

Kimley»Horn

© 2025

200 S. TRYON ST. • CHARLOTTE, NC 28202

RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.

1-5715

SHEET NO.

18

ROADWAY DESIGN ENGINEER

DocuSign Envelope ID: 172026

ANTHONY J. SPACK

SEAL 034207

PROFESSIONAL ENGINEER

NORTH CAROLINA

DocuSign Envelope ID: 172026

ANTHONY J. SPACK

SEAL 034207

PROFESSIONAL ENGINEER

NORTH CAROLINA

HYDRAULICS ENGINEER

DocuSign Envelope ID: 172026

JOHN D. LAWING

SEAL 032615

PROFESSIONAL ENGINEER

NORTH CAROLINA

DocuSign Envelope ID: 172026

JOHN D. LAWING

SEAL 032615

PROFESSIONAL ENGINEER

NORTH CAROLINA

DOCUMENT NOT CONSIDERED FINAL

UNLESS ALL SIGNATURES COMPLETED

CULVERT HYDRAULIC DATA
EXISTING 2 @ 6' W x 7' H RCBC

DESIGN DISCHARGE	= 1100 CFS
DESIGN FREQUENCY	= 50 YRS
DESIGN HW ELEVATION	= 718.2 FT
BASE DISCHARGE	= 1200 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 719.4 FT
OVERTOPPING DISCHARGE	= >500YR CFS
OVERTOPPING FREQUENCY	= >500 YRS
OVERTOPPING ELEVATION	= 746.7 FT

STA. 885+86.72
EXIST.
2 @ 6' X 7' RCBC

EXISTING GROUND

-L3NB- I-77

FOR -L3NB- PLAN, SEE SHEETS 7 - 9

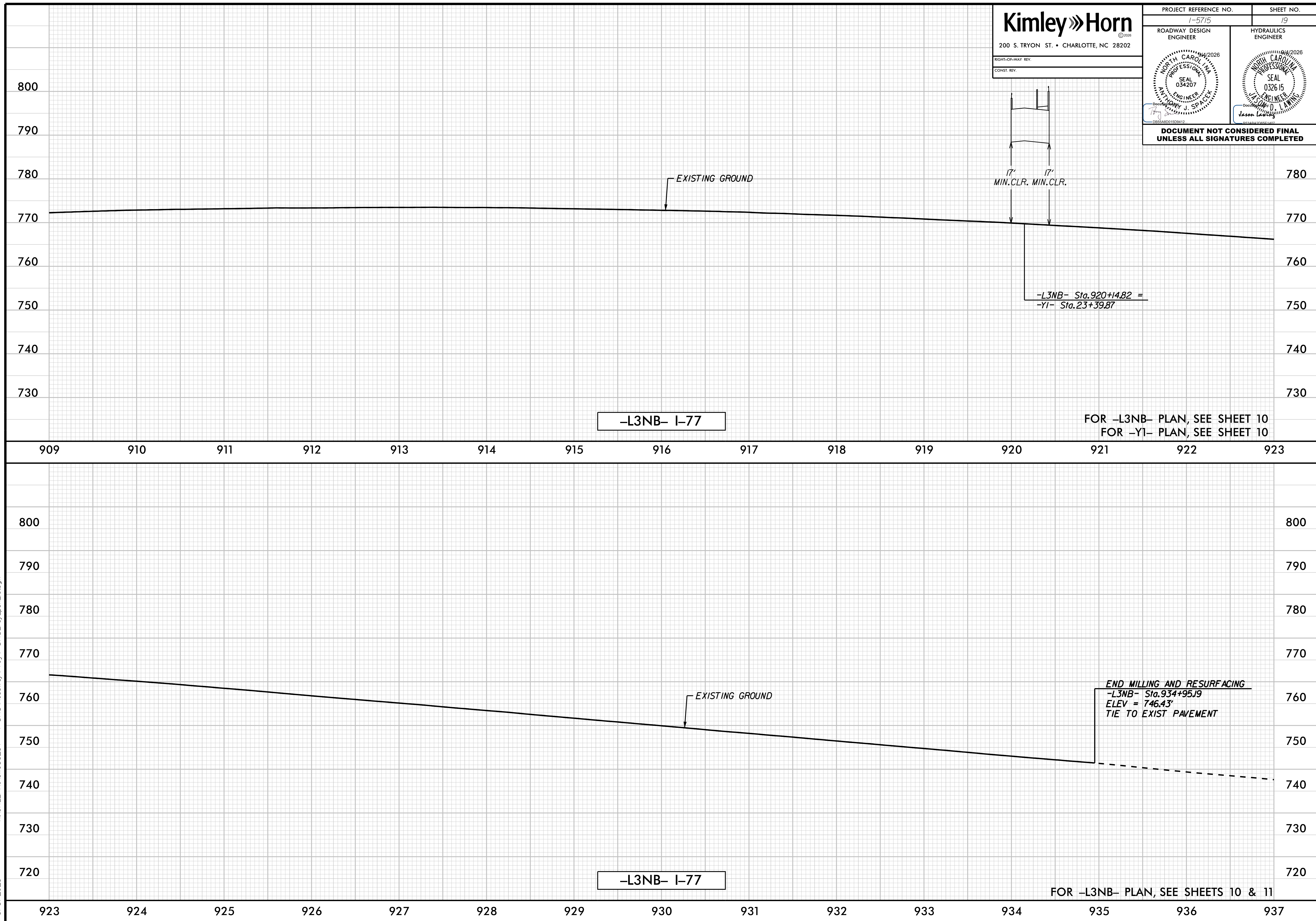
EXISTING GROUND

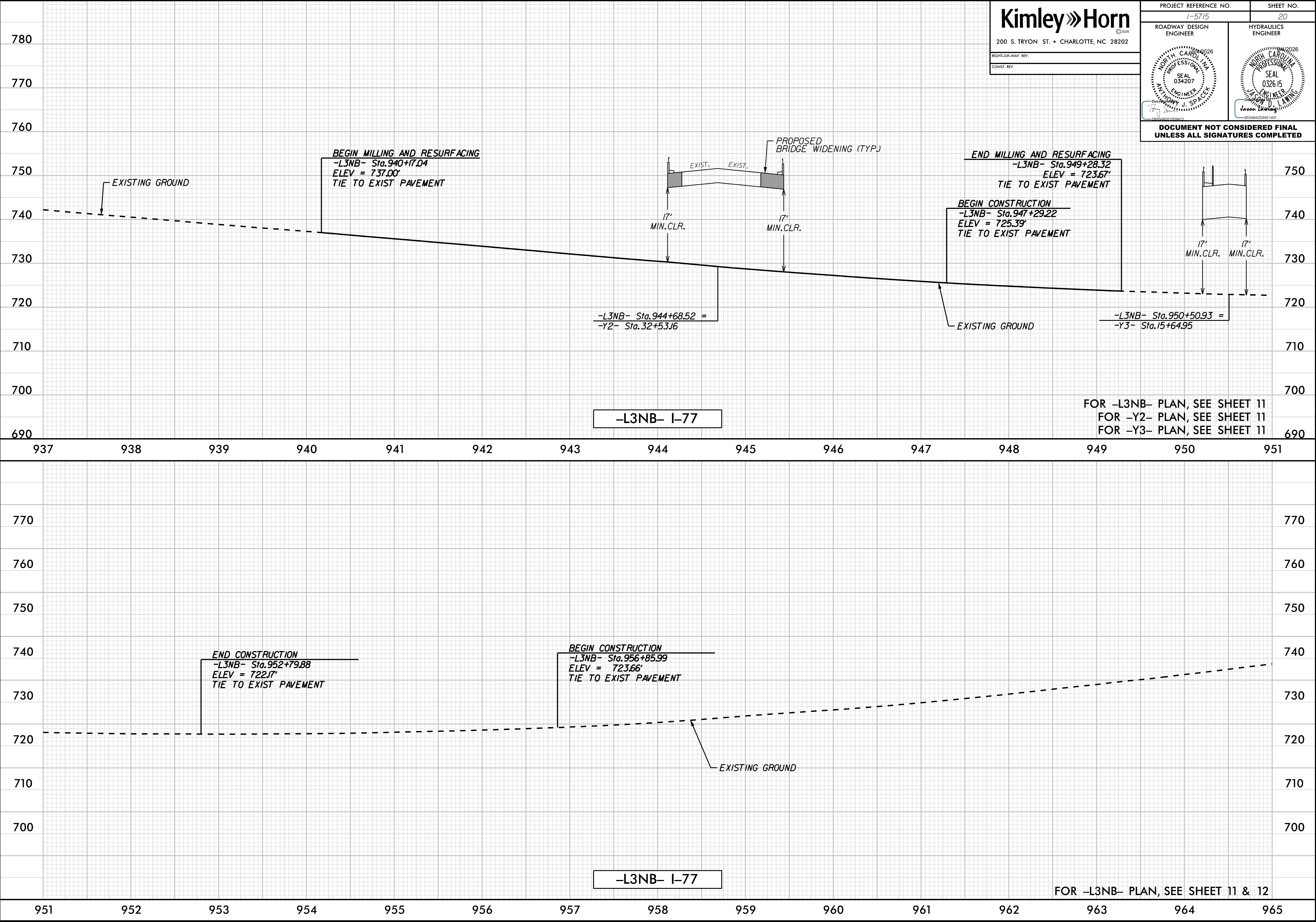
-L3NB- I-77

FOR -L3NB- PLAN, SEE SHEETS 9 & 10

K:\CHL_PR\01036264 - 1-5715\Roadway\Proj\N-5715_rdy_pst_L8.dgn

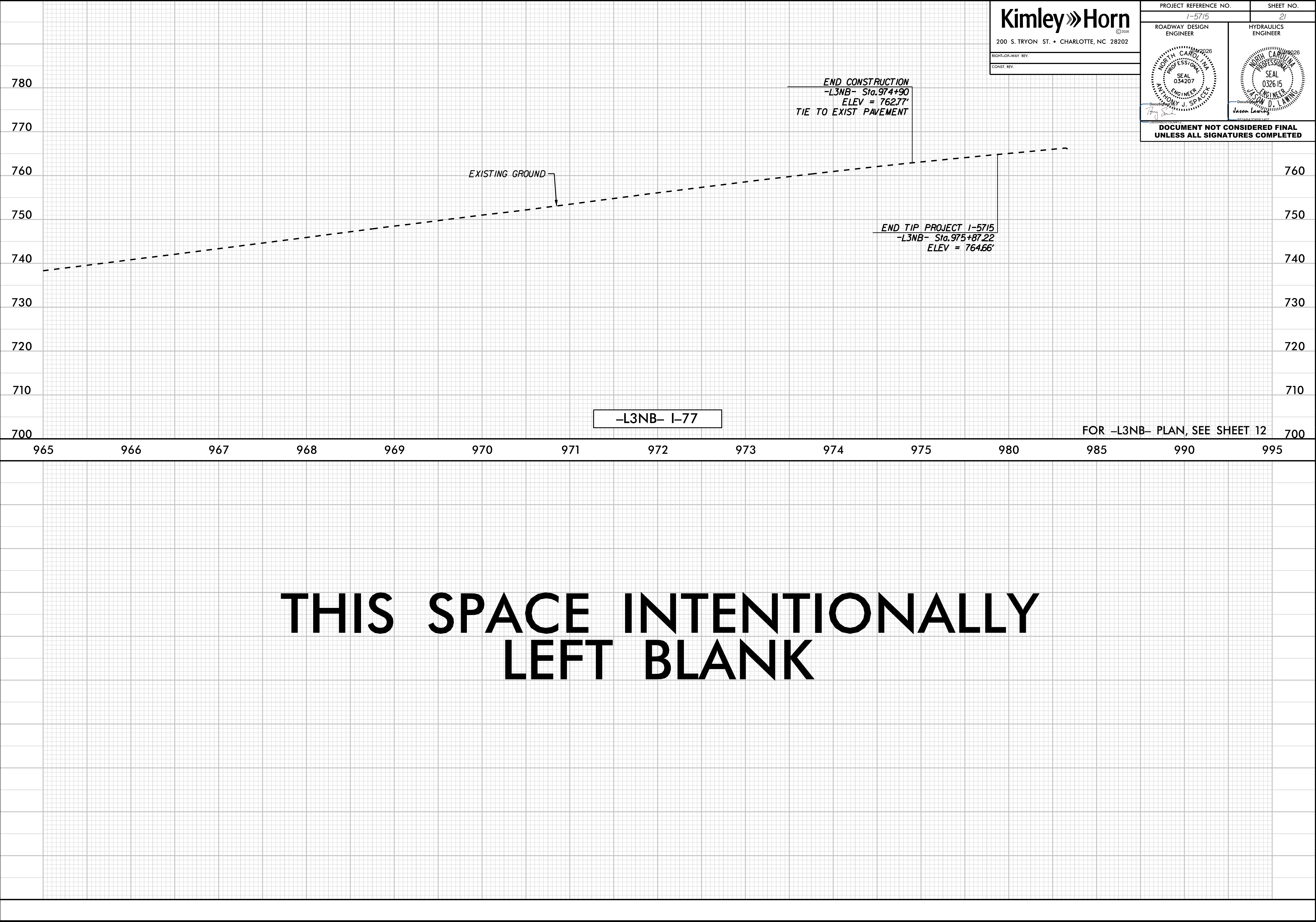
8/3/2026





K:\CHL\PR\01036264 - 1-5715\Roadway\Proj\N-5715_rdy_pst_20.dgn

8/3/2026



K:\CHL_PR\01036264 - I-5715\Roadway\Proj\I-5715_rdy_pst-21.dgn

8/3/2026

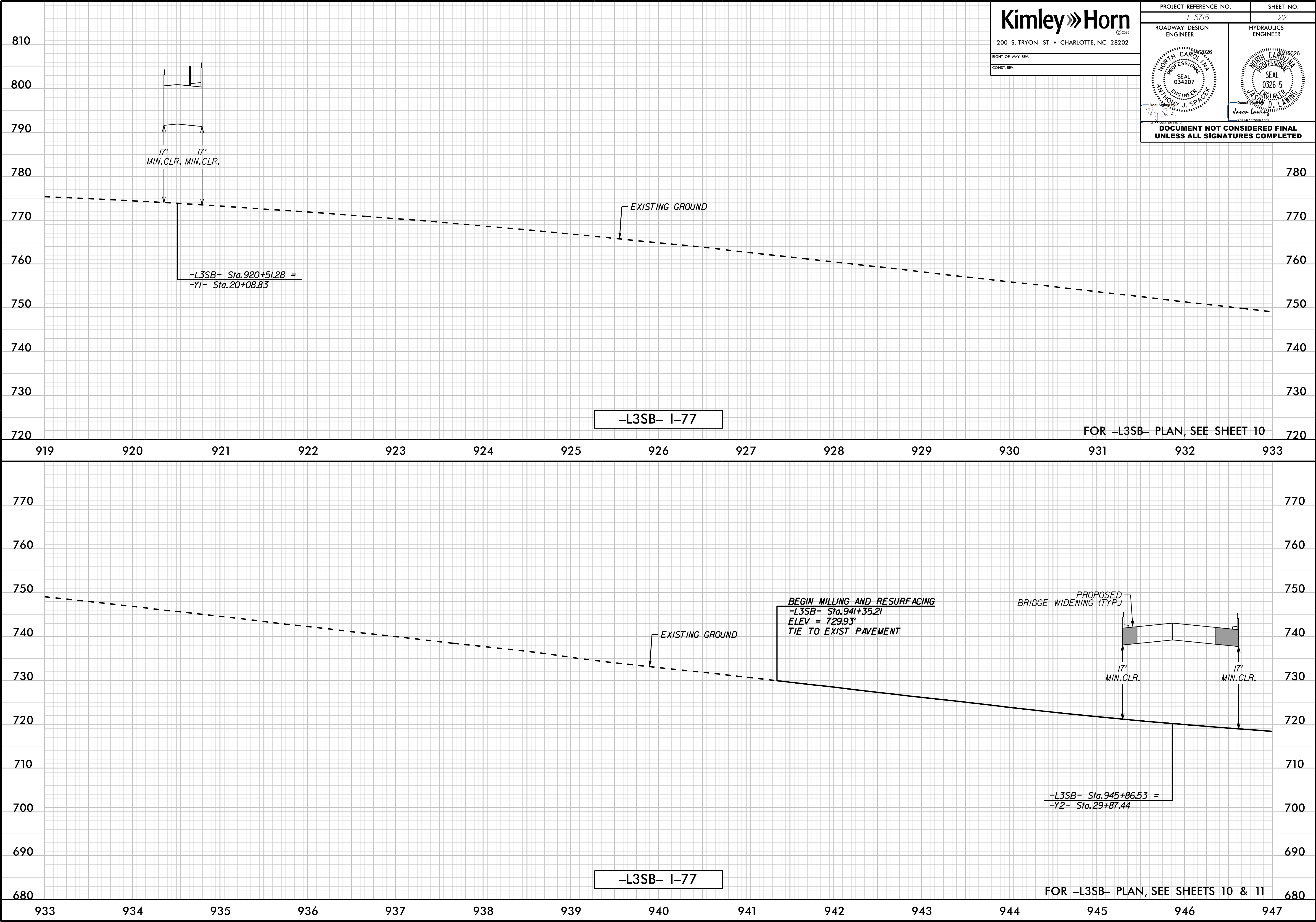
Kimley»Horn

200 S. TRYON ST. • CHARLOTTE, NC 28202

RIGHT-OF-WAY REV.

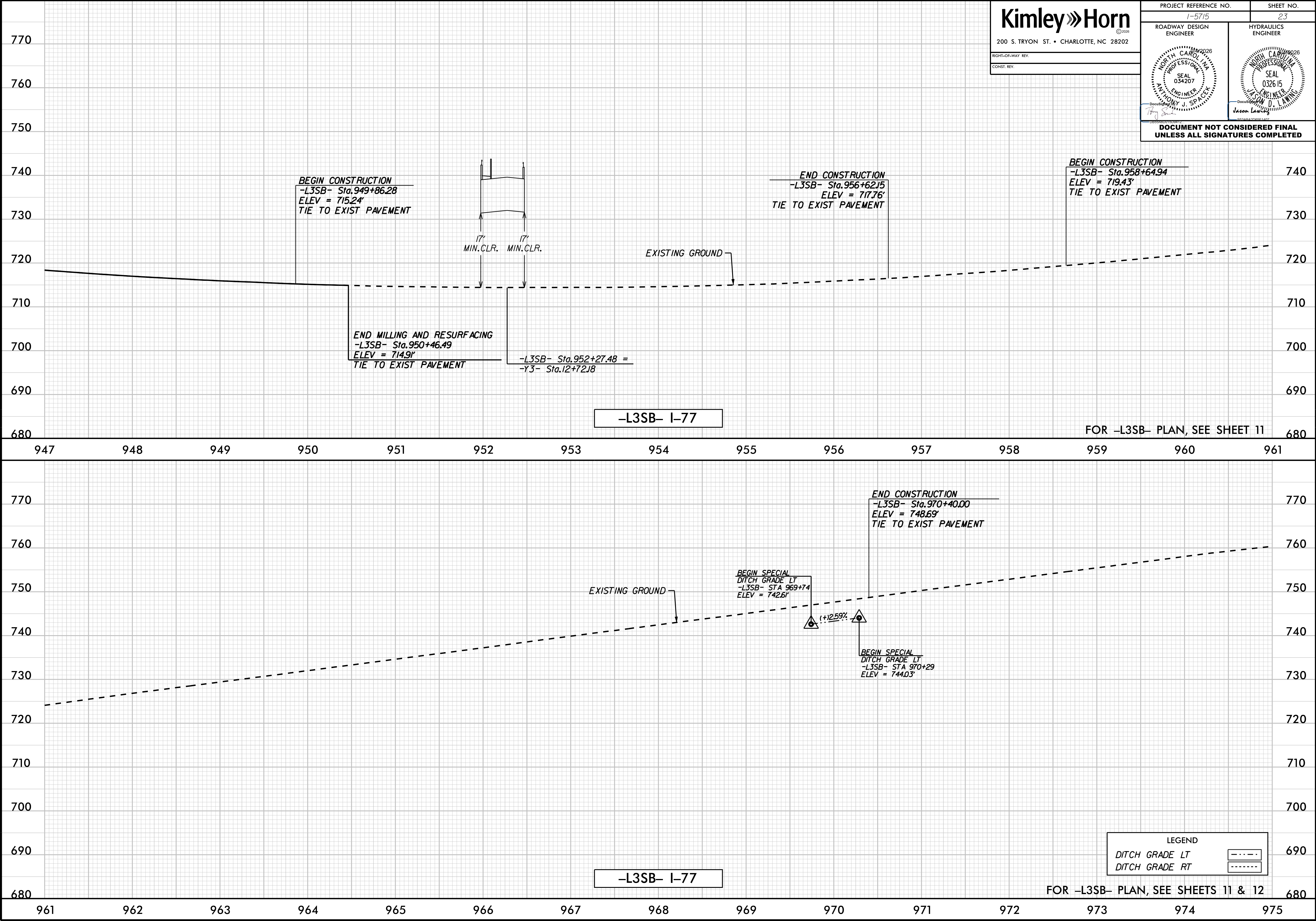
CONST. REV.

PROJECT REFERENCE NO.		SHEET NO.
I-5715		22
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
03/26/2026 ANTHONY J. SPACK SEAL 034207 ENGINEER PROFESSIONAL NORTH CAROLINA	03/26/2026 JASON D. LAWING SEAL 032615 ENGINEER PROFESSIONAL NORTH CAROLINA	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		



K:\CHL_PR\01036264 - I-5715\Roadway\Proj\I-5715_rdy_pst_22.dgn

8/3/2026



Kimley»Horn
© 2026
200 S. TRYON ST. • CHARLOTTE, NC 28202

RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.
1-5715

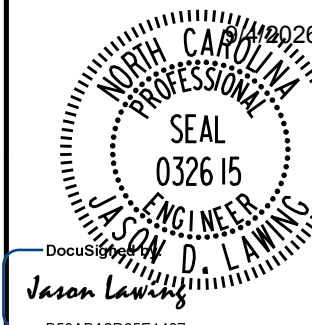
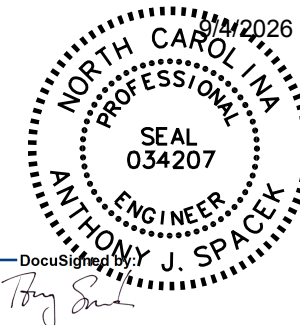
SHEET NO.
23

ROADWAY DESIGN ENGINEER
ANTHONY J. SPACK
NORTH CAROLINA PROFESSIONAL SEAL 034207
08/03/2026

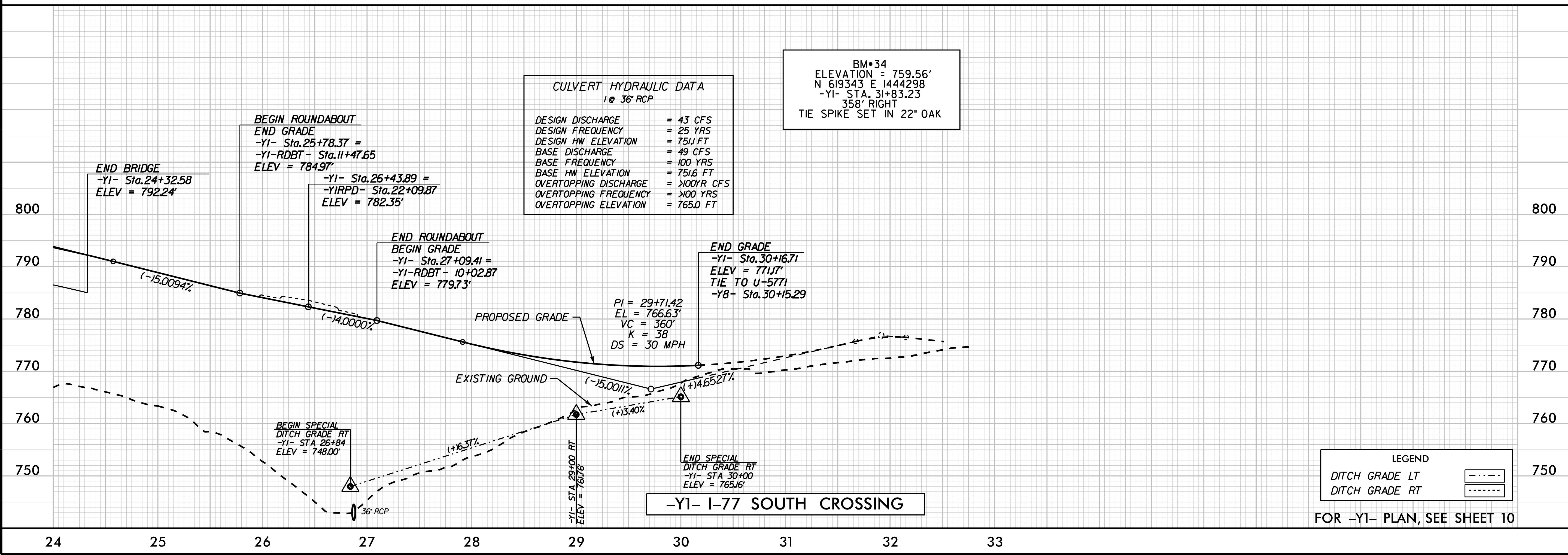
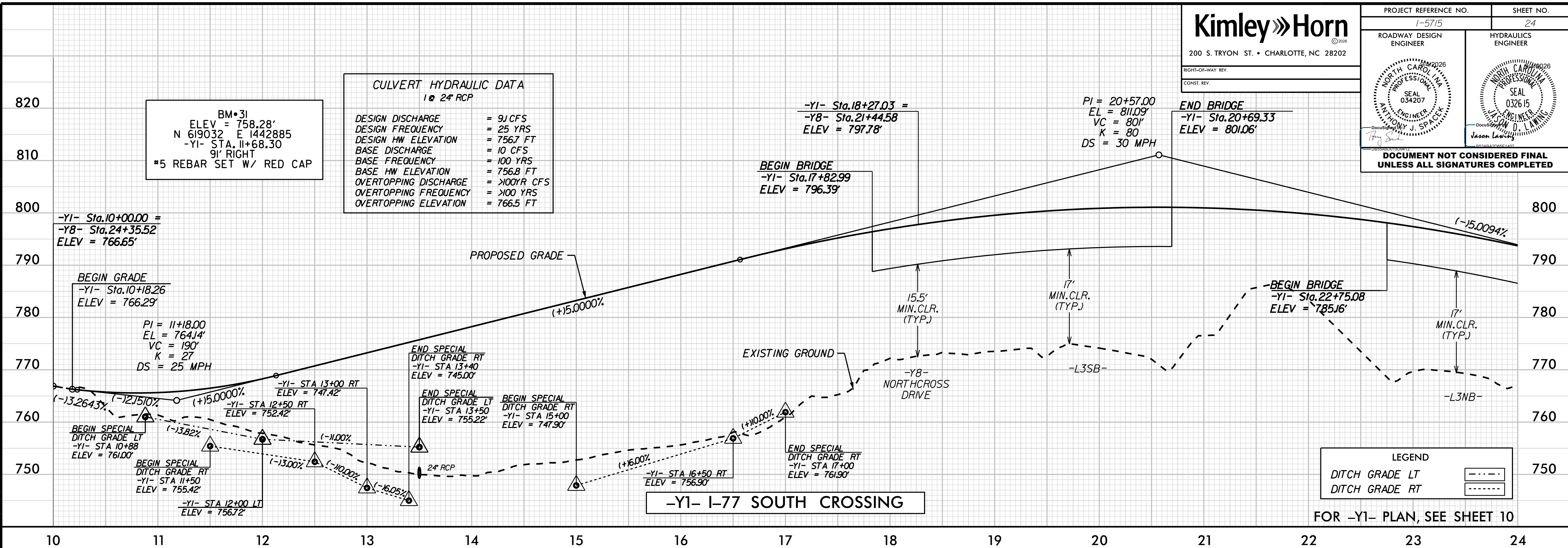
HYDRAULICS ENGINEER
JASON D. LAWING
NORTH CAROLINA PROFESSIONAL SEAL 032615
08/03/2026

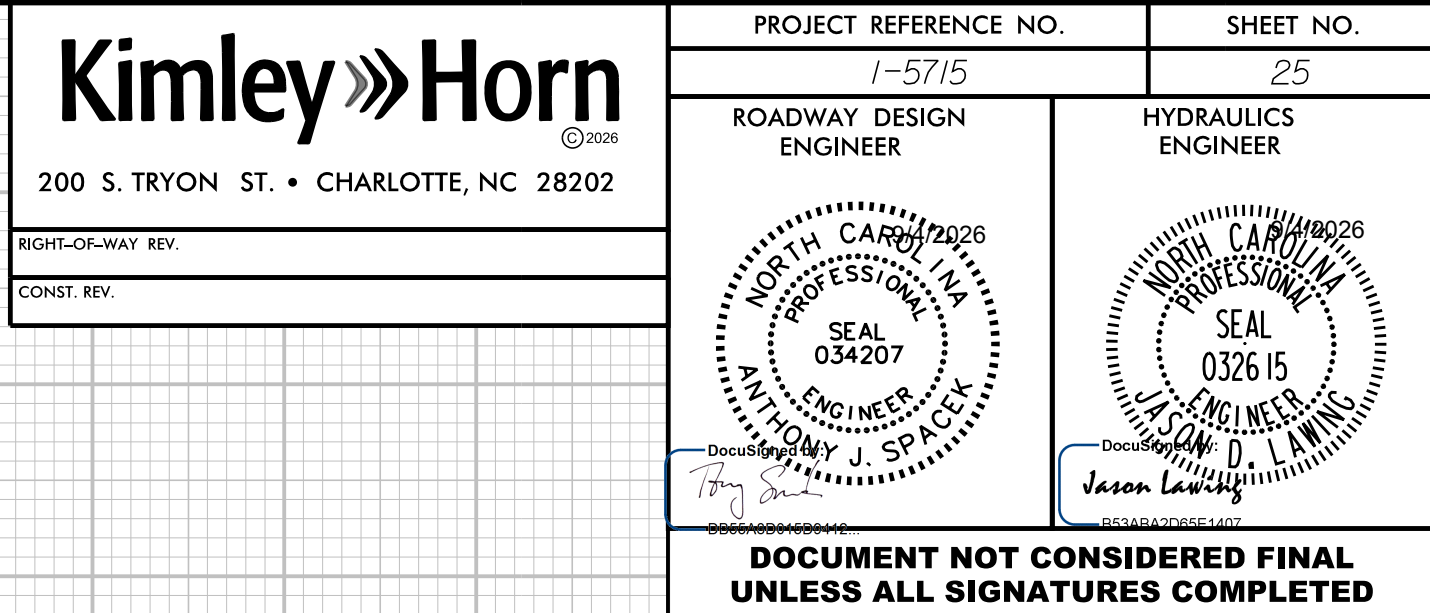
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

K:\CHL_PR\01036264 - I-57/5/Roadway\Proj\N-57/5_rdy_pst_23.dgn 8/3/2026



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED





Kimley»Horn

200 S. TRYON ST. • CHARLOTTE, NC 28202

RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.
1-5715

SHEET NO.
26

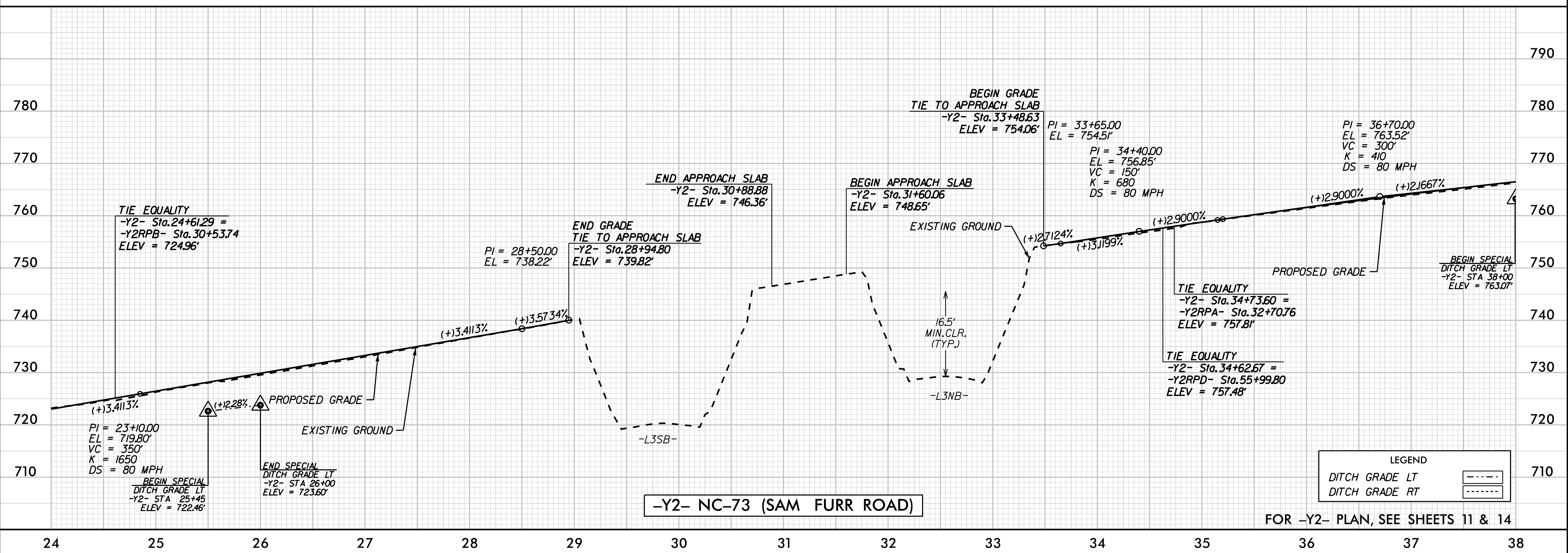
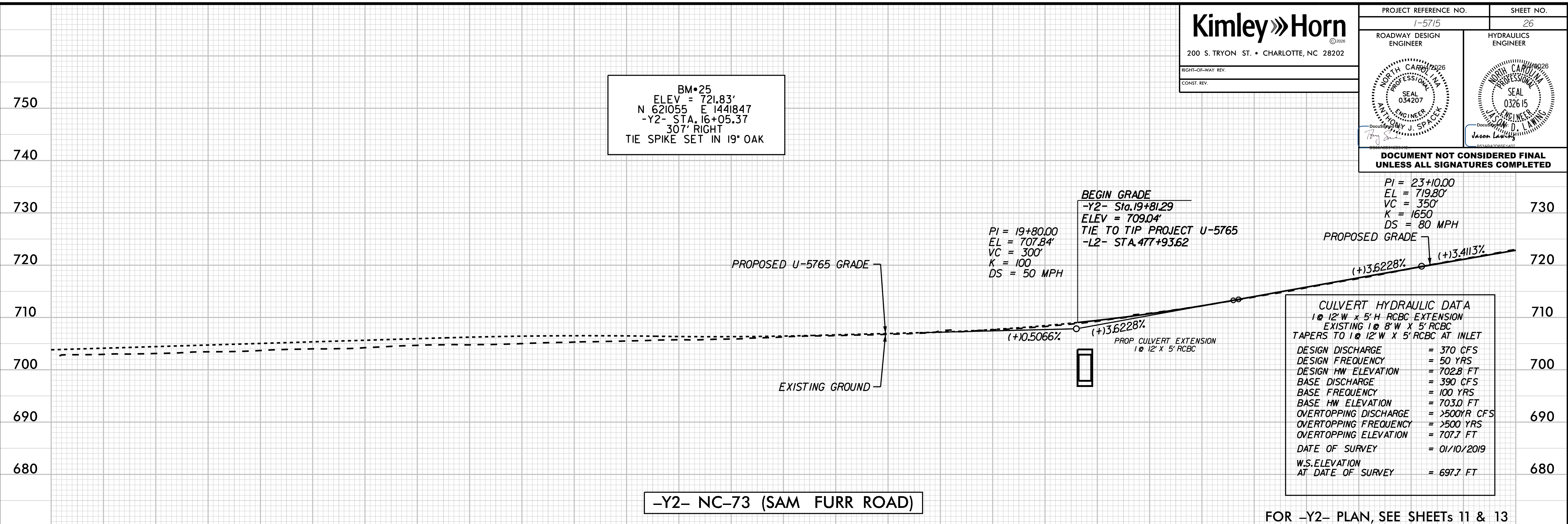
ROADWAY DESIGN
ENGINEER

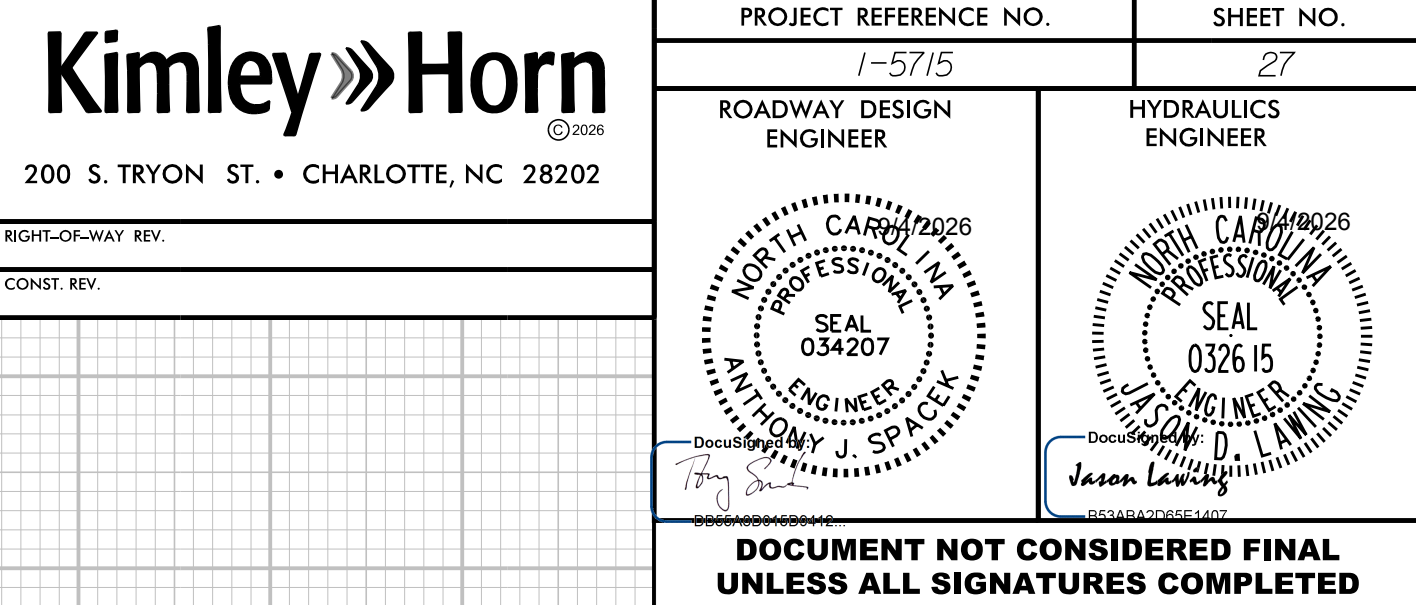
HYDRAULICS
ENGINEER

PROFESSIONAL
SEAL
034207
ENGINEER
NORTH CAROLINA
JASON J. SPACK

PROFESSIONAL
SEAL
032615
ENGINEER
NORTH CAROLINA
JASON D. LAWING

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



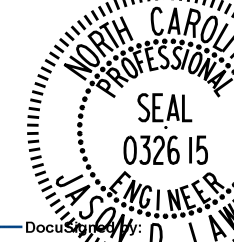


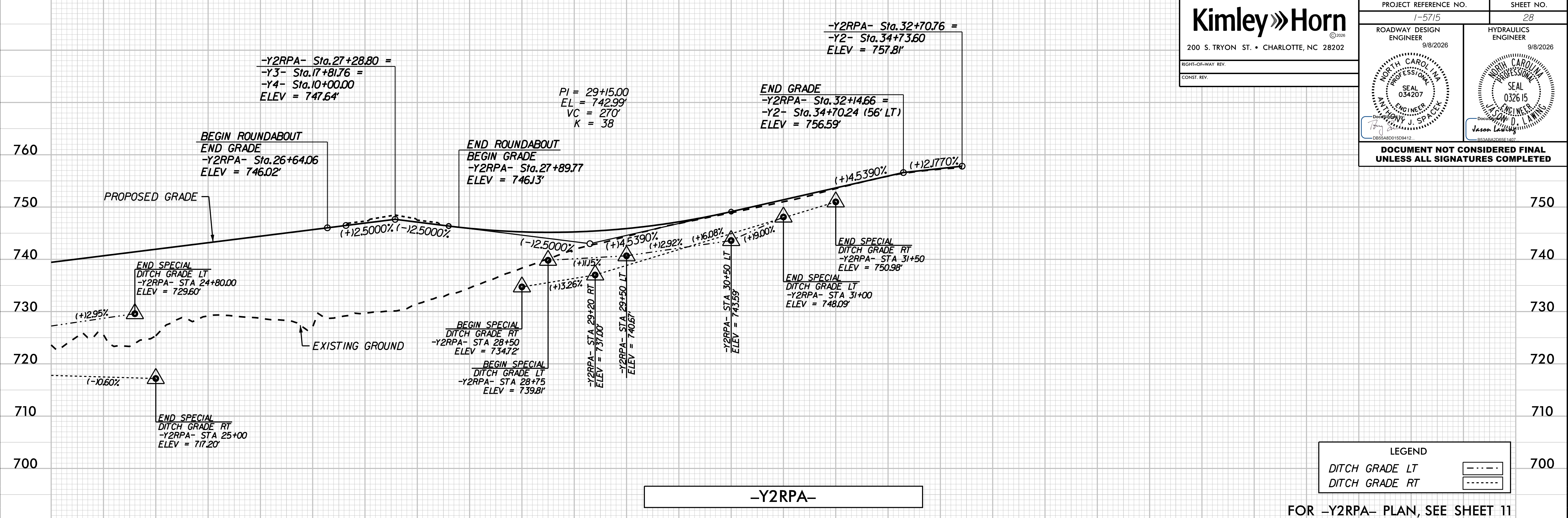
Kimley»Horn

200 S. TRYON ST. • CHARLOTTE, NC 28202

RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.		SHEET NO.
I-5715		28
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
9/8/2026	9/8/2026	
		
DocuSign Anthony J. Spack	DocuSign Joseph D. Lawing	
DESIGNATION 1012		
DESIGNATION 1017		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		



THIS SPACE INTENTIONALLY
LEFT BLANK

PROJECT REFERENCE NO.

1-5715

SHEET NO.

29

ROADWAY DESIGN ENGINEER

200 S. TRYON ST. • CHARLOTTE, NC 28202

RIGHT-OF-WAY REV.

CONST. REV.

HYDRAULICS ENGINEER

200 S. TRYON ST. • CHARLOTTE, NC 28202

RIGHT-OF-WAY REV.

CONST. REV.

2026

PROFESSIONAL SEAL

034207

ANTHONY J. SPACK

2026

PROFESSIONAL SEAL

032615

DAVID D. LAWING

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

CULVERT HYDRAULIC DATA
2 @ 10' W x 12' H RCBC EXTENSION
EXISTING 2 @ 10' W x 8' RCBC

DESIGN DISCHARGE = 1700 CFS
DESIGN FREQUENCY = 50 YRS
DESIGN HW ELEVATION = --- FT
BASE DISCHARGE = 1900 CFS
BASE FREQUENCY = 100 YRS
BASE HW ELEVATION = --- FT
OVERTOPPING DISCHARGE = >500YR CFS
OVERTOPPING FREQUENCY = >500 YRS
OVERTOPPING ELEVATION = --- FT
DATE OF SURVEY = 01/10/2019
W.S.ELEVATION AT DATE OF SURVEY = 698.0 FT

BEGIN GRADE
-Y2RPB- Sta.10+00.00 =
-L3SB- Sta.973+17.47 (24' LT)
ELEV = 737.28'

END SPECIAL
DITCH GRADE RT
-Y2RPB- STA 11+50
ELEV = 731.50'

BEGIN SPECIAL
DITCH GRADE RT
-Y2RPB- STA 10+00
ELEV = 733.15'

BEGIN SPECIAL
DITCH GRADE RT
-Y2RPB- STA 12+00
ELEV = 727.31'

END ROUNDABOUT
BEGIN GRADE
-Y2RPB- Sta.23+91.90
-Y2RPB-RDBT - 12+94.83
ELEV = 728.73'

END GRADE
-Y2RPB- Sta.22+44.90
-Y2RPB-RDBT - Sta.11+57.92
ELEV = 728.34'

TIE EQUALITY
-Y2RPB- Sta.23+19.44 =
-Y3- Sta.10+00.00
ELEV = 731.34'

PROPOSED GRADE

EXISTING GROUND

PROP. CULVERT EXTENSION
2 @ 10' X 12' RCBC

LEGEND
DITCH GRADE LT
DITCH GRADE RT

PI = 12+25.00
EL = 731.20'
VC = 100'
K = 193
DS = 60 MPH

PI = 17+90.00
EL = 713.00'
VC = 900'
K = 136
DS = 60 MPH

PI = 26+75.00
EL = 723.07'
VC = 150'
K = 38
DS = 30 MPH

PI = 28+25.00
EL = 726.00'
VC = 90'
K = 31
DS = 35 MPH

END GRADE
-Y2RPB- Sta.29+97.73 =
-Y2- Sta.24+61.50
ELEV = 724.40'

-Y2RPB-

FOR -Y2RPB- PLAN, SEE SHEETS 11 & 12

END SPECIAL
DITCH GRADE RT
-Y2RPB- STA 24+00
ELEV = 708.90'

EXISTING GROUND

PROPOSED GRADE

PI = 26+75.00
EL = 723.07'
VC = 150'
K = 38
DS = 30 MPH

PI = 28+25.00
EL = 726.00'
VC = 90'
K = 31
DS = 35 MPH

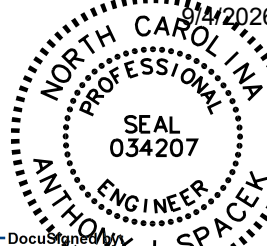
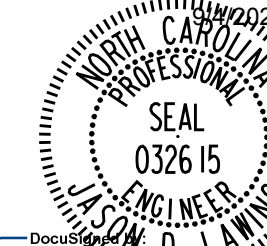
END GRADE
-Y2RPB- Sta.29+97.73 =
-Y2- Sta.24+61.50
ELEV = 724.40'

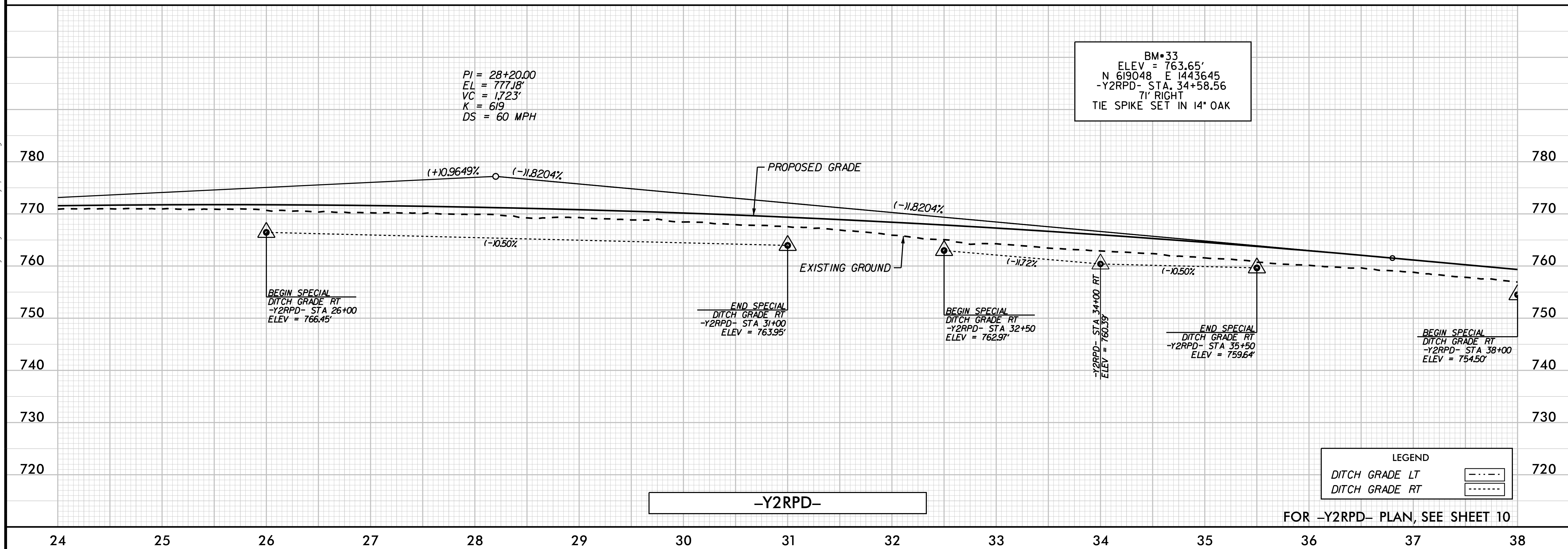
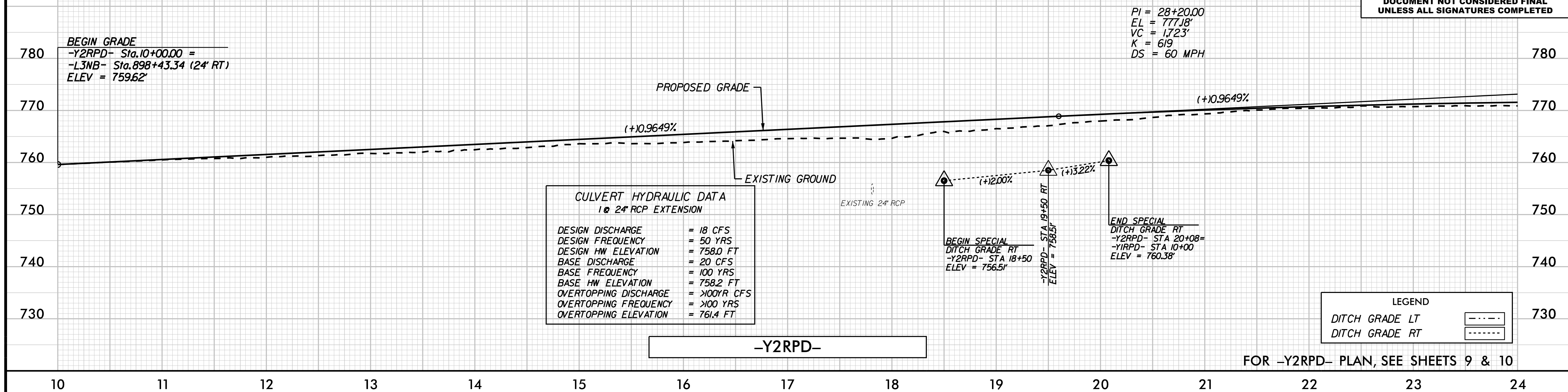
-Y2RPB-

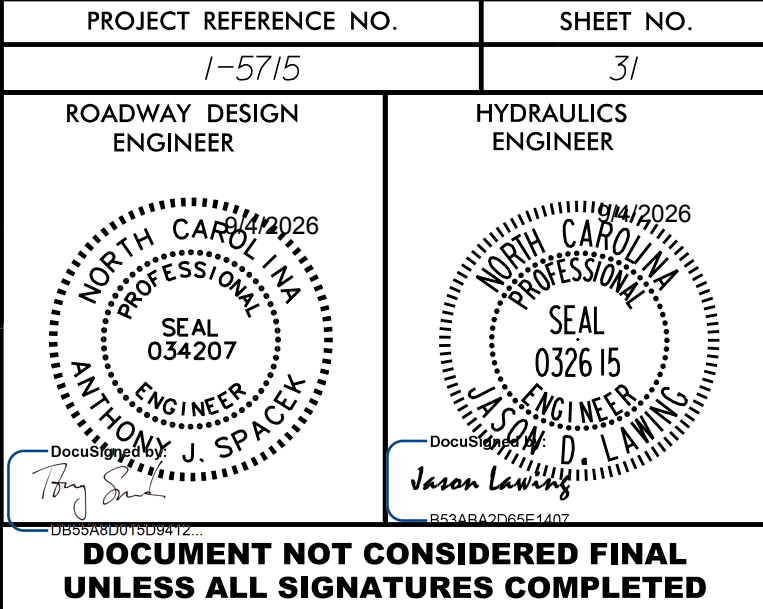
FOR -Y2RPB- PLAN, SEE SHEET 11

K:\CHL_PRA\01036264 - 1-5715\Roadway\Proj\N-5715_rdy_pst_29.dgn

8/3/2026

Kimley»Horn ©2026 200 S. TRYON ST. • CHARLOTTE, NC 28202	PROJECT REFERENCE NO.		SHEET NO.
	I-5715		30
	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
			
RIGHT-OF-WAY REV. CONST. REV.	Document by  Jason Lawing 00340487006417		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			





PROJECT REFERENCE NO.

1-5715

SHEET NO.

32

ROADWAY DESIGN
ENGINEER

200 S. TRYON ST. • CHARLOTTE, NC 28202

©2026

RIGHT-OF-WAY REV.

CONST. REV.

PROFESSIONAL
SEAL
034207

ANTHONY J. SPACEK

PROFESSIONAL
SEAL
032615

JASON D. LAWING

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PROPOSED GRADE

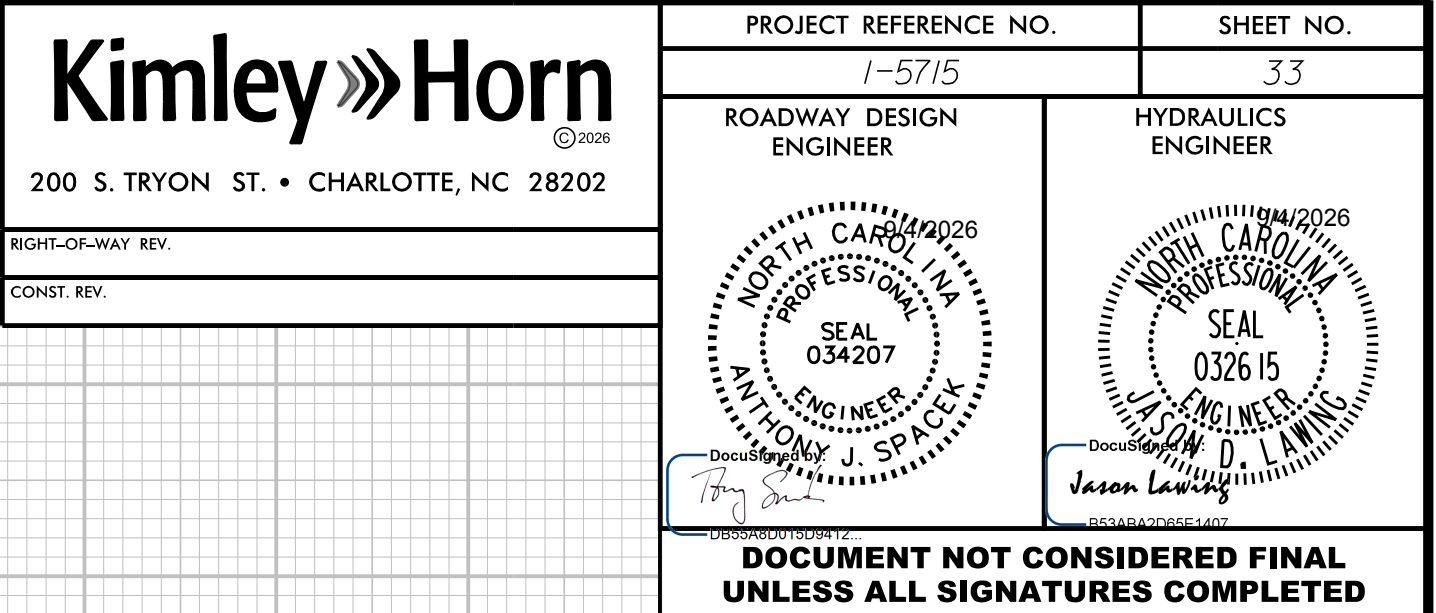
EXISTING GROUND

DITCH GRADE LT

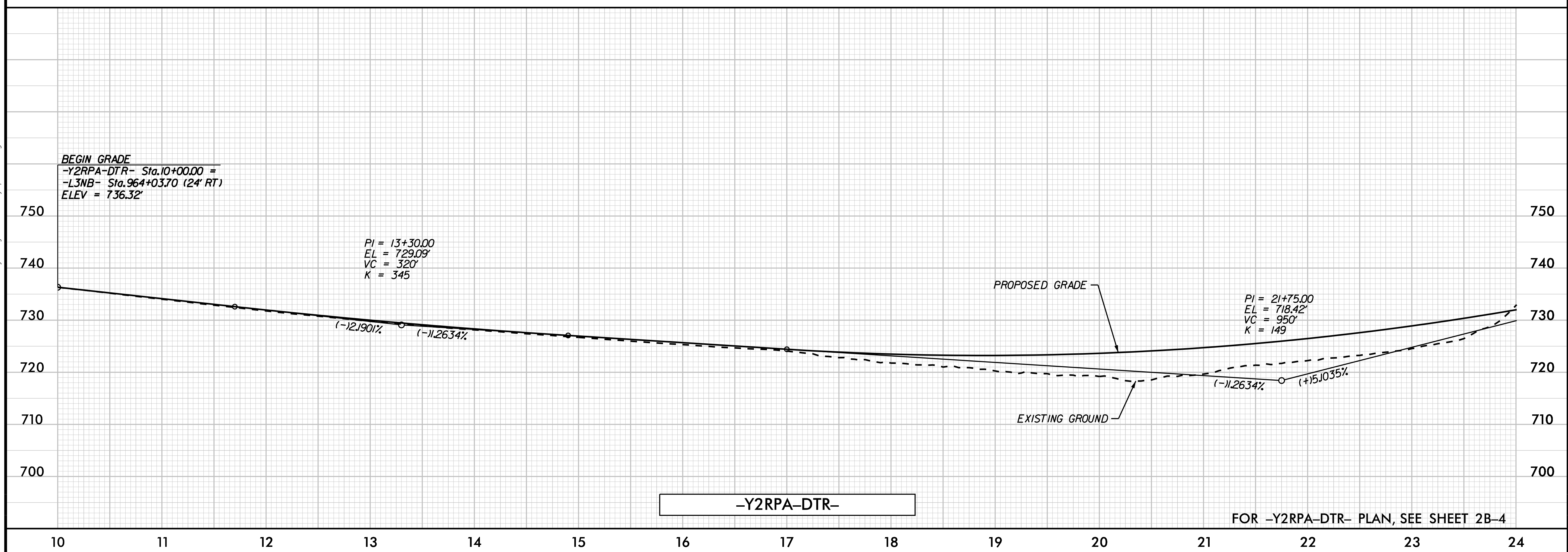
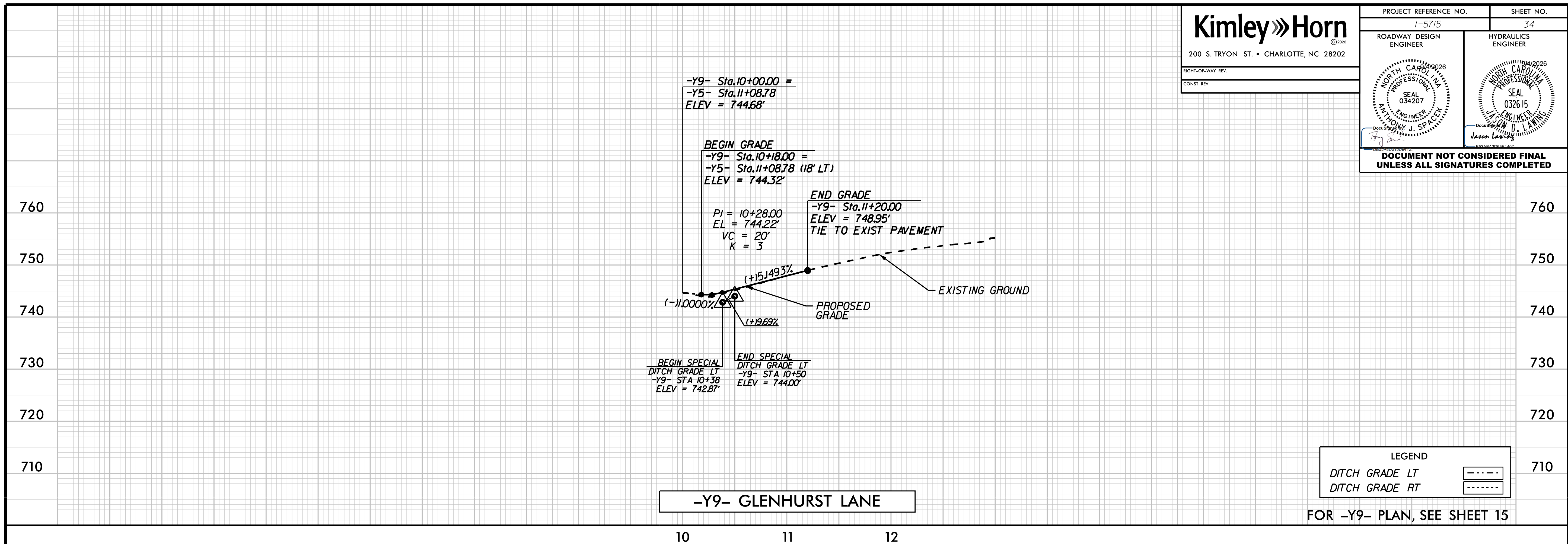
DITCH GRADE RT

FOR -Y2LPB- PLAN, SEE SHEET 11

K:\CHL_PRJ\01036264 - 1-5715\Roadway\Proj\N-5715_rdy_pst_32.dgn
8/3/2026



Kimley»Horn ©2006 200 S. TRYON ST. • CHARLOTTE, NC 28202	PROJECT REFERENCE NO.		SHEET NO.
	1-5715		34
	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
RIGHT-OF-WAY REV.	DOCUMENT NO.		
CONST. REV.	10/20/2017		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



Kimley»Horn © 2020 200 S. TRYON ST. • CHARLOTTE, NC 28202	PROJECT REFERENCE NO. 1-5715		SHEET NO. 35
	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
RIGHT-OF-WAY REV.			
CONST. REV.	DocuSign 		DocuSign
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

Kimley»Horn

© 2025

200 S. TRYON ST. • CHARLOTTE, NC 28202

RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.

1-5715

SHEET NO.

36

ROADWAY DESIGN ENGINEER

ANTHONY J. SPACK

SEAL 034207

190026

DocuSign Envelope ID: 126550115204119

HYDRAULICS ENGINEER

JASON D. LAWING

SEAL 032615

190026

DocuSign Envelope ID: 06342A5086E6405

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

END GRADE
-Y2RPB-DTR- Sta. 24+82.24 =
-Y2RPB- Sta. 28+50.31
ELEV = 724.91

PI = 24+35.00
EL = 724.71'
VC = 80'
K = 51
DS = 40 MPH

(+).9904% (+).4292%

PROPOSED GRADE

EXISTING GROUND

-Y2RPB-DTR-

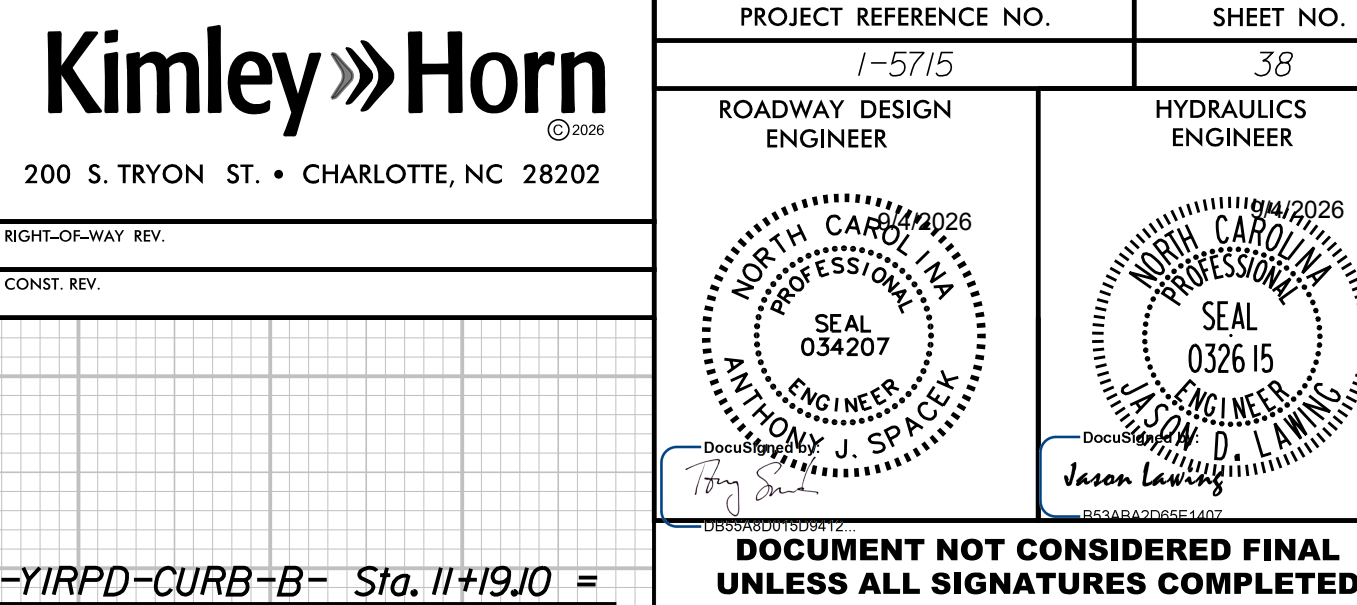
FOR -Y2RPB-DTR- PLAN, SEE SHEET 2B-5

THIS SPACE INTENTIONALLY
LEFT BLANK

K:\CHL_PR\N01036264 - 1-5715\Roadway\Proj\N-5715_rdy_pst_36.dgn

8/3/2026

Kimley»Horn
© 2026
200 S. TRYON ST. • CHARLOTTE, NC 28202
RIGHT-OF-WAY REV.
CONST. REV.



Kimley»Horn

©2025

200 S. TRYON ST. • CHARLOTTE, NC 28202

RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.

1-5715

SHEET NO.

39

ROADWAY DESIGN
ENGINEER

03/26/2026

034207

ANTHONY J. SPACEK

ENGINEER

DocuSign Envelope ID: 6133A9A0-205E-4472

HYDRAULICS
ENGINEER

03/26/2026

032615

JASON D. LAWING

ENGINEER

DocuSign Envelope ID: 6133A9A0-205E-4472

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

Profile view of road segment -Y2RPA-RDBT-A-. The vertical axis shows elevation from 720 to 760 feet. The horizontal axis shows stationing from 10 to 12. The proposed grade is shown as a solid line with grades of +1.1161%, -15.6883%, and -11.9013%. The existing ground is shown as a dashed line. Key data points include: PI = 10+45.00, EL = 750.33', VC = 30', K = 4; PI = 10+85.00, EL = 748.05', VC = 30', K = 8. Stationing points: Sta. 10+08.94 (ELEV = 749.93'), Sta. 11+81.51 (ELEV = 746.22').

Profile view of road segment -Y2RPA-RDBT-B-. The vertical axis shows elevation from 730 to 760 feet. The horizontal axis shows stationing from 10 to 13. The proposed grade is shown as a solid line with grades of +3.5669%, -12.8423%, and +11.0000%. The existing ground is shown as a dashed line. Key data points include: PI = 11+05.00, EL = 747.14', VC = 180', K = 28; PI = 12+35.00, EL = 743.44', VC = 50', K = 7; PI = 12+75.00, EL = 744.98', VC = 30', K = 11. Stationing points: Sta. 10+00.00 (ELEV = 743.39'), Sta. 12+93.15 (ELEV = 745.18').

Profile view of road segment -Y2RPA-RDBT-C-. The vertical axis shows elevation from 720 to 760 feet. The horizontal axis shows stationing from 10 to 12. The proposed grade is shown as a solid line with grades of +16.5669%, -11.4904%, and -11.4904%. The existing ground is shown as a dashed line. Key data points include: PI = 10+45.00, EL = 745.85', VC = 55', K = 7. Stationing points: Sta. 10+00.00 (ELEV = 742.90'), Sta. 11+53.21 (ELEV = 744.24').

Profile view of road segment -Y2RPA-RDBT-D-. The vertical axis shows elevation from 720 to 760 feet. The horizontal axis shows stationing from 10 to 12. The proposed grade is shown as a solid line with grades of +10.8807%, -12.2629%, -16.6483%, and -12.8502%. The existing ground is shown as a dashed line. Key data points include: PI = 10+20.00, EL = 749.97', VC = 35', K = 11; PI = 10+75.00, EL = 748.73', VC = 40', K = 9; PI = 11+10.00, EL = 746.40', VC = 30', K = 8. Stationing points: Sta. 10+01.22 (ELEV = 749.80'), Sta. 11+26.05 (ELEV = 745.94').

K:\CHL_PRJ\01036264 - 1-5715\Roadway\Proj\N-5715_rdy_pst_39.dgn
8/3/2026

PI = 10+70.00

EL = 746.04'

VC = 40'

K = 7

PI = 11+65.00

EL = 745.15'

VC = 60'

K = 5

PI = 11+15.00

EL = 747.22'

VC = 40'

K = 6

PI = 12+25.00

EL = 749.43'

VC = 40'

K = 4

-Y2RPA-RDBT-

FOR -Y2RPA-RDBT- PLAN, SEE SHEET 2B-2

Kimley»Horn

©2025

200 S. TRYON ST. • CHARLOTTE, NC 28202

RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.		SHEET NO.
I-57/5		40
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
	034207 ANTHONY J. SPACK ENGINEER SEAL 034207 ANTHONY J. SPACK DocuSign Envelope ID: 08646009-AD9A-427D-B080-900000000000 032615 JASON D. LAWING ENGINEER SEAL 032615 JASON D. LAWING DocuSign Envelope ID: 60000000-0000-0000-0000-000000000000	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		

THIS SPACE INTENTIONALLY LEFT BLANK

THIS SPACE INTENTIONALLY LEFT BLANK

THIS SPACE INTENTIONALLY LEFT BLANK

