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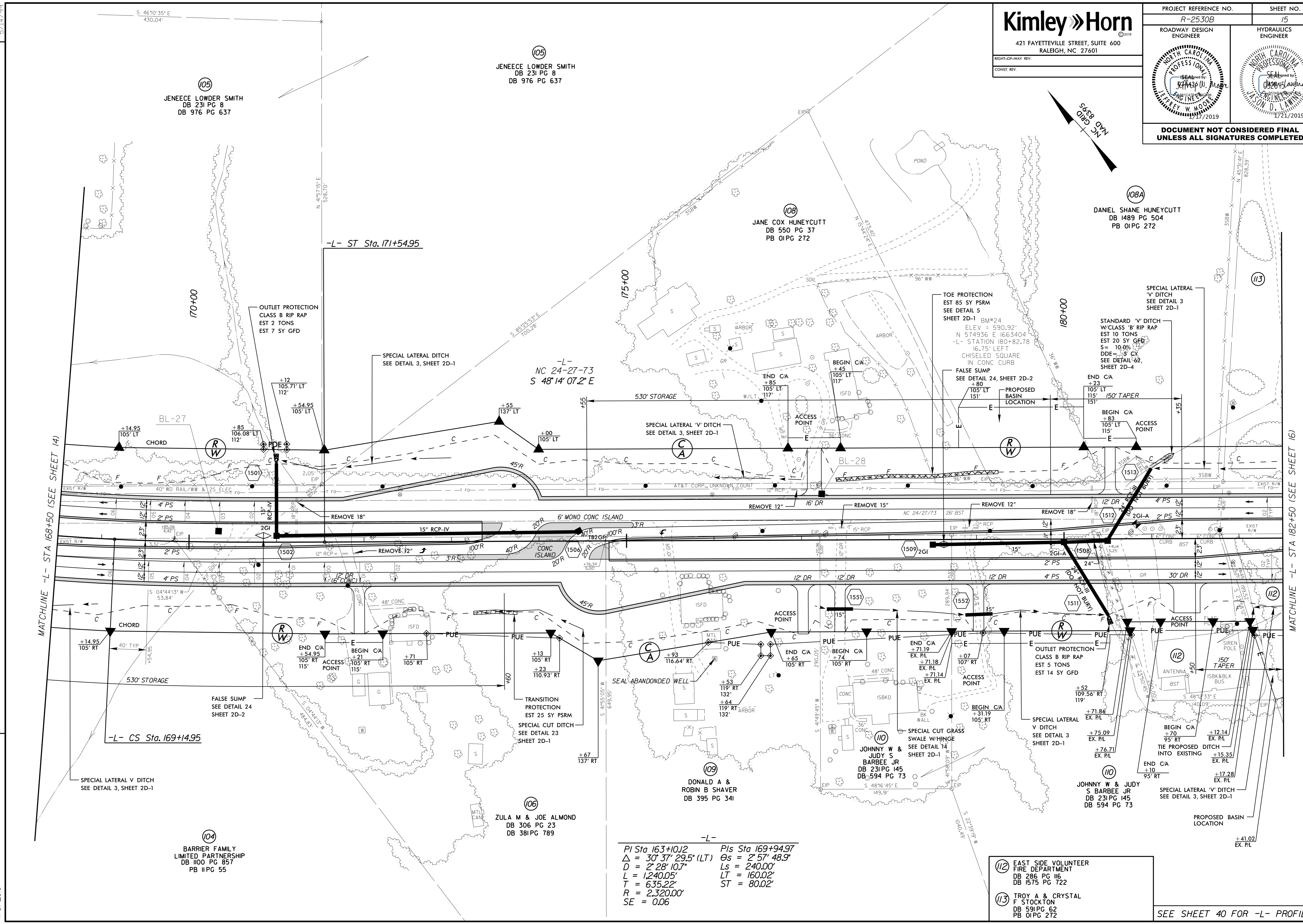
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5/14/99

Kimley Horn
 421 FAYETTEVILLE STREET, SUITE 600
 RALEIGH, NC 27601

PROJECT REFERENCE NO. R-2530B	SHEET NO. 15
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



REVISIONS

MATCHLINE -L- STA 168+50 (SEE SHEET 14)

MATCHLINE -L- STA 182+50 (SEE SHEET 16)

105
 JENECEE LOWDER SMITH
 DB 231 PG 8
 DB 976 PG 637

105
 JENECEE LOWDER SMITH
 DB 231 PG 8
 DB 976 PG 637

108
 JANE COX HUNEYCUTT
 DB 550 PG 37
 PB 01PG 272

108A
 DANIEL SHANE HUNEYCUTT
 DB 1489 PG 504
 PB 01PG 272

104
 BARRIER FAMILY
 LIMITED PARTNERSHIP
 DB 100 PG 857
 PB 11PG 55

106
 ZULA M & JOE ALMOND
 DB 306 PG 23
 DB 381PG 789

109
 DONALD A &
 ROBIN B SHAVER
 DB 395 PG 341

110
 JOHNNY W &
 JUDY S
 BARBEE JR
 DB 231PG 145
 DB 594 PG 73

110
 JOHNNY W &
 JUDY S
 BARBEE JR
 DB 231PG 145
 DB 594 PG 73

112 EAST SIDE VOLUNTEER
 FIRE DEPARTMENT
 DB 286 PG 116
 DB 1575 PG 722

113 TROY A & CRYSTAL
 F STOCKTON
 DB 591PG 62
 PB 01PG 272

-L-
 PI Sta 163+10.12 Pls Sta 169+94.97
 Δ = 30° 37' 29.5" (LT) Θs = 2° 57' 48.9"
 D = 2' 28" 10.7" Ls = 240.00'
 L = 1,240.05' LT = 160.02'
 T = 6,352.22' ST = 80.02'
 R = 2,320.00'
 SE = 0.06

SEE SHEET 40 FOR -L- PROFILE

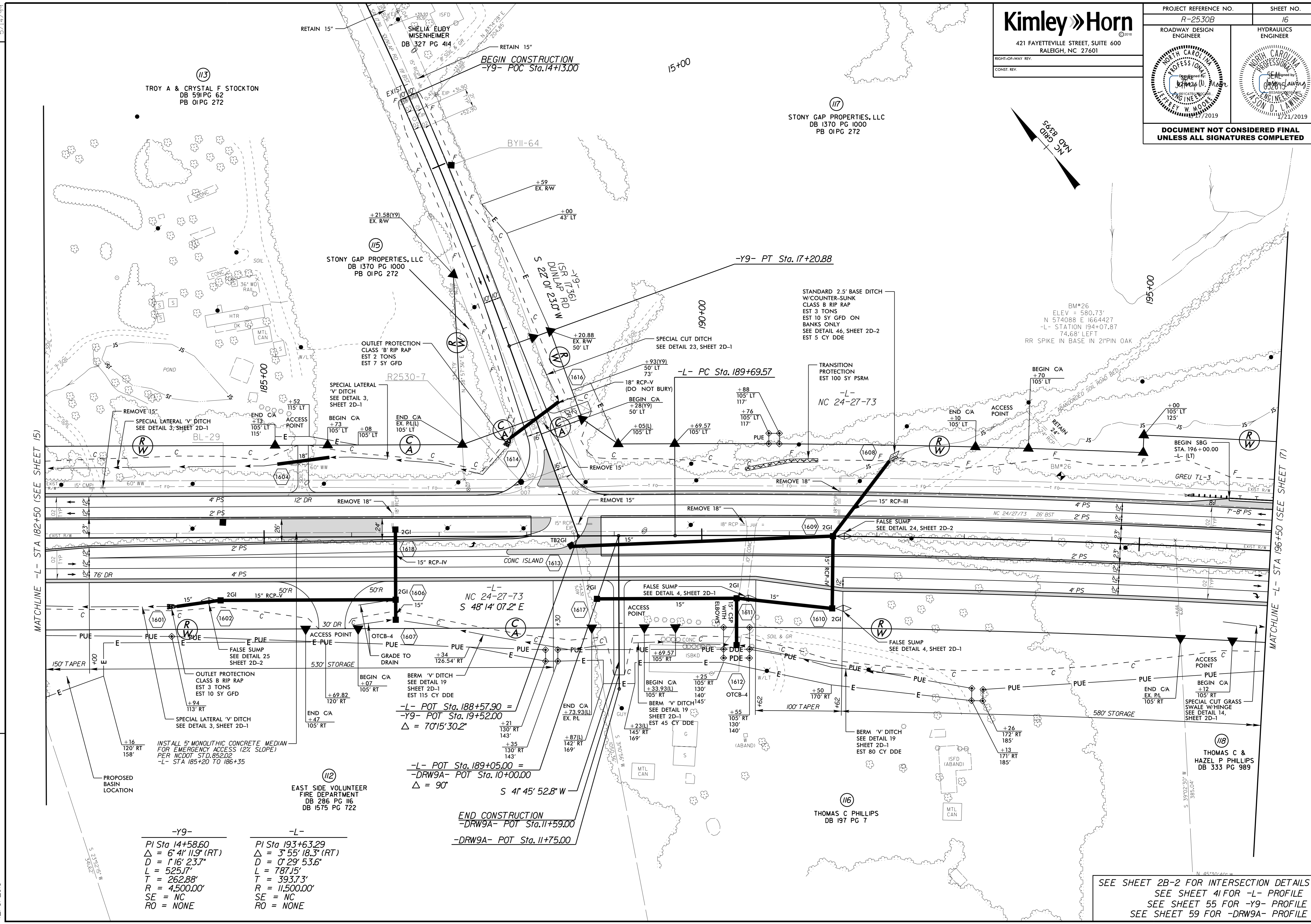
1/3/2019

5/14/99

Kimley Horn
 421 FAYETTEVILLE STREET, SUITE 600
 RALEIGH, NC 27601

RIGHT-OF-WAY REV.
 CONST. REV.

PROJECT REFERENCE NO. R-2530B	SHEET NO. 16
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



REVISIONS

MATCHLINE -L- STA 182+50 (SEE SHEET 15)

MATCHLINE -L- STA 196+50 (SEE SHEET 17)

-Y9-	-L-
PI Sta 14+58.60	PI Sta 193+63.29
$\Delta = 6^\circ 41' 11.9''$ (RT)	$\Delta = 3^\circ 55' 18.3''$ (RT)
$D = 116' 23.7''$	$D = 0^\circ 29' 53.6''$
$L = 525.17'$	$L = 787.15'$
$T = 262.88'$	$T = 393.73'$
$R = 4,500.00'$	$R = 11,500.00'$
SE = NC	SE = NC
RO = NONE	RO = NONE

-L- POT Sta. 188+57.90 =
 -Y9- POT Sta. 19+52.00
 $\Delta = 7015' 30.2''$

-L- POT Sta. 189+05.00 =
 -DRW9A- POT Sta. 10+00.00
 $\Delta = 90'$

END CONSTRUCTION
 -DRW9A- POT Sta. 11+59.00

SEE SHEET 2B-2 FOR INTERSECTION DETAILS
 SEE SHEET 41 FOR -L- PROFILE
 SEE SHEET 55 FOR -Y9- PROFILE
 SEE SHEET 59 FOR -DRW9A- PROFILE

12/16/2018

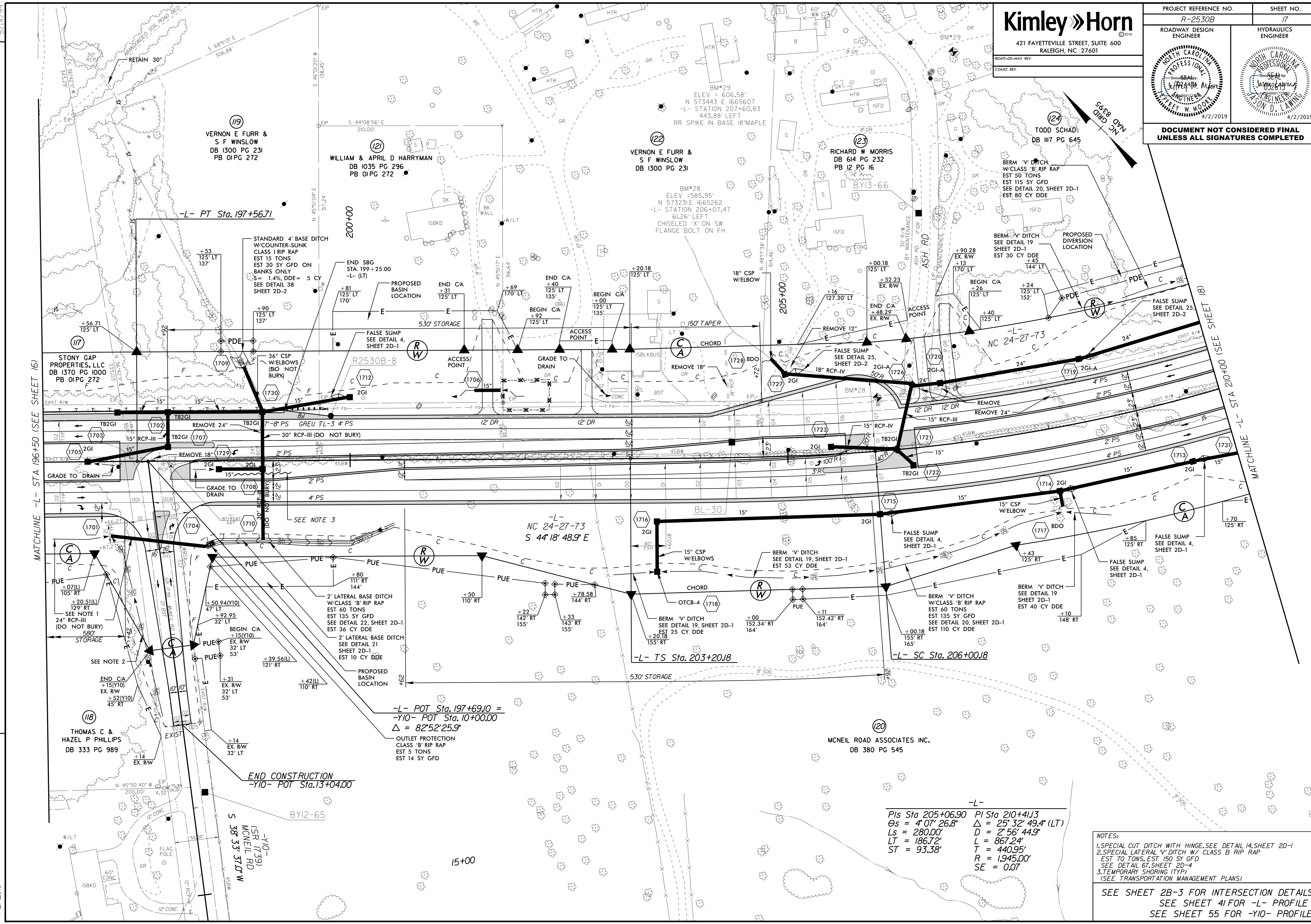
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 RALEIGH, NC 27601

PROJECT REFERENCE NO. **R-2530B**
 SHEET NO. **17**

ROADWAY DESIGN ENGINEER
 HYDRAULICS ENGINEER

4/2/2019

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REVISIONS

4/2/2019

MATCHLINE -L- STA 196+50 (SEE SHEET 16)

MATCHLINE -L- STA 210+00 (SEE SHEET 18)

-L- PT Sta. 197+56.71

-L- TS Sta. 203+20.18

-L- SC Sta. 206+00.18

-L- POT Sta. 197+69.10 =
-Y10- POT Sta. 10+00.00
Δ = 82°52'25.9"

END CONSTRUCTION
-Y10- POT Sta. 13+04.00

-L-
 PIs Sta 205+06.90 PI Sta 210+41.3
 Gs = 4'07" 26.8" Δ = 25' 32" 49.4" (LT)
 Ls = 280.00' D = 2' 56" 44.9"
 LT = 186.72' L = 867.24'
 ST = 93.38' T = 440.95'
 R = 1,945.00'
 SE = 0.07

- NOTES:
- SPECIAL CUT DITCH WITH HINGE, SEE DETAIL 14, SHEET 2D-1
 - SPECIAL LATERAL 'V' DITCH W/ CLASS B RIP RAP EST 70 TONS, EST 150 SY GFD SEE DETAIL 67, SHEET 2D-4
 - TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)

SEE SHEET 2B-3 FOR INTERSECTION DETAILS
 SEE SHEET 41 FOR -L- PROFILE
 SEE SHEET 55 FOR -Y10- PROFILE

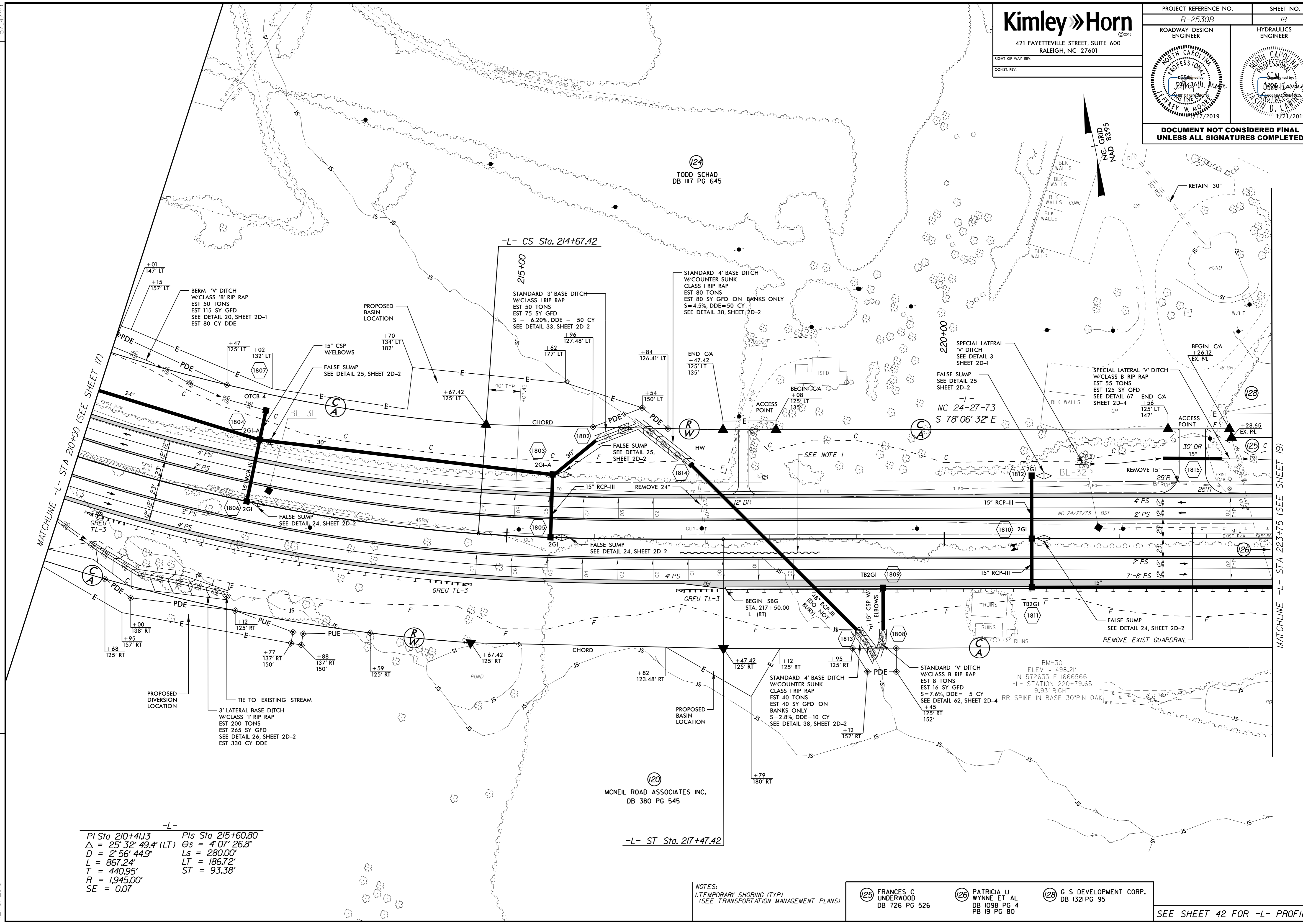
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 421 FAYETTEVILLE STREET, SUITE 600
 RALEIGH, NC 27601

PROJECT REFERENCE NO. R-2530B	SHEET NO. 18
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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REVISIONS



-L-

PI Sta 210+41.3	Pis Sta 215+60.80
$\Delta = 25^\circ 32' 49.4" (LT)$	$\Theta_s = 4^\circ 07' 26.8"$
$D = 2' 56' 44.9"$	$L_s = 280.00'$
$L = 867.24'$	$LT = 186.72'$
$T = 440.95'$	$ST = 93.38'$
$R = 1,945.00'$	
$SE = 0.07$	

MCNEIL ROAD ASSOCIATES INC. DB 380 PG 545

-L- ST Sta. 217+47.42

NOTES:
1. TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)

(25) FRANCES C UNDERWOOD DB 126 PG 526

(26) PATRICIA U WYNN ET AL DB 1098 PG 4 PB 19 PG 80

(28) G S DEVELOPMENT CORP. DB 1321 PG 95

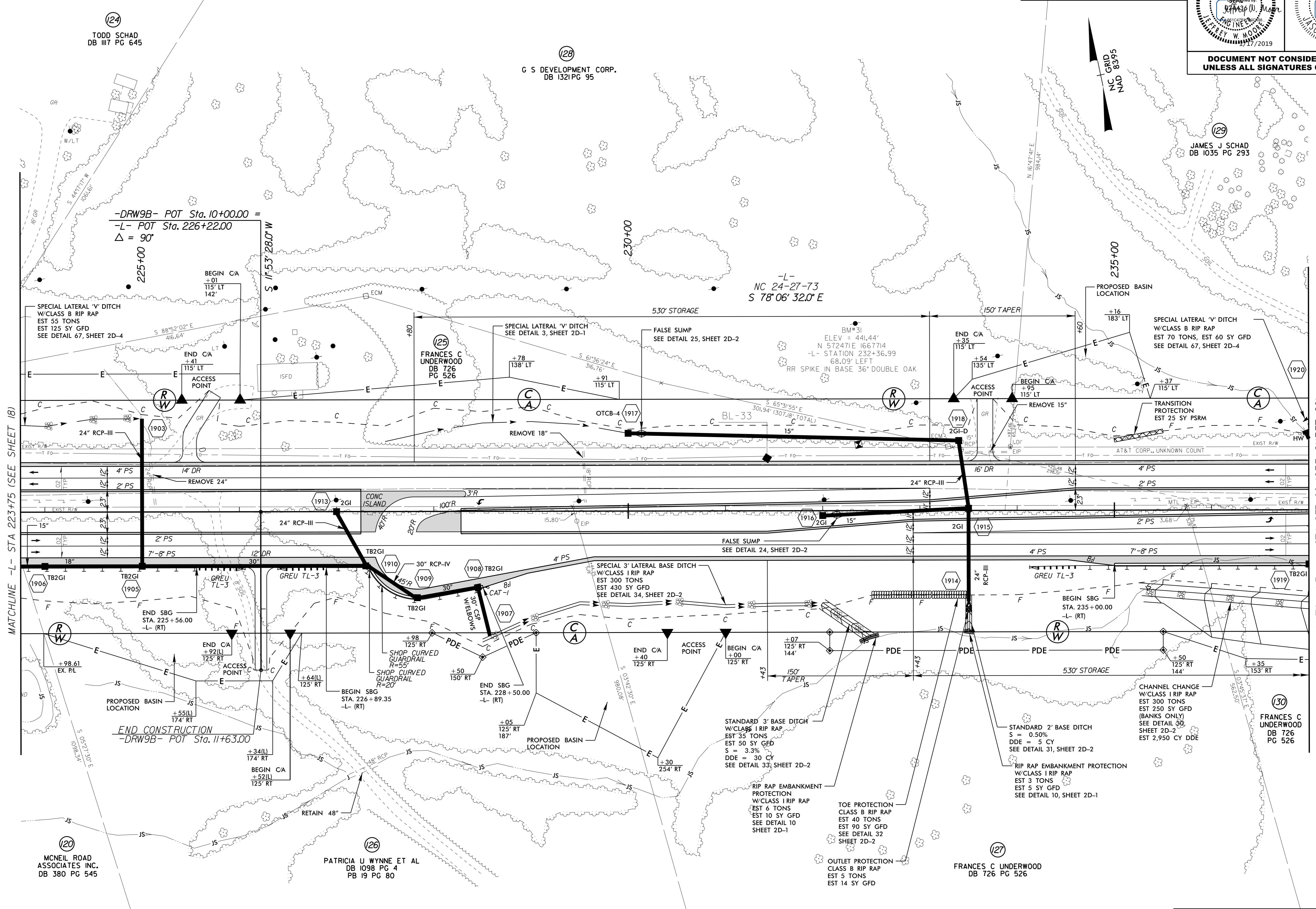
SEE SHEET 42 FOR -L- PROFILE

12/16/2018

PROJECT REFERENCE NO. <i>R-2530B</i>	SHEET NO. 19
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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REVISIONS



MATCHLINE -L- STA 223+75 (SEE SHEET 18)

MATCHLINE -L- STA 237+00 (SEE SHEET 20)

-DRW9B- POT Sta. 10+00.00 =
-L- POT Sta. 226+22.00
Δ = 90°

-L-
NC 24-27-73
S 78°06'32.0" E

END CONSTRUCTION
-DRW9B- POT Sta. 11+63.00

SEE SHEET 42 FOR -L- PROFILE
SEE SHEET 60 FOR -DRW9B- PROFILE

(24)
TODD SCHAD
DB III7 PG 645

(28)
G S DEVELOPMENT CORP.
DB 1321 PG 95

(29)
JAMES J SCHAD
DB 1035 PG 293

(20)
MCNEIL ROAD
ASSOCIATES INC.
DB 380 PG 545

(26)
PATRICIA U WYNNE ET AL
DB 1098 PG 4
PB 19 PG 80

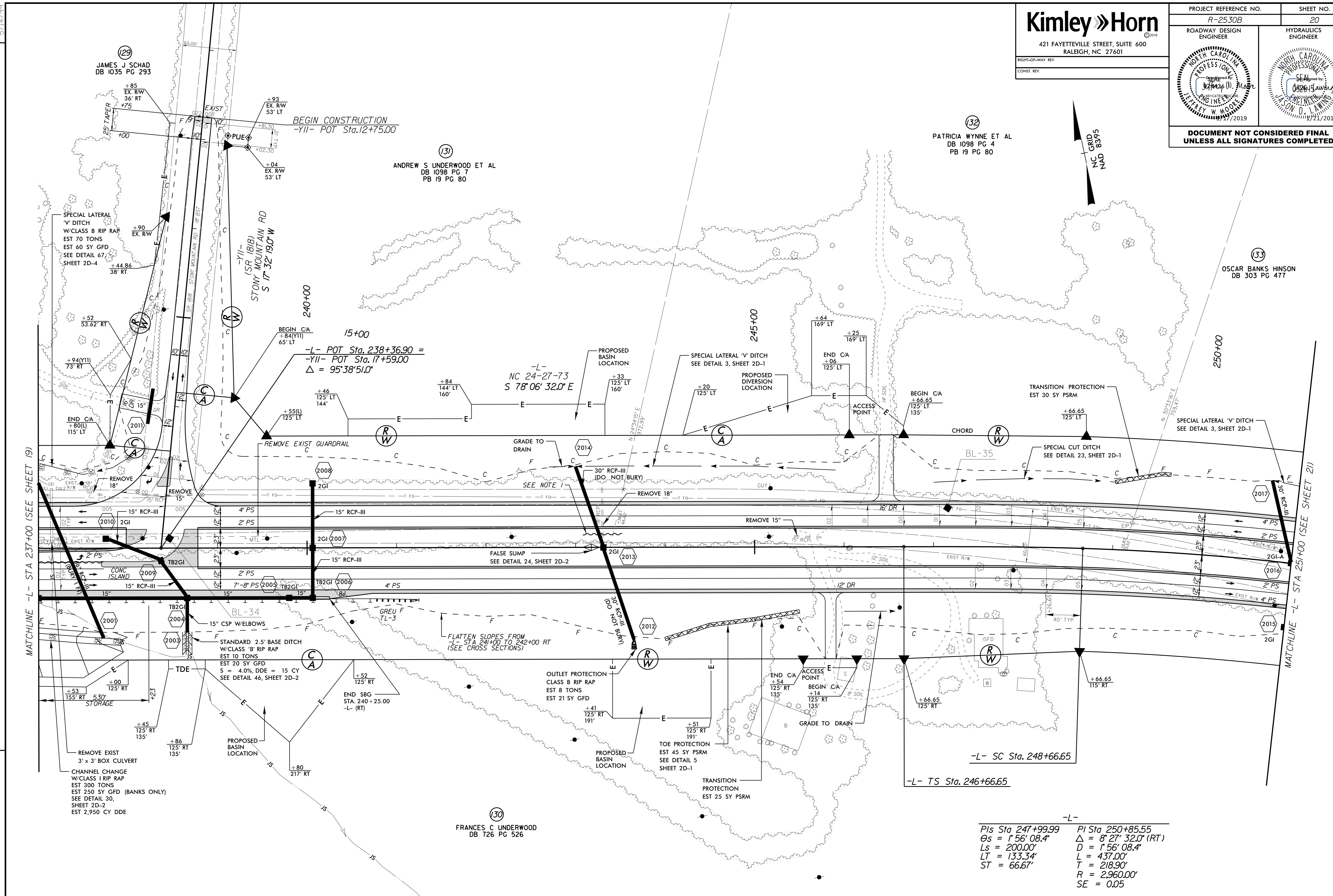
(25)
FRANCES C
UNDERWOOD
DB 726
PG 526

(30)
FRANCES C
UNDERWOOD
DB 726
PG 526

(27)
FRANCES C UNDERWOOD
DB 726 PG 526

PROJECT REFERENCE NO. <i>R-2530B</i>	SHEET NO. 20
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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REVISIONS

12/6/2018

MATCHLINE -L- STA 237+00 (SEE SHEET 19)

MATCHLINE -L- STA 251+00 (SEE SHEET 21)

(129) JAMES J SCHAD
DB 1035 PG 293

(131) ANDREW S UNDERWOOD ET AL
DB 1098 PG 7
PB 19 PG 80

(132) PATRICIA WYNNE ET AL
DB 1098 PG 4
PB 19 PG 80

(133) OSCAR BANKS HINSON
DB 303 PG 477

(130) FRANCES C UNDERWOOD
DB 726 PG 526

-L-
 $Pis\ Sta\ 247+99.99$ $Pi\ Sta\ 250+85.55$
 $\theta_s = 1^{\circ}56'08.4''$ $\Delta = 8^{\circ}27'32.0''\ (RT)$
 $Ls = 200.00'$ $D = 1^{\circ}56'08.4''$
 $LT = 133.34'$ $L = 437.00'$
 $ST = 66.67'$ $T = 218.90'$
 $R = 2,960.00'$
 $SE = 0.05$

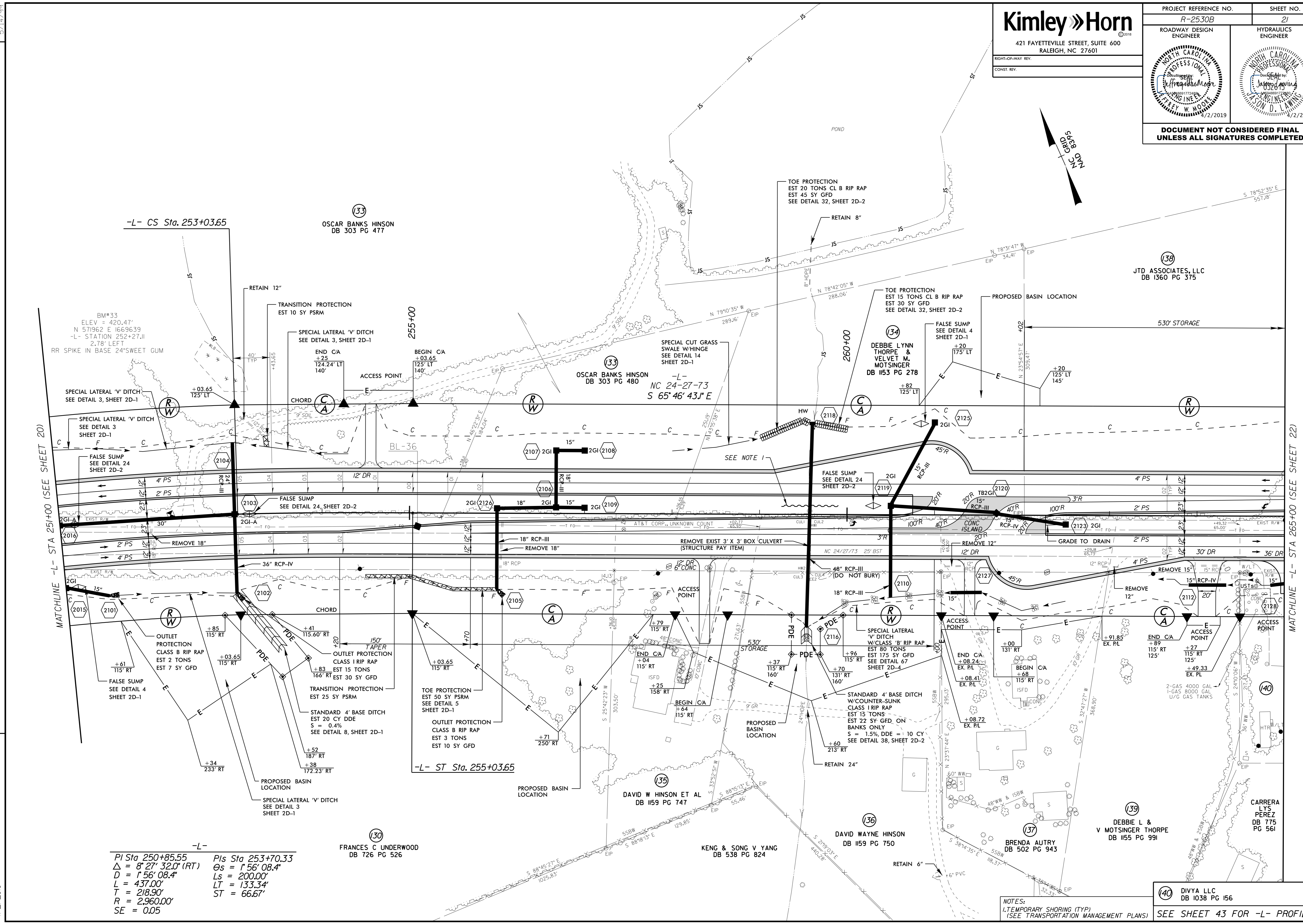
NOTES:
1. TEMPORARY SHORING (TYP)
(SEE TRANSPORTATION MANAGEMENT PLANS)

SEE SHEET 2B-3 FOR INTERSECTION DETAILS
SEE SHEET 43 FOR -L- PROFILE
SEE SHEET 55 FOR -YII- PROFILE

5/14/99

Kimley Horn
 421 FAYETTEVILLE STREET, SUITE 600
 RALEIGH, NC 27601

PROJECT REFERENCE NO. R-2530B	SHEET NO. 21
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
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REVISIONS

MATCHLINE -L- STA 251+00 (SEE SHEET 20)

MATCHLINE -L- STA 265+00 (SEE SHEET 22)

-L-
 Pl Sta 250+85.55 Pls Sta 253+70.33
 Δ = 8' 27" 320' (RT) Θs = 1' 56" 08.4"
 D = 1' 56" 08.4" Ls = 200.00'
 L = 437.00' LT = 133.34'
 T = 218.90' ST = 66.67'
 R = 2,960.00'
 SE = 0.05

(30) FRANCES C UNDERWOOD
 DB 726 PG 526

KENG & SONG V YANG
 DB 538 PG 824

(36) DAVID WAYNE HINSON
 DB 1159 PG 750

(39) DEBBIE L & V MOTSINGER THORPE
 DB 1155 PG 991

(40) DIVYA LLC
 DB 1038 PG 156

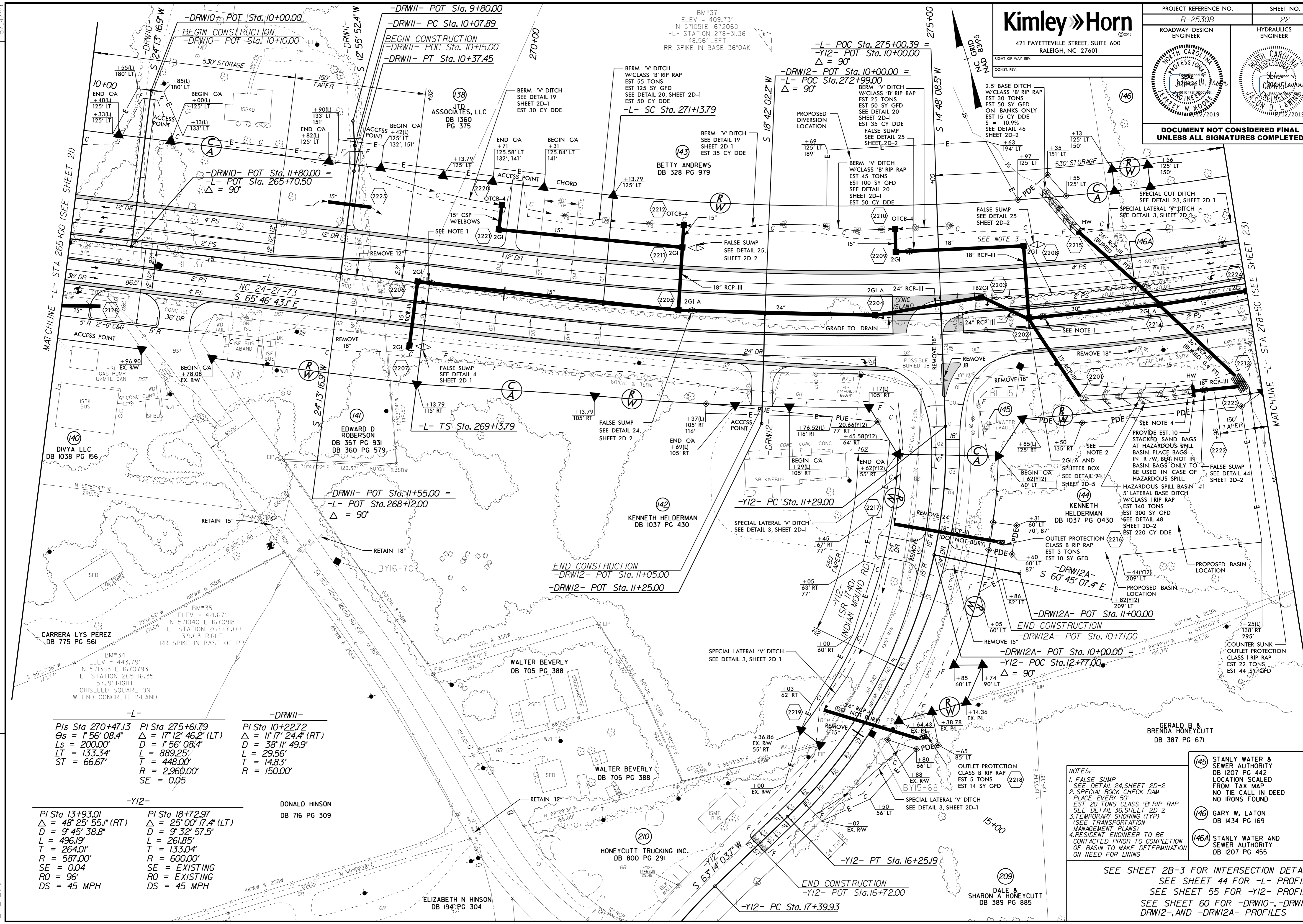
NOTES:
 1. TEMPORARY SHORING (TYP)
 (SEE TRANSPORTATION MANAGEMENT PLANS)

SEE SHEET 43 FOR -L- PROFILE

4/2/2019

5/14/99

PROJECT REFERENCE NO. R-2530B	SHEET NO. 22
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
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-L-	-DRWII-
PI Sta 270+47.13 Os = 1' 56" 08.4" Ls = 200.00' Lt = 133.34' ST = 66.67'	PI Sta 275+61.79 Δ = 17' 12" 46.2" (LT) D = 1' 56" 08.4" L = 889.25' T = 448.00' R = 2,960.00' SE = 0.05
-Y12-	-DRWII-
PI Sta 13+93.01 Δ = 48' 25" 55.1" (RT) D = 9' 45" 38.8" L = 496.19' T = 264.01' R = 587.00' SE = 0.04 RO = 96' DS = 45 MPH	PI Sta 10+22.72 Δ = 11' 17" 24.4" (RT) D = 38' 11" 49.9" L = 29.56' T = 14.83' R = 150.00'
PI Sta 18+72.97 Δ = 25' 00" 17.4" (LT) D = 9' 32" 57.5" L = 261.85' T = 133.04' R = 600.00' SE = EXISTING RO = EXISTING DS = 45 MPH	

- NOTES:**
- FALSE SUMP SEE DETAIL 24, SHEET 2D-2
 - SPECIAL ROCK CHECK DAM PLACE EVERY 50'
 - EST. 20 TONS CLASS 'B' RIP RAP SEE DETAIL 36, SHEET 2D-2
 - TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)
 - RESIDENT ENGINEER TO BE CONTACTED PRIOR TO COMPLETION OF BASIN TO MAKE DETERMINATION ON NEED FOR LINING
- (145) STANLY WATER & SEWER AUTHORITY DB 1207 PG 442 LOCATION SCALED FROM TAX MAP NO TIE CALL IN DEED NO IRONS FOUND
- (146) GARY W. LATON DB 1434 PG 169
- (146A) STANLY WATER AND SEWER AUTHORITY DB 1207 PG 455

SEE SHEET 2B-3 FOR INTERSECTION DETAILS
SEE SHEET 44 FOR -L- PROFILE
SEE SHEET 55 FOR -Y12- PROFILE
SEE SHEET 60 FOR -DRWIO-, -DRWII-,
DRW12-, AND -DRW12A- PROFILES

REVISIONS

2/12/2019

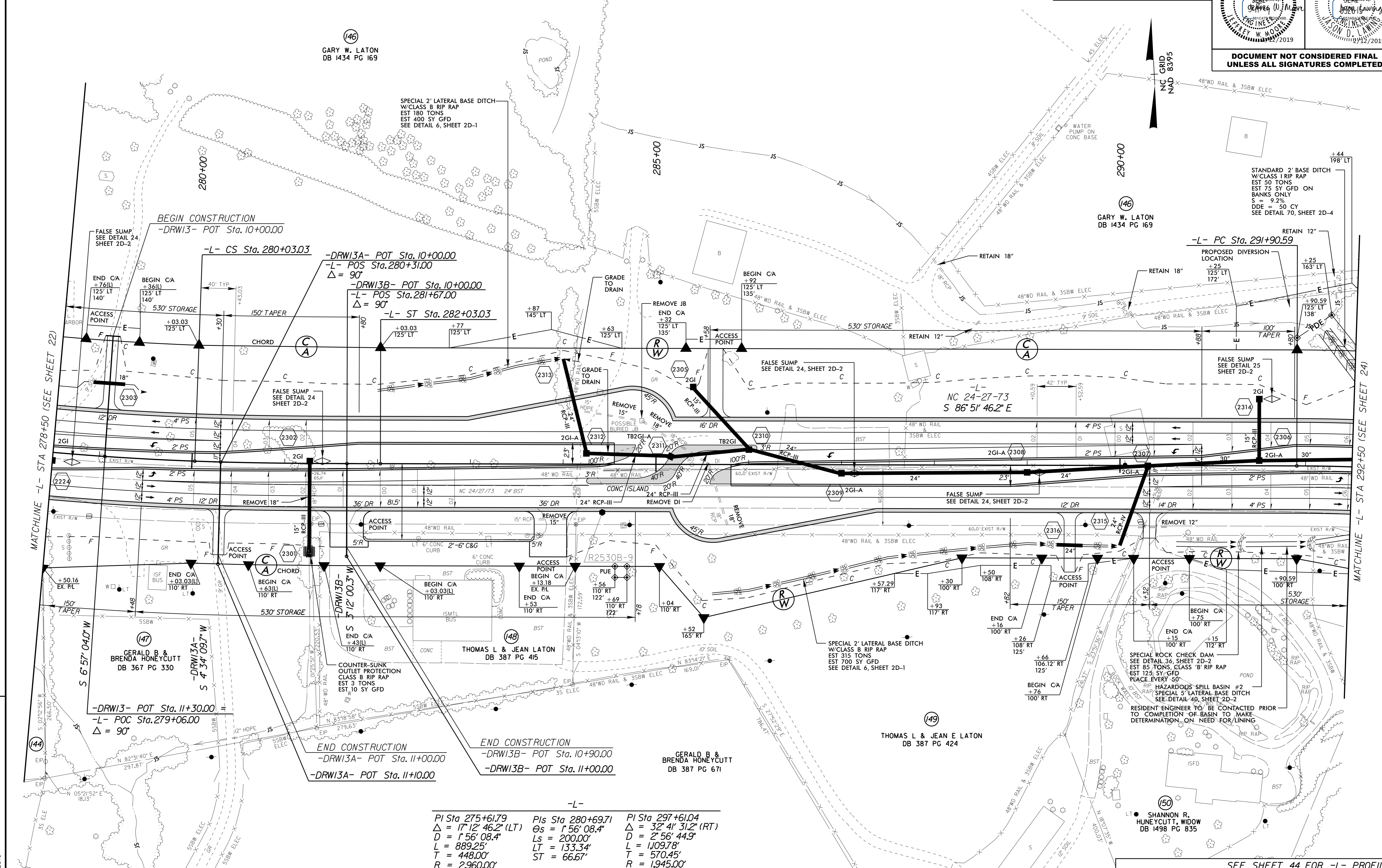
5/14/99

144 KENNETH HELDERMAN
DB 1037 PG 0430

Kimley Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

PROJECT REFERENCE NO. R-2530B	SHEET NO. 23
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

REVISIONS



MATCHLINE -L- STA 278+50 (SEE SHEET 22)

MATCHLINE -L- STA 292+50 (SEE SHEET 24)

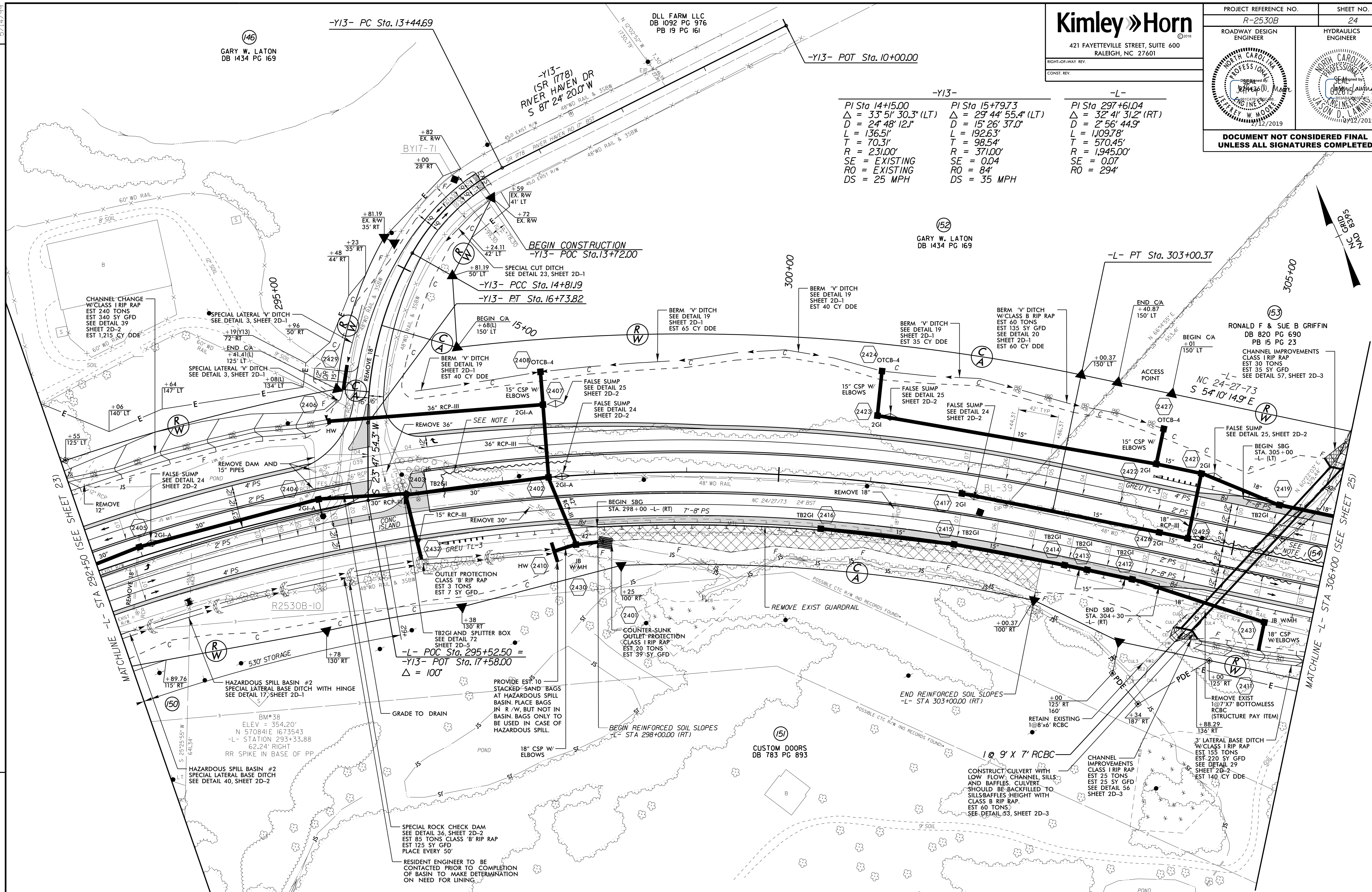
PI Sta 275+61.79 $\Delta = 17' 12" 46.2" (LT)$ $D = 1' 56" 08.4"$ $L = 889.25'$ $T = 448.00'$ $R = 2,960.00'$ $SE = 0.05$	-L- PIs Sta 280+69.71 $\Delta = 1' 56" 08.4"$ $Os = 1' 56" 08.4"$ $Ls = 200.00'$ $LT = 133.34'$ $ST = 66.67'$	PI Sta 297+61.04 $\Delta = 32' 41" 31.2" (RT)$ $D = 2' 56" 44.9"$ $L = 1,099.78'$ $T = 570.45'$ $R = 1,945.00'$ $SE = 0.07$ $RO = 294'$
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SEE SHEET 44 FOR -L- PROFILE
 SEE SHEET 60 FOR -DRW13- PROFILE
 SEE SHEET 61 FOR -DRW13A- & -DRW13B- PROFILES

2/12/2019

PROJECT REFERENCE NO. R-2530B	SHEET NO. 24
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

-Y13-	-L-
PI Sta 14+15.00	PI Sta 15+79.73
$\Delta = 33^\circ 51' 30.3" (LT)$	$\Delta = 29^\circ 44' 55.4" (LT)$
D = 24' 48' 12.1"	D = 15' 26' 37.0"
L = 136.51'	L = 192.63'
T = 70.31'	T = 98.54'
R = 231.00'	R = 371.00'
SE = EXISTING	SE = 0.04
RO = EXISTING	RO = 84'
DS = 25 MPH	DS = 35 MPH



- (150) MICHAEL P. LATON JR.
DB 783 PG 895
- (154) RONALD F. & SUE B. GRIFFIN
DB 820 PG 690
PB 15 PG 23

NOTE:
 1. TEMPORARY SHORING (TYP) (SEE TRANSPORTATION MANAGEMENT PLANS)
 SEE SHEET 2B-3 FOR INTERSECTION DETAILS
 SEE SHEET 45 FOR -L- PROFILE
 SEE SHEET 56 FOR -Y13- PROFILE
 SEE SHEET C05-1 THRU C05-9 FOR CULVERT PLANS

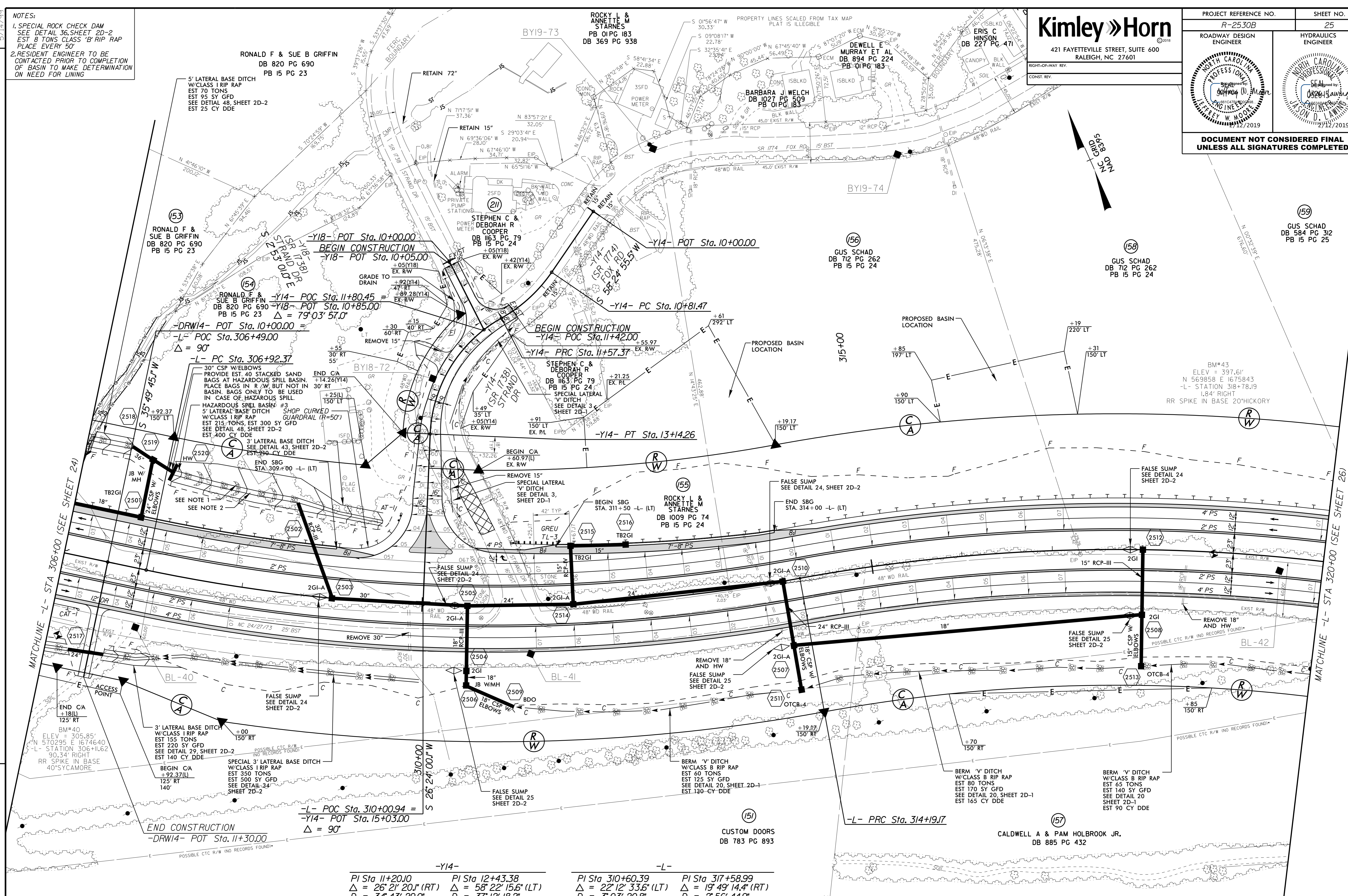
REVISIONS

2/12/2019

NOTES:
 1. SPECIAL ROCK CHECK DAM SEE DETAIL 36, SHEET 2D-2 EST. 8 TONS CLASS 'B' RIP RAP PLACE EVERY 50'
 2. RESIDENT ENGINEER TO BE CONTACTED PRIOR TO COMPLETION OF BASIN TO MAKE DETERMINATION ON NEED FOR LINING

Kimley Horn
 421 FAYETTEVILLE STREET, SUITE 600
 RALEIGH, NC 27601

PROJECT REFERENCE NO. R-2530B	SHEET NO. 25
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
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2/12/2019

-Y14-		-L-	
PI Sta 11+20.0	PI Sta 12+43.38	PI Sta 310+60.39	PI Sta 317+58.99
$\Delta = 26' 21'' 20.1''$ (RT)	$\Delta = 58' 22'' 15.6''$ (LT)	$\Delta = 22' 12'' 33.6''$ (LT)	$\Delta = 19' 49'' 14.4''$ (RT)
D = 34' 43' 29.0'	D = 37' 12' 18.2'	D = 3' 03' 20.8'	D = 2' 56' 44.9'
L = 75.90'	L = 156.89'	L = 726.80'	L = 672.84'
T = 38.63'	T = 86.02'	T = 368.02'	T = 339.82'
R = 165.00'	R = 154.00'	R = 1,875.00'	R = 1,945.00'
SE = EXISTING	SE = 0.04	SE = 0.07	SE = 0.07
RO = EXISTING	RO = 72'	RO = 294'	RO = 294'
DS = 25 MPH	DS = 25 MPH		

SEE SHEET 2B-4 FOR INTERSECTION DETAILS
 SEE SHEET 46 FOR -L- PROFILE
 SEE SHEET 56 FOR -Y14- PROFILE
 SEE SHEET 57 FOR -Y18- PROFILE
 SEE SHEET 61 FOR -DRWI4- PROFILE

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- (158) GUS SCHAT
DB 712 PG 262
PB 15 PG 24
- (162) JEAN ANN STOLLERY ESTATE
DB 373 PG 257
PB 5 PG 105
DB 758 PG 825
- (163) PROGRESS ENERGY CAROLINAS, INC.
PB 15 PG 25

- (159) GUS SCHAT
DB 584 PG 312
PB 15 PG 25

- (160) PROGRESS ENERGY CAROLINAS, INC.
PB 15 PG 25

- (212) KEITH CARPENTER
DB 1313 PG 556
PB 15 PG 25

- (161) PITLIK FAMILY TRUST
MARGARET SHEA PITLIK
AND MICHAEL PITLIK
DB 1575 PG 974
PB 15 PG 26

SPECIAL ROCK CHECK DAM
SEE DETAIL 36, SHEET 2D-2
EST 30 TONS, CLASS 'B' RIP RAP
PLACE EVERY 50'

SPECIAL 4' LATERAL BASE DITCH
W/CLASS 'B' RIP RAP
EST 110 TONS,
EST 250 SY GFD
SEE DETAIL 70, SHEET 2D-5

OUTLET PROTECTION
CLASS 'B' RIP RAP
EST 4 TONS, EST 10' SY GFD

BEGIN SBG
STA. 333+41.87
-L- (LT)
GREU TL-3

REMOVE EXIST
DI AND 18"

REMOVE EXIST
DI AND 18"

REMOVE EXIST
DI AND 18"

REMOVE EXIST
DI AND 18"

REMOVE EXIST
DI AND 18"

REMOVE EXIST
DI AND 18"

REMOVE EXIST
DI AND 18"

REMOVE EXIST
DI AND 18"

REMOVE EXIST
DI AND 18"

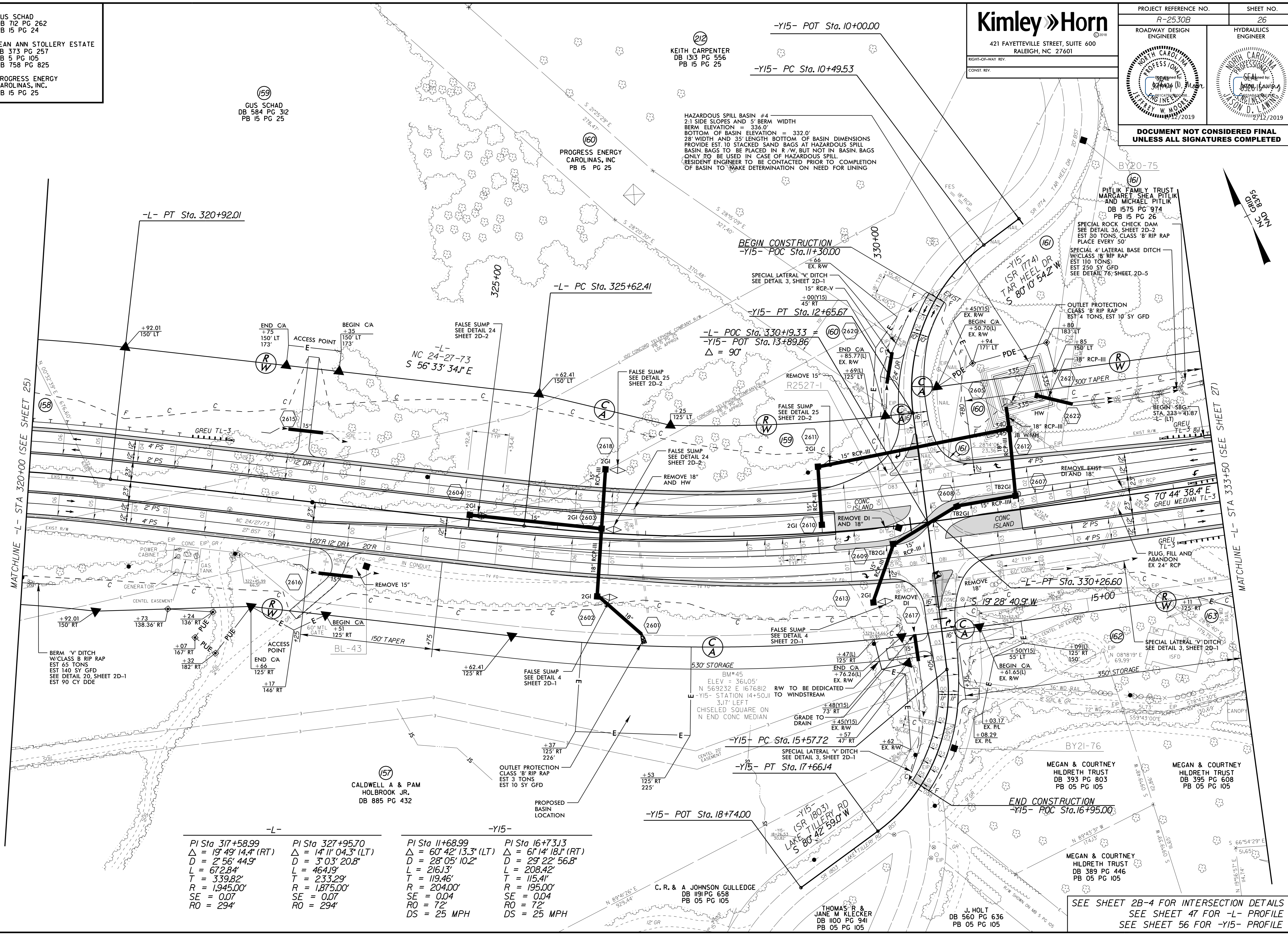
REMOVE EXIST
DI AND 18"

REMOVE EXIST
DI AND 18"

5/14/19

REVISIONS

2/12/2019



-L-	
PI Sta 317+58.99	PI Sta 327+95.70
$\Delta = 19' 49" 14.4" (RT)$	$\Delta = 14' 11" 04.3" (LT)$
$D = 2' 56" 44.9"$	$D = 3' 03" 20.8"$
$L = 672.84'$	$L = 464.19'$
$T = 339.82'$	$T = 233.29'$
$R = 1,945.00'$	$R = 1,875.00'$
$SE = 0.07$	$SE = 0.07$
$RO = 294'$	$RO = 294'$

-Y15-	
PI Sta 11+68.99	PI Sta 16+73.13
$\Delta = 60' 42" 13.3" (LT)$	$\Delta = 61' 14" 18.1" (RT)$
$D = 28' 05" 10.2"$	$D = 29' 22" 56.8"$
$L = 216.13'$	$L = 208.42'$
$T = 119.46'$	$T = 115.41'$
$R = 204.00'$	$R = 195.00'$
$SE = 0.04$	$SE = 0.04$
$RO = 72'$	$RO = 72'$
$DS = 25 MPH$	$DS = 25 MPH$

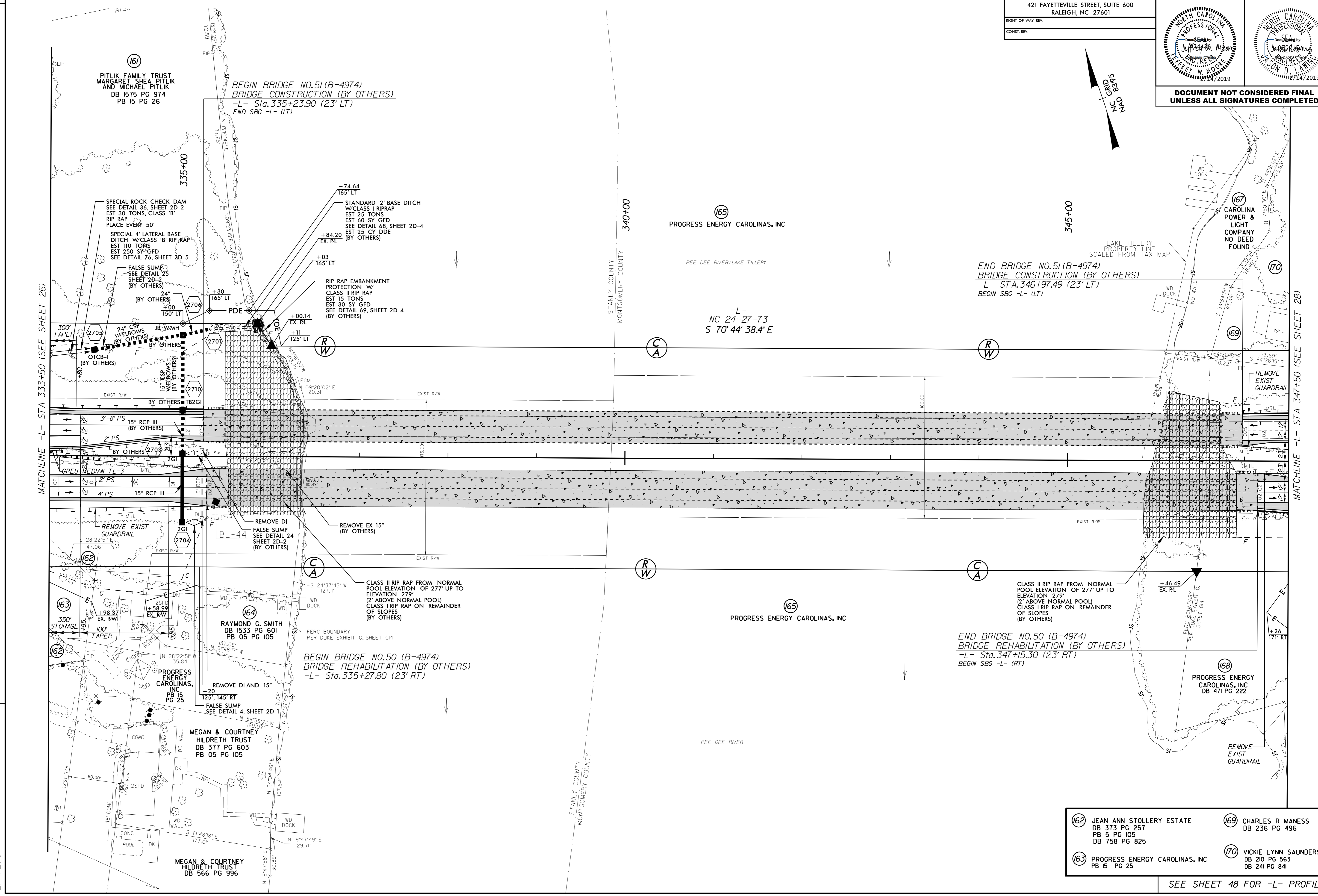
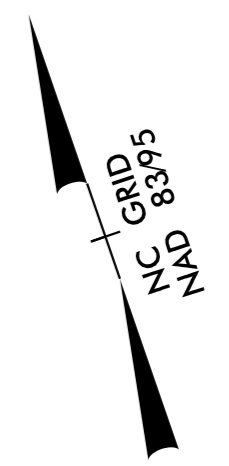
SEE SHEET 2B-4 FOR INTERSECTION DETAILS
SEE SHEET 47 FOR -L- PROFILE
SEE SHEET 56 FOR -Y15- PROFILE

5/14/99

Kimley Horn
 421 FAYETTEVILLE STREET, SUITE 600
 RALEIGH, NC 27601

RIGHT-OF-WAY REV.
 CONST. REV.

PROJECT REFERENCE NO. R-2530B	SHEET NO. 27
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
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REVISIONS

2/14/2019

(162) JEAN ANN STOLLERY ESTATE DB 373 PG 257 PB 5 PG 105 DB 758 PG 825	(169) CHARLES R MANESS DB 236 PG 496
(163) PROGRESS ENERGY CAROLINAS, INC PB 15 PG 25	(170) VICKIE LYNN SAUNDERS DB 210 PG 563 DB 241 PG 841

SEE SHEET 48 FOR -L- PROFILE

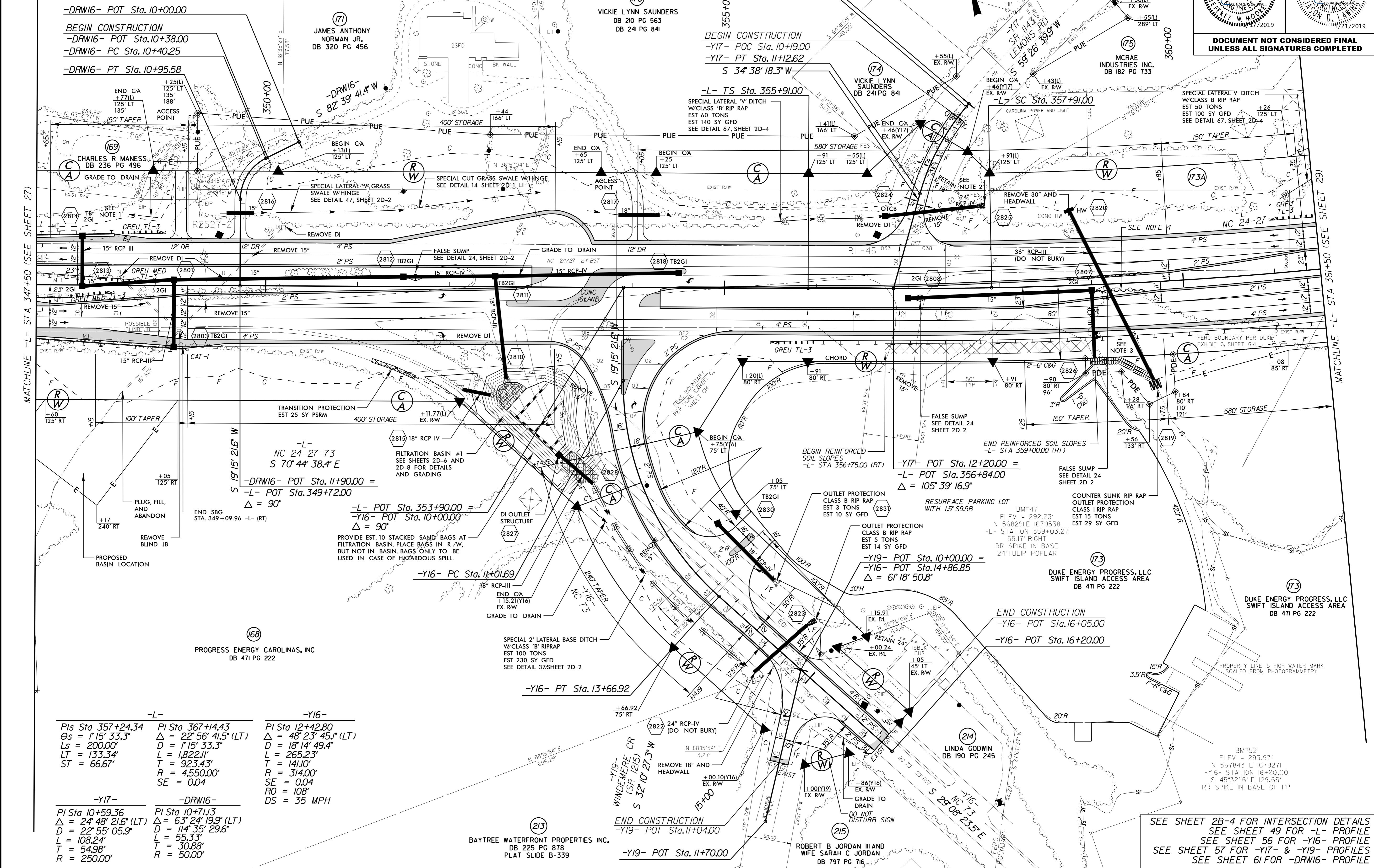
NOTES:
 1. END SBG STA. 348+35.00 -L- (LT)
 2. OUTLET PROTECTION - CLASS B RIP RAP EST 5 TONS, EST 14 SY GFD
 3. TOE PROTECTION EST 20 TONS CL B RIP RAP EST 40 SY GFD
 4. TEMPORARY SHORING (TYP)
 (SEE TRANSPORTATION MANAGEMENT PLANS)

(173A) DUKE ENERGY PROGRESS, LLC
 DB 471 PG 222

(170) VICKIE LYNN SAUNDERS
 DB 210 PG 563
 DB 241 PG 841

Kimley Horn
 421 FAYETTEVILLE STREET, SUITE 600
 RALEIGH, NC 27601

PROJECT REFERENCE NO. R-2530B	SHEET NO. 28
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



-L-		-Y16-	
PI Sta 357+24.34	PI Sta 367+14.43	PI Sta 12+42.80	
Os = 1'15" 33.3"	Δ = 22' 56" 41.5" (LT)	Δ = 48' 23" 45.1" (LT)	
Ls = 200.00'	D = 1'15" 33.3"	D = 18' 14" 49.4"	
LT = 133.34'	L = 1,822.11'	L = 265.23'	
ST = 66.67'	T = 923.43'	T = 141.10'	
	R = 4,550.00'	R = 314.00'	
	SE = 0.04	SE = 0.04	
		RO = 108'	
		DS = 35 MPH	
-Y17-		-DRW16-	
PI Sta 10+59.36	PI Sta 10+71.13	PI Sta 10+71.13	
Δ = 24' 48" 21.6" (LT)	Δ = 63' 24" 19.9" (LT)	Δ = 114' 35" 29.6"	
D = 22' 55" 05.9"	L = 108.24'	L = 55.33'	
T = 54.98'	T = 30.88'	T = 30.88'	
R = 250.00'	R = 50.00'	R = 50.00'	

SEE SHEET 2B-4 FOR INTERSECTION DETAILS
 SEE SHEET 49 FOR -L- PROFILE
 SEE SHEET 56 FOR -Y16- PROFILE
 SEE SHEET 57 FOR -Y17- & -Y19- PROFILES
 SEE SHEET 61 FOR -DRW16- PROFILE

REVISIONS

12/20/2018

5/14/19

Kimley Horn
 421 FAYETTEVILLE STREET, SUITE 600
 RALEIGH, NC 27601

PROJECT REFERENCE NO. **R-2530B**
 SHEET NO. **29**

ROADWAY DESIGN ENGINEER
 HYDRAULICS ENGINEER

THOMAS A. & AMANDA F. BRUTON
 DB 370 PG 273

WANDA LEMONS
 DB 227 PG 63
 DB 732 PG 826
 DB 393 PG 195
 DB 462 PG 149

DUKE ENERGY PROGRESS, LLC
 DB 471 PG 222

NEW SOUTH REALTY, INC.
 DB 501 PG 461

TERRY GILBERT
 DB 213 PG 821

SAMUEL MOODY LEMONS III
 DB 227 PG 667

SAMUEL MOODY LEMONS III
 DB 459 PG 793
 PLAT D SLIDE 66-B

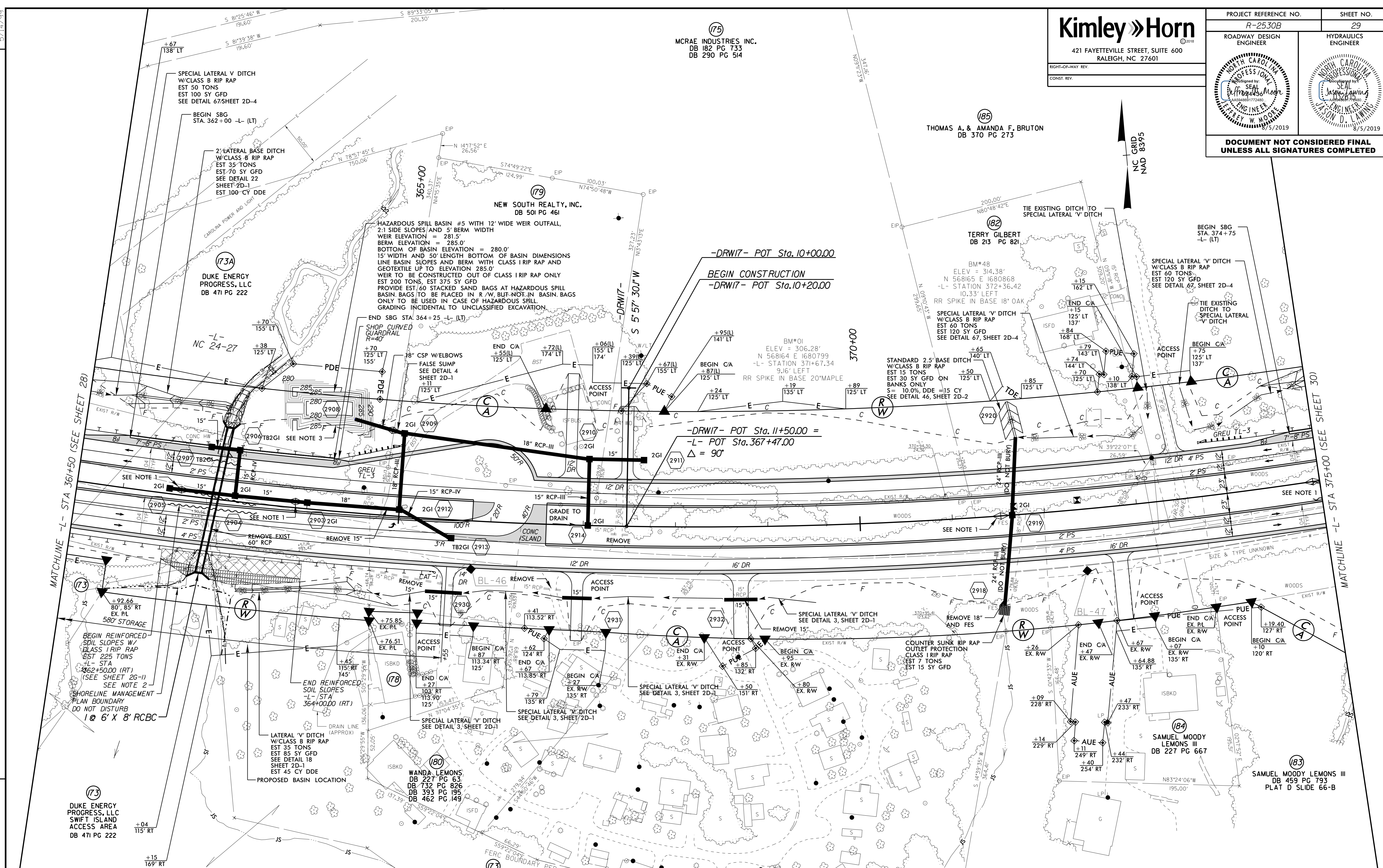
DUKE ENERGY PROGRESS, LLC
 SWIFT ISLAND ACCESS AREA
 DB 471 PG 222

RICHARD GRIFFIN
 DB 580 PG 58
 DB 732 PG 824
 PF F PG 96B

HAZARDOUS SPILL BASIN #5 WITH 12' WIDE WEIR OUTFALL,
 2:1 SIDE SLOPES AND 5' BERM WIDTH
 WEIR ELEVATION = 285.0'
 BERM ELEVATION = 285.0'
 BOTTOM OF BASIN ELEVATION = 280.0'
 15' WIDTH AND 50' LENGTH BOTTOM OF BASIN DIMENSIONS
 LINE BASIN SLOPES AND BERM WITH CLASS I RIP RAP AND
 GEOTEXTILE UP TO ELEVATION 285.0'
 WEIR TO BE CONSTRUCTED OUT OF CLASS I RIP RAP ONLY
 EST 200 TONS, EST 375 SY GFD
 PROVIDE EST. 60 STACKED SAND BAGS AT HAZARDOUS SPILL
 BASIN. BAGS TO BE PLACED IN R/W, BUT NOT IN BASIN. BAGS
 ONLY TO BE USED IN CASE OF HAZARDOUS SPILL.
 GRADING INCIDENTAL TO UNCLASSIFIED EXCAVATION.

HAZARDOUS SPILL BASIN #5 WITH 12' WIDE WEIR OUTFALL,
 2:1 SIDE SLOPES AND 5' BERM WIDTH
 WEIR ELEVATION = 285.0'
 BERM ELEVATION = 285.0'
 BOTTOM OF BASIN ELEVATION = 280.0'
 15' WIDTH AND 50' LENGTH BOTTOM OF BASIN DIMENSIONS
 LINE BASIN SLOPES AND BERM WITH CLASS I RIP RAP AND
 GEOTEXTILE UP TO ELEVATION 285.0'
 WEIR TO BE CONSTRUCTED OUT OF CLASS I RIP RAP ONLY
 EST 200 TONS, EST 375 SY GFD
 PROVIDE EST. 60 STACKED SAND BAGS AT HAZARDOUS SPILL
 BASIN. BAGS TO BE PLACED IN R/W, BUT NOT IN BASIN. BAGS
 ONLY TO BE USED IN CASE OF HAZARDOUS SPILL.
 GRADING INCIDENTAL TO UNCLASSIFIED EXCAVATION.

HAZARDOUS SPILL BASIN #5 WITH 12' WIDE WEIR OUTFALL,
 2:1 SIDE SLOPES AND 5' BERM WIDTH
 WEIR ELEVATION = 285.0'
 BERM ELEVATION = 285.0'
 BOTTOM OF BASIN ELEVATION = 280.0'
 15' WIDTH AND 50' LENGTH BOTTOM OF BASIN DIMENSIONS
 LINE BASIN SLOPES AND BERM WITH CLASS I RIP RAP AND
 GEOTEXTILE UP TO ELEVATION 285.0'
 WEIR TO BE CONSTRUCTED OUT OF CLASS I RIP RAP ONLY
 EST 200 TONS, EST 375 SY GFD
 PROVIDE EST. 60 STACKED SAND BAGS AT HAZARDOUS SPILL
 BASIN. BAGS TO BE PLACED IN R/W, BUT NOT IN BASIN. BAGS
 ONLY TO BE USED IN CASE OF HAZARDOUS SPILL.
 GRADING INCIDENTAL TO UNCLASSIFIED EXCAVATION.



(178) RICHARD GRIFFIN
 DB 580 PG 58
 DB 732 PG 824
 PF F PG 96B

NOTES:
 1. FALSE SUMP
 SEE DETAIL 24, SHEET 2D-2
 2. TEMPORARY SHORING (TYP)
 (SEE TRANSPORTATION MANAGEMENT PLANS)
 3. RESIDENT ENGINEER TO BE CONTACTED PRIOR TO COMPLETION
 OF BASIN TO MAKE DETERMINATION ON NEED FOR LINING. IF
 FRACTURED ROCK IS ENCOUNTERED, USE IMPERVIOUS PLASTIC
 TO LINE BASIN. SEE SPECIAL DETAIL 72, SHEET 2D-4 EST 375 SY
 IMPERVIOUS PLASTIC

(173) DUKE ENERGY PROGRESS, LLC
 SWIFT ISLAND ACCESS AREA
 DB 471 PG 222

(179) NEW SOUTH REALTY, INC.
 DB 501 PG 461

(180) WANDA LEMONS
 DB 227 PG 63
 DB 732 PG 826
 DB 393 PG 195
 DB 462 PG 149

(181) TERRY GILBERT
 DB 213 PG 821

(182) THOMAS A. & AMANDA F. BRUTON
 DB 370 PG 273

(183) SAMUEL MOODY LEMONS III
 DB 459 PG 793
 PLAT D SLIDE 66-B

(184) SAMUEL MOODY LEMONS III
 DB 227 PG 667

(185) DUKE ENERGY PROGRESS, LLC
 SWIFT ISLAND ACCESS AREA
 DB 471 PG 222

-L-
 PI Sta 367+14.43
 Δ = 22° 56' 41.5" (LT)
 D = 1' 15" 33.3"
 L = 1,822.11'
 T = 923.43'
 R = 4,550.00'
 SE = 0.04

SEE SHEET 49 FOR -L- PROFILE
 SEE SHEET 61 FOR -DRWIT- PROFILE
 SEE SHEET C06-1 THRU C06-8 FOR CULVERT PLANS

8/5/2019

NOTES:
1.FALSE SUMP
SEE DETAIL 24,SHEET 2D-2
2.TEMPORARY SHORING (TYP)
(SEE "TRANSPORTATION MANGEMENT PLANS")
3.SEAL ABANDONED WELL

(93) KENNETH R FURR
BY WILL

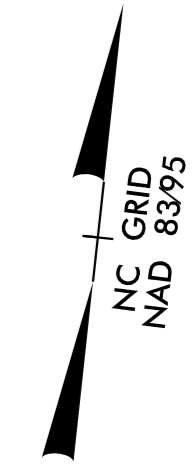
Kimley Horn

421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO. R-2530B	SHEET NO. 30
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



(191) UWHARRIE MARINE SALES & SERVICE LLC
DB 539 PG 035

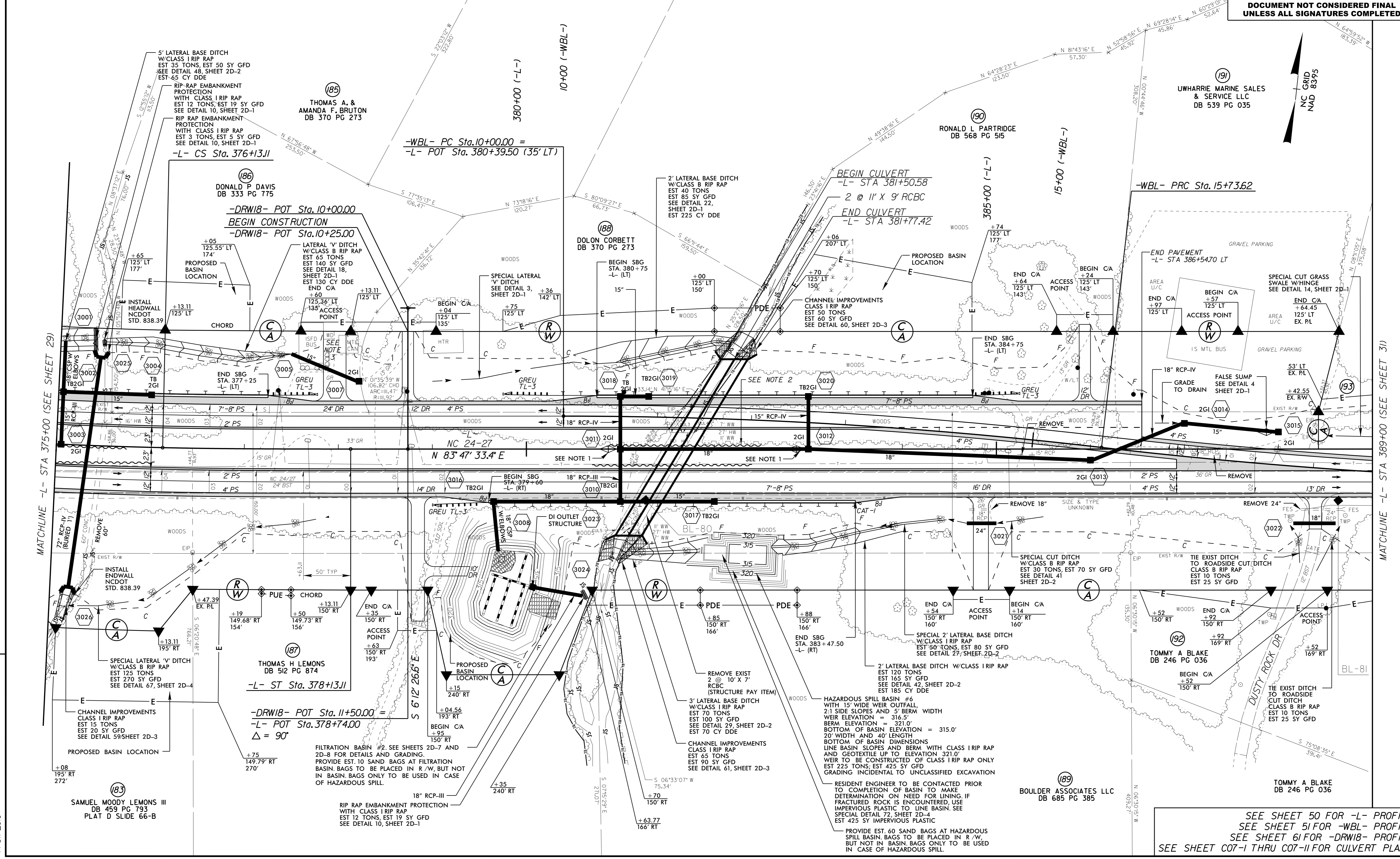
(190) RONALD L PARTRIDGE
DB 568 PG 515

-L-
PI Sta 367+14.43
 $\Delta = 22' 56' 41.5" (LT)$
 $D = 1' 15' 33.3"$
 $L = 1822.11'$
 $T = 923.43'$
 $R = 4550.00'$
 $SE = 0.04$

PIs Sta 376+79.78
 $\Theta_s = 1' 15' 33.3"$
 $L_s = 200.00'$
 $LT = 133.34'$
 $ST = 66.67'$

-WBL-
PI Sta 12+87.13
 $\Delta = 6' 39' 10.8" (RT)$
 $D = 1' 09' 35.4"$
 $L = 573.62'$
 $T = 287.13'$
 $R = 4940.00'$
 $SE = RC$
 $RO = 48'$
 $DS = 50 MPH$

PI Sta 18+90.68
 $\Delta = 6' 39' 10.8" (LT)$
 $D = 1' 03' 01.2"$
 $L = 633.42'$
 $T = 317.07'$
 $R = 5455.00'$
 $SE = RC$
 $RO = 48'$
 $DS = 50 MPH$



REVISIONS

7/31/2019

MATCHLINE -L- STA 375+00 (SEE SHEET 29)

MATCHLINE -L- STA 389+00 (SEE SHEET 31)

SEE SHEET 50 FOR -L- PROFILE
SEE SHEET 51 FOR -WBL- PROFILE
SEE SHEET 61 FOR -DRW18- PROFILE
SEE SHEET C07-I THRU C07-II FOR CULVERT PLANS

5/14/99

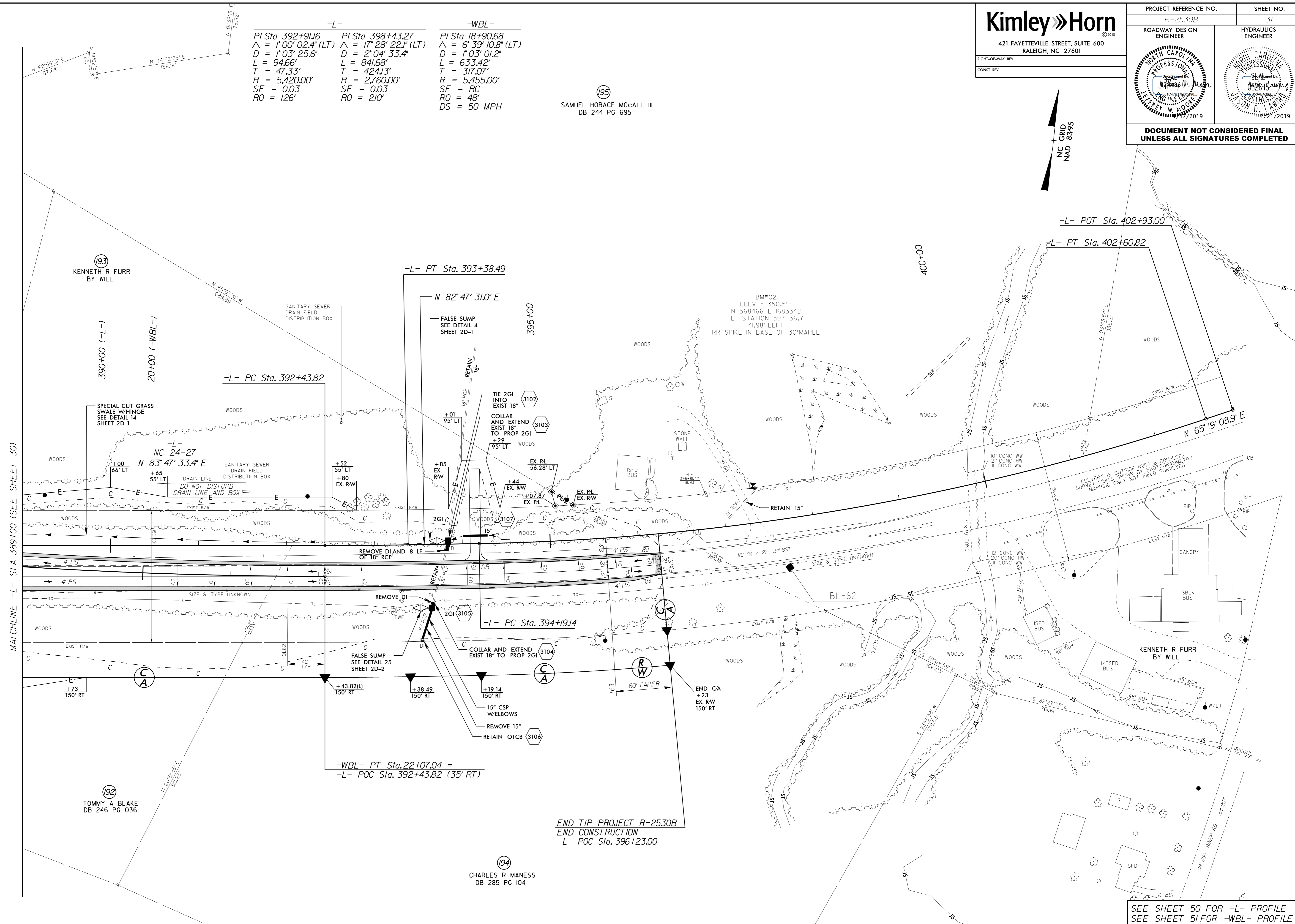
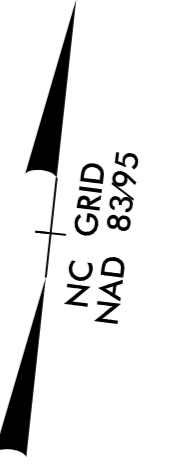
Kimley Horn
 421 FAYETTEVILLE STREET, SUITE 600
 RALEIGH, NC 27601

RIGHT-OF-WAY REV.
 CONST. REV.

PROJECT REFERENCE NO. R-2530B	SHEET NO. 31
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

-L-	-WBL-
PI Sta 392+91.16 Δ = 1°00'02.4" (LT) D = 1°03'25.6" L = 94.66' T = 47.33' R = 5,420.00' SE = 0.03 RO = 126'	PI Sta 398+43.27 Δ = 17°28'22.1" (LT) D = 2°04'33.4" L = 841.68' T = 424.13' R = 2,760.00' SE = 0.03 RO = 210'
	PI Sta 18+90.68 Δ = 6°39'10.8" (LT) D = 1°03'01.2" L = 633.42' T = 317.07' R = 5,455.00' SE = RC RO = 48' DS = 50 MPH

(195)
 SAMUEL HORACE McCALL III
 DB 244 PG 695



REVISIONS

MATCHLINE -L- STA 389+00 (SEE SHEET 30)

END TIP PROJECT R-2530B
 END CONSTRUCTION
 -L- POC Sta. 396+23.00

(194)
 CHARLES R MANESS
 DB 285 PG 104

SEE SHEET 50 FOR -L- PROFILE
 SEE SHEET 51 FOR -WBL- PROFILE

12/16/2018

5/14/99

Kimley Horn

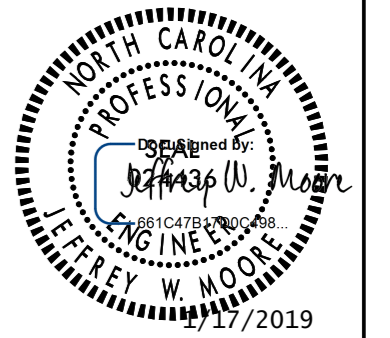
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.
CONST. REV.

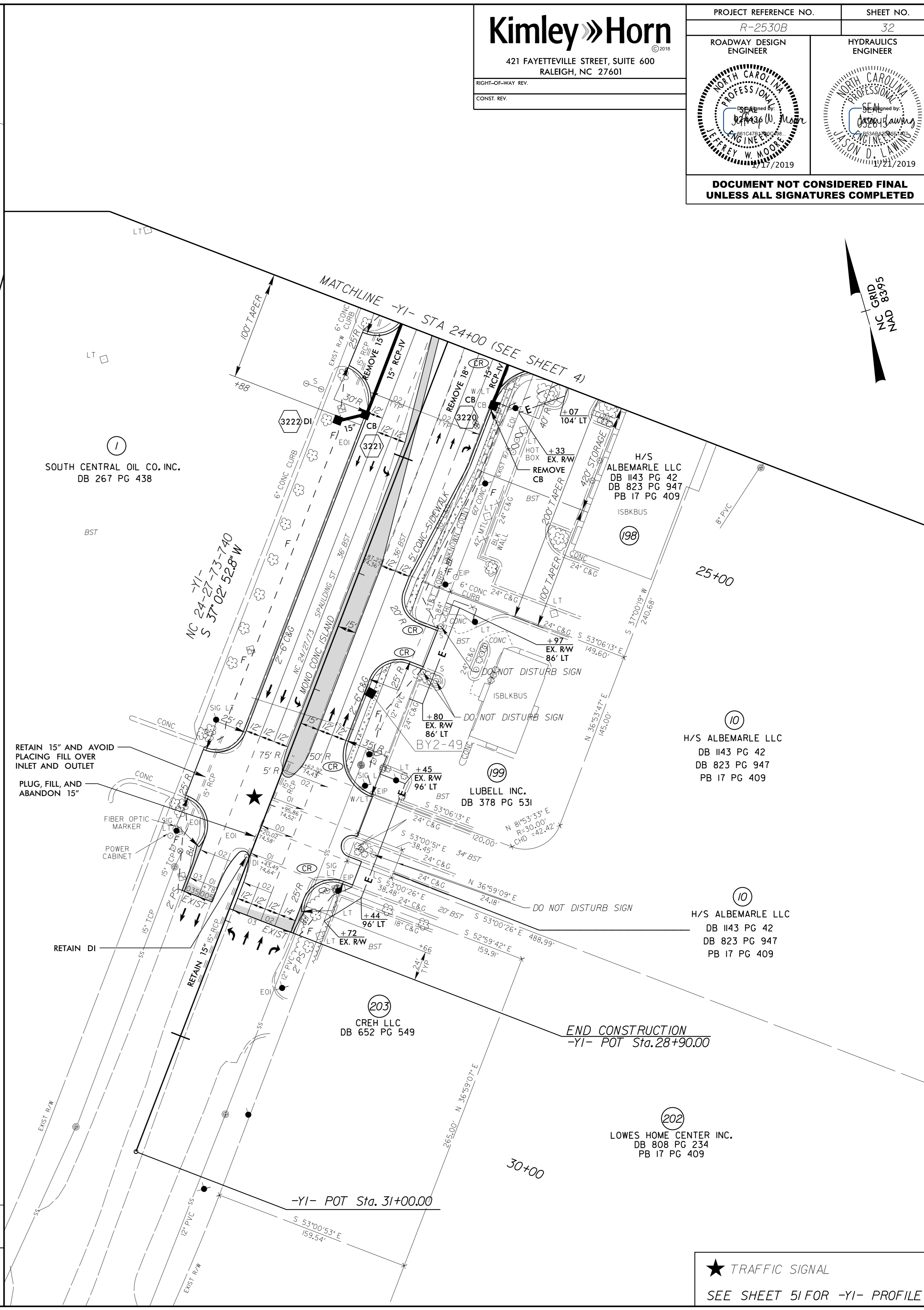
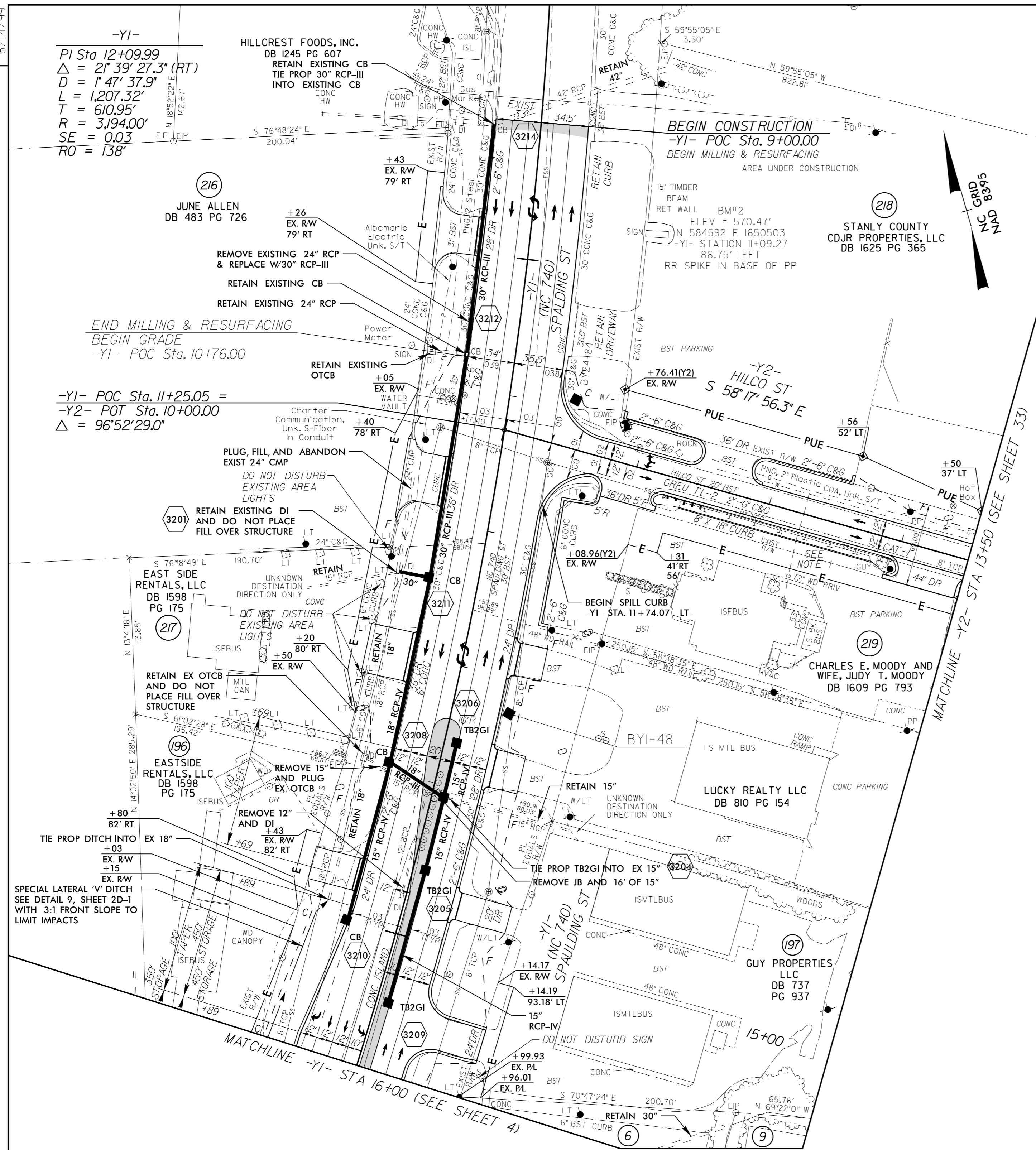
PROJECT REFERENCE NO. R-2530B SHEET NO. 32

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER



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



- 6 KALOGERMITROS BROTHERS PROP. DB 820 PG 313
- 9 KALOGERMITROS BROTHERS PROP. DB 898 PG 417

NOTE:
1. REMOVE AND RESET EXIST CONCRETE PARKING CURB 3' FROM FACE OF 2'-6\"/>

SEE SHEET 2B-1 FOR INTERSECTION DETAILS
SEE SHEET 51 FOR -Y1- PROFILE
SEE SHEET 52 FOR -Y2- PROFILE

★ TRAFFIC SIGNAL
SEE SHEET 51 FOR -Y1- PROFILE

12/16/2018

5/14/99

219 CHARLES E. MOODY AND WIFE, JUDY T. MOODY DB 1609 PG 793

-Y2-
PI Sta 25+51.34
 $\Delta = 61' 23' 01.3" (RT)$
 $D = 22' 55' 05.9"$
 $L = 267.84'$
 $T = 148.39'$
 $*R = 250.00' (DS = 30 MPH)$
 $SE = 0.04$
 $RO = 84'$

Kimley Horn

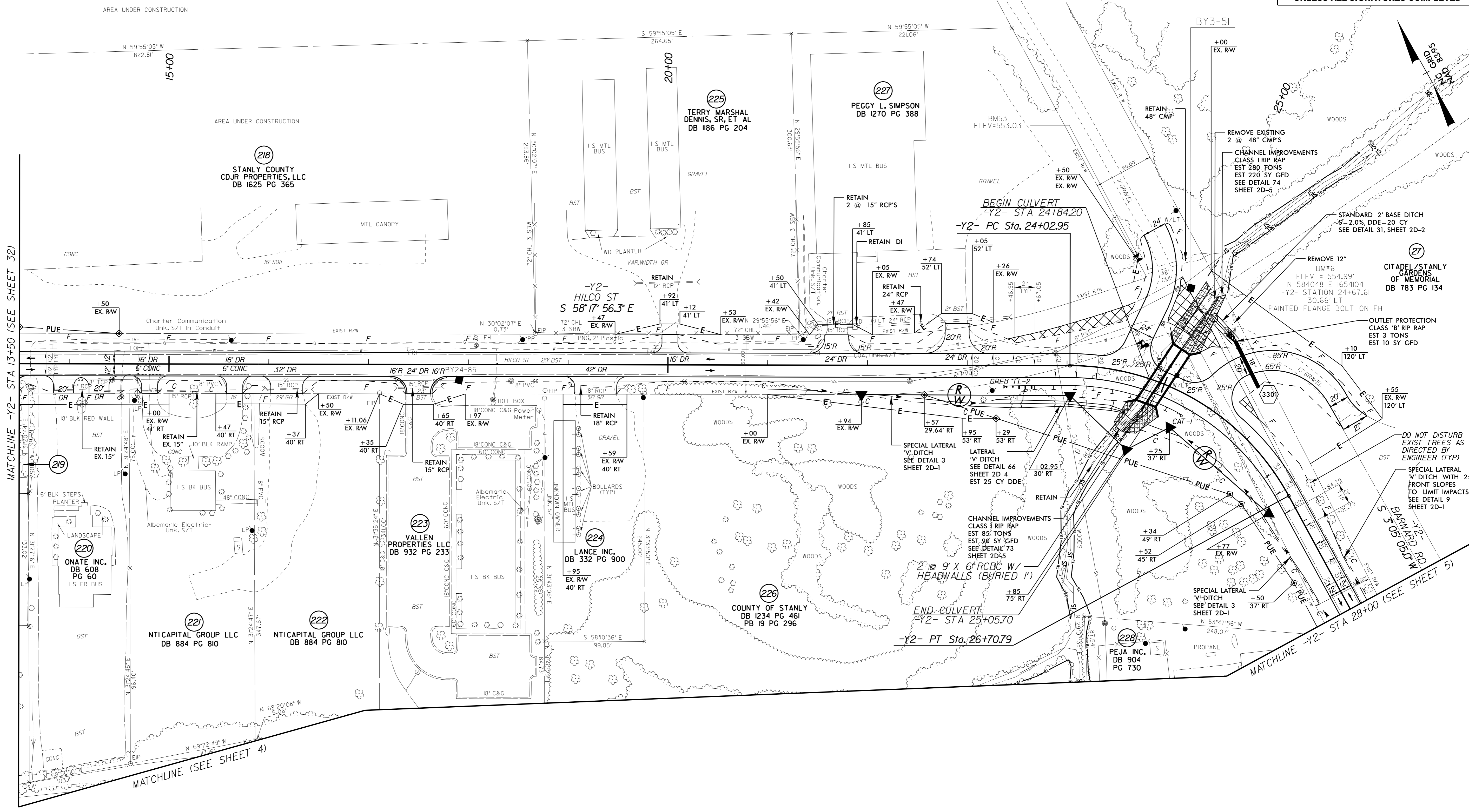
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO. R-2530B	SHEET NO. 33
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

REVISIONS



MATCHLINE -Y2- STA 13+50 (SEE SHEET 32)

MATCHLINE -Y2- STA 28+00 (SEE SHEET 5)

MATCHLINE (SEE SHEET 4)

*DESIGN EXCEPTION REQUIRED FOR MINIMUM HORIZONTAL CURVE RADIUS
SEE SHEET 52 FOR -Y2- PROFILE
SEE SHEET C02-1 THRU C02-7 FOR CULVERT PLANS

12/6/2018

5/14/99

26 JAMES J NOLAN
DB 1058 PG 648
PB 02 PG 106

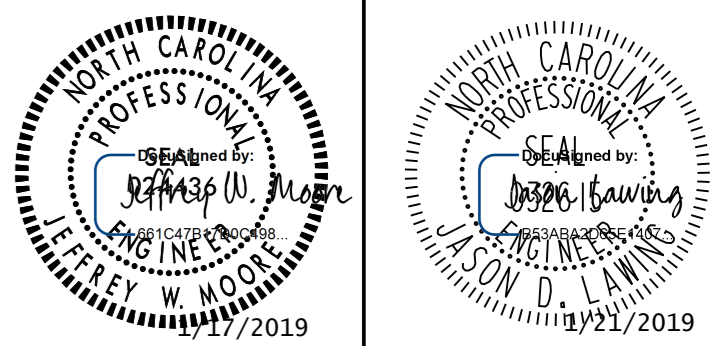
Kimley Horn

421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.
CONST. REV.

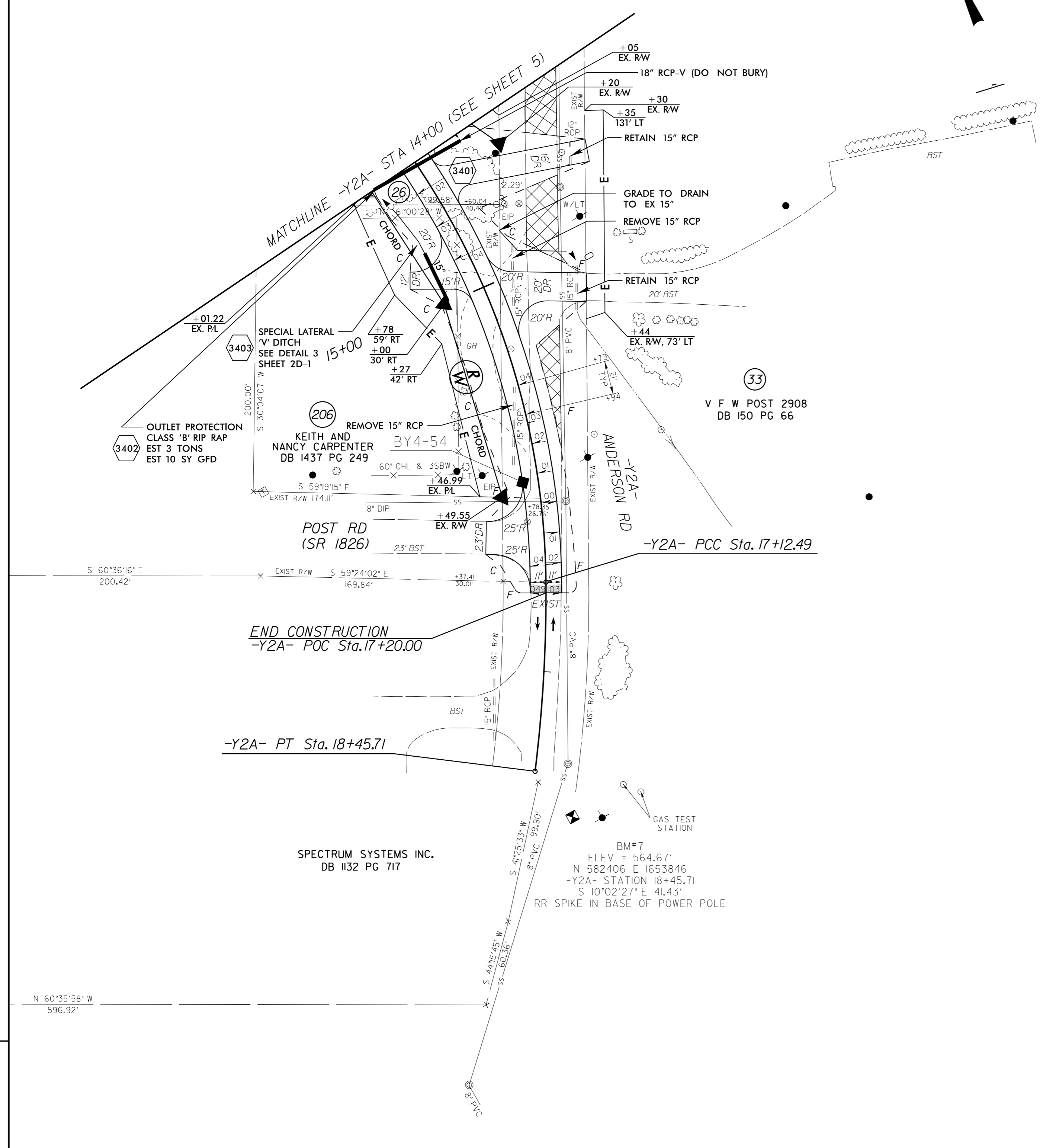
PROJECT REFERENCE NO. R-2530B SHEET NO. 34

ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER



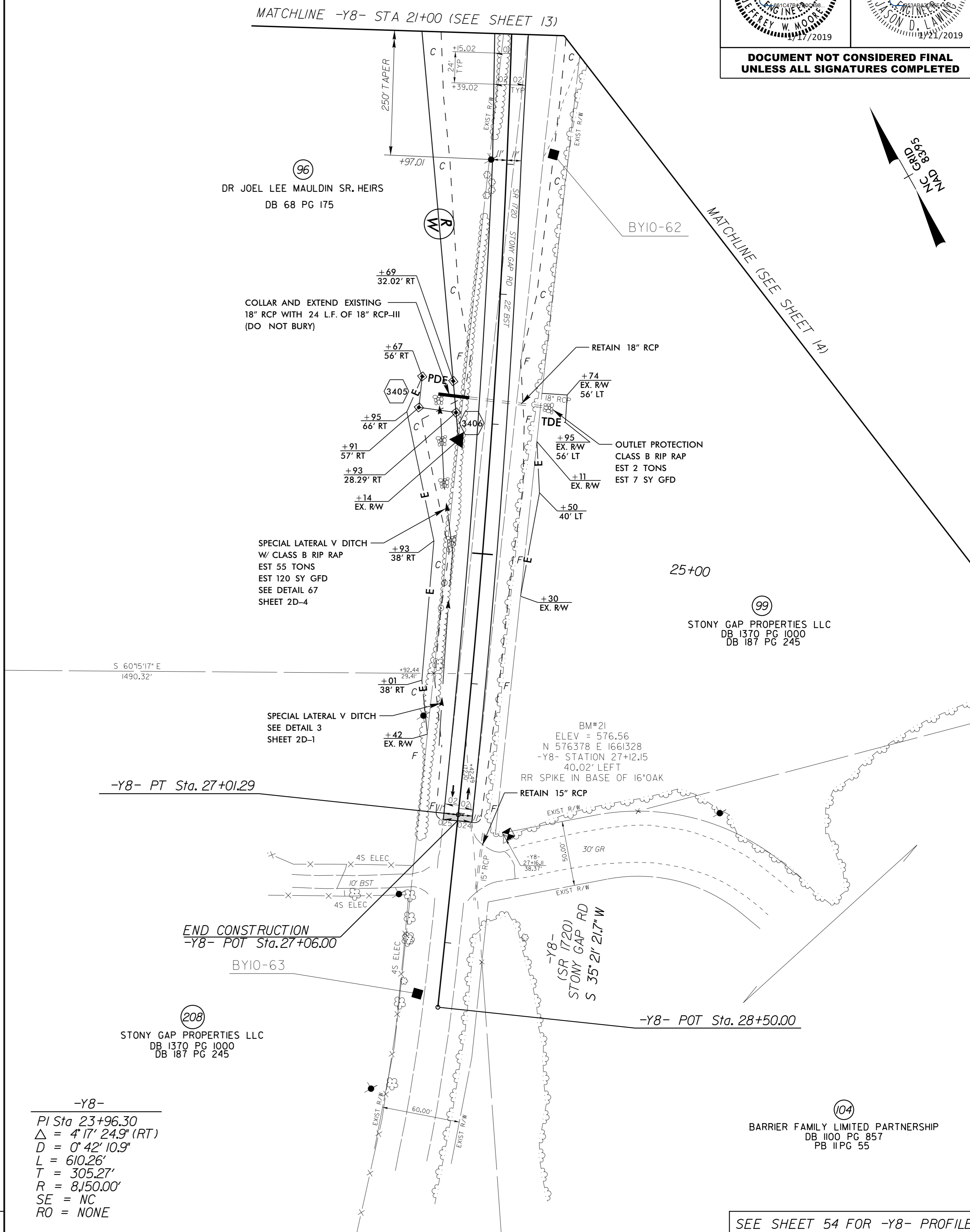
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

REVISIONS



-Y2A-		
PI Sta 17+78.95	PI Sta 21+77.93	PI Sta 24+03.74
$\Delta = 7^{\circ} 36' 16.5''$ (RT)	$\Delta = 35^{\circ} 25' 58.8''$ (RT)	$\Delta = 7^{\circ} 36' 16.5''$ (RT)
D = 5' 43' 46.5"	D = 10' 44' 58.8"	D = 5' 43' 46.5"
L = 132.72'	L = 329.62'	L = 132.72'
T = 66.46'	T = 170.27'	T = 66.46'
R = 1,000.00'	R = 533.00'	R = 1,000.00'
SE = 0.04	SE = 0.04	SE = 0.04
RO = 84'	RO = 84'	RO = 84'

SEE SHEET 53 FOR -Y2A- PROFILE



-Y8-	
PI Sta 23+96.30	
$\Delta = 4^{\circ} 17' 24.9''$ (RT)	
D = 0' 42' 10.9"	
L = 610.26'	
T = 305.27'	
R = 8,150.00'	
SE = NC	
RO = NONE	

SEE SHEET 54 FOR -Y8- PROFILE

12/16/2018

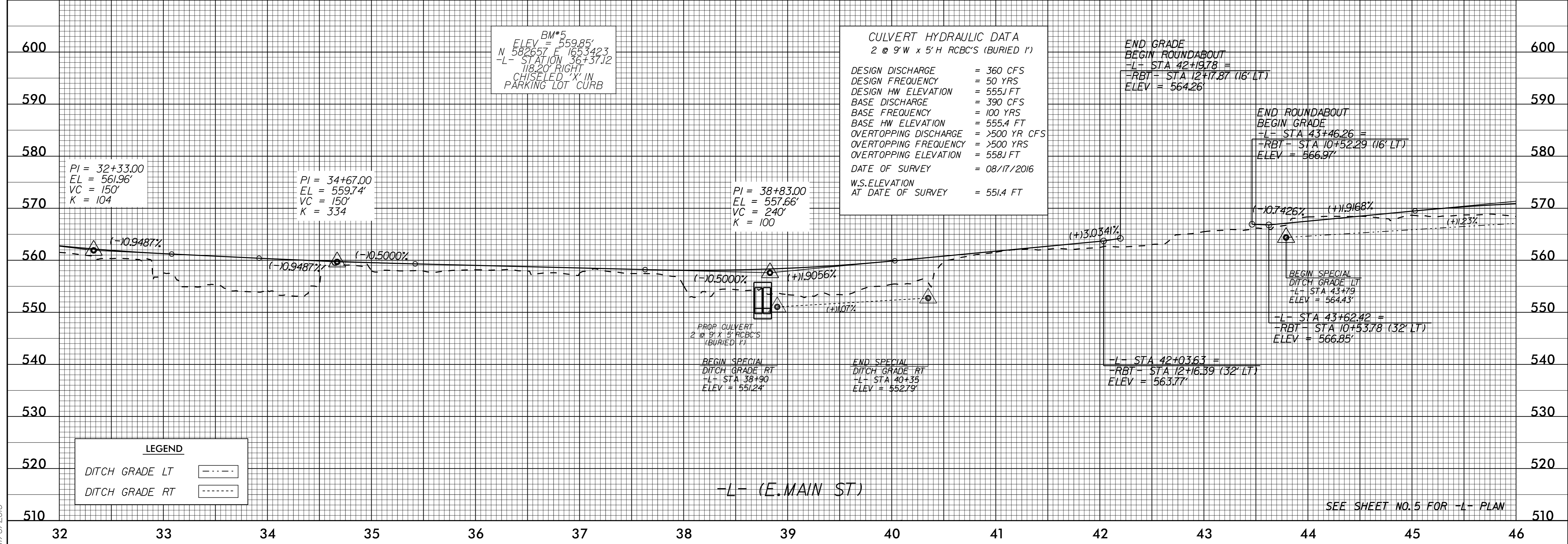
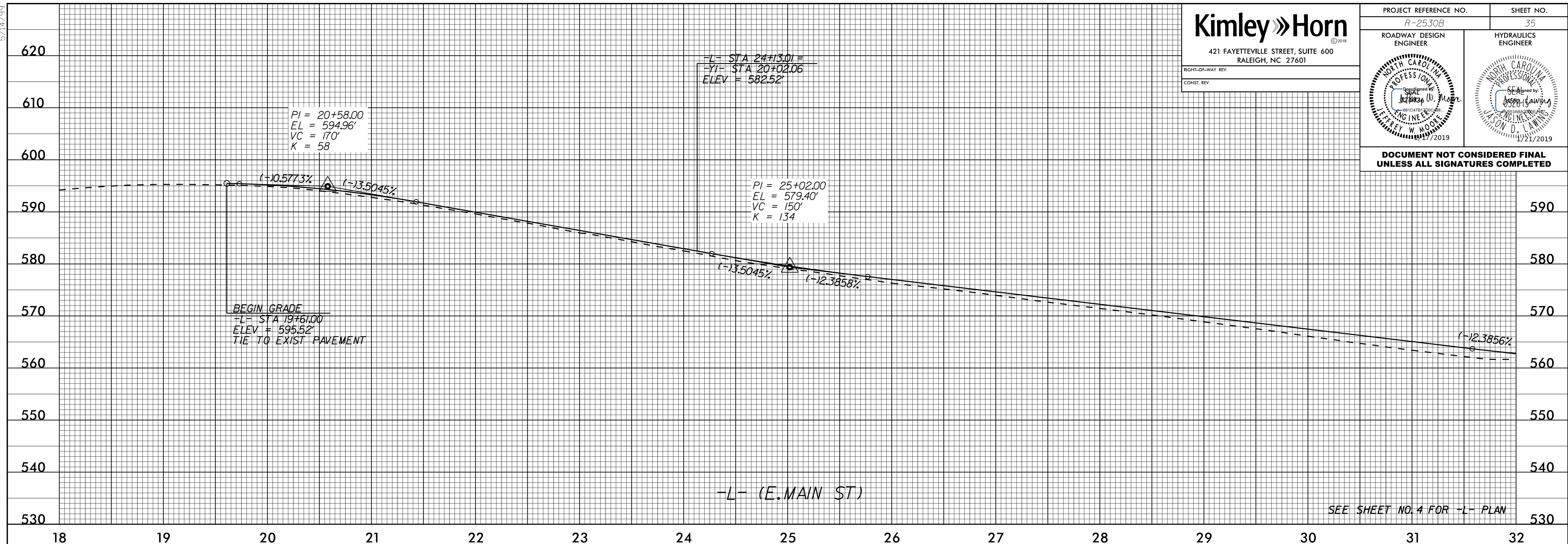
5/14/99

Kimley»Horn
 421 FAYETTEVILLE STREET, SUITE 600
 RALEIGH, NC 27601

RIGHT-OF-WAY REV.
 CONST. REV.

PROJECT REFERENCE NO. R-2530B	SHEET NO. 35
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



11/6/2018

5/14/99

11/6/2018

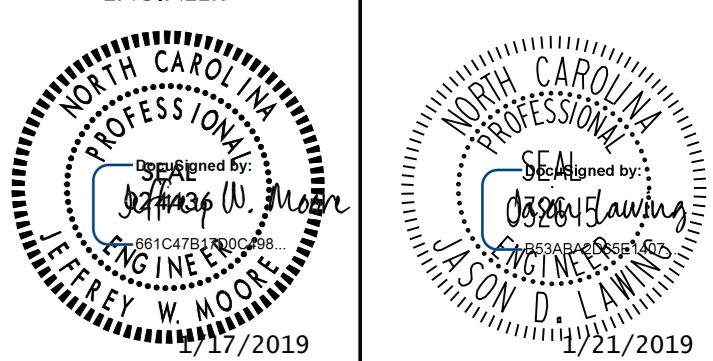
Kimley Horn

421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO. R-2530B SHEET NO. 36

ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

BM*8
ELEV = 566.11'
N 582990 E 1654721
-L- STATION 50+11.70
55.84' LEFT
RR SPIKE IN BASE OF POWER POLE

CULVERT HYDRAULIC DATA
1 @ 8' W x 7' H RCBC (BURIED 1')

DESIGN DISCHARGE = 420 CFS
DESIGN FREQUENCY = 50 YRS
DESIGN HW ELEVATION = 554.8 FT
BASE DISCHARGE = 450 CFS
BASE FREQUENCY = 100 YRS
BASE HW ELEVATION = 555.3 FT
OVERTOPPING DISCHARGE = >500 YR
OVERTOPPING FREQUENCY = >500 YRS
OVERTOPPING ELEVATION = 559.2 FT
DATE OF SURVEY = 08/17/2016
W.S. ELEVATION AT DATE OF SURVEY = NO WATER OBSERVED

-L- STA 56+76.42 =
-Y3- STA 16+43.00
ELEV = 563.12'

PI = 47+13.00
EL = 573.57'
VC = 420'
K = 96

PI = 54+12.00
EL = 556.24'
VC = 490'
K = 96

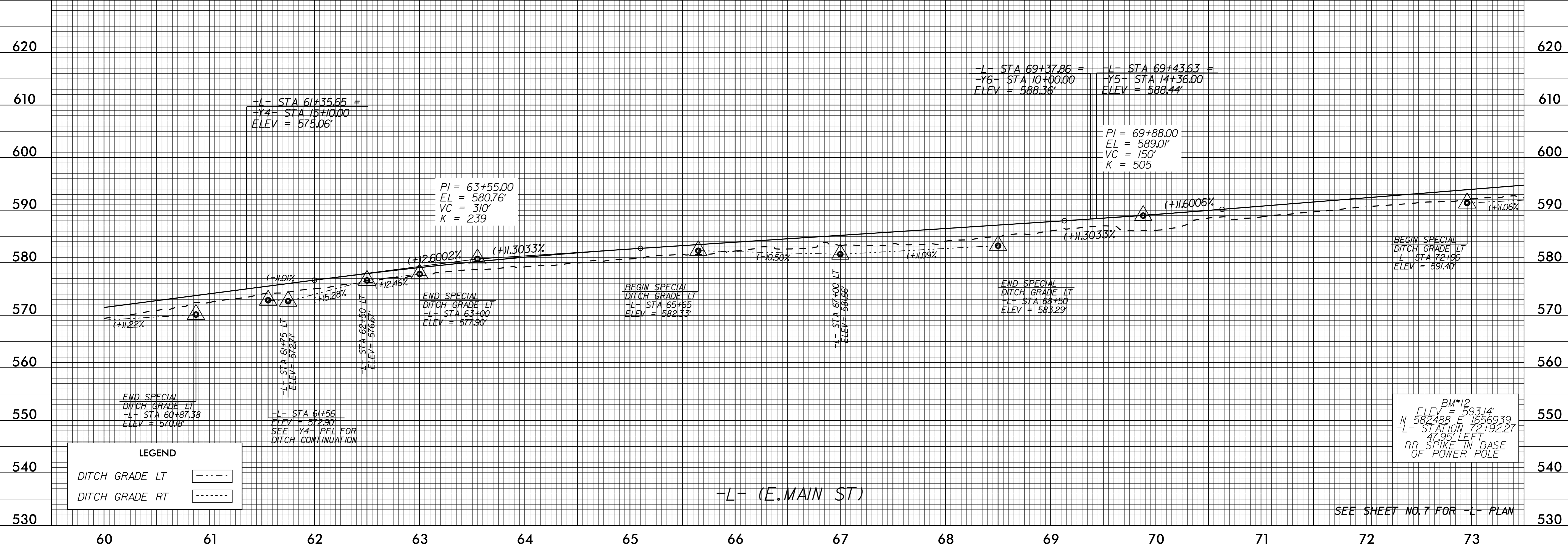
BM*10
ELEV = 572.19'
N 582805 E 1655579
-L- STATION 58+96.45
72.4' LEFT
RR SPIKE IN BASE OF WHITE OAK

LEGEND
DITCH GRADE LT - - - - -
DITCH GRADE RT - - - - -

-L- (E. MAIN ST)

SEE SHEET NO. 6 FOR -L- PLAN

46 47 48 49 50 51 52 53 54 55 56 57 58 59 60



LEGEND
DITCH GRADE LT - - - - -
DITCH GRADE RT - - - - -

-L- (E. MAIN ST)

SEE SHEET NO. 7 FOR -L- PLAN

60 61 62 63 64 65 66 67 68 69 70 71 72 73

5/14/99

Kimley»Horn
 421 FAYETTEVILLE STREET, SUITE 600
 RALEIGH, NC 27601

PROJECT REFERENCE NO. R-2530B
 SHEET NO. 37

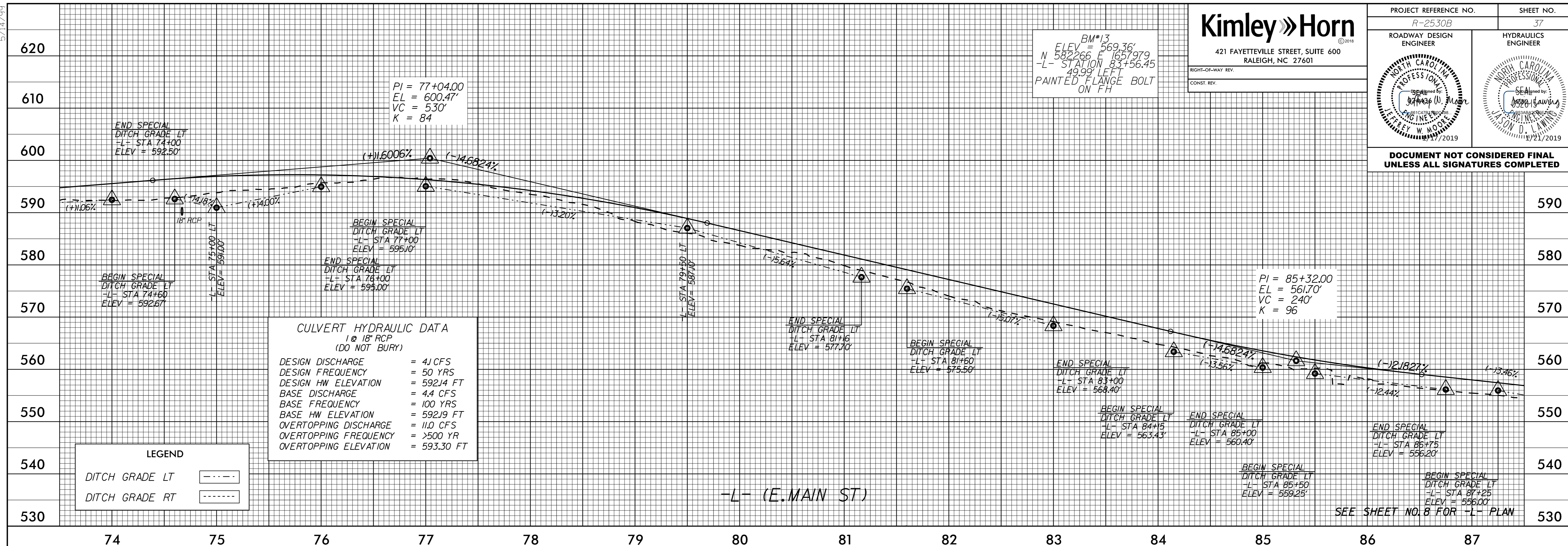
ROADWAY DESIGN ENGINEER
 HYDRAULICS ENGINEER

SEAL NO. 10336 (N. MAINT.)
 DATE: 11/23/2019

SEAL NO. 10336 (N. MAINT.)
 DATE: 11/23/2019

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

BM#13
 ELEV = 569.36'
 N 582266 E 1657979
 -L- STATION 83+56.45
 49.99' LEFT
 PAINTED FLANGE BOLT
 ON FH



LEGEND
 DITCH GRADE LT - - - - -
 DITCH GRADE RT - - - - -

CULVERT HYDRAULIC DATA
 1 @ 18" RCP
 (DO NOT BURY)

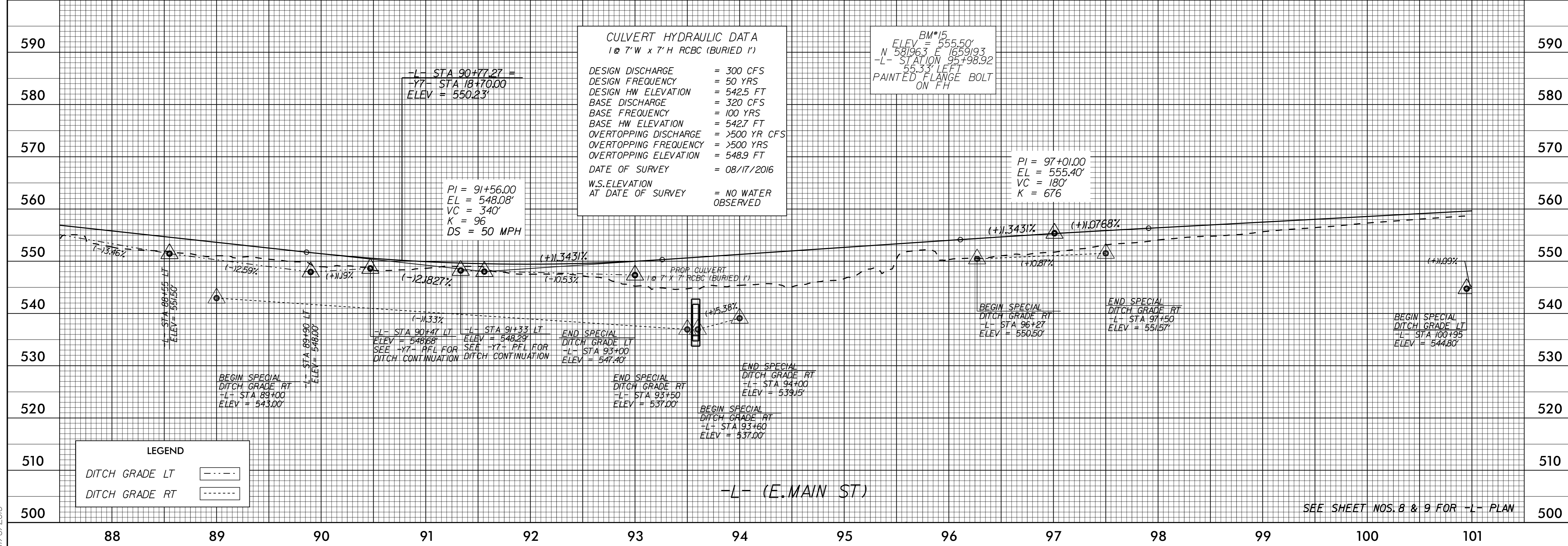
DESIGN DISCHARGE = 41 CFS
 DESIGN FREQUENCY = 50 YRS
 DESIGN HW ELEVATION = 592.14 FT
 BASE DISCHARGE = 4.4 CFS
 BASE FREQUENCY = 100 YRS
 BASE HW ELEVATION = 592.19 FT
 OVERTOPPING DISCHARGE = 11.0 CFS
 OVERTOPPING FREQUENCY = >500 YR
 OVERTOPPING ELEVATION = 593.30 FT

CULVERT HYDRAULIC DATA
 1 @ 7' W x 7' H RCBC (BURIED 1')

DESIGN DISCHARGE = 300 CFS
 DESIGN FREQUENCY = 50 YRS
 DESIGN HW ELEVATION = 542.5 FT
 BASE DISCHARGE = 320 CFS
 BASE FREQUENCY = 100 YRS
 BASE HW ELEVATION = 542.7 FT
 OVERTOPPING DISCHARGE = >500 YR CFS
 OVERTOPPING FREQUENCY = >500 YRS
 OVERTOPPING ELEVATION = 548.9 FT
 DATE OF SURVEY = 08/17/2016
 W.S. ELEVATION AT DATE OF SURVEY = NO WATER OBSERVED

BM#15
 ELEV = 555.50'
 N 581963 E 1659193
 -L- STATION 95+98.92
 55.33' LEFT
 PAINTED FLANGE BOLT
 ON FH

LEGEND
 DITCH GRADE LT - - - - -
 DITCH GRADE RT - - - - -



SEE SHEET NOS. 8 & 9 FOR -L- PLAN

11/6/2018

5/14/99

CULVERT HYDRAULIC DATA
1 @ 36" RCP
(DO NOT BURY)

DESIGN DISCHARGE	= 21.0 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 557.10 FT
BASE DISCHARGE	= 22.0 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 557.20 FT
OVERTOPPING DISCHARGE	= 65 CFS
OVERTOPPING FREQUENCY	= >500 YR
OVERTOPPING ELEVATION	= 559.4 FT

BM#16
ELEV = 570.41'
N 581232 E 1660047
-L- STATION 107+20.12
3.85' RIGHT
RR SPIKE IN BASE
OF POWER POLE

Kimley Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.
CONST. REV.

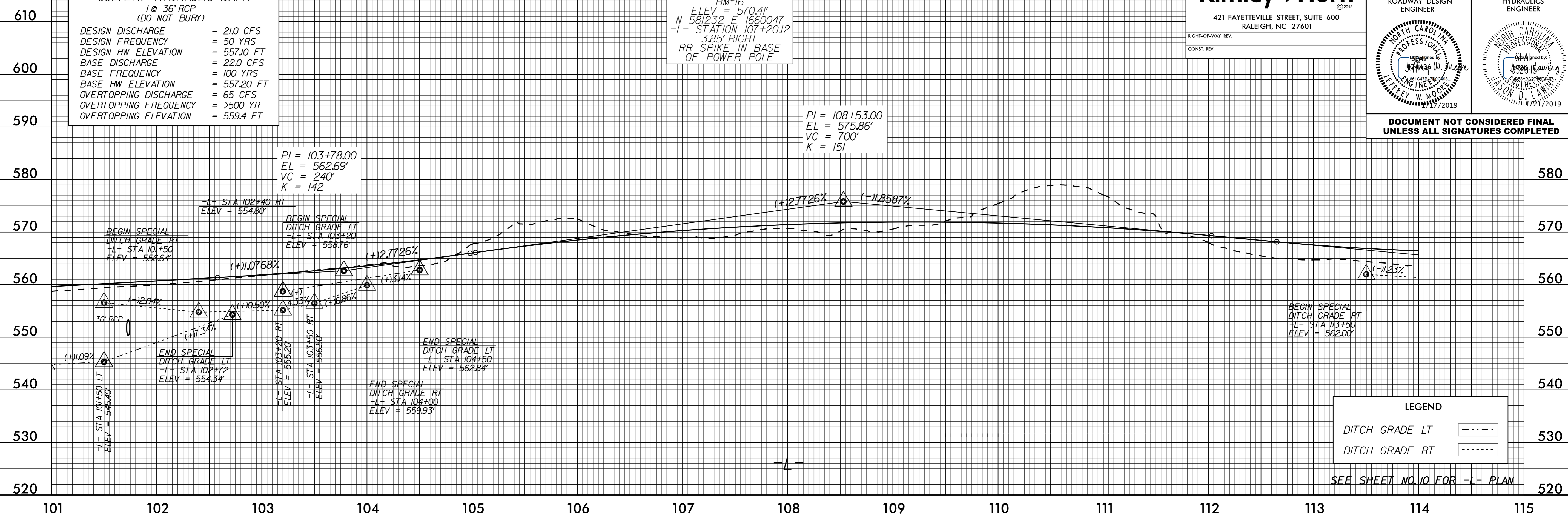
PROJECT REFERENCE NO.	R-2530B	SHEET NO.	38
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	

Professional Engineer Seal: NORTH CAROLINA PROFESSIONAL ENGINEER, License No. 36366, Issued 11/23/2019, Expires 11/23/2024.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PI = 108+53.00
EL = 575.86'
VC = 700'
K = 151

PI = 103+78.00
EL = 562.69'
VC = 240'
K = 142



LEGEND

DITCH GRADE LT (---)

DITCH GRADE RT (.....)

SEE SHEET NO. 10 FOR -L- PLAN

REVISIONS

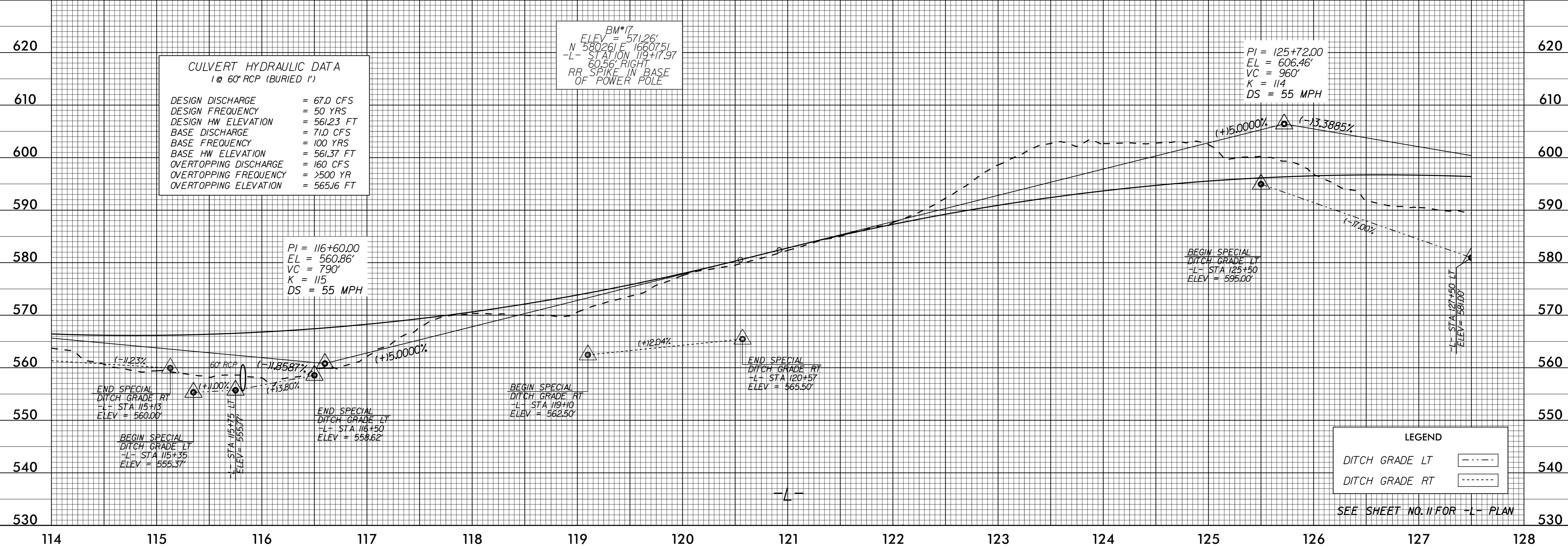
CULVERT HYDRAULIC DATA
1 @ 60" RCP (BURIED 1')

DESIGN DISCHARGE	= 67.0 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 561.23 FT
BASE DISCHARGE	= 71.0 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 561.37 FT
OVERTOPPING DISCHARGE	= 160 CFS
OVERTOPPING FREQUENCY	= >500 YR
OVERTOPPING ELEVATION	= 565.16 FT

BM#17
ELEV = 571.26'
N 580291 E 1660751
-L- STATION 119+17.97
30.56' RIGHT
RR SPIKE IN BASE
OF POWER POLE

PI = 125+72.00
EL = 606.46'
VC = 960'
K = 114
DS = 55 MPH

PI = 116+60.00
EL = 560.86'
VC = 790'
K = 115
DS = 55 MPH



LEGEND

DITCH GRADE LT (---)

DITCH GRADE RT (.....)

SEE SHEET NO. 11 FOR -L- PLAN

11/6/2018

5/14/99

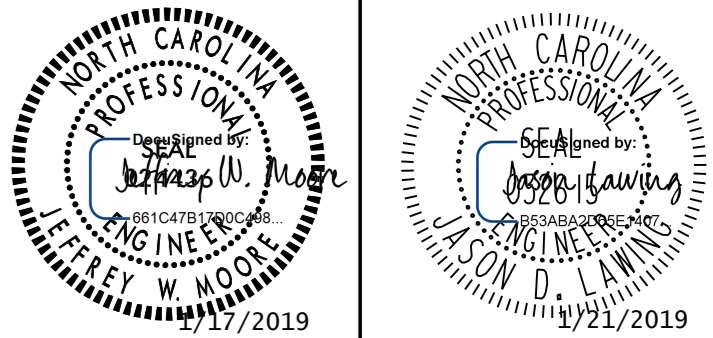
Kimley Horn

421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.
CONST. REV.

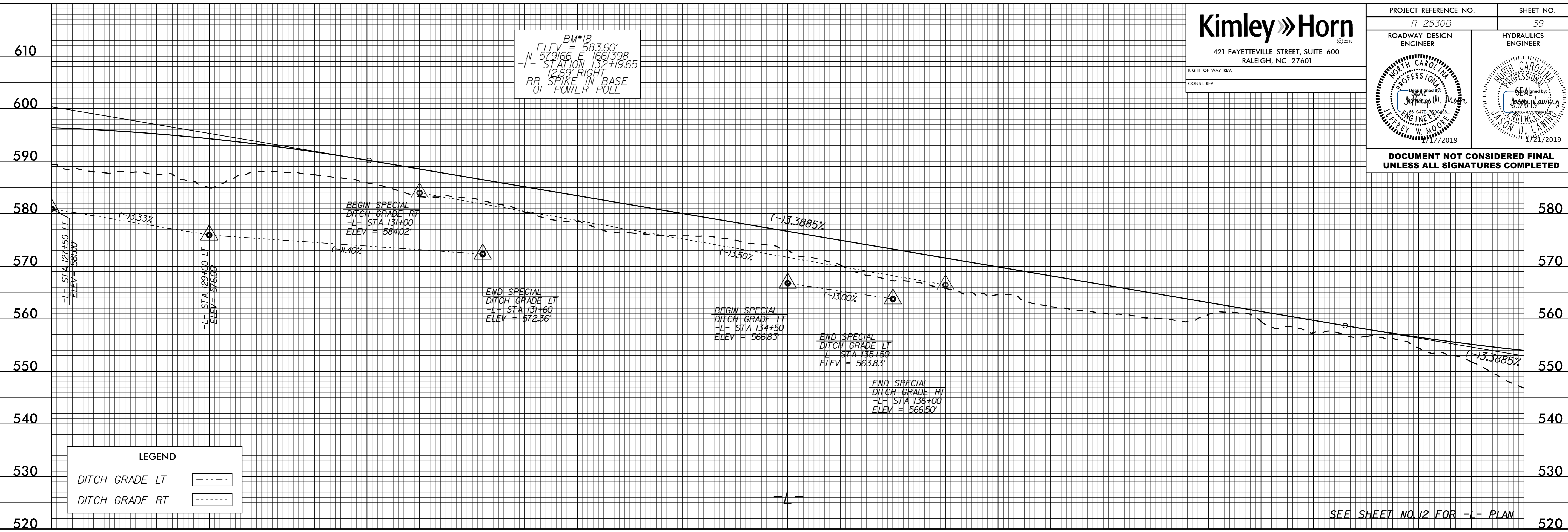
PROJECT REFERENCE NO. R-2530B SHEET NO. 39

ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

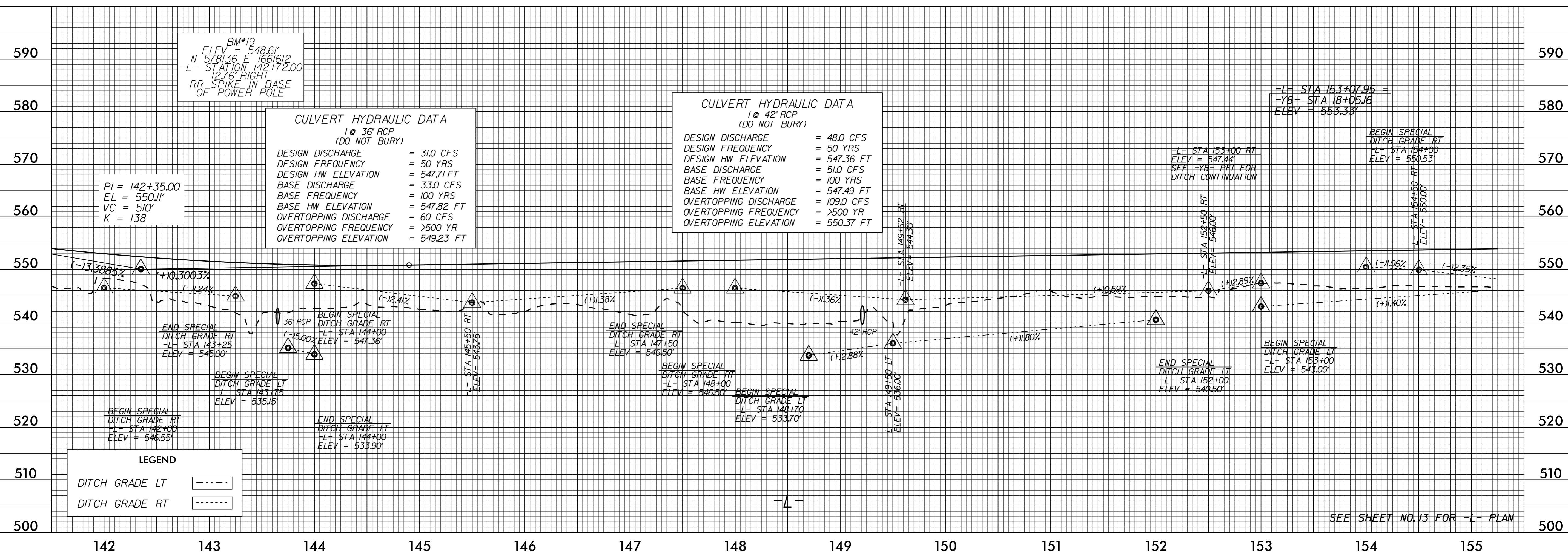
BM*18
ELEV = 583.60'
N 579166 E 1661398
-L- STATION 132+9.65
12.69' RIGHT
RR SPIKE IN BASE
OF POWER POLE



LEGEND
DITCH GRADE LT
DITCH GRADE RT

SEE SHEET NO. 12 FOR -L- PLAN

11/6/2018



CULVERT HYDRAULIC DATA
1 @ 36" RCP
(DO NOT BURY)
DESIGN DISCHARGE = 31.0 CFS
DESIGN FREQUENCY = 50 YRS
DESIGN HW ELEVATION = 547.71 FT
BASE DISCHARGE = 33.0 CFS
BASE FREQUENCY = 100 YRS
BASE HW ELEVATION = 547.82 FT
OVERTOPPING DISCHARGE = 60 CFS
OVERTOPPING FREQUENCY = >500 YR
OVERTOPPING ELEVATION = 549.23 FT

CULVERT HYDRAULIC DATA
1 @ 42" RCP
(DO NOT BURY)
DESIGN DISCHARGE = 48.0 CFS
DESIGN FREQUENCY = 50 YRS
DESIGN HW ELEVATION = 547.36 FT
BASE DISCHARGE = 51.0 CFS
BASE FREQUENCY = 100 YRS
BASE HW ELEVATION = 547.49 FT
OVERTOPPING DISCHARGE = 109.0 CFS
OVERTOPPING FREQUENCY = >500 YR
OVERTOPPING ELEVATION = 550.37 FT

LEGEND
DITCH GRADE LT
DITCH GRADE RT

SEE SHEET NO. 13 FOR -L- PLAN

5/14/99

Kimley Horn
 421 FAYETTEVILLE STREET, SUITE 600
 RALEIGH, NC 27601

RIGHT-OF-WAY REV.
 CONST. REV.

PROJECT REFERENCE NO. R-2530B	SHEET NO. 40
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

BM#22
 ELEV = 547.90'
 N 576868 E 1661880
 -L- STATION 155+68.15
 7.82' RIGHT
 PAINTED FLANGE BOLT
 ON FH

LEGEND

DITCH GRADE LT

DITCH GRADE RT

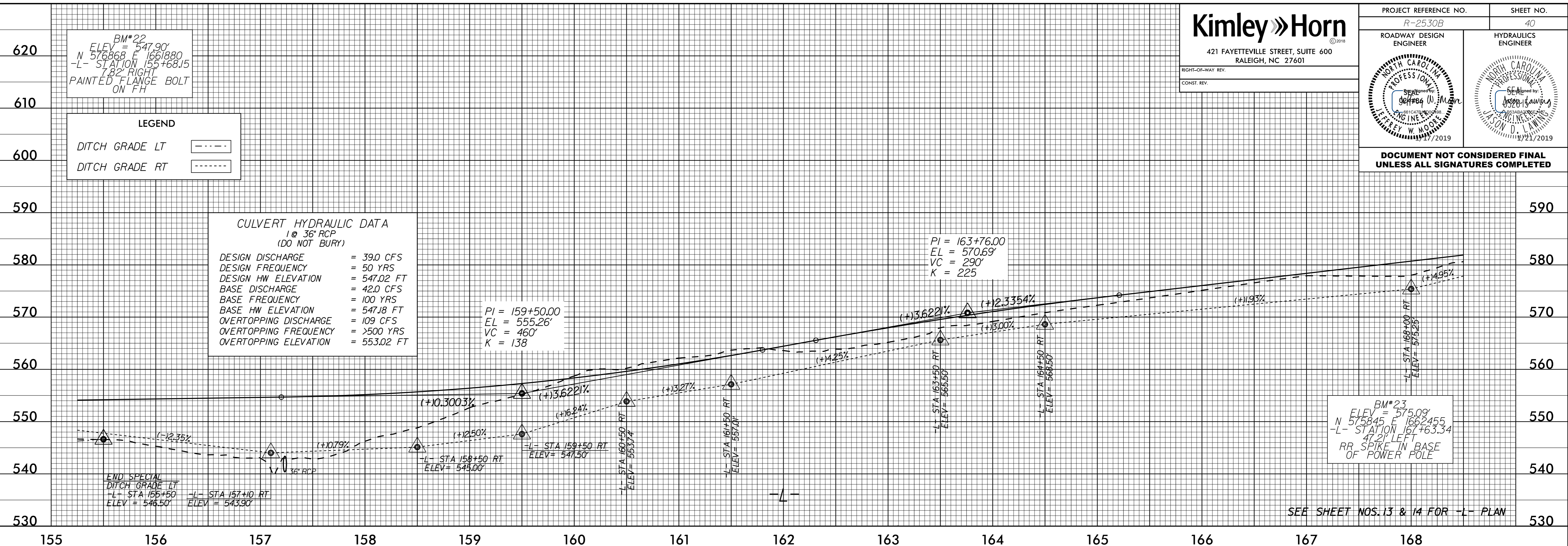
CULVERT HYDRAULIC DATA
 1 @ 36" RCP
 (DO NOT BURY)

DESIGN DISCHARGE = 39.0 CFS
 DESIGN FREQUENCY = 50 YRS
 DESIGN HW ELEVATION = 547.02 FT
 BASE DISCHARGE = 42.0 CFS
 BASE FREQUENCY = 100 YRS
 BASE HW ELEVATION = 547.18 FT
 OVERTOPPING DISCHARGE = 109 CFS
 OVERTOPPING FREQUENCY = >500 YRS
 OVERTOPPING ELEVATION = 553.02 FT

PI = 159+50.00
 EL = 555.26'
 VC = 460'
 K = 138

PI = 163+76.00
 EL = 570.69'
 VC = 290'
 K = 225

BM#23
 ELEV = 575.09'
 N 575845 E 1662455
 -L- STATION 167+63.34
 47.2' LEFT
 RR SPIKE IN BASE
 OF POWER POLE



11/6/2018

LEGEND

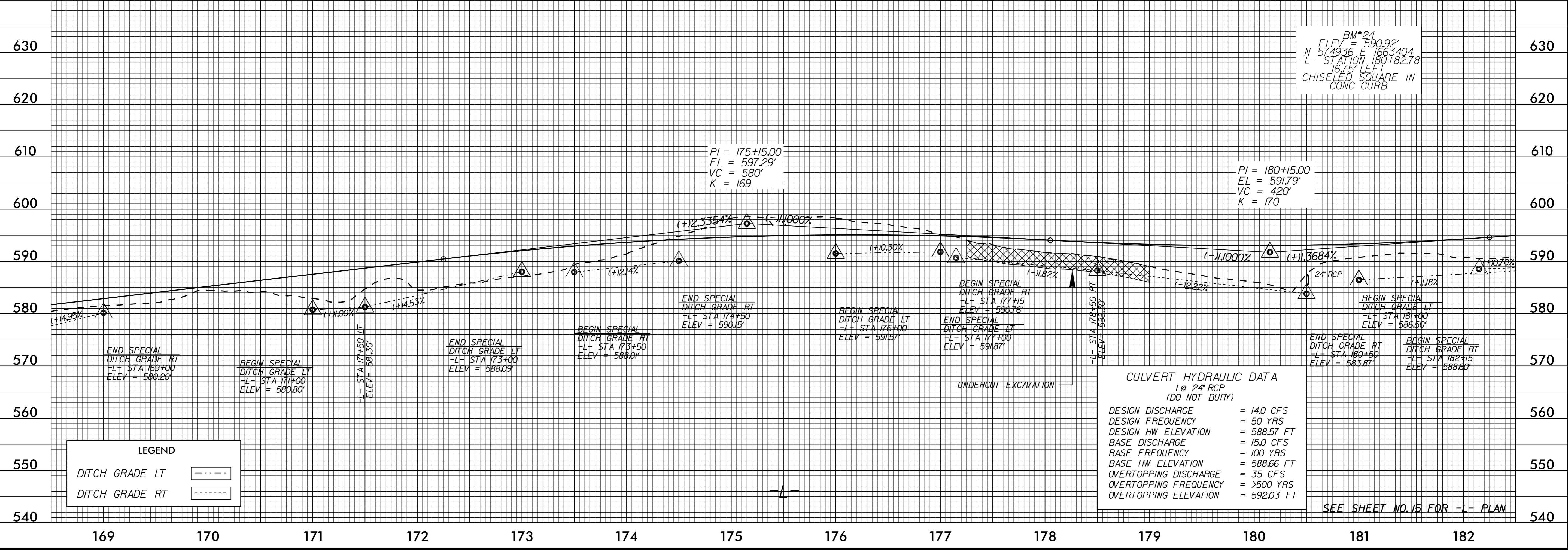
DITCH GRADE LT

DITCH GRADE RT

CULVERT HYDRAULIC DATA
 1 @ 24" RCP
 (DO NOT BURY)

DESIGN DISCHARGE = 14.0 CFS
 DESIGN FREQUENCY = 50 YRS
 DESIGN HW ELEVATION = 588.57 FT
 BASE DISCHARGE = 15.0 CFS
 BASE FREQUENCY = 100 YRS
 BASE HW ELEVATION = 588.66 FT
 OVERTOPPING DISCHARGE = 35 CFS
 OVERTOPPING FREQUENCY = >500 YRS
 OVERTOPPING ELEVATION = 592.03 FT

SEE SHEET NO. 15 FOR -L- PLAN



BM#24
 ELEV = 590.92'
 N 574936 E 1663404
 -L- STATION 180+82.78
 16.75' LEFT
 CHISELED SQUARE IN
 CONC CURB

PI = 175+15.00
 EL = 597.29'
 VC = 580'
 K = 169

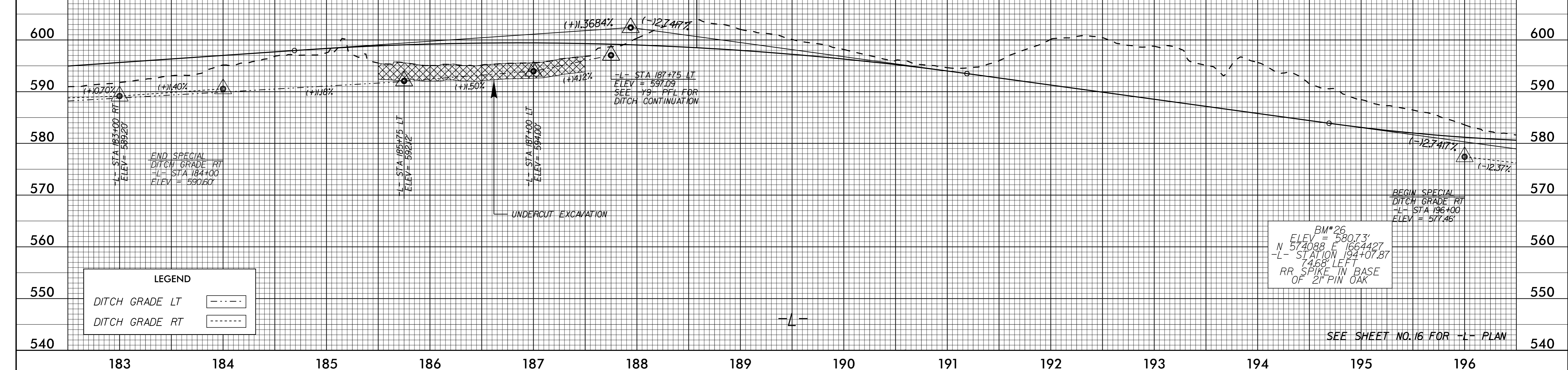
PI = 180+15.00
 EL = 591.79'
 VC = 420'
 K = 170

5/14/99

Kimley Horn
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 RALEIGH, NC 27601

PROJECT REFERENCE NO. R-2530B	SHEET NO. 41
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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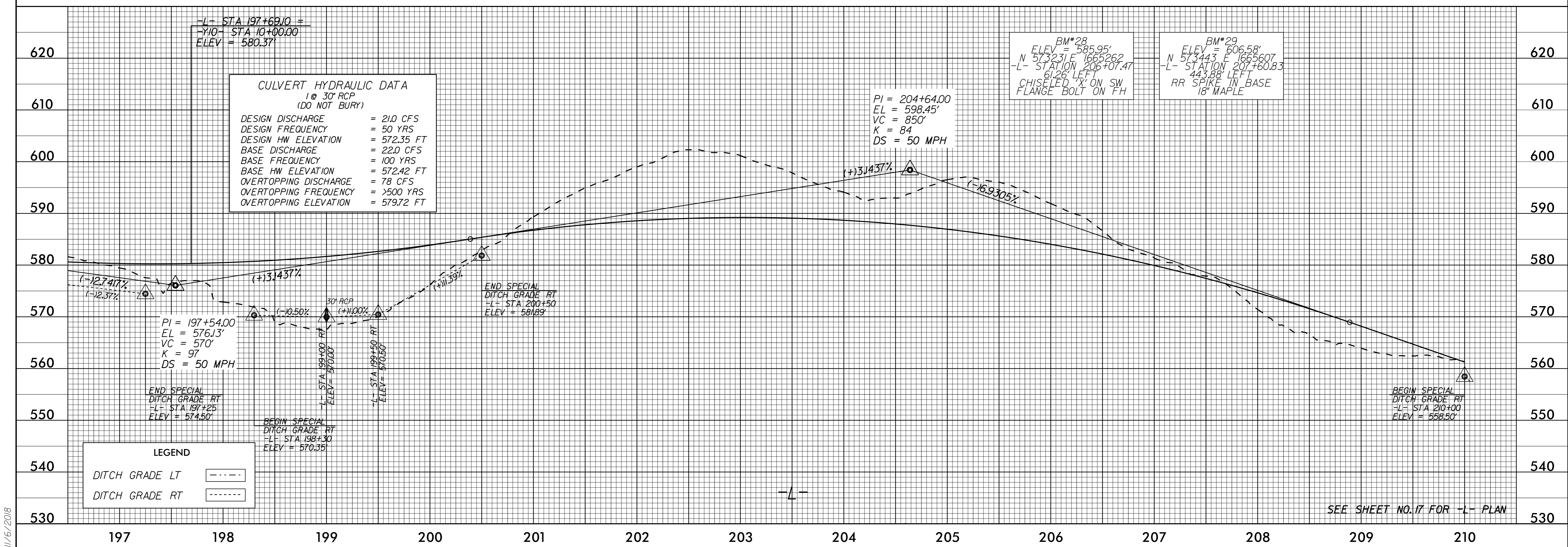
LEGEND

DITCH GRADE LT

DITCH GRADE RT

BM#26
 ELEV = 580.73'
 N 574088 E 1664427
 -L- STATION 194+07.87
 74.68' LEFT
 RR SPIKE IN BASE
 OF 2" PIN OAK

SEE SHEET NO. 16 FOR -L- PLAN



CULVERT HYDRAULIC DATA
 1 @ 30" RCP
 (DO NOT BURY)

DESIGN DISCHARGE = 21.0 CFS
 DESIGN FREQUENCY = 50 YRS
 DESIGN HW ELEVATION = 572.35 FT
 BASE DISCHARGE = 22.0 CFS
 BASE FREQUENCY = 100 YRS
 BASE HW ELEVATION = 572.42 FT
 OVERTOPPING DISCHARGE = 78 CFS
 OVERTOPPING FREQUENCY = >500 YRS
 OVERTOPPING ELEVATION = 579.72 FT

LEGEND

DITCH GRADE LT

DITCH GRADE RT

SEE SHEET NO. 17 FOR -L- PLAN

11/6/2018

5/14/99

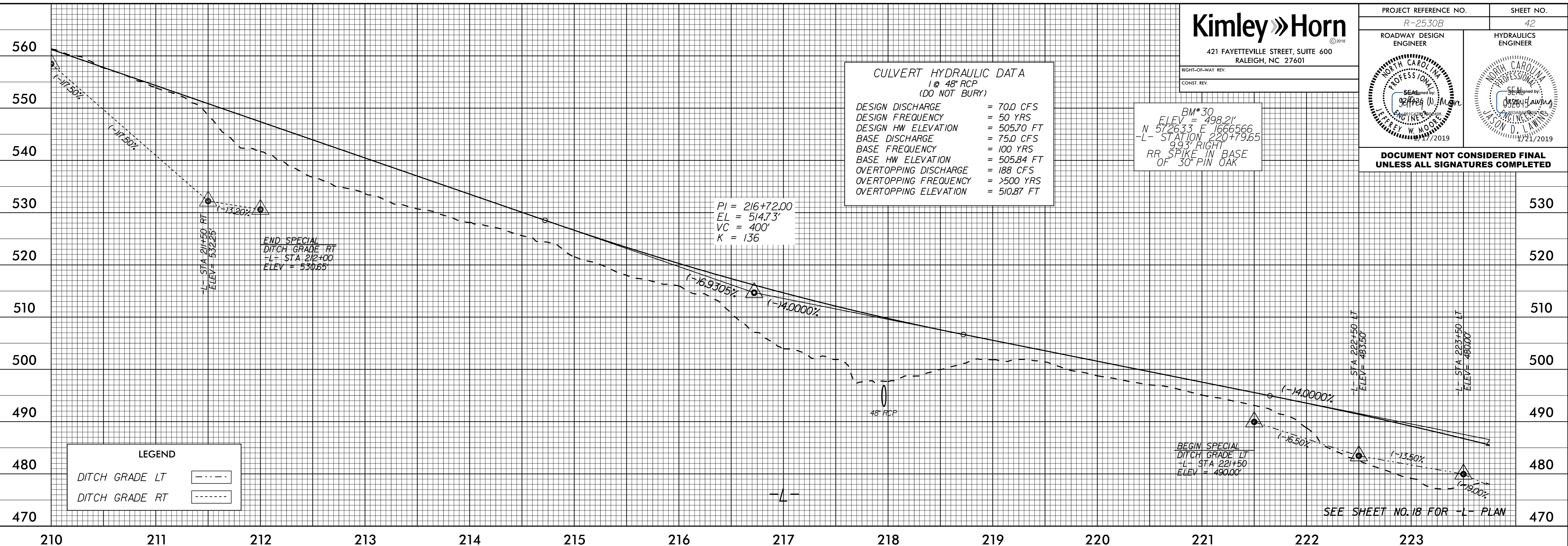
Kimley Horn
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 RALEIGH, NC 27601

PROJECT REFERENCE NO. R-2530B	SHEET NO. 42
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

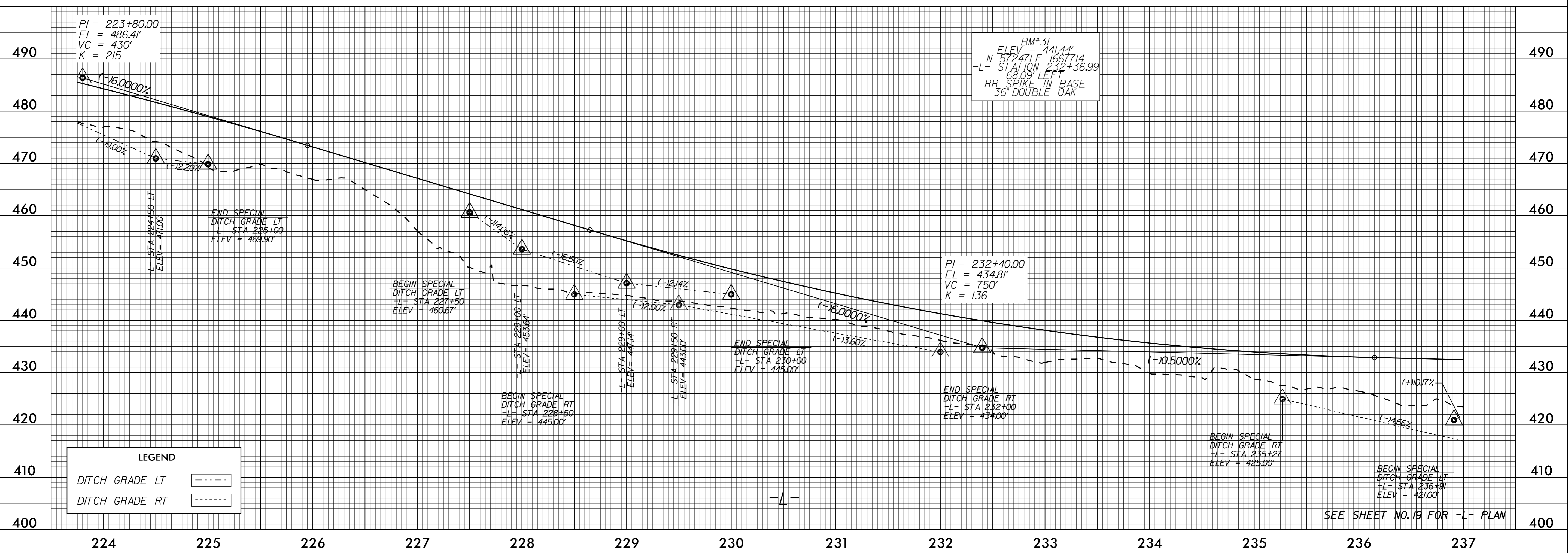
CULVERT HYDRAULIC DATA
 1 @ 48" RCP
 (DO NOT BURY)

DESIGN DISCHARGE = 70.0 CFS
 DESIGN FREQUENCY = 50 YRS
 DESIGN HW ELEVATION = 505.70 FT
 BASE DISCHARGE = 75.0 CFS
 BASE FREQUENCY = 100 YRS
 BASE HW ELEVATION = 505.84 FT
 OVERTOPPING DISCHARGE = 188 CFS
 OVERTOPPING FREQUENCY = >500 YRS
 OVERTOPPING ELEVATION = 510.87 FT

BM# 30
 ELEV = 498.21'
 N 57.2633 E 1666566
 -L- STATION 220+79.65
 993' RIGHT
 RR SPIKE IN BASE
 OF 30" PIN OAK



LEGEND
 DITCH GRADE LT - - - - -
 DITCH GRADE RT -



LEGEND
 DITCH GRADE LT - - - - -
 DITCH GRADE RT -

11/6/2018

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SEE SHEET NO. 18 FOR -L- PLAN

SEE SHEET NO. 19 FOR -L- PLAN

5/14/99

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 RALEIGH, NC 27601

RIGHT-OF-WAY REV.
 CONST. REV.

PROJECT REFERENCE NO. R-2530B	SHEET NO. 43
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

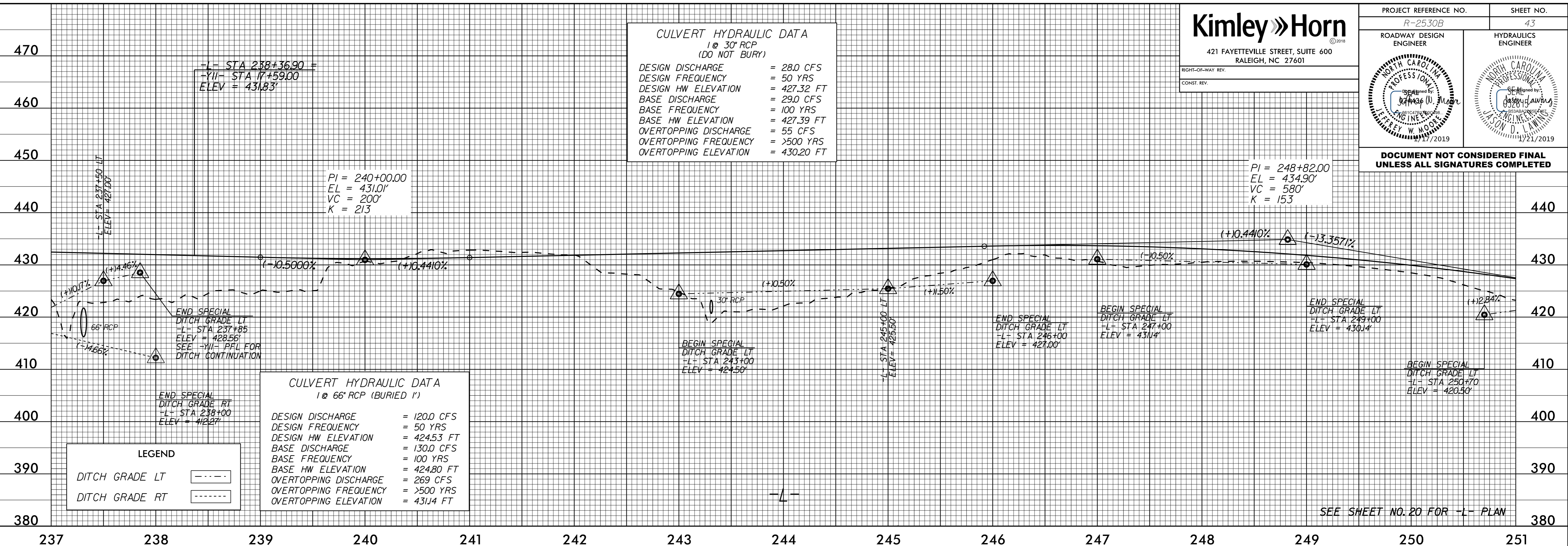
CULVERT HYDRAULIC DATA
 1 @ 30" RCP
 (DO NOT BURY)

DESIGN DISCHARGE = 28.0 CFS
 DESIGN FREQUENCY = 50 YRS
 DESIGN HW ELEVATION = 427.32 FT
 BASE DISCHARGE = 29.0 CFS
 BASE FREQUENCY = 100 YRS
 BASE HW ELEVATION = 427.39 FT
 OVERTOPPING DISCHARGE = 55 CFS
 OVERTOPPING FREQUENCY = >500 YRS
 OVERTOPPING ELEVATION = 430.20 FT

PI = 240+00.00
 EL = 431.01'
 VC = 200'
 K = 213

PI = 248+82.00
 EL = 434.90'
 VC = 580'
 K = 153

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



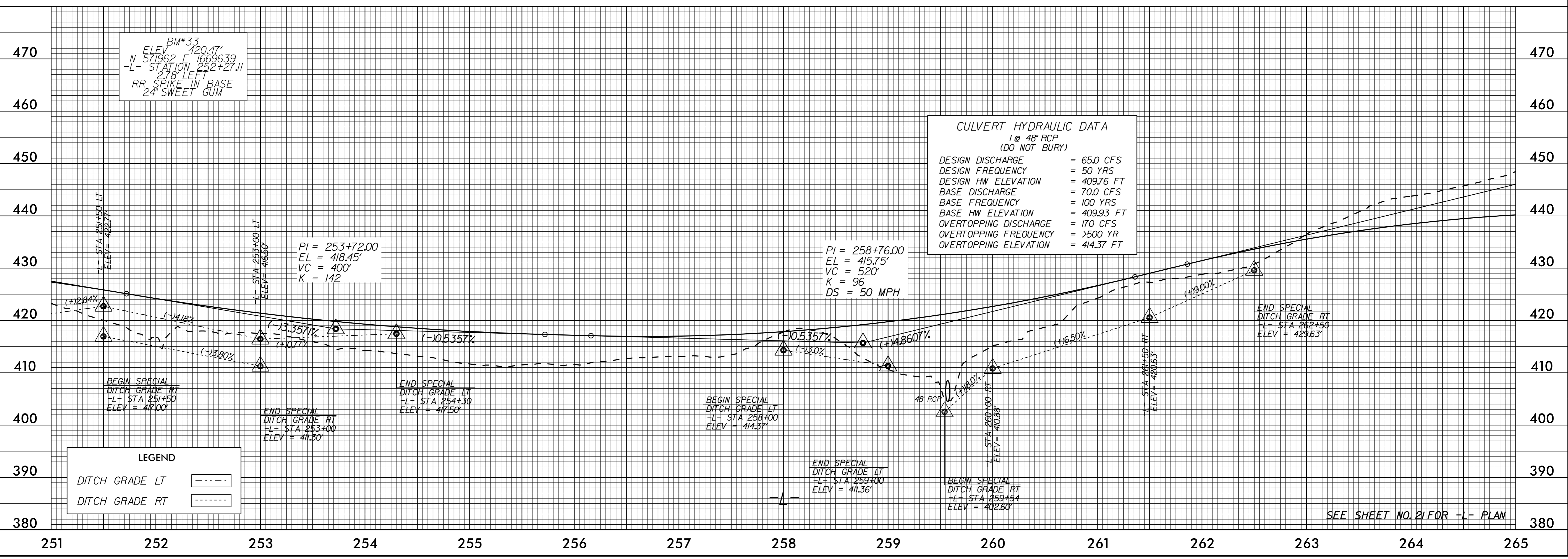
CULVERT HYDRAULIC DATA
 1 @ 66" RCP (BURIED 1')

DESIGN DISCHARGE = 120.0 CFS
 DESIGN FREQUENCY = 50 YRS
 DESIGN HW ELEVATION = 424.53 FT
 BASE DISCHARGE = 130.0 CFS
 BASE FREQUENCY = 100 YRS
 BASE HW ELEVATION = 424.80 FT
 OVERTOPPING DISCHARGE = 269 CFS
 OVERTOPPING FREQUENCY = >500 YRS
 OVERTOPPING ELEVATION = 431.14 FT

LEGEND

DITCH GRADE LT

DITCH GRADE RT



CULVERT HYDRAULIC DATA
 1 @ 48" RCP
 (DO NOT BURY)

DESIGN DISCHARGE = 65.0 CFS
 DESIGN FREQUENCY = 50 YRS
 DESIGN HW ELEVATION = 409.76 FT
 BASE DISCHARGE = 70.0 CFS
 BASE FREQUENCY = 100 YRS
 BASE HW ELEVATION = 409.93 FT
 OVERTOPPING DISCHARGE = 170 CFS
 OVERTOPPING FREQUENCY = >500 YR
 OVERTOPPING ELEVATION = 414.37 FT

PI = 253+72.00
 EL = 418.45'
 VC = 400'
 K = 142

PI = 258+76.00
 EL = 415.75'
 VC = 520'
 K = 96
 DS = 50 MPH

LEGEND

DITCH GRADE LT

DITCH GRADE RT

SEE SHEET NO. 21 FOR -L- PLAN

11/6/2018

5/14/1999

11/6/2018

Kimley Horn

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RALEIGH, NC 27601

RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO. R-2530B	SHEET NO. 44
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

BM*37
ELEV = 409.73'
N 571051 E 1672060
-L- STATION 278+31.36
48.56' LEFT
RR SPIKE IN BASE
36" OAK

CULVERT HYDRAULIC DATA
1 @ 36 RCP (BURIED 0.6')

DESIGN DISCHARGE	= 13.0 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 403.68 FT
BASE DISCHARGE	= 13.0 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 403.68 FT
OVERTOPPING DISCHARGE	= 26 CFS
OVERTOPPING FREQUENCY	= >500 YR
OVERTOPPING ELEVATION	= 404.60 FT

BM*34
ELEV = 443.79'
N 571383 E 1670793
-L- STATION 265+16.35
57.19' RIGHT
CHISELED SQUARE ON
W END CONC ISLAND

BM*35
ELEV = 421.67'
N 571040 E 1670918
-L- STATION 267+71.09
319.63' RIGHT
RR SPIKE IN BASE
OF POWER POLE

PI = 266+01.00
EL = 450.99'
VC = 830'
K = 84
DS = 50 MPH

PI = 272+82.00
EL = 416.94'
VC = 450'
K = 137

LEGEND

DITCH GRADE LT

DITCH GRADE RT

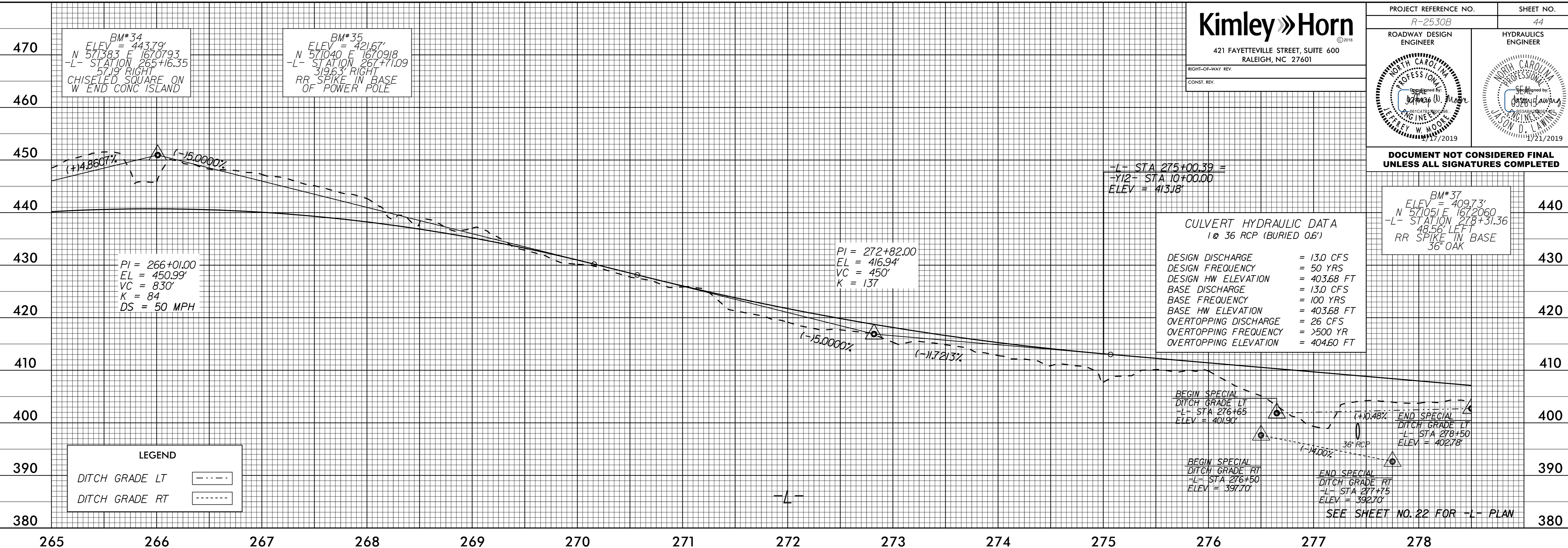
BEGIN SPECIAL DITCH GRADE LT
-L- STA 276+65
ELEV = 401.90'

END SPECIAL DITCH GRADE LT
-L- STA 278+50
ELEV = 402.78'

BEGIN SPECIAL DITCH GRADE RT
-L- STA 276+50
ELEV = 397.70'

END SPECIAL DITCH GRADE RT
-L- STA 277+75
ELEV = 392.70'

SEE SHEET NO. 22 FOR -L- PLAN



PI = 284+50.00
EL = 396.84'
VC = 620'
K = 164

PI = 288+65.00
EL = 374.01'
VC = 210'
K = 140

LEGEND

DITCH GRADE LT

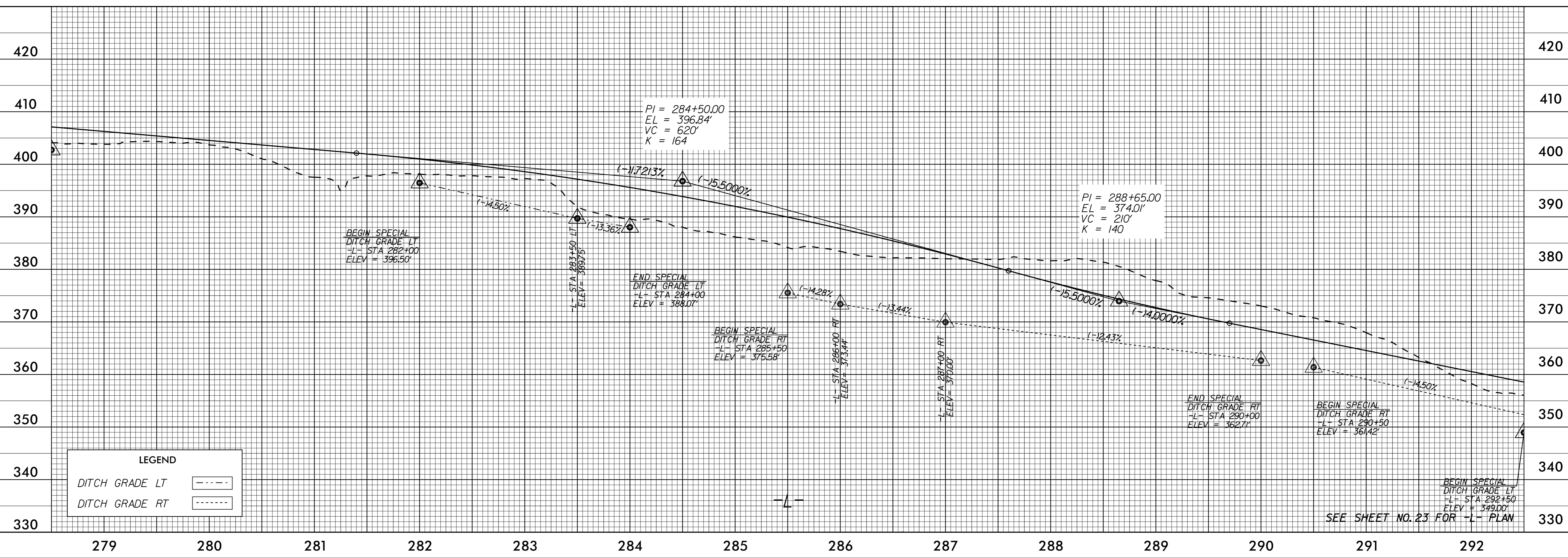
DITCH GRADE RT

END SPECIAL DITCH GRADE RT
-L- STA 290+00
ELEV = 362.71'

BEGIN SPECIAL DITCH GRADE RT
-L- STA 290+50
ELEV = 361.42'

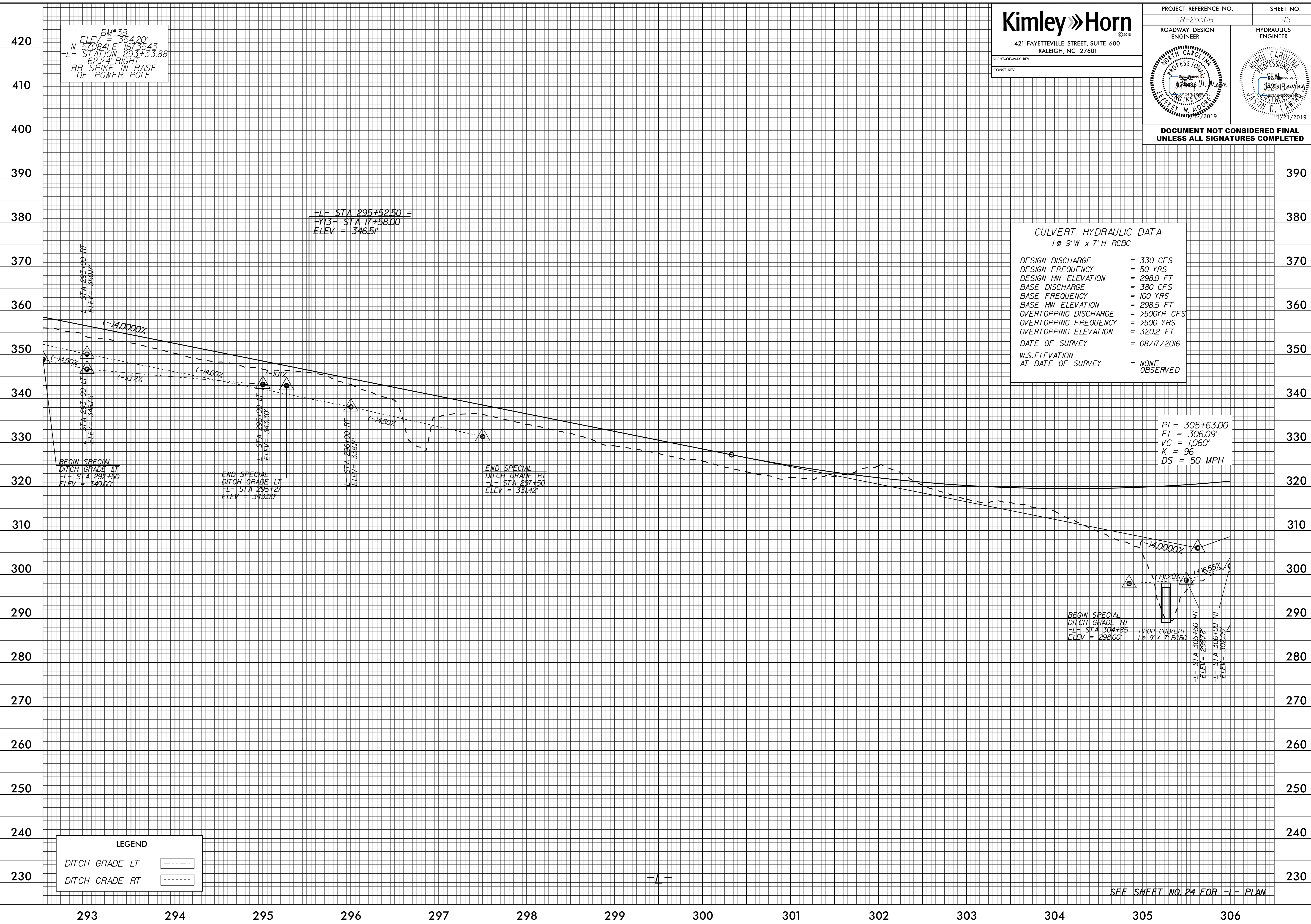
BEGIN SPECIAL DITCH GRADE LT
-L- STA 292+50
ELEV = 349.00'

SEE SHEET NO. 23 FOR -L- PLAN



5/14/1999

11/6/2018



BM# 38
 ELEV = 354.20'
 N 57.0841° E 167.3543'
 -L- STATION 293+33.88
 62.24' RIGHT
 RR SPIKE IN BASE
 OF POWER POLE

-L- STA 295+52.50 =
 -Y13- STA 17+58.00
 ELEV = 346.51'

PROJECT REFERENCE NO. R-2530B		SHEET NO. 45
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		

CULVERT HYDRAULIC DATA
 1 @ 9' W x 7' H RCBC

DESIGN DISCHARGE = 330 CFS
 DESIGN FREQUENCY = 50 YRS
 DESIGN HW ELEVATION = 298.0 FT
 BASE DISCHARGE = 380 CFS
 BASE FREQUENCY = 100 YRS
 BASE HW ELEVATION = 298.5 FT
 OVERTOPPING DISCHARGE = >500YR CFS
 OVERTOPPING FREQUENCY = >500 YRS
 OVERTOPPING ELEVATION = 320.2 FT
 DATE OF SURVEY = 08/17/2016
 W.S. ELEVATION AT DATE OF SURVEY = NONE OBSERVED

PI = 305+63.00
 EL = 306.09'
 VC = 1,060'
 K = 96
 DS = 50 MPH

LEGEND

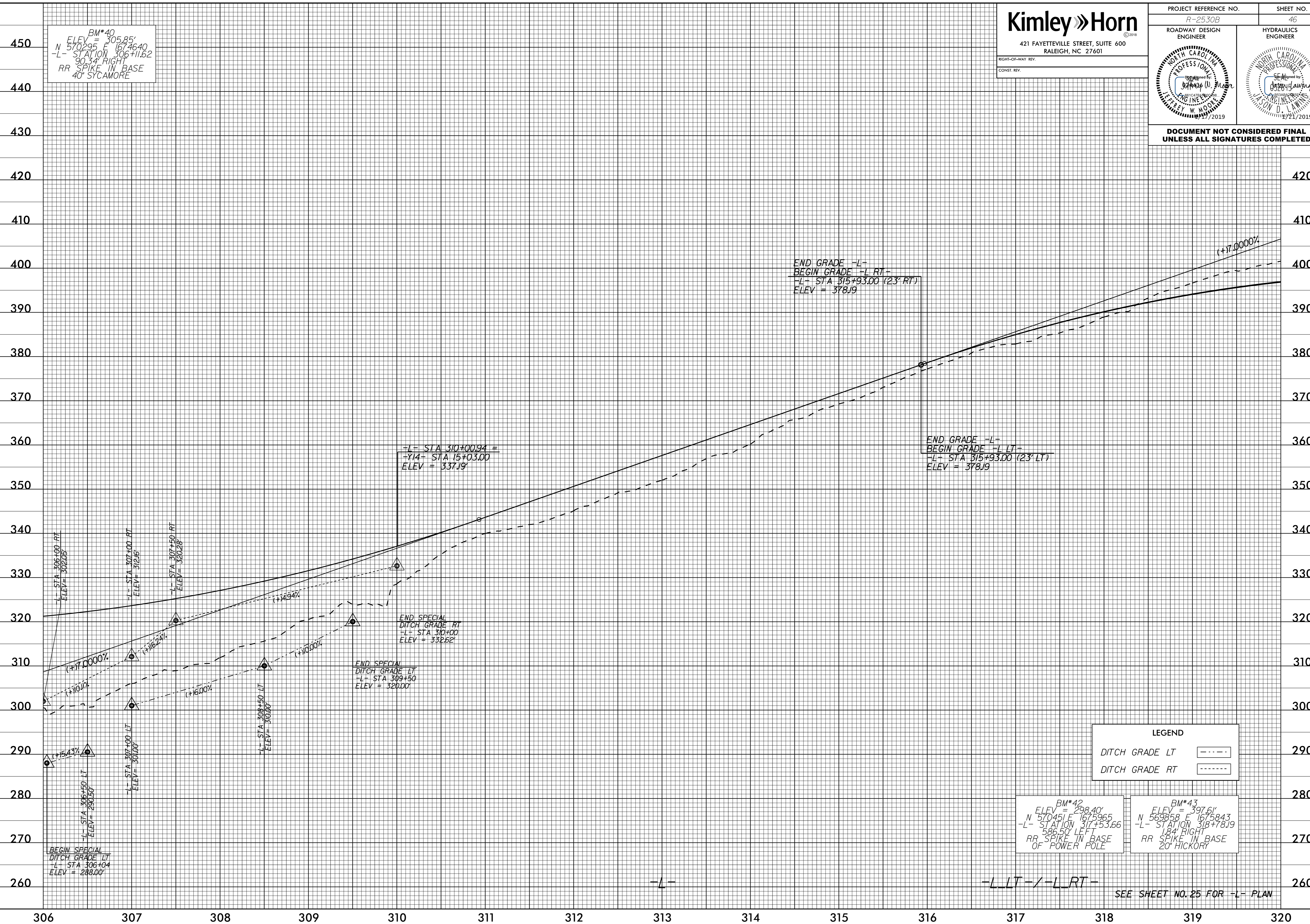
DITCH GRADE LT

DITCH GRADE RT

SEE SHEET NO. 24 FOR -L- PLAN

5/14/99

11/6/2018



BM*40
 ELEV = 305.85'
 N 570295 E 1674640
 -L- STATION 306+11.62
 90.34' RIGHT
 RR SPIKE IN BASE
 40' SYCAMORE

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PROJECT REFERENCE NO. R-2530B	SHEET NO. 46
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

LEGEND
 DITCH GRADE LT

BM*42
 ELEV = 298.40'
 N 570451 E 1675965
 -L- STATION 317+53.66
 586.50' LEFT
 RR SPIKE IN BASE
 OF POWER POLE

BM*43
 ELEV = 397.61'
 N 569858 E 1675843
 -L- STATION 318+78.19
 1.84' RIGHT
 RR SPIKE IN BASE
 20' HICKORY

SEE SHEET NO. 25 FOR -L- PLAN

5/14/99

Kimley Horn

421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO. R-2530B SHEET NO. 47

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

BM#45
ELEV = 361.05'
N 569232 E 1676812
-Y15- STATION 14+50.11
317' LEFT
CHISELED SQUARE ON
N END CONC MEDIAN

PI = 322+07.00 (L_RT)
EL = 421.17'
VC = 1,220'
K = 84
DS = 50 MPH

PI = 322+48.00 (L_LT)
EL = 424.04'
VC = 1,310'
K = 85
DS = 50 MPH

-L_RT- STA 330+19.33 =
-Y15- STA 14+12.86
ELEV = 360.25'

-L_LT- STA 330+19.33 =
-Y15- STA 13+06.86
ELEV = 358.48'

PROPOSED GRADE -L_RT-
BEGIN SPECIAL
DITCH GRADE RT
-L- STA 331+50
ELEV = 348.17'

END SPECIAL
DITCH GRADE RT
-L- STA 332+50
ELEV = 339.86'

BEGIN SPECIAL
DITCH GRADE LT
-L- STA 332+00
ELEV = 331.00'

LEGEND

DITCH GRADE LT	
DITCH GRADE RT	

*DESIGN EXCEPTION REQUIRED FOR VERTICAL CURVE K VALUE AND VERTICAL STOPPING SIGHT DISTANCE
SEE SHEET NO. 26 FOR -L- PLAN

-L_LT- / -L_RT-

440
430
420
410
400
390
380
370
360
350
340
330
320
310
300
290
280

320 321 322 323 324 325 326 327 328 329 330 331 332 333 334

2/12/2019

5/14/99

Kimley Horn

421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.
CONST. REV.

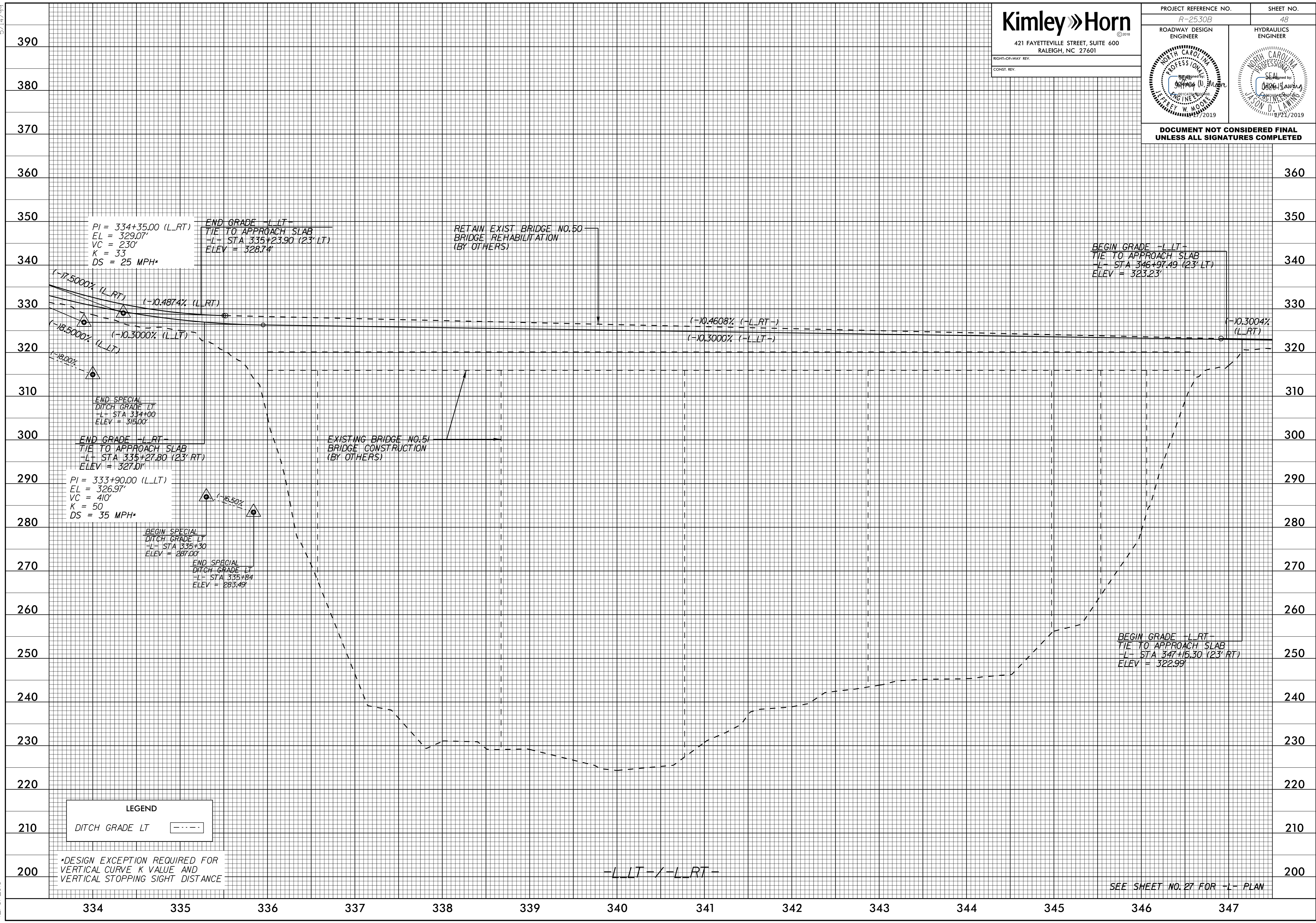
PROJECT REFERENCE NO. R-2530B SHEET NO. 48

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



PI = 334+35.00 (L-RT)
 EL = 329.07'
 VC = 230'
 K = 33
 DS = 25 MPH*

END GRADE -L-LT-
 TIE TO APPROACH SLAB
 -L- STA 335+23.90 (23' LT)
 ELEV = 328.74'

RETAIN EXIST BRIDGE NO. 51
 BRIDGE REHABILITATION
 (BY OTHERS)

BEGIN GRADE -L-LT-
 TIE TO APPROACH SLAB
 -L- STA 346+97.49 (23' LT)
 ELEV = 323.23'

END SPECIAL
 DITCH GRADE LT
 -L- STA 334+00
 ELEV = 315.00'

END GRADE -L-RT-
 TIE TO APPROACH SLAB
 -L- STA 335+27.80 (23' RT)
 ELEV = 327.01'

PI = 333+90.00 (L-LT)
 EL = 326.97'
 VC = 410'
 K = 50
 DS = 35 MPH*

BEGIN SPECIAL
 DITCH GRADE LT
 -L- STA 335+30
 ELEV = 287.00'

END SPECIAL
 DITCH GRADE LT
 -L- STA 335+84
 ELEV = 283.49'

EXISTING BRIDGE NO. 51
 BRIDGE CONSTRUCTION
 (BY OTHERS)

BEGIN GRADE -L-RT-
 TIE TO APPROACH SLAB
 -L- STA 347+16.30 (23' RT)
 ELEV = 322.99'

LEGEND
 DITCH GRADE LT

*DESIGN EXCEPTION REQUIRED FOR
 VERTICAL CURVE K VALUE AND
 VERTICAL STOPPING SIGHT DISTANCE

-L-LT- / -L-RT-

SEE SHEET NO. 27 FOR -L- PLAN

12/16/2018

5/14/1999

Kimley Horn
 421 FAYETTEVILLE STREET, SUITE 600
 RALEIGH, NC 27601

RIGHT-OF-WAY REV.
 CONST. REV.

PROJECT REFERENCE NO. R-2530B	SHEET NO. 49
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

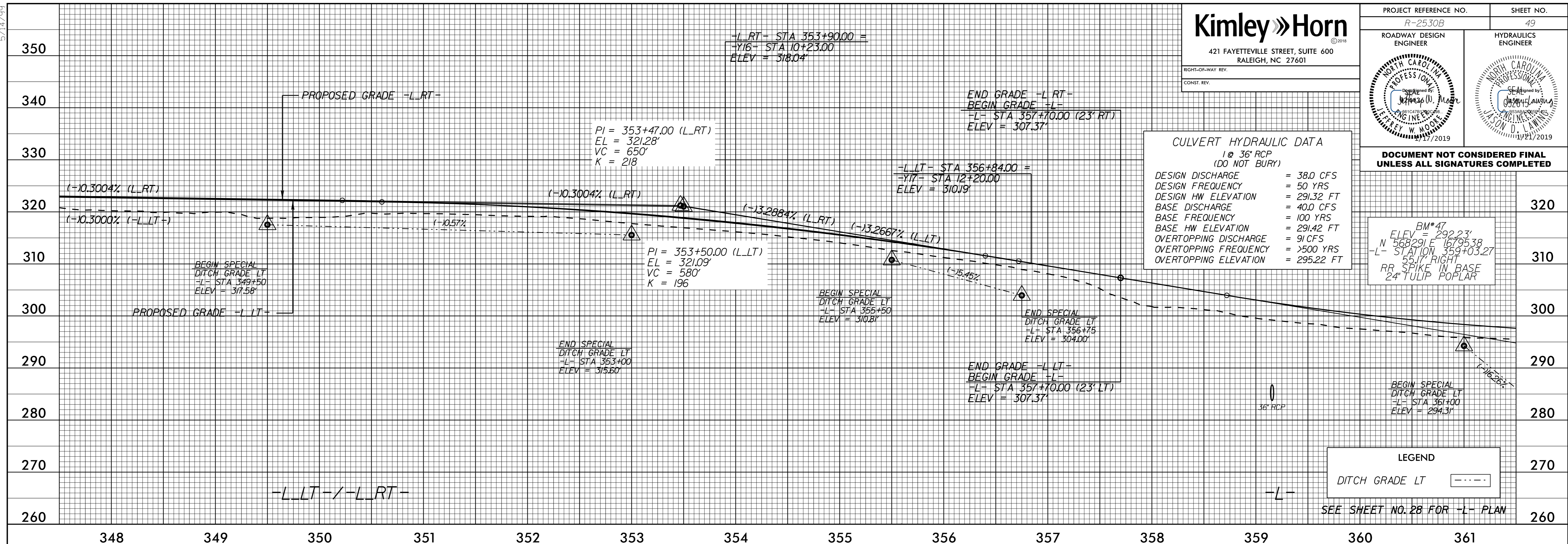
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

BM*47
 ELEV = 292.23'
 N 568291 E 1679538
 -L- STATION 359+03.27
 55.17' RIGHT
 RR SPIKE IN BASE
 24" TULIP POPLAR

CULVERT HYDRAULIC DATA
 1 @ 36" RCP
 (DO NOT BURY)

DESIGN DISCHARGE	= 38.0 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 291.32 FT
BASE DISCHARGE	= 40.0 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 291.42 FT
OVERTOPPING DISCHARGE	= 91 CFS
OVERTOPPING FREQUENCY	= >500 YRS
OVERTOPPING ELEVATION	= 295.22 FT

LEGEND
 DITCH GRADE LT
 SEE SHEET NO. 28 FOR -L- PLAN



11/6/2018

CULVERT HYDRAULIC DATA
 1 @ 6' W x 8' H RCBC

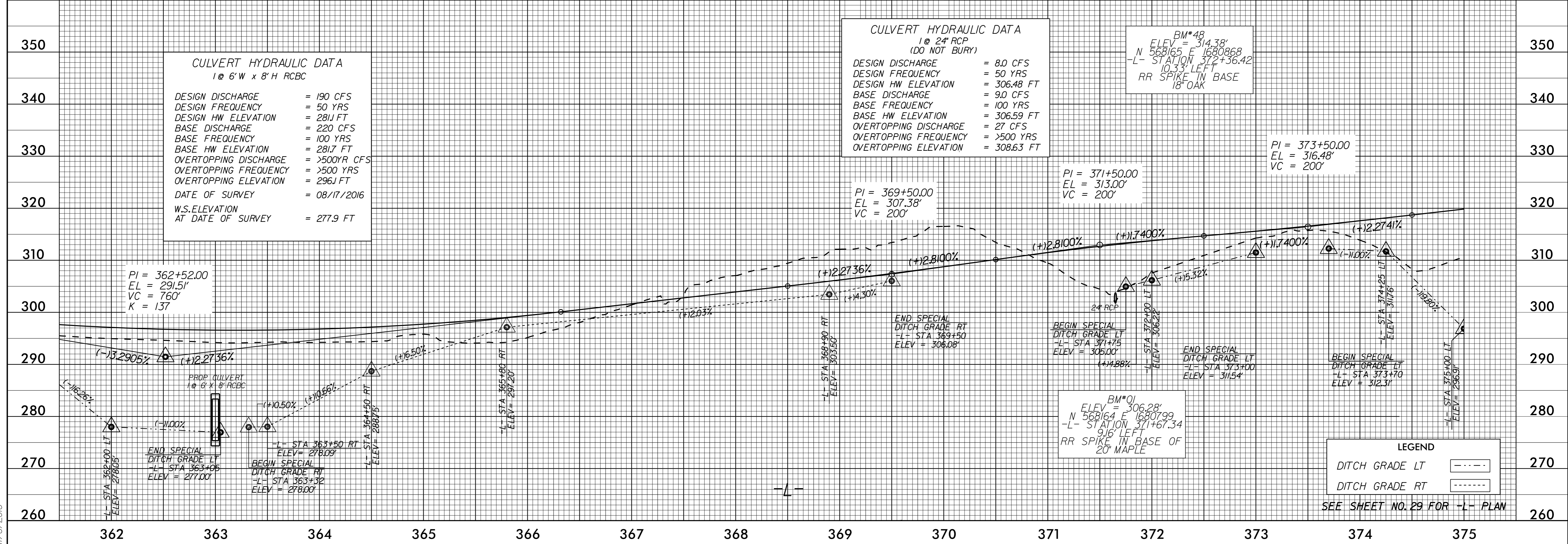
DESIGN DISCHARGE	= 190 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 281.1 FT
BASE DISCHARGE	= 220 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 281.7 FT
OVERTOPPING DISCHARGE	= >500YR CFS
OVERTOPPING FREQUENCY	= >500 YRS
OVERTOPPING ELEVATION	= 296.1 FT
DATE OF SURVEY	= 08/17/2016
W.S. ELEVATION AT DATE OF SURVEY	= 277.9 FT

CULVERT HYDRAULIC DATA
 1 @ 24" RCP
 (DO NOT BURY)

DESIGN DISCHARGE	= 8.0 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 306.48 FT
BASE DISCHARGE	= 9.0 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 306.59 FT
OVERTOPPING DISCHARGE	= 27 CFS
OVERTOPPING FREQUENCY	= >500 YRS
OVERTOPPING ELEVATION	= 308.63 FT

BM*48
 ELEV = 314.38'
 N 568165 E 1680868
 -L- STATION 372+36.42
 10.33' LEFT
 RR SPIKE IN BASE
 18" OAK

LEGEND
 DITCH GRADE LT
 DITCH GRADE RT
 SEE SHEET NO. 29 FOR -L- PLAN



5/14/1999

Kimley Horn
 421 FAYETTEVILLE STREET, SUITE 600
 RALEIGH, NC 27601

RIGHT-OF-WAY REV.
 CONST. REV.

PROJECT REFERENCE NO. R-2530B	SHEET NO. 50
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

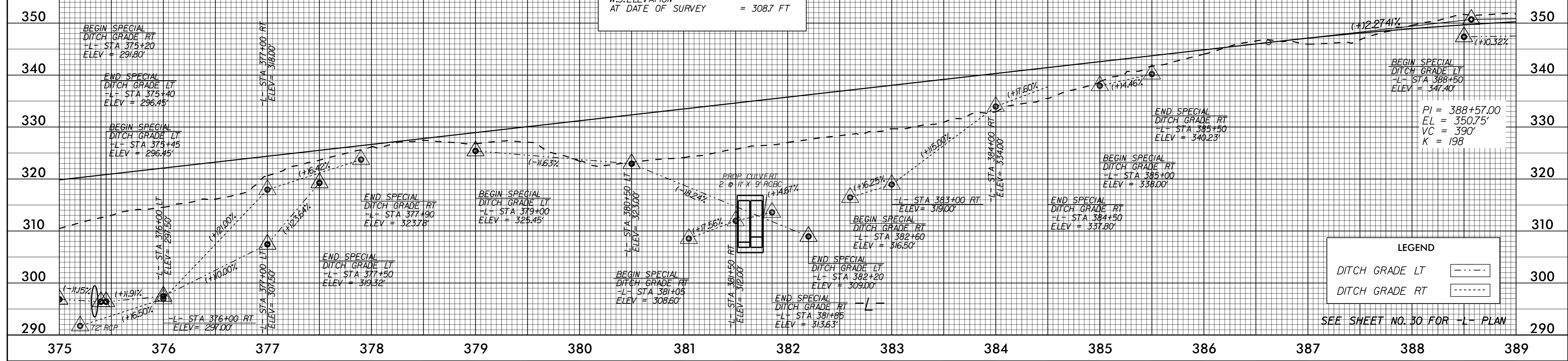
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CULVERT HYDRAULIC DATA
 1 @ 72" RCP (BURIED 1')

DESIGN DISCHARGE	= 75.0 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 299.12 FT
BASE DISCHARGE	= 90.0 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 300.09 FT
OVERTOPPING DISCHARGE	= 451 CFS
OVERTOPPING FREQUENCY	= >500 YRS
OVERTOPPING ELEVATION	= 315.01 FT

CULVERT HYDRAULIC DATA
 2 @ 11' W x 9' H RCBC (BURIED 1')

DESIGN DISCHARGE	= 1,400 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 316.5 FT
BASE DISCHARGE	= 1,600 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 317.9 FT
OVERTOPPING DISCHARGE	= >500YR CFS
OVERTOPPING FREQUENCY	= >500 YRS
OVERTOPPING ELEVATION	= 331.3 FT
DATE OF SURVEY	= 08/17/2016
W.S. ELEVATION AT DATE OF SURVEY	= 308.7 FT



LEGEND

DITCH GRADE LT

DITCH GRADE RT

SEE SHEET NO. 30 FOR -L- PLAN

BM*02
 ELEV = 350.59'
 N 568466 E 1683342
 -L- STATION 397+36.71
 41.98' LEFT
 RR SPIKE IN BASE OF
 30' MAPLE

END GRADE
 -L- STA 396+23.00
 ELEV = 353.05'
 TIE TO EXIST PAVEMENT

LEGEND

DITCH GRADE LT

SEE SHEET NO. 31 FOR -L- PLAN

11/6/2018

5/14/99

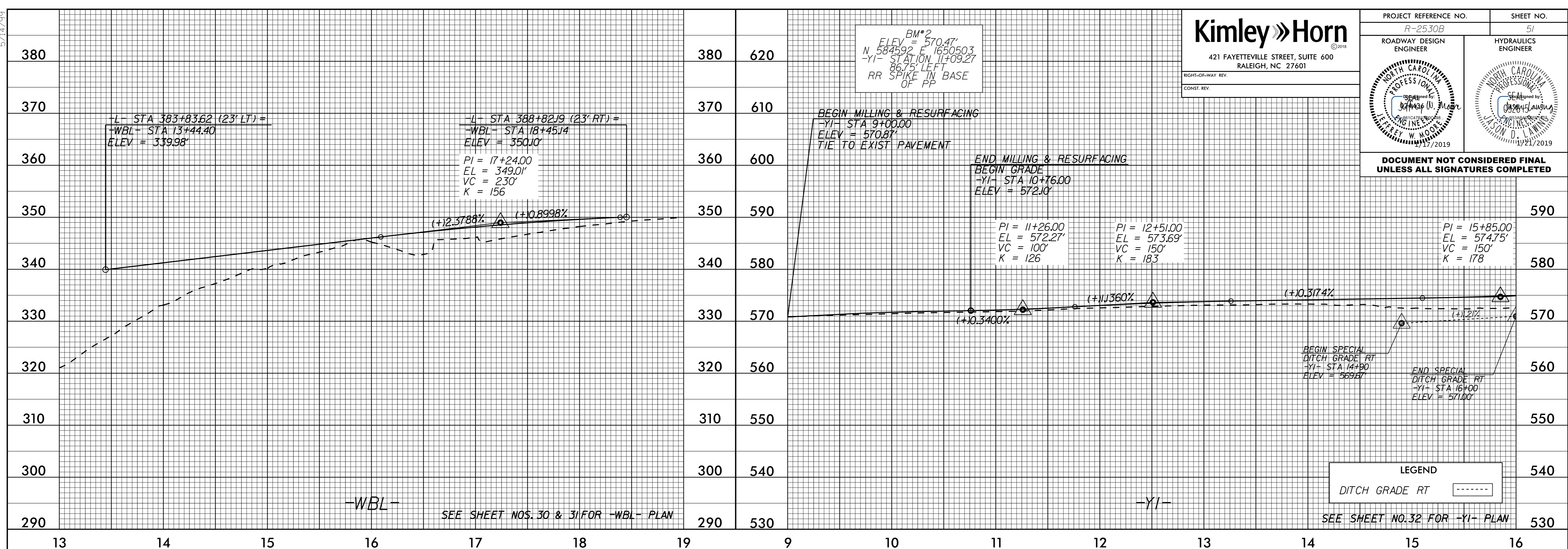
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Kimley»Horn
 421 FAYETTEVILLE STREET, SUITE 600
 RALEIGH, NC 27601

RIGHT-OF-WAY REV.
 CONST. REV.

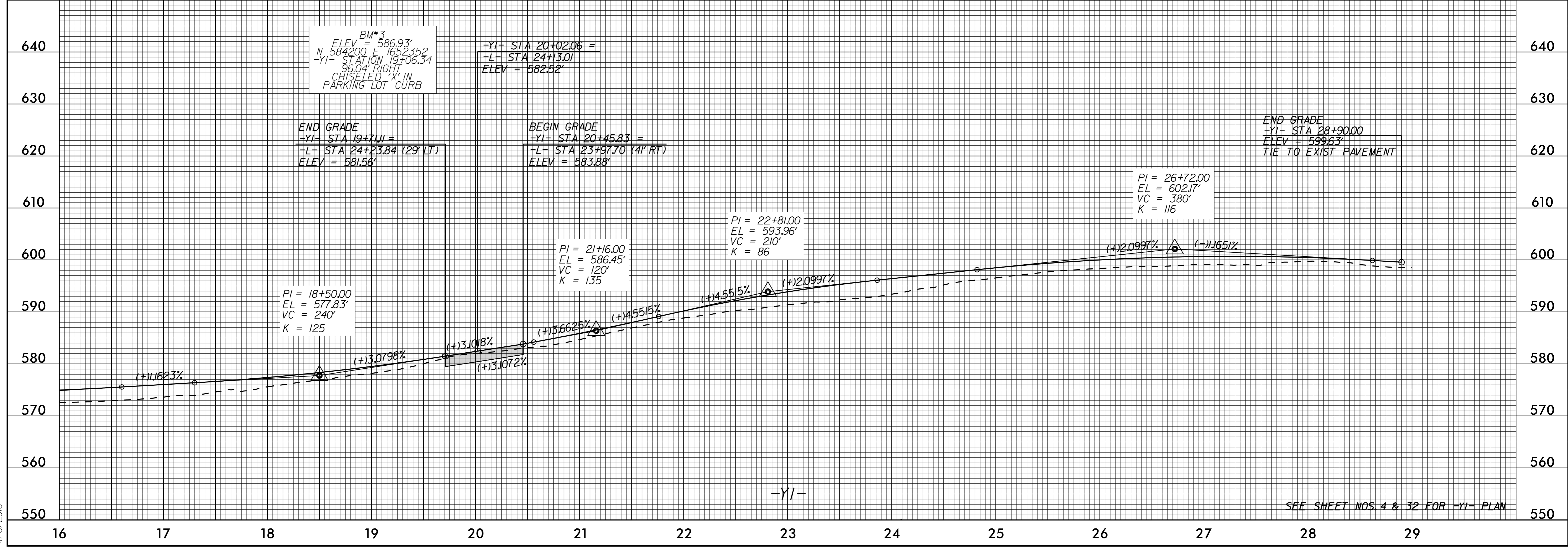
PROJECT REFERENCE NO. R-2530B	SHEET NO. 51
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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LEGEND

DITCH GRADE RT



SEE SHEET NOS. 4 & 32 FOR -YI- PLAN

5/14/1999

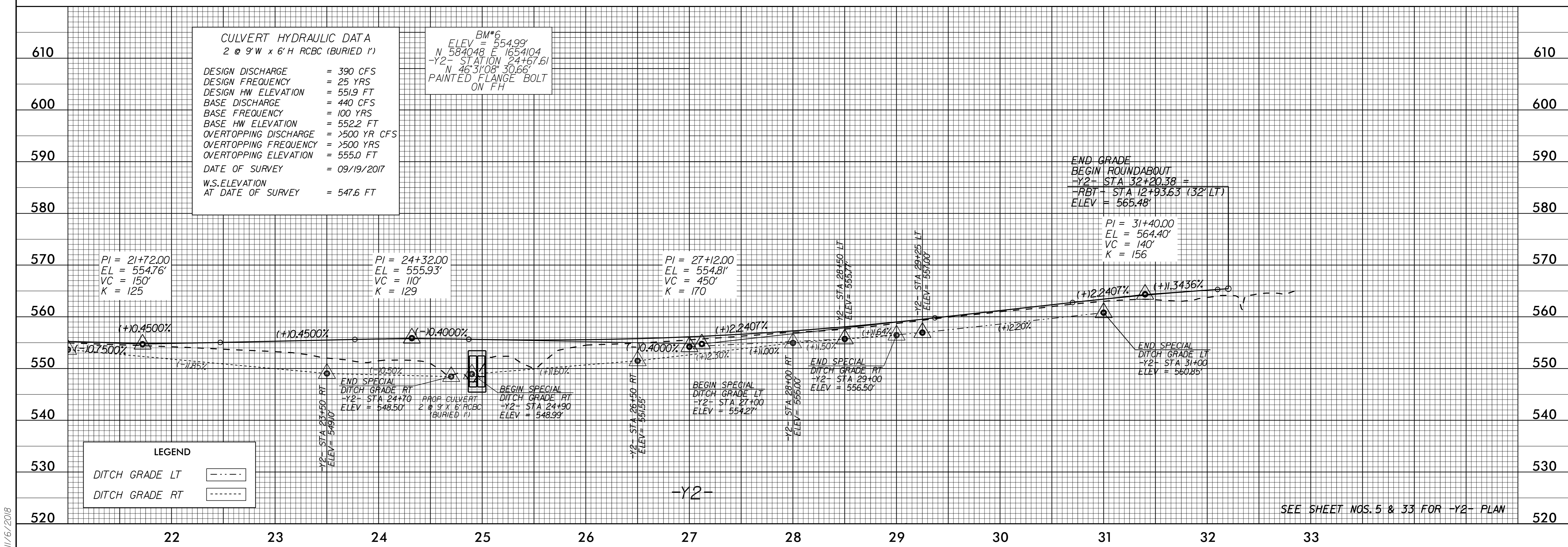
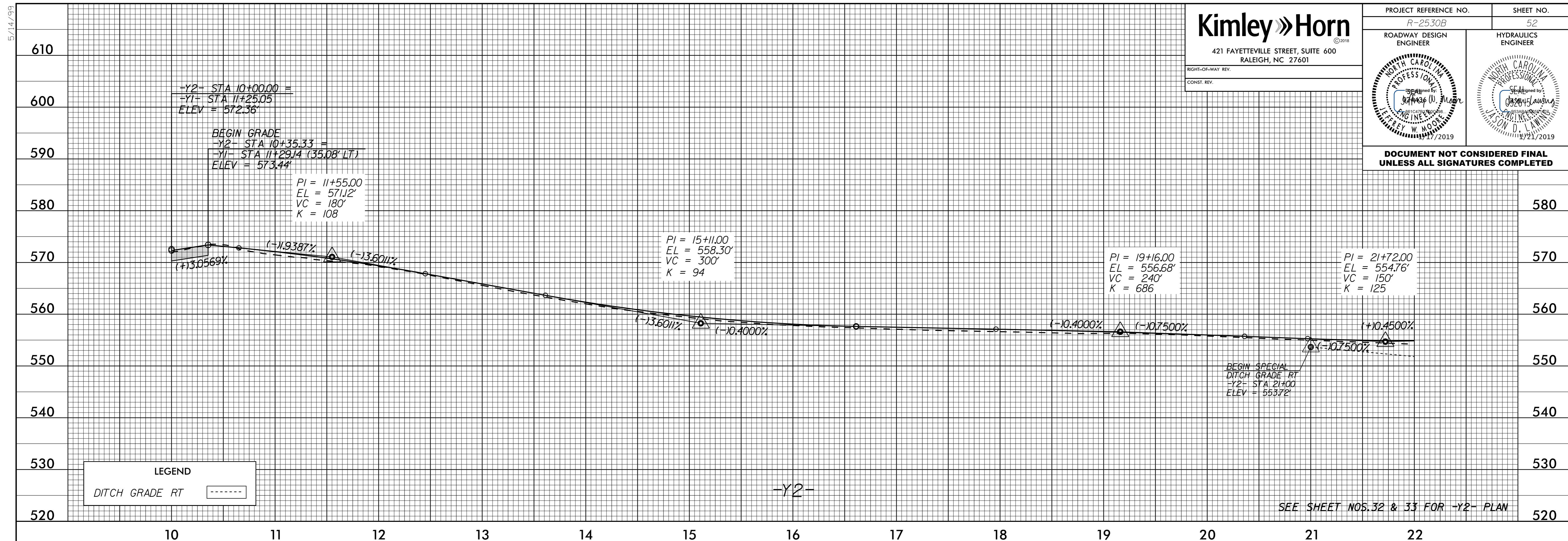
Kimley Horn

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RALEIGH, NC 27601

RIGHT-OF-WAY REV.
CONST. REV.

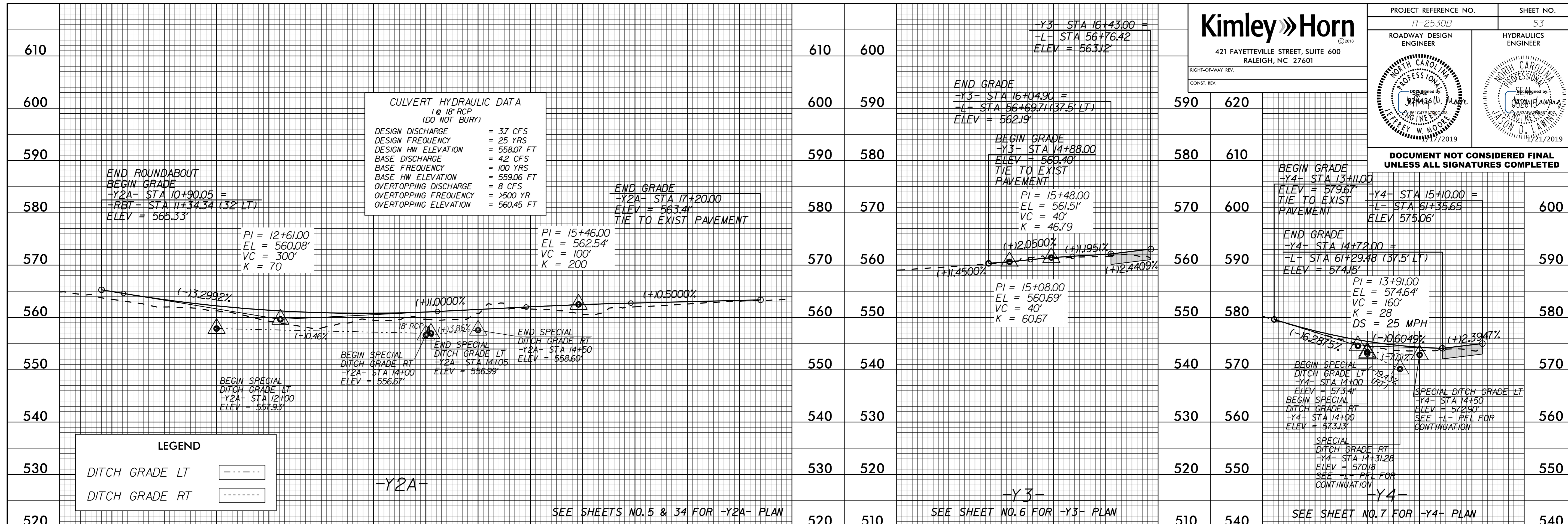
PROJECT REFERENCE NO. R-2530B	SHEET NO. 52
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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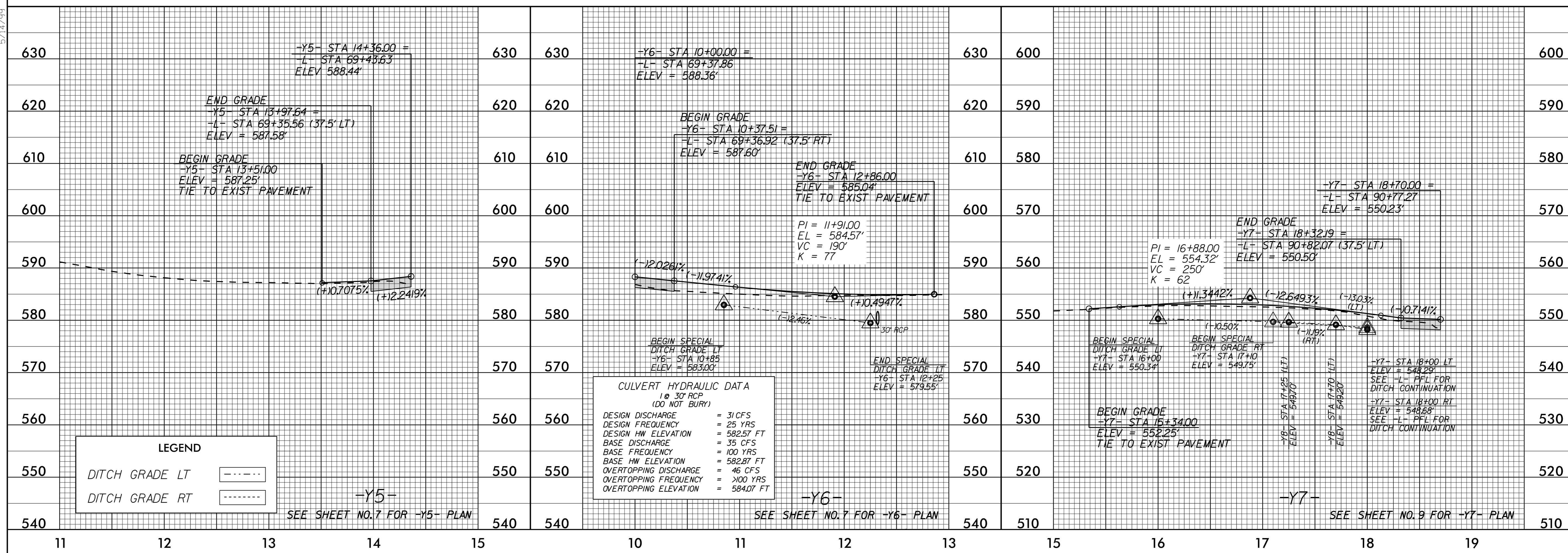


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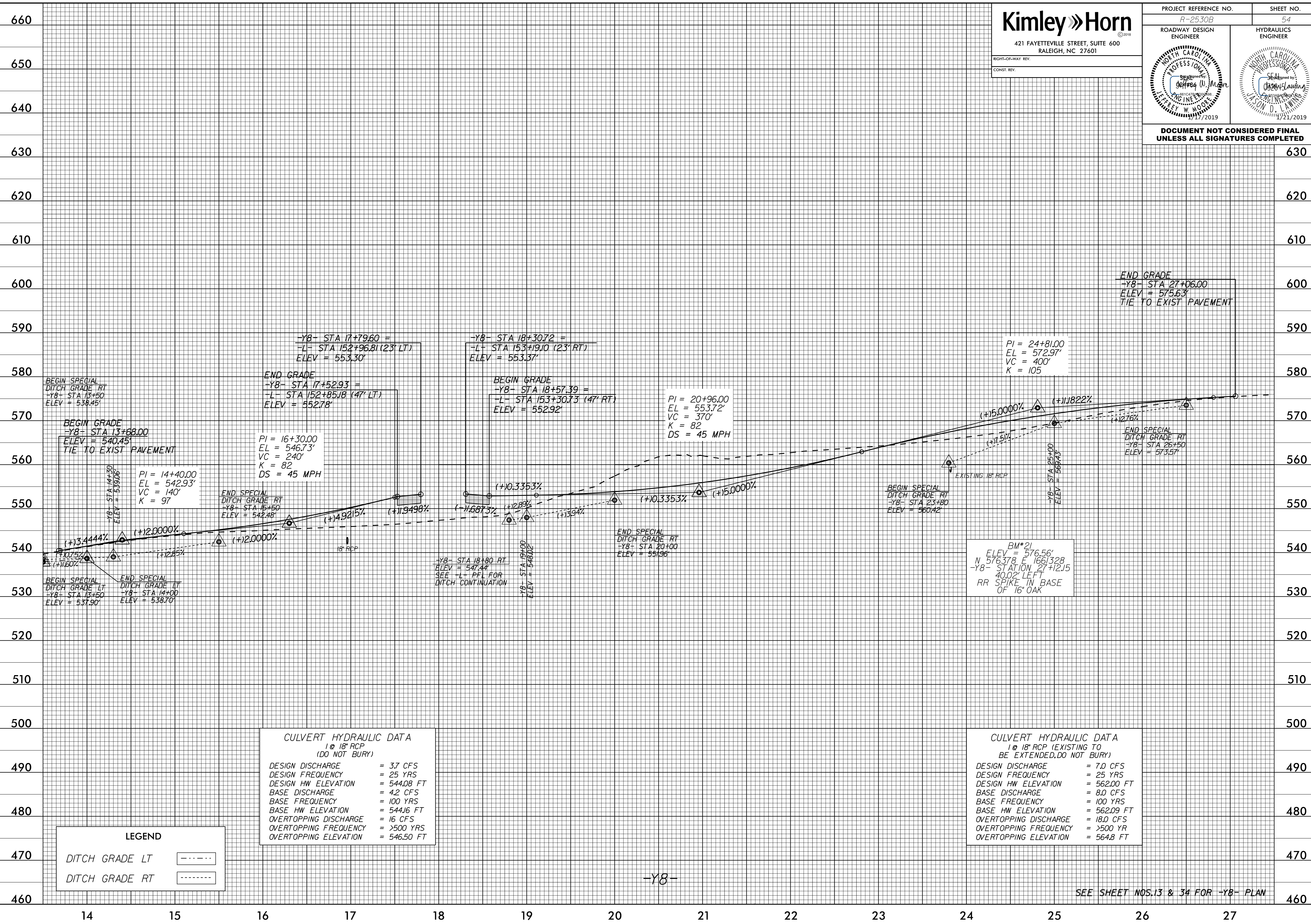
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11/6/2018

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 RALEIGH, NC 27601

PROJECT REFERENCE NO. R-2530B	SHEET NO. 54
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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LEGEND

DITCH GRADE LT	-----
DITCH GRADE RT	-----

CULVERT HYDRAULIC DATA
 1 @ 18" RCP (DO NOT BURY)

DESIGN DISCHARGE	= 3.7 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 544.08 FT
BASE DISCHARGE	= 4.2 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 544.16 FT
OVERTOPPING DISCHARGE	= 16 CFS
OVERTOPPING FREQUENCY	= >500 YRS
OVERTOPPING ELEVATION	= 546.50 FT

CULVERT HYDRAULIC DATA
 1 @ 18" RCP (EXISTING TO BE EXTENDED, DO NOT BURY)

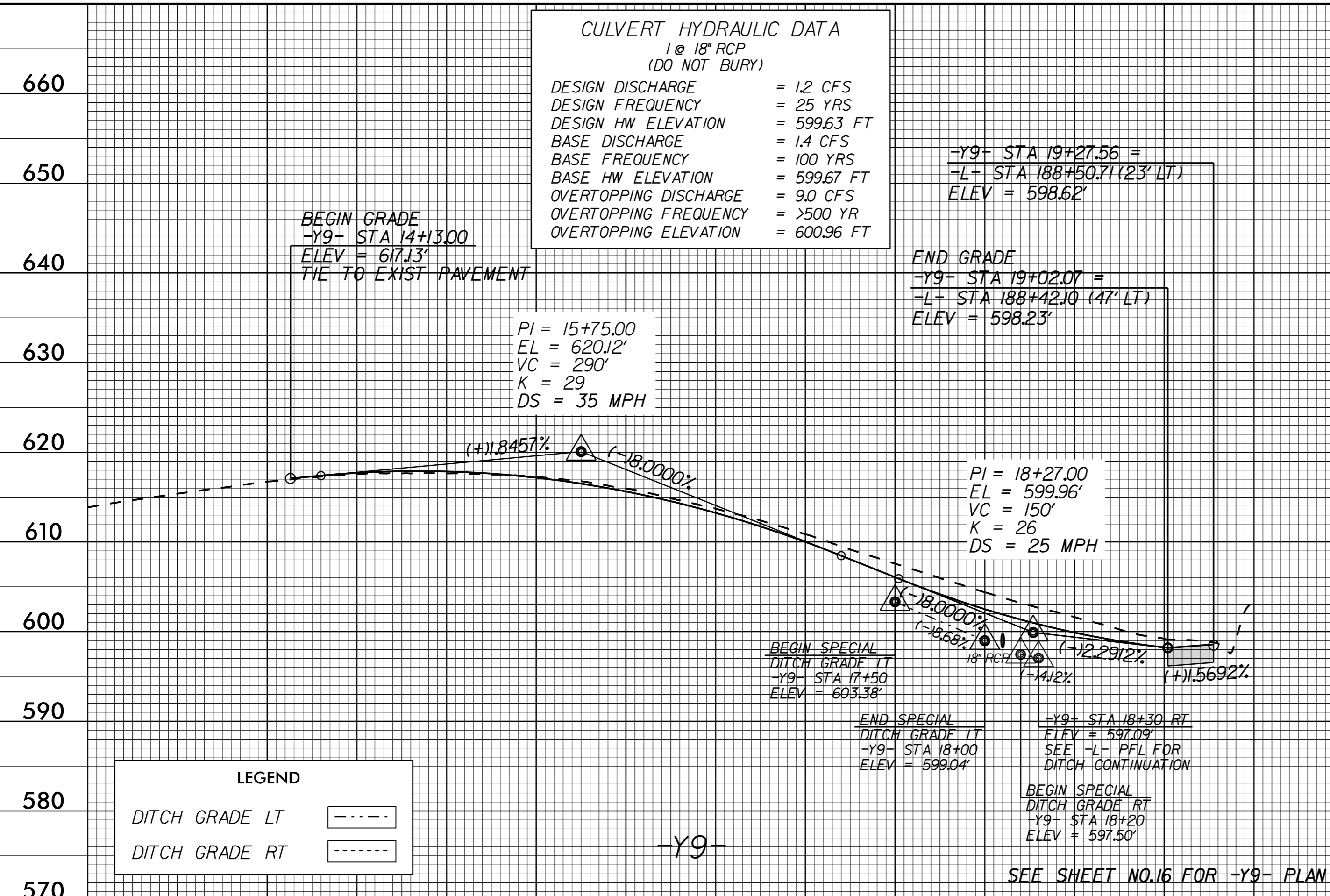
DESIGN DISCHARGE	= 7.0 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 562.00 FT
BASE DISCHARGE	= 8.0 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 562.09 FT
OVERTOPPING DISCHARGE	= 18.0 CFS
OVERTOPPING FREQUENCY	= >500 YR
OVERTOPPING ELEVATION	= 564.8 FT

SEE SHEET NOS. 13 & 34 FOR -Y8- PLAN

-Y8-

5/14/99

11/6/2018



LEGEND

DITCH GRADE LT

DITCH GRADE RT

CULVERT HYDRAULIC DATA
 1 @ 18" RCP
 (DO NOT BURY)

DESIGN DISCHARGE = 12 CFS
 DESIGN FREQUENCY = 25 YRS
 DESIGN HW ELEVATION = 599.63 FT
 BASE DISCHARGE = 1.4 CFS
 BASE FREQUENCY = 100 YRS
 BASE HW ELEVATION = 599.67 FT
 OVERTOPPING DISCHARGE = 9.0 CFS
 OVERTOPPING FREQUENCY = >500 YR
 OVERTOPPING ELEVATION = 600.96 FT

BEGIN GRADE
 -Y9- STA 14+13.00
 ELEV = 617.13'
 TIE TO EXIST PAVEMENT

END GRADE
 -Y9- STA 19+02.07 =
 -L- STA 188+42.10 (47' LT)
 ELEV = 598.23'

PI = 18+27.00
 EL = 599.96'
 VC = 150'
 K = 26
 DS = 25 MPH

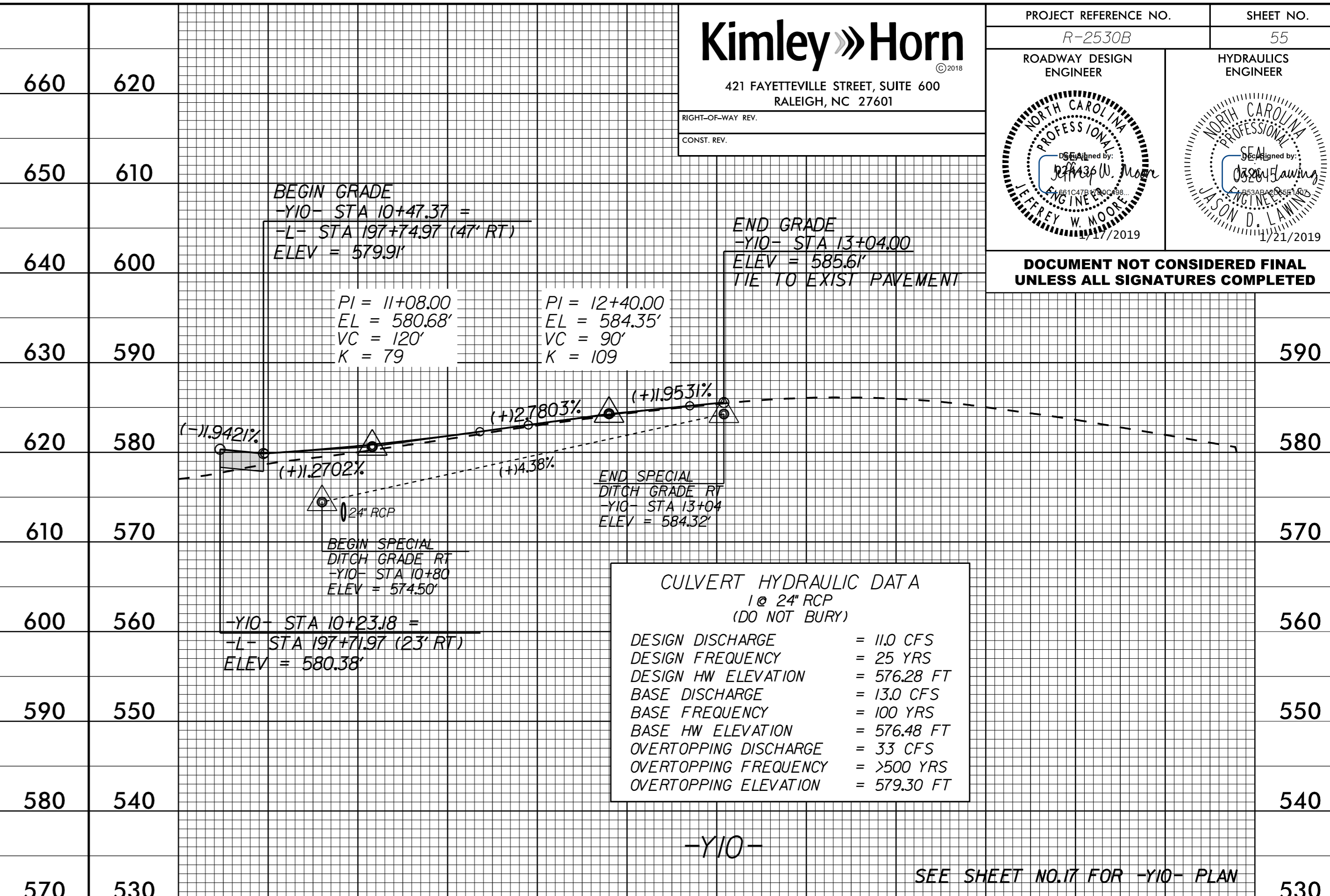
BEGIN SPECIAL
 DITCH GRADE LT
 -Y9- STA 17+50
 ELEV = 603.38'

END SPECIAL
 DITCH GRADE LT
 -Y9- STA 18+00
 ELEV = 599.04'

BEGIN SPECIAL
 DITCH GRADE RT
 -Y9- STA 18+30 RT
 ELEV = 597.09'

END SPECIAL
 DITCH GRADE RT
 -Y9- STA 18+20
 ELEV = 597.50'

SEE SHEET NO.16 FOR -Y9- PLAN



CULVERT HYDRAULIC DATA
 1 @ 24" RCP
 (DO NOT BURY)

DESIGN DISCHARGE = 11.0 CFS
 DESIGN FREQUENCY = 25 YRS
 DESIGN HW ELEVATION = 576.28 FT
 BASE DISCHARGE = 13.0 CFS
 BASE FREQUENCY = 100 YRS
 BASE HW ELEVATION = 576.48 FT
 OVERTOPPING DISCHARGE = 33 CFS
 OVERTOPPING FREQUENCY = >500 YRS
 OVERTOPPING ELEVATION = 579.30 FT

BEGIN GRADE
 -Y10- STA 10+47.37 =
 -L- STA 197+74.97 (47' RT)
 ELEV = 579.91'

END GRADE
 -Y10- STA 13+04.00
 ELEV = 585.61'
 TIE TO EXIST PAVEMENT

PI = 11+08.00
 EL = 580.68'
 VC = 120'
 K = 79

PI = 12+40.00
 EL = 584.35'
 VC = 90'
 K = 109

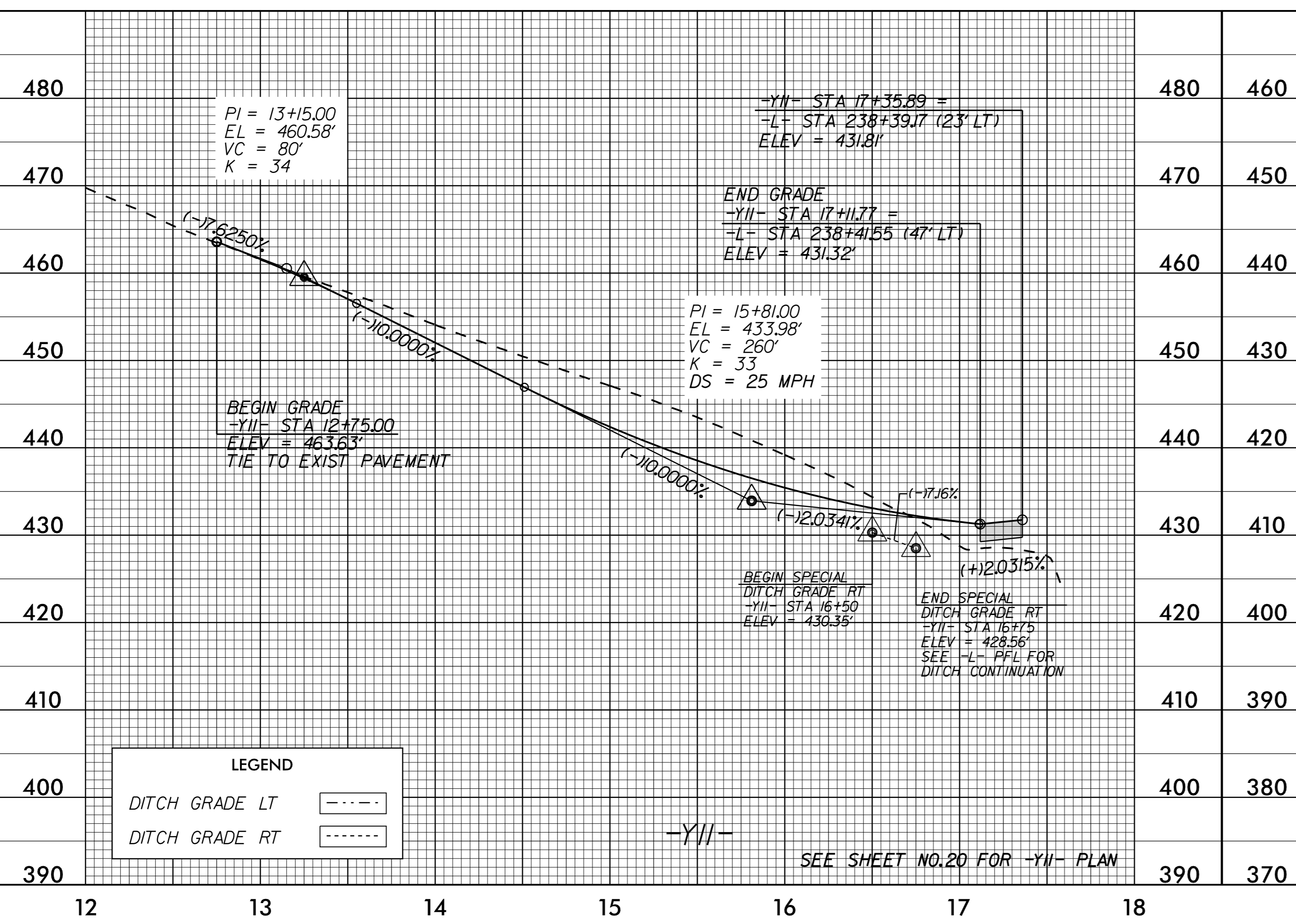
BEGIN SPECIAL
 DITCH GRADE RT
 -Y10- STA 10+80
 ELEV = 574.50'

END SPECIAL
 DITCH GRADE RT
 -Y10- STA 13+04
 ELEV = 584.32'

BEGIN GRADE
 -Y10- STA 10+23.18 =
 -L- STA 197+71.97 (23' RT)
 ELEV = 580.38'

-Y10-

SEE SHEET NO.17 FOR -Y10- PLAN



LEGEND

DITCH GRADE LT

DITCH GRADE RT

BEGIN GRADE
 -Y11- STA 12+17.00
 ELEV = 463.63'
 TIE TO EXIST PAVEMENT

END GRADE
 -Y11- STA 17+11.77 =
 -L- STA 238+41.55 (47' LT)
 ELEV = 431.32'

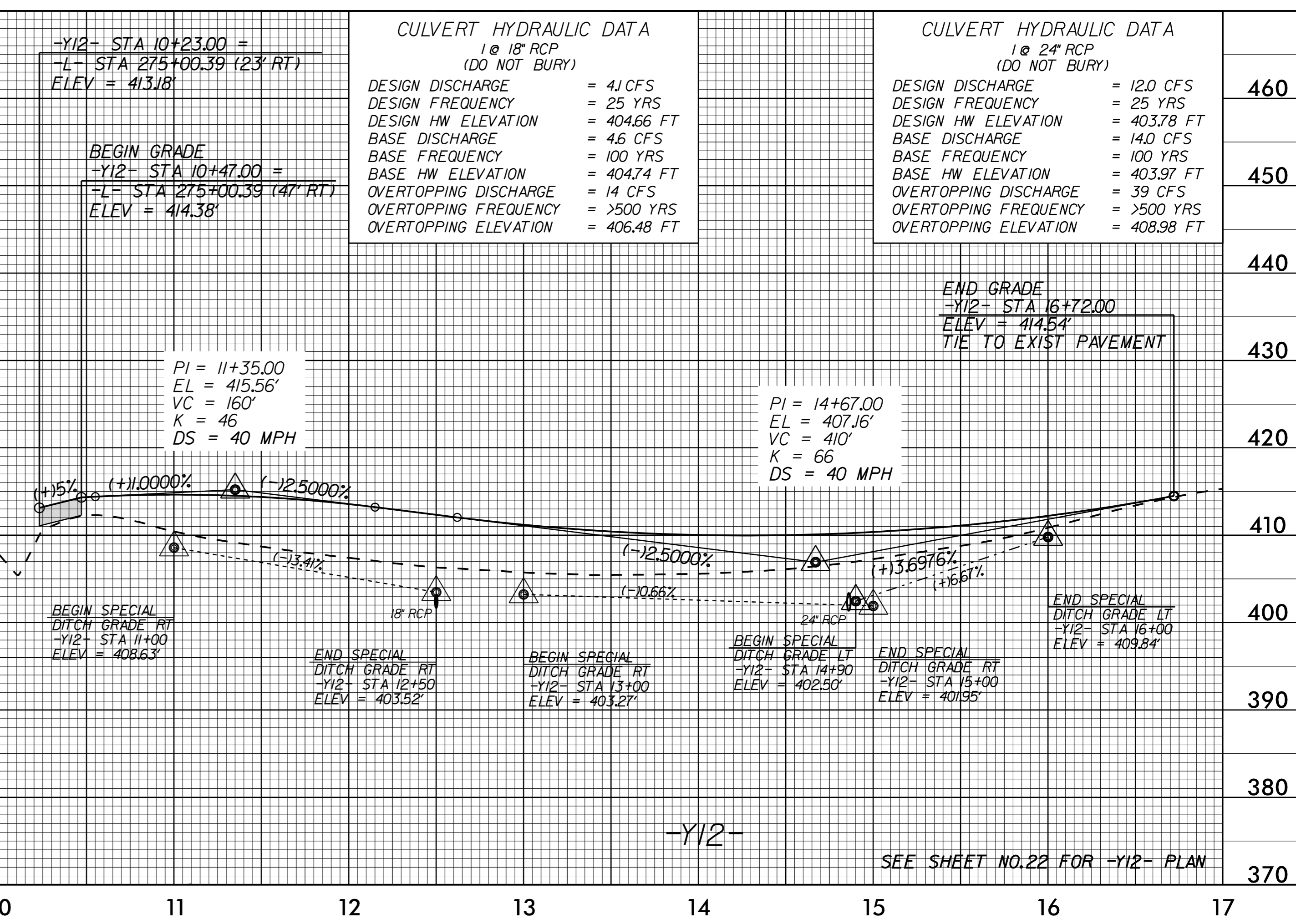
PI = 15+81.00
 EL = 433.98'
 VC = 260'
 K = 33
 DS = 25 MPH

BEGIN SPECIAL
 DITCH GRADE RT
 -Y11- STA 16+75
 ELEV = 430.38'

END SPECIAL
 DITCH GRADE RT
 -Y11- STA 16+75
 ELEV = 428.56'

-Y11-

SEE SHEET NO.20 FOR -Y11- PLAN



CULVERT HYDRAULIC DATA
 1 @ 18" RCP
 (DO NOT BURY)

DESIGN DISCHARGE = 41 CFS
 DESIGN FREQUENCY = 25 YRS
 DESIGN HW ELEVATION = 404.66 FT
 BASE DISCHARGE = 4.6 CFS
 BASE FREQUENCY = 100 YRS
 BASE HW ELEVATION = 404.74 FT
 OVERTOPPING DISCHARGE = 14 CFS
 OVERTOPPING FREQUENCY = >500 YRS
 OVERTOPPING ELEVATION = 406.48 FT

CULVERT HYDRAULIC DATA
 1 @ 24" RCP
 (DO NOT BURY)

DESIGN DISCHARGE = 12.0 CFS
 DESIGN FREQUENCY = 25 YRS
 DESIGN HW ELEVATION = 403.78 FT
 BASE DISCHARGE = 14.0 CFS
 BASE FREQUENCY = 100 YRS
 BASE HW ELEVATION = 403.97 FT
 OVERTOPPING DISCHARGE = 39 CFS
 OVERTOPPING FREQUENCY = >500 YRS
 OVERTOPPING ELEVATION = 408.98 FT

BEGIN GRADE
 -Y12- STA 10+47.00 =
 -L- STA 275+00.39 (23' RT)
 ELEV = 413.18'

END GRADE
 -Y12- STA 16+72.00
 ELEV = 414.54'
 TIE TO EXIST PAVEMENT

PI = 11+35.00
 EL = 415.56'
 VC = 160'
 K = 46
 DS = 40 MPH

PI = 14+67.00
 EL = 407.16'
 VC = 410'
 K = 66
 DS = 40 MPH

BEGIN SPECIAL
 DITCH GRADE RT
 -Y12- STA 11+00
 ELEV = 408.63'

END SPECIAL
 DITCH GRADE RT
 -Y12- STA 12+50
 ELEV = 403.52'

BEGIN SPECIAL
 DITCH GRADE RT
 -Y12- STA 13+00
 ELEV = 403.27'

BEGIN SPECIAL
 DITCH GRADE LT
 -Y12- STA 14+90
 ELEV = 402.50'

END SPECIAL
 DITCH GRADE RT
 -Y12- STA 15+00
 ELEV = 401.93'

-Y12-

SEE SHEET NO.22 FOR -Y12- PLAN

PROJECT REFERENCE NO. R-2530B SHEET NO. 55

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

Kimley Horn
 421 FAYETTEVILLE STREET, SUITE 600
 RALEIGH, NC 27601

RIGHT-OF-WAY REV.
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PROFESSIONAL SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER, LICENSE NO. 14336, EXPIRES 12/31/2019

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RALEIGH, NC 27601

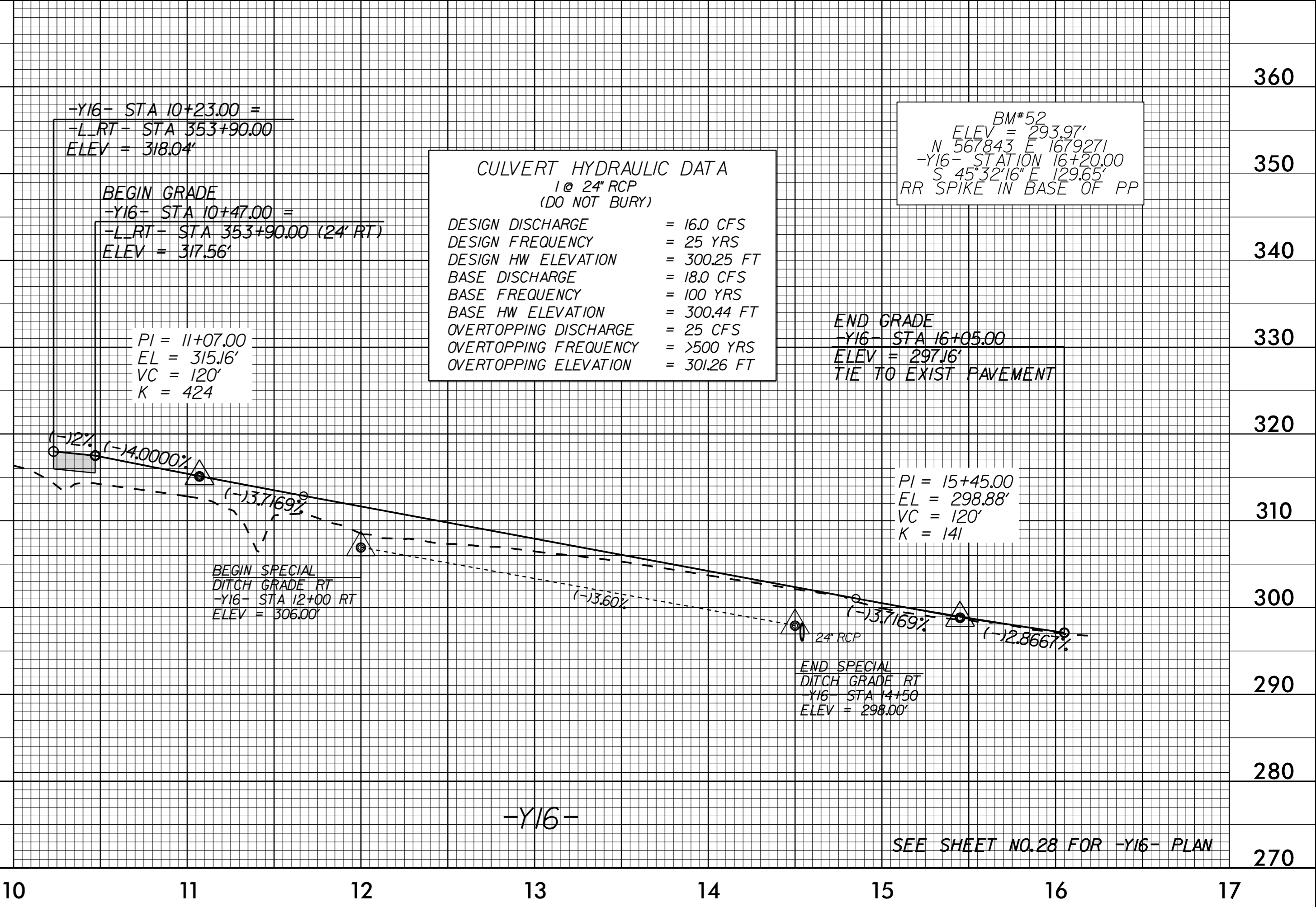
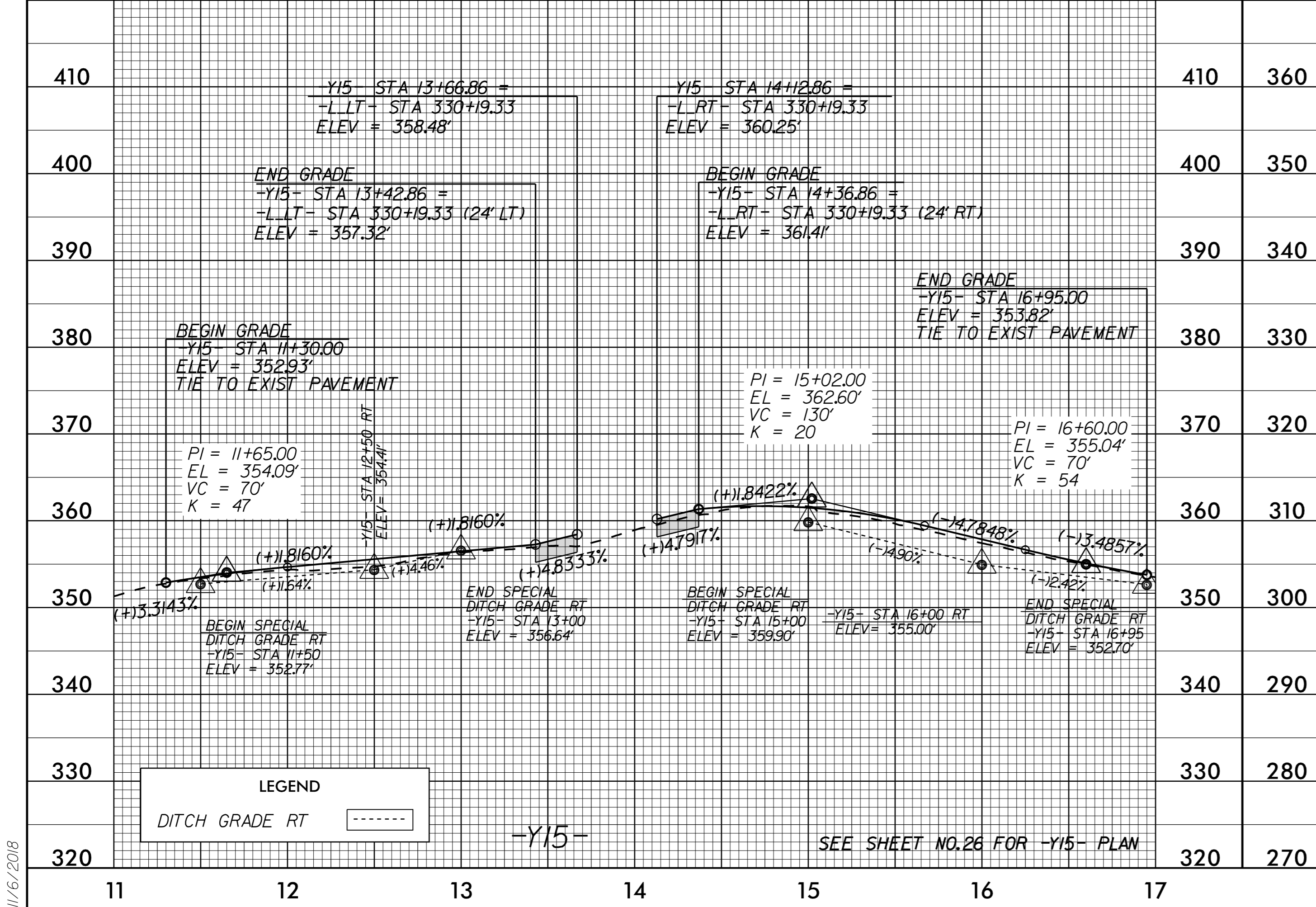
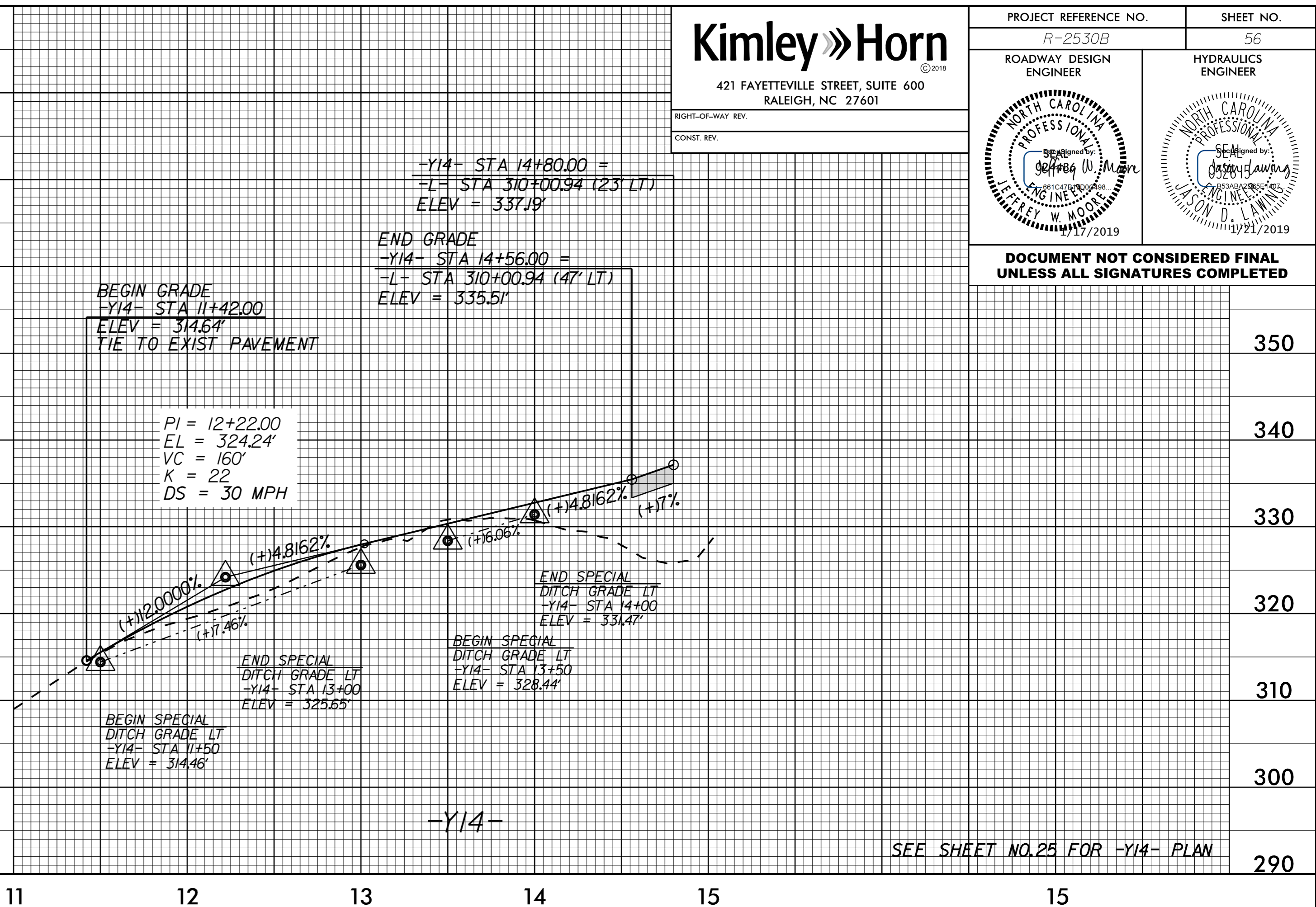
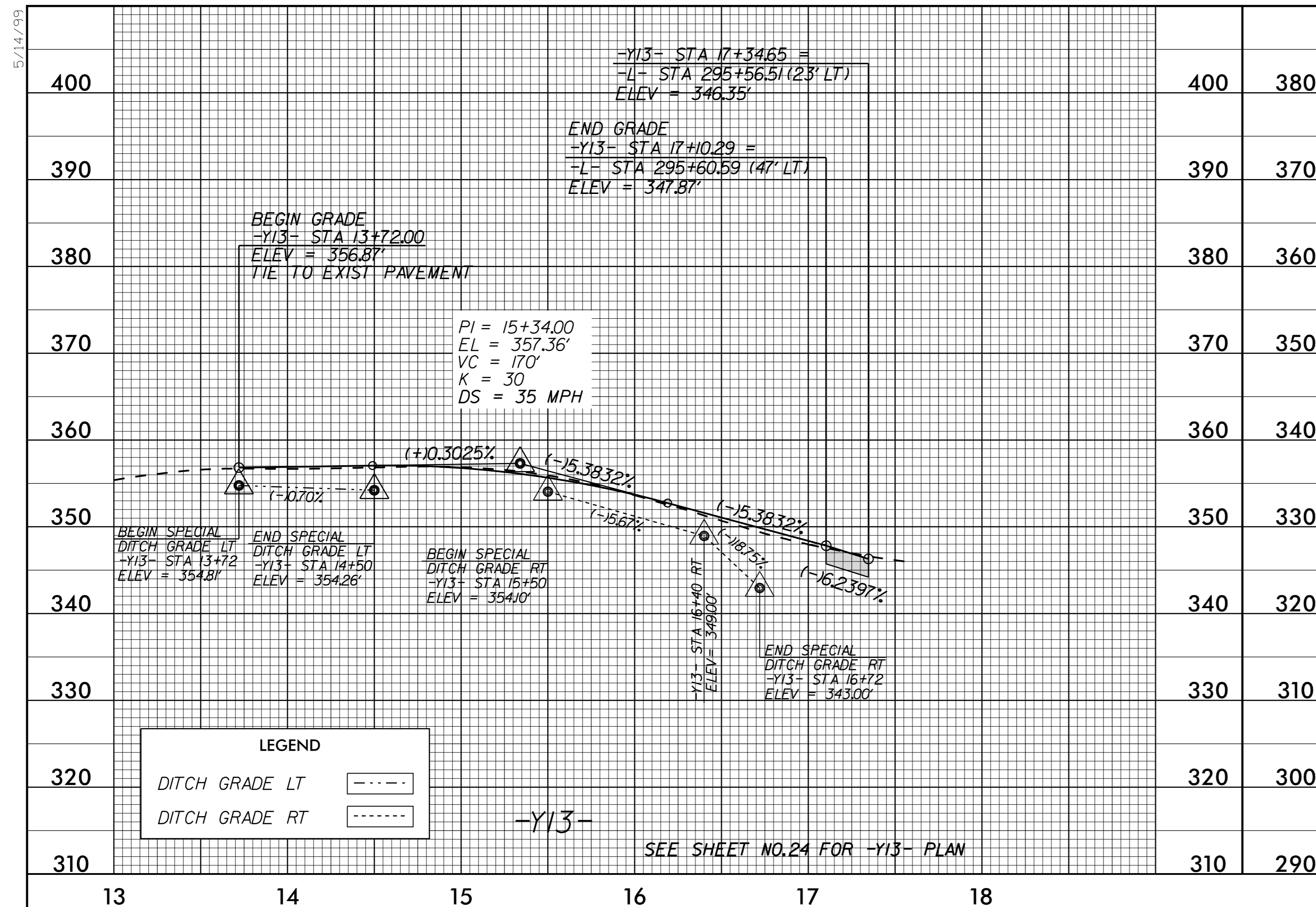
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PROJECT REFERENCE NO. R-2530B SHEET NO. 56

ROADWAY DESIGN ENGINEER
ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEERING EXAMINING BOARD
1/17/2019

HYDRAULICS ENGINEER
ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEERING EXAMINING BOARD
1/21/2019

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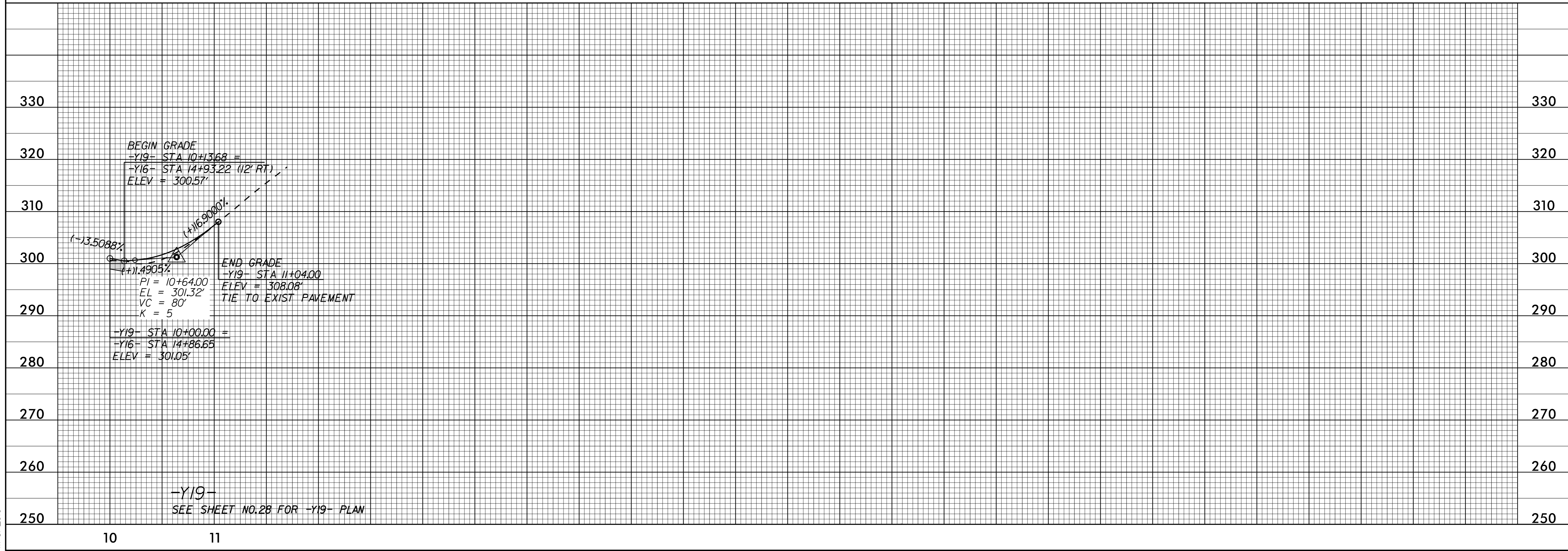
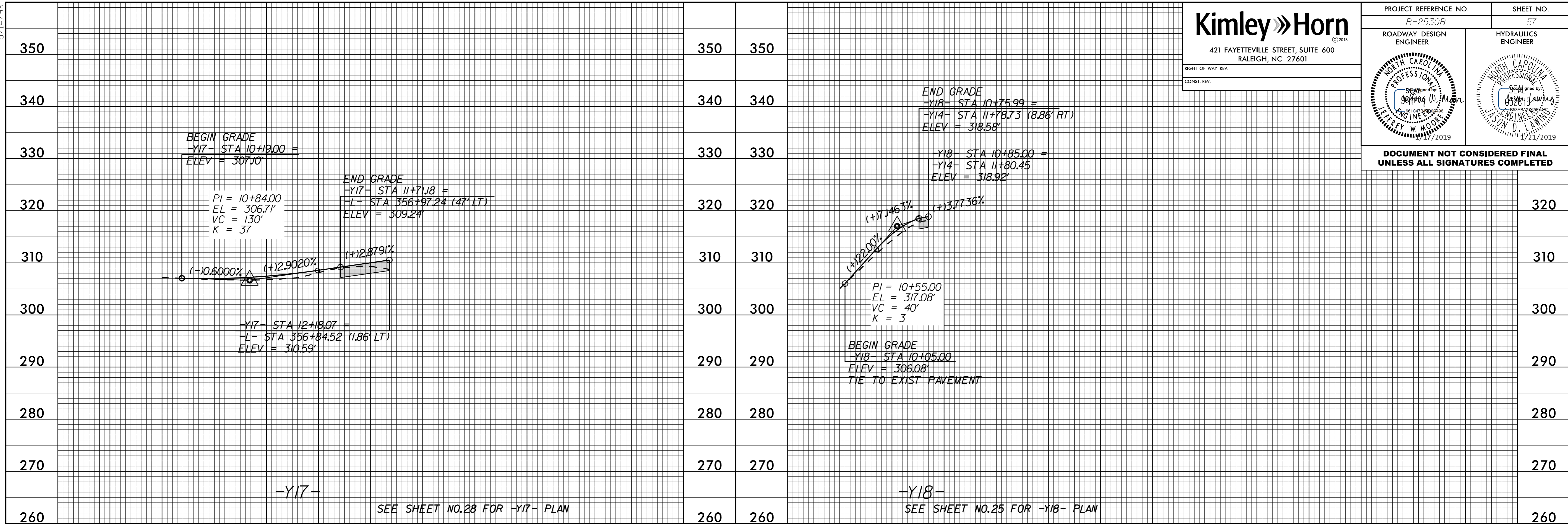
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RALEIGH, NC 27601

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PROJECT REFERENCE NO. R-2530B	SHEET NO. 57
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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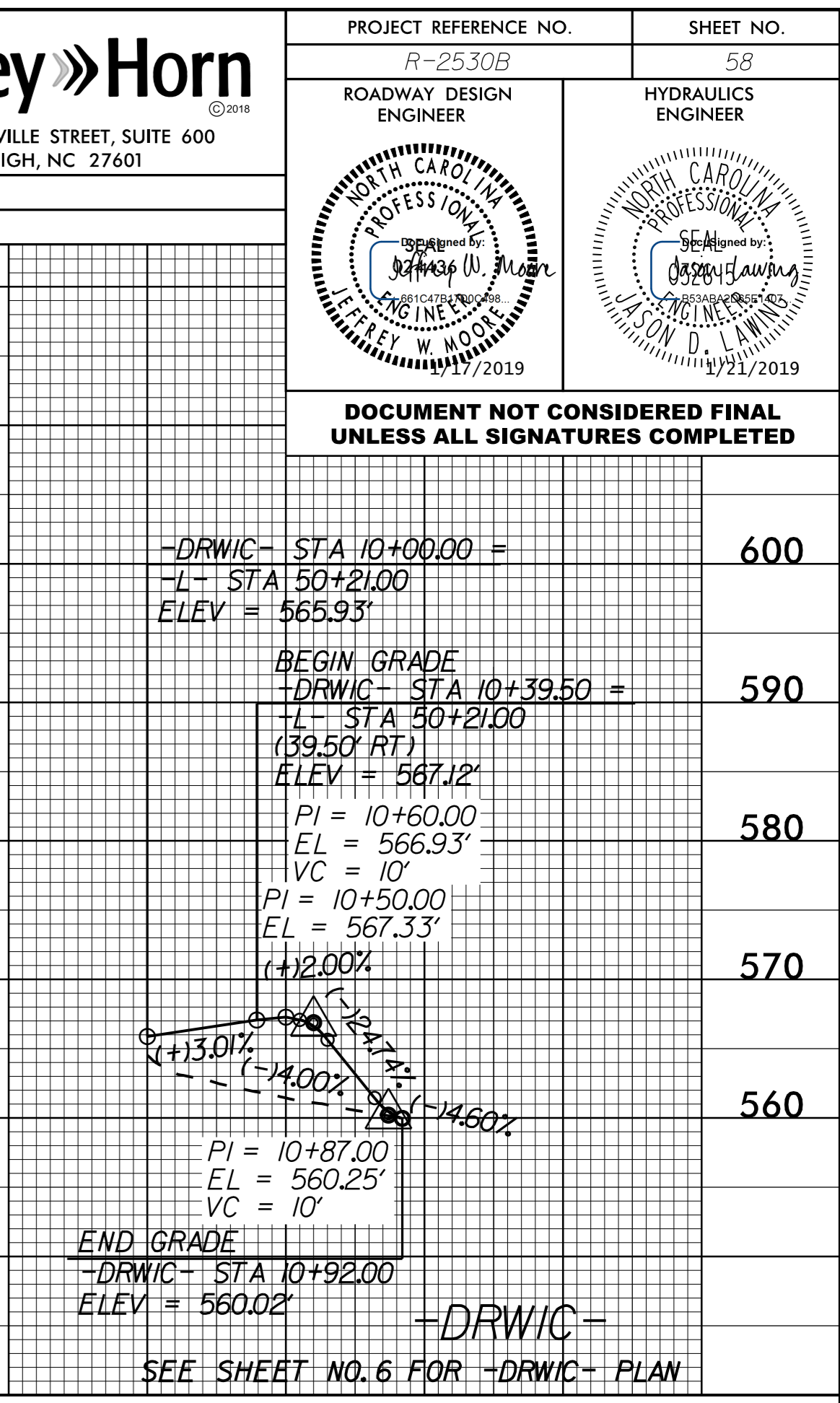
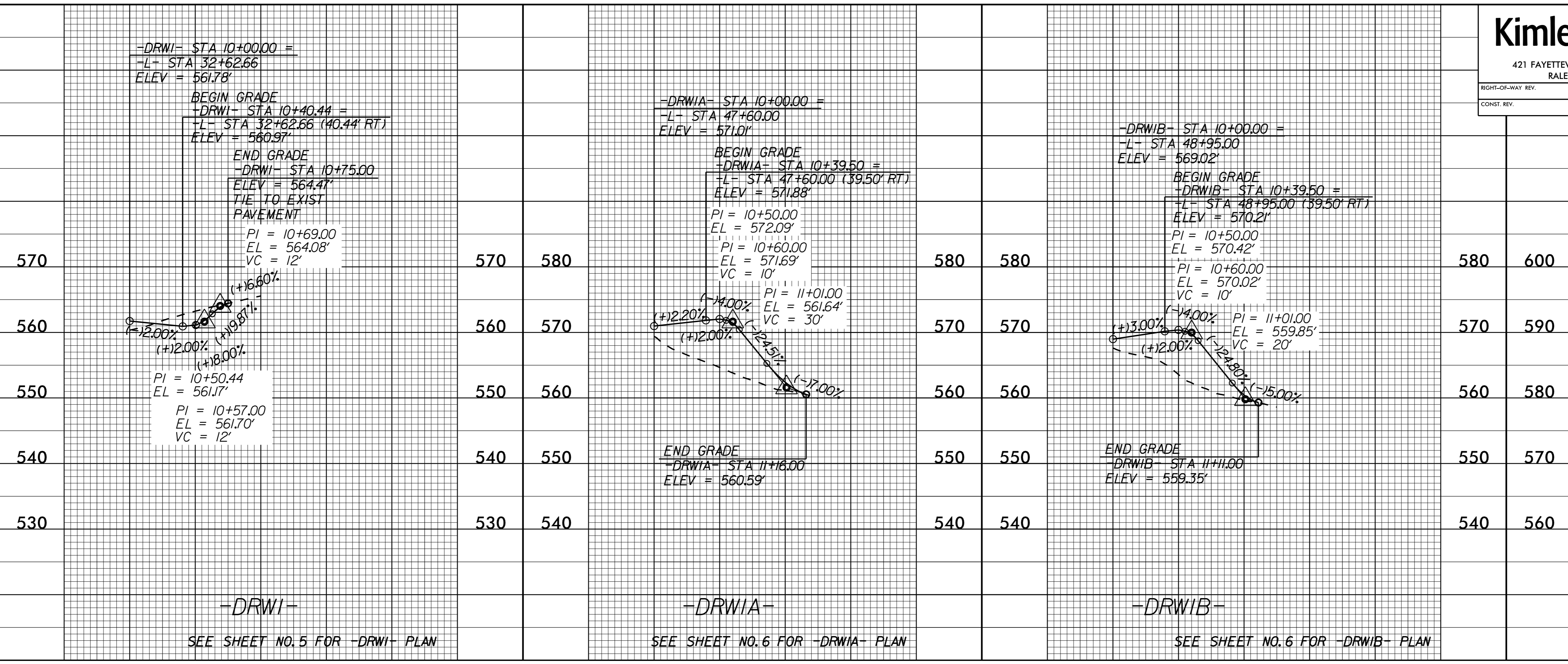
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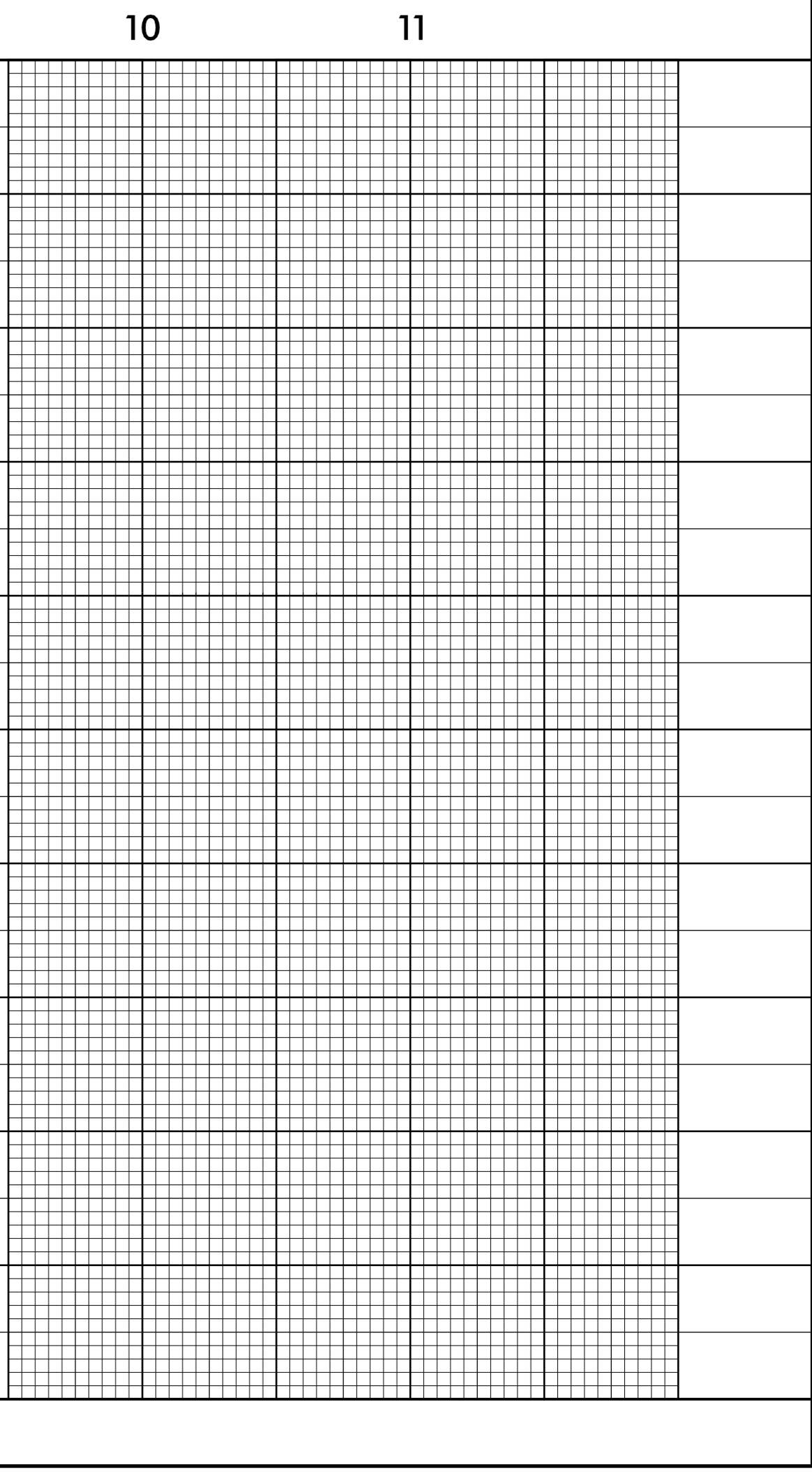
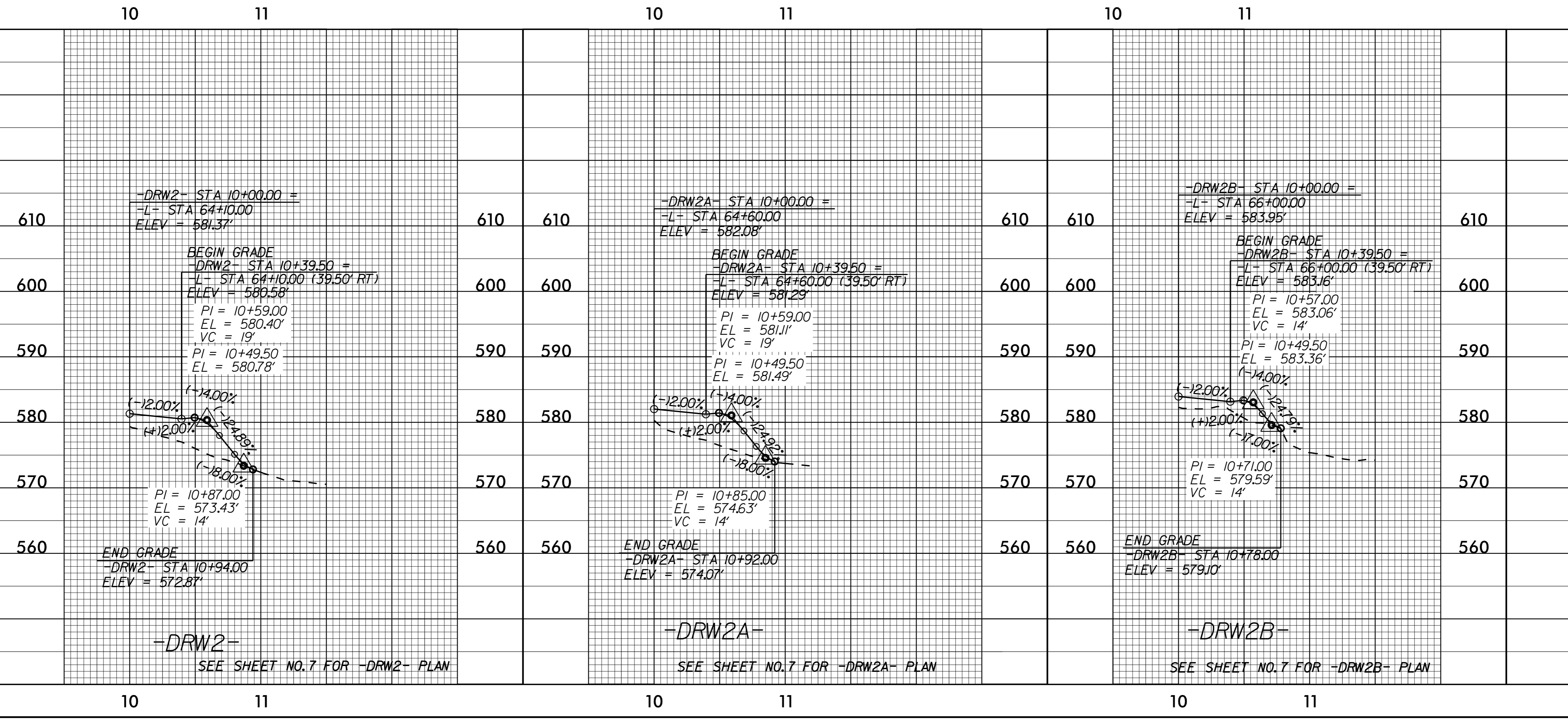
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PROJECT REFERENCE NO. R-2530B	SHEET NO. 58
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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REVISIONS



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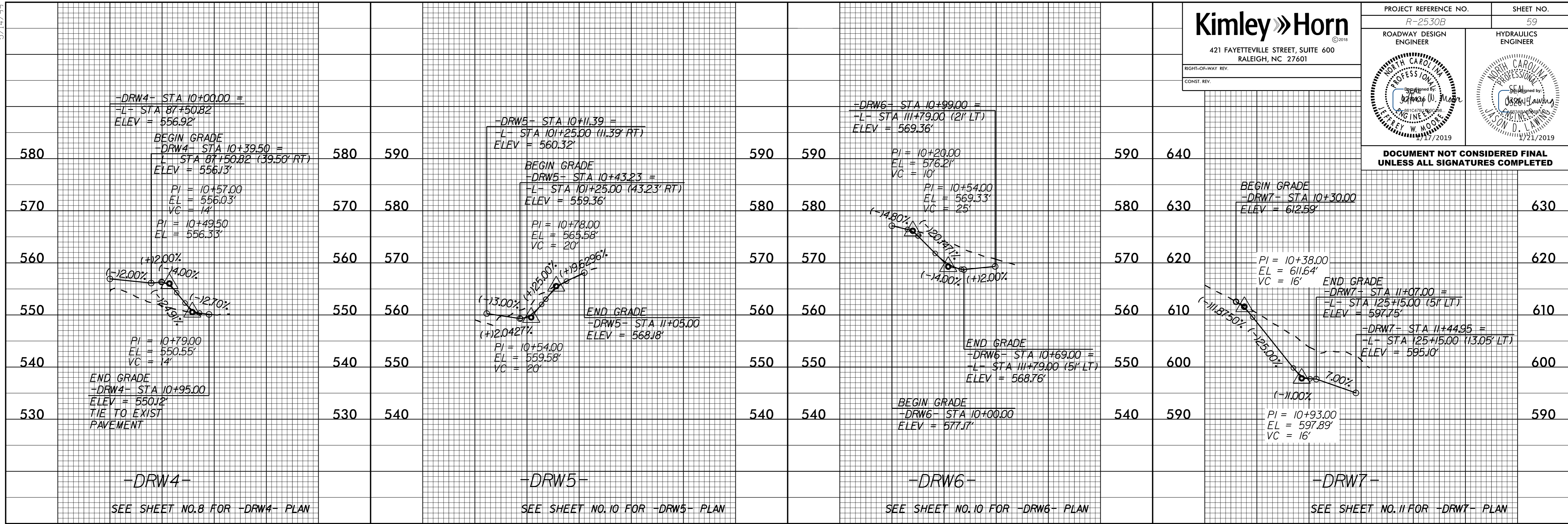
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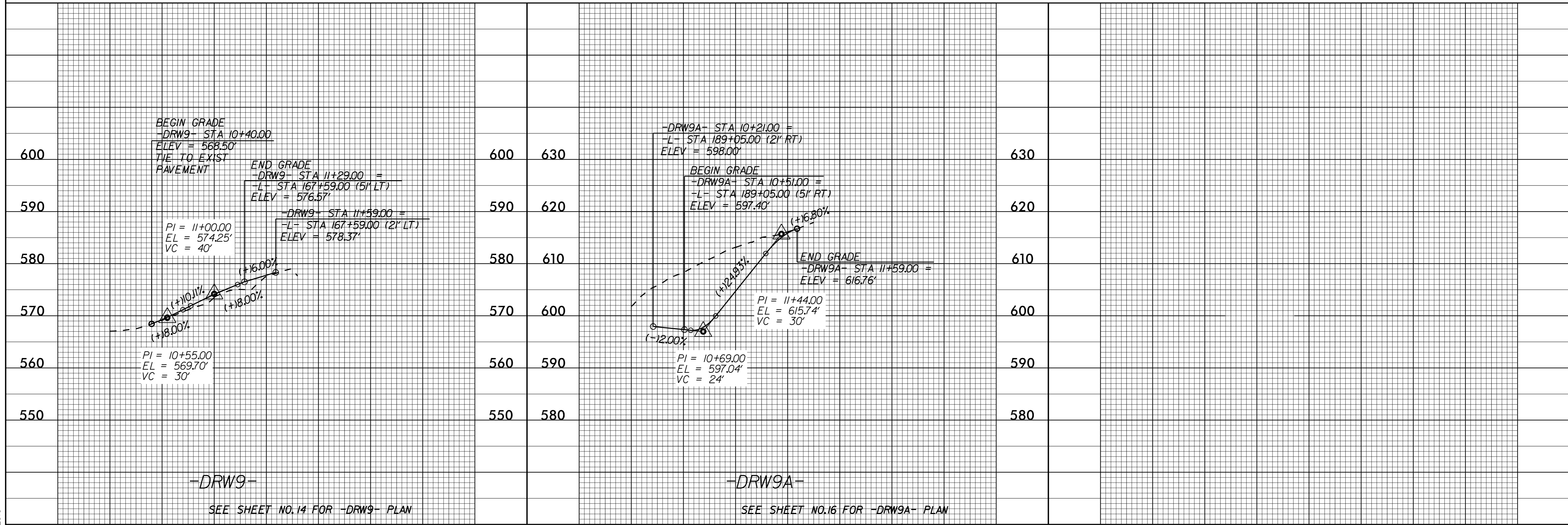
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PROJECT REFERENCE NO. R-2530B	SHEET NO. 59
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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