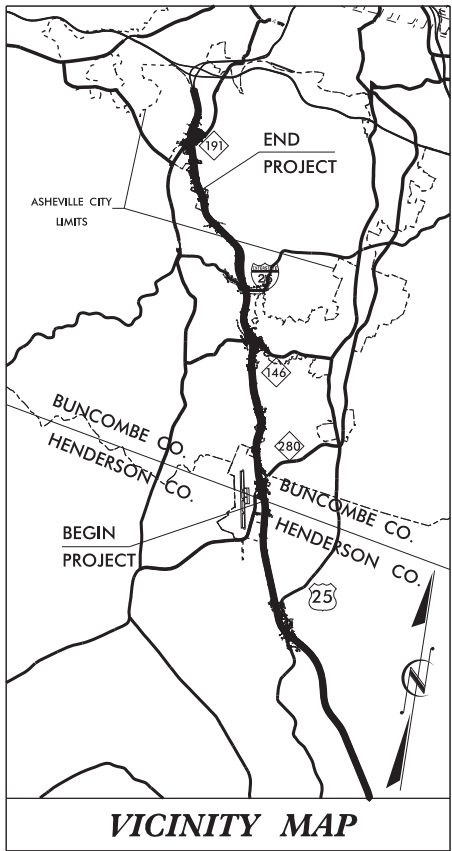


TIP PROJECT: I-4700

CONTRACT:



VICINITY MAP

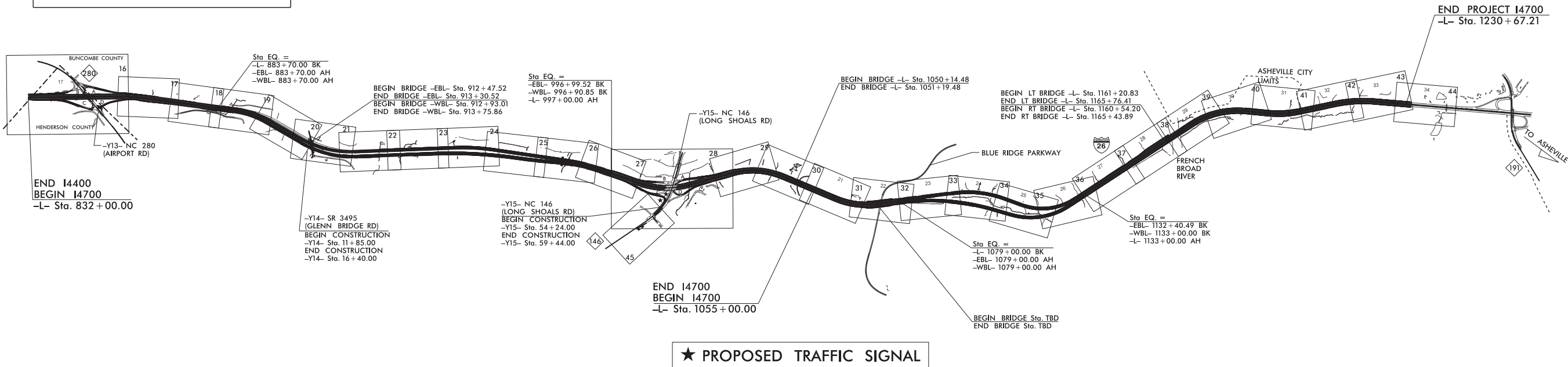
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BUNCOMBE & HENDERSON COUNTIES

LOCATION: I-26 FROM 0.3 MI EAST OF NC 280 (AIRPORT ROAD)
TO 0.5 MI EAST OF NC 191 (BREVARD ROAD)

TYPE OF WORK: GRADING, PAVING, DRAINAGE, RESURFACING, AND STRUCTURES

CP4B HYDRO CONCEPT PLANS
August 30, 2018

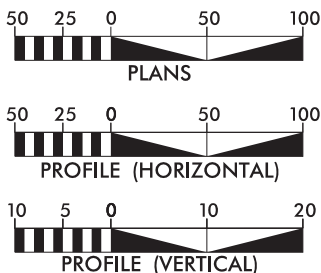


NOTE:
1. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.
2. THIS PROJECT IS PARTIALLY WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF ASHEVILLE AND CITY OF HENDERSONVILLE.
3. THIS IS A CONTROLLED- ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.

★ PROPOSED TRAFFIC SIGNAL

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

ADT 2011 = 72,000
ADT 2040 = 117,900
DHV = 11,790
D = 55%
T = 10% *
V = 65 MPH
* TTST = 4% DUAL 6%
FUNC CLASS = INTERSTATE
STATEWIDE TIER

PROJECT LENGTH

TOTAL LENGTH OF ROADWAY TIP PROJECT
I-4700A / I-4700B = 7.369 MI
TOTAL LENGTH OF STRUCTURES OF TIP PROJECT
I-4700A / I-4700B = 0.121 MI
TOTAL LENGTH OF TIP PROJECT
I-4700A / I-4700B = 7.490 MI
NOTE: LENGTHS WERE CALCULATED USING THE WBL ALIGNMENT

Prepared In the Office of:

HNTB

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
July 1, 2018

LETTING DATE:
June 2019

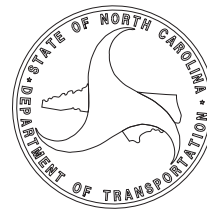
JOSEPH OLSON, P.E.
PROJECT ENGINEER
JEFF HESS, P.E.
PROJECT DESIGN ENGINEER
WANDA AUSTIN, P.E.
NCDOT CONTACT

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN
ENGINEER

SIGNATURE: _____ P.E.



FINAL PAVEMENT RECOMMENDATION
13.0" CONCRETE
NONWOVEN GEOTEXTILE INTERLAYER
1.25" S9.5B
12" AGGREGATE SUBGRADE TYPE I

OUTSIDE AND MEDIAN SHOULDER DESIGNS ARE AS FOLLOWS:

3.0" S9.5C
4.0" 19.0C
7.25" B25.0C
12.0" AGGREGATE SUBGRADE TYPE I

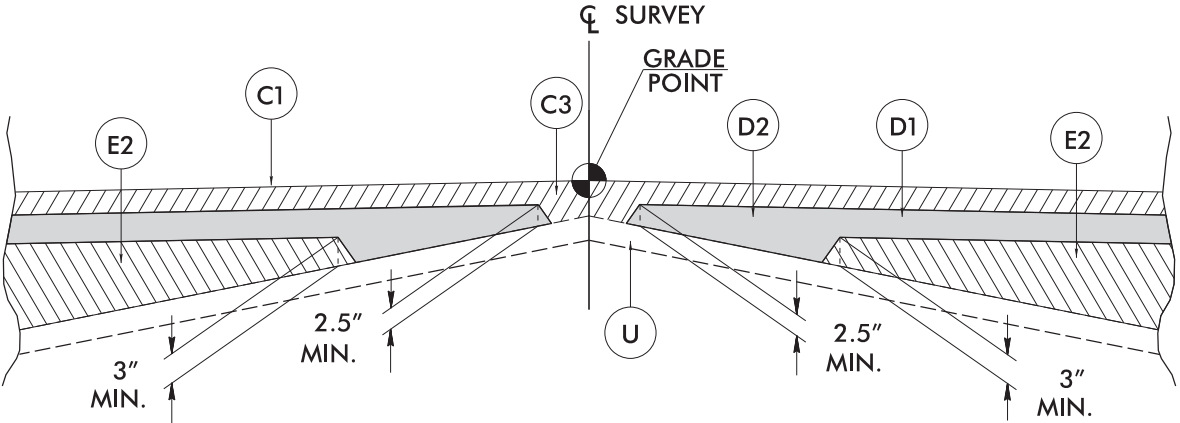
HNTB

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.		SHEET NO.
1-4700A/B		2A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER	

NOTE: TYPICAL SECTIONS DO NOT REFLECT
THE FINAL PAVEMENT RECOMMENDATIONS.

Y-LINES	SURFACE	INTERMED.	BASE	ABC	CTABC	STAB.
Y10 (US-25)	3.0" S9.5C	4.0" 119.0C	4.0" B25.0C	-	-	NO
Y10RPA	3.0" S9.5C	4.0" 119.0C	4.0" B25.0C	-	-	NO
Y10RPB	3.0" S9.5C	4.0" 119.0C	4.0" B25.0C	-	-	NO
Y10RPC	3.0" S9.5C	4.0" 119.0C	4.0" B25.0C	-	-	NO
Y10RPD	3.0" S9.5C	4.0" 119.0C	4.0" B25.0C	-	-	NO
Y11 (SR 1345 BUTLER BRIDGE RD.)	3.0" S9.5B	4.0" 119.0C	4.0" B25.0C	-	-	NO
Y12 (SR 1358 FANNING BRIDGE RD.)	3.0" S9.5B	2.5" 119.0C	4.0" B25.0C	-	-	NO
Y13 (NC 280 AIRPORT RD.)	3.0" S9.5C	4.0" 119.0C	4.0" B25.0C	-	-	NO
Y17 (SR 1561 MAXWELL DR.)	2.5" S9.5B	-	4.0" B25.0C			NO
Y20 (UNDERWOOD RD.)	3.0" S9.5B	2.5" 119.0C	4.0" B25.0C	-	-	NO
Y21 (SR 1366 CURETON PL.)	2.5" S9.5B	-	4.0" B25.0C			NO
Y22 (SR 1365 NORTH RUGBY RD.)	2.5" S9.5B	-	4.0" B25.0C			NO
Y13RPA	3.0" S9.5C	4.0" 119.0C	4.0" B25.0C	-	-	NO
Y13RPB	3.0" S9.5C	4.0" 119.0C	4.0" B25.0C	-	-	NO
Y13RPC	3.0" S9.5C	4.0" 119.0C	4.0" B25.0C	-	-	NO
Y13RPD	3.0" S9.5C	4.0" 119.0C	4.0" B25.0C	-	-	NO
RESTA, RESTB, RESTC, RESTD	9.0" CONCRETE 6.0" ABC					



Detail Showing Method of Wedging



HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.

1-4700A/B

SHEET NO.

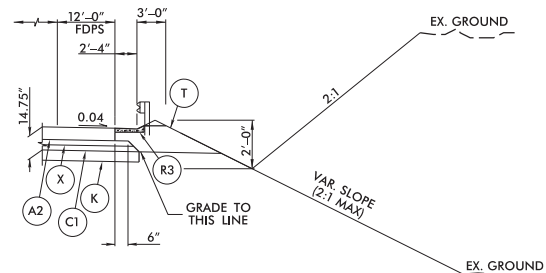
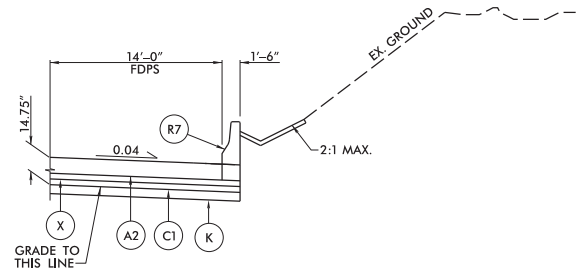
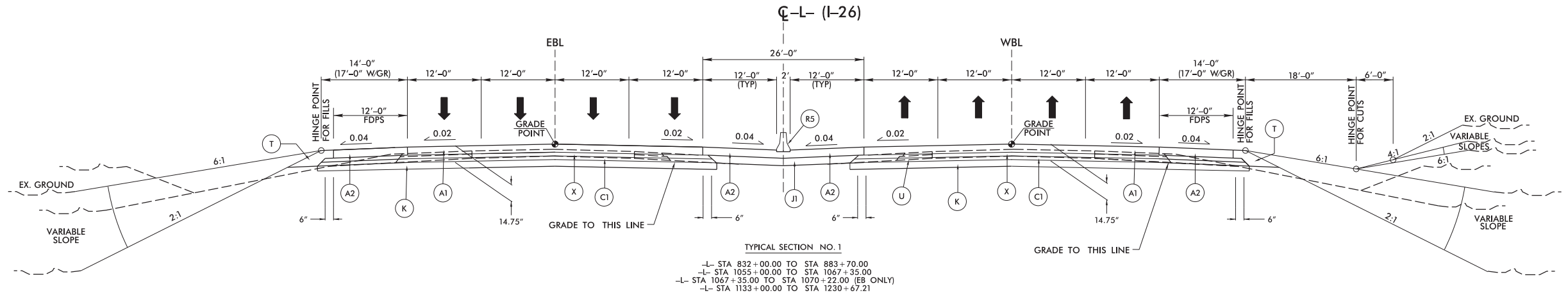
2A-1

ROADWAY DESIGN
ENGINEER

PAVEMENT DESIGN
ENGINEER

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

NOTE: TYPICAL SECTIONS DO NOT REFLECT
THE FINAL PAVEMENT RECOMMENDATIONS.



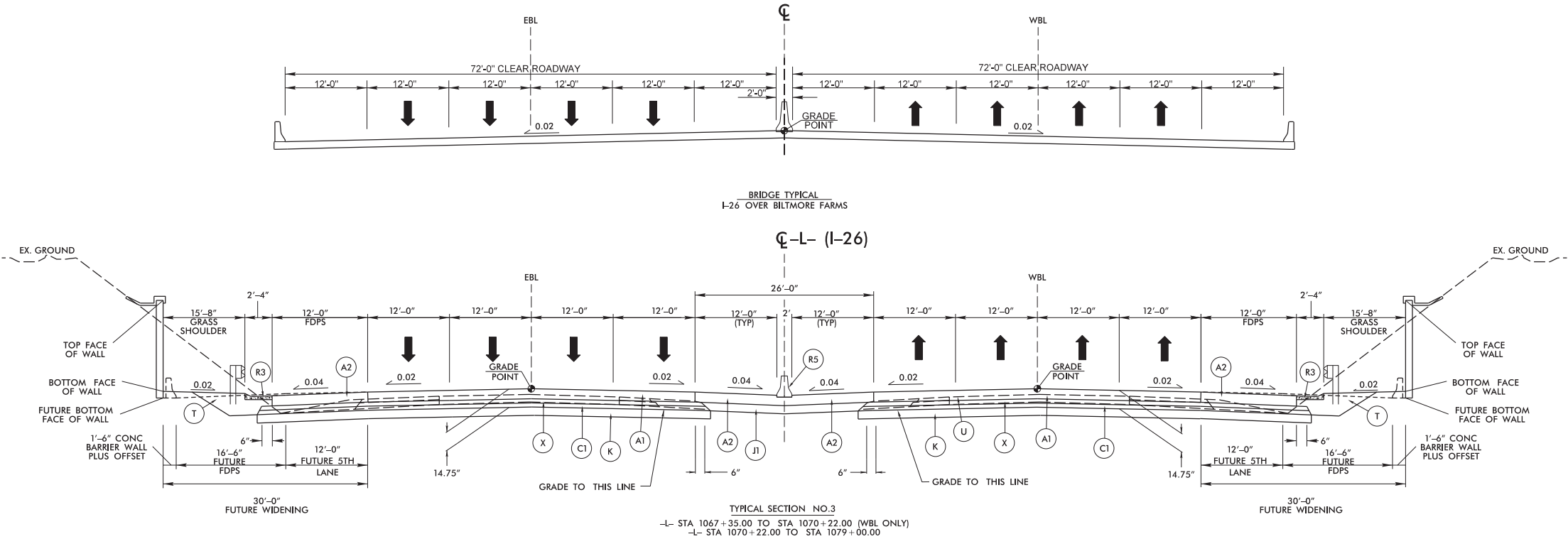
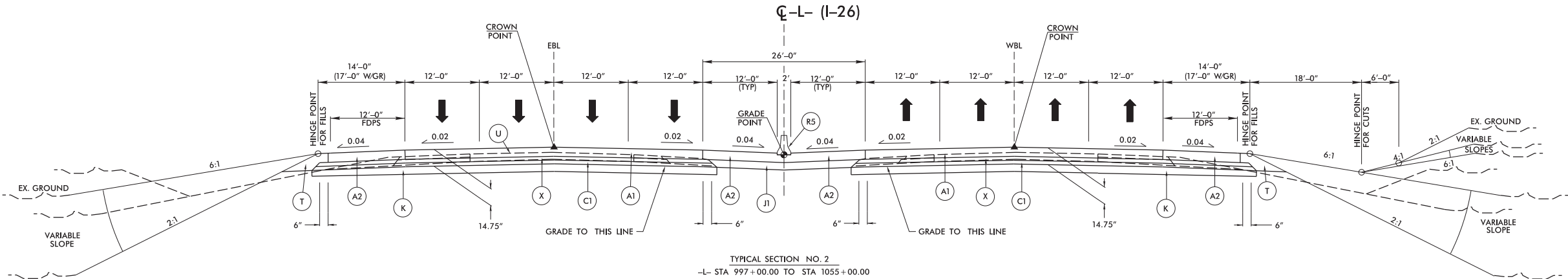
USE IN CONJUNCTION WITH TYPICAL SECTIONS NO.1, 2, 4A, 4B, 5 & 6

- L- STA 832+00.00 TO STA 833+84.17 LT (INVERT)
- L- STA 833+50.00 TO STA 837+83.27 RT
- L- STA 863+03.72 TO STA 869+00.00 LT (INVERT)
- L- STA 863+50.77 TO STA 871+00.00 RT
- Y13RPA- STA 10+00.00 TO STA 15+00.00 RT
- Y13RPB- STA 10+00.00 TO STA 17+00.00 LT (INVERT)
- Y13RPC- STA 10+00.00 TO STA 18+61.50 RT
- L- STA 874+75.00 TO STA 878+00.00 LT (INVERT)
- L- STA 880+50.00 TO STA 889+00.00 RT
- WBL- STA 922+50.00 TO STA 981+00.00 LT (INVERT)
- EBL- STA 932+00.00 TO STA 989+00.00 LT (INVERT)
- WBL- STA 951+25.00 TO STA 959+75.00 RT
- WBL- STA 981+00.00 TO STA 986+00.00 RT
- EBL- STA 996+75.00 TO STA 1009+35.00 LT (INVERT)
- L- STA 1000+50.00 TO STA 1006+00.00 RT
- Y15RPA- STA 1022+00.00 TO STA 1033+00.00 LT (INVERT)
- L- STA 1026+50.00 TO STA 1050+16.41 RT
- L- STA 1044+25.00 TO STA 1050+16.41 LT (INVERT)
- L- STA 1051+21.41 TO STA 1055+00.00 RT
- L- STA 1051+21.41 TO STA 1055+00.00 LT (INVERT)
- L- STA 1055+00.00 TO STA 1067+35.00 RT
- L- STA 1055+00.00 TO STA 1070+00.00 LT (INVERT)
- WBL- STA 1081+72.00 TO STA 1093+89.00 RT
- WBL- STA 1088+50.00 TO STA 1128+50.00 LT (INVERT)
- WBL- STA 1100+50.00 TO STA 1108+40.00 RT
- WBL- STA 1114+27.00 TO STA 1133+00.00 RT
- EBL- STA 1084+38.51 TO STA 1089+00.00 RT
- EBL- STA 1084+82.00 TO STA 1085+50.00 LT (INVERT)
- EBL- STA 1093+30.00 TO STA 1094+75.00 LT (INVERT)
- EBL- STA 1094+00.00 TO STA 1124+00.00 RT
- EBL- STA 1102+25.00 TO STA 1106+78.00 LT (INVERT)
- EBL- STA 1125+80.00 TO STA 1132+40.49 LT (INVERT)
- L- STA 1133+00.00 TO STA 1140+75.00 LT (INVERT)
- L- STA 1133+00.00 TO STA 1160+27.15 RT
- L- STA 1170+25.00 TO STA 1178+25.00 RT
- L- STA 1175+75.00 TO STA 1182+79.00 LT (INVERT)
- L- STA 1181+30.00 TO STA 1193+75.00 RT
- L- STA 1198+25.00 TO STA 1217+69.00 LT (INVERT)
- L- STA 1206+75.00 TO STA 1213+25.00 RT
- L- STA 1228+75.00 TO STA 1230+67.21 LT (INVERT)
- L- STA 1228+75.00 TO STA 1230+67.21 RT

NOTE: SEE PLANS FOR SUPERELEVATIONS, TURN LANES, MONOLITHIC ISLANDS, CURB AND GUTTER, AND LANE TAPER LOCATIONS.

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

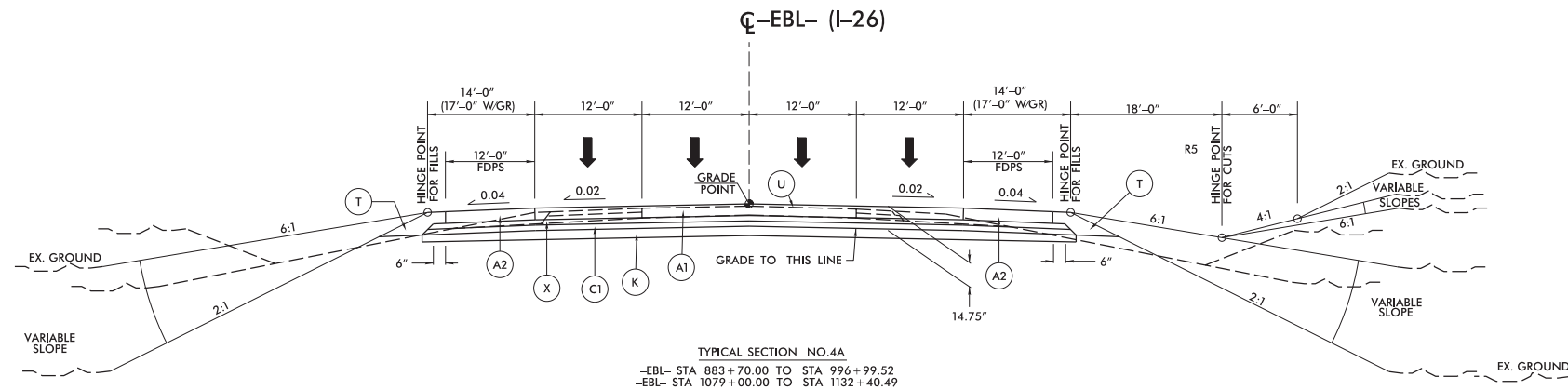
NOTE: TYPICAL SECTIONS DO NOT REFLECT
THE FINAL PAVEMENT RECOMMENDATIONS.



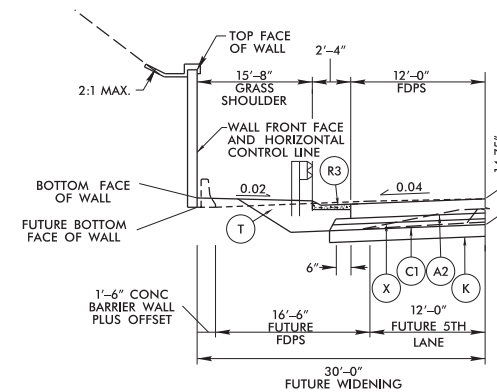
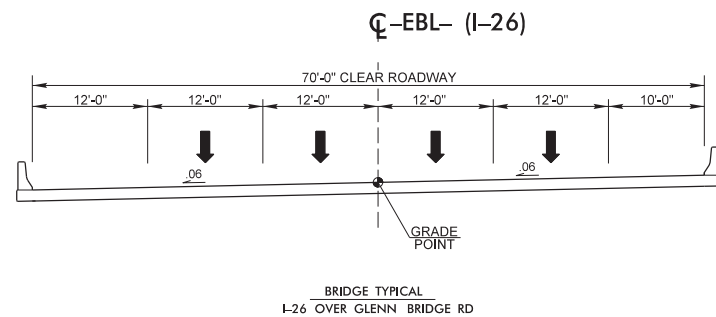
NOTE: SEE PLANS FOR SUPERELEVATIONS, TURN LANES, MONOLITHIC ISLANDS, CURB AND GUTTER, AND LANE TAPER LOCATIONS.

6/2/99

<div>HNTB</div> <div>HNTB NORTH CAROLINA, P.C. 343 E. Six Forks Road, Suite 200 Raleigh, North Carolina 27609 NC License No: C-1554</div>	PROJECT REFERENCE NO.		SHEET NO.
	1-4700A/B		2A-3
	ROADWAY DESIGN ENGINEER		PAVEMENT DESIGN ENGINEER
	DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		



NOTE: TYPICAL SECTIONS DO NOT REFLECT THE FINAL PAVEMENT RECOMMENDATIONS.

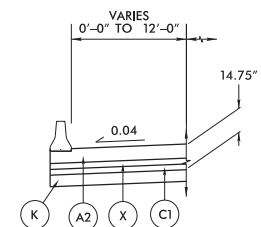


CUT WALL WITH SHOULDER BERM GUTTER AND GUARDRAIL DETAIL

USE IN CONJUNCTION WITH TYPICAL SECTIONS NO.4A & 4B

-WBL- STA 1079+00.00 TO STA 1081+72.00 RT (INVERT)

-EBL- STA 1079+00.00 TO STA 1084+82.00 LT



MEDIAN BARRIER DETAIL

USE IN CONJUNCTION WITH TYPICAL SECTIONS NO.4A & 4B

-WBL- STA 883+70.00 TO STA 894+00.00 LT

-EBL- STA 883+70.00 TO STA 899+00.00 RT (INVERT)

-WBL- STA 984+00.00 TO STA 996+90.85 LT

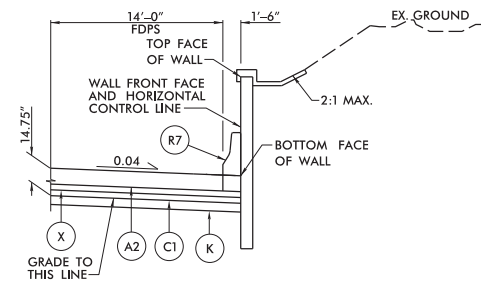
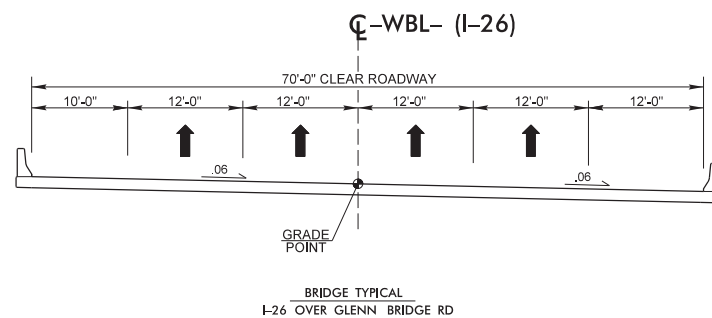
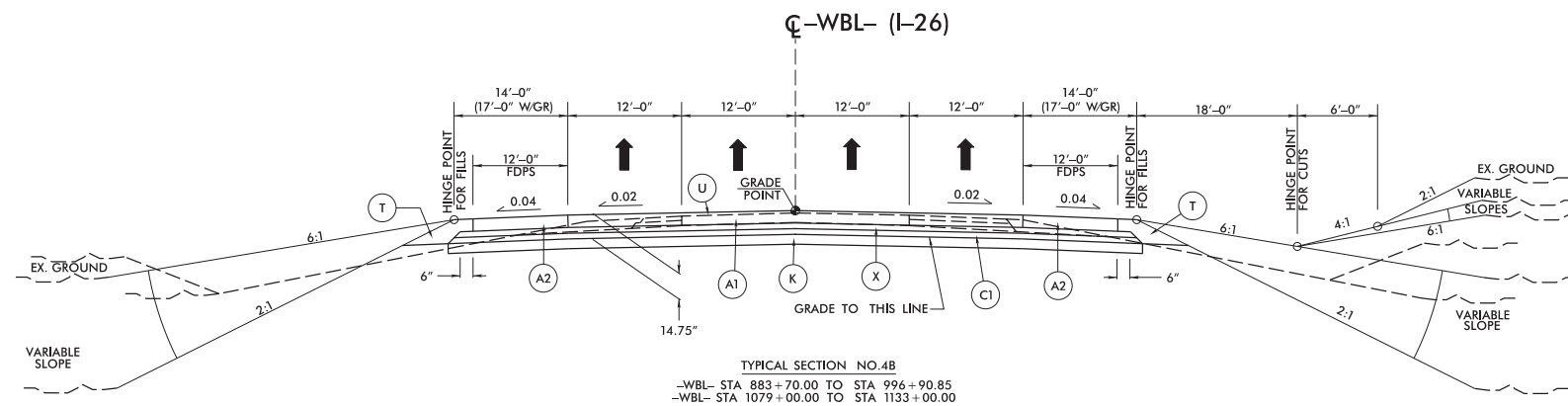
-EBL- STA 981+00.00 TO STA 996+99.52 RT (INVERT)

-EBL- 1079+00.00 TO STA 1084+38.51 RT (INVERT)

-EBL- STA 1124+00.00 TO STA 1132+40.49 RT (INVERT)

-WBL- STA 1079+00.00 TO STA 1088+50.00 LT

-WBL- STA 1128+50.00 TO STA 1133+00.00 LT



CUT WALL DETAIL

USE IN CONJUNCTION WITH TYPICAL SECTIONS NO.4A & 4B

-L- STA 847+00.00 TO STA 848+50.00 LT (INVERT)

-L- STA 848+25.00 TO STA 850+00.00 RT

-WBL- STA 918+25.00 TO STA 923+75.00 RT

-WBL- STA 948+75.00 TO STA 950+00.00 RT

-WBL- STA 960+00.00 TO STA 975+00.00 RT

-WBL- STA 976+00.00 TO STA 980+00.00 RT

-WBL- STA 1093+89.00 TO STA 1100+50.00 RT

-EBL- STA 1106+78.00 TO STA 1125+80.00 LT (INVERT)

-WBL- STA 1108+40.00 TO STA 1114+27.00 RT

-L- STA 1140+75.00 TO STA 1146+58.00 LT (INVERT)

-L- STA 1148+06.00 TO STA 1159+02.00 LT (INVERT)

-L- STA 1182+79.00 TO STA 1194+92.00 LT (INVERT)

-L- STA 1217+25.00 TO STA 1228+75.00 RT

-L- STA 1217+69.00 TO STA 1228+75.00 LT (INVERT)

NOTE: SEE PLANS FOR SUPERELEVATIONS, TURN LANES, MONOLITHIC ISLANDS, CURB AND GUTTER, AND LANE TAPER LOCATIONS.

12-JUN-2018 12:38
R:\Projects\14700A_RDY_TYP
HNTB

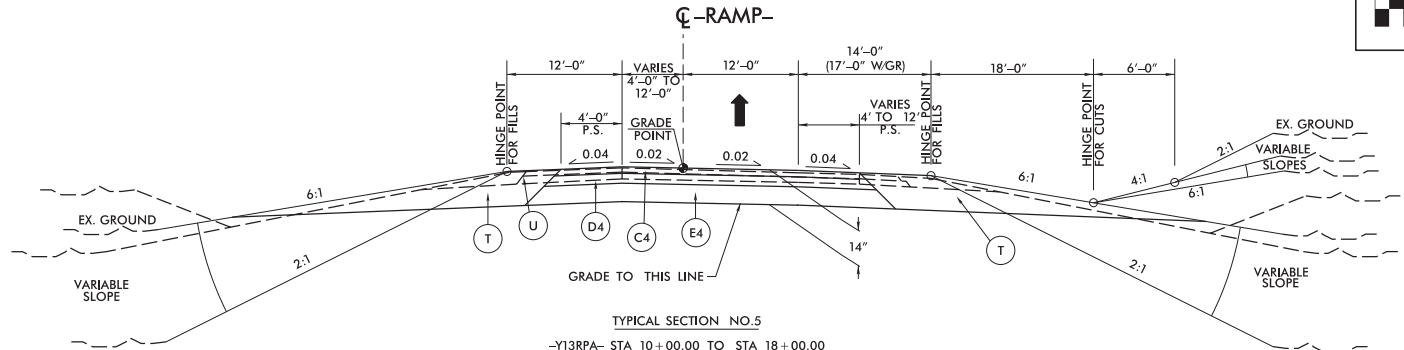
6/2/99

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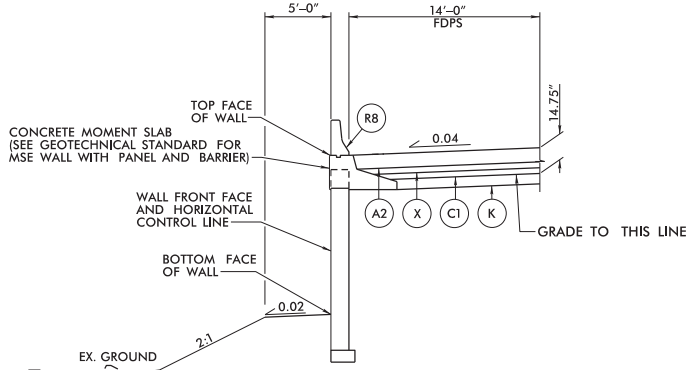


HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.		SHEET NO.
1-4700A/B		2A-4
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		

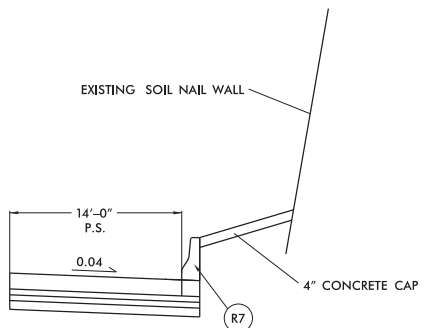


TYPICAL SECTION NO.5
-Y13RPA- STA 10+00.00 TO STA 18+00.00
-Y13RPB- STA 10+00.00 TO STA 18+53.36 (INVERT)
-Y13RPC- STA 10+00.00 TO STA 17+24.68
-Y13RPD- STA 10+00.00 TO STA 14+00.00 (INVERT)
-Y15RPB- STA 1002+54.49 TO STA 1005+40.00 (INVERT)
-Y15RPC- STA 999+14.70 TO STA 1004+80.00
-Y15RPD- STA 1020+51.80 TO STA 1024+37.57
-Y15RPD_SPUR_RT- STA 1016+06.09 TO STA 1017+19.63 (INVERT)



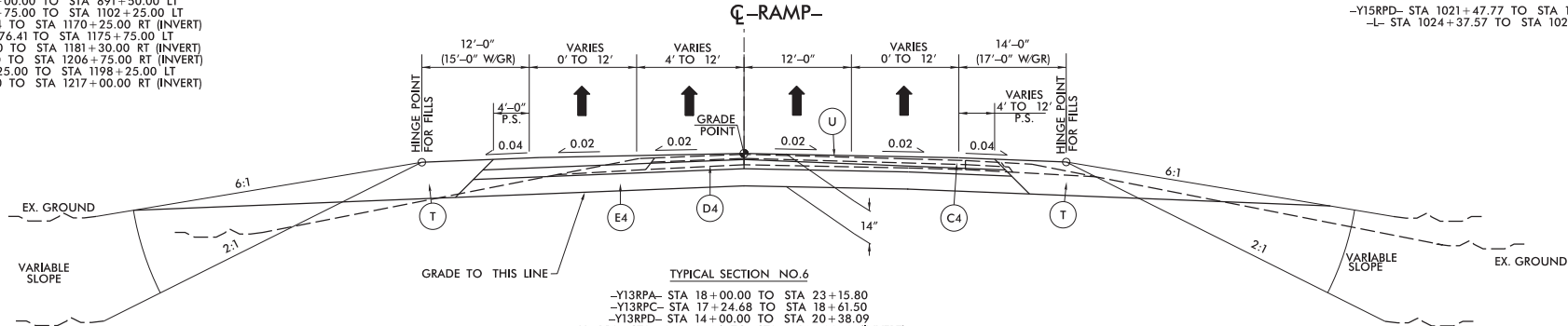
FILL WALL WITH MOMENT SLAB DETAIL
USE IN CONJUNCTION WITH TYPICAL SECTIONS NO.1, 4A, 4B, 5 & 6

-EBL- STA 886+00.00 TO STA 891+50.00 LT
-EBL- STA 1094+75.00 TO STA 1102+25.00 LT
-L- STA 1164+94.34 TO STA 1170+25.00 RT (INVERT)
-L- STA 1165+76.41 TO STA 1175+75.00 LT
-L- STA 1178+25.00 TO STA 1181+30.00 RT (INVERT)
-L- STA 1193+75.00 TO STA 1206+75.00 RT (INVERT)
-L- STA 1195+25.00 TO STA 1198+25.00 LT
-L- STA 1213+25.00 TO STA 1217+00.00 RT (INVERT)

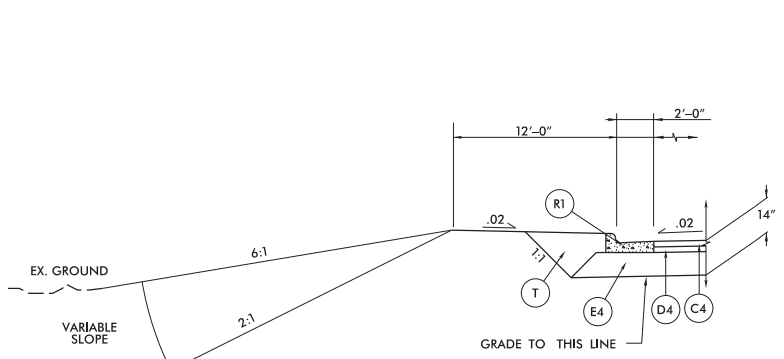


BARRIER WITH CONCRETE CAP DETAIL
USE IN CONJUNCTION WITH RAMP TYPICAL SECTIONS NO.5

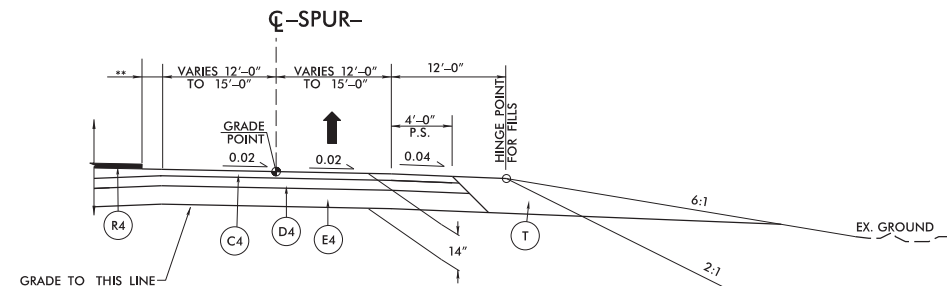
-Y15RPD- STA 1021+47.77 TO STA 1024+37.57
-L- STA 1024+37.57 TO STA 1025+35.58



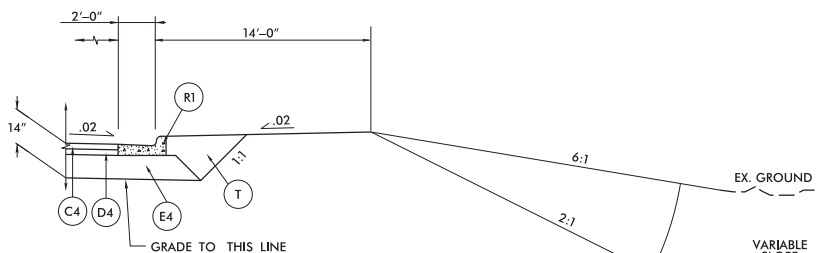
TYPICAL SECTION NO.6
-Y13RPA- STA 18+00.00 TO STA 23+15.80
-Y13RPC- STA 17+24.68 TO STA 18+61.50
-Y13RPD- STA 14+00.00 TO STA 20+38.09
-Y15RPA- STA 1018+01.96 TO STA 1029+08.18 (INVERT)
-Y15RPB- STA 1005+40.00 TO STA 1009+50.00
-Y15RPC- STA 1004+80.00 TO STA 1007+30.43
-Y15RPC- STA 1011+22.00 TO STA 1013+35.00
-Y15RPD- STA 1016+10.00 TO STA 1020+51.80 (INVERT)



TYPICAL SECTION 6A
USE IN CONJUNCTION WITH RAMP TYPICAL SECTION NO. 6
-Y15RPC- STA 1013+35.00 TO STA 1013+56.63



TYPICAL SECTION NO.7
-Y13RPD SPUR LT- STA 10+79.14 TO STA 11+23.35, ** = 4'-0" (INVERT)
-Y13RPD SPUR RT- STA 10+45.48 TO STA 11+18.95, ** = 4'-0"
-Y15RPC- STA 1013+35.00 TO STA 1013+60.00

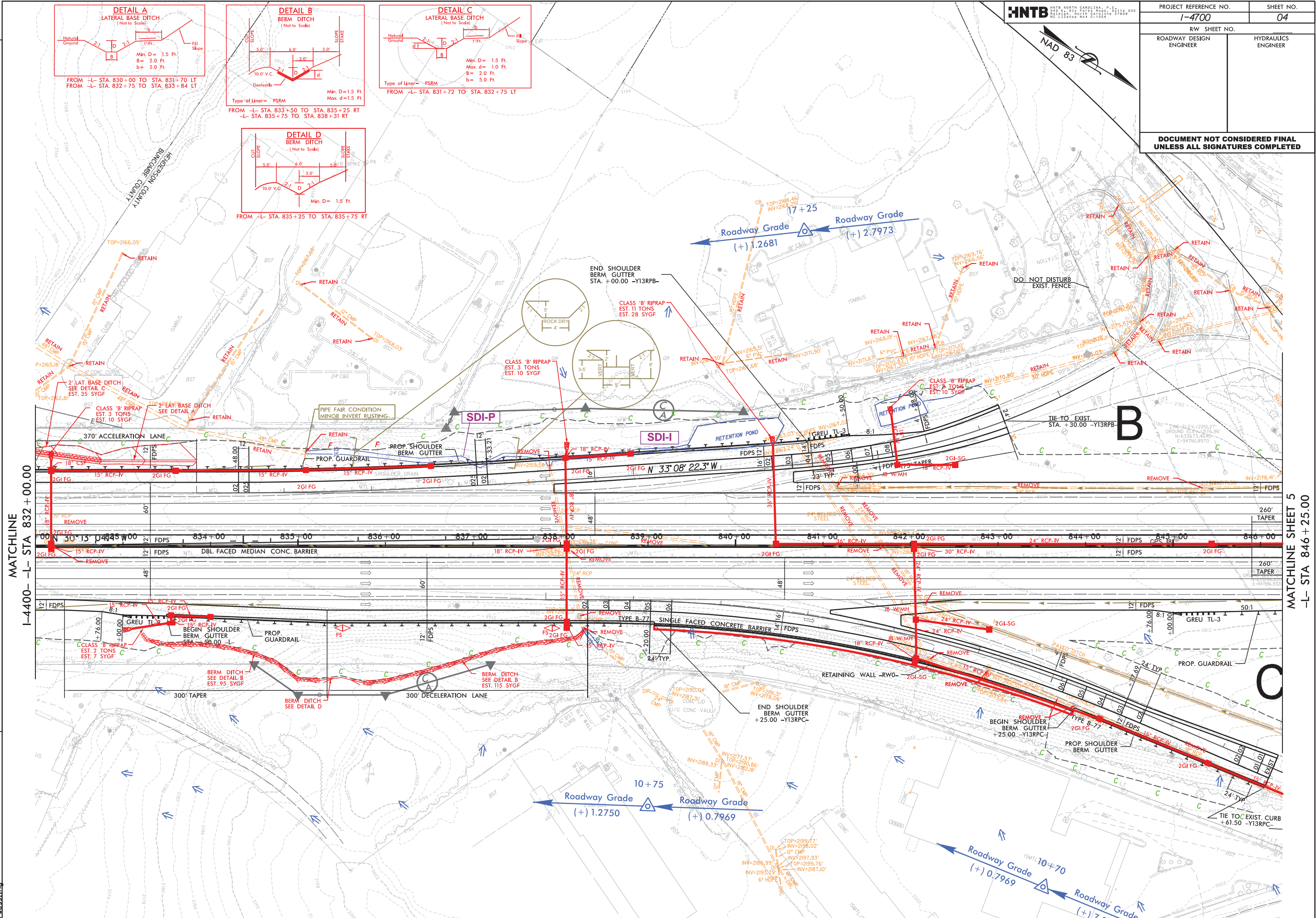


CURB AND GUTTER DETAIL
USE IN CONJUNCTION WITH TYPICAL SECTION NO.8
-Y13RPD SPUR LT- STA 10+82.47 TO STA 11+23.24
-Y15RPC- STA 1012+54.24 TO STA 1014+27.79 (INVERT)

NOTE: SEE PLANS FOR SUPERELEVATIONS, TURN LANES, MONOLITHIC ISLANDS, CURB AND GUTTER, AND LANE TAPER LOCATIONS.

8/30/2018
14700A_RED LINES_PSH_04
r.wessling

Y4700A_RE
r.wessling



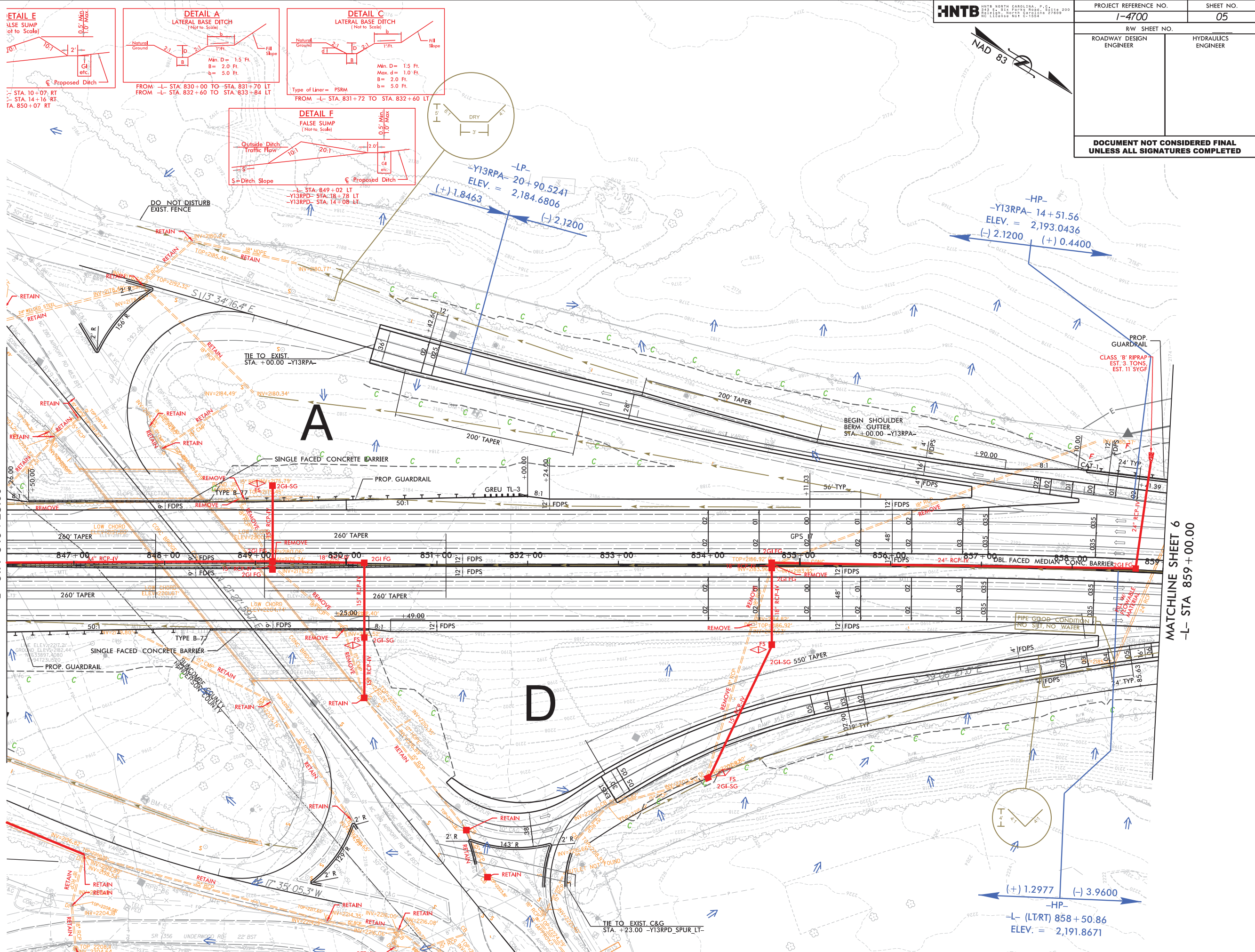
8/17/99

REVISIONS

8/30/2018
14786A_RED LINES_PSH_05.dgn
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MATCHLINE SHEET 4
-L- STA 846 + 25.00

MATCHLINE SHEET 6
-L- STA 859 + 00.00



HNTB HNTB NORTH CAROLINA, P.C.
24245 E. 34th Street, Suite 200
Charlotte, North Carolina 27709
NC License No. 00000000000000000000

NAD 83

PROJECT REFERENCE NO.		SHEET NO.
I-4700		05
RW SHEET NO.		HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		



MATCHLINE SHEET 5

-L- STA 859 + 00.00

MATCHLINE SHEET 7
-L- STA 872+00.00

-L- STA 872+00.00

7/19/2017

8/30/2018
14700A-REDLINES_PSH-06
r.wessling

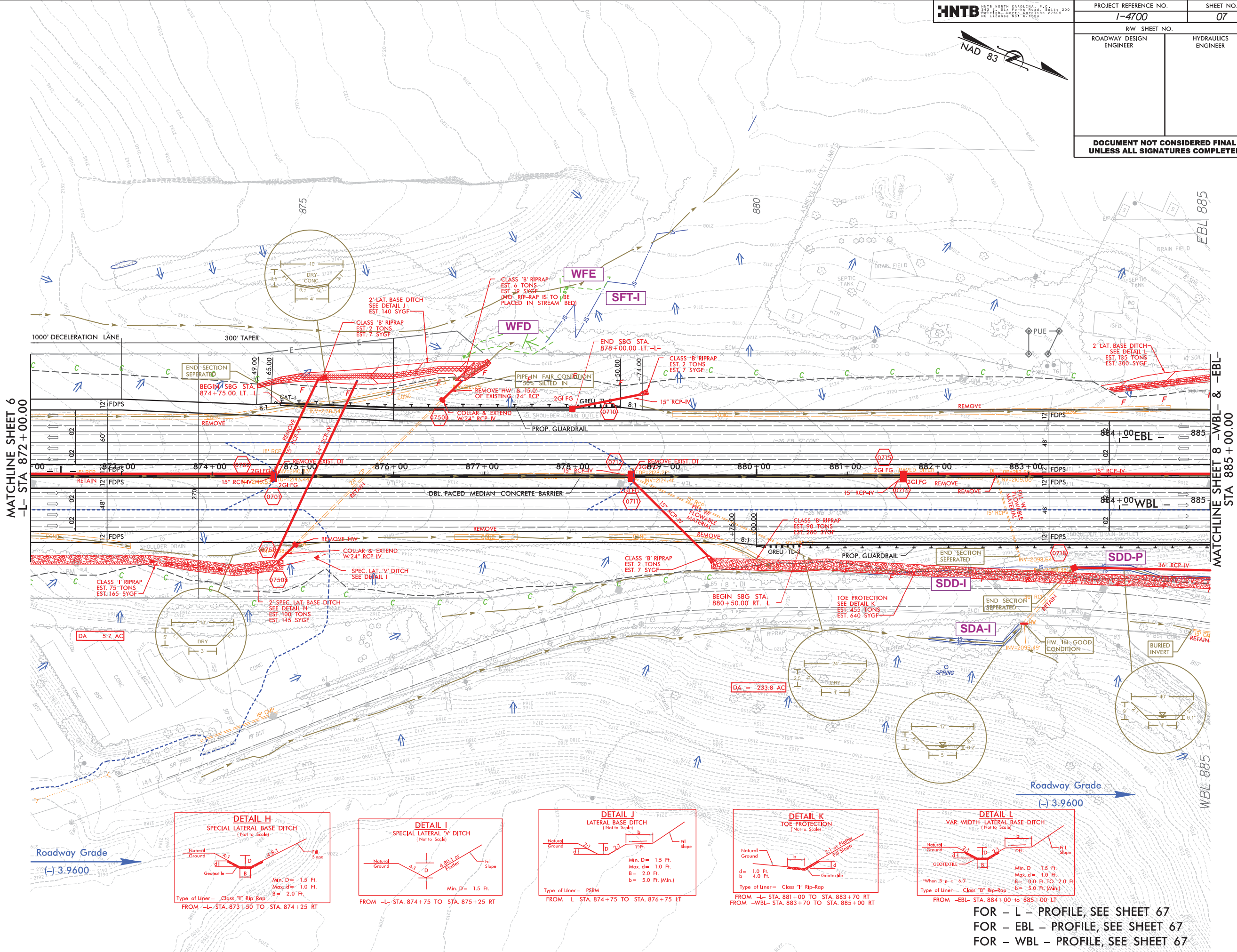
I4/00A_RE
r.wessling

8/17/99

HNTB

HNTB NORTH CAROLINA, P.C.
2425 E. S.W. 10TH ROAD, SUITE 200
FARMINGTON, NORTH CAROLINA 27830
TEL: 704.775.1100 FAX: 704.775.1101

PROJECT REFERENCE NO.		SHEET NO.
I-4700		07
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		



REVISIONS

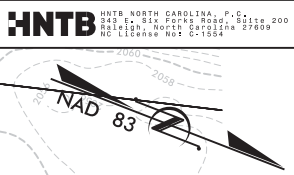
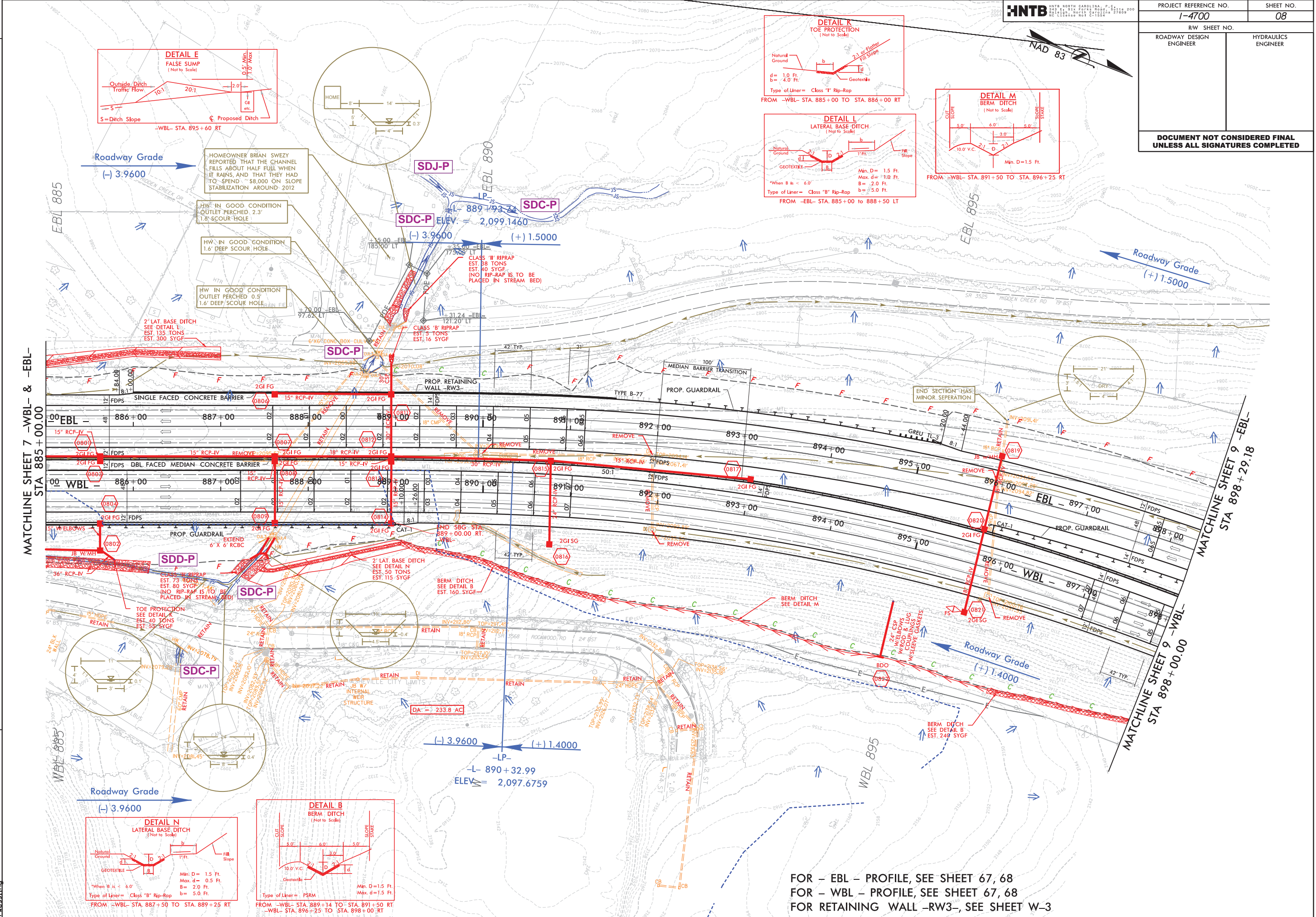
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FOR - L - PROFILE, SEE SHEET 67
FOR - EBL - PROFILE, SEE SHEET 67
FOR - WBL - PROFILE, SEE SHEET 67

8/17/99

REVISIONS

8/30/2018
17786A-REDLINES_PSH_08.dgn
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PROJECT REFERENCE NO.		SHEET NO.
I-4700		08
RW SHEET NO.		HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		

8/17/99

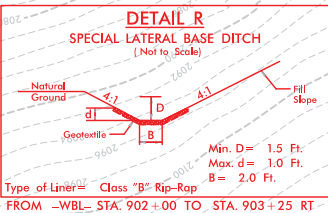
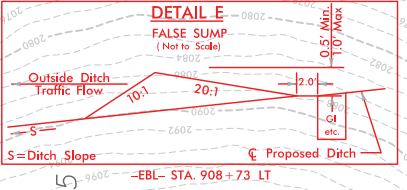
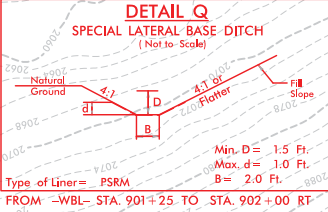
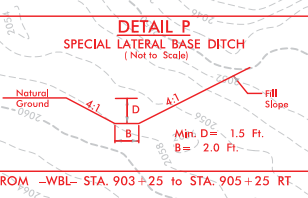
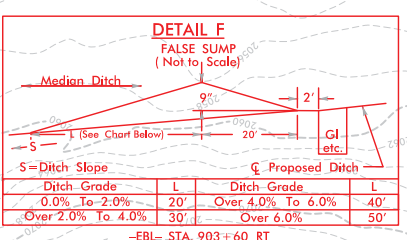
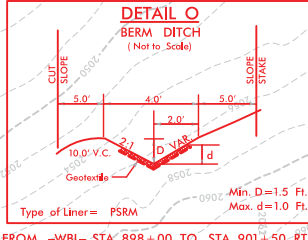
HNTB

HNTB NORTH CAROLINA, P.C.
2424 S. S.W. 40TH ROAD, SUITE 200
FALLS CHURCH, NORTH CAROLINA 27609
TEL: 919.417.1000 FAX: 919.417.1001
WWW.HNTB.COM

PROJECT REFERENCE NO.		SHEET NO.	
I-4700		9	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	

NAD 83

-HP-
-L- 898+40.16
ELEV. = 2,107.1442
(+) 1.5000 (-) -2.7291



Roadway Grade
(-) 2.7291

MATCHLINE SHEET 8
-EBL- STA 898+29.18

MATCHLINE SHEET 8
-WBL- STA 898+00.00

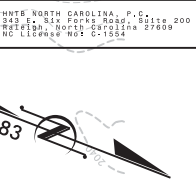
MATCHLINE SHEET 10
-EBL- STA 911+28.88

MATCHLINE SHEET 10
-WBL- STA 911+00.00

FOR - EBL - PROFILE, SEE SHEET 68, 69
FOR - WBL - PROFILE, SEE SHEET 68, 69

8/17/99

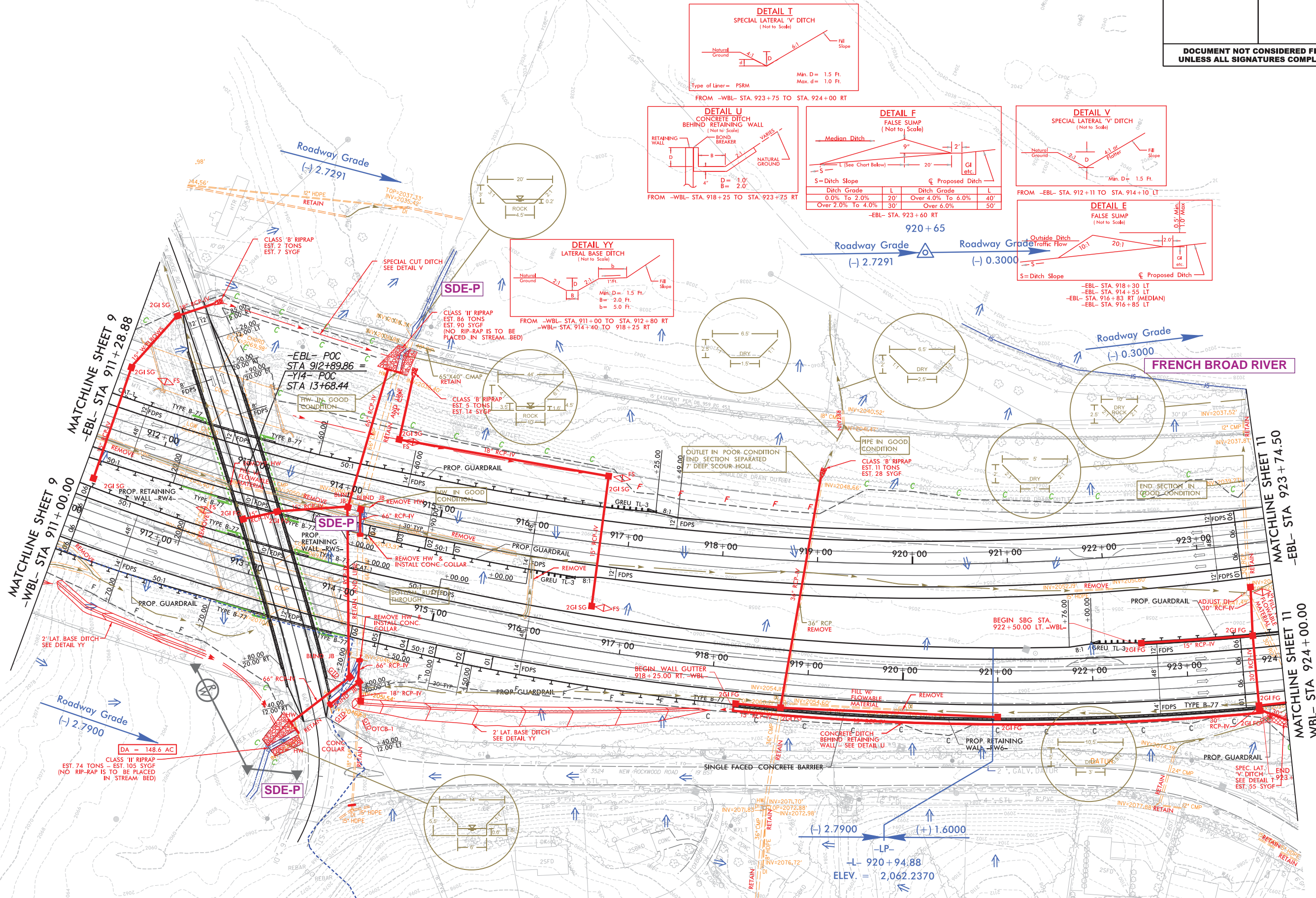
HNTB

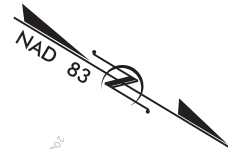


PROJECT REFERENCE NO.		SHEET NO.
I-4700		10
R/W SHEET NO.		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER

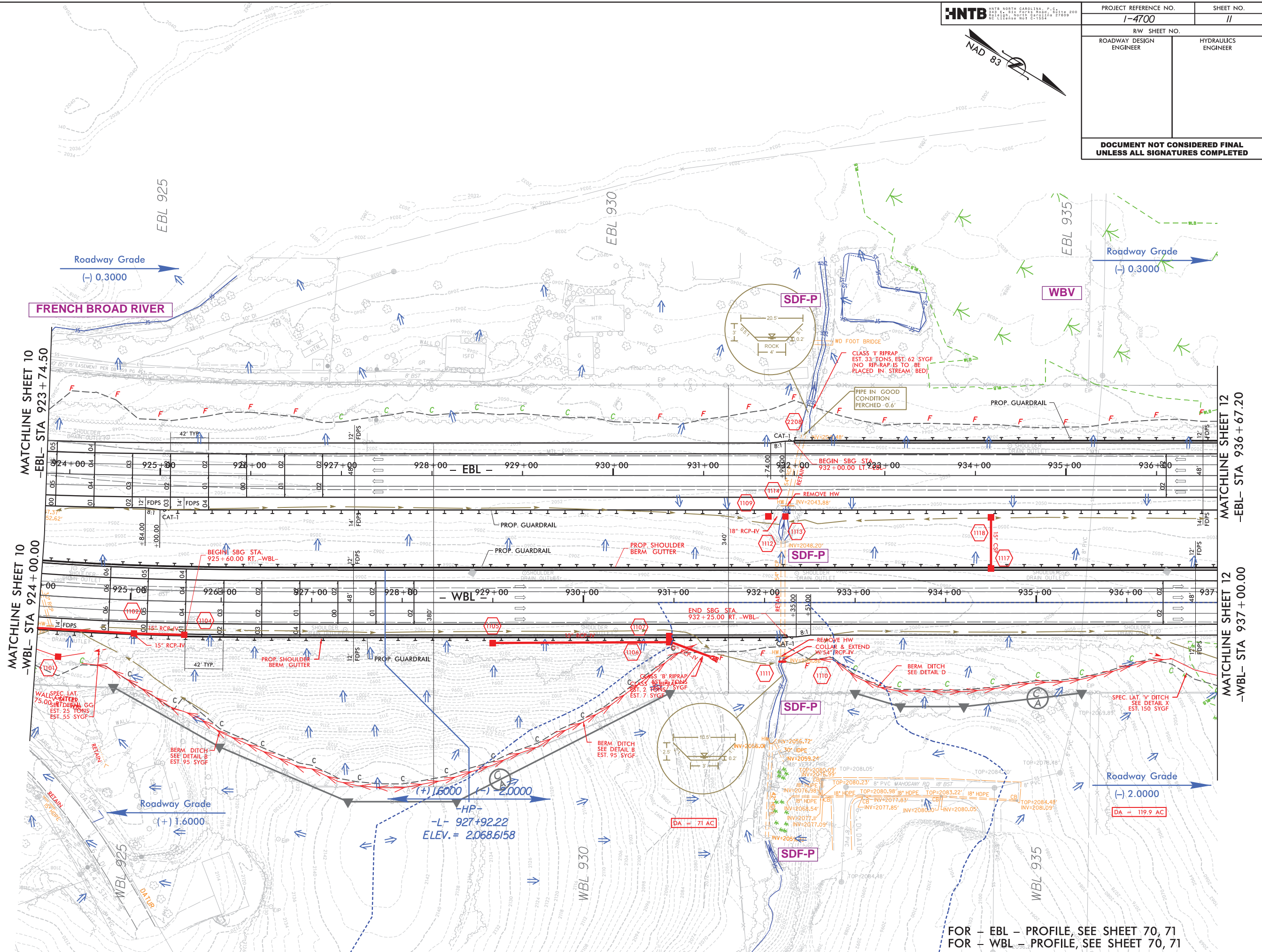
REVISIONS

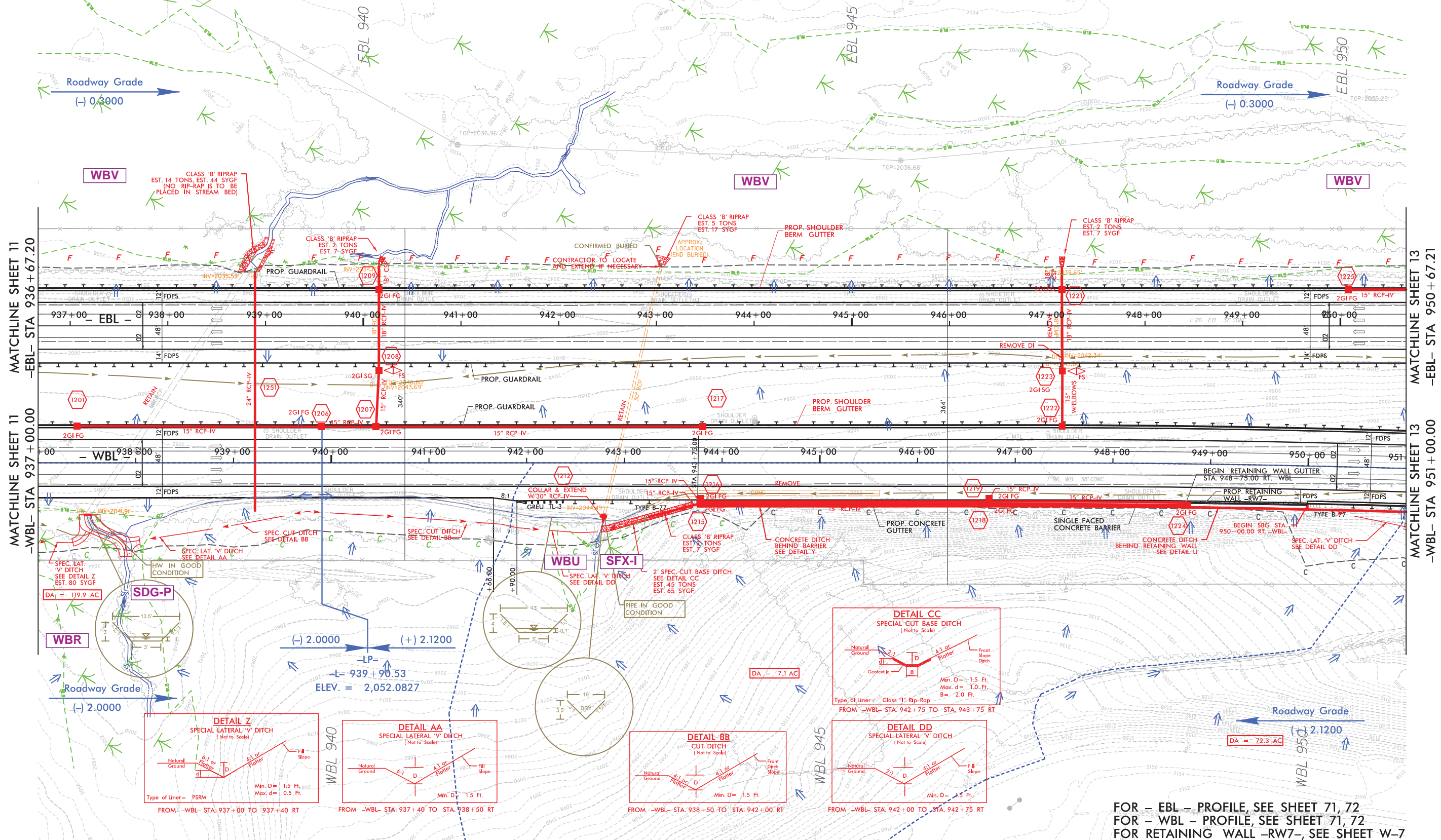
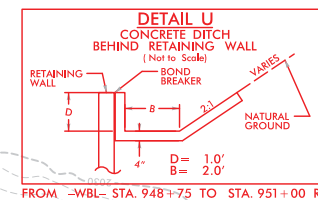
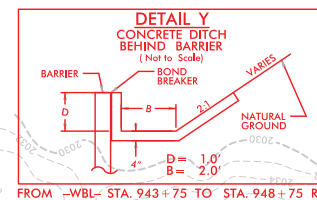
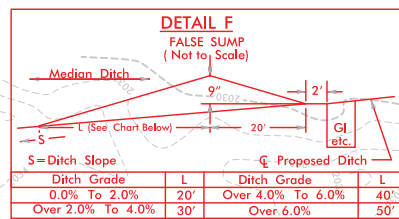
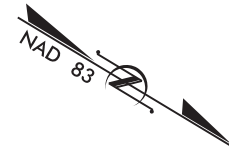
8/30/2018
147866A-REDLINES_PSH_10.dgn
f.wassling





PROJECT REFERENCE NO.		SHEET NO.	
I-4700		II	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	





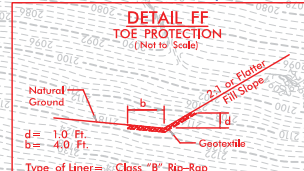
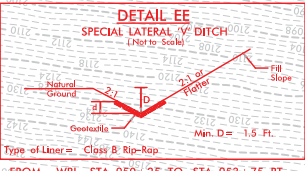
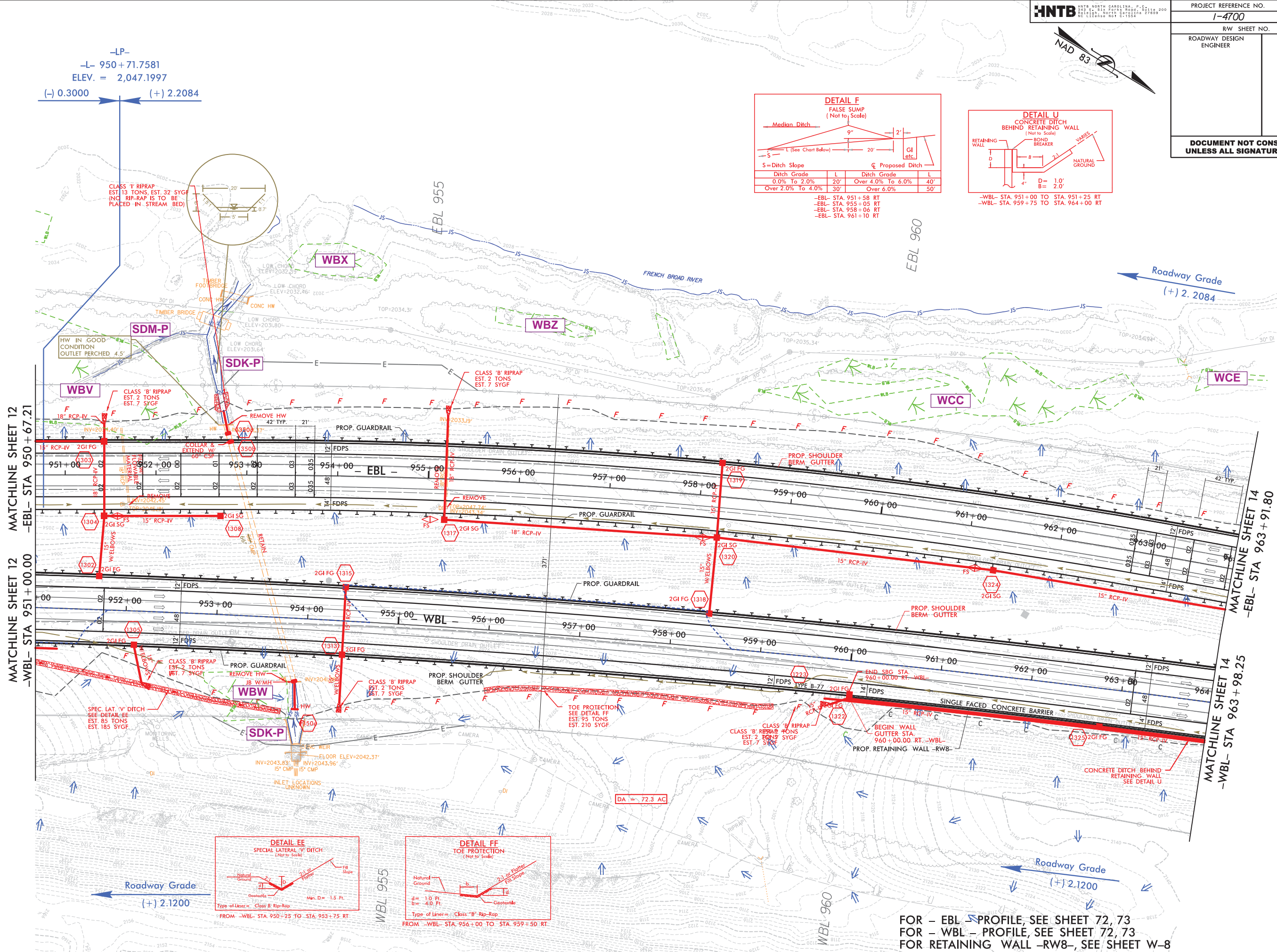
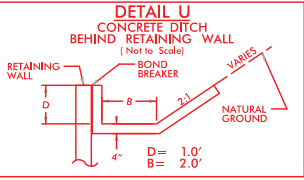
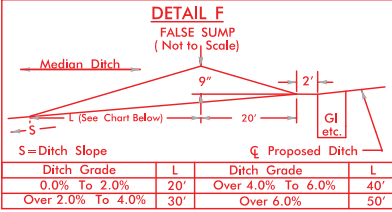
REVISIONS

8/17/99

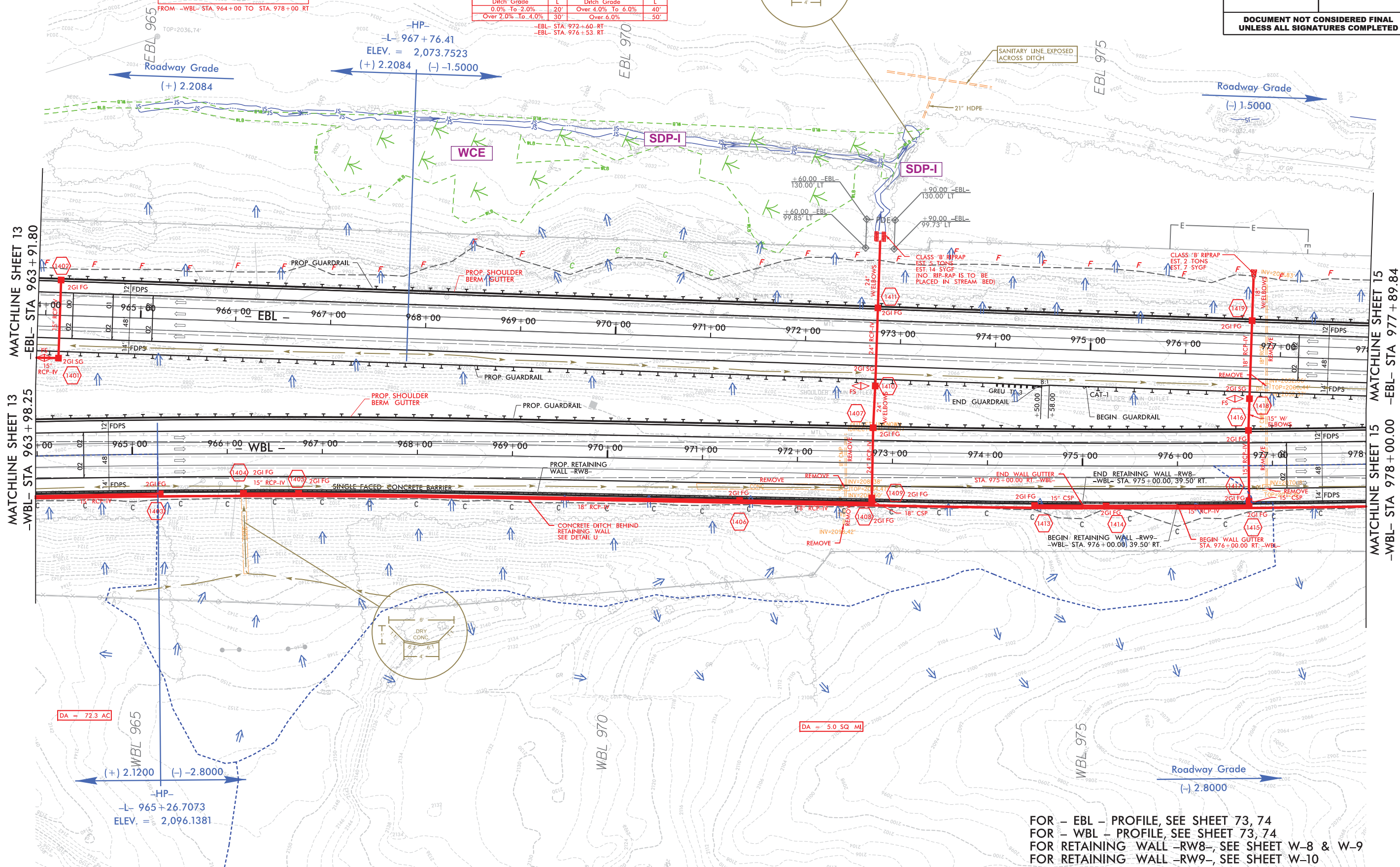
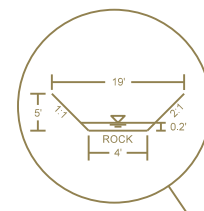
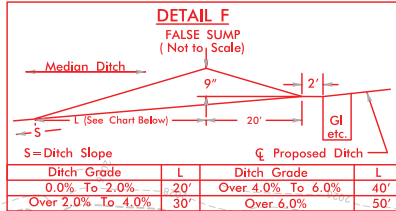
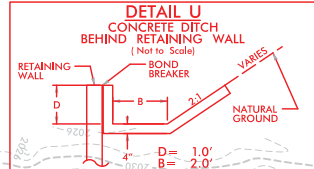
HNTB

HNTB NORTH CAROLINA, P.C.
2425 E. S.W. POPE ROAD, SUITE 200
RALEIGH, NORTH CAROLINA 27609
NC LICENSE NO. 01584

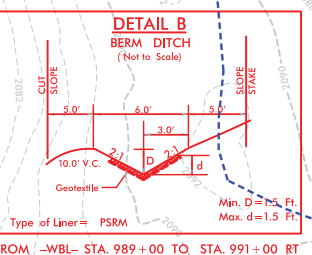
PROJECT REFERENCE NO. <i>1-4700</i>		SHEET NO. <i>13</i>
R/W SHEET NO.		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER



FOR - EBL - PROFILE, SEE SHEET 72, 73
FOR - WBL - PROFILE, SEE SHEET 72, 73
FOR RETAINING WALL -RW8-, SEE SHEET W-8

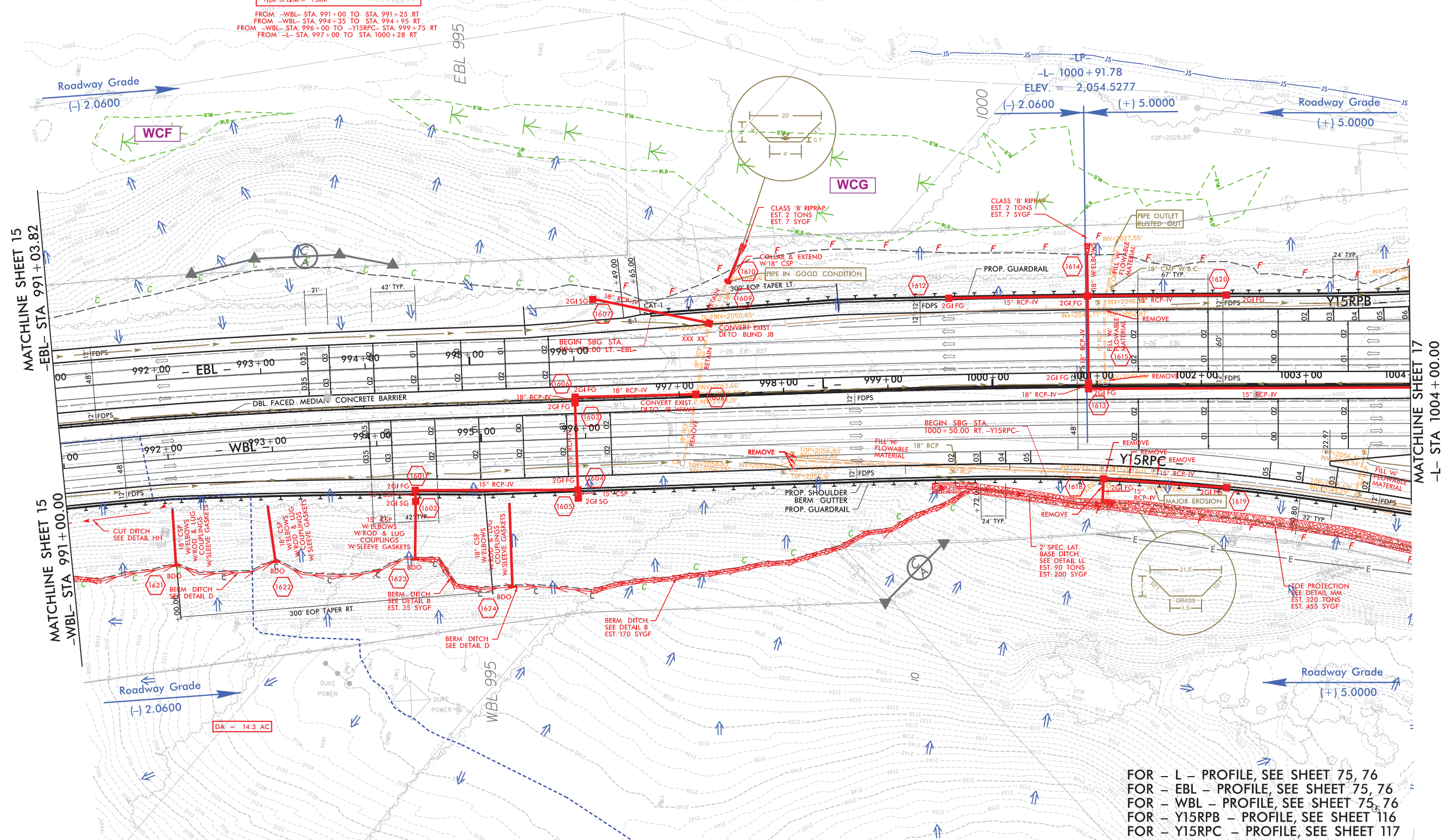
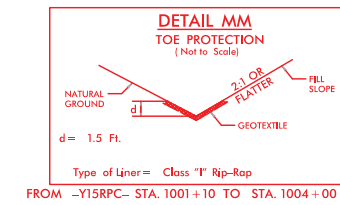
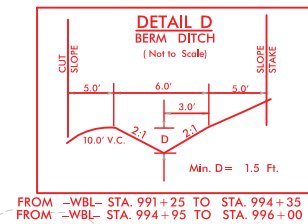
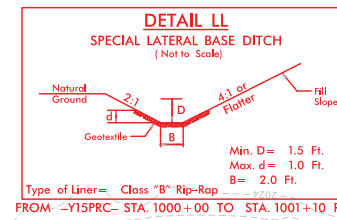
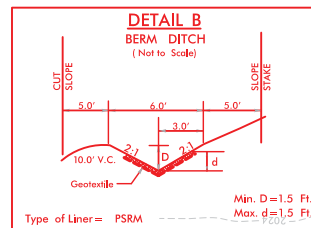
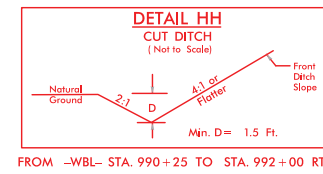


FOR - EBL - PROFILE, SEE SHEET 73, 74
FOR - WBL - PROFILE, SEE SHEET 73, 74
FOR RETAINING WALL -RW8-, SEE SHEET W-8 & W-9
FOR RETAINING WALL -RW9-, SEE SHEET W-10



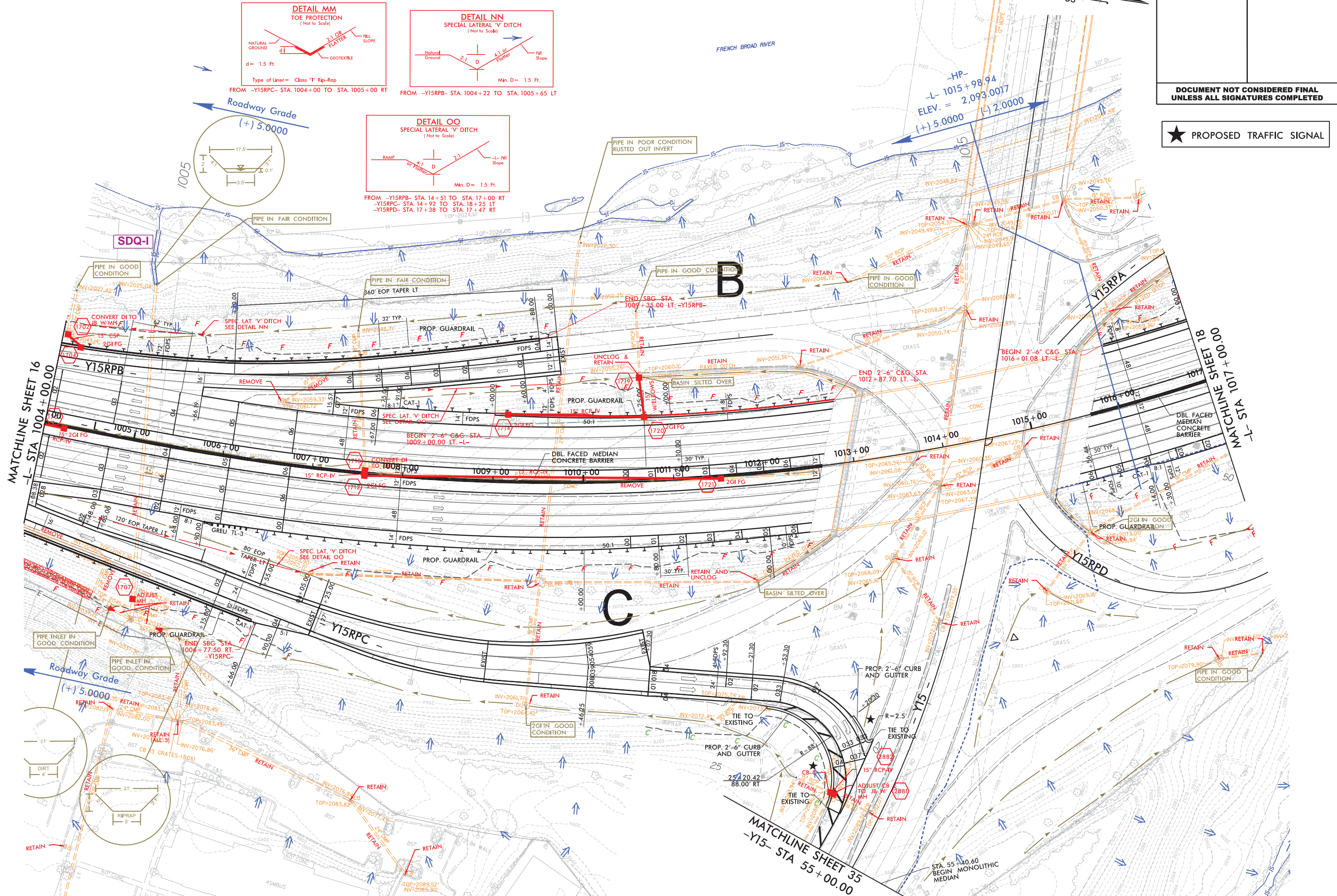
FOR - EBL - PROFILE, SEE SHEET 74, 75
FOR - WBL - PROFILE, SEE SHEET 74, 75
FOR RETAINING WALL - RW9-, SEE SHEET W-10

PROJECT REFERENCE NO.		SHEET NO.	
1-4700		16	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



FOR - L - PROFILE, SEE SHEET 75, 76
 FOR - EBL - PROFILE, SEE SHEET 75, 76
 FOR - WBL - PROFILE, SEE SHEET 75, 76
 FOR - Y15RPB - PROFILE, SEE SHEET 116
 FOR - Y15RPC - PROFILE, SEE SHEET 117

REVISIONS



REVISIONS

8/17/99

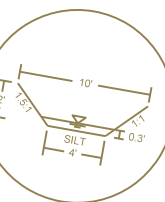
REVISIONS

8/30/2018
14786A-REDLINES_PSH_18.dgn
f.wassilug

HNTB

HNTB NORTH CAROLINA, P.C.
2425 E. 54th Street, Suite 200
Charlotte, NC 28205
Tel: 704.376.8800 Fax: 704.376.8801
www.hntb.com

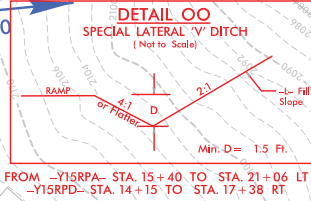
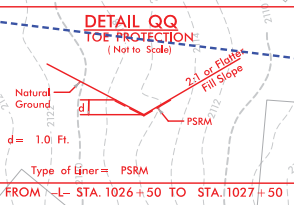
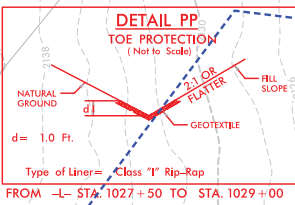
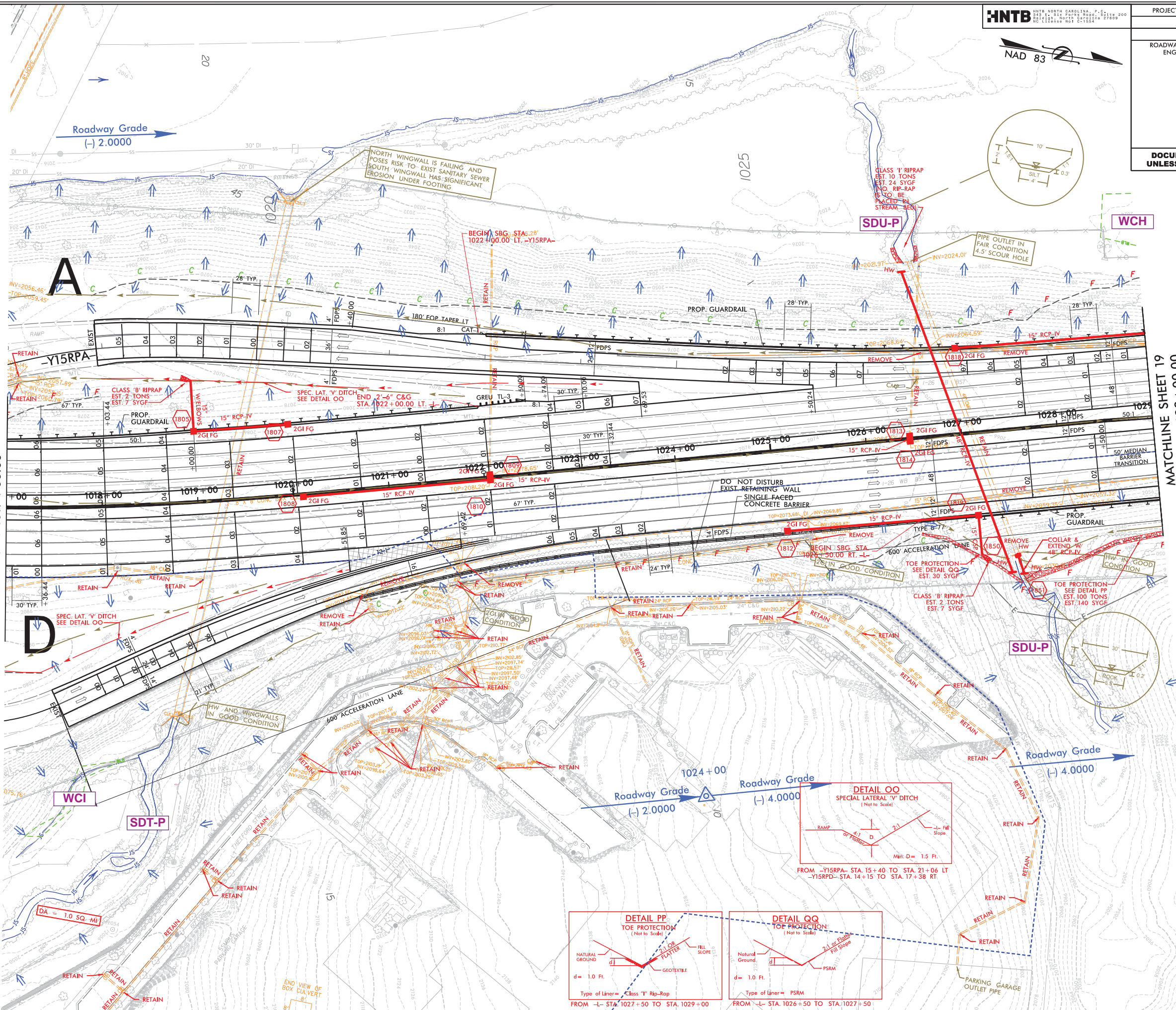
NAD 83

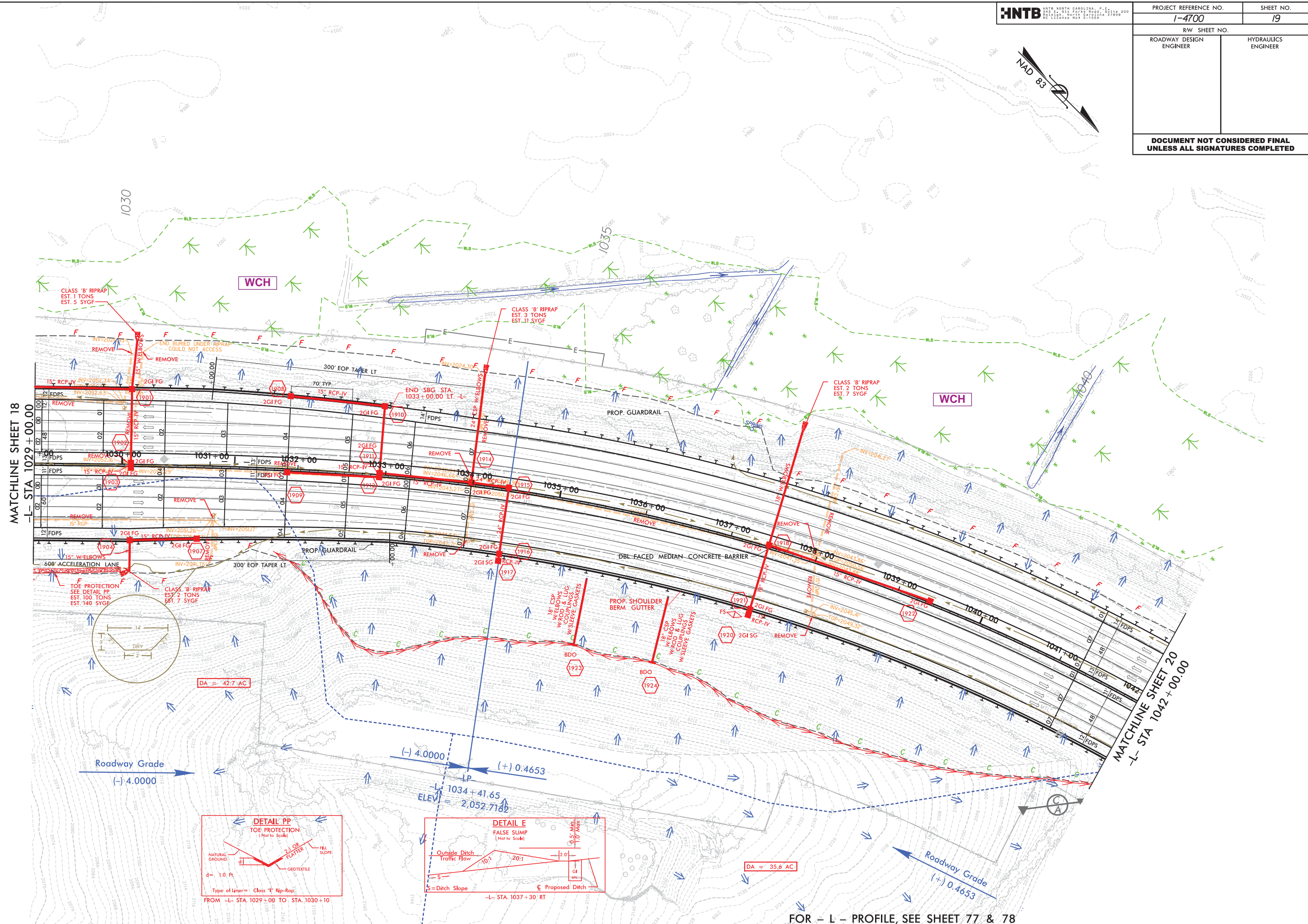


PROJECT REFERENCE NO.	SHEET NO.
I-4700	18
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

MATCHLINE SHEET 17
-L- STA 1017+00.00

MATCHLINE SHEET 19
-L- STA 1029+00.00



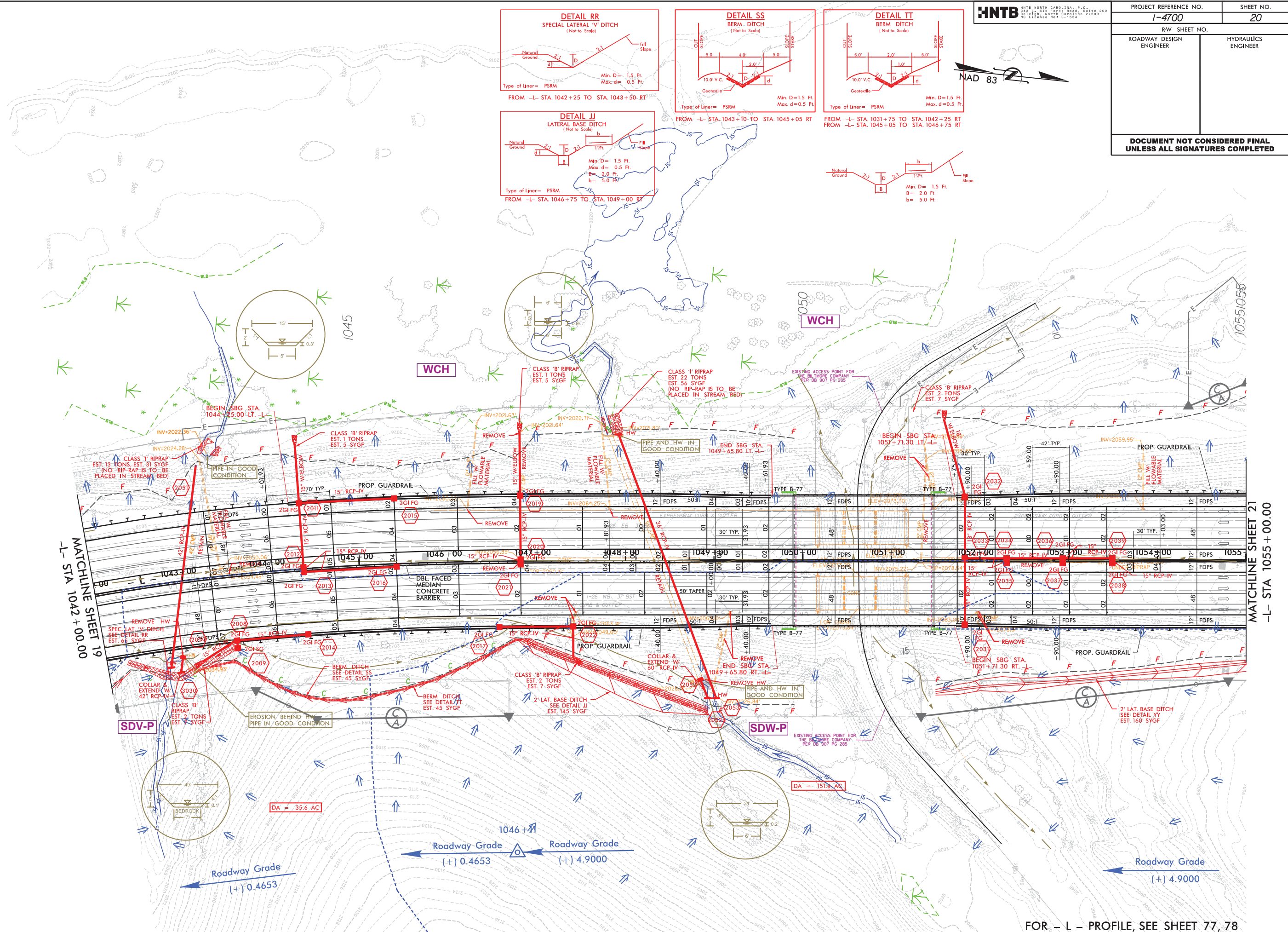


FOR - L - PROFILE, SEE SHEET 77 & 78

ONS

8/30/2018
14700A_RED LINES_PSH_19.dgn
wrselling

REVISIONS



FOR - L - PROFILE, SEE SHEET 77, 78

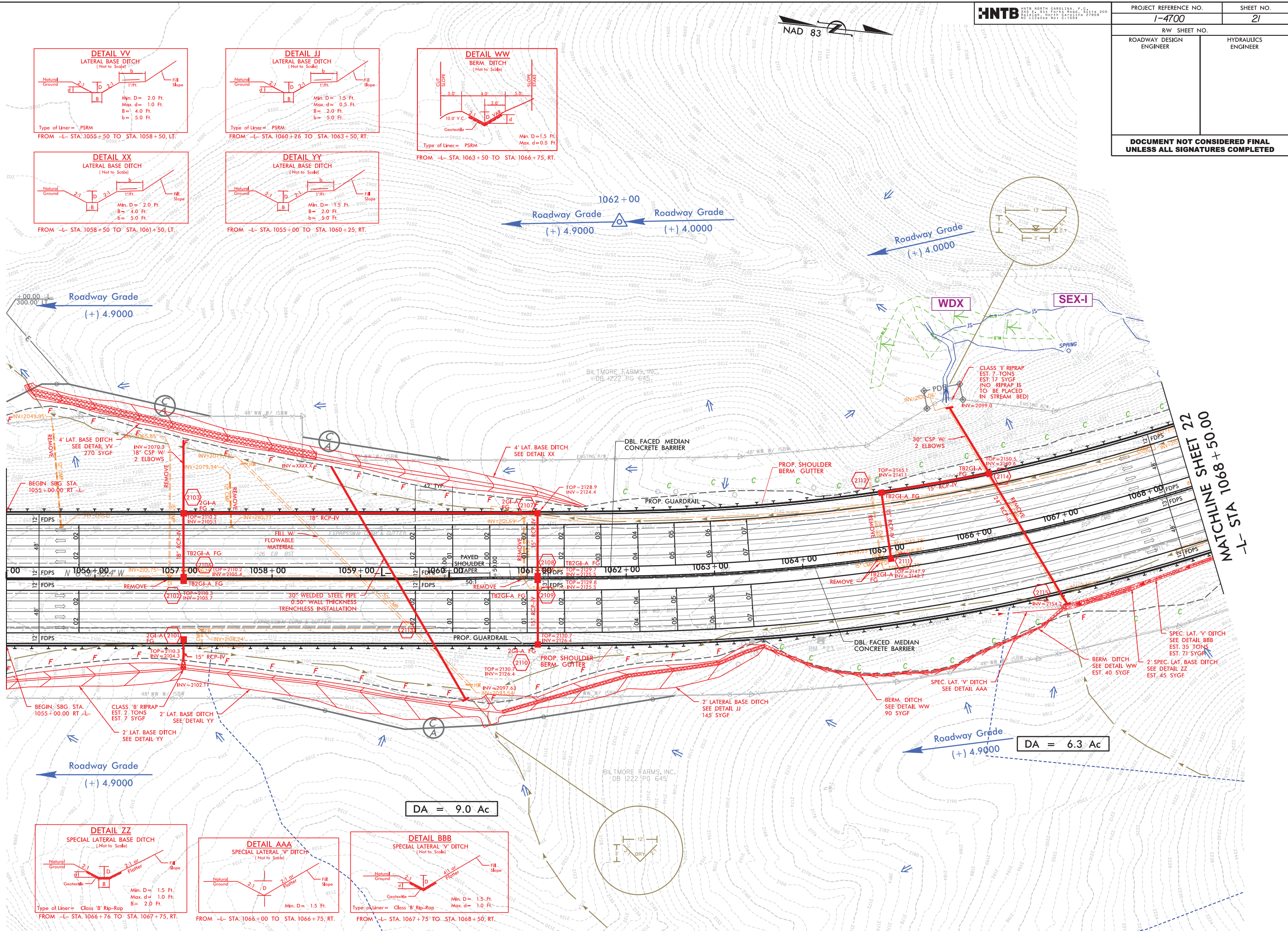
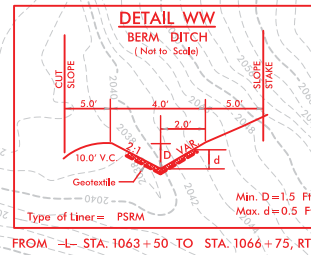
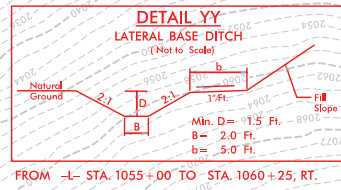
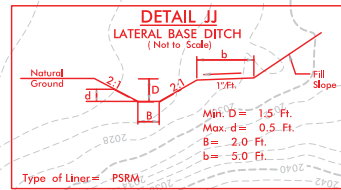
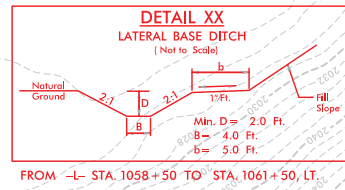
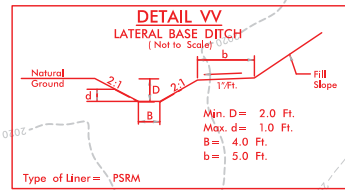
7/19/2017

14:00:00 ROY.PSH.S16.dgn
3:43 AM

REVISIONS

MATCHLINE SHEET 20
-L- STA 1055+00.00

MATCHLINE SHEET 22
-L- STA 1068+50.00



HNTB

HNTB NORTH CAROLINA, P.C. 200
2424 E. S.W. 10TH ROAD, SUITE 200
RALEIGH, NORTH CAROLINA 27609
HNTB LICENSE NO. C-1554

PROJECT REFERENCE NO.

1-4700

SHEET NO.

21

RW SHEET NO.

ROADWAY DESIGN
ENGINEER

HYDRAULICS
ENGINEER

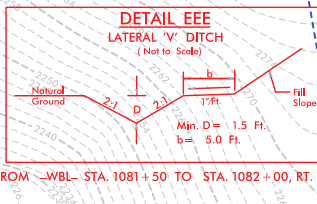
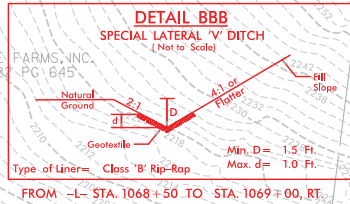
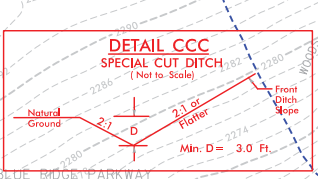
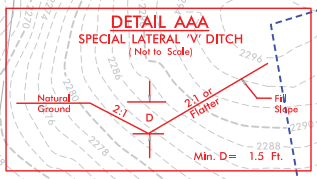
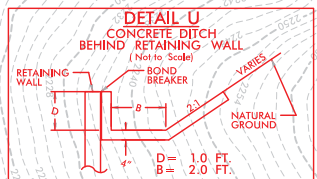
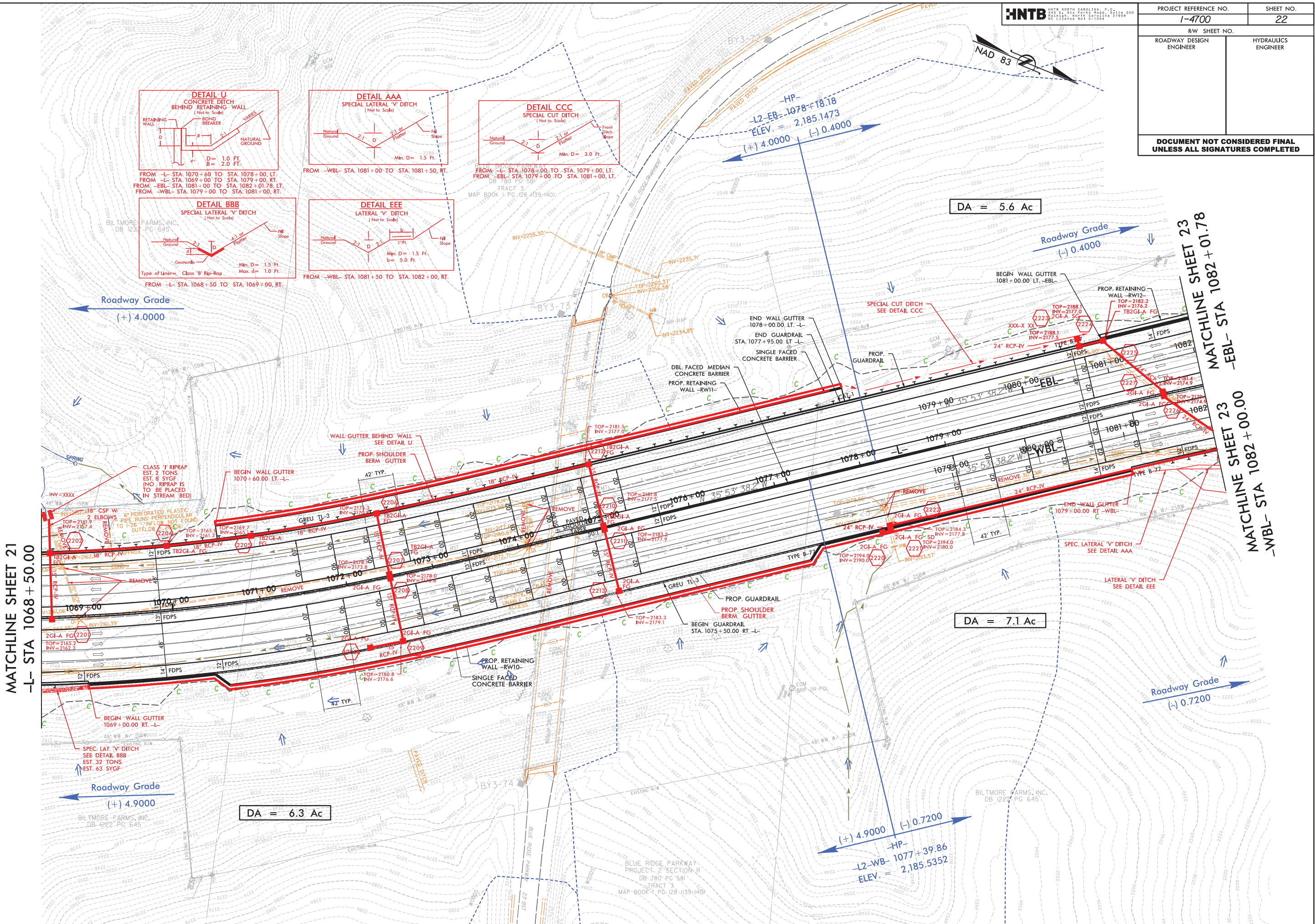
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

7/19/2017

1/19/2017 14:00:00 ROY.PSH.S16.dgn

REVISIONS

MATCHLINE SHEET 21
-L- STA 1068+50.00



DA = 5.6 Ac

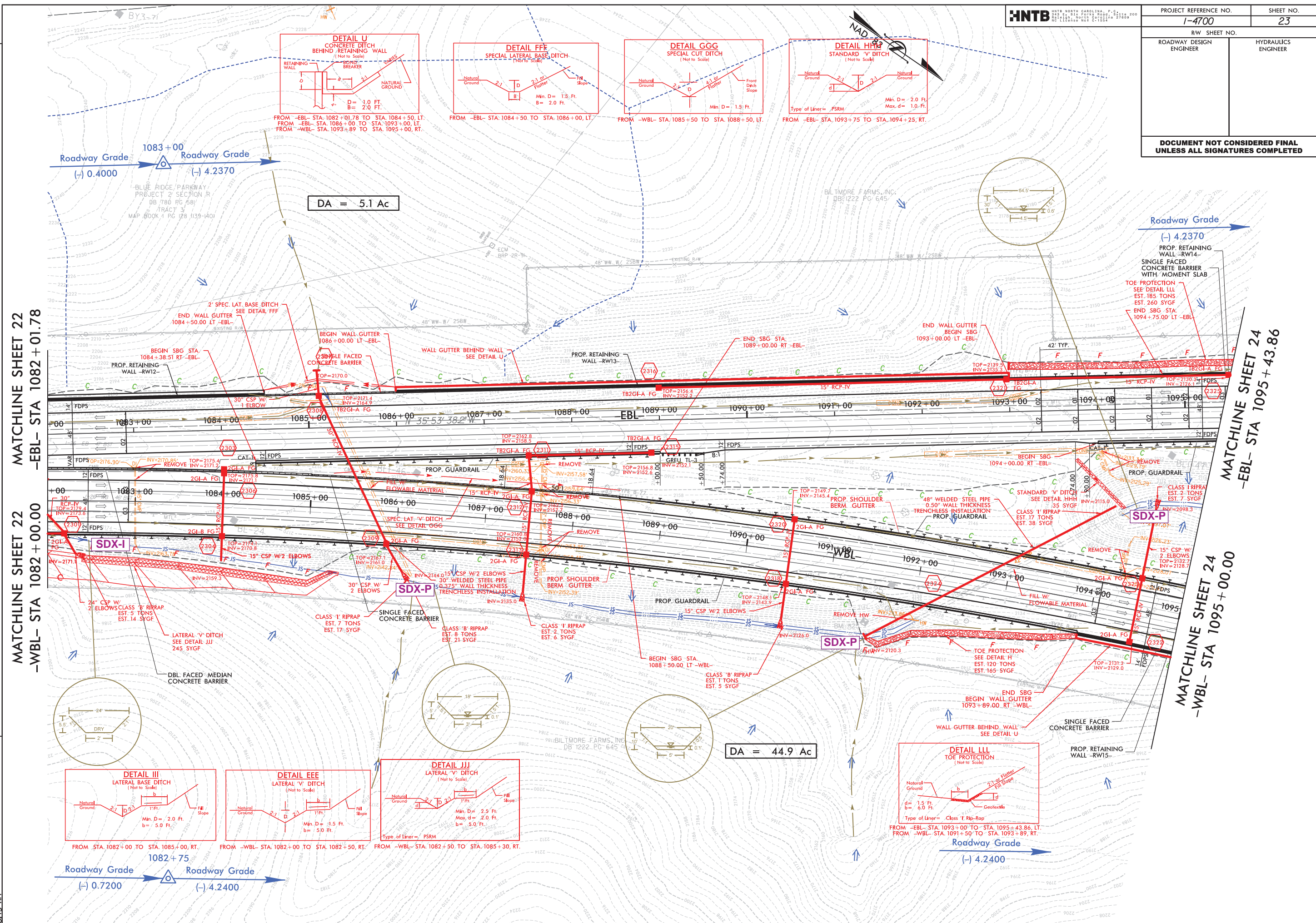
DA = 7.1 Ac

DA = 6.3 Ac

PROJECT REFERENCE NO.	SHEET NO.
I-4700	22
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

MATCHLINE SHEET 23
-EBL- STA 1082+01.78

MATCHLINE SHEET 23
-WBL- STA 1082+00.00



7/19/2017

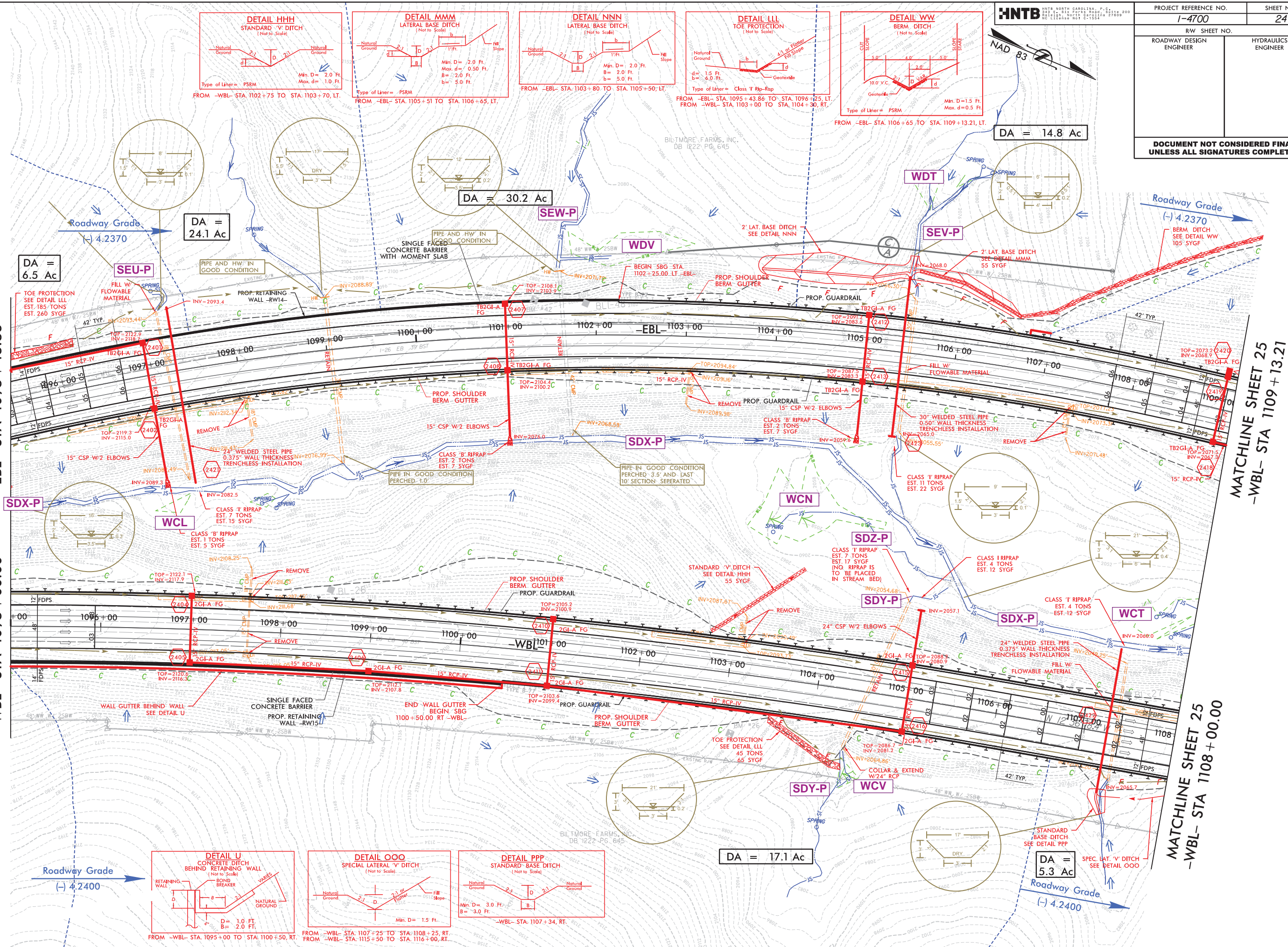
REVISIONS

1/19/2017
14:00:00
RDV_PSH_S16.dgn
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MATCHLINE SHEET 23
-EBL- STA 1095 + 43.86

MATCHLINE SHEET 23
-WBL- STA 1095 + 00.00

PROJECT REFERENCE NO.	1-4700	SHEET NO.	24
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



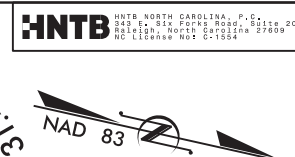
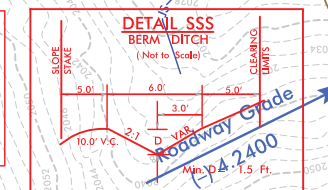
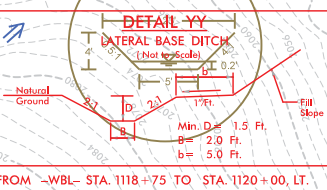
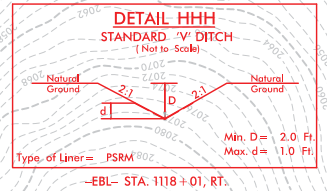
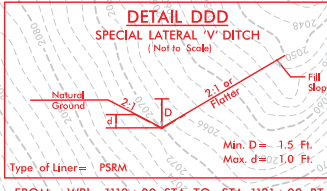
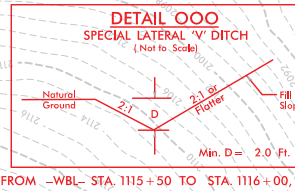
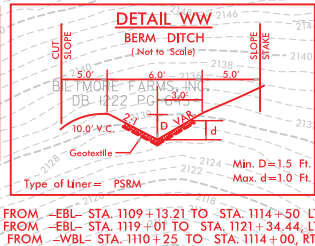
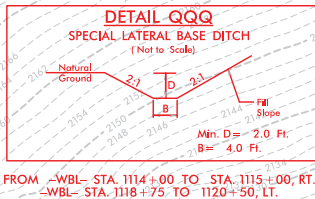
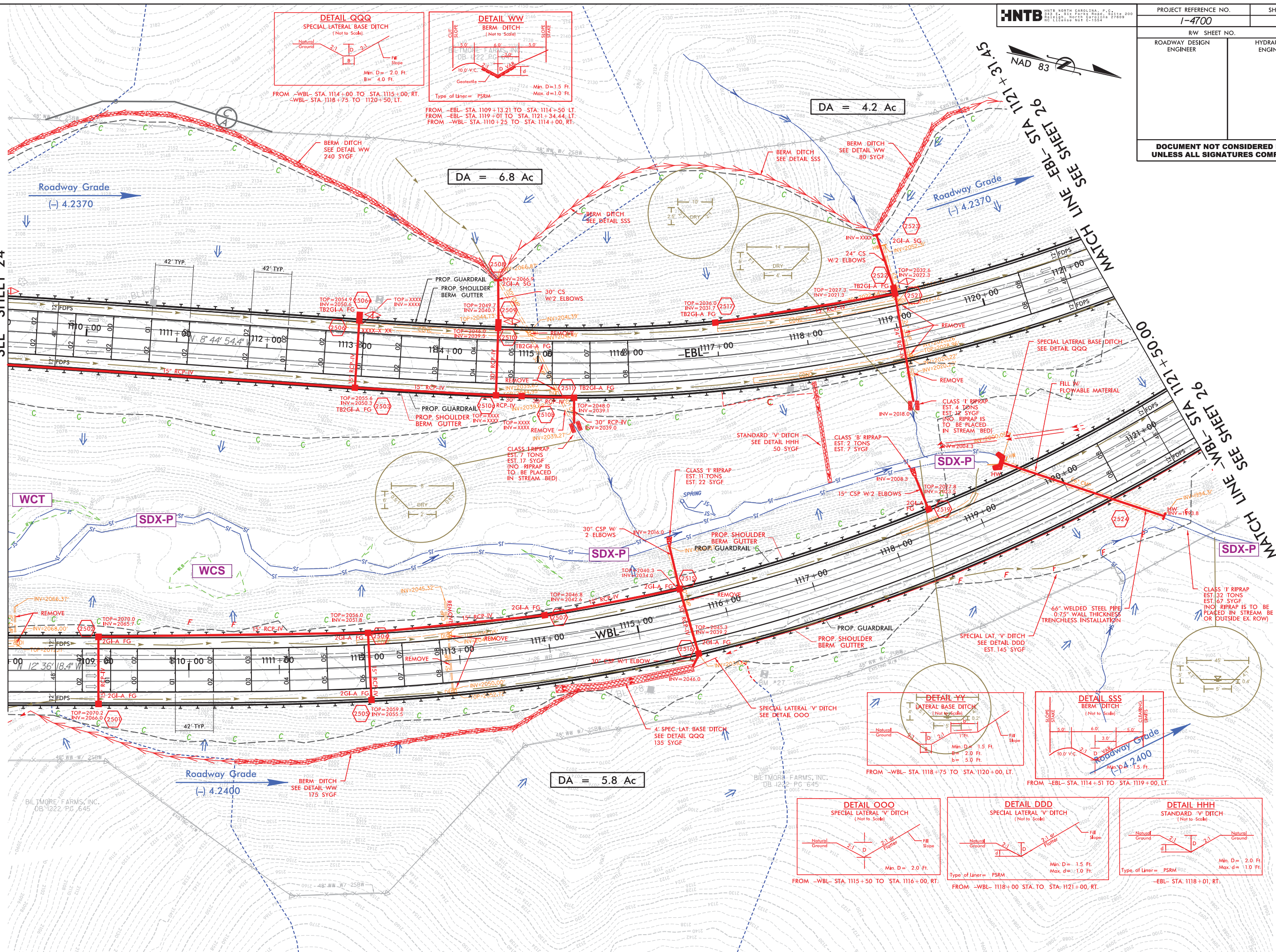
7/19/2017

REVISIONS

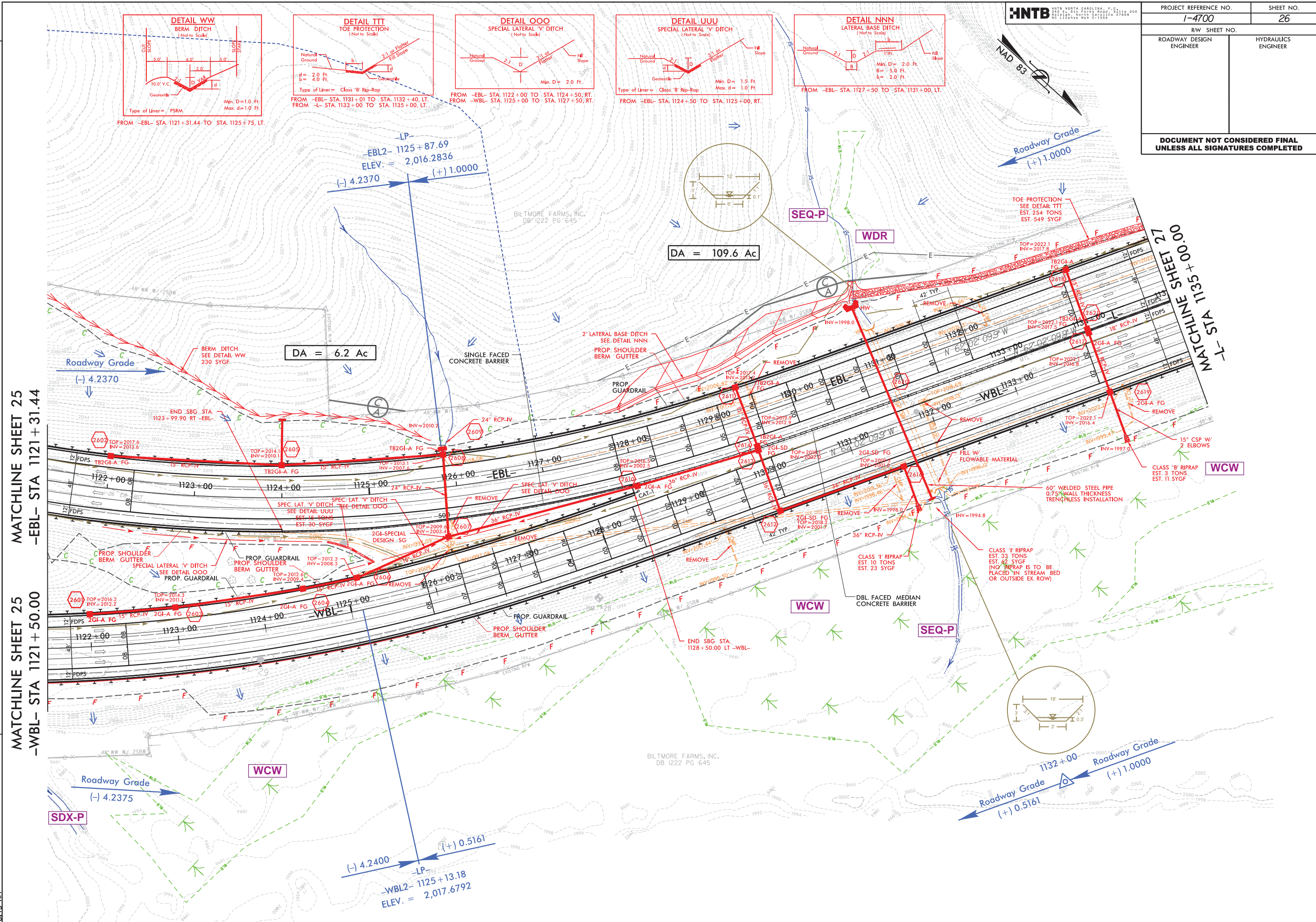
1/19/2017
14:00:00
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roy_psh.s16.dgn

MATCH LINE -WBL- STA 1108+00.00
SEE SHEET 24

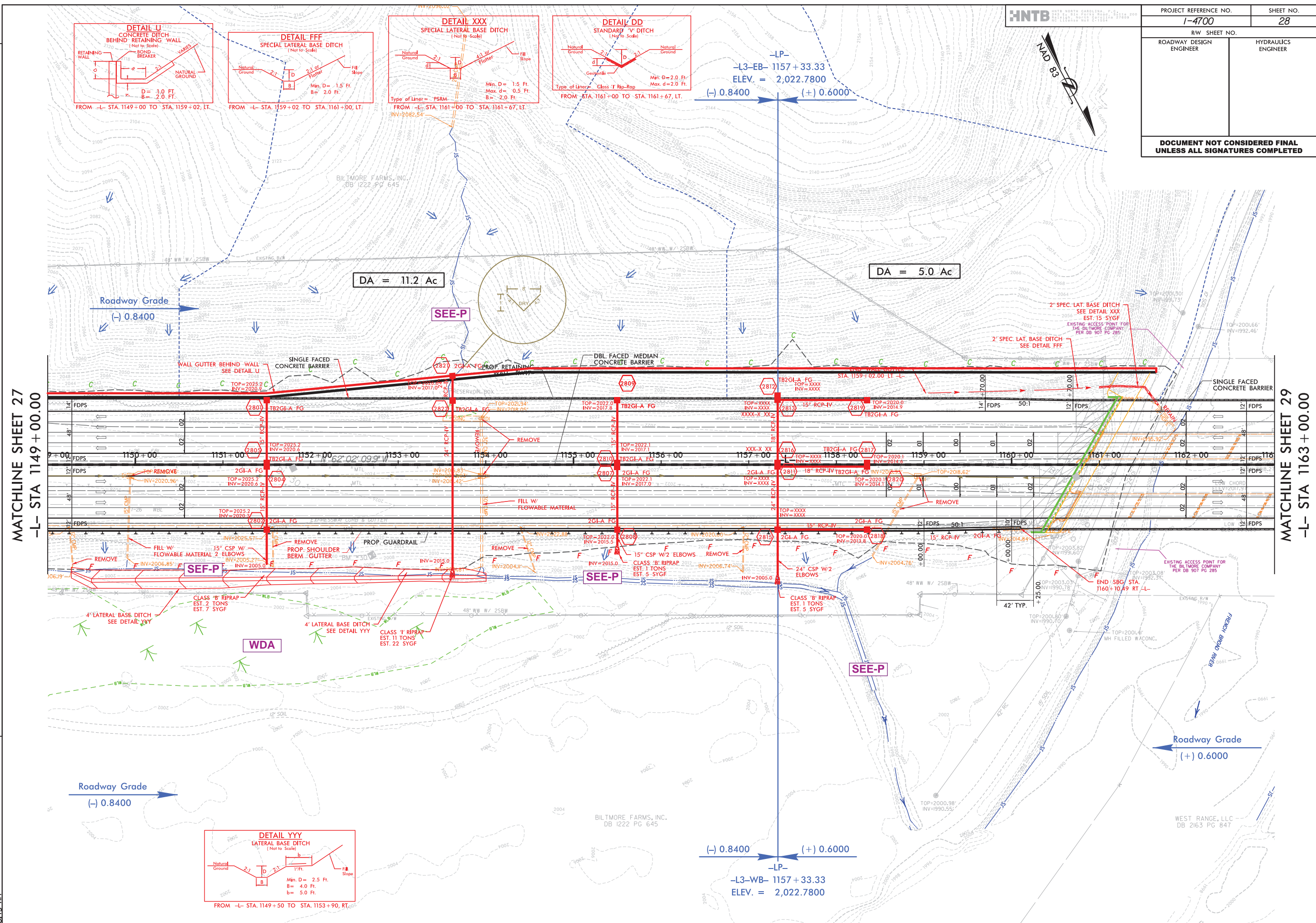
MATCH LINE -EBL- STA 1109+13.22
SEE SHEET 24

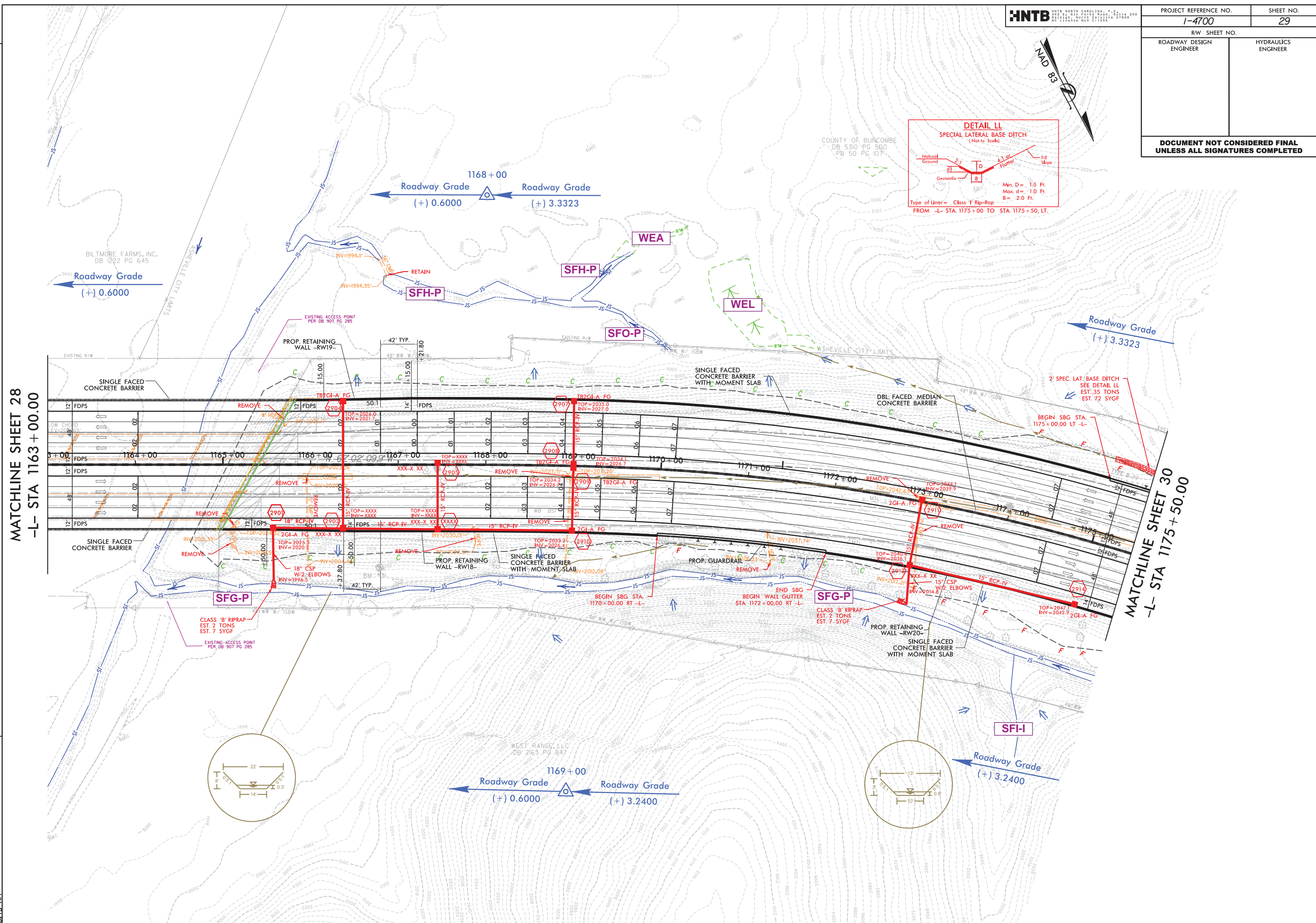


PROJECT REFERENCE NO.		SHEET NO.	
I-4700		25	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	









REVISIONS

7/19/2017
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8:43 AM

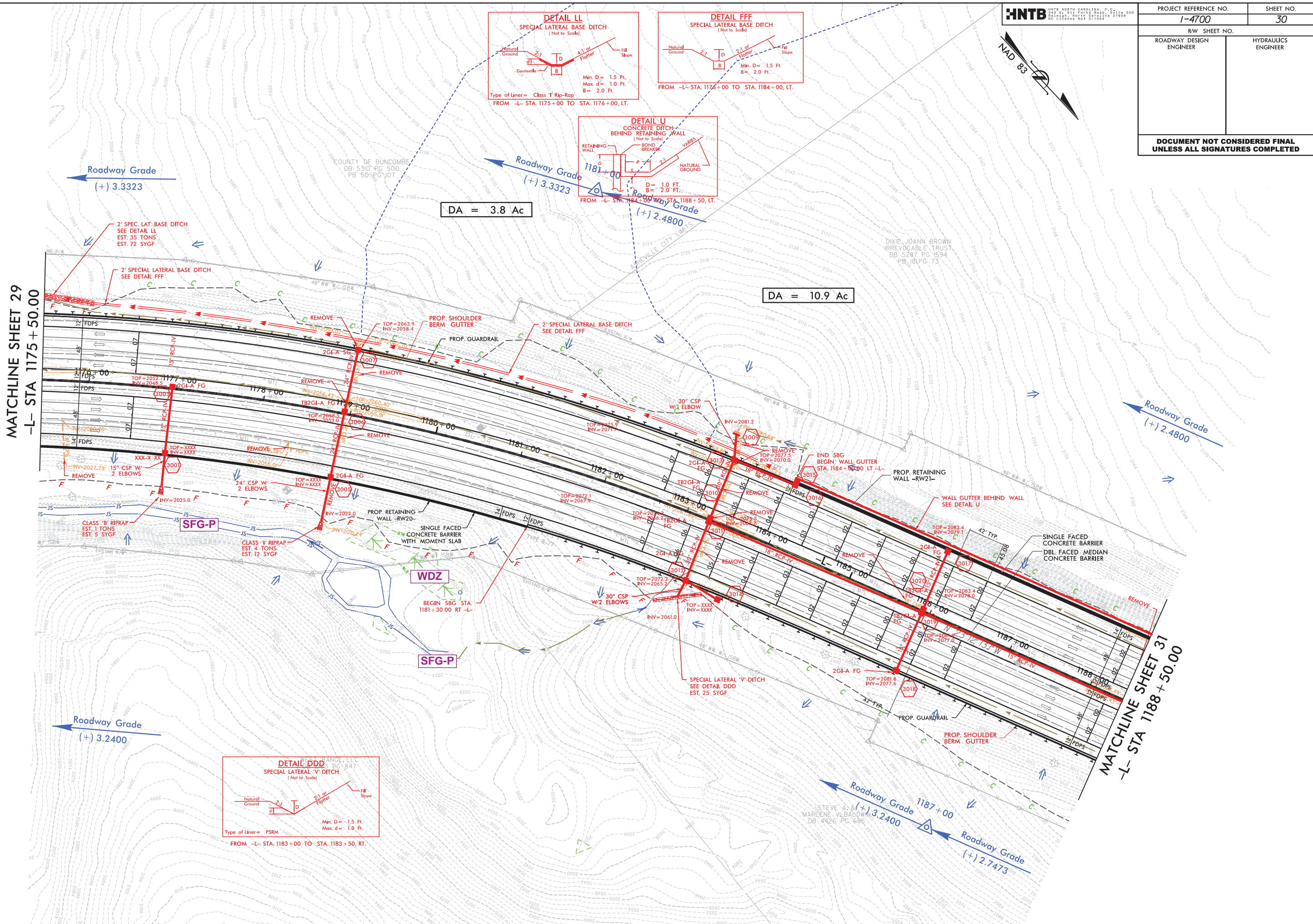
7/19/2017

REVISIONS

1/19/2017
14:00:00
REV. PSH. S16.dgn
3:43 AM

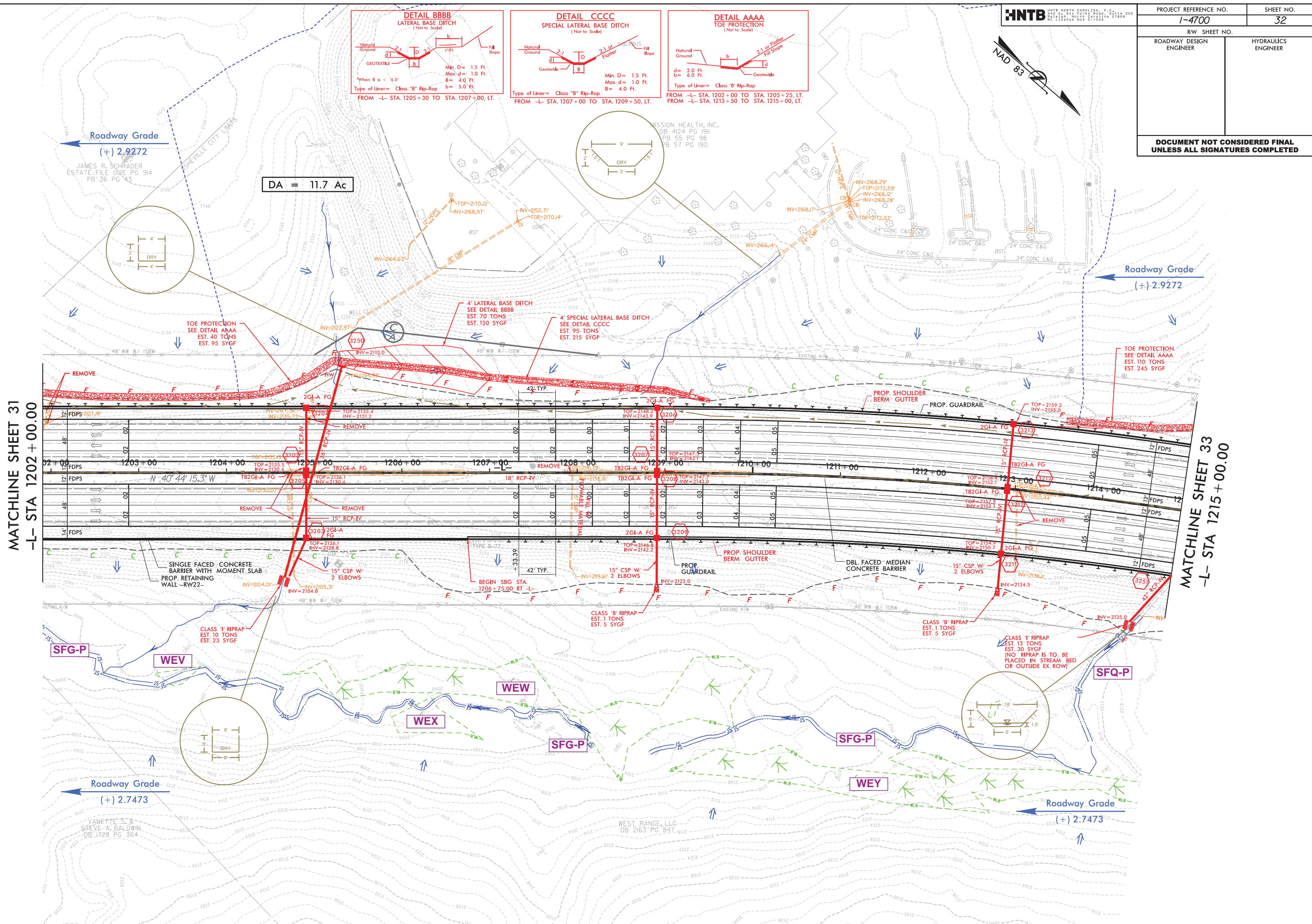
MATCHLINE SHEET 29
-L- STA 1175+50.00

MATCHLINE SHEET 31
-L- STA 1188+50.00



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PROJECT REFERENCE NO.	SHEET NO.
I-4700	30
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	





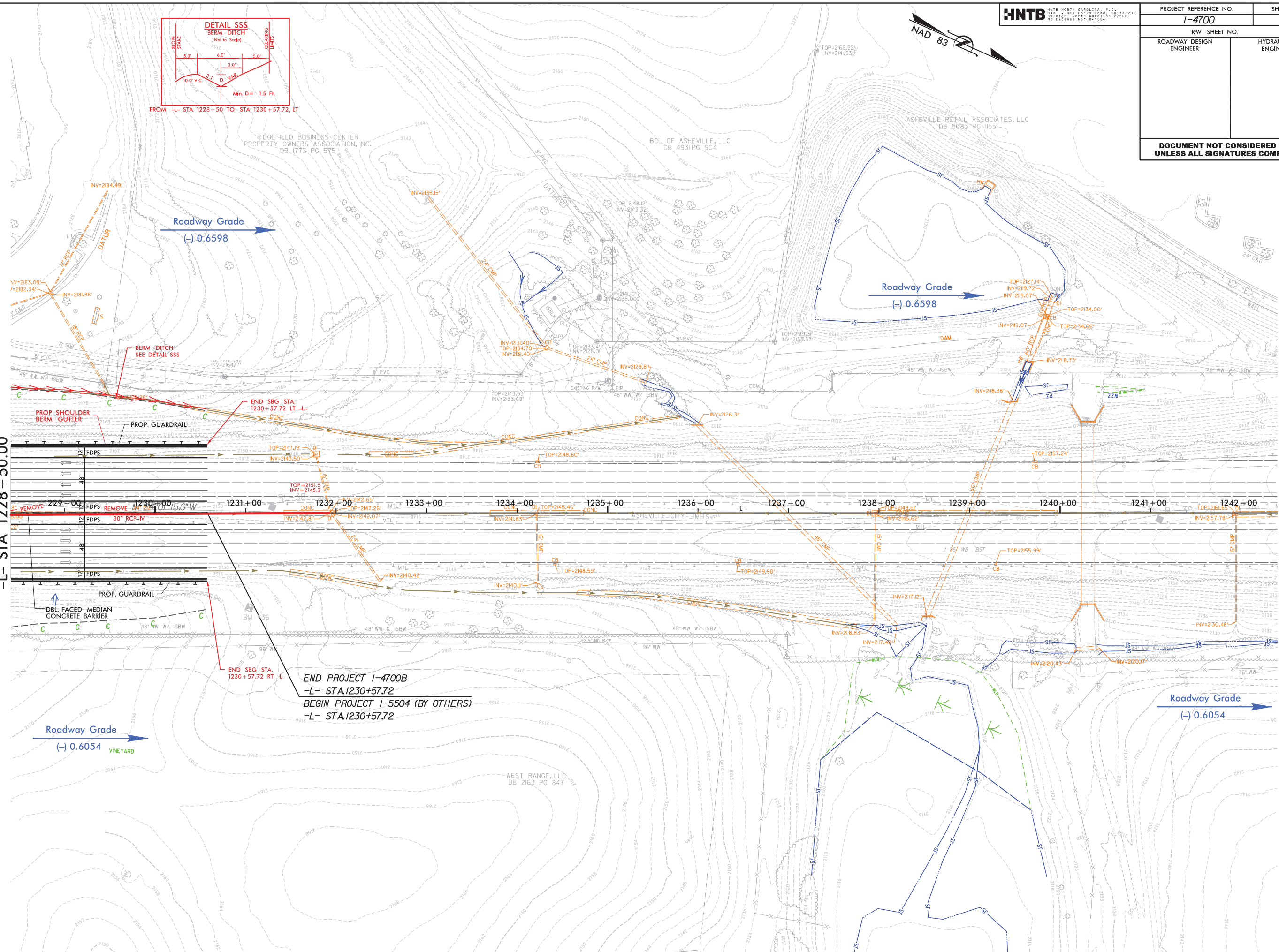
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8:43 AM

7/19/2017

1/19/2017 14:00:00 ROY.PSH.S16.dgn 3:43 AM

REVISIONS

MATCHLINE SHEET 33
-L- STA 1228+50.00



HNTB

HNTB NORTH CAROLINA, P.C.
2445 E. 34th Street, Suite 200
Charlotte, North Carolina 27260
Tel: 704.376.1100 Fax: 704.376.1101

PROJECT REFERENCE NO.

I-4700

SHEET NO.

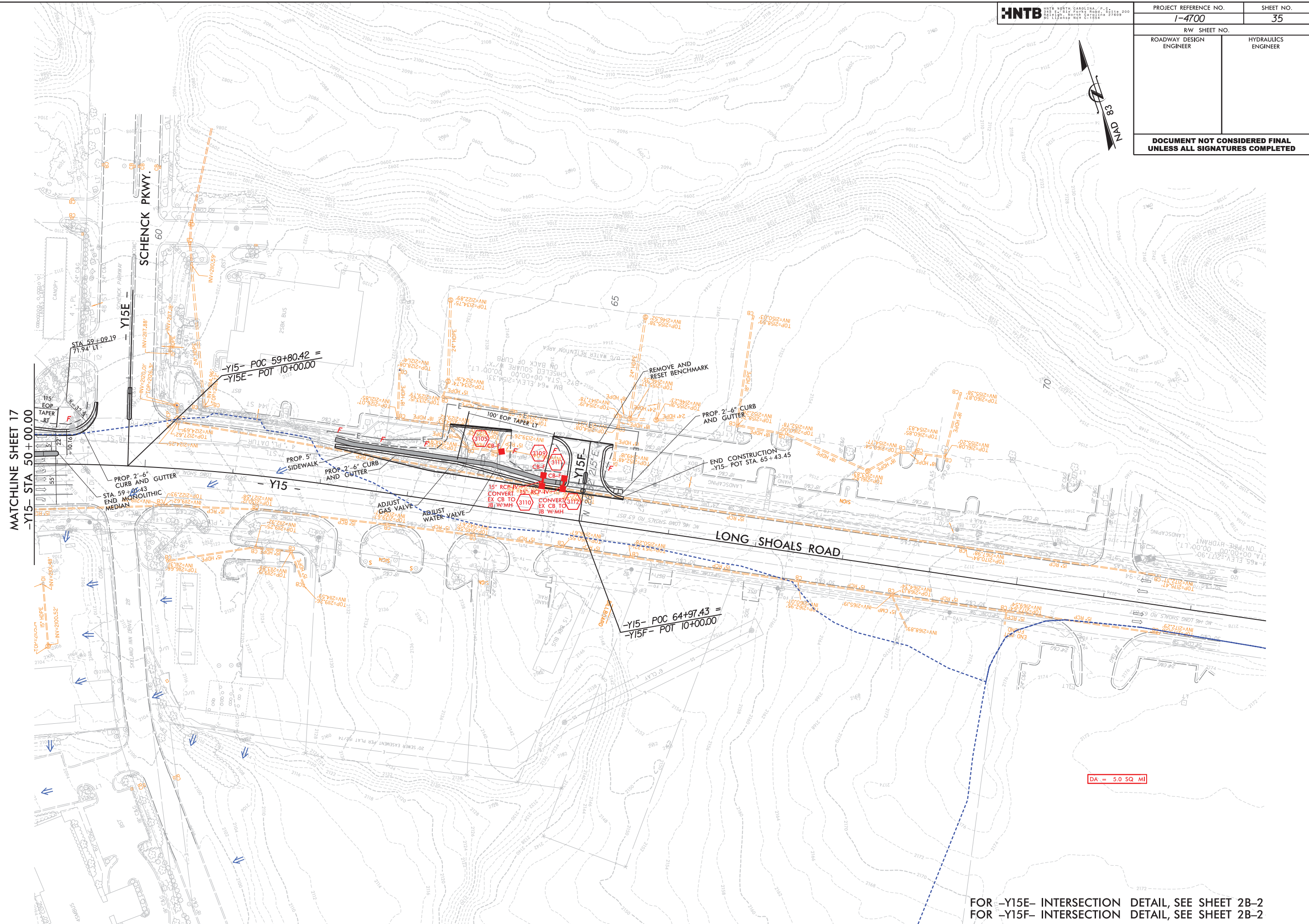
34

RW SHEET NO.

ROADWAY DESIGN
ENGINEER

HYDRAULICS
ENGINEER

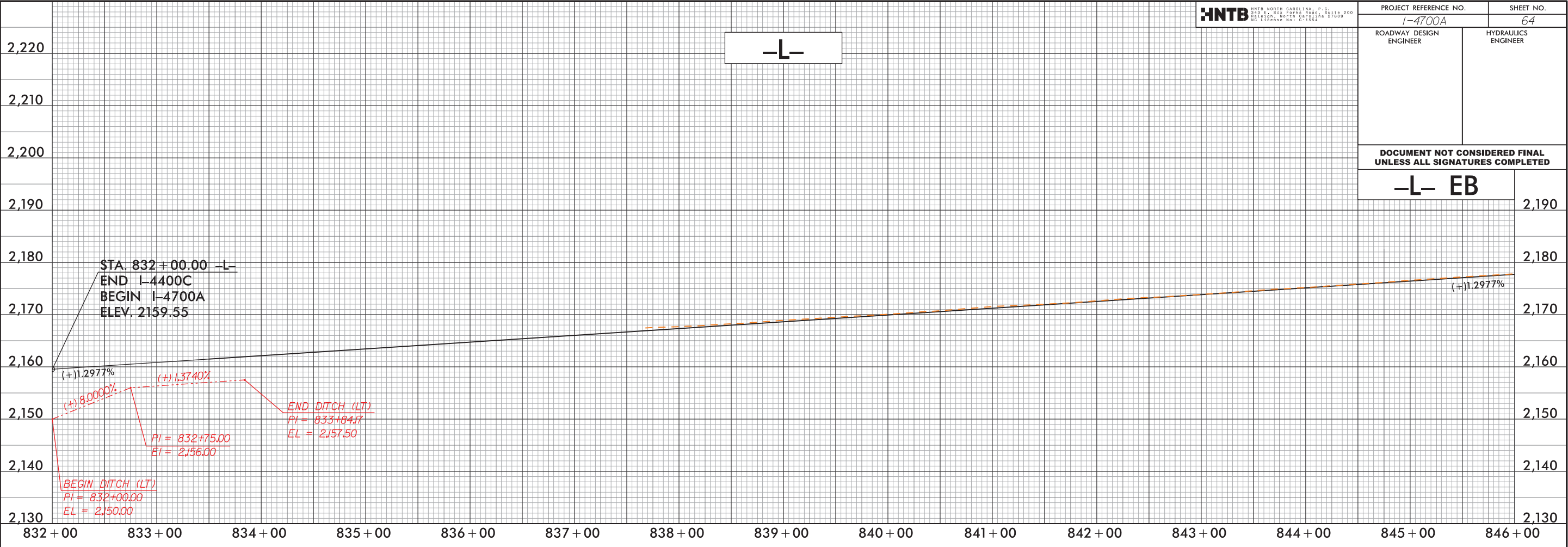
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



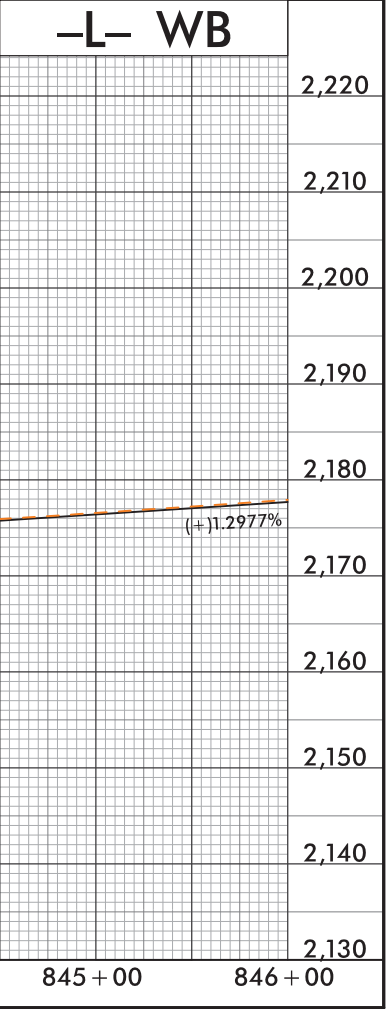
FOR -Y15E- INTERSECTION DETAIL, SEE SHEET 2B-2
FOR -Y15F- INTERSECTION DETAIL, SEE SHEET 2B-2

8/7/2017

PROJECT REFERENCE NO.		SHEET NO.
I-4700A		64
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
-L- EB		

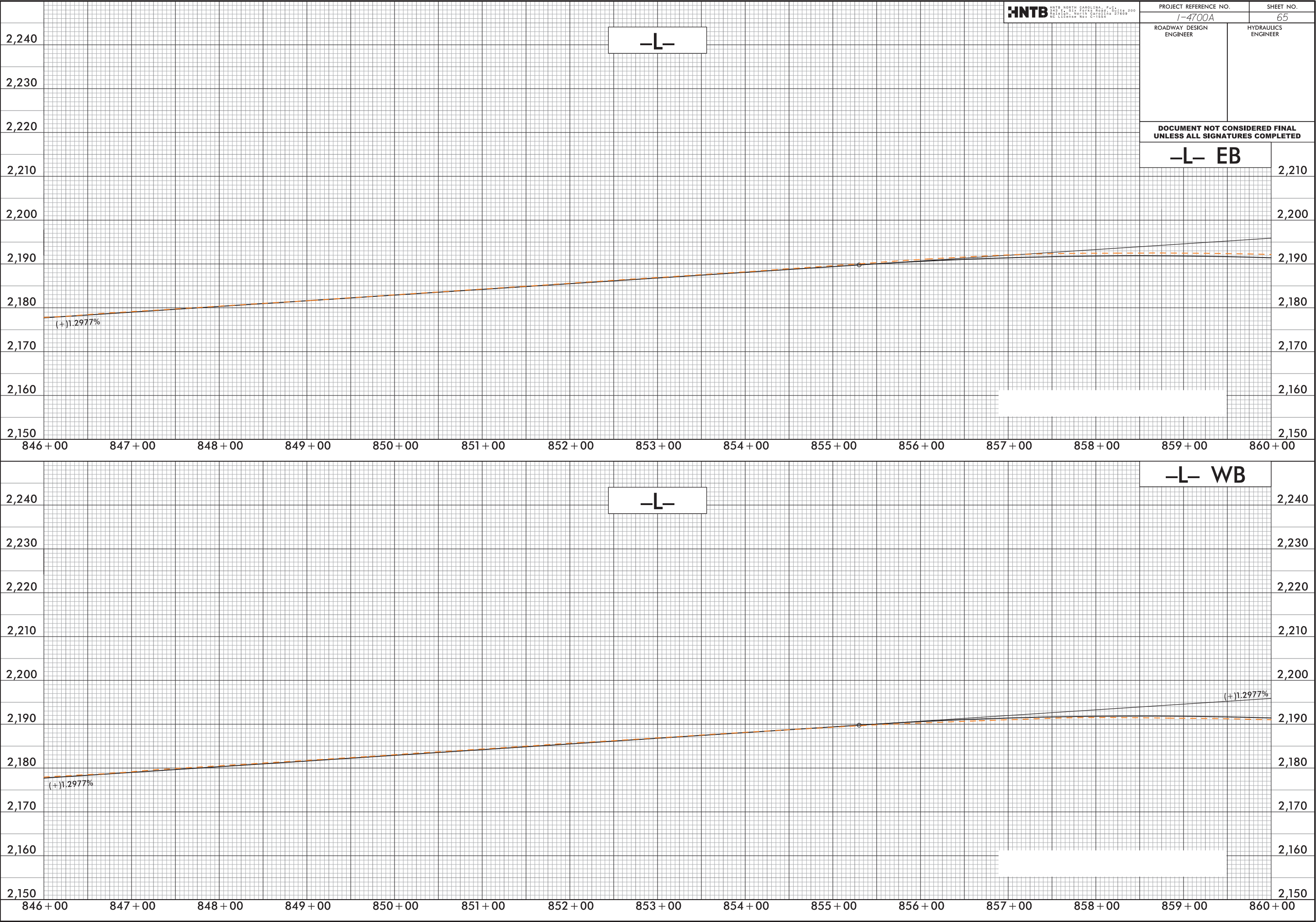


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I4400A01 RDY_PFL_S37.dgn



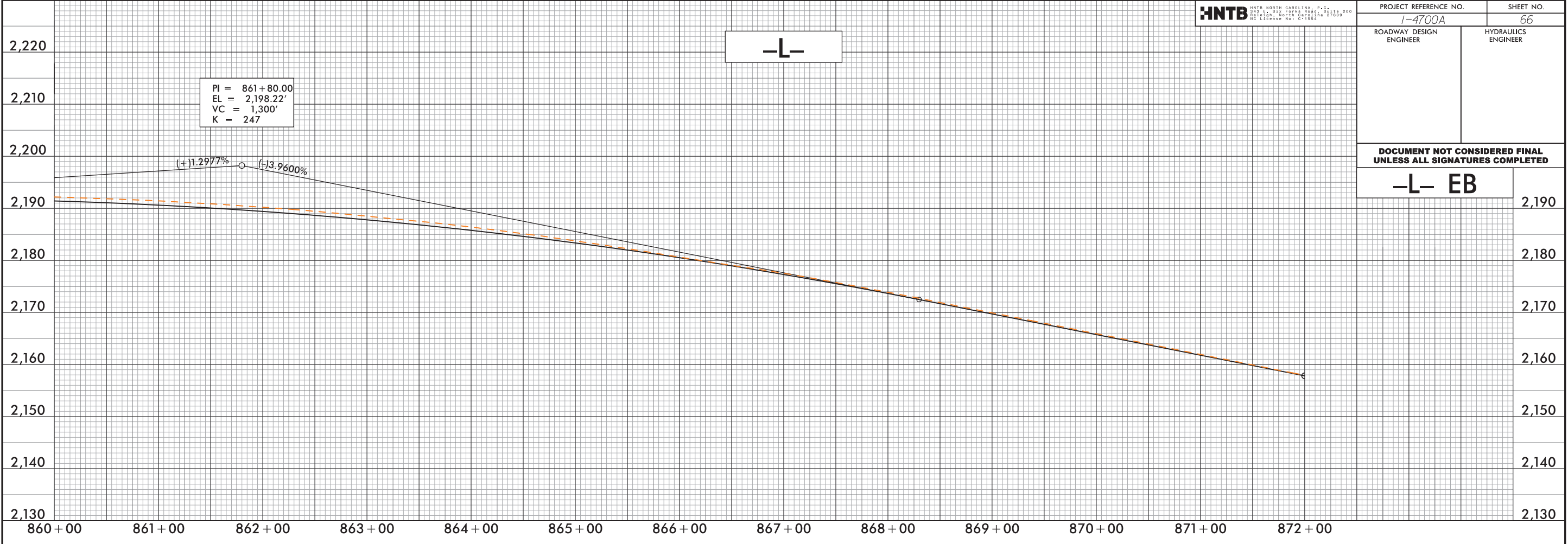
8/7/2017

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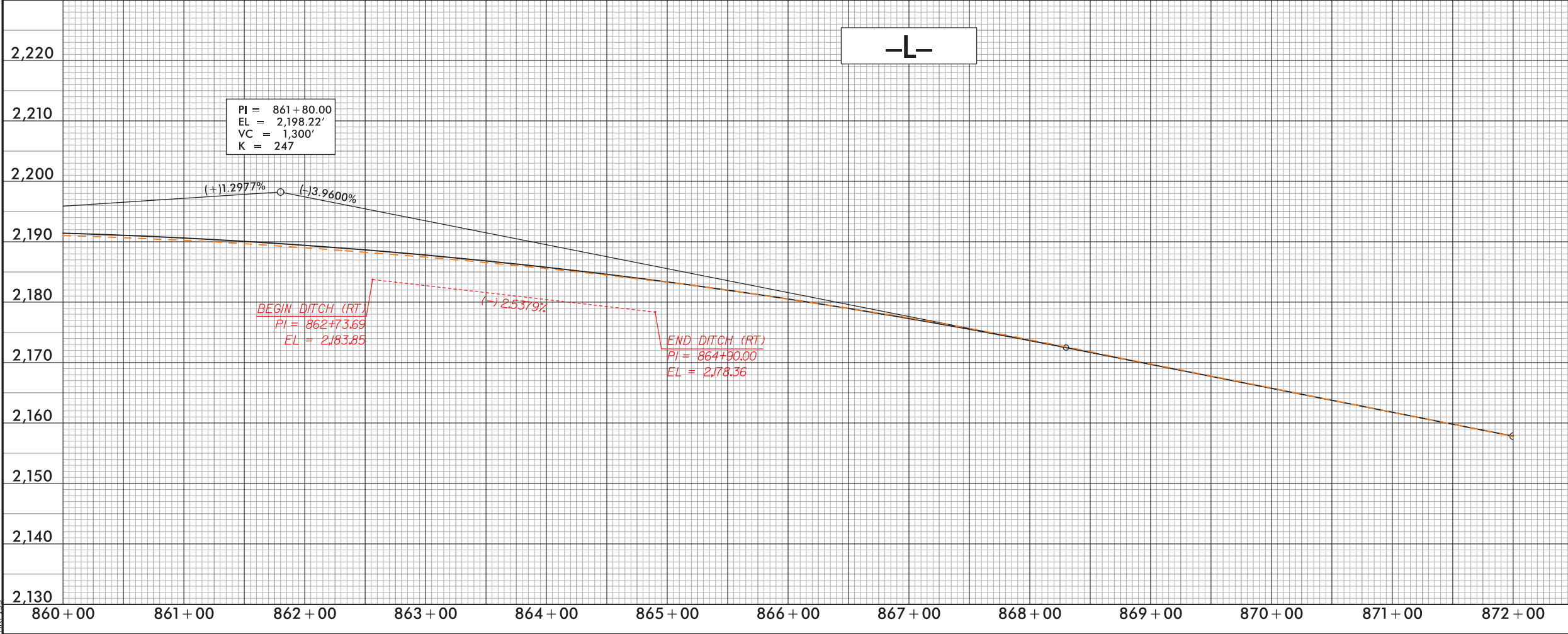
5/28/99

PROJECT REFERENCE NO.		SHEET NO.
I-4700A		66
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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
-L- EB		0100

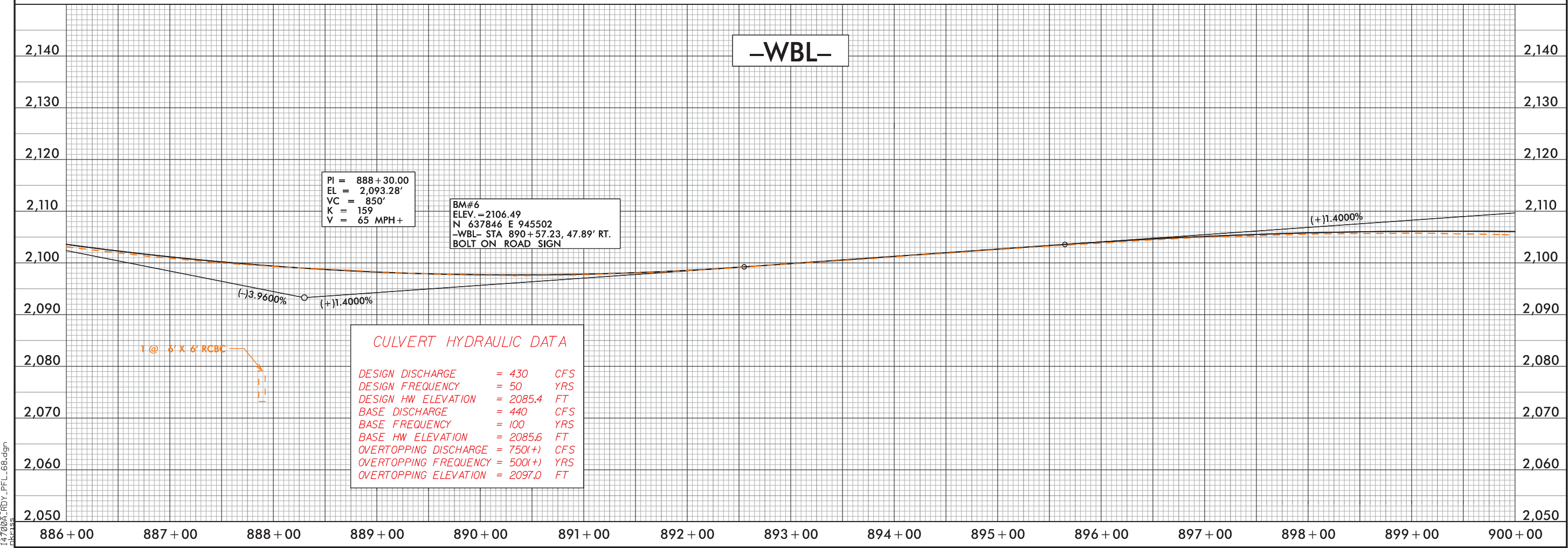


7/24/2018
14700A-CRDY_PFL_66
hntb

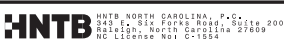
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2,130	



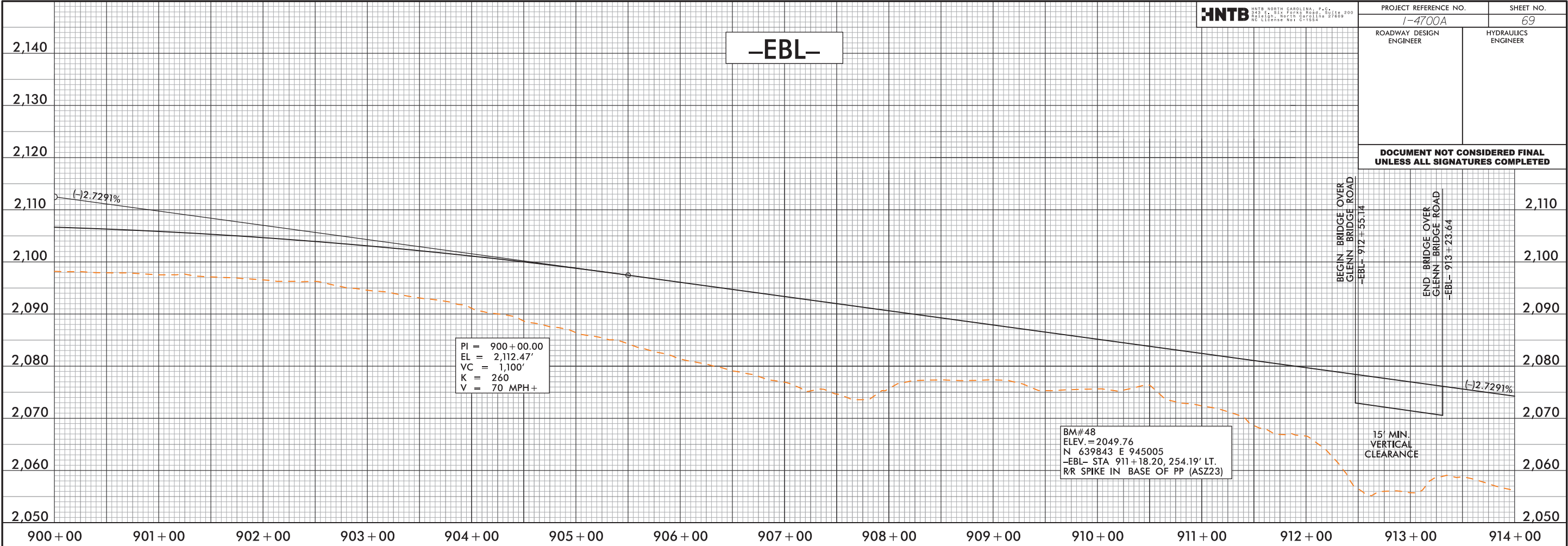
5/28/99



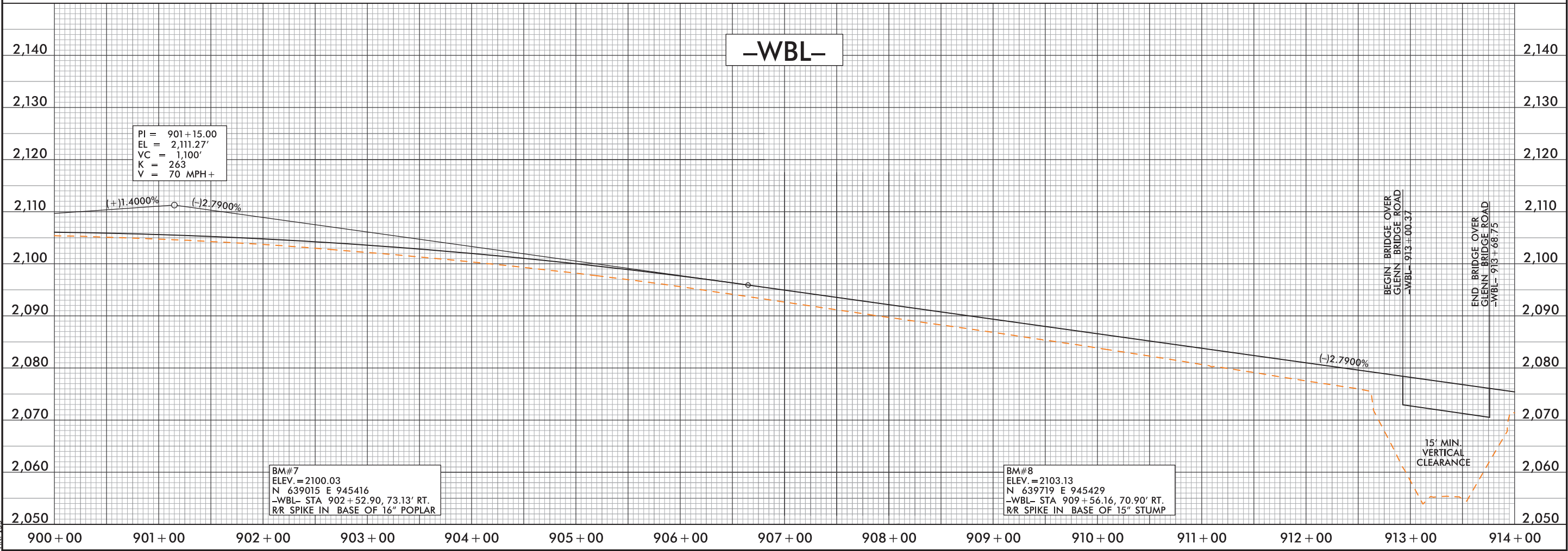
5/28/99



PROJECT REFERENCE NO.		SHEET NO.
I-4700A		69
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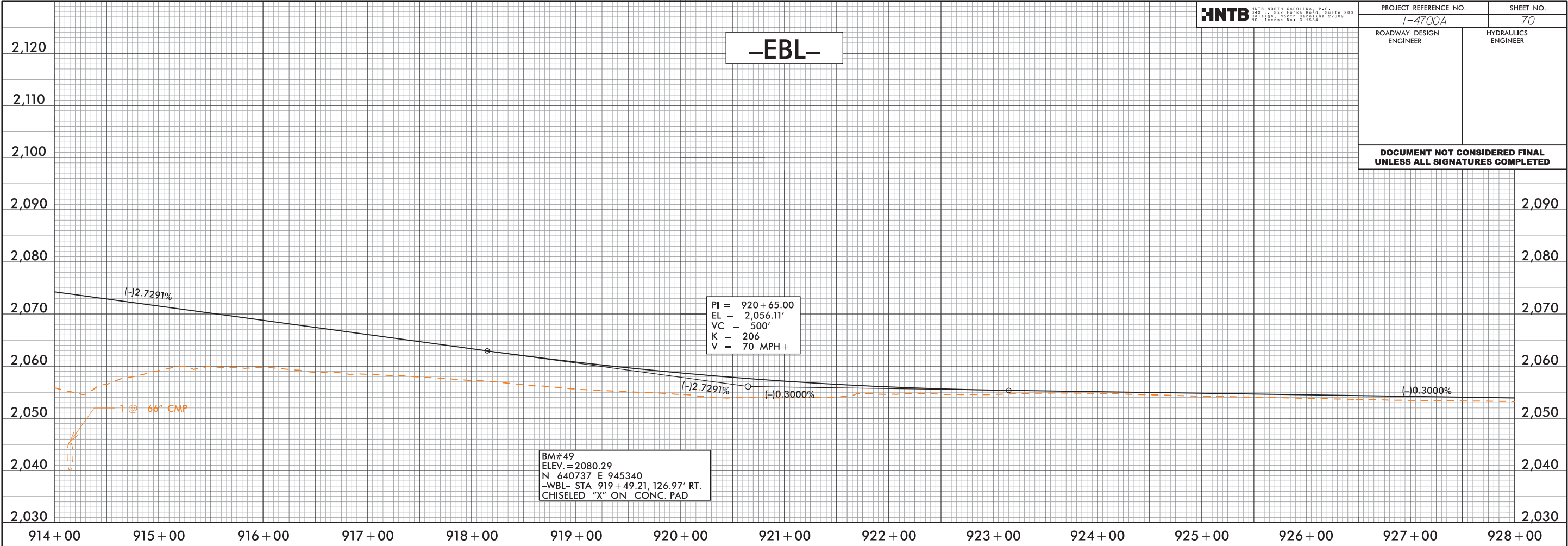


7/24/2018
14700A-RD.Y_PFL_69.dgn
nbs



5/28/99

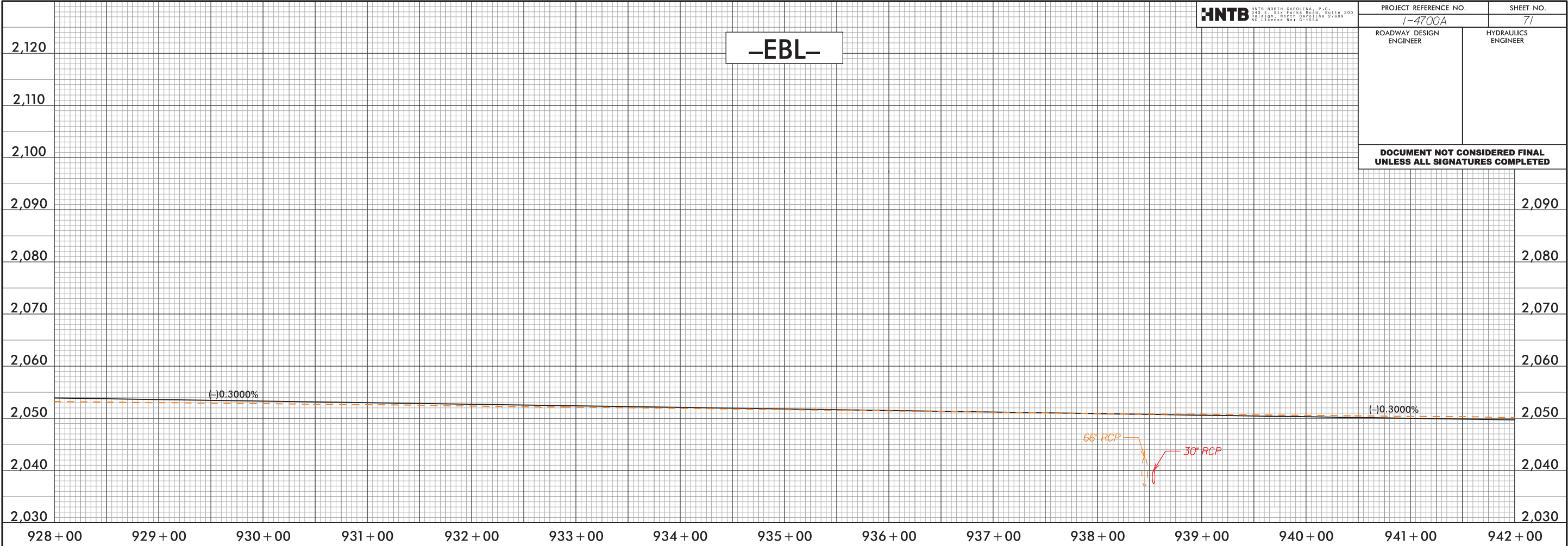
PROJECT REFERENCE NO.		SHEET NO.
I-4700A		70
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	



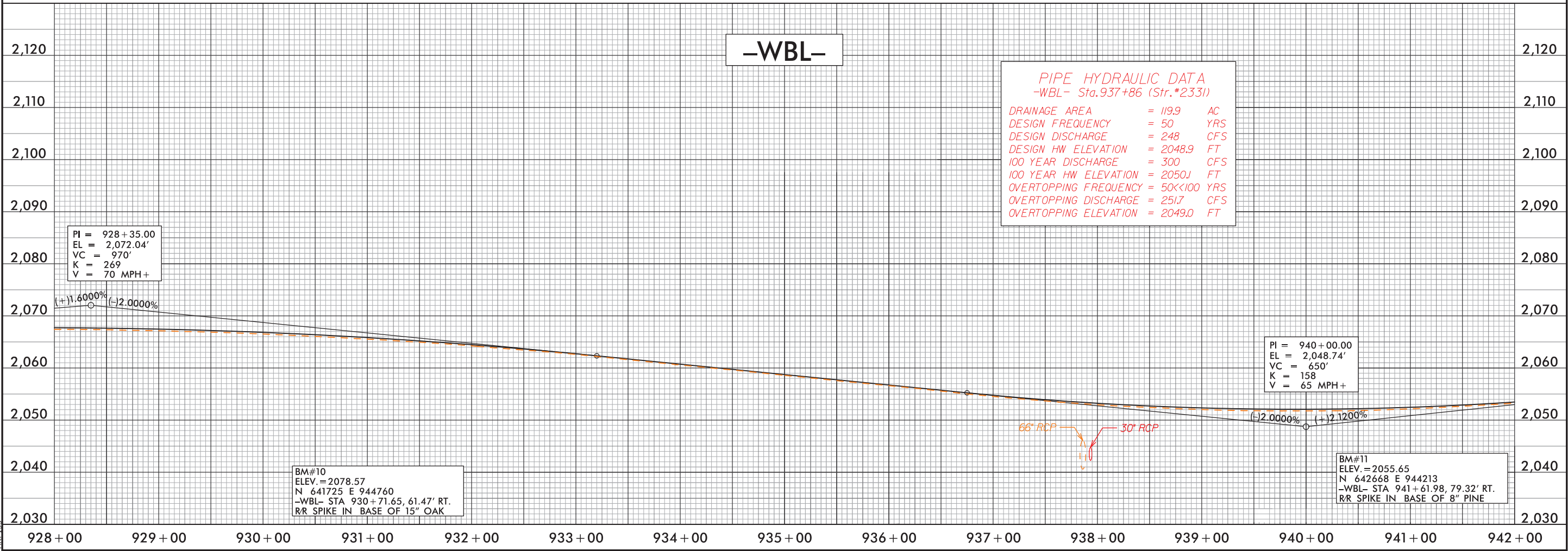
5/28/99

HNTB HNTB NORTH CAROLINA, P.C.
200 S. PARKWAY, SUITE 200
DURHAM, NORTH CAROLINA 27609
NC LICENSE NO. C-1504

PROJECT REFERENCE NO.		SHEET NO.
I-4700A		71
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		



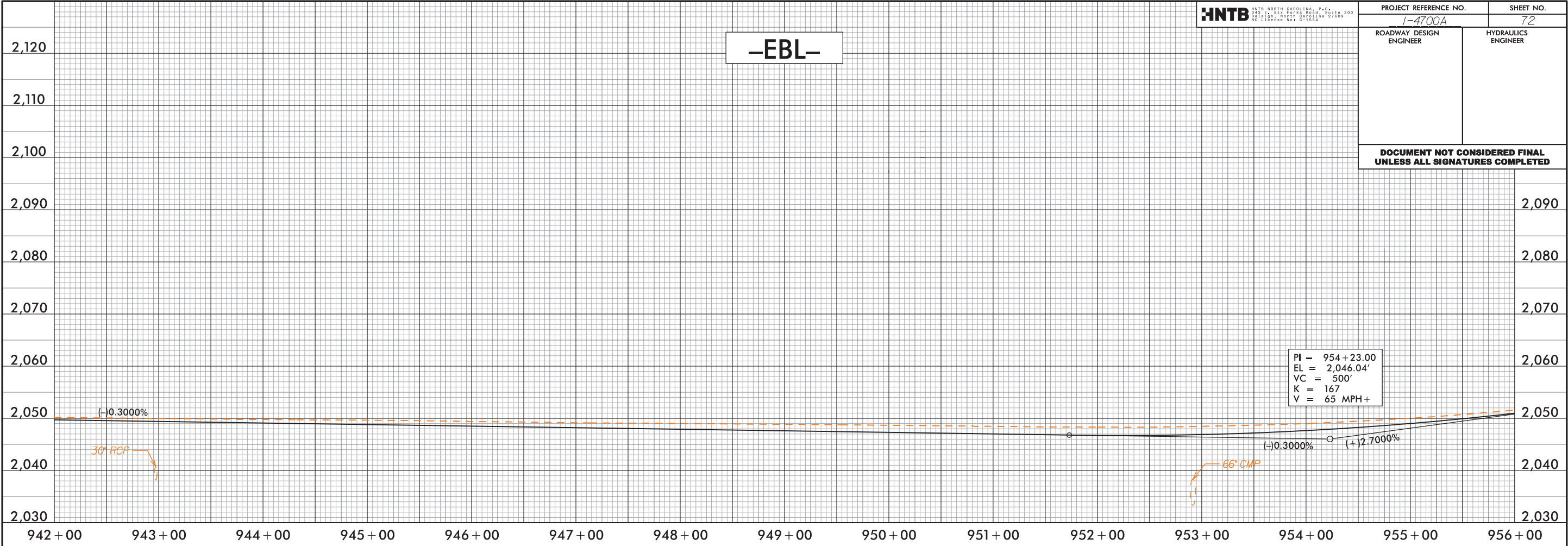
7/24/2018
14700A-RD-Y-PFL-71.dgn
hntb



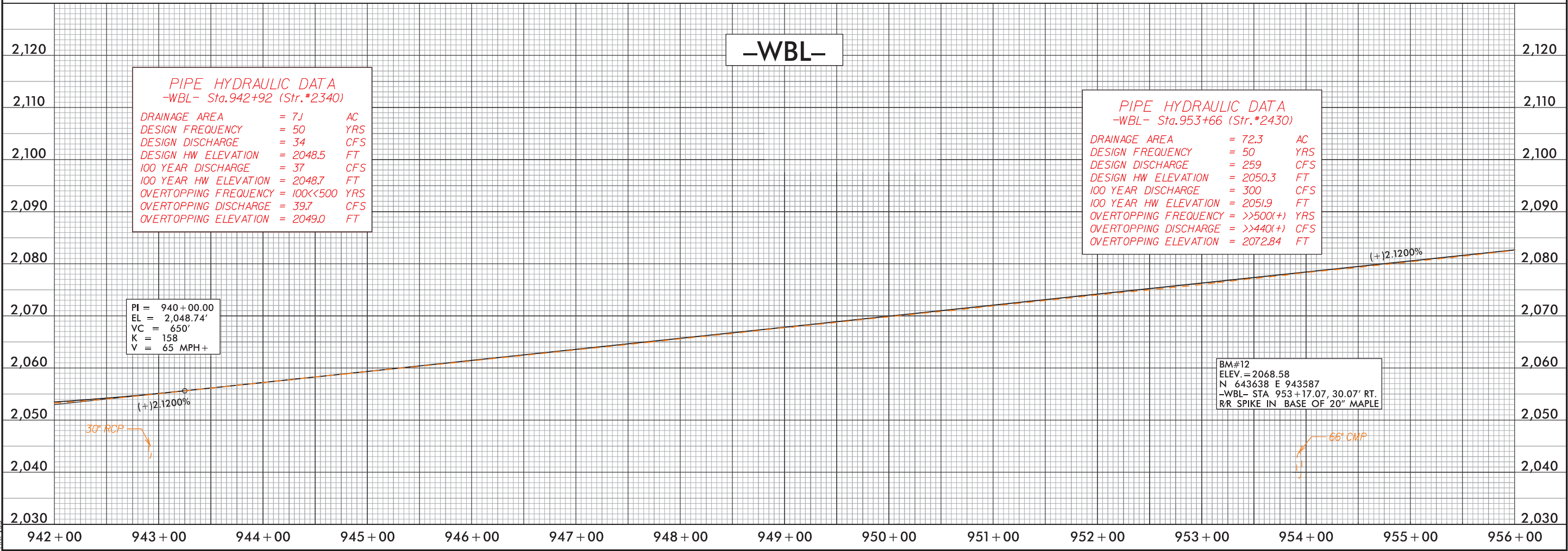
5/28/99

HNTB HNTB NORTH CAROLINA, P.C.
100 SOUTH PARKWAY, SUITE 200
RALEIGH, NORTH CAROLINA 27609
NO LICENSE NOT C-1504

PROJECT REFERENCE NO.		SHEET NO.
I-4700A		72
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		



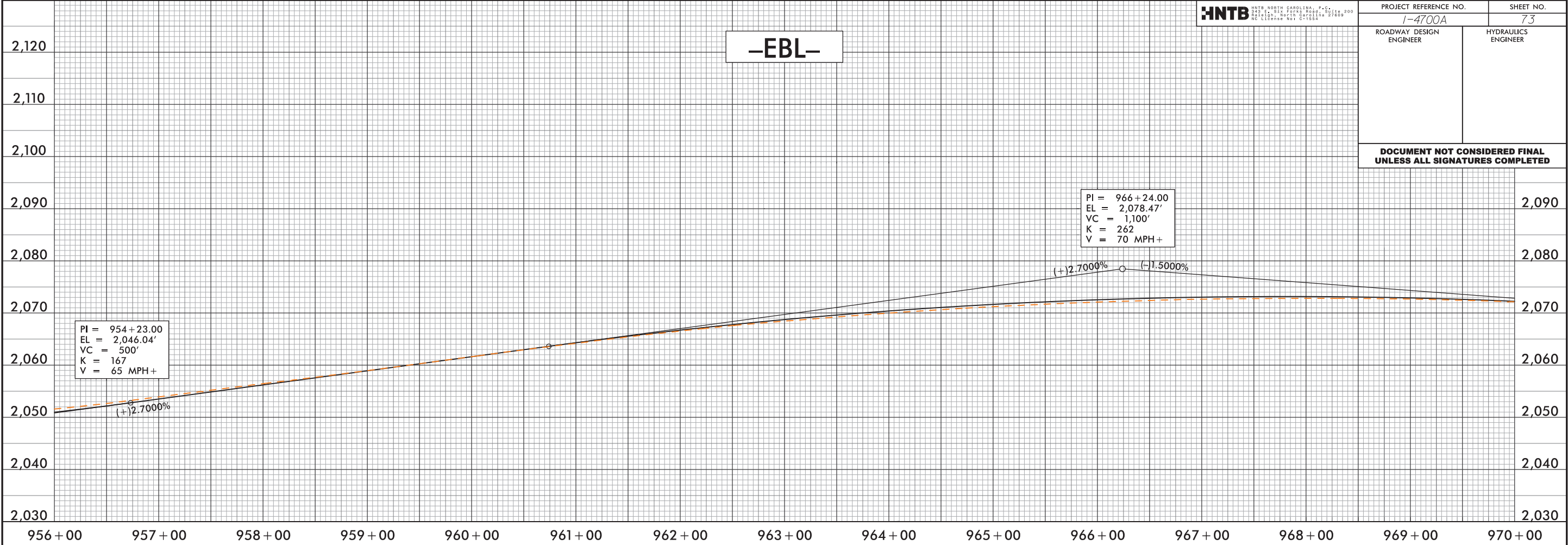
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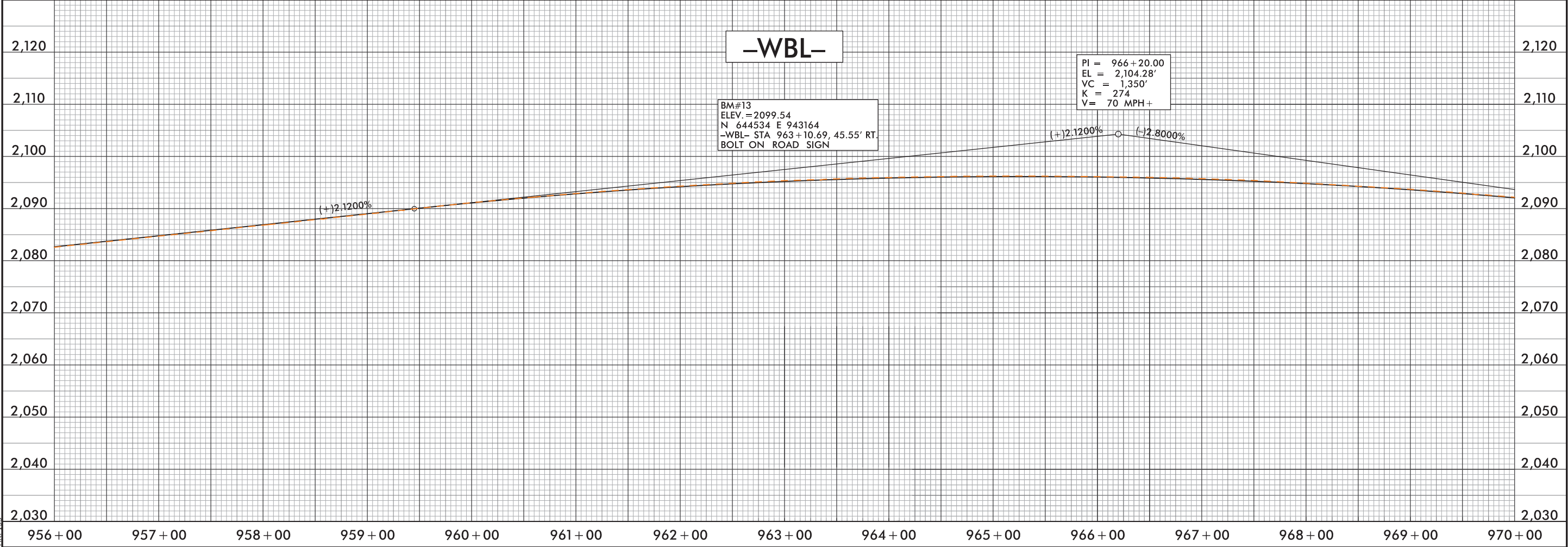
5/28/99



PROJECT REFERENCE NO.		SHEET NO.
I-4700A		73
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		

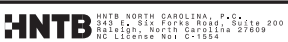


7/24/2018
14700A-RD-Y_PFL_73.dgn
hntb

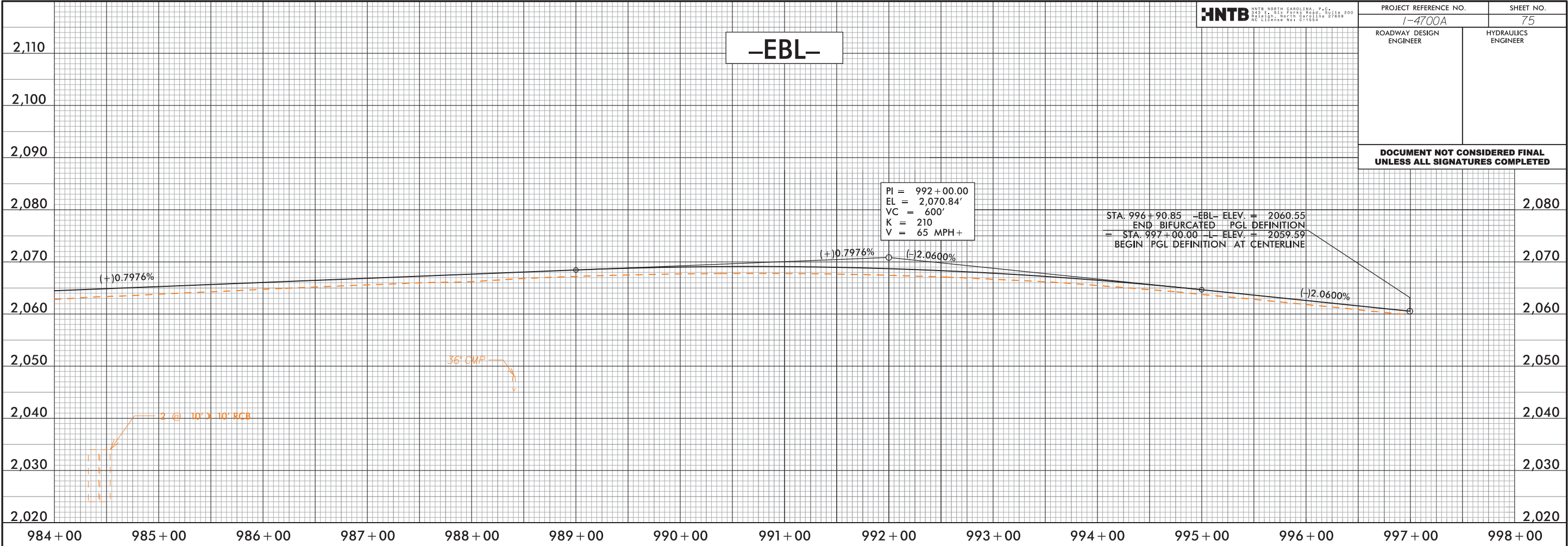




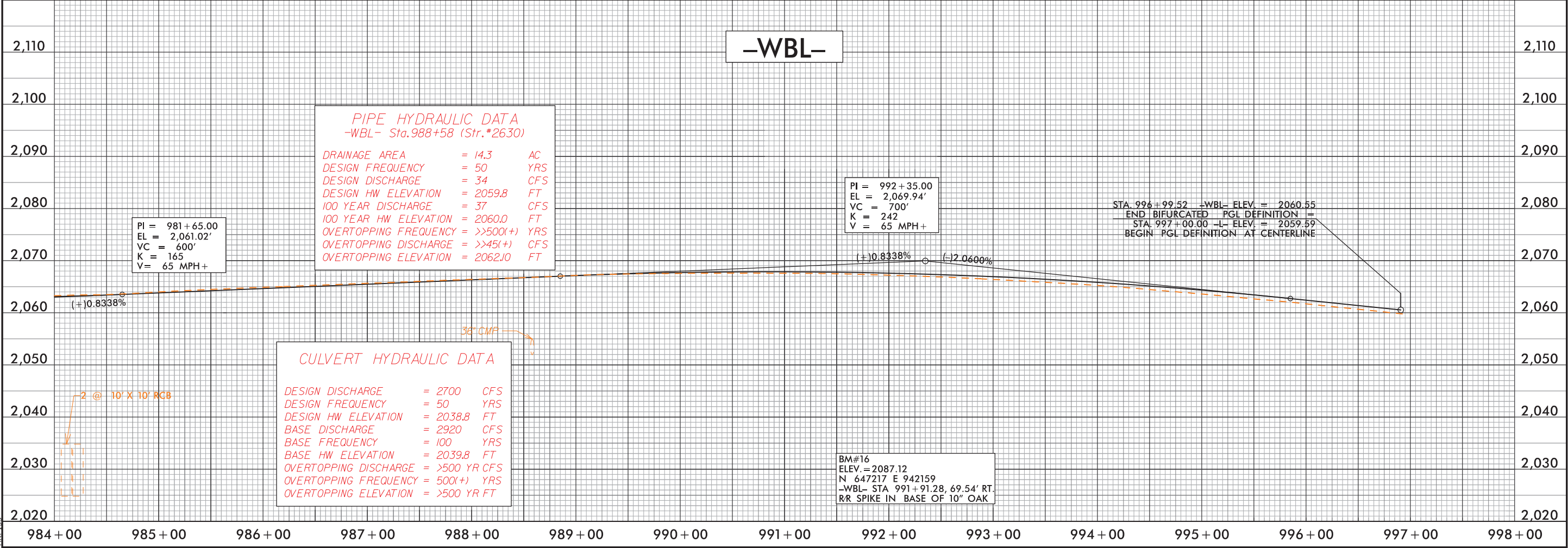
5/28/99



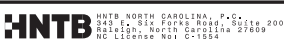
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I-4700A		75
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	



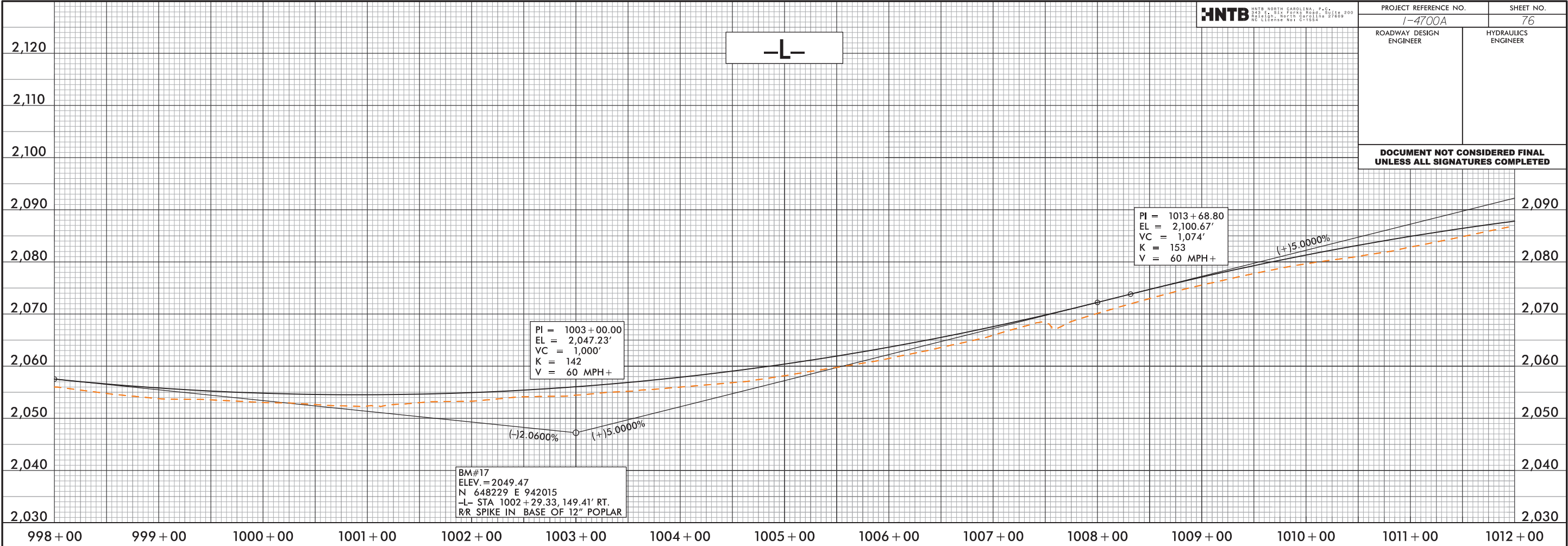
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14700A-RD-Y-PFL-75.dgn
hntb



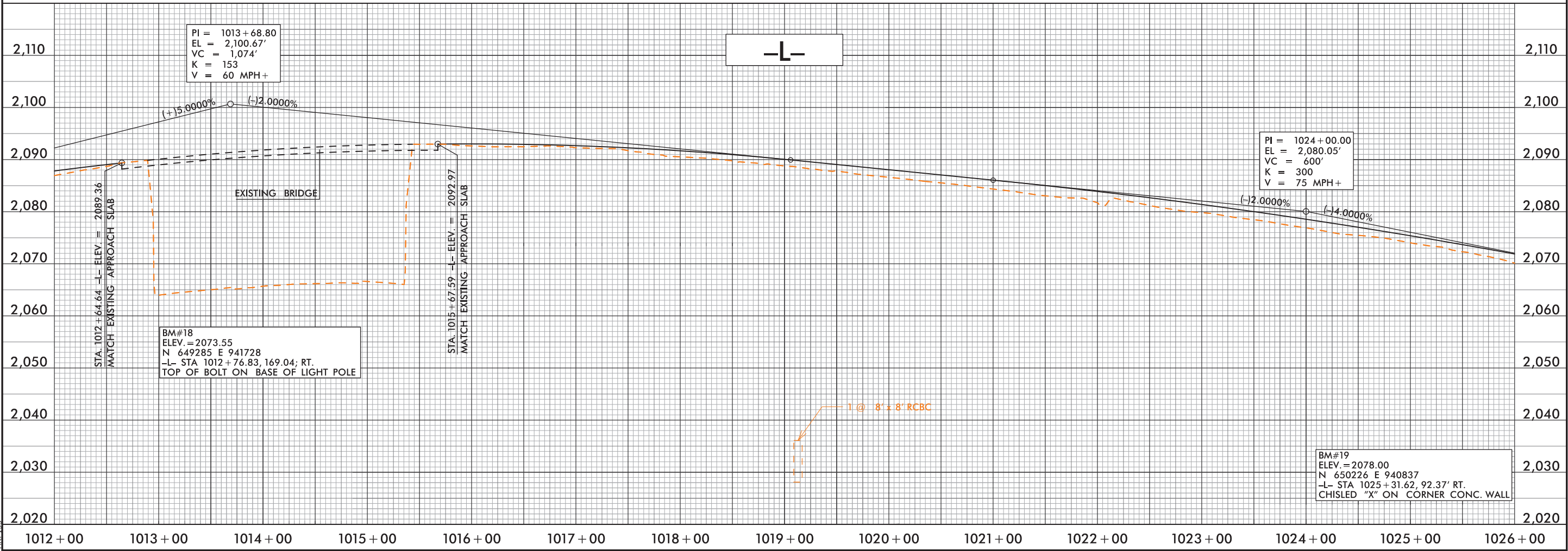
5/28/99



PROJECT REFERENCE NO.		SHEET NO.
I-4700A		76
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	



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14700A-RD-Y_PFL_76.dgn
nk1111



5/28/99

PROJECT REFERENCE NO.		SHEET NO.
I-4700A		77
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		

PIPE HYDRAULIC DATA
-L- Sta.1027+12 (Str.*2870 & *2871)

DRAINAGE AREA = 42.7 AC
DESIGN FREQUENCY = 50 YRS
DESIGN DISCHARGE = 190 CFS
DESIGN HW ELEVATION = 2036.2 FT
100 YEAR DISCHARGE = 220 CFS
100 YEAR HW ELEVATION = 2036.9 FT
OVERTOPPING FREQUENCY = >>500(+) YRS
OVERTOPPING DISCHARGE = >>310(+) CFS
OVERTOPPING ELEVATION = 2050.72 FT

PI = 1024+00.00
EL = 2,080.05'
VC = 600'
K = 300
V = 75 MPH+

PI = 1031+25.00
EL = 2,051.05'
VC = 800'
K = 179
V = 65 MPH+

BM#20
ELEV.=2067.91
N 650720 E 940385
-L- STA 1032+06.20, 111.69' RT.
R/R SPIKE IN BASE OF 17" POPLAR

1026+00 1027+00 1028+00 1029+00 1030+00 1031+00 1032+00 1033+00 1034+00 1035+00 1036+00 1037+00 1038+00 1039+00 1040+00

-L-

PIPE HYDRAULIC DATA
-L- Sta.1043+11 (Str.*3030 & *3032)

DRAINAGE AREA = 35.6 AC
DESIGN FREQUENCY = 50 YRS
DESIGN DISCHARGE = 150 CFS
DESIGN HW ELEVATION = 2043.6 FT
100 YEAR DISCHARGE = 170 CFS
100 YEAR HW ELEVATION = 2044.3 FT
OVERTOPPING FREQUENCY = >>500(+) YRS
OVERTOPPING DISCHARGE = >>250(+) CFS
OVERTOPPING ELEVATION = 2049.50 FT

PI = 1046+11.00
EL = 2,057.96'
VC = 750'
K = 169
V = 65 MPH+

PIPE HYDRAULIC DATA
-L- Sta.1048+35 (Str.*3040 & *3042)

DRAINAGE AREA = 151.4 AC
DESIGN FREQUENCY = 50 YRS
DESIGN DISCHARGE = 280 CFS
DESIGN HW ELEVATION = 2034.8 FT
100 YEAR DISCHARGE = 290 CFS
100 YEAR HW ELEVATION = 2035.1 FT
OVERTOPPING FREQUENCY = >>500(+) YRS
OVERTOPPING DISCHARGE = >>320(+) CFS
OVERTOPPING ELEVATION = 2049.0 FT

BEGIN BRIDGE OVER
BALTIMORE FARMS ROAD
STA. 1050+14.48

END BRIDGE OVER
BALTIMORE FARMS ROAD
STA. 1051+19.48

14' MIN
VERTICAL
CLEARANCE

BM#21
ELEV.=2060.35
N 651466 E 939904
-L- STA 1041+38.42, 74.29' RT.
R/R SPIKE IN BASE OF STUMP

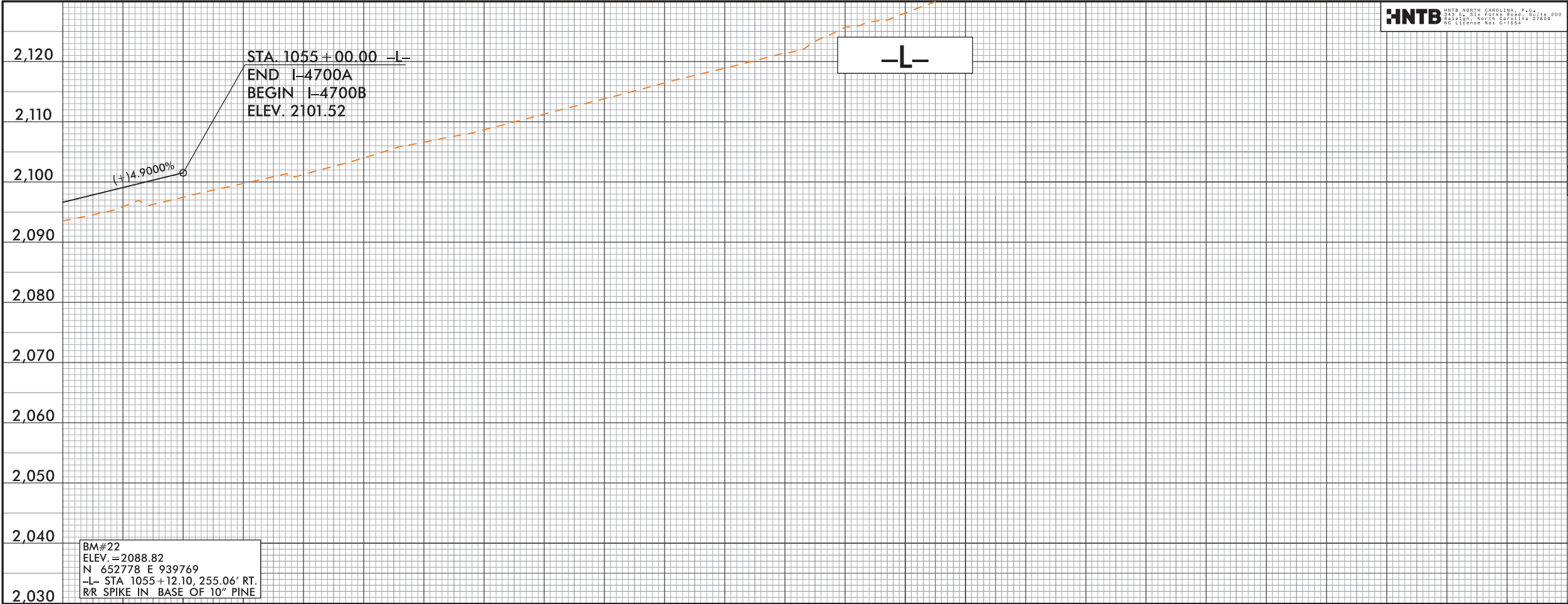
42" RCP
42" RCP

60" CMP
36" RCP

1040+00 1041+00 1042+00 1043+00 1044+00 1045+00 1046+00 1047+00 1048+00 1049+00 1050+00 1051+00 1052+00 1053+00 1054+00

7/24/2018
14700A-RD-Y-PFL-77.dgn
nkr:sls

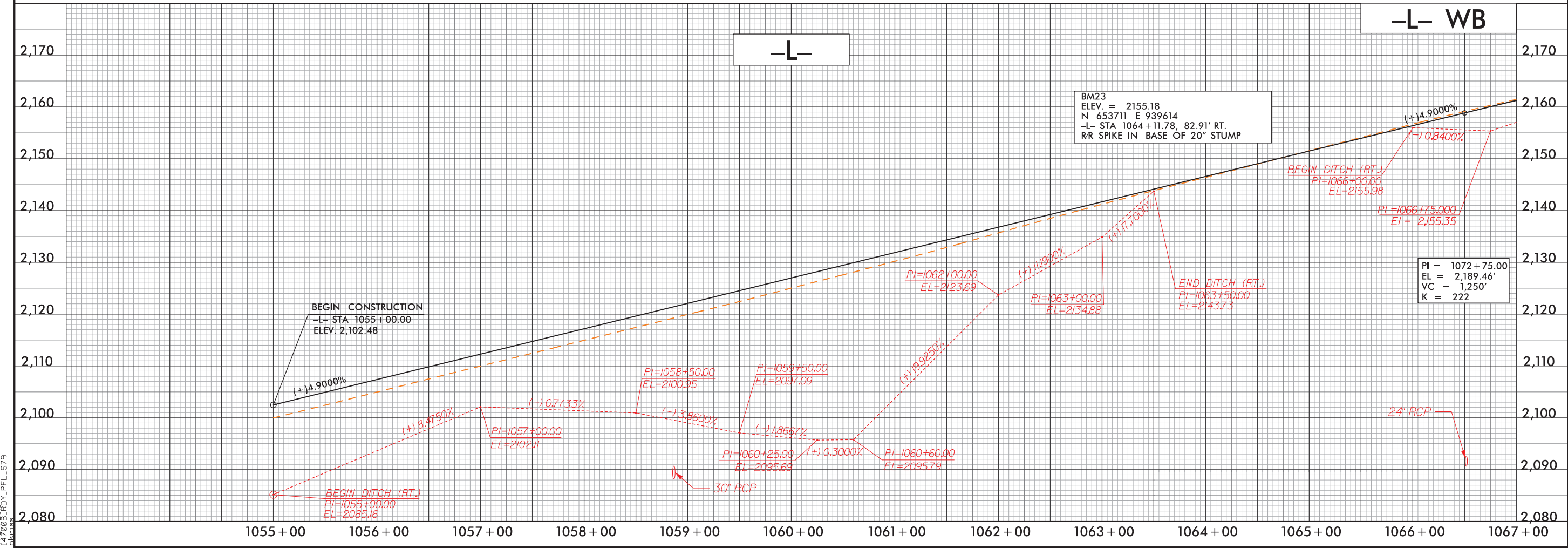
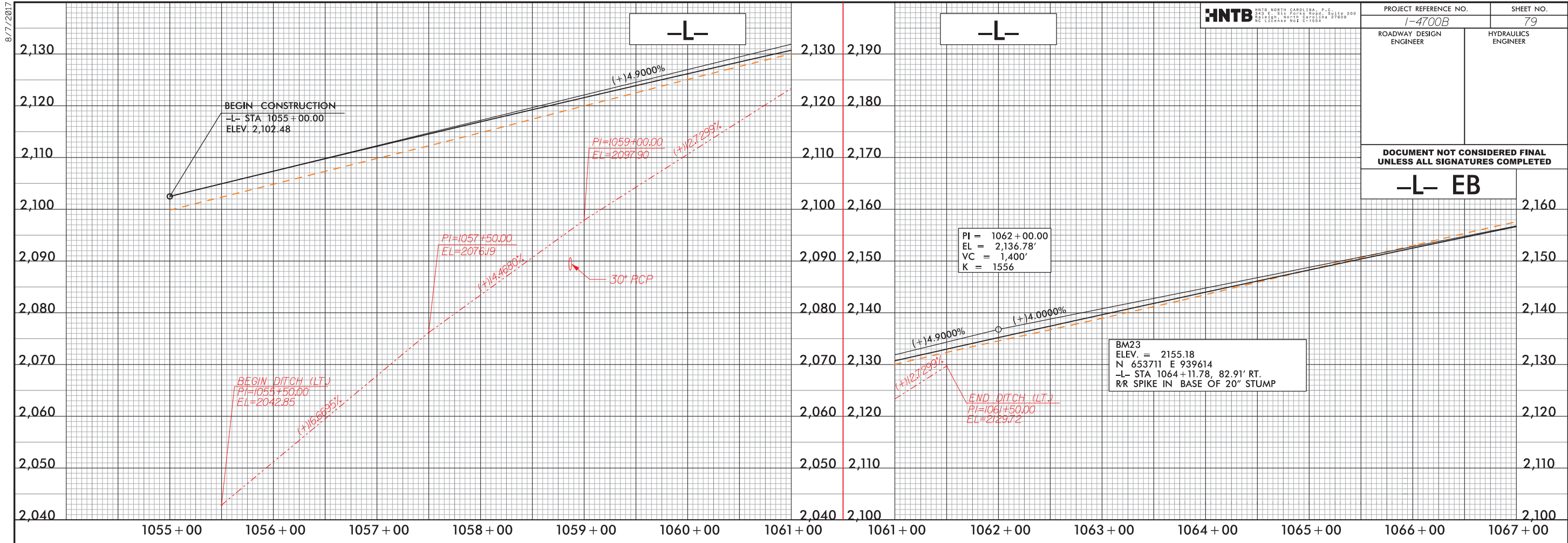
5/28/99



HNTB HNTB NORTH CAROLINA, P.C. 2000 N. S.W. PARKWAY, SUITE 200 RALEIGH, NORTH CAROLINA 27609 NC LICENSE NO. C-1504	
PROJECT REFERENCE NO. I-4700A	
SHEET NO. 78	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

1054 + 00		1055 + 00	
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2,110			2,110
2,100			2,100
2,090			2,090
2,080			2,080
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2,050			2,050
2,040			2,040
2,030			2,030

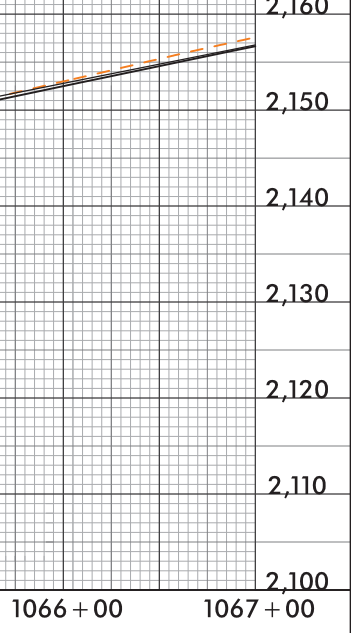
8/7/2017



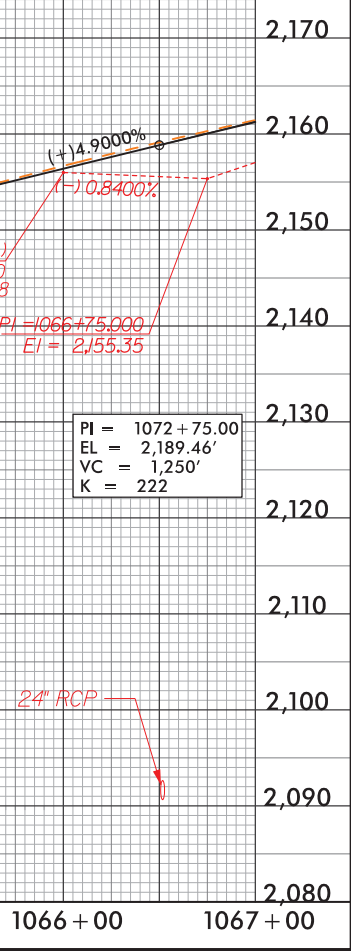
HNTB
HNTB NORTH CAROLINA, P.C.
10000 S. 101st Street, Suite 200
Charlotte, NC 28226
Tel: 704.366.1000
Fax: 704.366.1001

PROJECT REFERENCE NO.		SHEET NO.
I-4700B		79
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		

-L- EB



-L- WB

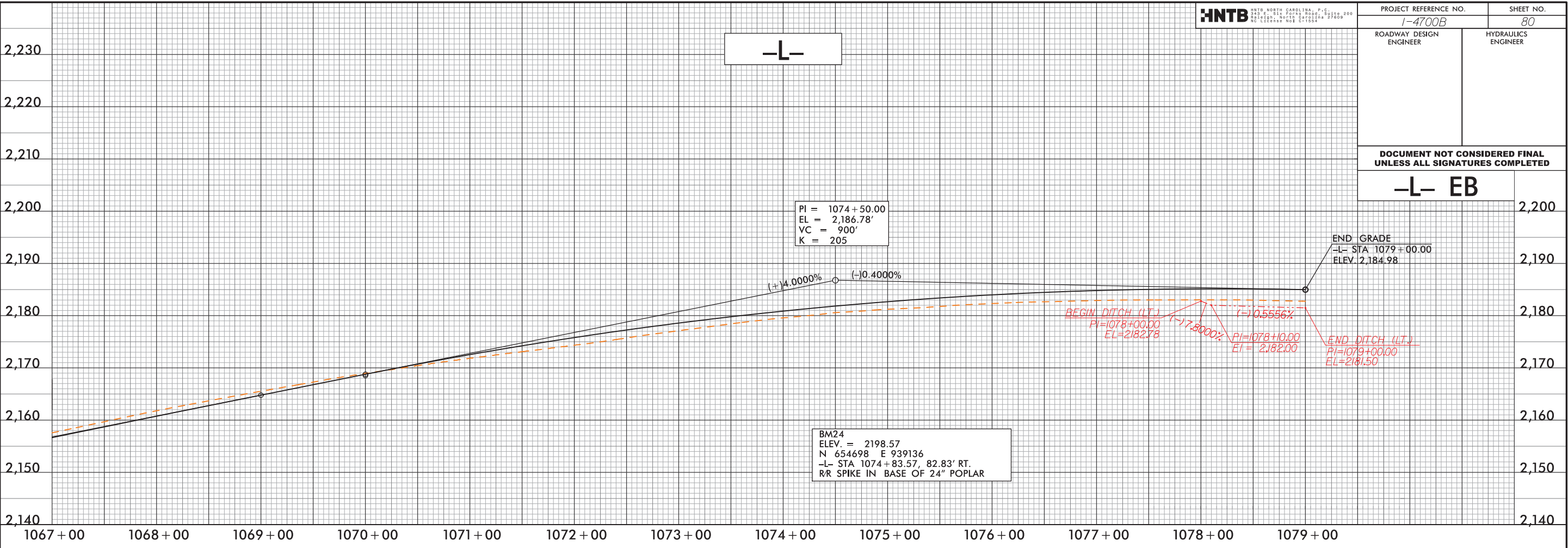


7/24/2018
14700B.DWG PFL S79
nch

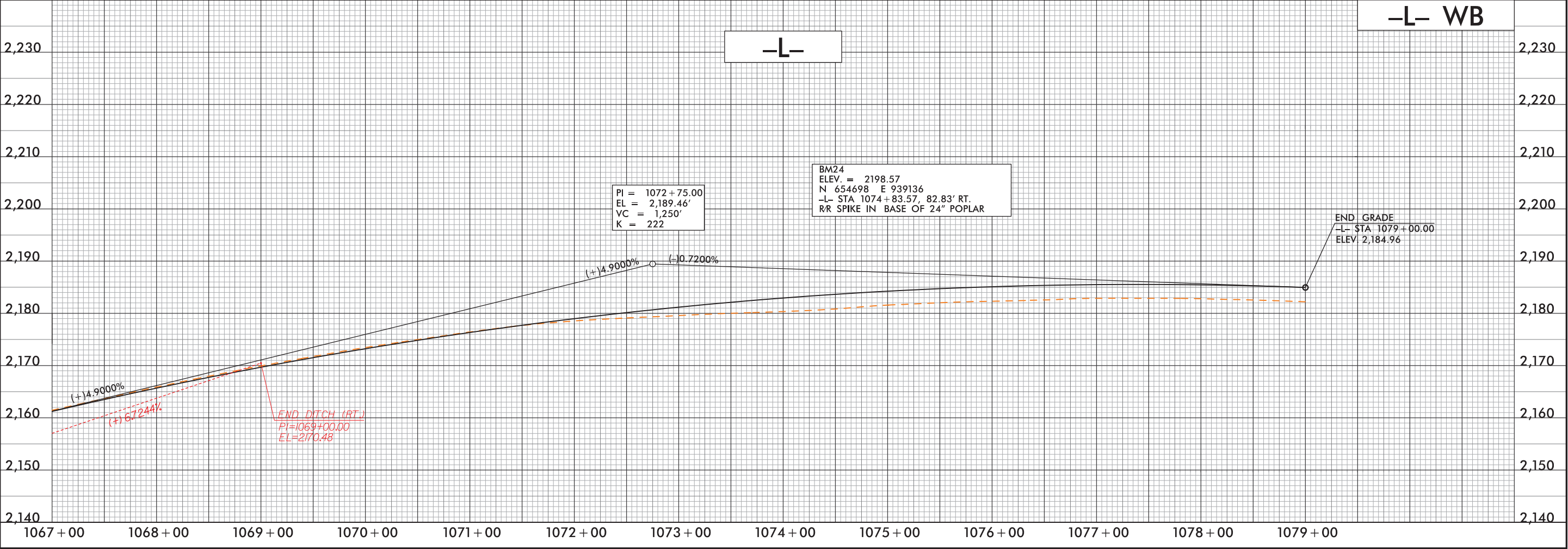
8/7/2017

HNTB
HNTB NORTH CAROLINA, P.C.
14000 S. PARKWAY, SUITE 200
DURHAM, NORTH CAROLINA 27709
REG. LICENSE NO. C-1004

PROJECT REFERENCE NO.		SHEET NO.
I-4700B		80
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
-L- EB		



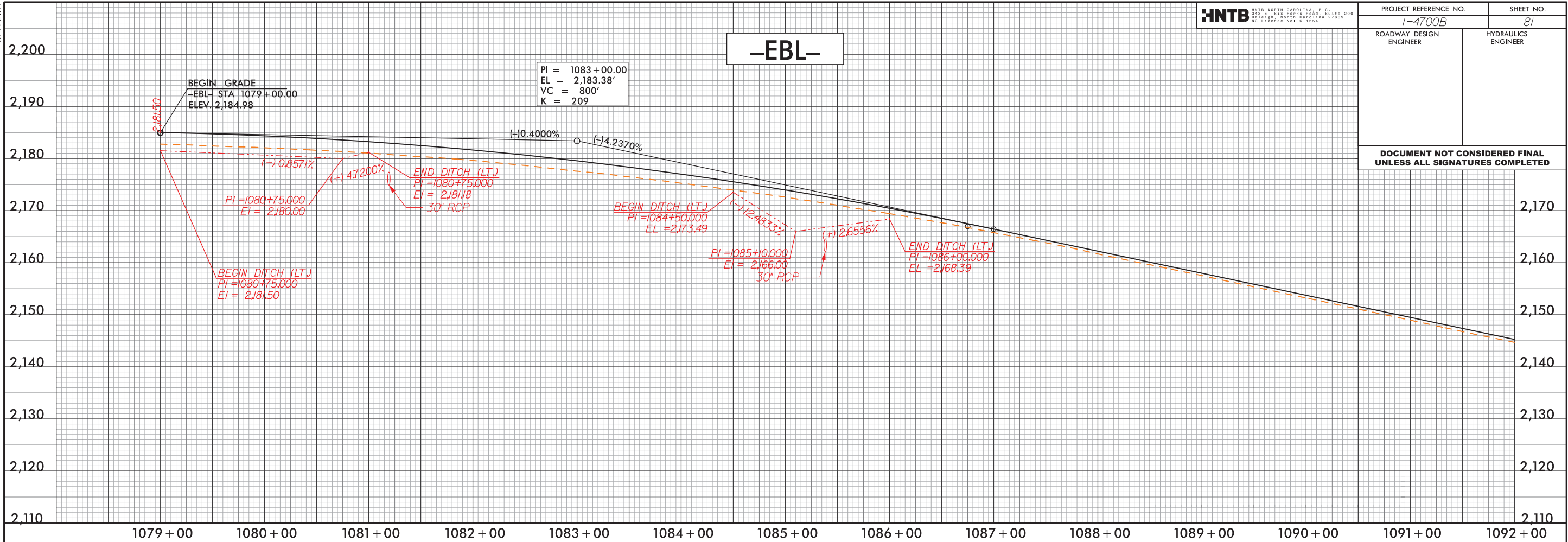
-L- WB



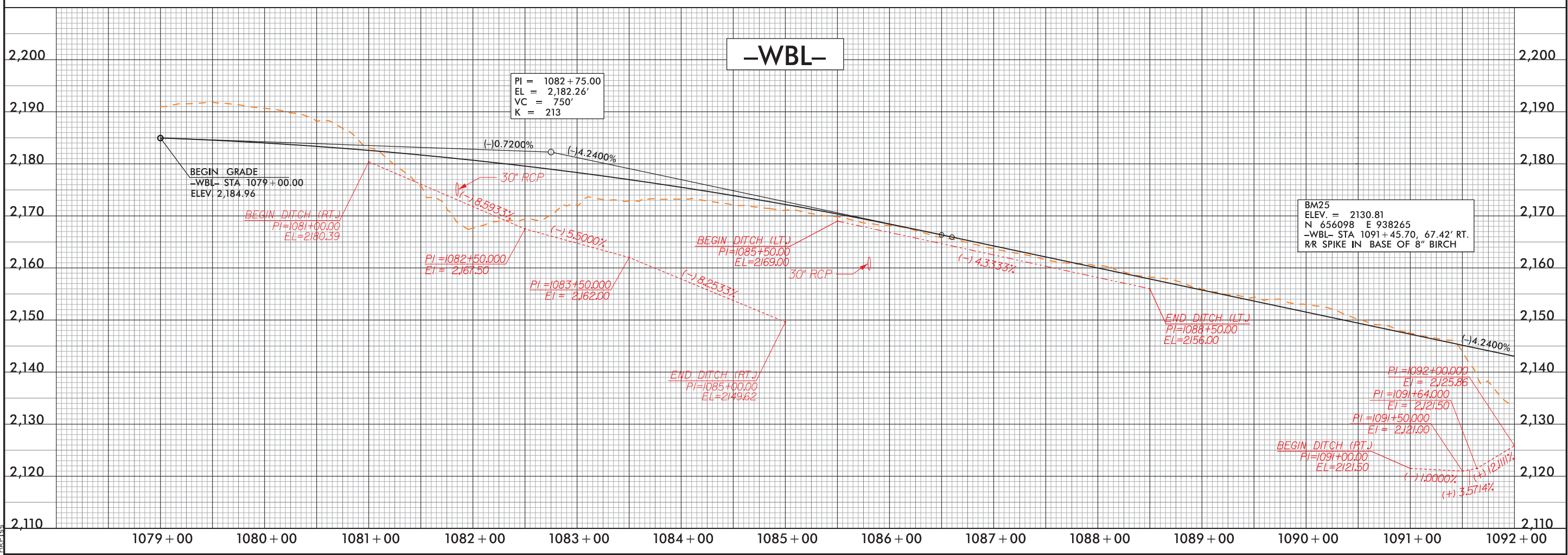
7/24/2018
14000 S. PARKWAY, SUITE 200
DURHAM, NORTH CAROLINA 27709
REG. LICENSE NO. C-1004

8/7/2017

PROJECT REFERENCE NO.		SHEET NO.
I-4700B		81
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		



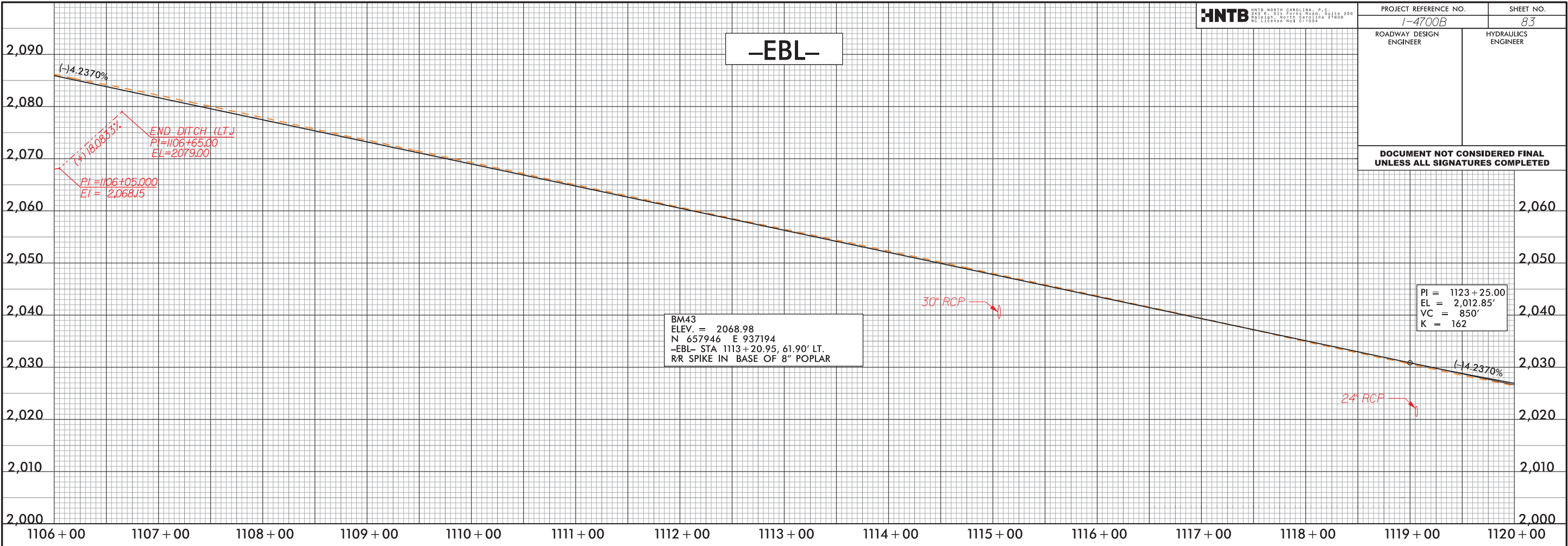
7/24/2018
14000 SHELBY DRIVE, SUITE 200
DURHAM, NORTH CAROLINA 27709
REG. LICENSE NO. 1-1004



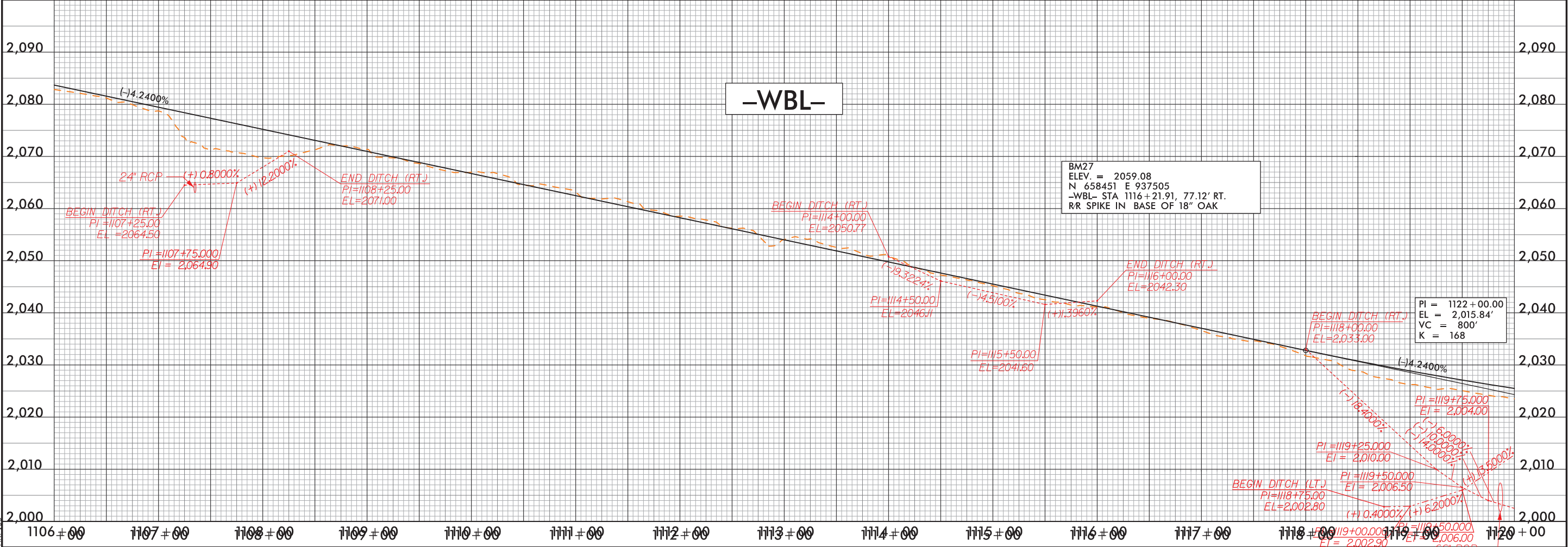
8/7/2017

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HNTB NORTH CAROLINA, P.C.
300 S. 31st Street, Suite 200
Raleigh, North Carolina 27609
NC License No. C-1004

PROJECT REFERENCE NO.		SHEET NO.	
I-4700B		83	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

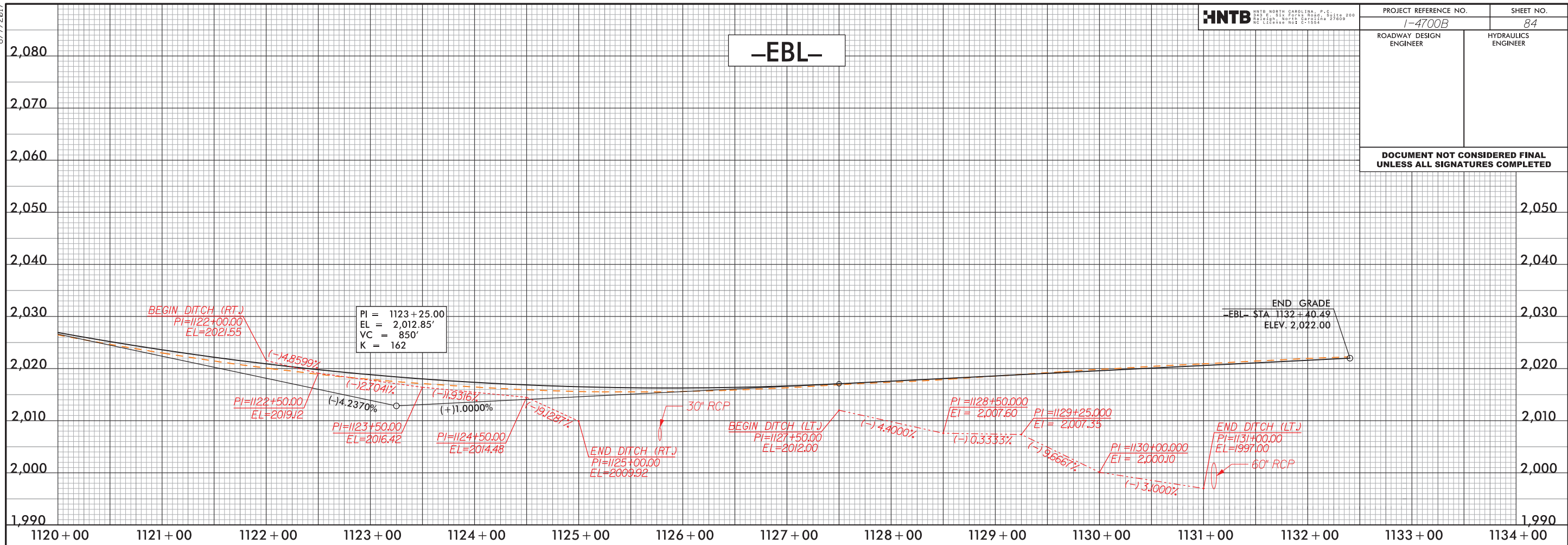


7/24/2018
147006 RDY_PFL_S83
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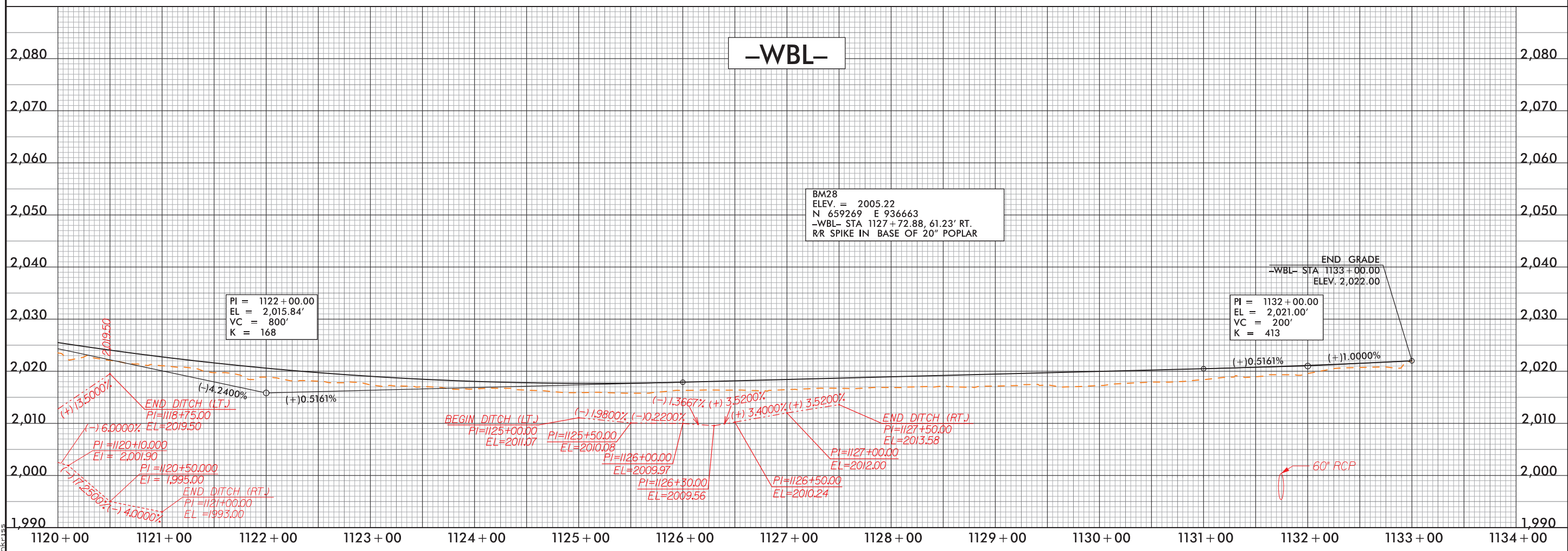


8/7/2017

PROJECT REFERENCE NO.		SHEET NO.
I-4700B		84
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
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7/24/2018
14700B.DWG PFL_S84
nkr



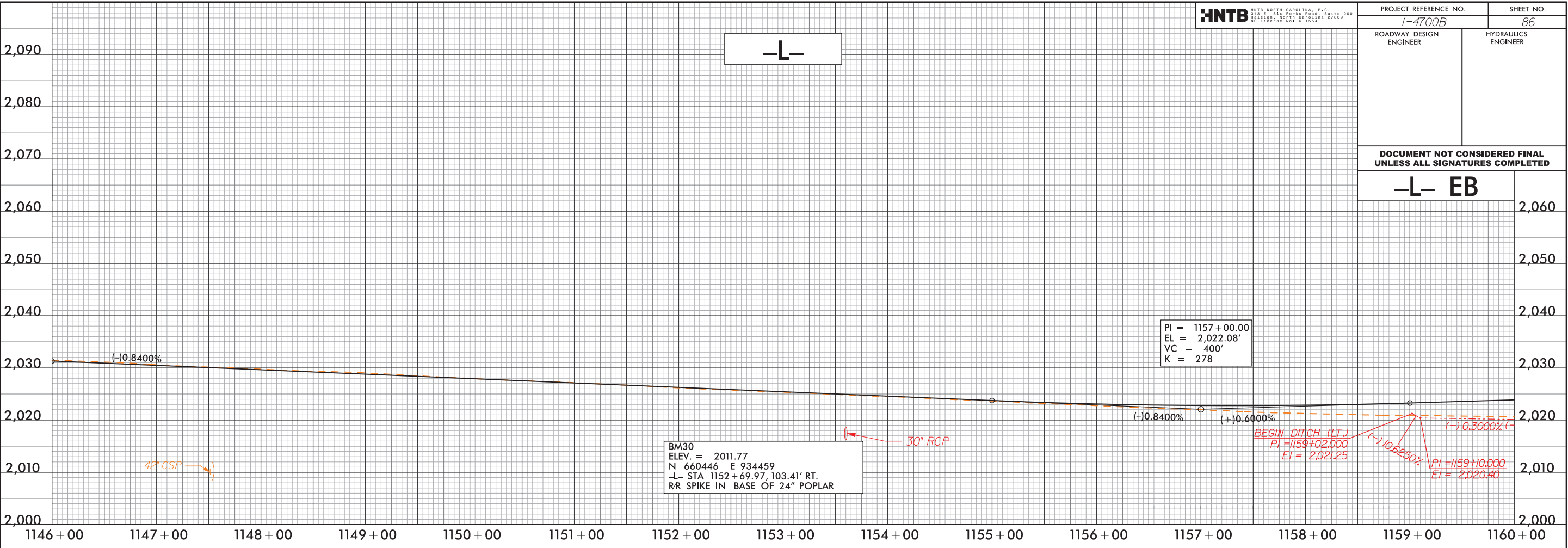
8/7/2017

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HNTB NORTH CAROLINA, P.C.
200 E. 5th Street, Suite 200
Raleigh, North Carolina 27601
NC License No. C-1004

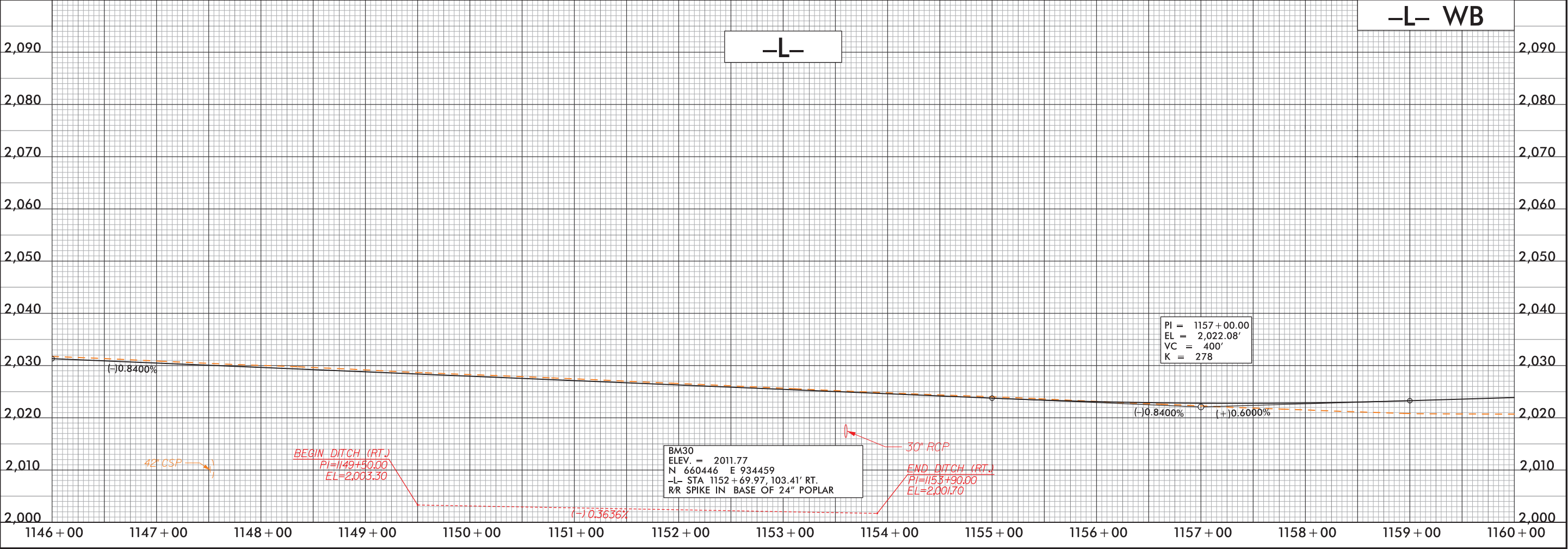
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I-4700B		86
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	

DOCUMENT NOT CONSIDERED FINAL
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-L- EB



-L- WB



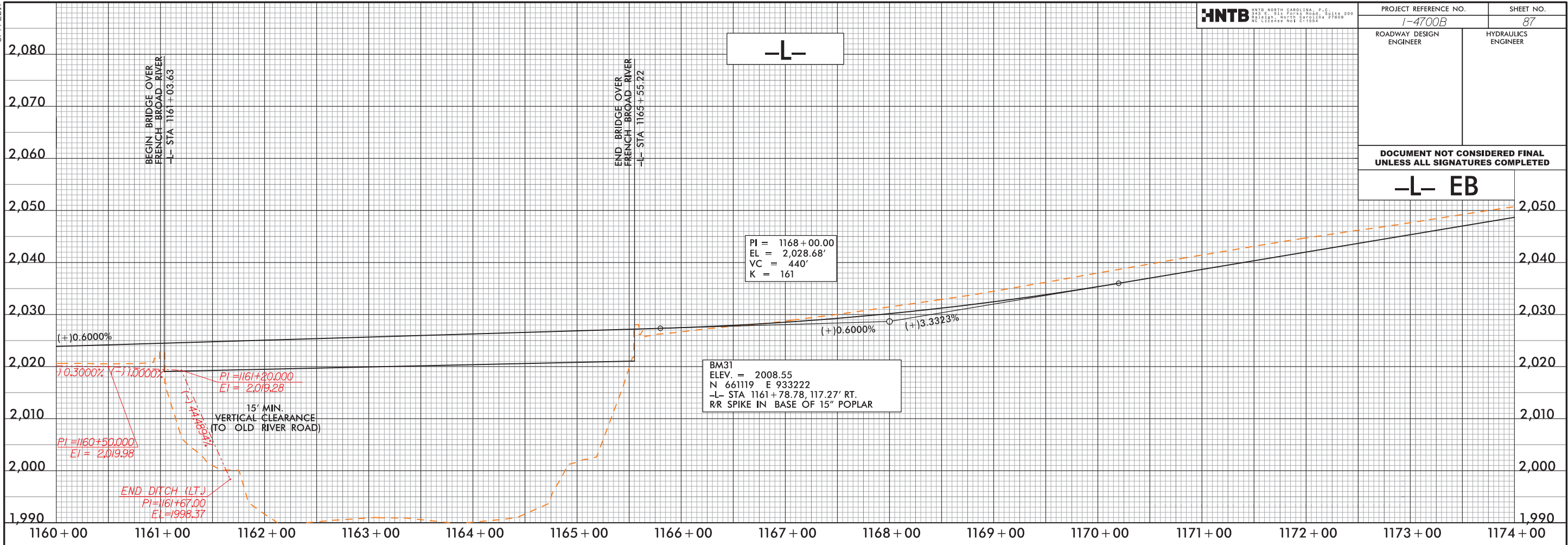
7/24/2018
14700B-RD.Y_PFL_S86
hntb

8/7/2017

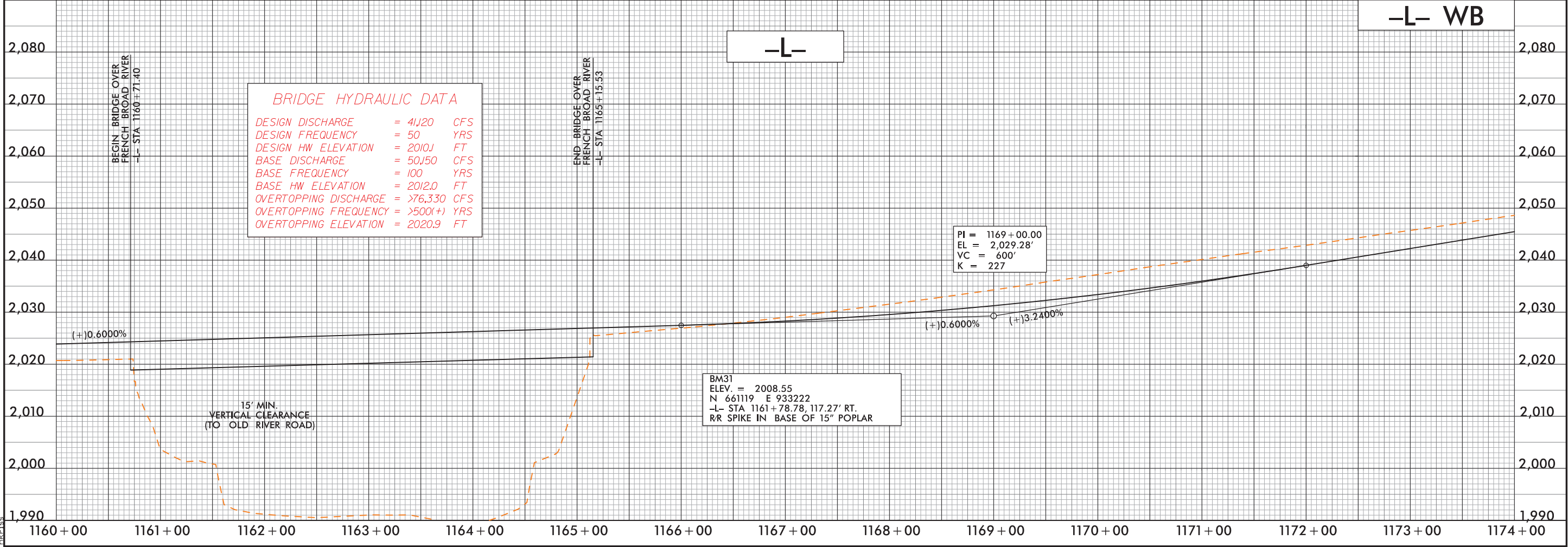
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I-4700B		87
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	

DOCUMENT NOT CONSIDERED FINAL
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-L- EB



-L- WB



8/7/2017

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HNTB NORTH CAROLINA, P.C.
200 S. 1ST STREET, SUITE 200
RALEIGH, NORTH CAROLINA 27601
REG. LICENSE NO. C-1004

PROJECT REFERENCE NO.

I-4700B

SHEET NO.

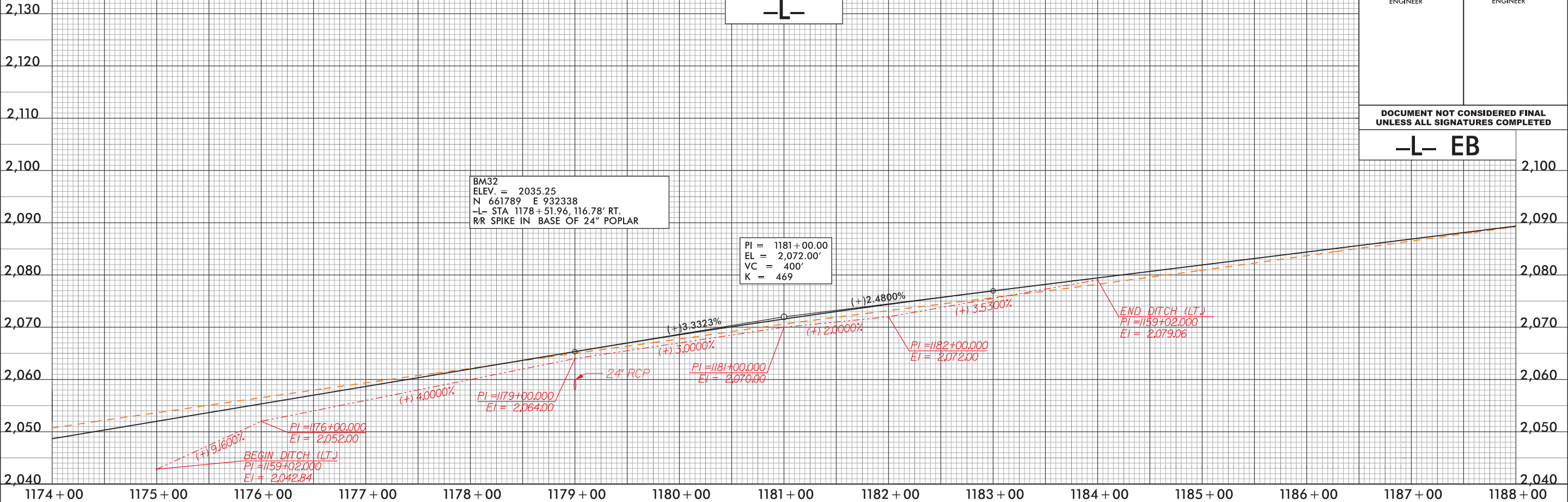
88

ROADWAY DESIGN
ENGINEER

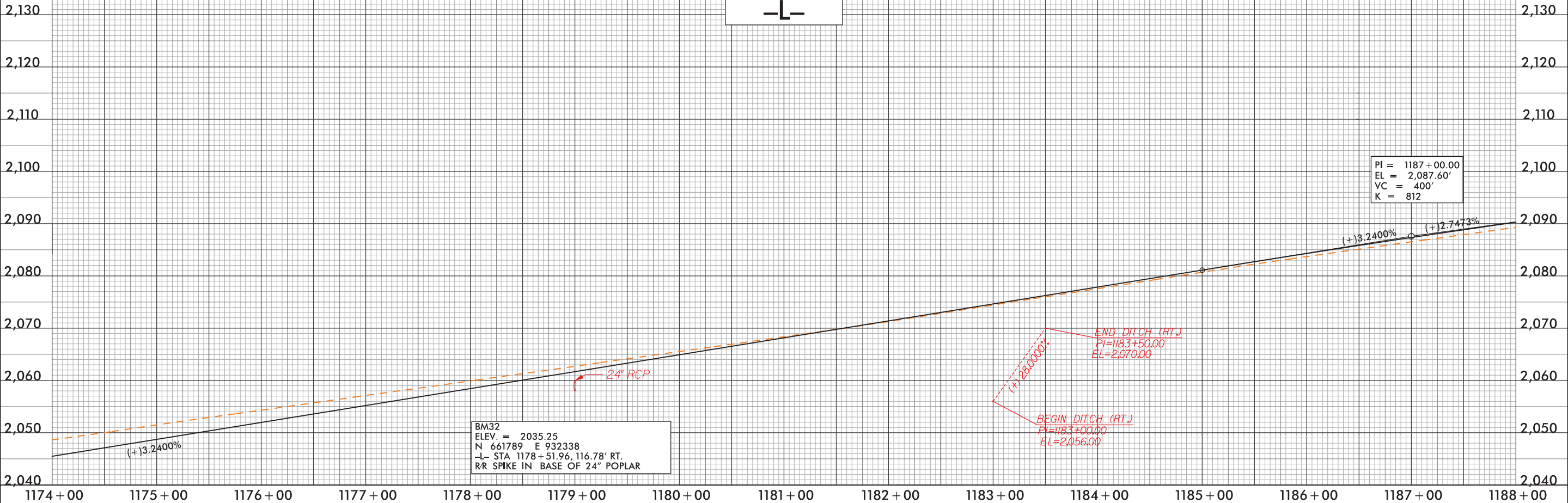
HYDRAULICS
ENGINEER

DOCUMENT NOT CONSIDERED FINAL
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-L- EB



-L- WB



7/24/2018
14700B.DWG, PFL_S88
nbs

8/7/2017

HNTB HNTB NORTH CAROLINA, P.C.
2400 E. 8th Street, Suite 200
Raleigh, North Carolina 27609
NC License No. C-1004

PROJECT REFERENCE NO.

I-4700B

SHEET NO.

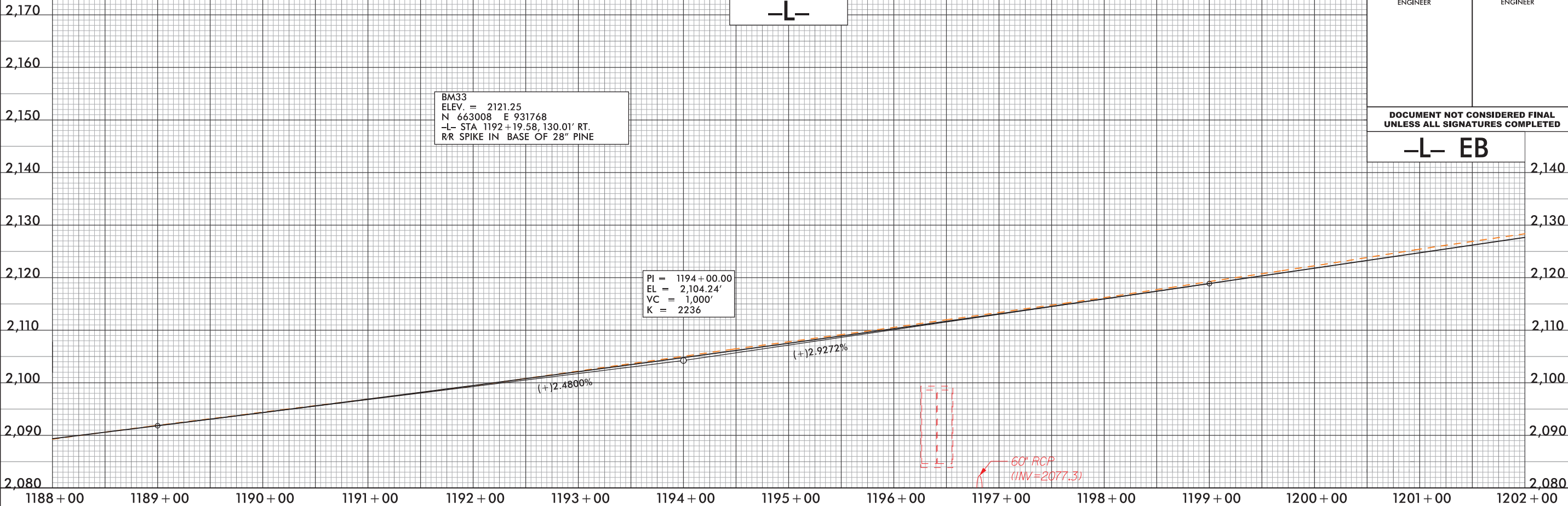
89

ROADWAY DESIGN
ENGINEER

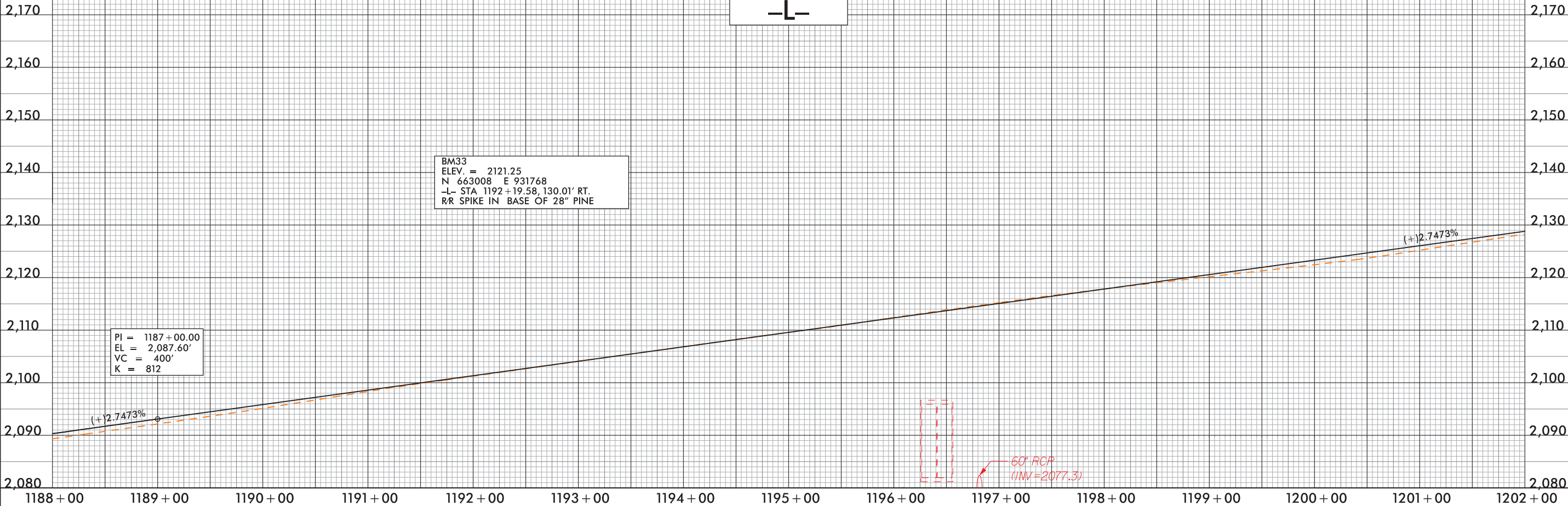
HYDRAULICS
ENGINEER

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

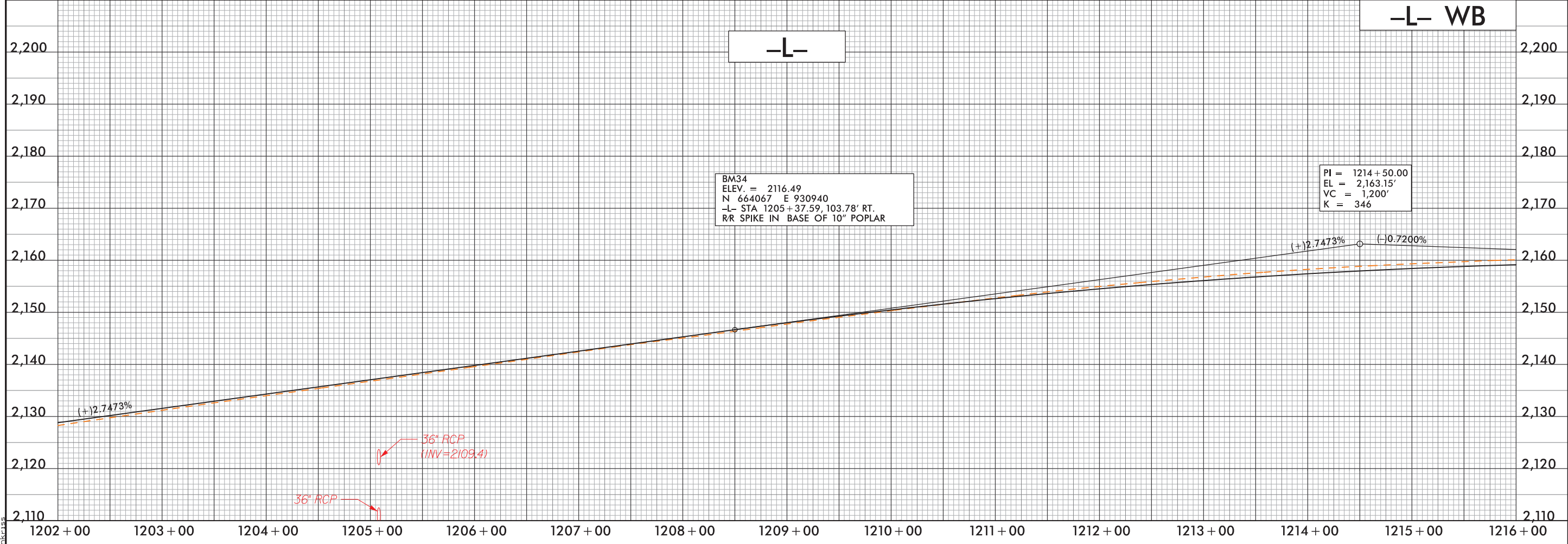
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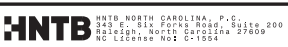
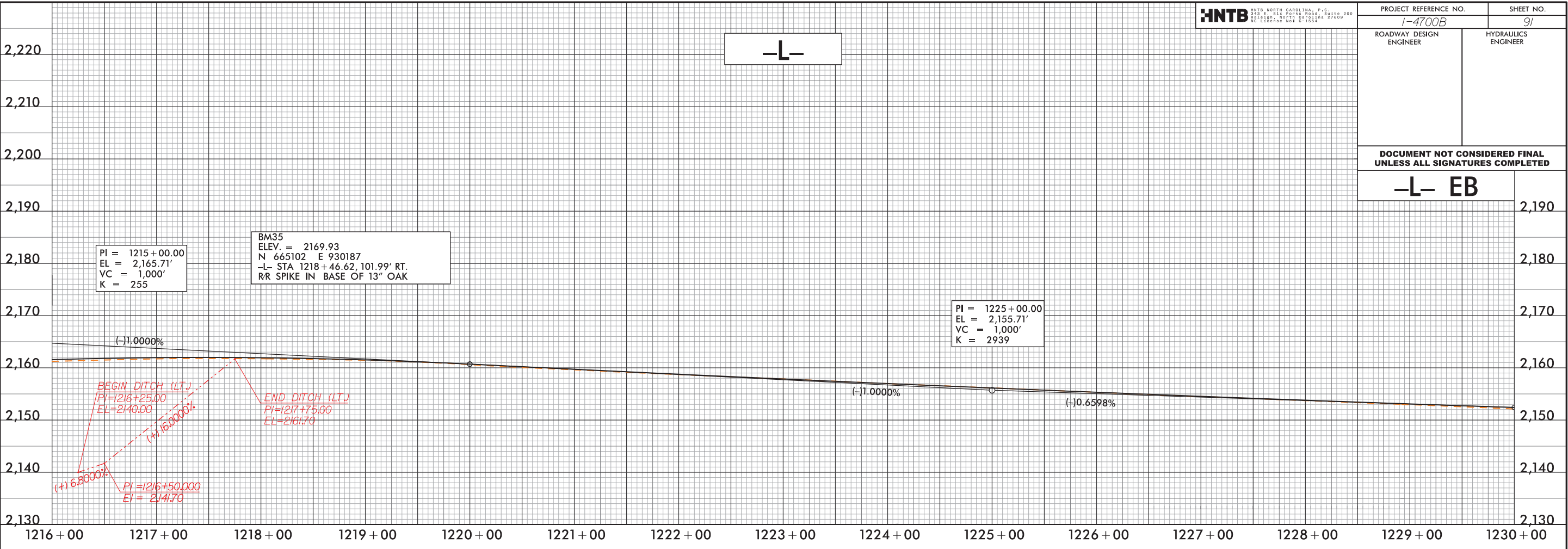
-L- WB



7/24/2018
14700B-001-PFL-S89
nkr:iss

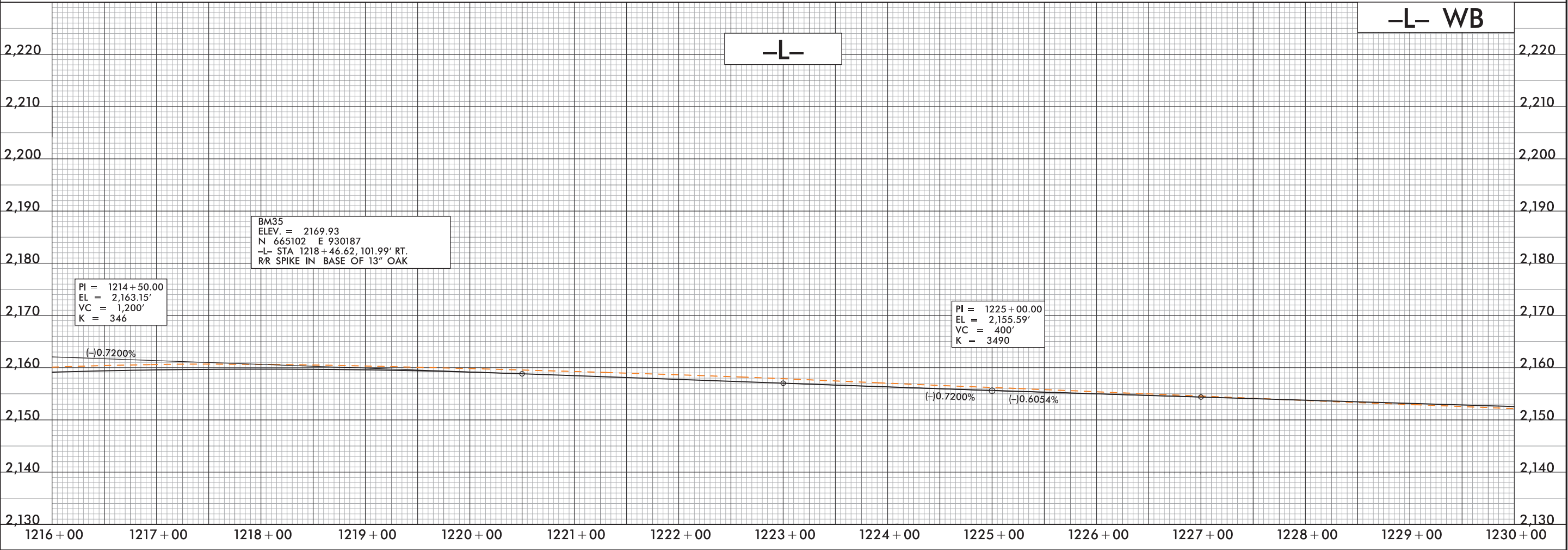


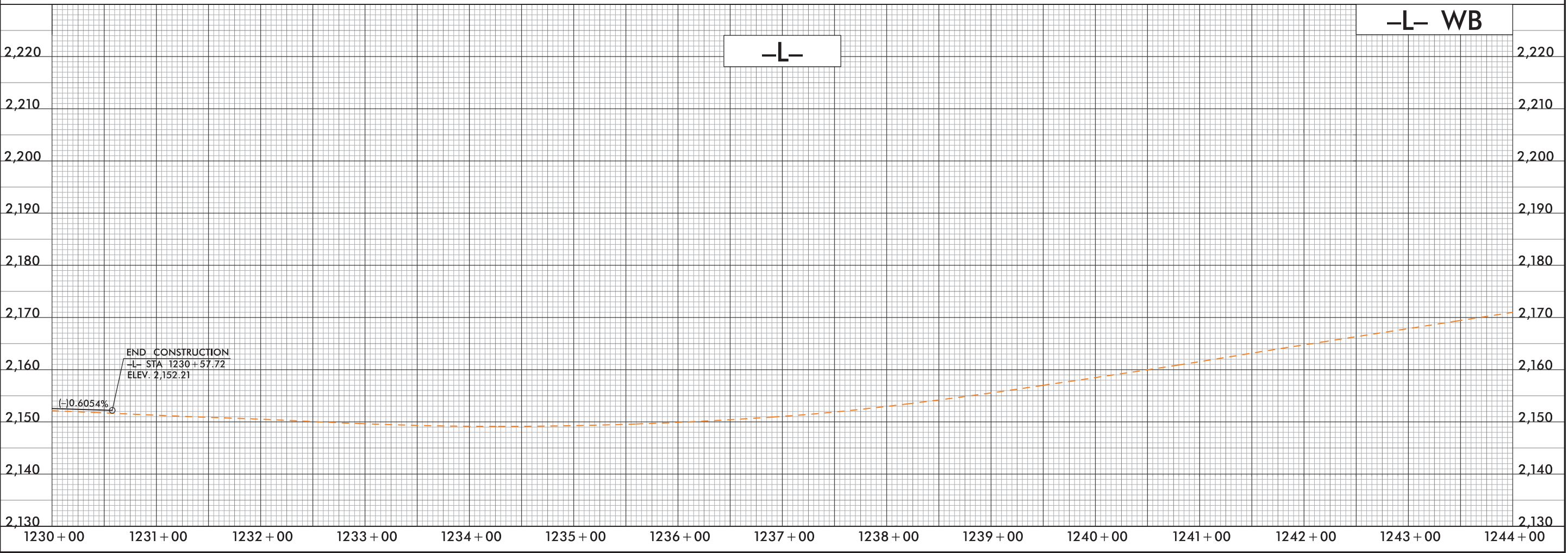
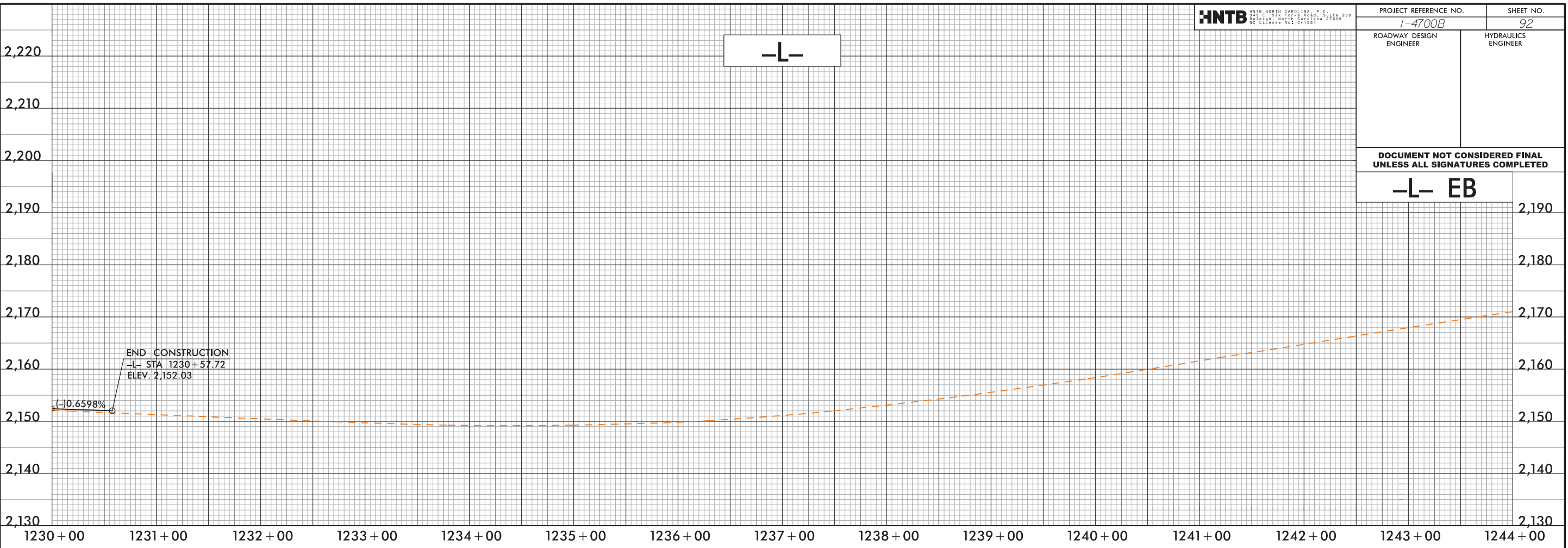
8/7/2017



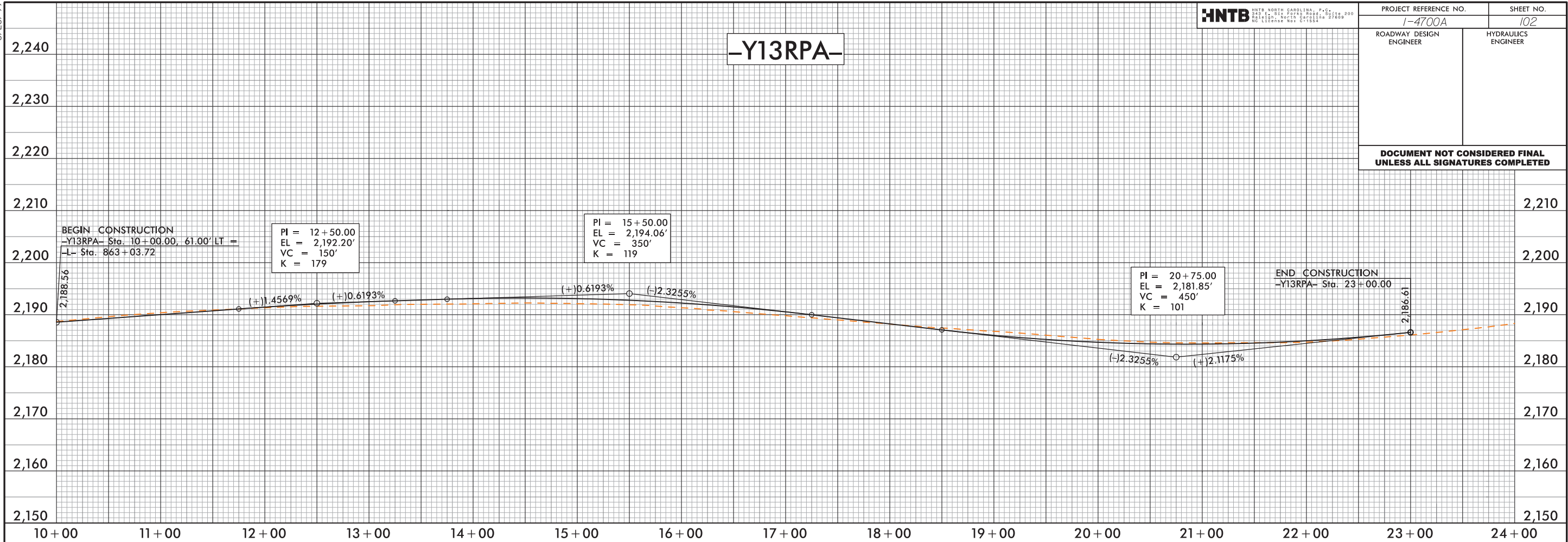
PROJECT REFERENCE NO.		SHEET NO.
I-4700B		91
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
-L- EB		

7/24/2018
14700B.DWG_PFL_S91

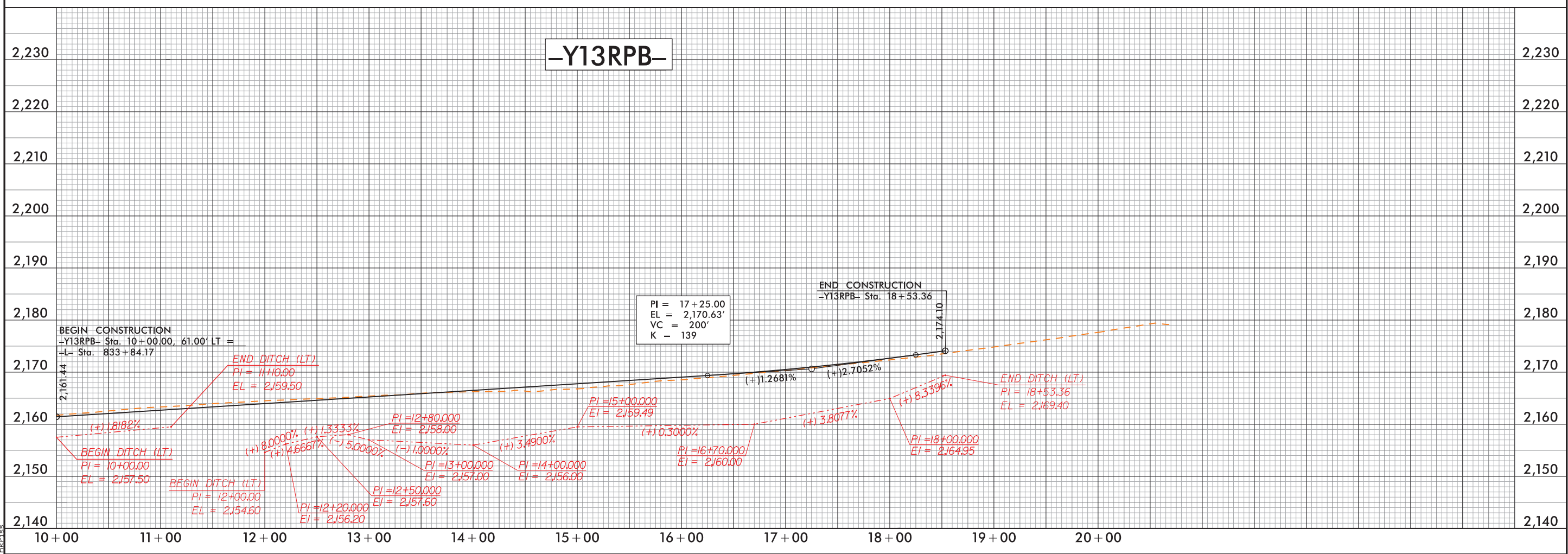




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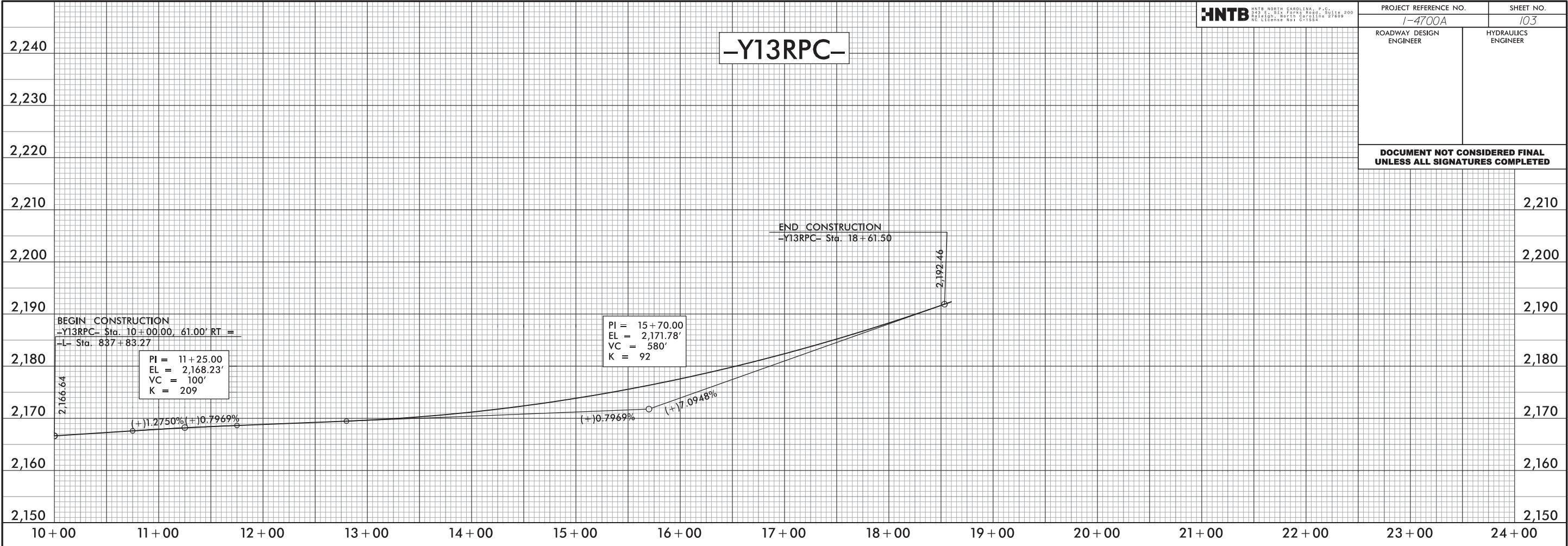


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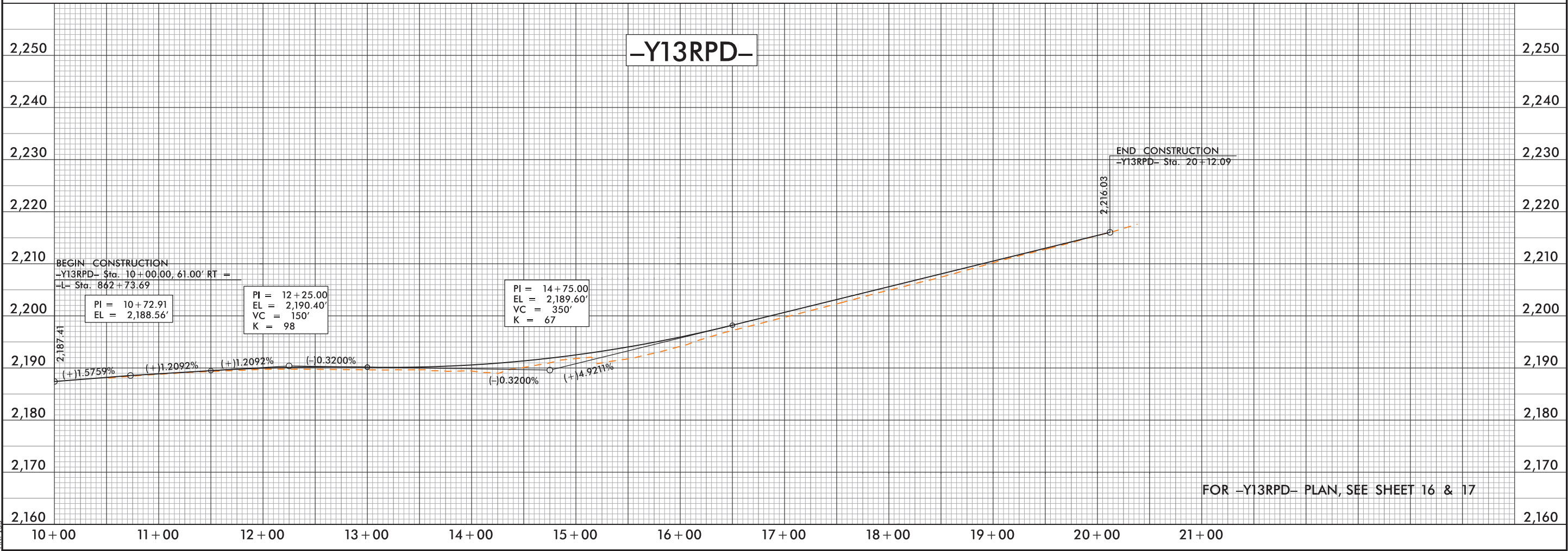


5/28/99

PROJECT REFERENCE NO.		SHEET NO.
I-4700A		103
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		



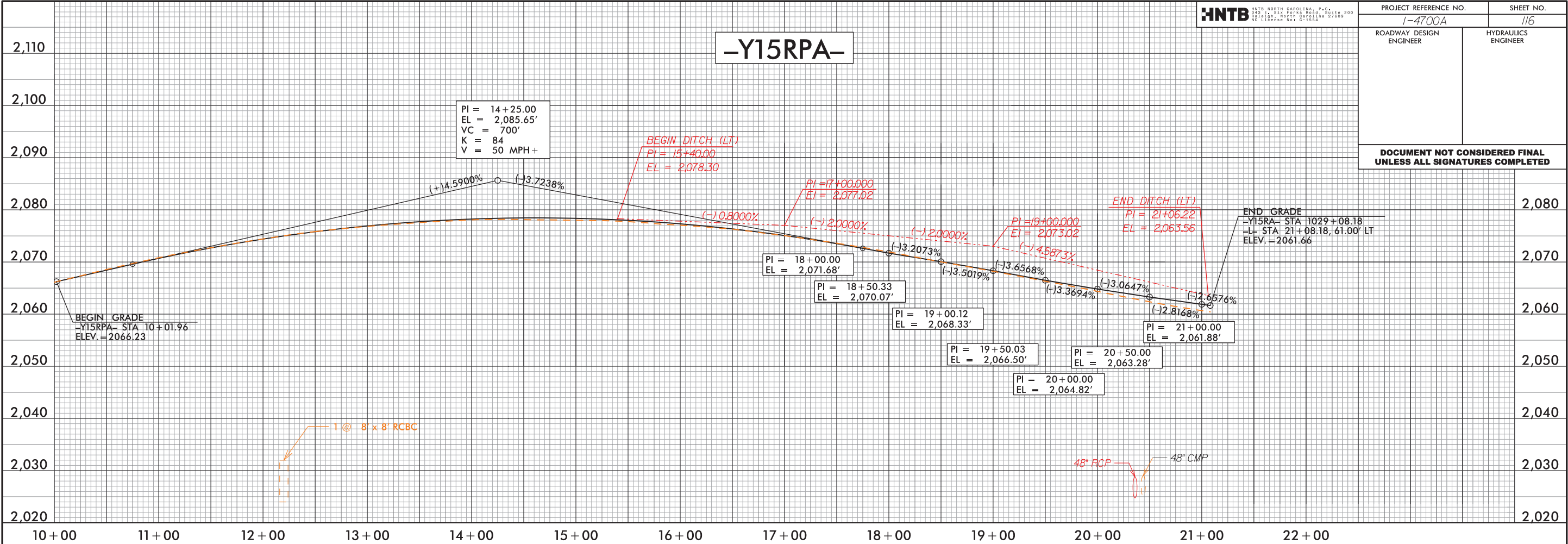
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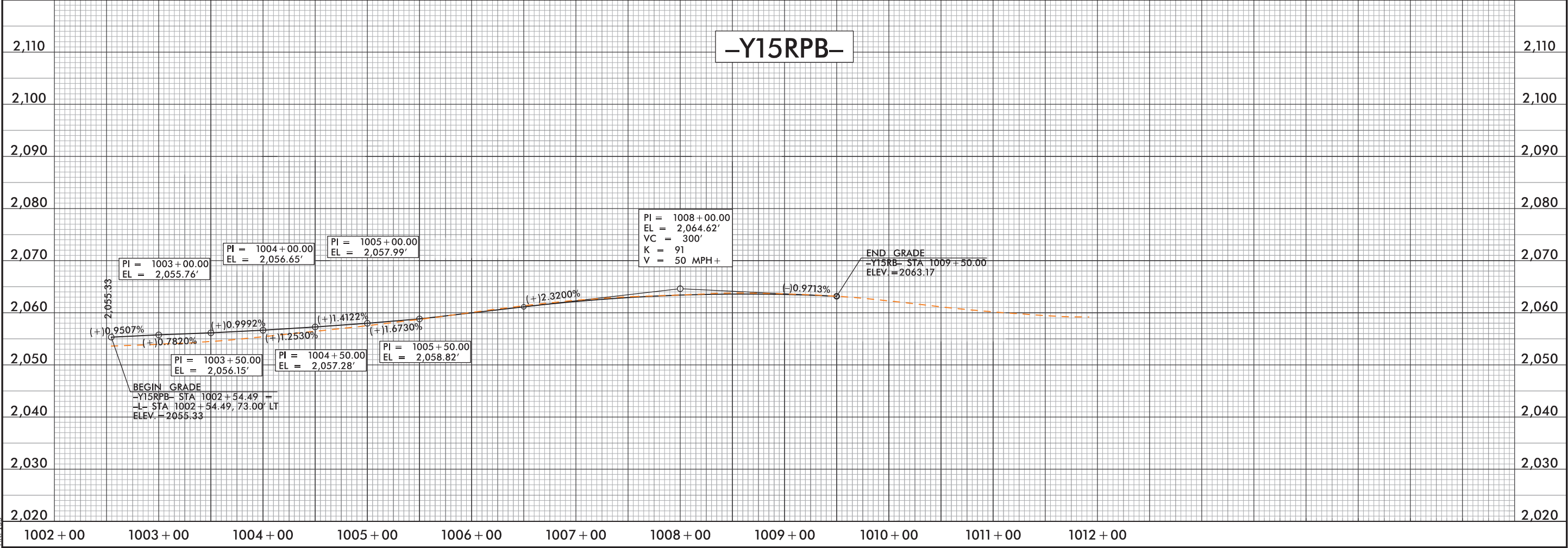
FOR -Y13RPD- PLAN, SEE SHEET 16 & 17

5/28/99

PROJECT REFERENCE NO.		SHEET NO.
I-4700A		116
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
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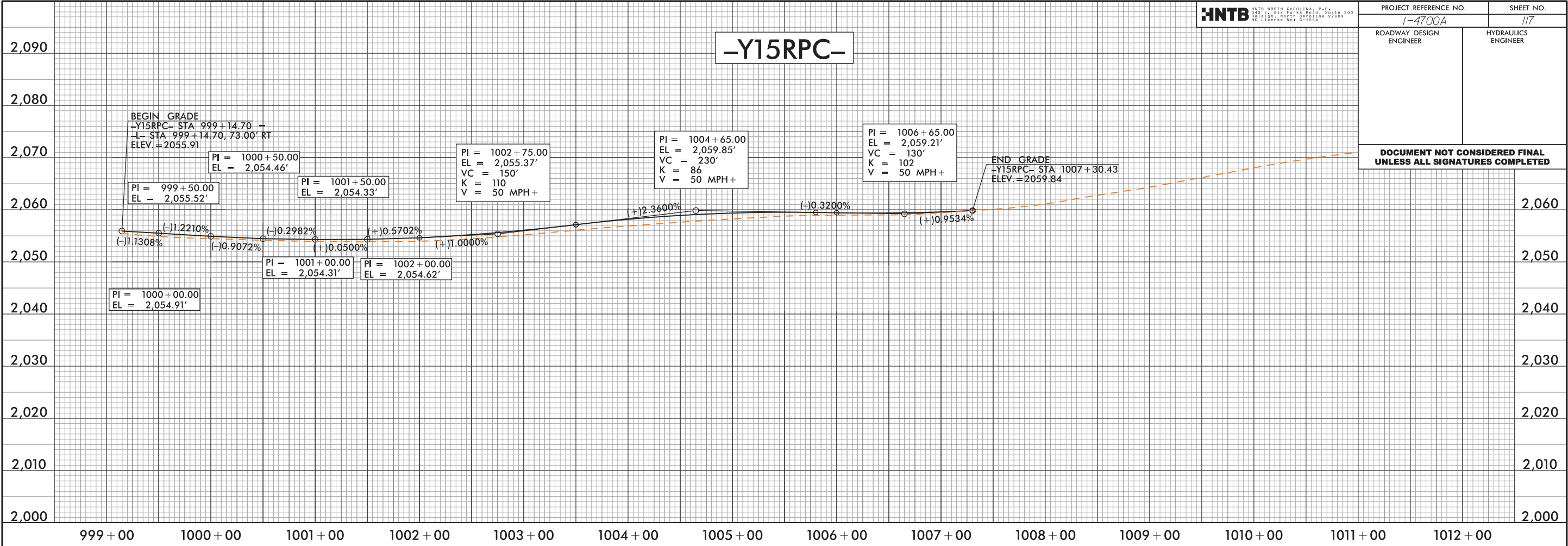


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PROJECT REFERENCE NO.		SHEET NO.
I-4700A		117
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