PROJECT REFERENCE NO.	SHEET NO.
R-2707D	18

R/W SHEET NO.

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DocuSigned by: SEAL 044480 MATTHEW B. FERGUSON 4/28/2023	DocuSigned by: SEAL 26971 JOSHUA G. DALTON 4/28/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243
ENG FIRM LICENSE NO. C-890

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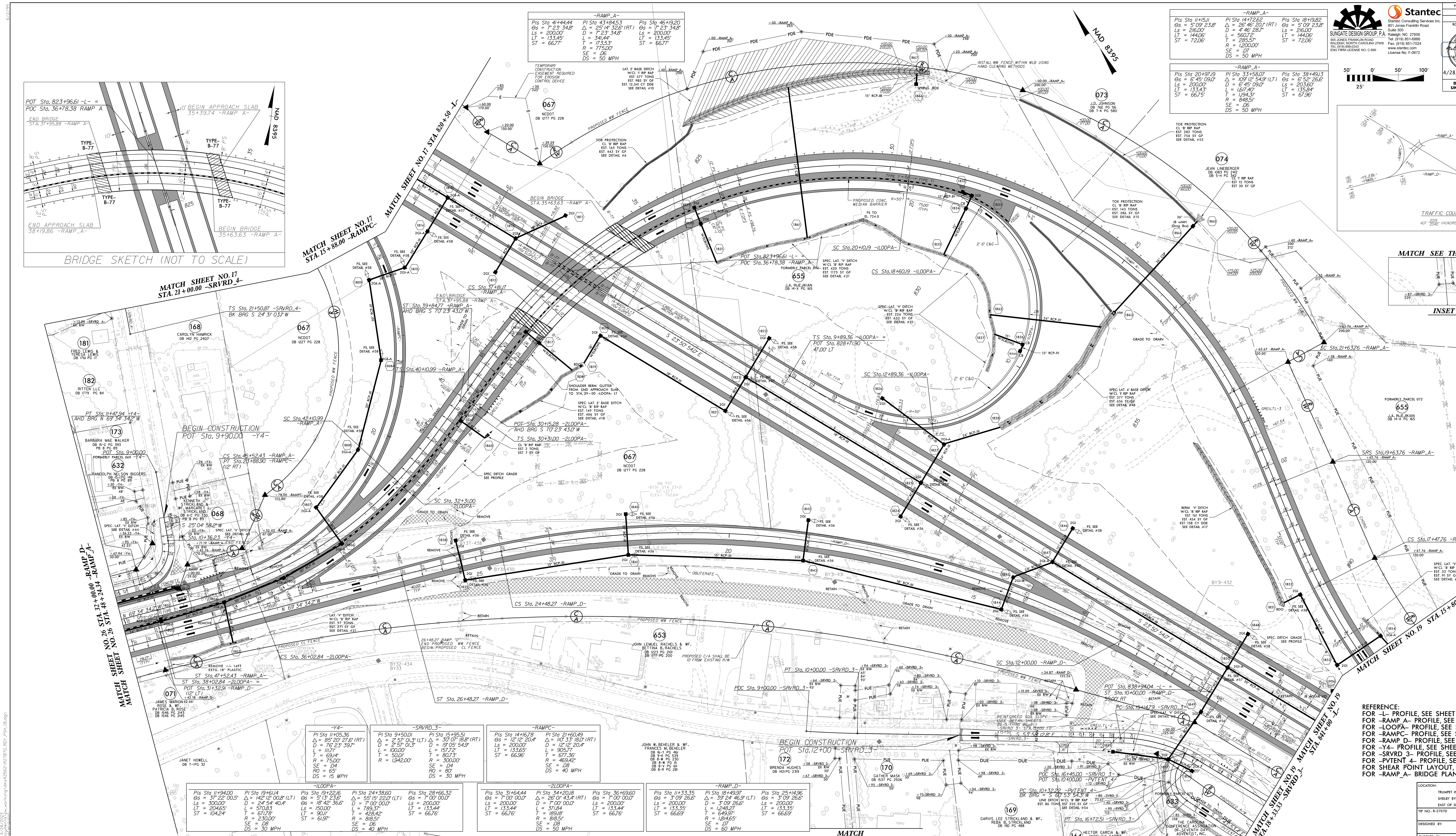
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672



-RAMP_A-

PIs Sta 41+44.44	PI Sta 43+84.53	PIs Sta 46+19.20
Θs = 7° 23′ 34.8″	△ = 25° 14′ 32.6″ (RT)	Θs = 7° 23′ 34.8″
Ls = 200.00′	D = 7° 23′ 34.8″	Ls = 200.00′
LT = 133.45′	L = 341.44′	LT = 133.45′
ST = 66.77′	T = 173.53′	ST = 66.77′
	R = 775.00′	
	SE = .06	
	DS = 50 MPH	

-RAMP_A-

PIs Sta 11+15.11	PI Sta 14+72.62	PIs Sta 18+19.82
Θs = 5° 09′ 23.8″	△ = 26° 46′ 20.1″ (RT)	Θs = 5° 09′ 23.8″
Ls = 216.00′	D = 4° 46′ 28.7″	Ls = 216.00′
LT = 144.06′	L = 560.72′	LT = 144.06′
ST = 72.06′	T = 285.57′	ST = 72.06′
	R = 1,200.00′	
	SE = .07	
	DS = 50 MPH	

-RAMP_A-

PIs Sta 20+97.19	PI Sta 33+58.07	PIs Sta 38+49.13
Θs = 6° 45′ 09.0″	△ = 109° 12′ 54.9″ (LT)	Θs = 6° 52′ 26.6″
Ls = 200.00′	D = 6° 45′ 09.0″	Ls = 203.60′
LT = 133.43′	L = 1,617.40′	LT = 135.84′
ST = 66.75′	T = 1,194.31′	ST = 67.96′
	R = 848.51′	
	SE = .06	
	DS = 50 MPH	

-Y4-

PI Sta 11+05.36
△ = 85° 20′ 27.6″ (RT)
D = 76° 23′ 39.7″
L = 111.71′
T = 69.14′
R = 75.00′
SE = .04
RO = 65′
DS = 15 MPH

-SRVRD_3-

PI Sta 9+50.01	PI Sta 15+95.51
△ = 2° 57′ 01.3″ (LT)	△ = 30° 07′ 18.8″ (RT)
D = 2° 57′ 01.3″	D = 19° 05′ 54.9″
L = 100.00′	L = 157.72′
T = 50.01′	T = 80.73′
R = 1,942.00′	R = 300.00′
	SE = .04
	RO = 80′
	DS = 30 MPH

-RAMPC-

PIs Sta 14+16.78	PI Sta 21+60.49
Θs = 12° 12′ 20.4″	△ = 110° 33′ 18.0″ (RT)
Ls = 200.00′	D = 12° 12′ 20.4″
LT = 133.65′	L = 905.77
ST = 66.96′	T = 677.36′
	R = 469.42′
	SE = .08
	DS = 40 MPH

-1LOOPA-

PIs Sta 11+94.00	PI Sta 19+61.14	PIs Sta 19+22.16	PI Sta 24+38.60	PIs Sta 28+66.32
Θs = 37° 22′ 00.5″	△ = 142° 12′ 00.8″ (LT)	Θs = 5° 13′ 23.6″	△ = 55° 15′ 22.0″ (LT)	Θs = 7° 00′ 00.0″
Ls = 300.00′	D = 24° 54′ 40.4″	Θs = 18° 42′ 36.6″	D = 7° 00′ 00.0″	Ls = 200.00′
LT = 204.65′	L = 570.83	Ls = 150.00′	L = 789.37′	LT = 133.44′
ST = 104.24′	T = 671.78′	LT = 90.11′	T = 428.42′	ST = 66.76′
	R = 230.00′	ST = 61.97′	R = 818.51′	
	SE = .08		SE = .06	
	DS = 30 MPH		DS = 40 MPH	

-2LOOPA-

PIs Sta 31+64.44	PI Sta 34+20.18	PIs Sta 36+69.60
Θs = 7° 00′ 00.0″	△ = 26° 01′ 43.4″ (RT)	Θs = 7° 00′ 00.0″
Ls = 200.00′	D = 7° 00′ 00.0″	Ls = 200.00′
LT = 133.44′	L = 371.84	LT = 133.44′
ST = 66.76′	T = 189.18′	ST = 66.76′
	R = 818.51′	
	SE = .08	
	DS = 50 MPH	

-RAMP_D-

PIs Sta 11+33.35	PI Sta 18+49.97	PIs Sta 25+14.96
Θs = 3° 09′ 26.6″	△ = 39° 24′ 46.9″ (LT)	Θs = 3° 09′ 26.6″
Ls = 200.00′	D = 3° 09′ 26.6″	Ls = 200.00′
LT = 133.35′	L = 1,248.27	LT = 133.35′
ST = 66.69′	T = 649.97′	ST = 66.69′
	R = 1,814.65′	
	SE = .07	
	DS = 60 MPH	

REFERENCE:
FOR -L- PROFILE, SEE SHEET NO. 36 & 37
FOR -RAMP_A- PROFILE, SEE SHEET NO. 38, 39 & 40
FOR -LOOPA- PROFILE, SEE SHEET NO. 41 & 42
FOR -RAMPC- PROFILE, SEE SHEET NO. 42
FOR -RAMP_D- PROFILE, SEE SHEET NO. 43
FOR -Y4- PROFILE, SEE SHEET NO. 47
FOR -SRVRD_3- PROFILE, SEE SHEET NO. 51
FOR -PVTENT_4- PROFILE, SEE SHEET NO. 54
FOR SHEAR POINT LAYOUT, SEE SHEET NO. 2B-2
FOR -RAMP_A- BRIDGE PLANS, SEE S4-01 TO S4-43

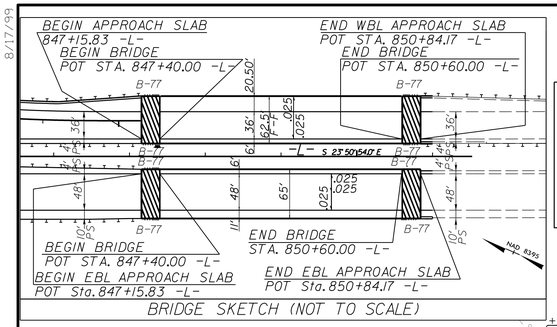
LOCATION:
TRUMPET INTERCHANGE
SHELBY BYPASS & US-74
EAST OF SHELBY

TIP NO.: R-2707D COUNTY: CLEVELAND

DESIGNED BY:

CHECKED BY: DATE:

8/17/99



BRIDGE SKETCH (NOT TO SCALE)

-RAMP_A-

PIs Sta 18+19.82
Θs = 5°09' 23.8"
Ls = 216.00'
LT = 144.06'
ST = 72.06'

PI Sta 14+72.62
Δ = 26°46' 20.1" (RT)
D = 4°46' 28.7"
L = 560.72'
T = 285.57'
R = 1,200.00'
SE = .07
DS = 50 MPH

PIs Sta 11+15.11
Θs = 5°09' 23.8"
Ls = 216.00'
LT = 144.06'
ST = 72.06'

-SRVRD_3-

PI Sta 23+77.25
Δ = 62°02' 16.0" (RT)
D = 57°17' 44.8"
L = 108.28'
T = 60.13'
R = 100.00'
SE = .02
RO = 80'
DS = 30 MPH

PI Sta 24+49.57
Δ = 6°08' 58.8" (LT)
D = 12°43' 56.6"
L = 48.30'
T = 24.17'
R = 450.00'
SE = EXIST.
RO = EXIST.

PERMANENT DECK DRAINS REQUIRED
6" VERTICAL DRAINS ON 6' CENTERS
FROM STA. 847+49 TO STA. 848+45 RT.
FROM STA. 850+11 TO STA. 850+53 RT.
MAX. SPREAD=7.1 FT.

TEMPORARY DECK DRAINS REQUIRED
8" X 6" SLOTS ON 6' CENTERS
FROM STA. 848+59 TO STA. 849+73 RT.
FROM STA. 849+87 TO STA. 850+05 RT.
MAX. SPREAD=3.0 FT.

PERMANENT DECK DRAINS REQUIRED
6" VERTICAL DRAINS ON 6' CENTERS
FROM STA. 847+97 TO STA. 848+33 RT.
FROM STA. 850+11 TO STA. 850+47 RT.
MAX. SPREAD=5.3 FT.

PERMANENT DECK DRAINS REQUIRED
6" VERTICAL DRAINS ON 6' CENTERS
FROM STA. 847+49 TO STA. 848+45 LT.
FROM STA. 850+11 TO STA. 850+53 LT.
MAX. SPREAD=6.9 FT.

TEMPORARY DECK DRAINS REQUIRED
8" X 6" SLOTS ON 6' CENTERS
FROM STA. 848+59 TO STA. 849+73 LT.
FROM STA. 849+87 TO STA. 850+05 LT.
MAX. SPREAD=3.0 FT.

PERMANENT DECK DRAINS REQUIRED
6" VERTICAL DRAINS ON 12' CENTERS
FROM STA. 847+97 TO STA. 848+33 LT.
FROM STA. 850+11 TO STA. 850+47 LT.
MAX. SPREAD=5.3 FT.

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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	19
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 044480 ENGINEER MATTHEW B. FERGUSON
4/21/2023

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
4/21/2023

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MATCH SHEET NO. 18 STA. 15+80 -RAMP A-

MATCH SHEET NO. 18 STA. 841+00 -L-

MATCH SHEET NO. 18 STA. 18+33.33 -SRVRD_3-

MATCH SHEET NO. 194 STA. 852+00 -L-

FORMERLY PARCEL 072
655
J.A. INJEJIKIAN
DB 14-X PG 165

R/W PURCHASED UNDER TIP R-2707E FORMERLY PARCEL 078
635
WESTLEY M. LAIL
DB 1629 PG 1844

NAD 8395

+11 -RAMP A- 164'
TOE PROTECTION
CL 'B' RIP RAP
EST. 157 TONS
EST. 422 SY GF
SEE DETAIL #6

SHOULDER BERM GUTTER
FROM STA. 9+71 TO
STA. 15+00 -RAMP_A- RT

NO MONUMENTS TO BE PLACED IN DITCH

+85 -RAMP A- 161'

+00 -RAMP A- 120'

SC Sta.11+87.05 -RAMP_A-

+71 -RAMP A- 173' 181'

+50 -RAMP A- 173' 180'

+87.05 -RAMP_A- 120.00'

+71.05 -RAMP_A- 120.00'

STD. 5' BASE CHANNEL W/EMBEDDED CL 'II' RIP RAP
EST. 1951 TONS
LENGTH=575', SLOPE=2.8%
EST. 5325 CY DDE
SEE DETAIL #27

POT Sta.9+71.05 -RAMP_A-, 47.00' LT =
ST Sta.9+71.05 -RAMP_A-, 47.00' LT

+81 207'
+77 198'
+10 197'

FILL EXISTING CHANNEL WITH SUITABLE MATERIAL
EST. 350 CY

+50 167' 196.5'

END FENCE +40 LT

CL 'II' RIP RAP TO EL 655.5 (STRUCTURE PAY ITEM)

+69.49 167.00' END R/W R-2707D

SHOULDER BERM GUTTER FROM STA. 850+84 TO STA. 851+00 -L- LT

+60.00 150.00' 167.00'

CL 'II' RIP RAP TO EL 655.5 (STRUCTURE PAY ITEM) +60 LT

SHOULDER BERM GU
FROM STA. 850+84
STA. 851+00 -L- ME

TS Sta. 851+52.31 -L-

+52.31 150.00'

PROPOSED WW FENCE

24" RCP-III

CAT -I-

JB w/MH (Drop Box) 1908

DO NOT BURY INVERT

54" RCP-III

42" RCP-IV

1907 1905 1906

2GI-A

-RAMP_A-

JB w/SLAB LID

SPEC DITCH GRADE SEE PROFILE

12'

4'

6'

FLOWABLE FILL

PROPOSED CABLE GUIDERAIL

30" RCP-III

REMOVE

1904

FS, SEE DETAIL #57

GREU.TL-3

50:1

15" RCP-IV

1903

1901 1902

END EXPRESSWAY GUTTER

+75.00

TEMPORARY SHORING (SEE TMP PLANS)

1915 1916 1917

15" RCP-IV

WELBOWS

38.28' (TYP)

BEGIN BRIDGE STA. 847+40.00

DECK DRAIN DISSIPATOR PAD SEE DETAIL #49

END BRIDGE STA. 850+60.00

B-77

20.50'

S 23°50'54.0" E

TEMPORARY SHORING (SEE TMP PLANS)

BM #101
-BL- STA 815+46.57
25.7' LEFT
ELEV.= 667.84

CL 'II' RIP RAP BANK STABILIZATION SEE DETAIL #62

1912 1913 1914

W/ELBOWS

+51.72

+76.72

+00.00 125.00'

+90.76 EX P.I.

20.00' TYP

SPEC. LAT. 'V' DITCH SEE DETAIL #2

PROP.GUARDRAIL W/2 TERMINAL END SECTIONS

-SRVRD_3-

POT Sta.13+11.18 -PVTENT_4-

PROPOSED R/W

BERM 'V' DITCH W/CL 'B' RIP RAP
EST. 115 TONS
EST. 324 SY GF
SEE DETAIL #17

+00.00 -SRVRD_3- 60.00'

18" W/ELBOW

1910 1911

BDO 1909

PC Sta. 23+17.12 -SRVRD_3-

PRC Sta. 24+25.39 -SRVRD_3-

+00.00 -SRVRD_3- 60.00'

+41 -SRVRD_3- 74'

+72 -SRVRD_3- 75'

+57 -SRVRD_3- 126'

+84 -SRVRD_3- 117'

+66 -SRVRD_3- 140'

+75 -SRVRD_3- 89'

+00 -SRVRD_3- 80'

+67.00 -SRVRD_3- 60.00'

S 21°43'53.4" E

END CONSTRUCTION
POT Sta. 12+80.00 -PVTENT_4-

FORMERLY PARCEL 075
633
THE CAROLINA CONFERENCE ASSOCIATION OF SEVENTH DAY ADVENTIST, INC.
DB 1163 PG 1469

+28 -L- 439'

+55 -L- 425'

076
JOHN L. AND BETTINA B. RACHELS
DB 1646 PG 24

END CONSTRUCTION
POT Sta. 24+50.00 -SRVRD_3-

PT Sta. 24+73.69 -SRVRD_3-

+40.00 150.00' +40 RT

END FENCE +40 RT

BEGIN FENCE +60 RT

STD. 3' BASE DITCH W/CL 'I' RIP RAP
EST. 127 TONS
EST. 212 SY GF
EST. 90 CY DDE
SEE DETAIL #22

CL 'II' RIP RAP AT EMBANKMENT
EST. 35 TONS
EST. 65 SY GF
SEE DETAIL #24

+71.27 -SRVRD_3- 49.37'

STD. 3' BASE DITCH W/CL 'I' RIP RAP
EST. 207 TONS
EST. 345 SY GF
EST. 67 CY DDE
SEE DETAIL #22

+55 255'

EXISTING BRIDGE EXCAVATION (SEE STRUCTURE PLANS, TYP.)

TEMPORARY CONSTRUCTION EASEMENT REQUIRED FOR EROSION CONTROL DEVICE

+94.36 170.23'

R/W PURCHASED UNDER TIP R-2707D FORMERLY PARCEL 077
634
HAL STAN QUEEN
DB 03E PG 622
DB 7-P PG 414
DB 1192 PG 816

END TIP PROJECT R-2707D
BEGIN TIP PROJECT R-2707E
POT STA.851+00 -L-

175
ASPHALT PAVING OF SHELBY, INC.
DB 15-S PG 117
DB NNN PG 32
DB FFF PG 543

REFERENCE:
FOR -L- PROFILE, SEE SHEET NO. 37
FOR -RAMP_A- PROFILE, SEE SHEET NO. 38
FOR -SRVRD_3- PROFILE, SEE SHEET NO. 51
FOR -PVTENT_4- PROFILE, SEE SHEET NO. 54
FOR -L- WB BRIDGE PLANS, SEE S5-01 TO S5-55
FOR -L- EB BRIDGE PLANS, SEE S6-01 TO S6-55

4/6/2023
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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	19A
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 044480 ENGINEER MATTHEW B. FERGUSON
4/21/2023

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
4/21/2023

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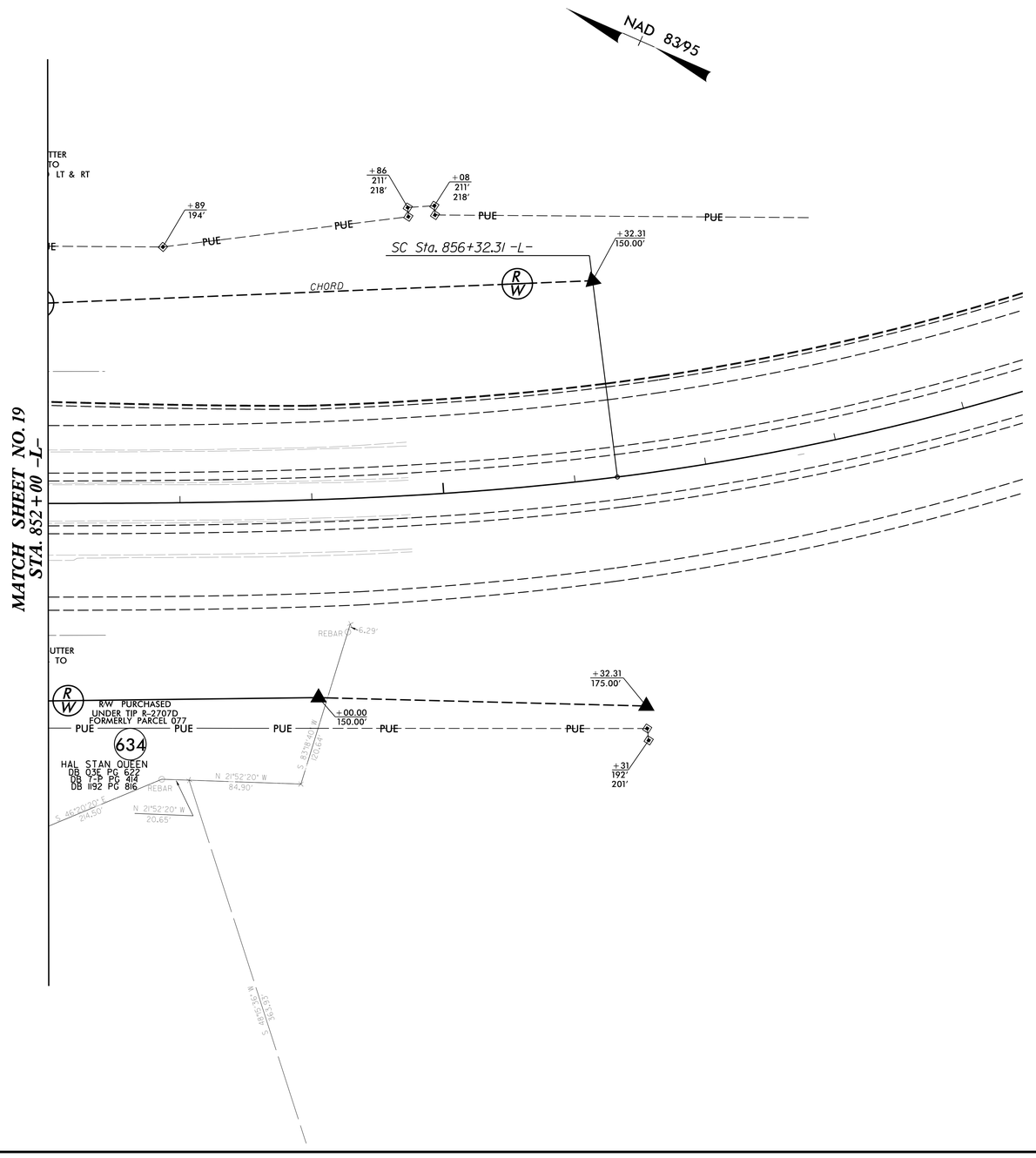

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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	20
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 044480 MATTHEW B. FERGUSON 4/21/2023	NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 26971 JOSHUA G. DALTON 4/21/2023

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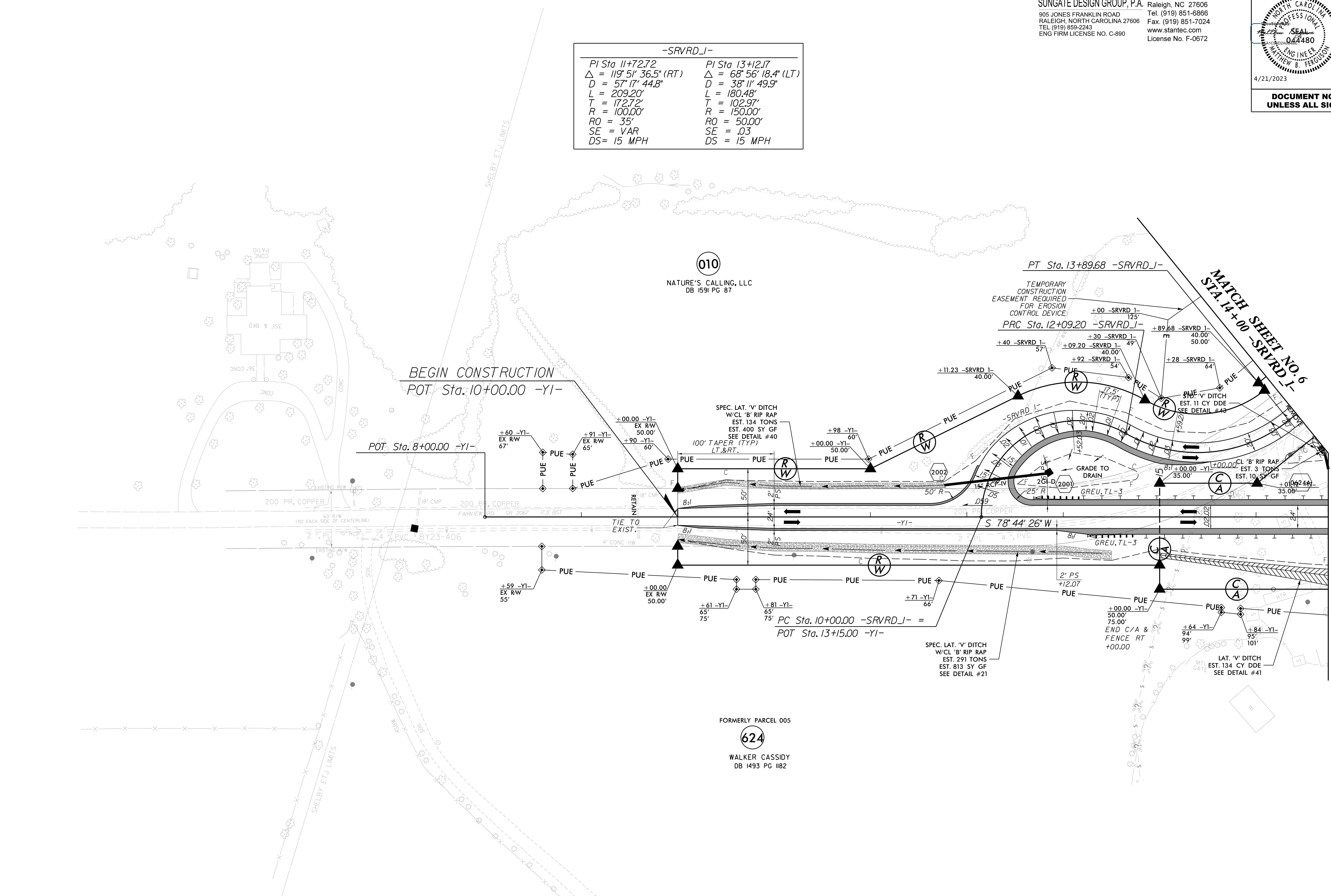
-SRVRD_1-

PI Sta 11+72.72	PI Sta 13+12.17
Δ = 119° 51' 36.5" (RT)	Δ = 68° 56' 18.4" (LT)
D = 57° 17' 44.8"	D = 38° 11' 49.9"
L = 209.20'	L = 180.48'
T = 172.72'	T = 102.97'
R = 100.00'	R = 150.00'
RO = 35'	RO = 50.00'
SE = VAR	SE = .03
DS = 15 MPH	DS = 15 MPH



BEGIN CONSTRUCTION
POT Sta. 10+00.00 -Y1-
POT Sta. 8+00.00 -Y1-
010
NATURE'S CALLING, LLC
DB 1591 PG 87
PT Sta. 13+89.68 -SRVRD_1-
TEMPORARY CONSTRUCTION EASEMENT REQUIRED FOR EROSION CONTROL DEVICE
PRC Sta. 12+09.20 -SRVRD_1-
MATCH SHEET NO. 6
STA. 14+00 -SRVRD_1-
MATCH SHEET NO. 6
STA. 16+75 -Y1-
NAD 83/95
SPEC. LAT. 'V' DITCH W/CL 'B' RIP RAP EST. 134 TONS EST. 400 SY GF SEE DETAIL #40
100' TAPER (TYP) LT.&RT.
TIE TO EXIST.
S 78° 44' 26" W
GRADE TO DRAIN
GREU.TL-3
PC Sta. 10+00.00 -SRVRD_1- =
POT Sta. 13+15.00 -Y1-
SPEC. LAT. 'V' DITCH W/CL 'B' RIP RAP EST. 291 TONS EST. 813 SY GF SEE DETAIL #21
END C/A & FENCE RT +00.00
LAT. 'V' DITCH EST. 134 CY DDE SEE DETAIL #41
STD. 'V' DITCH EST. 11 CY DDE SEE DETAIL #43
CL 'B' RIP RAP EST. 3 TONS EST. 10 SY GF
FORMERLY PARCEL 005
624
WALKER CASSIDY
DB 1493 PG 1182
SHELBY ETJ LIMITS

REFERENCES:
FOR -Y1- PROFILE, SEE SHEET NO. 44
FOR -SRVRD_1- PROFILE, SEE SHEET NO. 50

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2707D	21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
SEAL 044480 — NORTH CAROLINA PROFESSIONAL ENGINEER — MATTHEW B. FERGUSON — 4/21/2023	SEAL 26971 — NORTH CAROLINA PROFESSIONAL ENGINEER — JOSHUA G. DALTON — 4/21/2023

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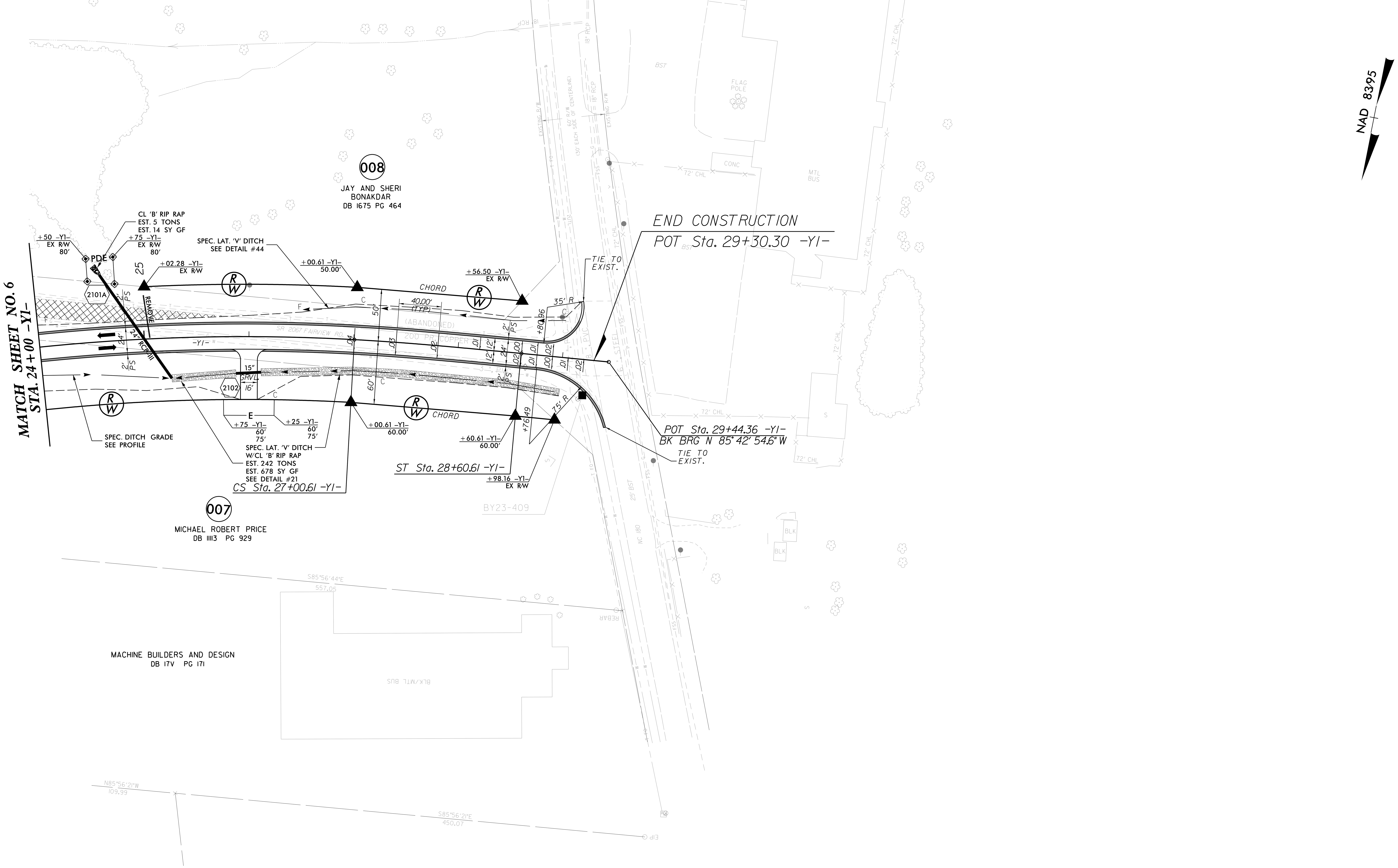
-Y1-

PIs Sta 22+89.15	PI Sta 25+22.07	PIs Sta 27+53.96
Θs = 2° 24′ 00.0″	Δ = 10° 44′ 39.5″ (RT)	Θs = 2° 24′ 00.0″
Ls = 160.00′	D = 3° 00′ 00.0″	Ls = 160.00′
LT = 106.68′	L = 358.14	LT = 106.68′
ST = 53.34′	T = 179.60′	ST = 53.34′
	R = 1,909.86′	
	SE = .04	
	DS = 40 MPH	



REFERENCES:
FOR -Y1- PROFILE, SEE SHEET NO. 44

4/6/2023
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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	22
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 044480 ENGINEER MATTHEW B. FERGUSON
4/21/2023

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
4/21/2023

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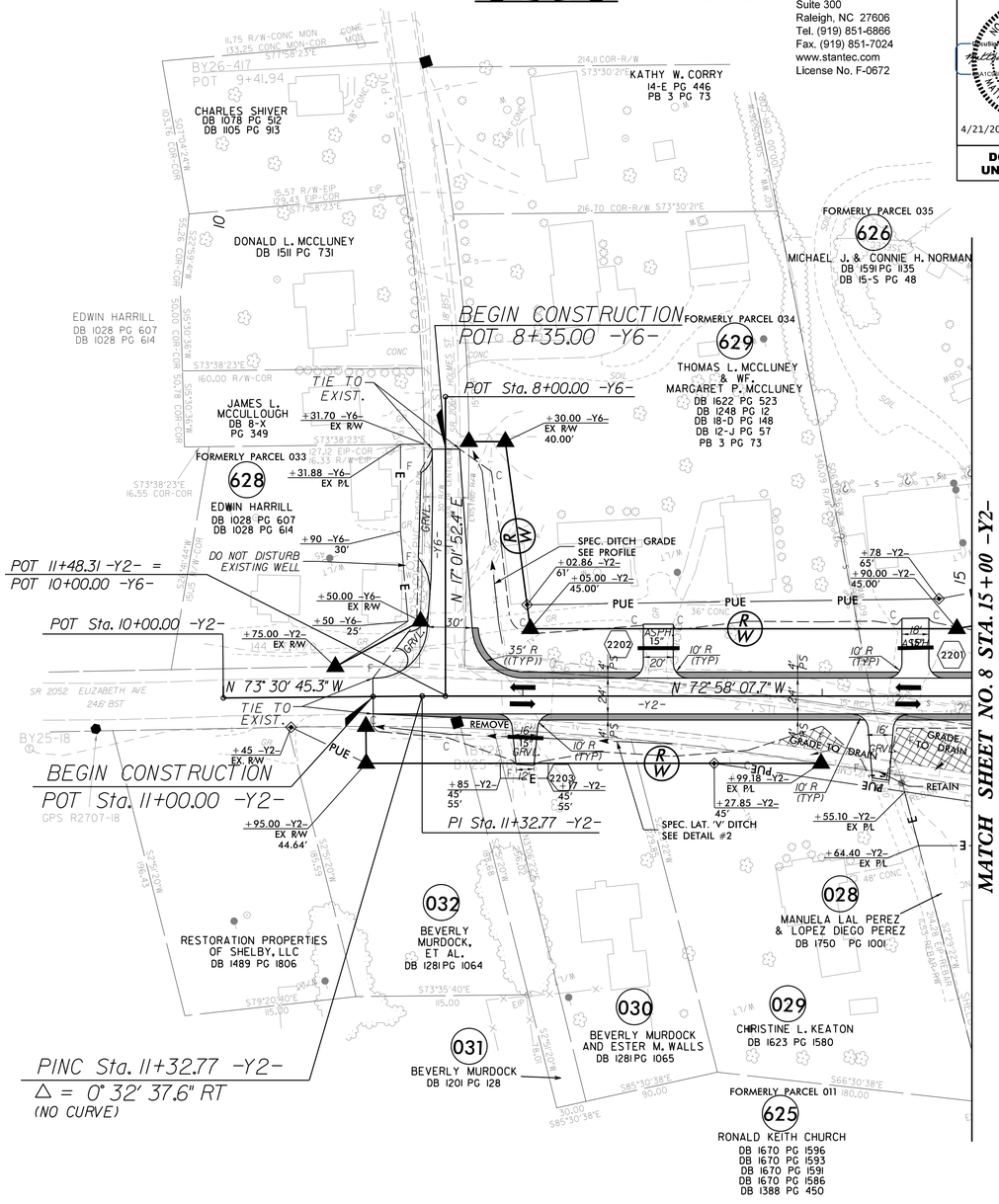

REFERENCE:
FOR –Y2– PROFILE, SEE SHEET NO. 45
FOR –Y6– PROFILE, SEE SHEET NO. 49

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ENG FIRM LICENSE NO. C-890

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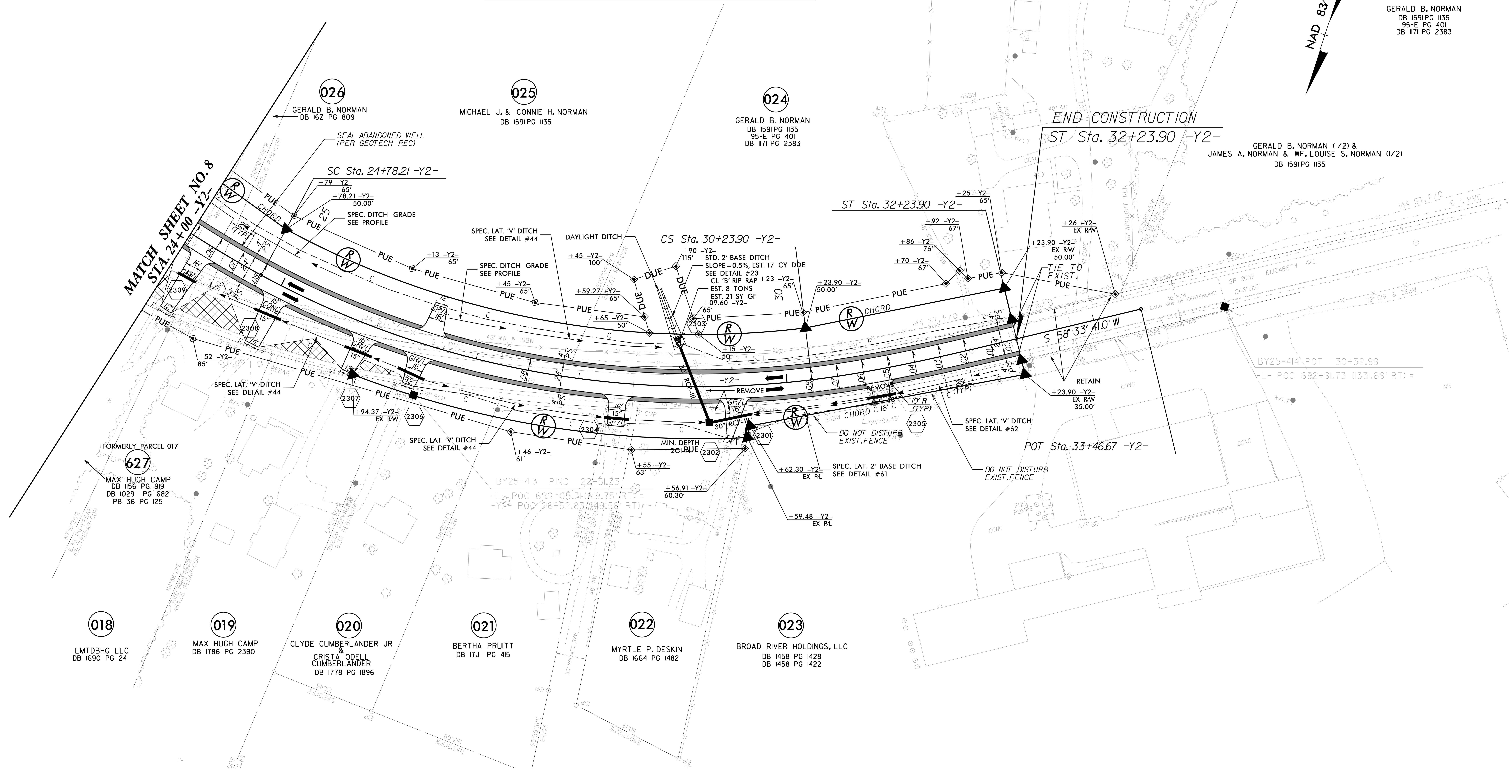
License No. F-0672

PROJECT REFERENCE NO.	SHEET NO.
R-2707D	23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 044480 MATTHEW B. FERGUSON 4/21/2023	NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 26971 JOSHUA G. DALTON 4/21/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-Y2-		
PIs Sta 24+11.64	PI Sta 27+60.12	PIs Sta 30+90.65
Θs = 6° 30' 00.0"	Δ = 35° 28' 11.3" (LT)	Θs = 6° 30' 00.0"
Ls = 200.00'	D = 6° 30' 00.0"	Ls = 200.00'
LT = 133.42'	L = 545.69	LT = 133.42'
ST = 66.75'	T = 281.91'	ST = 66.75'
	R = 881.47'	
	SE = .08	
	DS = 50 MPH	


MATCH SHEET NO. 8
STA. 24+00 -Y2-
NAD 83/95
026
GERALD B. NORMAN
DB 162 PG 809
025
MICHAEL J. & CONNIE H. NORMAN
DB 1591 PG 1135
024
GERALD B. NORMAN
DB 1591 PG 1135
95-E PG 401
DB 1171 PG 2383
GERALD B. NORMAN
DB 1591 PG 1135
95-E PG 401
DB 1171 PG 2383
GERALD B. NORMAN (1/2) &
JAMES A. NORMAN & WF. LOUISE S. NORMAN (1/2)
DB 1591 PG 1135
SEAL ABANDONED WELL
(PER GEOTECH REC)
SC Sta. 24+78.21 -Y2-
SPEC. DITCH GRADE
SEE PROFILE
SPEC. LAT. 'V' DITCH
SEE DETAIL #44
DAYLIGHT DITCH
CS Sta. 30+23.90 -Y2-
STD. 2' BASE DITCH
SLOPE=0.5%, EST. 17 CY DDE
SEE DETAIL #23
CL 'B' RIP RAP
EST. 8 TONS
EST. 21 SY GF
ST Sta. 32+23.90 -Y2-
END CONSTRUCTION
ST Sta. 32+23.90 -Y2-
TIE TO EXIST.
S 58° 33' 41.0" W
RETAIN
REMOVE
DO NOT DISTURB
EXIST. FENCE
SPEC. LAT. 'V' DITCH
SEE DETAIL #62
SPEC. LAT. 2' BASE DITCH
SEE DETAIL #61
POT Sta. 33+46.67 -Y2-
BY25-414 POT 30+32.99
BY25-413 PINC 22+51.33
MIN. DEPTH 2GI
FORMERLY PARCEL 017
627
MAX HUGH CAMP
DB 1156 PG 919
DB 1029 PG 682
PB 36 PG 125
018
LMTDBHG LLC
DB 1690 PG 24
019
MAX HUGH CAMP
DB 1786 PG 2390
020
CLYDE CUMBERLANDER JR
&
CRISTA ODELL CUMBERLANDER
DB 1778 PG 1896
021
BERTHA PRUITT
DB 17J PG 415
022
MYRTLE P. DESKIN
DB 1664 PG 1482
023
BROAD RIVER HOLDINGS, LLC
DB 1458 PG 1428
DB 1458 PG 1422
SR 2052 ELIZABETH AVE

REFERENCE:
FOR -Y2- PROFILE, SEE SHEET NO. 45

8/17/99

-Y3-

PIs Sta 15+95.11	PI Sta 20+76.29	PIs Sta 25+52.55
Θs = 1° 18' 45.0"	△ = 15° 00' 18.8" (RT)	Θs = 1° 18' 45.0"
Ls = 150.00'	D = 1° 45' 00.0"	Ls = 150.00'
LT = 100.00'	L = 857.44	LT = 100.00'
ST = 50.00'	T = 431.19'	ST = 50.00'
	R = 3,274.04'	
	SE = .04	
	DS = 50 MPH	

-PVTENTI-

PI Sta 9+34.60
△ = 83° 31' 16.2" (RT)
D = 76° 23' 39.7"
L = 109.33'
T = 66.96'
R = 75.00'

-SRVRD_2-

PI Sta 10+90.00
△ = 77° 31' 20.8" (RT)
D = 76° 23' 39.7"
L = 101.48'
T = 60.22'
R = 75.00'
SE = VAR
R0 = 30'
DS = 15 MPH

SUNGATE DESIGN GROUP, P.A.
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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	24
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 044480 ENGINEER MATTHEW B. FERGUSON
4/21/2023

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
4/21/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/95

+64 -Y3- EX R/W
+64 -Y3- 76'
PUE
+83 -Y3- 82'
+90.00 -Y3- EX R/W 50.00'
+90.00 -Y3- EX R/W 50.00'
BEGIN CONSTRUCTION
POT Sta. 12+00.00 -Y3-
S 53° 43' 27.8" W
TIE TO EXIST.
+05 -Y3- 85'
CL 'I' RIP RAP
EST. 11 TONS
EST. 22 SY GF
DUE
2405
REMOVE
30' RCP
2GI-A
2404
REMOVE 24" RCP
+51 -Y3- 50'
+60 -Y3- 102'
PUE
+72 -Y3- 87'
2403
+75 -Y3- 98'
+93 -Y3- 92'
058
BENJAMIN ERNEST DAVIES
VICTORIA RANDALL DAVIES
DB 1851 PG 380
PB 45 PG 18
+20.10
+95.10 -Y3- 50.00'
SPEC. LAT. 3' BASE DITCH
W/CL 'I' RIP RAP
EST. 376 TONS
EST. 660 SY GF
SEE DETAIL #19
2406
REMOVE 30" RCP
057
PHILLIP R. RUCKER &
CAROLYN W. RUCKER
DB 1473 PG 2220
DB II-S PG 194
POC 17+00.00 -Y3- =
POT 10+00.00 -PVTENTI-
TS Sta. 14+95.10 -Y3-
+24 -Y3- 74'
+36 -Y3- 80'
+40 -Y3- 72'
+91.77 -Y3- EX R/W
GRADE TO DRAIN
SPEC. LAT. 2' BASE DITCH
W/CL 'B' RIP RAP
EST. 60 TONS
EST. 163 SY GF
SEE DETAIL #18
+45.12 -Y3- 50.00'
+45.10 -Y3- 70.00'
SC Sta. 16+45.10 -Y3-
20' R (TYP)
2402A
2402B
STD. 2' BASE DITCH
W/CL 'B' RIP RAP
LENGTH = 38', SLOPE = 4.5%
EST. 23 TONS, EST. 61 SY GF
EST. 56 CY DDE
SEE DETAIL #47
+39.00 -PVTENTI- 31.84'
10' R (TYP)
18" RCP
REMOVE
PT Sta. 9+76.97 -PVTENTI-
AHD BRG S 34° 00' 06.8" E
TEMPORARY CONSTRUCTION EASEMENT
056
LARRY E. WILEY & WF.
KAREN P. WILEY
DB 1145 PG 1785
240
+67.64 -PVTENTI- 32.00'
PC Sta. 8+67.64 -PVTENTI-
AHD BRG N 62° 28' 37.0" E
GRADE TO DRAIN
+50.00 -Y3- 91.94'
END C/A FENCE +50
GRADE TO DRAIN
4' PS
24'
4' PS
+02 -Y3- 39.7'
MATCH SHEET NO. 13
STA. 7+39.96 -PVTENTI-
MATCH SHEET NO. 13
STA. 19+00 -Y3-
+55.00 424.34' END FENCE
+30.00 425.00'
+85.00 423.55' BEGIN FENCE
PRESERVATION AREA
PROPOSED WW FENCE
+78 284'
MATCH SHEET NO. 14
MATCH SHEET NO. 13

REFERENCE:
FOR –Y3– PROFILE, SEE SHEET NO. 46
FOR –PVTENTI– PROFILE, SEE SHEET NO. 53

4/6/2023
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tujervis

8/17/99

-Y3-

PIs Sta 29+36.10	PI Sta 31+02.49	PIs Sta 32+67.90
Θs = 7° 30' 00.0"	△ = 14° 53' 33.8" (LT)	Θs = 3° 07' 09.6"
Ls = 200.00'	D = 7° 30' 00.0"	Ls = 200.00'
LT = 133.45'	L = 198.57	LT = 133.35'
ST = 66.78'	T = 99.85'	ST = 66.69'
	R = 763.94'	
	SE = .08	
	DS = 50 MPH	

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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	25
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 044480 ENGINEER MATTHEW B. FERGUSON — 4/21/2023

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON — 4/21/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/95

MATCH SHEET NO. 13
STA. 27+50 -Y3-

TROY G. DAVIS
DB 1435 PG 34

054 JEFFREY L. KALE & WF. JULIE C. KALE
DB 1224 PG 1918
PB 17 PG 106

055 GREGORY CHARLES KALE
DB 1673 PG 1021

053 EARNEST J. HOPPER & WF. LATONIA HOPPER
DB 1234 PG 1768
PB 17 PG 106

052 EARL G. FULLER, JR & WF. SHARON J. FULLER
DB 1428 PG 297
PB 17 PG 106

CLEVELAND CONTRACTORS
DB 1473 PG 2226

DAVID MONTEITH & WF. PHYLLIS MONTEITH
DB 1084 PG 197
PB 16 PG 135

MAX E. STYERS & W. LYNN B. STYERS
DB 1201 PG 1851
PB 16 PG 135

SALAUNI R. AMIN
DB 1347 PG 1267

DANA E. WHITESIDES
DB 1137 PG 872
PB 16 PG 135

TREVOR MORRISETTE & WF. TAMMY MORRISETTE
DB 1219 PG 2149
PB 16 PG 135

RANDY D. BROOME
DB 1026 PG 610
PB 16 PG 135

SANDRA D. KISER
DB 1013 PG 179
PB 16 PG 135

RANDY D. BROOME & WF. ELLEN M. BROOME
DB 1193 PG 1415
PB 17 PG 106

TS Sta. 28+02.64 -Y3-
BK BRG S 71° 21' 16.6" W
SC Sta. 30+02.64 -Y3-
SPEC. LAT. 'V' DITCH SEE DETAIL #44
+86 -Y3- 79'
+56.30 -Y3- 25.00' EX R/W
+00 -Y3- 65'
+19 -Y3- 60' 66'
+10.00 -Y7- EX R/W
+50.00 -Y3- 40.00'
+25.58 -Y7- 40.94'
PUE
+02.64 -Y3- 40.00'
REMOVE CONC
30
25' (TYP.)
SPEC. LAT. 'V' DITCH SEE DETAIL #44
+52.64
+02.64 -Y3- 50.00'

POT STA.8+00.00 -Y7-
BEGIN CONSTRUCTION
POT STA.9+10.00 -Y7-
ST Sta. 34+01.21 -Y3-
POT Sta. 35+01.21 -Y3-
CS Sta. 32+01.21 -Y3-
N 37° 03' 59.6" W
+10.00 -Y7- EX R/W
+36.84 -Y7- 40.28'
+25.00 -Y3- 50.00'
PUE
+27.71 -Y3- EX P/L
+28.01 -Y3- EX P/L
+28.77 -Y3- EX R/W
FLOWABLE FILL
TIE TO EXIST.
REMOVE ASPH.
15" RCP
2503
2502
+10.00 -Y3- EX R/W 50.00'
S 45° 50' 33.2" W
END CONSTRUCTION
POC Sta. 32+00.00 -Y3-
POC Sta. 30+78.29 -Y3-
POT Sta. 10+00.00 -Y7-

050 LOIS A. ROSS LIFE ESTATE
DB 1605 PG 2265
PB 5 PG 49

FORMERLY PARCEL 047
630 BOBBY D. FORTENBERRY & WF. EDNA C. FORTENBERRY
DB 101 PG 84

051 JOHN HENRY JOHNSON AND CATHY GRIGG JOHNSON
DB1703 PG 2301
PB 20 PG 166

EDDIE L. AND GAIL B. ROSS
DB 1278 PG 500
PB 20 PG 166

CLEVELAND COUNTY SANITARY DISTRICT
DB 1127 PG 1059

JOHN H. JOHNSON & WF. CATHY C. JOHNSON
DB 1668 PG 1156
DB 19-J PG 556

WAYNE E. BEAM & WF. IRIS C. BEAM
DB 16-X PG 663

WAYNE E. BEAM & IRIS C. BEAM
DB 16-X PG 66

FORMERLY PARCEL 046
654 CLEVELAND COUNTY
DB 1107 PG 1795
DB 982 PG 481
DB 982 PG 483
DB K PG 282

MATCH SHEET NO. 12A

REFERENCE:
FOR –Y3– PROFILE, SEE SHEET NO. 46
FOR –Y7– PROFILE, SEE SHEET NO. 49

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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	26
R/W SHEET NO.	

SUNGATE DESIGN GROUP, P.A.
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ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 044480 ENGINEER MATTHEW B. FERGUSON
4/25/2023

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
4/25/2023

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-Y4-	
PI Sta 17+90.86	PI Sta 20+43.58
Δ = 38° 05' 14.9" (RT)	Δ = 98° 05' 14.9" (LT)
D = 22° 55' 05.9"	D = 38° 11' 49.9"
L = 166.19'	L = 256.79'
T = 86.30'	T = 172.82'
R = 250.00'	R = 150.00'
SE = .04	SE = .04
RO = 80'	RO = 80'
DS = 30 MPH	DS = 20 MPH

NAD 8395

122 BALDOR ELECTRIC COMPANY DB 1627 PG 718

070 DONALD REAL ESTATE INVESTORS LLC DB 1691 PG 1879

632 RANDOLPH NELSON BIGGERS DB 15-1PG 146 PB 8 PG 89 — FORMERLY PARCEL 069

180 JOLU INC DB 1632 PG 568

071 JAMES MARION ROSE & WF. PATRICIA B. ROSE DB 1546 PG 2143 DB 1546 PG 2145

JOLU INC DB 1451 PG 212 DB 1511 PG 201

JANET HOWELL DB 7-1PG 32

HOEY MEMORIAL UNITED METHODIST CHURCH DB 1011 PG 768 DB EE PG 544

POT Sta. 12+85.00 -PVTENT5- BK BRG N 24° 15' 39.8" E

END CONSTRUCTION POT Sta. 10+85.00 -PVTENT5-

POT Sta. 10+00.00 -PVTENT5- POC Sta.19+87.14 -Y4-

PRC Sta. 18+70.76 -Y4-

BEGIN RETAINING WALL NO.1 -Y4- STA.18+53.98 -Y5WBL- STA. 38+90.00

PC Sta. 17+04.57 -Y4-

END RETAINING WALL NO.1 -Y4- STA.16+00.00

END -RAMP_A- POT Sta.48+24.34 BK
BEGIN -Y5_WBL- POT Sta.32+50.00 AHD

PT Sta. 21+27.55 -Y4- +50 -Y5WBL- 130' EX R/W
AHD BRG S 50° 25' 25.8" W

POT Sta. 22+05.11 -Y4-
POT Sta.41+20.00 -Y5_WBL-
END CONSTRUCTION
POT Sta. 41+50.00 -Y5_WBL- (US 74)

POT Sta. 42+16.25 -Y5_WBL-

POT Sta. 42+23.06 -Y5_EBL-

END CONSTRUCTION
POT Sta. 41+50.00 -Y5_EBL- (US 74)

N 69° 34' 34.2" W

PROPOSED RETAINING WALL WITH MOMENT SLAB

PROPOSED CL FENCE

PROPOSED MODIFIED CONCRETE BARRIER TYPE T2

PROPOSED CONC. MEDIAN BARRIER 15" RCP-III

300' TAPER

SPEC. LAT. 'V' DITCH SEE DETAIL #2

REMOVE EXIST. GUARD SHACK. RETAIN CURB AND LANDSCAPING

REMOVE +/-68' EXTG. 15" HDPE

TIE TO EX ISLAND -Y5WBL- STA 40+76.25

TIE TO EX ISLAND -Y5EBL- STA 40+86.49

END C/A FENCE -Y5_EBL- LT +35

END -RAMP_D- POT Sta.32+50.00 BK
BEGIN -Y5_EBL- POT Sta.32+50.00 AHD

MATCH SHEET NO.18 STA. 32+00.00 -RAMP_D-
MATCH SHEET NO.18 STA.48+24.34 -RAMP_A-
MATCH SHEET NO.18 STA.12+00.00 -Y4-

REFERENCES:
FOR –Y4– PROFILE, SEE SHEET NO. 47
FOR –Y5– PROFILES (EBL & WBL), SEE SHEET NO. 48
FOR –RAMP_A– PROFILE, SEE SHEET NO. 40
FOR –PVTENT5– PROFILE, SEE SHEET NO. 54

4/25/2023
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–L–

PI = 633+00.00
EL = 895.31'
VC = 300'
K = 572
DS = >70 MPH

BEGIN TIP PROJECT R-2707D
END TIP PROJECT R-2707C
BEGIN GRADE
–L– STA 635+00.00
ELEV = 889.75'

R-2707C R-2707D

(–)3.3030%
(–)12.7783%
EXISTING GROUND
(+) 2.0000%
(+) 1.5000%
(+) 0.5000%
PROPOSED GRADE
(–)12.7783%
(–) 7.4000%
(–) 4.7500%

PI =635+50 RT
EI = 877.00

PI =636+50 RT
EI = 877.50
36" RCP RT

PI =637+00 RT
EI = 878.50

PI =637+00 LT
EI = 870.70

PI =638+00 RT
EI = 880.00

PI =638+50 LT
EI = 859.60

PI =639+70 LT
EI = 853.90

PI = 645+00.00
EL = 861.97'
VC = 1,200'
K = 335
DS = >70 MPH

BM#28
–L– STA.638+51.32, 6.89' RT
ELEV.878.16'
8" NAIL IN ROOT OF 12" PINE

FOR –L– PLAN SEE RDY SHEET 4

PIPE HYDRAULIC DATA
36" RCP Sta. 636+27–L–

DRAINAGE AREA	= 15.8	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 47	CFS
DESIGN HW ELEVATION	= 880.5	FT
100 YEAR DISCHARGE	= 50	CFS
100 YEAR HW ELEVATION	= 880.64	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 50+	CFS
OVERTOPPING ELEVATION	= 881.2	FT

DITCH LEGEND
LEFT DITCH
RIGHT DITCH

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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	27

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 044480 MATTHEW B FERGUSON
4/21/2023

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 26971 JOSHUA G DALTON
4/21/2023

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–L–

PIPE HYDRAULIC DATA
48" RCP Sta. 645+79–L–

DRAINAGE AREA	= 32.9	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 90	CFS
DESIGN HW ELEVATION	= 833.2	FT
100 YEAR DISCHARGE	= 100	CFS
100 YEAR HW ELEVATION	= 833.70	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 120+	CFS
OVERTOPPING ELEVATION	= 842.8	FT

PIPE HYDRAULIC DATA
36" RCP Sta. 652+76–L–

DRAINAGE AREA	= 13.5	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 39	CFS
DESIGN HW ELEVATION	= 853.1	FT
100 YEAR DISCHARGE	= 42	CFS
100 YEAR HW ELEVATION	= 853.3	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 49+	CFS
OVERTOPPING ELEVATION	= 862.0	FT

PIPE HYDRAULIC DATA
42" RCP Sta. 654+36–L–

DRAINAGE AREA	= 21.2	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 70	CFS
DESIGN HW ELEVATION	= 862.1	FT
100 YEAR DISCHARGE	= 75	CFS
100 YEAR HW ELEVATION	= 862.3	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 85+	CFS
OVERTOPPING ELEVATION	= 864.4	FT

PI = 645+00.00
EL = 861.97'
VC = 1,200'
K = 335
DS = >70 MPH

(–)12.7783%
(+)0.7986%
PROPOSED GRADE
(+)0.7986%
(–) 0.4000%
EXISTING GROUND
(–) 3.8000%
(+) 3.1250%
(+) 3.2500%
(+) 0.6000%
(+) 0.5000%
(+) 9.4000%

PI =644+00 RT
EI = 832.80

PI =645+00 RT
EI = 829.00

48" RCP

PI =646+60 RT
EI = 834.00

PI =649+50 RT
EI = 861.10

PI =651+00 RT
EI = 860.50

36" RCP

42" RCP

PI =655+20 RT
EI = 858.00

PI =656+00 RT
EI = 860.60

PI =656+00 LT
EI = 844.10

PI =656+00 LT
EI = 844.10

PI =656+50 LT
EI = 848.80

DITCH LEGEND
LEFT DITCH
RIGHT DITCH

FOR –L– PLAN SEE RDY SHEET 5

4/5/2023
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5/28/99

–L–

FAIRVIEW ROAD / SR 2067
–L– STA 665+78.41
–Y|– STA 19+82.46

PI =664+00 RT
El = 892.80

PI =664+50 RT
El = 891.80

PI =665+70 RT
El = 891.20

PI =658+50 LT
El = 865.90

PI =660+00 LT
El = 871.86

PI =660+00 RT
El = 863.00

PI =656+50 LT
El = 848.80

PI =657+00.000
El = 854.80

PI =666+40 RT
El = 875.10

PI =666+00 LT
El = 874.30

PI =667+00 RT
El = 874.80

PI =667+00 RT
El = 881.40

PI =667+00 LT
El = 874.30

PI =668+00 RT
El = 877.00

PI =668+00 RT
El = 876.25

PI =669+85 RT
El = 863.00

PI =669+00 RT
El = 864.30

EXISTING GROUND

PROPOSED GRADE

(+)0.7986%

(+) 12.0000%

(+) 0.6000%

(+) 7.4000%

(+) 3.9733%

(–) 2.0000%

(–) 0.5000%

(–) 0.50%

(–) 0.4800%

(+) 1.45%

(–) 4.4000%

(–) 12.7000%

(–) 1.5294%

48" RCP

PIPE HYDRAULIC DATA

48" RCP Sta. 669+85 –L–

DRAINAGE AREA	= 29.4	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 100	CFS
DESIGN HW ELEVATION	= 867.7	FT
100 YEAR DISCHARGE	= 110	CFS
100 YEAR HW ELEVATION	= 868.1	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 130+	CFS
OVERTOPPING ELEVATION	= 876.3	FT

DITCH LEGEND	
LEFT DITCH	----·---·---·
RIGHT DITCH	----------

BM#29
–L– STA.666+89.97, 205.93' RT
ELEV. 892.51'
8" NAIL IN BASE OF 8" CEDAR

FOR –L– PLAN SEE RDY SHEET 6

SUNGATE DESIGN GROUP, P.A.
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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	28

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 044480 ENGINEER MATTHEW B FERGUSON
4/21/2023

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 026971 ENGINEER JOSHUA G DALTON
4/21/2023

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–L–

EXISTING GROUND

PROPOSED GRADE

(+)0.7986%

(+) 2.0000%

PI =671+00 RT
El = 865.30

PI = 688+00.00
EL = 896.31'
VC = 1,600'
K = 535
DS = >70 MPH

BM#30
–L– STA.666+89.97, 192.53' RT
ELEV. 908.10'
CHISLED SQUARE WITH X ON CONC CURB

DITCH LEGEND	
LEFT DITCH	----·---·---·
RIGHT DITCH	----------

FOR –L– PLAN SEE RDY SHEET 7

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PIPE HYDRAULIC DATA

42" RCP Sta. 684+10-L-

DRAINAGE AREA	= 24.7	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 70	CFS
DESIGN HW ELEVATION	= 856.0	FT
100 YEAR DISCHARGE	= 75	CFS
100 YEAR HW ELEVATION	= 856.26	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 85+	CFS
OVERTOPPING ELEVATION	= 887.1	FT

-L-

PI = 688+00.00
EL = 896.31'
VC = 1,600'
K = 535
DS = >70 MPH

PI =690+00 RT
EI = 900.00

PI =691+00 RT
EI = 899.00

ELIZABETH AVE / SR 2052
-L- STA 691+83.46
-Y2- STA 20+16.72

PI =692+00 RT
EI = 898.50

PI =686+50 RT
EI = 885.00

PI =687+50 RT
EI = 888.00

PI =696+00 RT
EI = 896.50

(+)0.7986%
(-)2.1912%
(+) 3.0000%
(-) 1.0000%
(-) 0.5000%

PROPOSED GRADE
EXISTING GROUND
42" RCP

DITCH LEGEND	
LEFT DITCH	-----------
RIGHT DITCH	-----------

FOR -L- PLAN SEE RDY SHEET 8

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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	29

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 044480 ENGINEER MATTHEW B FERGUSON
4/21/2023

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G DALTON
4/21/2023

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-L-

EXISTING GROUND
(-)2.1912%
PROPOSED GRADE

FOR -L- PLAN SEE RDY SHEET 9

5/28/99

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 280	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 814.8	FT
BASE DISCHARGE	= 300	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 815.1	FT
OVERTOPPING DISCHARGE	= >360	CFS
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING ELEVATION	= 826.8	FT

–L–

PIPE HYDRAULIC DATA
42" RCP Sta. 722+81-L-

DRAINAGE AREA	= 15.2	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 55	CFS
DESIGN HW ELEVATION	= 805.8	FT
100 YEAR DISCHARGE	= 60	CFS
100 YEAR HW ELEVATION	= 805.97	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 70+	CFS
OVERTOPPING ELEVATION	= 815.5	FT

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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	30

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 044480 MATTHEW B FERGUSON — 4/21/2023

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 26971 JOSHUA G DALTON — 4/21/2023

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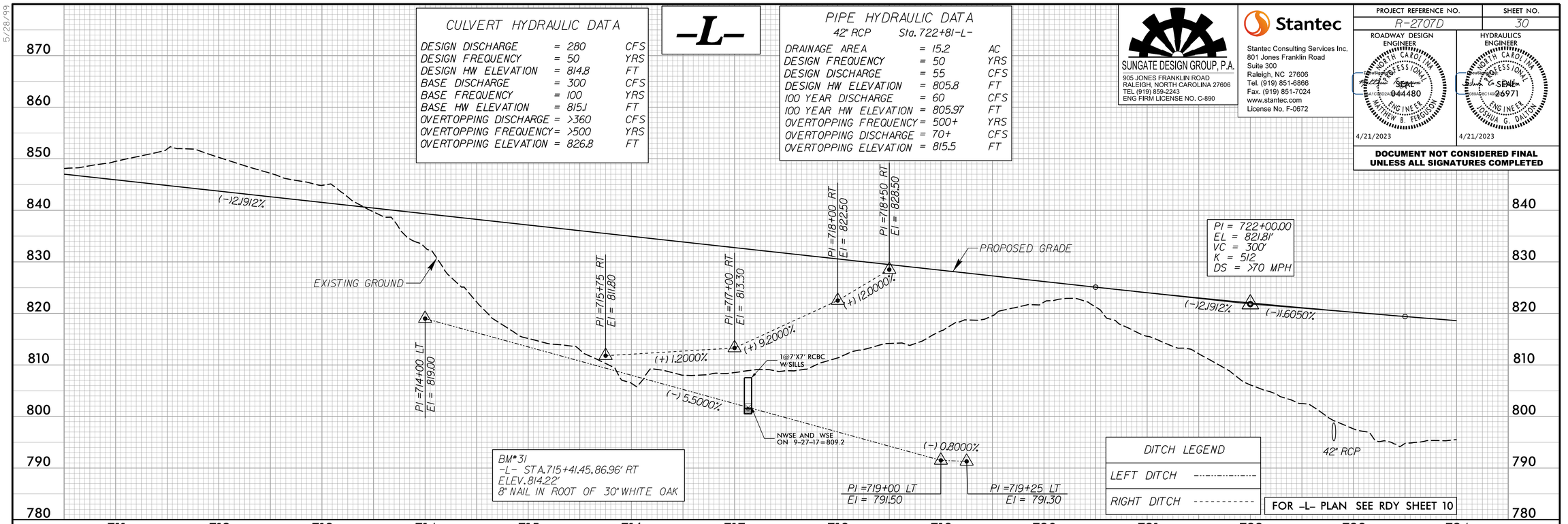
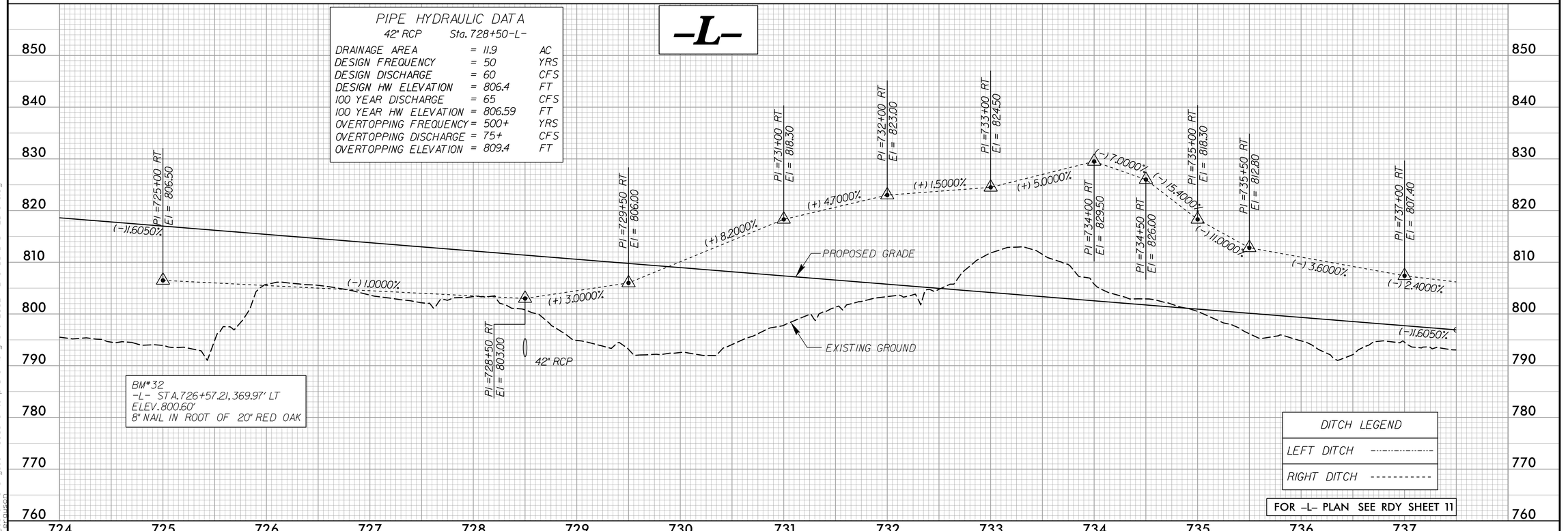


PIPE HYDRAULIC DATA
42" RCP Sta. 728+50-L-

DRAINAGE AREA	= 11.9	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 60	CFS
DESIGN HW ELEVATION	= 806.4	FT
100 YEAR DISCHARGE	= 65	CFS
100 YEAR HW ELEVATION	= 806.59	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 75+	CFS
OVERTOPPING ELEVATION	= 809.4	FT

–L–



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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	31

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 044480 MATTHEW B FERGUSON
4/21/2023

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 26971 JOSHUA G DALTON
4/21/2023

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CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 660	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 762.0	FT
BASE DISCHARGE	= 680	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 762.1	FT
OVERTOPPING DISCHARGE	= >720	CFS
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING ELEVATION	= 794.1	FT

PI = 740+00.00
EL = 792.92'
VC = 500'
K = 223
DS = >70 MPH

PI = 762+00.00
EL = 807.00'
VC = 2,300'
K = 591
DS = >70 MPH

PROPOSED GRADE

EXISTING GROUND

PROPOSED UNDERCUT

2@8'X8' RCBC W/SILLS

NWSE AND WSE ON 9/27/17 = 756.1

BM#33
–L– STA.744+49.56, 107.13' LT
ELEV.784.14'
8" NAIL IN ROOT OF 8" RED OAK

DITCH LEGEND	
LEFT DITCH	----·----·----
RIGHT DITCH	----------

FOR –L– PLAN SEE RDY SHEET 12

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–L–

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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	32

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 044480 MATTHEW B FERGUSON
4/21/2023

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 26971 JOSHUA G DALTON
4/21/2023

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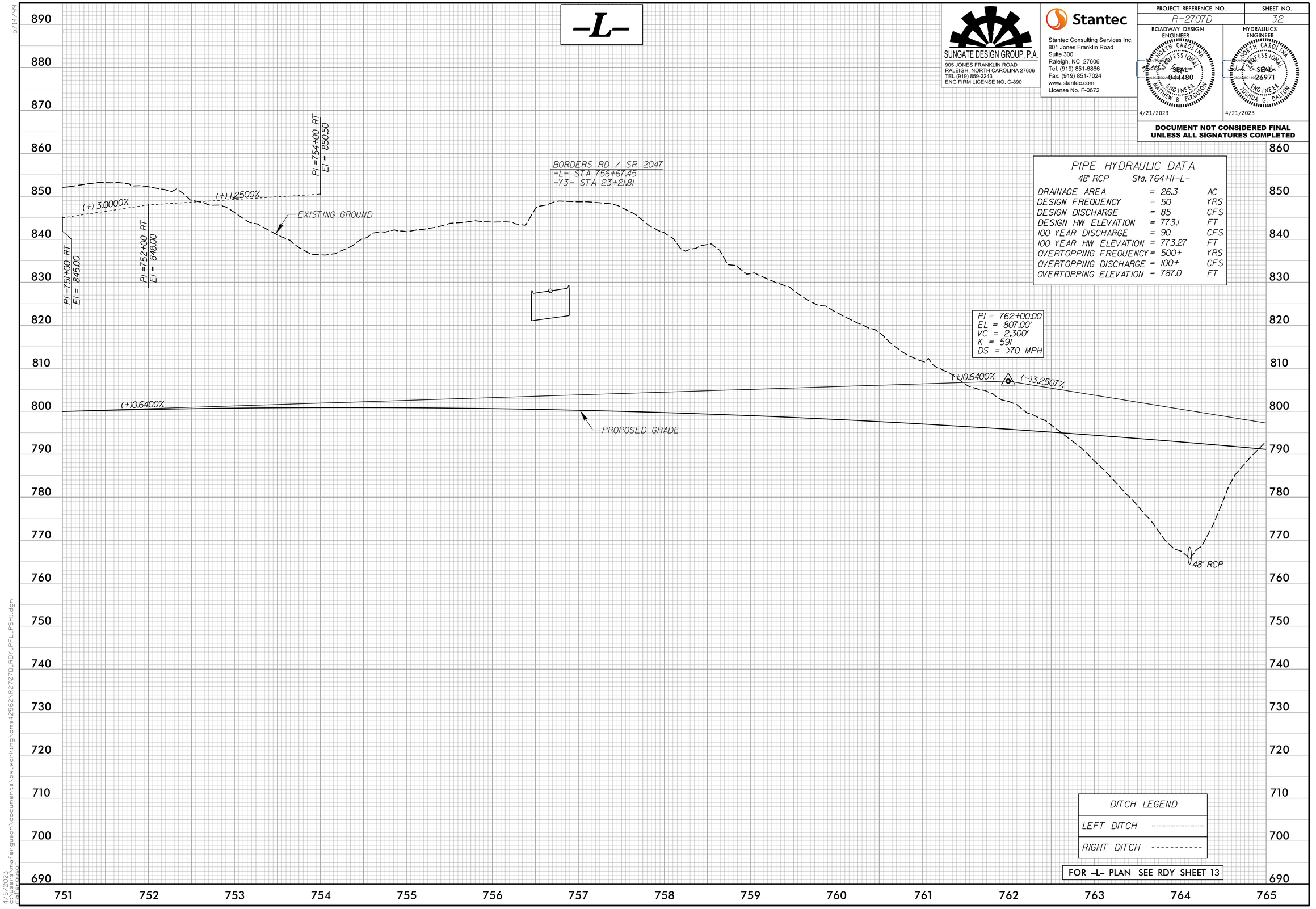

PIPE HYDRAULIC DATA

48" RCP Sta. 764+11-L-

DRAINAGE AREA	= 26.3	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 85	CFS
DESIGN HW ELEVATION	= 773.1	FT
100 YEAR DISCHARGE	= 90	CFS
100 YEAR HW ELEVATION	= 773.27	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 100+	CFS
OVERTOPPING ELEVATION	= 787.0	FT

DITCH LEGEND	
LEFT DITCH	-·-·-·-
RIGHT DITCH	----------

FOR –L– PLAN SEE RDY SHEET 13

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–L–

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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	33

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 044480 MATTHEW B FERGUSON
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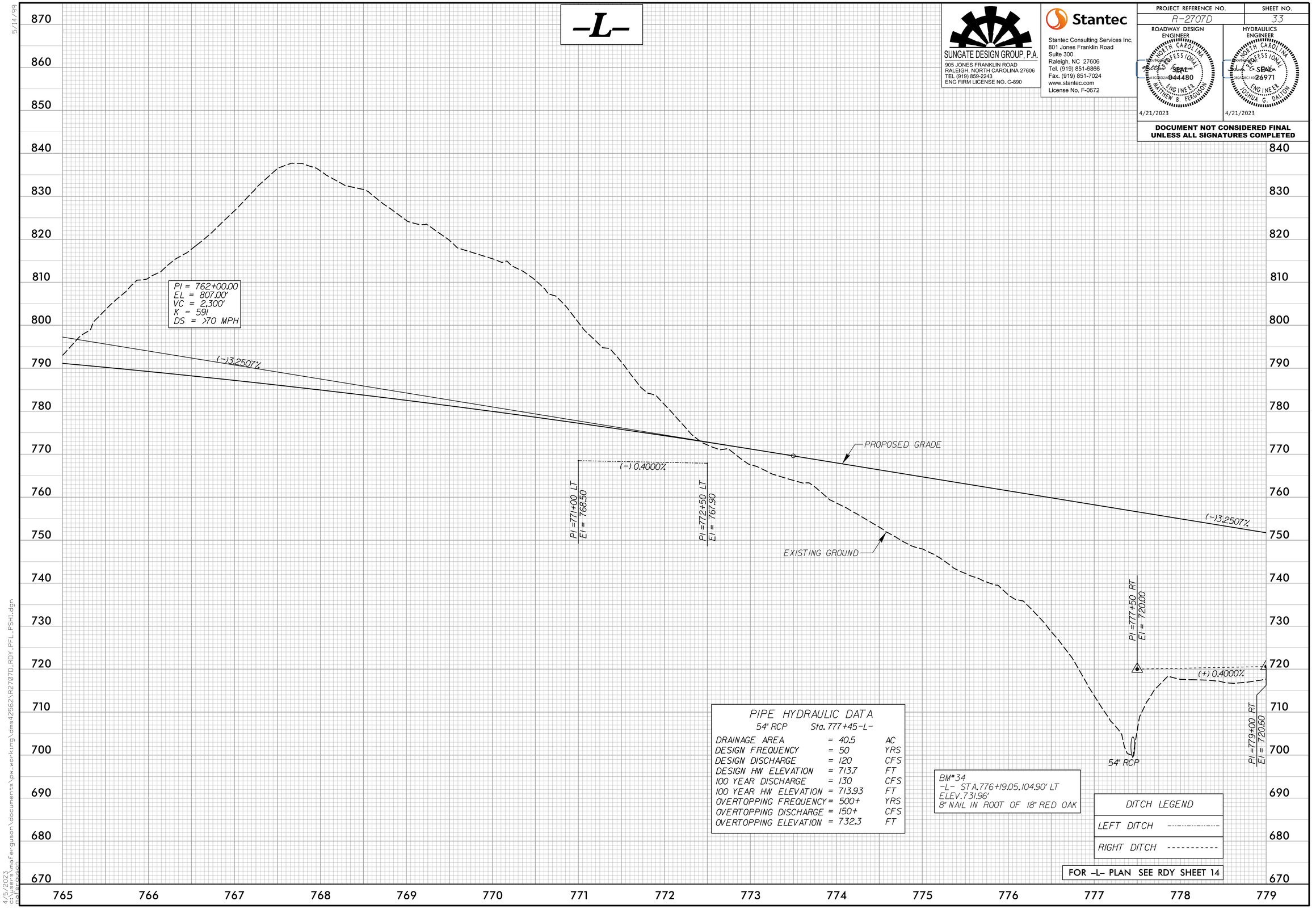

PIPE HYDRAULIC DATA

54" RCP Sta. 777+45–L–

DRAINAGE AREA	= 40.5	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 120	CFS
DESIGN HW ELEVATION	= 713.7	FT
100 YEAR DISCHARGE	= 130	CFS
100 YEAR HW ELEVATION	= 713.93	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 150+	CFS
OVERTOPPING ELEVATION	= 732.3	FT

BM#34
–L– STA.776+19.05, 104.90' LT
ELEV.731.96'
8" NAIL IN ROOT OF 18" RED OAK

DITCH LEGEND

LEFT DITCH	----·---·---·---·---·
RIGHT DITCH	----------

FOR –L– PLAN SEE RDY SHEET 14

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–L–

PIPE HYDRAULIC DATA
30" RCP Sta. 791+55-L-

DRAINAGE AREA	= 10.9	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 30	CFS
DESIGN HW ELEVATION	= 693.5	FT
100 YEAR DISCHARGE	= 32	CFS
100 YEAR HW ELEVATION	= 693.70	FT
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING DISCHARGE	= >38	CFS
OVERTOPPING ELEVATION	= 695.5	FT

PIPE HYDRAULIC DATA
42" RCP Sta. 790+44-L-

DRAINAGE AREA	= 18.5	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 50	CFS
DESIGN HW ELEVATION	= 696.3	FT
100 YEAR DISCHARGE	= 55	CFS
100 YEAR HW ELEVATION	= 696.54	FT
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING DISCHARGE	= 65+	CFS
OVERTOPPING ELEVATION	= 701.0	FT

PI = 790+00.00
EL = 715.98'
VC = 900'
K = 215
DS = >70 MPH

(-)3.2507%
(+)3.2000%
(-)2.0000%
(-)7.0000%
(-)3.2507%
(+)0.9400%
PROPOSED GRADE
EXISTING GROUND

PI =779+00 RT
EI = 720.60
PI =779+75 RT
EI = 723.0
PI =785+50 RT
EI = 712.00
PI =787+50 RT
EI = 708.00
PI =789+40 RT
EI = 694.70

42" RCP
30" RCP

DITCH LEGEND
LEFT DITCH
RIGHT DITCH

FOR –L– PLAN SEE RDY SHEET 15

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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	34

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4/21/2023

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4/21/2023

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–L–

PI = 790+00.00
EL = 715.98'
VC = 900'
K = 215
DS = >70 MPH

(+)0.9400%
(-)1.2000%
(-)6.5000%
(-)3.0000%
(+)2.0000%
(-)5.0000%
(+)0.9400%
(+)8.5000%
(-)0.4120%
PROPOSED GRADE
EXISTING GROUND

PI =793+00 RT
EI = 687.40
PI =795+50 RT
EI = 684.40
PI =796+10 RT
EI = 676.60
PI =796+90 RT
EI = 676.00
PI =805+00 RT
EI = 736.00
PI =805+50 RT
EI = 733.50
PI =806+00 RT
EI = 734.50
PI =806+50 LT
EI = 727.53
PI =807+00 RT
EI = 743.00

1@12'x7' RCBC
W/SILLS AND BAFFLES
NWSE AND WSE
ON 9-27-17 = 675.2

BM#35
-L- STA.797+46.66, 8.12' LT
ELEV. 697.69'
8" NAIL IN TOP OF 8" BEECH STUMP

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 450	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 680.2	FT
BASE DISCHARGE	= 470	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 680.4	FT
OVERTOPPING DISCHARGE	= >550	CFS
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING ELEVATION	= 719.5	FT

DITCH LEGEND
LEFT DITCH
RIGHT DITCH

FOR –L– PLAN SEE RDY SHEET 16

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–L–

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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	35

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 044480 ENGINEER MATTHEW B FERGUSON
4/21/2023

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G DALTON
4/21/2023

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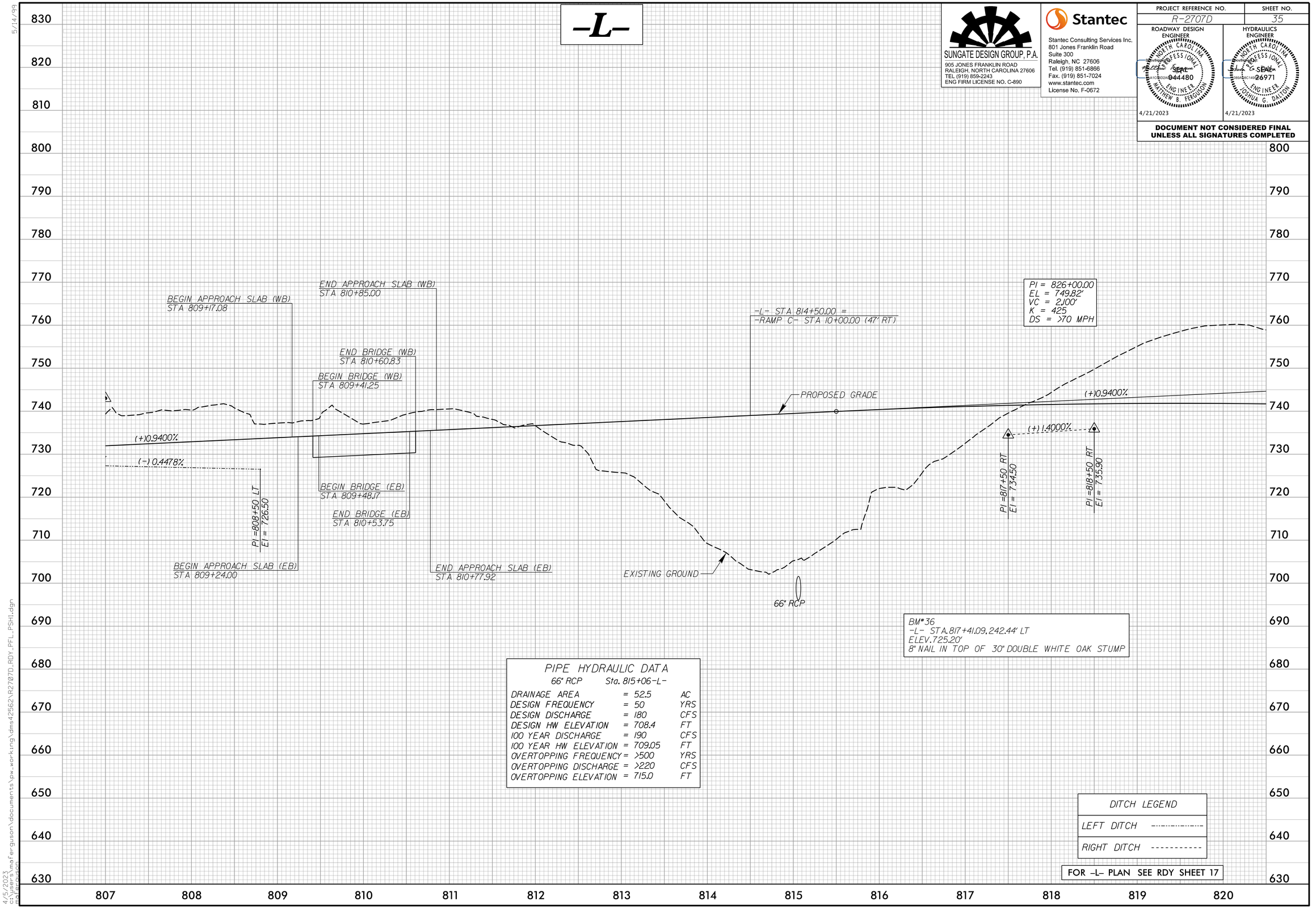

BM#36
–L– STA. 817+41.09, 242.44' LT
ELEV. 725.20'
8" NAIL IN TOP OF 30" DOUBLE WHITE OAK STUMP

PIPE HYDRAULIC DATA

66" RCP Sta. 815+06–L–

DRAINAGE AREA	= 52.5	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 180	CFS
DESIGN HW ELEVATION	= 708.4	FT
100 YEAR DISCHARGE	= 190	CFS
100 YEAR HW ELEVATION	= 709.05	FT
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING DISCHARGE	= >220	CFS
OVERTOPPING ELEVATION	= 715.0	FT

DITCH LEGEND

LEFT DITCH ----·----·----

RIGHT DITCH ----------

FOR –L– PLAN SEE RDY SHEET 17

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–L–

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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	36

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 044480 ENGINEER MATTHEW B FERGUSON
4/21/2023

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G DALTON
4/21/2023

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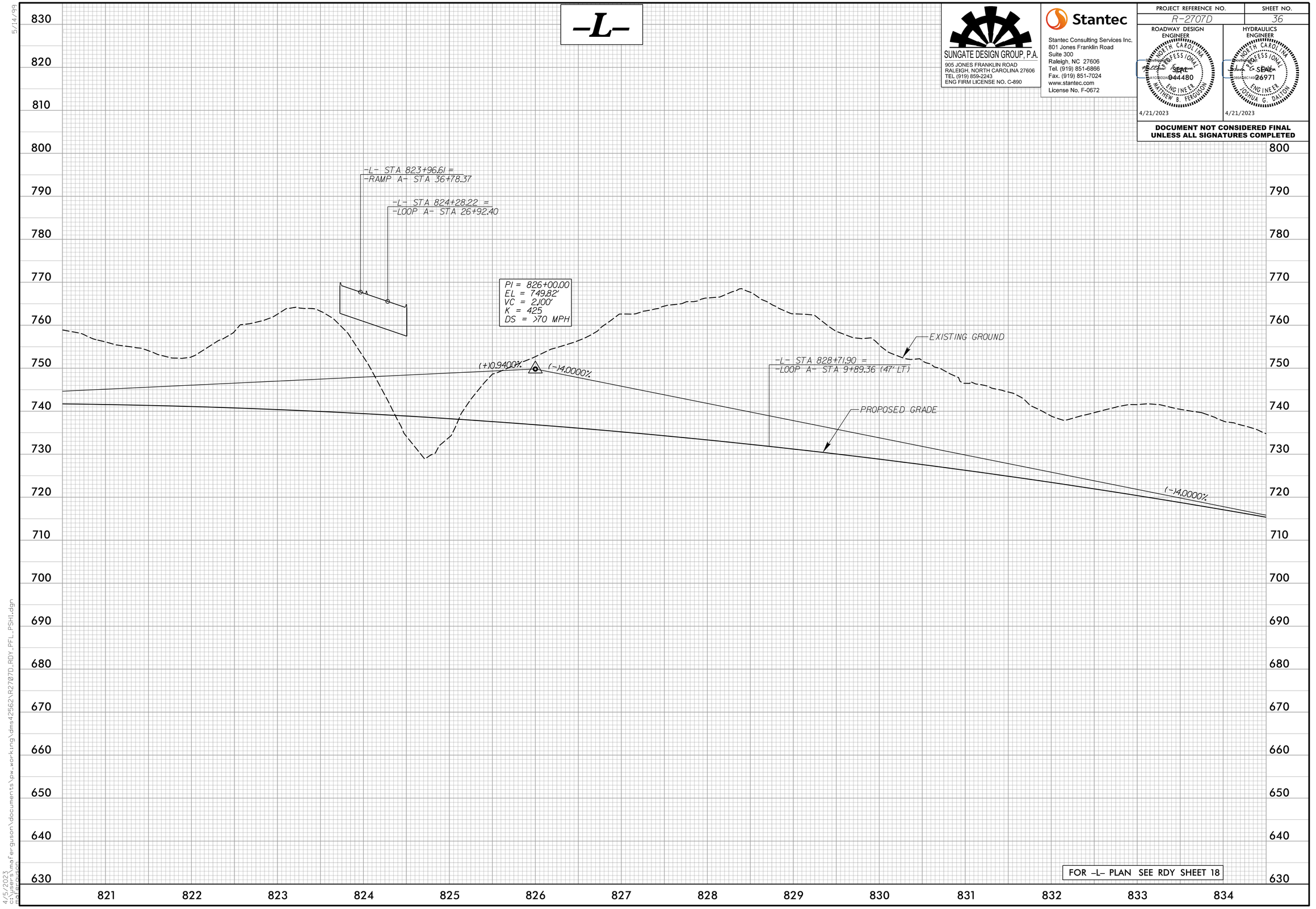

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–L–

–L– STA 838+94.04 =
RAMP D STA 10+00.00 (59' RT)

(–)4.0000%

PI = 826+00.00
EL = 749.82'
VC = 2,100'
K = 425
DS = >70 MPH

PROPOSED GRADE

EXISTING GROUND

EX 48" RCP

PI = 845+30.00
EL = 672.62'
VC = 700'
K = 189
DS = 70 MPH

(–)4.0000%

PIPE HYDRAULIC DATA
EX 48" RCP Sta. 840+00–L–

DRAINAGE AREA	=	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	=	CFS
DESIGN HW ELEVATION	= 683.7	FT
100 YEAR DISCHARGE	=	CFS
100 YEAR HW ELEVATION	= 683.70	FT
OVERTOPPING FREQUENCY	=	YRS
OVERTOPPING DISCHARGE	=	CFS
OVERTOPPING ELEVATION	=	FT

FOR –L– PLAN SEE RDY SHEET 18 & 19

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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	37

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 044480 ENGINEER MATTHEW B FERGUSON
4/21/2023

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G DALTON
4/21/2023

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–L–

BEGIN APPROACH SLAB
STA 847+15.83

END APPROACH SLAB
STA 850+84.17

END TIP PROJECT R-2707D
BEGIN TIP PROJECT R-2707E
END GRADE
–L– STA 851+00.00
ELEV = 670.91'

–L– STA 847+14.58 =
–RAMP A– STA 9+71.05 (59' LT)

PI = 845+30.00
EL = 672.62'
VC = 700'
K = 189
DS = 70 MPH

BEGIN BRIDGE
STA 847+40.00

END BRIDGE
STA 850+60.00

EXISTING BRIDGE TO BE REMOVED

PROPOSED GRADE
LOW SIDE
LOW STEEL

FUTURE GRADE

(–)10.3000%

(–)15.4200%

(–)4.0000%

PI =846+00 RT
EL = 670.42

PI =847+00 RT
EL = 665.00

CL 'II' RIP RAP
1.5:1 NORMAL

EXCAVATE TO
APPROX. EL. 652.0
EST. 120 CY

EXISTING GROUND

BM#101
–L– STA.850+42.89,7.27' RT
ELEV.667.84'
DESCRIPTION MISSING

WSE ON 9-27-17
=635.3

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 14,290	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 654.4	FT
BASE DISCHARGE	= 16,860	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 655.8	FT
OVERTOPPING DISCHARGE	= 55,000	CFS
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING ELEVATION	= 671.2	FT
	=	FT
DATE OF SURVEY	= 9-27-17	
W.S.ELEVATION AT DATE OF SURVEY	= 635.3	FT

DITCH LEGEND
LEFT DITCH
RIGHT DITCH

FOR –L– PLAN SEE RDY SHEET 19

4/5/2023
4:21:46 PM
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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	38

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ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 044480 MATTHEW B. FERGUSON
4/21/2023

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 26971 JOSHUA G. DALTON
4/21/2023

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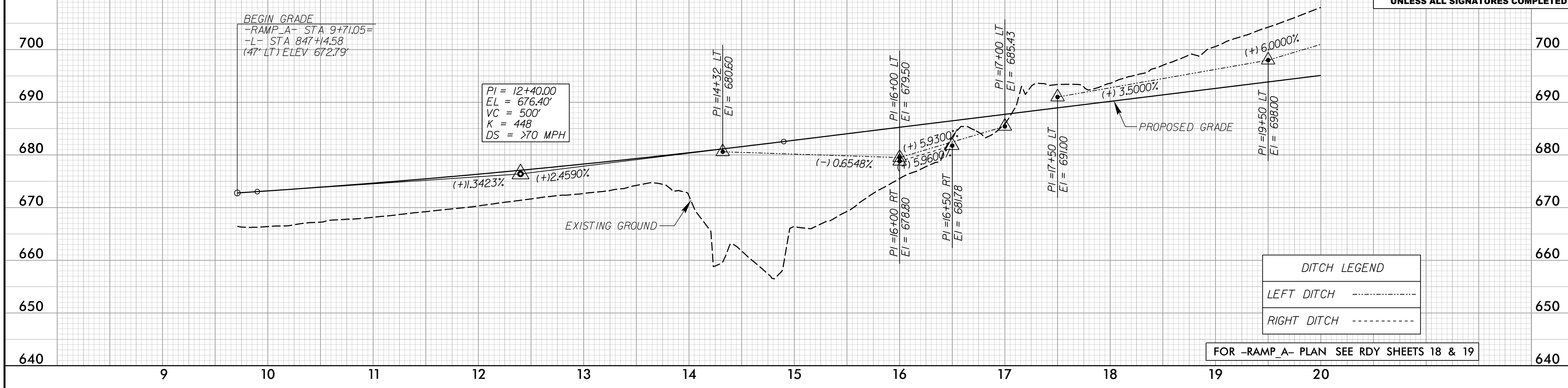
-RAMP_A-



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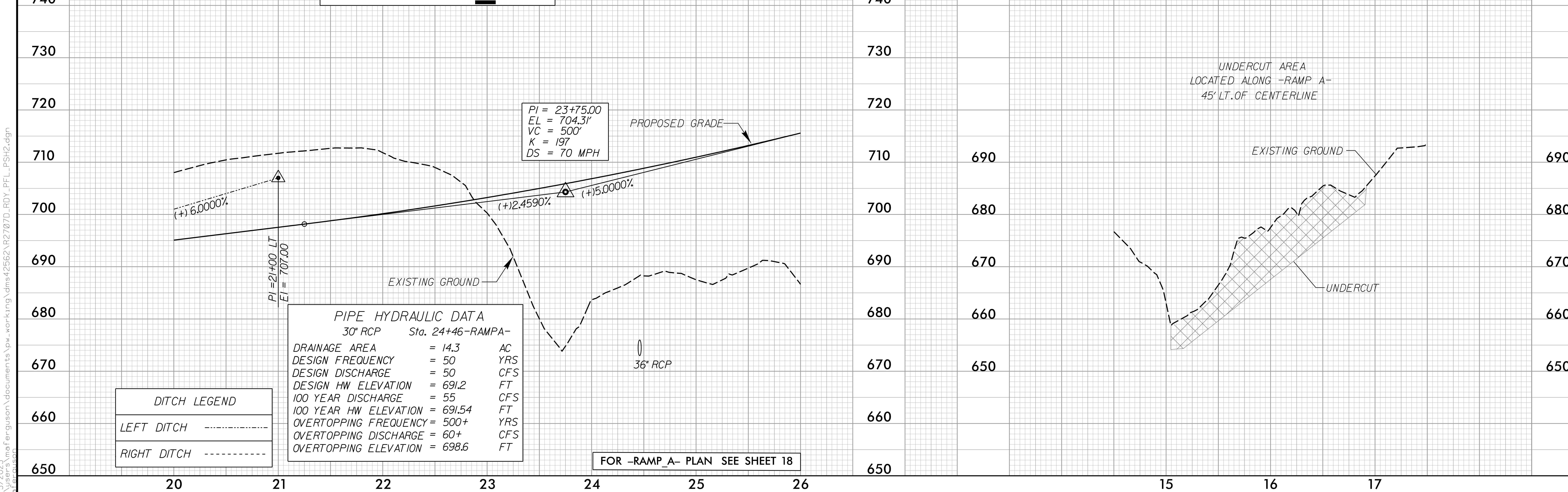

PIPE HYDRAULIC DATA

30" RCP   Sta. 24+46-RAMPA-

DRAINAGE AREA	=	14.3	AC
DESIGN FREQUENCY	=	50	YRS
DESIGN DISCHARGE	=	50	CFS
DESIGN HW ELEVATION	=	691.2	FT
100 YEAR DISCHARGE	=	55	CFS
100 YEAR HW ELEVATION	=	691.54	FT
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING DISCHARGE	=	60+	CFS
OVERTOPPING ELEVATION	=	698.6	FT

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–RAMP_A–

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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	39

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 044480 ENGINEER MATTHEW B FERGUSON
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4/21/2023

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BEGIN APPROACH SLAB
STA 35+39.74

–RAMP_A– STA 36+78.37 =
–L– STA 823+96.61

PI = 38+50.00
EL = 776.56'
VC = 600'
K = 105
DS = 50 MPH

PI = 33+50.00
EL = 753.06'
VC = 225'
K = 747
DS = >70 MPH

PROPOSED GRADE

(+)4.7000%

(+)5.0000%

PI = 23+75.00
EL = 704.31'
VC = 500'
K = 197
DS = 70 MPH

(+)5.0000%

PI =34+00 LT
EI = 732.00

BEGIN BRIDGE STA. 35+63.63

END BRIDGE STA. 37+95.88

2:1

EXISTING GROUND

(+) 15.3000%

(–) 1.0000%

(+) 5.0000%

PI =30+50 LT
EI = 722.30

PI =31+80 LT
EI = 721.00

24" CSP

(+) 4.0000%

(+) 8.0000%

PI =28+00 LT
EI = 701.00

PI =29+00 LT
EI = 705.00

PI =29+50 LT
EI = 709.00

PI =33+50 RT
EI = 704.00

(+) 12.0000%

(+) 2.00%

PI =29+35 RT
EI = 655.70

PI =29+50 RT
EI = 656.00

PIPE HYDRAULIC DATA

24" CSP Sta. 31+80–RAMPA–

DRAINAGE AREA	= 2.2	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 10	CFS
DESIGN HW ELEVATION	= 723.3	FT
100 YEAR DISCHARGE	= 11	CFS
100 YEAR HW ELEVATION	= 723.50	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 13+	CFS
OVERTOPPING ELEVATION	= 724.0	FT

DITCH LEGEND

LEFT DITCH	-----
RIGHT DITCH	----------

FOR –RAMP_A– PLAN SEE SHEET 18

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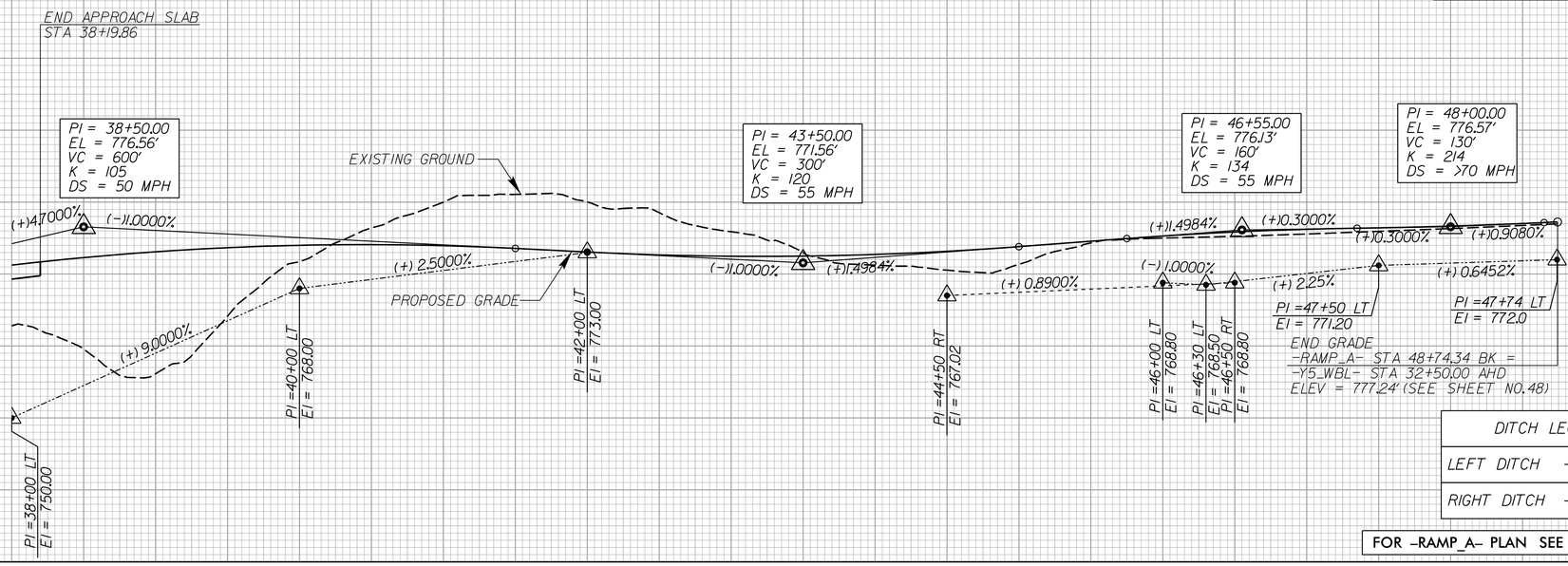
–RAMP_A–



DITCH LEGEND	
LEFT DITCH	----·----·----
RIGHT DITCH	----------

FOR –RAMP_A– PLAN SEE RDY SHEETS 18 & 26

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R-2707D	40

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–1LOOPA–

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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	41

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4/21/2023

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NORTH CAROLINA PROFESSIONAL SEAL 026971 ENGINEER JOSHUA G DALTON
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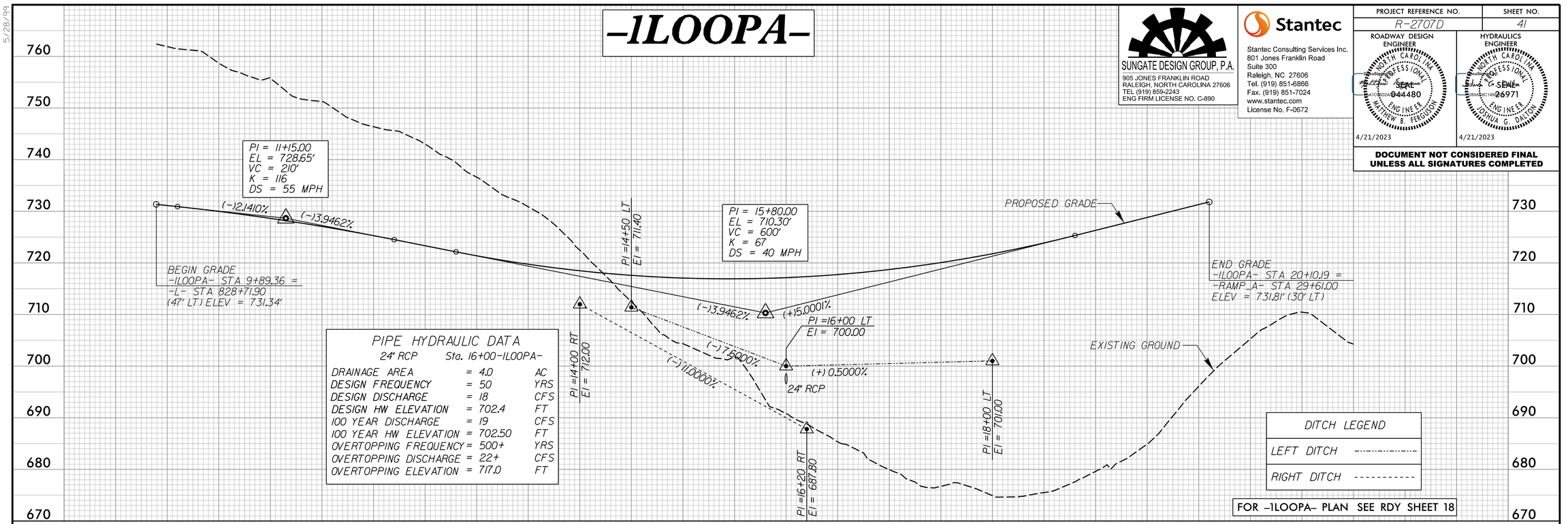

PIPE HYDRAULIC DATA

24" RCP Sta. 16+00–1LOOPA–

DRAINAGE AREA	=	4.0	AC
DESIGN FREQUENCY	=	50	YRS
DESIGN DISCHARGE	=	18	CFS
DESIGN HW ELEVATION	=	702.4	FT
100 YEAR DISCHARGE	=	19	CFS
100 YEAR HW ELEVATION	=	702.50	FT
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING DISCHARGE	=	22+	CFS
OVERTOPPING ELEVATION	=	717.0	FT

DITCH LEGEND	
LEFT DITCH	----·----·----
RIGHT DITCH	----------

FOR –1LOOPA– PLAN SEE RDY SHEET 18

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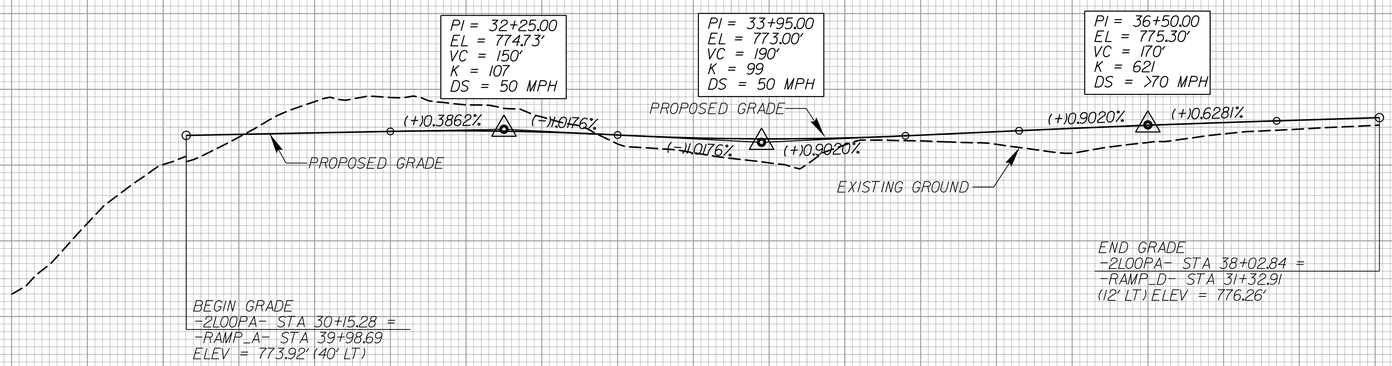
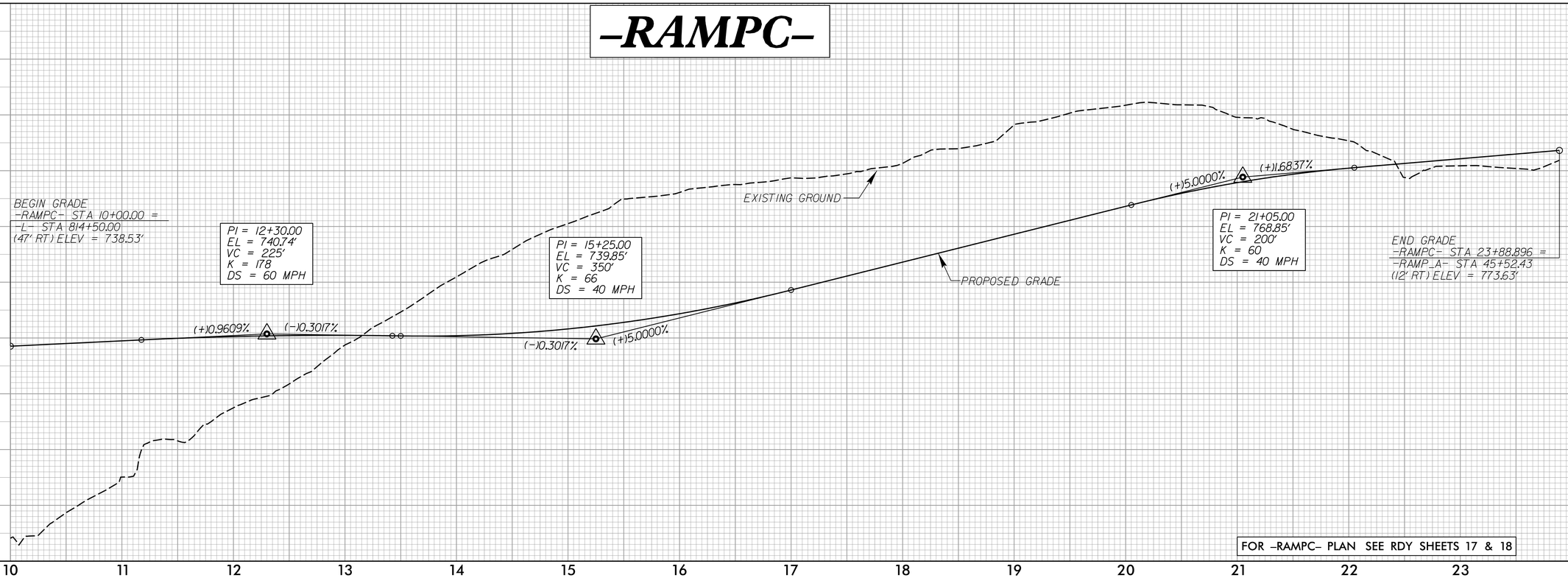
–2LOOPA–



FOR –2LOOPA– PLAN SEE RDY SHEET 18

–RAMPC–



FOR –RAMPC– PLAN SEE RDY SHEETS 17 & 18

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R-2707D	42

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4/21/2023

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R-2707D	43

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 26971 JOSHUA G DALTON
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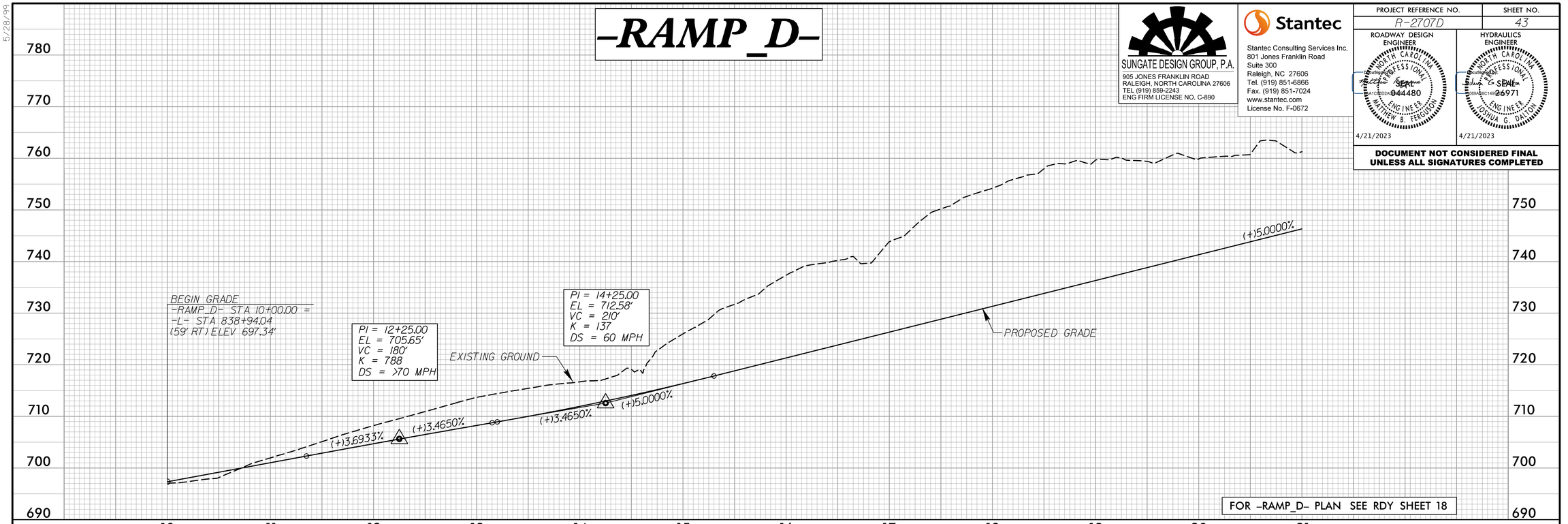

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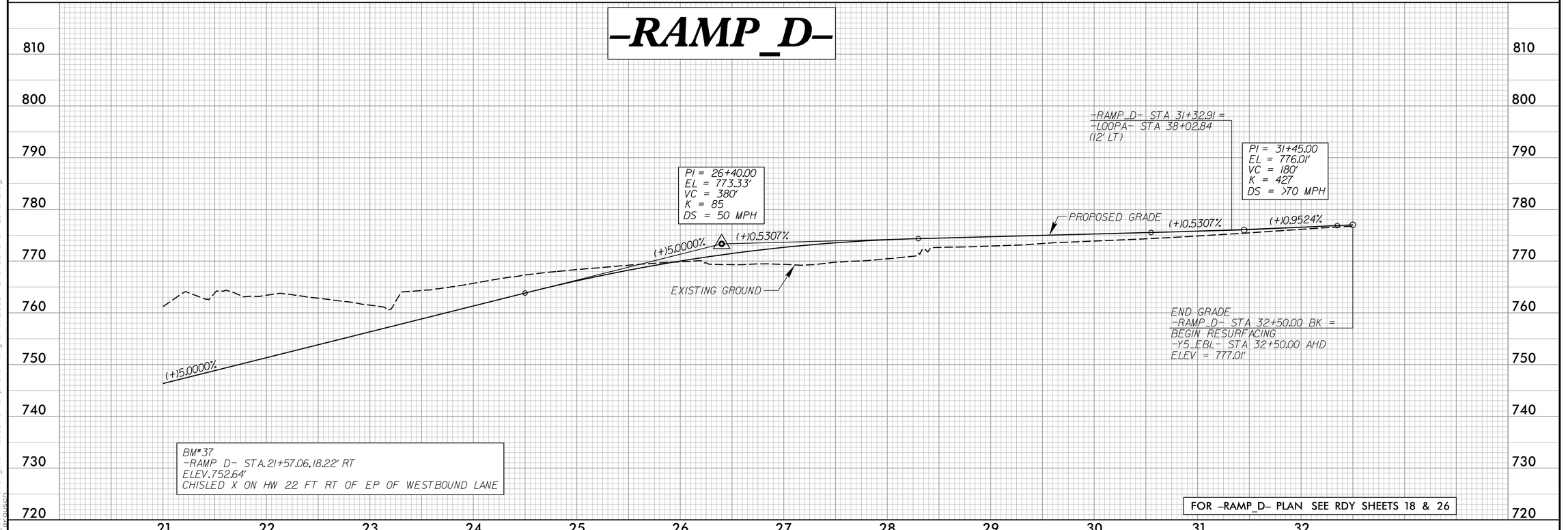

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-Y1-

PIPE HYDRAULIC DATA
18" RCP Sta. 16+86-Y1-

DRAINAGE AREA	= 1.9	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 6	CFS
DESIGN HW ELEVATION	= 875.4	FT
100 YEAR DISCHARGE	= 7	CFS
100 YEAR HW ELEVATION	= 875.5	FT
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING DISCHARGE	= 7+	CFS
OVERTOPPING ELEVATION	= 875.6	FT

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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	44

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HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 26971 — JOSHUA G DALTON — 4/21/2023

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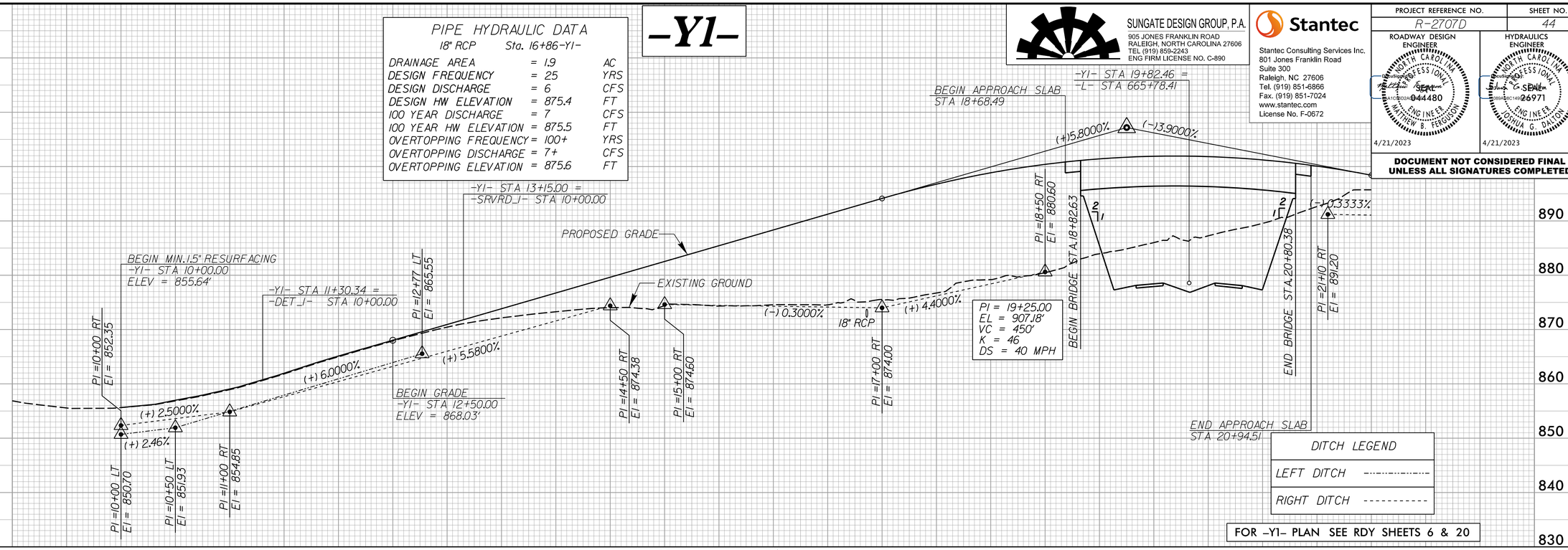


FOR -Y1- PLAN SEE RDY SHEETS 6 & 20

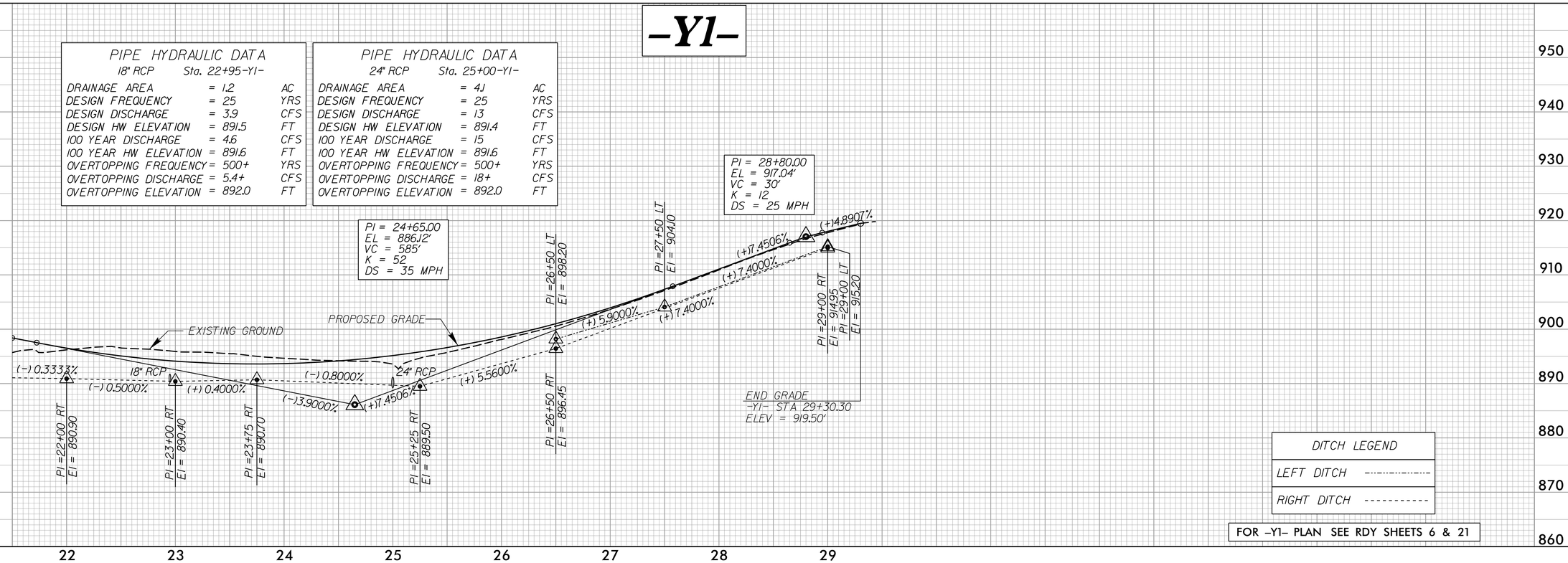
-Y1-

PIPE HYDRAULIC DATA
18" RCP Sta. 22+95-Y1-

DRAINAGE AREA	= 1.2	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 3.9	CFS
DESIGN HW ELEVATION	= 891.5	FT
100 YEAR DISCHARGE	= 4.6	CFS
100 YEAR HW ELEVATION	= 891.6	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 5.4+	CFS
OVERTOPPING ELEVATION	= 892.0	FT

PIPE HYDRAULIC DATA
24" RCP Sta. 25+00-Y1-

DRAINAGE AREA	= 4.1	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 13	CFS
DESIGN HW ELEVATION	= 891.4	FT
100 YEAR DISCHARGE	= 15	CFS
100 YEAR HW ELEVATION	= 891.6	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 18+	CFS
OVERTOPPING ELEVATION	= 892.0	FT



FOR -Y1- PLAN SEE RDY SHEETS 6 & 21

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–Y2–

PIPE HYDRAULIC DATA
18" RCP Sta. 17+50–Y2–

DRAINAGE AREA	= 1.0	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 4.4	CFS
DESIGN HW ELEVATION	= 889.9	FT
100 YEAR DISCHARGE	= 5.1	CFS
100 YEAR HW ELEVATION	= 890.0	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 5.9+	CFS
OVERTOPPING ELEVATION	= 890.5	FT

PI = 15+25.00
EL = 890.78'
VC = 350'
K = 101
DS = 50 MPH

PIPE HYDRAULIC DATA
18" RCP Sta. 21+52–Y2–

DRAINAGE AREA	= 1.5	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 4.5	CFS
DESIGN HW ELEVATION	= 900.2	FT
100 YEAR DISCHARGE	= 5.3	CFS
100 YEAR HW ELEVATION	= 900.2	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 6.1+	CFS
OVERTOPPING ELEVATION	= 901.1	FT

BEGIN APPROACH SLAB
STA 18+92.68

PI = 20+00.00
EL = 914.53'
VC = 600'
K = 96
DS = 50 MPH

–Y2– STA 20+16.72 =
–L– STA 691+83.46

BEGIN GRADE
–Y2– STA 11+00.00
ELEV = 884.32'

–Y2– STA 11+48.31 =
–Y6– STA 10+00.00

PROPOSED GRADE
EXISTING GROUND

(+)1.5200%
(+)5.0000%
(–) 0.4000%
(+)1.4000%
(–)1.2400%
(+)5.0000%
(+) 0.4300%

18" RCP
(+) 5.0000%

PI =11+00 RT
EI = 882.86

PI =13+00 RT
EI = 883.72

PI =15+75 RT
EI = 889.50

PI =17+50 RT
EI = 888.80

PI =19+00 RT
EI = 890.90

BEGIN BRIDGE STA.19+16.80

END BRIDGE STA.21+18.64

PI =21+35 LT
EI = 898.50

END APPROACH SLAB
STA 21+42.77

DITCH LEGEND	
LEFT DITCH	----·----·----
RIGHT DITCH	----------

FOR –Y2– PLAN SEE RDY SHEETS 8 & 22

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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	45

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 044480 MATTHEW B FERGUSON
4/21/2023

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 26971 JOSHUA G DALTON
4/21/2023

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–Y2–

PI = 24+50.00
EL = 908.91'
VC = 275'
K = 100
DS = 50 MPH

PI = 27+25.00
EL = 913.03'
VC = 200'
K = 85
DS = 50 MPH

PI = 29+25.00
EL = 911.43'
VC = 200'
K = 97
DS = 50 MPH

END GRADE
–Y2– STA 32+23.90
ELEV = 915.10'

EXISTING GROUND
PROPOSED GRADE

PI =26+30 RT
EI = 910.60

PI =26+60 RT
EI = 911.69

(+)1.5200%
(–)0.8400%
(+)1.2211%
(–)1.2400%
(+)1.5200%
(–) 1.0000%
(–) 3.00%
(–) 0.4000%
(+) 0.8300%
(+) 5.0000%
(+) 0.5000%
(–) 0.6000%
(+) 2.0000%

PI =22+50 LT
EI = 904.25

PI =24+50 RT
EI = 908.80

PI =25+50 LT
EI = 905.75

PI =26+60 LT
EI = 907.60

PI =27+00 RT
EI = 910.49

PI =29+00 LT
EI = 906.16

PI =29+25 RT
EI = 909.59

PI =29+65 RT
EI = 909.00

PI =31+00 RT
EI = 911.70

PI =32+00 RT
EI = 912.53

PROPOSED UNDERCUT

DITCH LEGEND	
LEFT DITCH	----·----·----
RIGHT DITCH	----------

FOR –Y2– PLAN SEE RDY SHEETS 8 & 23

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–Y3–

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PROJECT REFERENCE NO.	SHEET NO.
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ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 044480 ENGINEER MATTHEW B FERGUSON — 4/21/2023

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G DALTON — 4/21/2023

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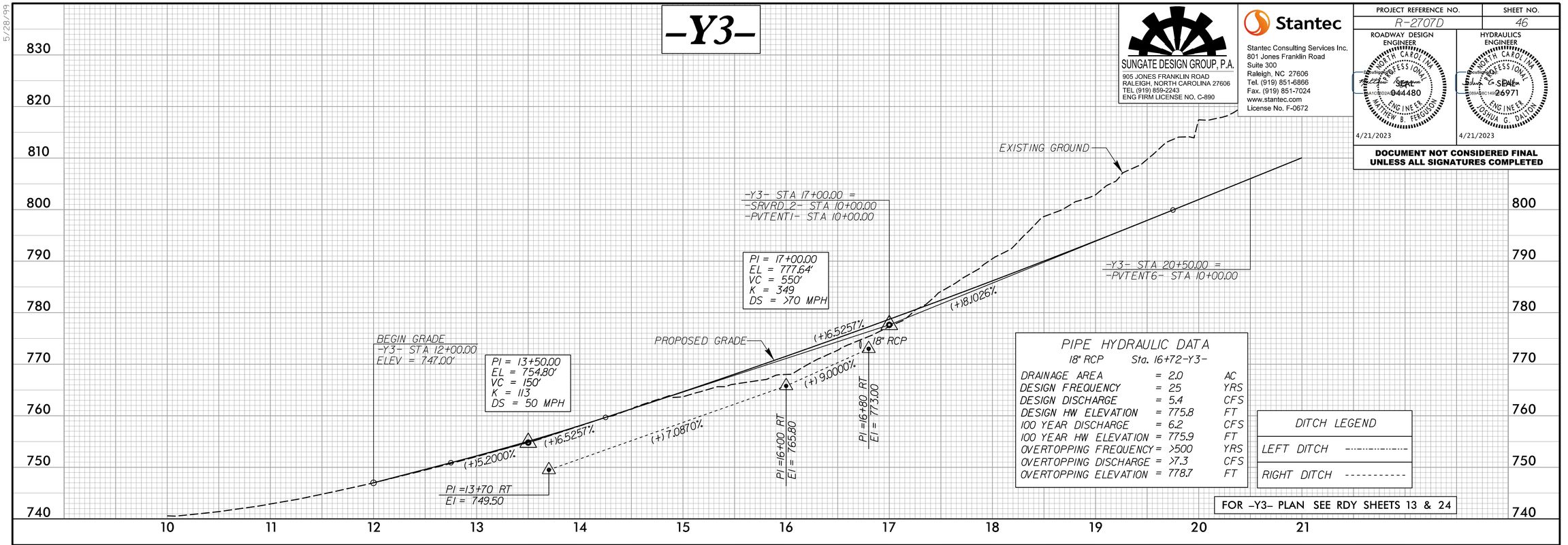
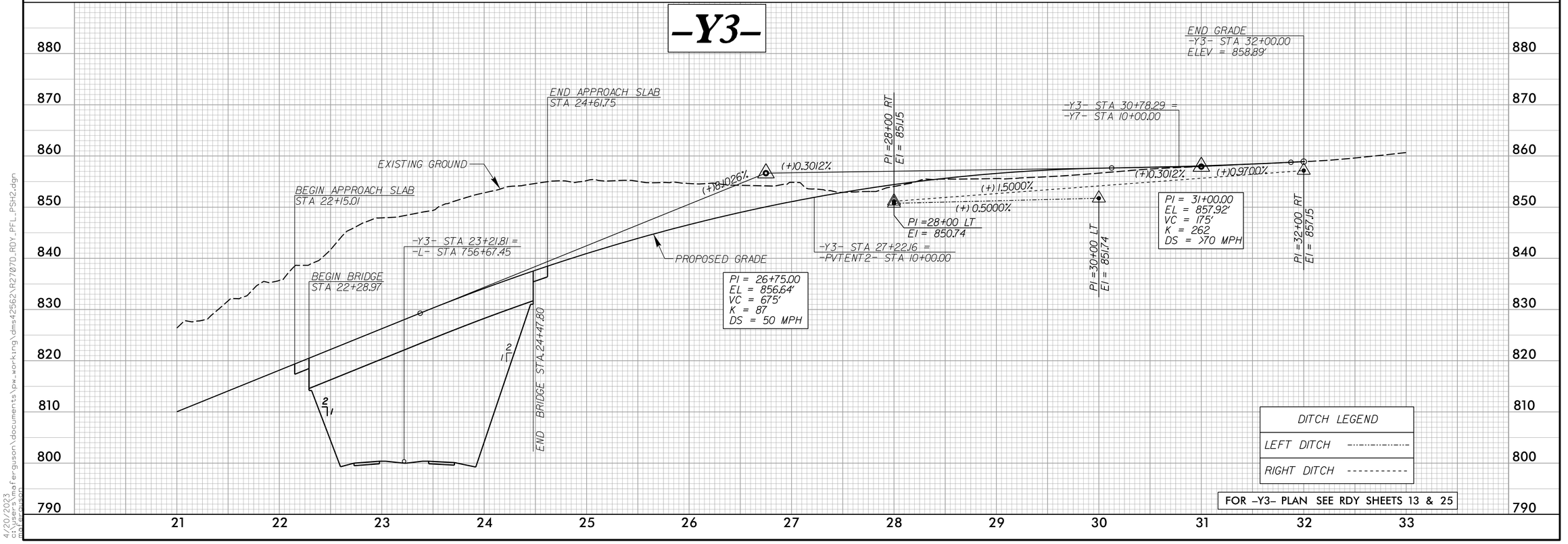


PIPE HYDRAULIC DATA 18" RCP Sta. 16+72–Y3–		
DRAINAGE AREA	= 2.0	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 5.4	CFS
DESIGN HW ELEVATION	= 775.8	FT
100 YEAR DISCHARGE	= 6.2	CFS
100 YEAR HW ELEVATION	= 775.9	FT
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING DISCHARGE	= >7.3	CFS
OVERTOPPING ELEVATION	= 778.7	FT

DITCH LEGEND	
LEFT DITCH	-·-·-·-·-
RIGHT DITCH	----------

FOR –Y3– PLAN SEE RDY SHEETS 13 & 24

–Y3–



DITCH LEGEND	
LEFT DITCH	-·-·-·-·-
RIGHT DITCH	----------

FOR –Y3– PLAN SEE RDY SHEETS 13 & 25

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–Y4–

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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	47

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 044480 ENGINEER MATTHEW B FERGUSON
4/21/2023

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 26971 ENGINEER JOSHUA G DALTON
4/21/2023

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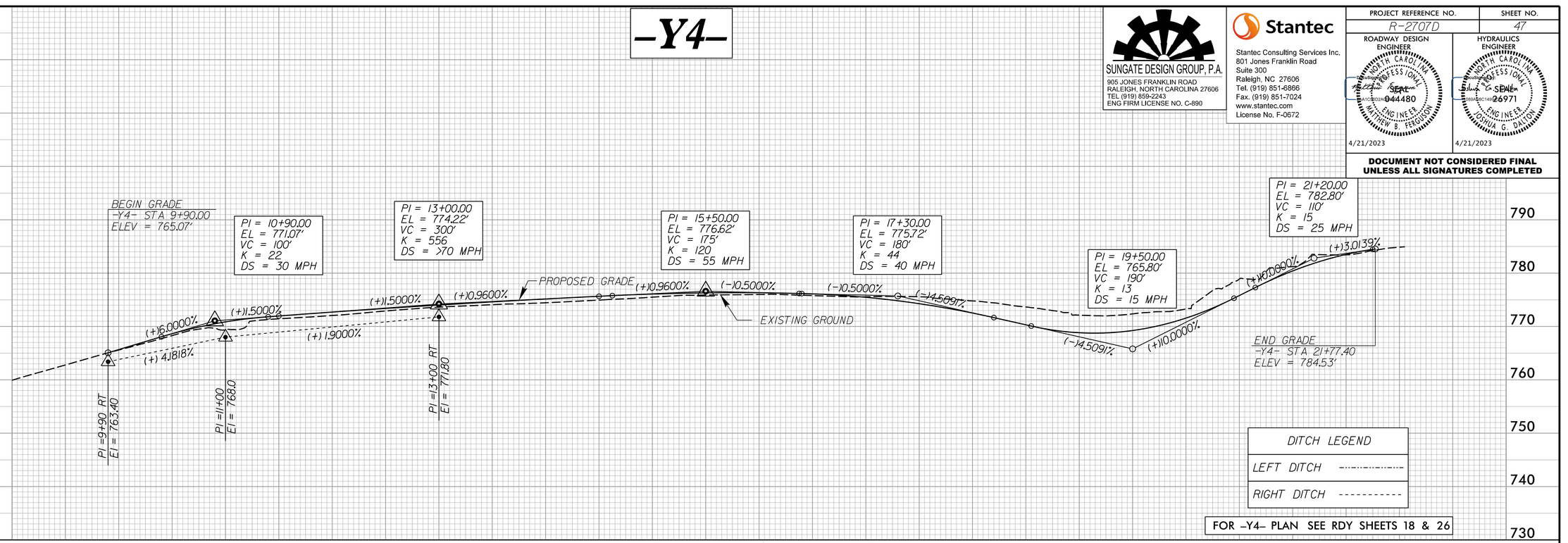

DITCH LEGEND	
LEFT DITCH	-----------
RIGHT DITCH	-----------

FOR –Y4– PLAN SEE RDY SHEETS 18 & 26

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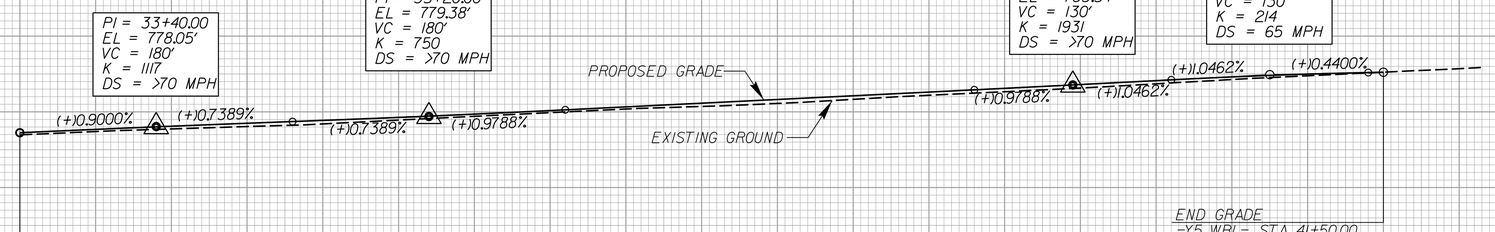
5/28/99

–Y5_WBL–



FOR –Y5_WBL– PLAN SEE RDY SHEET 26

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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	48

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 044480 ENGINEER MATTHEW B FERGUSON
4/21/2023

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G DALTON
4/21/2023

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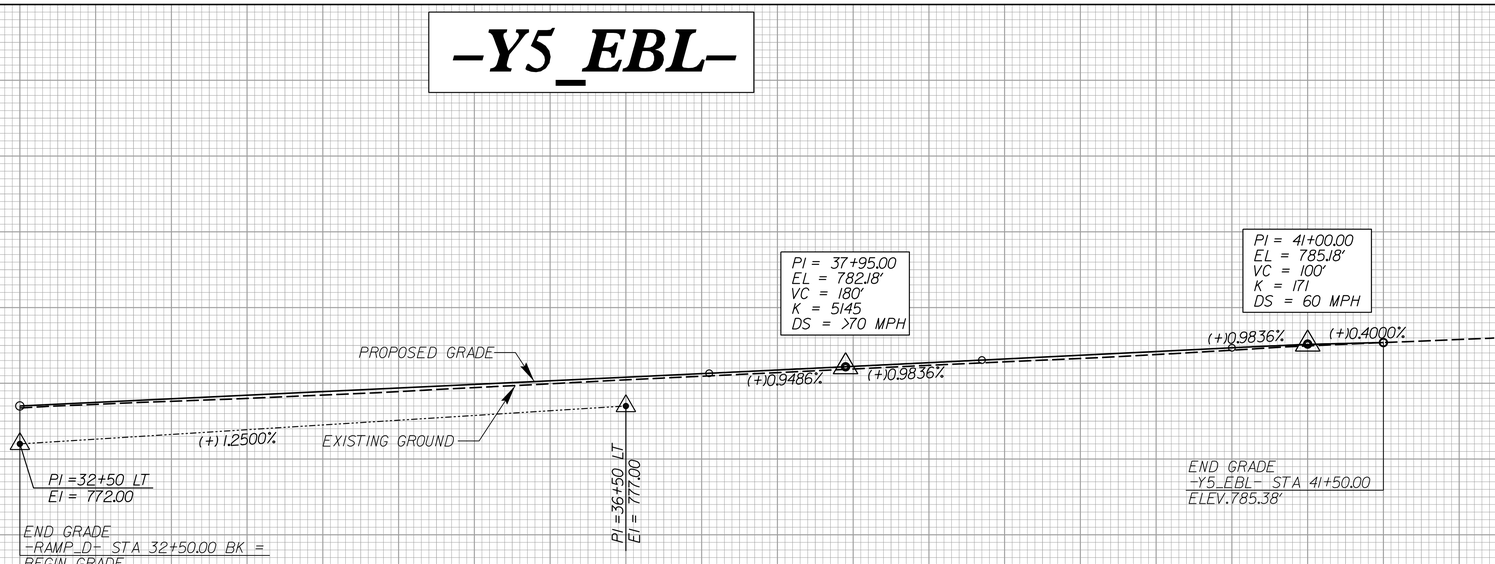
–Y5_EBL–



DITCH LEGEND	
LEFT DITCH	----·----·----
RIGHT DITCH	----------

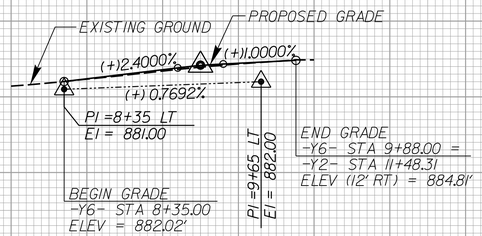
FOR –Y5_EBL– PLAN SEE RDY SHEET 26

4/5/2023
dms42562
mferguson
mferguson

5/28/99

–Y6–

PI = 9+25.00
EL = 884.18'
VC = 30'
K = 21
DS = 30 MPH



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PROJECT REFERENCE NO.	SHEET NO.
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4/21/2023

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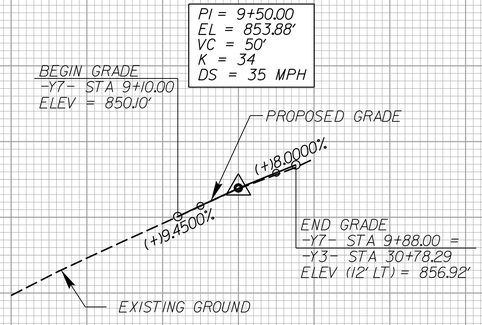
DITCH LEGEND	
LEFT DITCH	-·-·-·-·-
RIGHT DITCH	----------

FOR –Y6– PLAN SEE RDY SHEET 22

–Y7–

PI = 9+50.00
EL = 853.88'
VC = 50'
K = 34
DS = 35 MPH



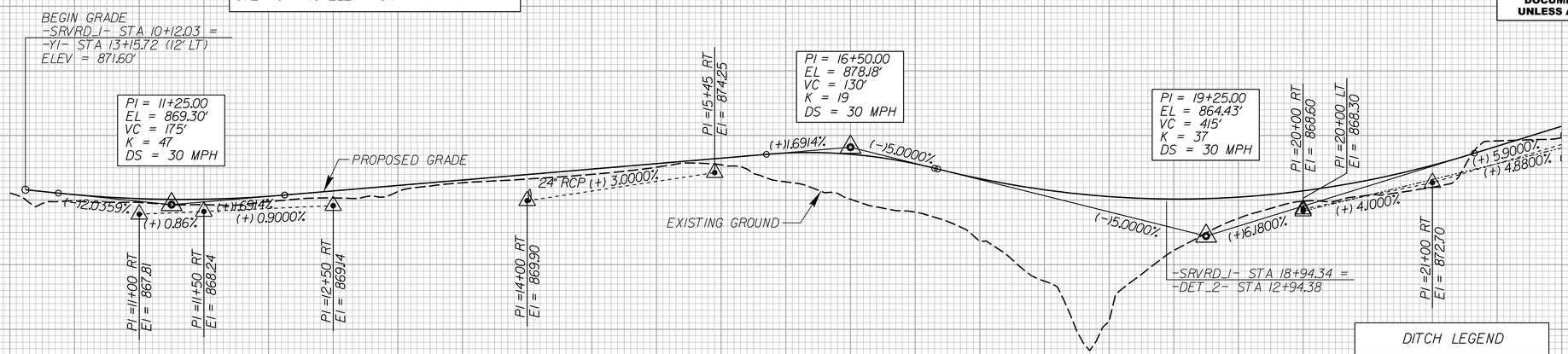
FOR –Y7– PLAN SEE RDY SHEET 25

5/28/99

–SRVRD_1–

PIPE HYDRAULIC DATA
24" RCP Sta. 14+02–SRVRDI–

DRAINAGE AREA	= 3.1	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 10	CFS
DESIGN HW ELEVATION	= 871.5	FT
100 YEAR DISCHARGE	= 12	CFS
100 YEAR HW ELEVATION	= 871.74	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 14+	CFS
OVERTOPPING ELEVATION	= 873.7	FT



DITCH LEGEND	
LEFT DITCH	----·----·----
RIGHT DITCH	----------

FOR –SRVRD_1– PLAN SEE RDY SHEETS 6, 7, & 20

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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	50

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NORTH CAROLINA PROFESSIONAL SEAL 044480 ENGINEER MATTHEW B FERGUSON
4/21/2023

HYDRAULICS ENGINEER
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4/21/2023

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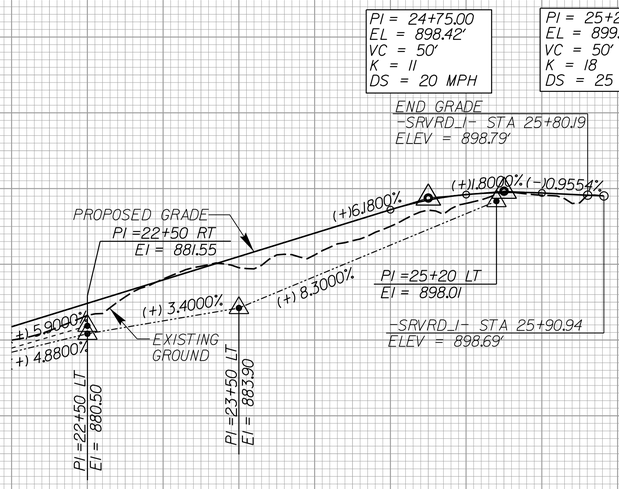
–SRVRD_1–



DITCH LEGEND	
LEFT DITCH	----·----·----
RIGHT DITCH	----------

FOR –SRVRD_1– PLAN SEE RDY SHEET 7

5/28/99

–SRVRD_3–

BEGIN GRADE
–SRVRD_3– STA 12+00.00
ELEV = 720.85'

PI = 14+00.00
EL = 712.85'
VC = 230'
K = 37
DS = 30 MPH

PROPOSED GRADE

–SRVRD_3– STA 16+45.00 =
–PVTENT_4– STA 10+00.00

PI = 18+80.00
EL = 723.30'
VC = 270'
K = 20
DS = 30 MPH

EXISTING GROUND

(–)4.0000%
(+)2.1771%
(–) 0.4286%
(+) 2.0000%
(+)12.1771%
(–)11.5762%
(–)9.2000%
(–) 6.5000%
(–)11.5762%
(–)2.0000%
(–)7.4200%
(–) 2.0000%

PI =14+30 RT
EI = 711.80

PI =15+00 RT
EI = 711.50

PI =16+00 RT
EI = 713.5

PI =21+50 RT
EI = 696.50

PI =23+00 RT
EI = 682.70

PI = 23+00.00
EL = 674.68'
VC = 200'
K = 21
DS = 20 MPH

END GRADE
–SRVRD_3– STA 24+50.00
ELEV = 671.68'

PI =24+00 RT
EI = 676.20

PI =23+00 LT
EI = 674.71

PI =23+50 LT
EI = 671.00

PI =24+00 LT
EI = 670.00

DITCH LEGEND	
LEFT DITCH	----·---·----
RIGHT DITCH	----------

FOR –SRVRD_3– PLAN SEE RDY SHEETS 18 & 19

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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	51

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 044480 ENGINEER MATTHEW B FERGUSON
4/21/2023

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G DALTON
4/21/2023

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–SRVRD_4–

BEGIN GRADE
–SRVRD_4– STA 9+78.55
ELEV = 750.45'

(–)10.0000%

–SRVRD_4– STA 12+69.23 =
–SRVRD_5– STA 10+00.00

(–) 10.00%
(+) 5.00%

PI =12+50 RT
EI = 737.00

PI = 14+00.00
EL = 708.00'
VC = 400'
K = 30
DS = 25 MPH

PROPOSED GRADE

(–)10.0000%
(+)3.2000%
(–) 1.6144%
(+) 0.6907%

PI =11+80 RT
EI = 736.50

PI =12+00 RT
EI = 734.50

PI =13+50 LT
EI = 709.47

PI =15+03 LT
EI = 707.00

PI =16+00 LT
EI = 707.67

PI = 18+00.00
EL = 720.80'
VC = 200'
K = 68
DS = 40 MPH

66" RCP

EXISTING GROUND

(+)3.2000%
(+)6.1607%
(+) 5.6818%
(+) 7.0000%

PI =18+00 LT
EI = 719.00

PI =18+50 RT
EI = 720.0

END GRADE
–SRVRD_4– STA 20+20.00
ELEV = 734.35'

PI =20+20 RT
EI = 731.90

PI =20+20 LT
EI = 731.50

PIPE HYDRAULIC DATA
66" RCP Sta. 17+14–SRVRD4–

DRAINAGE AREA	= 39.4	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 140	CFS
DESIGN HW ELEVATION	= 710.2	FT
100 YEAR DISCHARGE	= 160	CFS
100 YEAR HW ELEVATION	= 710.95	FT
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING DISCHARGE	= >190	CFS
OVERTOPPING ELEVATION	= 713.0	FT

DITCH LEGEND	
LEFT DITCH	----·---·----
RIGHT DITCH	----------

FOR –SRVRD_4– PLAN SEE RDY SHEET 17

4/5/2023
c:\pw\mferguson\documents\pw_working\dms42562\R2707D_RDY_PFL_PSH3.dgn
mferguson

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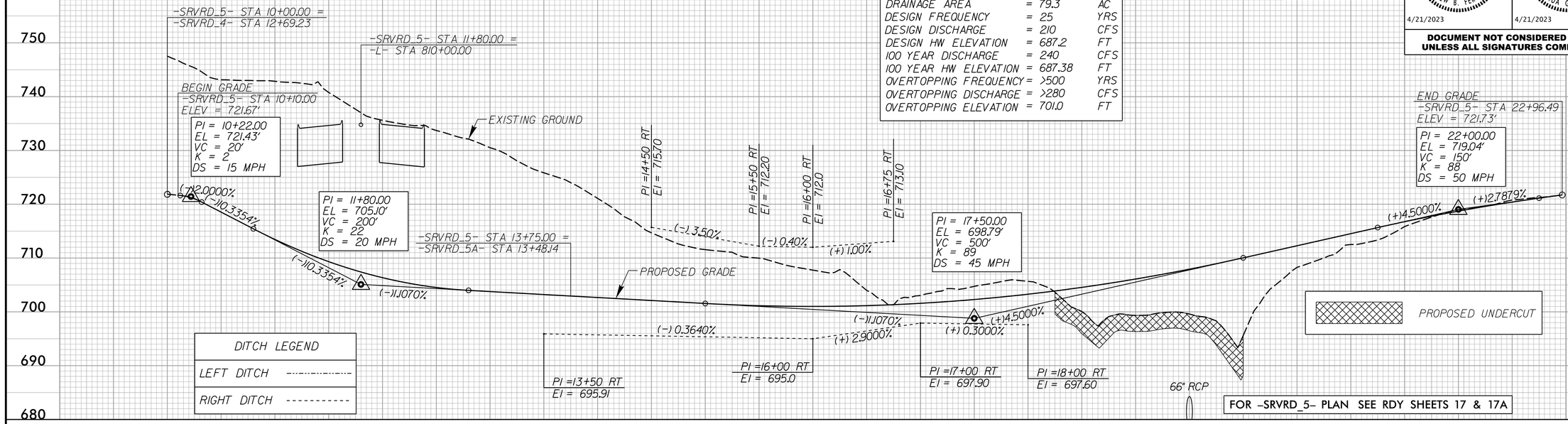
–SRVRD_5–



DITCH LEGEND	
LEFT DITCH	-----------
RIGHT DITCH	-----------

PIPE HYDRAULIC DATA
66" RCP Sta. 19+49–SRVRD5–

DRAINAGE AREA	= 79.3	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 210	CFS
DESIGN HW ELEVATION	= 687.2	FT
100 YEAR DISCHARGE	= 240	CFS
100 YEAR HW ELEVATION	= 687.38	FT
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING DISCHARGE	= >280	CFS
OVERTOPPING ELEVATION	= 701.0	FT

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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	52

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4/21/2023

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G DALTON
DocuSigned by: Joshua G Dalton
4/21/2023

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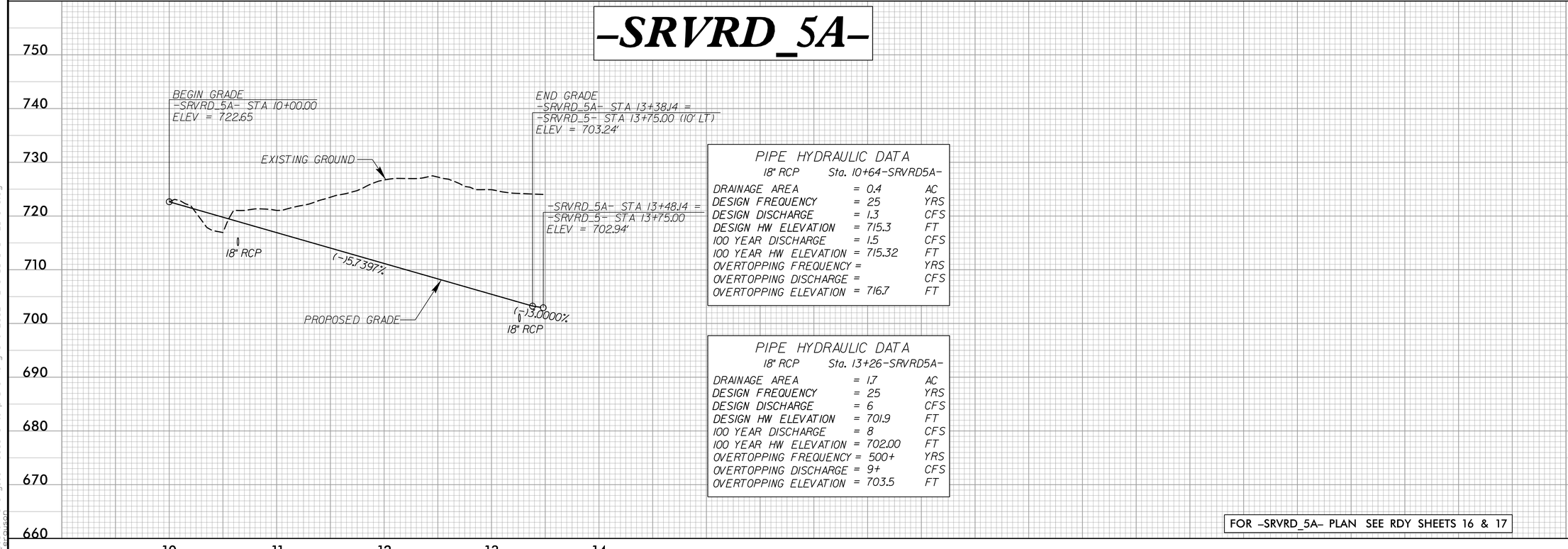
FOR –SRVRD_5– PLAN SEE RDY SHEETS 17 & 17A

–SRVRD_5A–



PIPE HYDRAULIC DATA
18" RCP Sta. 10+64–SRVRD5A–

DRAINAGE AREA	= 0.4	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 1.3	CFS
DESIGN HW ELEVATION	= 715.3	FT
100 YEAR DISCHARGE	= 1.5	CFS
100 YEAR HW ELEVATION	= 715.32	FT
OVERTOPPING FREQUENCY	=	YRS
OVERTOPPING DISCHARGE	=	CFS
OVERTOPPING ELEVATION	= 716.7	FT

PIPE HYDRAULIC DATA
18" RCP Sta. 13+26–SRVRD5A–

DRAINAGE AREA	= 1.7	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 6	CFS
DESIGN HW ELEVATION	= 701.9	FT
100 YEAR DISCHARGE	= 8	CFS
100 YEAR HW ELEVATION	= 702.00	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 9+	CFS
OVERTOPPING ELEVATION	= 703.5	FT

FOR –SRVRD_5A– PLAN SEE RDY SHEETS 16 & 17

5/28/99

–PVTENT1–

PI = 6+25.00
EL = 817.53'
VC = 50'
K = 4
DS = 15 MPH

(+)1.535%

(−)12.5016%

EXISTING GROUND

BEGIN GRADE
–PVTENT1– STA 5+65.72
ELEV = 816.62'

END GRADE
–PVTENT1– STA 9+88.00
–Y3– STA 17+00.00
ELEV (12' LT) = 778.24'

PROPOSED GRADE

(−)12.5016%

(−)12.0000%

15" RCP

PI = 9+30.00
EL = 779.40'
VC = 50'
K = 5
DS = 15 MPH

PIPE HYDRAULIC DATA
15" RCP Sta. 9+70–PVTENT1–

DRAINAGE AREA	= 1.3	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 5.2	CFS
DESIGN HW ELEVATION	= 777.8	FT
100 YEAR DISCHARGE	= 6.1	CFS
100 YEAR HW ELEVATION	= 778.0	FT
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING DISCHARGE	= 7.1	CFS
OVERTOPPING ELEVATION	= 778.2	FT

FOR –PVTENT1– PLAN SEE RDY SHEETS 13 & 24

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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	53

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DocuSigned by: Matthew Ferguson
4/21/2023

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G DALTON
DocuSigned by: Joshua Dalton
4/21/2023

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–PVTENT2–

BEGIN GRADE
–PVTENT2– STA 10+12.00
–Y3– STA 27+22.16
ELEV (12' RT) = 851.69'

PI = 11+20.00
EL = 849.48'
VC = 100'
K = 30
DS = 25 MPH

PI = 12+50.00
EL = 851.20'
VC = 100'
K = 23
DS = 30 MPH

PROPOSED GRADE

(−)2.0463%

(+)1.3231%

(+)1.3231%

(−)13.0706%

EXISTING GROUND

END GRADE
–PVTENT2– STA 14+20.00
ELEV = 845.98'

FOR –PVTENT2– PLAN SEE RDY SHEET 13

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–PVTENT4–

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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	54

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NORTH CAROLINA PROFESSIONAL SEAL 044480 ENGINEER MATTHEW B FERGUSON
4/21/2023

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G DALTON
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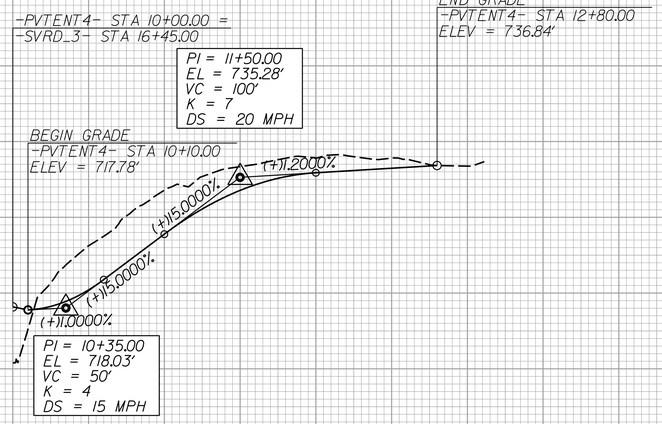
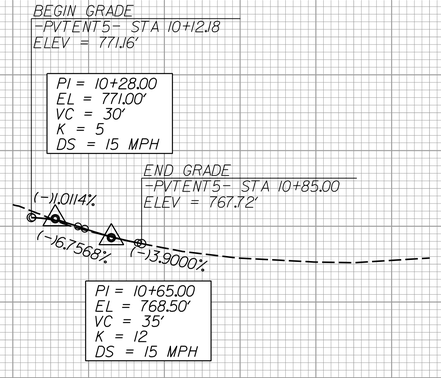


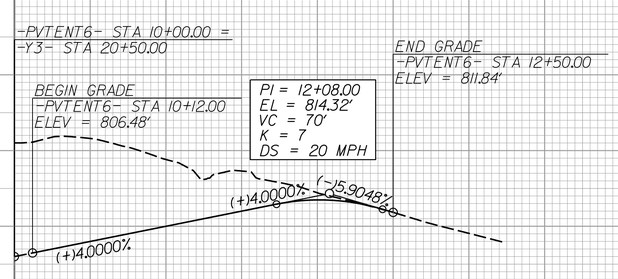
FOR –PVTENT4– PLAN SEE RDY SHEET 18 & 19

–PVTENT5–



FOR –PVTENT5– PLAN SEE RDY SHEET 26

–PVTENT6–



FOR –PVTENT6– PLAN SEE RDY SHEET 13