



North Carolina Department of Transportation

Highway Stormwater Program  
STORMWATER MANAGEMENT PLAN



(Version 3.00; Released August 2021)

FOR NCDOT PROJECTS

WBS Element: 44648.3.4      TIP/Proj No: R-5777C      County(ies): Craven      Page 1 of 5

General Project Information

WBS Element:	44648.3.4	TIP Number:	R-5777C	Project Type:	Roadway Widening	Date:	11/28/2023
NCDOT Contact:	Byron Kyle			Contractor / Designer:	Sungate Design Group, PA		
Address:	1020 Birch Ridge Dr Room #16 Raleigh, NC 27610			Address:	905 Jones Franklin Rd Raleigh, NC 27606		
	Phone:	919-707-6621			Phone:	919-710-8459	
	Email:	<a href="mailto:btKyle@ncdot.gov">btKyle@ncdot.gov</a>			Email:	<a href="mailto:belam@sungatedesign.com">belam@sungatedesign.com</a>	
City/Town:	Havelock			County(ies):	Craven		
River Basin(s):	Neuse			CAMA County?	Yes		
Wetlands within Project Limits?	Yes						

Project Description

Project Length (lin. miles or feet):	6.54	Surrounding Land Use:	Residential, Commercial, Agricultural, National Forest					
Project Built-Up Area (ac.)		Proposed Project			Existing Site			
		116.3	ac.	84.0	ac.			
Typical Cross Section Description:	US 70 (-L-): Grassed swale median with 4:1 max side slopes (6:1 max on Guiderail Side). 2-12' paved lanes with 12' outside shoulders (10' Paved, 2' Grassed) and 6' inside shoulders (4' Paved, 2' Grassed) in each direction. Varying fill and cut slopes. See project XSC's for detailed information.			Existing US 70: Grassed swale median. 2-12' paved lanes with 4' paved shoulders in each direction. Varying fill and cut slopes.				
Annual Avg Daily Traffic (veh/hr/day):	Design/Future:	41,800	Year:	2045	Existing:	31,800	Year:	2019

General Project Narrative:  
(Description of Minimization of Water Quality Impacts)

The North Carolina Department of Transportation (NCDOT) has proposed improvements of existing US 70 in Craven County to interstate standards from the Havelock Bypass to east of S.R. 1116 (Thurman Road). The project, R-5777C, has 6 proposed major structures, 4 along US 70 and 2 on adjacent service roads. All major drainage structures on this project are reinforced concrete box culverts, 5 of which replace existing drainage structures and 1 is new location. Each of the 6 box culverts will be buried 1' below the existing stream bed and be backfilled with native bed material. Sills will be used at the inlet and outlet ends of each culvert to retain backfilled material within the box. The first proposed structure is a 1@7'x7' RCBC that carries Goodwin Creek under US 70 and two adjacent service roads, -SRY1B- and -SRY1C-. The second structure a 1@6'x7' RCBC that carries an unnamed tributary to Otter Creek under US 70 and two ramps servicing the proposed Stately Pines Interchange. The third, approximately 380' downstream of the second culvert, is a 1@7'x7' RCBC that carries an unnamed tributary to Otter Creek under new location service road -SRY1DY3C-. The fourth is a 1@7'x7' RCBC that carries an unnamed tributary to Great Branch under US 70 and adjacent service road -SRY1DY3C-. The fifth culvert is a 2@7'x7' RCBC (1 hydraulic barrel, 1 wildlife crossing barrel) that carries an unnamed tributary to Brice Creek under US 70 and adjacent service road -SRY3DY4C-. The sixth, approximately 170' downstream of the fifth culvert, is a 1@7'x7' RCBC that carries an unnamed tributary to Brice Creek under service road -SRY4B-. Dry detention basins are utilized throughout the project to attenuate increases in peak flow and provide stormwater treatment. Along the entire length of the project grassed swales in the median and outside shoulder areas are used for treatment when BMP design standards can be met. The primary function of these grassed swales is to reduce flow velocity, promote sedimentation infiltration and runoff attenuation. Rip rap pads are used at all storm drain system outlets to dissipate energy and reduce velocities to non-erosive at jurisdictional and wetland features. Lastly, 3:1 fill slopes are used in all wetland areas, to limit the project footprint and reduce permanent impacts.



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WBS Element: 44648.3.4      TIP/Proj No.: R-5777C      County(ies): Craven      Page 2 of 5

**General Project Information**

**Waterbody Information**

Surface Water Body (1):	Neuse River		NCDWR Stream Index No.:	27-(104)	
NCDWR Surface Water Classification for Water Body	Primary Classification:		Class SB		
	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		Dissipator Pads Provided in Buffer?
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 (2):	Goodwin Creek		NCDWR Stream Index No.:	27-112-6-2	
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:	Goodwin 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?
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):	Otter Creek		NCDWR Stream Index No.:	27-108	
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:	Otter 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?
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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WBS Element: 44648.3.4      TIP No.: R-5777C      County(ies): Craven      Page 3 of 5

Additional Waterbody Information

Surface Water Body (4):	Great Branch		NCDWR Stream Index No.:	27-101-40-3	
NCDWR Surface Water Classification for Water Body	Primary Classification:		Class C		
	Supplemental Classification:		Swamp Waters (Sw) (NSW)		
Other Stream Classification:	None				
Impairments:	None				
Aquatic T&E Species?		Comments:			
NRTR Stream ID:	N/A, no impacted streams identified in the NRTR drain to Great Branch		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)				

Surface Water Body (5):	Crooked Run		NCDWR Stream Index No.:	27-108-1	
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:	N/A, no impacted streams identified in the NRTR drain to Crooked Run		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)				

Surface Water Body (6):	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) (NSW)		
Other Stream Classification:	None				
Impairments:	None				
Aquatic T&E Species?		Comments:			
NRTR Stream ID:	Stream SF, SG & SE		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)				

Surface Water Body (7):			NCDWR Stream Index No.:		
NCDWR Surface Water Classification for Water Body	Primary Classification:				
	Supplemental Classification:				
Other Stream Classification:					
Impairments:					
Aquatic T&E Species?		Comments:			
NRTR Stream ID:			Buffer Rules in Effect:		
Project Includes Bridge Spanning Water Body?		Deck Drains Discharge Over Buffer?		Dissipator Pads Provided in Buffer?	
Deck Drains Discharge Over Water Body?		(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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TIP/Proj No.: R-5777C

County(ies): Craven

Page 4 of 5

Swale																			
Sheet No.	Line	Station	Location (LT,RT,CL)	Latitude	Longitude	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?
7	Y1RPD	20+00	RT			(3)Otter Creek	0.0	4.0	3.0	1.4	140	450	0.30%	3.1	1.3	3.9	1.3	No	Yes
7	L	55+30	RT			(3)Otter Creek	3.0	3.0	3.0	6.0	600	961	0.40%	10.8	1.9	13.8	2.1	No	Yes
8	L	63+50	RT			(3)Otter Creek	2.0	4.0	3.0	5.8	580	1500	0.30%	13.0	1.8	16.2	1.9	No	Yes
8	SRY1DY3C	29+05	LT			(3)Otter Creek	0.0	4.0	3.0	1.8	180	255	1.88%	4.2	2.7	5.2	2.9	Yes	Yes
8	SRY1DY3C	29+10	LT			(3)Otter Creek	0.0	4.0	3.0	1.4	140	240	2.21%	3.1	2.7	3.9	2.8	Yes	Yes
8	SRY1DY3C	30+50	RT			(3)Otter Creek	0.0	4.0	3.0	0.2	20	110	2.73%	0.7	2.0	0.9	2.1	No	Yes
9	SRY1DY3C	49+28	RT			(3)Otter Creek	0.0	4.0	3.0	0.5	50	178	1.12%	1.4	1.7	1.7	1.8	No	Yes
9	SRY1DY3C	49+32	RT			(3)Otter Creek	0.0	4.0	3.0	0.8	80	458	0.72%	2.5	1.7	3.1	1.8	No	Yes
10	SRY1A	60+03	LT			(3)Otter Creek	2.0	4.0	3.0	3.1	310	659	0.30%	7.0	1.6	8.7	1.6	No	Yes
10	SRY1A	60+13	LT			(3)Otter Creek	2.0	4.0	3.0	1.5	150	446	0.45%	4.4	1.6	5.5	1.7	No	Yes
10	SRY1DY3C	69+75	RT			(3)Otter Creek	2.0	4.0	3.0	2.7	270	645	0.40%	11.0	1.9	13.6	2.0	No	Yes
10	SRY1DY3C	70+30	RT			(3)Otter Creek	3.0	4.0	3.0	9.4	940	1523	0.31%	21.5	2.0	28.9	2.2	No	Yes
17	L	202+94	LT			(6)Brice Creek	2.0	4.0	3.0	10.7	1070	2260	0.30%	18.0	2.0	23.1	2.1	No	Yes
17	L	203+50	LT			(6)Brice Creek	2.0	4.0	3.0	1.3	130	400	0.40%	4.0	1.5	5.0	1.6	No	Yes
17	SRY4B	25+70	RT			(6)Brice Creek	0.0	4.0	3.0	3.4	340	670	1.18%	6.1	2.5	7.8	2.7	No	Yes
17	SRY4B	25+80	LT			(6)Brice Creek	0.0	4.0	3.0	1.5	150	570	0.43%	3.7	1.5	4.6	1.6	No	Yes
17	SRY4B	25+85	RT			(6)Brice Creek	0.0	4.0	3.0	0.5	50	315	0.31%	1.2	1.0	1.5	1.1	No	Yes
18	SRY4B	42+62	LT			(6)Brice Creek	2.0	4.0	3.0	5.3	530	807	0.43%	11.9	2.0	14.8	2.1	No	Yes
18	SRY4B	42+75	LT			(6)Brice Creek	2.0	4.0	3.0	5.6	560	1220	0.35%	13.1	1.9	16.3	2.0	No	Yes

Additional Comments

Water Quality rock check dams used as alternative design where required design storm velocities cannot be met due to site constraints.



TIP PROJECT: R-5777C

CONTRACT: C204695

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

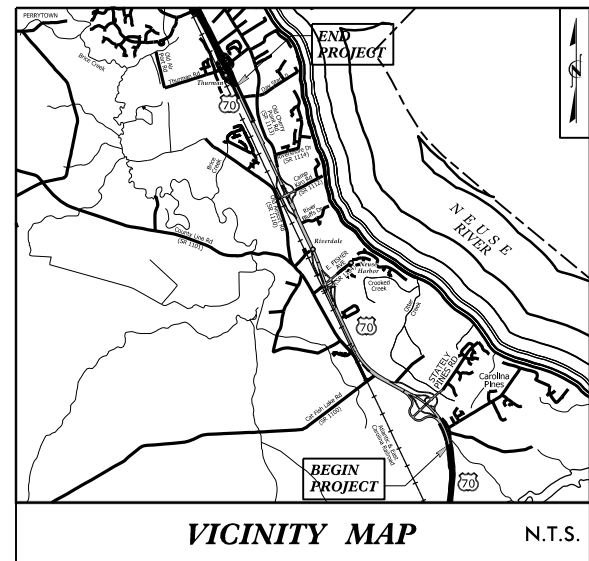
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

CRAVEN COUNTY

PERMIT DRAWING  
SHEET 1 OF 87

DATE: 11/28/2023

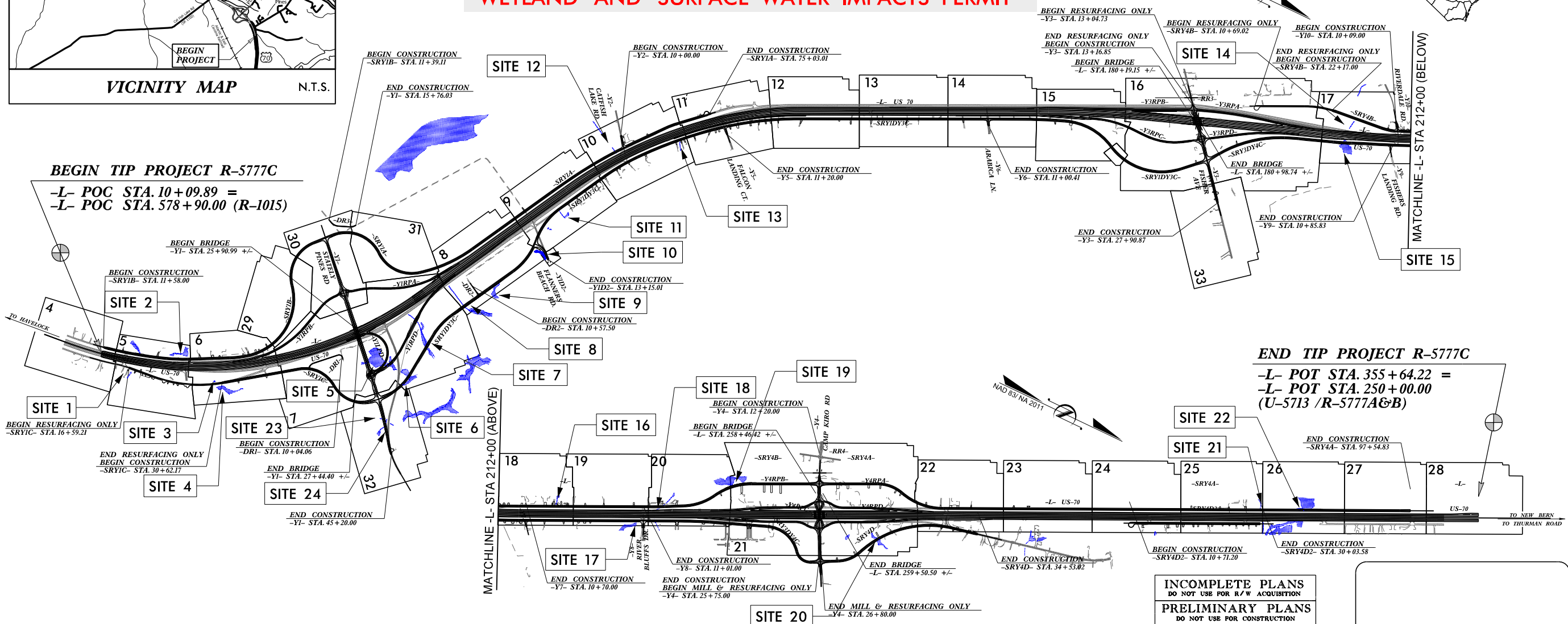
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5777C	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
44648.3.4	N/A	DESIGN-BUILD	



LOCATION: U.S. 70 FROM THE HAVELOCK BYPASS TO EAST OF S.R. 1116 (THURMAN ROAD)

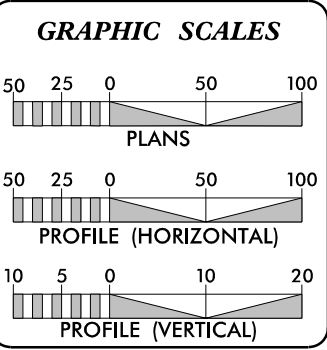
TYPE OF WORK: GRADING, DRAINAGE, PAVING, SIGNING, ITS AND STRUCTURES

WETLAND AND SURFACE WATER IMPACTS PERMIT



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.

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



DESIGN DATA

ADT 2019 =	31,800
ADT 2045 =	41,800
K =	9%
D =	55%
T =	8%*
V =	75 MPH

\* (TTST=3%+DUAL 5%)  
FUNC. CLASSIFICATION =  
INTERSTATE  
STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-5777C =	6.486 MILES
LENGTH STRUCTURE TIP PROJECT R-5777C =	0.058 MILES
TOTAL LENGTH OF TIP PROJECT R-5777C =	6.544 MILES

NCDOT CONTACT: BYRON KYLE  
NCDOT - DESIGN-BUILD UNIT

PLANS PREPARED FOR THE NCDOT BY:

**Balfour Beatty**  
2018 STANDARD SPECIFICATIONS

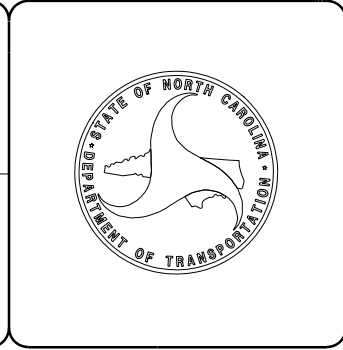
RIGHT OF WAY DATE:  
JANUARY 17, 2023

LETTING DATE:  
JANUARY 17, 2023

HYDRAULICS ENGINEER

SIGNATURE: \_\_\_\_\_ P.E.  
ROADWAY DESIGN ENGINEER

SIGNATURE: \_\_\_\_\_ P.E.



11/28/2023  
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**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION

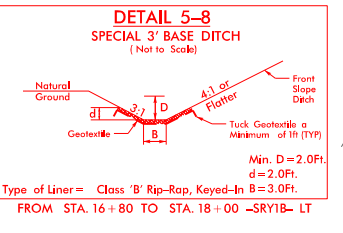
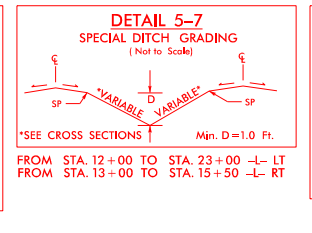
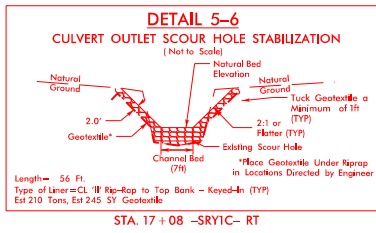
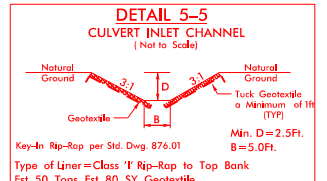
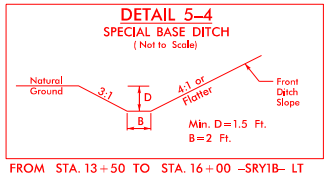
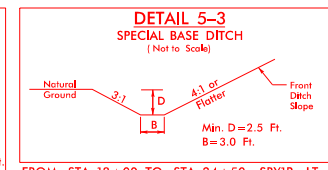
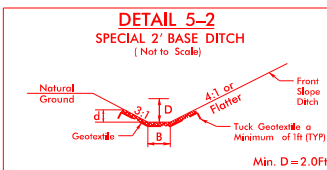
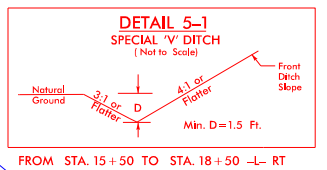
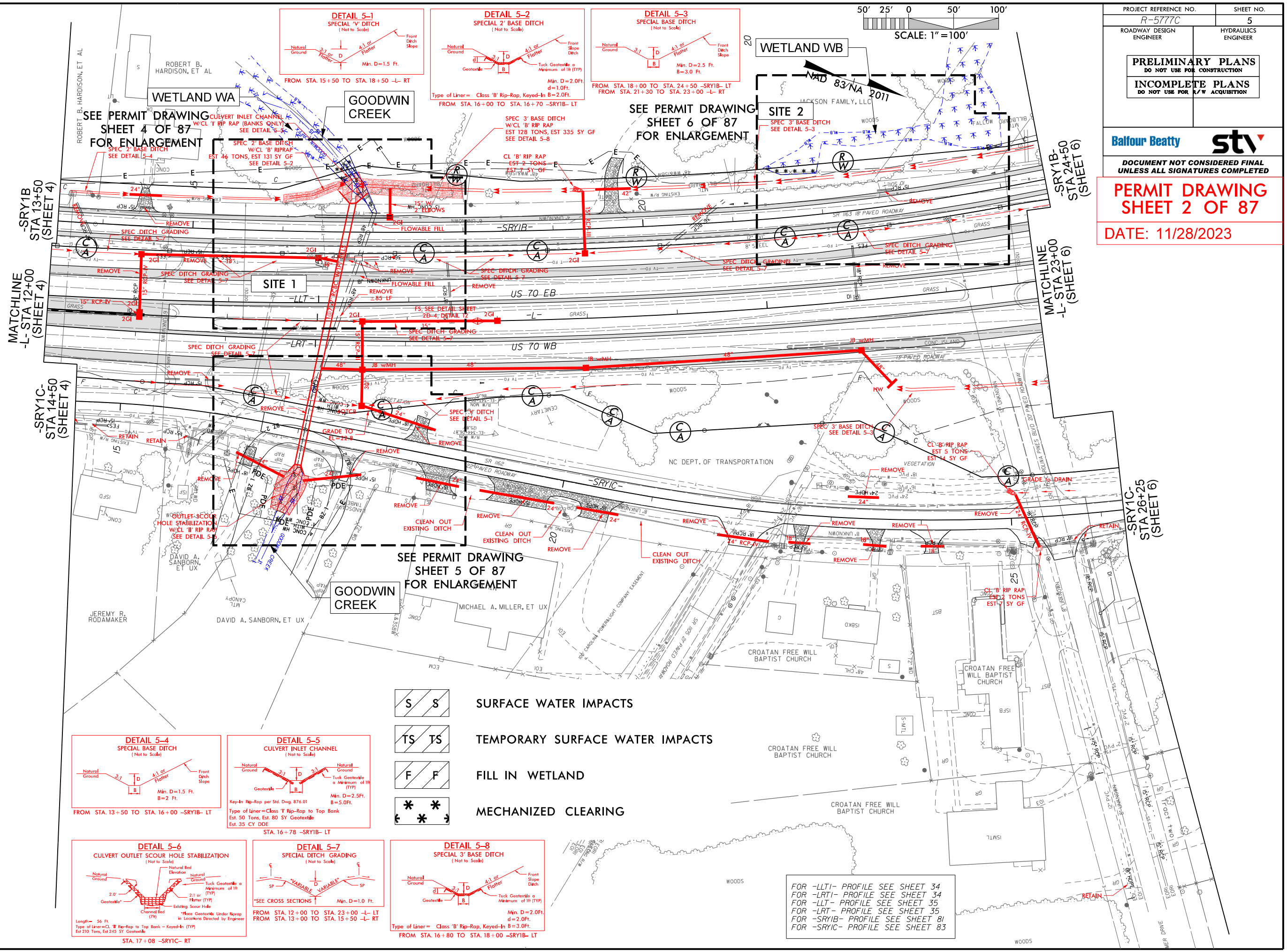
**INCOMPLETE PLANS**  
DO NOT USE FOR A/W ACQUISITION

Balfour Beatty **stv**

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UNLESS ALL SIGNATURES COMPLETED

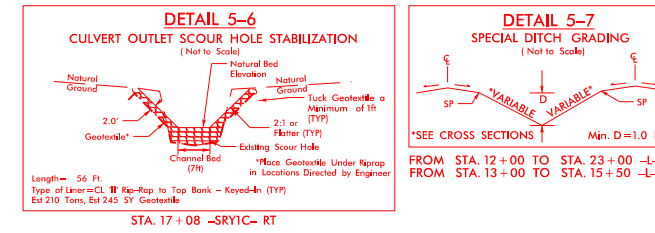
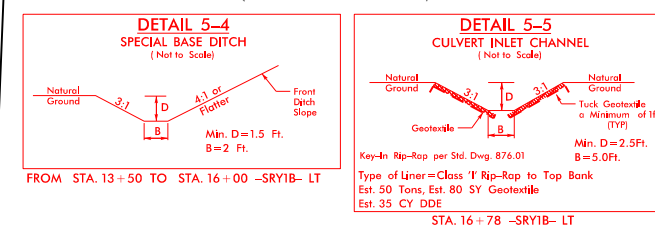
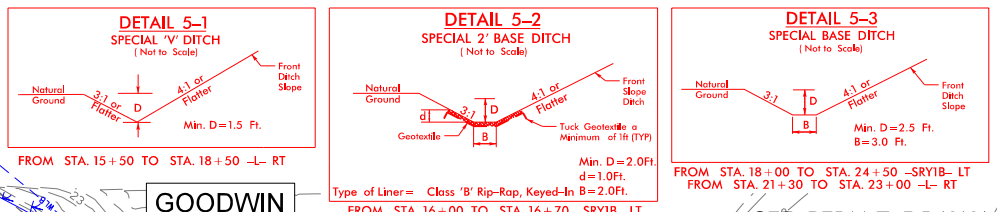
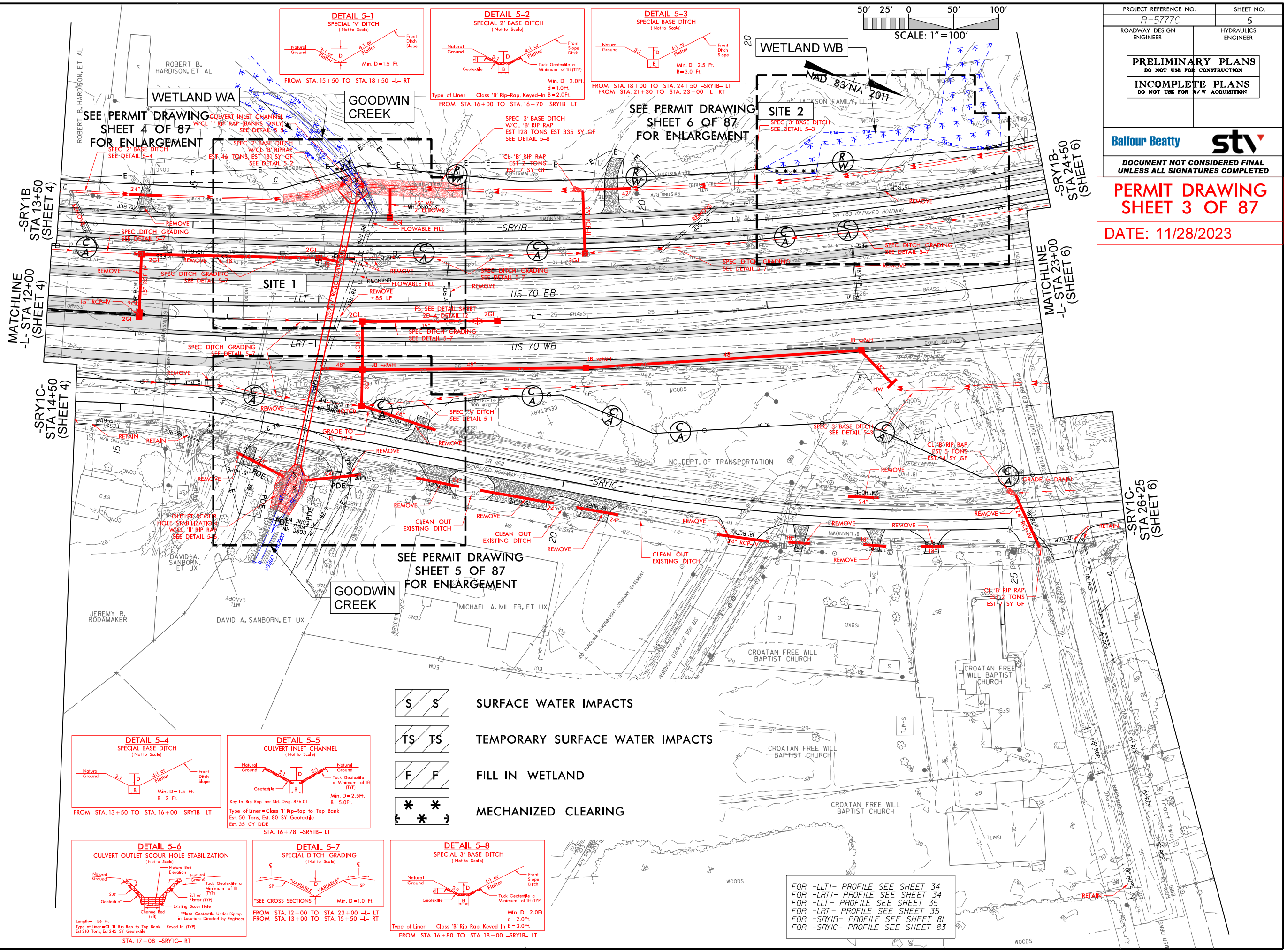
**PERMIT DRAWING**  
**SHEET 2 OF 87**

DATE: 11/28/2023

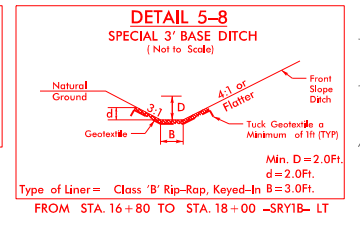


- SURFACE WATER IMPACTS
- TEMPORARY SURFACE WATER IMPACTS
- FILL IN WETLAND
- MECHANIZED CLEARING

FOR -LTI- PROFILE SEE SHEET 34  
FOR -LRTI- PROFILE SEE SHEET 34  
FOR -LRT- PROFILE SEE SHEET 35  
FOR -SRY1B- PROFILE SEE SHEET 81  
FOR -SRY1C- PROFILE SEE SHEET 83



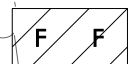
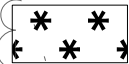
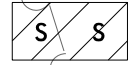

- SURFACE WATER IMPACTS
- TEMPORARY SURFACE WATER IMPACTS
- FILL IN WETLAND
- MECHANIZED CLEARING



FOR -LTI- PROFILE SEE SHEET 34  
 FOR -LRTI- PROFILE SEE SHEET 34  
 FOR -LTI- PROFILE SEE SHEET 35  
 FOR -LRT- PROFILE SEE SHEET 35  
 FOR -SRYIB- PROFILE SEE SHEET 81  
 FOR -SRYIC- PROFILE SEE SHEET 83

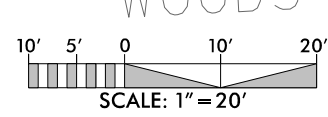


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-  F F FILL IN WETLAND
-  \* \* \* MECHANIZED CLEARING
-  S S SURFACE WATER IMPACTS
-  TS TS TEMPORARY SURFACE WATER IMPACTS

WETLAND WA

GOODWIN CREEK



PROJECT REFERENCE NO. R-5777C	SHEET NO.
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

**PERMIT DRAWING SHEET 4 OF 87**

DATE: 11/28/2023

CULVERT INLET CHANNEL W/CL 'I' RIP RAP (BANKS ONLY)

SPEC 3' BASE DITCH W/CL 'B' RIP RAP EST 28 TONS, EST 335 SY GF

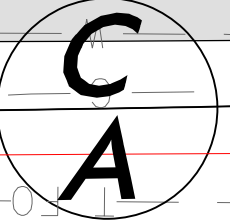
SPEC 2' BASE DITCH W/CL 'B' RIPRAP EST 46 TONS, EST 131 SY GF

SPEC 2' BASE DITCH

15" W/ 2 ELBOWS

2GI

-SRYIB-



**SITE 1**

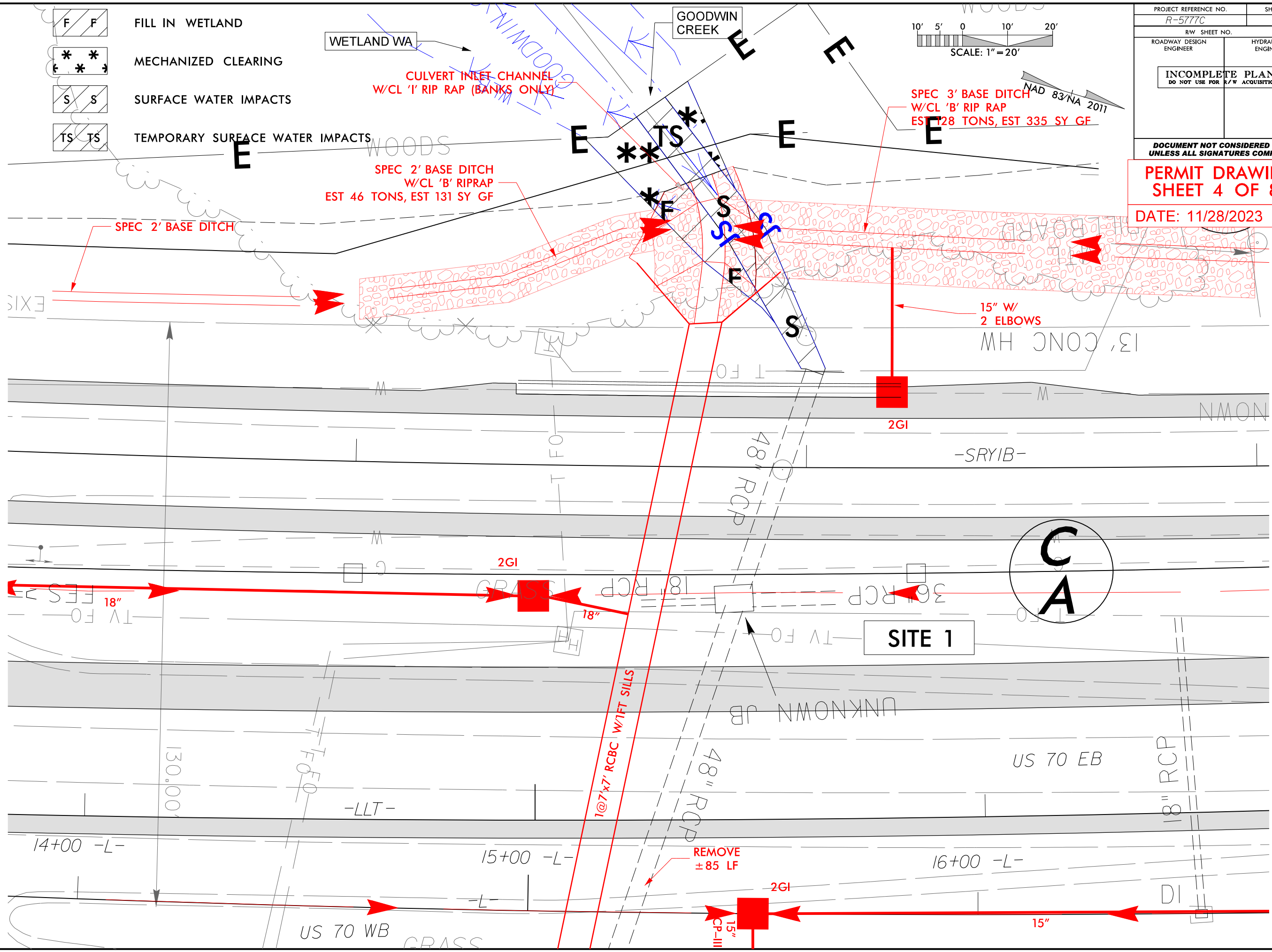
1@7x7' RCBC W/1FT SILLS

REMOVE ± 85 LF

2GI

15"

11/28/2023 R-5777C-Hyd\_prm\_wet\_psh\_05-2-View1.dgn

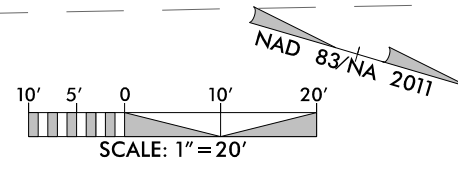
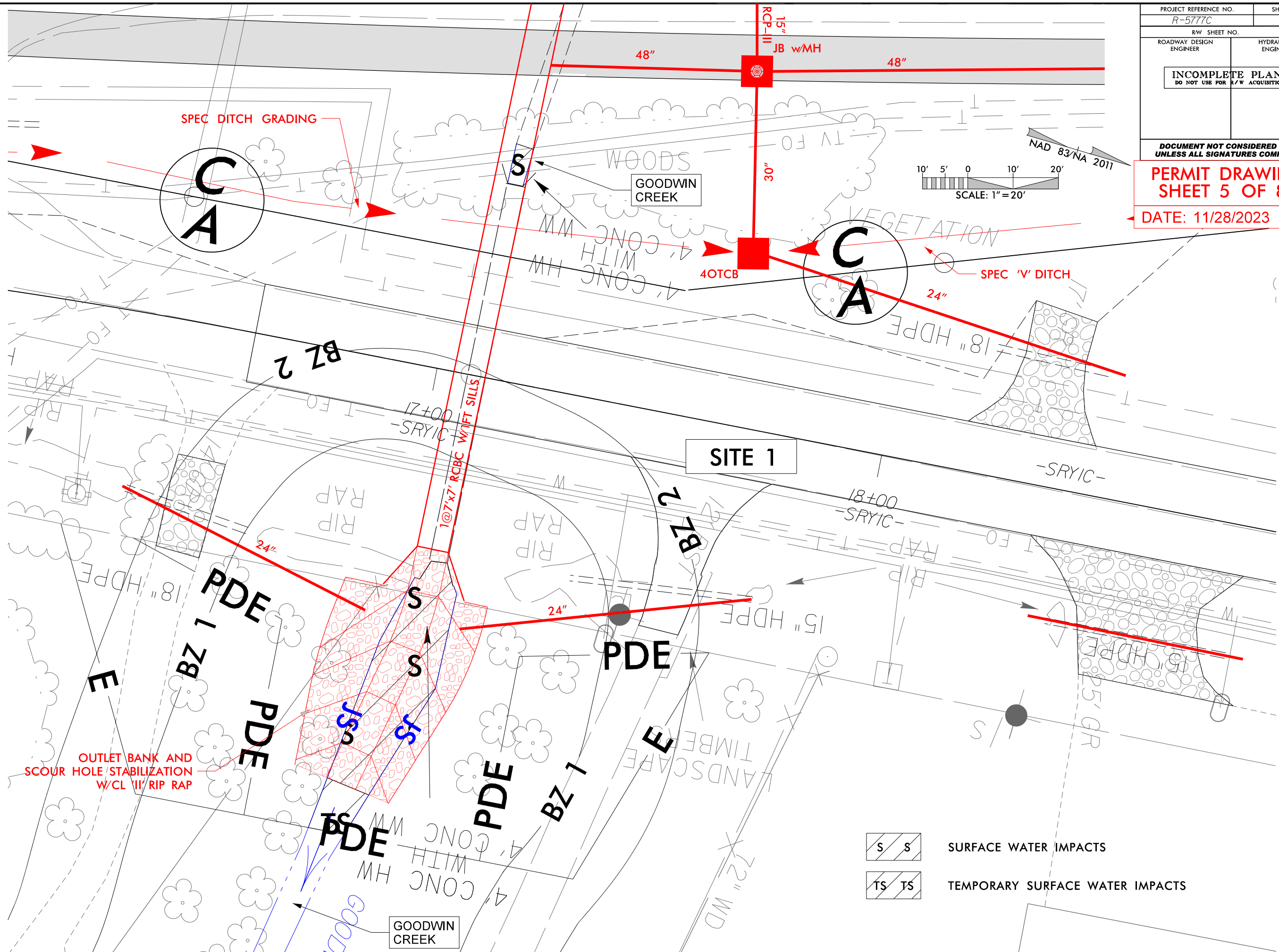


PROJECT REFERENCE NO. R-5777C	SHEET NO.
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	

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

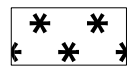
**PERMIT DRAWING  
SHEET 5 OF 87**

**DATE: 11/28/2023**

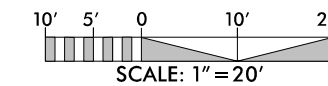


- S S SURFACE WATER IMPACTS
- TS TS TEMPORARY SURFACE WATER IMPACTS

8/17/99



MECHANIZED CLEARING



PROJECT REFERENCE NO. R-5777C	SHEET NO.
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

**PERMIT DRAWING**  
**SHEET 6 OF 87**

DATE: 11/28/2023

JACKSON FAMILY, LLC

WETLAND WB

WOODS

SITE 2

MECHANIZED CLEARING

SPEC 3' BASE DITCH

R  
W

22+00 -SRYIB-

24+00 -SRYIB-

15" RCP  
10' SOIL

-SRYIB-

SR 1163 18' PAVED ROADWAY

C  
A

C  
A

SPEC DITCH GRADING

GRASS

VC  
EEL

FES

US 70 EB

11/28/2023 R-5777C-Hyd.prm\_wet.psh\_05-4-View1.dgn

300 280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300

PERMIT DRAWING  
SHEET 7 OF 87  
DATE: 11/28/2023

SITE 1

WETLAND WA  
GOODWIN CREEK

SURFACE WATER IMPACTS

FILL IN WETLAND

WETLAND

WETLAND

WETLAND

WETLAND

3:1

4:1

0.020

0.020

4.683:1

6:1

0.040

4.879:1

6.8:1

0.040

6:1

3:1

0.008

16+00.00

4:1

3:1

0.020

0.020

4:1

6:1

0.040

4.453:1

6.342:1

0.040

6:1

6:1

15+50.00

3:1

4:1

0.020

0.020

4:1

5.147:1

0.040

4.080:1

6:1

0.040

6:1

23.47

6:1

15+00.00

WETLAND

WETLAND

3:1

4:1

0.020

0.020

4.148:1

6:1

0.040

4.3:1

7:1

0.040

6:1

6:1

14+50.00

3:1

4:1

0.020

0.020

5:1

6:1

0.040

4:1

6.892:1

0.040

5:1

5:1

14+00.00

3:1

4:1

0.020

0.020

4:1

5.122:1

0.040

4:1

7.718:1

0.040

5.5:1

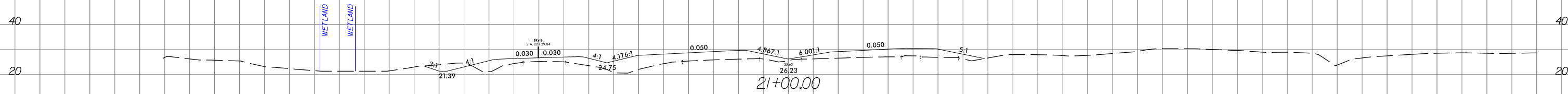
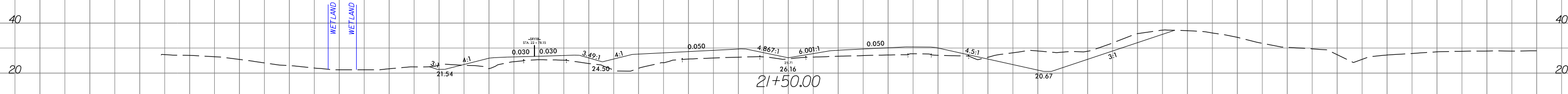
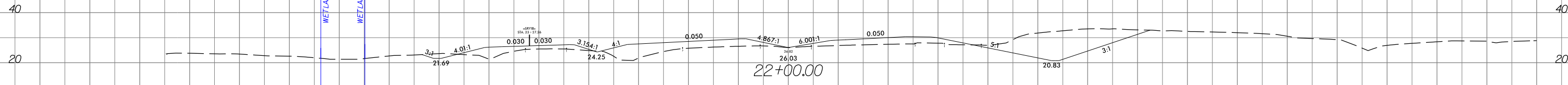
4.4:1

13+50.00

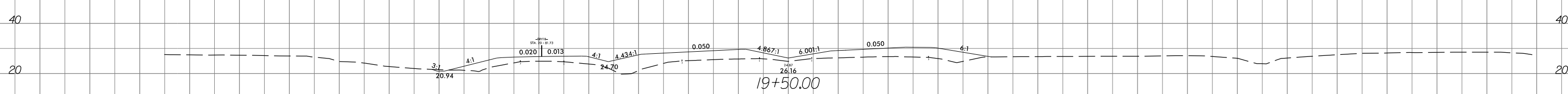
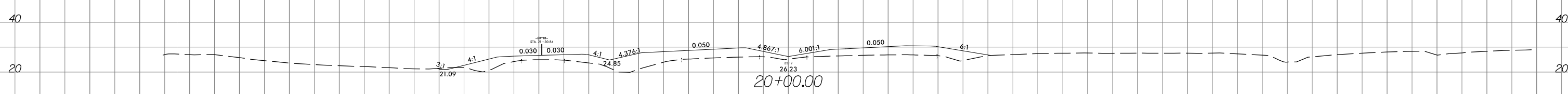
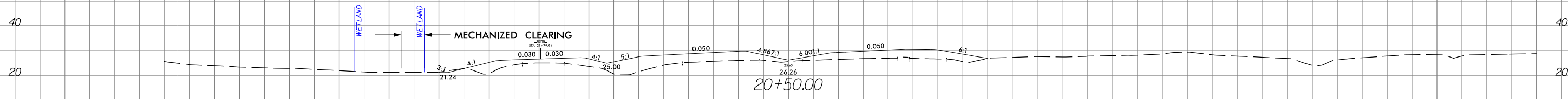
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**PERMIT DRAWING**  
**SHEET 8 OF 87**  
DATE: 11/28/2023



**SITE 2**      **WETLAND WB**



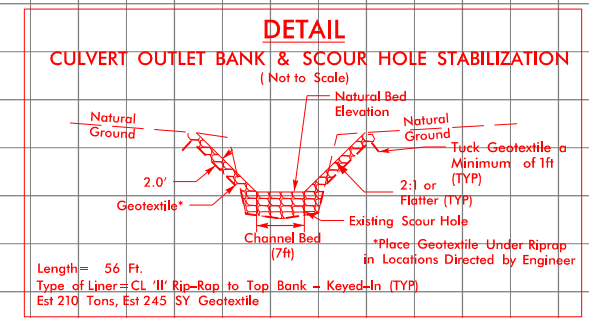
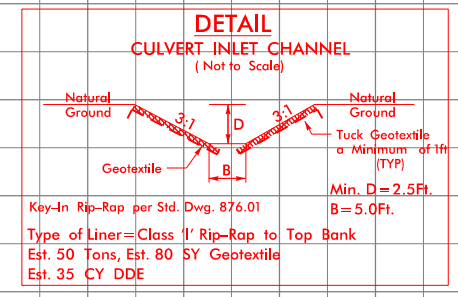
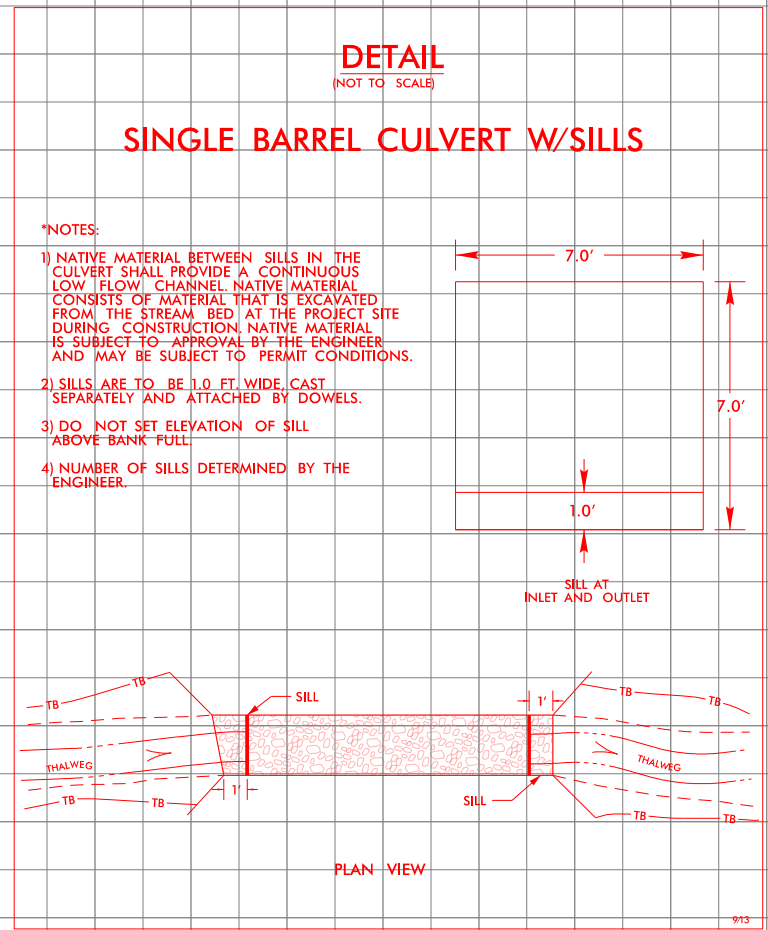
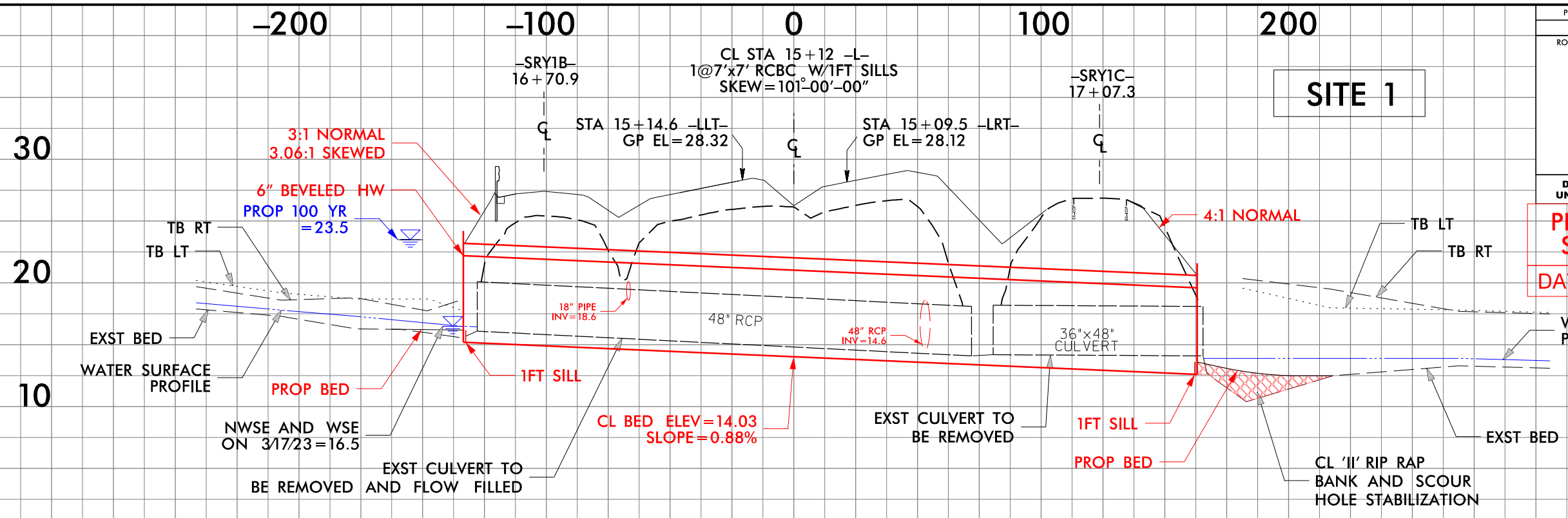
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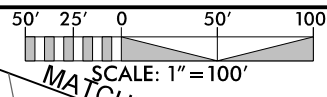
# SITE 1

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

**PERMIT DRAWING**  
**SHEET 9 OF 87**

DATE: 11/28/2023

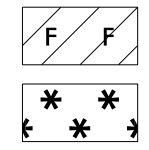
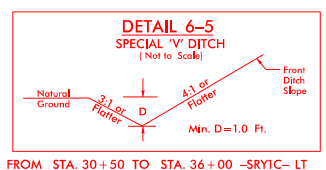
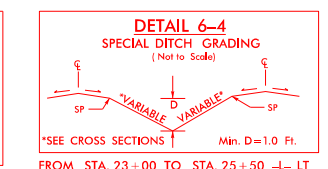
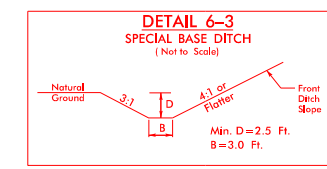
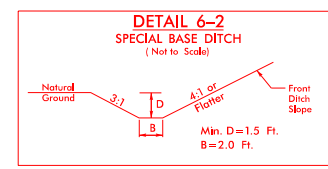
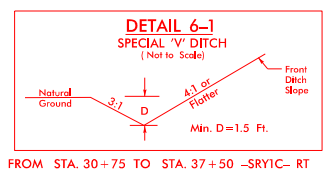
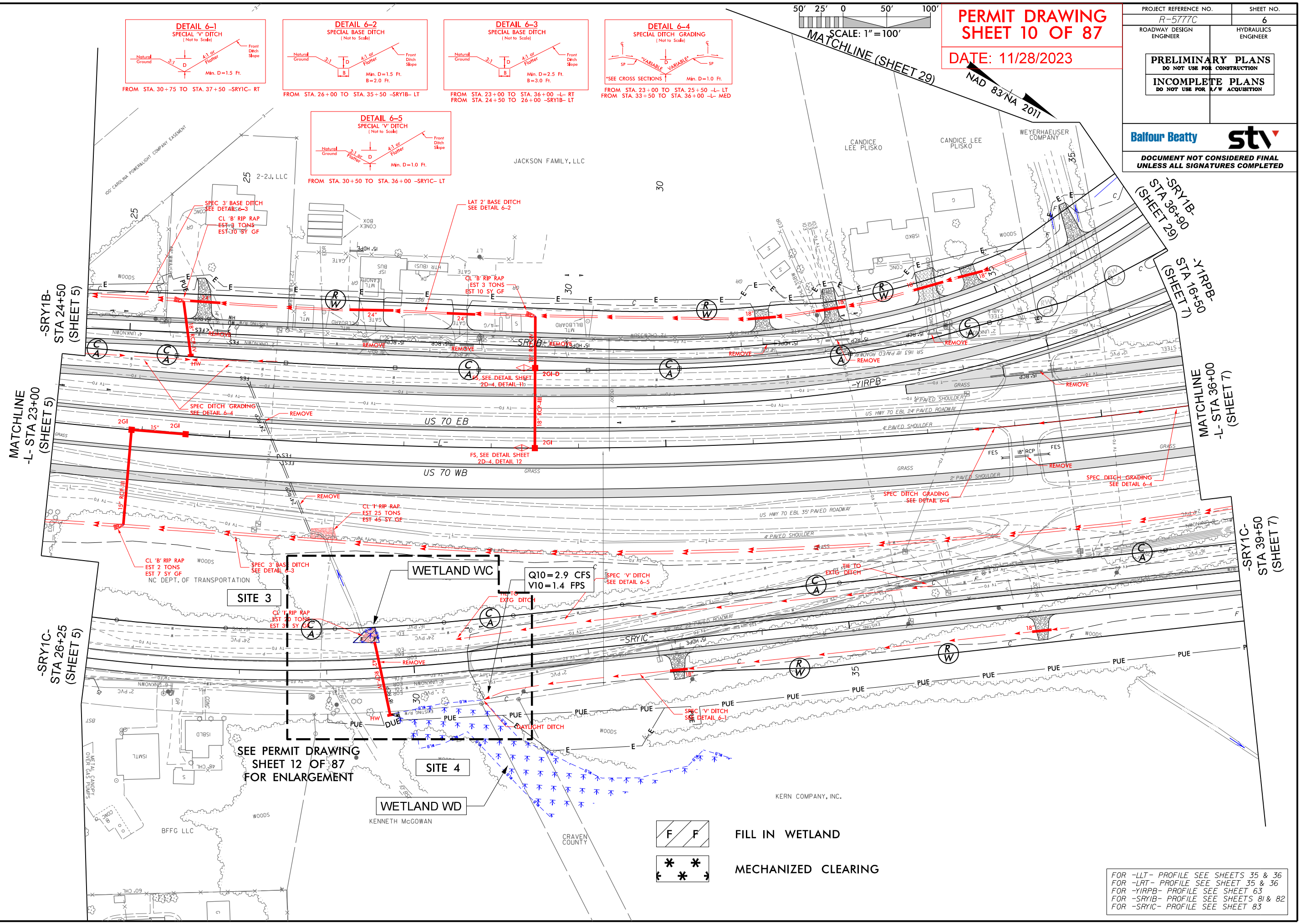




**PERMIT DRAWING  
SHEET 10 OF 87**

DATE: 11/28/2023

PROJECT REFERENCE NO. R-5777C	SHEET NO. 6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION</b>	
<b>INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION</b>	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

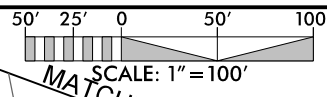


**F F** FILL IN WETLAND  
**\* \*** MECHANIZED CLEARING

SEE PERMIT DRAWING  
SHEET 12 OF 87  
FOR ENLARGEMENT

FOR -LLT- PROFILE SEE SHEETS 35 & 36  
FOR -LRT- PROFILE SEE SHEET 35 & 36  
FOR -YIRPB- PROFILE SEE SHEET 63  
FOR -SRY1B- PROFILE SEE SHEETS 81 & 82  
FOR -SRY1C- PROFILE SEE SHEET 83

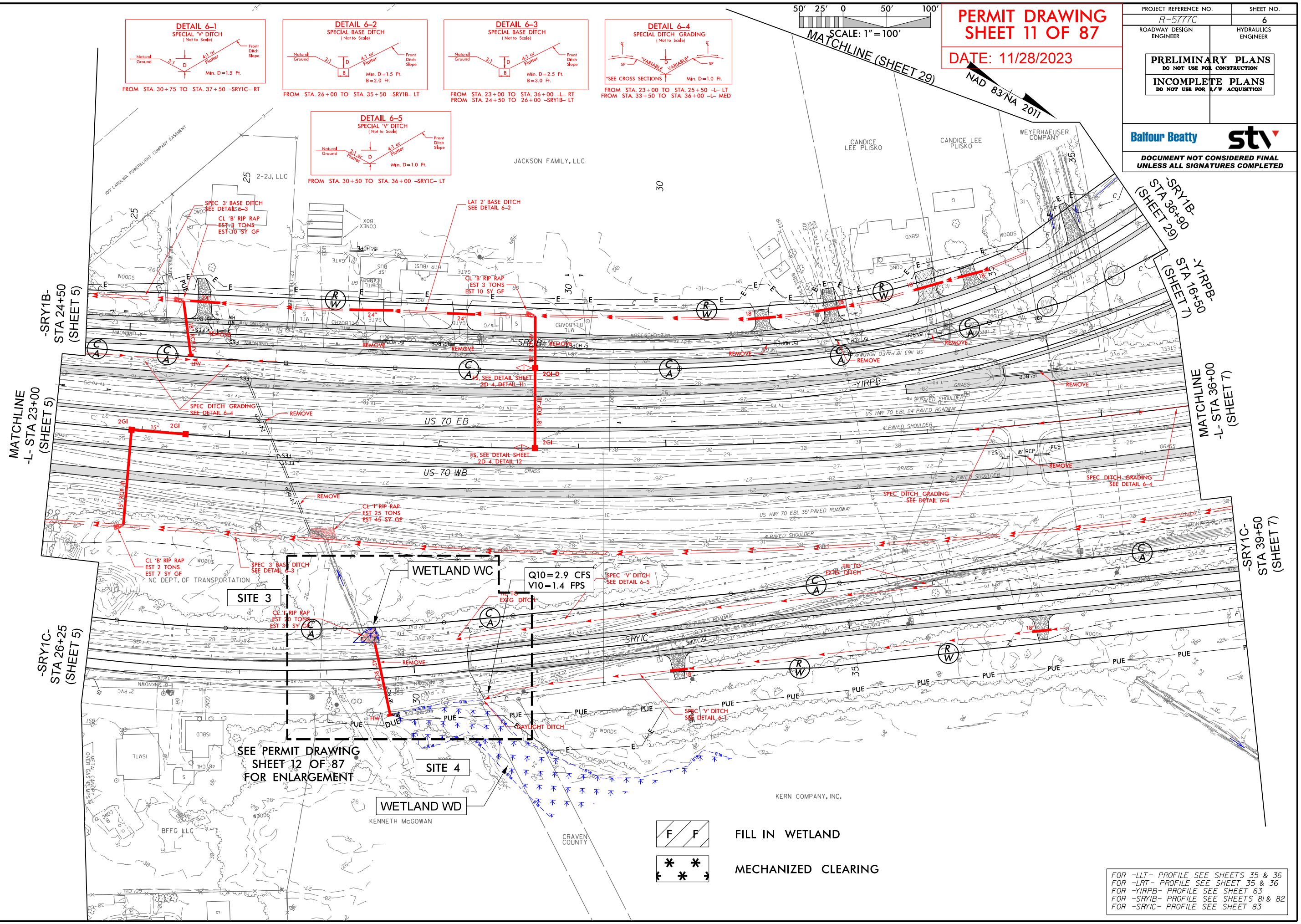
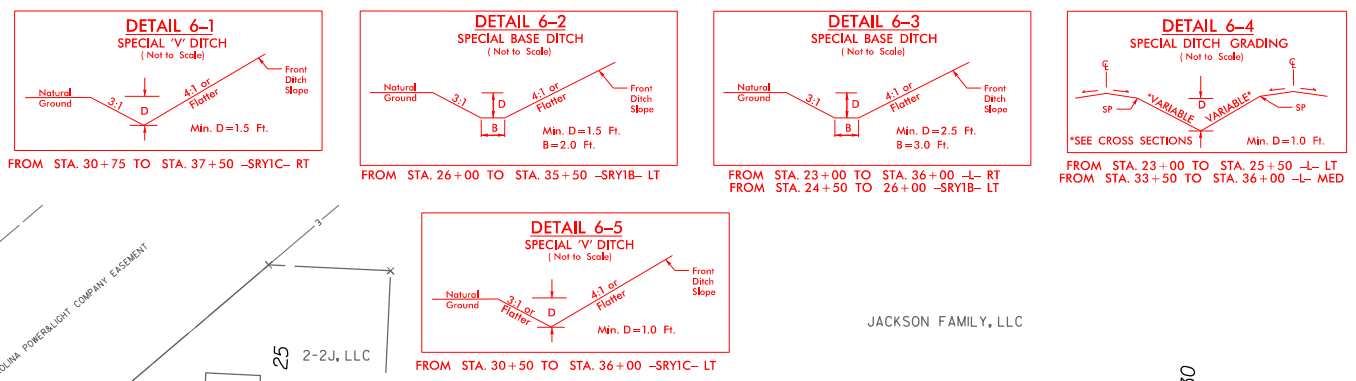
11/28/2023 R-5777C-Hyd.prm-wet\_psh\_06.dgn



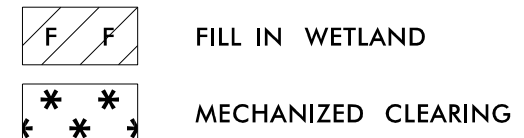
**PERMIT DRAWING  
SHEET 11 OF 87**

DATE: 11/28/2023

PROJECT REFERENCE NO. R-5777C	SHEET NO. 6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
<b>INCOMPLETE PLANS</b> DO NOT USE FOR A/W ACQUISITION	
<b>Balfour Beatty</b> <b>stv</b>	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



11/28/2023 R-5777C-Hyd.prm-wet\_psh\_06-1.dgn



SEE PERMIT DRAWING  
SHEET 12 OF 87  
FOR ENLARGEMENT

FOR -LLT- PROFILE SEE SHEETS 35 & 36  
 FOR -LRT- PROFILE SEE SHEET 35 & 36  
 FOR -YIRPB- PROFILE SEE SHEET 63  
 FOR -SRYIB- PROFILE SEE SHEETS 81 & 82  
 FOR -SRYIC- PROFILE SEE SHEET 83




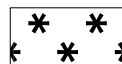
8/17/99

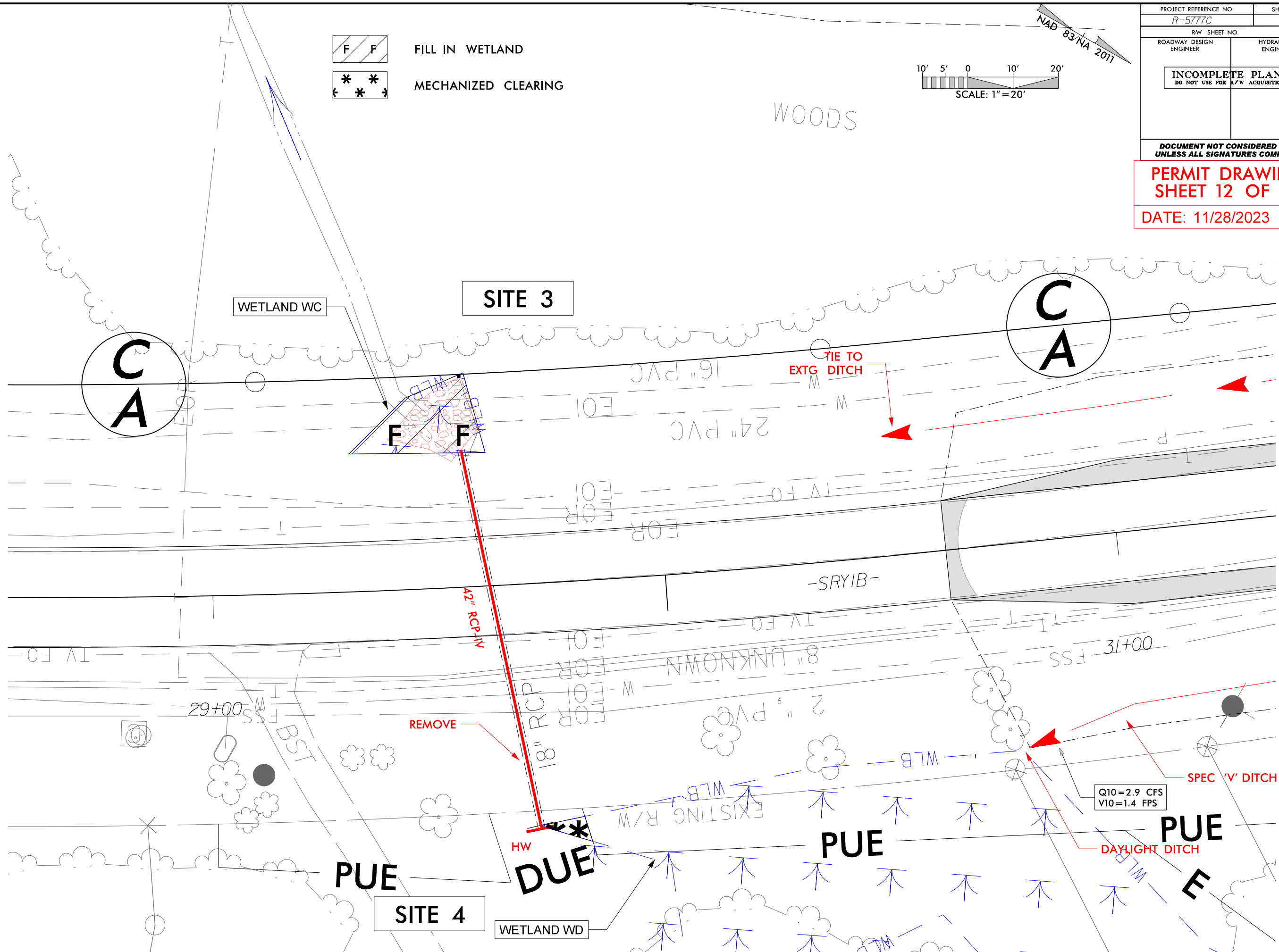
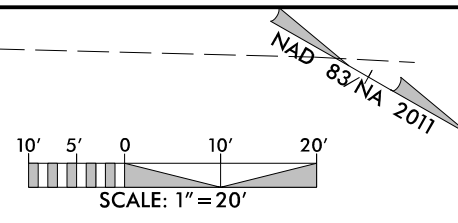
PROJECT REFERENCE NO. R-5777C	SHEET NO.
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

**PERMIT DRAWING**  
**SHEET 12 OF 87**

DATE: 11/28/2023

-  F F FILL IN WETLAND
-  \* \* \* MECHANIZED CLEARING



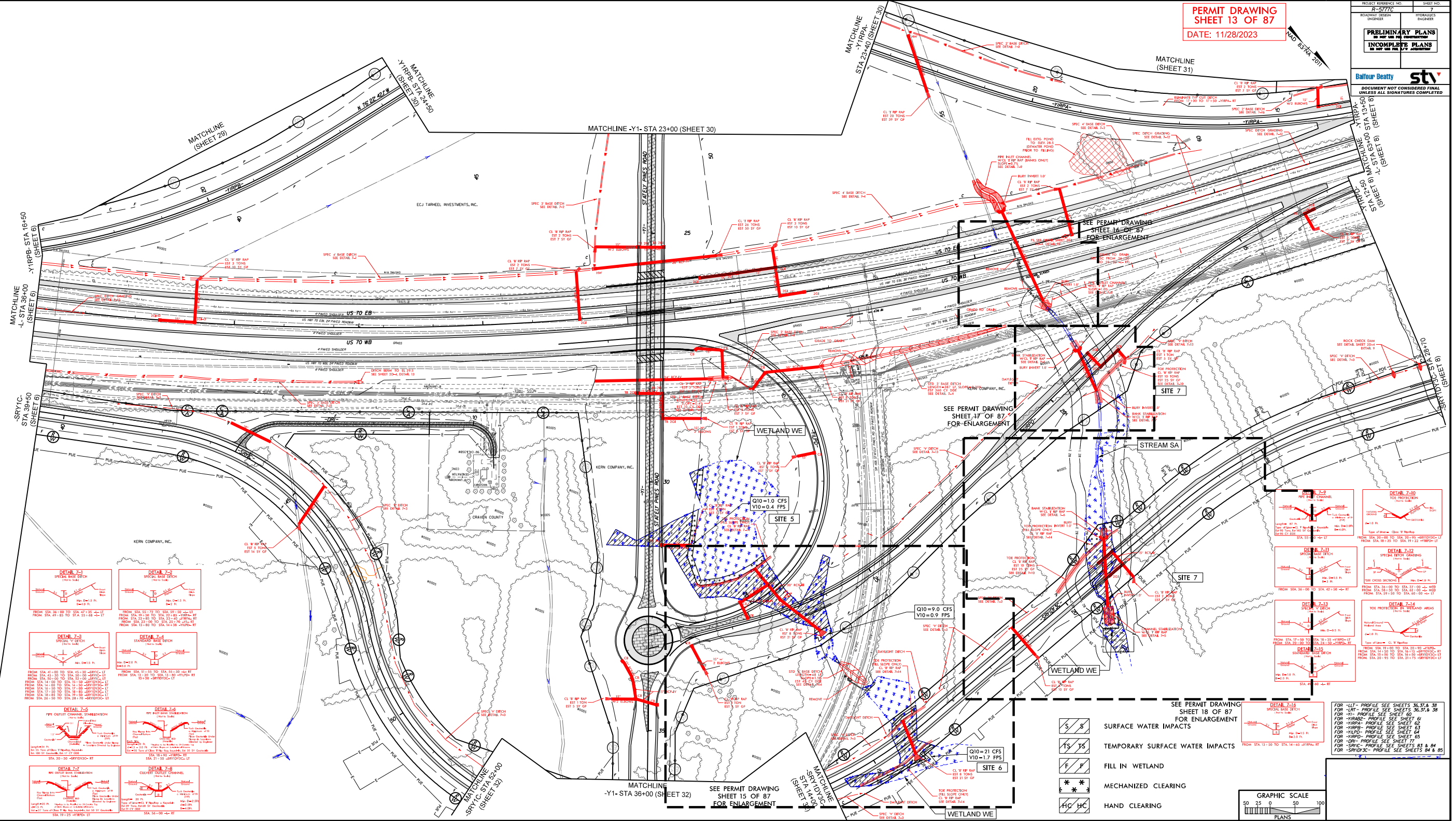
11/28/2023 R-5777C-Hyd.prm-wet.psh\_06-2-View1.dgn

6/2/99

1/28/2023  
R-5777C\_Hfd.prm\_wet.pln\_07.dgn

PERMIT DRAWING  
SHEET 13 OF 87  
DATE: 11/28/2023

PROJECT REFERENCE NO.	R-5777C	SHEET NO.	7
ROADWAY DESIGN ENGINEER		HYDRAULIC ENGINEER	
<b>PRELIMINARY PLANS</b> Do not use for construction			
<b>INCOMPLETE PLANS</b> Do not use for the 1/2" construction			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
<b>Balfour Beatty</b> <b>st</b> <small>STANTEC INC.</small>			



DETAIL 7-1 SPECIAL BASE DETAIL

DETAIL 7-2 SPECIAL BASE DETAIL

DETAIL 7-3 SPECIAL BASE DETAIL

DETAIL 7-4 STANDING WATER DETAIL

DETAIL 7-5 SPECIAL BASE DETAIL

DETAIL 7-6 SPECIAL BASE DETAIL

DETAIL 7-7 SPECIAL BASE DETAIL

DETAIL 7-8 SPECIAL BASE DETAIL

DETAIL 7-9 SPECIAL BASE DETAIL

DETAIL 7-10 SPECIAL BASE DETAIL

DETAIL 7-11 SPECIAL BASE DETAIL

DETAIL 7-12 SPECIAL BASE DETAIL

DETAIL 7-13 SPECIAL BASE DETAIL

DETAIL 7-14 SPECIAL BASE DETAIL

DETAIL 7-15 SPECIAL BASE DETAIL

DETAIL 7-16 SPECIAL BASE DETAIL

DETAIL 7-17 SPECIAL BASE DETAIL

DETAIL 7-18 SPECIAL BASE DETAIL

DETAIL 7-19 SPECIAL BASE DETAIL

DETAIL 7-20 SPECIAL BASE DETAIL

DETAIL 7-21 SPECIAL BASE DETAIL

DETAIL 7-22 SPECIAL BASE DETAIL

DETAIL 7-23 SPECIAL BASE DETAIL

DETAIL 7-24 SPECIAL BASE DETAIL

DETAIL 7-25 SPECIAL BASE DETAIL

DETAIL 7-26 SPECIAL BASE DETAIL

DETAIL 7-27 SPECIAL BASE DETAIL

DETAIL 7-28 SPECIAL BASE DETAIL

DETAIL 7-29 SPECIAL BASE DETAIL

DETAIL 7-30 SPECIAL BASE DETAIL

DETAIL 7-31 SPECIAL BASE DETAIL

DETAIL 7-32 SPECIAL BASE DETAIL

DETAIL 7-33 SPECIAL BASE DETAIL

DETAIL 7-34 SPECIAL BASE DETAIL

DETAIL 7-35 SPECIAL BASE DETAIL

DETAIL 7-36 SPECIAL BASE DETAIL

DETAIL 7-37 SPECIAL BASE DETAIL

DETAIL 7-38 SPECIAL BASE DETAIL

DETAIL 7-39 SPECIAL BASE DETAIL

DETAIL 7-40 SPECIAL BASE DETAIL

DETAIL 7-41 SPECIAL BASE DETAIL

DETAIL 7-42 SPECIAL BASE DETAIL

DETAIL 7-43 SPECIAL BASE DETAIL

DETAIL 7-44 SPECIAL BASE DETAIL

DETAIL 7-45 SPECIAL BASE DETAIL

DETAIL 7-46 SPECIAL BASE DETAIL

DETAIL 7-47 SPECIAL BASE DETAIL

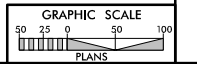
DETAIL 7-48 SPECIAL BASE DETAIL

DETAIL 7-49 SPECIAL BASE DETAIL

DETAIL 7-50 SPECIAL BASE DETAIL

SEE PERMIT DRAWING SHEET 18 OF 87 FOR ENLARGEMENT

	SURFACE WATER IMPACTS
	TEMPORARY SURFACE WATER IMPACTS
	FILL IN WETLAND
	MECHANIZED CLEARING
	HAND CLEARING



FOR -LIT- PROFILE SEE SHEETS 36, 37, & 38  
 FOR -LRT- PROFILE SEE SHEETS 36, 37, & 38  
 FOR -M- PROFILE SEE SHEET 60  
 FOR -HARD- PROFILE SEE SHEET 60  
 FOR -HARD- PROFILE SEE SHEET 62  
 FOR -HARD- PROFILE SEE SHEET 63  
 FOR -HARD- PROFILE SEE SHEET 64  
 FOR -HARD- PROFILE SEE SHEET 65  
 FOR -HARD- PROFILE SEE SHEET 66  
 FOR -SRV- PROFILE SEE SHEETS 83 & 84  
 FOR -SRV- PROFILE SEE SHEETS 85 & 86





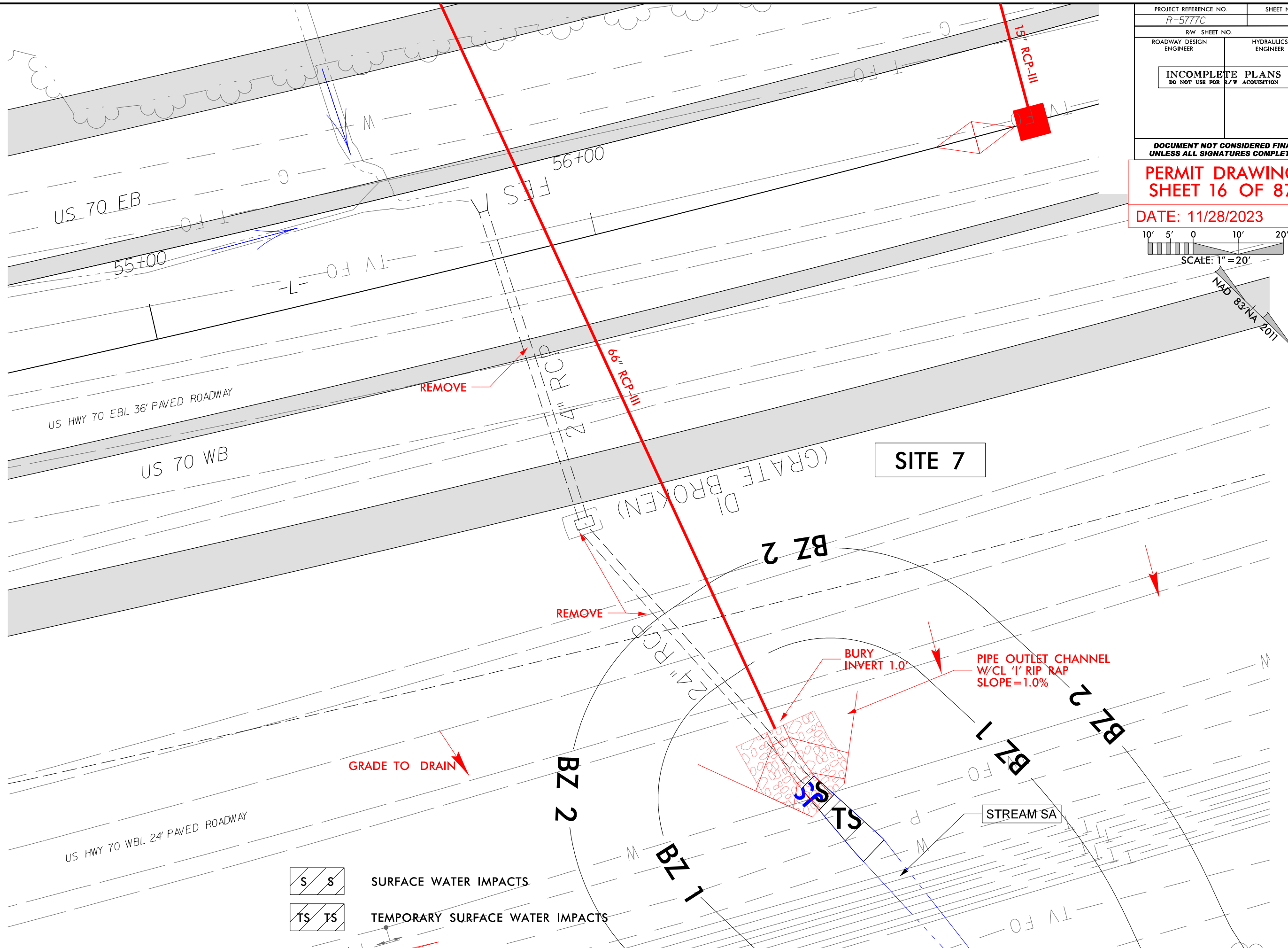
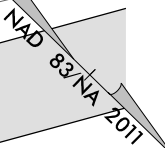
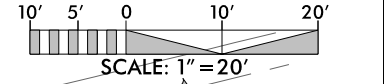
8/17/99

PROJECT REFERENCE NO. R-5777C	SHEET NO.
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	

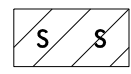
DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

**PERMIT DRAWING**  
**SHEET 16 OF 87**

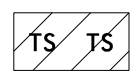
DATE: 11/28/2023



**SITE 7**



**SURFACE WATER IMPACTS**



**TEMPORARY SURFACE WATER IMPACTS**

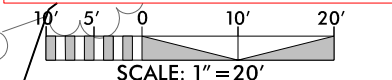
11/28/2023 R-5777C-Hyd.prm\_wet.psh\_07-3-View1.dgn

PROJECT REFERENCE NO. R-5777C	SHEET NO.
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	

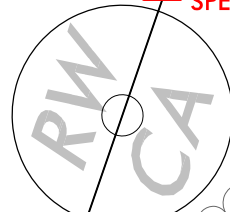
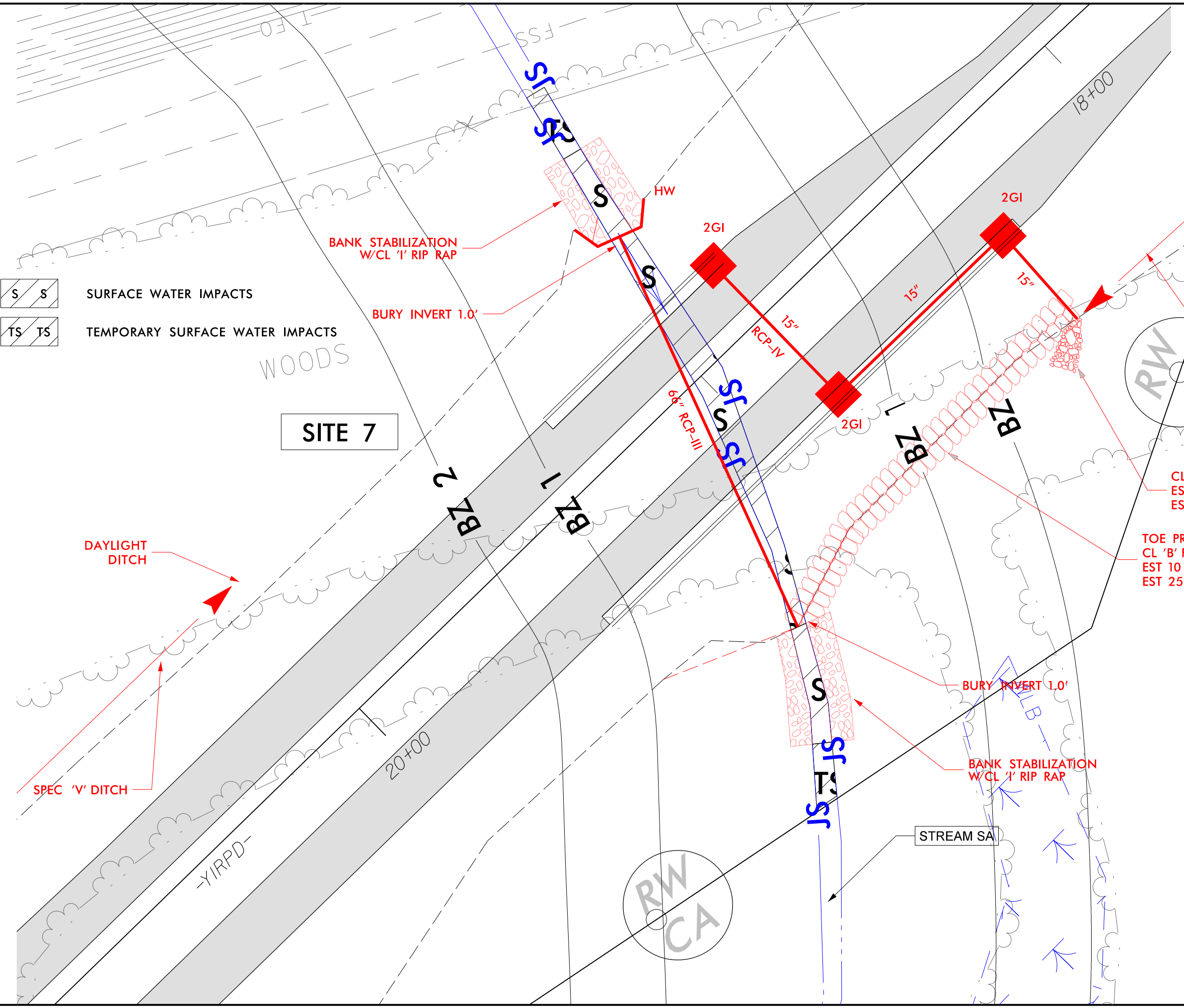
DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

**PERMIT DRAWING**  
**SHEET 17 OF 87**

DATE: 11/28/2023



- S S SURFACE WATER IMPACTS
- TS TS TEMPORARY SURFACE WATER IMPACTS



CL 'B' RIP RAP  
EST 1 TON  
EST 5 SY GF

TOE PROTECTION  
CL 'B' RIP RAP  
EST 10 TONS  
EST 25 SY GF

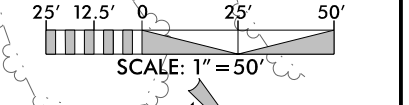
PROJECT REFERENCE NO. R-5777C	SHEET NO.
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

**INCOMPLETE PLANS**  
DO NOT USE FOR R/W ACQUISITION

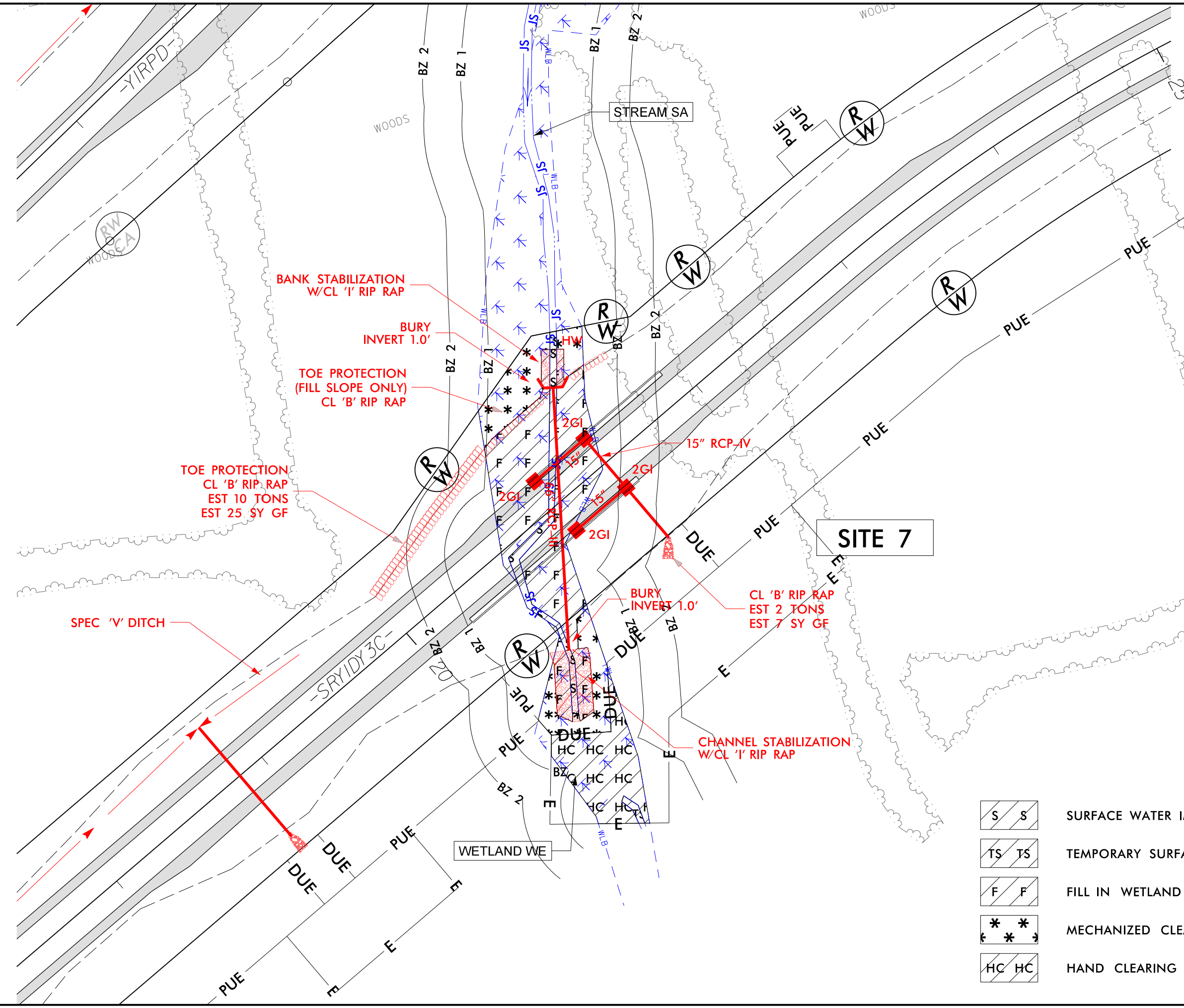
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UNLESS ALL SIGNATURES COMPLETED

**PERMIT DRAWING**  
**SHEET 18 OF 87**

DATE: 11/28/2023

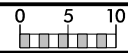


8/17/99  
11/28/2023  
R-5777C-Hyd.prm-wet.psh\_07-5-View1.dgn



	SURFACE WATER IMPACTS
	TEMPORARY SURFACE WATER IMPACTS
	FILL IN WETLAND
	MECHANIZED CLEARING
	HAND CLEARING

6/23/16



PROJ. REFERENCE NO. R-5777C SHEET NO. Y1-11

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

PERMIT DRAWING  
SHEET 19 OF 87  
DATE: 11/28/2023

SITE 5

WETLAND WE

MECHANIZED CLEARING

FILL IN WETLAND

FILL IN WETLAND

31 + 00.00

49.53

30 + 50.00

SITE 5

WETLAND WE

MECHANIZED CLEARING

FILL IN WETLAND

30 + 00.00

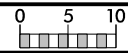
-Y/-

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11/28/2023  
R-5777C-Hyd-prm-wet\_psh\_07-6-sp.dgn  
jharvey

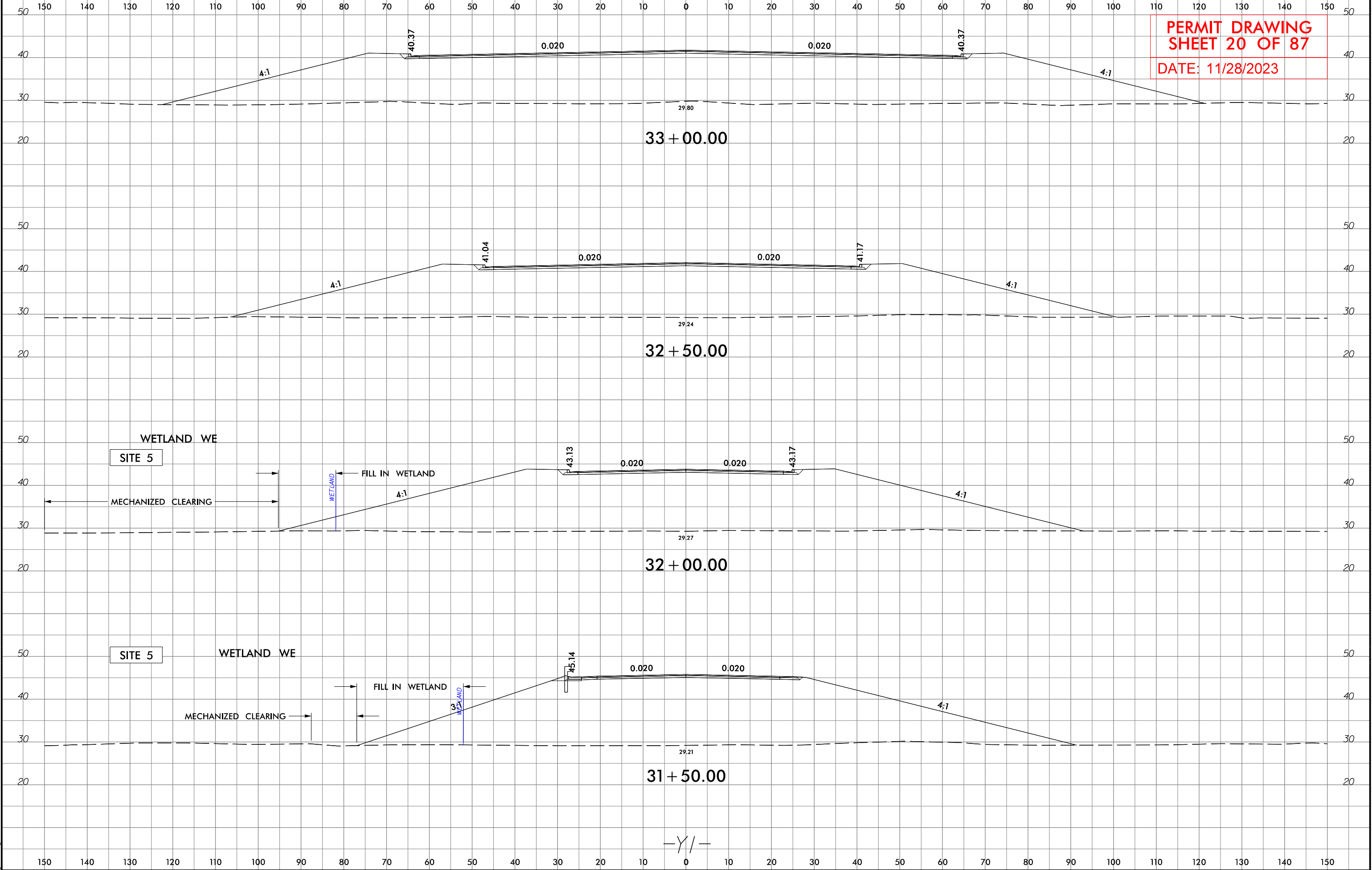


6/23/16



PROJ. REFERENCE NO.	SHEET NO.
R-5777C	Y1-12

**PERMIT DRAWING**  
**SHEET 20 OF 87**  
 DATE: 11/28/2023



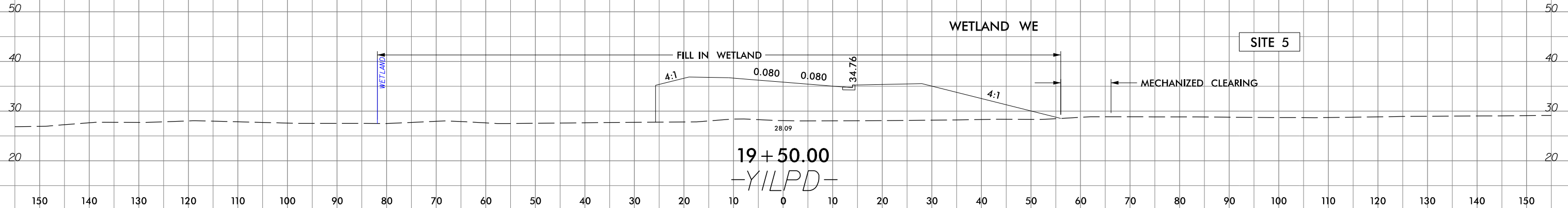
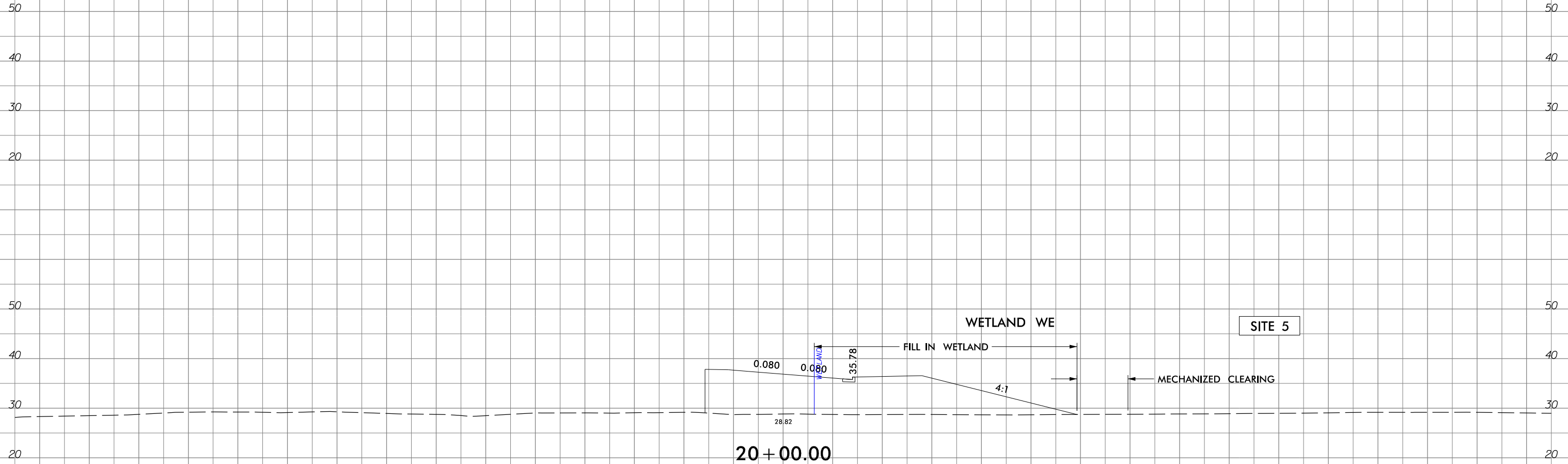
11/28/2023  
R-5777C-Hyd-prm-wet.psh-07-7-sp.dgn  
jharvey

-Y/-

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

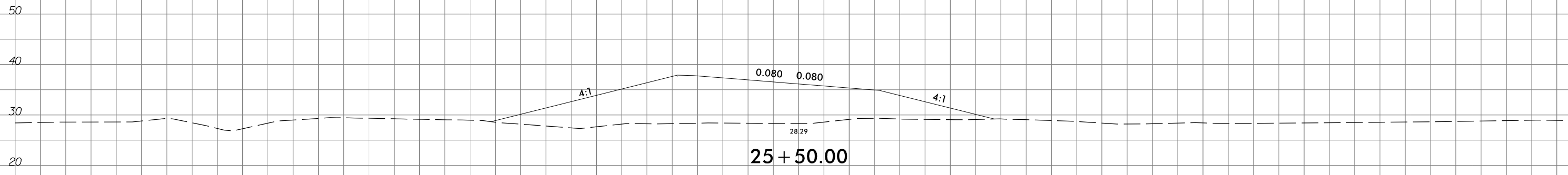
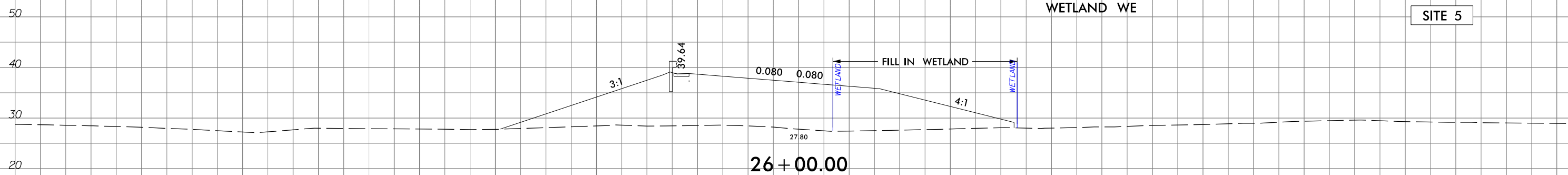
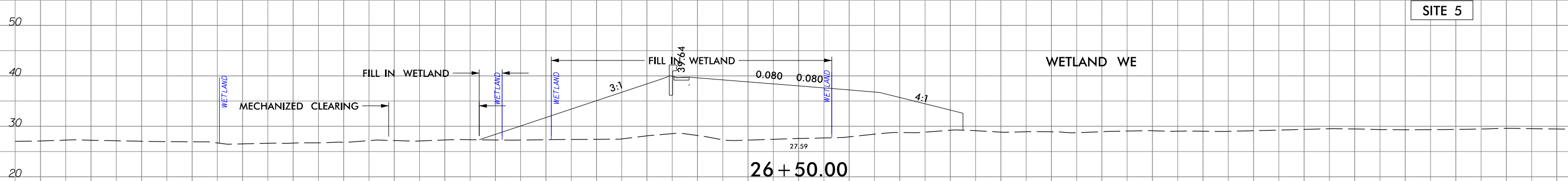
**PERMIT DRAWING  
SHEET 21 OF 87**

DATE: 11/28/2023



**PERMIT DRAWING**  
**SHEET 22 OF 87**  
DATE: 11/28/2023

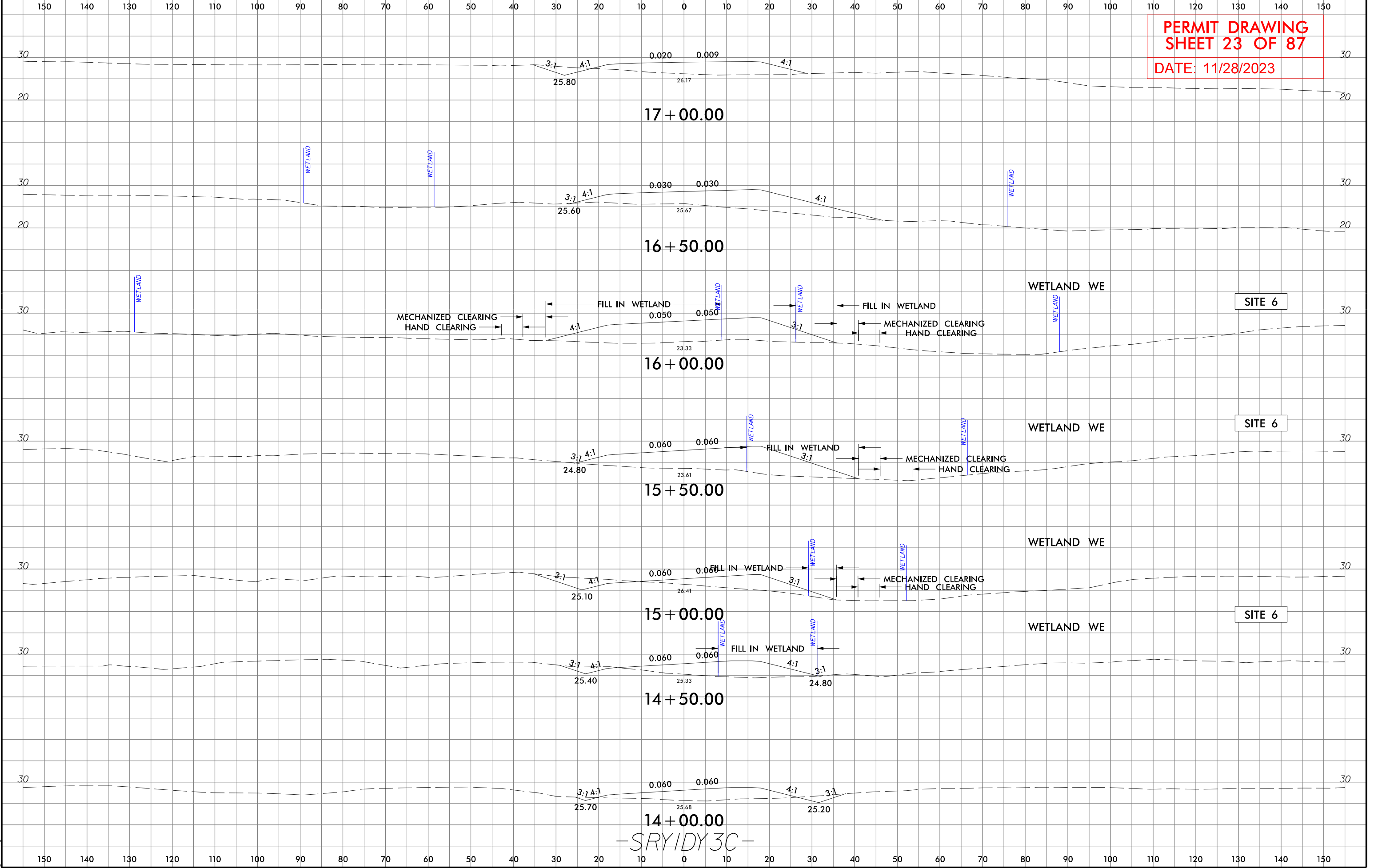
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150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

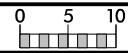
PERMIT DRAWING  
SHEET 23 OF 87

DATE: 11/28/2023



-SRYIDY3C-

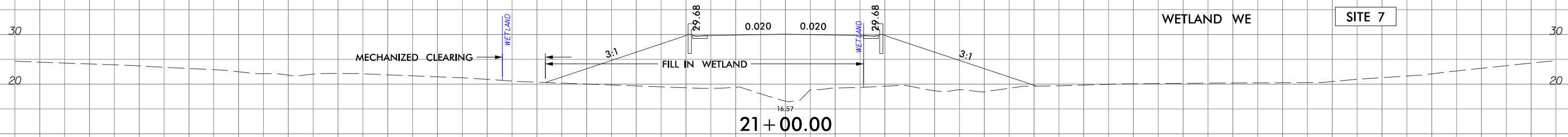
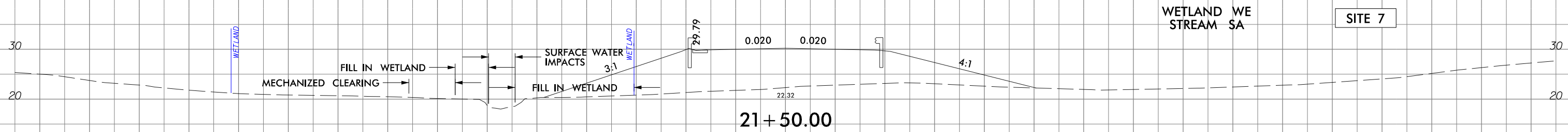
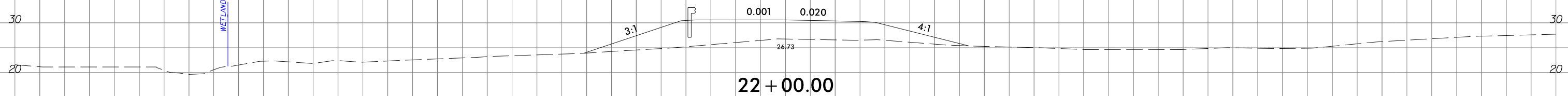
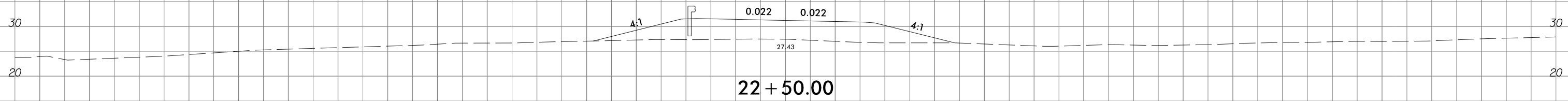
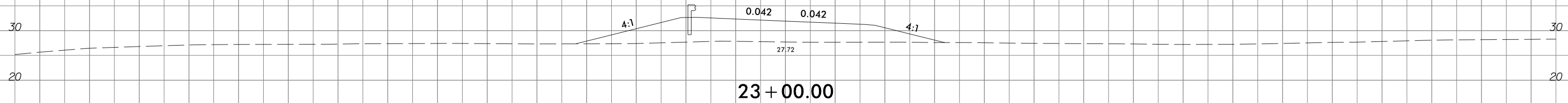
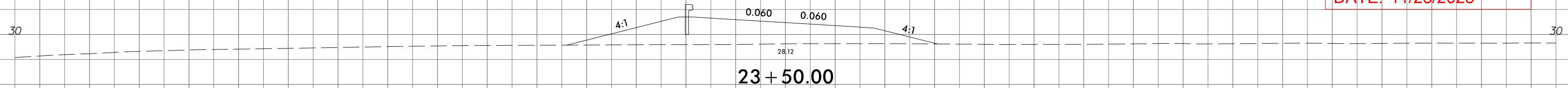
6/23/16



PROJ. REFERENCE NO. R-5777C SHEET NO. SRY1DY3C-4

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

**PERMIT DRAWING**  
**SHEET 24 OF 87**  
DATE: 11/28/2023



WETLAND WE  
STREAM SA

SITE 7

WETLAND WE

SITE 7

-SRYIDY3C-

11/28/2023  
R-5777C-Hyd-prm-wet-07-11-xpl.dgn  
jharvey

5/14/99

200

100

0

100

200

PROJECT REFERENCE NO. SHEET NO.

R-5777C

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 25 OF 87

DATE: 11/28/2023

SITE 7

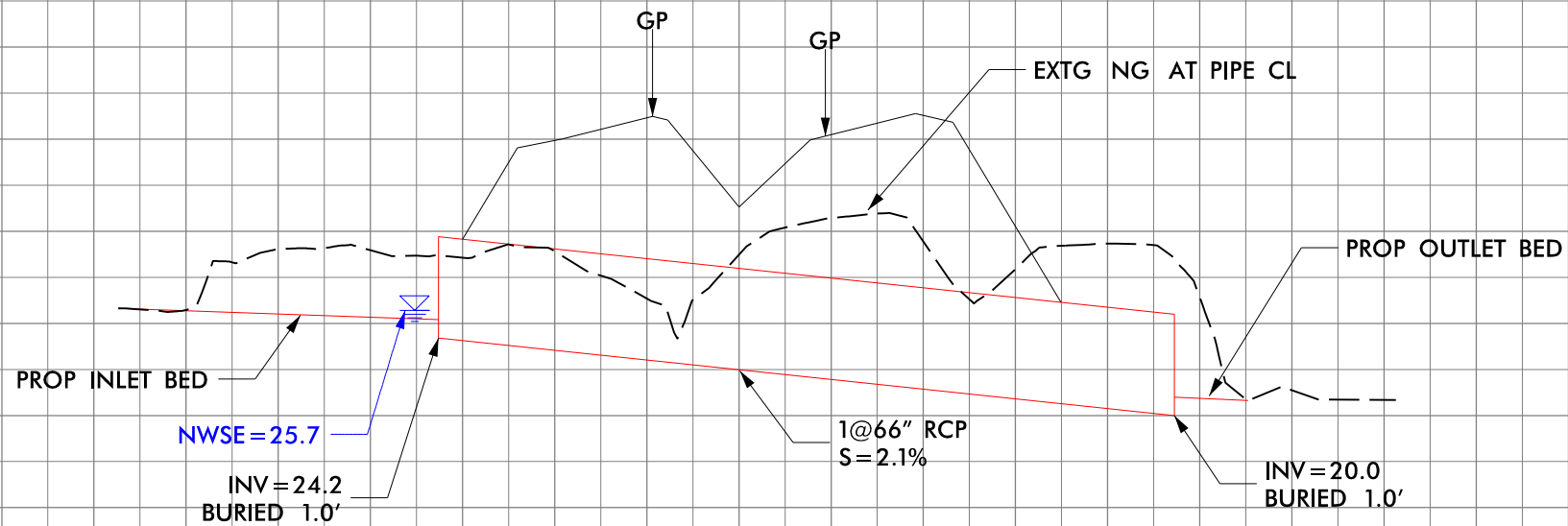
CL STA 55+90 -L-  
1@66" RCP (BURIED 1.0')

40

30

20

10



11/28/2023  
R-5777C-Hyd.prm-wet.psh\_07-12-Sect.dgn

5/14/99

200

100

0

100

200

PROJECT REFERENCE NO. R-5777C	SHEET NO.
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

**PERMIT DRAWING**  
**SHEET 26 OF 87**

DATE: 11/28/2023

**SITE 7**

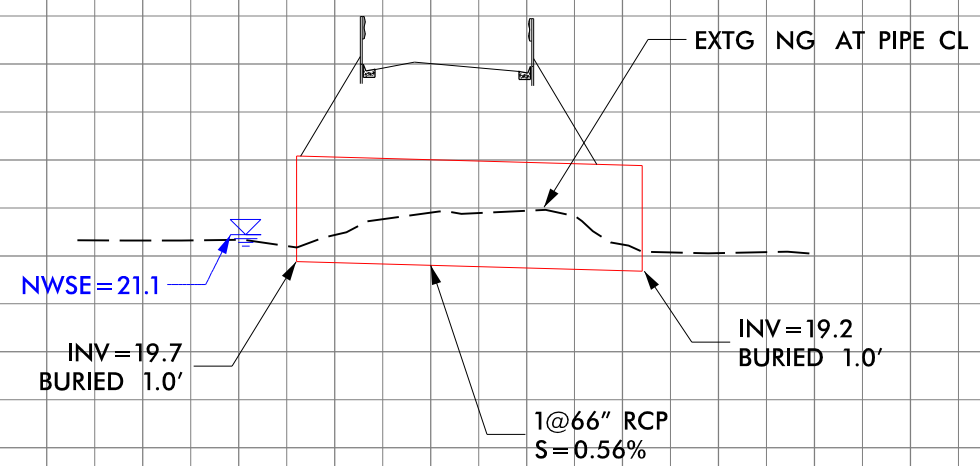
CL STA 19+04 -YIRPD-  
1@66" RCP (BURIED 1.0')

40

30

20

10



11/28/2023  
R-5777C-Hyd.prm-wet.psh\_07-13-Sect.dgn  
26 of 87

5/14/99

200

100

0

100

200

PROJECT REFERENCE NO. SHEET NO.

R-5777C

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 27 OF 87

DATE: 11/28/2023

SITE 7

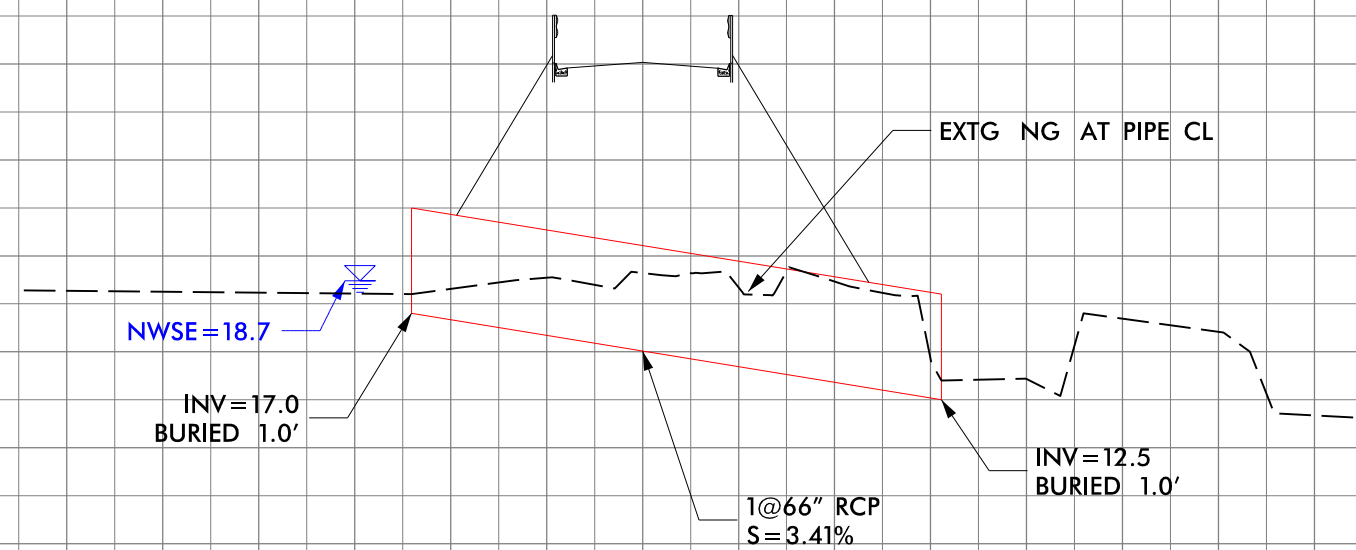
CL STA 21+06 -SRV1DY3C-  
1@66" RCP (BURIED 1.0')

40

30

20

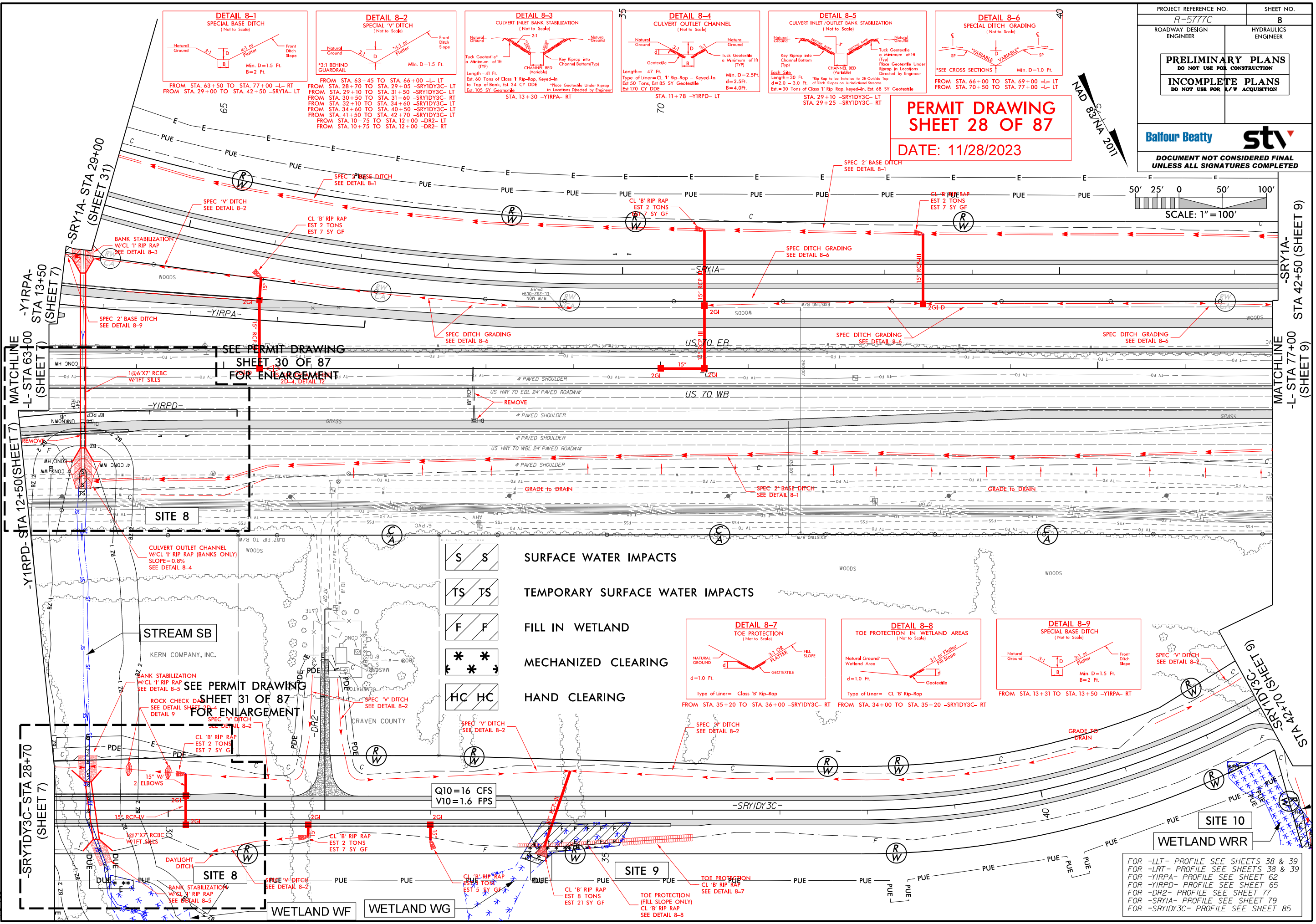
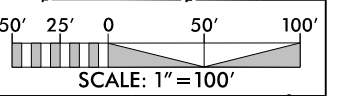
10



11/28/2023 R-5777C-Hyd.prm-wet.psh\_07-14-Sect.dgn



**PERMIT DRAWING**  
**SHEET 28 OF 87**  
DATE: 11/28/2023



11/28/2023 R-5777C\_Hyd\_prm\_wet\_psh\_08.dgn

FOR -LLT- PROFILE SEE SHEETS 38 & 39  
 FOR -LRT- PROFILE SEE SHEETS 38 & 39  
 FOR -YIRPA- PROFILE SEE SHEET 62  
 FOR -YIRPD- PROFILE SEE SHEET 65  
 FOR -DR2- PROFILE SEE SHEET 77  
 FOR -SRY1A- PROFILE SEE SHEET 79  
 FOR -SRY1DY3C- PROFILE SEE SHEET 85





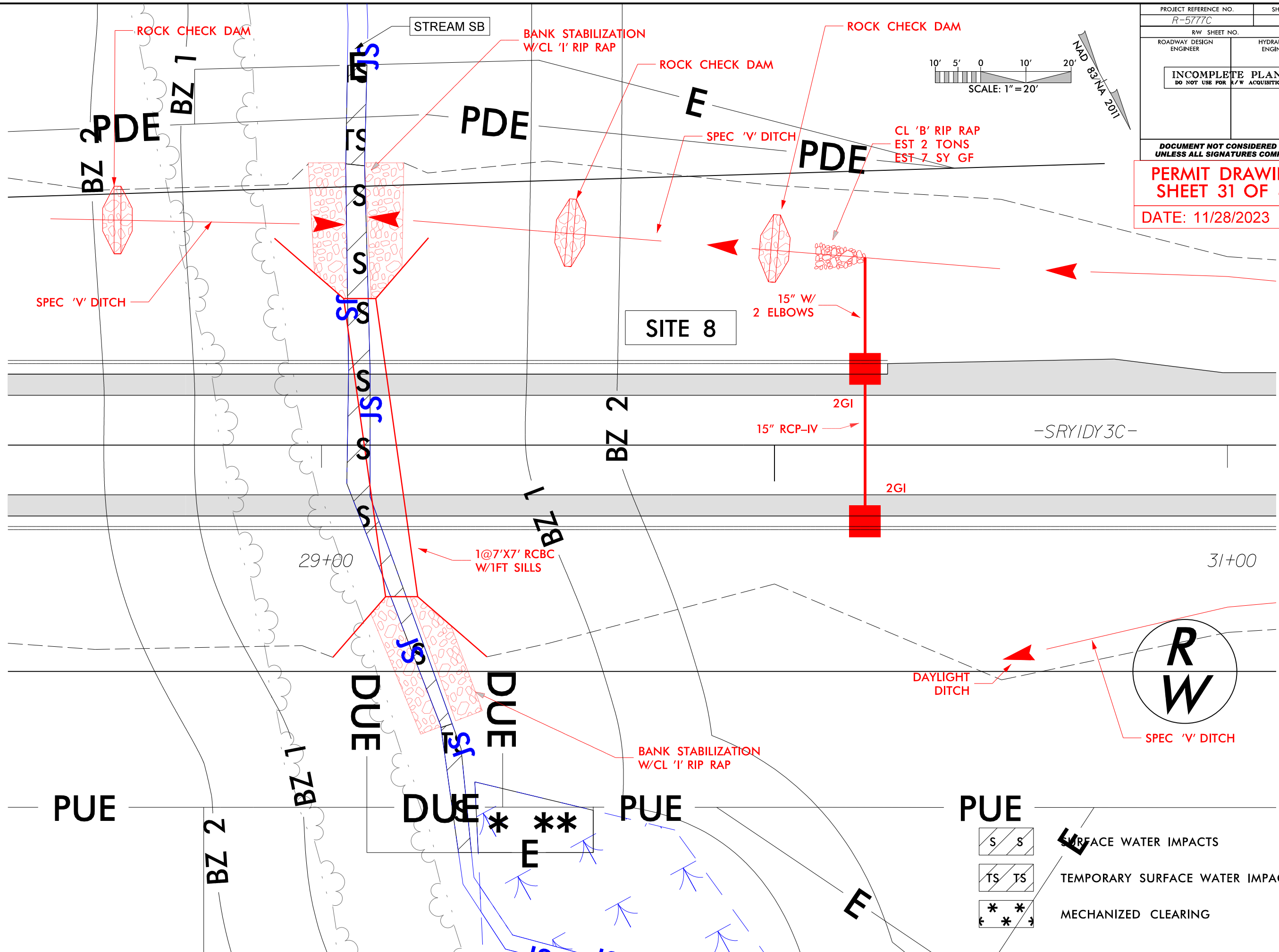
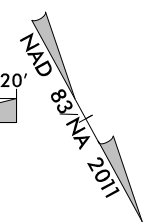
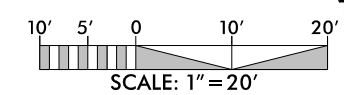
8/17/99

PROJECT REFERENCE NO. R-5777C	SHEET NO.
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

**PERMIT DRAWING**  
**SHEET 31 OF 87**

DATE: 11/28/2023

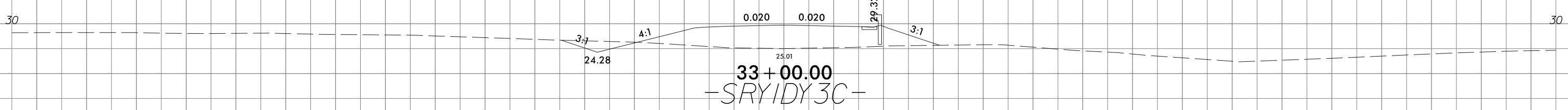
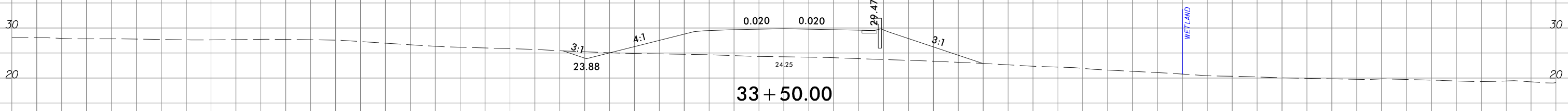
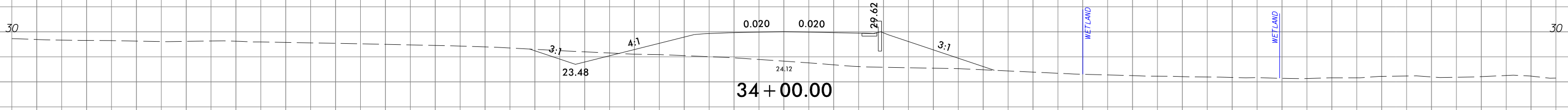
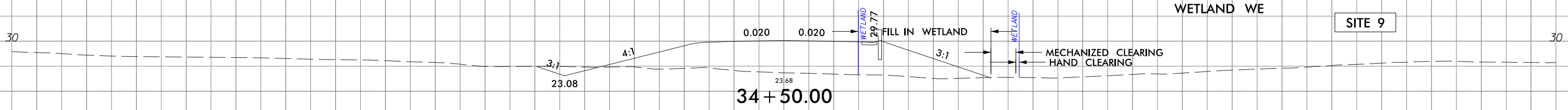
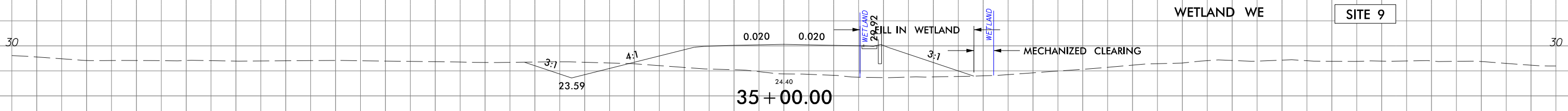
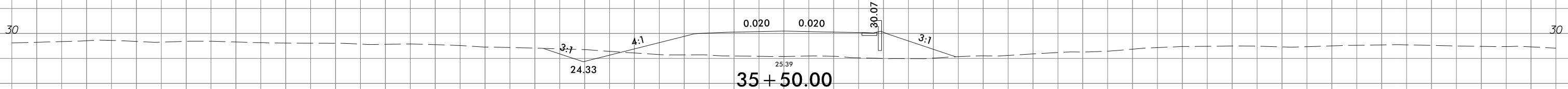


	SURFACE WATER IMPACTS
	TEMPORARY SURFACE WATER IMPACTS
	MECHANIZED CLEARING

11/28/2023 R-5777C-Hyd.prm\_wet.psh\_08-3-View1.dgn

**PERMIT DRAWING  
SHEET 32 OF 87**

DATE: 11/28/2023



33+00.00  
-SRYIDY3C-

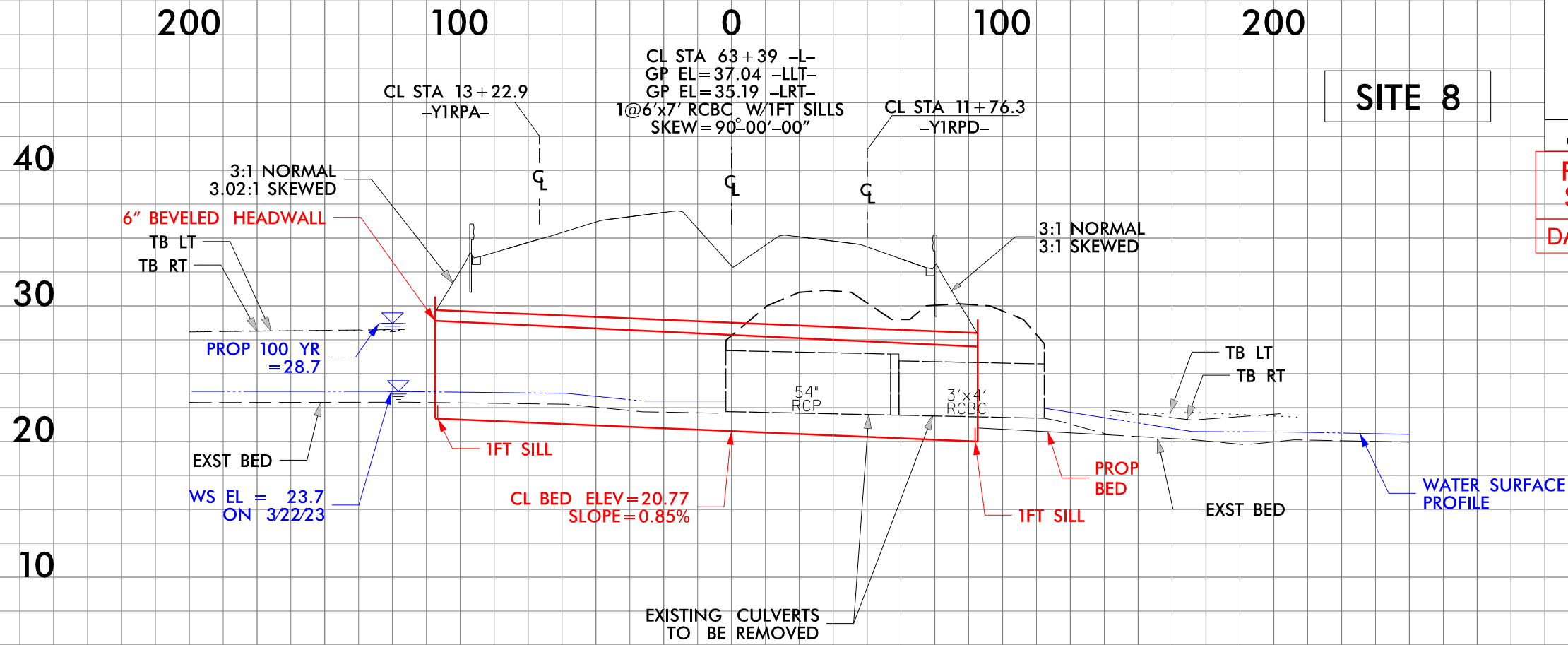
INCOMPLETE PLANS  
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING  
SHEET 33 OF 87

DATE: 11/28/2023

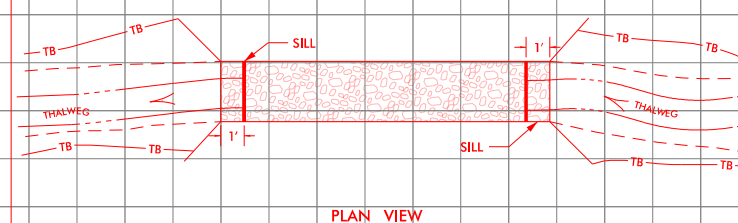
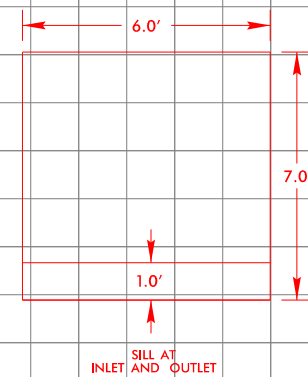
SITE 8



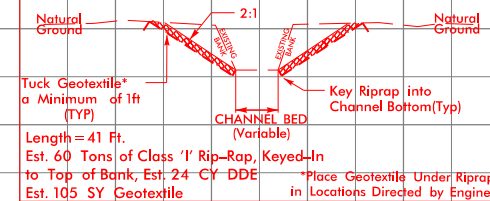
### DETAIL (NOT TO SCALE) SINGLE BARREL CULVERT W/SILLS

**\*NOTES:**

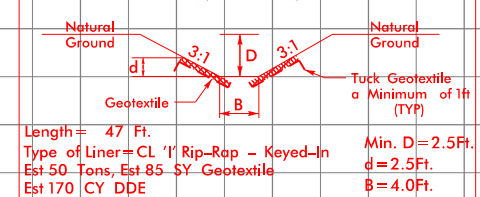
- 1) NATIVE MATERIAL BETWEEN SILLS IN THE CULVERT SHALL PROVIDE A CONTINUOUS LOW-FLOW CHANNEL. NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED AT THE PROJECT SITE DURING CONSTRUCTION. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.
- 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.



### DETAIL CULVERT INLET BANK STABILIZATION (Not to Scale)

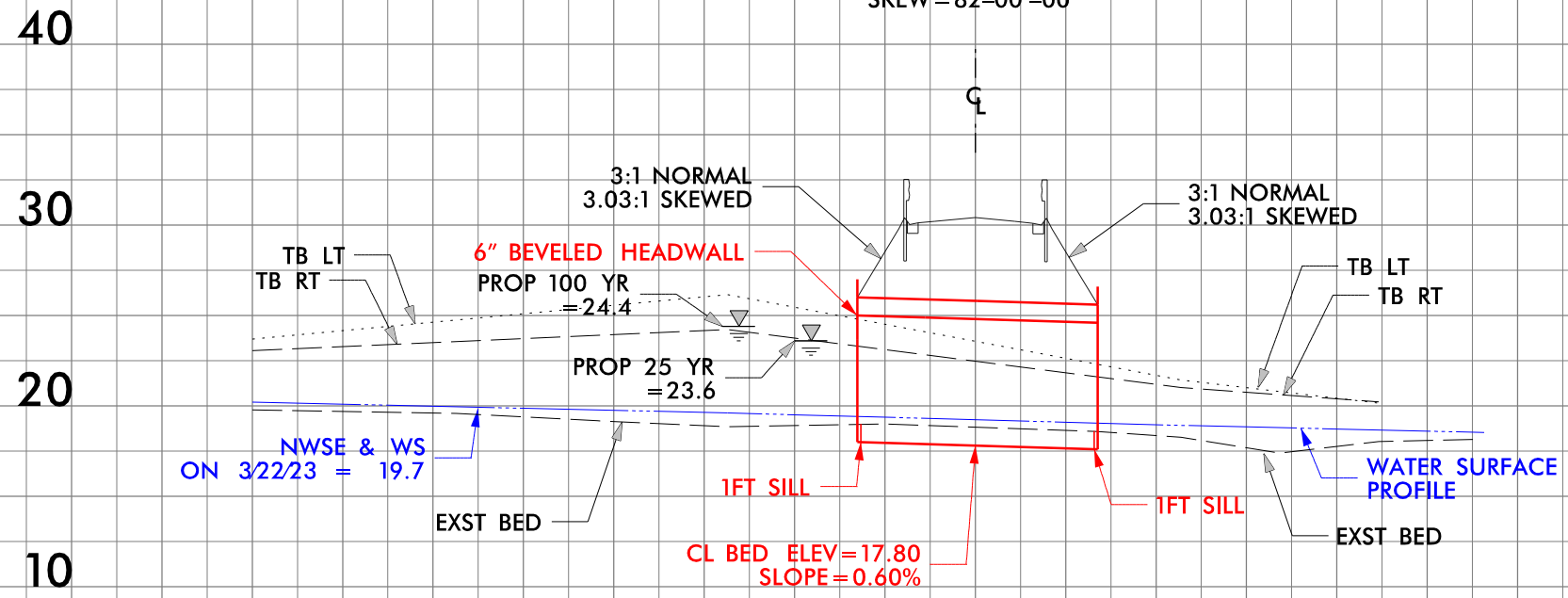


### DETAIL CULVERT OUTLET CHANNEL (Not to Scale)



**SITE 8**

CL STA 29+13 -SR1DY3C-  
GP EL=30.42  
1@7'x7' RCBC W/1FT SILLS  
SKEW=82°00'-00"



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

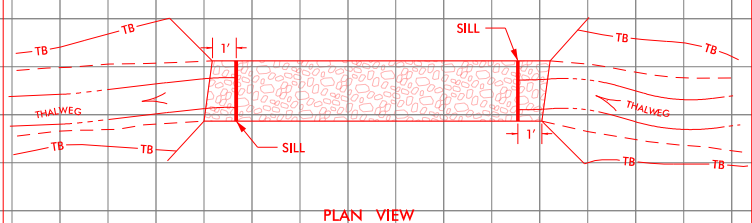
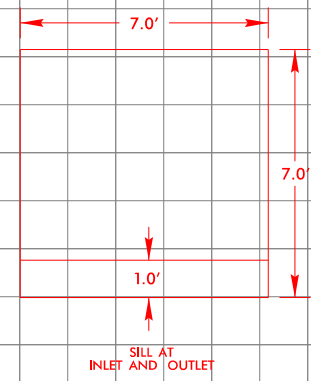
**PERMIT DRAWING**  
**SHEET 34 OF 87**

DATE: 11/28/2023

**DETAIL**  
(NOT TO SCALE)

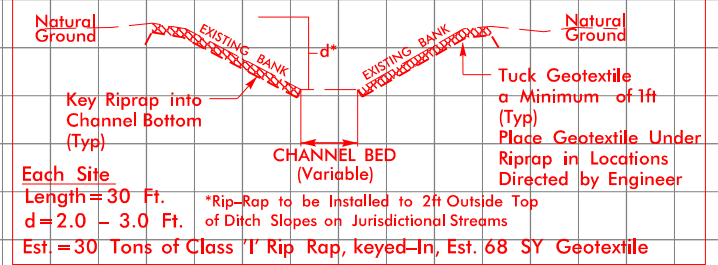
**SINGLE BARREL CULVERT W/SILLS**

- \*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.



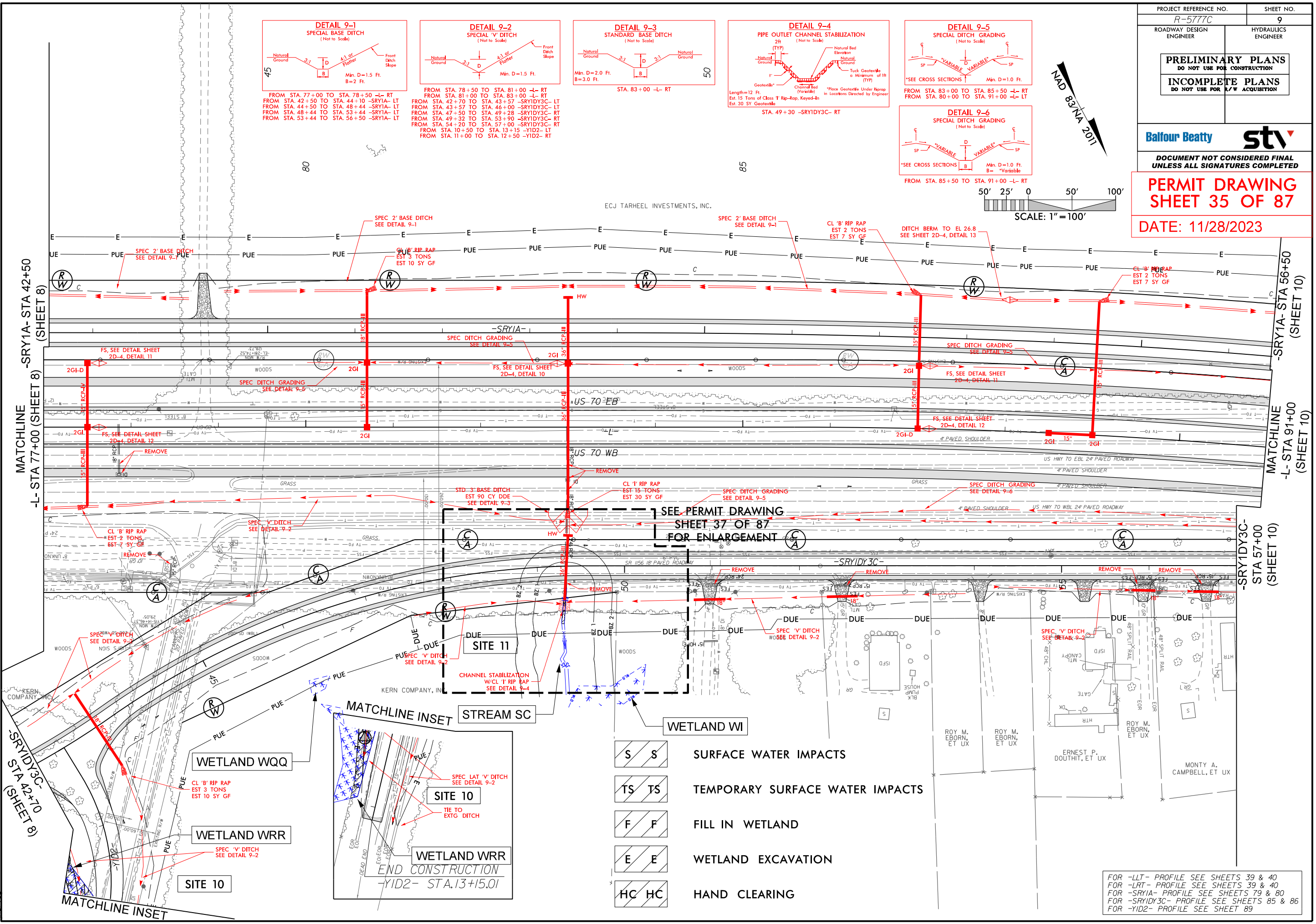
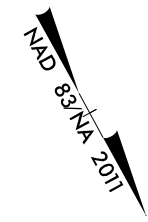
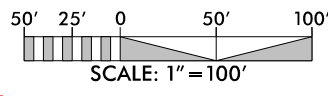
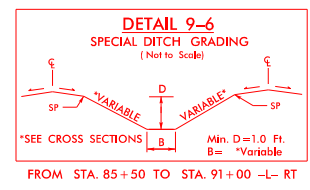
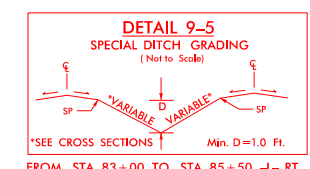
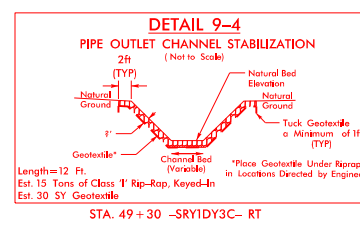
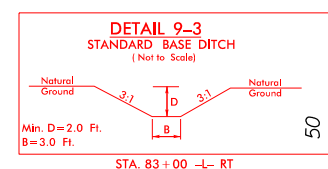
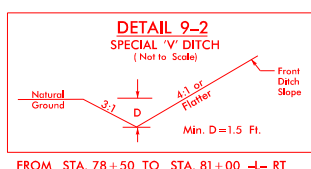
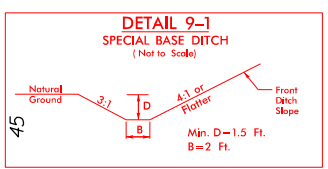
**DETAIL**  
(Not to Scale)

**CULVERT INLET /OUTLET BANK STABILIZATION**



Each Site  
Length = 30 Ft.  
d = 2.0 - 3.0 Ft.  
Est = 30 Tons of Class 'I' Rip Rap, keyed-In, Est. 68 SY Geotextile

\*Rip-Rap to be installed to 2ft Outside Top of Ditch Slopes on Jurisdictional Streams

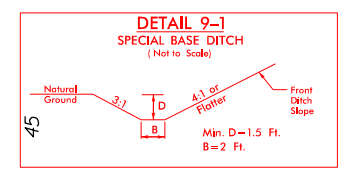


- SURFACE WATER IMPACTS
- TEMPORARY SURFACE WATER IMPACTS
- FILL IN WETLAND
- WETLAND EXCAVATION
- HAND CLEARING

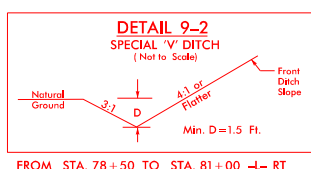
FOR -LLT- PROFILE SEE SHEETS 39 & 40  
FOR -LRT- PROFILE SEE SHEETS 39 & 40  
FOR -SRY1A- PROFILE SEE SHEETS 79 & 80  
FOR -SRY1D3C- PROFILE SEE SHEETS 85 & 86  
FOR -Y1D2- PROFILE SEE SHEET 89

11/28/2023 R-5777C-Hyd\_prm\_wet\_psh\_09.dgn

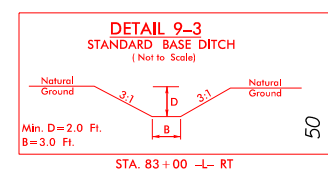




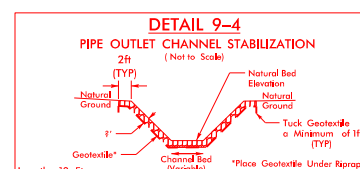
FROM STA. 77+00 TO STA. 78+50 -L- RT  
FROM STA. 42+50 TO STA. 44+10 -SRY1A- LT  
FROM STA. 44+50 TO STA. 48+44 -SRY1A- LT  
FROM STA. 48+44 TO STA. 53+44 -SRY1A- LT  
FROM STA. 53+44 TO STA. 56+50 -SRY1A- LT



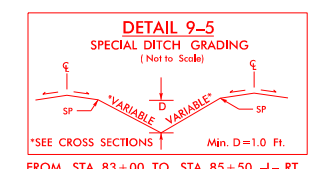
FROM STA. 78+50 TO STA. 81+00 -L- RT  
FROM STA. 81+00 TO STA. 83+00 -L- RT  
FROM STA. 42+70 TO STA. 43+57 -SRY1DY3C- LT  
FROM STA. 43+57 TO STA. 46+00 -SRY1DY3C- LT  
FROM STA. 47+50 TO STA. 49+28 -SRY1DY3C- RT  
FROM STA. 49+32 TO STA. 53+90 -SRY1DY3C- RT  
FROM STA. 54+20 TO STA. 57+00 -SRY1DY3C- RT  
FROM STA. 10+50 TO STA. 13+15 -Y1D2- LT  
FROM STA. 11+00 TO STA. 12+50 -Y1D2- RT



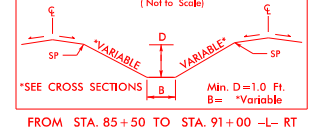
STA. 83+00 -L- RT



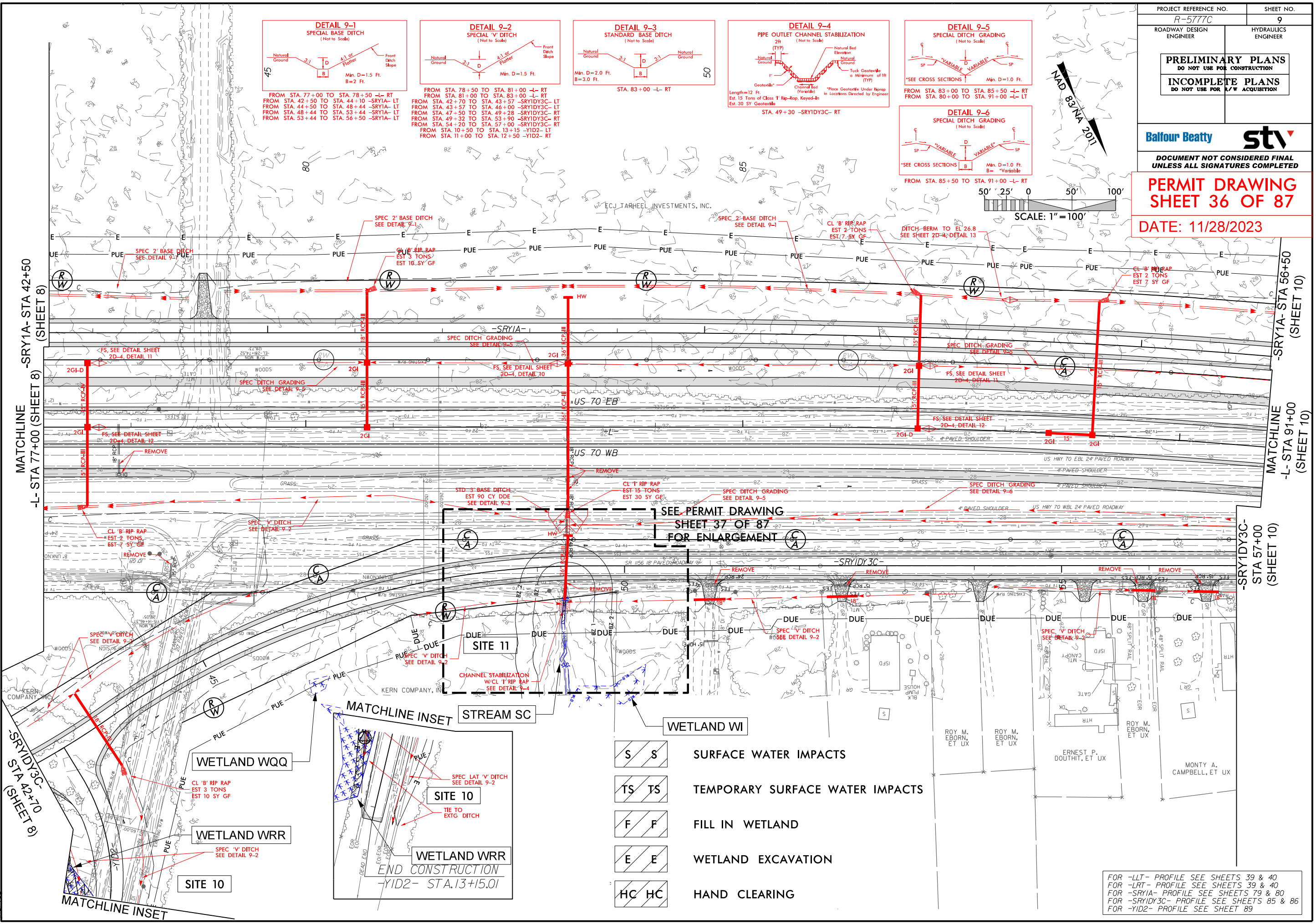
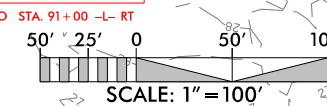
Length=12 Ft.  
Est. 15 Tons of Class 1 Rip-Rap, Keyed-In  
Est. 30 SY Geotextile



FROM STA. 83+00 TO STA. 85+50 -L- RT  
FROM STA. 80+00 TO STA. 91+00 -L- RT



FROM STA. 85+50 TO STA. 91+00 -L- RT



- SURFACE WATER IMPACTS
- TEMPORARY SURFACE WATER IMPACTS
- FILL IN WETLAND
- WETLAND EXCAVATION
- HAND CLEARING

FOR -LLT- PROFILE SEE SHEETS 39 & 40  
FOR -LRT- PROFILE SEE SHEETS 39 & 40  
FOR -SRY1A- PROFILE SEE SHEETS 79 & 80  
FOR -SRY1DY3C- PROFILE SEE SHEETS 85 & 86  
FOR -Y1D2- PROFILE SEE SHEET 89

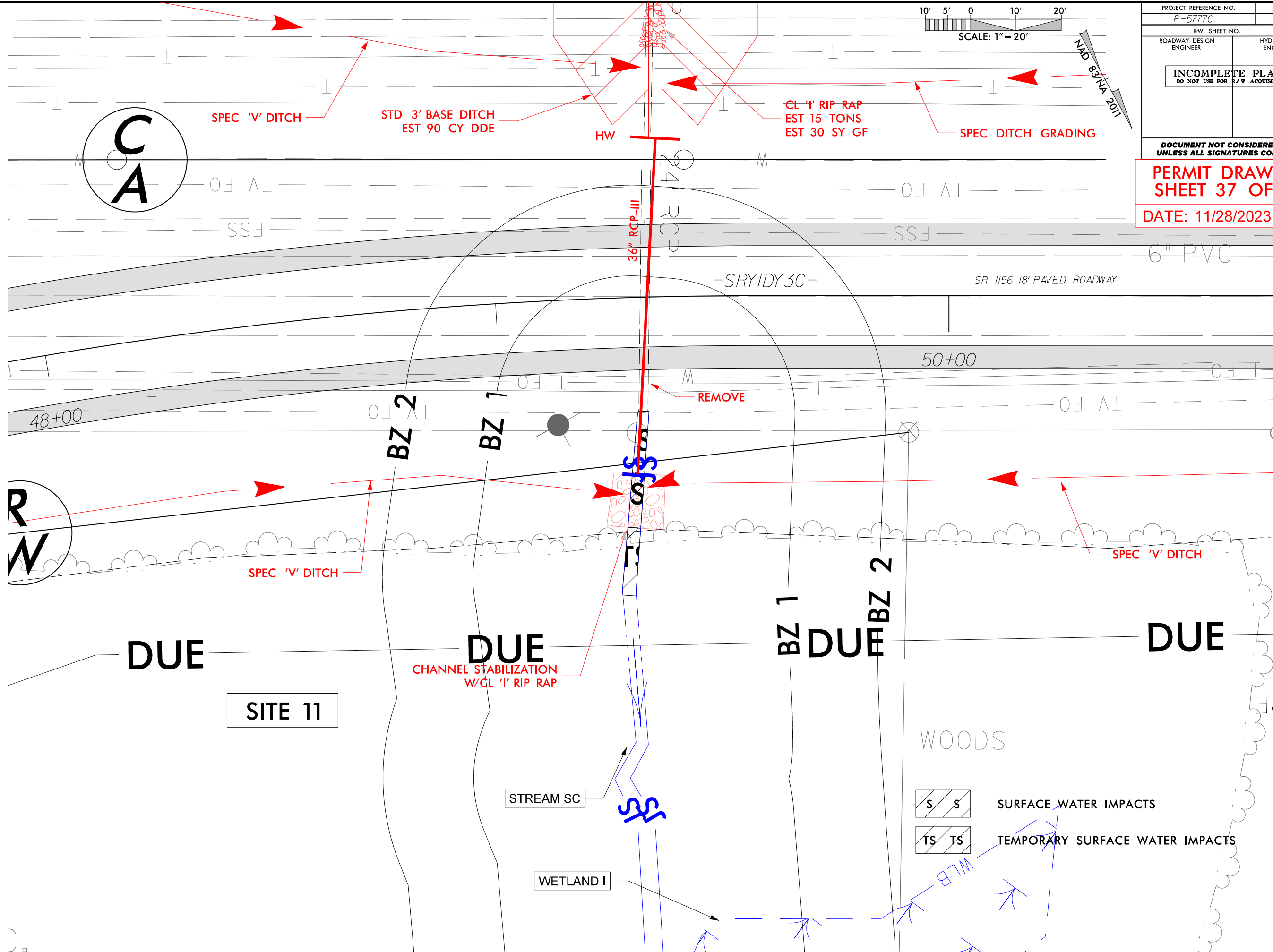
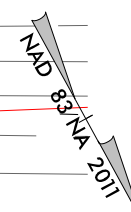
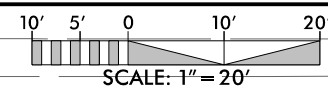
11/28/2023 R-5777C\_Hyd\_prm\_wet\_psh\_09-1.dgn

PROJECT REFERENCE NO. R-5777C	SHEET NO.
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	

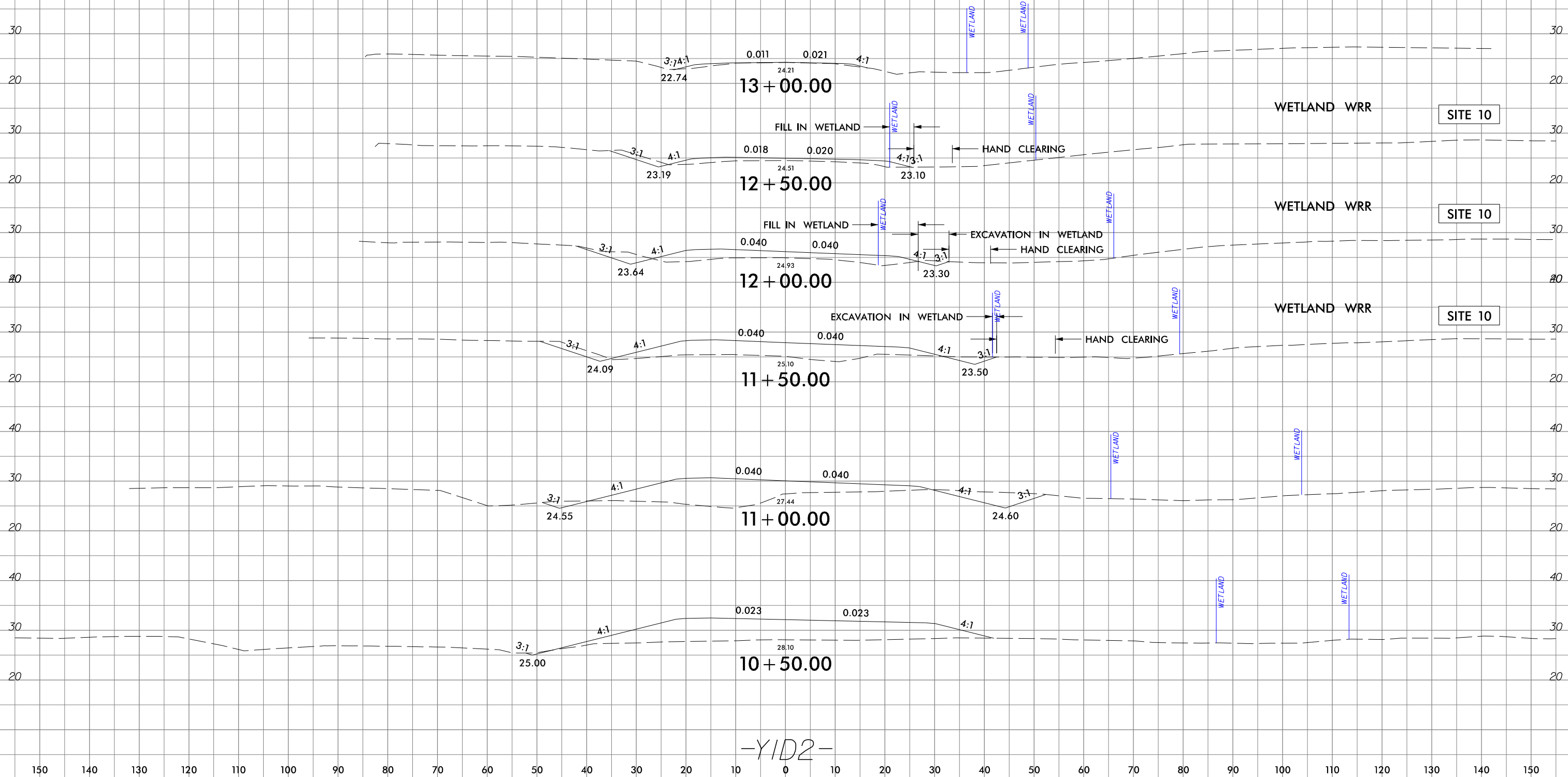
DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

**PERMIT DRAWING**  
**SHEET 37 OF 87**

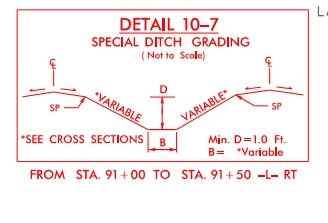
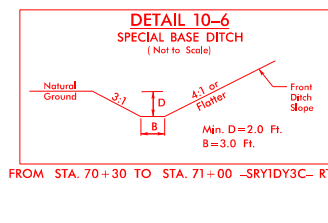
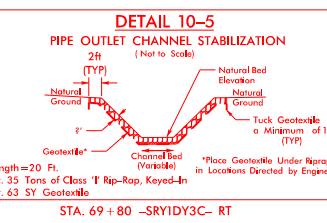
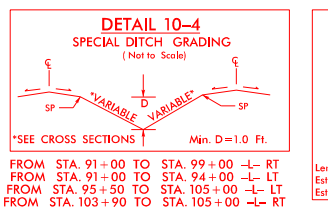
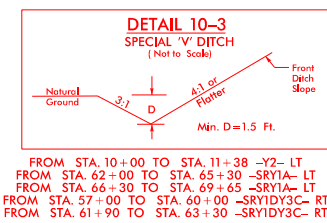
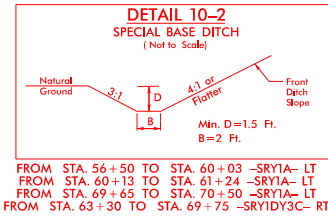
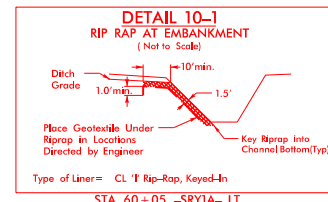
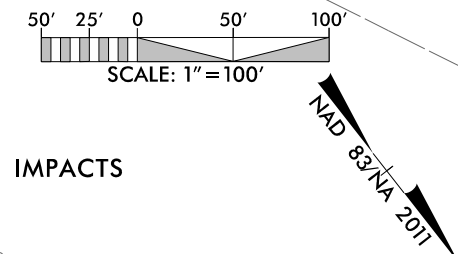
DATE: 11/28/2023



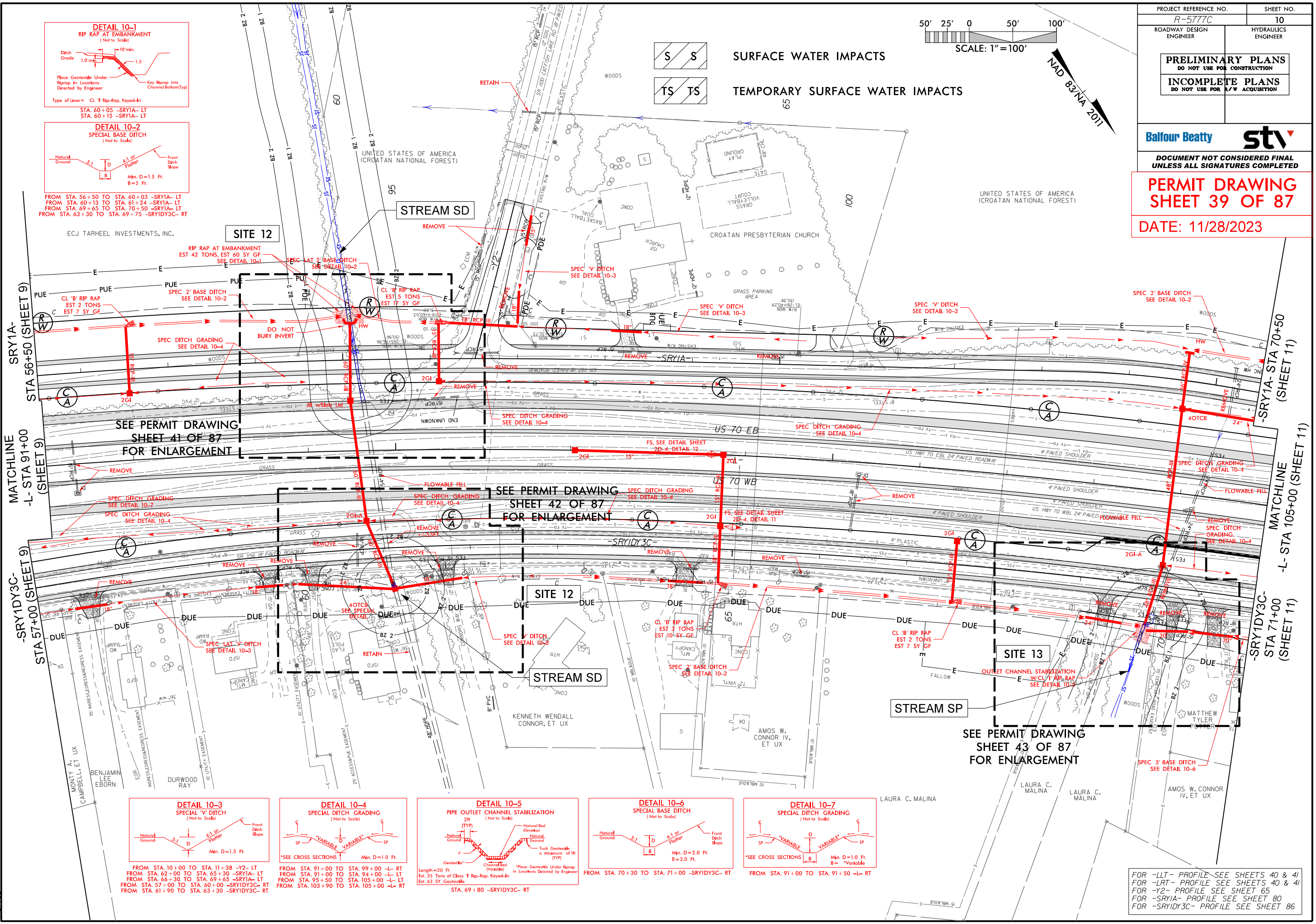
**PERMIT DRAWING**  
**SHEET 38 OF 87**  
DATE: 11/28/2023



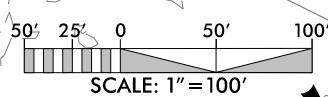
-Y1D2-



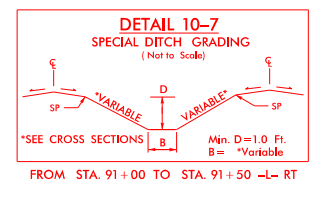
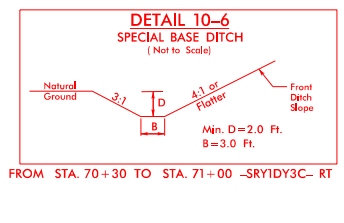
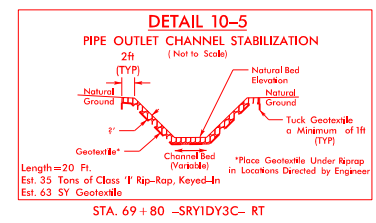
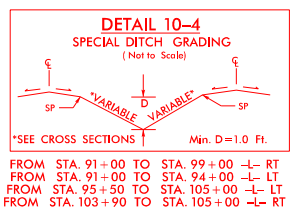
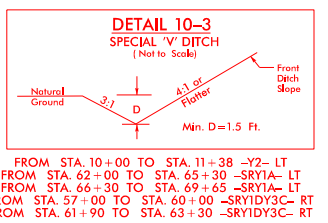
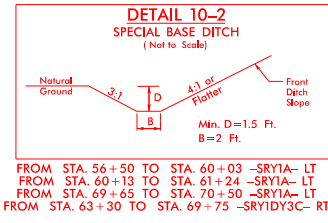
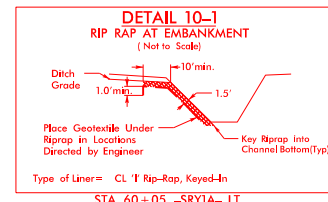
FOR -LLT- PROFILE SEE SHEETS 40 & 41  
FOR -LRT- PROFILE SEE SHEETS 40 & 41  
FOR -Y2- PROFILE SEE SHEET 65  
FOR -SRY1A- PROFILE SEE SHEET 80  
FOR -SRY1DY3C- PROFILE SEE SHEET 86



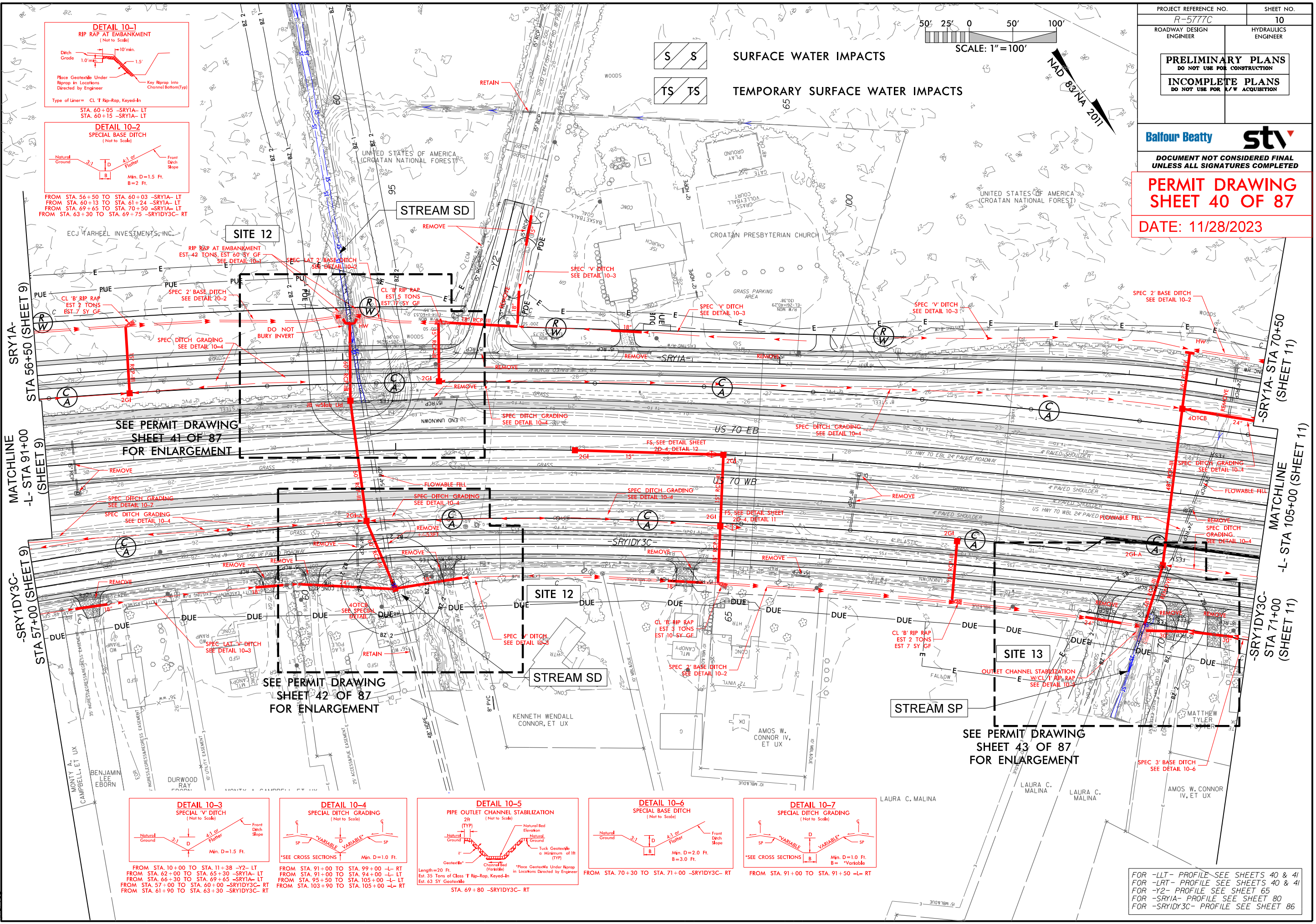
11/28/2023 R-5777C\_Hyd\_prm\_wet\_psh\_10.dgn



S S SURFACE WATER IMPACTS  
TS TS TEMPORARY SURFACE WATER IMPACTS



FOR -LLT- PROFILE SEE SHEETS 40 & 41  
FOR -LRT- PROFILE SEE SHEETS 40 & 41  
FOR -Y2- PROFILE SEE SHEET 65  
FOR -SRY1A- PROFILE SEE SHEET 80  
FOR -SRY1DY3C- PROFILE SEE SHEET 86



11/28/2023 R-5777C\_Hyd\_prm\_wet\_psh\_10-1.dgn

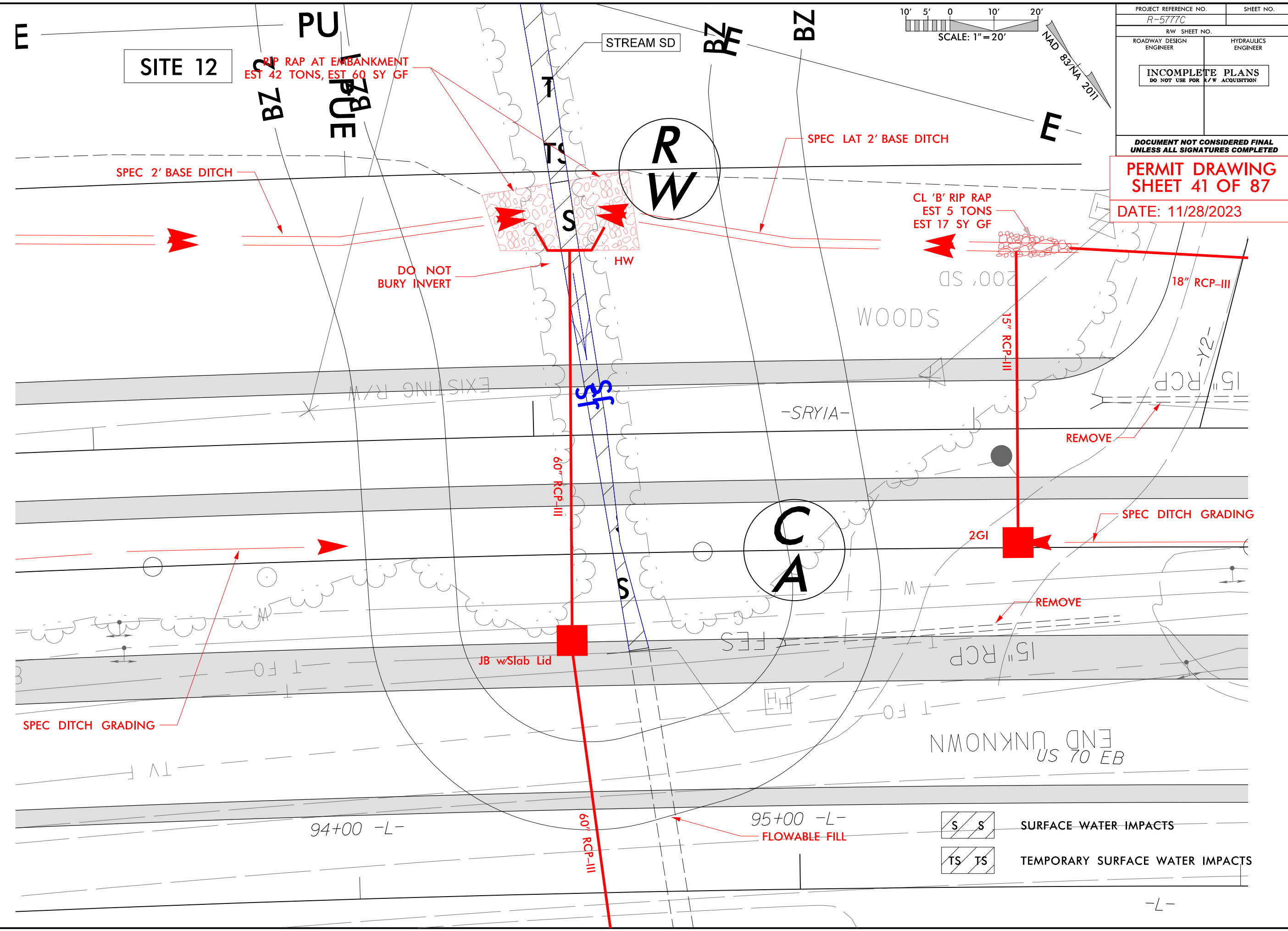
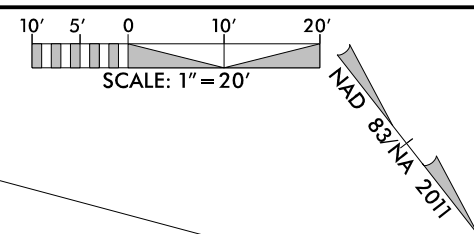
8/17/99

PROJECT REFERENCE NO. R-5777C	SHEET NO.
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

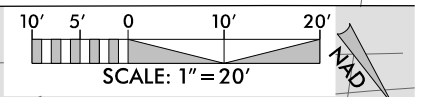
**PERMIT DRAWING**  
**SHEET 41 OF 87**

DATE: 11/28/2023



	SURFACE WATER IMPACTS
	TEMPORARY SURFACE WATER IMPACTS

11/28/2023 R-5777C-Hyd.prm\_wet.psh\_10-2-ViewIn.dgn

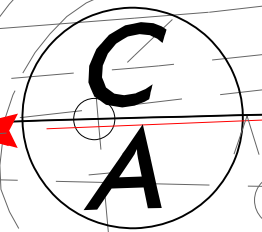
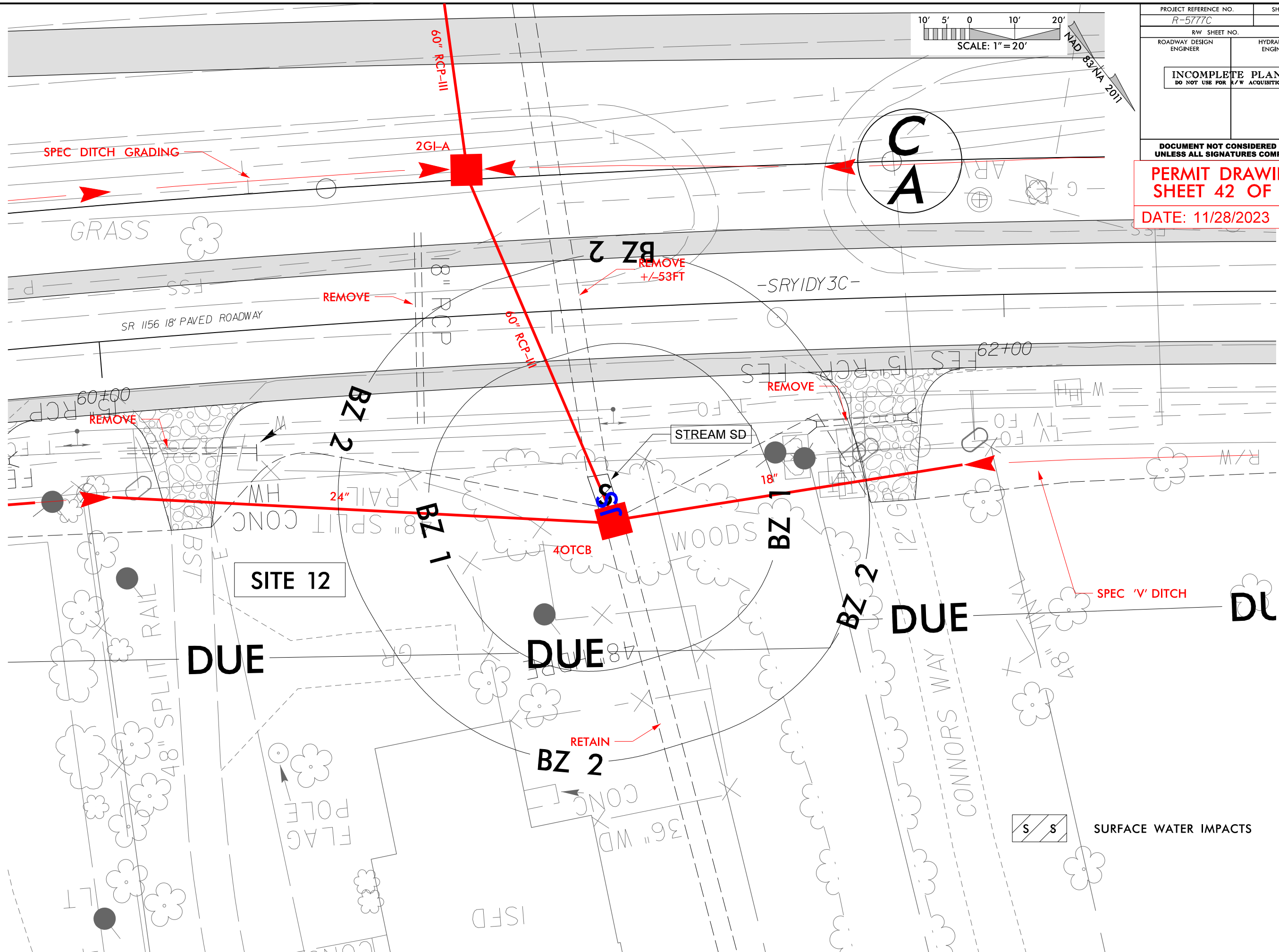


PROJECT REFERENCE NO. R-5777C	SHEET NO.
R/W SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

**PERMIT DRAWING SHEET 42 OF 87**

DATE: 11/28/2023



SITE 12

DUE

DUE

DUE

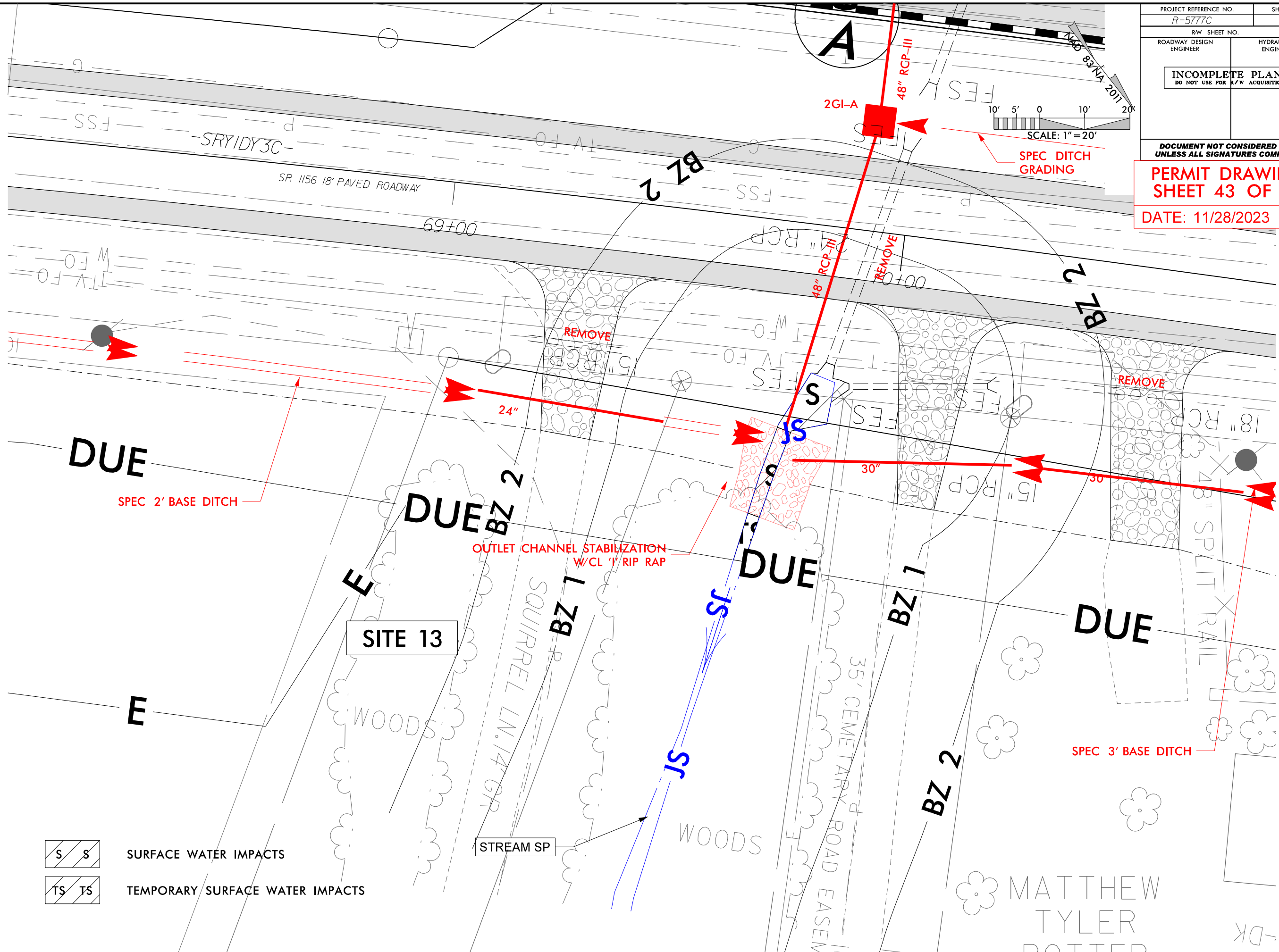
S S SURFACE WATER IMPACTS

PROJECT REFERENCE NO. R-5777C	SHEET NO.
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	

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

**PERMIT DRAWING  
SHEET 43 OF 87**

**DATE: 11/28/2023**



- S S SURFACE WATER IMPACTS
- TS TS TEMPORARY SURFACE WATER IMPACTS



5/14/99

200

100

0

100

200

PROJECT REFERENCE NO. SHEET NO.

R-5777C

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 44 OF 87

DATE: 11/28/2023

SITE 12

CL STA 94+56 -L-  
1@60" RCP (NOT BURIED)

40

CL STA 60+08 -SRY1A-  
1@60" RCP

CL STA 60+94 -SRY1DY3C-  
1@60" RCP

30

GP

GP

20

NWSE=19.0

INV=18.4

JB W/SLAB LID  
TOP=24.2  
INV=17.9

1@60" RCP  
S=0.59%

2GI-A  
TOP=25.2  
INV=17.1

4OTCB  
TOP=23.0  
INV=16.6

24" RCP

18" RCP

48" HDPE

54" RCP

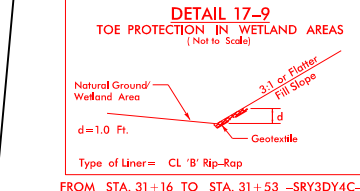
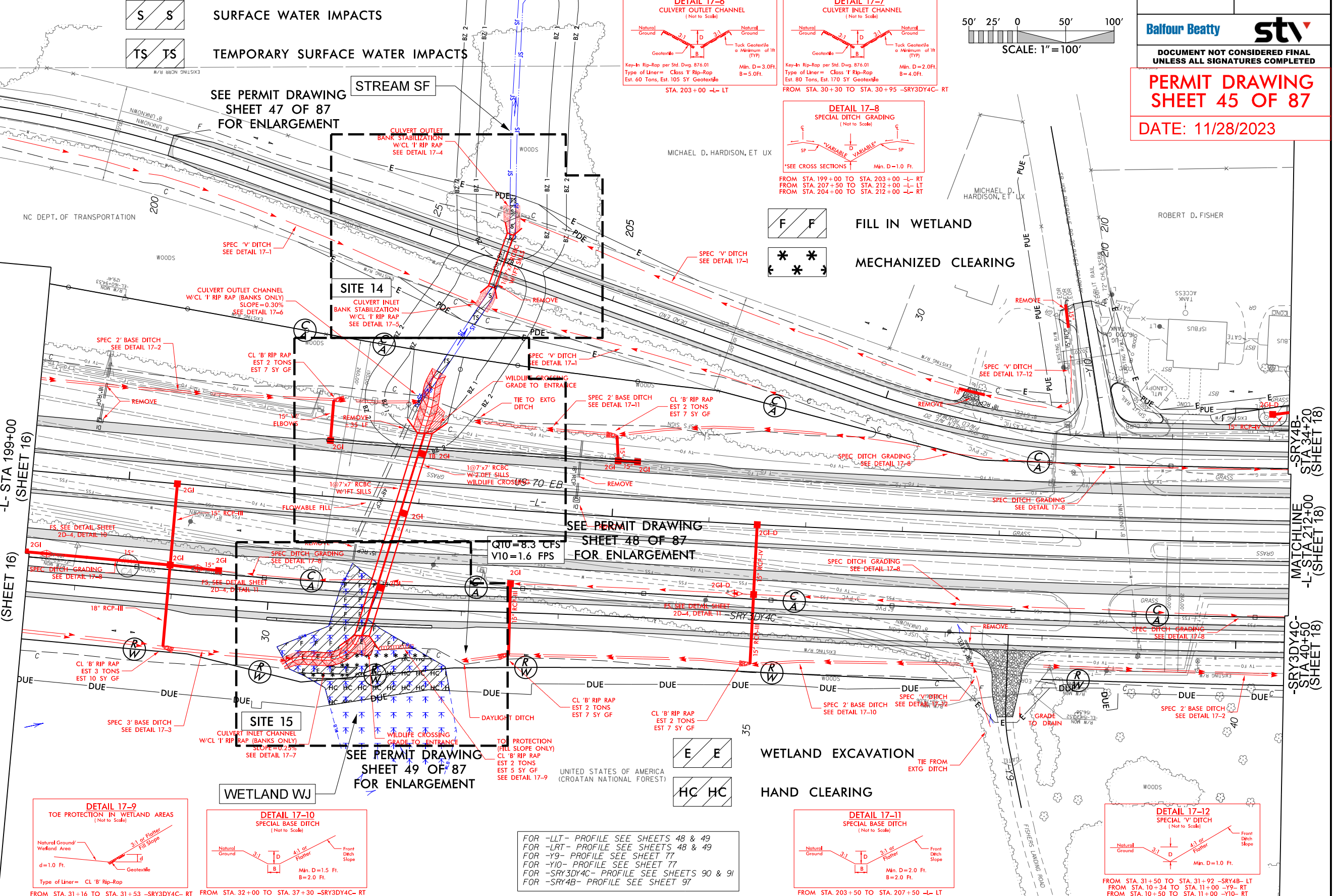
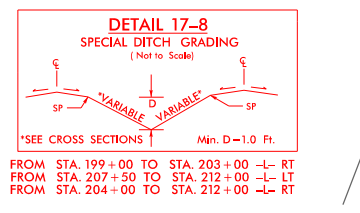
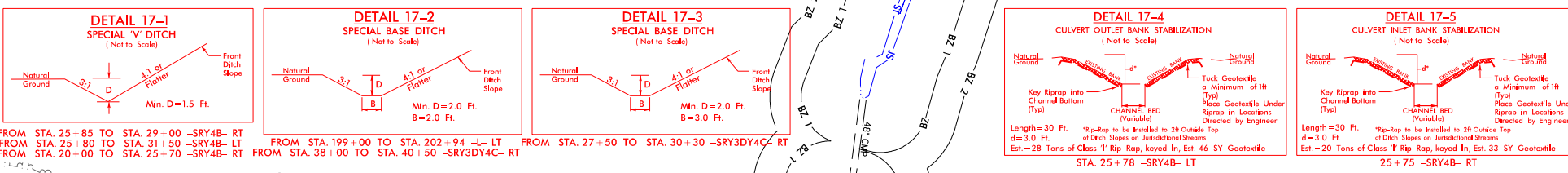
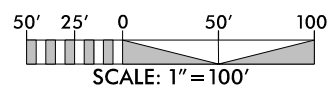
11/28/2023  
R-5777C-Hyd.prm\_wet.psh\_10-5-Sect.dgn  
pml.com

**Balfour Beatty** **stv**

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

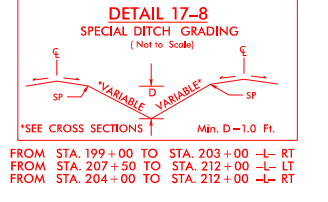
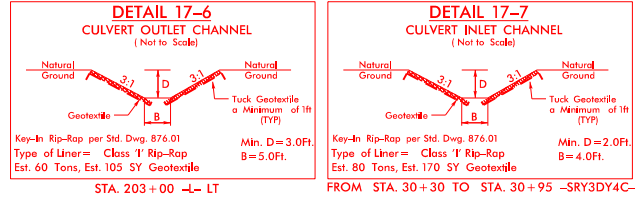
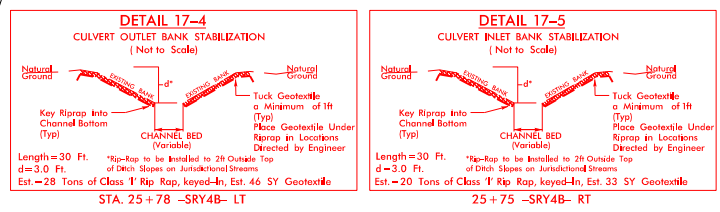
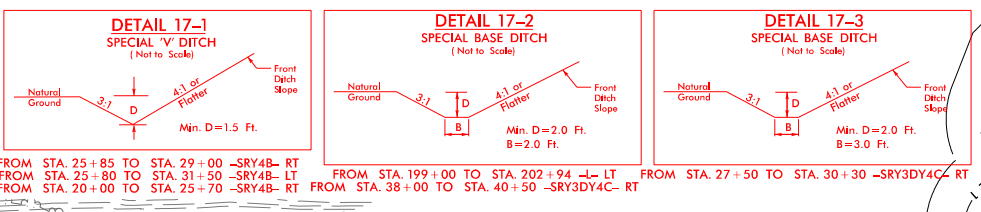
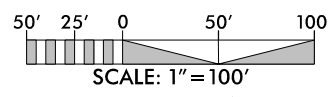
PERMIT DRAWING  
SHEET 45 OF 87

DATE: 11/28/2023

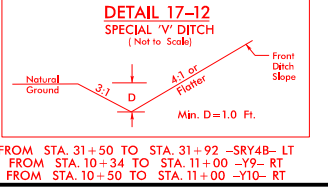
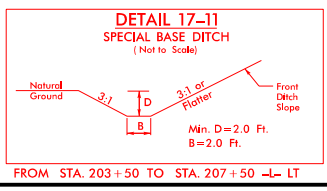
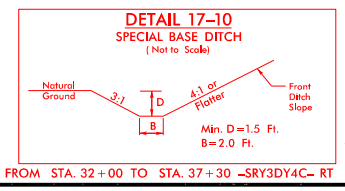
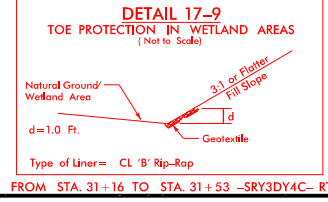
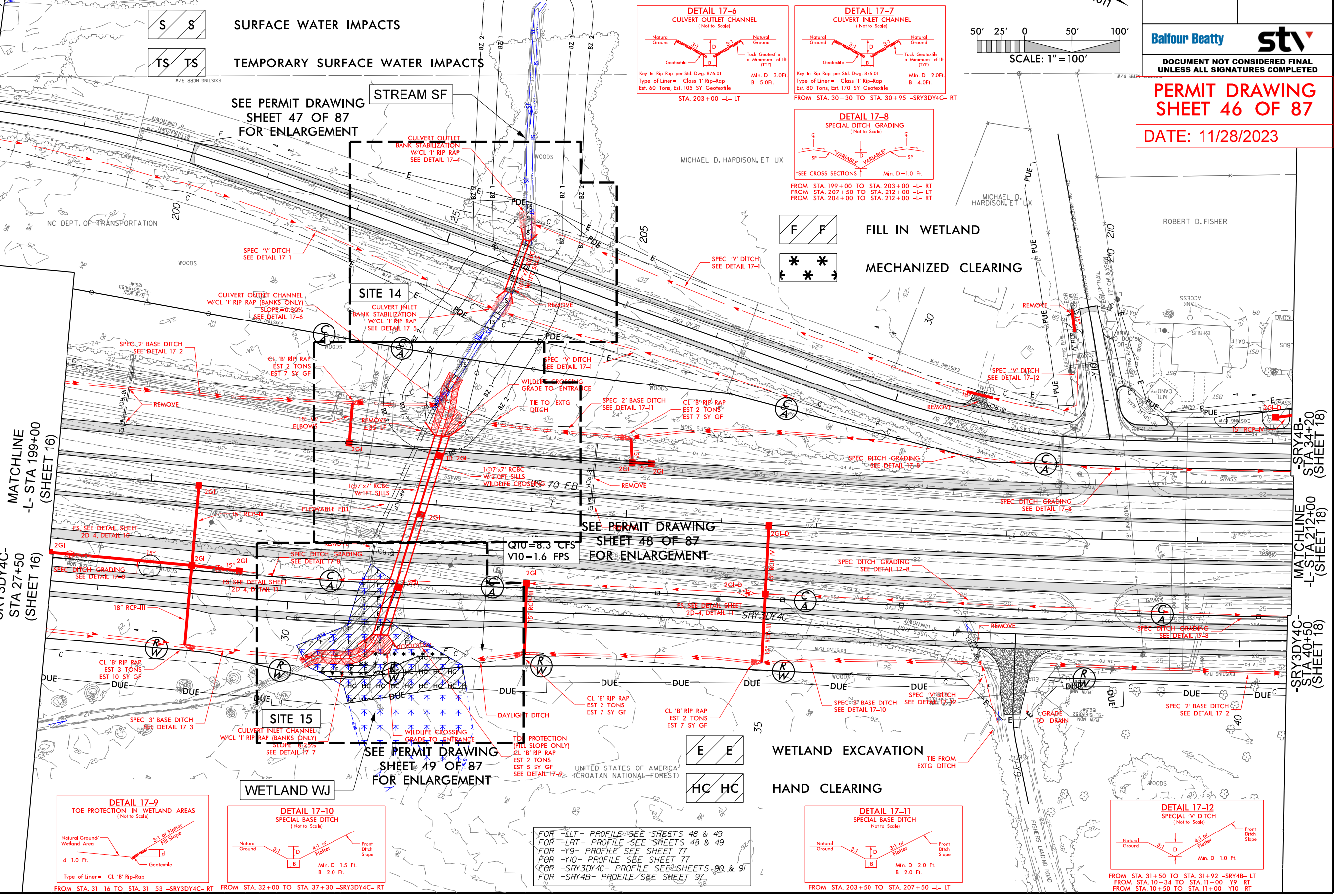


FOR -LLT- PROFILE SEE SHEETS 48 & 49  
FOR -LRT- PROFILE SEE SHEETS 48 & 49  
FOR -Y9- PROFILE SEE SHEET 77  
FOR -Y10- PROFILE SEE SHEET 77  
FOR -SRY3DY4C- PROFILE SEE SHEETS 90 & 91  
FOR -SRY4B- PROFILE SEE SHEET 97

11/28/2023 R-5777C-Hyd\_prm\_wet\_psh\_17.dgn

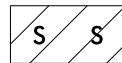


-SRY4B- STA 20+00 (SHEET 16)



FOR -LLT- PROFILE SEE SHEETS 48 & 49  
 FOR -LRT- PROFILE SEE SHEETS 48 & 49  
 FOR -Y9- PROFILE SEE SHEET 77  
 FOR -Y10- PROFILE SEE SHEET 77  
 FOR -SRY3DY4C- PROFILE SEE SHEETS 80 & 91  
 FOR -SRY4B- PROFILE SEE SHEET 92

11/28/2023 R-5777C-Hyd.prm\_wet.psh\_17-1.dgn

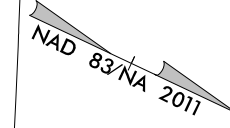
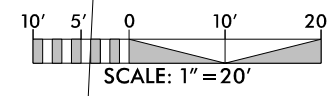


SURFACE WATER IMPACTS



TEMPORARY SURFACE WATER IMPACTS

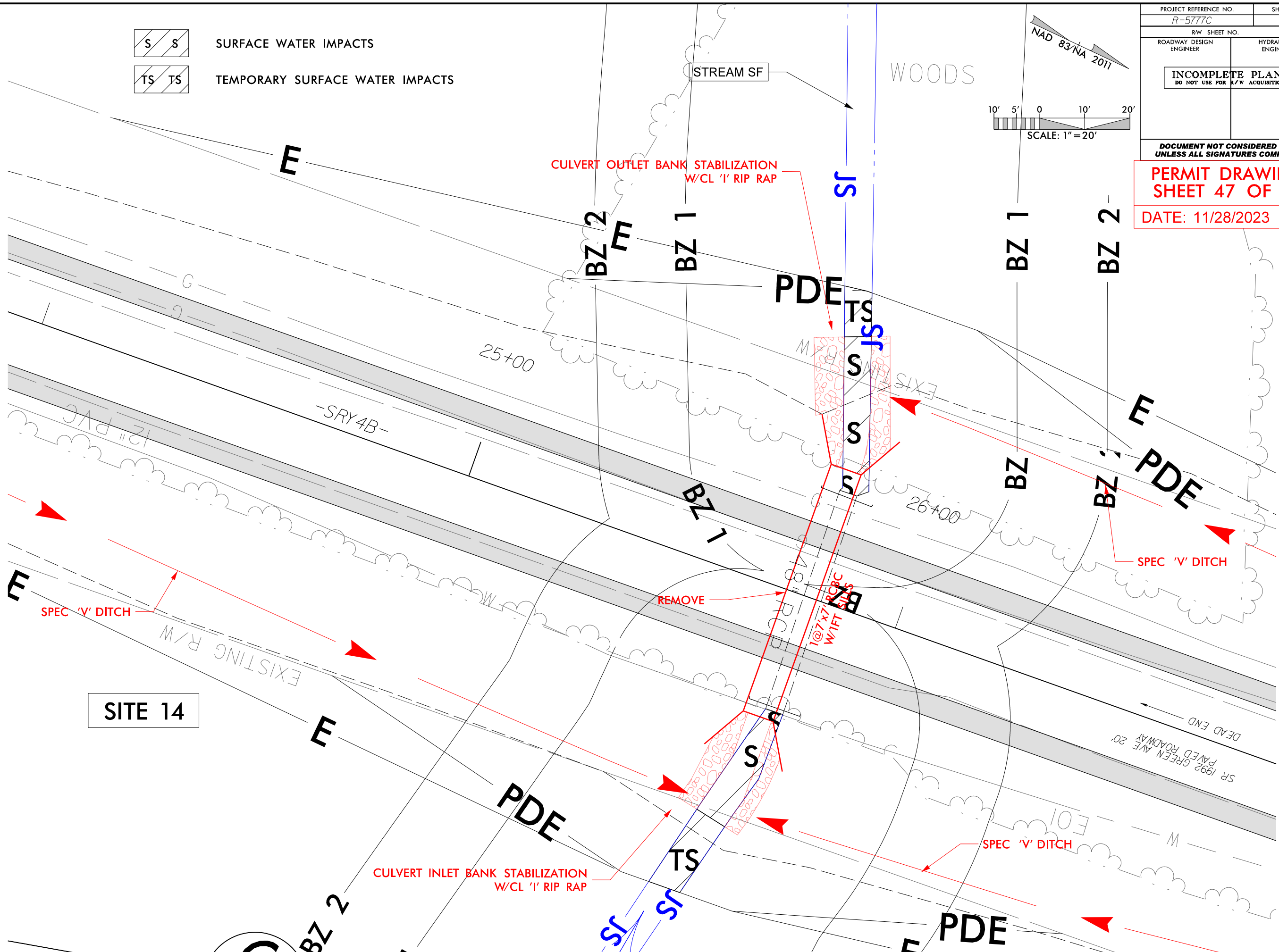
PROJECT REFERENCE NO. R-5777C		SHEET NO.	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION			



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

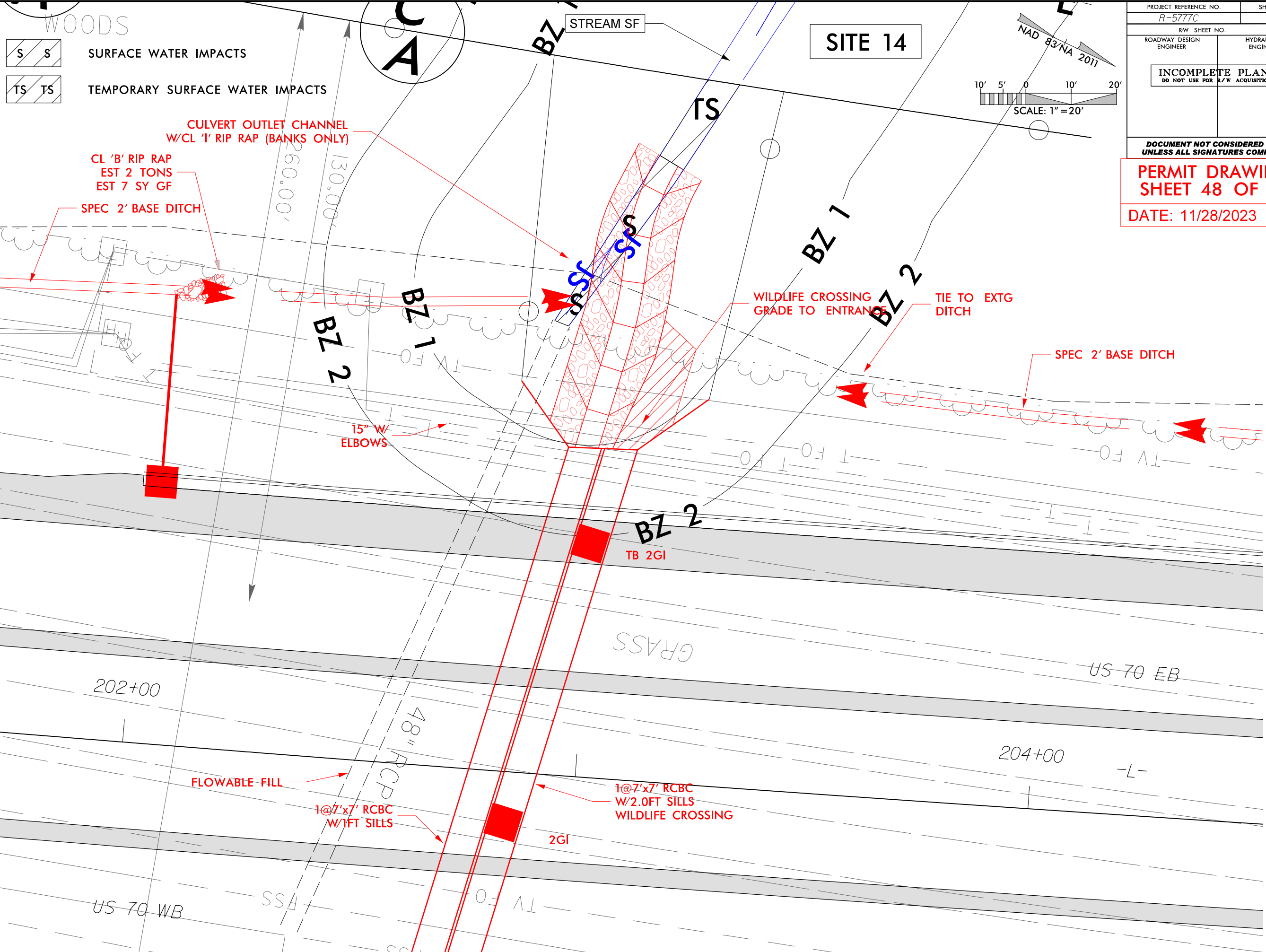
**PERMIT DRAWING SHEET 47 OF 87**

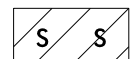

DATE: 11/28/2023



**SITE 14**

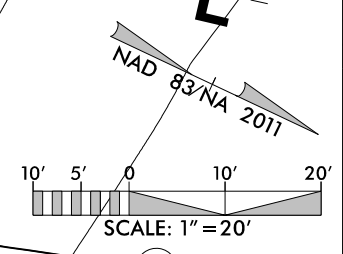
8/17/99



 SURFACE WATER IMPACTS  
 TEMPORARY SURFACE WATER IMPACTS

CULVERT OUTLET CHANNEL  
 W/CL '1' RIP RAP (BANKS ONLY)  
 CL 'B' RIP RAP  
 EST 2 TONS  
 EST 7 SY GF  
 SPEC 2' BASE DITCH

**SITE 14**



PROJECT REFERENCE NO. R-5777C	SHEET NO.
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

**PERMIT DRAWING SHEET 48 OF 87**

DATE: 11/28/2023

11/28/2023 R-5777C-Hyd.prm\_wet.psh\_17-3-ViewIn.dgn

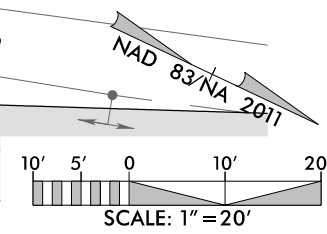
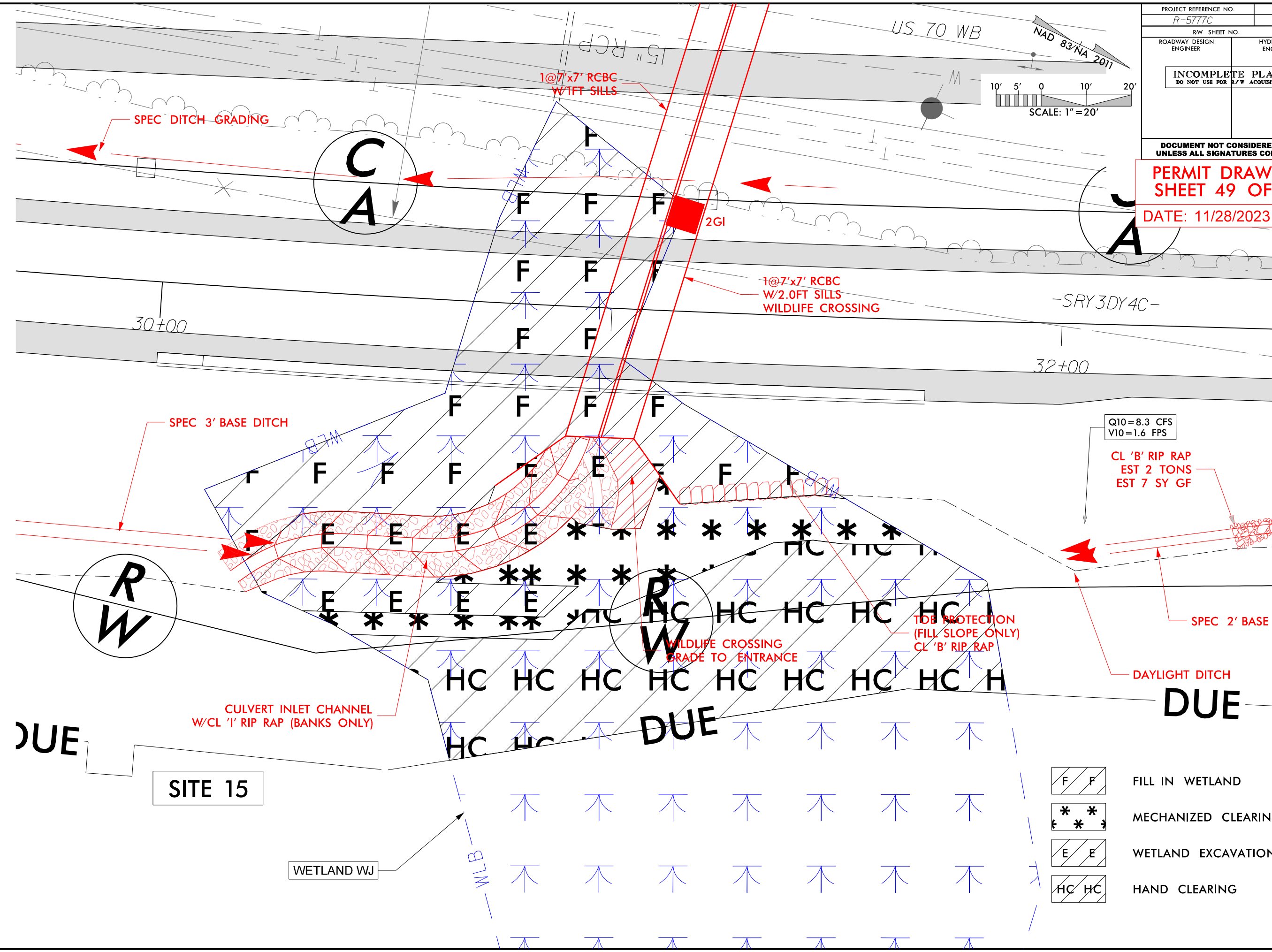
8/17/99

PROJECT REFERENCE NO. R-5777C	SHEET NO.
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

**PERMIT DRAWING SHEET 49 OF 87**

DATE: 11/28/2023



	F F	FILL IN WETLAND
	* *	MECHANIZED CLEARING
	E E	WETLAND EXCAVATION
	HC HC	HAND CLEARING

11/28/2023 R-5777C-Hyd.prm-wet.psh\_17-4-ViewIn.dgn

300 280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300

**PERMIT DRAWING  
SHEET 50 OF 87**

**DATE: 11/28/2023**

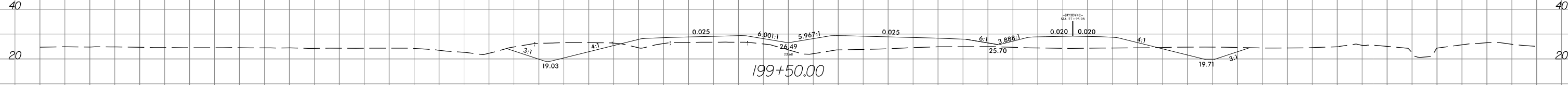
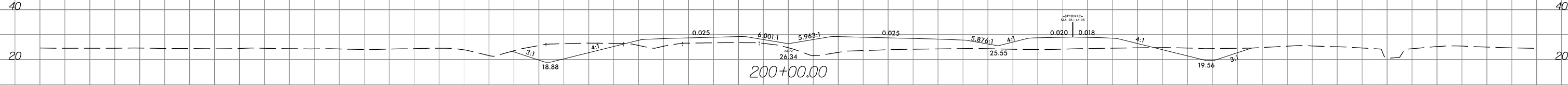
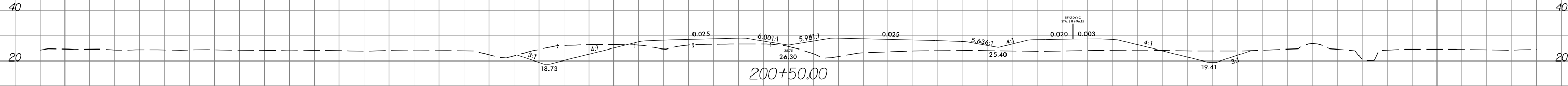
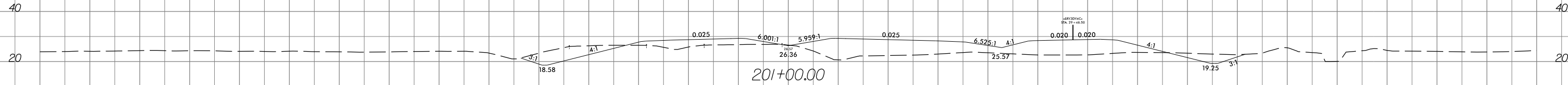
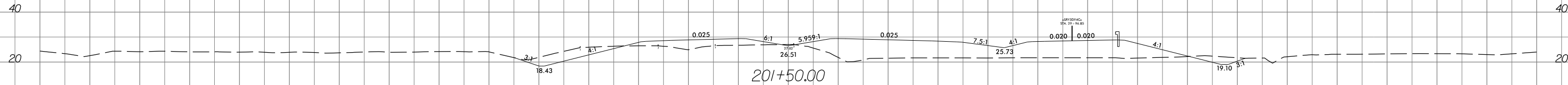
WETLAND WJ

SITE 15

FILL IN WETLAND

EXCAVATION

MECHANIZED CLEARING

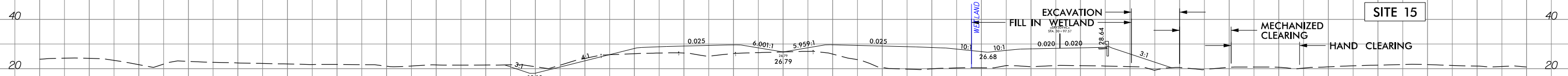
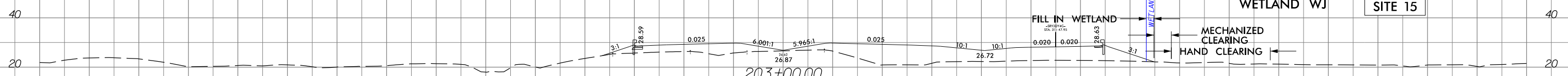
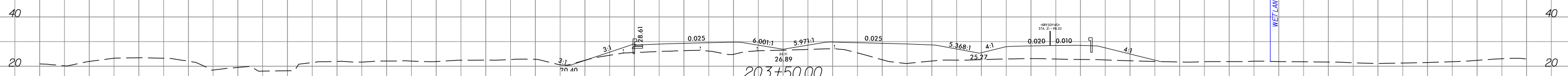
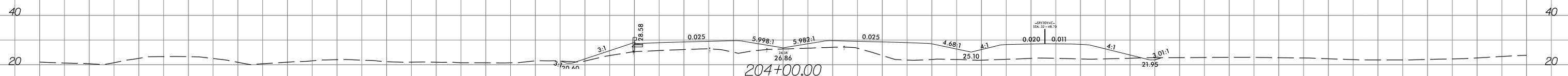
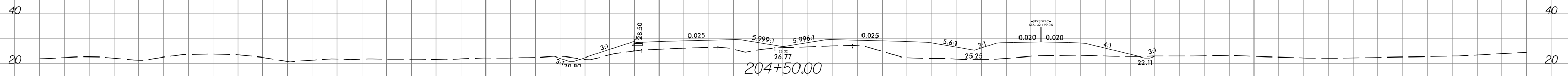
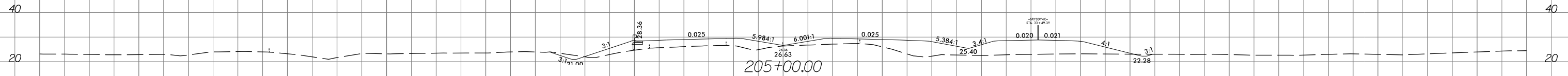


4

300 280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300

**PERMIT DRAWING  
SHEET 51 OF 87**

**DATE: 11/28/2023**



4



INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 52 OF 87

DATE: 11/28/2023

-200 -100 0 100 200

SITE 14

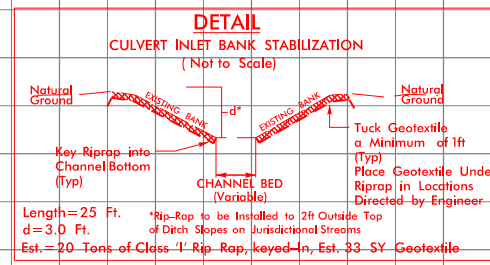
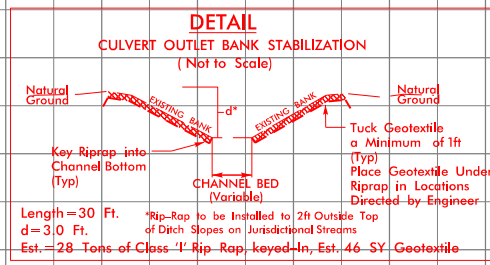
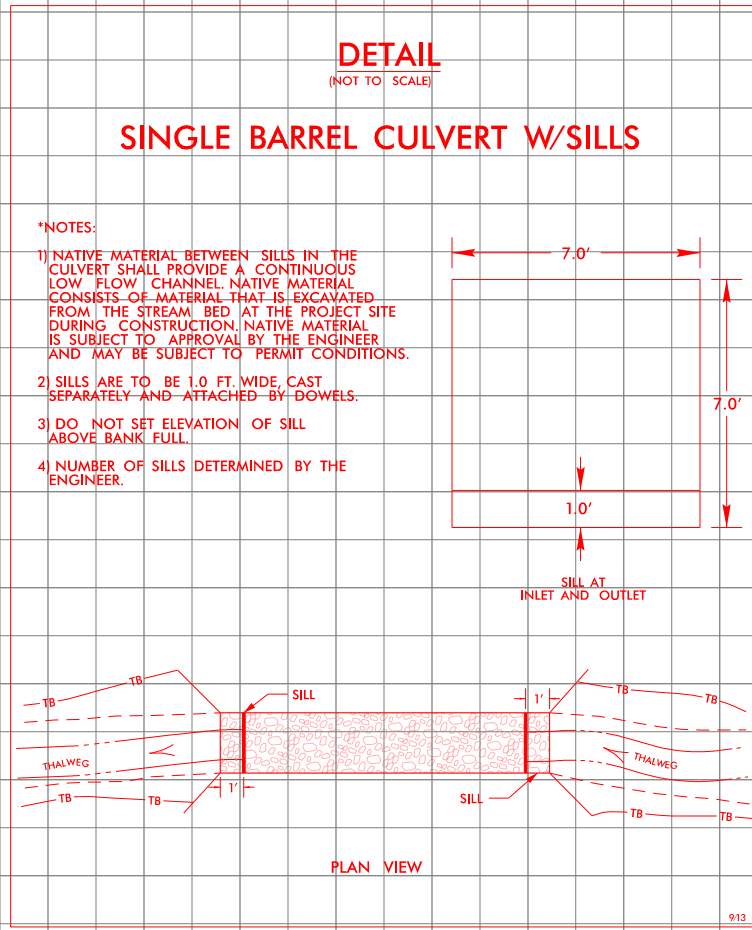
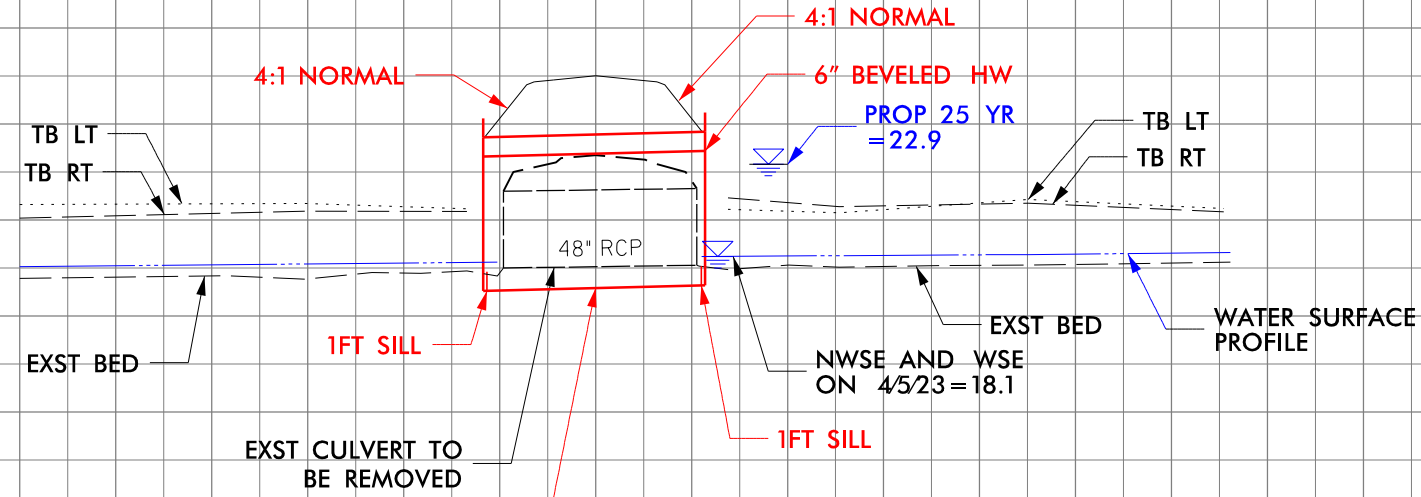
CL STA 25+78 -SRY4B- GP EL= 27.52 1@7'x7' RCBC W/1FT SILLS SKEW=90°-00'-00"

40

30

20

10



INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 53 OF 87

DATE: 11/28/2023

200

-100

0

100

200

SITE 14

SITE 15

CL STA 202+84 -L- GP EL=29.65 -LLT- GP EL= 29.67 -LRT- 2@7'x7' RCBC W/SILLS SKEW=103-00'-00"

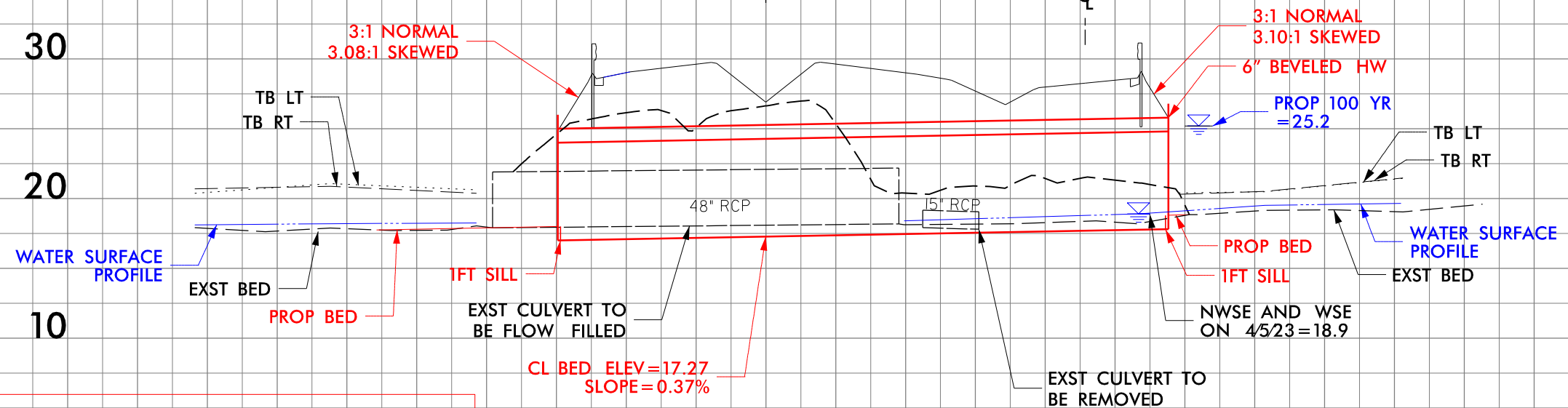
CL STA 31+06 -SRY3DY4C-

40

30

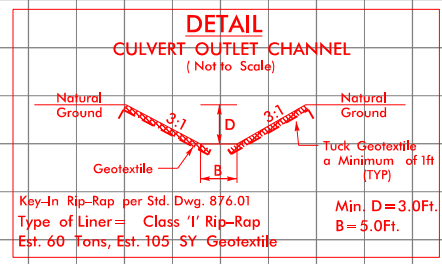
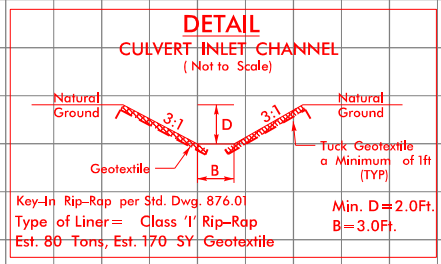
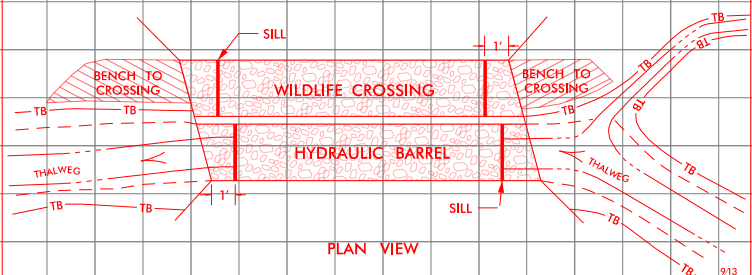
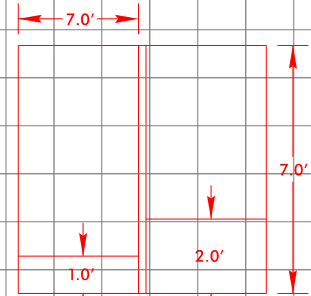
20

10



**DETAIL**  
(NOT TO SCALE)  
**MULTI-BARREL CULVERT**  
**HYDRAULIC BARREL W/1FT SILLS**  
**WILDLIFE CROSSING W/2FT SILLS**

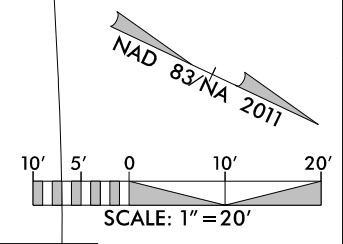
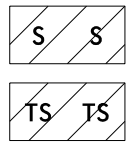
- \*NOTES:
- 1) NATIVE MATERIAL BETWEEN SILLS IN THE CULVERT SHALL PROVIDE A CONTINUOUS LOW FLOW CHANNEL. NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED AT THE PROJECT SITE DURING CONSTRUCTION. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT 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.







8/17/99

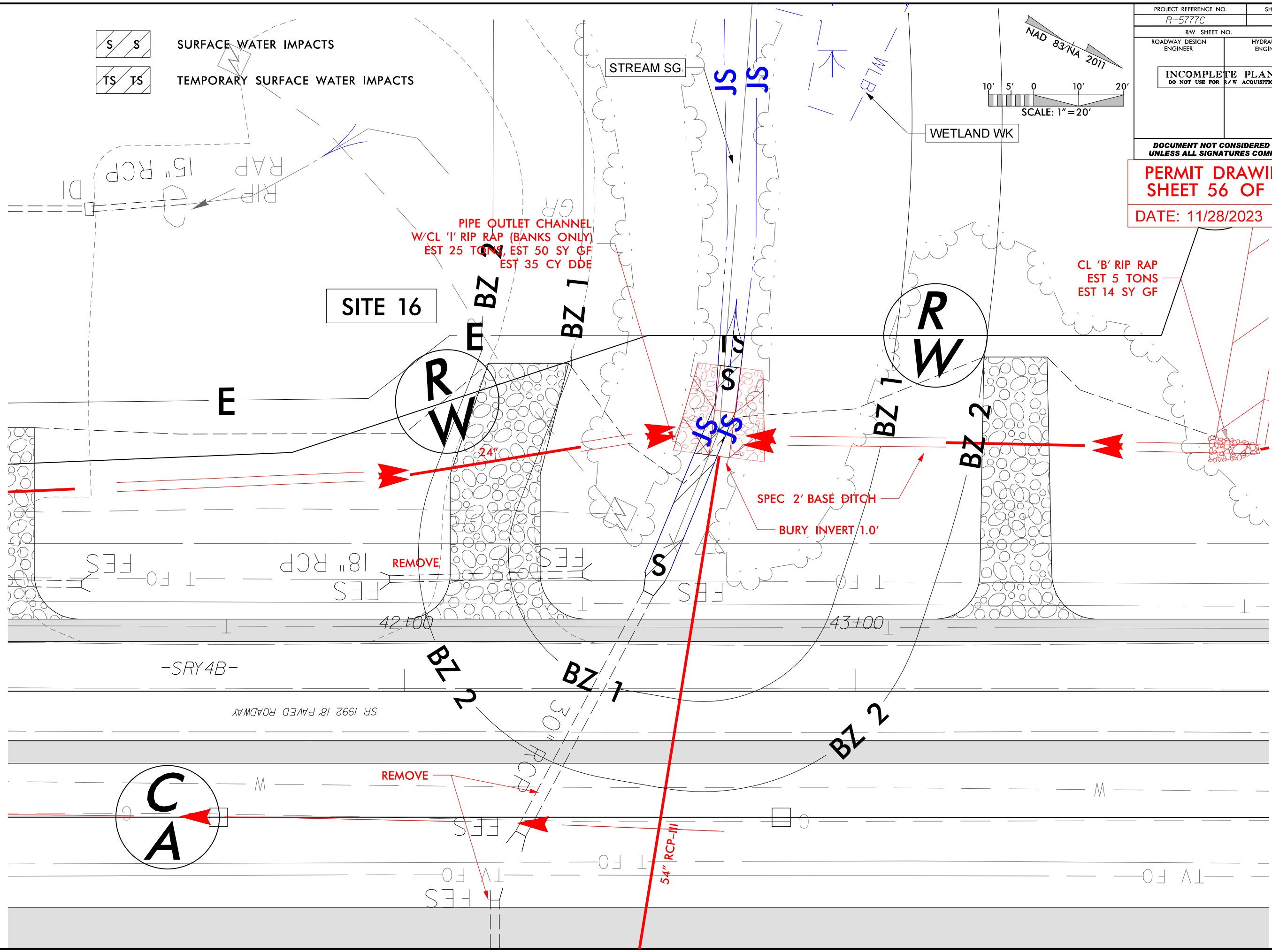


PROJECT REFERENCE NO. R-5777C	SHEET NO.
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

**PERMIT DRAWING SHEET 56 OF 87**

DATE: 11/28/2023



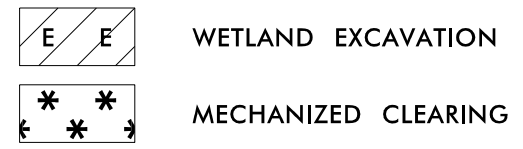
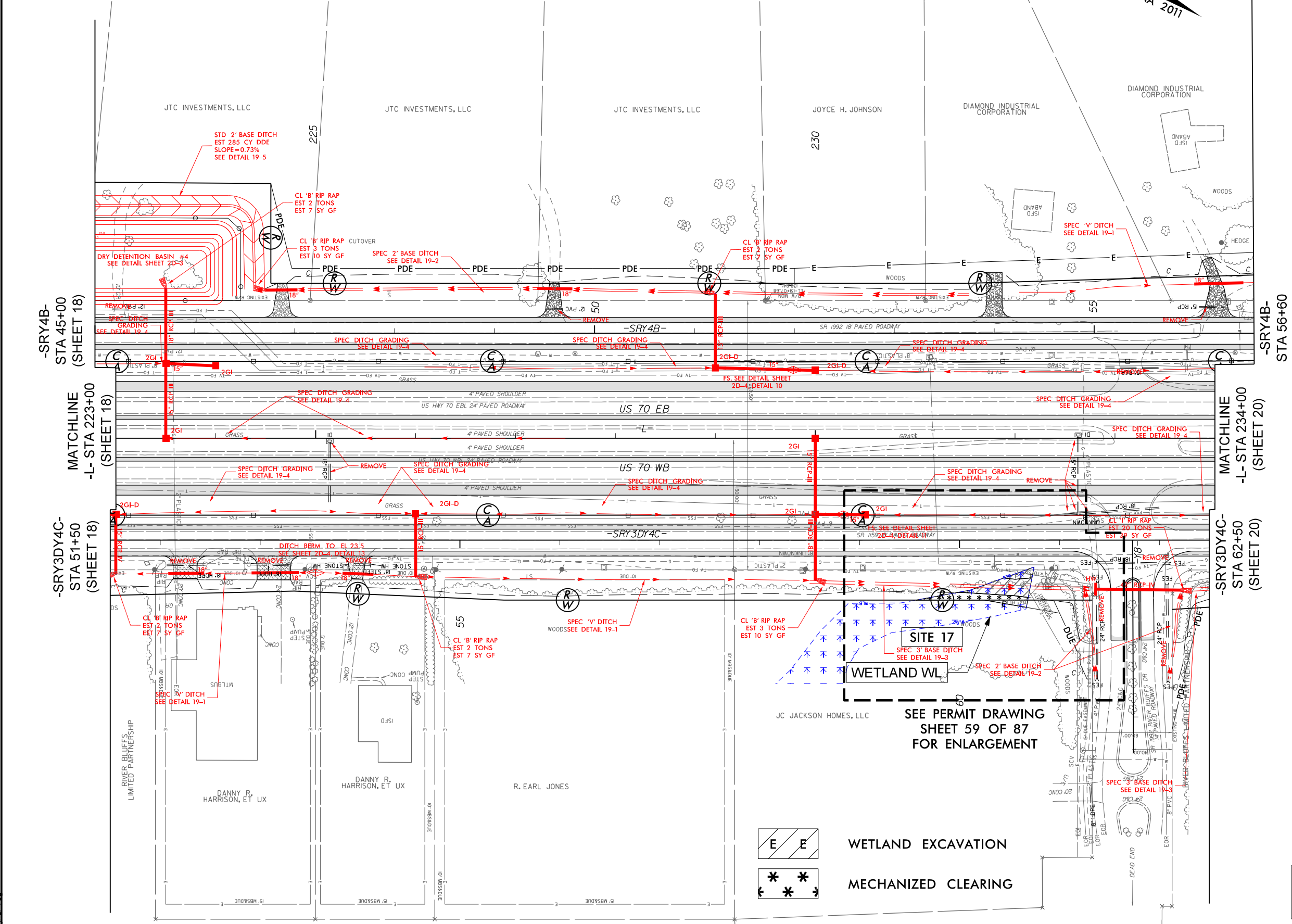
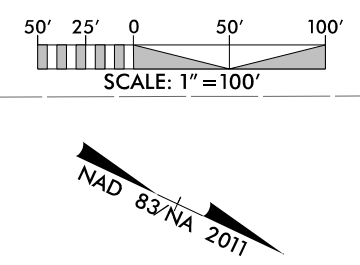
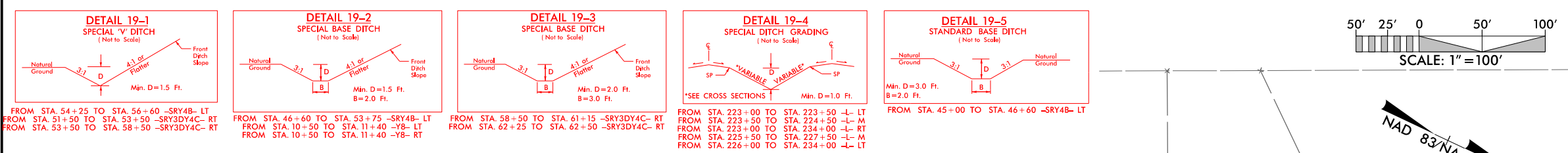
11/28/2023 R-5777C-Hyd.prm-wet.psh\_18-2-ViewIn.dgn

**Balfour Beatty** **stv**

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

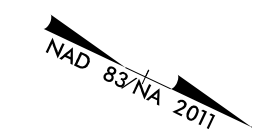
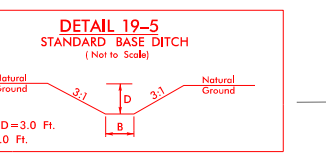
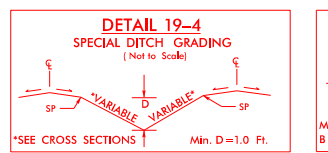
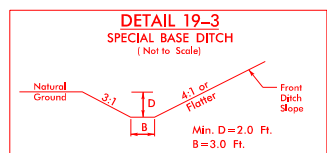
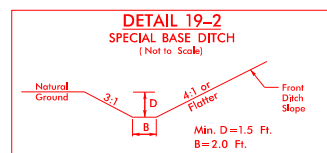
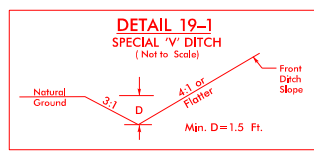
PERMIT DRAWING  
SHEET 57 OF 87

DATE: 11/28/2023



FOR -LLT- PROFILE SEE SHEET 50  
FOR -LRT- PROFILE SEE SHEET 50  
FOR -Y8- PROFILE SEE SHEET 76  
FOR -SRY3DY4C- PROFILE SEE SHEET 91  
FOR -SRY4B- PROFILE SEE SHEET 98

11/28/2023 R-5777C-Hyd.prm-wet.psh\_19.dgn



PROJECT REFERENCE NO. R-5777C	SHEET NO. 19
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
<b>INCOMPLETE PLANS</b> DO NOT USE FOR A/W ACQUISITION	

**Balfour Beatty** **stv**

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

**PERMIT DRAWING**  
**SHEET 58 OF 87**

DATE: 11/28/2023

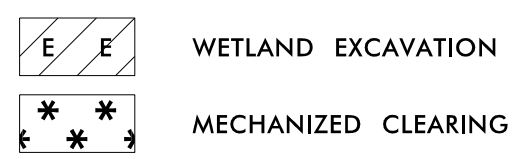
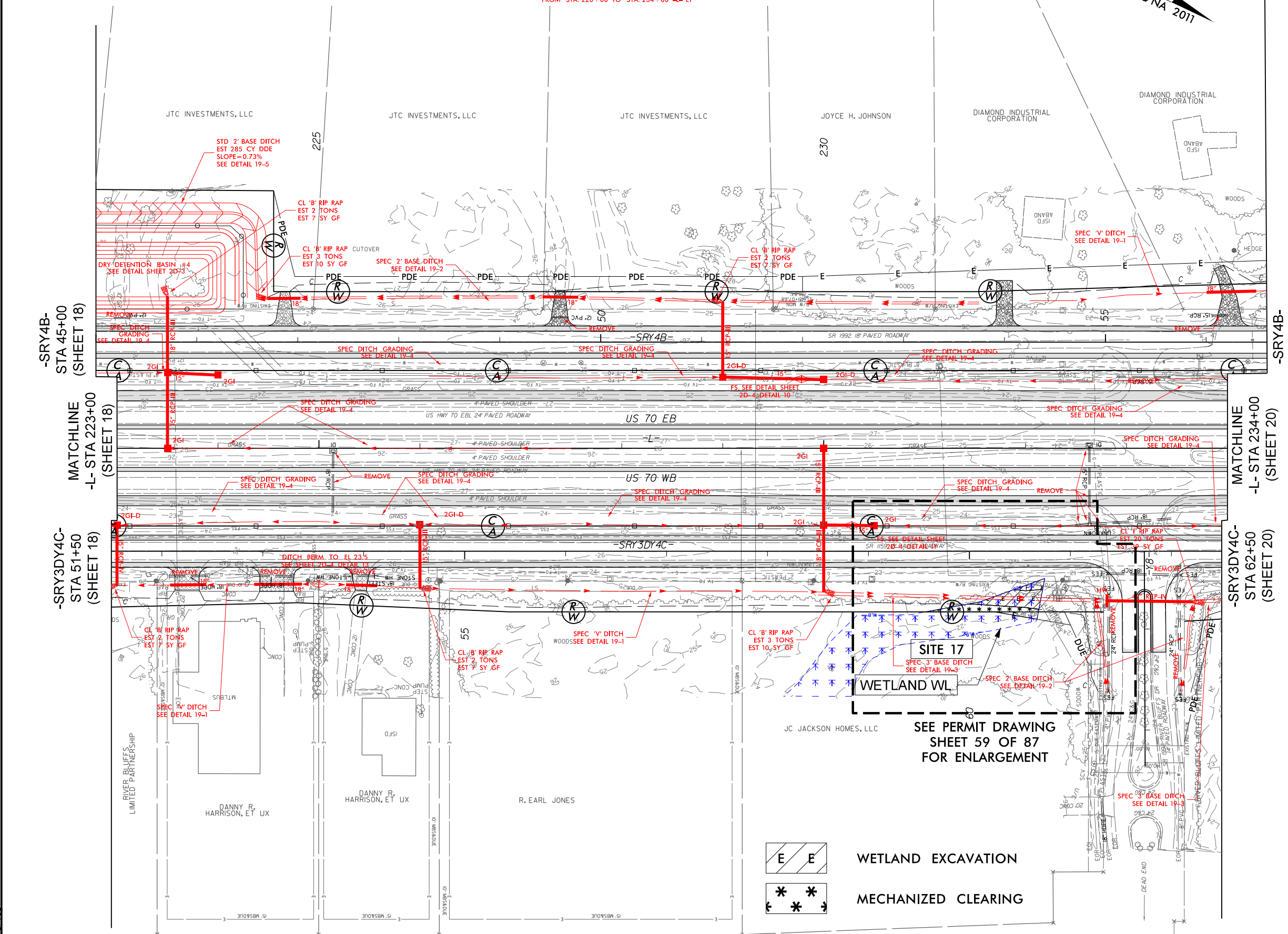
FROM STA. 54+25 TO STA. 56+60 -SRY4B- LT  
FROM STA. 51+50 TO STA. 53+50 -SRY3DY4C- RT  
FROM STA. 53+50 TO STA. 58+50 -SRY3DY4C- RT

FROM STA. 46+60 TO STA. 53+75 -SRY4B- LT  
FROM STA. 10+50 TO STA. 11+40 -Y8- LT  
FROM STA. 10+50 TO STA. 11+40 -Y8- RT

FROM STA. 58+50 TO STA. 61+15 -SRY3DY4C- RT  
FROM STA. 62+25 TO STA. 62+50 -SRY3DY4C- RT

FROM STA. 223+00 TO STA. 223+50 -L- LT  
FROM STA. 223+50 TO STA. 224+50 -L- M  
FROM STA. 223+00 TO STA. 234+00 -L- RT  
FROM STA. 225+50 TO STA. 227+50 -L- M  
FROM STA. 226+00 TO STA. 234+00 -L- LT

FROM STA. 45+00 TO STA. 46+60 -SRY4B- LT



FOR -LLT- PROFILE SEE SHEET 50  
FOR -LRT- PROFILE SEE SHEET 50  
FOR -Y8- PROFILE SEE SHEET 76  
FOR -SRY3DY4C- PROFILE SEE SHEET 91  
FOR -SRY4B- PROFILE SEE SHEET 98

11/28/2023 R-5777C-Hyd.prm-wet.psh\_19-1.dgn





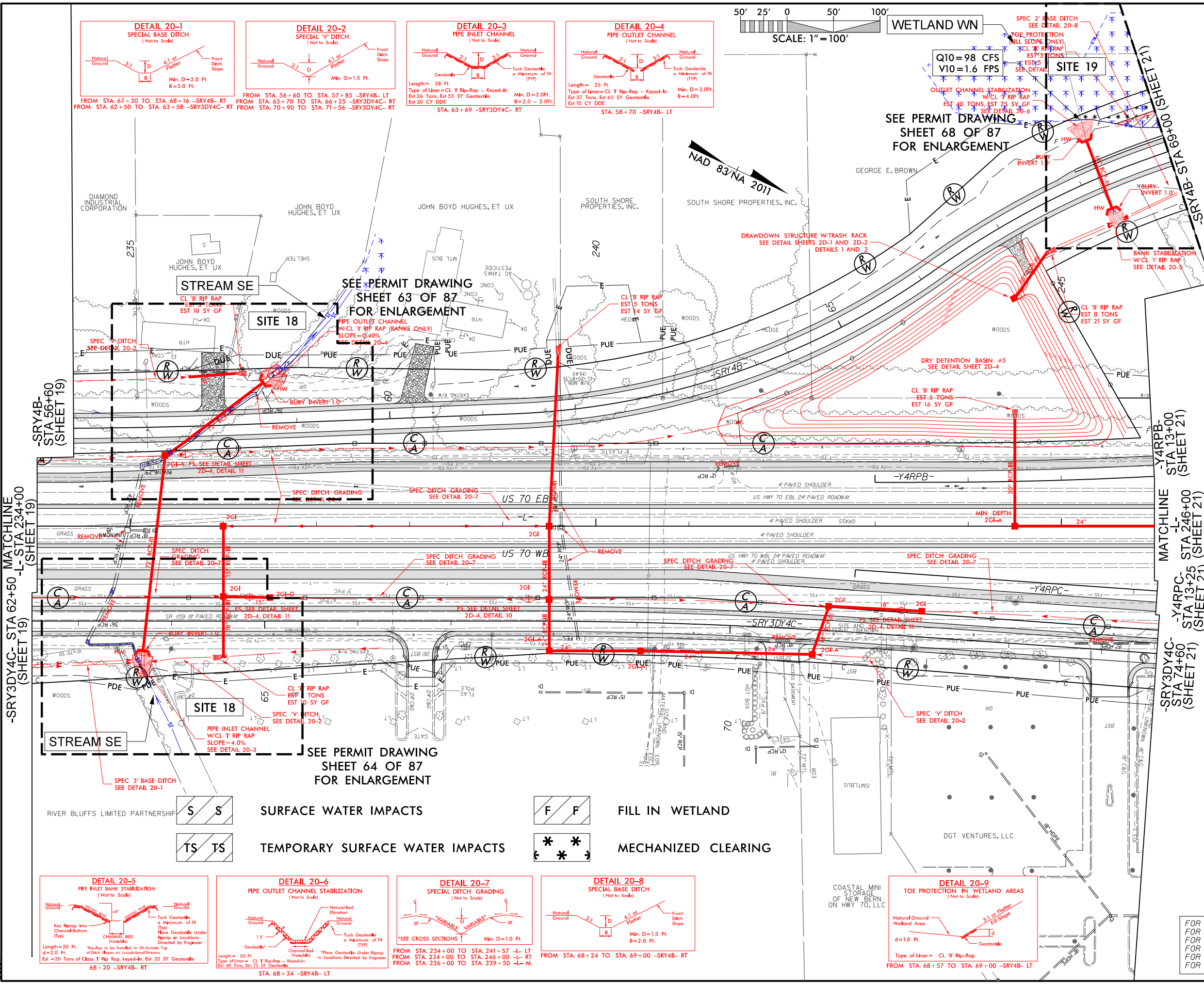


**Balfour Beatty** **stv**

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING  
SHEET 61 OF 87

DATE: 11/28/2023



11/28/2023 R-5777C-Hyd\_prm\_wet\_psh\_20.dgn

FOR -LLT- PROFILE SEE SHEETS 50 & 51  
FOR -LRT- PROFILE SEE SHEETS 50 & 51  
FOR -Y4RPB- PROFILE SEE SHEET 73  
FOR -Y4RPC- PROFILE SEE SHEET 74  
FOR -SRY3DY4C- PROFILE SEE SHEETS 91 & 92  
FOR -SRY4B- PROFILE SEE SHEETS 98 & 99



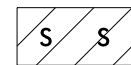

8/17/99

PROJECT REFERENCE NO. R-5777C	SHEET NO.
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	

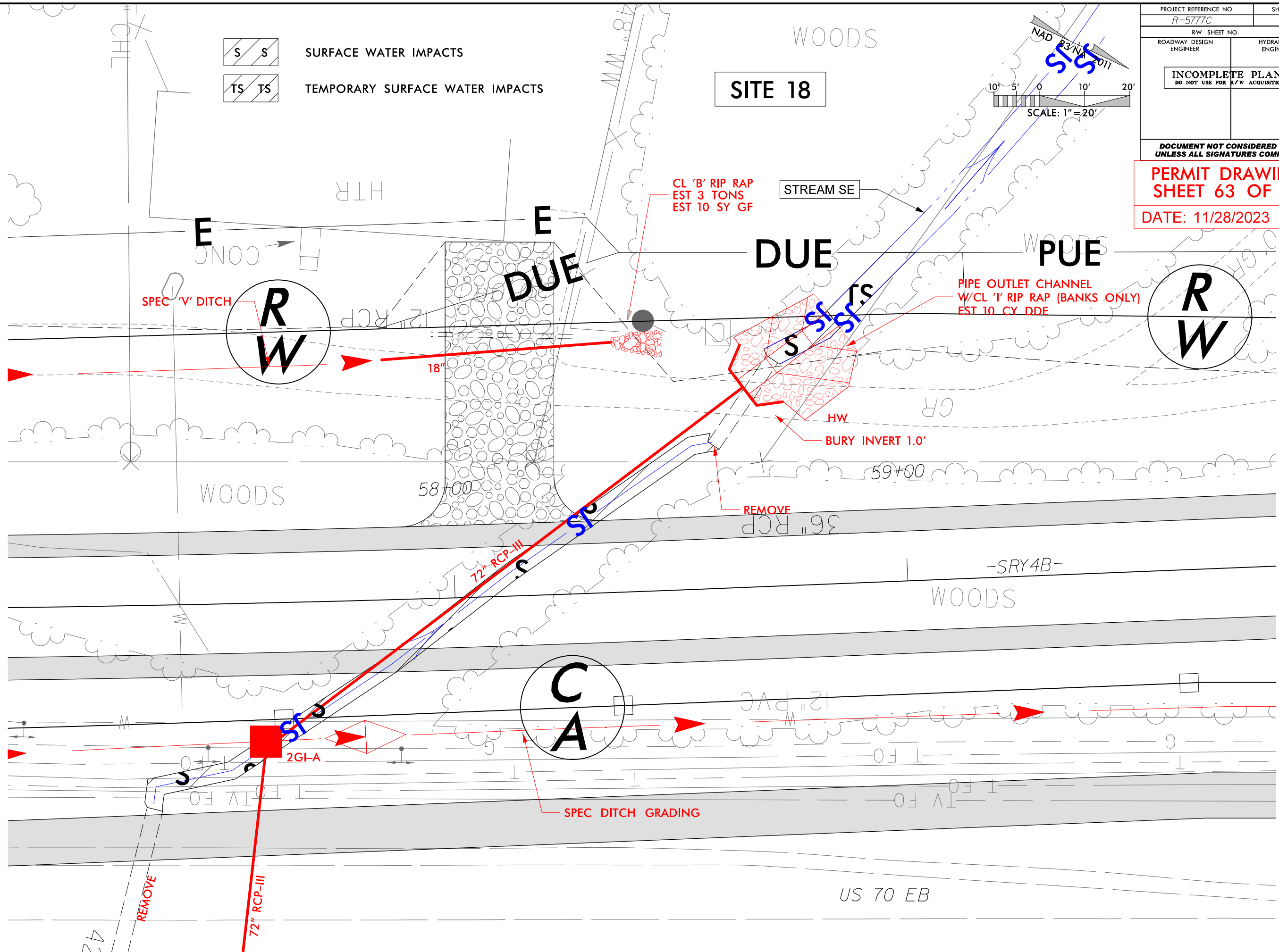
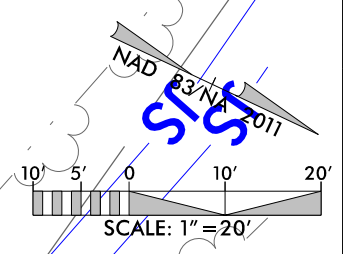
DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

**PERMIT DRAWING**  
**SHEET 63 OF 87**

DATE: 11/28/2023

 SURFACE WATER IMPACTS  
 TEMPORARY SURFACE WATER IMPACTS

**SITE 18**



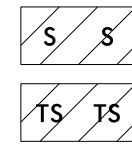
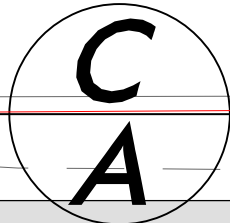
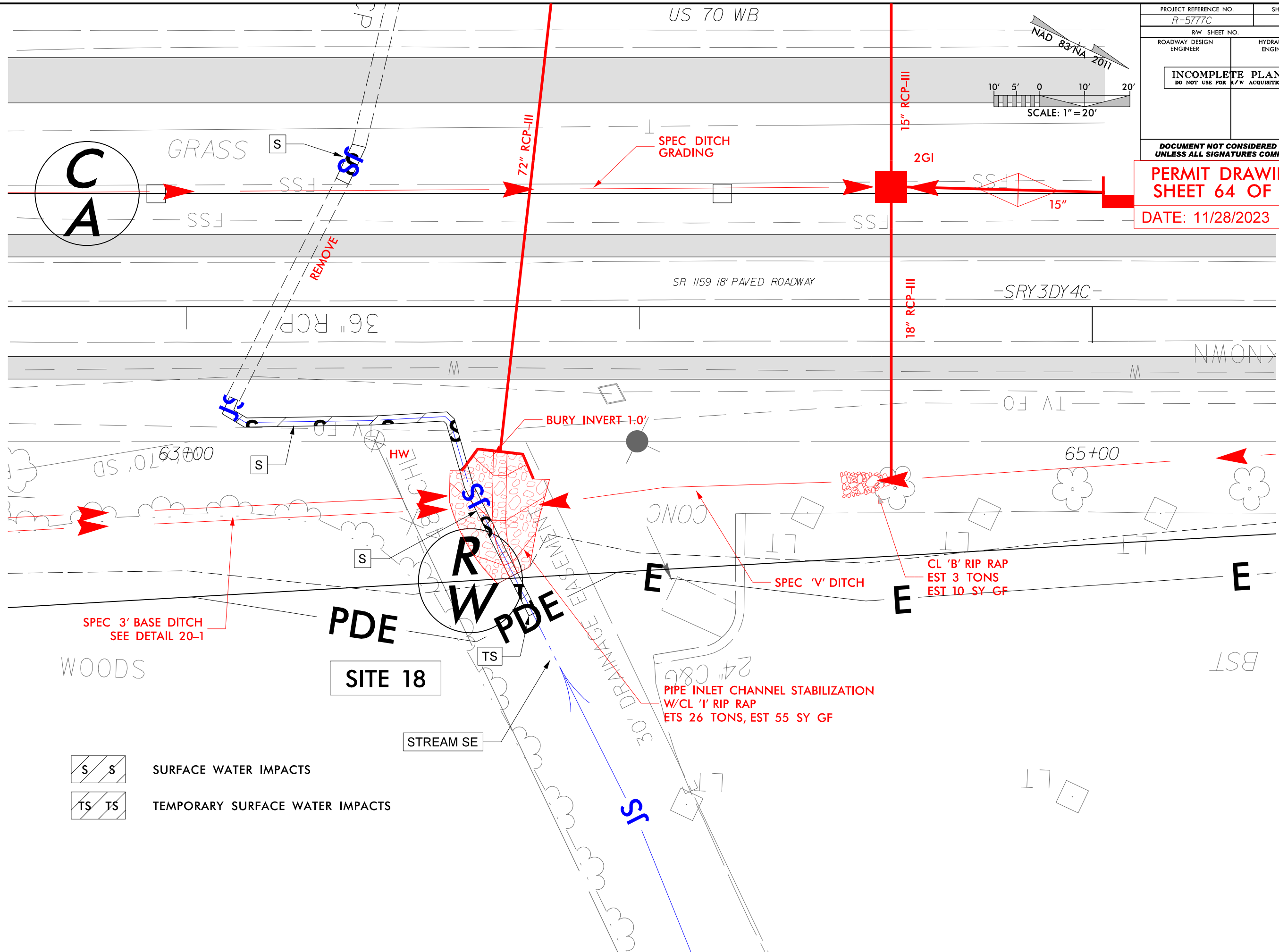
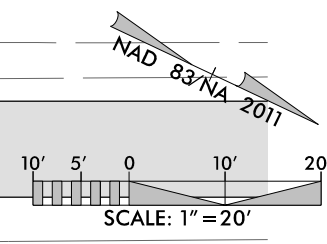
11/28/2023 R-5777C-Hyd.prm\_wet.psh\_20-2-View1.dgn

PROJECT REFERENCE NO. R-5777C	SHEET NO.
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

**PERMIT DRAWING SHEET 64 OF 87**

DATE: 11/28/2023



**S S** SURFACE WATER IMPACTS

**TS TS** TEMPORARY SURFACE WATER IMPACTS

5/14/99

200

100

0

100

200

PROJECT REFERENCE NO. SHEET NO.

R-5777C

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 65 OF 87

DATE: 11/28/2023

SITE 18

CL STA 235+26 -L-  
1@72" RCP (BURIED 1.0')

CL STA 58+01 -SRY4B-  
1@72" RCP (BURIED 1.0')

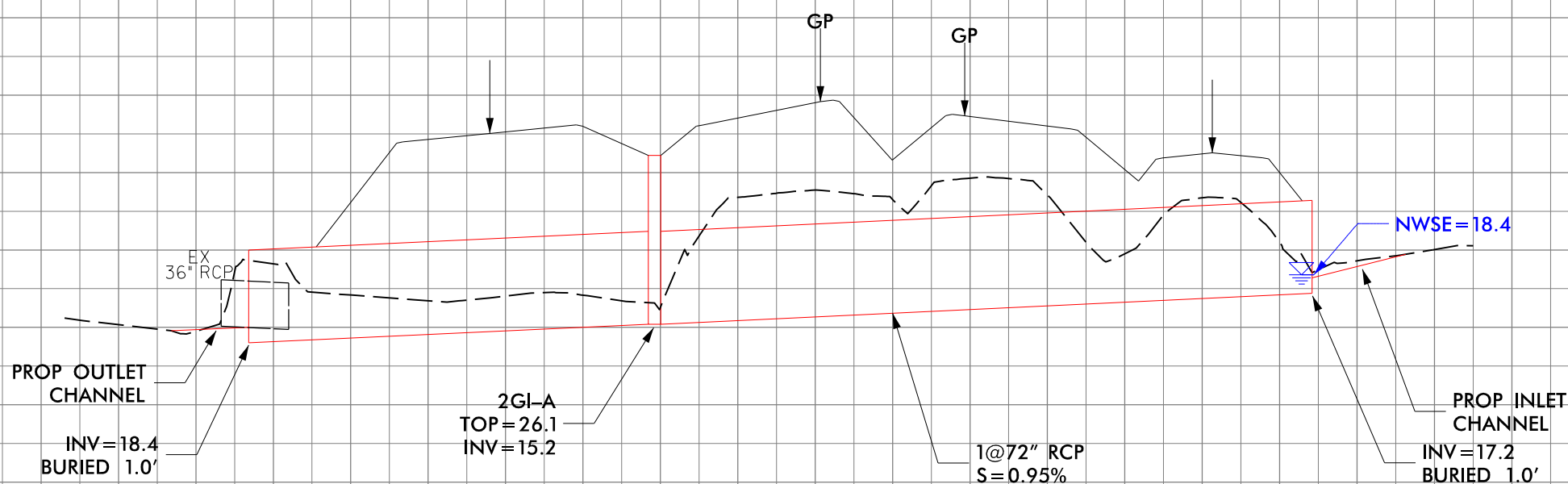
CL STA 63+65 -SRY3DY4C-  
1@72" RCP (BURIED 1.0')

40

30

20

10



11/28/2023 R-5777C-Hyd.prm\_wet.psh\_20-4-Sect.dgn



6/2/99

PROJECT REFERENCE NO. R-5777C SHEET NO. 21

ENGINEER: HASKELLS ENGINEER

**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION

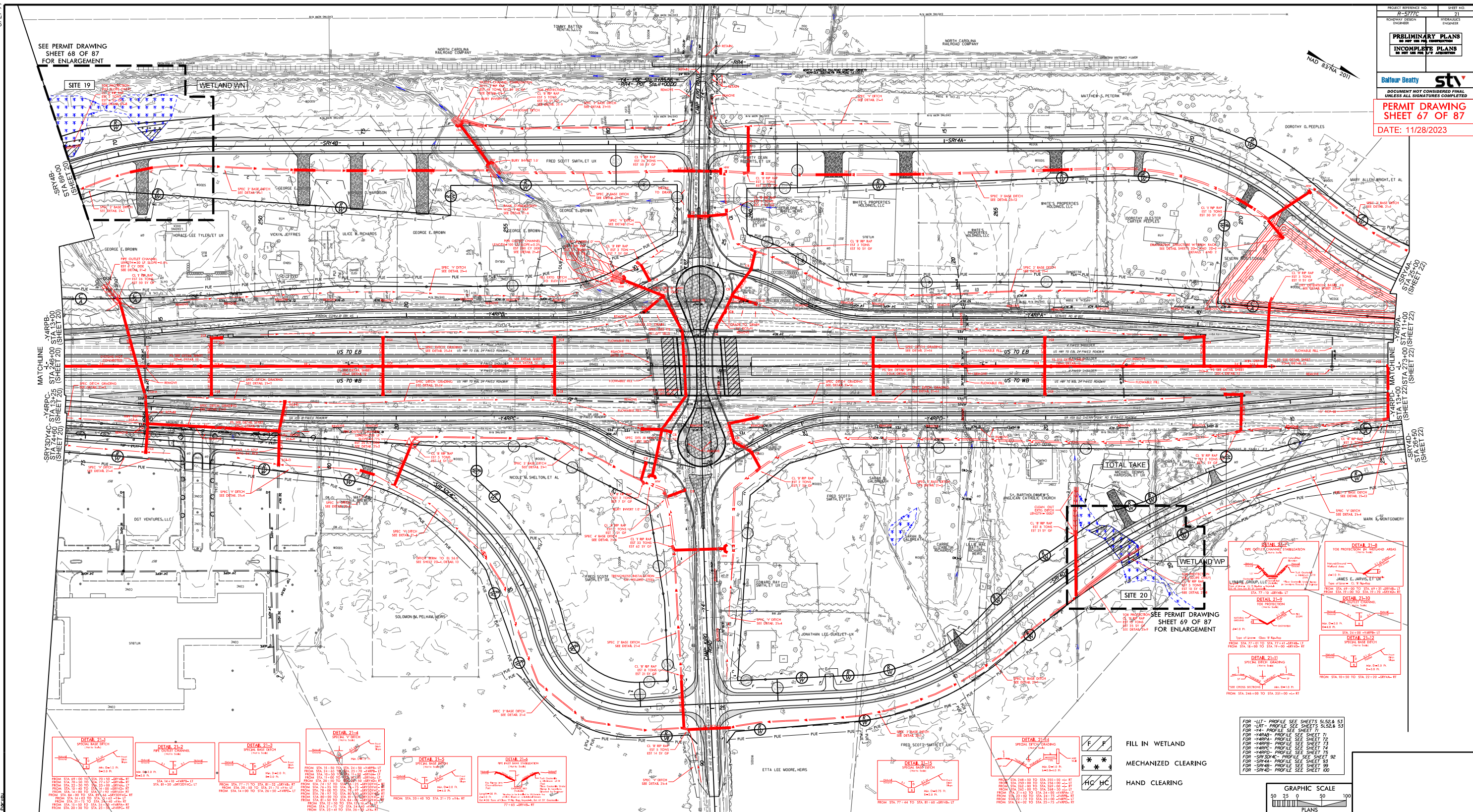
**INCOMPLETE PLANS**  
DO NOT USE FOR PERMITS

Ballour Beatty **sty**

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

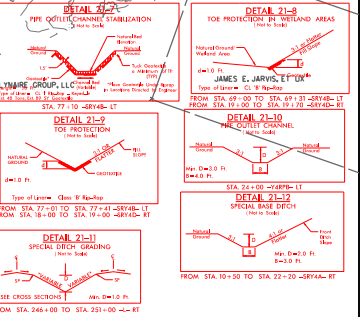
**PERMIT DRAWING**  
SHEET 67 OF 87

DATE: 11/28/2023



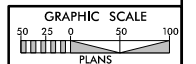
SEE PERMIT DRAWING SHEET 68 OF 87 FOR ENLARGEMENT

SEE PERMIT DRAWING SHEET 69 OF 87 FOR ENLARGEMENT



- FILL IN WETLAND
- MECHANIZED CLEARING
- HAND CLEARING

FOR -LIT- PROFILE SEE SHEETS 51,52 & 53  
 FOR -LIT- PROFILE SEE SHEETS 51,52 & 53  
 FOR -14- PROFILE SEE SHEET 71  
 FOR -YARAB- PROFILE SEE SHEET 71  
 FOR -YARAB- PROFILE SEE SHEET 72  
 FOR -YARAB- PROFILE SEE SHEET 73  
 FOR -YARAB- PROFILE SEE SHEET 74  
 FOR -YARAB- PROFILE SEE SHEET 75  
 FOR -YARAB- PROFILE SEE SHEET 76  
 FOR -YARAB- PROFILE SEE SHEET 77  
 FOR -YARAB- PROFILE SEE SHEET 78  
 FOR -YARAB- PROFILE SEE SHEET 79  
 FOR -YARAB- PROFILE SEE SHEET 80  
 FOR -YARAB- PROFILE SEE SHEET 81  
 FOR -YARAB- PROFILE SEE SHEET 82  
 FOR -YARAB- PROFILE SEE SHEET 83  
 FOR -YARAB- PROFILE SEE SHEET 84  
 FOR -YARAB- PROFILE SEE SHEET 85  
 FOR -YARAB- PROFILE SEE SHEET 86  
 FOR -YARAB- PROFILE SEE SHEET 87  
 FOR -YARAB- PROFILE SEE SHEET 88  
 FOR -YARAB- PROFILE SEE SHEET 89  
 FOR -YARAB- PROFILE SEE SHEET 90



11/28/2023 11:57:20 AM P:\5777C\112823\perm\set\p1h\_21\_1.dgn





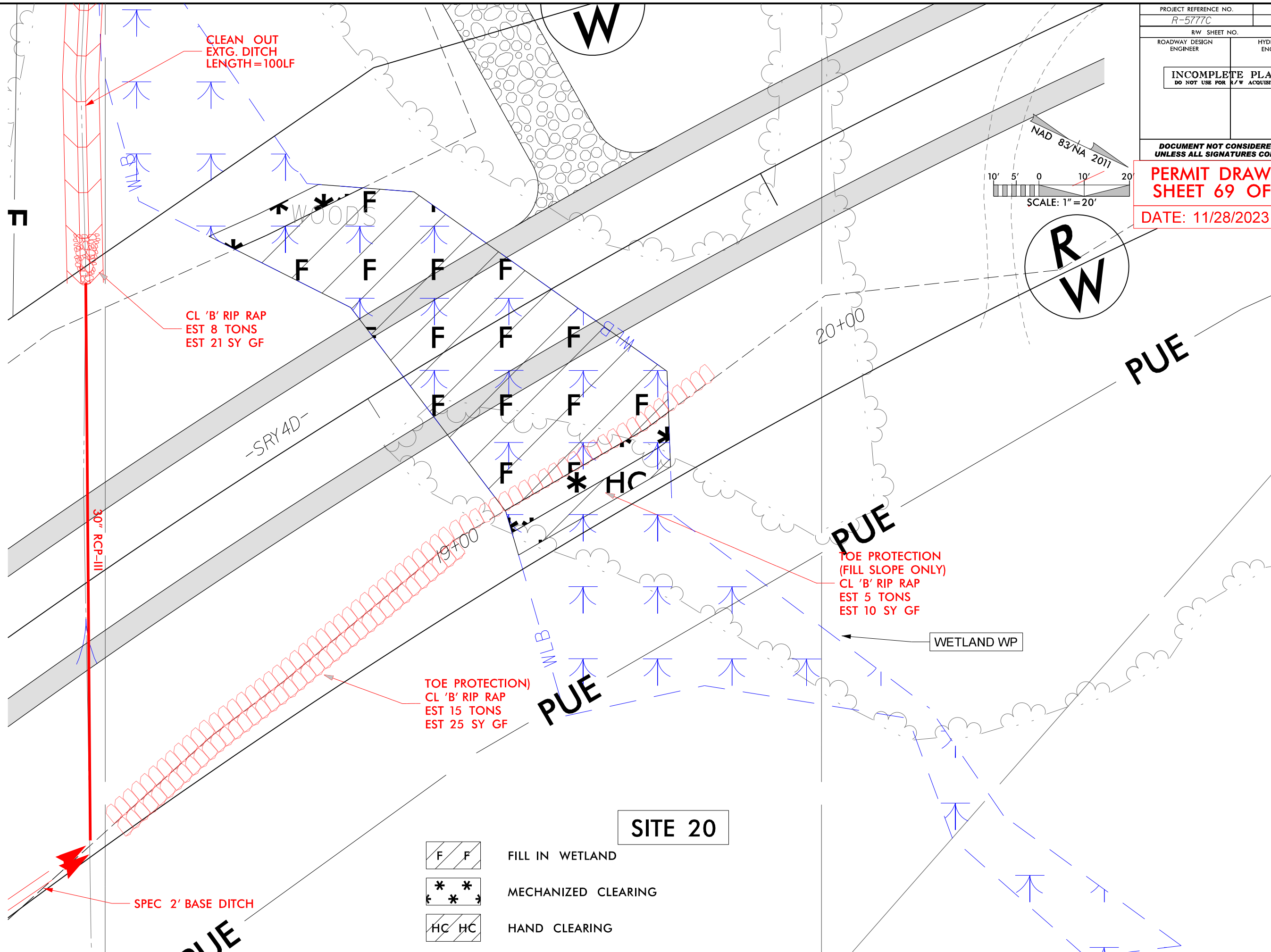
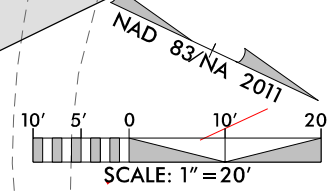
8/17/99

PROJECT REFERENCE NO. R-5777C	SHEET NO.
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

**PERMIT DRAWING SHEET 69 OF 87**

DATE: 11/28/2023

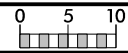


11/28/2023 R-5777C-Hyd.prm-wet.psh\_21-3-ViewIn.dgn

**SITE 20**

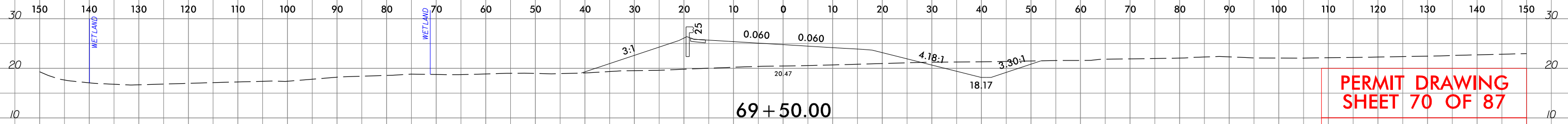
- F F FILL IN WETLAND
- \* \* MECHANIZED CLEARING
- HC HC HAND CLEARING

6/23/16

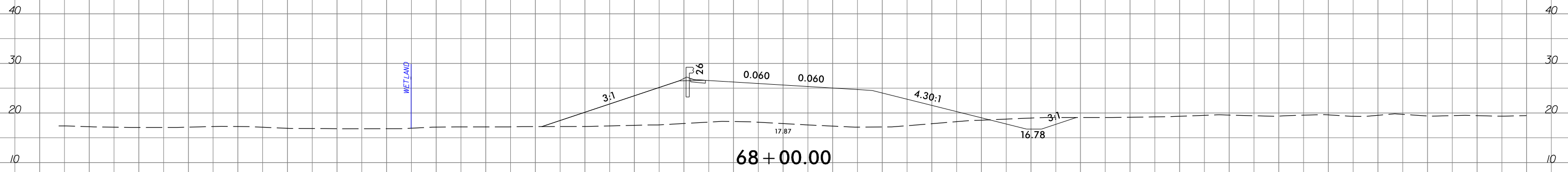
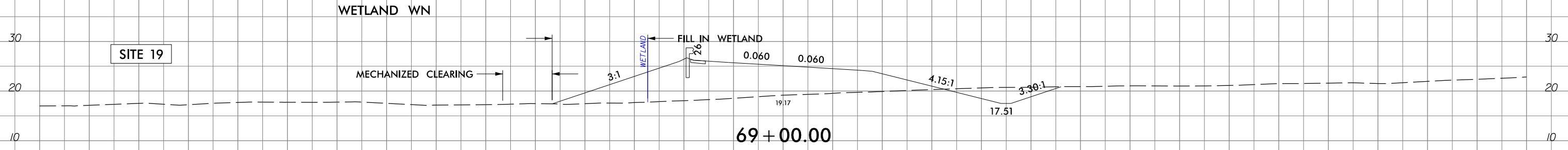


PROJ. REFERENCE NO.  
R-5777C

SHEET NO.  
SRY4B-7



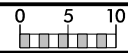
**PERMIT DRAWING**  
**SHEET 70 OF 87**  
DATE: 11/28/2023



-SRY4B-

11/28/2023  
R-5777C-Hyd-prm.wet\_21-4-xpl.dgn  
jharvey

6/23/16

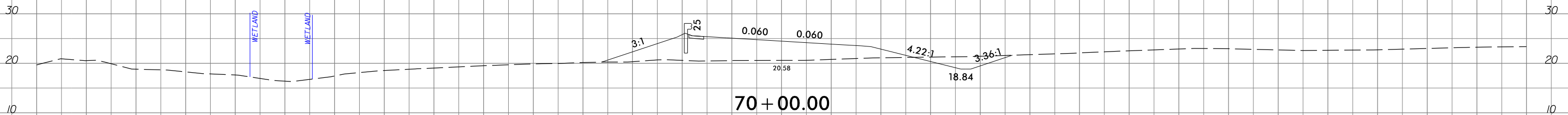
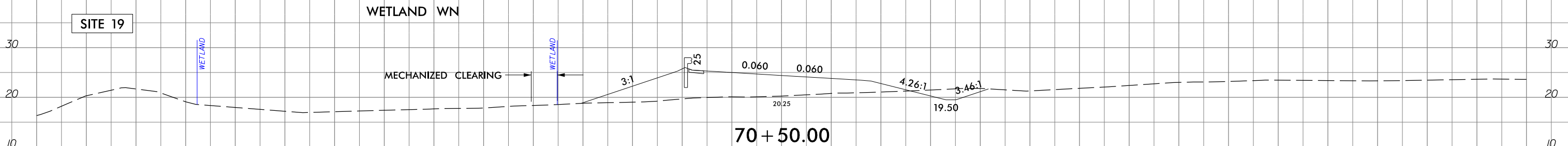
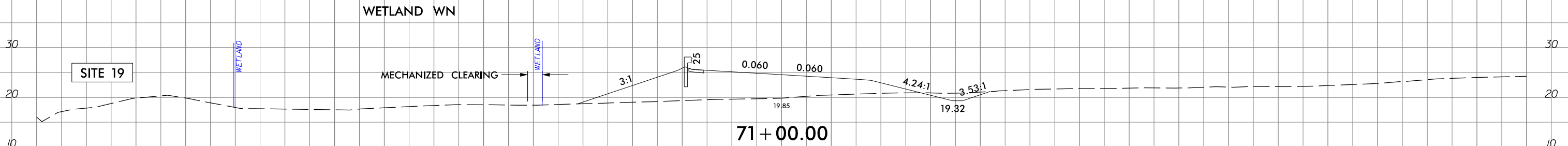
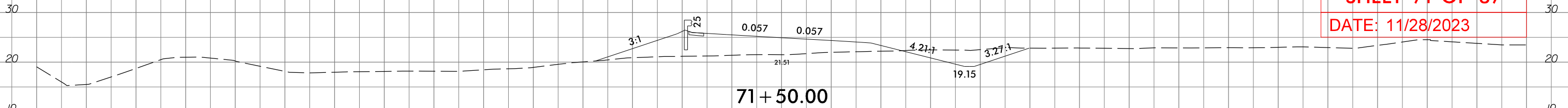


PROJ. REFERENCE NO.  
R-5777C

SHEET NO.  
SRY4B-8

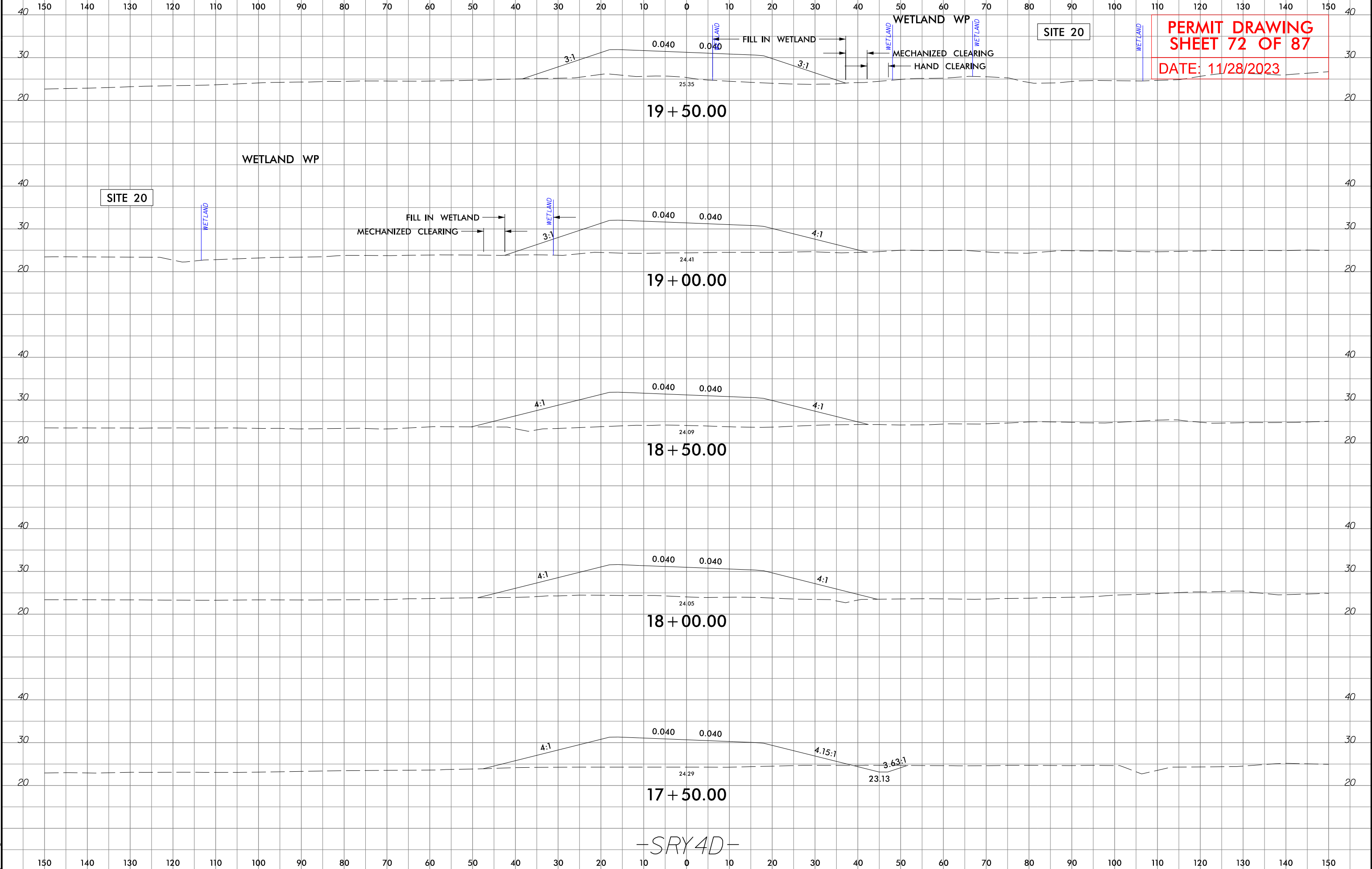
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**PERMIT DRAWING**  
**SHEET 71 OF 87**  
DATE: 11/28/2023

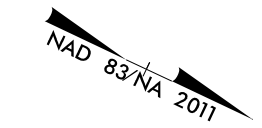
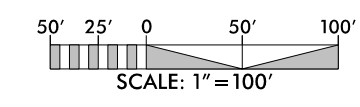


-SRY4B-

11/28/2023  
R-5777C-Hyd-prm-wet-21-5-xpl.dgn  
jharvey

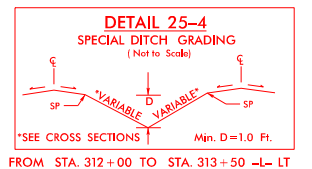
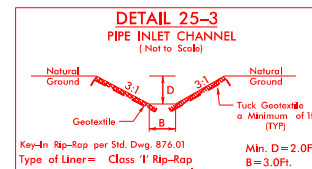
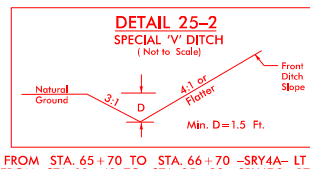
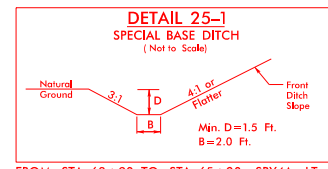
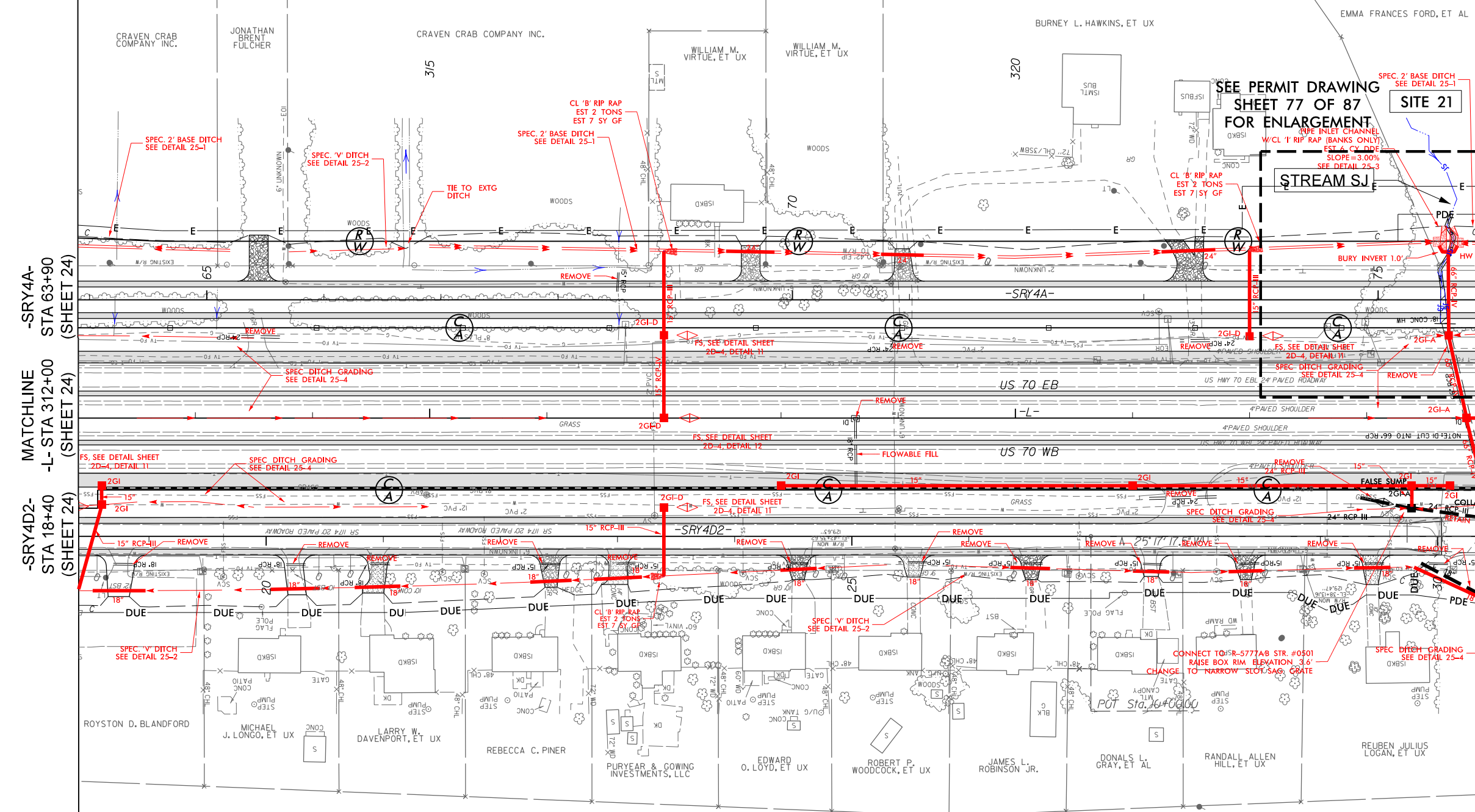


-SRY4D-



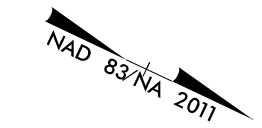
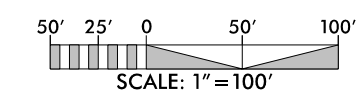
**S S** SURFACE WATER IMPACTS

**TS TS** TEMPORARY SURFACE WATER IMPACTS

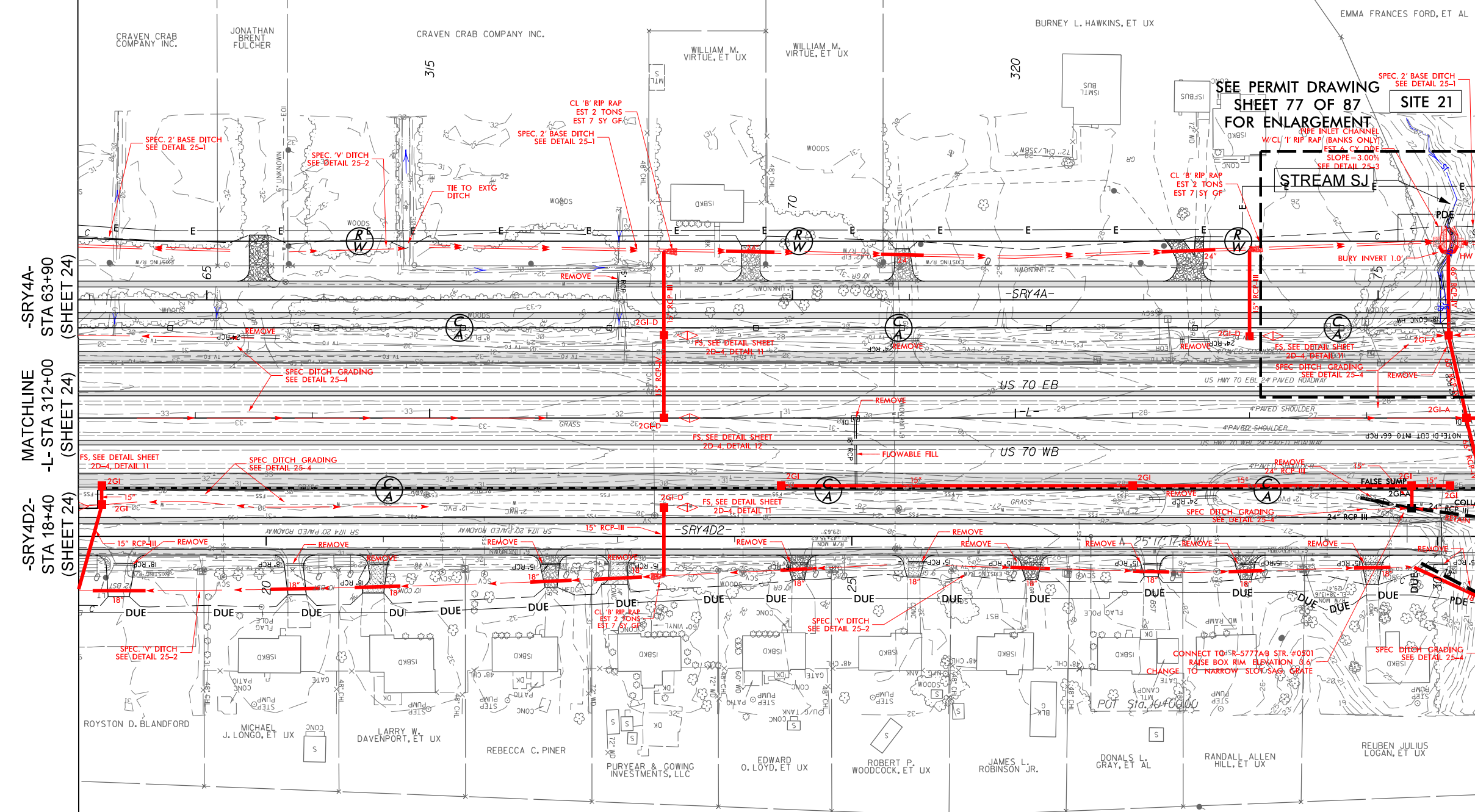


PAVEMENT REMOVAL

FOR -LLT- PROFILE SEE SHEETS 56 & 57  
FOR -LRT- PROFILE SEE SHEETS 56 & 57  
FOR -SRY4A- PROFILE SEE SHEETS 94 & 95  
FOR -SRY4D2- PROFILE SEE SHEET 101

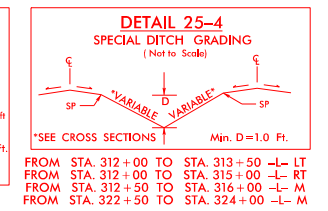
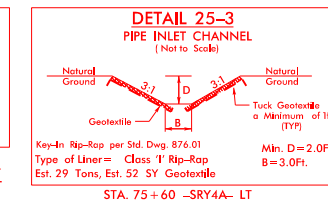
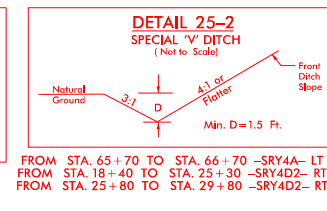
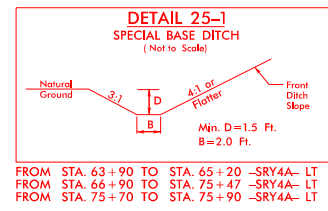


**S S** SURFACE WATER IMPACTS  
**TS TS** TEMPORARY SURFACE WATER IMPACTS



-SRY4A- STA 63+90 (SHEET 24)  
 MATCHLINE -L- STA 312+00 (SHEET 24)  
 -SRY4D2- STA 18+40 (SHEET 24)

-SRY4A- STA 75+90 (SHEET 26)  
 MATCHLINE -L- STA 324+00 (SHEET 26)  
 -SRY4D2- STA 30+40 (SHEET 26)

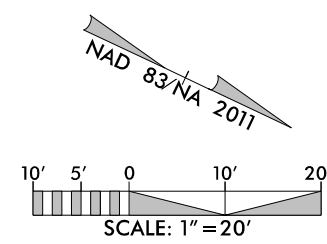


PAVEMENT REMOVAL

FOR -LLT- PROFILE SEE SHEETS 56 & 57  
 FOR -LRT- PROFILE SEE SHEETS 56 & 57  
 FOR -SRY4A- PROFILE SEE SHEETS 94 & 95  
 FOR -SRY4D2- PROFILE SEE SHEET 101

8/17/99

PROJECT REFERENCE NO. R-5777C	SHEET NO.
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	



SURFACE WATER IMPACTS

TEMPORARY SURFACE WATER IMPACTS

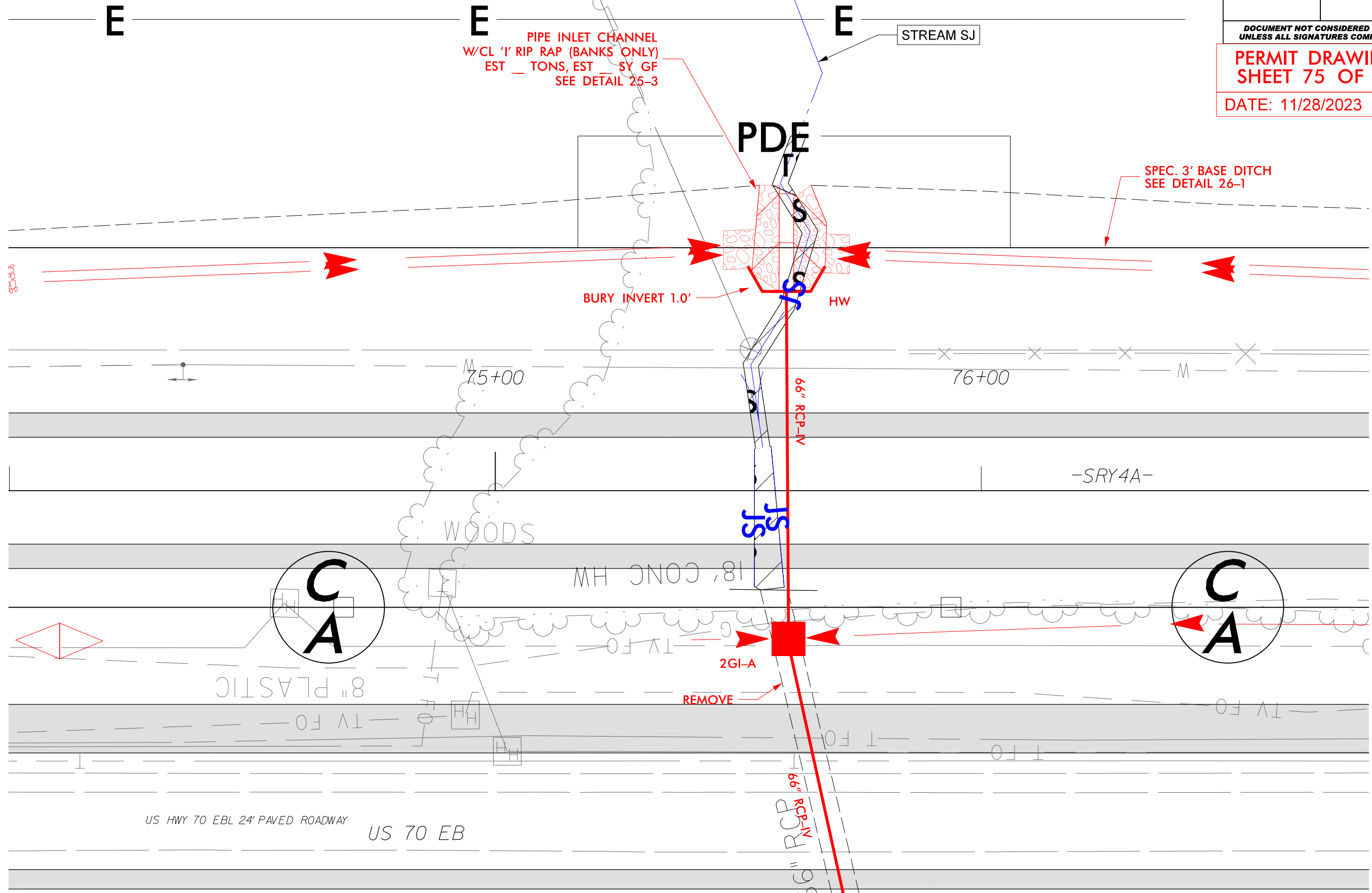
**SITE 21**

PIPE INLET CHANNEL  
W/CL '1' RIP RAP (BANKS ONLY)  
EST \_ TONS, EST \_ SY GF  
SEE DETAIL 25-3

STREAM SJ

**PERMIT DRAWING**  
**SHEET 75 OF 87**

DATE: 11/28/2023



11/28/2023 R-5777C-Hyd.prm\_wet\_psh\_25-2-View1.dgn



5/14/99

200

100

0

100

200

PROJECT REFERENCE NO. SHEET NO.

R-5777C

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 76 OF 87

DATE: 11/28/2023

SITE 21

CL STA 323+86 -L-  
1@66" RCP (BURIED 1.0')

40

CL STA 75+60 -SRY4A-  
1@66" RCP (BURIED 1.0')

-SRY21C-  
U-5713 /R-5777A&B  
1@66" RCP (BURIED 1.0')

30

GP

GP

20

NWSE=17.2

PROP INLET CHANNEL

INV=16.0  
BURIED 1.0'

1 at 66" RCP  
S=0.43%

2GI-A  
TOP=24.9  
INV=15.7

1@66" RCP  
S=0.43%

2GI-A  
TOP=25.5  
INV=15.4

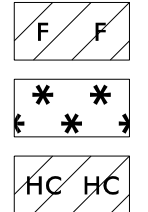
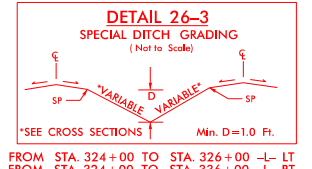
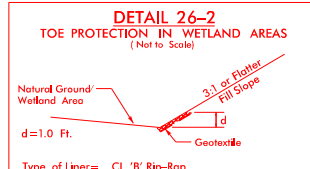
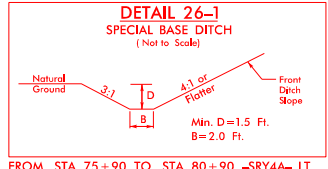
66" RCP

1 at 66" RCP  
S=0.34%

INV=15.1

10

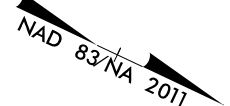
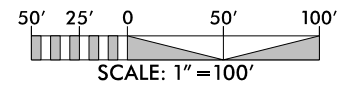
11/28/2023 R-5777C-Hyd.prm\_wet.psh\_25-3-Sect.dgn



F F FILL IN WETLAND

\* \* \* MECHANIZED CLEARING

HC HC HAND CLEARING

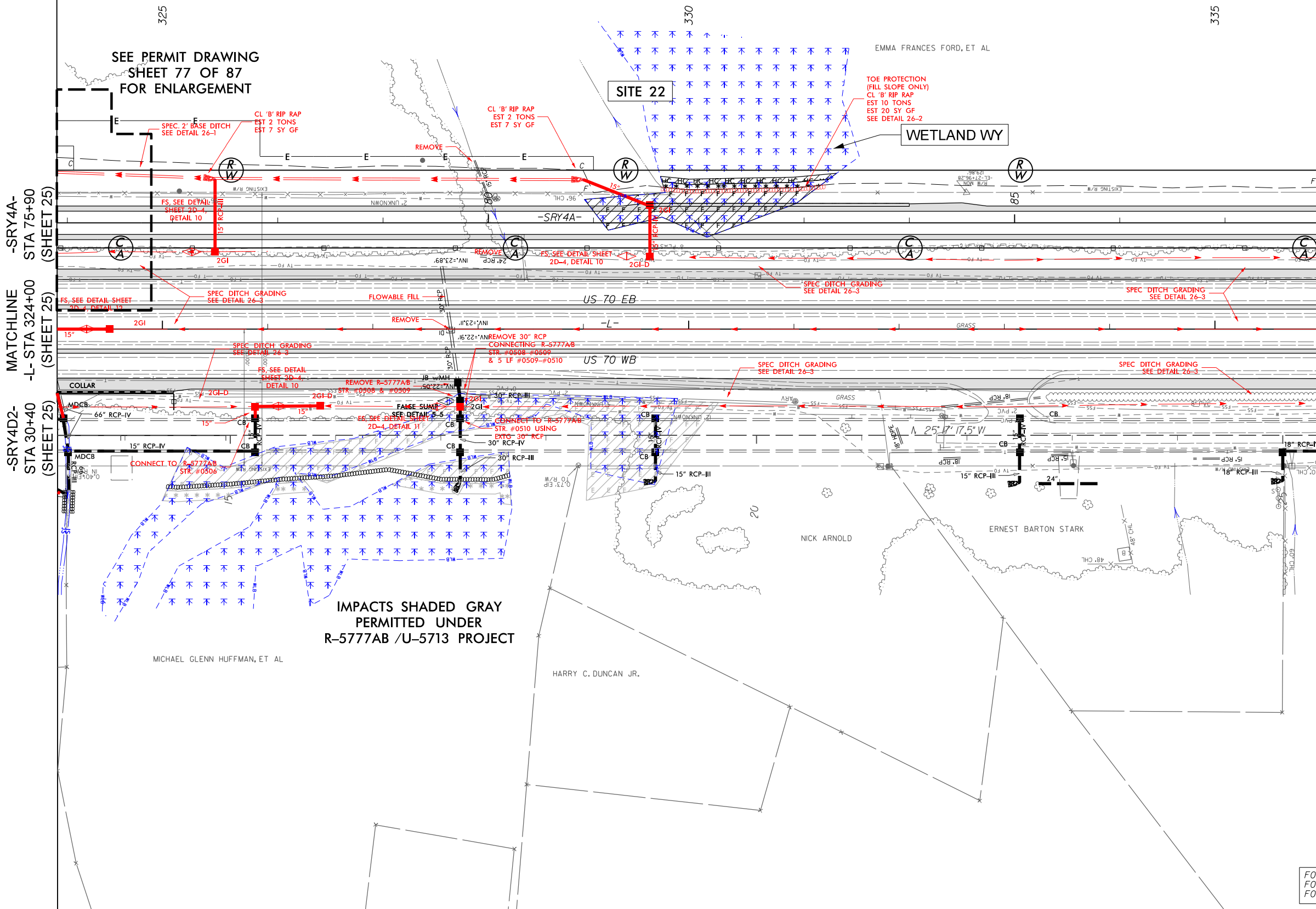


PROJECT REFERENCE NO. R-5777C	SHEET NO. 26
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
<b>INCOMPLETE PLANS</b> DO NOT USE FOR A/W ACQUISITION	

**Balfour Beatty** **stv**  
DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

**PERMIT DRAWING**  
**SHEET 77 OF 87**

DATE: 11/28/2023



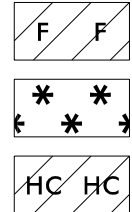
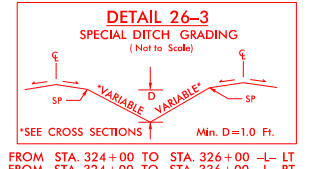
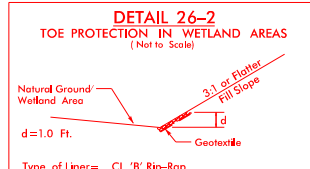
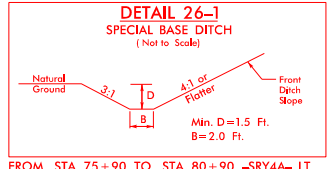
-SRY4A- STA 75+90 (SHEET 25)  
MATCHLINE -L- STA 324+00 (SHEET 25)  
-SRY4D2- STA 30+40 (SHEET 25)

-SRY4A- STA 87+90 (SHEET 27)  
MATCHLINE -L- STA 336+00 (SHEET 27)

IMPACTS SHADED GRAY  
PERMITTED UNDER  
R-5777AB /U-5713 PROJECT

11/28/2023 R-5777C-Hyd.prm\_wet\_psh\_26.dgn

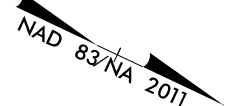
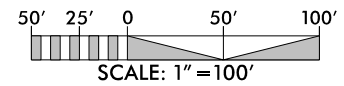
FOR -LLT- PROFILE SEE SHEETS 57 & 58  
FOR -LRT- PROFILE SEE SHEETS 57 & 58  
FOR -SRY4A- PROFILE SEE SHEET 95



F F FILL IN WETLAND

\* \* MECHANIZED CLEARING

HC HC HAND CLEARING

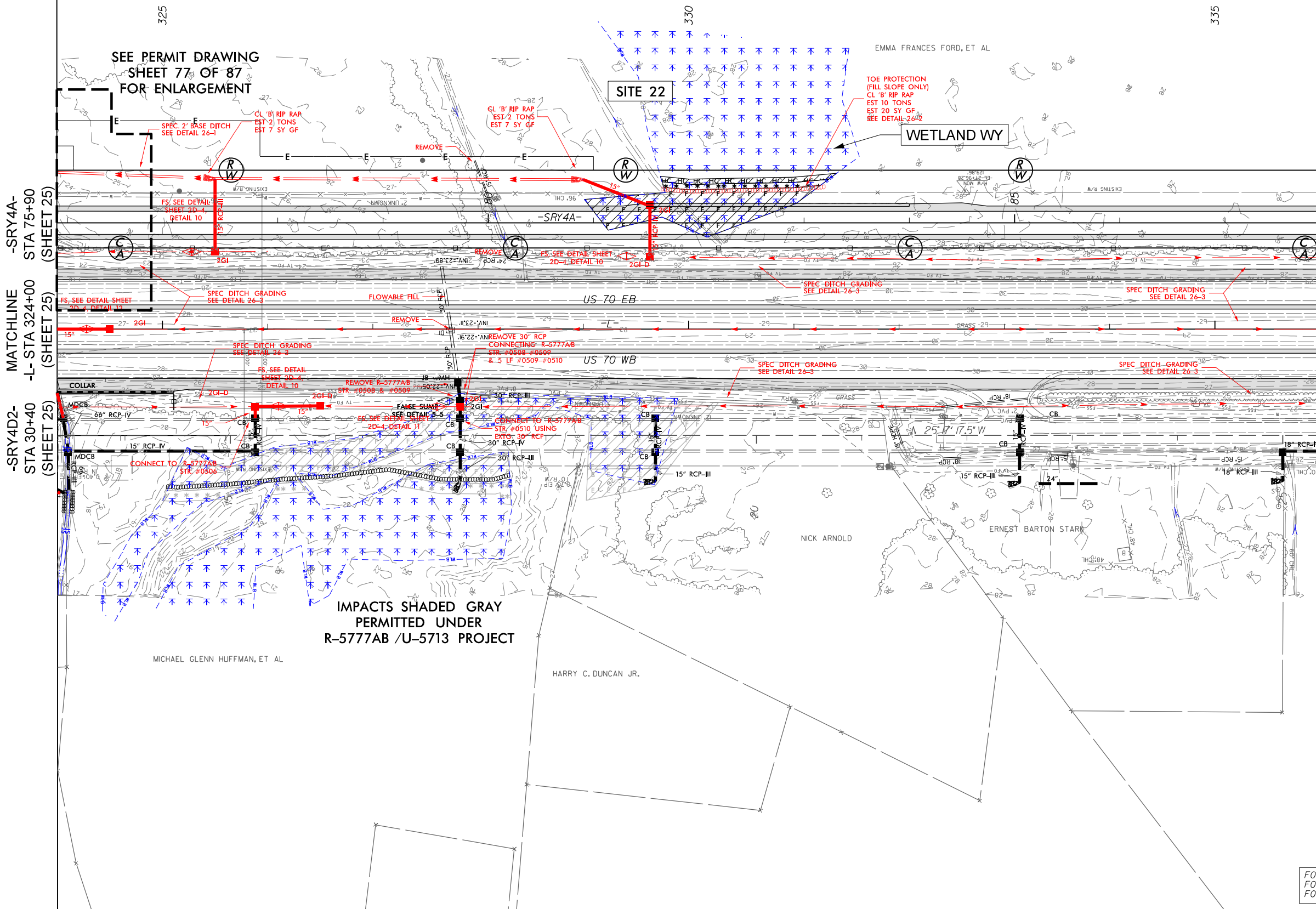


PROJECT REFERENCE NO. R-5777C	SHEET NO. 26
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
<b>INCOMPLETE PLANS</b> DO NOT USE FOR A/W ACQUISITION	

**Balfour Beatty** **stv**  
DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

**PERMIT DRAWING**  
**SHEET 78 OF 87**

DATE: 11/28/2023



-SRY4A- STA 75+90 (SHEET 25)  
MATCHLINE -L- STA 324+00 (SHEET 25)  
-SRY4D2- STA 30+40 (SHEET 25)

-SRY4A- STA 87+90 (SHEET 27)  
MATCHLINE -L- STA 336+00 (SHEET 27)

IMPACTS SHADED GRAY  
PERMITTED UNDER  
R-5777AB /U-5713 PROJECT

11/28/2023 R-5777C-Hyd.prm\_wet\_psh\_26-1.dgn

FOR -LLT- PROFILE SEE SHEETS 57 & 58  
FOR -LRT- PROFILE SEE SHEETS 57 & 58  
FOR -SRY4A- PROFILE SEE SHEET 95

300 280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300

PERMIT DRAWING  
SHEET 79 OF 87  
DATE: 11/28/2023

SITE 22

WETLAND WY

MECHANIZED CLEARING  
HAND CLEARING

FILL IN WETLAND

WETLAND

330+00.00

SITE 22

WETLAND WY

FILL IN WETLAND

WETLAND

329+50.00

SITE 22

WETLAND WY

FILL IN WETLAND

WETLAND

329+00.00

SITE 22

WETLAND WY

FILL IN WETLAND

WETLAND

328+50.00

SITE 22

WETLAND WY

FILL IN WETLAND

WETLAND

328+00.00

SITE 22

WETLAND WY

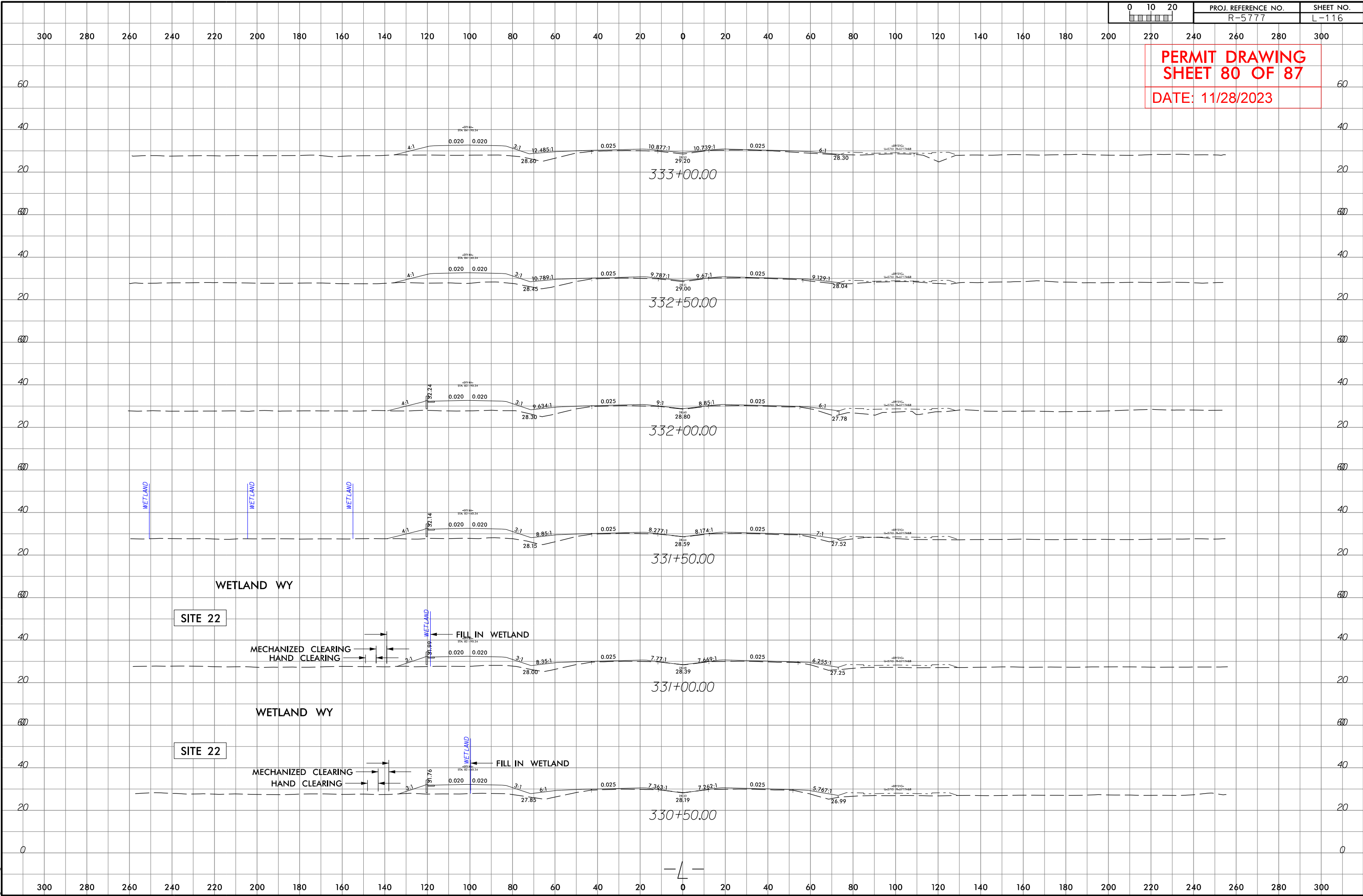
FILL IN WETLAND

WETLAND

327+50.00

4

**PERMIT DRAWING**  
**SHEET 80 OF 87**  
 DATE: 11/28/2023



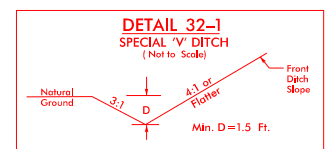
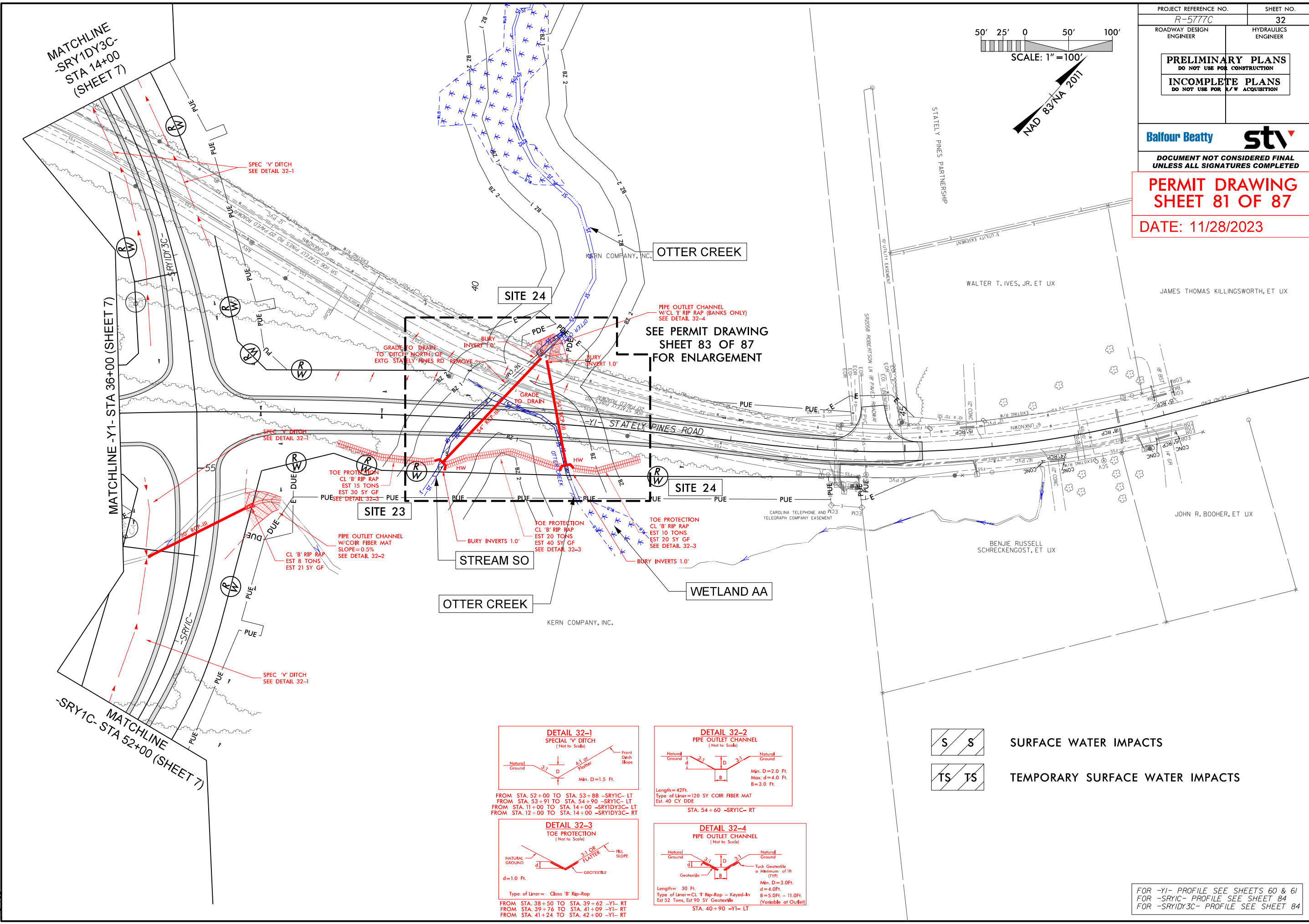
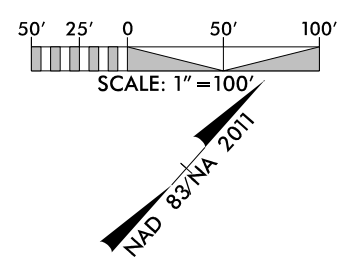
PROJECT REFERENCE NO. R-5777C	SHEET NO. 32
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
<b>INCOMPLETE PLANS</b> DO NOT USE FOR A/W ACQUISITION	



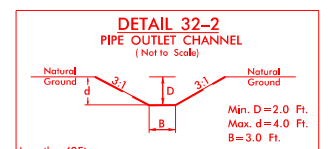
DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

**PERMIT DRAWING**  
**SHEET 81 OF 87**

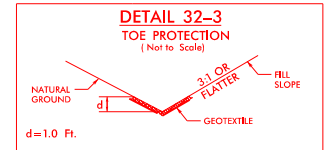
DATE: 11/28/2023



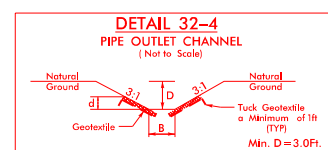
FROM STA. 52+00 TO STA. 53+88 -SR1C- LT  
FROM STA. 53+91 TO STA. 54+90 -SR1C- LT  
FROM STA. 11+00 TO STA. 14+00 -SR1DY3C- LT  
FROM STA. 12+00 TO STA. 14+00 -SR1DY3C- RT



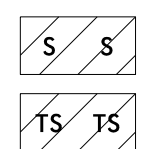
Length = 42 Ft.  
Type of Liner = 120 SY COIR FIBER MAT  
Est. 40 CY DDE  
STA. 54+60 -SR1C- RT



Type of Liner = Class 'B' Rip-Rap  
FROM STA. 38+50 TO STA. 39+62 -Y1- RT  
FROM STA. 39+76 TO STA. 41+09 -Y1- RT  
FROM STA. 41+24 TO STA. 42+00 -Y1- RT



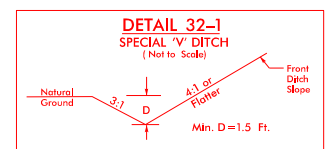
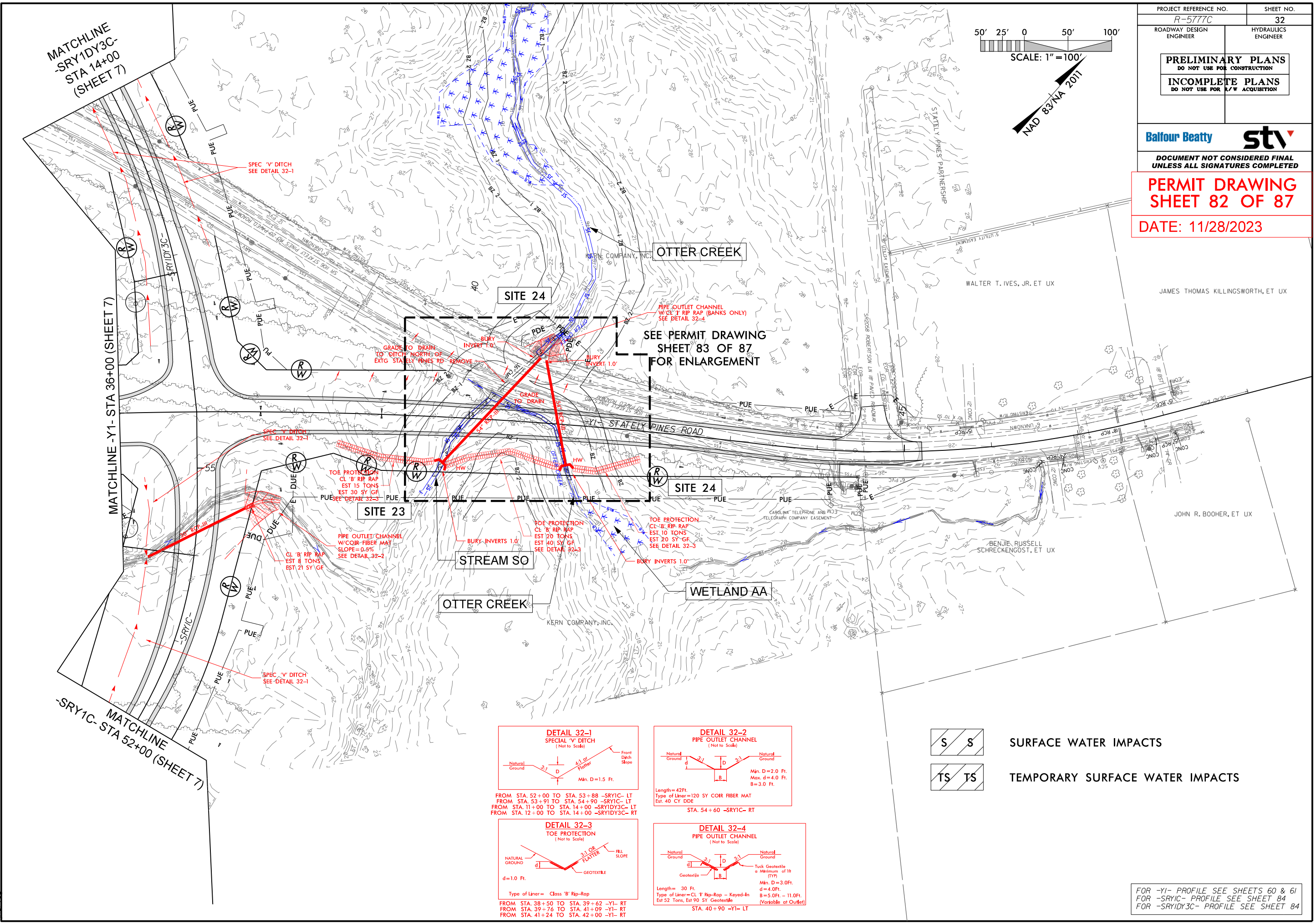
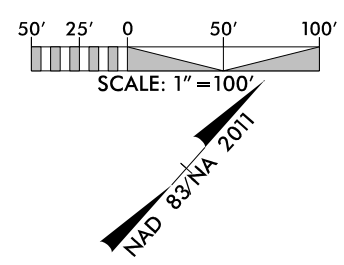
Length = 30 Ft.  
Type of Liner = CL '1' Rip-Rap - Keyed-In  
Est 52 Tons, Est 90 SY Geotextile  
STA. 40+90 -Y1- LT



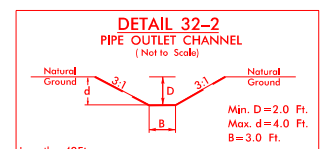
**S S** SURFACE WATER IMPACTS  
**TS TS** TEMPORARY SURFACE WATER IMPACTS

FOR -Y1- PROFILE SEE SHEETS 60 & 61  
FOR -SR1C- PROFILE SEE SHEET 84  
FOR -SR1DY3C- PROFILE SEE SHEET 84

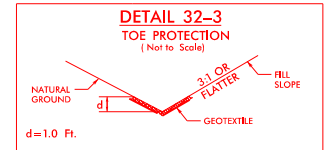
11/28/2023 R-5777C-Hyd\_prm\_wet\_psh\_32.dgn



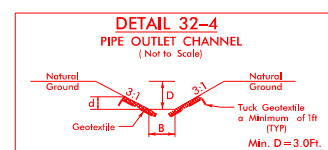
FROM STA. 52+00 TO STA. 53+88 -SR1C- LT  
FROM STA. 53+91 TO STA. 54+90 -SR1C- LT  
FROM STA. 11+00 TO STA. 14+00 -SR1DY3C- LT  
FROM STA. 12+00 TO STA. 14+00 -SR1DY3C- RT



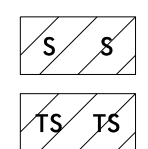
Length=42 Ft.  
Type of Liner=120 SY COIR FIBER MAT  
Est. 40 CY DDE  
STA. 54+60 -SR1C- RT



Type of Liner= Class 'B' Rip-Rap  
FROM STA. 38+50 TO STA. 39+62 -Y1- RT  
FROM STA. 39+76 TO STA. 41+09 -Y1- RT  
FROM STA. 41+24 TO STA. 42+00 -Y1- RT



Length= 30 Ft.  
Type of Liner=CL 1' Rip-Rap - Keyed-In  
Est 52 Tons, Est 90 SY Geotextile  
STA. 40+90 -Y1- LT



**S** SURFACE WATER IMPACTS

**TS** TEMPORARY SURFACE WATER IMPACTS

FOR -Y1- PROFILE SEE SHEETS 60 & 61  
FOR -SR1C- PROFILE SEE SHEET 84  
FOR -SR1DY3C- PROFILE SEE SHEET 84

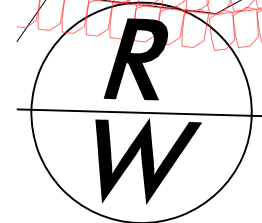
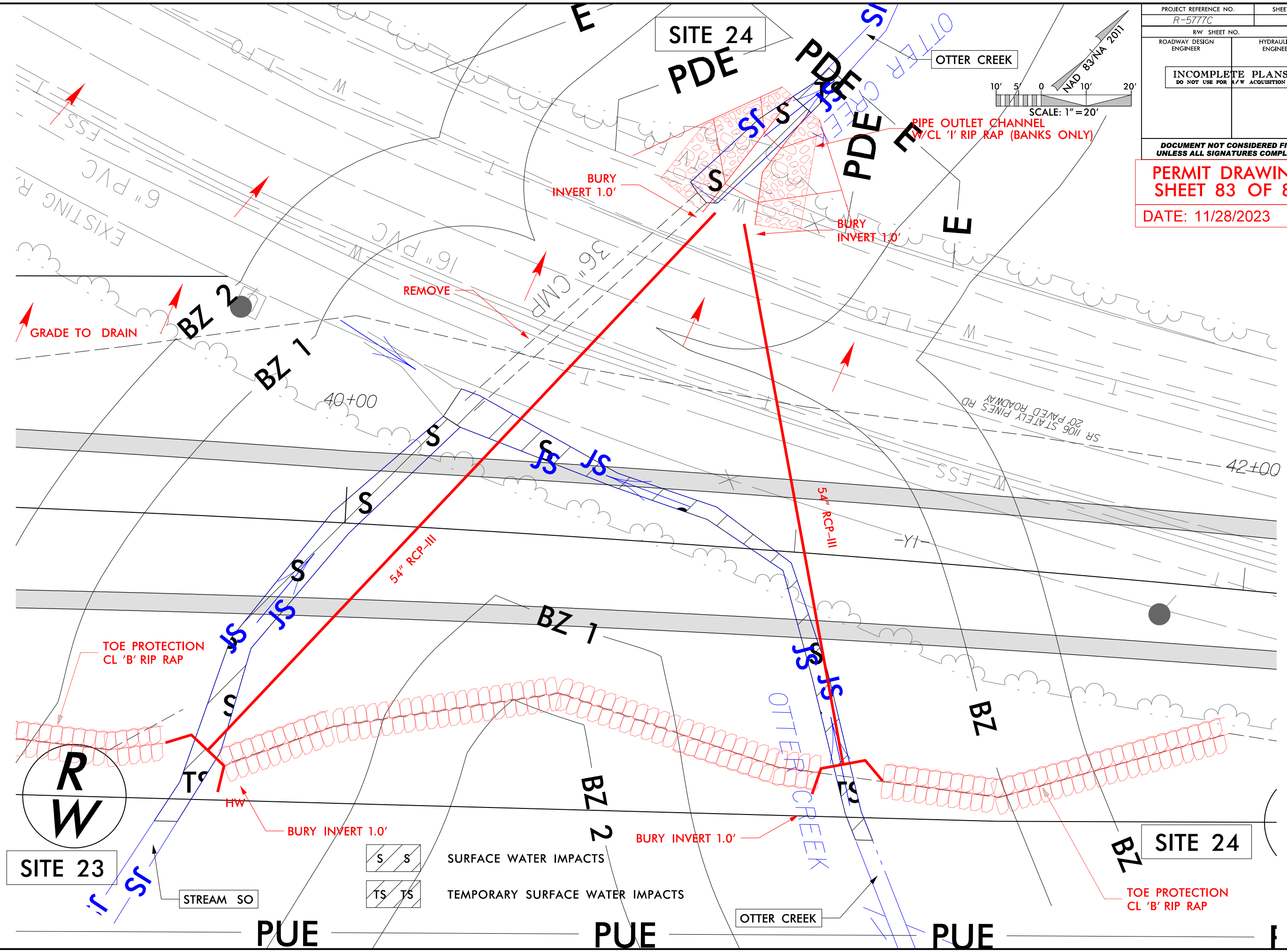
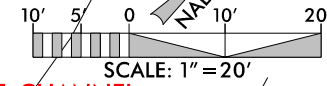
8/17/99

PROJECT REFERENCE NO. R-5777C	SHEET NO.
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR R/W ACQUISITION	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

**PERMIT DRAWING SHEET 83 OF 87**

DATE: 11/28/2023



**SITE 23**

**SITE 24**

S S

SURFACE WATER IMPACTS

TS TS

TEMPORARY SURFACE WATER IMPACTS

11/28/2023 R-5777C-Hyd\_prm\_wet\_psh\_32-2-View1.dgn



**WETLAND AND SURFACE 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	14+56 to 15+65-L-	1@7'x7' RCBC	0.005			0.006		0.006		40		
	15+16 to 15+65-L-LT	INLET CHANNEL						0.005	0.004	19	19	
	14+56 to 14+87-L-RT	OUTLET CHANNEL						0.015	0.002	54	11	
2	20+07 to 20+70-L-LT	ROADWAY FILL				0.010						
	22+60 to 22+81-L-LT					0.001						
3	29+31 to 29+62-SRY1C-LT	42" RCP	0.007									
4	29+69 to 29+80-SRY1C-RT	42" RCP				0.001						
5	29+70 to 32+33-Y1-	ROADWAY FILL	0.533			0.088	0.001					
	18+37 to 22+01-Y1LPD-											
	26+34-26+38-Y1RPD-LT											
6	14+31 to 16+39-SRY1DY3C-	30" RCP	0.124			0.029	0.028					
7	56+14 to 56+26-L-RT	66" RCP OUTLET CHANNEL						0.001	0.002	6	15	
	18+83 to 19+46 -Y1RPD-	66" RCP						0.010		91		
	18+81 to 18+94-Y1RPD-RT	INLET CHANNEL							0.002		15	
	18+85 to 18+94-Y1RPD-RT	INLET BANK STABILIZATION								20		
	19+20 to 19+46-Y1RPD-LT	OUTLET CHANNEL							0.001		13	
	19+20 to 19+37-Y1RPD-LT	OUTLET BANK STABILIZATION									25	
<b>TOTALS*:</b>			<b>0.67</b>	<b>0.00</b>	<b>0.00</b>	<b>0.14</b>	<b>0.03</b>	<b>0.04</b>	<b>0.01</b>	<b>255</b>	<b>73</b>	<b>0</b>

\*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 11-28-2023  
 CRAVEN  
 R-5777C  
 44648.3.4

**WETLAND AND SURFACE 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)
7	20+16 to 21+75-SRY1DY3C-	66" RCP	0.126			0.050	0.043	0.013		156		
	21+38 to 21+56-SRY1DY3C-LT	INLET CHANNEL							0.001		9	
	21+41 to 21+56-SRY1DY3C-LT	INLET BANK STABILIZATION								20		
	20+39 to 20+60-SRY1DY3C-	OUTLET CHANNEL						0.002	0.001	34	17	
8	63+34 to 63+43-L-RT	1@6'x7' RCBC OUTLET CHANNEL						0.004	0.003	23	15	
	29+06 to 29+10-SRY1DY3C-	1@7'x7' RCBC				0.007		0.007		67		
	29+06 to 29+60-SRY1DY3C-LT	INLET CHANNEL							0.002		22	
		INLET BANK STABILIZATION								30		
	29+15 to 29+33-SRY1DY3C-RT	OUTLET CHANNEL							0.002		28	
	29+15 to 29+29-SRY1DY3C-RT	OUTLET BANK STABILIZATION								30		
9	34+03 to 35+29-SRY1DY3C-RT	ROADWAY FILL	0.062			0.014	0.004					
10	42+04 to 42+30-SRY1DY3C-RT	ROADWAY FILL				0.002	0.002					
	11+24 to 12+95-Y1D2-RT	ROADWAY FILL	0.013		0.010		0.029					
11	49+26 to 49+33-SRY1DY3C-RT	36" RCP						0.001		14		
	49+28 to 49+32-SRY1DY3C-RT	OUTLET CHANNEL						0.001	0.001	12	15	
12	94+40 to 94+99-L-	60" RCP						0.008		105		
	61+06 to 61+14-SRY1DY3C-RT											
	94+40 to 94+53-L-LT	INLET CHANNEL							0.005		45	
	94+47 to 94+53-L-LT	INLET BANK STABILIZATION								16		
<b>TOTALS*:</b>			<b>0.20</b>	<b>0.00</b>	<b>0.01</b>	<b>0.07</b>	<b>0.08</b>	<b>0.04</b>	<b>0.02</b>	<b>507</b>	<b>151</b>	<b>0</b>

\*Rounded totals are sum of actual impacts  
NOTES:

NC DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
11-28-2023  
CRAVEN  
R-5777C  
44648.3.4

**WETLAND AND SURFACE 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)
13	103+70 to 103+91-L-RT	48" RCP						0.003		18		
	103+70 to 103+79-L-RT	OUTLET CHANNEL						0.001	0.001	20	11	
14	25+64 to 25+84-SRY4B-	1@7'x7' RCBC						0.001		7		
	25+68 to 25+83-SRY4B-RT	INLET CHANNEL							0.003		18	
	25+72 to 25+83-SRY4B-RT	INLET BANK STABILIZATION								25		
	25+64 to 25+84-SRY4B-LT	OUTLET CHANNEL							0.001		10	
	25+68 to 25+84-SRY4B-LT	OUTLET BANK STABILIZATION								30		
	202+88 to 203+25-L-LT	1 at 7'x7' RCBC						0.001		11		
	202+95 to 203+14-L-LT	OUTLET CHANNEL						0.004	0.003	31	21	
15	201+66 to 203+45-L-RT	2@7'x7' RCBC	0.099		0.043	0.033	0.089					
16	220+32 to 220+55-L-LT	54" RCP						0.004		33		
	220+43 to 220+55-L-LT	OUTLET CHANNEL						0.002	0.001	20	7	
17	231+01 to 232+19-L-RT	ROADWAY FILL	0.004		0.019	0.016						
18	234+52 to 236+79-L-	72" RCP						0.017		223		
	235+03 to 235+22-L-RT	INLET CHANNEL						0.001	0.001	26	10	
	236+47 to 236+79-L-LT	OUTLET CHANNEL						0.002	0.002	16	21	
<b>TOTALS*:</b>			<b>0.10</b>	<b>0.00</b>	<b>0.06</b>	<b>0.05</b>	<b>0.09</b>	<b>0.04</b>	<b>0.01</b>	<b>460</b>	<b>98</b>	<b>0</b>

\*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 11-28-2023  
 CRAVEN  
 R-5777C  
 44648.3.4

