TEMPORARY DRAINAGE DETAIL FOR PHASED CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
I-5986B	2D-28
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 027373 SUSAN C. LANCASTER — Susan C Lancaster 5/13/2021

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 26971 JOSHUA G. DALTON — Joshua G Dalton 5/13/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

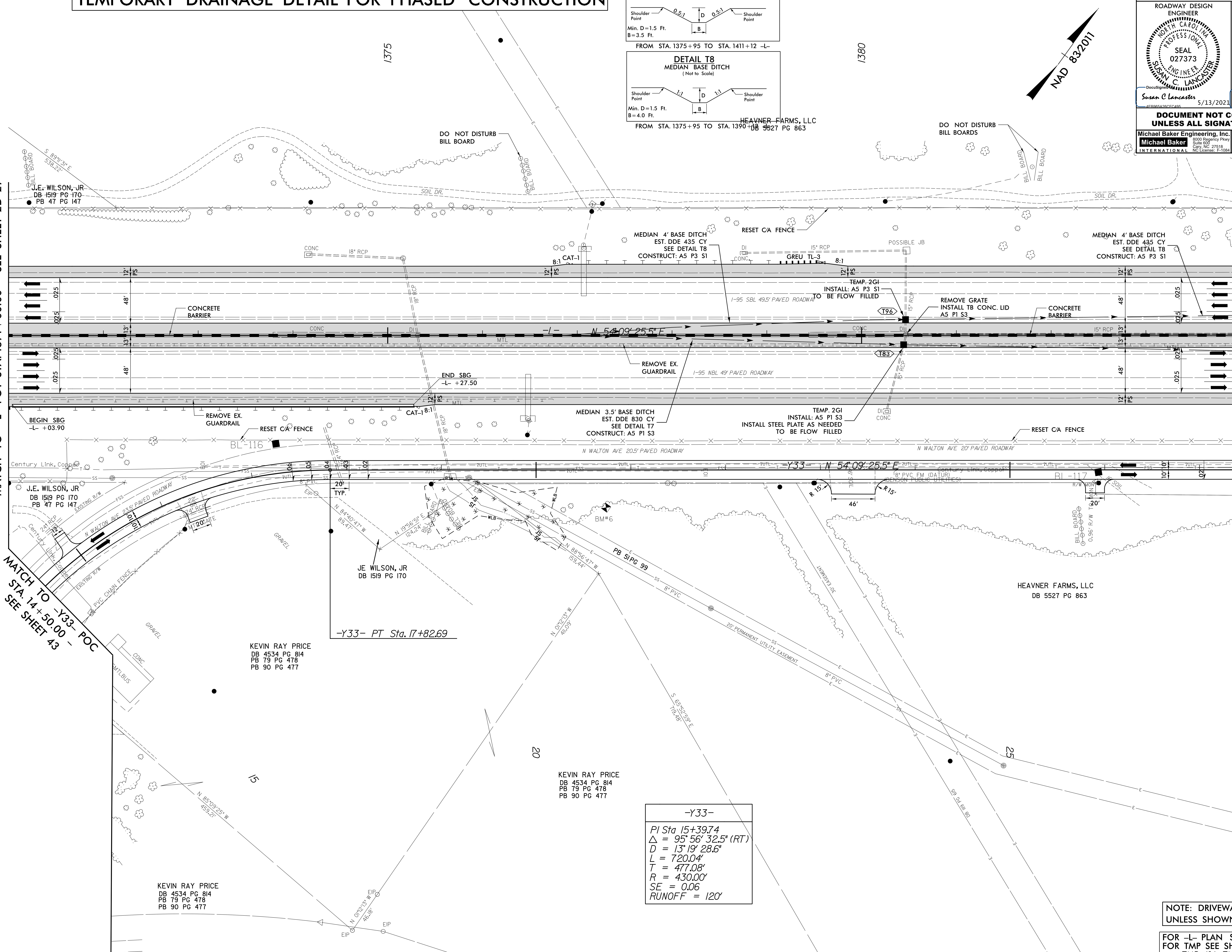
Michael Baker Engineering, Inc. 8000 Regency Pkwy Suite 600 Cary, NC 27518 NC License: F-1084 — Michael Baker INTERNATIONAL

SUNGATE DESIGN GROUP, P.A. 905 JONES FRANKLIN ROAD RALEIGH, NORTH CAROLINA 27606 NC COA No. C-0890

TEMPORARY DRAINAGE DETAIL FOR PHASED CONSTRUCTION

DETAIL T7
MEDIAN BASE DITCH
(Not to Scale)
Shoulder Point — 0.5:1 — D — 0.5:1 — Shoulder Point — B
Min. D=1.5 Ft.
B=3.5 Ft.
FROM STA. 1375+95 TO STA. 1411+12 -L-

DETAIL T8
MEDIAN BASE DITCH
(Not to Scale)
Shoulder Point — 1:1 — D — 1:1 — Shoulder Point — B
Min. D=1.5 Ft.
B=4.0 Ft.
FROM STA. 1375+95 TO STA. 1390+18 -L-



-Y33-
PI Sta 15+39.74
Δ = 95° 56' 32.5" (RT)
D = 13° 19' 28.6"
L = 720.04'
T = 477.08'
R = 430.00'
SE = 0.06
RUNOFF = 120'

NOTE: DRIVEWAY RADII = 10' UNLESS SHOWN OTHERWISE

FOR -L- PLAN SEE SHEETS 44
FOR TMP SEE SHEETS TMP-41, TMP-41A, TMP-43, AND TMP-43A

5/14/99

11-MAR-2021 12:17
R:\Roadway\Proj\I-5986B_Rdy_psh_2D-28.dgn

PROJECT REFERENCE NO.	SHEET NO.
I-5986B	2D-29
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 027373 ENGINEER SUSAN C. LANCASTER — Susan C Lancaster 5/13/2021

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON — Joshua G Dalton 5/13/2021

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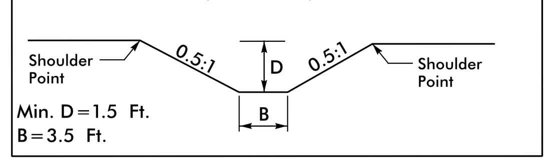
SUNGATE DESIGN GROUP, P.A. 905 JONES FRANKLIN ROAD RALEIGH, NORTH CAROLINA 27606 NC COA No. C-0890

TEMPORARY DRAINAGE DETAIL FOR PHASED CONSTRUCTION

REVISIONS

DETAIL T7

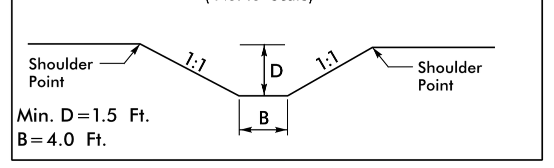
MEDIAN BASE DITCH (Not to Scale)



FROM STA. 1375+95 TO STA. 1411+12 -L-

DETAIL T8

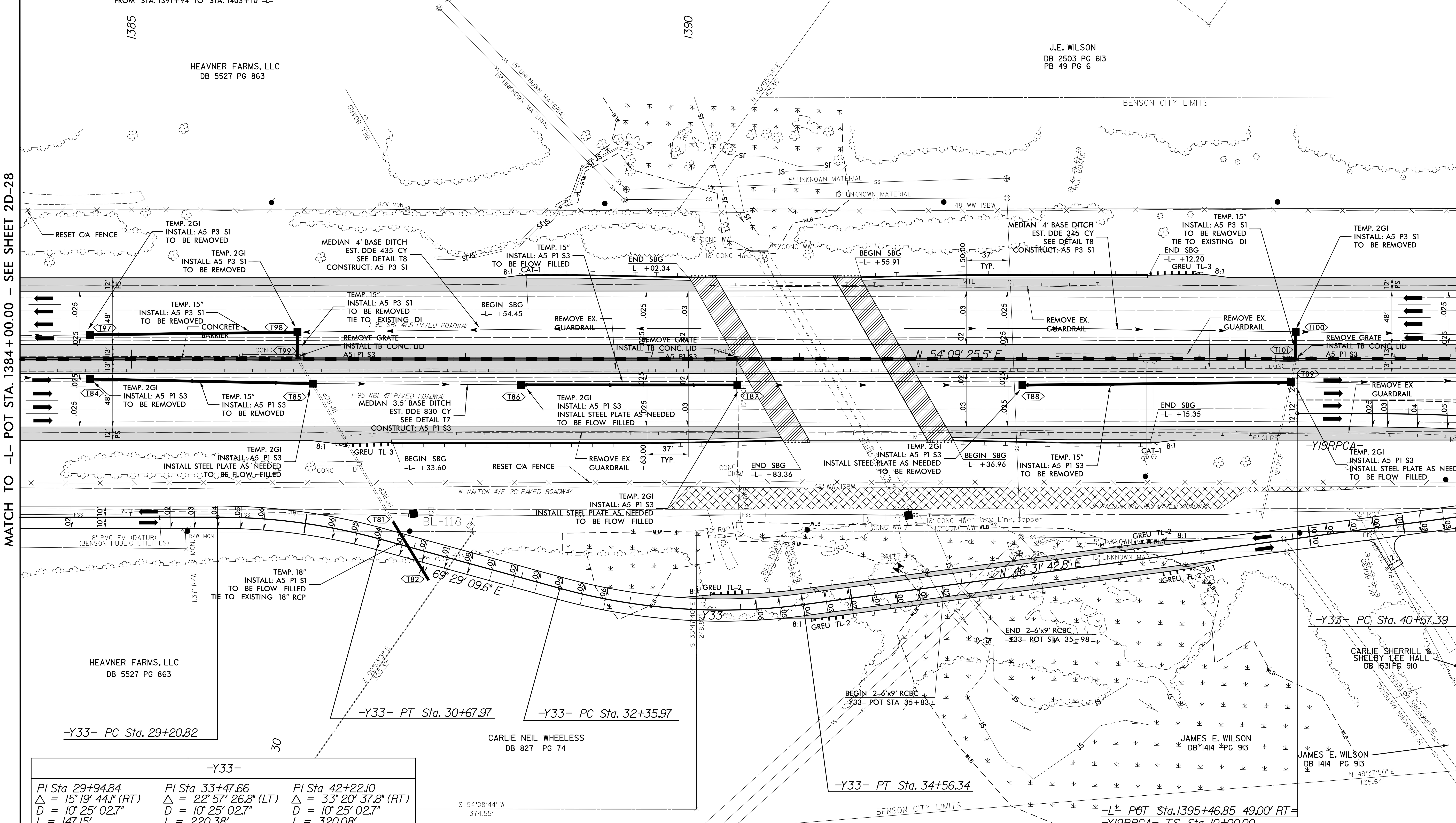
MEDIAN BASE DITCH (Not to Scale)



FROM STA. 1375+95 TO STA. 1390+12 -L-
FROM STA. 1391+94 TO STA. 1403+10 -L-

-Y19RPCA-

PIs Sta 11+08.02	PI Sta 14+19.77	PIs Sta 17+26.56
Θs = 3° 05′ 38.3″	Δ = 19° 30′ 05.2″ (RT)	Θs = 3° 05′ 38.3″
Ls = 162.00′	D = 3° 49′ 11.0″	Ls = 162.00′
LT = 108.02′	L = 510.55′	LT = 108.02′
ST = 54.02′	T = 257.77′	ST = 54.02′
	R = 1,500.00′	
	SE = 0.06	
	RUNOFF - 162′	



-Y33-

PI Sta 29+94.84	PI Sta 33+47.66	PI Sta 42+22.10
Δ = 15° 19′ 44.1″ (RT)	Δ = 22° 57′ 26.8″ (LT)	Δ = 33° 20′ 37.8″ (RT)
D = 10° 25′ 02.7″	D = 10° 25′ 02.7″	D = 10° 25′ 02.7″
L = 147.15′	L = 220.38′	L = 320.08′
T = 74.02′	T = 111.69′	T = 164.71′
R = 550.00′	R = 550.00′	R = 550.00′
SE = 0.06	SE = 0.06	SE = 0.06
RUNOFF = 126′	RUNOFF = 126′	RUNOFF = 126′

NOTE: DRIVEWAY RADII = 10′ UNLESS SHOWN OTHERWISE

FOR -L- PROFILE SEE SHEET 45
FOR TMP SEE SHEETS TMP-39A, TMP-41A, TMP-41B, TMP 43A, AND TMP-43B

PROJECT REFERENCE NO.	SHEET NO.
I-5986B	2D-30

R/W SHEET NO.

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 027373 SUSAN C. LANCASTER — Susan C Lancaster 5/13/2021

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 26971 JOSHUA G. DALTON — Joshua G Dalton 5/13/2021

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SUNGATE DESIGN GROUP, P.A. 905 JONES FRANKLIN ROAD RALEIGH, NORTH CAROLINA 27606 NC COA No. C-0890

REVISIONS

TEMPORARY DRAINAGE DETAIL FOR PHASED CONSTRUCTION

-Y19RPCA-

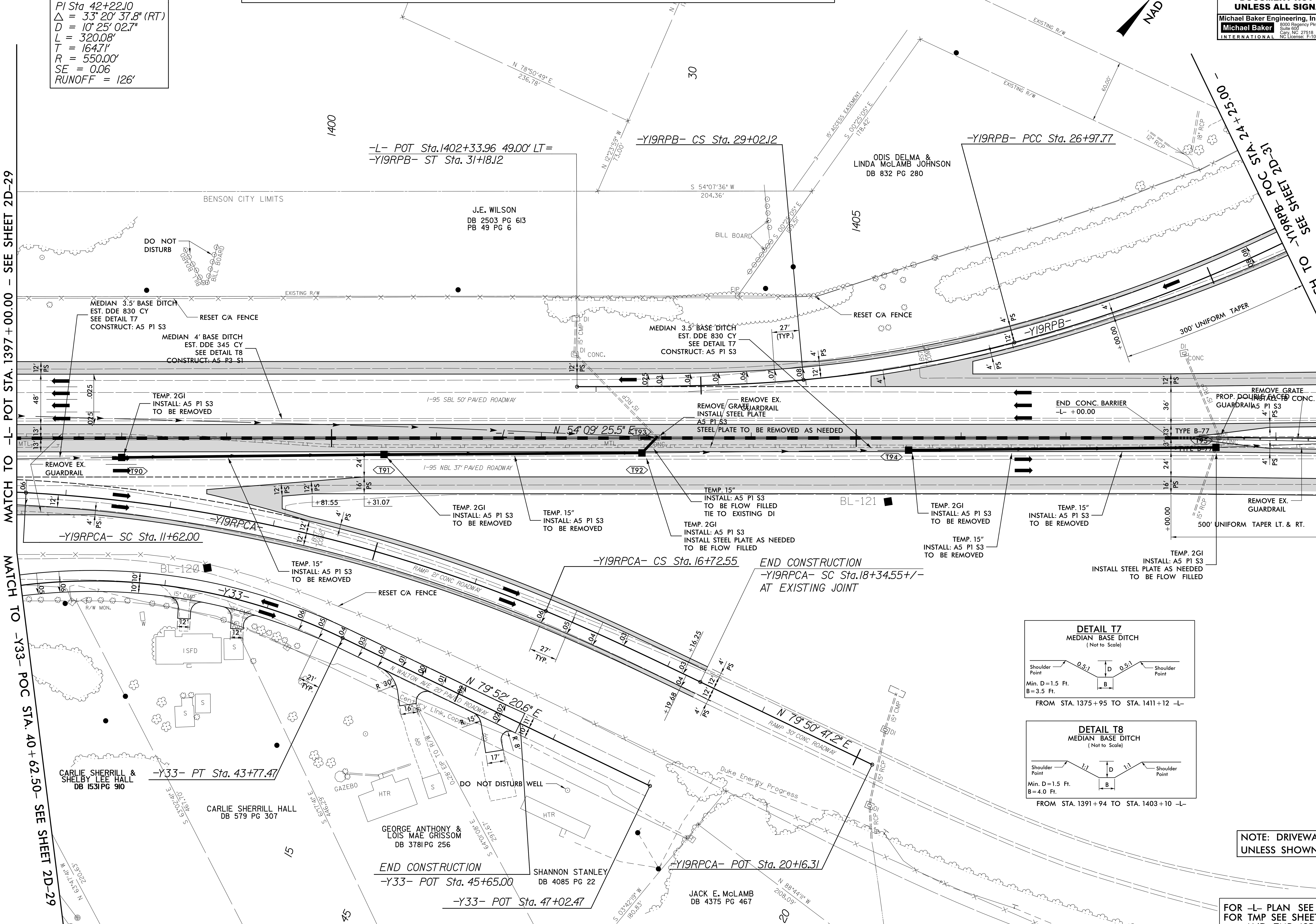
PIs Sta 11+08.02	PI Sta 14+19.77	PIs Sta 17+26.56
Θs = 3° 05' 38.3"	Δ = 19° 30' 05.2" (RT)	Θs = 3° 05' 38.3"
Ls = 162.00'	D = 3° 49' 11.0"	Ls = 162.00'
LT = 108.02'	L = 510.55'	LT = 108.02'
ST = 54.02'	T = 257.77'	ST = 54.02'
	R = 1,500.00'	
	SE = 0.06	
	RUNOFF = 162'	

-Y19RPB-

PI Sta 23+69.44	PI Sta 28+00.19	PIs Sta 29+74.18
Δ = 26° 25' 33.4" (RT)	Δ = 9° 45' 25.6" (RT)	Θs = 5° 09' 23.8"
D = 3° 57' 05.2"	D = 4° 46' 28.7"	Ls = 216.00'
L = 668.77'	L = 204.35'	LT = 144.06'
T = 340.44'	T = 102.42'	ST = 72.06'
R = 1,450.00'	R = 1,200.00'	
SE = 0.08	SE = 0.08	
RUNOFF = 216'	RUNOFF = 216'	

-Y33-

PI Sta 42+22.10
Δ = 33° 20' 37.8" (RT)
D = 10° 25' 02.7"
L = 320.08'
T = 164.71'
R = 550.00'
SE = 0.06
RUNOFF = 126'



DETAIL T7
MEDIAN BASE DITCH (Not to Scale)

Shoulder Point — 0.5:1 — D — B — 0.5:1 — Shoulder Point

Min. D=1.5 Ft. B=3.5 Ft.

FROM STA. 1375+95 TO STA. 1411+12 -L-

DETAIL T8
MEDIAN BASE DITCH (Not to Scale)

Shoulder Point — 1:1 — D — B — 1:1 — Shoulder Point

Min. D=1.5 Ft. B=4.0 Ft.

FROM STA. 1391+94 TO STA. 1403+10 -L-

NOTE: DRIVEWAY RADII = 10' UNLESS SHOWN OTHERWISE

FOR -L- PLAN SEE SHEET 46
FOR TMP SEE SHEETS TMP-41B, TMP-41C, AND TMP-43B

PROJECT REFERENCE NO.	SHEET NO.
I-5986B	2D-31
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 027373 SUSAN C. LANCASTER — Susan C Lancaster 5/13/2021

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 26971 JOSHUA G. DALTON — Joshua G Dalton 5/13/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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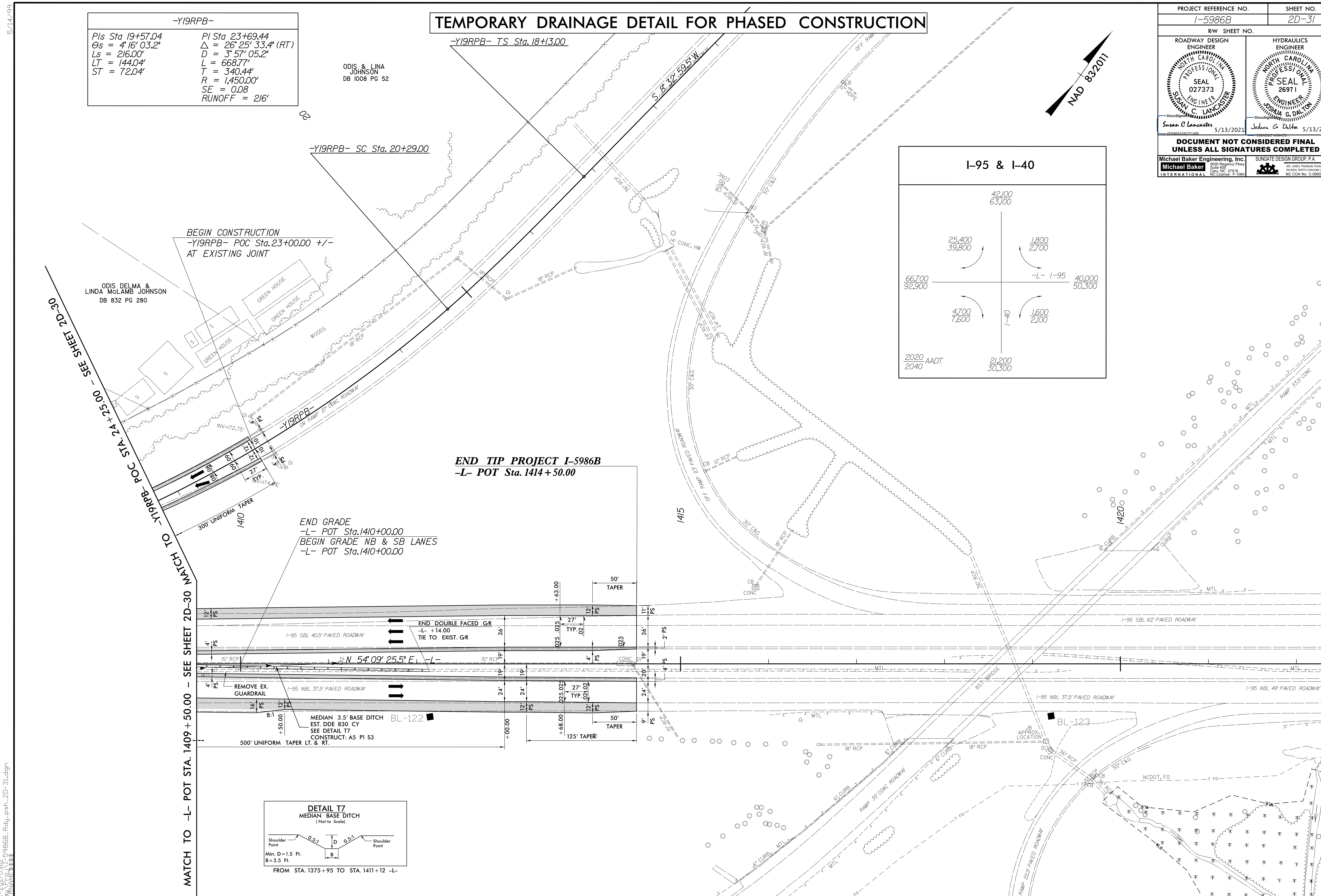
SUNGATE DESIGN GROUP, P.A. NC COA No. C-0890

TEMPORARY DRAINAGE DETAIL FOR PHASED CONSTRUCTION

-Y19RPB-

PIs Sta 19+57.04	PI Sta 23+69.44
Θs = 4° 16' 03.2"	Δ = 26° 25' 33.4" (RT)
Ls = 216.00'	D = 3° 57' 05.2"
LT = 144.04'	L = 668.77'
ST = 72.04'	T = 340.44'
	R = 1,450.00'
	SE = 0.08
	RUNOFF = 216'



I-95 & I-40

42,100 / 63,100	
25,400 / 39,800	1,800 / 2,700
66,700 / 92,900	-L- I-95 40,000 / 50,300
4,700 / 7,600	I-40 1,600 / 2,100
2020 / 2040 AADT	21,200 / 30,300

DETAIL T7
MEDIAN BASE DITCH
(Not to Scale)

Shoulder Point — 0.5:1 — D — 0.5:1 — Shoulder Point — B

Min. D = 1.5 Ft.
B = 3.5 Ft.

FROM STA. 1375+95 TO STA. 1411+12 -L-

FOR -L- PLAN SEE SHEET 47
FOR TMP SEE SHEETS TMP-39C AND TMP-41C

PROJECT REFERENCE NO.	SHEET NO.
I-5878/I-5883/I-5986B	2G-1

GEOTECHNICAL ENGINEER — SEAL 032125, NORTH CAROLINA PROFESSIONAL ENGINEER, STACIE E. MITCHELL — DocuSigned by: Stacie Mitchell 5/14/2021 — SIGNATURE / DATE

ENGINEER — SIGNATURE / DATE

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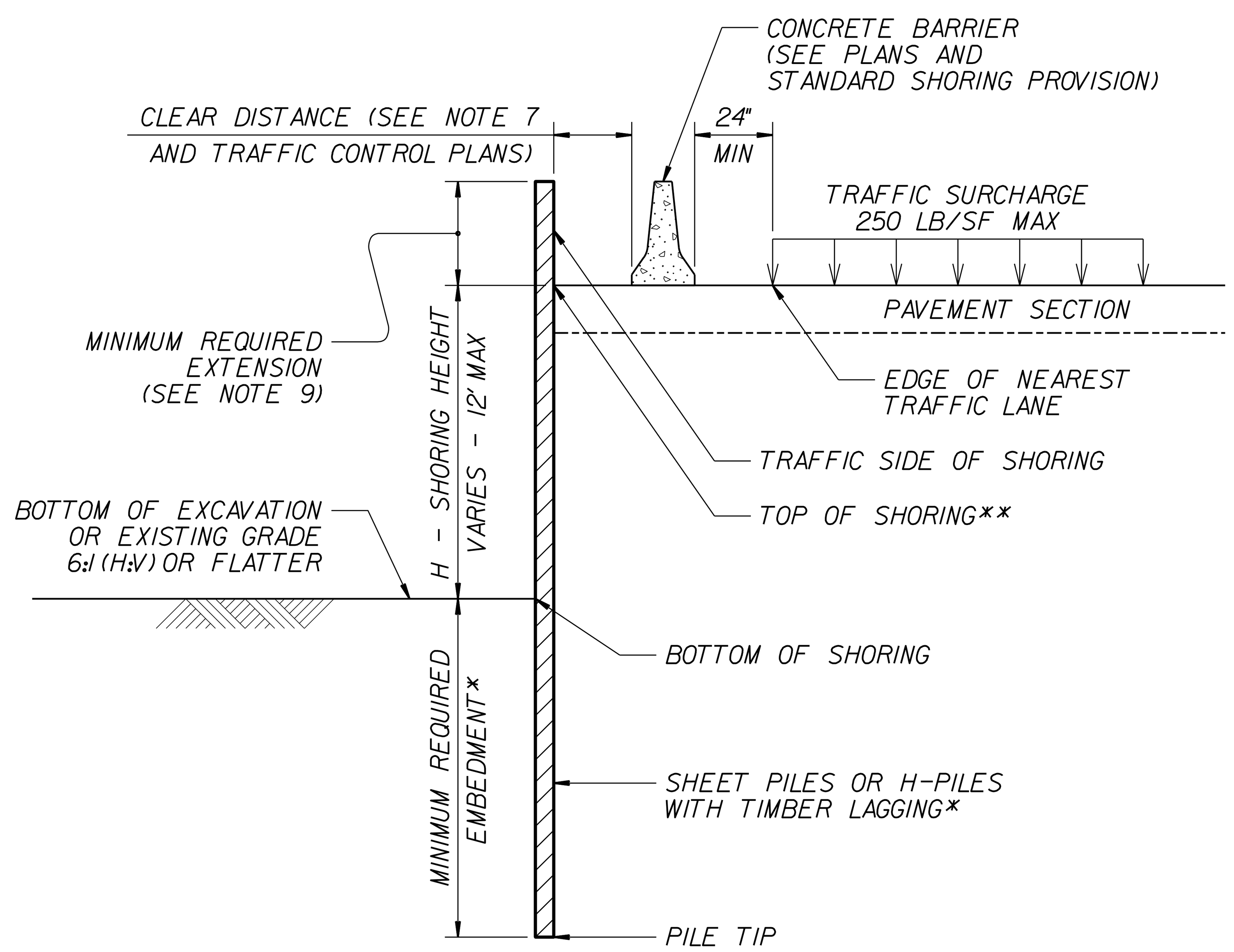
GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT — SHEET PILES — MINIMUM REQUIRED EMBEDMENT (FT)	SHEET PILES — MINIMUM REQUIRED SECTION MODULUS (IN^3/FT)	H-PILES WITH TIMBER LAGGING — MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10) — HP 10x42	HP 12x53	HP 14x73	SURCHARGE CASE WITH TRAFFIC IMPACT — SHEET PILES — MINIMUM REQUIRED EMBEDMENT (FT)	SHEET PILES — MINIMUM REQUIRED SECTION MODULUS (IN^3/FT)	H-PILES WITH TIMBER LAGGING — MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10) — 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 "--".

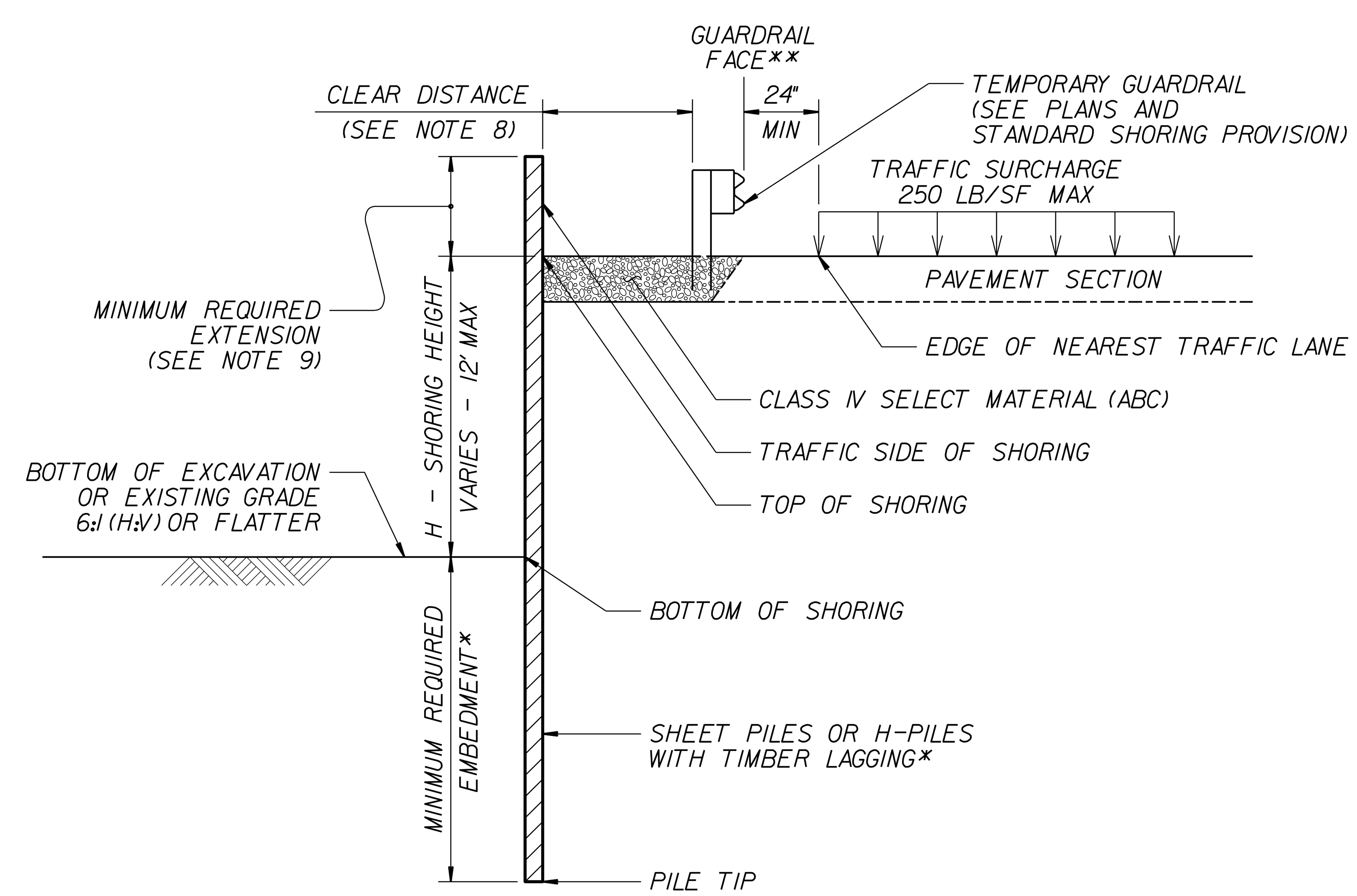
NOTES:

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 LB/CF
   FRICTION ANGLE, ϕ = 30 DEGREES
   COHESION, c = 0 LB/SF
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

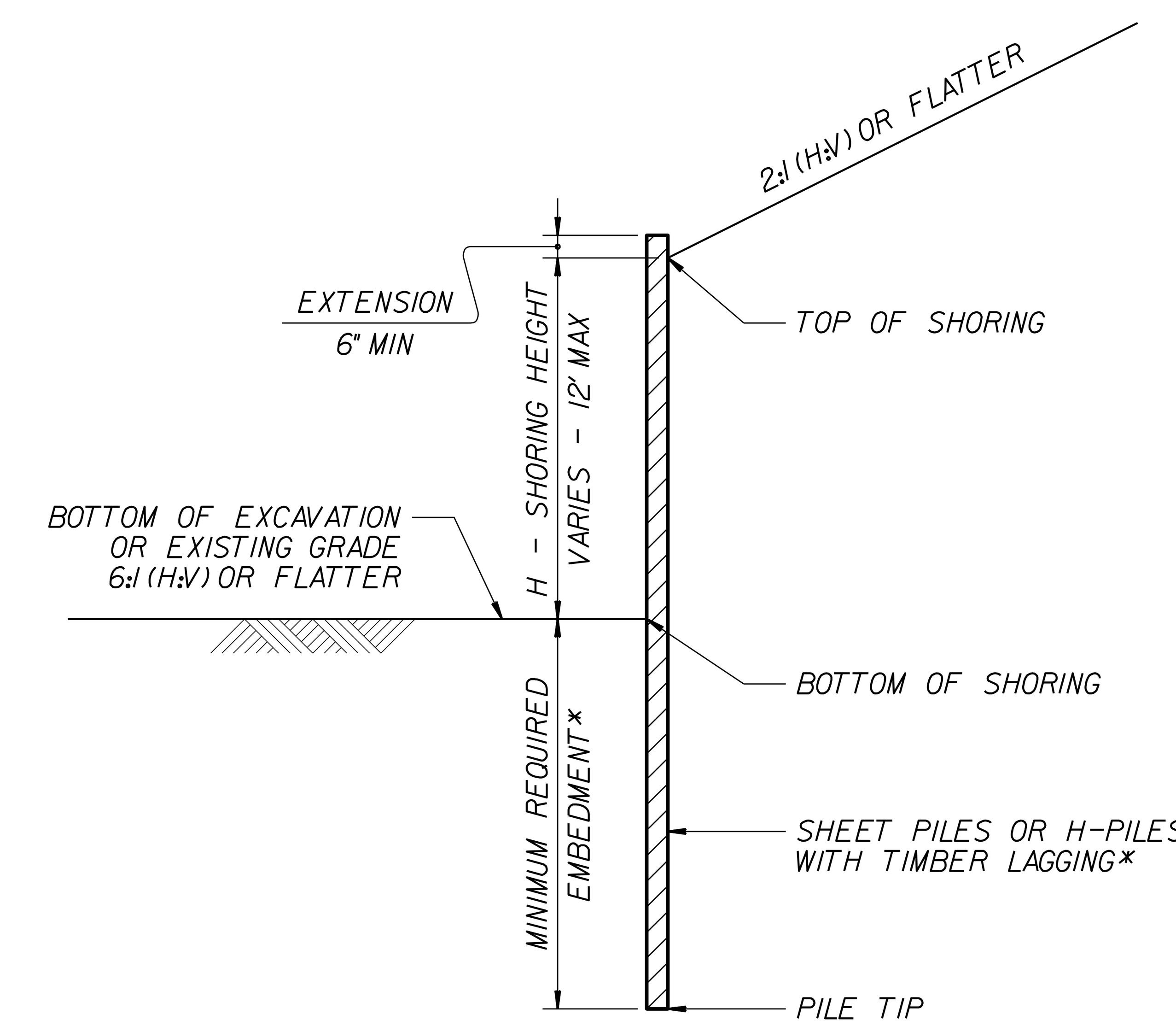


TEMPORARY GUARDRAIL

**GUARDRAIL FACE = EDGE OF PAVEMENT

STANDARD TEMPORARY SHORING

(SURCHARGE CASE)
*SEE TABLE ABOVE.



STANDARD TEMPORARY SHORING

(SLOPE 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

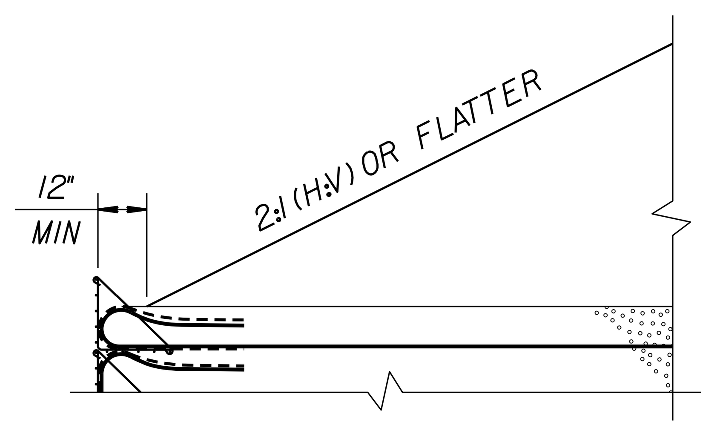
PROJECT REFERENCE NO.	SHEET NO.
I-5878/I-5883/I-5986B	2G-2

GEOTECHNICAL ENGINEER — SEAL 032125 — Stacie Mitchell 5/14/2021

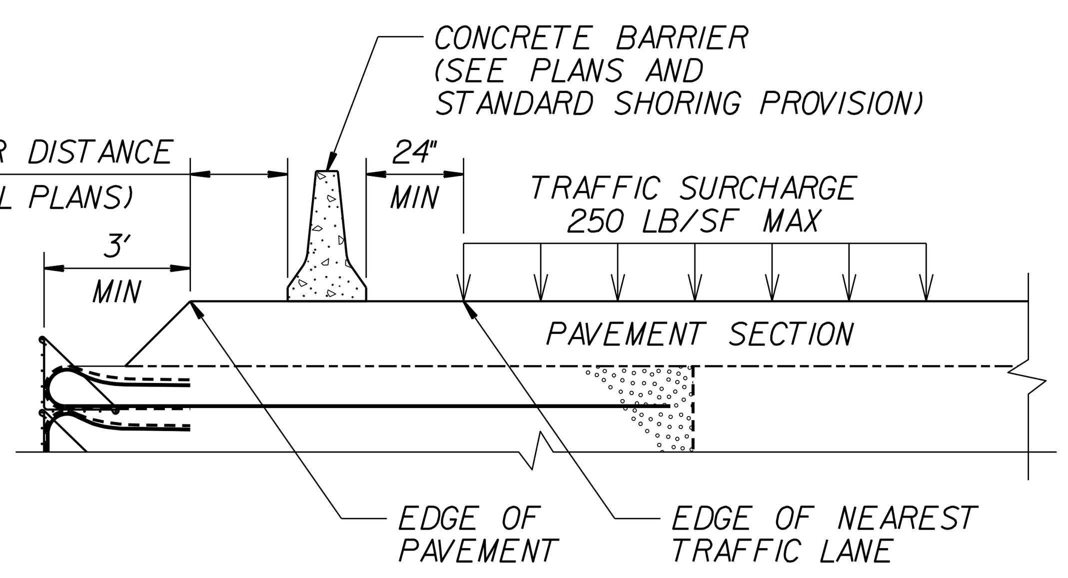
ENGINEER

SIGNATURE DATE SIGNATURE DATE

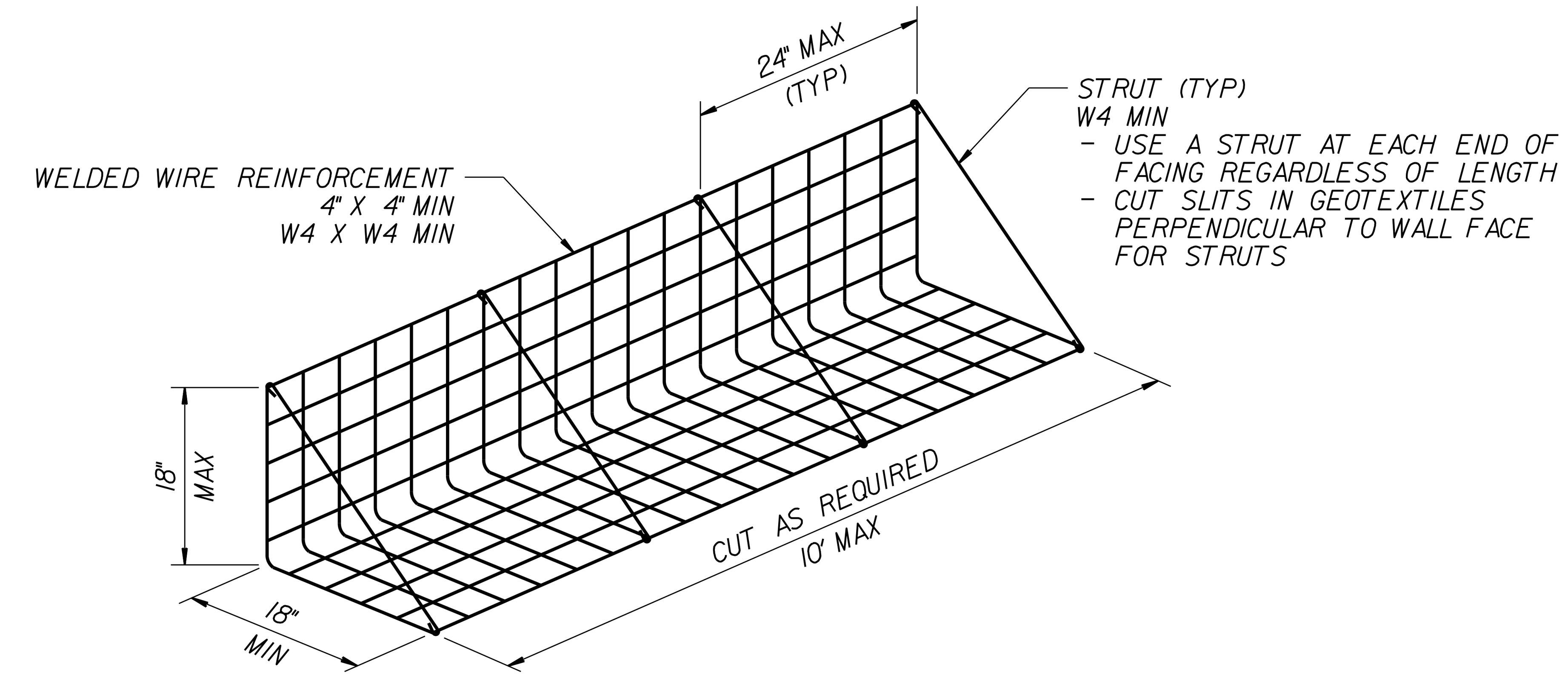
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



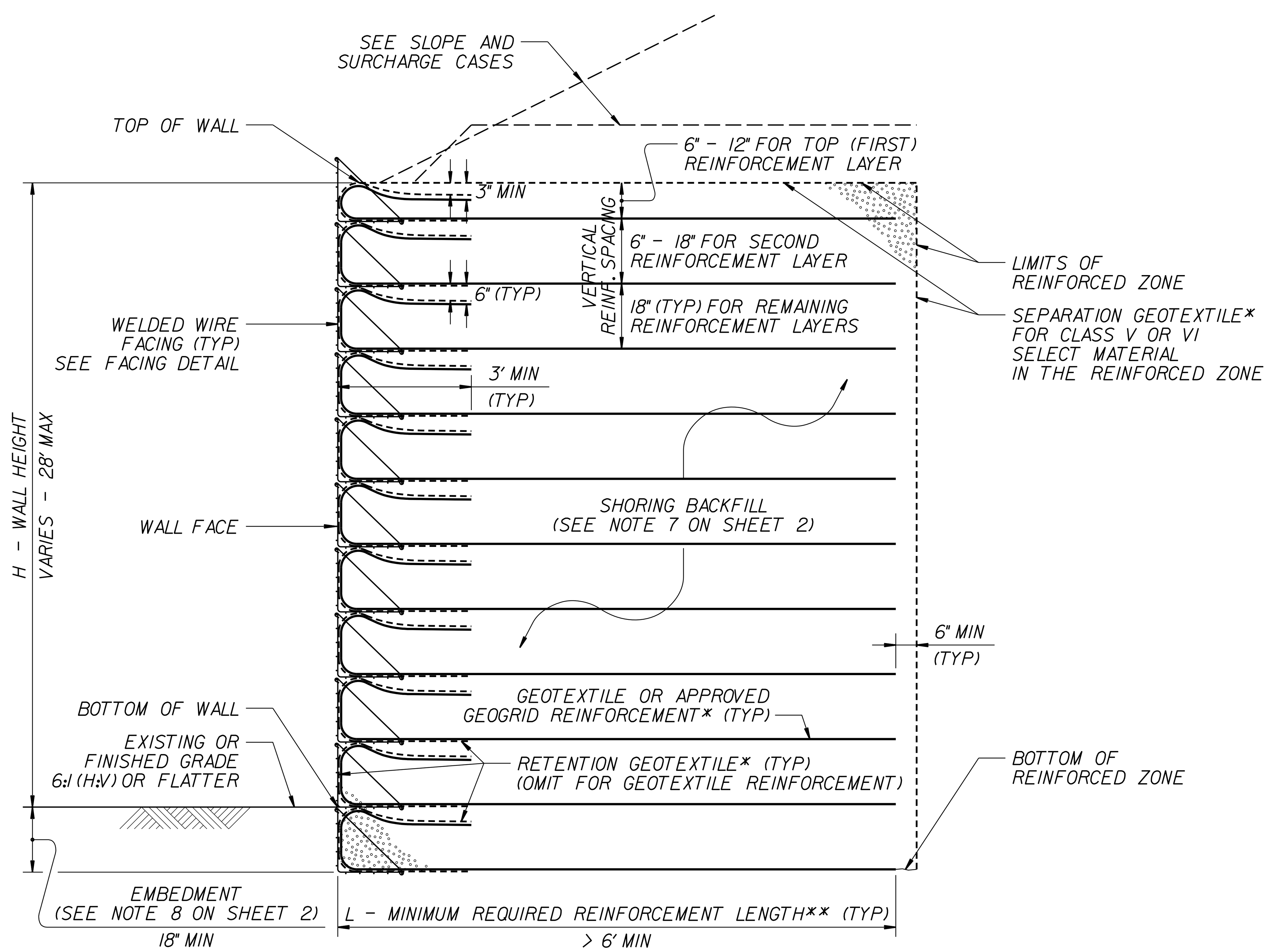
SLOPE CASE



SURCHARGE CASE

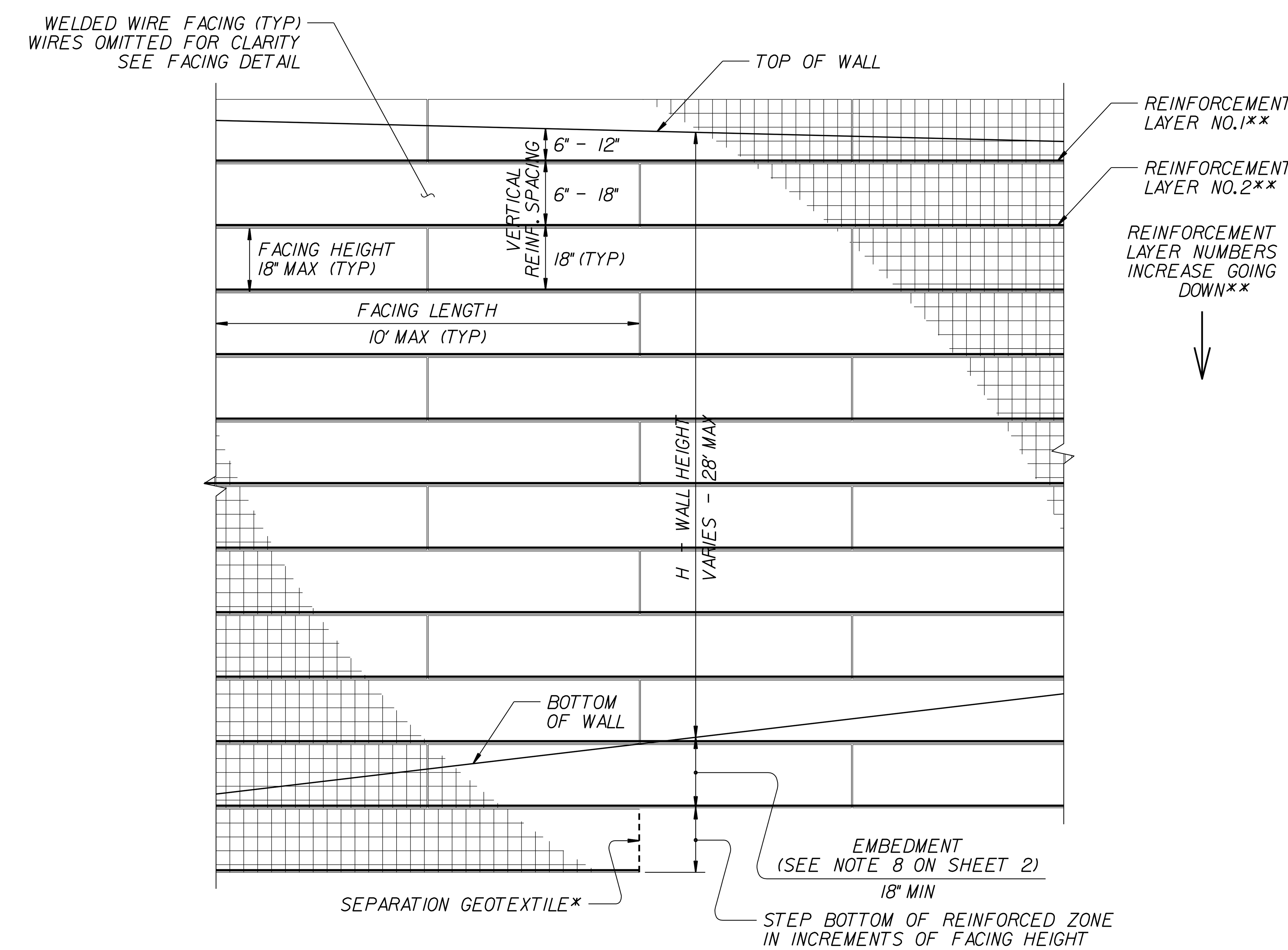


FACING DETAIL



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 SHORING
SHEET 1 OF 3

DATE: 11-19-13

GEOTECHNICAL ENGINEER

SEAL 032125 NORTH CAROLINA PROFESSIONAL ENGINEER STACIE E. MITCHELL

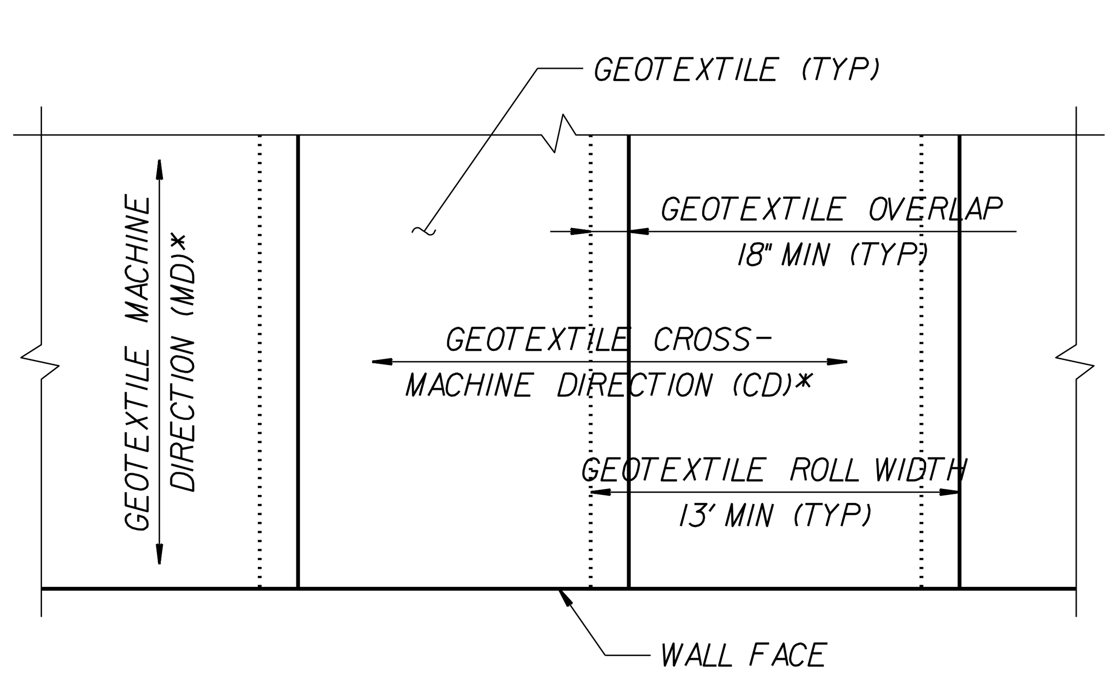
DocuSigned by: Stacie Mitchell 5/14/2021

SIGNATURE DATE

ENGINEER

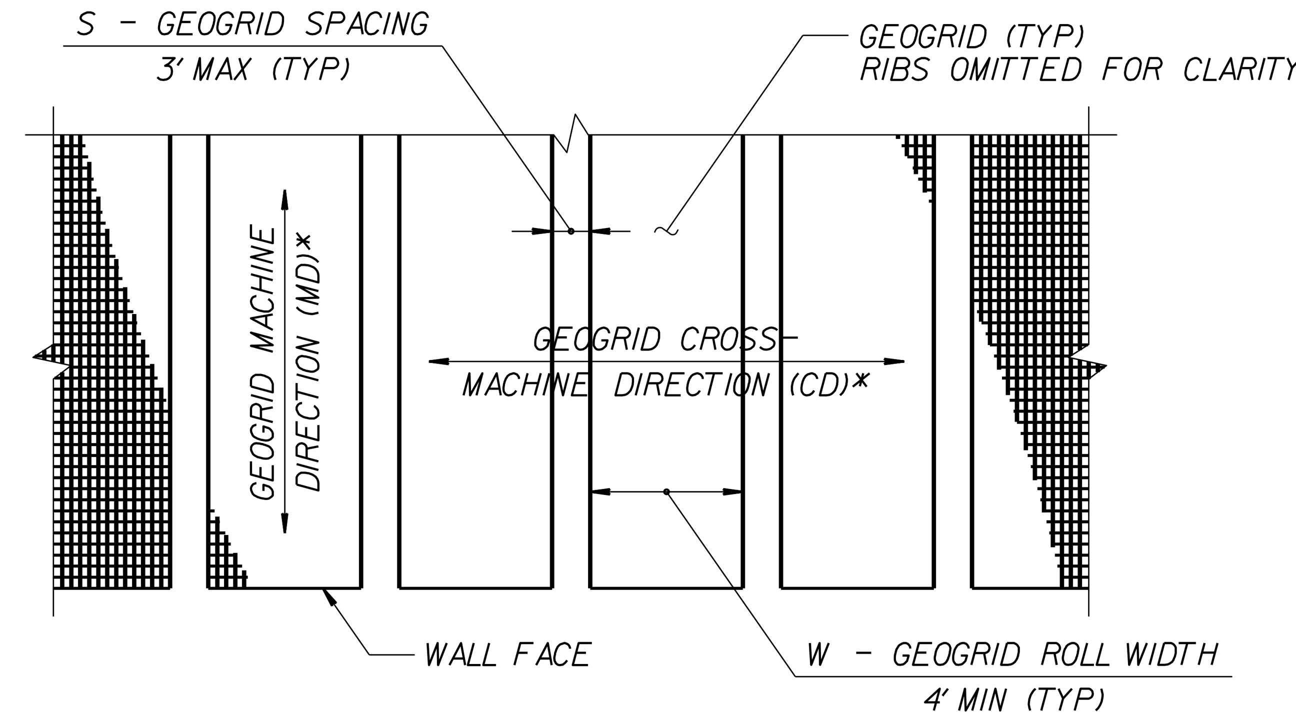
SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



GEOTEXTILE PLACEMENT

(100% COVERAGE MIN FOR GEOTEXTILE REINFORCEMENT)



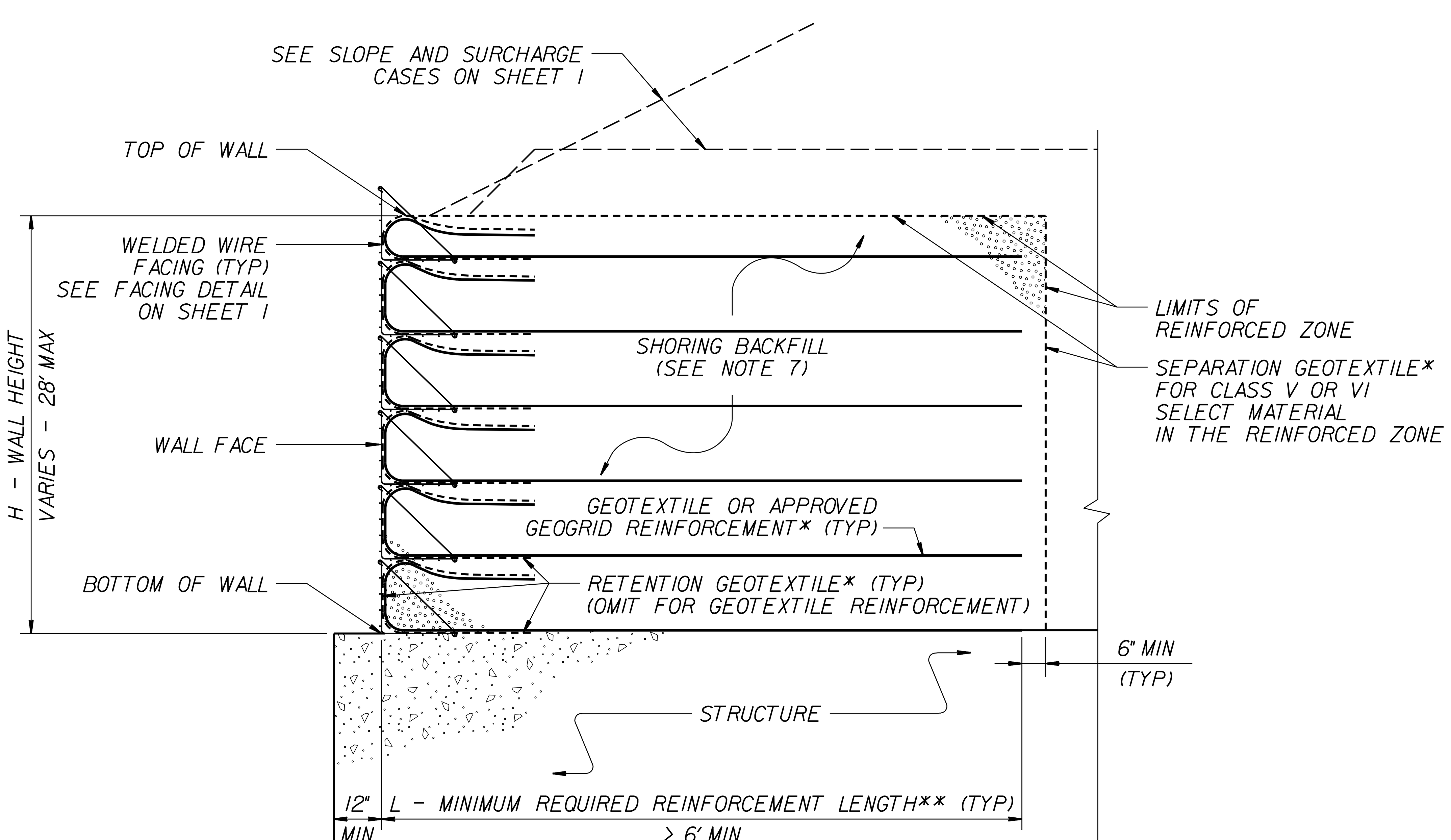
GEOGRID PLACEMENT

(80% COVERAGE MIN FOR GEOGRID REINFORCEMENT – $\frac{W}{W+S} \times 100 \geq 80\%$, 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 LB/CF
   FRICTION ANGLE, ϕ = 30 DEGREES
   COHESION, c = 0 LB/SF
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 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. 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 ARE TYPICALLY APPROVED FOR ULTIMATE TENSILE STRENGTHS IN THE MACHINE DIRECTION (MD) AND CROSS-MACHINE DIRECTION (CD) OR SHORT-TERM DESIGN STRENGTHS FOR A 3-YEAR DESIGN LIFE IN THE MD BASED ON MATERIAL TYPE. THE LIST OF APPROVED GEOGRIDS WITH DESIGN STRENGTHS IS AVAILABLE FROM:
    connect.ncdot.gov/resources/Materials/Pages/SoilsLaboratory.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 1 OR CLASS III SELECT MATERIAL
COARSE AGGREGATE	CLASS V OR VI SELECT MATERIAL

    IF THE WEBSITE DOES NOT LIST A SHORT-TERM DESIGN STRENGTH FOR AN APPROVED GEOGRID, USE A SHORT-TERM DESIGN STRENGTH EQUAL TO THE ULTIMATE TENSILE STRENGTH DIVIDED BY 3.5 FOR THE GEOGRID REINFORCEMENT.
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) ≥ (MINIMUM REQUIRED REINFORCEMENT LENGTH) + 4.5' AND
    - REINFORCEMENT STRENGTH IN CD ≥ 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.

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 032125 ENGINEER STACIE E. MITCHELL

DocuSigned by: Stacie Mitchell 5/14/2021

SIGNATURE DATE

ENGINEER

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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)

WALL HEIGHT (H) + 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.

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.)

MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD

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

PROJECT REFERENCE NO.	SHEET NO.
I-5883	2G-5

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 032125 ENGINEER STACIE E. MITCHELL

DocuSigned by: Stacie Mitchell /3/2020

ENGINEER

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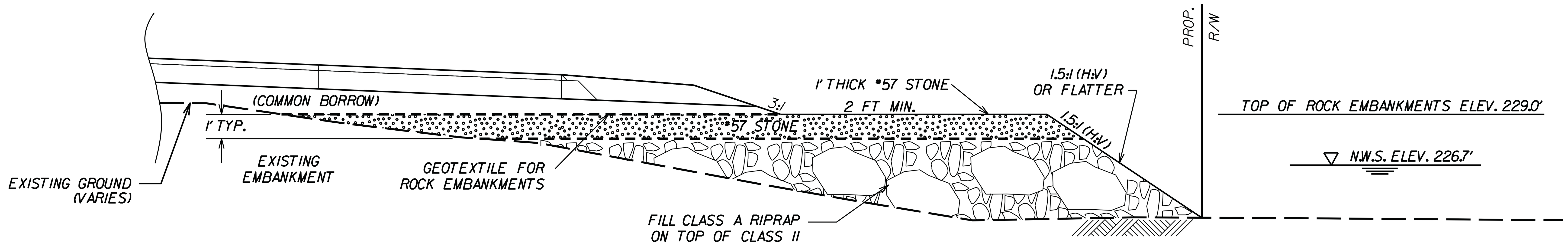

ROCK EMBANKMENTS DETAIL NO. 1 – TYPICAL SECTION

ROCK EMBANKMENTS

FOR ROCK EMBANKMENTS, SEE ROCK EMBANKMENTS SPECIAL PROVISION

USE ROCK EMBANKMENTS AT FOLLOWING LOCATIONS:

-LINE-	APPROX. BEGINNING STATION	APPROX. ENDING STATION	LOCATION LT/RT
-SR17-	34+05	34+87	RIGHT

CONSTRUCT ROCK EMBANKMENTS TO THE ELEVATION SHOWN IN THE ROCK EMBANKMENTS DETAIL NO. 1 AND ACCORDING TO THE ROCK EMBANKMENTS SPECIAL PROVISION

FILL VOIDS IN THE TOP OF ROCK EMBANKMENTS WITH CLASS A RIP RAP

PLACE #57 STONE (SELECT MATERIAL, CLASS VI) UP TO 1 FT. ABOVE ROCK EMBANKMENTS AS SHOWN IN PLAN

INSTALL GEOTEXTILE ON TOP OF NO. 57 STONE IN ACCORDANCE WITH THE ARTICLE 270-3 OF THE STANDARD SPECIFICATIONS.

ESTIMATED MATERIAL QUANTITIES FOR ROCK EMBANKMENTS

ROCK EMBANKMENTS (SELECT MATERIAL, CLASS II) = 150 TONS

RIP RAP CLASS A = 50 TONS

#57 STONE (SELECT MATERIAL, CLASS VI) = 125 TONS

GEOTEXTILE FOR ROCK EMBANKMENTS = 365 SY

PREPARED BY: S. MITCHELL	DATE: 12/09/19
REVIEWED BY: K. HILL	DATE: 12/09/19

9751 SOUTHERN PINE BLVD
CHARLOTTE, NC 28273
(704) 523-4726

ROCK EMBANKMENTS DETAILS & NOTES

PROJECT REFERENCE NO.	SHEET NO.
I-5986B	2G-6

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 032125 ENGINEER STACE E. MITCHELL

SIGNATURE DATE

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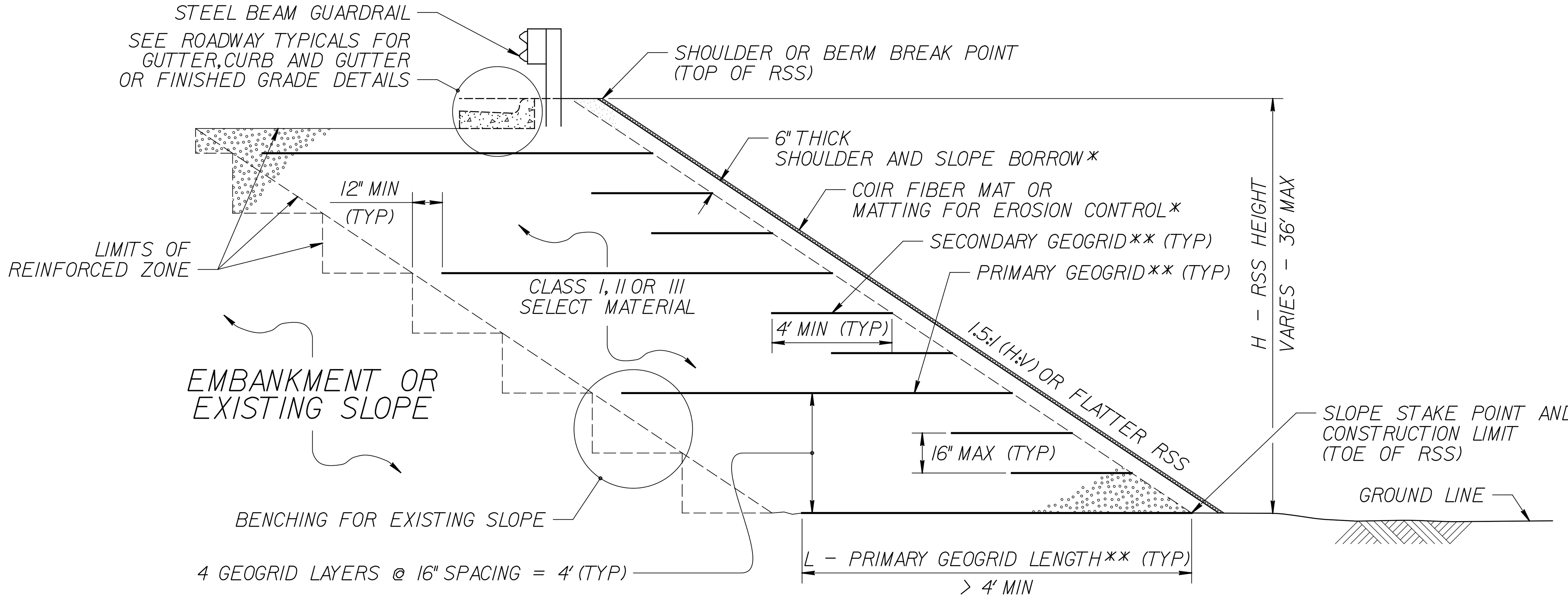
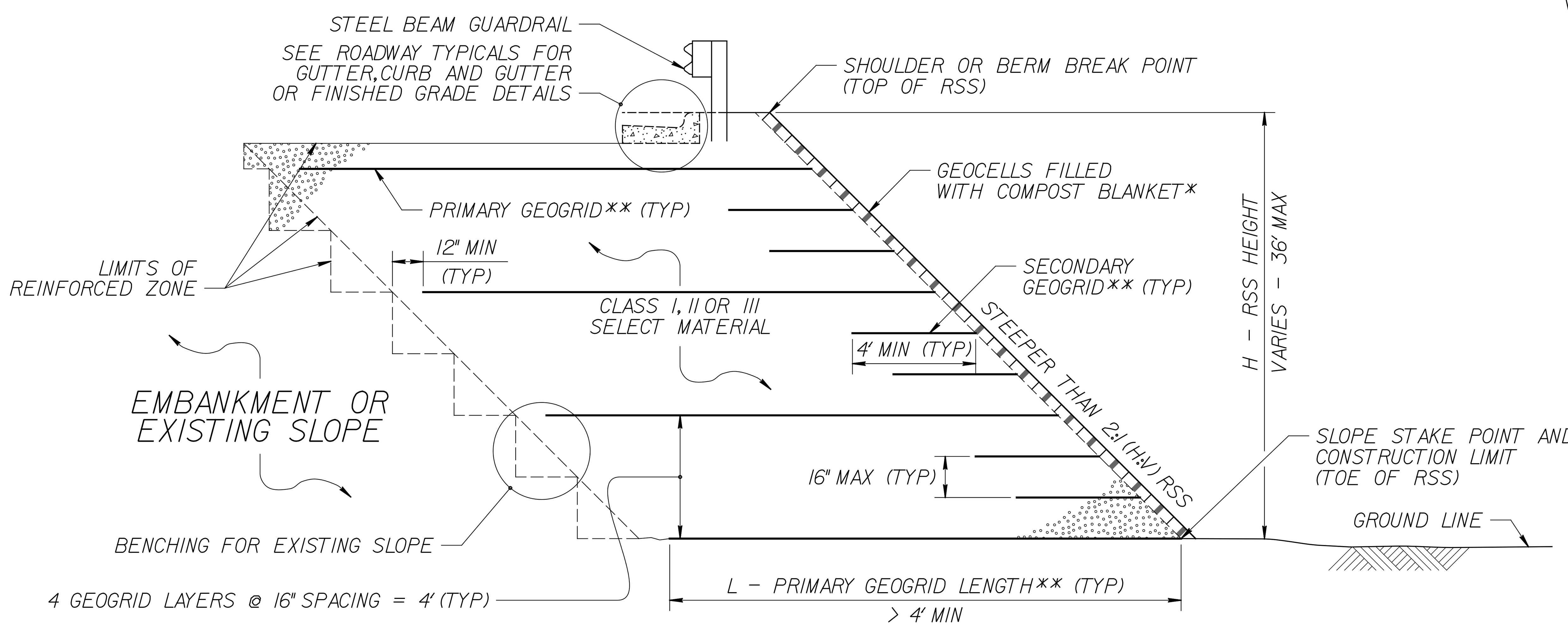


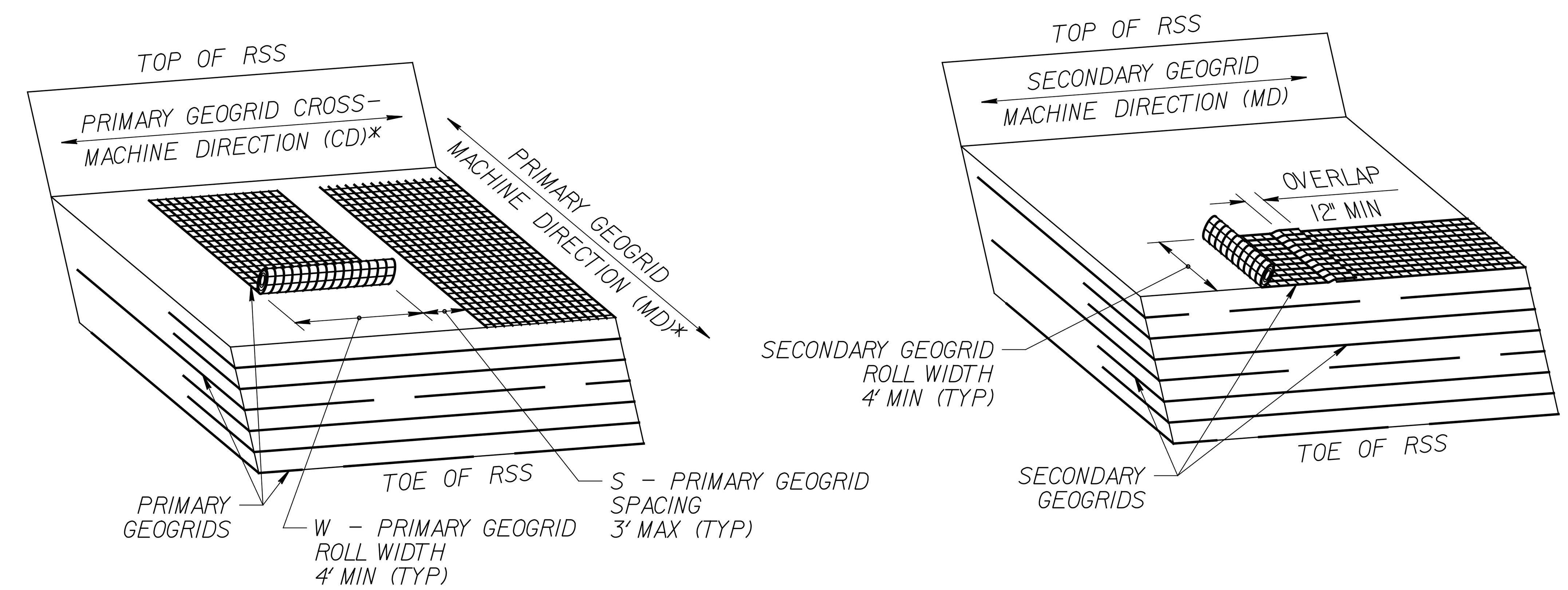
MATTING WITH SHOULDER AND SLOPE BORROW

*SEE NOTES 3 AND 9 ON SHEET 2.



GEOCELLS WITH COMPOST BLANKET

*SEE NOTES 3 AND 9 ON SHEET 2.



GEOGRID PLACEMENT DETAILS

(% COVERAGE = $\frac{W}{W+S}$ x 100 $\geq$ 75%)

*SEE NOTES 6 AND 7 ON SHEET 2.

NON–STANDARD REINFORCED SOIL SLOPE (RSS)

**SEE TABLE ON SHEET 2 AND GEOGRID PLACEMENT DETAILS.

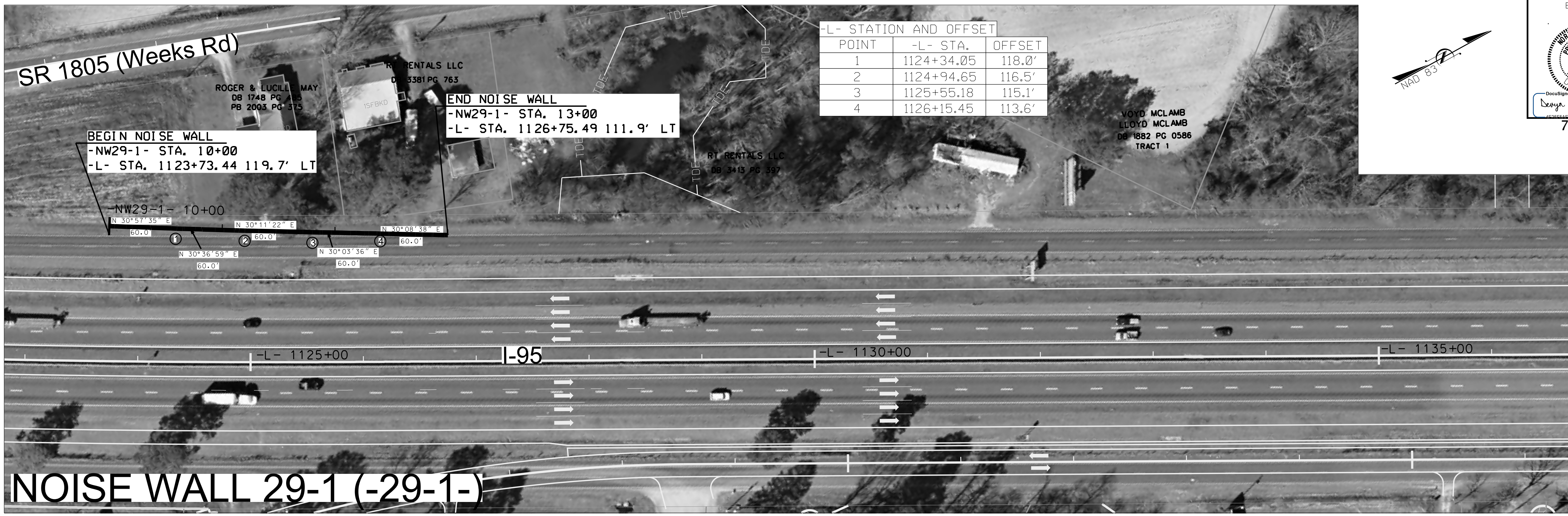
NON–STANDARD DETAIL

NON-STANDARD REINFORCED SOIL SLOPE (RSS) WITH HIGH GROUNDWATER SHEET 1 OF 2

PROJECT REFERENCE NO.	SHEET NO.
I-5883	2N-1
R/W SHEET NO.	

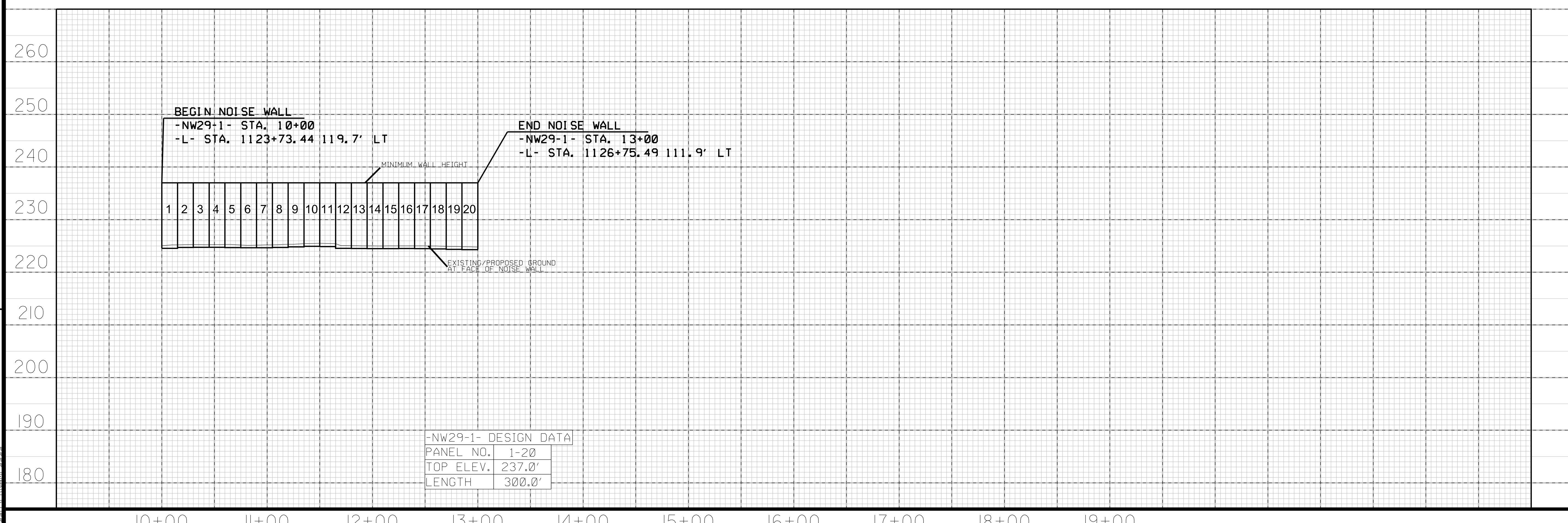
NOISE QUALITY ENGINEER

7/8/2021



-L- STATION AND OFFSET

POINT	-L- STA.	OFFSET
1	1124+34.05	118.0'
2	1124+94.65	116.5'
3	1125+55.18	115.1'
4	1126+15.45	113.6'



-NW29-1- DESIGN DATA

PANEL NO.	1-20
TOP ELEV.	237.0'
LENGTH	300.0'

REVISIONS

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 032125 ENGINEER STACE E. MITCHELL

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NOTES:

1. SEE EROSION CONTROL AND ROADWAY PLANS AND SUMMARY SHEETS FOR REINFORCED SOIL SLOPE (RSS) AND SLOPE EROSION CONTROL LOCATIONS.

2. FOR NON-STANDARD REINFORCED SOIL SLOPES, SEE REINFORCED SOIL SLOPES PROVISION. FOR STEEL BEAM GUARDRAIL, SEE SECTION 862 OF THE STANDARD SPECIFICATIONS.

3. FOR SHOULDER AND SLOPE BORROW, SEE ARTICLE 1019-2 OF THE STANDARD SPECIFICATIONS. FOR GEOCELLS, SEE CELLULAR CONFINEMENT SYSTEMS PROVISION. FOR COIR FIBER MAT, MATTING FOR EROSION CONTROL AND COMPOST BLANKET, SEE EROSION CONTROL PROVISIONS, SECTION 1631 OF THE STANDARD SPECIFICATIONS AND ROADWAY STANDARD DRAWING NO. 1631.01.

4. WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS BELOW RSS, AT-GRADE STABILIZATION WILL BE REQUIRED.

5. GEOGRIDS ARE TYPICALLY APPROVED FOR ULTIMATE TENSILE STRENGTHS IN THE MACHINE DIRECTION (MD) AND CROSS-MACHINE DIRECTION (CD) OR LONG-TERM DESIGN STRENGTHS FOR A 75-YEAR DESIGN LIFE IN THE MD BASED ON MATERIAL TYPE. THE LIST OF APPROVED GEOGRIDS WITH DESIGN STRENGTHS IS AVAILABLE FROM:
connect.ncdot.gov/resources/Materials/Pages/Materials-Manual-by-Material.aspx
DEFINE MATERIAL TYPE FROM THE WEBSITE ABOVE FOR SELECT MATERIAL AS FOLLOWS:

MATERIAL TYPE	SELECT MATERIAL
BORROW	CLASS I SELECT MATERIAL
FINE AGGREGATE	CLASS II OR III SELECT MATERIAL

IF THE WEBSITE DOES NOT LIST A LONG-TERM DESIGN STRENGTH FOR AN APPROVED GEOGRID IN THE MD, DO NOT USE THE GEOGRID FOR PRIMARY GEOGRID. IF THE WEBSITE DOES NOT LIST A LONG-TERM DESIGN STRENGTH FOR AN APPROVED GEOGRID IN THE CD, USE A LONG-TERM DESIGN STRENGTH EQUAL TO THE ULTIMATE TENSILE STRENGTH DIVIDED BY 7 FOR THE SECONDARY GEOGRID.

6. DO NOT OVERLAP PRIMARY GEOGRIDS IN THE MD SO OVERLAPS ARE PARALLEL TO THE TOE OF RSS. POLYOLEFIN (e.g., HDPE OR PP) GEOGRIDS MAY BE SPLICED ONCE PER PRIMARY GEOGRID LENGTH IN ACCORDANCE WITH THE GEOGRID MANUFACTURER'S INSTRUCTIONS. USE POLYOLEFIN GEOGRID PIECES AT LEAST 4' LONG. DO NOT SPLICE POLYESTER TYPE (PET) GEOGRIDS.

7. FOR PRIMARY GEOGRIDS WITH 100% COVERAGE, PLACE PRIMARY GEOGRIDS SO GEOGRIDS ARE ADJACENT TO EACH OTHER IN THE CD. FOR PRIMARY GEOGRIDS WITH 75% TO LESS THAN 100% COVERAGE,

   MINIMUM REQUIRED LONG-TERM DESIGN STRENGTH = LTDS BASED ON 100% COVERAGE x (W + S) / W

   SEE TABLE FOR LTDS BASED ON 100% COVERAGE AND GEOGRID PLACEMENT DETAILS FOR PRIMARY GEOGRID ROLL WIDTH (W) AND SPACING (S). FOR PRIMARY GEOGRIDS WITH LESS THAN 100% COVERAGE, STAGGER PRIMARY GEOGRIDS SO GEOGRIDS ARE CENTERED OVER GAPS IN THE PRIMARY GEOGRID LAYER BELOW. DO NOT USE LESS THAN 75% COVERAGE FOR PRIMARY GEOGRIDS.

8. DO NOT PLACE ANY GEOGRIDS UNTIL EXCAVATION DIMENSIONS AND IN-SITU MATERIAL ARE APPROVED.

9. FOR SLOPE EROSION CONTROL, USE GEOCELLS OR MATTING ON SLOPE FACES OF RSS AS FOLLOWS:

RSS ANGLE	SLOPE EROSION CONTROL
1:1 TO < 1.5:1 (H:V)	GEOCELLS WITH COMPOST BLANKET
1.5:1 TO < 2:1 (H:V)	GEOCELLS WITH COMPOST BLANKET OR COIR FIBER MAT WITH SHOULDER AND SLOPE BORROW*
2:1 (H:V) OR FLATTER	MATTING FOR EROSION CONTROL WITH SHOULDER AND SLOPE BORROW

*SEE REINFORCED SOIL SLOPES AND SLOPE EROSION CONTROL SUMMARY TABLE IN THE ROADWAY SUMMARY SHEETS FOR SLOPE EROSION CONTROL ON SLOPE FACES OF RSS 1.5:1 (H:V) TO STEEPER THAN 2:1.

NON-STANDARD RSS LOCATIONS

LINE	SIDE	BEGIN STATION	END STATION	L/H RATIO	PRIMARY GEOGRID, MD MINIMUM REQUIRED LTDS (LB/FT)
-L-	LT	1253+50	1256+50	2.3	1200

NOTE: FOR SECONDARY GEOGRID, MINIMUM REQUIRED LTDS IN THE CROSS-MACHINE DIRECTION IS 185 LB/FT.

NON-STANDARD DETAIL

NON-STANDARD
REINFORCED SOIL SLOPE (RSS)
WITH HIGH GROUNDWATER
SHEET 2 OF 2

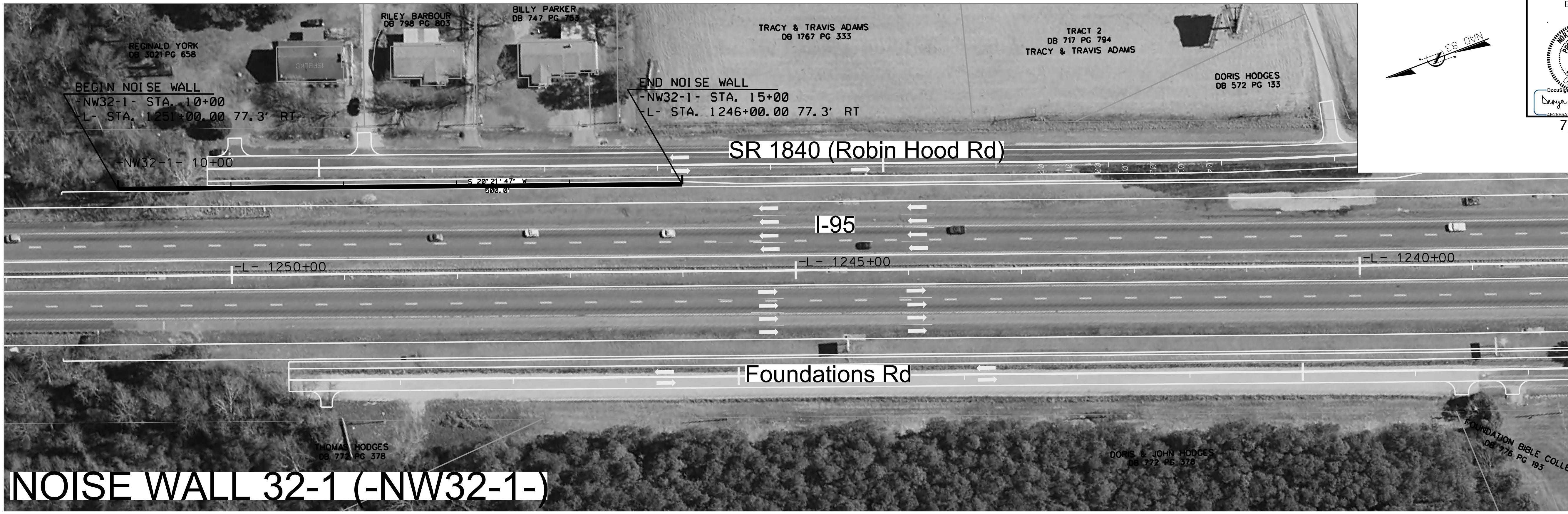
PROJECT REFERENCE NO.	SHEET NO.
I-5986B	2N-2
R/W SHEET NO.	

NOISE QUALITY ENGINEER

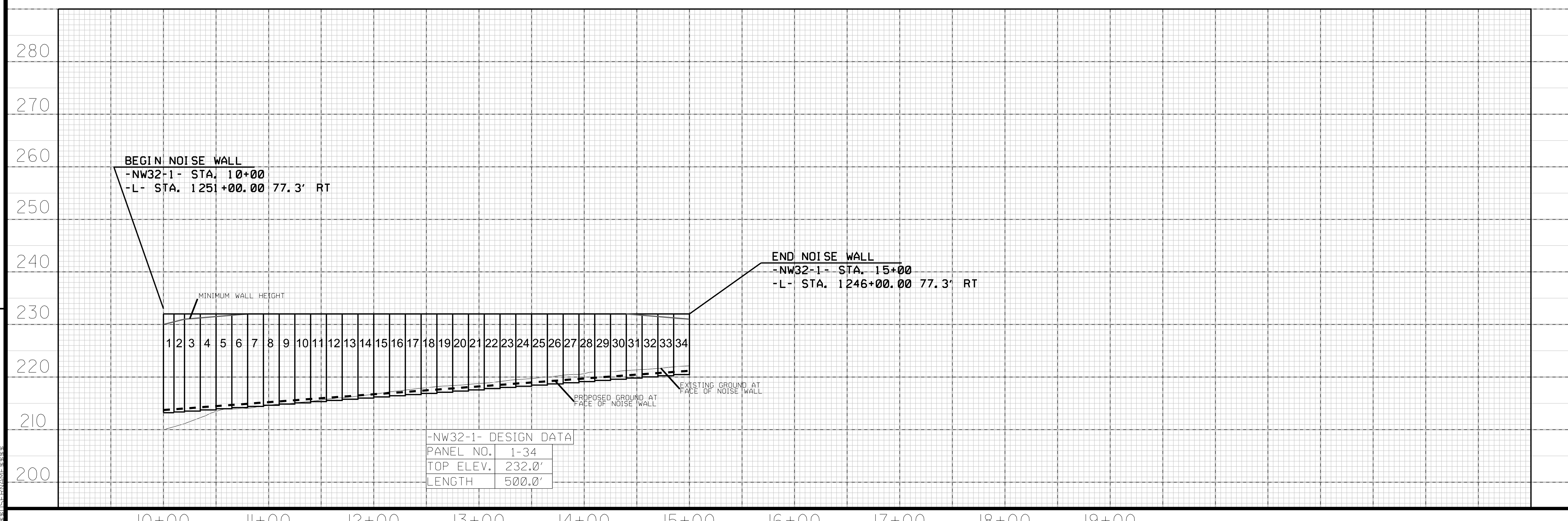
NORTH CAROLINA PROFESSIONAL SEAL 049150 ENGINEER

7/8/2021

REVISIONS



NOISE WALL 32-1 (-NW32-1-)



-NW32-1- DESIGN DATA	
PANEL NO.	1-34
TOP ELEV.	232.0'
LENGTH	500.0'

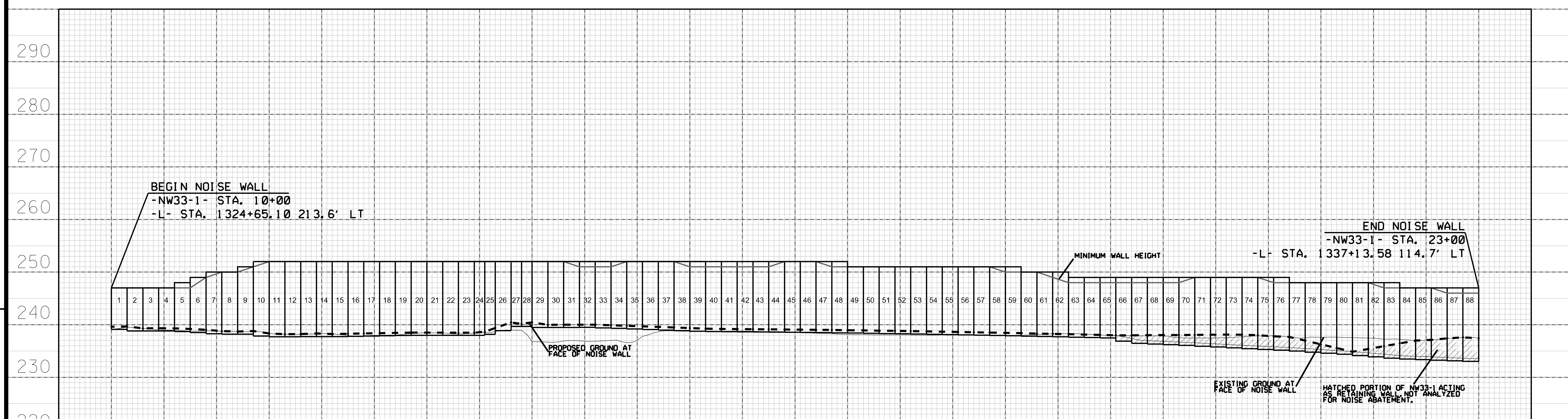
NOISE QUALITY ENGINEER

7/8/2021

REVISIONS

-L- STATION AND OFFSET					
POINT	-L- STA.	OFFSET (LT)	POINT	-L- STA.	OFFSET (LT)
1	1325+58.63	172.6'	10	1331+83.77	88.4'
2	1326+12.81	150.4'	11	1332+42+85	88.4'
3	1328+18.43	105.1'	12	1333+01.94	88.4'
4	1328+29.24	88.4'	13	1333+61.03	88.7'
5	1328+88.32	88.4'	14	1334+20.11	89.4'
6	1329+47.41	88.4'	15	1334+79.16	90.8'
7	1330+06.50	88.4'	16	1335+38.17	93.1'
8	1330+65.59	88.4'	17	1335+97.05	97.2'
9	1331+24+68	88.4'	18	1336+55.64	103.95'

NOISE WALL 33-1 (-NW33-1-)



-NW33-1- DESIGN DATA											
PANEL NO.	1-4	5	6	7-8	9	10-48	49-59	60-62	63-76	77-83	84-88
TOP ELEV.	247.0'	248.0'	249.0'	250.0'	251.0'	252.0'	251.0'	250.0'	249.0'	248.0'	247.0'
LENGTH	60.0'	15.0'	15.0'	30.0'	15.0'	565.0'	165.0'	45.0'	210.0'	105.0'	75.0'

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00

12/06/07

COMPUTED BY: J. GALEAZZI	DATE: 6/11/2019
CHECKED BY: J. BLACKMAN	DATE: 3/5/2021

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
I-5878	3B-1

I-5878 SUMMARY OF QUANTITIES

SUMMARY OF EARTHWORK

LOCATION	UNCLASSIFIED EXCAVATION (CY)	UNDERCUT (CY)	EMBANKMENT +% (CY)	BORROW (CY)	WASTE (CY)
-L- STA 946+00.00 LT TO -L- STA 961+50.00 LT	3,978	0	8,035	4,057	0
-SR9- STA 87+43.44 TO -SR9- STA 92+76.00	2,258	0	433	0	1,825
SR9A- STA 10+50.00 TO -SR9A- STA 27+50.00	3,256	1,695	5,099	1,843	1,695
SUBTOTAL	9,492	1,695	13,567	5,900	3,520
-L- STA 925+00.00 MED TO -L- STA 946+00.00 MED	1,805	0	0	0	1,805
-L- STA 946+00.00 MED TO -L- STA 961+50.00 MED	853	0	3	0	850
SUBTOTAL	2,658	0	3	0	2,655
-L- STA 946+00.00 RT TO -L- STA 961+50.00 RT	1,556	0	5,738	4,182	0
-Y24- STA 50+00.00 TO -Y24- STA 69+00.00	462	336	9,564	9,402	636
-DR1- STA 10+50.00 TO -DR1- STA 14+00.00	86	0	1,175	1,089	0
SUBTOTAL	2,104	336	16,477	14,673	636
-L- STA 961+50.00 LT TO -L- STA 971+50.00 LT	4,606	0	823	0	3,783
-Y14RPB- STA 14+46.88 TO -Y14RPB- STA 22+85.00	3,474	1,127	20,660	17,186	1,127
-Y14- STA 16+00.00 TO -Y14- STA 24+92.25 (BRIDGE)	38	0	34,981	34,943	0
-DR10- STA 10+50.00 TO -DR10- STA 12+00.00	121	0	134	13	0
SUBTOTAL	8,239	1,127	56,598	52,142	4,910
-L- STA 961+50.00 MED TO -L- STA 971+50.00 MED	617	0	0	0	617
SUBTOTAL	617	0	0	0	617
-L- STA 961+50.00 RT TO -L- STA 971+50.00 RT	2,930	0	883	0	2,047
-Y14RPC- STA 14+37.85 TO -Y14RPC- STA 22+00.00	2,423	0	11,629	9,206	0
SUBTOTAL	5,353	0	12,512	9,206	2,047
-L- STA 971+50.00 LT TO -L- STA 981+00.00 LT	3,015	0	1,013	0	2,002
-SBCD- STA 10+87.44 TO -SBCD- STA 17+69.47	4,869	577	18,275	16,625	3,796
SUBTOTAL	7,884	577	19,288	16,625	5,798
-L- STA 971+50.00 MED TO -L- STA 981+00.00 MED	465	0	3	0	462
SUBTOTAL	465	0	3	0	462
-TEMP_95SB1- 10+00.00 TO -TEMP_95SB1- 23+63.93	2,487	0	439	0	2,048
REMOVE -TEMP_95SB1- 10+00.00 TO -TEMP_95SB1- 23+63.93	351	0	3,109	2,758	0
Y15YEMPRPB- 11+00.00 TO Y15YEMPRPB- 22+55.03	0	0	0	0	0
REMOVE Y15YEMPRPB- 11+00.00 TO Y15YEMPRPB- 22+55.03	0	0	0	0	0
-L- STA 971+50.00 RT TO -L- STA 981+00.00 RT	4,490	0	360	0	4,130
-Y14- STA 27+18.32 (BRIDGE) TO -Y14- STA 44+00.00	2,014	0	34,716	32,702	0
-NBCD- STA 11+10.00 TO -NBCD- STA 23+00.00	2,922	0	26,870	23,948	0
SUBTOTAL	12,264	0	65,494	59,408	6,178
-LREV- STA 981+00.00 LT TO -LREV- STA 1002+27.38 (BRIDGE) LT	2,230	0	39,001	38,179	1,408
-SBCD- STA 17+69.47 TO -SBCD- STA 40+50.0	35,863	8,846	15,611	4,124	33,222
-SR18- STA 10+00.00 TO -SR18- STA 37+00.00	1,370	208	273	0	1,305
SUBTOTAL	39,463	9,054	54,885	42,303	35,935
-LREV- STA 981+00.00 MED TO -LREV- STA 1002+27.38 (BRIDGE) MED	360	0	20,024	19,664	0
SUBTOTAL	360	0	20,024	19,664	0
-LREV- STA 981+00.00 RT TO -LREV- STA 1002+27.38 (BRIDGE) RT	6,246	0	71,605	66,333	974
-NBCD- STA 23+00.00 TO -NBCD- STA 42+50.00	18,447	1,454	2,635	0	17,266
SUBTOTAL	24,693	1,454	74,240	66,333	18,240

SUMMARY OF EARTHWORK

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBANKMENT +%	BORROW	WASTE
-LREV- STA 1003+31.96 (BRIDGE) LT TO -LREV- STA 1021+98.66 LT	2,995	1,534	12,551	10,647	2,625
-Y15- STA 5+34.00 TO -Y15- STA 28+50.00	4,667	0	1,404	0	3,263
-Y25- STA 10+50.00 TO -Y25- STA13+50.00	42	0	89	47	0
-Y15RPA- STA 13+30.23 TO -Y15RPA- STA 23+50.00	2,386	2,006	7,314	5,020	2,098
-SR11- STA 10+50.00 TO -SR11- STA 12+00.00	211	521	661	450	521
SUBTOTAL	10,301	4,061	22,019	16,164	8,507
-LREV- STA 1003+31.96 (BRIDGE) MED TO -LREV- STA 1021+98.66 MED	437	0	4,658	4,221	0
SUBTOTAL	437	0	4,658	4,221	0
-LREV- STA 1003+31.96 (BRIDGE) RT TO -LREV- STA 1021+98.66 RT	5,285	0	53,385	50,003	1,903
-Y15- STA 28+50.00 TO -Y15- STA 49+00.00	10,319	0	4,688	0	5,631
-Y15RPD- STA 14+24.37 TO -Y15RPD- STA 28+00.00	12,320	2,392	20,966	15,179	8,925
SUBTOTAL	27,924	2,392	79,039	65,182	16,459
-L- STA 1022+00.00 LT TO -L- STA 1042+00.00 (CULVERT) LT	7,548	0	4,993	0	2,555
-L- STA 1042+00.00 (CULVERT) LT TO -L- STA 1061+63.00 LT	6,573	647	12,176	6,364	1,408
SUBTOTAL	14,121	647	17,169	6,364	3,963
-L- STA 1022+00.00 MED TO -L- STA 1042+00.00 (CULVERT) MED	1,510	0	0	0	1,510
-L- STA 1042+00.00 (CULVERT) MED TO -L- STA 1061+63.00 MED	1,596	0	15	0	1,581
SUBTOTAL	3,106	0	15	0	3,091
-L- STA 1022+00.00 RT TO -L- STA 1042+00.00 (CULVERT) RT	3,909	0	5,963	2,054	0
-L- STA 1042+00.00 (CULVERT) RT TO -L- STA 1061+63.00 RT	8,644	0	4,284	0	4,360
-SR12- STA 10+50.00 TO -SR12- STA 22+81.86	1,265	348	4,816	4,207	1,004
SUBTOTAL	13,818	348	15,063	6,261	5,364
TOTAL	183,299	21,691	471,054	384,446	118,382
MATERIAL FOR SHOULDER CONSTRUCTION			20,738	20,738	
LOSS DUE TO CLEARING & GRUBBING	-17,800			17,800	
UNDERCUT EXCAVATION CONTINGENCY		6,015	7,519	7,519	6,015
SELECT MATERIAL IN LIEU OF BORROW			-27,706	-27,706	
WASTE IN LIEU OF BORROW				-50,118	-50,118
PROJECT TOTAL	165,499	27,706	471,605	352,679	74,279
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT				17,634	
GRAND TOTAL	165,499	27,706	471,605	370,313	74,279
SAY	**166,000**	**28,000**		**371,000**	
EST. DDE = 15,100 CY					
PAVEMENT STRUCTURE VOLUME = 123,840 CY					
UNC EXC - ACCEPTABLE, BUT NOT TO BE USED IN TOP 3' OF EMBANKMENT OR BACKFILL = 10,250 CY					

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

WOVEN WIRE FENCE, 47" FABRIC

LINE	STATION TO STATION	LT. OR RT.	A FABRIC L.F.	B END BRACE	C CORNER BRACE	D LINE BRACE	E 4" POSTS	F 5" POSTS
-L- & -Y14-	946+00 TO 21+14	LT/RT	2,934.72	2	6	9	183	49
-Y14- & -SBCD-	18+74 TO 22+41	LT	1,202.22	2	2	4	74	22
-SBCD-	34+36 TO 37+75	LT	367.79	2	1	1	21	10
-Y15-	19+21 TO 21+10	RT	186.15	2			11	4
-Y15- & -Y15RPA-	20+75 TO 18+54	LT/RT	719.71	2	3	1	43	16
-L-	1020+00 TO 1042+40	LT	2,276.82	2	3	6	146	31
-L-	1043+14 TO 1063+00	LT	2,019.18	2	2	5	131	25
-L- & -Y14-	946+00 TO 34+50	LT/RT	2,465.62	2	2	7	159	31
-Y14- & -Y15-	34+50 TO 37+00	RT/RT	3,701.76	2	4	11	238	49
-Y15- & -L-	37+00 TO 1041+16	LT/RT	4,318.58	1		8	294	26
-L-	1041+80 TO 1063+00	RT	2,140.32	2	2	6	138	28
	TOTAL		22,332.87				1438	291
	SAY		**22,340**				**1438**	**291**

SUMMARY OF ASPHALT PAVEMENT REMOVAL

LINE	STATION	STATION	LOCATION	LENGTH OR AREA	SQUARE YARDS
-SR9-	73+93	92+75	RT	37967.49	4218.61
-Y14RPB-	14+98	18+50	CL	7050.79	783.42
-L-	946+00	965+30	LT	13830.37	1536.71
-L-	946+00	985+86	CL	31885.39	3542.82
-L-	946+00	965+03	RT	17759.14	1973.24
-Y24-	50+00	59+18	LT	15540.28	1726.70
-Y14RPC-	10+00	20+75	LT/RT	20812.42	2312.49
-Y14RPC-	18+76	21+85	LT	7805.08	867.23
-Y14RPB-	16+21	22+70	RT	18673.40	2074.82
-L-	965+30	978+18	LT	20377.82	2264.20
-L-	965+46	977+72	RT	14667.53	1629.73
-Y14-	17+50	18+50	CL	4390.96	487.88
-Y14-	34+50	41+50	CL	16585.06	1842.78
-L-	978+19	985+86	LT	1359.07	151.01
-L-	977+72	985+86	RT	2923.49	324.83
-SR18-	10+75	24+60	CL	32027.30	3558.59
-LREV-	985+86	989+50	LT	15256.43	1695.16
-LREV-	985+86	990+00	RT	17580.28	1953.36
-LREV-	992+50	1002+24	LT	34404.17	3822.69
-SBCD-	29+46	41+10	RT/LT	33570.50	3730.06
-NBCD-	38+71	42+59	LT	17897.47	1988.61
-LREV-	1003+90	1008+50	LT	15599.45	1733.27
-Y15RPA-	11+52	24+31	LT	33839.62	3759.96
-Y15RPD-	14+20	21+00	LT	17037.93	1893.10
-LREV-	1010+00	1014+88	RT	17401.41	1933.49
-LREV-	1011+00	1014+88	LT	12877.85	1430.87
-SR11-	10+50	37+77	RT	56644.89	6293.88
-LREV-	1016+29	1021+99	LT	5984.73	664.97
-LREV-	1014+88	1021+99	CL	5563.97	618.22
-LREV-	1015+04	1021+99	RT	3345.61	371.73
-L-	1022+00	1061+63	LT	37252.17	4139.13
-L-	1022+00	1061+63	CL	30707.01	3411.89
-L-	1022+00	1061+63	RT	40925.83	4547.31
-TEMP_95SB1-	11+98	17+21	CL	5691.40	632.38
-Y15TEMPRPB-	10+00	21+07	CL	23406.12	2600.68
-Y15TEMPRPB-	21+34	22+55	CL	815.07	90.56
				TOTAL	76,606.39
				SAY	**76,700**

SUMMARY OF BREAKING EXISTING PAVEMENT REMOVAL

LINE	STATION	STATION	LOCATION	LENGTH OR AREA	SQUARE YARDS
-Y14RPB-	18+50	20+50	CL	3038.51	337.61
-Y14RPC-	20+75	22+00	LT	2547.19	283.02
-Y14-	18+50	24+68	CL	38989.12	4332.12
-Y14-	27+42	34+50	CL	28652.14	3183.57
-NBCD-	11+11	18+71	LT	15677.65	1741.96
-LREV-	989+50	992+50	LT	14778.72	1642.08
-LREV-	990+00	1002+01	RT	45956.81	5106.31
-NBCD-	34+28	38+71	LT	17486.64	1942.96
-LREV-	1003+78	1010+00	RT	22120.59	2457.84
-LREV-	1008+50	1011+00	LT	9185.42	1020.60
-Y15RPD-	21+00	28+00	CL	17830.11	1981.12
				TOTAL	24,029.21
				SAY	**24,030**

SHOULDER BERM GUTTER

LINE	BEG. STA.	END STA.	SIDE	LENGTH
-LREV-	1001+88	1002+21	LT	33.9
-LREV-	1003+37	1010+00	RT	663.5
-LREV-	995+15	1001+83	RT	666.5
-LREV-	1003+75	1008+60	LT	485.6
			TOTAL	1849.5
			SAY	1850

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

I-5883 SUMMARY OF QUANTITIES

SUMMARY OF EARTHWORK

LOCATION	UNCLASSIFIED EXCAVATION (CY)	UNDERCUT (CY)	EMBANKMENT +% (CY)	BORROW (CY)	WASTE (CY)
-L- STA 1061+63.00 LT TO -L- STA 1102+00.00 LT	28,325	1,656	9,675	0	20,306
-Y16- STA 11+50.00 TO -Y16- STA 26+16.45 (BRIDGE)	1,600	0	21,859	21,352	1,093
-Y16RPB- STA 14+58.76 TO -Y16RPB- STA 23+00.00	13,998	1,225	6,588	0	8,635
-SR13- STA 44+00.00 TO -SR13- STA 59+50.00	2,831	37	3,949	1,118	37
-DR2- STA 10+50.00 TO -DR2- STA 12+91.61	88	0	176	88	0
SUBTOTAL	46,842	2,918	42,247	22,558	30,071
-L- STA 1061+63.00 MED TO -L- STA 1102+00.00 MED	3,140	0	3	0	3,137
SUBTOTAL	3,140	0	3	0	3,137
-L- STA 1061+63.00 RT TO -L- STA 1102+00.00 RT	7,340	0	3,988	0	3,352
-Y16- STA 28+01.43 (BRIDGE) TO -Y16- STA 44+00.00	1,360	0	43,065	42,304	599
-Y16RPC- STA 15+91.71 TO -Y16RPC- STA 27+50.00	2,337	366	87,579	85,242	366
SUBTOTAL	11,037	366	134,632	127,546	4,317
-L- STA 1102+00.00 LT TO -L- STA 1125+50.00 LT	25,492	0	379	0	25,113
-Y16RPA- STA 18+43.96 TO -Y16RPA- STA 28+00.00	7,497	1,108	7,828	1,753	2,530
-DR3- STA 13+00.00 TO -DR3- STA 19+50.00	1,063	0	265	0	798
-DR3A- STA 10+30 TO -DR3A- STA 12+06.55	88	0	0	0	0
SUBTOTAL	34,140	1,108	8,472	1,753	28,441
-L- STA 1102+00.00 MED TO -L- STA 1125+50.00 MED	1,470	0	18	0	1,452
SUBTOTAL	1,470	0	18	0	1,452
-L- STA 1102+00.00 RT TO -L- STA 1125+50.00 RT	9,772	0	2,564	0	7,208
-Y16RPD- STA 14+00.36 TO -Y16RPD- STA 20+00.00	4,613	0	3,034	0	1,579
-SR15- STA 10+50.00 TO -SR15- STA 30+25.00	1,138	676	2,796	1,658	676
-DR4- STA 10+50.00 TO -DR4- STA 15+50.00	296	0	101	0	195
SUBTOTAL	15,819	676	8,495	1,658	9,658
-L- STA 1125+50.00 LT TO -L- STA 1152+00.00 LT	7,274	374	3,900	0	3,748
-SR16- STA 10+00.00 TO -SR16- STA 15+00.00	1,139	786	1,126	0	799
SUBTOTAL	8,413	1,160	5,026	0	4,547
-L- STA 1125+50.00 MED TO -L- STA 1152+00.00 MED	2,356	0	0	0	2,356
SUBTOTAL	2,356	0	0	0	2,356
-L- STA 1125+50.00 RT TO -L- STA 1152+00.00 RT	1,732	0	1,728	159	163
-SR15- STA 30+25.00 TO -SR15- STA 56+71.05	3,443	5,003	10,835	9,558	7,169
SUBTOTAL	5,175	5,003	12,563	9,717	7,332
-L- STA 1152+00.00 LT TO -L- STA 1180+00.00 LT	10,015	2,519	10,383	1,465	3,616
SUBTOTAL	10,015	2,519	10,383	1,465	3,616
PAVEMENT STRUCTURE VOLUME = 159,270 CY TO -L- STA 1180+00.00 MED	2,332	0	0	0	2,332
SUBTOTAL	2,332	0	0	0	2,332

SUMMARY OF EARTHWORK

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBANKMENT +%	BORROW	WASTE
-L- STA 1152+00.00 RT TO -L- STA 1180+00.00 RT	1,136	0	4,975	3,839	0
-SR15- STA 56+71.05 TO -SR15- STA 84+81.51	753	204	14,970	14,286	273
-Y26- STA 10+50.00 TO -Y26- STA 30+50.00	1,478	474	4,810	3,332	474
SUBTOTAL	3,367	678	24,755	21,457	747
-L- STA 1180+00.00 LT TO -L- STA 1207+00.00 LT	4,206	720	9,088	5,005	843
-Y17- STA 13+50.00 TO -Y17- STA 25+77.06 (BRIDGE)	1,598	774	16,744	15,146	774
-Y17RPB- STA 14+09.57 TO -Y17RPB- STA 28+50.00	53	154	20,723	20,670	154
-SR16- STA 61+50.00 TO -SR16- STA 85+50.00	1,119	2,671	13,903	13,501	3,388
SUBTOTAL	6,976	4,319	60,458	54,322	5,159
-L- STA 1180+00.00 MED TO -L- STA 1207+00.00 MED	1,952	0	15	0	1,937
SUBTOTAL	1,952	0	15	0	1,937
-L- STA 1180+00.00 RT TO -L- STA 1207+00.00 RT	5,806	0	4,803	0	1,003
-Y17- STA 27+84.39 (BRIDGE) TO -Y17- STA 40+50.00	498	335	42,798	42,300	335
-Y17RPC- STA 14+81.99 TO -Y17RPC- STA 25+00.00	542	0	18,284	17,742	0
-SR15- STA 84+81.51 TO -SR15- STA 98+31.31	513	0	6,681	6,244	76
-SR17- STA 10+50.00 TO -SR17- STA 20+50.00	2,154	2,168	2,784	2,609	4,147
SUBTOTAL	9,513	2,503	75,350	68,895	5,561
-L- STA 1207+00.00 LT TO -L- STA 1232+00.00 LT	13,488	0	2,900	0	10,588
-Y17RPA- STA 14+62.55 TO -Y17RPA- STA 21+50.00	5,083	868	5,986	5,883	5,848
SUBTOTAL	18,571	868	8,886	5,883	16,436
-L- STA 1207+00.00 MED TO -L- STA 1232+00.00 MED	1,724	0	13	0	1,711
SUBTOTAL	1,724	0	13	0	1,711
-L- STA 1207+00.00 RT TO -L- STA 1232+00.00 RT	13,463	899	2,881	0	11,481
-Y17RPD- STA 13+82.66 TO -Y17RPD- STA 25+00.00	6,579	838	17,706	13,109	2,820
-SR17- STA 20+50.00 TO -SR17- STA 39+31.07	6,703	4,607	19,889	16,537	7,958
SUBTOTAL	26,745	6,344	40,476	29,646	22,259
TOTAL	209,587	28,462	431,792	344,900	151,069
MATERIAL FOR SHOULDER CONSTRUCTION			33,125	33,125	
LOSS DUE TO CLEARING & GRUBBING	-16,100			16,100	
UNDERCUT EXCAVATION CONTINGENCY		6,145	7,681	7,681	6,145
SELECT MATERIAL IN LIEU OF BORROW			-34,607	-34,607	
WASTE IN LIEU OF BORROW				-80,420	-80,420
PROJECT TOTAL	193,487	34,607	437,991	286,779	76,794
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT				14,339	
GRAND TOTAL	193,487	34,607	437,991	301,118	76,794
SAY	**194,000**	**35,700**		**302,000**	
EST. DDE = 7,370 CUBIC YARDS					
PAVEMENT STRUCTURE VOLUME = 159,120 CY					
UNC EXC - ACCEPTABLE, BUT NOT TO BE USED IN TOP 3' OF EMBANKMENT OR BACKFILL = 35,600 CY					

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

I-5883 SUMMARY OF QUANTITIES

SUMMARY OF ASPHALT PAVEMENT REMOVAL

LINE	APPROX. STATION	APPROX. STATION	LOCATION	LENGTH OR AREA	WIDTH	SQUARE YARDS
-L-	1061+63	1232+00	MED LT	67239.81		7471.09
-L-	1061+63	1232+00	MED RT	63916.13		7101.79
-L-	1061+63	1094+77	LT	28518.34		3168.70
-L-	1061+63	1097+01	RT	35156.96		3906.33
-Y16RPB-	18+09	23+46	RT	15168.96		1685.44
-Y16RPC-	20+52	28+14	LT	21809.89		2423.32
-L-	1096+85	1106+99	LT	10079.95		1119.99
-L-	1098+16	1108+39	RT	10688.25		1187.58
-Y16-	11+50	16+90	LT	330.28		36.70
-Y16-	11+50	16+90	RT	469.45		52.16
-Y16-	16+90	26+49	CL	35564.79		3951.64
-Y16-	28+59	40+75	LT	38200.67		4244.52
-Y16-	40+75	44+00	LT	1064.99		118.33
-Y16-	40+75	44+00	RT	573.02		63.67
-Y32-	10+68	10+42	CL	119.44		13.27
-Y16RPA-	15+94	27+92	LT	29572.79		3285.87
-Y16RPA-	13+99	27+92	RT	40069.69		4452.19
-Y16RPD-	14+31	19+57	RT	19398.81		2155.42
-Y16RPD-	10+00	18+54	LT	17217.30		1913.03
-L-	1109+16	1194+47	RT	84173.34		9352.59
-L-	1113+52	1127+03	RT	27193.37		3021.49
-L-	1112+03	1196+46	LT	84899.89		9433.32
-L-	1114+03	1144+90	LT	70905.49		7878.39
-SR16-	15+00	67+03	RT	108830.50		12092.28
-SR15-	36+71	55+21	RT	38338.56		4259.84
-SR15-	58+21	67+21	RT	18738.65		2082.07
-Y17RPC-	10+00	21+50	RT	24809.72		2756.64
-Y17RPC-	16+28	21+50	LT	13873.65		1541.52
-Y17RPC-	24+00	25+00	RT	3630.23		403.36
-Y17RPB-	14+95	26+00	RT	34953.68		3883.74
-Y17RPB-	28+50	28+95	LT	3338.65		370.96
-L-	1195+93	1214+91	RT	19245.36		2138.37
-L-	1197+58	1216+00	LT	18284.45		2031.61
-Y17-	17+40	22+50	CL	14696.99		1633.00
-Y17-	36+50	37+70	CL	4067.55		451.95
-Y17RPA-	10+23	18+50	LT	16575.42		1841.71
-Y17RPA-	21+50	21+87	RT	1347.28		149.70
-Y17RPD-	11+91	21+50	CL	27142.73		3015.86
-Y17RPD-	23+50	25+00	LT	7006.72		778.52
-SR17-	22+73	47+81	LT	57606.93		6400.77
-L-	1215+96	1232+00	RT	15153.80		1683.76
-L-	1220+89	1232+00	LT	11113.97		1234.89
					TOTAL	126,787.39
					SAY	**126,790**

SHOULDER BERM GUTTER

LINE	BEG. STA.	END STA.	SIDE	LENGTH
-Y16-	24+25	25+80	RT	154.7
-Y16-	24+44	26+05	LT	161.2
-Y16-	28+13	29+74	RT	161.3
-Y16-	28+38	29+85	LT	146.8
-Y17-	23+70	25+45	LT	174.9
-Y17-	23+85	25+81	RT	196.2
-Y17-	27+80	29+34	LT	153.7
-Y17-	28+17	29+92	RT	175.5
-Y17RPC-/-Y17-	23+38	33+85	RT/RT	300.9
			TOTAL	1470.6
			SAY	**1475**

SUMMARY OF BREAKING ASPHALT PAVEMENT

LINE	STATION	STATION	LOCATION	LENGTH OR AREA	WIDTH	SQUARE YARDS
SR15	31+73	36+71	RT	10112.10		1123.57
SR15	55+21	58+21	RT	5981.69		664.63
SR15	67+21	92+37	RT	50664.58		5629.40
Y17RPB	16+00	21+50	CL	11584.22		1287.14
Y17RPB	26+00	28+50	CL	7907.97		878.66
Y17RPC	21+50	24+00	CL	9463.11		1051.46
Y17	22+50	25+60	CL	8031.73		892.41
Y17	28+02	36+50	CL	32716.56		3635.17
Y17RPA	18+50	21+50	CL	7129.73		792.19
Y17RPD	21+50	23+50	CL	6454.18		717.13
					TOTAL	16,671.76
					SAY	**16,680**

WOVEN WIRE FENCE, 47” FABRIC

LINE	STATION TO STATION	LT. OR RT.	A FABRIC L.F.	B END BRACE	C CORNER BRACE	D LINE BRACE	E 4" POSTS	F 5" POSTS
-L- & -Y16RPB-	1061+63.00 TO 22+28.14	LT	3,678.40	1	6	10	235	50
-L- & -Y16RPC-	1063+00.00 TO 27+16.00	RT	4,144.58	1	8	10	265	56
-Y16-	18+40.00 TO 22+04.64	RT	365.19	1		1	23	5
-Y16-	31+70.88 TO 38+47.36	RT	700.24	1		2	46	8
-Y16-	40+15.88 TO 40+78.00	RT	62.12	2			2	4
-Y16-	18+78.00 TO 20+60.30	LT	184.55	2			11	4
-Y16-	21+40.01 TO 22+55.88	LT	116.29	1	1		6	5
-Y16-	32+25.00 TO 39+69.39	LT	729.72	1	4	1	43	17
-Y16-	40+23.01 TO 40+78.00	LT	57.24	2			2	4
-L- & -Y16RPA-	1127+95.00 TO 28+01.82	LT & RT	2,792.79			8	186	24
-L- & -Y16RPD-	1127+80.32 TO 18+71.60	RT & LT	2,303.36	1	1	6	152	23
-L-	1127+95.00 TO 1145+00.00	LT	1,721.18		6	4	107	30
-L- & -Y17RPB-	1145+00.00 TO 28+41.30	LT	6,529.80		2	20	430	66
-Y17RPC-	15+30.00 TO 24+30.05	RT	884.74	1	2	2	56	14
-Y17-	15+50.00 TO 16+26.26	RT	101.82	2			5	4
-Y17-	16+99.11 TO 21+10.01	RT	442.69	1	2		27	8
-Y17-	33+58.00 TO 38+00.00	RT	431.30	1		1	28	5
-Y17-	15+95.63 TO 19+55+00.00	LT	350.32	2		1	21	7
-Y17-	20+10.00 TO 20+64.07	LT	54.07	1	1		1	5
-Y17-	33+17.12 TO 38+00.00	LT	507.52	1	1	1	32	8
-Y17RPA-	11+05.65 TO 21+39.69	RT	1,017.95	1	2	2	65	14
-L-	1221+75 TO 1220+44.58	LT	176.01	2	3		6	13
-L- & -Y17RPD-	1232+00.00 TO 24+69.91	RT & LT	2,930.84	1		9	193	29
	TOTAL		30,282.70				1943	403
	SAY		**30,285**				**1943**	**403**

COMPUTED BY: J. GALEAZZI	DATE: 6/11/2019
CHECKED BY: J. BLACKMAN	DATE: 3/5/2021

PROJECT REFERENCE NO.	SHEET NO.
I-5986B	3B-4

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

I-5986B SUMMARY OF QUANTITIES

SUMMARY OF EARTHWORK

LOCATION	UNCLASSIFIED EXCAVATION (CY)	UNDERCUT (CY)	EMBANKMENT +% (CY)	BORROW (CY)	WASTE (CY)
-L- LT STA. 1232+00.00 TO STA. 1259+11.08 (BRIDGE)	2,621	0	10,988	8,519	152
-SR19- STA. 10+45.00 TO STA. 28+98.68	2,963	0	524	0	2,439
SUBTOTAL	5,584	0	11,512	8,519	2,591
-L- MED STA. 1232+00.00 TO STA. 1259+11.08 (BRIDGE)	2,569	0	86	0	2,483
SUBTOTAL	2,569	0	86	0	2,483
-L- RT STA. 1232+00.00 TO STA. 1259+11.08 (BRIDGE)	3,615	0	15,311	11,861	165
-SR17- STA. 47+81.07 TO STA. 65+99.36	6,742	539	71	0	7,210
-Y27- STA. 10+00.00 TO STA. 10+92.32	18	0	8	0	11
SUBTOTAL	10,375	539	15,390	11,861	7,386
-L- LT STA. 1261+56.92 (BRIDGE) TO STA. 1295+00.00	15,238	0	7,724	0	7,514
-Y29- STA. 20+00.00 TO STA. 27+40.46 (BRIDGE)	5	0	25,309	25,304	0
SUBTOTAL	15,243	0	33,033	25,304	7,514
-L- MED STA. 1261+56.92 (BRIDGE) TO STA. 1295+00.00	3,248	0	135	0	3,113
SUBTOTAL	3,248	0	135	0	3,113
-L- RT STA. 1261+56.92 (BRIDGE) TO STA. 1295+00.00	17,214	0	8,638	0	8,577
-Y29- STA. 29+37.96 (BRIDGE) TO STA. 35+50.00	86	0	22,478	22,392	0
SUBTOTAL	17,300	0	31,116	22,392	8,577
-L- LT STA. 1295+00.00 TO STA. 1319+50.00	4,606	0	9,480	4,874	0
SUBTOTAL	4,606	0	9,480	4,874	0
-L- MED STA. 1295+00.00 TO STA. 1319+50.00	2,065	0	3	0	2,063
SUBTOTAL	2,065	0	3	0	2,063
-L- RT STA. 1295+00.00 TO STA. 1319+50.00	3,275	0	6,418	3,351	208
-Y29A- STA 10+50.00 TO STA. 36+73.54	1,087	760	7,606	6,638	879
SUBTOTAL	4,362	760	14,024	9,989	1,087
-L- LT STA. 1319+50.00 TO STA. 1343+50.00	2,329	0	5,701	3,372	0
-Y28- STA. 15+75.00 TO STA. 31+00.00	1,028	0	1,726	796	98
-Y18RPB- STA. 14+42.23 TO STA. 19+50.00	396	0	1,053	657	0
-Y18- STA. 20+00.00 TO STA. 24+29.04 (BRIDGE)	55	0	110	55	0
SUBTOTAL	3,808	0	8,590	4,880	98
-L- MED STA. 1319+50.00 TO STA. 1343+50.00	1,269	0	186	0	1,083
SUBTOTAL	1,269	0	186	0	1,083
-L- RT STA. 1319+50.00 TO STA. 1343+50.00	9,860	0	1,010	0	8,850
-Y29A- STA. 36+73.54 TO STA. 39+88.01	524	0	574	50	0
-Y18RPC- STA 13+90.28 TO STA. 20+60.00	6,144	0	15,009	8,865	0
-Y30- STA. 19+00.00 TO STA. 24+22.91	81	0	5,336	5,255	0
SUBTOTAL	16,609	0	21,929	14,170	8,850

SUMMARY OF EARTHWORK

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBANKMENT +%	BORROW	WASTE
-L- LT STA. 1343+50.00 TO STA. 1367+50.00	4,411	0	4,319	0	92
-Y18RPA- STA. 13+21.60 TO STA. 17+50.00	553	0	943	390	0
SUBTOTAL	4,964	0	5,262	390	92
-L- MED STA. 1343+50.00 TO STA. 1367+50.00	2,008	0	15	0	1,993
SUBTOTAL	2,008	0	15	0	1,993
-L- RT STA. 1343+50.00 TO STA. 1367+50.00	11,074	0	3,911	0	7,163
-Y18- STA. 26+70.00 (BRIDGE) TO STA. 36+50.00	276	0	12,834	12,558	0
-Y18RPD- STA. 14+23.49 TO STA. 23+32.00	4,520	0	26,979	22,459	0
SUBTOTAL	15,870	0	43,724	35,017	7,163
-L- LT STA. 1367+50.00 TO STA. 1390+66.67 (BRIDGE)	9,321	0	3,363	0	5,959
SUBTOTAL	9,321	0	3,363	0	5,959
-L- MED STA. 1367+50.00 TO STA. 1390+66.67 (BRIDGE)	1,296	0	340	0	956
SUBTOTAL	1,296	0	340	0	956
-L- RT STA. 1367+50.00 TO STA. 1390+66.67 (BRIDGE)	3,112	0	6,443	3,331	0
-Y33- STA. 10+50.00 TO STA. 34+60.00	4,481	1,793	6,406	2,109	1,977
SUBTOTAL	7,593	1,793	12,849	5,440	1,977
-L- LT STA. 1391+72.28 (BRIDGE) TO STA. 1414+50.00	13,170	0	1,128	0	12,043
-Y19RPB- STA. 23+00.00 TO STA. 27+56.26	1,932	0	18	0	1,915
SUBTOTAL	15,102	0	1,146	0	13,958
-L- MED STA. 1391+72.28 (BRIDGE) TO STA. 1414+50.00	3,550	0	41	0	3,509
SUBTOTAL	3,550	0	41	0	3,509
-L- RT STA. 1391+72.28 (BRIDGE) TO STA. 1414+50.00	9,830	0	1,780	0	8,050
-Y33- STA. 34+60.00 TO STA. 45+65.00	1,203	3,437	4,950	4,008	3,698
-Y19RPCA- STA. 13+97.06 TO STA. 18+34.55	2,002	0	361	0	1,641
SUBTOTAL	13,035	3,437	7,091	4,008	13,389
TOTAL	159,777	6,529	219,315	146,844	93,841
MATERIAL FOR SHOULDER CONSTRUCTION			16,788	16,788	
LOSS DUE TO CLEARING & GRUBBING	-16,900			16,900	
UNDERCUT EXCAVATION CONTINGENCY		2,875	3,594	3,594	2,875
SELECT MATERIAL IN LIEU OF BORROW	0	0	-1,900	-1,900	0
WASTE IN LIEU OF BORROW				-80,146	-80,146
PROJECT TOTAL	142,877	9,404	237,797	102,080	16,570
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT				5,104	
GRAND TOTAL	142,877	9,404	237,797	107,184	16,570
SAY	**143,000**	**10,000**		**108,000**	
EST. DDE = 15,000 CUBIC YARDS					
PAVEMENT STRUCTURE VOLUME = 126,200 CY					
UNC EXC - ACCEPTABLE, BUT NOT TO BE USED IN TOP 3' OF EMBANKMENT OR BACKFILL = 11,200 CY					

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

COMPUTED BY: J. GALEAZZI DATE: 6/11/2019
CHECKED BY: J. BLACKMAN DATE: 3/5/2021

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
I-5986B	3B-5

I-5986B SUMMARY OF QUANTITIES

SUMMARY OF ASPHALT PAVEMENT REMOVAL

LINE	APPROX. STATION	APPROX. STATION	LOCATION	LENGTH OR AREA	WIDTH	SQUARE YARDS
-L-	1232+00	1332+60	LT	93906.1297		10434.01
-L-	1232+00	1413+75	MED LT	46934.301		5214.92
-L-	1232+00	1413+75	MED RT	57050.9873		6339.00
-L-	1232+00	1343+86	RT	104695.266		11632.81
-L-	1295+17	1298+49	RT	7156.7674		795.20
-SR19-	11+20	18+43	CL/LT	14254.3707		1583.82
-SR17-	47+81	65+98	LT	37663.6629		4184.85
-Y29-	20+75	22+00	CL	2502.9594		278.11
-Y29-	34+25	34+75	CL	1053.2455		117.03
-Y28-	17+50	29+80	CL	33130.2513		3681.14
-Y30-	21+50	24+23	CL	20811.7435		2312.42
-Y18RPB-	10+00	14+42	CL	6107.3212		678.59
-Y18RPB-	15+93	19+35	CL	9535.9442		1059.55
-L-	1335+41	1351+49	LT	22471.7019		2496.86
-Y18-	26+85	28+30	CL	8557.9196		950.88
-Y18-	29+00	36+82	CL/RT	21269.4454		2363.27
-Y18RPA-	10+00	17+50	CL	16345.8786		1816.21
-Y18RPD-	10+00	24+04	RT/LT	45367.6266		5040.85
-L-	1344+89	1354+97	RT	13181.2703		1464.59
-L-	1352+25	1402+34	LT	51378.0682		5708.67
-L-	1357+77	1395+47	RT	33840.5219		3760.06
-Y33-	12+00	42+10	CL/LT	62401.6446		6933.52
-Y19RPCA-	10+00	17+60	CL	14439.2983		1604.37
-L-	1397+55	1413+75	RT	16032.0683		1781.34
-Y19RPB-	23+75	31+18	CL	15433.8161		1714.87
-L-	1403+36	1413+75	LT	12599.88		1399.99
-Y19TEMPRPCA-	16+12	24+26	CL	12308.59		1367.62
-Y19TEMPRPB-	12+47	19+73	CL	14331.56		1592.40
					TOTAL	88,306.92
					SAY	**88,400**

SUMMARY OF BREAKING ASPHALT PAVEMENT

LINE	STATION	STATION	LOCATION	LENGTH OR AREA	WIDTH	SQUARE YARDS
-Y29-	22+00	27+37	CL	11304.11		1256.01
-Y29-	28+96	34+25	CL	11602.10		1289.12
-Y18RPB-	14+42	15+93	CL	4602.12		511.35
-Y18-	28+30	29+00	CL	4126.33		458.48
					TOTAL	3,514.96
					SAY	**3,515**

SHOULDER BERM GUTTER

LINE	BEG. STA.	END STA.	SIDE	LENGTH
-L-	1251+50	1258+87	LT	737.08
-L-	1251+50	1258+87	RT	737.08
-L-	1261+81	1267+00	LT	519.08
-L-	1261+81	1263+33	RT	152.08
-Y18RPB-	15+60	17+40	LT	176.67
-Y29-	26+77	27+19	LT	41.88
-Y29-	26+77	27+34	RT	57.38
-Y29-	29+44	30+53	LT	108.96
-Y29-	29+60	33+20	RT	359.92
-L-	1371+04	1375+28	RT	423.60
-L-	1388+54	1390+02	LT	147.86
-L-	1387+34	1390+83	RT	349.77
-L-	1391+56	1394+12	LT	256.67
-L-	1392+37	1394+15	RT	178.73
			TOTAL	4246.76
			SAY	4250

EXPRESSWAY GUTTER

LINE	STATION	STATION	SIDE	LENGTH
-L-/-Y18RPA-	1354+50.00	16+20.00	LT/RT	836
-L-/-Y18RPC-	1328+00.00	11+47.43	LT/RT	490
			TOTAL	1,326
			SAY	**1,330**

WOVEN WIRE FENCE, 47" FABRIC

LINE	STATION TO STATION	LT OR RT	A FABRIC L.F.	B END BRACE	C CORNER BRACE	D LINE BRACE	E 4" POSTS	F 5" POSTS
-L-	1232+00.00 TO 1237+00.00	RT	513.15	2	1	1	31	10
-L-	1249+50.00 TO 1252+86.90	LT	336.91	2		1	20	7
-L-	1250+86.53	RT	7.84	2				4
-L-	1261+50.00 TO 1272+89.72	RT	1,159.78	2	2	2	74	16
-L-	1264+87.65 TO 1290+06.79	LT	2,530.97	2	1	7	165	28
-L-	1290+13.49 TO 1295+55.18	LT	555.50	2	4	1	29	19
-L-	1291+23.09 TO 1293+81.25	RT	258.42	2			16	4
-L-	1295+99.69 TO 1296+54.60	LT	56.68	2			2	4
-L-	1294+26.01 TO 1332+34.45	RT	3,786.97	2	3	10	247	43
-L-	1315+63.17 TO 1316+93.25	LT	145.09	2	1		7	7
-L-	1316+99.83 TO 1326+73.29	LT	1,011.04	2	1	3	64	16
-Y18RPB-	14+64.22 TO 16+66.46	LT	196.34	2			12	4
-Y30-	20+25.57 TO 23+25.00	LT	304.43	2			20	4
-Y18RPA-	12+00.00 TO 14+76.38	RT	264.71	2			17	4
-Y18RPA-	15+34.81 TO 18+09.36	RT	285.81	2			18	4
-Y18RPD-	14+26.20 TO 16+68.50	LT	236.11	2			15	4
	TOTAL		11,649.74				737	178
	SAY		**11,650**				**737**	**178**

COMPUTED BY: Justin Blackman DATE: 3/13/2019
CHECKED BY: Curtis Tillman DATE: 3/25/2021

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
I-5878	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 TYPE 350		DOUBLE FACED CONCRETE BARRIER	SINGLE FACED CONCRETE BARRIER	CONCRETE BARRIER TRANSITION SECTION	MEDIAN HAZARD PROTECTION	REMOVE EXISTING GUARDRAIL	REMOVE & STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	XI MOD	XI	GREU TL-3	GREU TL-2	CAT-1	AT-1	B-77	TYPE III	TES	G	NG							
-L-	953+92.59	956+73.23	RT	282.00			956+67.00		14	17	50		1				1		1													
-L-	966+42.32	969+40.19	RT	297.00			969+14.40		14	17	50		1				1				1						271.9			91.65		
-L-	976+87.68	979+85.55	LT	225.00			977+06.90		14	17	50		1				1				1						610.4			90.57		
-LREV-	994+65.00	1002+07.29	RT	740.00			996+15.25	1002+06.85	14	17	50		1				1				1											
-LREV-	1001+83.30	1002+46.41	LT	75.00			1002+46.85		14	17									1		1									845.20		
-LREV-	1003+12.04	1010+05.00	RT	700.00			1003+11.60	1010+04.01	14	17									1		1											
-LREV-	1003+51.16	1009+10.00	LT	562.50			1007+59.10	1003+51.60	14	17	50		1				1				1									1341.83		
-Y14-	21+15.43	23+28.01	RT	62.50	200		22+56.30		14	17	50		1				1													327.71		
-Y14RPB-	20+00.99	22+52.63	LT	262.50				20+00.99	14	17									1											499.12		
-Y14-	23+72.71	25+11.40	RT	100.00	125			25+12.10	8	11								1				1										
-Y14-	26+99.16	28+68.43	LT	175.00			26+99.16		8	11								1				1										
-Y14-	30+36.99	31+73.24	LT	25.00	125				14	17								1														
-NBCD-	10+42.23	14+44.01	RT	412.50				14+44.01	14	17									1											1415.67		
-Y15-	26+06.60	27+70.96	RT	190.00			27+70.96		10	13	50		1				1				1						161.6			234.89		
-Y15-	29+08.36	31+07.93	LT	218.00			29+08.36		10	13	50		1				1				1						161.4			200.10		
-LREV-	1018+00.00	1021+97.50	LT	397.875			1019+48.52		14	17	50		1				1					1										
-SR11-	11+45.36	12+86.00	RT	147.88			12+86.00		4	7	50		1				1					1										
-SR11-	20+01.93	21+57.60	RT	156.25			21+41.35		4	7	50		1				1		1													
-Y15RPA-	19+65.20	20+50.00	RT	85.38			20+50.00		14	17	50		1				1				1						158.59					
-Y15RPD-	14+00.00	18+51.26	LT	200.00			19+74.69		14	17	50		1				1				1						247.00					
-L-	1039+70.00	1044+25.25	RT	462.50			1041+20.00		14	17	50		1				1		1													
-L-	1042+31.25	1046+00.00	LT	375.00			1044+00.00	1042+40.00	14	17	50		1				1		1													
-SBCD-	25+10.00	34+36.85	LT						14	17															1	784.44	39.29		78.35			SEE DETAIL 2C-8 FOR MEDIAN HAZARD PROTECTION
-SR18-	12+57.26	14+07.46	RT	188.00			14+07.46		4	7	25		0.5					1			1						40.00					
-L-	925+00.00	970+53.27	CL																							4553.27						
-L-	970+53.27	972+30.73	CL																								125.46		114.73			SEE DETAIL 2C-8 FOR MEDIAN HAZARD PROTECTION
-L-	972+30.73	981+00.00	CL																							869.27						
-LREV-	981+00.00	1021+98.66	CL																							4098.66						
-L-	1022+00.00	1061+62.99	CL																							3962.99						
-L-	946+00.00	1061+62.99	MED RT																											11562.99		REMOVE DOUBLE FACED GUARDRAIL
-L-	1037+56.33	1047+75.89	RT/LT																											1883.36		
-Y14RPC-	21+26.83	22+23.14	LT																											330.84		
-SBCD-	10+58.41	12+10.13	RT																											358.49		
-SBCD-	10+58.41	12+10.13	RT																											358.49		
-NBCD-	36+59.54	36+91.05	RT	25.00																			2									TERMINAL END SECTION ON WHITE LINE RD.
-L-	1017+50.00		LT																									1				FOR OVERHEAD SIGN
				0.00																												
				0.00																												
				0.00																												
				0.00																												
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				0.00																												
				0.00																												
			SUBTOTAL	6,364.88	450.00	0.00									0	0	15	4	8	0	11	4		0	1	14268.64	1815.64	1	193	19540.91		
		ANCHOR UNIT DEDUCTION																														
		GREU 350 TL-3: 15 @ 50.00 = 750.00																														
		GREU 350 TL-2: 4 @ 25.00 = 100.00																														
		AT-1: 0 @ 6.25 = .00																														
		CAT-1: 8 @ 6.25 = 50.00																														
		TYPE B-77: 11 @ 22.875 = 251.63																														
		TYPE III: 4 @ 18.750 = 75.00																														
		TOTAL		1,226.63																												
			I-5878 TOTAL	5,138.25	450.00										0	0	15	4	8	0	11	4			1	14280	1820	1	193	19541.00		
			SAY	**5,150.00**																												
		ADDITIONAL GUARDRAIL POST		25.00																												

COMPUTED BY:	Justin Blackman	DATE:	3/13/2019
CHECKED BY:	Susan Lancaster	DATE:	03/16/2021

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
I-5883	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 TYPE 350		DOUBLE FACED CONCRETE BARRIER	SINGLE FACED CONCRETE BARRIER	CONCRETE BARRIER TRANSITION SECTION	MEDIAN HAZARD PROTECTION	REMOVE EXISTING GUARDRAIL	REMOVE & STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	XI MOD	XI	GREU TL-3	GREU TL-2	CAT-1	AT-1	B-77	TYPE III	G	NG							
-L-	1070+43.75	1072+62.50	LT	225.00			1070+50.00		14	17	50		1				1		1												
-L-	1086+00.25	1087+06.31	RT	112.50			1087+00.00		14	17	50		1				1		1												
-L-	1098+56.80	1101+56.48	RT	300.00			1101+56.48		12	17	50		1				1				1					98.86			89.69		
-L-	1101+67.61	1104+67.77	LT	312.50			1101+67.61		12	17	50		1				1				1					99.31			292.13		
-L-	1116+93.62	1118+88.69	LT	200.00			1117+00.00		14	17	50		1				1		1												
-L-	1140+93.75	1143+12.50	LT	225.00			1141+00.00		14	17	50		1				1		1												
-L-	1167+43.71	1170+12.12	LT	275.00			1167+50.00		14	17	50		1				1		1												
-L-	1202+61.91	1205+59.79	RT	300.00			1205+59.79		12	17	50		1				1				1					74.7			102.97		
-L-	1207+59.24	1210+57.12	LT	300.00			1207+59.24		12	17	50		1				1				1					74.7			98.88		
-L-	1219+92.76	1223+50.79	LT	362.50			1220+56.00	1220+15.52	14	17	50		1				1		1												
-Y16-	23+37.72	26+00.27	RT	275.00			26+00.27		8	11	50		1				1				1										
-Y16-	23+94.58	26+28.61	LT	237.50			26+28.61		8	11		50		1			1				1								335.75		
-Y16-	27+89.77	30+23.82	RT	237.50			27+89.77		8	11		50		1			1				1								398.71		
-Y16-	28+18.11	30+34.90	LT	225.00			28+18.11		8	11	50		1				1				1								502.90		
-Y16-	30+55.40	33+06.20	RT	175.00	112.5				8	11										1											
-Y16RPC-	20+12.26	27+32.03	RT	750.00					14	17	50		1				1														
-Y17-	23+20.22	25+53.89	LT	237.50			25+53.89		8	11		50		1			1				1								205.97		
-Y17-	23+35.05	25+94.07	RT	262.50			25+94.07		8	11	50		1				1				1								283.54		
-Y17-	27+67.39	29+83.96	LT	225.00			27+67.39		8	11	50		1				1				1								261.04		
-Y17-	28+07.57	30+41.88	RT	237.50			28+07.57		8	11		50		1			1				1								205.09		
-Y17-	32+06.86	34+99.72	LT	212.50	125				8	11	50		1				1														
-Y17RPD-	21+47.86	24+66.83	LT	350.00					14	17									1												
-Y17-	32+55.90	33+91.30	RT	75.00	112.5				8	11										1											
-Y17RPC-	22+87.91	24+69.37	RT	187.50					14	17	50		1				1														
-Y17RPB-	24+76.16	28+29.03	LT	375.00			27+90.00	24+76.16	14	17	50		1				1		1												
-SR17-	35+08.64	37+34.63	RT	225.00			36+08.21	36+35.01	4	7	50	50	1	1			2														
-L-	1063+00.00	1100+83.90	CL																						3783.90						
-L-	1100+83.93	1102+40.07	CL																									156.17			SEE DETAIL 2C-8 FOR MEDIAN HAZARD PROTECTION
-L-	1102+40.07	1205+78.60	CL																						10338.5						
-L-	1205+78.60	1207+40.43	CL																									161.83			SEE DETAIL 2C-8 FOR MEDIAN HAZARD PROTECTION
-L-	1207+40.43	1232+00.00	CL																						2459.57						
-SR15-	32+73.39	98+31.31	LT																					1	6407.92						150' DEDUCTED FOR CONCRETE TRANSITION SECTIONS
-L-	1061+63.00	1232+00.00	MED																										17037.00		EXISTING DOUBLE FACED MEDIAN GUARDRAIL
-Y16RPD-	18+34.50	19+18.35	LT																										190.29		
-L-	1136+00.00		RT																								1				FOR OVERHEAD SIGN
-L-	1162+00.00																										1				FOR OVERHEAD SIGN
-L-	1188+75.00		RT																								1				FOR OVERHEAD SIGN
				0.00																											
				0.00																											
				0.00																											
			SUBTOTAL	6,900.00	350.00	0.00									0	0	24	0	8	2	12	0	0	1	22989.92	347.57	3.00	318.00	20003.97		
		ANCHOR UNIT DEDUCTION																													
		GREU 350 TL-3: 24 @ 50.00 = 1200.00																													
		AT-1: 2 @ 6.25 = 12.50																													
		CAT-1: 8 @ 6.25 = 50.00																													
		TYPE B-77: 12 @ 22.875 = 274.50																													
		TOTAL		1,537.00																											
			I-5883 TOTAL	5,363.00	350.00										0	0	24	0	8	2	12	0		1	22991	584	3	200	20004.00		
			SAY	**5,375.00**																											
		ADDITIONAL GUARDRAIL POST		25.00																											

COMPUTED BY:	Justin Blackman	DATE:	3/14/2019
CHECKED BY:	Susan Lancaster	DATE:	7/1/2021

PROJECT REFERENCE NO.	SHEET NO.
I-5986B	3B-8

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
GUARDRAIL SUMMARY

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

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

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL WIDTH	FLARE LENGTH		W		ANCHORS								IMPACT ATTENUATOR TYPE 350		DOUBLE FACED CONCRETE BARRIER	SINGLE FACED CONCRETE BARRIER	CONCRETE BARRIER TRANSITION SECTION	MEDIAN HAZARD PROTECTION	REMOVE EXISTING GUARDRAIL	REMOVE & STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	GREU TL-3	TEMP GREU TL-3	GREU TL-2	CAT-1	AT-1	B-77	MOD. B-77	TYPE III	G	NG							
-L-	1233+90.76	1251+00.00	RT	300.00			1236+90.93		14	17	50		1		1					1					855.89	500	1				
-L-	1249+50.00	1259+02.08	LT	962.50			1259+29.00	1249+50.00	14	17										2									1123.02		
-L-	1251+00.00	1259+02.08	RT	812.50			1251+00.00	1259+02.08	14	17										2									1294.21		
-L-	1261+65.92	1280+13.76	LT	1850.00			1277+55.54	1261+65.92	14	17	50		1		1					1									717.39		
-L-	1261+65.92	1263+39.25	RT	175.00			1261+65.92		14	17								1		1									575.29		
-L-	1270+80.09	1278+61.33	RT	787.50			1273+44.65		14	17	50		1		1			1													
-L-	1291+20.56	1294+65.40	RT	300.00			1294+19.33		14	17	50		1		1					1						46.07					
-L-	1295+12.89	1301+05.66	LT	550.00			1295+59.00		14	17	50		1		1					1						46.11					
-L-	1302+35.97	1305+11.25	RT	287.50			1305+00.00		14	17	50		1		1			1													
-L-	1316+65.06	1318+42.98	LT	187.50			1316+65.06		14	17	50		1		1			1													
-L-	1328+67.29	1331+61.73	RT	300.00			1331+50.00		14	17	50		1		1			1													
-L-	1342+16.24	1345+99.48	LT	300.00			1342+99.48		14	17	50		1		1					1						84.34					
-L-	1350+67.59	1354+24.20	LT	362.50			1350+79.40		14	17	50		1		1			1													
-L-	1364+38.55	1367+11.25	RT	275.00			1367+00.00		14	17	50		1		1			1													
-L-	1370+53.90	1375+33.75	RT	487.50			1372+03.91	1375+00.00	14	17	50		1		1			1											1277.33		
-L-	1376+88.75	1379+61.49	LT	275.00			1377+00.00		14	17	50		1		1			1													
-L-	1386+83.60	1391+08.54	RT	425.00			1388+33.60	1391+08.54	14	17	50		1		1					1									1101.45		
-L-	1388+48.20	1390+24.84	LT	187.50				1388+48.20	14	17								1		1											
-L-	1391+30.76	1394+62.20	LT	337.50			1393+12.20	1391+30.76	14	17	50		1		1					1									341.05		
-L-	1392+14.46	1394+21.60	RT	212.50				1394+21.60	14	17								1		1											
-Y28-	16+60.71	28+73.24	RT	687.50			17+87.18		4	7	25		0.5				1			1						542.42					
-Y29-	22+23.60	24+69.92	LT	250.00				22+23.60	4	7	25	25	0.5	0.5			2														
-Y29-	22+45.46	27+49.63	RT	512.50			22+49.41	27+49.63	4	7	25		0.5				1			1											
-Y29-	25+09.78	27+31.28	LT	225.00			27+31.28		4	7		25		0.5			1			1											
-Y29-	29+28.78	33+86.40	LT	462.50			27+35.11	29+28.78	4	7	25		0.5				1			1											
-Y29-	29+47.13	33+70.99	RT	425.00				33+70.99	4	7		25		0.5			1			1											
-Y29A-	33+01.55	35+56.61	RT	250.00			33+01.55	35+56.61	4	7	25	25	0.5	0.5			2														
-Y18RPA-	15+00.00	17+49.90	LT	250.00			16+00.00		12	15	50		1		1														265.12		
-Y18RPB-	10+00.00	17+90.56	LT	237.50			15+60.00		14	17	50		1		1					1						554.70					
-Y33-	33+72.44	37+87.73	LT	412.50					4	7	25	25	0.5	0.5			2														
-Y33-	34+61.80	38+05.63	RT	350.00					4	7	25	25	0.5	0.5			2														
-SR19-	11+20.02	28+98.68	RT	47.88	87.5		12+32.52		4	7	25		0.5				1			1					1615.64						50' DEDUCTED FOR CONCRETE TRANSITION SECTION
-L-	1232+00.00	1258+87.08	CL																						2687.08						
-SR17-	61+78.34	65+99.36	LT																							421.02					
-L-	1261+80.92	1294+15.85	CL																						3234.93						
-L-	1294+15.85	1295+62.48	CL																									146.63			SEE DETAIL 2C-8 FOR MEDIAN HAZARD PROTECTION
-L-	1295+62.48	1341+86.48	CL																						4574.00						50' DEDUCTED FOR CONCRETE TRANSITION SECTION
-L-	1341+86.48	1343+61.00	CL																									174.55			SEE DETAIL 2C-8 FOR MEDIAN HAZARD PROTECTION
-L-	1343+61.00	1390+42.82	CL																						4631.82						
-L-	1391+96.13	1408+00.00	CL																						1603.87						50' DEDUCTED FOR CONCRETE TRANSITION SECTION
-L-	1408+00.00	1412+13.95	CL	45.75		400															1										SEE DETAIL 2C-7 FOR MODIFIED B-77
-L-	1328+29.24	1332+60.01	LT																						746.93						
-L-	1232+00.00	1412+14.00	MED																										18014.00		REMOVE EXISTING DOUBLE FACED GUARDRAIL
-L-	1332+50.44	1334+05.63	RT																										153.49		
-L-	1339+33.09	1340+62.67	RT																										128.11		
-L-	1346+89.11	1349+23.40	RT																										233.68		
-Y18-	26+84.25	24+36.79	LT																										151.87		
-Y18-	23+23.27	24+20.69	RT	100.00			24+20.69		14	17							1					1							152.16		
-Y18-	26+63.75	28+33.05	LT	175.00			26+63.75		14	17							1					1							151.91		
-Y18-	26+47.44	28+22.07	RT																										176.27		
Exist. I-40	MM 324 EB			212.50					14	17					1			1											560.00		SEE DETAIL 2B-22
Exist. I-40	MM 331 WB			237.50					14	17					1			1											560.00		SEE DETAIL 2B-23
-L-	1247+00.00		LT																								1				FOR OVERHEAD SIGN
-L-	1331+50.00		CL																								1				FOR OVERHEAD SIGN
-L-	1393+50.00		CL																								1				FOR OVERHEAD SIGN
				0.00																											
			SUBTOTAL	14256.13	87.50	400.00									19	0	16	13	0	21	1	2	0.00	0.00	19950.16	2194.66	4	321	26976.34		
		ANCHOR UNIT DEDUCTION																													
-L-		GREU 350 TL-3: 19 @ 50.00 = 950.00																													
		GREU 350 TL-2: 16 @ 25.00 = 400.00																													
		AT-1: 0 @ 6.25 = .00																													
		CAT-1: 13 @ 6.25 = 81.25																													
		TYPE B-77: 21 @ 22.875 = 480.38																													
		TYPE III: 2 @ 18.750 = 37.50																													
		TOTAL		1,949.13																											
			I-5986B TOTAL	12,307.00	87.50	400.00									**19**	**0**	**16**	**13**	**0**	**21**	**1**	**2**			**19210**	**2195**	**4**	**322**	**26977**		
			SAY	**12312.50**																											
	ADDITIONAL GUARDRAIL POST			25.00																											
TEMPORARY GUARDRAIL																															
-L-	1390+85.00	1392+37.00	RT	152.00												1															
			SUBTOTAL	152.00												1															
		TEMPORARY ANCHOR UNITS																													
		GREU 350 TL-3: 1 @ 50.00 = 50.00																													
		TOTAL		50.00																											
			TEMP TOTAL	**152.00**												**1**															

CABLE GUIDERAIL SUMMARY

SURVEY	BEG. STA.	END STA.	LENGTH (FT.)	END ANCHOR UNIT	DEDUCTIONS (FT)	INTERMEDIATE ANCHOR UNIT	COMMENTS
Exist. I-40	MM 324 EB		500.00	2	50		SEE DETAIL 2B-22
Exist. I-40	MM 331 WB		640.00	2	50		SEE DETAIL 2B-23
		SUBTOTAL:	1140.00	4	100	0	
	ANCHOR DEDUCTIONS:4 @ 25'		-100.00		-100		
		TOTAL:	1040.00	4		0	
		SAY:	1100.00	4		0	

COMPUTED BY:	Jake Stanovich	DATE:	03/10/2022
CHECKED BY:	Will Hines, PE	DATE:	03/10/2022

PROJECT NO.	SHEET NO.
I-5878	3D-1

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	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	DO NOT USE PVC	R. C. PIPE CLASS III 18	24	30	36	R. C. PIPE CLASS IV 15	18	24	30	36	42	48	R. C. PIPE CLASS V 12	15	18	24	36	42	QUANTITIES FOR SEALED DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5'	A 5' THRU 10'	B 10' AND ABOVE	16" DUCTILE IRON PIPE (CLASS 250) TYPE 3 SEALED PIPE SYSTEM - SEE SPECIAL PROVISION	18" DUCTILE IRON PIPE (CLASS 250) TYPE 3 SEALED PIPE SYSTEM - SEE SPECIAL PROVISION	36" DUCTILE IRON PIPE (CLASS 150) TYPE 3 SEALED PIPE SYSTEM - SEE SPECIAL PROVISION	16" WELDED STEEL PIPE 0.281" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	18" WELDED STEEL PIPE 0.312" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	24" WELDED STEEL PIPE 0.375" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	30" WELDED STEEL PIPE 0.469" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	36" WELDED STEEL PIPE 0.532" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 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	G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	J.B. STD. 840.31 OR STD. 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 WITH TWO GRATES STD. 840.37	TEMPORARY 1" STEEL COVER	M.H. FRAME AND COVER STD. 840.54	15" C.S. ELBOW	18" C.S. ELBOW	24" C.S. ELBOW	BERM DITCH OUTLET STD. 850.11 (PER EACH)	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
L 946+19	2 LT	1601		199.1																																													1													1											1											
		1601	1602		195.4	195.3																		8																																																												
L 946+19	2 RT	1602		199.1																																													1													1											1											
		1602	1605		195.3	192.9																		140																																																											
L 947+59	98 LT	1603		191.7																																												4.500																																							
		1603	1604		191.7	191.2																																											100																																								
L 947+59	2 LT	1604		199.7																																													1	3.5											1												1											
		1604	1605		191.2	191.1																						8																																																												
L 947+59	2 RT	1605		199.7																																													1	3.6											1												1											
		1605	1606		191.1	190.6																																											112																																								
L 947+59	106 RT	1606		190.6																																												4.500																																							
SR9 75+52	0 CL	1607	1609		192.1	191.7																						48																				4.500																																							
SR9 75+57	0 CL	1608	1610		192.1	191.7																						48																				4.500																																							
L 947+59	106 RT	1606		190.6																																																																																				
SR9 75+57	24 RT	1610		191.7																																																																																					
L 947+64	0 CL	1611	1612		191.7	190.6																																											204																																								
Y24 51+58	0 CL	1613	1615		190.6	189.8																						48																				4.500																																							
Y24 51+63	0 CL	1614	1616		190.6	189.8																						48																																																														
L 957+50	2 RT	1617		197.5																																													1													1											1											
		1617	1618		193.7	193.6																		8																																																												
L 957+50	2 LT	1618		197.5																																													1													1											1											
		1618	1702		193.6	191.4	0.4																	400																																																													
L 954+50	2 RT	1619		199.1																																													1													1											1											
		1619	1620		195.3	195.2																		8																																																												
L 954+50	2 LT	1620		199.1																																													1													1											1											
		1620	1618		195.2	193.6																		304																																																												
Y24 59+21	0 CL	1621	1621A		191.9	191.3														60																																																																				
SR 74+69	33 LT	1622										40					X	X	X																																																																	
L 956+00	106 LT	1623		194.2																																													1														1		1																			
		1623	1624		192.2	191.0		300								X	X	X	X																																																																				
L 959+00	103 LT	1624		192.9																																													1														1		1																			
		1624	17114		191.0	186.9		304								X	X	X	X																																																																			
Y24 60+00	25 LT	1625						24								X	X	X	X																																																																	
SR9 81+27	26 LT	1626							56							X	X	X	X																																																																	
SR9 82+70	28 LT	1627								48						X	X	X	X																																																																	
SR9 84+51	28 LT	1628								48						X	X	X	X																																																																		
L 961+50	2 RT	1701		195.3																																													1													1											1											
		1701	1702		191.5	191.4																		8																																																												
L 961+50	2 LT	1702		195.3																																													1													1											1											
		1702	1704		191.2	188.5	0.3																		400																																																										
L 965+50	2 RT	1703		192.5																																													1													1											1											
		1703	1704		188.8	188.7																		8																																																												
L 965+50	2 LT	1704		192.5																																													1													1											1											
		1704	1707		188.5	185.1	0.7																		352																																																										
L 969+00	2 RT	1705		190.1																																													1													1											1											
		1705	1707		185.6	185.4																				8																																																									
L 970+00	103 LT	1706		184.0																																																																																				
		1706	17119		184.0	183.3				88							X	X	X																																																																	
L 969+00	2 LT	1707		190.1																																													1	0.5											1												1											
		1707	1708		184.6	183.8																				236																																																									
SHEET TOTALS								628	56	184		40								60				884	752	244		200																			416	22.500	16	7.6											3	11	2		2								14											

ABBREVIATIONS

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

COMPUTED BY: Jake Stanovich DATE: 03/10/2022

CHECKED BY: Will Hines, PE DATE: 03/10/2022

PROJECT NO.	SHEET NO.
I-5878	3D-2

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	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	DO NOT USE PVC	R. C. PIPE CLASS III 18	24	30	36	R. C. PIPE CLASS IV 15	18	24	30	36	42	48	R. C. PIPE CLASS V 12	15	18	24	36	42
L 971+33	10 LT	1708		188.8																																
		1708	1712		183.8	183.0																				160										
L 972+78	74 LT	1709		186.8																																
		1709	1710		182.0	181.9																				16										
L 972+92	74 LT	1710		186.7																																
		1710	1778		181.9	181.7																				52										
L 972+91	2 RT	1711		187.8																																
		1711	1712		184.0	183.8																		8												
L 972+91	2 LT	1712		187.8																																
		1712	1715		183.0	182.6																				72										
		1718	1719		180.0	179.6				72						X	X	X	X																	
L 973+00	87 RT	1718		184.9																																
DR1 14+00	34 LT	1720		191.5																																
		1720	1785		191.5	189.9			24							X	X		X																	
LREV 984+30	93 LT	1721		190.1																																
		1721	1724		187.3	183.6	0.4	372								X	X	X	X																	
		1722	1723		193.1	186.5	3.4		40						X		X	X	X																	
SBCD 17+27	87 LT	1722		196.4																																
L 980+57	93 LT	1724		186.3																																
		1724	1784		183.3	182.0	0.4		104							X	X	X	X																	
		1725	1726		191.1	186.0	1.6	40							X		X	X	X																	
SBCD 15+76	88 LT	1725		194.5																																
L 979+07	92 LT	1727		185.6																																
		1727	1728		181.3	180.9					104					X	X	X	X																	
L 978+07	87 LT	1728		185.9																																
		1728	17120		180.9	180.5					128					X	X	X	X																	
LREV 984+00	2 LT	1729		192.0																																
		1729	1731		188.0	185.5																		248												
LREV 981+50	2 RT	1730		190.6																																
		1730	1731		185.9	185.5																		4												
LREV 981+50	2 LT	1731		189.5																																
		1731	1733		185.4	184.8																			200											
L 979+50	2 RT	1732		189.5																																
		1732	1733		185.3	185.1																		4												
L 979+50	2 LT	1733		189.5																																
		1733	1735		184.3	183.2																				336										
L 976+10	2 RT	1734		188.5																																
		1734	1735		184.1	184.0																		4												
L 976+10	2 LT	1735		188.5																																
		1735	1739		183.2	182.4																				236										
SBCD 11+34	84 LT	1737		184.7																																
		1737	17121		184.7	180.1																							188							
		1741	1742		181.4	181.2																				60										
Y14RPB 22+59	96 LT	1741		186.8																																
		1742	1743		181.2	181.1				32						X	X		X																	
Y14RPB 22+11	106 LT	1742		186.9																																
L 969+00	101 RT	1745		185.3																																
		1745	17118		185.3	184.3				52							X	X	X																	
Y14 31+72	16 RT	1746		200.9																																
		1746	1747		197.6	197.5																		32												
SHEET TOTALS								412	168	156	232													300	200	932			188							

LINE & STATION	FROM	TO	QUANTITIES FOR SEALED DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5'	A 5' THRU 10'	B 10' AND ABOVE	16" DUCTILE IRON PIPE (CLASS 250) TYPE 3 SEALED PIPE SYSTEM - SEE SPECIAL PROVISION	18" DUCTILE IRON PIPE (CLASS 250) TYPE 3 SEALED PIPE SYSTEM - SEE SPECIAL PROVISION	36" DUCTILE IRON PIPE (CLASS 150) TYPE 3 SEALED PIPE SYSTEM - SEE SPECIAL PROVISION	16" WELDED STEEL PIPE 0.281" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	18" WELDED STEEL PIPE 0.312" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	24" WELDED STEEL PIPE 0.375" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	30" WELDED STEEL PIPE 0.469" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	36" WELDED STEEL PIPE 0.532" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 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	G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	J.B. STD. 840.31 OR STD. 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 WITH TWO GRATES STD. 840.37	TEMPORARY 1" STEEL COVER	M.H. FRAME AND COVER STD. 840.54	15" C.S. ELBOW	18" C.S. ELBOW	24" C.S. ELBOW	BERM DITCH OUTLET STD. 850.11 (PER EACH)		FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
L 971+33	1708														1																				1					1											
	1708	1712																																																	
L 972+78	1709														1												1			1																					
	1709	1710																																																	
L 972+92	1710														1												1			1																					
	1710	1778																																																	
L 972+91	1711														1													1											1												
	1711	1712																																																	
L 972+91	1712														1												1												1												
	1712	1715																																																	
	1718	1719																																																	
L 973+00	1718														1												1				1																				
DR1 14+00	1720																																																		
	1720	1785																																																	
LREV 984+30	1721														1													1			1																				
	1721	1724																																																	
	1722	1723																																									2								
SBCD 17+27	1722														1			1	1																																
L 980+57	1724														1													1			1																				
	1724	1784																																																	
	1725	1726																																								2									
SBCD 15+76	1725														1										1																										
L 979+07	1727														1												1				1																				Special Detail Std. 840d17
	1727	1728																																																	
L 978+07	1728														1												1				1																				Special Detail Std. 840d17
	1728	17120																																																	
LREV 984+00	1729														1													1											1												
	1729	1731																																																	
LREV 981+50	1730														1													1											1												
	1730	1731																																																	
LREV 981+50	1731														1													1											1												
	1731	1733																																																	
L 979+50	1732														1													1											1												
	1732	1733																																																	
L 979+50	1733														1	0.2											1												1												
	1733	1735																																																	
L 976+10	1734														1													1											1												
	1734	1735																																																	
L 976+10	1735														1	0.3											1												1												
	1735	1739																																																	
SBCD 11+34	1737													4.500																																					
	1737	17121																																																	
	1741	1742																																																	
Y14RPB 22+59	1741														1	0.4																		1			1														Special Detail Std. 840D35
	1742	1743																																																	
Y14RPB 22+11	1742														1	0.7																1					1														Special Detail Std. 840D35
L 969+00	1745																																																		
	1745	17118																																																	
Y14 31+72	1746														1			1		1																															
	1746	1747																																																	
SHEET TOTALS														4.500	22	1.6		2	1	1				1			8	8		2	5	1		1		1	2		9		1	2	2								

ABBREVIATIONS

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

JSTANOVICH

COMPUTED BY:	Jake Stanovich	DATE:	03/10/2022
CHECKED BY:	Will Hines, PE	DATE:	03/10/2022

PROJECT NO.	SHEET NO.
I-5878	3D-3

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	TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 15	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	R. C. PIPE CLASS IV 15	QUANTITIES FOR SEALED DRAINAGE STRUCTURES 0' THRU 5'	5' THRU 10' (A)	10' AND ABOVE (B)	16" DUCTILE IRON PIPE (CLASS 250) TYPE 3 SEALED PIPE SYSTEM - SEE SPECIAL PROVISION	18" DUCTILE IRON PIPE (CLASS 250) TYPE 3 SEALED PIPE SYSTEM - SEE SPECIAL PROVISION	QUANTITIES FOR DRAINAGE STRUCTURES 0' THRU 5' EACH	5' THRU 10' (A) LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	GRATE TYPE E	F	G	D.I. STD. 852.04 OR STD. 852.06	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	15" C.S. ELBOW	REMARKS
			1747	1748		197.5	191.2		48	X		X	X	X																2	
Y14 31+72	16	LT	1747		200.9																1		1			1					
Y14 18+83	43	RT	1749		192.5																1							1	1		
			1749	1756		190.3	190.1		44		X	X		X																	
Y14 22+19	33	LT	1750		204.4																1		1		1						
			1750	1761		201.1	200.3	0.5							48																
DR1 14+00	13	RT	1751		193.4																1		1		1						
			1751	1785		190.2	190.1								24																
			1752	1753		190.1	190.0								36																
Y14 16+26	26	RT	1752		193.3																1		1	1							
Y14 16+62	26	RT	1753		193.4																1		1			1					
			1753	1755		190.0	189.8								52																
			1754	1755		190.1	189.8								36																
Y14 16+26	26	LT	1754		193.3																1		1	1							
Y14 16+62	26	LT	1755		193.4																1		1		1						
			1755	1757		189.8	189.3												188												
Y14 18+50	16	RT	1756		195.9																1	0.8	1			1					
			1756	1757		190.1	189.3												32												
Y14 18+50	18	LT	1757		195.8											1	1.8						1		1						Sealed System
			1757	1758		189.0	188.5													160											
			1758	1759		188.5	187.7													56											
Y14 20+09	16	LT	1758		199.7											1	5.0	1.1					1		1						Sealed System
Y14 21+73	16	RT	1760		203.6																1		1			1					
			1760	1761		200.4	200.3								32																
			1761	1762		200.3	185.3	2.4	76	X		X	X	X																2	
Y14 21+73	18	LT	1761		203.6																1		1		1						
			1763	1764		189.3	188.6		36		X	X		X																	
Y14RPC 17+22	87	RT	1763		192.5																1		1	1							
			1765	1766		201.5	200.4		52		X	X	X	X																	
Y14RPB 22+05	6	RT	1765		204.8																1		1			1					
Y14RAA 10+16	19	RT	1767		208.1																1		1			1					
			1767	1768		204.8	204.1								28																
Y14RPB 22+85	16	LT	1768		207.3																1		1		1						
			1768	1769		204.1	201.5								108																
Y14 22+36	35	RT	1769		204.7																1		1			1					
			1769	1770		201.5	201.4								36																
Y14RAA 12+97	20	RT	1770		206.1																1						1	1	1		
			1770	1750		201.4	201.1								36																
Y14 24+74	16	RT	1771		210.8																1		1			1					
			1771	1772		207.6	206.8								44																
Y14 24+45	19	LT	1772		210.1																1		1		1						
			1772	1773		206.8	205.4								44																
Y14 24+02	37	LT	1773		208.7																1		1		1						
			1773	1774		205.4	205.1								56																
Y14RAA 11+69	19	RT	1774		208.4																1		1		1						
			1774	1775		205.1	204.1								56																
Y14RAA 12+16	19	RT	1775		207.3																1		1		1						
			1775	1750		204.1	201.1								92																
			1776	1777		201.6	184.9		80	X		X	X	X																2	
SBCD 11+95	14	LT	1776		204.9																1		1			1					
								SHEET TOTALS	336						728	2	7	1	220	216	23	0.8	23	3	11	9	1	2	2	6	

The table's other columns have no entries on this sheet. Their headings are: SIZE / THICKNESS OR GAUGE; Side Drain Pipe 18, 24, 30, 36, 42, 48; R. C. PIPE CLASS III 18, 24, 30, 36; R. C. PIPE CLASS IV 18, 24, 30, 36, 42, 48; R. C. PIPE CLASS V 12, 15, 18, 24, 36, 42; QUANTITIES FOR SEALED DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)); 36" DUCTILE IRON PIPE (CLASS 150) TYPE 3 SEALED PIPE SYSTEM - SEE SPECIAL PROVISION; 16" WELDED STEEL PIPE 0.281" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL); 18" WELDED STEEL PIPE 0.312" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL); 24" WELDED STEEL PIPE 0.375" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL); 30" WELDED STEEL PIPE 0.469" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL); 36" WELDED STEEL PIPE 0.532" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL); ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY; QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 10' AND ABOVE (B) LIN. FT.; FRAME, GRATES, AND HOOD STD. 840.03; CONCRETE TRANSITIONAL SECTION; C.B. STD. 852.05; OPEN THROAT C.B. STD. 840.04 OR STD. 840.05; G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26; G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27; G.D.I. TYPE "D" STD. 840.19 OR STD. 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; G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29; G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29; J.B. STD. 840.31 OR STD. 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 WITH TWO GRATES STD. 840.37; TEMPORARY 1" STEEL COVER; M.H. FRAME AND COVER STD. 840.54; 18" C.S. ELBOW; 24" C.S. ELBOW; BERM DITCH OUTLET STD. 850.11 (PER EACH); FLOWABLE FILL CY; CONCRETE COLLARS CL. "B" STD. 840.72 CY; CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY; PIPE REMOVAL LIN. FT.

ABBREVIATIONS

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

JSTANOVICH

COMPUTED BY: Jake Stanovich DATE: 03/10/2022

CHECKED BY: Will Hines, PE DATE: 03/10/2022

PROJECT NO.	SHEET NO.
I-5878	3D-4

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)

ABBREVIATIONS

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

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	DO NOT USE PVC	R. C. PIPE CLASS III				R. C. PIPE CLASS IV							R. C. PIPE CLASS V						QUANTITIES FOR SEALED DRAINAGE STRUCTURES NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)				16" DUCTILE IRON PIPE (CLASS 250) TYPE 3 SEALED PIPE SYSTEM - SEE SPECIAL PROVISION	18" DUCTILE IRON PIPE (CLASS 250) TYPE 3 SEALED PIPE SYSTEM - SEE SPECIAL PROVISION	36" DUCTILE IRON PIPE (CLASS 150) TYPE 3 SEALED PIPE SYSTEM - SEE SPECIAL PROVISION	16" WELDED STEEL PIPE 0.281" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	18" WELDED STEEL PIPE 0.312" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	24" WELDED STEEL PIPE 0.375" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	30" WELDED STEEL PIPE 0.469" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	36" WELDED STEEL PIPE 0.532" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE)	QUANTITIES FOR DRAINAGE STRUCTURES NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)			C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE			CONCRETE TRANSITIONAL SECTION		OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 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	G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	J.B. STD. 840.31 OR STD. 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 WITH TWO GRATES STD. 840.37	TEMPORARY 1" STEEL COVER	M.H. FRAME AND COVER STD. 840.54	15" C.S. ELBOW	18" C.S. ELBOW	24" C.S. ELBOW	BERM DITCH OUTLET STD. 850.11 (PER EACH)		FLOWABLE FILL	CONCRETE COLLARS CL. "B" STD. 840.72	CONCRETE AND BRICK PIPE PLUG STD. 840.71	PIPE REMOVAL	REMARKS
SIZE / THICKNESS OR GAUGE			FROM	TO	FT.	FT.	FT.	%	15	18	24	30	36	42	48						18	24	30	36	15	18	24	30	36	42	48	12	15	18	24	36	42	0' THRU 5'	A 5' THRU 10'	B 10' AND ABOVE										CY	EACH 0' THRU 5'	A LIN. FT. 5' THRU 10'	B LIN. FT. 10' AND ABOVE		E	F	G	D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05																								CY	CY	CY	LIN. FT.	
L 973+43	74	LT	1778		186.7																																														1												1			1																					
			1778	1714		181.7	181.6																				20																																																											
			1779	17119		184.4	184.1		8							X		X	X	X																																																																					
L 970+82	79	LT	1779		190.4																																														1	1.0								1																													
			1781	17118		186.1	185.1		8							X		X	X	X																																																																						
L 969+45	79	RT	1781		191.3																																														1									1																													
L 976+83	79	LT	1783		189.3																																														1	2.3								1																													
			1783	17120		182.0	181.8		8							X		X	X	X																																																										1									
L 979+50	94	LT	1784		185.7																																														1												1				1																				Special Detail Std. 840d17
			1784	1727		181.5	181.3				44							X	X	X																																																																					
DR1 14+00	13	LT	1785		193.4																																														1			1			1																																		
			1785	17102		189.9	189.4																			68																																																												
L 972+07	79	RT	1786		189.3																																														1									1																													
			1786	1787		184.4	183.4		8							X		X	X	X																																																									2									
L 972+07	74	RT	1787		187.4																																														1												1			1																					
			1787	1718		182.6	180.0				96						X	X	X	X																																																																						
Y14 27+36	16	LT	1788		211.7																																														1			1			1																																		
			1788	1789		208.4	207.7																		40																																																													
Y14 27+65	16	RT	1789		211.0																																														1			1		1																																			
			1789	1790		207.7	204.9																		108																																																													
Y14 28+76	20	RT	1790		208.1																																														1			1		1																																			
			1790	1791		204.9	204.3																		48																																																													
Y14 28+96	24	LT	1791		207.6																																														1			1			1																																		
			1791	1793		204.3	202.2																		80																																																													
NBCD 11+60	6	LT	1792		205.7																																														1			1			1																																		
			1792	1793		202.4	202.2																		72																																																													
Y14RAB 12+03	20	RT	1793		206.3																																														1			1			1																																		
			1793	1796		202.2	199.0																		80																																																													
Y14 30+90	34	RT	1794		202.6																																														1			1		1																																			
			1794	1795		199.3	199.2																		36																																																													
Y14RAB 10+94	21	RT	1795		204.3																																														1	0.1						1			1	1																														
			1795	1796		199.2	199.0																		60																																																														
			1796	1797		199.0	186.5	1.3	72							X		X	X	X																																																									2									
Y14RAB 11+41	20	RT	1796		204.8																																														1	0.8		1			1																																		
Y14RAB 10+13	19	RT	1798		205.5																																														1			1		1																																			
			1798	1799		202.2	200.9																		68																																																													
			1799	1744		200.9	187.2		84							X		X	X	X																																																									2									
Y14RPC 21+54	14	RT	1799		204.2																																														1			1			1																																		
LREV 986+00	2	LT	1801		193.2																																														1													1												1												
			1801	1729		189.2	188.0																		200																																																													
LREV 989+05	2	LT	1802		195.1																																														1													1												1												
			1802	1803		191.3	190.4	0.6																	108																																																														
LREV 988+00	2	LT	1803		194.2																																														1													1												1												
			1803	1804		190.4	186.8	0.8																									104																																																								
LREV 993+05	2	LT	1805		203.8																																														1													1												1												
			1805	1806		200.0	197.1																		108																																																													
LREV 992+00	2	LT	1806		200.9																																														1													1												1												
			1806	1807		197.1	193.6																		152																																																													
LREV 990+50	2	LT	1807		197.3																																														1													1												1												
			1807	1802		193.6	191.3	0.3																	148																																																													
							SHEET TOTALS		188		140														1308	68	20						104																			25	4.2		11		4	7	1		4	1	1	3	6		2	1								6			7									

JSTANOVICH

COMPUTED BY:	Jake Stanovich	DATE:	03/10/2022
CHECKED BY:	Will Hines, PE	DATE:	03/10/2022

PROJECT NO.	SHEET NO.
I-5878	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 / 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	DO NOT USE PVC	R. C. PIPE CLASS III 18	24	30	36	R. C. PIPE CLASS IV 15	18	24	30	36	42	48	R. C. PIPE CLASS V 12	15	18	24	36	42
SR18 20+22	21 LT	1809		196.4																																
		1809	1810		192.9	192.8	0.3														40															
SBCD 31+22	17 LT	1810		201.7																																
		1810	1811		192.3	192.1																56														
LREV 994+11	134 LT	1811		198.8																																
		1811	1822		192.1	191.3																														
LREV 995+00	2 LT	1813		209.4																																
		1813	1814		205.7	205.4																		92												
LREV 995+88	2 LT	1814		211.8																																
		1814	1821		205.4	205.3																		8												
LREV 995+23	74 RT	1815		208.2																																
		1815	1816		204.4	204.3																		68												
LREV 995+88	74 RT	1816		210.2																																
		1816	1817		204.3	191.1	2.1	68							X		X	X	X																	
SR18 22+16	30 LT	1818		193.9																																
		1818	1819		193.9	193.8																			48											
		1819	1820		193.8	193.5																			80											
SBCD 33+28	17 LT	1819		200.5																																
		1820	1930		193.5	191.1			92						X		X	X	X																	
SBCD 34+09	27 LT	1820		199.6																																
LREV 995+88	2 RT	1821		212.1																																
		1821	1816		205.3	204.3																		72												
SR18 20+27	42 LT	1823		197.0																																
		1823	1809		197.0	192.9				20					X		X	X	X																	
		1824	1825		198.0	197.9																		40												
SR18 16+22	14 RT	1824		201.3																																
		1826	1824		198.1	198.0																		20												
SR18 16+00	14 RT	1826		201.4																																
SR18 10+54	20 LT	1827						52									X	X	X																	
SR18 13+90	21 LT	1828						44									X	X	X																	
SR18 17+63	24 LT	1829						52									X	X	X																	
LREV 998+09	2 LT	1901		217.2																																
		1901	1982		213.5	213.4																		8												
LREV 998+09	74 RT	1902		215.9																																
		1902	1903		212.1	190.3	0.3	88							X		X	X	X																	
LREV 1001+73	72 RT	1904		220.9																																
		1904	1905		217.1	216.5																		76												
LREV 1000+99	74 RT	1905		220.3																																
		1905	1906		216.5	189.4		104							X		X	X	X																	
LREV 1001+90	72 LT	1907		221.0																																
		1907	1908		217.3	188.3		140							X		X	X	X																	
		1909	1910		216.2	202.0		64							X		X	X	X																	
LREV 1006+00	74 LT	1909		220.0																																
		1911	1912		212.7	205.0		40							X		X	X	X																	
LREV 1008+53	74 LT	1911		216.4																																
LREV 1008+00	1 LT	1913		218.4																																
		1913	1914		214.6	214.5																		4												
LREV 1008+00	2 RT	1914		218.3																																
		1914	1918		214.5	208.6																		72												
LREV 1009+98	1 LT	1915		214.1																																
							SHEET TOTALS	652	92	20											40	56		460	128											

LINE & STATION	FROM	TO	QUANTITIES FOR SEALED DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5'	5' THRU 10' (A)	10' AND ABOVE (B)	16" DUCTILE IRON PIPE (CLASS 250) TYPE 3 SEALED PIPE SYSTEM - SEE SPECIAL PROVISION	18" DUCTILE IRON PIPE (CLASS 250) TYPE 3 SEALED PIPE SYSTEM - SEE SPECIAL PROVISION	36" DUCTILE IRON PIPE (CLASS 150) TYPE 3 SEALED PIPE SYSTEM - SEE SPECIAL PROVISION	16" WELDED STEEL PIPE 0.281" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	18" WELDED STEEL PIPE 0.312" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	24" WELDED STEEL PIPE 0.375" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	30" WELDED STEEL PIPE 0.469" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	36" WELDED STEEL PIPE 0.532" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	5' THRU 10' (A) LIN. FT.	10' AND ABOVE (B) LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 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	G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	J.B. STD. 840.31 OR STD. 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 WITH TWO GRATES STD. 840.37	TEMPORARY 1" STEEL COVER	M.H. FRAME AND COVER STD. 840.54	15" C.S. ELBOW	18" C.S. ELBOW	24" C.S. ELBOW	BERM DITCH OUTLET STD. 850.11 (PER EACH)	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
SR18 20+22	1809														1													1				1																		
	1809	1810																																																
SBCD 31+22	1810														1	4.5																		1			1													Special Detail Std. 840D35
	1810	1811																																																
LREV 994+11	1811														1	1.7												1				1																				
	1811	1822									260																																					
LREV 995+00	1813														1													1												1												
	1813	1814																																																
LREV 995+88	1814														1	1.5												1												1												
	1814	1821																																							2									
LREV 995+23	1815														1													1		1																				
	1815	1816																																																
LREV 995+88	1816														1	1.0												1		1																				
	1816	1817																																							2									
SR18 22+16	1818																																																	
	1818	1819																																																
	1819	1820																																																
SBCD 33+28	1819														1	1.8																		1			1													
	1820	1930																																																
SBCD 34+09	1820														1	1.1												1						1																
LREV 995+88	1821														1	1.8												1												1												
	1821	1816																																																
SR18 20+27	1823																																										1					
	1823	1809																																									2						
	1824	1825																																																
SR18 16+22	1824														1																			1			1													
	1826	1824																																																
SR18 16+00	1826														1																			1			1													
SR18 10+54	1827																																																	
SR18 13+90	1828																																																	
SR18 17+63	1829																																																	
LREV 998+09	1901														1													1												1												
	1901	1982																																																
LREV 998+09	1902														1													1		1																				
	1902	1903																																							2									
LREV 1001+73	1904														1													1		1																				
	1904	1905																																																
LREV 1000+99	1905														1													1		1																				
	1905	1906																																							2									
LREV 1001+90	1907														1													1		1																				
	1907	1908																																							2									
	1909	1910																																							2									
LREV 1006+00	1909														1													1		1																				
	1911	1912																																							2									
LREV 1008+53	1911														1													1		1																				
LREV 1008+00	1913														1																							1	1											
	1913	1914																																																
LREV 1008+00	1914														1													1												1												
	1914	1918																																																
LREV 1009+98	1915														1																							1	1											
SHEET TOTALS											260				22	13.4											1	15		8	1	1		5			4	2	7			14		2	1					

ABBREVIATIONS

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

JSTANOVICH

COMPUTED BY: Jake Stanovich DATE: 03/10/2022

CHECKED BY: Will Hines, PE DATE: 03/10/2022

PROJECT NO.	SHEET NO.
I-5878	3D-6

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	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	Do Not Use PVC	R.C. Pipe Class III 18	24	30	36	R.C. Pipe Class IV 15	18	24	30	36	42	48	R.C. Pipe Class V 12	15	18	24	36	42
			1915	1916		210.4	210.3																	4												
LREV 1009+98	2	RT	1916		214.4																																
			1916	1917		210.3	209.2																	72												
LREV 1009+98	74	RT	1917		212.9																																
			1917	1960		209.2	209.1																	16												
			1918	1919		208.6	195.4	6.3	68							X		X	X	X																	
LREV 1008+00	74	RT	1918		217.3																																
LREV 1012+00	1	LT	1920		209.1																																
			1920	1921		205.4	205.3																	4												
LREV 1012+00	2	RT	1921		209.3																																
			1921	1923		205.3	202.0																	172												
LREV 1013+70	1	LT	1922		205.8																																
			1922	1923		202.1	202.0																	4												
LREV 1013+70	2	RT	1923		206.1																																
			1923	1925		202.0	199.4																	172												
LREV 1015+40	1	LT	1924		203.2																																
			1924	1925		199.5	199.4																	4												
LREV 1015+40	2	RT	1925		203.5																																
			1925	1927		199.4	196.8	0.5																176												
LREV 1017+15	1	LT	1926		200.6																																
			1926	1927		196.6	196.5																		4											
LREV 1017+15	2	RT	1927		200.7																																
			1927	1929		196.5	190.7	0.7																	396											
LREV 1021+09	2	LT	1928		194.7																																
			1928	1929		190.9	190.8																	8												
LREV 1021+09	2	RT	1929		194.7																																
			1929	2002		190.7	184.5	1.2																	396											
			1930	1979		190.1	189.5															176														
SBCD 35+00	44	LT	1930		195.4																																
Y15 20+08	46	RT	1931		201.1																																
			1931	1933		197.8	196.6	0.5																140												
Y15 21+52	5	RT	1932		202.0																																
			1932	1933		195.5	195.3																				44									
Y15 21+52	50	RT	1933		200.4																																
			1933	1936		195.3	194.6	0.3																			152									
Y15 23+28	7	LT	1934		200.7																																
			1934	1935		197.5	197.4																	20												
Y15 23+07	7	LT	1935		201.0																																
			1935	1936		197.4	195.8																	56												
			1936	1937		194.6	188.3	0.4																			160									
Y15 23+07	50	RT	1936		199.1																																
Y15 20+25	63	LT	1938		197.4																																
			1938	1939		197.3	197.2																	8												
			1939	1962		196.6	196.4																			40										
Y15 20+25	56	LT	1939		202.2																																
			1940	1932		195.7	195.5																				72									
Y15 21+52	67	LT	1940		202.8																																
Y15 25+79	5	RT	1941		198.4																																
			1941	1944		195.1	194.4																	68												
Y15 26+50	80	RT	1943		187.7																																
SHEET TOTALS									68														176		924	796	40	428									

Structure Number From	To	Quantities for Sealed Drainage Structures (Note: Total Lin. Ft. for Pay Quantity shall be A + (1.3 X B)) 0' thru 5'	5' thru 10' (A)	10' and above (B)		16" Ductile Iron Pipe (Class 250) Type 3 Sealed Pipe System - See Special Provision	18" Ductile Iron Pipe (Class 250) Type 3 Sealed Pipe System - See Special Provision	36" Ductile Iron Pipe (Class 150) Type 3 Sealed Pipe System - See Special Provision	16" Welded Steel Pipe 0.281" Thick, Grade B (50% in Soil, 50% Not in Soil)	18" Welded Steel Pipe 0.312" Thick, Grade B (50% in Soil, 50% Not in Soil)	24" Welded Steel Pipe 0.375" Thick, Grade B (50% in Soil, 50% Not in Soil)	30" Welded Steel Pipe 0.469" Thick, Grade B (50% in Soil, 50% Not in Soil)	36" Welded Steel Pipe 0.532" Thick, Grade B (50% in Soil, 50% Not in Soil)	Endwalls Std. 838.01 or Std. 838.11 (Unless Noted Otherwise) CY	Quantities for Drainage Structures (Note: Total Lin. Ft. for Pay Quantity shall be A + (1.3 X B)) 0' thru 5' Each	5' thru 10' (A) Lin. Ft.	10' and above (B) Lin. Ft.	C.B. Std. 840.01 or Std. 840.02	Frame, Grates, and Hood Std. 840.03 Grate Type E	F	G	Concrete Transitional Section D.I. Std. 852.04 or Std. 852.06	C.B. Std. 852.05	Open Throat C.B. Std. 840.04 or Std. 840.05	D.I. Std. 840.14 or Std. 840.15	D.I. Frame and Grates Std. 840.16	G.D.I. Type "A" Std. 840.17 or Std. 840.26	G.D.I. Type "B" Std. 840.18 or Std. 840.27	G.D.I. Type "D" Std. 840.19 or Std. 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	G.D.I. (N.S. Flat) Frame w/ Grate Std. 840.29	G.D.I. (N.S. Flat) Frame w/ 2 Grates Std. 840.29	J.B. Std. 840.31 or Std. 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 with Two Grates Std. 840.37	Temporary 1" Steel Cover	M.H. Frame and Cover Std. 840.54	15" C.S. Elbow	18" C.S. Elbow	24" C.S. Elbow	Berm Ditch Outlet Std. 850.11 (Per Each)		Flowable Fill CY	Concrete Collars Cl. "B" Std. 840.72 CY	Concrete and Brick Pipe Plug Std. 840.71 CY	Pipe Removal Lin. Ft.	Remarks
1915	1916																																																	
1916														1												1												1												
1916	1917																																																	
1917														1												1		1																				
1917	1960																																																	
1918	1919																																								2								
1918														1	3.7											1		1																				
1920														1																								1	1												
1920	1921																																																	
1921														1												1												1												
1921	1923																																																	
1922														1																								1	1												
1922	1923																																																	
1923														1												1												1												
1923	1925																																																	
1924														1																								1	1												
1924	1925																																																	
1925														1												1												1												
1925	1927																																																	
1926														1																								1	1												
1926	1927																																																	
1927														1												1												1												
1927	1929																																																	
1928														1												1												1												
1928	1929																																																	
1929														1												1												1												
1929	2002																																																	
1930	1979																																																	
1930														1	0.3											1				1																			
1931														1			1		1																															
1931	1933																																																	
1932														1	1.5						1			1	1																								
1932	1933																																																	
1933														1			1		1																															
1933	1936																																																	
1934														1							1			1	1																								
1934	1935																																																	
1935														1							1			1	1																								
1935	1936																																																	
1936	1937																																																	
1936														1			1		1																															
1938																																															0.3990			
1938	1939																																																	
1939	1962																																																	
1939														1	0.6																		1			1													Special Detail Std. 840D35
1940	1932																																																	
1940														1	2.1																		1			1													
1941														1							1			1	1																								
1941	1944																																																	
1943													6.000																																				
SHEET TOTALS													6.000	23	8.2		3		3		4			4	4	1	9		2	1			2			2	4	11			2							0.3990			

ABBREVIATIONS

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

JSTANOVICH

COMPUTED BY:	Jake Stanovich	DATE:	03/10/2022
CHECKED BY:	Will Hines, PE	DATE:	03/10/2022

PROJECT NO.	SHEET NO.
I-5878	3D-7

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	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	DO NOT USE PVC	R. C. PIPE CLASS III 18	24	30	36	R. C. PIPE CLASS IV 15	18	24	30	36	42	48	R. C. PIPE CLASS V 12	15	18	24	36	42	QUANTITIES FOR SEALED DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5'	5' THRU 10' (A)	10' AND ABOVE (B)	16" DUCTILE IRON PIPE (CLASS 250) TYPE 3 SEALED PIPE SYSTEM - SEE SPECIAL PROVISION	18" DUCTILE IRON PIPE (CLASS 250) TYPE 3 SEALED PIPE SYSTEM - SEE SPECIAL PROVISION	36" DUCTILE IRON PIPE (CLASS 150) TYPE 3 SEALED PIPE SYSTEM - SEE SPECIAL PROVISION	16" WELDED STEEL PIPE 0.281" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	18" WELDED STEEL PIPE 0.312" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	24" WELDED STEEL PIPE 0.375" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	30" WELDED STEEL PIPE 0.469" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	36" WELDED STEEL PIPE 0.532" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	5' THRU 10' (A) LIN. FT.	10' AND ABOVE (B) LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 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	G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	J.B. STD. 840.31 OR STD. 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 WITH TWO GRATES STD. 840.37	TEMPORARY 1" STEEL COVER	M.H. FRAME AND COVER STD. 840.54	15" C.S. ELBOW	18" C.S. ELBOW	24" C.S. ELBOW	BERM DITCH OUTLET STD. 850.11 (PER EACH)	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
		1943	1981		187.7	187.5								68		X	X	X	X																																																																	
Y15 26+49	5 RT	1944		197.7																																												1							1			1	1																								
		1944	1947		194.4	190.2																		60																																																												
Y15 26+63	57 LT	1945		194.6																																												3.400																																				
		1945	1946		194.6	191.3						48				X	X	X	X																																																																	
Y15 27+10	52 LT	1946		195.3																																												1									1																										
		1946	1947		191.3	188.4																						56																																																								
LREV 1008+33	74 LT	1949		216.7																																												1												1		1																				
		1949	1911		213.0	212.7																		24																																																												
SBCD 39+45	141 LT	1950		198.0																																												1									1																										
		1950	1951		194.1	189.5	0.6			96					X	X		X																																																																	
		1951	1976		189.0	188.6																108																																																														
SBCD 39+50	44 LT	1951		193.0																																												1												1			1																			
SR11 14+67	13 LT	1952		207.8																																												1				1			1																													
		1952	1953		204.6	204.2																		68																																																												
SR11 15+38	12 LT	1953		207.4																																												1							1			1	1																								
		1953	1954		204.2	202.2																		140																																																												
SR11 16+82	13 LT	1954		205.4																																												1				1			1																													
		1954	1955		202.2	200.3																		120																																																												
SR11 18+03	13 LT	1955		203.5																																												1				1			1																													
		1955	1987		200.3	199.2																		36																																																												
Y15RPA 11+99	23 RT	1957		202.4																																												1												1		1																				
		1957	1958		198.6	197.3																		132																																																												
Y15RPA 10+69	23 RT	1958		201.0																																												1												1		1																				
		1958	1926		197.0	196.6																																						88																																								
LREV 1006+00	74 RT	1959		220.0																																												1												1		1																				
		1959	1918		216.3	208.6																		196																																																												
LREV 1009+78	74 RT	1960		213.5																																												1												1		1																				
		1960	1918		209.1	208.6																		176																																																												
		1961	1931		198.1	197.8		16							X	X	X	X																																																																	
Y15 20+06	63 RT	1961		200.8																																												1																	1			1													
		1962	1940		196.4	196.2																				84																																																										
Y15 20+68	50 LT	1962		202.0																																												1	1.4																		1			1													
Y15 22+03	1 LT	1963		201.8																																												1							1			1	1																								
		1963	1965		198.6	198.2																		56																																																												
Y15 20+88	5 RT	1964		202.2																																												1							1			1	1																								
		1964	1932		199.0	196.7																		64																																																												
Y15 22+58	7 LT	1965		201.5																																												1							1			1	1																								
		1965	1935		198.2	197.5																		48																																																												
		1966	1968		192.0	185.2																		80																																																												
Y15 31+81	7 LT	1966		195.7																																												1							1			1	1																								
Y15 32+43	7 LT	1967		195.4																																												1							1			1	1																								
		1967	1966		192.1	192.0																		64																																																												
Y15 34+88	7 LT	1969		194.7																																												1							1			1	1																								
		1969	5722		191.3	191.0																		60																																																												
Y15 25+09	5 RT	1972		199.0																																												1							1			1	1																								
		1972	1941		195.7	195.1																		68																																																												
Y15 31+19	7 LT	1974		195.8																																												1							1			1	1																								
		1974	1966		192.6	192.0																		64																																																												
Y15 34+28	7 LT	1975		194.7																																												1							1			1	1																								
						SHEET TOTALS		16		96		48		68									108		1456		84		56																88				3.400	24	1.4		3			3	11		2	11	11		6		5	1			2			2													

ABBREVIATIONS

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

JSTANOVICH

COMPUTED BY: Jake Stanovich DATE: 03/10/2022

CHECKED BY: Will Hines, PE DATE: 03/10/2022

PROJECT NO.	SHEET NO.
I-5878	3D-8

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	DO NOT USE PVC	R. C. PIPE CLASS III 18	24	30	36	R. C. PIPE CLASS IV 15	18	24	30	36	42	48	R. C. PIPE CLASS V 12	15	18	24	36	42
		1975	1969		191.5	191.3																		60												
SR18 24+75	28 RT	1977		198.7																																
		1977	1980		198.7	198.1																			76											
SR18 23+73	26 LT	1978		196.8																																
		1978	1930		196.8	190.6																				80										
SR18 24+05	35 RT	1980		202.0																																
		1980	1930		198.1	191.1			48						X		X	X	X																	
Y15 27+10	49 RT	1981		194.3																																
		1981	1947		187.5	187.4																								44						
LREV 998+09	2 RT	1982		217.1																																
		1982	1902		213.4	212.1																		72												
LREV 1000+99	2 LT	1983		221.5																																
		1983	1984		217.8	217.7																		8												
LREV 1000+99	3 RT	1984		221.5																																
		1984	1905		217.7	216.5																		72												
LREV 1006+00	2 LT	1985		221.3																																
		1985	1986		217.5	217.4																		4												
LREV 1006+00	2 RT	1986		221.3																																
		1986	1959		217.4	216.3																		72												
		1987	1956		198.5	196.3	0.4			64						X	X		X																	
SR11 18+42	18 LT	1987		202.5																																
Y15RPA 24+22	0 CL	1993	1993A		198.5	196.2																			112											
Y15RPD 27+50	86 LT	1995		185.1																																
		1995	19107		185.1	183.8																														
NBCD 42+24	0 CL	1996	1997		185.2	184.8																	132													
SR11 12+05	0 CL	1998	1998A		205.9	204.8																											64			
Y15RPA 18+00	0 CL	1999	1999A		204.7	204.4																			92											
L 1025+05	2 LT	2001		188.7																																
		2001	2002		185.0	184.7																		8												
L 1025+05	2 RT	2002		188.7																																
		2002	2004		184.0	178.6	0.4																			364										
L 1028+65	2 LT	2003		183.3																																
		2003	2004		179.6	179.3																		8												
L 1028+65	2 RT	2004		183.3																																
		2004	2006		178.6	173.5	0.5																			360										
L 1032+25	2 LT	2005		178.3																																
		2005	2006		174.5	174.3																		8												
L 1032+25	2 RT	2006		178.3																																
		2006	2015		173.0	172.1																														
L 1035+88	2 RT	2008		176.1																																
		2008	2010		172.3	172.2																		56												
L 1036+44	2 RT	2010		176.1																																
		2010	2014		172.2	170.8	0.3																													
L 1036+44	2 LT	2011		176.1																																
		2011	2010		172.3	172.2																		8												
L 1035+88	2 LT	2013		176.1																																
		2013	2008		172.4	172.3																		8												
SR11 31+28	31 LT	2016		174.2																																
		2016	2020		174.2	174.1							12			X	X	X	X																	
SR11 35+71	26 LT	2018	2019		171.2	171.0																							28							
							SHEET TOTALS		48	64			12										132	384	280	804			28	44			64			

STRUCTURE NUMBER FROM	TO	QUANTITIES FOR SEALED DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5'	A 5' THRU 10'	B 10' AND ABOVE	16" DUCTILE IRON PIPE (CLASS 250) TYPE 3 SEALED PIPE SYSTEM - SEE SPECIAL PROVISION	18" DUCTILE IRON PIPE (CLASS 250) TYPE 3 SEALED PIPE SYSTEM - SEE SPECIAL PROVISION	36" DUCTILE IRON PIPE (CLASS 150) TYPE 3 SEALED PIPE SYSTEM - SEE SPECIAL PROVISION	16" WELDED STEEL PIPE 0.281" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	18" WELDED STEEL PIPE 0.312" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	24" WELDED STEEL PIPE 0.375" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	30" WELDED STEEL PIPE 0.469" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	36" WELDED STEEL PIPE 0.532" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 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	G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	J.B. STD. 840.31 OR STD. 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 WITH TWO GRATES STD. 840.37	TEMPORARY 1" STEEL COVER	M.H. FRAME AND COVER STD. 840.54	15" C.S. ELBOW	18" C.S. ELBOW	24" C.S. ELBOW	BERM DITCH OUTLET STD. 850.11 (PER EACH)		FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
1975	1969																																																	
1977																																																		
1977	1980																																																	
1978																																																		
1978	1930																																																	
1980														1																				1						1										
1980	1930																																									2								
1981														1	1.8								1																											OTCB with 2 openings
1981	1947																																																	
1982														1													1											1												
1982	1902																																																	
1983														1													1											1												
1983	1984																																																	
1984														1													1											1												
1984	1905																																																	
1985														1													1											1												
1985	1986																																																	
1986														1													1											1												
1986	1959																																																	
1987	1956																																																	
1987														1			1	1																																
1993	1993A																																																	
1995																																																		
1995	19107						64																																											
1996	1997												3.400																																					
1998	1998A																																																	
1999	1999A																																																	
2001														1													1											1												
2001	2002																																																	
2002														1												1												1												
2002	2004																																																	
2003														1													1											1												
2003	2004																																																	
2004														1												1												1												
2004	2006																																																	
2005														1													1											1												
2005	2006																																																	
2006														1	0.3											1												1												
2006	2015											108																																						
2008														1													1											1												
2008	2010																																																	
2010														1													1											1												
2010	2014							100																																										
2011														1													1											1												
2011	2010																																																	
2013														1													1											1												
2013	2008																																																	
2016													4.500																																					
2016	2020																																																	
2018	2019												4.500																																					
SHEET TOTALS							64	100			108		12.400	18	2.1		1	1					1			3	12							1				15		1		2								

ABBREVIATIONS

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

JSTANOVICH

COMPUTED BY: Jake Stanovich DATE: 03/10/2022

CHECKED BY: Will Hines, PE DATE: 03/10/2022

PROJECT NO.	SHEET NO.
I-5878	3D-9

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	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	DO NOT USE PVC
SR11 31+38	32	LT	2020		179.2															
			2020	2021		174.1	174.0													
SR11 31+66	32	LT	2021		179.2															
			2021	2017		174.0	173.8							24			X	X	X	X
L 1041+00	2	LT	2103		178.8															
			2103	2104		170.5	170.3													
L 1049+50	2	LT	2106		187.7															
			2106	2107		183.9	183.8													
L 1049+50	2	RT	2107		187.7															
			2107	2109		183.7	179.7	0.7												
L 1046+00	2	LT	2108		183.9															
			2108	2109		180.2	179.9													
L 1046+00	2	RT	2109		183.9															
			2109	2110		179.2	174.9													
L 1046+00	93	RT	2110		180.1															
			2110	2111		174.9	173.0	0.6				124					X	X	X	X
L 1048+00	148	LT	2112		186.8															
			2112	2113		186.8	178.1			56						X		X	X	X
L 1048+00	93	LT	2113		182.4															
			2113	2114		177.6	176.5	0.7			96						X	X	X	X
L 1047+00	93	LT	2114		181.3															
			2114	2115		176.5	173.0	0.7			104						X	X	X	X
L 1059+50	2	LT	2201		198.4															
			2201	2202		194.6	194.5													
L 1059+50	2	RT	2202		198.4															
			2202	2204		194.5	190.8													
L 1056+00	2	LT	2203		194.6															
			2203	2204		190.9	190.8													
L 1056+00	2	RT	2204		194.6															
			2204	2206		190.8	187.0	0.6												
L 1052+50	2	LT	2205		190.9															
			2205	2206		187.1	187.0													
L 1052+50	2	RT	2206		190.9															
			2206	2107		186.9	183.7	0.5												
L 1060+00	93	LT	2207		195.2															
			2207	2208		192.4	189.1	0.3	400								X	X	X	X
L 1056+00	87	LT	2208		191.8															
			2208	2209		188.8	185.2	0.4		396							X	X	X	X
L 1052+00	83	LT	2209		188.2															
			2209	2113		185.2	178.1	0.9		400							X	X	X	X
L 1054+14	118	RT	2210		194.2															
			2210	2211		190.2	184.8		24							X		X	X	X
L 1054+14	93	RT	2211		188.8															
			2211	2212		184.1	179.7				404						X	X	X	X
L 1050+07	93	RT	2212		184.5															
			2212	2110		179.7	174.9	0.6			404						X	X	X	X
SR13 23+71	21	LT	2213						20									X	X	X
L 1061+50	93	LT	2214		196.8															
			2214	2207		194.0	192.4		148								X	X	X	X
SR13 22+40	21	LT	2215						28								X	X	X	X
SHEET TOTALS									620	852	1008	124		24						

FROM	TO	R. C. PIPE CLASS III 18	24	30	36	R. C. PIPE CLASS IV 15	18	24	30	36	42	48	R. C. PIPE CLASS V 12	15	18	24	36	42	QUANTITIES FOR SEALED DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5'	A 5' THRU 10'	B 10' AND ABOVE		16" DUCTILE IRON PIPE (CLASS 250) TYPE 3 SEALED PIPE SYSTEM - SEE SPECIAL PROVISION	18" DUCTILE IRON PIPE (CLASS 250) TYPE 3 SEALED PIPE SYSTEM - SEE SPECIAL PROVISION	36" DUCTILE IRON PIPE (CLASS 150) TYPE 3 SEALED PIPE SYSTEM - SEE SPECIAL PROVISION	16" WELDED STEEL PIPE 0.281" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	18" WELDED STEEL PIPE 0.312" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	24" WELDED STEEL PIPE 0.375" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	30" WELDED STEEL PIPE 0.469" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	36" WELDED STEEL PIPE 0.532" THICK, GRADE B (50% IN SOIL, 50% NOT IN SOIL)	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY
2020																															
2020	2021																	28													
2021																															
2021	2017																														
2103																															
2103	2104					8																									
2106																															
2106	2107					4																									
2107																															
2107	2109						348																								
2108																															
2108	2109					4																									
2109																															
2109	2110																											92			
2110																															
2110	2111																														
2112																															
2112	2113																														
2113																															
2113	2114																														
2114																															
2114	2115																														
2201																															
2201	2202					4																									
2202																															
2202	2204					348																									
2203																															
2203	2204					4																									
2204																															
2204	2206					348																									
2205																															
2205	2206					4																									
2206																															
2206	2107						296																								
2207																															
2207	2208																														
2208																															
2208	2209																														
2209																															
2209	2113																														
2210																															
2210	2211																														
2211																															
2211	2212																														
2212																															
2212	2110																														
2213																															
2214																															
2214	2207																														
2215																															
SHEET TOTALS						724	644											28										92			

FROM	TO	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 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	G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	J.B. STD. 840.31 OR STD. 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 WITH TWO GRATES STD. 840.37	TEMPORARY 1" STEEL COVER	M.H. FRAME AND COVER STD. 840.54	15" C.S. ELBOW	18" C.S. ELBOW	24" C.S. ELBOW	BERM DITCH OUTLET STD. 850.11 (PER EACH)	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
2020		1	0.1		1	1																															Minimum Depth CB Std. 840d02
2020	2021																																				
2021		1	0.2		1	1																															Minimum Depth CB Std. 840d02
2021	2017																																				
2103		1	3.3												1											1	1										
2103	2104																																				
2106		1													1											1											
2106	2107																																				
2107		1													1											1											
2107	2109																																				
2108		1													1											1											
2108	2109																																				
2109		1												1												1											
2109	2110																																				
2110		1	0.3											1				1																			
2110	2111																																				
2112																																					
2112	2113																													2							
2113		1												1				1																			
2113	2114																																				
2114		1												1				1																			
2114	2115																																				
2201		1													1											1											
2201	2202																																				
2202		1													1											1											
2202	2204																																				
2203		1													1											1											
2203	2204																																				
2204		1													1											1											
2204	2206																																				
2205		1													1											1											
2205	2206																																				
2206		1													1											1											
2206	2107																																				
2207		1													1			1																			
2207	2208																																				
2208		1													1			1																			
2208	2209																																				
2209		1													1			1																			
2209	2113																																				
2210		1																				1						1									
2210	2211																												2								
2211		1												1				1																			
2211	2212																																				
2212		1												1				1																			
2212	2110																																				
2213																																					
2214		1													1			1																			
2214	2207																																				
2215																																					
SHEET TOTALS		23	3.9		2	2								6	14			9				1				11	1	1	2	2							

ABBREVIATIONS

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