157.20														
		2412	2302		152.80	151.80												
LA2 381+30	5 LT	2412		156.80														
		2413	2414		152.36	150.34		28										
LA2 382+12	74 LT	2413		156.36														
		2500	2501		157.86	156.75												
LA2 402+49		2500		161.88														
		2501	2502		156.80	156.50												
LA2 399+85	5 LT	2501		160.80														
		2502	2504		156.50	155.10	.3											
LA2 399+85	2 RT	2502		160.50														
		2503	2504		155.70	155.60												
LA2 397+05	5 LT	2503		159.70														
		2504	2508		154.90	154.60												
LA2 397+05	2 RT	2504		159.70														
		2505	2506		155.60	155.60												
LA2 396+23	5 LT	2505		159.70														
		2506	2508		155.60	155.40												
LA2 396+23	2 RT	2506		159.70														
		2507	2508		155.60	155.60												
LA2 396+59	5 LT	2507		159.70														
		2508	2509		154.60	152.40	.7											
LA2 396+59	2 RT	2508		159.60														
LA2 403+84	CL																	
		2511	2512		152.10	151.60												
LA2 405+84	105 LT	2511		155.10														
		2512	2513		151.60	151.60												
LA2 405+84	5 LT	2512		163.30														
		2513	2514		151.60	151.10												
LA2 405+84	2 RT	2513		162.60														
LA2 405+84	107 RT	2514		155.00														
		2601	2602		159.30	159.10												
LA2 414+50	5 LT	2601		163.30														
		2602	2603		159.10	153.40												
LA2 414+50	2 RT	2602		163.10														
		2606	2607		158.80	158.60												
LA2 416+11	5 LT	2606		162.80														
		2607	2608		158.60	158.50												
LA2 416+53	5 LT	2607		162.80														
		2608	2611		158.50	158.40												
LA2 416+83	5 LT	2608		162.80														
		2609	2611		158.50	158.30												
LA2 416+41	2 RT	2609		162.50														
		2610	2611		158.50	158.30												
LA2 417+25	2 RT	2610		162.50														
		2611	2612		158.30	154.00												
LA2 416+83	2 RT	2611		162.50														
SHEET TOTAL								28										

| C. S. PIPE | | | | | | | | | | | | | | | | |

COMPUTED BY:	LMJ	DATE:	3/9/2022
CHECKED BY:	WKJ	DATE:	5/4/2022

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
I-5987A	3D-21

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

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

LINE & STATION	OFFSET		STRUCTURE NUMBER		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	MINIMUM REQUIRED SLOPE	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC)											C. S. PIPE							R. C. PIPE CLASS III							R. C. PIPE CLASS IV							16" WELDED STEEL PIPE 0.25" THICK, GRADE B IN SOIL	18" WELDED STEEL PIPE 0.25" THICK, GRADE B IN SOIL	24" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL	30" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL	36" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL	42" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL	48" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL	16" WELDED STEEL PIPE 0.25" THICK, GRADE B NOT IN SOIL	18" WELDED STEEL PIPE 0.25" THICK, GRADE B NOT IN SOIL	24" WELDED STEEL PIPE 0.50" THICK, GRADE B NOT IN SOIL	30" WELDED STEEL PIPE 0.50" THICK, GRADE B NOT IN SOIL	36" WELDED STEEL PIPE 0.50" THICK, GRADE B NOT IN SOIL	42" WELDED STEEL PIPE 0.625" THICK, GRADE B NOT IN SOIL	48" WELDED STEEL PIPE 0.625" THICK, GRADE B NOT IN SOIL	ENDWALLS STD. 838.01 OR STD.838.11 (UNLESS OTHERWISE NOTED)	REINFORCED ENDWALLS	QUANTITIES FOR DRAINAGE STRUCTURES *TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B')			C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03			CONCRETE TRANSITIONAL SECTION		D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	STEEL FRAME AND TWO GRATES STD. 840.37	M.H. STD. 840.51, STD. 840.52, OR STD.53	M.H. FRAME AND COVER STD. 840.54	TEMP STEEL PLATE COVER MASONARY DRAINAGE	15" C.S. ELBOW	15" SIDE DRAIN PIPE ELBOW	FLOWABLE FILL, C.Y.	PIPE REMOVAL LIN. FT.	REMARKS
SIZE									15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	15	18	24	30	36	42	48	15	18	24	30	36	42	48	15	18	24	30	36	42	48																	PER EACH (0' THRU 5.0')	LIN.FT. A	LIN.FT. B		TYPE OF GRATE E	F	G	D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05																					
THICKNESS OR GAUGE			FROM	TO	FT.	FT.	FT.	%												0.064	0.064	0.064	0.079	0.079	0.109	0.109																													CY	CY		5.0' THRU 10.0'	10.0' AND ABOVE																											
			2701	2702		162.40	162.00																											8																																																				
LA2 429+00	5	LT	2701		166.40																																																				1																					1	1								
			2702	2703		162.00	156.60																																		56							56																																								
LA2 429+00	2	RT	2702		166.00																																																			1																					1	1								
LA2 429+78		CL																																																																																		6.0		
			2704	2705		160.90	160.50																											8																																																				
LA2 424+00	5	LT	2704		164.90																																																			1																					1	1								
			2705	2706		160.50	155.60																																		52							52																																								
LA2 424+00	2	RT	2705		164.50																																																			1																					1	1								
			2707	2708		159.50	159.10																											8																																																				
LA2 419+25	5	LT	2707		163.50																																																			1																					1	1								
			2708	2709		159.10	154.60																																		52							52																																								
LA2 419+25	2	RT	2708		163.10																																																			1																					1	1								
			2801	2802		163.30	162.80																											8																																																					
LA2 439+30	5	LT	2801		167.30																																																			1																					1	1								
			2802	2804		162.80	162.30	.3																										112																																																			
LA2 439+30	2	RT	2802		166.90																																																			1																					1	1								
			2803	2804		162.30	162.30																											8																																																					
LA2 438+15	5	LT	2803		167.00																																																			1																					1	1								
			2804	2806		162.30	162.00	.5																										40																																																				
LA2 438+15	2	RT	2804		166.60																																																			1																					1	1								
			2805	2806		158.70	158.50																																96																																																	
LA2 437+74	92	LT	2805		162.20																																																	3																															
			2806	2807		158.50	158.30																																88																																																	
LA2 437+74	2	RT	2806		166.50																																																			1	3.1																				1	1							T.B. PRECAST DRAINAGE STRUCTURE (STD. 840.46)
LA2 437+74	92	RT	2807		161.80																																																3																															
			2808	2809		162.50	162.50																											8																																																					
LA2 437+31	2	RT	2808		166.60																																																			1																					1	1								
			2809	2811		162.50	162.30																											36																																																					52	
LA2 437+31	5	LT	2809		167.00																																																			1																					1	1								
			2810	2811		158.70	158.50																																88																																																		
LA2 437+68	92	LT	2810		162.20																																																3																															
			2811	2812		158.50	158.30																																96																																																		
LA2 437+68	5	LT	2811		167.00																																																			1	3.6																				1	1							T.B. PRECAST DRAINAGE STRUCTURE (STD. 840.46)
LA2 437+68	92	RT	2812		161.80																																																3																															
LA2 437+23	87	RT																																																																																		12.0		
LA2 438+26	90	LT																																																																																		12.0		
			2813	2814		162.07	159.43		32																																																																											
LA2 440+85	74	LT	2813		167.07																																																			1																					1	1								
			2901	2902		163.10	163.10																											8																																																					
LA2 457+46	2	RT	2901		167.10																																																			1																					1	1								
			2902	2906		163.10	162.90																											40																																																					
LA2 457+46	5	LT	2902		167.10																																																			1																					1	1								
			2903	2904		163.10	163.10																											8																																																					
LA2 456+62	2	RT	2903		167.10																																																			1																					1	1								
			2904	2906		163.10	162.90																											40																																																					
LA2 456+62	5	LT	2904		167.10																																																			1																					1	1								
			2905	2906		163.10	163.10																											8																																																					
LA2 457+04	2	RT	2905		167.10																																																			1																					1	1								
			2906	2909		162.60	162.10	.4																											72																																																		
								SHEET TOTAL	32																									340	72				368		160							160							12		20	6.7																					20	20						30.0	52	

ABBREVIATIONS

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

COMPUTED BY:	LMJ	DATE:	3/9/2022
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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
I-5987A	3D-22

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

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

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	C. S. PIPE 15 0.064	18 0.064	24 0.064	30 0.079	36 0.079	42 0.109	48 0.109	R. C. PIPE CLASS III 15	18	24	30	36	42	48	R. C. PIPE CLASS IV 15	18	24	30	36	42	48	16" WELDED STEEL PIPE 0.25" THICK, GRADE B IN SOIL	18" WELDED STEEL PIPE 0.25" THICK, GRADE B IN SOIL	24" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL	30" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL	36" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL	42" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL	48" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL	16" WELDED STEEL PIPE 0.25" THICK, GRADE B NOT IN SOIL	18" WELDED STEEL PIPE 0.25" THICK, GRADE B NOT IN SOIL	24" WELDED STEEL PIPE 0.50" THICK, GRADE B NOT IN SOIL	30" WELDED STEEL PIPE 0.50" THICK, GRADE B NOT IN SOIL	36" WELDED STEEL PIPE 0.50" THICK, GRADE B NOT IN SOIL	42" WELDED STEEL PIPE 0.625" THICK, GRADE B NOT IN SOIL	48" WELDED STEEL PIPE 0.625" THICK, GRADE B NOT IN SOIL	ENDWALLS STD. 838.01 OR STD.838.11 (UNLESS OTHERWISE NOTED) CY	REINFORCED ENDWALLS CY	QUANTITIES FOR DRAINAGE STRUCTURES *TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') PER EACH (0' THRU 5.0')	LIN.FT. A 5.0' THRU 10.0'	LIN.FT. B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	STEEL FRAME AND TWO GRATES STD. 840.37	M.H. STD. 840.51, STD. 840.52, OR STD.53	M.H. FRAME AND COVER STD. 840.54	TEMP STEEL PLATE COVER MASONARY DRAINAGE	15" C.S. ELBOW	15" SIDE DRAIN PIPE ELBOW	FLOWABLE FILL, C.Y.	PIPE REMOVAL LIN. FT.	REMARKS
LA2 457+04	5 LT	2906		167.10																																																				1																						1	1								
		2907	2909		162.40	162.20																											40																																																			
LA2 457+46	75 LT	2907		166.40																																																				1																						1	1								
		2908	2909		162.40	162.20																											40																																																			
LA2 456+62	75 LT	2908		166.40																																																				1																						1	1								
		2909	2910		162.00	161.40	.9		20																																																																													
LA2 457+04	75 LT	2909		166.40																																																				1																						1	1								
		2914	2915		163.00	162.60		40																																																																														
LA2 454+49	73 RT	2914		167.10																																																				1																						1	1								
		2916	2917		163.30	157.80		36																																																																														
LA2 453+59	73 RT	2916		167.30																																																				1																						1	1								
		2918	2919		163.40	158.50		32																																																																														
LA2 451+53	73 RT	2918		167.50																																																				1																						1	1								
		2920	2921		163.40	163.40																											8																																																		
LA2 447+98	2 RT	2920		167.40																																																				1																						1	1								
		2921	2924		163.40	163.20																											40																																																			
LA2 447+98	5 LT	2921		167.40																																																				1																						1	1								
		2922	2923		163.40	163.40																											8																																																		
LA2 448+84	2 RT	2922		167.40																																																				1																						1	1								
		2923	2924		163.40	163.20																											40																																																		
LA2 448+84	5 LT	2923		167.40																																																				1																						1	1								
		2924	2925		163.20	163.10	.6																										8																																																		
LA2 448+41	5 LT	2924		167.40																																																				1																						1	1								
		2925	2926		163.10	159.50	.7																																	52							52																																				6.0		
LA2 448+41	2 RT	2925		167.40																																																				1																						1	1								
		3001	3002		162.60	162.30																																																																														13.0		
LA2 469+32	98 LT	3001		165.10																																																		2																																	SEE SPECIAL DETAIL SHEET 2C-9
		3002	3005		162.30	162.30																														8																																																					
LA2 468+79	5 LT	3002		170.50																																																				1	3.3																					1	1								
		3003	3004		166.20	166.20																											8																																																			
LA2 467+84	5 LT	3003		170.20																																																				1																						1	1								
		3004	3005		166.20	165.70																											92																																																			
LA2 467+84	2 RT	3004		170.20																																																				1																						1	1								
		3005	3006		162.30	161.80																																																																																		
LA2 468+76	2 RT	3005		170.50																																																				1	3.3																					1	1								
LA2 468+21	100 RT	3006		164.30																																																		2																																	SEE SPECIAL DETAIL SHEET 2C-9
		3007	3008		188.60	187.20																											76																																																	27	
Y3 28+28	14 RT	3007		192.70																																																				1																						1	1								
		3008	3009		187.20	163.60		88																																																																										2		42	
Y3 27+52	16 RT	3008		191.20																																																				1																						1	1								
		3009	3010		163.60	163.40		12																																																																														
LA2 460+90	85 LT	3009		165.60																																																				1													1		1															
		3010	3011		162.64	162.43																						68							68																																																								
LA2 460+90	75 LT	3010		167.41																																																				1																						1	1								
		3011	3012		162.43	161.92																													168																																																				
LA2 460+90	3 LT	3011		168.13																																																				1	0.7																					1	1								
		3012	3013		161.80	161.80																													8																																																			
LA2 462+59	5 LT	3012		168.64																																																				1	1.8																					1	1								
		3013	3014		161.90	161.69																													68																																																10.0		
LA2 462+59	3 RT	3013		168.64																																																				1	1.7																					1	1								
							SHEET TOTAL	208	20																			68					360		312	8				52							52							5		24	10.8												1		1					23	23					2	29.0	69	

ABBREVIATIONS

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

COMPUTED BY:	LMJ	DATE:	3/9/2022
CHECKED BY:	WKJ	DATE:	5/4/2022

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
I-5987A	3D-23

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

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

LINE & STATION (SIZE / THICKNESS OR GAUGE)	OFFSET		STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	C. S. PIPE 15 (0.064)	18 (0.064)	24 (0.064)	30 (0.079)	36 (0.079)	42 (0.109)	48 (0.109)
			3014	3034		161.60	161.66				12															
LA2 462+59	74	RT	3014		167.90																					
			3034	3015		161.69	161.53				32															
LA2 462+59	85	RT	3034		166.37																					
			3033	3014		164.97	161.69																			
LA2 461+99	74	RT	3033		167.72																					
			3016	3017		190.40	165.40		88																	
Y3 28+66	16	LT	3016		193.20																					
			3018	3019		187.20	164.30		80																	
Y3 27+00	16	LT	3018		189.90																					
			3020	3021		181.30	162.10		80																	
Y3 25+25	16	LT	3020		184.10																					
			3022	3023		183.20	166.20		80																	
Y3 25+75	18	RT	3022		185.90																					
Y3 26+09	63	RT																								
			3024	3025		189.20	189.10																			
Y3 31+81	16	LT	3024		193.00																					
			3025	3026		189.10	161.10		96																	
Y3 31+81	17	RT	3025		192.90																					
			3027	3028		188.40	161.10		84																	
Y3 32+78	16	RT	3027		191.20																					
			3029	3030		187.50	164.80		80																	
Y3 33+17	18	LT	3029		190.20																					
			3031	3032		161.20	160.20																			
Y3 33+95	93	LT	3031		164.70																					
Y3 33+06	100	RT	3032		163.70																					
			3107	3109		167.00	166.80																			
LA2 485+63	5	LT	3107		171.00																					
			3108	3109		166.80	166.80																			
LA2 485+21	2	RT	3108		170.80																					
			3109	3110		166.80	166.60																			
LA2 485+21	5	LT	3109		171.00																					
			3110	3112		166.60	165.90																			
LA2 484+79	5	LT	3110		171.00																					
			3111	3112		163.80	163.50																			
LA2 483+80	102	LT	3111		165.80																					
			3112	3113		163.50	163.20																			
LA2 483+55	5	LT	3112		171.30																					
			3120	3121		166.80	166.70																			
LA2 477+00	2	RT	3120		170.80																					
			3121	3122		166.70	166.20																			
LA2 477+00	5	LT	3121		170.70																					
			3122	3128		166.20	166.00																			
LA2 476+04	5	LT	3122		170.50																					
			3123	3124		166.30	166.10																			
LA2 474+17	2	RT	3123		170.30																					
			3124	3125		166.10	165.80																			
LA2 474+59	2	RT	3124		170.30																					
			3125	3126		165.80	165.80																			
LA2 475+11	2	RT	3125		170.30																					
								SHEET TOTAL	588		44															

LINE & STATION	FROM	TO	R. C. PIPE CLASS III 15	18	24	30	36	42	48	R. C. PIPE CLASS IV 15	18	24	30	36	42	48	16" WELDED STEEL PIPE 0.25" THICK, GRADE B IN SOIL	18" WELDED STEEL PIPE 0.25" THICK, GRADE B IN SOIL	24" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL	30" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL	36" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL	42" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL	48" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL	16" WELDED STEEL PIPE 0.25" THICK, GRADE B NOT IN SOIL	18" WELDED STEEL PIPE 0.25" THICK, GRADE B NOT IN SOIL	24" WELDED STEEL PIPE 0.50" THICK, GRADE B NOT IN SOIL	30" WELDED STEEL PIPE 0.50" THICK, GRADE B NOT IN SOIL	36" WELDED STEEL PIPE 0.50" THICK, GRADE B NOT IN SOIL	42" WELDED STEEL PIPE 0.625" THICK, GRADE B NOT IN SOIL	48" WELDED STEEL PIPE 0.625" THICK, GRADE B NOT IN SOIL
	3014	3034																												
LA2 462+59	3014																													
	3034	3015																												
LA2 462+59	3034																													
	3033	3014										60																		
LA2 461+99	3033																													
	3016	3017																												
Y3 28+66	3016																													
	3018	3019																												
Y3 27+00	3018																													
	3020	3021																												
Y3 25+25	3020																													
	3022	3023																												
Y3 25+75	3022																													
Y3 26+09																														
	3024	3025								32																				
Y3 31+81	3024																													
	3025	3026																												
Y3 31+81	3025																													
	3027	3028																												
Y3 32+78	3027																													
	3029	3030																												
Y3 33+17	3029																													
	3031	3032						216																						
Y3 33+95	3031																													
Y3 33+06	3032																													
	3107	3109								40																				
LA2 485+63	3107																													
	3108	3109								8																				
LA2 485+21	3108																													
	3109	3110								40																				
LA2 485+21	3109																													
	3110	3112								124																				
LA2 484+79	3110																													
	3111	3112																	52							52				
LA2 483+80	3111																													
	3112	3113																	60							60				
LA2 483+55	3112																													
	3120	3121								8																				
LA2 477+00	3120																													
	3121	3122								96																				
LA2 477+00	3121																													
	3122	3128								40																				
LA2 476+04	3122																													
	3123	3124								40																				
LA2 474+17	3123																													
	3124	3125								52																				
LA2 474+59	3124																													
	3125	3126								8																				
LA2 475+11	3125																													
SHEET TOTAL								216		488		60							112							112				

LINE & STATION	FROM	TO	ENDWALLS STD. 838.01 OR STD.838.11 (UNLESS OTHERWISE NOTED) CY	REINFORCED ENDWALLS CY	QUANTITIES FOR DRAINAGE STRUCTURES (*TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B')) PER EACH (0' THRU 5.0')	LIN.FT. A 5.0' THRU 10.0'	LIN.FT. B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	STEEL FRAME AND TWO GRATES STD. 840.37	M.H. STD. 840.51, STD. 840.52, OR STD.53	M.H. FRAME AND COVER STD. 840.54	TEMP STEEL PLATE COVER MASONARY DRAINAGE	15" C.S. ELBOW	15" SIDE DRAIN PIPE ELBOW	FLOWABLE FILL, C.Y.	PIPE REMOVAL LIN. FT.	REMARKS
	3014	3034																																
LA2 462+59	3014				1	1.3																			1	1								
	3034	3015																																
LA2 462+59	3034				1													1		1														
	3033	3014																																
LA2 461+99	3033				1																				1	1								
	3016	3017																													2			
Y3 28+66	3016				1																				1	1								
	3018	3019																													2			
Y3 27+00	3018				1																				1	1								
	3020	3021																													2			
Y3 25+25	3020				1																				1	1								
	3022	3023																													2			
Y3 25+75	3022				1																				1	1								
Y3 26+09																																	45	
	3024	3025																															47	
Y3 31+81	3024				1																				1	1								
	3025	3026																													2		48	
Y3 31+81	3025				1																				1	1								
	3027	3028																													2			
Y3 32+78	3027				1																				1	1								
	3029	3030																													2			
Y3 33+17	3029				1																				1	1								
	3031	3032																																
Y3 33+95	3031		5																															SEE SPECIAL DETAIL SHEET 2C-9
Y3 33+06	3032		5																															SEE SPECIAL DETAIL SHEET 2C-9
	3107	3109																																
LA2 485+63	3107				1																				1	1								
	3108	3109																																
LA2 485+21	3108				1																				1	1								
	3109	3110																																
LA2 485+21	3109				1																				1	1								
	3110	3112																																
LA2 484+79	3110				1																				1	1								
	3111	3112																														12.0		
LA2 483+80	3111																																	
	3112	3113																																
LA2 483+55	3112				1	2.8																			1	1								
	3120	3121																																
LA2 477+00	3120				1																				1	1								
	3121	3122																																
LA2 477+00	3121				1																				1	1								
	3122	3128																																
LA2 476+04	3122				1																				1	1								
	3123	3124																																
LA2 474+17	3123				1																				1	1								
	3124	3125																																
LA2 474+59	3124				1																				1	1								
	3125	3126																																
LA2 475+11	3125				1																				1	1								
SHEET TOTAL			9		22	4.1												1		1					21	21					14	12.0	140	

ABBREVIATIONS

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

COMPUTED BY: LMJ DATE: 3/9/2022

CHECKED BY: WKJ DATE: 5/4/2022

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
I-5987A	3D-24

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

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

LINE & STATION	OFFSET		STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) SIZE 15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
									THICKNESS OR GAUGE										
			3127	3128		163.90	163.70												
LA2 475+62	91	LT	3127		166.40														
			3128	3129		163.70	163.50												
LA2 475+62	5	LT	3128		170.50														
LA2 475+62	91	RT	3129		166.00														
			3201	3202		166.00	165.90												
LA2 492+52	5	LT	3201		170.00														
			3202	3207		165.90	162.30												
LA2 492+52	2	RT	3202		170.00														
			3203	3205		166.50	166.30												
LA2 487+19	2	RT	3203		170.50														
			3204	3205		166.50	166.30												
LA2 486+38	2	RT	3204		170.50														
			3205	3206		166.30	163.50												
LA2 486+78	2	RT	3205		170.50														
LA2 488+67	1	RT																	
			3801	3802		174.90	161.80		56										
Y3 23+50	16	LT	3801		177.70														
			3803	3804		169.20	162.30		36										
Y3 21+90	16	LT	3803		172.00														
			3805	3806		174.80	171.90												
Y3 23+75	18	RT	3805		178.60														
			3806	3807		171.90	160.50		56										
Y3 22+95	18	RT	3806		175.60														
Y3 18+20	30	RT	3808							48									
Y3 22+45	65	RT																	
			3901	3902		161.00	160.80												
Y3 39+29	42	LT	3901		163.50														
Y3 39+29	42	RT	3902		163.30														
			3903	3904		161.00	160.80												
Y3 39+33	42	LT	3903		163.50														
Y3 39+33	42	RT	3904		163.30														
DR1 12+02		CL	3905																
TEMPORARY DRAINAGE																			
TOTALS																			
							SHEET TOTAL		148	48	0	0	0	0	0	0	0	0	0
							PROJECT TOTAL		1724	400	44	0	0	0	0	0	0	0	0

LINE & STATION	OFFSET		C. S. PIPE SIZE 15	18	24	30	36	42	48	R. C. PIPE CLASS III SIZE 15	18	24	30	36	42	48	R. C. PIPE CLASS IV SIZE 15	18	24	30	36	42	48
			THICKNESS OR GAUGE 0.064	0.064	0.064	0.079	0.079	0.109	0.109														
																				88			
LA2 475+62	91	LT																					
																				96			
LA2 475+62	5	LT																					
LA2 475+62	91	RT																					
																	8						
LA2 492+52	5	LT																					
LA2 492+52	2	RT																					
																	40						
LA2 487+19	2	RT																					
																	40						
LA2 486+38	2	RT																					
LA2 486+78	2	RT																					
LA2 488+67	1	RT																					
Y3 23+50	16	LT																					
Y3 21+90	16	LT																					
																	80						
Y3 23+75	18	RT																					
Y3 22+95	18	RT																					
Y3 18+20	30	RT																					
Y3 22+45	65	RT																					
													88										
Y3 39+29	42	LT																					
Y3 39+29	42	RT																					
													88										
Y3 39+33	42	LT																					
Y3 39+33	42	RT																					
DR1 12+02		CL											120										
TEMPORARY DRAINAGE																							
TOTALS										160	124												
			0	0	0	0	0	0	0	160	124	0	296	0	0	0	168	0	0	184	0	0	0
			1296	0	0	0	0	0	0	160	124	76	496	8	216	0	13796	3096	1716	1884	2056	1484	2284

LINE & STATION	OFFSET		16" WELDED STEEL PIPE 0.25" THICK, GRADE B IN SOIL	18" WELDED STEEL PIPE 0.25" THICK, GRADE B IN SOIL	24" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL	30" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL	36" WELDED STEEL PIPE 0.50" THICK, GRADE B IN SOIL	42" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL	48" WELDED STEEL PIPE 0.625" THICK, GRADE B IN SOIL	16" WELDED STEEL PIPE 0.375" THICK, GRADE B NOT IN SOIL	18" WELDED STEEL PIPE 0.250" THICK, GRADE B NOT IN SOIL	24" WELDED STEEL PIPE 0.500" THICK, GRADE B NOT IN SOIL	30" WELDED STEEL PIPE 0.500" THICK, GRADE B NOT IN SOIL	36" WELDED STEEL PIPE 0.500" THICK, GRADE B NOT IN SOIL	42" WELDED STEEL PIPE 0.625" THICK, GRADE B NOT IN SOIL	48" WELDED STEEL PIPE 0.625" THICK, GRADE B NOT IN SOIL	ENDWALLS STD. 838.01 OR STD.838.11 (UNLESS OTHERWISE NOTED) CY	REINFORCED ENDWALLS CY	QUANTITIES FOR DRAINAGE STRUCTURES *TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') PER EACH (0' THRU 5.0')	LIN.FT. A 5.0' THRU 10.0'	LIN.FT. B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G
LA2 475+62	91	LT															2.30								
LA2 475+62	5	LT																	1	1.8					
LA2 475+62	91	RT															2.30								
LA2 492+52	5	LT																	1						
			52							52															
LA2 492+52	2	RT																	1						
LA2 487+19	2	RT																	1						
LA2 486+38	2	RT																	1						
			52							52															
LA2 486+78	2	RT																	1						
LA2 488+67	1	RT																							
Y3 23+50	16	LT																	1						
Y3 21+90	16	LT																	1						
Y3 23+75	18	RT																	1						
Y3 22+95	18	RT																	1						
Y3 18+20	30	RT																							
Y3 22+45	65	RT																							
Y3 39+29	42	LT															1.55								
Y3 39+29	42	RT															1.55								
Y3 39+33	42	LT															1.55								
Y3 39+33	42	RT															1.55								
DR1 12+02		CL																							
TEMPORARY DRAINAGE																									
TOTALS																			34						
			104	0	0	0	0	0	0	104	0	0	0	0	0	0	10.8	0.0	44	1.8	0.0	0	0	0	0
			1156	800	492	416	272	492	756	1156	800	492	416	272	492	756	253.5	0.0	539	249.1	10.1	32	10	11	3

LINE & STATION	OFFSET		CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	STEEL FRAME AND TWO GRATES STD. 840.37	M.H. STD. 840.51, STD. 840.52, OR STD.53	M.H. FRAME AND COVER STD. 840.54	TEMP. STEEL PLATE COVER MASONARY DRAINAGE	15" C.S. ELBOW	15" SIDE DRAIN PIPE ELBOW	FLOWABLE FILL, C.Y.	PIPE REMOVAL LIN. FT.	REMARKS
LA2 475+62	91	LT																						
LA2 475+62	5	LT														1	1							
LA2 475+62	91	RT																						
LA2 492+52	5	LT														1	1							
LA2 492+52	2	RT														1	1							
LA2 487+19	2	RT														1	1							
LA2 486+38	2	RT														1	1							
LA2 486+78	2	RT														1	1							
LA2 488+67	1	RT																				6.0		
Y3 23+50	16	LT														1	1							
Y3 21+90	16	LT														1	1							
Y3 23+75	18	RT														1	1							
Y3 22+95	18	RT														1	1							
Y3 18+20	30	RT																						
Y3 22+45	65	RT																				25		
Y3 39+29	42	LT																						
Y3 39+29	42	RT																						
Y3 39+33	42	LT																						
Y3 39+33	42	RT																						
DR1 12+02		CL																						
TEMPORARY DRAINAGE																								TEMPORARY DRAINAGE FOR WORK ZONE TRAFFIC
TOTALS																34	34		3			284		
			0	0	0	0	0	0	0	0	0	0	0	0	0	44	44	0	3	0	4	6.0	309	
			0	0	0	0	0	0	0	0	0	0	0	0	0	445	445	0	19	3	20	761.9	8858	

ABBREVIATIONS

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

COMPUTED BY:	CJH	DATE:	7/15/2021
CHECKED BY:	WJW	DATE:	4/11/2022

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
I-5987A	3D-25

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 54 INCHES & OVER)

LINE & STATION (SIZE / THICKNESS OR GAUGE)	OFFSET		STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %
LA 282+90	3	LT	1705		152.22			
			1705	1706		144.60	144.50	
LA 282+90	3	RT	1706		152.23			
			1706	1735		144.50	144.00	
LA 282+90	92	LT	1733		151.00			
			1733	1705		145.00	144.60	
LA 282+90	110	RT	1735		150.30			
			1735	1737		144.00	143.70	
LA 281+88	110	RT	1737		150.20			
			1737	1732		143.70	143.50	
LA 281+88	126	RT	1732		149.50			
LA 281+90	177	RT	1752		149.90			
SR2 31+90	74	RT	1753		149.30			
			1752	1753		143.00	142.40	
LA 282+12	310	LT	1750		151.00			
LA 282+87	120	LT	1751		150.60			
			1750	1751		145.50	145.10	
							SHEET TOTAL	

FROM	TO	SIDE DRAIN PIPE (RCP, CSP, CAAP, HDPE, or PVC) 54"	60"	66"	72"	78"	84"	90"	96"	C.S. PIPE 54"	60"	66"	72"	78"	84"	90"	96"
1705																	
1705	1706																
1706																	
1706	1735																
1733																	
1733	1705																
1735																	
1735	1737																
1737																	
1737	1732																
1732																	
1752																	
1753																	
1752	1753																
1750																	
1751																	
1750	1751																
SHEET TOTAL																	

FROM	TO	R.C. PIPE CLASS III 54"	60"	66"	72"	78"	84"	90"	96"	R.C. PIPE CLASS IV 54"	60"	66"	72"	78"	84"	90"	96"
1705																	
1705	1706										8						
1706																	
1706	1735										112						
1733																	
1733	1705										88						
1735																	
1735	1737										104						
1737																	
1737	1732										16						
1732																	
1752																	
1753																	
1752	1753											248					
1750																	
1751																	
1750	1751									208							
SHEET TOTAL										208	328	248					

FROM	TO	##" R.C. PIPE CULVERTS, CONTRACTOR DESIGN	##" R.C. PIPE CULVERTS, CONTRACTOR DESIGN	##" WELDED STEEL PIPE ##" THICK, GRADE ## IN SOIL	##" WELDED STEEL PIPE ##" THICK, GRADE ## NOT IN SOIL	##" WELDED STEEL PIPE ##" THICK, GRADE B (UNDER RR)	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	REINFORCED ENDWALLS CY	DRAINAGE STRUCTURE MASONRY	QUANTITIES FOR DRAINAGE STRUCTURES *TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') PER EACH (0' THRU 5.0')	LIN. FT. A 5.0' THRU 10.0'	LIN. FT. B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G
1705									5.10							
1705	1706															
1706									5.10							
1706	1735															
1733								5.60								
1733	1705															
1735									5.09							
1735	1737															
1737									5.09							
1737	1732															
1732								5.60								
1752								6.30								
1753								6.30								
1752	1753															
1750								5.00								
1751								5.00								
1750	1751															
SHEET TOTAL							0.00	33.80	20.38							

FROM	TO	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B.J.B. STD. 840.34	T.B.G.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	STEEL FRAME AND TWO GRATES STD. 840.37	M.H. STD. 840.51, STD. 840.52, OR STD.53	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING D.I. TO J.B.	15" C.S. ELBOW	15" SIDE DRAIN PIPE ELBOW	FLOWABLE FILL, C.Y.	PIPE REMOVAL LIN. FT.	REMARKS
1705															1	1								SEE SPECIAL DETAIL SHEET 2D-4
1705	1706																							
1706															1	1								SEE SPECIAL DETAIL SHEET 2D-4
1706	1735																							
1733																								
1733	1705																							
1735												1						1						
1735	1737																							
1737												1						1						
1737	1732																							
1732																								
1752																								
1753																								
1752	1753																							
1750																								
1751																								
1750	1751																							
SHEET TOTAL												2			2	2		2						

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

COMPUTED BY:	LMJ	DATE:	7/21/2021
CHECKED BY:	WKJ	DATE:	4/11/2022

PROJECT NO.	SHEET NO.
I-5987A	3D-26

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 54 INCHES & OVER)

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	SIDE DRAIN PIPE (RCP, CSP, CAAP, HDPE, or PVC) 54"	60"	66"	72"	78"	84"	90"	96"	C.S. PIPE 54"	60"	66"	72"	78"	84"	90"	96"	R.C. PIPE CLASS III 54"	60"	66"	72"	78"	84"	90"	96"	R.C. PIPE CLASS IV 54"	60"	66"	72"	78"	84"	90"	96"
LA2 385+65	M																																						
		2604	2605		154.30	153.50																											196						
LA2 415+28	93 LT	2604		159.30																																			
LA2 414+76	94 RT	2605		158.50																																			
		2710	2711		155.30	154.70																										184							
LA2 419+55	91 LT	2710		159.80																																			
LA2 419+55	91 RT	2711		159.20																																			
SHEET TOTAL																																184	196						
PROJECT TOTAL								0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	392	524	248	0	0	0	0	0

LINE & STATION	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	##" R.C. PIPE CULVERTS, CONTRACTOR DESIGN	##" R.C. PIPE CULVERTS, CONTRACTOR DESIGN	##" WELDED STEEL PIPE ##" THICK, GRADE ## IN SOIL	##" WELDED STEEL PIPE ##" THICK, GRADE ## NOT IN SOIL	##" WELDED STEEL PIPE ##" THICK, GRADE B (UNDER RR)	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	REINFORCED ENDWALLS CY	DRAINAGE STRUCTURE MASONRY	QUANTITIES FOR DRAINAGE STRUCTURES *TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') PER EACH (0' THRU 5.0')	LIN. FT. A 5.0' THRU 10.0'	LIN. FT. B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	CONCRETE TRANSITIONAL SECTION C.B. STD. 852.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32	T.B.J.B. STD. 840.34	T.B.G.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	STEEL FRAME AND TWO GRATES STD. 840.37	M.H. STD. 840.51, STD. 840.52, OR STD.53	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING D.I. TO J.B.	15" C.S. ELBOW	15" SIDE DRAIN PIPE ELBOW	FLOWABLE FILL, C.Y.	PIPE REMOVAL LIN. FT.	REMARKS
LA2 385+65																																							128	72" "CATTLE CROSSING" REMOVAL
	2604	2605																																						
LA2 415+28	2604								6.40																															SEE SPECIAL DETAIL SHEET 2C-11
LA2 414+76	2605								6.40																															SEE SPECIAL DETAIL SHEET 2C-11
	2710	2711																																					157	
LA2 419+55	2710								5.00																															
LA2 419+55	2711								5.00																															
SHEET TOTAL									22.8																														285	
PROJECT TOTAL			0	0	0	0	0	0	56.6	20.38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2	0	2	0	0	0	0	285	

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

COMPUTED BY: C.M. DZIWANOWSKI DATE: DECEMBER 9, 2021
CHECKED BY: A.F. RIGGS, JR., PE DATE: DECEMBER 9, 2021

(12-17-19)

PROJECT NO.	SHEET NO.
I-5987A	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
-L-	67+00	89+50	CL	SD	2300
-L-	89+50	109+00	LT/CL/RT	SD	5900
-L-	123+00	128+50	LT	SD	600
-L-	128+50	132+00	LT/RT	SD	700
-L-	189+00	215+00	LT/CL/RT	SD	7800
-L-	215+00	230+00	LT	SD	1500
-L-	237+00	247+00	LT	SD	1000
-L-	253+00	267+00	LT/CL	SD	2800
-L-	267+00	286+00	LT/CL/RT	SD	5700
-L-	290+00	303+00	LT/CL/RT	SD	2600
-L-	320+00	326+00	LT/CL/RT	SD	1800
-L-	326+00	332+00	RT	SD	600
-L-	343+50	347+00	RT	SD	400
-L-	357+00	364+50	LT/RT	SD	1500
-L-	368+50	390+00	LT/CL/RT	SD	6500
-L-	414+00	440+00	LT/CL/RT	SD	7800
-L-	467+00	495+00	LT/CL/RT	SD	8500
-Y2-	12+15	15+00	LT/RT	SD	600
-Y2-	15+00	19+50	LT	SD	500
-Y2-	37+00	38+00	RT	SD	100
-Y2-	38+00	39+00	LT/RT	SD	200
-Y1A-	17+65	25+50	LT/RT	SD	1600
-Y1A-	25+50	31+50	LT	SD	600
-Y1A-	52+00	56+35	LT/RT	SD	900
-Y1ARPA-	10+00	19+00	LT/RT	SD	1800
-Y1ARPB-	10+00	14+50	LT/RT	SD	900
-Y1ARPC-	10+00	16+00	LT/RT	SD	1200
-SR2-	17+60	27+00	LT/RT	SD	2000
-SR2-	39+00	44+50	LT/RT	SD	1100
-Y3-	16+50	20+50	LT/RT	SD	800
-Y3-	40+00	43+50	LT/RT	SD	700
CONTINGENCY					5000
				TOTAL LF:	76000

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

SUMMARY OF SETTLEMENT GAUGES

Gauge No.	LINE and Station	Offset	
		Distance FT	Direction LT/RT
1	40+24 -Y1A-	28	LT
2	40+15 -Y1A-	27	RT
3	39+99 -Y1A-	28	LT
4	39+90 -Y1A-	27	RT
5	42+23 -Y1A-	27	LT
6	42+14 -Y1A-	28	RT
7	42+48 -Y1A-	27	LT
8	42+39 -Y1A-	28	RT
9	28+67 -Y2-	22	LT
10	28+63 -Y2-	21	RT
11	28+42 -Y2-	22	LT
12	28+38 -Y2-	21	RT
13	30+88 -Y2-	21	LT
14	30+84 -Y2-	22	RT
15	31+13 -Y2-	21	LT
16	31+09 -Y2-	22	RT
17	28+85 -Y3-	27	LT
18	28+39 -Y3-	18	RT
19	28+60 -Y3-	27	LT
20	28+14 -Y3-	18	RT
21	31+70 -Y3-	18	LT
22	31+24 -Y3-	27	RT
23	31+95 -Y3-	18	LT
24	31+49 -Y3-	27	RT
	TOTAL GAUGES (EACH):		24

SUMMARY OF ROCK PLATING

LINE	Beginning Slope (H:V)	Approx. Station	Ending Slope (H:V)	Approx. Station	Location LT/RT	Rock Plating Detail No. 1/2/3/4	Riprap Class* 1/2/B	Rock Plating SY
-L-	2.5:1	104+50	2.5:1	107+75	LT	3		590
-L-	2.5:1	104+25	2.5:1	112+25	RT	3		2340
-Y2-	2.75:1	23+50	2.75:1	26+50	RT	2		620
							TOTAL SY:	3550

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

SUMMARY OF BRIDGE WAITING PERIODS

Bridge Description	End Bent/ Bent No.	MONTHS
-Y1A- (US 301) over -L- (I-95) STA 286+75	No.1 & No.2	4
-Y2- SR 1529 (Powersville Road) over -L- (I-95) STA 210+10	No.1 & No.2	4
Y3- SR 1758 (McDuffie Crossing Road) over -L- (I-95) STA 463+53.11	No.1 & No.2	4

COMPUTED BY: C.M. DZIWANOWSKI DATE: DECEMBER 9, 2021
CHECKED BY: A.F. RIGGS, JR., PE DATE: DECEMBER 9, 2021

(12-17-19)

PROJECT NO.	SHEET NO.
I-5987A	3G-2

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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
-L-	67+75	68+25	ASU (1)	12	163	230	370		
-L-	68+75	69+25	ASU (1)	12	154	220	350		
-L-	69+25	71+75	ASU (1)	12	476	1175	1850		
-L-	72+25	74+25	ASU (1)	12	596	875	1400		
-L-	74+75	87+75	ASU (1)	12	4958	4295	6870		
-L-	88+25	111+75	ASU (1)	12	8830	21855	35020		
-L-	134+25	135+25	ASU (1)	12	61	90	140		
-L-	169+25	186+75	ASU (1)	12	2842	6750	10800		
-L-	191+25	192+25	ASU (1)	12	156	240	370		
-L-	193+25	194+25	ASU (1)	12	287	600	950		
-L-	195+25	197+25	ASU (1)	12	535	1130	1800		
-L-	206+25	208+75	ASU (1)	12	674	1850	2950		
-L-	209+75	212+25	ASU (1)	12	800	2050	3275		
-L-	254+25	255+75	ASU (1)	12	293	1060	1700		
-L-	265+25	270+25	ASU (1)	12	535	1320	2110		
-L-	291+75	293+25	ASU (1)	12	183	470	735		
-L-	366+75	386+25	ASU (1)	12	393	750	1200		
-L-	369+25	373+75	ASU (1)	12	876	2370	3800		
-L-	414+75	428+25	ASU (1)	12	2565	7300	11700		
-L-	434+25	436+75	ASU (1)	12	287	600	950		
-L-	456+25	466+75	ASU (1)	12	2150	7800	12500		
-Y1A-	54+75	56+35	ASU (1)	12	71	165	265		
-Y2-	12+51	14+75	ASU (1)	12	75	245	390		
-Y2-	15+25	17+25	ASU (1)	12	24	235	380		
-Y3-	16+25	19+25	ASU (1)	12	61	205	330		
-Y3-	41+25	43+50	ASU (1)	12	31	120	195		
GEOTEXTILE FOR UNDERCUT			AST				9000		
CONTINGENCY			ASU (1)	12	2000	2000	2000		
CONTINGENCY			AST	3			2500		4000
			TOTAL CY/TONS/SY:		30076	66000**	115900**	0	4000
-Y1RPA-, -Y1RPB-, -Y1RPC-, -Y1RPD-, -Y1ARPA-, -Y1ARPC-, AND -SR6- ARE LOCATED WITHIN THE -L- XSC'S									

***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.**

PROJ. REFERENCE NO.	SHEET NO.
I-5987A	3P-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
1	4	SOUTHEASTERN REGIONAL MEDICAL CENTER
2	4	NOBLE INVSTMENT AND DEVELOPMENT LLC
3	4	CASHMAN & HOBBES LLC
4	4, 5	WAL-MART REAL ESTATE
5	5	DOHERTY HOLDINGS SIXTH LLC
6	5	FRENCH FAMILY PROPERTIES
7	5	CROSSROADS HOLDINGS LLC
8	5	WILLIAM BRYANT
9	5	DAVID EDGE
10	5, 6	DAVID EDGE
11	5, 6	LUMBERTON BUFFET GROUP
12	6	DAVID EDGE
13	6	NLP LUMBERTON LLC
14		NOT USED
15	6	JIJ INC
16	6	SAMS REAL ESTATE
17	6	DAVID GOODE
18	6	SREE LUMBERTON LLC
19	6	VISION HOSPITALITY LLC
20	6	DAVID GOODE
21	6	LUMBERTON HOSPITALITY LLC
22	6	NP 5100 LLC
23	6	MDC NC1 LP
24	6	NP 5100 LLC
25	6	DOHERTY HOLDING'S LLC
26	6	NP 301
27		NOT USED
28	6, 7, 8	ROBESON COUNTY BOARD OF EDUCATION
29	6, 7, 8	HAPPY VALLEY FARM LLC
30	8	HAPPY VALLEY FARM LLC
31	8, 9	ROBESON COMMUNITY COLLEGE
32	8, 9	WILLIAM FERRY
33	9	TERRY HUNT
34	9	ERTLE CHAVIS
35	9	ROBESON COUNTY
36	9	ANNE TODD
37	9, 10	CHARLES LOWRY
38	9, 10	PAUL GORDON
39	10, 11	HEAVARD OXENDINE
40	10, 11	PAM PETTY
41	11, 12	FLOYD & DAVID POWERS
42	11	PAM PETTY
43	11, 12	FLOYD & DAVID POWERS
44	12	ERNESTINE PARKER
45	12, 13, 34	JOYCE THOMAS BROADWELL
46	12, 13, 33	LARRY & RACHEL PRIDGEN
47		NOT USED
48	13, 34	KAREN PAUL OBERSHEA
49	13	CHRISTOPHER PRIDGEN
50	13, 33	ERNESTINE PARKER
51	13. 14	KAREN PAUL OBERSHEA
52	13, 14, 34	KAREN PAUL OBERSHEA
53	14	GLENDA ANN BUIE
54	14	RONALD HAMMONDS
55	14	OSCAR BLANKS
56	14	RONALD HAMMONDS
57	14	K.M. BIGGS, INC.
58	14, 15	COUNTY OF ROBESON
59	14, 15	ANTHONY BLANKS
60	15	ANTHONY BLANKS

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
61	15, 16	DANIEL MAINS
62	15, 16	RICKY BLANKS
63	16, 17, 35	MARY BURNETTE
64	16, 17, 36	MARY BURNETTE
65	17, 36	MARY BURNETTE
66	17, 35	VARSER BURNETTE
67	17	WESLEY REVELS
68	17	MARY BURNETTE
69	17	VICTOR LUCENTE
70		NOT USED
71	17	ERMA NORRIS & HENRY NORRIS
72		NOT USED
73	17	HENRY NORRIS
74	17	ELLA NEALEY
75	17	LOLETA BLANKS
76	17	MARTY BLANKS
77	17	ERNESTINE COLLINS
78	17	CORA RAIMO
79	17	ORVAL THOMAS BLANKS
80	17	LINDA BLANKS
81	17, 37	SONNY OLIVER REALTY CO.
82	17, 18, 37	LORRAINE CANADY
83	17, 37	LINDA BLANKS
84	17, 18	HARVEY CANADY
85	18	LINDA JONES
86	18	EDWARD OXENDINE
87	18	CALEB RAY LOCKLEAR
88	18	ORLANDO SANTOS
89	18	JACQUELINE GRAHAM
90	18	JOSEPH SANDERSON
91	18	LEEVON GODWIN
92		NOT USED
93	18, 19	LORRAINE CANADY
94	18, 19	LORRAINE CANADY
95	19, 20	BRUNSWICK TIMBER LLC
96	19, 20	BRUNSWICK TIMBER LLC
97	21	DELLA D. BAXLEY
98	21	DELLA D. BAXLEY
99	21, 22	CAROL POWERS LIFE ESTATE
100	21	DANNY CHAVIS AND WIFE, EILEEN CHAVIS
101	21, 22	WILLIAM A BRYANT JR ET ALS
102	22	THAD J. DAVIS AND WIFE, CHERYL J. DAVIS
103	22, 23	PATRICA R. THONPSON AND SPOUSE, DAVIS M. THOMPSON
104	22, 23	BRENDA B. SMITH
105	23, 24	DAVID EDGE
106	23, 24	NEAL C. RUSS
107	23, 24	NEILL D. FOWLER
108	24	SHIRLEY M. WARD
109	24	KAREN I. EVANS
110	24, 25	FRANKLIN G MELVIN AND WIFE, GENEVIEVE C. MELVIN
111	24, 25	DAVID C. WHITE ET ALS
112	25	NANCY L. WHITE
113	25, 26	RAYMOND W. JONES AND WIFE, MYRA W. JONES
114	25, 26, 27	JOSEPH G. RIDDLE AND WIFE, GAIL A. RIDDLE
115		NOT USED
116	26, 27, 28	GEORGE FRANK WHITE LIFE ESTATE
117	27, 28	MARY JANE TUCKER HARRELL LIFE ESTATE ET ALS
118	27, 28	PALMETTO PROPERTIES, INC
119	28, 29	JOSEPH G. RIDDLE AND WIFE, GAIL A. RIDDLE
120	28, 29, 30, 38	JOSEPH G. RIDDLE AND WIFE, GAIL A. RIDDLE

PROJ. REFERENCE NO.	SHEET NO.
I-5987A	3P-2

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
121	29, 30, 39	K.M. BIGGS, INC.
122	29, 30	K.M. BIGGS, INC.
123	30, 31 38	K.M. BIGGS, INC.
124	30, 31, 39	K.M. BIGGS, INC.
125	31, 32, 39	JOHN B. BUNN ET ALS
126	31	JOHN B. BUNN ET ALS
127	31, 32	TOMMY BLANKS
128	33	TIMOTHY BELL
129	33	ARCHIE PREVATTEE
130	33	PAULA CAULDER
131	13, 34	GERALD PAUL
132	34	KAREN PAUL OBERSHEA
133	34	JOYCE THOMAS BROADWELL
134	35	GOLBER HARDIN
135	35	GOLBER HARDIN
136	35	JOHN HARDIN
137	35	JIMMY BURNETTE
138		NOT USED
139	37	BILLY BLANKS
140		NOT USED
141	37	MARTY BLANKS
142	37	TEN MILE BAPTIST CHURCH
143	37	TEN MILE BAPTIST CHURCH
144	37	TEN MILE BAPTIST CHURCH
145	30, 38	MARAGRET R. RUSS
146	39	ST. PAULS FIRST PENTECOSTAL HOLINESS CHURCH, INC.

PARCEL No.	SHEET No.	PROPERTY OWNER NAME

PROJECT REFERENCE NO.	SHEET NO.
I-5987A	4

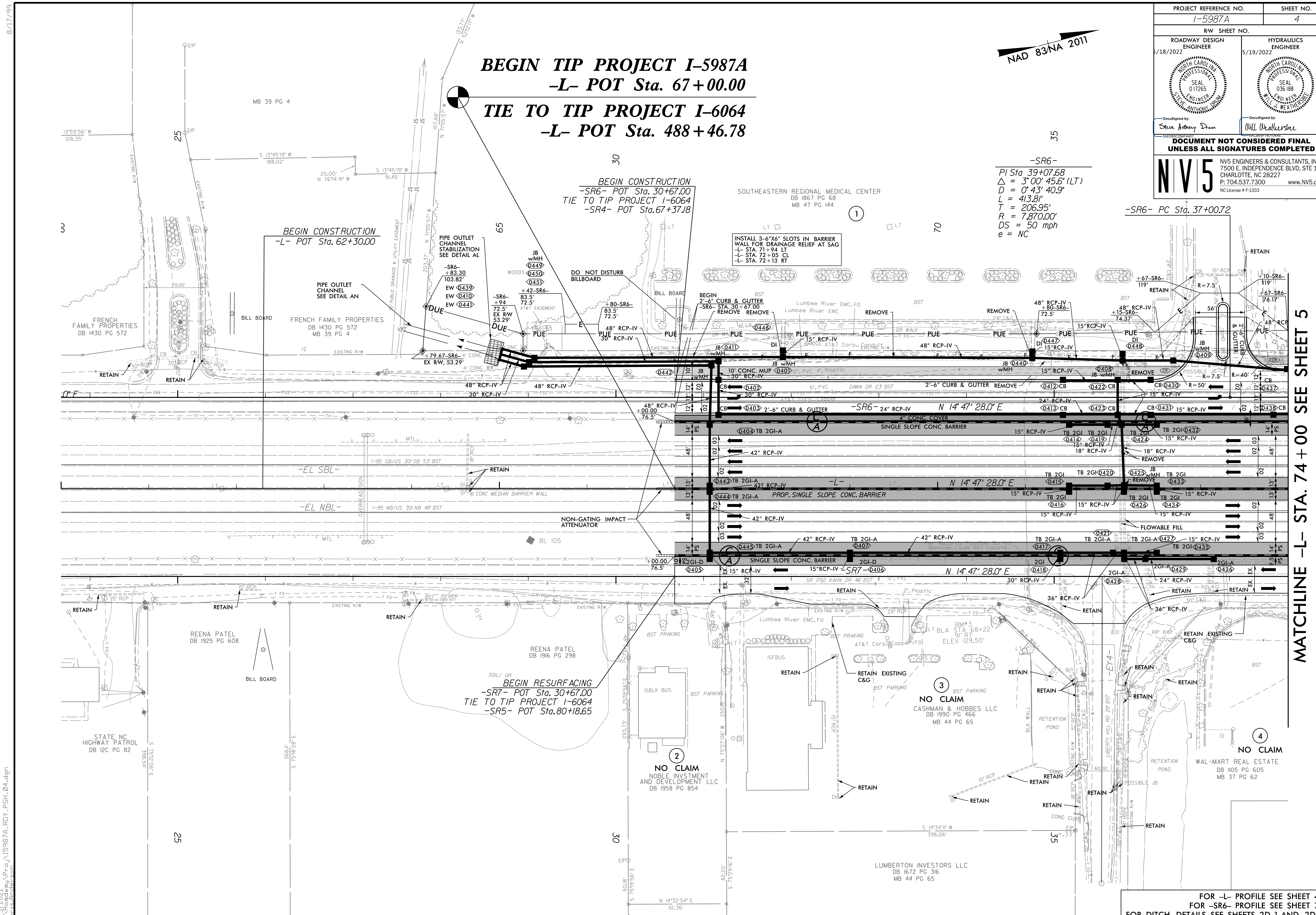
R/W SHEET NO.

ROADWAY DESIGN ENGINEER — 5/18/2022 — NORTH CAROLINA PROFESSIONAL SEAL 017265 ENGINEER STEVE ANTHONY DRUM — DocuSigned by: Steve Anthony Drum

HYDRAULICS ENGINEER — 5/19/2022 — NORTH CAROLINA PROFESSIONAL SEAL 036188 ENGINEER WILL J. WEATHERSBEE — DocuSigned by: Will Weathersbee

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NV5 ENGINEERS & CONSULTANTS, INC.
7500 E. INDEPENDENCE BLVD, STE 100
CHARLOTTE, NC 28227
P: 704.537.7300 www.NV5.com
NC License # F-1333



FOR -L- PROFILE SEE SHEET 40
FOR -SR6- PROFILE SEE SHEET 78
FOR DITCH DETAILS SEE SHEETS 2D-1 AND 2D-2

5/5/2022
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PROJECT REFERENCE NO.	SHEET NO.
I-5987A	5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER 5/23/2022 — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 017265 STEVE ANTHONY DRUM — Steve Drum

HYDRAULICS ENGINEER 5/23/2022 — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 036188 WILL J. WEATHERSBEE — Will Weathersbee

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NV5 ENGINEERS & CONSULTANTS, INC.
7500 E. INDEPENDENCE BLVD, STE 100
CHARLOTTE, NC 28227
P: 704.537.7300 www.NV5.com
NC License # F-1333

-SR6-

PI Sta 39+07.68	PI Sta 43+12.89	PI Sta 53+74.13
Δ = 3° 00' 45.6" (LT)	Δ = 2° 53' 15.0" (RT)	Δ = 33° 38' 33.1" (LT)
D = 0° 43' 40.9"	D = 0° 43' 40.9"	D = 4° 29' 37.6"
L = 413.81'	L = 396.62'	L = 748.65'
T = 206.95'	T = 198.35'	T = 385.46'
R = 7,870.00'	R = 7,870.00'	R = 1,275.00'
DS = 50 mph	DS = 50 mph	DS = 50 mph
e = NC	e = NC	e = .04
		RO = 100.00'

-SR8-

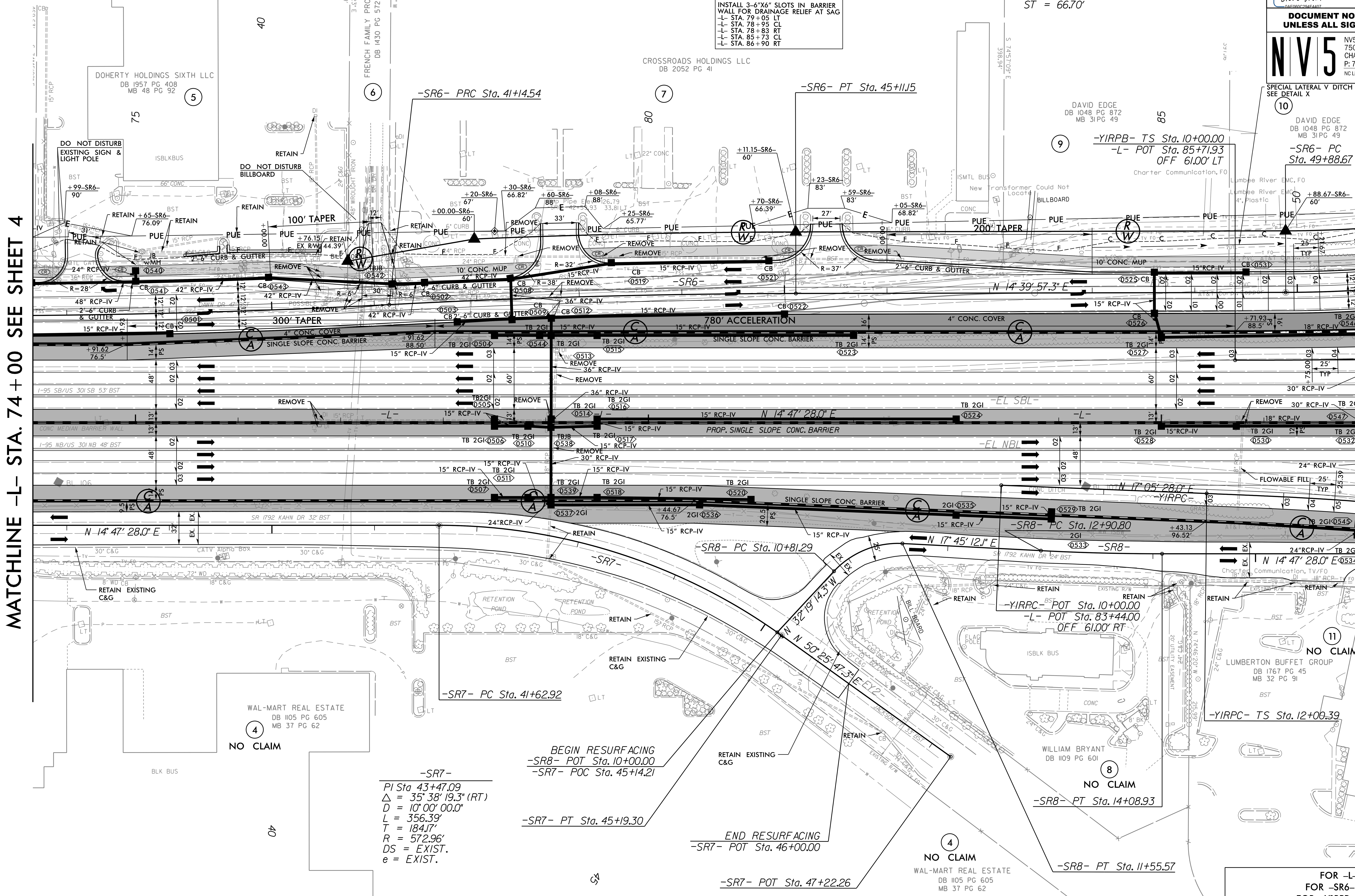
PI Sta 11+20.99	PI Sta 13+49.88
Δ = 50° 04' 26.4" (RT)	Δ = 2° 57' 44.1" (LT)
D = 67° 24' 24.5"	D = 2° 30' 26.9"
L = 74.29'	L = 118.14'
T = 39.70'	T = 59.08'
R = 85.00'	R = 2,285.00'
DS = EXIST.	DS = EXIST.
e = EXIST.	e = EXIST.

-YIRPB-
PIs Sta 11+33.37
Θs = 3° 52' 16.8"
Ls = 200.00'
LT = 133.37'
ST = 66.70'

-YIRPC-
PIs Sta 13+33.76
Θs = 3° 52' 16.8"
Ls = 200.00'
LT = 133.37'
ST = 66.70'

NAD 83/NA 2011

INSTALL 3-6"X6" SLOTS IN BARRIER WALL FOR DRAINAGE RELIEF AT SAG
-L- STA. 79+05 LT
-L- STA. 78+95 CL
-L- STA. 78+83 RT
-L- STA. 85+73 CL
-L- STA. 86+90 RT



-SR7-
PI Sta 43+47.09
Δ = 35° 38' 19.3" (RT)
D = 10° 00' 00.0"
L = 356.39'
T = 184.17'
R = 572.96'
DS = EXIST.
e = EXIST.

FOR -L- PROFILE SEE SHEET 41
FOR -SR6- PROFILE SEE SHEET 78
FOR -YIRPB- PROFILE SEE SHEET 80
FOR -YIRPC- PROFILE SEE SHEET 81
FOR DITCH DETAILS SEE SHEETS 2D-1 AND 2D-2

5/23/2022
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SteveDrum

PROJECT REFERENCE NO.	SHEET NO.
I-5987A	6
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — STATE OF NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 042611 — 8/22/2022

HYDRAULICS ENGINEER — STATE OF NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 042611 — 8/22/2022

NV5 NV5 ENGINEERS & CONSULTANTS, INC
7500 E. INDEPENDENCE BLVD. STE 100
CHARLOTTE, NC 28227
P: 704.537.7200
www.NV5.com
NC License # F-1223

-L-
PI Sta 106+48.9
Δ = 12°24'46.3" (RT)
D = 17°04'54"
L = 509.08'
T = 255.54'
R = 70,000.00'
DS = 75 mph
e = NC

-SR6-
PI Sta 53+74.13
Δ = 137°38'33.1" (LT)
D = 4°29'37.6"
L = 7,485.61'
T = 385.46'
R = 1275.00'
DS = 50 mph
e = 04
RO = 100.00'

PI Sta 59+36.50
Δ = 11°44'34.4" (LT)
D = 2°57'29.1"
L = 596.98'
T = 199.19'
R = 1,936.93'
DS = EXIST.
e = EXIST.

-SR8-
PI Sta 17+38.27
Δ = 70°48'35.3" (RT)
D = 12°43'56.6"
L = 214.94'
T = 123.07'
R = 450.00'
DS = EXIST.
e = EXIST.

-YIRPA-
PI Sta 13+33.73
Gs = 3°52'16.8"
Ls = 200.00'
LT = 133.37'
ST = 66.70'

PI Sta 15+06.19
Δ = 8°10'47.3" (RT)
D = 3°52'16.8"
L = 211.29'
T = 105.83'
R = 1,480.00'
DS = 65 mph
e = 08
RO = 200.00'

PI Sta 16+78.35
Gs = 3°52'16.8"
Ls = 200.00'
LT = 133.37'
ST = 66.70'

PI Sta 20+99.95
Δ = 77°46'53.0" (LT)
D = 19°05'54.9"
L = 375.89'
T = 217.09'
R = 300.00'
DS = EXIST.
e = EXIST.

-YIRPB-
PI Sta 11+33.37
Gs = 3°52'16.8"
Ls = 200.00'
LT = 133.37'
ST = 66.70'

PI Sta 14+06.66
Δ = 15°53'52.9" (LT)
D = 3°52'16.8"
L = 400.66'
T = 206.66'
R = 1,480.00'
DS = 65 mph
e = 08
RO = 200.00'

PI Sta 16+77.35
Gs = 3°52'16.8"
Ls = 200.00'
LT = 133.37'
ST = 66.70'

PI Sta 24+76.97
Δ = 150°37'01.2" (RT)
D = 44°54'55.2"
L = 3,359.1'
T = 492.05'
R = 1250.00'
DS = EXIST.
e = EXIST.

-YIRPC-
PI Sta 13+33.76
Gs = 3°52'16.8"
Ls = 200.00'
LT = 133.37'
ST = 66.70'

PI Sta 14+85.14
Δ = 6°33'16.4" (RT)
D = 3°52'16.8"
L = 169.3'
T = 84.75'
R = 1,480.00'
DS = 65 mph
e = 08
RO = 200.00'

PI Sta 16+36.40
Gs = 3°52'16.8"
Ls = 200.00'
LT = 133.37'
ST = 66.70'

PI Sta 20+86.11
Δ = 69°31'08.8" (LT)
D = 22°02'12.6"
L = 315.92'
T = 180.17'
R = 260.00'
DS = EXIST.
e = EXIST.

-YIRPD-
PI Sta 11+31.99
Gs = 17°04'54.9"
Ls = 200.00'
LT = 131.99'
ST = 68.08'

PI Sta 13+65.62
Δ = 12°46'13.9" (LT)
D = 3°52'16.8"
L = 329.81'
T = 165.62'
R = 1,480.00'
DS = 65 mph
e = 08
RO = 200.00'

PI Sta 15+96.57
Gs = 3°52'16.8"
Ls = 200.00'
LT = 133.37'
ST = 66.70'

PI Sta 24+63.97
Δ = 147°07'41.3" (RT)
D = 42°07'45.3"
L = 349.23'
T = 462.05'
R = 156.00'
DS = EXIST.
e = EXIST.

-L- PT Sta. 109+00.73

-SR6- POT Sta. 62+23.17

-SR6- PT Sta. 61+34.30

N 37° 23' 03" W

-SR6- PCC Sta. 57+37.32

END CONSTRUCTION
-SR6- POT Sta. 56+00.00

-YIRPB- SC Sta. 12+00.00

N 6° 50' 58" W

-YIRPB- PT Sta. 23+24.03

-YIRPB- ST Sta. 18+10.66

-YIRPB- CS Sta. 16+11.65

END CONSTRUCTION
-YIRPB- POT Sta. 19+60.00

-YIRPB- PC Sta. 19+48.92

END CONSTRUCTION
-YIRPA- POT Sta. 18+82.00

-YIRPA- PC Sta. 18+82.86

-YIRPA- PT Sta. 22+58.71

-YIRPA- SC Sta. 14+00.36

-YIRPA- TS Sta. 12+00.36

-YIRPA- ST Sta. 18+11.85

S 23° 25' 37.2" W

-YIRPA- CS Sta. 16+11.65

-YIRPA- PC Sta. 10+31.03

-YIRPA- PT Sta. 10+95.65

S 17° 30' 16.3" W

-YIRPA- POT Sta. 10+00.00
-L- POT Sta. 109+03.00
OFF 6100 LT

-YIRPC- ST Sta. 17+69.70

-YIRPC- SC Sta. 15+69.70

-YIRPC- PC Sta. 19+05.34

END CONSTRUCTION
-YIRPC- POT Sta. 18+70.00

N 37° 23' 18" E

-YIRPC- PT Sta. 22+31.26

END RESURFACING
-SR8- POT Sta. 20+46.11

-SR8- POT Sta. 20+95.73

N 45° 32' 42" E

-SR8- PC Sta. 15+14.29

-SR8- PT Sta. 18+56.24

-YIRPC- SC Sta. 14+00.39

N 14° 47' 28" E

-YIRPD- PT Sta. 23+52.18

-YIRPD- ST Sta. 17+29.87

-YIRPD- CS Sta. 15+29.87

-YIRPD- PC Sta. 20+02.95

END CONSTRUCTION
-YIRPD- PC Sta. 19+60.00

S 5° 28' 51" E

-YIRPD- SC Sta. 12+00.00

-YIRPD- CS Sta. 10+00.00
-L- POC Sta. 101+88.40
OFF 6100 RT

S 74° 09' E

780' ACCELERATION

300' TAPER

MATCHLINE -L- STA. 87+00 SEE SHEET 5

MATCHLINE -L- STA. 116+00 SEE SHEET 7

NAD 83/NA 2011

A

B

C

D

SAN CITY INC
DB 257 PG 388

DAVID GOODE
DB 48/PG 80
MB 48/PG 129-130

DAVID GOODE
DB 48/PG 80

DAVID GOODE
DB 545 PG 202
MB 26 PG 135

SAMS REAL ESTATE
DB 4882 PG 372
MB 48/PG 129-130

NP 500 LLC
DB 2012 PG 39

DOUGLAS & ANDREWS
DB 1579 PG 1

ROBESON COUNTY BOARD OF EDUCATION
DB 1179 PG 256-127

DOHERTY HOLDING'S LLC
DB 1630 PG 697

DOHERTY HOLDING'S LLC
DB 1357 PG 508
MB 3/PG 209

HAPPY VALLEY FARM LLC
DB 1587 PG 712
MB 32 PG 77

LUMBERTON HOSPITALITY LLC
DB 1873 PG 575
MB 3/PG 43

MDC HOLLP
DB 2160 PG 747
MB 3/PG 43

YISION HOSPITALITY LLC
DB 2054 PG 52
MB 3/PG 43

JLJ PIC
DB 788 PG 708

TNLP LUMBERTON LLC
DB 1926 PG 689

LUMBERTON BUFFET GROUP
DB 1767 PG 45
MB 32 PG 19

SKEE LUMBERTON LLC
DB 1948 PG 608
DB 973 PG 487

TRAFFIC DIAGRAM

US 301 (RAT 22)
ADT 2022 14,000
ADT 2042 19,700

69,000 I-95 I-95 63,500
99,900 99,900

19,700 (EXIST.)
FAYETTEVILLE ROAD (SR 1917)

STEEPEN SLOPE FROM -L- STA. 104+00.00 TO 112+50.00 RT AND -L- STA. 104+50.00 TO 107+75.00 LT (SEE CROSS SECTIONS) SEE DETAIL SHEET 2C-13 FOR ROCK PLATING

PROPOSED ROCK PLATING

FOR -L- PROFILE SEE SHEET 41 - 43
FOR -SR6- PROFILE SEE SHEET 78, 79
FOR -YIRPA- PROFILE SEE SHEET 80
FOR -YIRPB- PROFILE SEE SHEET 80
FOR -YIRPC- PROFILE SEE SHEET 81
FOR -YIRPD- PROFILE SEE SHEET 81
FOR DITCH DETAILS SEE SHEETS 2D-1 AND 2D-2
FOR CULVERT PLANS SEE C19-1 THRU C19-8

GRAPHIC SCALE
50 25 0 50 100
PLANS

PROJECT REFERENCE NO.	SHEET NO.
I-5987A	7
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 017265 ENGINEER STEVE ANTHONY DRUM	NORTH CAROLINA PROFESSIONAL SEAL 036188 ENGINEER WILL J. WEATHERSBEE
DocuSigned by: Steve Drum 8/22/2022	DocuSigned by: Will Weathersbee 8/22/2022

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NV5 ENGINEERS & CONSULTANTS, INC.
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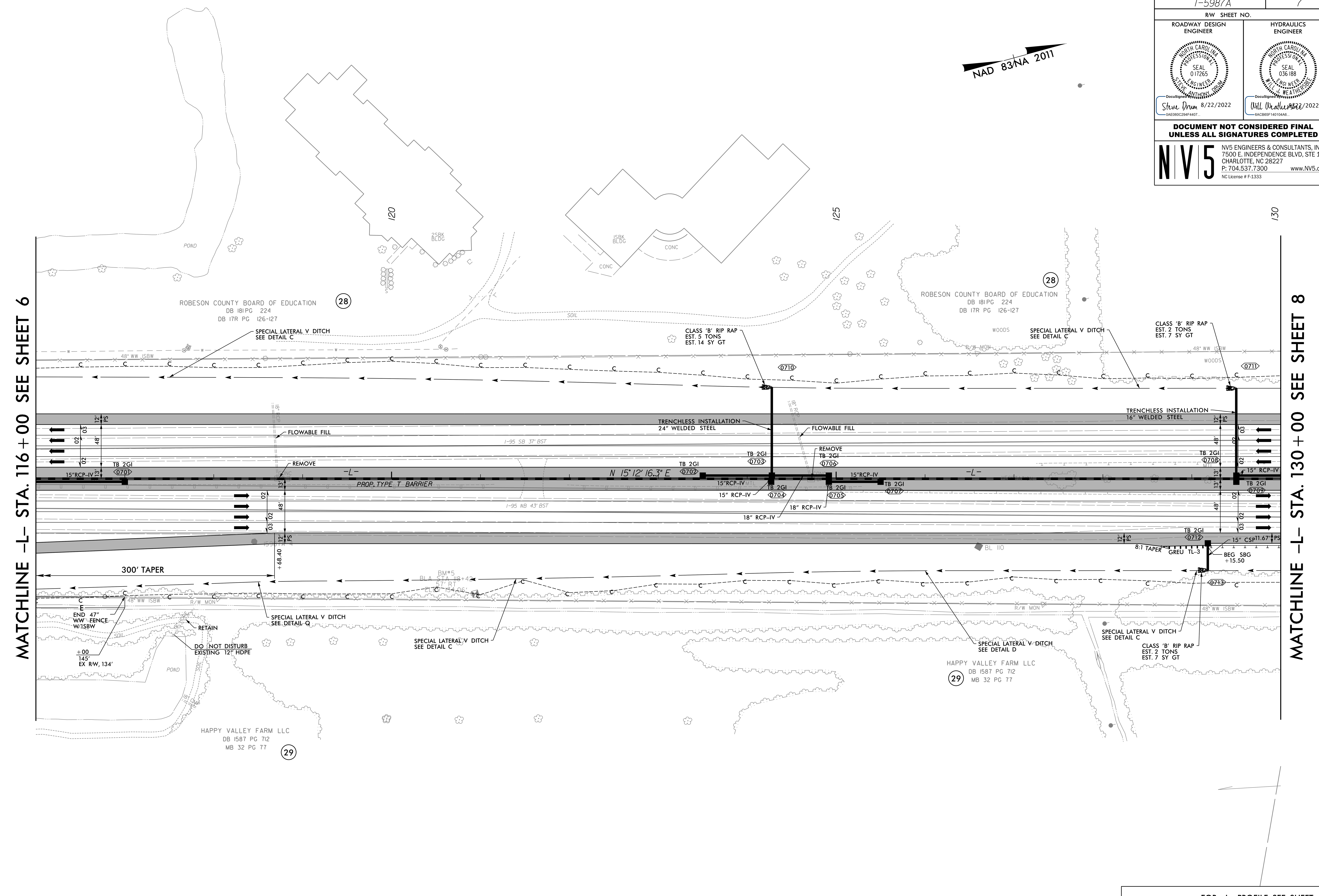
CHARLOTTE, NC 28227
P: 704.537.7300 www.NV5.com
NC License # F-1333



FOR -L- PROFILE SEE SHEET 44
FOR DITCH DETAILS SEE SHEETS 2D-1 AND 2D-2

PROJECT REFERENCE NO.	SHEET NO.
I-5987A	8
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER 5/18/2022 — SEAL 017265 — Steve Anthony Dunn

HYDRAULICS ENGINEER 5/19/2022 — SEAL 036188 — Will Weathersbee

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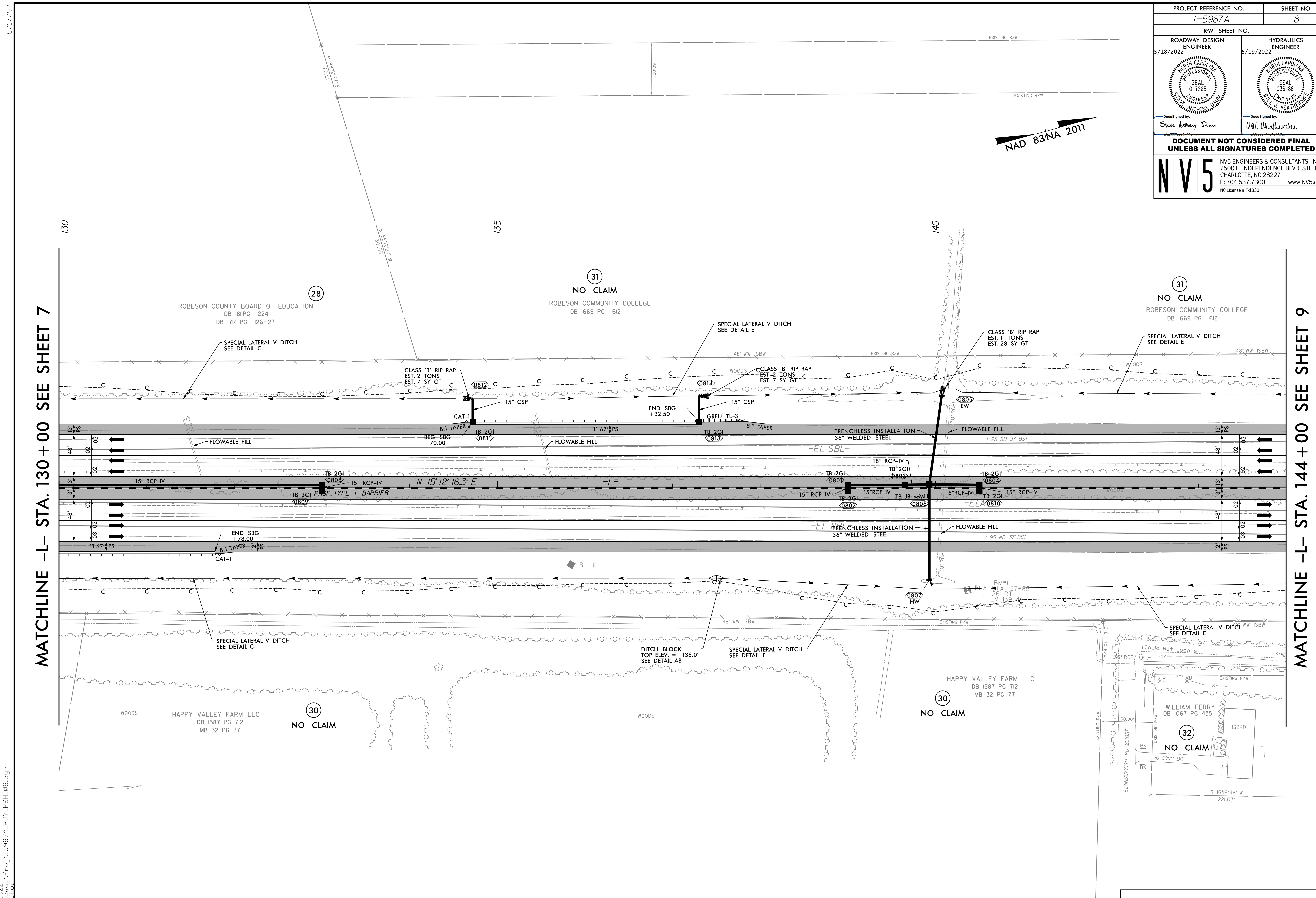

FOR -L- PROFILE SEE SHEET 45
FOR DITCH DETAILS SEE SHEETS 2D-1 AND 2D-2

PROJECT REFERENCE NO.	SHEET NO.
I-5987A	9

R/W SHEET NO.

ROADWAY DESIGN ENGINEER — 5/18/2022 — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 017265 STEVE ANTHONY DRUM — DocuSigned by: Steve Anthony Drum

HYDRAULICS ENGINEER — 5/19/2022 — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 036188 WILL J. WEATHERSBEE — DocuSigned by: Will Weathersbee

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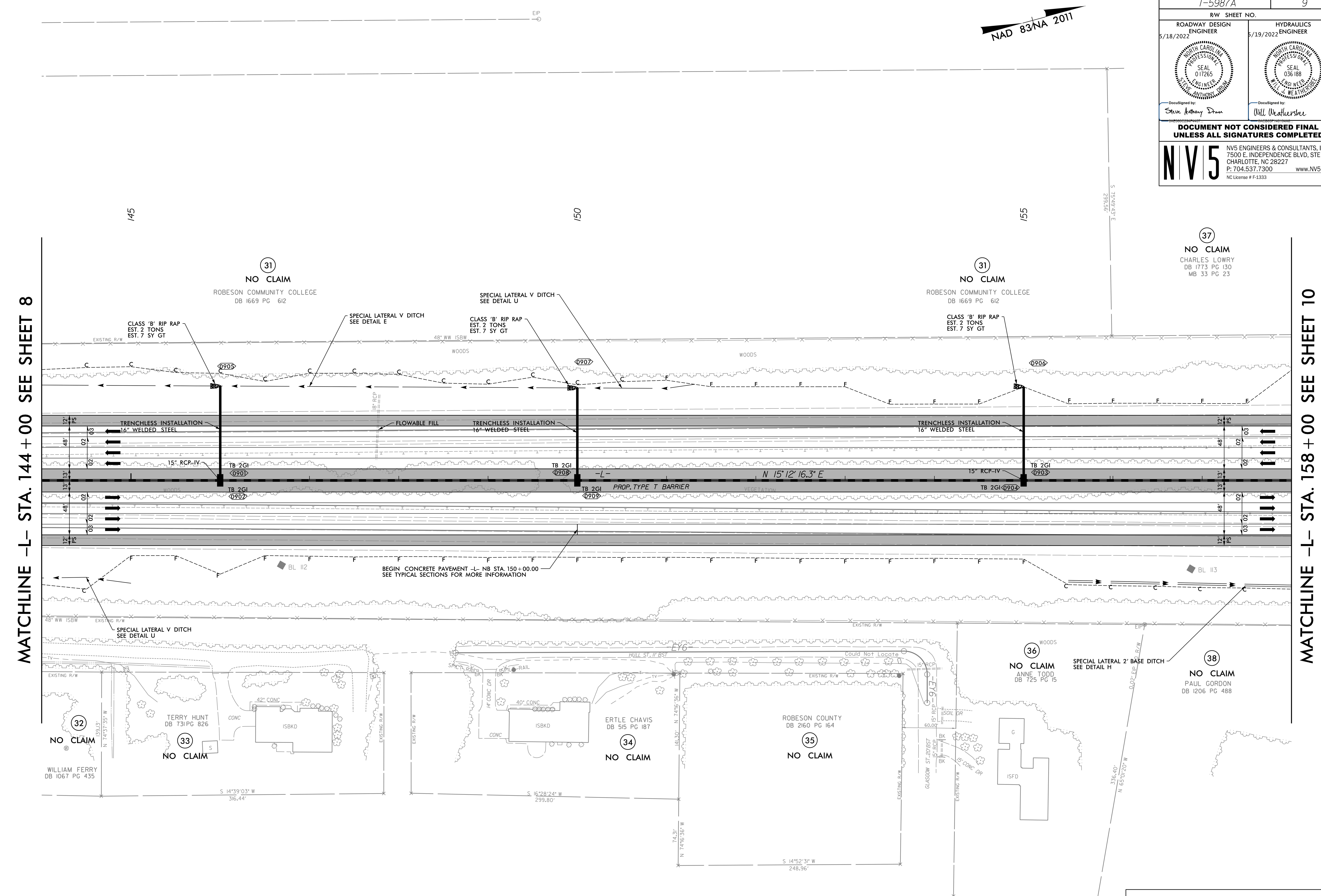

FOR -L- PROFILE SEE SHEET 46
FOR DITCH DETAILS SEE SHEETS 2D-1 AND 2D-2

8/17/99

3/30/2022
R:\Roadway\Proj\15987A_RDY_PSH_09.dgn

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5987A	10
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
5/18/2022
NORTH CAROLINA PROFESSIONAL SEAL 017265 ENGINEER STEVEN ANTHONY DRAA
DocuSigned by: Steve Anthony Draa

HYDRAULICS ENGINEER
5/19/2022
NORTH CAROLINA PROFESSIONAL SEAL 036188 ENGINEER WILL NEELY WEATHERSBEE
DocuSigned by: Will Weathersbee

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NAD 83/NA 2011

MATCHLINE –L– STA. 158+00 SEE SHEET 9

MATCHLINE –L– STA. 172+00 SEE SHEET 11

–L– TS Sta. 171+29.07

–L–
PIs Sta 172+62.41
Θs = 0° 44' 38.8"
Ls = 200.00'
LT = 133.33'
ST = 66.67'

160 165 170

(37) NO CLAIM
CHARLES LOWRY
DB 1773 PG 130
MB 33 PG 23

(40) NO CLAIM
PAM PETTY
WILL 18-E PG 590
MB 33 PG 70

(38) NO CLAIM
PAUL GORDON
DB 1206 PG 488

(39) NO CLAIM

HEAVARD OXENDINE
DB 1449 PG 194
MB 29 PG 140

100' POWERLINE EASEMENT DB 2178 PG 505
70' GAS LINE EASEMENT DB 2178 PG 505
100' POWERLINE EASEMENT MB 29 PG 140
TRANSMISSION LINE
WOODS
S 80°05'10" E 447.10'
S 80°05'19" E 446.25'
N 15°12'16.3" E
–L–

SPECIAL LATERAL V DITCH SEE DETAL U
SPECIAL LATERAL V DITCH SEE DETAIL E
SPECIAL LATERAL V DITCH SEE DETAIL U
CLASS 'B' RIP RAP EST. 2 TONS EST. 7 SY GT
CLASS 'B' RIP RAP EST. 8 TONS EST. 21 SY GT
TAIL DITCH SEE DETAL AQ
EW 1011
15" CSP 1015
END SBG +32.50
GREU TL-3
CAT-1
8:1 TAPER
BEG SBG +70.00
11.67% PS
TB 2GI 1014
24" RCP
TRENCHLESS INSTALLATION 30" WELDED STEEL
FLOWABLE FILL
20", Steel
48" WW ISBW
50' TYP
1013
TRENCHLESS INSTALLATION 16" WELDED STEEL
30" RCP-IV
TB 2GI 1002
TB 2GI 1006
TB 2GI 1003
TB 2GI 1004
TB 2GI 1008
TB 2GI 1009
15" RCP-IV
TB 2GI 1001
PROP. TYPE T BARRIER
18"RCP-IV
TB 2GI 1005
18" RCP-IV
TB 2GI 1007
15"RCP-IV
TB 2GI 1010
BL 114
HW 1012
BM#7
BLA STA 160+40
32' RT
ELEV 143.25'
R/W MON
SPECIAL LATERAL 2' BASE DITCH SEE DETAIL H
SPECIAL LATERAL 2' BASE DITCH SEE DETAIL I
SPECIAL LATERAL V DITCH SEE DETAIL B
DITCH BLOCK TOP ELEV. = 141.0' SEE DETAIL AB
BEG SBG +67.62

FOR –L– PROFILE SEE SHEET 47
FOR DITCH DETAILS SEE SHEETS 2D-1 AND 2D-2

3/30/2022
R:\Projects\I-5987A_RDY_PSH_010.dgn
Revit Plot

PROJECT REFERENCE NO.	SHEET NO.
I-5987A	11

R/W SHEET NO.

ROADWAY DESIGN ENGINEER 5/18/2022 — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 017265 STEVE ANTHONY DRUM — DocuSigned by: Steve Anthony Drum

HYDRAULICS ENGINEER 5/19/2022 — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 036188 WILL L. WEATHERSBEE — DocuSigned by: Will Weathersbee

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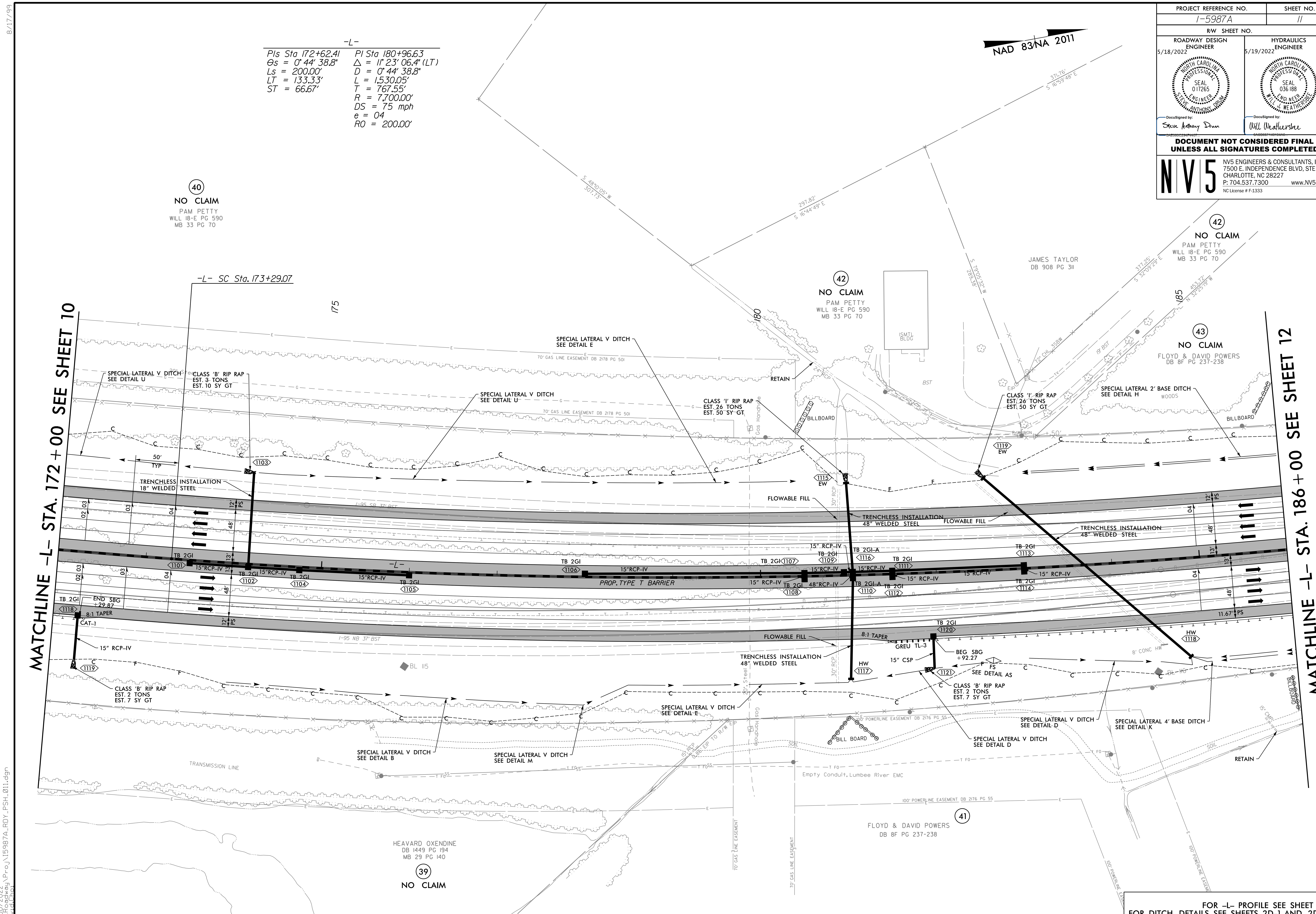
8/17/99



FOR -L- PROFILE SEE SHEET 48
FOR DITCH DETAILS SEE SHEETS 2D-1 AND 2D-2

3/30/2022
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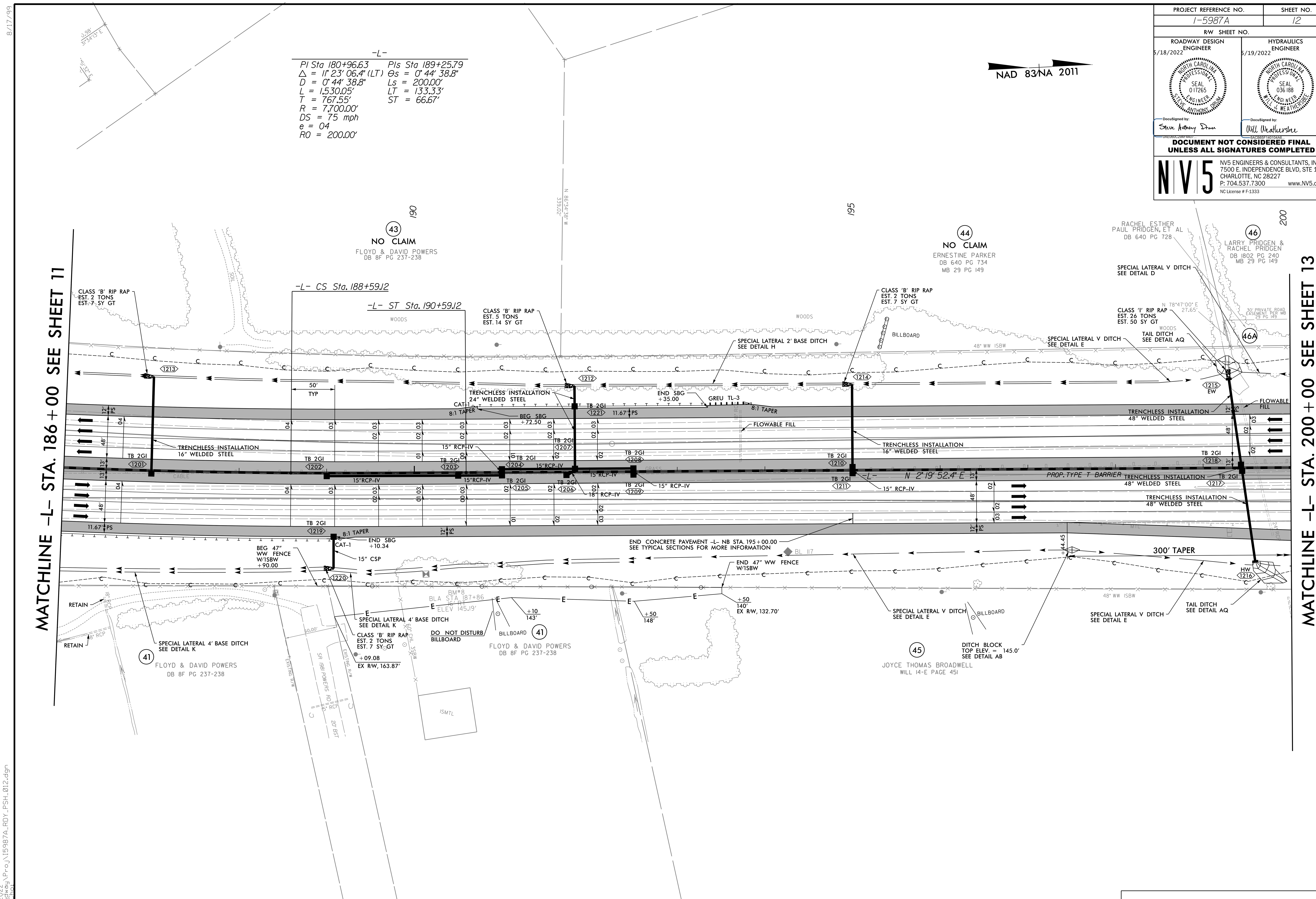

PROJECT REFERENCE NO.	SHEET NO.
I-5987A	12

R/W SHEET NO.

ROADWAY DESIGN ENGINEER — 5/18/2022 — SEAL 017265 — DocuSigned by: Steve Anthony Drum

HYDRAULICS ENGINEER — 5/19/2022 — SEAL 036188 — DocuSigned by: Will Weatherslee

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FOR -L- PROFILE SEE SHEET 49
FOR DITCH DETAILS SEE SHEETS 2D-1 AND 2D-2

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5987A	13
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER 6/8/2022 — NORTH CAROLINA PROFESSIONAL SEAL 017265 ENGINEER STEVEN ANTHONY DRUM — DocuSigned by: Steve Drum

HYDRAULICS ENGINEER 6/8/2022 — NORTH CAROLINA PROFESSIONAL SEAL 036188 ENGINEER WILL WEATHERSBEE — DocuSigned by: Will Weathersbee

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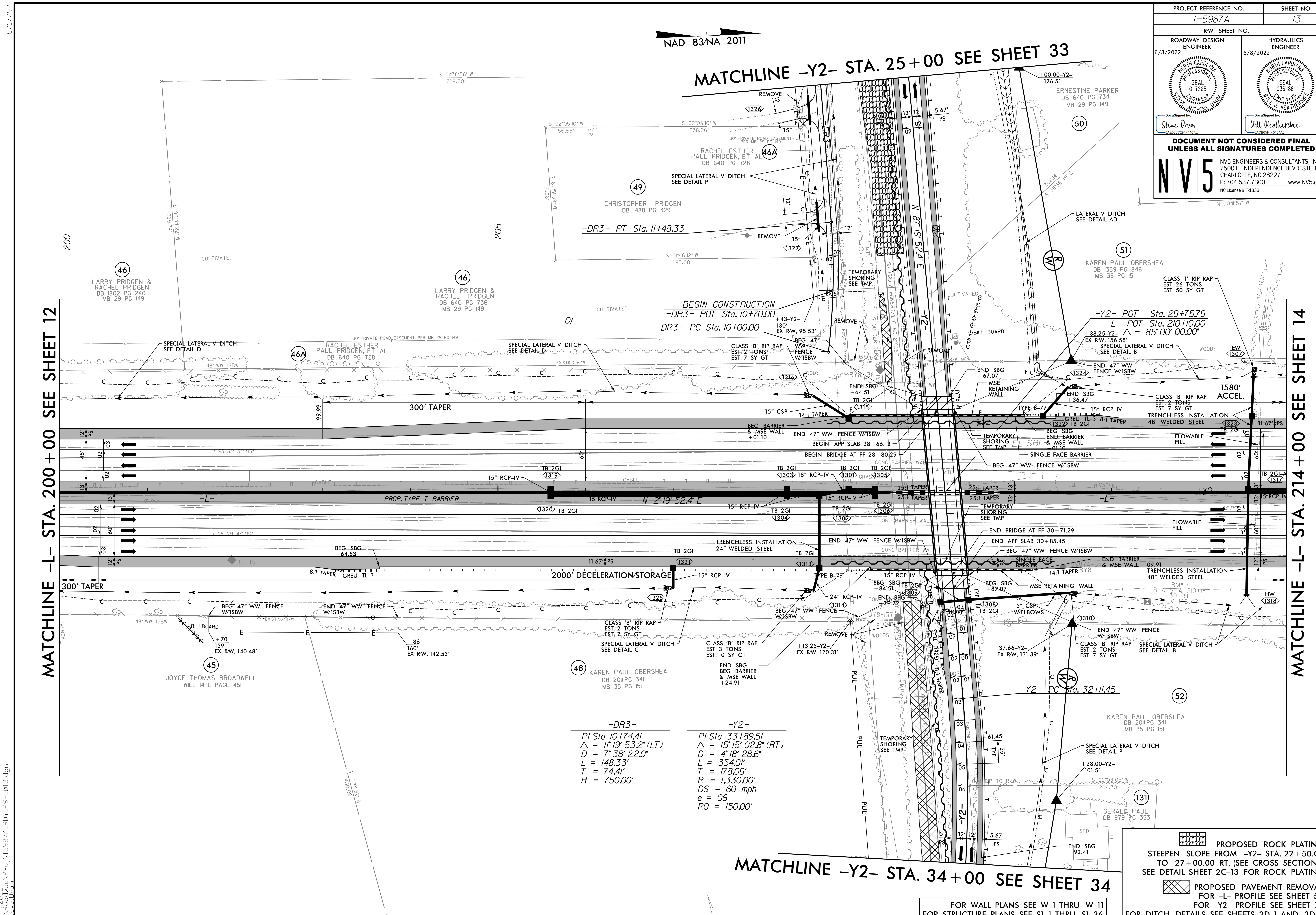

-DR3-	-Y2-
PI Sta 10+74.41	PI Sta 33+89.51
△ = 11° 19' 53.2" (LT)	△ = 15° 15' 02.8" (RT)
D = 7° 38' 22.0"	D = 4° 18' 28.6"
L = 148.33'	L = 354.01'
T = 74.41'	T = 178.06'
R = 750.00'	R = 1,330.00'
	DS = 60 mph
	e = 06
	RO = 150.00'

PROPOSED ROCK PLATING
STEEPEN SLOPE FROM -Y2- STA. 22+50.00 TO 27+00.00 RT. (SEE CROSS SECTIONS)
SEE DETAIL SHEET 2C-13 FOR ROCK PLATING

PROPOSED PAVEMENT REMOVAL

FOR -L- PROFILE SEE SHEET 50
FOR -Y2- PROFILE SEE SHEET 72
FOR DITCH DETAILS SEE SHEETS 2D-1 AND 2D-2
FOR WALL PLANS SEE W-1 THRU W-11
FOR STRUCTURE PLANS SEE S1-1 THRU S1-36

PROJECT REFERENCE NO.	SHEET NO.
I-5987A	14

R/W SHEET NO.

ROADWAY DESIGN ENGINEER — 5/18/2022 — NORTH CAROLINA PROFESSIONAL SEAL 017265 ENGINEER STEVE ANTHONY DRUM — DocuSigned by: Steve Anthony Drum — 0AE060C294F4407...

HYDRAULICS ENGINEER — 5/19/2022 — NORTH CAROLINA PROFESSIONAL SEAL 036188 ENGINEER WILL J. WEATHERSBEE — DocuSigned by: Will Weathersbee — 6ACB65F140104A6...

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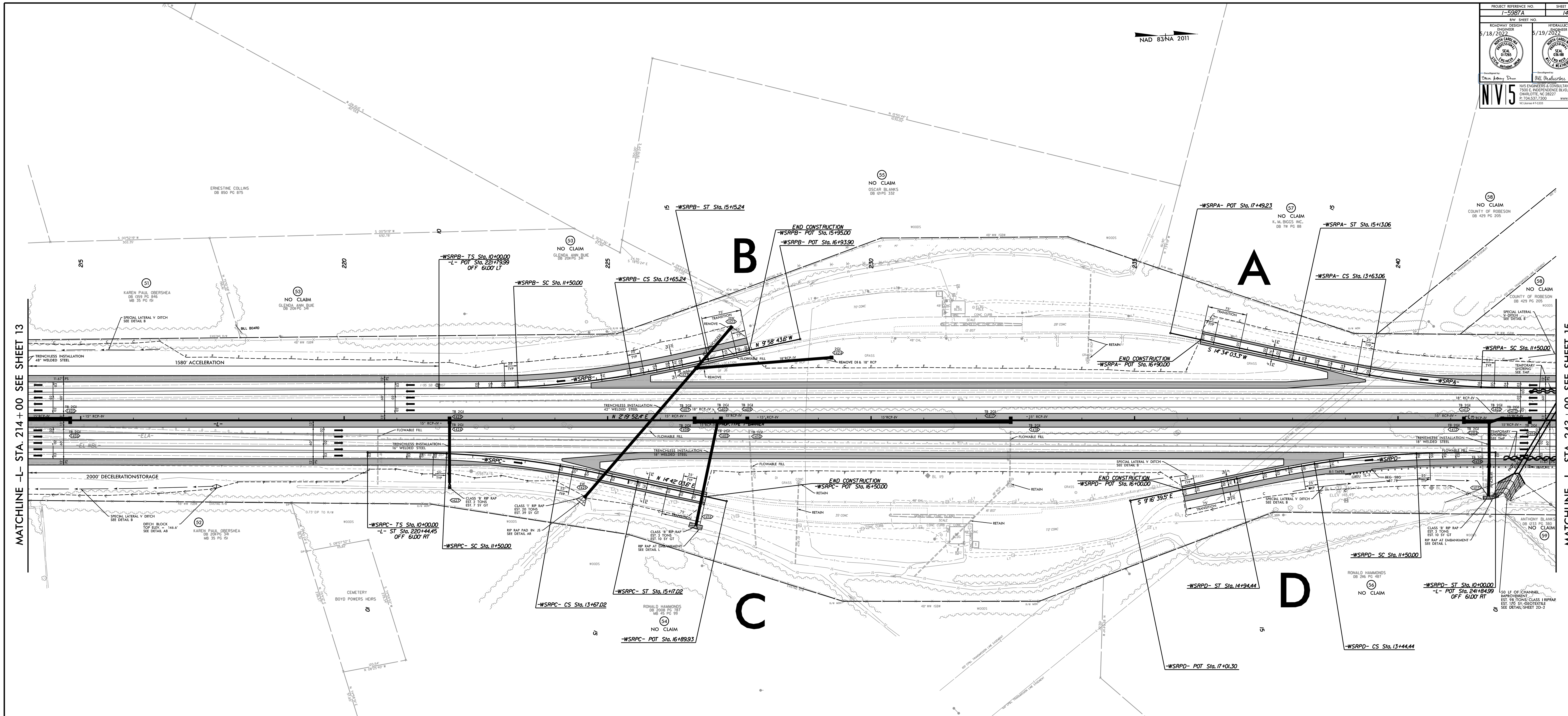

-WSRPA-		
PIs Sta 11+00.01	PI Sta 12+56.67	PIs Sta 14+13.07
θs = 2° 31' 39.9"	Δ = 7° 10' 51.1" (RT)	θs = 2° 31' 39.9"
Ls = 150.00'	D = 3° 22' 13.2"	Ls = 150.00'
LT = 100.01'	L = 213.06'	LT = 100.01'
ST = 50.01'	T = 106.67'	ST = 50.01'
	R = 1,700.00'	
	DS = 50 mph	
	e = 06	
	RO = 150.00'	

-WSRPC-		
PIs Sta 11+00.01	PI Sta 12+58.66	PIs Sta 14+17.03
θs = 2° 31' 39.9"	Δ = 7° 18' 51.4" (RT)	θs = 2° 31' 39.9"
Ls = 150.00'	D = 3° 22' 13.2"	Ls = 150.00'
LT = 100.01'	L = 217.02'	LT = 100.01'
ST = 50.01'	T = 108.66'	ST = 50.01'
	R = 1,700.00'	
	DS = 50 mph	
	e = 06	
	RO = 150.00'	

-WSRPB-		
PIs Sta 11+00.01	PI Sta 12+57.77	PIs Sta 14+15.25
θs = 2° 31' 39.9"	Δ = 7° 15' 16.1" (LT)	θs = 2° 31' 39.9"
Ls = 150.00'	D = 3° 22' 13.2"	Ls = 150.00'
LT = 100.01'	L = 215.24'	LT = 100.01'
ST = 50.01'	T = 107.77'	ST = 50.01'
	R = 1,700.00'	
	DS = 50 mph	
	e = 06	
	RO = 150.00'	

-WSRPD-		
PIs Sta 11+00.01	PI Sta 12+47.33	PIs Sta 13+94.45
θs = 2° 31' 39.9"	Δ = 6° 33' 12.1" (LT)	θs = 2° 31' 39.9"
Ls = 150.00'	D = 3° 22' 13.2"	Ls = 150.00'
LT = 100.01'	L = 194.44'	LT = 100.01'
ST = 50.01'	T = 97.33'	ST = 50.01'
	R = 1,700.00'	
	DS = 50 mph	
	e = 06	
	RO = 150.00'	

CONCRETE PAVEMENT FOR WEIGH STATION
RAMPS BEGINS AT BACK OF GORE
SEE TYPICAL SECTIONS FOR MORE INFORMATION

FOR -L- PROFILE SEE SHEET 51 - 53
FOR -WSRPA- PROFILE SEE SHEET 82
FOR -WSRPB- PROFILE SEE SHEET 82
FOR -WSRPC- PROFILE SEE SHEET 83
FOR -WSRPD- PROFILE SEE SHEET 83
FOR DITCH DETAILS SEE SHEETS 2D-1 AND 2D-2
FOR CULVERT PLANS SEE C20-1 THRU C20-8

GRAPHIC SCALE
50 25 0 50 100
PLANS

PROJECT REFERENCE NO.	SHEET NO.
I-5987A	15
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — 5/18/2022 — SEAL 017265 — Steve Anthony Drum (DocuSigned)

HYDRAULICS ENGINEER — 5/19/2022 — SEAL 036188 — Will Weatherbee (DocuSigned)

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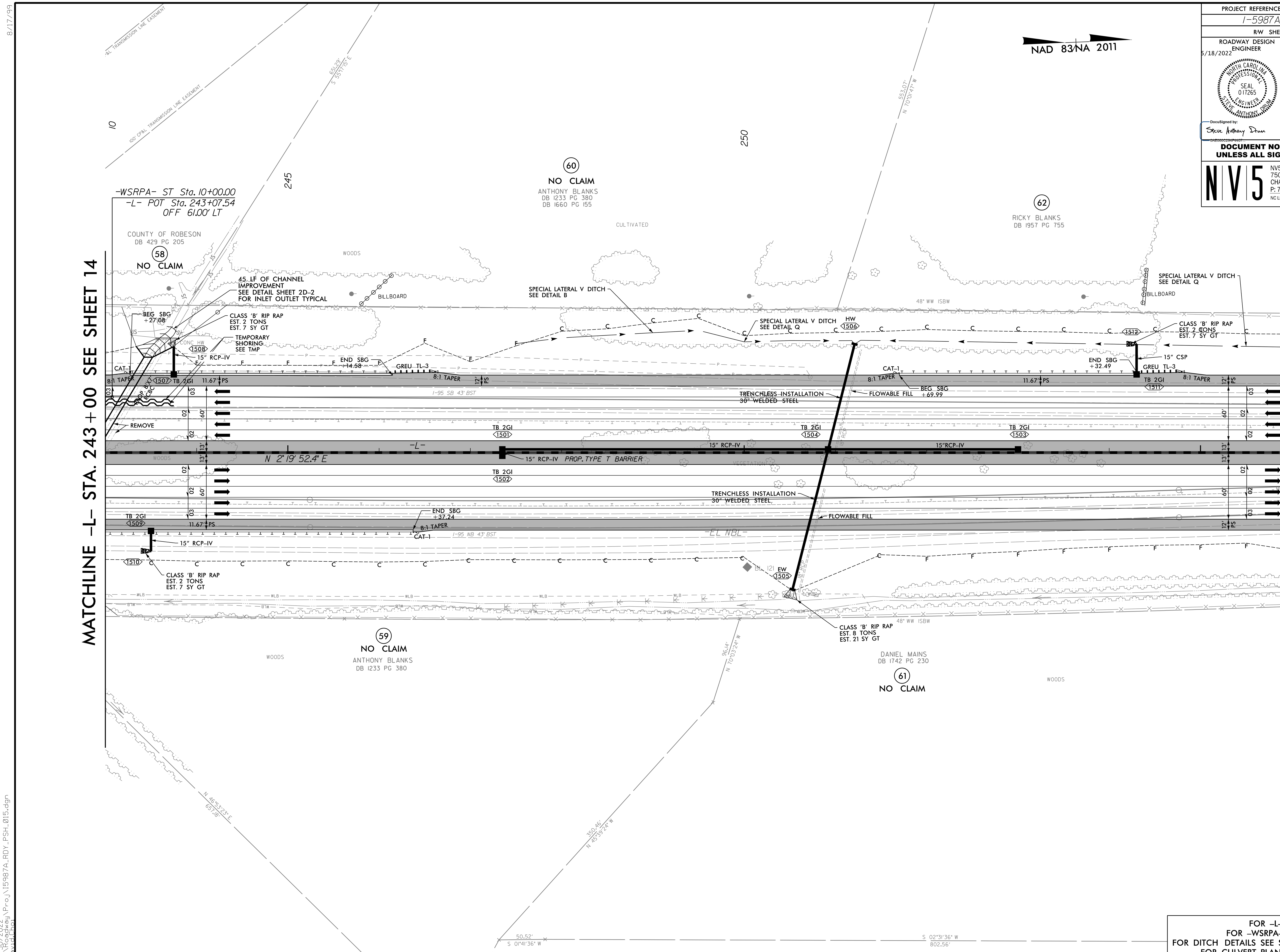

FOR -L- PROFILE SEE SHEET 53
FOR -WSRPA- PROFILE SEE SHEET 82
FOR DITCH DETAILS SEE SHEETS 2D-1 AND 2D-2
FOR CULVERT PLANS SEE C2-1 THRU C2-8

3/30/2022
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PROJECT REFERENCE NO.	SHEET NO.
I-5987A	16
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER 5/18/2022 — SEAL 017265 — Steve Anthony Dunn

HYDRAULICS ENGINEER 5/19/2022 — SEAL 036188 — Will Weatherslee

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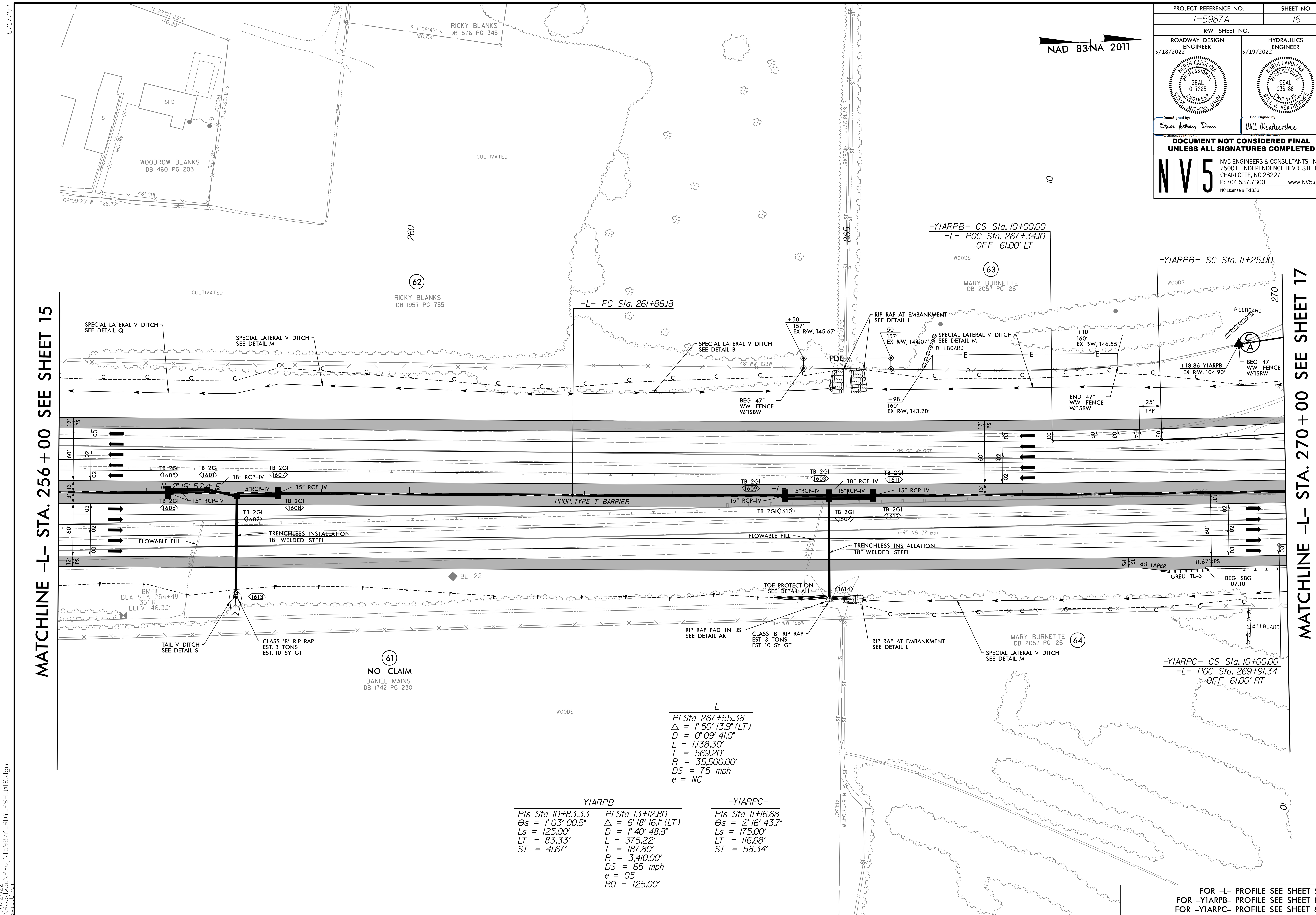

-L-

PI Sta 267+55.38
Δ = 1° 50' 13.9" (LT)
D = 0° 09' 41.0"
L = 1,138.30'
T = 569.20'
R = 35,500.00'
DS = 75 mph
e = NC

-Y1ARPB-

Pls Sta 10+83.33	PI Sta 13+12.80
Θs = 1° 03' 00.5"	Δ = 6° 18' 16.1" (LT)
Ls = 125.00'	D = 1° 40' 48.8"
LT = 83.33'	L = 375.22'
ST = 41.67'	T = 187.80'
	R = 3,410.00'
	DS = 65 mph
	e = 05
	RO = 125.00'

-Y1ARPC-

Pls Sta 11+16.68
Θs = 2° 16' 43.7"
Ls = 175.00'
LT = 116.68'
ST = 58.34'

FOR -L- PROFILE SEE SHEET 54
FOR -Y1ARPB- PROFILE SEE SHEET 85
FOR -Y1ARPC- PROFILE SEE SHEET 86
FOR DITCH DETAILS SEE SHEETS 2D-1 AND 2D-2

8/17/99

3/30/2022 R:\Roadway\Proj\I5987A_RDY_PSH_016.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-5987A	17
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
5/18/2022	5/19/2022
NORTH CAROLINA PROFESSIONAL SEAL 017265 ENGINEER STEVE ANTHONY DRUM	NORTH CAROLINA PROFESSIONAL SEAL 036188 ENGINEER WILL J. WEATHERSBEE
DocuSigned by: Steve Anthony Drum 0AE060C294F4407...	DocuSigned by: Will Weathersbee 6ACB65F140104A6...

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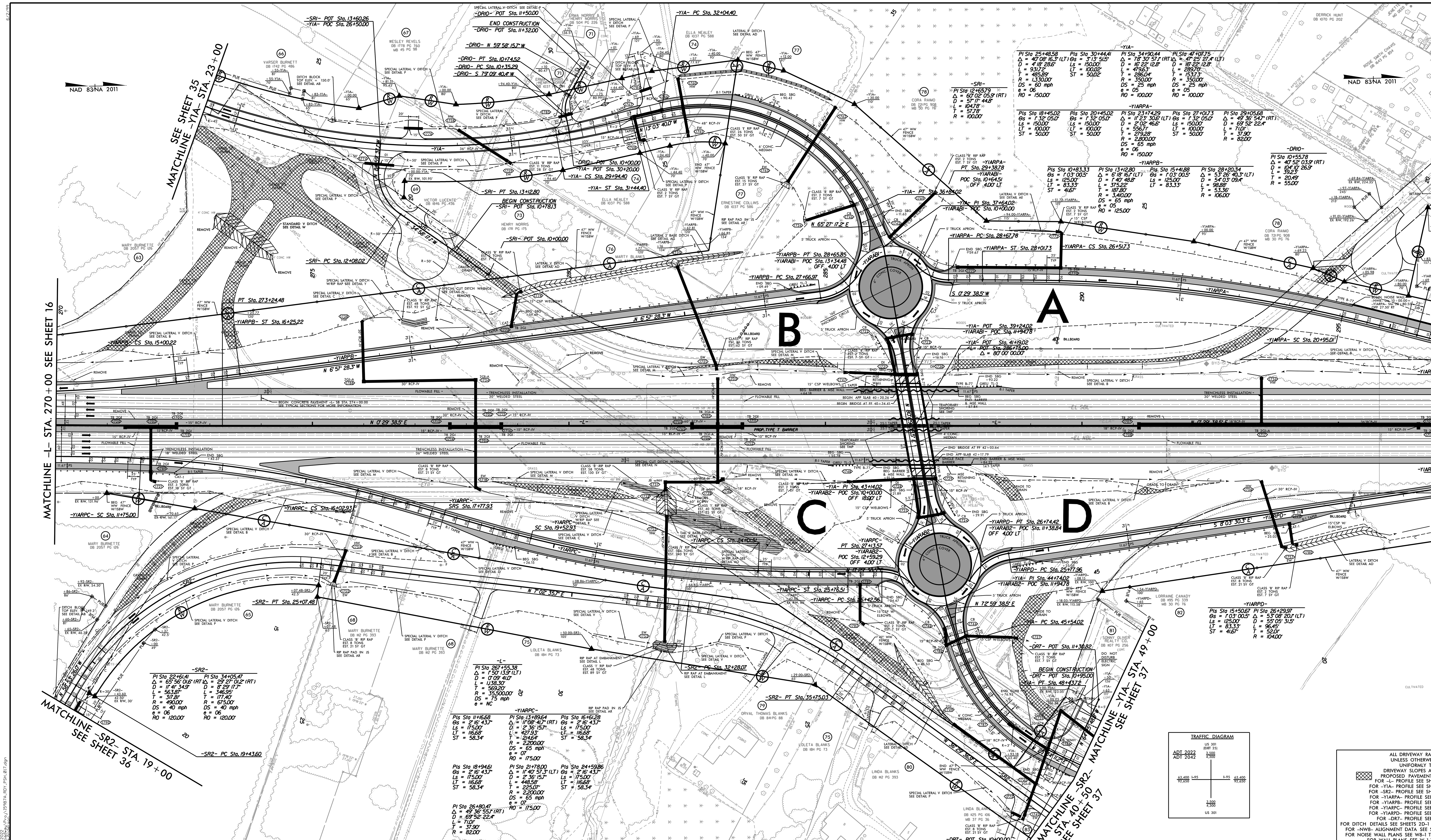

ALL DRIVEWAY RADII ARE 20'
UNLESS OTHERWISE NOTED.
UNIFORMLY TRANSITION
DRIVEWAY SLOPES AS SHOWN.
PROPOSED PAVEMENT REMOVAL
FOR -L- PROFILE SEE SHEET 55, 56
FOR -Y1A- PROFILE SEE SHEET 74, 75
FOR -SR2- PROFILE SEE SHEET 76, 77
FOR -Y1ARPA- PROFILE SEE SHEET 84
FOR -Y1ARPB- PROFILE SEE SHEET 85
FOR -Y1ARPC- PROFILE SEE SHEET 86
FOR -Y1ARPD- PROFILE SEE SHEET 87
FOR -DR7- PROFILE SEE SHEET 93
FOR DITCH DETAILS SEE SHEETS 2D-1 AND 2D-2
FOR -NW8- ALIGNMENT DATA SEE SHEET 2N-1
FOR NOISE WALL PLANS SEE W8-1 THRU W8-4
FOR WALL PLANS SEE W-1 THRU W-11
FOR STRUCTURE PLANS SEE S2-1 THRU S2-31

GRAPHIC SCALE
50 25 0 50 100
PLANS

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5987A	18

R/W SHEET NO.

ROADWAY DESIGN ENGINEER
5/18/2022
NORTH CAROLINA PROFESSIONAL SEAL 017265 ENGINEER ANTHONY JOHN DRAU
DocuSigned by: Steve Anthony Drau

HYDRAULICS ENGINEER
5/19/2022
NORTH CAROLINA PROFESSIONAL SEAL 036188 ENGINEER WILL NEELY WEATHERSBEE
DocuSigned by: Will Weathersbee

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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NC License # F-1333

NAD 83/NA 2011

MATCHLINE –L– STA. 298+00 SEE SHEET 17

MATCHLINE –L– STA. 312+00 SEE SHEET 19

JOHNNY JONES DB 190 PG 50

KAREN LOCKLEAR DB 1434 PG 889

SGLG PROPERTIES LLC DB 1694 PG 532

TEDDY BLANKS DB 617 PG 826

ALBERTINA RODGERS DB 1508 PG 275

85 NO CLAIM LINDA JONES DB 1670 PG 323

86 EDWARD OXENDINE DB 1689 PG 611

87 CALEB RAY LOCKLEAR DB 1840 PG 443

88 ORLANDO SANTOS DB 1787 PG 268

89 JACQUELINE GRAHAM DB 793 PG 770

90 JOSEPH SANDERSON DB 470 PG 234

90 JOSEPH SANDERSON DB 413 PG 277

91 LEEVON GODWIN DB 599 PG 161

94 LORRAINE CANADY DB 1195 PG 339

84 HARVEY CANADY DB 1491 PG 497 MB 30 PG 76

82 LORRAINE CANADY DB 1195 PG 339 MB 30 PG 76

93 LORRAINE CANADY DB 1195 PG 339

–Y1ARPA– +55.00 75′

CLASS 'B' RIP RAP EST. 2 TONS EST. 7 SY GT

47″ WW FENCE W/1SBW

–Y1ARPA– +00.00 82′

SPECIAL LATERAL V DITCH SEE DETAIL B

–Y1ARPA– +10 82.34′

STANDARD V DITCH SEE DETAIL W

–Y1ARPA– +50.00 76′

BILLBOARD

CLASS 'B' RIP RAP EST. 2 TONS EST. 7 SY GT

–Y1ARPA– +50.00 76′

CLASS 'B' RIP RAP EST. 2 TONS EST. 7 SY GT

CLASS 'B' RIP RAP EST. 39 TONS EST. 30 SY GT

SPECIAL LATERAL V DITCH SEE DETAIL AC

–Y1ARPA– POT Sta. 10+00.00 –L– POT Sta. 305+88.00 OFF 61.00′ LT

+50.00 140′ EX RW, 129.67′

+32 140′ EX RW, 129.69′

+05 150′ EX RW, 129.73′

+30 150′ EX RW, 129.76′

FILL CHANNEL WITH CLASS II RIPRAP TO ELEV = 132.2′ EST. 215 TONS CLASS II RIPRAP

34 LF OF CHANNEL IMPROVEMENTS SEE DETAIL SHEET 2D–2

END 47″ WW FENCE W/1SBW

BEG 47″ WW FENCE W/1SBW

NOISE WALL –NW8– 15″ RCP–IV

1813 TB 2GI 1812 TB 2GI 1811

–Y1ARPA–

SINGLE FACE BARRIER

–Y1ARPA– SC Sta. 13+50.70

–Y1ARPA– TS Sta. 12+00.70

1815 TB 2GI 1814

15″ RCP–IV

25′ TYP

SEE SHEETS 2N–1 & 2A–7 FOR DETAIL

15″ RCP–IV

NOISE WALL –NW8–

1816 TB 2GI

S 2° 47′ 38.5″ W

1817 TB 2GI 1818 TB 2GI 1819 TB 2GI 1821

1820 TYPE B–77

END NOISE WALL –NW8– Sta. 308+93.55 –L– OFF 76.50′ LT

REMOVE EXISTING RCBC

15″ RCP–IV

BEG SBG +93.55

TEMPORARY SHORING SEE TMP

END CONCRETE PAVEMENT –L– SB STA. 299+00.00 SEE TYPICAL SECTIONS FOR MORE INFORMATION

1807 TB 2GI–A 1808 TB 2GI

36″ RCP–IV

42″ RCP–IV

TRENCHLESS INSTALLATION 42″ WELDED STEEL

1823 TB 2GI 1824 TB 2GI

15″ RCP–IV

N 0° 29′ 38.5″ E

PROP. TYPE 'T' BARRIER

15″RCP–IV

15″ RCP–IV –L–

1803 TB 2GI 1804 TB 2GI

1801 TB 2GI 1802 TB 2GI

18″ RCP–IV

15″RCP–IV

1805 TB 2GI 1806 TB 2GI

15″ RCP–IV

REMOVE

FLOWABLE FILL

TRENCHLESS INSTALLATION 18″ WELDED STEEL

BEG SBG +84.43 MTL

TEMPORARY SHORING SEE TMP

1822 TB 2GI

18″ RCP–IV

8:1 TAPER

GREU TL–3

EST. 20 TONS CLASS II RIPRAP EST. 22 SY GEOTEXTILE

CAT–1

END SBG +84.42

TOE PROTECTION SEE DETAIL AH

780′ ACCELERATION

1809

47″ WW FENCE W/1SBW

END 47″ WW FENCE W/1SBW

CLASS 'B' RIP RAP EST. 3 TONS EST. 10 SY GT

EST. 80 TONS CLASS II RIPRAP EST. 85 SY GEOTEXTILE

+25 168′ EX RW, 130.34′

+00 EX RW, 130.43′

+49.08 146′

+00.00 161′

+90 146′ 168′

–Y1ARPD– CS Sta. 15+09.01

+71.00 182.18′

SPECIAL LATERAL V DITCH SEE DETAIL M

+10.00 173′

47″ WW FENCE W/1SBW

CLASS 'B' RIP RAP EST. 11 TONS EST. 28 SY GT

SPECIAL LATERAL 3′ BASE DITCH SEE DETAIL O

CULTIVATED

–Y1ARPD– SC Sta. 11+25.00

+00.00 173′

–Y1ARPD– ST Sta. 10+00.00 –L– POT Sta. 304+21.87 OFF 61.00′ RT

SPECIAL LATERAL 3′ BASE DITCH SEE DETAIL AK

FILL CHANNEL WITH CLASS II RIPRAP TO ELEV = 131.9′ EST. 1000 TONS CLASS II RIPRAP

45 LF OF CHANNEL IMPROVEMENTS SEE DETAIL SHEET 2D–2

–Y1ARPA–

PIs Sta 13+00.71	PI Sta 15+73.33
Θs = 1° 32′ 05.0″	Δ = 9° 05′ 30.6″ (RT)
Ls = 150.00′	D = 2° 02′ 46.6″
LT = 100.00′	L = 444.31′
ST = 50.00′	T = 222.62′
	R = 2,800.00′
	DS = 65 mph
	e = 06
	R0 = 150.00′

–Y1ARPD–

PIs Sta 10+83.33	PI Sta 13+17.21	PIs Sta 15+50.67
Θs = 1° 03′ 00.5″	Δ = 6° 27′ 07.8″ (LT)	Θs = 1° 03′ 00.5″
Ls = 125.00′	D = 1° 40′ 48.8″	Ls = 125.00′
LT = 83.33′	L = 384.01′	LT = 83.33′
ST = 41.67′	T = 192.21′	ST = 41.67′
	R = 3,410.00′	
	DS = 65 mph	
	e = 05	
	R0 = 125.00′	

CULTIVATED

FOR –L– PROFILE SEE SHEET 57
FOR –Y1ARPA– PROFILE SEE SHEET 84
FOR –Y1ARPD– PROFILE SEE SHEET 87
FOR DITCH DETAILS SEE SHEETS 2D–1 AND 2D–2
FOR –NW8– ALIGNMENT DATA SEE SHEET 2N–1
FOR NOISE WALL PLANS SEE W8–1 THRU W8–4
FOR CULVERT PLANS SEE C11–1 THRU C11–14

3/30/2022
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Developer

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5987A	19

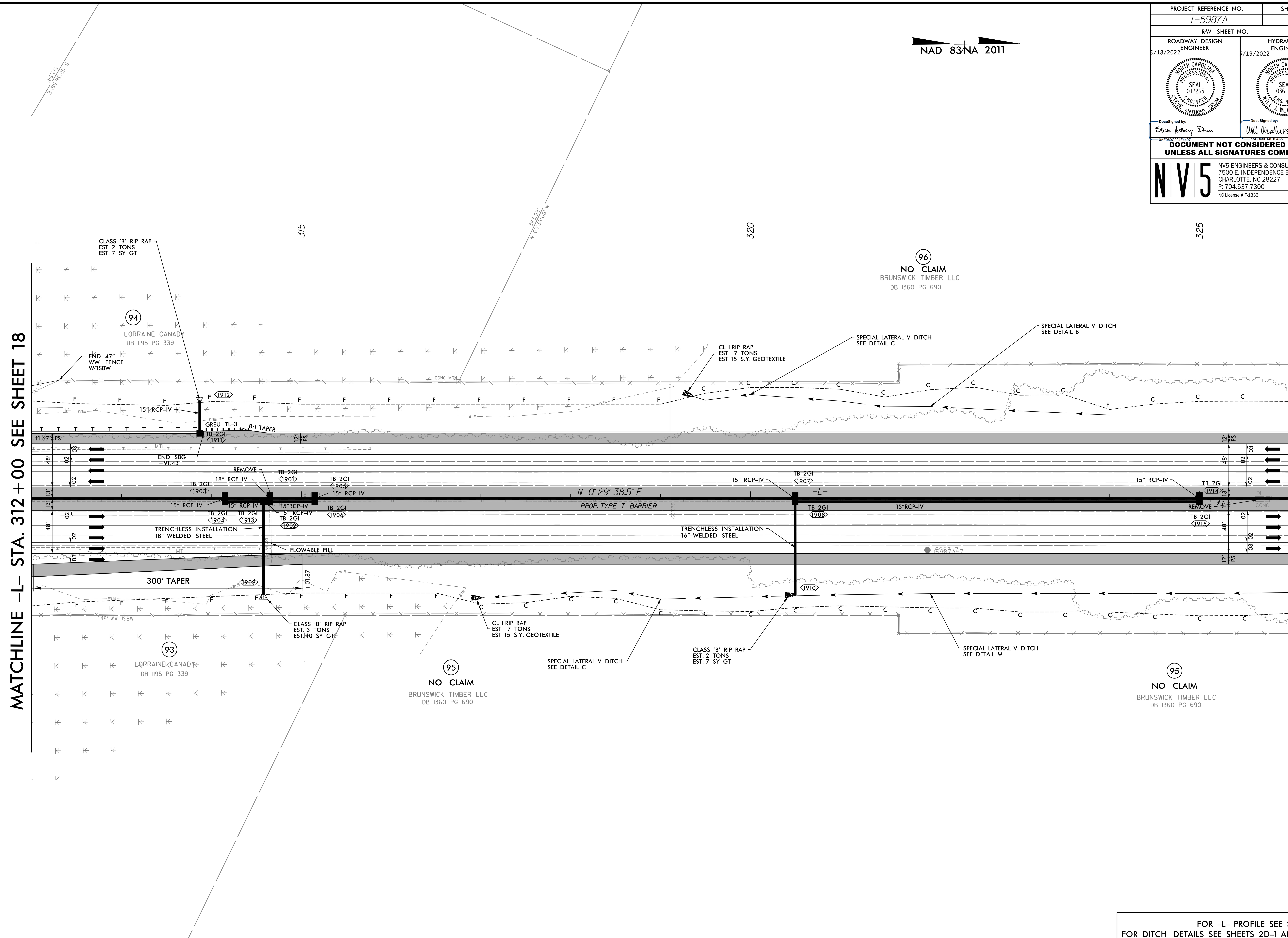
R/W SHEET NO.

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
5/18/2022	5/19/2022
NORTH CAROLINA PROFESSIONAL SEAL 017265 ENGINEER STEVE ANTHONY DRUM	NORTH CAROLINA PROFESSIONAL SEAL 036188 ENGINEER WILL J. WEATHERSBEE
DocuSigned by: Steve Anthony Drum	DocuSigned by: Will Weathersbee

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NV5 ENGINEERS & CONSULTANTS, INC.
7500 E. INDEPENDENCE BLVD, STE 100
CHARLOTTE, NC 28227
P: 704.537.7300 www.NV5.com
NC License # F-1333

NAD 83/NA 2011



FOR -L- PROFILE SEE SHEET 58
FOR DITCH DETAILS SEE SHEETS 2D-1 AND 2D-2

3/30/2022
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PROJECT REFERENCE NO.	SHEET NO.
I-5987A	20

R/W SHEET NO.

ROADWAY DESIGN ENGINEER 5/18/2022 — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 017265 STEVE ANTHONY DRUM — DocuSigned by: Steve Anthony Drum

HYDRAULICS ENGINEER 5/19/2022 — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 036188 WILL J. WEATHERSBEE — DocuSigned by: Will Weathersbee

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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7500 E. INDEPENDENCE BLVD, STE 100
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P: 704.537.7300 www.NV5.com
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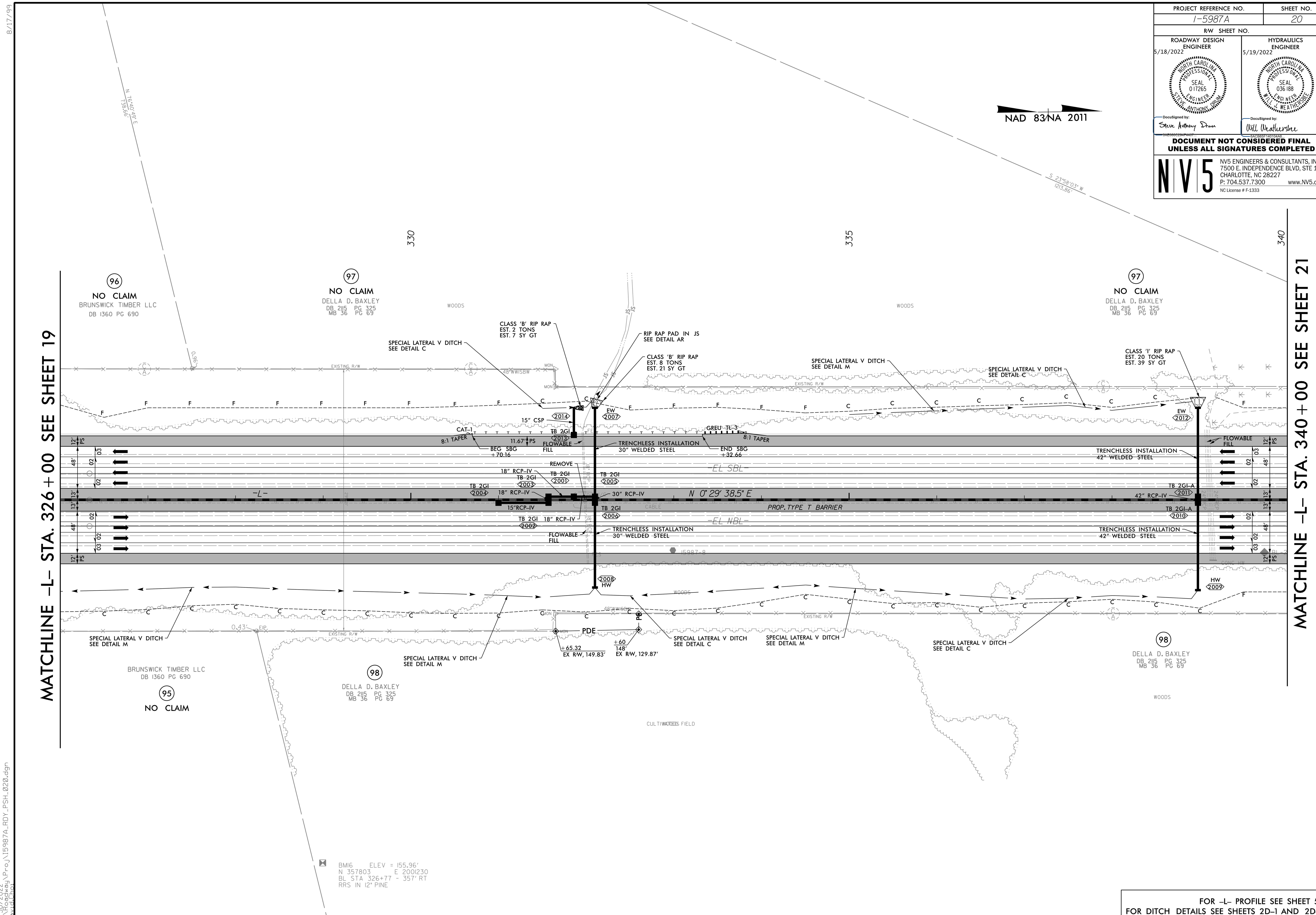

FOR -L- PROFILE SEE SHEET 59
FOR DITCH DETAILS SEE SHEETS 2D-1 AND 2D-2

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PROJECT REFERENCE NO.	SHEET NO.
I-5987A	21
R/W SHEET NO.	

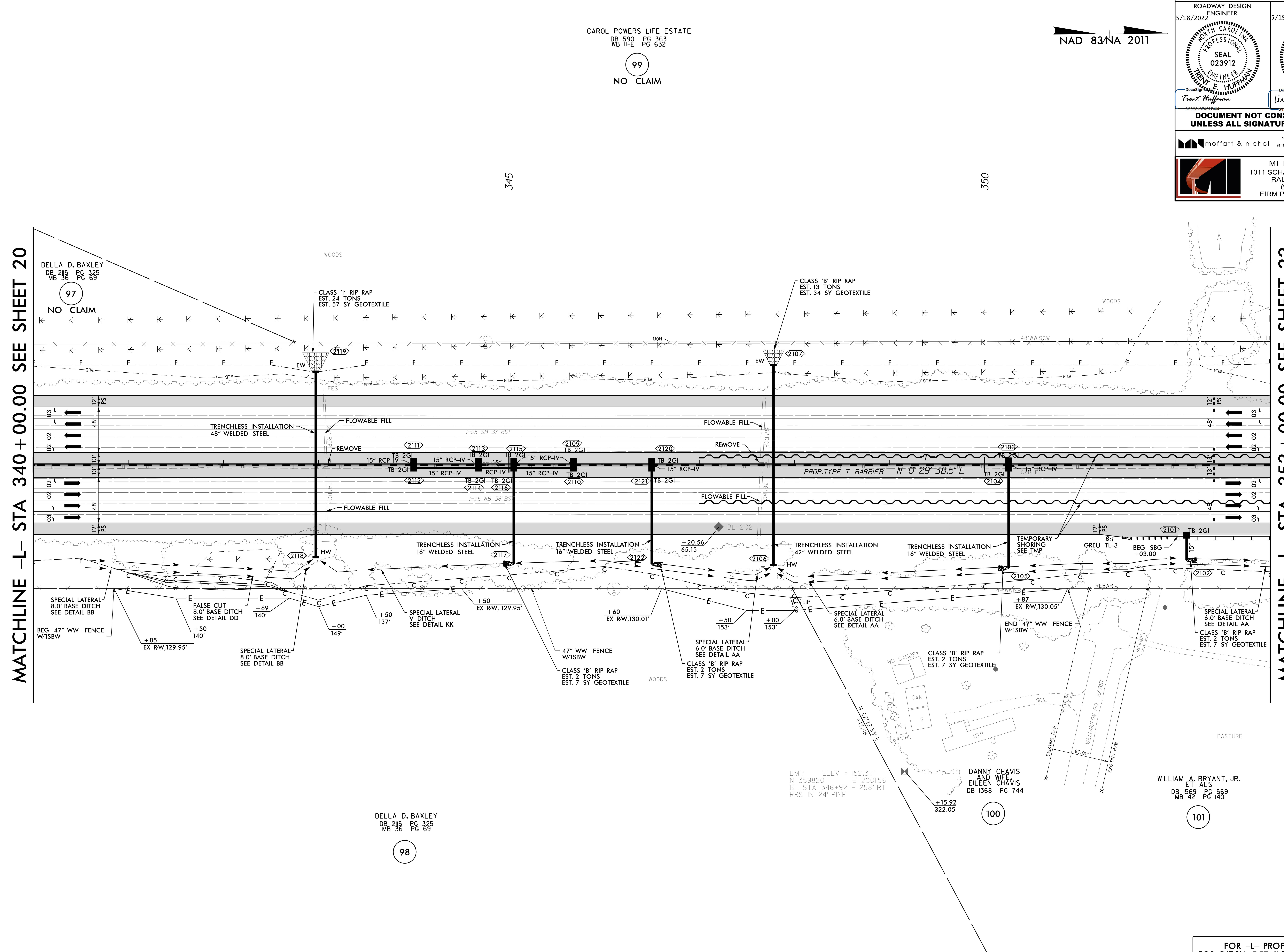
ROADWAY DESIGN ENGINEER 5/18/2022 — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 023912 TRENT E. HUFFMAN — Trent Huffman

HYDRAULICS ENGINEER 5/19/2022 — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 33246 LINDA M. JOHNS — Linda Johns

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

moffatt & nichol — 4700 FALLS OF NEUSE ROAD, SUITE 300 RALEIGH, NORTH CAROLINA 27609 (919) 781-4626 VOICE (919) 781-4869 FAX NC License No.: F-0105

MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER : P-0671



FOR -L- PROFILE SEE SHEET 60
FOR DITCH DETAILS SEE SHEET 2D-3

5/2/2022
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8/17/99

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
I-5987A	22
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
5/18/2022
NORTH CAROLINA PROFESSIONAL SEAL 023912 ENGINEER TRENT E. HUFFMAN
DocuSigned by: Trent Huffman

HYDRAULICS ENGINEER
5/19/2022
NORTH CAROLINA PROFESSIONAL SEAL 33246 ENGINEER LINDA M. JOHNS
DocuSigned by: Linda Johns

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER : P-0671

MATCHLINE –L– STA 353+00.00 SEE SHEET 21

MATCHLINE –L– STA 367+00.00 SEE SHEET 23

NAD 83/NA 2011

CAROL POWERS LIFE ESTATE
DB 590 PG 363
WB 11-E PG 632
99
NO CLAIM

THAD J. DAVIS AND WIFE, CHERYL J. DAVIS
DB 1841 PG 734
MB 42 PG 140
102

BRENDA B. SMITH
DB 2146 PG 260
104

WILLIAM A. BRYANT, JR. ET ALS
DB 1569 PG 569
MB 42 PG 140
101

PATRICIA R THOMPSON AND SPOUSE DAVID M. THOMPSON
DB 1979 PG 329
103

S 28°06'34" E 1106.04'

S 64°23'34" W 366.89'

N 0°29'38.5" E

N 54°33'51" W 29.47'

N 67°12'14" E 361.71'

208.96' N 29°17'54" W

355

360

365

WOODS

EXISTING R/W

PROP. TYPE T BARRIER

–L– STA 354+06
2@7'x7' RCBC
BURIED 1'
WITH BEVELED HEADWALL
SKEW = 64°
1' SILL ON SOUTH BARREL
2' SILL ON NORTH BARREL
WITH 1' FLOOD BENCH

–L– 366+29
2@8'x9' RCBC
BURIED 1'
WITH 1' SILLS
WITH BEVELED HEADWALL

20 LF OF CHANNEL IMPROVEMENT
WITH 1' FLOOD BENCH AT NORTH BARREL
EST. 3 TONS CLASS I RIPRAP
EST. 7 SY GEOTEXTILE
SEE DETAIL LL

20 LF OF CHANNEL IMPROVEMENT
SEE DETAIL NN

40 LF OF CHANNEL IMPROVEMENT
SEE DETAIL OO

19 LF OF CHANNEL IMPROVEMENT
WITH 1' FLOOD BENCH AT NORTH BARREL
EST. 2 TONS CLASS I RIPRAP
EST. 5 SY GEOTEXTILE
SEE DETAIL MM

EST. 21 TONS CLASS I RIPRAP
EST. 35 SY GEOTEXTILE

CLASS 'B' RIP RAP
EST. 1 TONS
EST. 5 SY GEOTEXTILE

EST. 40 TONS CLASS II RIPRAP
EST. 53 SY GEOTEXTILE

CLASS 'B' RIP RAP
EST. 3 TONS
EST. 10 SY GEOTEXTILE

CLASS 'B' RIP RAP
EST. 2 TONS
EST. 7 SY GEOTEXTILE

CLASS 'B' RIP RAP
EST. 4 TONS
EST. 16 SY GEOTEXTILE

CLASS 'B' RIP RAP
EST. 1 TONS
EST. 5 SY GEOTEXTILE

END 47" WW FENCE W/1SBW

BEG 47" WW FENCE W/1SBW

RIP RAP AT EMBANKMENT
SEE DETAIL GG

SPECIAL LATERAL 6.0' BASE DITCH
SEE DETAIL AA

REMOVE EXISTING 2@48" RCP AND ENDWALL

REMOVE EXISTING 2@48" RCP AND HEADWALL

REMOVE EXISTING RCBC

TRENCHLESS INSTALLATION 18" WELDED STEEL

GREU TL-3

BEG SBG +19.00

END SBG +06.00

BEG SGB +77.00

BEG SBG +94.00

END SBG +88.00

END SGB +69.00

TEMPORARY SHORING SEE TMP

FALSE SUMP SEE DETAIL HH

RETAIN

FLOWABLE FILL

15" RCP-IV

18" RCP-IV

TB 2GI

TB2GI

CAT-1

8:1

12" PS

SKEW = 64°

SKEW = 82°

RETAINING WALL

FOR –L– PROFILE SEE SHEET 61
FOR CULVERT PLANS SEE C12-1 THRU C12-8
FOR CULVERT PLANS SEE C21-1 THRU C21-13
FOR DITCH DETAILS SEE SHEET 2D-3

5/2/2022
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mpatton

PROJECT REFERENCE NO.	SHEET NO.
I-5987A	23

R/W SHEET NO.

ROADWAY DESIGN ENGINEER — 5/18/2022 — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 023912 TRENT E. HUFFMAN — Trent Huffman

HYDRAULICS ENGINEER — 5/19/2022 — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 33246 LINDA M. JOHNS — Linda Johns

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RALEIGH, NORTH CAROLINA 27609
NC License No.: F-0105

MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
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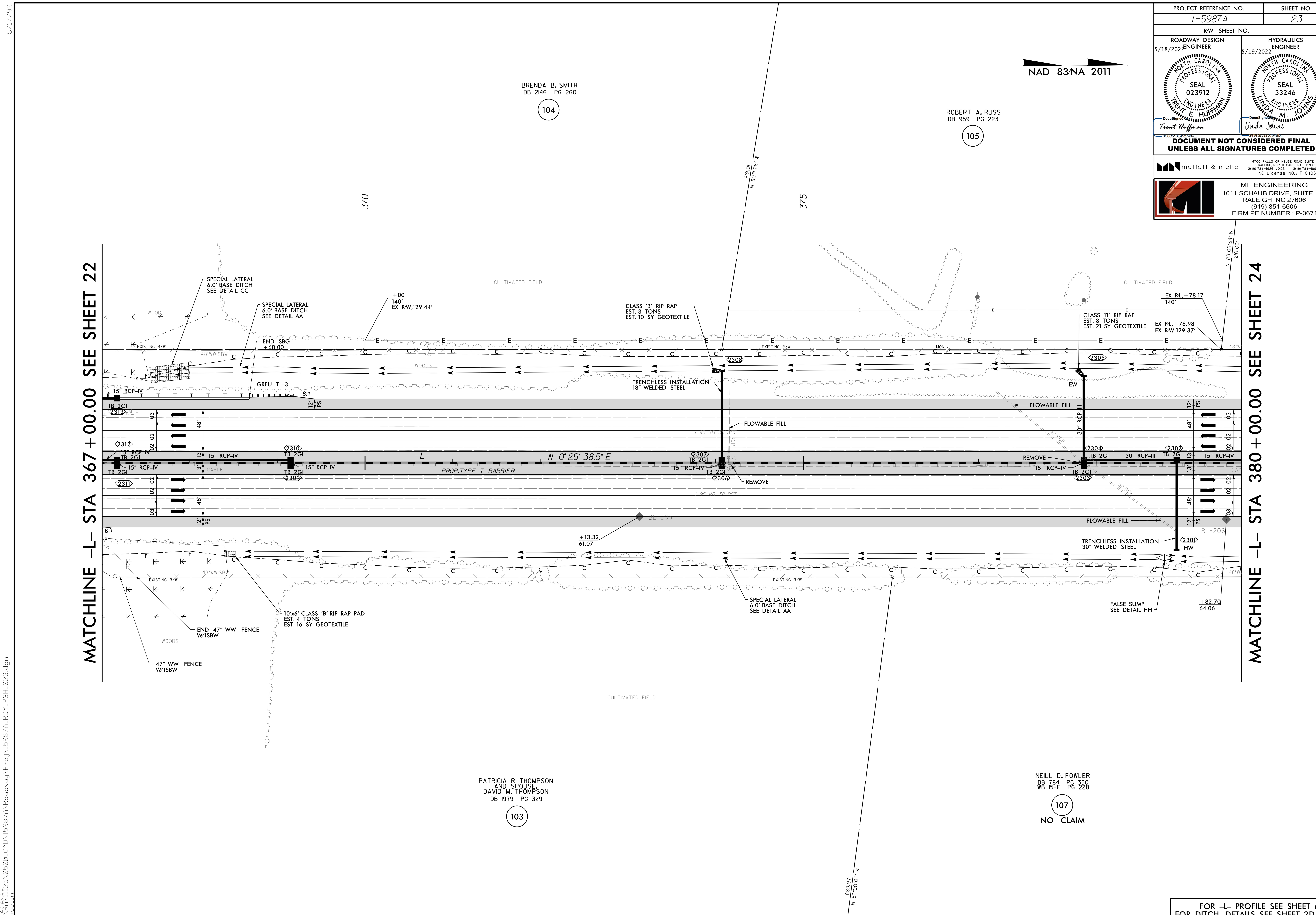
(919) 851-6606
FIRM PE NUMBER : P-0671



FOR -L- PROFILE SEE SHEET 62
FOR DITCH DETAILS SEE SHEET 2D-3

PROJECT REFERENCE NO.	SHEET NO.
I-5987A	24
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER 5/18/2022 — NORTH CAROLINA PROFESSIONAL SEAL 023912 ENGINEER TRENT E. HUFFMAN — Trent Huffman

HYDRAULICS ENGINEER 5/19/2022 — NORTH CAROLINA PROFESSIONAL SEAL 33246 ENGINEER LINDA M. JOHNS — Linda Johns

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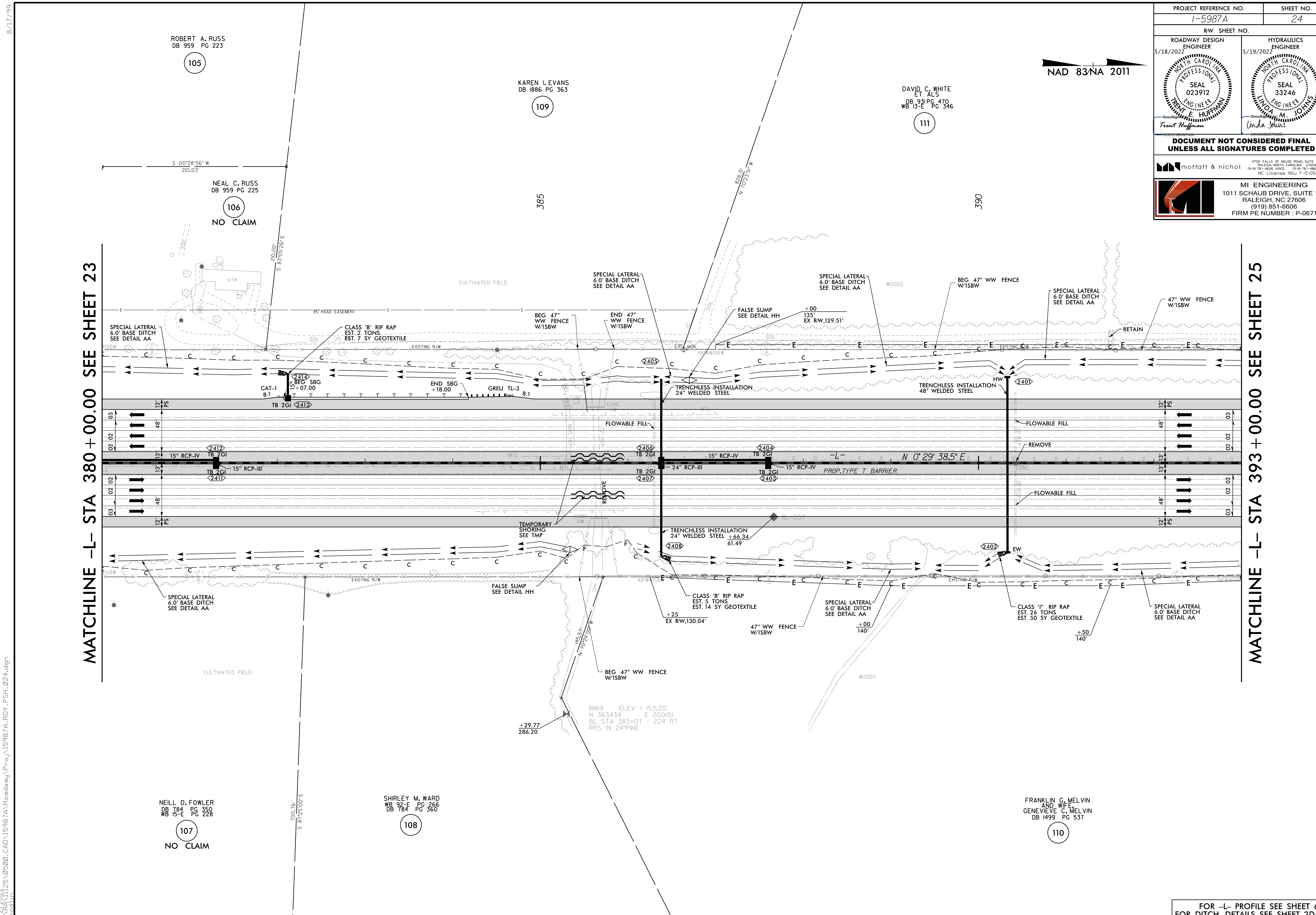

FOR -L- PROFILE SEE SHEET 63
FOR DITCH DETAILS SEE SHEET 2D-3

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5/2/2022 ...\Roadway\Proj\I5987A_RDY_PSH_024.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-5987A	25
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER 5/18/2022 — NORTH CAROLINA PROFESSIONAL SEAL 023912 ENGINEER TRENT E. HUFFMAN — Trent Huffman

HYDRAULICS ENGINEER 5/19/2022 — NORTH CAROLINA PROFESSIONAL SEAL 33246 ENGINEER LINDA M. JOHNS — Linda Johns

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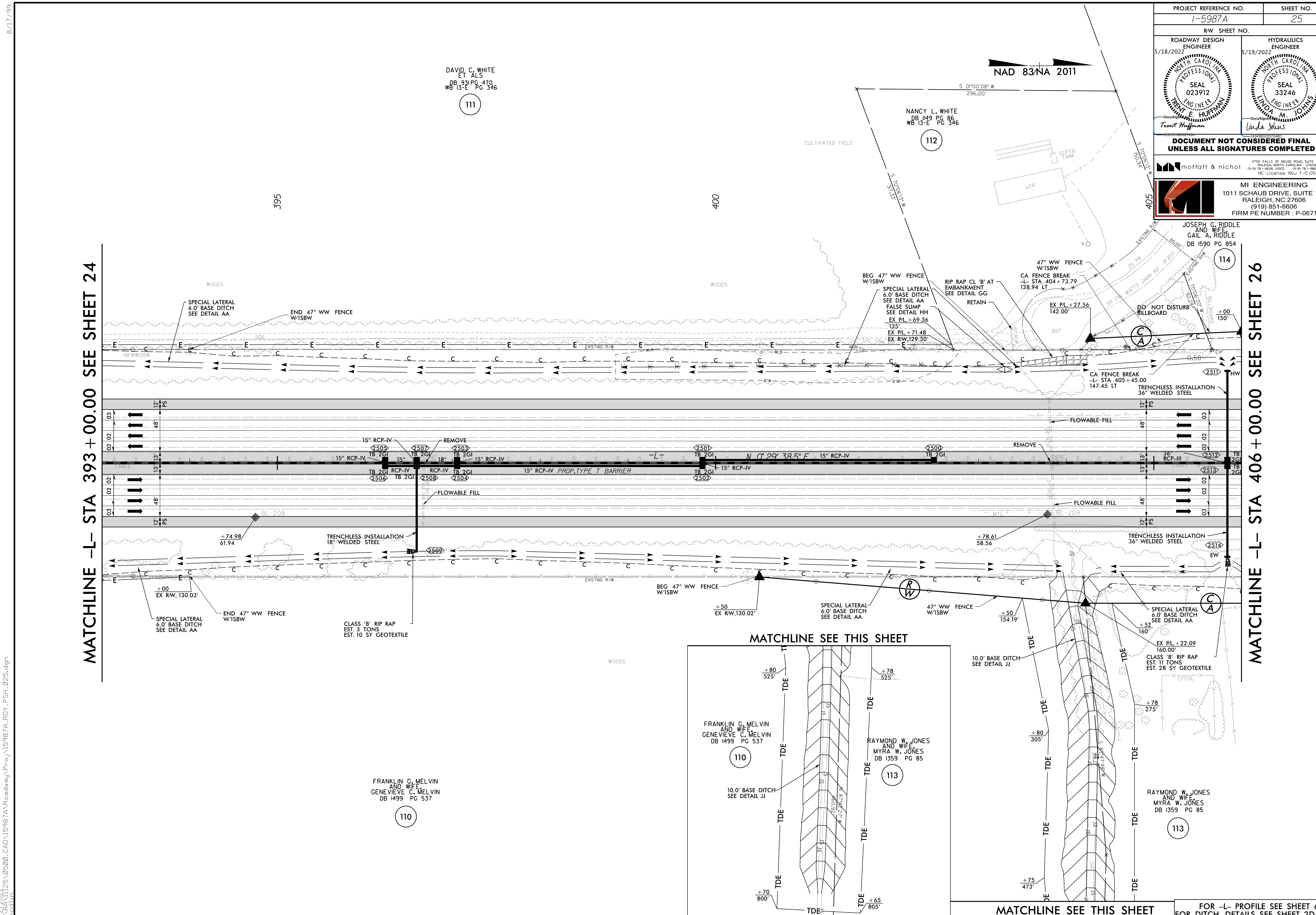

FOR -L- PROFILE SEE SHEET 64
FOR DITCH DETAILS SEE SHEET 2D-3

PROJECT REFERENCE NO.	SHEET NO.
I-5987A	26
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — 5/18/2022 — SEAL 023912 — TRENT E. HUFFMAN — Trent Huffman

HYDRAULICS ENGINEER — 5/19/2022 — SEAL 33246 — LINDA M. JOHNS — Linda Johns

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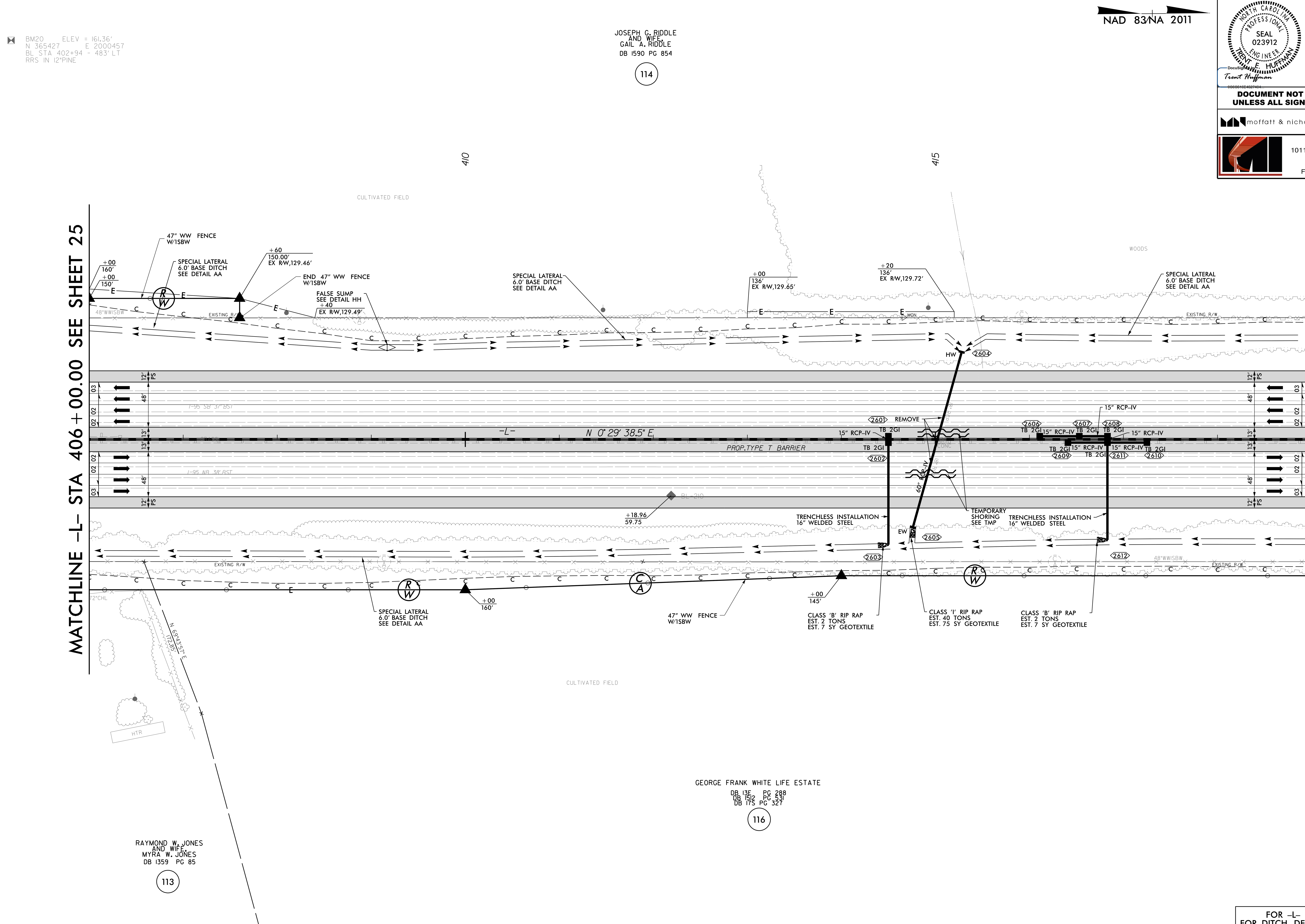

FOR -L- PROFILE SEE SHEET 65
FOR DITCH DETAILS SEE SHEET 2D-3