



North Carolina Department of Transportation

Highway Stormwater Program
STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS



(Version 2.07; Released October 2016)

WBS Element:	34497.1.F56	TIP No.:	R-2707E	County(ies):	Cleveland	Page	1	of	3
General Project Information									
WBS Element:	34497.1.F56	TIP Number:	R-2707E	Project Type:	New Location	Date:	2/20/2018		
NCDOT Contact:	Paul Atkinson, PE			Contractor / Designer:	Brian Elam, PE				
	Address:	NCDOT Hydraulics Unit 1590 Mail Service Raleigh, NC 27699-1590				Address:	Sungate Design Group, PA 905 Jones Franklin Road Raleigh, NC 27606		
	Phone:	919-707-6707				Phone:	919-859-2243 ext. 207		
	Email:	patkinson@ncdot.gov				Email:	belam@sungatedesign.com		
City/Town:	Shelby			County(ies):	Cleveland				
River Basin(s):	Broad			CAMA County?	No				
Wetlands within Project Limits?	Yes								
Project Description									
Project Length (lin. miles or feet):	2.63		Surrounding Land Use:	Urban, Residential, Light Industrial					
	Proposed Project			Existing Site					
Project Built-Up Area (ac.)	43.0 ac.			25.0 ac.					
Typical Cross Section Description:	-L-: 34' grassed ditch median with 6:1 side slopes. 2 paved lanes (total 24' wide) with 12' outside shoulder (15' with guardrail, 10' paved) and 6' inside shoulder (4' paved) in each direction. Varying fill and cut slopes (see project XSC's for detailed information).			Existing US 74 (-L-): 2 paved lanes (total 24') with 15' grassed median, 10' outside and 6' insides shoulders					
Annual Avg Daily Traffic (veh/hr/day):	Design/Future: 59,200		Year: 2040	Existing: 41,600		Year: 2019			
General Project Narrative: (Description of Minimization of Water Quality Impacts)	The R-2707E project involves constructing the section of proposed US 74 (Shelby bypass) from west of SR 2238 (Long Branch Road) to west of SR 1001. There are no major structures involved with the construction of R-2707E. Dry detention basins are utilized at locations throughout the project to attenuate increased peak flows and provide water quality treatment. 2:1 and 1.5:1 slopes will be used in areas to reduce impacts to surrounding wetlands and jurisdictional streams. Existing drainage patterns have been maintained to the extent practicable.								
Waterbody Information									
Surface Water Body (1):	Buffalo Creek			NCDWR Stream Index No.:	9-53-(5)				
NCDWR Surface Water Classification for Water Body	Primary Classification:			Class C					
	Supplemental Classification:			None					
Other Stream Classification:	None								
Impairments:	None								
Aquatic T&E Species?	Comments:								
NRTR Stream ID:				Buffer Rules in Effect:		N/A			
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?	No		(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)									

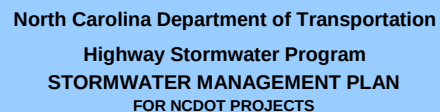


North Carolina Department of Transportation
Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR NCDOT PROJECTS



(Version 2.07; Released October 2016)

WBS Element:	34497.1.F56	TIP No.:	R-2707E	County(ies):	Cleveland	Page	2	of	3
Additional Waterbody Information									
Surface Water Body (2):	Potts Creek			NCDWR Stream Index No.:	9-53-6-3				
NCDWR Surface Water Classification for Water Body		Primary Classification:	Class C						
		Supplemental Classification:	None						
Other Stream Classification:	None								
Impairments:	None								
Aquatic T&E Species?			Comments:						
NRTR Stream ID:					Buffer Rules in Effect:		N/A		
Project Includes Bridge Spanning Water Body?	No		Deck Drains Discharge Over Buffer?	No		Dissipator Pads Provided in Buffer?		N/A	
Deck Drains Discharge Over Water Body?		No		(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)							



WBS Element: 34497.1.F56

TIP No.: R-2707E

County(ies): Cleveland

Page 3 of 3

Other Best Management Practices

[illegible]

Additional Comments

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols

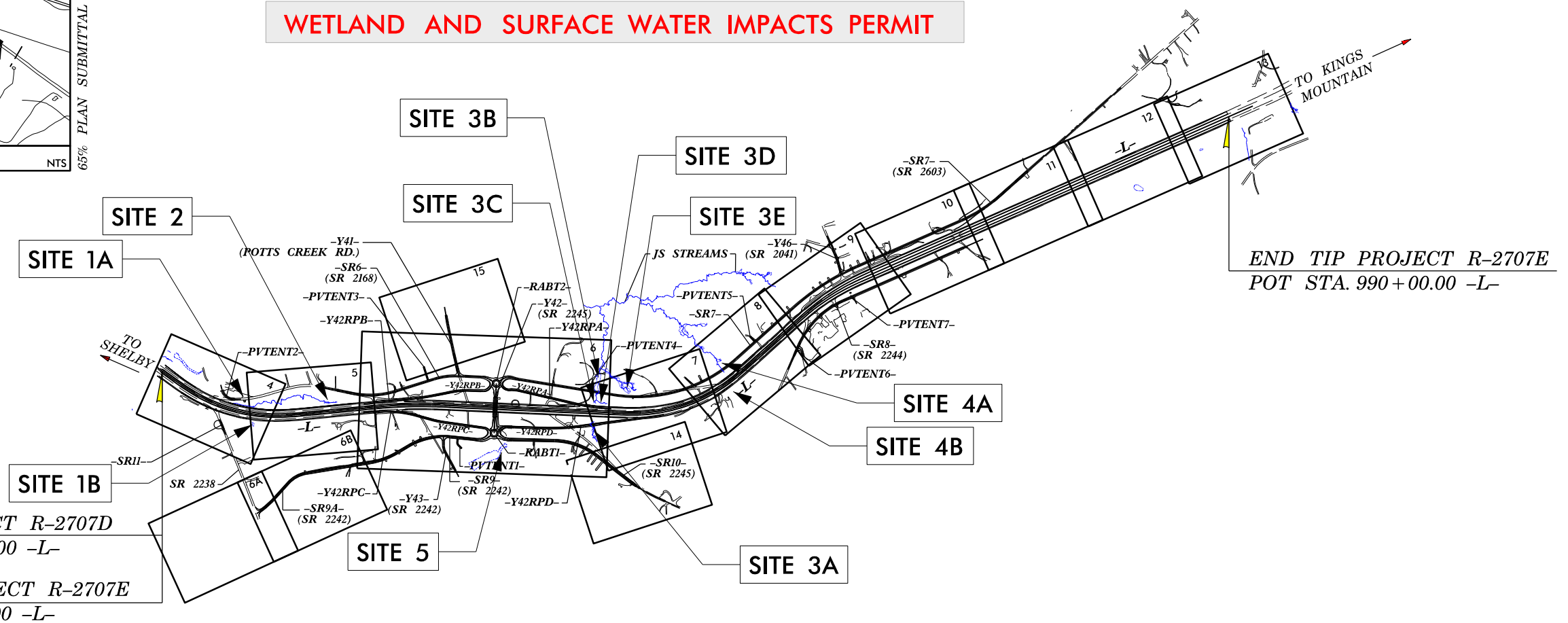
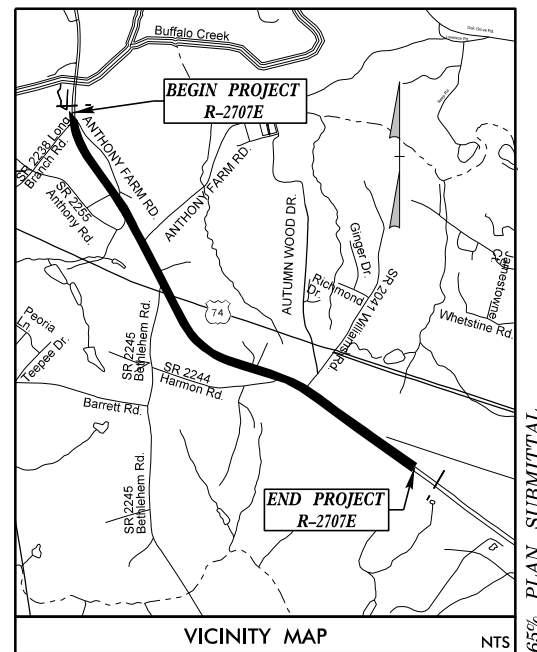
TIP PROJECT: R-2707E

CONTRACT:

CLEVELAND COUNTY

TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURE, & SIGNING

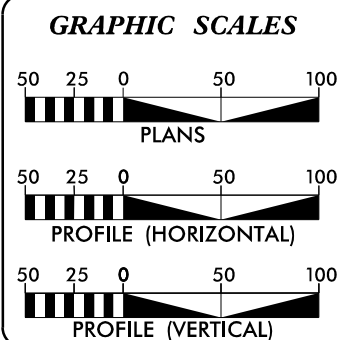
WETLAND AND SURFACE WATER IMPACTS PERMIT



CLEARING FOR THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA

ADT 2019 = 41,600
ADT 2040 = 59,200
K = 11 %
D = 55 %
T = 15 % *
V = 70 MPH

* TTST =10% DUAL 5%

FUNC CLASS = FREEWAY

LENGTH OF ROADWAY TIP PROJECT R-2707E	= 2.63 MI.
TOTAL LENGTH OF TIP PROJECT R-2707E	= 2.63 MI.


Stantec

PREPARED IN THE OFFICE OF:
STANTEC CONSULTING
801 Jones Franklin Road | Suite 300 | Raleigh, NC 27606
Tel. (919) 851-6866 | Fax. (919) 851-7024 | www.stantec.com
License No. F-0672

FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
2018 STANDARD SPECIFICATIONS	

RIGHT OF WAY DATE:
JULY 2018

LETTING DATE:
AUGUST 2019

JOSEPH T. KELVINGTON, P.E.
PROJECT ENGINEER

MICHAEL D. LINDGREN, P.E.
PROJECT DESIGN ENGINEER

THAD DUNCAN, P.E.
NCDOT DIVISION 12

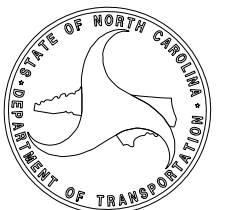
HYDRAULICS ENGINEER

SIGNATURE: _____ **P.E.**

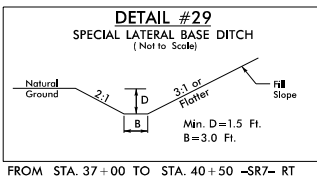
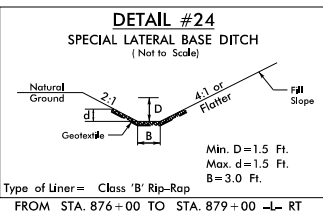
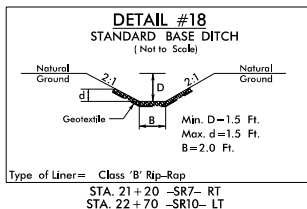
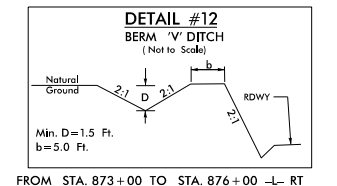
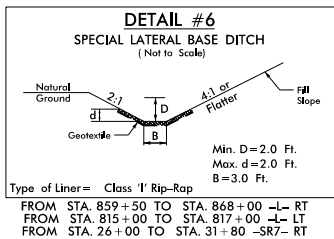
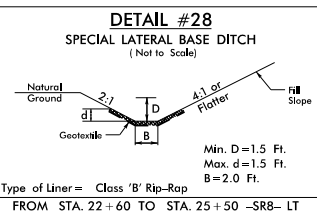
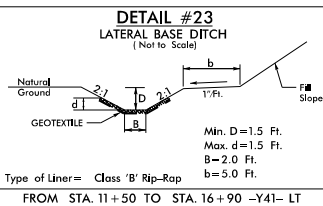
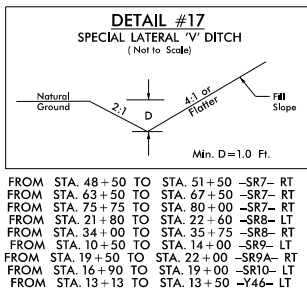
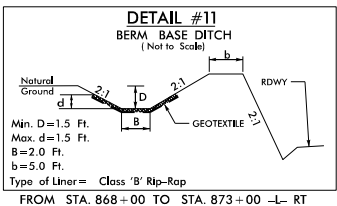
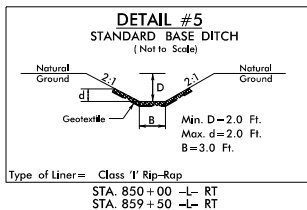
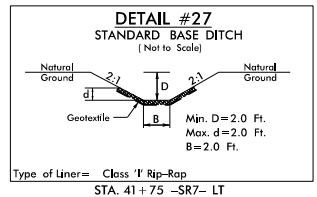
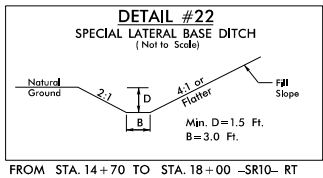
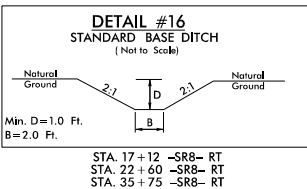
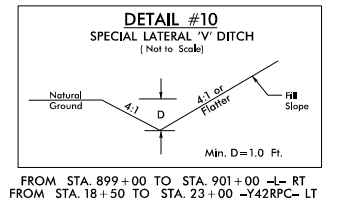
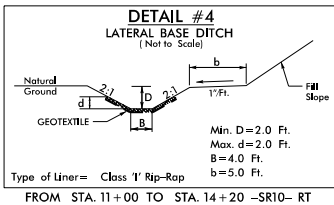
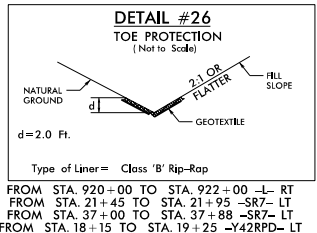
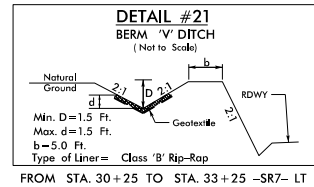
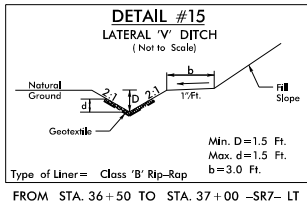
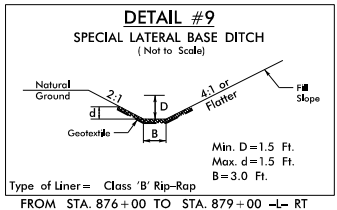
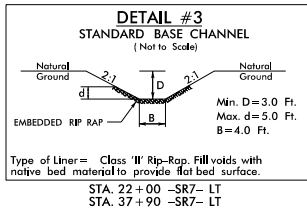
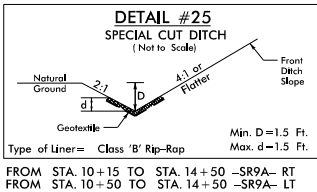
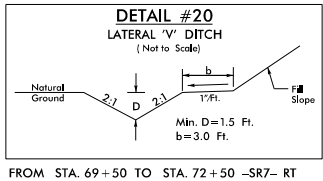
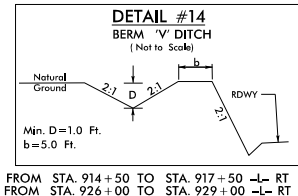
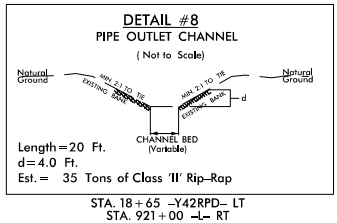
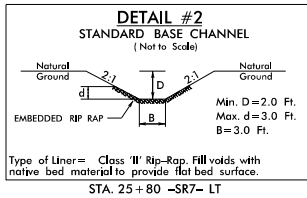
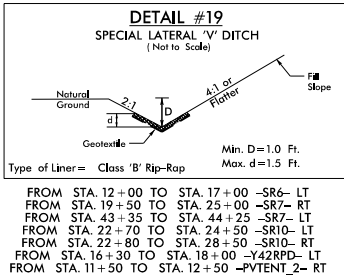
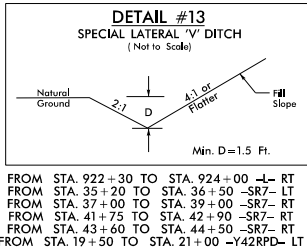
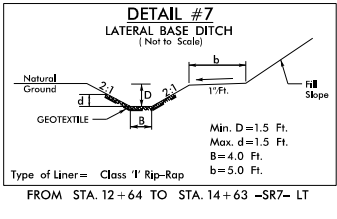
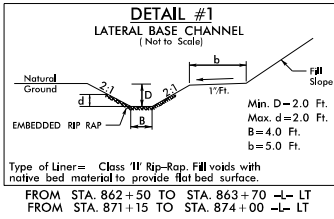
**ROADWAY DESIGN
ENGINEER**

P.E.

SIGNATURE:



PROJECT REFERENCE NO.	SHEET NO.
R-2707E	2D-1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



NOT TO SCALE

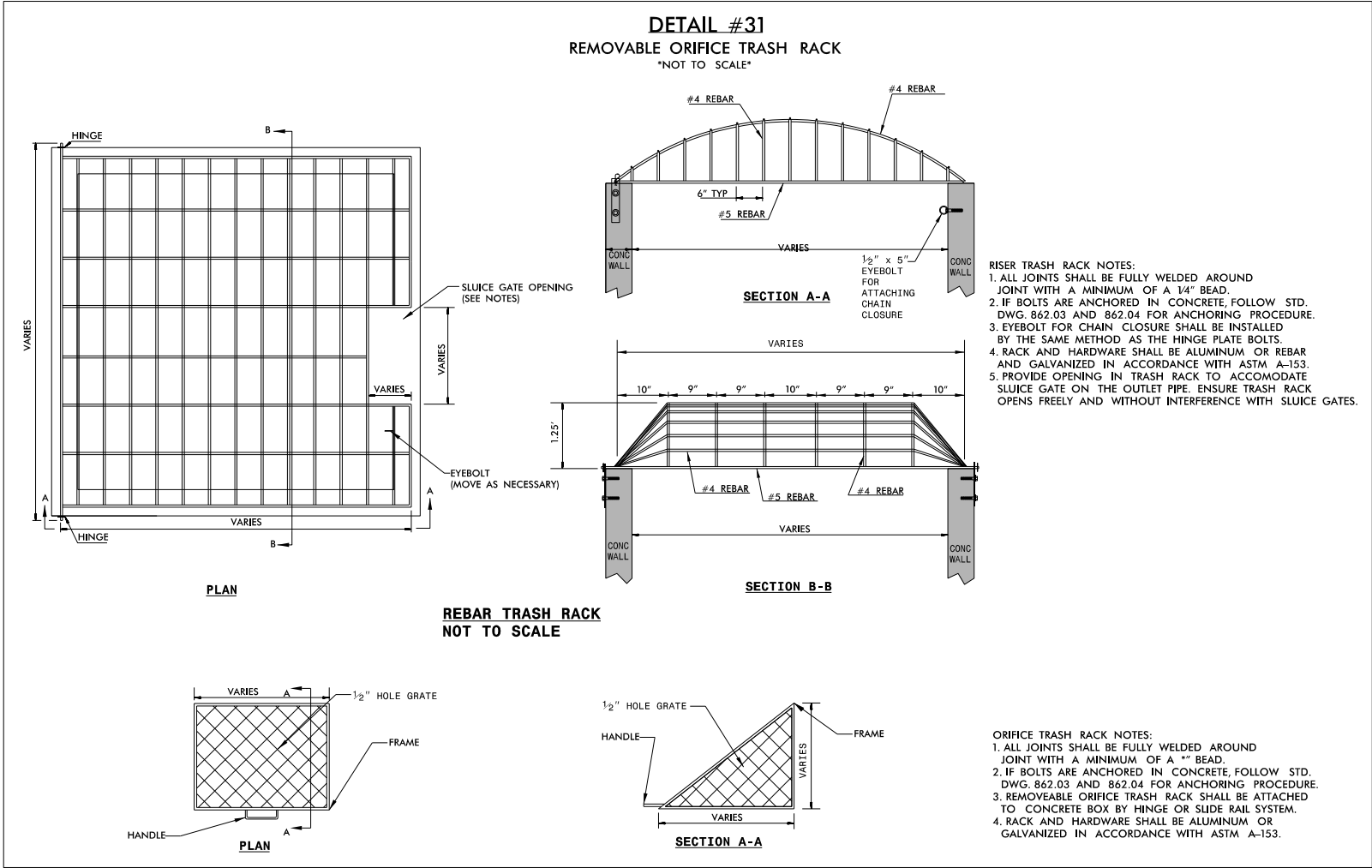


TRASH RACK NOT SHOWN FOR CLARITY

- NOTES:
1. TOP ELEVATION OF CONTROL STRUCTURE (WEIR ELEVATION) SHOULD BE SET AT THE WQV ELEVATION.
 2. 15" MINIMUM DIAMETER FOR OUTLET PIPE.
 3. 2" MINIMUM DIAMETER ORIFICE. IF ORIFICE IS GREATER THAN 6", A STEEL PLATE IS NOT REQUIRED.
 4. NO BEDDING MATERIAL TO BE USED. THEREFORE, DO NOT FOLLOW STANDARD DRAWINGS FOR METHOD OF PIPE INSTALLATION FOR OUTLET PIPE THROUGH EMBANKMENT.
 5. SLUICE GATE IS FOR MAINTENANCE AND SHOULD REMAIN CLOSED DURING NORMAL OPERATION. A GATE VALVE MAY BE USED IN LIEU OF THE 8" SLUICE GATE.
 6. SLUICE GATE SHALL PROVIDE WATERTIGHT SEAL. PROVIDE ADEQUATE CLEARANCE FOR GATE OPERATION AND FOR PROPER SEATING OF GATE OVER PIPE.
 7. SELECT BOX STANDARD AS REQUIRED TO ACCOMMODATE SLUICE GATE AND ORIFICE TRASH RACK WIDTH.
 8. ENSURE TRASH RACK OPENS FREELY AND WITHOUT INTERFERENCE WITH SLUICE GATE.
 9. ADJUST FOOTER DIMENSIONS AS NEEDED FOR ANTI-FLOTATION.
 10. PAYMENT OF TRASH RACKS ARE INCIDENTAL TO BASIN DRAWDOWN STRUCTURE.

MINIMUM DIMENSIONS FOR DRY DETENTION BASIN DRAWDOWN STRUCTURE											
STATION	STRUCTURE NUMBER	S (INCHES) 6" MIN.	B (INCHES) 6" MIN.	BASIN BOTTOM MINIMUM ELEV.	TOP ELEVATION CONTROL STRUCTURE	MAX. STORAGE DEPTH(D) FEET	INV. ELEV. CTL. STR.	CTL. STR. DIMENSIONS (W x L x H)	ORIFICE DIAMETER (O) INCHES	ORIFICE INV. ELEV.	OUTLET PIPE DIAMETER(P) INCHES
896 +75 -L- RT	0630	6"	18"	772.0	775.0	3.0'	770.0	5.0' X 5.0' X 5.0'	2.0"	772.0	24"
19 +22 -Y42RPB- LT	0619	6"	18"	764.0	768.0	4.0'	762.0	5.0' X 5.0' X 6.0'	2.0"	724.0	24"
20 +25 -Y42RPC- RT	0635	6"	18"	773.0	775.0	2.0'	770.0	5.0' X 5.0' X 5.0'	2.0"	773.0	24"

PROJECT REFERENCE NO.	SHEET NO.
R-2707E	2D-3
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



E

E

*

*

*

*

*

*

*

*

S

S

TS

TS

DENOTES EXCAVATION
IN WETLAND

DENOTES MECHANIZED
CLEARING

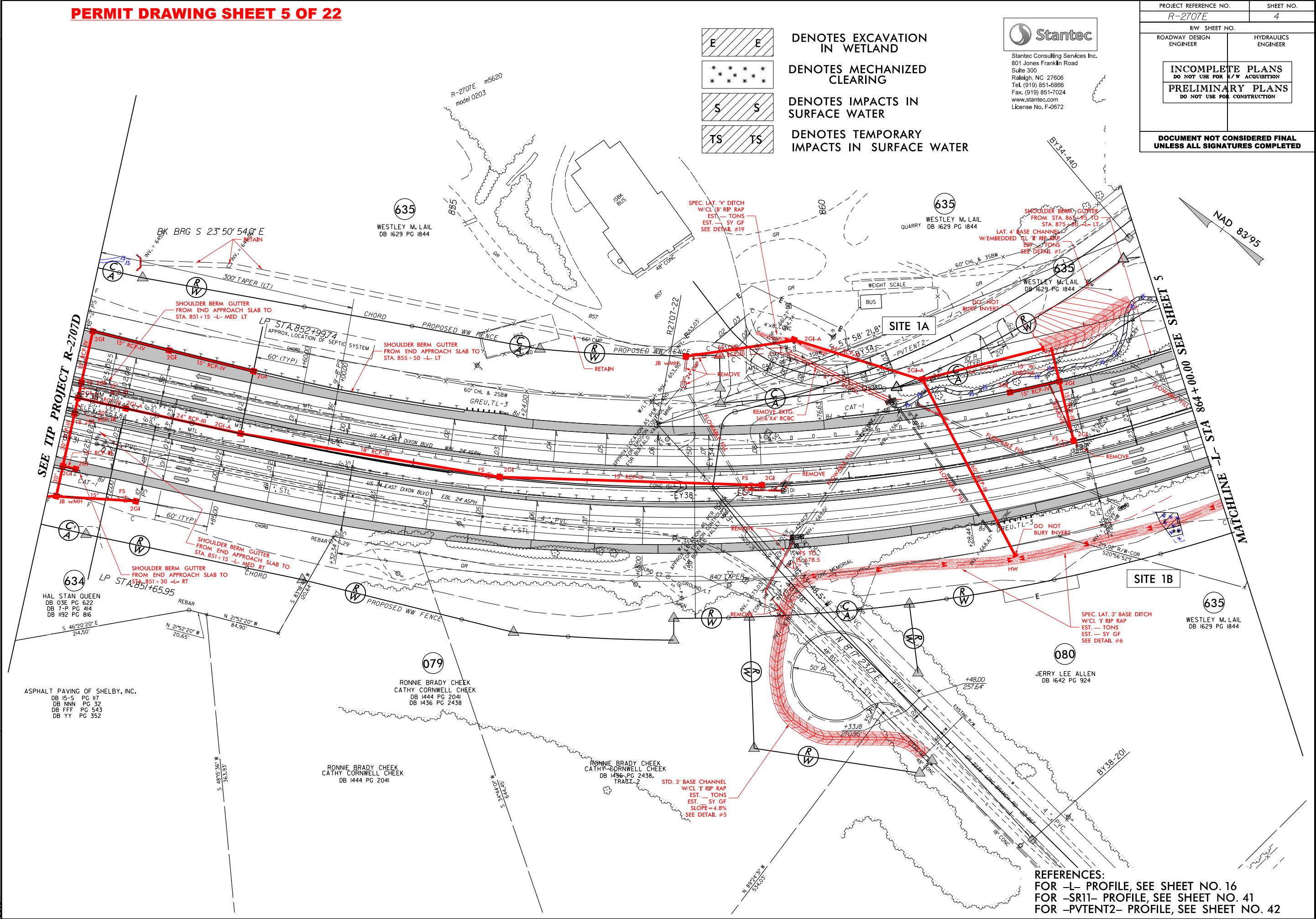
DENOTES IMPACTS IN
SURFACE WATER

DENOTES TEMPORARY
IMPACTS IN SURFACE WATER



Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-8866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

PROJECT REFERENCE NO.	SHEET NO.
R-2707E	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



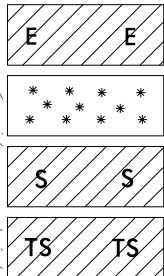
REFERENCES:
FOR -L- PROFILE, SEE SHEET NO. 16
FOR -SR11- PROFILE, SEE SHEET NO. 41
FOR -PVTENT2- PROFILE, SEE SHEET NO. 42

PERMIT DRAWING SHEET 6 OF 22

8/17/99

REVISIONS

8/29/2018 R2707E_Hyd_prm_wet_psh_04a.dgn



DENOTES EXCAVATION
IN WETLAND

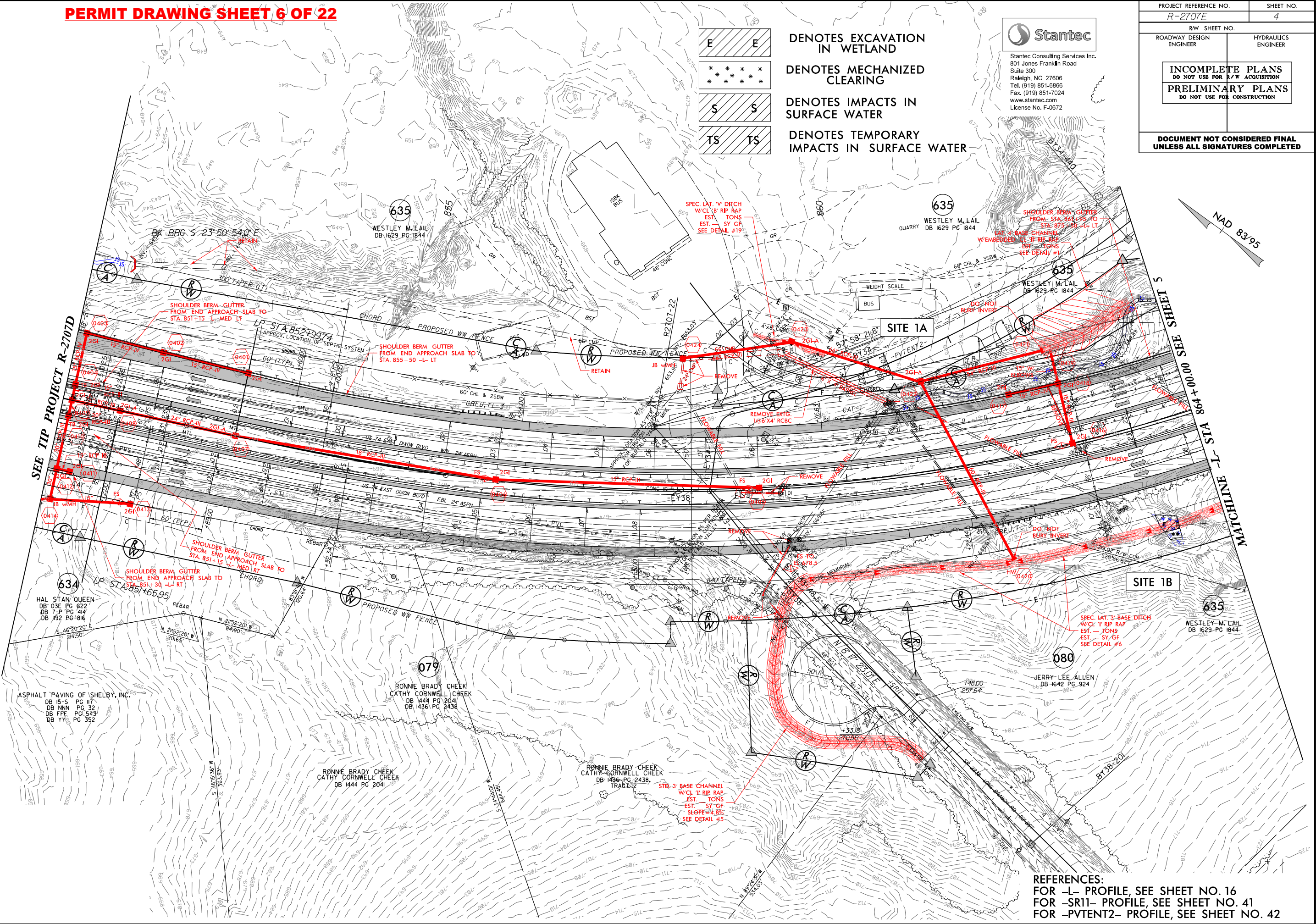
DENOTES MECHANIZED
CLEARING

DENOTES IMPACTS IN
SURFACE WATER

DENOTES TEMPORARY
IMPACTS IN SURFACE WATER



PROJECT REFERENCE NO. R-2707E		SHEET NO. 4	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION		PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

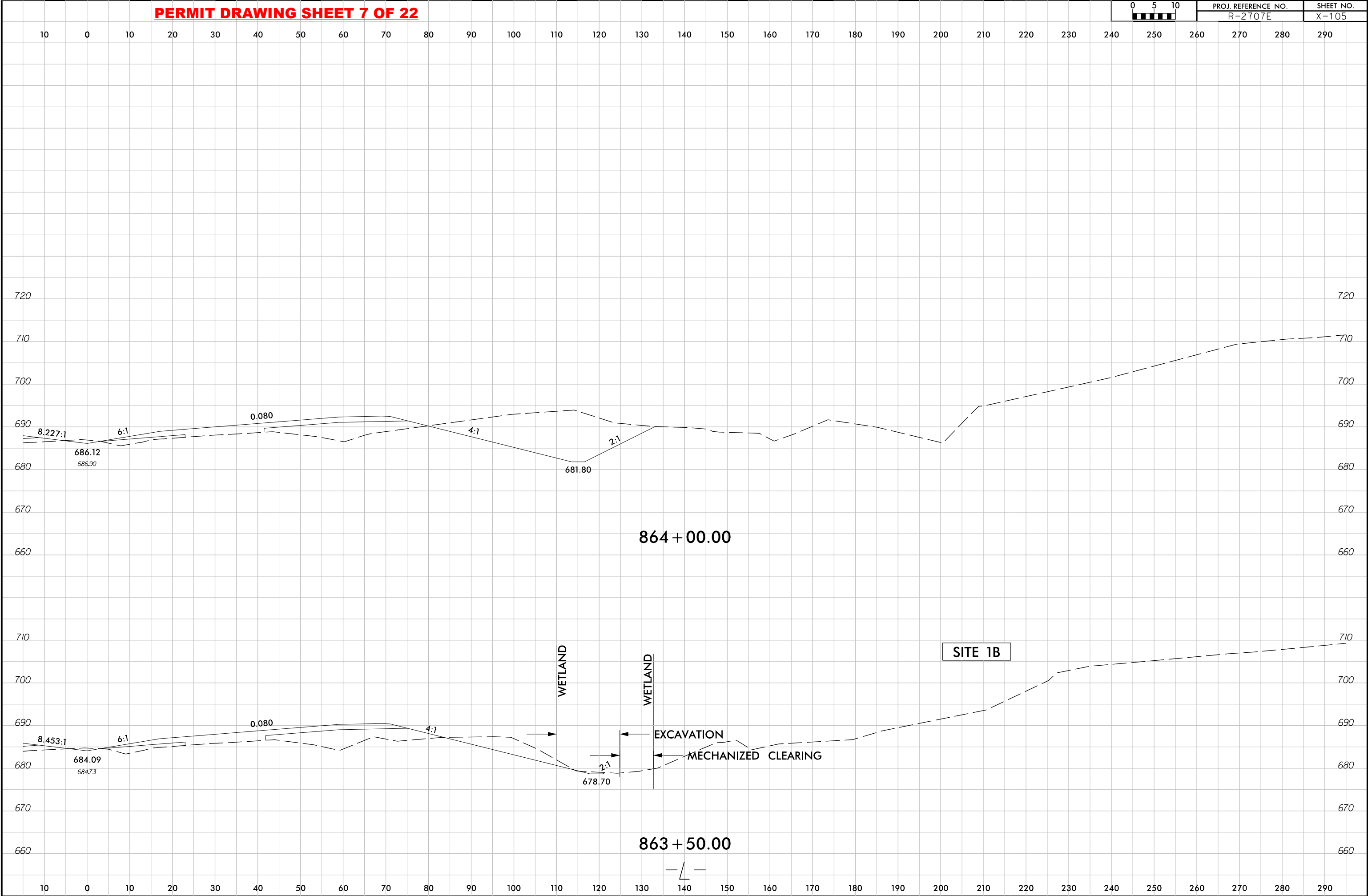


REFERENCES:
FOR -L- PROFILE, SEE SHEET NO. 16
FOR -SR11- PROFILE, SEE SHEET NO. 41
FOR -PVTENT2- PROFILE, SEE SHEET NO. 42

6/23/16

PERMIT DRAWING SHEET 7 OF 22

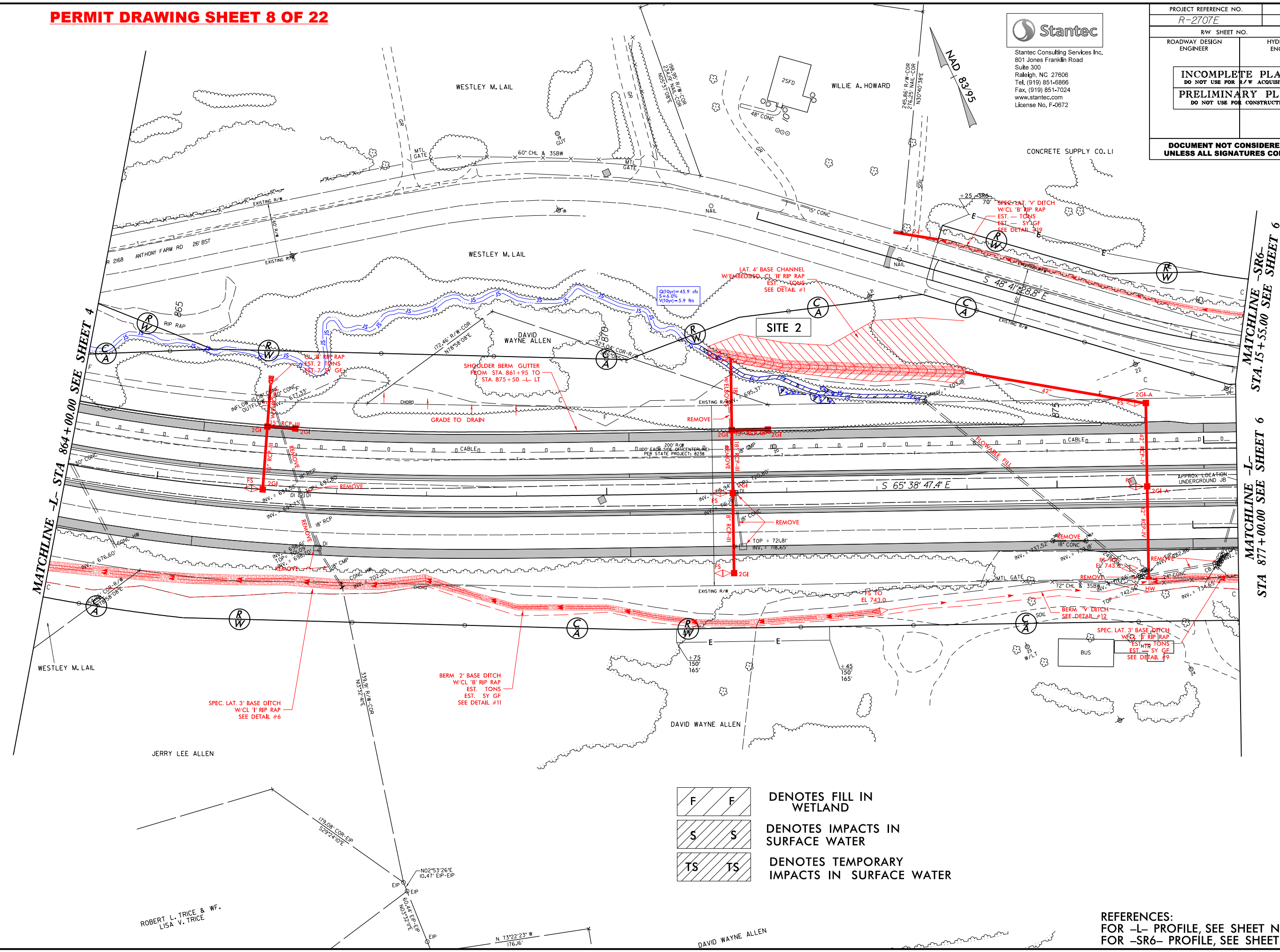
05	PROJ. REFERENCE NO.	SHEET NO.
0 5 10	R-2707E	X-105



PERMIT DRAWING SHEET 8 OF 22

Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6886
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

PROJECT REFERENCE NO. <i>R-2707E</i>		SHEET NO. <i>5</i>
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		



	DENOTES FILL IN WETLAND
	DENOTES IMPACTS IN SURFACE WATER
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER

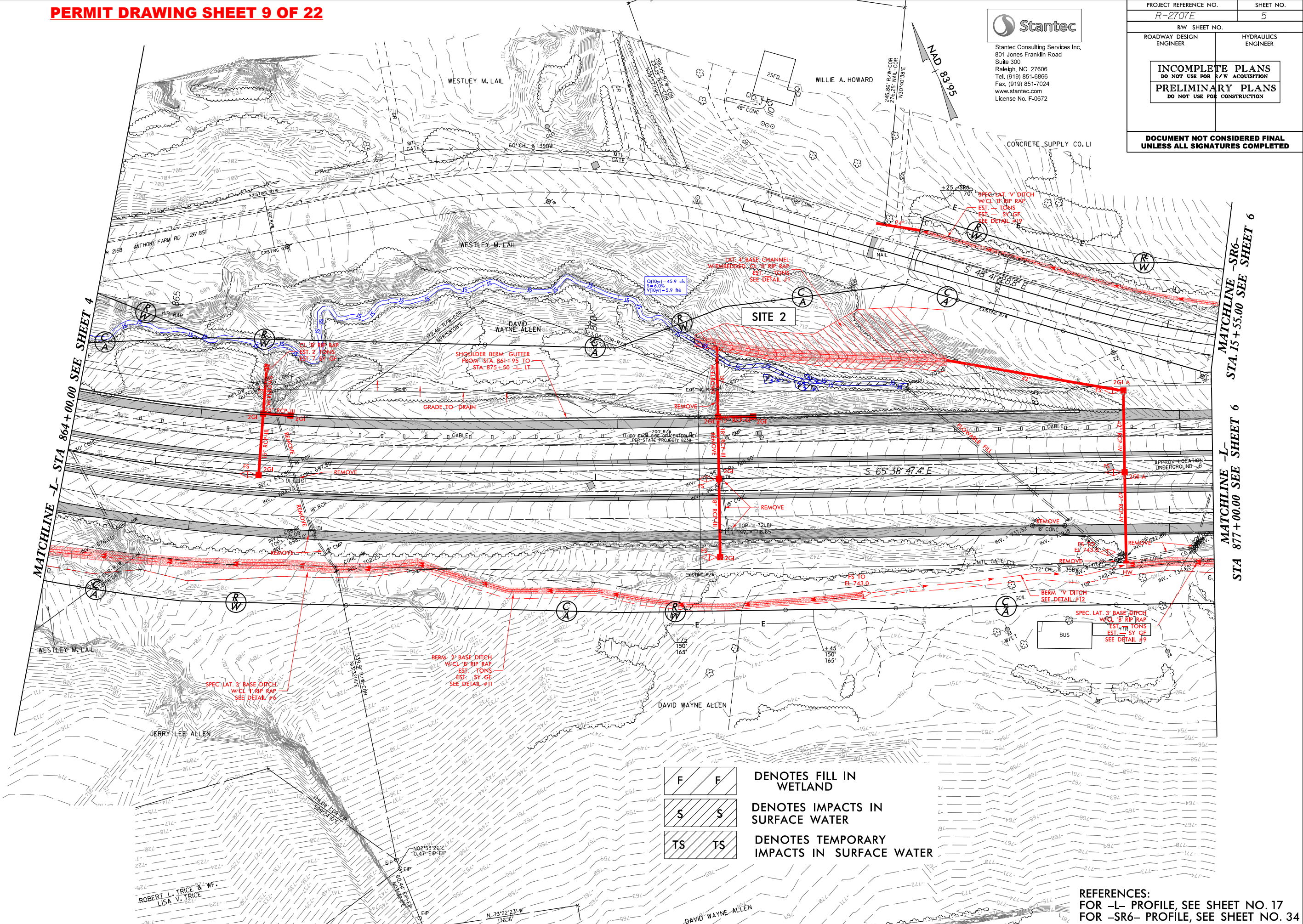
REFERENCES:
FOR -L- PROFILE, SEE SHEET NO. 17
FOR -SR6- PROFILE, SEE SHEET NO. 34

8/17/99
6/29/2018
R2707E-Hyd-prm-wet_psh_05.dgn
delam



Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

PROJECT REFERENCE NO. R-2707E		SHEET NO. 5
RW SHEET NO.		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION		
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		



F	F
S	S
TS	TS

DENOTES FILL IN
WETLAND

DENOTES IMPACTS IN
SURFACE WATER

DENOTES TEMPORARY
IMPACTS IN SURFACE WATER

REFERENCES:
FOR -L- PROFILE, SEE SHEET NO. 17
FOR -SR6- PROFILE, SEE SHEET NO. 34

6/23/16

PERMIT DRAWING SHEET 10 OF 22

0510

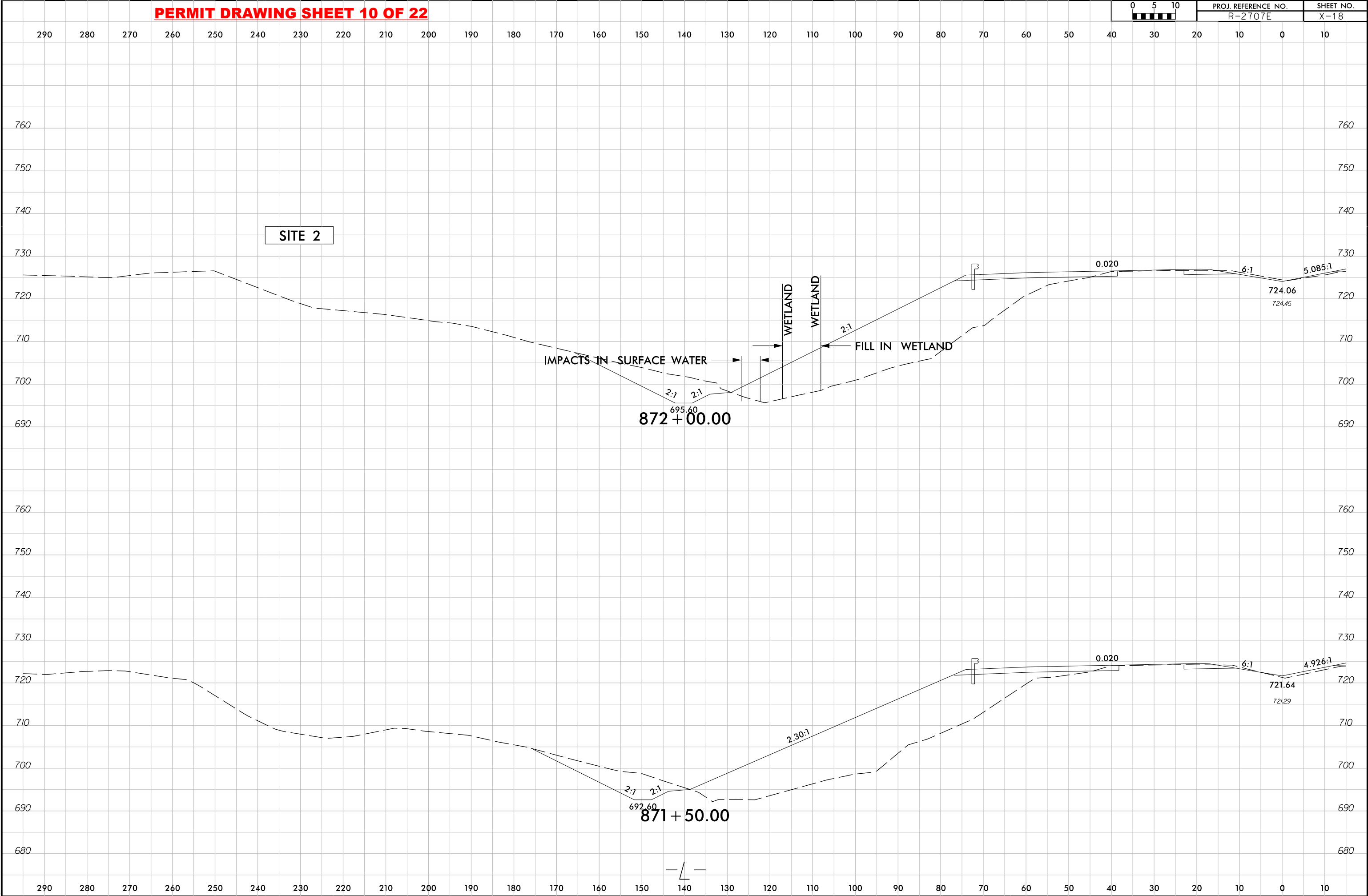
0 5 10

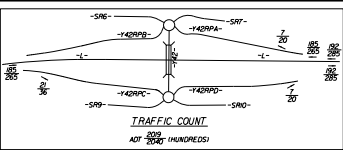
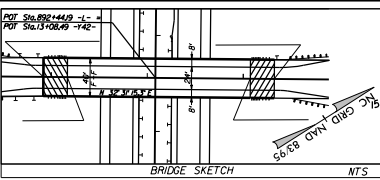
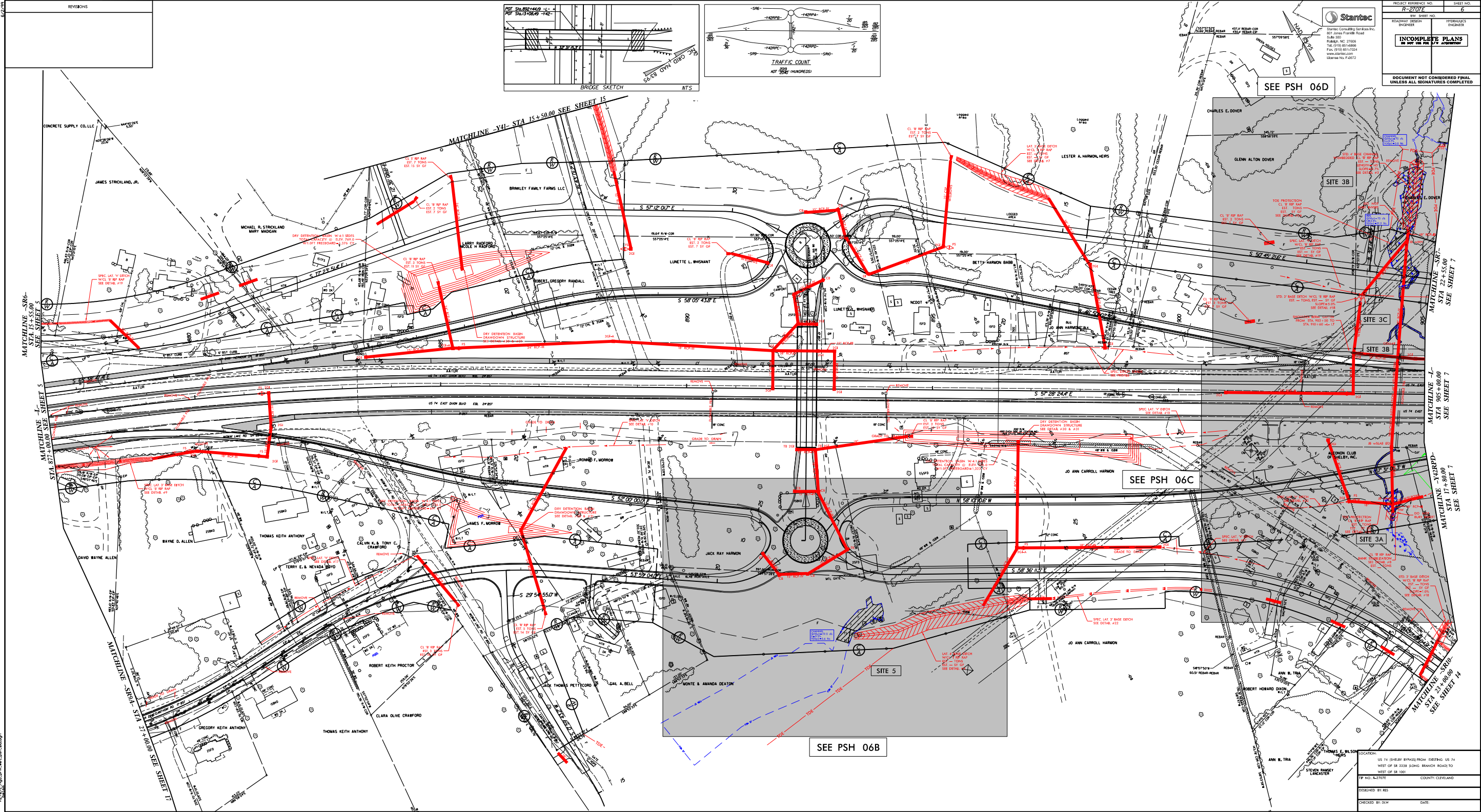
PROJ. REFERENCE NO.

R-2707E

SHEET NO.

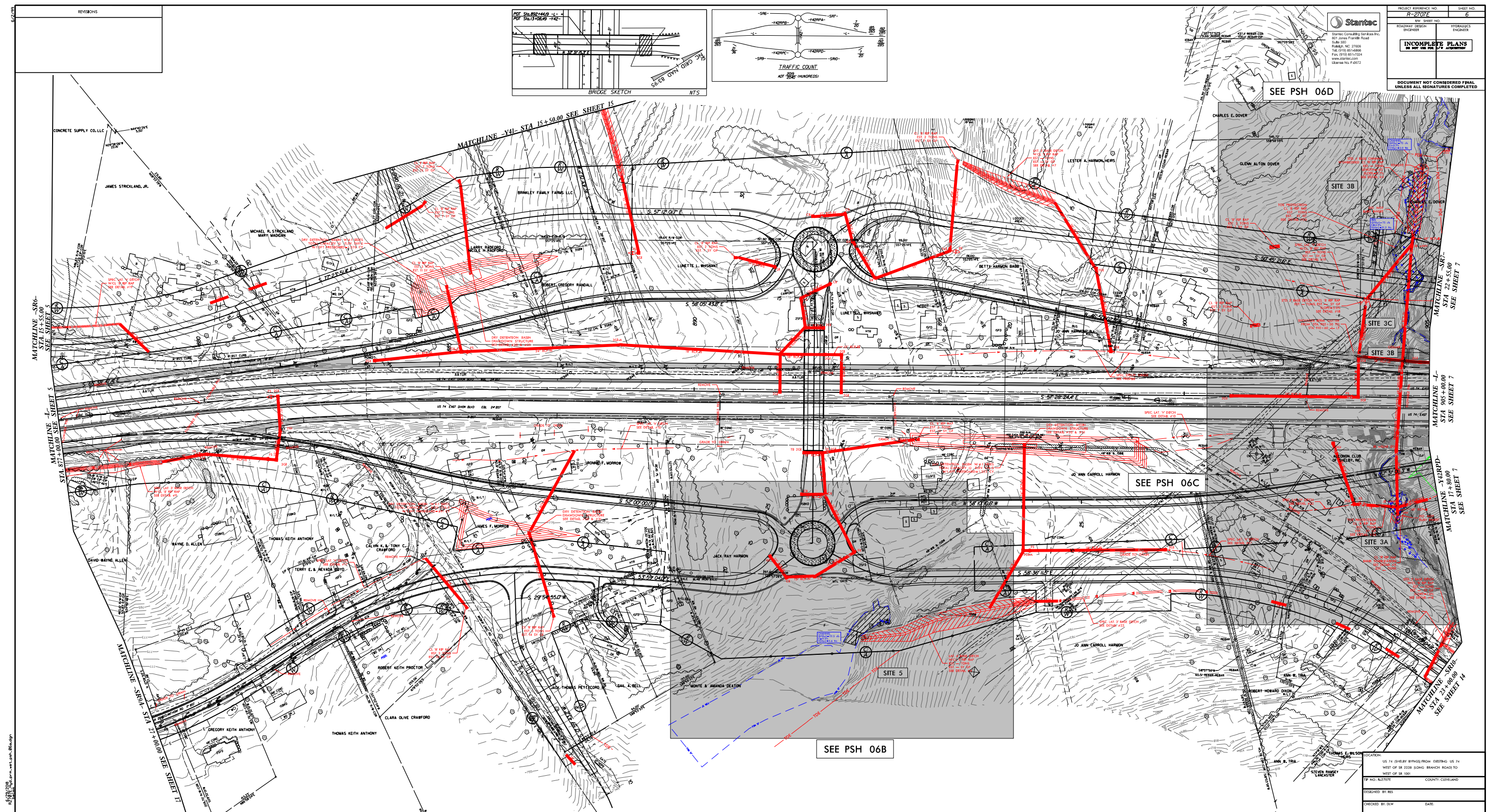
X-18





PROJECT REFERENCE NO.	2
REV. SHEET NO.	2
ROADWAY DESIGN	ENGINEER
INCOMPLETE PLANS	NO
DOCUMENT NOT CONSIDERED FINAL	UNLESS ALL SIGNATURES COMPLETED

LOCATION	US 74 (DREYER BRIDGE) FROM EASTING US 74 WEST OF SR 2228 (JUNG BANCH ROAD) TO WEST OF SR 1800
TP NO. & 7/10	COUNTY: CLEVELAND
DESIGNED BY: RES	CHECKED BY: RES
DATE	DATE



PERMIT DRAWING SHEET 13 OF 22

PROJECT REFERENCE NO.
R-2707E

SHEET NO.
6B

R/W SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS

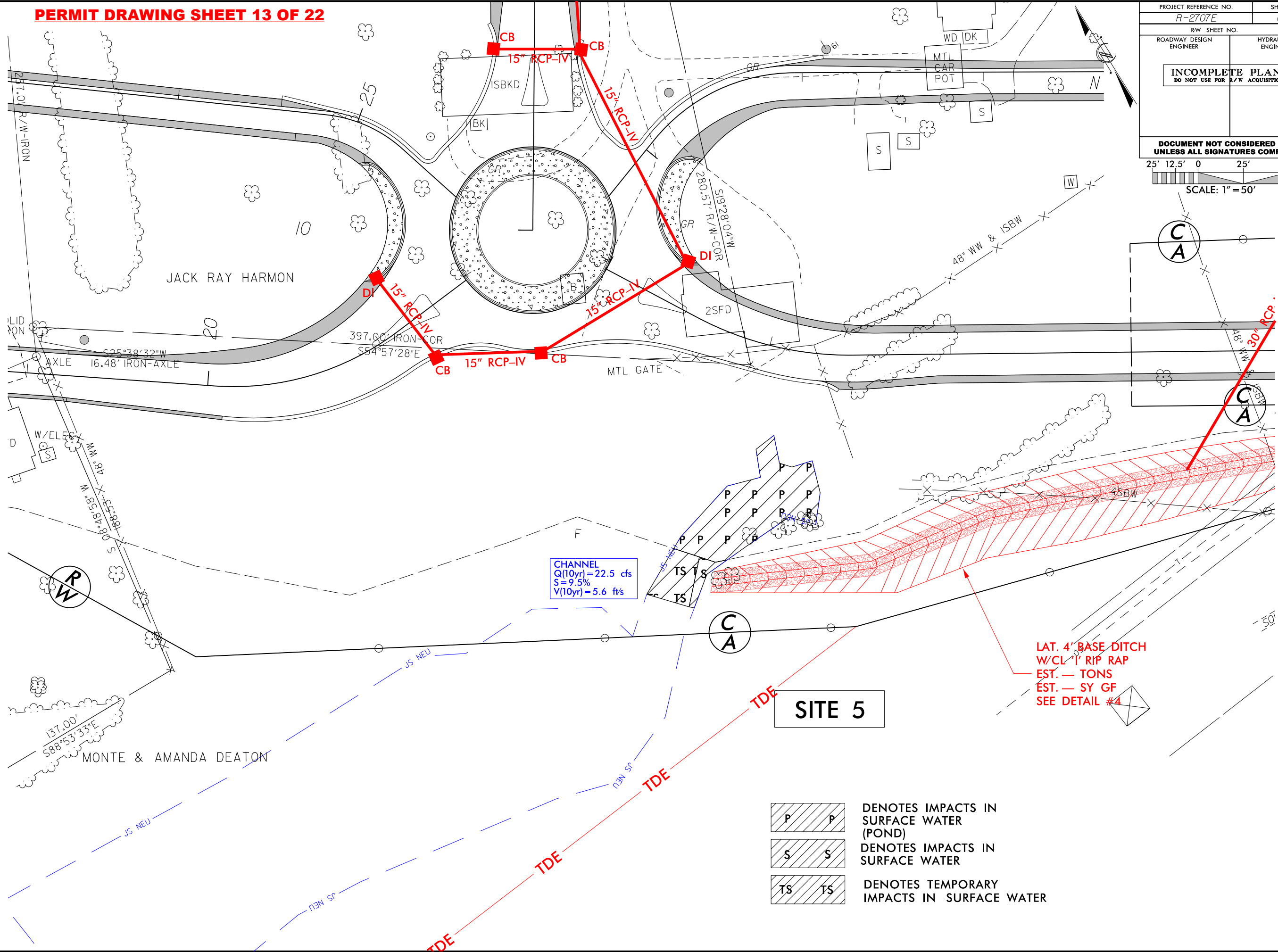
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL

UNLESS ALL SIGNATURES COMPLETED

25' 12.5' 0 25' 50'

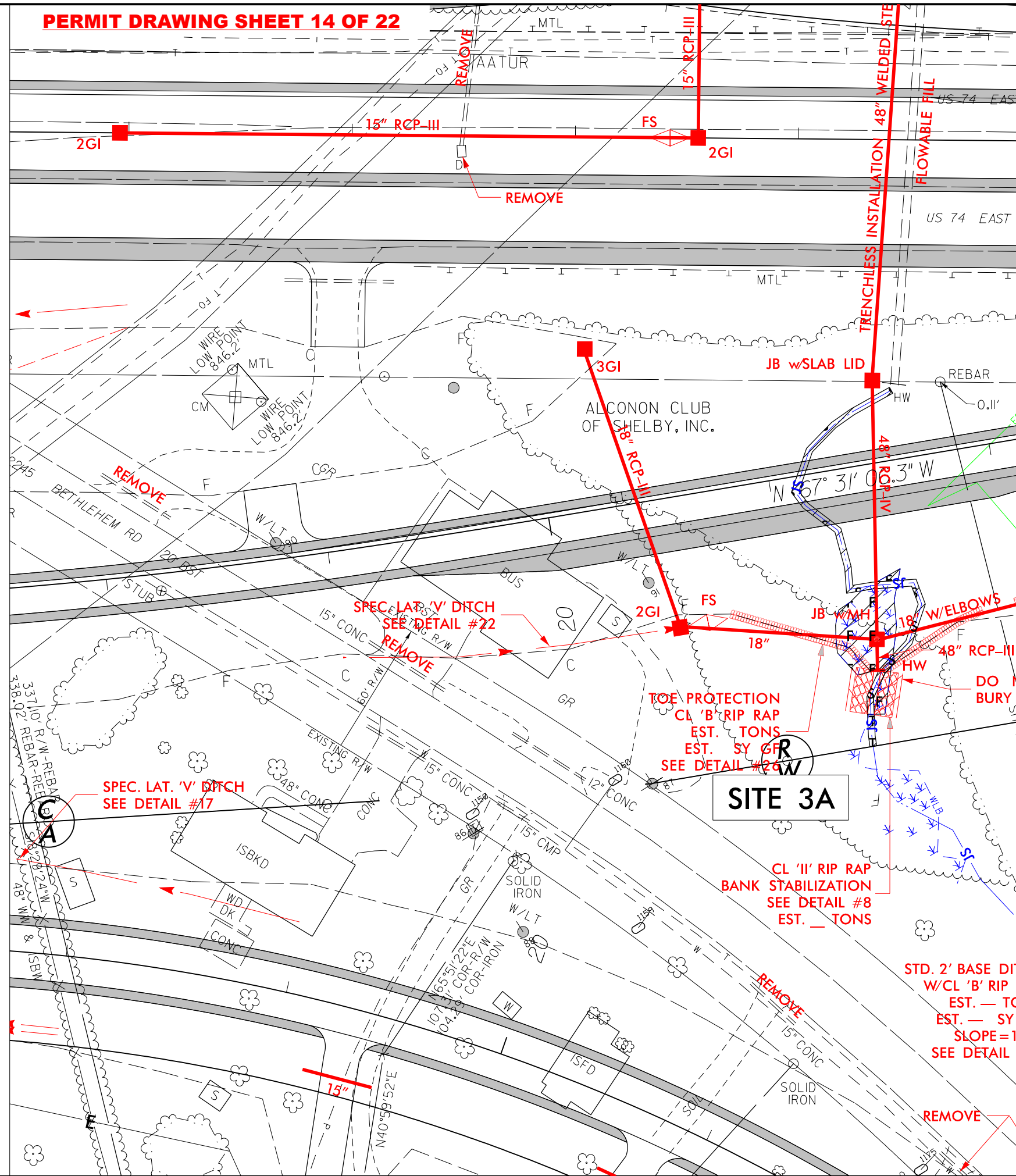
SCALE: 1" = 50'



8/17/99

6/29/2018 R2707E-Hyd-prm-wet.psh_06b_ViewIn.dgn

PERMIT DRAWING SHEET 14 OF 22



MATCHLINE -L-
STA 905 + 00.00
SEE SHEET 7

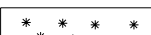
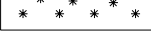
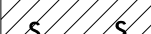
**MATCHLINE -Y42RPD-
STA 17 + 80.00
SEE SHEET 7**



PROJECT REFERENCE NO.	SHEET NO.
<i>R-2707E</i>	<i>6C</i>
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



SCALE: 1" = 50'

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

PERMIT DRAWING SHEET 15 OF 22

CHARLES E. DOVER

GLENN ALTON DOVER

345.72'
S58°58'59"E

SITE 3B

STD. 4' BASE CHANNEL
W/EMBEDDED CL 'II' RIP RAP
EST. — TONS
LENGTH = 145'
SLOPE = 0.7%
SEE DETAIL #3

CHANNEL
Q(10yr) = 75 cfs
S = 0.7%
V(10yr) = 3.0 ft/s

REMOVE

DO NOT
BURY INVERT

PIPE
Q(10yr) = 75 cfs
S = 4.5%
V(10yr) = 21.2 ft/s

CL 'B' RIP RAP
EST. 2 TONS
EST. 7 SY GF

TOE PROTECTION
CL 'B' RIP RAP
EST. TONS
EST. SY GF
SEE DETAIL #26

SPEC. LAT. 'V' DITCH
W/CL 'B' RIP RAP
EST. — TONS
EST. — SY GF
SEE DETAIL #19

S 50° 45' 21.6" E

RIP RAP
2 TONS
7 SY GF

STD. 2' BASE DITCH W/CL 'B' RIP RAP
EST. — TONS, EST. — SY GF
SLOPE = 5.0%
SEE DETAIL #18

SHOULDER BERM GUTTER
FROM STA. 903+50 TO
STA. 910+60 -L- LT

SITE 3C

SITE 3B

MATCHLINE -SR7-
STA 22+55.00
SEE SHEET 7



DENOTES FILL IN
WETLAND



DENOTES MECHANIZED
CLEARING



DENOTES EXCAVATION
IN WETLAND

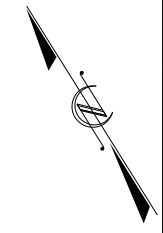


DENOTES IMPACTS IN
SURFACE WATER



DENOTES TEMPORARY
IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
R-2707E	6D
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
25' 12.5' 0 25' 50'	
SCALE: 1" = 50'	



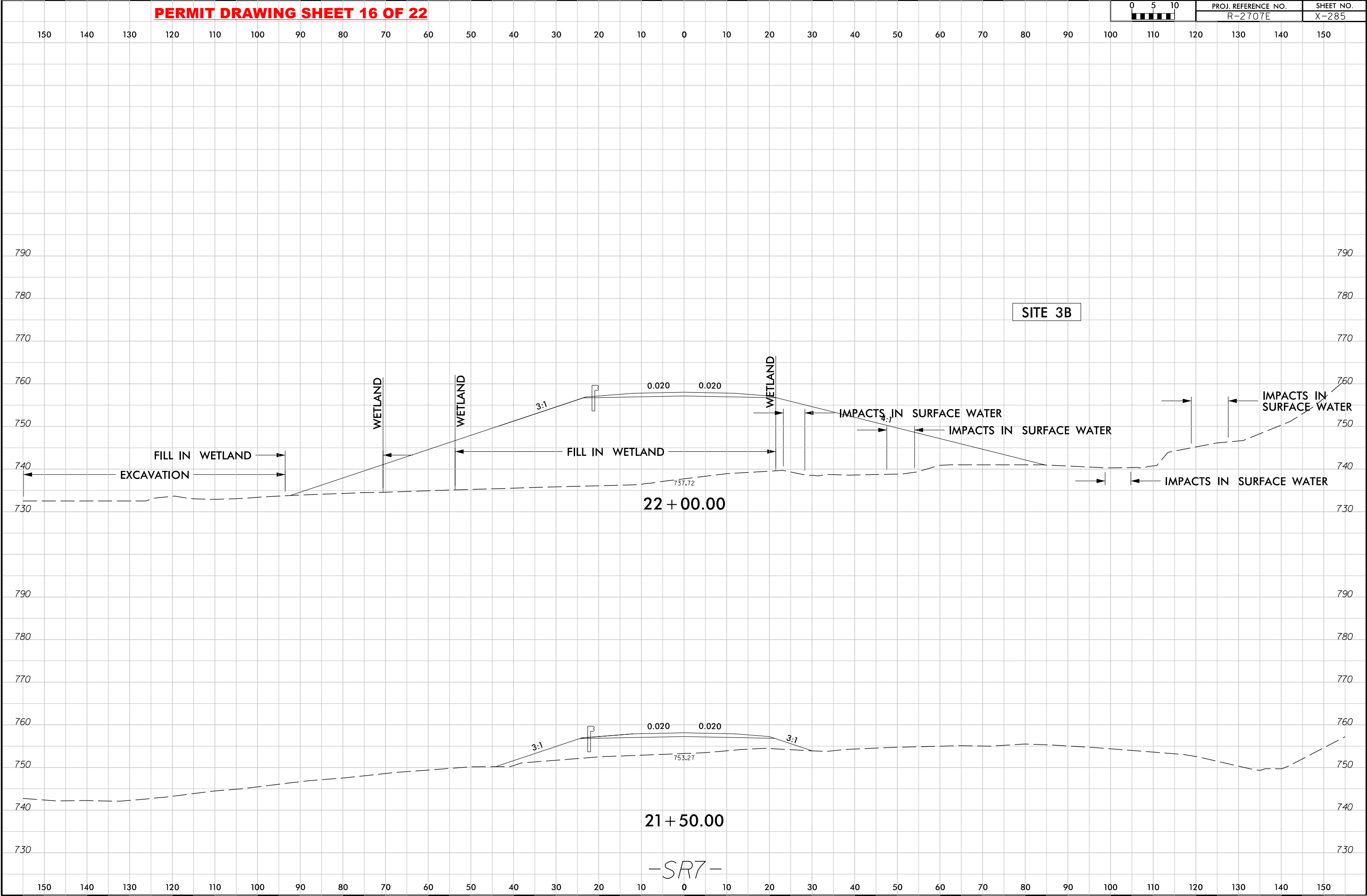
8/17/99

8/29/2018
R2707E-Hyd-prm-wet_06d_View1.dgn
delam

6/23/16

PERMIT DRAWING SHEET 16 OF 22

0510	PROJ. REFERENCE NO.	SHEET NO.
	R-2707E	X-285

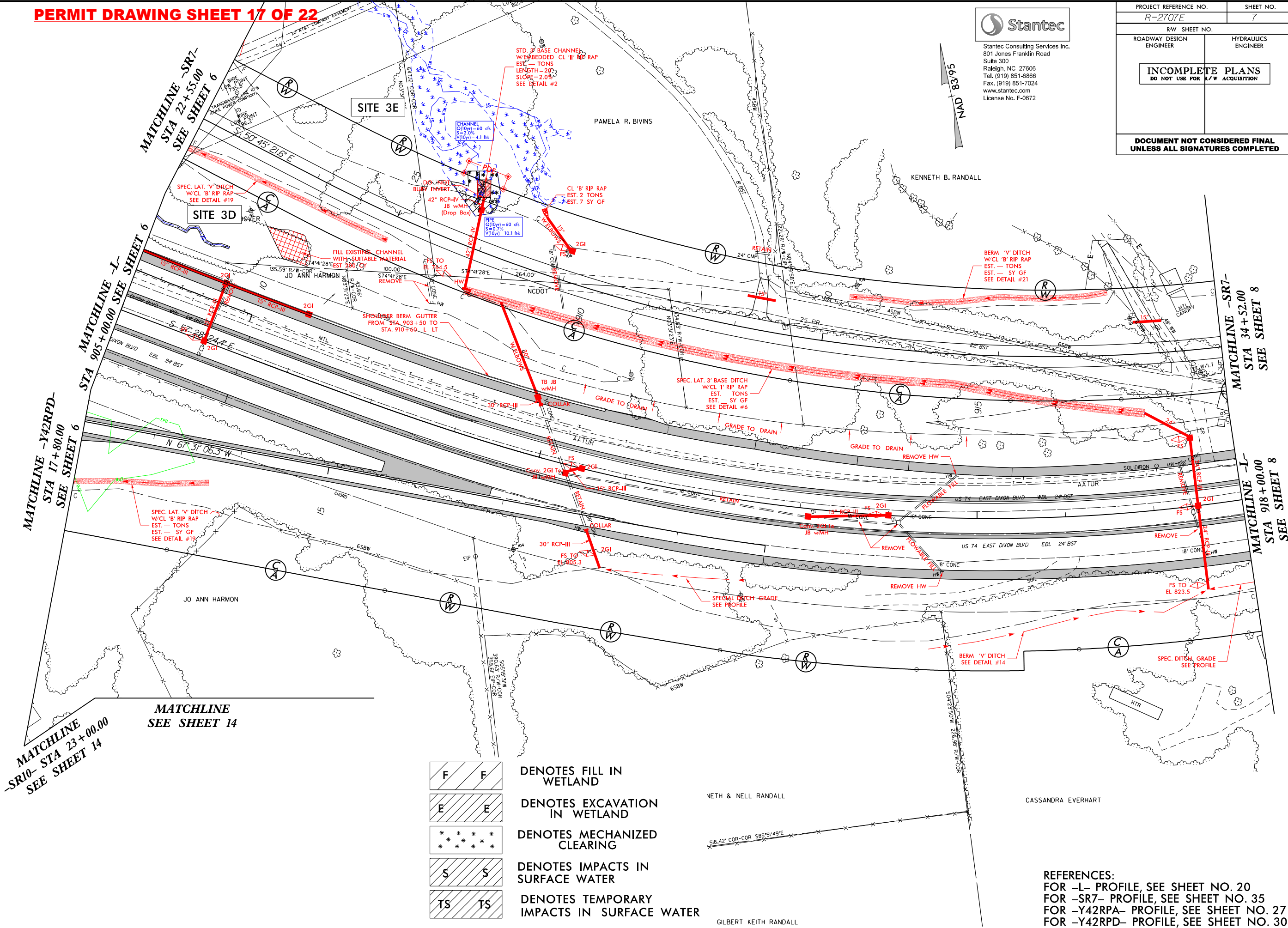


PERMIT DRAWING SHEET 17 OF 22



Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

PROJECT REFERENCE NO.	SHEET NO.
R-2707E	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



- F F DENOTES FILL IN WETLAND
- E E DENOTES EXCAVATION IN WETLAND
- * * * * * DENOTES MECHANIZED CLEARING
- S S DENOTES IMPACTS IN SURFACE WATER
- TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

REFERENCES:
FOR -L- PROFILE, SEE SHEET NO. 20
FOR -SR7- PROFILE, SEE SHEET NO. 35
FOR -Y42RPA- PROFILE, SEE SHEET NO. 27
FOR -Y42RPD- PROFILE, SEE SHEET NO. 30

REVISIONS

8/17/99

8/29/2018 R2707E-Hyd-prm-wet-psh_07.dgn

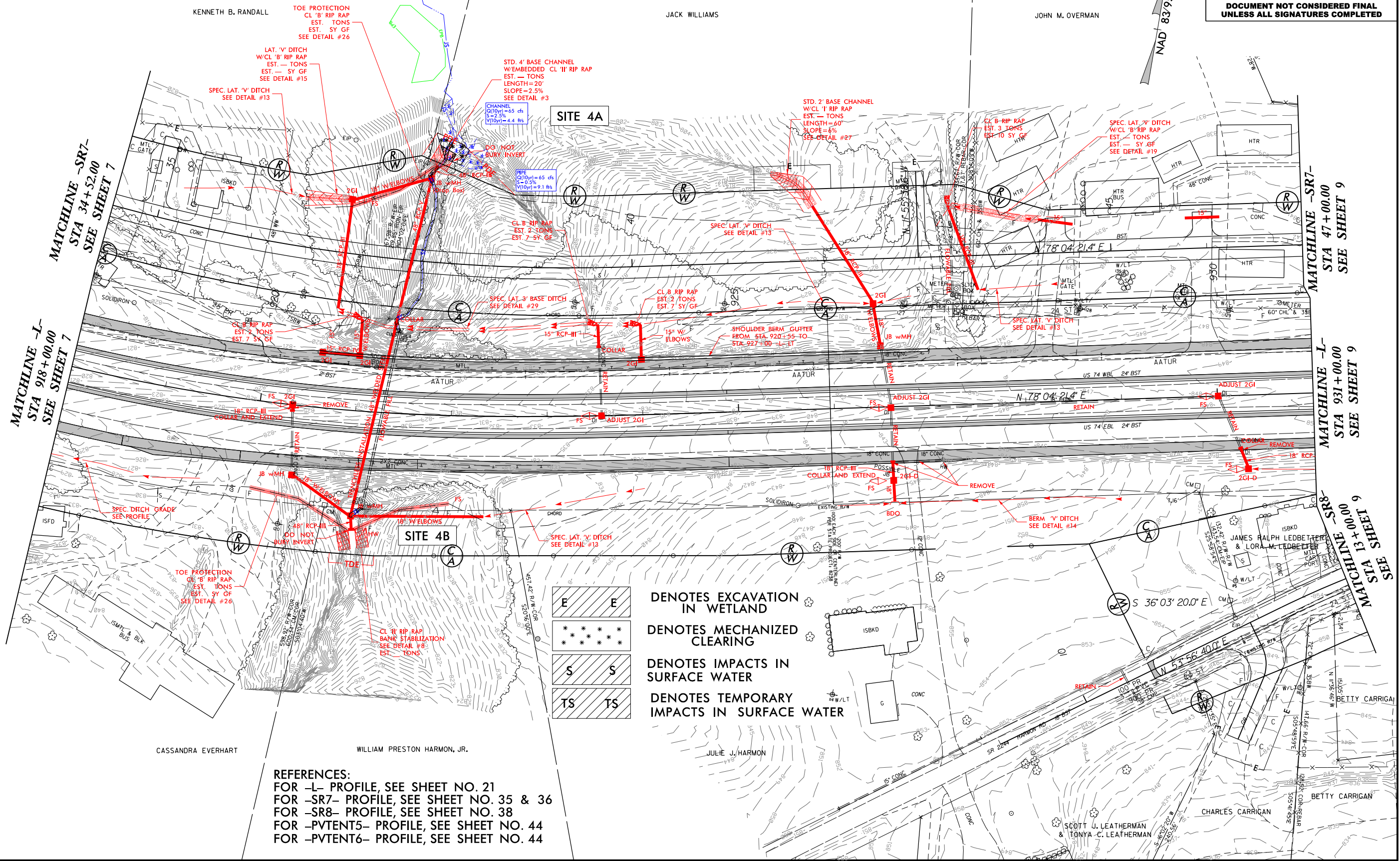






Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

PROJECT REFERENCE NO. <i>R-2707E</i>		SHEET NO. <i>8</i>
R/W SHEET NO.		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		



REVISIONS

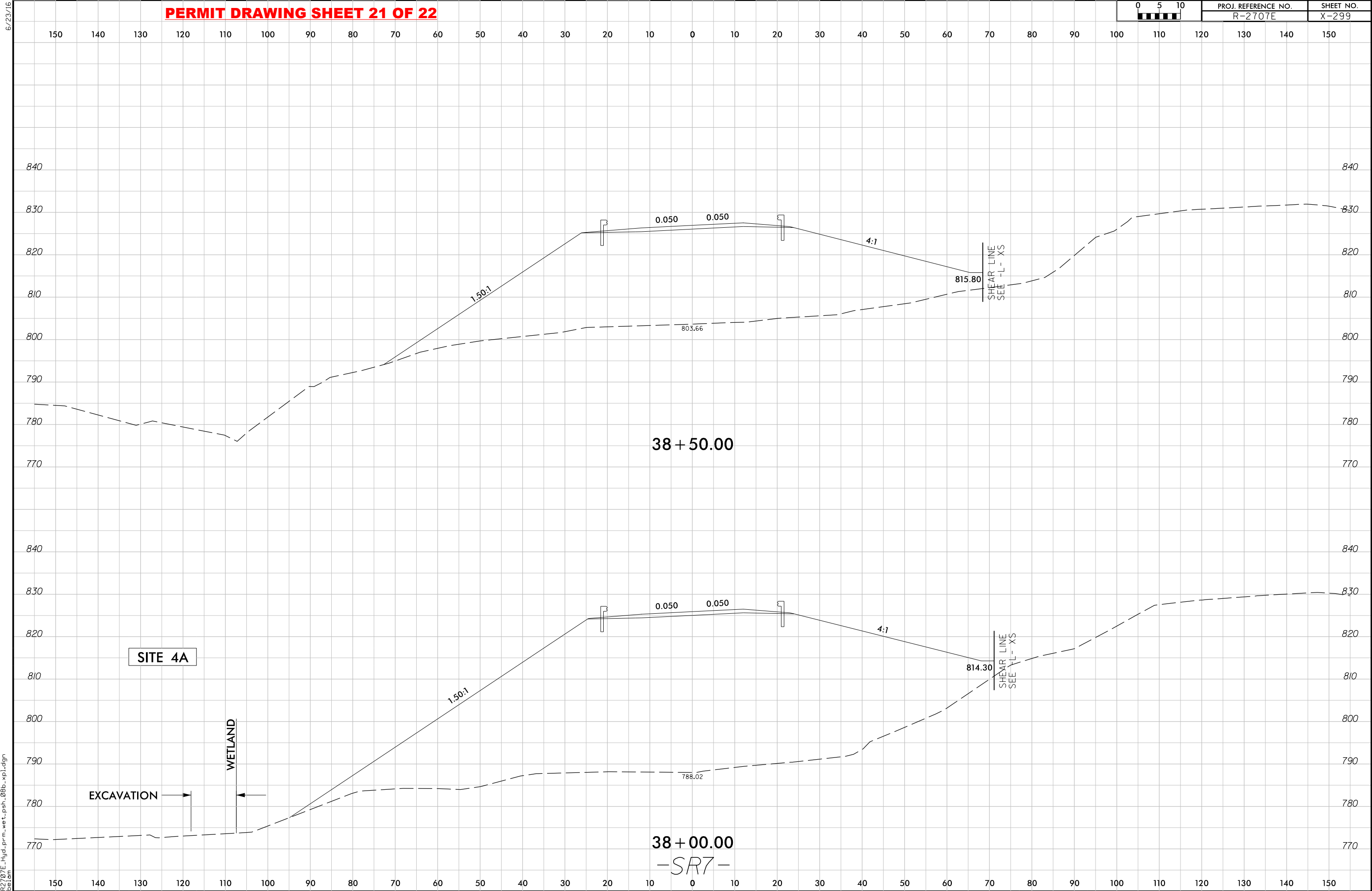
8/17/99

8/29/2018
R2707E-Hyd-prm-wet_psh_08a.dgn
bclm

6/23/16

PERMIT DRAWING SHEET 21 OF 22

PROJ. REFERENCE NO.	SHEET NO.
R-2707E	X-299



WETLAND AND SURACE WATER IMPACTS SUMMARY												
			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1A	860+55 to 863+90-L-LT	54" RCP						0.03	< 0.01	336	28	
1B	863+28 to 863+51-L-RT	LATERAL DITCH			< 0.01	< 0.01						
2	871+05 to 873+50-L-LT	ROADWAY FILL	< 0.01					0.02	< 0.01	253	10	
3A	18+36 to 18+98-Y42RPD-	48" RCP	0.02					0.01	< 0.01		14	
		BANK STABILIZATION						< 0.01				
3B	21+58 to 23+47-SR7-	48" RCP	0.08					0.01		191		
		OUTLET CHANNEL			0.07	0.04		< 0.01	< 0.01	7	19	
3C	21+82 to 22+00-SR7-RT	ROADWAY FILL						< 0.01		43		
3D	22+00 to 22+12-SR7-RT	ROADWAY FILL						0.01		159		
3E	25+39 to 26+00-SR7-LT	42" RCP	0.01					< 0.01		9		
		OUTLET CHANNEL			< 0.01	0.02		< 0.01	< 0.01	24	10	
4A	37+54 to 38+18-SR7-	48" RCP						0.01		192		
		OUTLET CHANNEL			< 0.01	0.01		< 0.01	< 0.01	21	11	
4B	921+00 to 921+15-L-LT	48" RCP						< 0.01		16		
5	10+86 to 11+33-SR10-RT	ROADWAY FILL (POND)						0.06	0.01			
		BANK STABILIZATION						< 0.01				
SHEET TOTALS*:			0.13		0.09	0.08		0.18	0.02	1251	92	0

*Rounded totals are sum of actual impacts

NOTES:

Site 1B: Total Take Wetland

Site 5: JS Non-Mitigable

NC DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

6-28-18

CLEVELAND

R-2707E

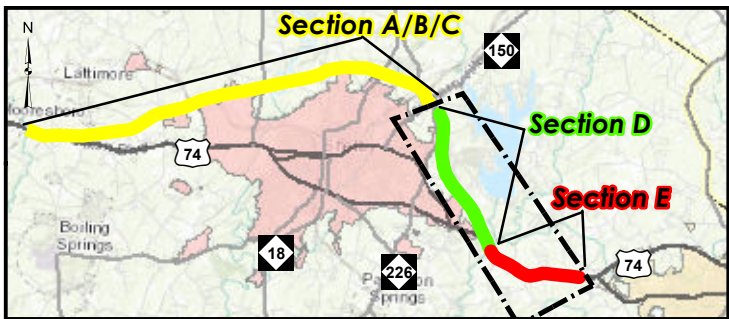
34497.1.F56

SHEET22OF22

Table 2: Dwarf-flowered heartleaf Adverse Effects and Preserved Habitat (includes sites where effects have changed from Biological Opinion and current condition)

Site No	Year	DFHL Plants in Site	Site Area (ac)	Existing Exotic Invasive Species Threat	DFHL Plants Incurring Direct Effects	Area of Direct Effects (ac)	DFHL Plants Incurring Indirect Effects	Area of Indirect Effects	DFHL Plants Incurring Cumulative Effects	Area of Cumulative Effects (ac)	Total DFHL Plants Incurring Adverse Effects	Total Area of Adverse Effects (ac)	DFHL Plants Preserved Onsite	Occupied Habitat Preserved (ac)
24 ¹	2012	1641	3.6	L	20	0.0434	5	0.0102	0	0	25	0.0536	1616	3.5464
	2018				20	0.0434	5	0.0102	0	0	25	0.0536	1206	2.6464
31	2012	2562	1.94	L	2248	1.7023	0	0	0	0	2248	1.7023	314	0.2377
	2018				2562	1.9400	0	0	0	0	2562	1.9400	0	0.0
32	2012	1682	3.65	L	99	0.2144	34	0.074	1549	3.3584	1682	3.65	724	1.5708
32A	2018	104	0.12	L	0	0	0	0	104	0.1167	104	0.12	0	0
32B		62	0.18	L	0	0	0	0	62	0.1773	62	0.18	0	0
32C		67	0.04	M	0	0	0	0	67	0.0431	67	0.04	0	0
32D		1,720	2.95	L	0	0	0	0	0	0	0	0	1,685 ²	2.79 ²
32E		204	0.30	M	0	0	0	0	0	0	0	0	0	0
33	2012	48	0.044	L	0	0	0	0	48	0.044	48	0.044	0	0
	2018				0	0	0	0	0	0	0	0	0	0
34	2012	1752	2.00	H	0	0	398	0.4549	1354	1.5451	1752	2	0	0
	2018				0	0	398	0.4549	0	0	398	0.4549	0	0
49	2012	40	0.201	H	29	0.1466	11	0.0544	0	0	40	0.201	11	0.0544
	2018				40	0.201	0	0	0	0	40	0.201	0	0
53	2018	250	1.23	M	0	0	0	0	250	1.2253	250	1.2253	0	0
TOTAL	2012	18177	34		3060	4.13	2267	3.65	4458	9.24	9785	17.03	4104	9.28
	2018	18902	35.16		3286	4.21	2222	3.52	3344	7.40	8852	15	4330	9.0
NET CHANGE		725	1.16		226	0.08	-45	-0.13	-1114	-1.84	-933	-1.89	226	0.027

NOTES:
1. Adverse effects at Site 24 have not changed, preservation has decreased due to a subdivision of the parcel.
2. NCDOT is working with two landowners to preserve 1,685DFHL plants / 2.79 acres



Legend

- | | |
|-----------------------|-------------------------------|
| 2014 Original Files | US Highway |
| 2014 R-2707E Prop EOT | Secondary Road |
| 2014 1-Mile Buffer | Stream |
| 2017 Design Update | Dwarf-flowered Heartleaf Site |
| 2017 R-2707E Prop EOT | Wetland |
| 2017 1-Mile Buffer | SurfaceWater |



Project Location

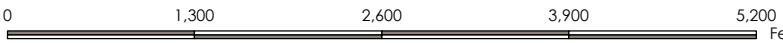
Cleveland County

Client/Project

NCDOT Division 12
STIP Project R-2707D/E
2017 Merger Team Update

Figure No.

2B



Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.