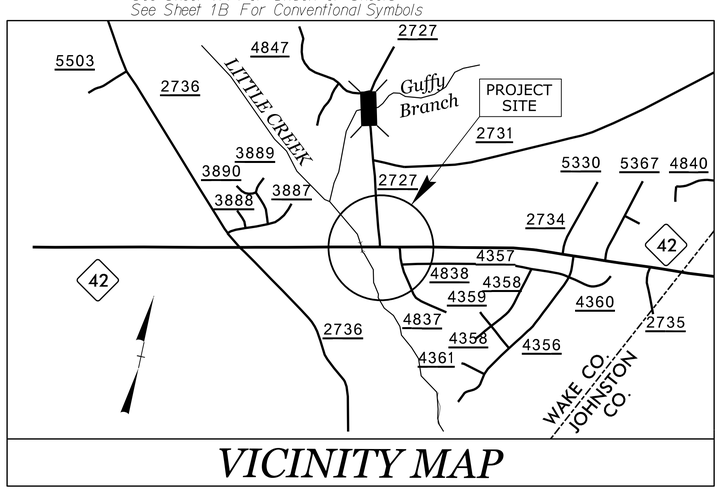
09/08/09

TIP PROJECT: W-5601EY

CONTRACT: C204987



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAKE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-5601EY	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
50138.1.156	HSIP-0042(067)	PE
50138.2.155	HSIP-0042(066)	R/W & UTIL.

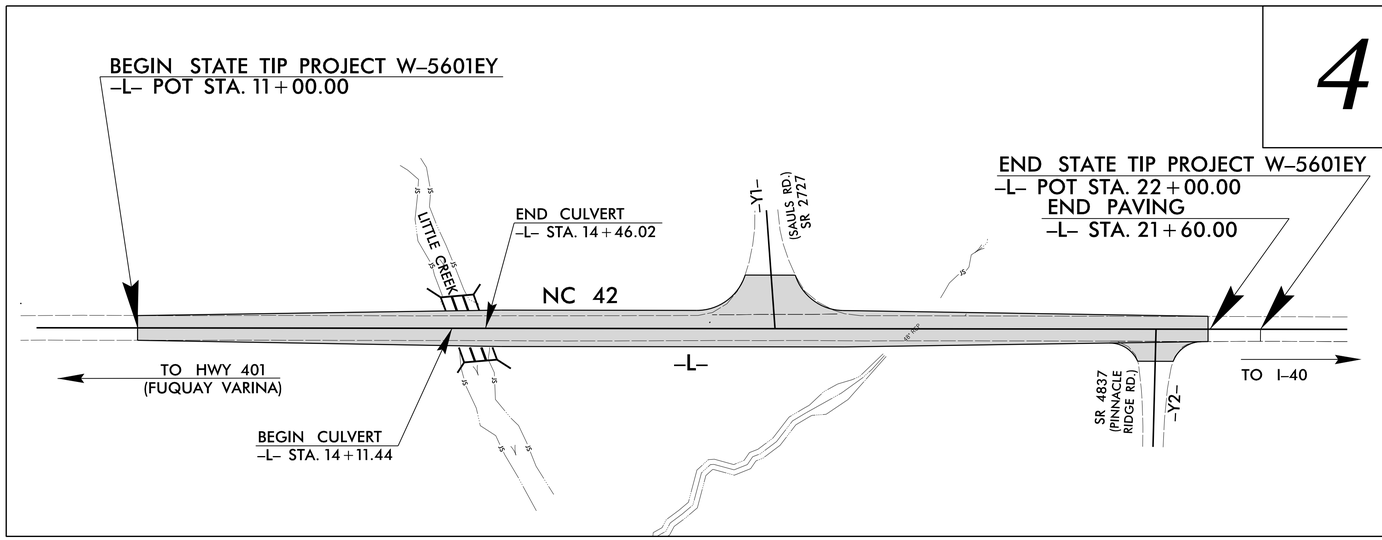
LOCATION: *CONSTRUCT AN EASTBOUND LEFT TURN LANE ON NC 42 AT THE SAULS ROAD (SR 2727) INTERSECTION.*

TYPE OF WORK: *GRADING, DRAINAGE, PAVING AND CULVERT*

PART 2

NAD 83
NA 2011

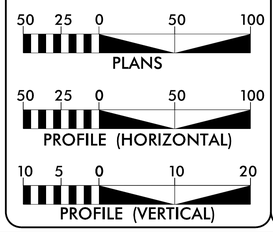
4



NOTE: W-5601EY WAS DELETED. THE WORK FROM W-5601EY WAS INCORPORATED INTO W-5601EX.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

ADT 2022 = 14,900
ADT 2042 = 22,000

V = 60 MPH

FUNC CLASS = MINOR ARTERIAL

REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT W-5601EY = .208 MILES

Prepared In the Office of:

KCI Associates of N.C., P.A.
4505 Falls of Neuse Road
Suite 400
Raleigh, NC 27609
Phone (919) 783-9214
Fax (919) 783-9266

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: AUGUST 19, 2019

LETTING DATE: NOVEMBER 19, 2024

Plans Prepared For:

NCDOT DIVISION 5
2612 N. Duke St.
Durham NC, 27704

CHARLES L. FLOWE, P.E.
PROJECT ENGINEER

BRYAN E. HOUGH, P.E.
PROJECT DESIGN ENGINEER

NCDOT CONTACT: ***STEPHEN R. DAVIDSON, PE***
DIVISION DESIGN ENGINEER - DIVISION 5

HYDRAULICS ENGINEER

Signed by: Josh Dalton
1089AD8C14994C3...
SIGNATURE: P.E. 9/9/2024

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

ROADWAY DESIGN ENGINEER

DocuSigned by: Charlie Flowe
FEAE01D0D8C74EA...
SIGNATURE: P.E. 9/9/2024

NORTH CAROLINA PROFESSIONAL SEAL 12300 ENGINEER CHARLES LEE FLOWE

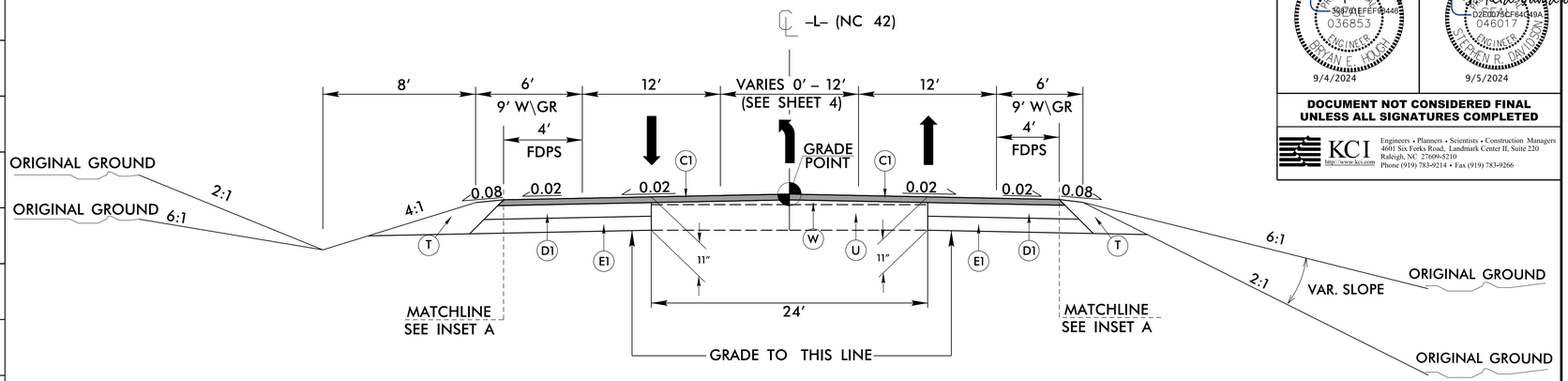
STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

09-SEP-2024 09:09
M:\203\22\133395.05 NCDOT W-5601EY\Roadway\Proj\W-5601EY_Rdy_tsh.dgn
$$$$USERNAME$$$$

6/2/99

FINAL PAVEMENT SCHEDULE	
C1	PROP. APPROX. 3″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1″ DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 3″ IN DEPTH.
D1	PROP. APPROX. 3″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1″ DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½″ IN DEPTH OR GREATER THAN 4″ IN DEPTH.
E1	PROP. APPROX. 5″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1″ DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 3″ IN DEPTH OR GREATER THAN 5½″ IN DEPTH.
T	EARTH MATERIAL
T1	ABC (M) SHOULDER CONSTRUCTION
U	EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

NOTE: ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.



ROADWAY TYPICAL SECTION NO. 1

USE ROADWAY TYPICAL SECTION NO. 1
–L– STA. 11+00.00 TO STA. 21+60.00

PROJECT REFERENCE NO.	SHEET NO.
W-5601EY	2A-1

ROADWAY DESIGN ENGINEER

DocuSigned by: Bryan Hood 3987A1EFEF9440...

NORTH CAROLINA PROFESSIONAL 036853 ENGINEER BRYAN E. HOOD

9/4/2024

PAVEMENT DESIGN ENGINEER

DocuSigned by: Stephen Davidson D2E0D75CF64349A...

NORTH CAROLINA PROFESSIONAL 046017 ENGINEER STEPHEN R. DAVIDSON

9/5/2024

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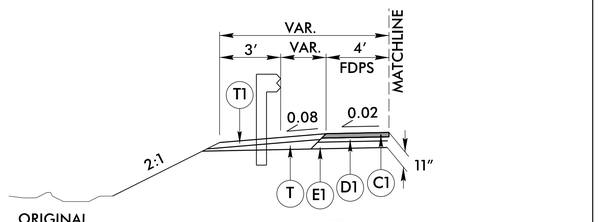
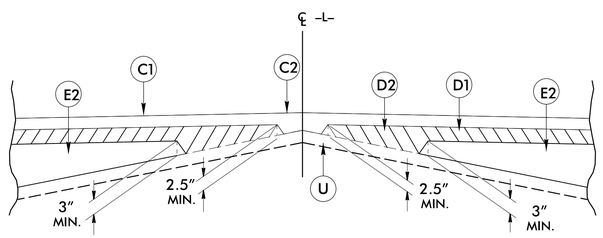
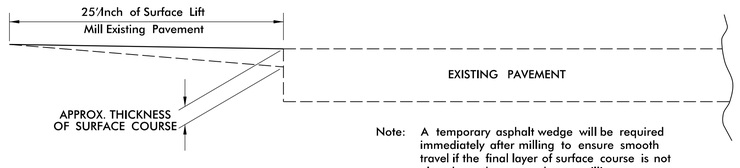
KCI http://www.kci.com
Engineers • Planners • Scientists • Construction Managers
4601 Six Forks Road, Landmark Center II, Suite 220
Raleigh, NC 27609-5210
Phone (919) 783-9214 • Fax (919) 783-9266



INSET A
USE IN GUARDRAIL LOCATIONS



Detail Showing Method of Wedging

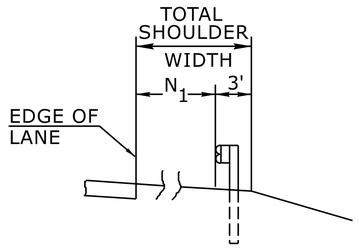


Note: A temporary asphalt wedge will be required immediately after milling to ensure smooth travel if the final layer of surface course is not placed on the same day as milling.

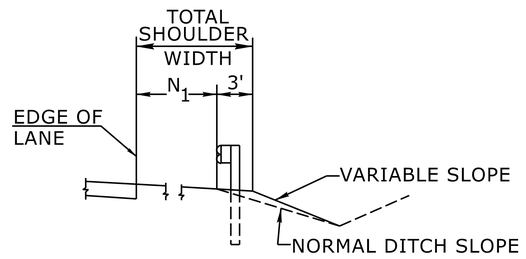
Incidental Milling Pavement Key–In Detail (Tie–In)

04-SEP-2024 11:44
M:\2013\2013395.05 NCDOT W-5601EY\Roadway\Proj\W-5601EY_Rdy_typ.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
W-5601EY	2C-1

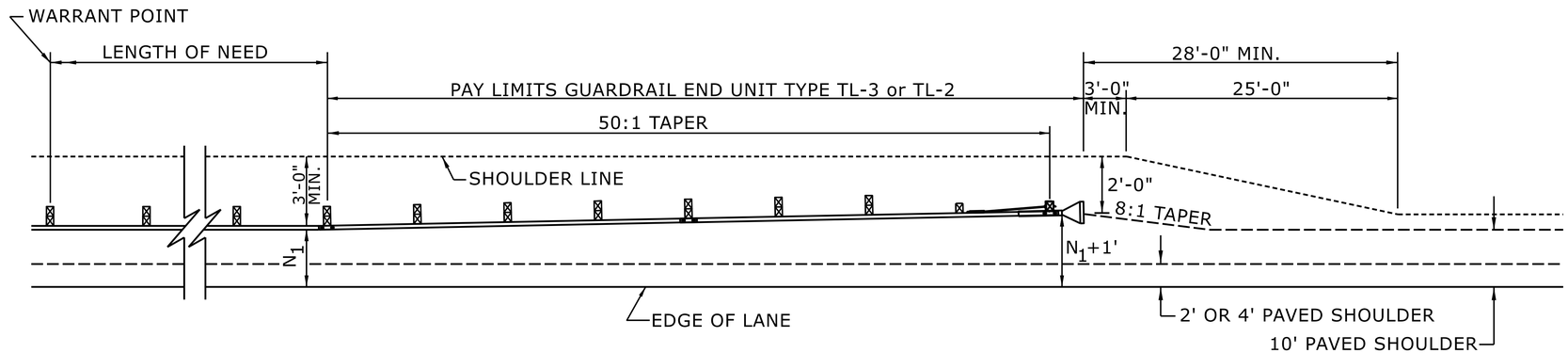


FILL SECTION



CUT SECTION

"N_1"= DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL WHERE GUARDRAIL IS PARALLEL TO LANE.



FOR POSTED SPEEDS ≥ 45mph USE GREU TYPE TL-3
FOR POSTED SPEEDS < 45mph USE GREU TYPE TL-2

DETAIL OF BEGINNING OF GUARDRAIL IN CUT OR FILL SECTION

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 6 OF 15

862D01

Signed by:
Nicole M. Hackler
SEAL
033144
PROFESSIONAL ENGINEER
NICOLE M. HACKLER
9/5/2024

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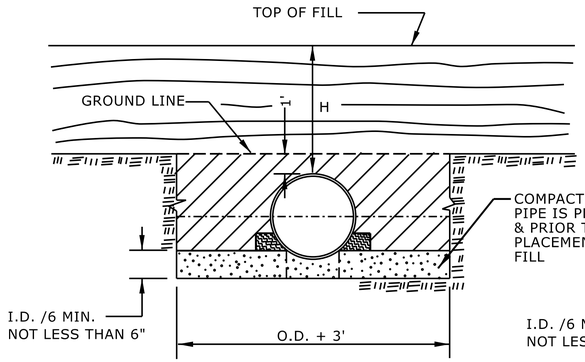
CONTRACTS STANDARDS
AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

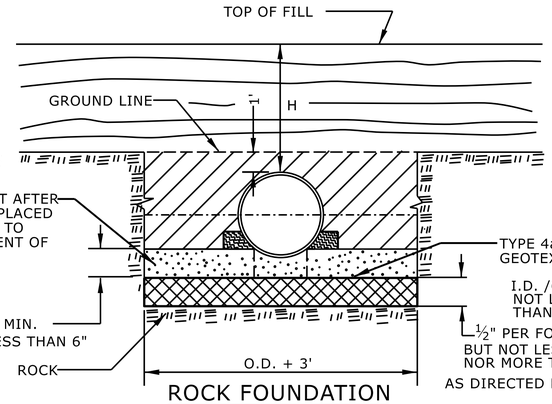
SEE TITLE BLOCK

ORIGINAL BY: S.CALHOUN DATE: 7-25-2024
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.:

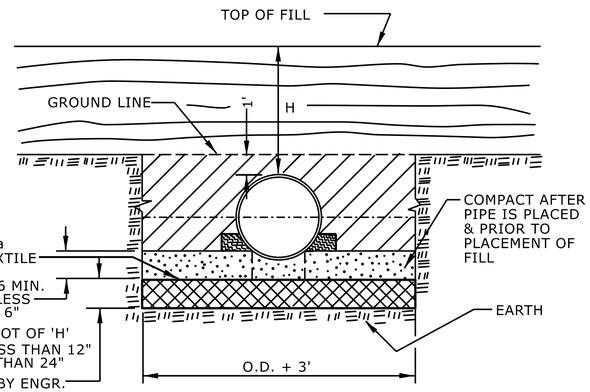
PROJECT REFERENCE NO.	SHEET NO.
W-5601EY	2C-2



NORMAL EARTH FOUNDATION

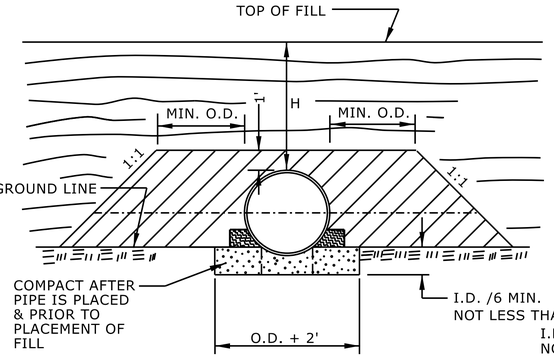


ROCK FOUNDATION

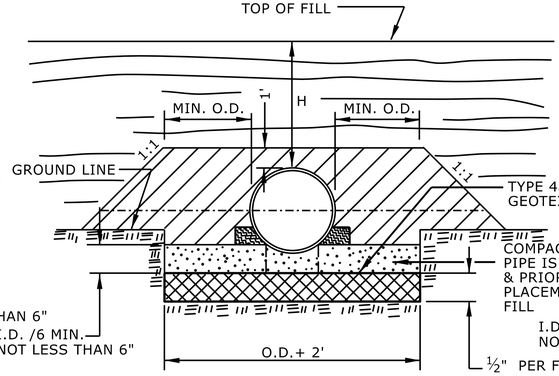


UNSUITABLE MATERIAL FOUNDATION

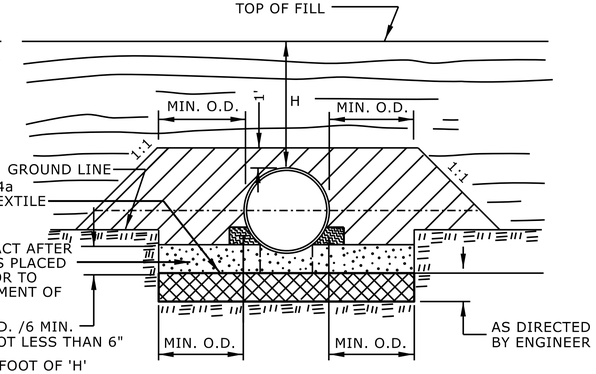
PIPE IN TRENCH



NORMAL EARTH FOUNDATION



ROCK FOUNDATION



UNSUITABLE MATERIAL FOUNDATION

PIPE ABOVE GROUND

GENERAL NOTES:

I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.

O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.

H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

APPROVED SUITABLE LOCAL MATERIAL.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

REFER TO NCDOT PIPE MATERIAL SELECTION GUIDE AND STANDARD SPECIFICATIONS FOR ALLOWABLE PIPE FILL HEIGHTS AND PIPE SPECIFICATIONS.

SPRINGLINE OF PIPE

SELECT BACKFILL MATERIAL CLASS III OR CLASS II, TYPE 1 ABOVE AND BELOW SPRINGLINE.

UNDISTURBED EARTH MATERIAL

SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH TYPE IV GEOTEXTILE AS DIRECTED BY THE ENGINEER.

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

ROADWAY DETAIL DRAWING FOR

METHOD OF PIPE INSTALLATION

FLEXIBLE PIPE

SHEET 1 OF 2

300.01

Signed By: Nicole M. Hackler
SEAL
033144
NORTH CAROLINA PROFESSIONAL ENGINEER NICOLE M. HACKLER
9/5/2024

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CONTRACTS STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

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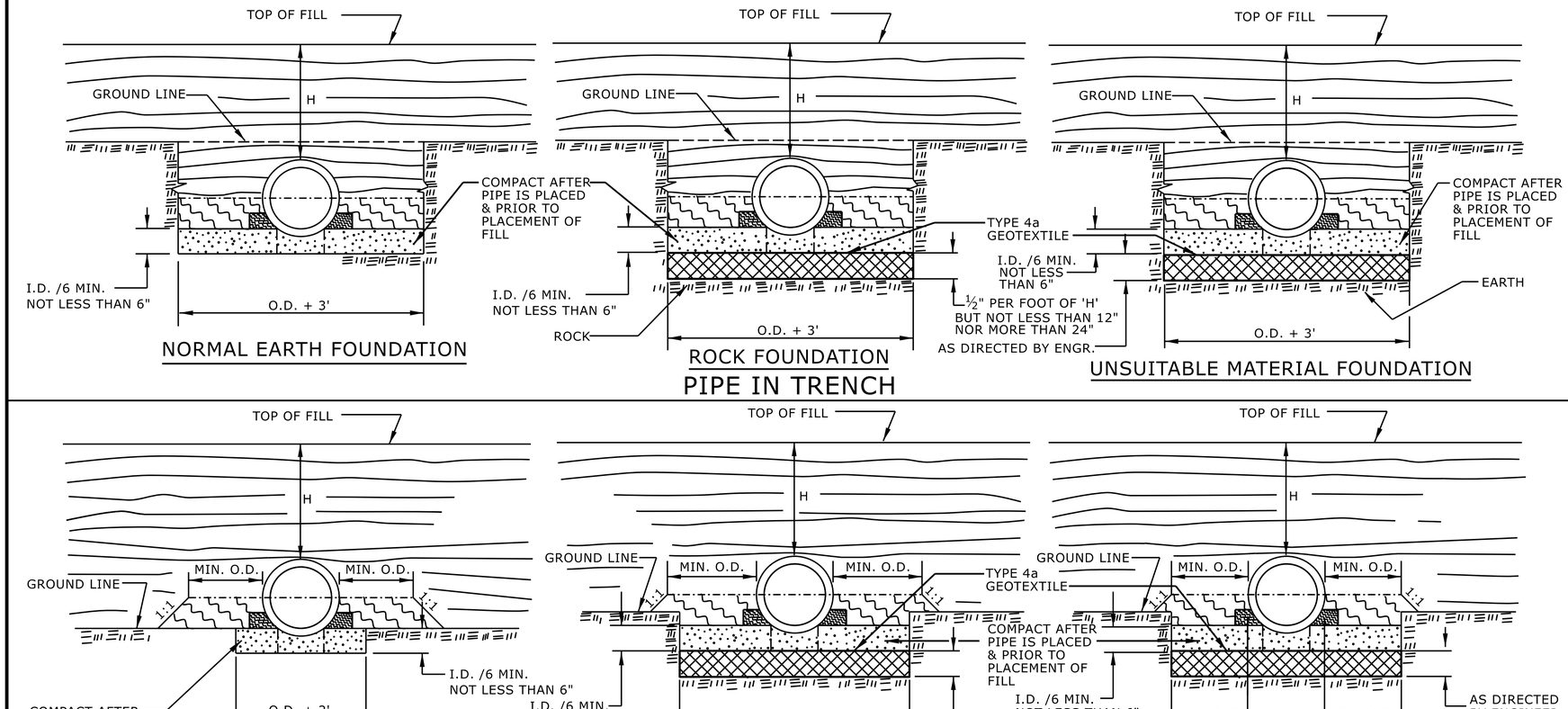
ORIGINAL BY: S.CALHOUN DATE: 7-25-2024
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.:

PROJECT REFERENCE NO.	SHEET NO.
W-5601EY	2C-3



GENERAL NOTES:

I.D. = THE MAXIMUM HORIZONTAL INSIDE DIAMETER DIMENSION.

O.D. = THE MAXIMUM HORIZONTAL OUTSIDE DIAMETER DIMENSION.

H = THE FILL HEIGHT MEASURED VERTICALLY AT ANY POINT ALONG THE PIPE FROM THE TOP OF THE PIPE TO THE TOP OF THE EMBANKMENT AT THAT POINT.

APPROVED SUITABLE LOCAL MATERIAL.

TAKE CARE TO FULLY COMPACT HAUNCH ZONE OF PIPE BACKFILL.

LOOSELY PLACED SELECT MATERIAL CLASS III OR CLASS II, TYPE 1 FOR PIPE BEDDING. LEAVE SECTION DIRECTLY BENEATH PIPE UNCOMPACTED AS PIPE SEATING AND BACKFILL WILL ACCOMPLISH COMPACTION.

DO NOT OPERATE HEAVY EQUIPMENT OVER ANY PIPE CULVERT UNTIL THE PIPE CULVERT HAS BEEN PROPERLY BACKFILLED AND COVERED WITH AT LEAST 3 FEET OF APPROVED MATERIAL.

REFER TO NCDOT PIPE MATERIAL SELECTION GUIDE AND STANDARD SPECIFICATIONS FOR ALLOWABLE PIPE FILL HEIGHTS AND PIPE SPECIFICATIONS.

SPRINGLINE OF PIPE

SELECT BACKFILL MATERIAL CLASS III OR CLASS II, BELOW SPRINGLINE.

UNDISTURBED EARTH MATERIAL

SELECT MATERIAL CLASS V OR VI FOR FOUNDATION CONDITIONING. ENCAPSULATE WITH TYPE IV GEOTEXTILE AS DIRECTED BY THE ENGINEER.

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

ROADWAY DETAIL DRAWING FOR

METHOD OF PIPE INSTALLATION

RIGID PIPE

SHEET 2 OF 2

300.01

Signed by: Nicole M. Hackler
SEAL
5B5C3D3416BC5...
033144
NORTH CAROLINA PROFESSIONAL ENGINEER
NICOLE M. HACKLER
9/5/2024

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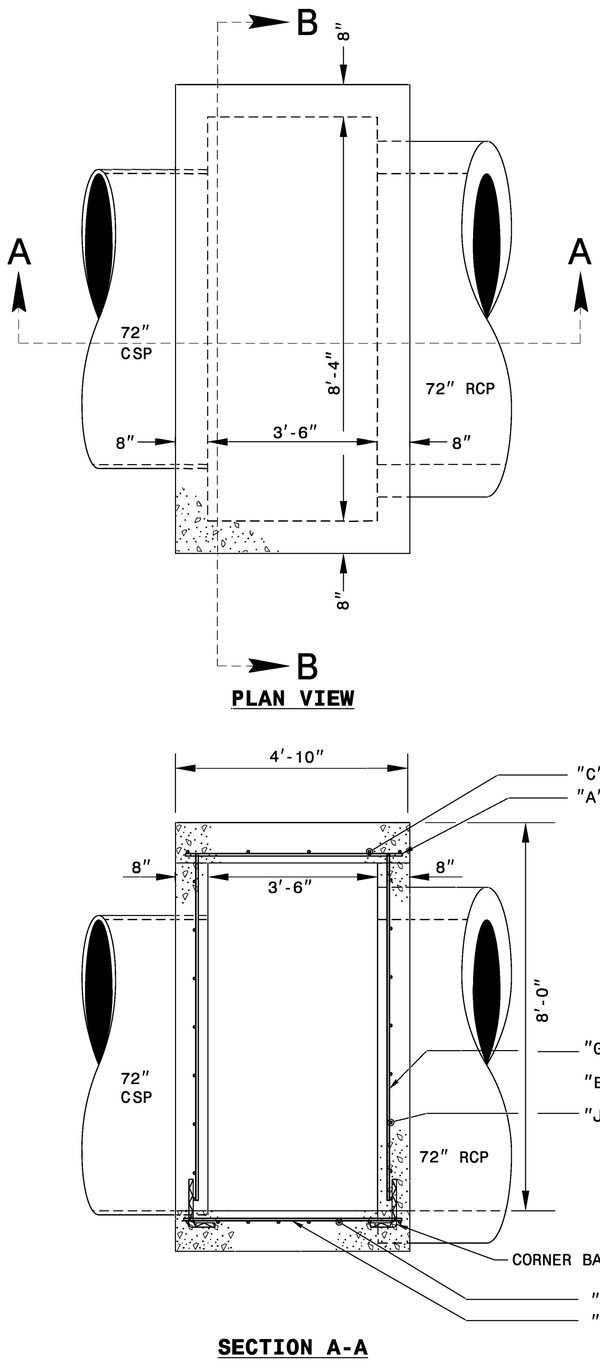
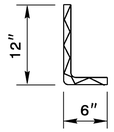
ORIGINAL BY: S.CALHOUN DATE: 7-25-2024
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: _____

PROJECT REFERENCE NO.	SHEET NO.
W-5601EY	2D-1



PLAN VIEW



DOWEL

GENERAL NOTES:

USE CLASS "B" CONCRETE THROUGHOUT.

OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.

USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.

IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.

NO DEDUCTIONS HAVE BEEN MADE FOR PIPES.

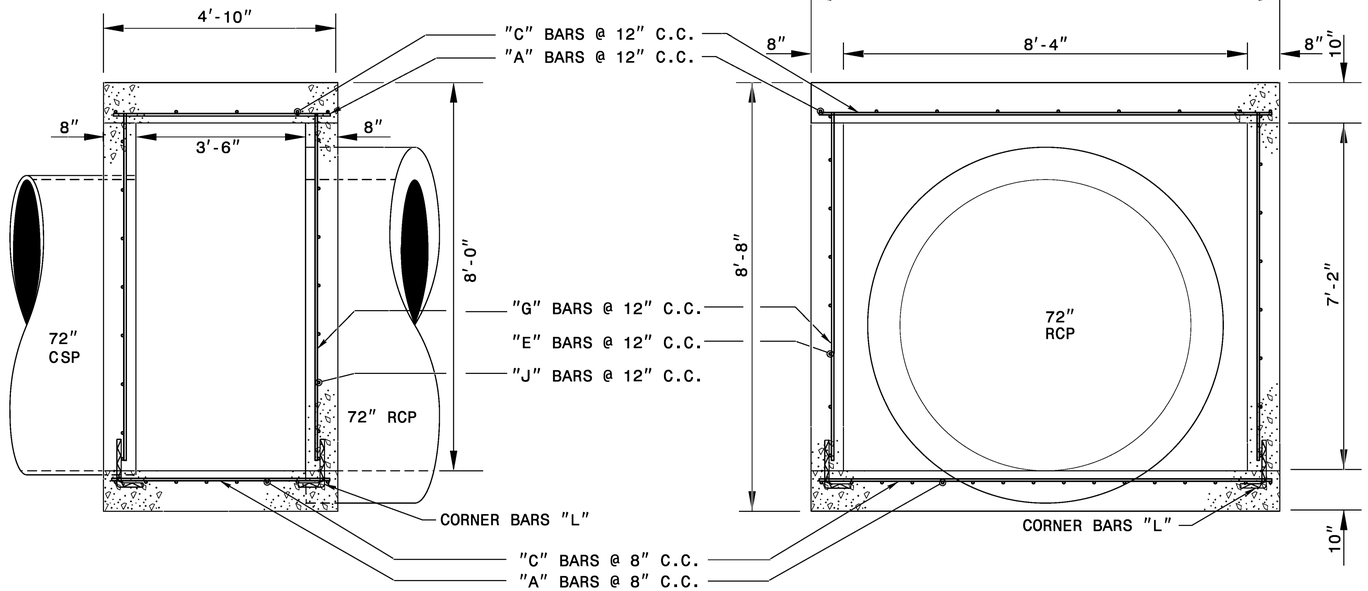
CHAMFER ALL EXPOSED CORNERS 1".

BOX DIMENSIONS MAY BE FIELD ADJUSTED AS DIRECTED BY THE ENGINEER.

DRAWING NOT TO SCALE.

BILL OF MATERIAL FOR CATCH BASIN

REINF. STEEL			1 PIPE	
BAR	SIZE	LENGTH	NO.	WEIGHT
A	#5	4'-6"	24	113
C	#5	9'-4"	13	127
E	#4	4'-0"	16	43
G	#4	7'-2"	26	124
J	#4	8'-8"	16	93
REINF. STEEL LBS.				500
CLASS "B" CONCRETE			CU. YDS.	7.5



SECTION A-A

SECTION B-B

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CONTRACTS STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SPECIAL JUNCTION BOX W/ SLAB LID

ORIGINAL BY: K. KEMPF DATE: 5-22-18
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: kkempf\english\R5825B_84_2gi_23ft_deep.dgn

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 33144 NICOLE M. HACKLER

Docusigned by: Nicole Hackler
58643B3D3414C5...

9/5/2024

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
W-5601EY	2D-2
R/W SHEET NO.	

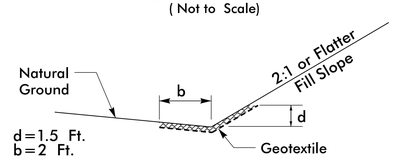
HYDRAULICS ENGINEER

DocuSigned by: Joshua G. Dalton
1089ADBC14934C3...
9/5/2024

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 26971 JOSHUA G. DALTON

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DETAIL 1
TOE PROTECTION
(Not to Scale)

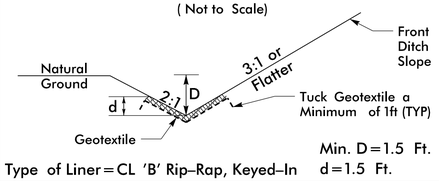


d = 1.5 Ft.
b = 2 Ft.

Type of Liner = CL B RIP RAP

FROM STA. 11+20 –L– TO STA. 14+16 –L– RT
FROM STA. 11+84 –L– TO STA. 13+87 –L– LT
FROM STA. 14+39 –L– TO STA. 16+86 –L– LT
FROM STA. 20+50 –L– TO STA. 21+60 –L– LT

DETAIL 2
SPECIAL LATERAL 'V' DITCH
(Not to Scale)

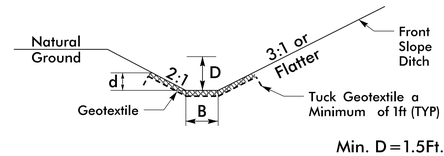


Min. D = 1.5 Ft.
d = 1.5 Ft.

Type of Liner = CL 'B' Rip–Rap, Keyed–In

FROM STA. 17+67 –L– TO STA. 19+14 –L– LT

DETAIL 3
SPECIAL LATERAL BASE DITCH
(Not to Scale)

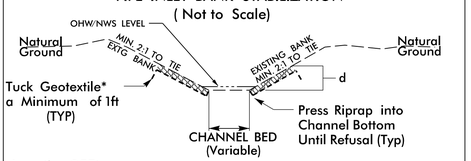


Min. D = 1.5Ft.
d = 1.5Ft.
B = 2.0Ft.

Type of Liner = CL 'I' Rip–Rap, Keyed–In

FROM STA. 18+03 –L– TO STA. 20+62 –L– RT
FROM STA. 21+29 –L– TO STA. 22+00 –L– RT

DETAIL 4
PIPE INLET BANK STABILIZATION
(Not to Scale)

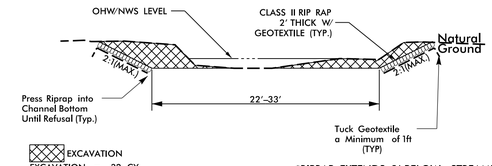


Length = 35Ft.
d = 5.0Ft.
Est. = 30 Tons of Class 'II' Rip–Rap, Keyed–In, 38 SY Geotextile

*Place Geotextile Under Riprap in Locations Directed by Engineer

FROM STA. 19+10 –L– TO STA. 19+32 –L– LT

DETAIL 5
INLET CHANNEL IMPROVEMENTS (LOOKING DOWNSTREAM)
(Not to Scale)

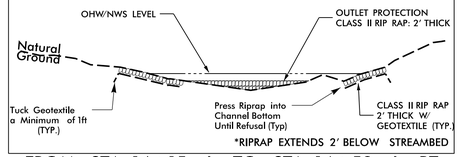


EXCAVATION = 32 CY

*RIPRAP EXTENDS 2' BELOW STREAMBED

FROM STA. 13+86 –L– TO STA. 14+37 –L– LT

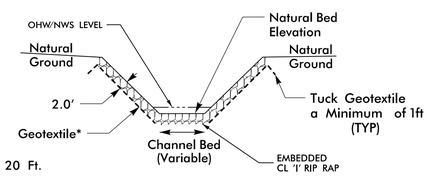
DETAIL 6
OUTLET CHANNEL AND BANK STABILIZATION (LOOKING DOWNSTREAM)
(Not to Scale)



*RIPRAP EXTENDS 2' BELOW STREAMBED

FROM STA. 14+15 –L– TO STA. 14+59 –L– RT

DETAIL 7
PIPE OUTLET BANK AND CHANNEL STABILIZATION
(Not to Scale)



Length = 20 Ft.

Type of Liners – CL 'I' in bed CL 'II' on Banks
Est. 9 Tons CL 'I' Rip–Rap – Keyed–In (Channel)
Est. 30 Tons CL 'II' Rip–Rap – Keyed–In (Banks)
Est. 42 SY Geotextile

*Place Geotextile Under Riprap in Locations Directed by Engineer

FROM STA. 17+85 –L– TO STA. 18+07 –L– RT

4/04/06

COMPUTED BY:SLR DATE:1/23/2018
CHECKED BY:BEH DATE:1/23/2018

PROJECT REFERENCE NO.	SHEET NO.
W-5601EY	3B-1

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SUMMARY OF EARTHWORK IN CUBIC YARDS

STATION	STATION	UNCL. EXCAV.	UNDERCUT EXCAV.	EMBANK. + %	BORROW	WASTE
-L- 11+00.00	21+60.00	1,741		3,551	1,810	
SUBTOTAL:		1,741		3,551	1,810	
SUBTOTAL:						
TOTALS:		1,741		3,551	1,810	
MATERIAL FOR SHOULDER CONST.				480	480	
PROJECT TOTAL:		1,741		4,031	2,290	
GRAND TOTAL:		1,741			2,290	
SAY:		1,800			2,500	

EST. DDE = 40 CY

Note: Approximate quantities only. Unclassified Excavation, Fine Grading, Shoulder Borrow and Clearing and Grubbing will be paid for at the contract lump sum price for "Grading."

PARCEL INDEX SHEET

PARCEL NO.	SHEET NO.	PROPERTY OWNER NAME
1	4	PORTER, DAVID PORTER, PHYLLIS MILLER
2	4	HARMON, BENJAMIN F.
3	4	HARMON, BENJAMIN F.
4	4	GUY, BARRY EUGENE
5	4	BRITTAIN, MICHAEL C BRITTAIN, THERESA R

INCIDENTAL MILLING SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD²
-L-	11+00.00	11+50.00	CL	134.38
-L-	21+10.00	21+60.00	CL	136.73
			TOTAL:	271.11
			SAY:	280

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

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH		W		ANCHORS								TEMP. CRASH CUSHIONS			SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	XI MOD	B-77	GRAU 350	M-350	TEMP. W-BEAM RETROFIT	TYPE III	VI MOD	GREU TL-3	AT-1	EA	G	NG				
-L-	11+20.67	16+20.67	RIGHT	500.00'			14+14.66	14+70.67	6.00'	9'	50'	50'	1.0'	1.0'								2							
-L-	11+16.50	16+95.00	LEFT	537.50'	56.25'		14+37.27	13+93.64	6.00'	9'	50'		1.0'									1	1						
			SUBTOTAL	1,037.50'																									
		LESS ANCHOR DEDUCTIONS:																											
		GREU TL-3	3 @ 50.00' =	-150.00																									
		AT-1	1 @ 6.25' =		-6.25																								
		ANCHOR DEDUCTION TOTAL:		-150.00	-6.25																								
			PROJECT TOTAL	887.50'	50.00'																	3	1						
			SAY	887.50'	50.00'																								
		ADDITIONAL GUARDRAIL POST =		5 EA																									

SDG-MEDWARDS

COMPUTED BY:	MCE	DATE:	09/05/2024
CHECKED BY:	JGD	DATE:	09/05/2024

PROJECT NO.	SHEET NO.
W-5601EY	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	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	R. C. PIPE CLASS IV 12	15	18	24	30	36	42	48	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	REINFORCED ENDWALLS CY	DRAINAGE STRUCTURE MASONRY 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.
21+00 -L-	30	RT	0405	0406		251.5	249.4						76									
18+66 -L-	0	CL																				
21+00 -L-	30	RT																				
SHEET TOTALS													76									
PROJECT TOTALS													76									

LINE & STATION	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	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	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 WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	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	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	ANGLED VANE GRATES AND FRAMES STD. 840.33	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35
21+00 -L-																													
18+66 -L-																													
21+00 -L-																													
SHEET TOTALS																													
PROJECT TOTALS																													

LINE & STATION	T.B.D.I. FOR STEEL GRATES STD. 840.36	STEEL FRAME WITH TWO GRATES STD. 840.37	TEMP STEEL PLATE COVER MASONRY DRAINAGE	SPRING BOX STD. 840.41	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING C.B. TO D.I.	CONVERT EXISTING D.I. TO J.B.	CONVERT EXISTING J.B. TO D.I.	ADJUST C.B.	ADJUST D.I.	15" C.S. ELBOW	18" C.S. ELBOW	24" C.S. ELBOW	30" C.S. ELBOW	36" C.S. ELBOW	MODIFIED CONC. FLUME	PREFORMED SCOUR HOLE (PER EACH)	ENERGY DISSIPATION BASIN		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
21+00 -L-																										
18+66 -L-																						36				Flow Fill 48" RCP
21+00 -L-																									68	Remove 18" RCP
SHEET TOTALS																						36			68	
PROJECT TOTALS																						36			68	

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:	MCE	DATE:	09/24/2024
CHECKED BY:	JGD	DATE:	09/24/2024

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
W-5601EY	3D-2

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

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

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	R. C. PIPE CLASS IV 54	60	66	72	78	84		72" WELDED STEEL PIPE 1.000" THICK, GRADE B IN SOIL (50% NOT IN SOIL)	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	REINFORCED ENDWALLS STD. 838.39 CY	DRAINAGE STRUCTURE MASONRY 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.
19+06 -L-	47 LT	0401															7.500				
		0401	0403		230.4	229.6									80						
18+77 -L-	41 RT	0403		240.9														7.500			
		0403	0404		229.6	228.8					80										
SHEET TOTALS											80				80		7.500	7.500			
PROJECT TOTALS											80				80		7.500	7.500			

STRUCTURE FROM - TO	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	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	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 WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	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	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	ANGLED VANE GRATES AND FRAMES STD. 840.33	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	TEMP STEEL PLATE COVER MASONRY DRAINAGE	SPRING BOX STD. 840.41	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54
0401																																		
0401 - 0403																																		
0403																																		
0403 - 0404																																		
SHEET TOTALS																																		
PROJECT TOTALS																																		

STRUCTURE FROM - TO	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING C.B. TO D.I.	CONVERT EXISTING D.I. TO J.B.	CONVERT EXISTING J.B. TO D.I.	ADJUST C.B.	ADJUST D.I.	15" C.S. ELBOW	18" C.S. ELBOW	24" C.S. ELBOW	30" C.S. ELBOW	36" C.S. ELBOW	MODIFIED CONC. FLUME	Special Junction Box with Slab Lid (See Sheet 2D-1)	ENERGY DISSIPATION BASIN		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
0401																				
0401 - 0403																				
0403													1							
0403 - 0404																				
SHEET TOTALS													1							
PROJECT TOTALS													1							

ABBREVIATIONS

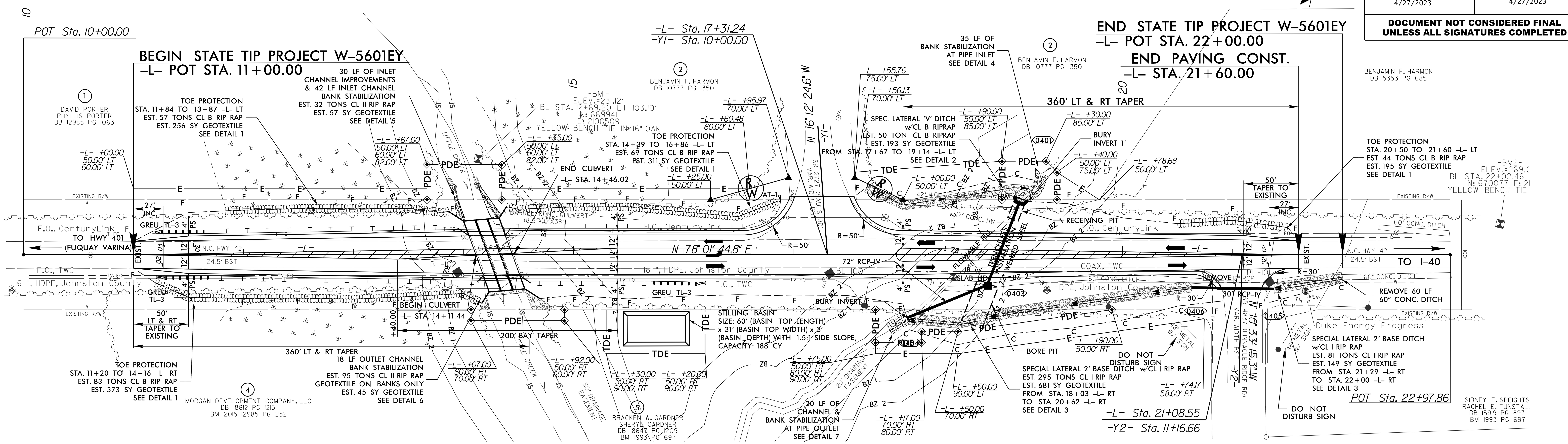
C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC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

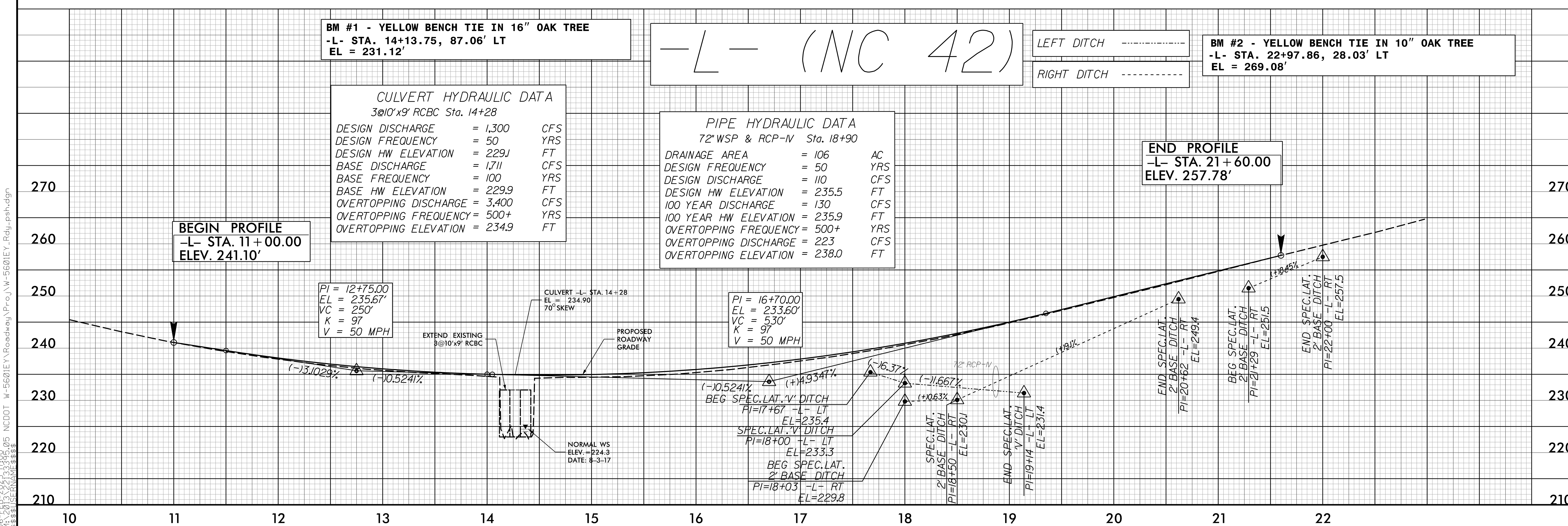
8/17/99

SEE SHEETS C–1 TO C–12 FOR CULVERT PLANS

PROJECT REFERENCE NO.	SHEET NO.
W-5601EY	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 036853 ENGINEER BRYAN E. HOUGH — DocuSigned by: Bryan Hough 398761EEEF9344C... 4/27/2023	NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON — DocuSigned by: Joshua G. Dalton 1089AD8C14994C3... 4/27/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED





CULVERT HYDRAULIC DATA

3@10'x9' RCBC Sta. 14+28

DESIGN DISCHARGE	= 1,300	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 229.1	FT
BASE DISCHARGE	= 1,711	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 229.9	FT
OVERTOPPING DISCHARGE	= 3,400	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 234.9	FT

PIPE HYDRAULIC DATA

72" WSP & RCP-IV Sta. 18+90

DRAINAGE AREA	= 106	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 110	CFS
DESIGN HW ELEVATION	= 235.5	FT
100 YEAR DISCHARGE	= 130	CFS
100 YEAR HW ELEVATION	= 235.9	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 223	CFS
OVERTOPPING ELEVATION	= 238.0	FT

06-FEB-2023 17:00
M:\2013\22133395.05 NCDOT W-5601EY\Roadway\Proj\W-5601EY_Rdy_psh.dgn
$$$$USERNAME$$$$