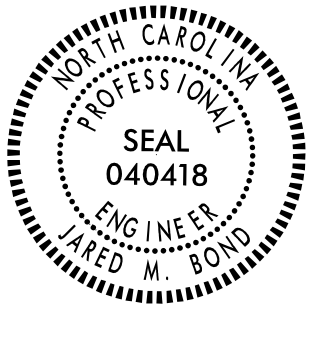
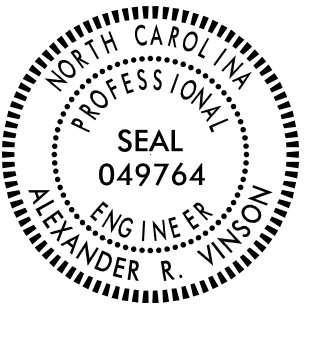


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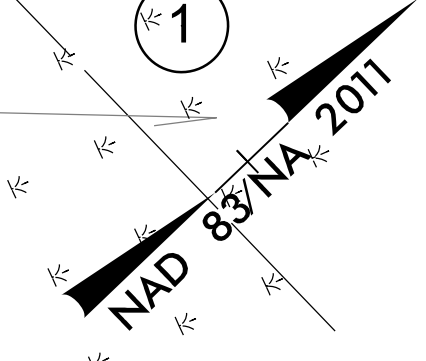
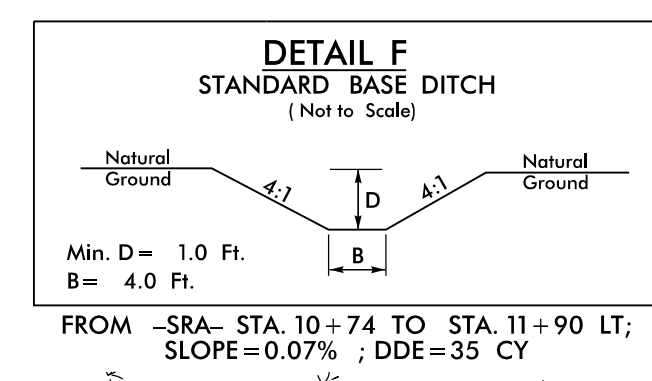
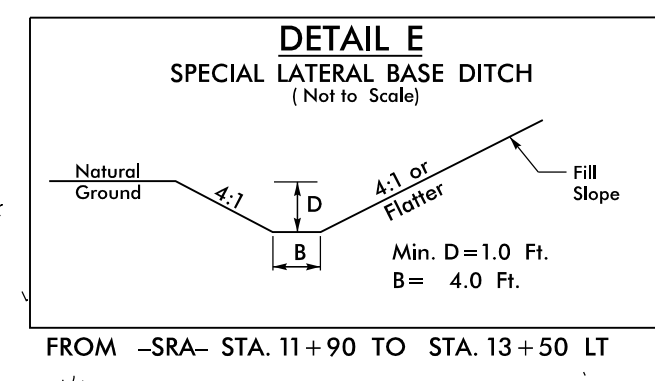
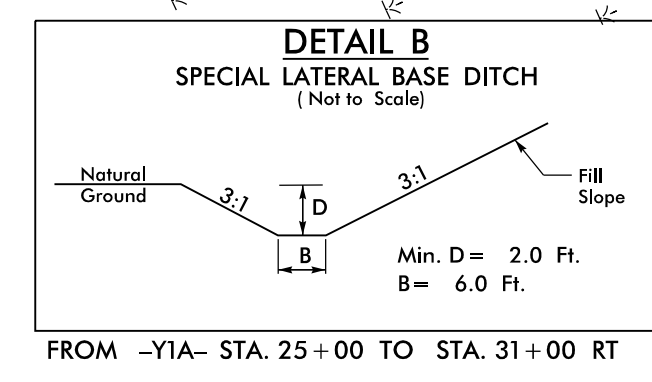
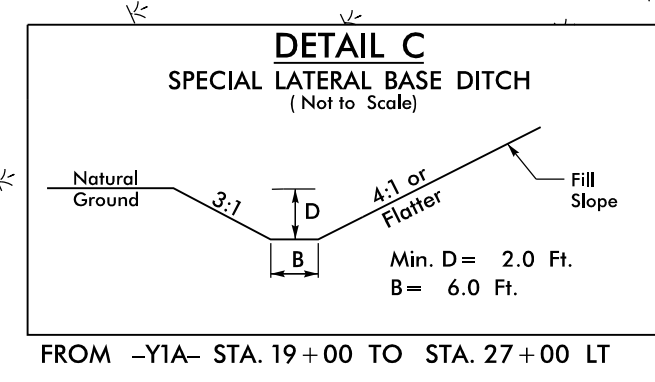
8/17/99

PROJECT REFERENCE NO. R-5751	SHEET NO. 10
RW SHEET NO. ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
 WILLIAM H. STEPHENS DB 2152 PG 883 DB 1132 PG 481	 ALEXANDER R. WINSTONE DB 2152 PG 883 DB 1132 PG 481

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RS&H 8521 SIX FORKS ROAD, SUITE 400 RALEIGH, NC 27615 NC FIRM LICENSE No: F-0493

MATCHLINE SHEET 9 -YIA- STA. 19+00.00



WILLIAM H. STEPHENS
DB 2152 PG 883
DB 1132 PG 481

REVISIONS

6
TONY BRITT ET UX
GLADYS MARIE BRITT
DB 649 PG 717

7
MDAYYAD AL-NASRA
DB 1175 PG 361

-SRA- CURVE DATA

PI Sta	11+27.92
Δ	54° 11' 40.5" (LT)
D	22° 55' 05.9"
L	236.47'
T	127.92'
R	250.00'
SE	= 02
RO	= SEE PLANS

-YIA- CURVE DATA

PI Sta	23+84.60
Δ	65° 27' 55.8" (LT)
D	7° 33' 31.7"
L	866.08'
T	487.24'
R	758.00'
SE	= 08
RO	= SEE PLANS
DS	= 50 MPH

WILLIAM H. STEPHENS
DB 2152 PG 883
DB 1132 PG 481

WILLIAM H. STEPHENS
DB 2152 PG 883
DB 1132 PG 481

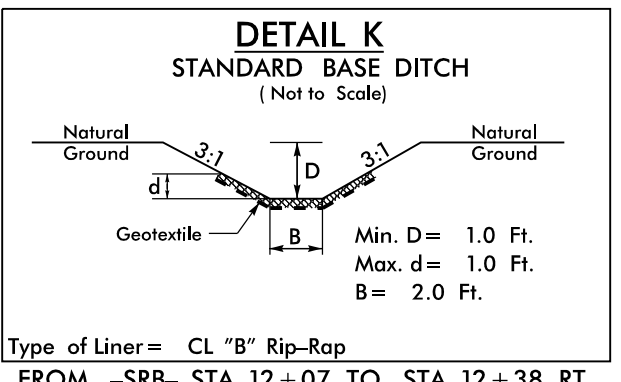
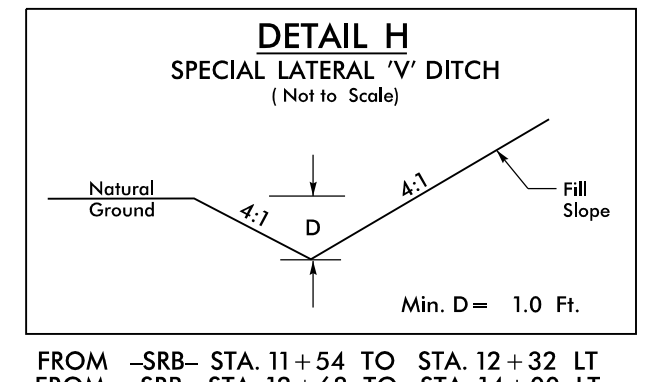
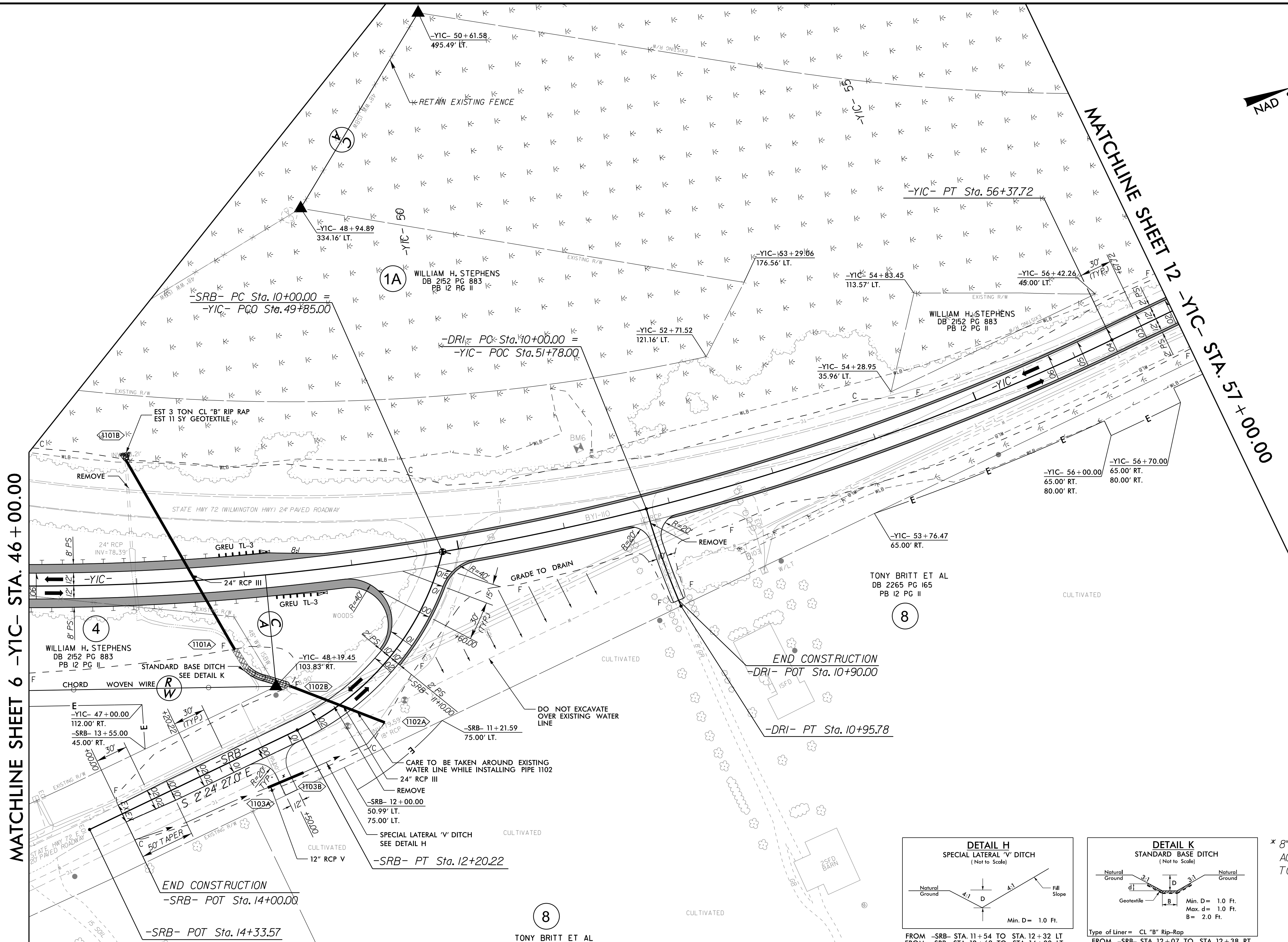
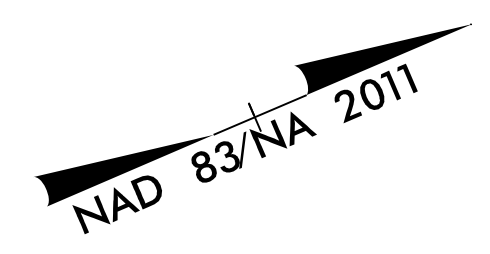
FOR -YIA- PROFILE, SEE SHEET NO. 18
FOR -SRA- PROFILE, SEE SHEET NO. 24

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R:\Roadway\Projects\15751_Rdy.psh_10.dgn
SUSHERN

MATCHLINE SHEET 6 -YIA- STA. 31+00.00

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RALEIGH, NC 27615
NC FIRM LICENSE No: F-0493



* 8" ABC DRIVEWAY
ACTUAL LOCATION MAY NEED TO BE FIELD ADJUSTED
TO MATCH EXISTING FIELD ACCESS.

-YIC- CURVE DATA

PI Sta 49+05.07
$\Delta = 37^\circ 35' 51.9" (LT)$
$D = 2^\circ 28' 10.7"$
$L = 1,522.39'$
$T = 789.74'$
$R = 2,320.00'$
SE = 06
RO = SEE PLANS
DS = 60 MPH

-SRB- CURVE DATA

PI Sta 11+17.83
$\Delta = 50^\circ 28' 17.2" (RT)$
$D = 22^\circ 55' 05.9"$
$L = 220.22'$
$T = 117.83'$
$R = 250.00'$
SE = 02
RO = SEE PLANS

-DRI- CURVE DATA

PI Sta 10+47.96
$\Delta = 7^\circ 19' 02.3" (LT)$
$D = 7^\circ 38' 22.0"$
$L = 95.78'$
$T = 47.96'$
$R = 750.00'$
SE = NC

FOR -YIC- PROFILE, SEE SHEET NO. 19 & 20
FOR -SRB- PROFILE, SEE SHEET NO. 24
FOR -DRI- PROFILE, SEE SHEET NO. 25

REVISIONS

8/17/99

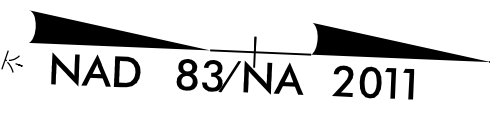
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JMS/SUS/RYAN

8/17/99

PROJECT REFERENCE NO. <i>R-575J</i>		SHEET NO. 12	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	

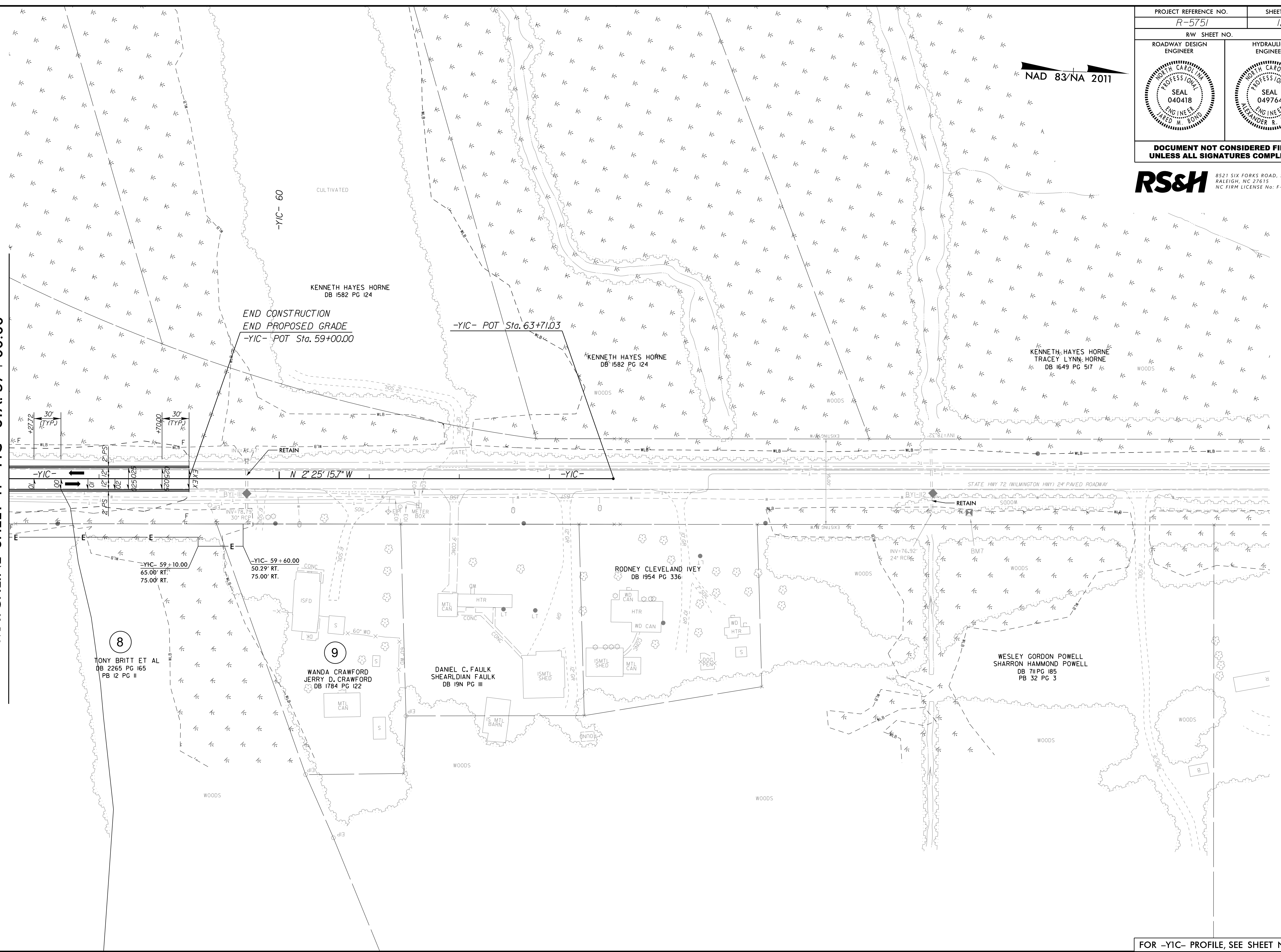
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NC FIRM LICENSE No: F-0493



MATCHLINE SHEET 11 -YIC- STA. 57+00.00

REVISIONS



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JMB/SUBSERNAME

FOR -YIC- PROFILE, SEE SHEET NO. 20

5/28/99

BMI
BENCHTIE SET IN 20" PINE
-L- STA. 10+00.00
N 20°6'1"E DIST. = 727'
ELEV. = 82.29'

-L- LT

PIPE HYDRAULIC DATA
-L- Sta. 24+00

DRAINAGE AREA	= 1,230*	SQ. MI.
DESIGN FREQUENCY	= 50*	YRS
DESIGN DISCHARGE	= 15,400*	CFS
DESIGN HW ELEVATION	= 82.6*	FT
100 YEAR DISCHARGE	= 18,000*	CFS
100 YEAR HW ELEVATION	= 83.0*	FT
OVERTOPPING FREQUENCY	= N/A*	YRS
OVERTOPPING DISCHARGE	= N/A*	CFS
OVERTOPPING ELEVATION	= N/A*	FT

BM9
BENCHTIE SET IN 20" PINE
-L- STA. 23+90 10" LT.
ELEV. = 83.75'

PROJECT REFERENCE NO. R-5751	SHEET NO. 13
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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NC FIRM LICENSE No: F-0493

BEGIN PROPOSED GRADE LT.
-L- STA. 16+00.00
ELEV. = 86.87'

PI = 23+20.00
EL = 89.03'
VC = 230'
K = 382
DS = 80 MPH

BEGIN MEDIAN
"V" DITCH GRADE
-L- STA. 19+50
ELEV. = 85.60'

2 @ 66" WELDED STEEL PIPE
C/L ELEV. = 78.85'

PI = 24+75.00
EI = 85.200

MEDIAN DITCH - - - - -
FOR -L- ALIGNMENT, SEE SHEET NO. 5

13 14 15 16 17 18 19 20 21 22 23 24 25 26 27

140

-L- RT

PIPE HYDRAULIC DATA
-L- Sta. 24+00

DRAINAGE AREA	= 1,230*	SQ. MI.
DESIGN FREQUENCY	= 50*	YRS
DESIGN DISCHARGE	= 15,400*	CFS
DESIGN HW ELEVATION	= 82.6*	FT
100 YEAR DISCHARGE	= 18,000*	CFS
100 YEAR HW ELEVATION	= 83.0*	FT
OVERTOPPING FREQUENCY	= N/A*	YRS
OVERTOPPING DISCHARGE	= N/A*	CFS
OVERTOPPING ELEVATION	= N/A*	FT

*PIPES ACT AS OVERFLOW STRUCTURES
FOR THE LUMBER RIVER BRIDGE, APPROX.
1.5 MILES AHEAD STATION

BEGIN PROPOSED GRADE RT.
-L- STA. 16+00.00
ELEV. = 86.82'

PI = 20+90.00
EL = 88.30'
VC = 230'
K = 380
DS = 80 MPH

PI = 24+20.00
EL = 87.30'
VC = 400'
K = 663
DS > 80 MPH

2 @ 66" WELDED STEEL PIPE
C/L ELEV. = 78.85'

FOR -L- ALIGNMENT, SEE SHEET NO. 5

13 14 15 16 17 18 19 20 21 22 23 24 25 26 27

R5-OC T-2002 10:22 AM 5/28/99 R5751-Rdy-pf1.13.dgn

5/14/99

PROJECT REFERENCE NO. R-5751	SHEET NO. 14
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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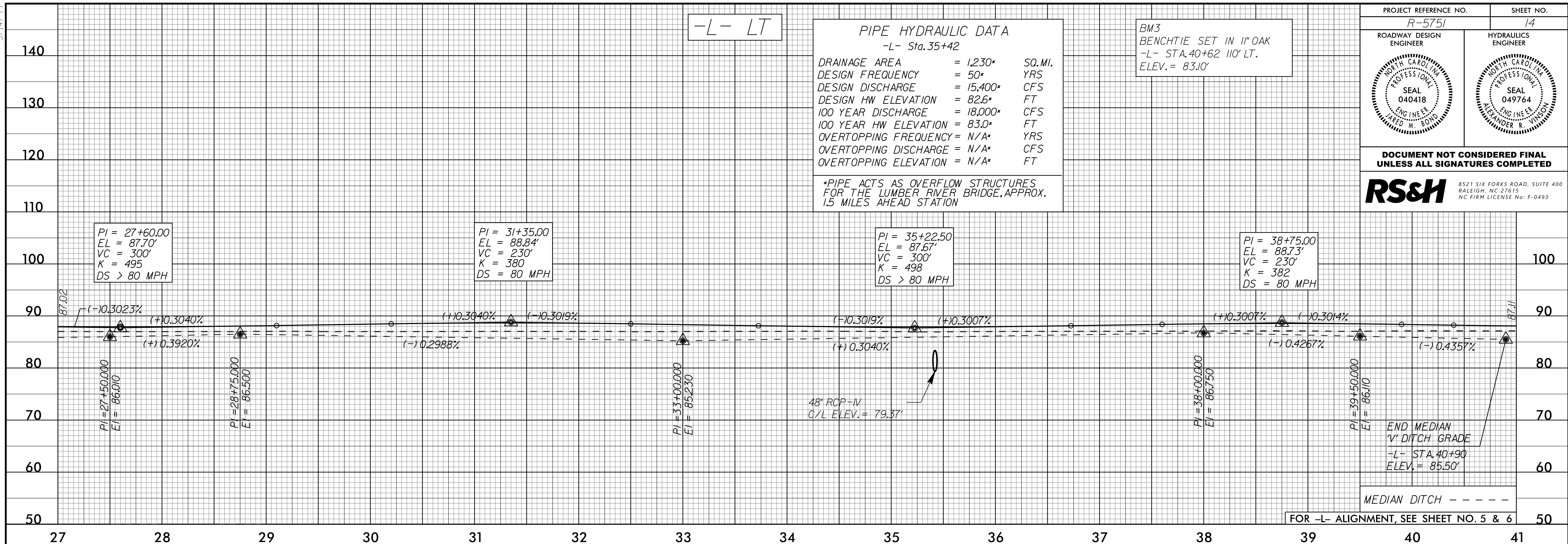
RS&H 8521 SIX FORKS ROAD, SUITE 400 RALEIGH, NC 27615 NC FIRM LICENSE No: F-0493

PIPE HYDRAULIC DATA
-L- Sta.35+42

DRAINAGE AREA	= 1,230*	SQ.MI.
DESIGN FREQUENCY	= 50*	YRS
DESIGN DISCHARGE	= 15,400*	CFS
DESIGN HW ELEVATION	= 82.6*	FT
100 YEAR DISCHARGE	= 18,000*	CFS
100 YEAR HW ELEVATION	= 83.0*	FT
OVERTOPPING FREQUENCY	= N/A*	YRS
OVERTOPPING DISCHARGE	= N/A*	CFS
OVERTOPPING ELEVATION	= N/A*	FT

BM3
BENCHTIE SET IN 1" OAK
-L- STA.40+62 110' LT.
ELEV. = 83.0'

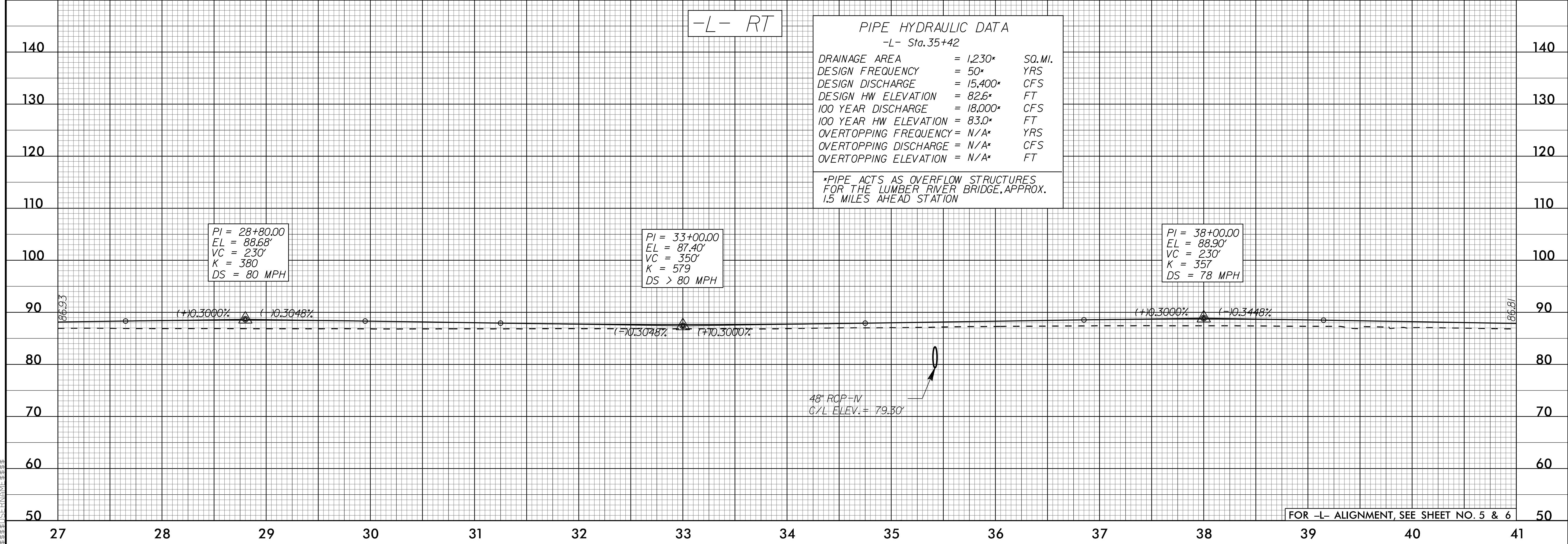
*PIPE ACTS AS OVERFLOW STRUCTURES FOR THE LUMBER RIVER BRIDGE, APPROX. 1.5 MILES AHEAD STATION



PIPE HYDRAULIC DATA
-L- Sta.35+42


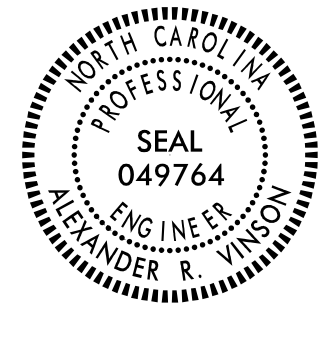
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DESIGN FREQUENCY	= 50*	YRS
DESIGN DISCHARGE	= 15,400*	CFS
DESIGN HW ELEVATION	= 82.6*	FT
100 YEAR DISCHARGE	= 18,000*	CFS
100 YEAR HW ELEVATION	= 83.0*	FT
OVERTOPPING FREQUENCY	= N/A*	YRS
OVERTOPPING DISCHARGE	= N/A*	CFS
OVERTOPPING ELEVATION	= N/A*	FT

*PIPE ACTS AS OVERFLOW STRUCTURES FOR THE LUMBER RIVER BRIDGE, APPROX. 1.5 MILES AHEAD STATION



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5/14/99

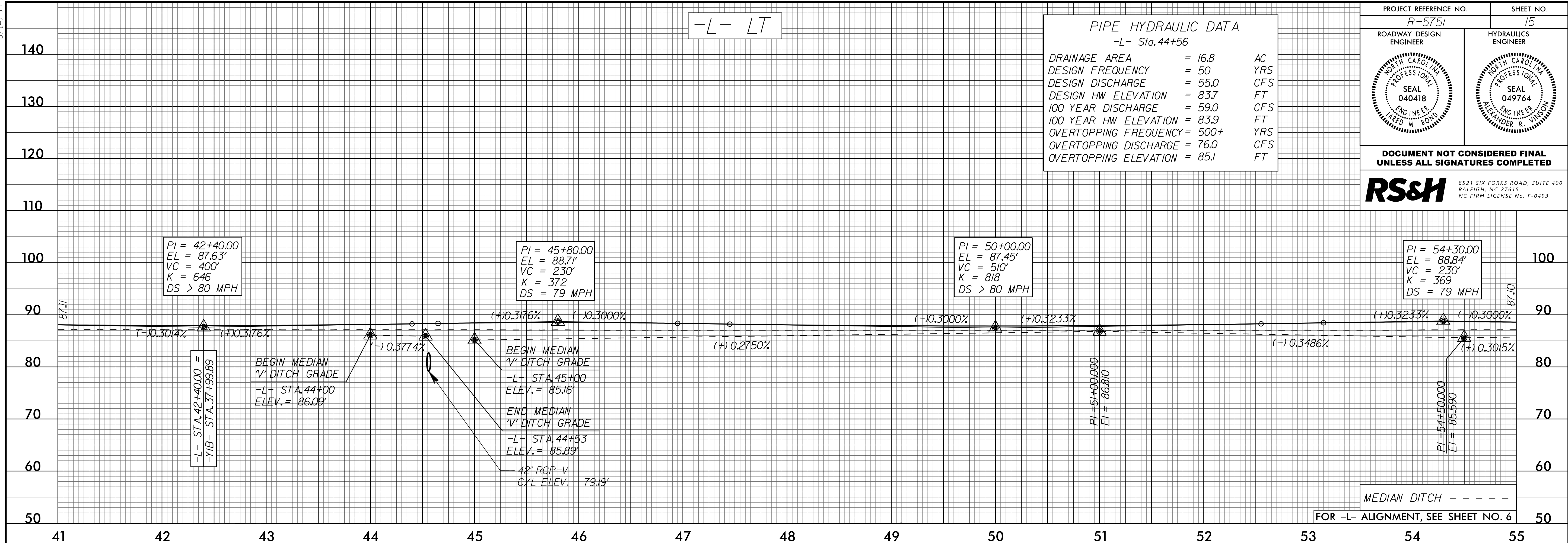
PROJECT REFERENCE NO. R-5751	SHEET NO. 15
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	

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RALEIGH, NC 27615
NC FIRM LICENSE No. F-0493

PIPE HYDRAULIC DATA
-L- Sta. 44+56

DRAINAGE AREA	= 16.8	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 55.0	CFS
DESIGN HW ELEVATION	= 83.7	FT
100 YEAR DISCHARGE	= 59.0	CFS
100 YEAR HW ELEVATION	= 83.9	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 76.0	CFS
OVERTOPPING ELEVATION	= 85J	FT



PIPE HYDRAULIC DATA
-L- Sta. 44+56

DRAINAGE AREA	= 16.8	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 55.0	CFS
DESIGN HW ELEVATION	= 83.7	FT
100 YEAR DISCHARGE	= 59.0	CFS
100 YEAR HW ELEVATION	= 83.9	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 76.0	CFS
OVERTOPPING ELEVATION	= 85J	FT



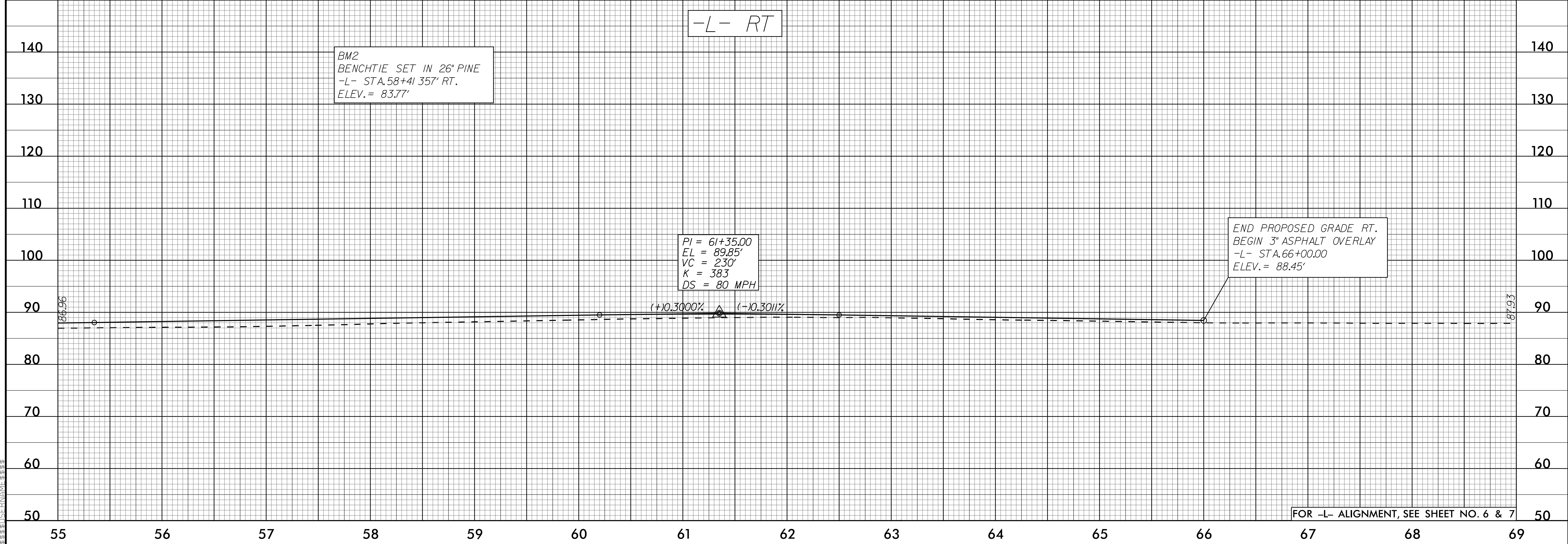
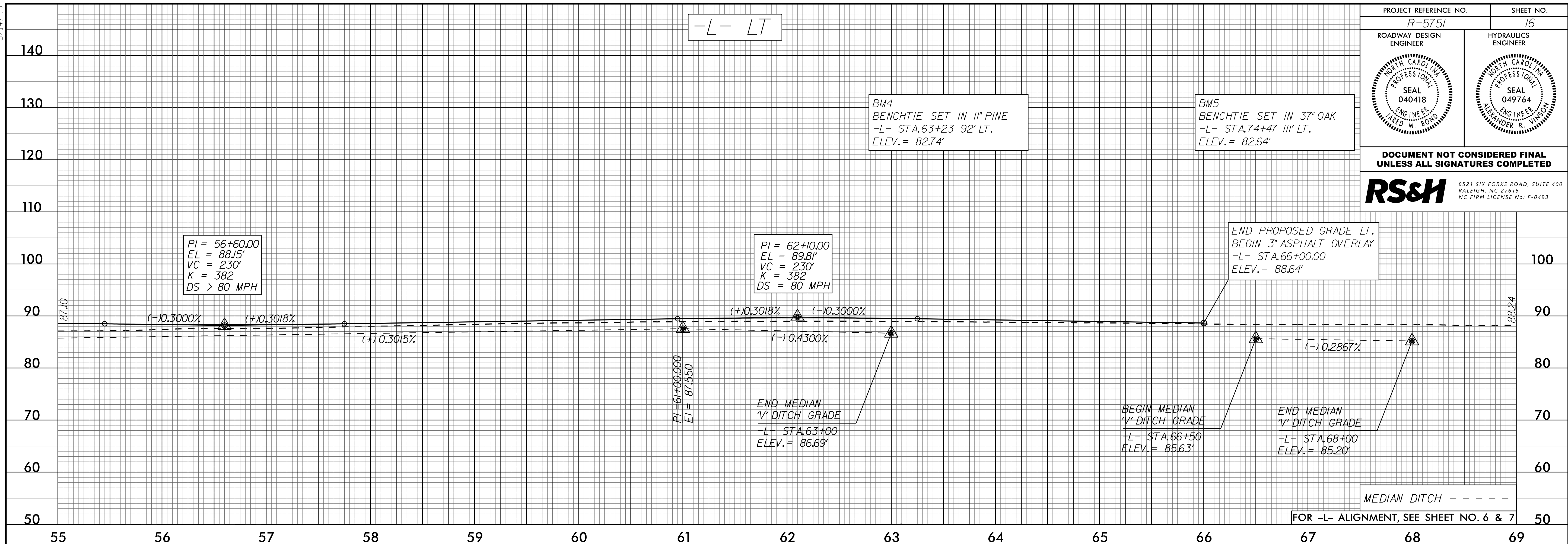
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5/14/99

PROJECT REFERENCE NO. R-5751	SHEET NO. 16
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER


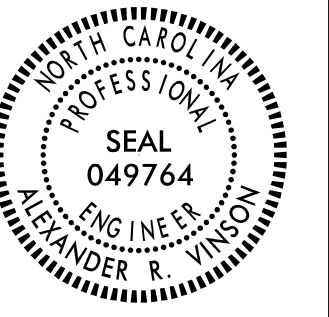
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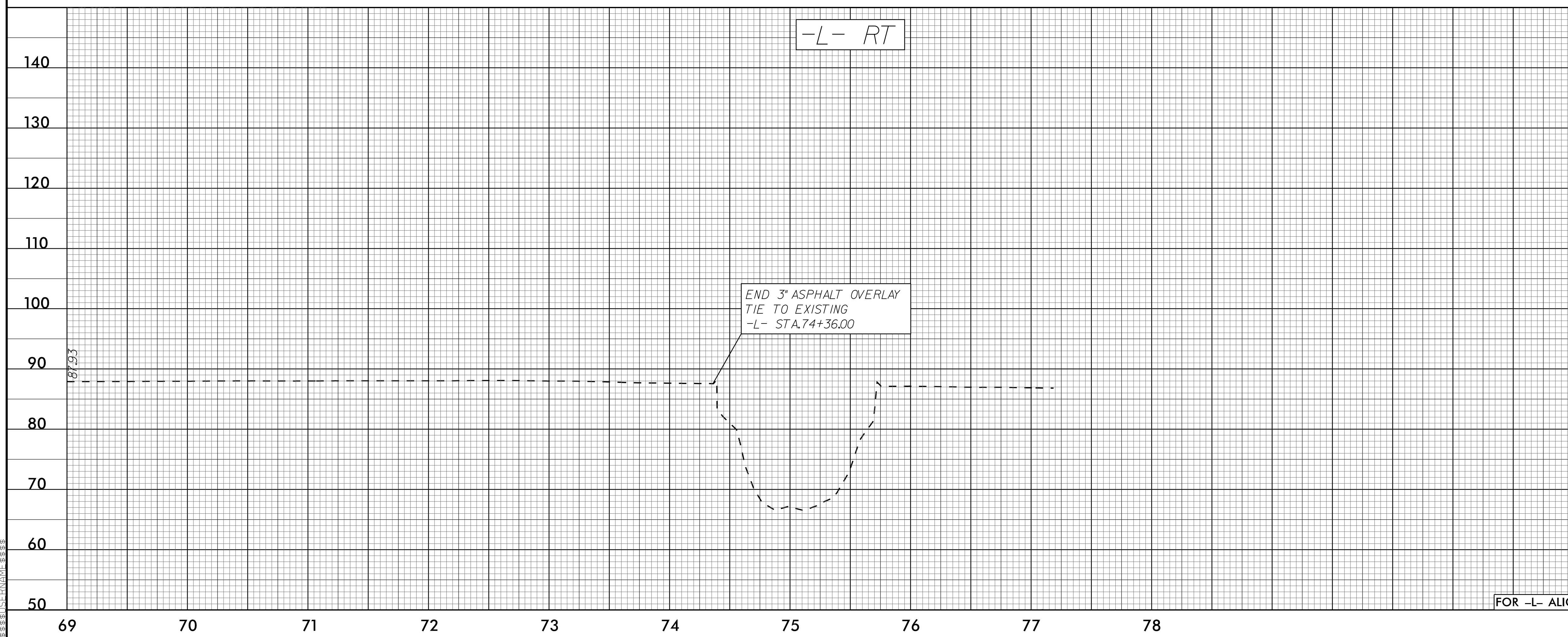
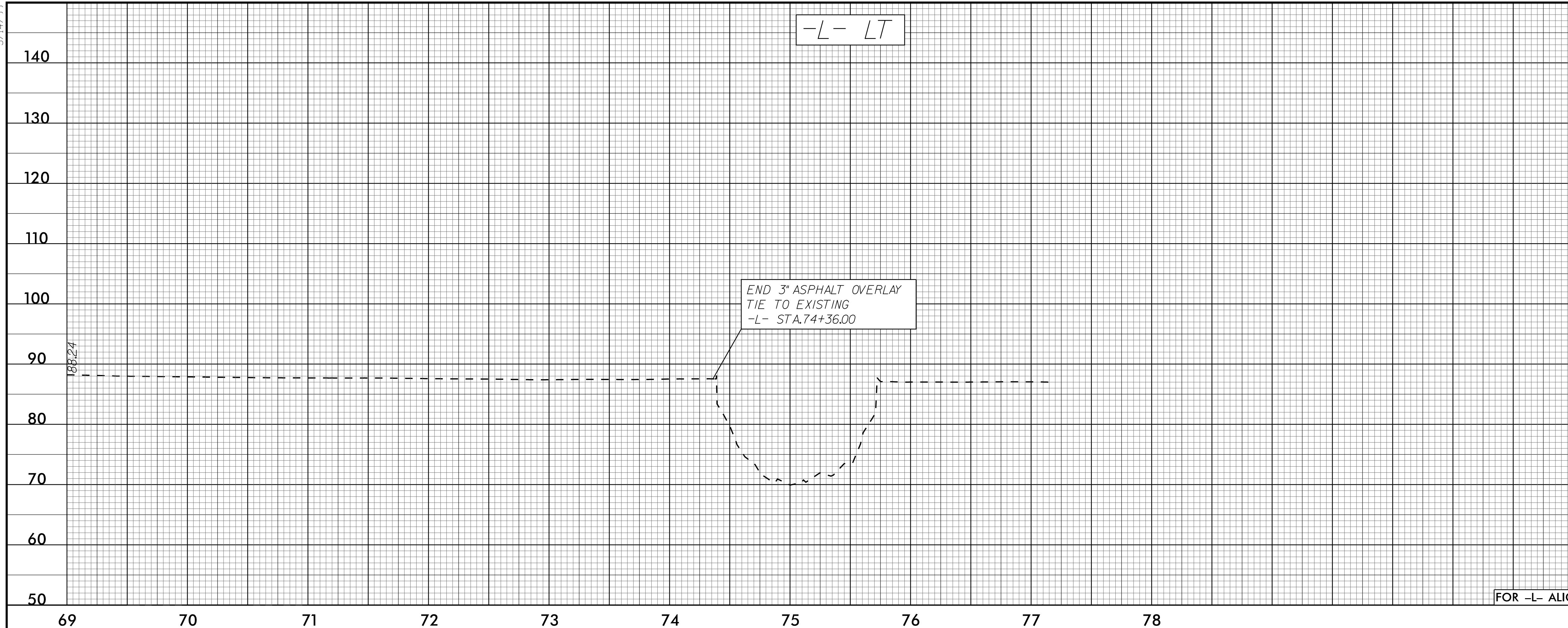
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PROJECT REFERENCE NO. R-5751	SHEET NO. 17
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	

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PROJECT REFERENCE NO. R-5751	SHEET NO. 18
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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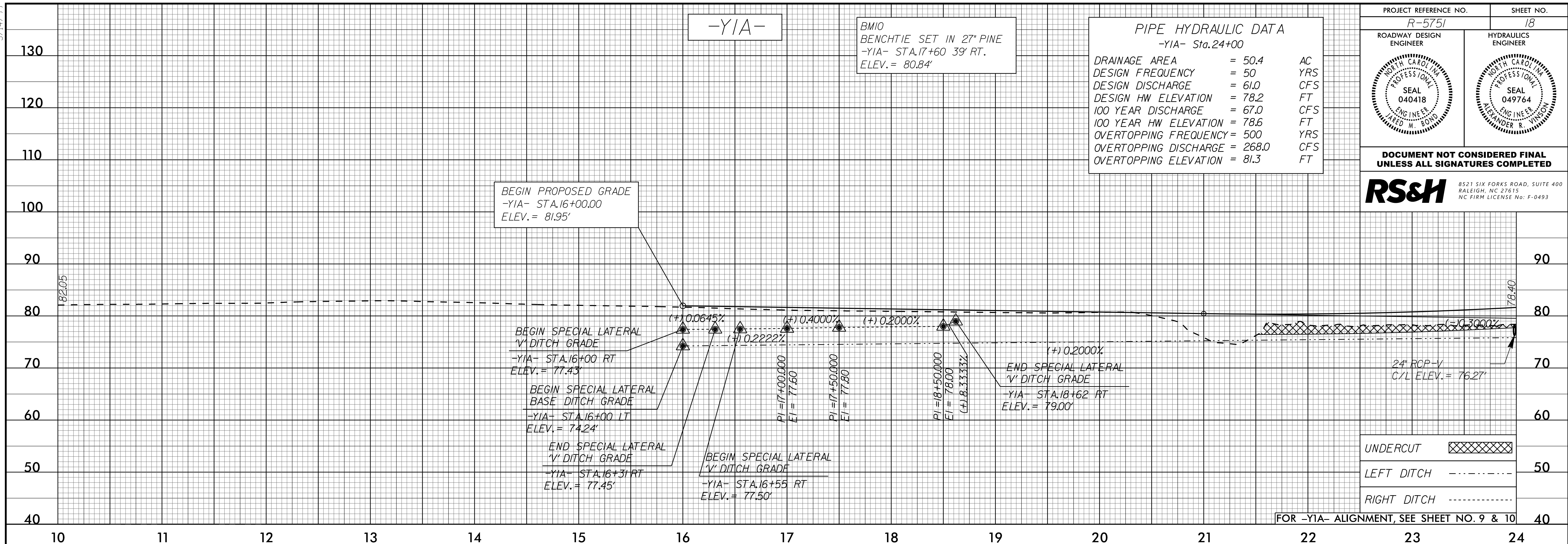
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RALEIGH, NC 27615
NC FIRM LICENSE No. F-0493

PIPE HYDRAULIC DATA
-YIA- Sta.24+00

DRAINAGE AREA	= 50.4	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 61.0	CFS
DESIGN HW ELEVATION	= 78.2	FT
100 YEAR DISCHARGE	= 67.0	CFS
100 YEAR HW ELEVATION	= 78.6	FT
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING DISCHARGE	= 268.0	CFS
OVERTOPPING ELEVATION	= 81.3	FT

BM10
BENCHTIE SET IN 27" PINE
-YIA- STA.17+60 39' RT.
ELEV. = 80.84'

-YIA-



UNDERCUT

LEFT DITCH - - - - -

RIGHT DITCH - - - - -

FOR -YIA- ALIGNMENT, SEE SHEET NO. 9 & 10

PIPE HYDRAULIC DATA
-YIA- Sta.24+00

DRAINAGE AREA	= 50.4	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 61.0	CFS
DESIGN HW ELEVATION	= 78.2	FT
100 YEAR DISCHARGE	= 67.0	CFS
100 YEAR HW ELEVATION	= 78.6	FT
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING DISCHARGE	= 268.0	CFS
OVERTOPPING ELEVATION	= 81.3	FT

PIPE HYDRAULIC DATA
-YIA- Sta.25+00

DRAINAGE AREA	= 50.4	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 61.0	CFS
DESIGN HW ELEVATION	= 78.2	FT
100 YEAR DISCHARGE	= 67.0	CFS
100 YEAR HW ELEVATION	= 78.6	FT
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING DISCHARGE	= 268.0	CFS
OVERTOPPING ELEVATION	= 81.3	FT

-YIA-

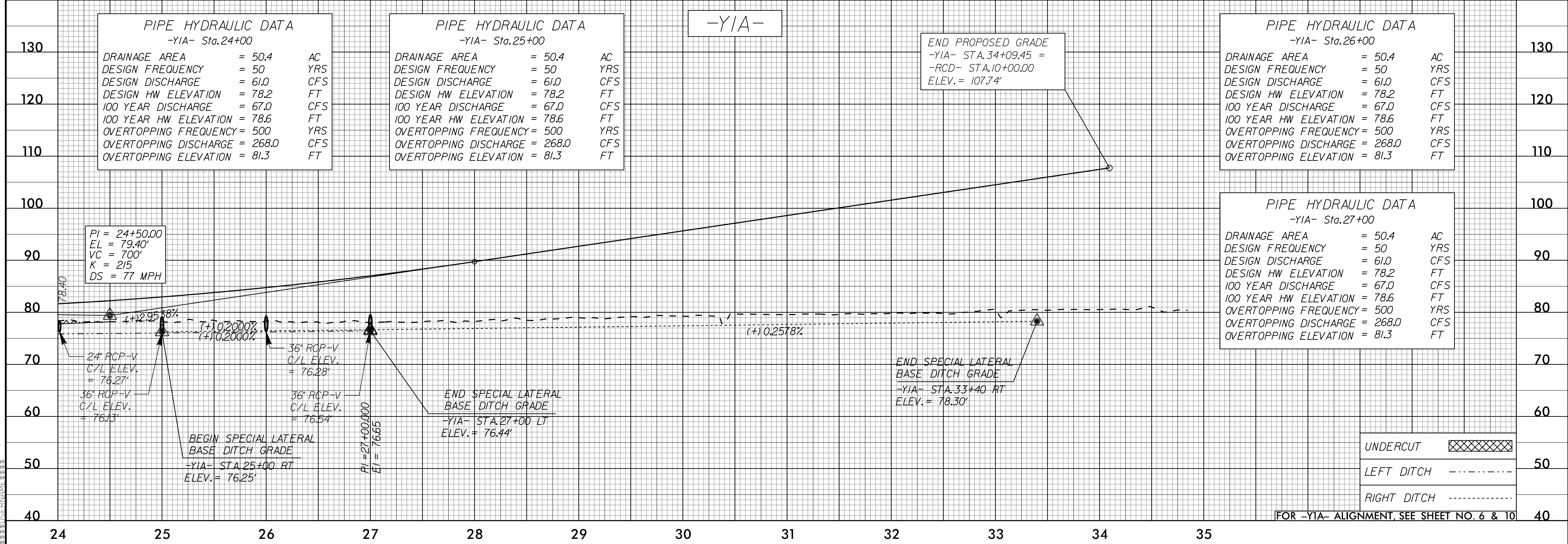
END PROPOSED GRADE
-YIA- STA.34+09.45 =
-RCD- STA.10+00.00
ELEV. = 107.74'

PIPE HYDRAULIC DATA
-YIA- Sta.26+00

DRAINAGE AREA	= 50.4	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 61.0	CFS
DESIGN HW ELEVATION	= 78.2	FT
100 YEAR DISCHARGE	= 67.0	CFS
100 YEAR HW ELEVATION	= 78.6	FT
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING DISCHARGE	= 268.0	CFS
OVERTOPPING ELEVATION	= 81.3	FT

PIPE HYDRAULIC DATA
-YIA- Sta.27+00

DRAINAGE AREA	= 50.4	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 61.0	CFS
DESIGN HW ELEVATION	= 78.2	FT
100 YEAR DISCHARGE	= 67.0	CFS
100 YEAR HW ELEVATION	= 78.6	FT
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING DISCHARGE	= 268.0	CFS
OVERTOPPING ELEVATION	= 81.3	FT



UNDERCUT

LEFT DITCH - - - - -

RIGHT DITCH - - - - -

FOR -YIA- ALIGNMENT, SEE SHEET NO. 6 & 10

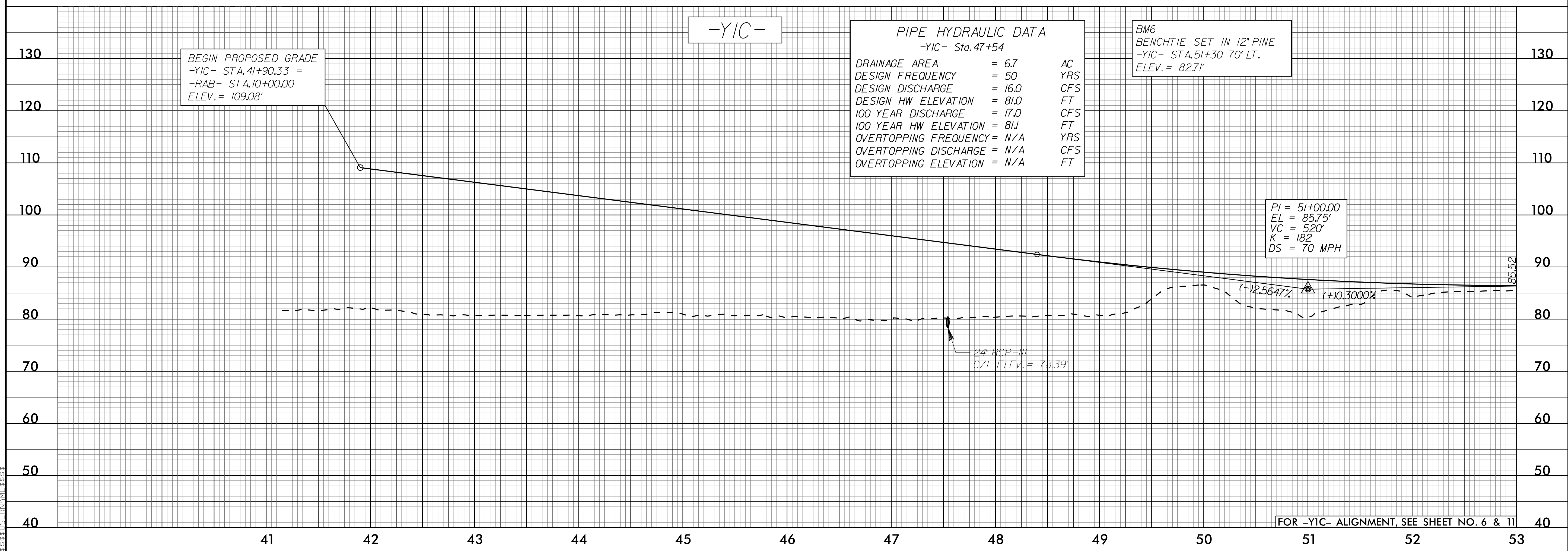
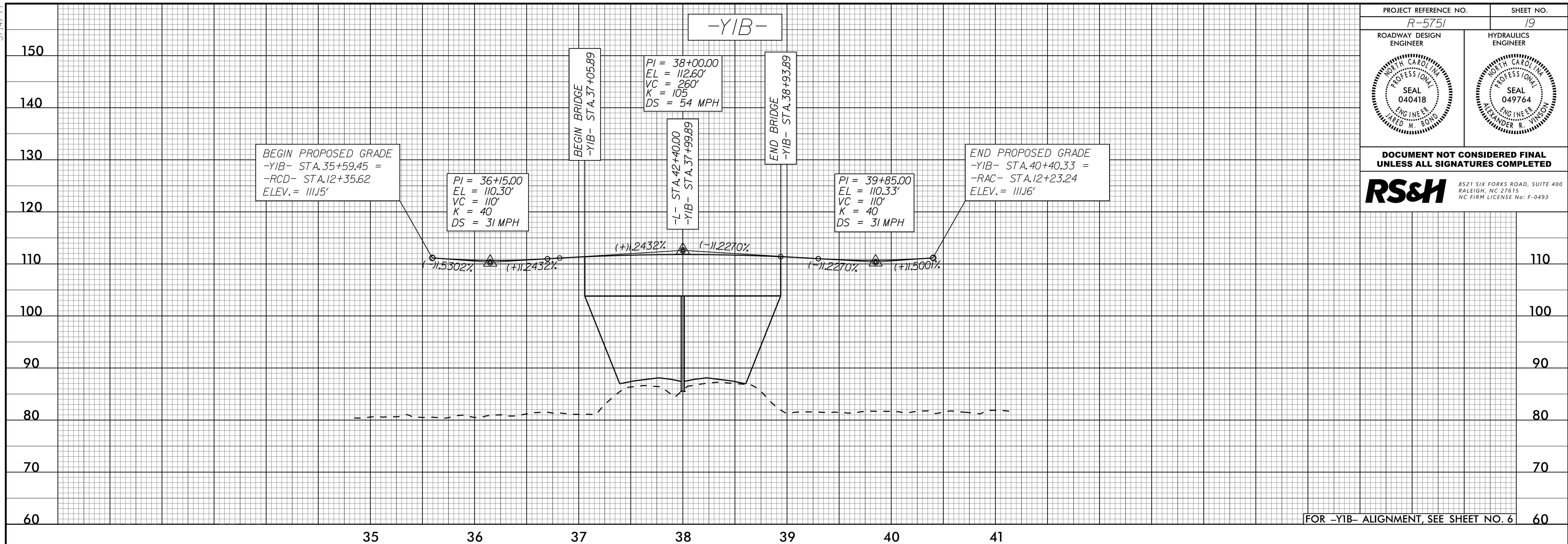
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5/14/99

PROJECT REFERENCE NO. R-5751	SHEET NO. 19
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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RALEIGH, NC 27615
NC FIRM LICENSE No. F-0493



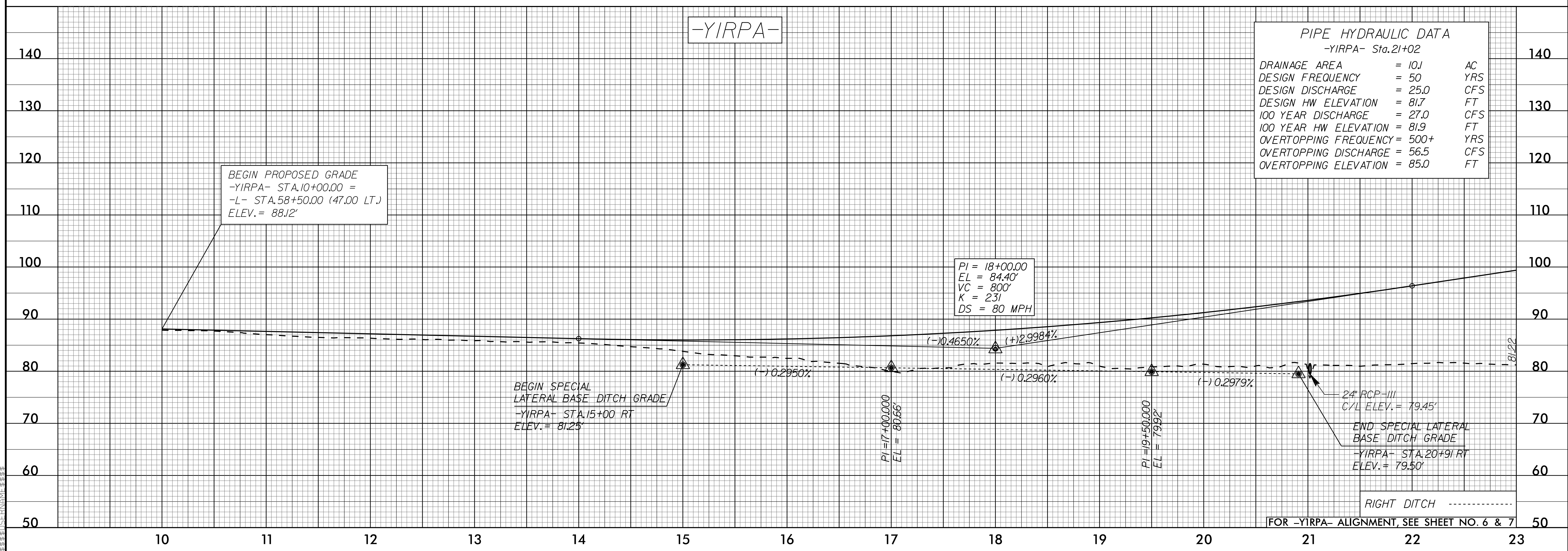
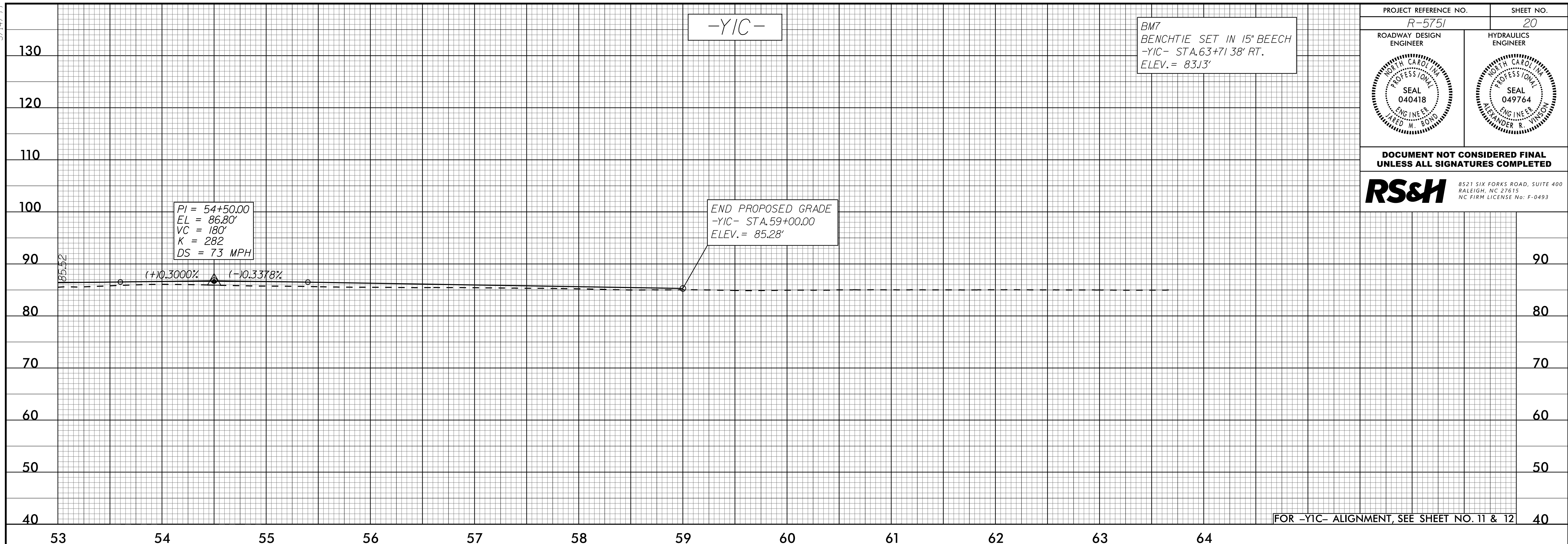
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5/14/99

PROJECT REFERENCE NO. R-5751	SHEET NO. 20
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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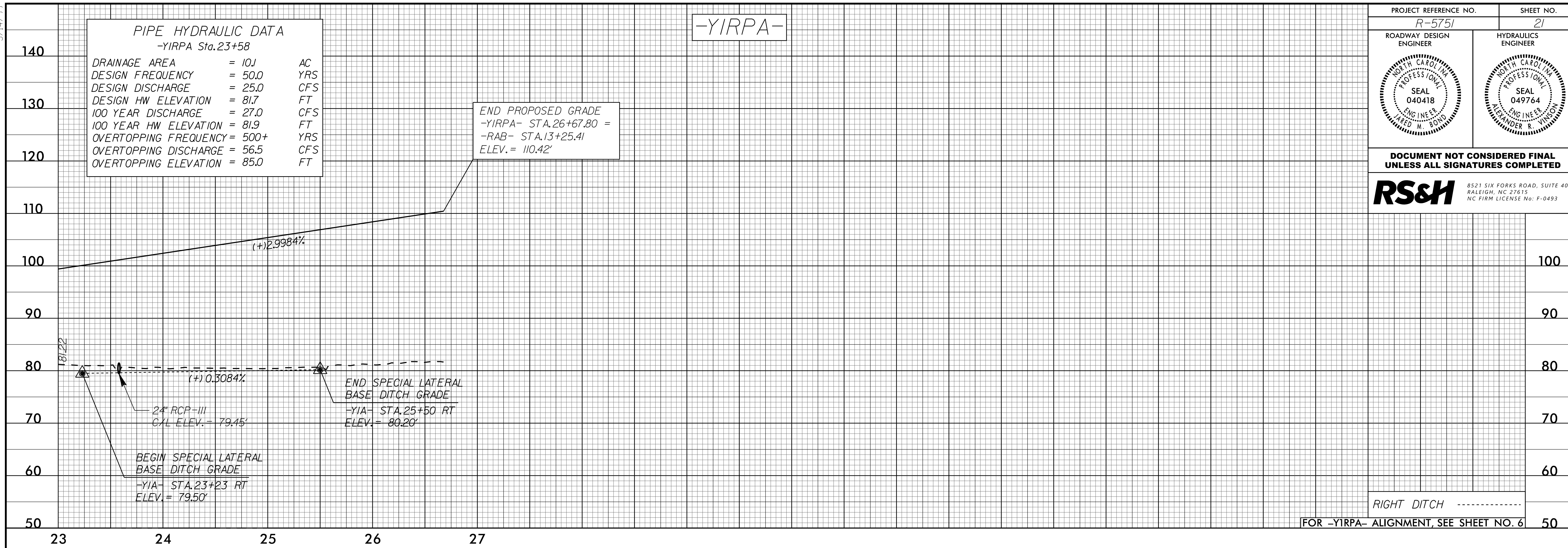
5/14/99

PIPE HYDRAULIC DATA
-YIRPA Sta.23+58

DRAINAGE AREA	= 10.1	AC
DESIGN FREQUENCY	= 50.0	YRS
DESIGN DISCHARGE	= 25.0	CFS
DESIGN HW ELEVATION	= 81.7	FT
100 YEAR DISCHARGE	= 27.0	CFS
100 YEAR HW ELEVATION	= 81.9	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 56.5	CFS
OVERTOPPING ELEVATION	= 85.0	FT

-YIRPA-

END PROPOSED GRADE
-YIRPA- STA.26+67.80 =
-RAB- STA.13+25.41
ELEV. = 110.42'



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RALEIGH, NC 27615
NC FIRM LICENSE No: F-0493

RIGHT DITCH
FOR -YIRPA- ALIGNMENT, SEE SHEET NO. 6

-YIRPB-

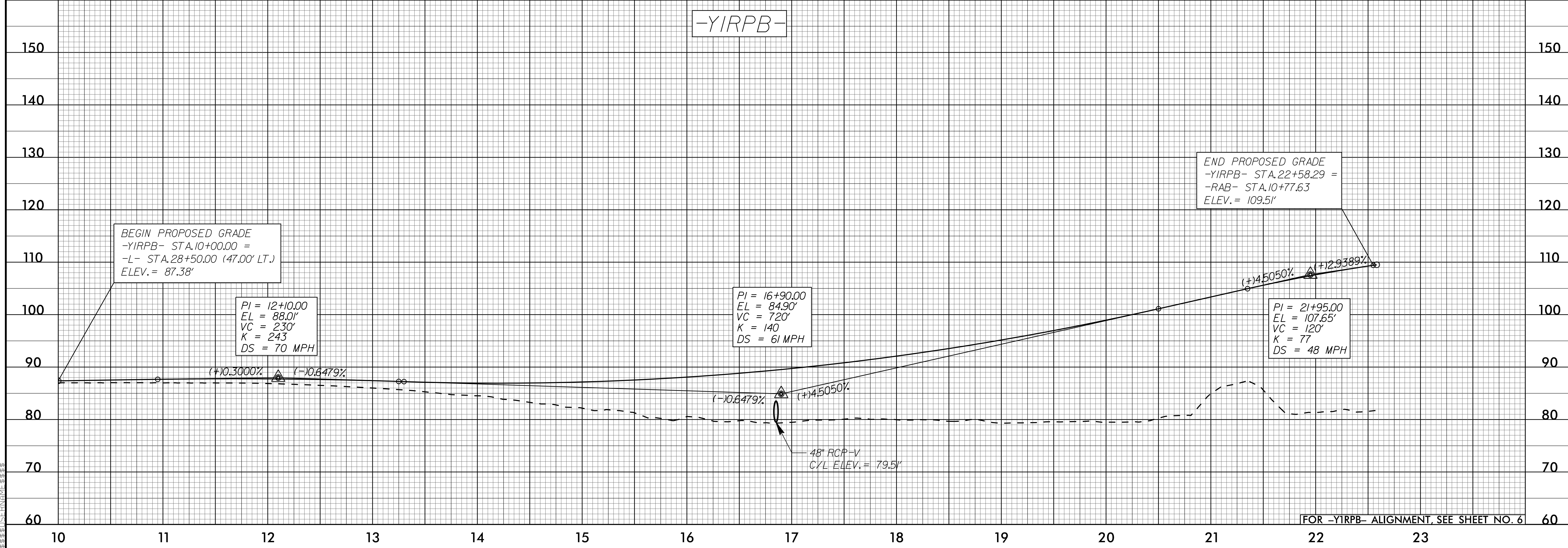
BEGIN PROPOSED GRADE
-YIRPB- STA.10+00.00 =
-L- STA.28+50.00 (47.00' LT.)
ELEV. = 87.38'

END PROPOSED GRADE
-YIRPB- STA.22+58.29 =
-RAB- STA.10+77.63
ELEV. = 109.51'

PI = 12+10.00
EL = 88.01'
VC = 230'
K = 243
DS = 70 MPH

PI = 16+90.00
EL = 84.90'
VC = 720'
K = 140
DS = 61 MPH

PI = 21+95.00
EL = 107.65'
VC = 120'
K = 77
DS = 48 MPH



FOR -YIRPB- ALIGNMENT, SEE SHEET NO. 6

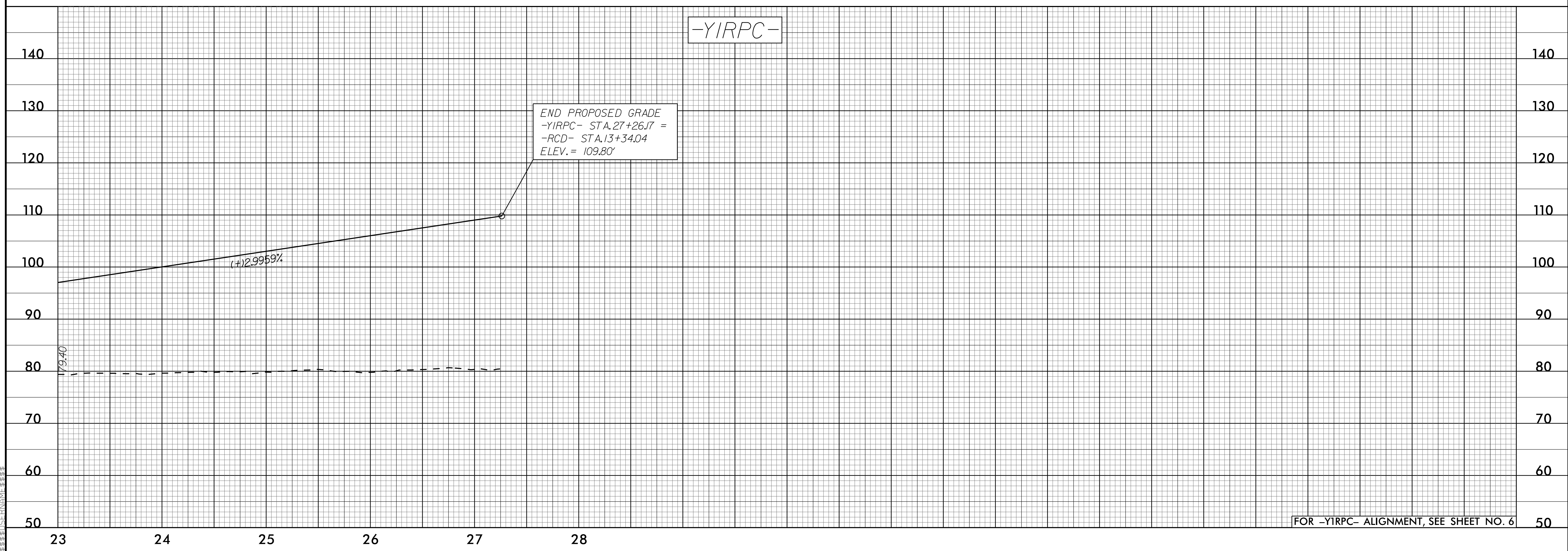
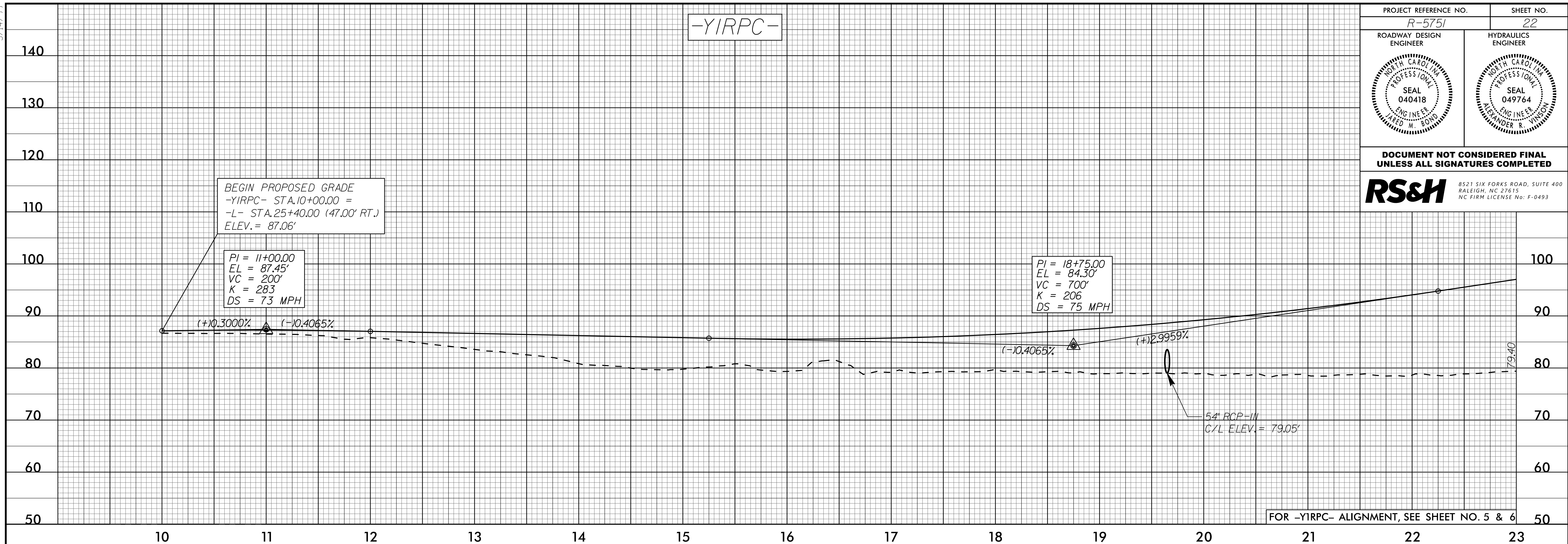
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5/14/99

PROJECT REFERENCE NO. R-5751	SHEET NO. 22
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

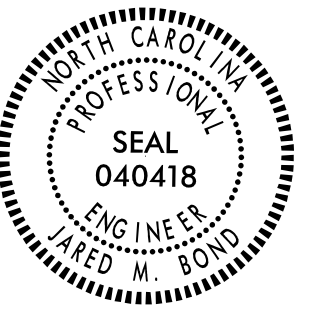
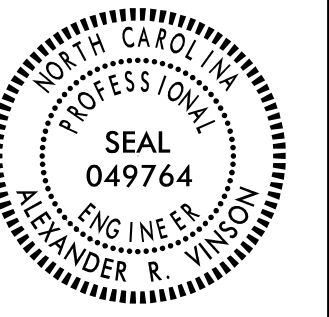
**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

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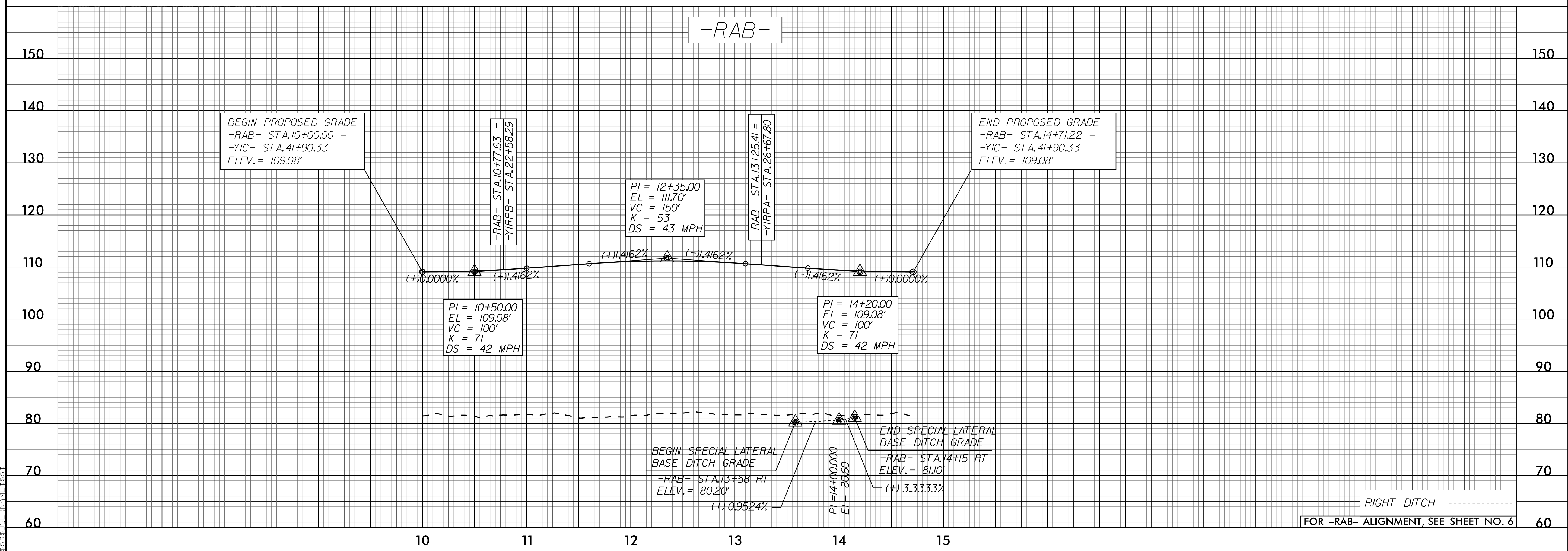
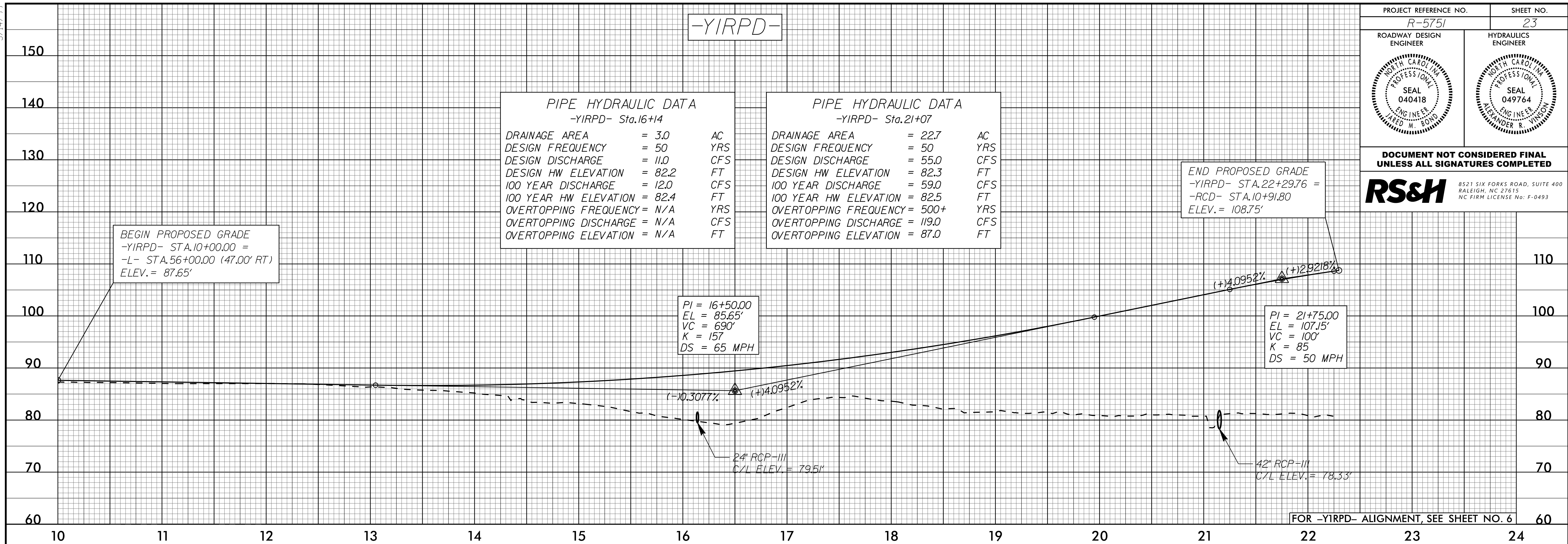
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PROJECT REFERENCE NO. R-5751	SHEET NO. 23
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER 

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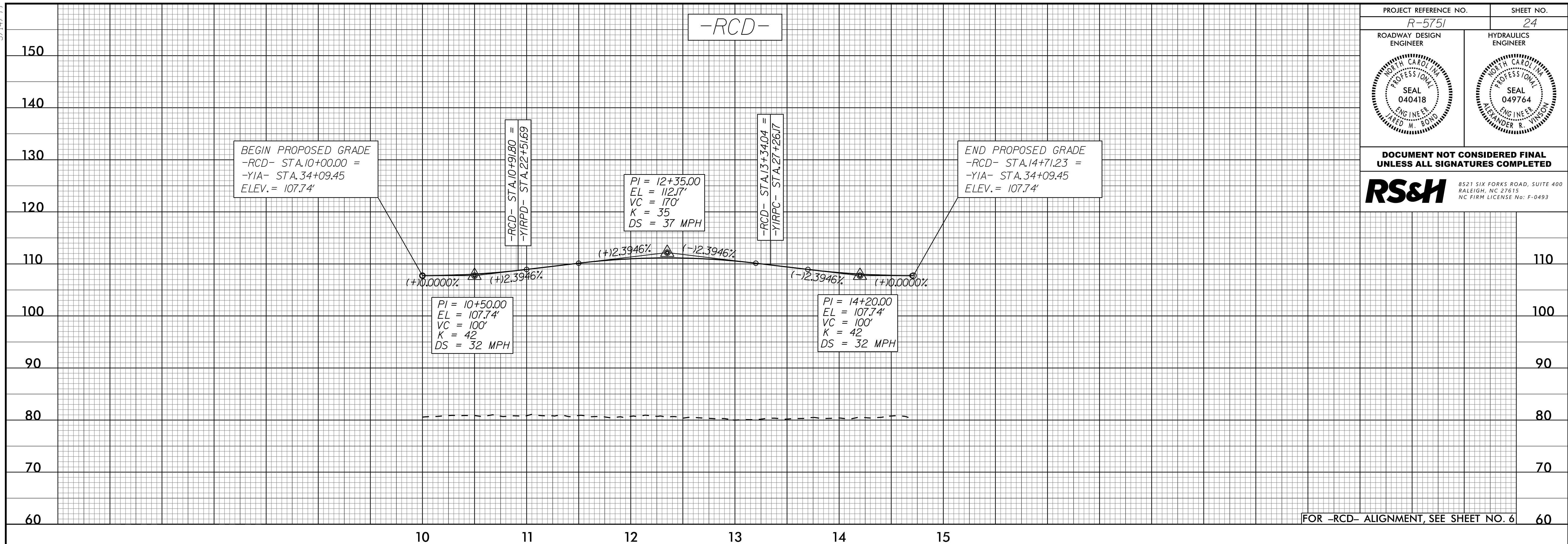
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5/14/99

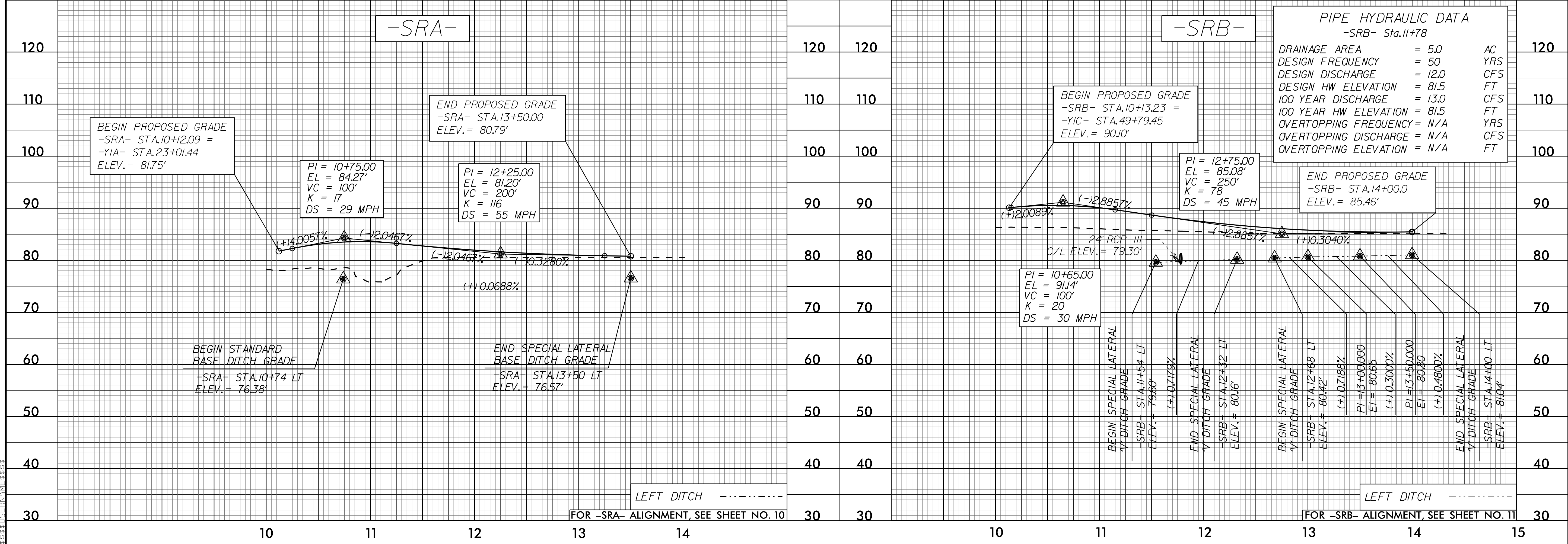
PROJECT REFERENCE NO. R-5751	SHEET NO. 24
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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FOR -RCD- ALIGNMENT, SEE SHEET NO. 6



DRAINAGE AREA	= 5.0	AC
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 12.0	CFS
DESIGN HW ELEVATION	= 81.5	FT
100 YEAR DISCHARGE	= 13.0	CFS
100 YEAR HW ELEVATION	= 81.5	FT
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= N/A	FT

LEFT DITCH

FOR -SRA- ALIGNMENT, SEE SHEET NO. 10

LEFT DITCH

FOR -SRB- ALIGNMENT, SEE SHEET NO. 11

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5/14/99

-DRI-

130

130

120

120

110

110

BEGIN PROPOSED GRADE
-DRI- STA.10+12.01 =
-YIC- STA.51+78.45
ELEV. = 87.61'

END PROPOSED GRADE
-DRI- STA.10+90.00
ELEV. = 82.40'

100

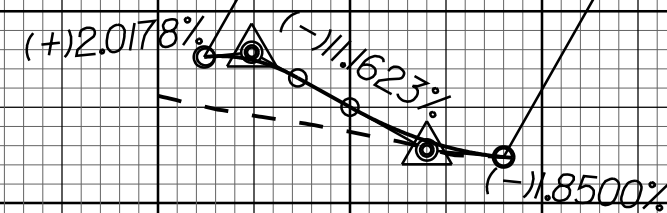
100

90

90

80

80



PI = 10+24.40
EL = 87.86'
VC = 24'
K = 2

PI = 10+70.00
EL = 82.77'
VC = 40'
K = 4

70

70

60

60

50

50

40

40

FOR -DRI- ALIGNMENT, SEE SHEET NO. 11

10

11

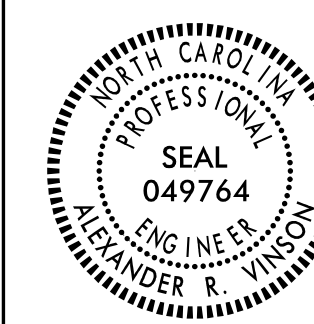
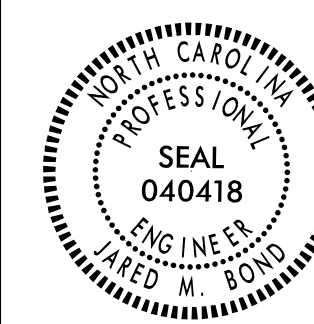
PROJECT REFERENCE NO. SHEET NO.

R-5751

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ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER



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R5-OC1-2002-10-42-R5751-Rdy-pl-25.dgn