

		North Carolina Department of Transportation Highway Stormwater Program STORMWATER MANAGEMENT PLAN FOR NCDOT PROJECTS									
(Version 2.08; Released April 2018)											
WBS Element: 50111.3.1		TIP No.: U-5713/R-5777		County(ies): Craven			Page 1 of 13				
General Project Information											
WBS Element:		50111.3.1		TIP Number:		U-5713/R-5777		Project Type: Roadway Widening		Date: 2/10/2020	
NCDOT Contact:		Matt Foster, PE, PLS				Contractor / Designer:		Joshua G. Dalton, PE			
		Address: 343 E. Six Forks Road Suite 200 Raleigh, NC 27609						Address: Sungate Design Group, P.A. 905 Jones Franklin Road Raleigh, NC 27606			
		Phone: 919-546-8997						Phone: 919-859-2243			
		Email: mfoster@HNTB.com						Email: jdalton@sungatedesign.com			
City/Town:		New Bern				County(ies):		Craven			
River Basin(s):		Neuse				CAMA County?		Yes			
Wetlands within Project Limits?		Yes									
Project Description											
Project Length (lin. miles or feet):		4.46		Surrounding Land Use:		Commercial, Residential					
		Proposed Project				Existing Site					
Project Built-Up Area (ac.)		132.7 ac.				74.5 ac.					
Typical Cross Section Description:		US 70: Grassed ditch median with 6:1 max side slopes. 4 paved lanes (total 48' wide). 12' shoulder on each side (15' with guardrail). 10' paved shoulder. Varying fill and cut slopes. US 70: Type T concrete barrier median. 6 paved lanes (total 72' wide). 12' shoulder on each side (15' with guardrail). See project XSC's for detailed information.				US 70: Grassed ditch median. 4 paved lanes (total 48' wide). 4' paved shoulders (2' grassed). Varying fill and cut slopes.					
Annual Avg Daily Traffic (veh/hr/day):		Design/Future: 62,000		Year: 2040		Existing:		45,200		Year: 2015	
General Project Narrative: (Description of Minimization of Water Quality Impacts)		The North Carolina Department of Transportation (NCDOT) has proposed the widening and improvements of existing US 70 in Craven County between the Eastern Approach of the Neuse River Bridge and approximately one mile east of S.R. 1116 (Thurman Road). The U-5713/R-5777 project includes 5 proposed culverts at stream crossings along US 70. All major structures have been designed to have as little environmental and surfacewater impacts as possible. The first proposed location is at the US 70 and Thurman Road interchange. Three consecutive culverts will be used at this interchange. The first proposed structure is a 1@9'x6' RCBC (buried 1') under a service road (SRY21C) adjacent to US 70 WB branching directly from E. Thurman Road. The next structure is also a 1@9'x6' RCBC (buried 1') approximately 200' downstream of the previous culvert outlet. The culvert is a RCBC that crosses Thurman Road, US 70, and the exit ramp from US 70 EB onto W. Thurman Road. The third structure is a 1@10'x7' RCBC (buried 1') at the new stream crossing of the proposed service road (SRY21A) SW of US 70. The culvert empties into the wetland west of the interchange. The fourth major strucutre is a 1@6'x6' RCBC (1' sills and baffles) that is replacing a 1@48" RCP under US 70, transporting drainage from unnamed tributary on the east side of US 70 to the wetland on the west side of US 70. The last major structure is a 1@7'x7' RCBC (buried 1') at an unnamed tributary crossing of US 70. The structure is just southeast of the proposed US 70 and Taberna Way interchange and replaces a 54" RCP. Five detention basins were used throughtout the project and primarily designed to provide stormwater treatment and minimum pre/post impacts. Grassed swales were used for treatment when BMP design standards could be met. Grassed swales were used to reduce flow velocity, promote sedimentation infiltration and runoff attenuation. Velocities at jurisdictional and wetland features are non-erosive.									
Waterbody Information											
Surface Water Body (1):		Brice Creek				NCDWR Stream Index No.:		27-101-40-(1)			
NCDWR Surface Water Classification for Water Body				Primary Classification:		Class C					
				Supplemental Classification:		Swamp Waters (Sw)					
Other Stream Classification:		None									
Impairments:		None									
Aquatic T&E Species?		Comments:									
NRTR Stream ID:		Brice Creek						Buffer Rules in Effect:		Neuse	
Project Includes Bridge Spanning Water Body?		No		Deck Drains Discharge Over Buffer?		N/A		Dissipator Pads Provided in Buffer?		N/A	
Deck Drains Discharge Over Water Body?		N/A		(If yes, provide justification in the General Project Narrative)				(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)			
		(If yes, provide justification in the General Project Narrative)									



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Additional Waterbody Information

Surface Water Body (2):	Scotts Creek	NCDWR Stream Index No.:	27-102
NCDWR Surface Water Classification for Water Body	Primary Classification:	Class SC	
	Supplemental Classification:	Swamp Waters (Sw)	(NSW)
Other Stream Classification:	None		
Impairments:	None		
Aquatic T&E Species?	Comments:		
NRTR Stream ID:	Scotts Creek	Buffer Rules in Effect:	Neuse
Project Includes Bridge Spanning Water Body?	No	Deck Drains Discharge Over Buffer?	N/A
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)	(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)
(If yes, provide justification in the General Project Narrative)			
Surface Water Body (3):	Trent River	NCDWR Stream Index No.:	27-101-(39)
NCDWR Surface Water Classification for Water Body	Primary Classification:	Class SB	
	Supplemental Classification:	Swamp Waters (Sw)	(NSW)
Other Stream Classification:	None		
Impairments:	None		
Aquatic T&E Species?	Comments:		
NRTR Stream ID:	Trent River	Buffer Rules in Effect:	Neuse
Project Includes Bridge Spanning Water Body?	No	Deck Drains Discharge Over Buffer?	N/A
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)	(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)
(If yes, provide justification in the General Project Narrative)			
Surface Water Body (4):	Neuse River	NCDWR Stream Index No.:	27-(96)
NCDWR Surface Water Classification for Water Body	Primary Classification:	Class SC	
	Supplemental Classification:	Swamp Waters (Sw)	(NSW)
Other Stream Classification:	None		
Impairments:	copper (Cu)		
Aquatic T&E Species?	Comments:		
NRTR Stream ID:	Neuse River	Buffer Rules in Effect:	Neuse
Project Includes Bridge Spanning Water Body?	No	Deck Drains Discharge Over Buffer?	N/A
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)	(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)
(If yes, provide justification in the General Project Narrative)			



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Swales															
Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Base Width (ft)	Front Slope (H:1)	Back Slope (H:1)	Drainage Area (ac)	Recommended Treatm't Length (ft)	Actual Length (ft)	Longitudinal Slope (%)	Q2 (cfs)	V2 (fps)	Q10 (cfs)	V10 (fps)	Rock Checks Used	BMP Associated w/ Buffer Rules?
5	13+00 - 17+06 -SRY21C- LT 35.025257°/ -76.999989°	(1)Brice Creek	0.0	4.0	3.0	0.5	53	406	0.30%	1.6	1.0	2.1	1.0	No	No
5	17+06 - 22+00 -SRY21C- LT 35.026368°/ -77.000625°	(1)Brice Creek	0.0	4.0	3.0	0.6	60	494	0.80%	2.0	1.5	2.6	1.6	No	No
5	17+66 - 25+00 -SRY21C- RT 35.026572°/ -77.000441°	(1)Brice Creek	2.0	3.0	3.0	7.7	768	734	0.33%	17.2	1.9	22.3	2.0	No	No
5/6	23+00 - 26+26 -SRY21C- LT 35.028566°/ -77.001844°	(1)Brice Creek	0.0	4.0	3.0	0.4	43	326	0.14%	1.4	0.7	1.8	0.7	No	No
6	26+26 - 34+14 -SRY21C- LT 35.030601°/ -77.002953°	(1)Brice Creek	0.0	4.0	3.0	0.9	91	788	0.14%	2.9	0.8	3.7	0.9	No	No
6	34+14 - 34+50 -SRY21C- LT 35.030601°/ -77.002953°	(1)Brice Creek	0.0	4.0	3.0	0.1	14	36	0.56%	0.4	0.9	0.6	0.9	No	No
6	36+00 - 38+85 -SRY21C- RT 35.031881°/ 77.003345°	(1)Brice Creek	0.0	3.0	3.0	0.3	32	285	2.82%	0.9	2.0	1.2	2.2	No	No
6/7	36+00 - 40+00 -SRY21C- LT 35.032085°/ -77.003733°	(1)Brice Creek	0.0	4.0	3.0	0.5	55	400	0.30%	2.0	1.0	2.6	1.1	No	No
6/7	14+50 - 27+50 -SRY21B- LT 35.033650°/ -77.005507°	(1)Brice Creek	4.0	3.0	3.0	26.5	2648	1300	0.20%	20.1	1.6	28.6	1.8	No	No
6/7	15+00 - 22+68 -SRY21B- RT 35.032593°/ -77.004548°	(1)Brice Creek	0.0	4.0	3.0	0.8	84	768	0.13%	2.6	0.8	3.3	0.9	No	No
6/7	38+85 - 46+70 -SRY21C- RT 35.033857°/ -77.004399°	(1)Brice Creek	4.0	3.0	3.0	19.4	1944	785	0.18%	30.3	1.7	42.3	1.9	No	No
7	40+00 - 43+00 -SRY21C- LT 35.032085°/ -77.003733°	(1)Brice Creek	0.0	4.0	3.0	0.5	48	300	0.17%	1.7	0.8	2.3	0.9	No	No
7	22+68 - 25+00 -SRY21B- RT 35.032593°/ -77.004548°	(1)Brice Creek	0.0	4.0	3.0	0.3	33	232	0.30%	1.1	0.9	1.4	0.9	No	No
7	249+00 - 252+00 -L- RT 35.033842°/ -77.004684°	(1)Brice Creek	0.0	4.0	3.0	0.5	47	300	0.10%	1.8	0.7	2.3	0.7	No	No
7	250+00 - 253+00 -L- LT 35.033900°/ -77.005343°	(1)Brice Creek	0.0	4.0	3.0	0.5	52	300	1.60%	1.7	1.8	2.1	2.0	No	No
7	28+50 - 31+50 -SRY21B- RT 35.034069°/ -77.005458°	(1)Brice Creek	0.0	3.0	3.0	1.0	101	300	0.90%	3.2	1.8	4.2	1.9	No	No
7/8	253+00 -L- LT -20+00 -Y21RPB- LT 35.036415°/ -77.006904°	(1)Brice Creek	6.0	4.0	3.0	40.9	4088	1030	0.10%	42.7	1.5	60.7	1.6	No	No
8	36+00 - 39+42 -SRY21B- LT 35.035996°/ -77.008249°	(1)Brice Creek	0.0	3.0	3.0	1.5	150	342	0.20%	4.8	1.1	6.2	1.2	No	No
8	12+50 - 14+26 -Y21- RT 35.037316°/ -077.007899°	(1)Brice Creek	0.0	3.0	3.0	1.4	144	176	0.32%	5.3	1.4	6.8	1.5	No	No

Additional Comments



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Swales															
Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Base Width (ft)	Front Slope (H:1)	Back Slope (H:1)	Drainage Area (ac)	Recommended Treatm't Length (ft)	Actual Length (ft)	Longitudinal Slope (%)	Q2 (cfs)	V2 (fps)	Q10 (cfs)	V10 (fps)	Rock Checks Used	BMP Associated w/ Buffer Rules?
8	14+26 - 15+00 -Y21- RT	(1)Brice Creek	0.0	3.0	3.0	0.6	60	74	3.20%	2.0	2.4	2.6	2.6	No	No
	35.037316°/ -77.007897°														
8	12+50 -Y21- LT-25+00 -Y21RPA- RT	(1)Brice Creek	2.0	3.0	3.0	3.0	302	337	2.00%	10.7	3.7	13.7	4.0	No	No
	35.037997°/ -77.008017°														
8	18+00 - 24+00 -Y21RPB- RT	(1)Brice Creek	0.0	4.0	3.0	0.6	61	600	0.40%	1.5	1.1	2.0	1.1	No	No
	35.037494°/ -077.007346°														
8	16+50 - 23+35 -Y21RPA- LT	(1)Brice Creek	0.0	4.0	3.0	0.8	79	700	0.30%	1.6	1.0	2.1	1.0	No	No
	35.038560°/ -77.007817°														
8	23+80 - 25+50 -Y21RPA- LT	(1)Brice Creek	0.0	4.0	3.0	0.3	35	200	0.90%	0.7	1.2	0.9	1.3	No	No
	35.038560°/ -77.007817°														
8	16+00 - 24+50 -Y21RPC- LT	(1)Brice Creek	0.0	4.0	3.0	1.2	124	850	0.80%	3.8	1.8	4.9	1.9	No	No
	34.946864°/ -084.092253°														
8	19+00 - 25+50 -Y21RPD- RT	(1)Brice Creek	0.0	4.0	3.0	0.5	51	650	0.31%	1.2	0.9	1.5	1.0	No	No
	35.038345°/ -77.007097°														
8	20+50 - 24+70 -Y21RPD- LT	(1)Brice Creek	2.0	4.0	3.0	4.0	403	720	0.30%	8.4	1.5	10.9	1.6	No	No
	35.038527°/ -77.006465°														
8	20+35 - 22+45 -Y21- LT	(1)Brice Creek	3.0	3.0	3.0	7.2	715	200	0.50%	12.1	2.0	16.5	2.2	No	No
	35.038527°/ -77.006465°														
8	25+00 -Y21RPC- RT-22+32 -Y21- RT	(1)Brice Creek	3.0	3.0	3.0	5.0	500	282	0.40%	9.5	1.4	12.9	1.5	No	No
	35.038093°/ -77.006321°														
8	64+50 - 66+00 -SRY21C- RT	(1)Brice Creek	0.0	3.0	3.0	0.5	47	150	0.40%	1.2	1.1	1.6	1.1	No	No
	35.038705°/ -77.005471°														
8	66+00 -SRY21C- RT - 27+00 -Y21- RT	(1)Brice Creek	2.0	4.0	3.0	3.2	315	376	1.54%	9.0	2.7	11.6	2.9	No	No
	35.038705°/ -77.005471°														
8	10+74 -SRY21D- RT-27+50 -Y21- LT	(1)Brice Creek	2.0	4.0	3.0	4.2	425	429	0.26%	7.6	1.4	10.4	1.5	No	No
	35.039057°/ -77.005765°														
8	10+74 - 13+00 -SRY21D- RT	(1)Brice Creek	0.0	3.0	3.0	1.0	104	226	0.93%	3.3	1.8	4.2	2.0	No	No
	35.039057°/ -77.005765°														
8	15+00 - 18+64 -SRY21D- RT	(1)Brice Creek	0.0	4.0	3.0	1.0	103	364	0.42%	3.0	1.3	3.8	1.4	No	No
	35.040535°/ -77.007688°														
8	16+50 - 19+50 -SRY21D- LT	(1)Brice Creek	0.0	4.0	3.0	2.3	235	300	2.40%	7.9	3.2	10.2	3.4	No	No
	35.040361°/ -77.008055°														
8	17+79 - 20+00 -Y21RPD- LT	(1)Brice Creek	0.0	4.0	3.0	1.2	121	221	0.33%	4.1	1.3	5.3	1.4	No	No
	35.040361°/ -77.008055°														
8	58+70 - 61+20 -SRY21C- RT	(1)Brice Creek	4.0	3.0	3.0	22.4	2245	250	0.12%	35.9	1.5	50.0	1.7	No	Yes
	35.037453°/ -77.005907°														
8	61+60 - 63+00 -SRY21C- LT	(1)Brice Creek	0.0	3.0	3.0	0.2	16	146	1.07%	0.6	1.2	0.7	1.3	No	No
	35.037689°/ -77.006183°														

Additional Comments

Diffuse flow (V10 < 2 fps) has been achieved when discharging into the buffer.



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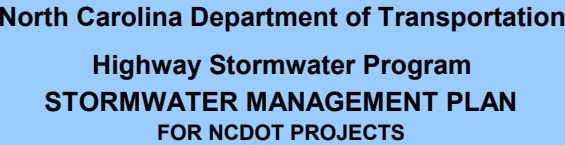
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Swales															
Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Base Width (ft)	Front Slope (H:1)	Back Slope (H:1)	Drainage Area (ac)	Recommended Treatm't Length (ft)	Actual Length (ft)	Longitudinal Slope (%)	Q2 (cfs)	V2 (fps)	Q10 (cfs)	V10 (fps)	Rock Checks Used	BMP Associated w/ Buffer Rules?
8	278+67 - 279+50 -L- RT	(1)Brice Creek	0.0	4.0	3.0	0.1	12	83	1.69%	0.5	1.4	0.6	1.5	No	No
	35.040553°/ -77.008284°														
8	284+00 - 285+00 -L- RT	(1)Brice Creek	0.0	4.0	3.0	0.6	65	100	0.20%	2.4	0.9	3.0	1.0	No	No
	35.042079°/ -77.009290°														
8	39+45 -SRY21B- RT	(1)Brice Creek	2.0	3.0	3.0	1.7	170	123	0.76%	4.0	1.7	5.1	1.9	No	No
	35.036102° -77.007972°														
8	39+45 -SRY21B- LT	(1)Brice Creek	2.0	3.0	3.0	3.2	323	60	0.93%	8.4	2.3	10.8	2.5	No	No
	35.035911°/ -77.008395°														
8	42+75 -SRY21B- LT	(1)Brice Creek	2.0	3.0	3.0	0.9	88	55	0.26%	3.1	1.1	4.0	1.2	No	No
	35.036736°/ -77.008852°														
8/9	284+50 - 285+50 -L- LT	(1)Brice Creek	0.0	4.0	3.0	0.2	18	100	0.30%	0.7	0.8	0.8	0.8	No	No
	35.042014°/ -77.009863°														
9	285+50 - 287+00 -L- LT	(1)Brice Creek	0.0	4.0	3.0	0.3	26	150	0.45%	0.9	1.0	1.2	1.1	No	No
	35.042014°/ -77.009863°														
9	287+00 - 287+50 -L- LT	(1)Brice Creek	0.0	4.0	3.0	0.7	68	50	0.45%	2.6	1.3	3.3	1.4	No	No
	35.042386°/ -77.010078°														
9	285+00 - 286+50 -L- RT	(1)Brice Creek	0.0	4.0	3.0	0.4	37	150	0.20%	1.4	0.8	1.7	0.9	No	No
	35.042085°/ -77.009293°														
9	286+50 - 288+00 -L- RT	(1)Brice Creek	0.0	4.0	3.0	0.5	50	150	0.20%	1.8	0.9	2.3	0.9	No	No
	35.042459°/ -77.009503°														
9	291+50 - 294+50 -L- LT	(1)Brice Creek	0.0	4.0	3.0	0.5	51	300	0.45%	1.9	1.2	2.5	1.3	No	No
	35.043505°/ -77.010719°														
9	294+50 - 297+00 -L- LT	(1)Brice Creek	0.0	4.0	3.0	0.4	42	250	0.45%	1.6	1.1	2.0	1.2	No	No
	35.044248°/ -77.011152°														
9	293+50 - 294+50 -L- RT	(1)Brice Creek	0.0	4.0	3.0	0.2	17	100	0.10%	0.6	0.5	0.8	0.5	No	No
	35.044446°/ -77.010646°														
9	294+50 - 297+00 -L- RT	(1)Brice Creek	0.0	4.0	3.0	0.4	43	250	3.20%	1.6	2.4	2.1	2.5	No	No
	35.045075°/ -77.010982°														
9	26+99 - 28+44 -SRY21D- RT	(1)Brice Creek	6.0	3.0	3.0	83.6	8364	145	0.35%	101.7	3.0	144.5	3.2	No	No
	35.042304°/ -77.009092°														
9	34+00 - 36+04 -SRY21D- RT	(1)Brice Creek	0.0	3.0	3.0	1.2	123	204	0.40%	4.3	1.4	5.6	1.5	No	No
	35.044527°/ -77.010438°														
9	36+04 - 38+00 -SRY21D- RT	(1)Brice Creek	0.0	3.0	3.0	1.0	102	196	0.50%	3.8	1.5	4.9	1.6	No	No
	35.044527°/ -77.010438°														
9	297+00 - 297+50 -L- RT	(1)Brice Creek	4.0	4.0	3.0	10.0	1000	50	3.40%	14.7	4.0	19.8	4.3	No	No
	35.045208°/ -77.011032°														
9/10	297+50 - 299+00 -L- RT	(1)Brice Creek	4.0	4.0	3.0	9.9	986	150	2.73%	13.3	3.6	18.2	3.9	No	No
	35.045208°/ -77.011032°														

Additional Comments

Diffuse flow (V10 < 2 fps) has been achieved when discharging into the buffer.



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Swales

Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Base Width (ft)	Front Slope (H:1)	Back Slope (H:1)	Drainage Area (ac)	Recommended Treatm't Length (ft)	Actual Length (ft)	Longitudinal Slope (%)	Q2 (cfs)	V2 (fps)	Q10 (cfs)	V10 (fps)	Rock Checks Used	BMP Associated w/ Buffer Rules?
9/10	40+60 - 43+00 -SRY21A- LT	(1)Brice Creek	0.0	3.0	3.0	1.2	124	240	0.42%	4.5	1.5	5.8	1.6	No	No
	35.044680°/ -77.011680°														
9/10	297+00 - 299+00 -L- LT	(1)Brice Creek	0.0	4.0	3.0	0.3	34	200	0.30%	1.3	0.9	1.7	1.0	No	No
	35.045362°/ -77.011805°														
10	299+00 - 301+00 -L- LT	(1)Brice Creek	0.0	4.0	3.0	0.3	34	200	0.65%	1.3	1.2	1.6	1.3	No	No
	35.045856°/ -77.012097°														
10	305+50 - 308+00 -L- MED	(1)Brice Creek	0.0	4.0	4.0	0.9	91	250	0.20%	2.1	0.9	2.7	0.9	No	No
	35.047697°/ -77.012836°														
10	308+00 - 309+00 -L- MED	(1)Brice Creek	0.0	4.0	4.0	0.1	9	100	1.93%	0.2	1.1	0.3	1.2	No	No
	35.047697°/ -77.012836°														
10	309+00 - 309+50 -L- MED	(1)Brice Creek	0.0	4.0	4.0	0.2	22	50	1.93%	0.5	1.4	0.7	1.5	No	No
	35.047945°/ -77.012979°														
10	306+50 - 307+50 -L- LT	(1)Brice Creek	0.0	4.0	3.0	0.5	54	100	0.30%	1.8	1.0	2.3	1.1	No	No
	35.047462°/ -77.013049°														
10	307+50 - 309+00 -L- LT	(1)Brice Creek	0.0	4.0	3.0	0.4	45	150	1.13%	1.5	1.6	2.0	1.7	No	No
	35.047462°/ -77.013049°														
10	51+50 - 52+22 -SRY21A- LT	(1)Brice Creek	2.0	3.0	3.0	3.0	298	72	0.41%	10.8	1.8	14.0	1.9	No	Yes
	35.047496°/ -77.013488°														
10	52+66 - 53+68 -SRY21A- LT	(1)Brice Creek	3.0	3.0	3.0	5.5	546	102	1.47%	17.6	3.2	22.7	3.5	Yes	Yes
	35.047599°/ -77.013571°														
10	13+07 - 15+00 -Y22RPC- RT	(1)Brice Creek	4.0	4.0	3.0	7.1	709	193	3.11%	14.5	3.8	19.0	4.1	No	No
	35.047728°/ -77.012274°														
11	18+00 - 25+69 -Y22RPC- RT	(1)Brice Creek	4.0	4.0	3.0	25.7	2569	769	0.24%	33.4	1.9	46.6	2.1	No	No
	35.048463°/ -77.012752°														
11	25+69 -Y22RPC- RT-20+00 -Y22- RT	(1)Brice Creek	4.0	3.0	3.0	21.6	2157	131	0.24%	33.2	2.0	45.9	2.1	No	No
	35.050786°/ -77.013472														
11	20+00 - 21+22 -Y22- RT	(1)Brice Creek	2.0	3.0	3.0	1.3	132	122	3.28%	3.1	2.8	4.0	3.0	No	No
	35.050786°/ -77.013472														
11	19+50 - 25+50 -Y22RPC- LT	(1)Brice Creek	0.0	4.0	3.0	0.7	70	600	0.10%	1.6	0.7	2.1	0.7	No	No
	35.050323°/ -77.013802°														
11	20+50 - 23+00 -Y22RPB- RT	(1)Brice Creek	0.0	4.0	3.0	0.3	27	250	0.80%	0.8	1.2	1.0	1.3	No	No
	35.049639°/ -77.014212°														
11	23+00 -25+00 -Y22RPB- RT	(1)Brice Creek	0.0	4.0	3.0	0.4	36	200	1.05%	1.0	1.4	1.3	1.5	No	No
	35.049639°/ -77.014212°														
11	21+00 - 23+00 -Y22RPB- LT	(1)Brice Creek	0.0	4.0	3.0	0.4	41	200	0.70%	1.3	1.3	1.6	1.3	No	No
	35.049559°/ -77.014408°														
11	23+00 - 25+00 -Y22RPB- LT	(1)Brice Creek	0.0	4.0	3.0	0.4	41	200	0.65%	1.3	1.2	1.6	1.3	No	No
	35.049559°/ -77.014408°														

Additional Comments

Diffuse flow ($V_{10} < 2$ fps) has been achieved when discharging into the buffer. Where diffuse flow was not achieved, rock checks were utilized to promote pooling and reduce velocities.



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(Version 2.08; Released April 2018)

WBS Element: 50111.3.1 TIP No.: U-5713/R-5777 County(ies): Craven Page 7 of 13

Swales															
Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Base Width (ft)	Front Slope (H:1)	Back Slope (H:1)	Drainage Area (ac)	Recommended Treatm't Length (ft)	Actual Length (ft)	Longitudinal Slope (%)	Q2 (cfs)	V2 (fps)	Q10 (cfs)	V10 (fps)	Rock Checks Used	BMP Associated w/ Buffer Rules?
11	61+00 - 64+50 -SRY21A- LT	(1)Brice Creek	0.0	3.0	3.0	1.0	103	350	0.32%	3.6	1.3	4.7	1.3	No	No
	35.049901°/ -77.015962°														
11	13+00 -14+70 -Y22- RT	(1)Brice Creek	0.0	3.0	3.0	0.6	60	170	0.59%	1.4	1.3	1.8	1.3	No	No
	35.050123°/ -77.015113°														
11	13+00 - 14+50 -Y22- LT	(1)Brice Creek	2.0	3.0	3.0	2.8	280	200	0.40%	5.4	1.5	7.0	1.6	No	No
	35.050303°/ -77.015762°														
11	21+50 - 24+00 -Y22RPA- RT	(1)Brice Creek	0.0	4.0	3.0	1.2	120	250	0.80%	3.6	1.7	4.7	1.8	No	No
	35.050614°/ -77.015162°														
11	16+62 - 23+50 -Y22RPA- LT	(1)Brice Creek	0.0	4.0	3.0	0.5	54	688	0.41%	1.3	1.1	1.7	1.1	No	No
	35.050704°/ -77.014902°														
11	16+62 - 19+14 -Y22RPA- RT	(1)Brice Creek	6.0	4.0	3.0	28.4	2838	252	0.20%	40.3	1.8	55.6	2.0	No	No
	35.051710°/ -77.015795°														
11	18+50 - 20+50 -Y22RPD- RT	(1)Brice Creek	0.0	4.0	3.0	0.2	21	200	1.10%	0.4	1.2	0.6	1.2	No	No
	35.051926°/ -77.015013°														
11	20+50 - 22+00 -Y22RPD- RT	(1)Brice Creek	0.0	4.0	3.0	0.3	30	150	0.47%	0.7	0.9	0.9	1.0	No	No
	35.051561°/ -77.014782°														
11	22+00 - 25+00 -Y22RPD- RT	(1)Brice Creek	0.0	4.0	3.0	0.6	60	300	0.20%	1.5	0.8	1.9	0.9	No	No
	35.050808°/ -77.014284°														
11	17+70 - 20+00 -Y22RPD- LT	(1)Brice Creek	0.0	4.0	3.0	0.3	28	230	1.80%	0.8	1.6	1.1	1.7	No	No
	35.052132°/ -77.014889°														
11	20+00 -Y22RPD- LT-20+00 -Y22- LT	(1)Brice Creek	0.0	4.0	3.0	2.1	212	650	0.40%	6.4	1.5	8.2	1.6	No	No
	35.050968°/ -77.013683°														
11	20+00 -Y22- LT-15+00 -SRY22D- LT	(1)Brice Creek	0.0	3.0	3.0	1.2	118	524	0.27%	3.8	1.2	4.9	1.3	No	No
	35.050968°/ -77.013683°														
11	15+12 -Y22RPA- RT-335+50 -L- LT	(1)Brice Creek	0.0	4.0	3.0	1.5	147	500	0.33%	5.2	1.4	6.7	1.4	No	No
	35.054423°/ -77.017046°														
11	335+50 - 337+50 -L- LT	(1)Brice Creek	0.0	4.0	3.0	1.6	164	200	1.35%	5.8	2.4	7.5	2.5	No	No
	35.054423°/ -77.017046°														
11/12	337+50 - 341+50 -L- LT	(1)Brice Creek	0.0	4.0	3.0	1.1	110	400	0.20%	3.9	1.0	5.0	1.1	No	No
	35.054943°/ -077.017271°														
11	10+80 - 14+50 -SRY22A- LT	(1)Brice Creek	2.0	3.0	3.0	3.8	378	200	0.32%	11.4	1.7	14.7	1.8	No	Yes
	35.051190°/ -77.016661°														
11	13+00 - 18+46 -SRY22D- RT	(1)Brice Creek	4.0	3.0	3.0	9.7	971	546	0.33%	17.9	1.9	24.0	2.0	No	No
	35.052772°/ -77.015024°														
11/12	18+46 -SRY22D- RT-16+82 -Y1- RT	(1)Brice Creek	4.0	3.0	3.0	14.6	1464	1532	0.20%	20.9	1.6	29.2	1.8	No	No
	35.052772°/ -77.015024°														
11	335+50 -L- LT	(1)Brice Creek	2.0	3.0	3.0	3.3	330	23	0.45%	12.7	2.0	16.4	2.1	No	No
	35.054399°/ -77.017118°														

Additional Comments

Diffuse flow (V10 < 2 fps) has been achieved when discharging into the buffer.



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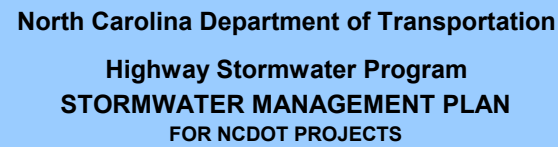
(Version 2.08; Released April 2018)

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Swales															
Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Base Width (ft)	Front Slope (H:1)	Back Slope (H:1)	Drainage Area (ac)	Recommended Treatm't Length (ft)	Actual Length (ft)	Longitudinal Slope (%)	Q2 (cfs)	V2 (fps)	Q10 (cfs)	V10 (fps)	Rock Checks Used	BMP Associated w/ Buffer Rules?
11	15+10 -19+50 -SRY22A- LT 35.051332° / -77.016776°	(1)Brice Creek	4.0	3.0	3.0	9.7	975	440	0.18%	35.5	1.8	45.7	1.9	No	No
11	19+50 - 28+00 -SRY22A- LT 35.052701° / -77.017462°	(1)Brice Creek	3.0	3.0	3.0	8.7	869	850	0.18%	31.6	1.7	40.7	1.8	No	No
11/12	28+00 - 32+51 -SRY22A- LT 35.054632° / -77.017384°	(1)Brice Creek	0.0	3.0	3.0	1.3	129	451	0.18%	4.3	1.1	5.6	1.1	No	No
12	16+35 - 16+75 -Y1- LT 35.056580° / -77.017314°	(1)Brice Creek	2.0	3.0	3.0	3.7	371	40	0.50%	11.2	2.0	14.4	2.1	No	No
12	10+10 -10+84 -SR1- LT 35.056173° / -77.018175°	(1)Brice Creek	0.0	3.0	3.0	0.2	16	74	0.41%	0.6	0.9	0.7	0.9	No	No
12	10+84 - 14+45 -SR1- LT 35.057068° / -77.018702°	(1)Brice Creek	3.0	3.0	3.0	6.6	660	361	0.31%	18.9	1.9	24.9	2.0	No	Yes
12	341+00 - 342+70 -L- RT 35.056417° / -77.017509°	(1)Brice Creek	0.0	4.0	3.0	1.4	138	170	1.32%	4.9	2.2	6.3	2.4	No	No
12	343+50 - 346+10 -L- RT 35.057565° / -77.018128°	(1)Brice Creek	0.0	4.0	3.0	0.4	40	375	0.23%	1.5	0.8	1.9	0.9	No	No
12	345+64 - 346+40 -L- LT 35.056987° / -77.018376°	(1)Brice Creek	0.0	4.0	3.0	0.1	10	136	0.66%	0.3	0.9	0.4	0.9	No	No
12	346+40 - 347+50 -L- LT 35.057453° / -77.018630°	(1)Brice Creek	0.0	4.0	3.0	0.1	10	50	0.30%	0.3	0.7	0.4	0.7	No	No
12/13	346+10 - 353+00 -L- RT 35.057786° / -77.018264°	(1)Brice Creek	0.0	4.0	3.0	0.7	70	385	0.20%	2.5	0.9	3.3	0.9	No	No
13	349+00 - 350+65 -L- LT 35.058242° / -77.019071°	(2)Scotts Creek	0.0	4.0	3.0	0.2	23	165	0.30%	0.8	0.8	1.0	0.9	No	No
13	350+65 - 353+15 -L- LT 35.058242° / -77.019071°	(2)Scotts Creek	0.0	4.0	3.0	0.3	32	250	0.60%	1.1	1.2	1.4	1.2	No	No
13	353+15 - 355+35 -L- LT 35.059414° / -77.019723°	(2)Scotts Creek	0.0	4.0	3.0	0.2	20	220	0.41%	0.6	0.9	0.8	0.9	No	No
13	20+10 - 21+25 -SR1- LT 35.058776° / -77.019616°	(2)Scotts Creek	0.0	3.0	3.0	1.1	105	115	0.70%	3.8	1.7	4.9	1.8	No	No
13	24+50 - 26+30 -SR1- LT 35.060048° / -77.020307°	(2)Scotts Creek	0.0	3.0	3.0	0.3	26	180	0.30%	0.8	0.8	1.0	0.9	No	No
14	33+00 - 36+46 -SR7- RT 35.063063° / -77.020901°	(2)Scotts Creek	3.0	3.0	3.0	4.6	460	346	0.20%	15.5	1.5	20.0	1.6	No	No
14	10+30 - 10+90 -SR8- RT 35.063943° / -77.021357°	(2)Scotts Creek	3.0	3.0	3.0	10.9	1085	60	0.10%	20.2	1.2	27.4	1.3	No	No
14	13+80 -20+00 -SR8- RT 35.064594° / -77.020495°	(2)Scotts Creek	2.0	3.0	3.0	6.9	687	620	0.36%	11.7	1.8	16.1	1.9	No	No

Additional Comments

Diffuse flow (V10 < 2 fps) has been achieved when discharging into the buffer.



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Swales

Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Base Width (ft)	Front Slope (H:1)	Back Slope (H:1)	Drainage Area (ac)	Recommended Treatm't Length (ft)	Actual Length (ft)	Longitudinal Slope (%)	Q2 (cfs)	V2 (fps)	Q10 (cfs)	V10 (fps)	Rock Checks Used	BMP Associated w/ Buffer Rules?
16	30+20 - 31+75 -SR5- RT	(2)Scotts Creek	0.0	3.0	3.0	0.6	60	155	0.97%	1.9	1.6	2.4	1.7	No	No
	35.071455°/ -77.025575°														
16	35+10 -35+80 -SR5- RT	(2)Scotts Creek	0.0	3.0	3.0	0.6	60	70	0.30%	1.9	1.1	2.4	1.1	No	No
	35.072904°/ -77.026343°														
16	38+15 - 38+50 -SR5- RT	(2)Scotts Creek	2.0	3.0	3.0	5.5	550	35	0.31%	11.2	1.7	15.2	1.8	No	No
	35.073204°/ -77.026344°														
16	38+50 -SR5- RT-15+00 -Y3LPC- RT	(2)Scotts Creek	2.0	3.0	3.0	10.7	1070	528	0.10%	17.3	1.2	24.4	1.3	No	No
	35.074583° , -77.026258°														
16	28+58 - 30+66 -Y3- RT	(2)Scotts Creek	0.0	3.0	3.0	1.8	180	208	2.38%	3.2	2.6	4.4	2.8	No	No
	35.074605°/ -77.026255°														
16	46+50 - 49+00 -SR2- RT	(2)Scotts Creek	2.0	3.0	3.0	3.7	371	250	1.34%	12.7	2.9	16.4	3.1	No	No
	35.073214°/ -77.028339°														
16	49+00 - 50+04 -SR2- RT	(2)Scotts Creek	4.0	3.0	3.0	19.6	1960	104	0.10%	34.3	1.4	46.6	1.5	No	No
	35.073214°/ -77.028339°														
16	47+00 - 48+95 -SR2- LT	(2)Scotts Creek	0.0	3.0	3.0	1.0	103	195	0.44%	3.7	1.4	4.8	1.5	No	No
	35.072999°/ -77.028555°														
16	49+00 -SR2- LT	(2)Scotts Creek	4.0	3.0	3.0	34.6	3460	69	0.32%	60.6	2.5	82.3	2.7	No	No
	35.072862°/ -77.028665°														
16	49+07 - 50+42 -SR2- LT	(2)Scotts Creek	0.0	3.0	3.0	0.3	28	135	1.35%	1.0	1.6	1.2	1.7	No	No
	35.073031°/ -77.028589°														
16	51+47 - 54+10 -SR2- RT	(2)Scotts Creek	3.0	3.0	3.0	29.0	2900	263	0.10%	52.8	1.6	71.1	1.7	No	No
	35.073790°/ -77.028620°														
16	12+50 -SR3- RT - 20+60 -Y3- LT	(2)Scotts Creek	0.0	3.0	3.0	0.5	50	60	0.33%	1.8	1.1	2.3	1.1	No	No
	35.074792°/ -77.028960°														
16	20+60 - 22+75 -Y3- LT	(2)Scotts Creek	0.0	3.0	3.0	1.2	120	215	0.30%	4.4	1.3	5.6	1.4	No	No
	35.074792°/ -77.028960°														
16	12+50 - 16+50 -SR3- RT	(2)Scotts Creek	0.0	3.0	3.0	1.4	140	400	0.45%	5.1	1.6	6.6	1.7	No	No
	35.076168°/ -77.029773°														
16	16+50 - 17+86 -SR3- RT	(2)Scotts Creek	0.0	3.0	3.0	1.7	168	136	0.68%	4.1	1.7	5.4	1.8	No	No
	35.076168°/ -77.029773°														
16	10+37 - 11+81 -DR1- RT	(2)Scotts Creek	0.0	3.0	3.0	1.0	95	144	0.67%	3.0	1.6	3.8	1.7	No	No
	35.076386°/ -77.029350°														
16	417+00 - 419+75 -L- LT	(2)Scotts Creek	0.0	3.0	3.0	0.2	20	275	1.26%	0.5	1.3	0.7	1.4	No	No
	35.074865°/ -77.028261°														
16	419+75 - 422+50 -L- LT	(2)Scotts Creek	0.0	3.0	3.0	0.4	37	275	0.35%	1.1	1.0	1.4	1.0	No	No
	35.076205°/ -77.029024°														
16	11+50 - 14+50 -SR6- RT	(2)Scotts Creek	0.0	3.0	3.0	3.1	310	300	0.27%	8.5	1.5	11.4	1.6	No	No
	35.076367°/ -77.028316°														

Additional Comments

Diffuse flow ($V_{10} < 2$ fps) has been achieved when discharging into the buffer.



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Diffuse flow ($V_{10} < 2$ fps) has been achieved when discharging into the buffer.



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Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Base Width (ft)	Front Slope (H:1)	Back Slope (H:1)	Drainage Area (ac)	Recommended Treatm't Length (ft)	Actual Length (ft)	Longitudinal Slope (%)	Q2 (cfs)	V2 (fps)	Q10 (cfs)	V10 (fps)	Rock Checks Used	BMP Associated w/ Buffer Rules?
18/19	16+89 - 19+00 -SR10- RT	(2)Scotts Creek	4.0	3.0	3.0	9.8	980	211	0.33%	32.6	2.2	42.0	2.3	No	No
	35.085783° / -77.032138°														
19	27+23 - 29+23 -SR10- RT	(2)Scotts Creek	0.0	3.0	3.0	0.2	20	200	0.40%	0.8	1.0	1.1	1.0	No	No
	35.088196° / -77.033998°														
19	460+00 - 470+50 -L- LT	(2)Scotts Creek	3.0	3.0	3.0	11.2	1118	1050	0.37%	30.0	2.3	39.2	2.4	No	No
	35.085913°/ -77.033071°														
20	10+75 - 13+25 -RPC55- RT	(4)Neuse River	0.0	3.0	3.0	2.1	210	250	0.79%	7.1	2.1	9.1	3.0	No	No
	35.089852° / -77.035327°														
20	13+25 - 15+75 -RPC55- RT	(4)Neuse River	2.0	3.0	3.0	4.1	410	250	0.68%	12.8	2.3	16.5	2.4	No	No
	35.090492° / -77.035412°														
20	12+55 - 14+05 -RPB55- LT	(2)Scotts Creek	0.0	3.0	3.0	3.0	299	150	0.30%	10.0	1.6	12.8	1.7	No	No
	35.089093° / -77.035856°														
21	15+50 - 21+00 -SRY21C2- LT	(1)Brice Creek	0.0	3.0	3.0	3.5	350	550	0.20%	7.6	1.3	9.7	1.4	No	No
	35.031194° / 77.001158°														
21	17+50-22+00 -SRY21C2- RT	(1)Brice Creek	0.0	4.0	3.0	0.5	45	450	0.24%	1.4	0.9	1.8	0.9	No	No
	35.031115° / -76.998972°														
21	22+00 -SRY21C2- RT	(1)Brice Creek	0.0	3.0	3.0	1.3		91	0.00%	3.4	0.8	4.5	0.9	No	No
	35.030878° / -76.998948°														
11/22	24+00 - 24+78 -Y22- RT	(1)Brice Creek	0.0	4.0	3.0	1.0	105	78	2.56%	2.4	2.5	3.2	2.7	No	No
	35.051712° / -77.012324°														
22	24+78 - 26+00 -Y22- RT	(1)Brice Creek	2.0	4.0	3.0	8.8	879	122	0.21%	12.7	1.4	17.3	1.5	No	No
	35.051712° / -77.012324°														
22	26+00 - 36+00 -Y22- RT	(1)Brice Creek	0.0	4.0	3.0	1.7	169	1000	0.21%	3.6	1.0	4.7	1.1	No	No
	35.051976° / -77.012058°														
22	24+78 - 31+50 -Y22- LT	(1)Brice Creek	2.0	4.0	3.0	5.3	533	672	0.21%	9.1	1.4	12.3	1.5	No	No
	35.051870° / -77.012536°														
22	31+50 - 36+00 -Y22- LT	(1)Brice Creek	0.0	4.0	3.0	2.5	250	450	0.21%	6.1	1.2	7.9	1.3	No	No
	35.053282° / -77.011089°														
04/05	10+50 - 12+30 -SRY21C- LT	(2)Scotts Creek	0.0	3.0	4.0	2.6	260	180	1.06%	10.0	2.4	10.8	2.5	No	No
	35.025137° / -76.999956°														
6	237+00 - 239+14 -L- MED	(1)Brice Creek	0.0	4.0	4.0	1.0	100	214	0.51%	3.4	1.4	4.4	1.5	No	No
	35.030537° / -77.003147°														
6	239+14 - 240+70 -L- MED	(1)Brice Creek	0.0	4.0	4.0	0.2	20	156	0.10%	0.7	0.5	0.9	0.5	No	No
	35.030537° / -77.003147°														
6	240+70 - 244+00 -L- MED	(1)Brice Creek	0.0	4.0	4.0	0.7	70	330	0.10%	2.3	0.7	3.0	0.7	No	No
	35.0309283°, -077.0033598°														
12	12+65 - 13+95 -SR7- RT	(1)Brice Creek	2.0	3.0	3.0	3.8	380	130	1.39%	9.8	2.8	12.8	3.0	No	No
	35.057414° / -77.017843°														

Additional Comments

Diffuse flow ($V_{10} < 2$ fps) has been achieved when discharging into the buffer.



North Carolina Department of Transportation



Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR NCDOT PROJECTS

(Version 2.08; Released April 2018)

WBS Element: 50111.3.1

TIP No.: U-5713/R-5777

County(ies): Craven

Page 13

of

13

Swales

Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Base Width (ft)	Front Slope (H:1)	Back Slope (H:1)	Drainage Area (ac)	Recommended Treatm't Length (ft)	Actual Length (ft)	Longitudinal Slope (%)	Q2 (cfs)	V2 (fps)	Q10 (cfs)	V10 (fps)	Rock Checks Used	BMP Associated w/ Buffer Rules?
12	13+95 - 17+15 -SR7- RT 35.057414° / -77.017843°	(1)Brice Creek	4.0	3.0	3.0	30.8	3080	320	0.31%	45.3	2.3	62.8	2.5	No	No
13	20+70 - 23+90 -SR7- RT 35.059100° / -77.018774°	(1)Brice Creek	4.0	3.0	3.0	15.8	1580	320	0.13%	29.0	1.5	40.1	1.6	No	No
13	24+70 - 25+00 -SR7- RT 35.060183° / -77.019356°	(1)Brice Creek	2.0	3.0	3.0	2.0	200	30	0.08%	4.3	0.8	5.6	0.8	No	No
13	25+00 - 25+75 -SR7- RT 35.060183° / -77.019356°	(1)Brice Creek	2.0	3.0	3.0	3.0	300	75	0.93%	6.4	2.1	8.4	2.3	No	No
13	353+00 - 357+45 -L- RT 35.059763° / -77.019373°	(1)Brice Creek	0.0	4.0	3.0	0.6	60	445	0.20%	2.2	0.9	2.8	1.0	No	No
13	357+45 - 360+00 -L- RT 35.060106° / -77.019565°	(1)Brice Creek	0.0	4.0	3.0	0.2	20	255	0.12%	0.7	0.6	0.9	0.6	No	No
13	19+25 - 20+70 -SR7- RT 35.059100° / -77.018774°	(1)Brice Creek	0.0	3.0	3.0	0.2	20	145	0.35%	0.7	0.9	0.9	0.9	No	No
14	27+90 - 28+70 -Y2- LT 35.066522° / -77.020339°	(2)Scotts Creek	2.0	3.0	3.0	6.2	620	80	0.25%	16.0	1.7	21.2	1.8	No	No
14	39+80 - 43+10 -SR1- LT 35.063547° / -77.023269°	(1)Brice Creek	5.0	3.0	3.0	26.9	2690	330	0.00%	46.1	1.5	64.0	1.7	No	No
14	10+25 - 11+45 -SR8- LT 35.064136° / -77.021595°	(1)Brice Creek	0.0	3.0	3.0	1.2	120	120	0.83%	4.1	1.9	5.2	2.0	No	No
14	36+46 - 39+95 -SR7- RT 35.063063° / -77.020901°	(1)Brice Creek	4.0	3.0	3.0	12.3	1230	349	0.10%	21.0	1.3	28.8	1.4	No	No
14/15	15+30 - 19+40 -SR5- RT 35.068365° / -77.023874°	(2)Scotts Creek	2.0	3.0	3.0	3.7	370	410	0.21%	13.1	1.5	16.9	1.6	No	No
17	26+00 - 26+29 -SR6- RT 35.078940° / -77.029696°	(2)Scotts Creek	0.0	3.0	3.0	0.3	30	29	0.35%	1.2	1.0	1.6	1.1	No	No
18	21+00 - 23+75 -Y4RPD- LT 35.083279° / -77.031206°	(2)Scotts Creek	0.0	3.0	3.0	1.4	140	275	0.47%	5.0	1.6	6.5	1.7	No	No

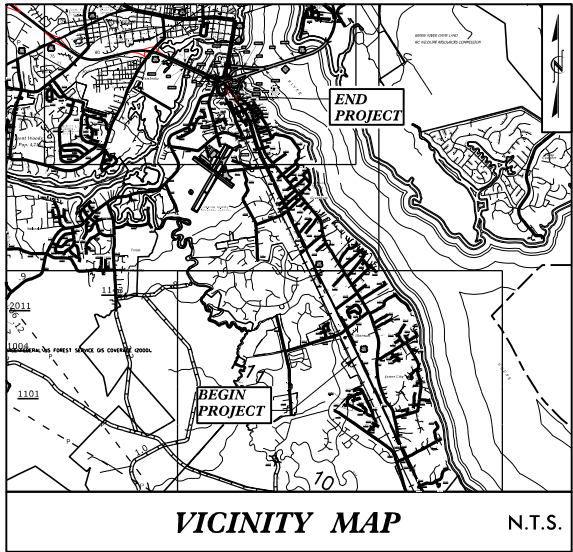
Additional Comments

Diffuse flow (V10 < 2 fps) has been achieved when discharging into the buffer.

TIP PROJECT: U-5713 /R-5777A&B

CONTRACT: C204225

See Sheet 1A For Index of Sheets
See Sheet 1B For Standard Symbology Sheet



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CRAVEN COUNTY

LOCATION: U.S. 70 FROM EASTERN APPROACH OF THE NEUSE RIVER
BRIDGE TO APPROXIMATELY ONE (1) MILE EAST OF S.R. 1116
(THURMAN ROAD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, SIGNING, ITS AND STRUCTURES

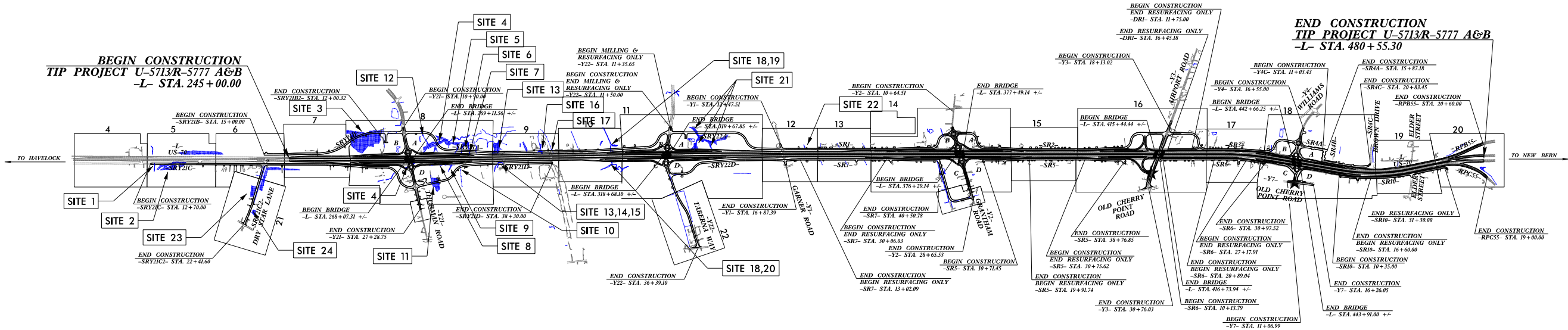
WETLAND AND SURFACE WATER IMPACTS PERMIT

PERMIT DRAWING
SHEET 1 OF 54
DATE: 06-03-2020

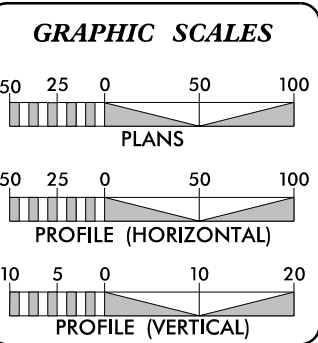
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5713/R-5777A&B	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
50111.3.1	N/A	DESIGN-BUILD	



DESIGN CRITERIA
AND STRUCTURE
RECOMMENDATIONS
SUBMITTED: 02-20-20



THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARY OF THE CITY OF NEW BERN
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
THIS IS A CONTROLLED ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.



DESIGN DATA

ADT 2015 =	45,200
ADT 2040 =	62,000
K =	8%
D =	50%
T =	7%*
V =	60 MPH
* (TTST=2%+ DUAL 5%)	
FUNC. CLASSIFICATION =	INTERSTATE STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-5713 /R-5777A&B =	4.350 MILES
LENGTH STRUCTURE TIP PROJECT U-5713 /R-5777A&B =	0.111 MILES
TOTAL LENGTH OF TIP PROJECT U-5713 /R-5777A&B =	4.461 MILES

NCDOT CONTACT:	CADMUS CAPEHART, PE DIVISION 2 - DIVISION CONSTRUCTION ENGINEER
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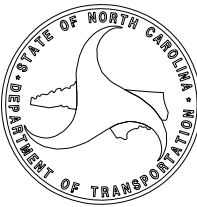
PLANS PREPARED FOR THE NCDOT BY:

Balfour Beatty Infrastructure Inc. 2018 STANDARD SPECIFICATIONS	 J. ADAM FREEMAN, PE PROJECT ENGINEER
RIGHT OF WAY DATE: SEPTEMBER 17, 2019	NARONG PHAL, PE PROJECT DESIGN ENGINEER
LETTING DATE: SEPTEMBER 17, 2019	

HYDRAULICS ENGINEER

SIGNATURE: _____ ROADWAY DESIGN ENGINEER	P.E.
SIGNATURE: _____	P.E.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



PROJECT REFERENCE NO.
U-5713/R-5777 A&B

SHEET NO.
5

ROADWAY DESIGN
ENGINEER

HYDRAULICS
ENGINEER

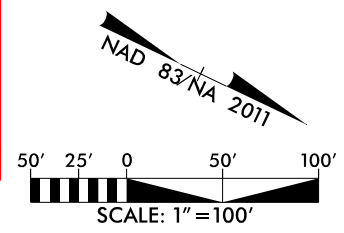
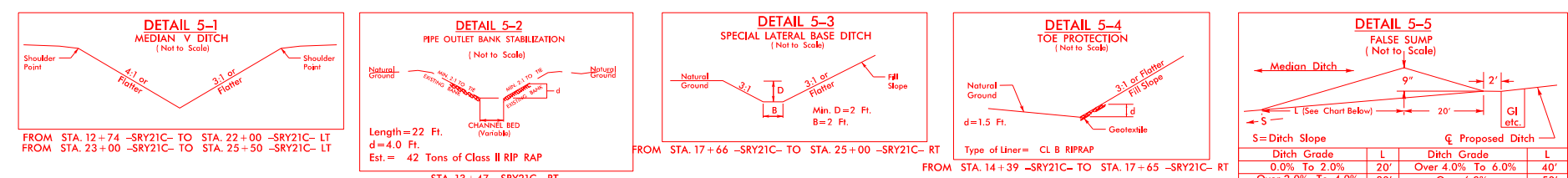
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Balfour Beatty
Infrastructure Inc.

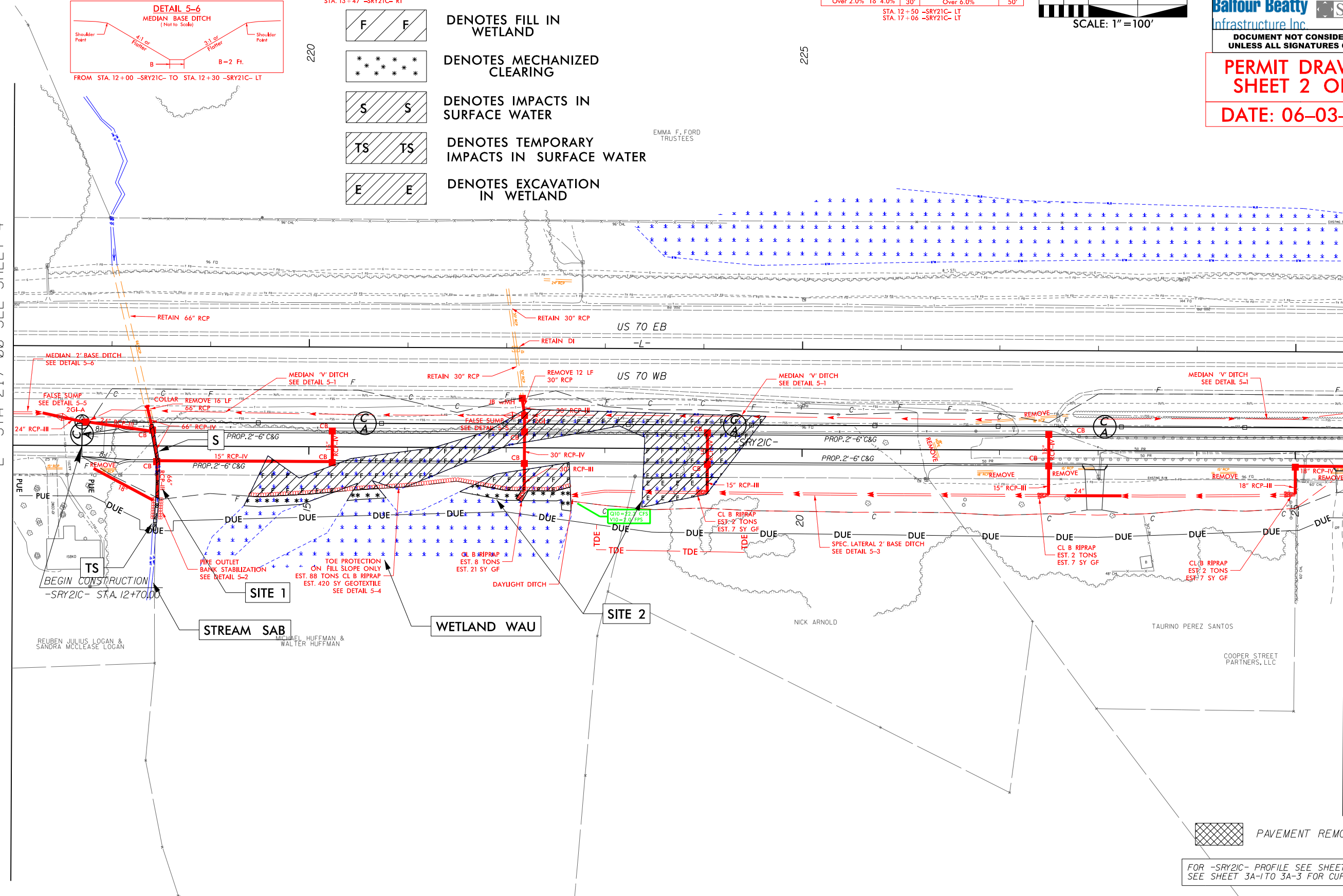
STV
100 years

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 2 OF 54
DATE: 06-03-2020



MATCHLINE -L- STA 217+00 SEE SHEET 4



MATCHLINE -SR21C- STA 25+50-L- STA 230+50
SEE SHEET 6

PAVEMENT REMOVAL

FOR -SR21C- PROFILE SEE SHEET 68
SEE SHEET 3A-1 TO 3A-3 FOR CURVE DATA

PROJECT REFERENCE NO.
U-5713/R-5777 A&B

SHEET NO.
5

ROADWAY DESIGN
ENGINEER

HYDRAULICS
ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Balfour Beatty
Infrastructure Inc.

STV
100 years

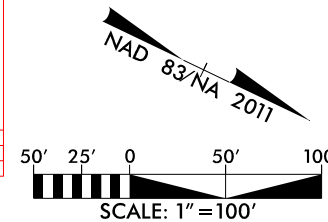
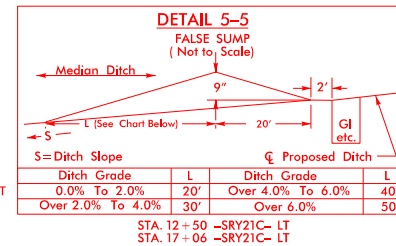
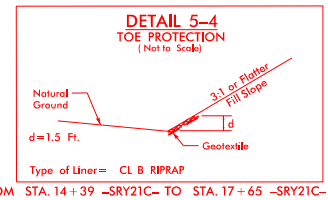
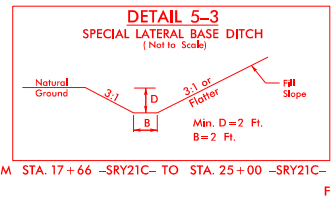
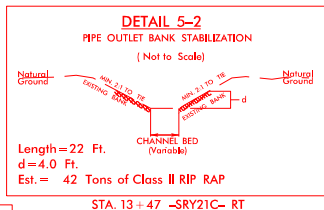
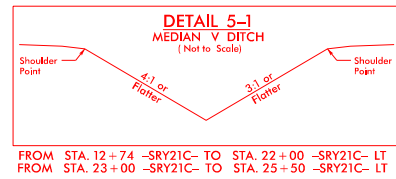
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UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 3 OF 54

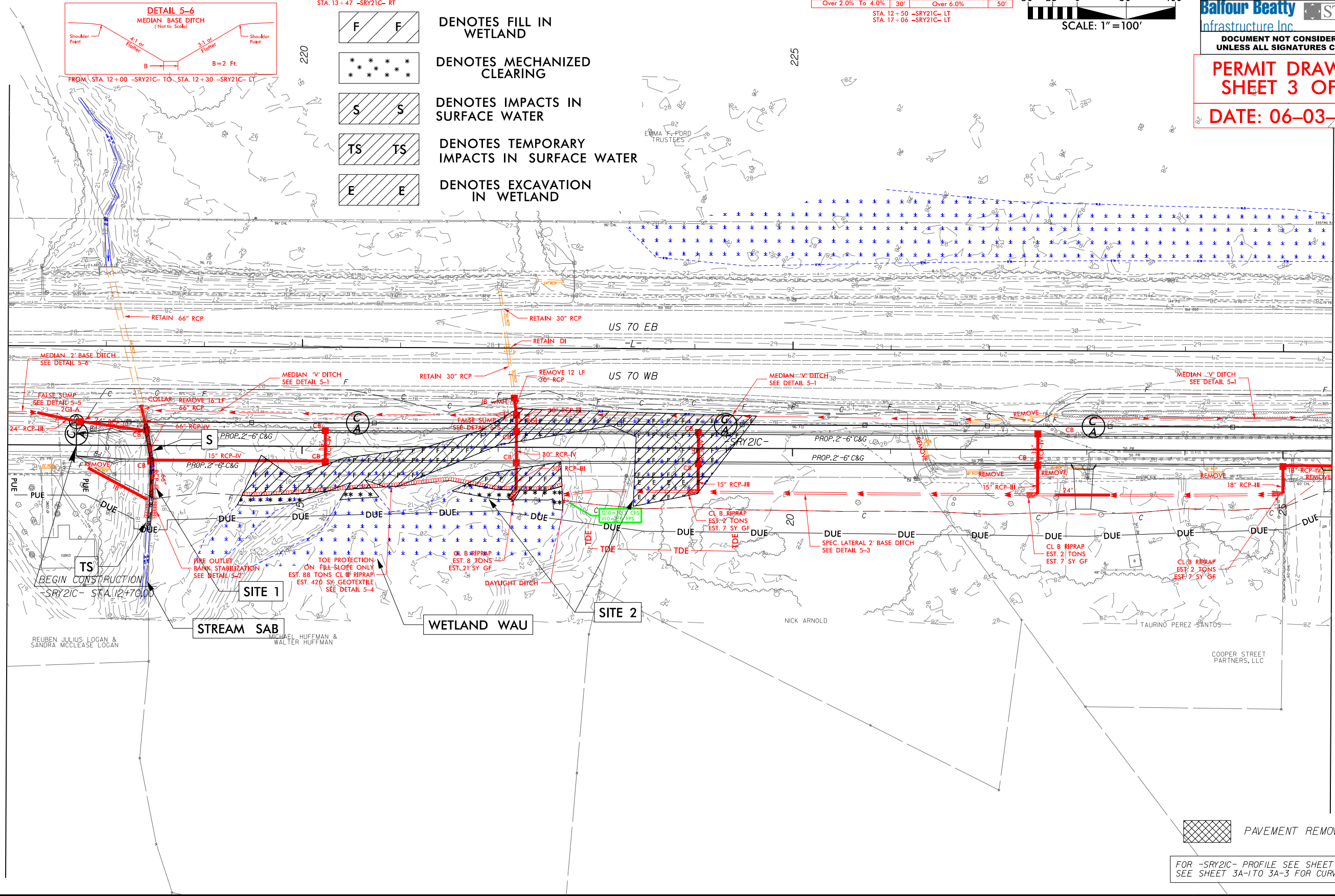
DATE: 06-03-2020

MATCHLINE -L- STA 217+00 SEE SHEET 4

-SRY21C- MATCHLINE STA 25+50-L- STA 230+50 SEE SHEET 6



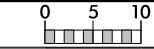
- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES EXCAVATION IN WETLAND



PAVEMENT REMOVAL

FOR -SRY21C- PROFILE SEE SHEET 68
SEE SHEET 3A-1 TO 3A-3 FOR CURVE DATA

6/23/16

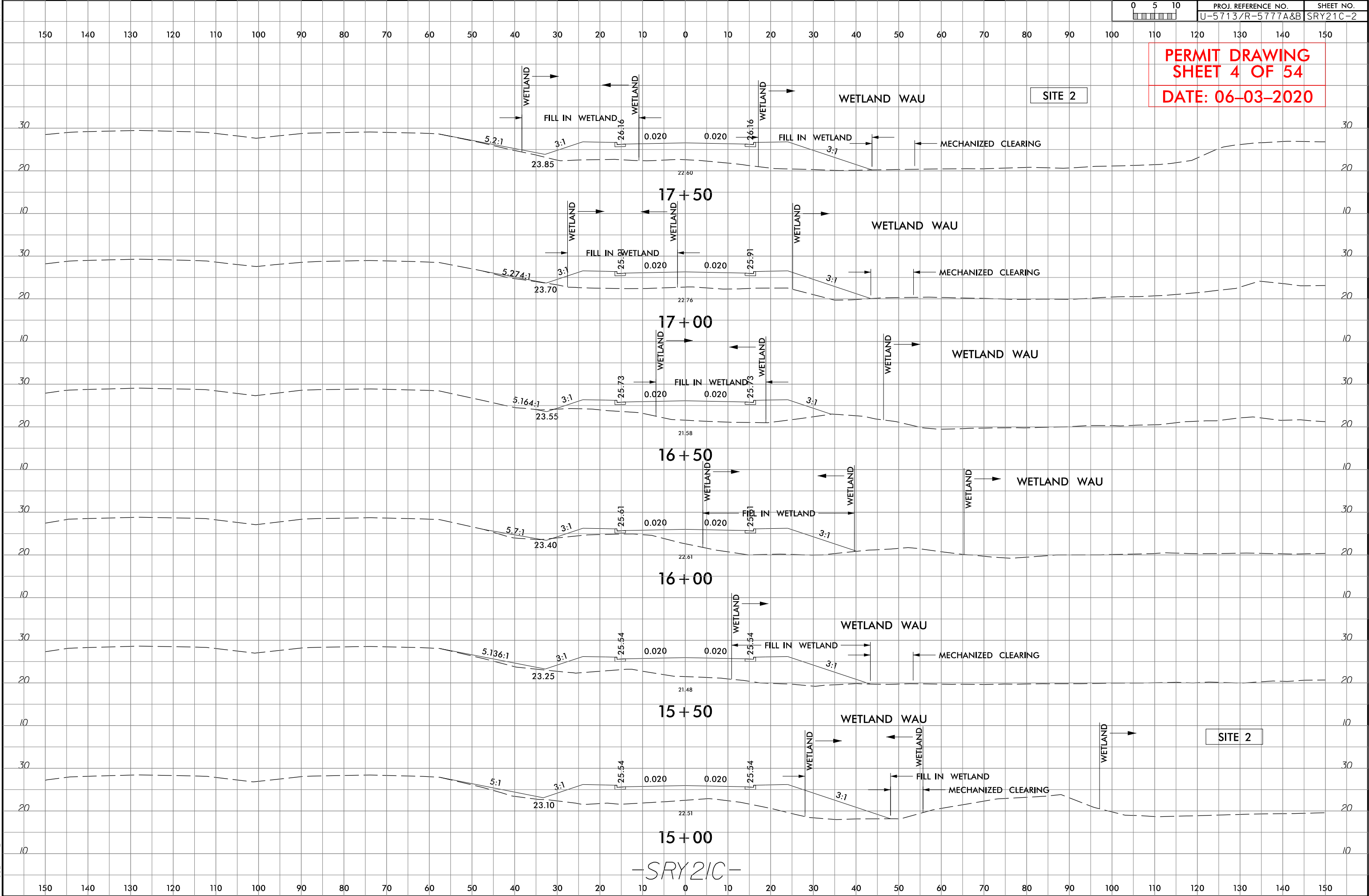


PROJ. REFERENCE NO.	SHEET NO.
U-5713/R-5777A&B	SRY21C-2

PERMIT DRAWING
SHEET 4 OF 54
DATE: 06-03-2020

SITE 2

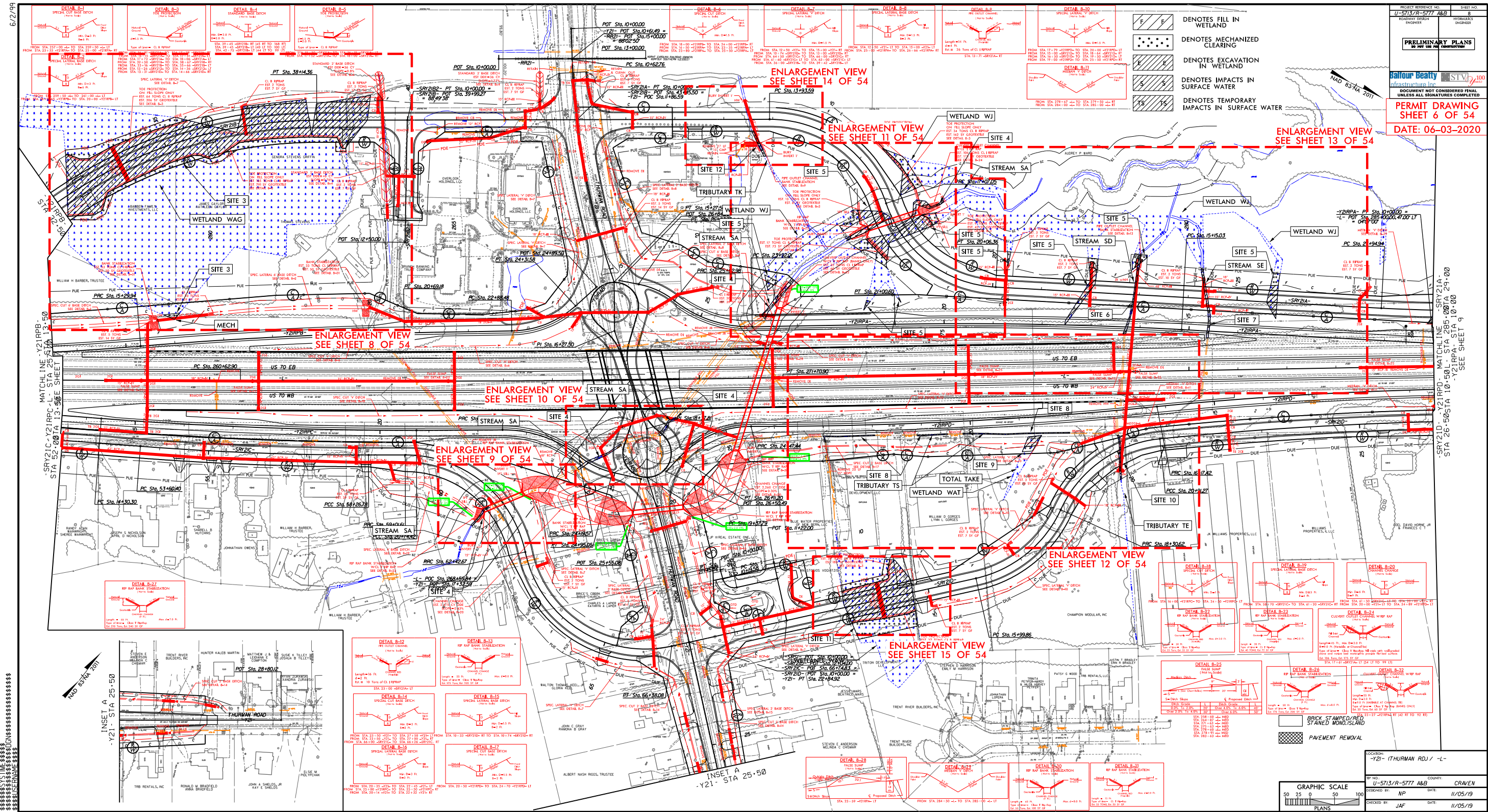
SITE 2



-SRY21C-

*****SYTIME*****
*****DRAWING*****
*****DATE*****

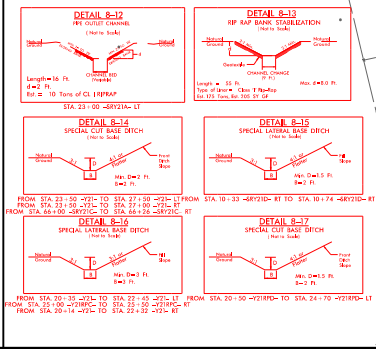
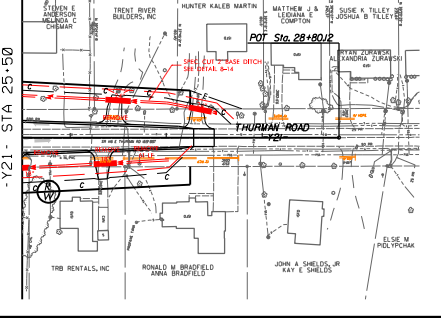
6/2/99



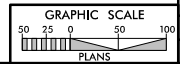
PROJECT REFERENCE NO. U-5713/R-577 A&B
SHEET NO. 6
PRELIMINARY PLANS
Balfour Beatty STV 100
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED
PERMIT DRAWING
SHEET 6 OF 54
DATE: 06-03-2020

6/2/99

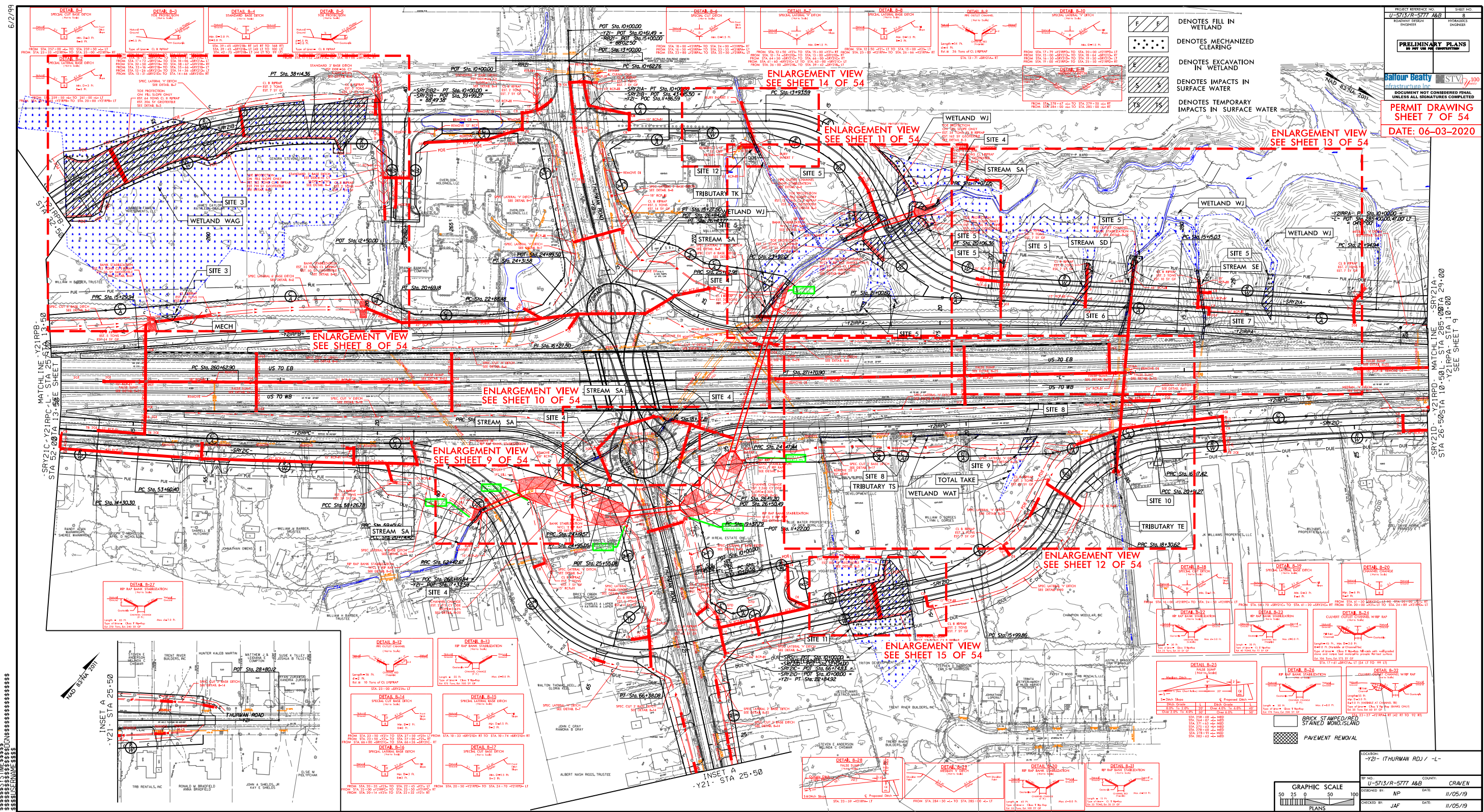
INSET A
-Y21- STA 25+50

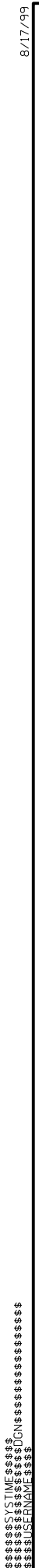


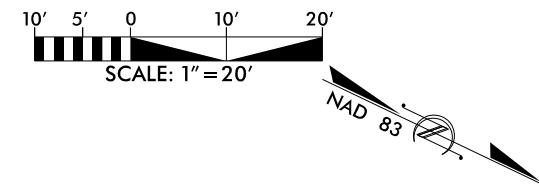
INSET A
-Y21- STA 25+50



LOCATION: -Y21- (THURMAN RD) / -L-
GRAPHIC SCALE
0 25 50 100
PLANS
DESIGNED BY: NP
CHECKED BY: JAF
DATE: 11/05/19

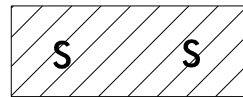




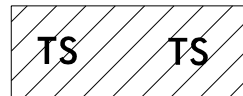


PROJECT REFERENCE NO. U-5713/R-5777 A&B	SHEET NO.
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

PERMIT DRAWING
SHEET 9 OF 54
DATE: 06-03-2020



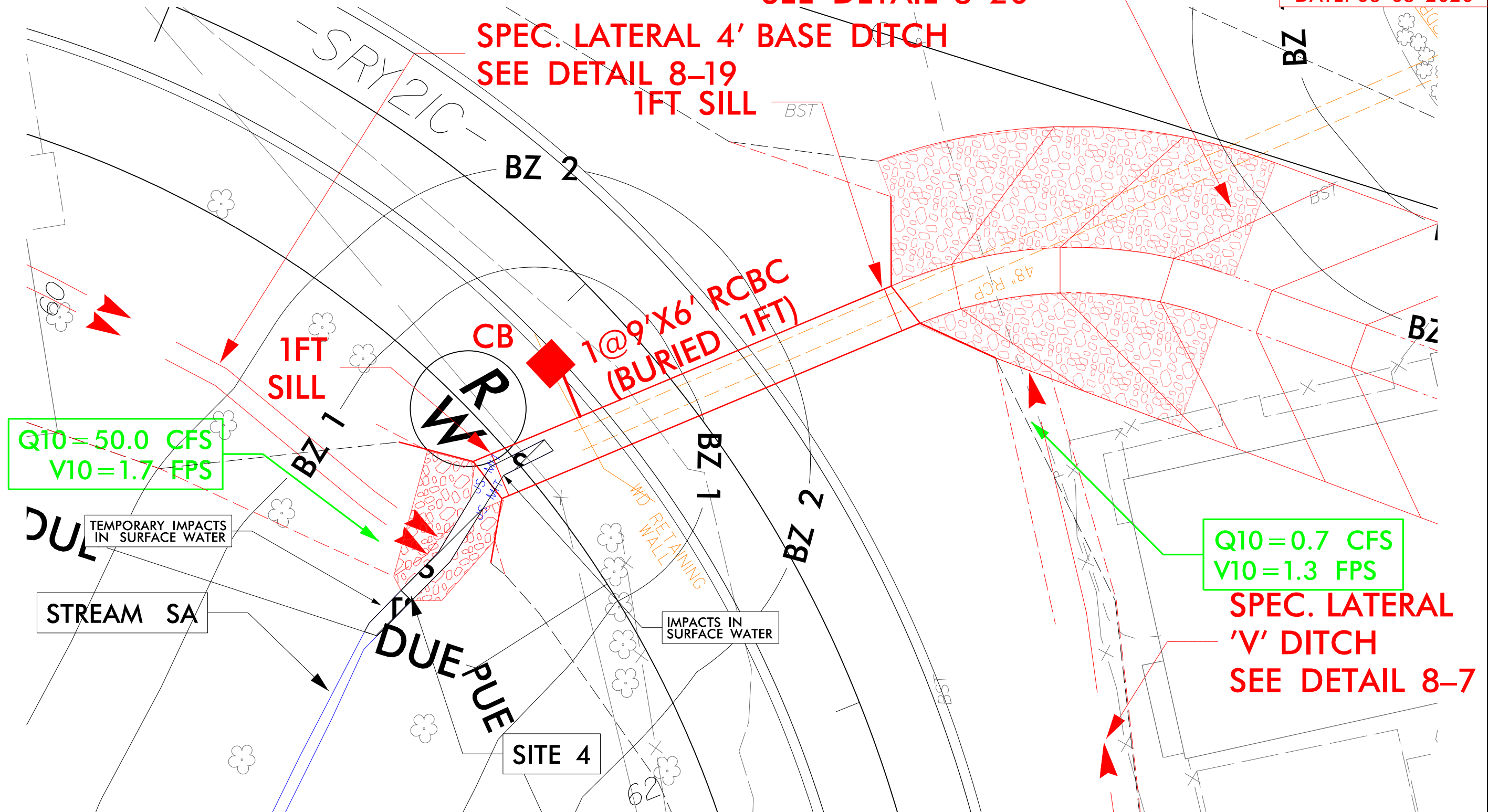
DENOTES IMPACTS IN
SURFACE WATER



DENOTES TEMPORARY
IMPACTS IN SURFACE WATER

CHANNEL CHANGE
EST. 2,475 CY DDE
SLOPE = 0.43%
SEE DETAIL 8-20

SPEC. LATERAL 4' BASE DITCH
SEE DETAIL 8-19
1FT SILL



Q10 = 50.0 CFS
V10 = 1.7 FPS

TEMPORARY IMPACTS
IN SURFACE WATER

STREAM SA

DUE PUE

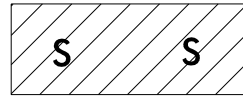
SITE 4

IMPACTS IN
SURFACE WATER

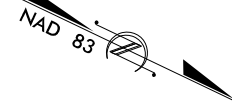
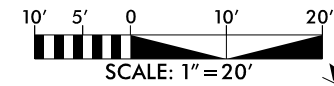
Q10 = 0.7 CFS
V10 = 1.3 FPS

SPEC. LATERAL
'V' DITCH
SEE DETAIL 8-7

8/17/99



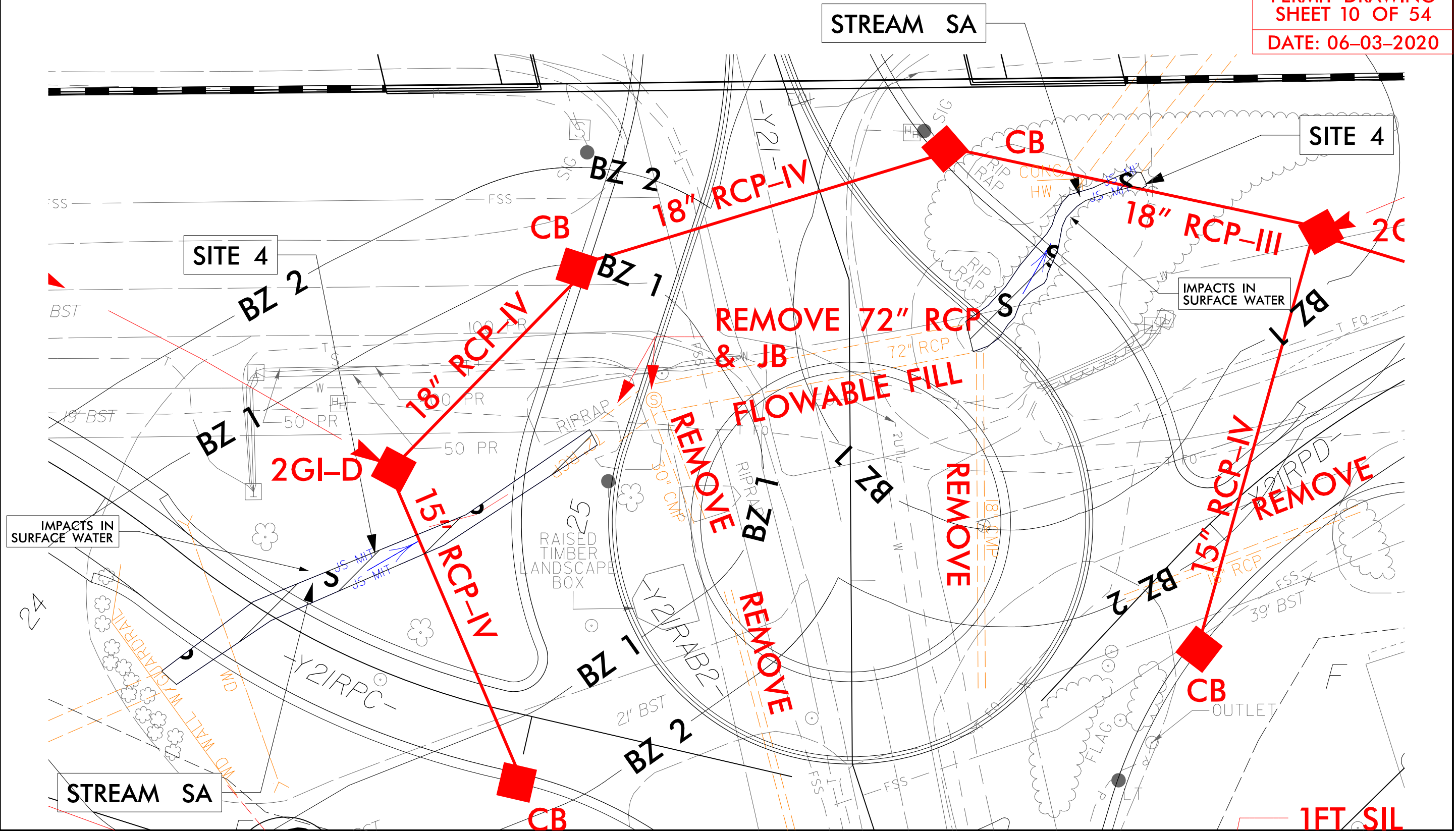
DENOTES IMPACTS IN
SURFACE WATER



PROJECT REFERENCE NO. U-5713/R-5777 A&B	SHEET NO.
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

PERMIT DRAWING
SHEET 10 OF 54

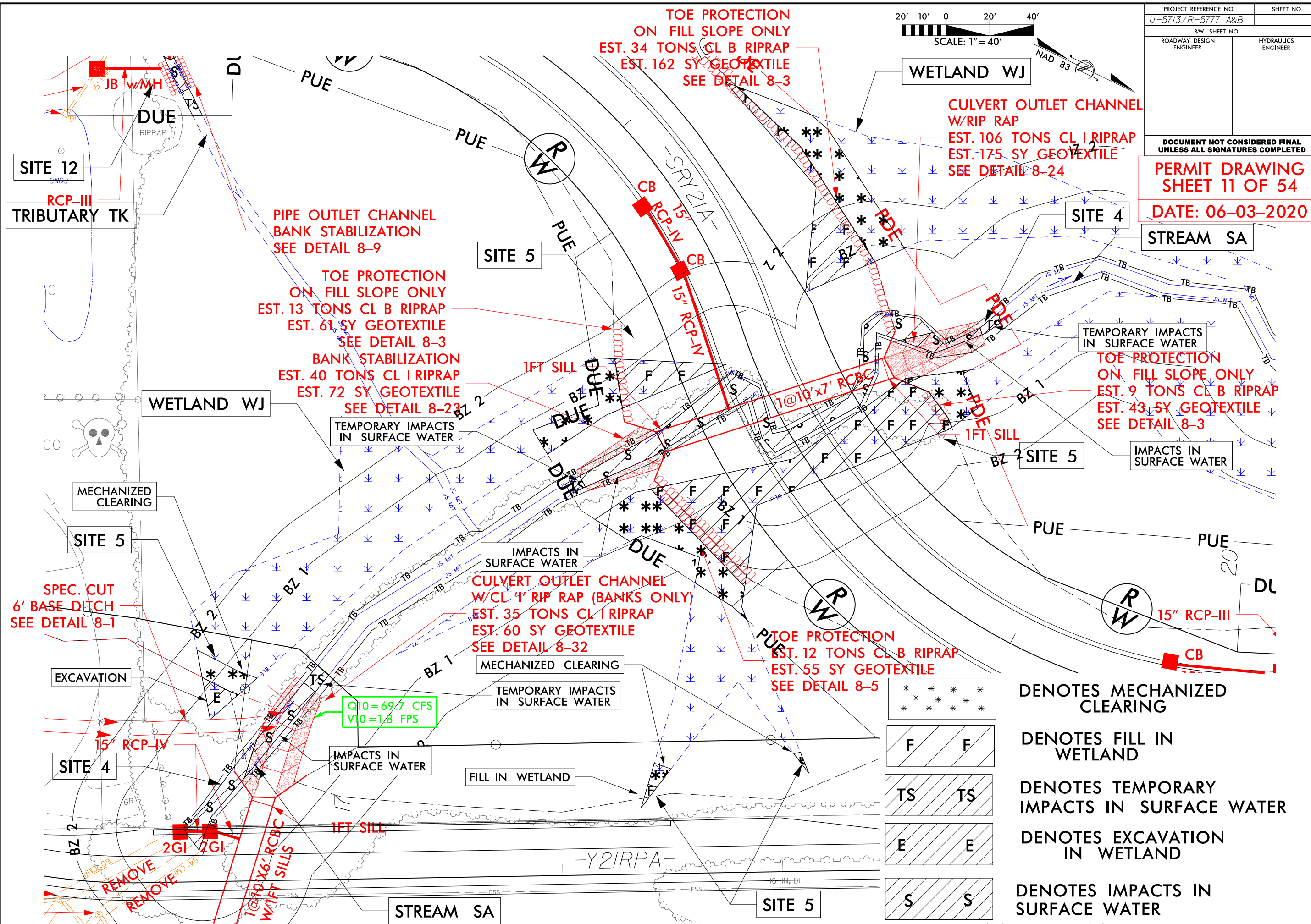
DATE: 06-03-2020



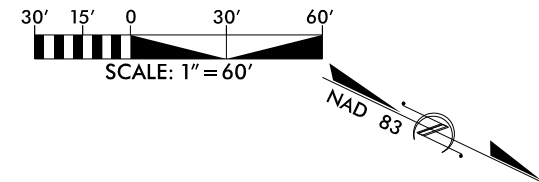
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UNLESS ALL SIGNATURES COMPLETED**

PERMIT DRAWING
SHEET 11 OF 54

DATE: 06-03-2020

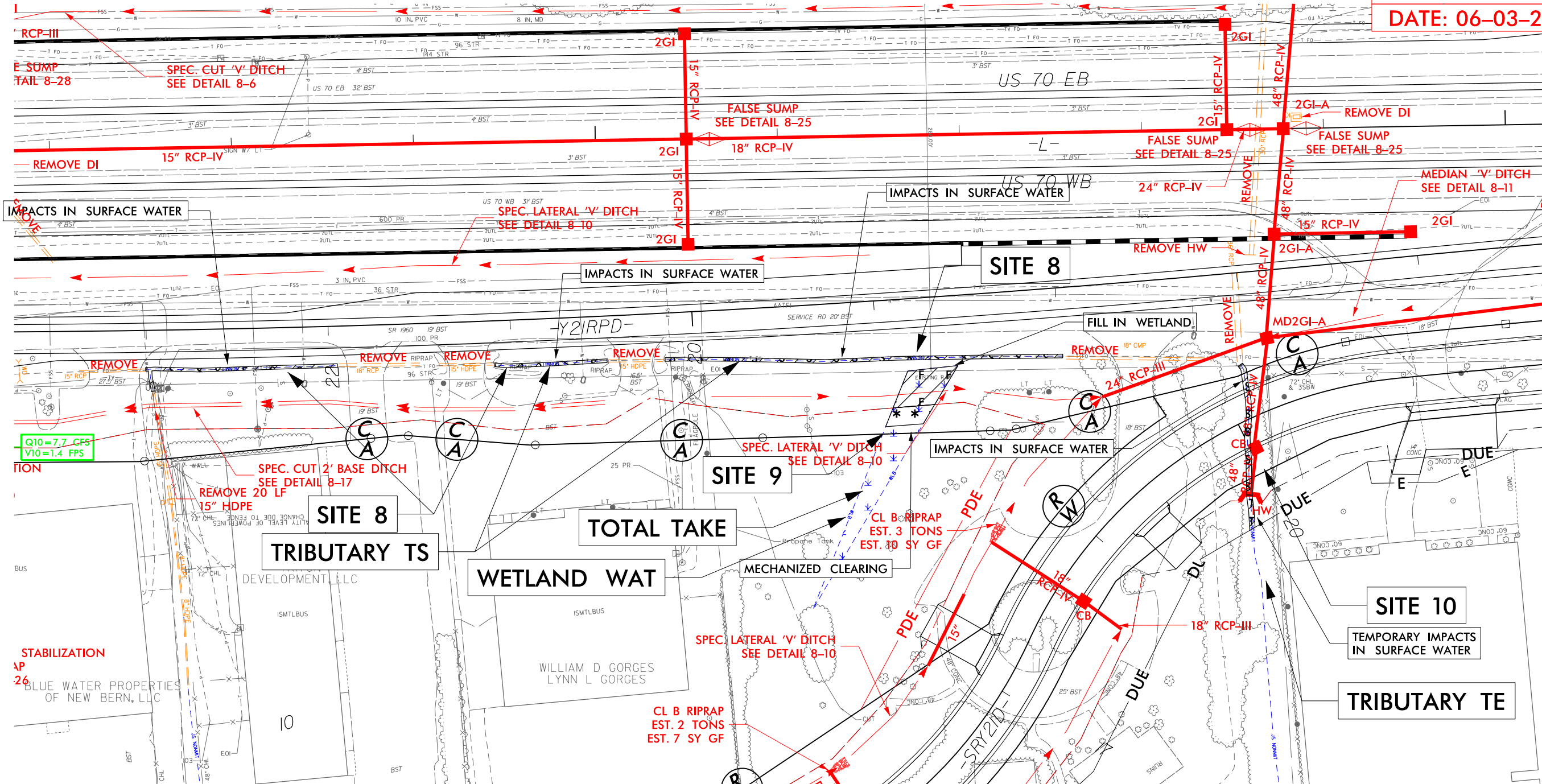


- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER



PROJECT REFERENCE NO.		SHEET NO.	
U-5713/R-5777 A&B			
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			

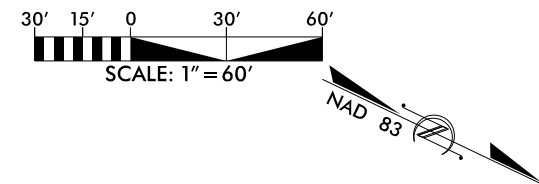
PERMIT DRAWING
SHEET 12 OF 54
DATE: 06-03-2020



8/17/99
U-5713/R-5777 A&B
SHEET 12 OF 54
DATE: 06-03-2020

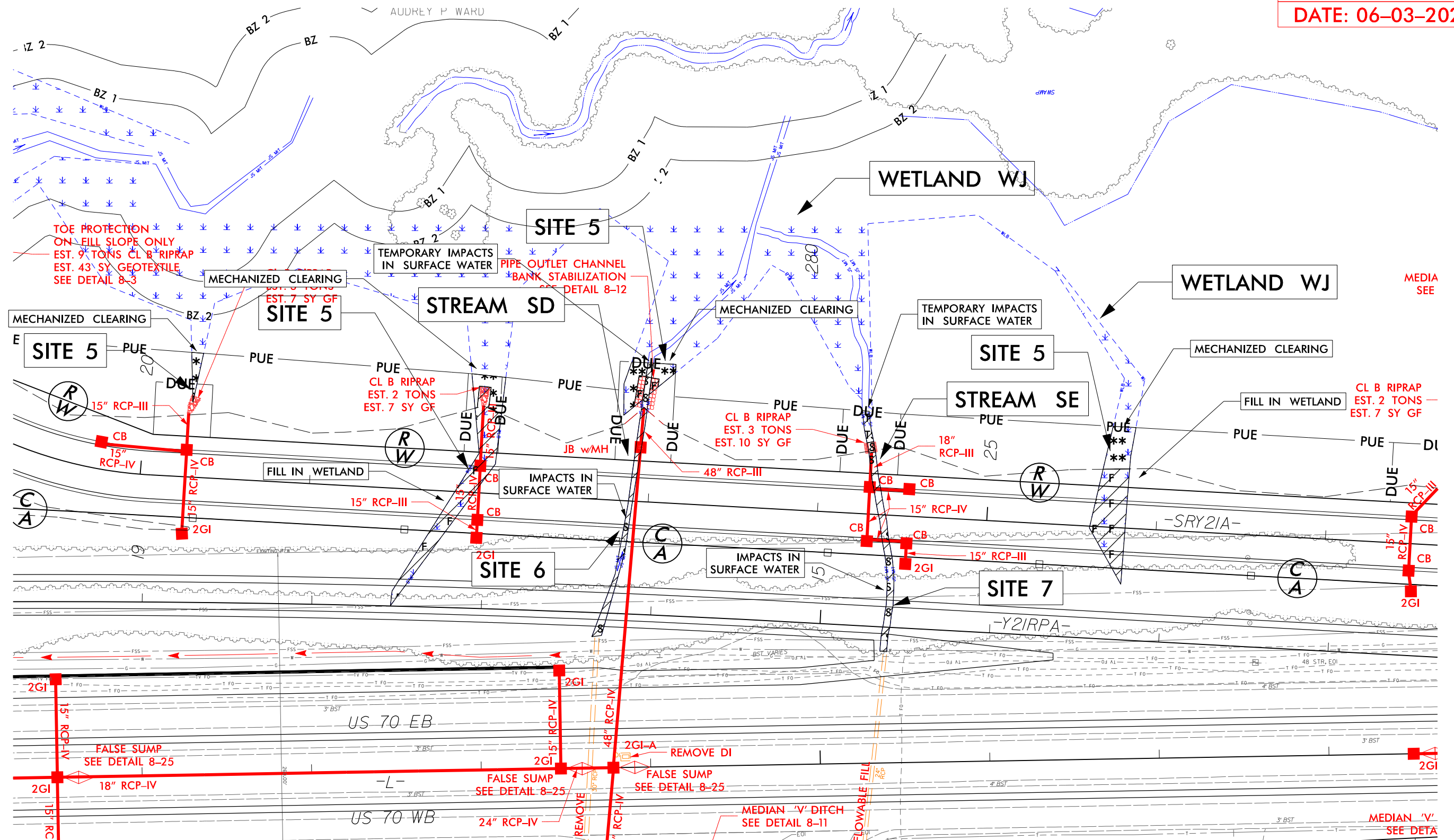
8/17/99

- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER



PROJECT REFERENCE NO. U-5713/R-5777 A&B	SHEET NO.
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

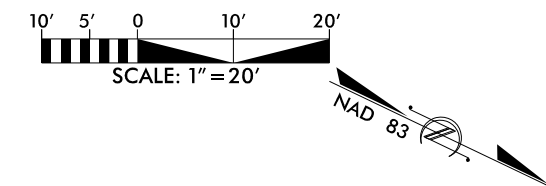
PERMIT DRAWING
SHEET 13 OF 54
DATE: 06-03-2020



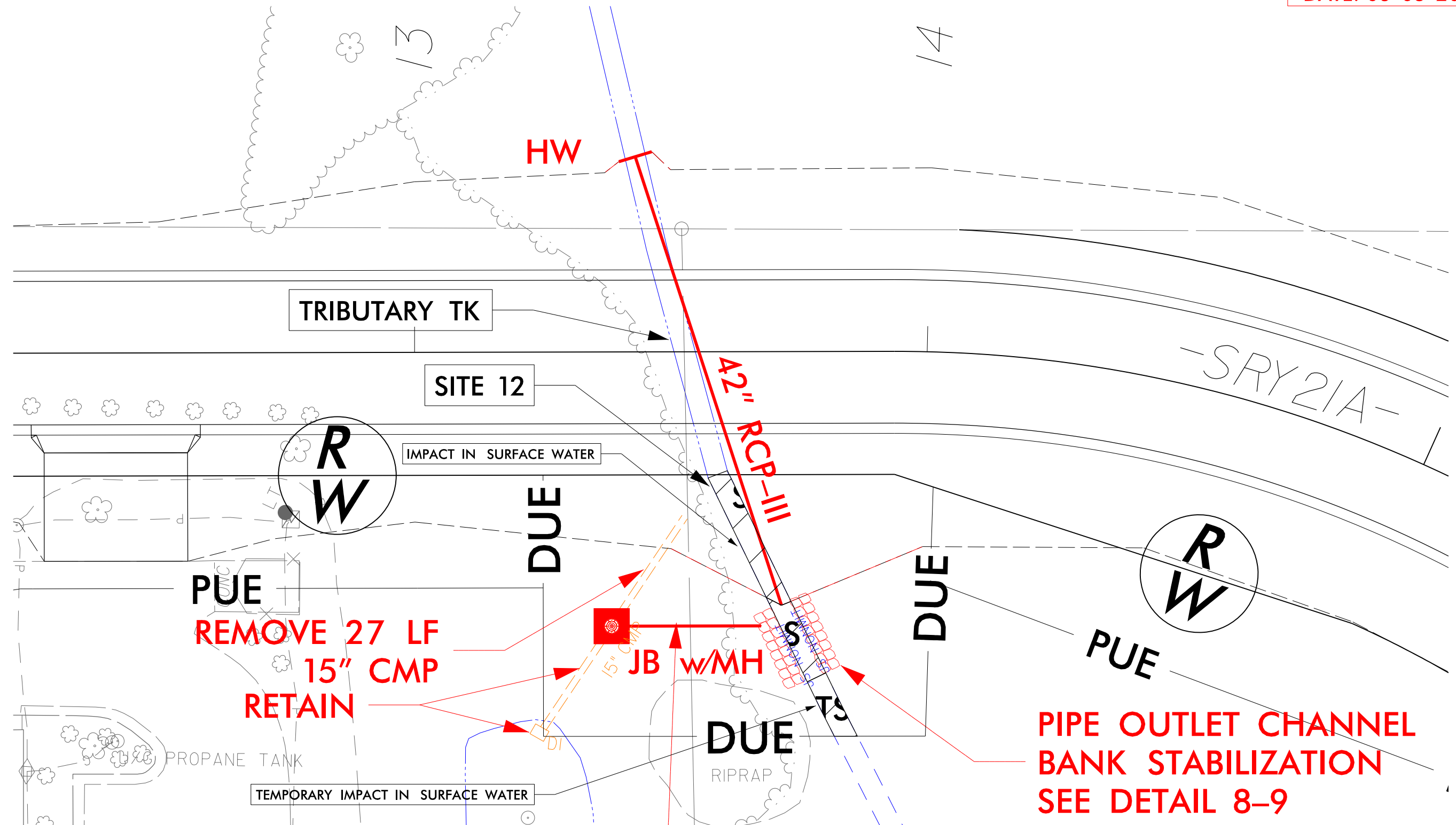
MEDIA
SEE

CL B RIPRAP
EST. 2 TONS
EST. 7 SY GF

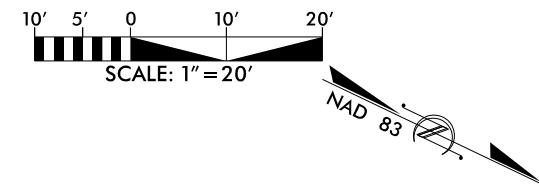
MEDIAN 'V'
SEE DETA



PERMIT DRAWING
SHEET 14 OF 54
DATE: 06-03-2020



8/17/99

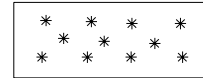


PROJECT REFERENCE NO. U-5713/R-5777 A&B	SHEET NO.
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

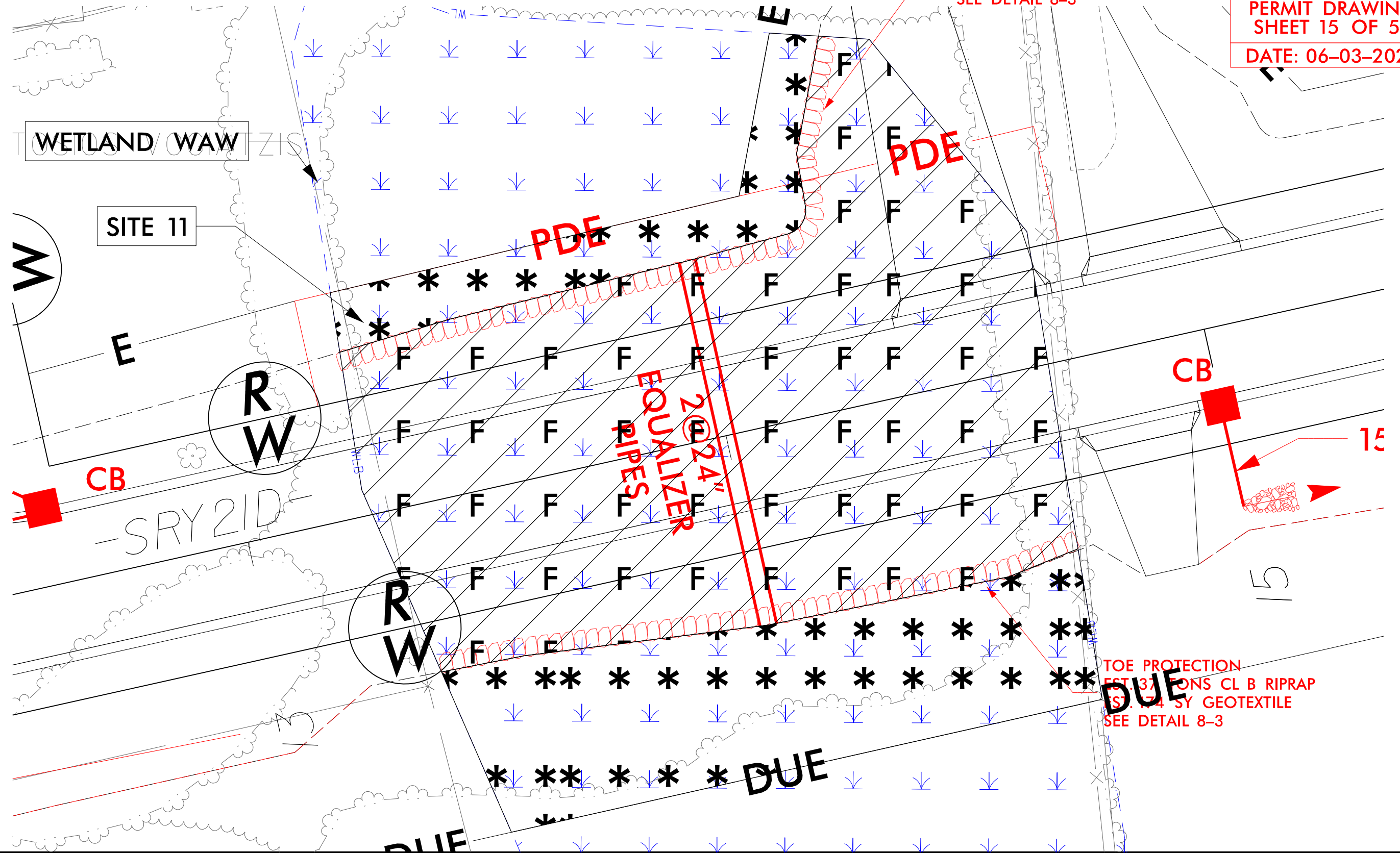
PERMIT DRAWING
SHEET 15 OF 54
DATE: 06-03-2020



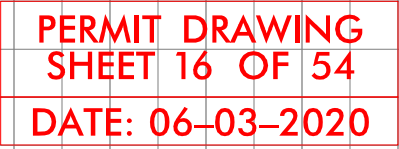
DENOTES FILL IN
WETLAND

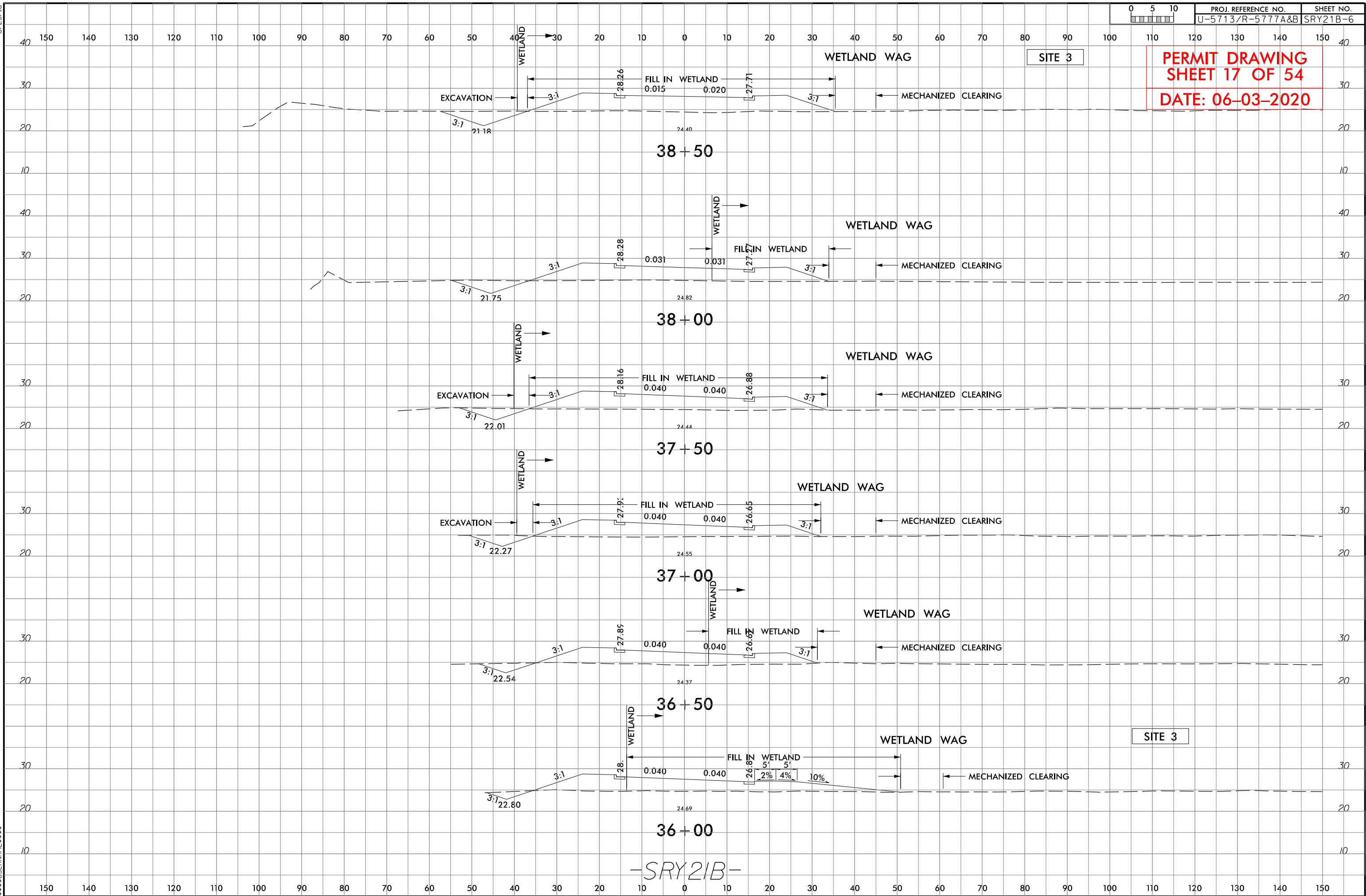


DENOTES MECHANIZED
CLEARING

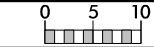


8/17/99





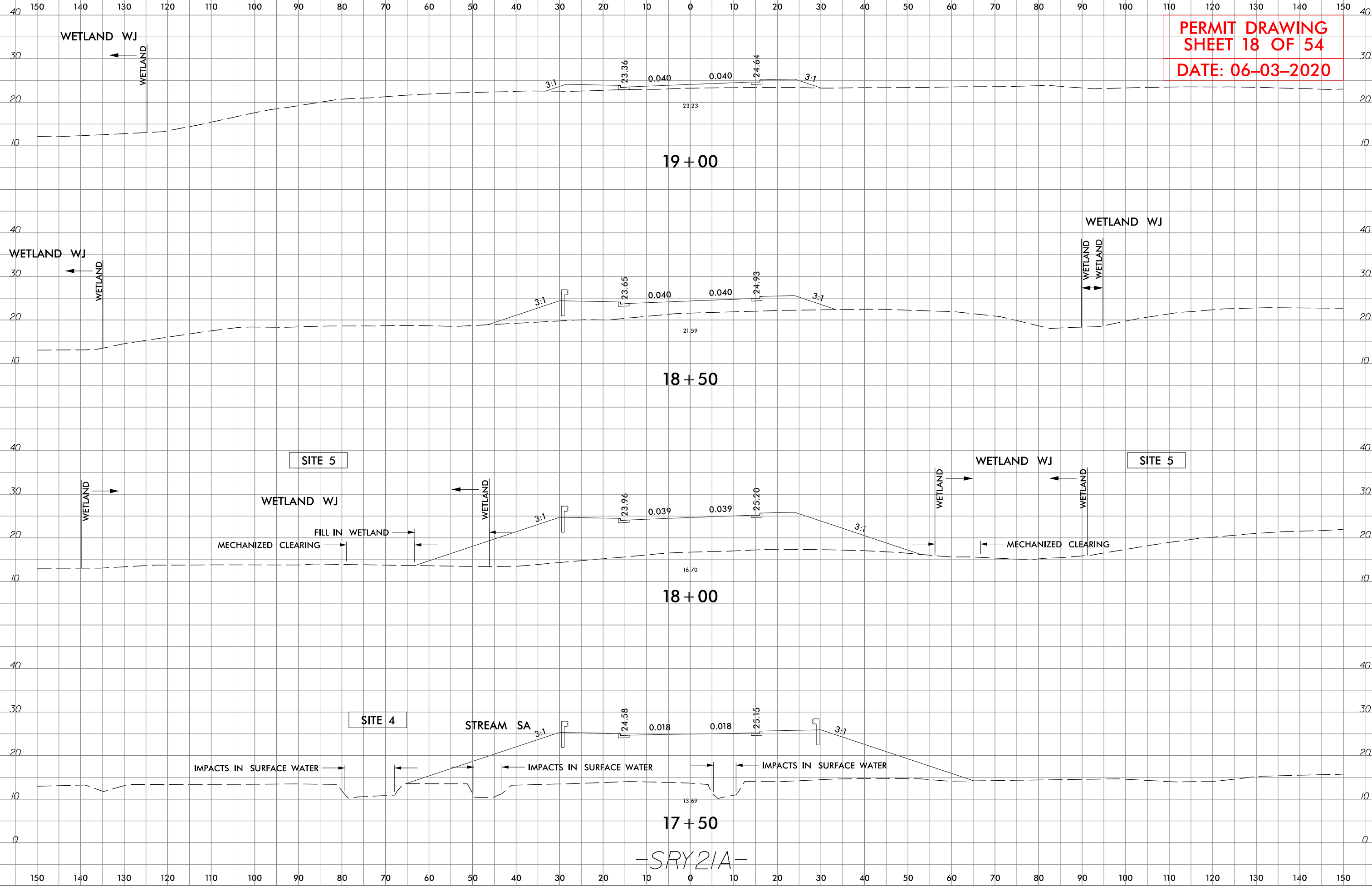
6/23/16



PROJ. REFERENCE NO.
U-5713/R-5777A&B

SHEET NO.
SRY21A-4

PERMIT DRAWING
SHEET 18 OF 54
DATE: 06-03-2020



6/23/16

PERMIT DRAWING
SHEET 19 OF 54
DATE: 06-03-2020

SITE 5

WETLAND

WETLAND WJ

MECHANIZED CLEARING

WETLAND

FILL IN WETLAND

3:1

21.49

0.020

0.020

21.49

3:1

s.p. 806
EL=18.58

15.41

23+00

3:1

21.69

0.020

0.020

21.69

3:1

s.p. 808
EL=18.75

19.80

22+50

WETLAND WJ

SITE 5

MECHANIZED CLEARING

FILL IN WETLAND

3:1

21.95

0.020

0.020

21.95

3:1

s.p. 810
EL=18.94

15.28

22+00

WETLAND WJ

WETLAND

3:1

22.24

0.020

0.020

22.24

3:1

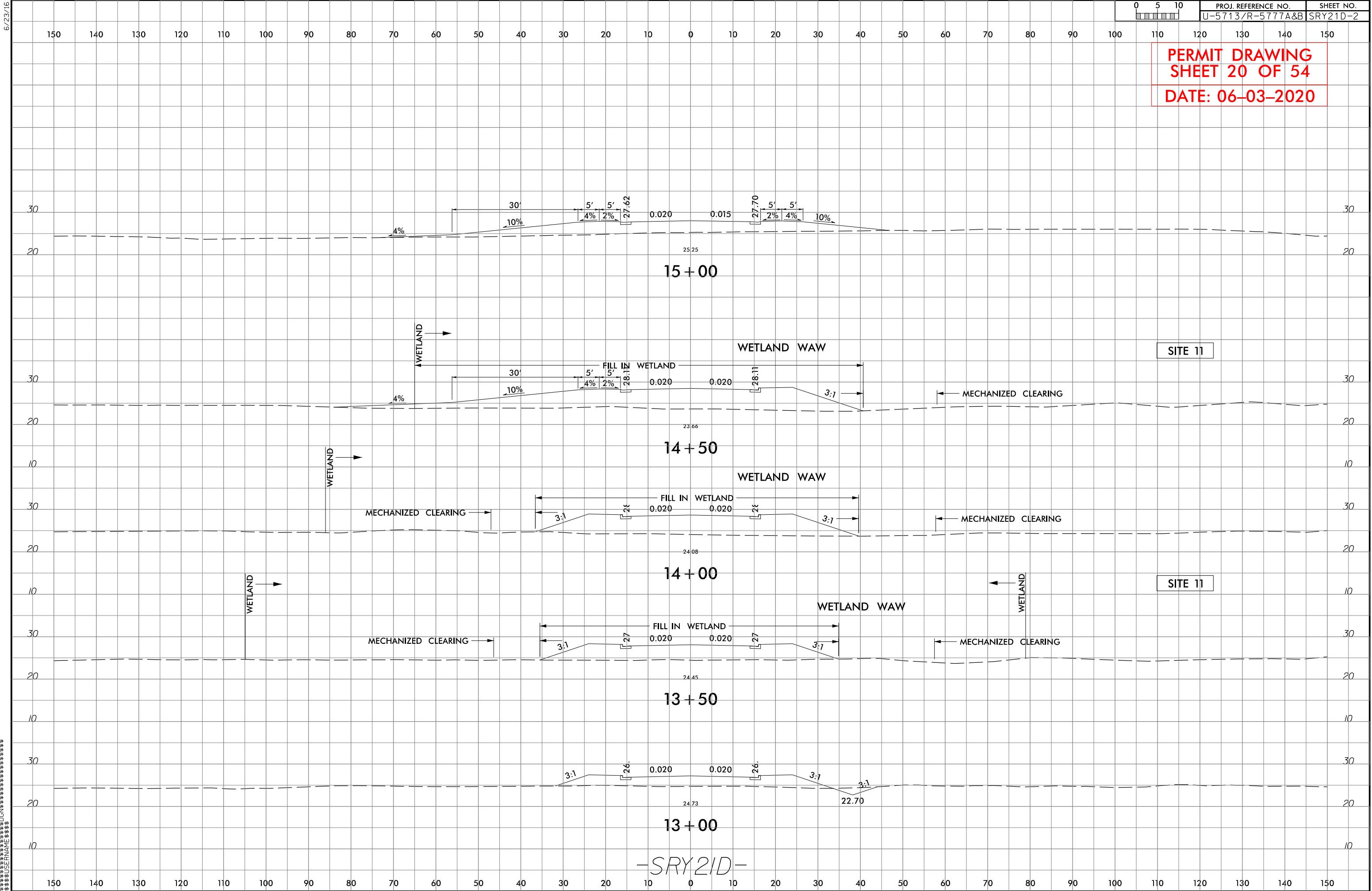
s.p. 812
EL=19.52

19.90

21+50

-SRY21A-

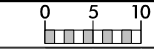
6/23/16



PERMIT DRAWING
SHEET 20 OF 54
DATE: 06-03-2020

-SRY21D-

6/23/16

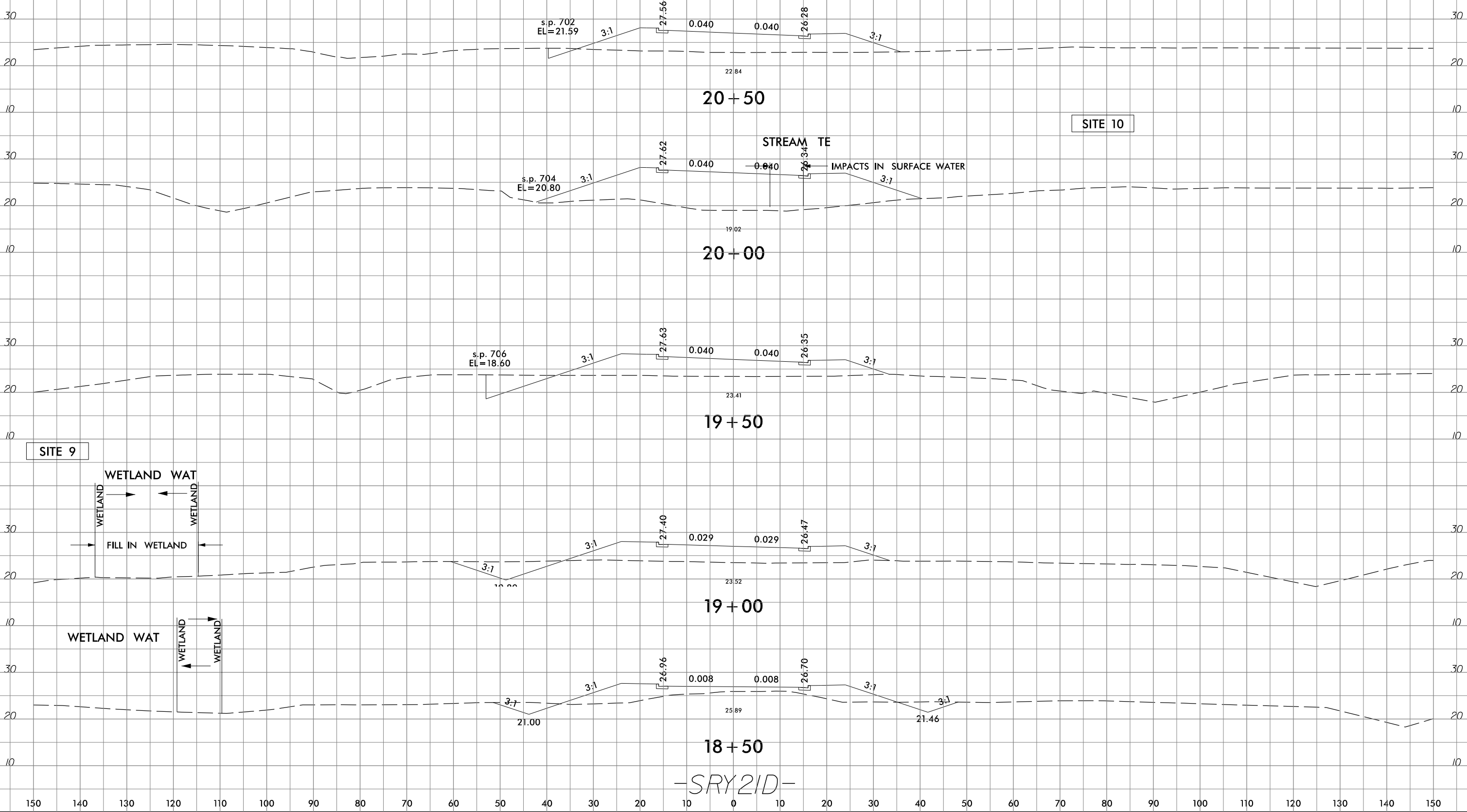


PROJ. REFERENCE NO.
U-5713/R-5777A&B

SHEET NO.
SRY21D-4

PERMIT DRAWING
SHEET 21 OF 54
DATE: 06-03-2020

FOR STA. 21+00 TO 38+00, SEE -L- CROSS SECTIONS



-SRY21D-

5/14/99

5/14/99

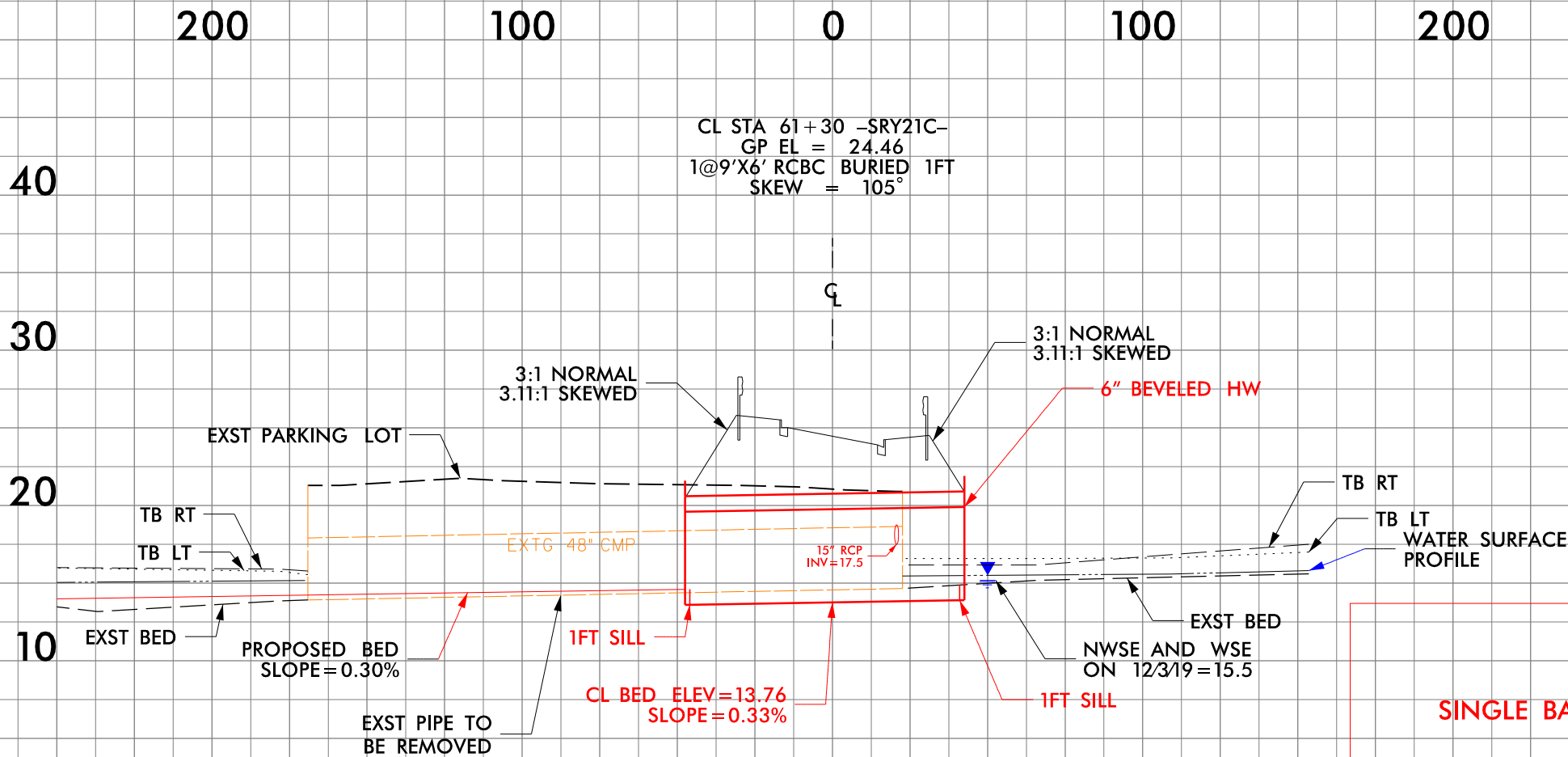
PROJECT REFERENCE NO.	SHEET NO.
U-5713/R-5777	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 22 OF 54

DATE: 06-03-2020

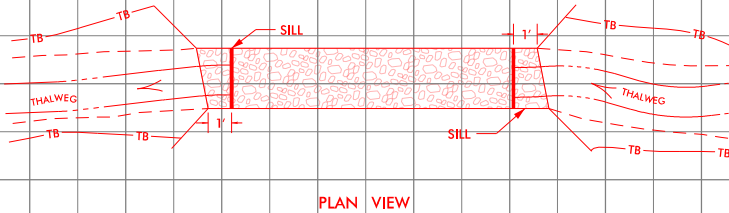
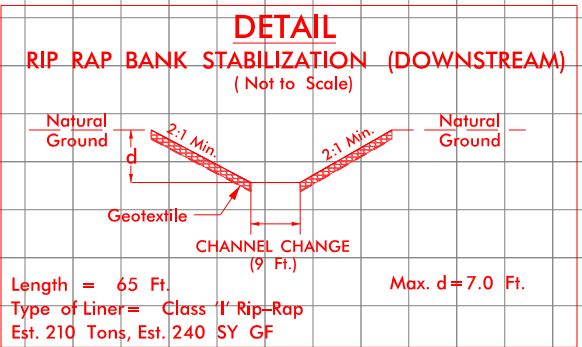
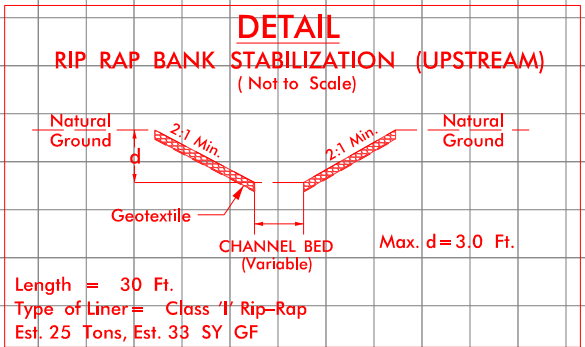
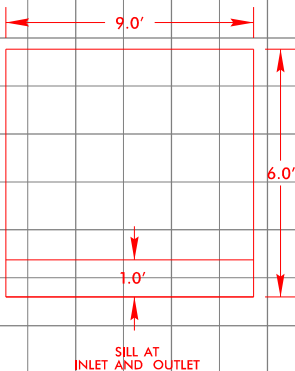
SITE 4



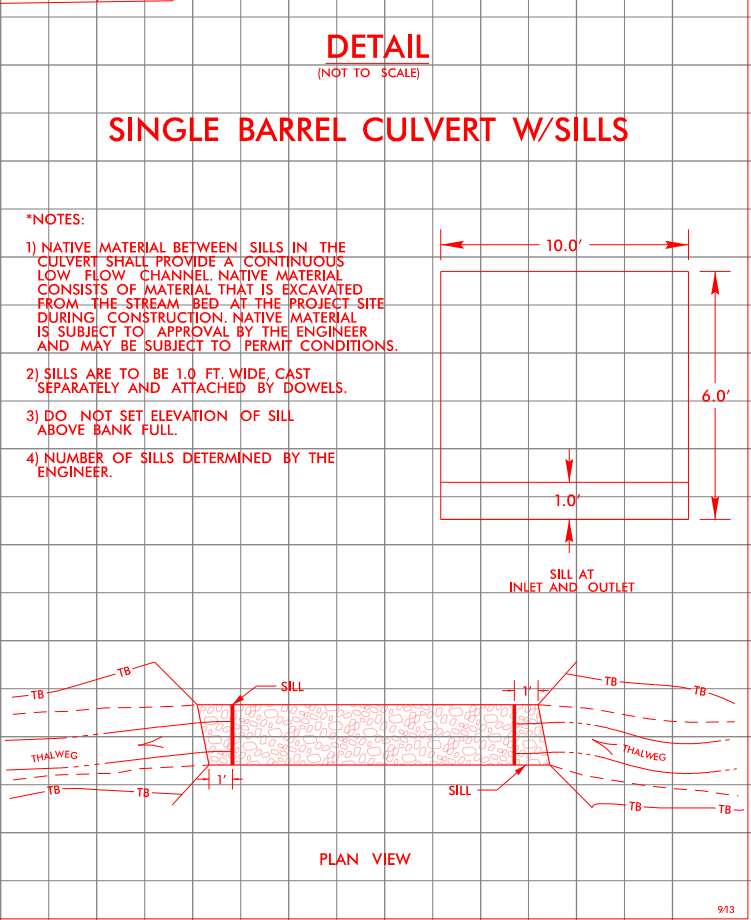
DETAIL
(NOT TO SCALE)

SINGLE BARREL CULVERT W/SILLS

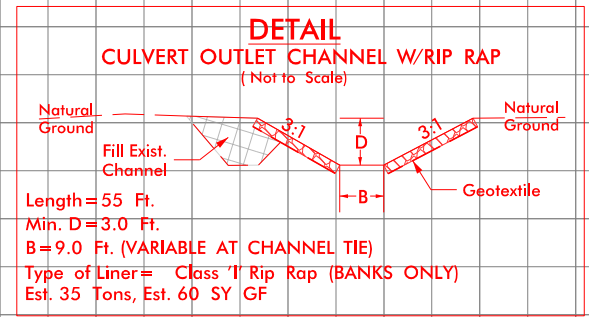
- *NOTES:
- 1) NATIVE MATERIAL BETWEEN SILLS IN THE CULVERT SHALL PROVIDE A CONTINUOUS LOW FLOW CHANNEL. NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED AT THE PROJECT SITE DURING CONSTRUCTION. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.
 - 2) SILLS ARE TO BE 1.0 FT WIDE, CAST SEPARATELY AND ATTACHED BY DOWELS.
 - 3) DO NOT SET ELEVATION OF SILL ABOVE BANK FULL.
 - 4) NUMBER OF SILLS DETERMINED BY THE ENGINEER.

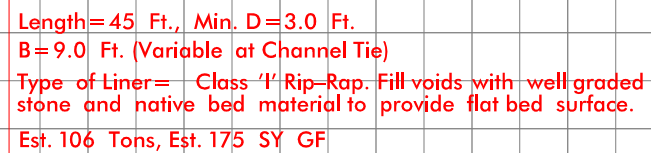


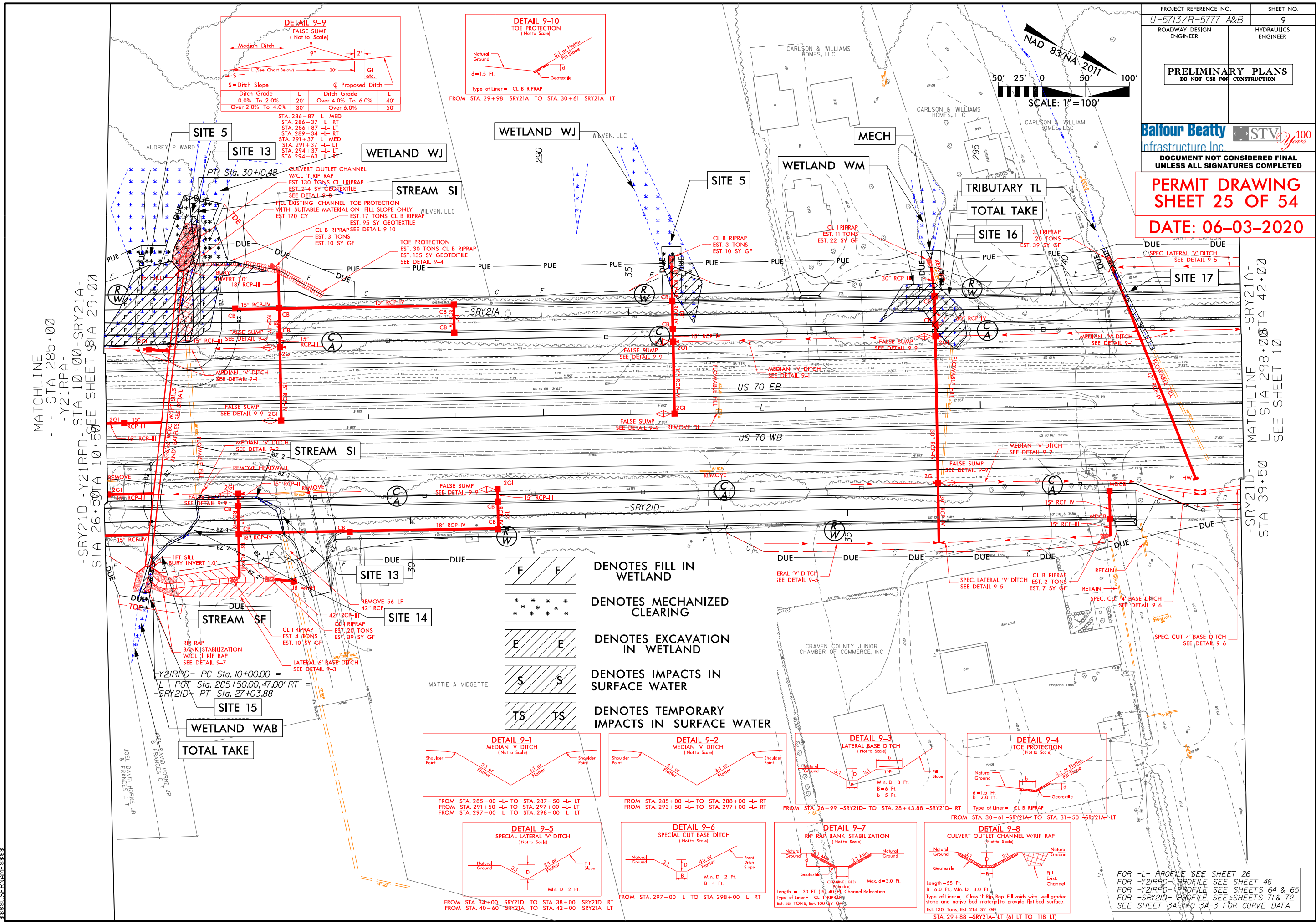
--	--	--



A diagram showing a rectangular area defined by a grid. The overall dimensions are 10.0' by 6.0'. A smaller rectangle is shown within, offset by 1.0' from the bottom edge. The offset is indicated by a dimension line labeled 1.0'.



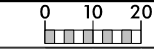




FOR -L- PROFILE SEE SHEET 26
FOR -Y21RPA- PROFILE SEE SHEET 46
FOR -Y21RPA- PROFILE SEE SHEETS 64 & 65
FOR -SRV21D- PROFILE SEE SHEETS 71 & 72
SEE SHEET 3A-30 3A-3 FOR CURVE DATA



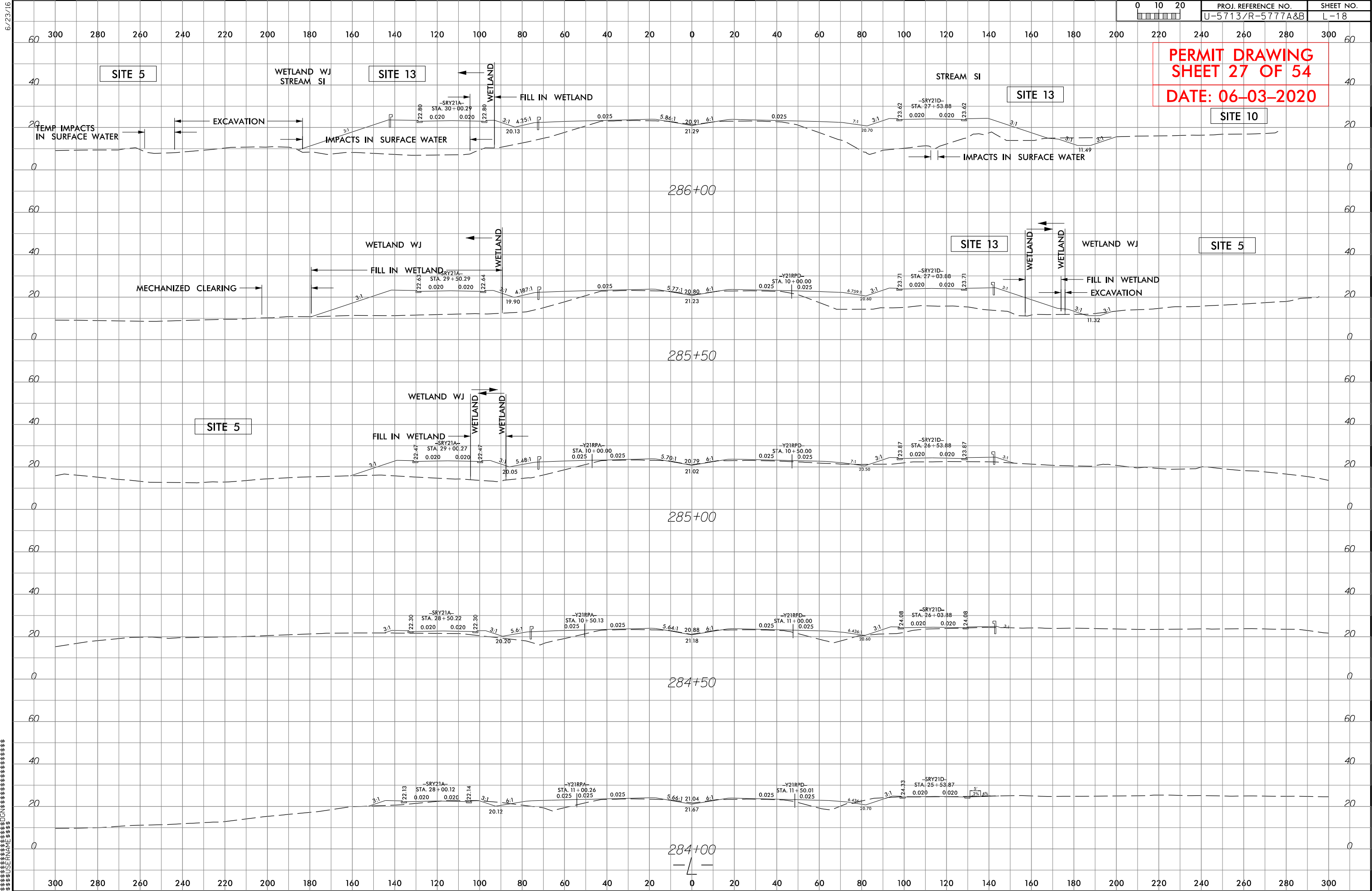
6/23/16

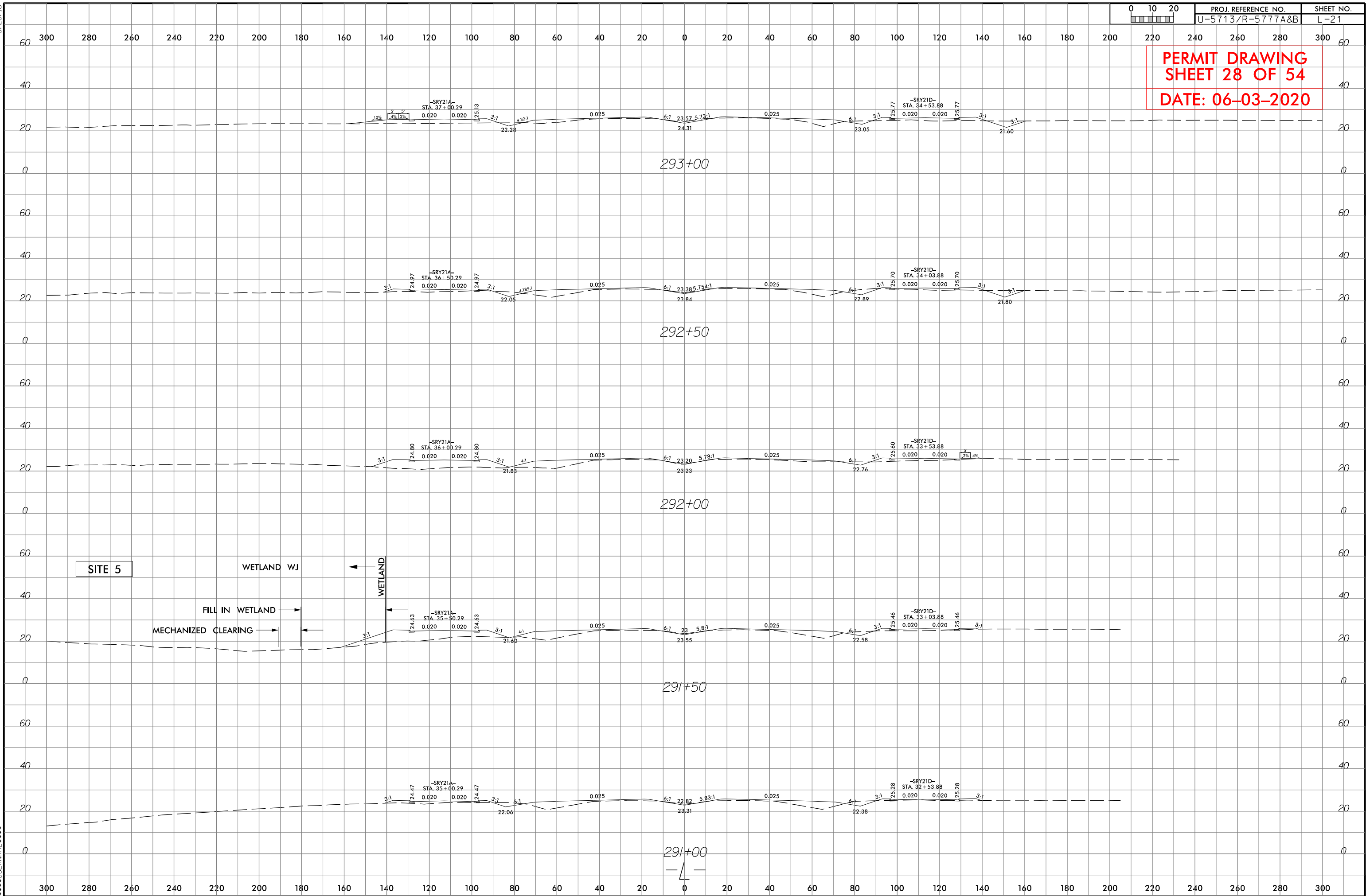


PROJ. REFERENCE NO.
U-5713/R-5777A&B

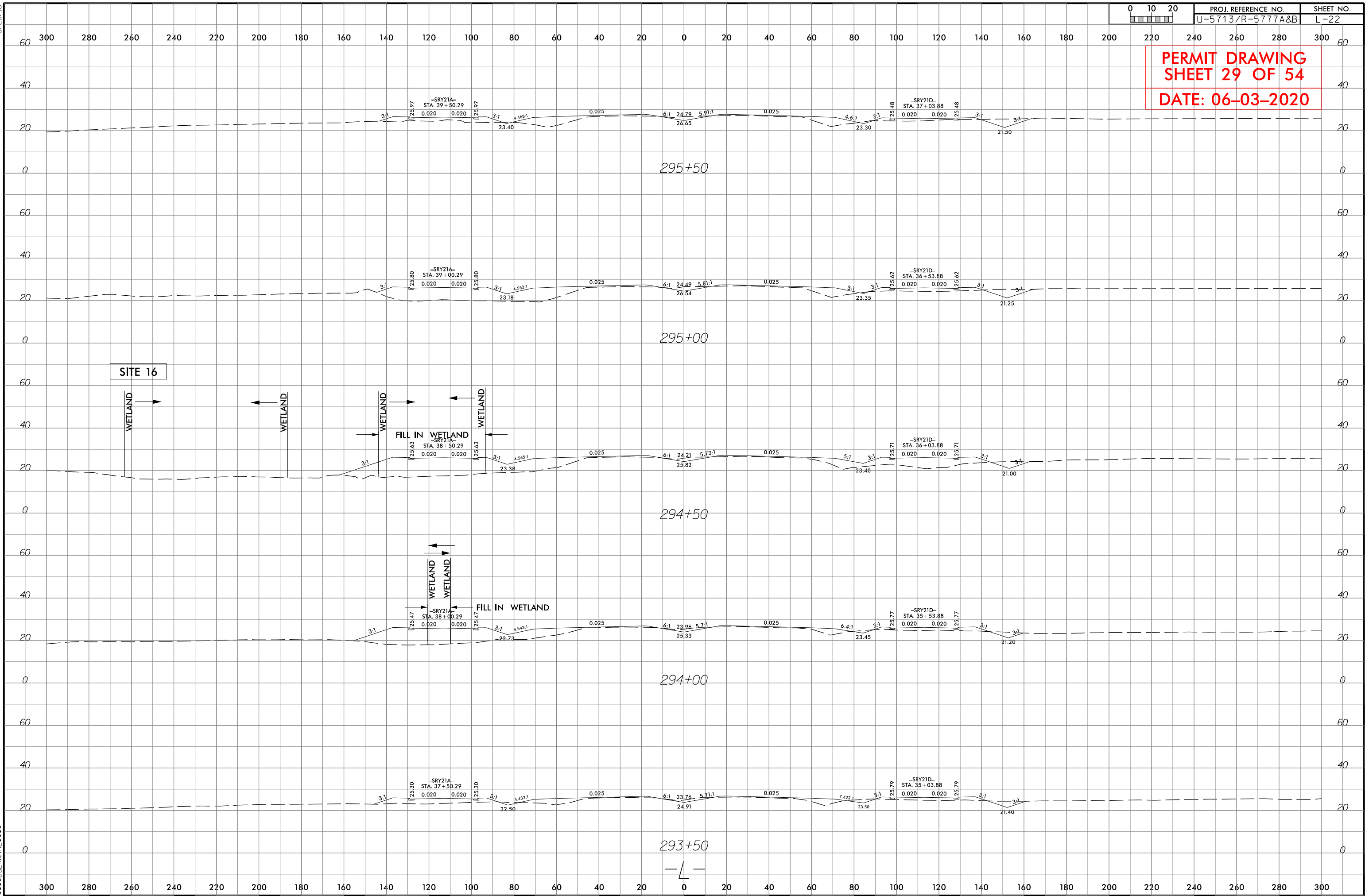
SHEET NO.
L-18

PERMIT DRAWING
SHEET 27 OF 54
DATE: 06-03-2020



[illegible]

DGN\$



5/14/99

CONSTRUCTION

U-5713/R-5777

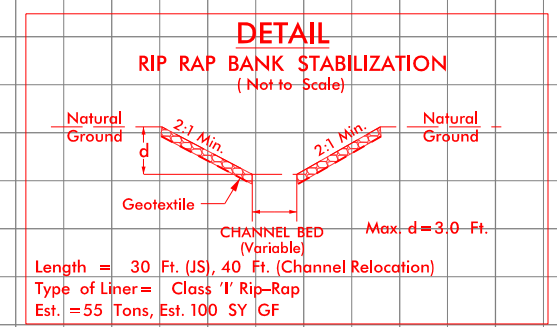
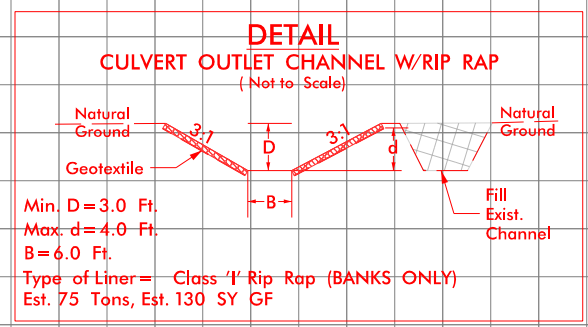
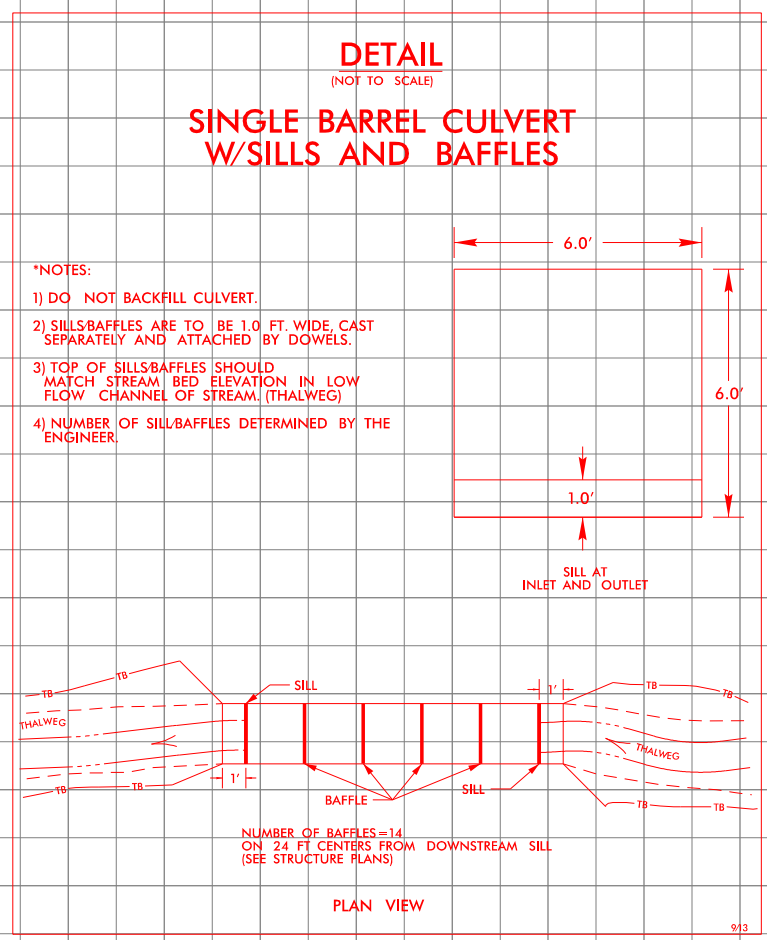
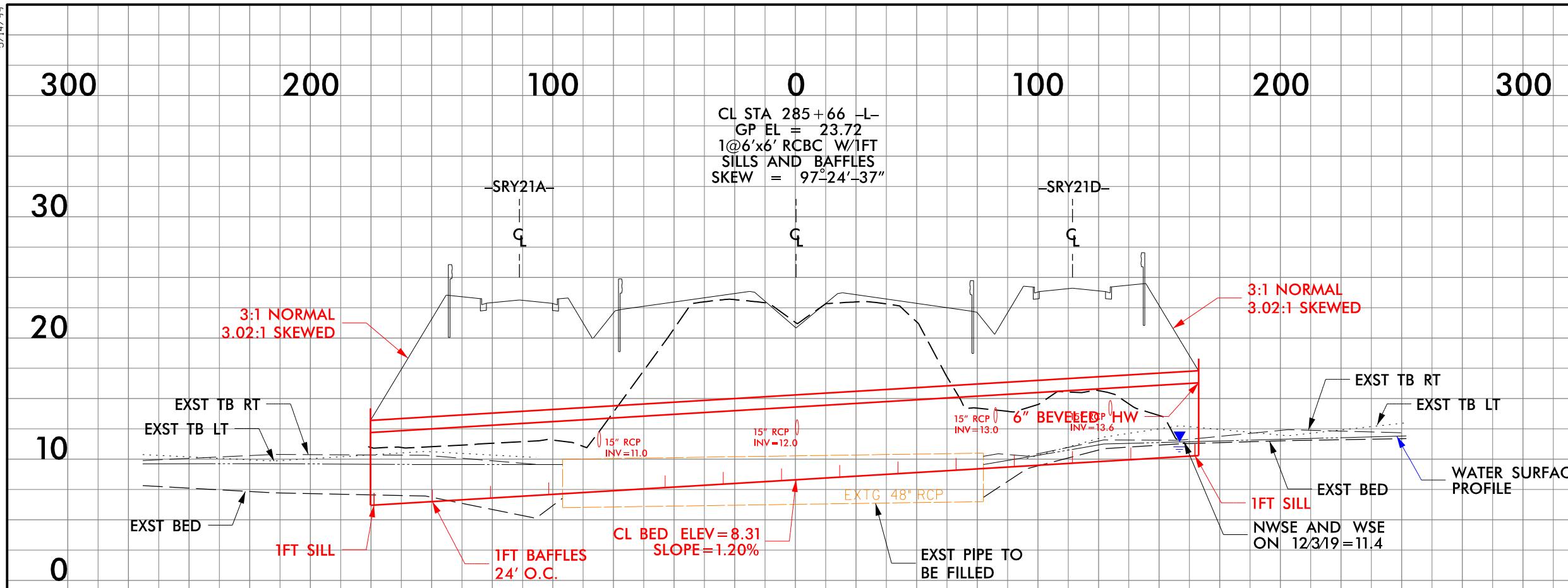
5/14/99

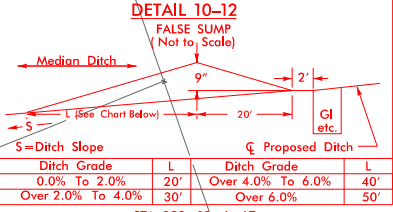
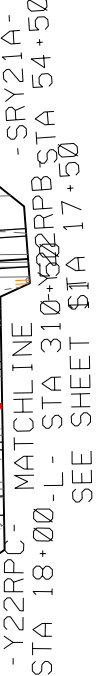
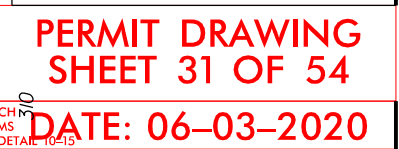
PROJECT REFERENCE NO.	SHEET NO.
U-5713/R-5777	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

PERMIT DRAWING
SHEET 30 OF 54

DATE: 06-03-2020

SITE 13





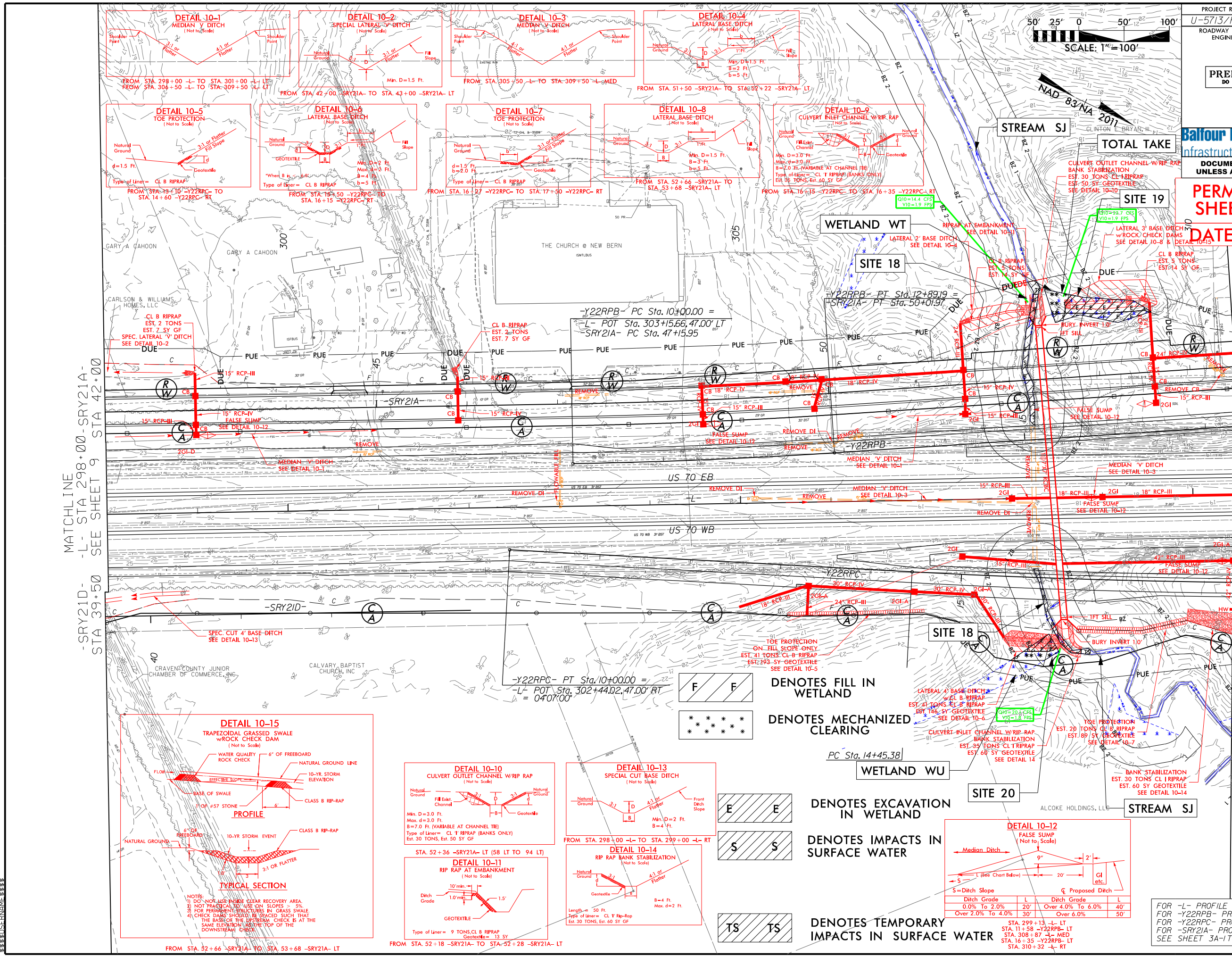
FOR -L- PROFILE SEE SHEETS 26 & 27
FOR -Y22RPB- PROFILE SEE SHEETS 49
FOR -Y22RPC- PROFILE SEE SHEETS 50
FOR -SRY2IA- PROFILE SEE SHEET 65
SEE SHEET 3A-1 TO 3A-3 FOR CURVE DATA

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Balfour Beatty
Infrastructure Inc.

STV
100 years

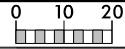
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



10' 0" 20' 0" 30' 0" 40' 0" 50' 0" 60' 0" 70' 0" 80' 0" 90' 0" 100' 0" 110' 0" 120' 0" 130' 0" 140' 0" 150' 0" 160' 0" 170' 0" 180' 0" 190' 0" 200' 0" 210' 0" 220' 0" 230' 0" 240' 0" 250' 0" 260' 0" 270' 0" 280' 0" 290' 0" 300' 0" 310' 0" 320' 0" 330' 0" 340' 0" 350' 0" 360' 0" 370' 0" 380' 0" 390' 0" 400' 0" 410' 0" 420' 0" 430' 0" 440' 0" 450' 0" 460' 0" 470' 0" 480' 0" 490' 0" 500' 0" 510' 0" 520' 0" 530' 0" 540' 0" 550' 0" 560' 0" 570' 0" 580' 0" 590' 0" 600' 0" 610' 0" 620' 0" 630' 0" 640' 0" 650' 0" 660' 0" 670' 0" 680' 0" 690' 0" 700' 0" 710' 0" 720' 0" 730' 0" 740' 0" 750' 0" 760' 0" 770' 0" 780' 0" 790' 0" 800' 0" 810' 0" 820' 0" 830' 0" 840' 0" 850' 0" 860' 0" 870' 0" 880' 0" 890' 0" 900' 0" 910' 0" 920' 0" 930' 0" 940' 0" 950' 0" 960' 0" 970' 0" 980' 0" 990' 0" 1000' 0"

FOR -L- PROFILE SEE SHEETS 26 & 27
FOR -Y22RPB- PROFILE SEE SHEETS 49
FOR -Y22RPC- PROFILE SEE SHEETS 50
FOR -SR21A- PROFILE SEE SHEET 65
SEE SHEET 3A-1 TO 3A-3 FOR CURVE DATA

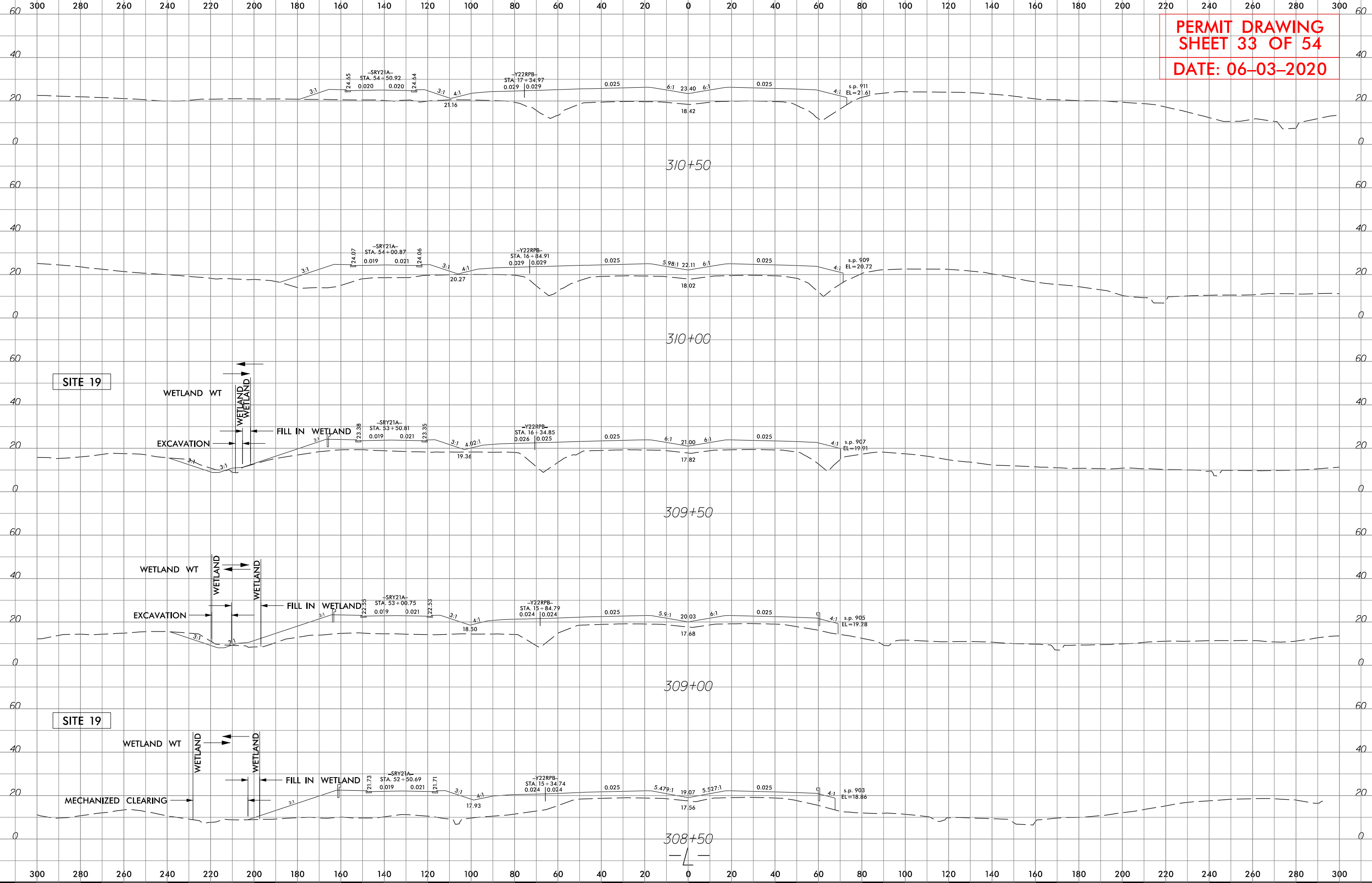
6/23/16



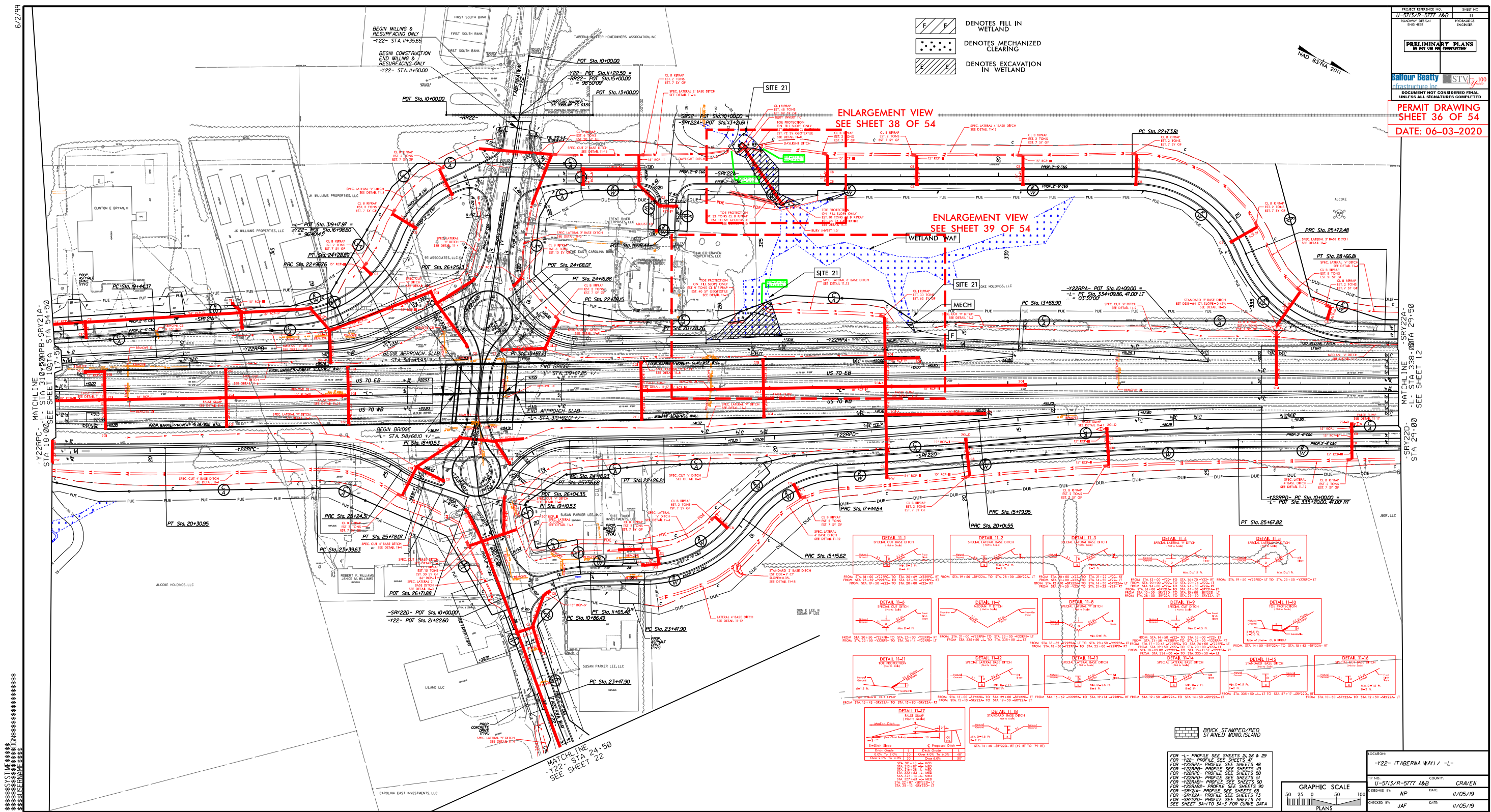
PROJ. REFERENCE NO.
U-5713/R-5777A&B

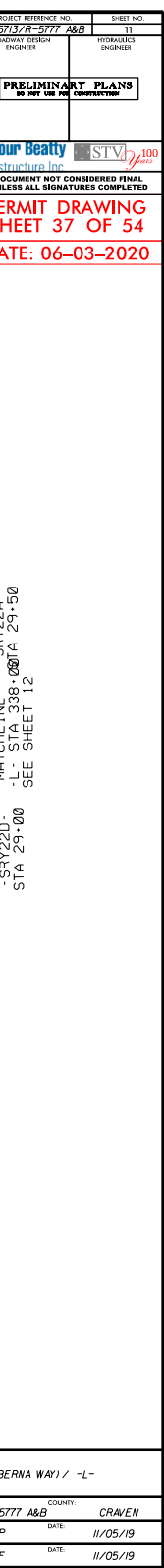
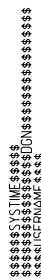
SHEET NO.
L-28

PERMIT DRAWING
SHEET 33 OF 54
DATE: 06-03-2020









PERMIT DRAWING
SHEET 38 OF 54

DATE: 06-03-2020

SPEC. LATERAL
2' BASE DITCH
SEE DETAIL 11-14

TOE PROTECTION
ON FILL SLOPE ONLY
- EST. 15 TONS CL B RIPRAP
EST. 72 SY GEOTEXTILE
SEE DETAIL 11-11

WETLAND WAF

**SPEC. LATERAL 4' BASE DITCH
SEE DETAIL 11-12**

CL B RIPRAP
EST. 2 TONS
EST. 7 SY GF

Q10=45.7 CFS
V10=1.9 FPS

— 15" RCP-III

BZ 1

BZ 2

DAYLIGHT DITCH

—SPRY22A—

PROP. 2'-6" C&O

Q10 = 14.7 CFS
V10 = 1.8 FPS

CB

— 15" RCP-IV



MECHANIZED CLEARING

PDE

DENOTES FILL IN WETLAND

TOE PROTECTION
EST. 32 TONS CL B RIPRAP
EST. 141 SY GEOTEXTILE
SEE DETAIL 11-10

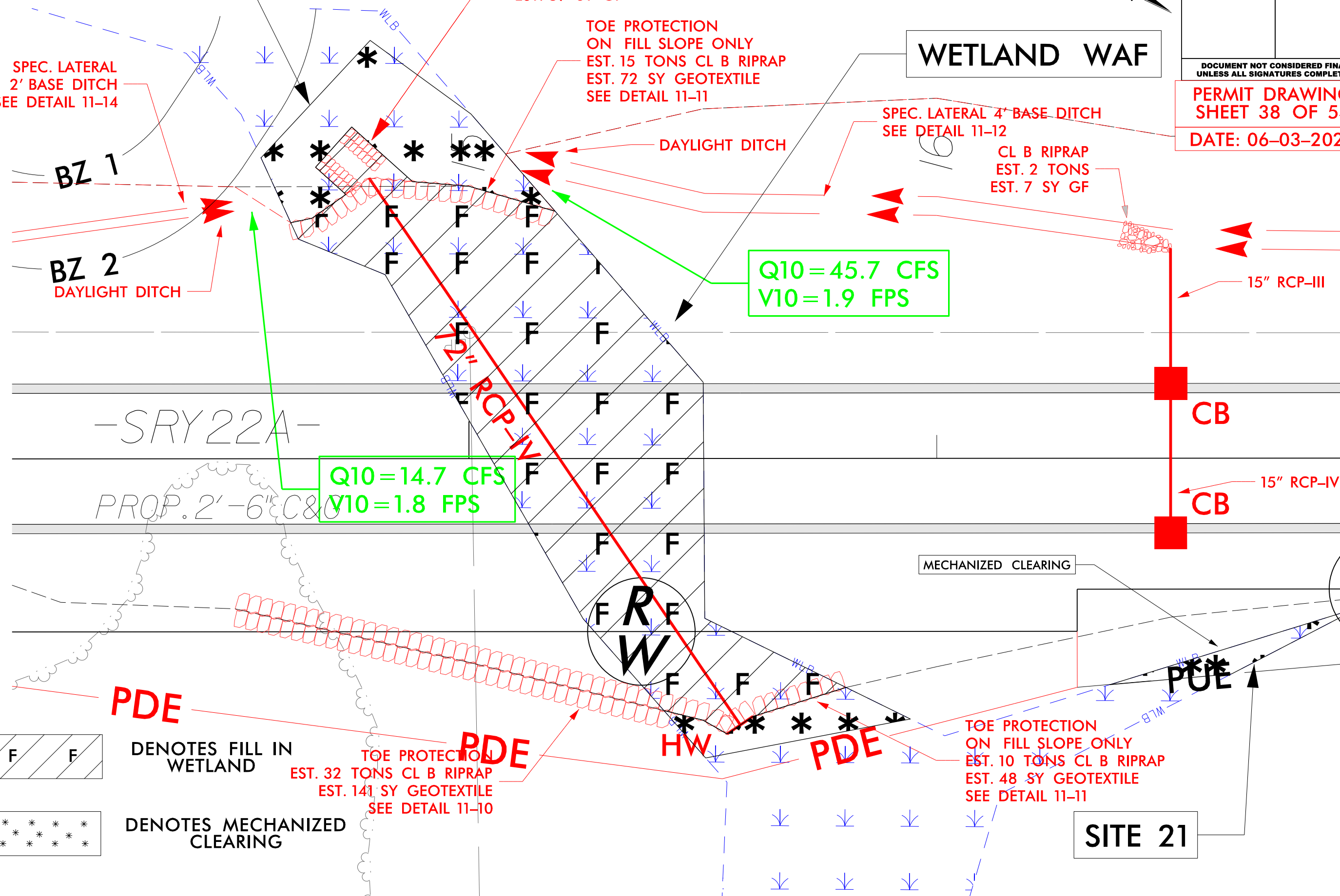
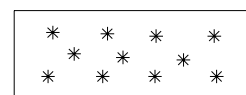
PD E



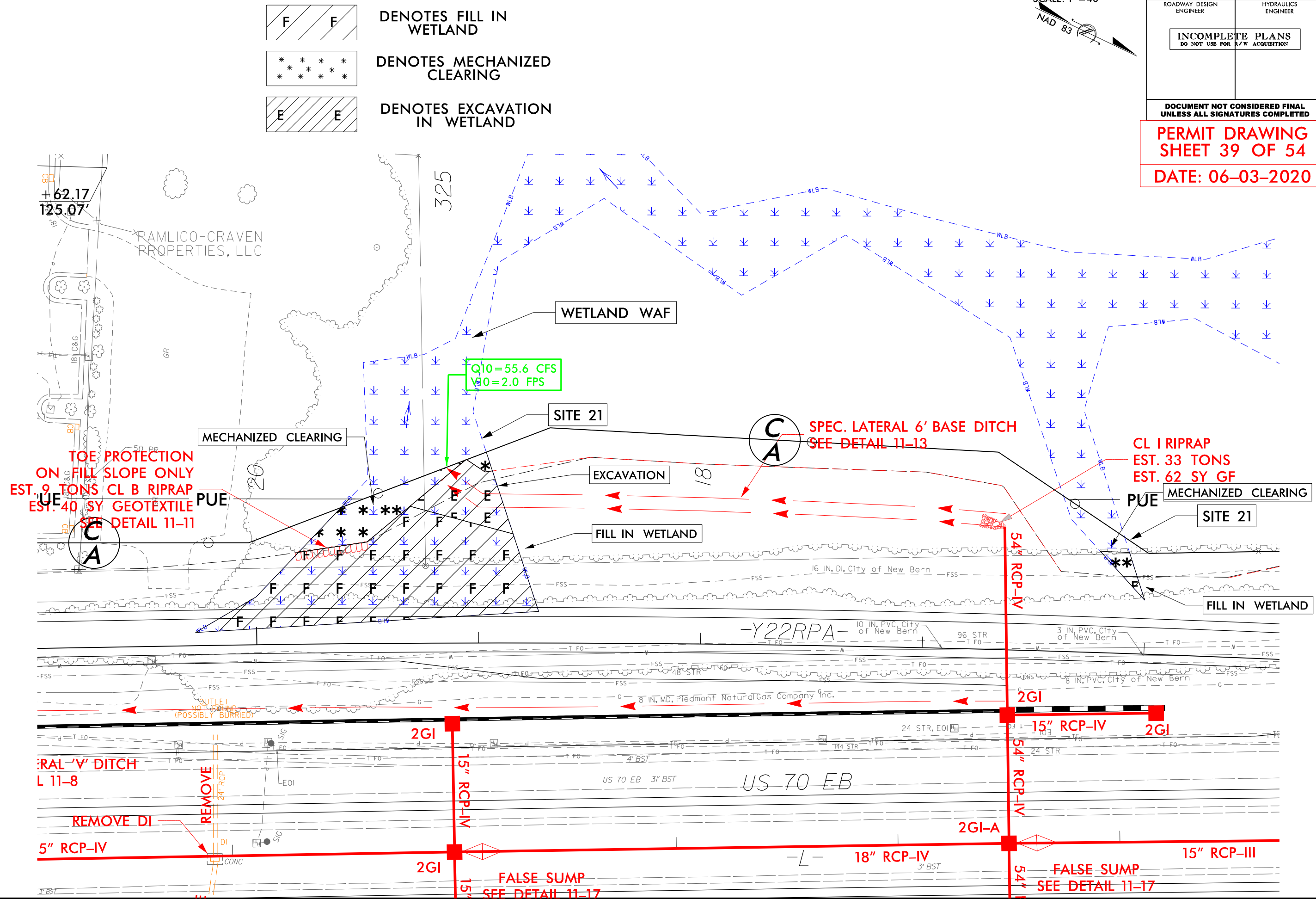
PDE

TOE PROTECTION
ON FILL SLOPE ONLY
EST. 10 TONS CL B RIPRAP
EST. 48 SY GEOTEXTILE
SEE DETAIL 11-11

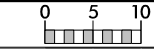
SITE 21



PERMIT DRAWING
SHEET 39 OF 54
DATE: 06-03-2020



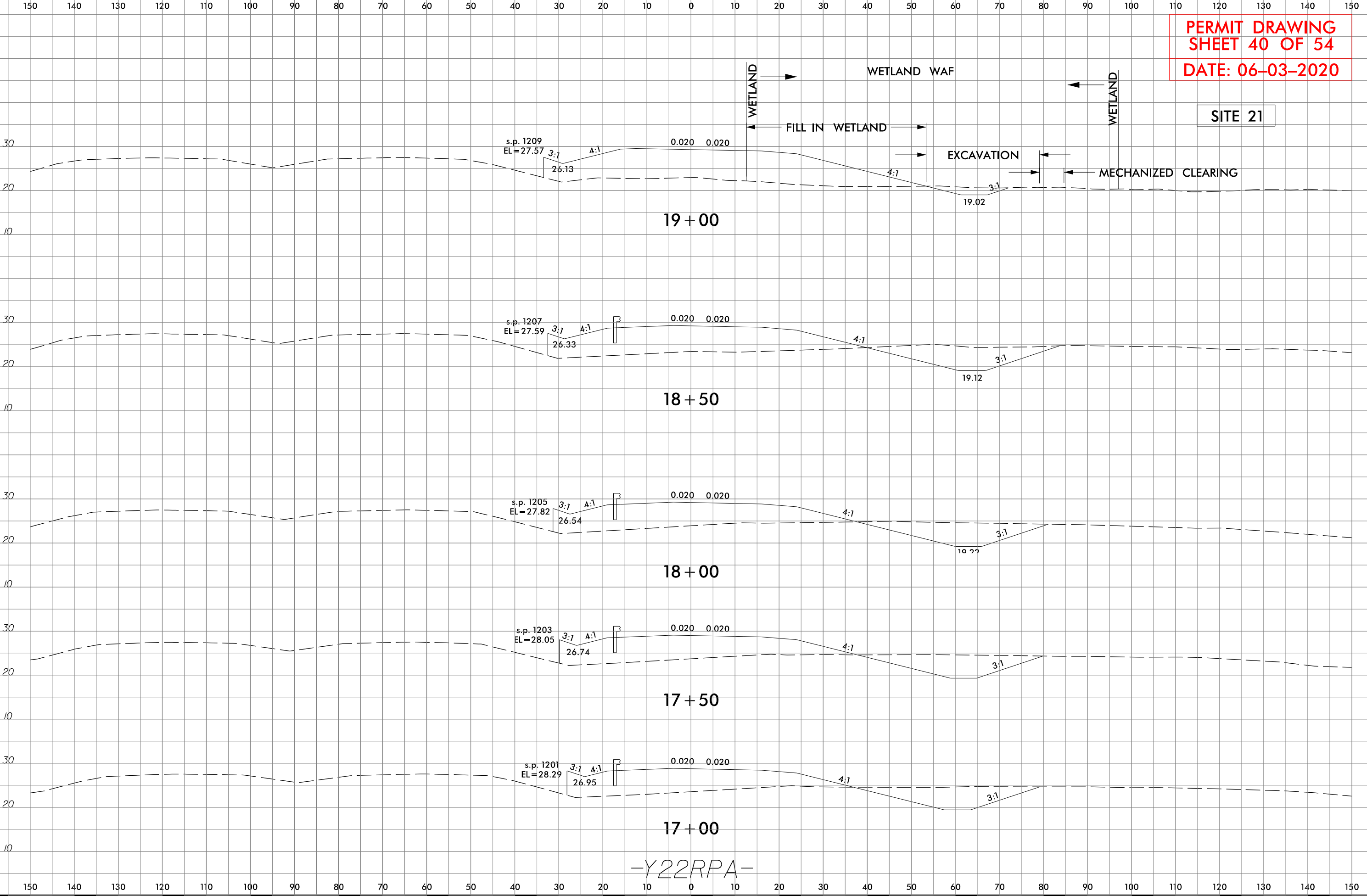
6/23/16



PROJ. REFERENCE NO.	SHEET NO.
U-5713/R-5777A&B	Y22RPA-1

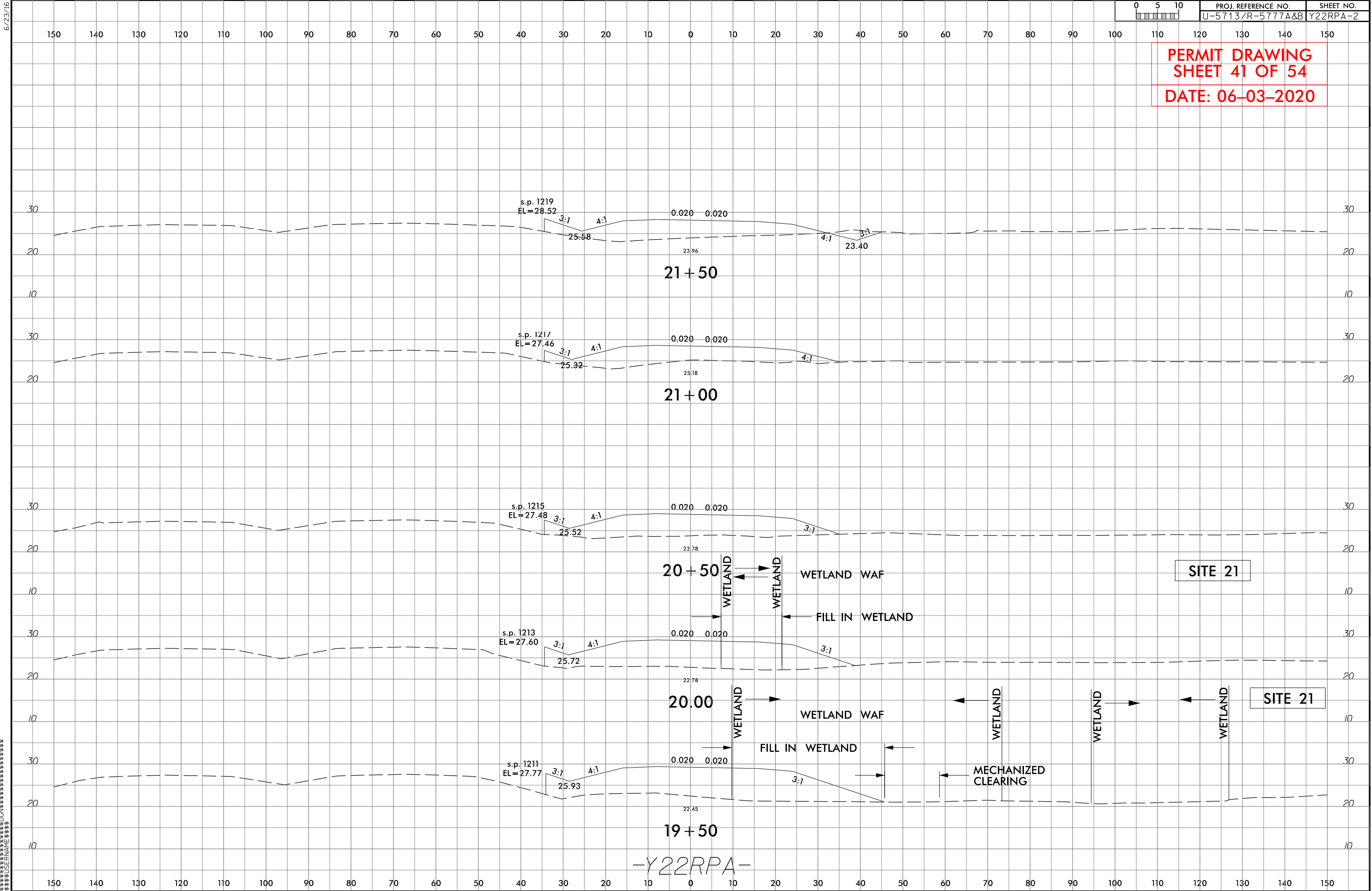
PERMIT DRAWING
SHEET 40 OF 54
DATE: 06-03-2020

SITE 21

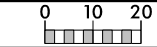


-Y22RPA-

6/23/16



6/23/16



PROJ. REFERENCE NO.	SHEET NO.
U-5713/R-5777A&B	L-35

PERMIT DRAWING
SHEET 42 OF 54
DATE: 06-03-2020

SITE 21

WETLAND WAF

MECHANIZED CLEARING

WETLAND

WETLAND

WETLAND

WETLAND

WETLAND

WETLAND

-Y22RPA-
STA. 16 + 111.87
0.030 0.030

-Y22RPD-
STA. 17 + 20.41
0.024 0.024

-SRY22D-
STA. 18 + 95.85
0.020 0.020

-Y22RPA-
STA. 16 + 62.00
0.030 0.030

-Y22RPD-
STA. 17 + 70.43
0.025 0.025

-SRY22D-
STA. 18 + 45.88
0.016 0.020

s.p. 1202
EL = 28.23
MSE WALL

s.p. 1302
EL = 27.61
MSE WALL

s.p. 1204
EL = 28.00
MSE WALL

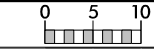
s.p. 1304
EL = 28.20
MSE WALL

s.p. 1206
EL = 27.77
MSE WALL

s.p. 1306
EL = 27.00
MSE WALL

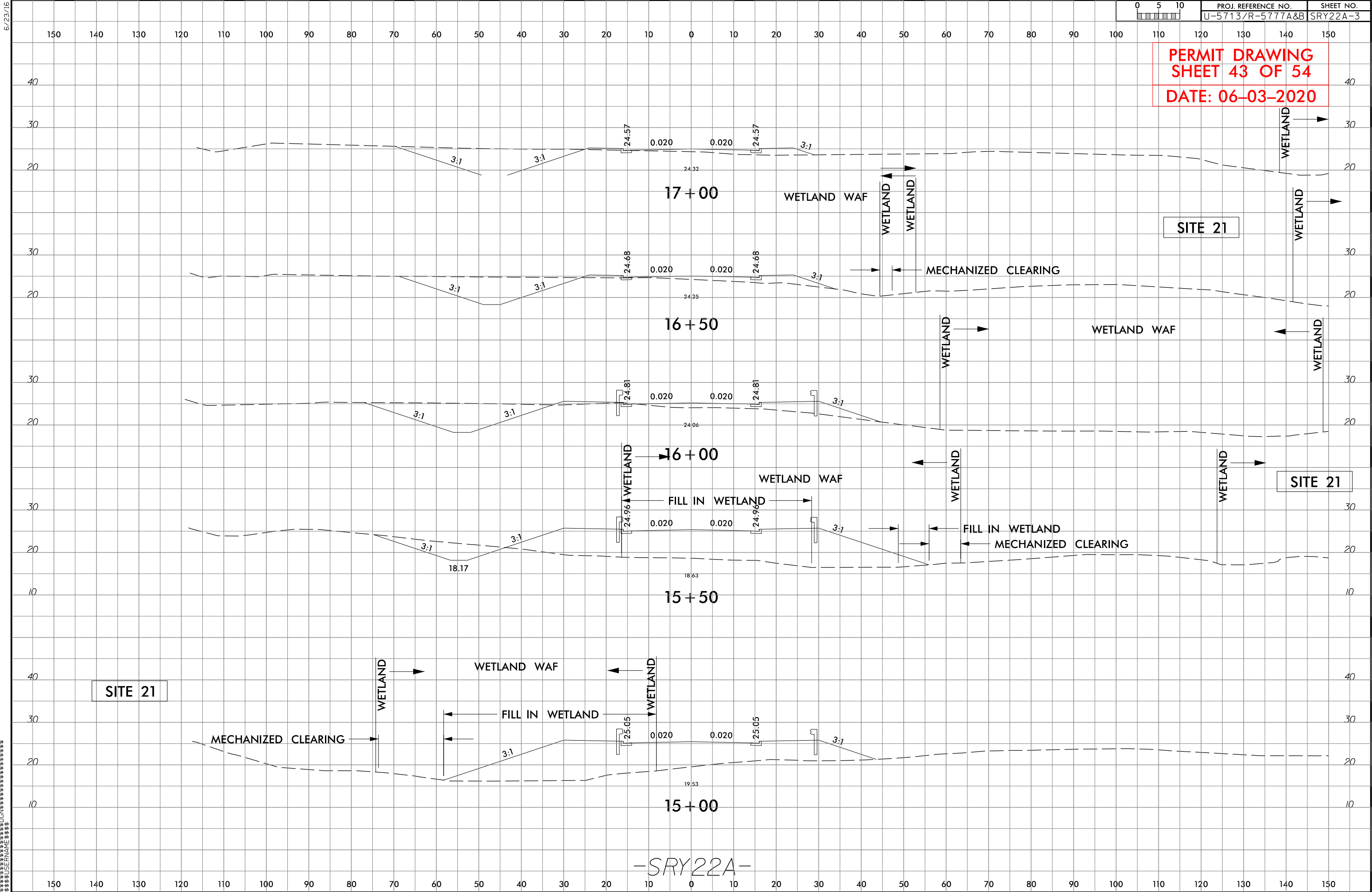
*****SYTIME*****
*****> 20' W/*****
*****CUTLINE*****

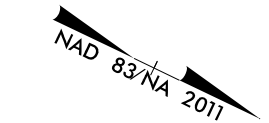
6/23/16



PROJ. REFERENCE NO.	SHEET NO.
U-5713/R-5777A&B	SR22A-3

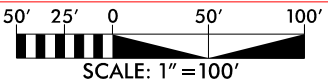
PERMIT DRAWING
SHEET 43 OF 54
DATE: 06-03-2020





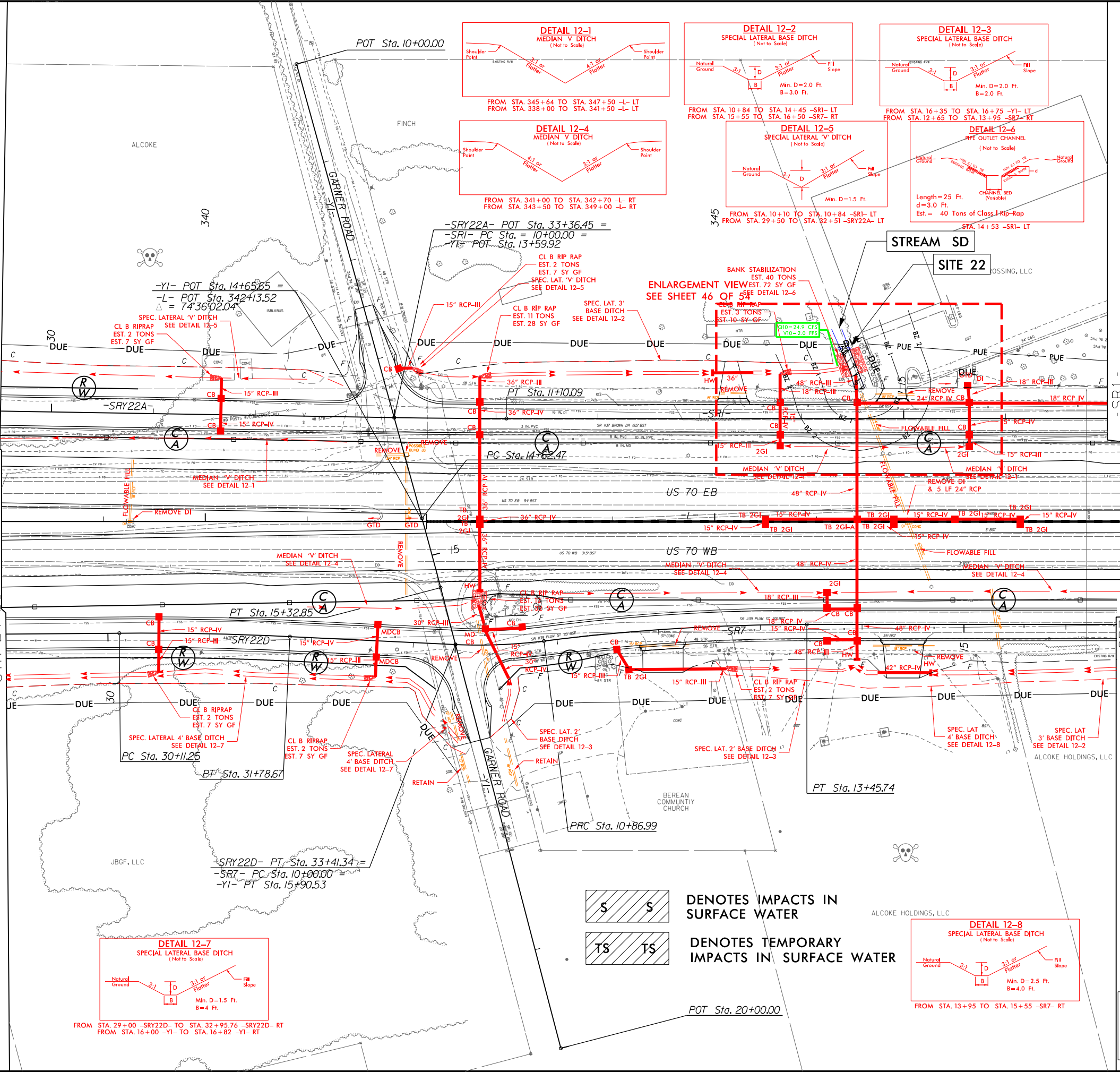
PERMIT DRAWING
SHEET 44 OF 54

DATE: 06-03-2020

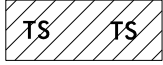


MATCHLINE
-L- STA 338+00-SRY22A-
SEE SHEET 11 STA 29+50
-SRY22D-
STA 29+00
-SRY22D-
STA 29+00

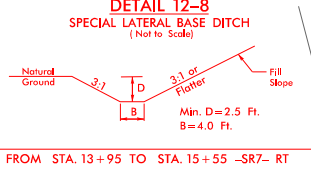
MATCHLINE
-SRI- STA 17+00
-L- STA 349+00
SEE SHEET 13
-SRY22D-
STA 16+50



DENOTES IMPACTS IN SURFACE WATER

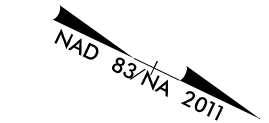


DENOTES TEMPORARY IMPACTS IN SURFACE WATER



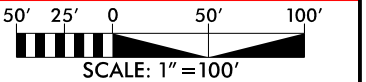
PAVEMENT REMOVAL

FOR -L- PROFILE SEE SHEETS 29 & 30
FOR -YI- PROFILE SEE SHEET 52
FOR -SRY21A- PROFILE SEE SHEET 73
FOR -SRY21D- PROFILE SEE SHEET 74
FOR -SRI- PROFILE SEE SHEET 75
FOR -SRY22- PROFILE SEE SHEET 85
SEE SHEET 3A-1 TO 3A-3 FOR CURVE DATA



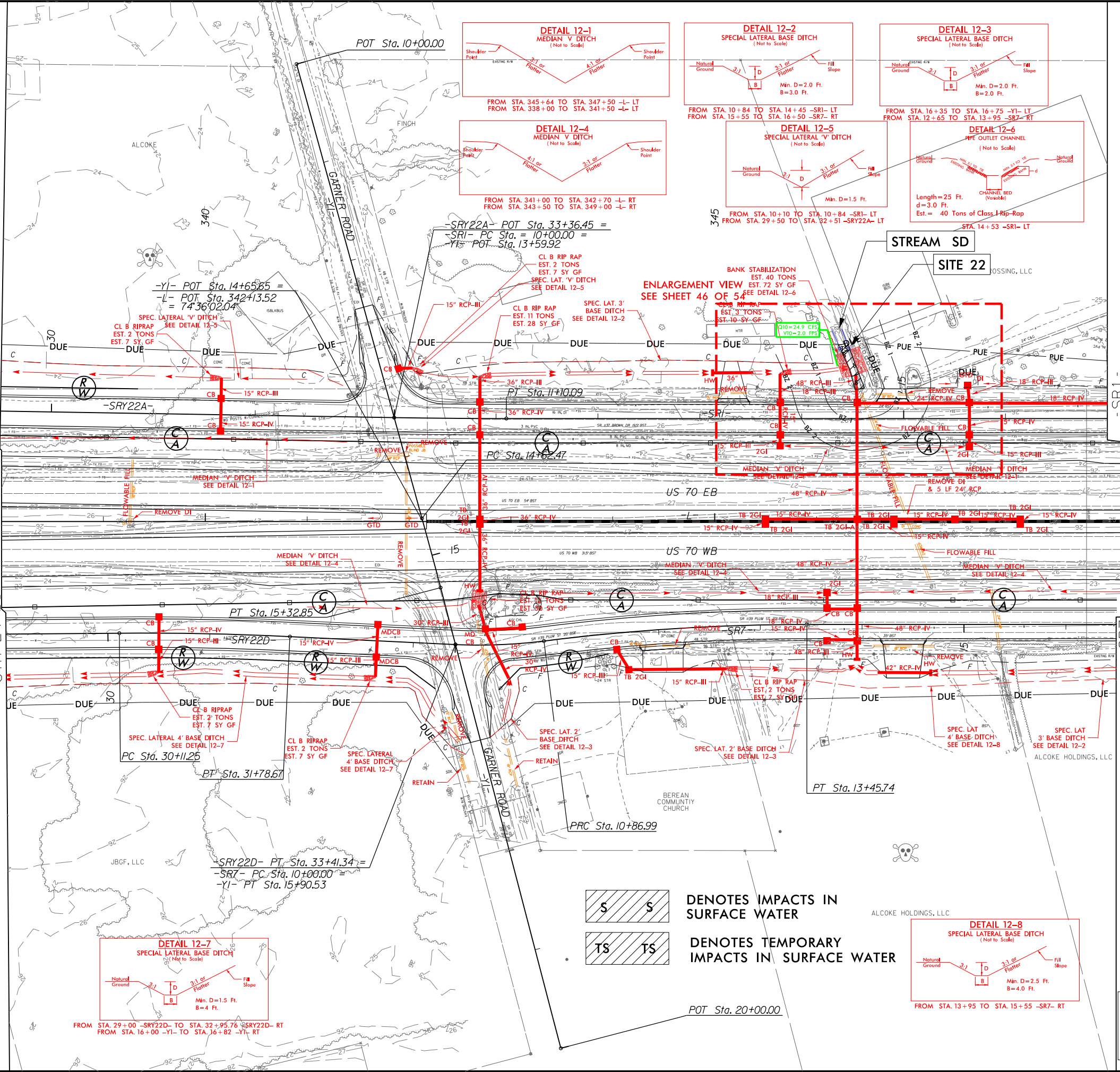
PERMIT DRAWING
SHEET 45 OF 54

DATE: 06-03-2020

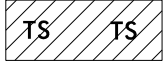


MATCHLINE
-L- STA 338+00-SRY22A-
SEE SHEET 11 STA 29+50

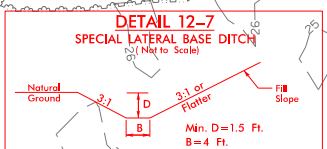
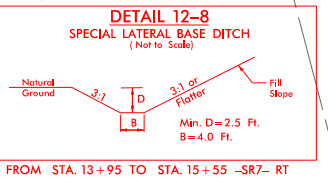
MATCHLINE STA 17+00
-L- STA 349+00
SEE SHEET 13



DENOTES IMPACTS IN
SURFACE WATER

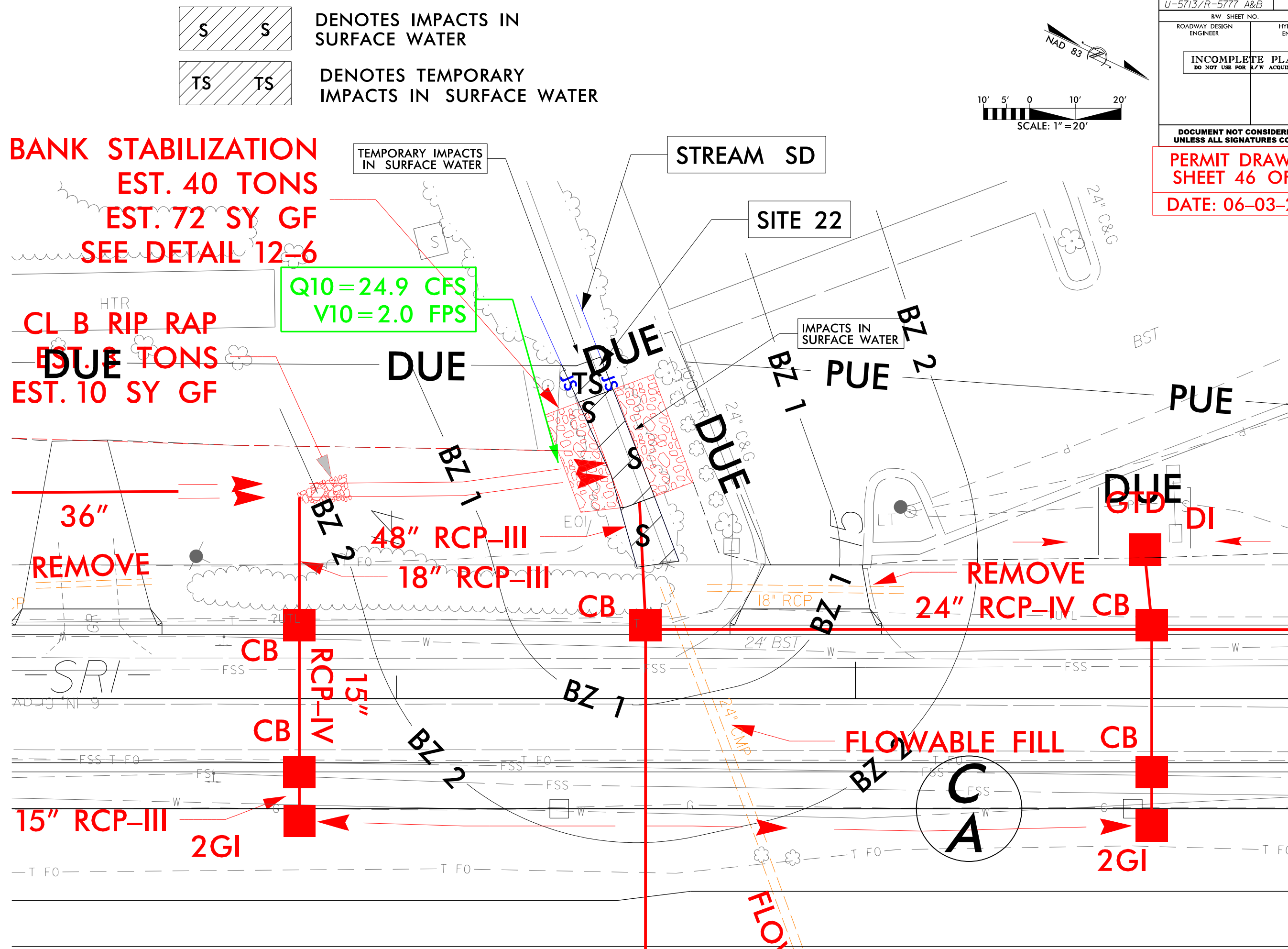


DENOTES TEMPORARY
IMPACTS IN SURFACE WATER

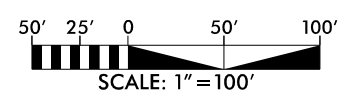


PAVEMENT REMOVAL

FOR -L- PROFILE SEE SHEETS 29 & 30
FOR -YI- PROFILE SEE SHEET 52
FOR -SRY21A- PROFILE SEE SHEET 73
FOR -SRY21D- PROFILE SEE SHEET 74
FOR -SRI- PROFILE SEE SHEET 75
FOR -SR7- PROFILE SEE SHEET 85
SEE SHEET 3A-1 TO 3A-3 FOR CURVE DATA



PROJECT REFERENCE NO. U-5713/R-5777 A&B		SHEET NO. 21	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			
Balfour Beatty Infrastructure Inc. STV 100 years			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
PERMIT DRAWING SHEET 47 OF 54			
DATE: 06-03-2020			



DETAIL 21-1
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
FROM STA. 15+50 TO STA. 21+00 -SRY21C2- LT
Min. D=1.5 Ft.

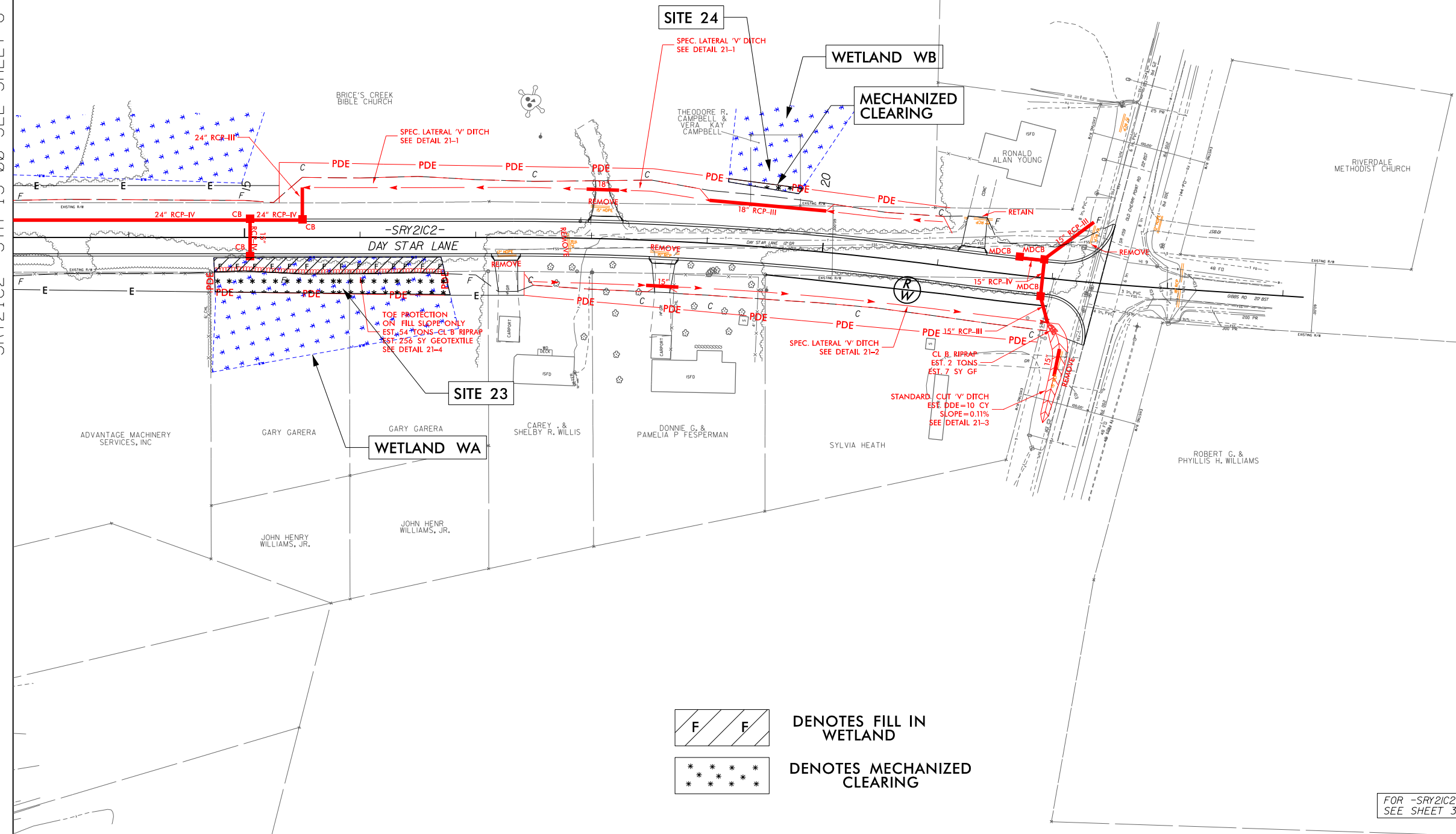
DETAIL 21-2
SPECIAL LATERAL 'V' DITCH
(Not to Scale)
FROM STA. 17+50 TO STA. 22+00 -SRY21C2- RT
Min. D=1.0 Ft.

DETAIL 21-3
STANDARD 'V' DITCH
(Not to Scale)
STA. 22+00 -SRY21C2- RT (38 RT TO 124 RT)
Min. D=1 Ft.

DETAIL 21-4
TOE PROTECTION
(Not to Scale)
FROM STA. 17+74 -SRY21C2- TO STA. 16+73 -SRY21C2-
Type of Liner = CL 8 RIPRAP
d=1.5 Ft.

NAD 83/NA 2011

MATCHLINE
-SRY21C2- STA 13+00 SEE SHEET 6



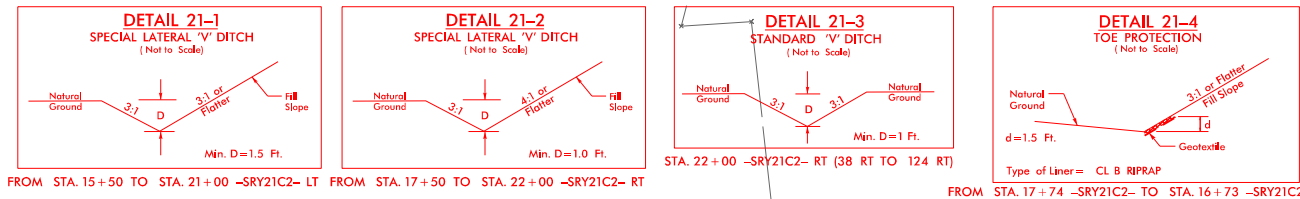
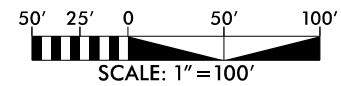
F F

DENOTES FILL IN
WETLAND

DENOTES MECHANIZED
CLEARING

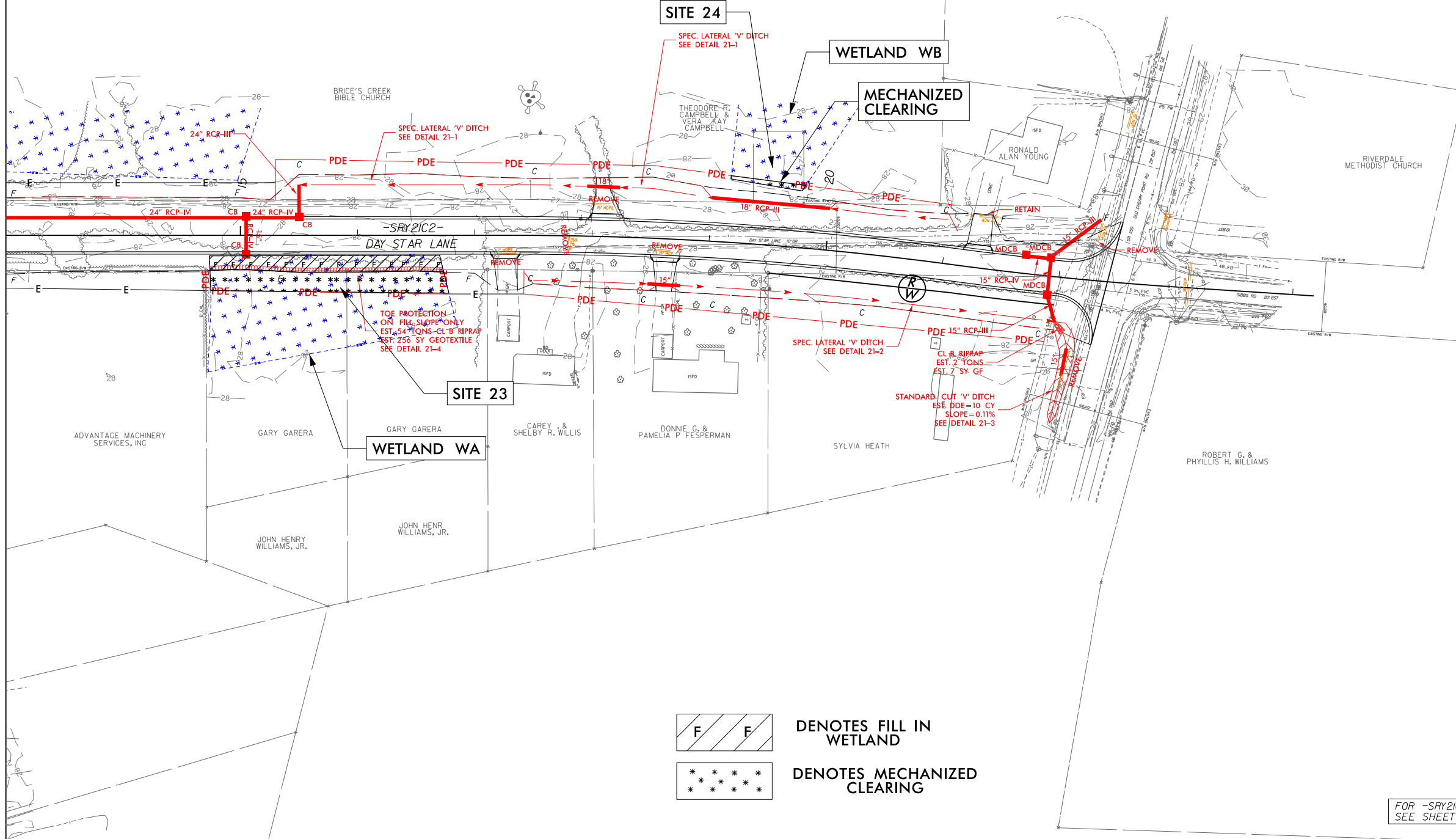
FOR -SRY21C2- PROFILE SEE SHEET 70
SEE SHEET 3A-1 TO 3A-3 FOR CURVE DATA

PROJECT REFERENCE NO.		SHEET NO.	
U-5713/R-5777 A&B		21	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			
Balfour Beatty STV 100 years Infrastructure Inc.			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
PERMIT DRAWING SHEET 48 OF 54			
DATE: 06-03-2020			

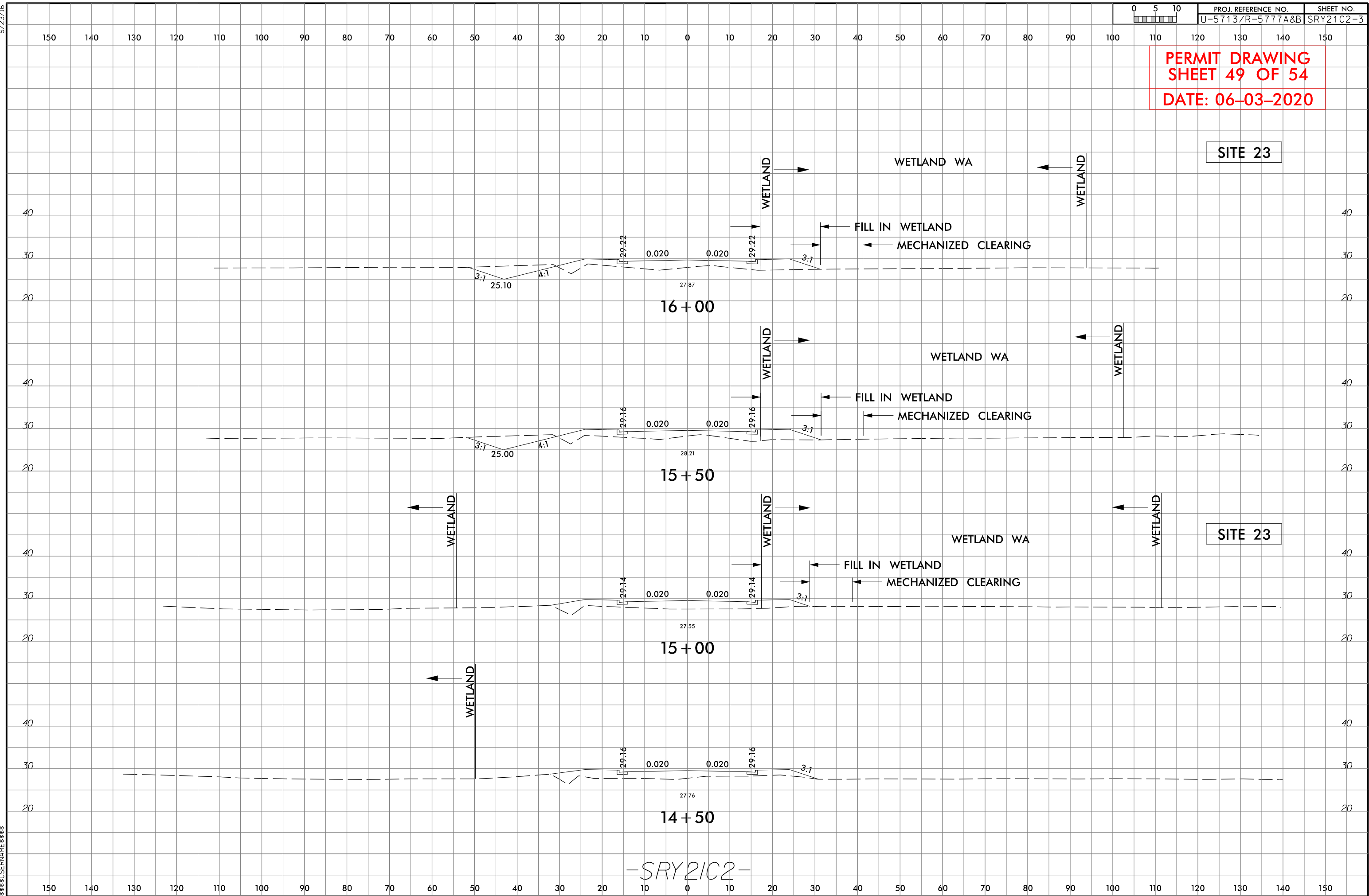


NAD 83/NA 2011

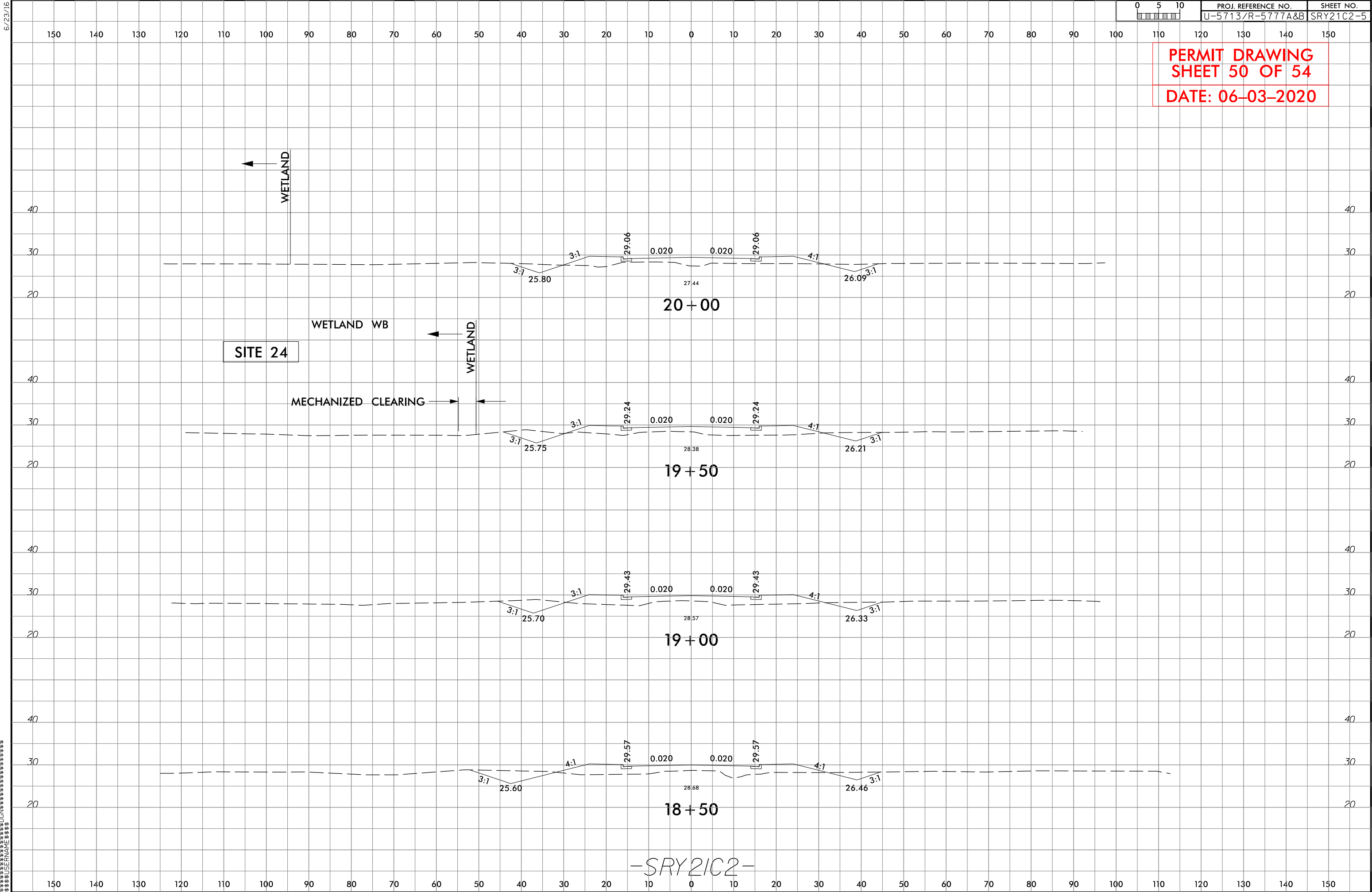
MATCHLINE
-SRY21C2- STA 13+00 SEE SHEET 6



FOR -SRY21C2- PROFILE SEE SHEET 70
SEE SHEET 3A-1 TO 3A-3 FOR CURVE DATA



6/23/16



WETLAND AND SURACE WATER IMPACTS SUMMARY												
Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	13+39 to 13+49-SRY21C-	66' RCP						< 0.01	< 0.01	75	10	
		OUTLET BANK STABILIZATION								21		
2	14+35 to 19+63-SRY21C-	ROADWAY FILL	0.43		0.04	0.05						
3	32+45 to 39+24-SRY21B-	ROADWAY FILL	1.08		0.03	0.22						
	15+81 to 16+14-Y21RPB-LT	ROADWAY FILL				< 0.01						
4	61+15 to 61+39-SRY21C-RT	1 at 9'x6' RCBC						< 0.01	< 0.01	14	10	
		INLET BANK STABILIZATION								28		
	24+30 to 25+01-Y21RPC-	ROADWAY FILL						0.01		101		
	269+16 to 269+53-L-RT	ROADWAY FILL						< 0.01		51		
	22+78 to 23+72-Y21RPA-RT	ROADWAY FILL						< 0.01	< 0.01	46	10	
		OUTLET BANK STABILIZATION								42		
	17+24 to 17+69-SRY21A-	1 at 10'x7' RCBC						0.03	< 0.01	174	10	
	17+38-SRY21A-RT	INLET BANK STABILIZATION								40		
	17+61-SRY21A-LT	OUTLET CHANNEL						0.03	< 0.01	32	11	
5	23+37 to 23+64-Y21RPA-RT	ROADWAY FILL			< 0.01	< 0.01						
	16+14 to 17+01-SRY21A-LT	ROADWAY FILL	0.03			0.03						
	16+96 to 17+20-SRY21A-RT	ROADWAY FILL	0.01			0.01						
	17+50 to 18+07-SRY21A-	ROADWAY FILL	0.07			0.03						
TOTALS*:			1.62		0.07	0.36		0.09	< 0.01	624	51	0

*Rounded totals are sum of actual impacts

NOTES:

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WETLAND AND SURACE WATER IMPACTS SUMMARY												
Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
5	21+50 to 21+64-Y21RPA-RT	ROADWAY FILL	< 0.01			< 0.01						
	20+88 to 20+94-Y21RPA-RT	ROADWAY FILL				< 0.01						
	20+26 to 20+33-SRY21A-LT	ROADWAY FILL				< 0.01						
	21+52 to 22+09-SRY21A-	ROADWAY FILL	0.03			< 0.01						
	22+82 to 22+99-SRY21A-LT	ROADWAY FILL	< 0.01			< 0.01						
	25+60 to 25+83-SRY21A-	ROADWAY FILL	0.02			< 0.01						
	28+90 to 30+88-SRY21A-	1 at 6'x6' RCBC	0.22		0.02	0.08						
	35+37 to 35+84-SRY21A-	ROADWAY FILL	0.04			0.01						
6	22+71 to 22+99-SRY21A-	48" RCP						0.01	< 0.01	138	9	
	22+95-SRY21A-LT	OUTLET BANK STABILIZATION								18		
7	24+24 to 24+48-SRY21A-	ROADWAY FILL						0.01	< 0.01	119	19	
	24+30-SRY21A-LT	OUTLET BANK STABILIZATION								6		
8	21+96 to 23+01-Y21RPD-LT	ROADWAY FILL						< 0.01				
	20+48 to 21+09-Y21RPD-LT	ROADWAY FILL						< 0.01				
	17+99 to 20+16-Y21RPD-LT	ROADWAY FILL						0.01				
9	18+81 to 19+15-SRY21D-LT	ROADWAY FILL	0.01			< 0.01						
10	19+74 to 20+16-SRY21D-	ROADWAY FILL						< 0.01	< 0.01			
TOTALS*:			0.32		0.02	0.12		0.04	< 0.01	281	28	0

*Rounded totals are sum of actual impacts

NOTES:

Site 8 & 10: JS Non-Mit

Site 9-There will be an additional 0.23 ac of wetland impacts considered as a total take".

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WETLAND AND SURACE WATER IMPACTS SUMMARY												
Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
11	13+25 to 14+69-SRY21D-	ROADWAY FILL	0.26			0.09						
12	13+57 To 13+85-SRY21A-RT	ROADWAY FILL						< 0.01	< 0.01			
13	27+60 to 28+56-SRY21D-	ROADWAY FILL						< 0.01		123		
	29+88 to 3011-SRY21A-	1 at 6'x6' RCBC						0.03	< 0.01	107	22	
		OUTLET CHANNEL						< 0.01		34		
14	27+04 to 27+60-SRY21D-	1 at 6'x6' RCBC						< 0.01		100		
15	26+88 to 27+07-SRY21D-RT	ROADWAY FILL	< 0.01		< 0.01	< 0.01						
16	37+88 to 38+86-SRY21A-	ROADWAY FILL	0.08			< 0.01						
17	40+43 to 41+01-SRY21A-	ROADWAY FILL						0.01	< 0.01			
18	15+58 to 16+45-Y22RPC-	1 at 7'x7' RCBC						< 0.01	< 0.01	78	10	
	16+08 to 16+34-Y22RPC-RT	INLET BANK STABILIZATION								35		
	52+15 to 52+41-SRY21A-	1 at 7'x7' RCBC						0.02	< 0.01	116		
	52+30 to 52+38-SRY21A-LT	OUTLET BANK STABILIZATION								29		
19	52+45 to 53+60-SRY21A-LT	ROADWAY FILL	0.02		0.03	0.01						
TOTALS*:			0.36		0.03	0.11		0.09	0.01	621	32	0

*Rounded totals are sum of actual impacts

NOTES:

Site 12: JS Non-Mit

Site 16: Total take

Site 17: JS Non-Mit

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WETLAND AND SURACE WATER IMPACTS SUMMARY												
			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
20	15+58 to 16+10-Y22RPC-RT	DITCH			< 0.01	< 0.01						
21	14+56 to 15+95-SRY22A-	72" RCP	0.12			0.03						
	16+37 to 16+90-SRY22A-RT	ROADWAY FILL				< 0.01						
	16+00 to 16+21-Y22RPA-RT	ROADWAY FILL	< 0.01			< 0.01						
	18+73 to 20+28-Y22RPA-RT	ROADWAY FILL	0.11		0.02	0.02						
22	14+36 to 14+62-SR1-LT	48" RCP						< 0.01	< 0.01	14	10	
	14+40 to 14+56-R1-LT	OUTLET BANK STABILIZATION								25		
23	14+74 to 16+76-SRY21C2-RT	ROADWAY FILL	0.06			0.08						
24	19+15 to 19+78-SRY21C2-RT	ROADWAY FILL				< 0.01						
		SHEET 54 OF 54	0.29		0.03	0.15		< 0.01	< 0.01	39	10	
		SHEET 51 OF 54	1.62		0.07	0.36		0.09	< 0.01	624	51	
		SHEET 52 OF 54	0.32		0.02	0.12		0.04	< 0.01	281	28	
		SHEET 53 OF 54	0.36		0.03	0.11		0.09	0.01	621	32	
TOTALS*:			2.59		0.15	0.74		0.22	0.02	1565	121	0

*Rounded totals are sum of actual impacts

NOTES:

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