

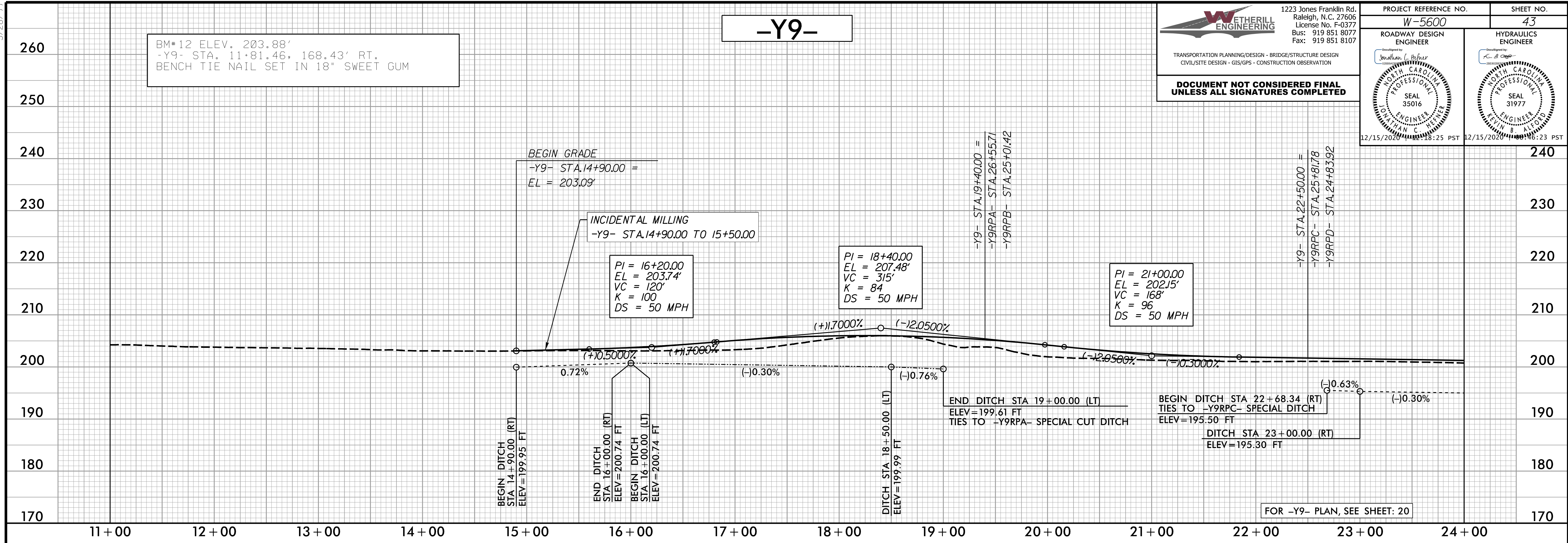
5/28/2020

**WETHERILL ENGINEERING**  
 1223 Jones Franklin Rd.  
 Raleigh, N.C. 27606  
 License No. F-0377  
 Bus: 919 851 8077  
 Fax: 919 851 8107

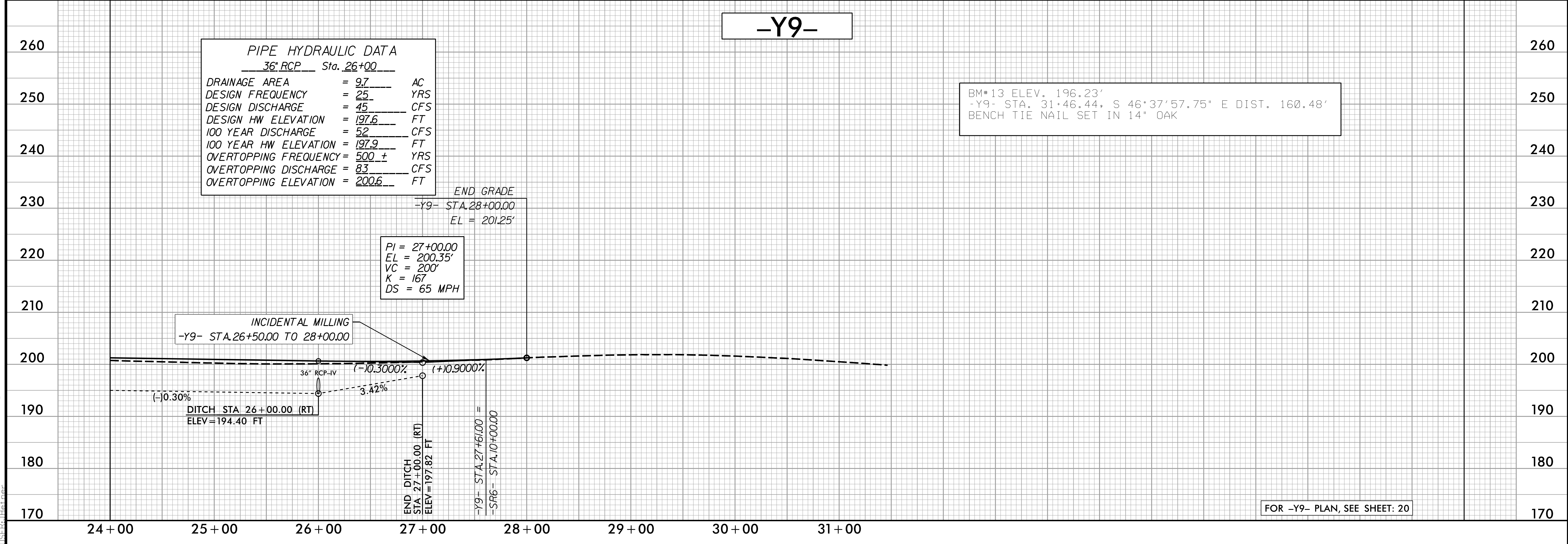
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

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

PROJECT REFERENCE NO. <b>W-5600</b>	SHEET NO. <b>43</b>
ROADWAY DESIGN ENGINEER <i>Jonathan L. Heiser</i>	HYDRAULICS ENGINEER <i>K. A. Clegg</i>
SEAL 35016 12/15/2020 12:28:25 PST	SEAL 31977 12/15/2020 10:16:23 PST



12/14/2020 10:56:00 rdu\_psh\_43\_p1.dgn



**PIPE HYDRAULIC DATA**  
36" RCP Sta. 26+00

DRAINAGE AREA	= 9.7	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 45	CFS
DESIGN HW ELEVATION	= 197.6	FT
100 YEAR DISCHARGE	= 52	CFS
100 YEAR HW ELEVATION	= 197.9	FT
OVERTOPPING FREQUENCY	= 500 ±	YRS
OVERTOPPING DISCHARGE	= 83	CFS
OVERTOPPING ELEVATION	= 200.6	FT

BM#13 ELEV. 196.23'  
 -Y9- STA. 31+46.44, S 46°37'57.75" E DIST. 160.48'  
 BENCH TIE NAIL SET IN 14" OAK

5/28/99

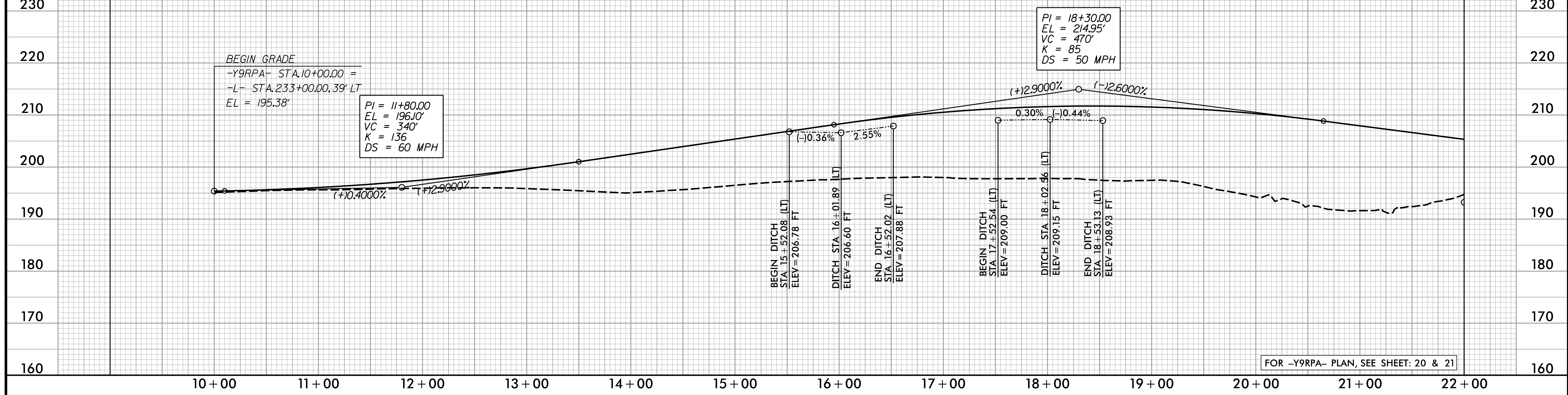
# -Y9RPA-

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TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

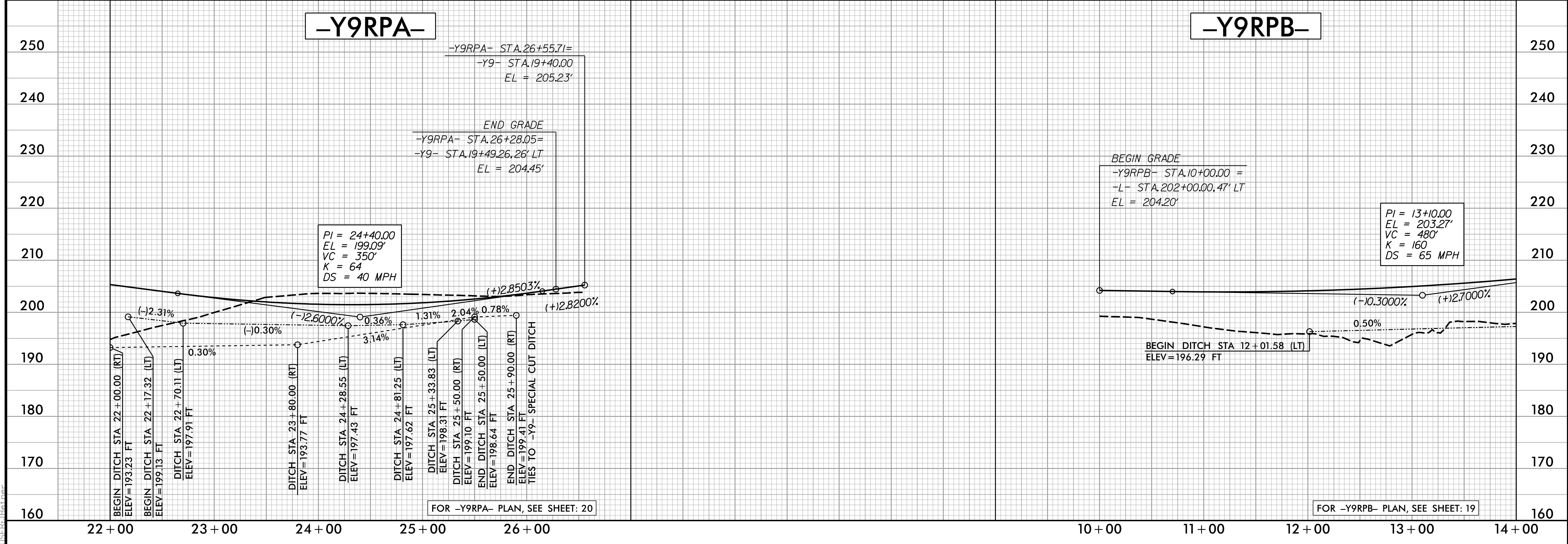
**DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED**

PROJECT REFERENCE NO. <b>W-5600</b>	SHEET NO. <b>44</b>
ROADWAY DESIGN ENGINEER <i>Jonathan H. Hester</i>	HYDRAULICS ENGINEER <i>R. S. Gipe</i>
SEAL 35016 12/15/2020 10:28:25 PST	SEAL 31977 12/15/2020 10:28:23 PST



# -Y9RPA-

# -Y9RPB-



12/14/2020 10:28:25 PST  
 12/15/2020 10:28:25 PST

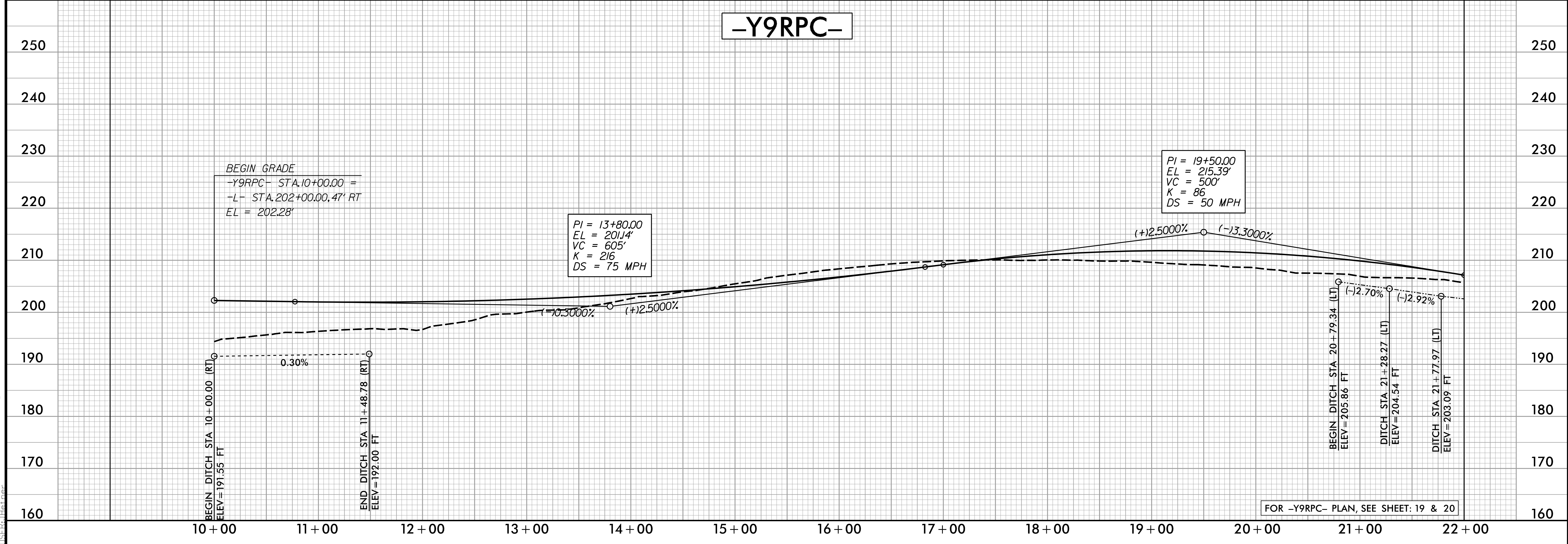
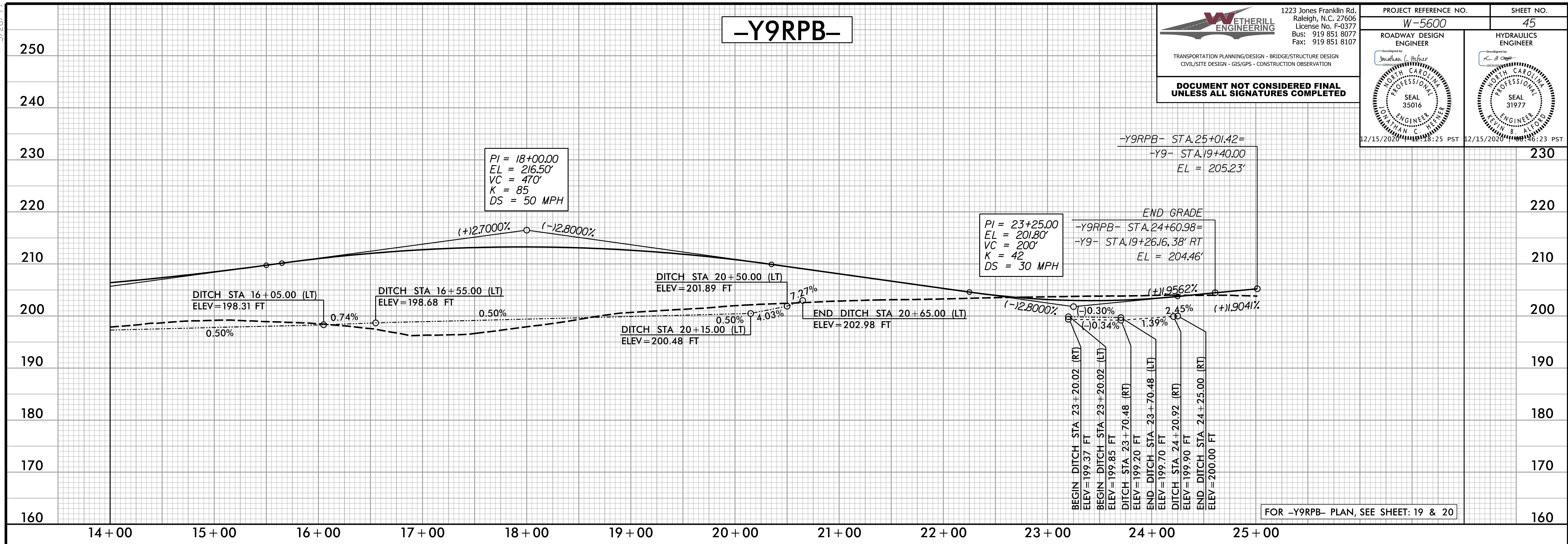
5/28/19

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 License No. F-0377  
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 Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

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

PROJECT REFERENCE NO. <b>W-5600</b>	SHEET NO. <b>45</b>
ROADWAY DESIGN ENGINEER <i>Jonathan L. Heffner</i> SEAL 35016 12/15/2020 16:25 PST	HYDRAULICS ENGINEER <i>K. B. Clegg</i> SEAL 31977 12/15/2020 16:23 PST



12/14/2020 11:58:13 AM  
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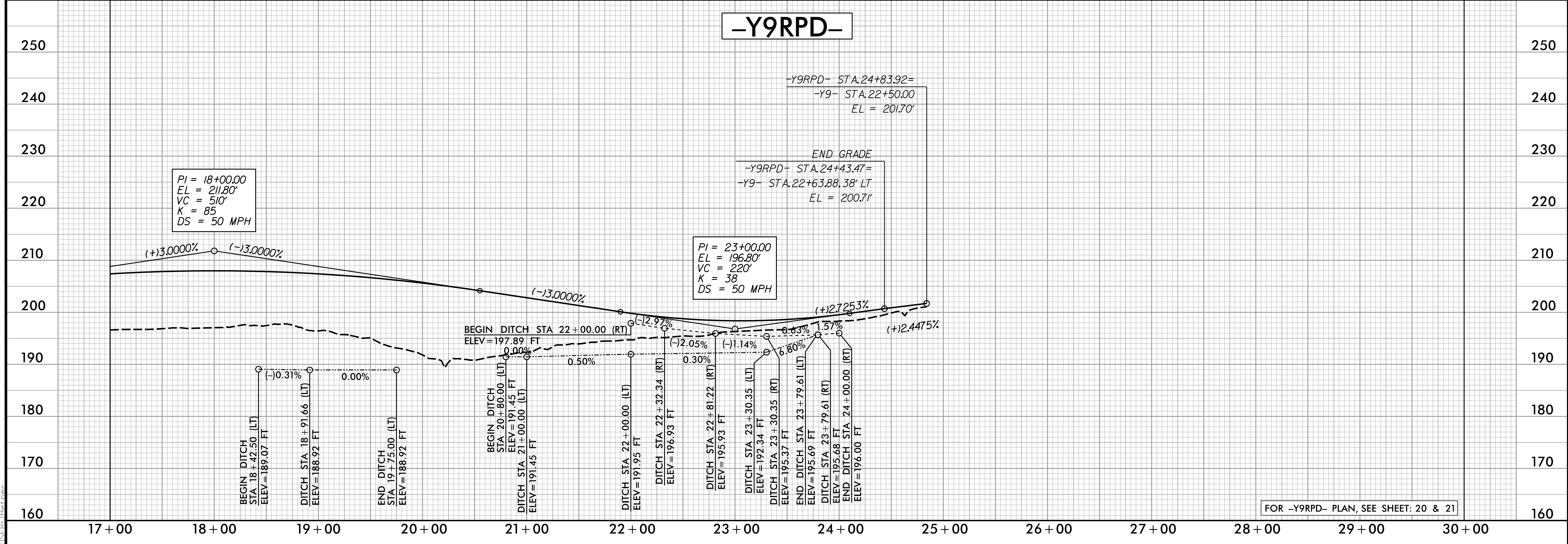
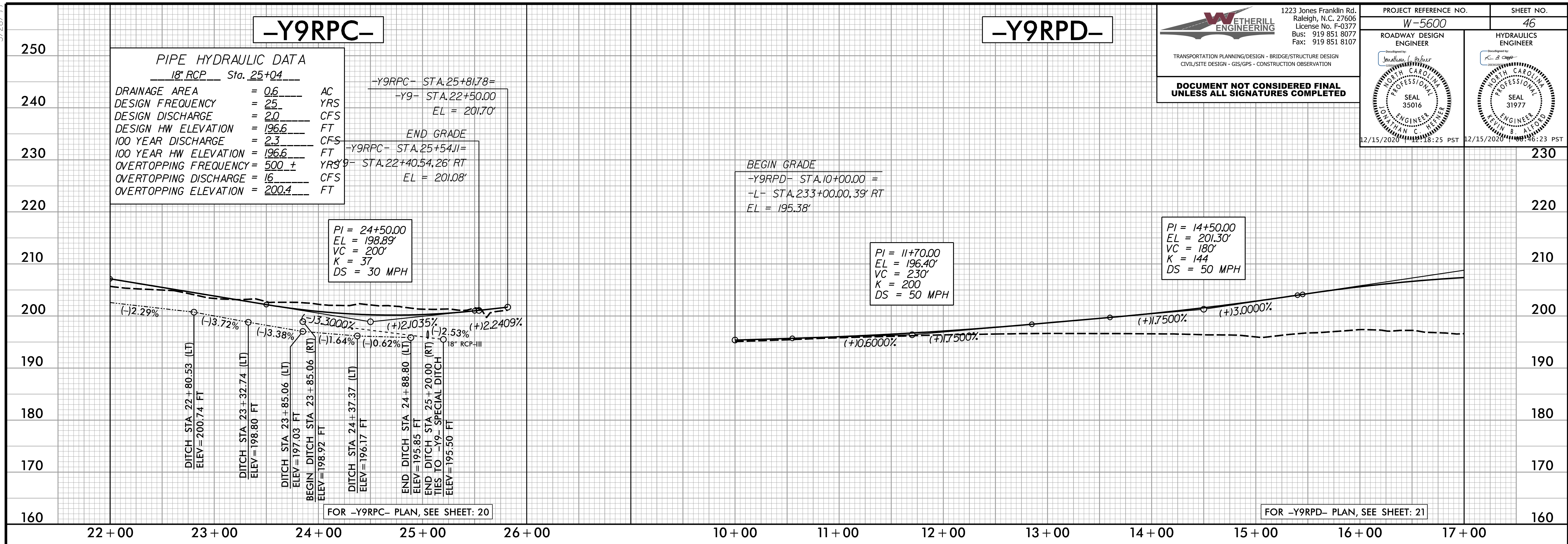
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TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

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

PROJECT REFERENCE NO. <b>W-5600</b>	SHEET NO. <b>46</b>
ROADWAY DESIGN ENGINEER <i>[Signature]</i>	HYDRAULICS ENGINEER <i>[Signature]</i>
SEAL 35016 12/15/2020 12:18:25 PST	SEAL 31977 12/15/2020 14:23:23 PST



12/14/2020 11:55:13 AM 5600\_rdy\_psh\_46\_p1.dgn

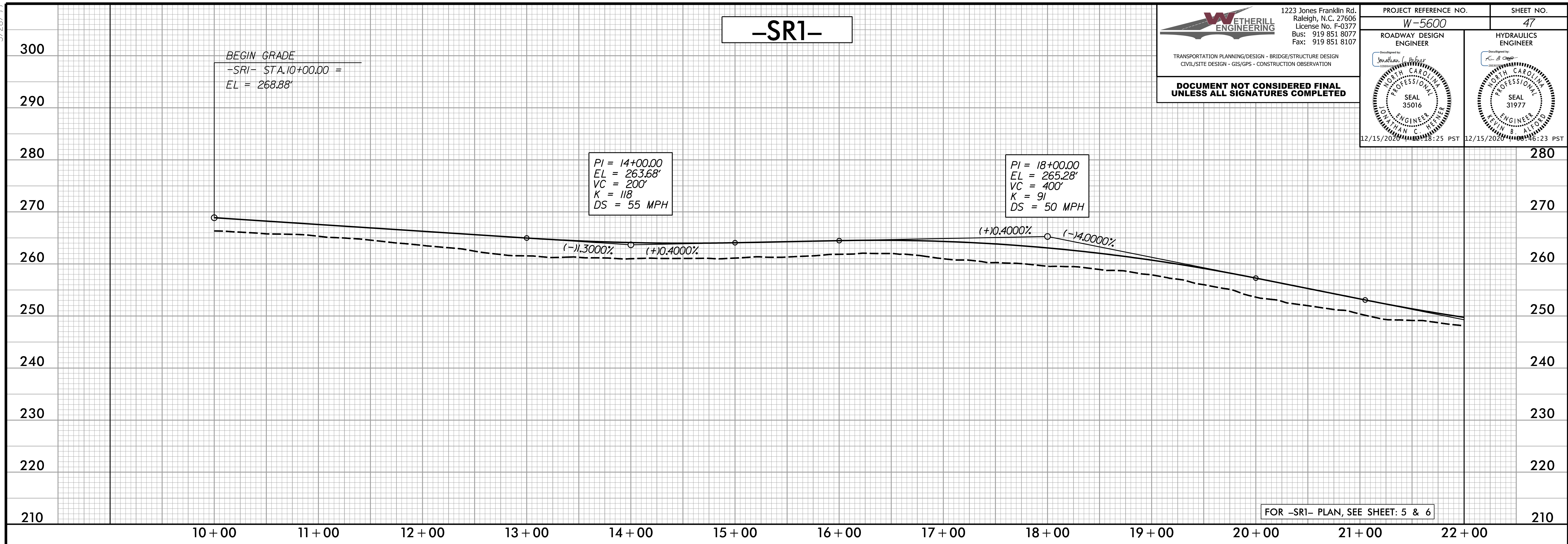
5/28/99

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 1223 Jones Franklin Rd.  
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 License No. F-0377  
 Bus: 919 851 8077  
 Fax: 919 851 8107

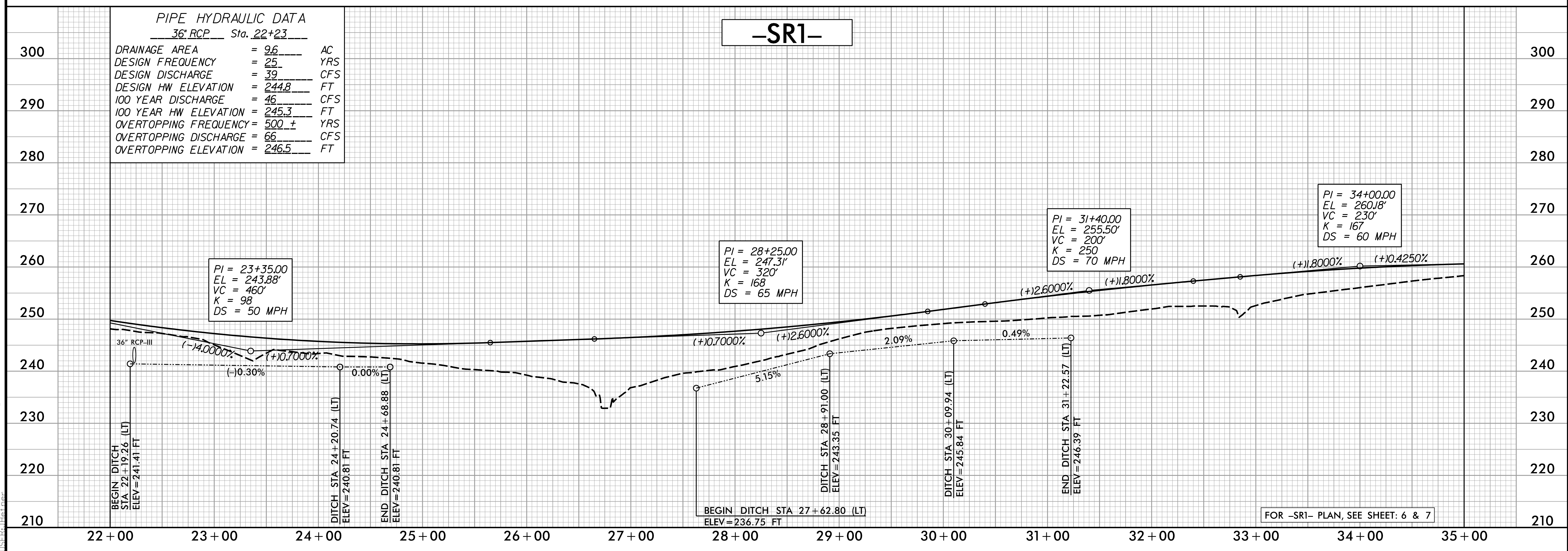
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

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

PROJECT REFERENCE NO. <b>W-5600</b>	SHEET NO. <b>47</b>
ROADWAY DESIGN ENGINEER <i>[Signature]</i>	HYDRAULICS ENGINEER <i>[Signature]</i>
SEAL 35016 12/15/2020 16:23 PST	SEAL 31977 12/15/2020 16:23 PST



FOR -SR1- PLAN, SEE SHEET: 5 & 6



FOR -SR1- PLAN, SEE SHEET: 6 & 7

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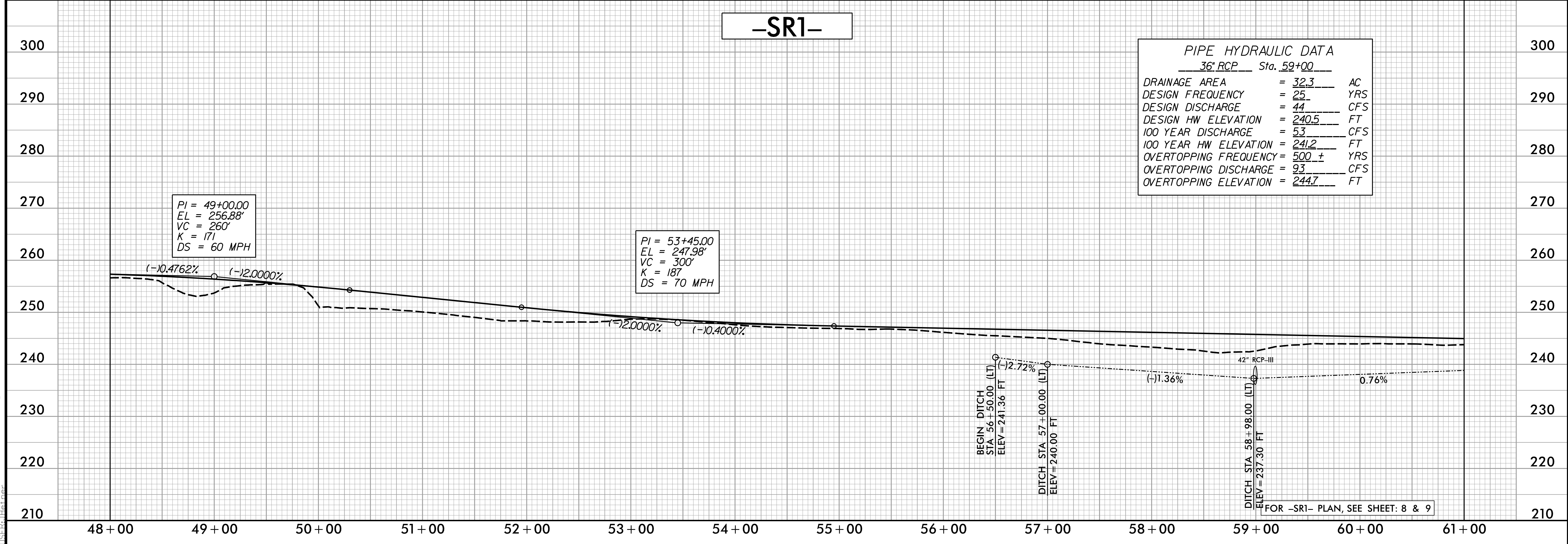
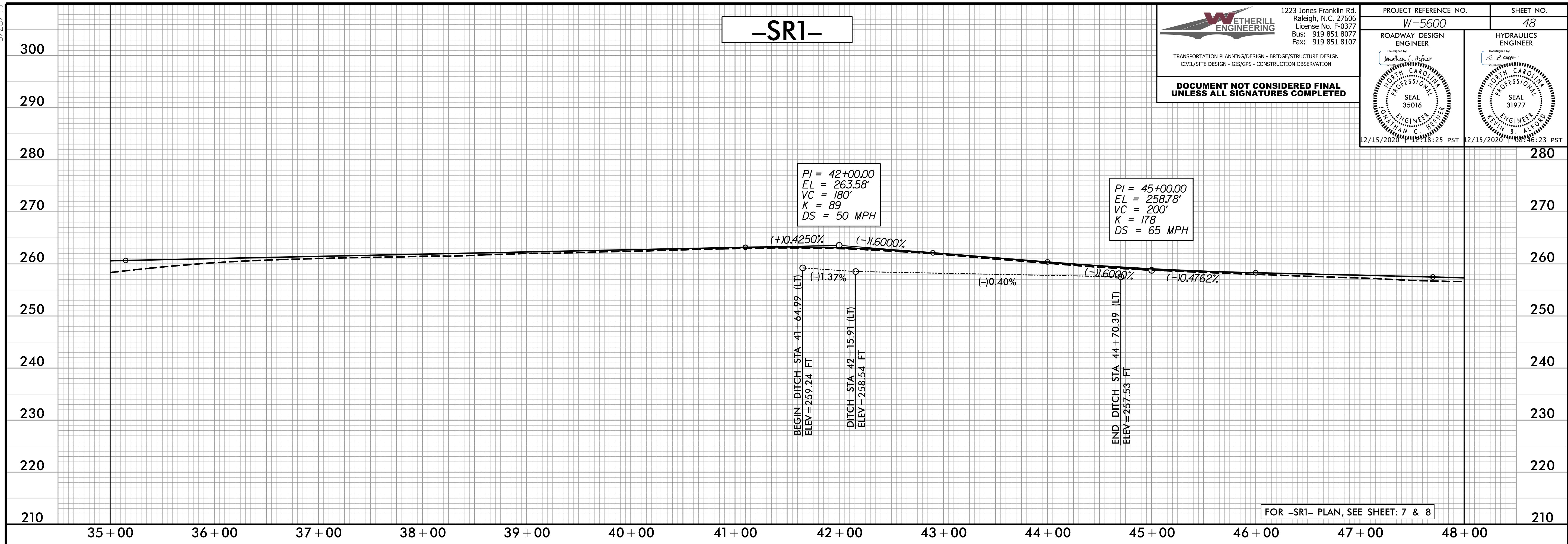
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 Raleigh, N.C. 27606  
 License No. F-0377  
 Bus: 919 851 8077  
 Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

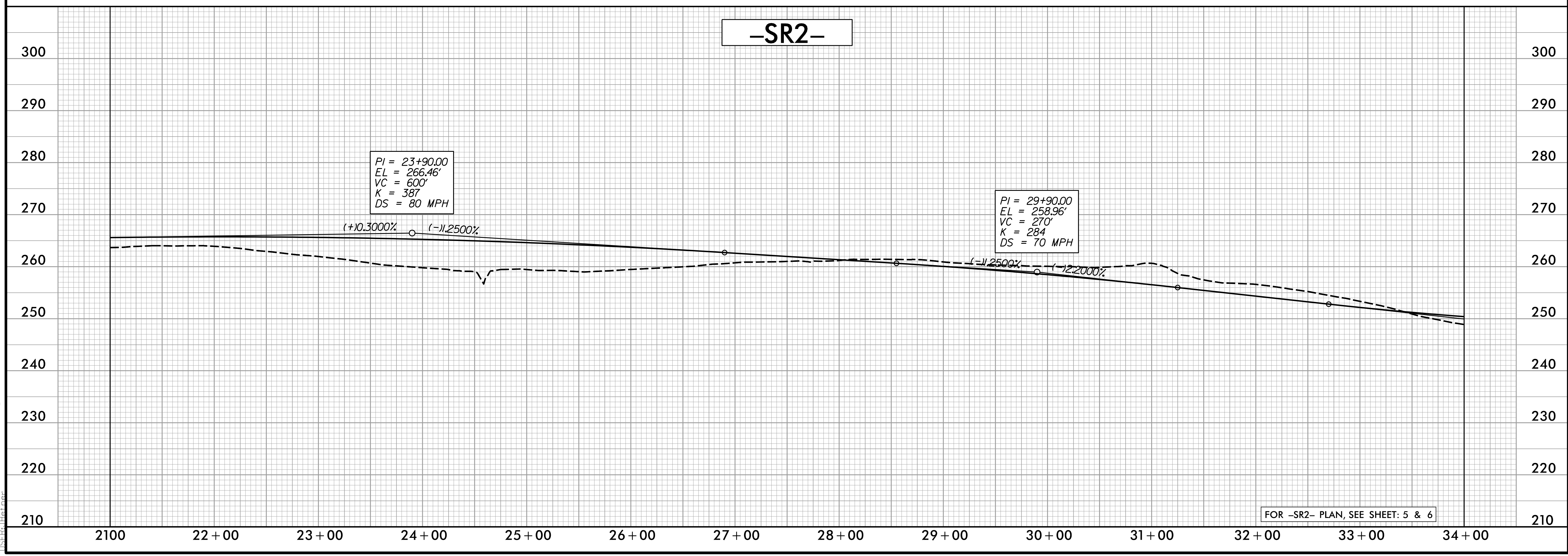
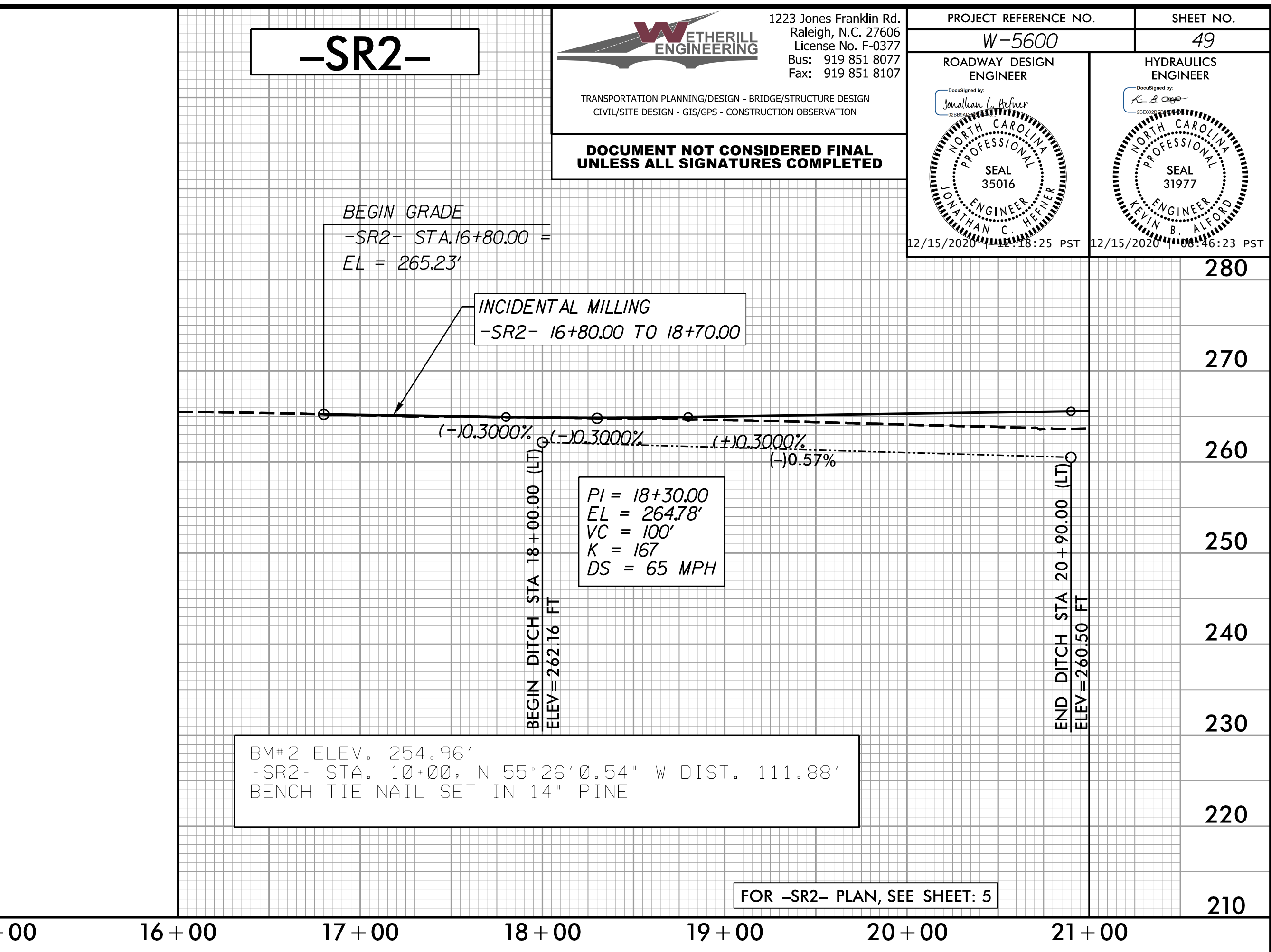
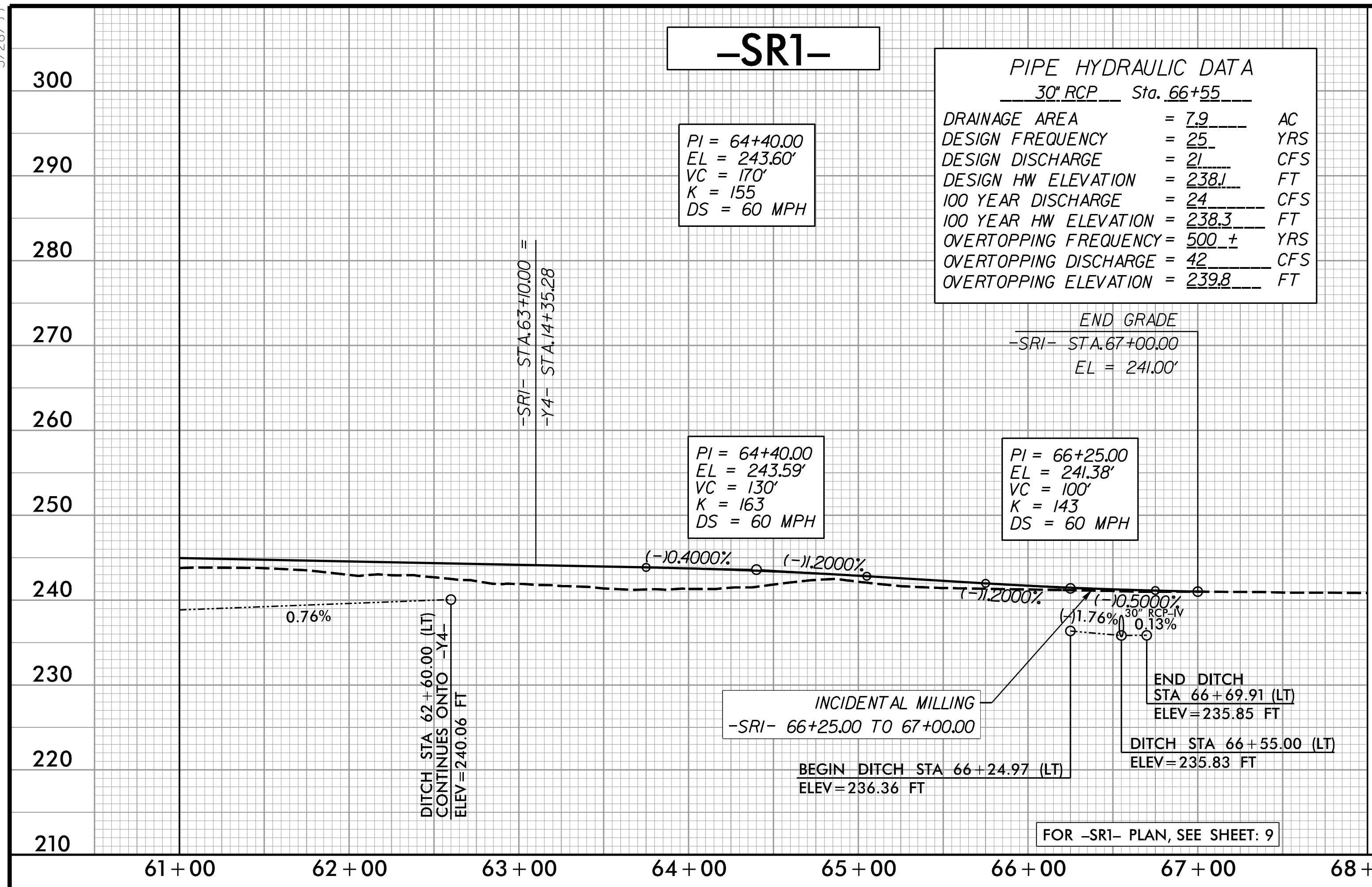
**DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED**

PROJECT REFERENCE NO. <b>W-5600</b>	SHEET NO. <b>48</b>
ROADWAY DESIGN ENGINEER <i>Jonathan C. Heiser</i>	HYDRAULICS ENGINEER <i>K. S. O'Connell</i>
SEAL 35016 JONATHAN C. HEISER ENGINEER NORTH CAROLINA	SEAL 31977 KEVIN S. ALFORD ENGINEER NORTH CAROLINA
12/15/2020 12:18:25 PST	12/15/2020 10:46:23 PST



12/14/2020 10:56:00\_rdy\_psh\_48\_p1.dgn

5/28/99



12/14/2020 10:56:00 rdu\_psh\_49\_p1.dgn

5/28/99

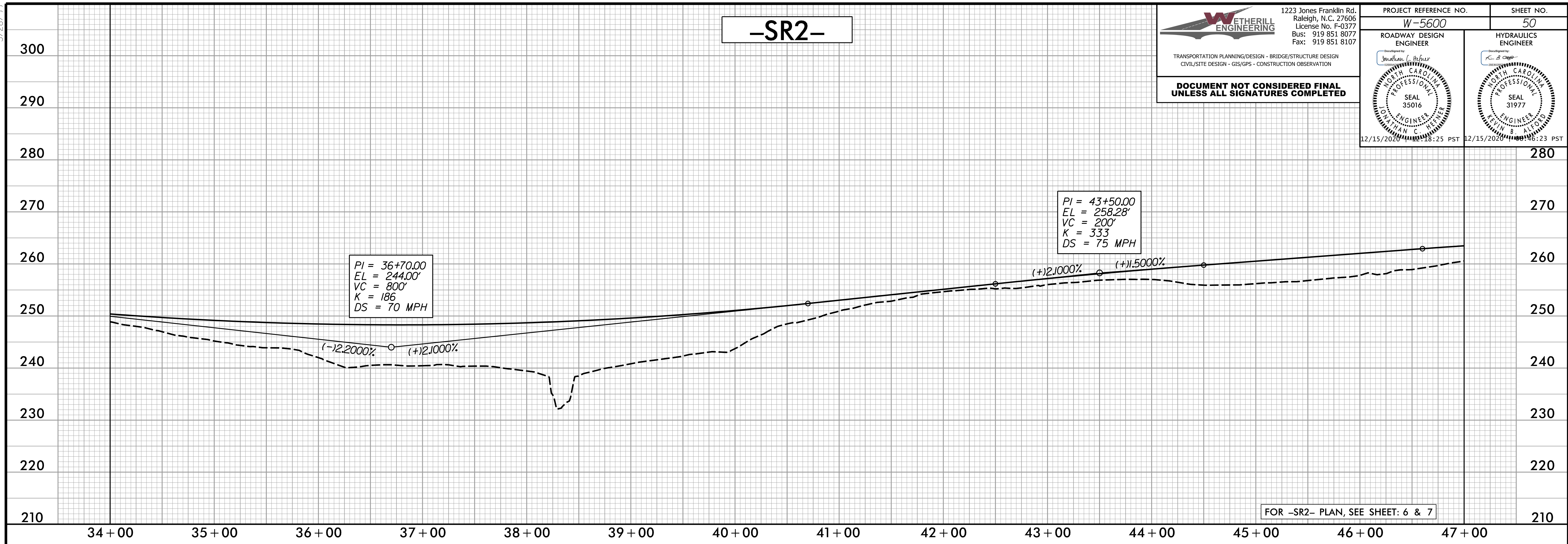
# -SR2-

**WETHERILL ENGINEERING**  
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 Raleigh, N.C. 27606  
 License No. F-0377  
 Bus: 919 851 8077  
 Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

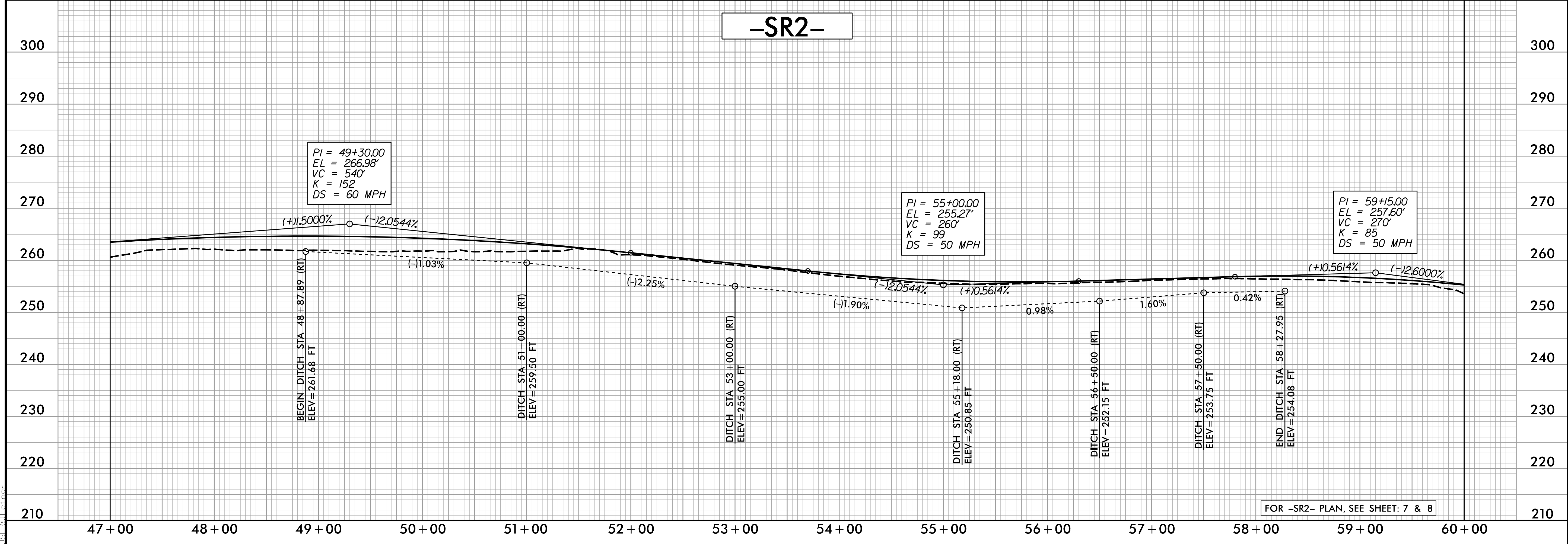
**DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED**

PROJECT REFERENCE NO. <b>W-5600</b>	SHEET NO. <b>50</b>
ROADWAY DESIGN ENGINEER <i>Jonathan C. Heiser</i> SEAL 35016 12/15/2020 10:18:23 PST	HYDRAULICS ENGINEER <i>K. B. Capps</i> SEAL 31977 12/15/2020 10:18:23 PST



FOR -SR2- PLAN, SEE SHEET: 6 & 7

# -SR2-



FOR -SR2- PLAN, SEE SHEET: 7 & 8

12/14/2020 10:18:23 PST  
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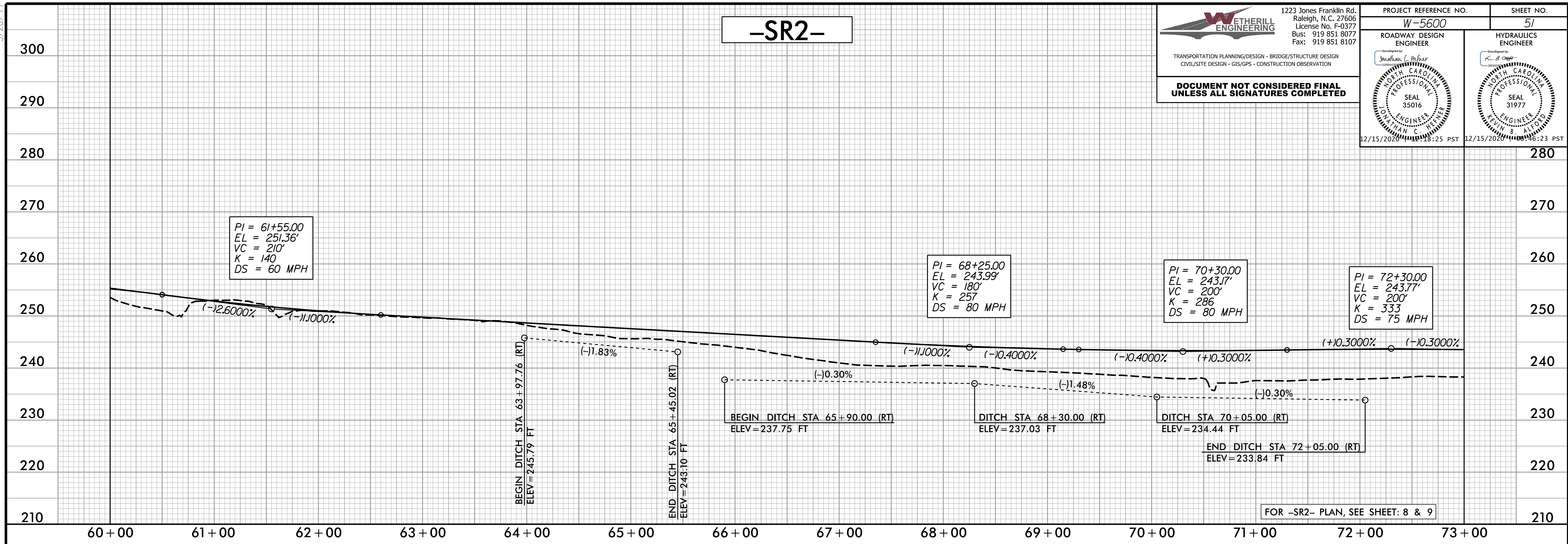
5/28/20

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 1223 Jones Franklin Rd.  
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 License No. F-0377  
 Bus: 919 851 8077  
 Fax: 919 851 8107

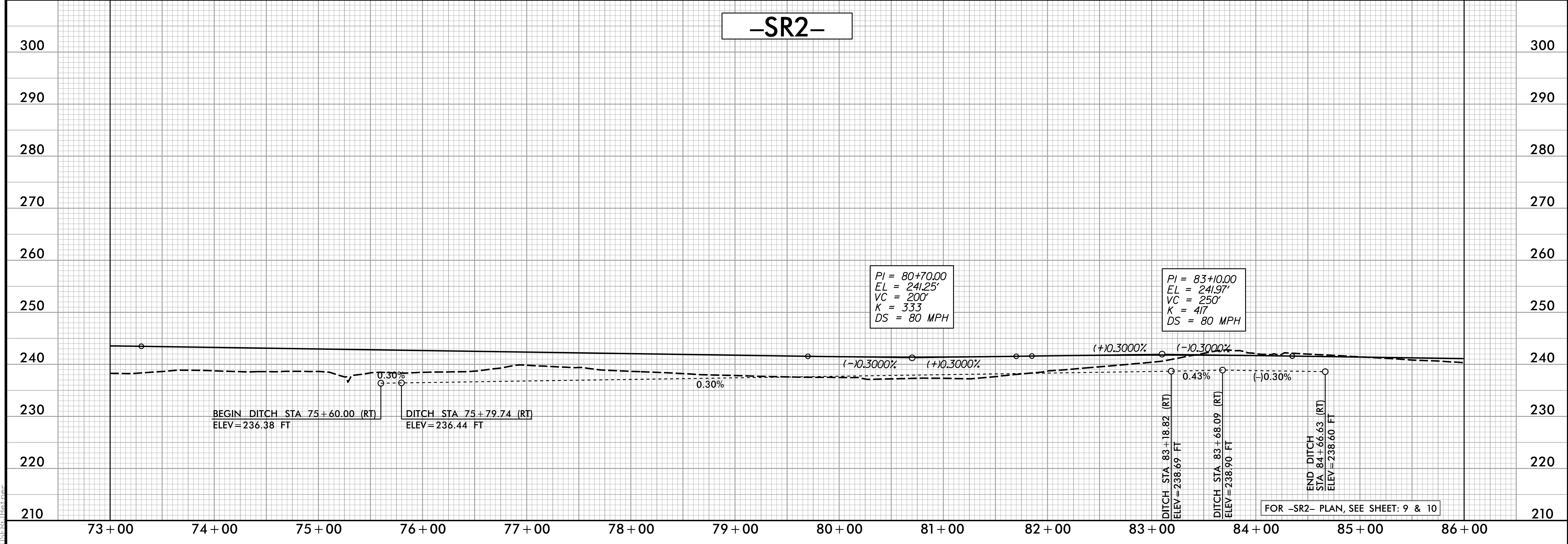
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

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

PROJECT REFERENCE NO. <b>W-5600</b>	SHEET NO. <b>51</b>
ROADWAY DESIGN ENGINEER <i>Jonathan L. Heifer</i> SEAL 35016 12/15/2020 10:25 PST	HYDRAULICS ENGINEER <i>K. B. Cope</i> SEAL 31977 12/15/2020 10:23 PST



12/14/2020 10:25:00 AM 5600\_rdy\_psh\_51\_p1.dgn



5/28/99

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Fax: 919 851 8107

PROJECT REFERENCE NO. <b>W-5600</b>	SHEET NO. <b>52</b>
ROADWAY DESIGN ENGINEER <i>Jonathan C. Reeves</i> SEAL 35016 12/15/2020 16:25 PST	HYDRAULICS ENGINEER <i>K. B. Clegg</i> SEAL 31977 12/15/2020 16:23 PST

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

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

**-SR2-**

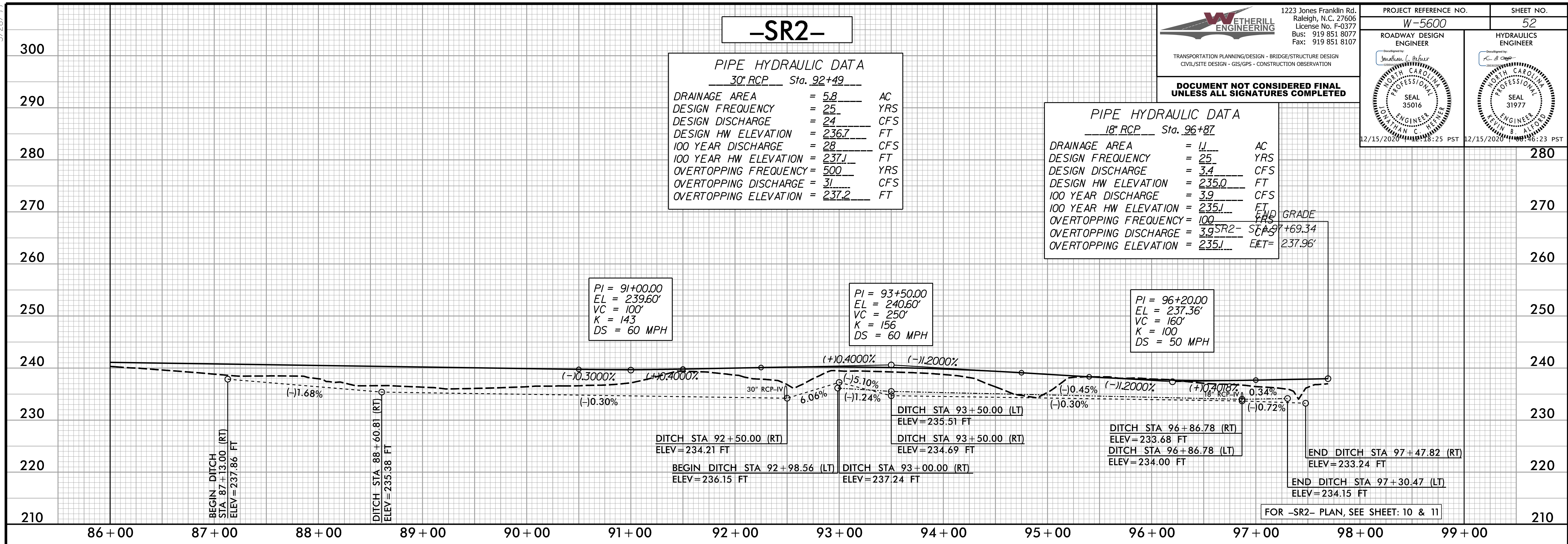
**PIPE HYDRAULIC DATA**  
30" RCP Sta. 92+49

DRAINAGE AREA	= 5.8	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 24	CFS
DESIGN HW ELEVATION	= 236.7	FT
100 YEAR DISCHARGE	= 28	CFS
100 YEAR HW ELEVATION	= 237.1	FT
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING DISCHARGE	= 31	CFS
OVERTOPPING ELEVATION	= 237.2	FT

**PIPE HYDRAULIC DATA**  
18" RCP Sta. 96+87

DRAINAGE AREA	= 1.1	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 3.4	CFS
DESIGN HW ELEVATION	= 235.0	FT
100 YEAR DISCHARGE	= 3.9	CFS
100 YEAR HW ELEVATION	= 235.1	FT
OVERTOPPING FREQUENCY	= 100	YRS
OVERTOPPING DISCHARGE	= 3.9	CFS
OVERTOPPING ELEVATION	= 235.1	FT

END GRADE  
STA 97+69.34  
ELEV = 237.96'

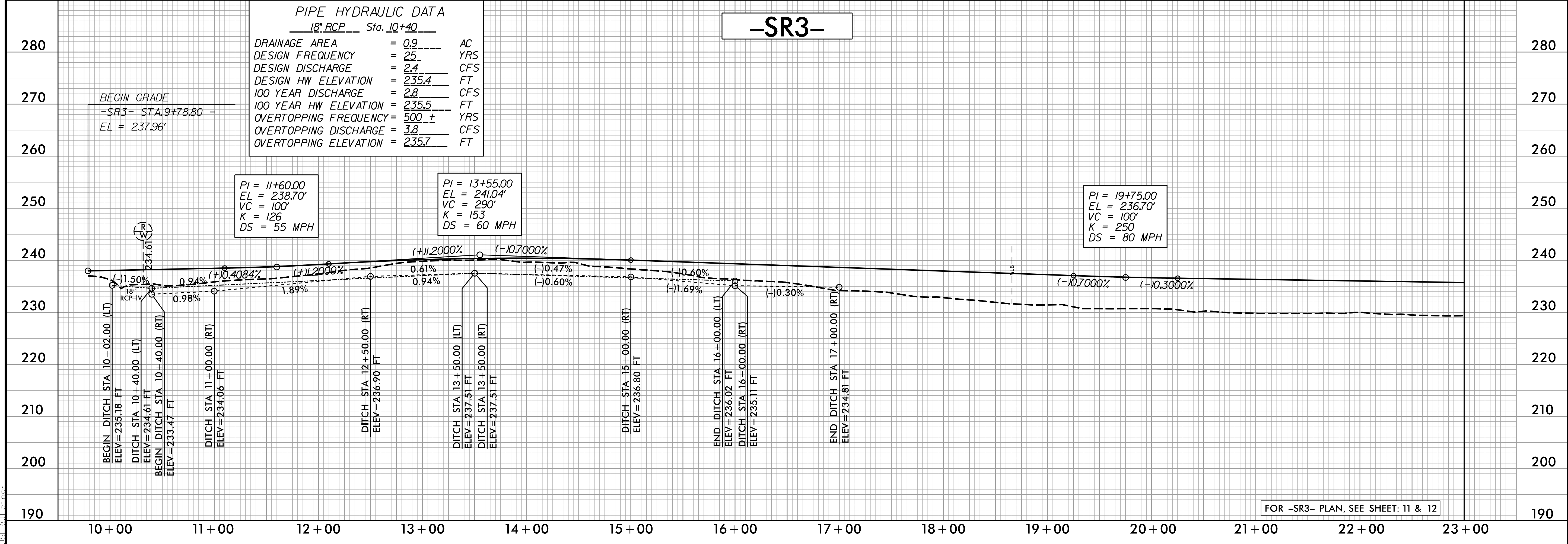


FOR -SR2- PLAN, SEE SHEET: 10 & 11

**-SR3-**

**PIPE HYDRAULIC DATA**  
18" RCP Sta. 10+40

DRAINAGE AREA	= 0.9	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 2.4	CFS
DESIGN HW ELEVATION	= 235.4	FT
100 YEAR DISCHARGE	= 2.8	CFS
100 YEAR HW ELEVATION	= 235.5	FT
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING DISCHARGE	= 3.8	CFS
OVERTOPPING ELEVATION	= 235.7	FT



FOR -SR3- PLAN, SEE SHEET: 11 & 12

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12/15/2020 16:25 PST  
12/15/2020 16:23 PST

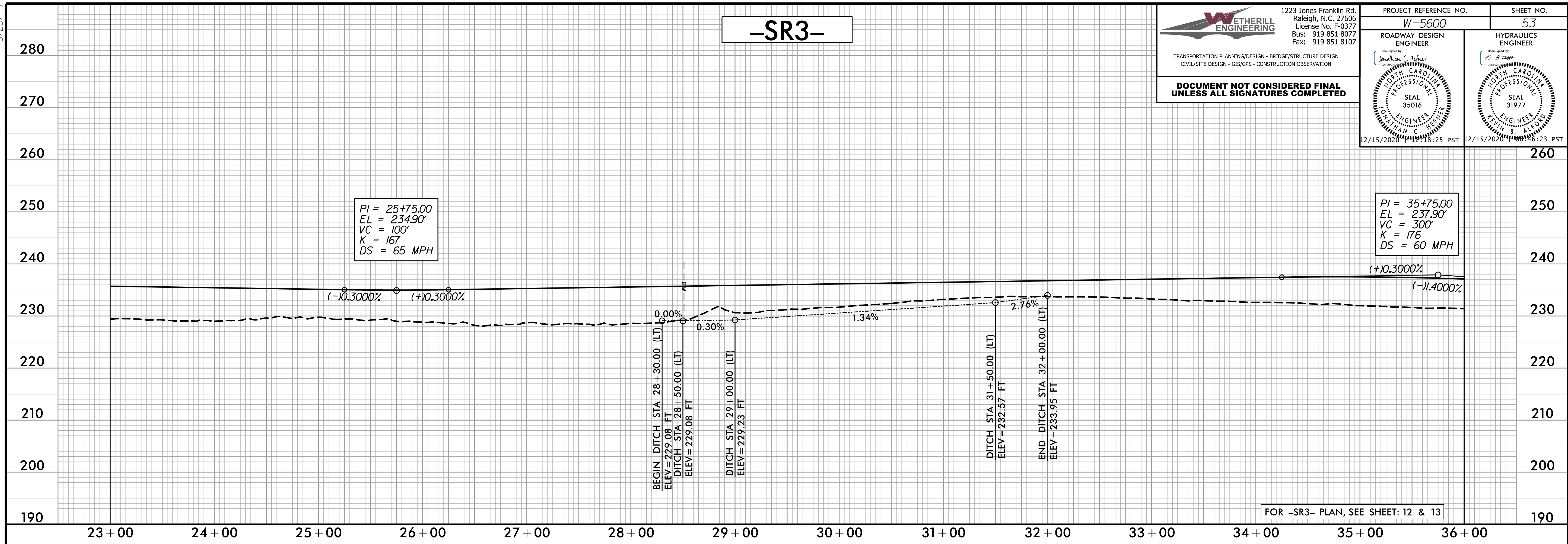
5/28/19

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 1223 Jones Franklin Rd.  
 Raleigh, N.C. 27606  
 License No. F-0377  
 Bus: 919 851 8077  
 Fax: 919 851 8107

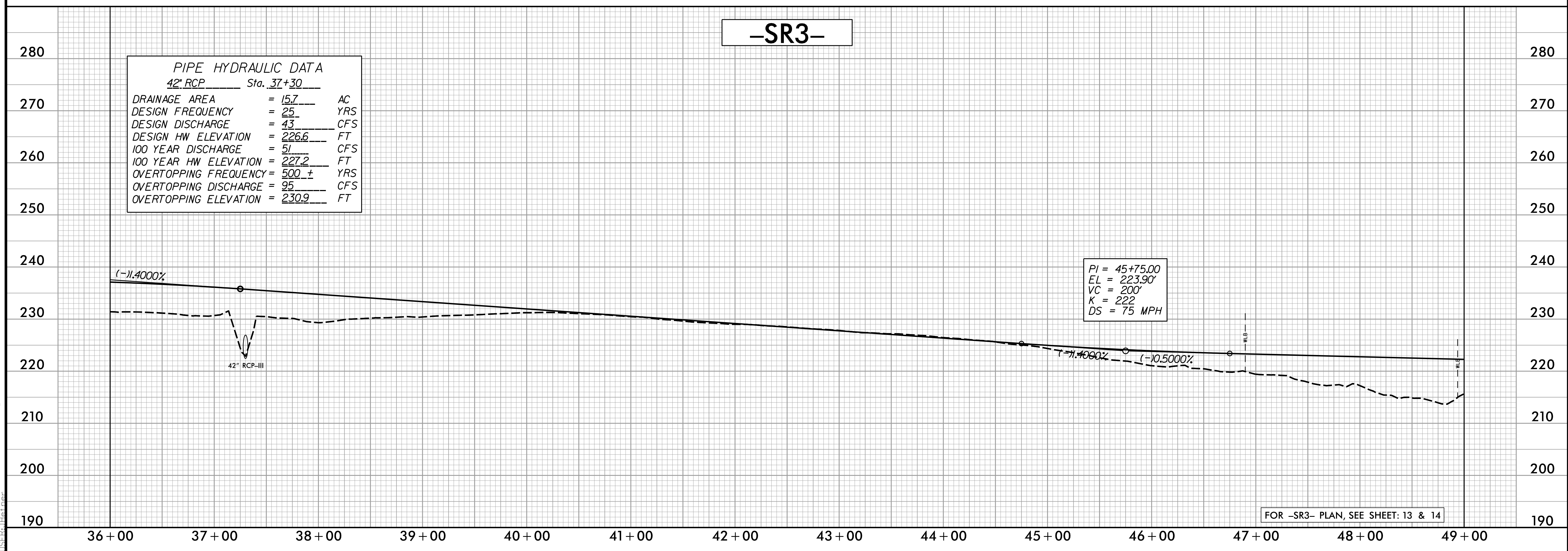
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

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

PROJECT REFERENCE NO. <b>W-5600</b>	SHEET NO. <b>53</b>
ROADWAY DESIGN ENGINEER <i>Jonathan C. Heiser</i>	HYDRAULICS ENGINEER <i>A. B. Cope</i>
SEAL 35016 JONATHAN C. HEISER	SEAL 31977 A. B. COPE
12/15/2020 12:18:25 PST	12/15/2020 10:16:23 PST



FOR -SR3- PLAN, SEE SHEET: 12 & 13



**PIPE HYDRAULIC DATA**  
 42" RCP Sta. 37+30

DRAINAGE AREA	= 15.7	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 43	CFS
DESIGN HW ELEVATION	= 226.6	FT
100 YEAR DISCHARGE	= 51	CFS
100 YEAR HW ELEVATION	= 227.2	FT
OVERTOPPING FREQUENCY	= 500 ±	YRS
OVERTOPPING DISCHARGE	= 95	CFS
OVERTOPPING ELEVATION	= 230.9	FT

FOR -SR3- PLAN, SEE SHEET: 13 & 14

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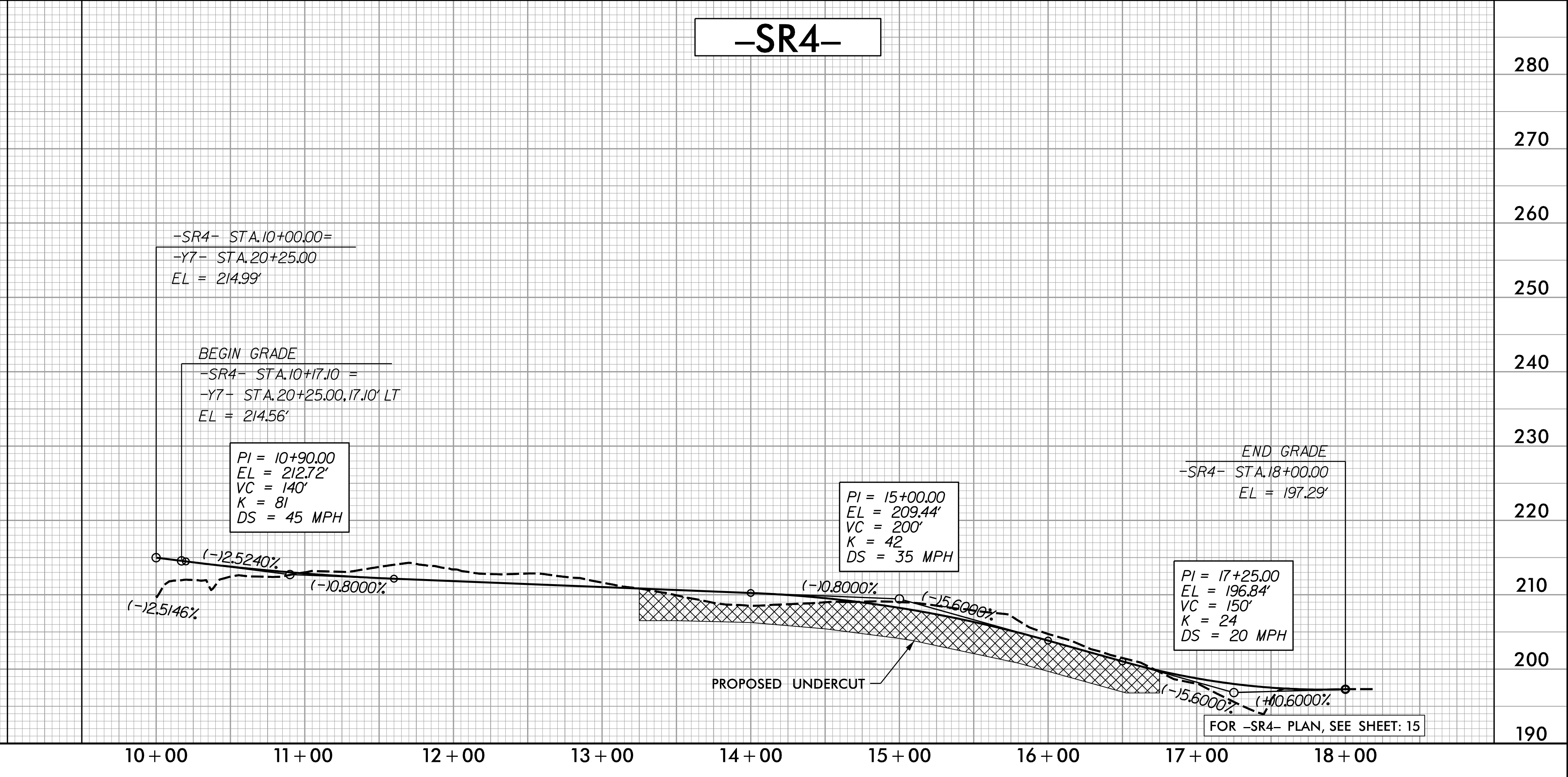
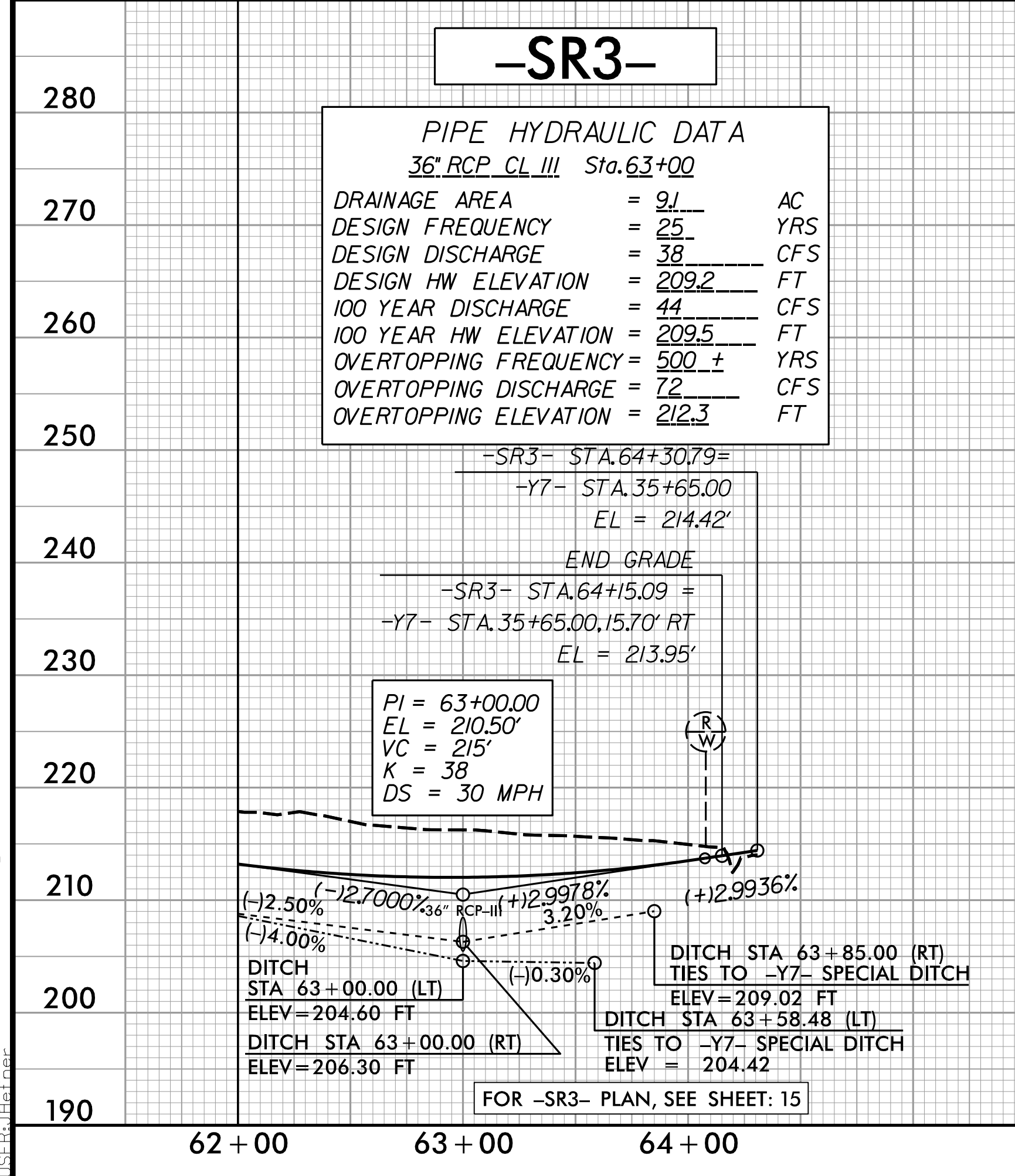
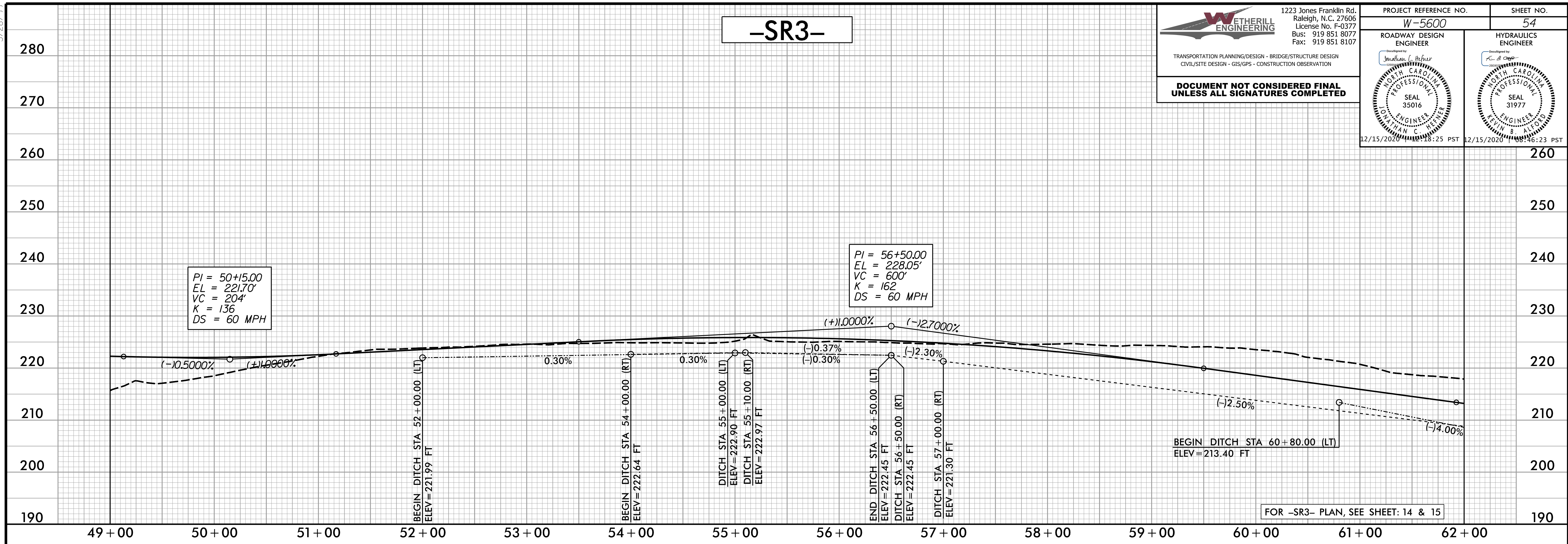
5/28/19

**WETHERILL ENGINEERING**  
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 License No. F-0377  
 Bus: 919 851 8077  
 Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

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

PROJECT REFERENCE NO. <b>W-5600</b>	SHEET NO. <b>54</b>
ROADWAY DESIGN ENGINEER <i>Jonathan L. Proffers</i> SEAL 35016 12/15/2020 10:18:25 PST	HYDRAULICS ENGINEER <i>R. S. Goff</i> SEAL 31977 12/15/2020 08:46:23 PST



12/14/2020 10:18:25 PST  
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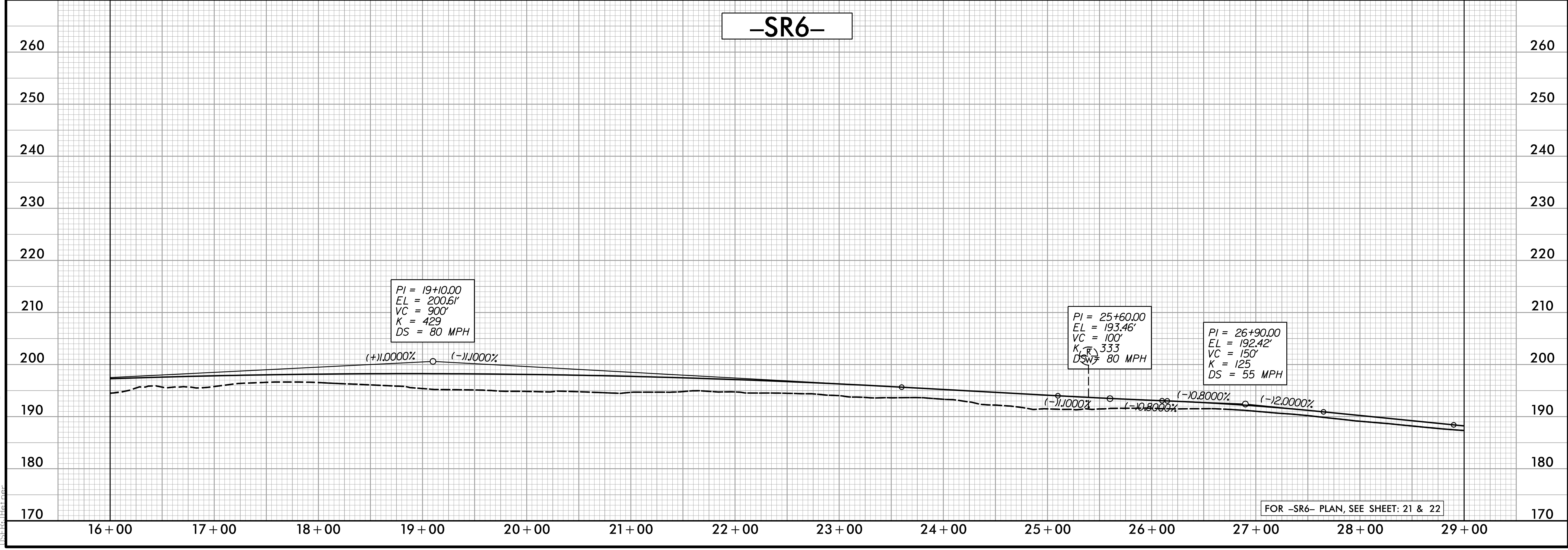
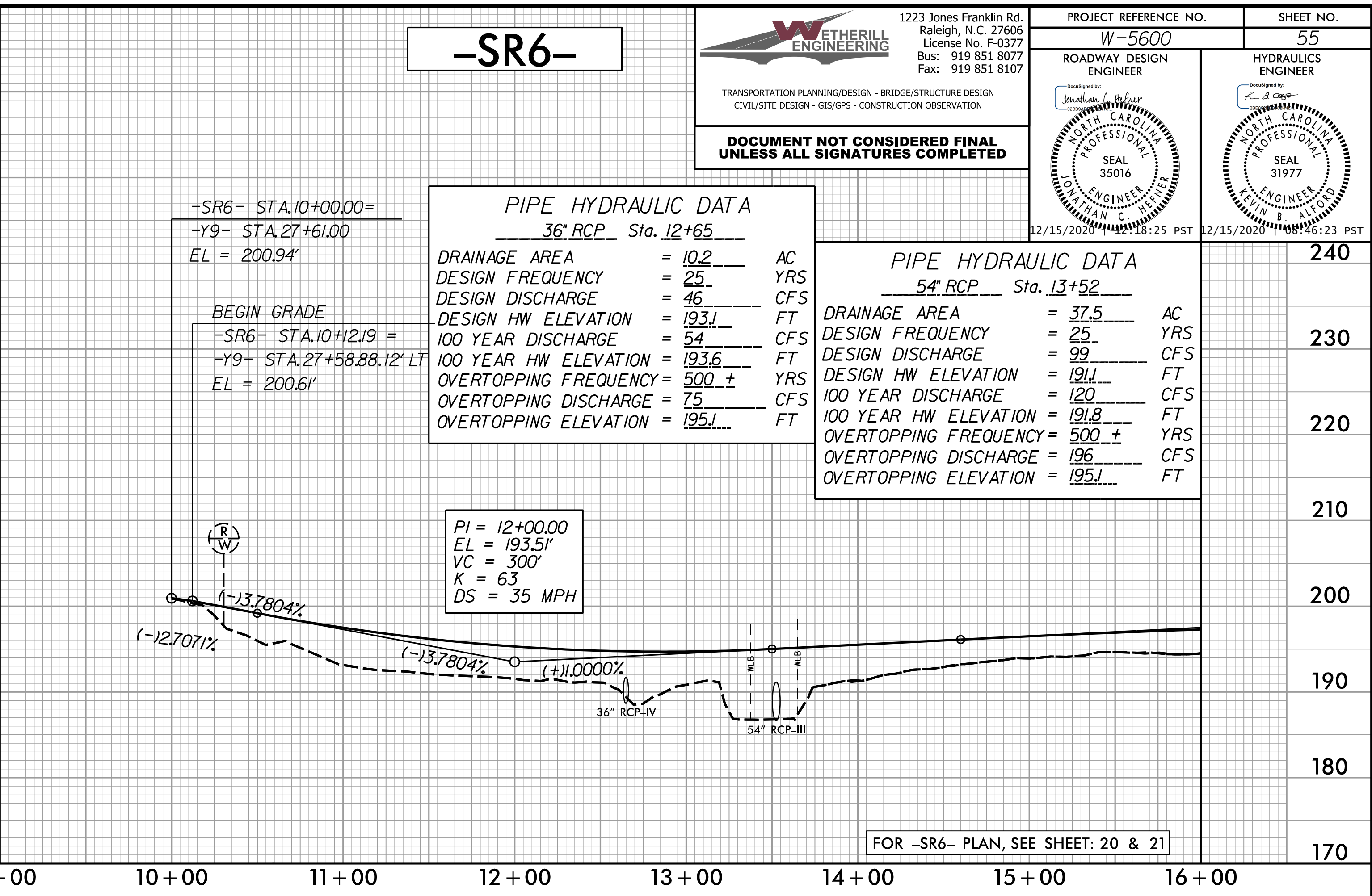
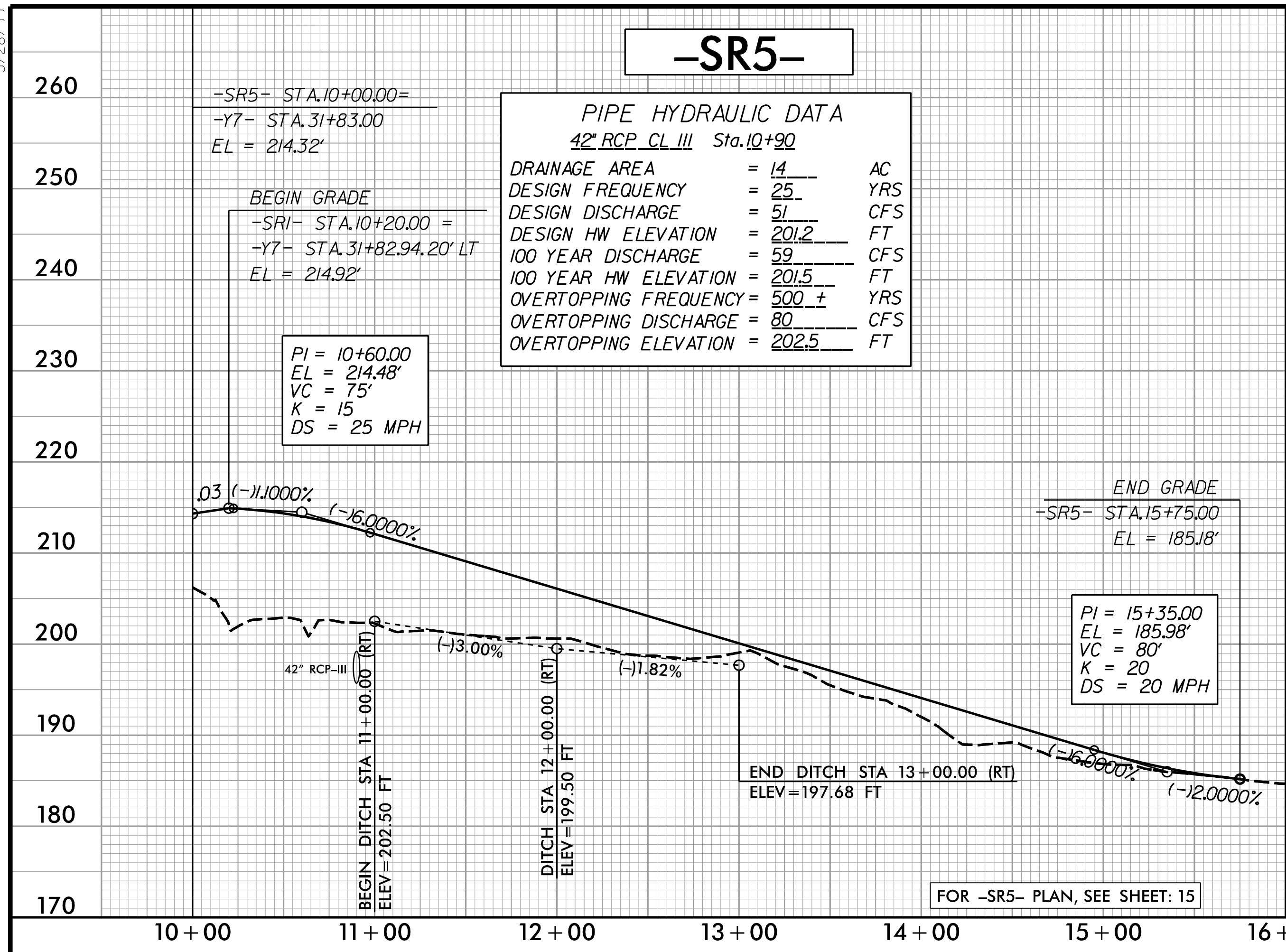
5/28/20

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 Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

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PROJECT REFERENCE NO. <b>W-5600</b>	SHEET NO. <b>55</b>
ROADWAY DESIGN ENGINEER <i>[Signature]</i>	HYDRAULICS ENGINEER <i>[Signature]</i>
SEAL 35016 12/15/2020 12:18:25 PST	SEAL 31977 12/15/2020 10:46:23 PST



12/14/2020 11:55:13 AM 5600\_rdy\_psh\_55\_p1.dgn

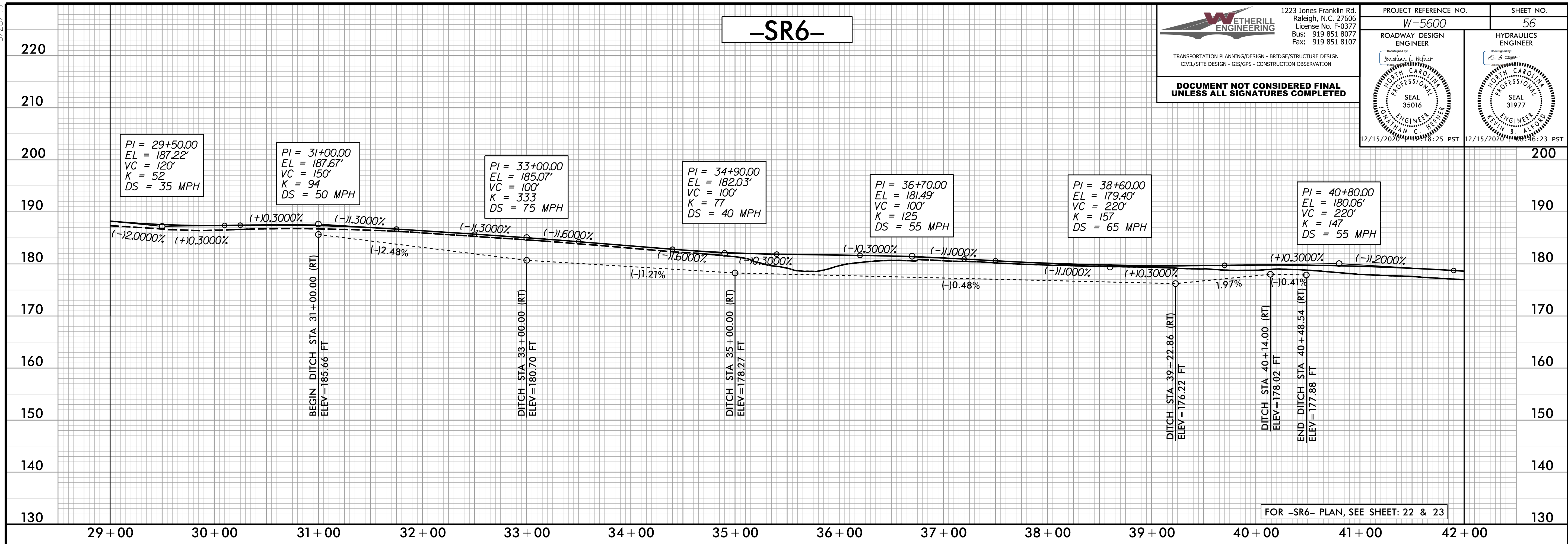
5/28/20

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 License No. F-0377  
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 Fax: 919 851 8107

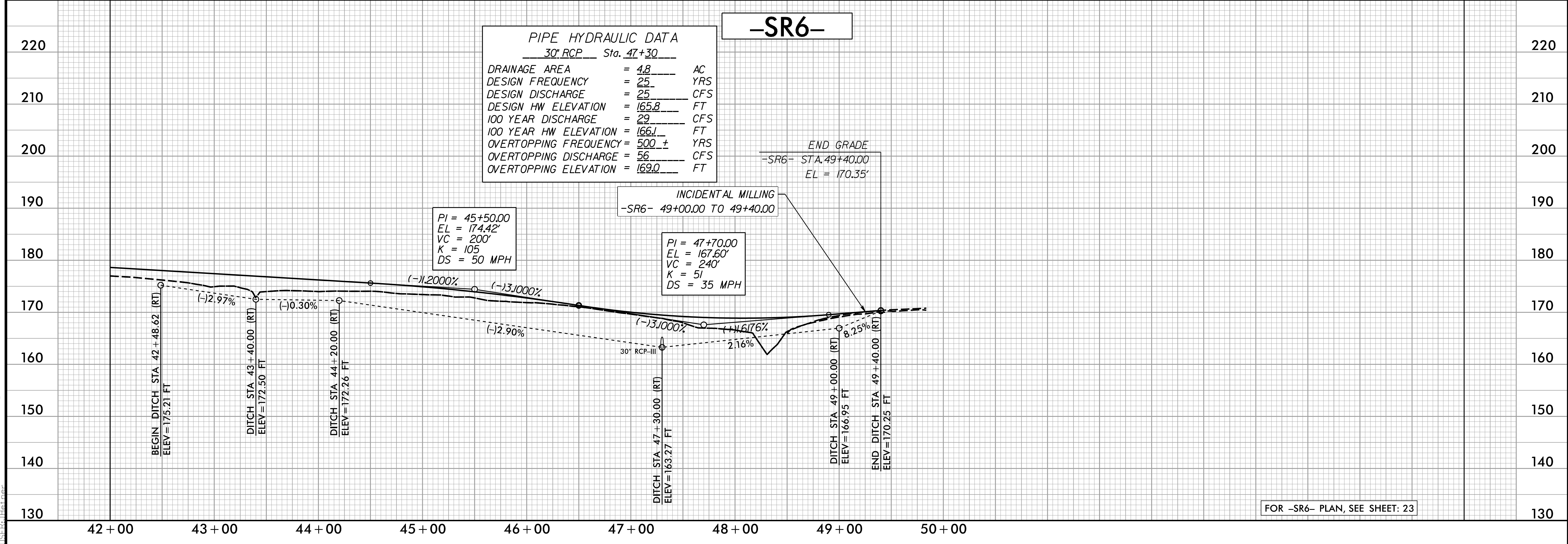
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

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

PROJECT REFERENCE NO. <b>W-5600</b>	SHEET NO. <b>56</b>
ROADWAY DESIGN ENGINEER <i>Jonathan L. Robison</i>	HYDRAULICS ENGINEER <i>K. S. Crisp</i>
SEAL 35016 12/15/2020 10:16:25 PST	SEAL 31977 12/15/2020 10:16:23 PST



12/14/2020 10:56:00\_rdy\_psh\_56\_p1.dgn



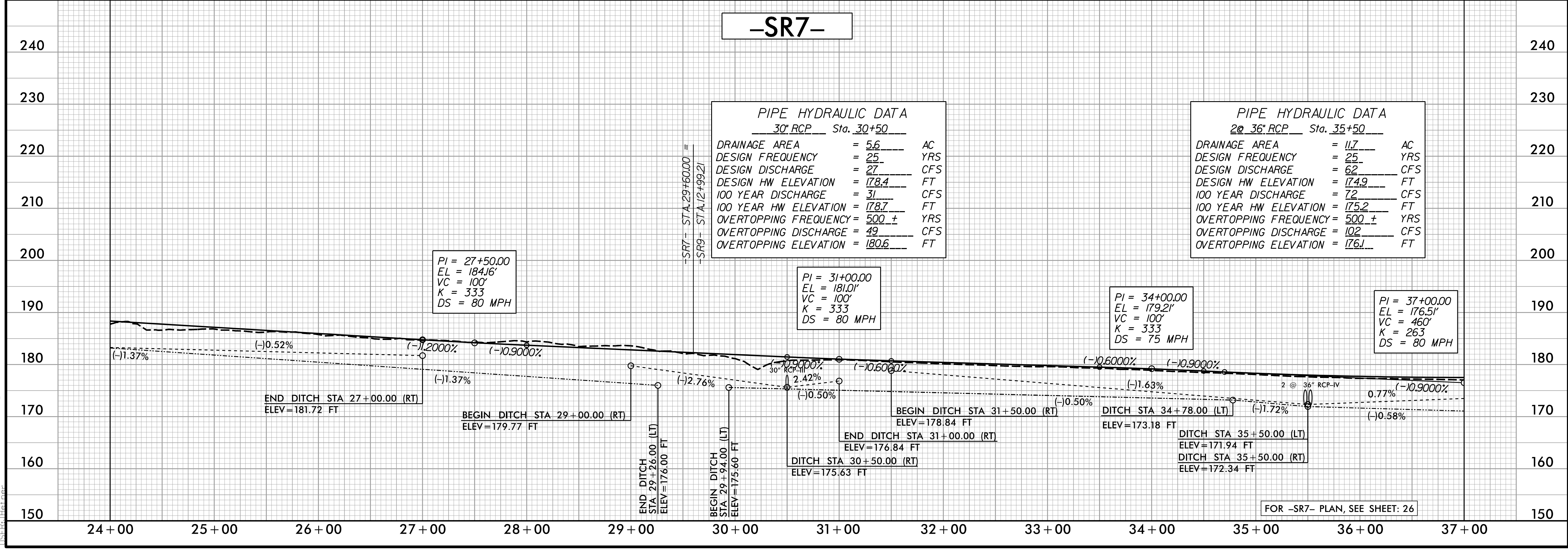
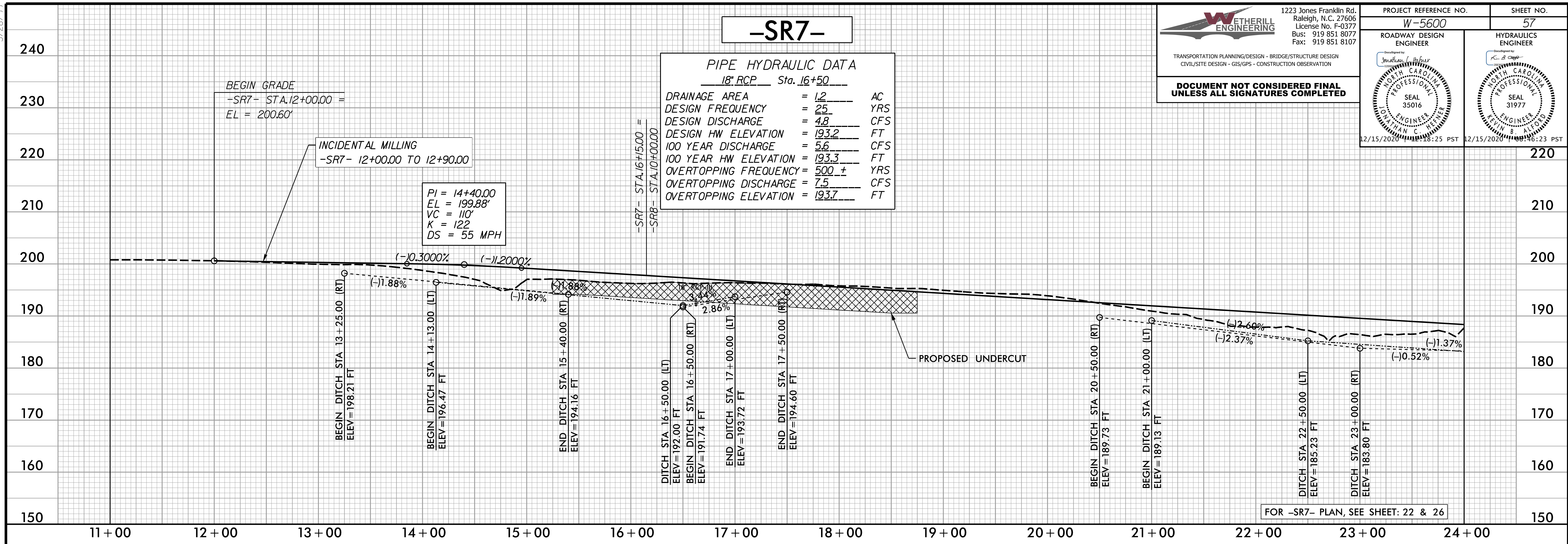
5/28/2019

**WETHERILL ENGINEERING**  
 1223 Jones Franklin Rd.  
 Raleigh, N.C. 27606  
 License No. F-0377  
 Bus: 919 851 8077  
 Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

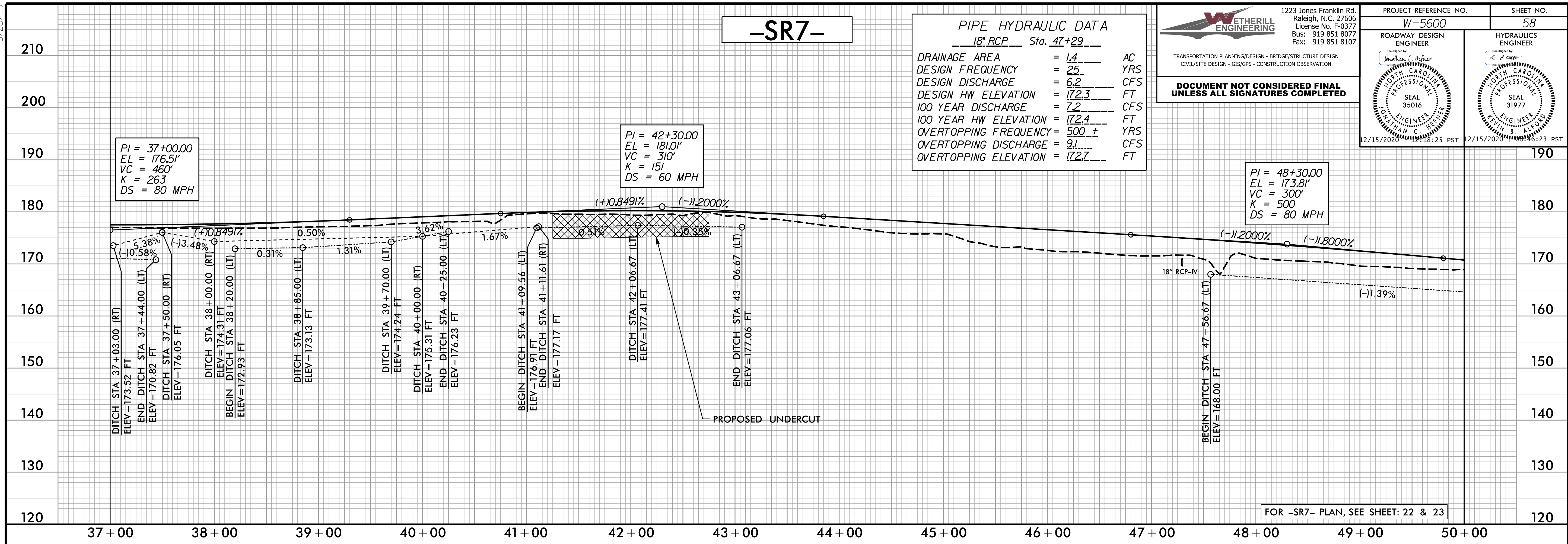
**DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED**

PROJECT REFERENCE NO. <b>W-5600</b>	SHEET NO. <b>57</b>
ROADWAY DESIGN ENGINEER <i>[Signature]</i>	HYDRAULICS ENGINEER <i>[Signature]</i>
SEAL 35016 12/15/2020 10:25 PST	SEAL 31977 12/15/2020 10:23 PST



12/14/2020 10:56:00 r.dj.psh\_57\_p1.dgn

5/28/20



**PIPE HYDRAULIC DATA**  
18" RCP Sta. 47+29

DRAINAGE AREA	= 1.4	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 6.2	CFS
DESIGN HW ELEVATION	= 172.3	FT
100 YEAR DISCHARGE	= 7.2	CFS
100 YEAR HW ELEVATION	= 172.4	FT
OVERTOPPING FREQUENCY	= 500 ±	YRS
OVERTOPPING DISCHARGE	= 9.1	CFS
OVERTOPPING ELEVATION	= 172.7	FT

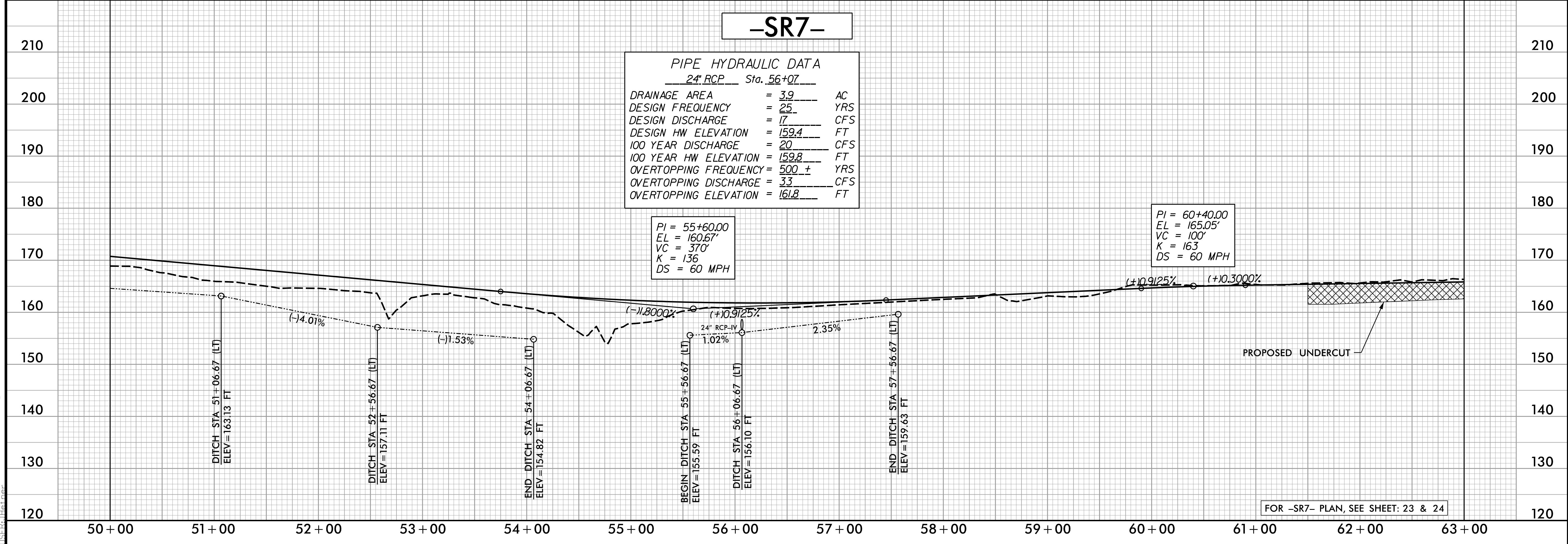
**WETHERILL ENGINEERING**  
1223 Jones Franklin Rd.  
Raleigh, N.C. 27606  
License No. F-0377  
Bus: 919 851 8077  
Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

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

PROJECT REFERENCE NO.	W-5600	SHEET NO.	58
ROADWAY DESIGN ENGINEER	<i>Jonathan C. Heiser</i>	HYDRAULICS ENGINEER	<i>K. S. Cooper</i>
SEAL 35016		SEAL 31977	
12/15/2020 12:28:25 PST		12/15/2020 14:06:23 PST	

12/14/2020 05:00\_r.dwg\_psh\_58\_p1.dgn



**PIPE HYDRAULIC DATA**  
24" RCP Sta. 56+07

DRAINAGE AREA	= 3.9	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 17	CFS
DESIGN HW ELEVATION	= 159.4	FT
100 YEAR DISCHARGE	= 20	CFS
100 YEAR HW ELEVATION	= 159.8	FT
OVERTOPPING FREQUENCY	= 500 ±	YRS
OVERTOPPING DISCHARGE	= 33	CFS
OVERTOPPING ELEVATION	= 161.8	FT

PI = 60+40.00  
EL = 165.05'  
VC = 100'  
K = 163  
DS = 60 MPH

FOR -SR7- PLAN, SEE SHEET: 23 & 24



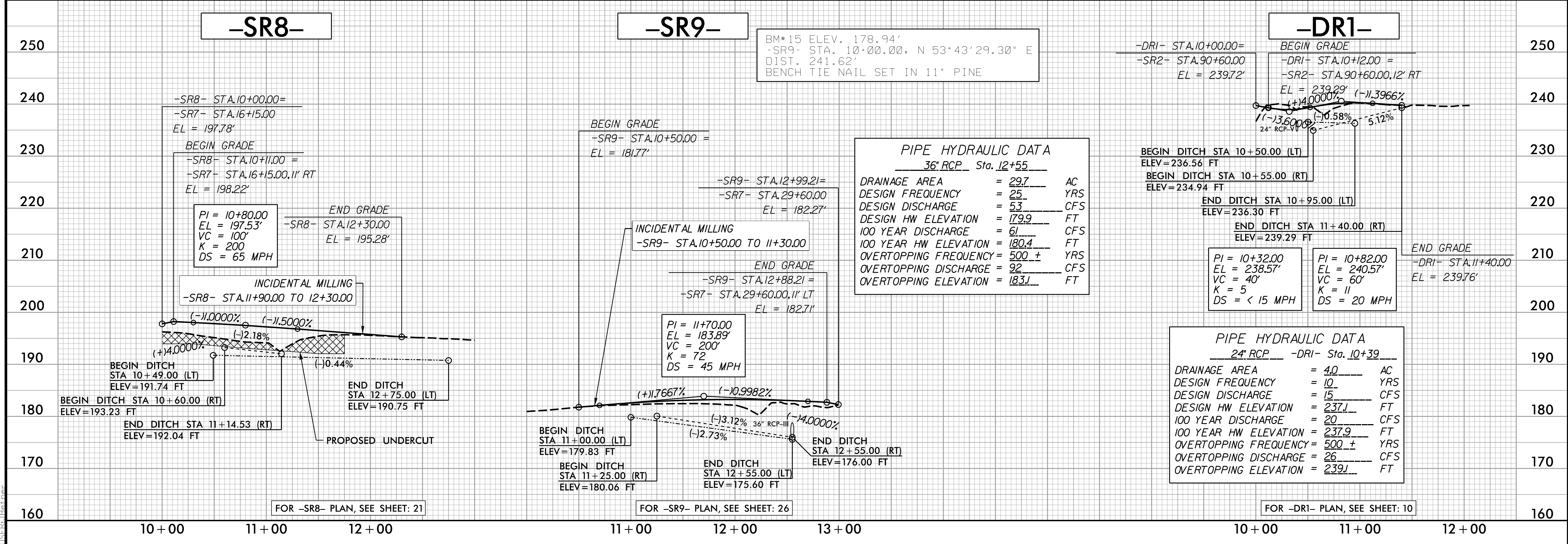
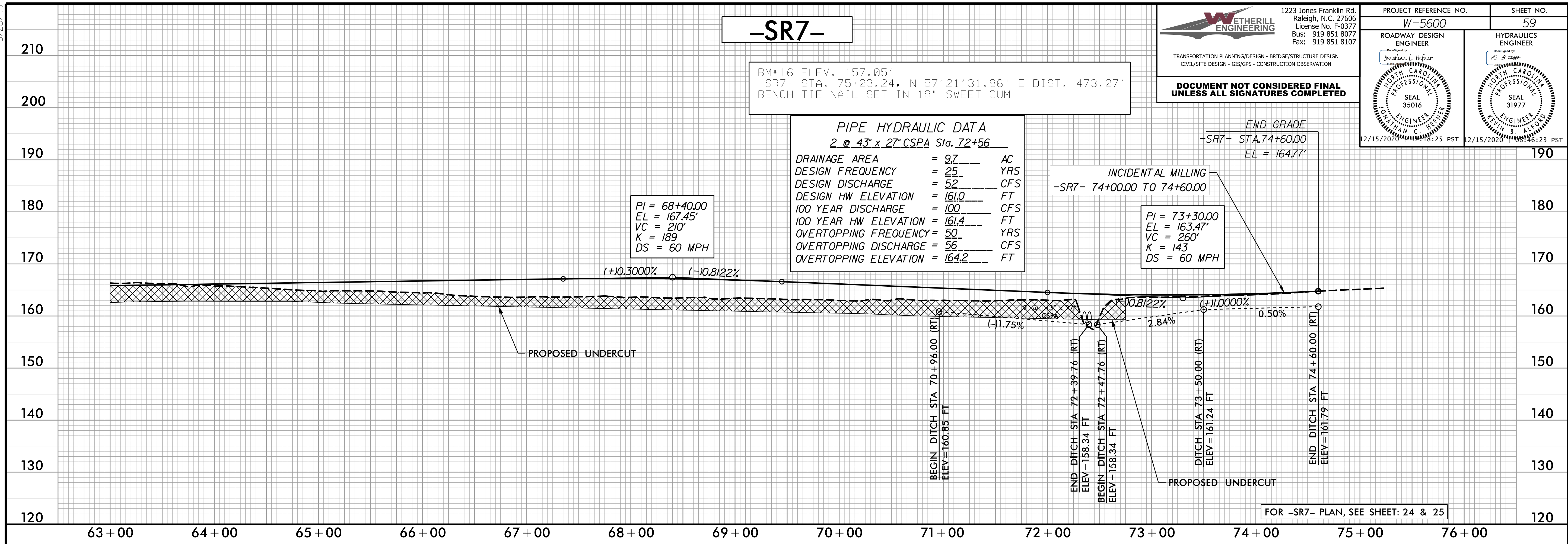
5/28/99

**WETHERILL ENGINEERING**  
 1223 Jones Franklin Rd.  
 Raleigh, N.C. 27606  
 License No. F-0377  
 Bus: 919 851 8077  
 Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

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

PROJECT REFERENCE NO. <b>W-5600</b>	SHEET NO. <b>59</b>
ROADWAY DESIGN ENGINEER <i>Jonathan L. Peiser</i>	HYDRAULICS ENGINEER <i>K. J. Cape</i>
SEAL 35016 12/15/2020 10:25 PST	SEAL 31977 12/15/2020 08:46:23 PST



12/14/2020 08:56:00\_rdu\_psh\_59\_p1.dgn

5/28/19

**PIPE HYDRAULIC DATA**  
18" RCP -DR2- Sta. 10+88

DRAINAGE AREA	= 12	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 5.3	CFS
DESIGN HW ELEVATION	= 202.5	FT
100 YEAR DISCHARGE	= 6.1	CFS
100 YEAR HW ELEVATION	= 202.6	FT
OVERTOPPING FREQUENCY	= 500 ±	YRS
OVERTOPPING DISCHARGE	= 12	CFS
OVERTOPPING ELEVATION	= 203.5	FT

### -DR2-

### -DR3-

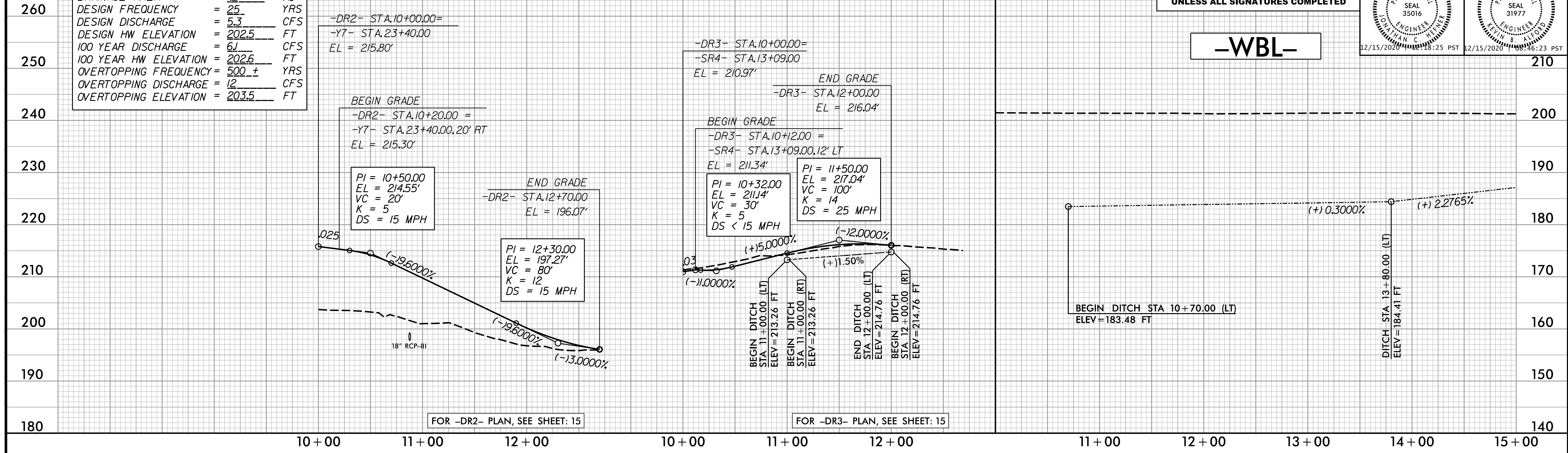
**WETHERILL ENGINEERING**  
1223 Jones Franklin Rd.  
Raleigh, N.C. 27606  
License No. F-0377  
Bus: 919 851 8077  
Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN  
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

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

PROJECT REFERENCE NO.	W-5600	SHEET NO.	60
ROADWAY DESIGN ENGINEER	<i>Jonathan C. Pfeiffer</i>	HYDRAULICS ENGINEER	<i>K. B. Cline</i>
PROFESSIONAL SEAL	35016	PROFESSIONAL SEAL	31977
12/15/2020 10:28:25 PST		12/15/2020 10:46:23 PST	

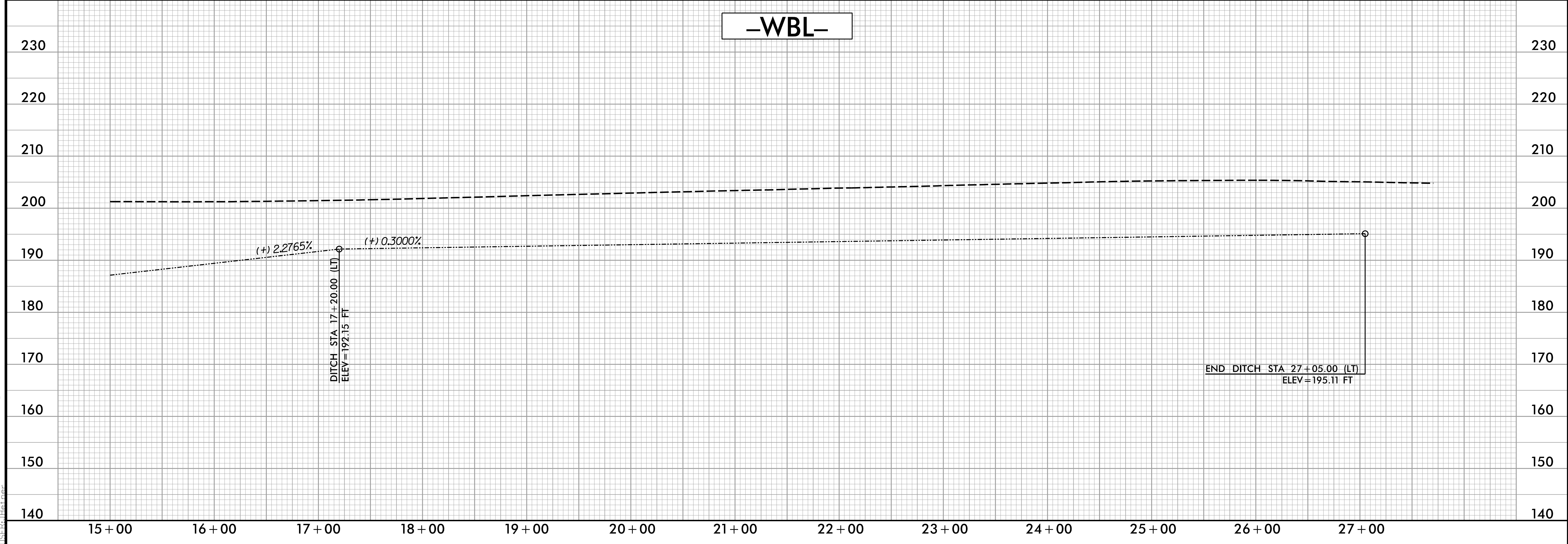
### -WBL-



FOR -DR2- PLAN, SEE SHEET: 15

FOR -DR3- PLAN, SEE SHEET: 15

### -WBL-



12/14/2020 10:56:00 rdu\_psh\_50\_p1.dgn