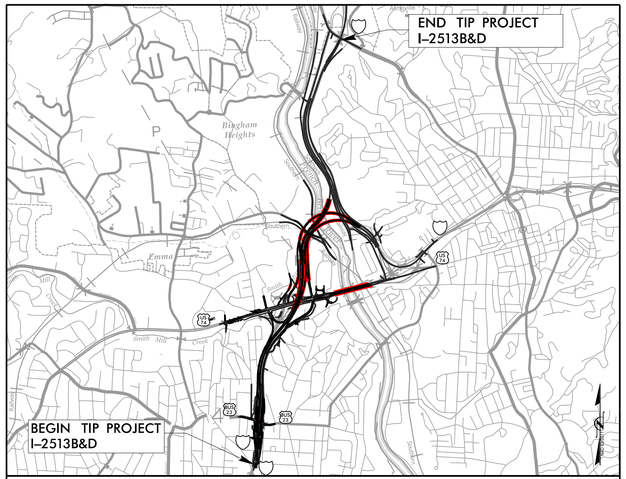
09/08/99

TIP PROJECT: I-2513B & D

CONTRACT: C204953

See Sheet 1A&1B For Proposed Design Criteria
See Sheet 1C For Legend



VICINITY MAP (NTS)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-2513B&D	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
34165.3.GV2	3416501	PE
34165.3.GV3	3416501	PE

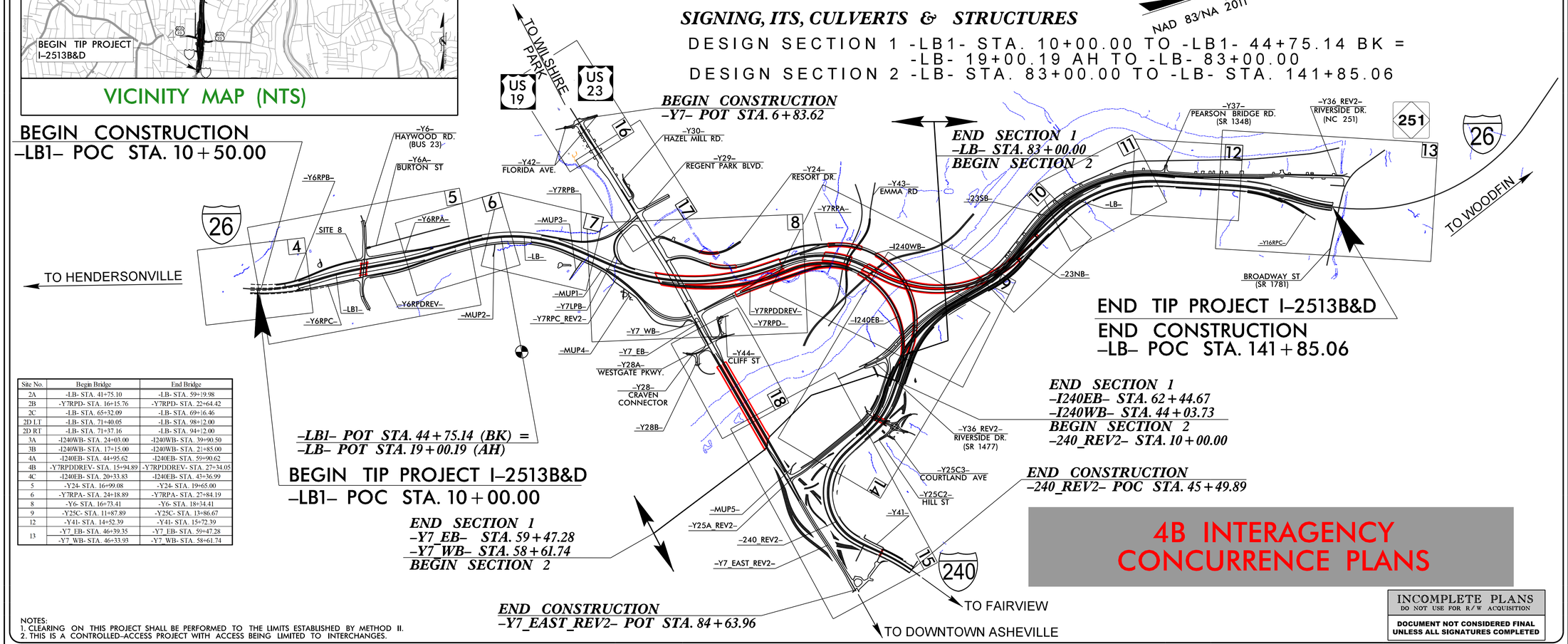
BUNCOMBE COUNTY

LOCATION: I-26/I-240 FROM SOUTH OF HAYWOOD RD TO SOUTH OF NC 251/SR 1781 (BROADWAY STREET) AND SR 1477 (RIVERSIDE DRIVE) FROM SR 1517 (HILL STREET) TO NC 251 (BROADWAY STREET)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, LIGHTING, SIGNING, ITS, CULVERTS & STRUCTURES

DESIGN SECTION 1 -LB1- STA. 10+00.00 TO -LB1- 44+75.14 BK = -LB- 19+00.19 AH TO -LB- 83+00.00
DESIGN SECTION 2 -LB- STA. 83+00.00 TO -LB- STA. 141+85.06

NAD 83/NA 2011



Site No.	Begin Bridge	End Bridge
2A	-LB- STA. 41+75.10	-LB- STA. 59+19.98
2B	-Y7RPD- STA. 16+15.76	-Y7RPD- STA. 22+64.42
2C	-LB- STA. 65+32.09	-LB- STA. 69+16.46
2D LT	-LB- STA. 71+40.05	-LB- STA. 98+12.00
2D RT	-LB- STA. 71+37.16	-LB- STA. 94+12.00
3A	-I240WB- STA. 24+03.00	-I240WB- STA. 39+90.50
3B	-I240WB- STA. 17+15.00	-I240WB- STA. 21+85.00
4A	-I240EB- STA. 44+95.62	-I240EB- STA. 59+90.62
4B	-Y7RPDDREV- STA. 15+94.89	-Y7RPDDREV- STA. 27+34.05
4C	-I240EB- STA. 20+33.83	-I240EB- STA. 43+36.99
5	-Y24- STA. 16+99.08	-Y24- STA. 19+65.00
6	-Y7RPA- STA. 24+18.89	-Y7RPA- STA. 27+84.19
8	-Y6- STA. 16+73.41	-Y6- STA. 18+34.41
9	-Y25C- STA. 11+87.89	-Y25C- STA. 13+86.67
12	-Y41- STA. 14+52.39	-Y41- STA. 15+72.39
13	-Y7_EB- STA. 46+39.35	-Y7_EB- STA. 59+47.28
	-Y7_WB- STA. 46+33.93	-Y7_WB- STA. 58+61.74

NOTES:
1. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.
2. THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.

4B INTERAGENCY CONCURRENCE PLANS

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

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2025 = 93,650
ADT 2045 = 126,800
K = 8%
D = 55%
T = 6%*
V = 60 MPH

FUNC CLASS: INTERSTATE
* (TTST 3% + DUALS 3%)

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT I-2513B&D.....2.076 MILES
LENGTH STRUCTURE TIP PROJECT I-2513B&D.....0.909 MILES
TOTAL LENGTH TIP PROJECT I-2513B&D.....2.985 MILES

NCDOT CONTACT

EDWIN FENNER, P.E.
ALTERNATIVE DELIVERY PROJECT ENGINEER

PLANS PREPARED BY:

RK&K — RUMMEL, KLEPPER & KAHL, LLP
8601 SIX FORKS ROAD, FORUM 1, SUITE 700
RALEIGH, NORTH CAROLINA 27615-3960
NC LICENSE NO. F-0112

WSP — 1001 Morehead Square Dr., Suite 610, Charlotte, NC 28203
NC LIC NO. F-0165

2024 STANDARD SPECIFICATIONS

MIKE MERRITT, P.E.
PROJECT ENGINEER

BYRON HOLDEN, P.E.
PROJECT DESIGN ENGINEER

LETTING DATE:
FEBRUARY 20, 2024

HYDRAULICS ENGINEER
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER
SIGNATURE: P.E.

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION

6/2/2025
c:\pwworking\rkkpw01\eleni.riggs\dms85450\I2513BD_hyd_TSH_4B.dgn
eriggs

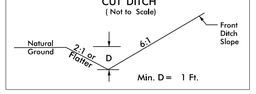
SECTION 1 DITCH DETAILS

PROJECT REFERENCE NO.	SHEET NO.
	2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DETAIL A
CUT DITCH
(Not to Scale)



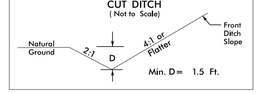
NOT USED IN SECTION 1

DETAIL B
CUT DITCH
(Not to Scale)

Type of Liner= CL B Rip-Rap, Keyed-In

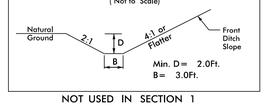
–Y7RPA– STA. 11+89 TO STA. 15+23 RT

DETAIL C
CUT DITCH
(Not to Scale)



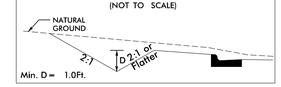
–Y7RPC_REV2– STA. 27+50 TO STA. 30+50 LT

DETAIL D
SPECIAL CUT BASE DITCH
(Not to Scale)



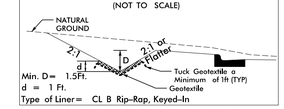
NOT USED IN SECTION 1

DETAIL E
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)



–Y7– STA. 20+00 TO STA. 21+50 LT
–Y28– STA. 10+50 TO STA. 13+40 RT

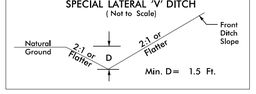
DETAIL F
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)



Type of Liner= CL B Rip-Rap, Keyed-In

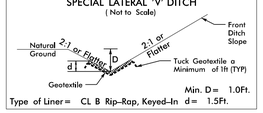
–Y7– STA. 19+50 TO STA. 20+00 LT
–Y24– STA. 22+50 TO STA. 23+50 LT

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



NOT USED IN SECTION 1

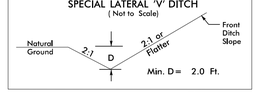
DETAIL H
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Type of Liner= CL B Rip-Rap, Keyed-In d= 1.5Ft.

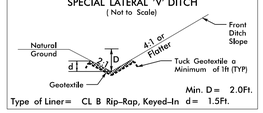
NOT USED IN SECTION 1

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



NOT USED IN SECTION 1

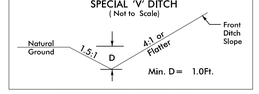
DETAIL J
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Type of Liner= CL B Rip-Rap, Keyed-In d= 1.5Ft.

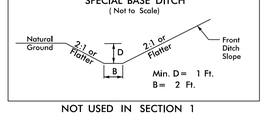
NOT USED IN SECTION 1

DETAIL K
SPECIAL 'V' DITCH
(Not to Scale)



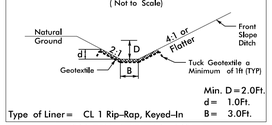
NOT USED IN SECTION 1

DETAIL L
SPECIAL BASE DITCH
(Not to Scale)



NOT USED IN SECTION 1

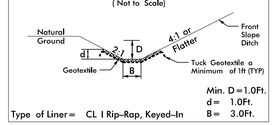
DETAIL M
SPECIAL BASE DITCH
(Not to Scale)



Type of Liner= CL 1 Rip-Rap, Keyed-In

NOT USED IN SECTION 1

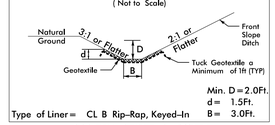
DETAIL N
SPECIAL BASE DITCH
(Not to Scale)



Type of Liner= CL 1 Rip-Rap, Keyed-In

NOT USED IN SECTION 1

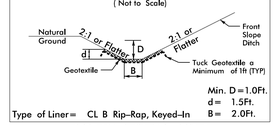
DETAIL O
SPECIAL BASE DITCH
(Not to Scale)



Type of Liner= CL B Rip-Rap, Keyed-In

NOT USED IN SECTION 1

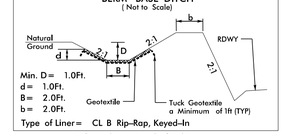
DETAIL P
SPECIAL BASE DITCH
(Not to Scale)



Type of Liner= CL B Rip-Rap, Keyed-In

NOT USED IN SECTION 1

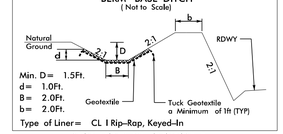
DETAIL Q
BERM BASE DITCH
(Not to Scale)



Type of Liner= CL B Rip-Rap, Keyed-In

NOT USED IN SECTION 1

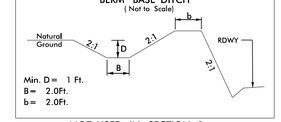
DETAIL R
BERM BASE DITCH
(Not to Scale)



Type of Liner= CL 1 Rip-Rap, Keyed-In

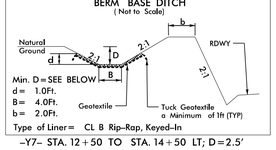
NOT USED IN SECTION 1

DETAIL S
BERM BASE DITCH
(Not to Scale)



NOT USED IN SECTION 1

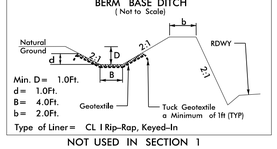
DETAIL T
BERM BASE DITCH
(Not to Scale)



Type of Liner= CL B Rip-Rap, Keyed-In

–Y7– STA. 12+50 TO STA. 14+50 LT; D=2.5'

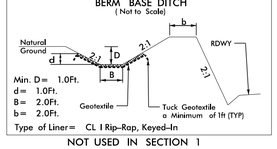
DETAIL U
BERM BASE DITCH
(Not to Scale)



Type of Liner= CL 1 Rip-Rap, Keyed-In

NOT USED IN SECTION 1

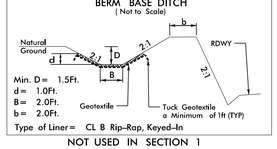
DETAIL V
BERM BASE DITCH
(Not to Scale)



Type of Liner= CL 1 Rip-Rap, Keyed-In

NOT USED IN SECTION 1

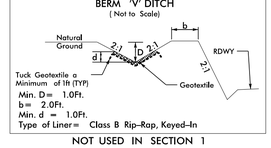
DETAIL W
BERM BASE DITCH
(Not to Scale)



Type of Liner= CL B Rip-Rap, Keyed-In

NOT USED IN SECTION 1

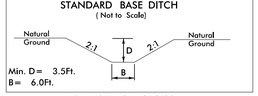
DETAIL X
BERM 'V' DITCH
(Not to Scale)



Type of Liner= Class B Rip-Rap, Keyed-In

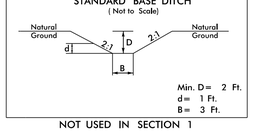
NOT USED IN SECTION 1

DETAIL Y
STANDARD BASE DITCH
(Not to Scale)



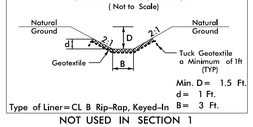
NOT USED IN SECTION 1

DETAIL Z
STANDARD BASE DITCH
(Not to Scale)



NOT USED IN SECTION 1

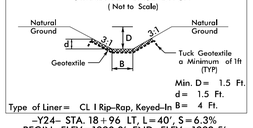
DETAIL AA
STANDARD BASE DITCH
(Not to Scale)



Type of Liner=CL B Rip-Rap, Keyed-In

NOT USED IN SECTION 1

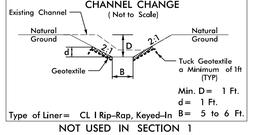
DETAIL AB
STANDARD BASE DITCH
(Not to Scale)



Type of Liner= CL 1 Rip-Rap, Keyed-In

–Y24– STA. 18+96 LT, L=40', S=6.3%
BEGIN ELEV=1990.0', END ELEV=1992.5'
–Y7– STA. 25+00 LT, L=240', S=3.75%
BEGIN ELEV=2000.0', END ELEV=2009.0'
–Y7– STA. 25+00 LT, L=169', S=11.8%
BEGIN ELEV=2000.0', END ELEV=2020.0'

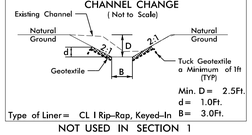
DETAIL AD
CHANNEL CHANGE
(Not to Scale)



Type of Liner= CL 1 Rip-Rap, Keyed-In

NOT USED IN SECTION 1

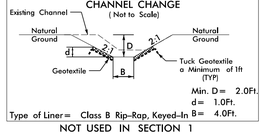
DETAIL AE
CHANNEL CHANGE
(Not to Scale)



Type of Liner= CL 1 Rip-Rap, Keyed-In

NOT USED IN SECTION 1

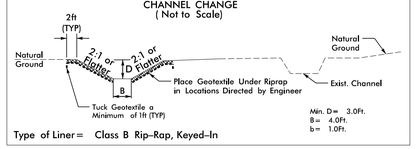
DETAIL AF
CHANNEL CHANGE
(Not to Scale)



Type of Liner= Class B Rip-Rap, Keyed-In

NOT USED IN SECTION 1

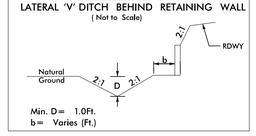
DETAIL AG
CHANNEL CHANGE
(Not to Scale)



Type of Liner= Class B Rip-Rap, Keyed-In

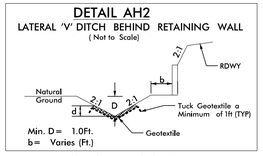
NOT USED IN SECTION 1

DETAIL AH1
LATERAL 'V' DITCH BEHIND RETAINING WALL
(Not to Scale)



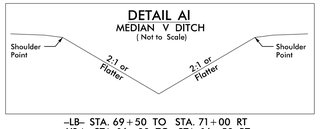
NOT USED IN SECTION 1

DETAIL AH2
LATERAL 'V' DITCH BEHIND RETAINING WALL
(Not to Scale)



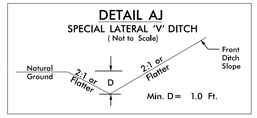
NOT USED IN SECTION 1

DETAIL AI
MEDIAN V DITCH
(Not to Scale)



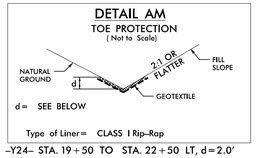
–LB– STA. 69+50 TO STA. 71+00 RT
–Y24– STA. 16+00 TO STA. 16+50 RT
–Y7RPC_REV2– STA. 27+50 TO STA. 32+50 RT

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



NOT USED IN SECTION 1

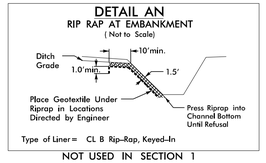
DETAIL AM
TOE PROTECTION
(Not to Scale)



Type of Liner= CLASS I Rip-Rap

–Y24– STA. 19+50 TO STA. 22+50 LT, d=2.0'

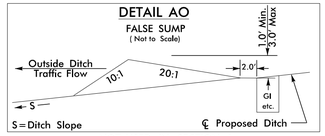
DETAIL AN
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner= CL B Rip-Rap, Keyed-In

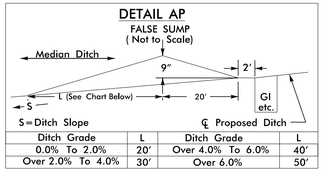
NOT USED IN SECTION 1

DETAIL AO
FALSE SUMP
(Not to Scale)



NOT USED IN SECTION 1

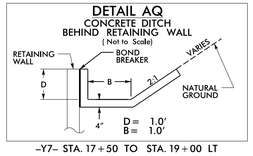
DETAIL AP
FALSE SUMP
(Not to Scale)



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

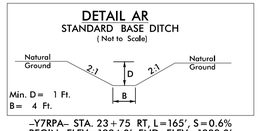
NOT USED IN SECTION 1

DETAIL AQ
CONCRETE DITCH
BEHIND RETAINING WALL
(Not to Scale)



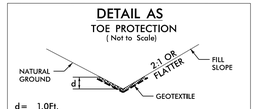
–Y7– STA. 17+50 TO STA. 19+00 LT

DETAIL AR
STANDARD BASE DITCH
(Not to Scale)



–Y7RPA– STA. 23+75 RT, L=165', S=0.6%
BEGIN ELEV=1984.0', END ELEV=1983.0'
–Y7RPA– STA. 25+07 LT, L=122', S=5.2%
BEGIN ELEV=1983.0', END ELEV=1989.3'
–Y7RPD– STA. 16+00 LT, L=111', S=0.9%
BEGIN ELEV=1986.0', END ELEV=1985.0'

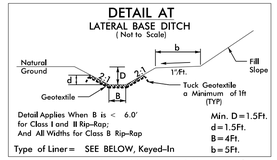
DETAIL AS
TOE PROTECTION
(Not to Scale)



Type of Liner= CLASS B Rip-Rap

–Y7– STA. 26+25 TO STA. 27+00 RT
–Y7RPA– STA. 10+35 TO STA. 11+81 RT
–Y7RPD– STA. 12+00 TO STA. 12+50 LT
–Y7RPD– STA. 13+00 TO STA. 16+85 RT
–MUP1– STA. 45+11 TO STA. 47+32 RT

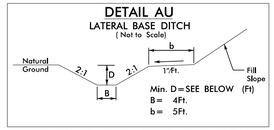
DETAIL AT
LATERAL BASE DITCH
(Not to Scale)



Type of Liner= SEE BELOW, Keyed-In

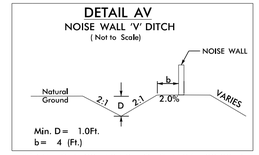
–LB1– STA. 40+50 TO STA. 41+50 RT, CL I
–Y7RPA– STA. 15+23 TO STA. 19+88 RT, CL I
–Y7RPA– STA. 19+88 TO STA. 20+37 RT, CL B
–Y7– STA. 39+00 TO –Y7EB– STA. 37+72 RT, CL I

DETAIL AU
LATERAL BASE DITCH
(Not to Scale)



–LB1– STA. 37+14 TO 40+50 RT, D=2.0'
–Y7RPA– STA. 20+37 TO STA. 23+75 RT, D=2.0'
–Y7RPD– STA. 14+50 TO STA. 16+00 LT, D=1.5'

DETAIL AV
NOISE WALL 'V' DITCH
(Not to Scale)



–Y6RPA– STA. 23+10.50 TO STA. 26+00.00 RT
–MUP1– STA. 13+20.67 TO STA. 15+34.23 RT
–MUP1 STA. 14+08.27 TO STA. [illegible]
–MU'
–MU
–ML'
–ML
–M'
–M

8/17/99

6/2/2025
c:\pwworking\kkpw01\eleni rigas\dms85450\125138D_HYD_DITCH DETAIL 4B_Section1.dgn

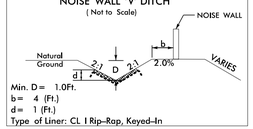
SECTION 1 DITCH DETAILS

PROJECT REFERENCE NO.	SHEET NO.
	2B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

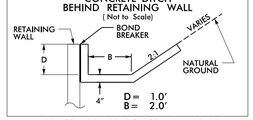
DETAIL AW
NOISE WALL 'V' DITCH
(Not to Scale)



Min. D = 1.0Ft.
b = 4 (Ft.)
d = 1 (Ft.)
Type of Liner: CL I Rip-Rap, Keyed-In

-LB1- STA. 41+00 TO STA. 42+00 LT
-LB1- STA. 43+00 TO STA. 44+75 LT
-LB- STA. 19+00 TO STA. 21+50 LT
-MUP1- STA. 15+85.84 TO STA. 16+88.97 RT
-Y6RPA- STA. 11+15.95 TO STA. 17+19.40 RT
-Y6RPA- STA. 17+52.37 TO STA. 18+68.38 RT

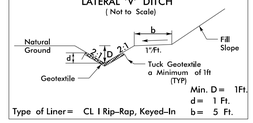
DETAIL AX
CONCRETE DITCH
BEHIND RETAINING WALL
(Not to Scale)



D = 1.0'
B = 2.0'

-LB1- STA. 18+50 TO STA. 21+00 RT
-LB1- STA. 22+00 TO STA. 24+50 LT
-LB1- STA. 26+00 TO STA. 29+00 LT
-LB1- STA. 28+50 TO STA. 30+00 RT
-LB1- STA. 29+50 TO STA. 30+50 LT
-MUP1- STA. 12+80.57 TO STA. 13+20 RT

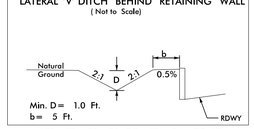
DETAIL AY
LATERAL 'V' DITCH
(Not to Scale)



Min. D = 1Ft.
d = 1 Ft.
b = 5 Ft.
Type of Liner = CL I Rip-Rap, Keyed-In

-LB1- STA. 10+00 TO STA. 12+50 RT

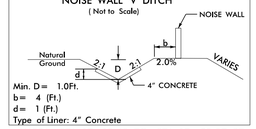
DETAIL AZ
LATERAL 'V' DITCH BEHIND RETAINING WALL
(Not to Scale)



Min. D = 1.0 Ft.
b = 5 Ft.

-LB1- STA. 21+50 TO STA. 24+75 LT
-LB1- STA. 26+00 TO STA. 29+00 LT
-LB1- STA. 21+43 TO STA. 24+15 RT
-LB1- STA. 25+50 TO STA. 28+00 RT

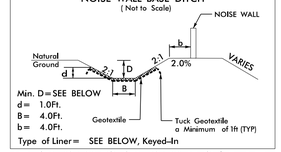
DETAIL BA
NOISE WALL 'V' DITCH
(Not to Scale)



Min. D = 1.0Ft.
b = 4 (Ft.)
d = 1 (Ft.)
Type of Liner: 4" Concrete

-Y6RPA- STA. 17+19.40 TO STA. 17+52.37 RT
-MUP1- STA. 34+28.88 TO STA. 35+24.56 RT
-MUP1- STA. 36+67.98 TO STA. 38+59.01 RT
-MUP1- STA. 40+04.27 TO STA. 41+02.72 RT
-MUP1- STA. 43+02.59 TO STA. 44+55.54 RT

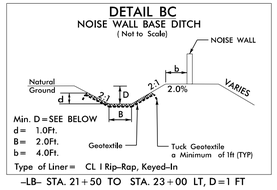
DETAIL BB
NOISE WALL BASE DITCH
(Not to Scale)



Min. D = SEE BELOW
d = 1.0Ft.
B = 4.0Ft.
b = 4.0Ft.
Type of Liner = SEE BELOW, Keyed-In

-LB1- STA. 42+00 TO STA. 43+00 LT, CL I, D=1 FT
-MUP1- STA. 41+57 TO STA. 43+03 RT, CL B, D=1 FT

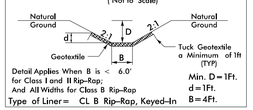
DETAIL BC
NOISE WALL BASE DITCH
(Not to Scale)



Min. D = SEE BELOW
d = 1.0Ft.
B = 2.0Ft.
b = 4.0Ft.
Type of Liner = CL I Rip-Rap, Keyed-In

-LB- STA. 21+50 TO STA. 23+00 LT, D=1 FT

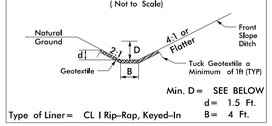
DETAIL BD
STANDARD BASE DITCH
(Not to Scale)



Detail Applies When B is < 6.0'
for Class I and II Rip-Rap;
And All Widths for Class B Rip-Rap
Min. D = 1Ft.
d = 1Ft.
B = 4Ft.
Type of Liner = CL B Rip-Rap, Keyed-In

-LB- STA. 57+72 RT, L=134', S=11.4%
BEGIN ELEV=1980.0', END ELEV=1995.3'
-Y24- STA. 16+50 LT, L=23', S=7.4%
BEGIN ELEV=1993.7', END ELEV=1992.0'

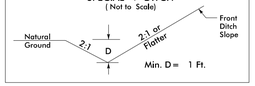
DETAIL BE
SPECIAL CUT BASE DITCH
(Not to Scale)



Min. D = SEE BELOW
d = 1.5 Ft.
B = 4 Ft.
Type of Liner = CL I Rip-Rap, Keyed-In

-LB1- STA. 41+50 TO STA. 43+50 RT, D=1.5'

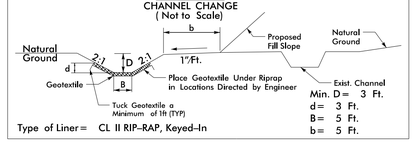
DETAIL BF
SPECIAL 'V' DITCH
(Not to Scale)



Min. D = 1 Ft.

-MUP2- STA. 10+35 TO STA. 11+50 RT

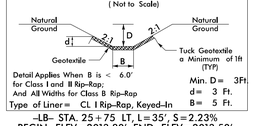
DETAIL BG
CHANNEL CHANGE
(Not to Scale)



Min. D = 3 Ft.
d = 3 Ft.
B = 5 Ft.
b = 5 Ft.
Type of Liner = CL II RIP-RAP, Keyed-In

-LB1- STA. 44+60 TO STA. 44+75 RT
-LB- STA. 19+00 TO STA. 23+80 RT

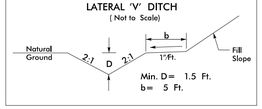
DETAIL BH
STANDARD BASE DITCH
(Not to Scale)



Detail Applies When B is < 6.0'
for Class I and II Rip-Rap;
And All Widths for Class B Rip-Rap
Min. D = 3Ft.
d = 3 Ft.
B = 5 Ft.
Type of Liner = CL I Rip-Rap, Keyed-In

-LB- STA. 25+75 LT, L=35', S=2.23%
BEGIN ELEV=2013.80', END ELEV=2013.50'
-LB- STA. 36+41 LT, L=64', S=0.87%
BEGIN ELEV=2000.56', END ELEV=2000.0'

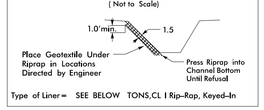
DETAIL BI
LATERAL 'V' DITCH
(Not to Scale)



Min. D = 1.5 Ft.
b = 5 Ft.

-LB- STA. 40+00 TO STA. 43+39 RT

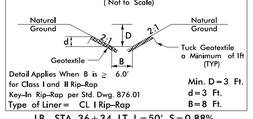
DETAIL BJ
BANK STABILIZATION
(Not to Scale)



Type of Liner = SEE BELOW TONS,CL I Rip-Rap, Keyed-In

-LB- STA. 25+61 TO STA. 25+98 LT, 14 TONS
-LB- STA. 52+53 TO STA. 52+61 LT, 2.1 TONS
-LB- STA. 66+87 TO STA. 66+97 LT, 4.4 TONS
-LB- STA. 73+43 TO STA. 73+58 LT, 8.4 TONS
-Y7RPA- STA. 25+44 TO STA. 25+51 RT, 1.6 TONS
-Y7RPBREV- STA. 19+94 TO STA. 20+05 LT, 5.5 TONS
-Y7RPDREV- STA. 22+14 TO STA. 22+02 RT, 5.3 TONS
-Y7RPDREV- STA. 25+92 TO STA. 25+99 RT, 4.4 TONS
-Y7- STA. 14+50 TO STA. 14+60 RT, 5.1 TONS
-Y7- STA. 24+72 TO STA. 24+78 LT, 2.7 TONS
-Y24- STA. 16+60 TO STA. 16+67 LT, 0.9 TONS

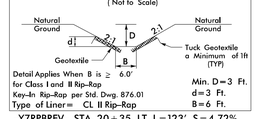
DETAIL BK
STANDARD BASE DITCH
(Not to Scale)



Detail Applies When B is ≥ 6.0'
for Class I and II Rip-Rap
Key-In Rip-Rap per Std. Dwg. 876.01
Min. D = 3 Ft.
d = 3 Ft.
B = 8 Ft.
Type of Liner = CL I Rip-Rap

-LB- STA. 36+34 LT, L=50', S=0.88%
BEGIN ELEV=2001.00', END ELEV=2000.56'

DETAIL BL
STANDARD BASE DITCH
(Not to Scale)



Detail Applies When B is ≥ 6.0'
for Class I and II Rip-Rap
Key-In Rip-Rap per Std. Dwg. 876.01
Min. D = 3 Ft.
d = 3 Ft.
B = 6 Ft.
Type of Liner = CL II Rip-Rap

-Y7RPBREV- STA. 20+35 LT, L=123', S=4.72%
BEGIN ELEV=1999.3', END ELEV=1993.5''

8/17/99
6/2/2025
c:\pwworking\rkkpw01\elem riggs\dms85450\1251380_HYD_DITCH DETAIL_4B_Section1.dgn

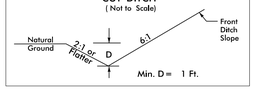
SECTION 2 DITCH DETAILS

PROJECT REFERENCE NO.	SHEET NO.
	3
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

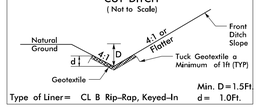
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DETAIL A
CUT DITCH
(Not to Scale)



FROM –240– STA. 21+24 TO STA. 23+50 LT
–240– STA. 23+50 TO STA. 26+50 LT
–240– STA. 26+50 TO STA. 28+00 LT
–240– STA. 32+75 TO STA. 36+00 LT

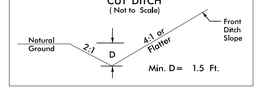
DETAIL B
CUT DITCH
(Not to Scale)



Type of Liner= CL B Rip-Rap, Keyed-In

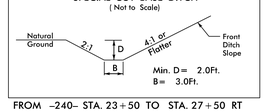
FROM –240– STA. 28+50 TO STA. 38+50 RT

DETAIL C
CUT DITCH
(Not to Scale)



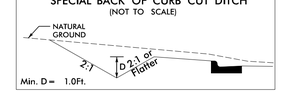
FROM –240– STA. 22+50 TO STA. 23+50 RT
–Y25A– STA. 16+00 TO STA. 17+50 LT

DETAIL D
SPECIAL CUT BASE DITCH
(Not to Scale)



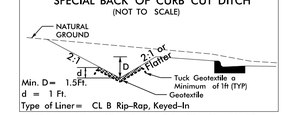
FROM –240– STA. 23+50 TO STA. 27+50 RT

DETAIL E
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)



FROM –LB– STA. 88+00 TO STA. 89+90 RT
–LB– STA. 89+90 TO STA. 91+71 RT
–Y36– STA. 11+40 TO STA. 12+00 RT
–Y36– STA. 12+00 TO STA. 13+50 RT

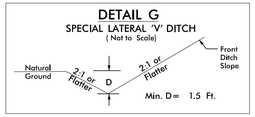
DETAIL F
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)



Type of Liner= CL B Rip-Rap, Keyed-In

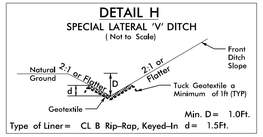
FROM –Y36– STA. 11+04 TO STA. 11+40 RT

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



FROM –23NB– STA. 30+50 TO STA. 32+00 RT
–23NB– STA. 32+00 TO STA. 36+72 RT
–23NB– STA. 36+72 TO STA. 37+83 RT
–Y36– STA. 15+00 TO STA. 16+27 RT
–Y7 EB– STA. 62+00 TO STA. 66+00 RT
–240– STA. 17+00 TO STA. 19+73 RT
–Y25A– STA. 13+50 TO STA. 16+00 LT

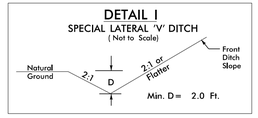
DETAIL H
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Type of Liner= CL B Rip-Rap, Keyed-In d= 1.5Ft.

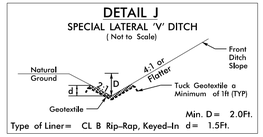
FROM –Y25A– STA. 32+00 TO STA. 33+37 RT

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



FROM –240– STA. 11+00 TO STA. 14+00 LT
–Y7– STA. 70+00 TO STA. 77+50 LT

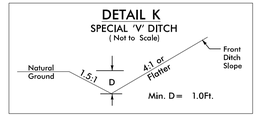
DETAIL J
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



Type of Liner= CL B Rip-Rap, Keyed-In d= 1.5Ft.

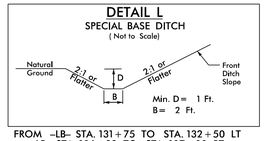
FROM –240– STA. 19+73 TO STA. 22+50 RT

DETAIL K
SPECIAL 'V' DITCH
(Not to Scale)



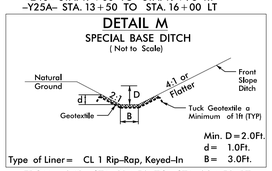
FROM –LB– STA. 135+91 TO STA. 136+84 RT

DETAIL L
SPECIAL BASE DITCH
(Not to Scale)



FROM –LB– STA. 131+75 TO STA. 132+50 LT
–LB– STA. 106+32 TO STA. 107+00 RT
–LB– STA. 127+00 TO STA. 127+73 RT
–LB– STA. 127+73 TO STA. 128+50 RT

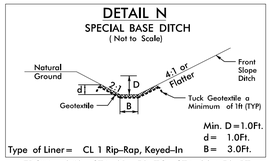
DETAIL M
SPECIAL BASE DITCH
(Not to Scale)



Type of Liner= CL 1 Rip-Rap, Keyed-In

FROM –240– STA. 21+50 TO STA. 23+50 RT

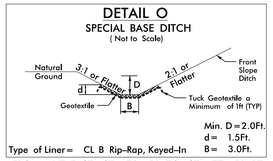
DETAIL N
SPECIAL BASE DITCH
(Not to Scale)



Type of Liner= CL 1 Rip-Rap, Keyed-In

FROM –240– STA. 21+50 TO STA. 23+50 RT

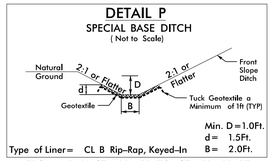
DETAIL O
SPECIAL BASE DITCH
(Not to Scale)



Type of Liner= CL B Rip-Rap, Keyed-In

FROM –Y7_EAST– STA. 73+50 TO STA. 77+50 RT

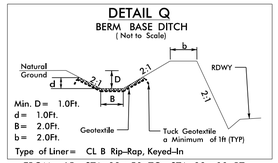
DETAIL P
SPECIAL BASE DITCH
(Not to Scale)



Type of Liner= CL B Rip-Rap, Keyed-In

FROM –240– STA. 10+50 TO STA. 11+00 RT

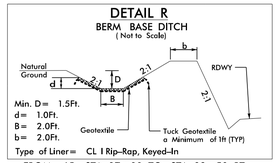
DETAIL Q
BERM BASE DITCH
(Not to Scale)



Type of Liner= CL B Rip-Rap, Keyed-In

FROM –LB– STA. 98+50 TO STA. 99+00 RT

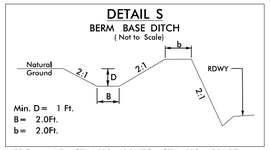
DETAIL R
BERM BASE DITCH
(Not to Scale)



Type of Liner= CL I Rip-Rap, Keyed-In

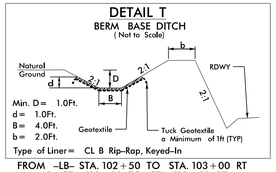
FROM –LB– STA. 97+00 TO STA. 98+50 RT

DETAIL S
BERM BASE DITCH
(Not to Scale)



FROM –LB– STA. 112+00 TO STA. 113+50 RT
–LB– STA. 113+50 TO STA. 114+50 RT

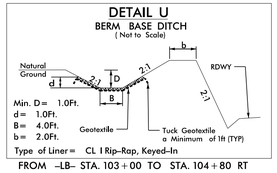
DETAIL T
BERM BASE DITCH
(Not to Scale)



Type of Liner= CL B Rip-Rap, Keyed-In

FROM –LB– STA. 102+50 TO STA. 103+00 RT
–LB– STA. 119+00 TO STA. 119+50 RT

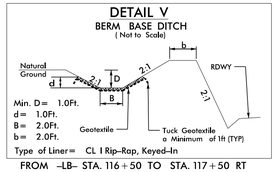
DETAIL U
BERM BASE DITCH
(Not to Scale)



Type of Liner= CL I Rip-Rap, Keyed-In

FROM –LB– STA. 103+00 TO STA. 104+80 RT

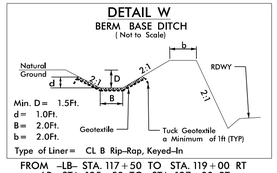
DETAIL V
BERM BASE DITCH
(Not to Scale)



Type of Liner= CL I Rip-Rap, Keyed-In

FROM –LB– STA. 116+50 TO STA. 117+50 RT

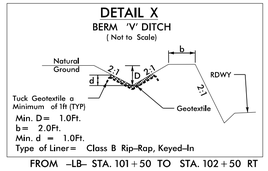
DETAIL W
BERM BASE DITCH
(Not to Scale)



Type of Liner= CL B Rip-Rap, Keyed-In

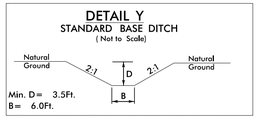
FROM –LB– STA. 117+50 TO STA. 119+00 RT
–LB– STA. 125+50 TO STA. 127+00 RT

DETAIL X
BERM 'V' DITCH
(Not to Scale)



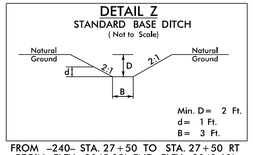
FROM –LB– STA. 101+50 TO STA. 102+50 RT

DETAIL Y
STANDARD BASE DITCH
(Not to Scale)



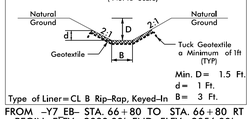
FROM –Y36– STA. 24+74 TO STA. 24+83 LT
BEGIN ELEV=1960.00', END ELEV=1957.71'
S=0.50%, L=458'

DETAIL Z
STANDARD BASE DITCH
(Not to Scale)



FROM –240– STA. 27+50 TO STA. 27+50 RT
BEGIN ELEV=2045.35', END ELEV=2043.60'
S=0.85%, L=206'

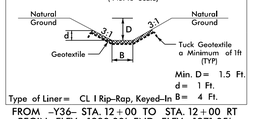
DETAIL AA
STANDARD BASE DITCH
(Not to Scale)



Type of Liner=CL B Rip-Rap, Keyed-In

FROM –Y7 EB– STA. 66+80 TO STA. 66+80 RT
BEGIN ELEEV=2080.00', END ELEV=2056.00'
S=4.80%, L=500'

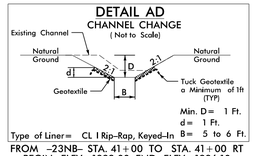
DETAIL AB
STANDARD BASE DITCH
(Not to Scale)



Type of Liner= CL I Rip-Rap, Keyed-In

FROM –Y36– STA. 12+00 TO STA. 12+00 RT
BEGIN ELEV=1980.00', END ELEV=1971.05'
S=6.01%, L=149'

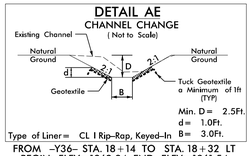
DETAIL AD
CHANNEL CHANGE
(Not to Scale)



Type of Liner= CL I Rip-Rap, Keyed-In

FROM –23NB– STA. 41+00 TO STA. 41+00 RT
BEGIN ELEV=1993.00, END ELEV=1986.10
S=23.00%, L=30'
–23NB– STA. 29+30 TO STA. 29+30 RT
BEGIN ELEV=1970.15, END ELEV=1969.65
S=3.43%, L=15'

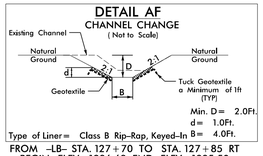
DETAIL AE
CHANNEL CHANGE
(Not to Scale)



Type of Liner= CL I Rip-Rap, Keyed-In

FROM –Y36– STA. 18+14 TO STA. 18+32 LT
BEGIN ELEV=1962.94, END ELEV=1961.54
S=0.40%, L=350'

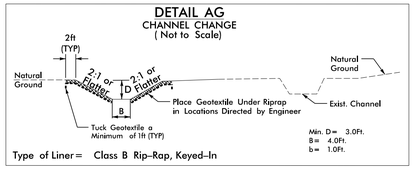
DETAIL AF
CHANNEL CHANGE
(Not to Scale)



Type of Liner= Class B Rip-Rap, Keyed-In

FROM –LB– STA. 127+70 TO STA. 127+85 RT
BEGIN ELEV=1986.63, END ELEV=1985.50
S=3.53%, L=32'
–LB– STA. 122+65 TO STA. 122+55 LT
BEGIN ELEV=1956.53, END ELEV=1954.95
S=1.48%, L=107'
–LB– STA. 106+50 TO STA. 106+54 LT
BEGIN ELEV=1960.12, END ELEV=1956.76,
S=0.94%, L=356'

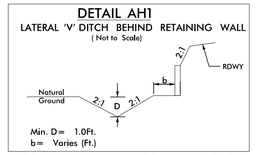
DETAIL AG
CHANNEL CHANGE
(Not to Scale)



Type of Liner= Class B Rip-Rap, Keyed-In

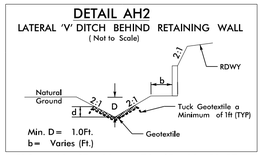
FROM –LB– STA. 106+68 TO STA. 106+32 RT
BEGIN ELEV=1978.10, END ELEV=1977.00
S=1.53%, L=72'

DETAIL AH1
LATERAL 'V' DITCH BEHIND RETAINING WALL
(Not to Scale)



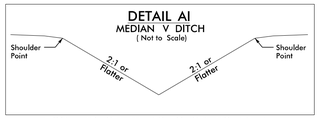
FROM –LB– STA. 89+44 TO STA. 90+50 RT
STA. 90+50 TO STA. 91+36 RT

DETAIL AH2
LATERAL 'V' DITCH BEHIND RETAINING WALL
(Not to Scale)



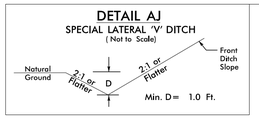
FROM –LB– STA. 89+44 TO STA. 90+50 RT

DETAIL AI
MEDIAN V DITCH
(Not to Scale)



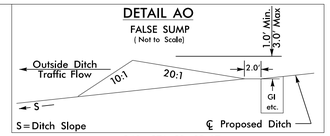
FROM –LB– STA. 111+50 TO STA. 112+75 M
–LB– STA. 112+75 TO STA. 141+50 M

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



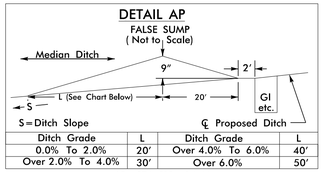
FROM –23SB– STA. 89+50 TO STA. 93+95 RT
–23SB– STA. 93+95 TO STA. 96+27 RT
–23SB– STA. 96+27 TO STA. 98+00 RT
–240– STA. 14+00 TO STA. 15+00 RT
–240– STA. 16+50 TO STA. 17+43 RT
–LB– STA. 138+00 TO STA. 141+50 RT
–LB– STA. 135+04 TO STA. 135+42 RT
–LB– STA. 135+42 TO STA. 135+91 RT
–LB– STA. 136+84 TO STA. 137+31 RT
–LB– STA. 135+50 TO STA. 137+50 LT

DETAIL AO
FALSE SUMP
(Not to Scale)



–240– STA. 21+13 LT
–240– STA. 23+38 LT
–240– STA. 24+90 LT
–240– STA. 26+38 LT
–240– STA. 28+46 RT
–240– STA. 32+63 LT
–240– STA. 34+38 LT
–240– STA. 36+13 LT
–Y7 WB– STA. 68+06 LT
–Y7 EB– STA. 61+89 RT
–Y36– STA. 16+40 RT
–LB– STA. 104+93 RT
–LB– STA. 127+06 RT

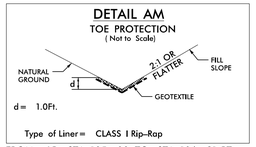
DETAIL AP
FALSE SUMP
(Not to Scale)



Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

–LB– STA. 113+84 M
–LB– STA. 117+30 M
–LB– STA. 119+35 M
–LB– STA. 122+83 M
–LB– STA. 127+45 M
–LB– STA. 129+85 M
–LB– STA. 132+86 M
–LB– STA. 134+34 M
–LB– STA. 137+34 M
–LB– STA. 139+35 M

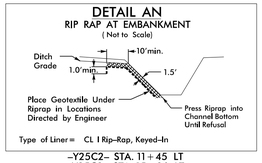
DETAIL AM
TOE PROTECTION
(Not to Scale)



Type of Liner= CLASS I Rip-Rap

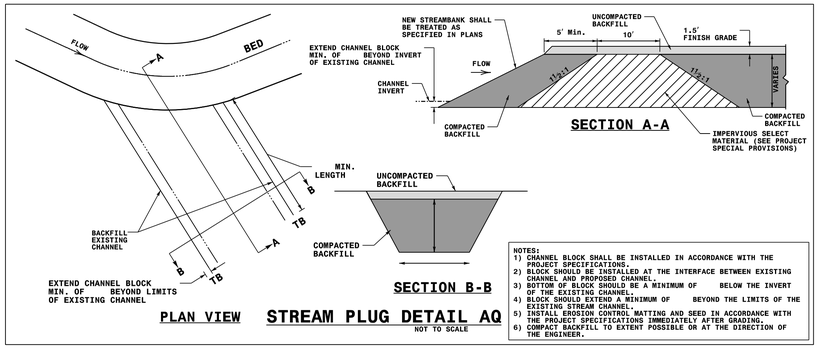
FROM –LB– STA. 105+00 TO STA. 106+21 RT
–LB– STA. 127+03 TO STA. 127+47 RT
–Y7 EAST REV2– STA. 77+50 TO STA. 82+00 RT
–Y25A REV2– STA. 28+20 TO STA. 29+90 LT
–Y7 EB– STA. 65+90 TO STA. 67+00 LT
–Y7 WB– STA. 61+17 TO STA. 63+41 LT
–23NB– STA. 18+65 TO STA. 19+65 RT

DETAIL AN
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner= CL I Rip-Rap, Keyed-In

–Y25C2– STA. 11+45 LT
–Y25C2– STA. 15+96 LT
–Y25C2– STA. 16+08 LT
–LB– STA. 106+20 RT
–LB– STA. 106+44 RT
–23NB– 38+87 RT
–23NB– 38+95 RT



NOTES:
1) CHANNEL BLOCK SHALL BE INSTALLED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
2) BLOCK SHOULD BE INSTALLED AT THE INTERFACE BETWEEN EXISTING CHANNEL AND PROPOSED CHANNEL.
3) BOTTOM OF BLOCK SHOULD BE A MINIMUM OF BELOW THE INVERT OF THE EXISTING CHANNEL.
4) BLOCK SHOULD EXTEND A MINIMUM OF BEYOND THE LIMITS OF THE EXISTING STREAM CHANNEL.
5) INSTALL EROSION CONTROL MATTING AND SEED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS IMMEDIATELY AFTER GRADING.
6) COMPACT BACKFILL TO EXTENT POSSIBLE OR AT THE DIRECTION OF THE ENGINEER.

–23NB– STA. 38+80 RT
–23NB– STA. 47+87 RT
–23NB– STA. 40+90 RT
–LB– STA. 106+72 RT

8/17/99
6/2/2025
c:\pwworking\kkpw01\eleni rigas\dms85450\1251380_HYD_DITCH DETAIL_4B_Section2.dgn

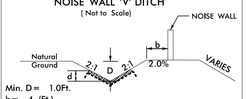
SECTION 2 DITCH DETAILS

PROJECT REFERENCE NO.	SHEET NO.
	3B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

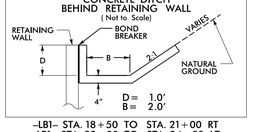
DETAIL AW
NOISE WALL 'V' DITCH
(Not to Scale)



Min. D= 1.0Ft.
b= 4 (Ft.)
d= 1 (Ft.)
Type of Liner: CL I Rip-Rap, Keyed-In

-LB1- STA. 41+00 TO STA. 42+00 LT
-LB1- STA. 43+00 TO STA. 44+75 LT
-LB- STA. 19+00 TO STA. 21+50 LT
-MUP1- STA. 15+85.84 TO STA. 16+88.97 RT
-Y6RPA- STA. 11+15.95 TO STA. 17+19.40 RT
-Y6RPA- STA. 17+52.37 TO STA. 18+68.38 RT

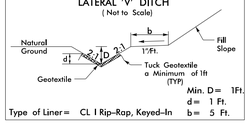
DETAIL AX
CONCRETE DITCH
BEHIND RETAINING WALL
(Not to Scale)



D= 1.0'
B= 2.0'

-LB1- STA. 18+50 TO STA. 21+00 RT
-LB1- STA. 22+00 TO STA. 24+50 LT
-LB1- STA. 26+00 TO STA. 29+00 LT
-LB1- STA. 28+50 TO STA. 30+00 RT
-LB1- STA. 29+50 TO STA. 30+50 LT
-MUP1- STA. 12+80.57 TO STA. 13+20 RT

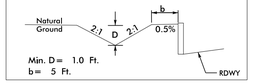
DETAIL AY
LATERAL 'V' DITCH
(Not to Scale)



Min. D= 1Ft.
d= 1 Ft.
b= 5 Ft.
Type of Liner= CL I Rip-Rap, Keyed-In

-LB1- STA. 10+00 TO STA. 12+50 RT

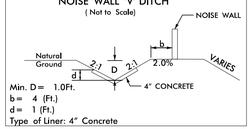
DETAIL AZ
LATERAL 'V' DITCH BEHIND RETAINING WALL
(Not to Scale)



Min. D= 1.0 Ft.
b= 5 Ft.

-LB1- STA. 21+50 TO STA. 24+75 LT
-LB1- STA. 26+00 TO STA. 29+00 LT
-LB1- STA. 21+43 TO STA. 24+15 RT
-LB1- STA. 25+50 TO STA. 28+00 RT

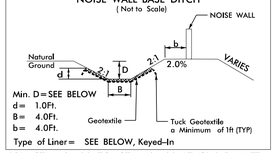
DETAIL BA
NOISE WALL 'V' DITCH
(Not to Scale)



Min. D= 1.0Ft.
b= 4 (Ft.)
d= 1 (Ft.)
Type of Liner: 4" Concrete

-Y6RPA- STA. 17+19.40 TO STA. 17+52.37 RT
-MUP1- STA. 34+28.88 TO STA. 35+24.56 RT
-MUP1- STA. 36+67.98 TO STA. 38+59.01 RT
-MUP1- STA. 40+04.27 TO STA. 41+02.72 RT
-MUP1- STA. 43+02.59 TO STA. 44+55.54 RT

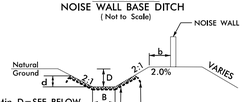
DETAIL BB
NOISE WALL BASE DITCH
(Not to Scale)



Min. D=SEE BELOW
d= 1.0Ft.
B= 4.0Ft.
b= 4.0Ft.
Type of Liner= SEE BELOW, Keyed-In

-LB1- STA. 42+00 TO STA. 43+00 LT, CL I, D=1 FT
-MUP1- STA. 41+57 TO STA. 43+03 RT, CL B, D=1 FT

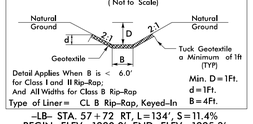
DETAIL BC
NOISE WALL BASE DITCH
(Not to Scale)



Min. D=SEE BELOW
d= 1.0Ft.
B= 2.0Ft.
b= 4.0Ft.
Type of Liner= CL I Rip-Rap, Keyed-In

-LB- STA. 21+50 TO STA. 23+00 LT, D=1 FT

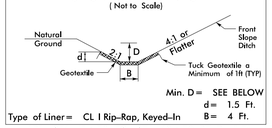
DETAIL BD
STANDARD BASE DITCH
(Not to Scale)



Detail Applies When B is < 6.0'
for Class I and II Rip-Rap;
And All Widths for Class B Rip-Rap
Min. D=1Ft.
d=1Ft.
B=4Ft.
Type of Liner= CL B Rip-Rap, Keyed-In

-LB- STA. 57+72 RT, L=134', S=11.4%
BEGIN ELEV=1980.0', END ELEV=1995.3'
-Y24- STA. 16+50 LT, L=23', S=7.4%
BEGIN ELEV=1993.7', END ELEV=1992.0'

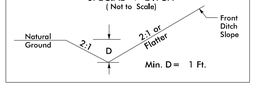
DETAIL BE
SPECIAL CUT BASE DITCH
(Not to Scale)



Min. D= SEE BELOW
d= 1.5 Ft.
B= 4 Ft.
Type of Liner= CL I Rip-Rap, Keyed-In

-LB1- STA. 41+50 TO STA. 43+50 RT, D=1.5'

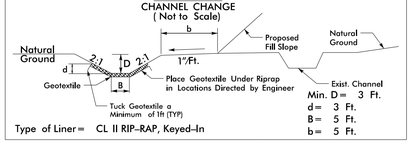
DETAIL BF
SPECIAL 'V' DITCH
(Not to Scale)



Min. D= 1 Ft.

-MUP2- STA. 10+35 TO STA. 11+50 RT

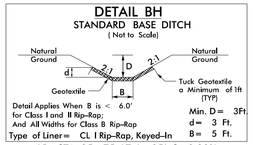
DETAIL BG
CHANNEL CHANGE
(Not to Scale)



Min. D= 3 Ft.
d= 3 Ft.
B= 5 Ft.
b= 5 Ft.
Type of Liner= CL II RIP-RAP, Keyed-In

-LB1- STA. 44+60 TO STA. 44+75 RT
-LB- STA. 19+00 TO STA. 23+80 RT

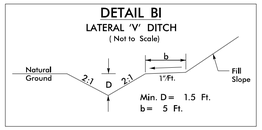
DETAIL BH
STANDARD BASE DITCH
(Not to Scale)



Detail Applies When B is < 6.0'
for Class I and II Rip-Rap;
And All Widths for Class B Rip-Rap
Min. D= 3Ft.
d= 3 Ft.
B= 5 Ft.
Type of Liner= CL I Rip-Rap, Keyed-In

-LB- STA. 25+75 LT, L=35', S=2.23%
BEGIN ELEV=2013.80', END ELEV=2013.50'
-LB- STA. 36+41 LT, L=64', S=0.87%
BEGIN ELEV=2000.56', END ELEV=2000.0'

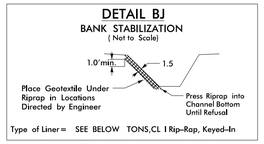
DETAIL BI
LATERAL 'V' DITCH
(Not to Scale)



Min. D= 1.5 Ft.
b= 5 Ft.

-LB- STA. 40+00 TO STA. 43+39 RT

DETAIL BJ
BANK STABILIZATION
(Not to Scale)



Type of Liner= SEE BELOW TONS,CL I Rip-Rap, Keyed-In

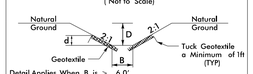
-LB- STA. 25+61 TO STA. 25+98 LT, 14 TONS
-LB- STA. 52+53 TO STA. 52+61 LT, 2.1 TONS
-LB- STA. 66+87 TO STA. 66+97 LT, 4.4 TONS
-LB- STA. 73+43 TO STA. 73+58 LT, 8.4 TONS
-Y7RPA- STA. 25+44 TO STA. 25+51 RT, 1.6 TONS
-Y7RPBREV- STA. 19+94 TO STA. 20+05 LT, 5.5 TONS
-Y7RPDREV- STA. 22+14 TO STA. 22+02 RT, 5.3 TONS
-Y7RPDREV- STA. 25+92 TO STA. 25+99 RT, 4.4 TONS
-Y7- STA. 14+50 TO STA. 14+60 RT, 5.1 TONS
-Y7- STA. 24+72 TO STA. 24+78 LT, 2.7 TONS
-Y24- STA. 16+60 TO STA. 16+67 LT, 0.9 TONS

DETAIL BK
STANDARD BASE DITCH
(Not to Scale)

Detail Applies When B is ≥ 6.0'
for Class I and II Rip-Rap
Key-In Rip-Rap per Std. Dwg. 876.01
Min. D=3 Ft.
d=3 Ft.
B=8 Ft.
Type of Liner= CL I Rip-Rap

-LB- STA. 36+34 LT, L=50', S=0.88%
BEGIN ELEV=2001.00', END ELEV=2000.56'

DETAIL BL
STANDARD BASE DITCH
(Not to Scale)



Detail Applies When B is ≥ 6.0'
for Class I and II Rip-Rap
Key-In Rip-Rap per Std. Dwg. 876.01
Min. D=3 Ft.
d=3 Ft.
B=6 Ft.
Type of Liner= CL II Rip-Rap

-Y7RPBREV- STA. 20+35 LT, L=123', S=4.72%
BEGIN ELEV=1999.3', END ELEV=1993.5''

8/17/99
6/2/2025
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PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/2011

ADJACNET I-2513AC PRELIMINARY DESIGN

-LBI-
PI Sta 11+88.87
Δ = 19° 01' 50.7" (LT)
D = 2° 28' 10.7"
L = 770.59'
T = 388.87'
R = 2,320.00'
S.E. = 6%
V > 60mph

-Y6RPB-
PI Sta 11+66.07
Δ = 13° 31' 48.6" (LT)
D = 4° 05' 33.2"
L = 330.60'
T = 166.07'
R = 1,400.00'
S.E. = 6%
V > 50mph

-Y6RPC-
PIs Sta 10+94.60
Θs = 1° 44' 10.3"
Θs = 2° 24' 50.4"
Ls = 200.00'
LT = 105.49'
ST = 94.60'

PI Sta 13+99.87
Δ = 6° 55' 54.9" (LT)
D = 1° 44' 10.4"
L = 399.25'
T = 199.87'
R = 3,300.00'
S.E. = 4%
V > 50mph

PIs Sta 16+82.47
Θs = 0° 34' 22.6"
Θs = 1° 44' 10.5"
Ls = 200.00'
LT = 116.81'
ST = 83.22'

A-A
6.0'
0.0'
1.0'
1.0'
OUTFALL
VEG./BARE EARTH-STABLE
SILT

SC

BEGIN CONSTRUCTION I-2513BD
-LBI- Sta.10+50.00
BEGIN PROJECT I-2513BD
-LBI- Sta.10+00.00
-LBI- PC Sta. 8+00.00 =
-L- SC Sta. 106+00.00 (I-2513AC)
-L- Sta.105+49.43 =
-Y14- Sta.13+76.08
(I-2513AC)
SC Sta. 104+30.08
(I-2513AC)
-L- SRS Sta.101+42.08
(I-2513AC)
-Y14- POT Sta.10+00.00
-Y14- POT Sta.17+30.60 (I-2513AC)
BEGIN MAINLINE CONSTRUCTION (LT)
-LBI- STA 13+90.00 LT
TIE TO EXISTING I-2513AC
-L_LT- STA 111+90.00
-LBI- POC Sta. 10+00.00 =
-L- SC Sta. 108+00.00 (I-2513AC)
-Y6RPB- PC Sta. 10+00.00=
-LBI- POC Sta.12+64.27 (47.5' LT)
-L- Sta. 110+64.26 (I-2513AC)
-Y14- (I-2513AC)
STATE ST.
BEGIN NOISE WALL
(I-2513BD)
-LB1- STA. 10+50.00
ADJ 2GI
04EX
EX. ROW
(I-2513AC)
PROP OH SIGN
NOISE WALL
PROP. SBG
RETAIN FS
24" RCP-III
EXIST MH
RETAIN SYSTEM
REMOVE SYSTEM
CONCRETE BARRIER
BEGIN RETAINING WALL
-LB1- STA. 14+72.25
18" RCP-III
15" RCP-III
2GIB-WSS
CONCRETE BARRIER
-LBI- CONCRETE BARRIER
TB 2GI-ST
REMOVE
-Y6RPB-
-Y6RPC-
BEGIN NOISE WALL
(I-2513BD)
-LB1- STA. 10+50.00
RETAIN
30" RCP-III
EXIST CB
EXIST JB
EX. CA
(I-2513AC)
NEW JERSEY AVE.
N 21°03'00.00" W
-Y6RPC- ST Sta. 10+00.00
-LBI- POT Sta. 9+04.27 (LT)
-L- Sta. 107+04.26 (I-2513AC)
-Y6RPC- CS Sta. 15+99.25
-Y6RPC- SC Sta. 12+00.00
-Y15- (I-2513AC)
HANOVER ST.
LATERAL V DITCH
w/CL B RIPRAP
SEE DETAIL AY
TIE TO
EXISTING DITCH
RETAIN
EXISTING DITCH
15" CSP
W/ELBOWS
CB-G
BEGIN CONSTRUCTION
-Y15- STA.21+00.00
(I-2513AC)
MATCHLINE -LB1- STA. 15+50.00 SEE SHEET 5

LEGEND
PAVED SHOULDER
APPROACH SLAB

DASHED LINESTYLE PRIOR TO BEGIN CONSTRUCTION
-LB1- LT-RT REPRESENTATIVE OF I-2513AC DESIGN:
I-2513AC DESIGN TO BE UPDATED TO MATCH I-2513BD

FOR -LB1- PROFILE SEE SHT. 19
FOR -Y6RPB- PROFILE SEE SHT. 48
FOR -Y6RPC- PROFILE SEE SHT. 49

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6/2/2025
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PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	5

R/W SHEET NO.

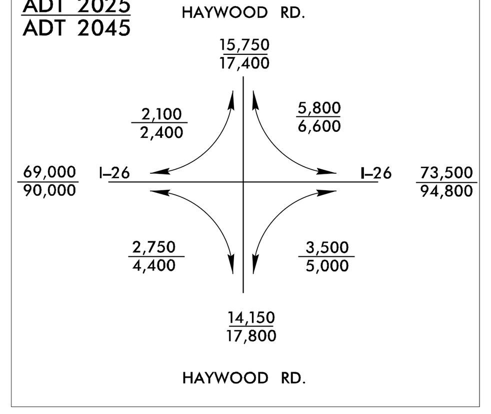
ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/2011

TRAFFIC DIAGRAM



-LB1-

PI Sta 11+88.87	PIs Sta 16+67.29	PIs Sta 19+93.92	PI Sta 22+26.84	PIs Sta 24+59.64	PIs Sta 29+72.09	PI Sta 32+01.69
Δ = 19° 01′ 50.7″ (LT)	Θs = 3° 34′ 51.6″	Θs = 1° 08′ 00.4″	Δ = 3° 46′ 02.5″ (RT)	Θs = 1° 08′ 00.4″	Θs = 1° 16′ 07.3″	Δ = 3° 40′ 35.4″ (LT)
D = 2° 28′ 10.7″	Ls = 290.00′	Ls = 200.00′	D = 1° 08′ 00.4″	Ls = 200.00′	Ls = 217.00′	D = 1° 10′ 09.5″
L = 770.59′	LT = 193.37′	LT = 133.34′	L = 332.38′	LT = 133.34′	LT = 144.67′	L = 314.42′
T = 388.87′	ST = 96.70′	ST = 66.67′	T = 166.25′	ST = 66.67′	ST = 72.34′	T = 157.26′
R = 2,320.00′			R = 5,055.00′			R = 4,900.00′
S.E. = 6%			S.E. = 3%			S.E. = 3.5%
V > 60mph			V = 60mph			V > 60mph

-Y6-

PI Sta 11+21.14	PI Sta 15+07.90	PI Sta 21+19.37
Δ = 18° 54′ 00.0″ (RT)	Δ = 7° 27′ 35.6″ (RT)	Δ = 33° 33′ 35.6″ (LT)
D = 14° 30′ 18.9″	D = 4° 46′ 28.7″	D = 13° 28′ 52.9″
L = 130.30′	L = 156.24′	L = 248.94′
T = 65.75′	T = 78.23′	T = 128.15′
R = 395.00′	R = 1,200.00′	R = 425.00′
S.E. = NC	S.E. = NC	S.E. = NC (EXIST)
V > 25mph	V > 25mph	V > 25mph

-Y6RPB-

PI Sta 11+66.07	PIs Sta 13+97.30	PIs Sta 16+63.95	PI Sta 18+23.99	PI Sta 20+46.79
Δ = 13° 31′ 48.6″ (LT)	Θs = 4° 05′ 33.2″	Θs = 2° 29′ 28.0″	Δ = 4° 38′ 59.8″ (RT)	Δ = 5° 54′ 32.2″ (RT)
D = 4° 05′ 33.2″	Ls = 200.00′	Ls = 200.00′	D = 2° 29′ 28.0″	D = 3° 58′ 43.9″
L = 330.60′	LT = 133.37′	LT = 133.35′	L = 186.66′	L = 148.51′
T = 166.07′	ST = 66.70′	ST = 66.68′	T = 93.38′	T = 74.32′
R = 1,400.00′			R = 2,300.00′	R = 1,440.00′
S.E. = 6%			S.E. = 4%	S.E. = 4%
V > 50mph			V = 50mph	V = 40mph

-Y6RPC-

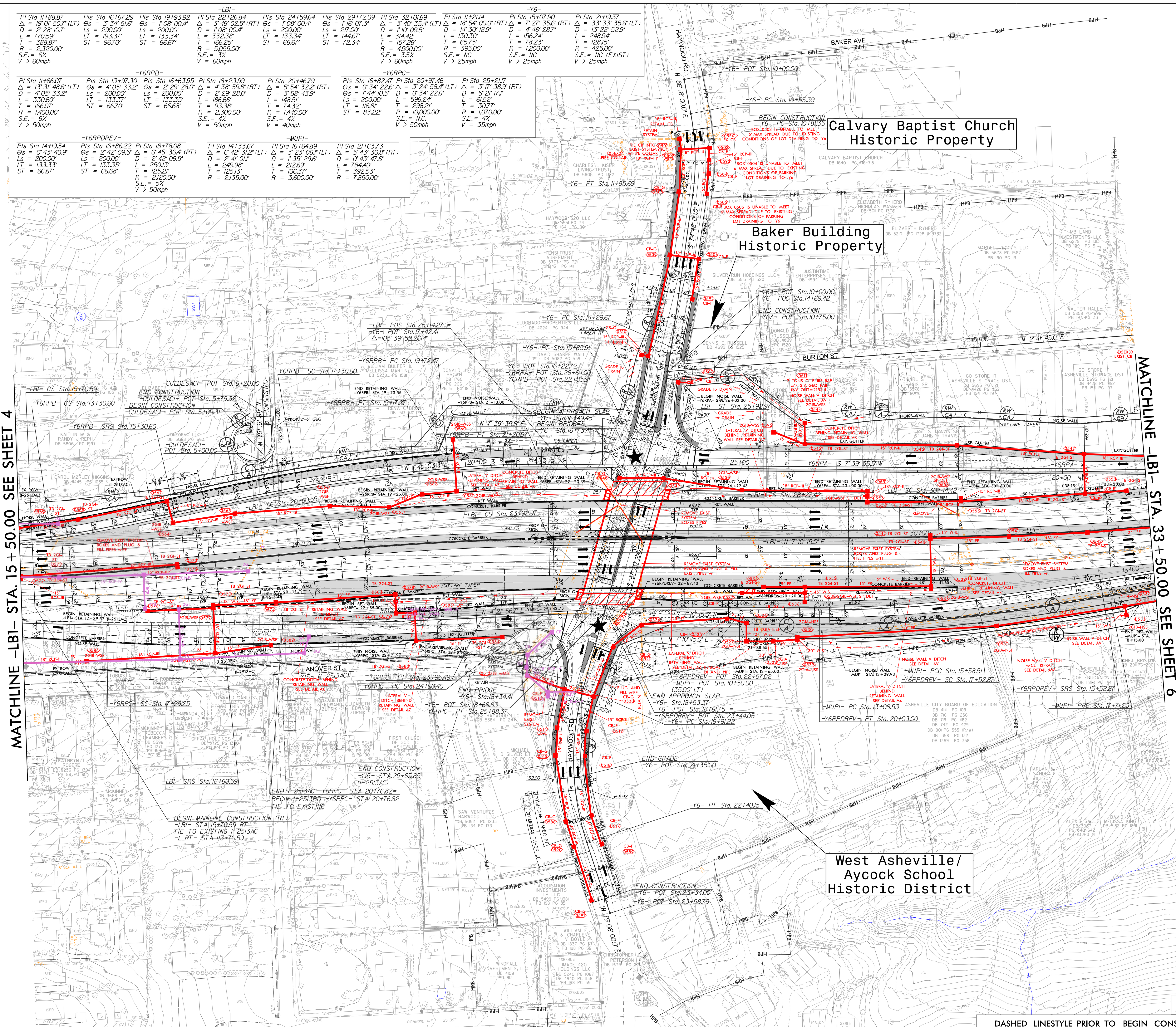
PIs Sta 16+82.47	PI Sta 20+97.46	PI Sta 25+21.17
Θs = 0° 34′ 22.6″	Δ = 3° 24′ 58.4″ (LT)	Δ = 3° 17′ 38.9″ (RT)
Θs = 1° 44′ 10.5″	D = 0° 34′ 22.6″	D = 5° 21′ 17.1″
Ls = 200.00′	L = 596.24′	L = 61.52′
LT = 116.81′	T = 298.21′	T = 30.77′
ST = 83.22′	R = 10,000.00′	R = 1,070.00′
	S.E. = N.C.	S.E. = 4%
	V > 50mph	V = 35mph

-Y6RPDREV-

PIs Sta 14+19.54	PIs Sta 16+86.22	PI Sta 18+78.08
Θs = 0° 43′ 40.9″	Θs = 2° 42′ 09.5″	Δ = 6° 45′ 36.4″ (RT)
Ls = 200.00′	Ls = 200.00′	D = 2° 42′ 09.5″
LT = 133.33′	LT = 133.35′	L = 250.13′
ST = 66.67′	ST = 66.68′	T = 125.21′
		R = 2,120.00′
		S.E. = 5%
		V > 50mph

-MUP1-

PI Sta 14+33.67	PI Sta 16+64.89	PI Sta 21+63.73
Δ = 6° 42′ 31.2″ (LT)	Δ = 3° 23′ 06.1″ (LT)	Δ = 5° 43′ 30.8″ (RT)
D = 2° 41′ 01.1″	D = 1° 35′ 29.6″	D = 0° 43′ 47.6″
L = 249.98′	L = 212.69′	L = 784.40′
T = 125.13′	T = 106.37′	T = 392.53′
R = 2,135.00′	R = 3,600.00′	R = 7,850.00′



ADJACNET I-2513AC PRELIMINARY DESIGN

DESIGN EXCEPTION – MEDIAN SHOULDER WIDTH UNDER HAYWOOD ROAD BRIDGE

LEGEND

- PAVED SHOULDER
- APPROACH SLAB
- PAVEMENT REMOVAL

NOTE: I-2513AC
TEMP. CONNECTION TO Y6
(TO BE REMOVED)
-Y6RPC- 20+76.82 TO END

DASHED LINESTYLE PRIOR TO BEGIN CONSTRUCTION
-LB1- RT & -Y7RPC- REPRESENTATIVE OF I-2513AC DESIGN

FOR -LB1- PROFILE SEE SHT. 19
FOR -Y6- PROFILE SEE SHT. 51
FOR -Y6A- PROFILE SEE SHT. 51
FOR -Y6RPA- PROFILE SEE SHT. 47
FOR -Y6RPB- PROFILE SEE SHT. 48
FOR -Y6RPC- PROFILE SEE SHT. 49
FOR -Y6RPDREV- PROFILE SEE SHT. 50
FOR -MUP1- PROFILE SEE SHT. 73

GRAPHIC SCALE
50 25 0 50 100
PLANS

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PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/2011

-LBI-

PI Sta 32+01.69	PIs Sta 34+31.18	PIs Sta 40+64.09	PI Sta 43+42.03
Δ = 3° 40' 35.4" (LT)	Θs = 1° 16' 07.3"	Θs = 5° 39' 05.2"	Δ = 6° 56' 28.9" (RT)
D = 1° 10' 09.5"	Ls = 217.00'	Ls = 434.00'	D = 2° 36' 15.7"
L = 314.42'	LT = 144.67'	LT = 289.48'	L = 266.53'
T = 157.26'	ST = 72.34'	ST = 144.80'	T = 133.43'
R = 4,900.00'			R = 2,200.00'
S.E. = 3.5%			S.E. = 6%
V > 60mph			V > 60mph

-LB-

PI Sta 23+55.03
Δ = 23° 21' 42.8" (RT)
D = 2° 36' 15.7"
L = 897.03'
T = 454.84'
R = 2,200.00'
S.E. = 6%
V > 60mph

-Y6RPA-

PIs Sta 11+00.04	PIs Sta 14+33.34	PI Sta 15+79.97	PIs Sta 17+26.59
Θs = 3° 49' 26.3"	Θs = 1° 19' 01.7"	Δ = 2° 06' 22.8" (RT)	Θs = 1° 19' 01.7"
Ls = 300.00'	Ls = 200.00'	D = 1° 19' 01.7"	Ls = 200.00'
LT = 200.05'	LT = 133.34'	L = 159.92'	LT = 133.34'
ST = 100.04'	ST = 66.67'	T = 79.97'	ST = 66.67'
		R = 4,350.00'	
		S.E. = 3%	
		V > 50mph	

-Y6RPDREV-

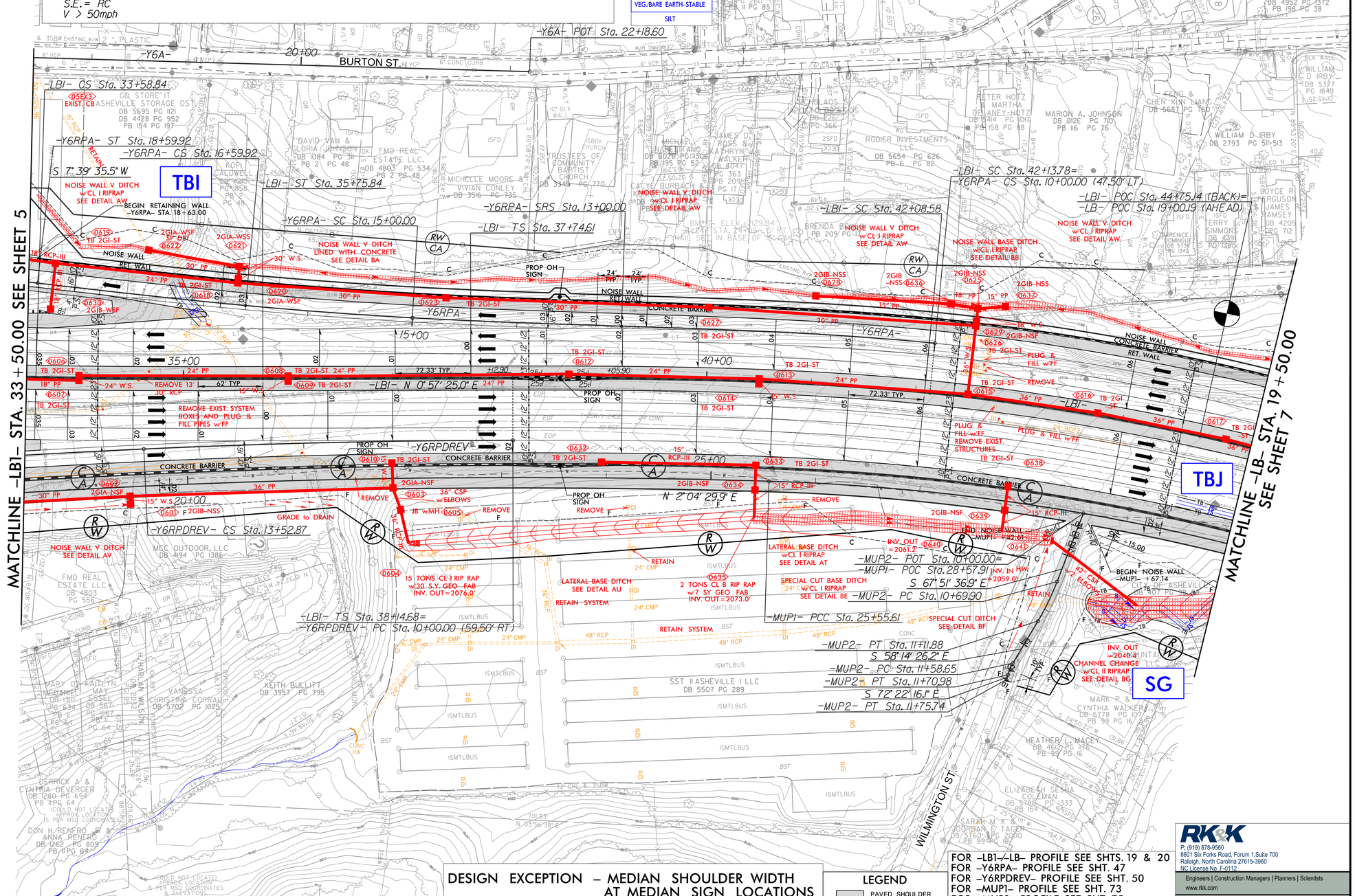
PI Sta 11+76.47	PIs Sta 14+19.54
Δ = 2° 34' 08.4" (LT)	Θs = 0° 43' 40.9"
D = 0° 43' 40.9"	Ls = 200.00'
L = 352.87'	LT = 133.33'
T = 176.47'	ST = 66.67'
R = 7,870.00'	
S.E. = RC	
V > 50mph	

-MUP1-

PI Sta 21+63.73	PI Sta 29+62.15
Δ = 5° 43' 30.8" (RT)	Δ = 21° 51' 25.5" (RT)
D = 0° 43' 47.6"	D = 2° 43' 16.5"
L = 784.40'	L = 803.20'
T = 392.53'	T = 406.54'
R = 7,850.00'	R = 2,105.50'

-MUP2-

PI Sta 10+91.92
Δ = 9° 37' 10.6" (RT)
D = 22° 55' 05.9"
L = 41.97'
T = 21.04'
R = 250.00'



DESIGN EXCEPTION – MEDIAN SHOULDER WIDTH AT MEDIAN SIGN LOCATIONS

LEGEND
PAVED SHOULDER

FOR -LB1-/-LB- PROFILE SEE SHTS. 19 & 20
FOR -Y6RPA- PROFILE SEE SHT. 47
FOR -Y6RPDREV- PROFILE SEE SHT. 50
FOR -MUP1- PROFILE SEE SHT. 73
FOR -MUP2- PROFILE SEE SHT. 75

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PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-LB-

PI Sta 23+55.03
Δ = 23° 21' 42.8" (RT)
D = 2° 36' 15.7"
L = 897.03'
T = 454.84'
R = 2,200.00'
S.E. = 6%
V = 60mph

PIs Sta 29+19.31
Θs = 4° 45' 57.5"
Ls = 366.00'
LT = 244.09'
ST = 122.08'

-Y7RPBREV-

PIs Sta 14+79.52
Θs = 6° 49' 15.3"
Ls = 200.00'
LT = 133.43'
ST = 66.76'

PI Sta 18+96.09
Δ = 45° 14' 25.3" (LT)
D = 6° 49' 15.3"
L = 663.26'
T = 350.01'
R = 840.00'
S.E. = 6%
V = 50mph

-Y7RPC_REV2-

PI Sta 12+17.36
Δ = 13° 46' 16.2" (RT)
D = 3° 10' 59.2"
L = 432.63'
T = 217.36'
R = 1,800.00'
S.E. = 6%
V > 50mph

PIs Sta 14+99.32
Θs = 3° 10' 59.2"
Ls = 200.00'
LT = 133.35'
ST = 66.69'

PIs Sta 18+73.37
Θs = 2° 29' 28.0"
Ls = 200.00'
LT = 133.35'
ST = 66.68'

-MUP3-

PI Sta 11+84.27
Δ = 4° 35' 03.9" (LT)
D = 7° 09' 43.1"
L = 64.01'
T = 32.02'
R = 800.00'

-MUPI-

PI Sta 29+62.15
Δ = 21° 51' 25.5" (RT)
D = 2° 43' 16.5"
L = 803.20'
T = 406.54'
R = 2,105.50'

PI Sta 36+18.63
Δ = 16° 44' 55.6" (RT)
D = 3° 14' 46.4"
L = 515.95'
T = 259.83'
R = 1,765.00'

PI Sta 41+99.47
Δ = 2° 13' 02.3" (RT)
D = 1° 35' 13.7"
L = 139.70'
T = 69.86'
R = 3,610.00'

C–C: 22.0', 0.5', 8.0', 7.0' OUTFALL, VEG./BARE EARTH-UNSTABLE, SILT

D–D: 22.0', 0.5', 8.0', 7.0' OUTFALL, VEG./BARE EARTH-UNSTABLE, SILT

E–E: 22.0', 1.7', 8.0', 7.0' OUTFALL, VEG./BARE EARTH-UNSTABLE, SILT

NAD 83/2011

MATCHLINE -LB- STA. 19+50.00 SEE SHEET 6

MATCHLINE -LB- STA. 32+00.00 SEE SHEET 8

TBH

SG

TBJ

TBK

-LB- POC Sta. 24+54.45=
-Y7RPBREV- POT Sta. 10+00.00
(47.5' LT)

-Y7RPBREV- TS Sta. 13+46.09

-LB- CS Sta. 27+97.23

-Y7RPBREV- SC Sta. 15+46.09

-LB- ST Sta. 31+63.23

-Y7RPC_REV2- TS Sta. 17+40.02

-Y7RPC_REV2- CS Sta. 14+32.63

-Y7RPC_REV2- ST Sta. 16+32.63

-MUPI- PT Sta. 38+74.76

-LB- POC Sta. 23+26.78=
-Y7RPC_REV2- POC Sta. 10+00.00 (59.5' RT)
-MUPI- PCC Sta. PCC Sta. 33+58.81

-MUPI- PC Sta. 41+29.61

-MUPI- POC Sta. 41+15.06 =
-MUP3- POT Sta. 10+00.00

-MUPI- PC Sta. 41+10.17

-MUP3- PC Sta. 11+52.16
-MUP3- PT Sta. 12+16.17

-MUP3- PC Sta. 13+03.68
-MUP3- PT Sta. 13+14.68
S 34° 41' 04.0" E
-MUP3- POT Sta. 13+19.52

LEGEND
PAVED SHOULDER

FOR -LB- PROFILE SEE SHT. 20
FOR -Y7RPBREV- PROFILE SEE SHT. 53
FOR -Y7RPC_REV2- PROFILE SEE SHT. 54
FOR -MUPI- PROFILE SEE SHTS. 73 & 74
FOR -MUP3- PROFILE SEE SHT. 75

DESIGN EXCEPTION – MEDIAN SHOULDER WIDTH AT MEDIAN SIGN LOCATIONS

C.G. Worley House Historic Property

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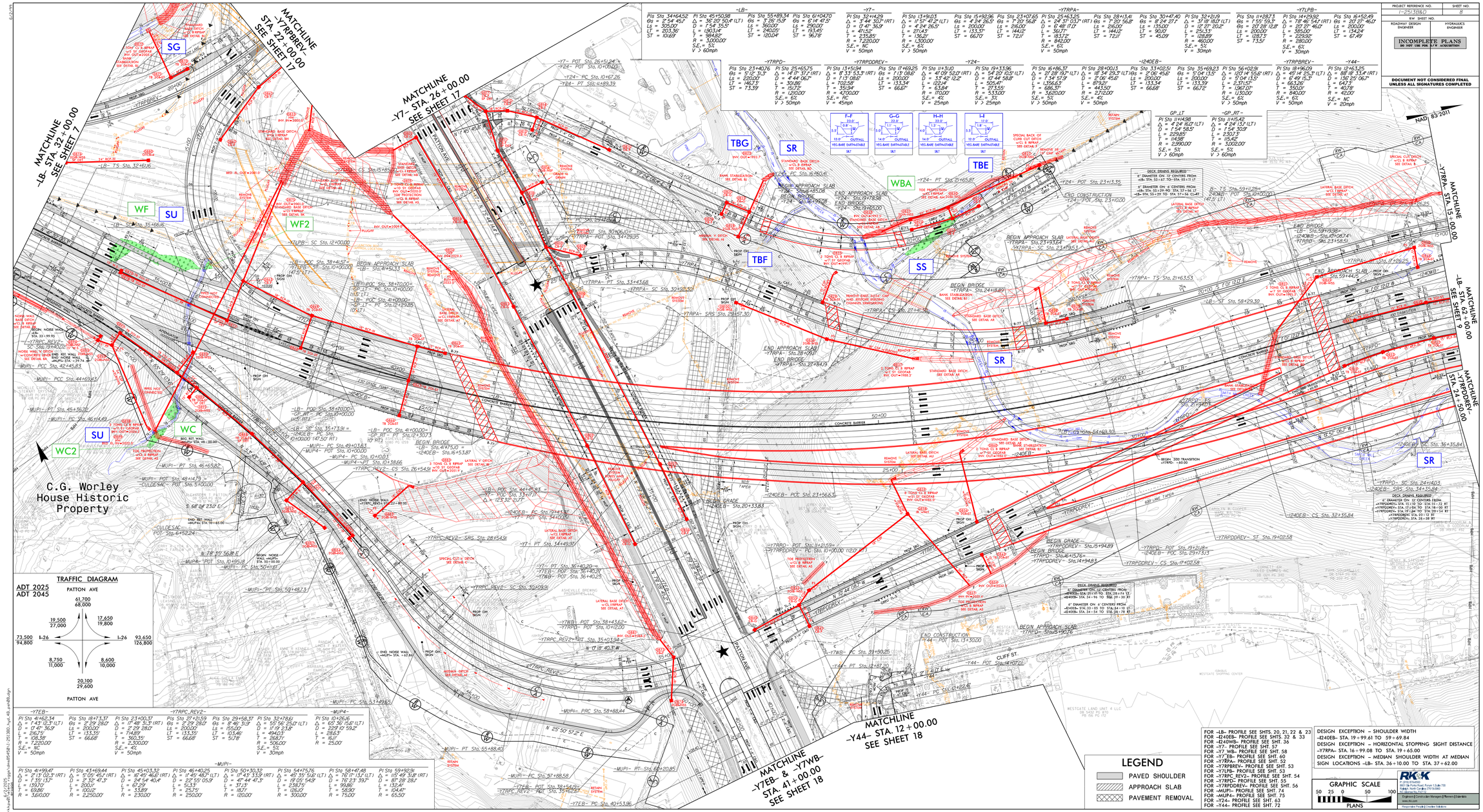
MATCHLINE -Y7RPBREV- STA. 22+00.00 SEE SHEET 17
MATCHLINE -Y7- STA. 26+00.00 SEE SHEET 17
MATCHLINE -LB- STA. 32+00.00 SEE SHEET 7
MATCHLINE -Y7RPA- STA. 15+00.00
MATCHLINE -LB- STA. 62+00.00 SEE SHEET 9
MATCHLINE -Y7RPDDREV- STA. 24+50.00
MATCHLINE -Y44- STA. 12+00.00 SEE SHEET 18
MATCHLINE -Y7EB- & -Y7WB- STA. 41+00.00 SEE SHEET 18
C.G. Worley House Historic Property
SG
WF
SU
WF2
WC
WC2
TBG
SR
WBA
TBE
TBF
SS
F-F
G-G
H-H
I-I
NAD 83/2011
PATTON AVE
DALTON AVE
CLIFF ST.
TRAFFIC DIAGRAM
ADT 2025
ADT 2045
61,700
68,000
19,500
27,000
17,650
19,800
73,500
94,800
93,650
126,800
8,750
11,000
8,600
10,000
20,100
29,600
I-26
LEGEND
PAVED SHOULDER
APPROACH SLAB
PAVEMENT REMOVAL
GRAPHIC SCALE
50 25 0 50 100
PLANS
PROJECT REFERENCE NO. (-25.1558.)
SHEET NO. 8
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
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DECK DRAINS REQUIRED
DESIGN EXCEPTION – SHOULDER WIDTH
-I240EB- STA. 19+99.61 TO STA. 59+69.84
DESIGN EXCEPTION – HORIZONTAL STOPPING SIGHT DISTANCE
-Y7RPA- STA. 16+99.08 TO STA. 19+65.00
DESIGN EXCEPTION – MEDIAN SHOULDER WIDTH AT MEDIAN SIGN LOCATIONS -LB- STA. 36+10.00 TO STA. 37+62.00
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PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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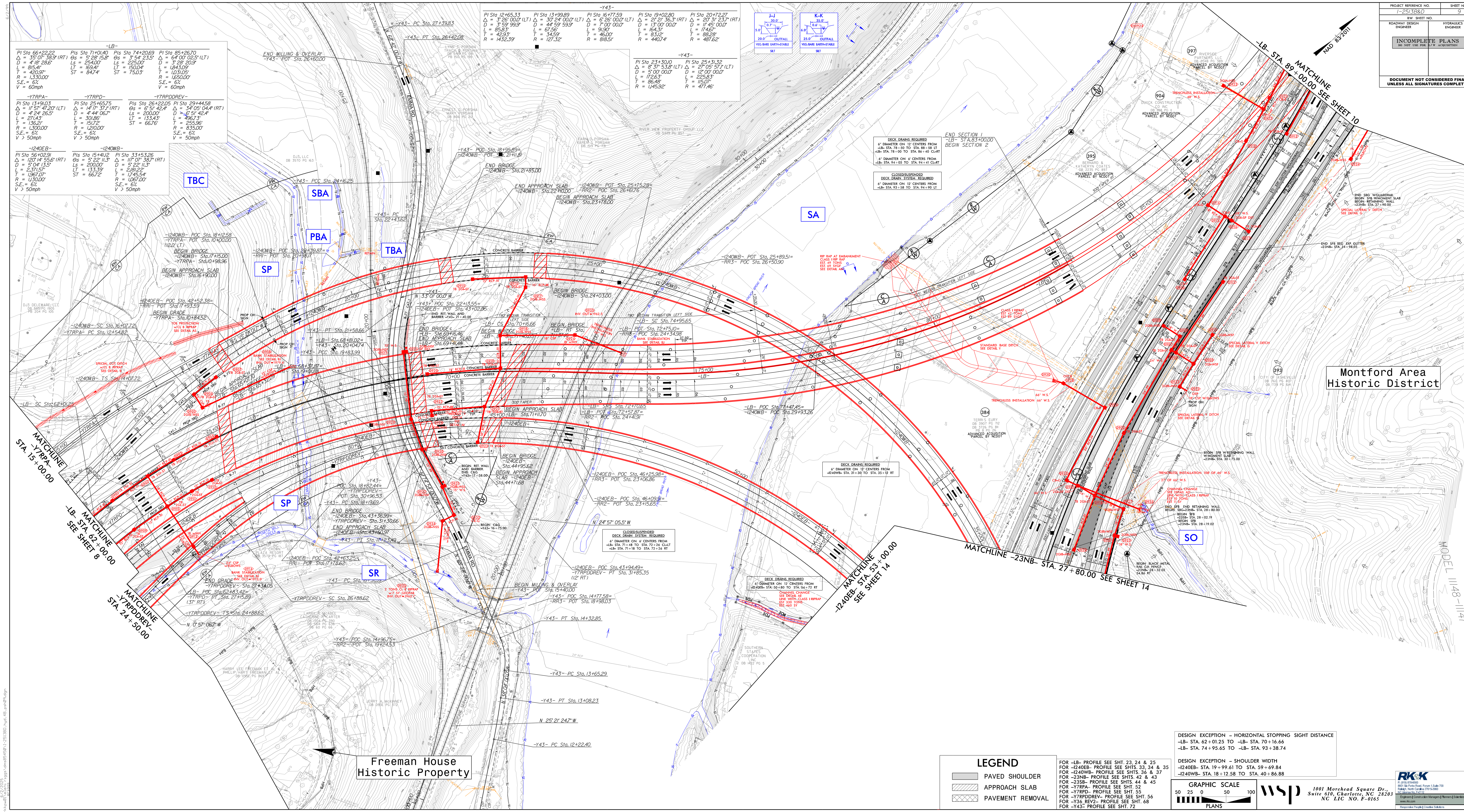

-LB-

PI Sta 66+22.22	PIs Sta 71+01.40	PIs Sta 74+20.69	PI Sta 85+26.70
Δ = 35° 07′ 38.9″ (RT)	Θs = 5° 28′ 15.8″	Θs = 3° 54′ 23.5″	Δ = 64° 00′ 02.5″ (LT)
D = 4° 18′ 28.6″	Ls = 254.00′	Ls = 225.00′	D = 3° 28′ 20.9″
L = 815.41′	LT = 169.41′	LT = 150.04′	L = 1,843.09′
T = 420.97′	ST = 84.74′	ST = 75.03′	T = 1,031.05′
R = 1,330.00′			R = 1,650.00′
S.E. = 6%			S.E. = 6%
V = 60mph			V = 60mph

-Y7RPA- / -Y7RPD- / -Y7RPDDREV-

-Y7RPA- PI Sta 13+91.03	-Y7RPD- PI Sta 25+65.75	-Y7RPDDREV- PIs Sta 26+22.05	-Y7RPDDREV- PI Sta 29+44.58
Δ = 11° 57′ 47.20″ (LT)	Δ = 14° 17′ 37.1″ (RT)	Θs = 6° 51′ 42.4″	Δ = 34° 05′ 04.4″ (RT)
D = 4° 24′ 26.5″	D = 4° 44′ 06.7″	Ls = 200.00′	D = 6° 51′ 42.4″
L = 271.43′	L = 301.86′	LT = 133.43′	L = 496.73′
T = 136.21′	T = 151.72′	ST = 66.76′	T = 255.96′
R = 1,300.00′	R = 1,210.00′		R = 835.00′
S.E. = 6%	S.E. = 6%		S.E. = 6%
V > 50mph	V > 50mph		V = 50mph

-I240EB- / -I240WB-

-I240EB- PI Sta 56+02.91	-I240WB- PIs Sta 15+41.12	-I240WB- PI Sta 33+53.26
Δ = 120° 14′ 55.6″ (RT)	Θs = 5° 22′ 11.3″	Δ = 117° 07′ 38.7″ (RT)
D = 5° 04′ 13.5″	Ls = 200.00′	D = 5° 22′ 11.3″
L = 2,371.57′	LT = 133.39′	L = 2,181.22′
T = 1,967.07′	ST = 66.72′	T = 1,745.54′
R = 1,130.00′		R = 1,067.00′
S.E. = 6%		S.E. = 6%
V > 50mph		V > 50mph

-Y43-

PI Sta 12+65.33	PI Sta 13+99.89	PI Sta 16+77.59	PI Sta 19+02.80	PI Sta 20+72.27
Δ = 3° 26′ 00.0″ (LT)	Δ = 30° 24′ 00.0″ (LT)	Δ = 6° 26′ 00.0″ (LT)	Δ = 21° 21′ 36.3″ (RT)	Δ = 20° 31′ 23.7″ (RT)
D = 3° 59′ 99.9″	D = 44° 59′ 59.9″	D = 7° 00′ 00.0″	D = 13° 00′ 00.0″	D = 11° 45′ 00.0″
L = 85.83′	L = 67.56′	L = 91.90′	L = 164.31′	L = 174.67′
T = 42.93′	T = 34.59′	T = 46.00′	T = 83.12′	T = 88.28′
R = 1432.39′	R = 127.32′	R = 818.51′	R = 440.74′	R = 487.62′

-Y43-

PI Sta 23+30.10	PI Sta 25+31.32
Δ = 8° 37′ 53.8″ (LT)	Δ = 27° 05′ 57.1″ (LT)
D = 5° 00′ 00.0″	D = 12° 00′ 00.0″
L = 172.63′	L = 225.83′
T = 86.48′	T = 115.07′
R = 1,145.92′	R = 477.46′

DESIGN EXCEPTION – HORIZONTAL STOPPING SIGHT DISTANCE
–LB– STA. 62+01.25 TO –LB– STA. 70+16.66
–LB– STA. 74+95.65 TO –LB– STA. 93+38.74

DESIGN EXCEPTION – SHOULDER WIDTH
–I240EB– STA. 19+99.61 TO STA. 59+69.84
–I240WB– STA. 18+12.58 TO STA. 40+86.88

LEGEND

- PAVED SHOULDER
- APPROACH SLAB
- PAVEMENT REMOVAL

FOR –LB– PROFILE SEE SHT. 23, 24 & 25
FOR –I240EB– PROFILE SEE SHTS. 33, 34 & 35
FOR –I240WB– PROFILE SEE SHTS. 36 & 37
FOR –23NB– PROFILE SEE SHTS. 42 & 43
FOR –23SB– PROFILE SEE SHTS. 44 & 45
FOR –Y7RPA– PROFILE SEE SHT. 52
FOR –Y7RPD– PROFILE SEE SHT. 55
FOR –Y7RPDDREV– PROFILE SEE SHT. 56
FOR –Y36_REV2– PROFILE SEE SHT. 68
FOR –Y43– PROFILE SEE SHT. 72

GRAPHIC SCALE
50 25 0 50 100
PLANS

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PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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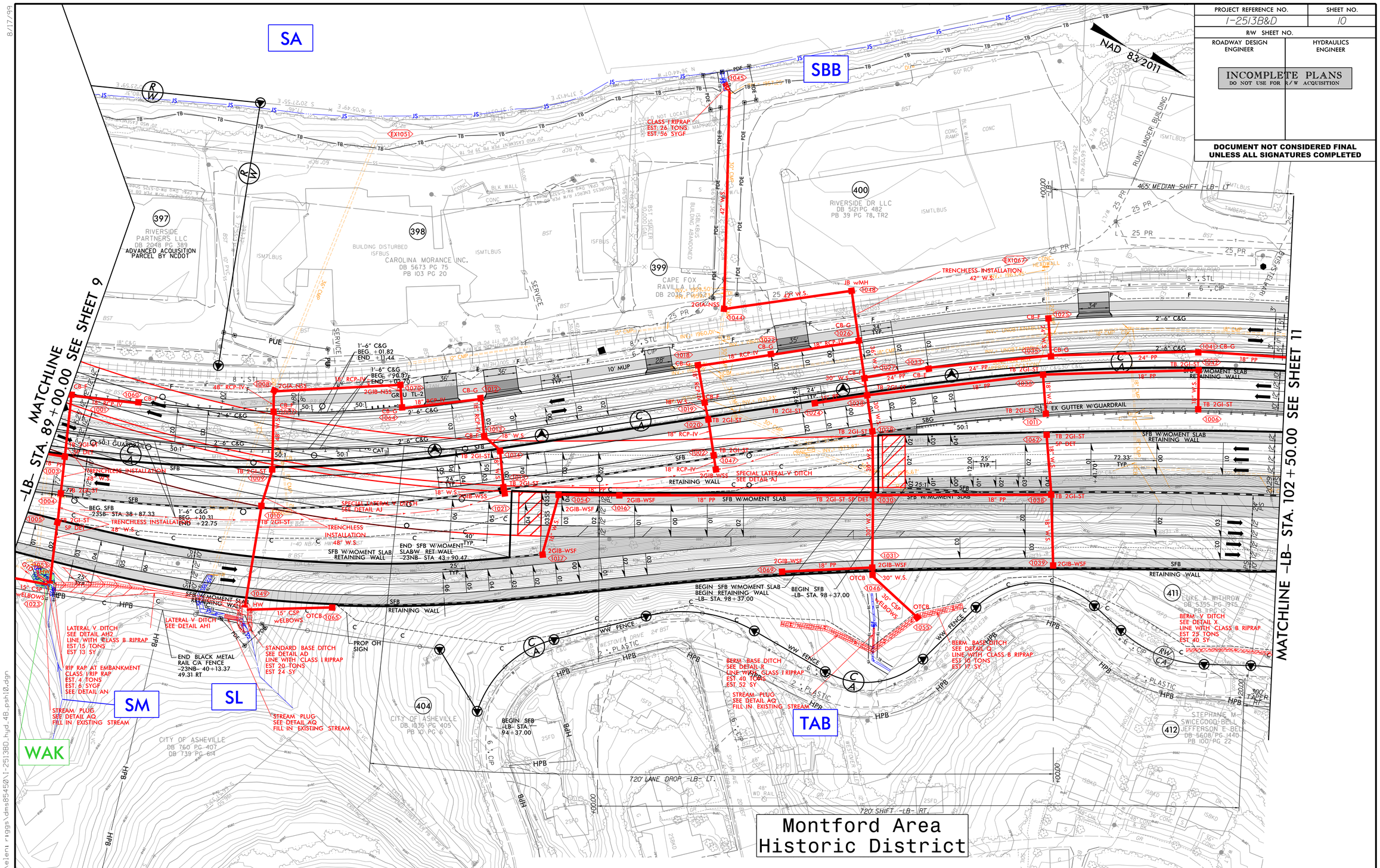

FOR -LB- PROFILE SEE SHT. 26 & 27
FOR -23NB- PROFILE SEE SHT. 43
FOR -23SB- PROFILE SEE SHT. 45
FOR -Y36_REV2- PROFILE SEE SHTS. 68 & 69

LEGEND
PAVED SHOULDER
APPROACH SLAB

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NC LIC NO. F-0165

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6/2/2025
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PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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WSP
1001 Morehead Square Dr., Suite 610, Charlotte, NC 28203
NC LIC NO. F-0165

FOR –LB– PROFILE SEE SHT. 26, 27, 28 & 29
FOR –23SB– PROFILE SEE SHTS. 45 & 46
FOR –Y36_REV2– PROFILE SEE SHT. 69

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LEGEND
PAVED SHOULDER

NAD 83/2011

SA

SI

TAC

MATCHLINE –LB– STA. 102+50.00 SEE SHEET 10

MATCHLINE –LB– STA. 116+00.00 SEE SHEET 12

CHANNEL CHANGE
SEE DETAIL AF
LINE WITH CLASS I RIPRAP
EST 51 TONS
EST 75 SY

465' MEDIAN SHIFT –LB– LT

CAROLINA MORANCE INC.
DB 5673 PG 75
PB 39 PG 78

ASHVILLE RIVER RECREATION
DB 5186 PG 653

WARREN ANDERS & MARIE ANDERS
DB 1394 PG 319

FARM EQUIPMENT CO. OF ASHEVILLE, INC.
DB 965 PG 529
PB 98 PG 15

NORFOLK SOUTHERN RR

TRENCHLESS INSTALLATION
54" W.S.

END EXP. GUTTER & GUARDRAIL
BEG SFB
–23SB– 54+93.92

EX GUTTER W/GUARDRAIL

SFB W/MOMENT SLAB
RETAINING WALL

END SFB W/MOMENT SLAB
END RETAINING WALL
BEGIN SFB –LB– 105+00.00

MEDIAN BARRIER

END SFB
BEGIN MEDIAN BARRIER
–LB– 106+50.00

END MEDIAN BARRIER
–LB– STA. 107+62.50

END MEDIAN BARRIER
–LB– STA. 106+79.15

BEGIN RETAINING WALL
–LB– STA. 107+50.00

END SFB
END RETAINING WALL
–LB– STA. 103+00.00

FALSE SUMP
SEE DETAIL AQ

DITCB
TOE PROTECTION
SEE DETAIL AM
CLASS I RIPRAP
EST 36 TONS
EST 52 SY

SPECIAL LATERAL BASE DITCH
SEE DETAIL L

RIP RAP AT EMBANKMENT
CLASS I RIP RAP
EST 7 TONS
EST 10 SYGF
SEE DETAIL AN

STREAM PLUG
SEE DETAIL AQ
FILL IN EXISTING STREAM

BERM BASE DITCH
SEE DETAIL U
LINE WITH CLASS I RIPRAP
EST 75 TONS
EST 100 SY

RIP RAP AT EMBANKMENT
CLASS I RIP RAP
EST 8 TONS
EST 11 SYGF
SEE DETAIL AN

CHANNEL CHANGE
SEE DETAIL AQ
LINE WITH CLASS B RIPRAP
EST 29 TONS
EST 43 SY

MEDIAN V DITCH
SEE DETAIL AI

BERM V DITCH
SEE DETAIL S

RETAINING WALL

ZACHARY J. YANCEY
DB 5380 PG 1740
PB 100 PG 22

HEATHER C. DEHL
DB 5263 PG 1909
PB 97 PG 58

DEEPALAL & SARPADLANANDA SHENOY
DB 5724 PG 1972
PB 97 PG 58

KEVIN JOHN GOLDSMITH
DB 5488 PG 157
PB 97 PG 58

DENNIS L. BRICKER & JENNIFER L. BRICKER

KATHY GILLIAM HOLLOWAY
DB 2045 PG 601
PB 8 PG 64

ROBERT W. FOX, JR.
DB 5521 PG 739

CAROLINE ALEXIS & JOHN THOMAS DECOSIMO & COLLIN LEWIS CLARK
PB 181 PG 103
DB 5618 PG 823

MARY ELLEN BETHEL & JOHNSON EVERSON

6/2/2025
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PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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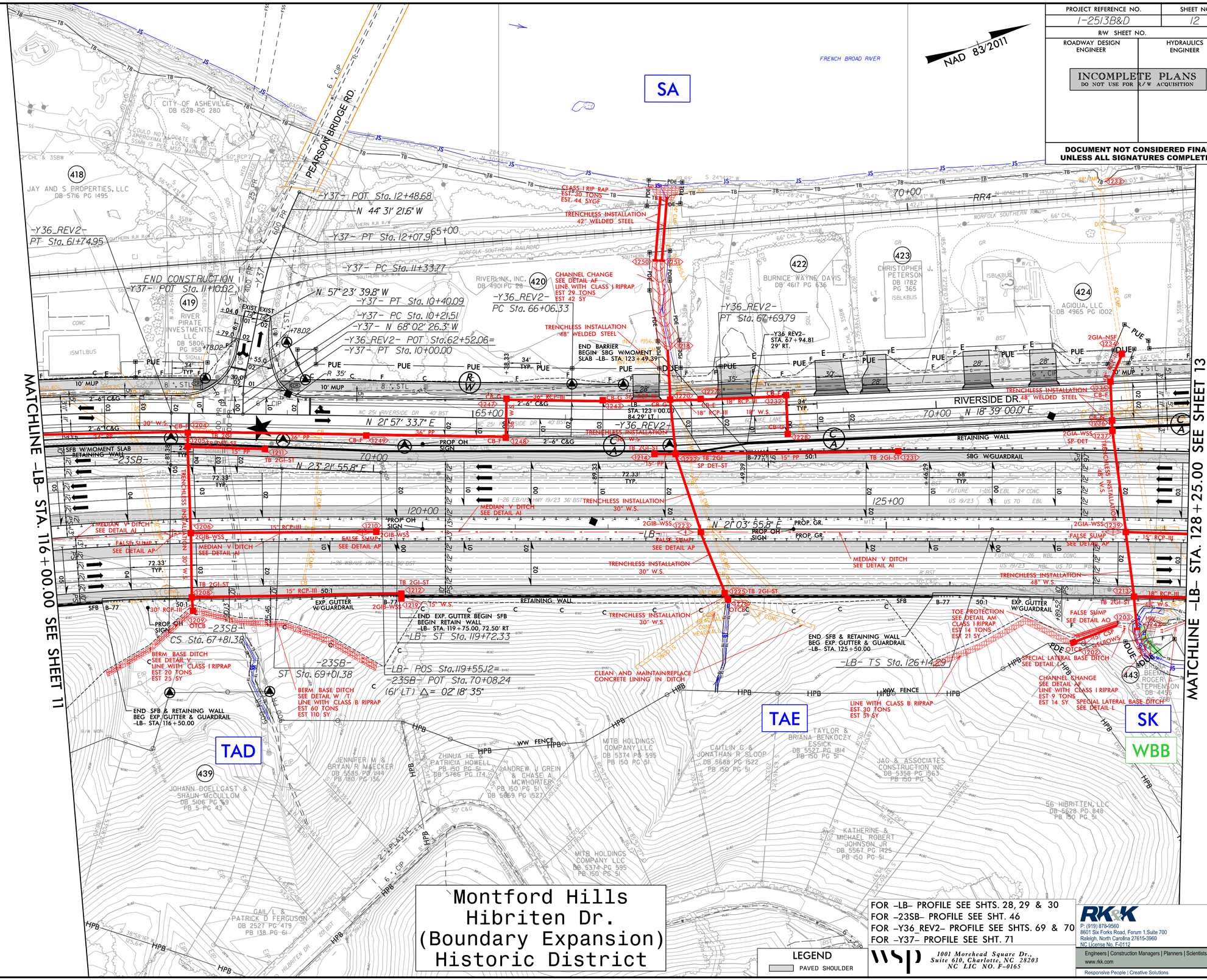

Montford Hills
Hibriten Dr.
(Boundary Expansion)
Historic District

FOR -LB- PROFILE SEE SHTS. 28, 29 & 30
FOR -23SB- PROFILE SEE SHT. 46
FOR -Y36_REV2- PROFILE SEE SHTS. 69 & 70
FOR -Y37- PROFILE SEE SHT. 71

LEGEND
PAVED SHOULDER

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PROJECT REFERENCE NO.	SHEET NO.
I-2513B.0	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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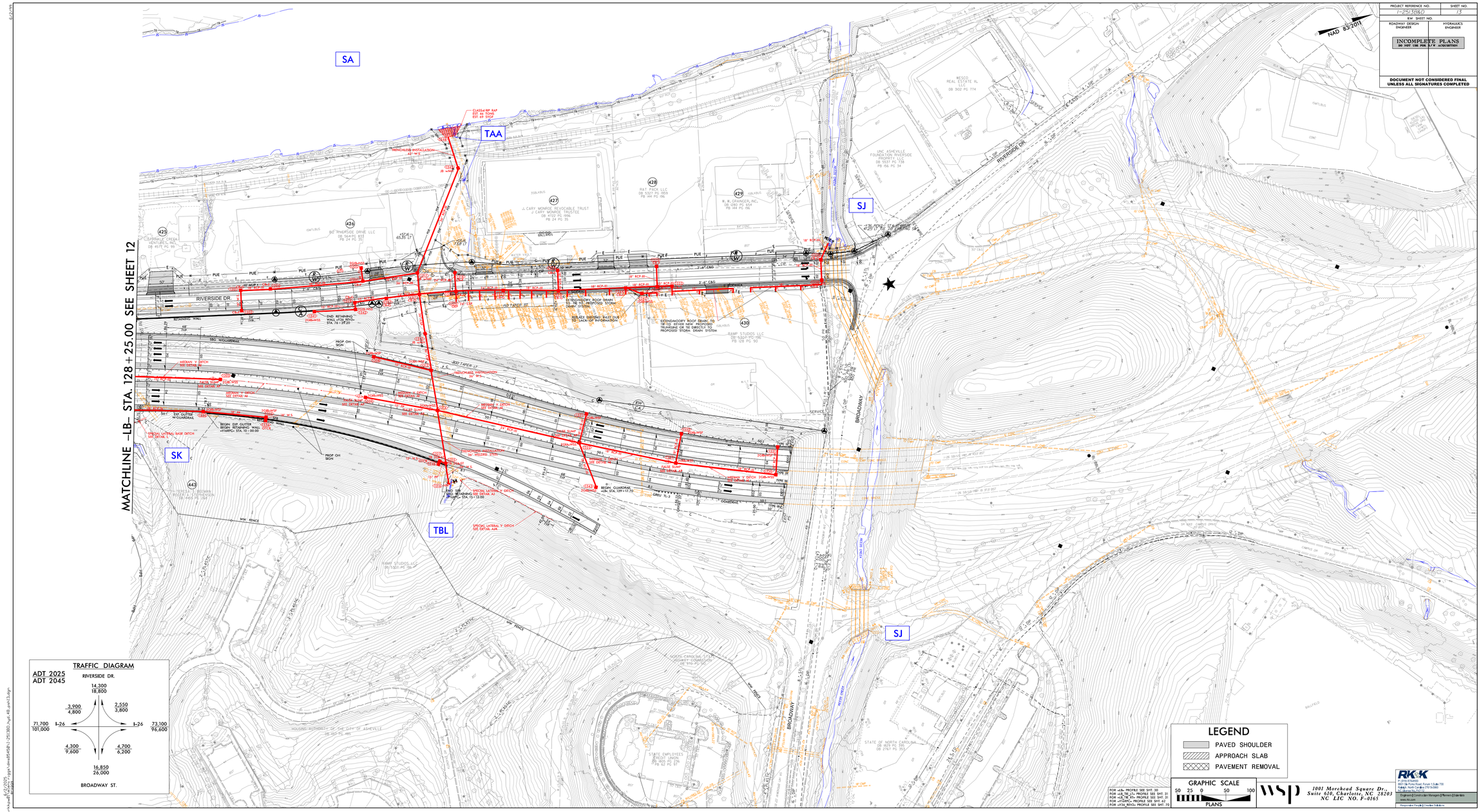

TRAFFIC DIAGRAM

ADT 2025
ADT 2045

RIVERSIDE DR.

14,300
18,800

3,900
4,800

2,550
3,800

71,700
101,000 I-26

I-26 73,100
96,600

4,300
9,600

4,700
6,200

16,850
26,000

BROADWAY ST.

FOR <-L-> PROFILE SEE SHT. 30
FOR <-LB_TR-LT> PROFILE SEE SHT. 31
FOR <-LB_TR-RT> PROFILE SEE SHT. 31
FOR <-TBR_TR> PROFILE SEE SHT. 62
FOR <-PL_REV> PROFILE SEE SHT. 70

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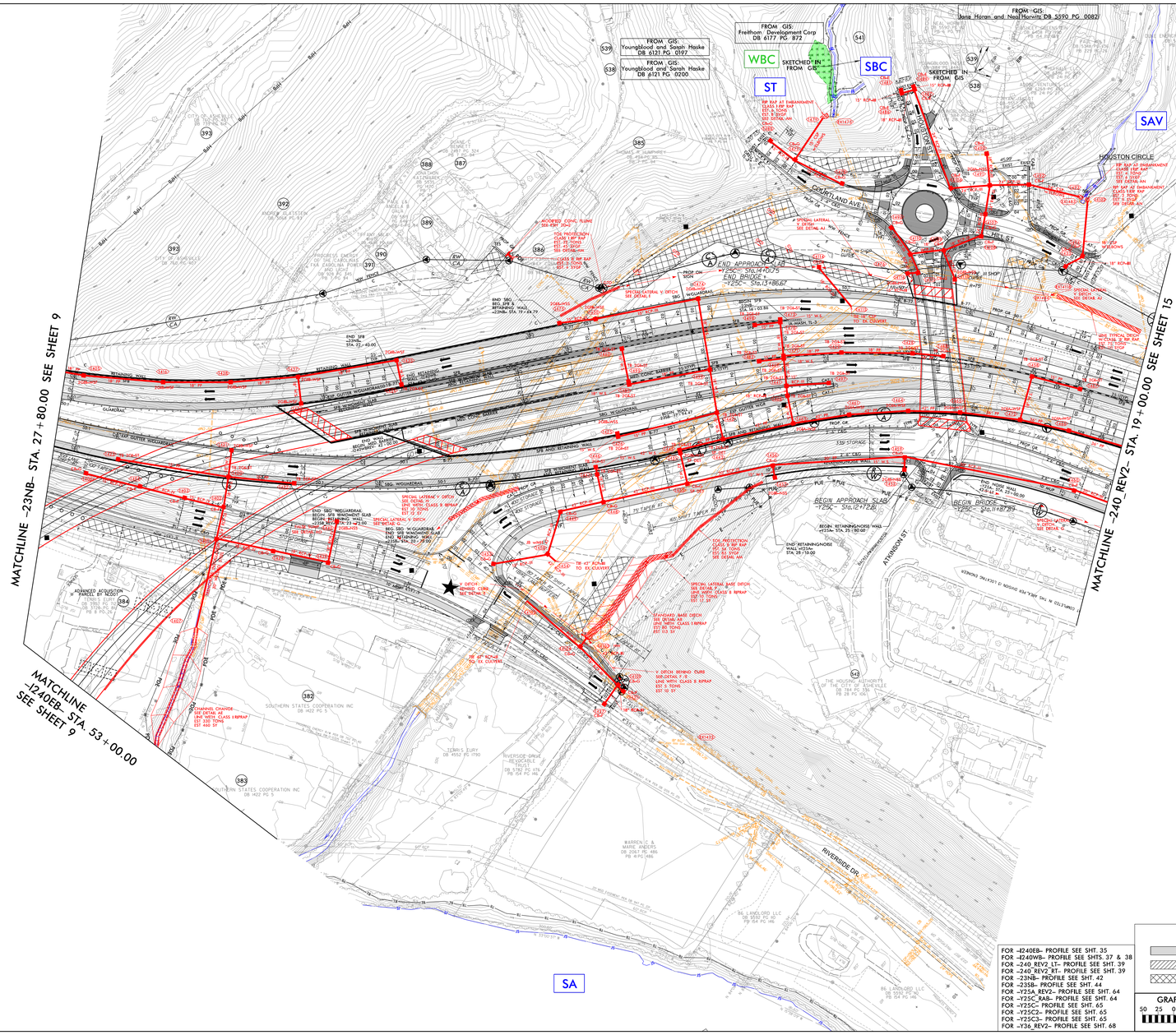

PROJECT REFERENCE NO.	SHEET NO.
I-2561B,D	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

FOR -I240EB- PROFILE SEE SHT. 35
FOR -I240WB- PROFILE SEE SHTS. 37 & 38
FOR -240_REV2_LT- PROFILE SEE SHT. 39
FOR -240_REV2_RT- PROFILE SEE SHT. 39
FOR -23NB- PROFILE SEE SHT. 42
FOR -23SB- PROFILE SEE SHT. 44
FOR -Y25A_REV2- PROFILE SEE SHT. 64
FOR -Y25C- PROFILE SEE SHT. 64
FOR -Y25C- PROFILE SEE SHT. 65
FOR -Y25C2- PROFILE SEE SHT. 65
FOR -Y25C3- PROFILE SEE SHT. 65
FOR -Y36_REV2- PROFILE SEE SHT. 68

LEGEND

- PAVED SHOULDER
- APPROACH SLAB
- PAVEMENT REMOVAL

GRAPHIC SCALE
50 25 0 50 100
PLANS

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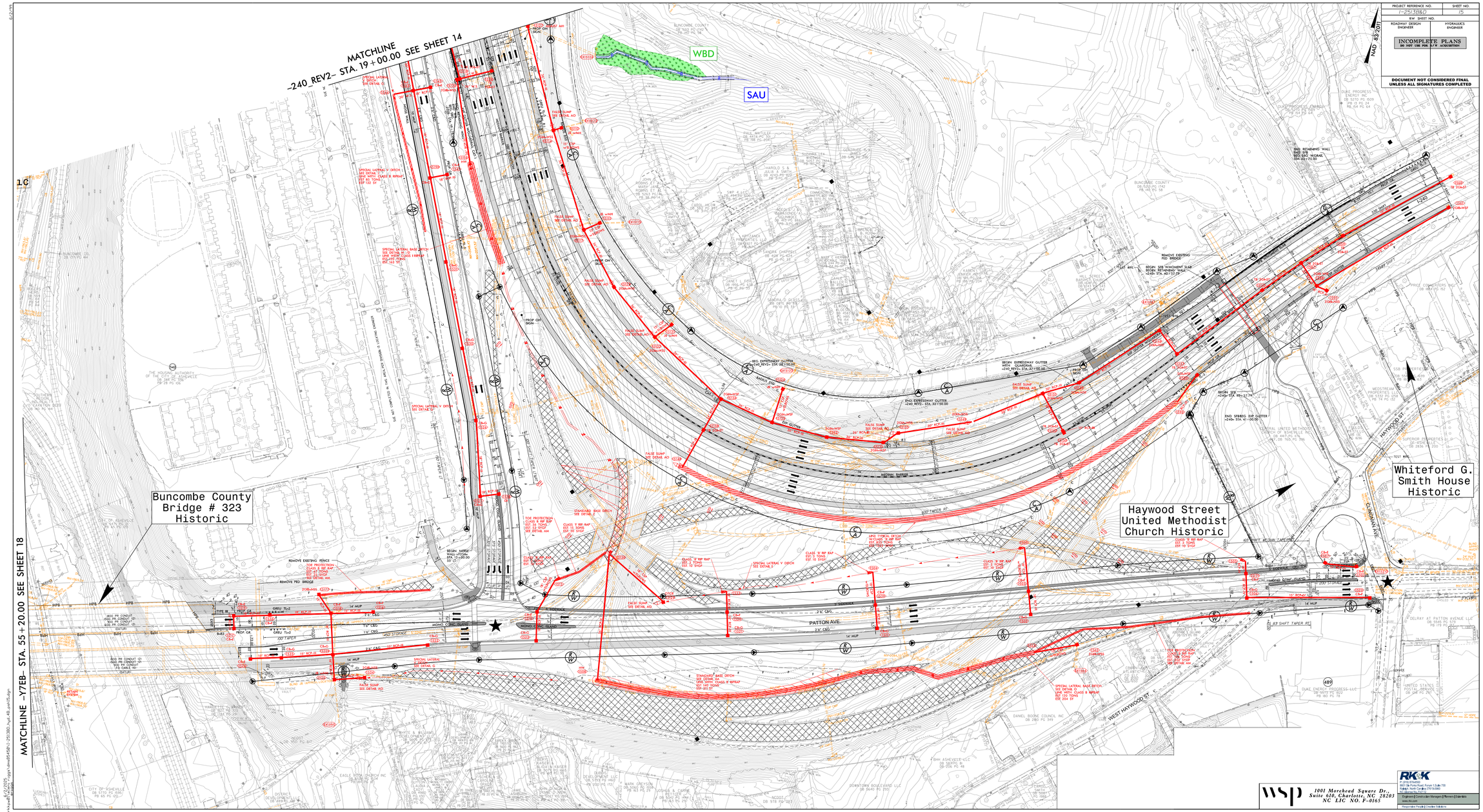
MATCHLINE -240_REV2- STA. 19+00.00 SEE SHEET 14
MATCHLINE -Y7EB- STA. 55+20.00 SEE SHEET 18
WBD
SAU
Buncombe County Bridge # 323 Historic
Haywood Street United Methodist Church Historic
Whiteford G. Smith House Historic
PATTON AVE.
HAYWOOD ST.
WEST HAYWOOD ST.
CLINGMAN AVE.
NAD 83/2011
PROJECT REFERENCE NO.
I-2513B,D
SHEET NO.
15
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
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-Y42-		
PI Sta 12+24.46	PI Sta 14+86.16	PI Sta 13+98.72
△ = 22° 56' 13.1" (LT)	△ = 4° 35' 55.5" (LT)	△ = 18° 13' 02.6" (RT)
D = 20° 50' 05.4"	D = 5° 43' 46.5"	D = 19° 05' 54.9"
L = 110.09'	L = 80.26'	L = 95.39'
T = 55.79'	T = 40.15'	T = 48.10'
R = 275.00'	R = 1,000.00'	R = 300.00'
S.E. = RC	S.E. = NC	S.E. = NC
V = 30mph (Stop)	V = 25mph (Stop)	V > 35mph

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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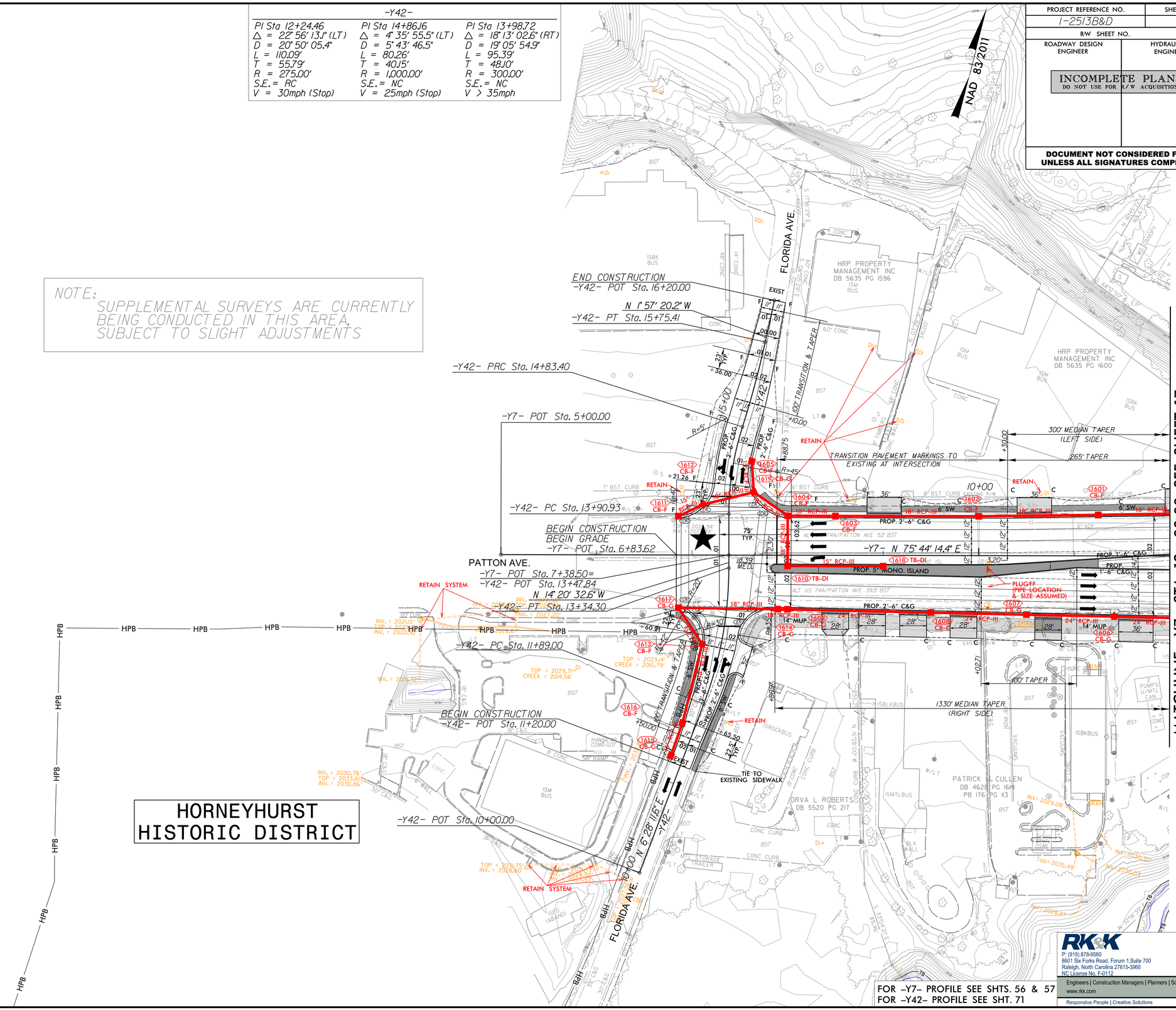
NOTE:
SUPPLEMENTAL SURVEYS ARE CURRENTLY BEING CONDUCTED IN THIS AREA, SUBJECT TO SLIGHT ADJUSTMENTS



FOR -Y7- PROFILE SEE SHTS. 56 & 57
FOR -Y42- PROFILE SEE SHT. 71

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PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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L-L
30.0'
1.1'
7.0'
16.0' OUTFALL
VEG./BARE EARTH-STABLE
SILT

-Y30-

PI Sta 11+03.78
△ = 82° 44' 44.9" (LT)
D = 104° 10' 26.9"
L = 79.43'
T = 48.44'
R = 55.00'
S.E. = NC
V = 15mph (Stop)

PI Sta 13+80.96
△ = 35° 40' 40.1" (RT)
D = 26° 45' 00.0"
L = 133.37'
T = 68.93'
R = 214.19'
S.E. = NC
V = 25mph

-Y7RPBREV-

PI Sta 18+96.09
△ = 45° 14' 25.3" (LT)
D = 6° 49' 15.3"
L = 663.26'
T = 350.01'
R = 840.00'
S.E. = 6%
V = 50mph

-Y7LPB-

PIs Sta 16+52.49
θs = 20° 27' 46.0"
Ls = 200.00'
LT = 134.24'
ST = 67.49'

NAD 83/2011

MATCHLINE -Y7- STA. 12+00.00 SEE SHEET 16

MATCHLINE -Y7- STA. 26+00.00 SEE SHEET 8

MATCHLINE -Y7RPBREV- STA. 22+00.00 SEE SHEET 8

-Y29- PC Sta. 15+31.51
END CONSTRUCTION
-Y29- POT Sta. 15+20.00

-Y30- PC Sta. 13+12.03
END CONSTRUCTION
-Y30- POC Sta. 13+70.00
-Y30- ROC Sta. 14+45.40

END GRADE
-Y29- POT Sta. 11+40.00

-Y7- POT Sta. 20+24.69=
-Y30- POT Sta. 10+00.00
-Y30- PC Sta. 10+55.34
-Y30- PT Sta. 11+34.77

-Y7- POT Sta. 22+24.05=
-Y29- POT Sta. 10+00.00
-Y7- POT Sta. 22+51.79=
-Y7RPBREV- POT Sta. 24+51.92

-Y7- POT Sta. 22+80.88=
-Y7LPB- POT Sta. 20+12.65
-Y7LPB- ST Sta. 17+85.00

-Y7RPBREV- PT Sta. 22+09.35

S 74° 42' 19.9" W

-Y7- N 75° 44' 14.4" E

N 22° 32' 55.2" W

N 10° 37' 17.5" W

REGENT PARK BLVD.

PATTON AVE.

HANSEL AVE

HAZEL MILL RD.

SR

SR

PAVEMENT REMOVAL

FOR -Y7RPBREV- PROFILE SEE SHT. 53
FOR -Y7LPB- PROFILE SEE SHT. 53
FOR -Y7- PROFILE SEE SHT. 57
FOR -Y29- PROFILE SEE SHT. 67
FOR -Y30- PROFILE SEE SHT. 67

PARCEL 85 TO BE ASORBED INTO NCDOT ROW.

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PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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NAD 83/2011

SA

Buncombe County
Bridge # 323
Historic

-Y28-
PI Sta 12+36.71
Δ = 41° 22' 03.6" (RT)
D = 22° 55' 05.9"
L = 180.50'
T = 94.39'
R = 250.00'
S.E. = 4%
V = 30mph (Stop)

-Y28B-
PI Sta 10+68.70
Δ = 24° 33' 24.5" (RT)
D = 57° 17' 44.8"
L = 42.86'
T = 21.76'
R = 100.00'

PI Sta 13+78.87
Δ = 116° 28' 01.8" (LT)
D = 32° 00' 31.7"
L = 363.86'
T = 289.08'
R = 179.00'

-Y7WB-
PI Sta 40+50.46
Δ = 1° 35' 25.3" (RT)
D = 0° 47' 36.9"
L = 200.41'
T = 100.21'
R = 7,220.00'
S.E. = NC
V = 50mph

PI Sta 43+60.39
Δ = 3° 19' 40.4" (LT)
D = 0° 47' 36.9"
L = 419.36'
T = 209.74'
R = 7,220.00'
S.E. = NC
V = 50mph

-Y7EB-
PI Sta 41+62.34
Δ = 1° 43' 12.3" (LT)
D = 0° 47' 36.9"
L = 216.75'
T = 108.38'
R = 7,220.00'
S.E. = NC
V = 50mph

MATCHLINE -Y44- STA. 12+00.00 SEE SHEET 8

MATCHLINE -Y7EB & -Y7WB- STA. 41+00.00 SEE SHEET 8

MATCHLINE -Y7EB- STA. 55+20.00 SEE SHEET 15

-Y28A- POT Sta. 13+50.00
END CONSTRUCTION
-Y28A- POT Sta. 12+35.00
-Y28A- POT Sta. 11+63.88=
-Y44- POT Sta. 10+00.00
-Y7WB- POC Sta. 42+64.45=
-Y28A- POT Sta. 10+00.00
BEGIN PEDRAIL -Y7WB- STA. 45+93.76
BEGIN MUP ELEVATION TRANSITION TO BE FLUSH WITH APPROACH SLAB
TIE MUP TO EXISTING APPROACH SLAB
-Y7WB- +15.00 +/-
BEGIN BRIDGE
-Y7WB- POT Sta. 46+33.93
-Y7WB- PRC Sta. 41+50.65
-Y7WB- N 77° 44' 30.1" E
-Y7EB- N 77° 45' 32.9" E
-Y7EB- POT Sta. 43+46.65=
-Y28- POT Sta. 10+00.00
BEGIN PED.RAIL -Y7EB- STA. +10.00
BEGIN MUP ELEVATION TRANSITION TO BE FLUSH WITH APPROACH SLAB
BEGIN BRIDGE
-Y7EB- POT Sta. 46+39.35
-Y28B- PT Sta. 14+53.65
TIE MUP TO EXISTING APPROACH SLAB
-Y7EB- +28.50 +/-
-Y28- PC Sta. 11+42.33
-Y28B- PC Sta. 10+46.93
-Y28B- PRC Sta. 10+89.79
END CONSTRUCTION
-Y28B- POC Sta. 11+65.00
TIE TO EXISTING
-Y7EB- PT Sta. 42+70.71
-Y28- POC Sta. 12+03.96=
-Y28B- POT Sta. 10+00.00
-Y28- PT Sta. 13+22.83
END CONSTRUCTION
-Y28- POT Sta. 13+40.00
-Y28- POT Sta. 13+92.92
-Y28- S 10° 37' 27.4" E
S 30° 44' 36.0" W
N 86° 06' 52.4" W
N 3° 53' 07.6" E
150' LANE TAPER & TRANSITION
100' TAPER
TAPER TO EXIST
CONCRETE BARRIER
REMOVE SYSTEM
RETAIN SYSTEM
SPECIAL BACK OF CURB CUT DITCH SEE DETAIL E
TIE TO EXISTING DITCH
FRENCH BROAD RIVER
SILT POND
CITY OF ASHEVILLE DB 5433 PG 320 PB 8 PG 70
233 RIVERSIDE, LLC DB 4907 PG 1623 PB 160 PG 189
FIRC WESTGATE LLC DB 2958 PG 870 PB 156 PG 172
WESTGATE LAND UNIT 4 LLC DB 5432 PG 870 PB 156 PG 172
CITY OF ASHEVILLE DB 5094 PG 938 PB 116 PG 47
9999 HAZEL MILL ROAD LLC DB 5817 PG 800

NOTE:
SUPPLEMENTAL SURVEYS ARE CURRENTLY BEING CONDUCTED IN THIS AREA, SUBJECT TO SLIGHT ADJUSTMENTS

LEGEND
PAVED SHOULDER
PAVEMENT REMOVAL

FOR -Y7_WB- PROFILE SEE SHT. 58
FOR -Y7_EB- PROFILE SEE SHT. 60
FOR -Y28- PROFILE SEE SHT. 66
FOR -Y28A- PROFILE SEE SHT. 66
FOR -Y28B- PROFILE SEE SHT. 66
FOR -Y44- PROFILE SEE SHT. 72

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-LB1-

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	19
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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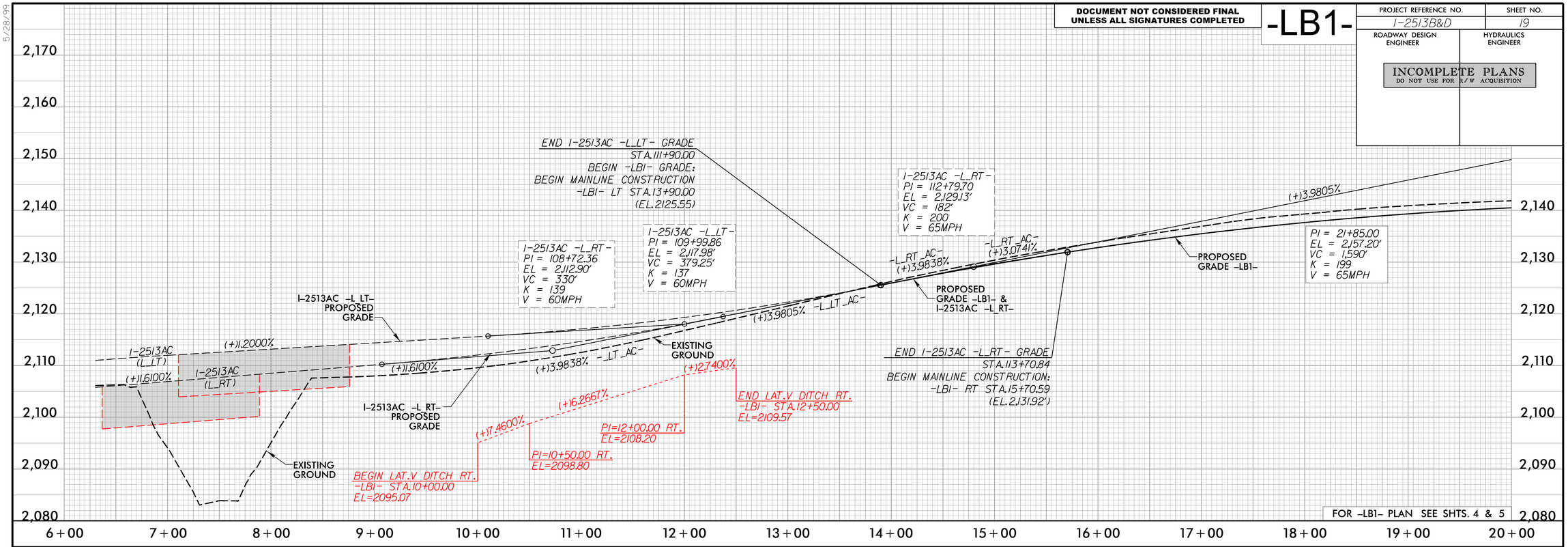

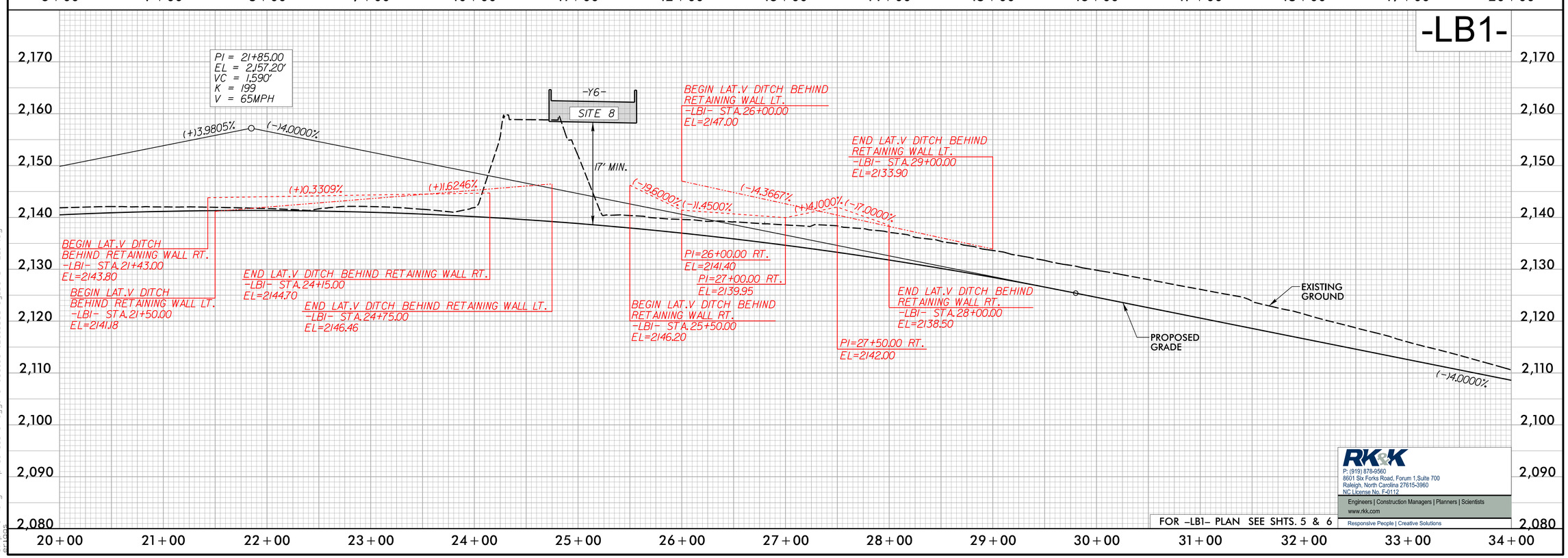

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6/27/2025
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5/28/99

-LB1-

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	20
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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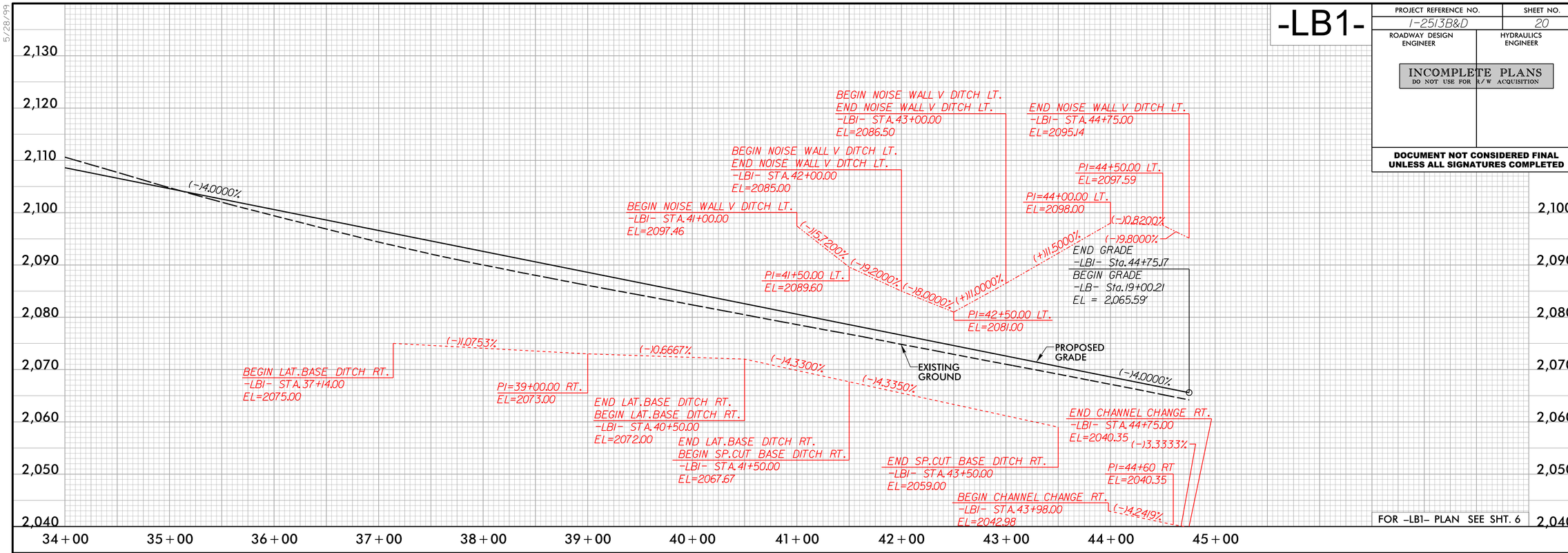
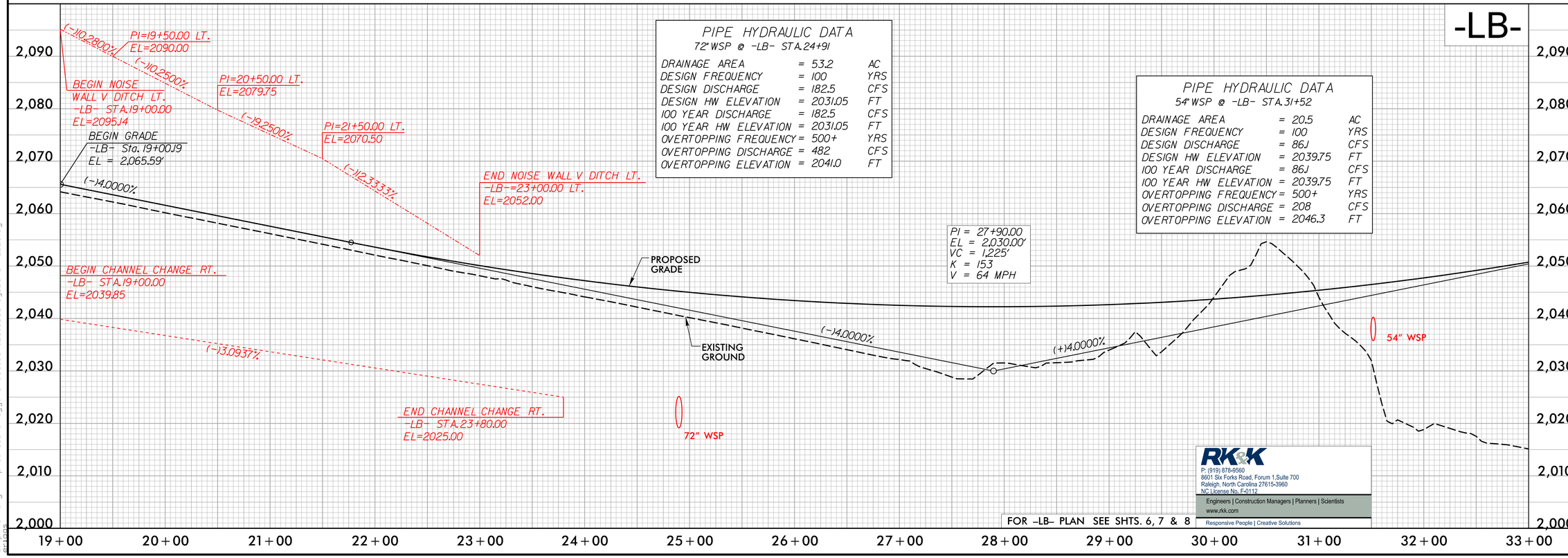


FOR -LB1- PLAN SEE SHT. 6

-LB-



PIPE HYDRAULIC DATA
72" WSP @ -LB- STA.24+91

DRAINAGE AREA	=	53.2	AC
DESIGN FREQUENCY	=	100	YRS
DESIGN DISCHARGE	=	182.5	CFS
DESIGN HW ELEVATION	=	2031.05	FT
100 YEAR DISCHARGE	=	182.5	CFS
100 YEAR HW ELEVATION	=	2031.05	FT
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING DISCHARGE	=	482	CFS
OVERTOPPING ELEVATION	=	2041.0	FT

PIPE HYDRAULIC DATA
54" WSP @ -LB- STA.31+52

DRAINAGE AREA	=	20.5	AC
DESIGN FREQUENCY	=	100	YRS
DESIGN DISCHARGE	=	86.1	CFS
DESIGN HW ELEVATION	=	2039.75	FT
100 YEAR DISCHARGE	=	86.1	CFS
100 YEAR HW ELEVATION	=	2039.75	FT
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING DISCHARGE	=	208	CFS
OVERTOPPING ELEVATION	=	2046.3	FT

PI = 27+90.00
EL = 2,030.00'
VC = 1,225'
K = 153
V = 64 MPH

FOR -LB- PLAN SEE SHTS. 6, 7 & 8

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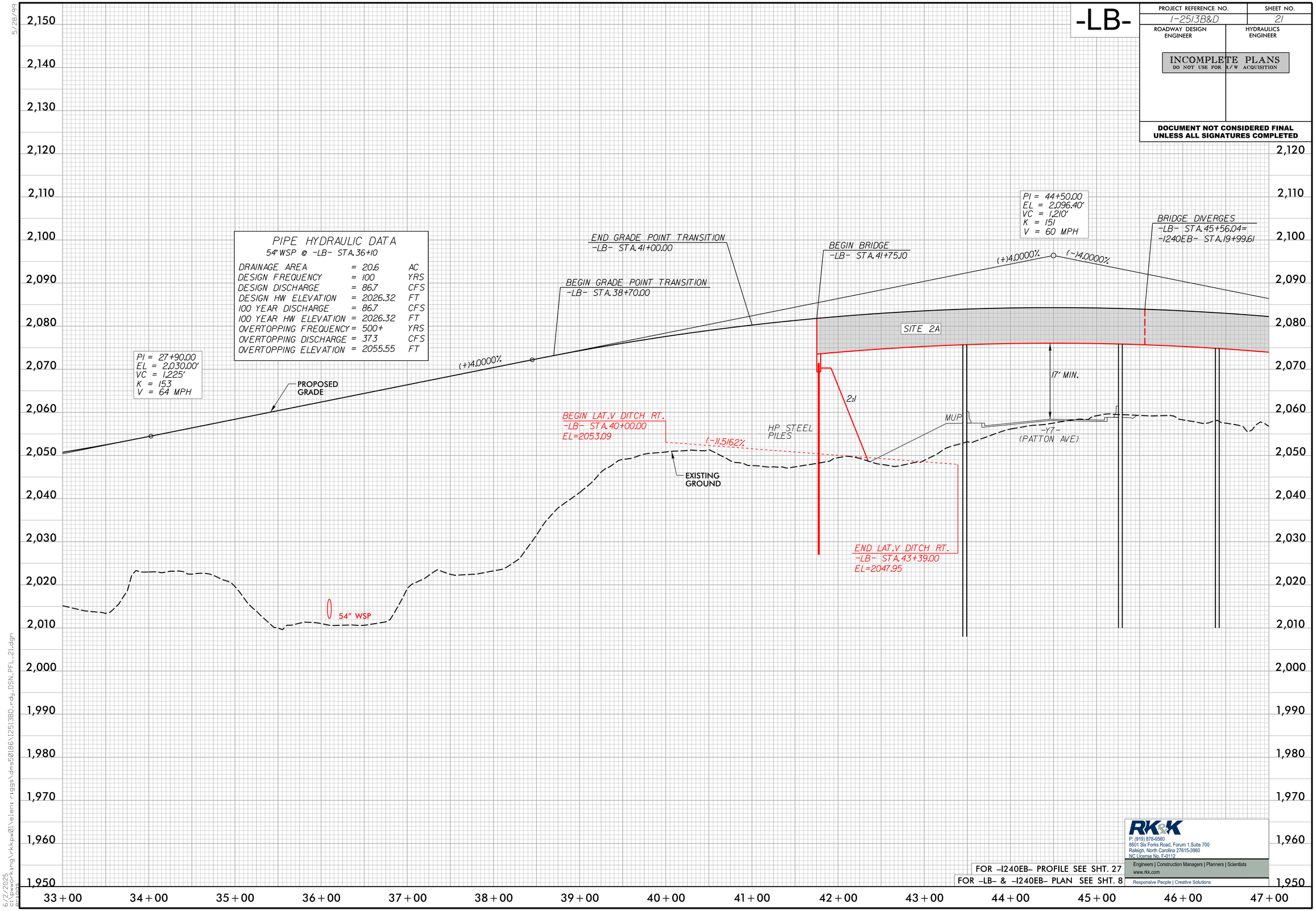
-LB-
PROJECT REFERENCE NO.
I-2513B&D
SHEET NO.
21
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
PIPE HYDRAULIC DATA
54" WSP @ -LB- STA. 36+10
DRAINAGE AREA = 20.6 AC
DESIGN FREQUENCY = 100 YRS
DESIGN DISCHARGE = 86.7 CFS
DESIGN HW ELEVATION = 2026.32 FT
100 YEAR DISCHARGE = 86.7 CFS
100 YEAR HW ELEVATION = 2026.32 FT
OVERTOPPING FREQUENCY = 500+ YRS
OVERTOPPING DISCHARGE = 373 CFS
OVERTOPPING ELEVATION = 2055.55 FT
PI = 27+90.00
EL = 2,030.00'
VC = 1,225'
K = 153
V = 64 MPH
PROPOSED GRADE
(+)4.0000%
END GRADE POINT TRANSITION
-LB- STA. 41+00.00
BEGIN GRADE POINT TRANSITION
-LB- STA. 38+70.00
BEGIN BRIDGE
-LB- STA. 41+75.10
PI = 44+50.00
EL = 2,096.40'
VC = 1,210'
K = 151
V = 60 MPH
(+)4.0000%
(-)4.0000%
BRIDGE DIVERGES
-LB- STA. 45+56.04=
-I240EB- STA. 19+99.61
SITE 2A
17' MIN.
2:1
MUP
-Y7-
(PATTON AVE)
HP STEEL PILES
BEGIN LAT.V DITCH RT.
-LB- STA. 40+00.00
EL=2053.09
(-)1.5162%
EXISTING GROUND
END LAT.V DITCH RT.
-LB- STA. 43+39.00
EL=2047.95
54" WSP
2,150
2,140
2,130
2,120
2,110
2,100
2,090
2,080
2,070
2,060
2,050
2,040
2,030
2,020
2,010
2,000
1,990
1,980
1,970
1,960
1,950
33+00
34+00
35+00
36+00
37+00
38+00
39+00
40+00
41+00
42+00
43+00
44+00
45+00
46+00
47+00
FOR -I240EB- PROFILE SEE SHT. 27
FOR -LB- & -I240EB- PLAN SEE SHT. 8
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PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	22
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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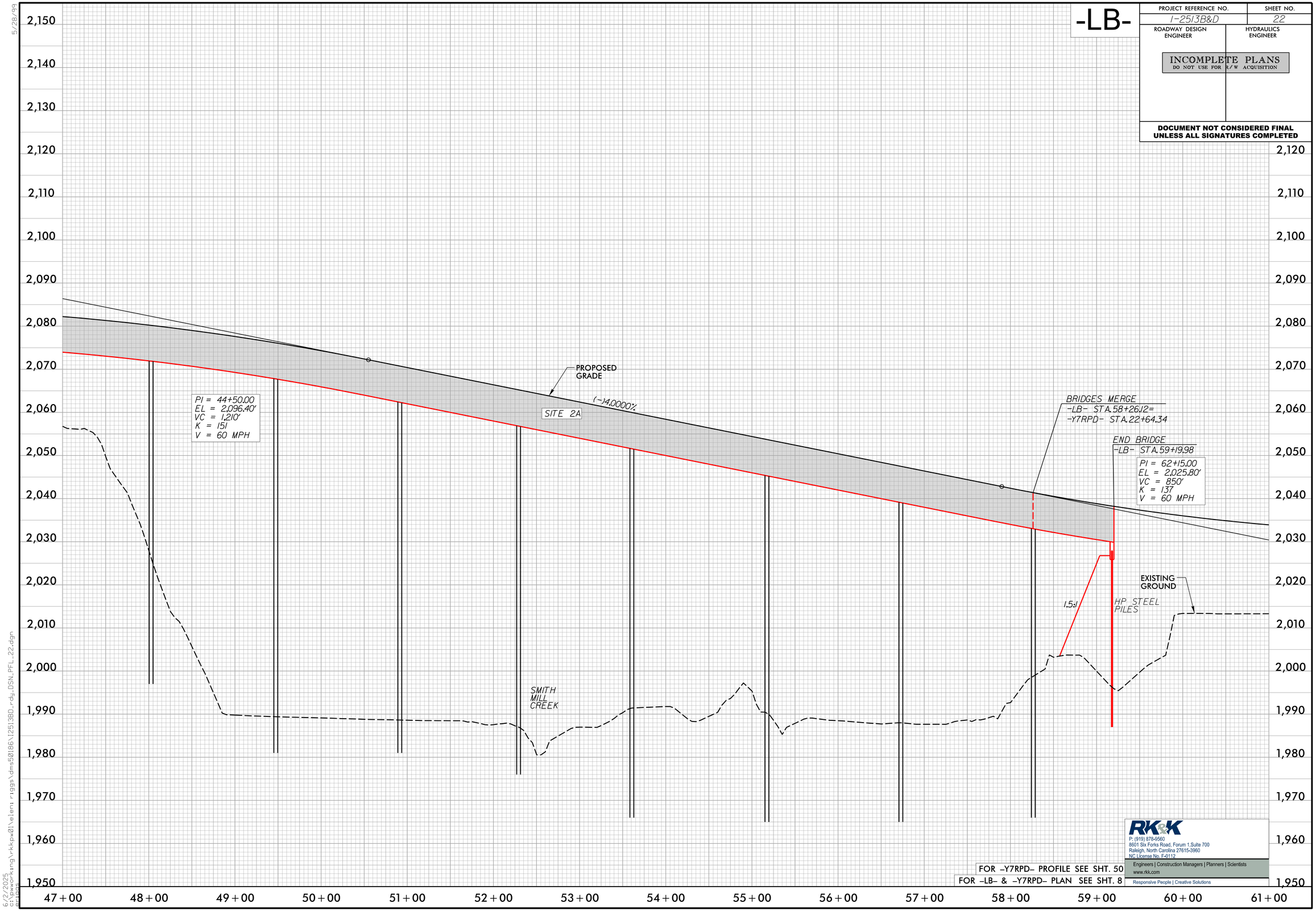
-LB-



FOR -Y7RPD- PROFILE SEE SHT. 50
FOR -LB- & -Y7RPD- PLAN SEE SHT. 8

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–LB–

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	23
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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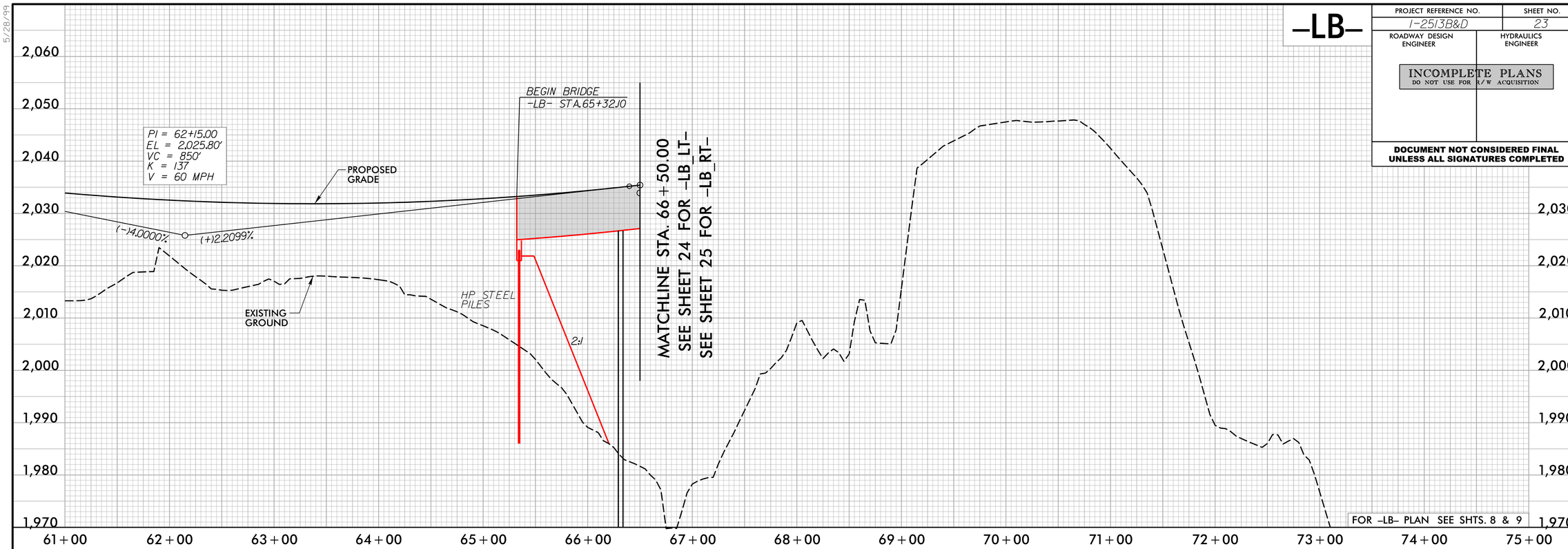

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PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	24
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-LB_LT-

MATCHLINE STA. 66+50.00
SEE SHEET 23 FOR -LB-

-LB_LT-
PI = 70+80.00
EL = 2,046.56'
VC = 825'
K = 151
V = 60 MPH

-LB-
PI = 70+80.00
EL = 2,044.91'
VC = 825'
K = 151
V = 60 MPH

-LB_LT- STA.66+50
(OFF = 27' LT)
EL = 2,037.06

END BRIDGE
-LB- STA.69+16.46

(+)2.2099% (-LB_LT-)

(+)2.2099% (-LB-)

(-)3.2369% (-LB-)

(-)3.2369% (-LB_LT-)

PROPOSED GRADE -LB_LT-

PROPOSED GRADE -LB-

BEGIN BRIDGE
-LB- STA.71+37.61

SITE 2C

SITE 2D

15'-6" MIN.

23'-6" MIN.

RET. WALL

BEGIN GRADE POINT TRANSITION
END GRADE -LB-
STA.70+00 EL = 2,039.50
BEGIN GRADE -LB_LT- STA.70+00
(OFF = 27.42' LT) EL = 2,041.14
BEGIN GRADE -LB_RT- STA.70+00
(OFF = 25' RT) EL = 2,038.00

2:1

23'-6" MIN.

HP STEEL PILES

HP STEEL PILES

RAILROAD CROSSING

-Y43-
(EMMA RD)

SMITH MILL CREEK

RAILROAD CROSSING

RAILROAD CROSSING

FRENCH BROAD RIVER

FOR -LB- PLAN SEE SHTS. 8 & 9

2,060 2,050 2,040 2,030 2,020 2,010 2,000 1,990 1,980 1,970

61+00 62+00 63+00 64+00 65+00 66+00 67+00 68+00 69+00 70+00 71+00 72+00 73+00 74+00 75+00

-LB_LT-

SITE 3A

-I240WB-

17' MIN.

(-)3.2369% (-LB_LT-)

(-)3.2369% (-LB_LT-)

(-)0.5003% (-LB_LT-)

END SECTION 1
-LB- STA.83+00.00
BEGIN SECTION 2

PROPOSED GRADE -LB_LT-

SITE 2D

(-)0.5003% (-LB_LT-)

-LB_LT-
PI = 79+81.48
EL = 2,017.38'
VC = 410'
K = 150
V = 63 MPH

STRADDLE BENT

STRADDLE BENT

23'-6" MIN.

FRENCH BROAD RIVER

HP STEEL PILES

EXISTING GROUND

HP STEEL PILES

RAILROAD CROSSING

FOR -LB- PLAN SEE SHT. 9

2,040 2,030 2,020 2,010 2,000 1,990 1,980 1,970 1,960 1,950

75+00 76+00 77+00 78+00 79+00 80+00 81+00 82+00 83+00 84+00 85+00 86+00 87+00 88+00 89+00

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PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	25
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-LB_RT-

MATCHLINE STA. 66+50.00
SEE SHEET 23 FOR -LB-

-LB-
PI = 70+80.00
EL = 2,044.91'
VC = 825'
K = 151
V = 60 MPH

-LB_RT-
PI = 70+80.00
EL = 2,043.41'
VC = 825'
K = 151
V = 60 MPH

END BRIDGE
-LB- STA.69+16.46

(+)2.2099% (-LB-)

(-)3.2369% (-LB-)

(+)2.2099% (-LB_RT-)

PROPOSED GRADE -LB-

BEGIN BRIDGE
-LB- STA.71+37.61

SITE 2C

SITE 2D

(-)3.2369% (-LB_RT-)

PROPOSED GRADE -LB_RT-

-LB_RT- STA.66+50
(OFF = 25' RT)
EL = 2,033.91

15'-6" MIN.

23'-6" MIN.

RET. WALL

BEGIN GRADE POINT TRANSITION
END GRADE -LB-
STA.70+00 EL = 2,039.50
BEGIN GRADE -LB_LT- STA.70+00
(OFF = 27.42' LT) EL = 2,041.14
BEGIN GRADE -LB_RT- STA.70+00
(OFF = 25' RT) EL = 2,038.00

2:1

23'-6" MIN.

HP STEEL PILES

HP STEEL PILES

RAILROAD CROSSING

-Y43-
(EMMA RD)

SMITH MILL CREEK

RAILROAD CROSSING

RAILROAD CROSSING

FRENCH BROAD RIVER

FOR -LB- PLAN SEE SHTS. 8 & 9

2,060 2,050 2,040 2,030 2,020 2,010 2,000 1,990 1,980 1,970

61+00 62+00 63+00 64+00 65+00 66+00 67+00 68+00 69+00 70+00 71+00 72+00 73+00 74+00 75+00

-LB_RT-

SITE 3A

-I240WB-

17' MIN.

END SECTION 1
-LB- STA.83+00.00
BEGIN SECTION 2

PROPOSED GRADE -LB_RT-

(-)3.2369% (-LB_RT-)

(-)0.5003%

(-)0.5003% (-LB_RT-)

(-)0.5003% (-LB_RT-)

SITE 2D

-LB_RT-
PI = 78+12.75
EL = 2,019.70'
VC = 410'
K = 150
V = 63 MPH

STRADDLE BENT

STRADDLE BENT

23'-6" MIN.

FRENCH BROAD RIVER

HP STEEL PILES

EXISTING GROUND

HP STEEL PILES

RAILROAD CROSSING

(-)0.3000%

BEGIN SPECIAL CUT 'V' DITCH
STA. -LB- 88+00 (RT)
ELEV = 1968.02'

FOR -LB- PLAN SEE SHT. 9

2,040 2,030 2,020 2,010 2,000 1,990 1,980 1,970 1,960 1,950

75+00 76+00 77+00 78+00 79+00 80+00 81+00 82+00 83+00 84+00 85+00 86+00 87+00 88+00 89+00

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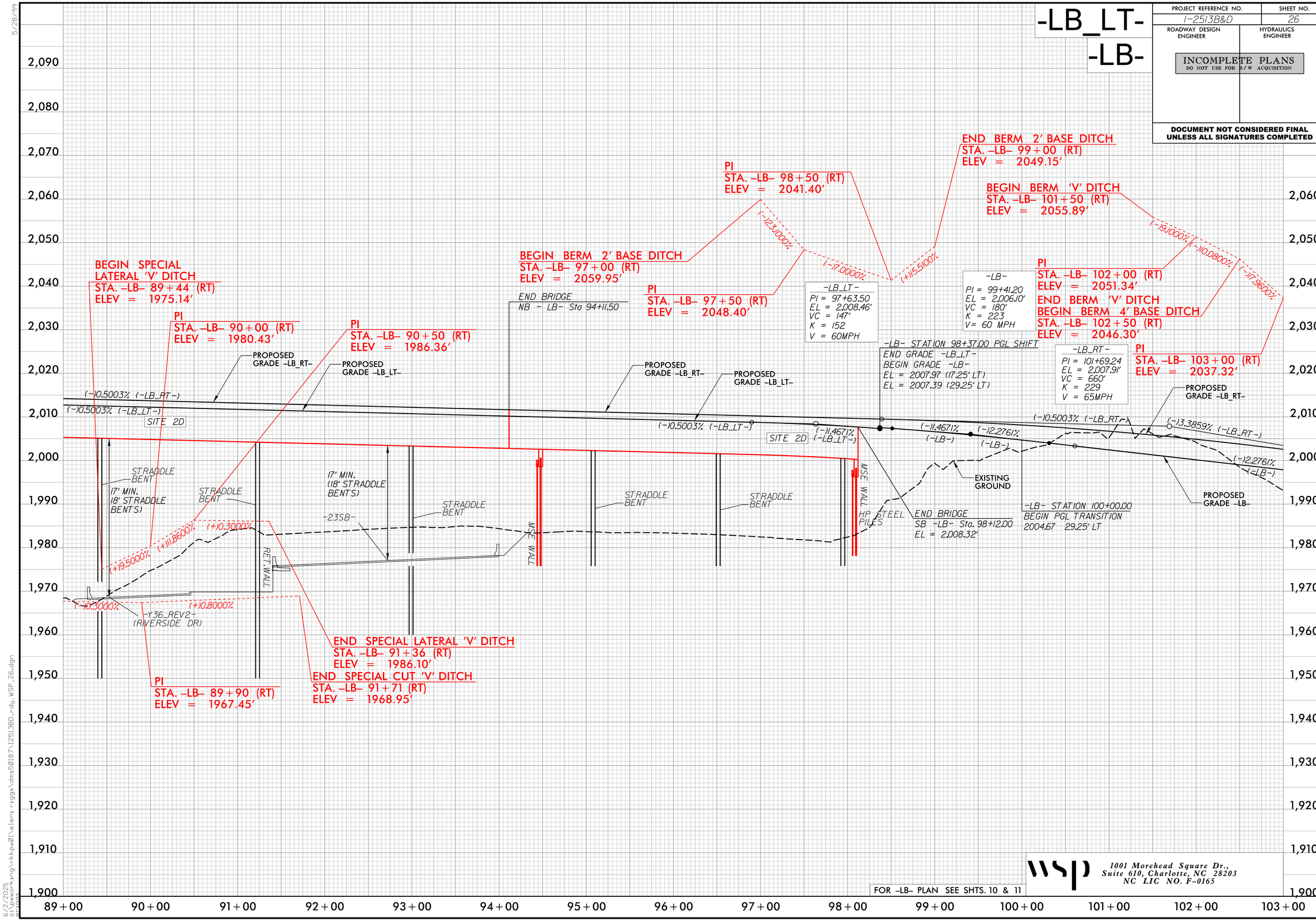
PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	26
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-LB_LT-
-LB-



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-LB_RT-

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	27
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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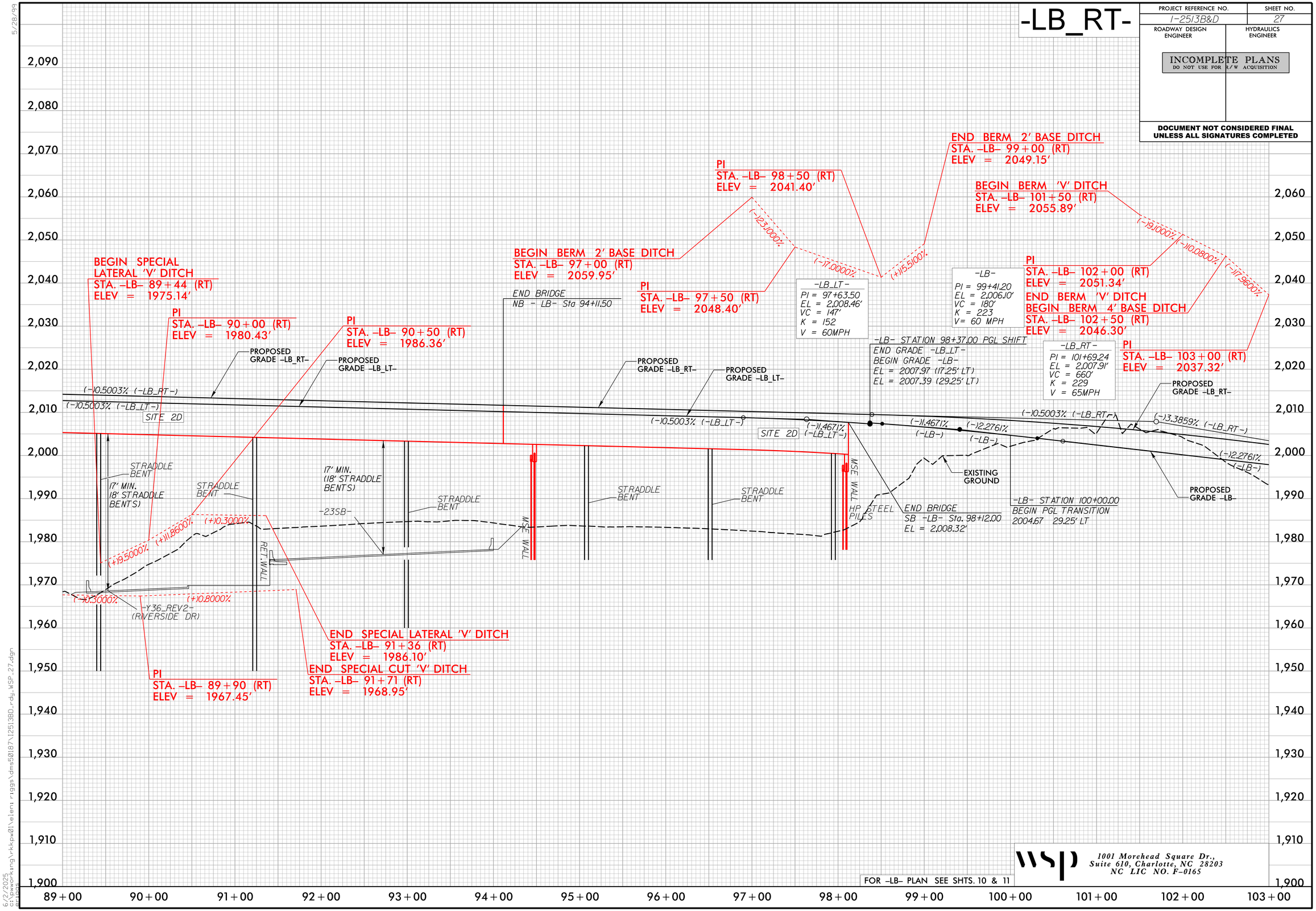

FOR -LB- PLAN SEE SHTS. 10 & 11

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-LB-

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	28
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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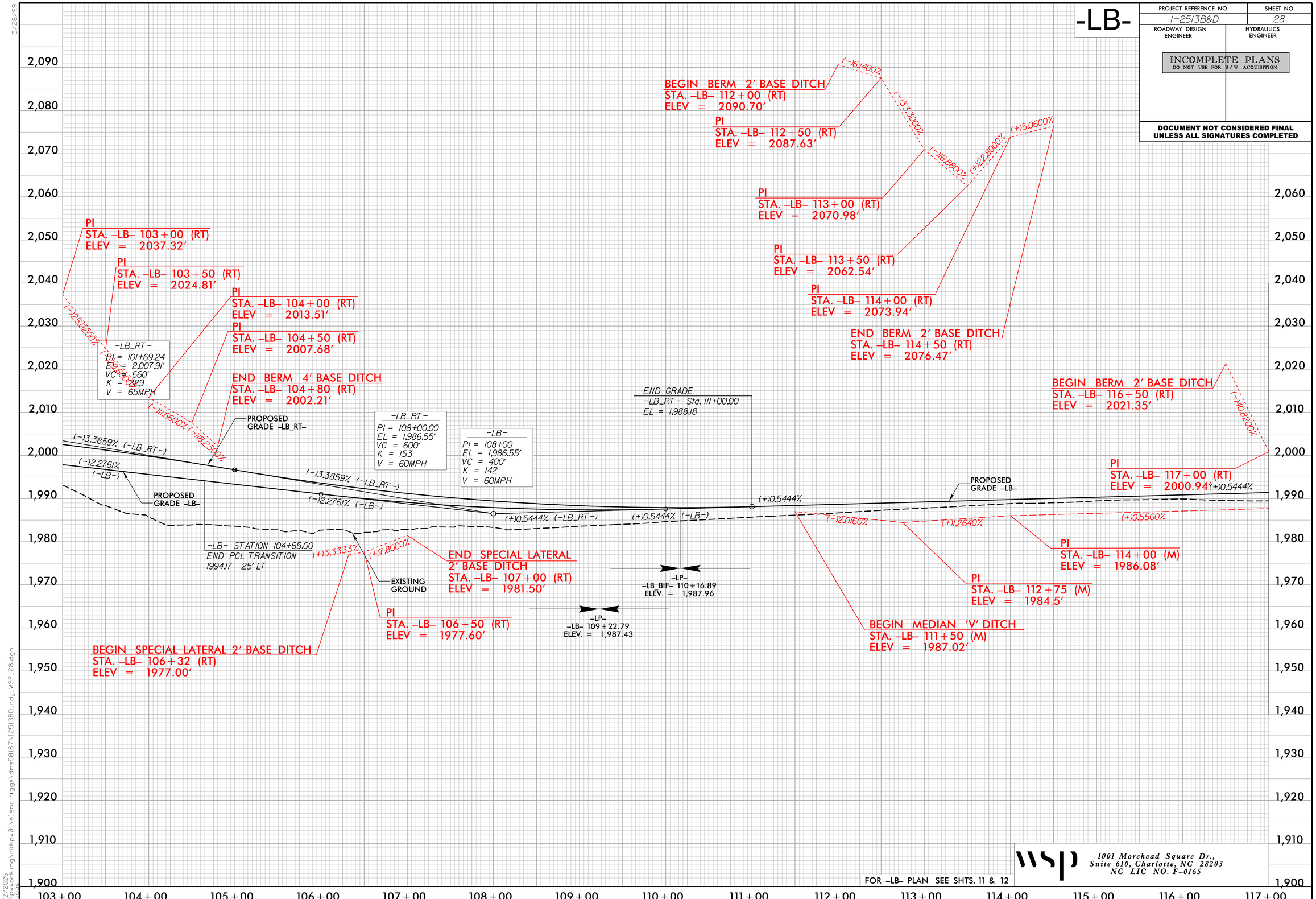

FOR -LB- PLAN SEE SHTS. 11 & 12

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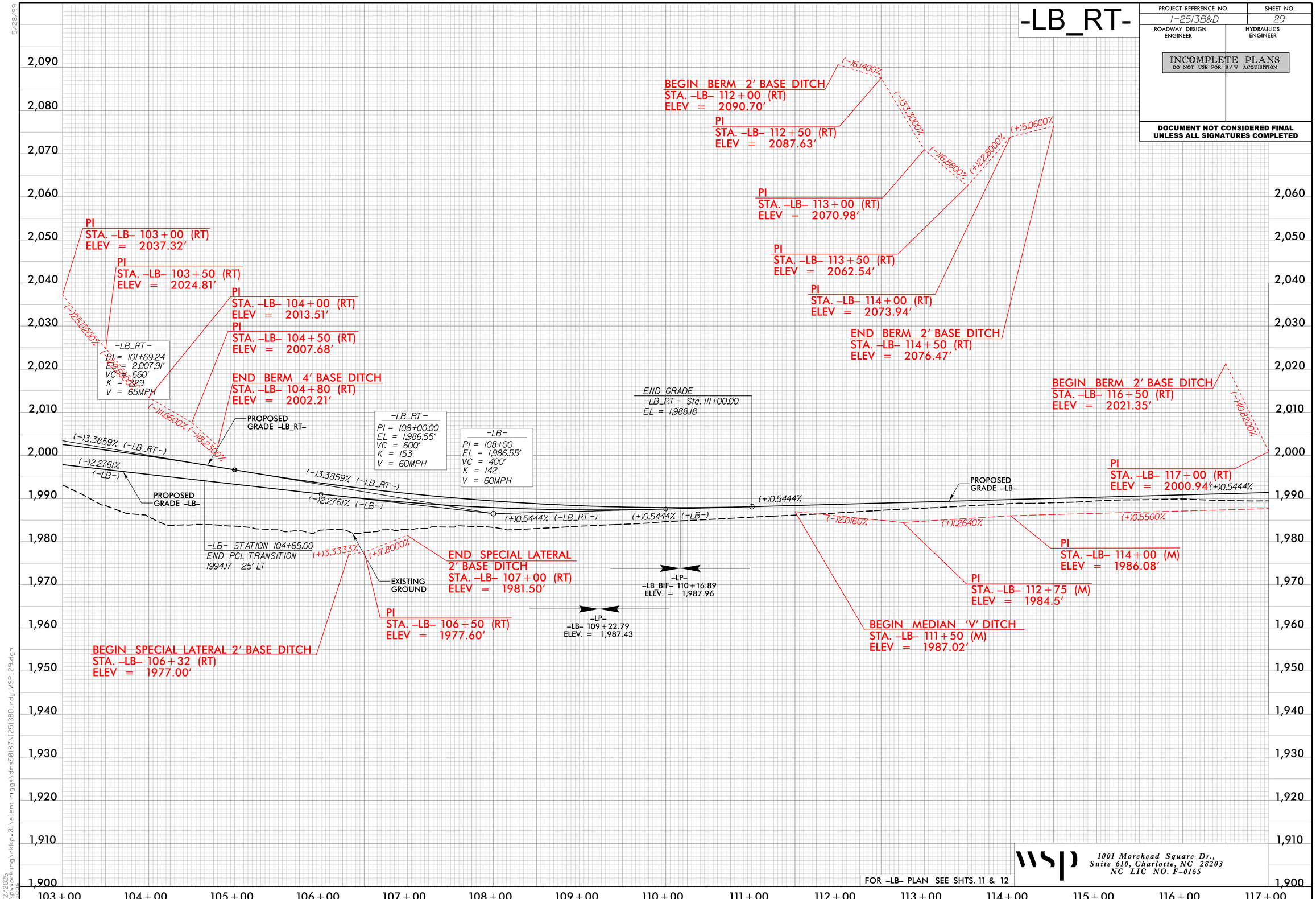
-LB_RT-

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	29
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



FOR -LB- PLAN SEE SHTS. 11 & 12

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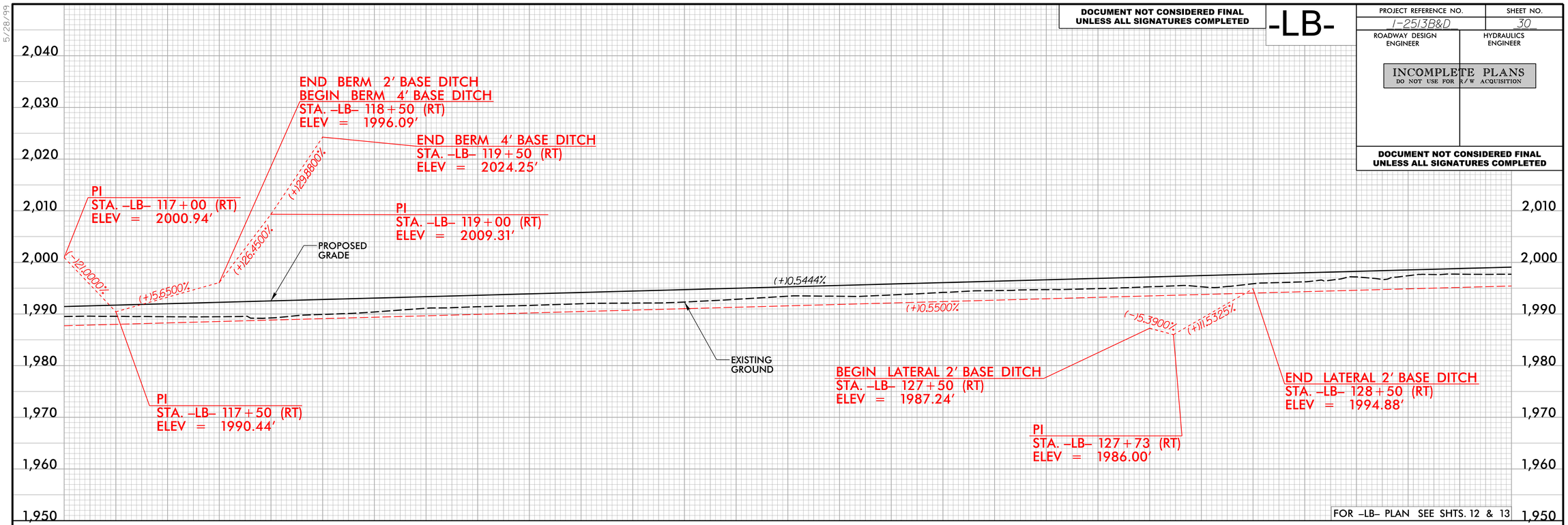
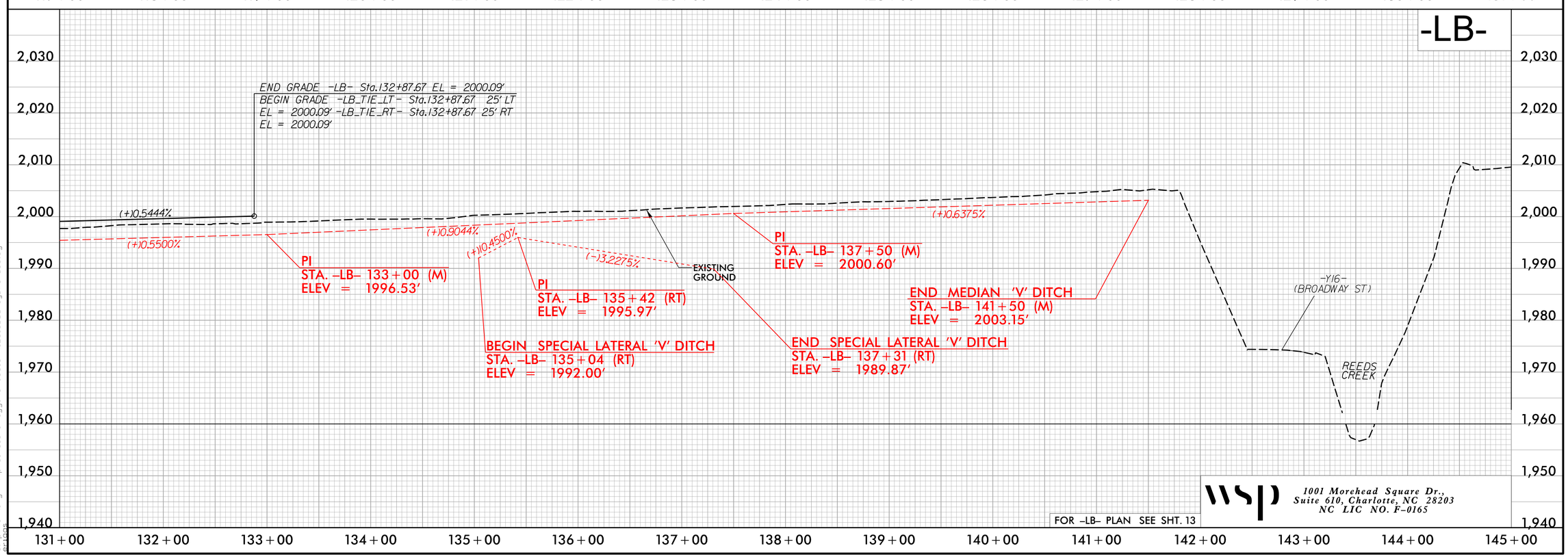
-LB-

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	30
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED





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PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	31
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL
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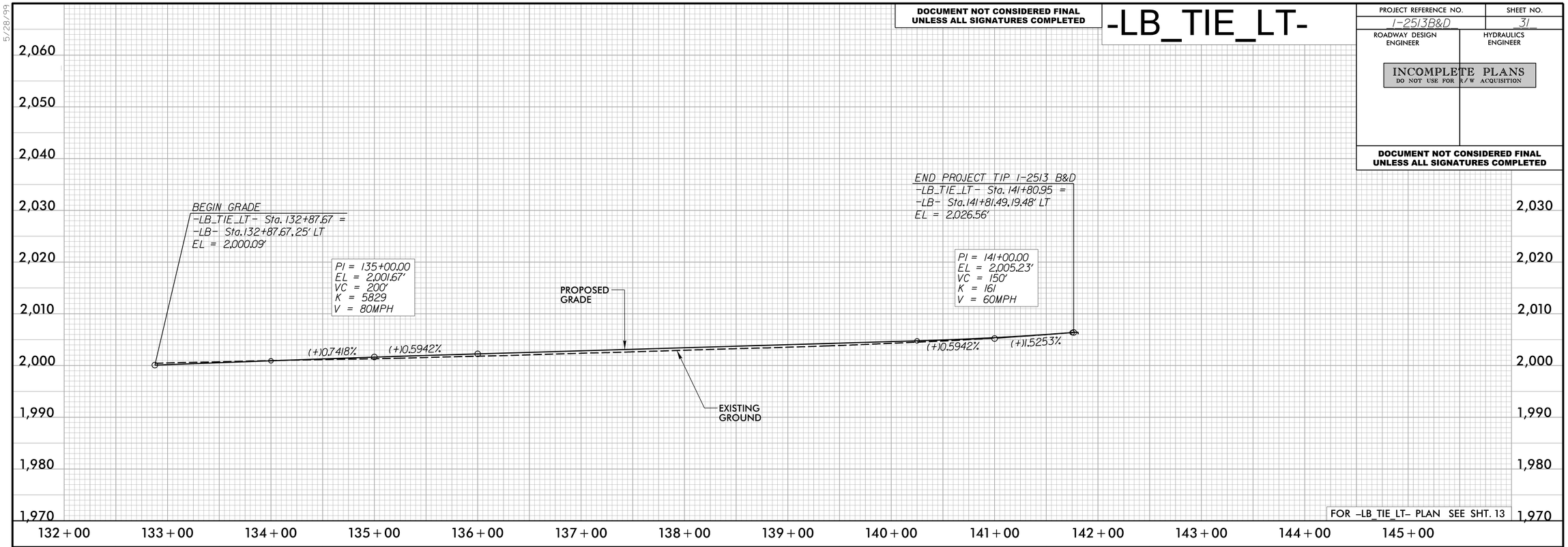
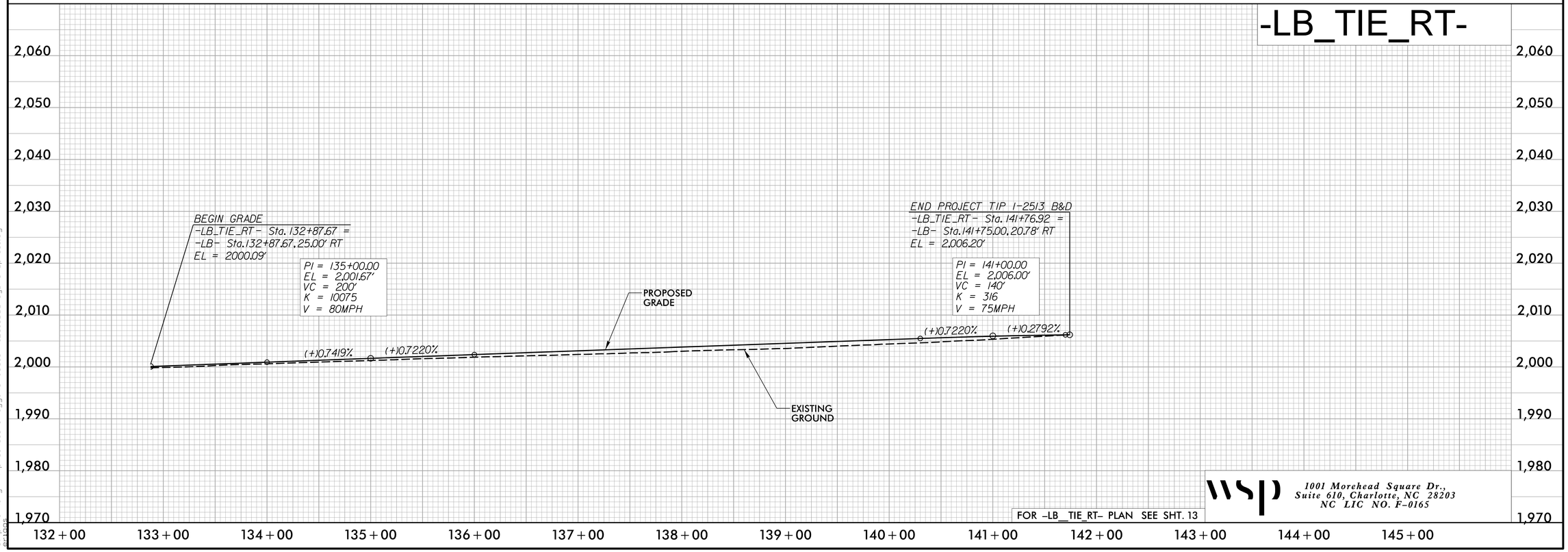
-LB_TIE_LT-



FOR -LB_TIE_LT- PLAN SEE SHT. 13

-LB_TIE_RT-



FOR -LB__TIE_RT- PLAN SEE SHT. 13

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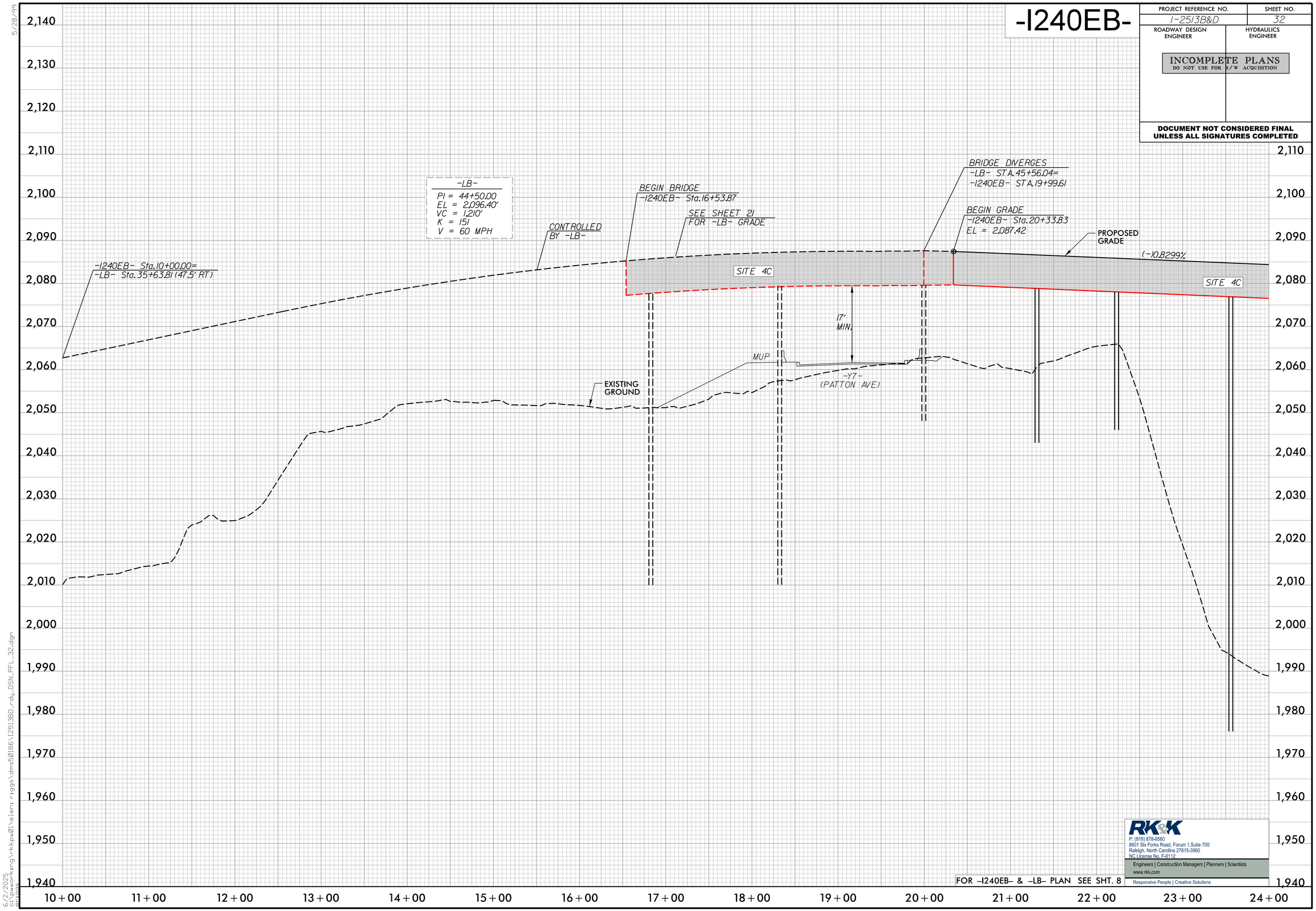
-I240EB-

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	32
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



FOR -I240EB- & -LB- PLAN SEE SHT. 8

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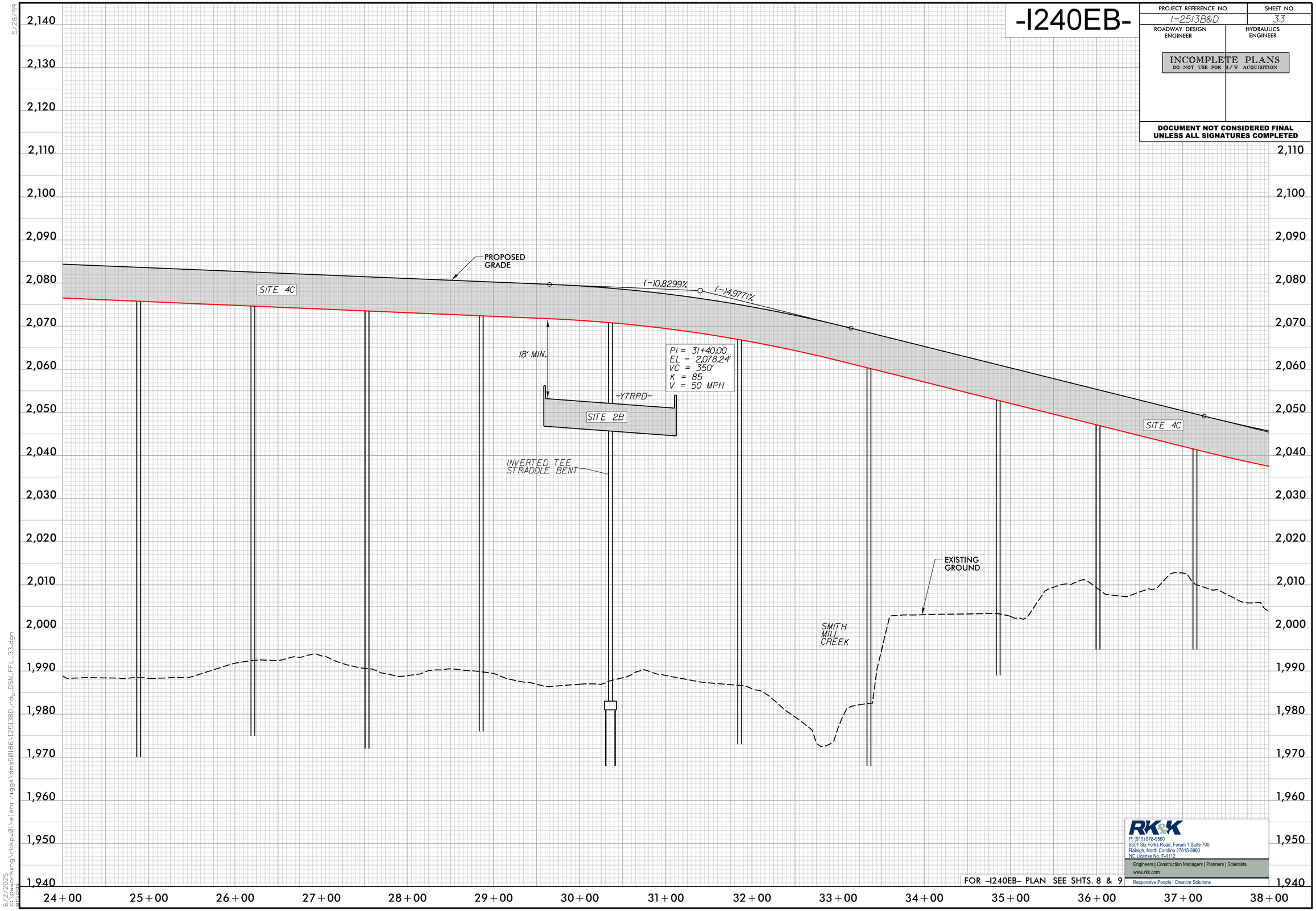
-I240EB-

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	33
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



FOR –I240EB– PLAN SEE SHTS. 8 & 9

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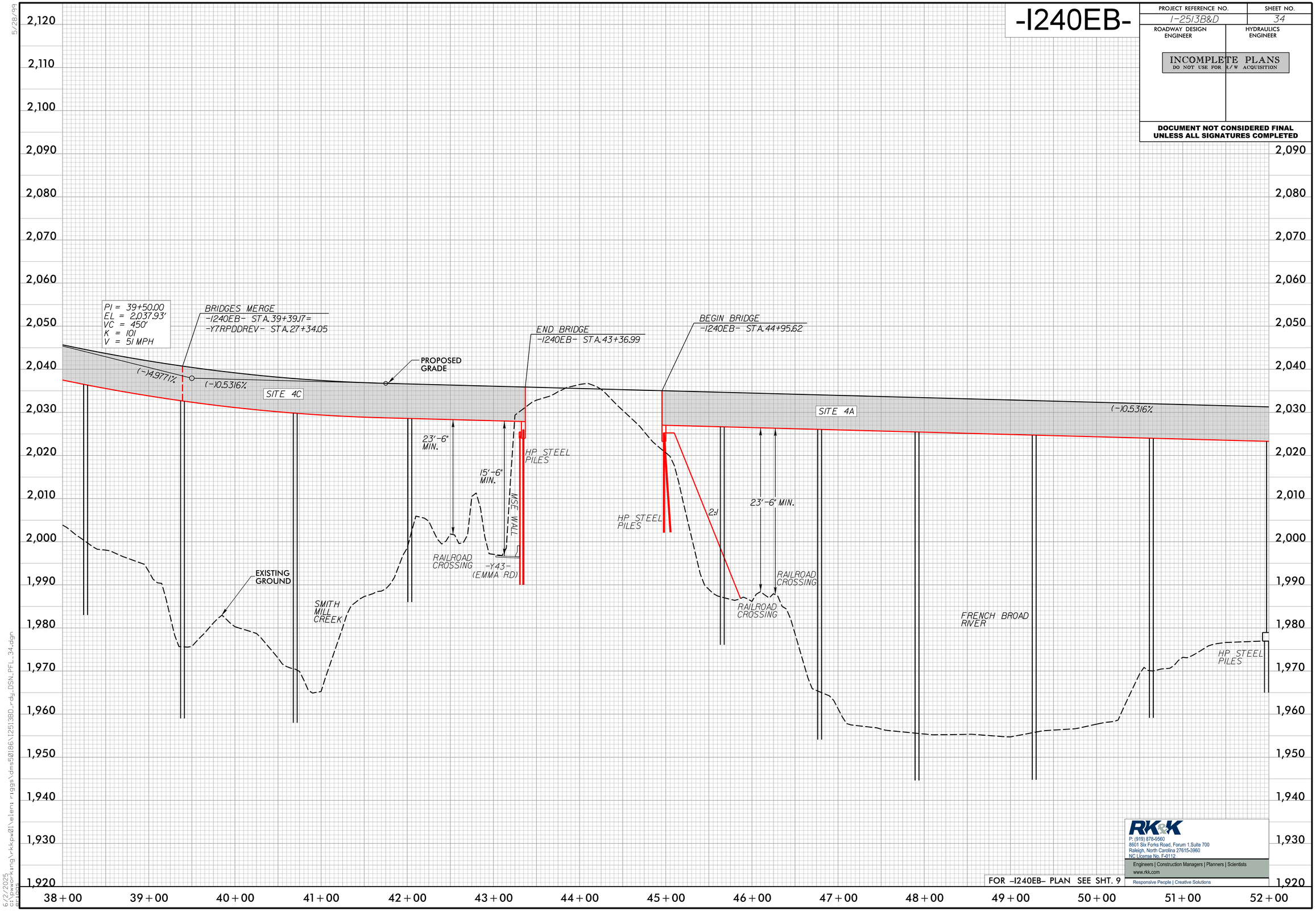
-I240EB-

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	34
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



FOR -I240EB- PLAN SEE SHT. 9

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-I240EB-

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	35
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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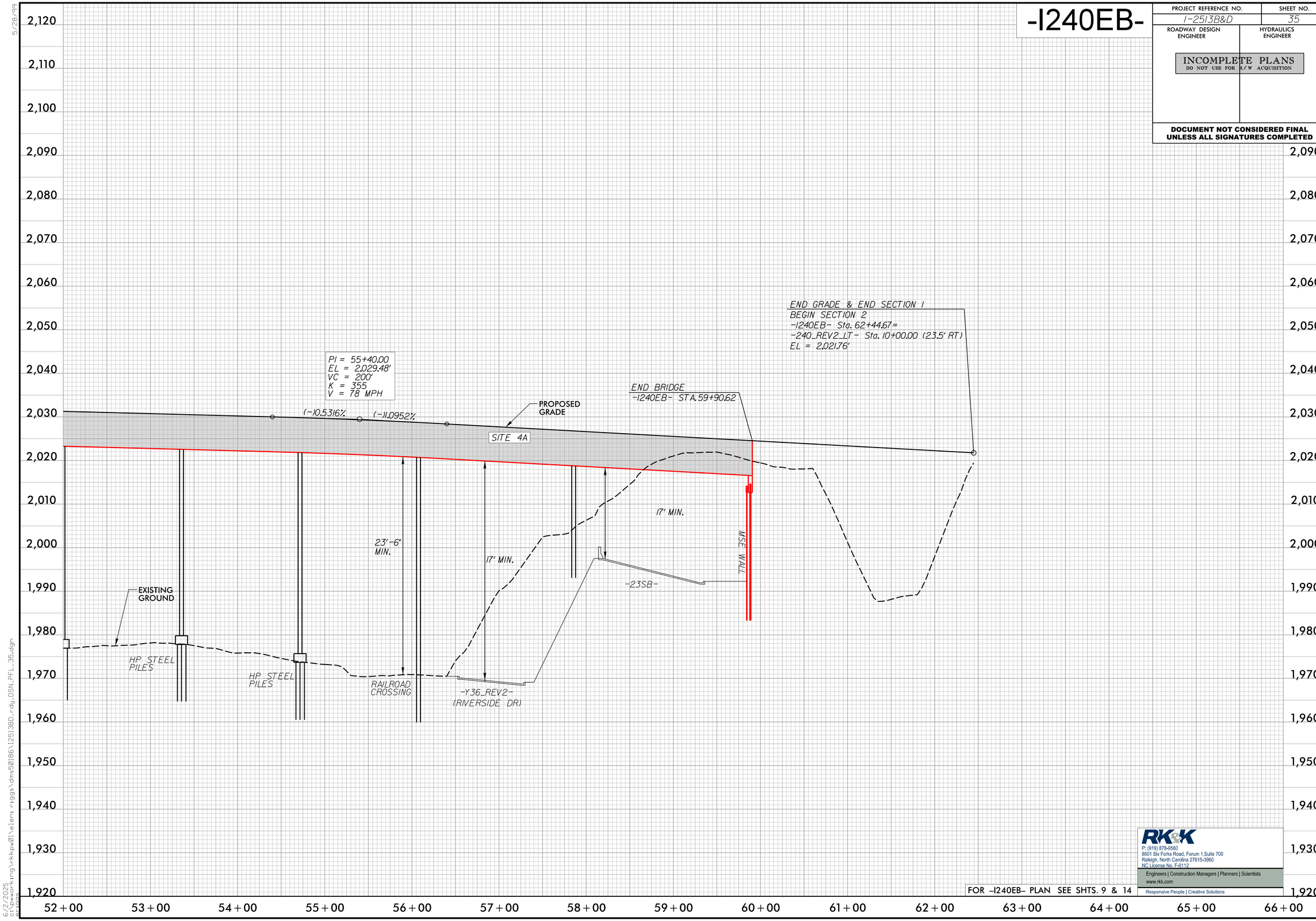

FOR -I240EB- PLAN SEE SHTS. 9 & 14

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-I240WB-

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	36
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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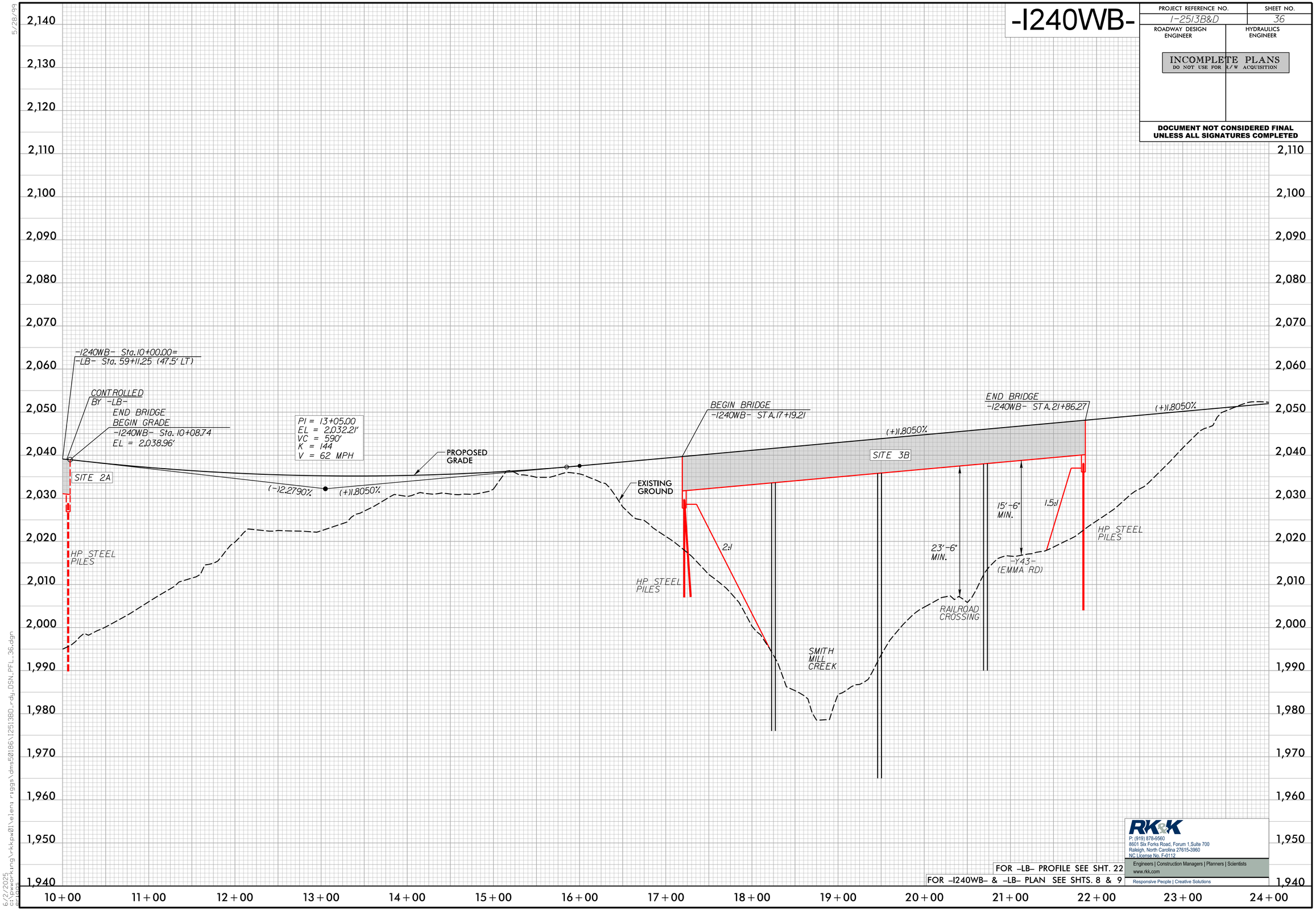

FOR -LB- PROFILE SEE SHT. 22
FOR -I240WB- & -LB- PLAN SEE SHTS. 8 & 9

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-I240WB-

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	37
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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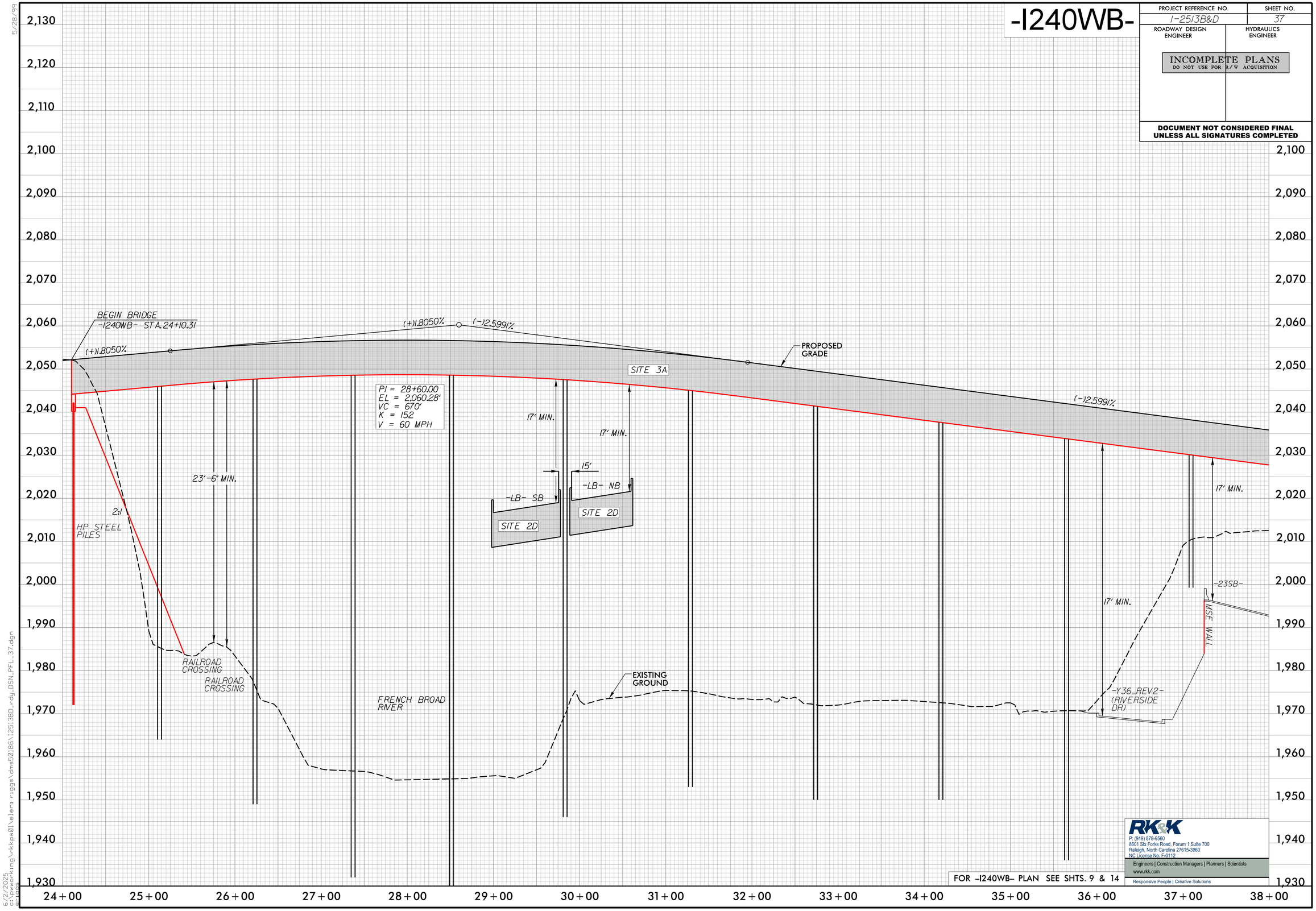

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-I240WB-

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	38
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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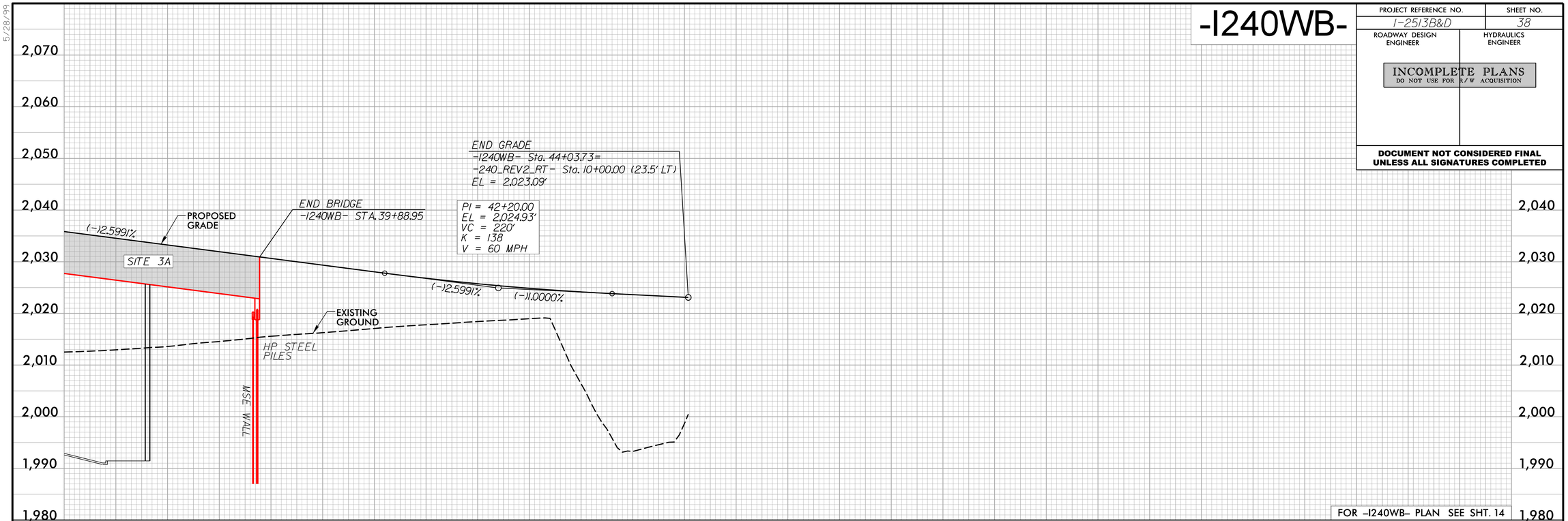

FOR -I240WB- PLAN SEE SHT. 14

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PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	39
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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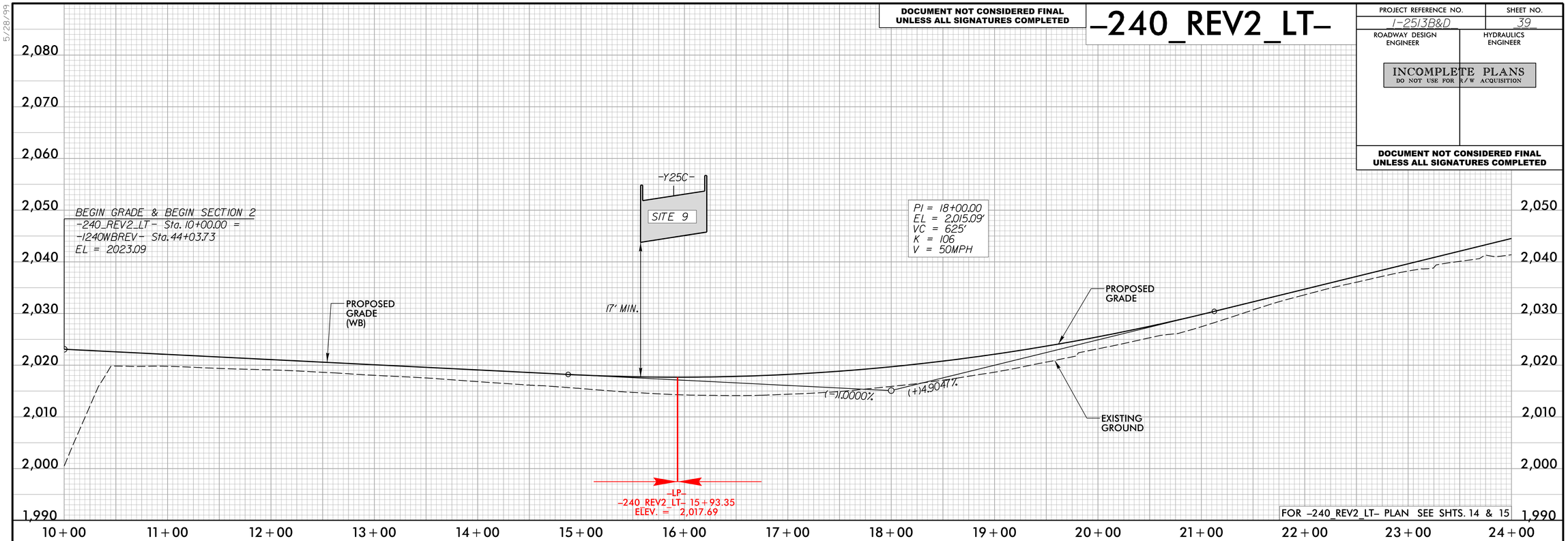
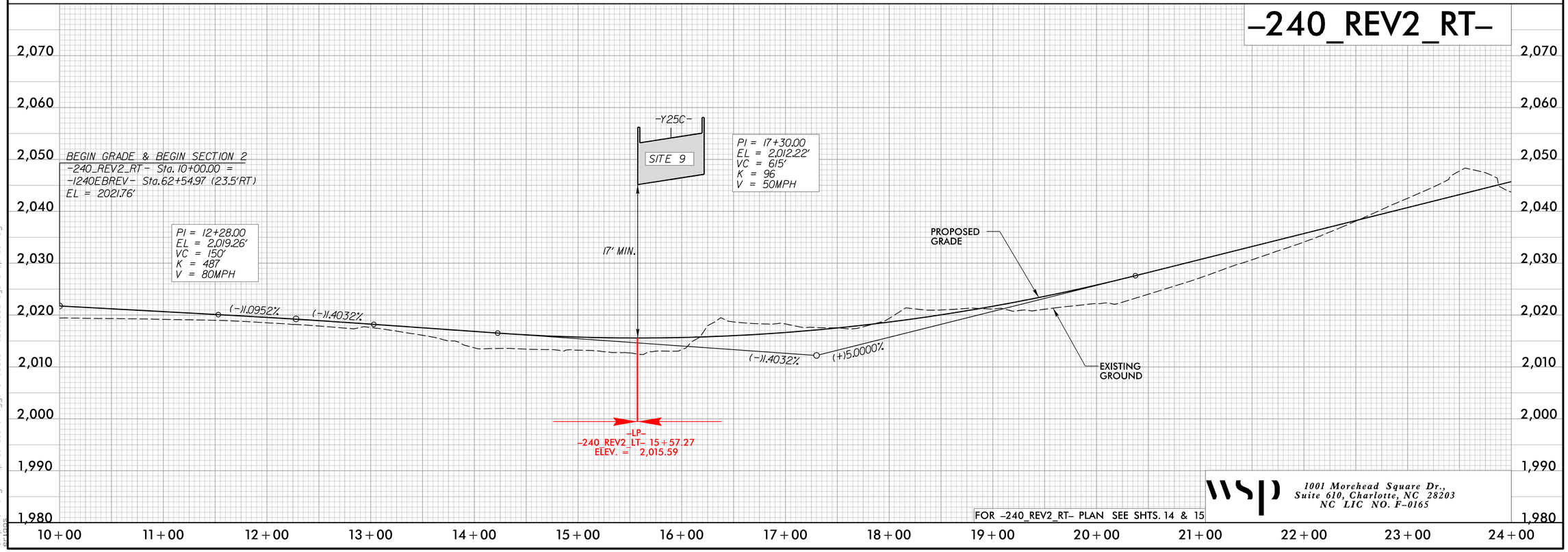
-240_REV2_LT-



FOR -240_REV2_LT- PLAN SEE SHTS. 14 & 15

-240_REV2_RT-



FOR -240_REV2_RT- PLAN SEE SHTS. 14 & 15

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–240_REV2_LT–

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	40
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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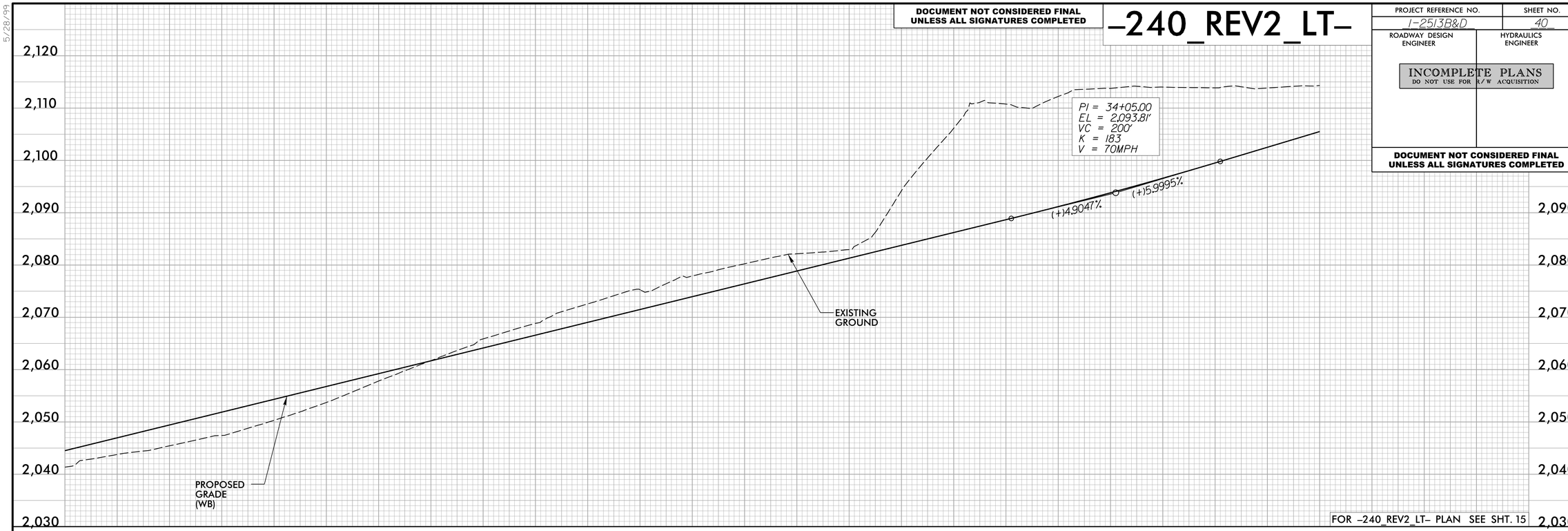
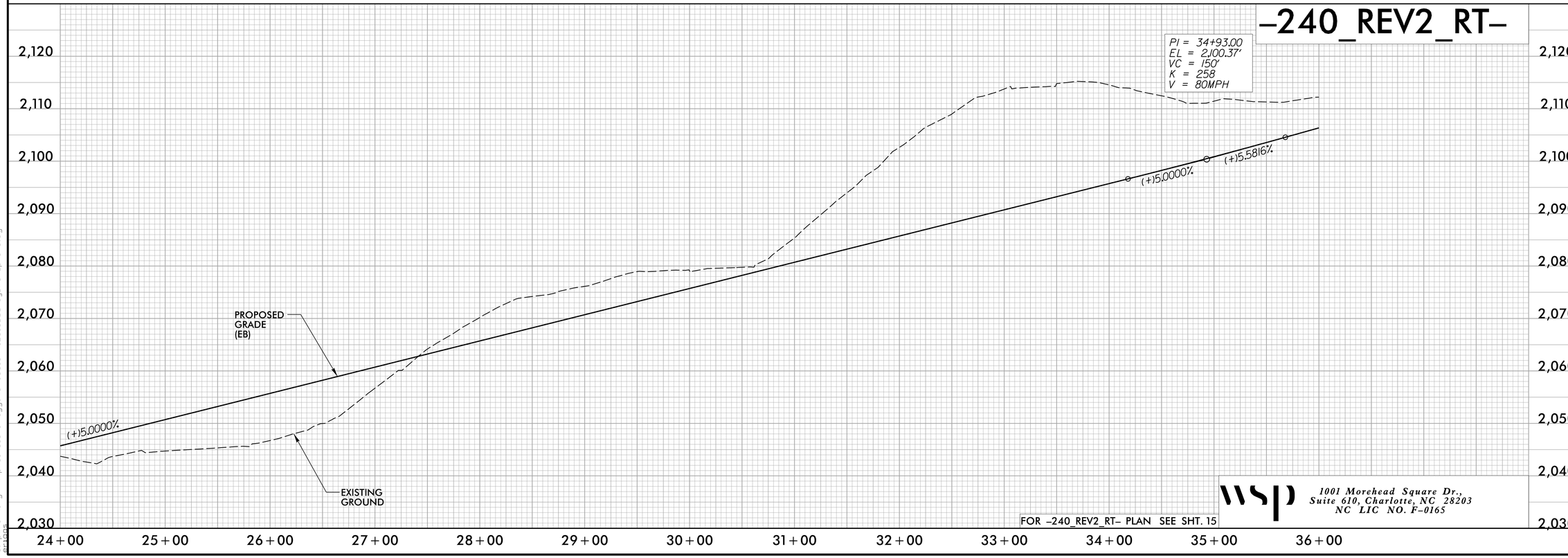


FOR –240_REV2_LT– PLAN SEE SHT. 15

–240_REV2_RT–



FOR –240_REV2_RT– PLAN SEE SHT. 15

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PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	41
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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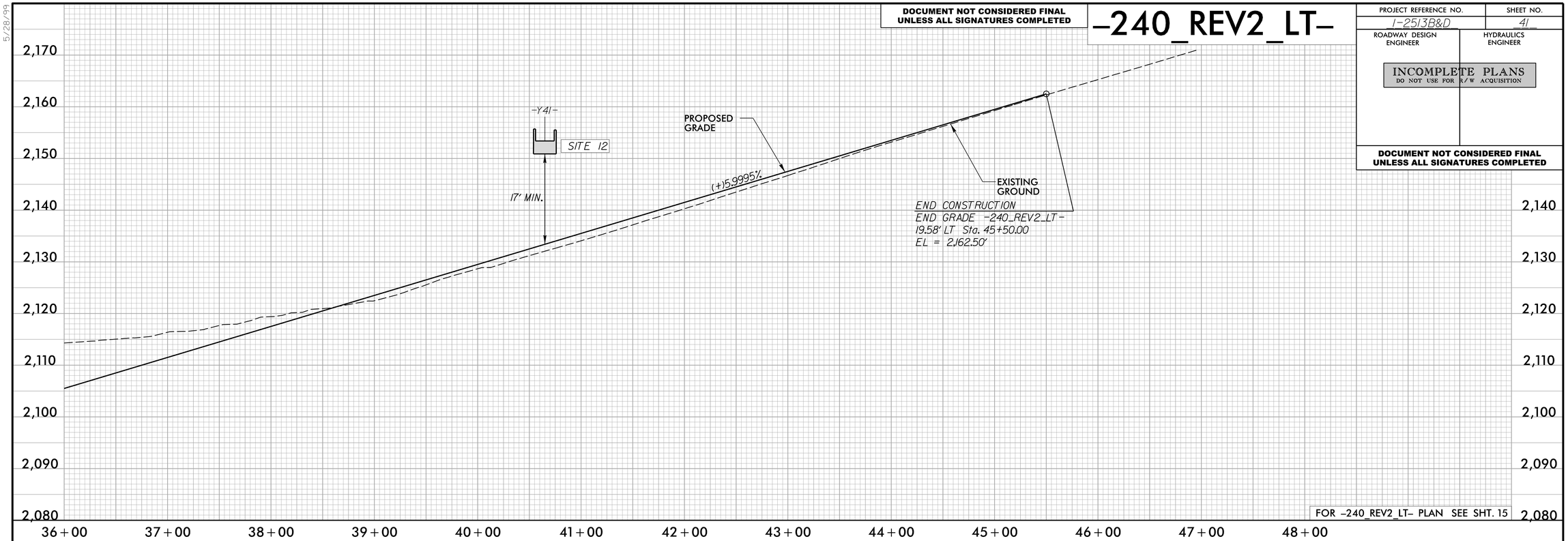
-240_REV2_LT-



FOR -240_REV2_LT- PLAN SEE SHT. 15

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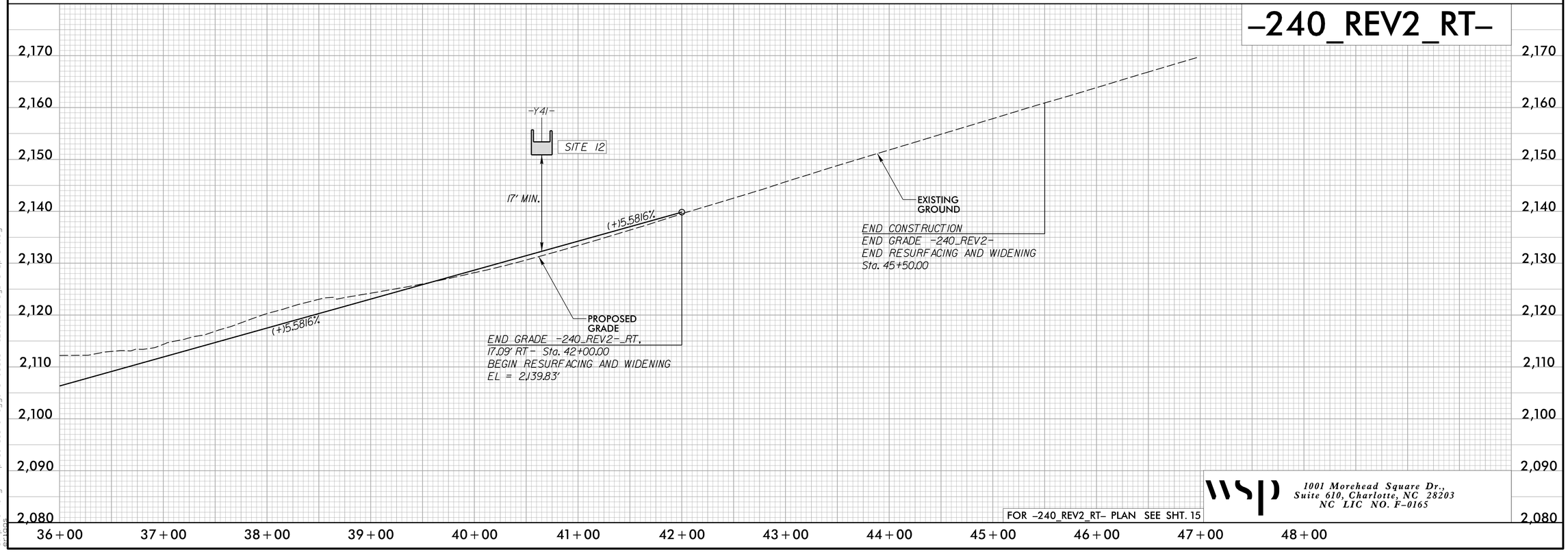

FOR -240_REV2_RT- PLAN SEE SHT. 15

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-23NB-

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	42
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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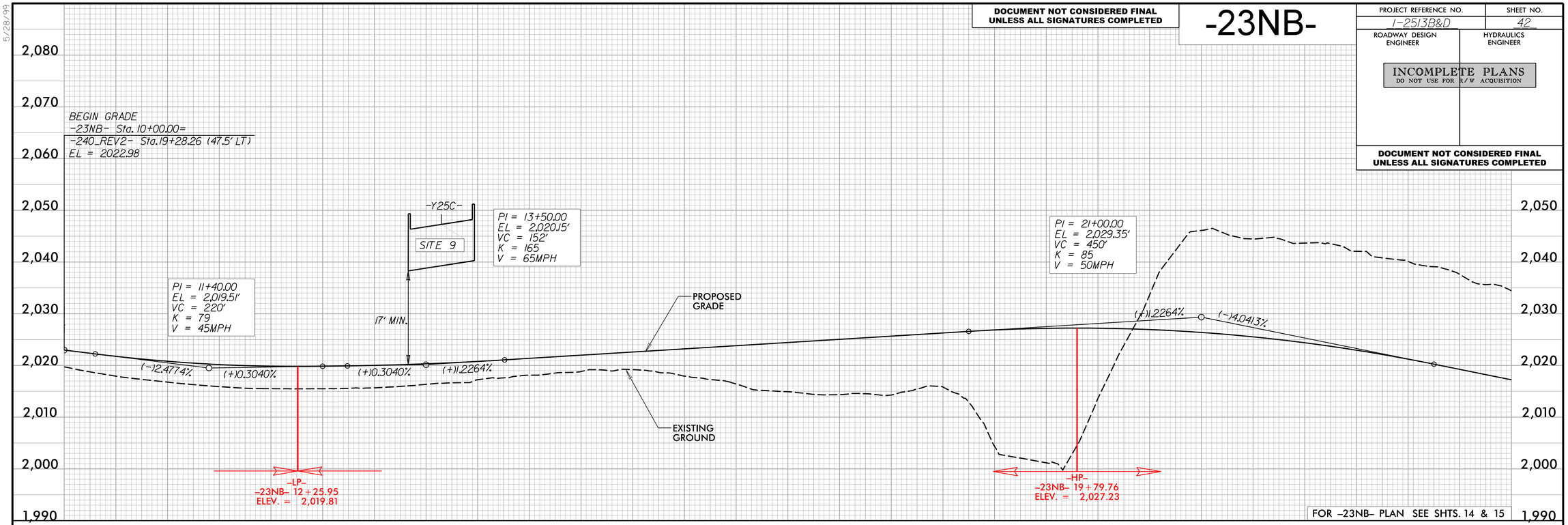

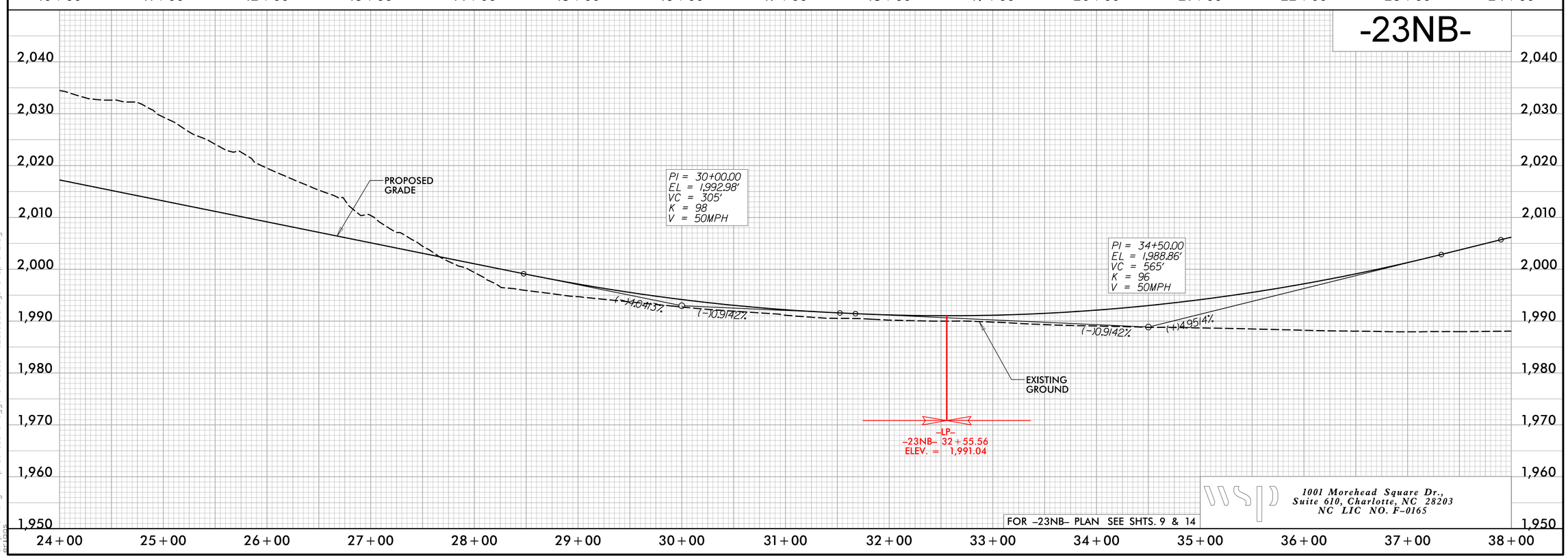

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-23NB-

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	43
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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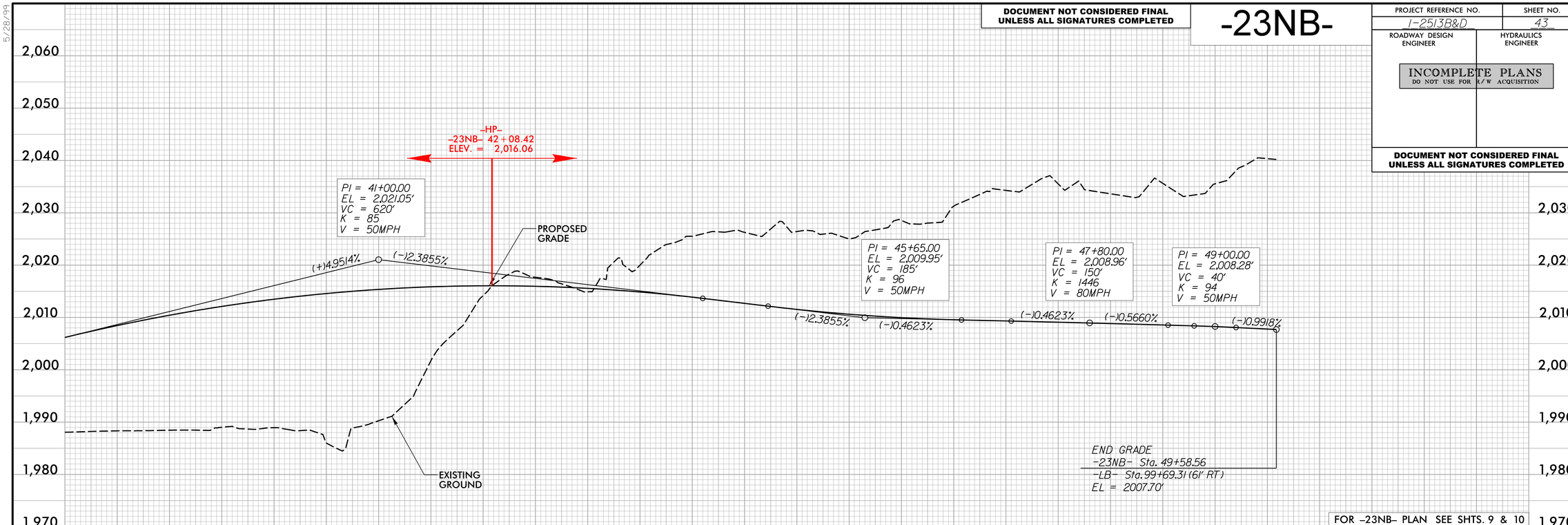

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-23SB-

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	44
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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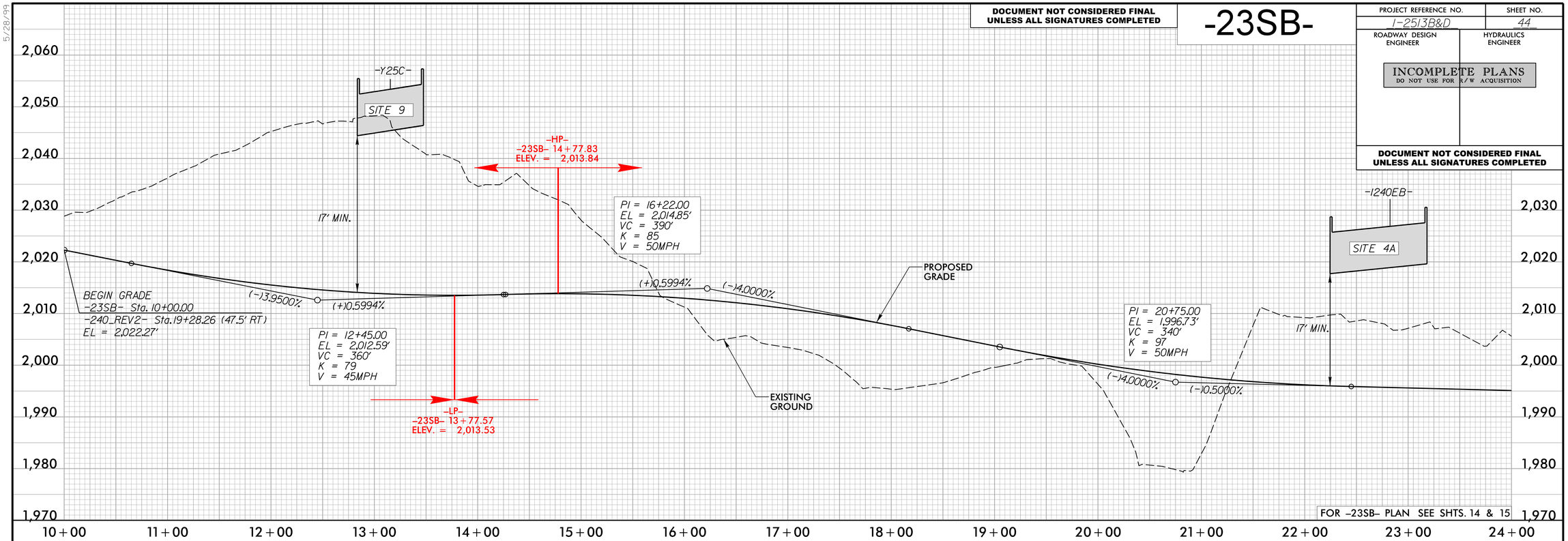

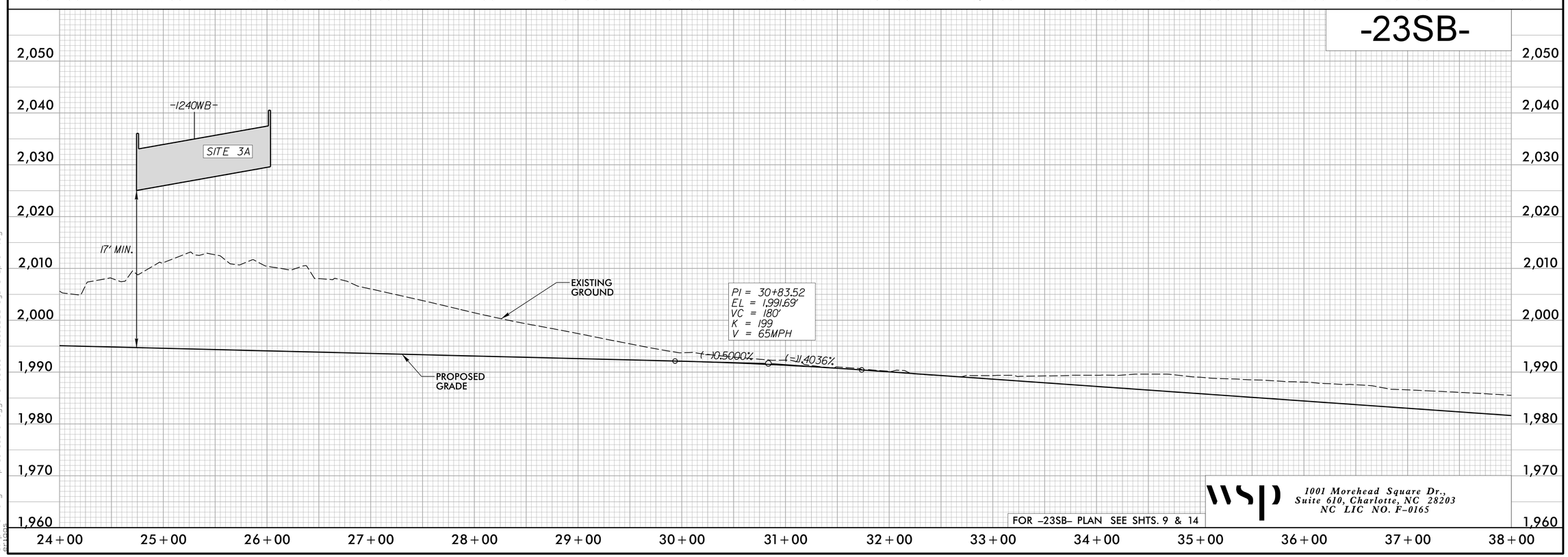

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-23SB-

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	45
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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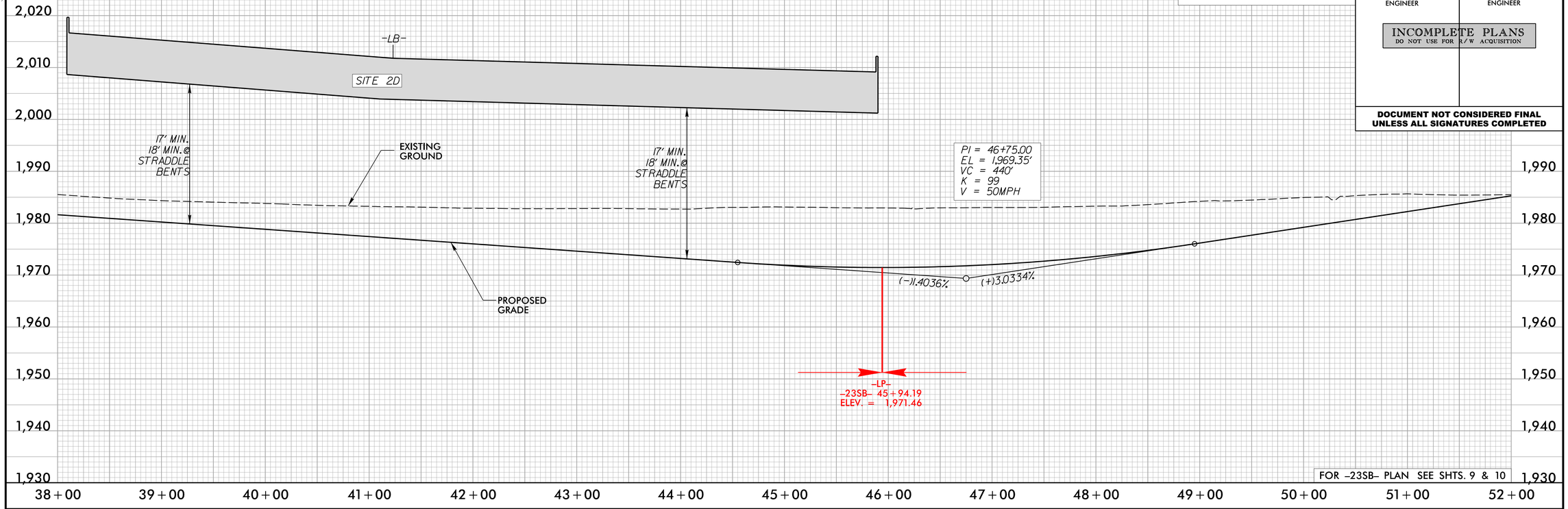
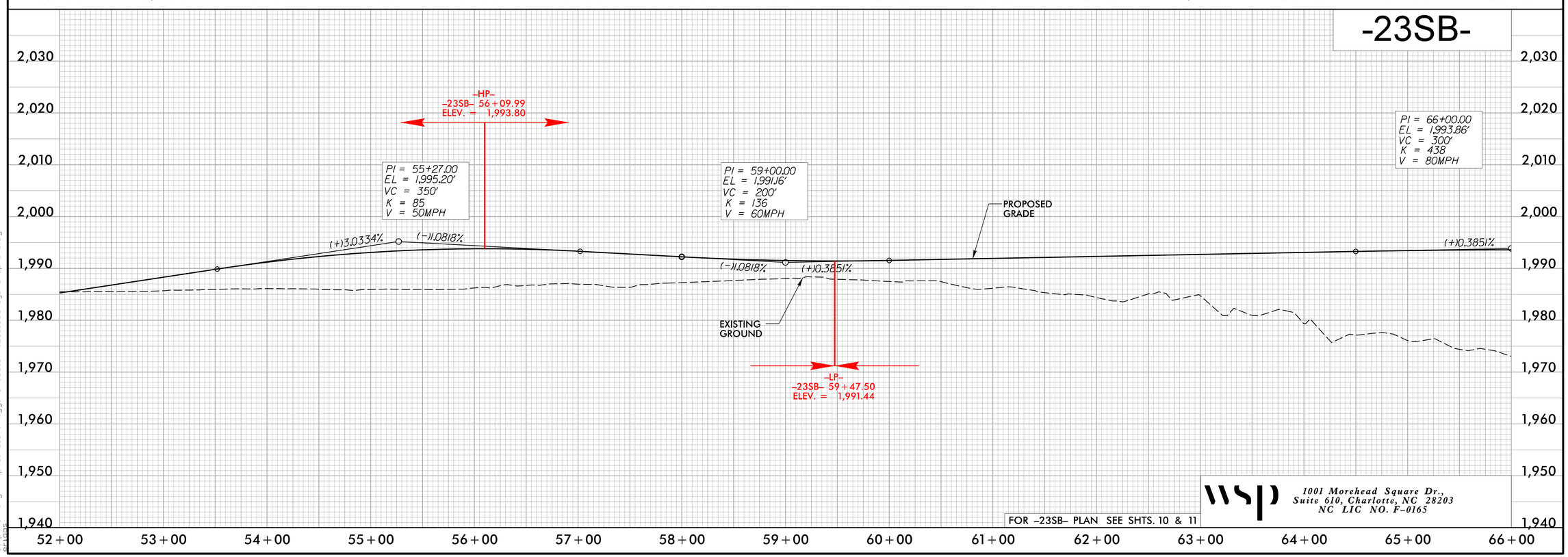


FOR -23SB- PLAN SEE SHTS. 9 & 10



FOR -23SB- PLAN SEE SHTS. 10 & 11

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-23SB-

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	46
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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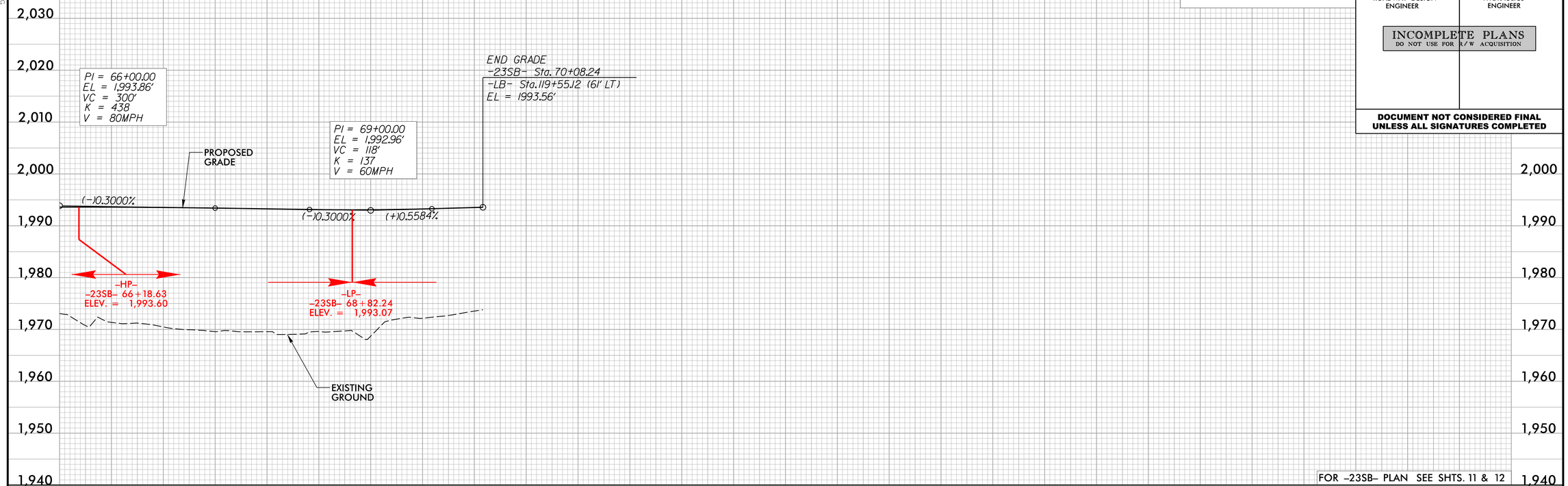

FOR -23SB- PLAN SEE SHTS. 11 & 12

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PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	47
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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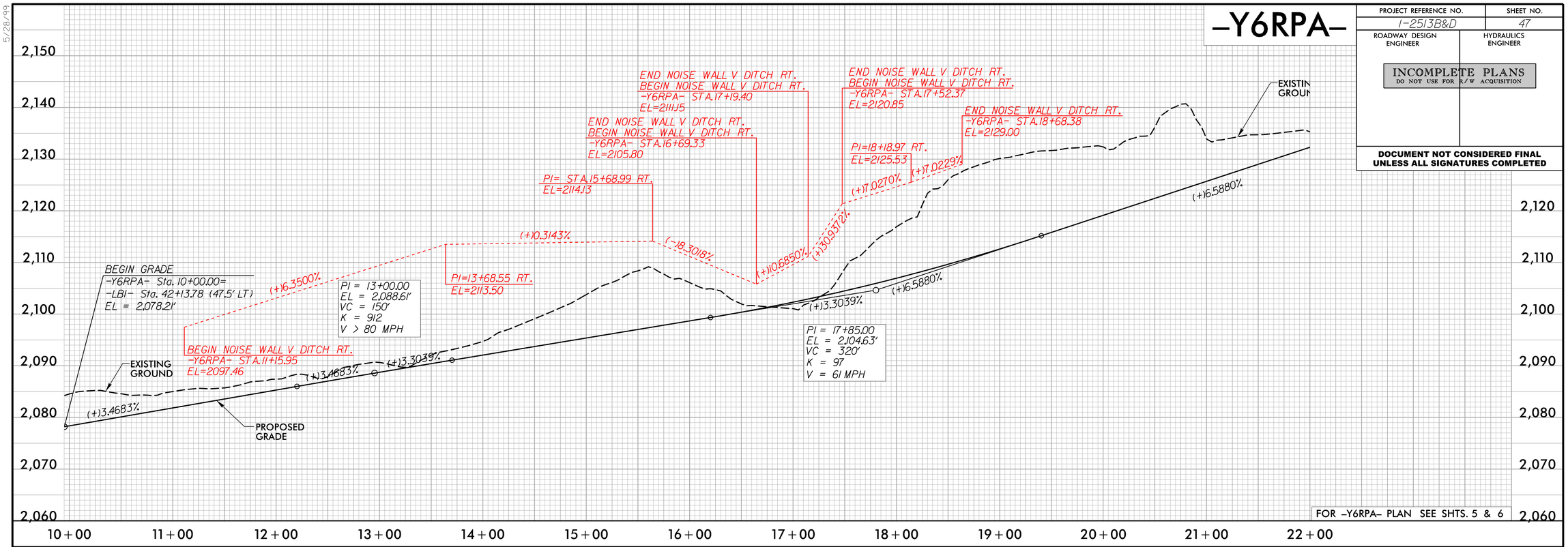
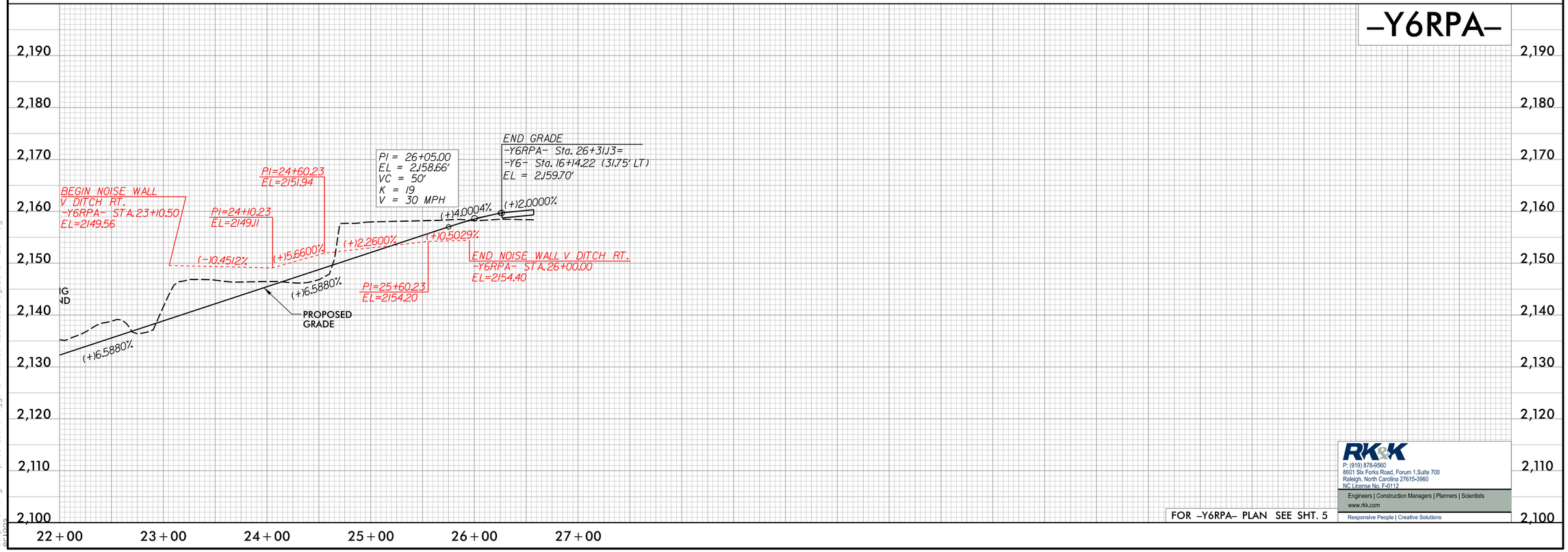
–Y6RPA–



FOR –Y6RPA– PLAN SEE SHTS. 5 & 6

–Y6RPA–



FOR –Y6RPA– PLAN SEE SHT. 5

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–Y6RPB–

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I-2513B&D	48
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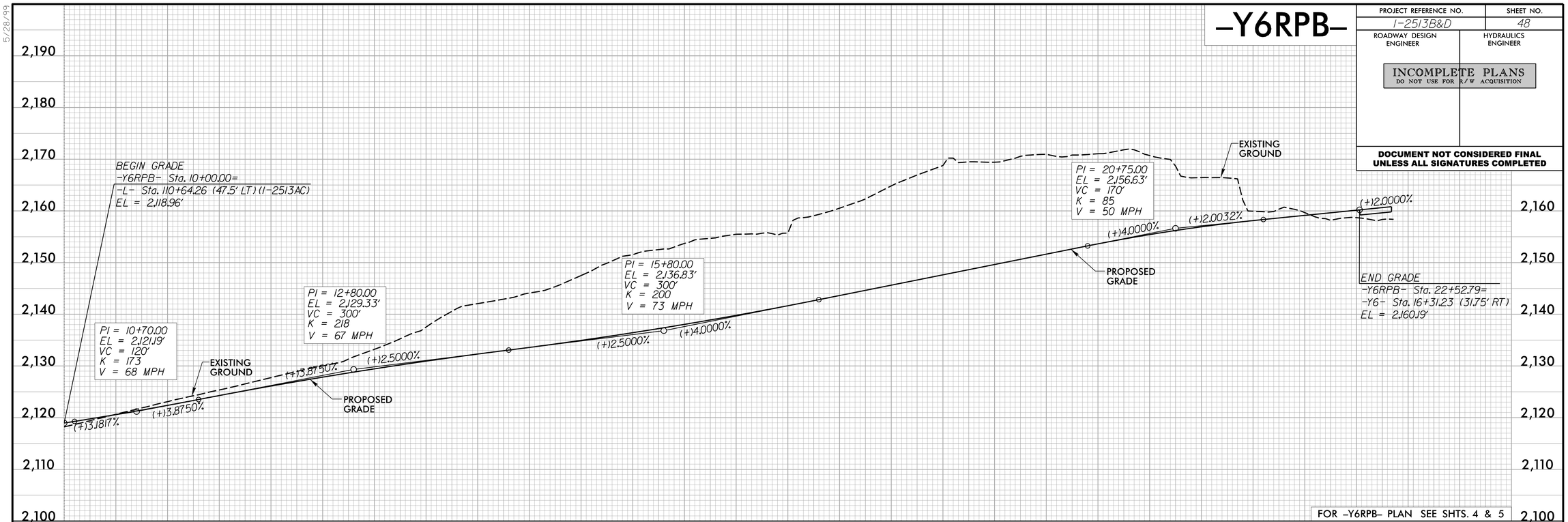

FOR –Y6RPB– PLAN SEE SHTS. 4 & 5

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PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	49
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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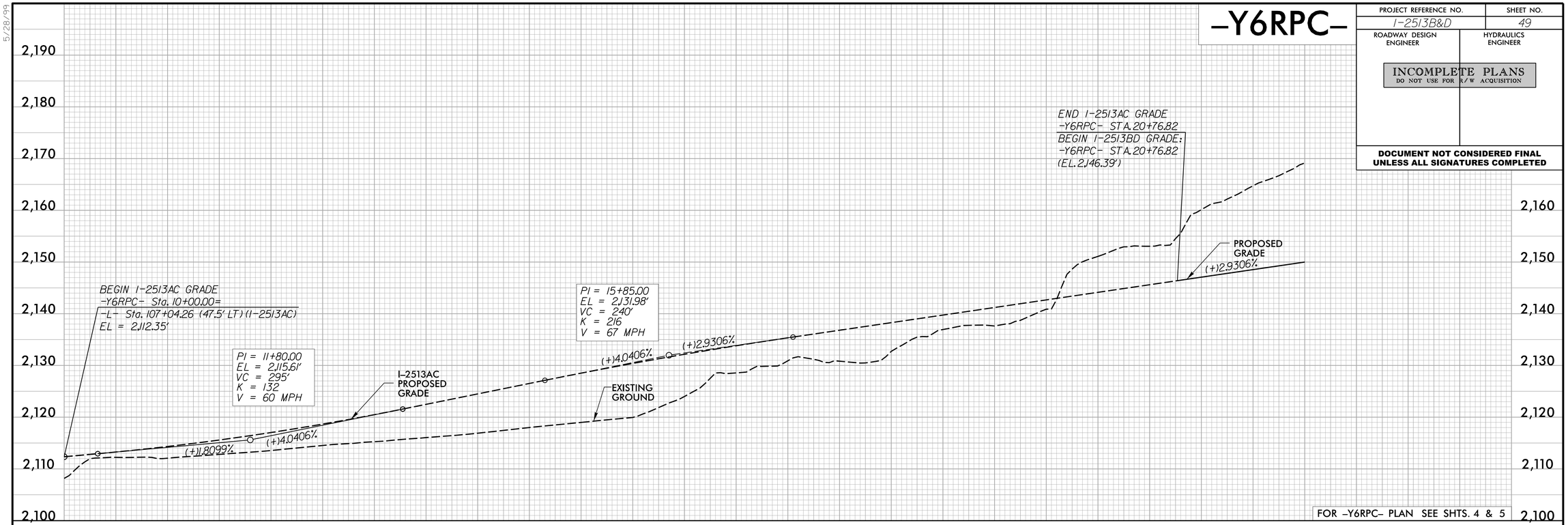
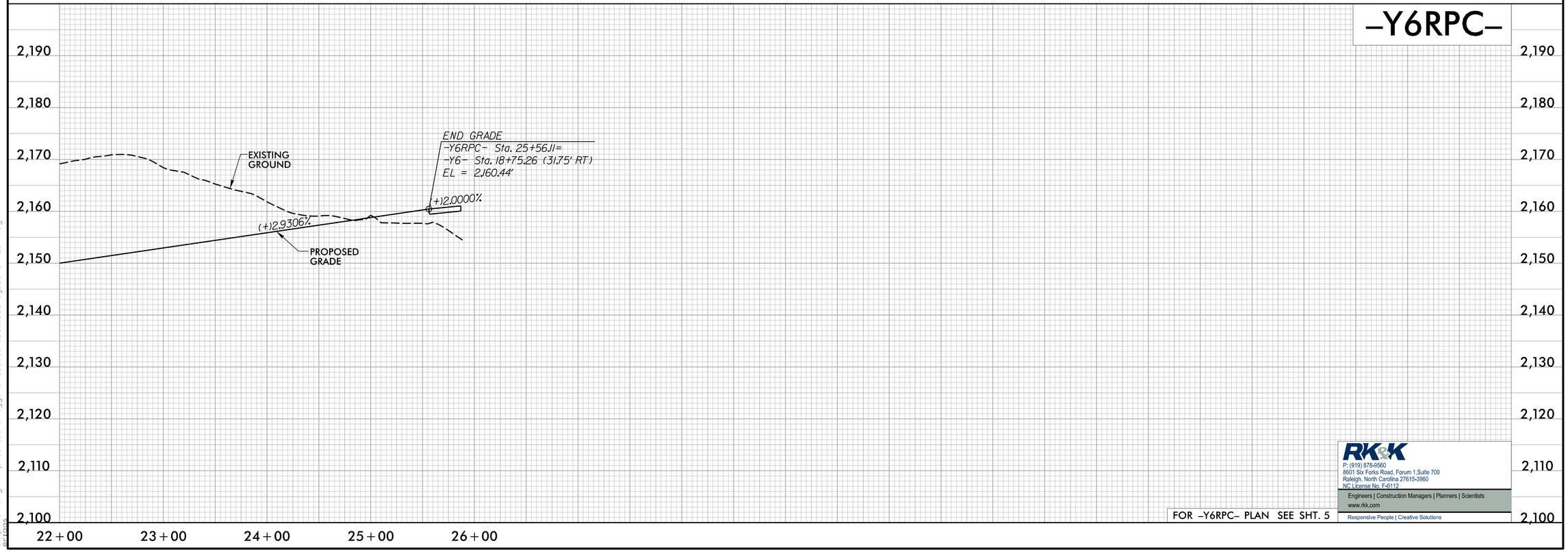
-Y6RPC-



FOR -Y6RPC- PLAN SEE SHTS. 4 & 5

-Y6RPC-



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PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	50
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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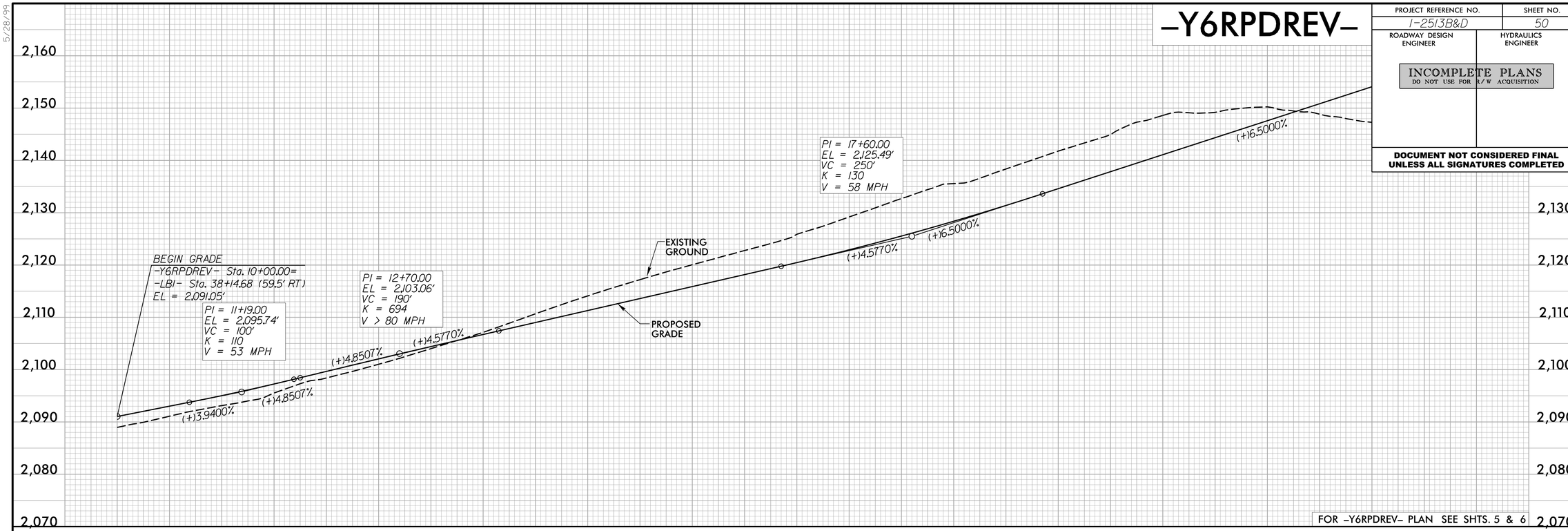
–Y6RPDREV–



FOR –Y6RPDREV– PLAN SEE SHTS. 5 & 6

–Y6RPDREV–

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PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	51
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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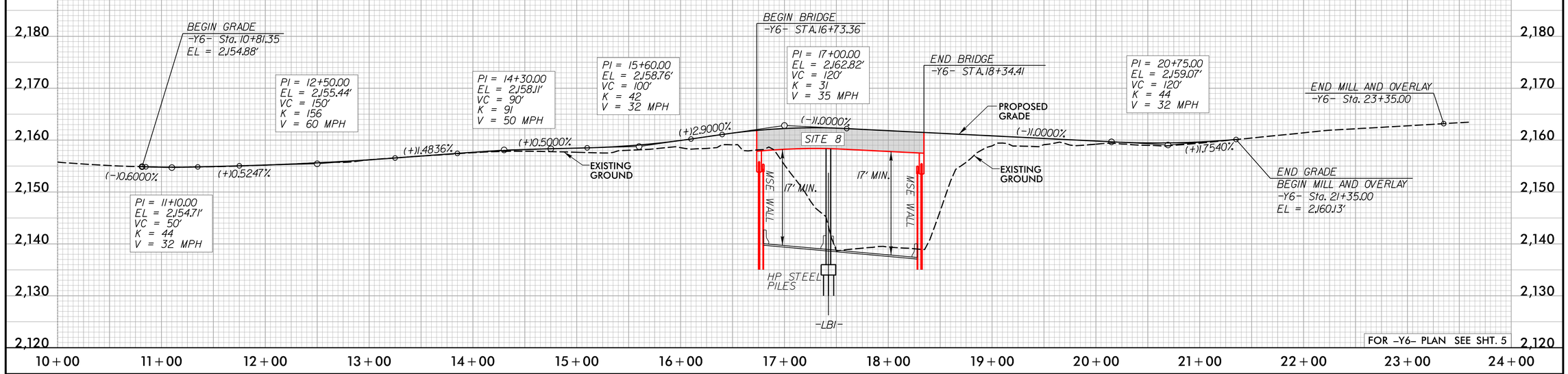
-Y6-



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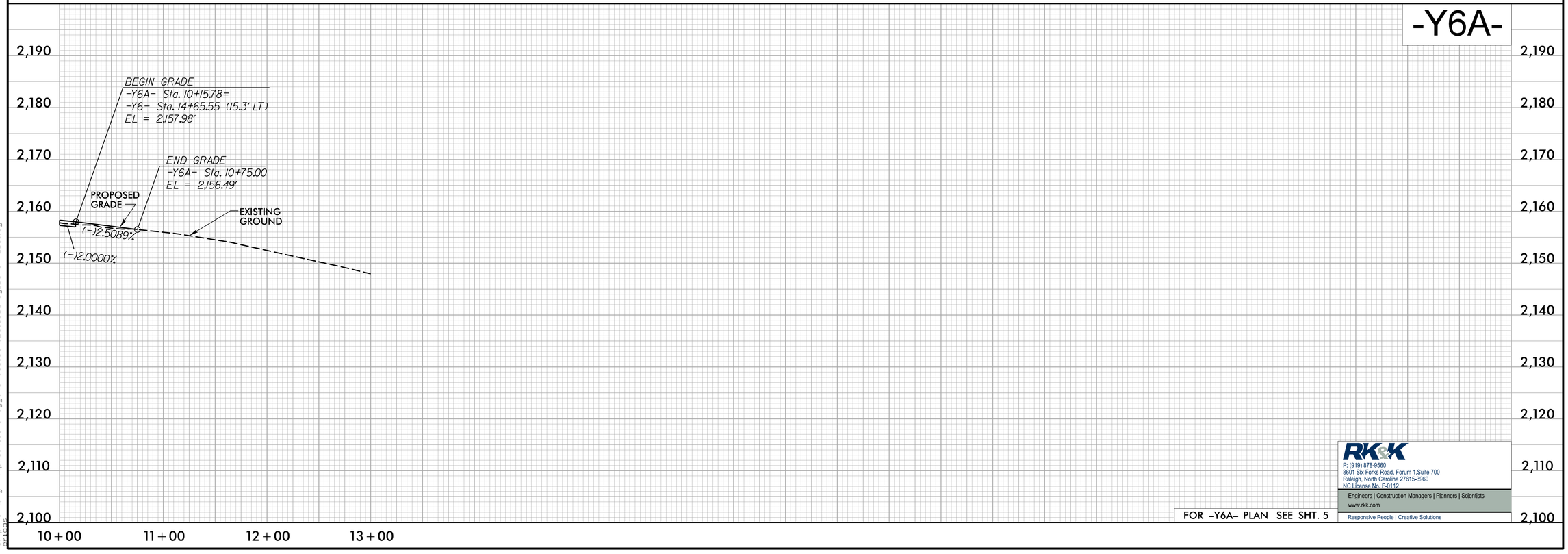

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PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	52
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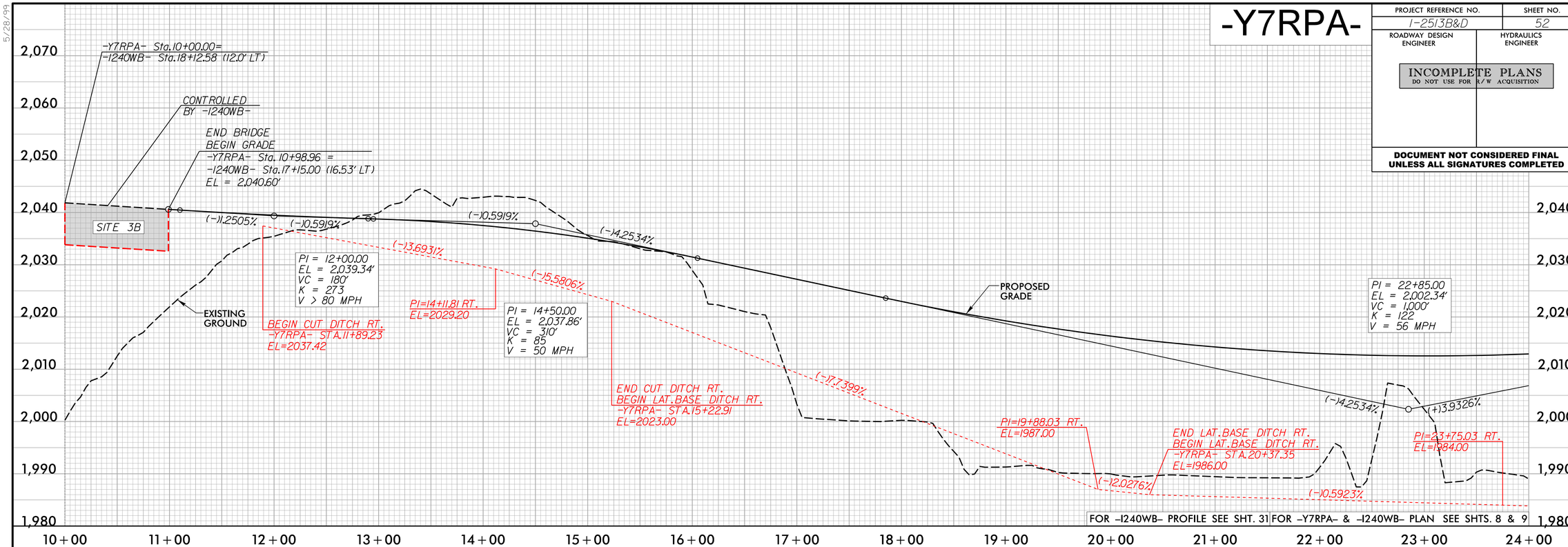
-Y7RPA-



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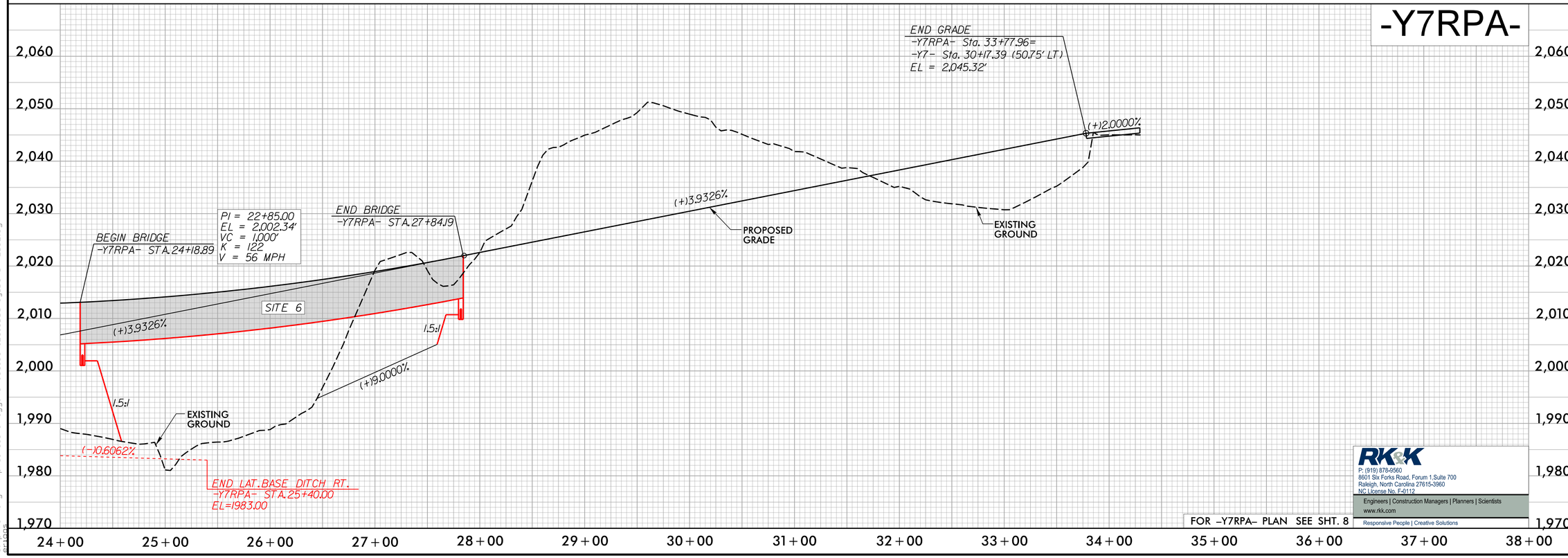

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PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	53
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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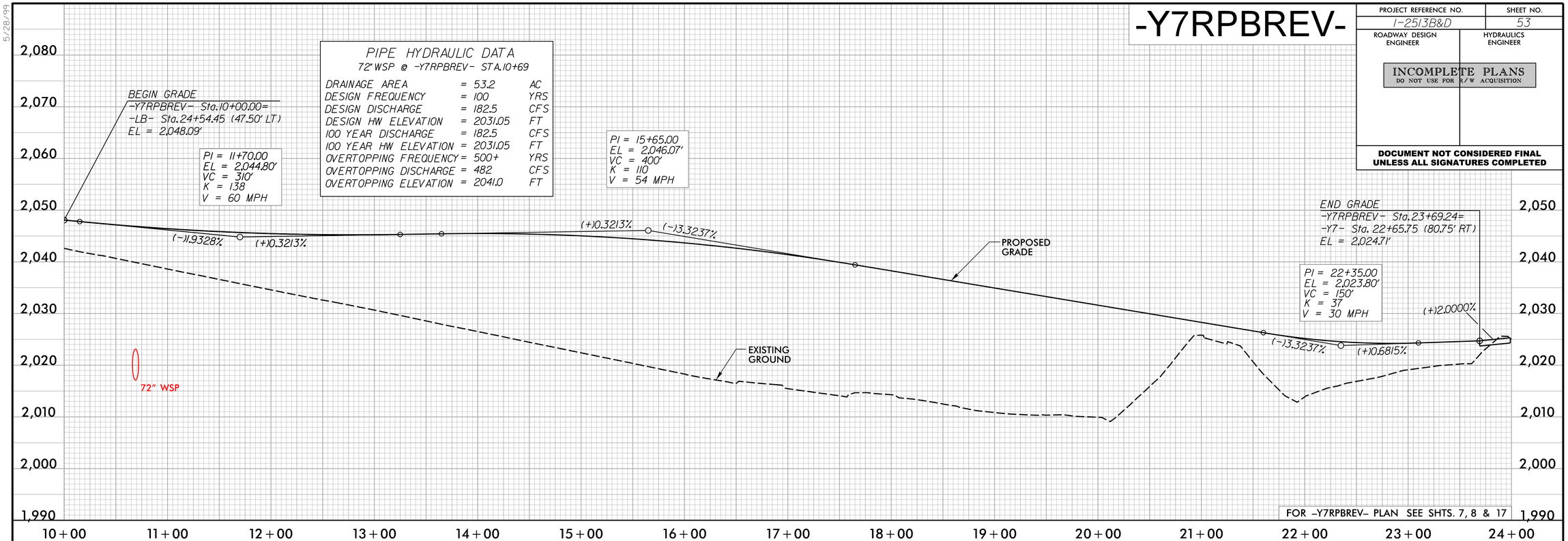
-Y7RPBREV-

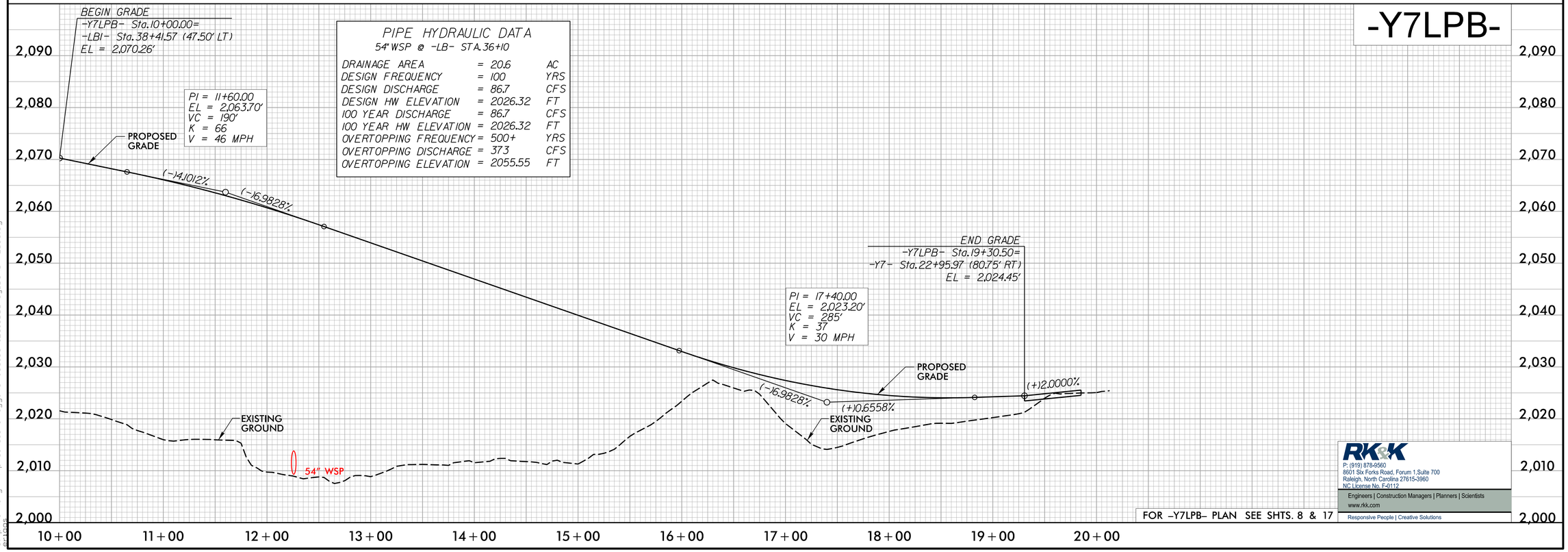


PIPE HYDRAULIC DATA
72" WSP @ -Y7RPBREV- STA.10+69

DRAINAGE AREA	= 53.2	AC
DESIGN FREQUENCY	= 100	YRS
DESIGN DISCHARGE	= 182.5	CFS
DESIGN HW ELEVATION	= 2031.05	FT
100 YEAR DISCHARGE	= 182.5	CFS
100 YEAR HW ELEVATION	= 2031.05	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 482	CFS
OVERTOPPING ELEVATION	= 2041.0	FT

FOR -Y7RPBREV- PLAN SEE SHTS. 7, 8 & 17

-Y7LPB-



PIPE HYDRAULIC DATA
54" WSP @ -LB- STA.36+10

DRAINAGE AREA	= 20.6	AC
DESIGN FREQUENCY	= 100	YRS
DESIGN DISCHARGE	= 86.7	CFS
DESIGN HW ELEVATION	= 2026.32	FT
100 YEAR DISCHARGE	= 86.7	CFS
100 YEAR HW ELEVATION	= 2026.32	FT
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 373	CFS
OVERTOPPING ELEVATION	= 2055.55	FT

FOR -Y7LPB- PLAN SEE SHTS. 8 & 17

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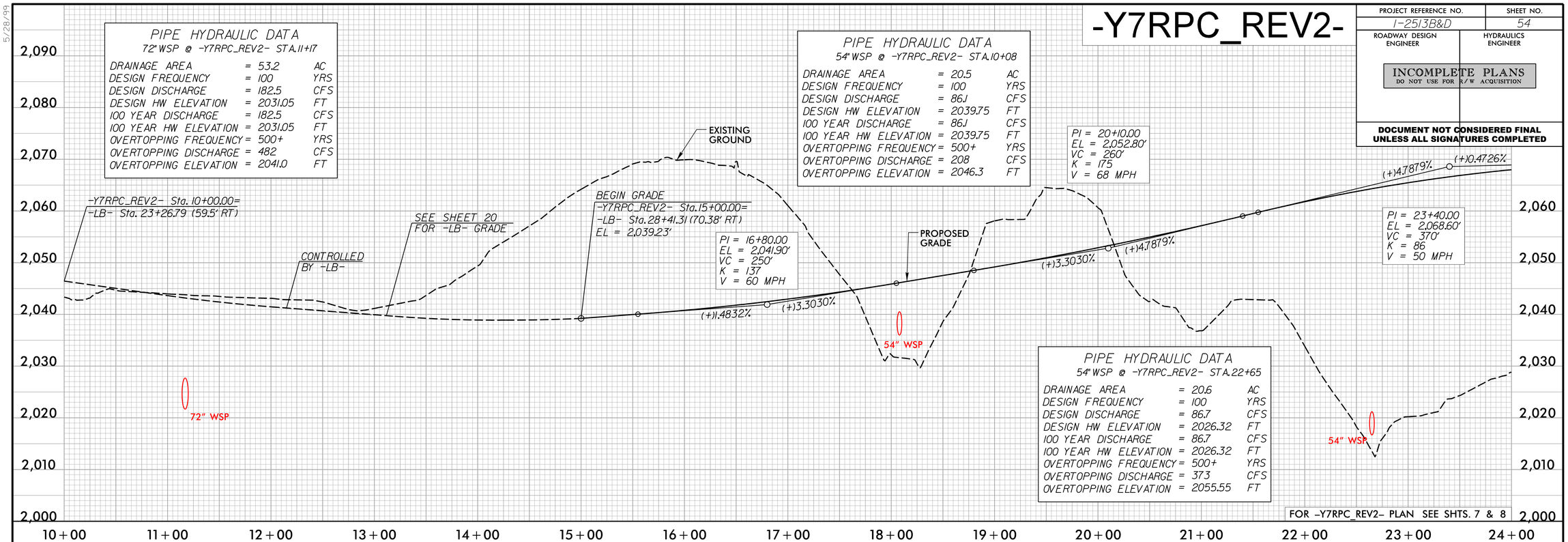
-Y7RPC_REV2-



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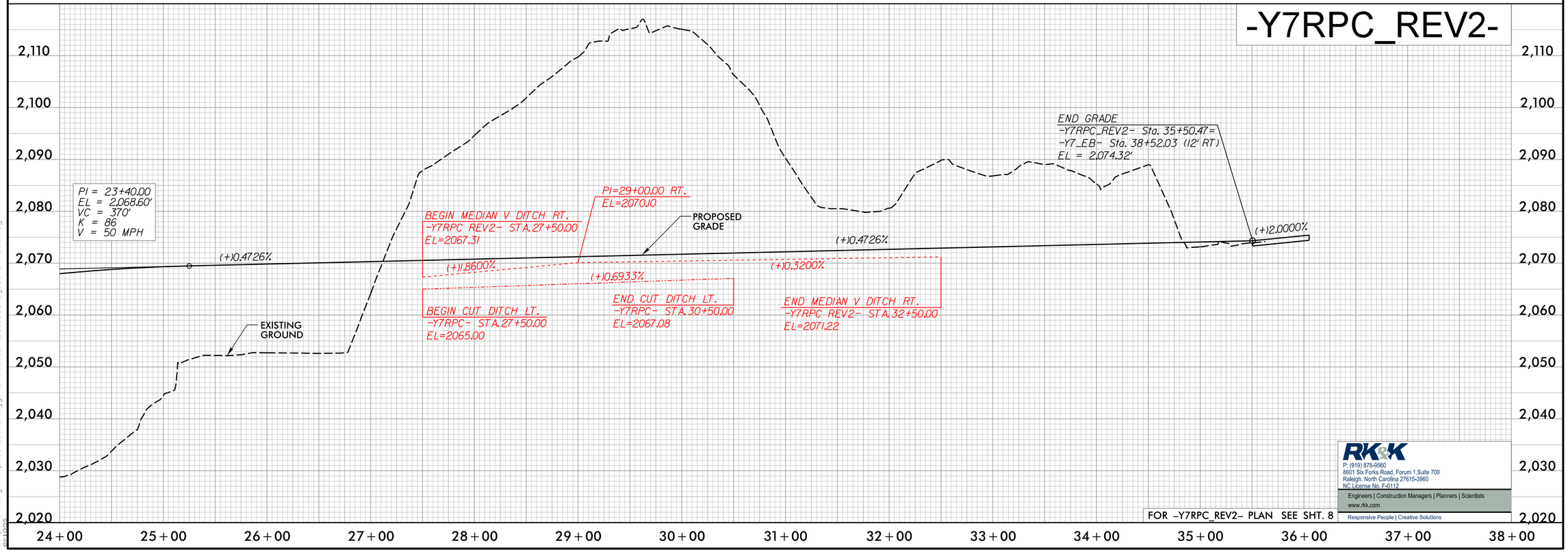

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-Y7RPD-

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	55
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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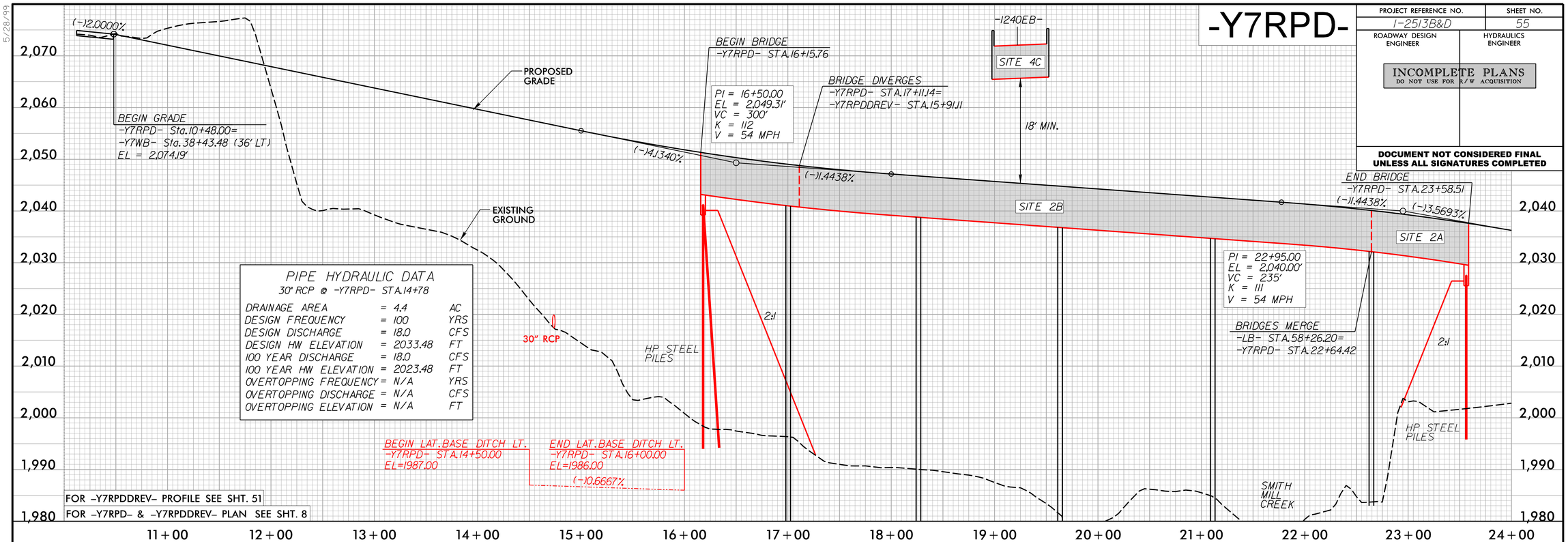
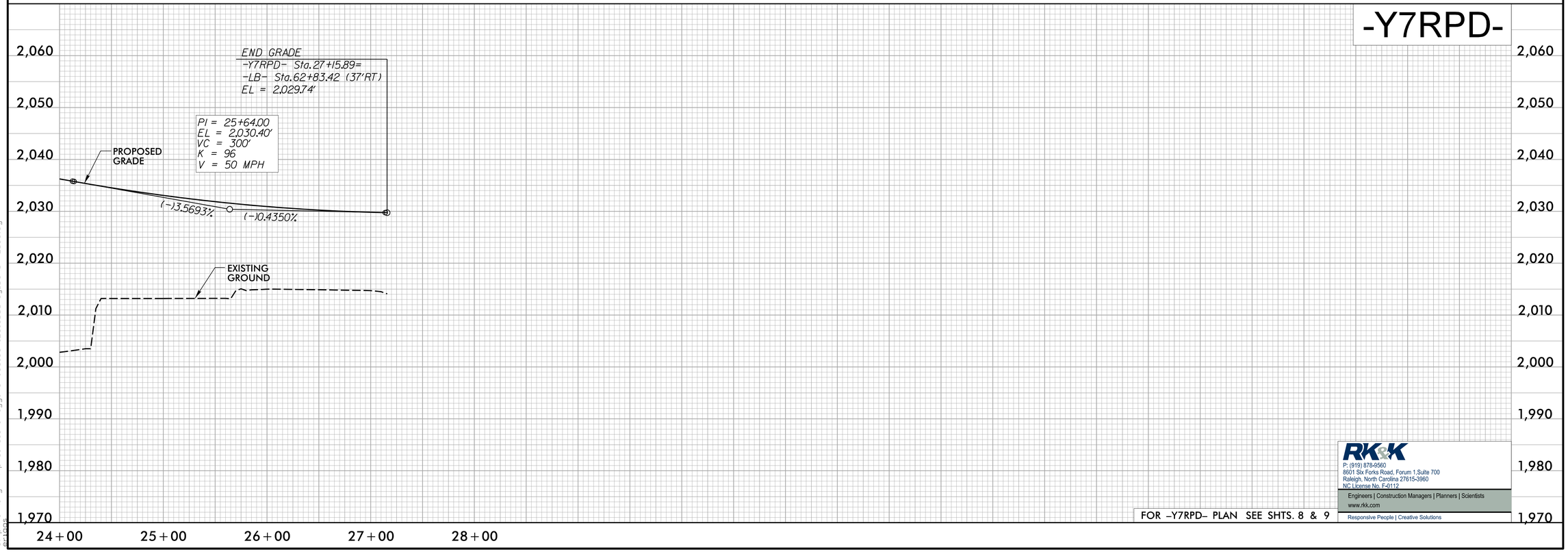


PIPE HYDRAULIC DATA
30" RCP @ -Y7RPD- STA.14+78

DRAINAGE AREA	= 4.4	AC
DESIGN FREQUENCY	= 100	YRS
DESIGN DISCHARGE	= 18.0	CFS
DESIGN HW ELEVATION	= 2033.48	FT
100 YEAR DISCHARGE	= 18.0	CFS
100 YEAR HW ELEVATION	= 2023.48	FT
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= N/A	FT

FOR -Y7RPDDREV- PROFILE SEE SHT. 51
FOR -Y7RPD- & -Y7RPDDREV- PLAN SEE SHT. 8

-Y7RPD-



FOR -Y7RPD- PLAN SEE SHTS. 8 & 9

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PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	56
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
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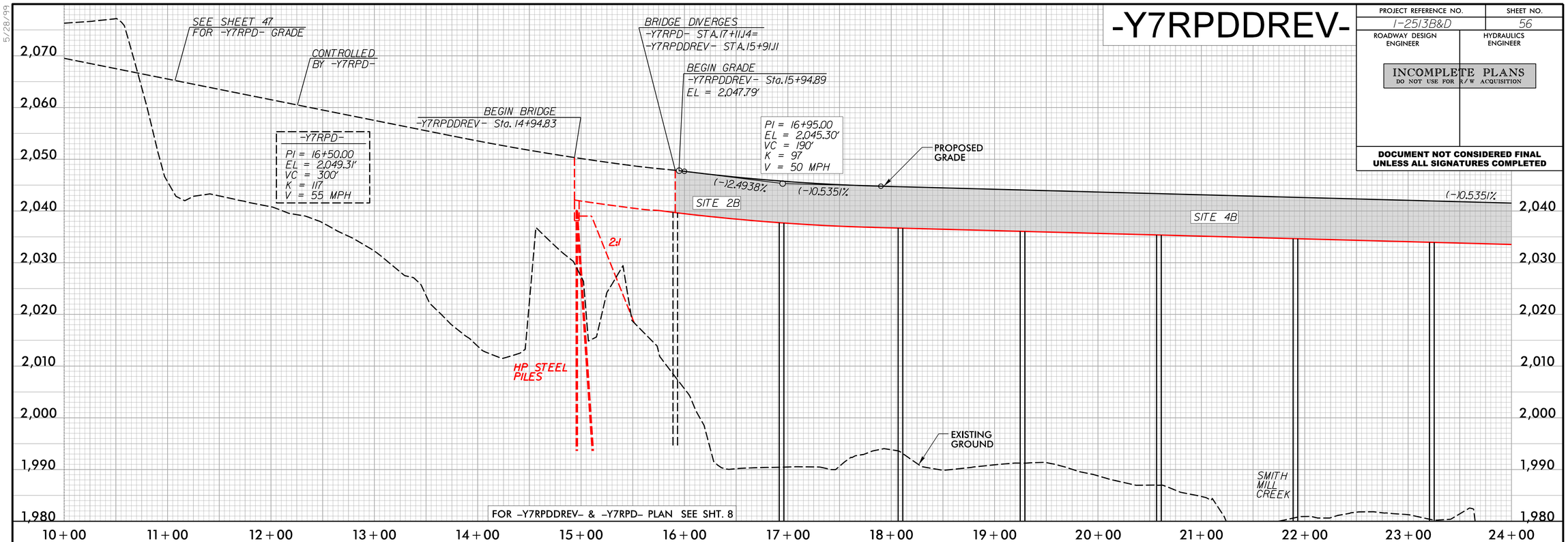
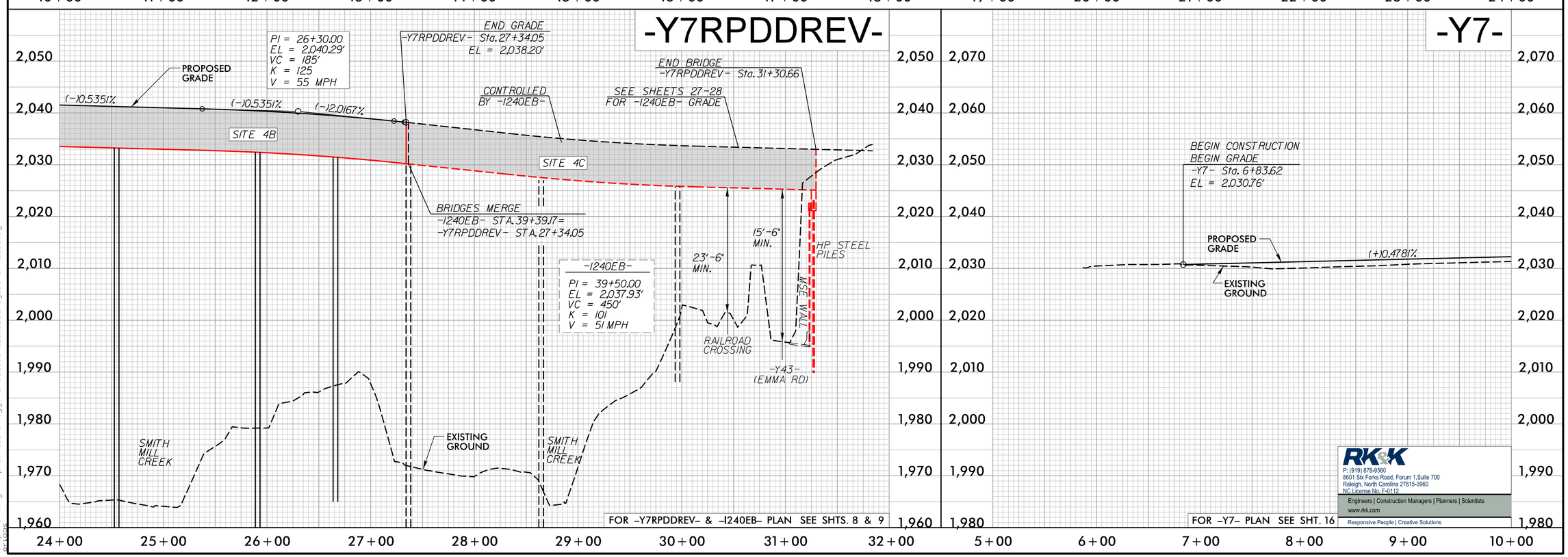
-Y7RPDDREV-





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PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	57
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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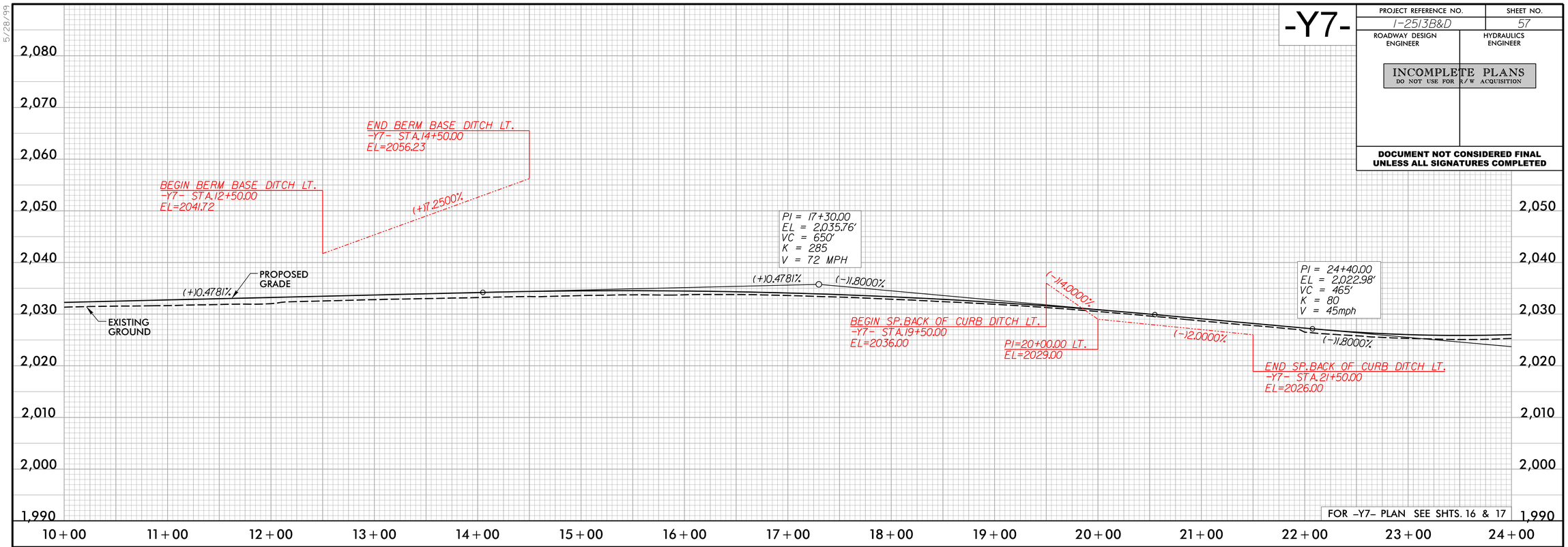

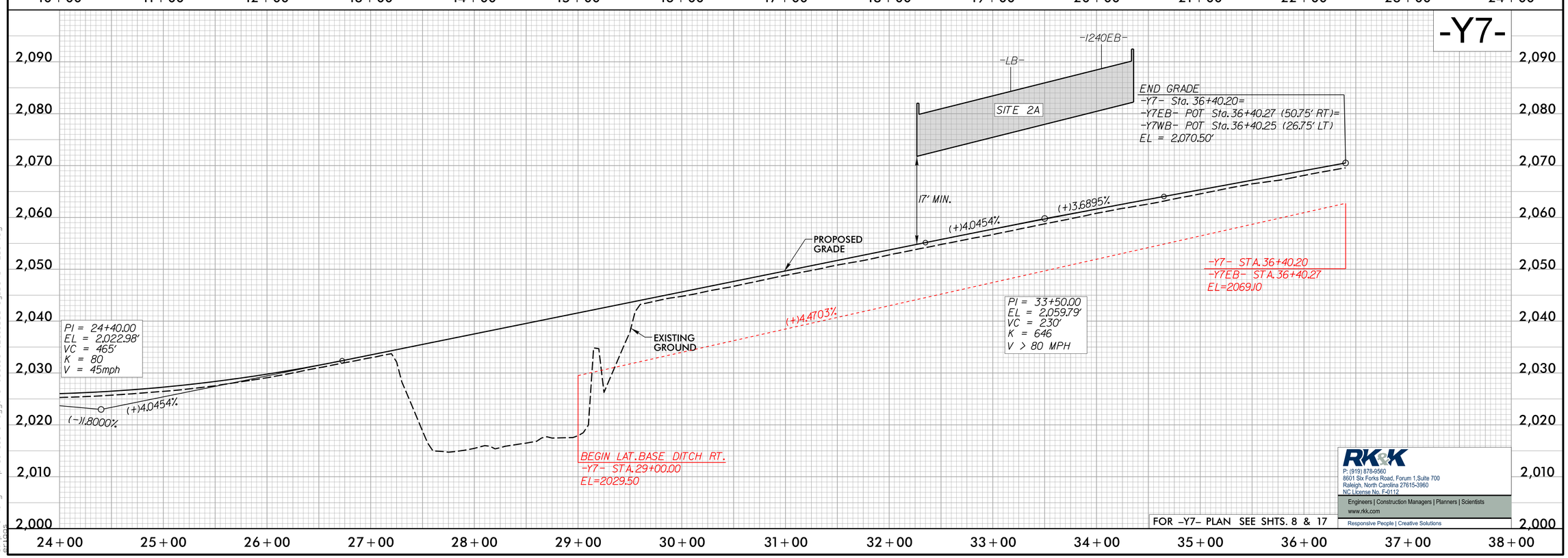

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I-2513B&D	58
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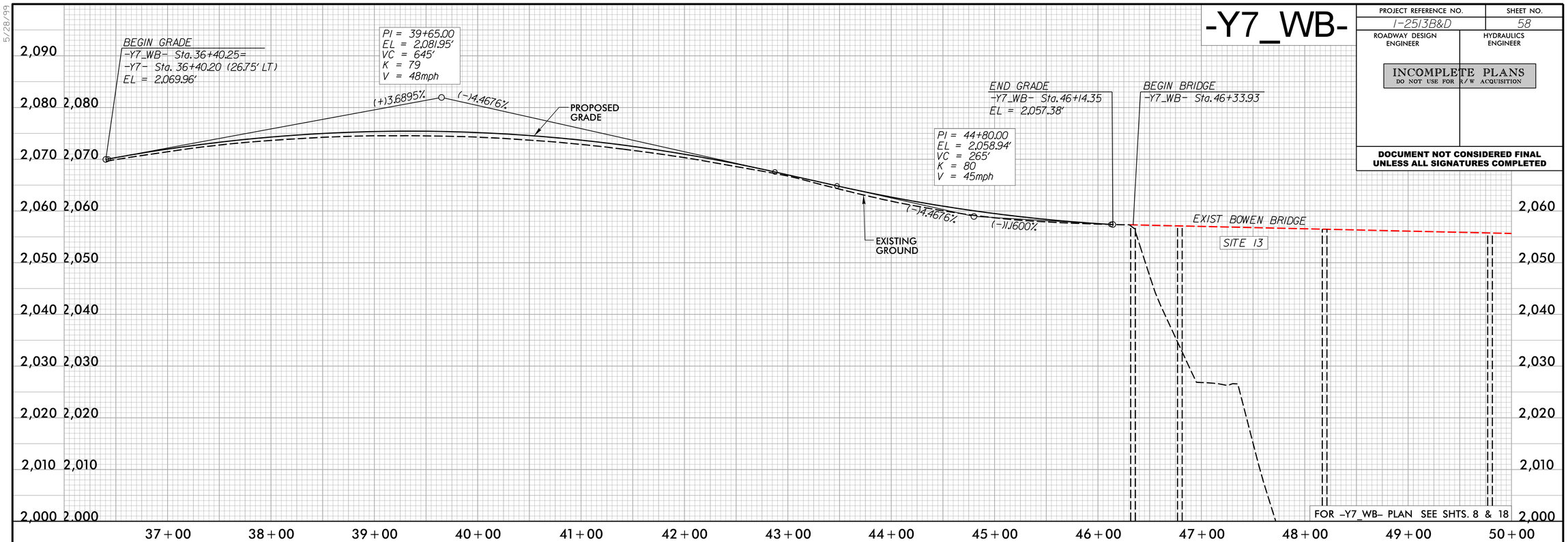
-Y7_WB-



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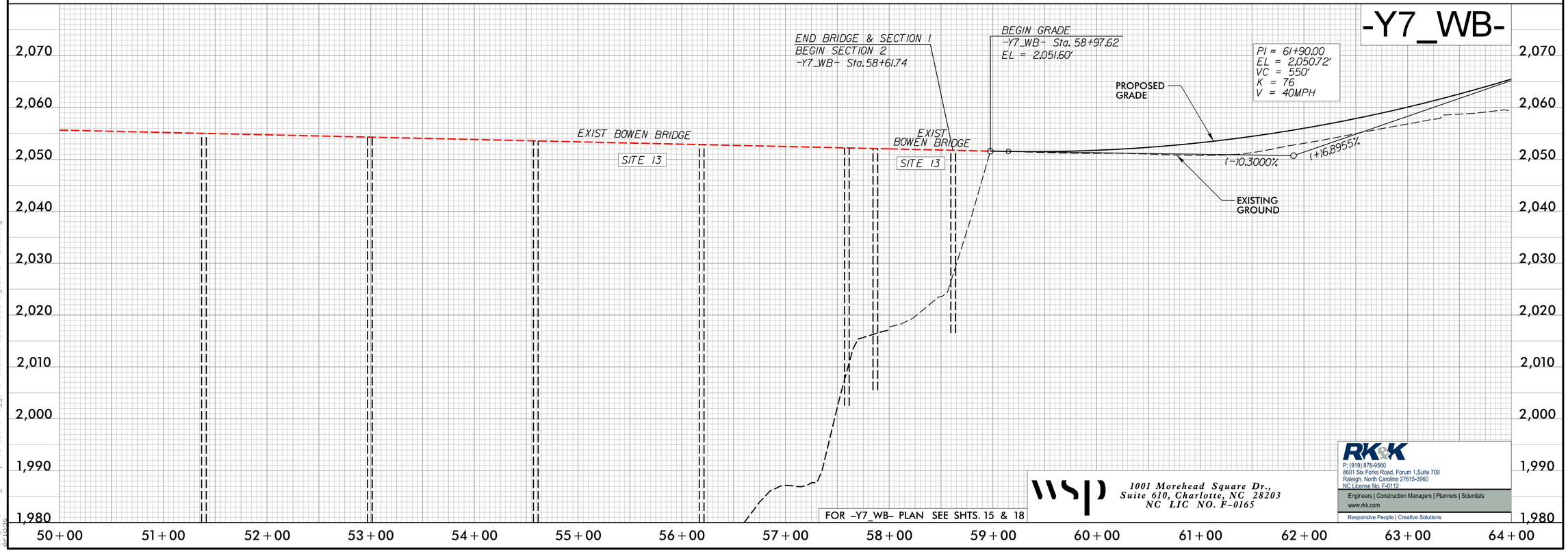

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-Y7_WB-

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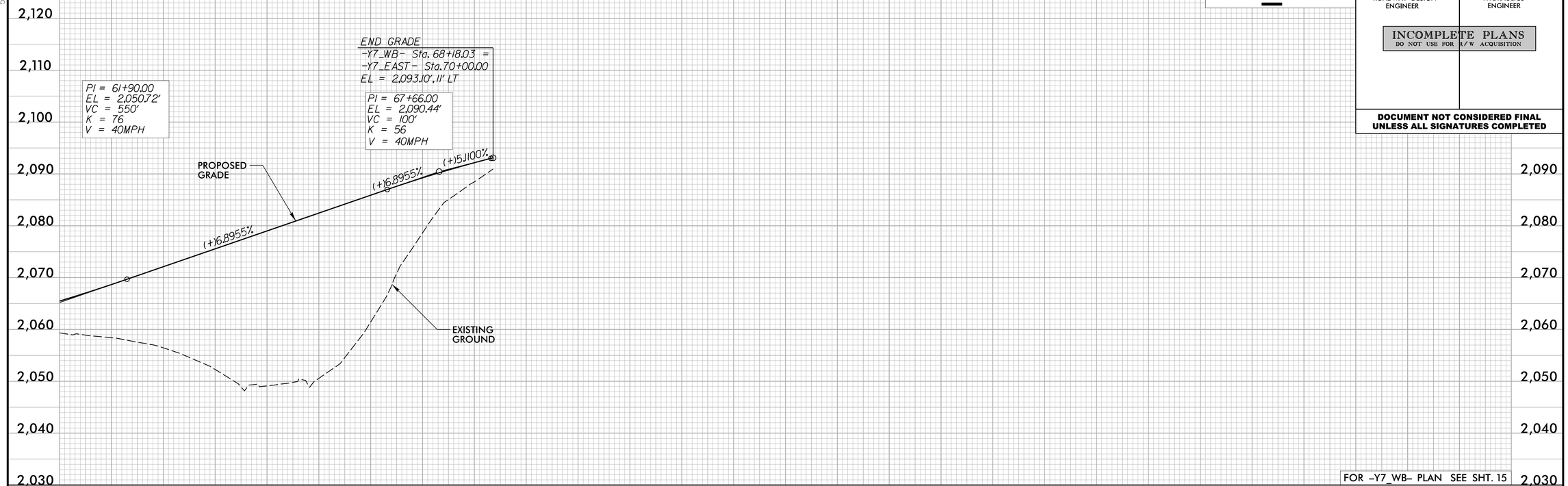

FOR -Y7_WB- PLAN SEE SHT. 15

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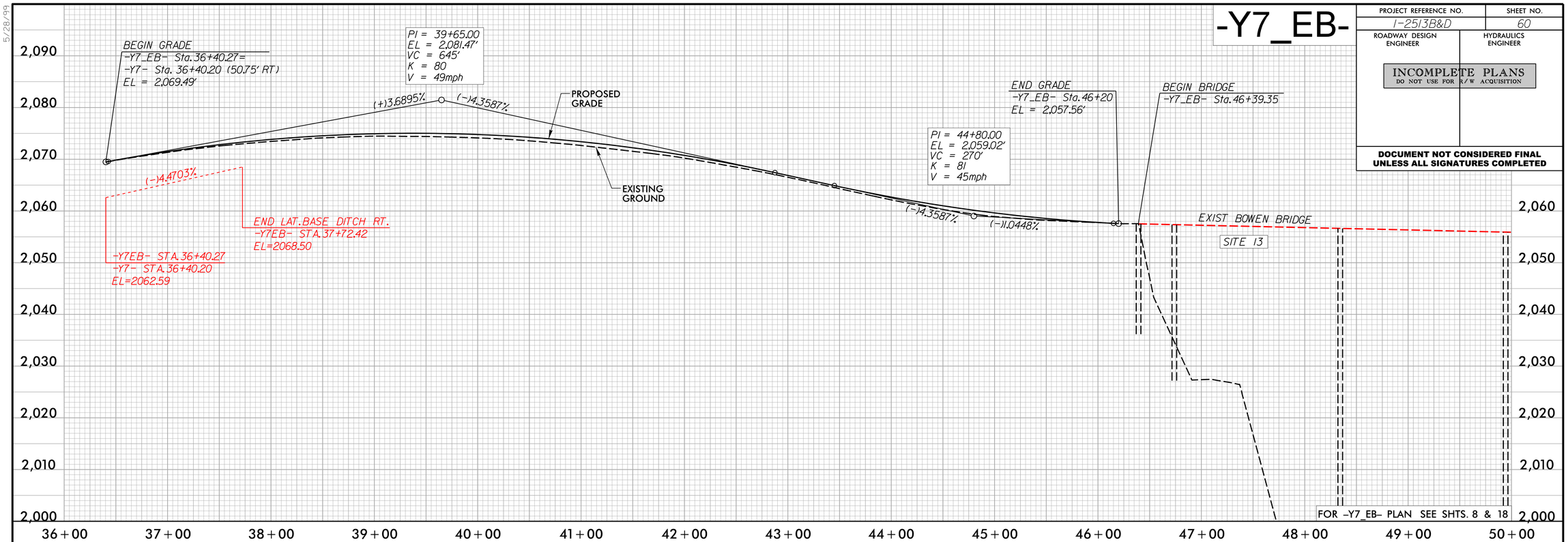

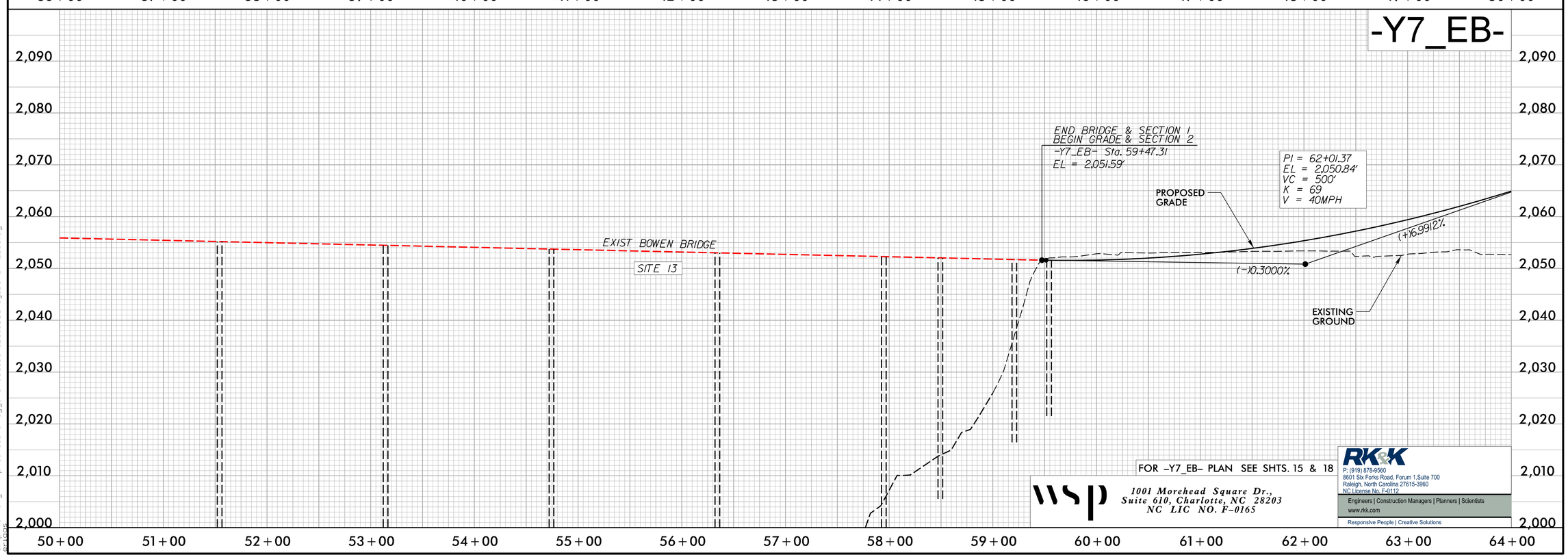

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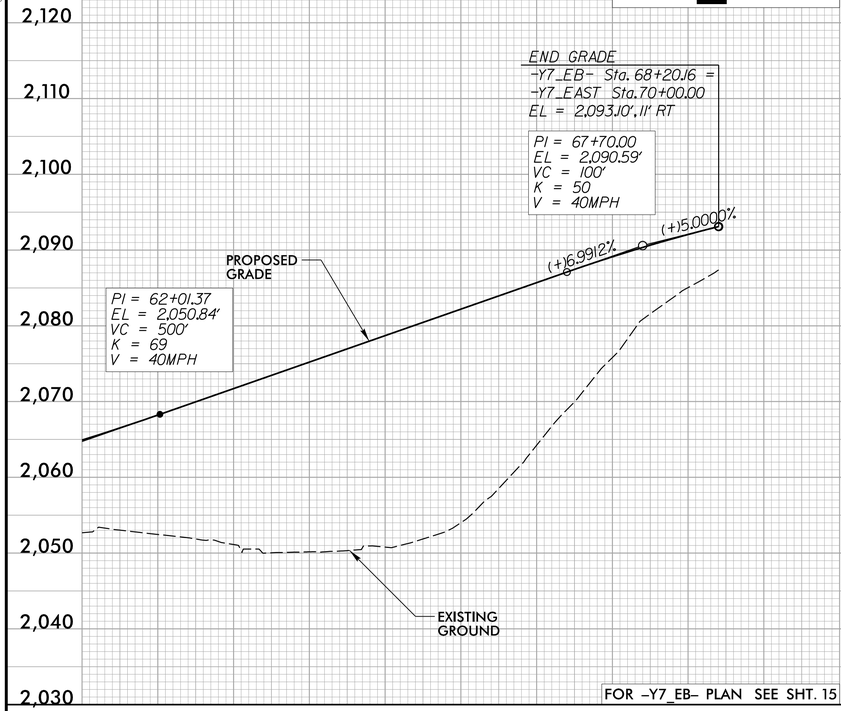
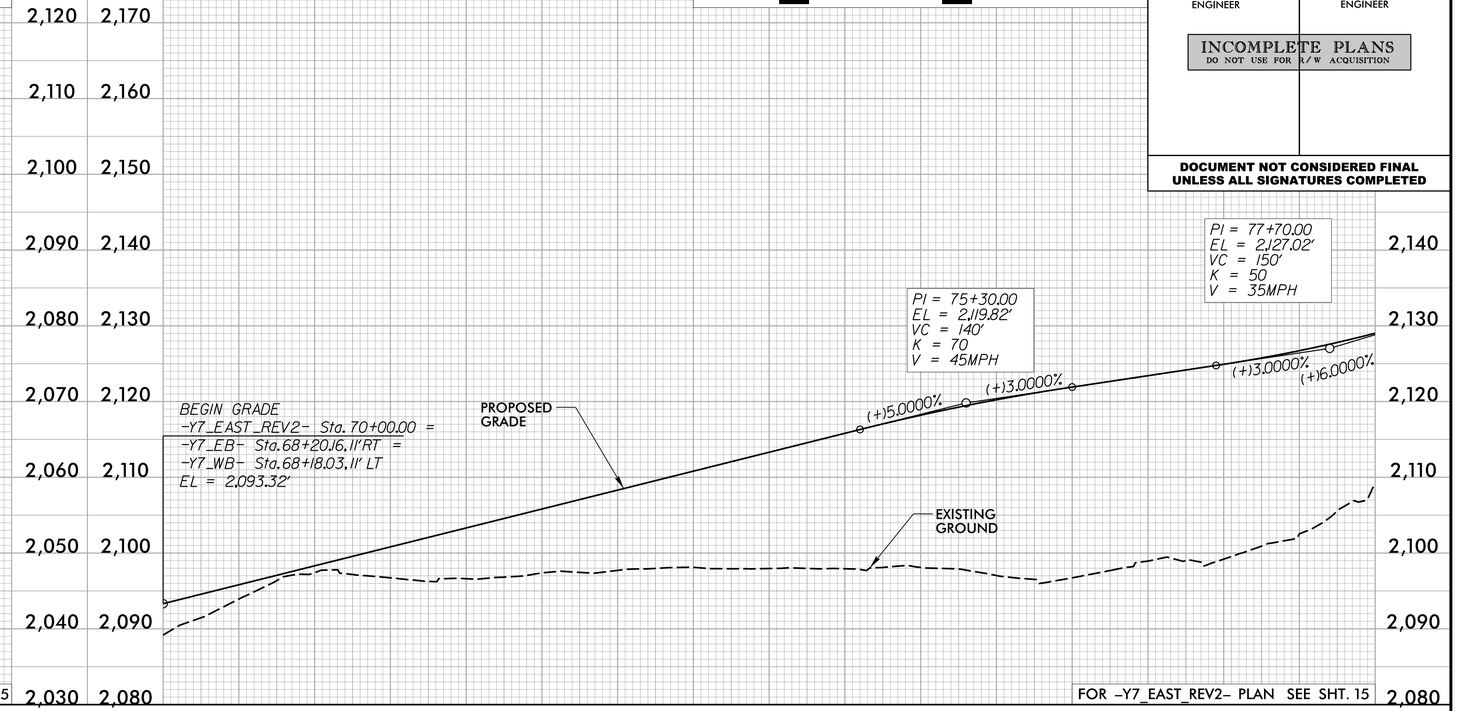
-Y7_EB-



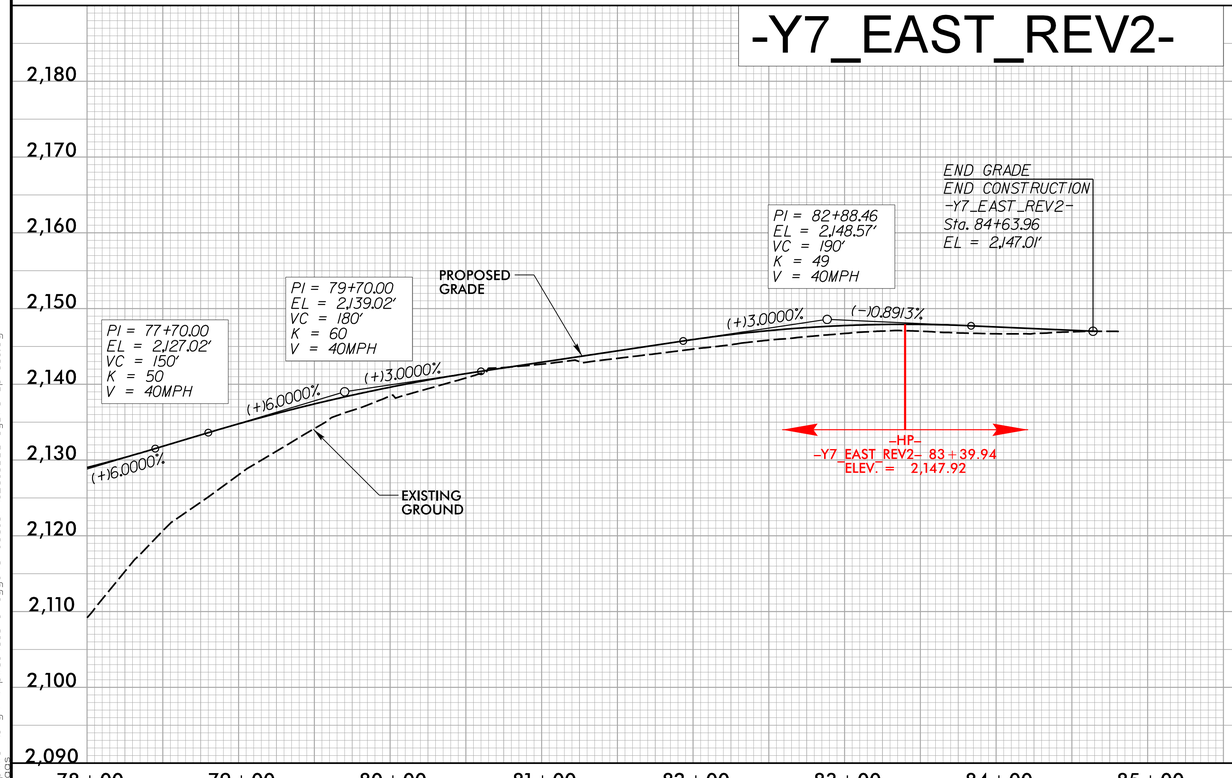
FOR -Y7_EB- PLAN SEE SHT. 15

-Y7_EAST_REV2-



FOR -Y7_EAST_REV2- PLAN SEE SHT. 15

-Y7_EAST_REV2-



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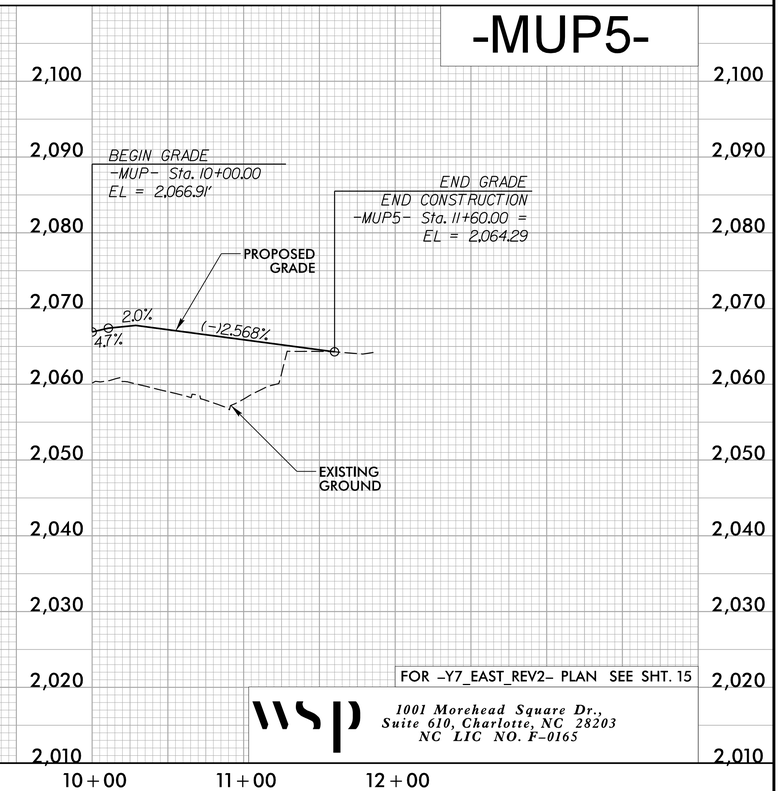

FOR -Y7_EAST_REV2- PLAN SEE SHT. 15

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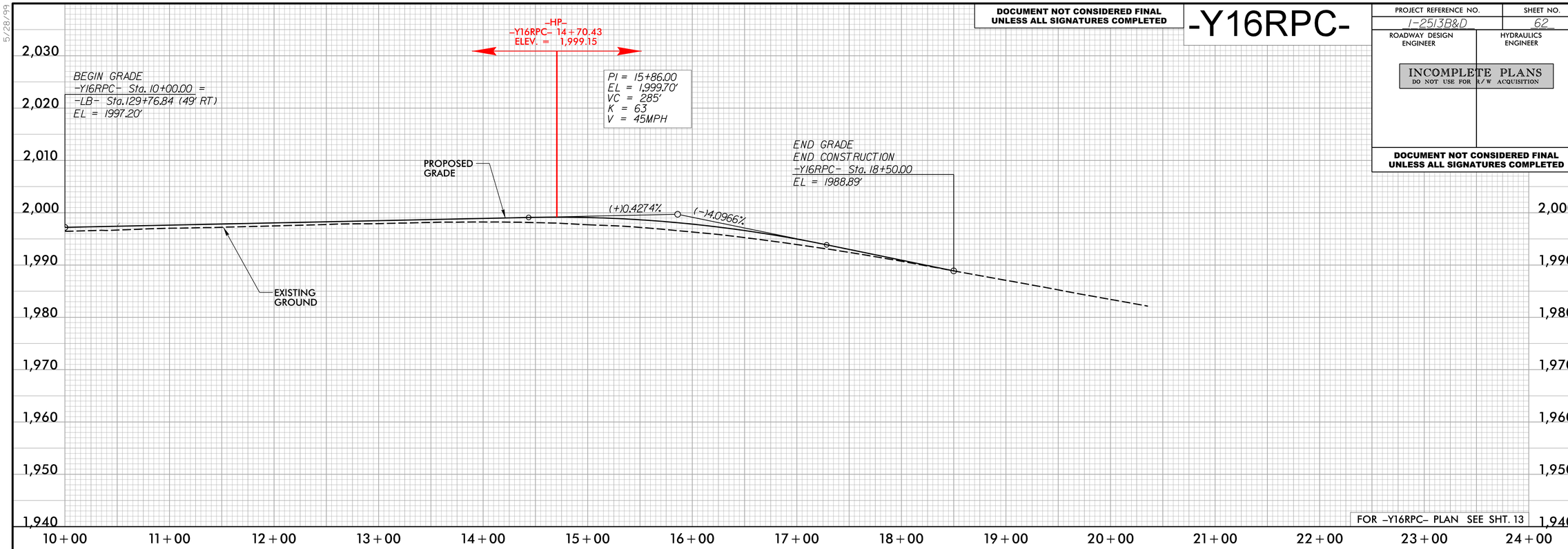

FOR -Y16RPC- PLAN SEE SHT. 13

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-Y24-

PROJECT REFERENCE NO.	SHEET NO.
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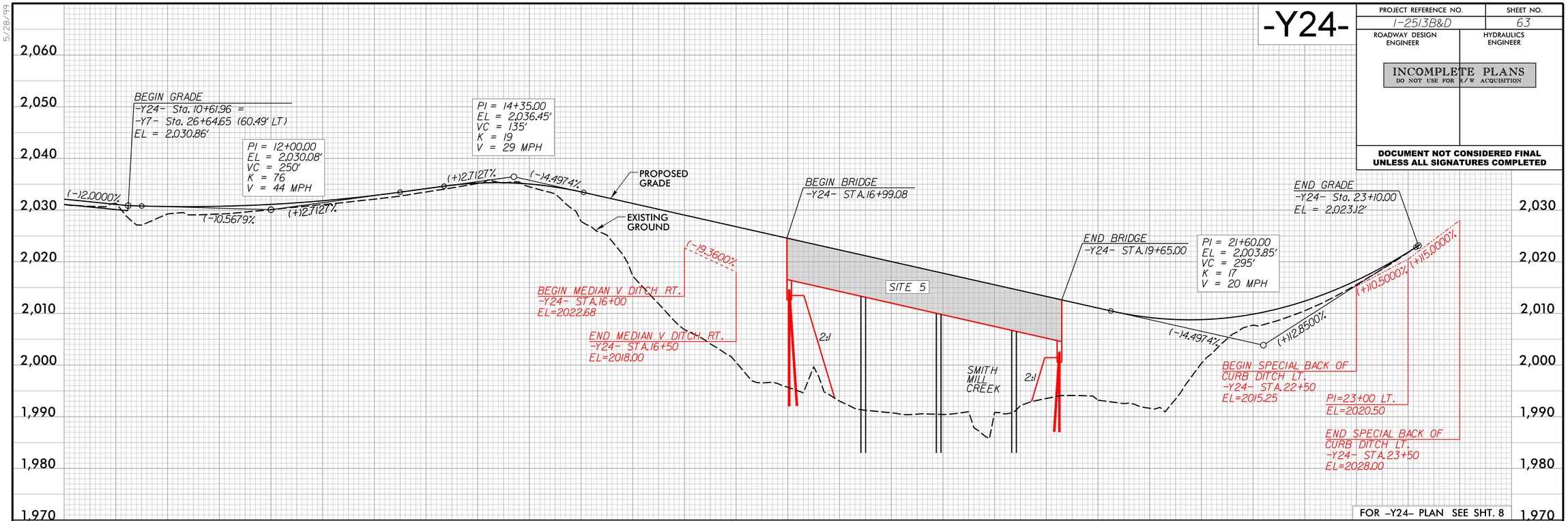

FOR -Y24- PLAN SEE SHT. 8

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-Y25A_REV2-

PROJECT REFERENCE NO.	SHEET NO.
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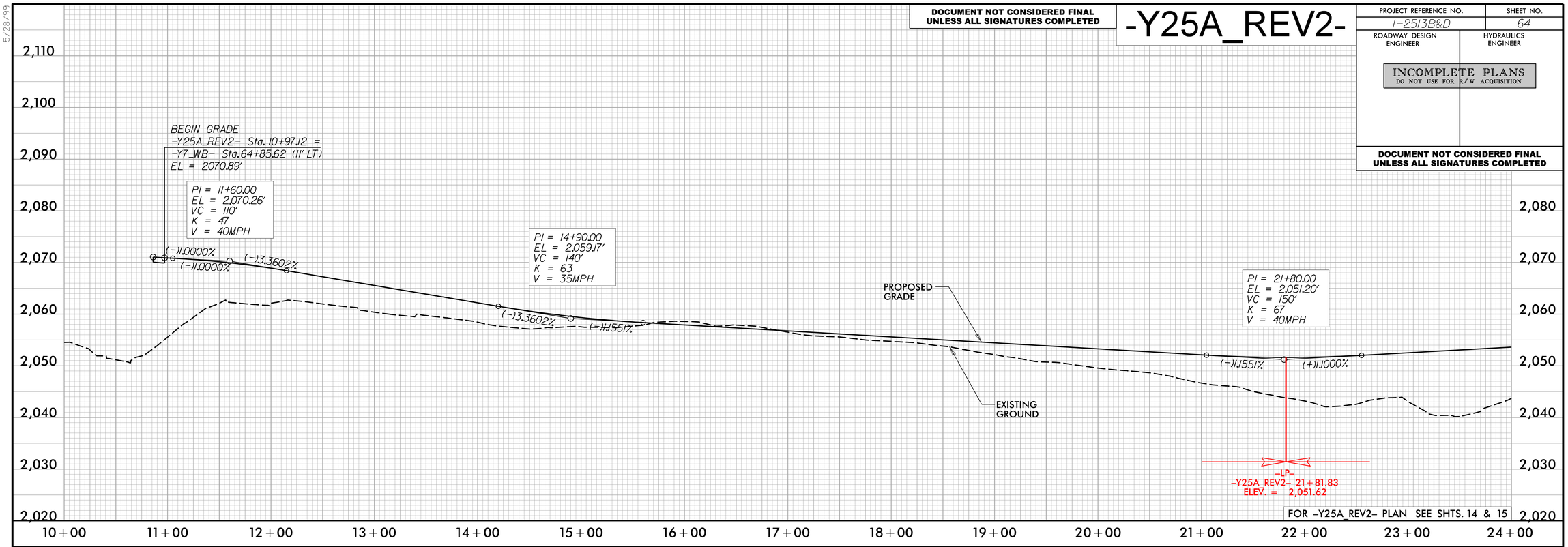

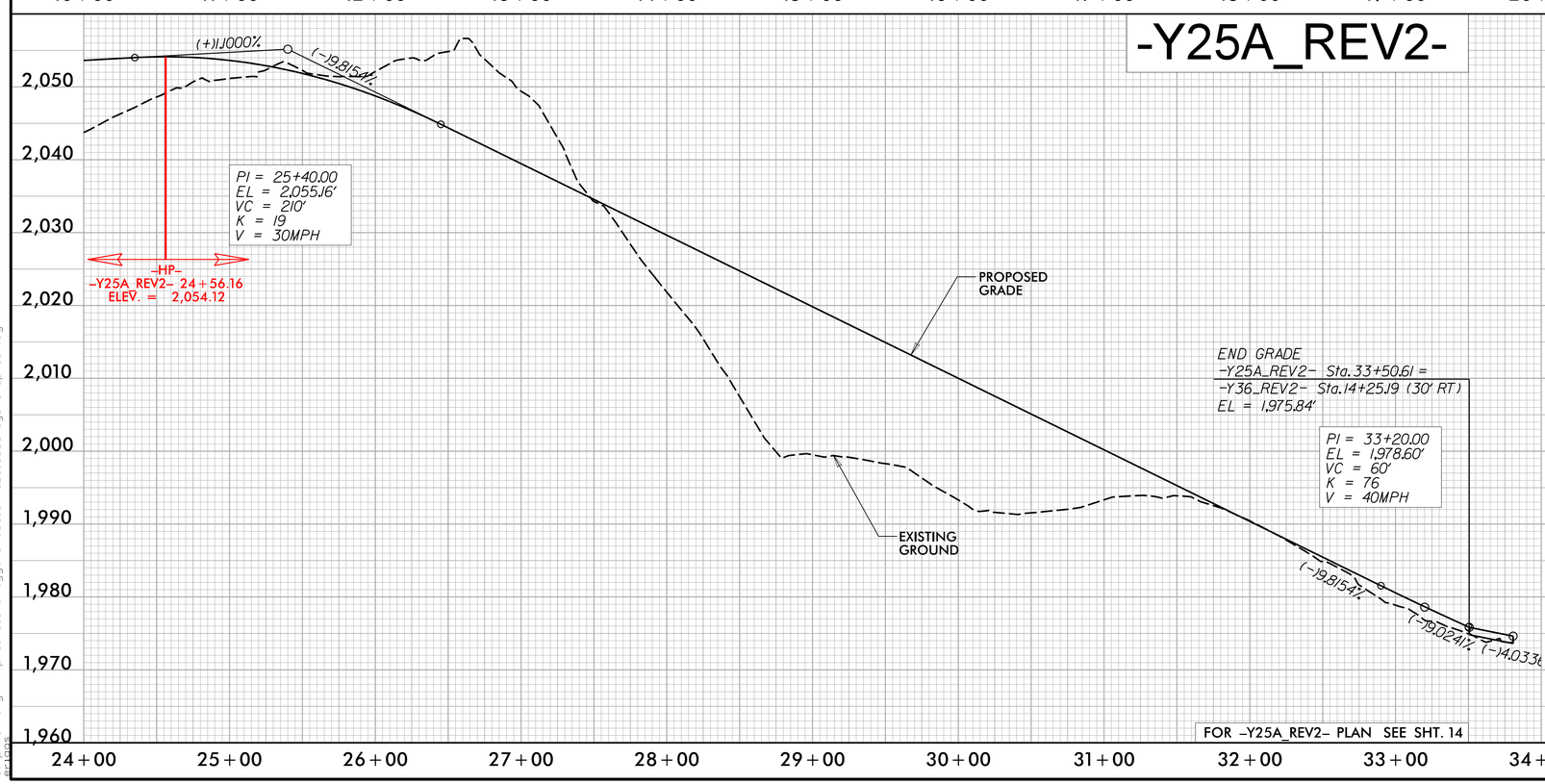

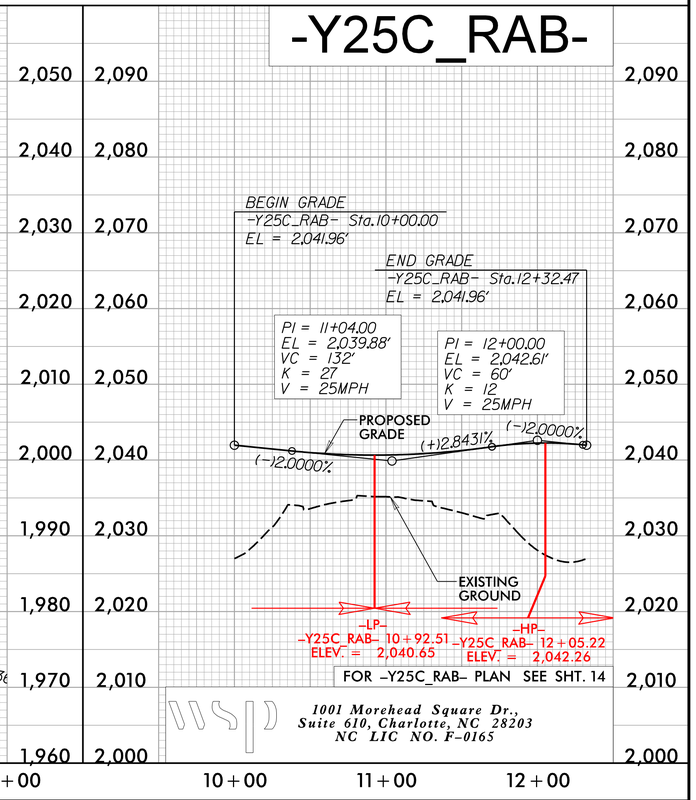

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-Y25C-

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	65
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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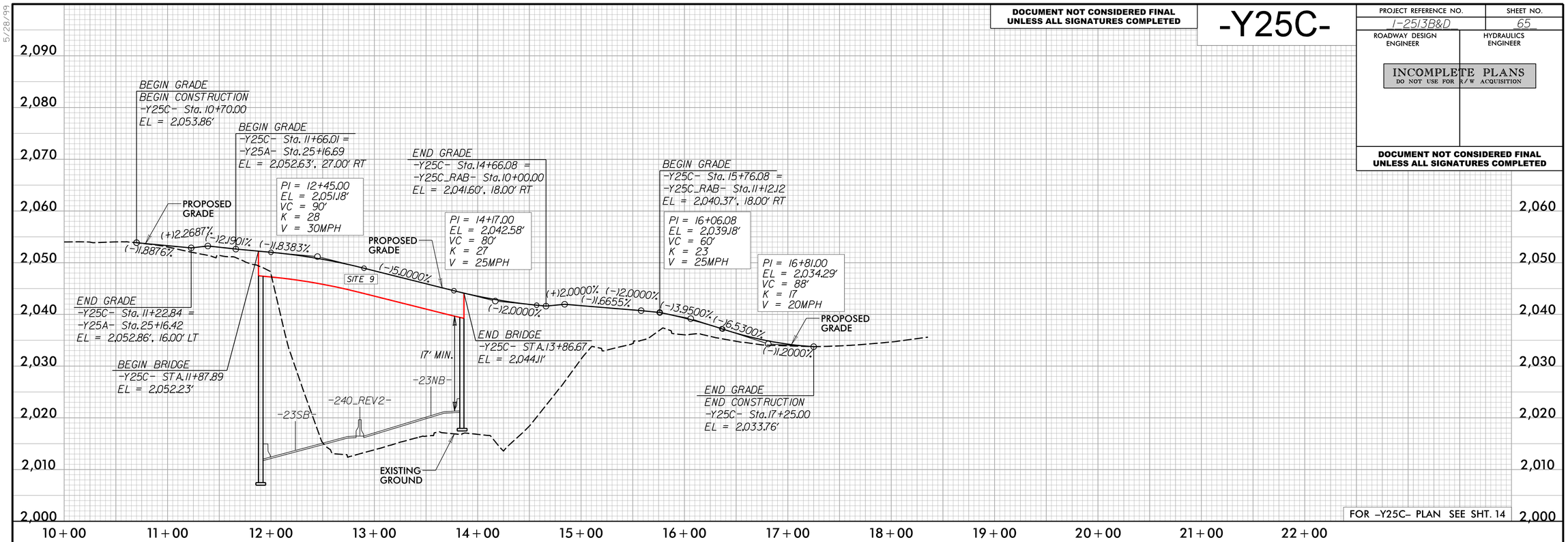

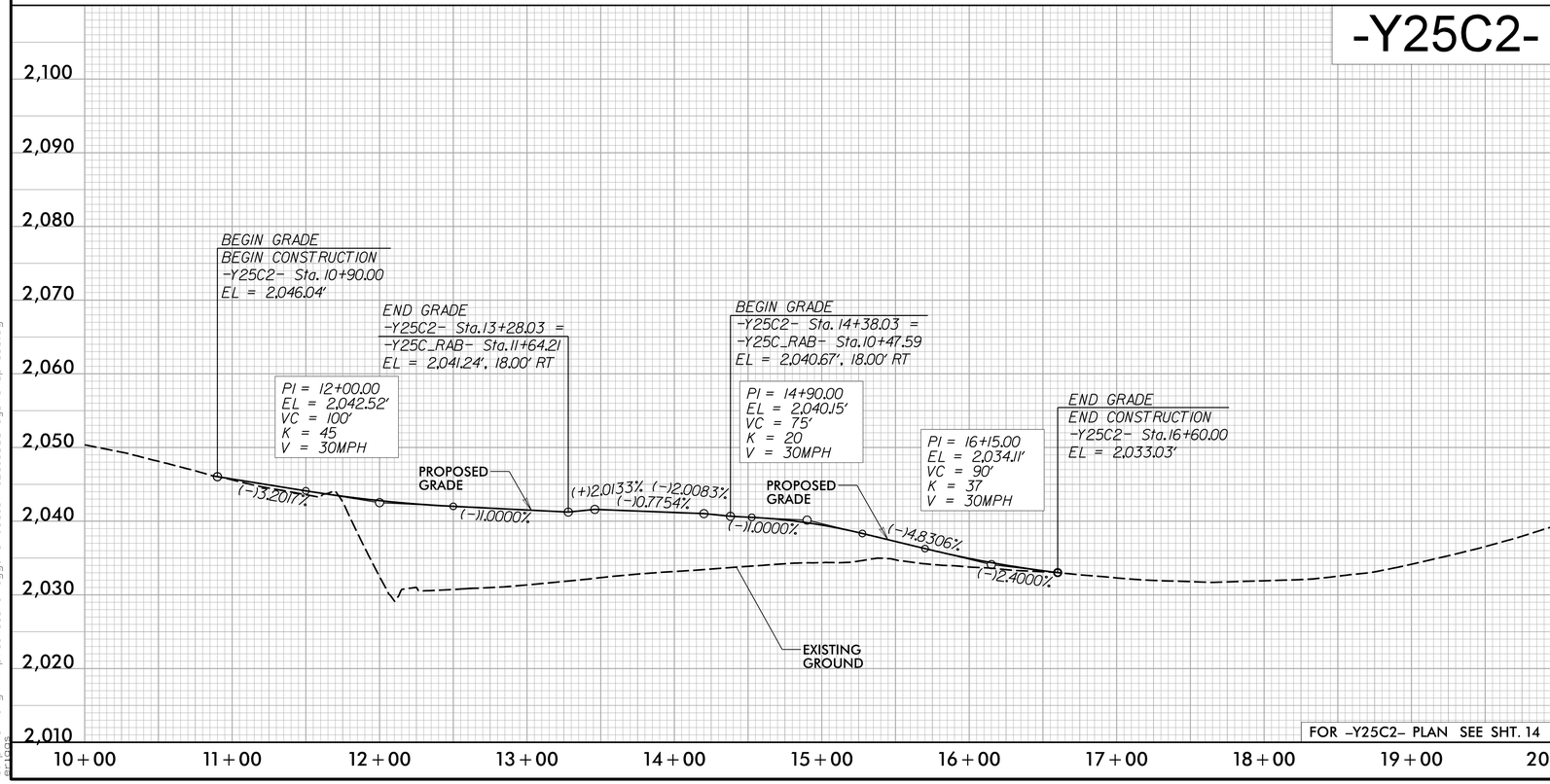

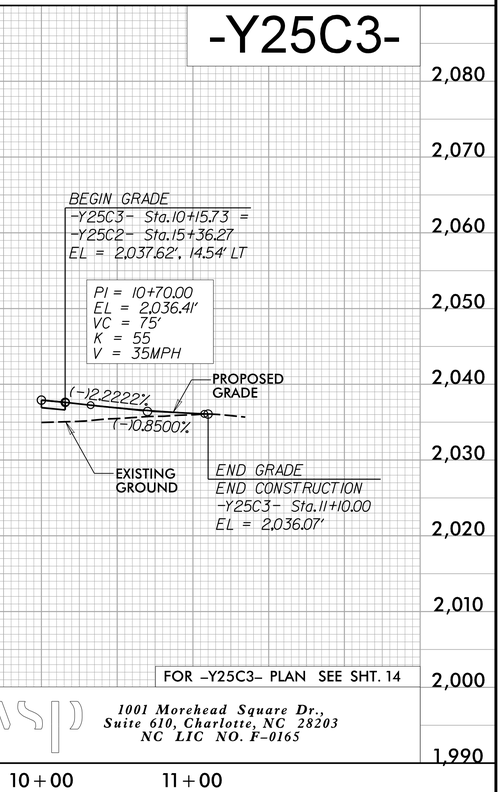

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PROJECT REFERENCE NO.	SHEET NO.
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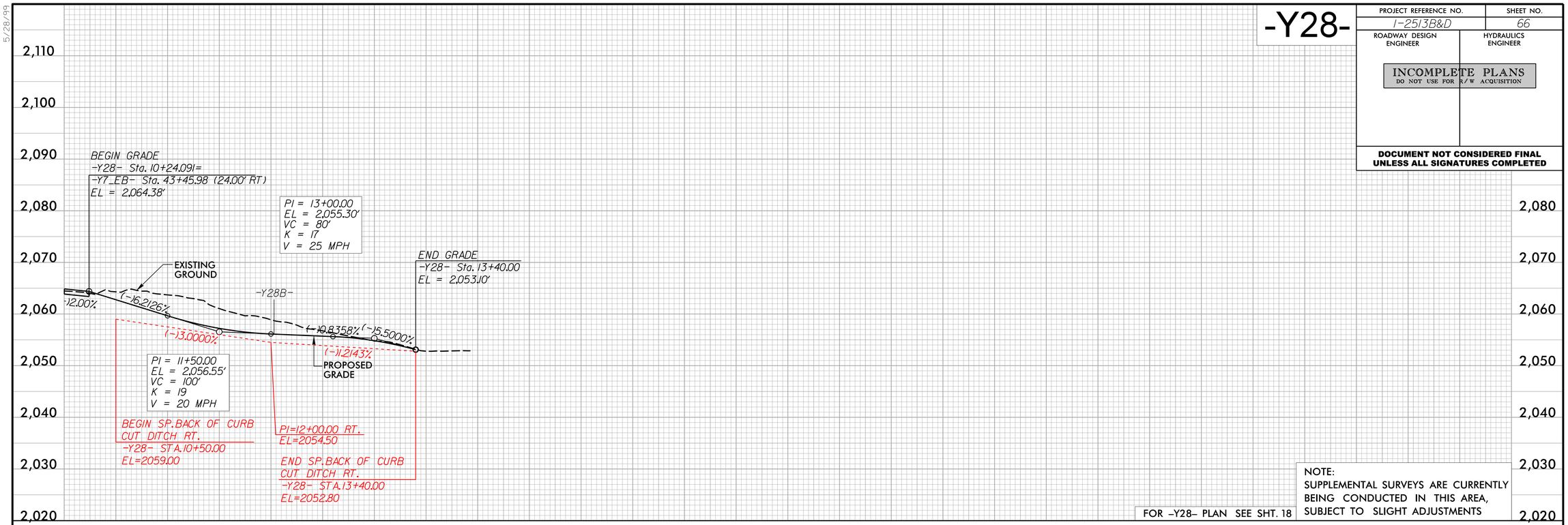
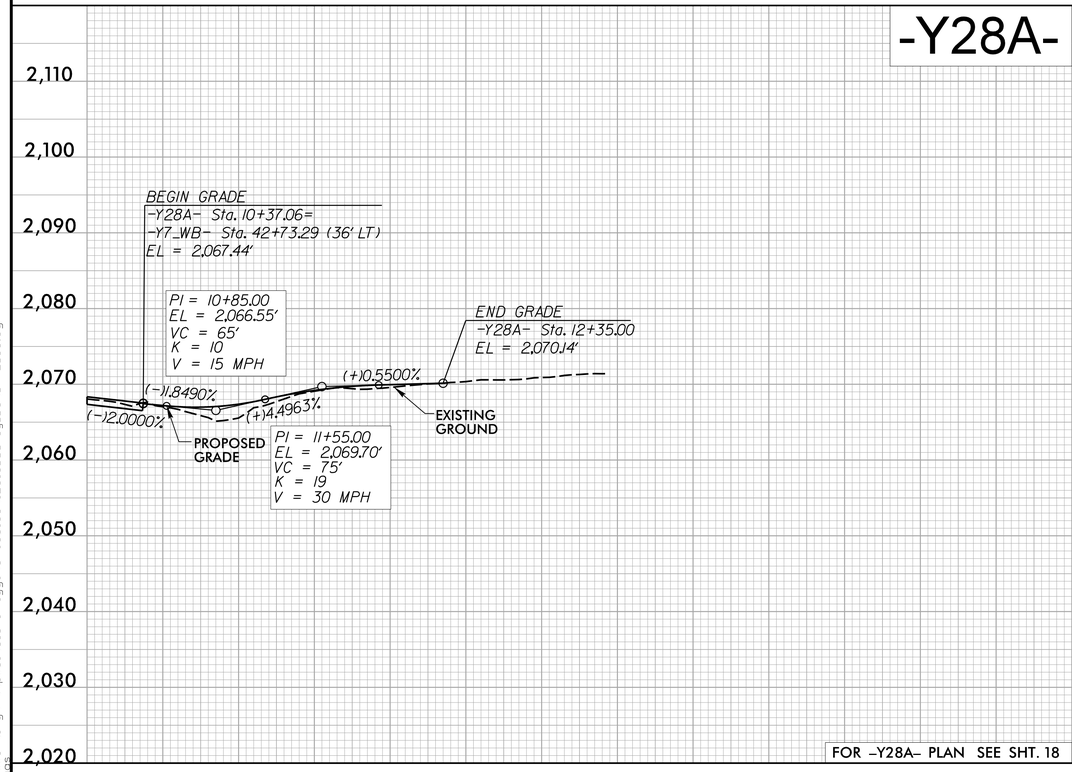
-Y28-



FOR -Y28- PLAN SEE SHT. 18

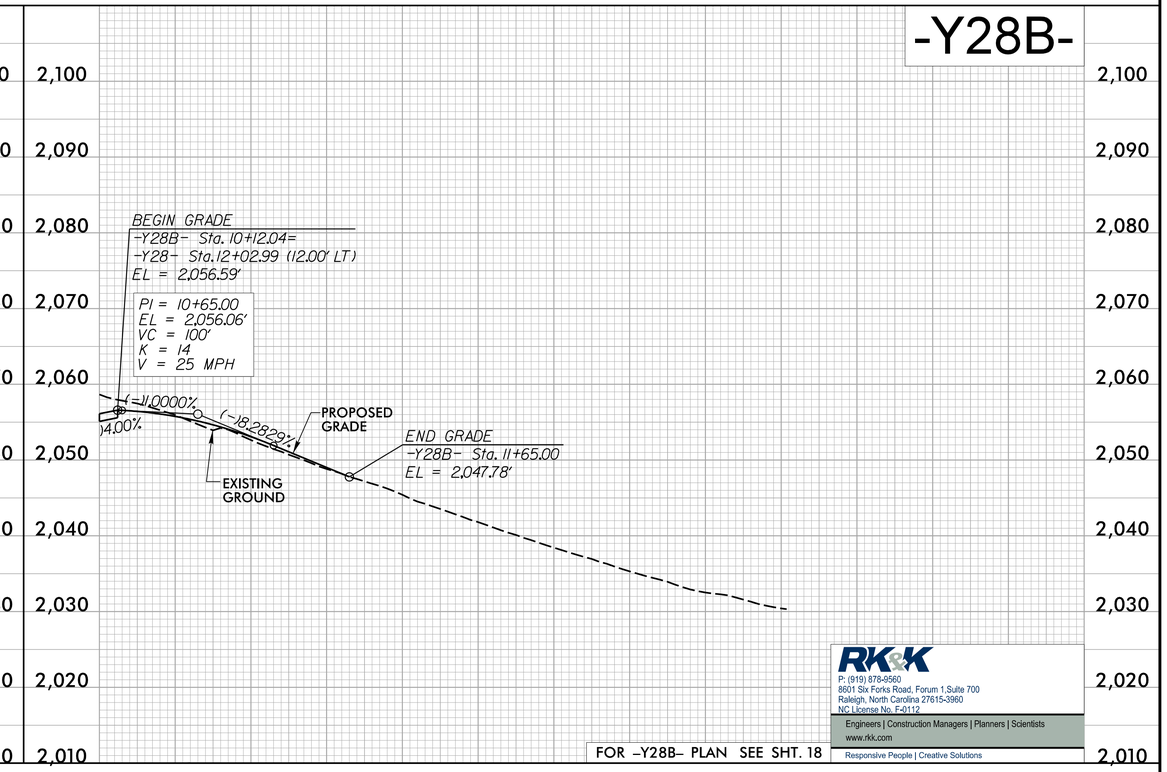
NOTE:
SUPPLEMENTAL SURVEYS ARE CURRENTLY BEING CONDUCTED IN THIS AREA, SUBJECT TO SLIGHT ADJUSTMENTS

-Y28A-



FOR -Y28A- PLAN SEE SHT. 18

-Y28B-



FOR -Y28B- PLAN SEE SHT. 18

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PROJECT REFERENCE NO.	SHEET NO.
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-Y29-

FOR -Y29- PLAN SEE SHT. 17

-Y30-

FOR -Y30- PLAN SEE SHT. 17

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-Y36_REV2-

PROJECT REFERENCE NO.	SHEET NO.
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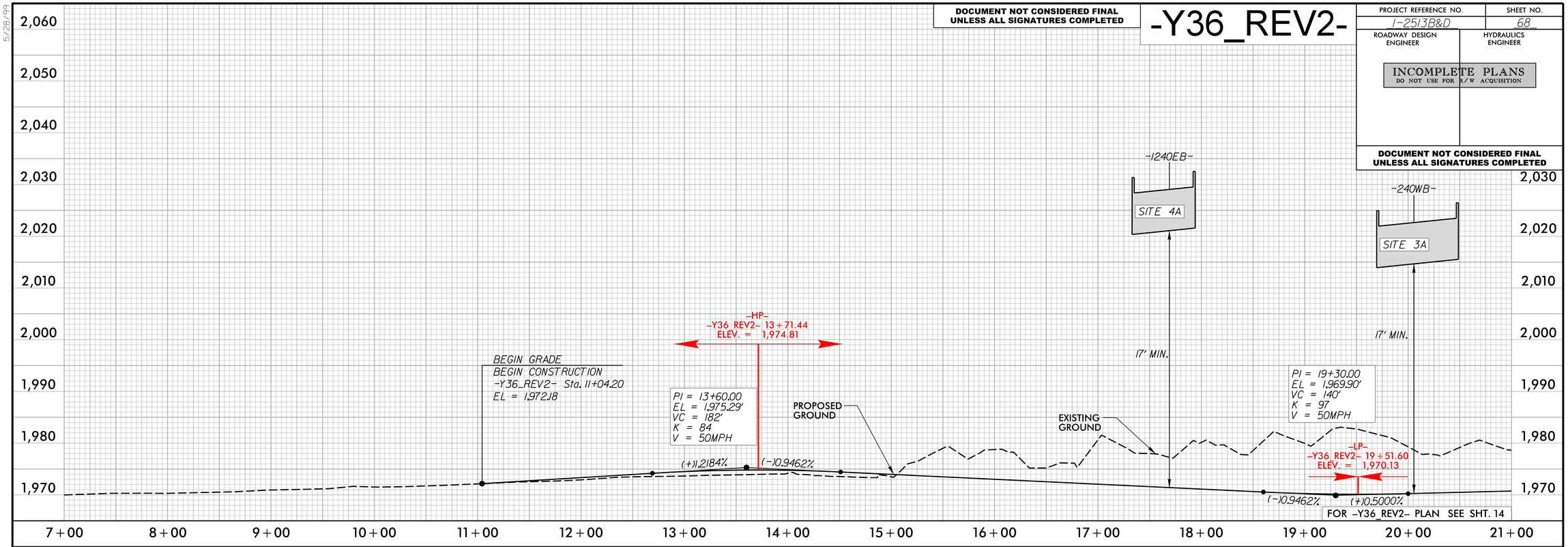

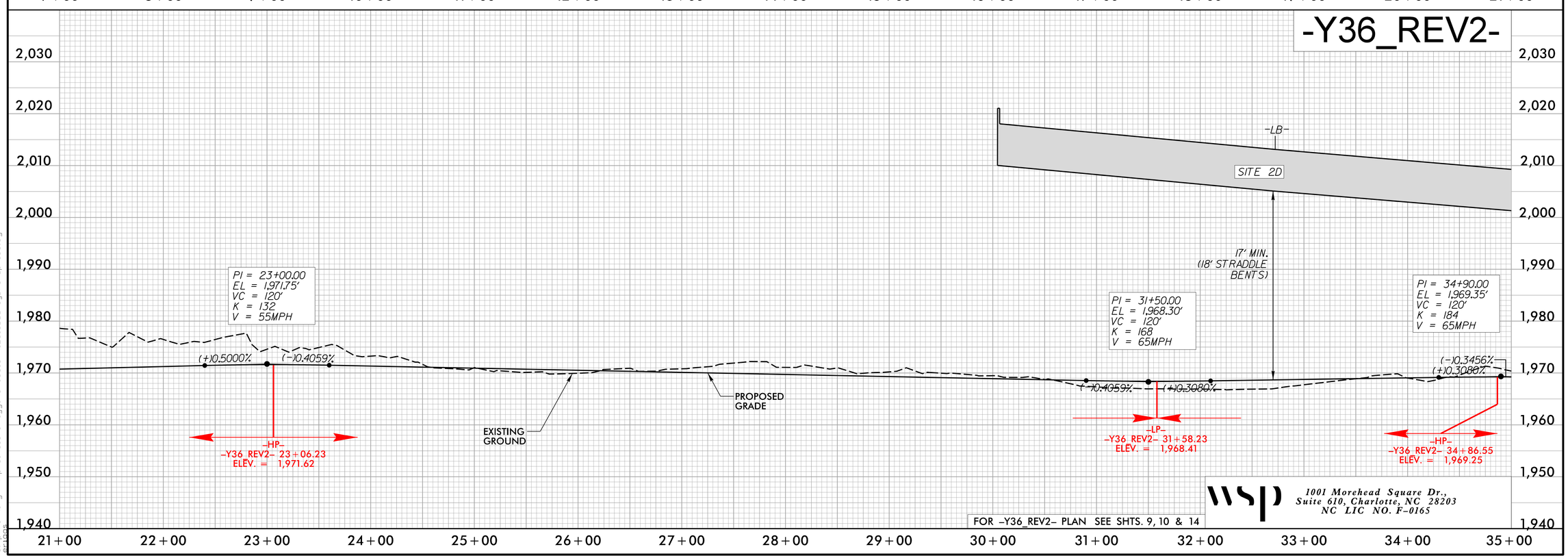

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-Y36_REV2-

PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	69
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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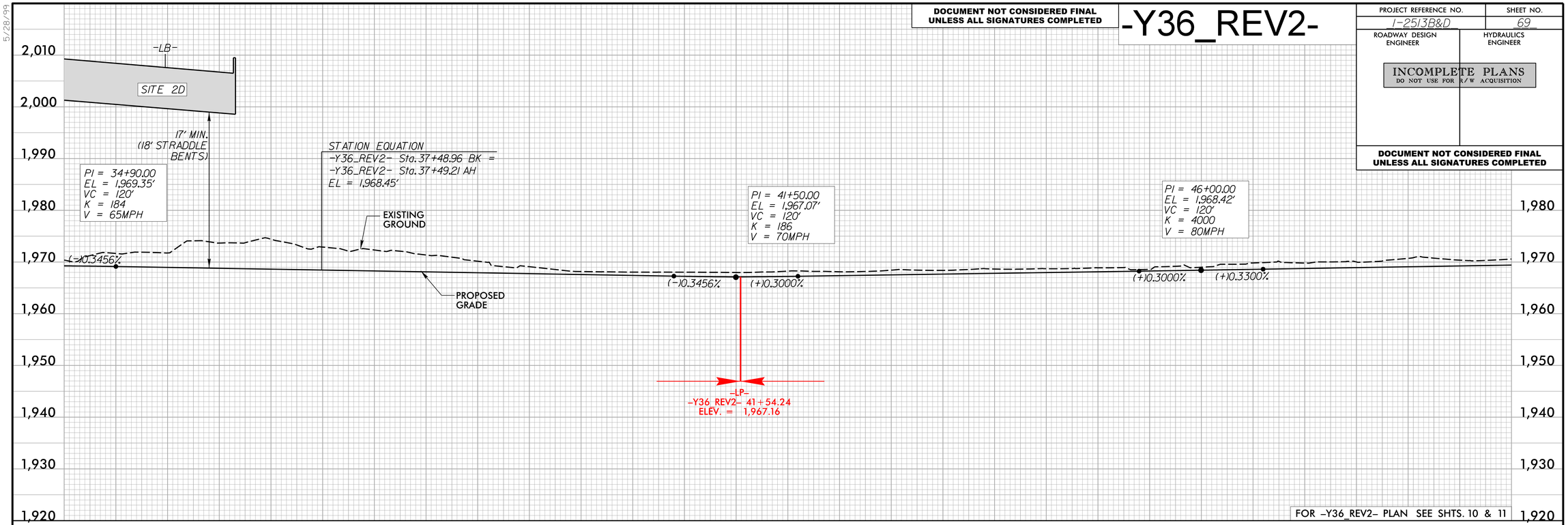
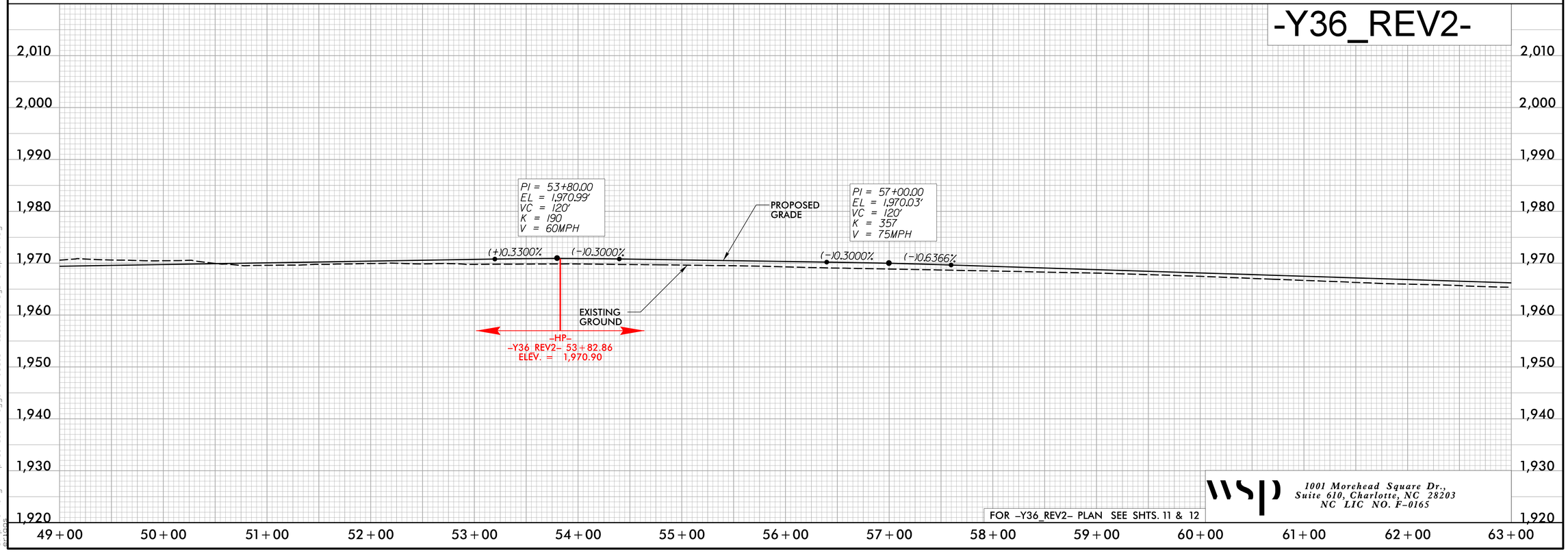


FOR -Y36_REV2- PLAN SEE SHTS. 10 & 11

-Y36_REV2-



FOR -Y36_REV2- PLAN SEE SHTS. 11 & 12

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-Y36_REV2-

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I-2513B&D	70
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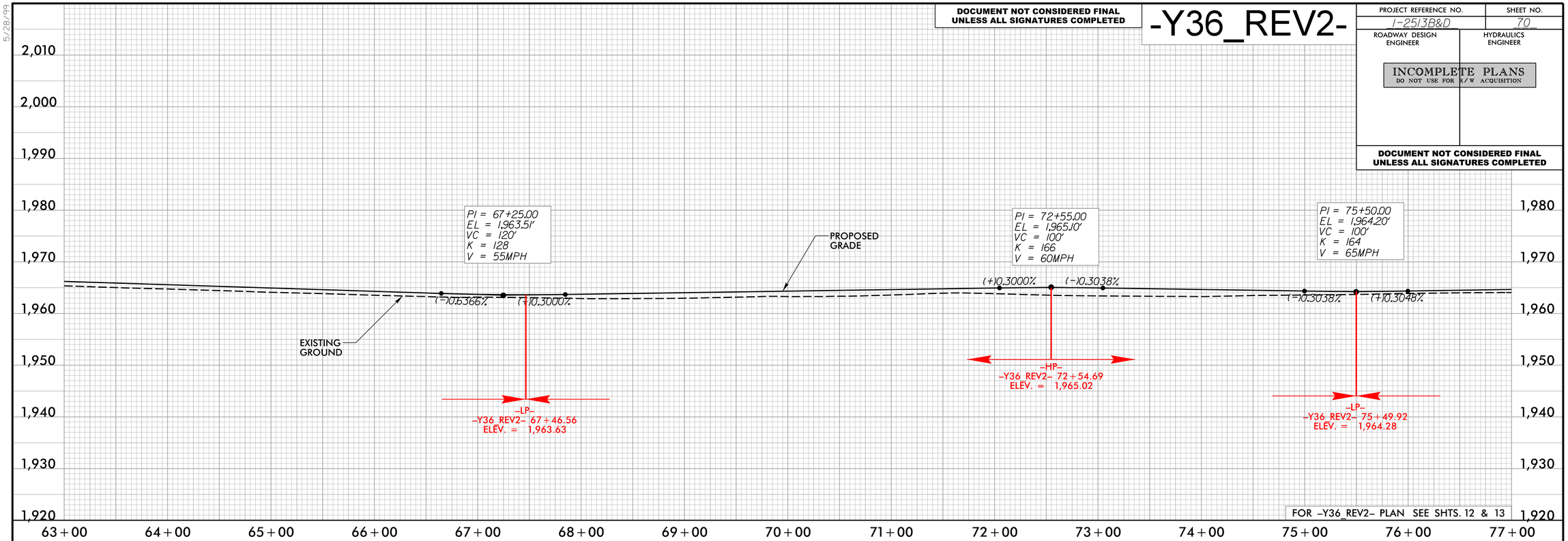

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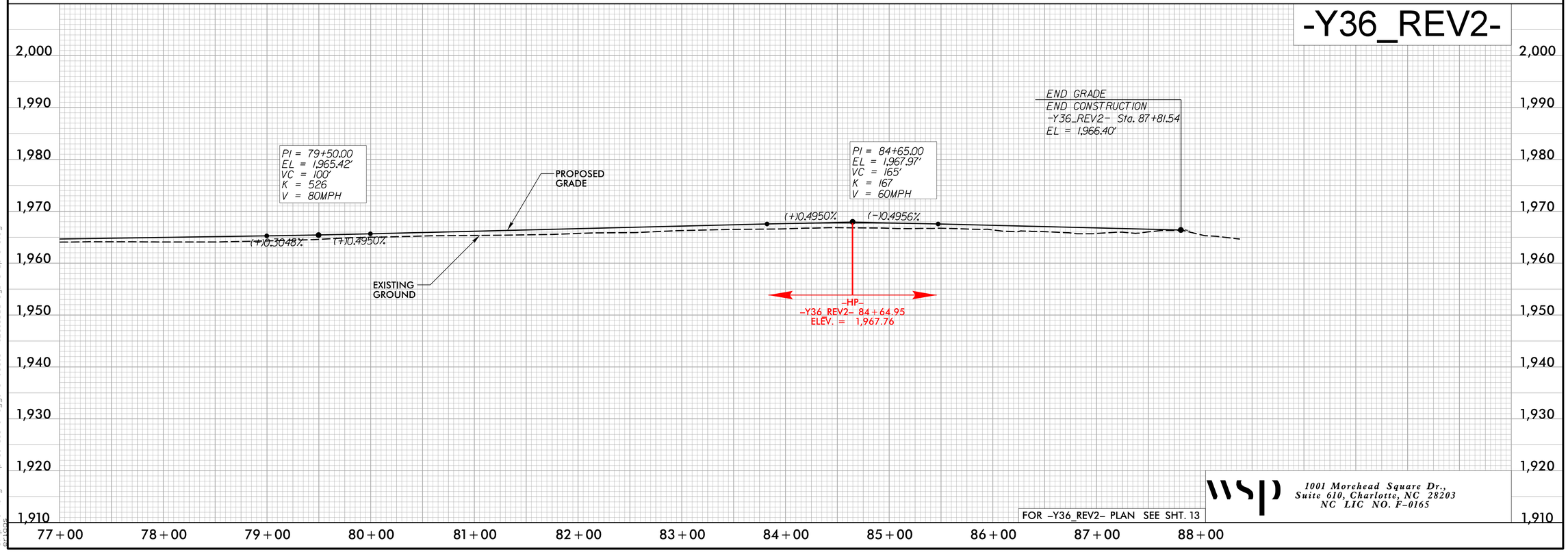

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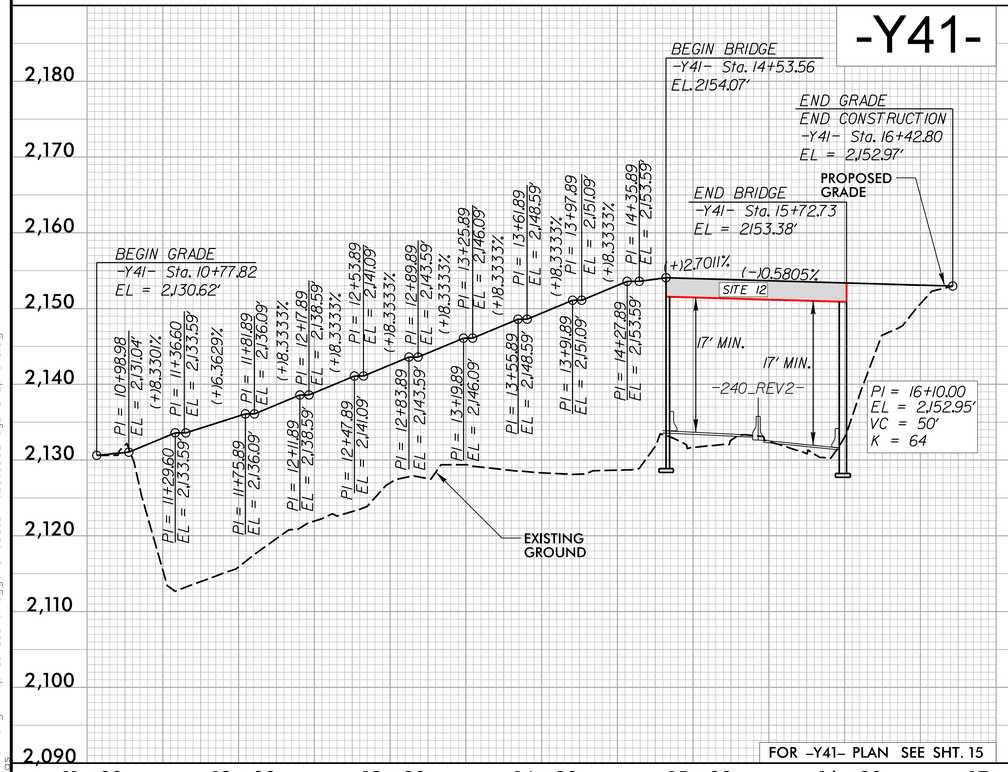
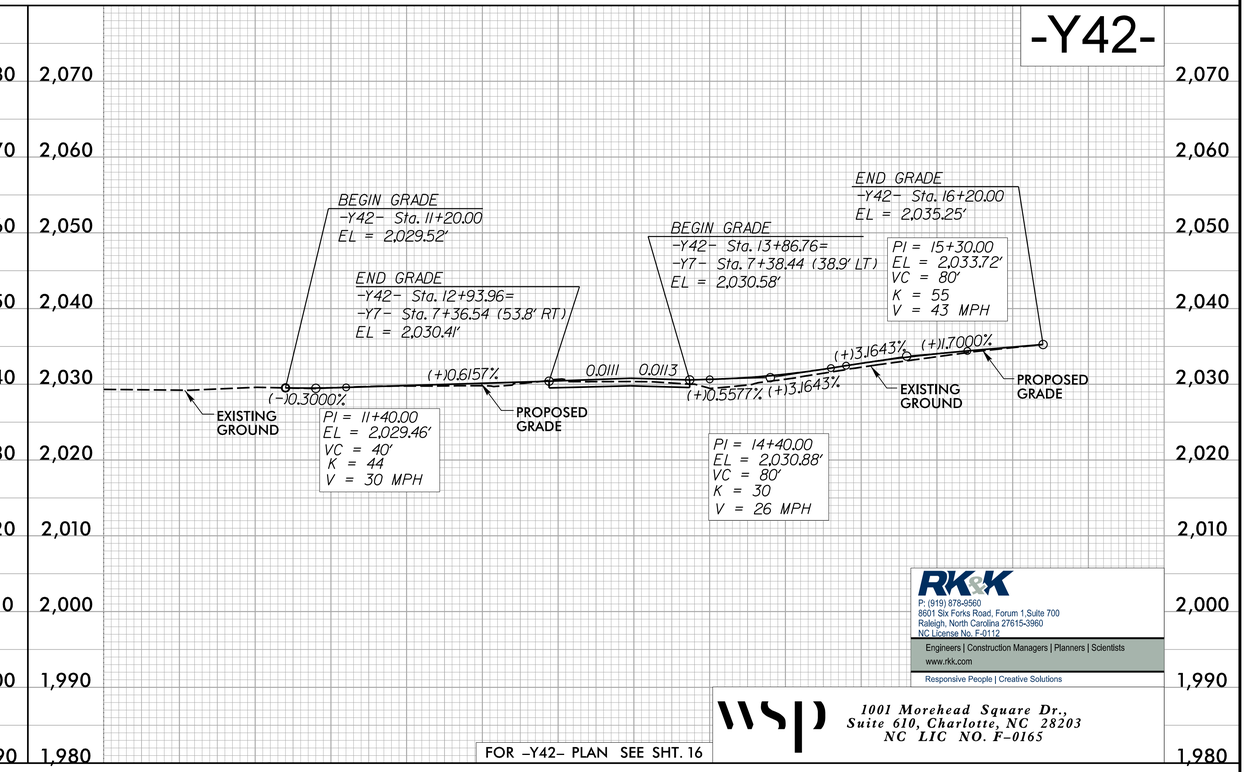
-Y37-

-Y41-



-Y42-



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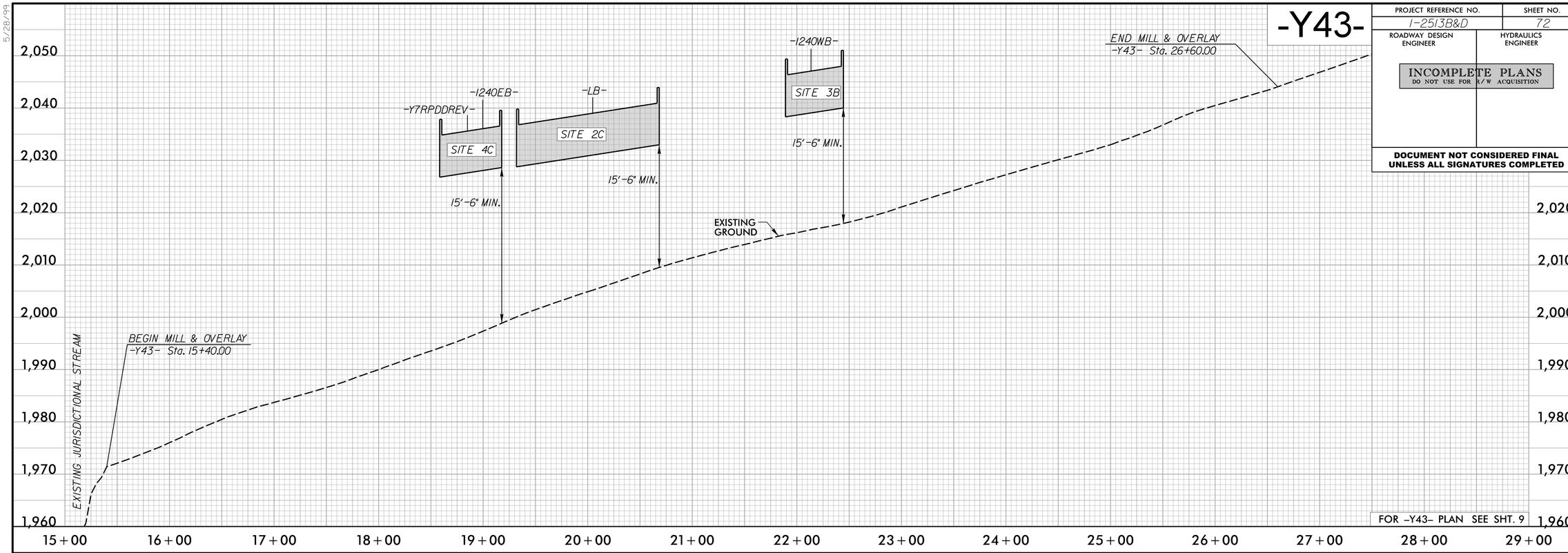
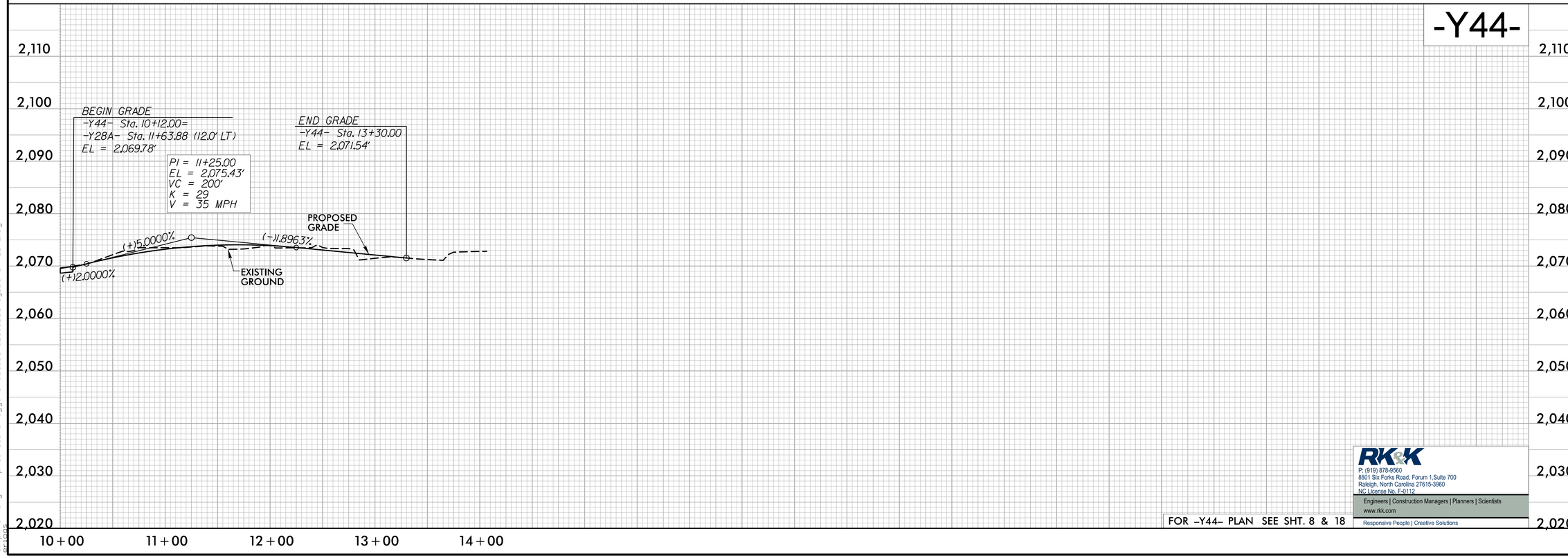
-Y43-



FOR -Y43- PLAN SEE SHT. 9

-Y44-



FOR -Y44- PLAN SEE SHT. 8 & 18

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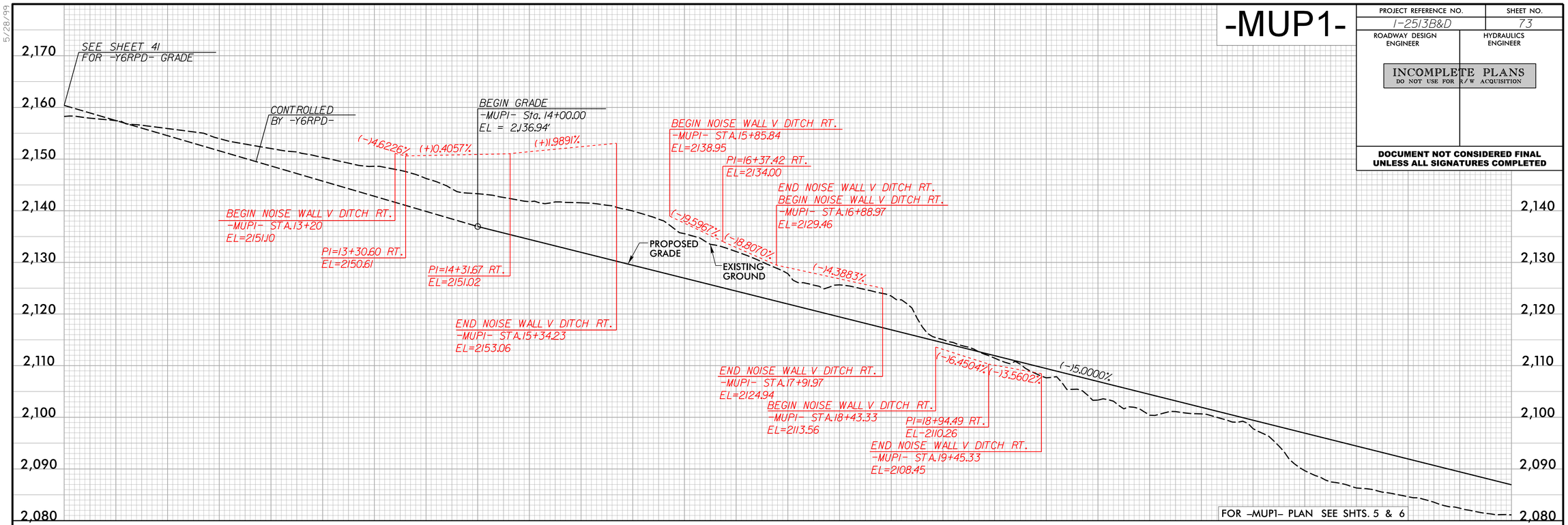
-MUP1-



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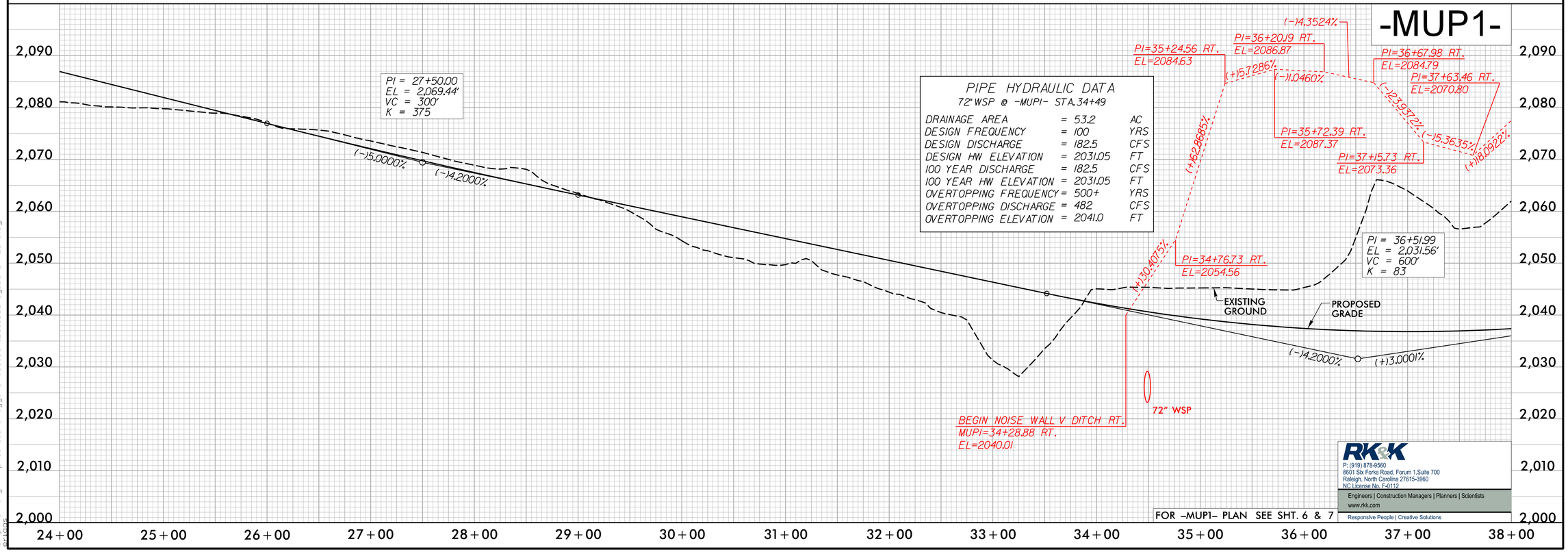

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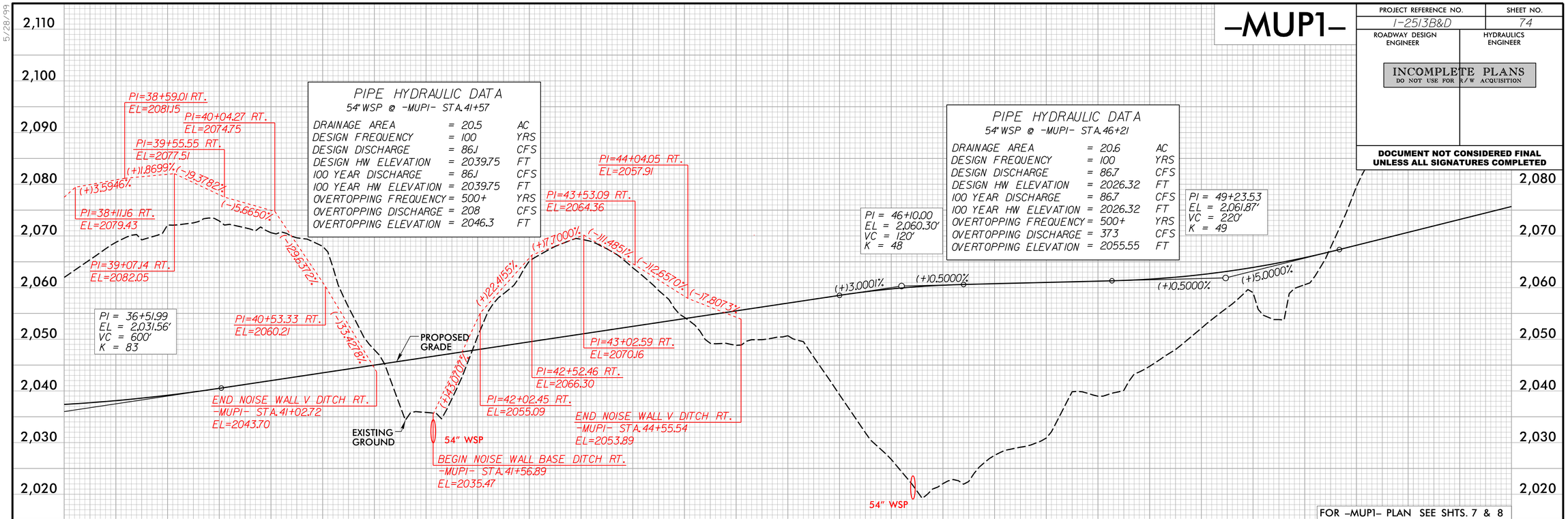
-MUP1-



PIPE HYDRAULIC DATA
54" WSP @ -MUP1- STA.41+57

DRAINAGE AREA	=	20.5	AC
DESIGN FREQUENCY	=	100	YRS
DESIGN DISCHARGE	=	86.1	CFS
DESIGN HW ELEVATION	=	2039.75	FT
100 YEAR DISCHARGE	=	86.1	CFS
100 YEAR HW ELEVATION	=	2039.75	FT
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING DISCHARGE	=	208	CFS
OVERTOPPING ELEVATION	=	2046.3	FT

PIPE HYDRAULIC DATA
54" WSP @ -MUP1- STA.46+21

DRAINAGE AREA	=	20.6	AC
DESIGN FREQUENCY	=	100	YRS
DESIGN DISCHARGE	=	86.7	CFS
DESIGN HW ELEVATION	=	2026.32	FT
100 YEAR DISCHARGE	=	86.7	CFS
100 YEAR HW ELEVATION	=	2026.32	FT
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING DISCHARGE	=	37.3	CFS
OVERTOPPING ELEVATION	=	2055.55	FT

-MUP1-

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PROJECT REFERENCE NO.	SHEET NO.
I-2513B&D	75
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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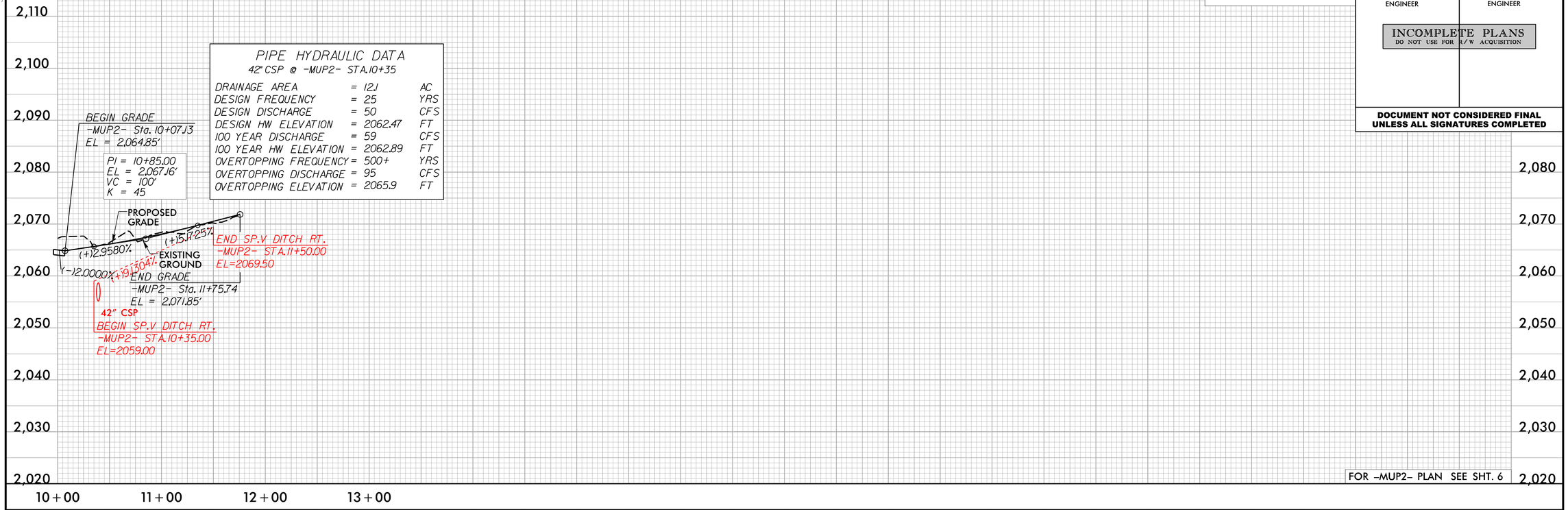
–MUP2–

PIPE HYDRAULIC DATA
42" CSP @ -MUP2- STA.10+35

DRAINAGE AREA	=	12.1	AC
DESIGN FREQUENCY	=	25	YRS
DESIGN DISCHARGE	=	50	CFS
DESIGN HW ELEVATION	=	2062.47	FT
100 YEAR DISCHARGE	=	59	CFS
100 YEAR HW ELEVATION	=	2062.89	FT
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING DISCHARGE	=	95	CFS
OVERTOPPING ELEVATION	=	2065.9	FT



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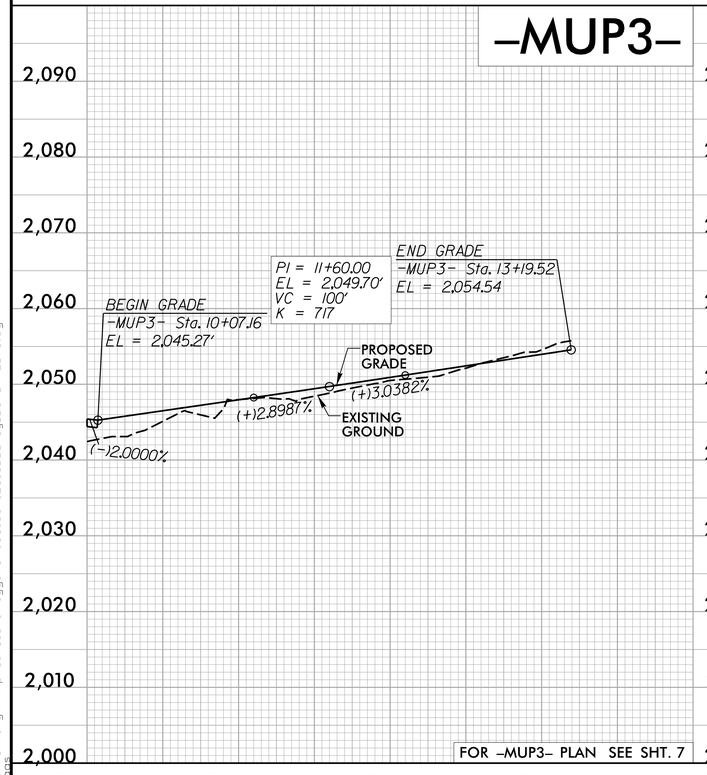

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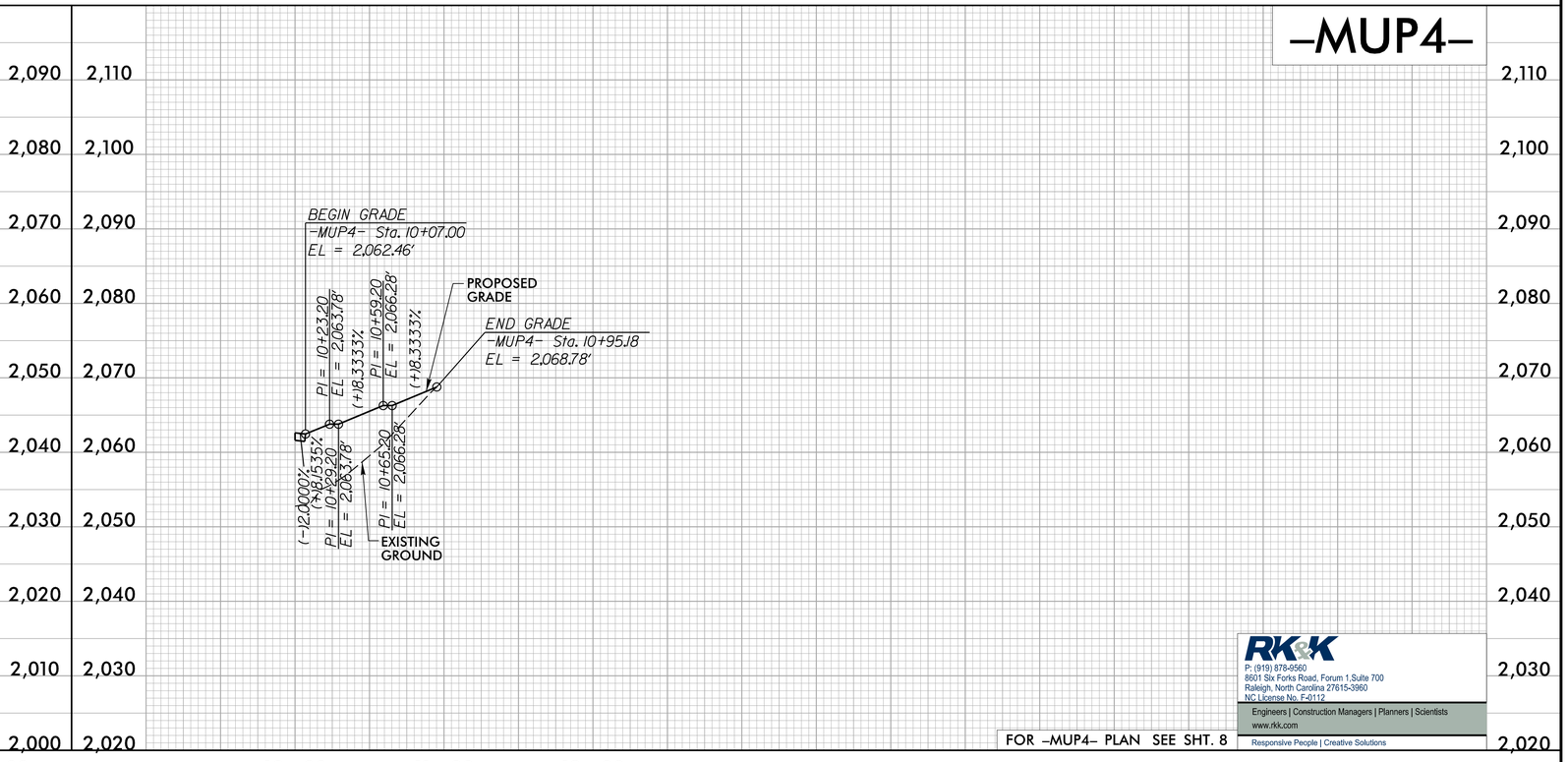

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