Submitted 7/29/2021

North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.06; Released June 2016)

WBS Element:	44369.1.2	**TIP No.:**	U-5798A	**County(ies):**	Cumberland	**Page** 1	**of** 1

General Project Information

WBS Element:	44369.1.2	**TIP Number:**	U-5798A	**Project Type:**	Roadway Widening	**Date:**	4/17/2020
NCDOT Contact:	Paul Atkinson			**Contractor / Designer:**	Richard Bollinger, PE		
Address:	1000 Birch Ridge Rd. Raleigh, NC 27610			**Address:**	8521 Six Forks Rd. Suite 400 Raleigh NC 27615		
Phone:	919-707-6707			**Phone:**	919-926-4105		
Email:	patkinson@ncdot.gov			**Email:**	Richard.Bollinger@rsandh.com		
City/Town:	Fayetteville			**County(ies):**	Cumberland		
River Basin(s):	Cape Fear			**CAMA County?**	No		
Wetlands within Project Limits?	Yes						

Project Description

Project Length (lin. miles or feet):	1.072 mi.	**Surrounding Land Use:**	Agriculture, Woods, Light Residential and Commercial

	Proposed Project	**Existing Site**
Project Built-Upon Area (ac.)	15.1 ac.	5.3 ac.
Typical Cross Section Description:	Four 12-foot lanes with curb and gutter and 4-foot bike lanes. 5-foot sidewalks on each side of the roadway.	Two 12-foot lanes with 1' paved shoulder section on both sides.
Annual Avg Daily Traffic (veh/hr/day):	Design/Future: 30400 Year: 2041	Existing: 16700 Year: 2017

General Project Narrative: (Description of Minimization of Water Quality Impacts)

Section A of U-5798 proposes to widen SR 1102 (Gillis Hill Road) to four 12-foot lanes with a median from the north side of Stoney Point Road (SR 1112) to US 401 and will include construction of two parallel bridges over Little Rockfish Creek to replace the existing structurally deficient, functionally obsolete bridge. The proposed bridges will be built to the west (upstream) of the existing structure. The left bridge (southbound) is 1@127' and 1@115', with 63" FIBS with cap of varying depth. The right bridge (northbound) is 1@113' and 1@115' with 54" FIBS with cap of verying depth. The proposed bridges will not require deck drains. The bridges will have two catch basins located at the end of the approach slab to collect deck drainage with an outlet to the downstream side of the bridge into a proposed ditch. Rip rap pads will be used at all outlets to reduce velocities into wetlands.

Waterbody Information

Surface Water Body (1):	Little Rockfish Creek	**NCDWR Stream Index No.:**	18-34-24-(1)		
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class C		
		Supplemental Classification:	None		
Other Stream Classification:	None				
Impairments:	None				
Aquatic T&E Species?	Yes	Comments:	American Alligator (Not Required), Cape Fear Shiner (No Effect, Michaux's Sumac (No Effect), Pondberry (No Effect), Red-cockaded Woodpecker (No Effect), Rough-leaved Loosestrife (No Effect), Saint Francis' Satyr Butterfly (No Effect), Northern long-eared bat (May Affect, Likely to Adversely Affect)		
NRTR Stream ID:	Little Rockfish Creek			**Buffer Rules in Effect:**	N/A
Project Includes Bridge Spanning Water Body?	Yes	**Deck Drains Discharge Over Buffer?**	No	**Dissipator Pads Provided in Buffer?**	No
Deck Drains Discharge Over Water Body?	No	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)	
(If yes, provide justification in the General Project Narrative)					

Submitted 7/29/2021

09/08/99

TIP PROJECT: U-5798A

CONTRACT:

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5798A	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
44369.1.2	N/A	PE

CUMBERLAND COUNTY

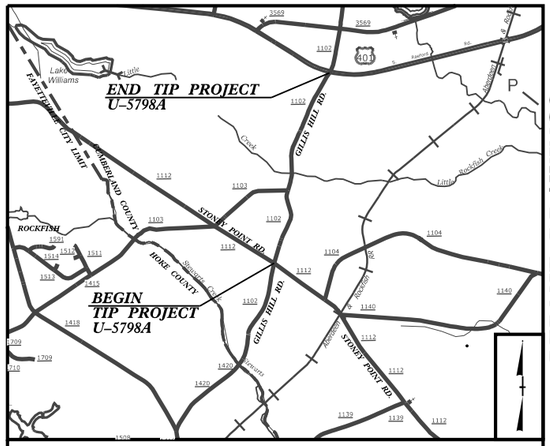
LOCATION: WIDEN SR 1102 (GILLIS HILL ROAD) TO MULTI-LANES FROM FROM US 401 (RAEFORD ROAD) TO SR 1007 (STONEY POINT ROAD)

TYPE OF WORK: PAVING, GRADING, DRAINAGE, SIGNING, STRUCTURES AND SIGNALS.

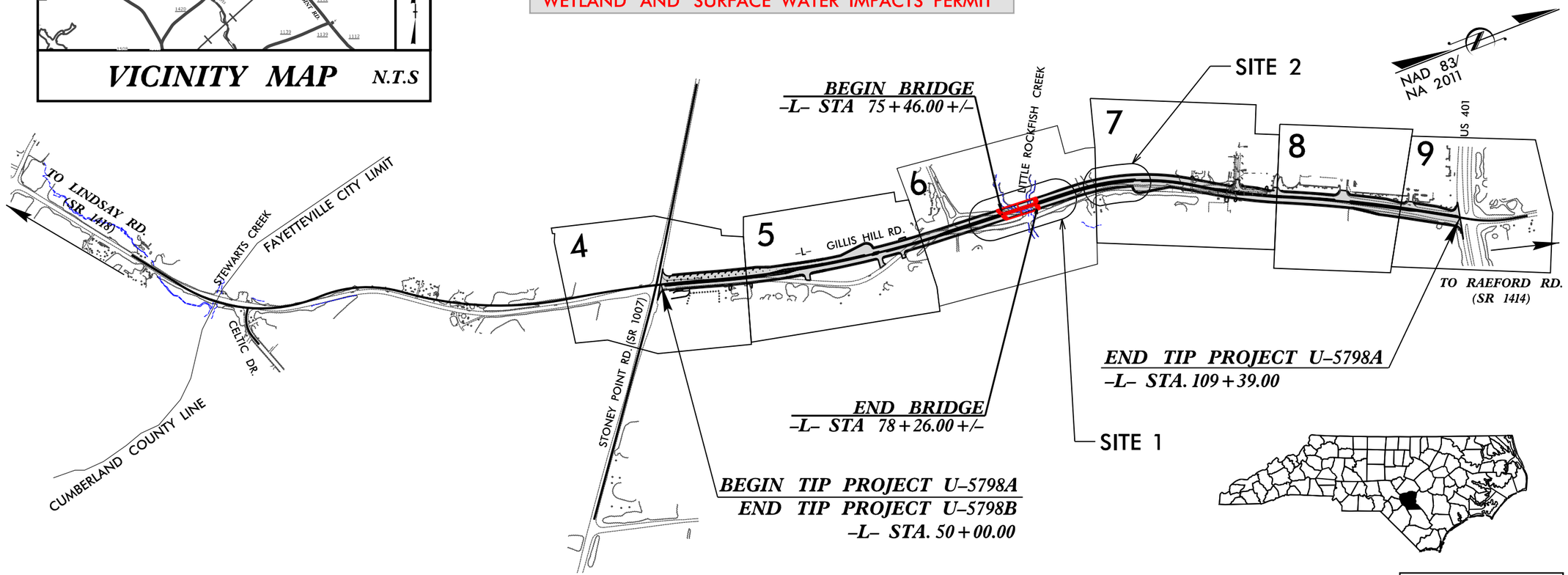
PERMIT DRAWING
SHEET 1 OF 12

WETLAND AND SURFACE WATER IMPACTS PERMIT

PERMIT DRAWINGS



VICINITY MAP N.T.S



THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF FAYETTEVILLE.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2021 = 24,700
ADT 2041 = 30,400
K = 8 %
D = 60 %
T = 3 % *
V = 50 MPH
*(TTST=1 + DUAL=2)
FUNC CLASS =
MINOR COLLECTOR
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-5798A	=	1.125	MILES
LENGTH STRUCTURE TIP PROJECT U-5798A	=	0.053	MILES
TOTAL LENGTH TIP PROJECT U-5798A	=	1.072	MILES

PREPARED IN THE OFFICE OF:
RS&H
8521 SIX FORKS ROAD, SUITE 400
RALEIGH, NC 27615
NC FIRM LICENSE No: F-0493
FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
3/20/2020

LETTING DATE:
3/15/2022

CHARLES YOUNG, PE
PROJECT ENGINEER

ERIC BUSH, EI
PROJECT DESIGN ENGINEER

NICOLE HACKLER, PE
NCDOT CONTACT

HYDRAULICS ENGINEER
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER
SIGNATURE: P.E.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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Submitted 7/29/2021

PROJECT REFERENCE NO.	SHEET NO.
U-5798A	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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PERMIT DRAWING
SHEET 2 OF 12

NAD 83/
NA 2011

SITE 1

SITE 2

HAND CLEARING
MECHANIZED CLEARING
EXCAVATION IN WETLAND

MECHANIZED CLEARING
FILL IN WETLAND

SEE INSET A

MATCHLINE SHEET 5 -L- STA. 69+35.00

MATCHLINE SHEET 7 -L- STA. 82+60.00

6 M D GILLIS C/O JUDY GILLIS DIBACCO

7 M D GILLIS C/O JUDY GILLIS DIBACCO

8 MALCOLM D GILLIS HEIRS JUDY GILLIS MCKETHAN

9 JOHN MCN GILLIS JR ET AL

10 JOHN MCN GILLIS JR ET AL

11 DOUGLAS KEITH MILLER & WIFE KATHRYN GILLIS

5 JOHN D GILLIS

RUN OF LITTLE ROCKFISH CREEK IS PROPERTY LINE

DETAIL K
CHANNEL CHANGE
(Not to Scale)

Natural Ground
CLASS "I" RIP RAP TO FULL HEIGHT OF PROPOSED BANKS
GEOTEXTILE
Exist. Channel
Min. D= 2.0 Ft.
B= 15.0 Ft.

FROM -L- STA. 76+47 LT TO STA. 77+25 RT
EST. 456 TONS CL "I" RIP RAP
EST. 643 SY GEOTEXTILE
EST. 910 CY DDE

DETAIL G
SPECIAL LATERAL BASE DITCH
(Not to Scale)

Natural Ground
Geotextile
Min. D= 1 Ft.
Max. d= 0.5 Ft.
B= 3.0 Ft.
Type of Liner= 61 TONS CL I RIP-RAP
85 S.Y. GEOTEXTILE
FROM -L- STA. 73+74 TO STA. 75+00 RT

DETAIL H
STANDARD BASE DITCH
(Not to Scale)

Natural Ground
Geotextile
*When B is < 6.0'
Min. D= 1.0 Ft.
Max. d= 0.9 Ft.
B= 4.0 Ft.
Type of Liner= 147 TONS CL I RIP-RAP
208 S.Y. GEOTEXTILE
FROM -L- STA. 75+00 TO STA. 77+06 RT;
DDE=205 CY

CLASS "I" RIP RAP FILL TO A MINIMUM 10' OFF PROPOSED COLUMNS
CHANNEL BLOCK SEE SHEET 2D-1
SPECIAL LATERAL BASE DITCH SEE DETAIL G
STANDARD BASE DITCH SEE DETAIL H
EST 7 TON CL I RIP RAP
EST 15 SY GEOTEXTILE
CHANNEL CHANGE SEE DETAIL K
REMOVE EXISTING BRIDGE
EST 15 TON CL I RIP RAP
EST 30 SY GEOTEXTILE
GRADE TO DRAIN
28' PAVED 24" CSP w/ELBOWS
15" RCP-IV
15" RCP-V
24" RCP-IV
24" RCP-V
24" DIP
48" WW
MTL GATE
ATTENUATOR
TYPE III
CB-G
CB-F
CB-E
TB2GI
OTCB-1
DI
REMOVE
WLB
PUE
DUE
PDE
WOODS
NOT USED

ADDITIONAL WETLAND IMPACTS ARE ACCOUNTED FOR IN THE UTILITY PERMIT DRAWINGS

INSET A

E E	DENOTES EXCAVATION IN WETLAND
F F	DENOTES FILL IN WETLAND
	DENOTES MECHANIZED CLEARING
HC HC	DENOTES HAND CLEARING
S S	DENOTES IMPACTS IN SURFACE WATER
TS TS	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

EXCAVATION IN WETLAND

50' 0' 50' 100' 150'

FOR -L- PROFILE, SEE SHEETS NO. 9, 10

8/17/99

12-JUL-2021 (2:9)
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Submitted 7/29/2021

PROJECT REFERENCE NO.	SHEET NO.
U-5798A	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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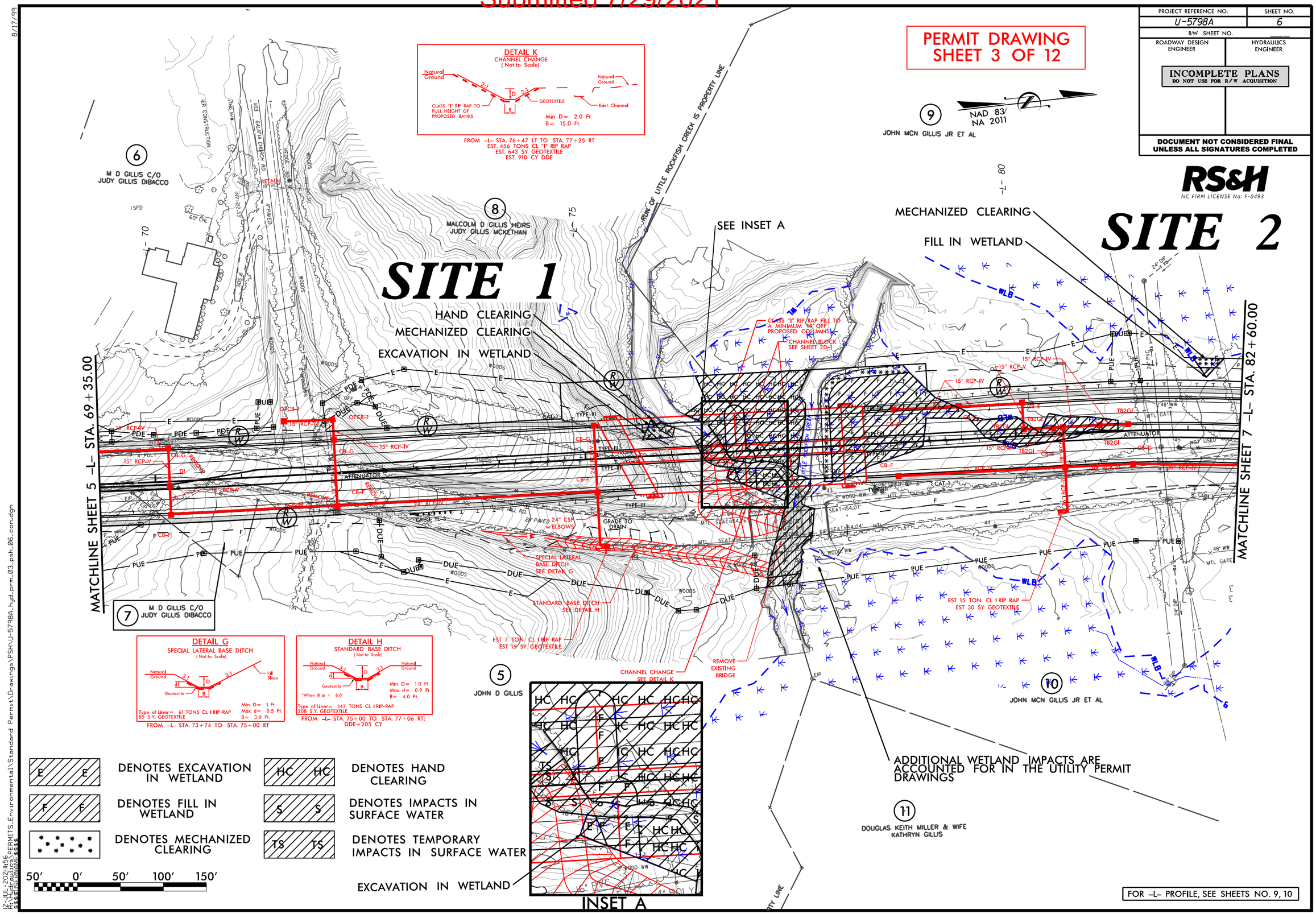
PERMIT DRAWING
SHEET 3 OF 12

NAD 83/ NA 2011



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Submitted 7/29/2021

PROJECT REFERENCE NO.	SHEET NO.
U-5798A	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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NC FIRM LICENSE No: F-0493

PERMIT DRAWING
SHEET 4 OF 12

NAD 83/ NA 2011

SITE 2

MECHANIZED CLEARING
HAND CLEARING

ADDITIONAL WETLAND IMPACTS ARE ACCOUNTED FOR IN THE UTILITY PERMIT DRAWINGS

MATCHLINE SHEET 6 –L– STA. 82+60.00

MATCHLINE SHEET 8 –L– STA. 95+80.00

9 JOHN MCN GILLIS JR ET AL

13 JOHN MCN GILLIS JR ET AL

15 GILBERT LINDSAY & WIFE LAURA

16 LEWIS LINDSEY & WIFE LAURIE

20 GT RECREATION

21 WAL-MART REAL ESTATE BUSINESS TRUST (#3595)

10 JOHN MCN GILLIS JR ET AL

12 JOHN MCN GILLIS JR ET AL

11 DOUGLAS KEITH MILLER & WIFE KATHRYN GILLIS

14 KATHRYN GILLIS MILLER & HUSBAND DOUGLAS KEITH

18 WEST FAYETTEVILLE BAPTIST CHURCH TRUSTEES

19 JOHN D GILLIS

NOTE:
UNABLE TO LOCATE EXISTING 24" RCP DURING FIELD INVESTIGATION.

DETAIL I
SPECIAL CUT DITCH
(Not to Scale)

Natural Ground — 3:1 — D — 1:1 — Front Ditch Slope — Min. D = 1.0 Ft.

FROM –L– STA. 90+10 TO STA. 92+50 LT
FROM –L– STA. 93+50 TO STA. 95+00 LT

HC HC DENOTES HAND CLEARING

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

50' 0' 50' 100' 150'

FOR –L– PROFILE, SEE SHEET NO. 10

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
U-5798A	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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RS&H
NC FIRM LICENSE No: F-0493

PERMIT DRAWING
SHEET 5 OF 12

NAD 83/ NA 2011

SITE 2

MECHANIZED CLEARING
HAND CLEARING

ADDITIONAL WETLAND IMPACTS ARE ACCOUNTED FOR IN THE UTILITY PERMIT DRAWINGS

MATCHLINE SHEET 6 -L- STA. 82+60.00

MATCHLINE SHEET 8 -L- STA. 95+80.00

13 JOHN MCN GILLIS JR ET AL

9 JOHN MCN GILLIS JR ET AL

15 GILBERT LINDSAY & WIFE LAURA

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14 KATHRYN GILLIS MILLER & HUSBAND DOUGLAS KEITH

18 WEST FAYETTEVILLE BAPTIST CHURCH TRUSTEES

19 JOHN D GILLIS

NOTE:
UNABLE TO LOCATE EXISTING 24" RCP DURING FIELD INVESTIGATION.

HC HC DENOTES HAND CLEARING

F F DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

50' 0' 50' 100' 150'

DETAIL I
SPECIAL CUT DITCH
(Not to Scale)

Natural Ground
Front Ditch Slope
D
Min. D = 1.0 Ft.

FROM -L- STA. 90+10 TO STA. 92+50 LT
FROM -L- STA. 93+50 TO STA. 95+00 LT

FOR -L- PROFILE, SEE SHEET NO. 10

8/17/99

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Submitted 7/29/2021

PROJECT REFERENCE NO.	SHEET NO.
U-5798A	10
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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PERMIT DRAWING
SHEET 6 OF 12

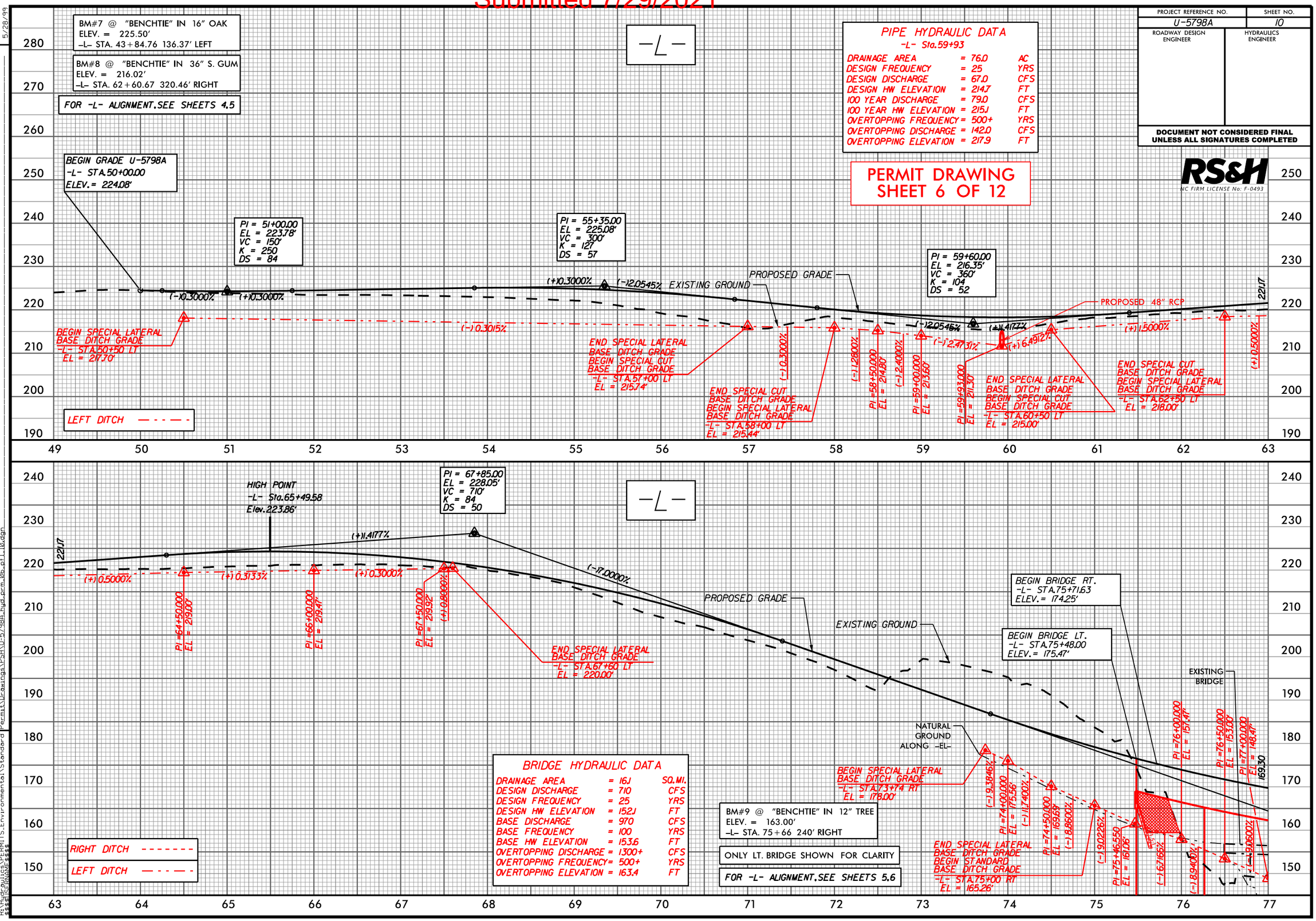
BM#7 @ "BENCHTIE" IN 16" OAK
ELEV. = 225.50'
-L- STA. 43+84.76 136.37' LEFT

BM#8 @ "BENCHTIE" IN 36" S. GUM
ELEV. = 216.02'
-L- STA. 62+60.67 320.46' RIGHT

FOR -L- ALIGNMENT, SEE SHEETS 4,5

PIPE HYDRAULIC DATA
-L- Sta.59+93

DRAINAGE AREA	= 76.0	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 67.0	CFS
DESIGN HW ELEVATION	= 214.7	FT
100 YEAR DISCHARGE	= 79.0	CFS
100 YEAR HW ELEVATION	= 215.1	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 142.0	CFS
OVERTOPPING ELEVATION	= 217.9	FT



BRIDGE HYDRAULIC DATA

DRAINAGE AREA	= 16.1	SQ.MI.
DESIGN DISCHARGE	= 710	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 152.1	FT
BASE DISCHARGE	= 970	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 153.6	FT
OVERTOPPING DISCHARGE	= 1300+	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 163.4	FT

REVISIONS

5/28/99

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PROJECT REFERENCE NO.	SHEET NO.
U-5798A	11
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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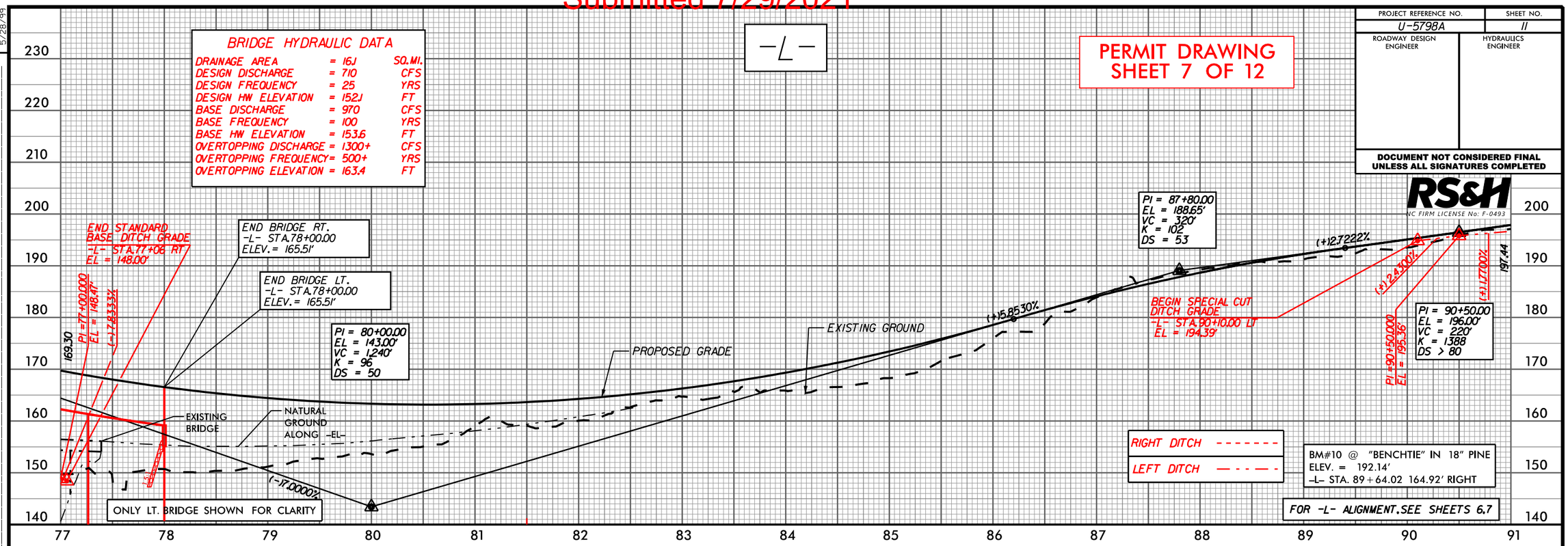
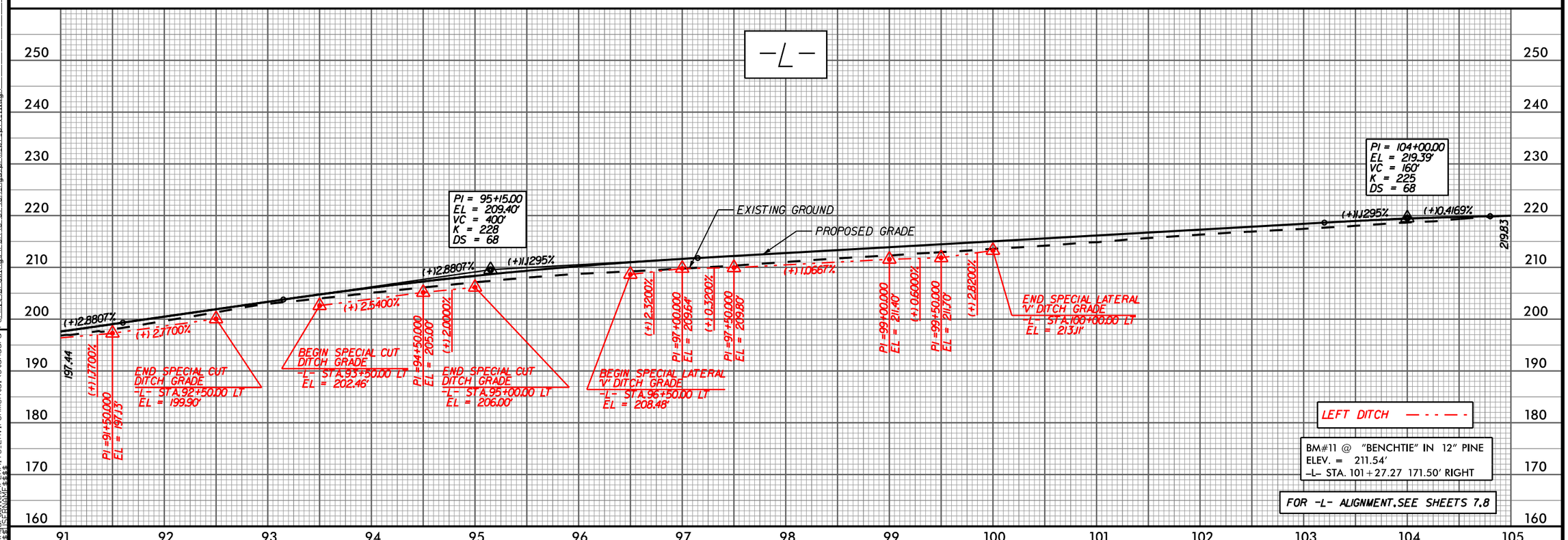
NC FIRM LICENSE No: F-0493

PERMIT DRAWING
SHEET 7 OF 12

BRIDGE HYDRAULIC DATA

DRAINAGE AREA	= 16.1	SQ.MI.
DESIGN DISCHARGE	= 710	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 152.1	FT
BASE DISCHARGE	= 970	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 153.6	FT
OVERTOPPING DISCHARGE	= 1300+	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 163.4	FT





REVISIONS

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PROJ. REFERENCE NO.	SHEET NO.
U-5798A	X-10

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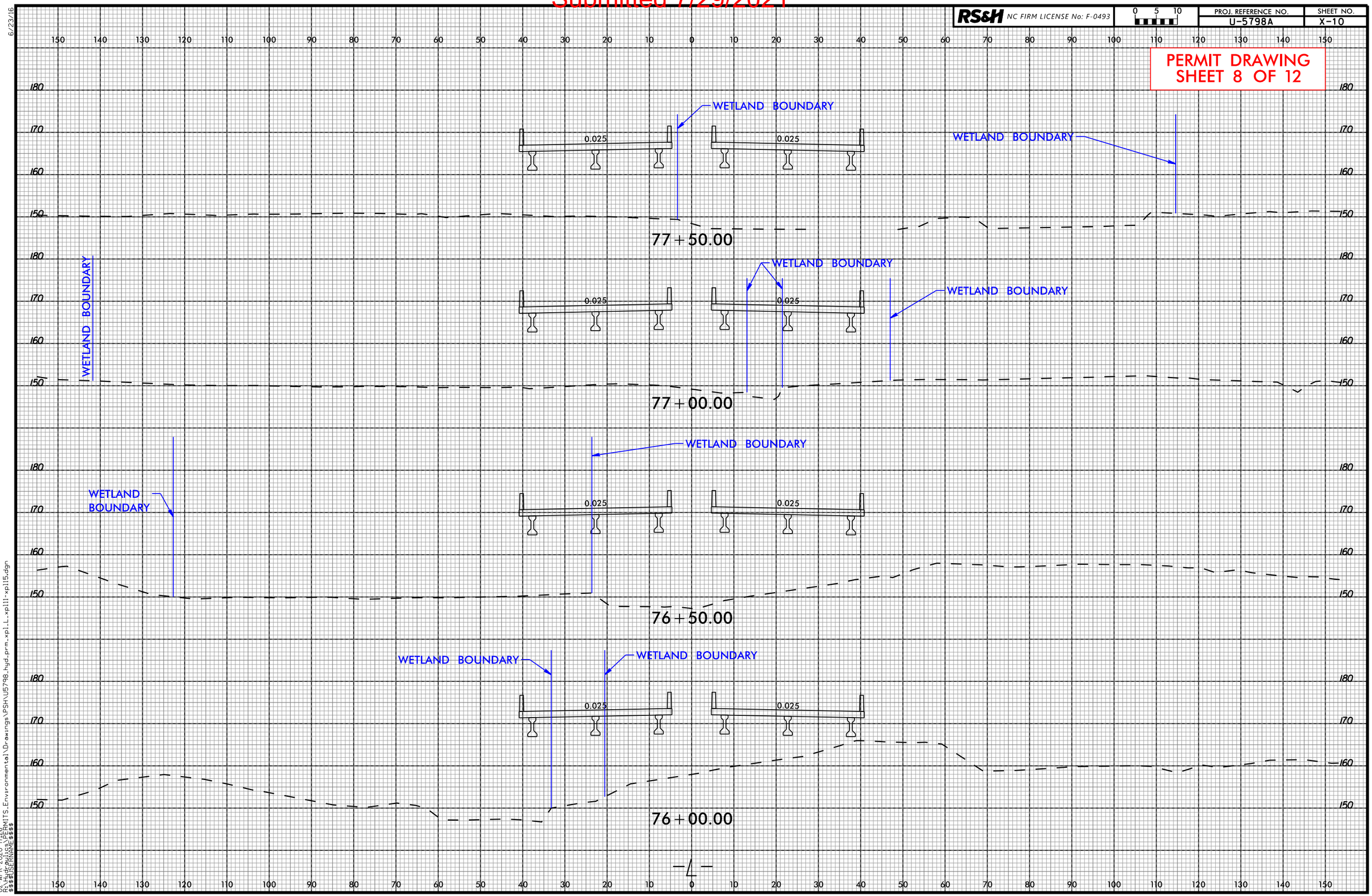
SHEET 8 OF 12



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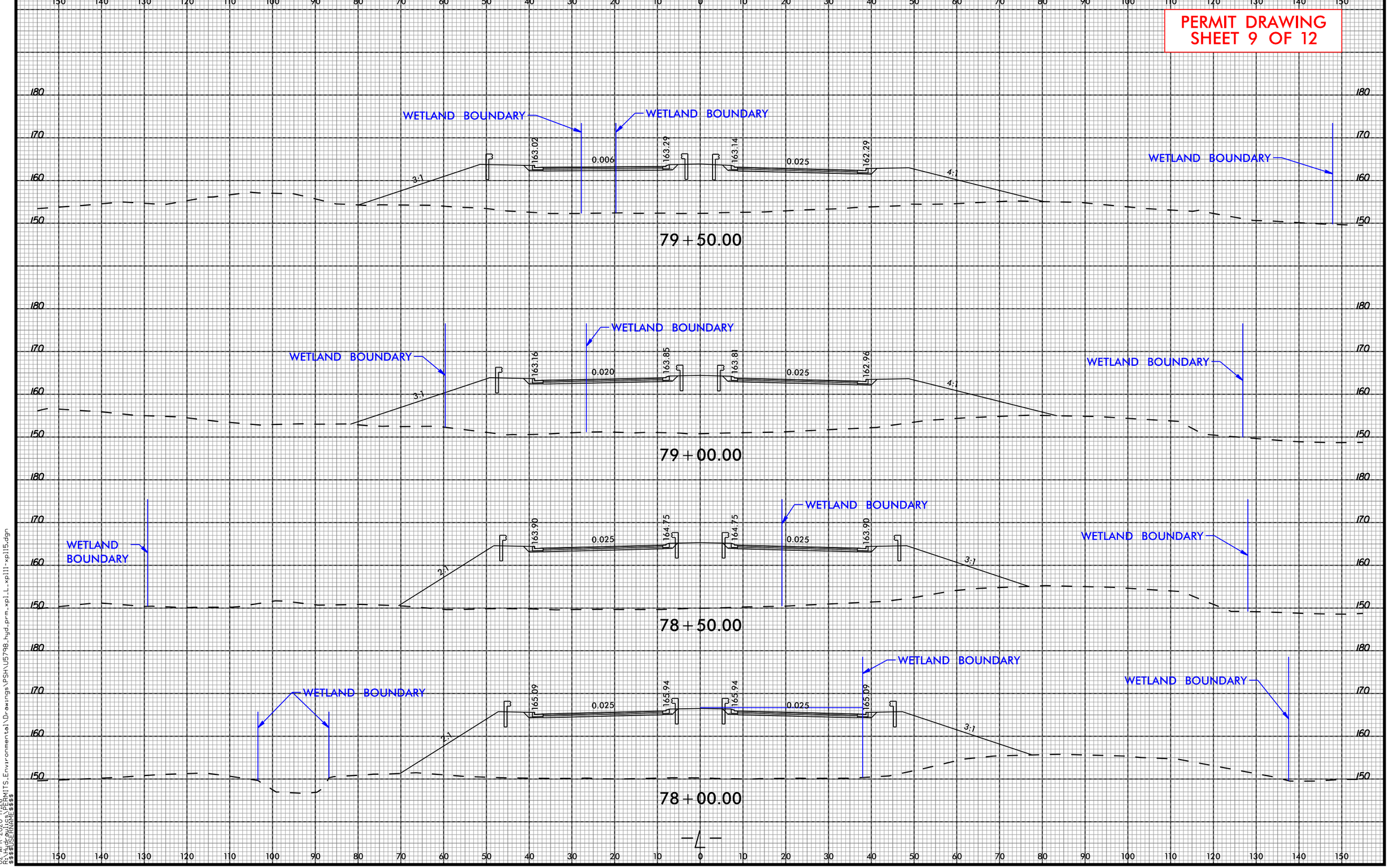
PROJ. REFERENCE NO.	SHEET NO.
U-5798A	X-11

PERMIT DRAWING
SHEET 9 OF 12



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PROJ. REFERENCE NO.	SHEET NO.
U-5798A	X-12

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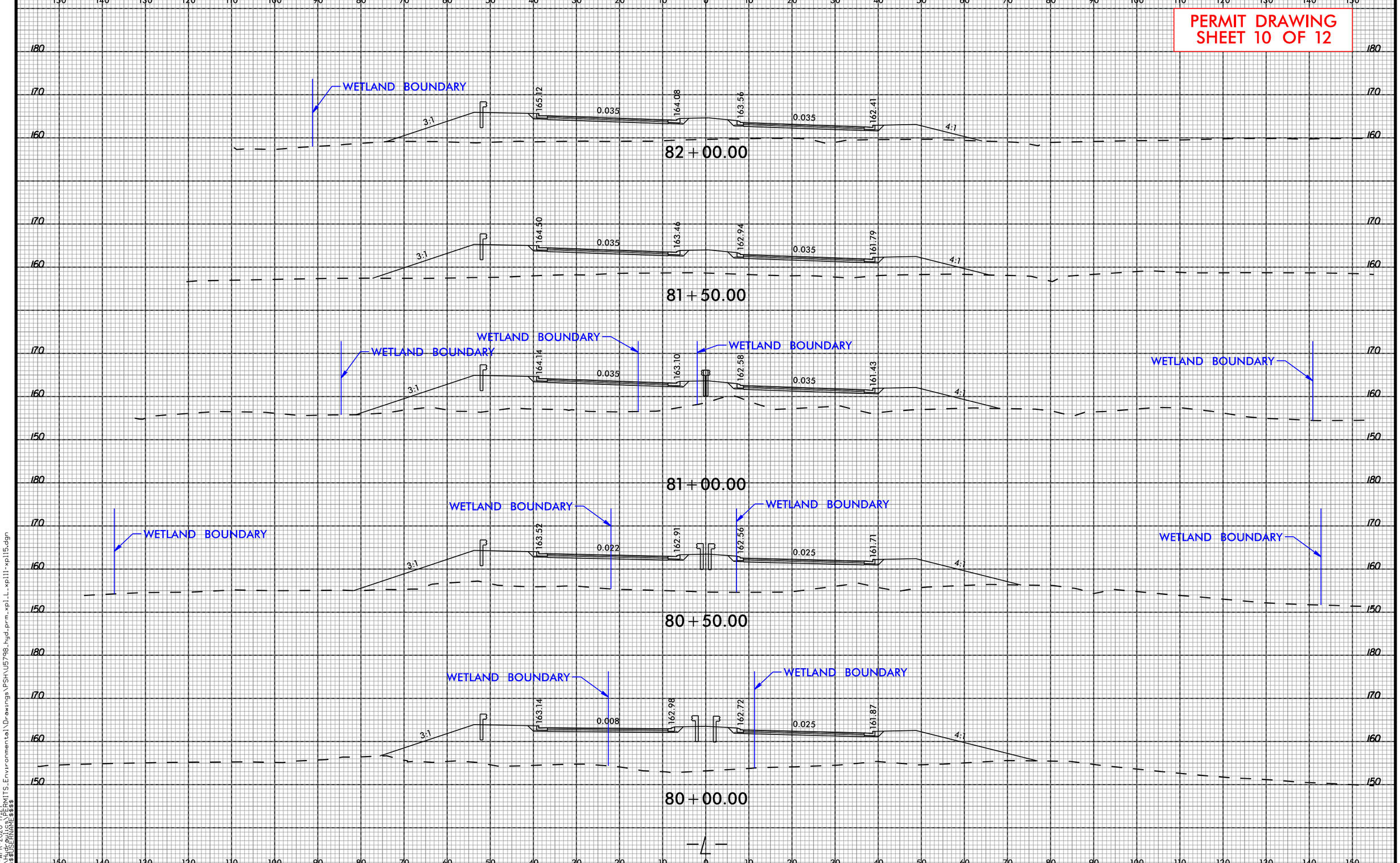
SHEET 10 OF 12



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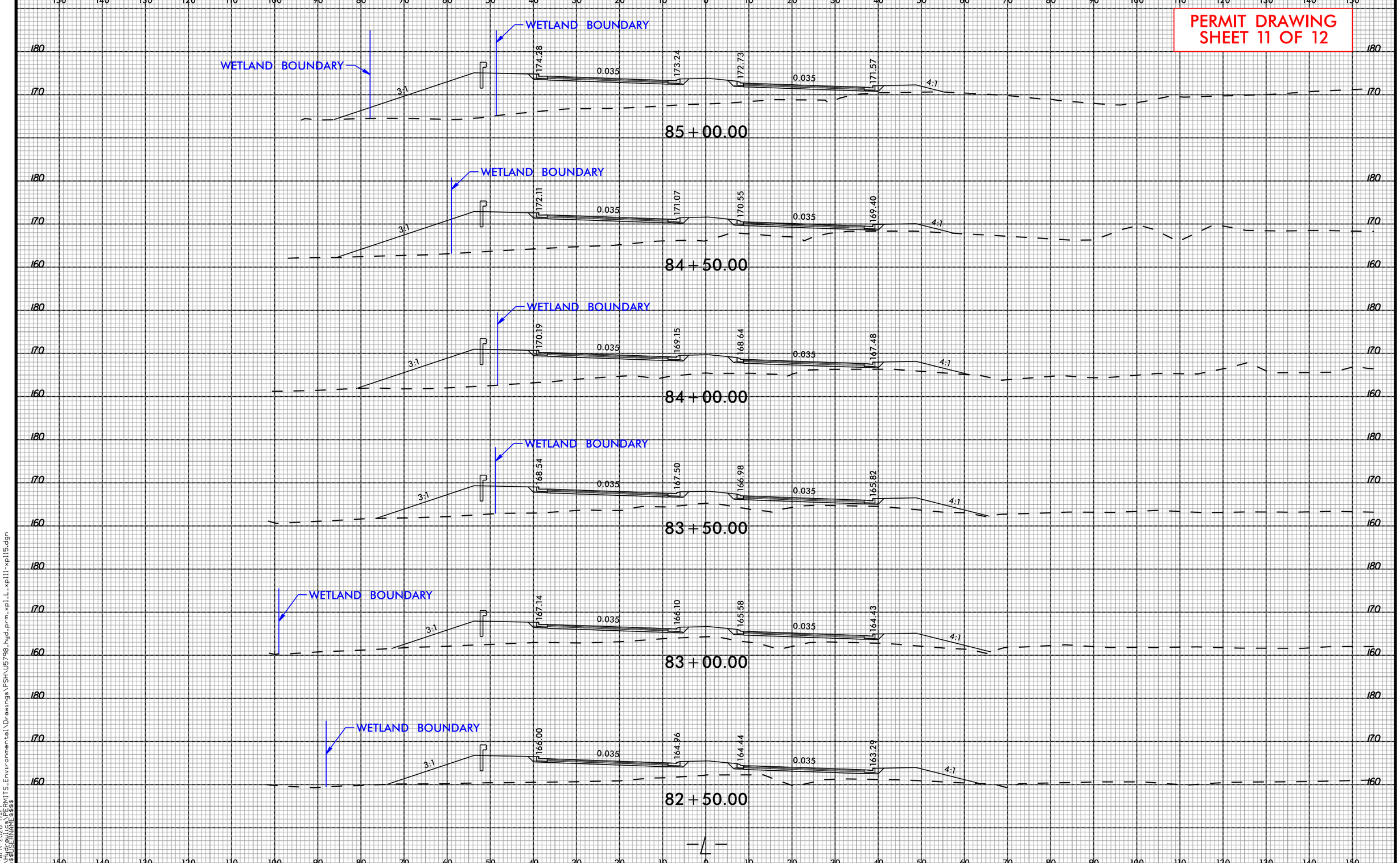
PROJ. REFERENCE NO.	SHEET NO.
U-5798A	X-13

PERMIT DRAWING
SHEET 11 OF 12



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Submitted 7/29/2021

WETLAND AND SURFACE WATER IMPACTS SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	-L- Sta. 75+78 LT	Prop. Bridge Excavation Limits			< 0.01	< 0.01	< 0.01					
1	-L- Sta. 76+34 to Sta. 77+40 LT/RT	Channel Relocation/Proposed Bridge						0.03	< 0.01	115	15	
1	-L- Sta. 77+42 RT	Channel Relocation/Proposed Bridge						0.08	< 0.01	117	11	
1	-L- Sta. 76+70 RT	Channel Relocation			< 0.01							
1	-L- Sta. 76+75 LT	Interior Bent Armoring	0.04				0.23					
1	-L- Sta. 76+85 RT	Interior Bent Armoring	0.01				0.02					
1	-L- Sta. 77+85 to Sta. 81+19 LT/RT	Proposed Bridge / Roadway	0.36			0.04	0.04					
2	-L- Sta. 82+21 LT	Proposed Fill Slope	< 0.01			< 0.01						
2	-L- Sta. 83+23 to Sta. 85+06 LT	Proposed Fill Slope	0.09			0.03	0.01					
TOTALS*:			0.50		< 0.01	0.09	0.31	0.12	0.02	232	26	0

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
7/12/21
Cumberland County
U-5798A
44369.1.2

Revised 2018 Feb

Submitted 7/29/2021

UO SHEETS 10/29/19
ADDED HYD.DRN 12/3/19
ADDED PWC DESIGNS 01/16/20
ADDED PWC PUE NEEDS 01/16/20
ADDED SEGRA DESIGNS 01/20/20
ADDED CHARTER DESIGNS 01/21/20
ADDED CATV DESIGNS 2/24/20
ADDED PWC ELECTRIC DESIGN 2/24/20
UPDATED PUE 3/24/20
UPDATED PUE 2/25/21
UPDATED PNG & PWC WATER/SEWER DESIGNS 2/26/21

TIP PROJECT: U-5798A

UTILITY PERMIT DRAWINGS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

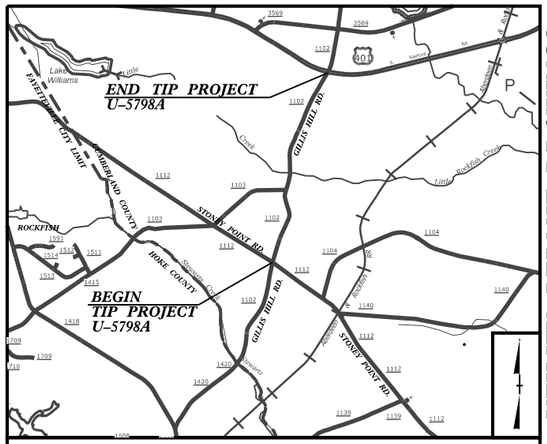
T.I.P. NO.	SHEET NO.
U-5798A	UE-1

NOTE:
ALL UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR UTILITY WORK SHOWN ON THIS SHEET.

UTILITIES ENVIRONMENTAL PERMIT PLANS CUMBERLAND COUNTY

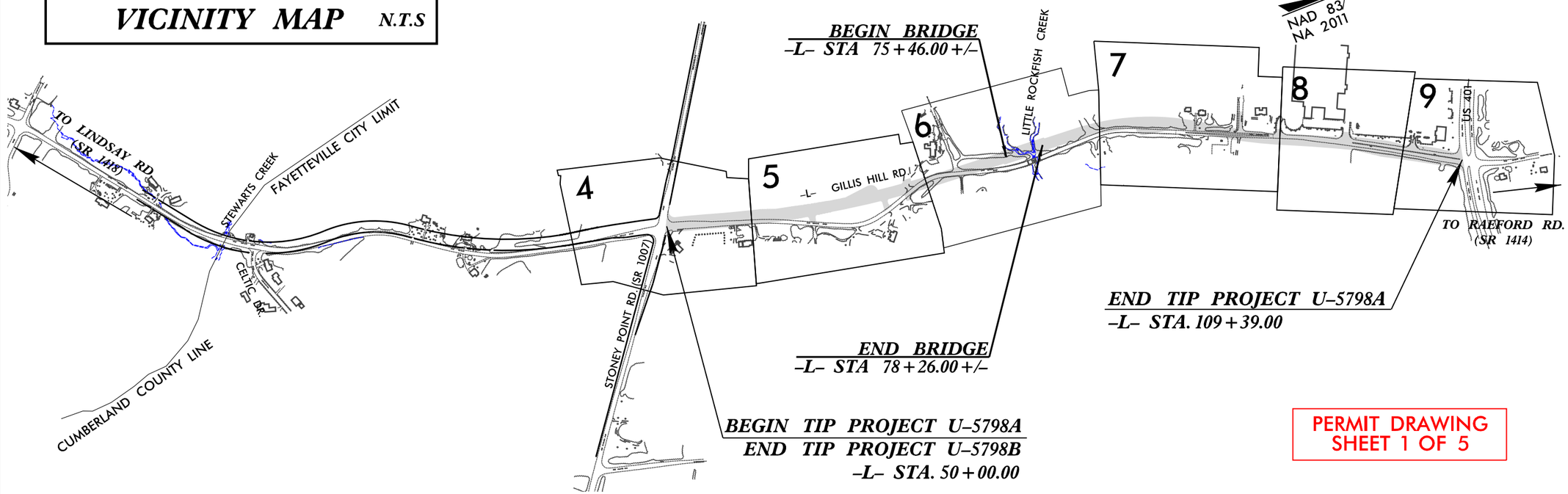
LOCATION: WIDEN SR 1102 (GILLIS HILL RD) TO MULTI-LANES FROM US 401 (RAEFORD RD) TO SR 1007 (STONEY POINT RD)

TYPE OF WORK: AERIAL POWER, TELEPHONE & CATV
BURIED WATER, SEWER, FIBER & GAS



VICINITY MAP N.T.S

NAD 83/
NA 2011



BEGIN BRIDGE
-L- STA 75+46.00 +/-

END BRIDGE
-L- STA 78+26.00 +/-

END TIP PROJECT U-5798A
-L- STA. 109+39.00

BEGIN TIP PROJECT U-5798A
END TIP PROJECT U-5798B
-L- STA. 50+00.00

PERMIT DRAWING
SHEET 1 OF 5

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

INDEX OF SHEETS

SHEET NO.:	DESCRIPTION:
UE-1	TITLE SHEET
UE-2 THRU UE-3	UE PLAN SHEETS
UE-4 THRU UE-5	UE PROFILE SHEETS
UE-6	IMPACT SUMMARY SHEET

UTILITY OWNERS WITH CONFLICTS

(A) POWER - DUKE ENERGY
(B) POWER - FAYETTEVILLE PWC
(C) POWER - LUMBEE RIVER EMC
(D) TELECOMMUNICATIONS - CENTURYLINK
(E) CATV - CHARTER COMMUNICATIONS
(F) CATV - SEGRA
(G) NATURAL GAS - PIEDMONT NATURAL GAS

UTILITIES SHOWN ON UC PLANS
(H) WATER & SEWER - FAYETTEVILLE PWC

PREPARED IN THE OFFICE OF:
V&M
Vaughn & Melton
Consulting Engineers
3509 Haworth Drive
Raleigh, NC 27609
(919) 977-9455

Nick Asaro, P.L.S. — PROJECT UTILITY MANAGER
Will Matthews — PROJECT UTILITY COORDINATOR

DIVISION OF HIGHWAYS
UTILITIES UNIT
1555 MAIL SERVICES CENTER
RALEIGH, NC 27699-1555
1020 BIRCH RIDGE DRIVE
RALEIGH, NC 27610
PHONE (919) 707-6690
FAX (919) 250-4151

Nicole Hackler, PE — SENIOR PROJECT MANAGER
Kelvin Martin, EI — SENIOR UTILITIES ENGINEER
Larry James, Jr — SENIOR UTILITIES COORDINATOR

NC\UTILITY\31930-21\UTILITIES\UTILITY COORDINATION\U5798A_UTL_PSH_U01.DGN

Submitted 7/29/2021

UO SHEETS 10/29/19
ADDED HYD.DRN 12/3/19
ADDED PNG DESIGNS 01/10/20
ADDED PWC PUE NEEDS 01/15/20
ADDED SEGRA DESIGNS 01/20/20
ADDED CATV DESIGNS 01/21/20
ADDED UPDATED PUE 02/24/20
ADDED PWC ELECTRIC DESIGN 3/3/20
UPDATED PUE 3/24/20
UPDATED PUE 2/25/21
UPDATED PNG & PWC WATER/SEWER DESIGNS 2/26/21

PROJECT REFERENCE NO.	SHEET NO.
U-5798A	UE-2

THIS SHEET CORRESPONDS TO RDY-6

PERMIT DRAWING
SHEET 2 OF 5

UTILITIES BY OTHERS

ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.

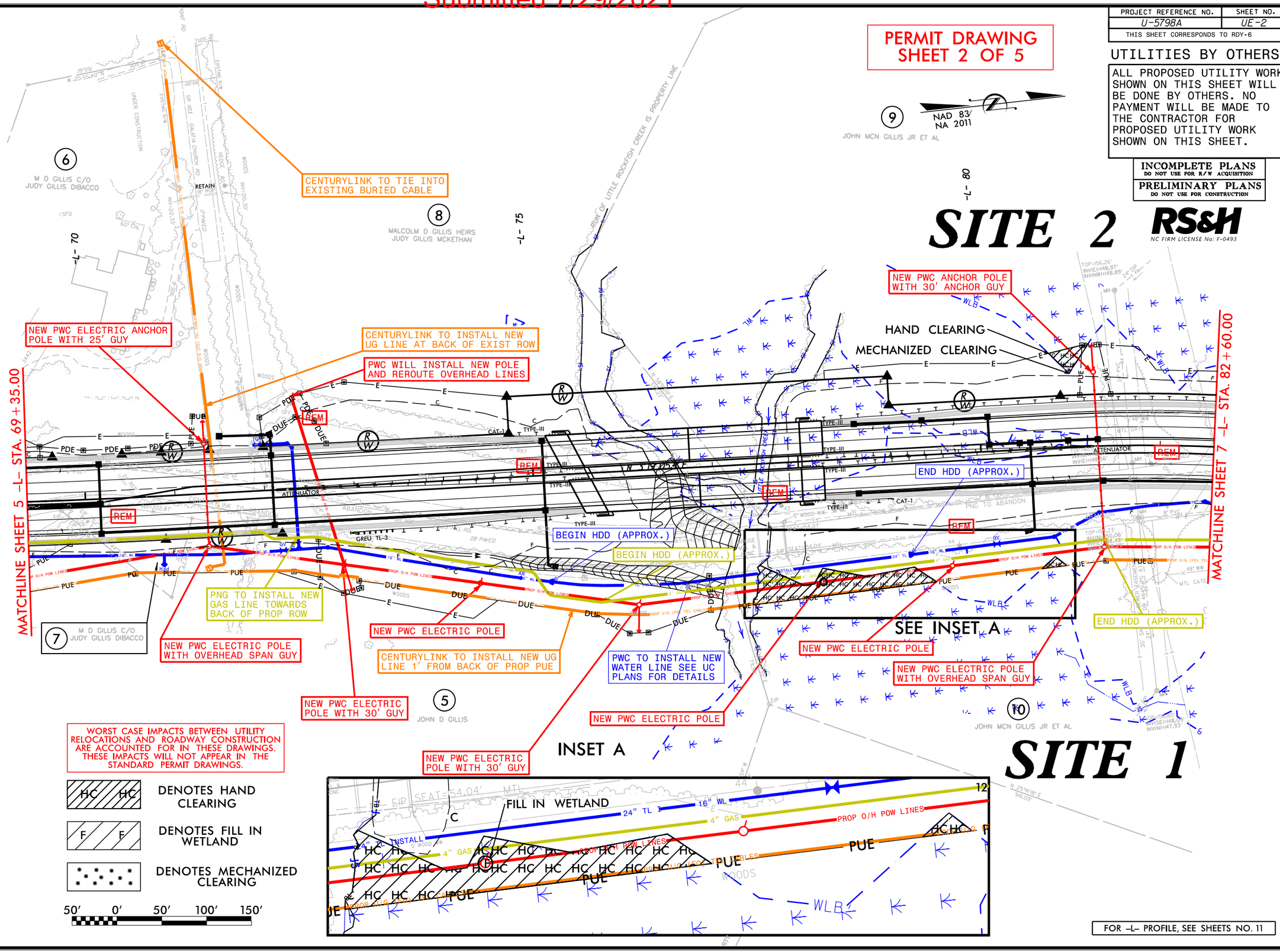
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

RS&H
NC FIRM LICENSE No: F-0493

NAD 83/
NA 2011

SITE 2



WORST CASE IMPACTS BETWEEN UTILITY RELOCATIONS AND ROADWAY CONSTRUCTION ARE ACCOUNTED FOR IN THESE DRAWINGS. THESE IMPACTS WILL NOT APPEAR IN THE STANDARD PERMIT DRAWINGS.

HC HC — DENOTES HAND CLEARING

F F — DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

50' 0' 50' 100' 150'

FOR -L- PROFILE, SEE SHEETS NO. 11

NC\UTILITY\31930-21\U5798A\UTILITIES\UTILITY COORDINATION\U5798A_UTL_PSH6_U06.DGN

Submitted 7/29/2021

PROJECT REFERENCE NO.	SHEET NO.
U-5798A	UE-3
THIS SHEET CORRESPONDS TO RDY-7	

PERMIT DRAWING
SHEET 3 OF 5

UTILITIES BY OTHERS

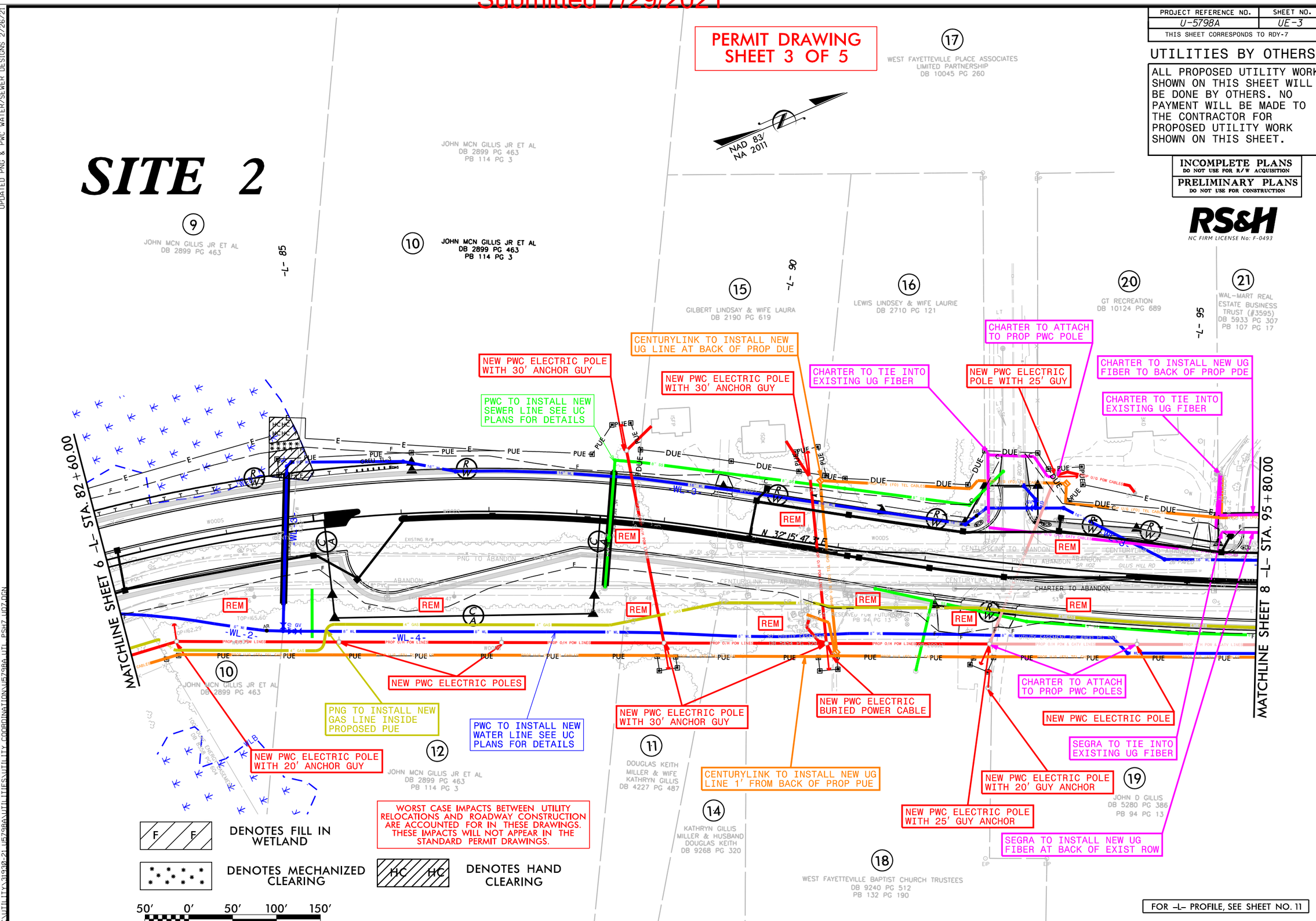
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

RS&H
NC FIRM LICENSE No: F-0493

UO SHEETS 10/29/19
ADDED HYD.DRN 12/3/19
ADDED PNG DESIGNS 01/10/20
ADDED PWC PUE NEEDS 01/15/20
ADDED SEGRA DESIGNS 01/20/20
ADDED CHTR DESIGNS 01/21/20
ADDED UPDATED PUE 02/24/20
ADDED PWC ELECTRIC DESIGN 3/3/20
UPDATED PUE 3/24/20
UPDATED PUE 2/25/21
UPDATED PNG & PWC WATER/SEWER DESIGNS 2/26/21



NC:\UTILITY\31930-21 U5798A\UTILITIES\UTILITY COORDINATION\U5798A UTL PSH7 U07.DGN

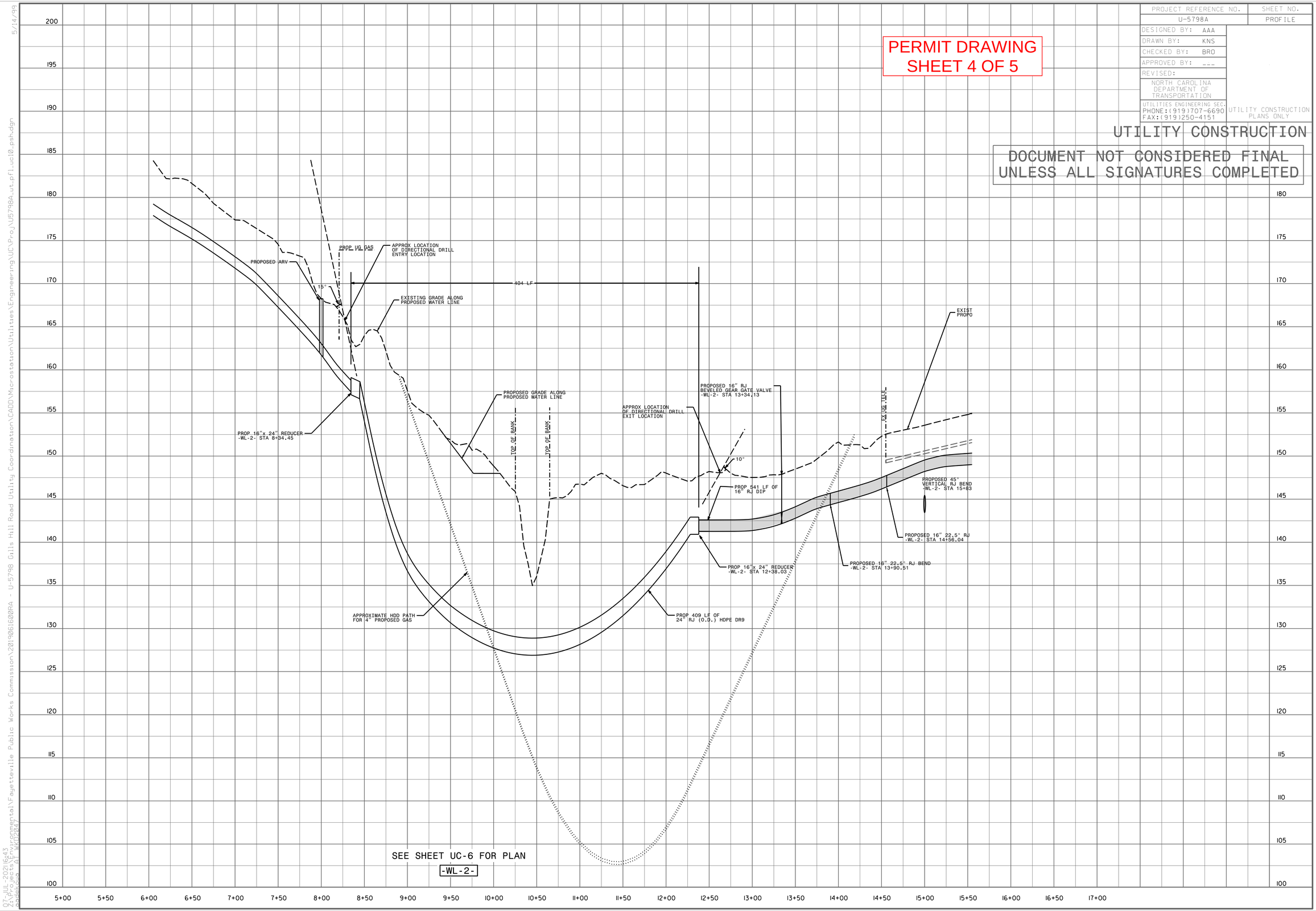
Submitted 7/29/2021

PROJECT REFERENCE NO.	SHEET NO.
U-5798A	PROFILE
DESIGNED BY: AAA	
DRAWN BY: KNS	
CHECKED BY: BRO	
APPROVED BY: ___	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

PERMIT DRAWING
SHEET 4 OF 5

UTILITY CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



SEE SHEET UC-6 FOR PLAN

-WL-2-

5/14/99

07-JUL-2021 16:43
X:\Projects\Environmental\Fayetteville Public Works Commission\20190616000RA - U-5798 Gills Hill Road Utility Coordination\CADD\Microstation\Utilities\Engineering\UC\Proj\U5798A_ut_pfl_uc10_psh.dgn
ppsksnb

Submitted 7/29/2021

WETLAND AND SURFACE WATER IMPACTS SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	-L- Sta. 77+37 to Sta. 80+89 RT	Proposed Overhead Powerline Construction					0.10					
1	-L- Sta. 78+17 RT	Proposed Electric Pole Construction	< 0.01									
2	-L- Sta. 81+02 LT	Proposed Anchor Pole Construction				< 0.01	0.01					
2	-L- Sta. 84+57 to Sta. 85+06 LT	Proposed Water Line Relocation	0.03			< 0.01	0.02					
TOTALS*:			0.04			< 0.01	0.13			0	0	0

*Rounded totals are sum of actual impacts

NOTES:
Impacts between utility relocations and roadway construction are accounted for in the Utility Permit Drawings. These impacts will not appear in the standard permit drawings.

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
7/12/2021
Cumberland County
U-5798A
44369.1.2
SHEET 5 OF 5

Revised 2018 Feb

Submitted 7/29/2021

09/08/99

TIP PROJECT: U-5798B

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PERMIT DRAWING
SHEET 1 OF 10

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5798B	1	

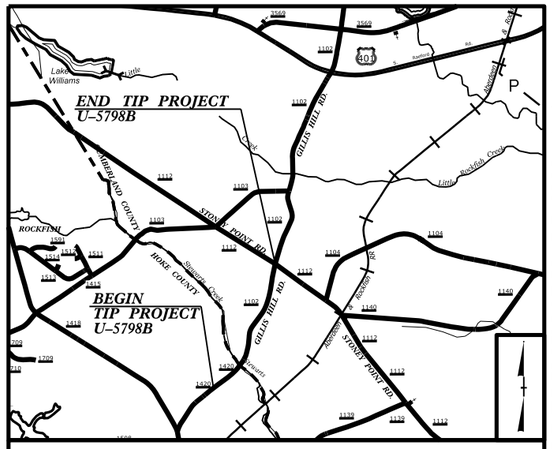
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
44369.1.1	N/A	PE

HOKE AND CUMBERLAND COUNTIES

LOCATION: WIDEN SR 1102 (GILLIS HILL ROAD) TO MULIT-LANES FROM
FROM SR 1007 (STONEY POINT ROAD) TO SR 1418 (LINDSAY ROAD)

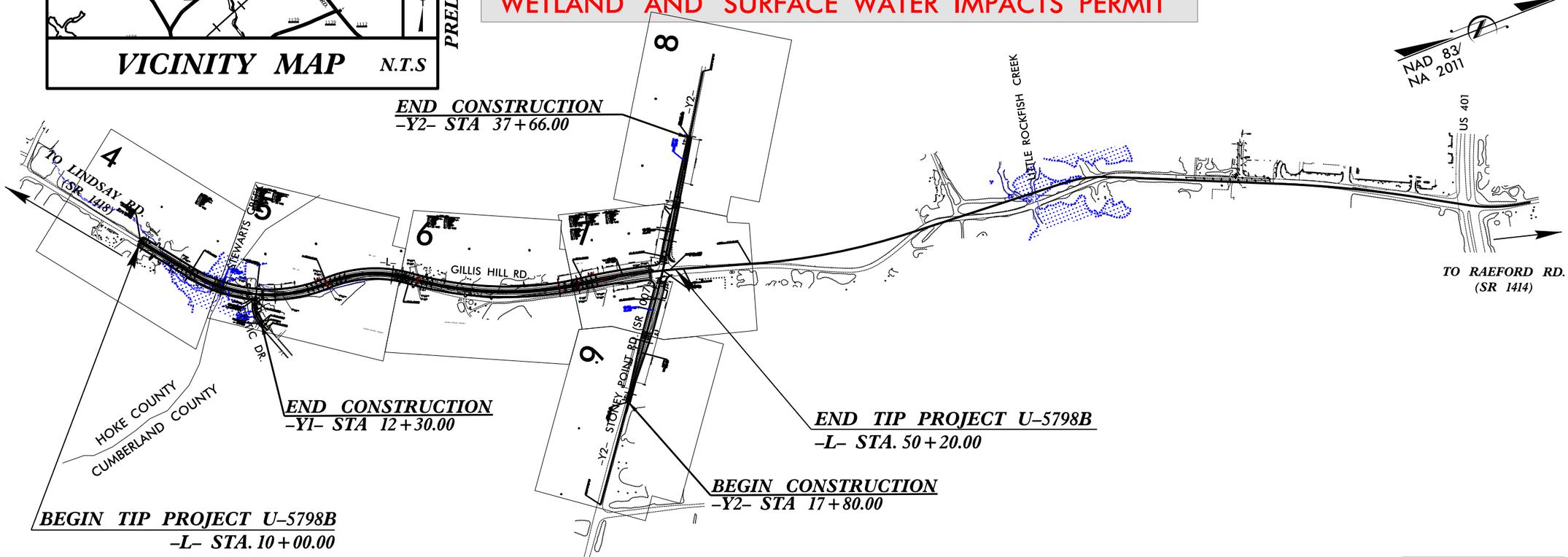
TYPE OF WORK: PAVING, GRADING, DRAINAGE, SIGNING, AND SIGNALS.

WETLAND AND SURFACE WATER IMPACTS PERMIT



VICINITY MAP N.T.S

PRELIMINARY PLANS (25%)



THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.
A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF FAYETTEVILLE.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD __.

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONTRACT:

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2022 = 17,500
ADT 2042 = 30,700
K = 8 %
D = 60 %
T = 3 % *
V = 50 MPH
*(TTST=1 + DUAL=2)
FUNC CLASS =
MINOR COLLECTOR
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-5798 = 0.761 MILES

PREPARED IN THE OFFICE OF:
RS&H
8521 SIX FORKS ROAD, SUITE 400
RALEIGH, NC 27615
NC FIRM LICENSE No: F-0493
FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MARCH 2020

LETTING DATE:
OCTOBER 2022

CHARLES YOUNG, PE
PROJECT ENGINEER

ERIC BUSH, EI
PROJECT DESIGN ENGINEER

APRIL ANNIS
NCDOT CONTACT

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

4/22/2020
mjyork
R:\Hydraulics\PERMITS_Environmental\Drawings\U-5798B_HYD_prm_wet_tsh.dgn
$$$$SYSTIME$$$$
$$$$DGN$$$$
$$$$USERNAME$$$$

Submitted 7/29/2021

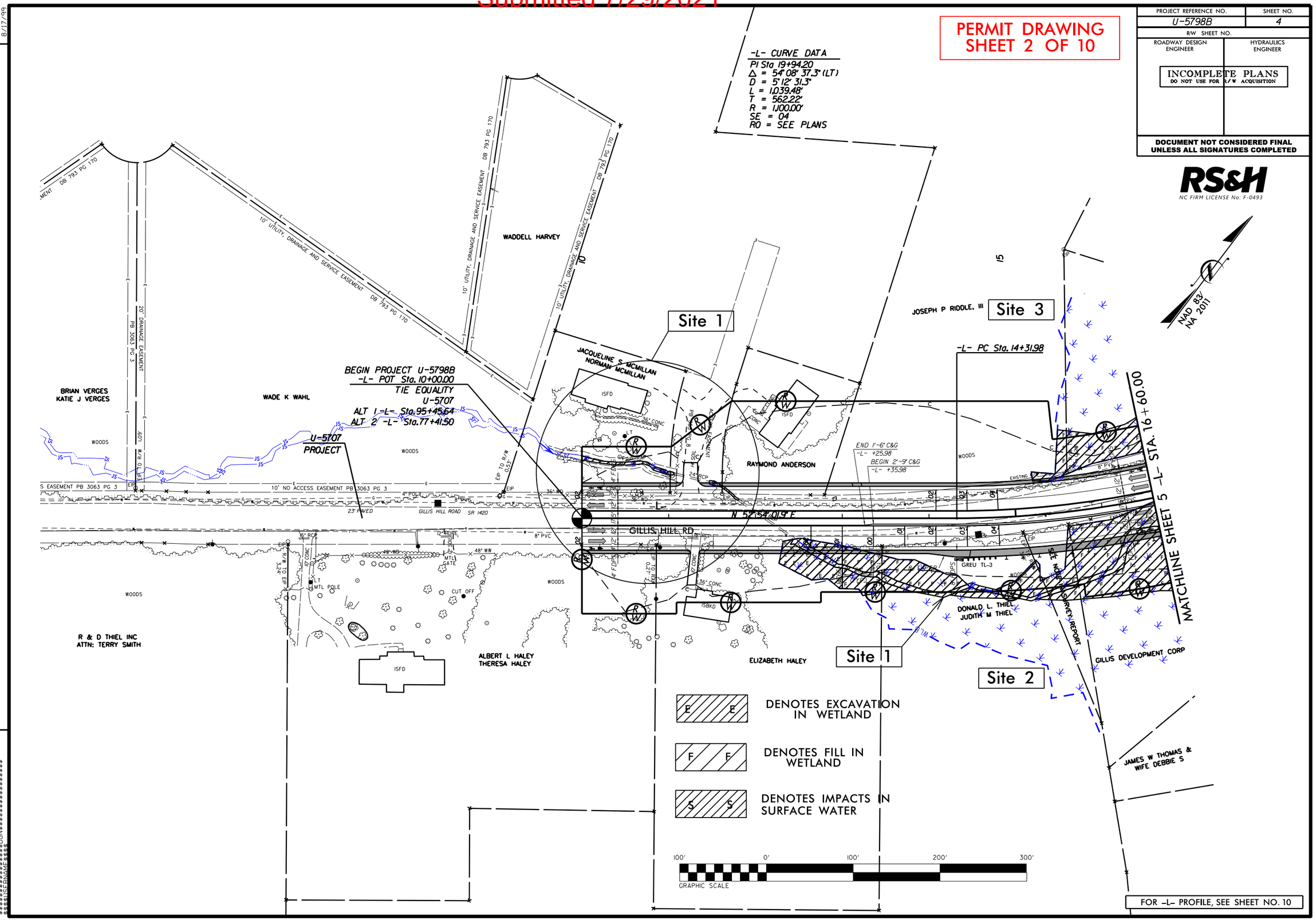
PROJECT REFERENCE NO.	SHEET NO.
U-5798B	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RS&H
NC FIRM LICENSE No: F-0493

PERMIT DRAWING
SHEET 2 OF 10



FOR -L- PROFILE, SEE SHEET NO. 10

REVISIONS

8/17/99

4/22/2020
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$$$$SYSTIME$$$$
$$$$DGN$$$$

Submitted 7/29/2021

PROJECT REFERENCE NO.	SHEET NO.
U-5798B	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RS&H
NC FIRM LICENSE No: F-0493

PERMIT DRAWING
SHEET 3 OF 10

-L- CURVE DATA
PI Sta 19+94.20
Δ = 54° 08' 37.3" (LT)
D = 5° 12' 31.3"
L = 1,039.48'
T = 562.22'
R = 1,100.00'
SE = 04
RO = SEE PLANS

BEGIN PROJECT U-5798B
-L- POT Sta. 10+00.00
TIE EQUALITY
U-5707
ALT 1 -L- Sta.95+45.64
ALT 2 -L- Sta.77+41.50

U-5707
PROJECT

Site 1

Site 2

Site 3

-L- PC Sta. 14+31.98

END 1'-6" C&G
-L- +25.98
BEGIN 2'-9" C&G
-L- +35.00

N 52°54'01.9" E

GILLIS HILL RD

GILLIS HILL ROAD SR 1420

MATCHLINE SHEET 5 -L- STA. 16+60.00

SEE NOISE SURVEY REPORT

NAD 83/NA 2011

WADDELL HARVEY

JACQUELINE S MCMILLAN
NORMAN MCMILLAN

JOSEPH P RIDDLE, III

RAYMOND ANDERSON

BRIAN VERGES
KATIE J VERGES

WADE K WAHL

DONALD L. THIEL
JUDITH M THIEL

GILLIS DEVELOPMENT CORP

JAMES W THOMAS &
WIFE DEBBIE S

R & D THIEL INC
ATTN: TERRY SMITH

ALBERT L HALEY
THERESA HALEY

ELIZABETH HALEY

E E DENOTES EXCAVATION IN WETLAND

F F DENOTES FILL IN WETLAND

S S DENOTES IMPACTS IN SURFACE WATER

100' 0' 100' 200' 300'
GRAPHIC SCALE

FOR -L- PROFILE, SEE SHEET NO. 10

REVISIONS

8/17/99

4/22/2020
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$$$$$$$$USER$$$$$$$$
$$$$$$$$DGNS$$$$$$$$$$$$$$$$
$$$$$$$$RELEASE$$$$$$

Submitted 7/29/2021

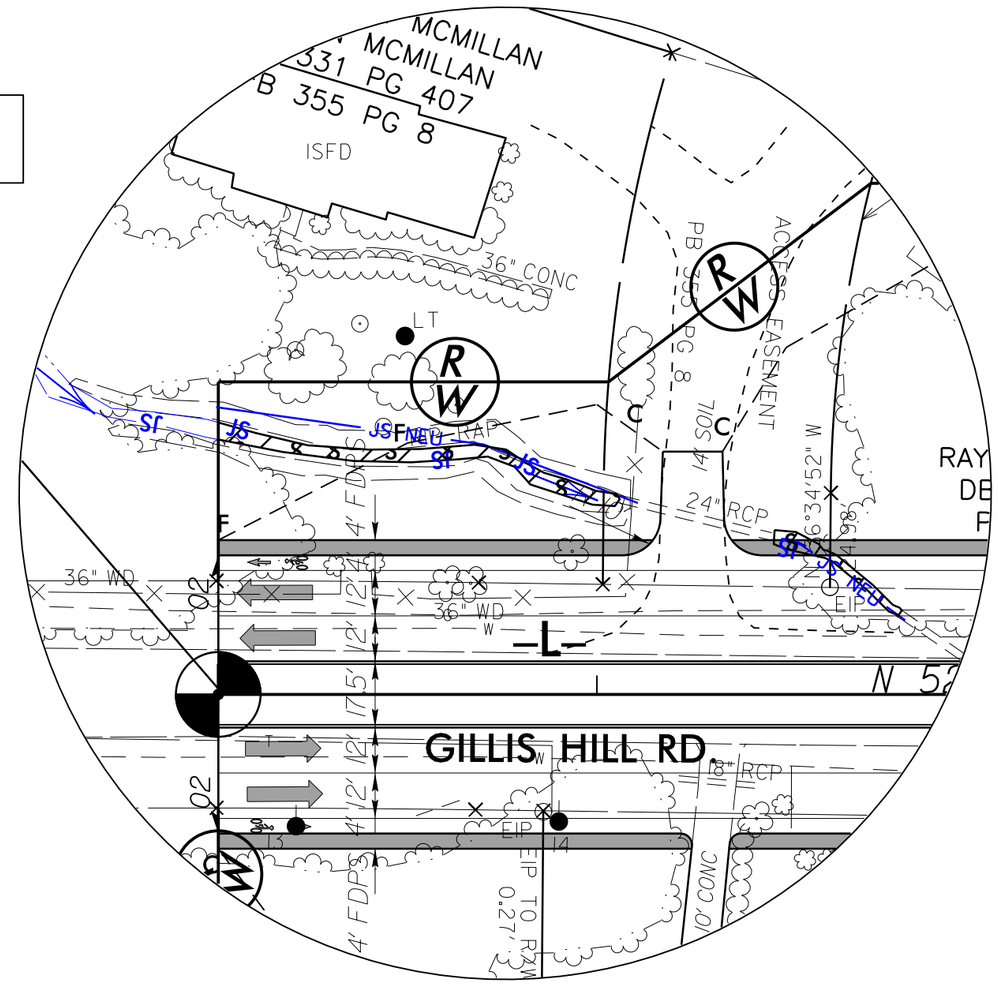
PROJECT REFERENCE NO.	SHEET NO.
U-5798B	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 4 OF 10

Site 1



NAD 83/
NA 2011

S S DENOTES IMPACTS IN SURFACE WATER

50' 0' 50' 100' 150'
GRAPHIC SCALE

REVISIONS

8/17/99

4/22/2020
mjyork
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$$$$$$$$$$$$$$$$DGNS$$$$$$$$$$$$$$$$
$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

Submitted 7/29/2021

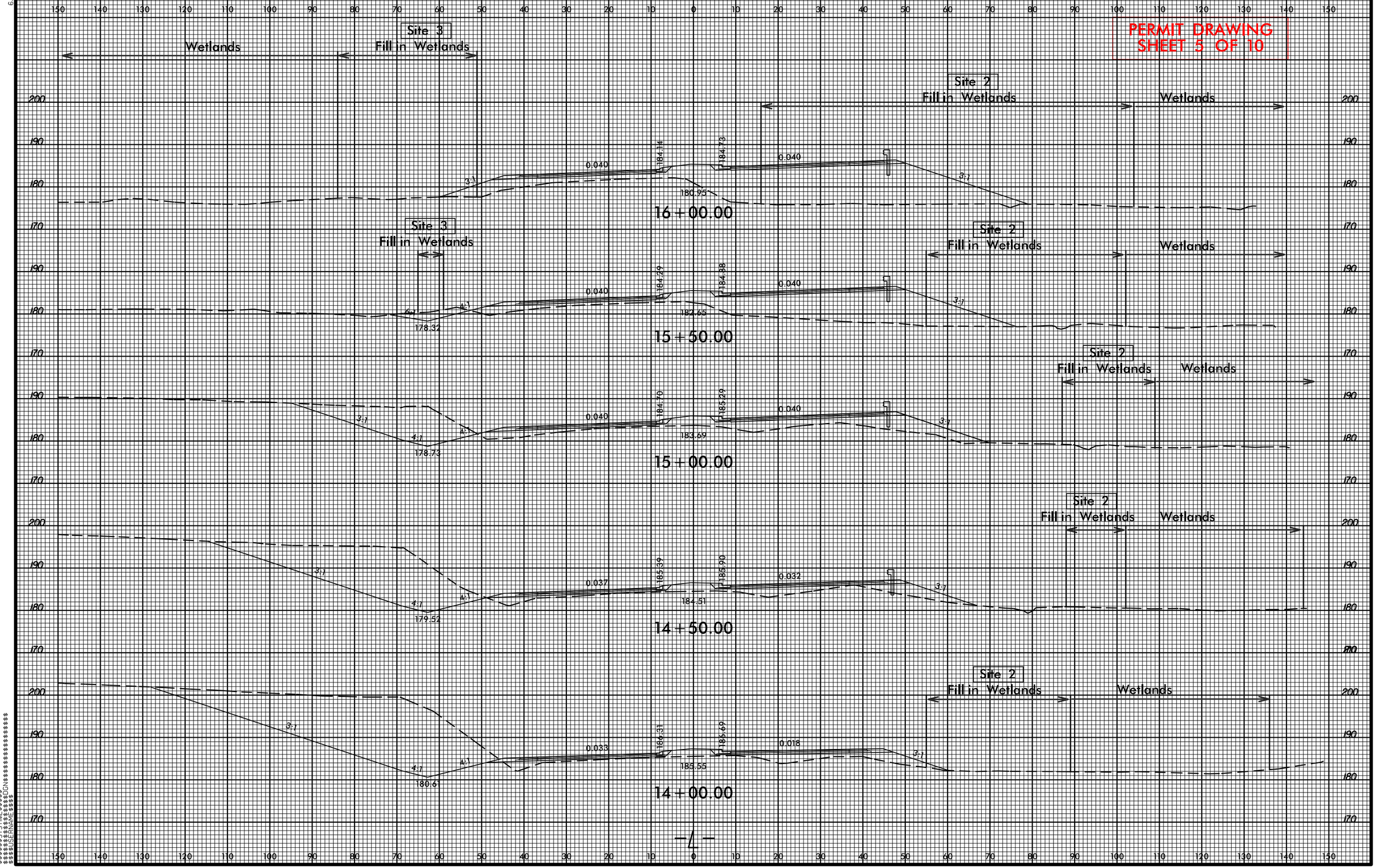
6/23/16

RS&H NC FIRM LICENSE No: F-0493

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
U-5798B	X-3

PERMIT DRAWING
SHEET 5 OF 10



1/27/2020
bovillamson1
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$$$$$$$$USERNAME$$$$$$$$

Submitted 7/29/2021

PROJECT REFERENCE NO.	SHEET NO.
U-5798B	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RS&H
NC FIRM LICENSE No: F-0493

PERMIT DRAWING
SHEET 6 OF 10

8/17/99

REVISIONS

-L- CURVE DATA

PI Sta 19+94.20
Δ = 54° 08' 37.3" (LT)
D = 5° 12' 31.3"
L = 1,039.48'
T = 562.22'
R = 1,100.00'
SE = 04
RO = SEE PLANS

PI Sta 27+94.02
Δ = 38° 24' 36.4" (RT)
D = 6° 11' 14.8"
L = 620.77'
T = 322.56'
R = 926.00'
SE = 04
RO = SEE PLANS

-Y1- CURVE DATA

PI Sta 11+39.27
Δ = 53° 40' 22.7" (LT)
D = 28° 38' 52.4"
L = 187.35'
T = 101.19'
R = 200.00'
STOP CONDITION

NAD 83/
NA 2011

BM6 ELEVATION = 220.53'
N 457077 E 1982421
BL STATION 42+19.51 172.84' LEFT
BENCHTIE IN 10" PINE

BM5 ELEVATION = 201.80'
N 456520 E 1982313
BL STATION 37+05.62 181.38' LEFT
BENCHTIE IN 7" PINE

-L- PRC Sta. 24+71.46

-Y1- POT Sta. 10+00.00 =
-L- Sta. 19+42.79

HOKE COUNTY

Site 3

Site 1

Site 4

Site 2

MATCHLINE SHEET 4 -L- STA. 16+60.00

MATCHLINE SHEET 6 -L- STA. 30+20.00

GILLIS HILL RD.

SR 1102

26' PAVED

BEGIN 2'-9" C&G
-L- +71.46

END 1'-6" C&G
-L- +61.46

BEGIN 1'-6" C&G
-L- +81.46

END 2'-9" C&G
-L- +71.46

BEGIN 2'-9" C&G
-L- +35.00

BEGIN 1'-6" C&G
-L- +01.00

END 2'-9" C&G
-L- +91.00

C 100' BAY TAPER

STEWART CREEK

GILLIS DEVELOPMENT CORP.

JAMES W THOMAS & WIFE DEBBIE S

JOE A JOHNSON & WIFE PATRICIA A

-Y1- PC Sta. 10+38.00

-Y1- PT Sta. 12+25.44

ERNEST W JONES & WIFE CYNTHIA M

N 70° 26' 29.4" E

-Y1- POT Sta. 12+96.93

WILLIAM RONALD LEE

CELTIC DR.

S 55° 53' 07.9" E

BEGIN CONSTRUCTION
-Y1- Sta. 10+33.05 =
-L- Sta. 19+38.43 (32.75' RT)

END CONSTRUCTION
END GRADE
-Y1- Sta. 12+30.00

ELIGIBLE HISTORIC PROPERTY

DENOTES FILL IN WETLAND

DENOTES IMPACTS IN SURFACE WATER

100' 0' 100' 200' 300'
GRAPHIC SCALE

FOR -L- PROFILE, SEE SHEET NO. 10
FOR -Y1- PROFILE, SEE SHEET NO. 11

4/22/2020
mjyock
R:\Hydraulics\PERMITS_Environmental\Drawings\U-5798B_HYD_psh_5.dgn
$$$$$$SYSTIME$$$$$$
$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

Submitted 7/29/2021

PERMIT DRAWING
SHEET 7 OF 10

PROJECT REFERENCE NO.	SHEET NO.
U-5798B	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RS&H
NC FIRM LICENSE No: F-0493

-L- CURVE DATA

PI Sta 19+94.20	PI Sta 27+94.02
Δ = 54° 08' 37.3" (LT)	Δ = 38° 24' 36.4" (RT)
D = 5° 12' 31.3"	D = 6° 11' 14.8"
L = 1,039.48'	L = 620.77'
T = 562.22'	T = 322.56'
R = 1,100.00'	R = 926.00'
SE = 04	SE = 04
RO = SEE PLANS	RO = SEE PLANS

-Y1- CURVE DATA

PI Sta 11+39.27
Δ = 53° 40' 22.7" (LT)
D = 28° 38' 52.4"
L = 187.35'
T = 101.19'
R = 200.00'
STOP CONDITION

NAD 83/
NA 2011

BM6 N 457077 ELEVATION = 220.53' E 1982421 BL STATION 42+19.51 172.84' LEFT BENCHTIE IN 10" PINE

BM5 N 456520 ELEVATION = 201.80' E 1982313 BL STATION 37+05.62 181.38' LEFT BENCHTIE IN 7" PINE

-L- PRC Sta. 24+71.46

-Y1- POT Sta. 10+00.00 = -L- Sta. 19+42.79

HOKE COUNTY

Site 3

STEWART CREEK

BEGIN 1'-6" C&G -L- +10.00

END 2'-9" PVC -L- +91.00

BEGIN 2'-9" C&G -L- +71.46

END 1'-6" C&G -L- +61.46

BEGIN 1'-6" C&G -L- +81.46

END 2'-9" C&G -L- +71.46

BEGIN 2'-9" C&G -L- +35.00

C 100' BW TAPER

GILLIS HILL RD.

SR 1102

26' PAVED

MATCHLINE SHEET 4 -L- STA. 16+60.00

MATCHLINE SHEET 6 -L- STA. 30+20.00

S 55° 53' 07.9" E

BEGIN CONSTRUCTION -Y1- Sta. 10+33.05 = -L- Sta. 19+58.43 (32.75' RT)

GILLIS DEVELOPMENT CORP.

Site 1

Site 4

Site 2

JAMES W THOMAS & WIFE DEBBIE S

END CONSTRUCTION
END GRADE
-Y1- Sta. 12+30.00

JOE A JOHNSON & WIFE PATRICIA P
DB 2456 PG 1
DB 2456 PG 1

-Y1- PC Sta. 10+38.00

-Y1- PT Sta. 12+25.44

ERNEST W JONES & WIFE CYNTHIA M

N 70° 26' 29.4" E

-Y1- POT Sta. 12+96.93

WILLIAM RONALD LEE

CELTIC DR.

ELIGIBLE HISTORIC PROPERTY

F F DENOTES FILL IN WETLAND

DENOTES IMPACTS IN SURFACE WATER

100' 0' 100' 200' 300'
GRAPHIC SCALE

FOR -L- PROFILE, SEE SHEET NO. 10
FOR -Y1- PROFILE, SEE SHEET NO. 11

8/17/99

REVISIONS

4/22/2020
mtyrol
R:\Hydraulics\PERMITS Environmental\Drawings\U-5798B_HYD_psh_5_with_Contours.dgn
$$$$$$$$SYSTIME$$$$$$$$
$$$$$$$$USER$$$$$$$$DGNS$$$$$$$$$$$$$$$$$$$$
$$$$$$$$ELEVATIONS$$$$$$

Submitted 7/29/2021

PROJECT REFERENCE NO.	SHEET NO.
U-5798B	

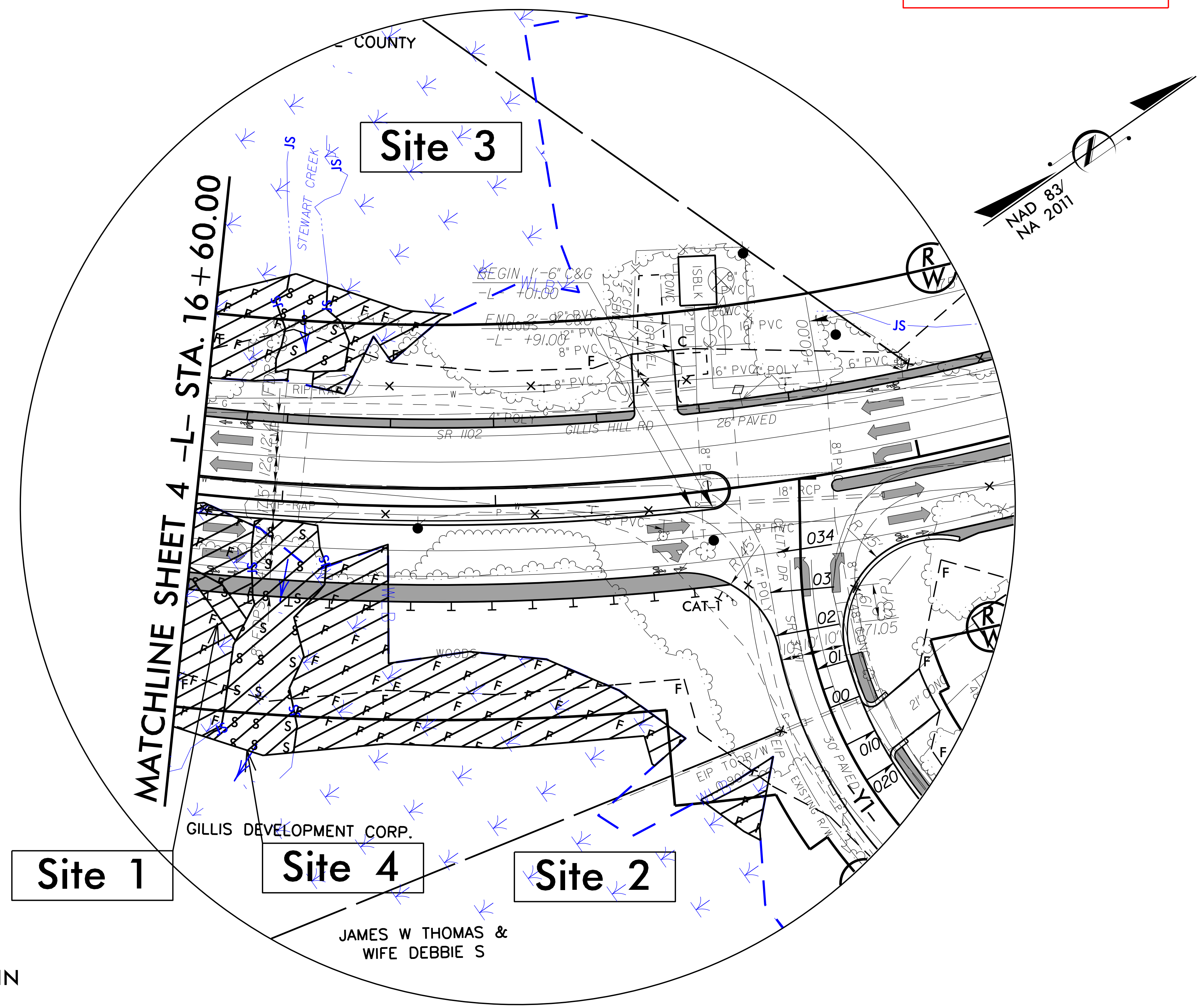
RW SHEET NO.

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 8 OF 10



DENOTES FILL IN WETLAND

DENOTES IMPACTS IN SURFACE WATER

50' 0' 50' 100' 150'
GRAPHIC SCALE

REVISIONS

4/22/2020
miyork
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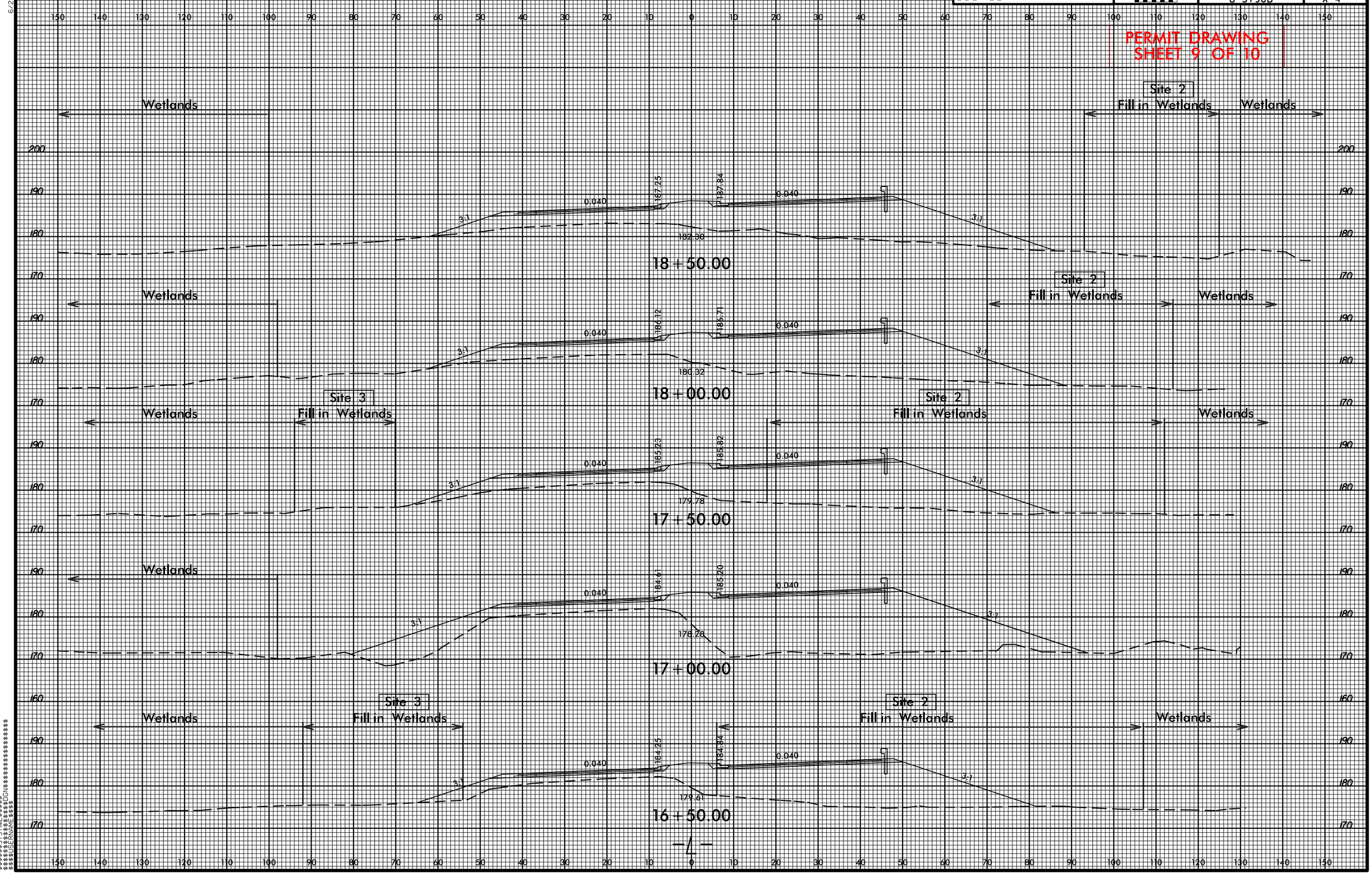
Submitted 7/29/2021

RS&H NC FIRM LICENSE No: F-0493

PROJ. REFERENCE NO.	SHEET NO.
U-5798B	X-4

PERMIT DRAWING
SHEET 9 OF 10



6/23/16

1/27/2020
lbrown
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Submitted 7/29/2021

WETLAND AND SURFACE WATER IMPACTS SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	10+00 to 16+95 L/R -L-	Prop Cross Pipe						0.08		660		
2	12+35 to 18+79 R of -L-	N/A	0.63		0.06							
3	16+69 to 17+73 L of -L-	N/A	0.15									
4	16+95 to 17+07 L/R of -L-	Prop Cross Pipe						0.10		155		
TOTALS*:			0.78		0.06			0.18		815	0	0

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
4/22/2020
Hoke
U-5798B
44369.1.1

Revised 2018 Feb

09/08/99

TIP PROJECT: U-5798A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

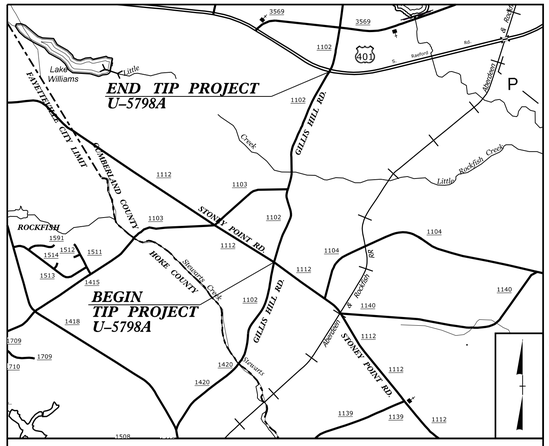
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5798A	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
44369.1.2	N/A	PE
44369.2.1	N/A	ROW/UTL.

CUMBERLAND COUNTY

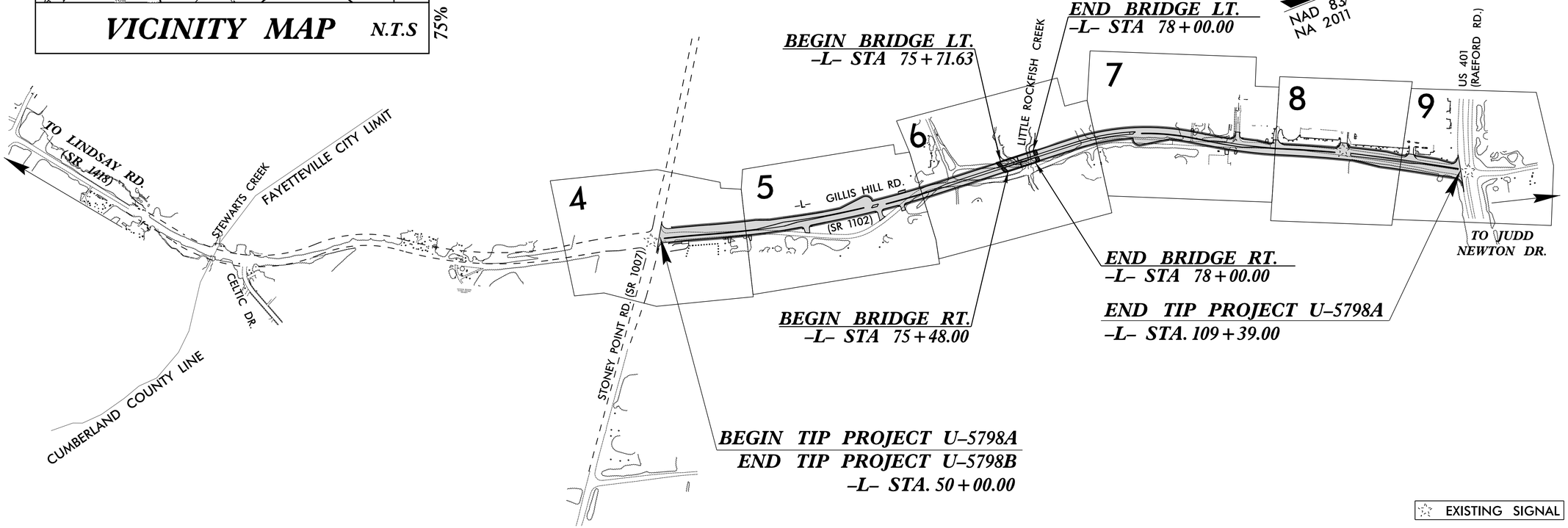
LOCATION: WIDEN SR 1102 (GILLIS HILL ROAD) TO MULTI-LANES FROM US 401 (RAEFORD ROAD) TO SR 1007 (STONEY POINT ROAD)

TYPE OF WORK: PAVING, GRADING, DRAINAGE, STRUCTURES, AND SIGNALS.



VICINITY MAP N.T.S

75% PLANS



☆ EXISTING SIGNAL

THERE IS CONTROL OF ACCESS ON THIS PROJECT.

THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF FAYETTEVILLE.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONTRACT:

GRAPHIC SCALES

50 25 0 50 100 — PLANS

50 25 0 50 100 — PROFILE (HORIZONTAL)

10 5 0 10 20 — PROFILE (VERTICAL)

DESIGN DATA

ADT 2021 = 24,700
ADT 2041 = 30,400
K = 8 %
D = 60 %
T = 3 % *
V = 50 MPH
*(TTST=1 + DUAL=2)
FUNC CLASS =
MINOR COLLECTOR
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-5798A = 1.085 MILES
LENGTH STRUCTURE TIP PROJECT U-5798A = 0.040 MILES
TOTAL LENGTH TIP PROJECT U-5798A = 1.125 MILES

PREPARED IN THE OFFICE OF:
RS&H
8521 SIX FORKS ROAD, SUITE 400
RALEIGH, NC 27615
NC FIRM LICENSE No: F-0493
FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MARCH 30, 2020

LETTING DATE: MARCH 16, 2021

CHARLES YOUNG, PE — PROJECT ENGINEER
ERIC BUSH, EI — PROJECT DESIGN ENGINEER
NICOLE M. HACKLER, PE — NCDOT CONTACT

HYDRAULICS ENGINEER
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER
SIGNATURE: P.E.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

19-MAR-2020 08:45
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$$$$USERNAME$$$$

12/2/2016

PROJECT REFERENCE NO.	SHEET NO.
U-5798A	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

**S.U.E. = Subsurface Utility Engineering*

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Computed Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- Existing Historic Property Boundary — HPB
- Known Contamination Area: Soil — S
- Potential Contamination Area: Soil — S
- Known Contamination Area: Water — W
- Potential Contamination Area: Water — W
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY & PROJECT CONTROL:

- Secondary Horiz and Vert Control Point
- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Exist Permanent Easment Pin and Cap
- New Permanent Easement Pin and Cap
- Vertical Benchmark
- Existing Right of Way Marker
- Existing Right of Way Line
- New Right of Way Line — RW
- New Right of Way Line with Pin and Cap — RW
- New Right of Way Line with Concrete or Granite R/W Marker — RW
- New Control of Access Line with Concrete C/A Marker — CA
- Existing Control of Access — CA
- New Control of Access — CA
- Existing Easement Line — E
- New Temporary Construction Easement — E
- New Temporary Drainage Easement — TDE
- New Permanent Drainage Easement — PDE
- New Permanent Drainage / Utility Easement — DUE
- New Permanent Utility Easement — PUE
- New Temporary Utility Easement — TUE
- New Aerial Utility Easement — AUE

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- U/G Power Line LOS B (S.U.E.*) — P
- U/G Power Line LOS C (S.U.E.*) — P
- U/G Power Line LOS D (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole
- U/G Telephone Cable LOS B (S.U.E.*) — T
- U/G Telephone Cable LOS C (S.U.E.*) — T
- U/G Telephone Cable LOS D (S.U.E.*) — T
- U/G Telephone Conduit LOS B (S.U.E.*) — TC
- U/G Telephone Conduit LOS C (S.U.E.*) — TC
- U/G Telephone Conduit LOS D (S.U.E.*) — TC
- U/G Fiber Optics Cable LOS B (S.U.E.*) — T FO
- U/G Fiber Optics Cable LOS C (S.U.E.*) — T FO
- U/G Fiber Optics Cable LOS D (S.U.E.*) — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line LOS B (S.U.E*) — W
- U/G Water Line LOS C (S.U.E*) — W
- U/G Water Line LOS D (S.U.E*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- U/G TV Cable LOS B (S.U.E.*) — TV
- U/G TV Cable LOS C (S.U.E.*) — TV
- U/G TV Cable LOS D (S.U.E.*) — TV
- U/G Fiber Optic Cable LOS B (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS C (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS D (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- U/G Gas Line LOS B (S.U.E.*) — G
- U/G Gas Line LOS C (S.U.E.*) — G
- U/G Gas Line LOS D (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- SS Forced Main Line LOS B (S.U.E.*) — FSS
- SS Forced Main Line LOS C (S.U.E.*) — FSS
- SS Forced Main Line LOS D (S.U.E.*) — FSS

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line LOS B (S.U.E.*) — ?UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
U-5798A	2A-1
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

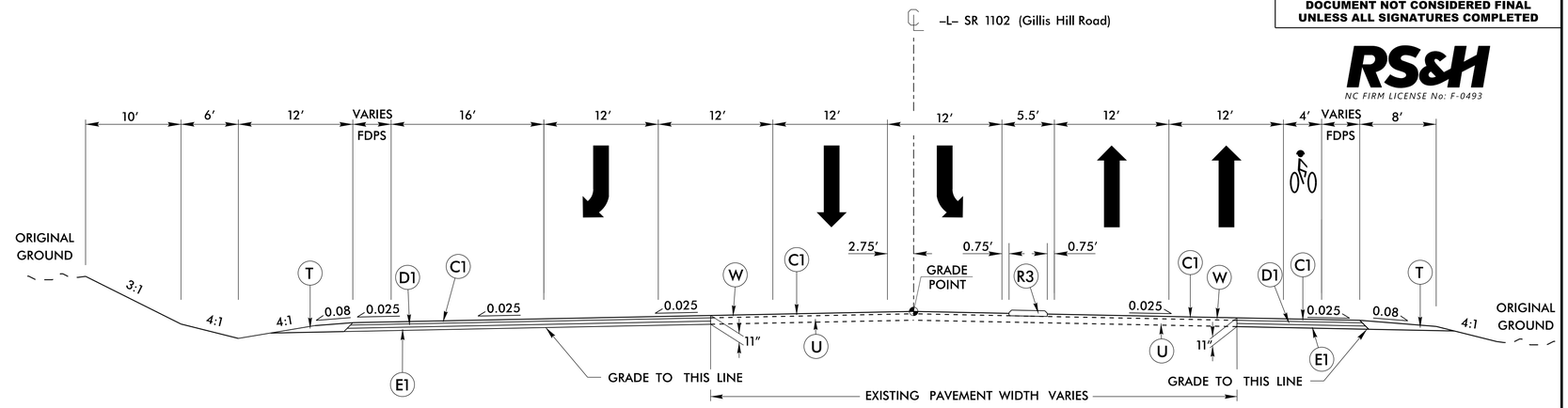
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RS&H
NC FIRM LICENSE No: F-0493

FINAL PAVEMENT SCHEDULE

C1	PROP. APPROX. 3″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 165 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 1.0″ DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1.5″ IN DEPTH OR GREATER THAN 2.0″ IN DEPTH.
D1	PROP. APPROX. 4″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 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 2.5″ IN DEPTH OR GREATER THAN 4″ IN DEPTH.
E1	PROP. APPROX. 4″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 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 1.0″ DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 4.0″ IN DEPTH OR GREATER THAN 5.5″ IN DEPTH.
R1	2′-6″ CONCRETE CURB AND GUTTER.
R2	1′-6″ CONCRETE CURB AND GUTTER.
R3	5″ MONOLITHIC CONCRETE ISLAND (KEYED-IN).
S1	4″ CONCRETE SIDEWALK.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	3″ MILLING
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL).

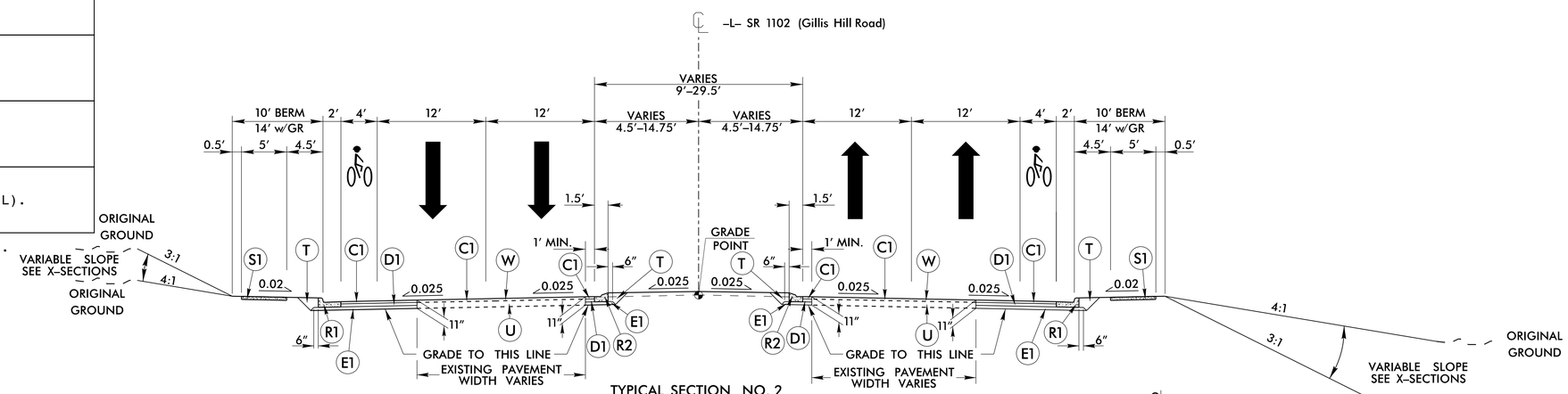
NOTE: PAVEMENT EDGES ARE 1:1 UNLESS SHOWN OTHERWISE.



TYPICAL SECTION NO. 1

–L– STA. 50+00.00 TO 51+00.00

NOTE:
TRANSITION RIGHT SHOULDER SECTION TO C&G SECTION AT –L– STA. 50+53.84.
TRANSITION LEFT SHOULDER SECTION TO C&G SECTION AT –L– STA. 50+87.13.

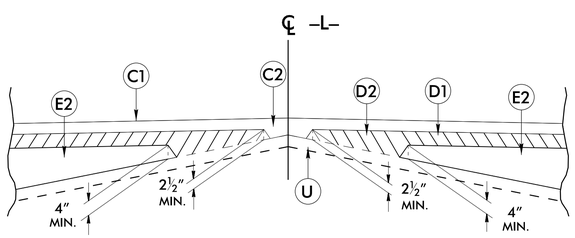


TYPICAL SECTION NO. 2

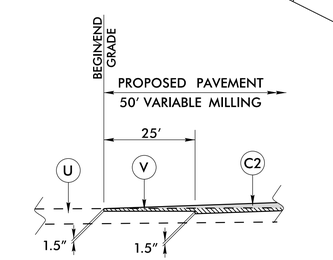
–L– STA. 51+00.00 TO 53+05.00
–L– STA. 67+75.00 TO 70+00.00
–L– STA. 92+00.00 TO 94+00.00
–L– STA. 101+00.00 TO 109+39.00

2′–9″ C&G LOCATIONS

–L– STA. 92+10.00 TO 94+00.00 MED. RT.



Detail Showing Method of Wedging



DETAIL OF MILLING AT PAVEMENT TIE-INS

–L– STA. 50+00.00 TO 50+50.00
–L– STA. 108+89.00 TO 109+39.00

04-MAR-2020 07:37
R:\Roadway\Proj\U-5798A\U-5798A_Rdy_typ.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-5798A	2A-2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RS&H
NC FIRM LICENSE No: F-0493

FINAL PAVEMENT SCHEDULE

C1	PROP. APPROX. 3″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 165 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 1.0″ DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1.5″ IN DEPTH OR GREATER THAN 2.0″ IN DEPTH.
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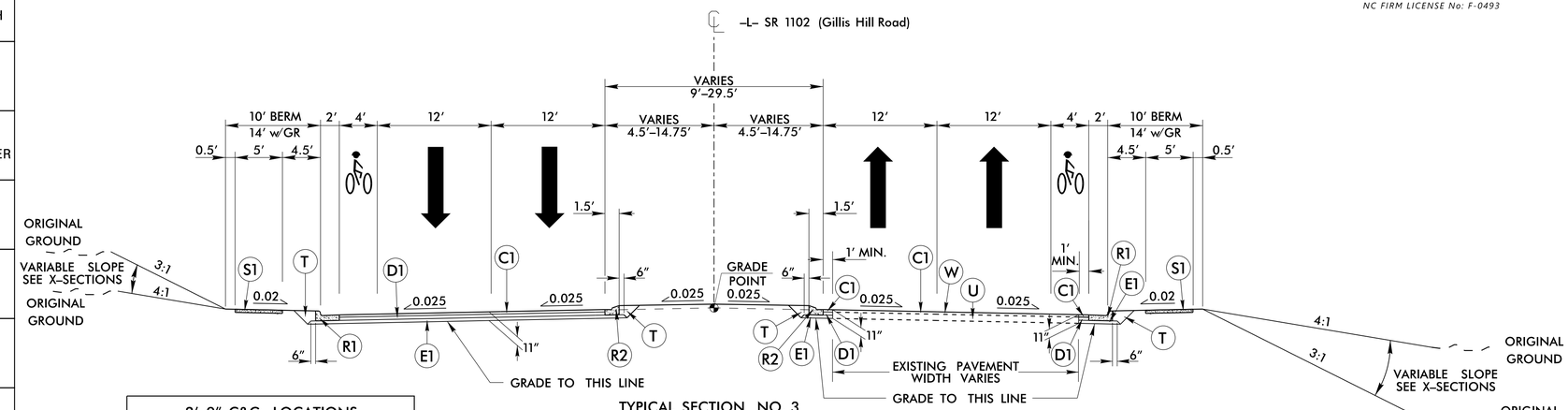
NOTE: PAVEMENT EDGES ARE 1:1 UNLESS SHOWN OTHERWISE.

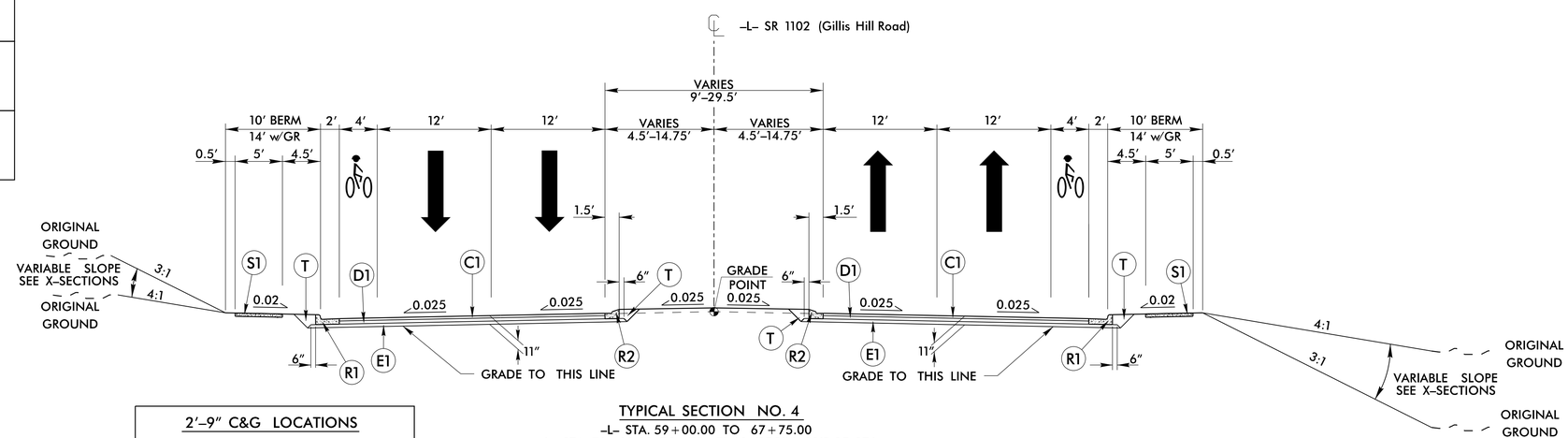


2′–9″ C&G LOCATIONS

–L– STA. 85+00.00 TO 85+40.82 MED. LT.

TYPICAL SECTION NO. 3

–L– STA. 53+05.00 TO 59+00.00
–L– STA. 85+00.00 TO 87+00.00



2′–9″ C&G LOCATIONS

–L– STA. 80+07.68 TO 85+00.00 MED. LT.
–L– STA. 91+10.00 TO 92+00.00 MED. RT.

TYPICAL SECTION NO. 4

–L– STA. 59+00.00 TO 67+75.00
–L– STA. 70+00.00 TO 75+71.63 (BEGIN BRIDGE RT.)
–L– STA. 70+00.00 TO 75+48.00 (BEGIN BRIDGE LT.)
–L– STA. 78+00.00 (END BRIDGE LT. & RT.) TO 85+00.00
–L– STA. 87+00.00 TO 92+00.00

8/17/99
04-MAR-2020 07:37
R:\Roadway\Proj\U-5798A\U-5798A_Rdy_typ.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-5798A	2A-3
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RS&H
NC FIRM LICENSE No: F-0493

FINAL PAVEMENT SCHEDULE

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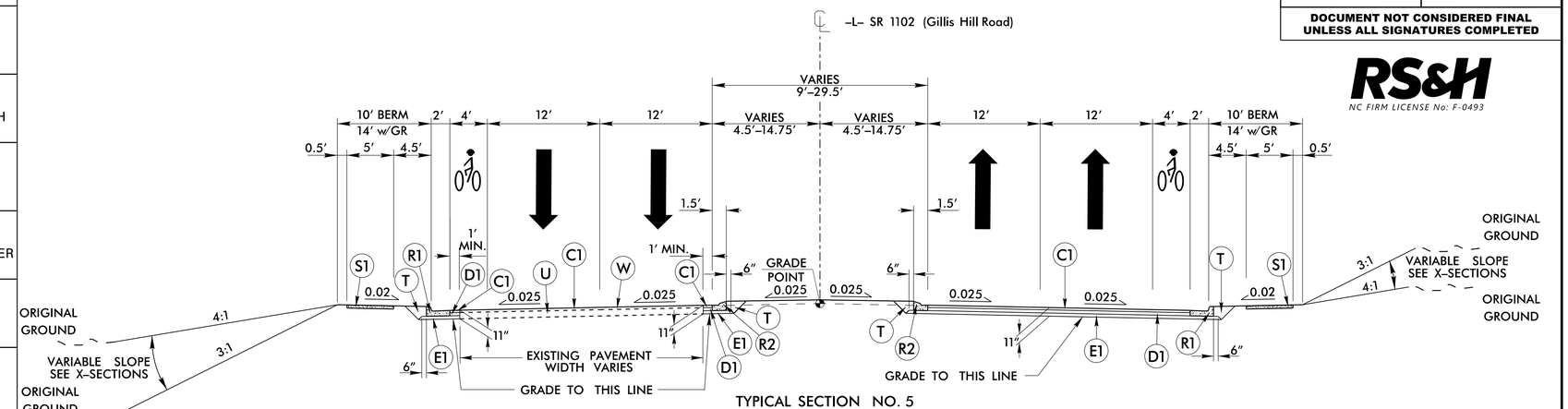
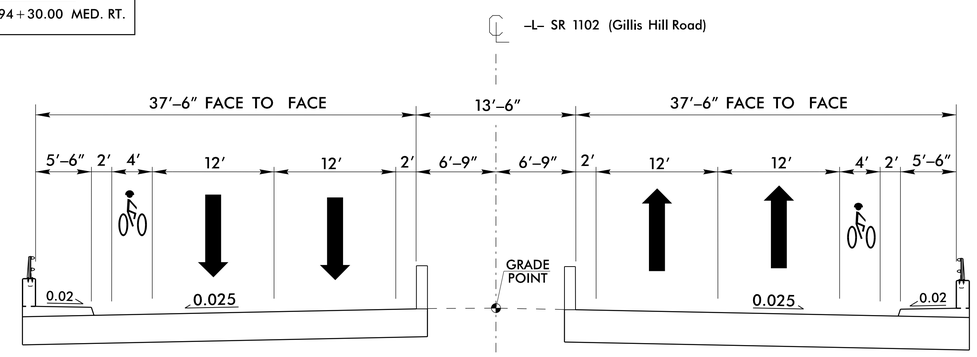
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1″ DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2.5″ IN DEPTH OR GREATER THAN 4″ IN DEPTH.
E1	PROP. APPROX. 4″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. 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 1.0″ DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 4.0″ IN DEPTH OR GREATER THAN 5.5″ IN DEPTH.
R1	2′-6″ CONCRETE CURB AND GUTTER.
R2	1′-6″ CONCRETE CURB AND GUTTER.
R3	5″ MONOLITHIC CONCRETE ISLAND (KEYED-IN).
S1	4″ CONCRETE SIDEWALK.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	3″ MILLING
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL).

NOTE: PAVEMENT EDGES ARE 1:1 UNLESS SHOWN OTHERWISE.

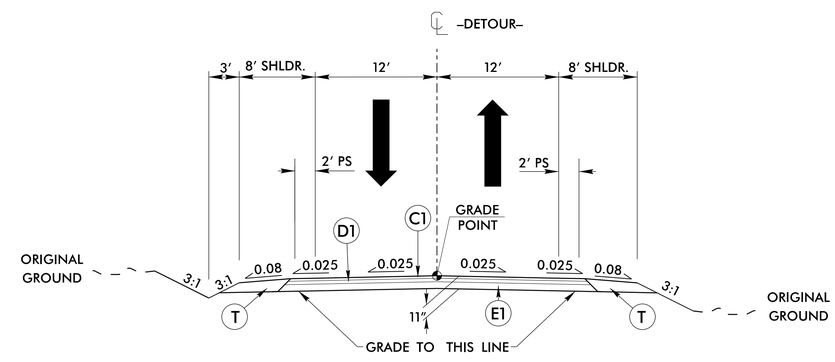


TYPICAL SECTION NO. 5
-L- STA. 94+00.00 TO 101+00.00

2′-9″ C&G LOCATIONS
-L- STA. 94+00.00 TO 94+30.00 MED. RT.



TYPICAL SECTION NO. 6
-L- STA. 75+71.63 TO 78+00.00 RT.
-L- STA. 75+48.00 TO 78+00.00 LT.



TYPICAL SECTION NO. 7
-DETOUR- STA. 10+05.00 TO 17+80.00

8/17/99
05-MAR-2020 11:11
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$$$$USERNAME$$$$

–DETOUR– DETAIL

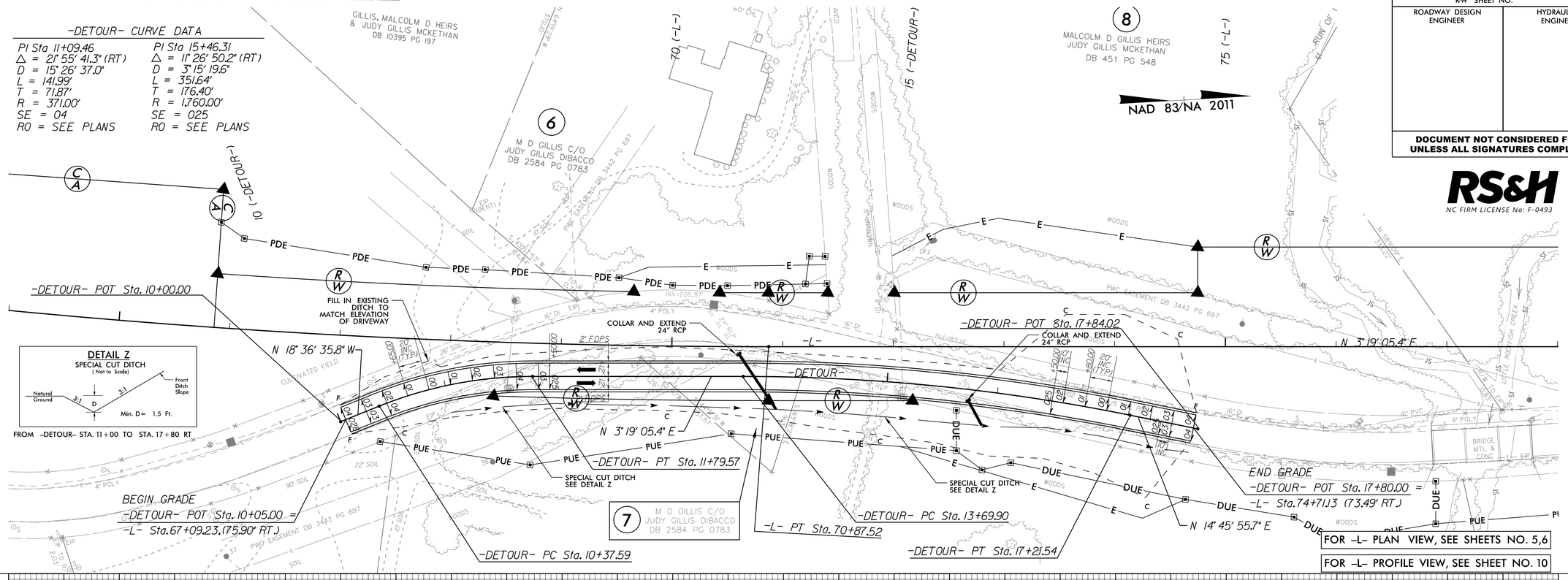
PROJECT REFERENCE NO.	SHEET NO.
U-5798A	2B-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RS&H
NC FIRM LICENSE No: F-0493

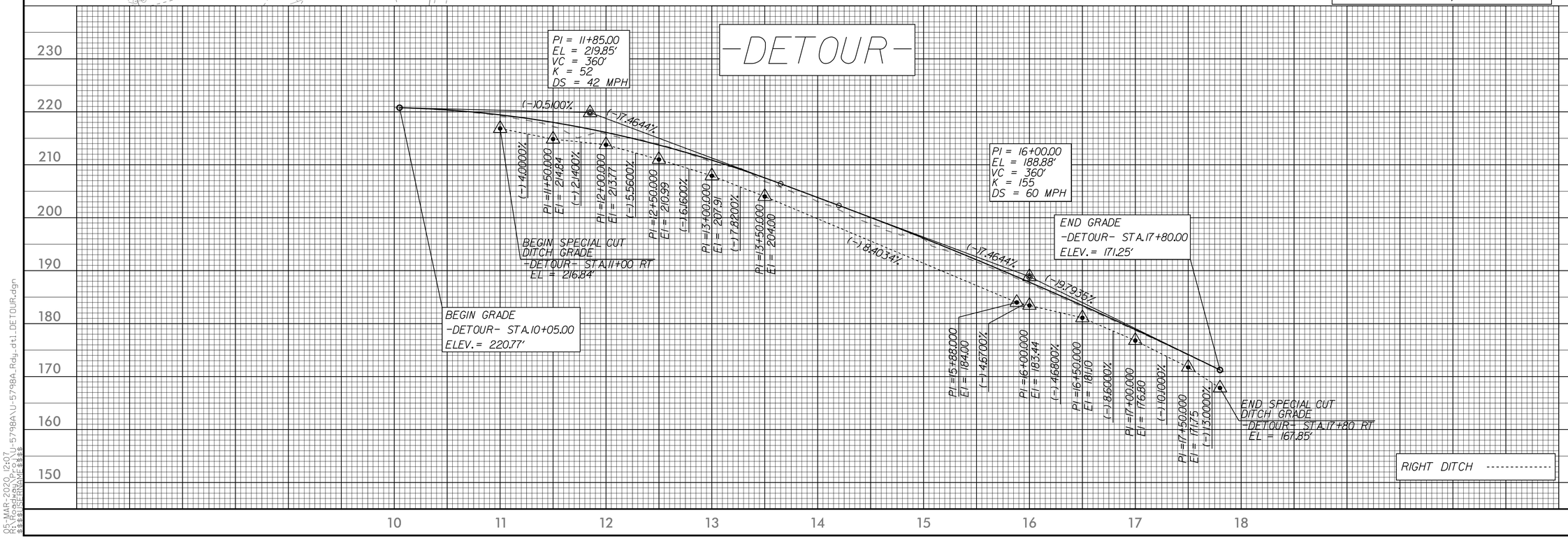
–DETOUR– CURVE DATA

PI Sta 11+09.46	PI Sta 15+46.31
△ = 21° 55' 41.3" (RT)	△ = 11° 26' 50.2" (RT)
D = 15° 26' 37.0"	D = 3° 15' 19.6"
L = 141.99'	L = 351.64'
T = 71.87'	T = 176.40'
R = 371.00'	R = 1,760.00'
SE = 04	SE = 025
RO = SEE PLANS	RO = SEE PLANS



DETAIL Z
SPECIAL CUT DITCH
(Not to Scale)

FROM –DETOUR– STA. 11+00 TO STA. 17+80 RT



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PROJECT REFERENCE NO.	SHEET NO.
U-5798A	2C-1

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

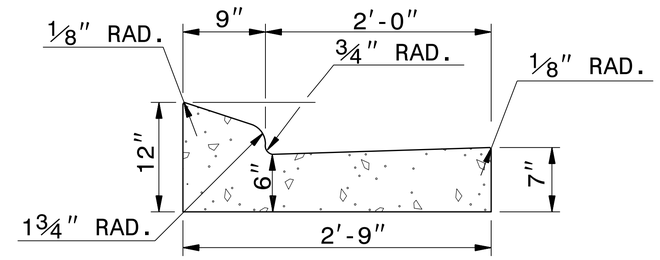
ENGLISH DETAIL DRAWING FOR

2′-9″ CONCRETE CURB & GUTTER

SHEET 1 OF 1

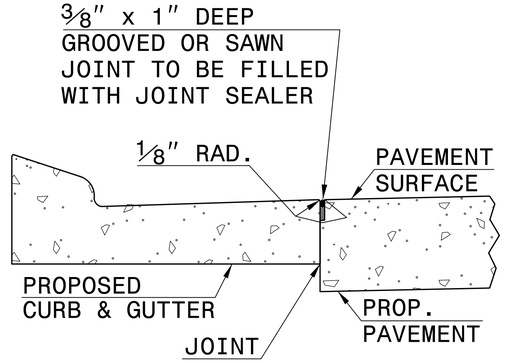
846D01

GENERAL NOTES:
- PLACE CONTRACTION JOINTS AT 10′ INTERVALS, EXCEPT THAT A 15′ SPACING MAY BE USED WHEN A MACHINE IS USED OR WHEN SATISFACTORY SUPPORT FOR THE FACE FORM CAN BE OBTAINED WITHOUT THE USE OF TEMPLATES AT 10′ INTERVALS.
- JOINT SPACING MAY BE ALTERED IF REQUIRED BY THE ENGINEER.
- CONTRACTION JOINTS MAY BE INSTALLED WITH THE USE OF TEMPLATES OR FORMED BY OTHER APPROVED METHODS. MAKE NON-TEMPLATE FORMED JOINTS A MIN. OF 1½″ DEEP.
- FILL ALL CONSTRUCTION JOINTS WITH JOINT FILLER AND SEALER.
- SPACE EXPANSION JOINTS AT 90′ INTERVALS AND ADJACENT TO ALL RIGID OBJECTS.
- SEE RDWY. STD. DWG. NO. 846.01, SHEET 2 OF 3 FOR PLACEMENT IN SUPERELEVATIONS. (USE 2′-6″ CURB AND GUTTER RATES)

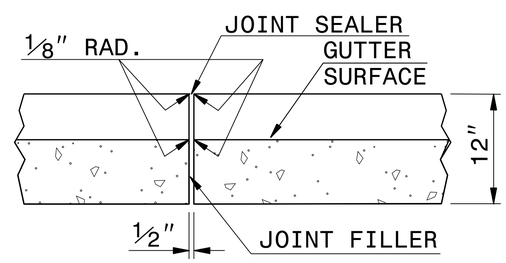


2′-9″ CURB AND GUTTER

SECTION VIEW OF CURB AND GUTTER



LONGITUDINAL JOINT



TRANSVERSE EXPANSION JOINT IN CURB AND GUTTER

SECTION VIEW OF JOINTS

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

ENGLISH DETAIL DRAWING FOR

2′-9″ CONCRETE CURB & GUTTER

SHEET 1 OF 1

846D01

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Israel S. Howerton

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

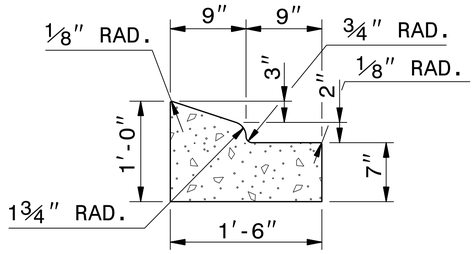
SEE PLATE FOR TITLE

ORIGINAL BY: STD. 846.01 DATE:
MODIFIED BY: E.E. WARD DATE: 8-15-00
CHECKED BY: DATE:
FILE SPEC.: /usr/details/stand/c&g2′-9″.dgn

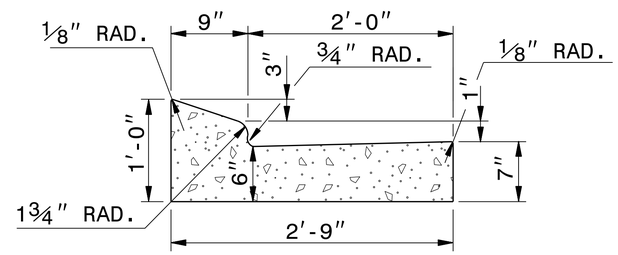
10-AUG-2017 11:46
S:\Contracts\Contracts\Special Details\erieward\usr\details\stand\c&g2′-9.dgn
jhowerton AT CSD-292595

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-5798A	2C-2



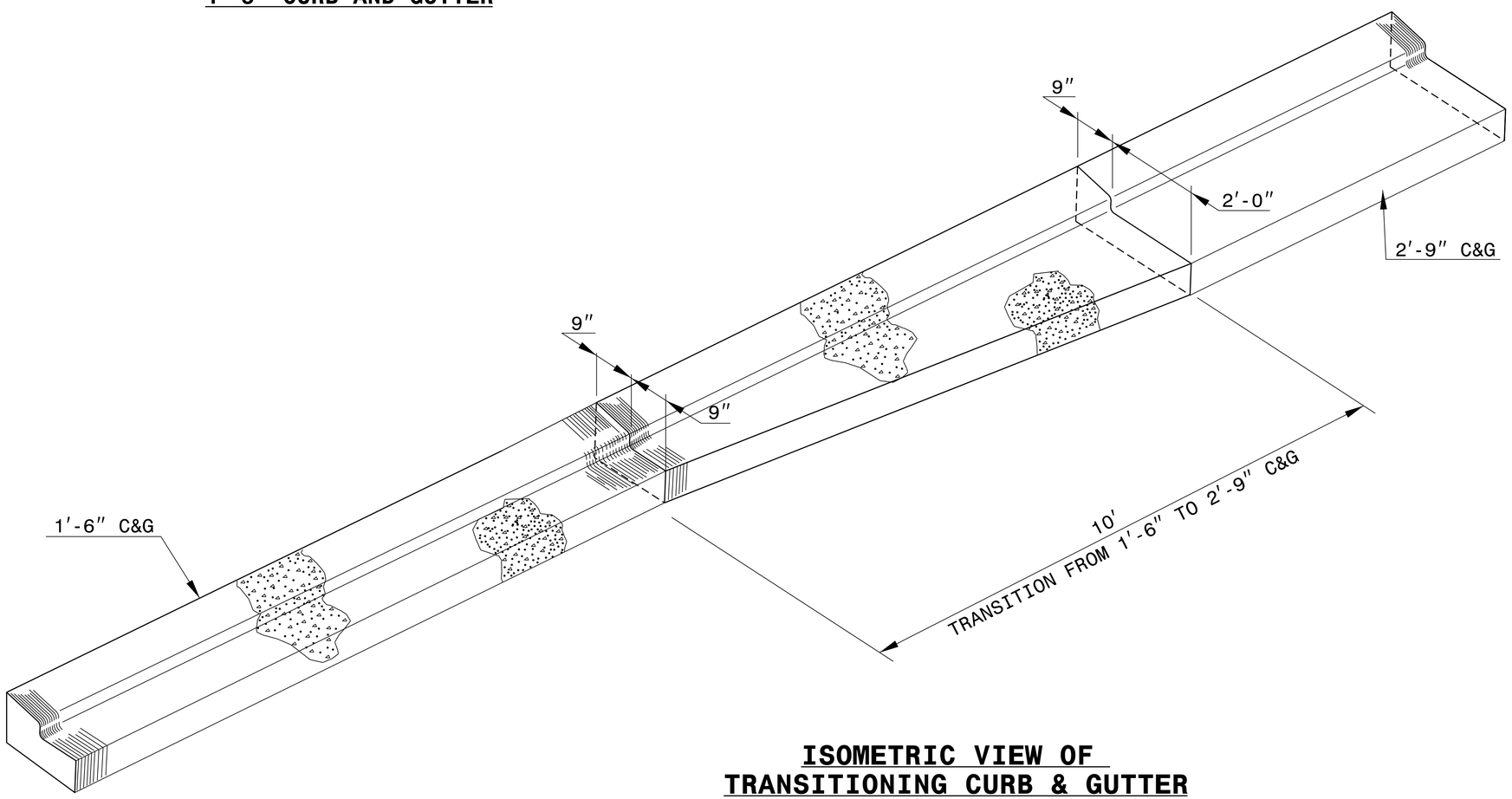
1'-6" CURB AND GUTTER



2'-9" CURB AND GUTTER

NOTE: SEE STD. DWG. 846.01 FOR ADDITIONAL CURB AND GUTTER INFORMATION.

SEE ROADWAY PLANS FOR LOCATION OF CURB TRANSITION.



ISOMETRIC VIEW OF TRANSITIONING CURB & GUTTER

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

DETAIL OF 1'-6" TO 2'-9" CURB & GUTTER TRANSITION SECTION

ORIGINAL BY: T.S.SPELL DATE: NOV. 26, 2001
MODIFIED BY: T.S.SPELL DATE: JAN. 23, 2007
CHECKED BY: DATE:
FILE SPEC.: DS174:/usr/details/stand/cgtransit.dgn

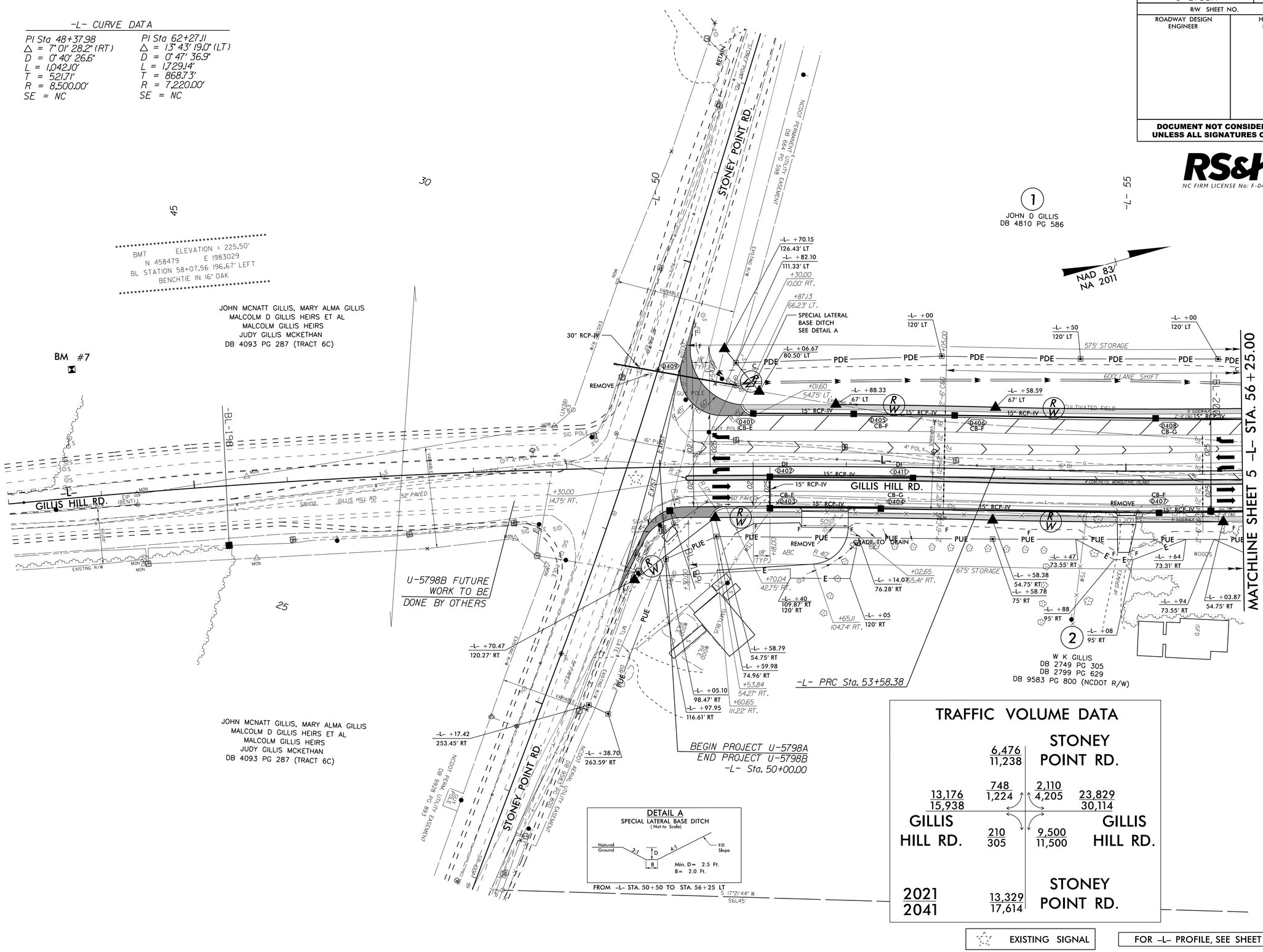
PROJECT REFERENCE NO.	SHEET NO.
U-5798A	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RS&H
NC FIRM LICENSE No: F-0493

-L- CURVE DATA

PI Sta 48+37.98	PI Sta 62+27.11
△ = 7° 01' 28.2" (RT)	△ = 13° 43' 19.0" (LT)
D = 0° 40' 26.6"	D = 0° 47' 36.9"
L = 1,042.10'	L = 1,729.14'
T = 521.71'	T = 868.73'
R = 8,500.00'	R = 7,220.00'
SE = NC	SE = NC



DETAIL A
SPECIAL LATERAL BASE DITCH
(Not to Scale)

Natural Ground — 3:1 — D — 4:1 — Fill Slope — B

Min. D= 2.5 Ft.
B= 2.0 Ft.

TRAFFIC VOLUME DATA

		6,476 / 11,238	STONEY POINT RD.	
13,176 / 15,938	748 / 1,224	2,110 / 4,205	23,829 / 30,114	
GILLIS HILL RD.	210 / 305	9,500 / 11,500	GILLIS HILL RD.	
2021 / 2041	13,329 / 17,614	STONEY POINT RD.		

EXISTING SIGNAL

FOR -L- PROFILE, SEE SHEET NO. 10

REVISIONS

8/17/99

27-MAR-2020 14:46
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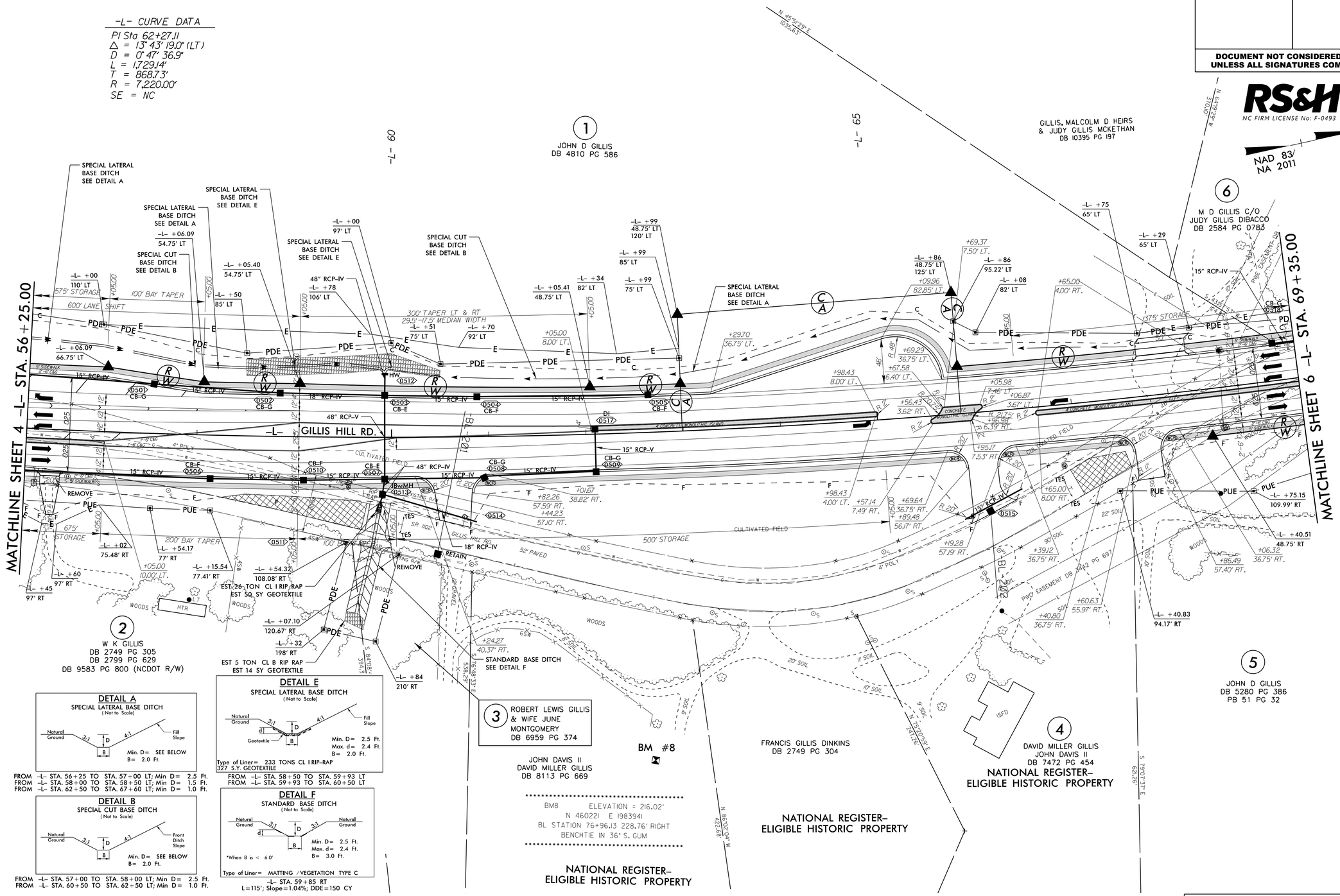
PROJECT REFERENCE NO.	SHEET NO.
U-5798A	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RS&H
NC FIRM LICENSE No: F-0493

NAD 83/ NA 2011

-L- CURVE DATA
PI Sta 62+27.11
△ = 13° 43' 19.0" (LT)
D = 0° 47' 36.9"
L = 1,729.14'
T = 868.73'
R = 7,220.00'
SE = NC



FOR -L- PROFILE, SEE SHEETS NO. 10

REVISIONS

8/17/99

27-MAR-2020 14:48
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PROJECT REFERENCE NO.	SHEET NO.
U-5798A	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

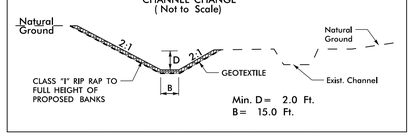
RS&H
NC FIRM LICENSE No: F-0493

-L- CURVE DATA

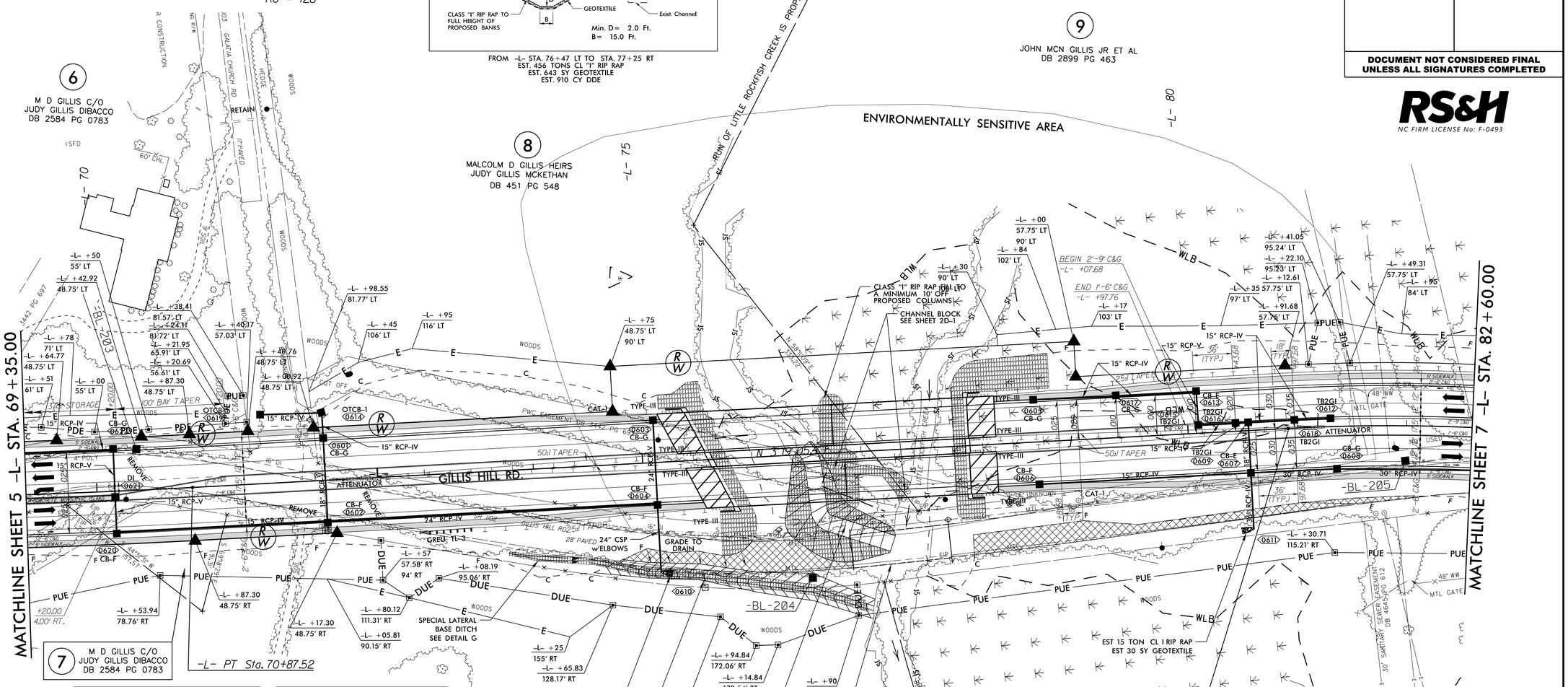
PI Sta 62+27.11
△ = 13° 43' 19.0" (LT)
D = 0° 47' 36.9"
L = 1,729.14'
T = 868.73'
R = 7,220.00'
SE = NC

PI Sta 85+35.62
△ = 28° 56' 41.9" (RT)
D = 3° 19' 52.1"
L = 868.92'
T = 443.94'
R = 1,720.00'
SE = 035
RO = 126

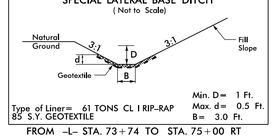
DETAIL K
CHANNEL CHANGE
(Not to Scale)



FROM -L- STA. 76+47 LT TO STA. 77+25 RT
EST. 456 TONS CL "I" RIP RAP
EST. 643 SY GEOTEXTILE
EST. 910 CY DDE



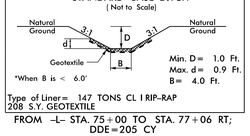
DETAIL G
SPECIAL LATERAL BASE DITCH
(Not to Scale)



Type of Liner= 61 TONS CL I RIP-RAP
85 S.Y. GEOTEXTILE
Min. D= 1 Ft.
Max. d= 0.5 Ft.
B= 3.0 Ft.

FROM -L- STA. 73+74 TO STA. 75+00 RT

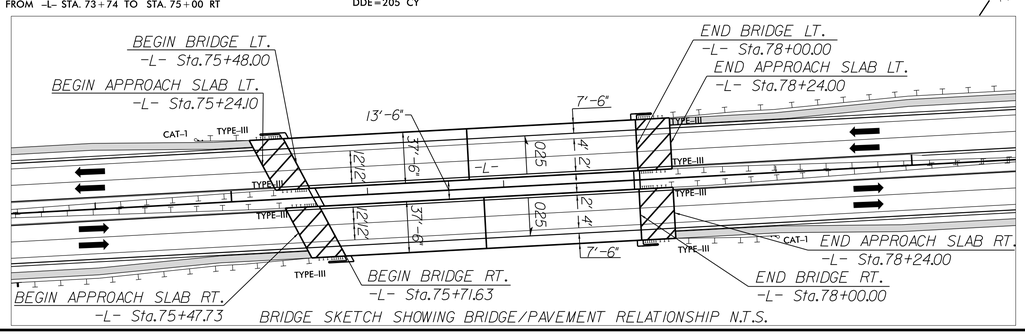
DETAIL H
STANDARD BASE DITCH
(Not to Scale)



*When B is < 6.0'
Min. D= 1.0 Ft.
Max. d= 0.9 Ft.
B= 4.0 Ft.

Type of Liner= 147 TONS CL I RIP-RAP
208 S.Y. GEOTEXTILE

FROM -L- STA. 75+00 TO STA. 77+06 RT;
DDE=205 CY



BRIDGE SKETCH SHOWING BRIDGE/PAVEMENT RELATIONSHIP N.T.S.

APPROACH SLAB

PAVEMENT REMOVAL

FOR -L- PROFILE, SEE SHEETS NO. 10, 11

REVISIONS

8/17/99

27-MAR-2020 14:56
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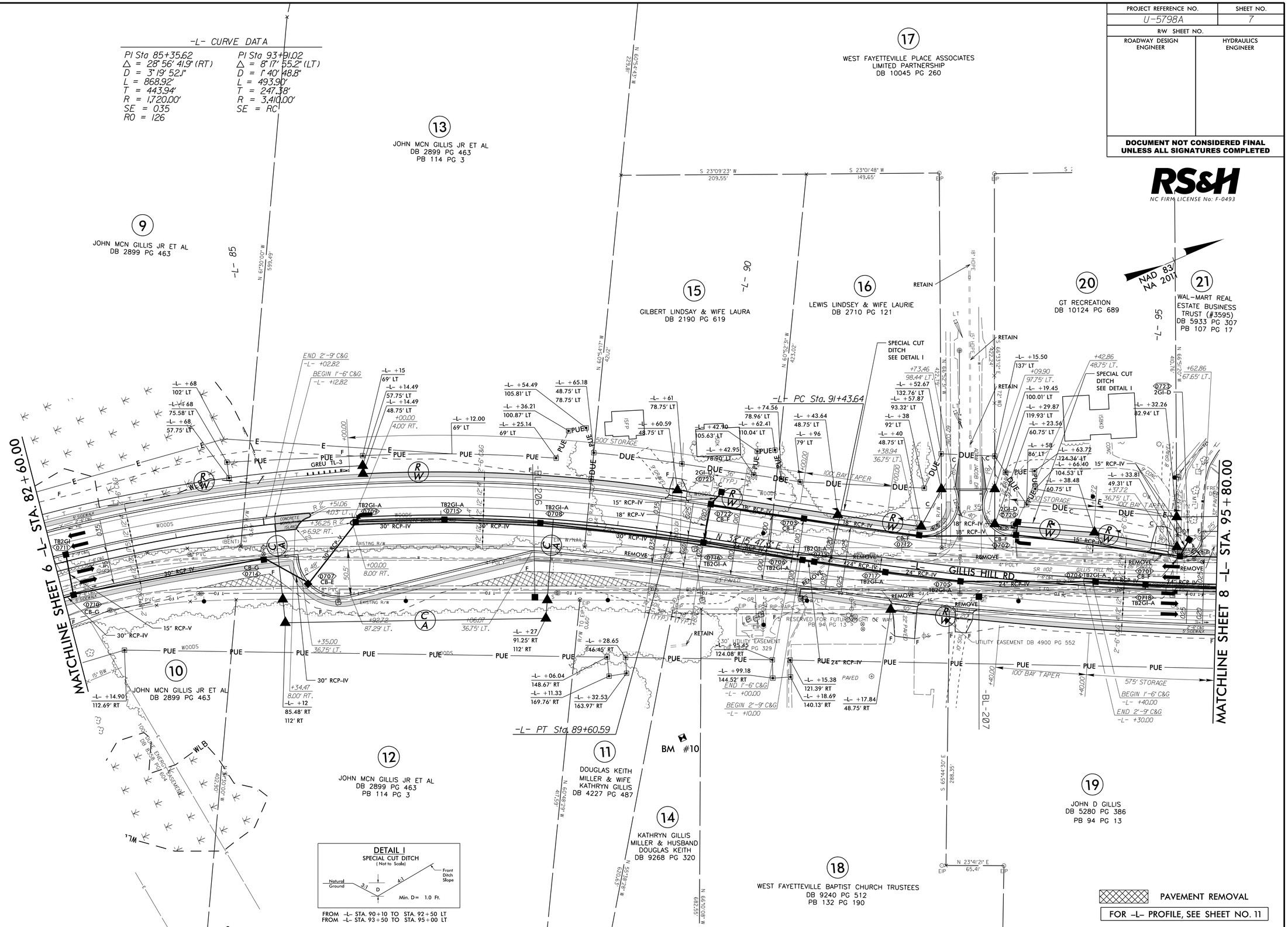
PROJECT REFERENCE NO.	SHEET NO.
U-5798A	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RS&H
NC FIRM LICENSE No: F-0493

REVISIONS

8/17/99



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PROJECT REFERENCE NO.	SHEET NO.
U-5798A	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

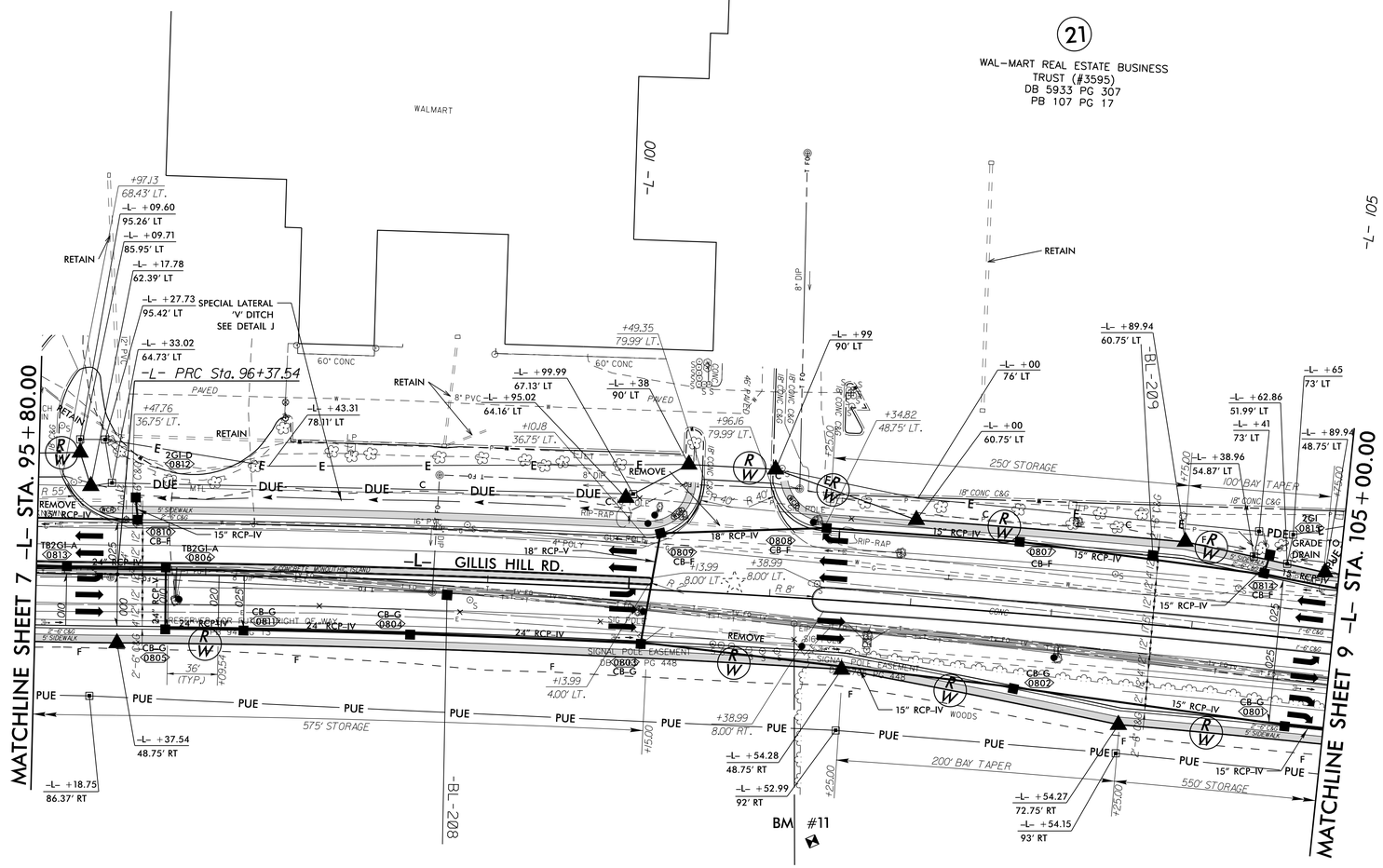
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RS&H
NC FIRM LICENSE No: F-0493

NAD 83/NA 2011

-L- CURVE DATA

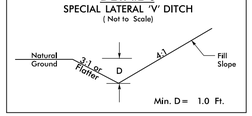
PI Sta 93+91.02	PI Sta 101+25.50
△ = 8° 17' 55.2" (LT)	△ = 6° 12' 24.4" (RT)
D = 1° 40' 48.8"	D = 0° 38' 11.8"
L = 493.90'	L = 974.96'
T = 247.38'	T = 487.96'
R = 3,410.00'	R = 9,000.00'
SE = RC	SE = NC



19
JOHN D GILLIS
DB 5280 PG 386
PB 94 PG 13

22
BARKER PARTNERS LLC
DB 8580 PG 263

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



FROM -L- STA. 96+50 TO STA. 100+00 LT

TRAFFIC VOLUME DATA

	5,700 / 8,200	WALMART DR.		
23,200 / 29,800	3,500 / 4,900		2,200 / 3,300	21,900 / 28,200
GILLIS HILL RD.				GILLIS HILL RD.

2021
2041

EXISTING SIGNAL

FOR -L- PROFILE, SEE SHEETS NO. 11

REVISIONS

8/17/99

27-MAR-2020 15:00
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PROJECT REFERENCE NO.	SHEET NO.
U-5798A	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RS&H
NC FIRM LICENSE No: F-0493

REVISIONS

8/17/99

27-MAR-2020 15:01
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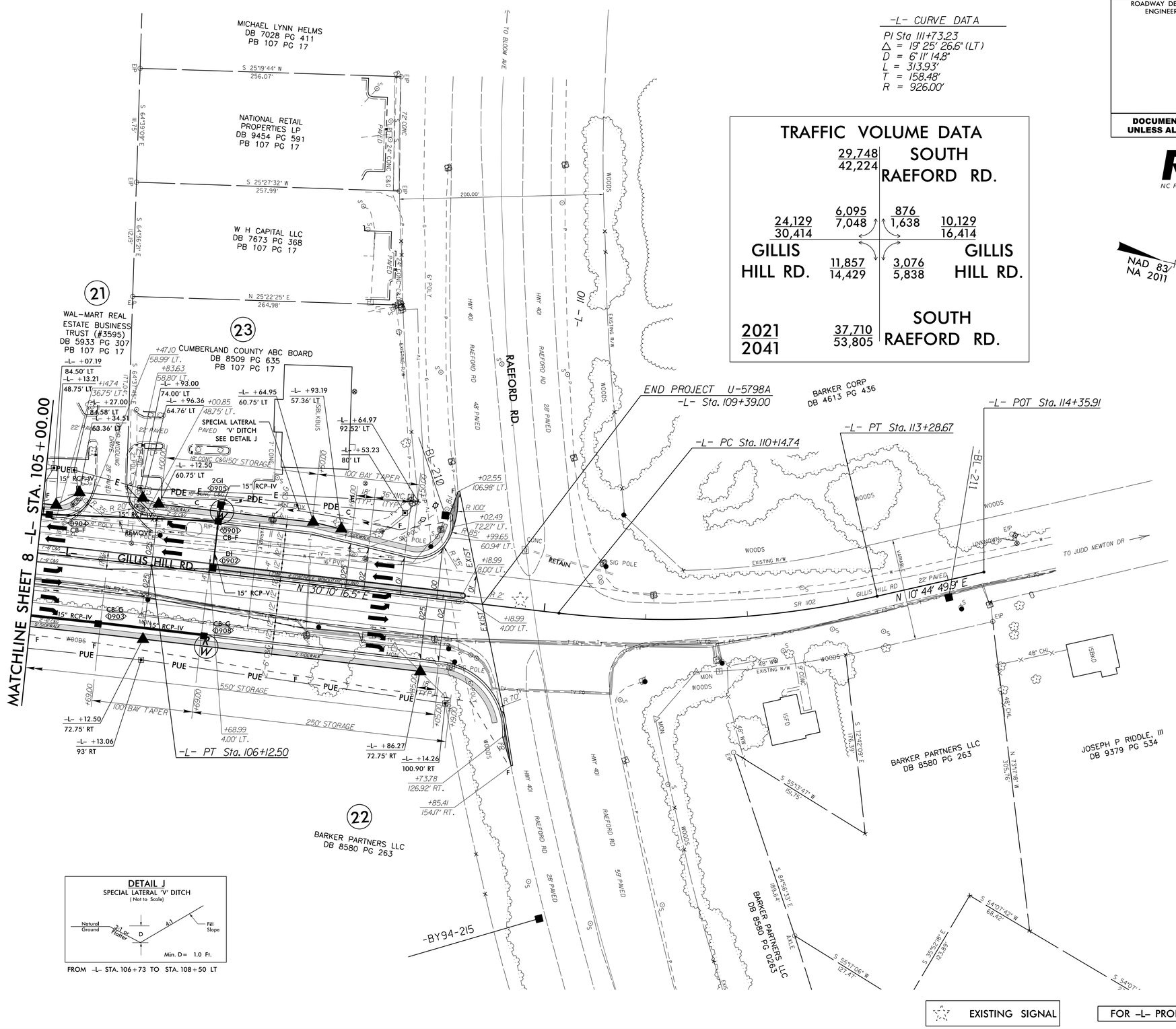

-L- CURVE DATA

PI Sta 111+73.23
Δ = 19° 25' 26.6" (LT)
D = 6° 11' 14.8"
L = 313.93'
T = 158.48'
R = 926.00'

TRAFFIC VOLUME DATA

		29,748 / 42,224	SOUTH RAEFORD RD.	
24,129 / 30,414	6,095 / 7,048	876 / 1,638	10,129 / 16,414	
GILLIS HILL RD.	11,857 / 14,429	3,076 / 5,838	GILLIS HILL RD.	
2021 / 2041	37,710 / 53,805	SOUTH RAEFORD RD.		

NAD 83/NA 2011

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

FROM -L- STA. 106+73 TO STA. 108+50 LT

FOR -L- PROFILE, SEE SHEETS NO. 12